



**Groundwater Sample Results,
Level 2 Laboratory Report, Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Report, SDG J28286-1**

*Naval Air Station Meridian
Meridian, Mississippi*

July 2019

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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TestAmerica Sacramento
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TestAmerica Job ID: 320-28286-1

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

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

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

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

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Definitions/Glossary

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

TestAmerica Job ID: 320-28286-1

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

Glossary

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

Case Narrative

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

TestAmerica Job ID: 320-28286-1

Job ID: 320-28286-1

Laboratory: TestAmerica Sacramento

Narrative

CASE NARRATIVE

Client: CH2M Hill, Inc.

Project: Meridian 10006-7-105420 JM01 Navy Clean

Report Number: 320-28286-1

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

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

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

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

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

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

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

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

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

RECEIPT

The samples were received on 05/16/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.5 C.

PFAS

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

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

PERCENT SOLIDS

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

Detection Summary

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-T-45C-2005-SB01-0001

Lab Sample ID: 320-28286-1

No Detections.

Client Sample ID: MEAFF-T-45C-2005-SB01-0204

Lab Sample ID: 320-28286-2

No Detections.

Client Sample ID: MEAFF-Unknown11-SB01-0001

Lab Sample ID: 320-28286-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.24	J	0.57	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown11-SB01-0204

Lab Sample ID: 320-28286-4

No Detections.

Client Sample ID: MEAFF-EASTB-SB01-0001

Lab Sample ID: 320-28286-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.14	J M	0.57	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.9		0.57	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.92	M	0.45	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-EASTB-SB01-0204

Lab Sample ID: 320-28286-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	2.2		0.59	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown10-SB01-0001

Lab Sample ID: 320-28286-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.16	J M	0.56	0.11	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.23	J	0.56	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown10-SB01-0204

Lab Sample ID: 320-28286-8

No Detections.

Client Sample ID: MEAFF-EASTA-SB01-0001

Lab Sample ID: 320-28286-9

No Detections.

Client Sample ID: MEAFF-EASTA-SB01-0204

Lab Sample ID: 320-28286-10

No Detections.

Client Sample ID: MEAFF-EB05-051317

Lab Sample ID: 320-28286-11

No Detections.

Client Sample ID: MEAFF-EB06-051317

Lab Sample ID: 320-28286-12

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-EB07-051317

Lab Sample ID: 320-28286-13

No Detections.

Client Sample ID: MEAFF-TA-4J-1987-SB01-0001

Lab Sample ID: 320-28286-14

No Detections.

Client Sample ID: MEAFF-TA-4J-1987-SB01-0204

Lab Sample ID: 320-28286-15

No Detections.

Client Sample ID: MEAFF-Unknown20-SB01-0001

Lab Sample ID: 320-28286-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.34	J M	0.54	0.11	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	15		0.54	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown20-SB01-0204

Lab Sample ID: 320-28286-17

No Detections.

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0001

Lab Sample ID: 320-28286-18

No Detections.

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0204

Lab Sample ID: 320-28286-19

No Detections.

Client Sample ID: MEAFF-Unknown16-SB01-0001

Lab Sample ID: 320-28286-20

No Detections.

Client Sample ID: MEAFF-Unknown16-SB01-0204

Lab Sample ID: 320-28286-21

No Detections.

Client Sample ID: MEAFF-FD06-051417

Lab Sample ID: 320-28286-22

No Detections.

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0001

Lab Sample ID: 320-28286-23

No Detections.

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204

Lab Sample ID: 320-28286-24

No Detections.

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0001

Lab Sample ID: 320-28286-25

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.95	M	0.61	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.78	M	0.61	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204

Lab Sample ID: 320-28286-26

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.33	J M	0.68	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.17	J M	0.68	0.17	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown17-SB01-0001

Lab Sample ID: 320-28286-27

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	1.1		0.57	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown17-SB01-0204

Lab Sample ID: 320-28286-28

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.80		0.56	0.11	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.65		0.56	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-TA-4J-1992-SB01-0001

Lab Sample ID: 320-28286-29

No Detections.

Client Sample ID: MEAFF-TA-4J-1992-SB01-0204

Lab Sample ID: 320-28286-30

No Detections.

Client Sample ID: MEAFF-EB08-051517

Lab Sample ID: 320-28286-31

No Detections.

Client Sample ID: MEAFF-TA-4J-1985-SB01-0001

Lab Sample ID: 320-28286-32

No Detections.

Client Sample ID: MEAFF-TA-4J-1985-SB01-0204

Lab Sample ID: 320-28286-33

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-T-45C-2005-SB01-0001

Lab Sample ID: 320-28286-1

Date Collected: 05/13/17 08:45

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	U	0.56	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 17:01	1
Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.56	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 17:01	1
Perfluorobutanesulfonic acid (PFBS)	0.33	U M	0.45	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 17:01	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	92		25 - 150				05/19/17 08:07	06/07/17 17:01	1
13C4 PFOS	45		25 - 150				05/19/17 08:07	06/07/17 17:01	1
18O2 PFHxS	72		25 - 150				05/19/17 08:07	06/07/17 17:01	1

Client Sample ID: MEAFF-T-45C-2005-SB01-0204

Lab Sample ID: 320-28286-2

Date Collected: 05/13/17 08:50

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 86.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:09	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 17:09	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:09	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	84		25 - 150				05/19/17 08:07	06/07/17 17:09	1
13C4 PFOS	39		25 - 150				05/19/17 08:07	06/07/17 17:09	1
18O2 PFHxS	68		25 - 150				05/19/17 08:07	06/07/17 17:09	1

Client Sample ID: MEAFF-Unknown11-SB01-0001

Lab Sample ID: 320-28286-3

Date Collected: 05/13/17 10:54

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.2

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:16	1
Perfluorooctanesulfonic acid (PFOS)	0.24	J	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 17:16	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:16	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	88		25 - 150				05/19/17 08:07	06/07/17 17:16	1
13C4 PFOS	51		25 - 150				05/19/17 08:07	06/07/17 17:16	1
18O2 PFHxS	78		25 - 150				05/19/17 08:07	06/07/17 17:16	1

Client Sample ID: MEAFF-Unknown11-SB01-0204

Lab Sample ID: 320-28286-4

Date Collected: 05/13/17 10:58

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 90.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	U M	0.55	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 17:24	1
Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.55	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 17:24	1
Perfluorobutanesulfonic acid (PFBS)	0.33	U M	0.44	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 17:24	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	77		25 - 150				05/19/17 08:07	06/07/17 17:24	1
13C4 PFOS	35		25 - 150				05/19/17 08:07	06/07/17 17:24	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown11-SB01-0204

Date Collected: 05/13/17 10:58

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-4

Matrix: Solid

Percent Solids: 90.3

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	68		25 - 150	05/19/17 08:07	06/07/17 17:24	1

Client Sample ID: MEAFF-EASTB-SB01-0001

Date Collected: 05/13/17 12:54

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-5

Matrix: Solid

Percent Solids: 88.7

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.14	J M	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:47	1
Perfluorooctanesulfonic acid (PFOS)	1.9		0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 17:47	1
Perfluorobutanesulfonic acid (PFBS)	0.92	M	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:47	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	97		25 - 150	05/19/17 08:07	06/07/17 17:47	1			
13C4 PFOS	72		25 - 150	05/19/17 08:07	06/07/17 17:47	1			
18O2 PFHxS	83		25 - 150	05/19/17 08:07	06/07/17 17:47	1			

Client Sample ID: MEAFF-EASTB-SB01-0204

Date Collected: 05/13/17 12:57

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-6

Matrix: Solid

Percent Solids: 83.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U M	0.59	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:55	1
Perfluorooctanesulfonic acid (PFOS)	2.2		0.59	0.15	ug/Kg	☼	05/19/17 08:07	06/07/17 17:55	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:55	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	91		25 - 150	05/19/17 08:07	06/07/17 17:55	1			
13C4 PFOS	55		25 - 150	05/19/17 08:07	06/07/17 17:55	1			
18O2 PFHxS	80		25 - 150	05/19/17 08:07	06/07/17 17:55	1			

Client Sample ID: MEAFF-Unknown10-SB01-0001

Date Collected: 05/13/17 14:42

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-7

Matrix: Solid

Percent Solids: 88.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.16	J M	0.56	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:10	1
Perfluorooctanesulfonic acid (PFOS)	0.23	J	0.56	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 18:10	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 18:10	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	105		25 - 150	05/19/17 08:07	06/07/17 18:10	1			
13C4 PFOS	71		25 - 150	05/19/17 08:07	06/07/17 18:10	1			
18O2 PFHxS	90		25 - 150	05/19/17 08:07	06/07/17 18:10	1			

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown10-SB01-0204

Lab Sample ID: 320-28286-8

Date Collected: 05/13/17 14:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 18:18	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 18:18	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 18:18	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	95		25 - 150				05/19/17 08:07	06/07/17 18:18	1
13C4 PFOS	62		25 - 150				05/19/17 08:07	06/07/17 18:18	1
18O2 PFHxS	83		25 - 150				05/19/17 08:07	06/07/17 18:18	1

Client Sample ID: MEAFF-EASTA-SB01-0001

Lab Sample ID: 320-28286-9

Date Collected: 05/13/17 15:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 94.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.31	U	0.52	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:26	1
Perfluorooctanesulfonic acid (PFOS)	0.31	U	0.52	0.13	ug/Kg	☼	05/19/17 08:07	06/07/17 18:26	1
Perfluorobutanesulfonic acid (PFBS)	0.31	U M	0.42	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:26	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	100		25 - 150				05/19/17 08:07	06/07/17 18:26	1
13C4 PFOS	81		25 - 150				05/19/17 08:07	06/07/17 18:26	1
18O2 PFHxS	92		25 - 150				05/19/17 08:07	06/07/17 18:26	1

Client Sample ID: MEAFF-EASTA-SB01-0204

Lab Sample ID: 320-28286-10

Date Collected: 05/13/17 15:47

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 92.7

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.32	U	0.53	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:33	1
Perfluorooctanesulfonic acid (PFOS)	0.32	U	0.53	0.13	ug/Kg	☼	05/19/17 08:07	06/07/17 18:33	1
Perfluorobutanesulfonic acid (PFBS)	0.32	U	0.42	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:33	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	96		25 - 150				05/19/17 08:07	06/07/17 18:33	1
13C4 PFOS	73		25 - 150				05/19/17 08:07	06/07/17 18:33	1
18O2 PFHxS	87		25 - 150				05/19/17 08:07	06/07/17 18:33	1

Client Sample ID: MEAFF-EB05-051317

Lab Sample ID: 320-28286-11

Date Collected: 05/13/17 16:30

Matrix: Water

Date Received: 05/16/17 09:20

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U M	2.2	0.66	ng/L		05/18/17 17:41	05/20/17 06:42	1
Perfluorooctanesulfonic acid (PFOS)	2.6	U M	3.5	1.1	ng/L		05/18/17 17:41	05/20/17 06:42	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	0.81	ng/L		05/18/17 17:41	05/20/17 06:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	129		25 - 150				05/18/17 17:41	05/20/17 06:42	1
13C4 PFOS	112		25 - 150				05/18/17 17:41	05/20/17 06:42	1
18O2 PFHxS	111		25 - 150				05/18/17 17:41	05/20/17 06:42	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-EB06-051317

Lab Sample ID: 320-28286-12

Date Collected: 05/13/17 16:35

Matrix: Water

Date Received: 05/16/17 09:20

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U	2.3	0.68	ng/L		05/18/17 17:41	05/20/17 06:50	1
Perfluorooctanesulfonic acid (PFOS)	2.7	U M	3.6	1.2	ng/L		05/18/17 17:41	05/20/17 06:50	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	0.83	ng/L		05/18/17 17:41	05/20/17 06:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	136		25 - 150				05/18/17 17:41	05/20/17 06:50	1
13C4 PFOS	113		25 - 150				05/18/17 17:41	05/20/17 06:50	1
18O2 PFHxS	109		25 - 150				05/18/17 17:41	05/20/17 06:50	1

Client Sample ID: MEAFF-EB07-051317

Lab Sample ID: 320-28286-13

Date Collected: 05/14/17 08:33

Matrix: Water

Date Received: 05/16/17 09:20

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U M	2.2	0.67	ng/L		05/18/17 17:41	05/20/17 06:57	1
Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.6	1.1	ng/L		05/18/17 17:41	05/20/17 06:57	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	0.82	ng/L		05/18/17 17:41	05/20/17 06:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	130		25 - 150				05/18/17 17:41	05/20/17 06:57	1
13C4 PFOS	109		25 - 150				05/18/17 17:41	05/20/17 06:57	1
18O2 PFHxS	109		25 - 150				05/18/17 17:41	05/20/17 06:57	1

Client Sample ID: MEAFF-TA-4J-1987-SB01-0001

Lab Sample ID: 320-28286-14

Date Collected: 05/14/17 08:40

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 94.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.31	U	0.52	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:41	1
Perfluorooctanesulfonic acid (PFOS)	0.31	U	0.52	0.13	ug/Kg	☼	05/19/17 08:07	06/07/17 18:41	1
Perfluorobutanesulfonic acid (PFBS)	0.31	U	0.42	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:41	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	109		25 - 150				05/19/17 08:07	06/07/17 18:41	1
13C4 PFOS	79		25 - 150				05/19/17 08:07	06/07/17 18:41	1
18O2 PFHxS	92		25 - 150				05/19/17 08:07	06/07/17 18:41	1

Client Sample ID: MEAFF-TA-4J-1987-SB01-0204

Lab Sample ID: 320-28286-15

Date Collected: 05/14/17 08:45

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.6

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 18:49	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U M	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 18:49	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 18:49	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	106		25 - 150				05/19/17 08:07	06/07/17 18:49	1
13C4 PFOS	91		25 - 150				05/19/17 08:07	06/07/17 18:49	1
18O2 PFHxS	98		25 - 150				05/19/17 08:07	06/07/17 18:49	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown20-SB01-0001

Lab Sample ID: 320-28286-16

Date Collected: 05/14/17 09:26

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 92.0

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	J M	0.54	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:56	1
Perfluorooctanesulfonic acid (PFOS)	15		0.54	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 18:56	1
Perfluorobutanesulfonic acid (PFBS)	0.32	U M	0.43	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:56	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	106		25 - 150				05/19/17 08:07	06/07/17 18:56	1
13C4 PFOS	77		25 - 150				05/19/17 08:07	06/07/17 18:56	1
18O2 PFHxS	89		25 - 150				05/19/17 08:07	06/07/17 18:56	1

Client Sample ID: MEAFF-Unknown20-SB01-0204

Lab Sample ID: 320-28286-17

Date Collected: 05/14/17 09:28

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.0

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:04	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 19:04	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:04	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	87		25 - 150				05/19/17 08:07	06/07/17 19:04	1
13C4 PFOS	41		25 - 150				05/19/17 08:07	06/07/17 19:04	1
18O2 PFHxS	71		25 - 150				05/19/17 08:07	06/07/17 19:04	1

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0001

Lab Sample ID: 320-28286-18

Date Collected: 05/14/17 10:42

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.6

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.56	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 19:12	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.56	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 19:12	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	87		25 - 150				05/19/17 08:07	06/07/17 19:12	1
13C4 PFOS	42		25 - 150				05/19/17 08:07	06/07/17 19:12	1
18O2 PFHxS	81		25 - 150				05/19/17 08:07	06/07/17 19:12	1

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0204

Lab Sample ID: 320-28286-19

Date Collected: 05/14/17 10:49

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 83.7

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.36	U	0.60	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:20	1
Perfluorooctanesulfonic acid (PFOS)	0.36	U	0.60	0.15	ug/Kg	☼	05/19/17 08:07	06/07/17 19:20	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.48	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	90		25 - 150				05/19/17 08:07	06/07/17 19:20	1
13C4 PFOS	48		25 - 150				05/19/17 08:07	06/07/17 19:20	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0204

Date Collected: 05/14/17 10:49

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-19

Matrix: Solid

Percent Solids: 83.7

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	80		25 - 150	05/19/17 08:07	06/07/17 19:20	1

Client Sample ID: MEAFF-Unknown16-SB01-0001

Date Collected: 05/14/17 12:23

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-20

Matrix: Solid

Percent Solids: 90.1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	U	0.54	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 19:35	1
Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.54	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 19:35	1
Perfluorobutanesulfonic acid (PFBS)	0.33	U	0.44	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 19:35	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	92		25 - 150	05/19/17 08:07	06/07/17 19:35	1			
13C4 PFOS	46		25 - 150	05/19/17 08:07	06/07/17 19:35	1			
18O2 PFHxS	79		25 - 150	05/19/17 08:07	06/07/17 19:35	1			

Client Sample ID: MEAFF-Unknown16-SB01-0204

Date Collected: 05/14/17 12:25

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-21

Matrix: Solid

Percent Solids: 86.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U	0.58	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:43	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.15	ug/Kg	☼	05/19/17 08:07	06/07/17 19:43	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.46	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:43	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	72		25 - 150	05/19/17 08:07	06/07/17 19:43	1			
13C4 PFOS	40		25 - 150	05/19/17 08:07	06/07/17 19:43	1			
18O2 PFHxS	65		25 - 150	05/19/17 08:07	06/07/17 19:43	1			

Client Sample ID: MEAFF-FD06-051417

Date Collected: 05/14/17 00:00

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-22

Matrix: Solid

Percent Solids: 89.0

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.56	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 19:50	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.56	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 19:50	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:50	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	77		25 - 150	05/19/17 08:07	06/07/17 19:50	1			
13C4 PFOS	38		25 - 150	05/19/17 08:07	06/07/17 19:50	1			
18O2 PFHxS	66		25 - 150	05/19/17 08:07	06/07/17 19:50	1			

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0001

Lab Sample ID: 320-28286-23

Date Collected: 05/14/17 13:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:58	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 19:58	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	80		25 - 150				05/19/17 08:07	06/07/17 19:58	1
13C4 PFOS	38		25 - 150				05/19/17 08:07	06/07/17 19:58	1
18O2 PFHxS	69		25 - 150				05/19/17 08:07	06/07/17 19:58	1

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204

Lab Sample ID: 320-28286-24

Date Collected: 05/14/17 13:47

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	U M	0.56	0.11	ug/Kg	☼	05/19/17 09:45	05/24/17 21:58	1
Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.56	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 21:58	1
Perfluorobutanesulfonic acid (PFBS)	0.33	U	0.44	0.11	ug/Kg	☼	05/19/17 09:45	05/24/17 21:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	94		25 - 150				05/19/17 09:45	05/24/17 21:58	1
13C4 PFOS	57		25 - 150				05/19/17 09:45	05/24/17 21:58	1
18O2 PFHxS	68		25 - 150				05/19/17 09:45	05/24/17 21:58	1

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0001

Lab Sample ID: 320-28286-25

Date Collected: 05/14/17 14:35

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 80.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.95	M	0.61	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 22:20	1
Perfluorooctanesulfonic acid (PFOS)	0.78	M	0.61	0.15	ug/Kg	☼	05/19/17 09:45	05/24/17 22:20	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U	0.48	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 22:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	83		25 - 150				05/19/17 09:45	05/24/17 22:20	1
13C4 PFOS	65		25 - 150				05/19/17 09:45	05/24/17 22:20	1
18O2 PFHxS	74		25 - 150				05/19/17 09:45	05/24/17 22:20	1

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204

Lab Sample ID: 320-28286-26

Date Collected: 05/14/17 14:38

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 73.6

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	J M	0.68	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 22:28	1
Perfluorooctanesulfonic acid (PFOS)	0.17	J M	0.68	0.17	ug/Kg	☼	05/19/17 09:45	05/24/17 22:28	1
Perfluorobutanesulfonic acid (PFBS)	0.41	U	0.54	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 22:28	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	108		25 - 150				05/19/17 09:45	05/24/17 22:28	1
13C4 PFOS	83		25 - 150				05/19/17 09:45	05/24/17 22:28	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204

Lab Sample ID: 320-28286-26

Date Collected: 05/14/17 14:38

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 73.6

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	88		25 - 150	05/19/17 09:45	05/24/17 22:28	1

Client Sample ID: MEAFF-Unknown17-SB01-0001

Lab Sample ID: 320-28286-27

Date Collected: 05/15/17 09:18

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 22:35	1
Perfluorooctanesulfonic acid (PFOS)	1.1		0.57	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 22:35	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 22:35	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	100		25 - 150	05/19/17 09:45	05/24/17 22:35	1			
13C4 PFOS	83		25 - 150	05/19/17 09:45	05/24/17 22:35	1			
18O2 PFHxS	90		25 - 150	05/19/17 09:45	05/24/17 22:35	1			

Client Sample ID: MEAFF-Unknown17-SB01-0204

Lab Sample ID: 320-28286-28

Date Collected: 05/15/17 09:20

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.80		0.56	0.11	ug/Kg	☼	05/19/17 09:45	05/24/17 22:43	1
Perfluorooctanesulfonic acid (PFOS)	0.65		0.56	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 22:43	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 22:43	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	74		25 - 150	05/19/17 09:45	05/24/17 22:43	1			
13C4 PFOS	51		25 - 150	05/19/17 09:45	05/24/17 22:43	1			
18O2 PFHxS	60		25 - 150	05/19/17 09:45	05/24/17 22:43	1			

Client Sample ID: MEAFF-TA-4J-1992-SB01-0001

Lab Sample ID: 320-28286-29

Date Collected: 05/15/17 09:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 79.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.37	U M	0.62	0.13	ug/Kg	☼	05/19/17 09:45	05/24/17 22:50	1
Perfluorooctanesulfonic acid (PFOS)	0.37	U	0.62	0.16	ug/Kg	☼	05/19/17 09:45	05/24/17 22:50	1
Perfluorobutanesulfonic acid (PFBS)	0.37	U	0.50	0.13	ug/Kg	☼	05/19/17 09:45	05/24/17 22:50	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	77		25 - 150	05/19/17 09:45	05/24/17 22:50	1			
13C4 PFOS	60		25 - 150	05/19/17 09:45	05/24/17 22:50	1			
18O2 PFHxS	64		25 - 150	05/19/17 09:45	05/24/17 22:50	1			

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4J-1992-SB01-0204

Lab Sample ID: 320-28286-30

Date Collected: 05/15/17 09:46

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 85.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U M	0.59	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:05	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.59	0.15	ug/Kg	☼	05/19/17 09:45	05/24/17 23:05	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	95		25 - 150				05/19/17 09:45	05/24/17 23:05	1
13C4 PFOS	60		25 - 150				05/19/17 09:45	05/24/17 23:05	1
18O2 PFHxS	77		25 - 150				05/19/17 09:45	05/24/17 23:05	1

Client Sample ID: MEAFF-EB08-051517

Lab Sample ID: 320-28286-31

Date Collected: 05/15/17 10:16

Matrix: Water

Date Received: 05/16/17 09:20

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U	2.3	0.68	ng/L		05/18/17 17:41	05/20/17 07:12	1
Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.7	1.2	ng/L		05/18/17 17:41	05/20/17 07:12	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	0.84	ng/L		05/18/17 17:41	05/20/17 07:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	129		25 - 150				05/18/17 17:41	05/20/17 07:12	1
13C4 PFOS	108		25 - 150				05/18/17 17:41	05/20/17 07:12	1
18O2 PFHxS	112		25 - 150				05/18/17 17:41	05/20/17 07:12	1

Client Sample ID: MEAFF-TA-4J-1985-SB01-0001

Lab Sample ID: 320-28286-32

Date Collected: 05/15/17 11:50

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 85.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U M	0.58	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:13	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.15	ug/Kg	☼	05/19/17 09:45	05/24/17 23:13	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.46	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	91		25 - 150				05/19/17 09:45	05/24/17 23:13	1
13C4 PFOS	51		25 - 150				05/19/17 09:45	05/24/17 23:13	1
18O2 PFHxS	69		25 - 150				05/19/17 09:45	05/24/17 23:13	1

Client Sample ID: MEAFF-TA-4J-1985-SB01-0204

Lab Sample ID: 320-28286-33

Date Collected: 05/15/17 11:52

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 86.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:20	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 23:20	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	94		25 - 150				05/19/17 09:45	05/24/17 23:20	1
13C4 PFOS	58		25 - 150				05/19/17 09:45	05/24/17 23:20	1
18O2 PFHxS	71		25 - 150				05/19/17 09:45	05/24/17 23:20	1

TestAmerica Sacramento

Isotope Dilution Summary

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

TestAmerica Job ID: 320-28286-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		3C4 PFO/ (25-150)	3C4 PFO: (25-150)	3O2 PFHx (25-150)
320-28286-1	MEAFF-T-45C-2005-SB01-0001	92	45	72
320-28286-2	MEAFF-T-45C-2005-SB01-0204	84	39	68
320-28286-3	MEAFF-Unknown11-SB01-0001	88	51	78
320-28286-4	MEAFF-Unknown11-SB01-0204	77	35	68
320-28286-4 MS	MEAFF-Unknown11-SB01-0204	77	31	69
320-28286-4 MSD	MEAFF-Unknown11-SB01-0204	72	40	67
320-28286-5	MEAFF-EASTB-SB01-0001	97	72	83
320-28286-6	MEAFF-EASTB-SB01-0204	91	55	80
320-28286-7	MEAFF-Unknown10-SB01-0001	105	71	90
320-28286-8	MEAFF-Unknown10-SB01-0204	95	62	83
320-28286-9	MEAFF-EASTA-SB01-0001	100	81	92
320-28286-10	MEAFF-EASTA-SB01-0204	96	73	87
320-28286-14	MEAFF-TA-4J-1987-SB01-0001	109	79	92
320-28286-15	MEAFF-TA-4J-1987-SB01-0204	106	91	98
320-28286-16	MEAFF-Unknown20-SB01-0001	106	77	89
320-28286-17	MEAFF-Unknown20-SB01-0204	87	41	71
320-28286-18	MEAFF-ArrestingGearArea-SB01-0001	87	42	81
320-28286-19	MEAFF-ArrestingGearArea-SB01-0204	90	48	80
320-28286-20	MEAFF-Unknown16-SB01-0001	92	46	79
320-28286-21	MEAFF-Unknown16-SB01-0204	72	40	65
320-28286-22	MEAFF-FD06-051417	77	38	66
320-28286-23	MEAFF-T-45C-03-2008-SB01-0001	80	38	69
320-28286-24	MEAFF-T-45C-03-2008-SB01-0204	94	57	68
320-28286-24 MS	MEAFF-T-45C-03-2008-SB01-0204	88	51	68
320-28286-24 MSD	MEAFF-T-45C-03-2008-SB01-0204	99	59	77
320-28286-25	MEAFF-TA-4-Unknown-SB01-0001	83	65	74
320-28286-26	MEAFF-TA-4-Unknown-SB01-0204	108	83	88
320-28286-27	MEAFF-Unknown17-SB01-0001	100	83	90
320-28286-28	MEAFF-Unknown17-SB01-0204	74	51	60
320-28286-29	MEAFF-TA-4J-1992-SB01-0001	77	60	64

Isotope Dilution Summary

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

TestAmerica Job ID: 320-28286-1

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

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		3C4 PFO/ (25-150)	3C4 PFO: (25-150)	3O2 PFHx (25-150)
320-28286-30	MEAFF-TA-4J-1992-SB01-0204	95	60	77
320-28286-32	MEAFF-TA-4J-1985-SB01-0001	91	51	69
320-28286-33	MEAFF-TA-4J-1985-SB01-02044	94	58	71
LCS 320-165234/2-A	Lab Control Sample	95	74	87
LCS 320-165287/2-A	Lab Control Sample	95	86	83
MB 320-165234/1-A	Method Blank	99	75	91
MB 320-165287/1-A	Method Blank	103	83	84

Surrogate Legend

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

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		3C4 PFO/ (25-150)	3C4 PFO: (25-150)	3O2 PFHx (25-150)
320-28286-11	MEAFF-EB05-051317	129	112	111
320-28286-12	MEAFF-EB06-051317	136	113	109
320-28286-13	MEAFF-EB07-051317	130	109	109
320-28286-31	MEAFF-EB08-051517	129	108	112
LCS 320-165207/2-A	Lab Control Sample	117	106	107
LCSD 320-165207/3-A	Lab Control Sample Dup	114	102	101
MB 320-165207/1-A	Method Blank	124	114	110

Surrogate Legend

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

QC Sample Results

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

TestAmerica Job ID: 320-28286-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-165207/1-A

Matrix: Water

Analysis Batch: 165487

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 165207

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	2.0	U	2.5	0.75	ng/L		05/18/17 17:41	05/20/17 05:49	1
Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	1.3	ng/L		05/18/17 17:41	05/20/17 05:49	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	0.92	ng/L		05/18/17 17:41	05/20/17 05:49	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	124		25 - 150	05/18/17 17:41	05/20/17 05:49	1
13C4 PFOS	114		25 - 150	05/18/17 17:41	05/20/17 05:49	1
18O2 PFHxS	110		25 - 150	05/18/17 17:41	05/20/17 05:49	1

Lab Sample ID: LCS 320-165207/2-A

Matrix: Water

Analysis Batch: 165487

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 165207

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanoic acid (PFOA)	40.0	38.4		ng/L		96	60 - 140
Perfluorooctanesulfonic acid (PFOS)	37.1	35.4		ng/L		95	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.4	36.6		ng/L		103	50 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFOA	117		25 - 150
13C4 PFOS	106		25 - 150
18O2 PFHxS	107		25 - 150

Lab Sample ID: LCSD 320-165207/3-A

Matrix: Water

Analysis Batch: 165487

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 165207

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanoic acid (PFOA)	40.0	38.1		ng/L		95	60 - 140	1	30
Perfluorooctanesulfonic acid (PFOS)	37.1	34.6		ng/L		93	60 - 140	2	30
Perfluorobutanesulfonic acid (PFBS)	35.4	37.1		ng/L		105	50 - 150	1	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C4 PFOA	114		25 - 150
13C4 PFOS	102		25 - 150
18O2 PFHxS	101		25 - 150

Lab Sample ID: MB 320-165234/1-A

Matrix: Solid

Analysis Batch: 168107

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 165234

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.30	U	0.50	0.10	ug/Kg		05/19/17 08:07	06/07/17 16:45	1
Perfluorooctanesulfonic acid (PFOS)	0.30	U	0.50	0.13	ug/Kg		05/19/17 08:07	06/07/17 16:45	1
Perfluorobutanesulfonic acid (PFBS)	0.30	U	0.40	0.10	ug/Kg		05/19/17 08:07	06/07/17 16:45	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-28286-1

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFOA	99		25 - 150	05/19/17 08:07	06/07/17 16:45	1
13C4 PFOS	75		25 - 150	05/19/17 08:07	06/07/17 16:45	1
18O2 PFHxS	91		25 - 150	05/19/17 08:07	06/07/17 16:45	1

Lab Sample ID: LCS 320-165234/2-A
Matrix: Solid
Analysis Batch: 168107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 165234

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	3.71	4.08		ug/Kg		110	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.54	4.01		ug/Kg		113	50 - 150

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFOA	95		25 - 150
13C4 PFOS	74		25 - 150
18O2 PFHxS	87		25 - 150

Lab Sample ID: 320-28286-4 MS
Matrix: Solid
Analysis Batch: 168107

Client Sample ID: MEAFF-Unknown11-SB01-0204
Prep Type: Total/NA
Prep Batch: 165234

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	0.33	U	4.06	4.40		ug/Kg	☼	108	60 - 140
Perfluorobutanesulfonic acid (PFBS)	0.33	U M	3.87	4.97		ug/Kg	☼	128	50 - 150

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C4 PFOA	77		25 - 150
13C4 PFOS	31		25 - 150
18O2 PFHxS	69		25 - 150

Lab Sample ID: 320-28286-4 MSD
Matrix: Solid
Analysis Batch: 168107

Client Sample ID: MEAFF-Unknown11-SB01-0204
Prep Type: Total/NA
Prep Batch: 165234

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	
										RPD	Limit
Perfluorooctanoic acid (PFOA)	0.33	U M	4.39	4.51		ug/Kg	☼	103	60 - 140	1	30
Perfluorooctanesulfonic acid (PFOS)	0.33	U	4.07	4.52		ug/Kg	☼	111	60 - 140	3	30
Perfluorobutanesulfonic acid (PFBS)	0.33	U M	3.88	4.99		ug/Kg	☼	129	50 - 150	0	30

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C4 PFOA	72		25 - 150
13C4 PFOS	40		25 - 150
18O2 PFHxS	67		25 - 150

QC Sample Results

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

TestAmerica Job ID: 320-28286-1

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

Lab Sample ID: MB 320-165287/1-A
Matrix: Solid
Analysis Batch: 166071

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 165287

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.30	U	0.50	0.10	ug/Kg		05/19/17 09:45	05/24/17 21:43	1
Perfluorooctanesulfonic acid (PFOS)	0.30	U	0.50	0.13	ug/Kg		05/19/17 09:45	05/24/17 21:43	1
Perfluorobutanesulfonic acid (PFBS)	0.30	U	0.40	0.10	ug/Kg		05/19/17 09:45	05/24/17 21:43	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	103		25 - 150	05/19/17 09:45	05/24/17 21:43	1
13C4 PFOS	83		25 - 150	05/19/17 09:45	05/24/17 21:43	1
18O2 PFHxS	84		25 - 150	05/19/17 09:45	05/24/17 21:43	1

Lab Sample ID: LCS 320-165287/2-A
Matrix: Solid
Analysis Batch: 166071

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 165287

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanoic acid (PFOA)	4.00	4.00		ug/Kg		100	60 - 140
Perfluorooctanesulfonic acid (PFOS)	3.71	3.44		ug/Kg		93	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.54	3.60		ug/Kg		102	50 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFOA	95		25 - 150
13C4 PFOS	86		25 - 150
18O2 PFHxS	83		25 - 150

Lab Sample ID: 320-28286-24 MS
Matrix: Solid
Analysis Batch: 166071

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204
Prep Type: Total/NA
Prep Batch: 165287

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanoic acid (PFOA)	0.33	U M	4.48	4.35		ug/Kg	☼	97	60 - 140
Perfluorooctanesulfonic acid (PFOS)	0.33	U	4.16	4.19		ug/Kg	☼	101	60 - 140
Perfluorobutanesulfonic acid (PFBS)	0.33	U	3.96	3.95		ug/Kg	☼	100	50 - 150

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C4 PFOA	88		25 - 150
13C4 PFOS	51		25 - 150
18O2 PFHxS	68		25 - 150

Lab Sample ID: 320-28286-24 MSD
Matrix: Solid
Analysis Batch: 166071

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204
Prep Type: Total/NA
Prep Batch: 165287

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanoic acid (PFOA)	0.33	U M	4.50	4.37		ug/Kg	☼	97	60 - 140	0	30
Perfluorooctanesulfonic acid (PFOS)	0.33	U	4.17	4.09		ug/Kg	☼	98	60 - 140	2	30

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QC Sample Results

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

TestAmerica Job ID: 320-28286-1

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

Lab Sample ID: 320-28286-24 MSD

Matrix: Solid

Analysis Batch: 166071

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204

Prep Type: Total/NA

Prep Batch: 165287

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	0.33	U	3.97	4.08		ug/Kg	☒	103	50 - 150	3	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C4 PFOA	99		25 - 150
13C4 PFOS	59		25 - 150
18O2 PFHxS	77		25 - 150

QC Association Summary

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

TestAmerica Job ID: 320-28286-1

LCMS

Prep Batch: 165207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-11	MEAFF-EB05-051317	Total/NA	Water	3535	
320-28286-12	MEAFF-EB06-051317	Total/NA	Water	3535	
320-28286-13	MEAFF-EB07-051317	Total/NA	Water	3535	
320-28286-31	MEAFF-EB08-051517	Total/NA	Water	3535	
MB 320-165207/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-165207/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-165207/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 165234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-1	MEAFF-T-45C-2005-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-2	MEAFF-T-45C-2005-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-3	MEAFF-Unknown11-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-4	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-5	MEAFF-EASTB-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-6	MEAFF-EASTB-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-7	MEAFF-Unknown10-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-8	MEAFF-Unknown10-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-9	MEAFF-EASTA-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-10	MEAFF-EASTA-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-14	MEAFF-TA-4J-1987-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-15	MEAFF-TA-4J-1987-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-16	MEAFF-Unknown20-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-17	MEAFF-Unknown20-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-18	MEAFF-ArrestingGearArea-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-19	MEAFF-ArrestingGearArea-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-20	MEAFF-Unknown16-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-21	MEAFF-Unknown16-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-22	MEAFF-FD06-051417	Total/NA	Solid	SHAKE	
320-28286-23	MEAFF-T-45C-03-2008-SB01-0001	Total/NA	Solid	SHAKE	
MB 320-165234/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-165234/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-28286-4 MS	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-4 MSD	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	SHAKE	

Prep Batch: 165287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-24	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-25	MEAFF-TA-4-Unknown-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-26	MEAFF-TA-4-Unknown-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-27	MEAFF-Unknown17-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-28	MEAFF-Unknown17-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-29	MEAFF-TA-4J-1992-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-30	MEAFF-TA-4J-1992-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-32	MEAFF-TA-4J-1985-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-33	MEAFF-TA-4J-1985-SB01-0204	Total/NA	Solid	SHAKE	
MB 320-165287/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-165287/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-28286-24 MS	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-24 MSD	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	SHAKE	

TestAmerica Sacramento

QC Association Summary

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

TestAmerica Job ID: 320-28286-1

LCMS (Continued)

Analysis Batch: 165487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-11	MEAFF-EB05-051317	Total/NA	Water	537 (Modified)	165207
320-28286-12	MEAFF-EB06-051317	Total/NA	Water	537 (Modified)	165207
320-28286-13	MEAFF-EB07-051317	Total/NA	Water	537 (Modified)	165207
320-28286-31	MEAFF-EB08-051517	Total/NA	Water	537 (Modified)	165207
MB 320-165207/1-A	Method Blank	Total/NA	Water	537 (Modified)	165207
LCS 320-165207/2-A	Lab Control Sample	Total/NA	Water	537 (Modified)	165207
LCSD 320-165207/3-A	Lab Control Sample Dup	Total/NA	Water	537 (Modified)	165207

Analysis Batch: 166071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-24	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	537 (Modified)	165287
320-28286-25	MEAFF-TA-4-Unknown-SB01-0001	Total/NA	Solid	537 (Modified)	165287
320-28286-26	MEAFF-TA-4-Unknown-SB01-0204	Total/NA	Solid	537 (Modified)	165287
320-28286-27	MEAFF-Unknown17-SB01-0001	Total/NA	Solid	537 (Modified)	165287
320-28286-28	MEAFF-Unknown17-SB01-0204	Total/NA	Solid	537 (Modified)	165287
320-28286-29	MEAFF-TA-4J-1992-SB01-0001	Total/NA	Solid	537 (Modified)	165287
320-28286-30	MEAFF-TA-4J-1992-SB01-0204	Total/NA	Solid	537 (Modified)	165287
320-28286-32	MEAFF-TA-4J-1985-SB01-0001	Total/NA	Solid	537 (Modified)	165287
320-28286-33	MEAFF-TA-4J-1985-SB01-0204	Total/NA	Solid	537 (Modified)	165287
MB 320-165287/1-A	Method Blank	Total/NA	Solid	537 (Modified)	165287
LCS 320-165287/2-A	Lab Control Sample	Total/NA	Solid	537 (Modified)	165287
320-28286-24 MS	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	537 (Modified)	165287
320-28286-24 MSD	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	537 (Modified)	165287

Analysis Batch: 168107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-1	MEAFF-T-45C-2005-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-2	MEAFF-T-45C-2005-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-3	MEAFF-Unknown11-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-4	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-5	MEAFF-EASTB-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-6	MEAFF-EASTB-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-7	MEAFF-Unknown10-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-8	MEAFF-Unknown10-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-9	MEAFF-EASTA-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-10	MEAFF-EASTA-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-14	MEAFF-TA-4J-1987-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-15	MEAFF-TA-4J-1987-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-16	MEAFF-Unknown20-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-17	MEAFF-Unknown20-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-18	MEAFF-ArrestingGearArea-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-19	MEAFF-ArrestingGearArea-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-20	MEAFF-Unknown16-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-21	MEAFF-Unknown16-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-22	MEAFF-FD06-051417	Total/NA	Solid	537 (Modified)	165234
320-28286-23	MEAFF-T-45C-03-2008-SB01-0001	Total/NA	Solid	537 (Modified)	165234
MB 320-165234/1-A	Method Blank	Total/NA	Solid	537 (Modified)	165234
LCS 320-165234/2-A	Lab Control Sample	Total/NA	Solid	537 (Modified)	165234
320-28286-4 MS	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-4 MSD	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	537 (Modified)	165234

TestAmerica Sacramento

QC Association Summary

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

TestAmerica Job ID: 320-28286-1

General Chemistry

Analysis Batch: 165372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-1	MEAFF-T-45C-2005-SB01-0001	Total/NA	Solid	D 2216	
320-28286-2	MEAFF-T-45C-2005-SB01-0204	Total/NA	Solid	D 2216	
320-28286-3	MEAFF-Unknown11-SB01-0001	Total/NA	Solid	D 2216	
320-28286-4	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	D 2216	
320-28286-5	MEAFF-EASTB-SB01-0001	Total/NA	Solid	D 2216	
320-28286-6	MEAFF-EASTB-SB01-0204	Total/NA	Solid	D 2216	

Analysis Batch: 165374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-7	MEAFF-Unknown10-SB01-0001	Total/NA	Solid	D 2216	
320-28286-8	MEAFF-Unknown10-SB01-0204	Total/NA	Solid	D 2216	
320-28286-9	MEAFF-EASTA-SB01-0001	Total/NA	Solid	D 2216	
320-28286-10	MEAFF-EASTA-SB01-0204	Total/NA	Solid	D 2216	
320-28286-14	MEAFF-TA-4J-1987-SB01-0001	Total/NA	Solid	D 2216	
320-28286-15	MEAFF-TA-4J-1987-SB01-0204	Total/NA	Solid	D 2216	
320-28286-16	MEAFF-Unknown20-SB01-0001	Total/NA	Solid	D 2216	
320-28286-17	MEAFF-Unknown20-SB01-0204	Total/NA	Solid	D 2216	
320-28286-18	MEAFF-ArrestingGearArea-SB01-0001	Total/NA	Solid	D 2216	
320-28286-19	MEAFF-ArrestingGearArea-SB01-0204	Total/NA	Solid	D 2216	
320-28286-20	MEAFF-Unknown16-SB01-0001	Total/NA	Solid	D 2216	
320-28286-21	MEAFF-Unknown16-SB01-0204	Total/NA	Solid	D 2216	
320-28286-22	MEAFF-FD06-051417	Total/NA	Solid	D 2216	
320-28286-23	MEAFF-T-45C-03-2008-SB01-0001	Total/NA	Solid	D 2216	
320-28286-24	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	D 2216	
320-28286-25	MEAFF-TA-4-Unknown-SB01-0001	Total/NA	Solid	D 2216	
320-28286-26	MEAFF-TA-4-Unknown-SB01-0204	Total/NA	Solid	D 2216	
320-28286-27	MEAFF-Unknown17-SB01-0001	Total/NA	Solid	D 2216	
320-28286-28	MEAFF-Unknown17-SB01-0204	Total/NA	Solid	D 2216	
320-28286-7 DU	MEAFF-Unknown10-SB01-0001	Total/NA	Solid	D 2216	

Analysis Batch: 165611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-29	MEAFF-TA-4J-1992-SB01-0001	Total/NA	Solid	D 2216	
320-28286-30	MEAFF-TA-4J-1992-SB01-0204	Total/NA	Solid	D 2216	
320-28286-32	MEAFF-TA-4J-1985-SB01-0001	Total/NA	Solid	D 2216	
320-28286-33	MEAFF-TA-4J-1985-SB01-0204	Total/NA	Solid	D 2216	

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-T-45C-2005-SB01-0001

Lab Sample ID: 320-28286-1

Date Collected: 05/13/17 08:45

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-T-45C-2005-SB01-0001

Lab Sample ID: 320-28286-1

Date Collected: 05/13/17 08:45

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.04 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 17:01	SBC	TAL SAC

Client Sample ID: MEAFF-T-45C-2005-SB01-0204

Lab Sample ID: 320-28286-2

Date Collected: 05/13/17 08:50

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-T-45C-2005-SB01-0204

Lab Sample ID: 320-28286-2

Date Collected: 05/13/17 08:50

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.08 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 17:09	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown11-SB01-0001

Lab Sample ID: 320-28286-3

Date Collected: 05/13/17 10:54

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown11-SB01-0001

Lab Sample ID: 320-28286-3

Date Collected: 05/13/17 10:54

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.00 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 17:16	SBC	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown11-SB01-0204

Lab Sample ID: 320-28286-4

Date Collected: 05/13/17 10:58

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown11-SB01-0204

Lab Sample ID: 320-28286-4

Date Collected: 05/13/17 10:58

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 90.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.99 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 17:24	SBC	TAL SAC

Client Sample ID: MEAFF-EASTB-SB01-0001

Lab Sample ID: 320-28286-5

Date Collected: 05/13/17 12:54

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-EASTB-SB01-0001

Lab Sample ID: 320-28286-5

Date Collected: 05/13/17 12:54

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.99 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 17:47	SBC	TAL SAC

Client Sample ID: MEAFF-EASTB-SB01-0204

Lab Sample ID: 320-28286-6

Date Collected: 05/13/17 12:57

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-EASTB-SB01-0204

Lab Sample ID: 320-28286-6

Date Collected: 05/13/17 12:57

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 83.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.05 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 17:55	SBC	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown10-SB01-0001

Lab Sample ID: 320-28286-7

Date Collected: 05/13/17 14:42

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown10-SB01-0001

Lab Sample ID: 320-28286-7

Date Collected: 05/13/17 14:42

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 18:10	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown10-SB01-0204

Lab Sample ID: 320-28286-8

Date Collected: 05/13/17 14:44

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown10-SB01-0204

Lab Sample ID: 320-28286-8

Date Collected: 05/13/17 14:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 18:18	SBC	TAL SAC

Client Sample ID: MEAFF-EASTA-SB01-0001

Lab Sample ID: 320-28286-9

Date Collected: 05/13/17 15:44

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-EASTA-SB01-0001

Lab Sample ID: 320-28286-9

Date Collected: 05/13/17 15:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 94.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.06 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 18:26	SBC	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-EASTA-SB01-0204

Lab Sample ID: 320-28286-10

Date Collected: 05/13/17 15:47

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-EASTA-SB01-0204

Lab Sample ID: 320-28286-10

Date Collected: 05/13/17 15:47

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 92.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.11 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 18:33	SBC	TAL SAC

Client Sample ID: MEAFF-EB05-051317

Lab Sample ID: 320-28286-11

Date Collected: 05/13/17 16:30

Matrix: Water

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			284.6 mL	0.50 mL	165207	05/18/17 17:41	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			165487	05/20/17 06:42	SBC	TAL SAC

Client Sample ID: MEAFF-EB06-051317

Lab Sample ID: 320-28286-12

Date Collected: 05/13/17 16:35

Matrix: Water

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			276.6 mL	0.50 mL	165207	05/18/17 17:41	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			165487	05/20/17 06:50	SBC	TAL SAC

Client Sample ID: MEAFF-EB07-051317

Lab Sample ID: 320-28286-13

Date Collected: 05/14/17 08:33

Matrix: Water

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.8 mL	0.50 mL	165207	05/18/17 17:41	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			165487	05/20/17 06:57	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4J-1987-SB01-0001

Lab Sample ID: 320-28286-14

Date Collected: 05/14/17 08:40

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4J-1987-SB01-0001

Lab Sample ID: 320-28286-14

Date Collected: 05/14/17 08:40

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 94.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.09 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 18:41	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4J-1987-SB01-0204

Lab Sample ID: 320-28286-15

Date Collected: 05/14/17 08:45

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-TA-4J-1987-SB01-0204

Lab Sample ID: 320-28286-15

Date Collected: 05/14/17 08:45

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.03 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 18:49	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown20-SB01-0001

Lab Sample ID: 320-28286-16

Date Collected: 05/14/17 09:26

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown20-SB01-0001

Lab Sample ID: 320-28286-16

Date Collected: 05/14/17 09:26

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 92.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 18:56	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown20-SB01-0204

Lab Sample ID: 320-28286-17

Date Collected: 05/14/17 09:28

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown20-SB01-0204

Lab Sample ID: 320-28286-17

Date Collected: 05/14/17 09:28

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.00 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 19:04	SBC	TAL SAC

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0001

Lab Sample ID: 320-28286-18

Date Collected: 05/14/17 10:42

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0001

Lab Sample ID: 320-28286-18

Date Collected: 05/14/17 10:42

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.05 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 19:12	SBC	TAL SAC

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0204

Lab Sample ID: 320-28286-19

Date Collected: 05/14/17 10:49

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0204

Lab Sample ID: 320-28286-19

Date Collected: 05/14/17 10:49

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.00 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 19:20	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown16-SB01-0001

Lab Sample ID: 320-28286-20

Date Collected: 05/14/17 12:23

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown16-SB01-0001

Lab Sample ID: 320-28286-20

Date Collected: 05/14/17 12:23

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 90.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.09 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 19:35	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown16-SB01-0204

Lab Sample ID: 320-28286-21

Date Collected: 05/14/17 12:25

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown16-SB01-0204

Lab Sample ID: 320-28286-21

Date Collected: 05/14/17 12:25

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.01 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 19:43	SBC	TAL SAC

Client Sample ID: MEAFF-FD06-051417

Lab Sample ID: 320-28286-22

Date Collected: 05/14/17 00:00

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-FD06-051417

Lab Sample ID: 320-28286-22

Date Collected: 05/14/17 00:00

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 89.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.00 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 19:50	SBC	TAL SAC

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0001

Lab Sample ID: 320-28286-23

Date Collected: 05/14/17 13:44

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0001

Lab Sample ID: 320-28286-23

Date Collected: 05/14/17 13:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.99 g	1.00 mL	165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			168107	06/07/17 19:58	SBC	TAL SAC

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204

Lab Sample ID: 320-28286-24

Date Collected: 05/14/17 13:47

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204

Lab Sample ID: 320-28286-24

Date Collected: 05/14/17 13:47

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.09 g	1.00 mL	165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			166071	05/24/17 21:58	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0001

Lab Sample ID: 320-28286-25

Date Collected: 05/14/17 14:35

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0001

Lab Sample ID: 320-28286-25

Date Collected: 05/14/17 14:35

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.10 g	1.00 mL	165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			166071	05/24/17 22:20	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204

Lab Sample ID: 320-28286-26

Date Collected: 05/14/17 14:38

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204

Lab Sample ID: 320-28286-26

Date Collected: 05/14/17 14:38

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 73.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.03 g	1.00 mL	165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			166071	05/24/17 22:28	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown17-SB01-0001

Lab Sample ID: 320-28286-27

Date Collected: 05/15/17 09:18

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown17-SB01-0001

Lab Sample ID: 320-28286-27

Date Collected: 05/15/17 09:18

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.98 g	1.00 mL	165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			166071	05/24/17 22:35	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown17-SB01-0204

Lab Sample ID: 320-28286-28

Date Collected: 05/15/17 09:20

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown17-SB01-0204

Lab Sample ID: 320-28286-28

Date Collected: 05/15/17 09:20

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.05 g	1.00 mL	165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			166071	05/24/17 22:43	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4J-1992-SB01-0001

Lab Sample ID: 320-28286-29

Date Collected: 05/15/17 09:44

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165611	05/22/17 16:21	CFR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4J-1992-SB01-0001

Lab Sample ID: 320-28286-29

Date Collected: 05/15/17 09:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 79.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.08 g	1.00 mL	165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			166071	05/24/17 22:50	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4J-1992-SB01-0204

Lab Sample ID: 320-28286-30

Date Collected: 05/15/17 09:46

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165611	05/22/17 16:21	CFR	TAL SAC

Client Sample ID: MEAFF-TA-4J-1992-SB01-0204

Lab Sample ID: 320-28286-30

Date Collected: 05/15/17 09:46

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.99 g	1.00 mL	165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			166071	05/24/17 23:05	SBC	TAL SAC

Client Sample ID: MEAFF-EB08-051517

Lab Sample ID: 320-28286-31

Date Collected: 05/15/17 10:16

Matrix: Water

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			273.4 mL	0.50 mL	165207	05/18/17 17:41	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			165487	05/20/17 07:12	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4J-1985-SB01-0001

Lab Sample ID: 320-28286-32

Date Collected: 05/15/17 11:50

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165611	05/22/17 16:21	CFR	TAL SAC

Client Sample ID: MEAFF-TA-4J-1985-SB01-0001

Lab Sample ID: 320-28286-32

Date Collected: 05/15/17 11:50

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 85.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.07 g	1.00 mL	165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			166071	05/24/17 23:13	SBC	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4J-1985-SB01-0204

Lab Sample ID: 320-28286-33

Date Collected: 05/15/17 11:52

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			165611	05/22/17 16:21	CFR	TAL SAC

Client Sample ID: MEAFF-TA-4J-1985-SB01-0204

Lab Sample ID: 320-28286-33

Date Collected: 05/15/17 11:52

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 86.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.06 g	1.00 mL	165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1			166071	05/24/17 23:20	SBC	TAL SAC

Laboratory References:

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



Accreditation/Certification Summary

Client: CH2M Hill, Inc.

TestAmerica Job ID: 320-28286-1

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

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-18
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-29-18
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Hampshire	NELAP	1	2997	04-18-18
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-18
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-29-17 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

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

TestAmerica Job ID: 320-28286-1

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

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

Laboratory References:

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



Sample Summary

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

TestAmerica Job ID: 320-28286-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-28286-1	MEAFF-T-45C-2005-SB01-0001	Solid	05/13/17 08:45	05/16/17 09:20
320-28286-2	MEAFF-T-45C-2005-SB01-0204	Solid	05/13/17 08:50	05/16/17 09:20
320-28286-3	MEAFF-Unknown11-SB01-0001	Solid	05/13/17 10:54	05/16/17 09:20
320-28286-4	MEAFF-Unknown11-SB01-0204	Solid	05/13/17 10:58	05/16/17 09:20
320-28286-5	MEAFF-EASTB-SB01-0001	Solid	05/13/17 12:54	05/16/17 09:20
320-28286-6	MEAFF-EASTB-SB01-0204	Solid	05/13/17 12:57	05/16/17 09:20
320-28286-7	MEAFF-Unknown10-SB01-0001	Solid	05/13/17 14:42	05/16/17 09:20
320-28286-8	MEAFF-Unknown10-SB01-0204	Solid	05/13/17 14:44	05/16/17 09:20
320-28286-9	MEAFF-EASTA-SB01-0001	Solid	05/13/17 15:44	05/16/17 09:20
320-28286-10	MEAFF-EASTA-SB01-0204	Solid	05/13/17 15:47	05/16/17 09:20
320-28286-11	MEAFF-EB05-051317	Water	05/13/17 16:30	05/16/17 09:20
320-28286-12	MEAFF-EB06-051317	Water	05/13/17 16:35	05/16/17 09:20
320-28286-13	MEAFF-EB07-051317	Water	05/14/17 08:33	05/16/17 09:20
320-28286-14	MEAFF-TA-4J-1987-SB01-0001	Solid	05/14/17 08:40	05/16/17 09:20
320-28286-15	MEAFF-TA-4J-1987-SB01-0204	Solid	05/14/17 08:45	05/16/17 09:20
320-28286-16	MEAFF-Unknown20-SB01-0001	Solid	05/14/17 09:26	05/16/17 09:20
320-28286-17	MEAFF-Unknown20-SB01-0204	Solid	05/14/17 09:28	05/16/17 09:20
320-28286-18	MEAFF-ArrestingGearArea-SB01-0001	Solid	05/14/17 10:42	05/16/17 09:20
320-28286-19	MEAFF-ArrestingGearArea-SB01-0204	Solid	05/14/17 10:49	05/16/17 09:20
320-28286-20	MEAFF-Unknown16-SB01-0001	Solid	05/14/17 12:23	05/16/17 09:20
320-28286-21	MEAFF-Unknown16-SB01-0204	Solid	05/14/17 12:25	05/16/17 09:20
320-28286-22	MEAFF-FD06-051417	Solid	05/14/17 00:00	05/16/17 09:20
320-28286-23	MEAFF-T-45C-03-2008-SB01-0001	Solid	05/14/17 13:44	05/16/17 09:20
320-28286-24	MEAFF-T-45C-03-2008-SB01-0204	Solid	05/14/17 13:47	05/16/17 09:20
320-28286-25	MEAFF-TA-4-Unknown-SB01-0001	Solid	05/14/17 14:35	05/16/17 09:20
320-28286-26	MEAFF-TA-4-Unknown-SB01-0204	Solid	05/14/17 14:38	05/16/17 09:20
320-28286-27	MEAFF-Unknown17-SB01-0001	Solid	05/15/17 09:18	05/16/17 09:20
320-28286-28	MEAFF-Unknown17-SB01-0204	Solid	05/15/17 09:20	05/16/17 09:20
320-28286-29	MEAFF-TA-4J-1992-SB01-0001	Solid	05/15/17 09:44	05/16/17 09:20
320-28286-30	MEAFF-TA-4J-1992-SB01-0204	Solid	05/15/17 09:46	05/16/17 09:20
320-28286-31	MEAFF-EB08-051517	Water	05/15/17 10:16	05/16/17 09:20
320-28286-32	MEAFF-TA-4J-1985-SB01-0001	Solid	05/15/17 11:50	05/16/17 09:20
320-28286-33	MEAFF-TA-4J-1985-SB01-0204	Solid	05/15/17 11:52	05/16/17 09:20

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

TestAmerica Laboratories, Inc.

Client Contact
CH2M Hill
6600 Peachtree Dunwoody Rd., 400 Embassy Row, Suite 600
Atlanta, GA 30328
(678) 530-4060 Phone
(770) 604-9183 FAX

Project Name: Meridian 10006-7-105420 JMO1 Navy Clean
Site: NAS Meridian
P O #: 10006-7-105420

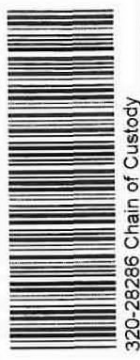
Regulatory Program: DW NPDES RCRA Other:
Project Manager: Bryan Burkingstock
Tel/Fax:

Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below 28 days
 2 weeks
 1 week
 2 days
 1 day

Site Contact: Ryan Brown Other:
Lab Contact: Jill Kellmann
Date: 5/13/17 **Carrier:** FedEx
COC No.: 9 of 3 COCs

Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
MEAFF-T-45C-2005-SB01-0001	5/13/17	0845	G	SO	1	N	N	
MEAFF-T-45C-2005-SB01-0204		0850						
MEAFF-Unknown-11-SB01-0001		1054						
MEAFF-Unknown-11-SB01-0204		1058						
MEAFF-EASTB-SB01-0001		1254						
MEAFF-EASTB-SB01-0204		1257						
MEAFF-Unknown-11-SB01-0204MS		1059						
MEAFF-Unknown-11-SB01-0204SD		1100						
MEAFF-Unknown-11-SB01-0001		1442						
MEAFF-Unknown-11-SB01-0204		1444						
MEAFF-EASTA-SB01-0001		1544						
MEAFF-EASTA-SB01-0204		1547						



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

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

Non-Hazard Flammable Skin Irritant Unknown

Return to Client Disposal by Lab Archive for _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Special Instructions/QC Requirements & Comments:
Send results to Mike Zamboni - address is on file

Custody Seals Intact: Yes No

Reinquired by: Bryan Brown
Reinquired by: Jill Hill
Reinquired by:

Custody Seal No.: Company: CH2M Hill
Date/Time: 5/17/17 1400
Company:

Received by: Company: TANS
Date/Time: 5/16/17 920
Company:

Received in Laboratory by: Company:
Date/Time:

Therm ID No: AR
Cooler Temp. (°C): Obs'd: 1.2 Corr'd: 1.5
Date/Time: 5/16/17 920
Company: TANS
Date/Time: 5/16/17 920
Company: TANS
Date/Time: 5/16/17 920
Company: TANS



West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Project Manager: Bryan Burkingstock
Site Contact: Ryan Brown
Lab Contact: Jill Kellmann

Client Contact
CH2M Hill
8800 Peachtree Dunwoody Rd., 400 Embassy Row, Suite 600
Atlanta, GA 30328
(678) 530-4060 Phone
(770) 604-9183 FAX
Project Name: Meridian 10006-7-105420 JMO1 Navy Clean
Site: NAS Meridian
P O #: 10006-7-105420

Tel/Fax: _____

Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below: 28 days
 2 weeks
 1 week
 2 days
 1 day

COG No. 2 of 3 COCs
Date: 5/13/17 Carrier: FedEx

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes
HEAFF-EBDS-051317	5/13/17	16350	G	W	2	N	N	equipment blank equipment liners
HEAFF-EBDL-051317	↓	16355	↓	↓	↓	↓	↓	equipment blank hand wipe
HEAFF-EBDF-051417	5/14/17	0833	↓	↓	↓	↓	↓	equipment blank equipment liners
HEAFF-TA-4J-1987-SB01-0201	↓	0840	G	SO	1	↓	↓	
HEAFF-TA-4J-1987-SB01-0204	↓	0845	↓	↓	↓	↓	↓	
HEAFF-TA-Unknown-20-SB01-0201	↓	0920	↓	↓	↓	↓	↓	
HEAFF-Unknown-20-SB01-0204	↓	0928	↓	↓	↓	↓	↓	
HEAFF-Arresting Gear Area-SB01-0201	↓	1042	↓	↓	↓	↓	↓	
HEAFF-Arresting Gear Area-SB01-0204	↓	1049	↓	↓	↓	↓	↓	
HEAFF-Unknown-16-SB01-0201	↓	1223	↓	↓	↓	↓	↓	
HEAFF-Unknown-16-SB01-0204	↓	1225	↓	↓	↓	↓	↓	
HEAFF-FD06-051417	↓	---	↓	↓	↓	↓	↓	

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

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

Special Instructions/QC Requirements & Comments:
Send results to Mike Zamboni- address is on file

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

Cooler Temp. (°C): Obs'd: 15 Cor'd: 15 Therm ID No.: AK-1

Received by: JAS Company: JAS Date/Time: 5/16/17 920

Received by: _____ Company: _____ Date/Time: _____

Received in Laboratory by: _____ Date/Time: _____

Custody Seal No.: _____
Company: CH2M Hill Date/Time: 5/15/17 1450

Relinquished by: Ryan Brown Company: _____ Date/Time: _____

Relinquished by: _____ Company: _____ Date/Time: _____

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

TestAmerica Laboratories, Inc.

Client Contact
CH2M Hill
6600 Peachtree Dunwoody Rd., 400 Embassy Row, Suite 600
Atlanta, GA 30328
(678) 530-4060 Phone
(770) 604-9183 FAX

Project Name: Meridian 10006-7-105420 JM01 Navy Clean
Site: NAS Meridian
P O #: 10006-7-105420

Regulatory Program: DW NPDES RCRA Other:
Project Manager: Bryan Burkingstock
Site Contact: Ryan Brown
Lab Contact: Jill Kellmann

Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below 28 days
 2 weeks
 1 week
 2 days
 1 day

Date: 5/13/17
Carrier: FedEx
COC No.: 9
3 of 3 COCs

Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	PRG (EPA 537H)	Sample Specific Notes:	
HEAFF-T-45C-03-2008-S601-0204	5/14/17	1344	G	SO	1	N	X			
HEAFF-T-45C-03-2008-S601-0204		1347								
HEAFF-TA-4-Unknown-S601-0204		1435								
HEAFF-TA-4 ^{up} Unknown-S601-0204		1438								
HEAFF-Unknown 17-S601-0204	5/15/17	0918	G	SO	1					
HEAFF-Unknown 17-S601-0204		0920								
HEAFF-TA-4J-1992-S601-0204		0944								
HEAFF-TA-4J ^{up} -1992-S601-0204		0946								
HEAFF-EP008-051517		1016		W	2					equipment blank hand auger
HEAFF-TA-4J-1985-S601-0204		1150		SO	1					
HEAFF-TA-4J-1985-S601-0204		1152								

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

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

Non-Hazard Flammable Skin Irritant Unknown

Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments:
Send results to Mike Zamboni - address is on file

Custody Seals Intact: Yes No

Relinquished by: Ryan Brown
Relinquished by: [Signature]
Relinquished by: [Signature]

Custody Seal No.: CH2M Hill
Company: CH2M Hill

Received by: [Signature]
Received by: [Signature]
Received in Laboratory by: [Signature]

Date/Time: 5/15/17
Date/Time: 5/16/17 9:20
Date/Time: [Blank]

Company: [Blank]
Company: [Blank]
Company: [Blank]

Cooler Temp. (°C): Obs'd: 1.2 Corr'd: 1.5
Therm ID No.: AK-1

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 320-28286-1

Login Number: 28286
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Job Number: 320-28286-1

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

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



Approved for release.
David R. Alltucker
Project Manager I
6/14/2017 4:26 PM

Designee for
Jill Kellmann, Manager of Project Management
880 Riverside Parkway, West Sacramento, CA, 95605
(916)374-4402
jill.kellmann@testamericainc.com
06/14/2017

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Definitions/Glossary

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

TestAmerica Job ID: 320-28286-1

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

Glossary

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

CASE NARRATIVE

Client: CH2M Hill, Inc.

Project: Meridian 10006-7-105420 JM01 Navy Clean

Report Number: 320-28286-1

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

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

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

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

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

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

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

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

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

RECEIPT

The samples were received on 05/16/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.5 C.

PFAS

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

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

PERCENT SOLIDS

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

Detection Summary

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-T-45C-2005-SB01-0001

Lab Sample ID: 320-28286-1

No Detections.

Client Sample ID: MEAFF-T-45C-2005-SB01-0204

Lab Sample ID: 320-28286-2

No Detections.

Client Sample ID: MEAFF-Unknown11-SB01-0001

Lab Sample ID: 320-28286-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.24	J	0.57	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown11-SB01-0204

Lab Sample ID: 320-28286-4

No Detections.

Client Sample ID: MEAFF-EASTB-SB01-0001

Lab Sample ID: 320-28286-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.14	J M	0.57	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.9		0.57	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.92	M	0.45	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-EASTB-SB01-0204

Lab Sample ID: 320-28286-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	2.2		0.59	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown10-SB01-0001

Lab Sample ID: 320-28286-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.16	J M	0.56	0.11	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.23	J	0.56	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown10-SB01-0204

Lab Sample ID: 320-28286-8

No Detections.

Client Sample ID: MEAFF-EASTA-SB01-0001

Lab Sample ID: 320-28286-9

No Detections.

Client Sample ID: MEAFF-EASTA-SB01-0204

Lab Sample ID: 320-28286-10

No Detections.

Client Sample ID: MEAFF-EB05-051317

Lab Sample ID: 320-28286-11

No Detections.

Client Sample ID: MEAFF-EB06-051317

Lab Sample ID: 320-28286-12

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-EB07-051317

Lab Sample ID: 320-28286-13

No Detections.

Client Sample ID: MEAFF-TA-4J-1987-SB01-0001

Lab Sample ID: 320-28286-14

No Detections.

Client Sample ID: MEAFF-TA-4J-1987-SB01-0204

Lab Sample ID: 320-28286-15

No Detections.

Client Sample ID: MEAFF-Unknown20-SB01-0001

Lab Sample ID: 320-28286-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.34	J M	0.54	0.11	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	15		0.54	0.14	ug/Kg	1	☼	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown20-SB01-0204

Lab Sample ID: 320-28286-17

No Detections.

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0001

Lab Sample ID: 320-28286-18

No Detections.

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0204

Lab Sample ID: 320-28286-19

No Detections.

Client Sample ID: MEAFF-Unknown16-SB01-0001

Lab Sample ID: 320-28286-20

No Detections.

Client Sample ID: MEAFF-Unknown16-SB01-0204

Lab Sample ID: 320-28286-21

No Detections.

Client Sample ID: MEAFF-FD06-051417

Lab Sample ID: 320-28286-22

No Detections.

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0001

Lab Sample ID: 320-28286-23

No Detections.

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204

Lab Sample ID: 320-28286-24

No Detections.

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0001

Lab Sample ID: 320-28286-25

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.95	M	0.61	0.12	ug/Kg	1	☼	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.78	M	0.61	0.15	ug/Kg	1	☼	537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204

Lab Sample ID: 320-28286-26

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.33	J M	0.68	0.14	ug/Kg	1	☒	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.17	J M	0.68	0.17	ug/Kg	1	☒	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown17-SB01-0001

Lab Sample ID: 320-28286-27

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	1.1		0.57	0.14	ug/Kg	1	☒	537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown17-SB01-0204

Lab Sample ID: 320-28286-28

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.80		0.56	0.11	ug/Kg	1	☒	537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.65		0.56	0.14	ug/Kg	1	☒	537 (Modified)	Total/NA

Client Sample ID: MEAFF-TA-4J-1992-SB01-0001

Lab Sample ID: 320-28286-29

No Detections.

Client Sample ID: MEAFF-TA-4J-1992-SB01-0204

Lab Sample ID: 320-28286-30

No Detections.

Client Sample ID: MEAFF-EB08-051517

Lab Sample ID: 320-28286-31

No Detections.

Client Sample ID: MEAFF-TA-4J-1985-SB01-0001

Lab Sample ID: 320-28286-32

No Detections.

Client Sample ID: MEAFF-TA-4J-1985-SB01-0204

Lab Sample ID: 320-28286-33

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-T-45C-2005-SB01-0001

Date Collected: 05/13/17 08:45
Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-1

Matrix: Solid
Percent Solids: 88.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	U	0.56	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 17:01	1
Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.56	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 17:01	1
Perfluorobutanesulfonic acid (PFBS)	0.33	U M	0.45	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 17:01	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	92		25 - 150				05/19/17 08:07	06/07/17 17:01	1
13C4 PFOS	45		25 - 150				05/19/17 08:07	06/07/17 17:01	1
18O2 PFHxS	72		25 - 150				05/19/17 08:07	06/07/17 17:01	1

Client Sample ID: MEAFF-T-45C-2005-SB01-0204

Date Collected: 05/13/17 08:50
Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-2

Matrix: Solid
Percent Solids: 86.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:09	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 17:09	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:09	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	84		25 - 150				05/19/17 08:07	06/07/17 17:09	1
13C4 PFOS	39		25 - 150				05/19/17 08:07	06/07/17 17:09	1
18O2 PFHxS	68		25 - 150				05/19/17 08:07	06/07/17 17:09	1

Client Sample ID: MEAFF-Unknown11-SB01-0001

Date Collected: 05/13/17 10:54
Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-3

Matrix: Solid
Percent Solids: 88.2

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:16	1
Perfluorooctanesulfonic acid (PFOS)	0.24	J	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 17:16	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:16	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	88		25 - 150				05/19/17 08:07	06/07/17 17:16	1
13C4 PFOS	51		25 - 150				05/19/17 08:07	06/07/17 17:16	1
18O2 PFHxS	78		25 - 150				05/19/17 08:07	06/07/17 17:16	1

Client Sample ID: MEAFF-Unknown11-SB01-0204

Date Collected: 05/13/17 10:58
Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-4

Matrix: Solid
Percent Solids: 90.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	U M	0.55	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 17:24	1
Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.55	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 17:24	1
Perfluorobutanesulfonic acid (PFBS)	0.33	U M	0.44	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 17:24	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	77		25 - 150				05/19/17 08:07	06/07/17 17:24	1
13C4 PFOS	35		25 - 150				05/19/17 08:07	06/07/17 17:24	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown11-SB01-0204

Lab Sample ID: 320-28286-4

Date Collected: 05/13/17 10:58

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 90.3

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	68		25 - 150	05/19/17 08:07	06/07/17 17:24	1

Client Sample ID: MEAFF-EASTB-SB01-0001

Lab Sample ID: 320-28286-5

Date Collected: 05/13/17 12:54

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.7

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.14	J M	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:47	1
Perfluorooctanesulfonic acid (PFOS)	1.9		0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 17:47	1
Perfluorobutanesulfonic acid (PFBS)	0.92	M	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:47	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	97		25 - 150	05/19/17 08:07	06/07/17 17:47	1
13C4 PFOS	72		25 - 150	05/19/17 08:07	06/07/17 17:47	1
18O2 PFHxS	83		25 - 150	05/19/17 08:07	06/07/17 17:47	1

Client Sample ID: MEAFF-EASTB-SB01-0204

Lab Sample ID: 320-28286-6

Date Collected: 05/13/17 12:57

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 83.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U M	0.59	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:55	1
Perfluorooctanesulfonic acid (PFOS)	2.2		0.59	0.15	ug/Kg	☼	05/19/17 08:07	06/07/17 17:55	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 17:55	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	91		25 - 150	05/19/17 08:07	06/07/17 17:55	1
13C4 PFOS	55		25 - 150	05/19/17 08:07	06/07/17 17:55	1
18O2 PFHxS	80		25 - 150	05/19/17 08:07	06/07/17 17:55	1

Client Sample ID: MEAFF-Unknown10-SB01-0001

Lab Sample ID: 320-28286-7

Date Collected: 05/13/17 14:42

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.16	J M	0.56	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:10	1
Perfluorooctanesulfonic acid (PFOS)	0.23	J	0.56	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 18:10	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 18:10	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	105		25 - 150	05/19/17 08:07	06/07/17 18:10	1
13C4 PFOS	71		25 - 150	05/19/17 08:07	06/07/17 18:10	1
18O2 PFHxS	90		25 - 150	05/19/17 08:07	06/07/17 18:10	1

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown10-SB01-0204

Lab Sample ID: 320-28286-8

Date Collected: 05/13/17 14:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 18:18	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 18:18	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 18:18	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	95		25 - 150				05/19/17 08:07	06/07/17 18:18	1
13C4 PFOS	62		25 - 150				05/19/17 08:07	06/07/17 18:18	1
18O2 PFHxS	83		25 - 150				05/19/17 08:07	06/07/17 18:18	1

Client Sample ID: MEAFF-EASTA-SB01-0001

Lab Sample ID: 320-28286-9

Date Collected: 05/13/17 15:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 94.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.31	U	0.52	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:26	1
Perfluorooctanesulfonic acid (PFOS)	0.31	U	0.52	0.13	ug/Kg	☼	05/19/17 08:07	06/07/17 18:26	1
Perfluorobutanesulfonic acid (PFBS)	0.31	U M	0.42	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:26	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	100		25 - 150				05/19/17 08:07	06/07/17 18:26	1
13C4 PFOS	81		25 - 150				05/19/17 08:07	06/07/17 18:26	1
18O2 PFHxS	92		25 - 150				05/19/17 08:07	06/07/17 18:26	1

Client Sample ID: MEAFF-EASTA-SB01-0204

Lab Sample ID: 320-28286-10

Date Collected: 05/13/17 15:47

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 92.7

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.32	U	0.53	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:33	1
Perfluorooctanesulfonic acid (PFOS)	0.32	U	0.53	0.13	ug/Kg	☼	05/19/17 08:07	06/07/17 18:33	1
Perfluorobutanesulfonic acid (PFBS)	0.32	U	0.42	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:33	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	96		25 - 150				05/19/17 08:07	06/07/17 18:33	1
13C4 PFOS	73		25 - 150				05/19/17 08:07	06/07/17 18:33	1
18O2 PFHxS	87		25 - 150				05/19/17 08:07	06/07/17 18:33	1

Client Sample ID: MEAFF-EB05-051317

Lab Sample ID: 320-28286-11

Date Collected: 05/13/17 16:30

Matrix: Water

Date Received: 05/16/17 09:20

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U M	2.2	0.66	ng/L		05/18/17 17:41	05/20/17 06:42	1
Perfluorooctanesulfonic acid (PFOS)	2.6	U M	3.5	1.1	ng/L		05/18/17 17:41	05/20/17 06:42	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	0.81	ng/L		05/18/17 17:41	05/20/17 06:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	129		25 - 150				05/18/17 17:41	05/20/17 06:42	1
13C4 PFOS	112		25 - 150				05/18/17 17:41	05/20/17 06:42	1
18O2 PFHxS	111		25 - 150				05/18/17 17:41	05/20/17 06:42	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-EB06-051317

Lab Sample ID: 320-28286-12

Date Collected: 05/13/17 16:35

Matrix: Water

Date Received: 05/16/17 09:20

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U	2.3	0.68	ng/L		05/18/17 17:41	05/20/17 06:50	1
Perfluorooctanesulfonic acid (PFOS)	2.7	U M	3.6	1.2	ng/L		05/18/17 17:41	05/20/17 06:50	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	0.83	ng/L		05/18/17 17:41	05/20/17 06:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	136		25 - 150				05/18/17 17:41	05/20/17 06:50	1
13C4 PFOS	113		25 - 150				05/18/17 17:41	05/20/17 06:50	1
18O2 PFHxS	109		25 - 150				05/18/17 17:41	05/20/17 06:50	1

Client Sample ID: MEAFF-EB07-051317

Lab Sample ID: 320-28286-13

Date Collected: 05/14/17 08:33

Matrix: Water

Date Received: 05/16/17 09:20

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U M	2.2	0.67	ng/L		05/18/17 17:41	05/20/17 06:57	1
Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.6	1.1	ng/L		05/18/17 17:41	05/20/17 06:57	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	0.82	ng/L		05/18/17 17:41	05/20/17 06:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	130		25 - 150				05/18/17 17:41	05/20/17 06:57	1
13C4 PFOS	109		25 - 150				05/18/17 17:41	05/20/17 06:57	1
18O2 PFHxS	109		25 - 150				05/18/17 17:41	05/20/17 06:57	1

Client Sample ID: MEAFF-TA-4J-1987-SB01-0001

Lab Sample ID: 320-28286-14

Date Collected: 05/14/17 08:40

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 94.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.31	U	0.52	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:41	1
Perfluorooctanesulfonic acid (PFOS)	0.31	U	0.52	0.13	ug/Kg	☼	05/19/17 08:07	06/07/17 18:41	1
Perfluorobutanesulfonic acid (PFBS)	0.31	U	0.42	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:41	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	109		25 - 150				05/19/17 08:07	06/07/17 18:41	1
13C4 PFOS	79		25 - 150				05/19/17 08:07	06/07/17 18:41	1
18O2 PFHxS	92		25 - 150				05/19/17 08:07	06/07/17 18:41	1

Client Sample ID: MEAFF-TA-4J-1987-SB01-0204

Lab Sample ID: 320-28286-15

Date Collected: 05/14/17 08:45

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.6

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 18:49	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U M	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 18:49	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 18:49	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	106		25 - 150				05/19/17 08:07	06/07/17 18:49	1
13C4 PFOS	91		25 - 150				05/19/17 08:07	06/07/17 18:49	1
18O2 PFHxS	98		25 - 150				05/19/17 08:07	06/07/17 18:49	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown20-SB01-0001

Lab Sample ID: 320-28286-16

Date Collected: 05/14/17 09:26

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 92.0

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	J M	0.54	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:56	1
Perfluorooctanesulfonic acid (PFOS)	15		0.54	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 18:56	1
Perfluorobutanesulfonic acid (PFBS)	0.32	U M	0.43	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 18:56	1
Isotope Dilution		%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C4 PFOA		106		25 - 150			05/19/17 08:07	06/07/17 18:56	1
13C4 PFOS		77		25 - 150			05/19/17 08:07	06/07/17 18:56	1
18O2 PFHxS		89		25 - 150			05/19/17 08:07	06/07/17 18:56	1

Client Sample ID: MEAFF-Unknown20-SB01-0204

Lab Sample ID: 320-28286-17

Date Collected: 05/14/17 09:28

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.0

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:04	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 19:04	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:04	1
Isotope Dilution		%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C4 PFOA		87		25 - 150			05/19/17 08:07	06/07/17 19:04	1
13C4 PFOS		41		25 - 150			05/19/17 08:07	06/07/17 19:04	1
18O2 PFHxS		71		25 - 150			05/19/17 08:07	06/07/17 19:04	1

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0001

Lab Sample ID: 320-28286-18

Date Collected: 05/14/17 10:42

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.6

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.56	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 19:12	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.56	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 19:12	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:12	1
Isotope Dilution		%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C4 PFOA		87		25 - 150			05/19/17 08:07	06/07/17 19:12	1
13C4 PFOS		42		25 - 150			05/19/17 08:07	06/07/17 19:12	1
18O2 PFHxS		81		25 - 150			05/19/17 08:07	06/07/17 19:12	1

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0204

Lab Sample ID: 320-28286-19

Date Collected: 05/14/17 10:49

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 83.7

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.36	U	0.60	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:20	1
Perfluorooctanesulfonic acid (PFOS)	0.36	U	0.60	0.15	ug/Kg	☼	05/19/17 08:07	06/07/17 19:20	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.48	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:20	1
Isotope Dilution		%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C4 PFOA		90		25 - 150			05/19/17 08:07	06/07/17 19:20	1
13C4 PFOS		48		25 - 150			05/19/17 08:07	06/07/17 19:20	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0204

Lab Sample ID: 320-28286-19

Date Collected: 05/14/17 10:49

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 83.7

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	80		25 - 150	05/19/17 08:07	06/07/17 19:20	1

Client Sample ID: MEAFF-Unknown16-SB01-0001

Lab Sample ID: 320-28286-20

Date Collected: 05/14/17 12:23

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 90.1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	U	0.54	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 19:35	1
Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.54	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 19:35	1
Perfluorobutanesulfonic acid (PFBS)	0.33	U	0.44	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 19:35	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	92		25 - 150	05/19/17 08:07	06/07/17 19:35	1			
13C4 PFOS	46		25 - 150	05/19/17 08:07	06/07/17 19:35	1			
18O2 PFHxS	79		25 - 150	05/19/17 08:07	06/07/17 19:35	1			

Client Sample ID: MEAFF-Unknown16-SB01-0204

Lab Sample ID: 320-28286-21

Date Collected: 05/14/17 12:25

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 86.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U	0.58	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:43	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.15	ug/Kg	☼	05/19/17 08:07	06/07/17 19:43	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.46	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:43	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	72		25 - 150	05/19/17 08:07	06/07/17 19:43	1			
13C4 PFOS	40		25 - 150	05/19/17 08:07	06/07/17 19:43	1			
18O2 PFHxS	65		25 - 150	05/19/17 08:07	06/07/17 19:43	1			

Client Sample ID: MEAFF-FD06-051417

Lab Sample ID: 320-28286-22

Date Collected: 05/14/17 00:00

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 89.0

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.56	0.11	ug/Kg	☼	05/19/17 08:07	06/07/17 19:50	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.56	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 19:50	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:50	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	77		25 - 150	05/19/17 08:07	06/07/17 19:50	1			
13C4 PFOS	38		25 - 150	05/19/17 08:07	06/07/17 19:50	1			
18O2 PFHxS	66		25 - 150	05/19/17 08:07	06/07/17 19:50	1			

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0001

Lab Sample ID: 320-28286-23

Date Collected: 05/14/17 13:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:58	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.14	ug/Kg	☼	05/19/17 08:07	06/07/17 19:58	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.12	ug/Kg	☼	05/19/17 08:07	06/07/17 19:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	80		25 - 150				05/19/17 08:07	06/07/17 19:58	1
13C4 PFOS	38		25 - 150				05/19/17 08:07	06/07/17 19:58	1
18O2 PFHxS	69		25 - 150				05/19/17 08:07	06/07/17 19:58	1

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204

Lab Sample ID: 320-28286-24

Date Collected: 05/14/17 13:47

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	U M	0.56	0.11	ug/Kg	☼	05/19/17 09:45	05/24/17 21:58	1
Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.56	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 21:58	1
Perfluorobutanesulfonic acid (PFBS)	0.33	U	0.44	0.11	ug/Kg	☼	05/19/17 09:45	05/24/17 21:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	94		25 - 150				05/19/17 09:45	05/24/17 21:58	1
13C4 PFOS	57		25 - 150				05/19/17 09:45	05/24/17 21:58	1
18O2 PFHxS	68		25 - 150				05/19/17 09:45	05/24/17 21:58	1

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0001

Lab Sample ID: 320-28286-25

Date Collected: 05/14/17 14:35

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 80.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.95	M	0.61	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 22:20	1
Perfluorooctanesulfonic acid (PFOS)	0.78	M	0.61	0.15	ug/Kg	☼	05/19/17 09:45	05/24/17 22:20	1
Perfluorobutanesulfonic acid (PFBS)	0.36	U	0.48	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 22:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	83		25 - 150				05/19/17 09:45	05/24/17 22:20	1
13C4 PFOS	65		25 - 150				05/19/17 09:45	05/24/17 22:20	1
18O2 PFHxS	74		25 - 150				05/19/17 09:45	05/24/17 22:20	1

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204

Lab Sample ID: 320-28286-26

Date Collected: 05/14/17 14:38

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 73.6

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.33	J M	0.68	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 22:28	1
Perfluorooctanesulfonic acid (PFOS)	0.17	J M	0.68	0.17	ug/Kg	☼	05/19/17 09:45	05/24/17 22:28	1
Perfluorobutanesulfonic acid (PFBS)	0.41	U	0.54	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 22:28	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	108		25 - 150				05/19/17 09:45	05/24/17 22:28	1
13C4 PFOS	83		25 - 150				05/19/17 09:45	05/24/17 22:28	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204

Lab Sample ID: 320-28286-26

Date Collected: 05/14/17 14:38

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 73.6

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	88		25 - 150	05/19/17 09:45	05/24/17 22:28	1

Client Sample ID: MEAFF-Unknown17-SB01-0001

Lab Sample ID: 320-28286-27

Date Collected: 05/15/17 09:18

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 22:35	1
Perfluorooctanesulfonic acid (PFOS)	1.1		0.57	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 22:35	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 22:35	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	100		25 - 150	05/19/17 09:45	05/24/17 22:35	1			
13C4 PFOS	83		25 - 150	05/19/17 09:45	05/24/17 22:35	1			
18O2 PFHxS	90		25 - 150	05/19/17 09:45	05/24/17 22:35	1			

Client Sample ID: MEAFF-Unknown17-SB01-0204

Lab Sample ID: 320-28286-28

Date Collected: 05/15/17 09:20

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.80		0.56	0.11	ug/Kg	☼	05/19/17 09:45	05/24/17 22:43	1
Perfluorooctanesulfonic acid (PFOS)	0.65		0.56	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 22:43	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 22:43	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	74		25 - 150	05/19/17 09:45	05/24/17 22:43	1			
13C4 PFOS	51		25 - 150	05/19/17 09:45	05/24/17 22:43	1			
18O2 PFHxS	60		25 - 150	05/19/17 09:45	05/24/17 22:43	1			

Client Sample ID: MEAFF-TA-4J-1992-SB01-0001

Lab Sample ID: 320-28286-29

Date Collected: 05/15/17 09:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 79.4

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.37	U M	0.62	0.13	ug/Kg	☼	05/19/17 09:45	05/24/17 22:50	1
Perfluorooctanesulfonic acid (PFOS)	0.37	U	0.62	0.16	ug/Kg	☼	05/19/17 09:45	05/24/17 22:50	1
Perfluorobutanesulfonic acid (PFBS)	0.37	U	0.50	0.13	ug/Kg	☼	05/19/17 09:45	05/24/17 22:50	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFOA	77		25 - 150	05/19/17 09:45	05/24/17 22:50	1			
13C4 PFOS	60		25 - 150	05/19/17 09:45	05/24/17 22:50	1			
18O2 PFHxS	64		25 - 150	05/19/17 09:45	05/24/17 22:50	1			

Client Sample Results

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4J-1992-SB01-0204

Lab Sample ID: 320-28286-30

Date Collected: 05/15/17 09:46

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 85.3

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U M	0.59	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:05	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.59	0.15	ug/Kg	☼	05/19/17 09:45	05/24/17 23:05	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	95		25 - 150				05/19/17 09:45	05/24/17 23:05	1
13C4 PFOS	60		25 - 150				05/19/17 09:45	05/24/17 23:05	1
18O2 PFHxS	77		25 - 150				05/19/17 09:45	05/24/17 23:05	1

Client Sample ID: MEAFF-EB08-051517

Lab Sample ID: 320-28286-31

Date Collected: 05/15/17 10:16

Matrix: Water

Date Received: 05/16/17 09:20

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1.8	U	2.3	0.68	ng/L		05/18/17 17:41	05/20/17 07:12	1
Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.7	1.2	ng/L		05/18/17 17:41	05/20/17 07:12	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	0.84	ng/L		05/18/17 17:41	05/20/17 07:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	129		25 - 150				05/18/17 17:41	05/20/17 07:12	1
13C4 PFOS	108		25 - 150				05/18/17 17:41	05/20/17 07:12	1
18O2 PFHxS	112		25 - 150				05/18/17 17:41	05/20/17 07:12	1

Client Sample ID: MEAFF-TA-4J-1985-SB01-0001

Lab Sample ID: 320-28286-32

Date Collected: 05/15/17 11:50

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 85.5

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.35	U M	0.58	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:13	1
Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.15	ug/Kg	☼	05/19/17 09:45	05/24/17 23:13	1
Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.46	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	91		25 - 150				05/19/17 09:45	05/24/17 23:13	1
13C4 PFOS	51		25 - 150				05/19/17 09:45	05/24/17 23:13	1
18O2 PFHxS	69		25 - 150				05/19/17 09:45	05/24/17 23:13	1

Client Sample ID: MEAFF-TA-4J-1985-SB01-0204

Lab Sample ID: 320-28286-33

Date Collected: 05/15/17 11:52

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 86.9

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:20	1
Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.14	ug/Kg	☼	05/19/17 09:45	05/24/17 23:20	1
Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.12	ug/Kg	☼	05/19/17 09:45	05/24/17 23:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	94		25 - 150				05/19/17 09:45	05/24/17 23:20	1
13C4 PFOS	58		25 - 150				05/19/17 09:45	05/24/17 23:20	1
18O2 PFHxS	71		25 - 150				05/19/17 09:45	05/24/17 23:20	1

TestAmerica Sacramento

Default Detection Limits

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

TestAmerica Job ID: 320-28286-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Prep: 3535

Analyte	LOQ	DL	Units	Method
Perfluorobutanesulfonic acid (PFBS)	2.5	0.92	ng/L	537 (Modified)
Perfluorooctanesulfonic acid (PFOS)	4.0	1.3	ng/L	537 (Modified)
Perfluorooctanoic acid (PFOA)	2.5	0.75	ng/L	537 (Modified)

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Prep: SHAKE

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

Isotope Dilution Summary

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

TestAmerica Job ID: 320-28286-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		3C4 PFO/ (25-150)	3C4 PFO: (25-150)	3O2 PFHx (25-150)
320-28286-1	MEAFF-T-45C-2005-SB01-0001	92	45	72
320-28286-2	MEAFF-T-45C-2005-SB01-0204	84	39	68
320-28286-3	MEAFF-Unknown11-SB01-0001	88	51	78
320-28286-4	MEAFF-Unknown11-SB01-0204	77	35	68
320-28286-4 MS	MEAFF-Unknown11-SB01-0204	77	31	69
320-28286-4 MSD	MEAFF-Unknown11-SB01-0204	72	40	67
320-28286-5	MEAFF-EASTB-SB01-0001	97	72	83
320-28286-6	MEAFF-EASTB-SB01-0204	91	55	80
320-28286-7	MEAFF-Unknown10-SB01-0001	105	71	90
320-28286-8	MEAFF-Unknown10-SB01-0204	95	62	83
320-28286-9	MEAFF-EASTA-SB01-0001	100	81	92
320-28286-10	MEAFF-EASTA-SB01-0204	96	73	87
320-28286-14	MEAFF-TA-4J-1987-SB01-0001	109	79	92
320-28286-15	MEAFF-TA-4J-1987-SB01-0204	106	91	98
320-28286-16	MEAFF-Unknown20-SB01-0001	106	77	89
320-28286-17	MEAFF-Unknown20-SB01-0204	87	41	71
320-28286-18	MEAFF-ArrestingGearArea-SB0	87	42	81
320-28286-19	MEAFF-ArrestingGearArea-SB0	90	48	80
320-28286-20	MEAFF-Unknown16-SB01-0001	92	46	79
320-28286-21	MEAFF-Unknown16-SB01-0204	72	40	65
320-28286-22	MEAFF-FD06-051417	77	38	66
320-28286-23	MEAFF-T-45C-03-2008-SB01-0	80	38	69
320-28286-24	MEAFF-T-45C-03-2008-SB01-0	94	57	68
320-28286-24 MS	MEAFF-T-45C-03-2008-SB01-0	88	51	68
320-28286-24 MSD	MEAFF-T-45C-03-2008-SB01-0	99	59	77
320-28286-25	MEAFF-TA-4-Unknown-SB01-0	83	65	74
320-28286-26	MEAFF-TA-4-Unknown-SB01-0	108	83	88
320-28286-27	MEAFF-Unknown17-SB01-0001	100	83	90
320-28286-28	MEAFF-Unknown17-SB01-0204	74	51	60
320-28286-29	MEAFF-TA-4J-1992-SB01-0001	77	60	64
320-28286-30	MEAFF-TA-4J-1992-SB01-0204	95	60	77
320-28286-32	MEAFF-TA-4J-1985-SB01-0001	91	51	69
320-28286-33	MEAFF-TA-4J-1985-SB01-0204	94	58	71
LCS 320-165234/2-A	Lab Control Sample	95	74	87
LCS 320-165287/2-A	Lab Control Sample	95	86	83
MB 320-165234/1-A	Method Blank	99	75	91
MB 320-165287/1-A	Method Blank	103	83	84

Surrogate Legend

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

Isotope Dilution Summary

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

TestAmerica Job ID: 320-28286-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		³ C4 PFO/ (25-150)	³ C4 PFO/ (25-150)	¹⁸ O2 PFHx (25-150)
320-28286-11	MEAFF-EB05-051317	129	112	111
320-28286-12	MEAFF-EB06-051317	136	113	109
320-28286-13	MEAFF-EB07-051317	130	109	109
320-28286-31	MEAFF-EB08-051517	129	108	112
LCS 320-165207/2-A	Lab Control Sample	117	106	107
LCSD 320-165207/3-A	Lab Control Sample Dup	114	102	101
MB 320-165207/1-A	Method Blank	124	114	110

Surrogate Legend

¹³C4 PFOA = ¹³C4 PFOA

¹³C4 PFOS = ¹³C4 PFOS

¹⁸O2 PFHxS = ¹⁸O2 PFHxS

QC Sample Results

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

TestAmerica Job ID: 320-28286-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-165207/1-A
Matrix: Water
Analysis Batch: 165487

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 165207

Analyte	MB	MB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanoic acid (PFOA)	2.0	U	2.5	0.75	ng/L		05/18/17 17:41	05/20/17 05:49	1
Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	1.3	ng/L		05/18/17 17:41	05/20/17 05:49	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	0.92	ng/L		05/18/17 17:41	05/20/17 05:49	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFOA	124		25 - 150	05/18/17 17:41	05/20/17 05:49	1
13C4 PFOS	114		25 - 150	05/18/17 17:41	05/20/17 05:49	1
18O2 PFHxS	110		25 - 150	05/18/17 17:41	05/20/17 05:49	1

Lab Sample ID: LCS 320-165207/2-A
Matrix: Water
Analysis Batch: 165487

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 165207

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Perfluorooctanoic acid (PFOA)	40.0	38.4		ng/L		96	60 - 140
Perfluorooctanesulfonic acid (PFOS)	37.1	35.4		ng/L		95	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.4	36.6		ng/L		103	50 - 150

Isotope Dilution	LCS	LCS	Limits
	%Recovery	Qualifier	
13C4 PFOA	117		25 - 150
13C4 PFOS	106		25 - 150
18O2 PFHxS	107		25 - 150

Lab Sample ID: LCSD 320-165207/3-A
Matrix: Water
Analysis Batch: 165487

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 165207

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	Limits	RPD	RPD Limit
		Result	Qualifier						
Perfluorooctanoic acid (PFOA)	40.0	38.1		ng/L		95	60 - 140	1	30
Perfluorooctanesulfonic acid (PFOS)	37.1	34.6		ng/L		93	60 - 140	2	30
Perfluorobutanesulfonic acid (PFBS)	35.4	37.1		ng/L		105	50 - 150	1	30

Isotope Dilution	LCSD	LCSD	Limits
	%Recovery	Qualifier	
13C4 PFOA	114		25 - 150
13C4 PFOS	102		25 - 150
18O2 PFHxS	101		25 - 150

Lab Sample ID: MB 320-165234/1-A
Matrix: Solid
Analysis Batch: 168107

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 165234

Analyte	MB	MB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanoic acid (PFOA)	0.30	U	0.50	0.10	ug/Kg		05/19/17 08:07	06/07/17 16:45	1
Perfluorooctanesulfonic acid (PFOS)	0.30	U	0.50	0.13	ug/Kg		05/19/17 08:07	06/07/17 16:45	1
Perfluorobutanesulfonic acid (PFBS)	0.30	U	0.40	0.10	ug/Kg		05/19/17 08:07	06/07/17 16:45	1

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-28286-1

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFOA	99		25 - 150	05/19/17 08:07	06/07/17 16:45	1
13C4 PFOS	75		25 - 150	05/19/17 08:07	06/07/17 16:45	1
18O2 PFHxS	91		25 - 150	05/19/17 08:07	06/07/17 16:45	1

Lab Sample ID: LCS 320-165234/2-A
Matrix: Solid
Analysis Batch: 168107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 165234

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid (PFOS)	3.71	4.08		ug/Kg		110	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.54	4.01		ug/Kg		113	50 - 150

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFOA	95		25 - 150
13C4 PFOS	74		25 - 150
18O2 PFHxS	87		25 - 150

Lab Sample ID: 320-28286-4 MS
Matrix: Solid
Analysis Batch: 168107

Client Sample ID: MEAFF-Unknown11-SB01-0204
Prep Type: Total/NA
Prep Batch: 165234

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid (PFOS)	0.33	U	4.06	4.40		ug/Kg	☼	108	60 - 140
Perfluorobutanesulfonic acid (PFBS)	0.33	U M	3.87	4.97		ug/Kg	☼	128	50 - 150

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C4 PFOA	77		25 - 150
13C4 PFOS	31		25 - 150
18O2 PFHxS	69		25 - 150

Lab Sample ID: 320-28286-4 MSD
Matrix: Solid
Analysis Batch: 168107

Client Sample ID: MEAFF-Unknown11-SB01-0204
Prep Type: Total/NA
Prep Batch: 165234

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanesulfonic acid (PFOS)	0.33	U	4.07	4.52		ug/Kg	☼	111	60 - 140	3	30
Perfluorobutanesulfonic acid (PFBS)	0.33	U M	3.88	4.99		ug/Kg	☼	129	50 - 150	0	30

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C4 PFOA	72		25 - 150
13C4 PFOS	40		25 - 150
18O2 PFHxS	67		25 - 150

QC Sample Results

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

TestAmerica Job ID: 320-28286-1

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

Lab Sample ID: MB 320-165287/1-A
Matrix: Solid
Analysis Batch: 166071

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 165287

Analyte	MB	MB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanoic acid (PFOA)	0.30	U	0.50	0.10	ug/Kg		05/19/17 09:45	05/24/17 21:43	1
Perfluorooctanesulfonic acid (PFOS)	0.30	U	0.50	0.13	ug/Kg		05/19/17 09:45	05/24/17 21:43	1
Perfluorobutanesulfonic acid (PFBS)	0.30	U	0.40	0.10	ug/Kg		05/19/17 09:45	05/24/17 21:43	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFOA	103		25 - 150	05/19/17 09:45	05/24/17 21:43	1
13C4 PFOS	83		25 - 150	05/19/17 09:45	05/24/17 21:43	1
18O2 PFHxS	84		25 - 150	05/19/17 09:45	05/24/17 21:43	1

Lab Sample ID: LCS 320-165287/2-A
Matrix: Solid
Analysis Batch: 166071

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 165287

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Perfluorooctanoic acid (PFOA)	4.00	4.00		ug/Kg		100	60 - 140
Perfluorooctanesulfonic acid (PFOS)	3.71	3.44		ug/Kg		93	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.54	3.60		ug/Kg		102	50 - 150

Isotope Dilution	LCS	LCS	Limits
	%Recovery	Qualifier	
13C4 PFOA	95		25 - 150
13C4 PFOS	86		25 - 150
18O2 PFHxS	83		25 - 150

Lab Sample ID: 320-28286-24 MS
Matrix: Solid
Analysis Batch: 166071

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204
Prep Type: Total/NA
Prep Batch: 165287

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Perfluorooctanoic acid (PFOA)	0.33	U M	4.48	4.35		ug/Kg	☼	97	60 - 140
Perfluorooctanesulfonic acid (PFOS)	0.33	U	4.16	4.19		ug/Kg	☼	101	60 - 140
Perfluorobutanesulfonic acid (PFBS)	0.33	U	3.96	3.95		ug/Kg	☼	100	50 - 150

Isotope Dilution	MS	MS	Limits
	%Recovery	Qualifier	
13C4 PFOA	88		25 - 150
13C4 PFOS	51		25 - 150
18O2 PFHxS	68		25 - 150

Lab Sample ID: 320-28286-24 MSD
Matrix: Solid
Analysis Batch: 166071

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204
Prep Type: Total/NA
Prep Batch: 165287

Analyte	Sample	Sample	Spike Added	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Perfluorooctanoic acid (PFOA)	0.33	U M	4.50	4.37		ug/Kg	☼	97	60 - 140	0	30
Perfluorooctanesulfonic acid (PFOS)	0.33	U	4.17	4.09		ug/Kg	☼	98	60 - 140	2	30

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-28286-1

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

Lab Sample ID: 320-28286-24 MSD

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 166071

Prep Batch: 165287

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Perfluorobutanesulfonic acid (PFBS)	0.33	U	3.97	4.08		ug/Kg	☼	103	50 - 150	3	30
	<i>MSD</i>	<i>MSD</i>									
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>								
<i>13C4 PFOA</i>	99		25 - 150								
<i>13C4 PFOS</i>	59		25 - 150								
<i>18O2 PFHxS</i>	77		25 - 150								

QC Association Summary

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

TestAmerica Job ID: 320-28286-1

LCMS

Prep Batch: 165207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-11	MEAFF-EB05-051317	Total/NA	Water	3535	
320-28286-12	MEAFF-EB06-051317	Total/NA	Water	3535	
320-28286-13	MEAFF-EB07-051317	Total/NA	Water	3535	
320-28286-31	MEAFF-EB08-051517	Total/NA	Water	3535	
MB 320-165207/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-165207/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-165207/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 165234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-1	MEAFF-T-45C-2005-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-2	MEAFF-T-45C-2005-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-3	MEAFF-Unknown11-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-4	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-5	MEAFF-EASTB-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-6	MEAFF-EASTB-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-7	MEAFF-Unknown10-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-8	MEAFF-Unknown10-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-9	MEAFF-EASTA-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-10	MEAFF-EASTA-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-14	MEAFF-TA-4J-1987-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-15	MEAFF-TA-4J-1987-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-16	MEAFF-Unknown20-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-17	MEAFF-Unknown20-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-18	MEAFF-ArrestingGearArea-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-19	MEAFF-ArrestingGearArea-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-20	MEAFF-Unknown16-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-21	MEAFF-Unknown16-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-22	MEAFF-FD06-051417	Total/NA	Solid	SHAKE	
320-28286-23	MEAFF-T-45C-03-2008-SB01-0001	Total/NA	Solid	SHAKE	
MB 320-165234/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-165234/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-28286-4 MS	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-4 MSD	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	SHAKE	

Prep Batch: 165287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-24	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-25	MEAFF-TA-4-Unknown-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-26	MEAFF-TA-4-Unknown-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-27	MEAFF-Unknown17-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-28	MEAFF-Unknown17-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-29	MEAFF-TA-4J-1992-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-30	MEAFF-TA-4J-1992-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-32	MEAFF-TA-4J-1985-SB01-0001	Total/NA	Solid	SHAKE	
320-28286-33	MEAFF-TA-4J-1985-SB01-0204	Total/NA	Solid	SHAKE	
MB 320-165287/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-165287/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-28286-24 MS	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	SHAKE	
320-28286-24 MSD	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	SHAKE	

QC Association Summary

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

TestAmerica Job ID: 320-28286-1

LCMS (Continued)

Analysis Batch: 165487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-11	MEAFF-EB05-051317	Total/NA	Water	537 (Modified)	165207
320-28286-12	MEAFF-EB06-051317	Total/NA	Water	537 (Modified)	165207
320-28286-13	MEAFF-EB07-051317	Total/NA	Water	537 (Modified)	165207
320-28286-31	MEAFF-EB08-051517	Total/NA	Water	537 (Modified)	165207
MB 320-165207/1-A	Method Blank	Total/NA	Water	537 (Modified)	165207
LCS 320-165207/2-A	Lab Control Sample	Total/NA	Water	537 (Modified)	165207
LCSD 320-165207/3-A	Lab Control Sample Dup	Total/NA	Water	537 (Modified)	165207

Analysis Batch: 166071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-24	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	537 (Modified)	165287
320-28286-25	MEAFF-TA-4-Unknown-SB01-0001	Total/NA	Solid	537 (Modified)	165287
320-28286-26	MEAFF-TA-4-Unknown-SB01-0204	Total/NA	Solid	537 (Modified)	165287
320-28286-27	MEAFF-Unknown17-SB01-0001	Total/NA	Solid	537 (Modified)	165287
320-28286-28	MEAFF-Unknown17-SB01-0204	Total/NA	Solid	537 (Modified)	165287
320-28286-29	MEAFF-TA-4J-1992-SB01-0001	Total/NA	Solid	537 (Modified)	165287
320-28286-30	MEAFF-TA-4J-1992-SB01-0204	Total/NA	Solid	537 (Modified)	165287
320-28286-32	MEAFF-TA-4J-1985-SB01-0001	Total/NA	Solid	537 (Modified)	165287
320-28286-33	MEAFF-TA-4J-1985-SB01-0204	Total/NA	Solid	537 (Modified)	165287
MB 320-165287/1-A	Method Blank	Total/NA	Solid	537 (Modified)	165287
LCS 320-165287/2-A	Lab Control Sample	Total/NA	Solid	537 (Modified)	165287
320-28286-24 MS	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	537 (Modified)	165287
320-28286-24 MSD	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	537 (Modified)	165287

Analysis Batch: 168107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-1	MEAFF-T-45C-2005-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-2	MEAFF-T-45C-2005-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-3	MEAFF-Unknown11-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-4	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-5	MEAFF-EASTB-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-6	MEAFF-EASTB-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-7	MEAFF-Unknown10-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-8	MEAFF-Unknown10-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-9	MEAFF-EASTA-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-10	MEAFF-EASTA-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-14	MEAFF-TA-4J-1987-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-15	MEAFF-TA-4J-1987-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-16	MEAFF-Unknown20-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-17	MEAFF-Unknown20-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-18	MEAFF-ArrestingGearArea-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-19	MEAFF-ArrestingGearArea-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-20	MEAFF-Unknown16-SB01-0001	Total/NA	Solid	537 (Modified)	165234
320-28286-21	MEAFF-Unknown16-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-22	MEAFF-FD06-051417	Total/NA	Solid	537 (Modified)	165234
320-28286-23	MEAFF-T-45C-03-2008-SB01-0001	Total/NA	Solid	537 (Modified)	165234
MB 320-165234/1-A	Method Blank	Total/NA	Solid	537 (Modified)	165234
LCS 320-165234/2-A	Lab Control Sample	Total/NA	Solid	537 (Modified)	165234
320-28286-4 MS	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	537 (Modified)	165234
320-28286-4 MSD	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	537 (Modified)	165234

TestAmerica Sacramento

QC Association Summary

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

TestAmerica Job ID: 320-28286-1

General Chemistry

Analysis Batch: 165372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-1	MEAFF-T-45C-2005-SB01-0001	Total/NA	Solid	D 2216	
320-28286-2	MEAFF-T-45C-2005-SB01-0204	Total/NA	Solid	D 2216	
320-28286-3	MEAFF-Unknown11-SB01-0001	Total/NA	Solid	D 2216	
320-28286-4	MEAFF-Unknown11-SB01-0204	Total/NA	Solid	D 2216	
320-28286-5	MEAFF-EASTB-SB01-0001	Total/NA	Solid	D 2216	
320-28286-6	MEAFF-EASTB-SB01-0204	Total/NA	Solid	D 2216	

Analysis Batch: 165374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-7	MEAFF-Unknown10-SB01-0001	Total/NA	Solid	D 2216	
320-28286-8	MEAFF-Unknown10-SB01-0204	Total/NA	Solid	D 2216	
320-28286-9	MEAFF-EASTA-SB01-0001	Total/NA	Solid	D 2216	
320-28286-10	MEAFF-EASTA-SB01-0204	Total/NA	Solid	D 2216	
320-28286-14	MEAFF-TA-4J-1987-SB01-0001	Total/NA	Solid	D 2216	
320-28286-15	MEAFF-TA-4J-1987-SB01-0204	Total/NA	Solid	D 2216	
320-28286-16	MEAFF-Unknown20-SB01-0001	Total/NA	Solid	D 2216	
320-28286-17	MEAFF-Unknown20-SB01-0204	Total/NA	Solid	D 2216	
320-28286-18	MEAFF-ArrestingGearArea-SB01-0001	Total/NA	Solid	D 2216	
320-28286-19	MEAFF-ArrestingGearArea-SB01-0204	Total/NA	Solid	D 2216	
320-28286-20	MEAFF-Unknown16-SB01-0001	Total/NA	Solid	D 2216	
320-28286-21	MEAFF-Unknown16-SB01-0204	Total/NA	Solid	D 2216	
320-28286-22	MEAFF-FD06-051417	Total/NA	Solid	D 2216	
320-28286-23	MEAFF-T-45C-03-2008-SB01-0001	Total/NA	Solid	D 2216	
320-28286-24	MEAFF-T-45C-03-2008-SB01-0204	Total/NA	Solid	D 2216	
320-28286-25	MEAFF-TA-4-Unknown-SB01-0001	Total/NA	Solid	D 2216	
320-28286-26	MEAFF-TA-4-Unknown-SB01-0204	Total/NA	Solid	D 2216	
320-28286-27	MEAFF-Unknown17-SB01-0001	Total/NA	Solid	D 2216	
320-28286-28	MEAFF-Unknown17-SB01-0204	Total/NA	Solid	D 2216	
320-28286-7 DU	MEAFF-Unknown10-SB01-0001	Total/NA	Solid	D 2216	

Analysis Batch: 165611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-28286-29	MEAFF-TA-4J-1992-SB01-0001	Total/NA	Solid	D 2216	
320-28286-30	MEAFF-TA-4J-1992-SB01-0204	Total/NA	Solid	D 2216	
320-28286-32	MEAFF-TA-4J-1985-SB01-0001	Total/NA	Solid	D 2216	
320-28286-33	MEAFF-TA-4J-1985-SB01-0204	Total/NA	Solid	D 2216	

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-T-45C-2005-SB01-0001

Date Collected: 05/13/17 08:45

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-T-45C-2005-SB01-0001

Date Collected: 05/13/17 08:45

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-1

Matrix: Solid

Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 17:01	SBC	TAL SAC

Client Sample ID: MEAFF-T-45C-2005-SB01-0204

Date Collected: 05/13/17 08:50

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-T-45C-2005-SB01-0204

Date Collected: 05/13/17 08:50

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-2

Matrix: Solid

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 17:09	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown11-SB01-0001

Date Collected: 05/13/17 10:54

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown11-SB01-0001

Date Collected: 05/13/17 10:54

Date Received: 05/16/17 09:20

Lab Sample ID: 320-28286-3

Matrix: Solid

Percent Solids: 88.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 17:16	SBC	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown11-SB01-0204

Lab Sample ID: 320-28286-4

Date Collected: 05/13/17 10:58

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown11-SB01-0204

Lab Sample ID: 320-28286-4

Date Collected: 05/13/17 10:58

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 90.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 17:24	SBC	TAL SAC

Client Sample ID: MEAFF-EASTB-SB01-0001

Lab Sample ID: 320-28286-5

Date Collected: 05/13/17 12:54

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-EASTB-SB01-0001

Lab Sample ID: 320-28286-5

Date Collected: 05/13/17 12:54

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 17:47	SBC	TAL SAC

Client Sample ID: MEAFF-EASTB-SB01-0204

Lab Sample ID: 320-28286-6

Date Collected: 05/13/17 12:57

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165372	05/20/17 11:25	CFR	TAL SAC

Client Sample ID: MEAFF-EASTB-SB01-0204

Lab Sample ID: 320-28286-6

Date Collected: 05/13/17 12:57

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 83.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 17:55	SBC	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown10-SB01-0001

Lab Sample ID: 320-28286-7

Date Collected: 05/13/17 14:42

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown10-SB01-0001

Lab Sample ID: 320-28286-7

Date Collected: 05/13/17 14:42

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 18:10	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown10-SB01-0204

Lab Sample ID: 320-28286-8

Date Collected: 05/13/17 14:44

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown10-SB01-0204

Lab Sample ID: 320-28286-8

Date Collected: 05/13/17 14:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 18:18	SBC	TAL SAC

Client Sample ID: MEAFF-EASTA-SB01-0001

Lab Sample ID: 320-28286-9

Date Collected: 05/13/17 15:44

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-EASTA-SB01-0001

Lab Sample ID: 320-28286-9

Date Collected: 05/13/17 15:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 94.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 18:26	SBC	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-EASTA-SB01-0204

Lab Sample ID: 320-28286-10

Date Collected: 05/13/17 15:47

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-EASTA-SB01-0204

Lab Sample ID: 320-28286-10

Date Collected: 05/13/17 15:47

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 92.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 18:33	SBC	TAL SAC

Client Sample ID: MEAFF-EB05-051317

Lab Sample ID: 320-28286-11

Date Collected: 05/13/17 16:30

Matrix: Water

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			165207	05/18/17 17:41	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165487	05/20/17 06:42	SBC	TAL SAC

Client Sample ID: MEAFF-EB06-051317

Lab Sample ID: 320-28286-12

Date Collected: 05/13/17 16:35

Matrix: Water

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			165207	05/18/17 17:41	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165487	05/20/17 06:50	SBC	TAL SAC

Client Sample ID: MEAFF-EB07-051317

Lab Sample ID: 320-28286-13

Date Collected: 05/14/17 08:33

Matrix: Water

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			165207	05/18/17 17:41	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165487	05/20/17 06:57	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4J-1987-SB01-0001

Lab Sample ID: 320-28286-14

Date Collected: 05/14/17 08:40

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4J-1987-SB01-0001

Lab Sample ID: 320-28286-14

Date Collected: 05/14/17 08:40

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 94.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 18:41	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4J-1987-SB01-0204

Lab Sample ID: 320-28286-15

Date Collected: 05/14/17 08:45

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-TA-4J-1987-SB01-0204

Lab Sample ID: 320-28286-15

Date Collected: 05/14/17 08:45

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 18:49	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown20-SB01-0001

Lab Sample ID: 320-28286-16

Date Collected: 05/14/17 09:26

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown20-SB01-0001

Lab Sample ID: 320-28286-16

Date Collected: 05/14/17 09:26

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 92.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 18:56	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown20-SB01-0204

Lab Sample ID: 320-28286-17

Date Collected: 05/14/17 09:28

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown20-SB01-0204

Lab Sample ID: 320-28286-17

Date Collected: 05/14/17 09:28

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 19:04	SBC	TAL SAC

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0001

Lab Sample ID: 320-28286-18

Date Collected: 05/14/17 10:42

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0001

Lab Sample ID: 320-28286-18

Date Collected: 05/14/17 10:42

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 19:12	SBC	TAL SAC

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0204

Lab Sample ID: 320-28286-19

Date Collected: 05/14/17 10:49

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-ArrestingGearArea-SB01-0204

Lab Sample ID: 320-28286-19

Date Collected: 05/14/17 10:49

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 19:20	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown16-SB01-0001

Lab Sample ID: 320-28286-20

Date Collected: 05/14/17 12:23

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-Unknown16-SB01-0001

Lab Sample ID: 320-28286-20

Date Collected: 05/14/17 12:23

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 90.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 19:35	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown16-SB01-0204

Lab Sample ID: 320-28286-21

Date Collected: 05/14/17 12:25

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown16-SB01-0204

Lab Sample ID: 320-28286-21

Date Collected: 05/14/17 12:25

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 19:43	SBC	TAL SAC

Client Sample ID: MEAFF-FD06-051417

Lab Sample ID: 320-28286-22

Date Collected: 05/14/17 00:00

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-FD06-051417

Lab Sample ID: 320-28286-22

Date Collected: 05/14/17 00:00

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 89.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 19:50	SBC	TAL SAC

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0001

Lab Sample ID: 320-28286-23

Date Collected: 05/14/17 13:44

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0001

Lab Sample ID: 320-28286-23

Date Collected: 05/14/17 13:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 87.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165234	05/19/17 08:07	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	168107	06/07/17 19:58	SBC	TAL SAC

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204

Lab Sample ID: 320-28286-24

Date Collected: 05/14/17 13:47

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204

Lab Sample ID: 320-28286-24

Date Collected: 05/14/17 13:47

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	166071	05/24/17 21:58	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0001

Lab Sample ID: 320-28286-25

Date Collected: 05/14/17 14:35

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0001

Lab Sample ID: 320-28286-25

Date Collected: 05/14/17 14:35

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	166071	05/24/17 22:20	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204

Lab Sample ID: 320-28286-26

Date Collected: 05/14/17 14:38

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204

Lab Sample ID: 320-28286-26

Date Collected: 05/14/17 14:38

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 73.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	166071	05/24/17 22:28	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown17-SB01-0001

Lab Sample ID: 320-28286-27

Date Collected: 05/15/17 09:18

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown17-SB01-0001

Lab Sample ID: 320-28286-27

Date Collected: 05/15/17 09:18

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	166071	05/24/17 22:35	SBC	TAL SAC

Client Sample ID: MEAFF-Unknown17-SB01-0204

Lab Sample ID: 320-28286-28

Date Collected: 05/15/17 09:20

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165374	05/20/17 12:35	CFR	TAL SAC

Client Sample ID: MEAFF-Unknown17-SB01-0204

Lab Sample ID: 320-28286-28

Date Collected: 05/15/17 09:20

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 88.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	166071	05/24/17 22:43	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4J-1992-SB01-0001

Lab Sample ID: 320-28286-29

Date Collected: 05/15/17 09:44

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165611	05/22/17 16:21	CFR	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4J-1992-SB01-0001

Lab Sample ID: 320-28286-29

Date Collected: 05/15/17 09:44

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 79.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	166071	05/24/17 22:50	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4J-1992-SB01-0204

Lab Sample ID: 320-28286-30

Date Collected: 05/15/17 09:46

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165611	05/22/17 16:21	CFR	TAL SAC

Client Sample ID: MEAFF-TA-4J-1992-SB01-0204

Lab Sample ID: 320-28286-30

Date Collected: 05/15/17 09:46

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	166071	05/24/17 23:05	SBC	TAL SAC

Client Sample ID: MEAFF-EB08-051517

Lab Sample ID: 320-28286-31

Date Collected: 05/15/17 10:16

Matrix: Water

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			165207	05/18/17 17:41	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	165487	05/20/17 07:12	SBC	TAL SAC

Client Sample ID: MEAFF-TA-4J-1985-SB01-0001

Lab Sample ID: 320-28286-32

Date Collected: 05/15/17 11:50

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165611	05/22/17 16:21	CFR	TAL SAC

Client Sample ID: MEAFF-TA-4J-1985-SB01-0001

Lab Sample ID: 320-28286-32

Date Collected: 05/15/17 11:50

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 85.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	166071	05/24/17 23:13	SBC	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-28286-1

Client Sample ID: MEAFF-TA-4J-1985-SB01-0204

Lab Sample ID: 320-28286-33

Date Collected: 05/15/17 11:52

Matrix: Solid

Date Received: 05/16/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	165611	05/22/17 16:21	CFR	TAL SAC

Client Sample ID: MEAFF-TA-4J-1985-SB01-0204

Lab Sample ID: 320-28286-33

Date Collected: 05/15/17 11:52

Matrix: Solid

Date Received: 05/16/17 09:20

Percent Solids: 86.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			165287	05/19/17 09:45	HJA	TAL SAC
Total/NA	Analysis	537 (Modified)		1	166071	05/24/17 23:20	SBC	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 320-28286-1

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-18
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-29-18
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Hampshire	NELAP	1	2997	04-18-18
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-18
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-29-17 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

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

TestAmerica Job ID: 320-28286-1

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

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

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

TestAmerica Job ID: 320-28286-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-28286-1	MEAFF-T-45C-2005-SB01-0001	Solid	05/13/17 08:45	05/16/17 09:20
320-28286-2	MEAFF-T-45C-2005-SB01-0204	Solid	05/13/17 08:50	05/16/17 09:20
320-28286-3	MEAFF-Unknown11-SB01-0001	Solid	05/13/17 10:54	05/16/17 09:20
320-28286-4	MEAFF-Unknown11-SB01-0204	Solid	05/13/17 10:58	05/16/17 09:20
320-28286-5	MEAFF-EASTB-SB01-0001	Solid	05/13/17 12:54	05/16/17 09:20
320-28286-6	MEAFF-EASTB-SB01-0204	Solid	05/13/17 12:57	05/16/17 09:20
320-28286-7	MEAFF-Unknown10-SB01-0001	Solid	05/13/17 14:42	05/16/17 09:20
320-28286-8	MEAFF-Unknown10-SB01-0204	Solid	05/13/17 14:44	05/16/17 09:20
320-28286-9	MEAFF-EASTA-SB01-0001	Solid	05/13/17 15:44	05/16/17 09:20
320-28286-10	MEAFF-EASTA-SB01-0204	Solid	05/13/17 15:47	05/16/17 09:20
320-28286-11	MEAFF-EB05-051317	Water	05/13/17 16:30	05/16/17 09:20
320-28286-12	MEAFF-EB06-051317	Water	05/13/17 16:35	05/16/17 09:20
320-28286-13	MEAFF-EB07-051317	Water	05/14/17 08:33	05/16/17 09:20
320-28286-14	MEAFF-TA-4J-1987-SB01-0001	Solid	05/14/17 08:40	05/16/17 09:20
320-28286-15	MEAFF-TA-4J-1987-SB01-0204	Solid	05/14/17 08:45	05/16/17 09:20
320-28286-16	MEAFF-Unknown20-SB01-0001	Solid	05/14/17 09:26	05/16/17 09:20
320-28286-17	MEAFF-Unknown20-SB01-0204	Solid	05/14/17 09:28	05/16/17 09:20
320-28286-18	MEAFF-ArrestingGearArea-SB01-0001	Solid	05/14/17 10:42	05/16/17 09:20
320-28286-19	MEAFF-ArrestingGearArea-SB01-0204	Solid	05/14/17 10:49	05/16/17 09:20
320-28286-20	MEAFF-Unknown16-SB01-0001	Solid	05/14/17 12:23	05/16/17 09:20
320-28286-21	MEAFF-Unknown16-SB01-0204	Solid	05/14/17 12:25	05/16/17 09:20
320-28286-22	MEAFF-FD06-051417	Solid	05/14/17 00:00	05/16/17 09:20
320-28286-23	MEAFF-T-45C-03-2008-SB01-0001	Solid	05/14/17 13:44	05/16/17 09:20
320-28286-24	MEAFF-T-45C-03-2008-SB01-0204	Solid	05/14/17 13:47	05/16/17 09:20
320-28286-25	MEAFF-TA-4-Unknown-SB01-0001	Solid	05/14/17 14:35	05/16/17 09:20
320-28286-26	MEAFF-TA-4-Unknown-SB01-0204	Solid	05/14/17 14:38	05/16/17 09:20
320-28286-27	MEAFF-Unknown17-SB01-0001	Solid	05/15/17 09:18	05/16/17 09:20
320-28286-28	MEAFF-Unknown17-SB01-0204	Solid	05/15/17 09:20	05/16/17 09:20
320-28286-29	MEAFF-TA-4J-1992-SB01-0001	Solid	05/15/17 09:44	05/16/17 09:20
320-28286-30	MEAFF-TA-4J-1992-SB01-0204	Solid	05/15/17 09:46	05/16/17 09:20
320-28286-31	MEAFF-EB08-051517	Water	05/15/17 10:16	05/16/17 09:20
320-28286-32	MEAFF-TA-4J-1985-SB01-0001	Solid	05/15/17 11:50	05/16/17 09:20
320-28286-33	MEAFF-TA-4J-1985-SB01-0204	Solid	05/15/17 11:52	05/16/17 09:20

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 165487

Lab Sample ID: 320-28286-11 Client Sample ID: MEAFF-EB05-051317

Date Analyzed: 05/20/17 06:42 Lab File ID: 2017.05.19B_009.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.57	Isomers	chandrase nas	05/22/17 12:04
Perfluorooctanesulfonic acid (PFOS)	3.94	Assign Peak	chandrase nas	05/22/17 12:04

Lab Sample ID: 320-28286-12 Client Sample ID: MEAFF-EB06-051317

Date Analyzed: 05/20/17 06:50 Lab File ID: 2017.05.19B_010.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.96	Baseline	chandrase nas	05/22/17 12:05

Lab Sample ID: 320-28286-13 Client Sample ID: MEAFF-EB07-051317

Date Analyzed: 05/20/17 06:57 Lab File ID: 2017.05.19B_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.59	Isomers	chandrase nas	05/22/17 12:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 166071

Lab Sample ID: 320-28286-24 Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204

Date Analyzed: 05/24/17 21:58 Lab File ID: 2017.05.24C_034.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.50	Isomers	chandrase nas	05/25/17 11:00

Lab Sample ID: 320-28286-25 Client Sample ID: MEAFF-TA-4-Unknown-SB01-0001

Date Analyzed: 05/24/17 22:20 Lab File ID: 2017.05.24C_037.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.53	Isomers	chandrase nas	05/25/17 10:52
Perfluorooctanesulfonic acid (PFOS)	3.90	Baseline	chandrase nas	05/25/17 10:53

Lab Sample ID: 320-28286-26 Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204

Date Analyzed: 05/24/17 22:28 Lab File ID: 2017.05.24C_038.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.51	Isomers	chandrase nas	05/25/17 10:54
Perfluorooctanesulfonic acid (PFOS)	3.76	Baseline	chandrase nas	05/25/17 10:55

Lab Sample ID: 320-28286-27 Client Sample ID: MEAFF-Unknown17-SB01-0001

Date Analyzed: 05/24/17 22:35 Lab File ID: 2017.05.24C_039.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.40	Baseline	chandrase nas	05/25/17 10:55
Perfluorooctanoic acid (PFOA)	3.52	Isomers	chandrase nas	05/25/17 10:55

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 166071

Lab Sample ID: 320-28286-29 Client Sample ID: MEAFF-TA-4J-1992-SB01-0001

Date Analyzed: 05/24/17 22:50 Lab File ID: 2017.05.24C_041.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.51	Isomers	chandrase nas	05/25/17 10:58

Lab Sample ID: 320-28286-30 Client Sample ID: MEAFF-TA-4J-1992-SB01-0204

Date Analyzed: 05/24/17 23:05 Lab File ID: 2017.05.24C_043.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.51	Isomers	chandrase nas	05/25/17 11:00

Lab Sample ID: 320-28286-32 Client Sample ID: MEAFF-TA-4J-1985-SB01-0001

Date Analyzed: 05/24/17 23:13 Lab File ID: 2017.05.24C_044.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.51	Isomers	chandrase nas	05/25/17 11:01

Lab Sample ID: 320-28286-33 Client Sample ID: MEAFF-TA-4J-1985-SB01-0204

Date Analyzed: 05/24/17 23:20 Lab File ID: 2017.05.24C_045.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.51	Isomers	chandrase nas	05/25/17 11:02

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 167755

Lab Sample ID: IC 320-167755/4 Client Sample ID: _____

Date Analyzed: 06/06/17 13:47 Lab File ID: 2017.06.06CURVE_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.12	Incomplete Integration	chandrase nas	06/06/17 14:52

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 168107

Lab Sample ID: 320-28286-1 Client Sample ID: MEAFF-T-45C-2005-SB01-0001

Date Analyzed: 06/07/17 17:01 Lab File ID: 2017.06.07B_018.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.04	Baseline	raineys	06/07/17 18:06

Lab Sample ID: 320-28286-3 Client Sample ID: MEAFF-Unknown11-SB01-0001

Date Analyzed: 06/07/17 17:16 Lab File ID: 2017.06.07B_020.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.05	Baseline	raineys	06/07/17 18:08
Perfluorooctanoic acid (PFOA)	3.10	Isomers	raineys	06/07/17 18:08

Lab Sample ID: 320-28286-4 Client Sample ID: MEAFF-Unknown11-SB01-0204

Date Analyzed: 06/07/17 17:24 Lab File ID: 2017.06.07B_021.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.05	Baseline	raineys	06/07/17 18:25
Perfluorooctanoic acid (PFOA)	3.10	Isomers	raineys	06/07/17 18:25

Lab Sample ID: 320-28286-5 Client Sample ID: MEAFF-EASTB-SB01-0001

Date Analyzed: 06/07/17 17:47 Lab File ID: 2017.06.07B_024.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.05	Baseline	raineys	06/07/17 18:51
Perfluorooctanoic acid (PFOA)	3.10	Isomers	raineys	06/07/17 18:51

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 168107

Lab Sample ID: 320-28286-6 Client Sample ID: MEAFF-EASTB-SB01-0204

Date Analyzed: 06/07/17 17:55 Lab File ID: 2017.06.07B_025.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.10	Isomers	raineys	06/07/17 18:57

Lab Sample ID: 320-28286-7 Client Sample ID: MEAFF-Unknown10-SB01-0001

Date Analyzed: 06/07/17 18:10 Lab File ID: 2017.06.07B_027.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.04	Baseline	raineys	06/07/17 18:58
Perfluorooctanoic acid (PFOA)	3.10	Isomers	raineys	06/07/17 18:59

Lab Sample ID: 320-28286-8 Client Sample ID: MEAFF-Unknown10-SB01-0204

Date Analyzed: 06/07/17 18:18 Lab File ID: 2017.06.07B_028.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.04	Baseline	raineys	06/07/17 19:00

Lab Sample ID: 320-28286-9 Client Sample ID: MEAFF-EASTA-SB01-0001

Date Analyzed: 06/07/17 18:26 Lab File ID: 2017.06.07B_029.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.04	Baseline	raineys	06/08/17 10:56

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 168107

Lab Sample ID: 320-28286-15 Client Sample ID: MEAFF-TA-4J-1987-SB01-0204

Date Analyzed: 06/07/17 18:49 Lab File ID: 2017.06.07B_032.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.05	Baseline	raineys	06/07/17 20:11
Perfluorooctanoic acid (PFOA)	3.10	Isomers	raineys	06/07/17 20:10
Perfluorooctanesulfonic acid (PFOS)	3.35	Isomers	raineys	06/07/17 20:11

Lab Sample ID: 320-28286-16 Client Sample ID: MEAFF-Unknown20-SB01-0001

Date Analyzed: 06/07/17 18:56 Lab File ID: 2017.06.07B_033.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.04	Baseline	raineys	06/07/17 20:12
Perfluorooctanoic acid (PFOA)	3.09	Isomers	raineys	06/07/17 20:12

Lab Sample ID: 320-28286-17 Client Sample ID: MEAFF-Unknown20-SB01-0204

Date Analyzed: 06/07/17 19:04 Lab File ID: 2017.06.07B_034.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.04	Baseline	raineys	06/07/17 20:13

Lab Sample ID: 320-28286-18 Client Sample ID: MEAFF-ArrestingGearArea-SB01-0001

Date Analyzed: 06/07/17 19:12 Lab File ID: 2017.06.07B_035.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.04	Baseline	raineys	06/08/17 10:29
Perfluorooctanoic acid (PFOA)	3.09	Isomers	raineys	06/08/17 10:29

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 168107

Lab Sample ID: 320-28286-19 Client Sample ID: MEAFF-ArrestingGearArea-SB01-0204

Date Analyzed: 06/07/17 19:20 Lab File ID: 2017.06.07B_036.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.04	Baseline	raineys	06/08/17 10:30

Lab Sample ID: 320-28286-21 Client Sample ID: MEAFF-Unknown16-SB01-0204

Date Analyzed: 06/07/17 19:43 Lab File ID: 2017.06.07B_039.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.04	Baseline	raineys	06/08/17 10:35

Lab Sample ID: 320-28286-22 Client Sample ID: MEAFF-FD06-051417

Date Analyzed: 06/07/17 19:50 Lab File ID: 2017.06.07B_040.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	3.08	Baseline	raineys	06/08/17 10:36

Lab Sample ID: 320-28286-23 Client Sample ID: MEAFF-T-45C-03-2008-SB01-0001

Date Analyzed: 06/07/17 19:58 Lab File ID: 2017.06.07B_041.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	2.04	Baseline	raineys	06/08/17 10:37
Perfluorooctanoic acid (PFOA)	3.09	Isomers	raineys	06/08/17 10:37

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LCM2-4:2FTSIC_00002	08/06/17	05/26/17	MeOH/H2O, Lot 09285	5000 uL	LCPFC-IS_00002	1000 uL	13C2-PFOA	50 ng/mL
.LCPFC-IS_00002	11/24/17	05/24/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00006	150 uL	13C2-PFOA	0.25 ug/mL
..LCM2PFOA_00006	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
LCMPFCSU_00068	11/12/17	05/12/17	Methanol, Lot Baker 141039	200 mL	LCM2PFHxDA_00009	200 uL	13C2-PFHxDA	0.05 ug/mL
					LCM2PFTeDA_00008	200 uL	13C2-PFTeDA	0.05 ug/mL
					LCM4PFHPA_00008	200 uL	13C4-PFHpa	0.05 ug/mL
					LCM5PFPEA_00009	200 uL	13C5-PFPeA	0.05 ug/mL
					LCM8FOSA_00012	200 uL	13C8 FOSA	0.05 ug/mL
					LCMPFBA_00009	200 uL	13C4 PFBA	0.05 ug/mL
					LCMPFBS_00002	200 uL	13C3-PFBS	0.0465 ug/mL
					LCMPFDA_00013	200 uL	13C2 PFDA	0.05 ug/mL
					LCMPFDoA_00009	200 uL	13C2 PFDoA	0.05 ug/mL
					LCMPFHxA_00014	200 uL	13C2 PFHxA	0.05 ug/mL
					LCMPFHxS_00009	200 uL	18O2 PFHxS	0.0473 ug/mL
					LCMPFNA_00009	200 uL	13C5 PFNA	0.05 ug/mL
					LCMPFOA_00013	200 uL	13C4 PFOA	0.05 ug/mL
					LCMPFOS_00020	200 uL	13C4 PFOS	0.0478 ug/mL
					LCMPFUdA_00010	200 uL	13C2 PFUnA	0.05 ug/mL
.LCM2PFHxDA_00009	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
.LCM2PFTeDA_00008	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
.LCM4PFHPA_00008	05/27/21	Wellington Laboratories, Lot M4PFHpa0516			(Purchased Reagent)		13C4-PFHpa	50 ug/mL
.LCM5PFPEA_00009	11/22/21	Wellington Laboratories, Lot M5PFPeA1116			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
.LCM8FOSA_00012	12/22/20	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
.LCMPFBA_00009	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
.LCMPFBS_00002	08/02/21	Wellington Laboratories, Lot M3PFBS0815			(Purchased Reagent)		13C3-PFBS	46.5 ug/mL
.LCMPFDA_00013	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFDoA_00009	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
.LCMPFHxA_00014	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
.LCMPFHxS_00009	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
.LCMPFNA_00009	09/30/21	Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)		13C5 PFNA	50 ug/mL
.LCMPFOA_00013	10/18/21	Wellington Laboratories, Lot MPFOA1016			(Purchased Reagent)		13C4 PFOA	50 ug/mL
.LCMPFOS_00020	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LCMPFUdA_00010	11/22/21	Wellington Laboratories, Lot MPFUdA1116			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
LCPFC_FULL-L1_00002	08/13/17	04/16/17	MeOH/H2O, Lot 90285	5050 uL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	49.505 ng/mL
							d-N-MeFOSA-M	49.505 ng/mL
							d3-NMeFOSAA	49.505 ng/mL
							d5-NEtFOSAA	49.505 ng/mL
							M2-6:2FTS	47.0297 ng/mL
							M2-8:2FTS	47.4257 ng/mL
					LCMPFCSU_00057	250 uL	13C2-PFHxDA	49.505 ng/mL
							13C2-PFTeDA	49.505 ng/mL
							13C4-PFHpa	49.505 ng/mL
							13C5-PFPeA	49.505 ng/mL
							13C8 FOSA	49.505 ng/mL
							13C4 PFBA	49.505 ng/mL
							13C2 PFDA	49.505 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C2 PFDoA	49.505 ng/mL
							13C2 PFHxA	49.505 ng/mL
							18O2 PFHxS	46.8317 ng/mL
							13C5 PFNA	49.505 ng/mL
							13C4 PFOA	49.505 ng/mL
							13C4 PFOS	47.3267 ng/mL
							13C2 PFUnA	49.505 ng/mL
					LCPFC2SP_00031	25 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.462376 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.469307 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.474257 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	0.49505 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.49505 ng/mL
							MeFOSA	0.49505 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.49505 ng/mL
					LCPFCIS_00002	50 uL	13C2-PFOA	49.505 ng/mL
					LCPFCSP_00084	25 uL	Perfluorobutyric acid	0.49505 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.437624 ng/mL
							Perfluorodecanoic acid	0.49505 ng/mL
							Perfluorododecanoic acid	0.49505 ng/mL
							Perfluorodecane Sulfonic acid	0.477228 ng/mL
							Perfluoroheptanoic acid	0.49505 ng/mL
							Perfluoroheptanesulfonic Acid	0.471287 ng/mL
							Perfluorohexanoic acid	0.49505 ng/mL
							Perfluorohexadecanoic acid	0.49505 ng/mL
							Perfluorohexanesulfonic acid	0.450495 ng/mL
							Perfluorononanoic acid	0.49505 ng/mL
							Perfluorooctanoic acid (PFOA)	0.49505 ng/mL
							Perfluorooctadecanoic acid	0.49505 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.459406 ng/mL
							Perfluorooctane Sulfonamide	0.49505 ng/mL
							Perfluoropentanoic acid	0.49505 ng/mL
							Perfluorotetradecanoic acid	0.49505 ng/mL
							Perfluorotridecanoic acid	0.49505 ng/mL
		Perfluoroundecanoic acid	0.49505 ng/mL					
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	Lcd-NEtFOSA-M_00004	1000 uL	d-N-EtFOSA-M	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NETFOSAA 00003	1000 uL	d5-NETFOSAA	1 ug/mL
					LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NETFOSA-M 00004	06/10/21		WELLINGTON, Lot dNETFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NETFOSAA 00003	08/02/21		WELLINGTON, Lot d5NETFOSAA0716		(Purchased Reagent)		d5-NETFOSAA	50 ug/mL
..LCM2-6:FTS 00003	01/08/21		WELLINGTON, Lot M262FTS0116		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00003	01/08/21		WELLINGTON, Lot M282FTS0116		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCMPFCSU_00057	10/04/17	04/04/17	Methanol, Lot Baker 141039	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA 00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA 00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA 00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA 00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA 00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA 00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA 00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA 00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS 00008	1000 uL	1802 PFHxS	0.946 ug/mL
					LCMPFNA 00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00018	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa 00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21		Wellington Laboratories, Lot M4PFHPa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa 00009	02/12/21		Wellington Laboratories, Lot MPFUDa0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFC2SP_00031	10/14/17	04/14/17	Methanol, Lot 104453	5000 uL	LCPFC2SP_00030	500 uL	Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	0.0934 ug/mL
							Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.0958 ug/mL
							N-ethylperfluoro-1-octanesulfonamide	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_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfonamide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
...LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216			(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
...LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616			(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015			(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M			(Purchased Reagent)	N-ethylperfluoro-1-octanesulfonamide	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116			(Purchased Reagent)	N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M			(Purchased Reagent)	MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116			(Purchased Reagent)	N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCIS_00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA_00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613			(Purchased Reagent)	13C2-PFOA	50 ug/mL
.LCPFCSP_00084	09/02/17	03/23/17	Methanol, Lot 141039	10000 uL	LCPFCSP_00083	2000 uL	Perfluorobutyric acid	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid	0.1 ug/mL
							Perfluorododecanoic acid	0.1 ug/mL
							Perfluorodecane Sulfonic acid	0.0964 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration	
					Reagent ID	Volume Added			
							Perfluoroheptanoic acid	0.1 ug/mL	
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL	
							Perfluorohexanoic acid	0.1 ug/mL	
							Perfluorohexadecanoic acid	0.1 ug/mL	
							Perfluorohexanesulfonic acid	0.091 ug/mL	
							Perfluorononanoic acid	0.1 ug/mL	
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL	
							Perfluorooctadecanoic acid	0.1 ug/mL	
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL	
							Perfluorooctane Sulfonamide	0.1 ug/mL	
							Perfluoropentanoic acid	0.1 ug/mL	
							Perfluorotetradecanoic acid	0.1 ug/mL	
							Perfluorotridecanoic acid	0.1 ug/mL	
							Perfluoroundecanoic acid	0.1 ug/mL	
..LCPFCSP_00083	09/02/17	03/23/17	Methanol, Lot 141039	10000 uL	LCPFBA 00005	100 uL	Perfluorobutyric acid	0.5 ug/mL	
					LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL	
					LCPFDA 00006	100 uL	Perfluorodecanoic acid	0.5 ug/mL	
					LCPFDoA 00006	100 uL	Perfluorododecanoic acid	0.5 ug/mL	
					LCPFDS 00006	100 uL	Perfluorodecane Sulfonic acid	0.482 ug/mL	
					LCPFHpA 00006	100 uL	Perfluoroheptanoic acid	0.5 ug/mL	
					LCPFHpS 00009	100 uL	Perfluoroheptanesulfonic Acid	0.476 ug/mL	
					LCPFHxA 00005	100 uL	Perfluorohexanoic acid	0.5 ug/mL	
					LCPFHxDA 00006	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL	
					LCPFHxS-br 00002	100 uL	Perfluorohexanesulfonic acid	0.455 ug/mL	
					LCPFNA 00006	100 uL	Perfluorononanoic acid	0.5 ug/mL	
					LCPFOA 00006	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL	
					LCPFODA 00006	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL	
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL	
					LCPFOSA 00009	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL	
					LCPFPeA 00005	100 uL	Perfluoropentanoic acid	0.5 ug/mL	
					LCPFTeDA 00005	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL	
					LCPFTrDA 00005	100 uL	Perfluorotridecanoic acid	0.5 ug/mL	
					LCPFUdA 00005	100 uL	Perfluoroundecanoic acid	0.5 ug/mL	
...LCPFBA 00005	05/27/21		Wellington Laboratories, Lot PFBA0516				(Purchased Reagent)	Perfluorobutyric acid	50 ug/mL
...LCPFBS_00005	03/15/21		Wellington Laboratories, Lot LPFBS0316				(Purchased Reagent)	Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
...LCPFDA 00006	05/31/21		Wellington Laboratories, Lot PFDA0516				(Purchased Reagent)	Perfluorodecanoic acid	50 ug/mL
...LCPFDoA 00006	05/31/21		Wellington Laboratories, Lot PFDoA0516				(Purchased Reagent)	Perfluorododecanoic acid	50 ug/mL
...LCPFDS 00006	05/24/21		Wellington Laboratories, Lot LPFDS0516				(Purchased Reagent)	Perfluorodecane Sulfonic acid	48.2 ug/mL
...LCPFHpA 00006	01/22/21		Wellington Laboratories, Lot PFHpA0116				(Purchased Reagent)	Perfluoroheptanoic acid	50 ug/mL
...LCPFHpS 00009	11/06/20		Wellington Laboratories, Lot LPFHpS1115				(Purchased Reagent)	Perfluoroheptanesulfonic Acid	47.6 ug/mL
...LCPFHxA 00005	12/22/20		Wellington Laboratories, Lot PFHxA1215				(Purchased Reagent)	Perfluorohexanoic acid	50 ug/mL
...LCPFHxDA 00006	05/25/21		Wellington Laboratories, Lot PFHxDA0516				(Purchased Reagent)	Perfluorohexadecanoic acid	50 ug/mL
...LCPFHxS-br 00002	07/03/20		Wellington Laboratories, Lot brPFHxSK0615				(Purchased Reagent)	Perfluorohexanesulfonic acid	45.5 ug/mL
...LCPFNA 00006	10/23/20		Wellington Laboratories, Lot PFNA1015				(Purchased Reagent)	Perfluorononanoic acid	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LCPFOA 00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFODA 00006	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
...LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFOSA 00009	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
...LCPFPeA 00005	01/30/20		Wellington Laboratories, Lot PFPeA0115		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
...LCPFTeDA 00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
...LCPFTTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
...LCPFUdA 00005	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L1_00004	09/02/17	06/01/17	MeOH/H2O, Lot 90285	5000 uL	LCMPFC2SU_00019	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NMeFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00069	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00031	25 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.467 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.479 ng/mL
N-ethylperfluoro-1-octanesulfonamide	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							
LCPFCIS 00002	50 uL	13C2-PFOA	50 ng/mL					
LCPFCSP_00098	25 uL	Perfluorobutyric acid	0.5 ng/mL					
		Perfluorobutanesulfonic acid (PFBS)	0.442 ng/mL					

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration	
					Reagent ID	Volume Added			
							Perfluorodecanoic acid	0.5 ng/mL	
							Perfluorododecanoic acid	0.5 ng/mL	
							Perfluorodecane Sulfonic acid	0.482 ng/mL	
							Perfluoroheptanoic acid	0.5 ng/mL	
							Perfluoroheptanesulfonic Acid	0.476 ng/mL	
							Perfluorohexanoic acid	0.5 ng/mL	
							Perfluorohexadecanoic acid	0.5 ng/mL	
							Perfluorohexanesulfonic acid	0.455 ng/mL	
							Perfluorononanoic acid	0.5 ng/mL	
							Perfluorooctanoic acid (PFOA)	0.5 ng/mL	
							Perfluorooctadecanoic acid	0.5 ng/mL	
							Perfluorooctanesulfonic acid (PFOS)	0.464 ng/mL	
							Perfluorooctane Sulfonamide	0.5 ng/mL	
							Perfluoropentanoic acid	0.5 ng/mL	
							Perfluorotetradecanoic acid	0.5 ng/mL	
							Perfluorotridecanoic acid	0.5 ng/mL	
							Perfluoroundecanoic acid	0.5 ng/mL	
.LCMPFC2SU_00019	11/30/17	05/30/17	Methanol, Lot 104453	5000 uL	LCd-NEtFOSA-M 00005	100 uL	d-N-EtFOSA-M	1 ug/mL	
					LCd-NMeFOSA-M 00004	100 uL	d-N-MeFOSA-M	1 ug/mL	
					LCd3-NMeFOSAA 00004	100 uL	d3-NMeFOSAA	1 ug/mL	
					LCd5-NEtFOSAA 00004	100 uL	d5-NEtFOSAA	1 ug/mL	
					LCM2-6:FtS 00004	100 uL	M2-6:2FtS	0.95 ug/mL	
					LCM2-8:2FtS 00004	100 uL	M2-8:2FtS	0.958 ug/mL	
..LCd-NEtFOSA-M 00005	06/10/21		WELLINGTON, Lot dNEtFOSA0616M				(Purchased Reagent)	d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00004	06/10/21		WELLINGTON, Lot dNMeFOSA0616M				(Purchased Reagent)	d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00004	11/22/21		WELLINGTON, Lot d3NMeFOSAA1116				(Purchased Reagent)	d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA 00004	11/22/21		WELLINGTON, Lot d5NEtFOSAA1116				(Purchased Reagent)	d5-NEtFOSAA	50 ug/mL
..LCM2-6:FtS 00004	02/17/22		WELLINGTON, Lot M262FtS0217				(Purchased Reagent)	M2-6:2FtS	47.5 ug/mL
..LCM2-8:2FtS 00004	08/22/21		WELLINGTON, Lot M282FtS0816				(Purchased Reagent)	M2-8:2FtS	47.9 ug/mL
.LCMPFCSU_00069	11/24/17	05/24/17	Methanol, Lot Baker 141039	10000 uL	LCM2PFHxDA_00009	200 uL	13C2-PFHxDA	1 ug/mL	
					LCM2PFtEDA_00008	200 uL	13C2-PFtEDA	1 ug/mL	
					LCM4PFHPA_00008	200 uL	13C4-PFHpa	1 ug/mL	
					LCM5PFPEA_00009	200 uL	13C5-PFPeA	1 ug/mL	
					LCM8FOSA_00012	200 uL	13C8 FOSA	1 ug/mL	
					LCMPFBA_00009	200 uL	13C4 PFBA	1 ug/mL	
					LCMPFDA_00013	200 uL	13C2 PFDA	1 ug/mL	
					LCMPFDoA_00009	200 uL	13C2 PFDoA	1 ug/mL	
					LCMPFHxA_00014	200 uL	13C2 PFHxA	1 ug/mL	
					LCMPFHxS_00009	200 uL	18O2 PFHxS	0.946 ug/mL	
					LCMPFNA_00009	200 uL	13C5 PFNA	1 ug/mL	
					LCMPFOA_00013	200 uL	13C4 PFOA	1 ug/mL	
					LCMPFOS_00020	200 uL	13C4 PFOS	0.956 ug/mL	
					LCMPFUdA_00010	200 uL	13C2 PFUnA	1 ug/mL	
..LCM2PFHxDA_00009	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112				(Purchased Reagent)	13C2-PFHxDA	50 ug/mL
..LCM2PFtEDA_00008	12/07/20		Wellington Laboratories, Lot M2PFtEDA1115				(Purchased Reagent)	13C2-PFtEDA	50 ug/mL
..LCM4PFHPA_00008	05/27/21		Wellington Laboratories, Lot M4PFHpA0516				(Purchased Reagent)	13C4-PFHpa	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCM5PFPEA 00009	11/22/21		Wellington Laboratories, Lot M5PFPeA1116		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00012	12/22/20		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00009	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00013	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00009	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00014	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00009	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA 00009	09/30/21		Wellington Laboratories, Lot MPFNA0916		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00013	10/18/21		Wellington Laboratories, Lot MPFOA1016		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00020	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA 00010	11/22/21		Wellington Laboratories, Lot MPFUdA1116		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFC2SP_00031	10/14/17	04/14/17	Methanol, Lot 104453	5000 uL	LCPFC2SP_00030	500 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.0934 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorodecane 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_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
...LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
...LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015			(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M			(Purchased Reagent)	N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116			(Purchased Reagent)	N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M			(Purchased Reagent)	MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116			(Purchased Reagent)	N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCIS_00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA_00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613			(Purchased Reagent)	13C2-PFOA	50 ug/mL
.LCPFCSP_00098	09/02/17	06/01/17	Methanol, Lot 157237	10000 uL	LCPFCSP_00096	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	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid	0.091 ug/mL
							Perfluorononanoic acid	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide	0.1 ug/mL
							Perfluoropentanoic acid	0.1 ug/mL
							Perfluorotetradecanoic acid	0.1 ug/mL
							Perfluorotridecanoic acid	0.1 ug/mL
							Perfluoroundecanoic acid	0.1 ug/mL
..LCPFCSP_00096	09/02/17	05/24/17	Methanol, Lot 090285	10000 uL	LCPFBA_00006	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00006	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00006	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00006	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00010	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00007	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00003	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00007	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00007	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00007	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00003	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFOSA 00009	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA 00006	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA 00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA 00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUDa 00006	200 uL	Perfluoroundecanoic acid	1 ug/mL
...LCPFBA 00006	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
...LCPFBS_00006	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
...LCPFDA 00006	05/31/21	Wellington Laboratories, Lot PFDA0516			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
...LCPFFDoA 00006	05/31/21	Wellington Laboratories, Lot PFDoA0516			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
...LCPFFDS 00005	07/02/20	Wellington Laboratories, Lot LPFDS0615			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
...LCPFFHpA 00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
...LCPFFHps 00010	11/06/20	Wellington Laboratories, Lot LPFHps1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
...LCPFFHxA 00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
...LCPFFHxDA 00007	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
...LCPFFHxS-br 00003	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
...LCPFFNA 00007	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
...LCPFFOA 00007	08/02/21	Wellington Laboratories, Lot PFOA0716			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFFODA 00007	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
...LCPFFOS-br_00003	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFFOSA 00009	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
...LCPFPeA 00006	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
...LCPFTeDA 00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
...LCPFTrDA 00005	02/12/21	Wellington Laboratories, Lot PFTTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
...LCPFUDa 00006	08/19/20	Wellington Laboratories, Lot PFUDa0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULLL-L2_00002	08/13/17	04/16/17	MeOH/H2O, Lot 090285	5050 uL	LCPMFC2SU_00014	250 uL	d-N-EtFOSA-M	49.505 ng/mL
							d-N-MeFOSA-M	49.505 ng/mL
							d3-NMeFOSAA	49.505 ng/mL
							d5-NMeFOSAA	49.505 ng/mL
							M2-6:2FTS	47.0297 ng/mL
							M2-8:2FTS	47.4257 ng/mL
					LCPMFCSU_00057	250 uL	13C2-PFHxDA	49.505 ng/mL
							13C2-PFTeDA	49.505 ng/mL
							13C4-PFHpA	49.505 ng/mL
							13C5-PFPeA	49.505 ng/mL
							13C8 FOSA	49.505 ng/mL
							13C4 PFBA	49.505 ng/mL
							13C2 PFDA	49.505 ng/mL
							13C2 PFDoA	49.505 ng/mL
							13C2 PFHxA	49.505 ng/mL
							18O2 PFHxS	46.8317 ng/mL
							13C5 PFNA	49.505 ng/mL
							13C4 PFOA	49.505 ng/mL
							13C4 PFOS	47.3267 ng/mL
							13C2 PFUnA	49.505 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFC2SP_00031	50 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.924752 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.938614 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.948515 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	0.990099 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.990099 ng/mL
							MeFOSA	0.990099 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.990099 ng/mL
							LCPFCIS 00002	50 uL
					LCPFCSP_00084	50 uL	Perfluorobutyric acid	0.990099 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.875248 ng/mL
							Perfluorodecanoic acid	0.990099 ng/mL
							Perfluorododecanoic acid	0.990099 ng/mL
							Perfluorodecane Sulfonic acid	0.954455 ng/mL
							Perfluoroheptanoic acid	0.990099 ng/mL
							Perfluoroheptanesulfonic Acid	0.942574 ng/mL
							Perfluorohexanoic acid	0.990099 ng/mL
							Perfluorohexadecanoic acid	0.990099 ng/mL
							Perfluorohexanesulfonic acid	0.90099 ng/mL
							Perfluorononanoic acid	0.990099 ng/mL
							Perfluorooctanoic acid (PFOA)	0.990099 ng/mL
							Perfluorooctadecanoic acid	0.990099 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.918812 ng/mL
							Perfluorooctane Sulfonamide	0.990099 ng/mL
							Perfluoropentanoic acid	0.990099 ng/mL
							Perfluorotetradecanoic acid	0.990099 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorotridecanoic acid	0.990099 ng/mL
							Perfluoroundecanoic acid	0.990099 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NETfOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NETfOSA 00003	1000 uL	d5-NETfOSA	1 ug/mL
					LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NETfOSA-M 00004	06/10/21		WELLINGTON, Lot dNETfOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NETfOSA 00003	08/02/21		WELLINGTON, Lot d5NETfOSA0716		(Purchased Reagent)		d5-NETfOSA	50 ug/mL
..LCM2-6:FTS 00003	01/08/21		WELLINGTON, Lot M262FTS0116		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00003	01/08/21		WELLINGTON, Lot M282FTS0116		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCMPFCSU_00057	10/04/17	04/04/17	Methanol, Lot Baker 141039	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	1802 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00018	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21		Wellington Laboratories, Lot M4PFHPa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA 00009	02/12/21		Wellington Laboratories, Lot MPFUdA0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC2SP_00031	10/14/17	04/14/17	Methanol, Lot 104453	5000 uL	LCPFC2SP_00030	500 uL	Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	0.0934 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H, 1H, 2H, 2H-perfluorodecane 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_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FTS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
...LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
...LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCIS 00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA 00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA 00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00084	09/02/17	03/23/17	Methanol, Lot 141039	10000 uL	LCPFCSP_00083	2000 uL	Perfluorobutyric acid	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration	
					Reagent ID	Volume Added			
							Perfluorodecanoic acid	0.1 ug/mL	
							Perfluorododecanoic acid	0.1 ug/mL	
							Perfluorodecane Sulfonic acid	0.0964 ug/mL	
							Perfluoroheptanoic acid	0.1 ug/mL	
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL	
							Perfluorohexanoic acid	0.1 ug/mL	
							Perfluorohexadecanoic acid	0.1 ug/mL	
							Perfluorohexanesulfonic acid	0.091 ug/mL	
							Perfluorononanoic acid	0.1 ug/mL	
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL	
							Perfluorooctadecanoic acid	0.1 ug/mL	
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL	
							Perfluorooctane Sulfonamide	0.1 ug/mL	
							Perfluoropentanoic acid	0.1 ug/mL	
							Perfluorotetradecanoic acid	0.1 ug/mL	
							Perfluorotridecanoic acid	0.1 ug/mL	
							Perfluoroundecanoic acid	0.1 ug/mL	
...LCPFCSP_00083	09/02/17	03/23/17	Methanol, Lot 141039	10000 uL	LCPFBA_00005	100 uL	Perfluorobutyric acid	0.5 ug/mL	
					LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL	
					LCPFDA_00006	100 uL	Perfluorodecanoic acid	0.5 ug/mL	
					LCPFDoA_00006	100 uL	Perfluorododecanoic acid	0.5 ug/mL	
					LCPFDS_00006	100 uL	Perfluorodecane Sulfonic acid	0.482 ug/mL	
					LCPFHpA_00006	100 uL	Perfluoroheptanoic acid	0.5 ug/mL	
					LCPFHpS_00009	100 uL	Perfluoroheptanesulfonic Acid	0.476 ug/mL	
					LCPFHxA_00005	100 uL	Perfluorohexanoic acid	0.5 ug/mL	
					LCPFHxDA_00006	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL	
					LCPFHxS-br_00002	100 uL	Perfluorohexanesulfonic acid	0.455 ug/mL	
					LCPFNA_00006	100 uL	Perfluorononanoic acid	0.5 ug/mL	
					LCPFOA_00006	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL	
					LCPFODA_00006	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL	
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL	
					LCPFOSA_00009	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL	
					LCPFPeA_00005	100 uL	Perfluoropentanoic acid	0.5 ug/mL	
					LCPFTeDA_00005	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL	
					LCPFTrDA_00005	100 uL	Perfluorotridecanoic acid	0.5 ug/mL	
					LCPFUdA_00005	100 uL	Perfluoroundecanoic acid	0.5 ug/mL	
...LCPFBA_00005	05/27/21		Wellington Laboratories, Lot PFBA0516				(Purchased Reagent)	Perfluorobutyric acid	50 ug/mL
...LCPFBS_00005	03/15/21		Wellington Laboratories, Lot LPFBS0316				(Purchased Reagent)	Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
...LCPFDA_00006	05/31/21		Wellington Laboratories, Lot PFDA0516				(Purchased Reagent)	Perfluorodecanoic acid	50 ug/mL
...LCPFDoA_00006	05/31/21		Wellington Laboratories, Lot PFDoA0516				(Purchased Reagent)	Perfluorododecanoic acid	50 ug/mL
...LCPFDS_00006	05/24/21		Wellington Laboratories, Lot LPFDS0516				(Purchased Reagent)	Perfluorodecane Sulfonic acid	48.2 ug/mL
...LCPFHpA_00006	01/22/21		Wellington Laboratories, Lot PFHpA0116				(Purchased Reagent)	Perfluoroheptanoic acid	50 ug/mL
...LCPFHpS_00009	11/06/20		Wellington Laboratories, Lot LPFHpS1115				(Purchased Reagent)	Perfluoroheptanesulfonic Acid	47.6 ug/mL
...LCPFHxA_00005	12/22/20		Wellington Laboratories, Lot PFHxA1215				(Purchased Reagent)	Perfluorohexanoic acid	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
...LCPFHxDA 00006	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL		
...LCPFHxS-br_00002	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL		
...LCPFNA 00006	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL		
...LCPFOA 00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL		
...LCPFODA 00006	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL		
...LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL		
...LCPFOSA 00009	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL		
...LCPFPeA 00005	01/30/20		Wellington Laboratories, Lot PFPeA0115		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL		
...LCPFTeDA 00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL		
...LCPFTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL		
...LCPFUdA 00005	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL		
LCPFC_FULL-L2_00003	08/13/17	04/16/17	MeOH/H2O, Lot 090285	5050 uL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	49.505 ng/mL		
							d-N-MeFOSA-M	49.505 ng/mL		
							d3-NMeFOSAA	49.505 ng/mL		
							d5-NEtFOSAA	49.505 ng/mL		
							M2-6:2FTS	47.0297 ng/mL		
							M2-8:2FTS	47.4257 ng/mL		
							LCMPFCSU_00057	250 uL	13C2-PFHxDA	49.505 ng/mL
									13C2-PFTeDA	49.505 ng/mL
					13C4-PFHpa	49.505 ng/mL				
					13C5-PFPeA	49.505 ng/mL				
					13C8 FOSA	49.505 ng/mL				
					13C4 PFBA	49.505 ng/mL				
					13C2 PFDA	49.505 ng/mL				
					13C2 PFDoA	49.505 ng/mL				
					13C2 PFHxA	49.505 ng/mL				
					18O2 PFHxS	46.8317 ng/mL				
					13C5 PFNA	49.505 ng/mL				
					13C4 PFOA	49.505 ng/mL				
					13C4 PFOS	47.3267 ng/mL				
					13C2 PFUnA	49.505 ng/mL				
LCPFCSP_00084	50 uL	Perfluorobutanesulfonic acid (PFBS)	0.875248 ng/mL							
		Perfluorooctanoic acid (PFOA)	0.990099 ng/mL							
		Perfluorooctanesulfonic acid (PFOS)	0.918812 ng/mL							
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL		
							LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
							LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
							LCd5-NEtFOSAA 00003	1000 uL	d5-NEtFOSAA	1 ug/mL
							LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL
							LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M 00004	06/10/21		WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL		
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL		
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL		
..LCd5-NEtFOSAA 00003	08/02/21		WELLINGTON, Lot d5NetFOSAA0716		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCM2-6:FTS 00003	01/08/21		WELLINGTON, Lot M262FTS0116		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00003	01/08/21		WELLINGTON, Lot M282FTS0116		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCMPFCSU_00057	10/04/17	04/04/17	Methanol, Lot Baker 141039	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA_00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00018	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHFA 00007	05/27/21		Wellington Laboratories, Lot M4PFHFA0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA 00009	02/12/21		Wellington Laboratories, Lot MPFUdA0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFCSP_00084	09/02/17	03/23/17	Methanol, Lot 141039	10000 uL	LCPFCSP_00083	2000 uL	Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
..LCPFCSP_00083	09/02/17	03/23/17	Methanol, Lot 141039	10000 uL	LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFOA_00006	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
...LCFFBS_00005	03/15/21		Wellington Laboratories, Lot LFFBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
...LCPFOA_00006	11/06/20		Wellington Laboratories, Lot PFOA1115		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
LCPFC_FULL-L2_00005	09/02/17	06/01/17	MeOH/H2O, Lot 090285	5 mL	LCPFC2SU_00019	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							d3-NMeFOSAA	50 ng/mL
							d5-NetFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00069	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPF2SP_00031	50 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	1 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	1 ng/mL
							MeFOSA	1 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	1 ng/mL
					LCPF2SP_00002	50 uL	13C2-PFOA	50 ng/mL
					LCPF2SP_00098	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	1 ng/mL
							Perfluoroheptanesulfonic Acid	0.952 ng/mL
							Perfluorohexanoic acid	1 ng/mL
							Perfluorohexadecanoic acid	1 ng/mL
							Perfluorohexanesulfonic acid	0.91 ng/mL
							Perfluorononanoic acid	1 ng/mL
							Perfluorooctanoic acid (PFOA)	1 ng/mL
							Perfluorooctadecanoic acid	1 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	0.928 ng/mL
							Perfluorooctane Sulfonamide	1 ng/mL
							Perfluoropentanoic acid	1 ng/mL
							Perfluorotetradecanoic acid	1 ng/mL
							Perfluorotridecanoic acid	1 ng/mL
							Perfluoroundecanoic acid	1 ng/mL
.LCMPFC2SU_00019	11/30/17	05/30/17	Methanol, Lot 104453	5000 uL	LCd-NETfOSA-M 00005	100 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00004	100 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00004	100 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NETfOSAA 00004	100 uL	d5-NETfOSAA	1 ug/mL
					LCM2-6:FtS 00004	100 uL	M2-6:2FtS	0.95 ug/mL
					LCM2-8:2FtS 00004	100 uL	M2-8:2FtS	0.958 ug/mL
..LCd-NETfOSA-M 00005	06/10/21		WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00004	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00004	11/22/21		WELLINGTON, Lot d3NMeFOSAA1116		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NETfOSAA 00004	11/22/21		WELLINGTON, Lot d5NetFOSAA1116		(Purchased Reagent)		d5-NETfOSAA	50 ug/mL
..LCM2-6:FtS 00004	02/17/22		WELLINGTON, Lot M262FtS0217		(Purchased Reagent)		M2-6:2FtS	47.5 ug/mL
..LCM2-8:2FtS 00004	08/22/21		WELLINGTON, Lot M282FtS0816		(Purchased Reagent)		M2-8:2FtS	47.9 ug/mL
.LCMPFCSU_00069	11/24/17	05/24/17	Methanol, Lot Baker 141039	10000 uL	LCM2PFHxDA_00009	200 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA 00008	200 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA 00008	200 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA 00009	200 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA 00012	200 uL	13C8 FOSA	1 ug/mL
					LCMPFBA 00009	200 uL	13C4 PFBA	1 ug/mL
					LCMPFDA 00013	200 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA 00009	200 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA 00014	200 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS 00009	200 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA 00009	200 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00013	200 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00020	200 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa 00010	200 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00009	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00008	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00008	05/27/21		Wellington Laboratories, Lot M4PFHPA0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00009	11/22/21		Wellington Laboratories, Lot M5PFPeA1116		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00012	12/22/20		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00009	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00013	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00009	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00014	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00009	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA 00009	09/30/21		Wellington Laboratories, Lot MPFNA0916		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00013	10/18/21		Wellington Laboratories, Lot MPFOA1016		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00020	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa 00010	11/22/21		Wellington Laboratories, Lot MPFUDa1116		(Purchased Reagent)		13C2 PFUnA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
.LCPFC2SP_00031	10/14/17	04/14/17	Methanol, Lot 104453	5000 uL	LCPFC2SP_00030	500 uL	Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	0.0934 ug/mL		
							Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL		
							Sodium 1H, 1H, 2H, 2H-perfluorodecane 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_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FTS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL		
							LC6:2FTS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
							LC8:2FTS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
							LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
							LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
							LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
							LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
...LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL		
...LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL		
...LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL		
...LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL		
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL		
...LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL		
...LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL		
.LCPFCIS 00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA 00005	200 uL	13C2-PFOA	5 ug/mL		
..LCM2PFOA 00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFCSP_00098	09/02/17	06/01/17	Methanol, Lot 157237	10000 uL	LCPFCSP_00096	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	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid	0.091 ug/mL
							Perfluorononanoic acid	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide	0.1 ug/mL
Perfluoropentanoic acid	0.1 ug/mL							
Perfluorotetradecanoic acid	0.1 ug/mL							
Perfluorotridecanoic acid	0.1 ug/mL							
Perfluoroundecanoic acid	0.1 ug/mL							
..LCPFCSP_00096	09/02/17	05/24/17	Methanol, Lot 090285	10000 uL	LCPFBA_00006	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00006	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00006	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00006	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00010	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00007	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00003	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00007	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00007	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00007	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00003	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00009	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00006	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
LCPFUdA_00006	200 uL	Perfluoroundecanoic acid	1 ug/mL					
...LCPFBA_00006	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
...LCPFBS_00006	03/15/21	Wellington Laboratories, Lot LFPBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
...LCPFDA_00006	05/31/21	Wellington Laboratories, Lot PFDA0516			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
...LCPFDoA_00006	05/31/21	Wellington Laboratories, Lot PFDoA0516			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
...LCPFDS_00005	07/02/20	Wellington Laboratories, Lot LFPDS0615			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LCPFHpA 00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
...LCPFHpS 00010	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
...LCPFHxA 00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
...LCPFHxDA 00007	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
...LCPFHxS-br 00003	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
...LCPFNNA 00007	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
...LCPFOA 00007	08/02/21		Wellington Laboratories, Lot PFOA0716		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFODA 00007	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
...LCPFOS-br_00003	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFOSA 00009	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
...LCPFPeA 00006	05/31/21		Wellington Laboratories, Lot PFPeA0516		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
...LCPFTeDA 00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
...LCPFTTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
...LCPFUdA 00006	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L3_00002	08/13/17	04/16/17	MeOH/H2O, Lot 090285	5050 uL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	49.505 ng/mL
							d-N-MeFOSA-M	49.505 ng/mL
							d3-NMeFOSAA	49.505 ng/mL
							d5-NetFOSAA	49.505 ng/mL
							M2-6:2FTS	47.0297 ng/mL
							M2-8:2FTS	47.4257 ng/mL
					LCMPFCSU_00057	250 uL	13C2-PFHxDA	49.505 ng/mL
							13C2-PFTeDA	49.505 ng/mL
							13C4-PFHpA	49.505 ng/mL
							13C5-PFPeA	49.505 ng/mL
							13C8 FOSA	49.505 ng/mL
							13C4 PFBA	49.505 ng/mL
							13C2 PFDA	49.505 ng/mL
							13C2 PFDoA	49.505 ng/mL
							13C2 PFHxA	49.505 ng/mL
							18O2 PFHxS	46.8317 ng/mL
							13C5 PFNA	49.505 ng/mL
							13C4 PFOA	49.505 ng/mL
							13C4 PFOS	47.3267 ng/mL
							13C2 PFUnA	49.505 ng/mL
					LCMPFC2SP_00031	250 uL	Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	4.62376 ng/mL
							Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	4.69307 ng/mL
							Sodium 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2)	4.74257 ng/mL
N-ethylperfluoro-1-octanesulfo namide	4.9505 ng/mL							
N-ethyl perfluorooctane sulfonamidoacetic acid	4.9505 ng/mL							

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
							MeFOSA	4.9505 ng/mL		
							N-methyl perfluorooctane sulfonamidoacetic acid	4.9505 ng/mL		
							LCPFCIS_00002	50 uL	13C2-PFOA	49.505 ng/mL
							LCPFCSP_00084	250 uL	Perfluorobutyric acid	4.9505 ng/mL
									Perfluorobutanesulfonic acid (PFBS)	4.37624 ng/mL
									Perfluorodecanoic acid	4.9505 ng/mL
									Perfluorododecanoic acid	4.9505 ng/mL
									Perfluorodecane Sulfonic acid	4.77228 ng/mL
									Perfluoroheptanoic acid	4.9505 ng/mL
									Perfluoroheptanesulfonic Acid	4.71287 ng/mL
									Perfluorohexanoic acid	4.9505 ng/mL
									Perfluorohexadecanoic acid	4.9505 ng/mL
									Perfluorohexanesulfonic acid	4.50495 ng/mL
									Perfluorononanoic acid	4.9505 ng/mL
									Perfluorooctanoic acid (PFOA)	4.9505 ng/mL
									Perfluorooctadecanoic acid	4.9505 ng/mL
		Perfluorooctanesulfonic acid (PFOS)	4.59406 ng/mL							
		Perfluorooctane Sulfonamide	4.9505 ng/mL							
		Perfluoropentanoic acid	4.9505 ng/mL							
		Perfluorotetradecanoic acid	4.9505 ng/mL							
		Perfluorotridecanoic acid	4.9505 ng/mL							
		Perfluoroundecanoic acid	4.9505 ng/mL							
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	Lcd-NEtFOSA-M_00004	1000 uL	d-N-EtFOSA-M	1 ug/mL		
					LCd-NMeFOSA-M_00003	1000 uL	d-N-MeFOSA-M	1 ug/mL		
					LCd3-NMeFOSAA_00003	1000 uL	d3-NMeFOSAA	1 ug/mL		
					LCd5-NEtFOSAA_00003	1000 uL	d5-NEtFOSAA	1 ug/mL		
					LCM2-6:FtS_00003	1000 uL	M2-6:2FtS	0.95 ug/mL		
			LCM2-8:2FtS_00003	1000 uL	M2-8:2FtS	0.958 ug/mL				
..LCd-NEtFOSA-M_00004	06/10/21		WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)	d-N-EtFOSA-M	50 ug/mL			
..LCd-NMeFOSA-M_00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)	d-N-MeFOSA-M	50 ug/mL			
..LCd3-NMeFOSAA_00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)	d3-NMeFOSAA	50 ug/mL			
..LCd5-NEtFOSAA_00003	08/02/21		WELLINGTON, Lot d5NetFOSAA0716		(Purchased Reagent)	d5-NEtFOSAA	50 ug/mL			
..LCM2-6:FtS_00003	01/08/21		WELLINGTON, Lot M262FtS0116		(Purchased Reagent)	M2-6:2FtS	47.5 ug/mL			
..LCM2-8:2FtS_00003	01/08/21		WELLINGTON, Lot M282FtS0116		(Purchased Reagent)	M2-8:2FtS	47.9 ug/mL			
.LCMPFCSU_00057	10/04/17	04/04/17	Methanol, Lot Baker 141039	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL		
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL		
					LCM4PFHPA_00007	1000 uL	13C4-PFHpa	1 ug/mL		
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL		
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL		
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL		
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL		
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL		
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL		
					LCMPFHxS_00008	1000 uL	1802 PFHxS	0.946 ug/mL		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCMPFNA 00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00018	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa 00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21	Wellington Laboratories, Lot M4PFHpa0516			(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00018	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa 00009	02/12/21	Wellington Laboratories, Lot MPFUDa0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFC2SP_00031	10/14/17	04/14/17	Methanol, Lot 104453	5000 uL	LCPFC2SP_00030	500 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.0934 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorodecane 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_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
...LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCIS_00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA_00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00084	09/02/17	03/23/17	Methanol, Lot 141039	10000 uL	LCPFCSP_00083	2000 uL	Perfluorobutyric acid	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid	0.1 ug/mL
							Perfluorododecanoic acid	0.1 ug/mL
							Perfluorodecane Sulfonic acid	0.0964 ug/mL
							Perfluoroheptanoic acid	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid	0.091 ug/mL
							Perfluorononanoic acid	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide	0.1 ug/mL
							Perfluoropentanoic acid	0.1 ug/mL
							Perfluorotetradecanoic acid	0.1 ug/mL
							Perfluorotridecanoic acid	0.1 ug/mL
							Perfluoroundecanoic acid	0.1 ug/mL
..LCPFCSP_00083	09/02/17	03/23/17	Methanol, Lot 141039	10000 uL	LCPFBA_00005	100 uL	Perfluorobutyric acid	0.5 ug/mL
					LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFDA_00006	100 uL	Perfluorodecanoic acid	0.5 ug/mL
					LCPFDoA_00006	100 uL	Perfluorododecanoic acid	0.5 ug/mL
					LCPFDS_00006	100 uL	Perfluorodecane Sulfonic acid	0.482 ug/mL
					LCPFHpA_00006	100 uL	Perfluoroheptanoic acid	0.5 ug/mL
					LCPFHpS_00009	100 uL	Perfluoroheptanesulfonic Acid	0.476 ug/mL
					LCPFHxA_00005	100 uL	Perfluorohexanoic acid	0.5 ug/mL
					LCPFHxDA_00006	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFHxS-br_00002	100 uL	Perfluorohexanesulfonic acid	0.455 ug/mL
					LCPFNA 00006	100 uL	Perfluorononanoic acid	0.5 ug/mL
					LCPFOA 00006	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFODA 00006	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
					LCPFOSA 00009	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL
					LCPFPeA 00005	100 uL	Perfluoropentanoic acid	0.5 ug/mL
					LCPFTeDA 00005	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL
					LCPFTrDA 00005	100 uL	Perfluorotridecanoic acid	0.5 ug/mL
					LCPFUDa 00005	100 uL	Perfluoroundecanoic acid	0.5 ug/mL
...LCPFBA 00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
...LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
...LCPFDA 00006	05/31/21	Wellington Laboratories, Lot PFDA0516			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA 00006	05/31/21	Wellington Laboratories, Lot PFDoA0516			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
...LCPFDS 00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA 00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
...LCPFHpS 00009	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA 00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA 00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00002	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
...LCPFNA 00006	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA 00006	11/06/20	Wellington Laboratories, Lot PFOA1115			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFODA 00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00002	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFOSA 00009	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
...LCPFPeA 00005	01/30/20	Wellington Laboratories, Lot PFPeA0115			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
...LCPFTeDA 00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
...LCPFTrDA 00005	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
...LCPFUDa 00005	08/19/20	Wellington Laboratories, Lot PFUDa0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L3_00004	09/02/17	06/01/17	MeOH/H2O, Lot 090285	5000 uL	LCPMFC2SU_00019	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
					LCPMFCSU_00069	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration	
					Reagent ID	Volume Added			
					LCPFC2SP_00031	250 uL	13C5 PFNA	50 ng/mL	
							13C4 PFOA	50 ng/mL	
							13C4 PFOS	47.8 ng/mL	
							13C2 PFUnA	50 ng/mL	
							Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	4.67 ng/mL	
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	4.74 ng/mL	
							Sodium 1H,1H,2H,2H-perfluorodecane 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			
					LCPFCIS_00002	50 uL	13C2-PFOA	50 ng/mL	
					LCPFCSP_00098	250 uL	Perfluorobutyric acid	5 ng/mL	
							Perfluorobutanesulfonic acid (PFBS)	4.42 ng/mL	
							Perfluorodecanoic acid	5 ng/mL	
							Perfluorododecanoic acid	5 ng/mL	
							Perfluorodecane Sulfonic acid	4.82 ng/mL	
							Perfluoroheptanoic acid	5 ng/mL	
							Perfluoroheptanesulfonic Acid	4.76 ng/mL	
							Perfluorohexanoic acid	5 ng/mL	
							Perfluorohexadecanoic acid	5 ng/mL	
							Perfluorohexanesulfonic acid	4.55 ng/mL	
							Perfluorononanoic acid	5 ng/mL	
	Perfluorooctanoic acid (PFOA)	5 ng/mL							
	Perfluorooctadecanoic acid	5 ng/mL							
	Perfluorooctanesulfonic acid (PFOS)	4.64 ng/mL							
	Perfluorooctane Sulfonamide	5 ng/mL							
	Perfluoropentanoic acid	5 ng/mL							
	Perfluorotetradecanoic acid	5 ng/mL							
	Perfluorotridecanoic acid	5 ng/mL							
	Perfluoroundecanoic acid	5 ng/mL							
.LCMPFC2SU_00019	11/30/17	05/30/17	Methanol, Lot 104453	5000 uL	LCd-NEtFOSA-M_00005	100 uL	d-N-EtFOSA-M	1 ug/mL	
					LCd-NMeFOSA-M_00004	100 uL	d-N-MeFOSA-M	1 ug/mL	
					LCd3-NMeFOSAA_00004	100 uL	d3-NMeFOSAA	1 ug/mL	
					LCd5-NEtFOSAA_00004	100 uL	d5-NEtFOSAA	1 ug/mL	
					LCM2-6:Fts_00004	100 uL	M2-6:2Fts	0.95 ug/mL	
					LCM2-8:2Fts_00004	100 uL	M2-8:2Fts	0.958 ug/mL	
.LCd-NEtFOSA-M_00005	06/10/21		WELLINGTON, Lot dNetFOSA0616M				(Purchased Reagent)	d-N-EtFOSA-M	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCd-NMeFOSA-M 00004	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00004	11/22/21		WELLINGTON, Lot d3NMeFOSAA1116		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA 00004	11/22/21		WELLINGTON, Lot d5NEtFOSAA1116		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS 00004	02/17/22		WELLINGTON, Lot M262FTS0217		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00004	08/22/21		WELLINGTON, Lot M282FTS0816		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCMPFCSU_00069	11/24/17	05/24/17	Methanol, Lot Baker 141039	10000 uL	LCM2PFHxDA_00009	200 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA 00008	200 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA 00008	200 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA 00009	200 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA 00012	200 uL	13C8 FOSA	1 ug/mL
					LCMPFBA 00009	200 uL	13C4 PFBA	1 ug/mL
					LCMPFDA 00013	200 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA 00009	200 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA 00014	200 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS 00009	200 uL	1802 PFHxS	0.946 ug/mL
					LCMPFNA 00009	200 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00013	200 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00020	200 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa 00010	200 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00009	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00008	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00008	05/27/21		Wellington Laboratories, Lot M4PFHPa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00009	11/22/21		Wellington Laboratories, Lot M5PFPeA1116		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00012	12/22/20		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00009	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00013	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00009	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00014	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00009	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA 00009	09/30/21		Wellington Laboratories, Lot MPFNA0916		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00013	10/18/21		Wellington Laboratories, Lot MPFOA1016		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00020	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa 00010	11/22/21		Wellington Laboratories, Lot MPFUDa1116		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFC2SP_00031	10/14/17	04/14/17	Methanol, Lot 104453	5000 uL	LCPFC2SP_00030	500 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.0934 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorodecane 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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
..LCPFC2SP_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfonamide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
...LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216			(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
...LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616			(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015			(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M			(Purchased Reagent)	N-ethylperfluoro-1-octanesulfonamide	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116			(Purchased Reagent)	N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M			(Purchased Reagent)	MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116			(Purchased Reagent)	N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCIS 00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA 00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA 00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613			(Purchased Reagent)	13C2-PFOA	50 ug/mL
.LCPFCSP_00098	09/02/17	06/01/17	Methanol, Lot 157237	10000 uL	LCPFCSP_00096	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	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid	0.091 ug/mL
							Perfluorononanoic acid	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
Perfluorooctadecanoic acid	0.1 ug/mL							

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	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_00096	09/02/17	05/24/17	Methanol, Lot 090285	10000 uL	LCPFBA_00006	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00006	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00006	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00006	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00010	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00007	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00003	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00007	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00007	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00007	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00003	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00009	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00006	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00006	200 uL	Perfluoroundecanoic acid	1 ug/mL
...LCPFBA_00006	05/27/21		Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)	Perfluorobutyric acid	50 ug/mL
...LCPFBS_00006	03/15/21		Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)	Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
...LCPFDA_00006	05/31/21		Wellington Laboratories, Lot PFDA0516			(Purchased Reagent)	Perfluorodecanoic acid	50 ug/mL
...LCPFDoA_00006	05/31/21		Wellington Laboratories, Lot PFDoA0516			(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_00006	01/22/21		Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)	Perfluoroheptanoic acid	50 ug/mL
...LCPFHpS_00010	11/06/20		Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)	Perfluoroheptanesulfonic Acid	47.6 ug/mL
...LCPFHxA_00005	12/22/20		Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)	Perfluorohexanoic acid	50 ug/mL
...LCPFHxDA_00007	05/25/21		Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)	Perfluorohexadecanoic acid	50 ug/mL
...LCPFHxS-br_00003	07/03/20		Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)	Perfluorohexanesulfonic acid	45.5 ug/mL
...LCPFNA_00007	10/23/20		Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)	Perfluorononanoic acid	50 ug/mL
...LCPFOA_00007	08/02/21		Wellington Laboratories, Lot PFOA0716			(Purchased Reagent)	Perfluorooctanoic acid (PFOA)	50 ug/mL
...LCPFODA_00007	04/29/21		Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)	Perfluorooctadecanoic acid	50 ug/mL
...LCPFOS-br_00003	10/14/20		Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)	Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
...LCPFOSA_00009	09/02/17		Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)	Perfluorooctane Sulfonamide	50 ug/mL
...LCPFPeA_00006	05/31/21		Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)	Perfluoropentanoic acid	50 ug/mL
...LCPFTeDA_00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)	Perfluorotetradecanoic acid	50 ug/mL
...LCPFTrDA_00005	02/12/21		Wellington Laboratories, Lot PFTTrDA0216			(Purchased Reagent)	Perfluorotridecanoic acid	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LCPFUDa_00006	08/19/20		Wellington Laboratories, Lot PFUDa0815			(Purchased Reagent)	Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L4_00002	08/13/17	04/16/17	MeOH/H2O, Lot 090285	5050 uL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	49.505 ng/mL
							d-N-MeFOSA-M	49.505 ng/mL
							d3-NMeFOSAA	49.505 ng/mL
							d5-NMeFOSAA	49.505 ng/mL
							M2-6:2FTS	47.0297 ng/mL
							M2-8:2FTS	47.4257 ng/mL
					LCMPFCSU_00057	250 uL	13C2-PFHxDA	49.505 ng/mL
							13C2-PFTeDA	49.505 ng/mL
							13C4-PFHpA	49.505 ng/mL
							13C5-PFPeA	49.505 ng/mL
							13C8 FOSA	49.505 ng/mL
							13C4 PFBA	49.505 ng/mL
							13C2 PFDA	49.505 ng/mL
							13C2 PFDaA	49.505 ng/mL
							13C2 PFHxA	49.505 ng/mL
							18O2 PFHxS	46.8317 ng/mL
							13C5 PFNA	49.505 ng/mL
							13C4 PFOA	49.505 ng/mL
							13C4 PFOS	47.3267 ng/mL
							13C2 PFUnA	49.505 ng/mL
					LCPFC2SP_00030	100 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	18.495 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	18.7723 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	18.9703 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	19.802 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	19.802 ng/mL
							MeFOSA	19.802 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	19.802 ng/mL
							LCPFCIS_00002	50 uL
					LCPFCSP_00086	200 uL	Perfluorobutyric acid	19.802 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	17.505 ng/mL
							Perfluorodecanoic acid	19.802 ng/mL
							Perfluorododecanoic acid	19.802 ng/mL
							Perfluorodecane Sulfonic acid	19.0891 ng/mL
Perfluoroheptanoic acid	19.802 ng/mL							
Perfluoroheptanesulfonic Acid	18.8515 ng/mL							
Perfluorohexanoic acid	19.802 ng/mL							
Perfluorohexadecanoic acid	19.802 ng/mL							

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration	
					Reagent ID	Volume Added			
							Perfluorohexanesulfonic acid	18.0198 ng/mL	
							Perfluorononanoic acid	19.802 ng/mL	
							Perfluorooctanoic acid (PFOA)	19.802 ng/mL	
							Perfluorooctadecanoic acid	19.802 ng/mL	
							Perfluorooctanesulfonic acid (PFOS)	18.3762 ng/mL	
							Perfluorooctane Sulfonamide	19.802 ng/mL	
							Perfluoropentanoic acid	19.802 ng/mL	
							Perfluorotetradecanoic acid	19.802 ng/mL	
							Perfluorotridecanoic acid	19.802 ng/mL	
							Perfluoroundecanoic acid	19.802 ng/mL	
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NETfOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL	
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL	
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL	
					LCd5-NETfOSAA 00003	1000 uL	d5-NETfOSAA	1 ug/mL	
					LCM2-6:FtS 00003	1000 uL	M2-6:2FtS	0.95 ug/mL	
					LCM2-8:2FtS 00003	1000 uL	M2-8:2FtS	0.958 ug/mL	
..LCd-NETfOSA-M 00004	06/10/21		WELLINGTON, Lot dNetFOSA0616M				(Purchased Reagent)	d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M				(Purchased Reagent)	d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516				(Purchased Reagent)	d3-NMeFOSAA	50 ug/mL
..LCd5-NETfOSAA 00003	08/02/21		WELLINGTON, Lot d5NetFOSAA0716				(Purchased Reagent)	d5-NETfOSAA	50 ug/mL
..LCM2-6:FtS 00003	01/08/21		WELLINGTON, Lot M262FtS0116				(Purchased Reagent)	M2-6:2FtS	47.5 ug/mL
..LCM2-8:2FtS 00003	01/08/21		WELLINGTON, Lot M282FtS0116				(Purchased Reagent)	M2-8:2FtS	47.9 ug/mL
.LCMPFCSU_00057	10/04/17	04/04/17	Methanol, Lot Baker 141039	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL	
					LCM2PFTeDA 00007	1000 uL	13C2-PFTeDA	1 ug/mL	
					LCM4PFHPA 00007	1000 uL	13C4-PFHpa	1 ug/mL	
					LCM5PFPEA 00008	1000 uL	13C5-PFPeA	1 ug/mL	
					LCM8FOSA 00011	1000 uL	13C8 FOSA	1 ug/mL	
					LCMPFBA 00008	1000 uL	13C4 PFBA	1 ug/mL	
					LCMPFDA 00011	1000 uL	13C2 PFDA	1 ug/mL	
					LCMPFDoA 00008	1000 uL	13C2 PFDoA	1 ug/mL	
					LCMPFHxA 00012	1000 uL	13C2 PFHxA	1 ug/mL	
					LCMPFHxS 00008	1000 uL	1802 PFHxS	0.946 ug/mL	
					LCMPFNA 00008	1000 uL	13C5 PFNA	1 ug/mL	
					LCMPFOA 00012	1000 uL	13C4 PFOA	1 ug/mL	
					LCMPFOS 00018	1000 uL	13C4 PFOS	0.956 ug/mL	
					LCMPFUdA 00009	1000 uL	13C2 PFUnA	1 ug/mL	
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112				(Purchased Reagent)	13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115				(Purchased Reagent)	13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21		Wellington Laboratories, Lot M4PFHPa0516				(Purchased Reagent)	13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515				(Purchased Reagent)	13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I				(Purchased Reagent)	13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516				(Purchased Reagent)	13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815				(Purchased Reagent)	13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416				(Purchased Reagent)	13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416				(Purchased Reagent)	13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015				(Purchased Reagent)	1802 PFHxS	47.3 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFNA_00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa_00009	02/12/21		Wellington Laboratories, Lot MPFUDa0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC2SP_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
..LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NEtFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NEtFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCIS_00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA_00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00086	09/02/17	04/05/17	Methanol, Lot 141039	10000 uL	LCPFBA_00005	100 uL	Perfluorobutyric acid	0.5 ug/mL
					LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFDA_00006	100 uL	Perfluorodecanoic acid	0.5 ug/mL
					LCPFDoA_00006	100 uL	Perfluorododecanoic acid	0.5 ug/mL
					LCPFDS_00006	100 uL	Perfluorodecane Sulfonic acid	0.482 ug/mL
					LCPFHpA_00006	100 uL	Perfluoroheptanoic acid	0.5 ug/mL
					LCPFHpS_00009	100 uL	Perfluoroheptanesulfonic Acid	0.476 ug/mL
					LCPFHxA_00005	100 uL	Perfluorohexanoic acid	0.5 ug/mL
					LCPFHxDA_00006	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL
					LCPFHxS-br_00002	100 uL	Perfluorohexanesulfonic acid	0.455 ug/mL
					LCPFNA_00006	100 uL	Perfluorononanoic acid	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFOA_00007	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFODA_00006	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
					LCPFOSA_00009	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL
					LCPPeA_00006	100 uL	Perfluoropentanoic acid	0.5 ug/mL
					LCPFTeDA_00005	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL
					LCPFTrDA_00005	100 uL	Perfluorotridecanoic acid	0.5 ug/mL
					LCPFUDA_00005	100 uL	Perfluoroundecanoic acid	0.5 ug/mL
..LCPFBA_00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00006	05/31/21	Wellington Laboratories, Lot PFDA0516			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00006	05/31/21	Wellington Laboratories, Lot PFDoA0516			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFDS_00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA_00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHps_00009	11/06/20	Wellington Laboratories, Lot LPFHps1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00002	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00006	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00007	08/02/21	Wellington Laboratories, Lot PFOA0716			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00002	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00009	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
..LCPPeA_00006	05/31/21	Wellington Laboratories, Lot PPeA0516			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
..LCPFTeDA_00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00005	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUDA_00005	08/19/20	Wellington Laboratories, Lot PFUDA0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L4_00003	08/13/17	04/16/17	MeOH/H2O, Lot 090285	5050 uL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	49.505 ng/mL
							d-N-MeFOSA-M	49.505 ng/mL
							d3-NMeFOSAA	49.505 ng/mL
							d5-NetFOSAA	49.505 ng/mL
							M2-6:2FTS	47.0297 ng/mL
							M2-8:2FTS	47.4257 ng/mL
							LCMPFCSU_00057	250 uL
					13C2-PFTeDA	49.505 ng/mL		
					13C4-PFHpA	49.505 ng/mL		
					13C5-PFPeA	49.505 ng/mL		
					13C8 FOSA	49.505 ng/mL		
					13C4 PFBA	49.505 ng/mL		
					13C2 PFDA	49.505 ng/mL		
					13C2 PFDoA	49.505 ng/mL		
					13C2 PFHxA	49.505 ng/mL		
					18O2 PFHxS	46.8317 ng/mL		
					13C5 PFNA	49.505 ng/mL		
13C4 PFOA	49.505 ng/mL							

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C4 PFOS	47.3267 ng/mL
							13C2 PFUnA	49.505 ng/mL
					LCPFCSP_00086	200 uL	Perfluorobutanesulfonic acid (PFBS)	17.505 ng/mL
							Perfluorooctanoic acid (PFOA)	19.802 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	18.3762 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA 00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FtS 00003	1000 uL	M2-6:2FtS	0.95 ug/mL
					LCM2-8:2FtS 00003	1000 uL	M2-8:2FtS	0.958 ug/mL
..LCd-NEtFOSA-M 00004	06/10/21		WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA 00003	08/02/21		WELLINGTON, Lot d5NEtFOSAA0716		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FtS 00003	01/08/21		WELLINGTON, Lot M262FtS0116		(Purchased Reagent)		M2-6:2FtS	47.5 ug/mL
..LCM2-8:2FtS 00003	01/08/21		WELLINGTON, Lot M282FtS0116		(Purchased Reagent)		M2-8:2FtS	47.9 ug/mL
.LCMPFCSU_00057	10/04/17	04/04/17	Methanol, Lot Baker 141039	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00018	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00007	05/27/21		Wellington Laboratories, Lot M4PFHpa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA_00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa_00009	02/12/21		Wellington Laboratories, Lot MPFUDa0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFCSP_00086	09/02/17	04/05/17	Methanol, Lot 141039	10000 uL	LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFOA_00007	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
..LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFOA_00007	08/02/21	Wellington Laboratories, Lot PFOA0716			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFOS-br_00002	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
LCPFC_FULL-L4_00005	09/02/17	05/30/17	MeOH/H2O, Lot 090285	5000 uL	LCMPFC2SU_00019	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00069	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00030	100 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	18.68 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	18.96 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	19.16 ng/mL
N-ethylperfluoro-1-octanesulfo namide	20 ng/mL							
N-ethyl perfluorooctane sulfonamidoacetic acid	20 ng/mL							
MeFOSA	20 ng/mL							
N-methyl perfluorooctane sulfonamidoacetic acid	20 ng/mL							
LCPFCIS_00002	50 uL	13C2-PFOA	50 ng/mL					
LCPFCSP_00096	100 uL	Perfluorobutyric acid	20 ng/mL					

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorobutanesulfonic acid (PFBS)	17.68 ng/mL
							Perfluorodecanoic acid	20 ng/mL
							Perfluorododecanoic acid	20 ng/mL
							Perfluorodecane Sulfonic acid	19.28 ng/mL
							Perfluoroheptanoic acid	20 ng/mL
							Perfluoroheptanesulfonic Acid	19.04 ng/mL
							Perfluorohexanoic acid	20 ng/mL
							Perfluorohexadecanoic acid	20 ng/mL
							Perfluorohexanesulfonic acid	18.2 ng/mL
							Perfluorononanoic acid	20 ng/mL
							Perfluorooctanoic acid (PFOA)	20 ng/mL
							Perfluorooctadecanoic acid	20 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	18.56 ng/mL
							Perfluorooctane Sulfonamide	20 ng/mL
							Perfluoropentanoic acid	20 ng/mL
							Perfluorotetradecanoic acid	20 ng/mL
							Perfluorotridecanoic acid	20 ng/mL
							Perfluoroundecanoic acid	20 ng/mL
.LCMPFC2SU_00019	11/30/17	05/30/17	Methanol, Lot 104453	5000 uL	LCd-NETFOSA-M 00005	100 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00004	100 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00004	100 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NETFOSAA 00004	100 uL	d5-NETFOSAA	1 ug/mL
					LCM2-6:FTS 00004	100 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00004	100 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NETFOSA-M 00005	06/10/21		WELLINGTON, Lot dNETFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00004	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00004	11/22/21		WELLINGTON, Lot d3NMeFOSAA1116		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NETFOSAA 00004	11/22/21		WELLINGTON, Lot d5NETFOSAA1116		(Purchased Reagent)		d5-NETFOSAA	50 ug/mL
..LCM2-6:FTS 00004	02/17/22		WELLINGTON, Lot M262FTS0217		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00004	08/22/21		WELLINGTON, Lot M282FTS0816		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCMPFCSU_00069	11/24/17	05/24/17	Methanol, Lot Baker 141039	10000 uL	LCM2PFHxDA_00009	200 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00008	200 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00008	200 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00009	200 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00012	200 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00009	200 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00013	200 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00009	200 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00014	200 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00009	200 uL	1802 PFHxS	0.946 ug/mL
					LCMPFNA_00009	200 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00013	200 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00020	200 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00010	200 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00009	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCM2PFTeDA 00008	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00008	05/27/21		Wellington Laboratories, Lot M4PFHPA0516		(Purchased Reagent)		13C4-PFHPA	50 ug/mL
..LCM5PFPEA 00009	11/22/21		Wellington Laboratories, Lot M5PFPeA1116		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00012	12/22/20		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00009	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00013	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00009	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00014	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00009	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA 00009	09/30/21		Wellington Laboratories, Lot MPFNA0916		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00013	10/18/21		Wellington Laboratories, Lot MPFOA1016		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00020	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFudA 00010	11/22/21		Wellington Laboratories, Lot MPFudA1116		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFC2SP_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
..LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCPFCIS 00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA 00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA 00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCPFCSP_00096	09/02/17	05/24/17	Methanol, Lot 090285	10000 uL	LCPFBA_00006	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00006	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFDA_00006	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00006	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00010	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00007	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00003	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00007	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00007	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00007	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00003	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00009	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00006	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUDA_00006	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCPFBA_00006	05/27/21		Wellington Laboratories, Lot PFBA0516		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00006	03/15/21		Wellington Laboratories, Lot LPFBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00006	05/31/21		Wellington Laboratories, Lot PFDA0516		(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00006	05/31/21		Wellington Laboratories, Lot PFDoA0516		(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_00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHpS_00010	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00007	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00003	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00007	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00007	08/02/21		Wellington Laboratories, Lot PFOA0716		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00007	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00003	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00009	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
..LCPFPeA_00006	05/31/21		Wellington Laboratories, Lot PFPeA0516		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
..LCPFTeDA_00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00005	02/12/21		Wellington Laboratories, Lot PFTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUDA_00006	08/19/20		Wellington Laboratories, Lot PFUDA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L5_00002	08/13/17	04/16/17	MeOH/H2O, Lot 090285	5050 uL	LCPMPC2SU_00014	250 uL	d-N-EtFOSA-M	49.505 ng/mL
							d-N-MeFOSA-M	49.505 ng/mL
							d3-NMeFOSAA	49.505 ng/mL
							d5-NMeFOSAA	49.505 ng/mL
							M2-6:2FTS	47.0297 ng/mL
							M2-8:2FTS	47.4257 ng/mL
					LCPMPCSU_00057	250 uL	13C2-PFHxDA	49.505 ng/mL
							13C2-PFTeDA	49.505 ng/mL
							13C4-PFHpA	49.505 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C5-PFPeA	49.505 ng/mL
							13C8 FOSA	49.505 ng/mL
							13C4 PFBA	49.505 ng/mL
							13C2 PFDA	49.505 ng/mL
							13C2 PFDaA	49.505 ng/mL
							13C2 PFHxA	49.505 ng/mL
							18O2 PFHxS	46.8317 ng/mL
							13C5 PFNA	49.505 ng/mL
							13C4 PFOA	49.505 ng/mL
							13C4 PFOS	47.3267 ng/mL
							13C2 PFUnA	49.505 ng/mL
					LCPFC2SP_00030	250 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.2376 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	46.9307 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.4257 ng/mL
							N-ethylperfluoro-1-octanesulfoamide	49.505 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	49.505 ng/mL
							MeFOSA	49.505 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	49.505 ng/mL
					LCPFCIS_00002	50 uL	13C2-PFOA	49.505 ng/mL
					LCPFCSP_00086	500 uL	Perfluorobutyric acid	49.505 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	43.7624 ng/mL
							Perfluorodecanoic acid	49.505 ng/mL
							Perfluorododecanoic acid	49.505 ng/mL
							Perfluorodecane Sulfonic acid	47.7228 ng/mL
							Perfluoroheptanoic acid	49.505 ng/mL
							Perfluoroheptanesulfonic Acid	47.1287 ng/mL
							Perfluorohexanoic acid	49.505 ng/mL
							Perfluorohexadecanoic acid	49.505 ng/mL
							Perfluorohexanesulfonic acid	45.0495 ng/mL
							Perfluorononanoic acid	49.505 ng/mL
							Perfluorooctanoic acid (PFOA)	49.505 ng/mL
							Perfluorooctadecanoic acid	49.505 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	45.9406 ng/mL
							Perfluorooctane Sulfonamide	49.505 ng/mL
							Perfluoropentanoic acid	49.505 ng/mL
							Perfluorotetradecanoic acid	49.505 ng/mL
							Perfluorotridecanoic acid	49.505 ng/mL
							Perfluoroundecanoic acid	49.505 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA 00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FtS 00003	1000 uL	M2-6:2FtS	0.95 ug/mL
					LCM2-8:2FtS 00003	1000 uL	M2-8:2FtS	0.958 ug/mL
..LCd-NEtFOSA-M 00004	06/10/21		WELLINGTON, Lot dNEtFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA 00003	08/02/21		WELLINGTON, Lot d5NEtFOSAA0716		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FtS 00003	01/08/21		WELLINGTON, Lot M262FtS0116		(Purchased Reagent)		M2-6:2FtS	47.5 ug/mL
..LCM2-8:2FtS 00003	01/08/21		WELLINGTON, Lot M282FtS0116		(Purchased Reagent)		M2-8:2FtS	47.9 ug/mL
.LCMPFCSU_00057	10/04/17	04/04/17	Methanol, Lot Baker 141039	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTEdA_00007	1000 uL	13C2-PFTEdA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00018	1000 uL	13C4 PFOS	0.956 ug/mL
LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL					
..LCM2PFHxDA 00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL	
..LCM2PFTEdA 00007	12/07/20	Wellington Laboratories, Lot M2PFTEdA1115		(Purchased Reagent)		13C2-PFTEdA	50 ug/mL	
..LCM4PFHPA 00007	05/27/21	Wellington Laboratories, Lot M4PFHPA0516		(Purchased Reagent)		13C4-PFHpA	50 ug/mL	
..LCM5PFPEA 00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL	
..LCM8FOSA 00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL	
..LCMPFBA 00008	05/24/21	Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL	
..LCMPFDA 00011	08/19/20	Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL	
..LCMPFDoA 00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL	
..LCMPFHxA 00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL	
..LCMPFHxS 00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL	
..LCMPFNA 00008	04/13/19	Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL	
..LCMPFOA 00012	01/22/21	Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL	
..LCMPFOS 00018	08/03/21	Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL	
..LCMPFUdA 00009	02/12/21	Wellington Laboratories, Lot MPFUdA0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL	
.LCPPFC2SP_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FtS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FtS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC8:2FTS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfonamide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
..LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfonamide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCIS_00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA_00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00086	09/02/17	04/05/17	Methanol, Lot 141039	10000 uL	LCPFBA_00005	100 uL	Perfluorobutyric acid	0.5 ug/mL
					LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFDA_00006	100 uL	Perfluorodecanoic acid	0.5 ug/mL
					LCPFDoA_00006	100 uL	Perfluorododecanoic acid	0.5 ug/mL
					LCPFDS_00006	100 uL	Perfluorodecane Sulfonic acid	0.482 ug/mL
					LCPFHpA_00006	100 uL	Perfluoroheptanoic acid	0.5 ug/mL
					LCPFHpS_00009	100 uL	Perfluoroheptanesulfonic Acid	0.476 ug/mL
					LCPFHxA_00005	100 uL	Perfluorohexanoic acid	0.5 ug/mL
					LCPFHxDA_00006	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL
					LCPFHxS-br_00002	100 uL	Perfluorohexanesulfonic acid	0.455 ug/mL
					LCPFNA_00006	100 uL	Perfluorononanoic acid	0.5 ug/mL
					LCPFOA_00007	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFODA_00006	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
					LCPFOSA_00009	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL
					LCPFPeA_00006	100 uL	Perfluoropentanoic acid	0.5 ug/mL
					LCPFTeDA_00005	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL
					LCPFTrDA_00005	100 uL	Perfluorotridecanoic acid	0.5 ug/mL
					LCPFUdA_00005	100 uL	Perfluoroundecanoic acid	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
..LCPFBA 00005	05/27/21		Wellington Laboratories, Lot PFBA0516		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL		
..LCPFBS_00005	03/15/21		Wellington Laboratories, Lot LPPFBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL		
..LCPFDA 00006	05/31/21		Wellington Laboratories, Lot PFDA0516		(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL		
..LCPFDoA 00006	05/31/21		Wellington Laboratories, Lot PFDoA0516		(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL		
..LCPFDS 00006	05/24/21		Wellington Laboratories, Lot LPPFDS0516		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL		
..LCPFHpa 00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL		
..LCPFHpS 00009	11/06/20		Wellington Laboratories, Lot LPPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL		
..LCPFHxA 00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL		
..LCPFHxDA 00006	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL		
..LCPFHxS-br 00002	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL		
..LCPFNA 00006	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL		
..LCPFOA 00007	08/02/21		Wellington Laboratories, Lot PFOA0716		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL		
..LCPFODA 00006	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL		
..LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL		
..LCPFOSA 00009	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL		
..LCPFPeA 00006	05/31/21		Wellington Laboratories, Lot PFPeA0516		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL		
..LCPFTeDA 00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL		
..LCPFTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL		
..LCPFUdA 00005	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL		
LCPFC_FULL-L5_00004	08/13/17	05/06/17	MeOH/H2O, Lot 090285	5050 uL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	49.505 ng/mL		
							d-N-MeFOSA-M	49.505 ng/mL		
							d3-NMeFOSAA	49.505 ng/mL		
							d5-NETFOSAA	49.505 ng/mL		
							M2-6:2FTS	47.0297 ng/mL		
							M2-8:2FTS	47.4257 ng/mL		
							LCMPFCSU_00057	250 uL	13C2-PFHxDA	49.505 ng/mL
									13C2-PFTeDA	49.505 ng/mL
									13C4-PFHpa	49.505 ng/mL
									13C5-PFPeA	49.505 ng/mL
					13C8 FOSA	49.505 ng/mL				
					13C4 PFBA	49.505 ng/mL				
					13C2 PFDA	49.505 ng/mL				
					13C2 PFDoA	49.505 ng/mL				
					13C2 PFHxA	49.505 ng/mL				
					18O2 PFHxS	46.8317 ng/mL				
					13C5 PFNA	49.505 ng/mL				
					13C4 PFOA	49.505 ng/mL				
					13C4 PFOS	47.3267 ng/mL				
					13C2 PFUnA	49.505 ng/mL				
LCPFCSP_00086	500 uL	Perfluorobutanesulfonic acid (PFBS)	43.7624 ng/mL							
		Perfluorooctanoic acid (PFOA)	49.505 ng/mL							
		Perfluorooctanesulfonic acid (PFOS)	45.9406 ng/mL							
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NETFOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL		
					LCd-NMeFOSA-M_00003	1000 uL	d-N-MeFOSA-M	1 ug/mL		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA 00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FtS 00003	1000 uL	M2-6:2FtS	0.95 ug/mL
					LCM2-8:2FtS 00003	1000 uL	M2-8:2FtS	0.958 ug/mL
..LCd-NEtFOSA-M 00004	06/10/21		WELLINGTON, Lot dNEtFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA 00003	08/02/21		WELLINGTON, Lot d5NEtFOSAA0716		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FtS 00003	01/08/21		WELLINGTON, Lot M262FtS0116		(Purchased Reagent)		M2-6:2FtS	47.5 ug/mL
..LCM2-8:2FtS 00003	01/08/21		WELLINGTON, Lot M282FtS0116		(Purchased Reagent)		M2-8:2FtS	47.9 ug/mL
..LCMPFCSU_00057	10/04/17	04/04/17	Methanol, Lot Baker 141039	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTEdA_00007	1000 uL	13C2-PFTEdA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00018	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTEdA 00007	12/07/20		Wellington Laboratories, Lot M2PFTEdA1115		(Purchased Reagent)		13C2-PFTEdA	50 ug/mL
..LCM4PFHPA 00007	05/27/21		Wellington Laboratories, Lot M4PFHpa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA 00009	02/12/21		Wellington Laboratories, Lot MPFUdA0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFCSP_00086	09/02/17	04/05/17	Methanol, Lot 141039	10000 uL	LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFOA_00007	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
..LCPFBS_00005	03/15/21		Wellington Laboratories, Lot LPFBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFOA_00007	08/02/21		Wellington Laboratories, Lot PFOA0716		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
LCPFC_FULLL-L5_00005	09/02/17	05/30/17	MeOH/H2O, Lot 090285	5000 uL	LCMPFC2SU_00019	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NETFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00069	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00030	250 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ng/mL
							N-ethylperfluoro-1-octanesulfonamide	50 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	50 ng/mL
							MeFOSA	50 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	50 ng/mL
					LCPFCIS_00002	50 uL	13C2-PFOA	50 ng/mL
					LCPFCSP_00096	250 uL	Perfluorobutyric acid	50 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	44.2 ng/mL
							Perfluorodecanoic acid	50 ng/mL
							Perfluorododecanoic acid	50 ng/mL
							Perfluorodecane Sulfonic acid	48.2 ng/mL
Perfluoroheptanoic acid	50 ng/mL							
Perfluoroheptanesulfonic Acid	47.6 ng/mL							
Perfluorohexanoic acid	50 ng/mL							
Perfluorohexadecanoic acid	50 ng/mL							

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration	
					Reagent ID	Volume Added			
							Perfluorohexanesulfonic acid	45.5 ng/mL	
							Perfluorononanoic acid	50 ng/mL	
							Perfluorooctanoic acid (PFOA)	50 ng/mL	
							Perfluorooctadecanoic acid	50 ng/mL	
							Perfluorooctanesulfonic acid (PFOS)	46.4 ng/mL	
							Perfluorooctane Sulfonamide	50 ng/mL	
							Perfluoropentanoic acid	50 ng/mL	
							Perfluorotetradecanoic acid	50 ng/mL	
							Perfluorotridecanoic acid	50 ng/mL	
							Perfluoroundecanoic acid	50 ng/mL	
.LCMPFC2SU_00019	11/30/17	05/30/17	Methanol, Lot 104453	5000 uL	LCd-NETfOSA-M 00005	100 uL	d-N-EtFOSA-M	1 ug/mL	
					LCd-NMeFOSA-M 00004	100 uL	d-N-MeFOSA-M	1 ug/mL	
					LCd3-NMeFOSAA 00004	100 uL	d3-NMeFOSAA	1 ug/mL	
					LCd5-NETfOSAA 00004	100 uL	d5-NETfOSAA	1 ug/mL	
					LCM2-6:FtS 00004	100 uL	M2-6:2FtS	0.95 ug/mL	
					LCM2-8:2FtS 00004	100 uL	M2-8:2FtS	0.958 ug/mL	
..LCd-NETfOSA-M 00005	06/10/21		WELLINGTON, Lot dNetFOSA0616M				(Purchased Reagent)	d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00004	06/10/21		WELLINGTON, Lot dNMeFOSA0616M				(Purchased Reagent)	d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00004	11/22/21		WELLINGTON, Lot d3NMeFOSAA1116				(Purchased Reagent)	d3-NMeFOSAA	50 ug/mL
..LCd5-NETfOSAA 00004	11/22/21		WELLINGTON, Lot d5NetFOSAA1116				(Purchased Reagent)	d5-NETfOSAA	50 ug/mL
..LCM2-6:FtS 00004	02/17/22		WELLINGTON, Lot M262FtS0217				(Purchased Reagent)	M2-6:2FtS	47.5 ug/mL
..LCM2-8:2FtS 00004	08/22/21		WELLINGTON, Lot M282FtS0816				(Purchased Reagent)	M2-8:2FtS	47.9 ug/mL
.LCMPFCSU_00069	11/24/17	05/24/17	Methanol, Lot Baker 141039	10000 uL	LCM2PFHxDA_00009	200 uL	13C2-PFHxDA	1 ug/mL	
					LCM2PFTeDA 00008	200 uL	13C2-PFTeDA	1 ug/mL	
					LCM4PFHPA 00008	200 uL	13C4-PFHpa	1 ug/mL	
					LCM5PFPEA 00009	200 uL	13C5-PFPeA	1 ug/mL	
					LCM8FOSA 00012	200 uL	13C8 FOSA	1 ug/mL	
					LCMPFBA 00009	200 uL	13C4 PFBA	1 ug/mL	
					LCMPFDA 00013	200 uL	13C2 PFDA	1 ug/mL	
					LCMPFDoA 00009	200 uL	13C2 PFDoA	1 ug/mL	
					LCMPFHxA 00014	200 uL	13C2 PFHxA	1 ug/mL	
					LCMPFHxS 00009	200 uL	1802 PFHxS	0.946 ug/mL	
					LCMPFNA 00009	200 uL	13C5 PFNA	1 ug/mL	
					LCMPFOA 00013	200 uL	13C4 PFOA	1 ug/mL	
					LCMPFOS 00020	200 uL	13C4 PFOS	0.956 ug/mL	
					LCMPFUdA 00010	200 uL	13C2 PFUnA	1 ug/mL	
..LCM2PFHxDA 00009	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112				(Purchased Reagent)	13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00008	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115				(Purchased Reagent)	13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00008	05/27/21		Wellington Laboratories, Lot M4PFHPa0516				(Purchased Reagent)	13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00009	11/22/21		Wellington Laboratories, Lot M5PFPeA1116				(Purchased Reagent)	13C5-PFPeA	50 ug/mL
..LCM8FOSA 00012	12/22/20		Wellington Laboratories, Lot M8FOSA1215I				(Purchased Reagent)	13C8 FOSA	50 ug/mL
..LCMPFBA 00009	05/24/21		Wellington Laboratories, Lot MPFBA0516				(Purchased Reagent)	13C4 PFBA	50 ug/mL
..LCMPFDA 00013	09/30/21		Wellington Laboratories, Lot MPFDA0916				(Purchased Reagent)	13C2 PFDA	50 ug/mL
..LCMPFDoA 00009	04/08/21		Wellington Laboratories, Lot MPFDoA0416				(Purchased Reagent)	13C2 PFDoA	50 ug/mL
..LCMPFHxA 00014	11/22/21		Wellington Laboratories, Lot MPFHxA1116				(Purchased Reagent)	13C2 PFHxA	50 ug/mL
..LCMPFHxS 00009	10/23/20		Wellington Laboratories, Lot MPFHxS1015				(Purchased Reagent)	1802 PFHxS	47.3 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFNA_00009	09/30/21		Wellington Laboratories, Lot MPFNA0916			(Purchased Reagent)	13C5 PFNA	50 ug/mL
..LCMPFOA_00013	10/18/21		Wellington Laboratories, Lot MPFOA1016			(Purchased Reagent)	13C4 PFOA	50 ug/mL
..LCMPFOS_00020	12/12/21		Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)	13C4 PFOS	47.8 ug/mL
..LCMPFUDa_00010	11/22/21		Wellington Laboratories, Lot MPFUDa1116			(Purchased Reagent)	13C2 PFUnA	50 ug/mL
.LCPFC2SP_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216			(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
..LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616			(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015			(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M			(Purchased Reagent)	N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116			(Purchased Reagent)	N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M			(Purchased Reagent)	MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116			(Purchased Reagent)	N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCIS_00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA_00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613			(Purchased Reagent)	13C2-PFOA	50 ug/mL
.LCPFCSP_00096	09/02/17	05/24/17	Methanol, Lot 090285	10000 uL	LCPFBA_00006	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00006	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00006	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00006	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00010	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00007	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHXS-br_00003	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00007	200 uL	Perfluorononanoic acid	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFOA_00007	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00007	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00003	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00009	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPPeA_00006	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUDa_00006	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCPFBA_00006	05/27/21		Wellington Laboratories, Lot PFBA0516		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00006	03/15/21		Wellington Laboratories, Lot LPFBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00006	05/31/21		Wellington Laboratories, Lot PFDA0516		(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00006	05/31/21		Wellington Laboratories, Lot PFDoA0516		(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_00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHps_00010	11/06/20		Wellington Laboratories, Lot LPFHps1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00007	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00003	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00007	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00007	08/02/21		Wellington Laboratories, Lot PFOA0716		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00007	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00003	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00009	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
..LCPFPeA_00006	05/31/21		Wellington Laboratories, Lot PFPeA0516		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
..LCPFTeDA_00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00005	02/12/21		Wellington Laboratories, Lot PFTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUDa_00006	08/19/20		Wellington Laboratories, Lot PFUDa0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L6_00003	08/13/17	04/19/17	MeOH/H2O, Lot 090285	5050 uL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	49.505 ng/mL
							d-N-MeFOSA-M	49.505 ng/mL
							d3-NMeFOSAA	49.505 ng/mL
							d5-NetFOSAA	49.505 ng/mL
							M2-6:2FTS	47.0297 ng/mL
							M2-8:2FTS	47.4257 ng/mL
					LCMPFCSU_00057	250 uL	13C2-PFHxDA	49.505 ng/mL
							13C2-PFTeDA	49.505 ng/mL
							13C4-PFHpA	49.505 ng/mL
							13C5-PFPeA	49.505 ng/mL
							13C8 FOSA	49.505 ng/mL
							13C4 PFBA	49.505 ng/mL
							13C2 PFDA	49.505 ng/mL
							13C2 PFDoA	49.505 ng/mL
							13C2 PFHxA	49.505 ng/mL
							18O2 PFHxS	46.8317 ng/mL
							13C5 PFNA	49.505 ng/mL
							13C4 PFOA	49.505 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFC2SP_00030	500 uL	13C4 PFOS	47.3267 ng/mL
							13C2 PFUnA	49.505 ng/mL
							Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	92.4752 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	93.8614 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	94.8515 ng/mL
							N-ethylperfluoro-1-octanesulfonamide	99.0099 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	99.0099 ng/mL
							MeFOSA	99.0099 ng/mL
					N-methyl perfluorooctane sulfonamidoacetic acid	99.0099 ng/mL		
					LCPFCIS_00002	50 uL	13C2-PFOA	49.505 ng/mL
					LCPFCSP_00086	1000 uL	Perfluorobutyric acid	99.0099 ng/mL
					Perfluorobutanesulfonic acid (PFBS)		87.5248 ng/mL	
					Perfluorodecanoic acid		99.0099 ng/mL	
					Perfluorododecanoic acid		99.0099 ng/mL	
					Perfluorodecane Sulfonic acid		95.4455 ng/mL	
					Perfluoroheptanoic acid		99.0099 ng/mL	
					Perfluoroheptanesulfonic Acid		94.2574 ng/mL	
					Perfluorohexanoic acid		99.0099 ng/mL	
					Perfluorohexadecanoic acid		99.0099 ng/mL	
					Perfluorohexanesulfonic acid		90.099 ng/mL	
Perfluorononanoic acid	99.0099 ng/mL							
Perfluorooctanoic acid (PFOA)	99.0099 ng/mL							
Perfluorooctadecanoic acid	99.0099 ng/mL							
Perfluorooctanesulfonic acid (PFOS)	91.8812 ng/mL							
Perfluorooctane Sulfonamide	99.0099 ng/mL							
Perfluoropentanoic acid	99.0099 ng/mL							
Perfluorotetradecanoic acid	99.0099 ng/mL							
Perfluorotridecanoic acid	99.0099 ng/mL							
Perfluoroundecanoic acid	99.0099 ng/mL							
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M_00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M_00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FtS_00003	1000 uL	M2-6:2FtS	0.95 ug/mL
					LCM2-8:2FtS_00003	1000 uL	M2-8:2FtS	0.958 ug/mL
..LCd-NEtFOSA-M_00004	06/10/21		WELLINGTON, Lot dNetFOSA0616M				d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M_00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M				d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA_00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516				d3-NMeFOSAA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCd5-NETFOSAA 00003	08/02/21		WELLINGTON, Lot d5NETFOSAA0716		(Purchased Reagent)		d5-NETFOSAA	50 ug/mL
..LCM2-6:F2TS 00003	01/08/21		WELLINGTON, Lot M262F2TS0116		(Purchased Reagent)		M2-6:2F2TS	47.5 ug/mL
..LCM2-8:2F2TS 00003	01/08/21		WELLINGTON, Lot M282F2TS0116		(Purchased Reagent)		M2-8:2F2TS	47.9 ug/mL
..LCMPFCSU_00057	10/04/17	04/04/17	Methanol, Lot Baker 141039	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	1802 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00018	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUDa_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21		Wellington Laboratories, Lot M4PFHpa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa 00009	02/12/21		Wellington Laboratories, Lot MPFUDa0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFC2SP_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2F2TS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2F2TS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2F2TS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
..LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCPFCIS_00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA_00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCPFCSP_00086	09/02/17	04/05/17	Methanol, Lot 141039	10000 uL	LCPFBA_00005	100 uL	Perfluorobutyric acid	0.5 ug/mL
					LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFDA_00006	100 uL	Perfluorodecanoic acid	0.5 ug/mL
					LCPFDoA_00006	100 uL	Perfluorododecanoic acid	0.5 ug/mL
					LCPFDS_00006	100 uL	Perfluorodecane Sulfonic acid	0.482 ug/mL
					LCPFHpA_00006	100 uL	Perfluoroheptanoic acid	0.5 ug/mL
					LCPFHpS_00009	100 uL	Perfluoroheptanesulfonic Acid	0.476 ug/mL
					LCPFHxA_00005	100 uL	Perfluorohexanoic acid	0.5 ug/mL
					LCPFHxDA_00006	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL
					LCPFHxS-br_00002	100 uL	Perfluorohexanesulfonic acid	0.455 ug/mL
					LCPFNA_00006	100 uL	Perfluorononanoic acid	0.5 ug/mL
					LCPFOA_00007	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFODA_00006	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
					LCPFOSA_00009	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL
					LCPFPeA_00006	100 uL	Perfluoropentanoic acid	0.5 ug/mL
					LCPFTeDA_00005	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL
					LCPFTrDA_00005	100 uL	Perfluorotridecanoic acid	0.5 ug/mL
					LCPFUdA_00005	100 uL	Perfluoroundecanoic acid	0.5 ug/mL
..LCPFBA_00005	05/27/21		Wellington Laboratories, Lot PFBA0516		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00005	03/15/21		Wellington Laboratories, Lot LPFBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00006	05/31/21		Wellington Laboratories, Lot PFDA0516		(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00006	05/31/21		Wellington Laboratories, Lot PFDoA0516		(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFDS_00006	05/24/21		Wellington Laboratories, Lot LPFDS0516		(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA_00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHpS_00009	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00006	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCPFHxS-br 00002	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA 00006	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA 00007	08/02/21		Wellington Laboratories, Lot PFOA0716		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA 00006	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA 00009	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
..LCPFPeA 00006	05/31/21		Wellington Laboratories, Lot PFPeA0516		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
..LCPFTeDA 00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUDA 00005	08/19/20		Wellington Laboratories, Lot PFUDA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L6_00005	09/02/17	05/30/17	MeOH/H2O, Lot 090285	5000 uL	LCMPFC2SU_00019	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00069	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00030	500 uL	Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	93.4 ng/mL
							Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	94.8 ng/mL
							Sodium 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2)	95.8 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	100 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	100 ng/mL
							MeFOSA	100 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	100 ng/mL
LCPFCIS_00002	50 uL	13C2-PFOA	50 ng/mL					

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration	
					Reagent ID	Volume Added			
					LCPFCSP_00096	500 uL	Perfluorobutyric acid	100 ng/mL	
							Perfluorobutanesulfonic acid (PFBS)	88.4 ng/mL	
							Perfluorodecanoic acid	100 ng/mL	
							Perfluorododecanoic acid	100 ng/mL	
							Perfluorodecane Sulfonic acid	96.4 ng/mL	
							Perfluoroheptanoic acid	100 ng/mL	
							Perfluoroheptanesulfonic Acid	95.2 ng/mL	
							Perfluorohexanoic acid	100 ng/mL	
							Perfluorohexadecanoic acid	100 ng/mL	
							Perfluorohexanesulfonic acid	91 ng/mL	
							Perfluorononanoic acid	100 ng/mL	
							Perfluorooctanoic acid (PFOA)	100 ng/mL	
							Perfluorooctadecanoic acid	100 ng/mL	
							Perfluorooctanesulfonic acid (PFOS)	92.8 ng/mL	
							Perfluorooctane Sulfonamide	100 ng/mL	
							Perfluoropentanoic acid	100 ng/mL	
Perfluorotetradecanoic acid	100 ng/mL								
Perfluorotridecanoic acid	100 ng/mL								
Perfluoroundecanoic acid	100 ng/mL								
.LCMPFC2SU_00019	11/30/17	05/30/17	Methanol, Lot 104453	5000 uL	LCd-NEtFOSA-M 00005	100 uL	d-N-EtFOSA-M	1 ug/mL	
							LCd-NMeFOSA-M 00004	d-N-MeFOSA-M	1 ug/mL
							LCd3-NMeFOSAA 00004	d3-NMeFOSAA	1 ug/mL
							LCd5-NEtFOSAA 00004	d5-NEtFOSAA	1 ug/mL
							LCM2-6:FtS 00004	M2-6:2FtS	0.95 ug/mL
							LCM2-8:2FtS 00004	M2-8:2FtS	0.958 ug/mL
..LCd-NEtFOSA-M 00005	06/10/21		WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL	
..LCd-NMeFOSA-M 00004	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL	
..LCd3-NMeFOSAA 00004	11/22/21		WELLINGTON, Lot d3NMeFOSAA1116		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL	
..LCd5-NEtFOSAA 00004	11/22/21		WELLINGTON, Lot d5NEtFOSAA1116		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL	
..LCM2-6:FtS 00004	02/17/22		WELLINGTON, Lot M262FtS0217		(Purchased Reagent)		M2-6:2FtS	47.5 ug/mL	
..LCM2-8:2FtS 00004	08/22/21		WELLINGTON, Lot M282FtS0816		(Purchased Reagent)		M2-8:2FtS	47.9 ug/mL	
.LCMPFCSU_00069	11/24/17	05/24/17	Methanol, Lot Baker 141039	10000 uL	LCM2PFHxDA_00009	200 uL	13C2-PFHxDA	1 ug/mL	
							LCM2PFtEDA 00008	13C2-PFtEDA	1 ug/mL
							LCM4PFHPA 00008	13C4-PFHPA	1 ug/mL
							LCM5PFPEA 00009	13C5-PFPeA	1 ug/mL
							LCM8FOSA 00012	13C8 FOSA	1 ug/mL
							LCMPFBA 00009	13C4 PFBA	1 ug/mL
							LCMPFDA 00013	13C2 PFDA	1 ug/mL
							LCMPFDoA 00009	13C2 PFDoA	1 ug/mL
							LCMPFHxA 00014	13C2 PFHxA	1 ug/mL
							LCMPFHxS 00009	18O2 PFHxS	0.946 ug/mL
							LCMPFNA 00009	13C5 PFNA	1 ug/mL
							LCMPFOA 00013	13C4 PFOA	1 ug/mL
							LCMPFOS 00020	13C4 PFOS	0.956 ug/mL
							LCMPFUdA 00010	13C2 PFUnA	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCM2PFHxDA 00009	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00008	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00008	05/27/21		Wellington Laboratories, Lot M4PFHpa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00009	11/22/21		Wellington Laboratories, Lot M5PFPeA1116		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00012	12/22/20		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00009	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00013	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00009	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00014	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00009	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA 00009	09/30/21		Wellington Laboratories, Lot MPFNA0916		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00013	10/18/21		Wellington Laboratories, Lot MPFOA1016		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00020	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUDa 00010	11/22/21		Wellington Laboratories, Lot MPFUDa1116		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC2SP_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL
					LC6:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
..LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCIS 00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA 00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA 00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00096	09/02/17	05/24/17	Methanol, Lot 090285	10000 uL	LCPFBA_00006	200 uL	Perfluorobutyric acid	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFBS_00006	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA 00006	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA 00006	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS 00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA 00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS 00010	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA 00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA 00007	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br 00003	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA 00007	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFoA 00007	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA 00007	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00003	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA 00009	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA 00006	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA 00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA 00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUDA 00006	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCPFBA 00006	05/27/21		Wellington Laboratories, Lot PFBA0516		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00006	03/15/21		Wellington Laboratories, Lot LPFBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA 00006	05/31/21		Wellington Laboratories, Lot PFDA0516		(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA 00006	05/31/21		Wellington Laboratories, Lot PFDoA0516		(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 00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHpS 00010	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA 00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA 00007	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br 00003	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA 00007	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFoA 00007	08/02/21		Wellington Laboratories, Lot PFOA0716		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA 00007	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00003	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA 00009	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
..LCPFPeA 00006	05/31/21		Wellington Laboratories, Lot PFPeA0516		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
..LCPFTeDA 00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUDA 00006	08/19/20		Wellington Laboratories, Lot PFUDA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L7_00001	08/13/17	04/16/17	MeOH/H2O, Lot 090285	5050 uL	LCPMFC2SU_00014	250 uL	d-N-EtFOSA-M	49.505 ng/mL
							d-N-MeFOSA-M	49.505 ng/mL
							d3-NMeFOSAA	49.505 ng/mL
							d5-NETFOSAA	49.505 ng/mL
							M2-6:2FTS	47.0297 ng/mL
							M2-8:2FTS	47.4257 ng/mL
					LCPMFCSU_00057	250 uL	13C2-PFHxDA	49.505 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C2-PFTeDA	49.505 ng/mL
							13C4-PFHpA	49.505 ng/mL
							13C5-PFPeA	49.505 ng/mL
							13C8 FOSA	49.505 ng/mL
							13C4 PFBA	49.505 ng/mL
							13C2 PFDA	49.505 ng/mL
							13C2 PFDoA	49.505 ng/mL
							13C2 PFHxA	49.505 ng/mL
							18O2 PFHxS	46.8317 ng/mL
							13C5 PFNA	49.505 ng/mL
							13C4 PFOA	49.505 ng/mL
							13C4 PFOS	47.3267 ng/mL
							13C2 PFUnA	49.505 ng/mL
					LCPFC2SP_00030	1000 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	184.95 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	187.723 ng/mL
							Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	189.703 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	198.02 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	198.02 ng/mL
							MeFOSA	198.02 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	198.02 ng/mL
					LCPFCIS_00002	50 uL	13C2-PFOA	49.505 ng/mL
					LCPFCSP_00086	2000 uL	Perfluorobutyric acid	198.02 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	175.05 ng/mL
							Perfluorodecanoic acid	198.02 ng/mL
							Perfluorododecanoic acid	198.02 ng/mL
							Perfluorodecane Sulfonic acid	190.891 ng/mL
							Perfluoroheptanoic acid	198.02 ng/mL
							Perfluoroheptanesulfonic Acid	188.515 ng/mL
							Perfluorohexanoic acid	198.02 ng/mL
							Perfluorohexadecanoic acid	198.02 ng/mL
							Perfluorohexanesulfonic acid	180.198 ng/mL
							Perfluorononanoic acid	198.02 ng/mL
							Perfluorooctanoic acid (PFOA)	198.02 ng/mL
							Perfluorooctadecanoic acid	198.02 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	183.762 ng/mL
							Perfluorooctane Sulfonamide	198.02 ng/mL
							Perfluoropentanoic acid	198.02 ng/mL
							Perfluorotetradecanoic acid	198.02 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorotridecanoic acid	198.02 ng/mL
							Perfluoroundecanoic acid	198.02 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA 00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FtS 00003	1000 uL	M2-6:2FtS	0.95 ug/mL
					LCM2-8:2FtS 00003	1000 uL	M2-8:2FtS	0.958 ug/mL
..LCd-NEtFOSA-M 00004	06/10/21		WELLINGTON, Lot dNEtFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA 00003	08/02/21		WELLINGTON, Lot d5NEtFOSAA0716		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FtS 00003	01/08/21		WELLINGTON, Lot M262FtS0116		(Purchased Reagent)		M2-6:2FtS	47.5 ug/mL
..LCM2-8:2FtS 00003	01/08/21		WELLINGTON, Lot M282FtS0116		(Purchased Reagent)		M2-8:2FtS	47.9 ug/mL
.LCMPFCSU_00057	10/04/17	04/04/17	Methanol, Lot Baker 141039	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFtEDA_00007	1000 uL	13C2-PFtEDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00018	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFtEDA 00007	12/07/20		Wellington Laboratories, Lot M2PFtEDA1115		(Purchased Reagent)		13C2-PFtEDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21		Wellington Laboratories, Lot M4PFHpa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA 00009	02/12/21		Wellington Laboratories, Lot MPFUdA0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPPC2SP_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FtS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC6:2FTS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
..LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCIS_00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA_00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00086	09/02/17	04/05/17	Methanol, Lot 141039	10000 uL	LCPFBA_00005	100 uL	Perfluorobutyric acid	0.5 ug/mL
					LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFDA_00006	100 uL	Perfluorodecanoic acid	0.5 ug/mL
					LCPFDaA_00006	100 uL	Perfluorododecanoic acid	0.5 ug/mL
					LCPFDS_00006	100 uL	Perfluorodecane Sulfonic acid	0.482 ug/mL
					LCPFHpA_00006	100 uL	Perfluoroheptanoic acid	0.5 ug/mL
					LCPFHpS_00009	100 uL	Perfluoroheptanesulfonic Acid	0.476 ug/mL
					LCPFHxA_00005	100 uL	Perfluorohexanoic acid	0.5 ug/mL
					LCPFHxDA_00006	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL
					LCPFHXS-br_00002	100 uL	Perfluorohexanesulfonic acid	0.455 ug/mL
					LCPFNA_00006	100 uL	Perfluorononanoic acid	0.5 ug/mL
					LCPFOA_00007	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFODA_00006	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
					LCPFOSA_00009	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL
					LCPFPeA_00006	100 uL	Perfluoropentanoic acid	0.5 ug/mL
					LCPFTeDA_00005	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
					LCPFTrDA 00005	100 uL	Perfluorotridecanoic acid	0.5 ug/mL		
					LCPFUDA 00005	100 uL	Perfluoroundecanoic acid	0.5 ug/mL		
..LCPFBA 00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL		
..LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL		
..LCPFDA 00006	05/31/21	Wellington Laboratories, Lot PFDA0516			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL		
..LCPFDoA 00006	05/31/21	Wellington Laboratories, Lot PFDoA0516			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL		
..LCPFDS 00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL		
..LCPFHpA 00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL		
..LCPFHpS 00009	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL		
..LCPFHxA 00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL		
..LCPFHxDA 00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL		
..LCPFHxS-br 00002	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL		
..LCPFNA 00006	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL		
..LCPFOA 00007	08/02/21	Wellington Laboratories, Lot PFOA0716			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL		
..LCPFODA 00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL		
..LCPFOS-br_00002	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL		
..LCPFOSA 00009	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL		
..LCPFPeA 00006	05/31/21	Wellington Laboratories, Lot PFPeA0516			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL		
..LCPFTEDA 00005	12/09/20	Wellington Laboratories, Lot PFTEDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL		
..LCPFTrDA 00005	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL		
..LCPFUDA 00005	08/19/20	Wellington Laboratories, Lot PFUDA0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL		
LCPFC_FULL-L7_00003	09/02/17	05/30/17	MeOH/H2O, Lot 090285	5000 uL	LCMPFC2SU_00019	250 uL	d-N-EtFOSA-M	50 ng/mL		
							d-N-MeFOSA-M	50 ng/mL		
							d3-NMeFOSAA	50 ng/mL		
							d5-NEtFOSAA	50 ng/mL		
							M2-6:2FTS	47.5 ng/mL		
							M2-8:2FTS	47.9 ng/mL		
							LCMPFCSU_00069	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				
					LCMPFC2SP_00030	1000 uL	Sodium 1H, 1H, 2H, 2H-perfluorohexane sulfonate (4:2)	186.8 ng/mL		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration	
					Reagent ID	Volume Added			
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	189.6 ng/mL	
							Sodium 1H,1H,2H,2H-perfluorodecane 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	
					LCPFCIS_00002	50 uL	13C2-PFOA	50 ng/mL	
					LCPFCSP_00096	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	200 ng/mL	
							Perfluoroheptanesulfonic Acid	190.4 ng/mL	
							Perfluorohexanoic acid	200 ng/mL	
							Perfluorohexadecanoic acid	200 ng/mL	
							Perfluorohexanesulfonic acid	182 ng/mL	
							Perfluorononanoic acid	200 ng/mL	
							Perfluorooctanoic acid (PFOA)	200 ng/mL	
							Perfluorooctadecanoic acid	200 ng/mL	
							Perfluorooctanesulfonic acid (PFOS)	185.6 ng/mL	
							Perfluorooctane Sulfonamide	200 ng/mL	
							Perfluoropentanoic acid	200 ng/mL	
							Perfluorotetradecanoic acid	200 ng/mL	
							Perfluorotridecanoic acid	200 ng/mL	
							Perfluoroundecanoic acid	200 ng/mL	
.LCMPFC2SU_00019	11/30/17	05/30/17	Methanol, Lot 104453	5000 uL	LCd-NETFOSA-M 00005	100 uL	d-N-EtFOSA-M	1 ug/mL	
					LCd-NMeFOSA-M 00004	100 uL	d-N-MeFOSA-M	1 ug/mL	
					LCd3-NMeFOSAA 00004	100 uL	d3-NMeFOSAA	1 ug/mL	
					LCd5-NETFOSAA 00004	100 uL	d5-NETFOSAA	1 ug/mL	
					LCM2-6:FtS 00004	100 uL	M2-6:2FtS	0.95 ug/mL	
					LCM2-8:2FtS 00004	100 uL	M2-8:2FtS	0.958 ug/mL	
..LCd-NETFOSA-M 00005	06/10/21		WELLINGTON, Lot dNetFOSA0616M				(Purchased Reagent)	d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00004	06/10/21		WELLINGTON, Lot dNMeFOSA0616M				(Purchased Reagent)	d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00004	11/22/21		WELLINGTON, Lot d3NMeFOSAA1116				(Purchased Reagent)	d3-NMeFOSAA	50 ug/mL
..LCd5-NETFOSAA 00004	11/22/21		WELLINGTON, Lot d5NETFOSAA1116				(Purchased Reagent)	d5-NETFOSAA	50 ug/mL
..LCM2-6:FtS 00004	02/17/22		WELLINGTON, Lot M262FtS0217				(Purchased Reagent)	M2-6:2FtS	47.5 ug/mL
..LCM2-8:2FtS 00004	08/22/21		WELLINGTON, Lot M282FtS0816				(Purchased Reagent)	M2-8:2FtS	47.9 ug/mL
.LCMPFCSU_00069	11/24/17	05/24/17	Methanol, Lot Baker 141039	10000 uL	LCM2PFHxDA_00009	200 uL	13C2-PFHxDA	1 ug/mL	

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration	
					Reagent ID	Volume Added			
					LCM2PFTeDA_00008	200 uL	13C2-PFTeDA	1 ug/mL	
					LCM4PFHPA_00008	200 uL	13C4-PFHpa	1 ug/mL	
					LCM5PFPEA_00009	200 uL	13C5-PFPeA	1 ug/mL	
					LCM8FOSA_00012	200 uL	13C8 FOSA	1 ug/mL	
					LCMPFBA_00009	200 uL	13C4 PFBA	1 ug/mL	
					LCMPFDA_00013	200 uL	13C2 PFDA	1 ug/mL	
					LCMPFDoA_00009	200 uL	13C2 PFDoA	1 ug/mL	
					LCMPFHxA_00014	200 uL	13C2 PFHxA	1 ug/mL	
					LCMPFHxS_00009	200 uL	18O2 PFHxS	0.946 ug/mL	
					LCMPFNA_00009	200 uL	13C5 PFNA	1 ug/mL	
					LCMPFOA_00013	200 uL	13C4 PFOA	1 ug/mL	
					LCMPFOS_00020	200 uL	13C4 PFOS	0.956 ug/mL	
					LCMPFUdA_00010	200 uL	13C2 PFUnA	1 ug/mL	
..LCM2PFHxDA_00009	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112				(Purchased Reagent)	13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00008	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115				(Purchased Reagent)	13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00008	05/27/21		Wellington Laboratories, Lot M4PFHpA0516				(Purchased Reagent)	13C4-PFHpa	50 ug/mL
..LCM5PFPEA_00009	11/22/21		Wellington Laboratories, Lot M5PFPeA1116				(Purchased Reagent)	13C5-PFPeA	50 ug/mL
..LCM8FOSA_00012	12/22/20		Wellington Laboratories, Lot M8FOSA1215I				(Purchased Reagent)	13C8 FOSA	50 ug/mL
..LCMPFBA_00009	05/24/21		Wellington Laboratories, Lot MPFBA0516				(Purchased Reagent)	13C4 PFBA	50 ug/mL
..LCMPFDA_00013	09/30/21		Wellington Laboratories, Lot MPFDA0916				(Purchased Reagent)	13C2 PFDA	50 ug/mL
..LCMPFDoA_00009	04/08/21		Wellington Laboratories, Lot MPFDoA0416				(Purchased Reagent)	13C2 PFDoA	50 ug/mL
..LCMPFHxA_00014	11/22/21		Wellington Laboratories, Lot MPFHxA1116				(Purchased Reagent)	13C2 PFHxA	50 ug/mL
..LCMPFHxS_00009	10/23/20		Wellington Laboratories, Lot MPFHxS1015				(Purchased Reagent)	18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00009	09/30/21		Wellington Laboratories, Lot MPFNA0916				(Purchased Reagent)	13C5 PFNA	50 ug/mL
..LCMPFOA_00013	10/18/21		Wellington Laboratories, Lot MPFOA1016				(Purchased Reagent)	13C4 PFOA	50 ug/mL
..LCMPFOS_00020	12/12/21		Wellington Laboratories, Lot MPFOS1216				(Purchased Reagent)	13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00010	11/22/21		Wellington Laboratories, Lot MPFUdA1116				(Purchased Reagent)	13C2 PFUnA	50 ug/mL
..LCPPFC2SP_00030	10/14/17	04/14/17	Methanol, Lot 104453	10000 uL	LC4:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	0.934 ug/mL	
					LC6:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL	
					LC8:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	0.958 ug/mL	
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL	
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL	
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL	
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL	
..LC4:2FTS_00002	12/12/21		WELLINGTON, Lot 42FTS1216				(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	46.7 ug/mL
..LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616				(Purchased Reagent)	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCIS_00002	10/17/17	04/17/17	Methanol, Lot 14139	2000 uL	LCM2PFOA_00005	200 uL	13C2-PFOA	5 ug/mL
..LCM2PFOA_00005	06/19/18		Wellington Laboratories, Lot M2PFOA0613		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCPFCSP_00096	09/02/17	05/24/17	Methanol, Lot 090285	10000 uL	LCPFBA_00006	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00006	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00006	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00006	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00005	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00010	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00007	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00003	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00007	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00007	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00007	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00003	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00009	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00006	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00006	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCPFBA_00006	05/27/21		Wellington Laboratories, Lot PFBA0516		(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00006	03/15/21		Wellington Laboratories, Lot LPFBS0316		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00006	05/31/21		Wellington Laboratories, Lot PFDA0516		(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00006	05/31/21		Wellington Laboratories, Lot PFDoA0516		(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_00006	01/22/21		Wellington Laboratories, Lot PFHpA0116		(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHpS_00010	11/06/20		Wellington Laboratories, Lot LPFHpS1115		(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00005	12/22/20		Wellington Laboratories, Lot PFHxA1215		(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00007	05/25/21		Wellington Laboratories, Lot PFHxDA0516		(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00003	07/03/20		Wellington Laboratories, Lot brPFHxSK0615		(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00007	10/23/20		Wellington Laboratories, Lot PFNA1015		(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00007	08/02/21		Wellington Laboratories, Lot PFOA0716		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00007	04/29/21		Wellington Laboratories, Lot PFODA0416		(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00003	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
..LCPFOSA 00009	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL		
..LCPFPeA 00006	05/31/21		Wellington Laboratories, Lot PFPeA0516		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL		
..LCPFTeDA 00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL		
..LCPFTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL		
..LCPFUdA 00006	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL		
LCPFCIC_FULL_00002	06/01/17	04/17/17	MeOH/H2O, Lot 09285	5050 uL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	49.505 ng/mL		
							d-N-MeFOSA-M	49.505 ng/mL		
							d3-NMeFOSAA	49.505 ng/mL		
							d5-NEtFOSAA	49.505 ng/mL		
							M2-6:2FTS	47.0297 ng/mL		
							M2-8:2FTS	47.4257 ng/mL		
							LCMPFCSU_00057	250 uL	13C2-PFHxDA	49.505 ng/mL
									13C2-PFTeDA	49.505 ng/mL
									13C4-PFHpA	49.505 ng/mL
									13C5-PFPeA	49.505 ng/mL
					13C8 FOSA	49.505 ng/mL				
					13C4 PFBA	49.505 ng/mL				
					13C2 PFDA	49.505 ng/mL				
					13C2 PFDoA	49.505 ng/mL				
					13C2 PFHxA	49.505 ng/mL				
					18O2 PFHxS	46.8317 ng/mL				
					LCPFACMXB_00007	125 uL	Perfluorobutanesulfonic acid (PFBS)	43.8119 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	47.2772 ng/mL		
							Perfluorooctanoic acid (PFOA)	49.505 ng/mL		
					.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M 00004
LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL							
LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL							
LCd5-NEtFOSAA 00003	1000 uL	d5-NEtFOSAA	1 ug/mL							
LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL							
LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL							
..LCd-NEtFOSA-M 00004	06/10/21		WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL		
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL		
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL		
..LCd5-NEtFOSAA 00003	08/02/21		WELLINGTON, Lot d5NEtFOSAA0716		(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL		
..LCM2-6:FTS 00003	01/08/21		WELLINGTON, Lot M262FTS0116		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL		
..LCM2-8:2FTS 00003	01/08/21		WELLINGTON, Lot M282FTS0116		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL		
.LCMPFCSU_00057	10/04/17	04/04/17	Methanol, Lot Baker 141039	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL		
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL		
					LCM4PFHPA_00007	1000 uL	13C4-PFHpA	1 ug/mL		
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL		
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCMPFBA 00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA 00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA 00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA 00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS 00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA 00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00018	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA 00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21		Wellington Laboratories, Lot M4PFHPA0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00018	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA 00009	02/12/21		Wellington Laboratories, Lot MPFUdA0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFACMXB_00007	11/06/20		Wellington Laboratories, Lot PFACMXB1115		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1.77 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	1.91 ug/mL
							Perfluorooctanoic acid (PFOA)	2 ug/mL
LCPFIC_FULL_00003	09/02/17	05/30/17	MeOH/H2O, Lot 09285	5050 uL	LCMPFC2SU_00019	250 uL	d-N-EtFOSA-M	49.505 ng/mL
							d-N-MeFOSA-M	49.505 ng/mL
							d3-NMeFOSAA	49.505 ng/mL
							d5-NEtFOSAA	49.505 ng/mL
							M2-6:2FTS	47.0297 ng/mL
							M2-8:2FTS	47.4257 ng/mL
					LCMPFCSU_00069	250 uL	13C2-PFHxDA	49.505 ng/mL
							13C2-PFTeDA	49.505 ng/mL
							13C4-PFHpa	49.505 ng/mL
							13C5-PFPeA	49.505 ng/mL
							13C8 FOSA	49.505 ng/mL
							13C4 PFBA	49.505 ng/mL
							13C2 PFDA	49.505 ng/mL
							13C2 PFDoA	49.505 ng/mL
							13C2 PFHxA	49.505 ng/mL
							18O2 PFHxS	46.8317 ng/mL
							13C5 PFNA	49.505 ng/mL
							13C4 PFOA	49.505 ng/mL
							13C4 PFOS	47.3267 ng/mL
							13C2 PFUnA	49.505 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

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)	43.8119 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	47.2772 ng/mL
							Perfluorooctanoic acid (PFOA)	49.505 ng/mL
.LCMPFC2SU_00019	11/30/17	05/30/17	Methanol, Lot 104453	5000 uL	LCd-NETfOSA-M 00005	100 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M 00004	100 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00004	100 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NETfOSAA 00004	100 uL	d5-NETfOSAA	1 ug/mL
					LCM2-6:FtS 00004	100 uL	M2-6:2FtS	0.95 ug/mL
					LCM2-8:2FtS 00004	100 uL	M2-8:2FtS	0.958 ug/mL
..LCd-NETfOSA-M 00005	06/10/21		WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00004	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00004	11/22/21		WELLINGTON, Lot d3NMeFOSAA1116		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NETfOSAA 00004	11/22/21		WELLINGTON, Lot d5NETfOSAA1116		(Purchased Reagent)		d5-NETfOSAA	50 ug/mL
..LCM2-6:FtS 00004	02/17/22		WELLINGTON, Lot M262FtS0217		(Purchased Reagent)		M2-6:2FtS	47.5 ug/mL
..LCM2-8:2FtS 00004	08/22/21		WELLINGTON, Lot M282FtS0816		(Purchased Reagent)		M2-8:2FtS	47.9 ug/mL
.LCMPFCSU_00069	11/24/17	05/24/17	Methanol, Lot Baker 141039	10000 uL	LCM2PFHxDA_00009	200 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00008	200 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00008	200 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00009	200 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00012	200 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00009	200 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00013	200 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00009	200 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00014	200 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00009	200 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00009	200 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00013	200 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00020	200 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00010	200 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00009	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00008	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00008	05/27/21		Wellington Laboratories, Lot M4PFHpA0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA_00009	11/22/21		Wellington Laboratories, Lot M5PFPeA1116		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00012	12/22/20		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00009	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00013	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00009	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00014	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00009	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00009	09/30/21		Wellington Laboratories, Lot MPFNA0916		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00013	10/18/21		Wellington Laboratories, Lot MPFOA1016		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00020	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00010	11/22/21		Wellington Laboratories, Lot MPFUdA1116		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFACMXB_00007	11/06/20		Wellington Laboratories, Lot PFACMXB1115		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1.77 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	1.91 ug/mL
							Perfluorooctanoic acid (PFOA)	2 ug/mL
LCPFCSP_00092	09/02/17	05/04/17	Methanol, Lot 090285	250 mL	LCPFBA_00005	100 uL	Perfluorobutyric acid	0.02 ug/mL
					LCPFBS_00005	100 uL	Perfluorobutane Sulfonate	0.01768 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.01768 ug/mL
					LCPFDA_00006	100 uL	Perfluorodecanoic acid	0.02 ug/mL
					LCPFDoA_00006	100 uL	Perfluorododecanoic acid	0.02 ug/mL
					LCPFDS_00006	100 uL	Perfluorodecane Sulfonate	0.01928 ug/mL
							Perfluorodecane Sulfonic acid	0.01928 ug/mL
					LCPFHpA_00006	100 uL	Perfluoroheptanoic acid	0.02 ug/mL
					LCPFHpS_00009	100 uL	Perfluoroheptane Sulfonate	0.01904 ug/mL
							Perfluoroheptanesulfonic Acid	0.01904 ug/mL
					LCPFHxA_00005	100 uL	Perfluorohexanoic acid	0.02 ug/mL
					LCPFHxDA_00006	100 uL	Perfluorohexadecanoic acid	0.02 ug/mL
					LCPFHxS-br_00002	100 uL	Perfluorohexane Sulfonate	0.0182 ug/mL
							Perfluorohexanesulfonic acid	0.0182 ug/mL
					LCPFNA_00006	100 uL	Perfluorononanoic acid	0.02 ug/mL
					LCPFOA_00007	100 uL	Perfluorooctanoic acid (PFOA)	0.02 ug/mL
					LCPFODA_00006	100 uL	Perfluorooctadecanoic acid	0.02 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.01856 ug/mL
					LCPFOSA_00009	100 uL	Perfluorooctane Sulfonamide	0.02 ug/mL
					LCPFPeA_00006	100 uL	Perfluoropentanoic acid	0.02 ug/mL
					LCPFTeDA_00005	100 uL	Perfluorotetradecanoic acid	0.02 ug/mL
					LCPFTrDA_00005	100 uL	Perfluorotridecanoic acid	0.02 ug/mL
					LCPFUdA_00005	100 uL	Perfluoroundecanoic acid	0.02 ug/mL
.LCPFBA_00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
.LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutane Sulfonate	44.2 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
.LCPFDA_00006	05/31/21	Wellington Laboratories, Lot PFDA0516			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
.LCPFDoA_00006	05/31/21	Wellington Laboratories, Lot PFDoA0516			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
.LCPFDS_00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonate	48.2 ug/mL
							Perfluorodecane Sulfonic acid	48.2 ug/mL
.LCPFHpA_00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
.LCPFHpS_00009	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptane Sulfonate	47.6 ug/mL
							Perfluoroheptanesulfonic Acid	47.6 ug/mL
.LCPFHxA_00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
.LCPFHxDA_00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
.LCPFHxS-br_00002	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexane Sulfonate	45.5 ug/mL
							Perfluorohexanesulfonic acid	45.5 ug/mL
.LCPFNA_00006	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
.LCPFOA_00007	08/02/21	Wellington Laboratories, Lot PFOA0716			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
.LCPFODA_00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
.LCPFOS-br_00002	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFOSA 00009	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
.LCPFPeA 00006	05/31/21		Wellington Laboratories, Lot PFPeA0516		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
.LCPFTeDA 00005	12/09/20		Wellington Laboratories, Lot PFTeDA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
.LCPFTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
.LCPFUdA 00005	08/19/20		Wellington Laboratories, Lot PFUdA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL

Reagent

LC4 : 2FTS _ 00002

R: 88C 3/31/17



896827
ID: LC4:2FTS_00002
Exp: 12/12/21 Prpd:
4:2FTS

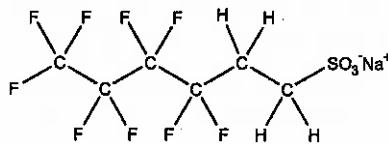


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 4:2FTS **LOT NUMBER:** 42FTS1216
COMPOUND: Sodium 1H,1H,2H,2H-perfluorohexane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₆H₄F₉SO₃Na **MOLECULAR WEIGHT:** 350.13
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
46.7 ± 2.3 µg/ml (4:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/12/2016
EXPIRY DATE: (mm/dd/yyyy) 12/12/2021
RECOMMENDED STORAGE: Refrigerate ampoule

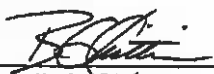
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 12/21/2016
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

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.

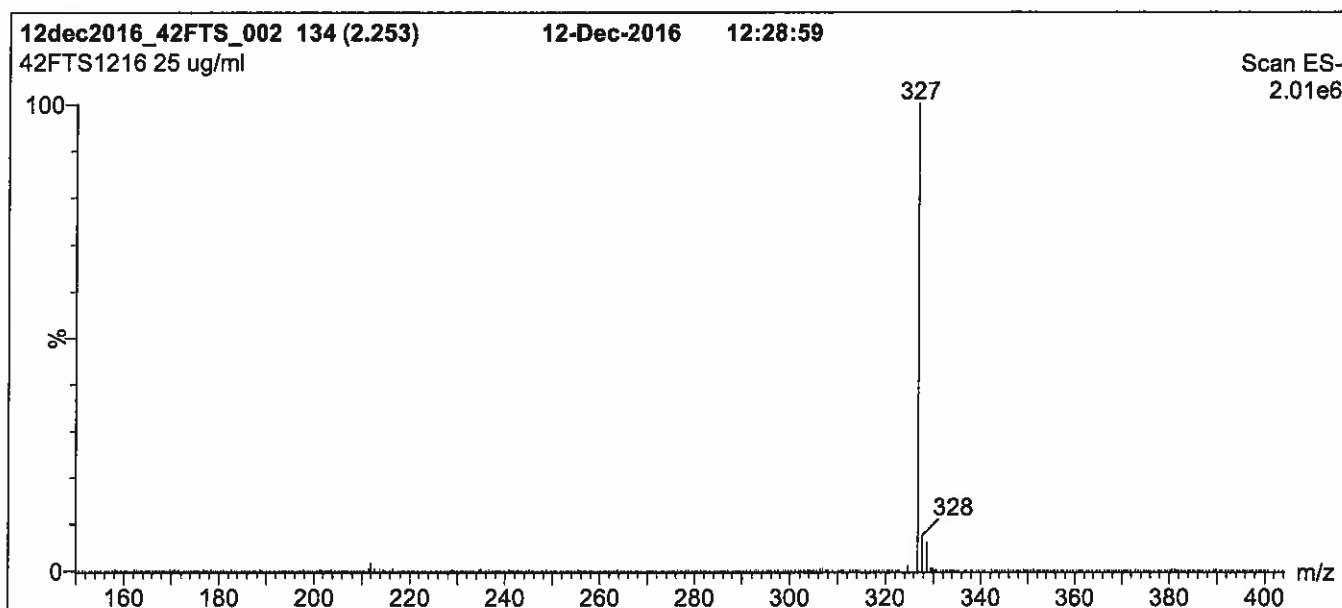
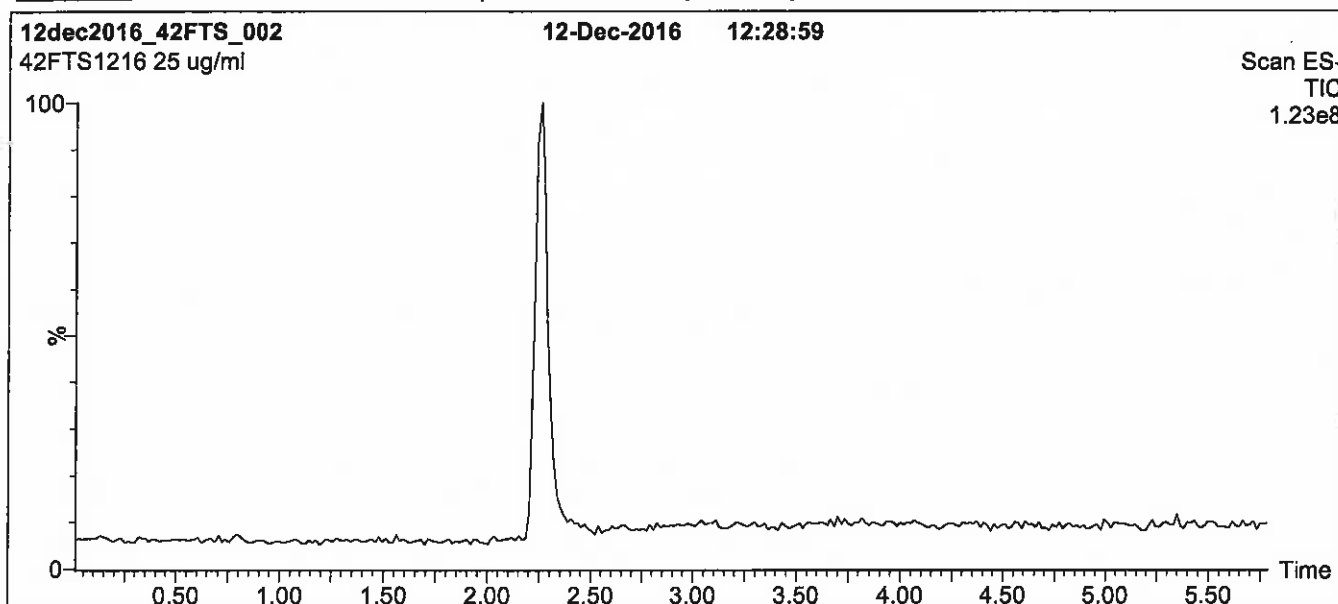
QUALITY MANAGEMENT:

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: 4:2FTS; 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

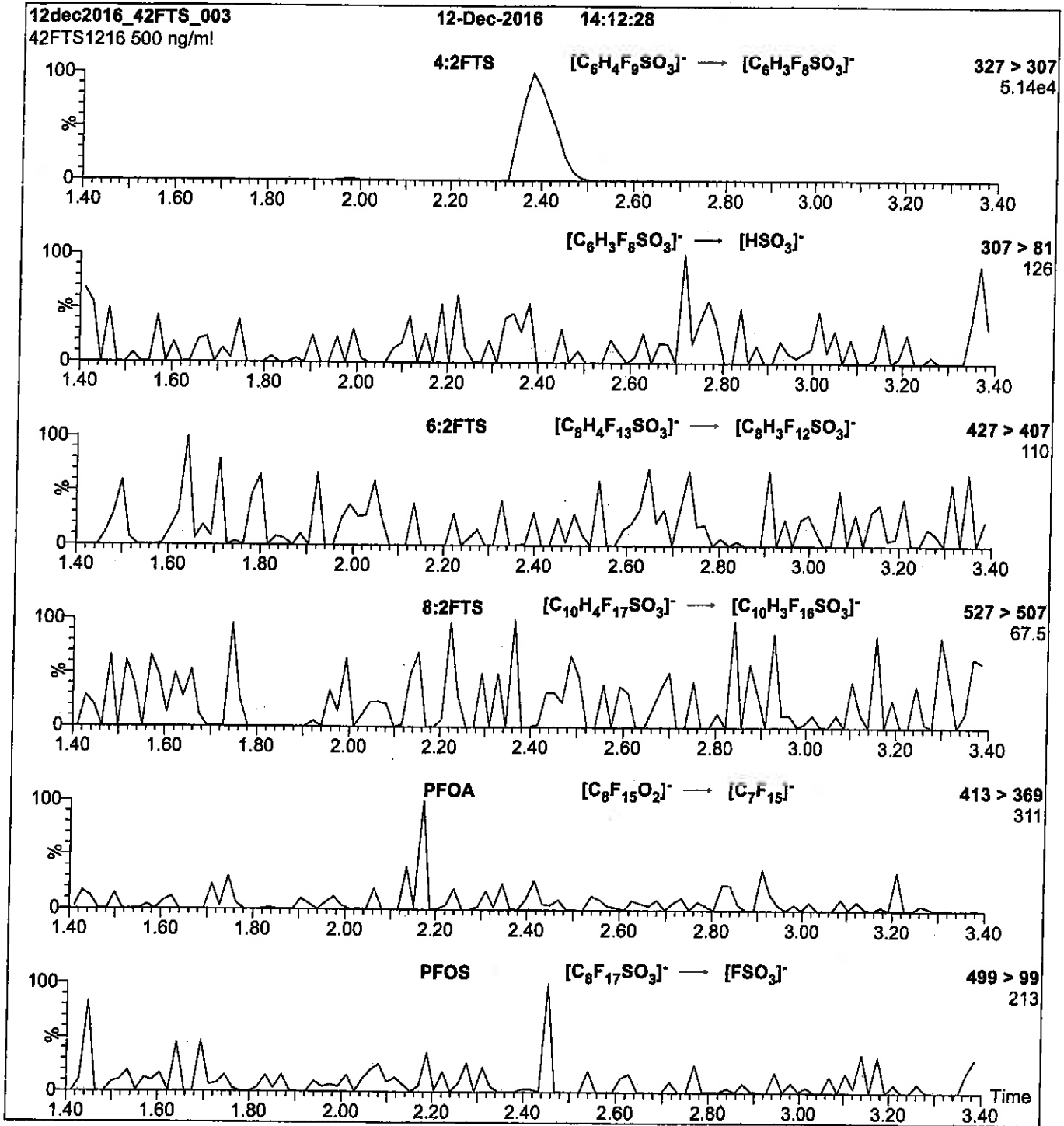
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: 4:2FTS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml 4:2FTS)

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

LC6:2FTS_00002

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.

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EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

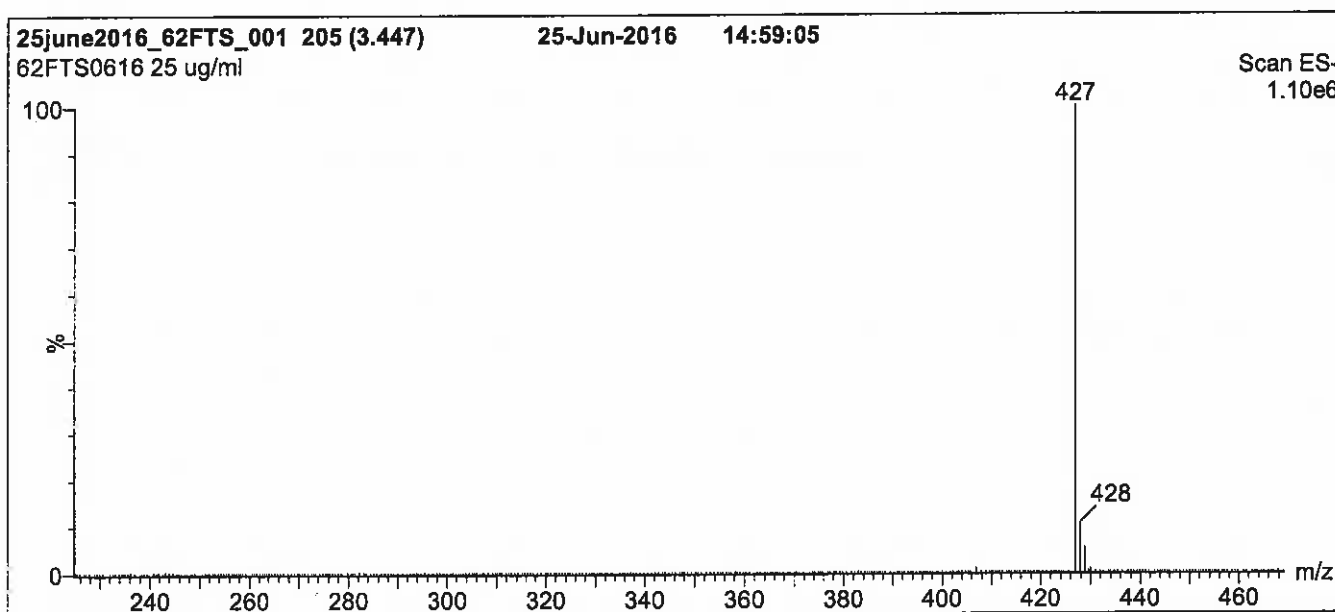
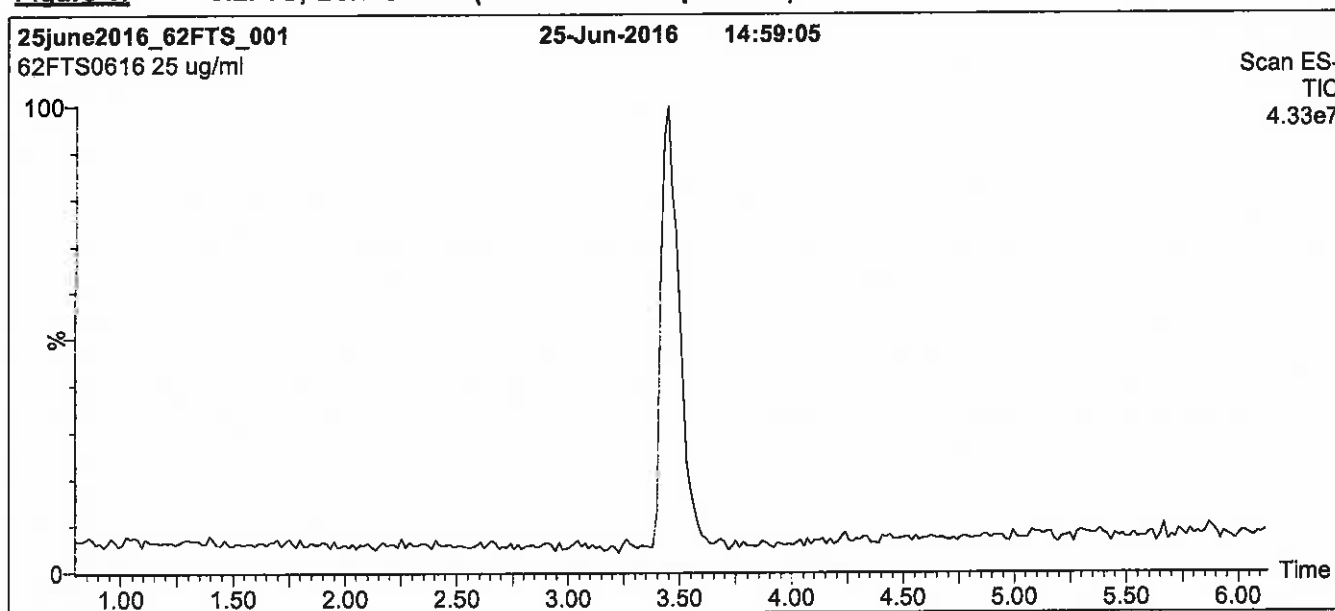
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

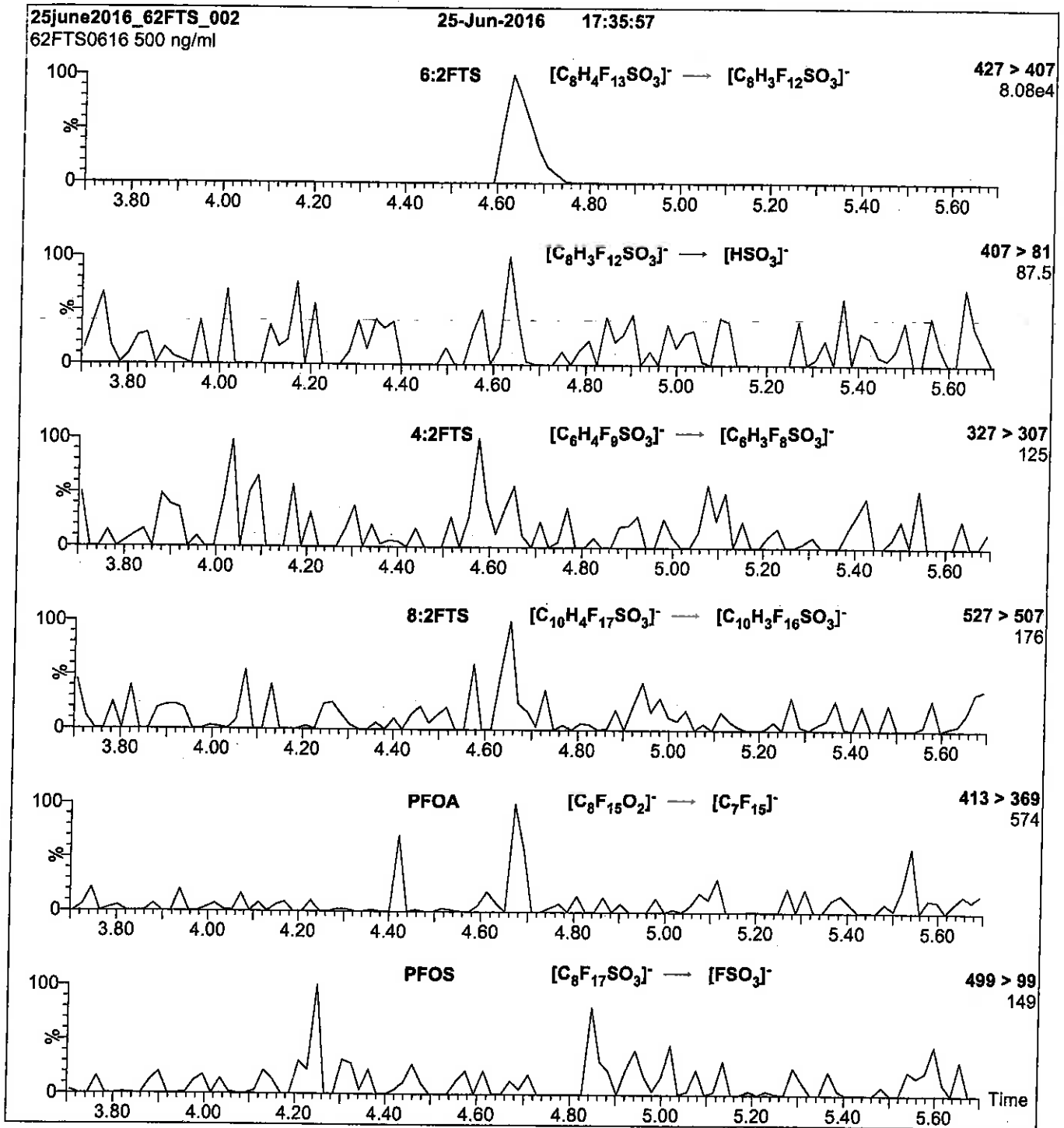
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Reagent

LC8 : 2FTS _ 00002

R: 8/23/16 SBC

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

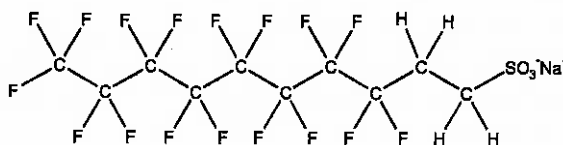


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₁₀H₄F₁₇SO₃Na **MOLECULAR WEIGHT:** 550.16
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
47.9 ± 2.4 µg/ml (8:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/23/2015
EXPIRY DATE: (mm/dd/yyyy) 10/23/2020
RECOMMENDED STORAGE: Refrigerate ampoule

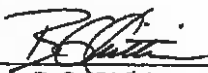
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 10/27/2015
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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:

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.

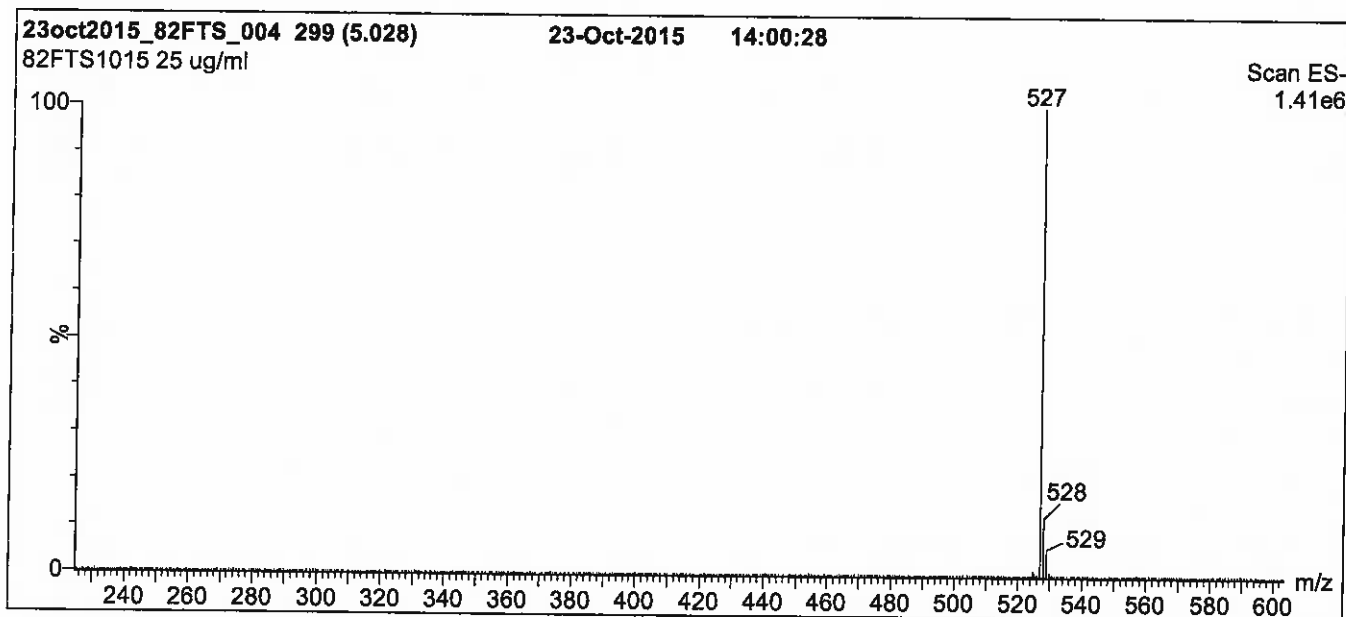
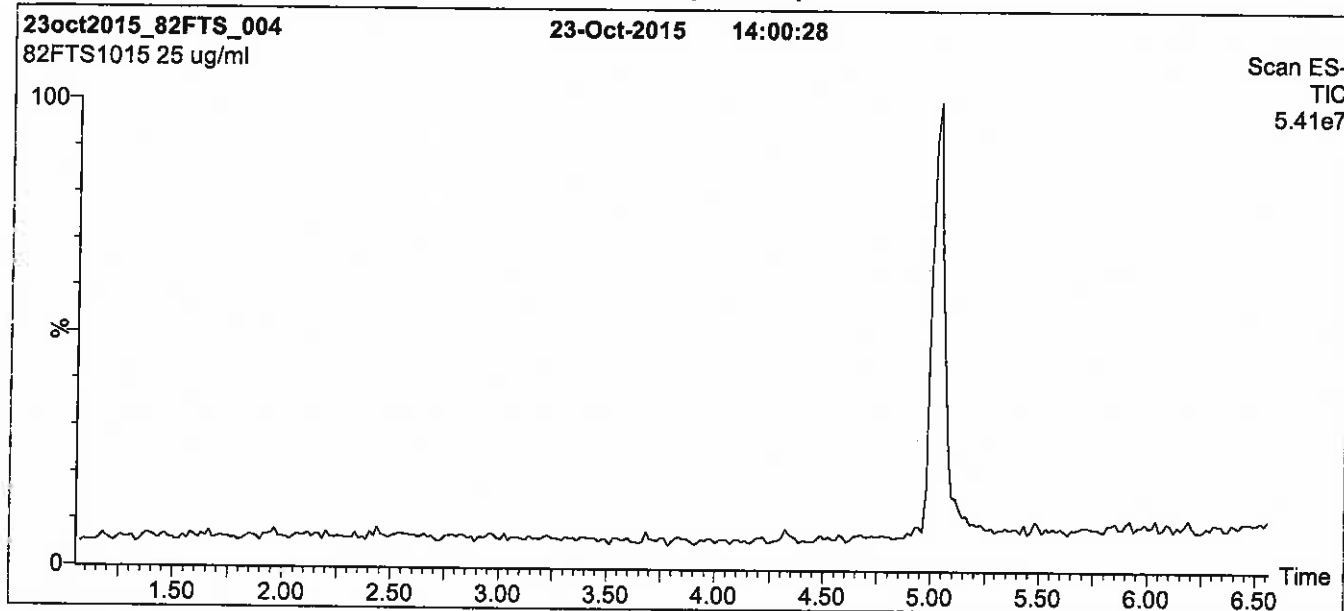
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

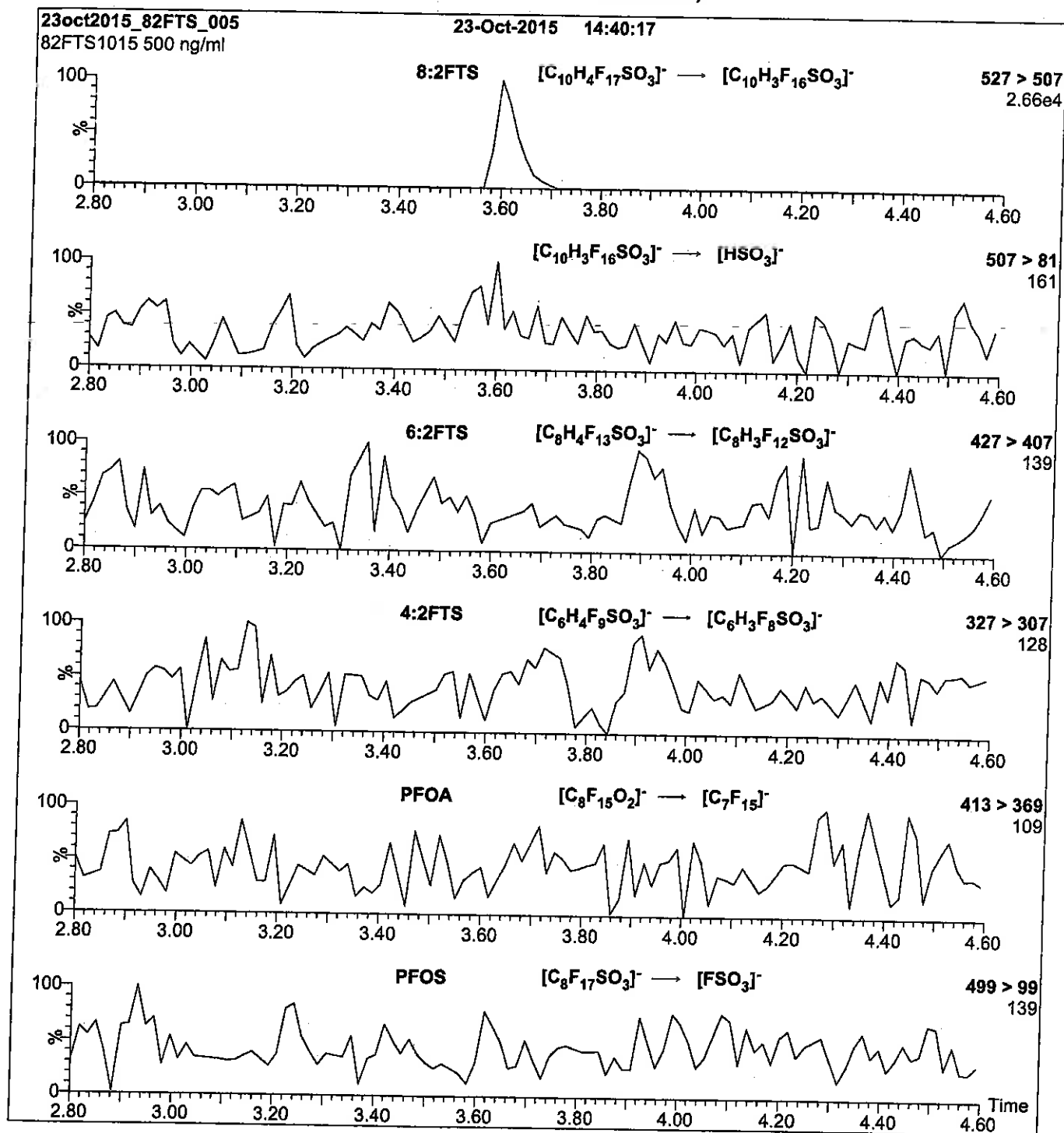
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCd-NEtFOSA-M_00005

R: 3720/17



WELLINGTON LABORATORIES

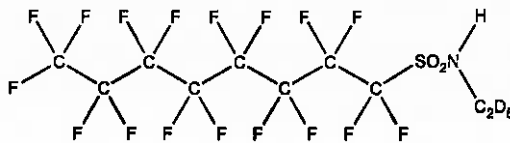
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: dNEtFOSA0616M

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₁₀D₅HF₁₇NO₂S
CONCENTRATION: 50 ± 2.5 µg/ml
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 06/10/2016
EXPIRY DATE: (mm/dd/yyyy) 06/10/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 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.
- Contains ~ 0.5% of N-methyl-d₃-perfluoro-1-octanesulfonamide (d-N-MeFOSA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim

Date: 07/14/2016
(mm/dd/yyyy)

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

INTENDED USE:

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EXPIRY DATE / PERIOD OF VALIDITY:

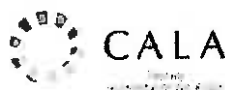
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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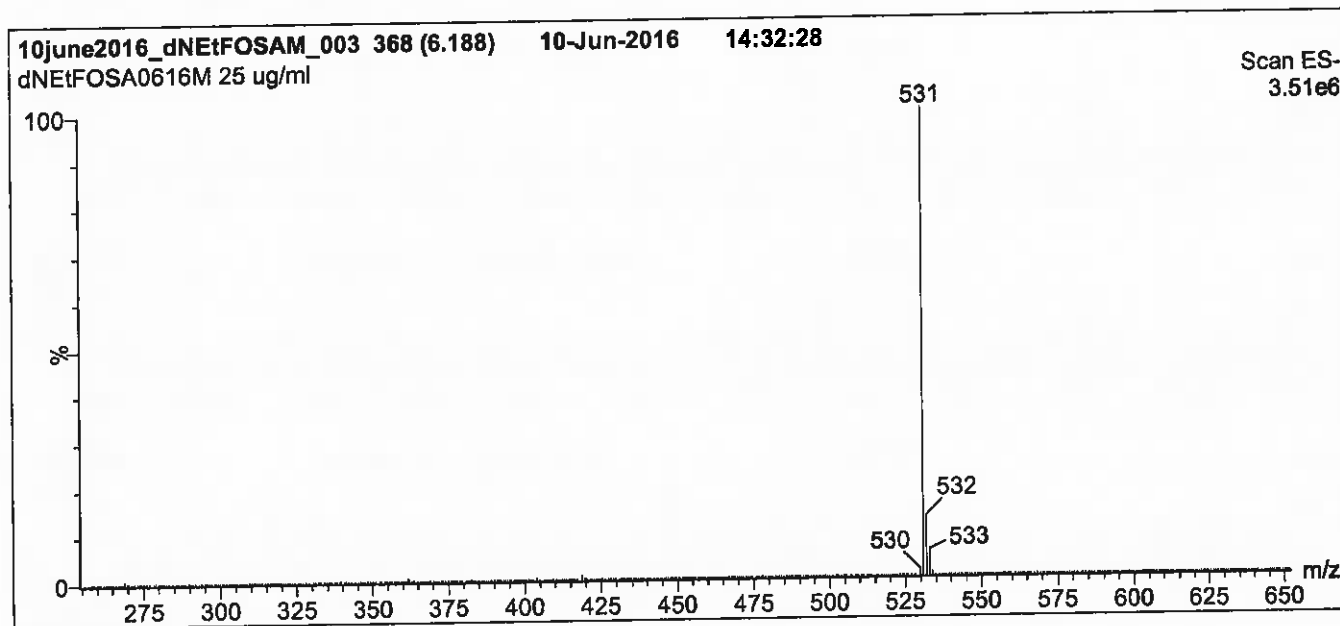
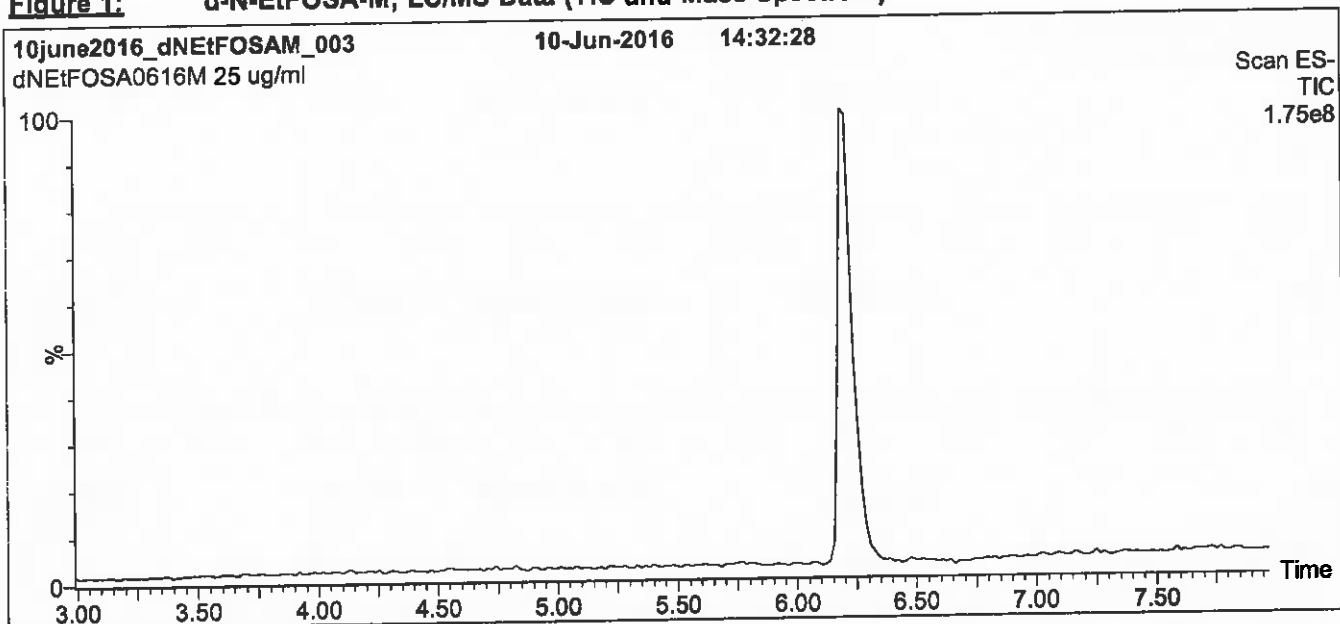
QUALITY MANAGEMENT:

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: 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

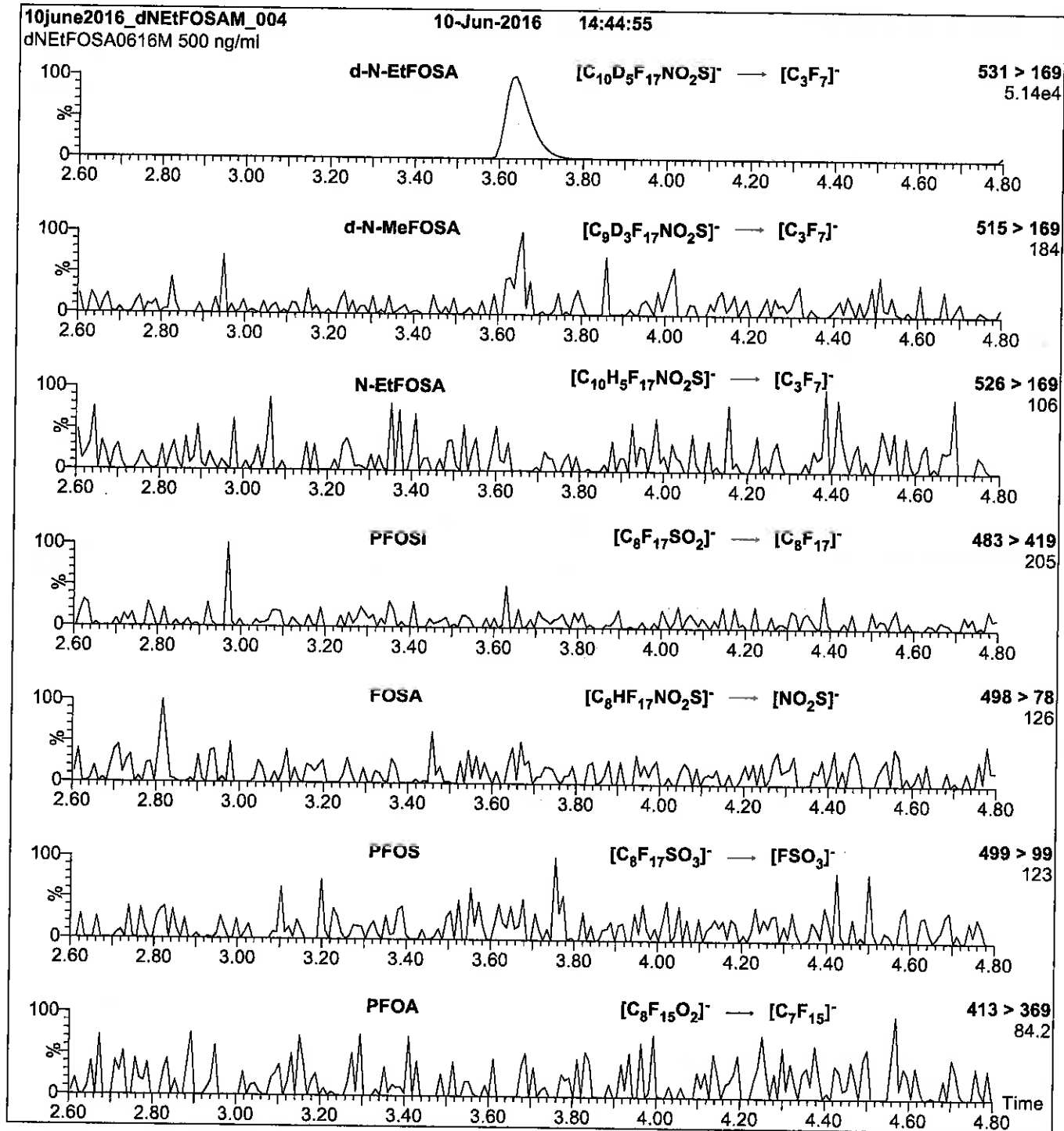
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 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-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% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCd-NMeFOSA-M_00003

R: 9/9/16 SBC



728303
ID: LCd-NMeFOSA-M_00003
Exp: 06/10/21 Prep: SBC
d-N-MeFOSA-M

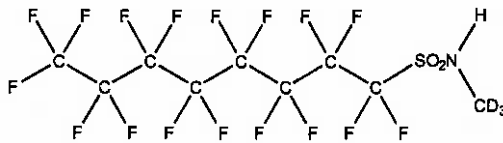


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d-N-MeFOSA-M **LOT NUMBER:** dNMeFOSA0616M
COMPOUND: N-methyl-d₃-perfluoro-1-octanesulfonamide

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₈D₃HF₁₇NO₂S **MOLECULAR WEIGHT:** 516.19
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥98% ²H₃
LAST TESTED: (mm/dd/yyyy) 06/10/2016
EXPIRY DATE: (mm/dd/yyyy) 06/10/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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:  **Date:** 06/16/2016
B.G. Chittim (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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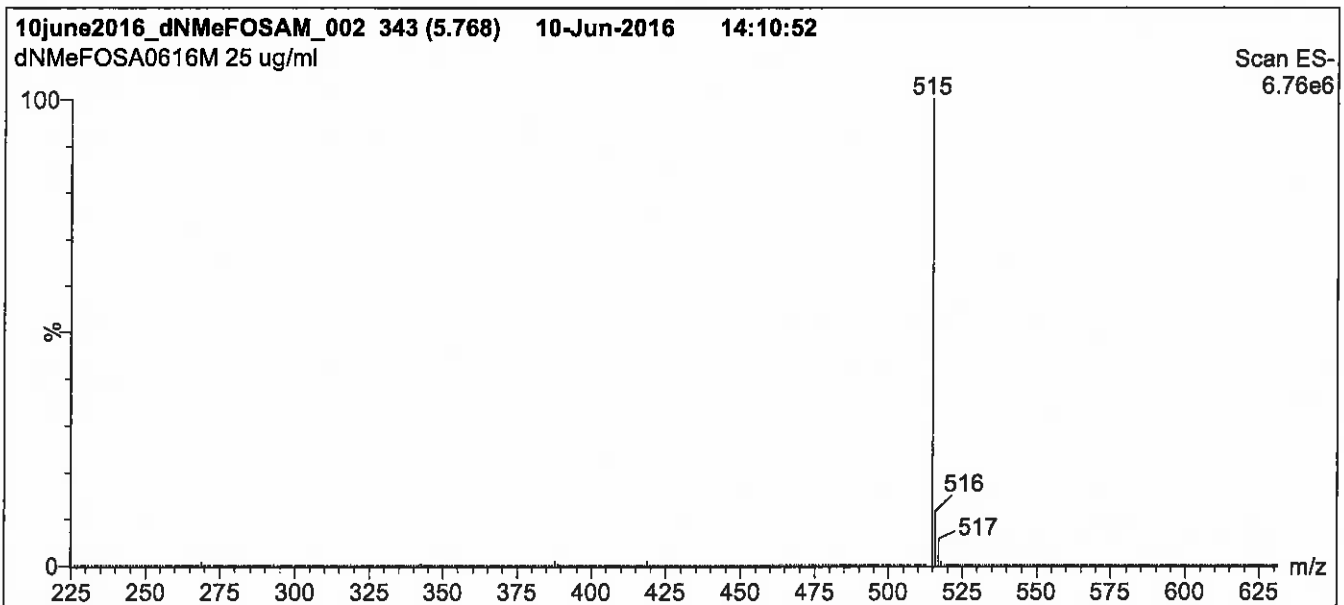
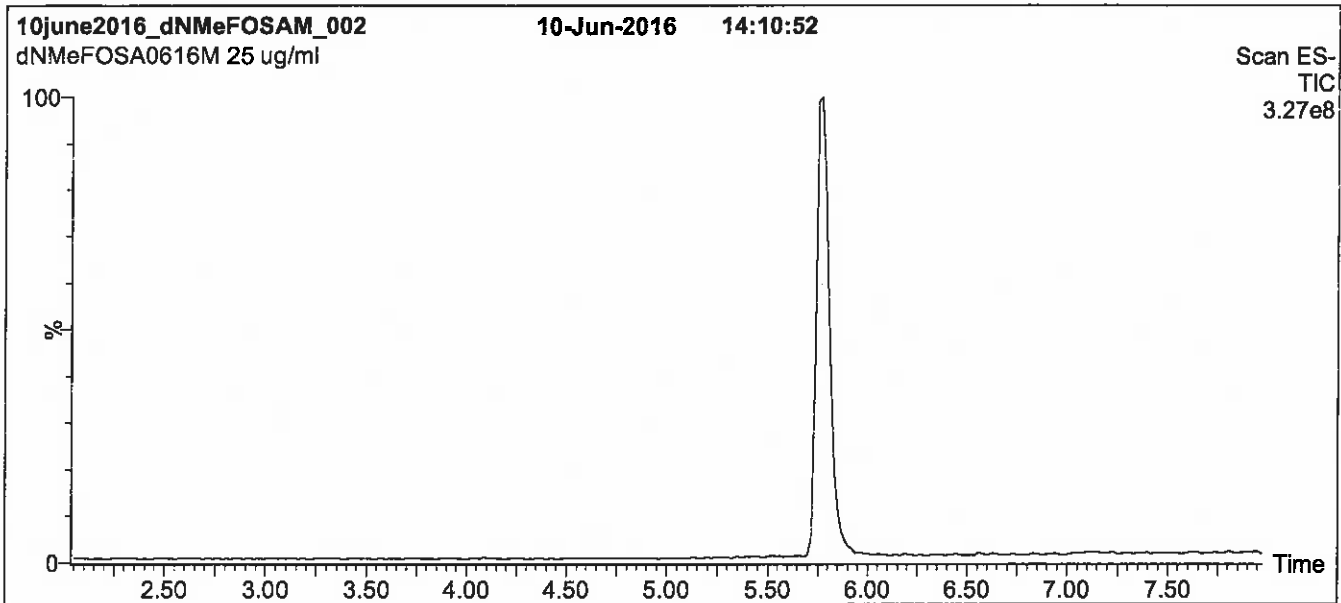
QUALITY MANAGEMENT:

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Figure 1: 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 RP_{1a}
1.7 μ m, 2.1 x 100 mm

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

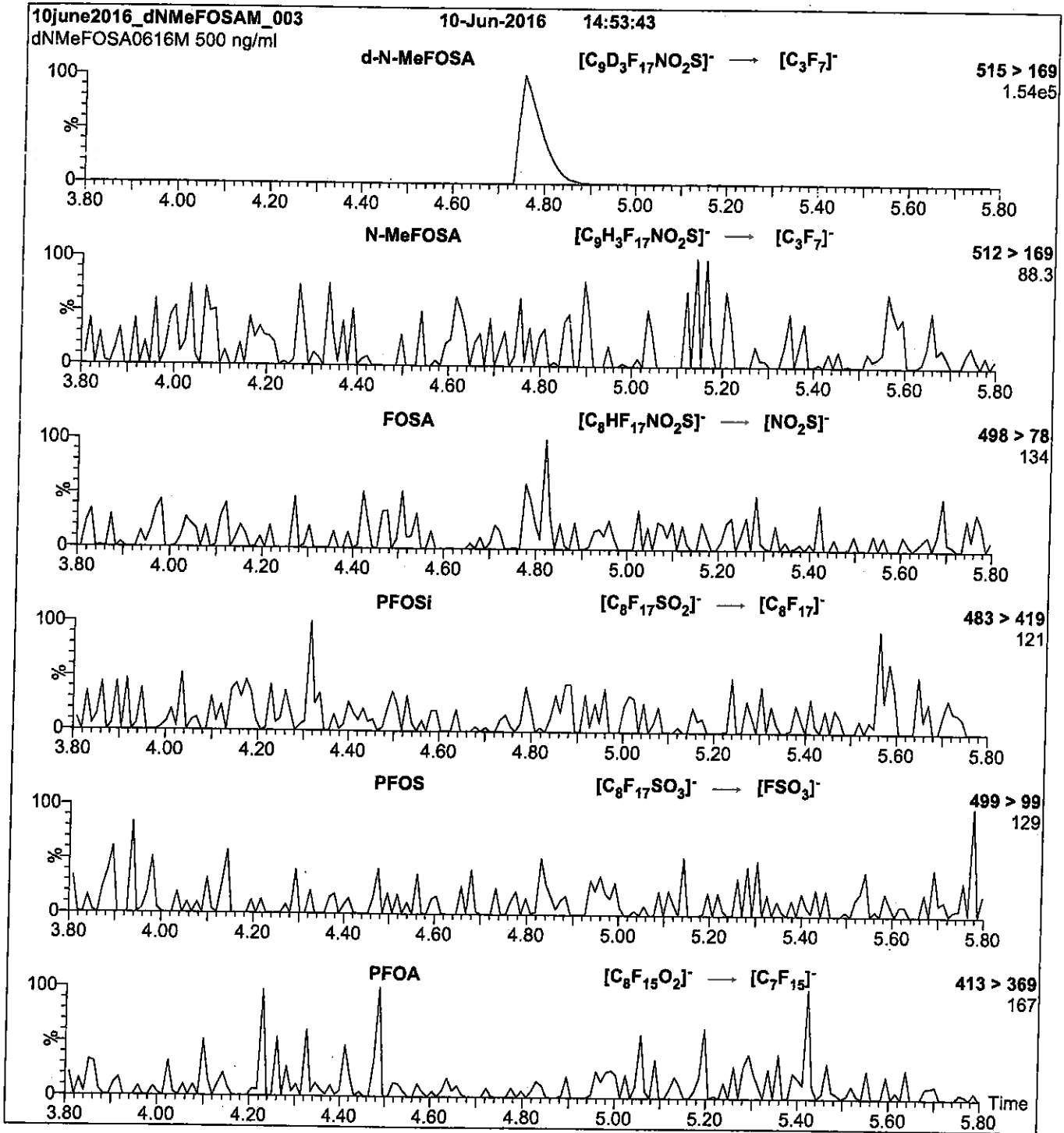
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

MS Parameters

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

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

Flow: 300 μ l/min

Reagent

LCd-NMeFOSA-M_00004

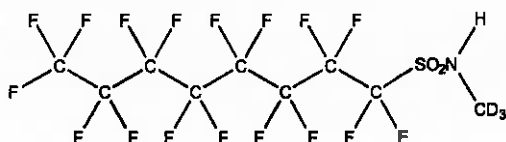


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d-N-MeFOSA-M **LOT NUMBER:** dNMeFOSA0616M
COMPOUND: N-methyl-d₃-perfluoro-1-octanesulfonamide

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₈D₃HF₁₇NO₂S **MOLECULAR WEIGHT:** 516.19
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥98% ²H₃
LAST TESTED: (mm/dd/yyyy) 06/10/2016
EXPIRY DATE: (mm/dd/yyyy) 06/10/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

• See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 06/16/2016

(mm/dd/yyyy)

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

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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.

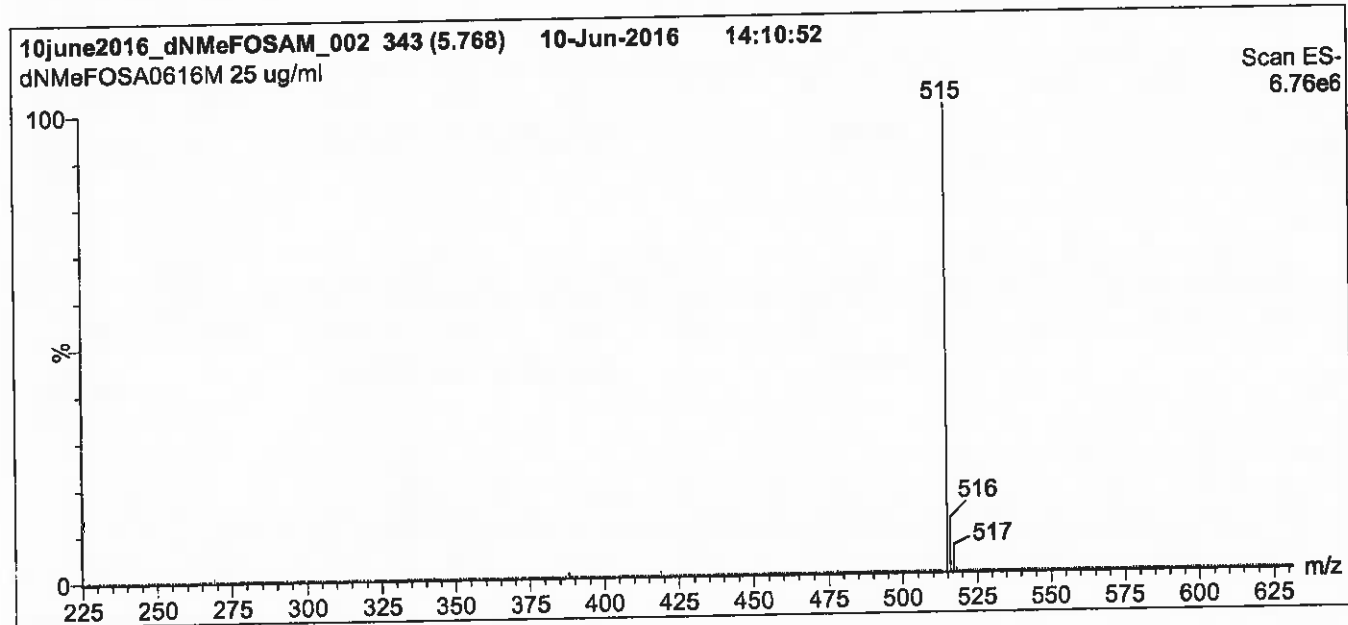
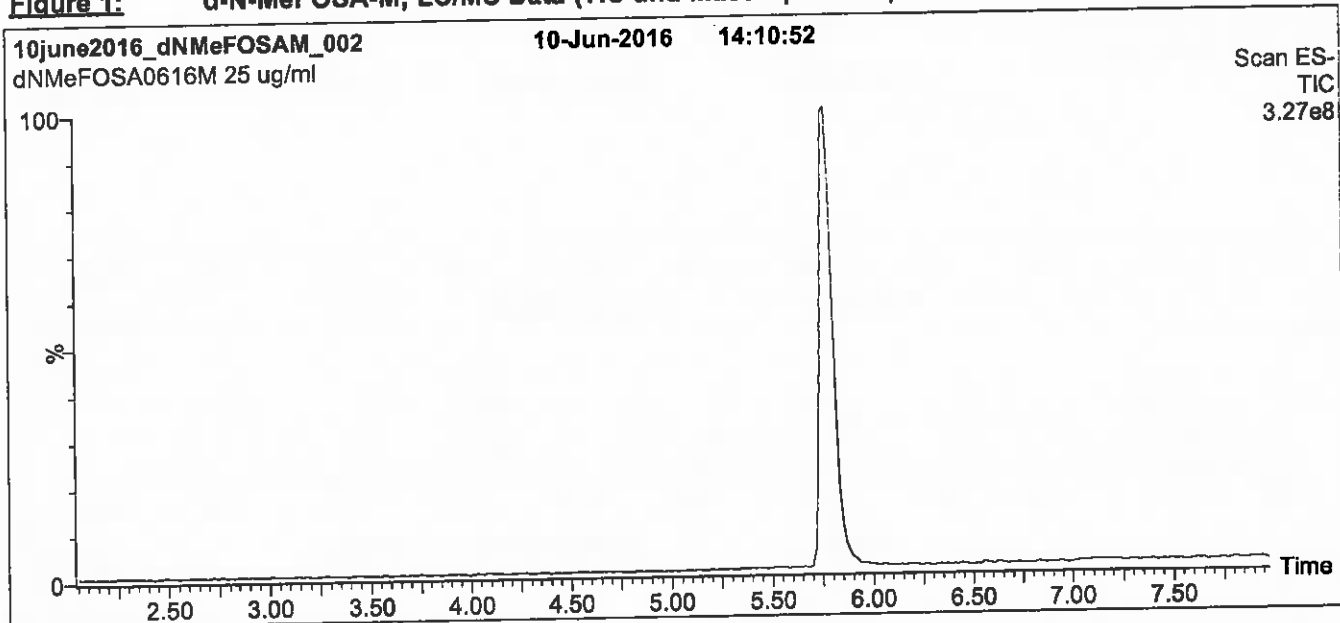
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

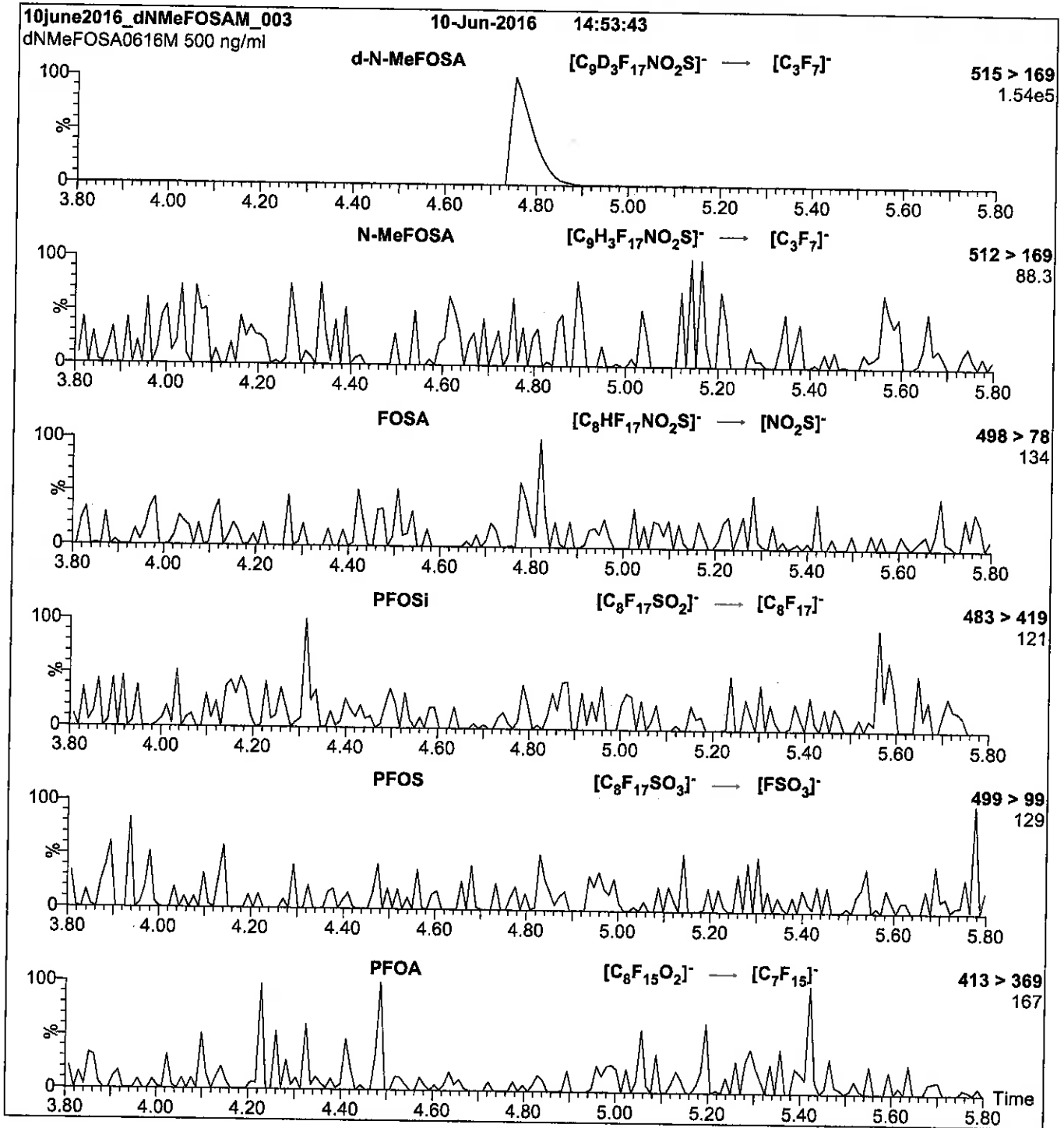
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCd3-NMeFOSAA_00003

R: 9/9/16
SBC



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

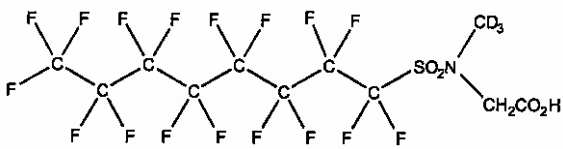


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₁₁D₃H₃F₁₇NO₄S **MOLECULAR WEIGHT:** 574.23
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥98% ²H₃
LAST TESTED: (mm/dd/yyyy) 05/31/2016
EXPIRY DATE: (mm/dd/yyyy) 05/31/2021
RECOMMENDED STORAGE: Refrigerate ampoule

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 06/01/2016
B.G. Chittim (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:

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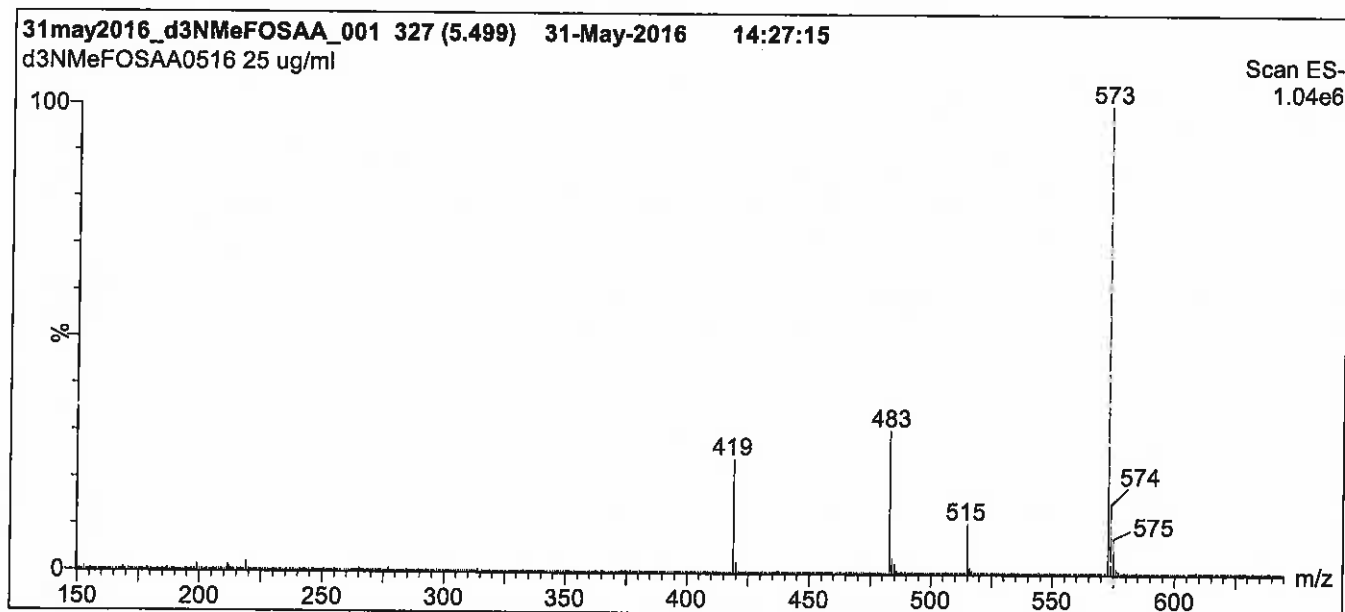
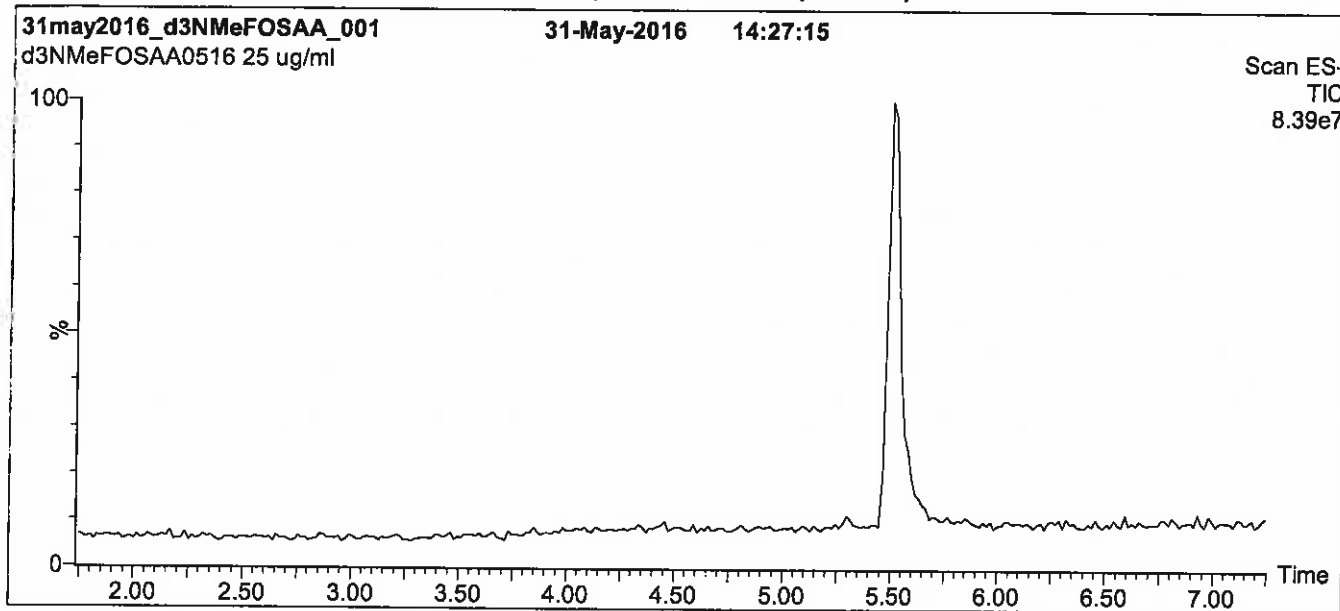
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

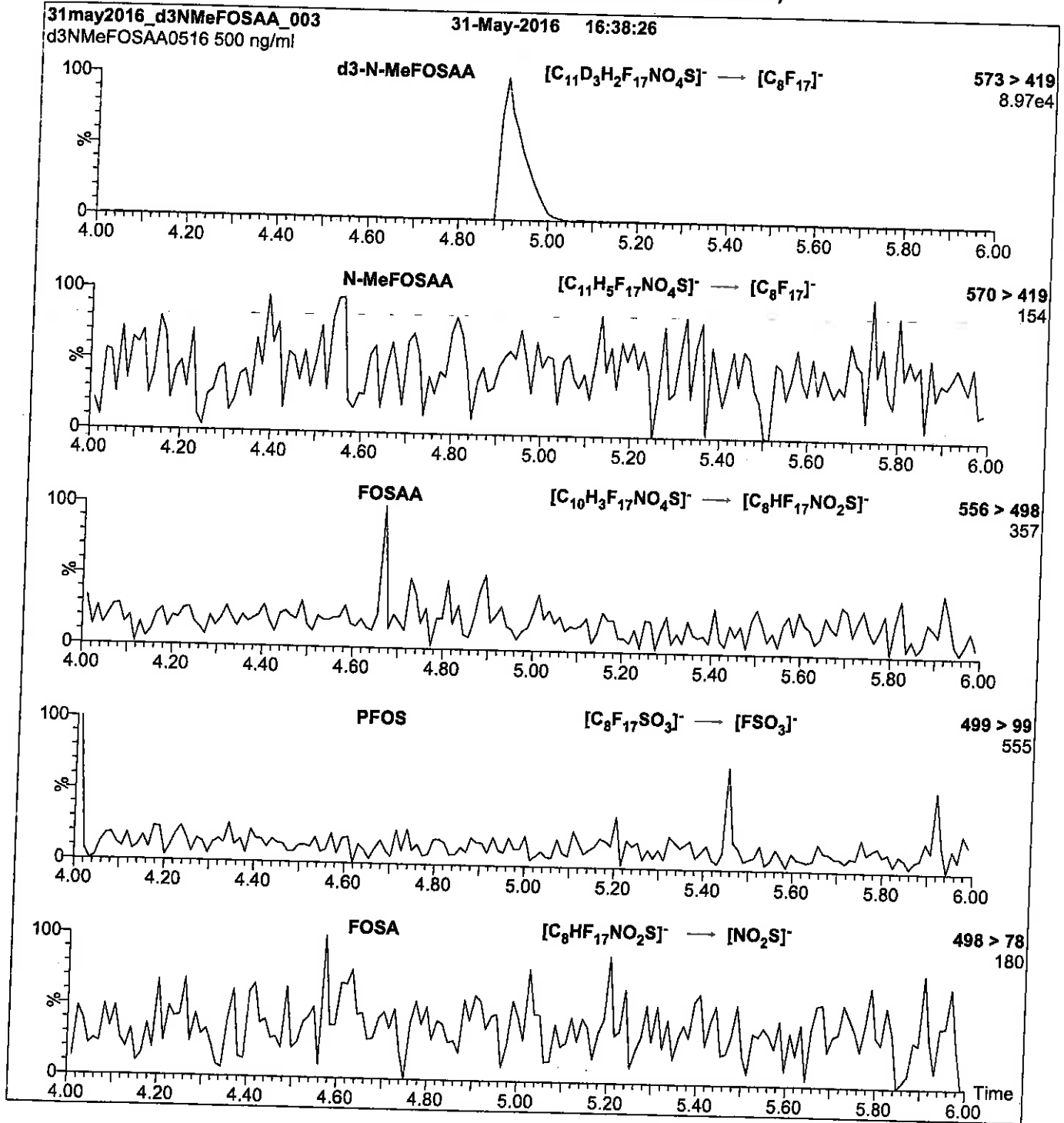
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml d3-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) = 3.43e-3
Collision Energy (eV) = 25

Reagent

LCd3-NMeFOSAA_00004

S: 3/2017 SKV

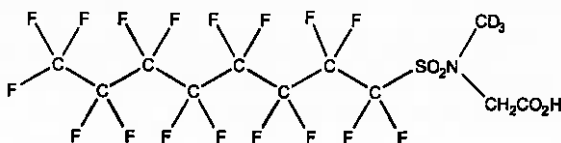


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA **LOT NUMBER:** d3NMeFOSAA1116
COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₁₁D₃H₃F₁₇NO₄S
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 574.23
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/22/2016

ISOTOPIC PURITY: ≥98% ²H₃

EXPIRY DATE: (mm/dd/yyyy) 11/22/2021

RECOMMENDED STORAGE: Refrigerate ampoule

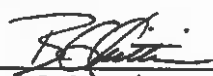
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 12/07/2016
B.G. Chittim (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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UNCERTAINTY:

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

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

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

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EXPIRY DATE / PERIOD OF VALIDITY:

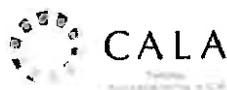
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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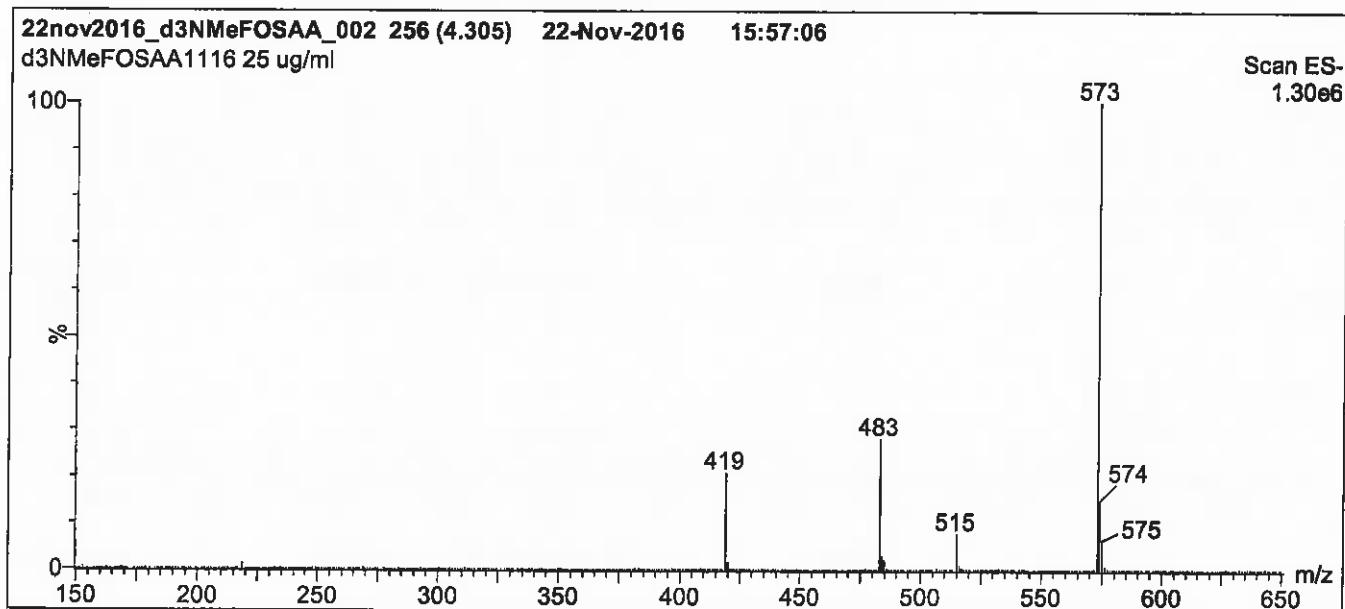
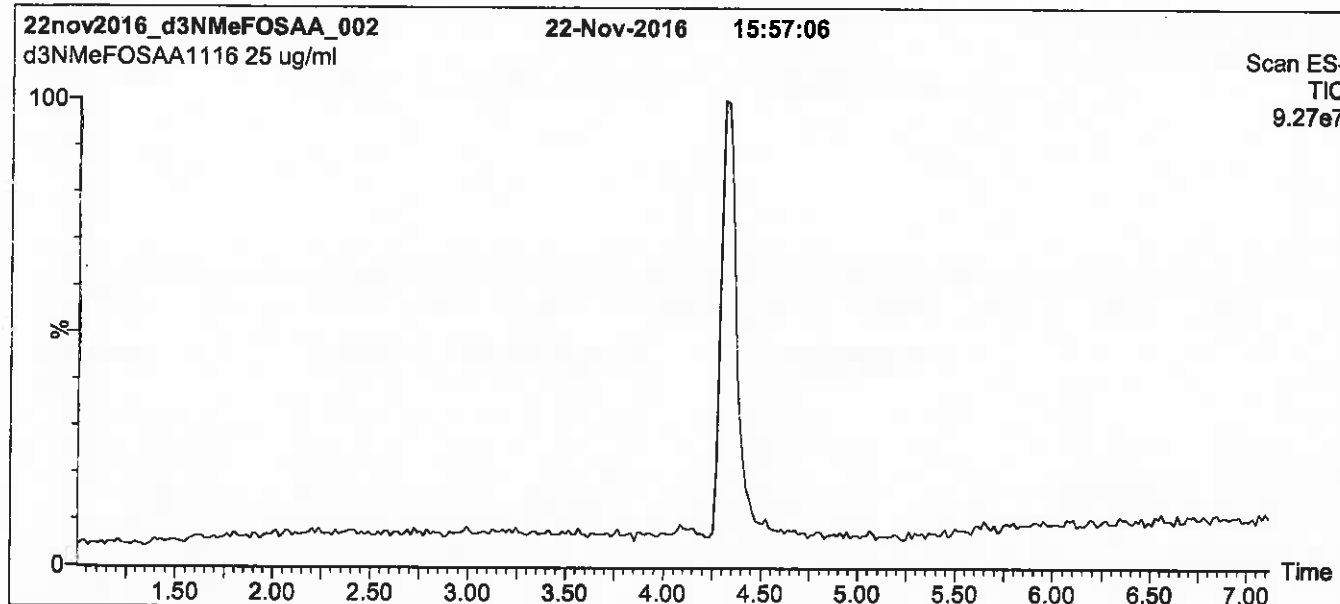
QUALITY MANAGEMENT:

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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: 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

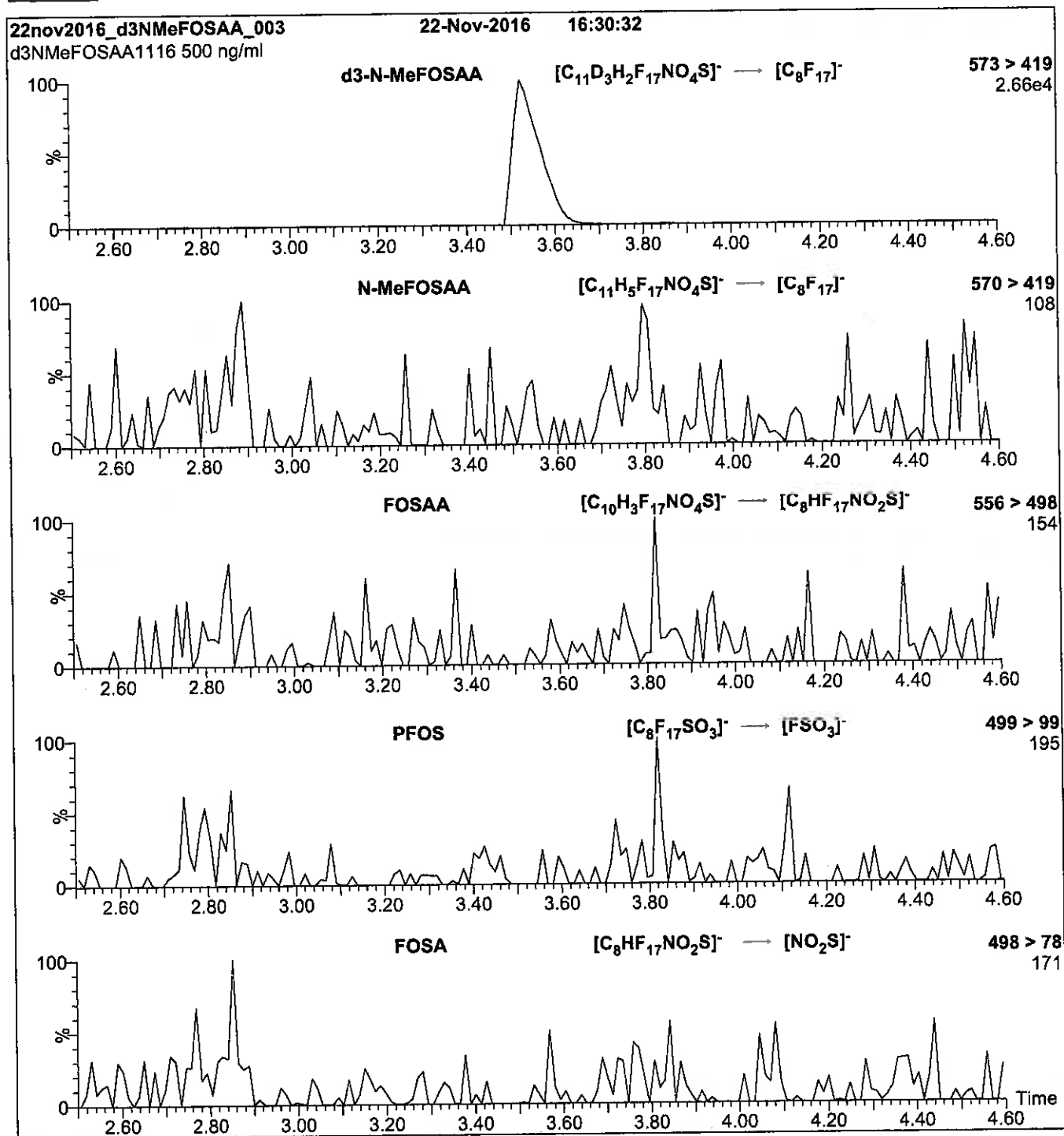
MS Parameters

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

Flow: 300 μ l/min

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% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 20

Reagent

LCd5-NEtFOSAA_00003

R: 9/9/16 SBC



728301
ID: LCd5-NEtFOSAA_00003
Exp: 08/02/21 Prod: SBC
d5-N-EtFOSAA

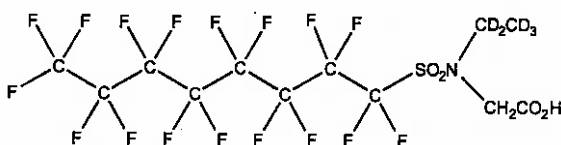


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA **LOT NUMBER:** d5NEtFOSAA0716
COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	C ₁₂ D ₈ H ₃ F ₁₇ NO ₄ S	MOLECULAR WEIGHT:	590.26
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	ISOTOPIC PURITY:	≥98% ² H ₅
LAST TESTED: (mm/dd/yyyy)	08/02/2016		
EXPIRY DATE: (mm/dd/yyyy)	08/02/2021		
RECOMMENDED STORAGE:	Refrigerate ampoule		


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 08/09/2016
(mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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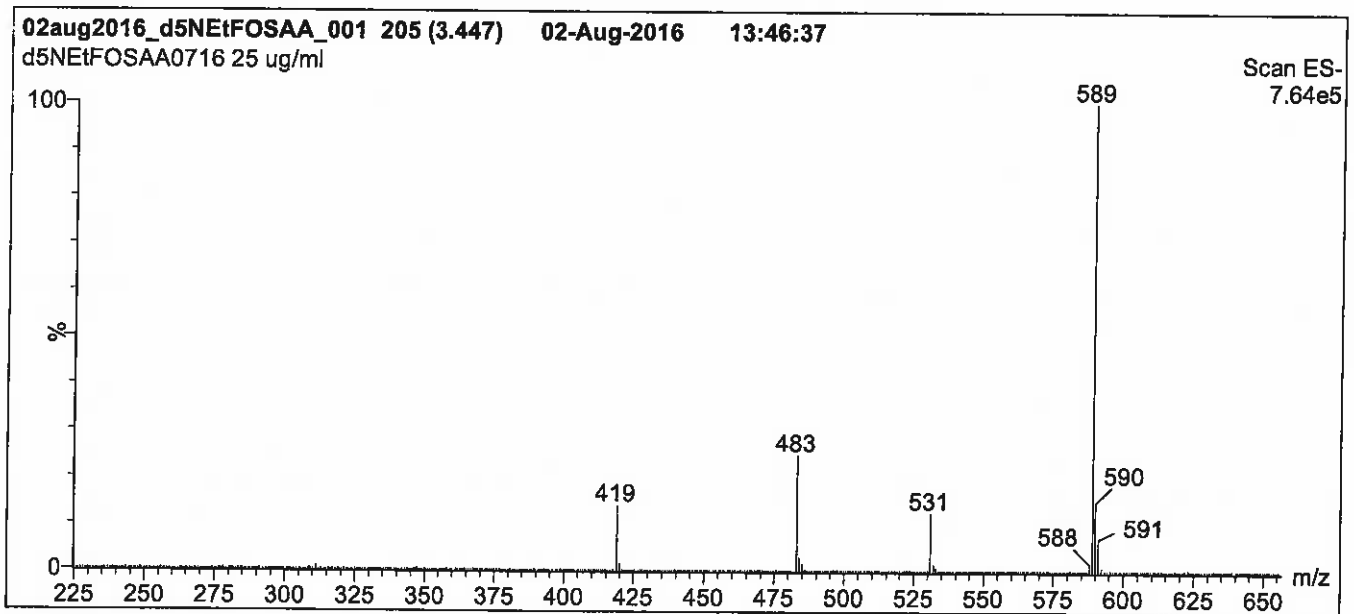
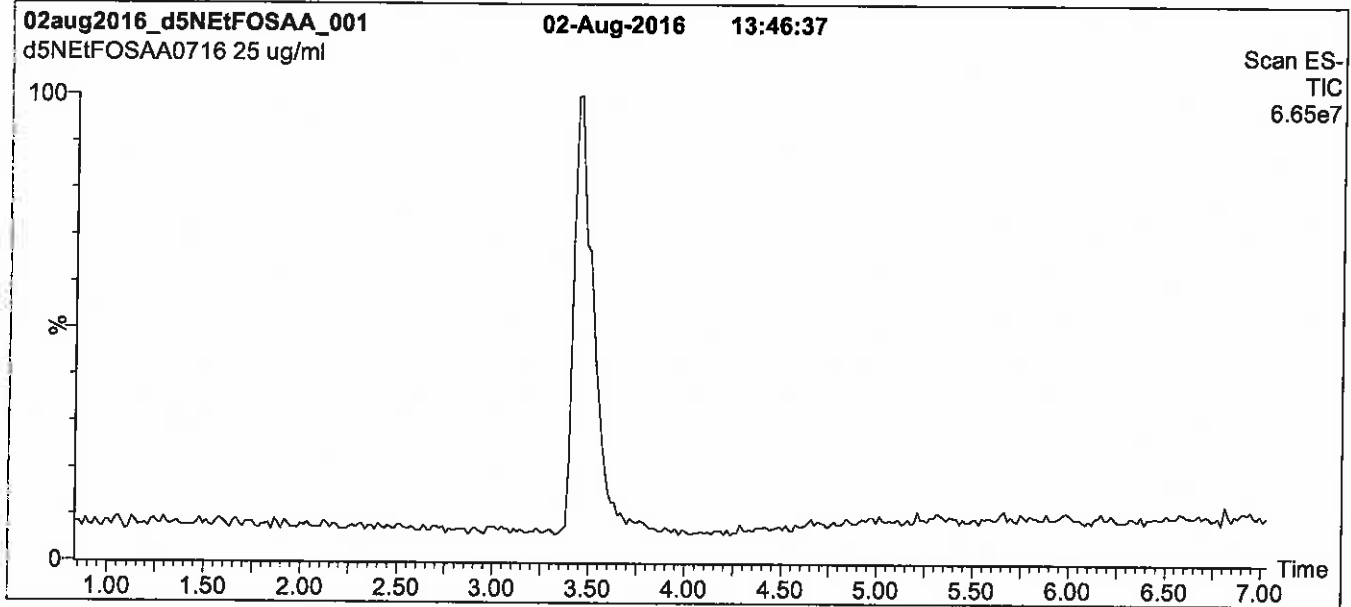
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

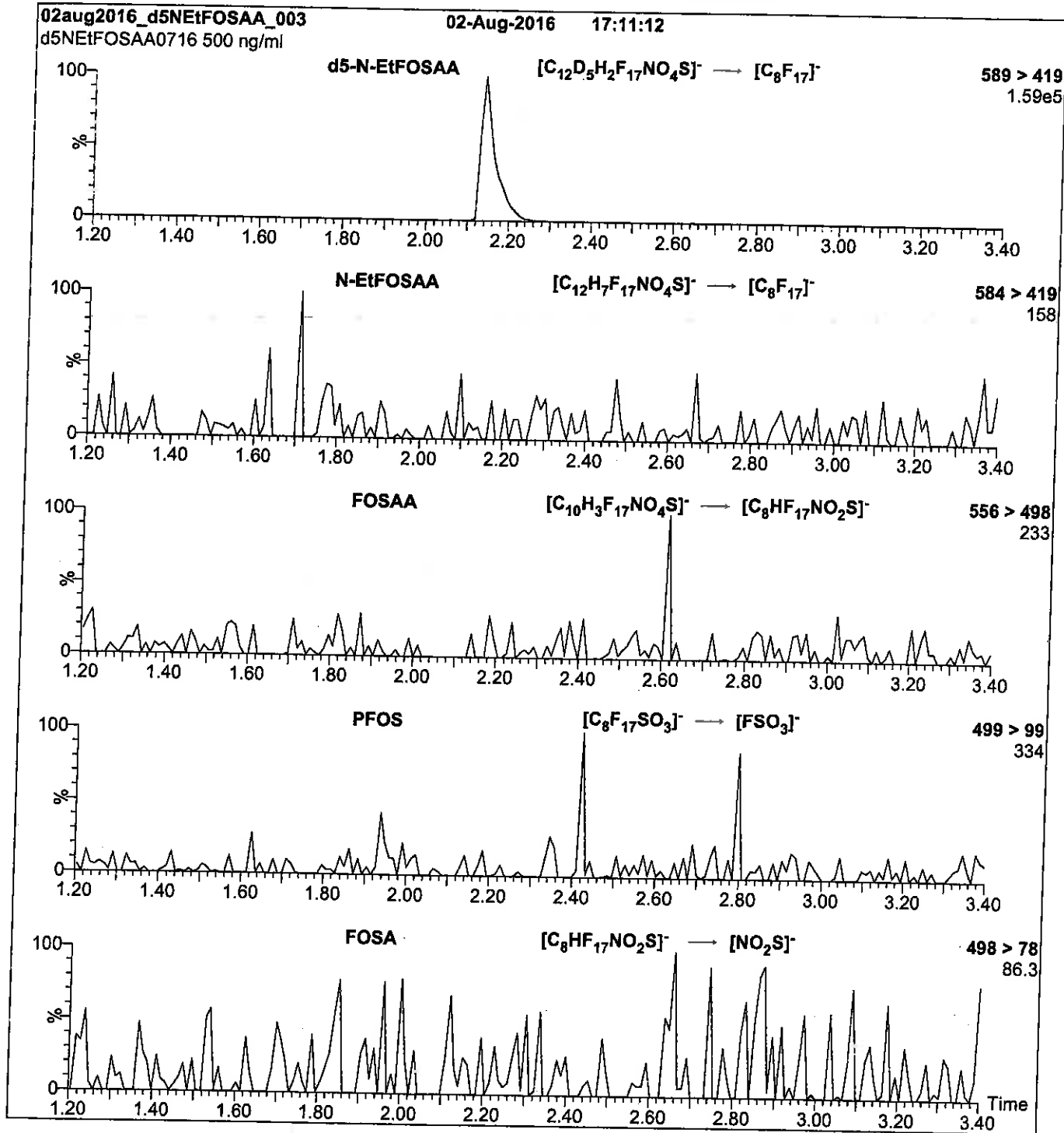
Flow: 350 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCd5-NEtFOSAA_00004

P: 3/20/17 SW

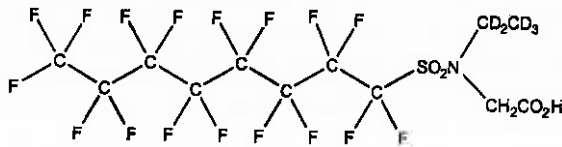


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA **LOT NUMBER:** d5NEtFOSAA1116
COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₁₂D₆H₃F₁₇NO₄S
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 590.26
SOLVENT(S): Methanol
Water (<1%)
ISOTOPIC PURITY: ≥98% ²H₅

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/22/2016
EXPIRY DATE: (mm/dd/yyyy) 11/22/2021
RECOMMENDED STORAGE: Refrigerate ampoule


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 12/01/2016
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

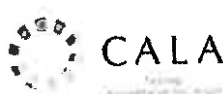
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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

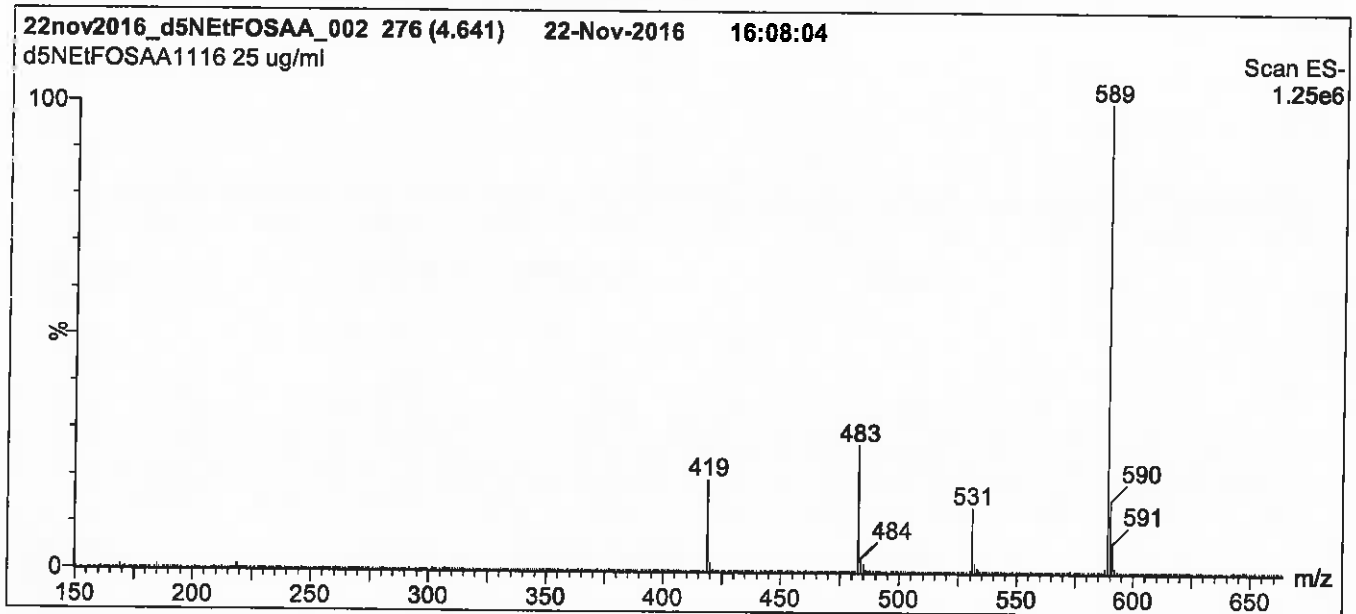
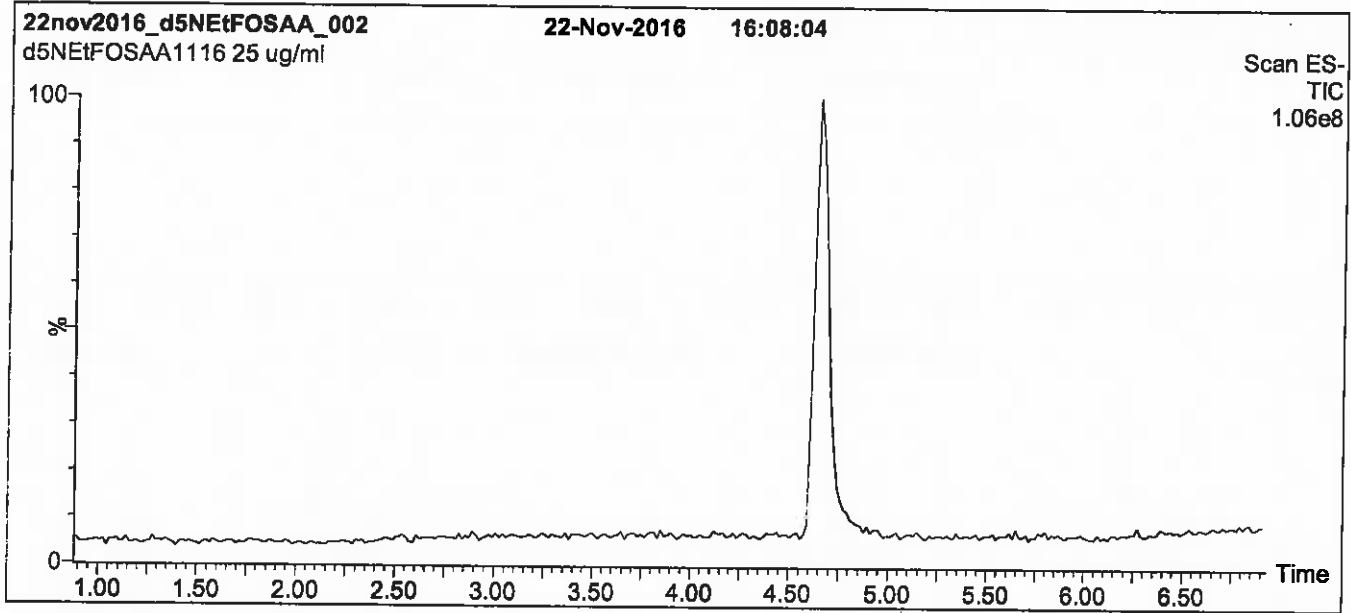
QUALITY MANAGEMENT:

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



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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: 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

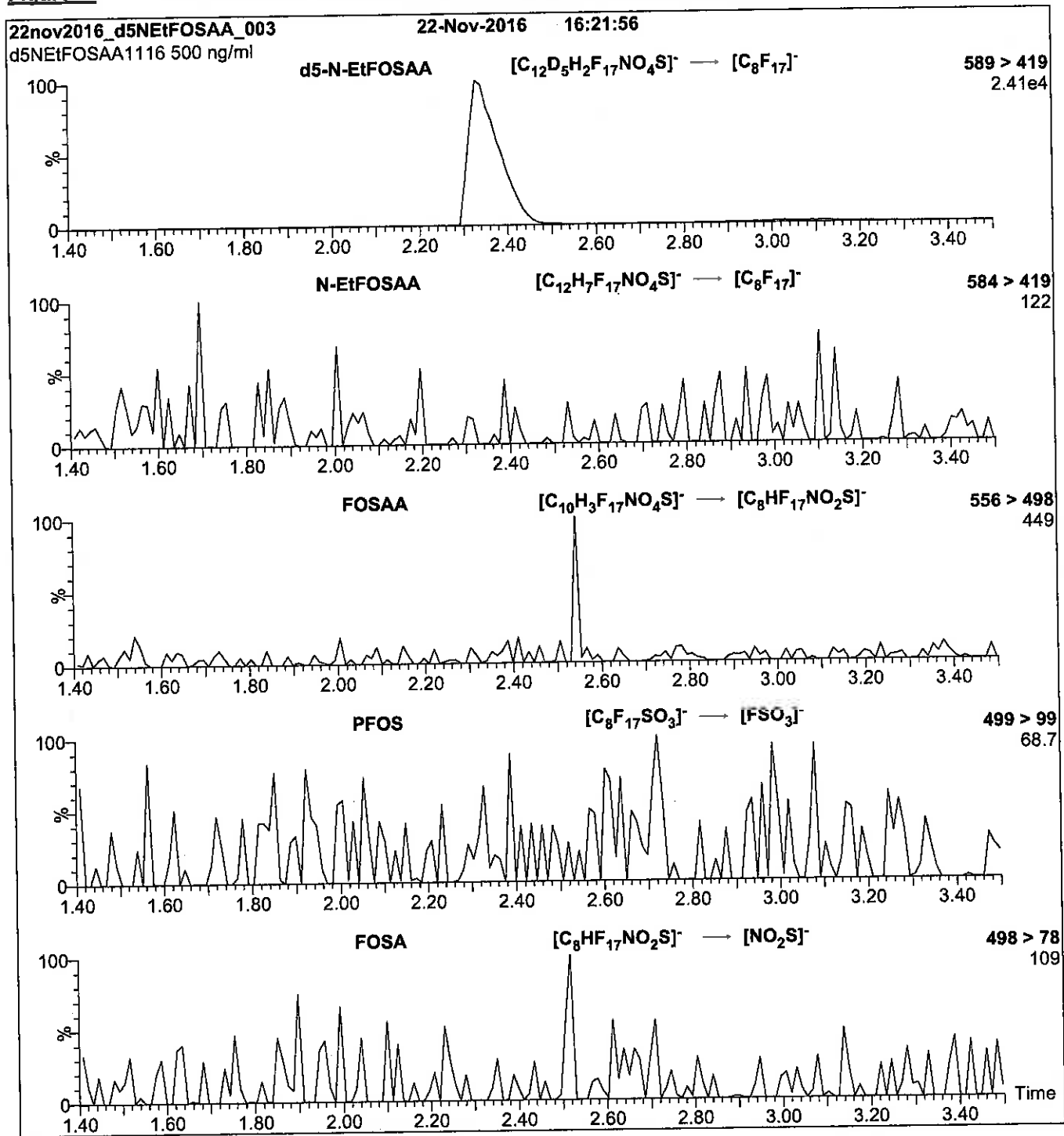
MS Parameters

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

Flow: 300 μ l/min

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
 Collision Energy (eV) = 20

Reagent

LCM2-6:FTS_00003

R: 9/9/16 SBC



728304
ID: LCM2-6:FTS_00003
Exp: 01/08/21 Prpd: SBC
M2-6:2FTS

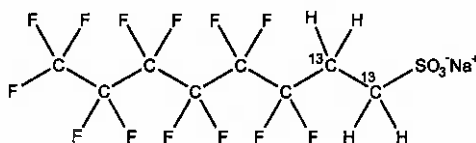


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-6:2FTS **LOT NUMBER:** M262FTS0116
COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-¹³C₂]octane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₆H₄F₁₃SO₃Na **MOLECULAR WEIGHT:** 452.13
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **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) 01/08/2016 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 01/08/2021
RECOMMENDED STORAGE: Refrigerate ampoule


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 01/11/2016
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

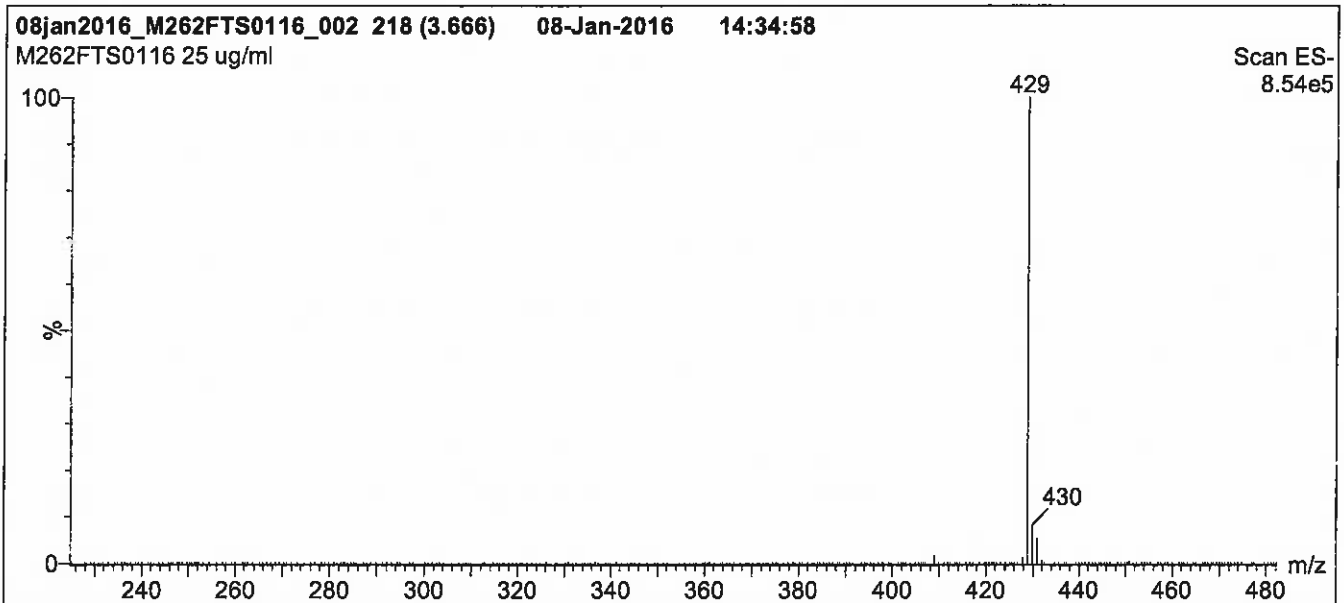
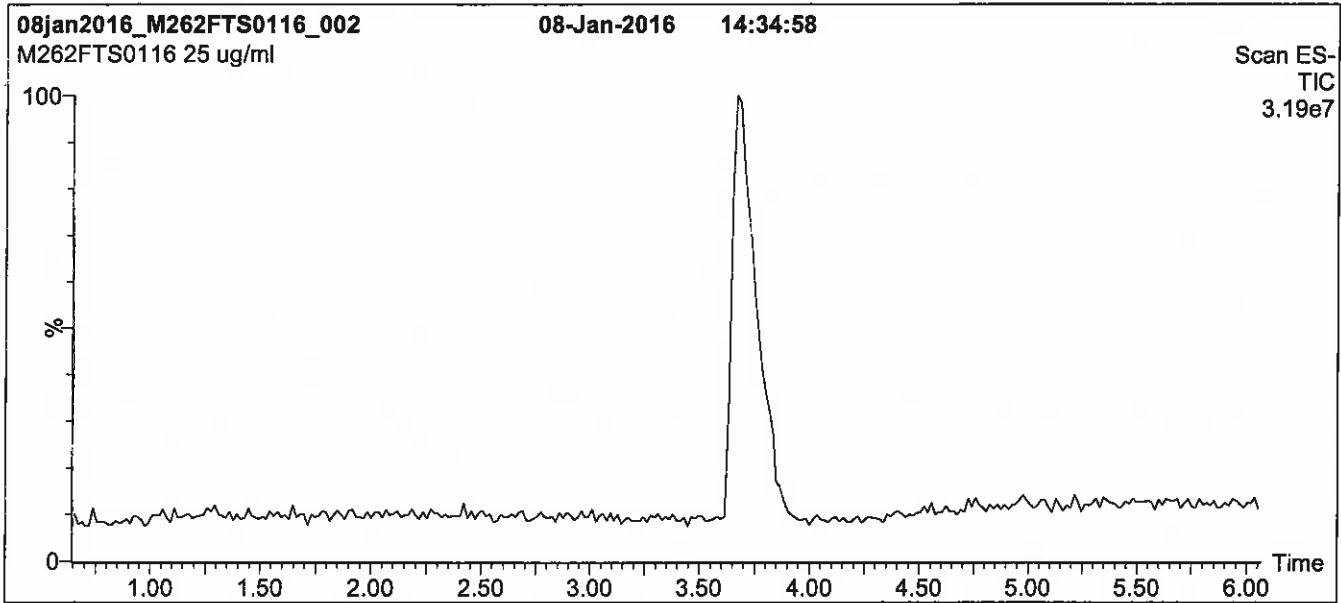
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

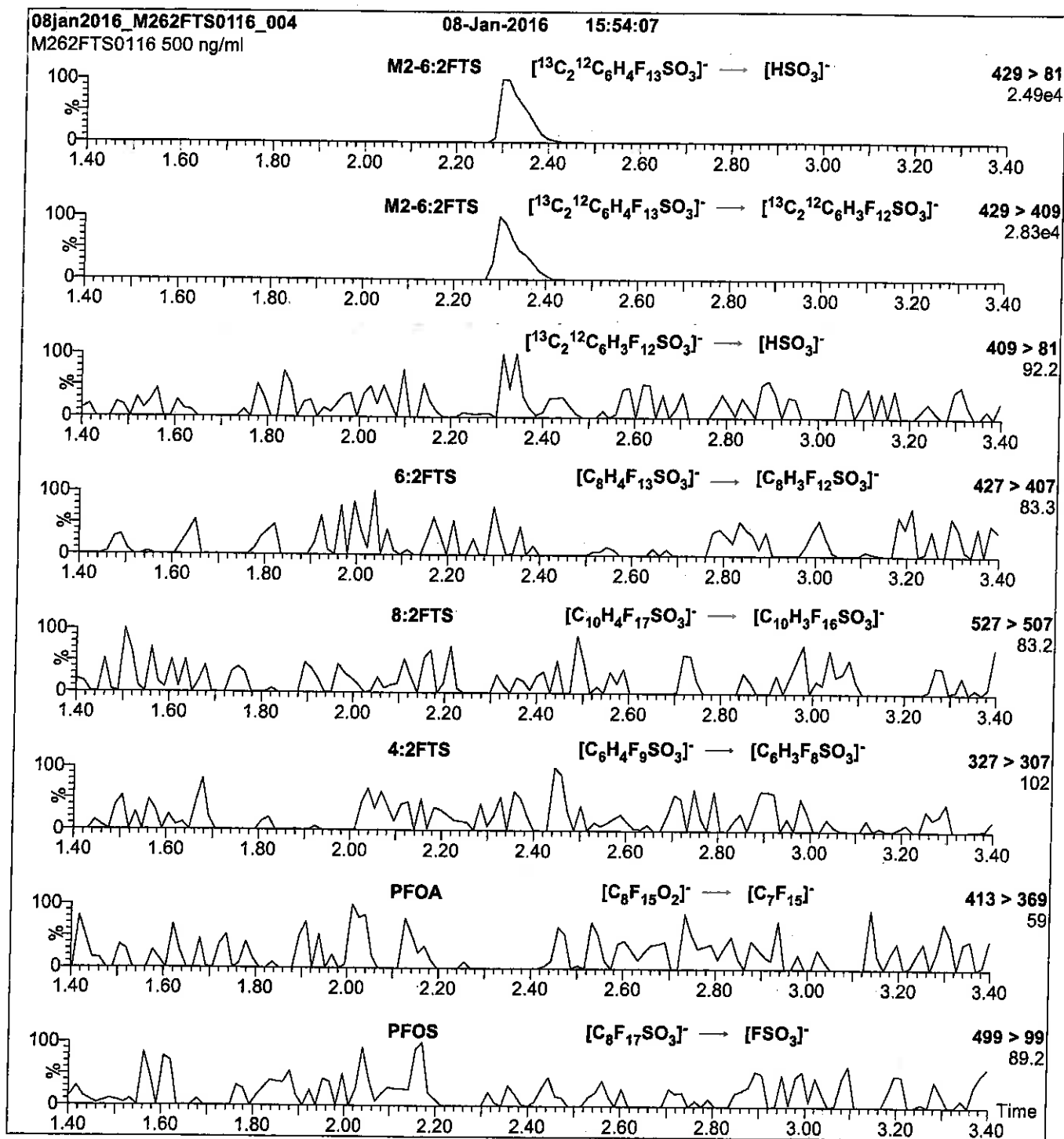
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCM2-6:FTS_00004

N 3/20/17 SKV

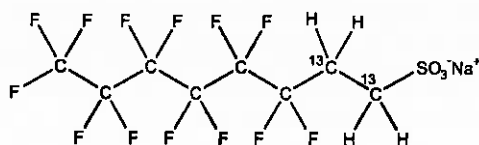


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-6:2FTS **LOT NUMBER:** M262FTS0217
COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-¹³C₂]octane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	¹³ C ₂ ¹² C ₈ H ₄ F ₁₃ SO ₃ Na	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)	ISOTOPIC PURITY:	≥99% ¹³ C (1,2- ¹³ C ₂)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	02/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	02/17/2022		
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:** 02/24/2017
(mm/dd/yyyy)

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

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EXPIRY DATE / PERIOD OF VALIDITY:

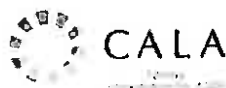
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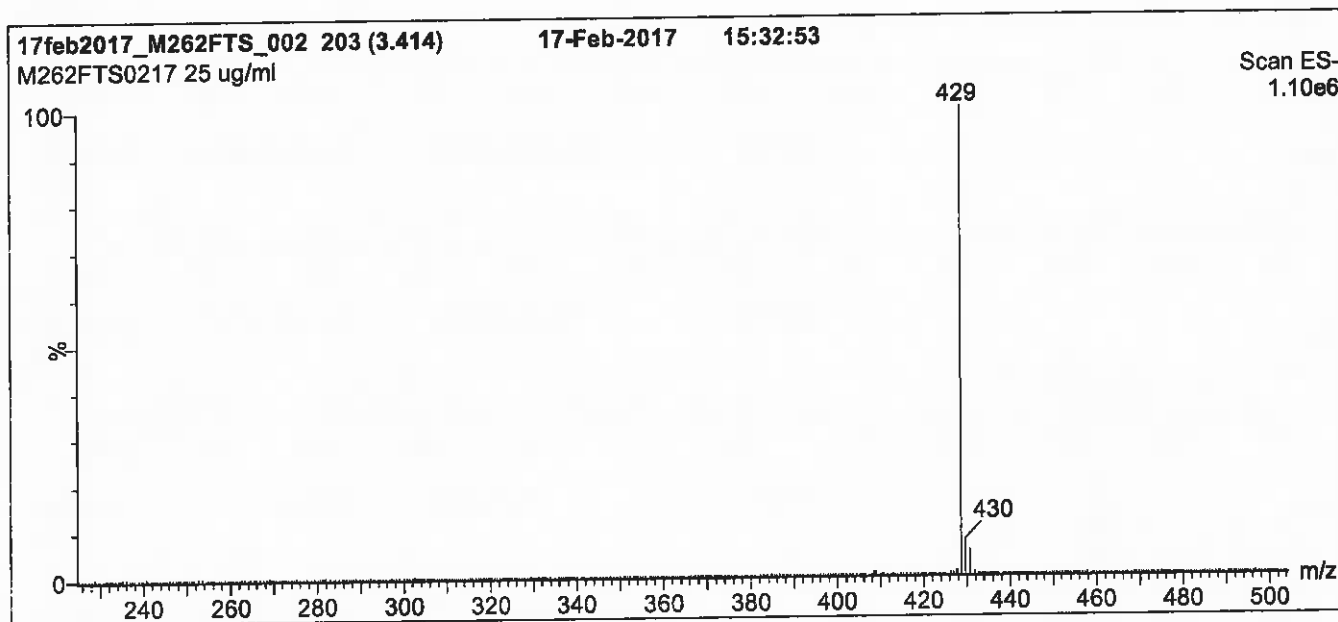
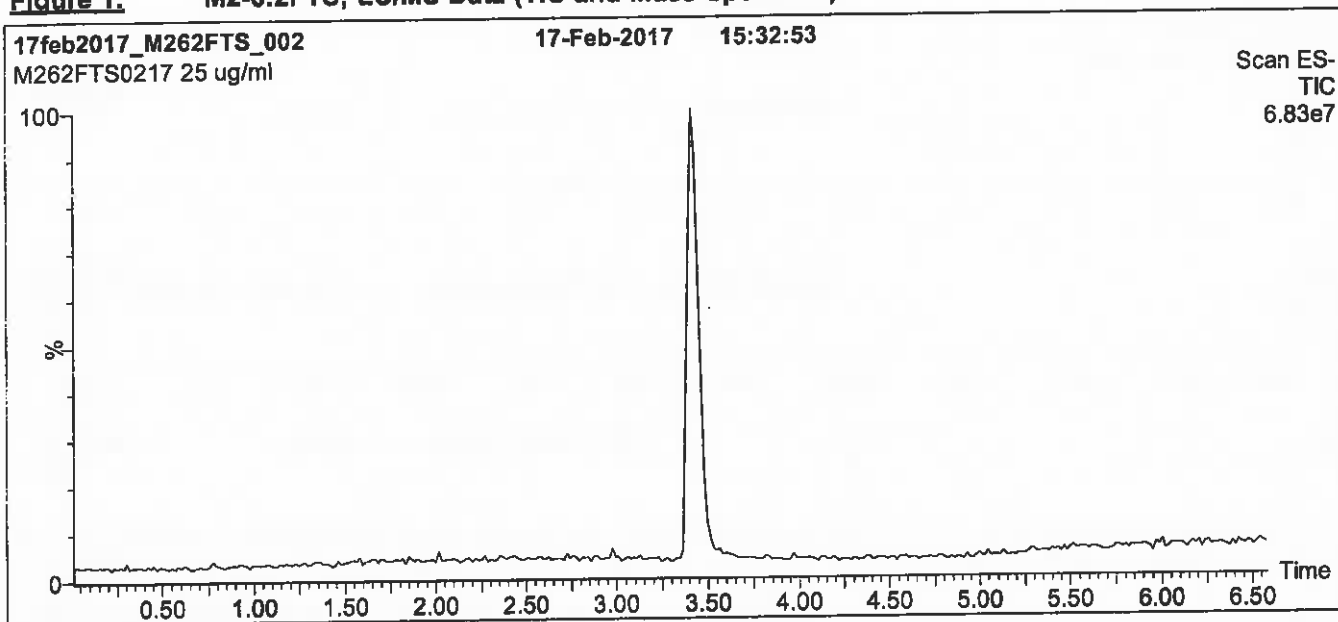
QUALITY MANAGEMENT:

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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 RP_{1e},
1.7 μ m, 2.1 x 100 mm

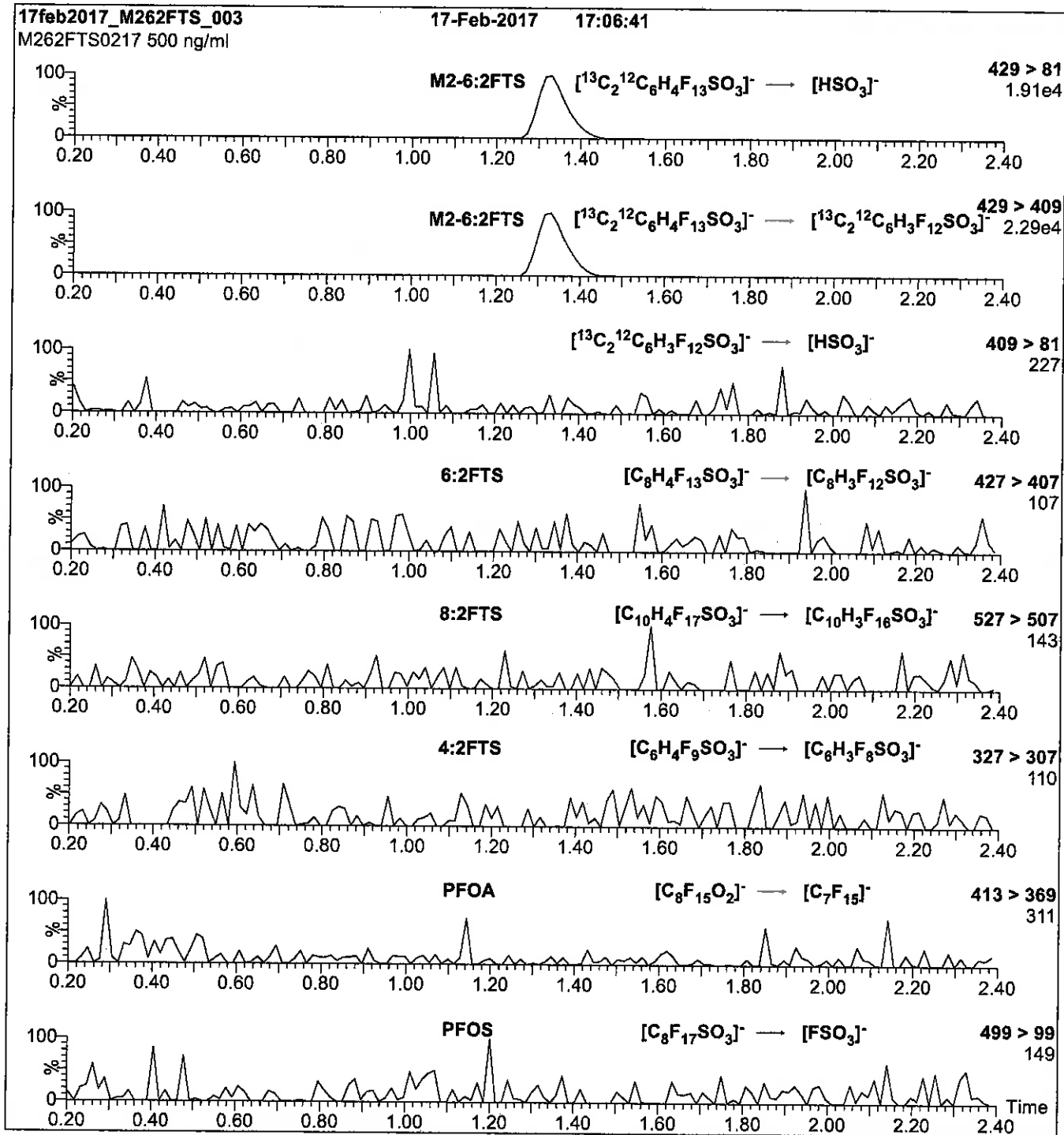
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 8 min and hold for 1 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (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: 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) = 3.39e-3
Collision Energy (eV) = 25

Reagent

LCM2-8:2FTS_00004

r: 3/2017 sev

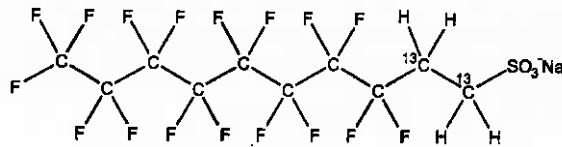


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0816
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) 08/22/2016 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 08/22/2021
RECOMMENDED STORAGE: Refrigerate ampoule


DOCUMENTATION/ DATA ATTACHED:

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ADDITIONAL INFORMATION:

- See page 2 for further details.
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Certified By: 
B.G. Chittim **Date:** 09/02/2016
(mm/dd/yyyy)

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

EXPIRY DATE / PERIOD OF VALIDITY:

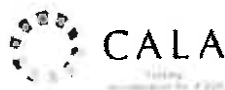
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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

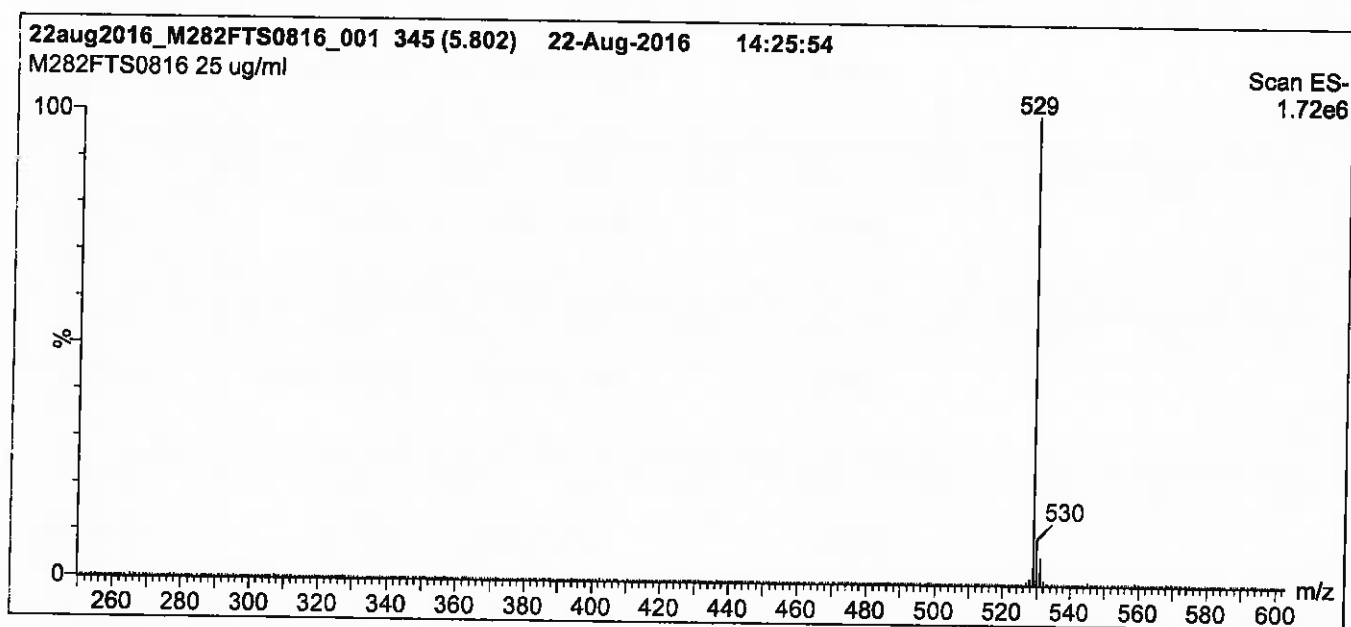
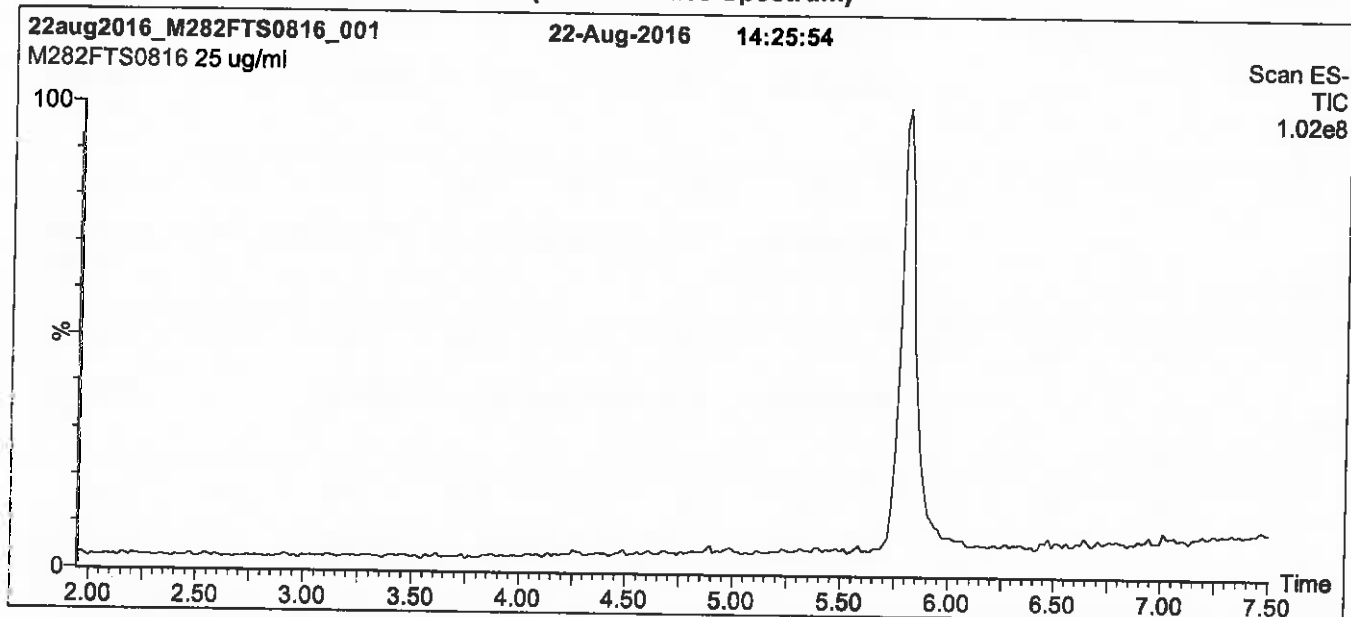
QUALITY MANAGEMENT:

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



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

Figure 1: 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: Agilent Zorbax Bonus-RP
1.8 μ m, 2.1 x 100 mm

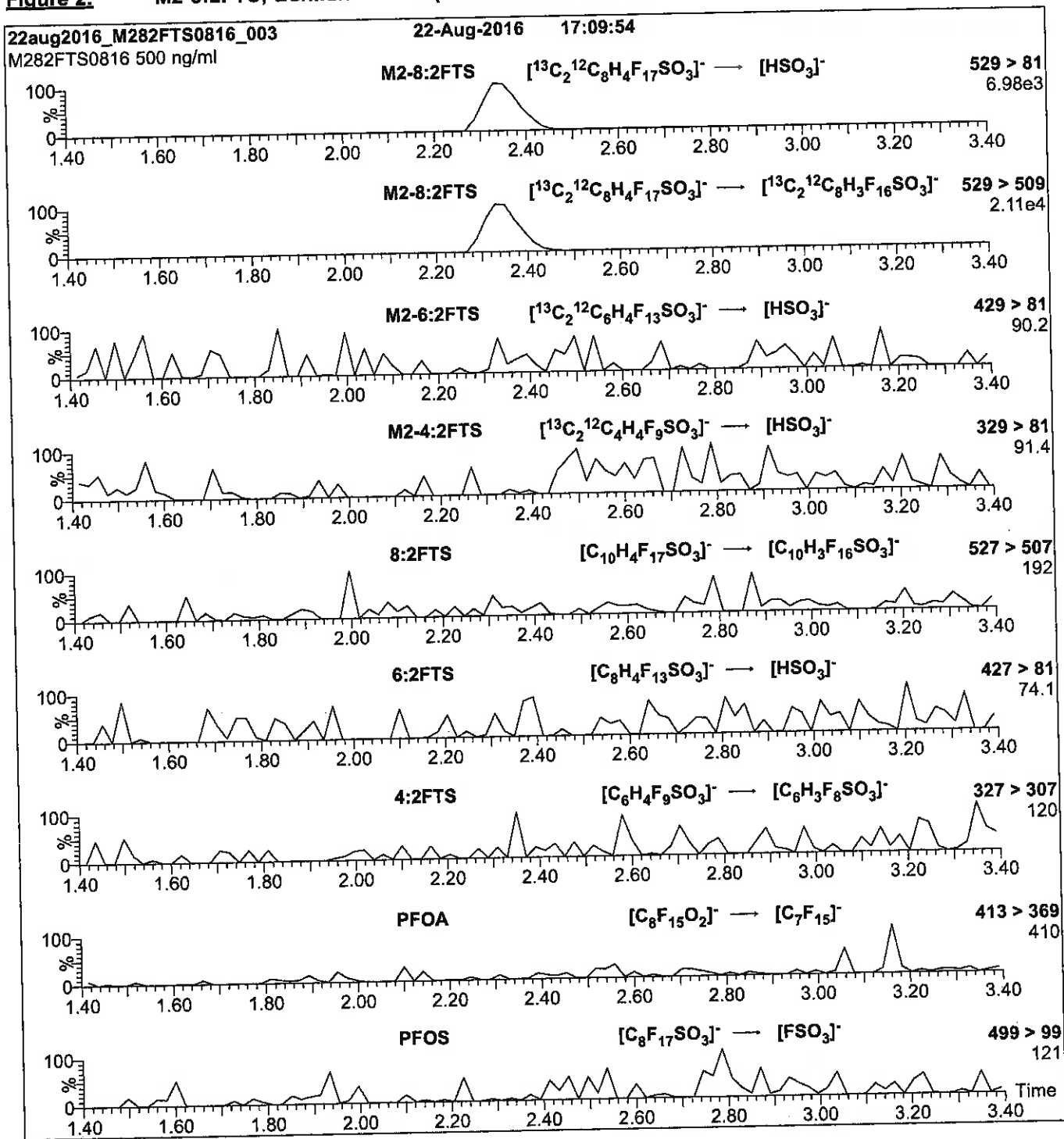
Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 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)	MS Parameters
Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)	Collision Gas (mbar) = 3.31e-3 Collision Energy (eV) = 30
Flow: 300 $\mu\text{l}/\text{min}$	

Reagent

LCM2PFHxDA_00008

R: SBC 9/22/16

739512
ID: LCM2PFHxDA_00008
Exp: 01/07/21 Prod: SBC
13C2-PFHxDA at 50ug/mL

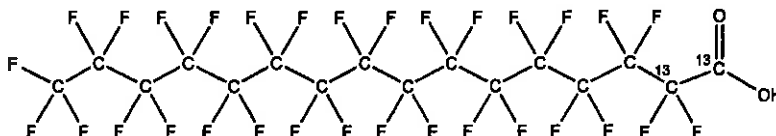


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2PFHxDA **LOT NUMBER:** M2PFHxDA1112
COMPOUND: Perfluoro-n-[1,2-¹³C₂]hexadecanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	¹³ C ₂ ¹² C ₁₄ HF ₃₁ O ₂	MOLECULAR WEIGHT:	816.11
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	ISOTOPIC PURITY:	≥99% ¹³ C (1,2- ¹³ C ₂)
LAST TESTED: (mm/dd/yyyy)	01/07/2016		
EXPIRY DATE: (mm/dd/yyyy)	01/07/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 01/11/2016
B.G. Chittim (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.

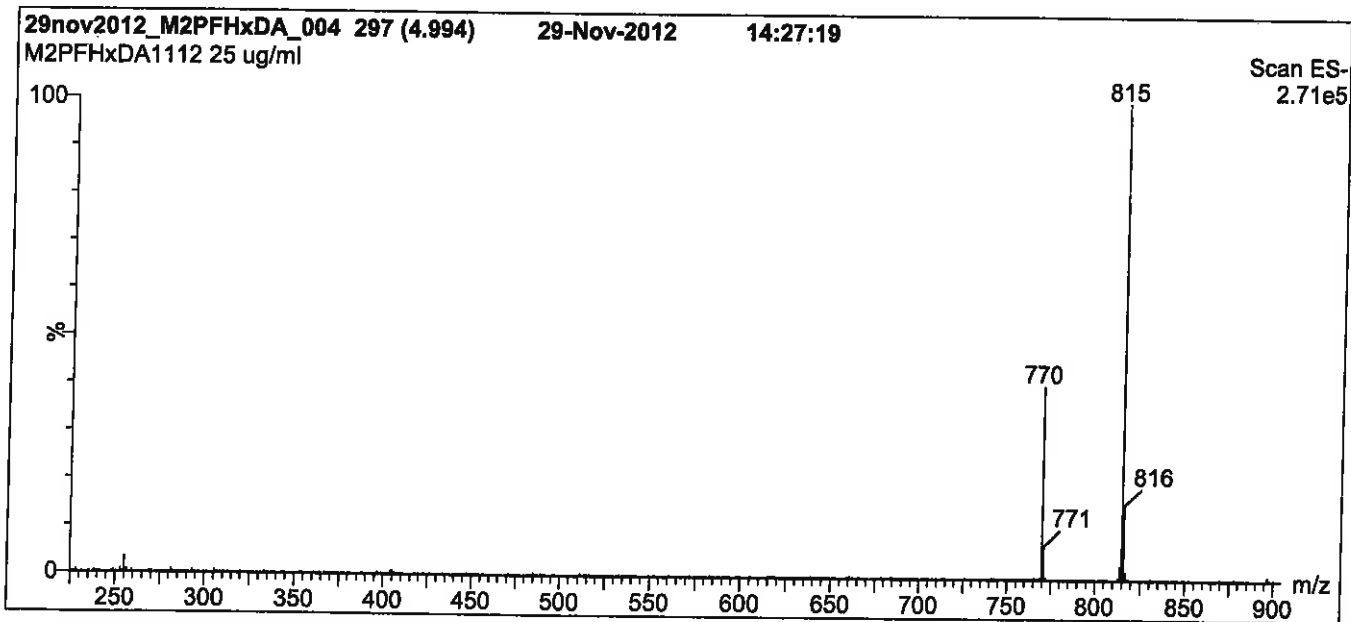
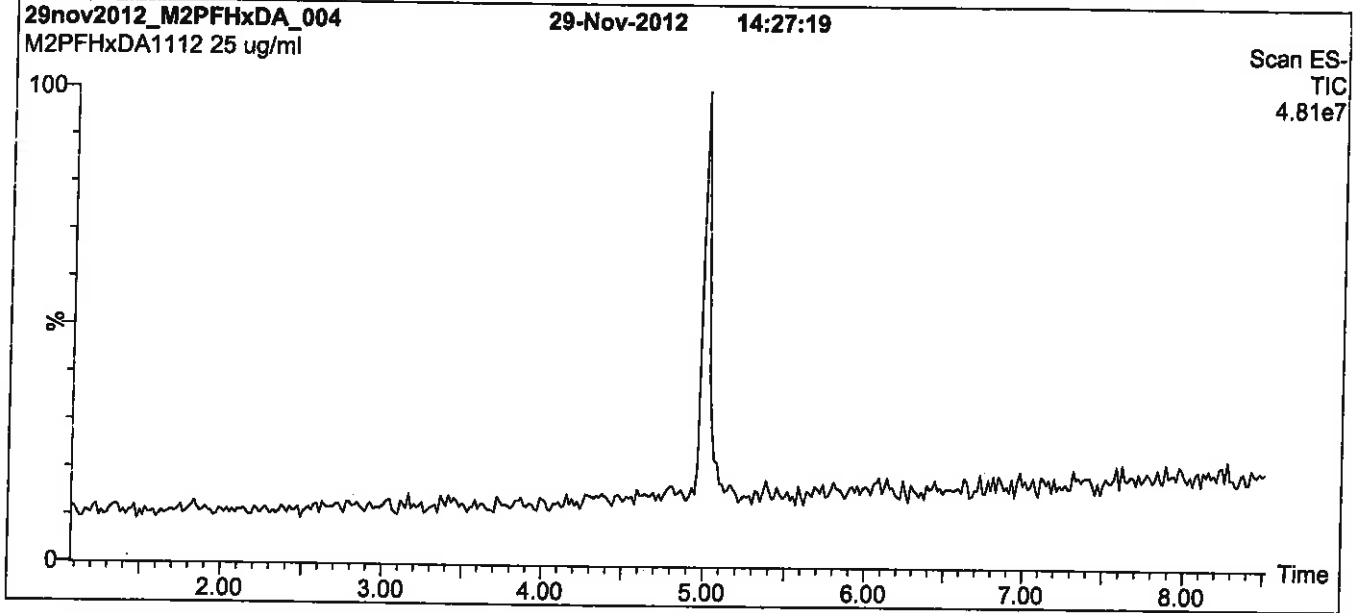
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

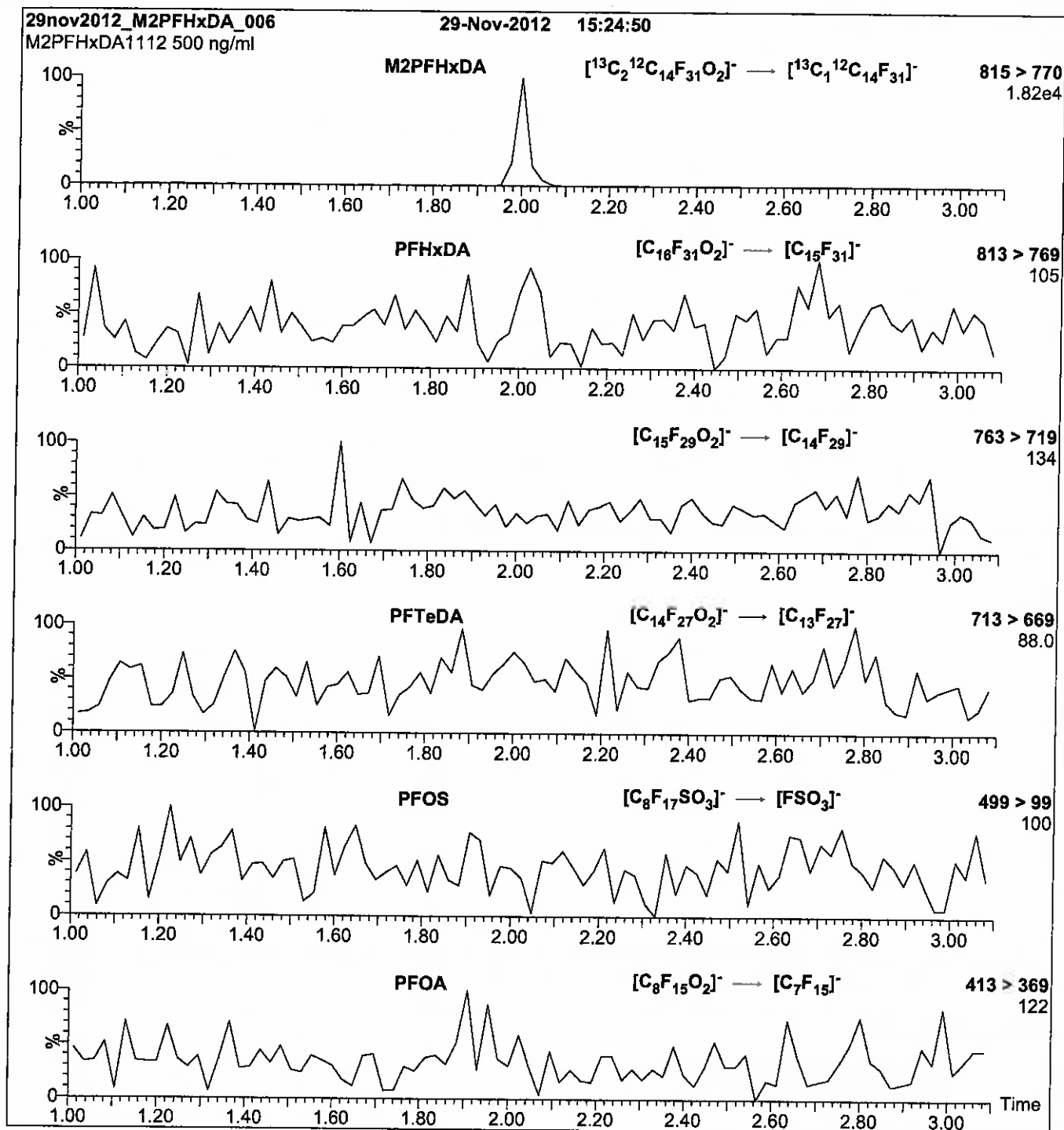
Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 100% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 1200 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

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

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 15

Reagent

LCM2PFHxDA_00009

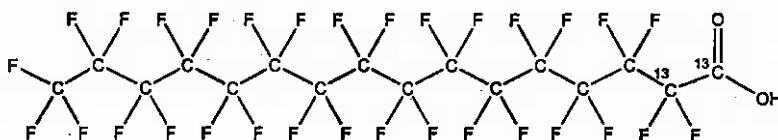


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2PFHxDA **LOT NUMBER:** M2PFHxDA1112
COMPOUND: Perfluoro-n-[1,2-¹³C₂]hexadecanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	¹³ C ₂ ¹² C ₁₄ HF ₃₁ O ₂	MOLECULAR WEIGHT:	816.11
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	ISOTOPIC PURITY:	≥99% ¹³ C (1,2- ¹³ C ₂)
LAST TESTED: (mm/dd/yyyy)	01/07/2016		
EXPIRY DATE: (mm/dd/yyyy)	01/07/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 01/11/2016
(mm/dd/yyyy)

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

INTENDED USE:

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:

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LIMITED WARRANTY:

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

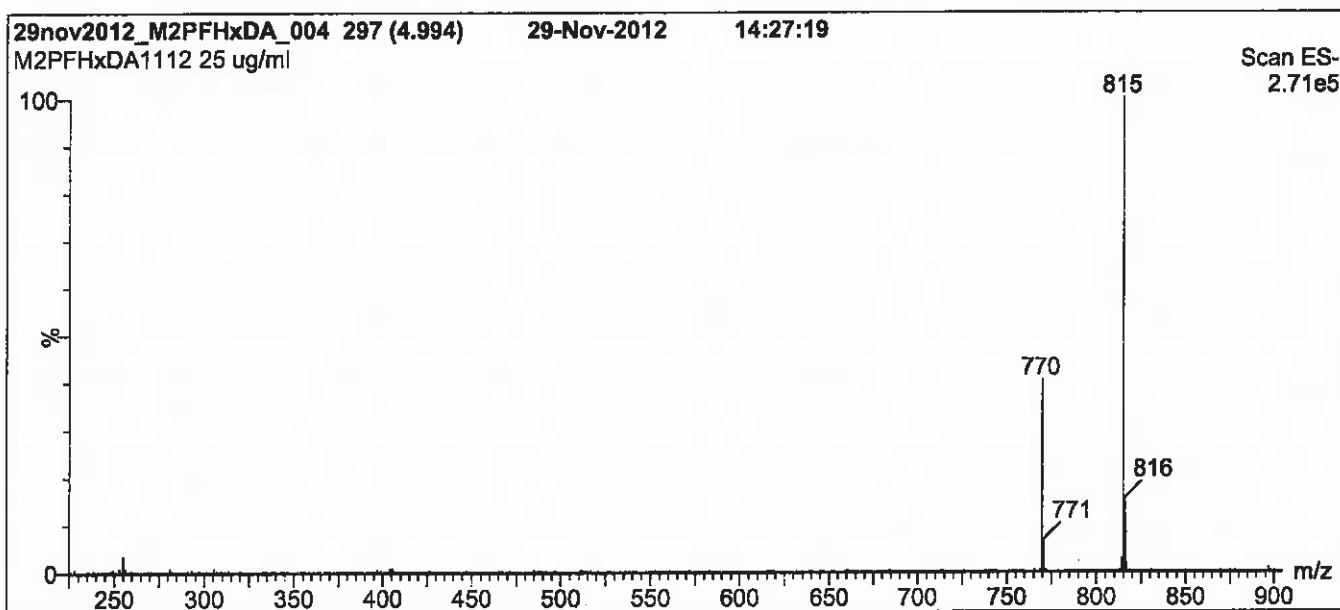
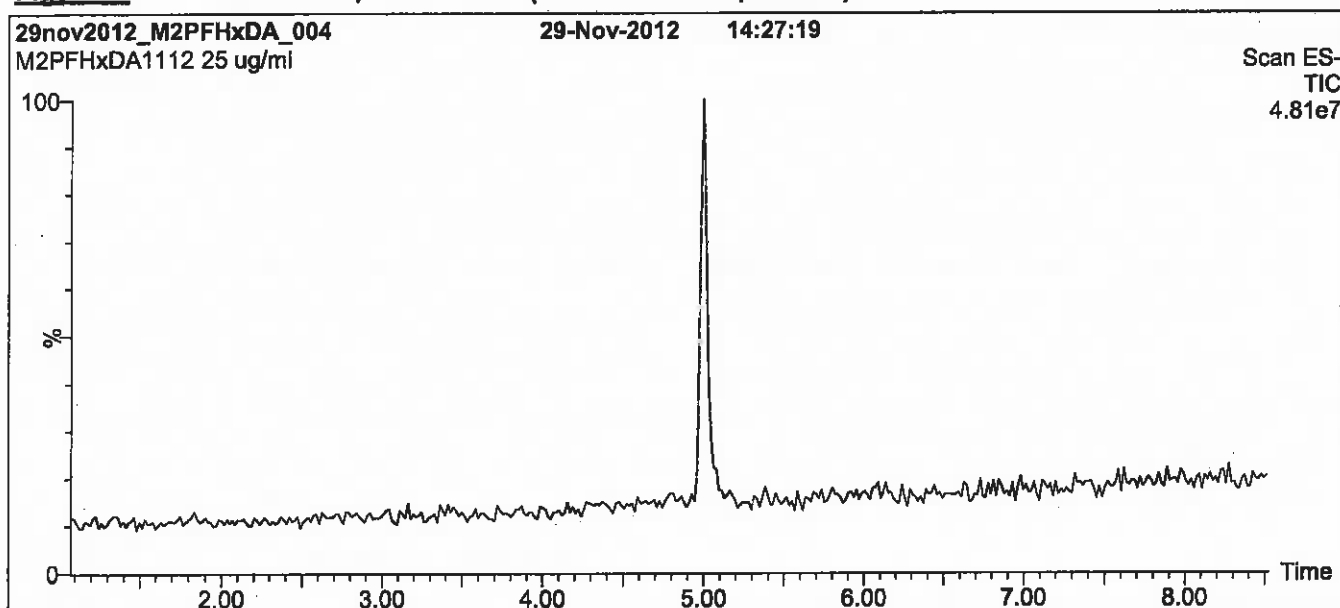
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

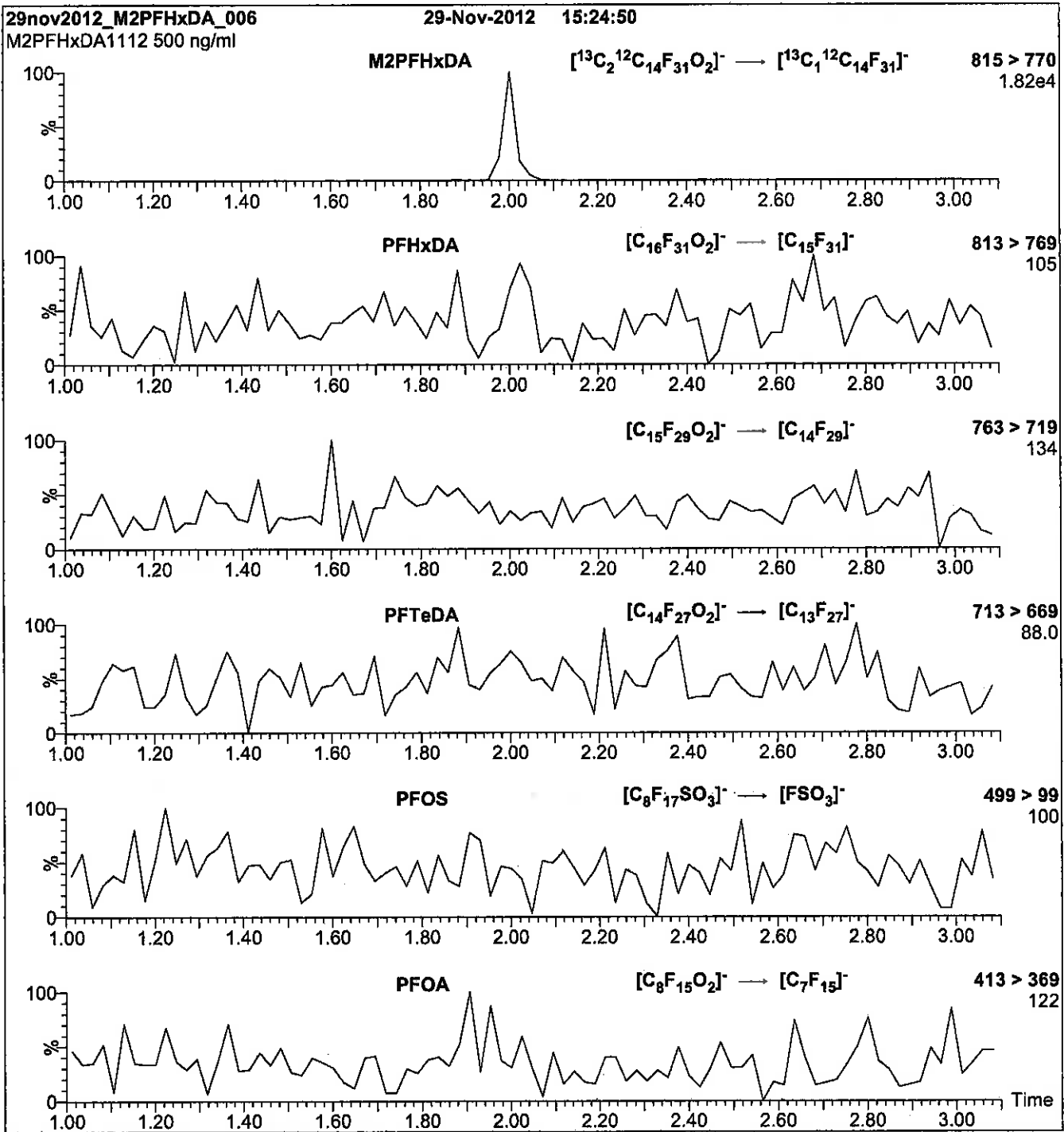
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 1200 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 15

Reagent

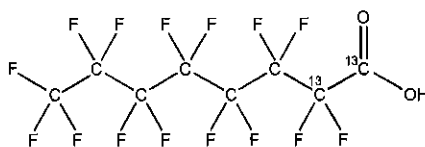
LCM2PFOA_00005



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2PFOA **LOT NUMBER:** M2PFOA0613
COMPOUND: Perfluoro-n-[1,2-¹³C₂]octanoic acid
STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₆HF₁₅O₂ **MOLECULAR WEIGHT:** 416.05
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
 Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99%¹³C
 (1,2-¹³C₂)
LAST TESTED: (mm/dd/yyyy) 06/19/2013
EXPIRY DATE: (mm/dd/yyyy) 06/19/2018
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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____


 B.G. Chittim

Date: 07/16/2013
 (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:

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

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration 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.

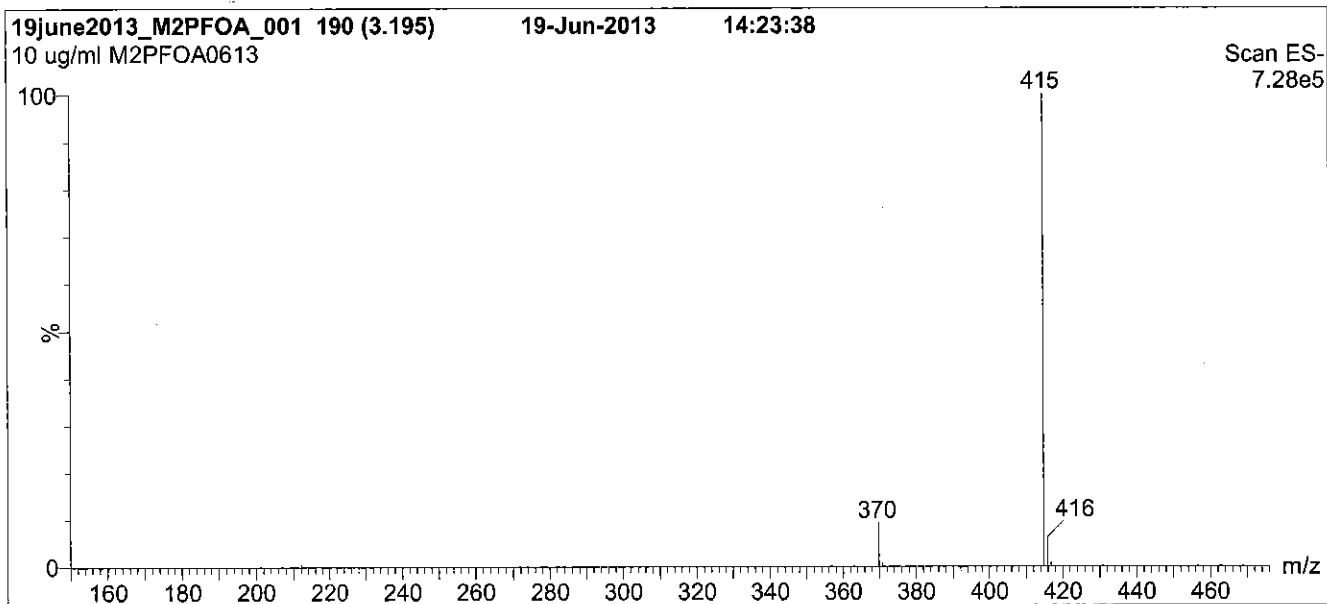
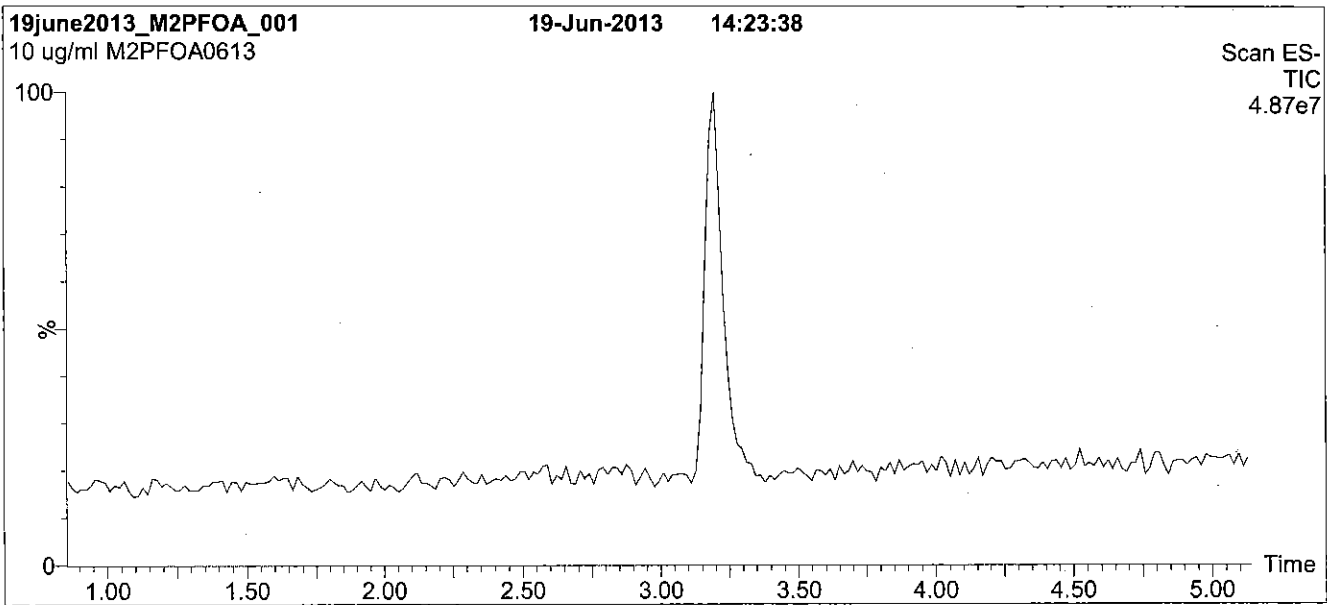
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

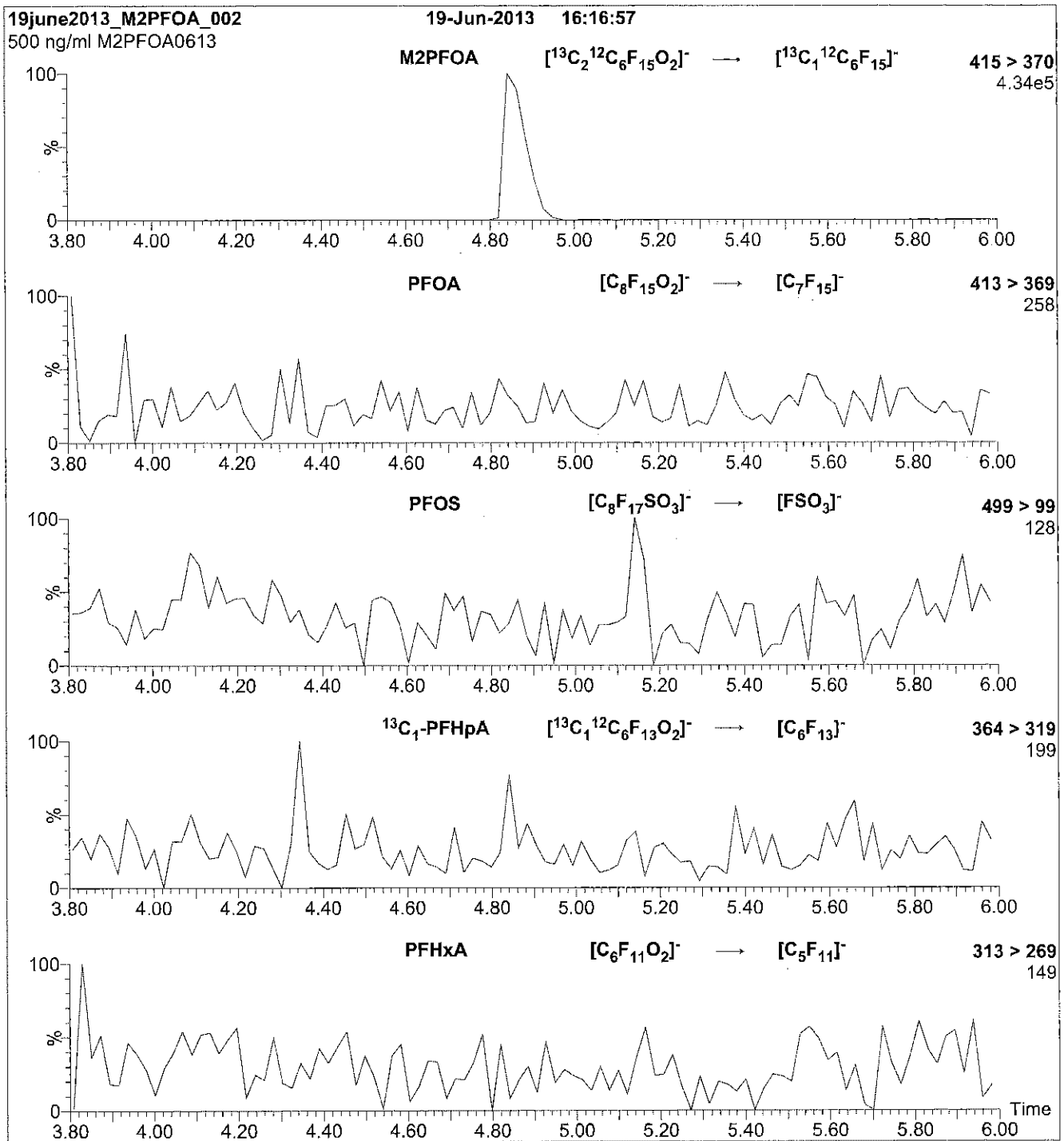
Flow: 300 μl/min

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: M2PFOA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M2PFOA)

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) = 3.66e-3
Collision Energy (eV) = 11

Reagent

LCM2PFOA_00006

R: SBC 12/21/16



814260

ID: LCM2PFOA_00006

Exp: 02/12/21 Prod: SBC

¹³C2-PFOA Stock 50ug/mL

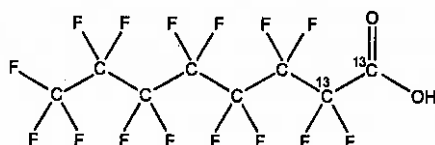


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2PFOA **LOT NUMBER:** M2PFOA0216
COMPOUND: Perfluoro-n-[1,2-¹³C₂]octanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₆HF₁₆O₂ **MOLECULAR WEIGHT:** 416.05
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99%¹³C
(1,2-¹³C₂)
LAST TESTED: (mm/dd/yyyy) 02/12/2016
EXPIRY DATE: (mm/dd/yyyy) 02/12/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 02/24/2016
B.G. Chittim (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.

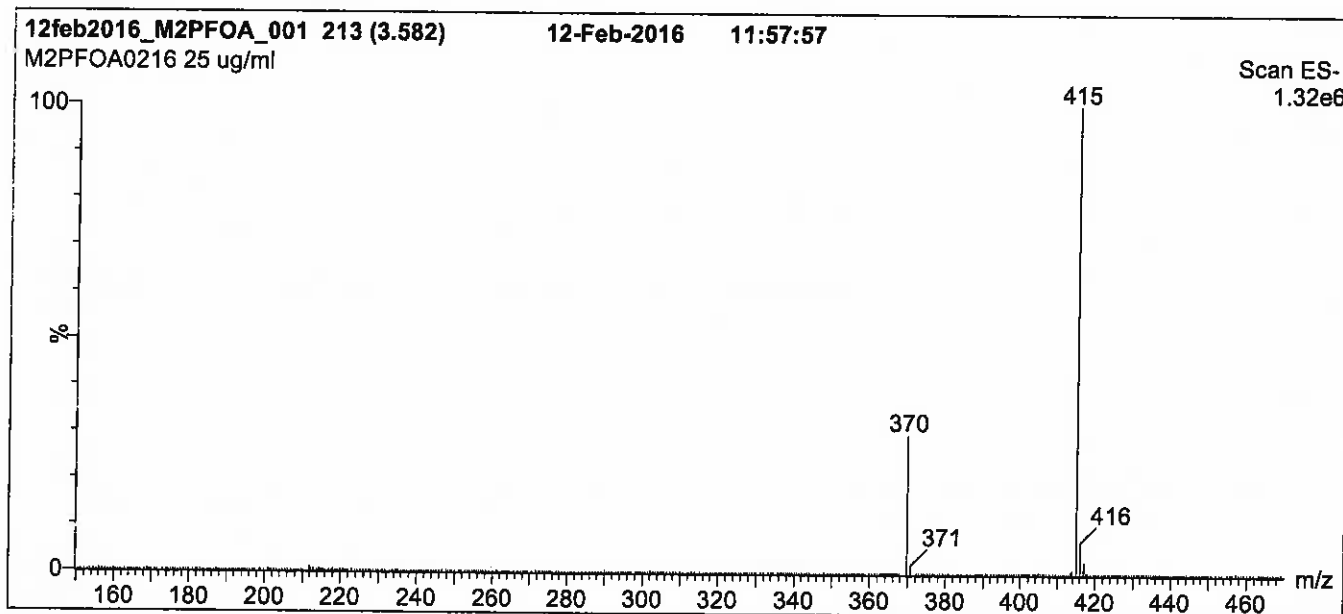
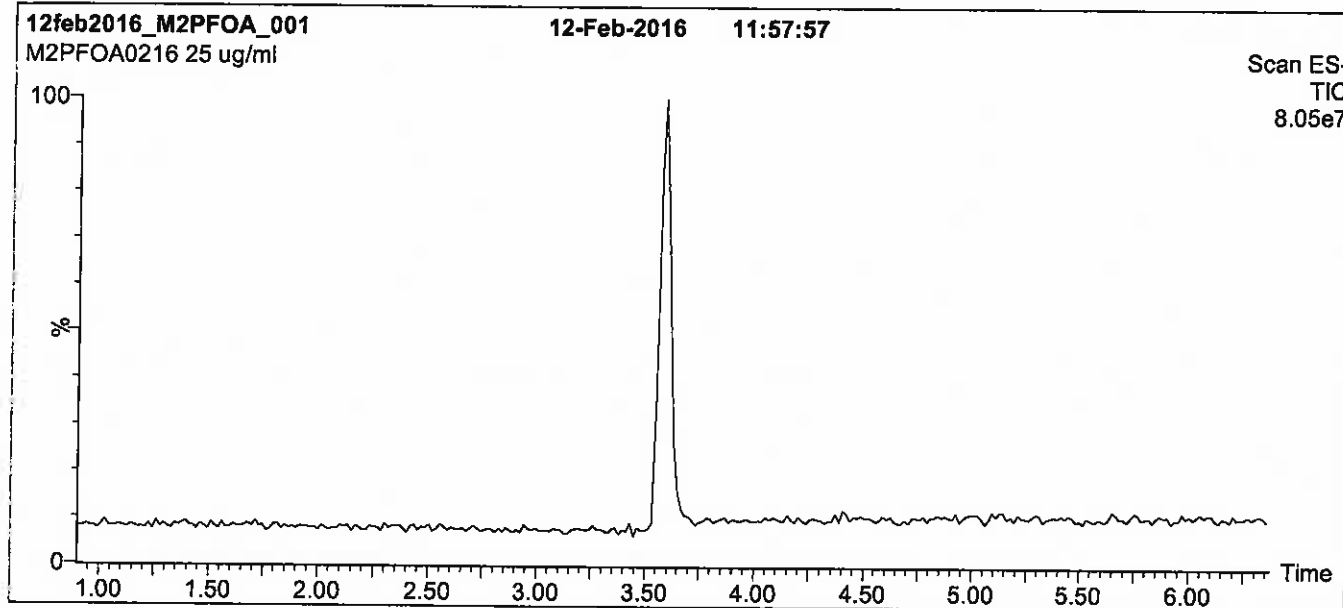
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

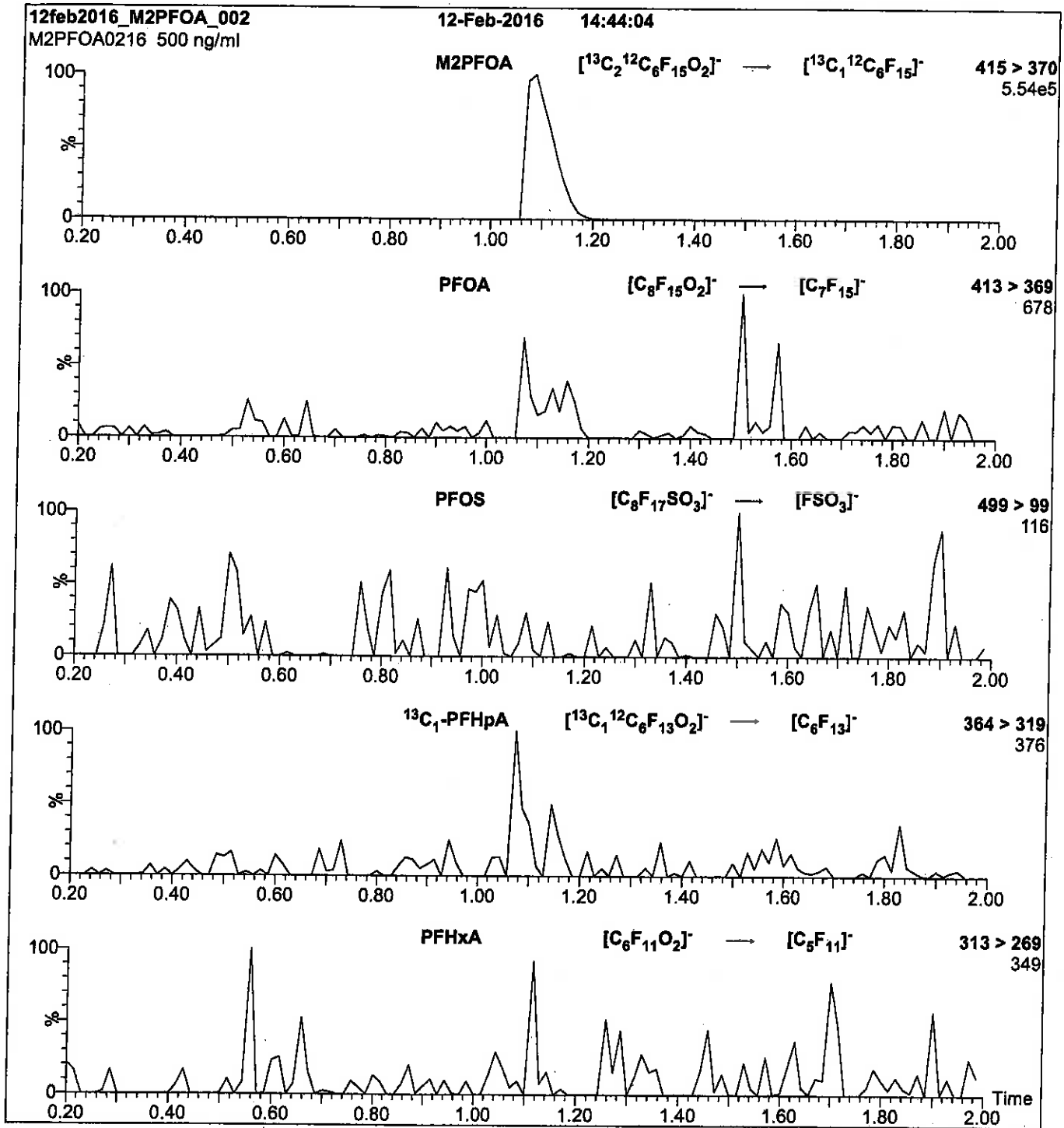
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 15.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

Figure 2: M2PFOA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
 10 μl (500 ng/ml M2PFOA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

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

MS Parameters

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

Reagent

LCM2PFTeDA_00007

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

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

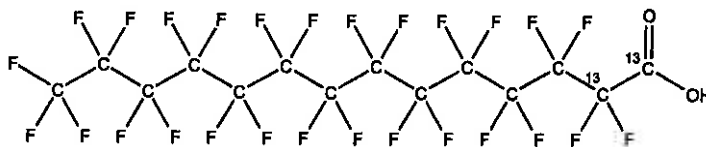


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₁₂HF₂₇O₂ **MOLECULAR WEIGHT:** 716.10
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 12/07/2015 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 12/07/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim Date: 12/08/2015
B.G. Chittim (mm/dd/yyyy)

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

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EXPIRY DATE / PERIOD OF VALIDITY:

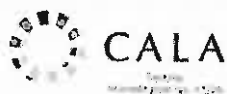
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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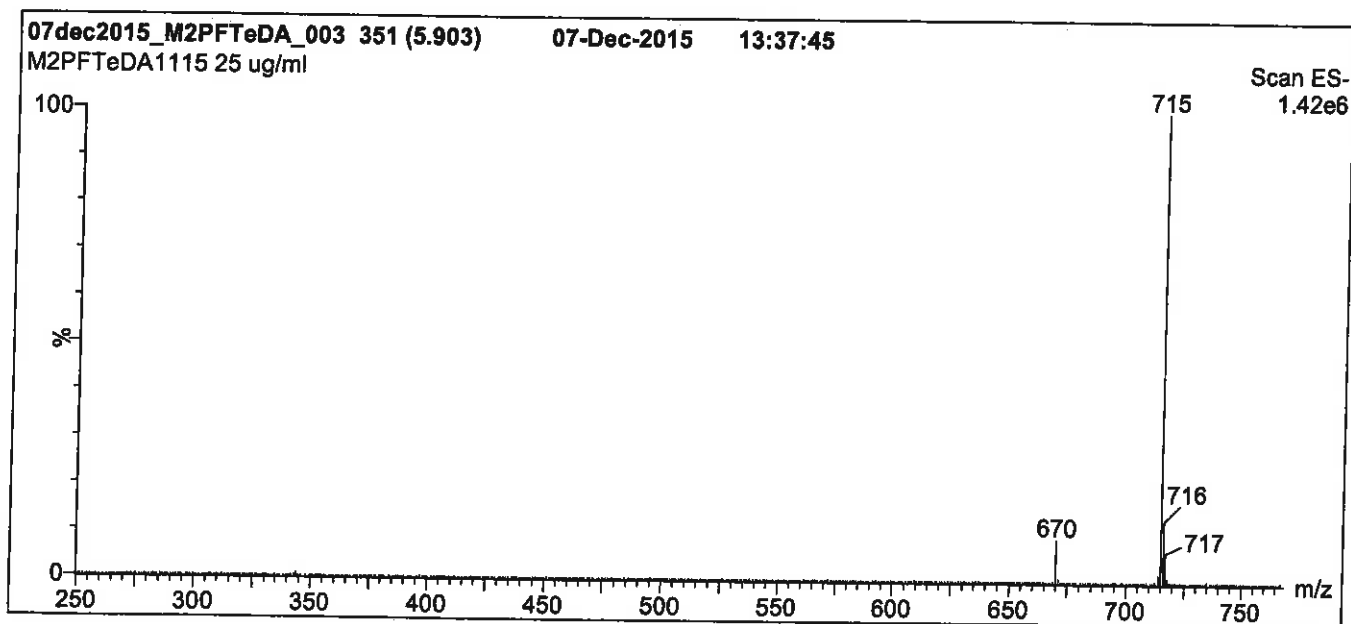
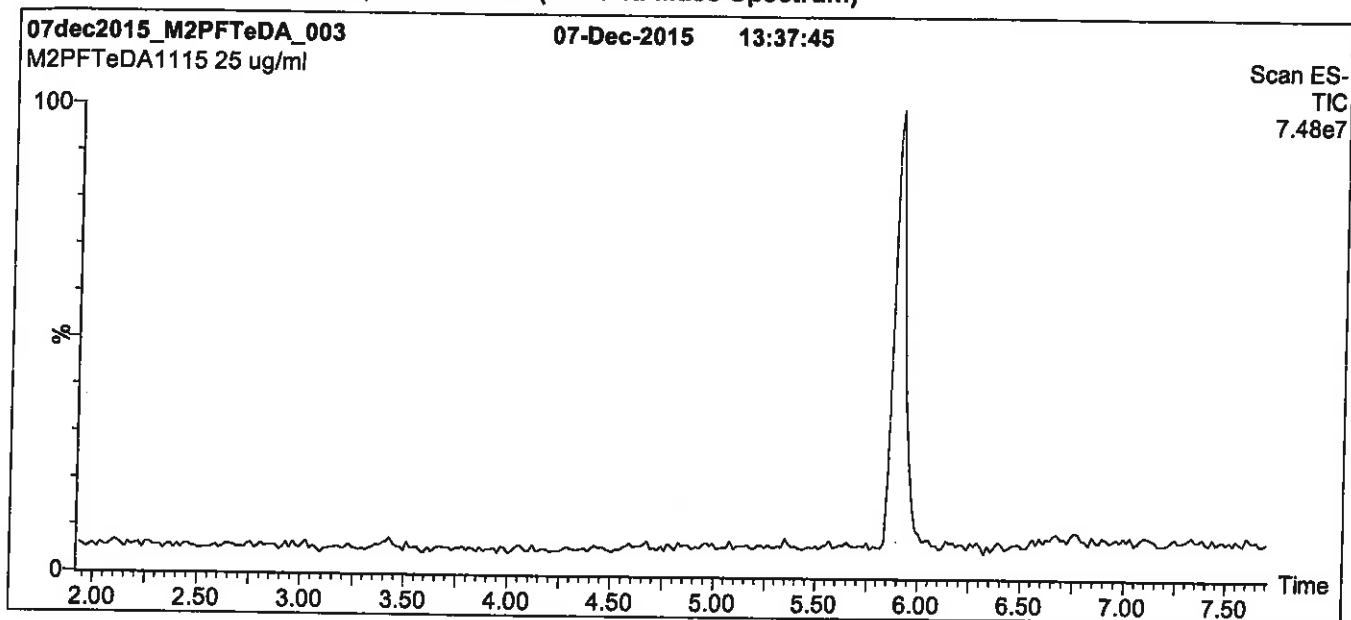
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

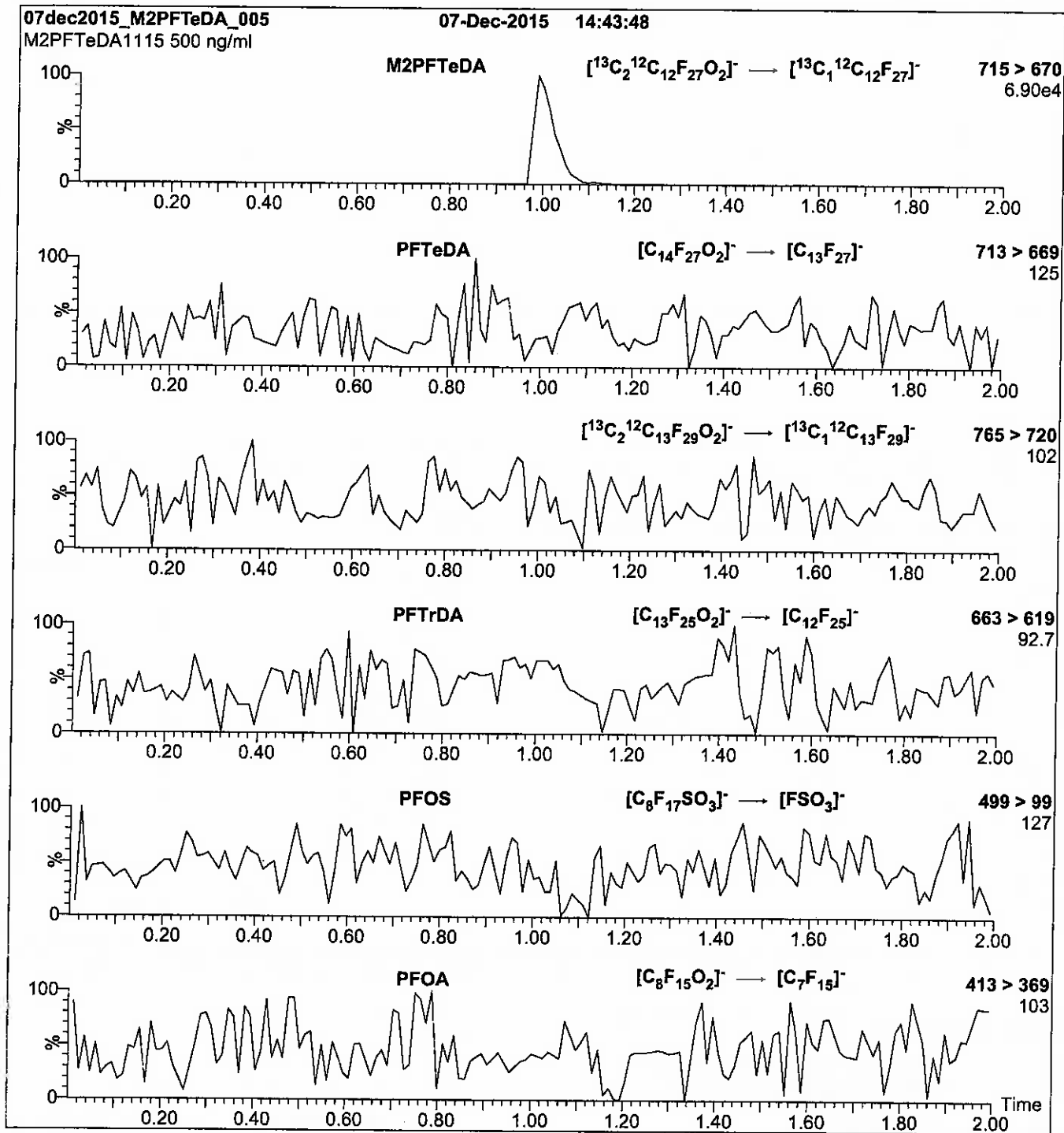
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 14

Reagent

LCM2PFTeDA_00008

r: 3k/17 sev

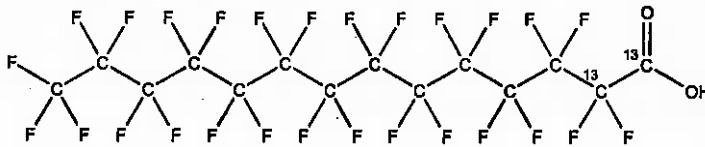


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₁₂HF₂₇O₂ **MOLECULAR WEIGHT:** 716.10
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 12/07/2015 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 12/07/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

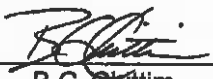
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- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

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.

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Certified By: 
B.G. Chittim **Date:** 12/08/2015
(mm/dd/yyyy)

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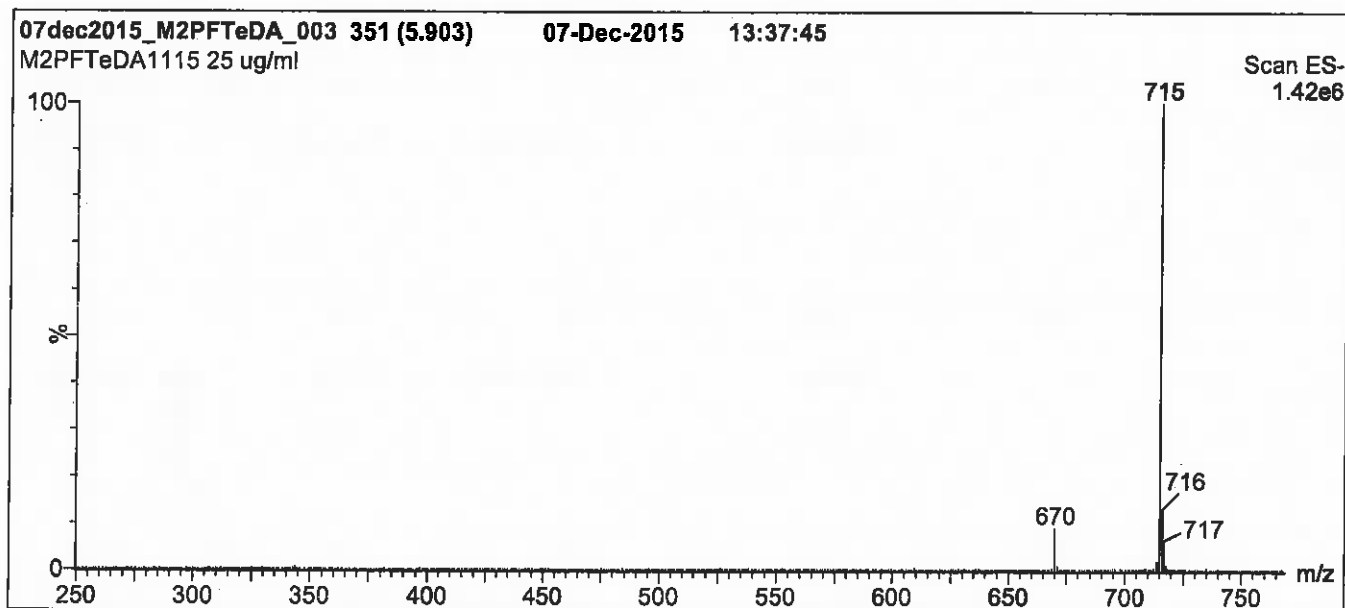
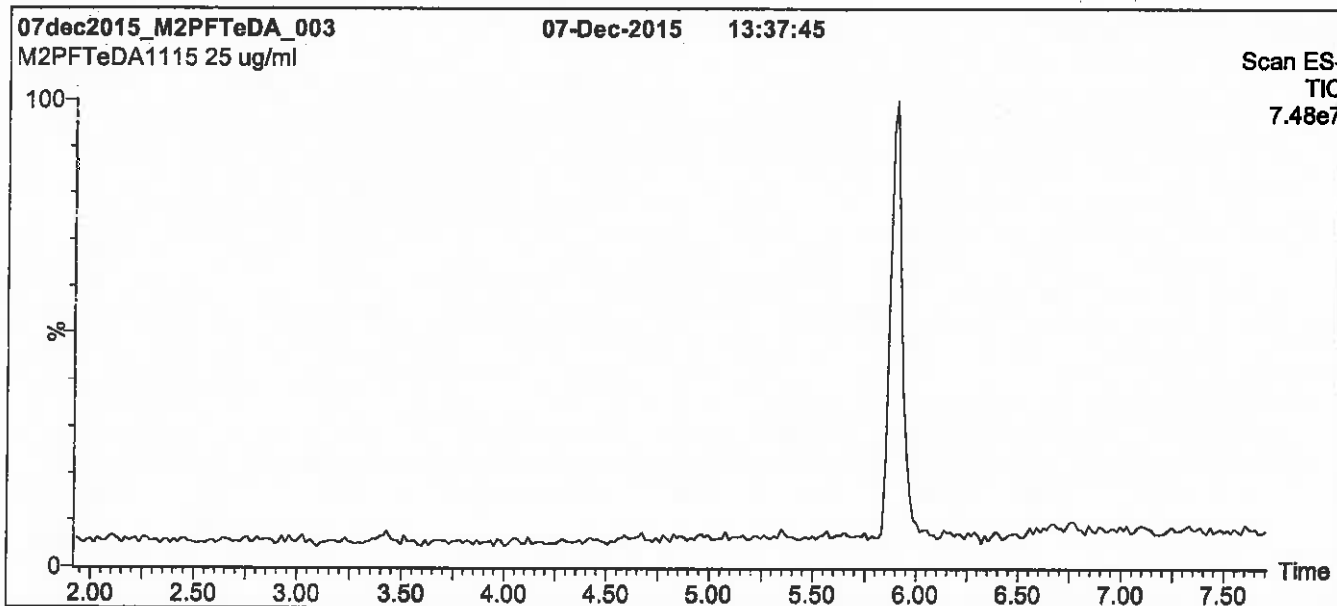
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Figure 1: M2PFTeDA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

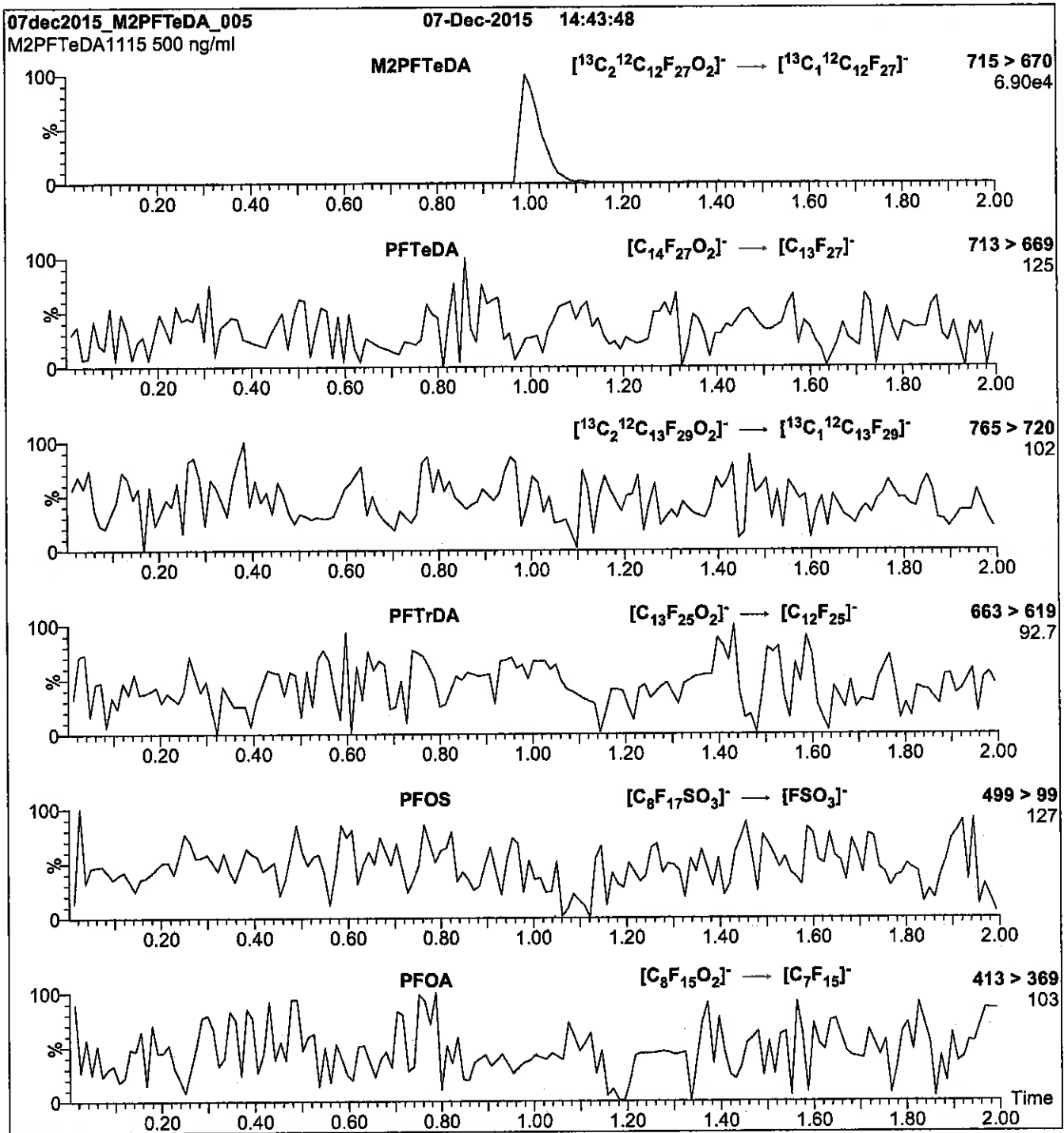
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 14

Reagent

LCM4PFHPA_00007

f: SBC a/22/16

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



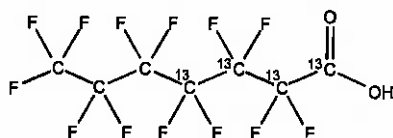
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SK

PRODUCT CODE: M4PFHpA **LOT NUMBER:** M4PFHpA0516
COMPOUND: Perfluoro-n-[1,2,3,4-¹³C₄]heptanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄¹²C₃HF₁₃O₂ **MOLECULAR WEIGHT:** 368.03
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99%¹³C
(1,2,3,4-¹³C₄)
LAST TESTED: (mm/dd/yyyy) 05/27/2016
EXPIRY DATE: (mm/dd/yyyy) 05/27/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

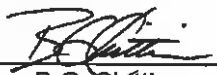
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ADDITIONAL INFORMATION:

- See page 2 for further details.
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Certified By: 
B.G. Chittim **Date:** 07/05/2016
(mm/dd/yyyy)

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LIMITED WARRANTY:

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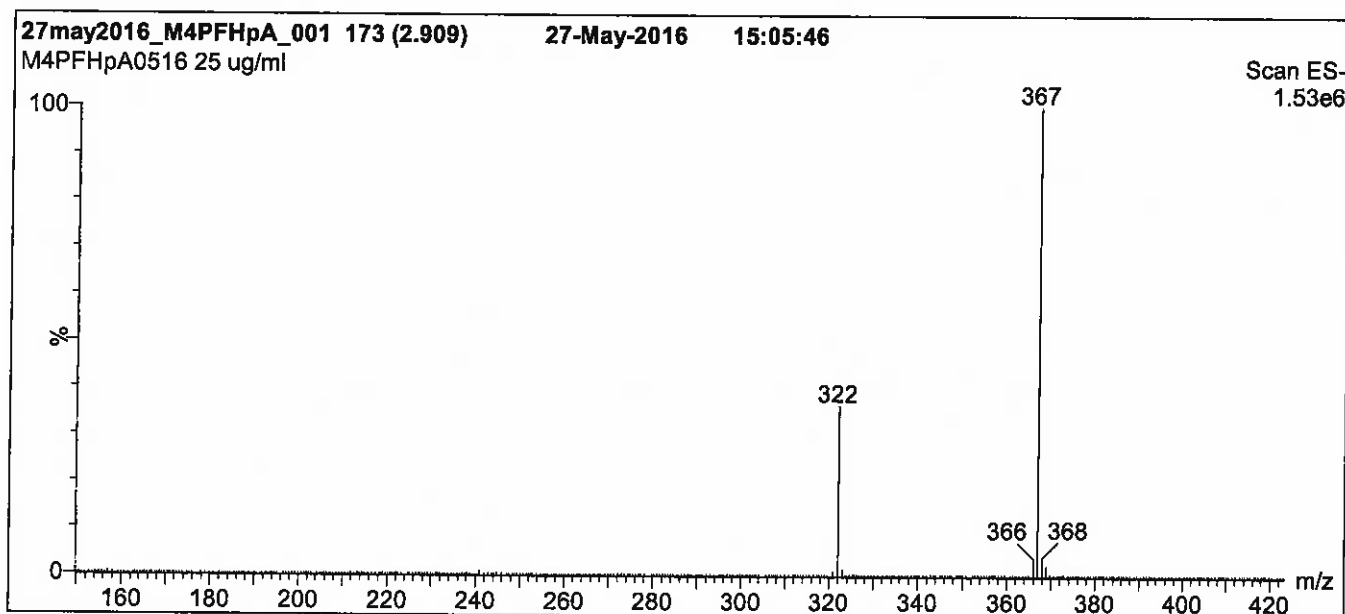
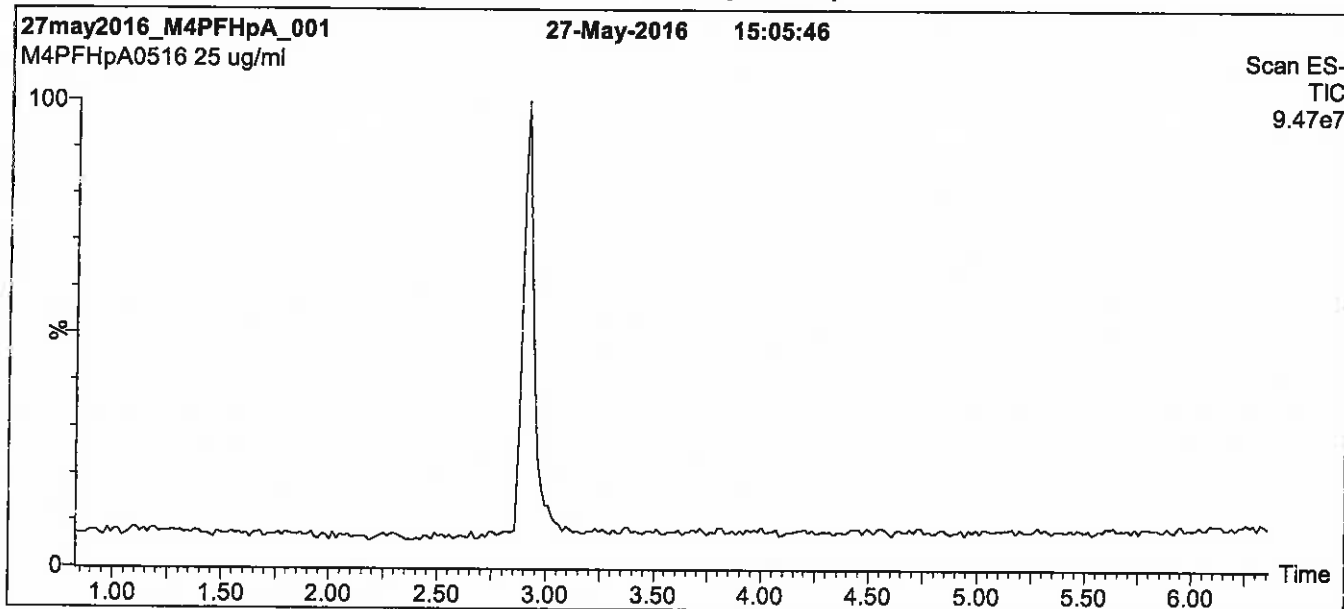
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

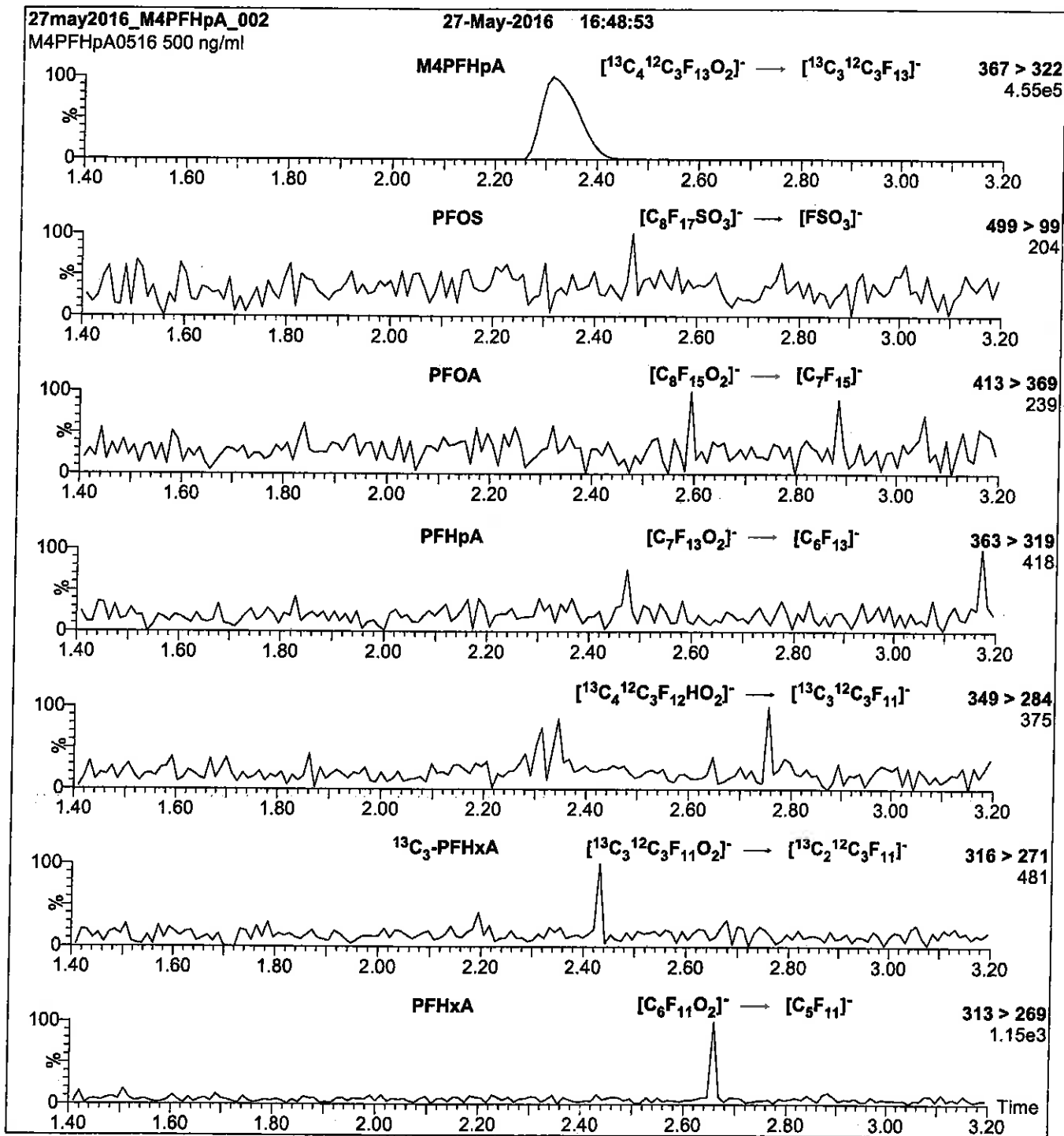
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCM4PFHPA_00008

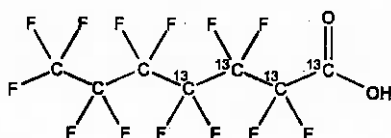


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M4PFHpA **LOT NUMBER:** M4PFHpA0516
COMPOUND: Perfluoro-n-[1,2,3,4-¹³C₄]heptanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄¹²C₃HF₁₃O₂ **MOLECULAR WEIGHT:** 368.03
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
 Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99%¹³C
 (1,2,3,4-¹³C₄)
LAST TESTED: (mm/dd/yyyy) 05/27/2016
EXPIRY DATE: (mm/dd/yyyy) 05/27/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim

Date: 07/05/2016
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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:

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

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EXPIRY DATE / PERIOD OF VALIDITY:

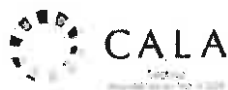
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LIMITED WARRANTY:

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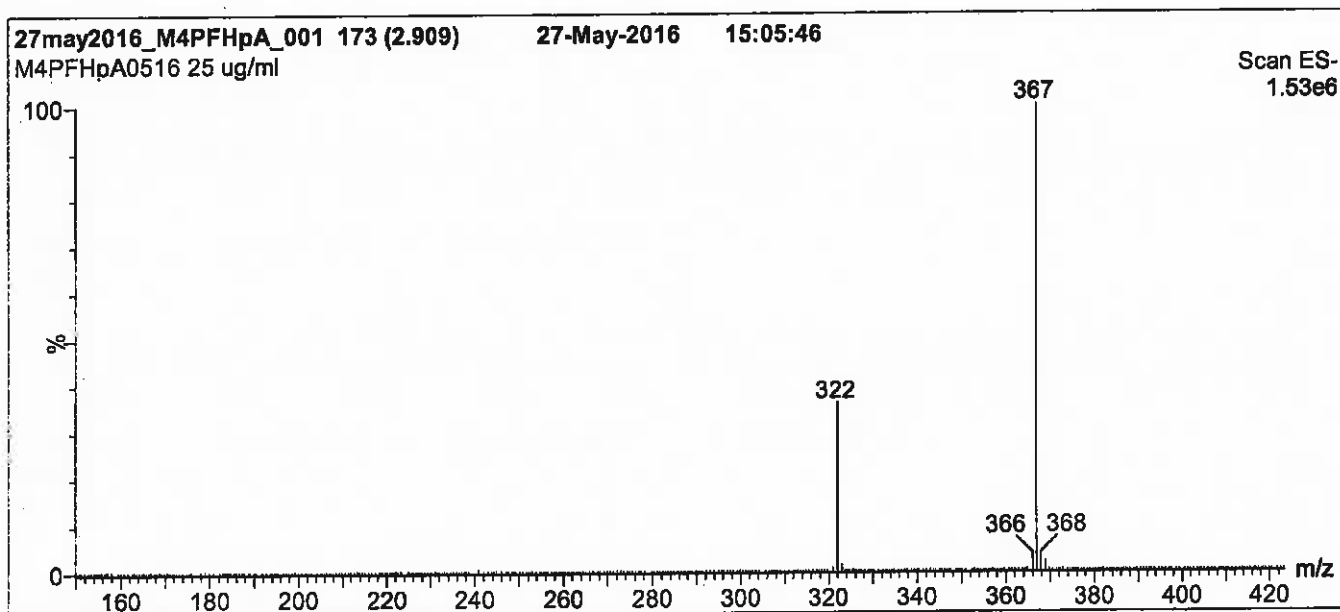
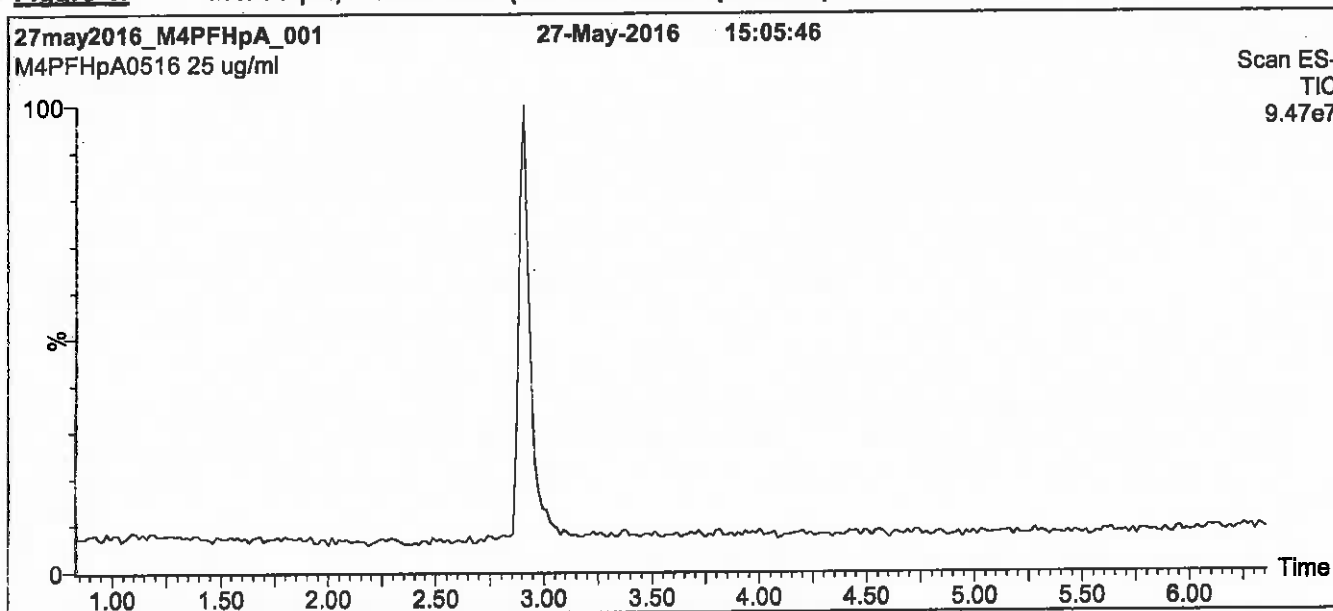
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

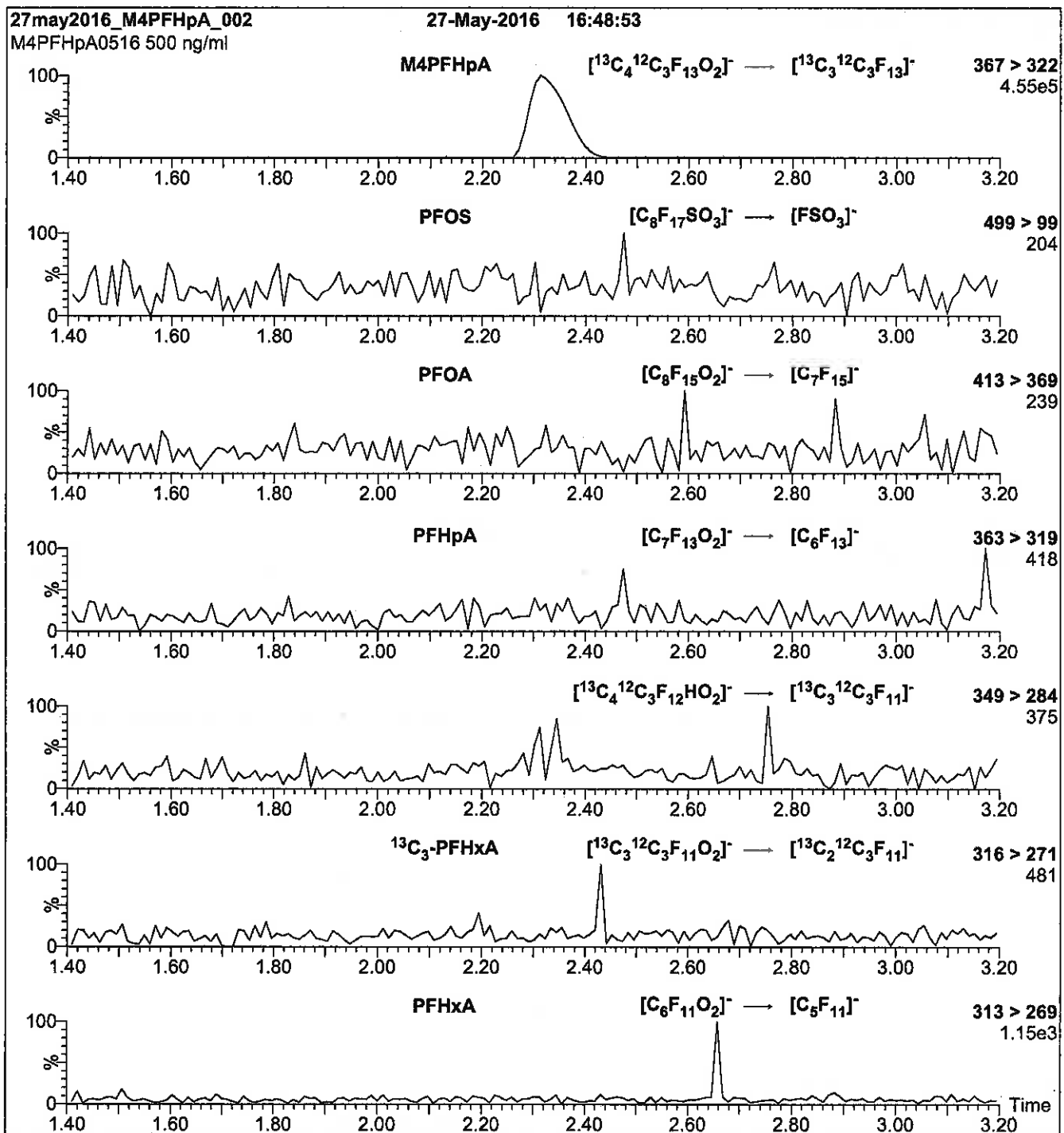
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCM5PFPEA_00008

R: 8BC 9/22/16



739590
ID: LCM5PFPEA_00008
Exp: 05/22/20 Prpt: SAC
13C5-Perfluoropentanoic a

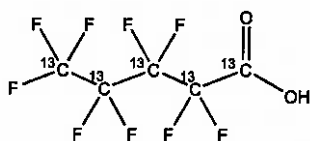


WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

Scanned 10/14/16 SR

PRODUCT CODE: M5PFPeA **LOT NUMBER:** M5PFPeA0515
COMPOUND: Perfluoro-n-[¹³C₅]pentanoic acid
STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₅HF₉O₂ **MOLECULAR WEIGHT:** 269.01
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
(¹³C₅)
LAST TESTED: (mm/dd/yyyy) 05/22/2015
EXPIRY DATE: (mm/dd/yyyy) 05/22/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 05/25/2015
B.G. Chittim (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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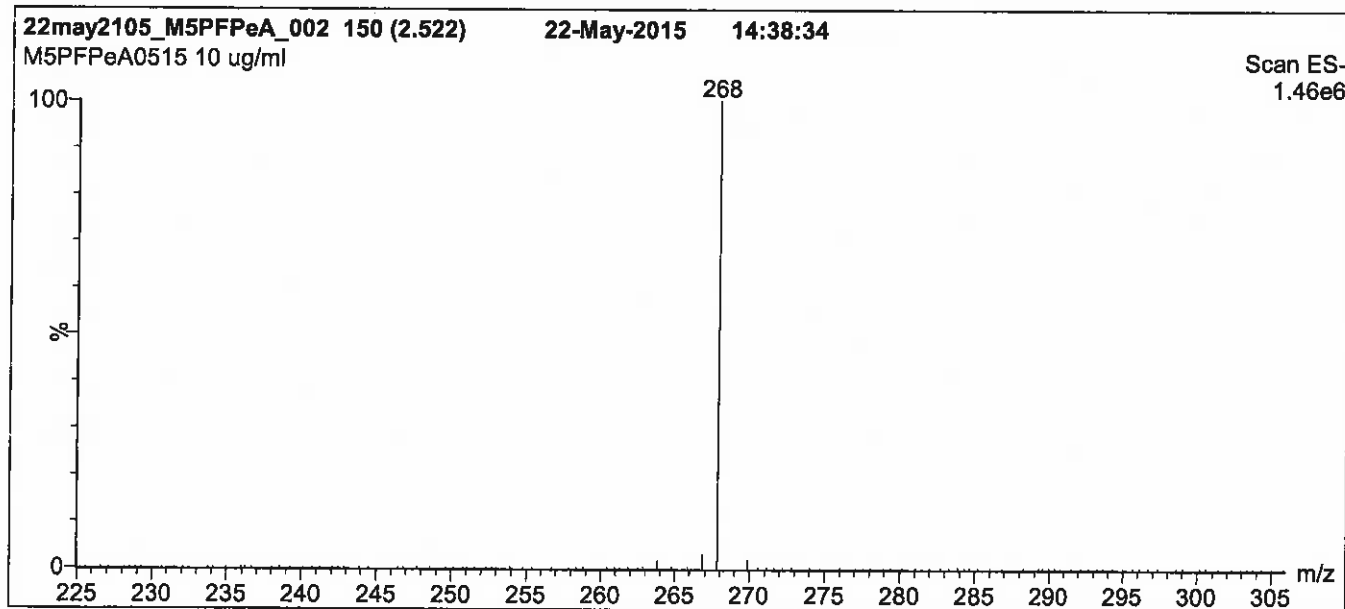
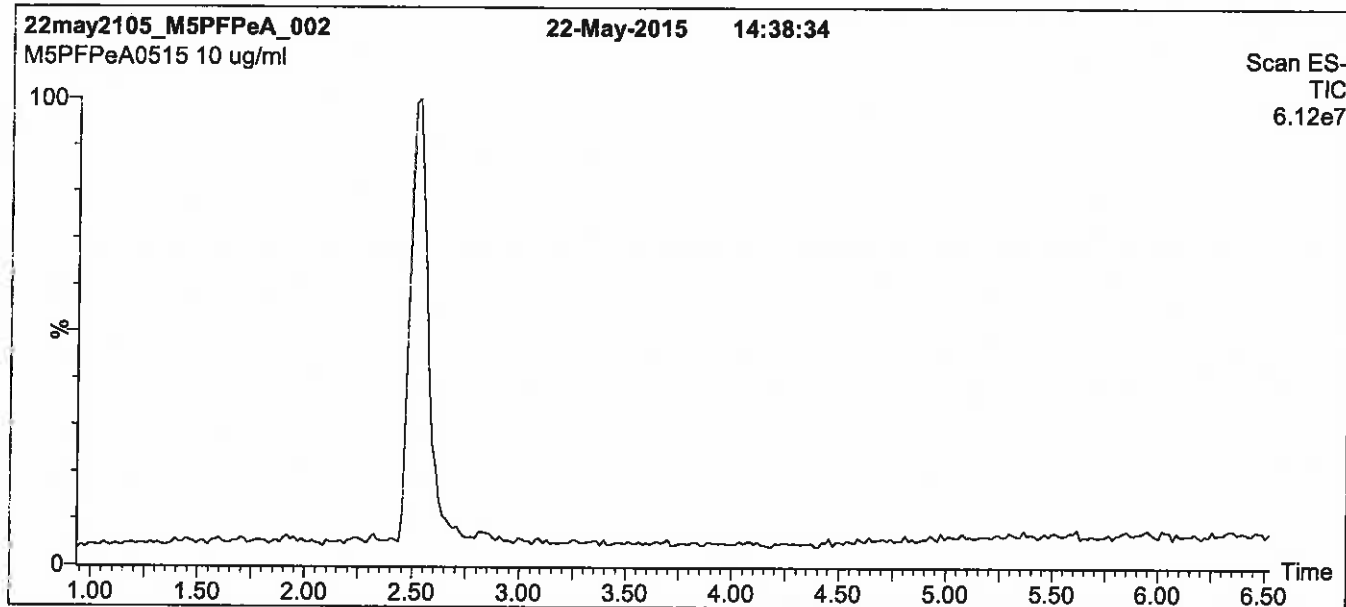
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

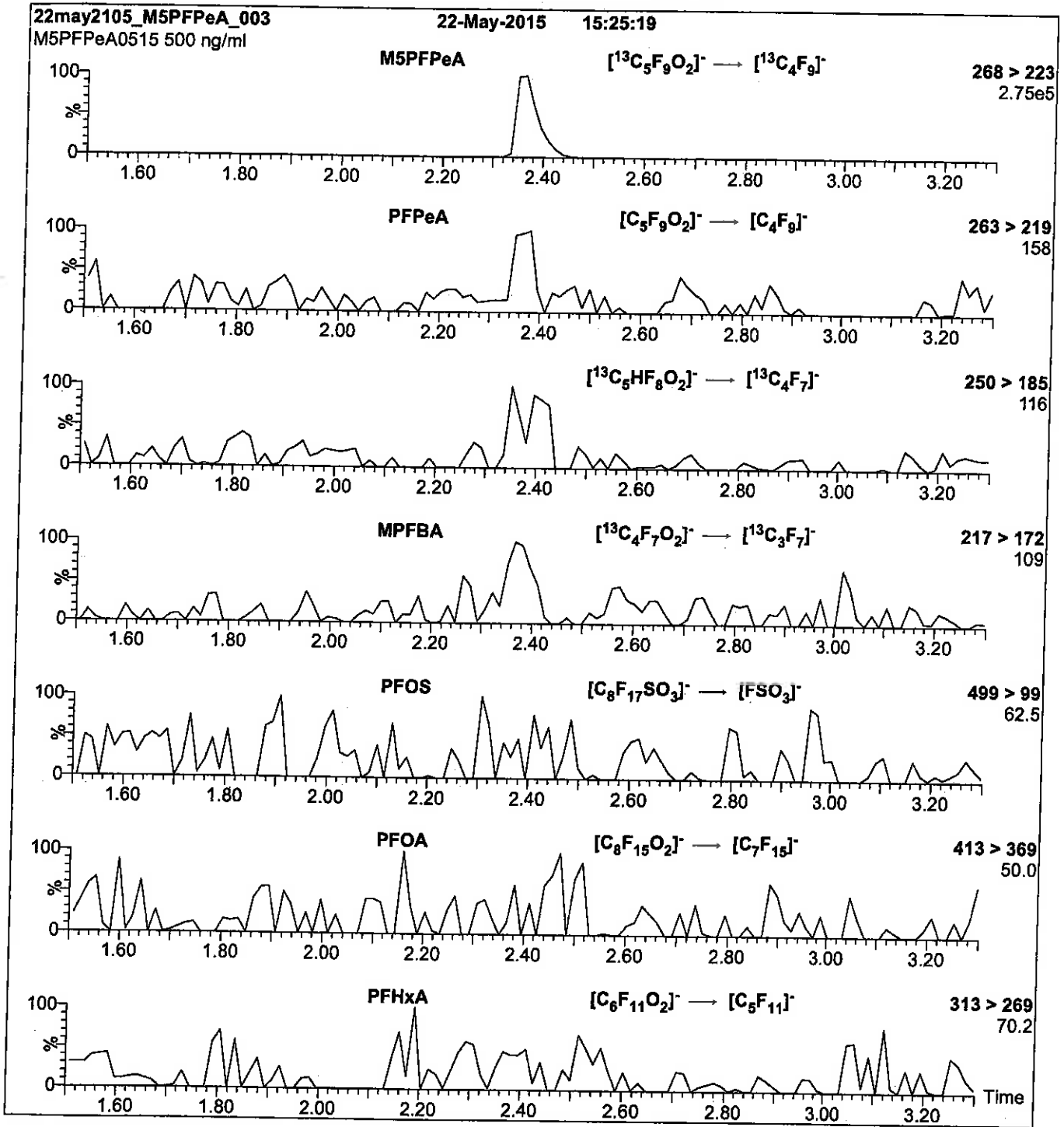
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

MS Parameters

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

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

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

Reagent

LCM5PFPEA_00009

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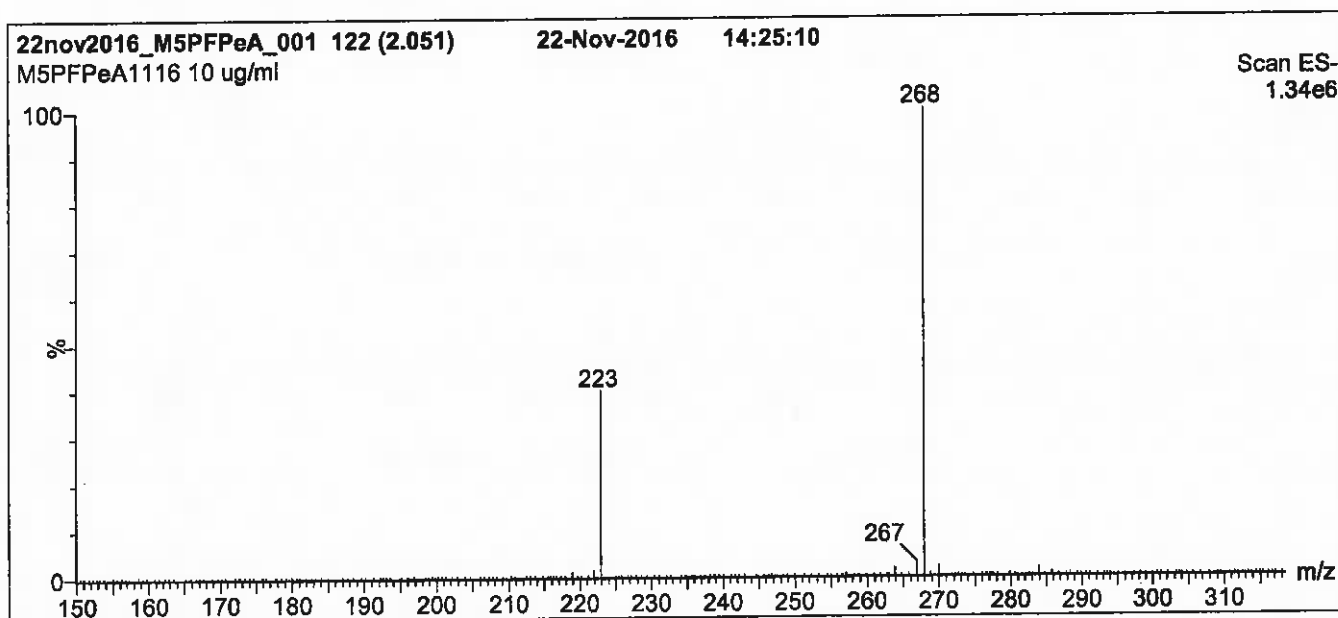
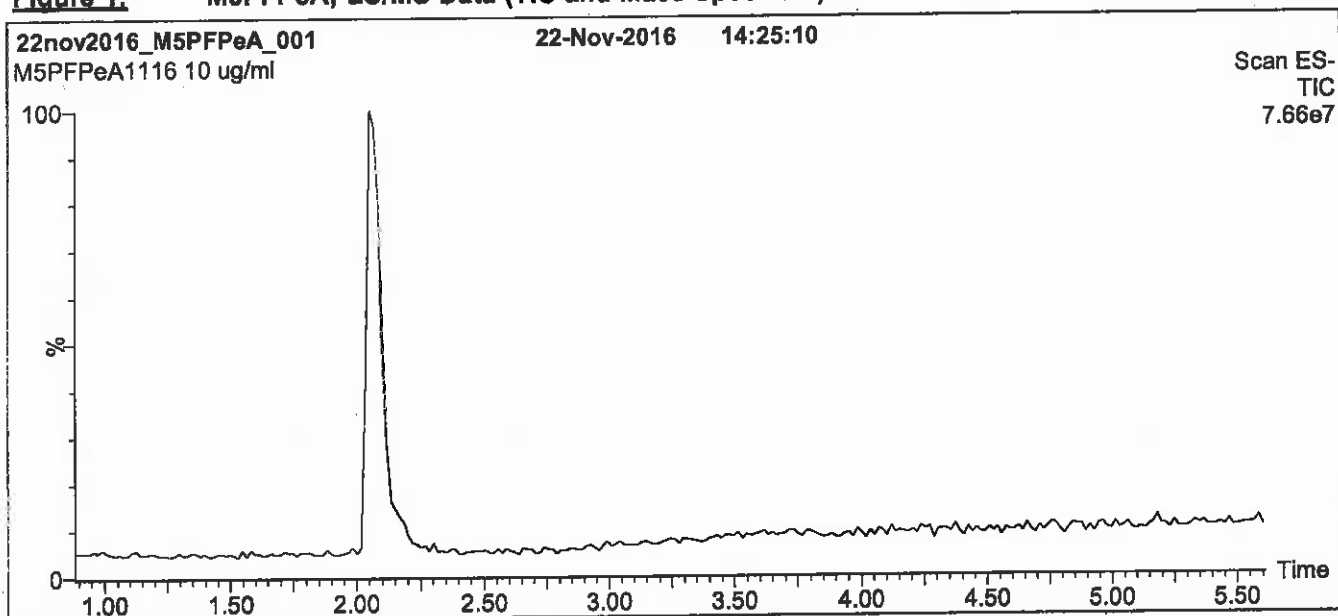
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Conditions for Figure 1:

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

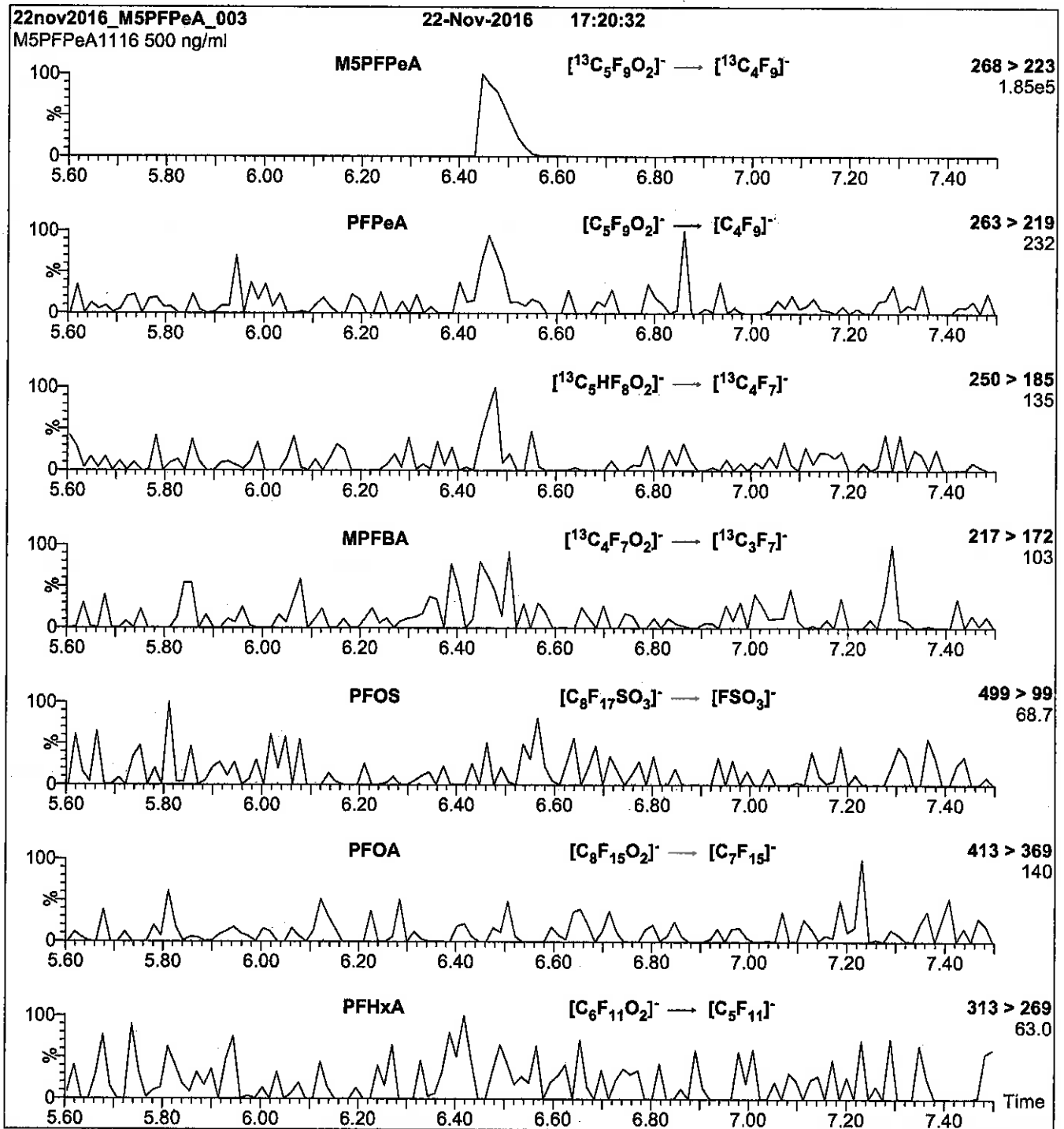
Flow: 300 μ l/min

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) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

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

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 9

Reagent

LCM8FOSA_00011

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

739615
ID: LCM8FOSA_00011
Exp: 12/22/17 Prod: SBC
13C8-Perfluorooctanesulfo

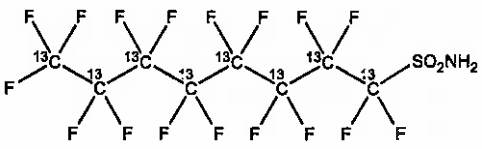


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M8FOSA-I **LOT NUMBER:** M8FOSA1215I
COMPOUND: Perfluoro-1-[¹³C]₈octanesulfonamide

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₈H₂F₁₇NO₂S **MOLECULAR WEIGHT:** 507.09
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Isopropanol
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 12/22/2015 (¹³C₈)
EXPIRY DATE: (mm/dd/yyyy) 12/22/2017
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:  **Date:** 01/14/2016
B.G. Chittim (mm/dd/yyyy)

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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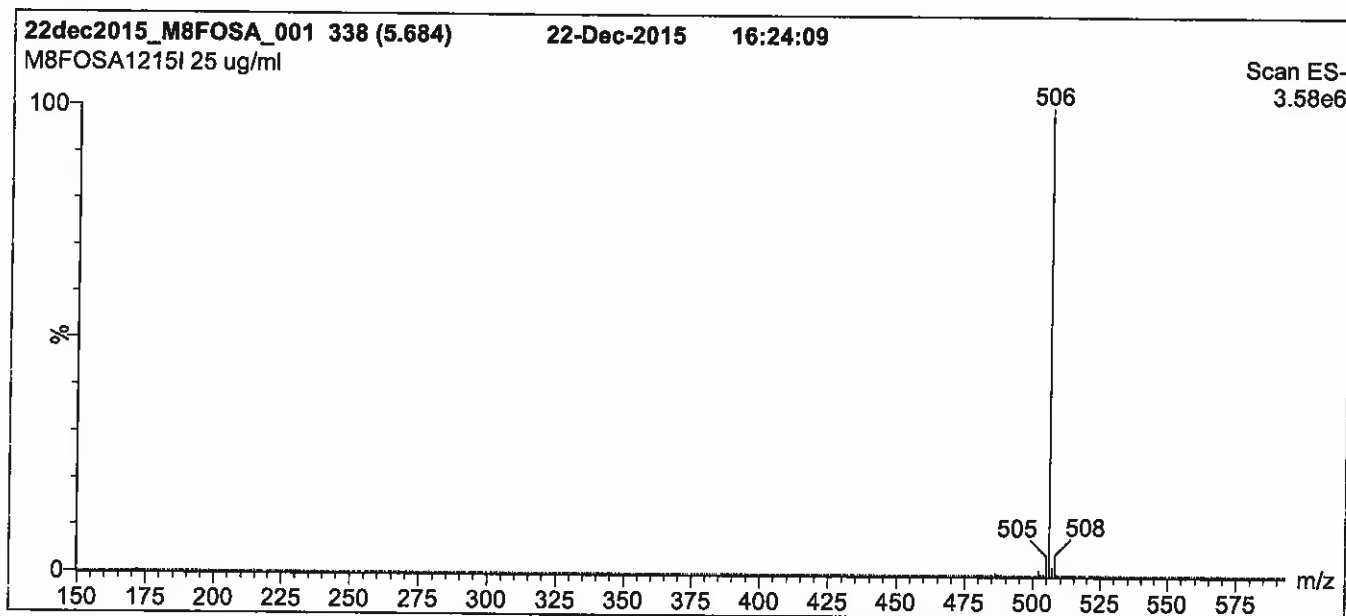
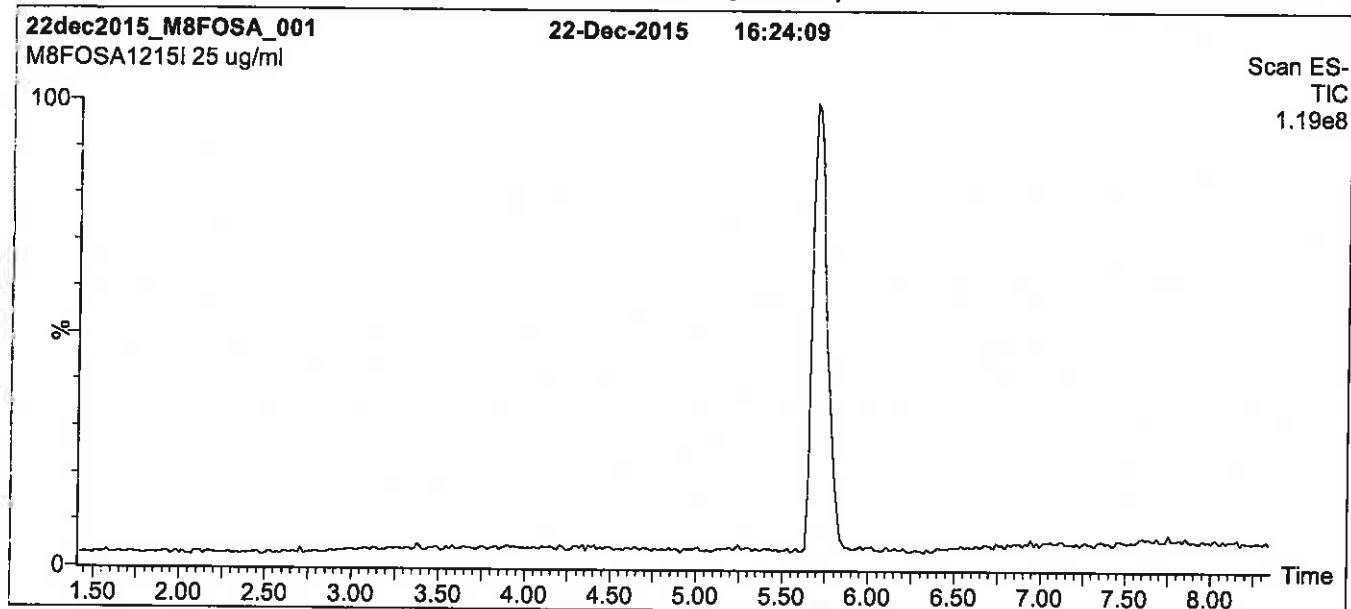
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

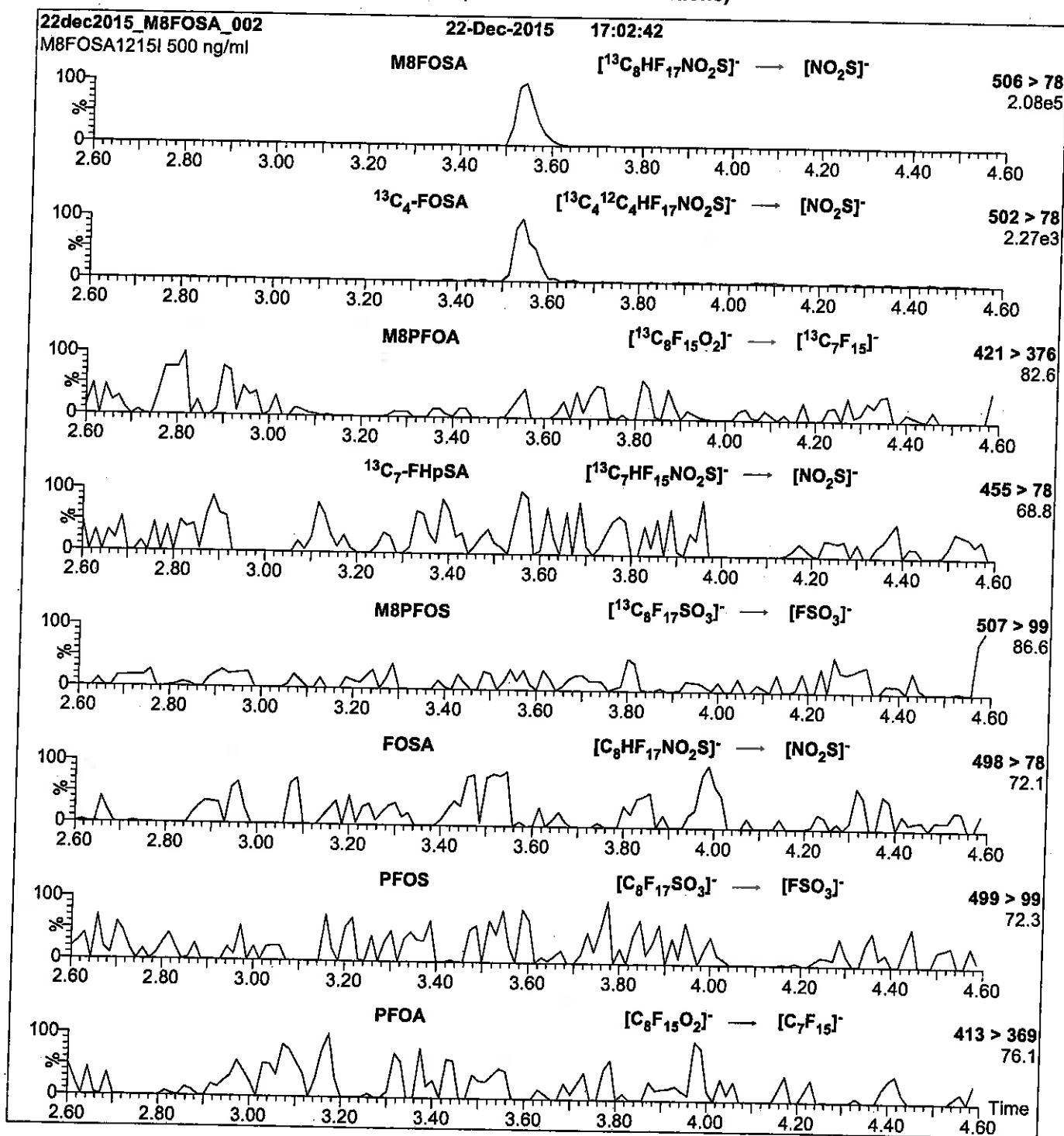
MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

Flow: 300 μ l/min

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCM8FOSA_00012

17: 3/9/17 SKV



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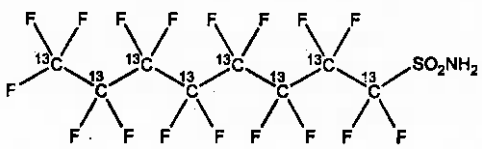
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M8FOSA-I
COMPOUND: Perfluoro-1-[¹³C₈]octanesulfonamide

LOT NUMBER: M8FOSA1215I

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: ¹³C₈H₂F₁₇NO₂S
CONCENTRATION: 50 ± 2.5 µg/ml
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/22/2015
EXPIRY DATE: (mm/dd/yyyy) 12/22/2020
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 507.09
SOLVENT(S): Isopropanol
ISOTOPIC PURITY: ≥99% ¹³C
 (¹³C₈)

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:
B.G. Chittim

Date: 12/13/2016
(mm/dd/yyyy)

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

INTENDED USE:

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EXPIRY DATE / PERIOD OF VALIDITY:

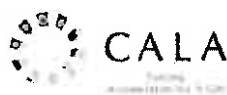
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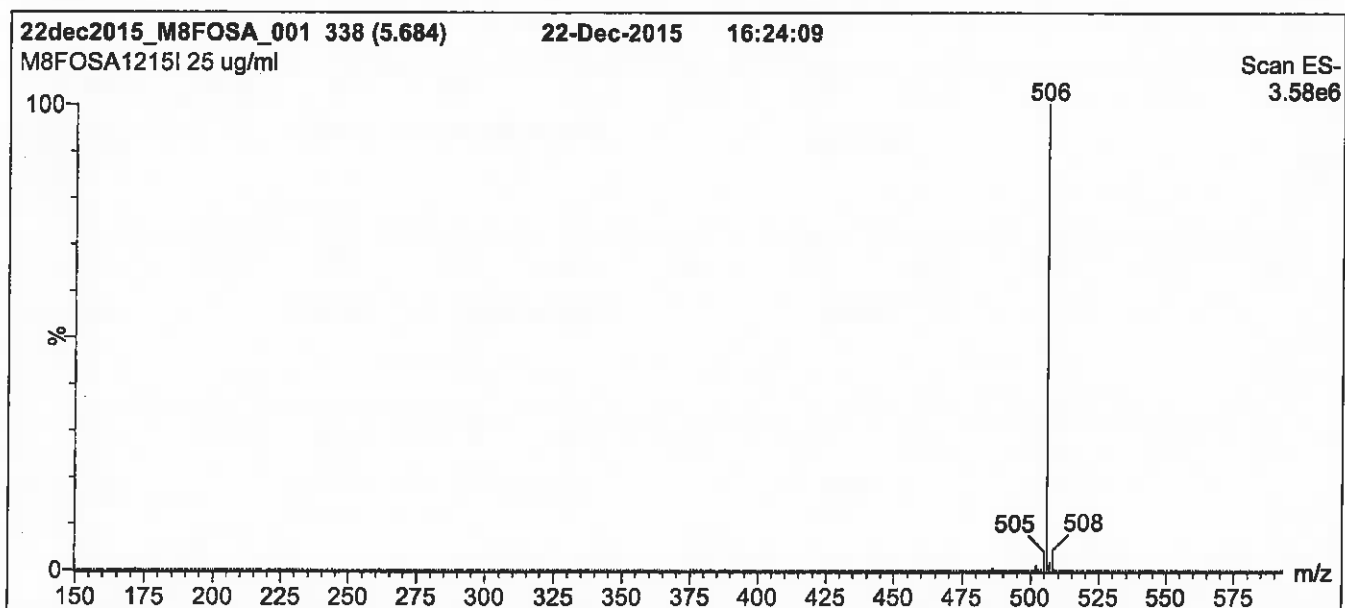
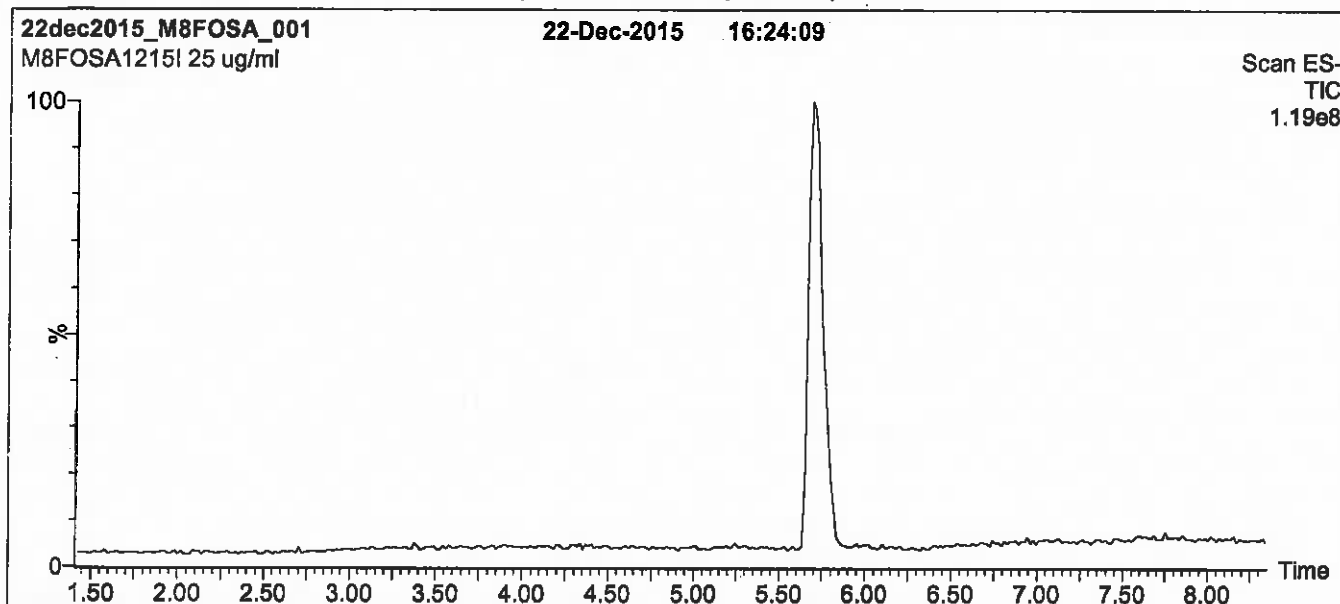
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

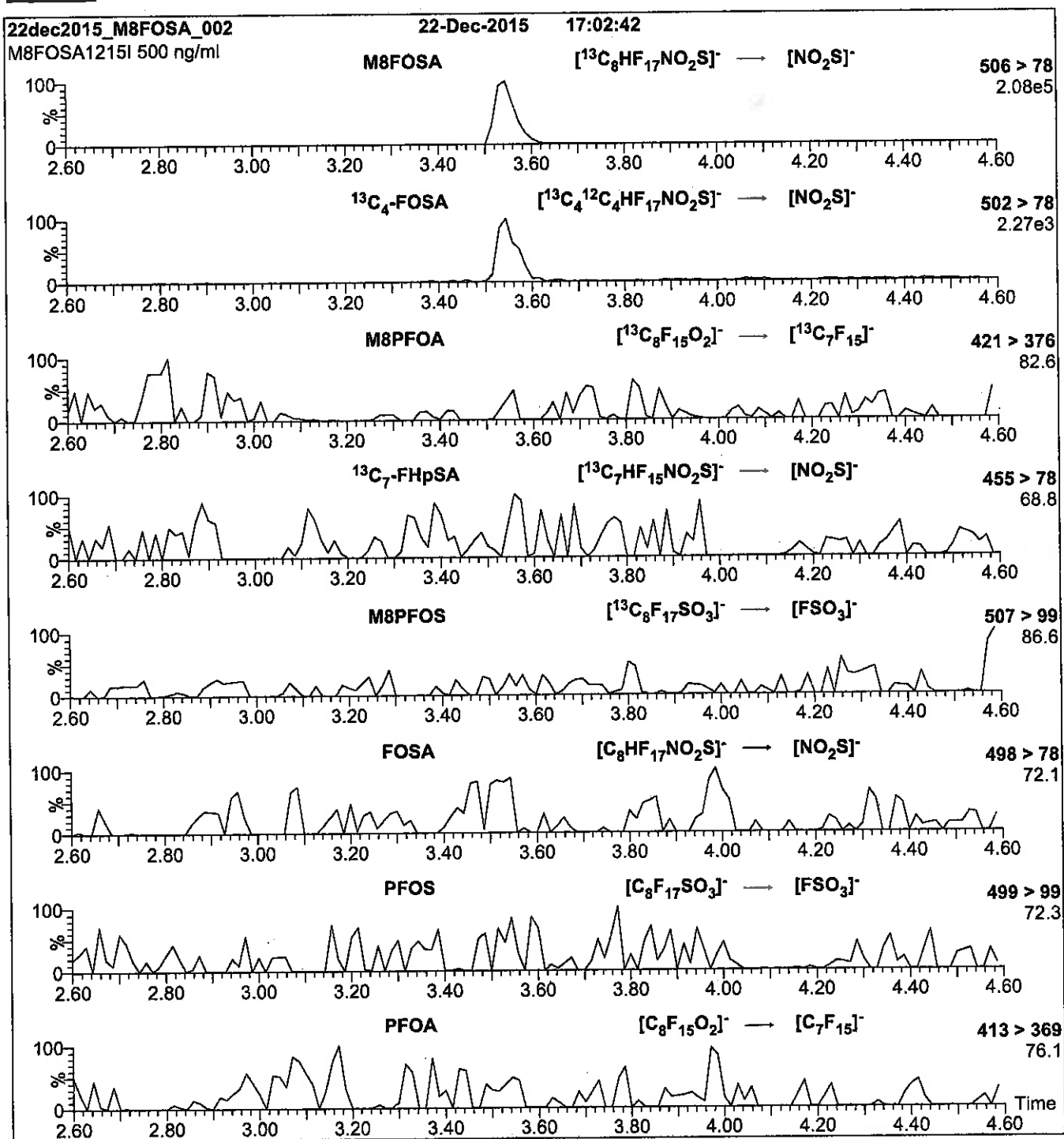
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCMPFBA_00008

R: 8BC 9/22/16



739593

ID: LCMFBA_00008

Exp: 05/24/21 Prep: SEC

¹³C4-Perfluorobutanoic ac



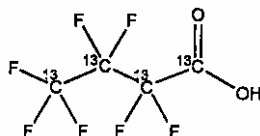
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SP

PRODUCT CODE: MPFBA **LOT NUMBER:** MPFBA0516
COMPOUND: Perfluoro-n-[1,2,3,4-¹³C₄]butanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄HF₉O₂ **MOLECULAR WEIGHT:** 218.01
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99%¹³C
(1,2,3,4-¹³C₄)
LAST TESTED: (mm/dd/yyyy) 05/24/2016
EXPIRY DATE: (mm/dd/yyyy) 05/24/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- 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:  **Date:** 05/30/2016
B.G. Chittim (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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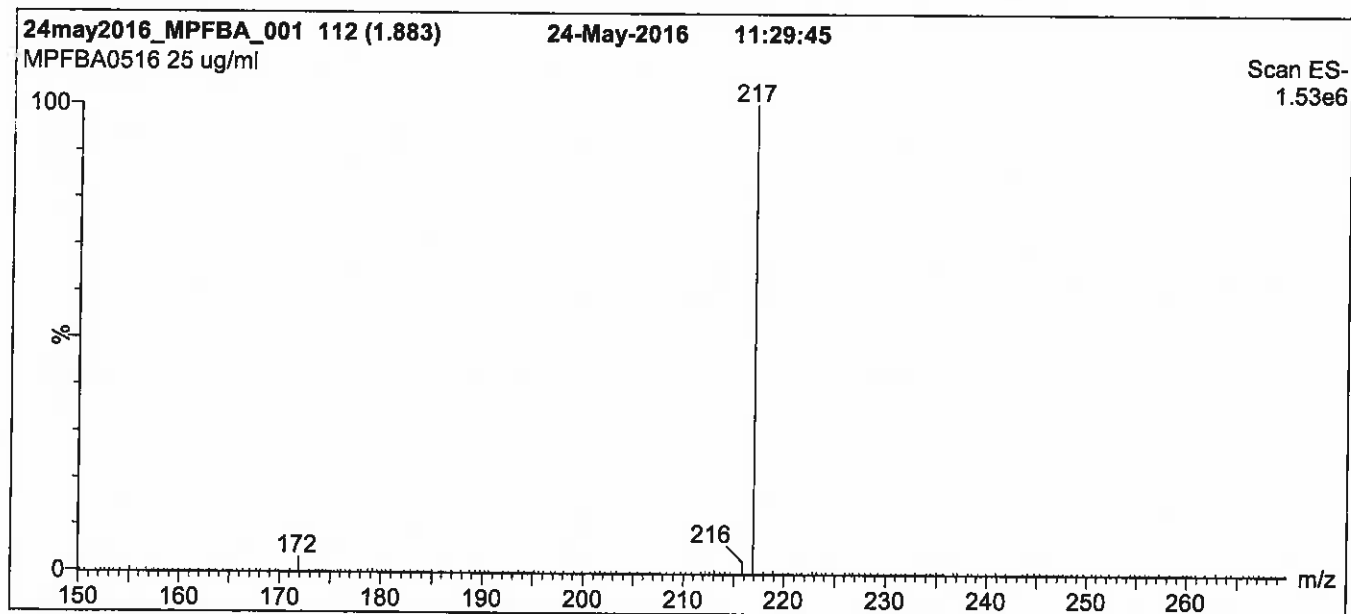
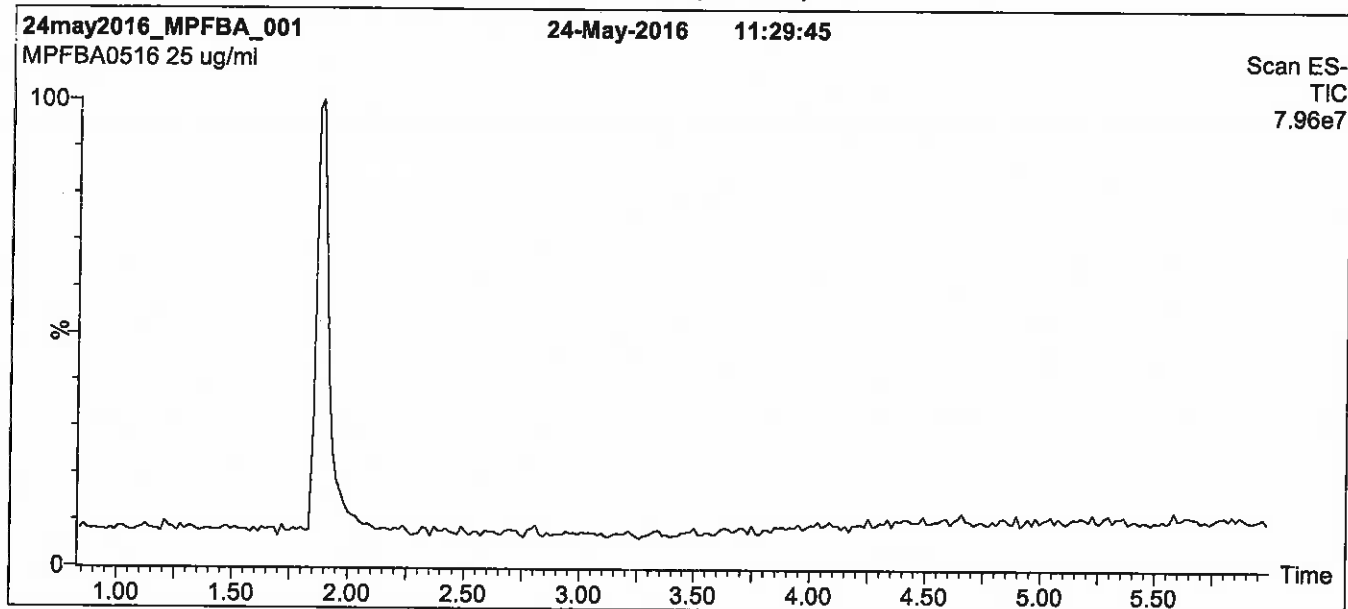
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Figure 1: MPFBA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

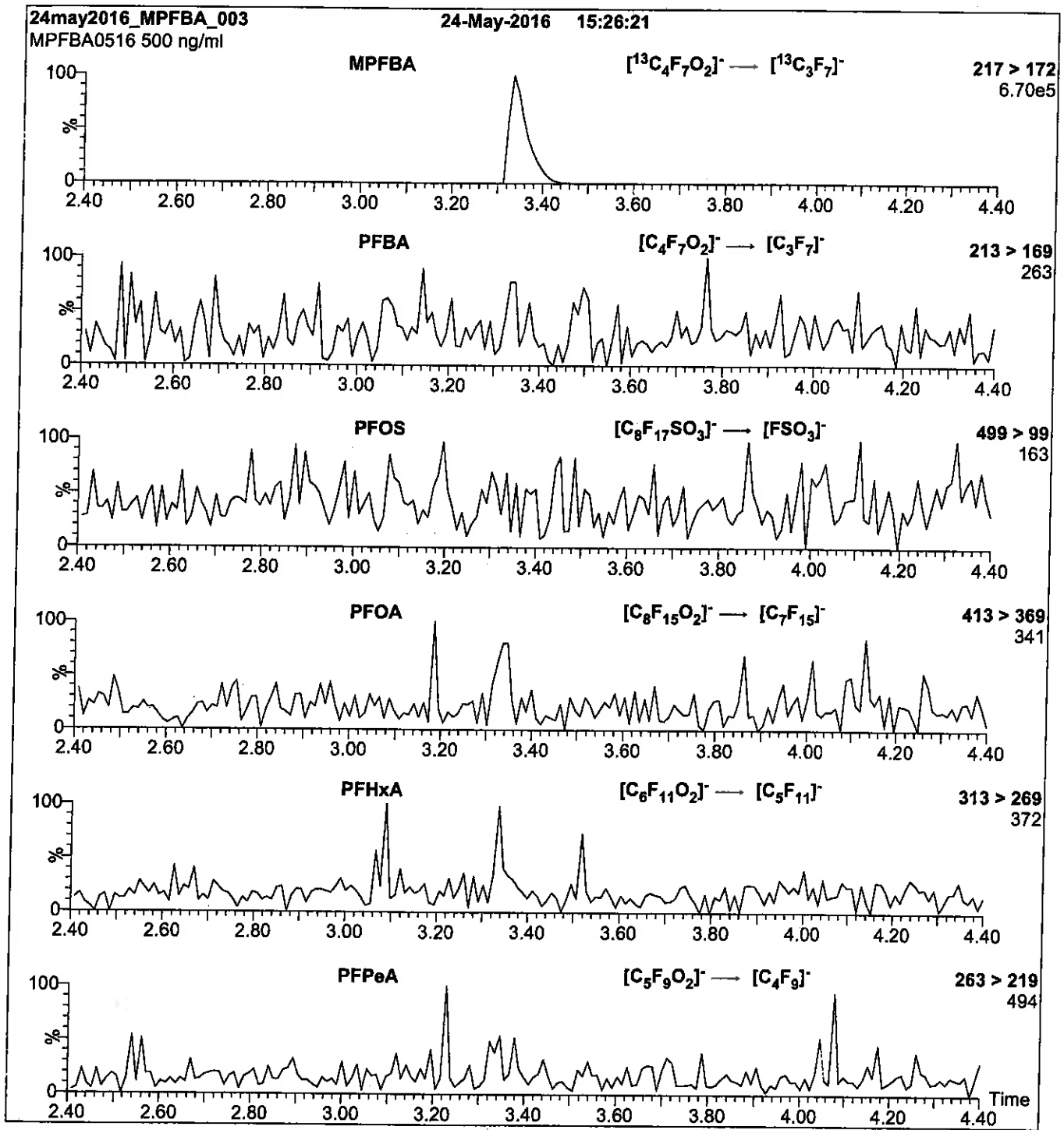
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFBA_00009

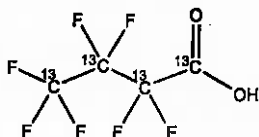


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFBA **LOT NUMBER:** MPFBA0516
COMPOUND: Perfluoro-n-[1,2,3,4-¹³C₄]butanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	¹³ C ₄ HF ₇ O ₂	MOLECULAR WEIGHT:	218.01
CONCENTRATION:	50 ± 2.5 µg/ml	SOLVENT(S):	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	ISOTOPIC PURITY:	≥99% ¹³ C (1,2,3,4- ¹³ C ₄)
LAST TESTED: (mm/dd/yyyy)	05/24/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/24/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Certified By:

B.G. Chittim

Date: 05/30/2016
(mm/dd/yyyy)

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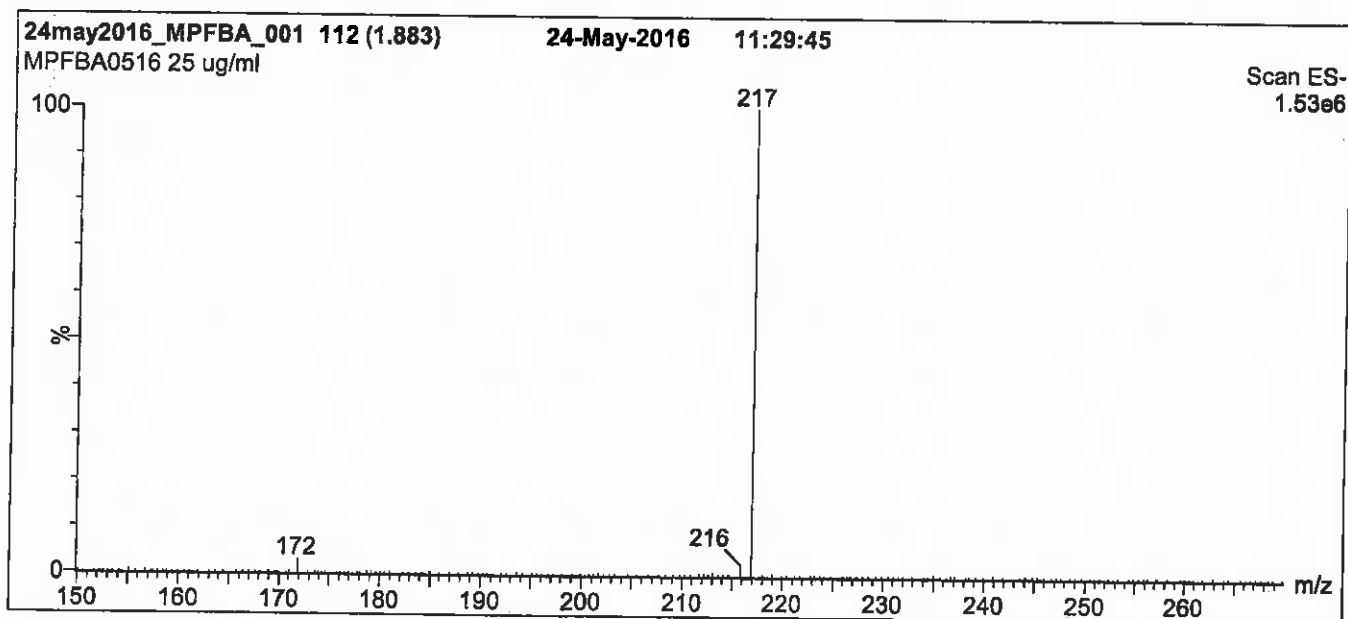
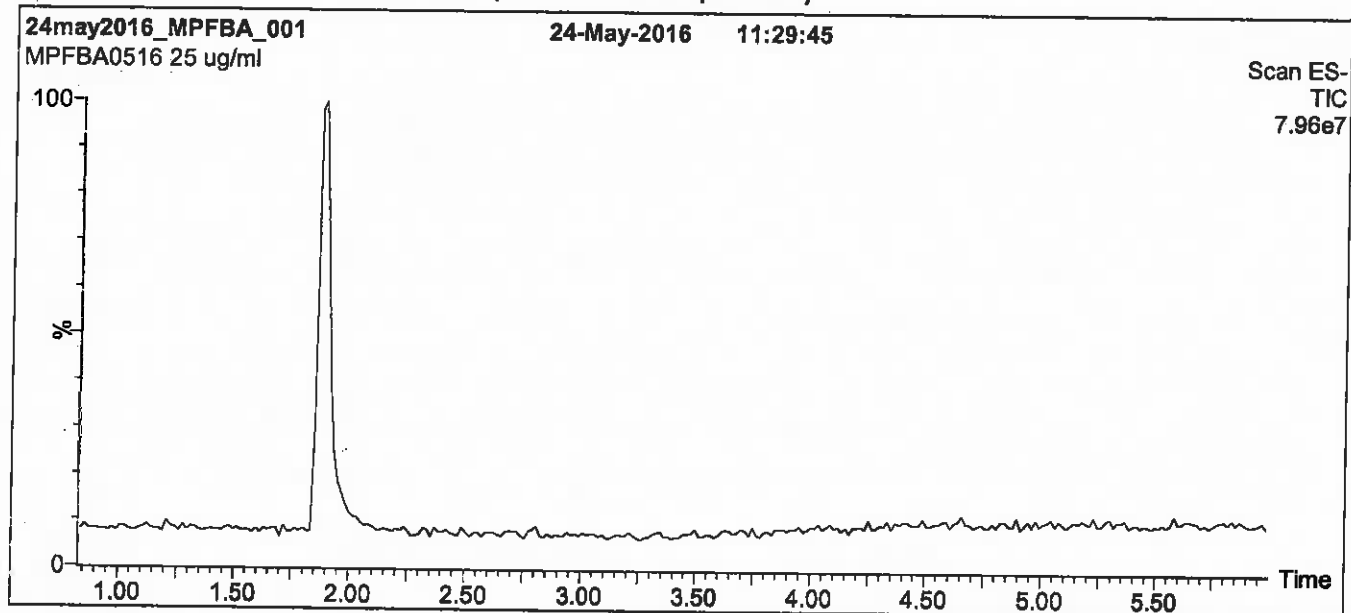
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MS: Micromass Quattro *micro* API MS

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

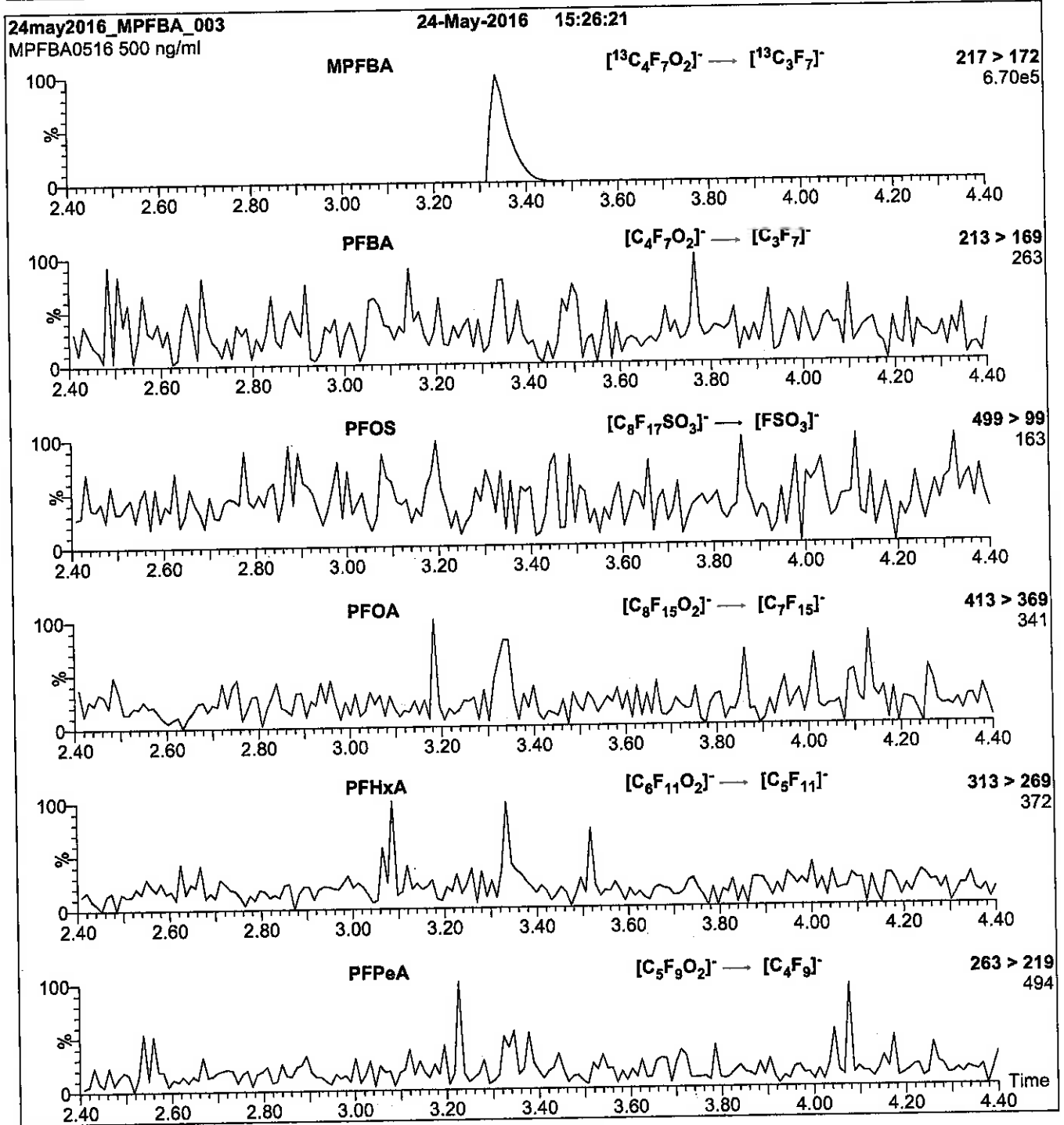
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFBS_00002

Scanned 10/14/16 R: 8BC 9/22/16



739640
ID: LCMFBS_00002
Exp: 08/02/21 Prod: 58C
13C3-Perfluorobutanesulfo

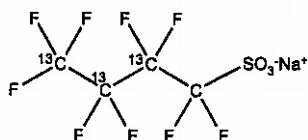


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3PFBS **LOT NUMBER:** M3PFBS0815
COMPOUND: Sodium perfluoro-1-[2,3,4-¹³C₃]butanesulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₃¹²CF₉SO₃Na **MOLECULAR WEIGHT:** 325.06
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
46.5 ± 2.3 µg/ml (M3PFBS anion)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 08/02/2016 (2,3,4-¹³C₃)
EXPIRY DATE: (mm/dd/yyyy) 08/02/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

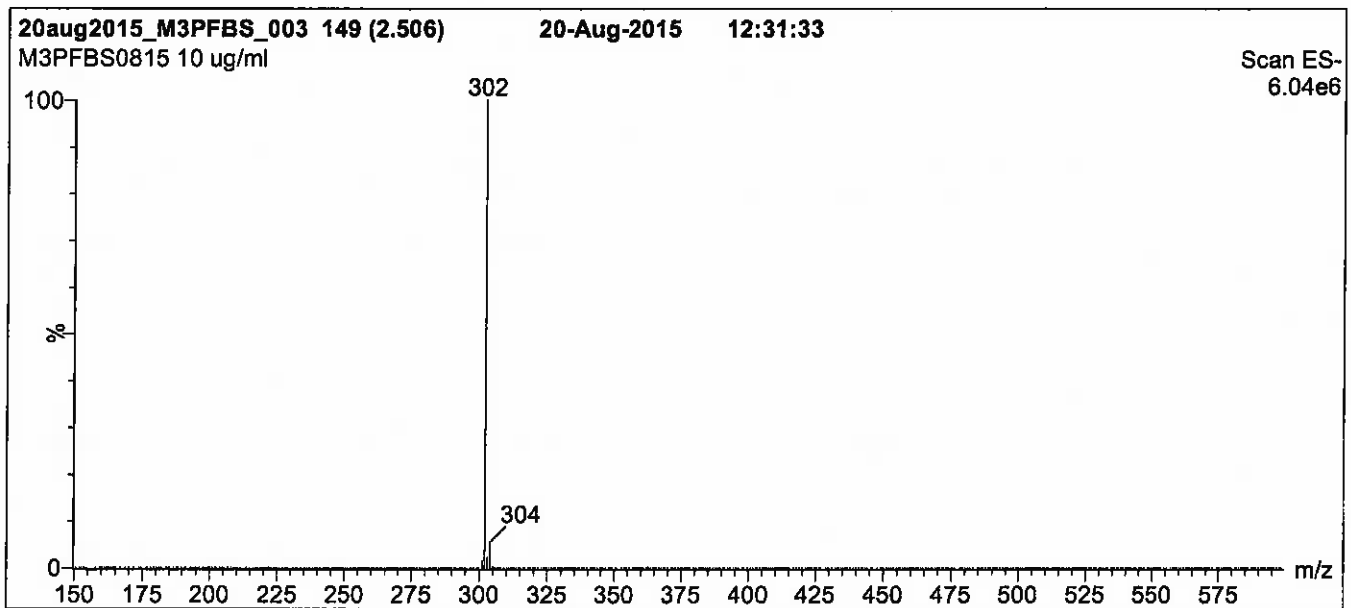
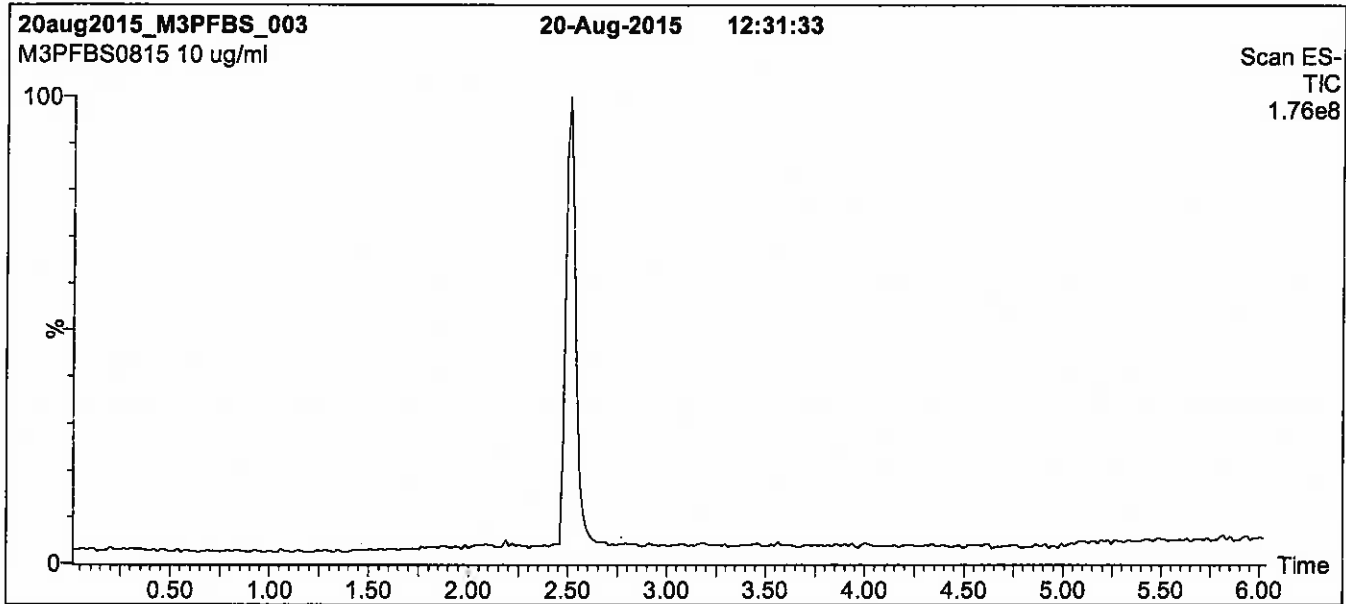
QUALITY MANAGEMENT:

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



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Figure 1: M3PFBS; 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
 2 min before returning to initial conditions in 0.5 min.
 Time: 10 min

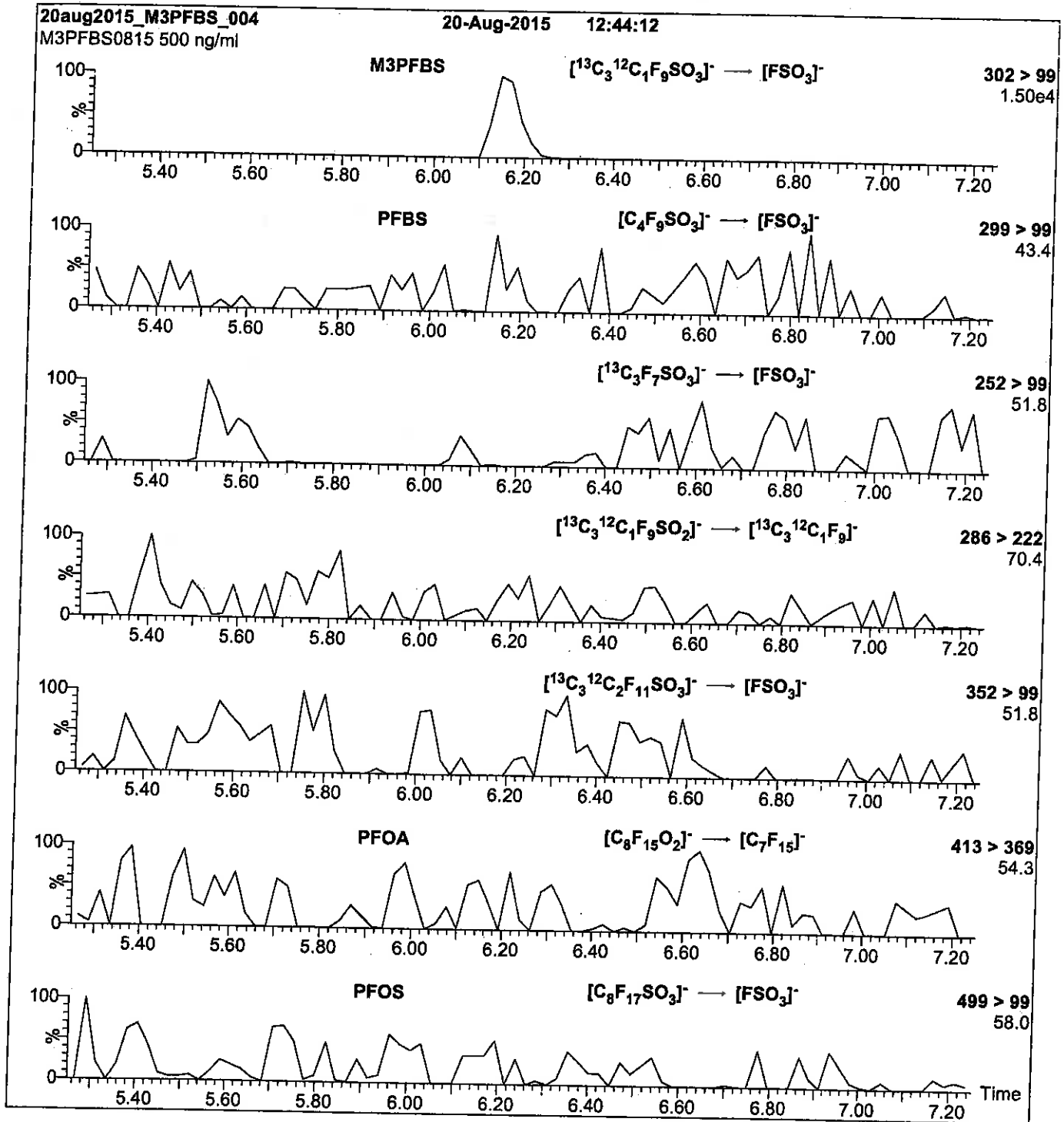
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.00
 Cone Voltage (V) = 40.00
 Cone Gas Flow (l/hr) = 50
 Desolvation Gas Flow (l/hr) = 750

Figure 2: M3PFBS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M3PFBS)

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

Reagent

LCMPFDA_00011

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

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

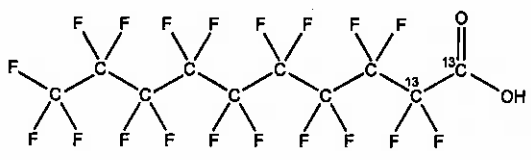


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFDA **LOT NUMBER:** MPFDA0815
COMPOUND: Perfluoro-n-[1,2-¹³C₂]decanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₈HF₁₈O₂ **MOLECULAR WEIGHT:** 516.07
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
(1,2-¹³C₂)
LAST TESTED: (mm/dd/yyyy) 08/19/2015
EXPIRY DATE: (mm/dd/yyyy) 08/19/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 08/21/2015
(mm/dd/yyyy)

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

INTENDED USE:

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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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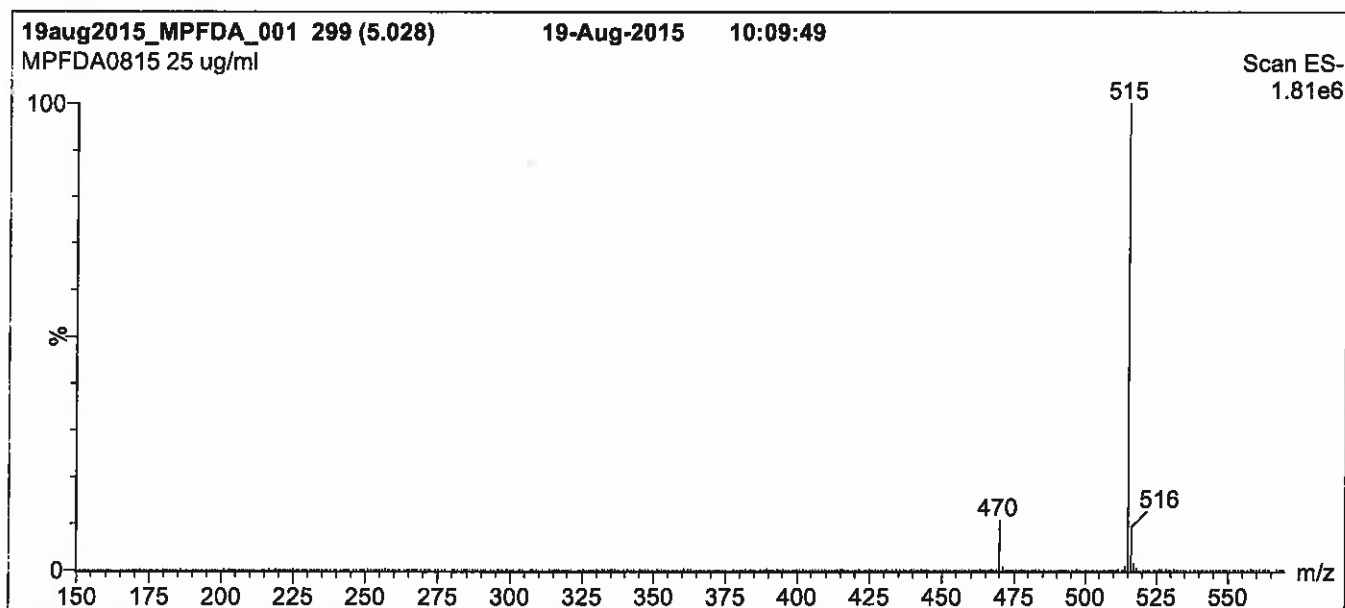
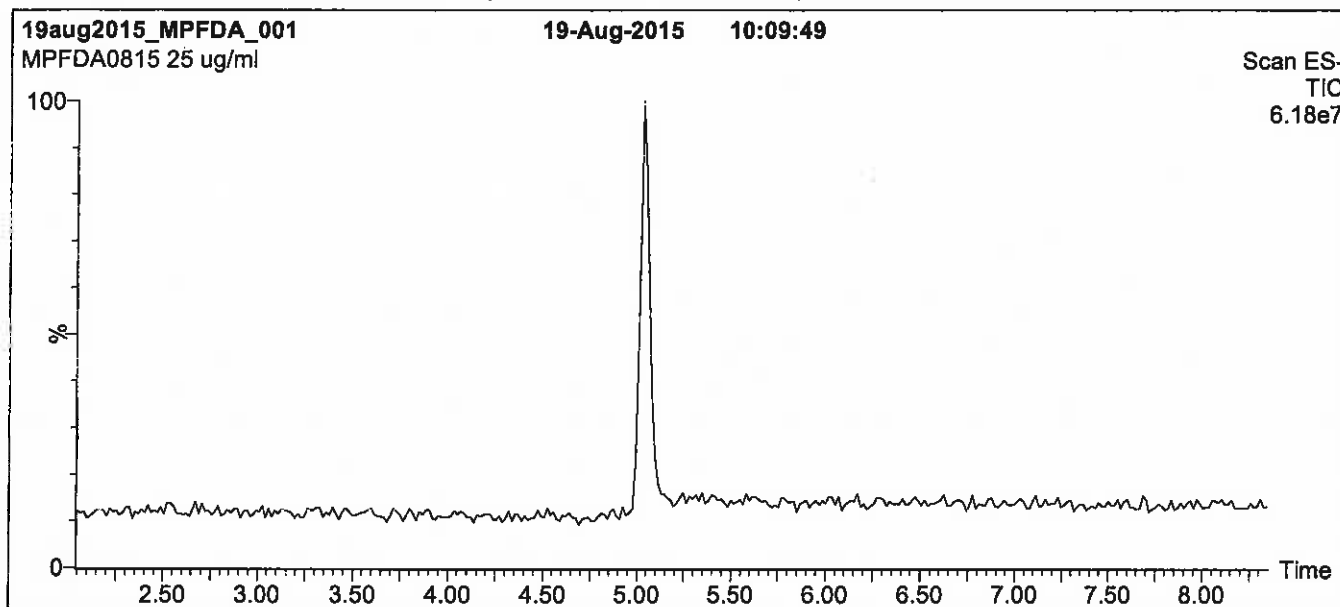
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

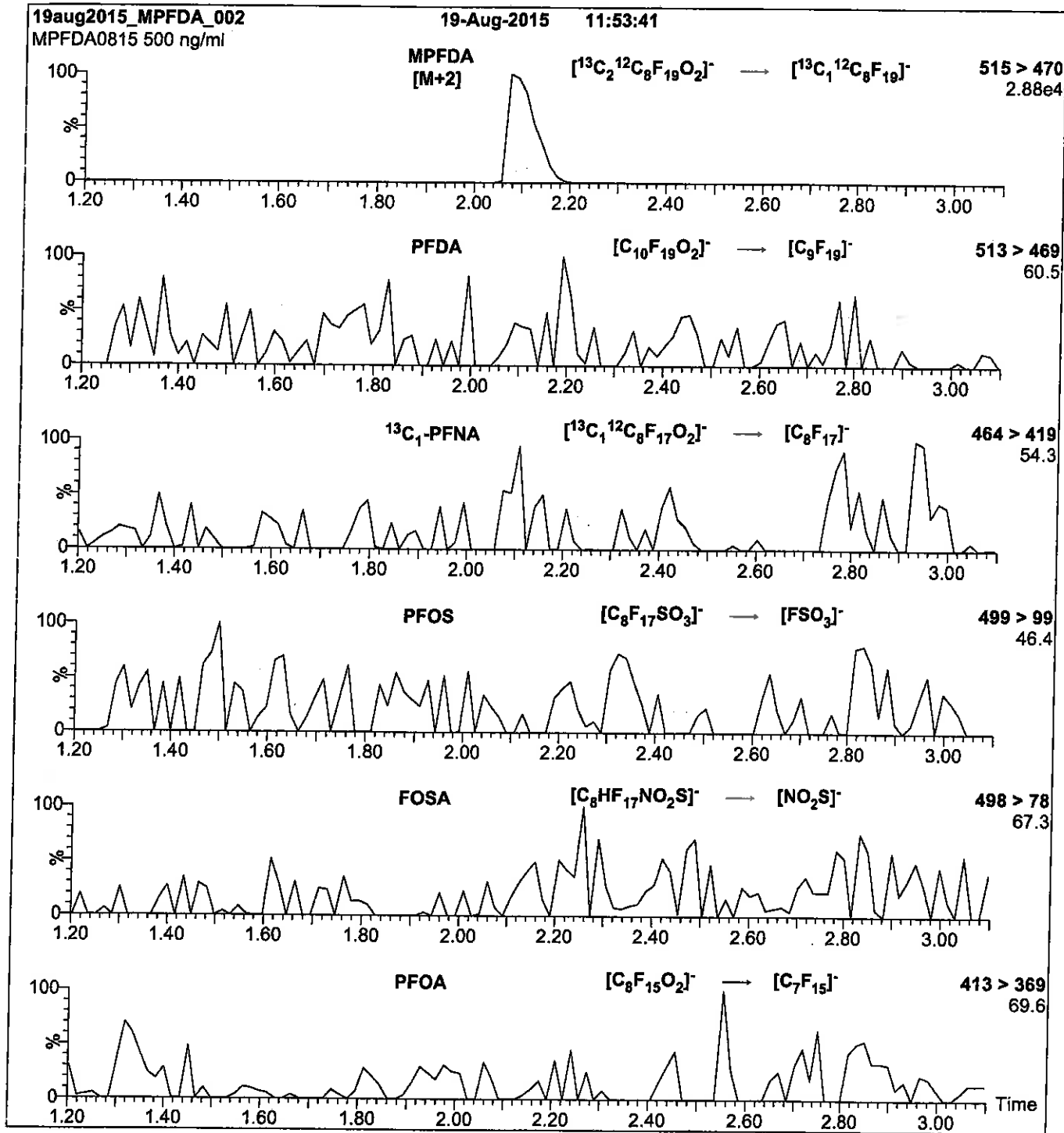
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFDA_00013

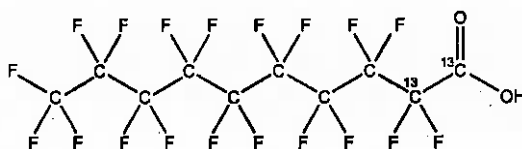


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFDA **LOT NUMBER:** MPFDA0916
COMPOUND: Perfluoro-n-[1,2-¹³C₂]decanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₈HF₁₈O₂ **MOLECULAR WEIGHT:** 516.07
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
 Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
 (1,2-¹³C₂)
LAST TESTED: (mm/dd/yyyy) 09/30/2016
EXPIRY DATE: (mm/dd/yyyy) 09/30/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

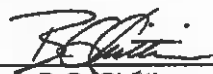
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
 B.G. Chittim **Date:** 10/07/2016
 (mm/dd/yyyy)

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

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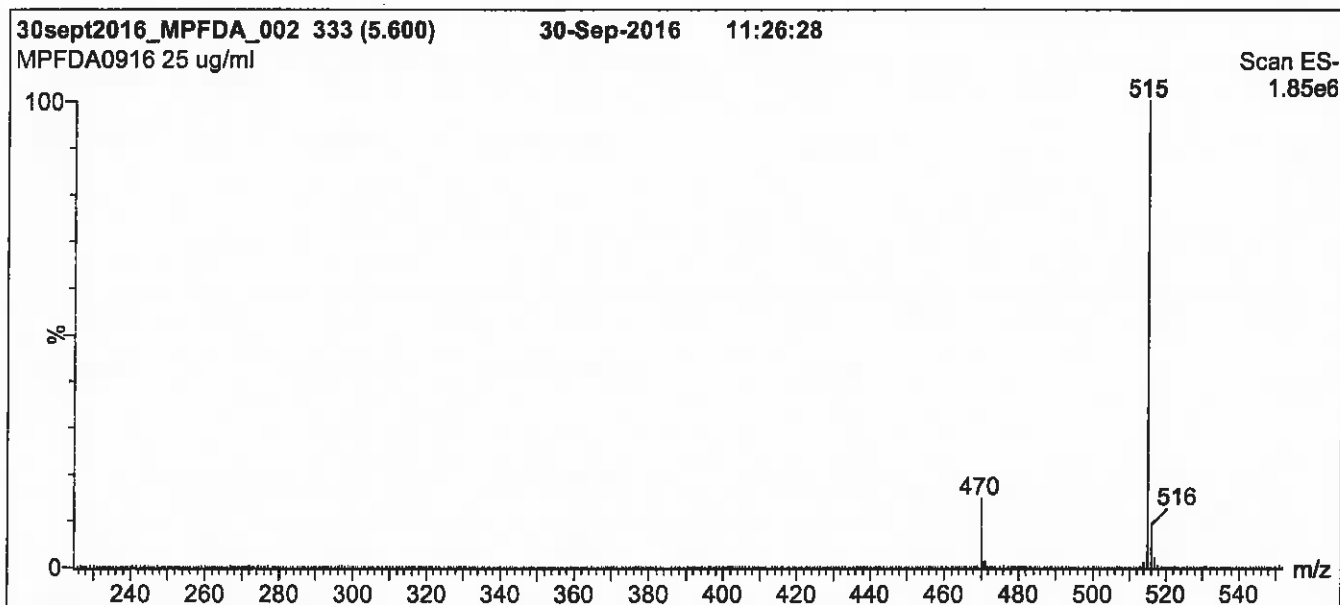
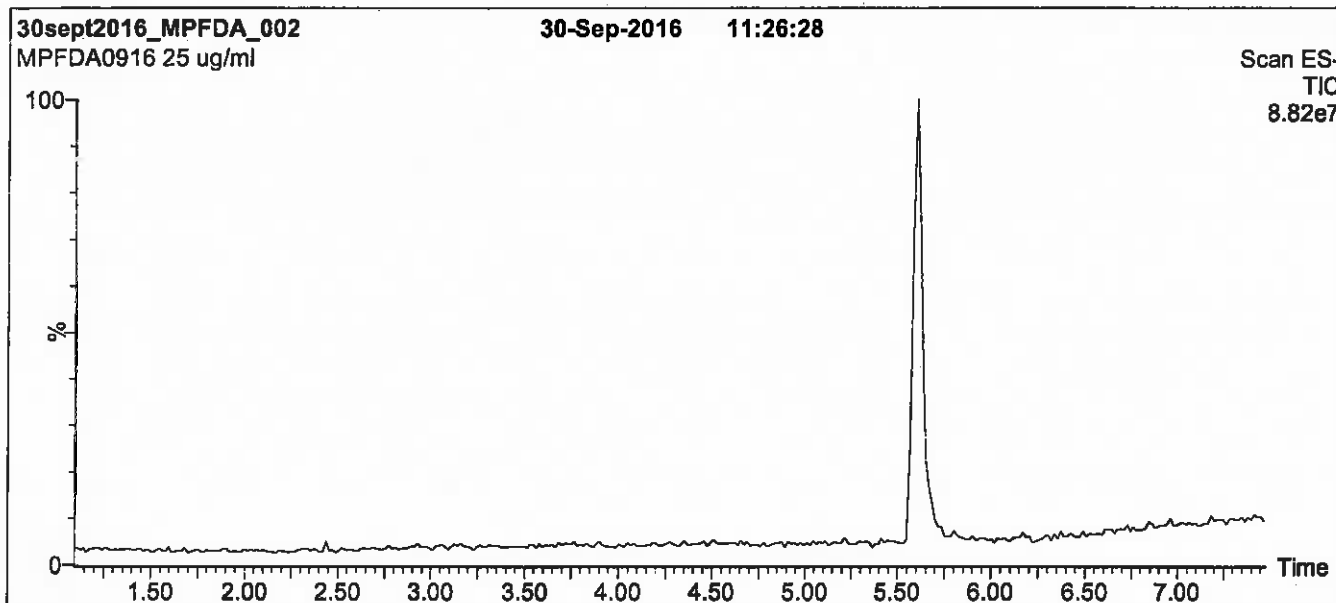
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

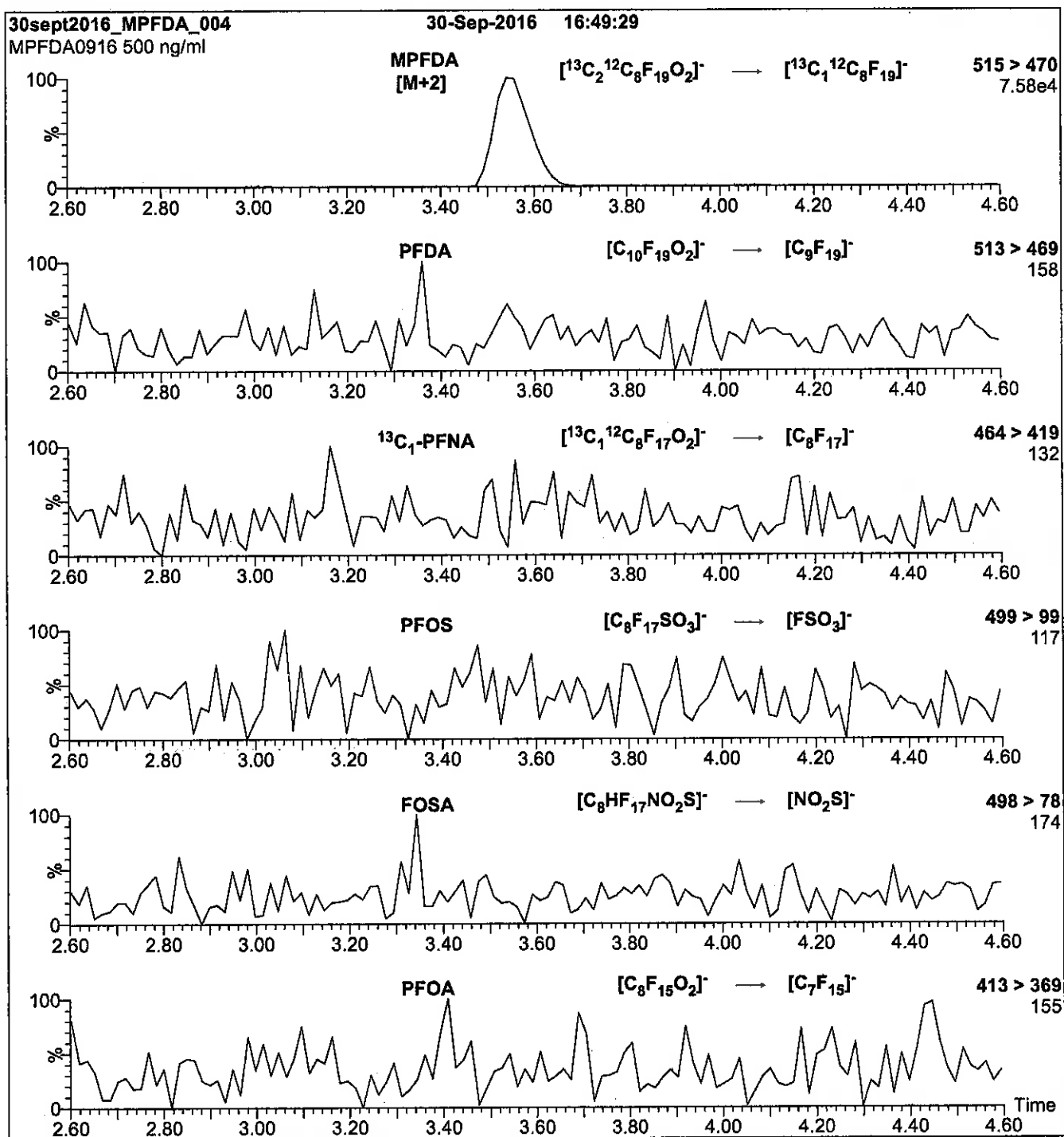
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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) = $3.31\text{e-}3$
Collision Energy (eV) = 13

Reagent

LCMPFD_oA_00008

R: 882 9/22/16



739598
ID: LCMFDoA_00008
Exp: 04/08/21 Prod: SBC
13C2-Perfluorododecanoic



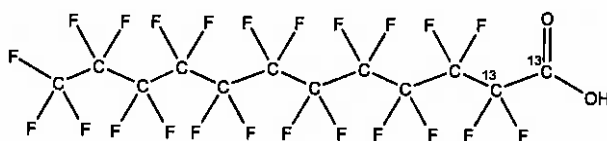
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SR

PRODUCT CODE: MPFDoA **LOT NUMBER:** MPFDoA0416
COMPOUND: Perfluoro-n-[1,2-¹³C₂]dodecanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₁₀HF₂₃O₂ **MOLECULAR WEIGHT:** 616.08
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 04/08/2016 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 04/08/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 04/15/2016
(mm/dd/yyyy)

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

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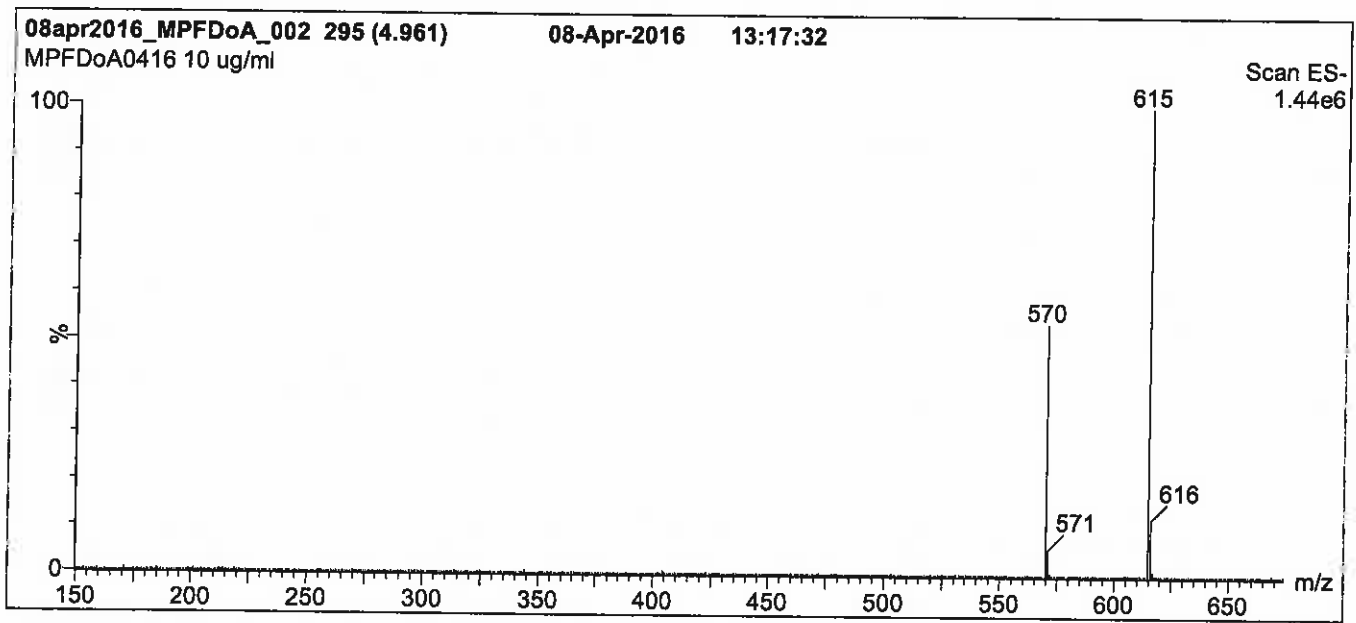
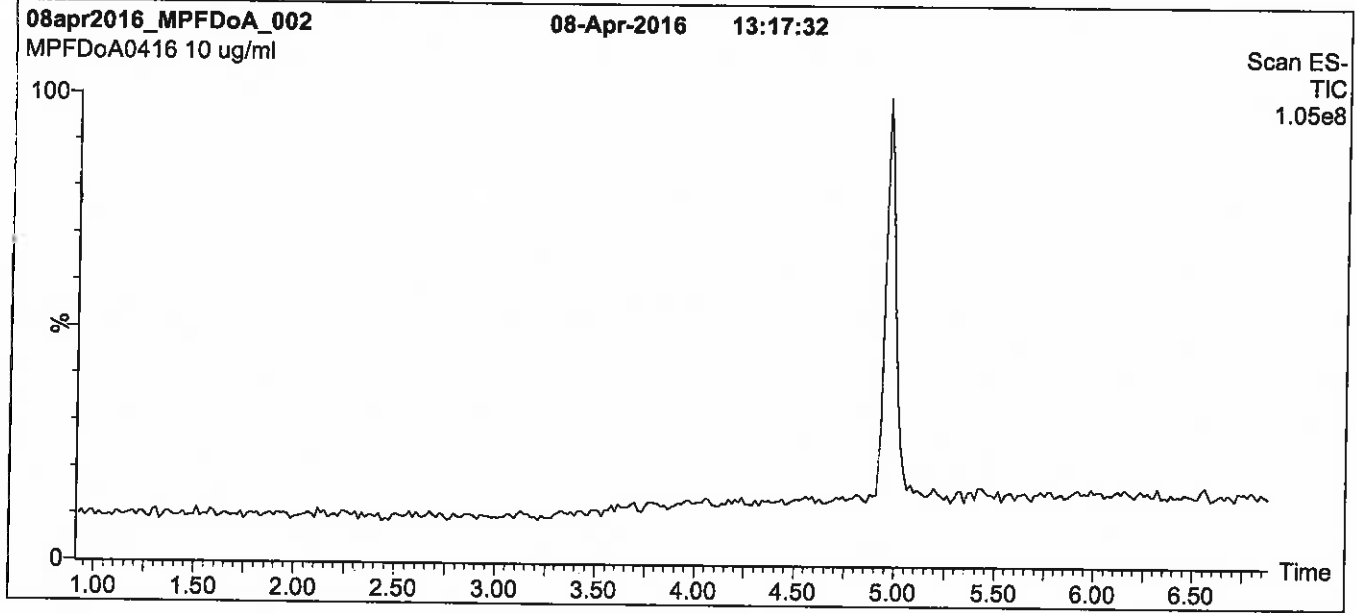
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

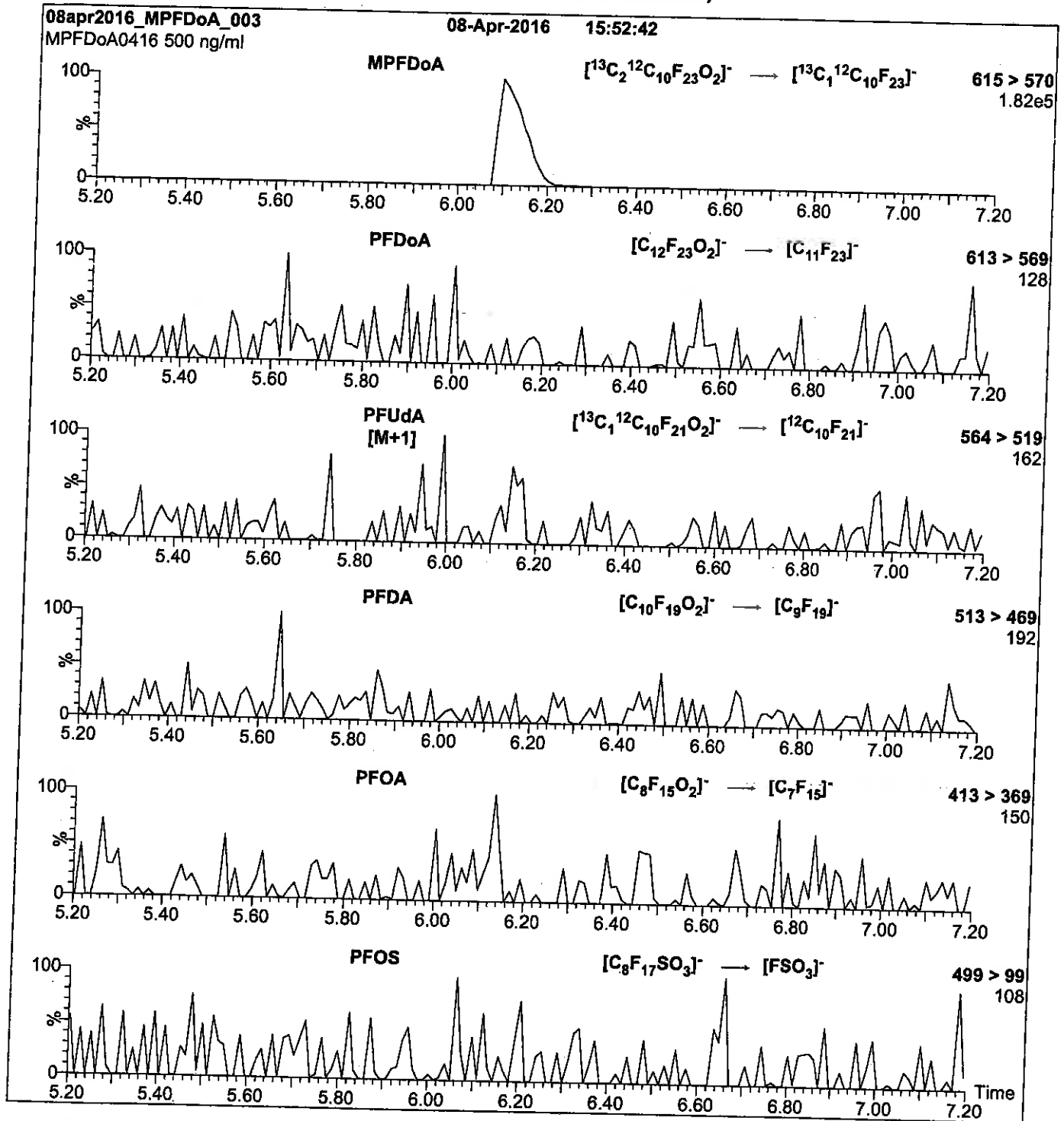
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFD_oA_00009

P: 3/9/17 SKW

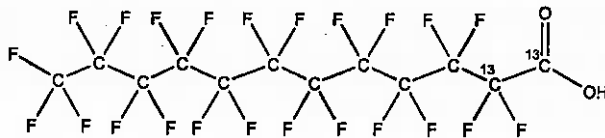


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFDoA **LOT NUMBER:** MPFDoA0416
COMPOUND: Perfluoro-n-[1,2-¹³C₂]dodecanolic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₁₀HF₂₃O₂ **MOLECULAR WEIGHT:** 616.08
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 04/08/2016 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 04/08/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 04/15/2016
(mm/dd/yyyy)

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

INTENDED USE:

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.

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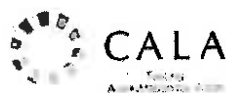
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LIMITED WARRANTY:

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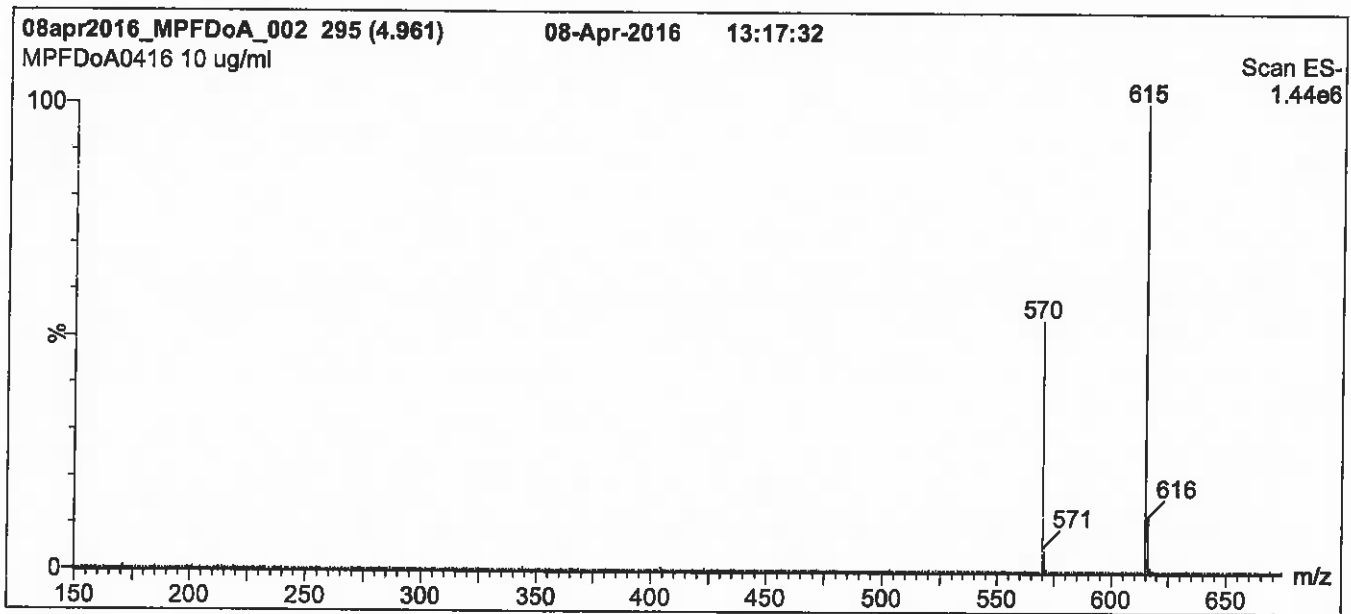
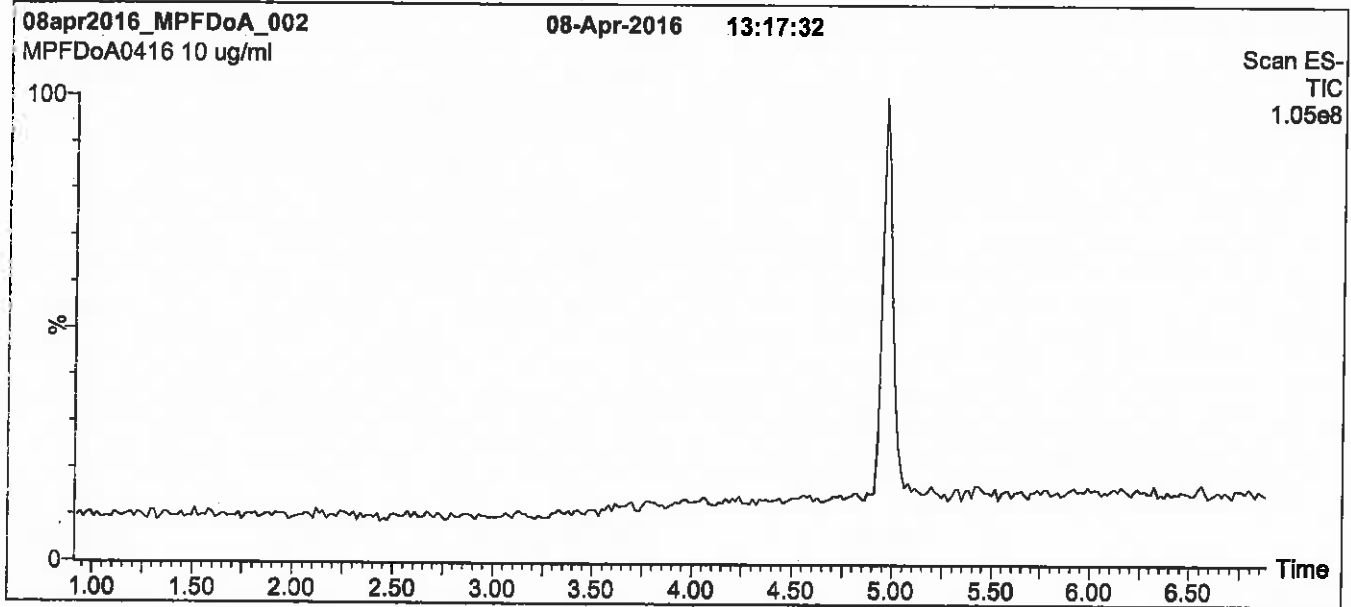
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MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

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

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

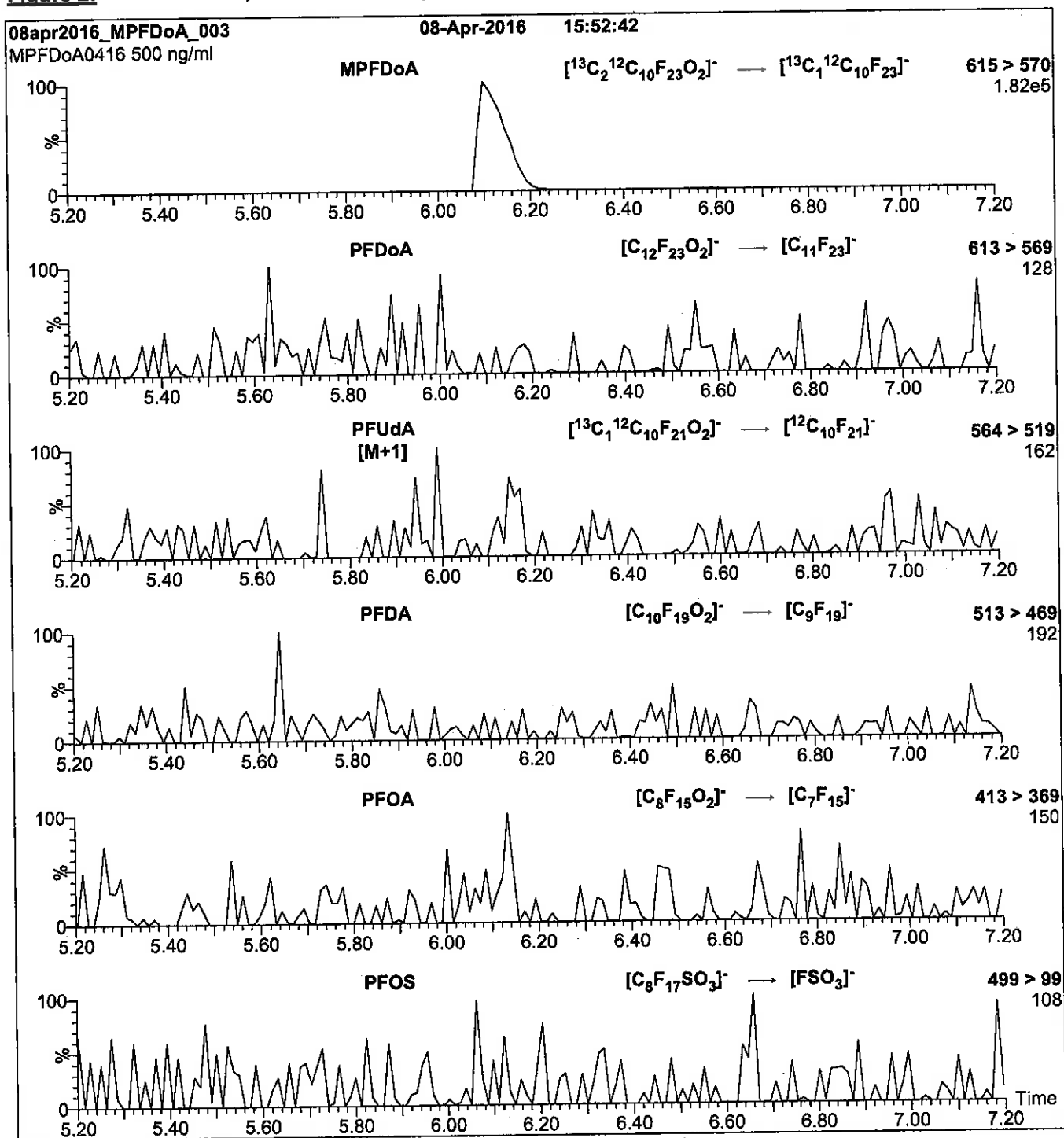
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFHxA_00012

Scanned 10/11/16 R: SBC 9/22/16

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



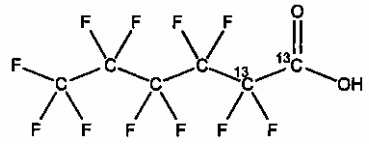
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: MPFHxA0416

STRUCTURE: **CAS #:** Not available



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

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

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: ≥99%¹³C
(1,2-¹³C₂)

LAST TESTED: (mm/dd/yyyy) 04/08/2016

EXPIRY DATE: (mm/dd/yyyy) 04/08/2021

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim
Date: 04/29/2016
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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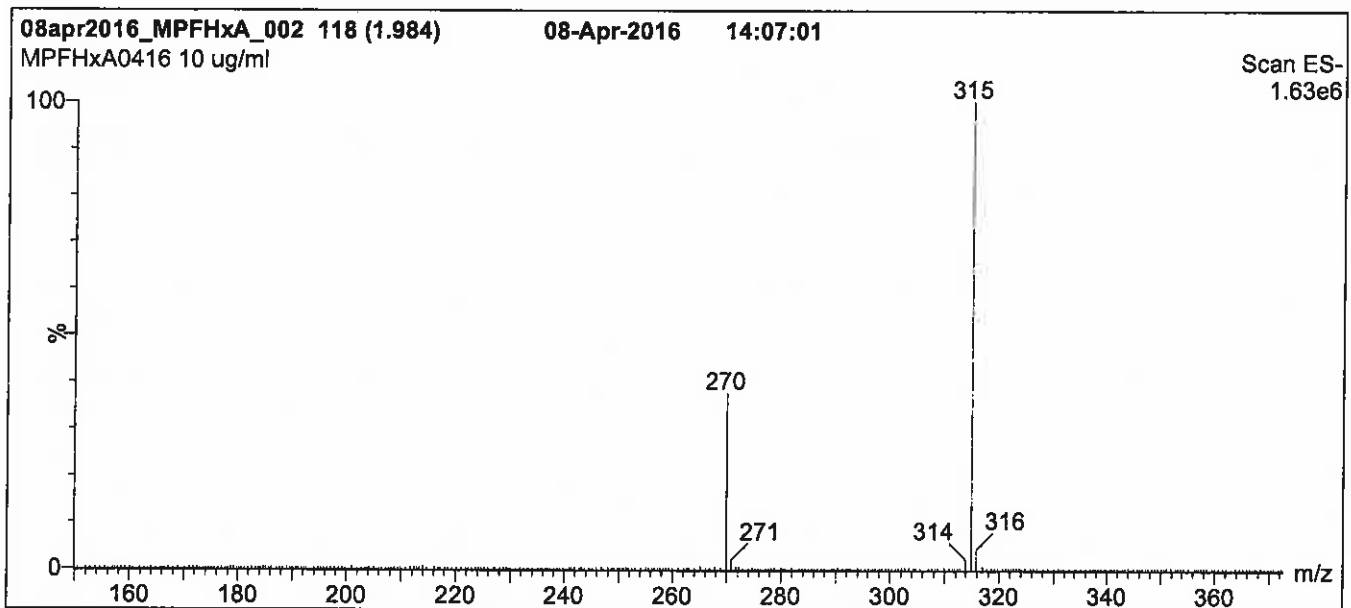
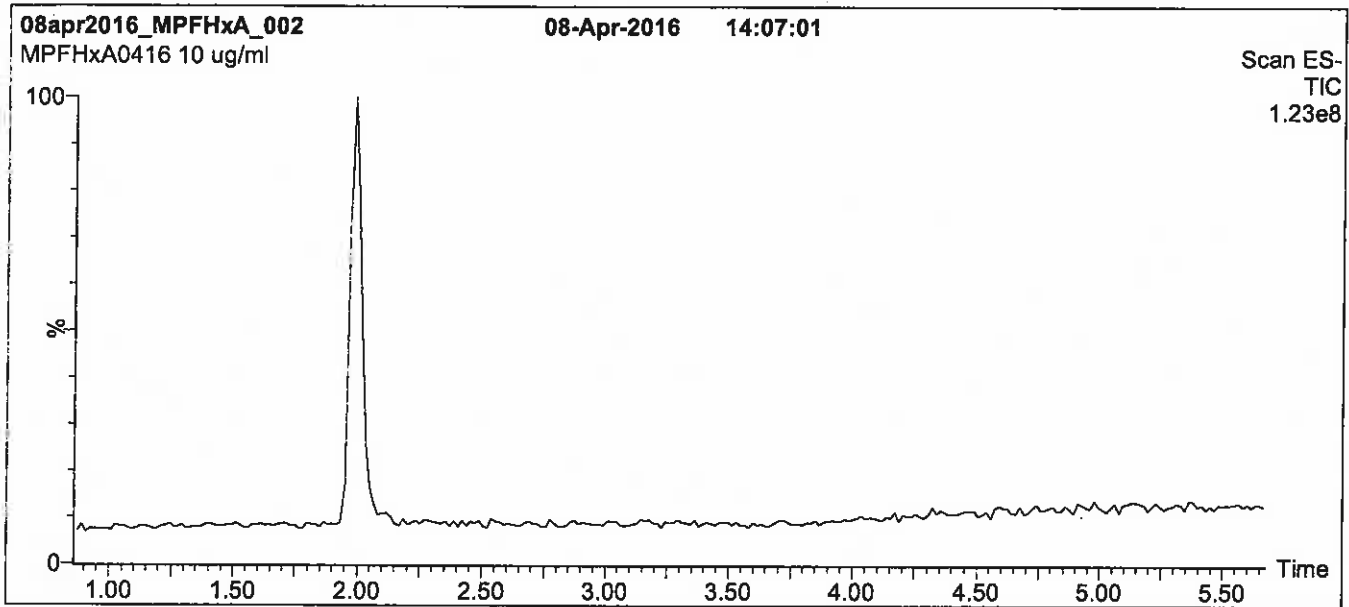
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MS: Micromass Quattro *micro* API MS

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

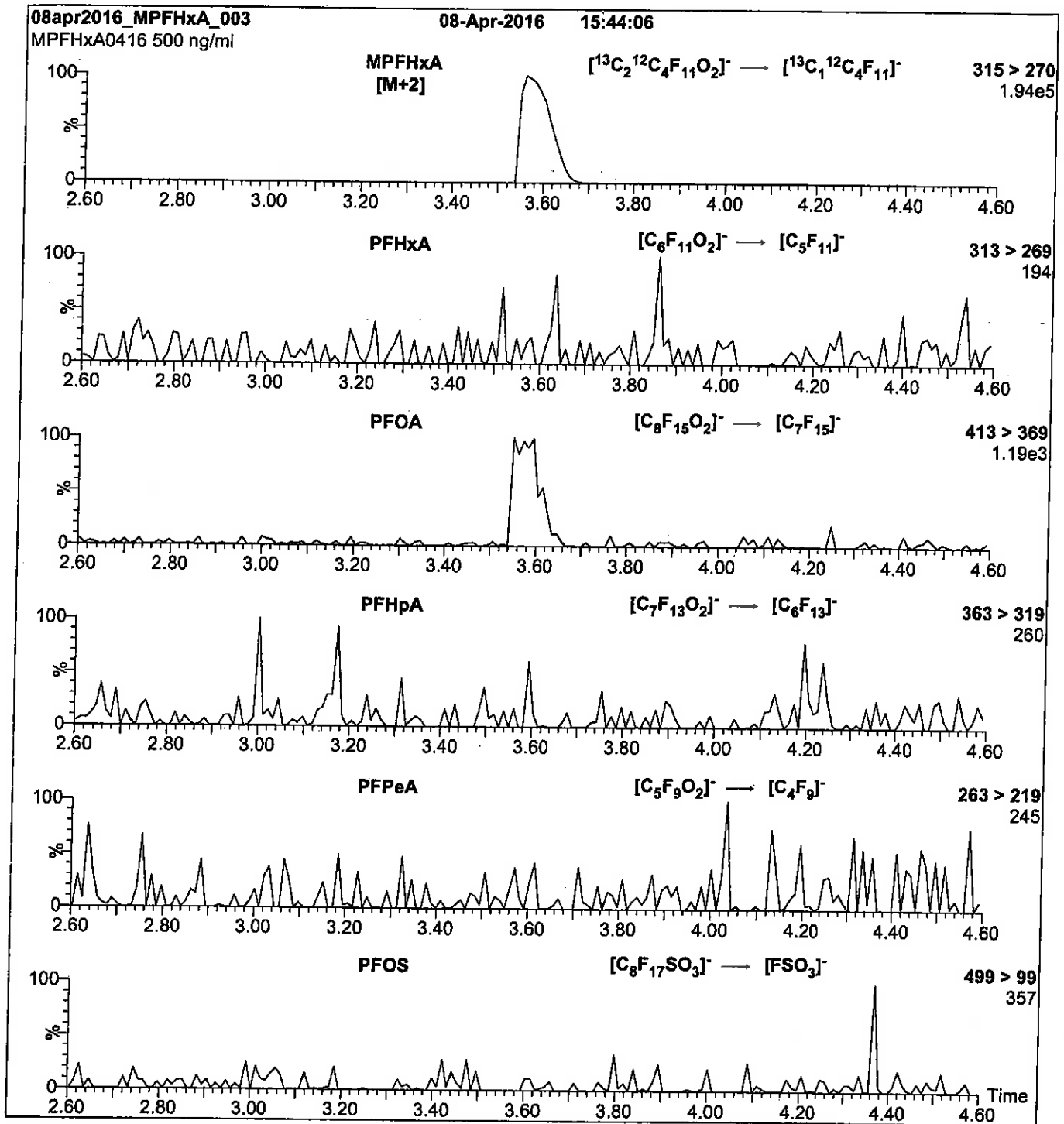
Mobile phase: Gradient
 Start: 50% (80:20 MeOH:ACN) / 50% H₂O
 (both with 10 mM NH₄OAc buffer)
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 before returning to initial conditions over 0.5 min.
 Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)
 Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.00
 Cone Voltage (V) = 15.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFHxA_00014

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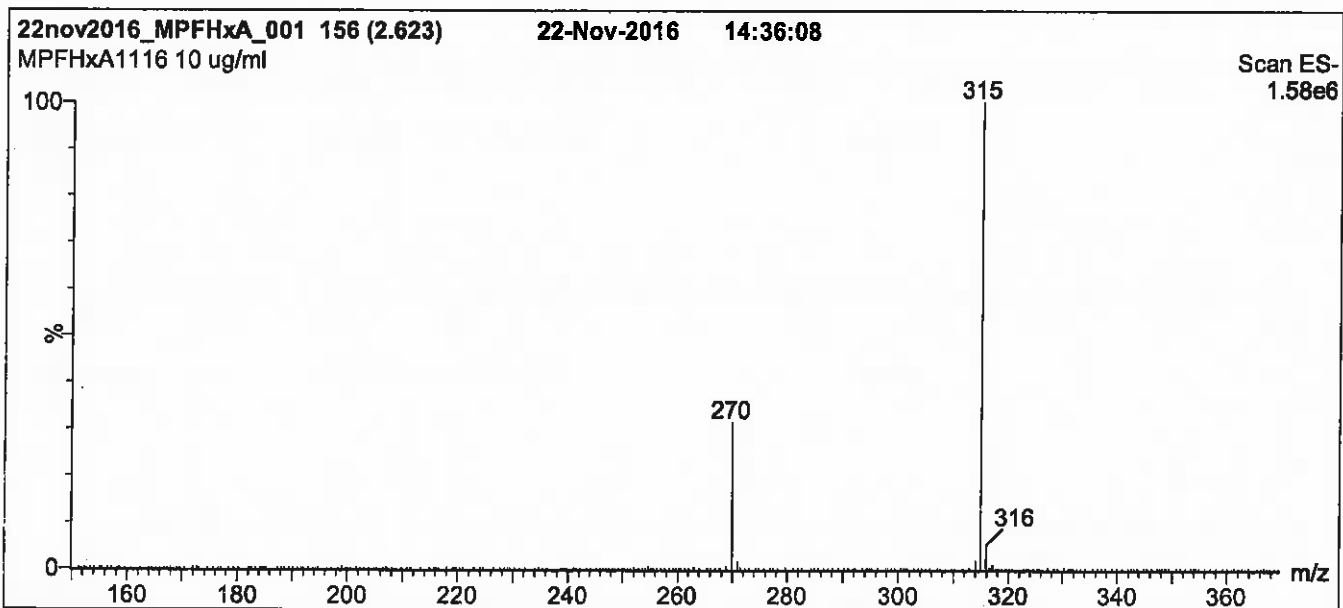
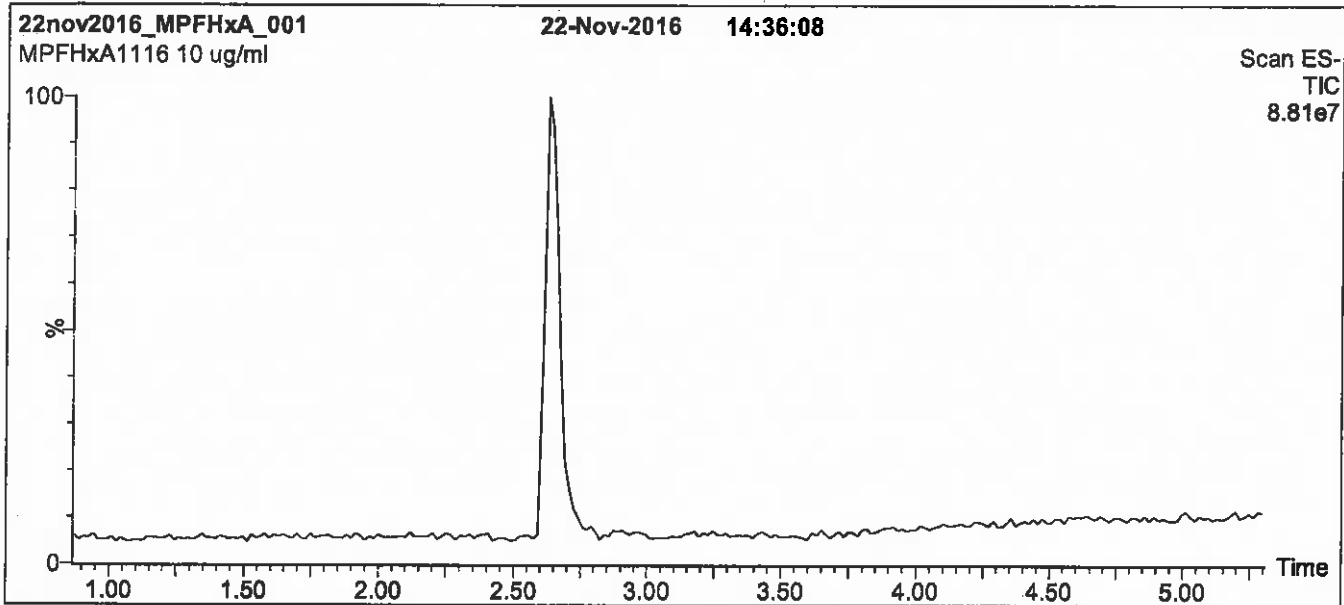
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LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

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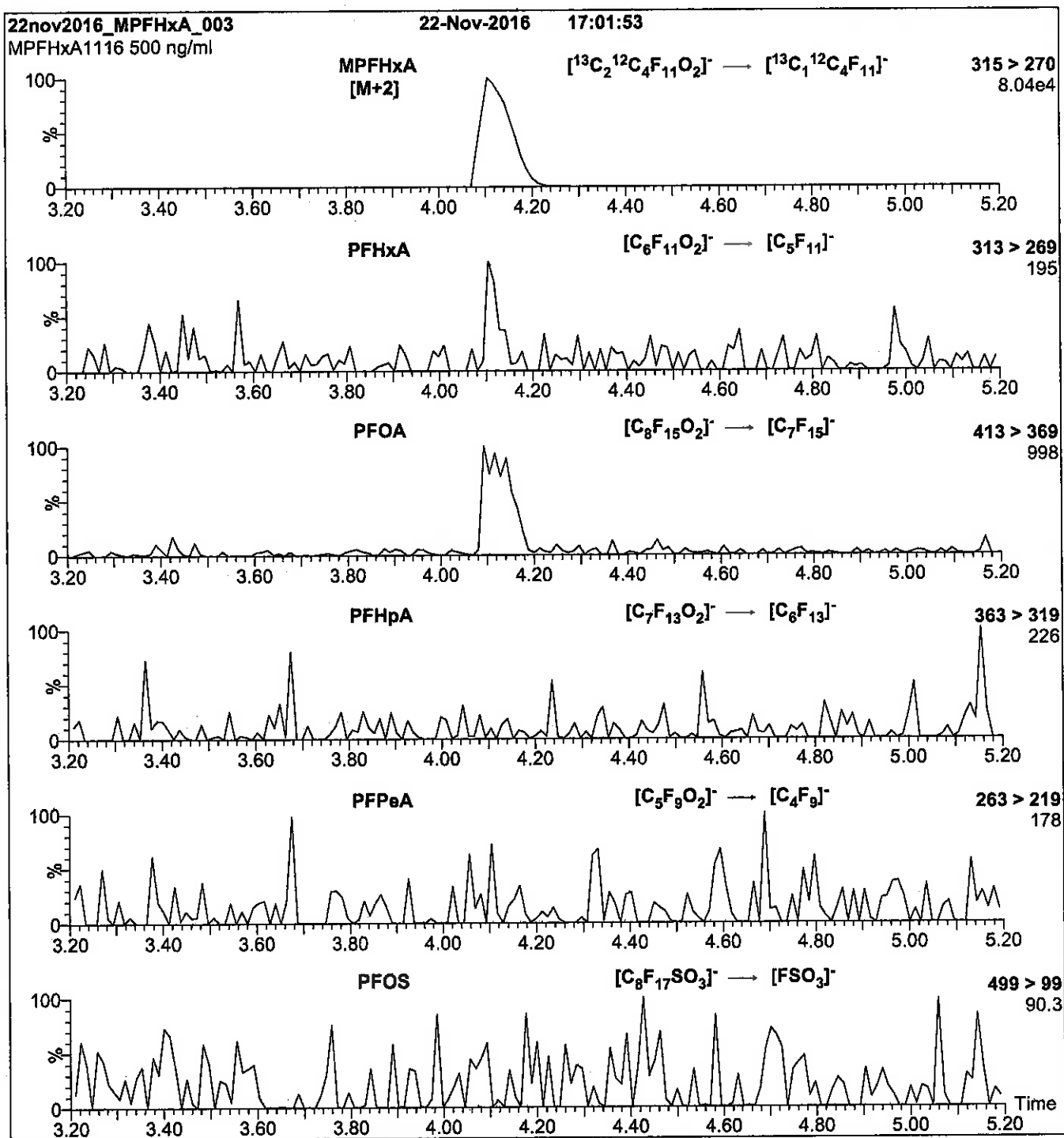
Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μ m, 2.1 x 100 mm
 Mobile phase: Gradient
 Start: 40% (80:20 MeOH:ACN) / 60% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min and hold for 2 min
 before returning to initial conditions over 0.5 min.
 Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)
 Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.00
 Cone Voltage (V) = 15.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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) = 3.46e-3
Collision Energy (eV) = 10

Reagent

LCMPFHXS_00008

R: 800 9/22/16



739601

ID: LCMPFHxS_00008

Exp: 10/23/20 Prod: SBC

18O2-Perfluorohexanesulfo



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

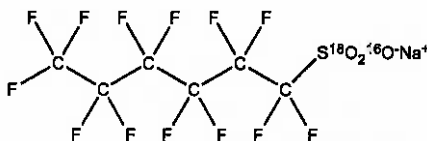
Scanned 10/14/16 SK

PRODUCT CODE: MPFHxS
COMPOUND: Sodium perfluoro-1-hexane[¹⁸O₂]sulfonate

LOT NUMBER: MPFHxS1015

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₆F₁₃S¹⁸O₂¹⁶ONa
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt)
47.3 ± 2.4 µg/ml (MPFHxS anion)
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

MOLECULAR WEIGHT: 426.10
SOLVENT(S): Methanol
ISOTOPIC PURITY: >94% (¹⁸O₂)

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The response factor for MPFHxS (C₆F₁₃S¹⁸O₂¹⁶O) has been observed to be up to 10% lower than for PFHxS (C₆F₁₃S¹⁶O₃) when both compounds are injected together. This difference may vary between instruments.
- Due to the isotopic purity of the starting material (¹⁸O₂ >94%), MPFHxS contains ~ 0.3% of PFHxS. This value agrees with the theoretical percent relative abundance that is expected based on the stated isotopic purity.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 10/28/2015

(mm/dd/yyyy)

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

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SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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.

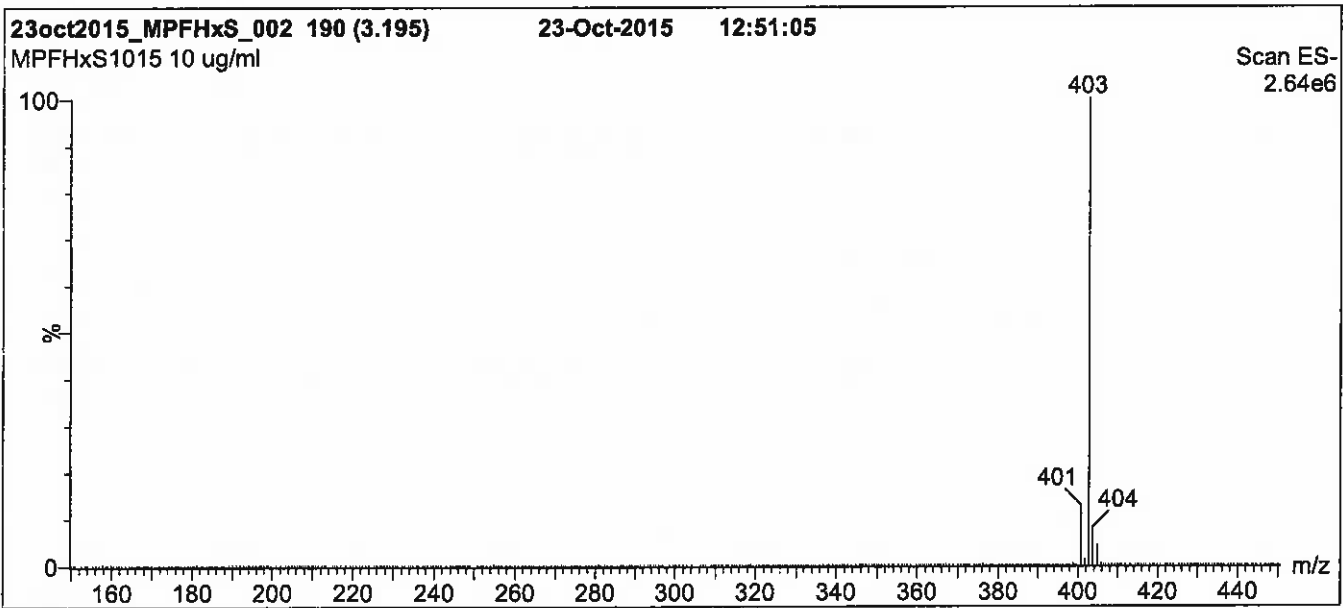
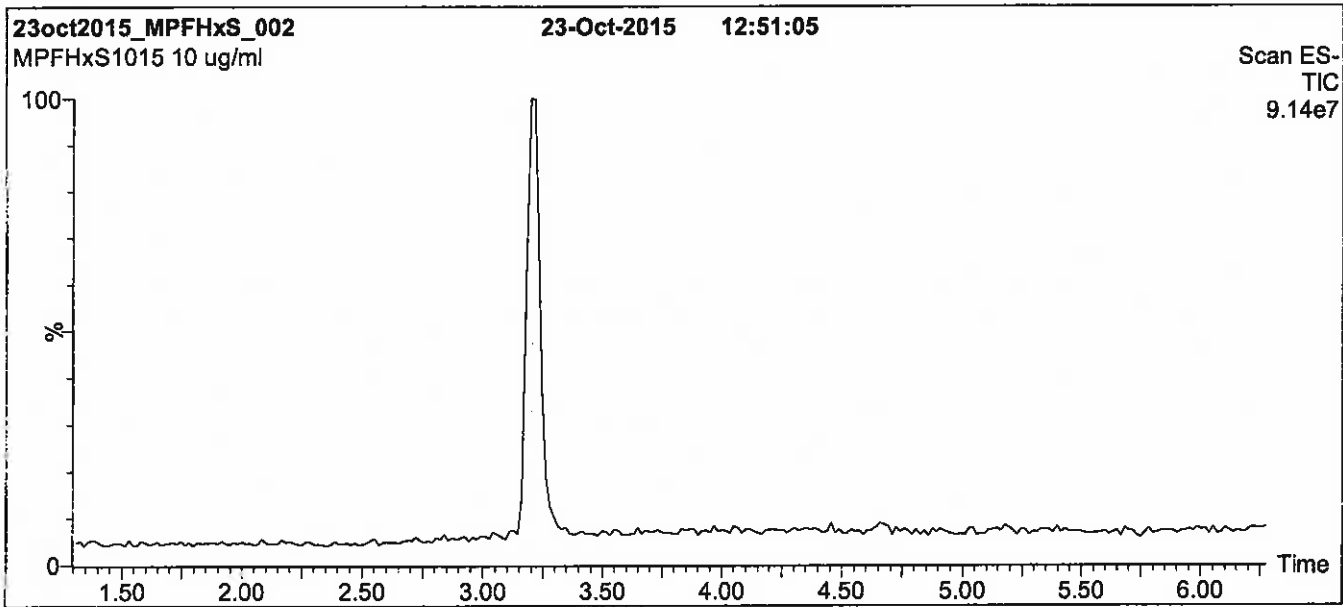
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

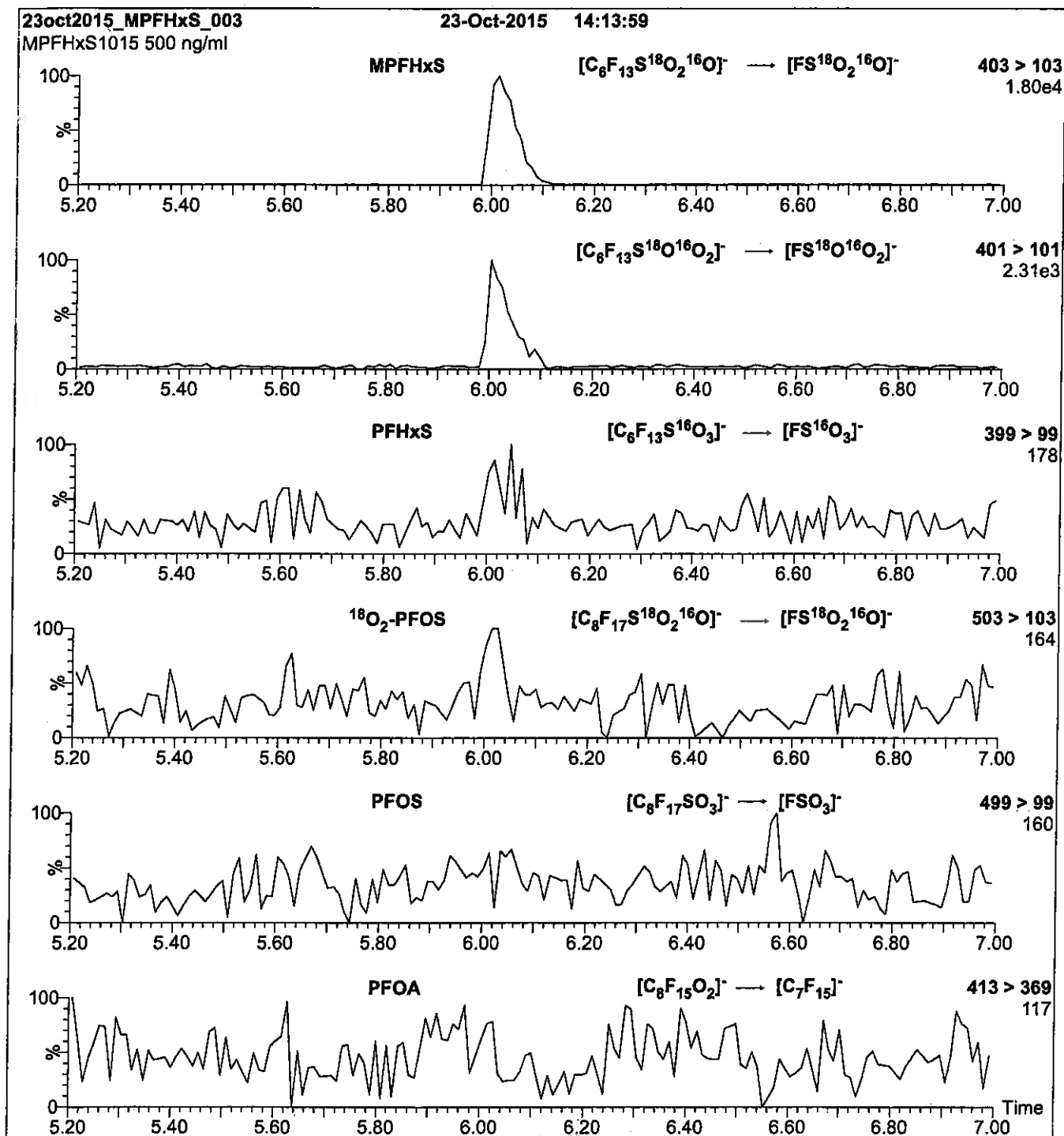
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCMPFHXS_00009

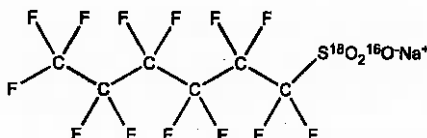


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFHxS **LOT NUMBER:** MPFHxS1015
COMPOUND: Sodium perfluoro-1-hexane [$^{18}\text{O}_2$]sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: $\text{C}_6\text{F}_{13}\text{S}^{18}\text{O}_2^{16}\text{ONa}$ **MOLECULAR WEIGHT:** 426.10
CONCENTRATION: $50.0 \pm 2.5 \mu\text{g/ml}$ (Na salt) **SOLVENT(S):** Methanol
 $47.3 \pm 2.4 \mu\text{g/ml}$ (MPFHxS anion)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** >94% ($^{18}\text{O}_2$)
LAST TESTED: (mm/dd/yyyy) 10/23/2015
EXPIRY DATE: (mm/dd/yyyy) 10/23/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The response factor for MPFHxS ($\text{C}_6\text{F}_{13}\text{S}^{18}\text{O}_2^{16}\text{O}$) has been observed to be up to 10% lower than for PFHxS ($\text{C}_6\text{F}_{13}\text{S}^{16}\text{O}_3$) when both compounds are injected together. This difference may vary between instruments.
- Due to the isotopic purity of the starting material ($^{18}\text{O}_2$ >94%), MPFHxS contains ~ 0.3% of PFHxS. This value agrees with the theoretical percent relative abundance that is expected based on the stated isotopic purity.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:


B.G. Chittim

Date: 10/28/2015
(mm/dd/yyyy)

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

INTENDED USE:

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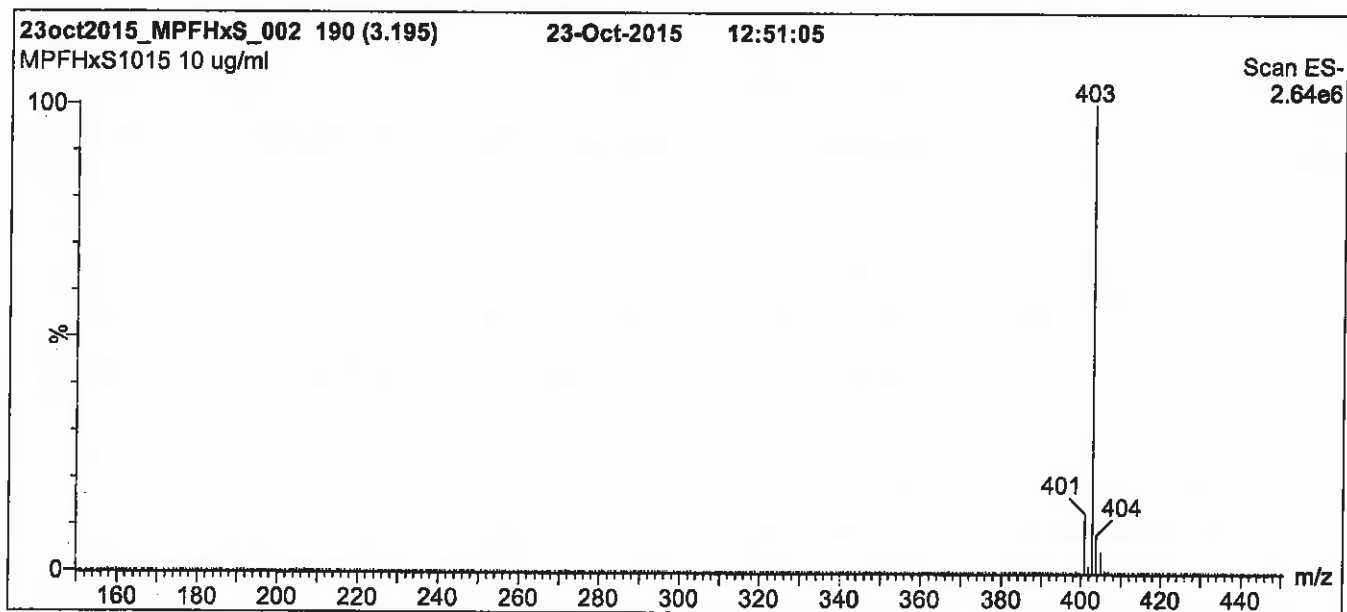
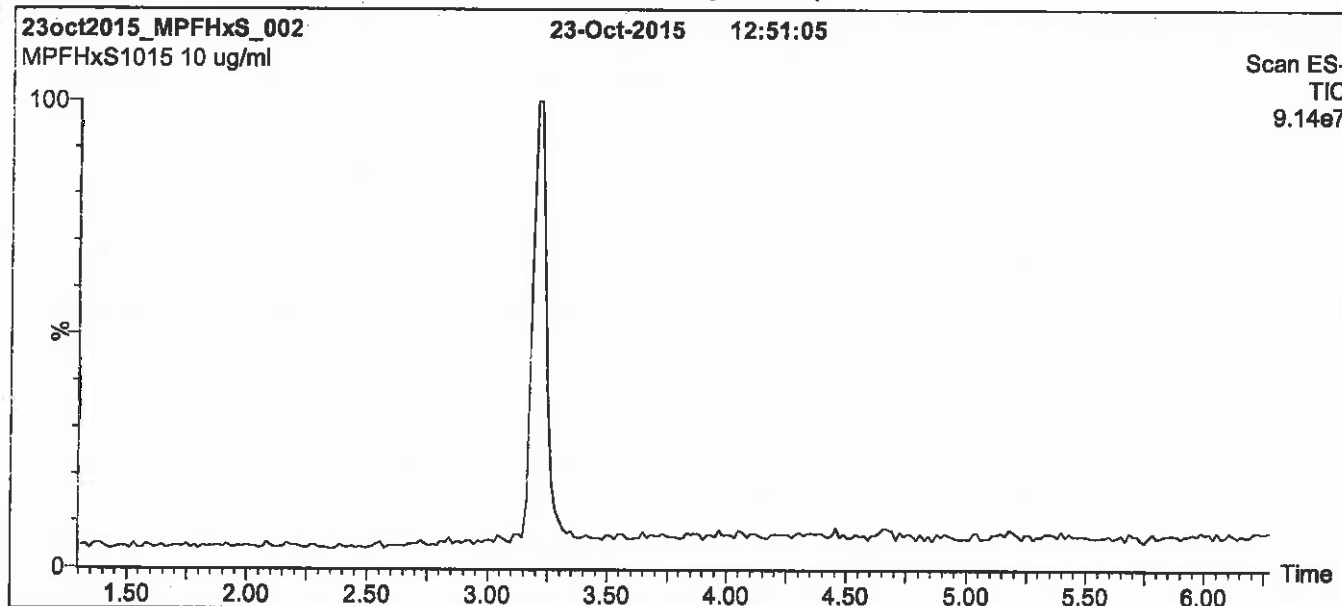
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

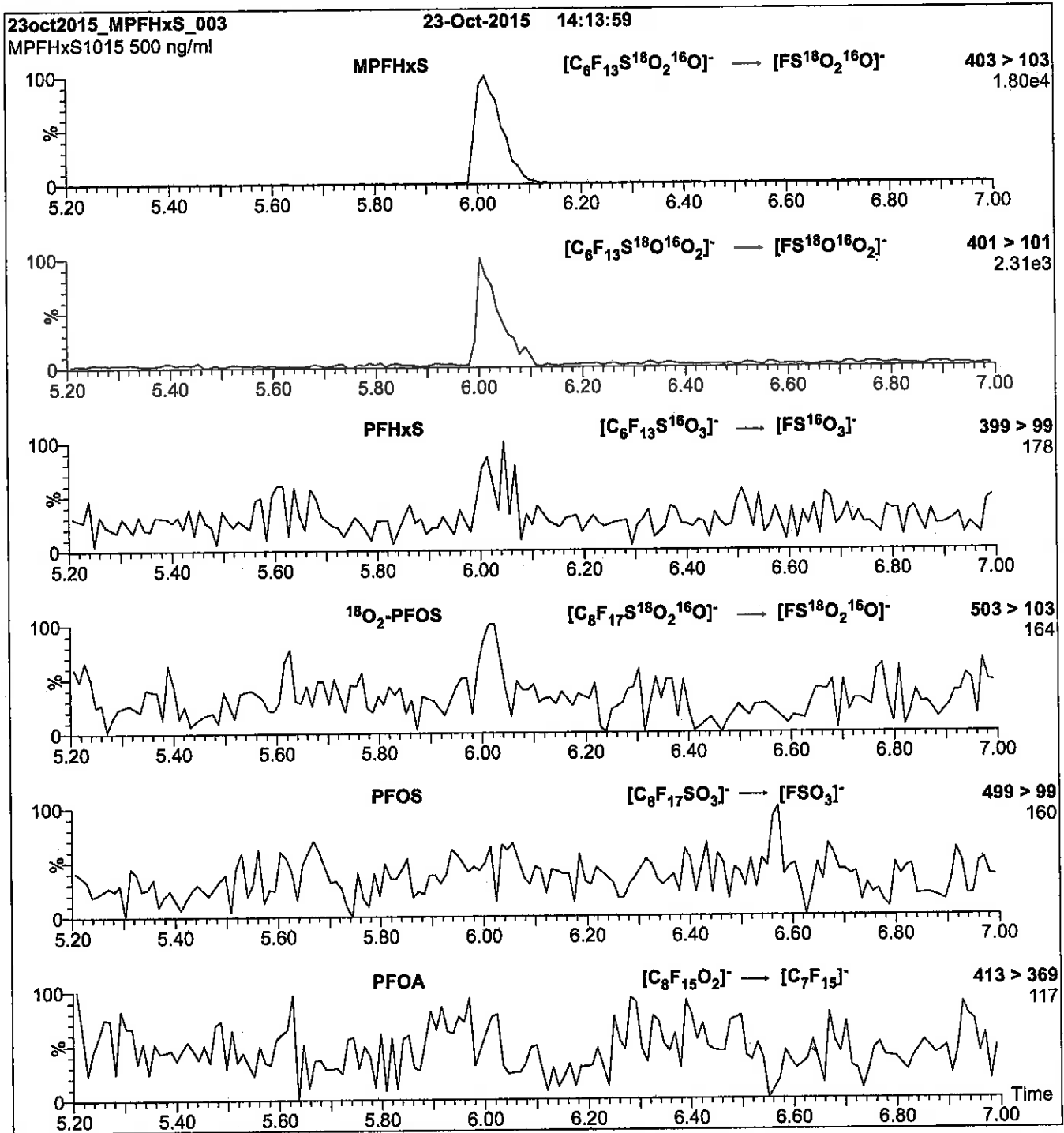
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCMPFNA_00008

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



739637
ID: LCM:PFNA_0008
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13C5-Perfluoronoic aci

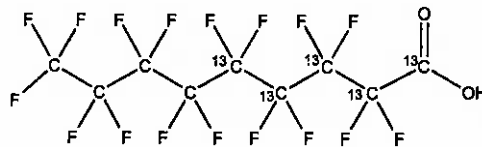


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFNA **LOT NUMBER:** MPFNA0414
COMPOUND: Perfluoro-n-[1,2,3,4,5-¹³C₅]nonanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₅¹²C₄HF₁₇O₂ **MOLECULAR WEIGHT:** 469.04
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99%¹³C
(1,2,3,4,5-¹³C₅)
LAST TESTED: (mm/dd/yyyy) 04/13/2014
EXPIRY DATE: (mm/dd/yyyy) 04/13/2019
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 04/01/2015
(mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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TRACEABILITY:

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LIMITED WARRANTY:

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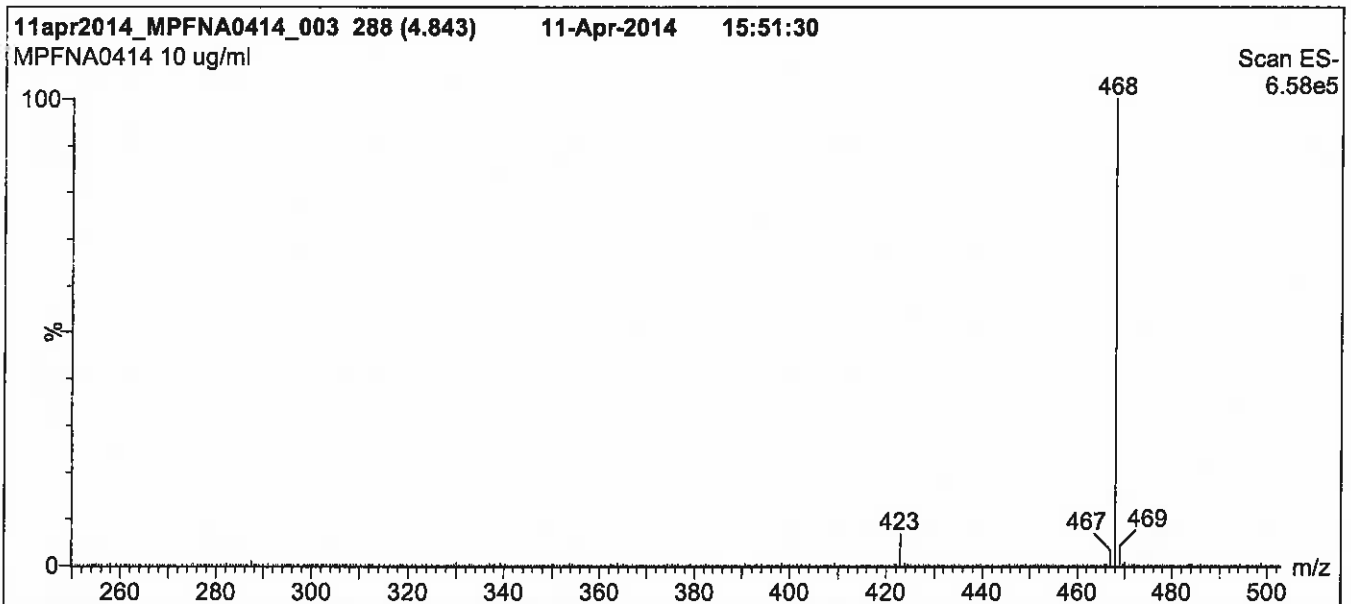
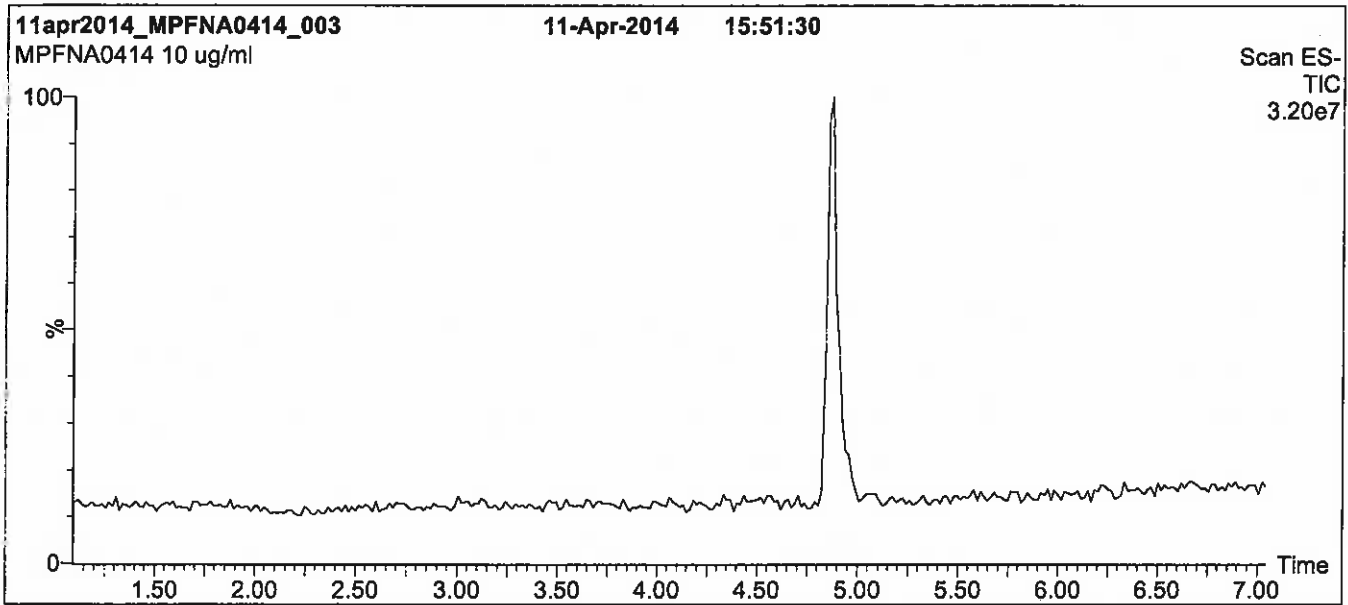
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

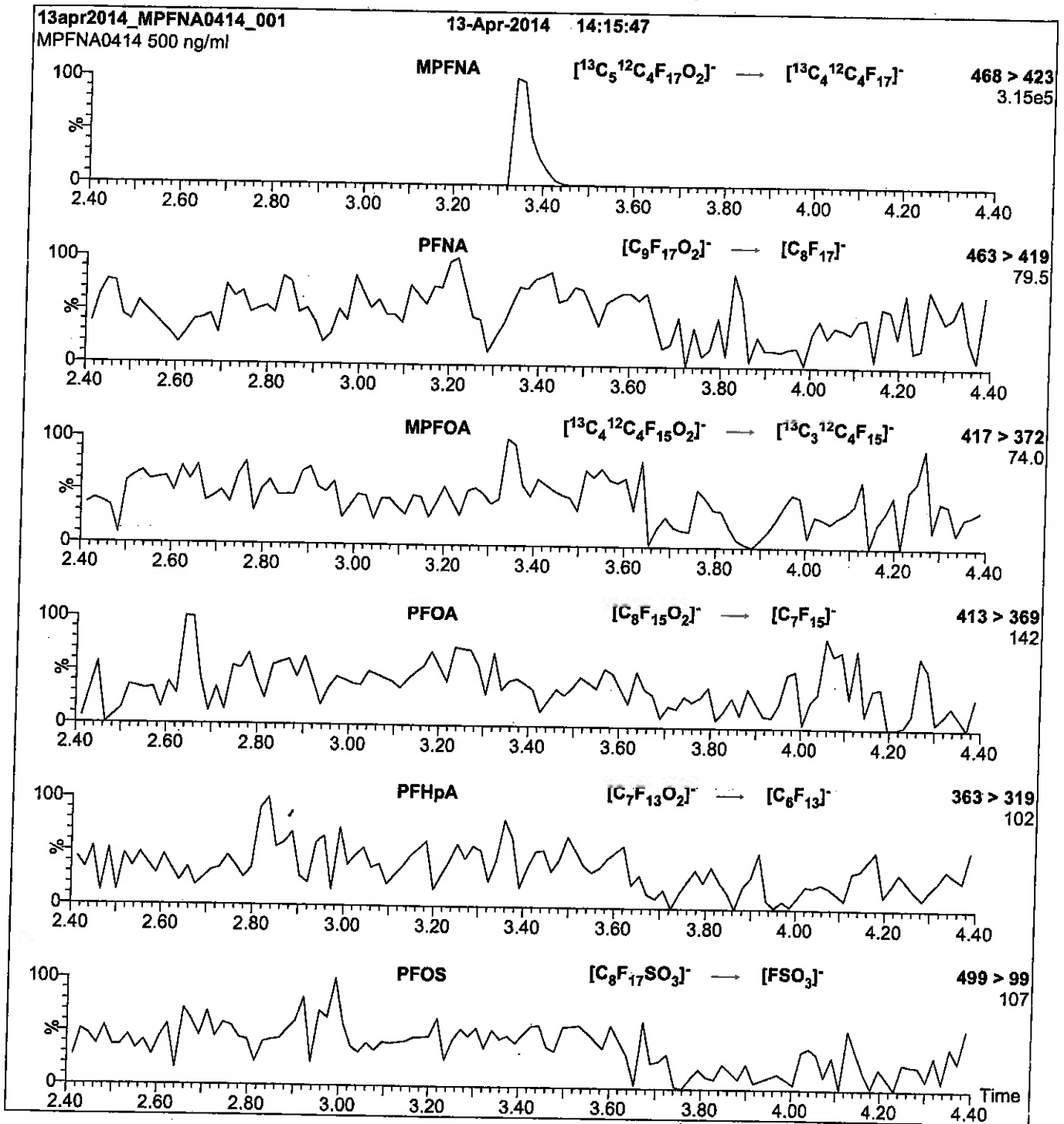
Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

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

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 11

Reagent

LCMPFNA_00009

P: 3/17/17 SKV



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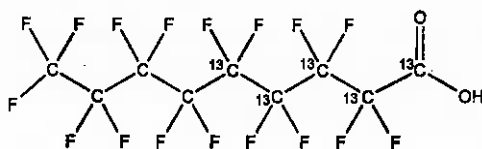
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFNA
COMPOUND: Perfluoro-n-[1,2,3,4,5-¹³C₅]nonanoic acid

LOT NUMBER: MPFNA0916

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: ¹³C₅¹²C₄HF₁₇O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 469.04

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: ≥99% ¹³C
(1,2,3,4,5-¹³C₅)

LAST TESTED: (mm/dd/yyyy) 09/30/2016

EXPIRY DATE: (mm/dd/yyyy) 09/30/2021

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: 10/11/2016
(mm/dd/yyyy)

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

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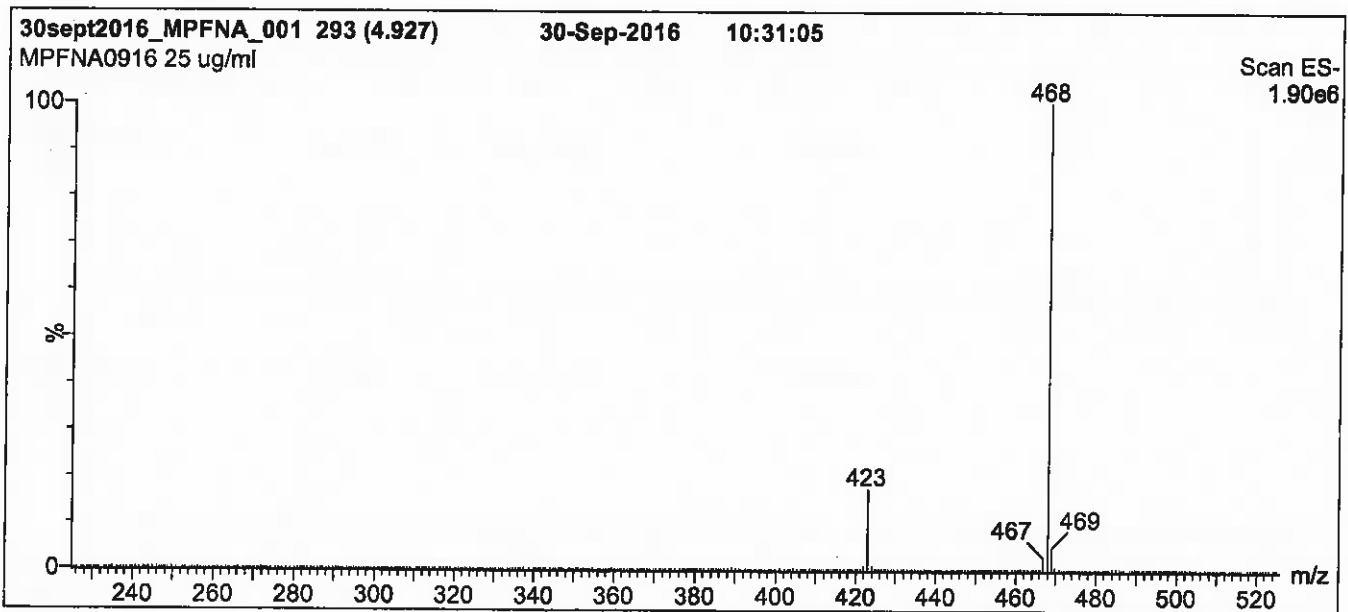
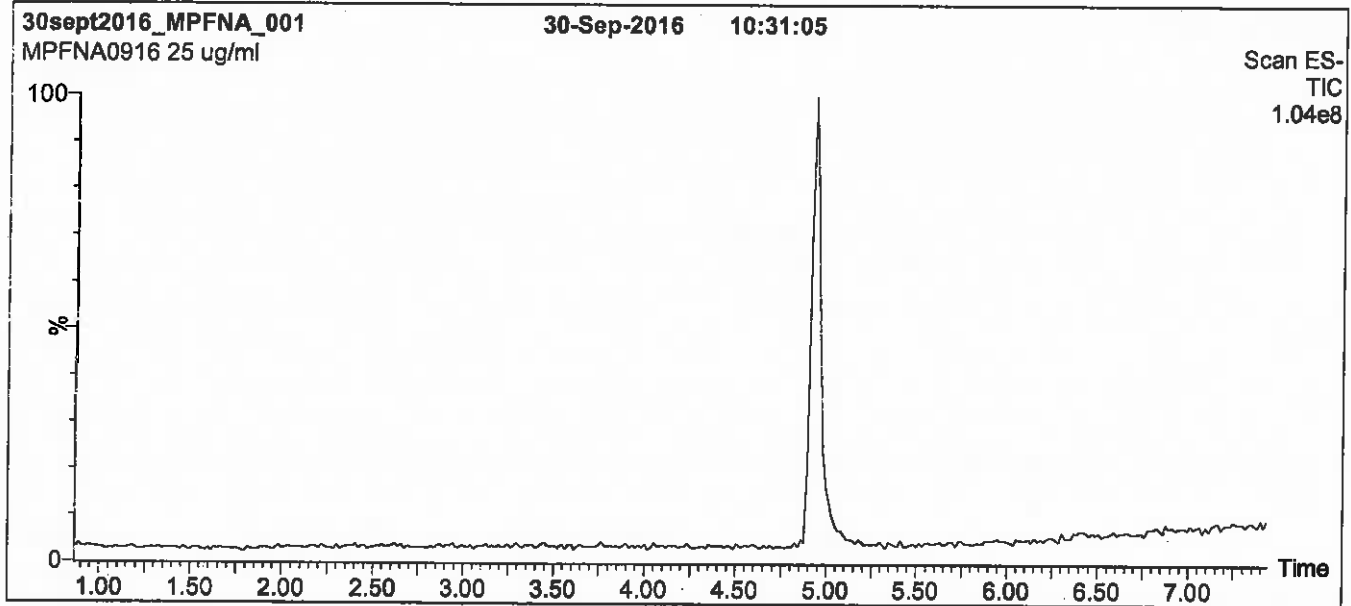
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MS: Micromass Quattro *micro* API MS

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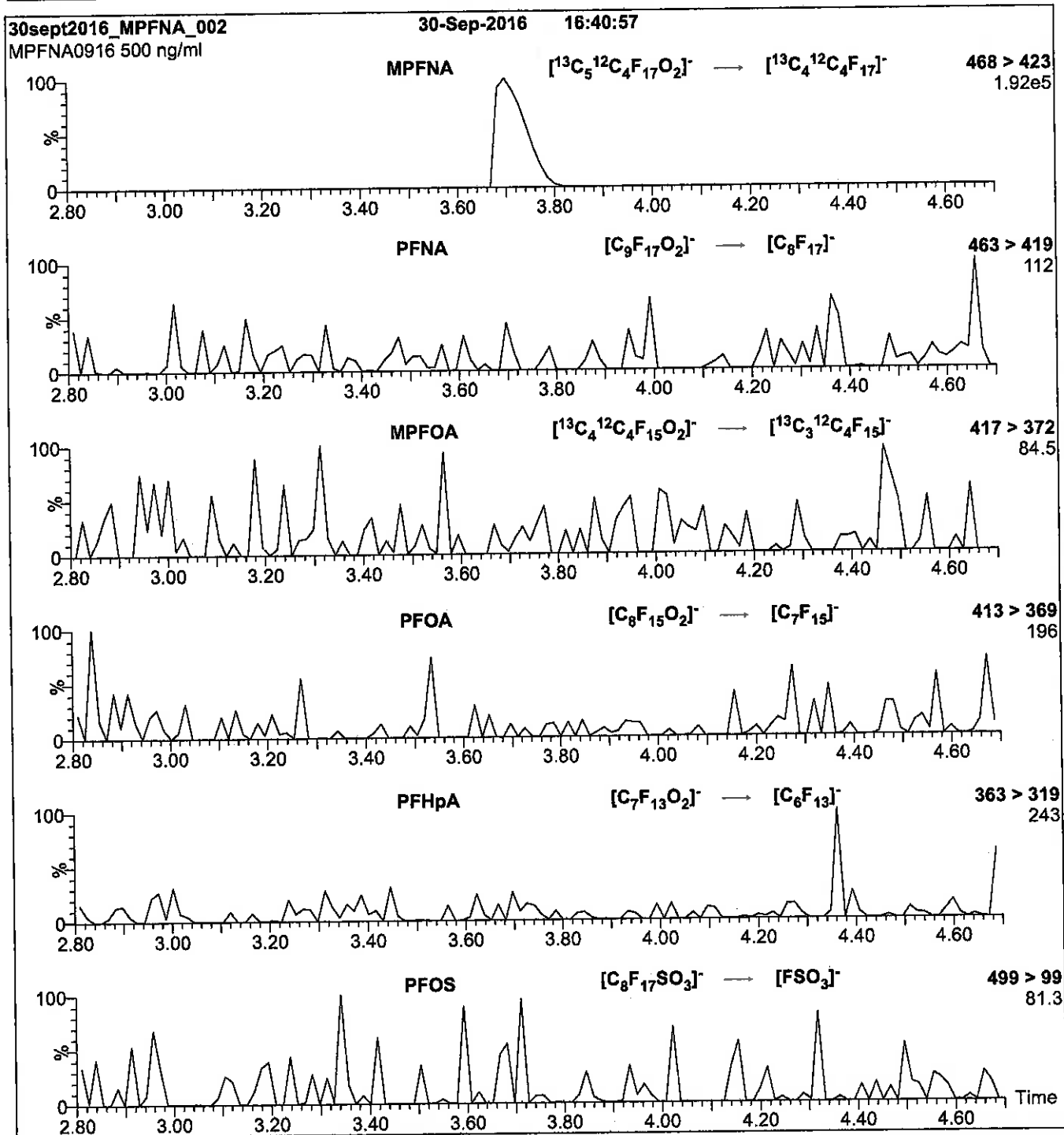
Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

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

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 11

Reagent

LCMPFOA_00012

R: SBC 9/22/16



738683
ID: LCMFOA_00012
Exp: 01/22/21 Prep: SBC
13C4-Perfluorooctanoic ac



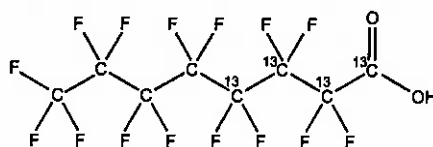
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOA
COMPOUND: Perfluoro-n-[1,2,3,4-¹³C₄]octanoic acid

LOT NUMBER: MPFOA0116

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄¹²C₄HF₁₅O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 418.04
SOLVENT(S): Methanol
Water (<1%)
ISOTOPIC PURITY: ≥99% ¹³C
(1,2,3,4-¹³C₄)

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

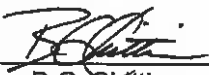
DOCUMENTATION/ DATA ATTACHED:

- 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.
- Contains ~ 0.1% of native perfluoro-n-octanoic acid (PFOA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim
Date: 02/01/2016
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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.

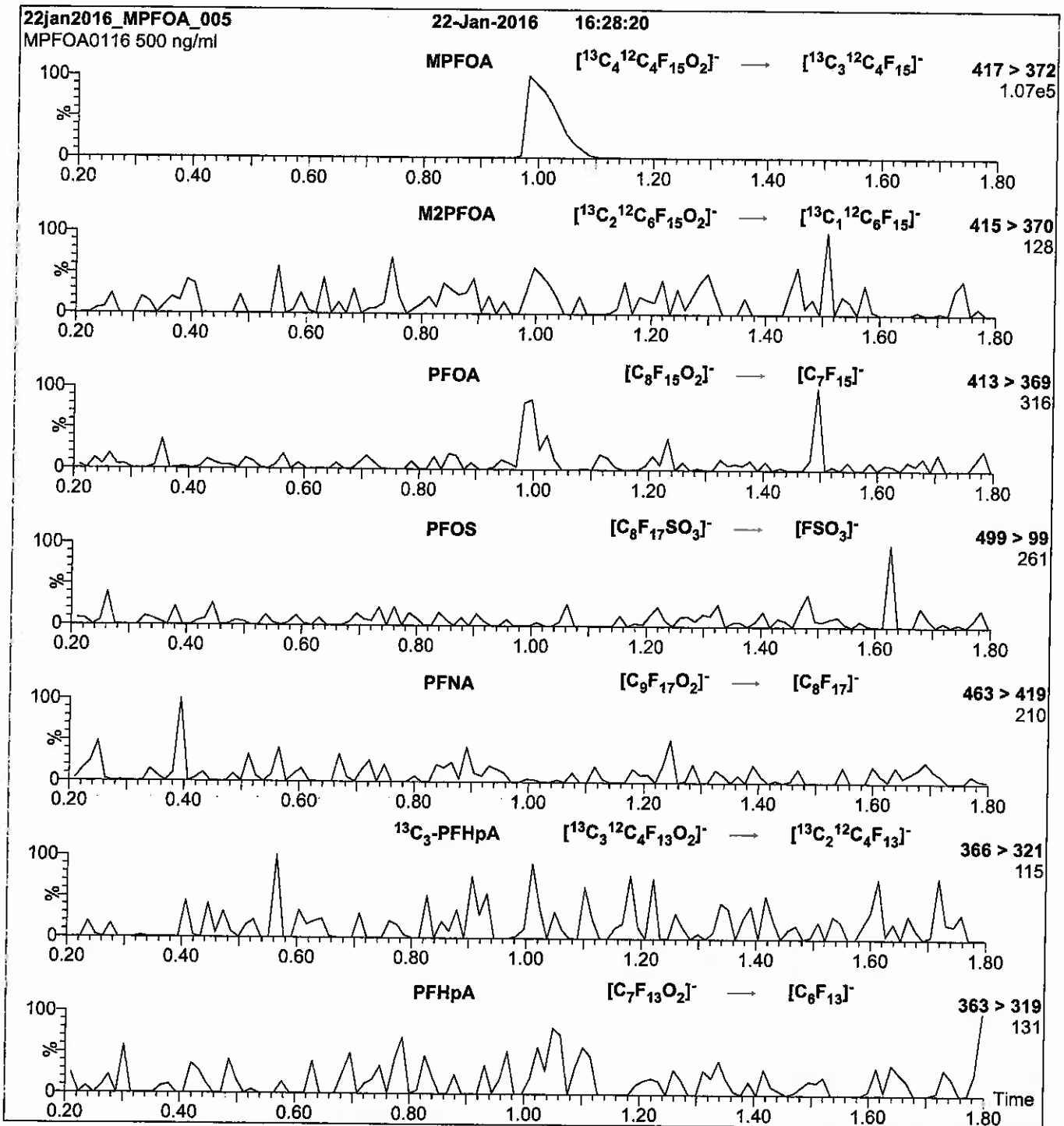
QUALITY MANAGEMENT:

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



Conditions for Figure 2:

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

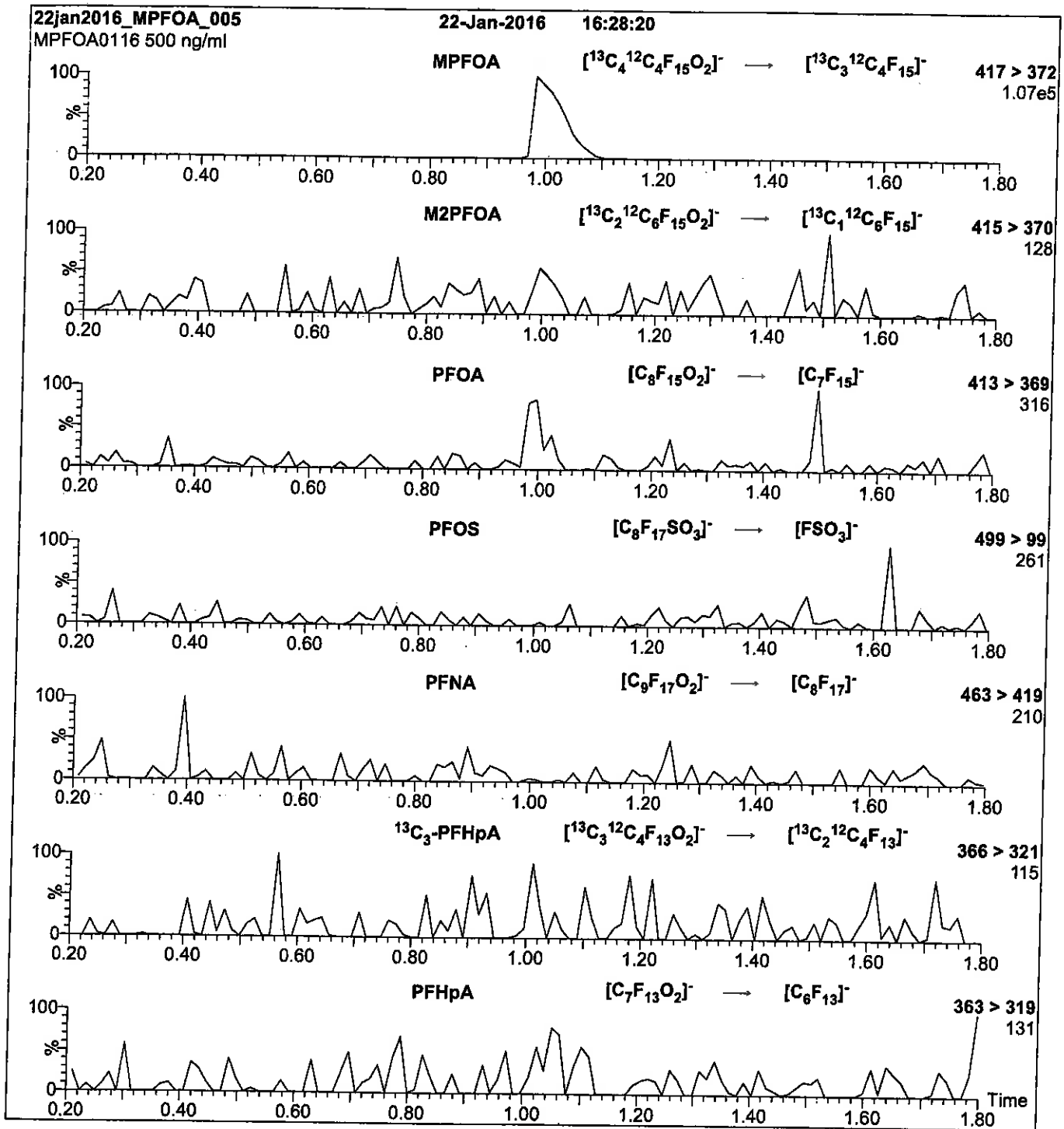
Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = 3.58e-3
Collision Energy (eV) = 10

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



Conditions for Figure 2:

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

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

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

MS Parameters

Collision Gas (mbar) = 3.58e-3
Collision Energy (eV) = 10

Reagent

LCMPFOA_00013



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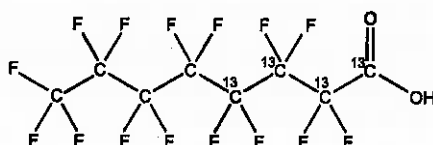
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOA
COMPOUND: Perfluoro-n-[1,2,3,4-¹³C₄]octanoic acid

LOT NUMBER: MPFOA1016

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: ¹³C₄¹²C₄HF₁₆O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 418.04

SOLVENT(S): Methanol
Water (<1%)
ISOTOPIC PURITY: ≥99% ¹³C
(1,2,3,4-¹³C₄)

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 10/18/2016

EXPIRY DATE: (mm/dd/yyyy) 10/18/2021

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 10/19/2016
(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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HOMOGENEITY:

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

UNCERTAINTY:

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

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.

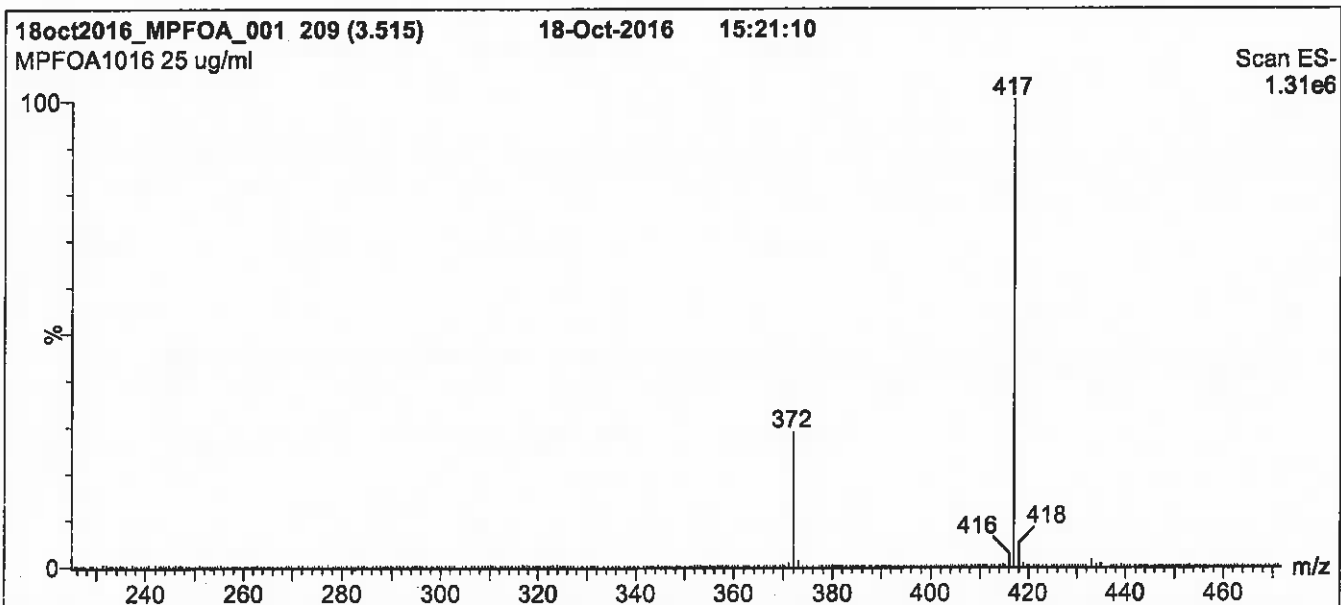
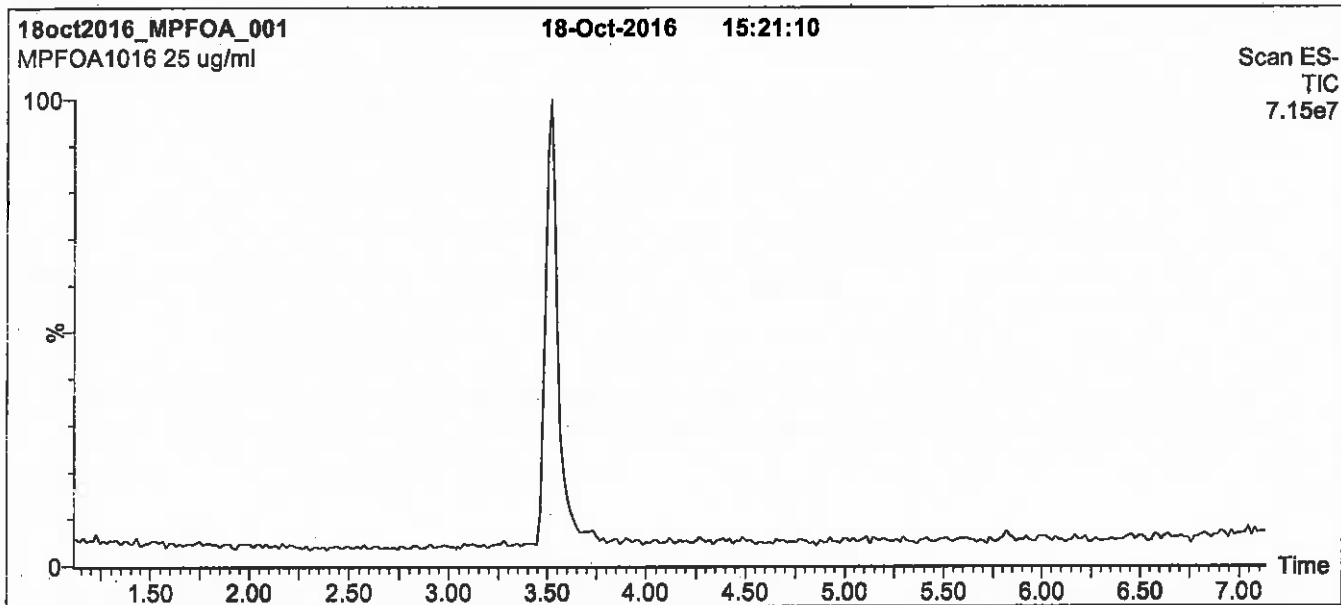
QUALITY MANAGEMENT:

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: MPFOA; 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

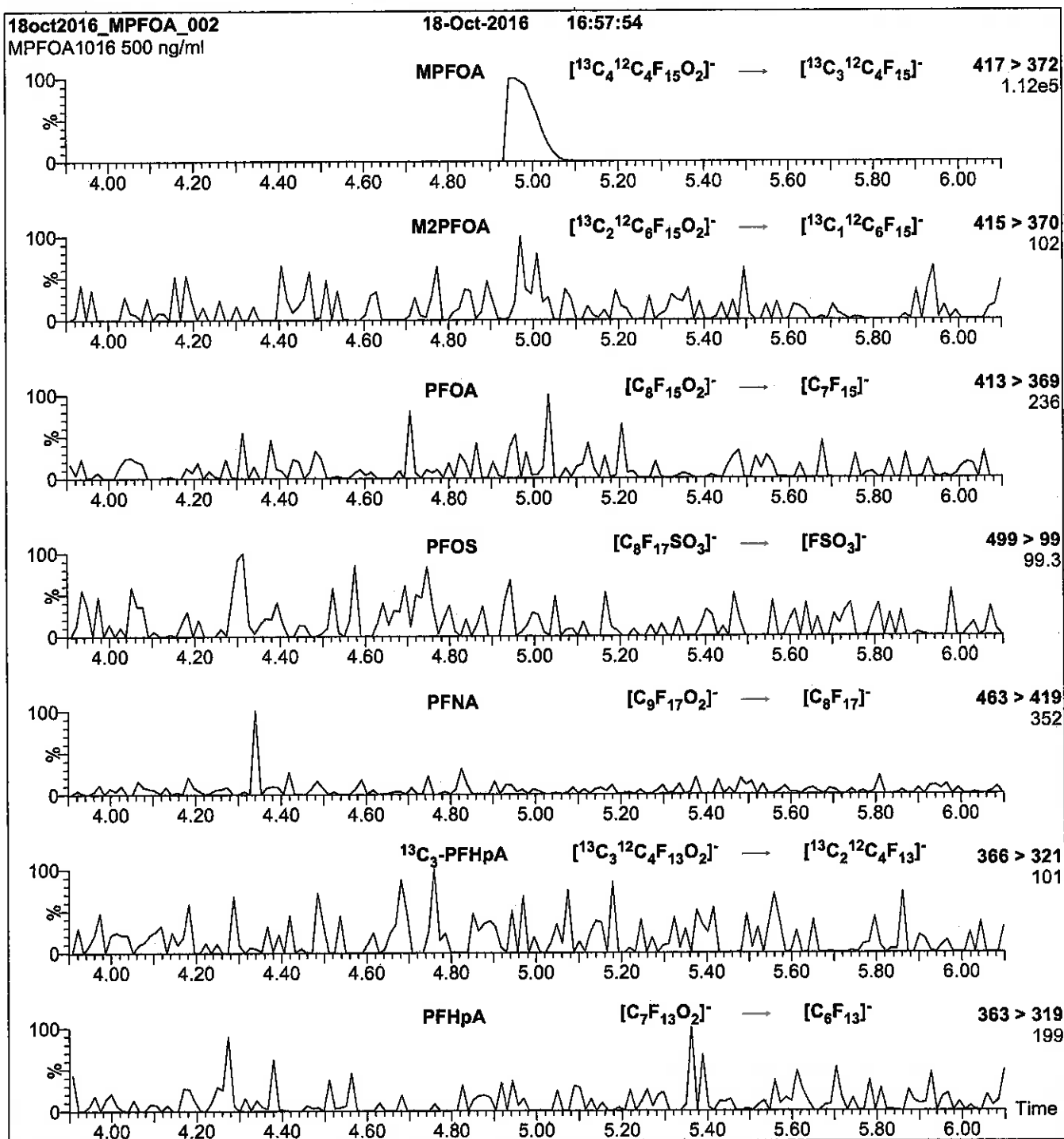
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 15.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFOS_00018

R: SBC 9/22/16



738686

ID: LCMFOS_00018

Exp: 08/03/21 Prod: SBC

13C4-Perfluorooctanesulfo

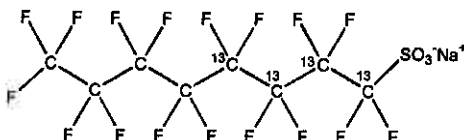


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS0816
COMPOUND: Sodium perfluoro-1-[1,2,3,4-¹³C₄]octanesulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄¹²C₄F₁₇SO₃Na **MOLECULAR WEIGHT:** 526.08
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
47.8 ± 2.4 µg/ml (MPFOS anion)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 08/03/2016 (1,2,3,4-¹³C₄)
EXPIRY DATE: (mm/dd/yyyy) 08/03/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-¹³C₃]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

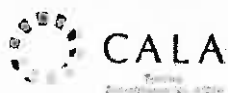
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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

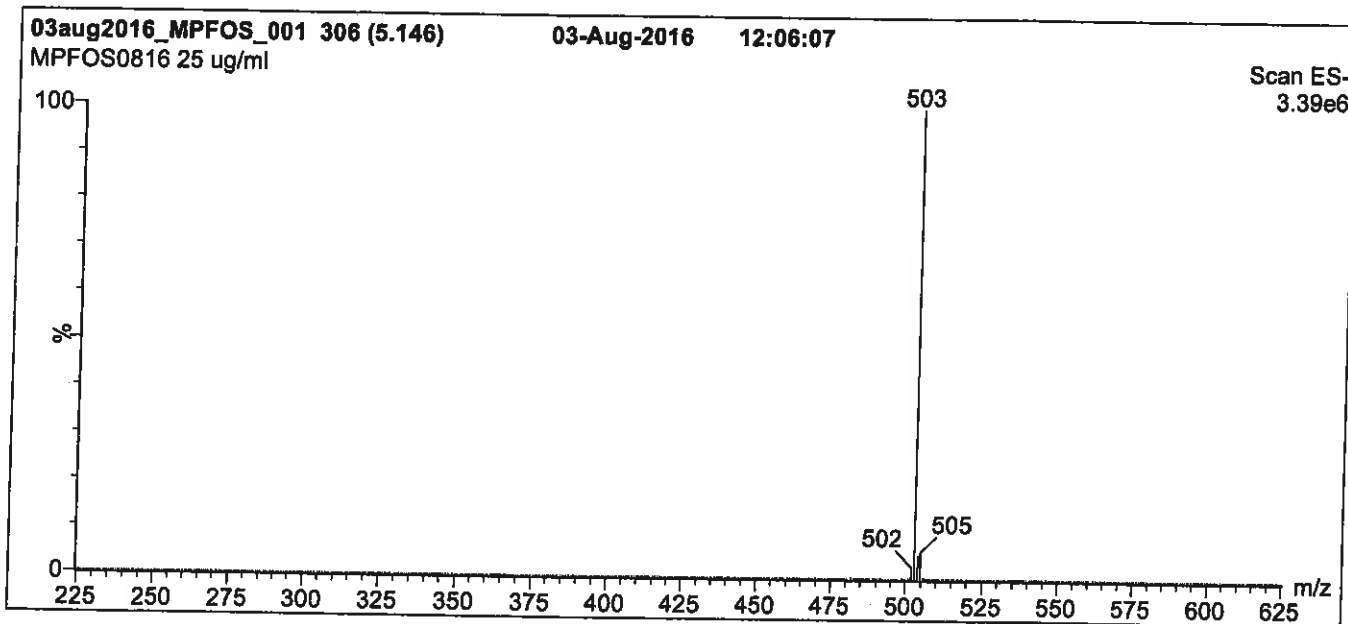
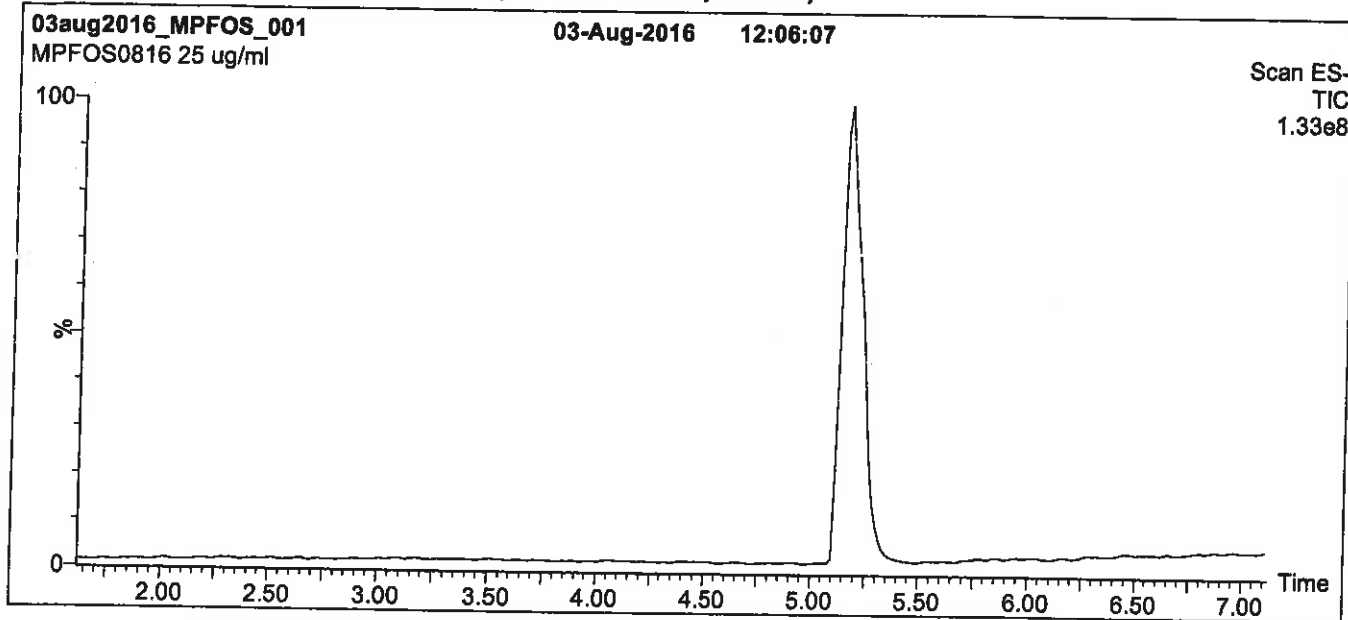
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
 Start: 45% (80:20 MeOH:ACN) / 55% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min and hold for 1.5 min
 before returning to initial conditions in 0.5 min.
 Time: 10 min

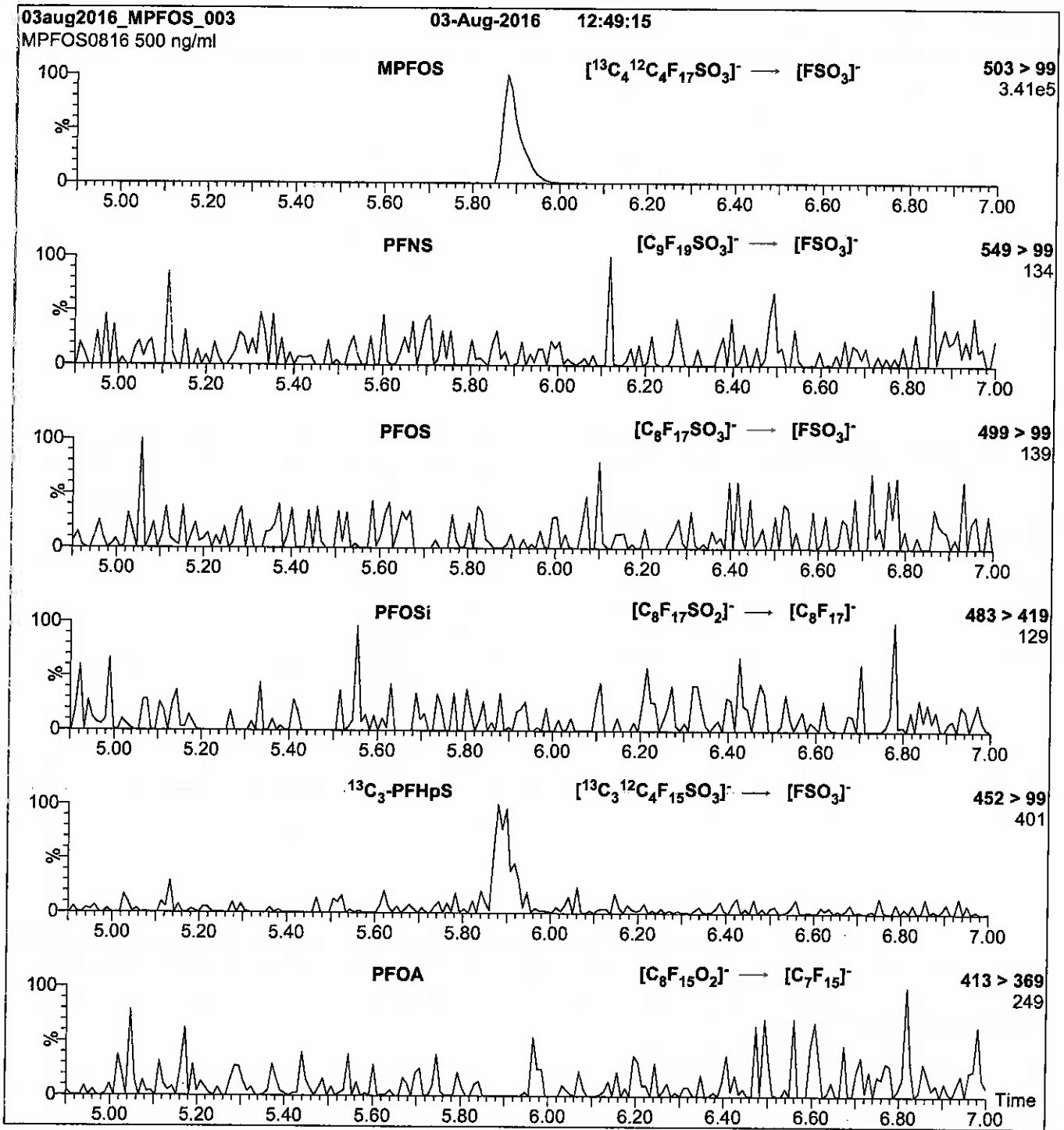
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFOS_00020

n: 3k117 stv

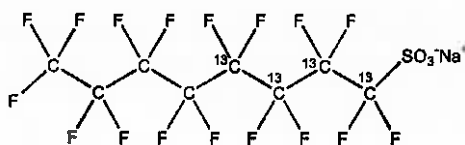


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS1216
COMPOUND: Sodium perfluoro-1-[1,2,3,4-¹³C₄]octanesulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄¹²C₄F₁₇SO₃Na **MOLECULAR WEIGHT:** 526.08
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
47.8 ± 2.4 µg/ml (MPFOS anion)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 12/12/2016 (1,2,3,4-¹³C₄)
EXPIRY DATE: (mm/dd/yyyy) 12/12/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-¹³C₃]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim Date: 12/14/2016
(mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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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:

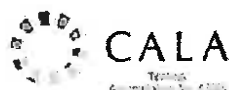
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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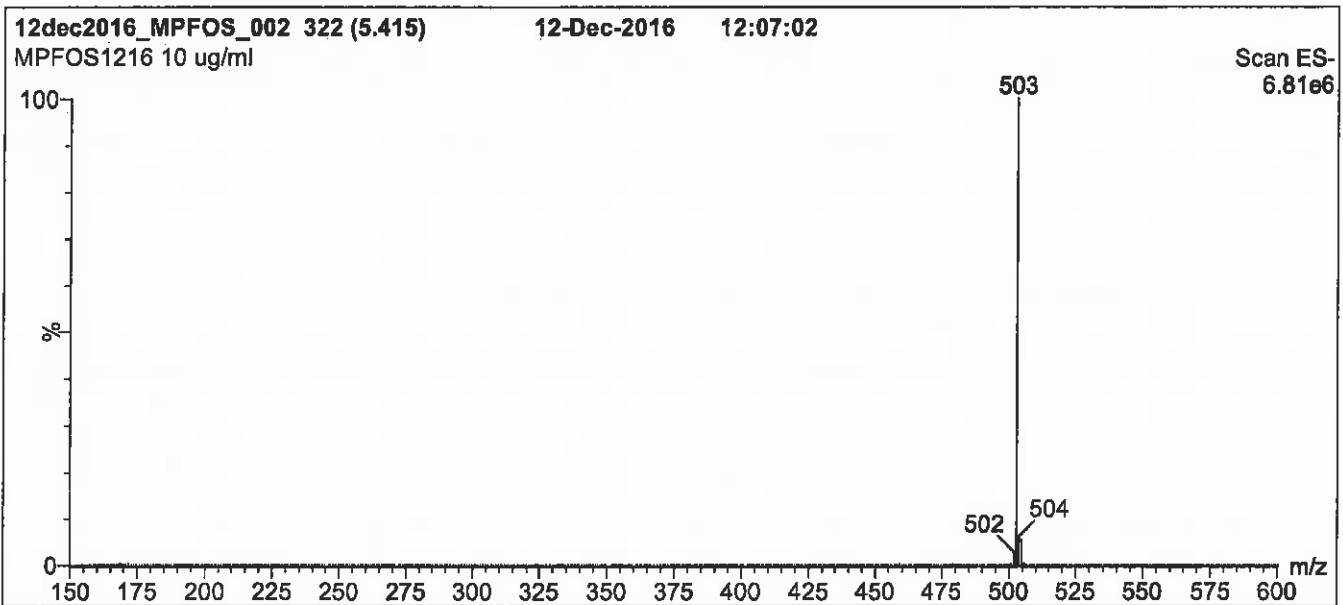
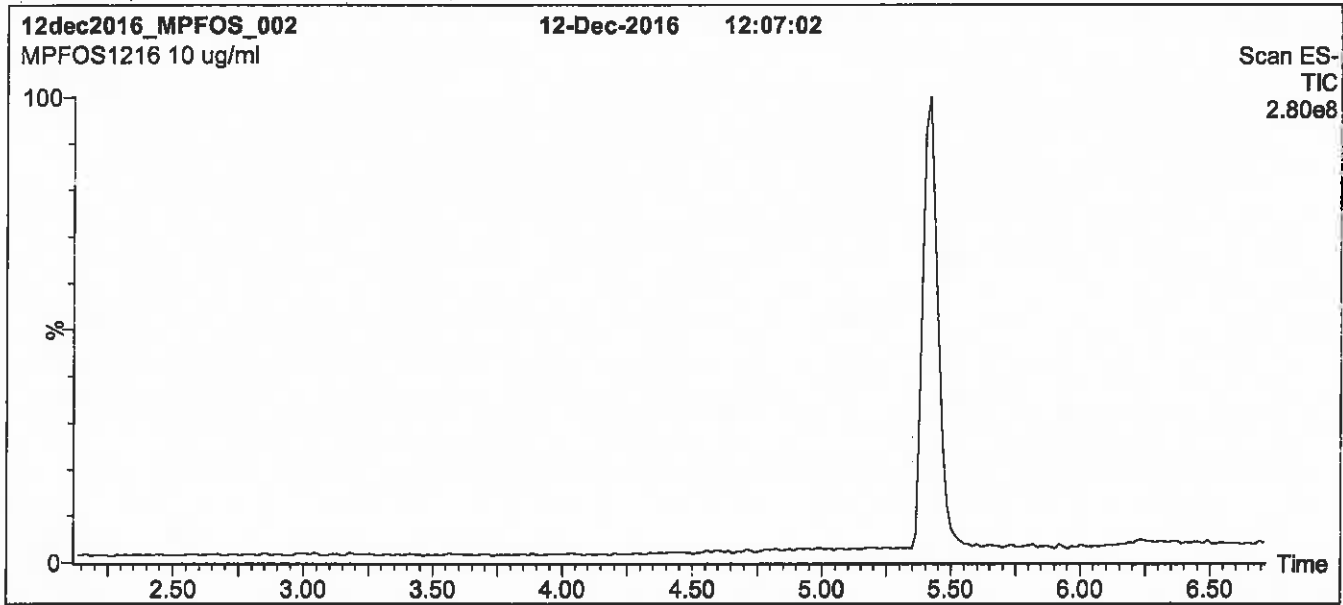
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
 Start: 50% (80:20 MeOH:ACN) / 50% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 85% organic over 7.5 min and hold for 1.5 min
 before returning to initial conditions in 0.5 min.
 Time: 10 min

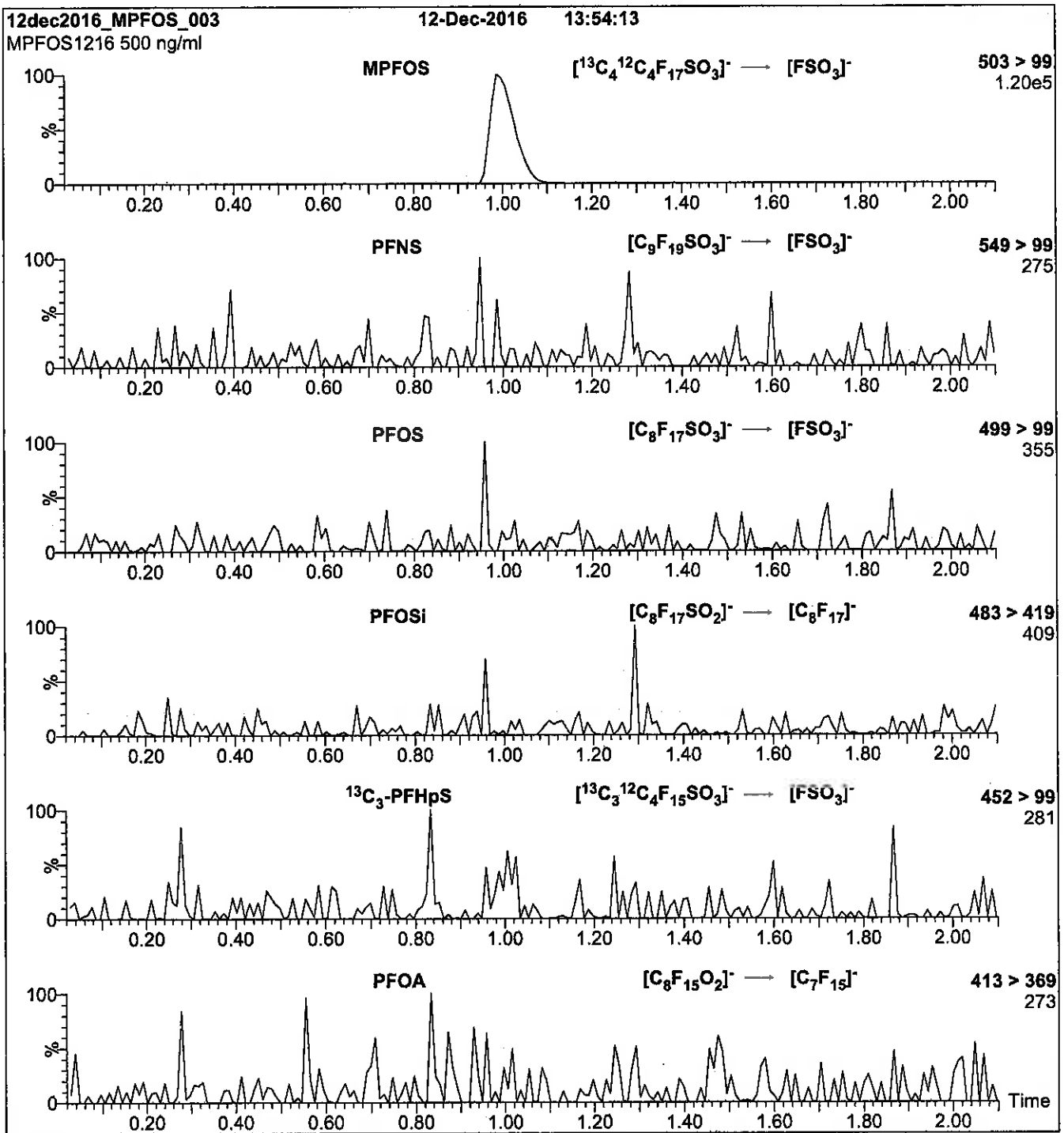
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 40

Reagent

LCMPFUdA_00009

INTENDED USE:

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

HAZARDS:

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

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HOMOGENEITY:

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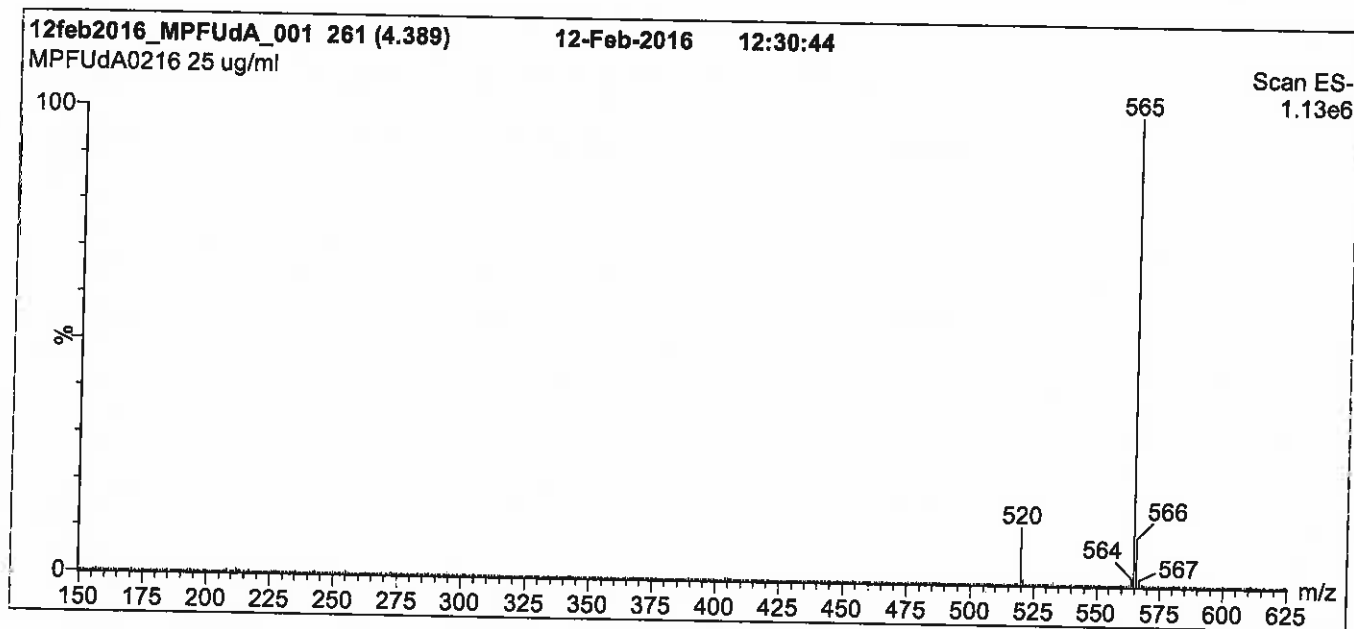
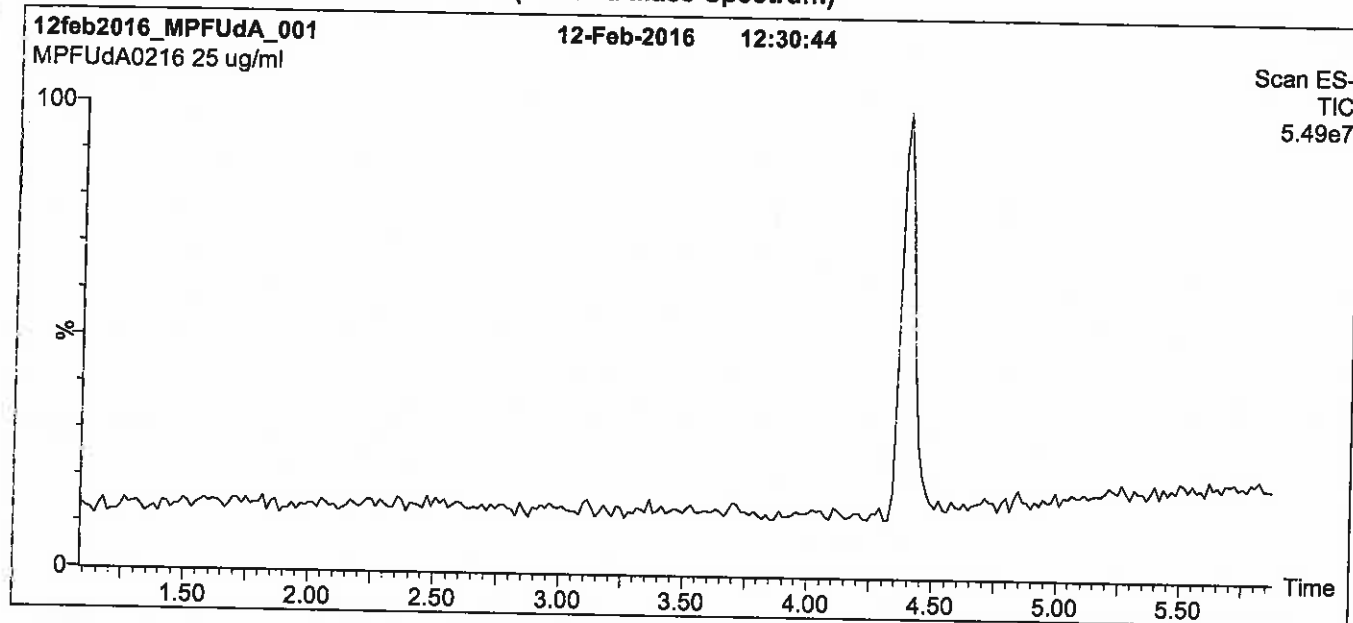
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

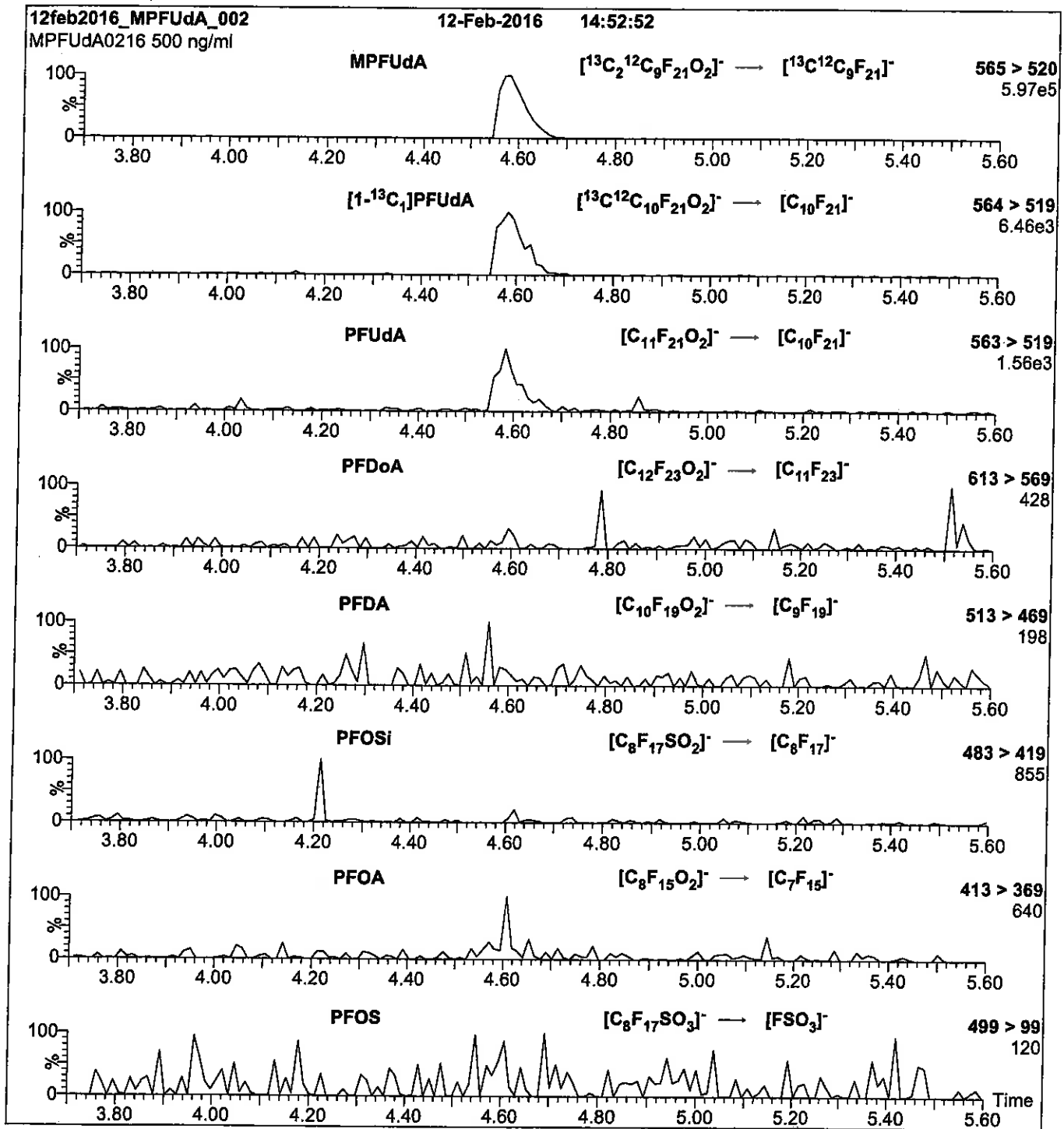
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 15.00
 Cone Gas Flow (l/hr) = 65
 Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

Injection: Direct loop injection
 10 μ l (500 ng/ml MPFUdA)
 Mobile phase: Isocratic 80% MeOH / 20% H₂O
 Flow: 300 μ l/min

MS Parameters

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

Reagent

LCMPFUdA_00010

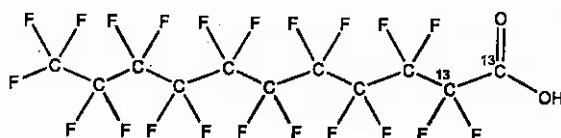


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFUdA **LOT NUMBER:** MPFUdA1116
COMPOUND: Perfluoro-n-[1,2-¹³C₂]undecanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₉HF₂₁O₂ **MOLECULAR WEIGHT:** 566.08
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
 Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
 (1,2-¹³C₂)
LAST TESTED: (mm/dd/yyyy) 11/22/2016
EXPIRY DATE: (mm/dd/yyyy) 11/22/2021
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.
- Presence of 1-¹³C₁-PFUdA (~1%; see Figure 2), 2-¹³C₁-PFUdA (~1%), and PFUdA (~0.2%; see Figure 2) are due to the isotopic purity of the ¹³C-precursor.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
 B.G. Chittim **Date:** 12/07/2016
 (mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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HOMOGENEITY:

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LIMITED WARRANTY:

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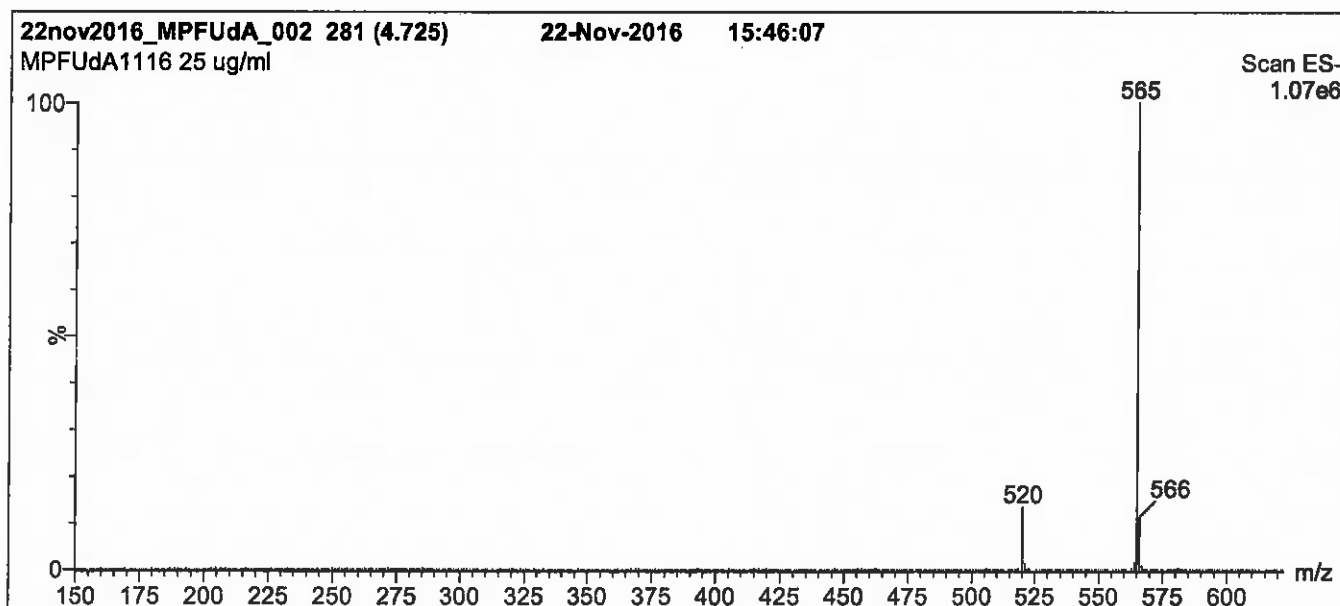
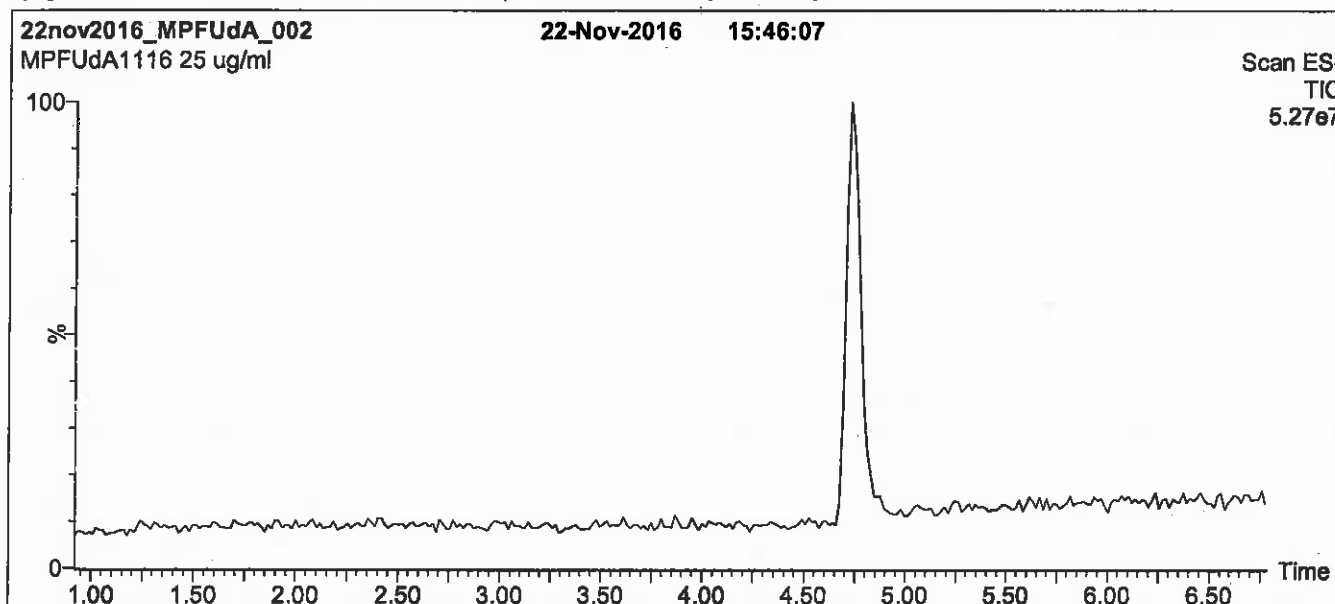
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

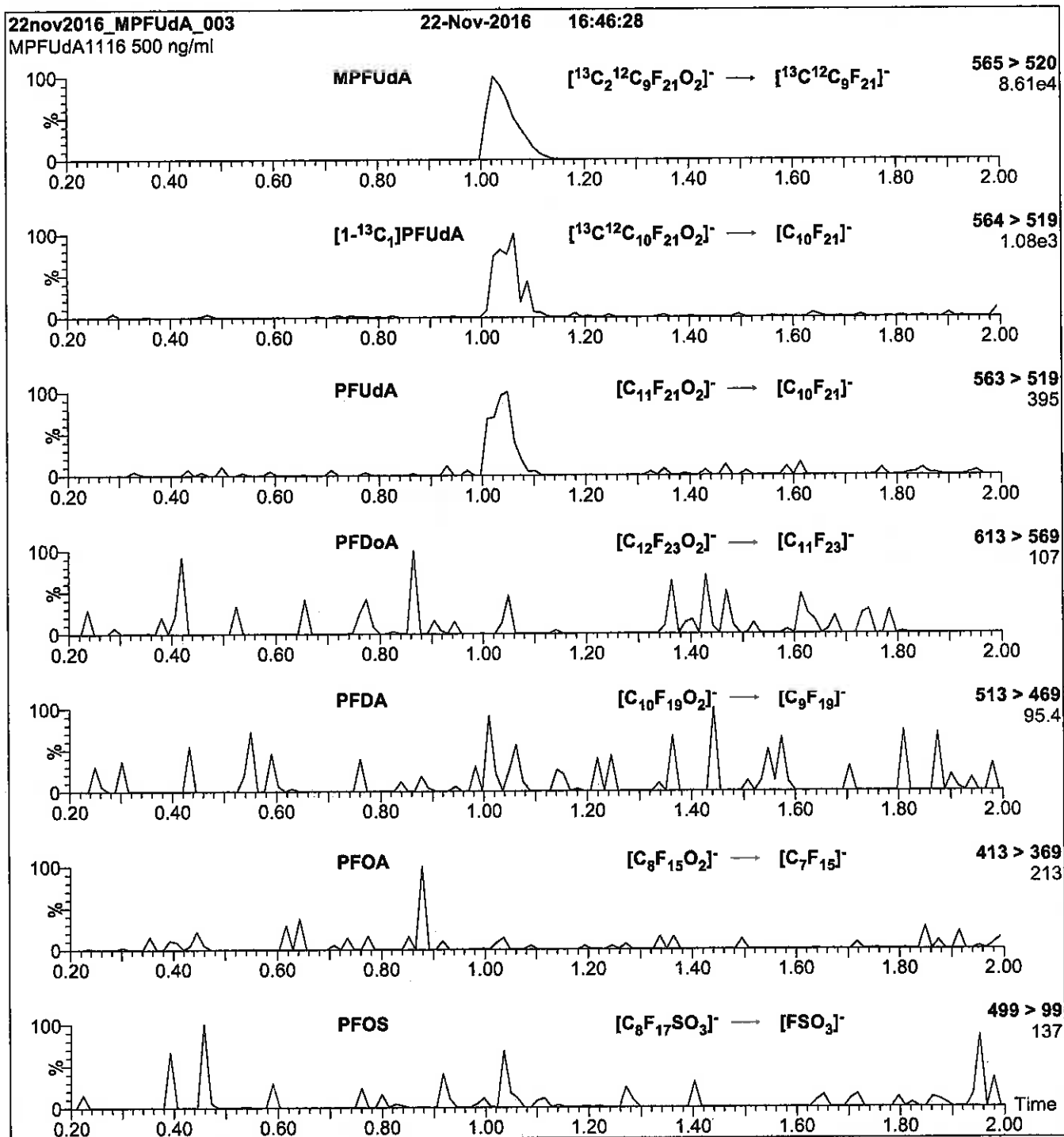
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

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

MS Parameters

Collision Gas (mbar) = 3.46e-3
 Collision Energy (eV) = 11

Reagent

LCN-EtFOSA-M_00003

R: 8/23/16 SBC



715563
ID: LCN-EtFOSA-M_00003
Exp: 05/24/21 Prpt: SBC
N-EtFOSA-M

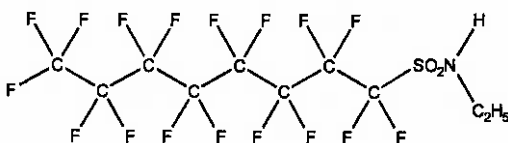


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M **LOT NUMBER:** NEtFOSA0516M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide

STRUCTURE: **CAS #:** 4151-50-2



MOLECULAR FORMULA: C₁₀H₈F₁₇NO₂S **MOLECULAR WEIGHT:** 527.20
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/24/2016
EXPIRY DATE: (mm/dd/yyyy) 05/24/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/27/2016
(mm/dd/yyyy)

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

INTENDED USE:

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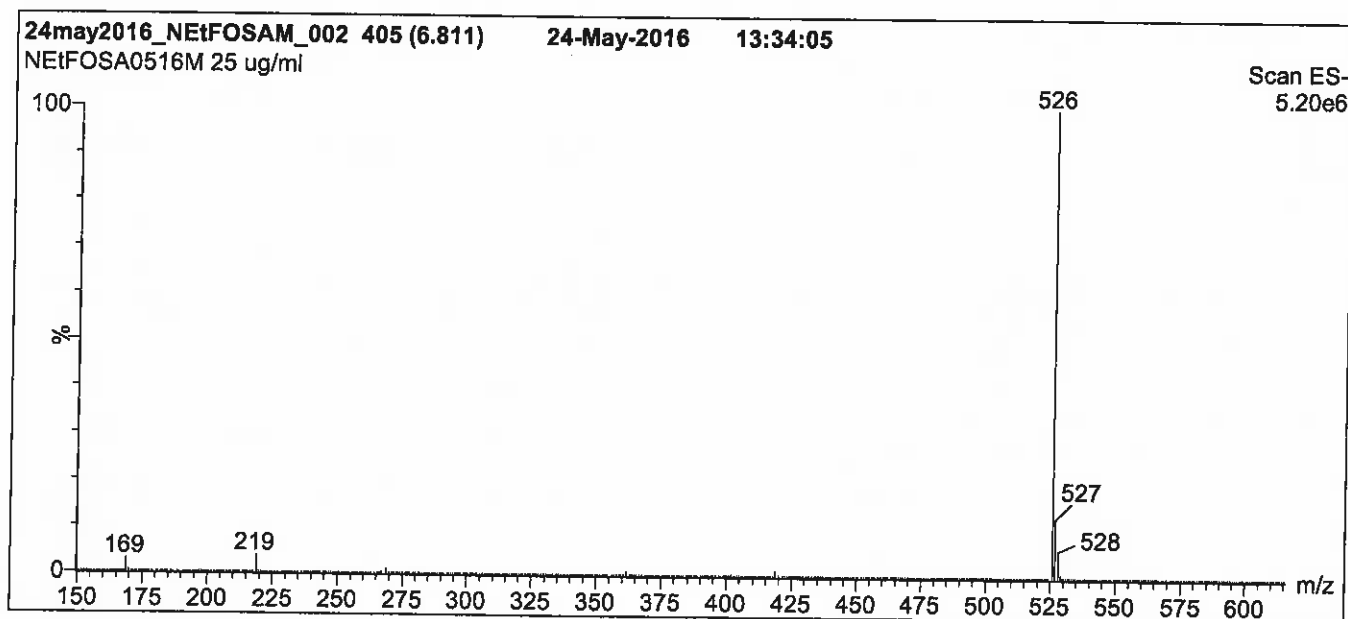
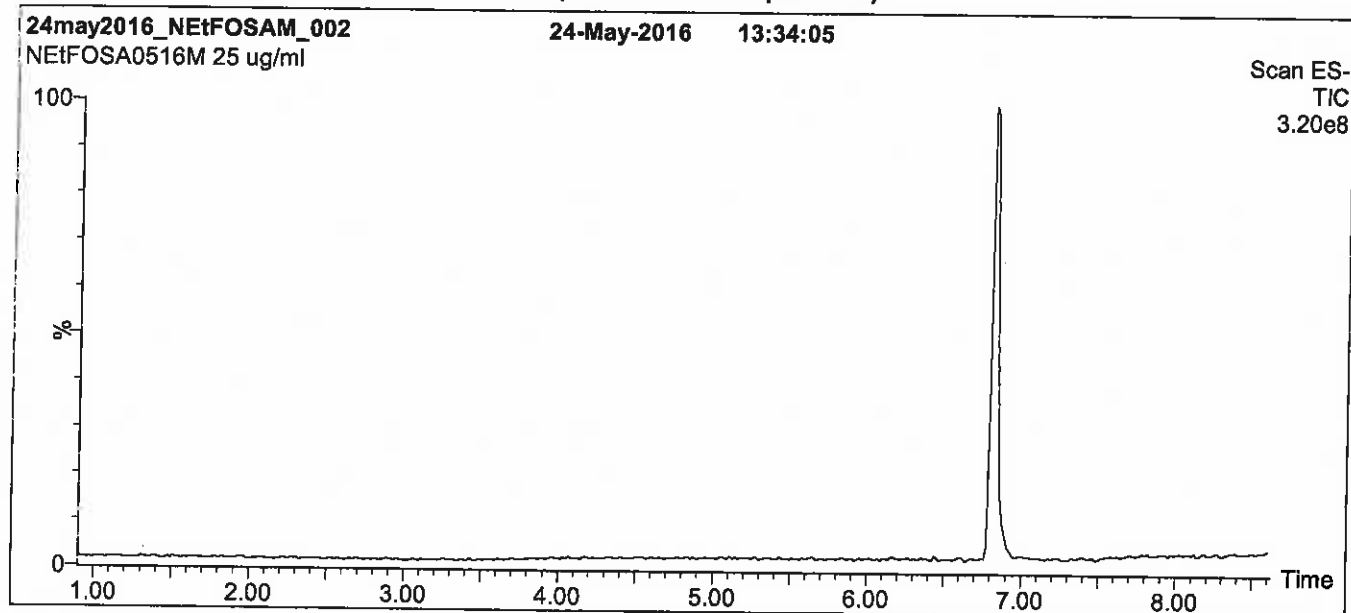
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Figure 1: N-EtFOSA-M; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
 Start: 45% H₂O / 55% (80:20 MeOH:ACN)
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7.5 min and hold for 1.5
 min before returning to initial conditions in 0.5 min.
 Time: 10 min

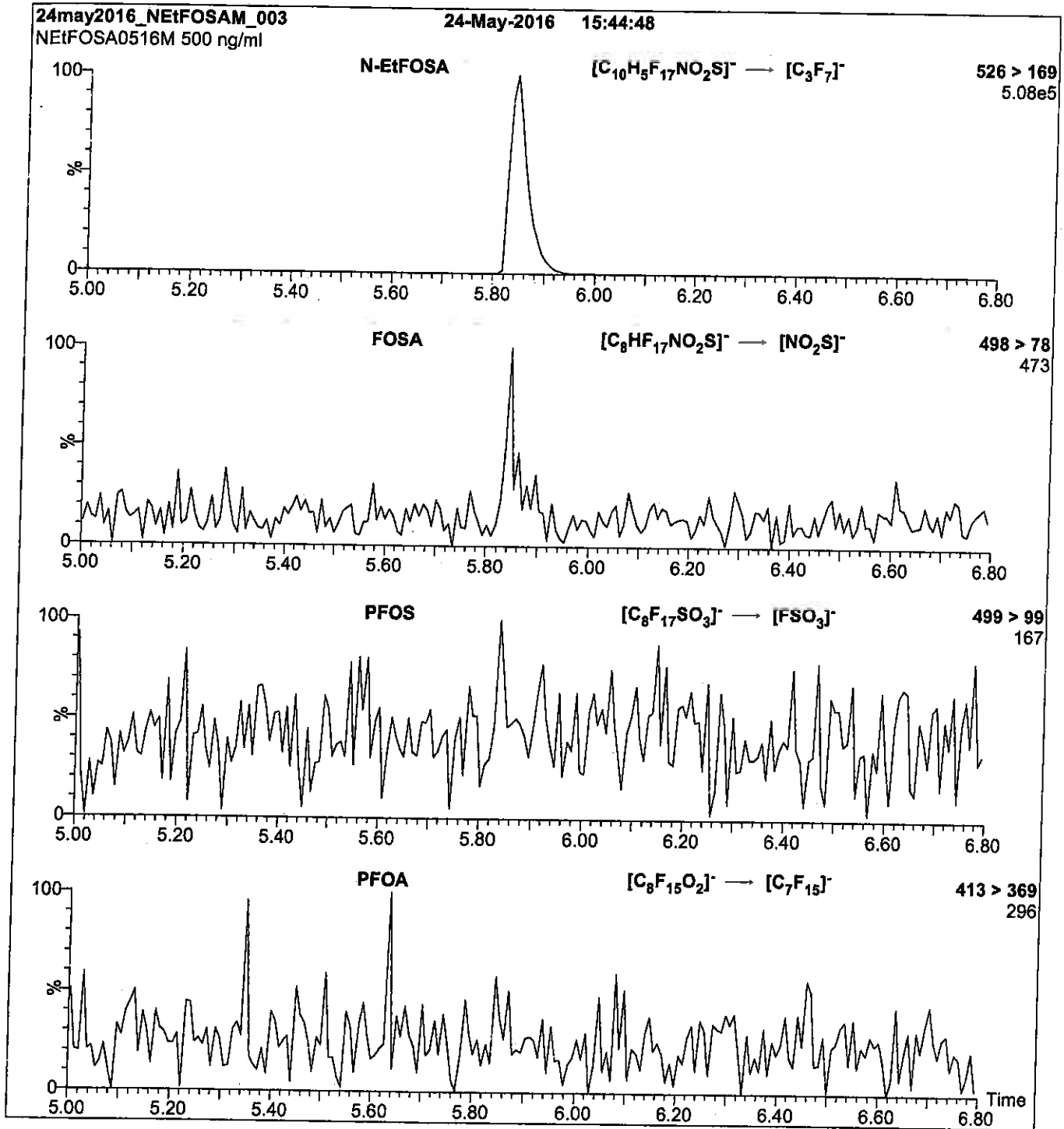
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCN-ETFOSAA_00002

R: 8/23/16 SBC



715561
ID: LCN-EiFOSAA_00002
Exp: 01/2021 Pp# 98C
N-EiFOSAA

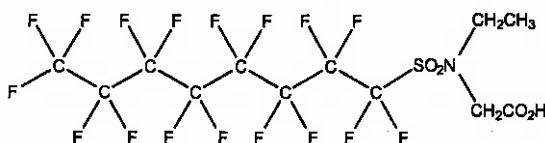


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-EtFOSAA **LOT NUMBER:** NEiFOSAA0116
COMPOUND: N-ethylperfluoro-1-octanesulfonamidoacetic acid

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



MOLECULAR FORMULA: C₁₂H₈F₁₇NO₄S **MOLECULAR WEIGHT:** 585.23
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/20/2016
EXPIRY DATE: (mm/dd/yyyy) 01/20/2021
RECOMMENDED STORAGE: Refrigerate ampoule


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 01/21/2016
(mm/dd/yyyy)

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

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

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

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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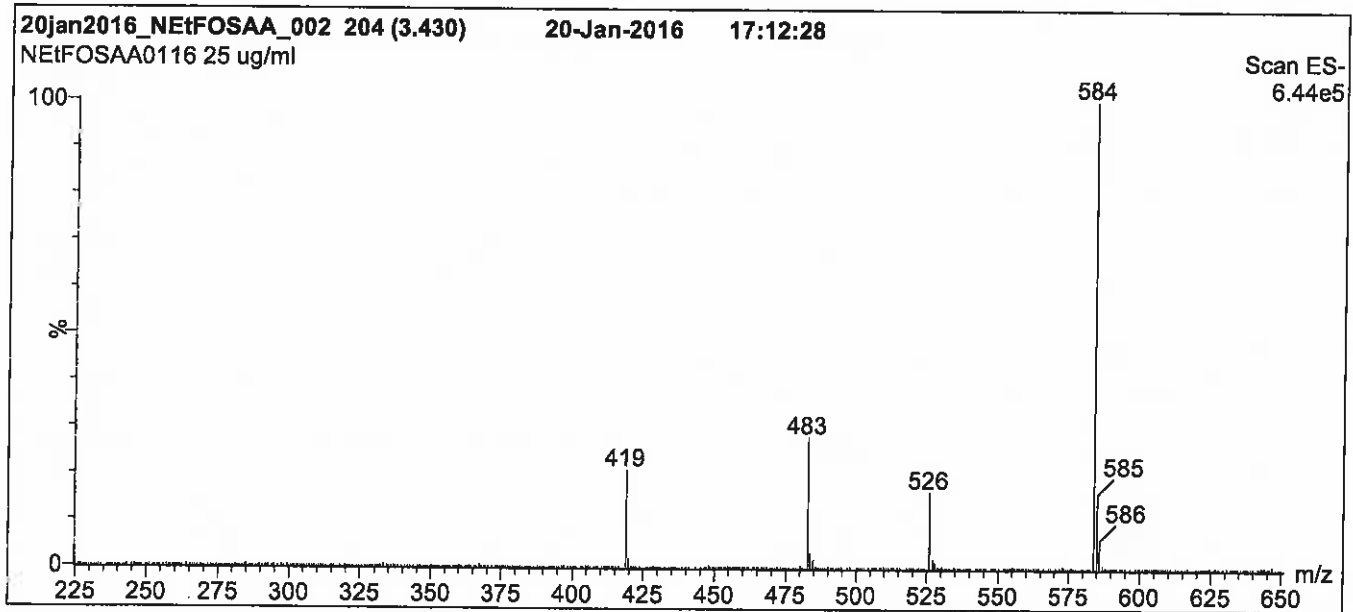
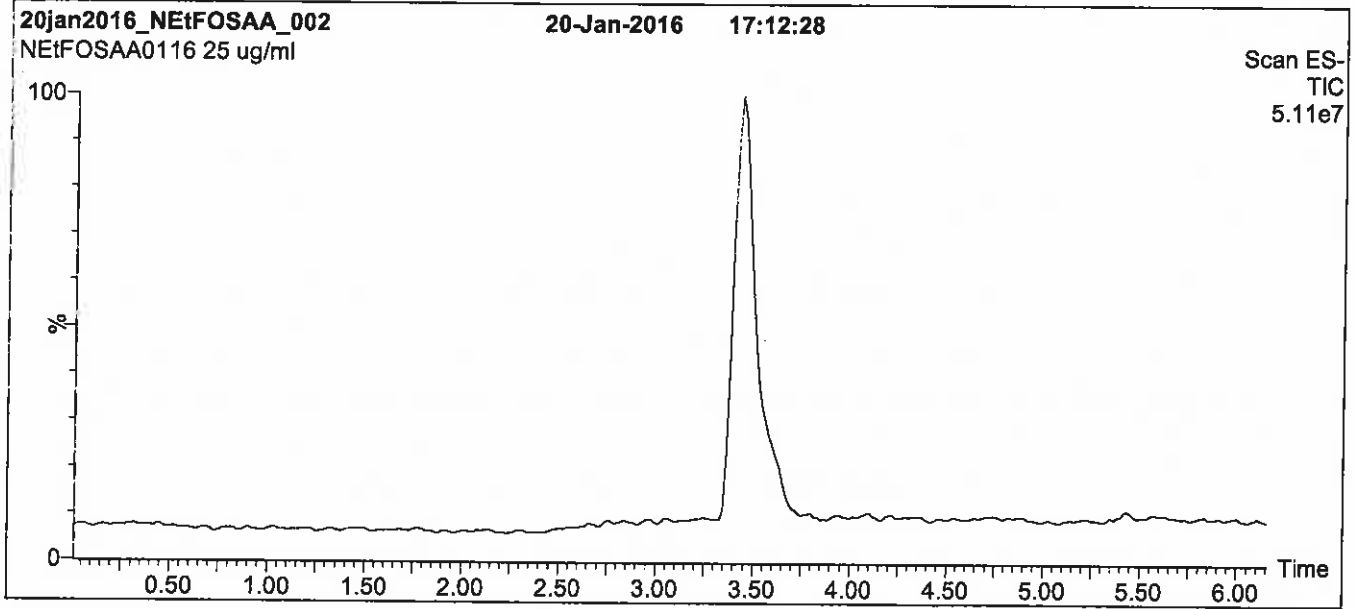
QUALITY MANAGEMENT:

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-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

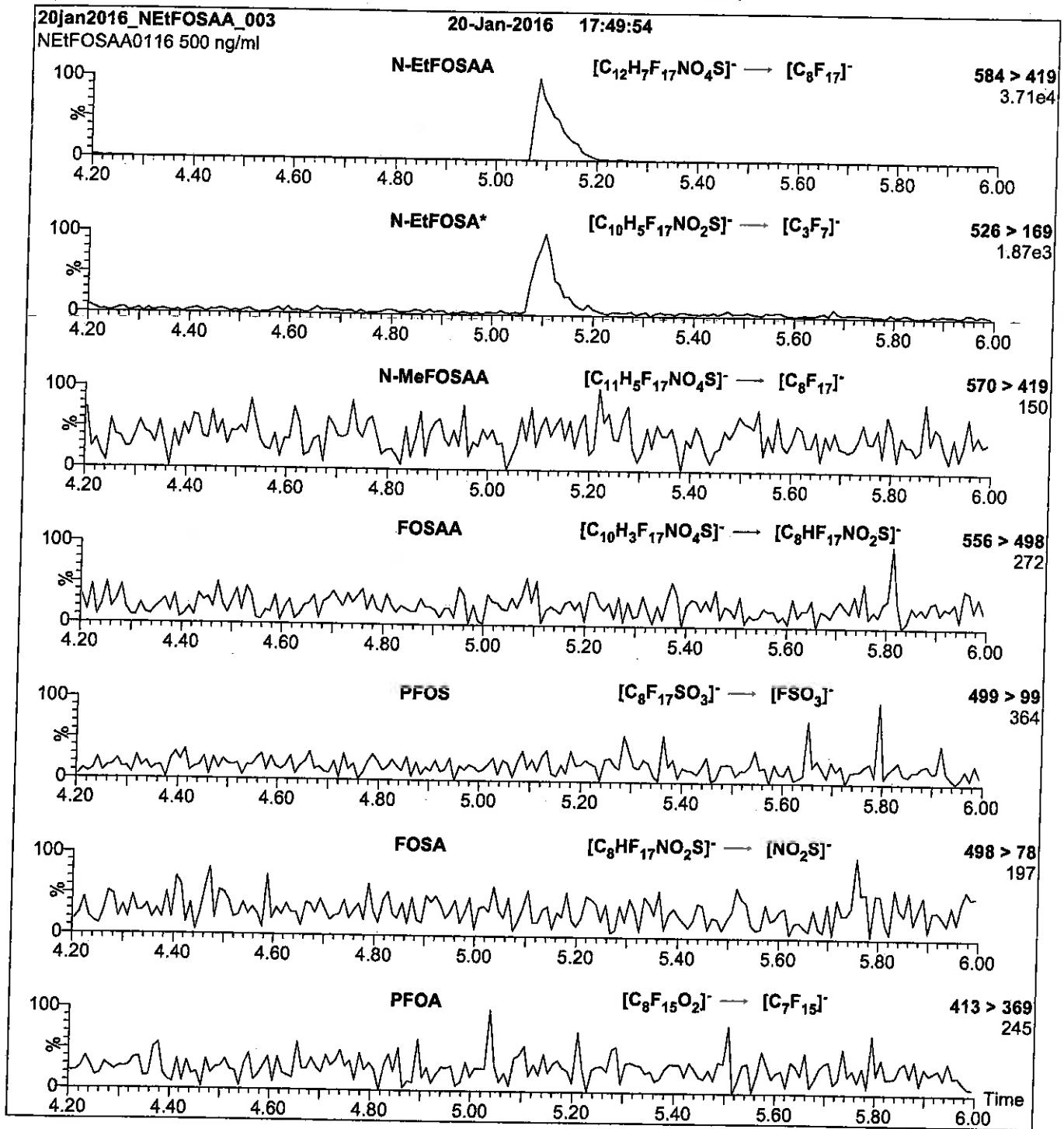
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Note: N-EtFOSA is formed by fragmentation of N-EtFOSAA.

Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
Collision Energy (eV) = 25

Reagent

LCN-MeFOSA-M_00002

R: 8/23/16 SBC



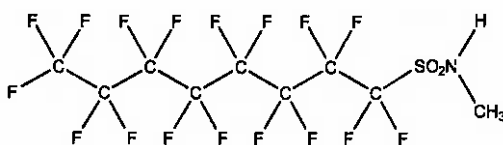
715564
ID: LCN-MeFOSA-M_00002
Exp: 05/24/21 Pppl: SBC
N-MeFOSA-M



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LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSA-M **LOT NUMBER:** NMeFOSA0516M
COMPOUND: N-methylperfluoro-1-octanesulfonamide
STRUCTURE: **CAS #:** 31506-32-8



MOLECULAR FORMULA: C₉H₄F₁₇NO₂S **MOLECULAR WEIGHT:** 513.17
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/24/2016
EXPIRY DATE: (mm/dd/yyyy) 05/24/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/26/2016
(mm/dd/yyyy)

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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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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LIMITED WARRANTY:

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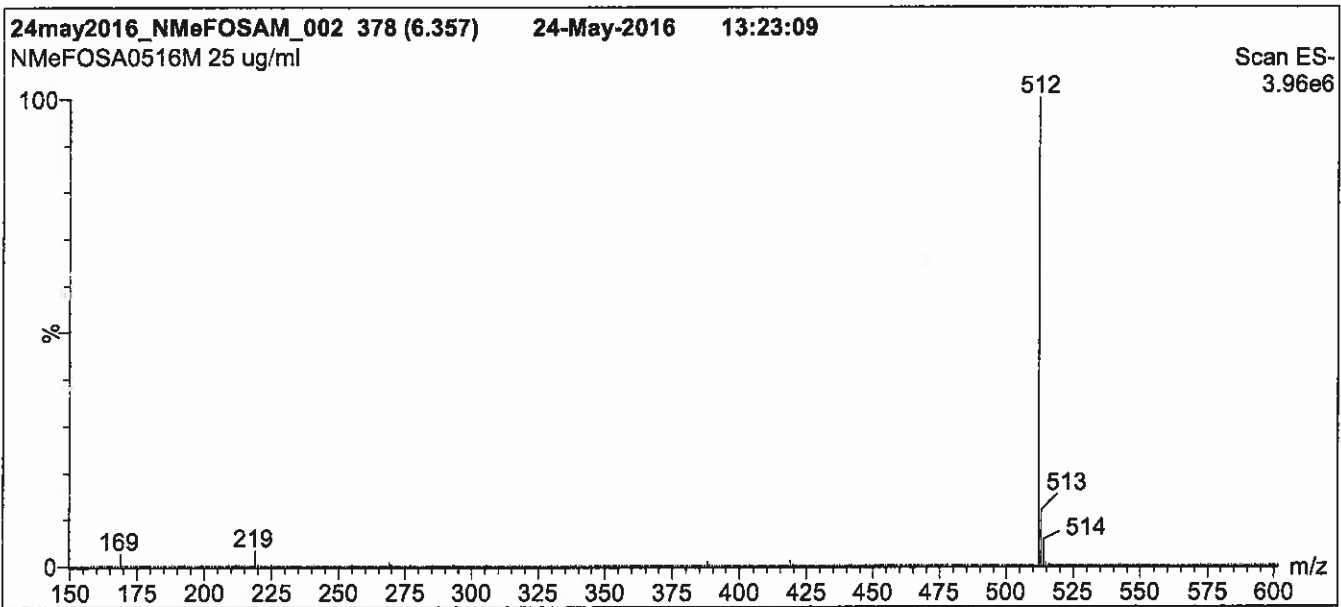
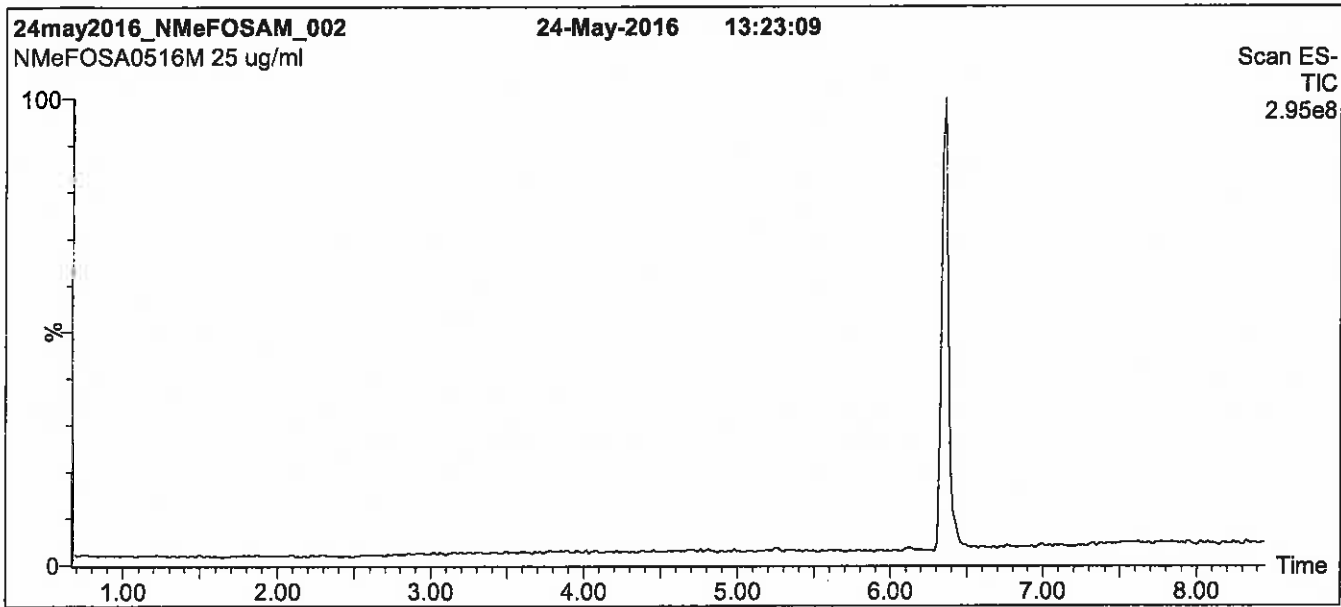
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
 Start: 45% H₂O / 55% (80:20 MeOH:ACN)
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7.5 min and hold for
 1.5 min before returning to initial conditions in 0.5 min.
 Time: 10 min

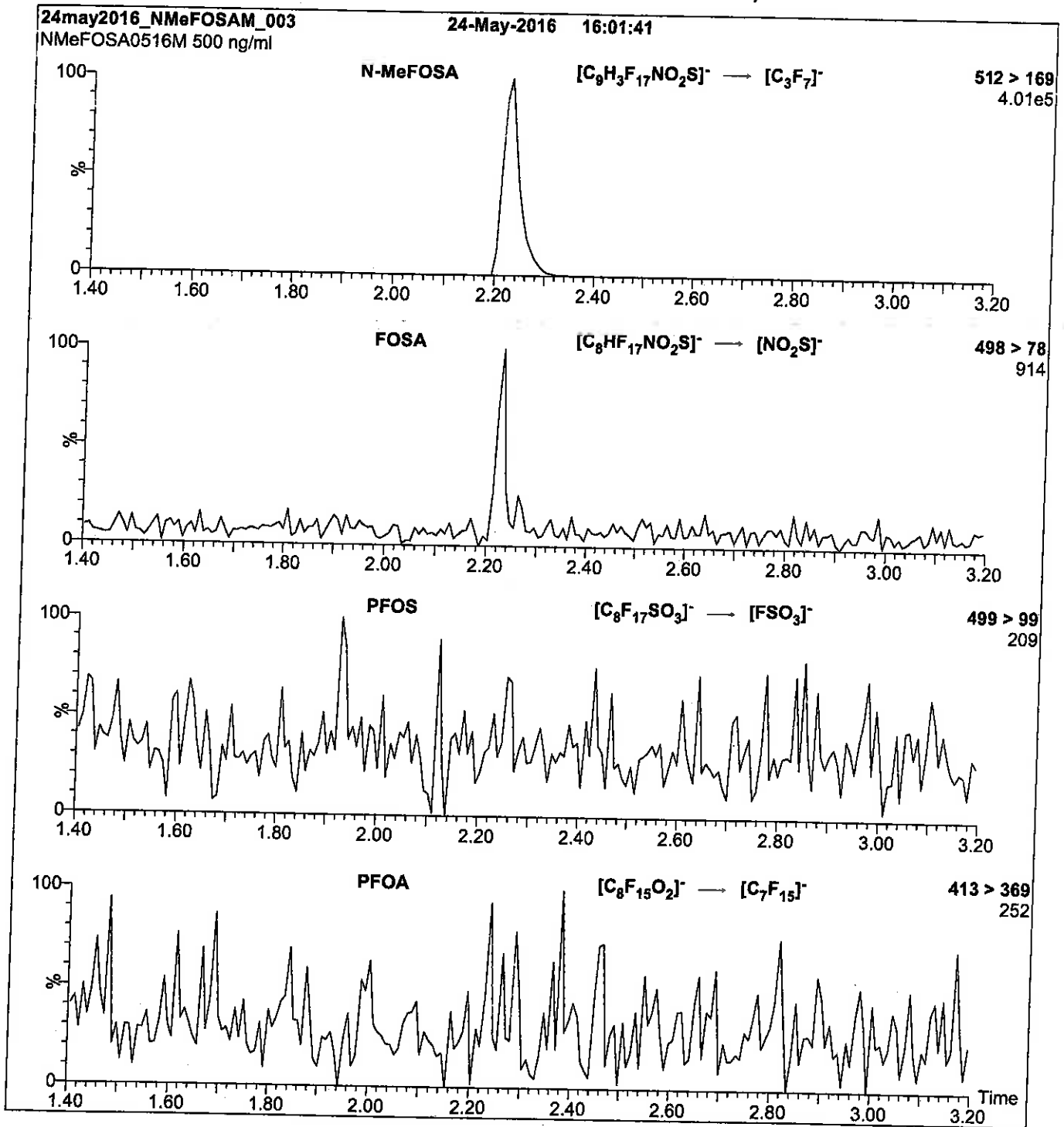
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.50
 Cone Voltage (V) = 40.00
 Core 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)

MS Parameters

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

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

Flow: 300 μ l/min

Reagent

LCN-MeFOSAA_00003

R: 8/23/16 JAE

715562
ID: LCN-MeFOSAA_00003
Exp: 01/20/21 Prod. SEC
N-MeFOSAA

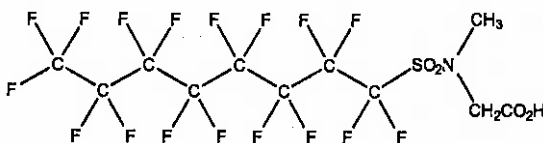


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSAA **LOT NUMBER:** NMeFOSAA0116
COMPOUND: N-methylperfluoro-1-octanesulfonamidoacetic acid

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



MOLECULAR FORMULA: C₁₁H₈F₁₇NO₄S **MOLECULAR WEIGHT:** 571.21
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/20/2016
EXPIRY DATE: (mm/dd/yyyy) 01/20/2021
RECOMMENDED STORAGE: Refrigerate ampoule


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 01/21/2016
B.G. Chittim (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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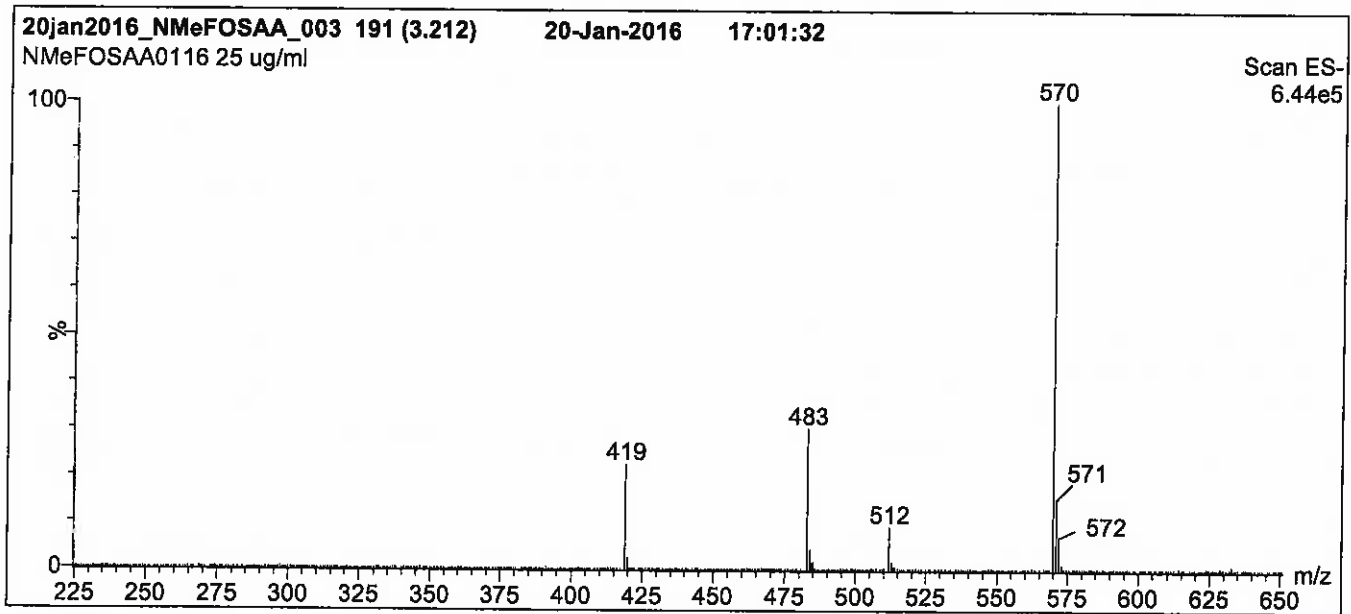
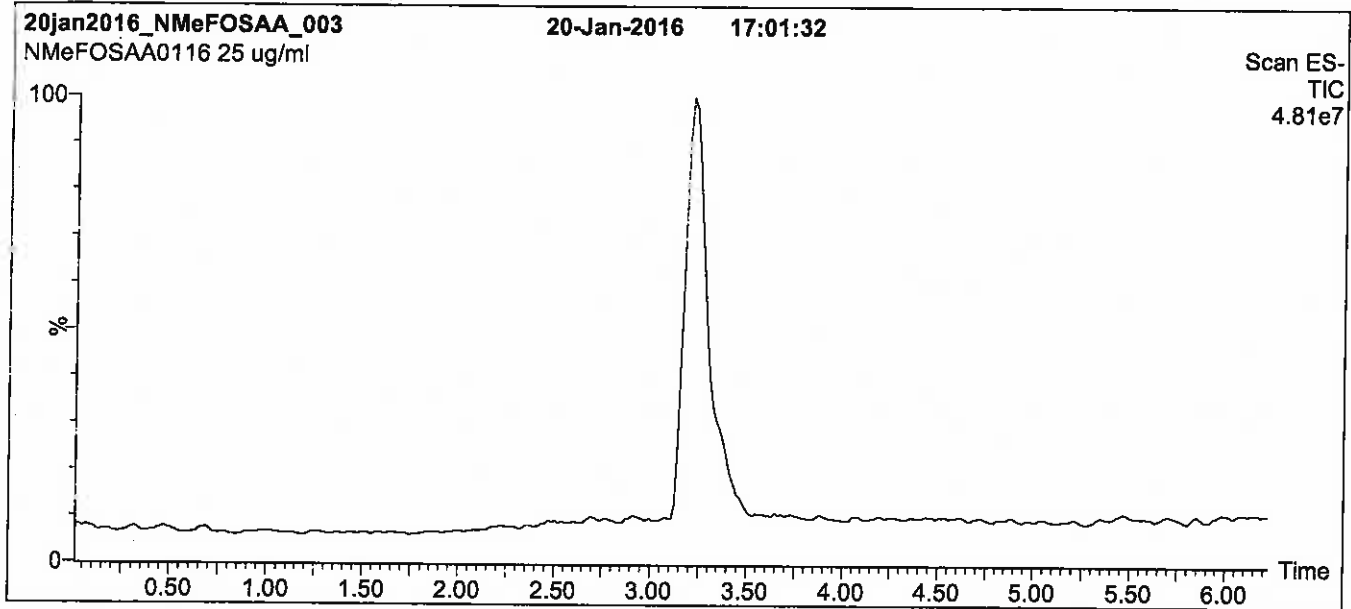
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

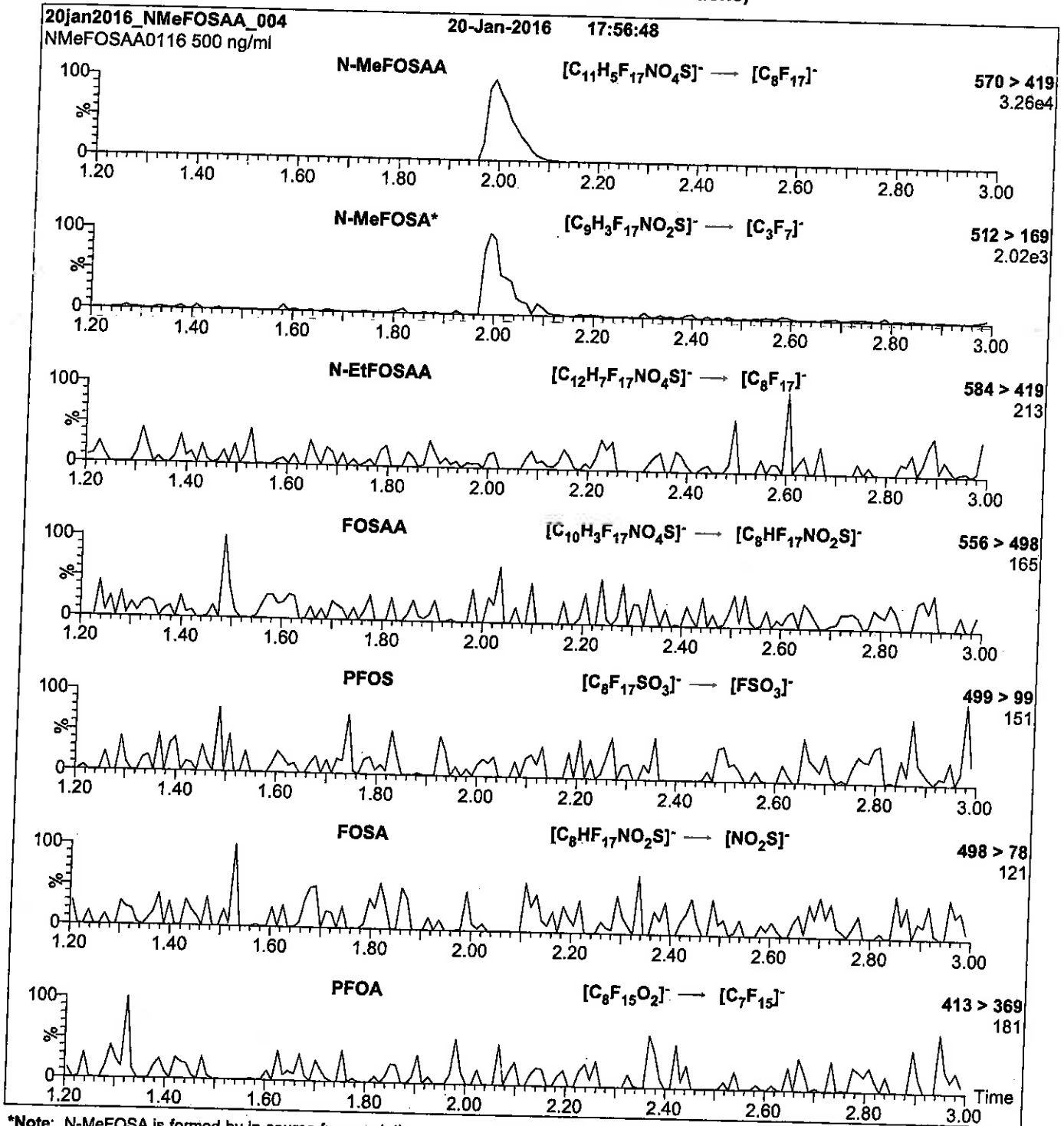
MS Parameters

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

Flow: 300 μ l/min

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



*Note: N-MeFOSA is formed by in-source fragmentation.

Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
Collision Energy (eV) = 25

Reagent

LCPFACMXB_00007



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXB

**Solution/Mixture of Native
Perfluoroalkylcarboxylic Acids and
Native Perfluoroalkylsulfonates**

PRODUCT CODE: PFAC-MXB
LOT NUMBER: PFACMXB1115
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/04/2015
LAST TESTED: (mm/dd/yyyy) 11/06/2015
EXPIRY DATE: (mm/dd/yyyy) 11/06/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXB is a solution/mixture of thirteen native perfluoroalkylcarboxylic acids (C₄-C₁₄, C₁₆, and C₁₈) and four native perfluoroalkylsulfonates (C₄, C₆, C₈ and C₁₀). The full name, abbreviation and concentration for each of the components are given in Table A.

The individual perfluoroalkylcarboxylic acids and perfluoroalkylsulfonates all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
 Figure 1: LC/MS Data (SiR)
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)
 Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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:

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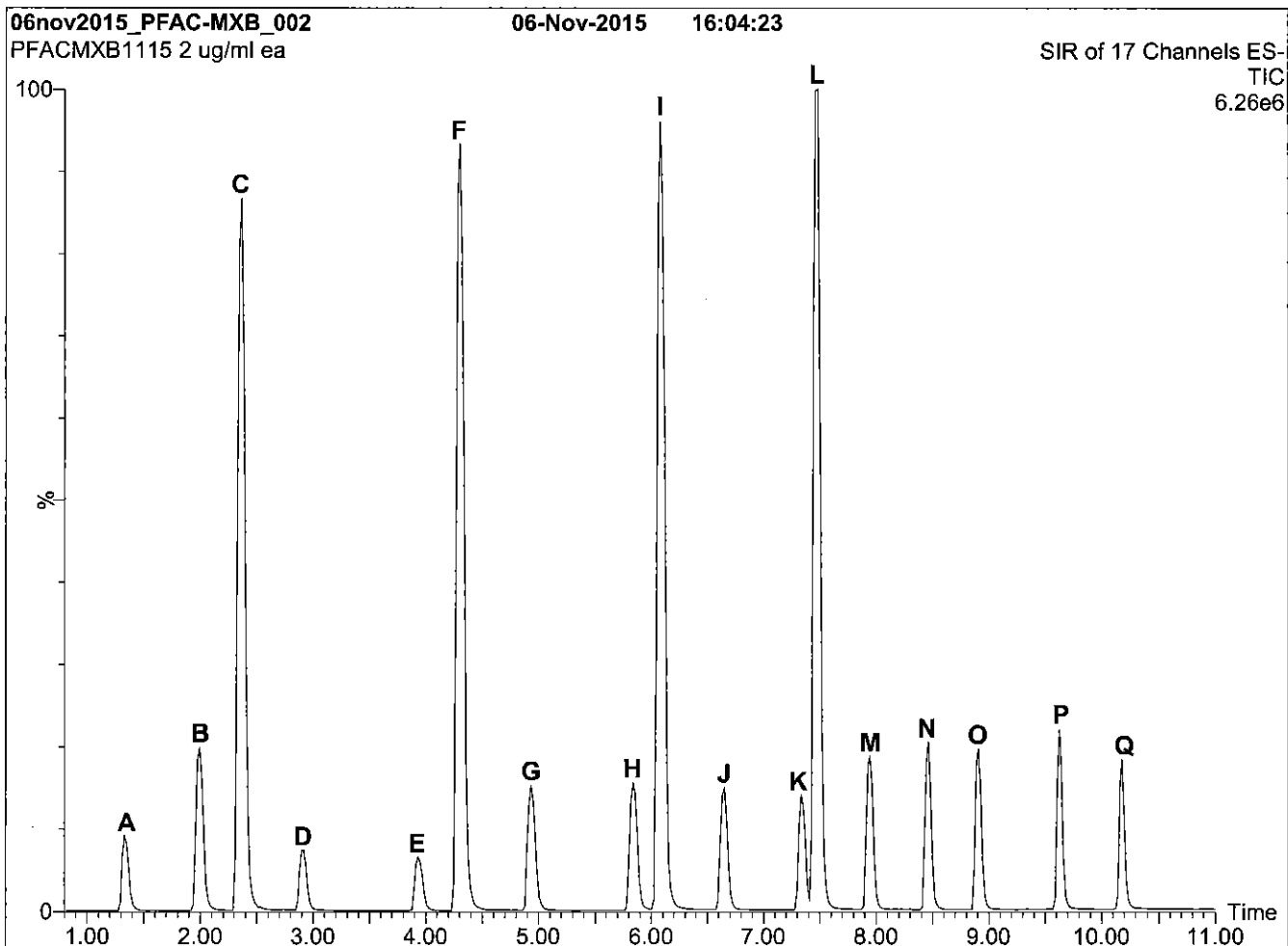
Table A: PFAC-MXB; Components and Concentrations (ng/ml, ± 5% in Methanol / Water (<1%))

Name	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Perfluoro-n-butanoic acid	PFBA	2000		A
Perfluoro-n-pentanoic acid	PFPeA	2000		B
Perfluoro-n-hexanoic acid	PFHxA	2000		D
Perfluoro-n-heptanoic acid	PFHpA	2000		E
Perfluoro-n-octanoic acid	PFOA	2000		G
Perfluoro-n-nonanoic acid	PFNA	2000		H
Perfluoro-n-decanoic acid	PFDA	2000		J
Perfluoro-n-undecanoic acid	PFUdA	2000		K
Perfluoro-n-dodecanoic acid	PFDoA	2000		M
Perfluoro-n-tridecanoic acid	PFTrDA	2000		N
Perfluoro-n-tetradecanoic acid	PFTeDA	2000		O
Perfluoro-n-hexadecanoic acid	PFHxDA	2000		P
Perfluoro-n-octadecanoic acid	PFODA	2000		Q
Name	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanesulfonate	L-PFBS	2000	1770	C
Sodium perfluoro-1-hexanesulfonate	L-PFHxS	2000	1890	F
Sodium perfluoro-1-octanesulfonate	L-PFOS	2000	1910	I
Sodium perfluoro-1-decanesulfonate	L-PFDS	2000	1930	L

Certified By: 
B.G. Chittim

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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

Time: 12 min

Flow: 300 μ l/min

MS Parameters

Experiment: SIR of 17 Channels

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

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

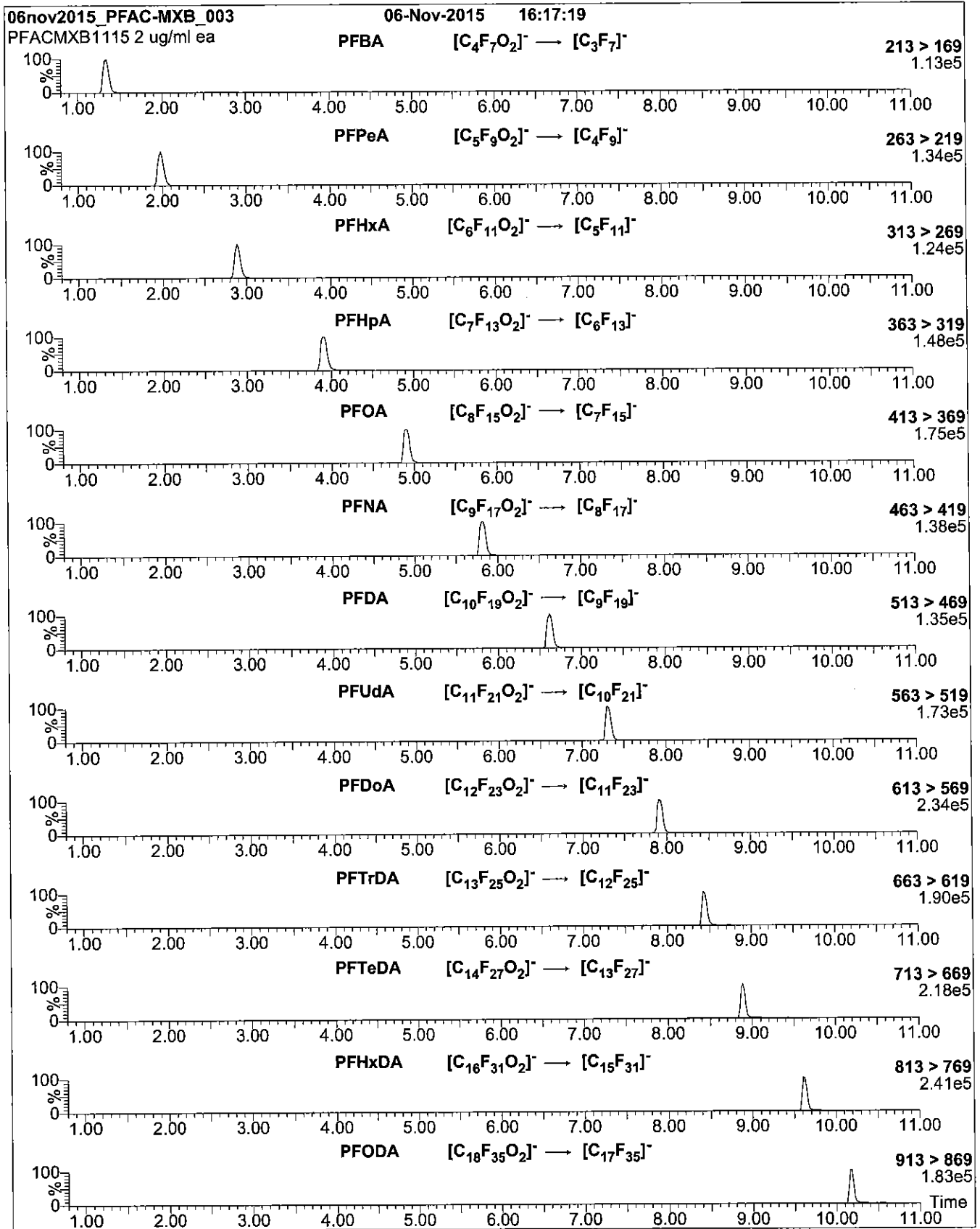
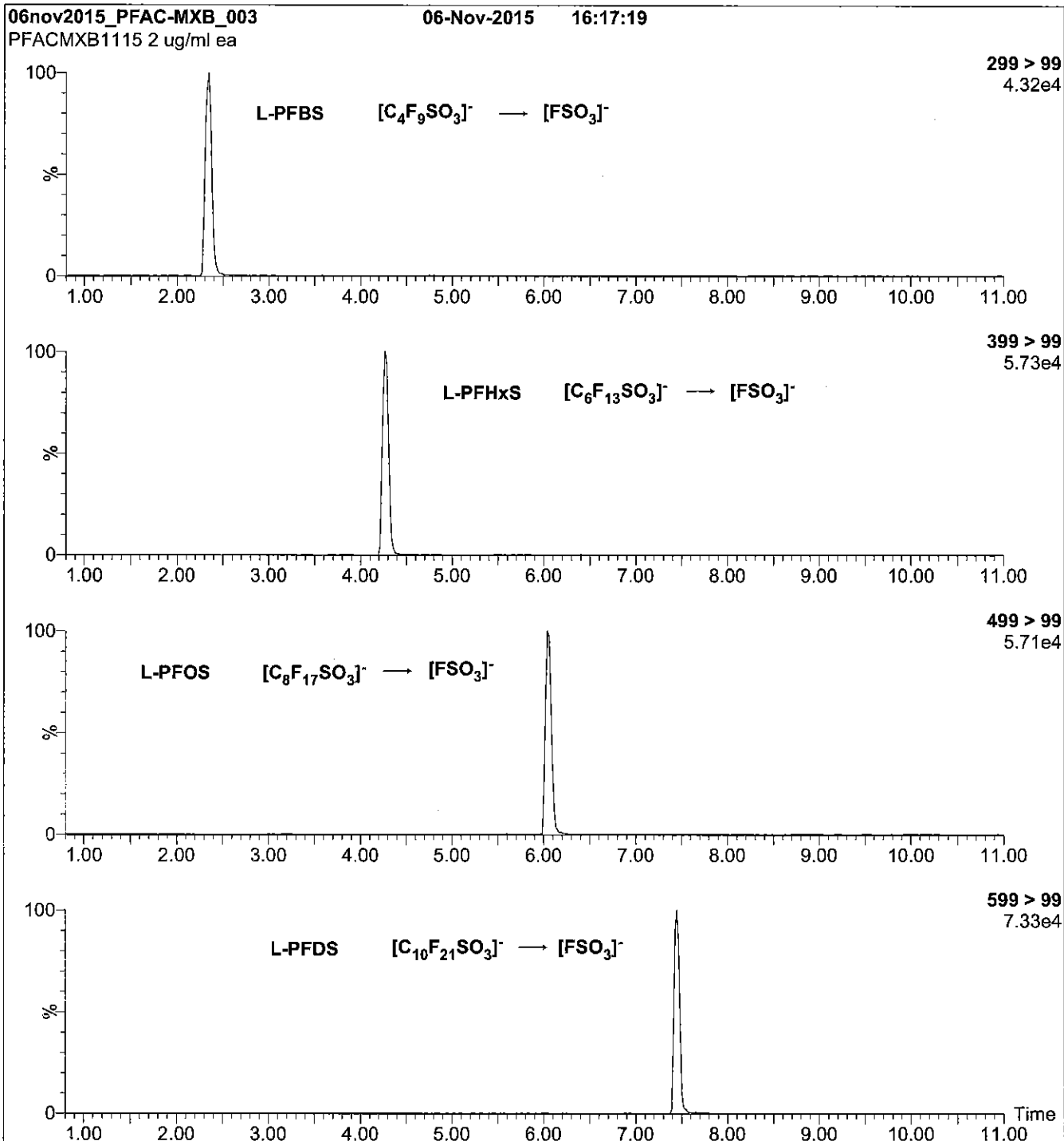


Figure 3: PFAC-MXB; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figures 2 and 3:

Injection: on-column (PFAC-MXB)
 Mobile phase: Same as Figure 1
 Flow: 300 μ /min

MS Parameters
 Collision Gas (mbar) = 3.24e-3
 Collision Energy (eV) = 8-50 (variable)

Reagent

LCPFBA_00005

Scanned
10/16/14

R: SBC 9/13/16



730531
ID: LCPFBA_00005
Exp: 05/27/21 Prpd: SBC
PF-n-butanolic acid



730532
ID: LCPFBA_00006
Exp: 05/27/21 Prpd: SBC
PF-n-butanolic acid



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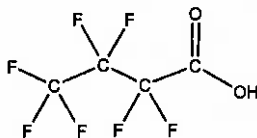
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFBA
COMPOUND: Perfluoro-n-butanolic acid

LOT NUMBER: PFBA0516

STRUCTURE:

CAS #: 375-22-4



MOLECULAR FORMULA: C₄HF₇O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 214.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/27/2016
EXPIRY DATE: (mm/dd/yyyy) 05/27/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim
Date: 05/31/2016
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

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HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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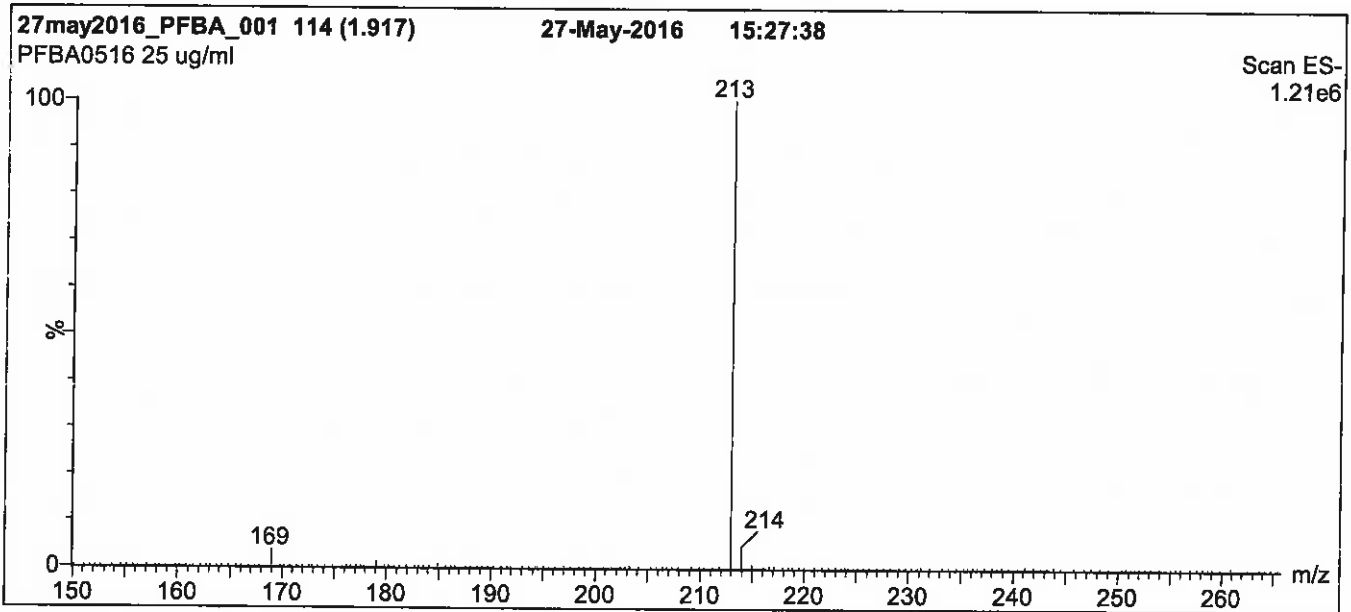
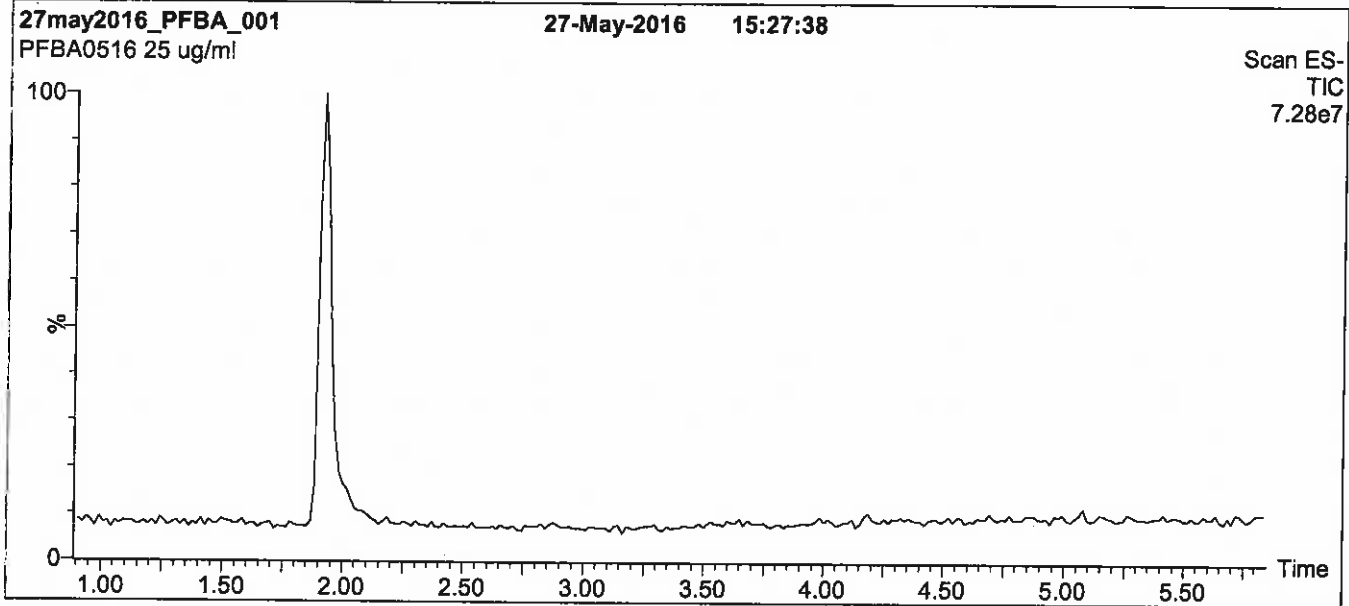
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

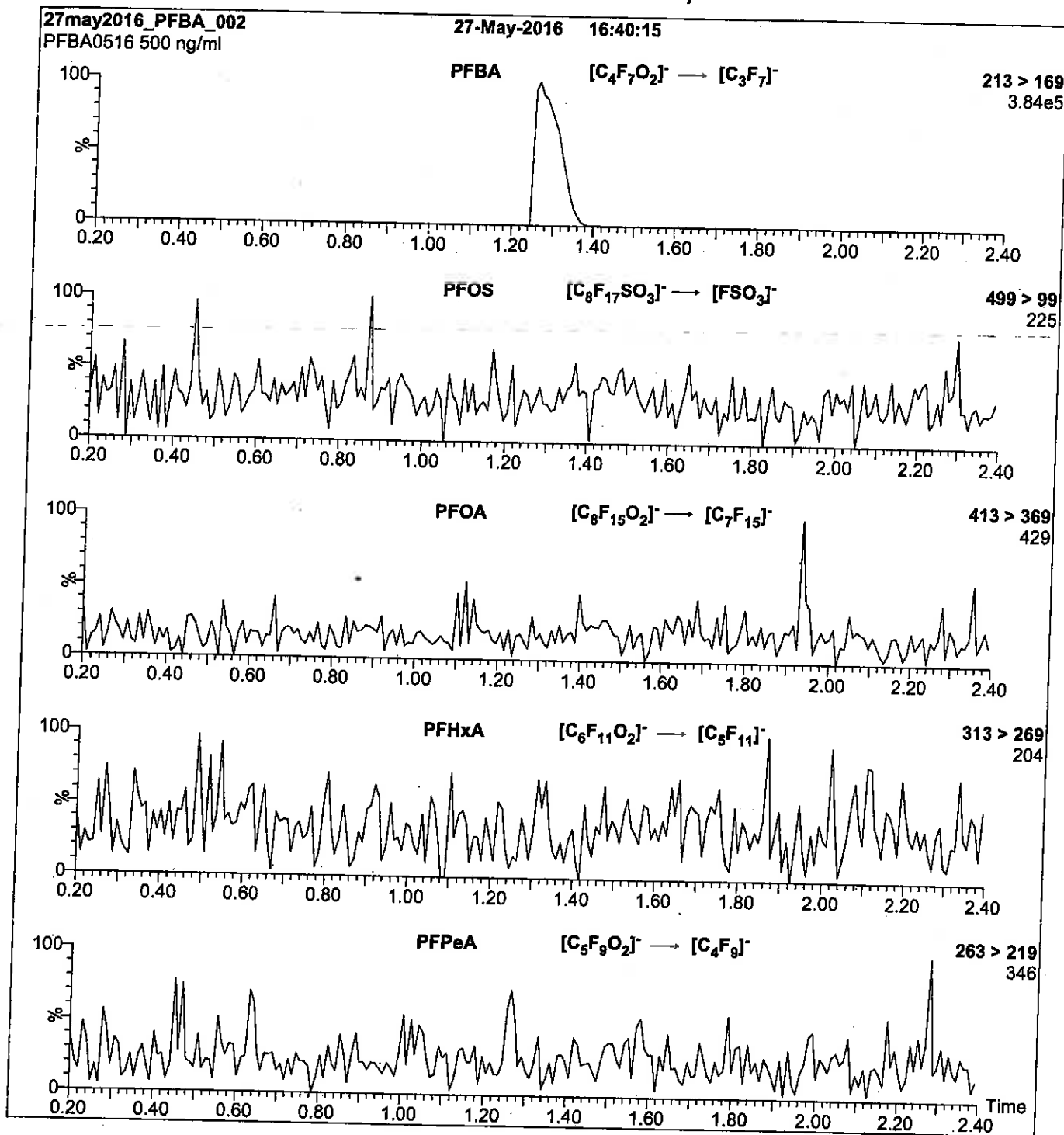
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.62e-3
Collision Energy (eV) = 10

Reagent

LCPFBA_00006

Scanned
10/16/14

R: SBC 9/13/16



730531
ID: LCPFBA_00005
Exp: 05/27/21 Prpd: SBC
PF-n-butanolic acid



730532
ID: LCPFBA_00006
Exp: 05/27/21 Prpd: SBC
PF-n-butanolic acid



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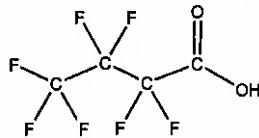
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFBA
COMPOUND: Perfluoro-n-butanolic acid

LOT NUMBER: PFBA0516

STRUCTURE:

CAS #: 375-22-4



MOLECULAR FORMULA: C₄HF₇O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 214.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/27/2016
EXPIRY DATE: (mm/dd/yyyy) 05/27/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/31/2016
(mm/dd/yyyy)

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

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

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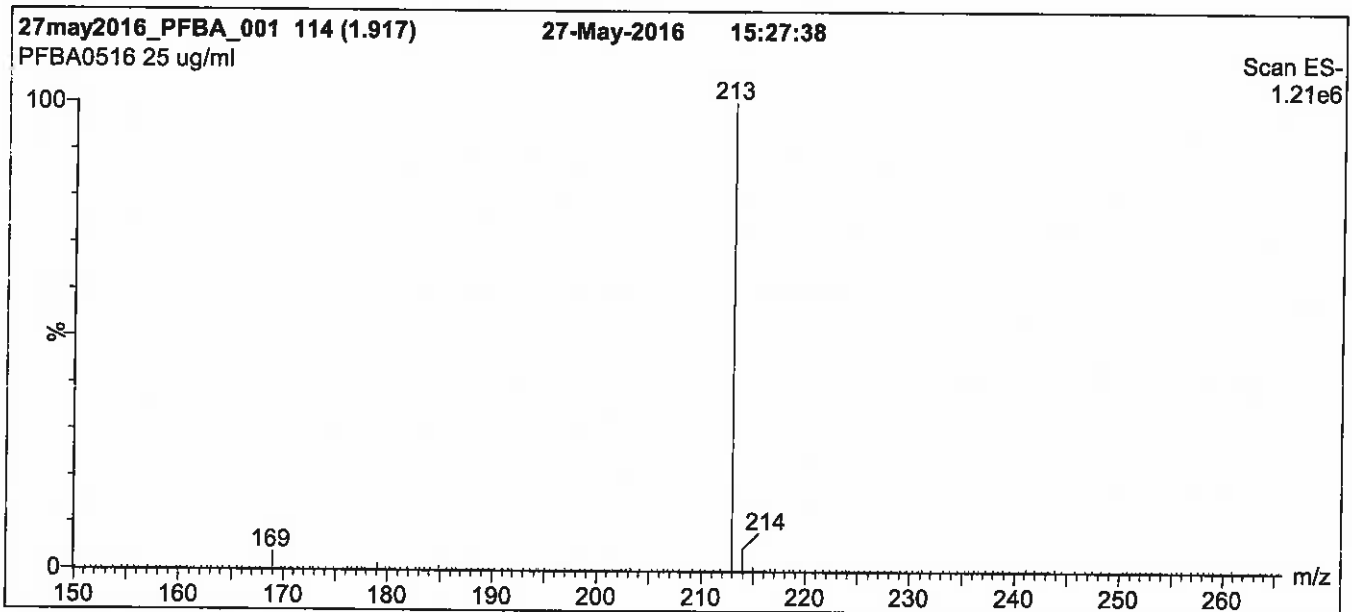
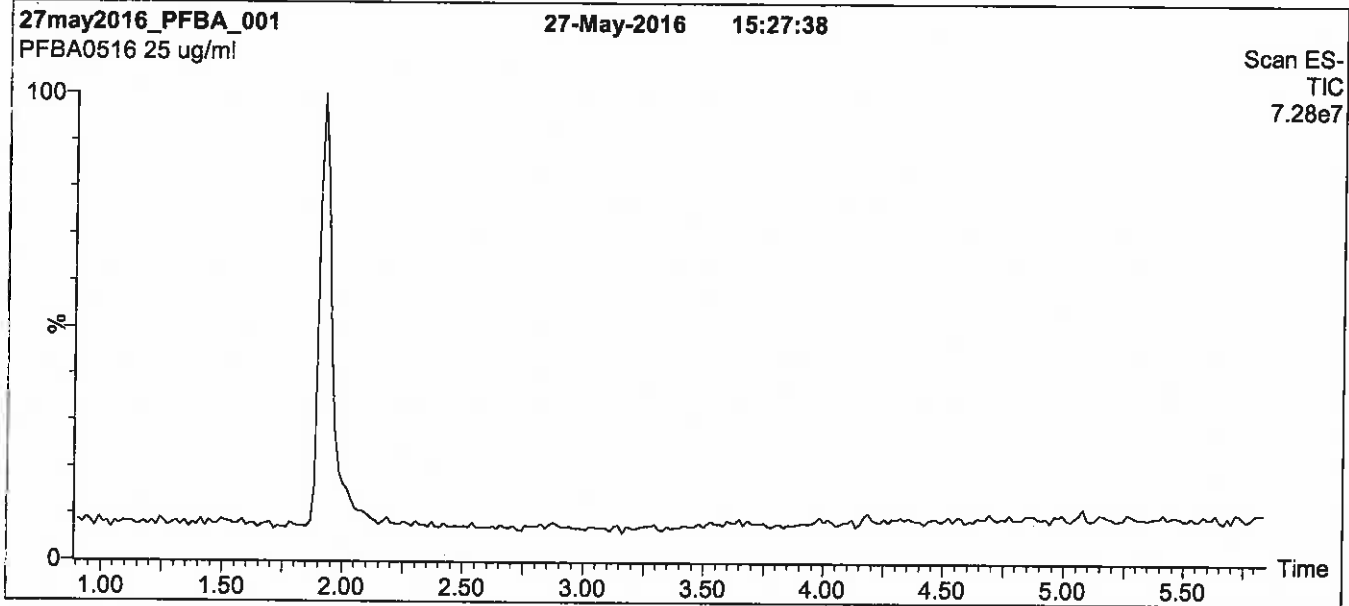
QUALITY MANAGEMENT:

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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 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

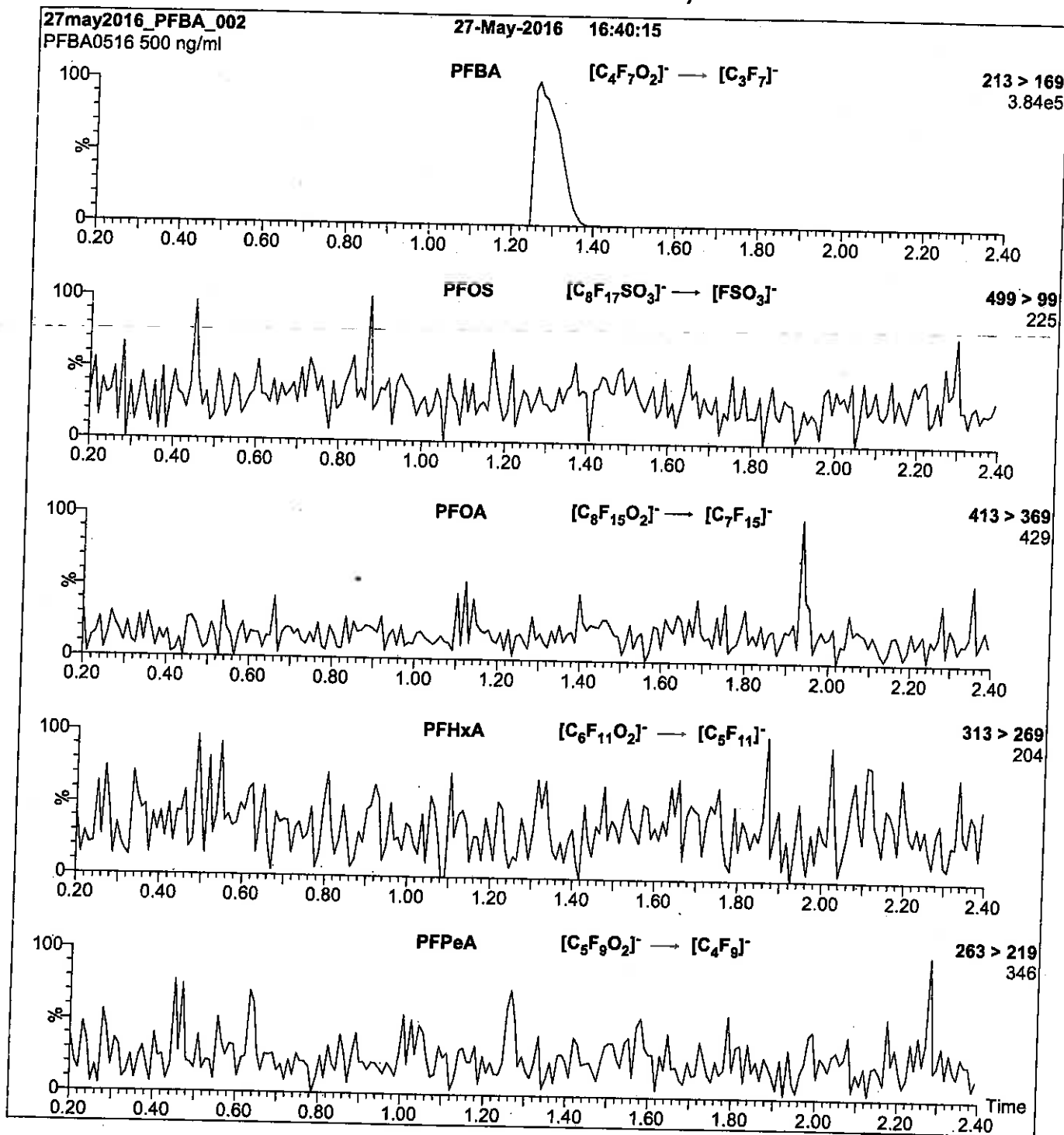
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.62e-3
Collision Energy (eV) = 10

Reagent

LCPFBS_00005



728306
 ID: LCM2-8:2FTS_00003
 Exp: 01/08/21 Prpd: SBC
 M2-8:2FTS

R: 9/9/16 gbe

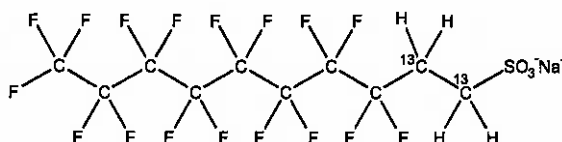


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0116
COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-¹³C₂]decane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₈H₄F₁₇SO₃Na **MOLECULAR WEIGHT:** 552.15
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
 47.9 ± 2.4 µg/ml (M2-8:2FTS anion)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 01/08/2016 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 01/08/2021
RECOMMENDED STORAGE: Refrigerate ampoule

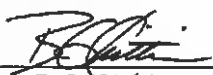
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
 B.G. Chittim **Date:** 01/18/2016
 (mm/dd/yyyy)

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

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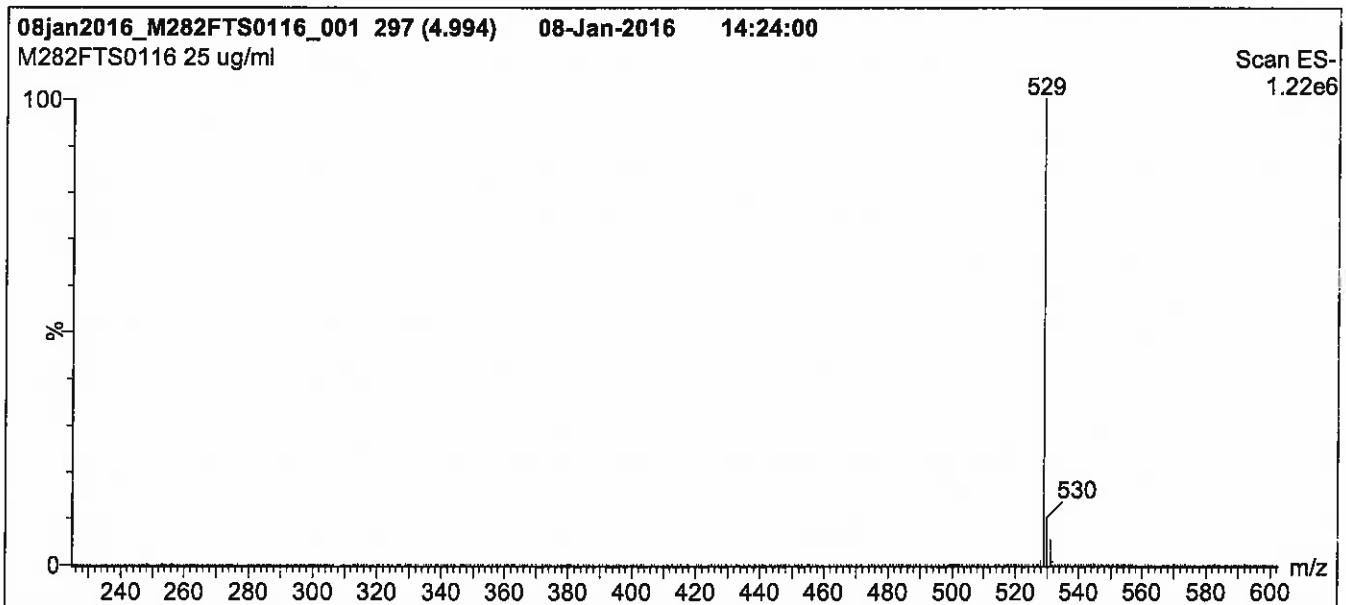
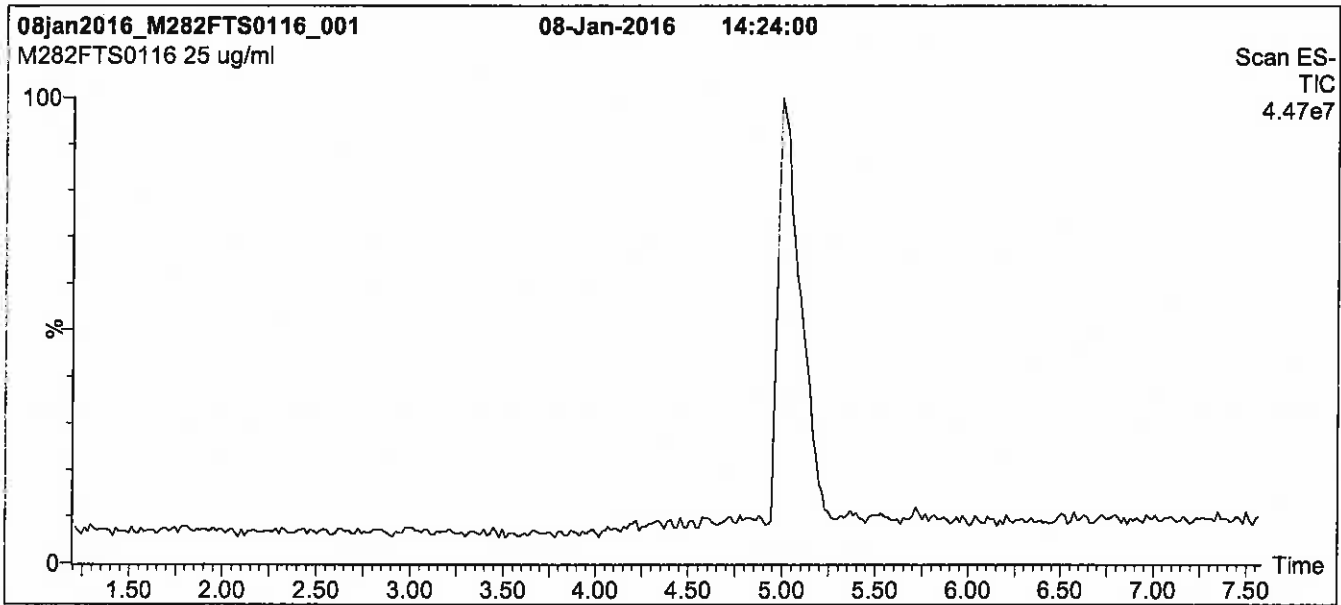
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Figure 1: M2-8:2FTS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

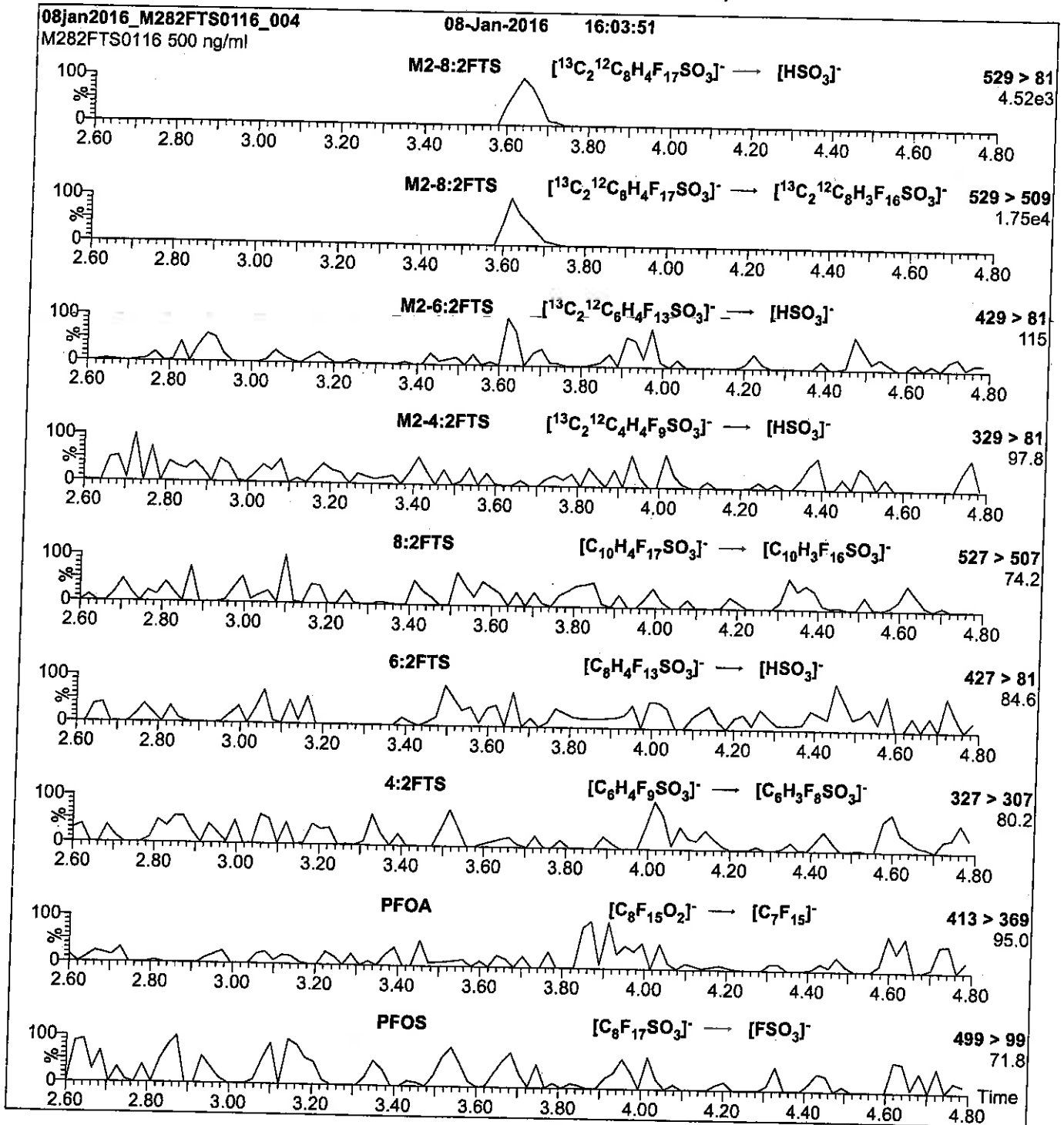
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

Figure 2: M2-8:2FTS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M2-8:2FTS)

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

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

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 30

R: SBC 9/13/16



730511
ID: LCPFBS_00005
Exp: 03/15/21 Pripd: SBC
PF-1-butanedisulfonate K sa



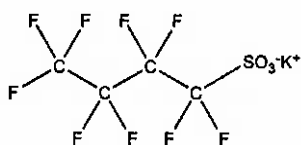
730512
ID: LCPFBS_00006
Exp: 03/15/21 Pripd: SBC
PF-1-butanedisulfonate K sa



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFBS **LOT NUMBER:** LPFBS0316
COMPOUND: Potassium perfluoro-1-butanedisulfonate
STRUCTURE: **CAS #:** 29420-49-3



MOLECULAR FORMULA: C₄F₉SO₃K **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) 03/15/2016
EXPIRY DATE: (mm/dd/yyyy) 03/15/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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Certified By:  **Date:** 03/21/2016
B.G. Chittim (mm/dd/yyyy)

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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

UNCERTAINTY:

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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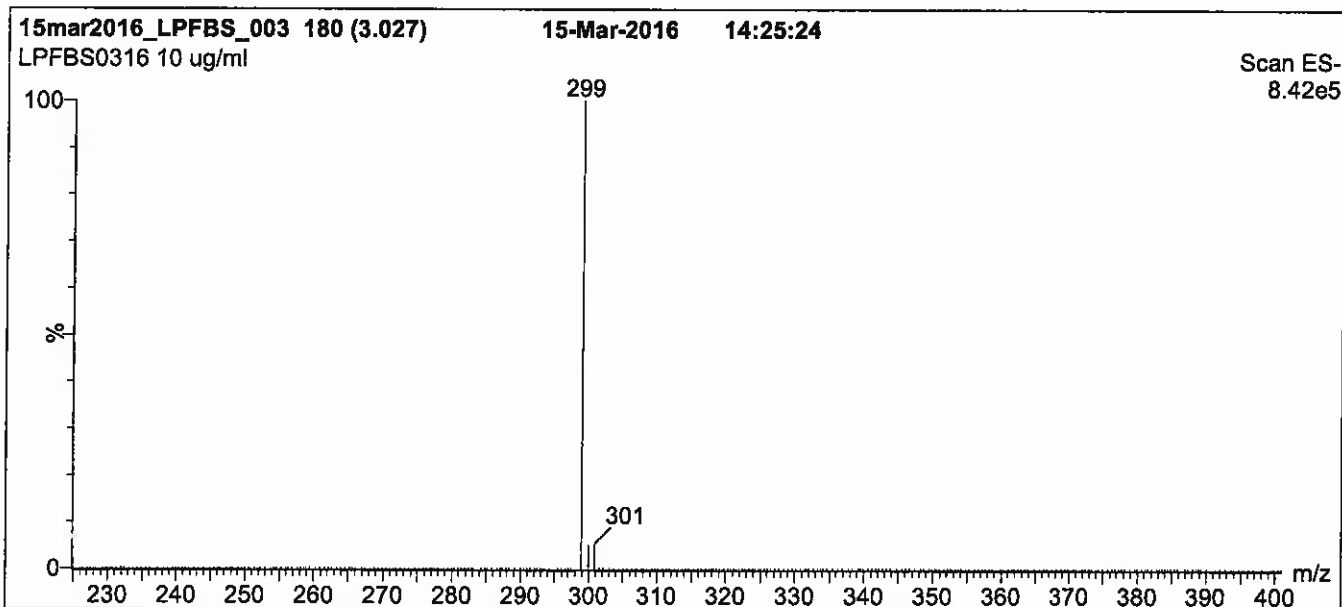
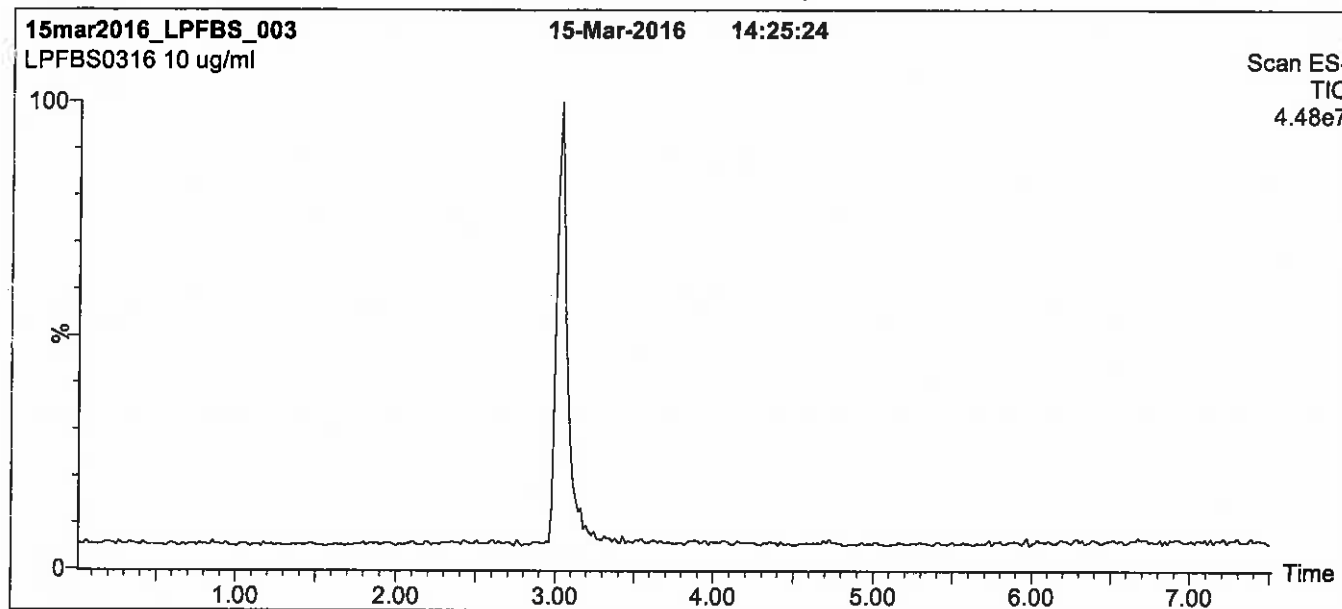
QUALITY MANAGEMENT:

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Figure 1: L-PFBS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

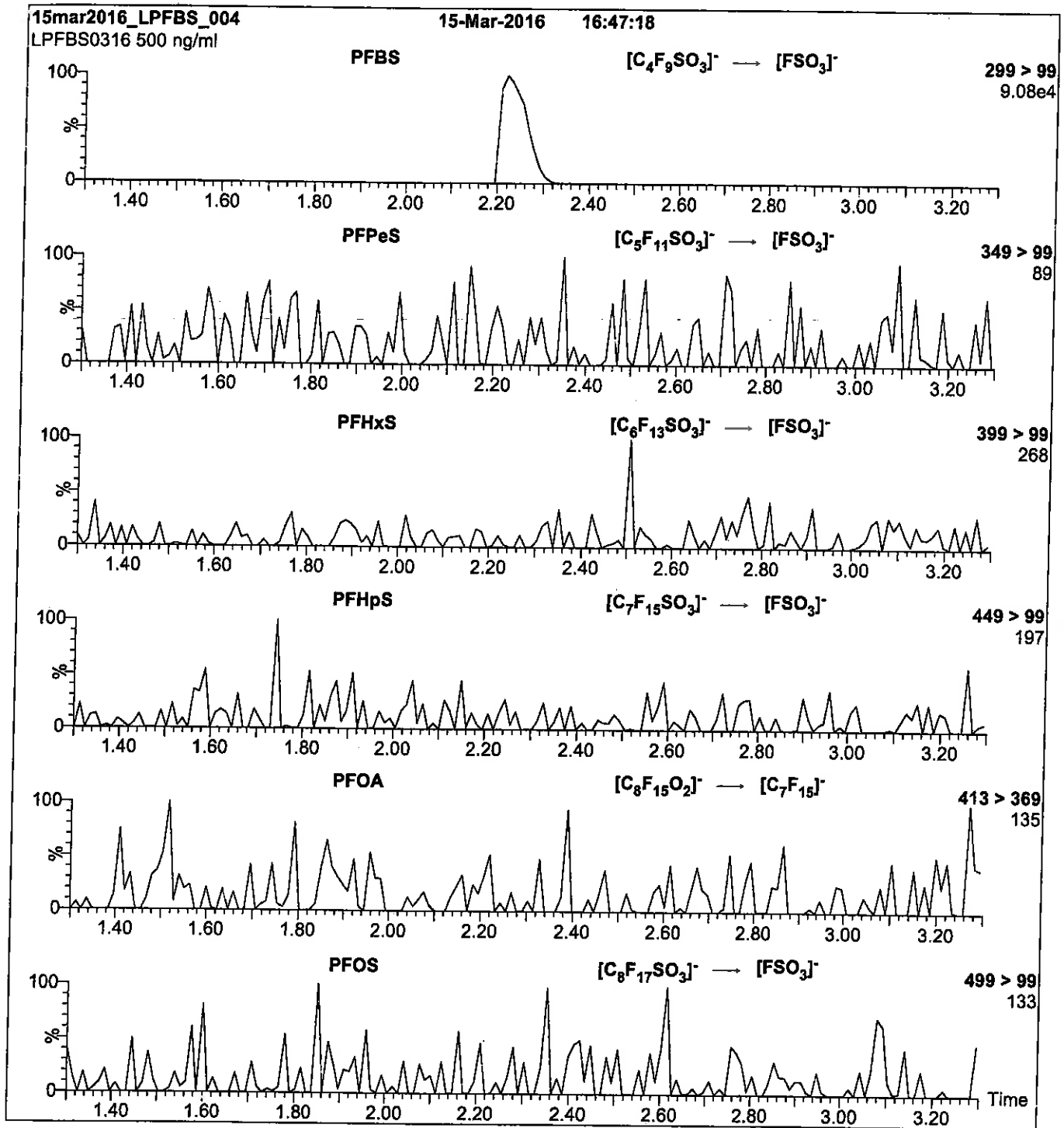
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.00
 Cone Voltage (V) = 40.00
 Cone Gas Flow (l/hr) = 50
 Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
 Collision Energy (eV) = 25

Reagent

LCPFBS_00006

INTENDED USE:

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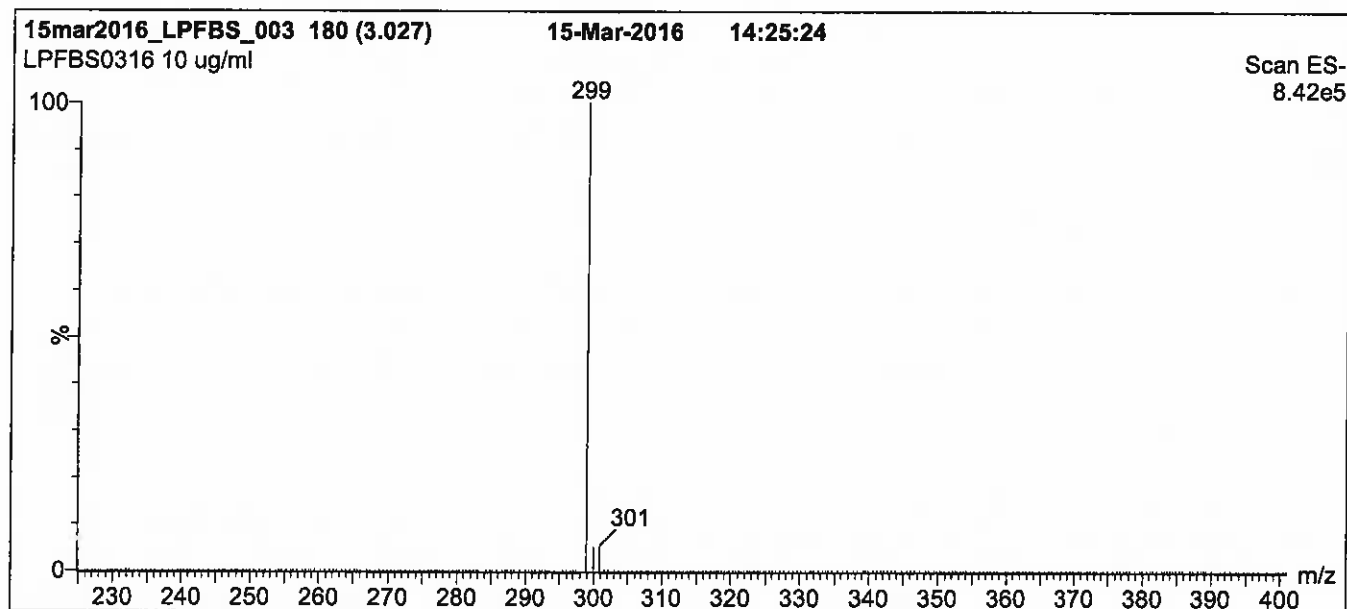
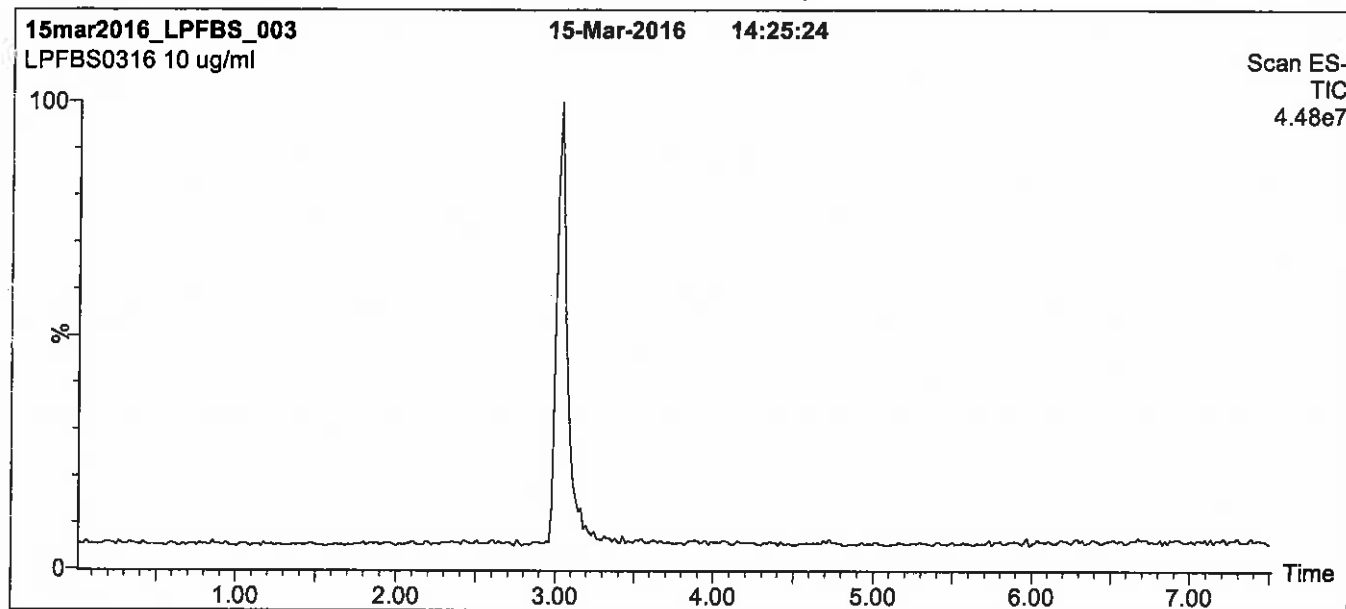
QUALITY MANAGEMENT:

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Conditions for Figure 1:

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

Chromatographic Conditions

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

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

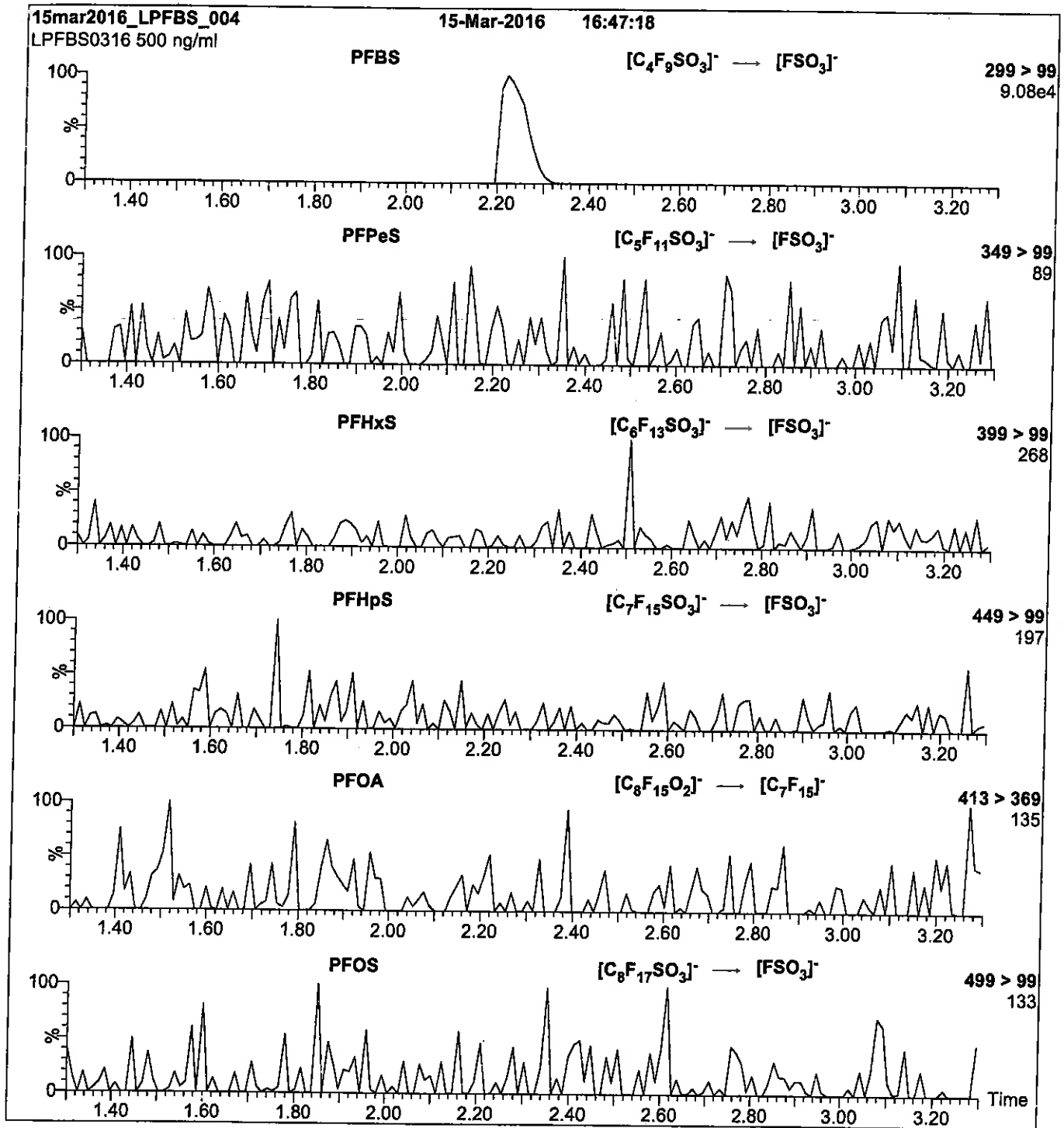
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
 Collision Energy (eV) = 25

Reagent

LCPFDA_00006

R: SBC 9/13/16
Scanned 10/14/16 SR



730620
ID: LCPFDA_00006
Exp: 05/31/21 Prep: SBC
PF-n-decanoic acid



730621
ID: LCPFDA_00007
Exp: 05/31/21 Prep: SBC
PF-n-decanoic acid

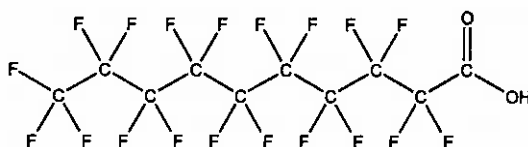


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFDA **LOT NUMBER:** PFDA0516
COMPOUND: Perfluoro-n-decanoic acid

STRUCTURE: **CAS #:** 335-76-2



MOLECULAR FORMULA: C₁₀HF₁₉O₂ **MOLECULAR WEIGHT:** 514.08
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/31/2016
EXPIRY DATE: (mm/dd/yyyy) 05/31/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of Perfluoro-n-nonanoic acid (PFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 06/13/2016
(mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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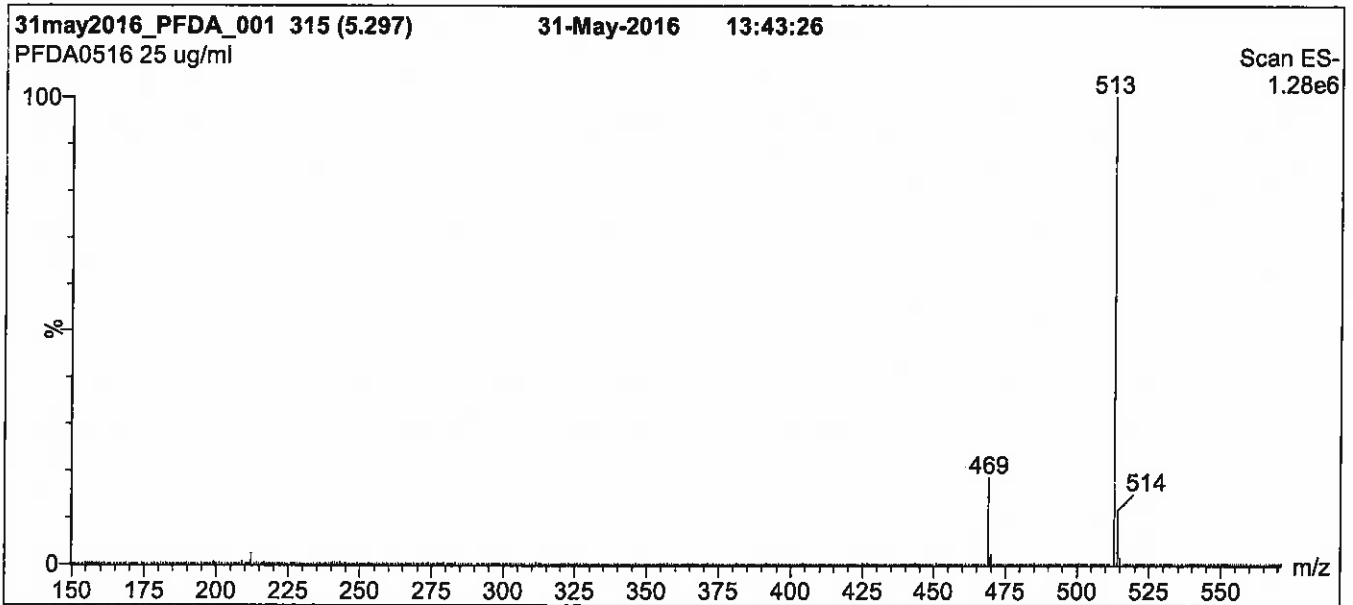
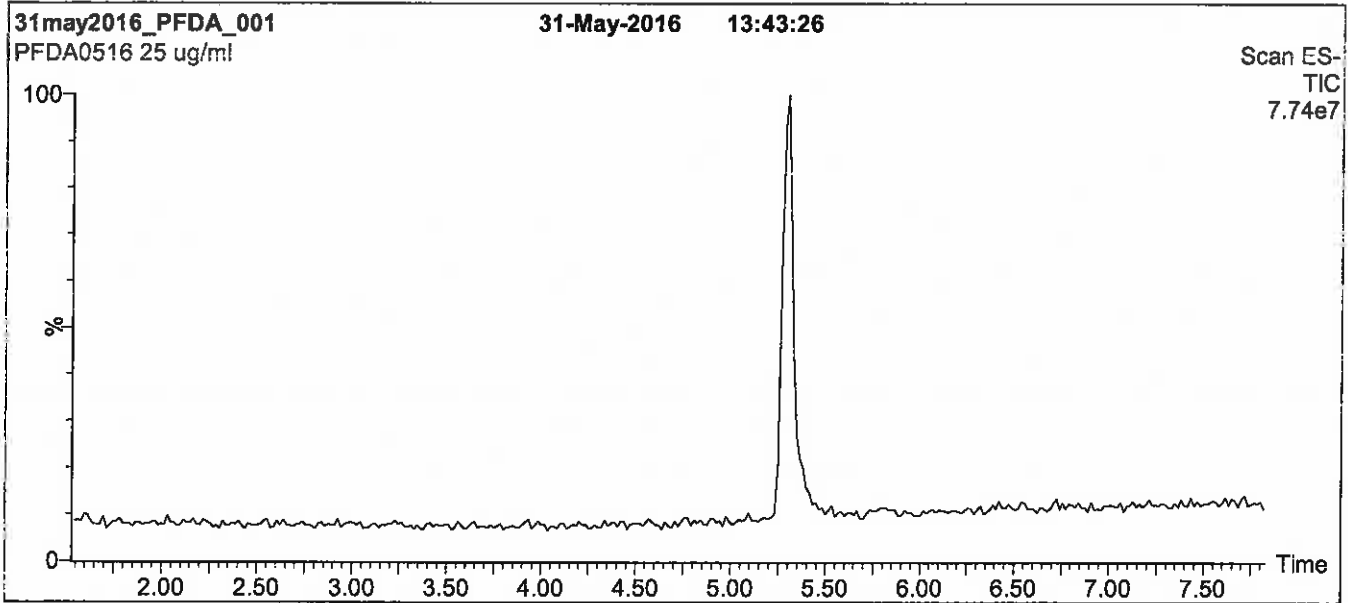
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Figure 1: PFDA; LC/MS Data (TIC and Mass Spectrum)



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

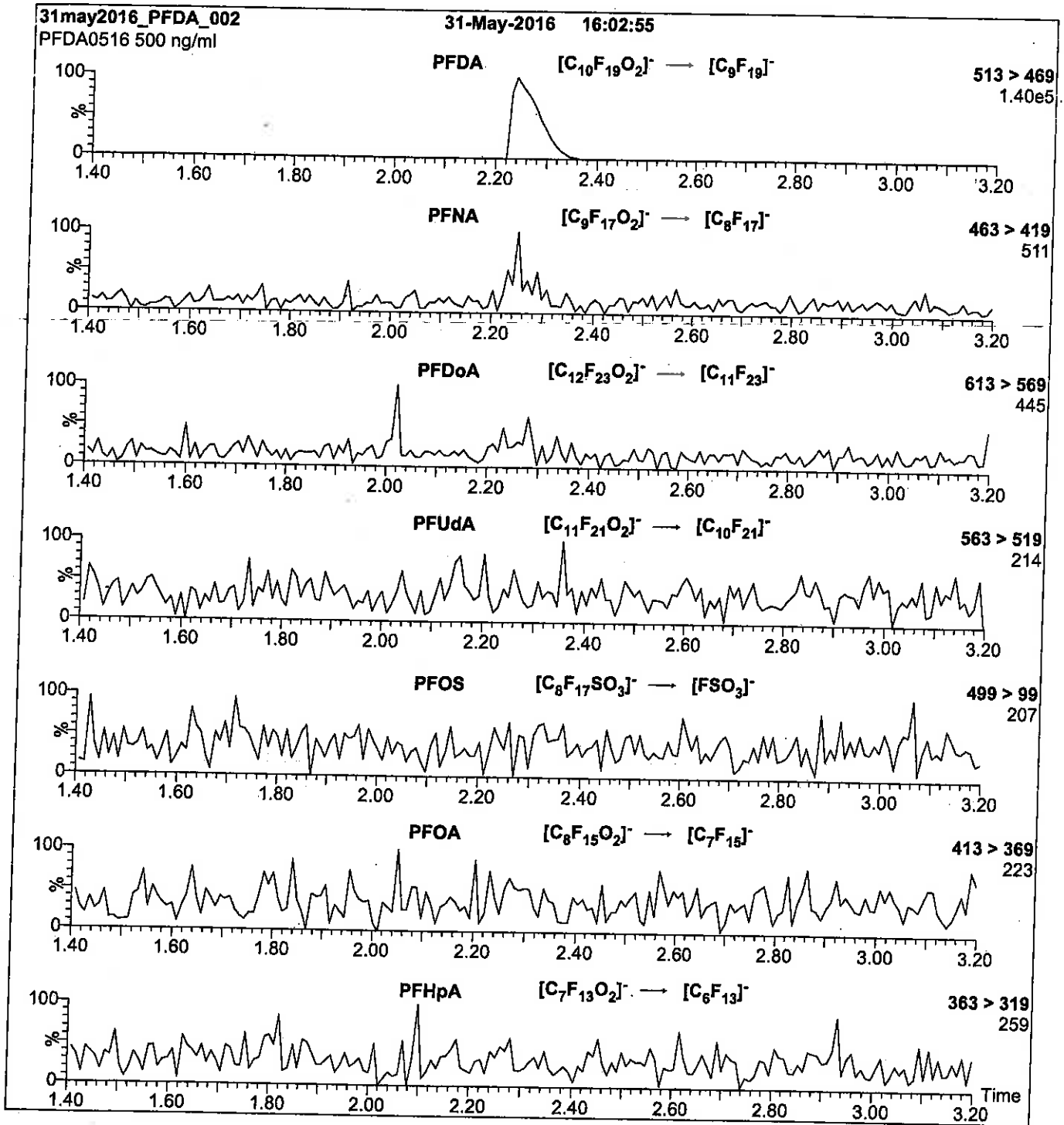
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

Figure 2: 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) = 3.39e-3
Collision Energy (eV) = 13

Reagent

LCPFDoA_00006

r: 12/21/16 SKV



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

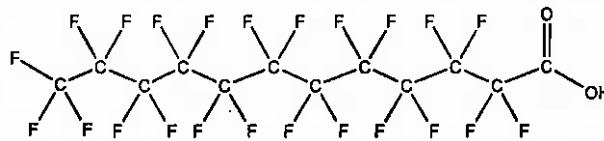
PRODUCT CODE:
COMPOUND:

PFD0A
Perfluoro-n-dodecanoic acid

LOT NUMBER: PFD0A0516

STRUCTURE:

CAS #: 307-55-1



MOLECULAR FORMULA:
CONCENTRATION:

C₁₂HF₂₃O₂
50 ± 2.5 µg/ml

MOLECULAR WEIGHT:
SOLVENT(S):

614.10
Methanol
Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

05/31/2016

EXPIRY DATE: (mm/dd/yyyy)

05/31/2021

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: 06/02/2016
(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

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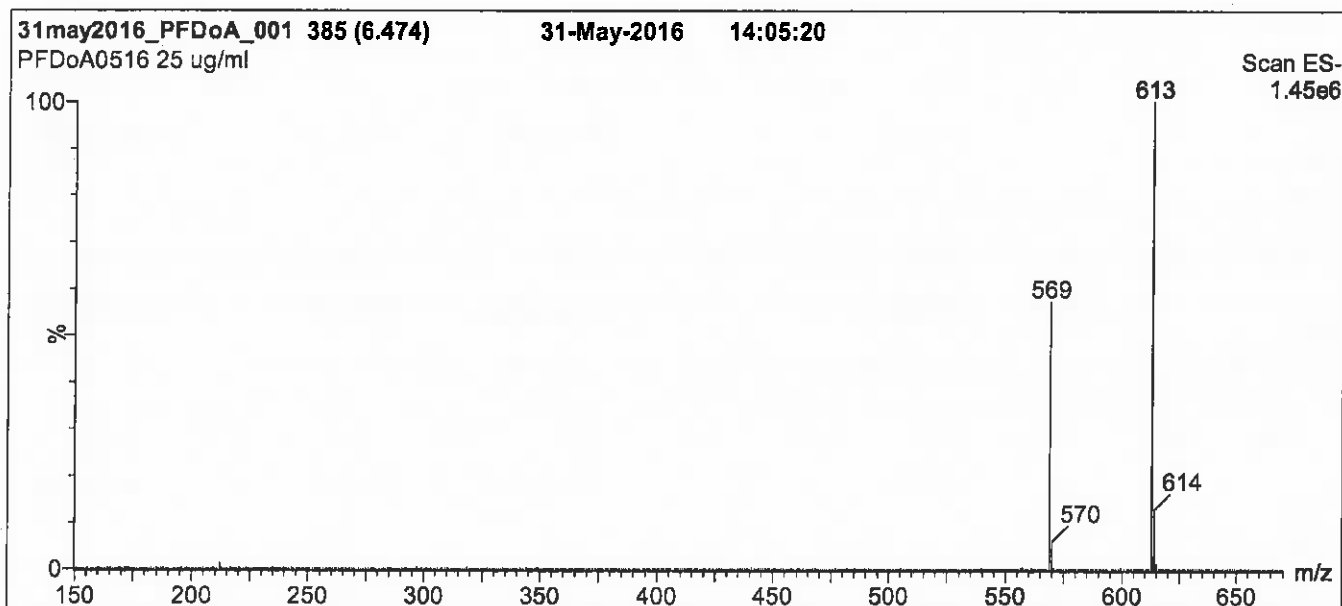
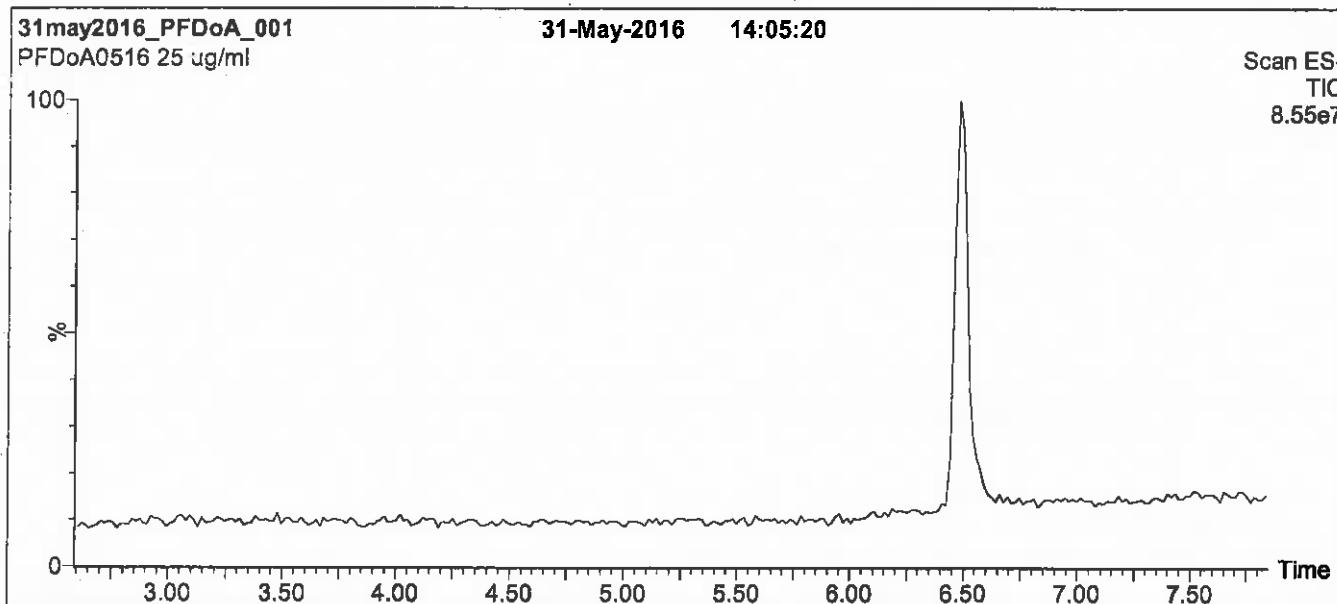
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Figure 1: PFD_oA; LC/MS Data (TIC and Mass Spectrum)



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

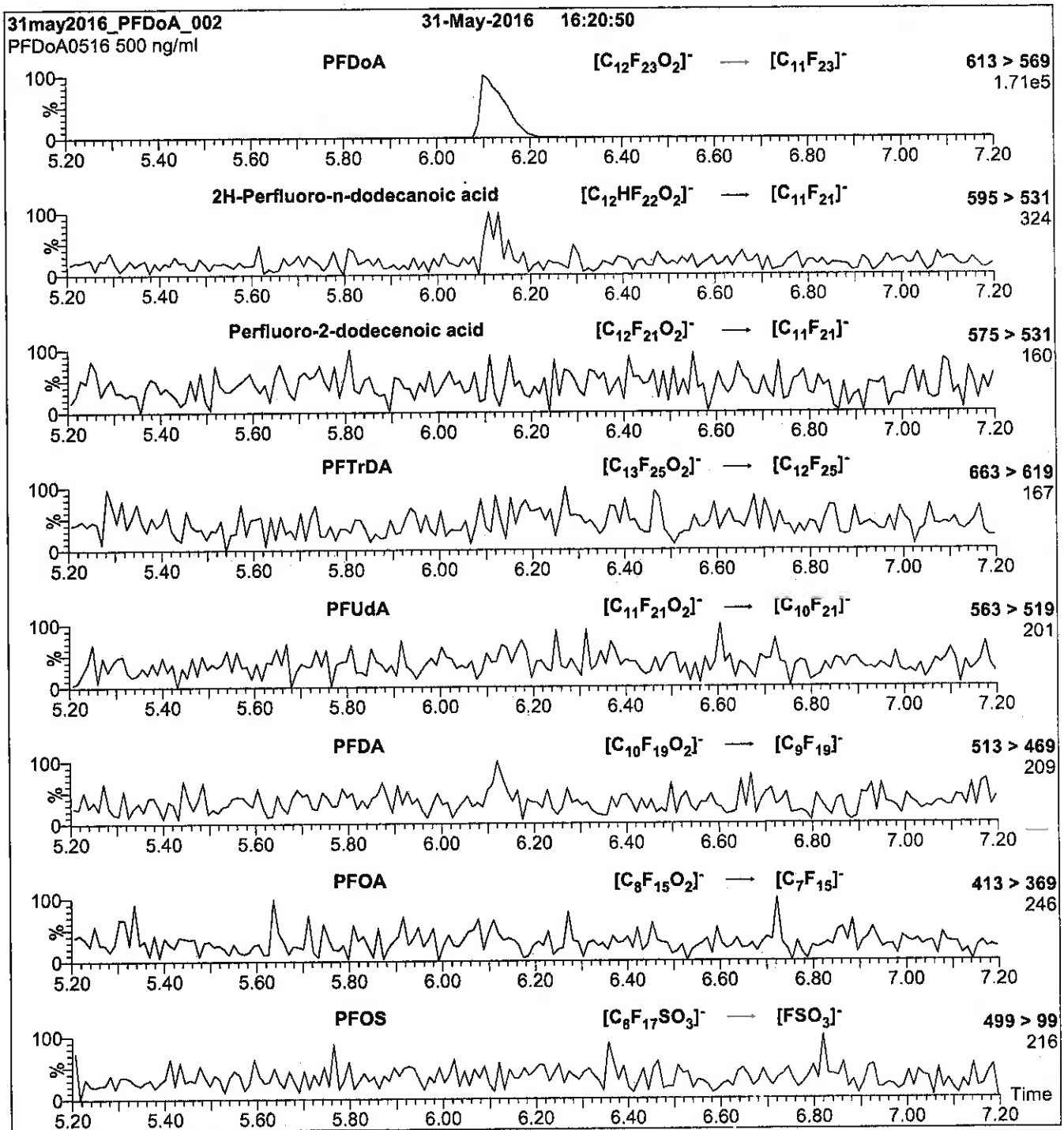
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

MS Parameters

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

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 13

Flow: 300 μ l/min

Reagent

LCPFDS_00005



605240
 ID: LCPFDS_00005
 Exp: 07/02/20 Prep: CBW
 PF-1-decanesulfonate sodi

Rec. 3/29/16 JRB

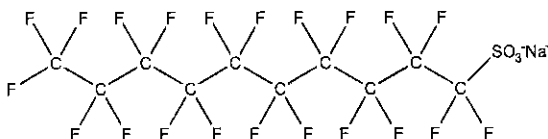


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CERTIFICATE OF ANALYSIS
 DOCUMENTATION

PRODUCT CODE: L-PFDS **LOT NUMBER:** LPFDS0615
COMPOUND: Sodium perfluoro-1-decanesulfonate

STRUCTURE: **CAS #:** 2806-15-7



MOLECULAR FORMULA: C₁₀F₂₁SO₃Na **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

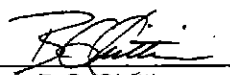
DOCUMENTATION/ DATA ATTACHED:

- 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:

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.

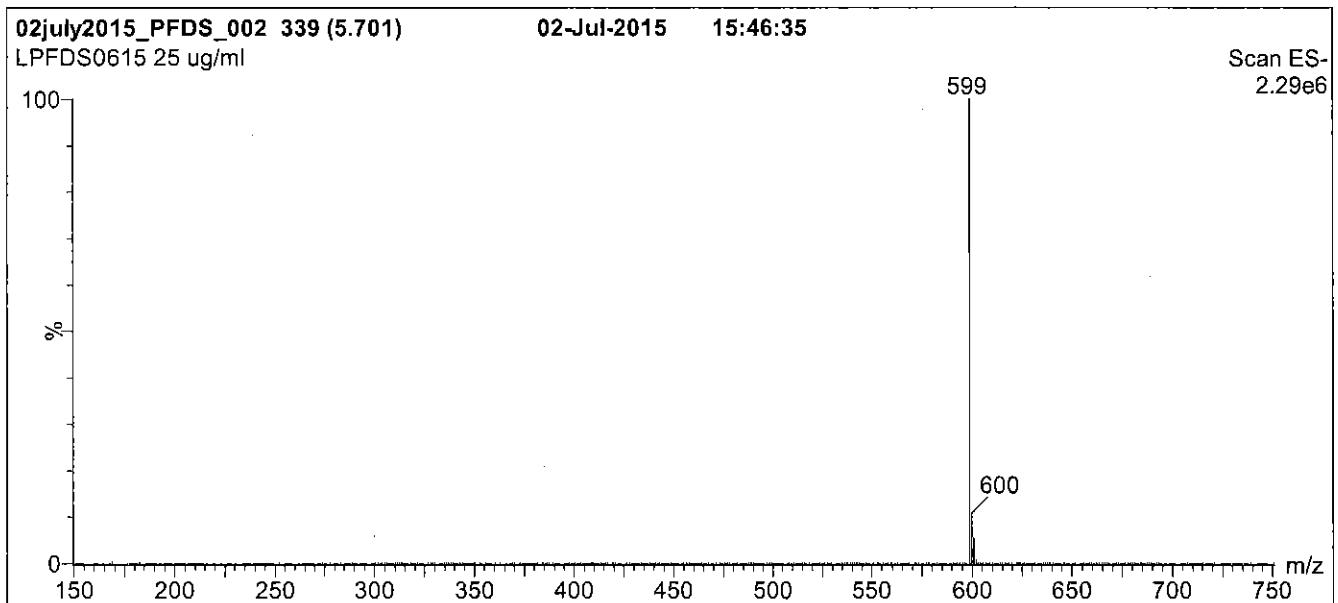
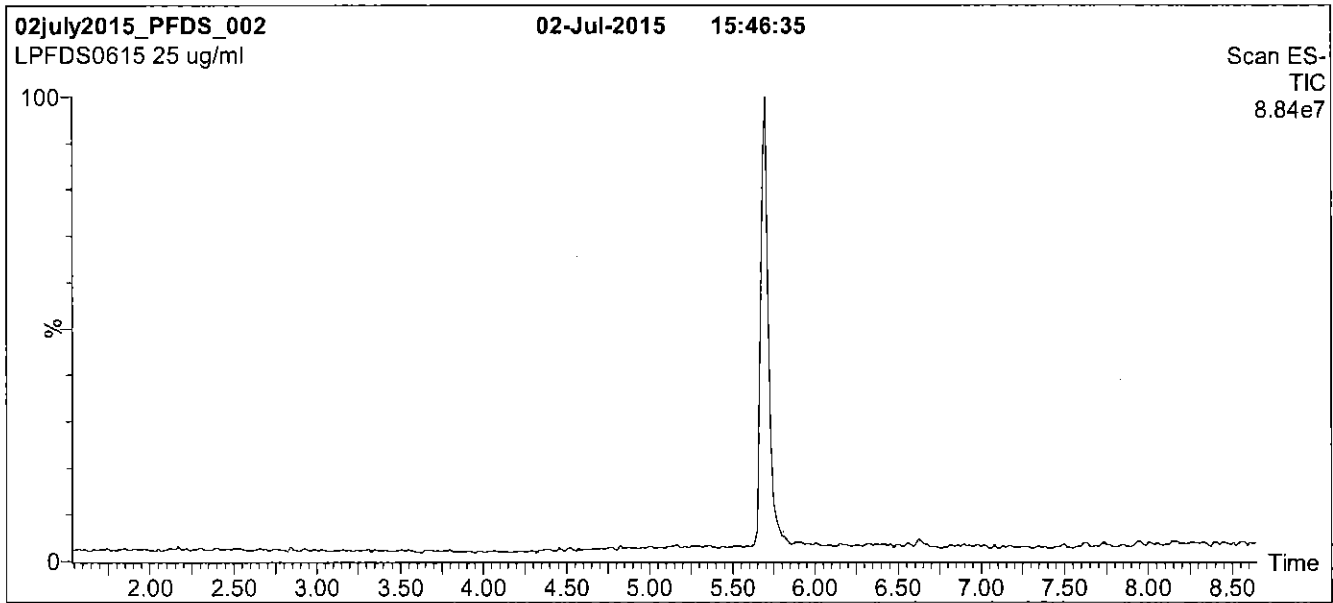
QUALITY MANAGEMENT:

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: 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

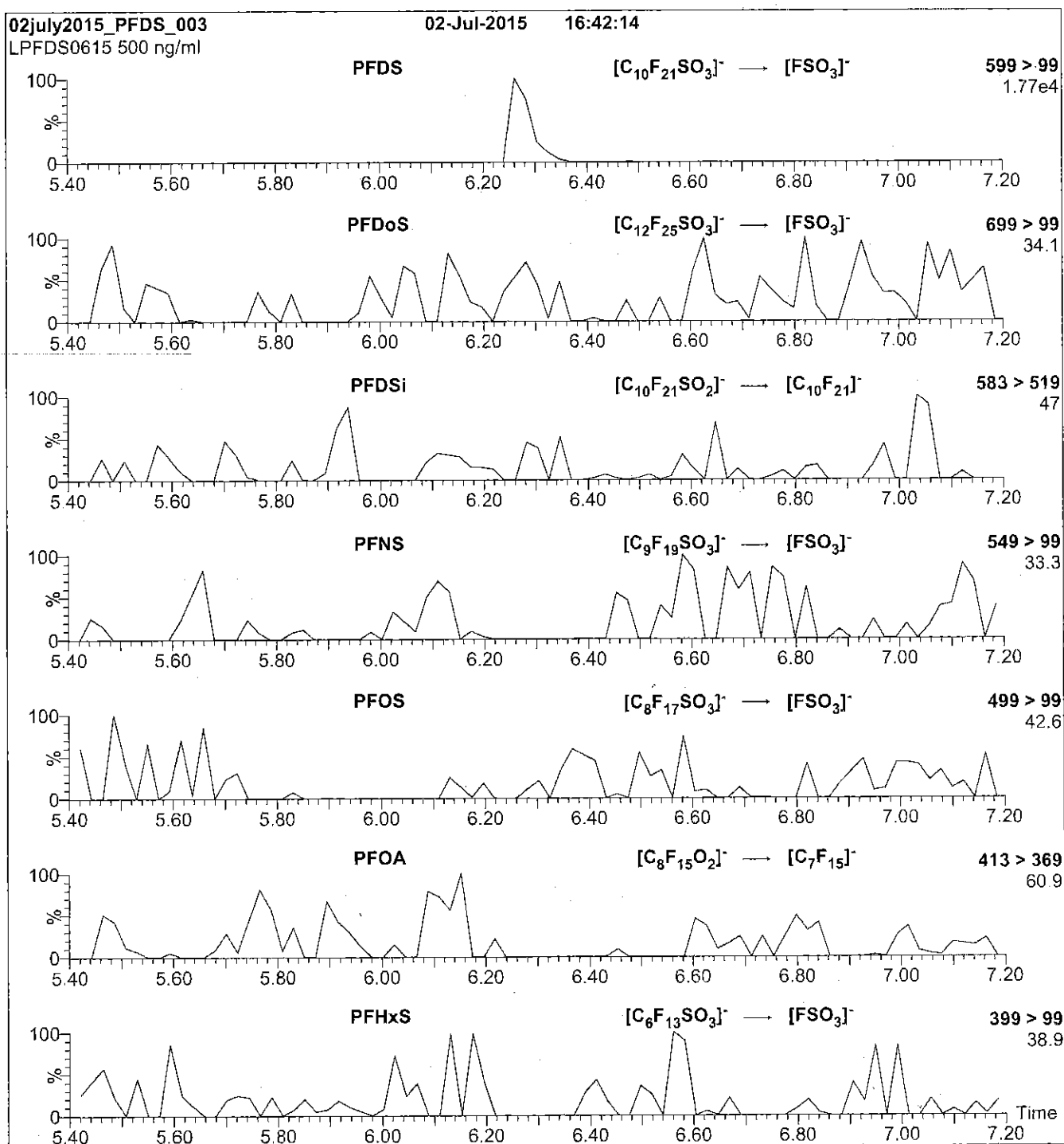
Flow: 300 μ l/min

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_00006

Scanned R: SBC 9/13/16
10/14/16 JK



730517
ID: LCPFHpa_00006
Exp: 01/22/21 Prpd: SBC
PF-n-heptanoic acid



730518
ID: LCPFHpa_00007
Exp: 01/22/21 Prpd: SBC
PF-n-heptanoic acid



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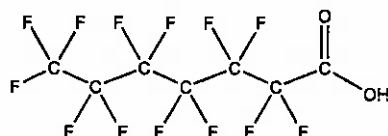
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFHpA
COMPOUND: Perfluoro-n-heptanoic acid

LOT NUMBER: PFHpA0116

STRUCTURE:

CAS #: 375-85-9



MOLECULAR FORMULA: C₇HF₁₃O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 364.06
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

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LIMITED WARRANTY:

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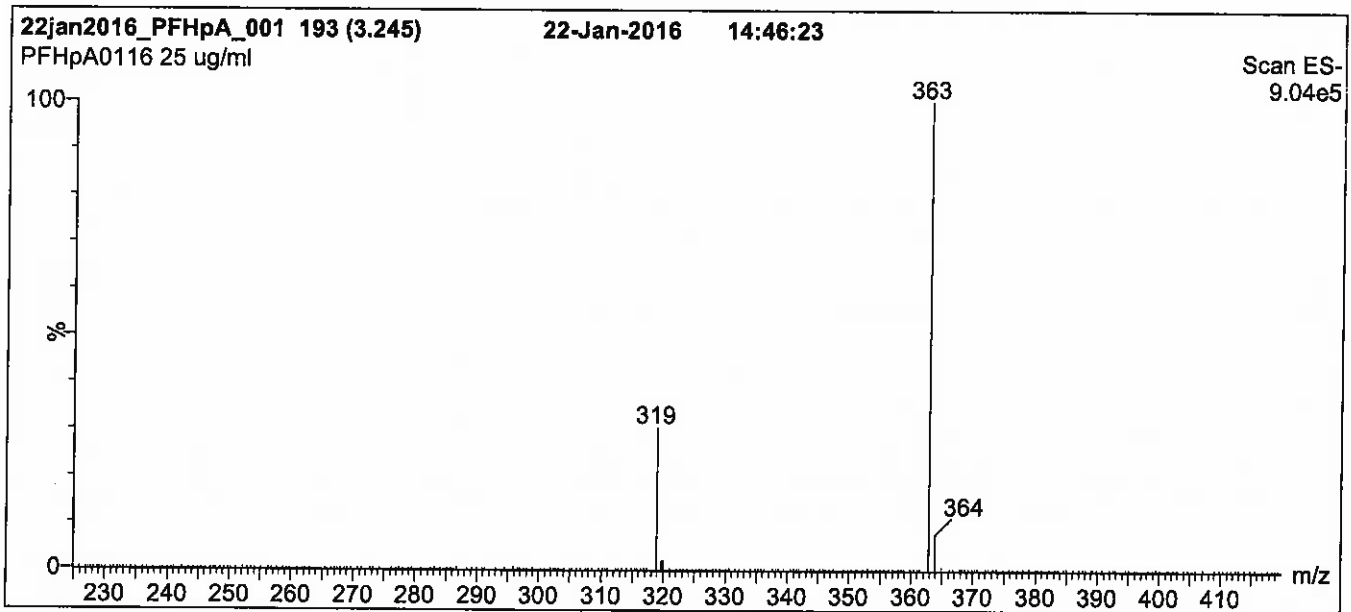
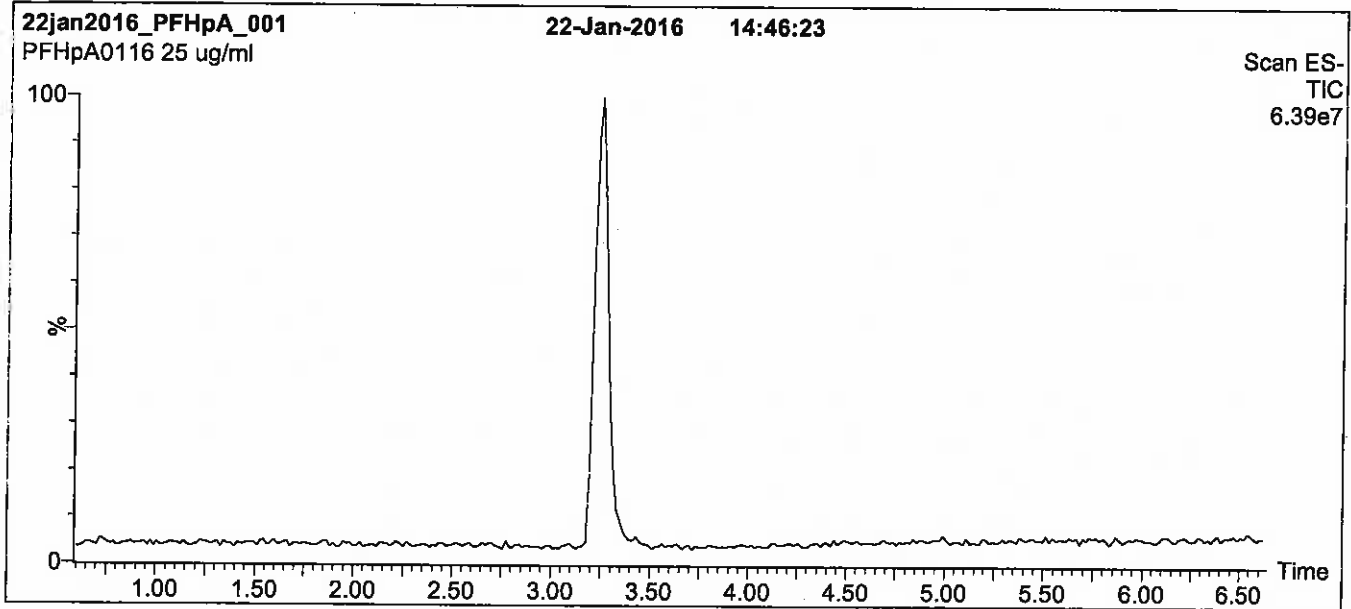
QUALITY MANAGEMENT:

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: PFHpA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

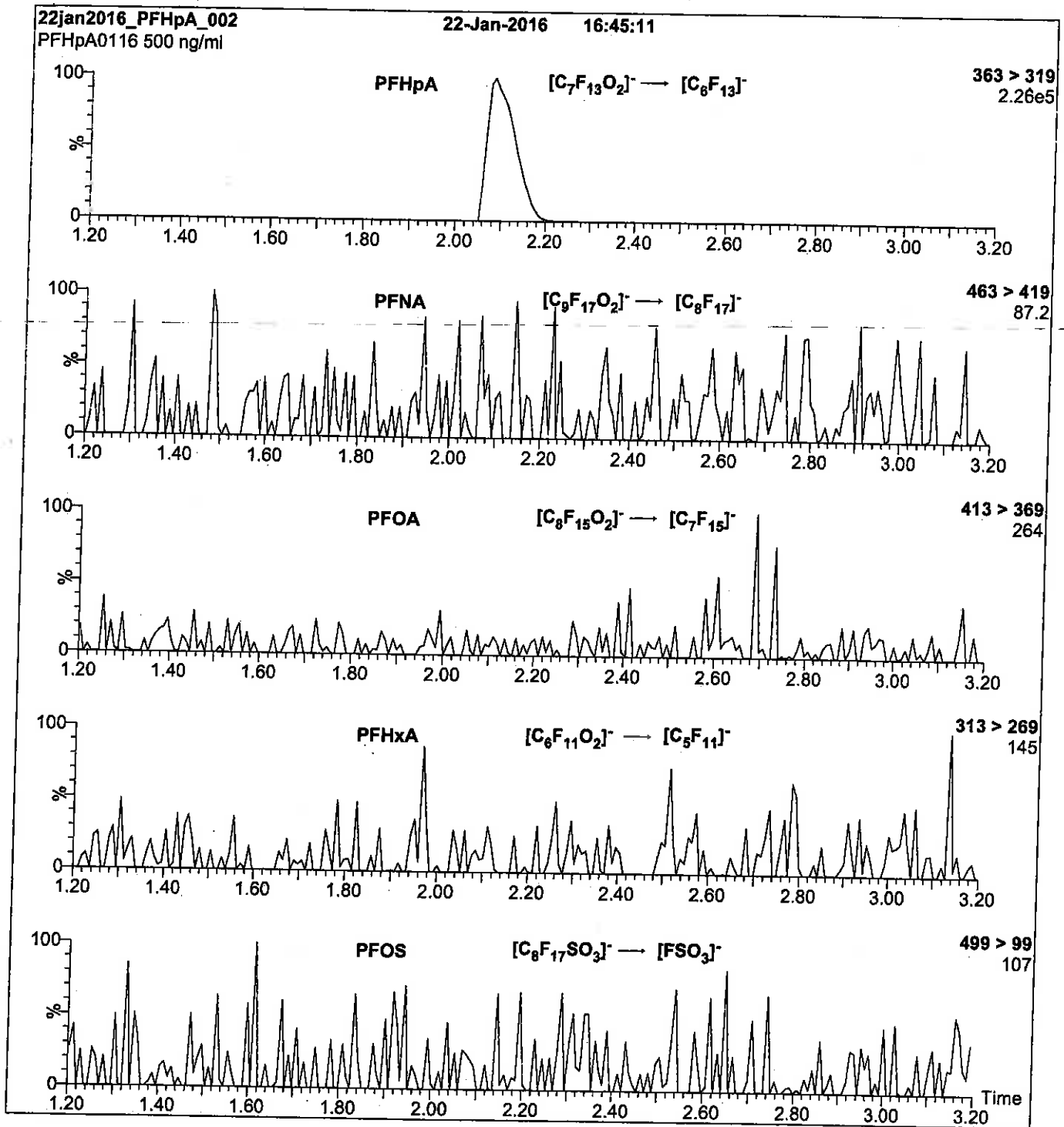
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.50e-3
 Collision Energy (eV) = 11

Reagent

LCPFHpS_00009

Scanned
10/14/16 SP
R: 8BC 9/13/16



730635
ID: LCPFHpS_00009
Exp: 11/06/20 Prpd: SBC
PFHpS at 47.6ug/ml



730639
ID: LCPFHpS_00010
Exp: 11/06/20 Prpd: SBC
PFHpS at 47.6ug/ml

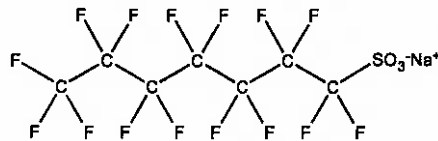


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFHpS **LOT NUMBER:** LPFHpS1115
COMPOUND: Sodium perfluoro-1-heptanesulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₇F₁₅SO₃Na **MOLECULAR WEIGHT:** 472.10
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
47.6 ± 2.4 µg/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 (C₆F₁₃SO₃Na) and ~ 0.2% of L-PFOS (C₈F₁₇SO₃Na).

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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HOMOGENEITY:

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

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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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LIMITED WARRANTY:

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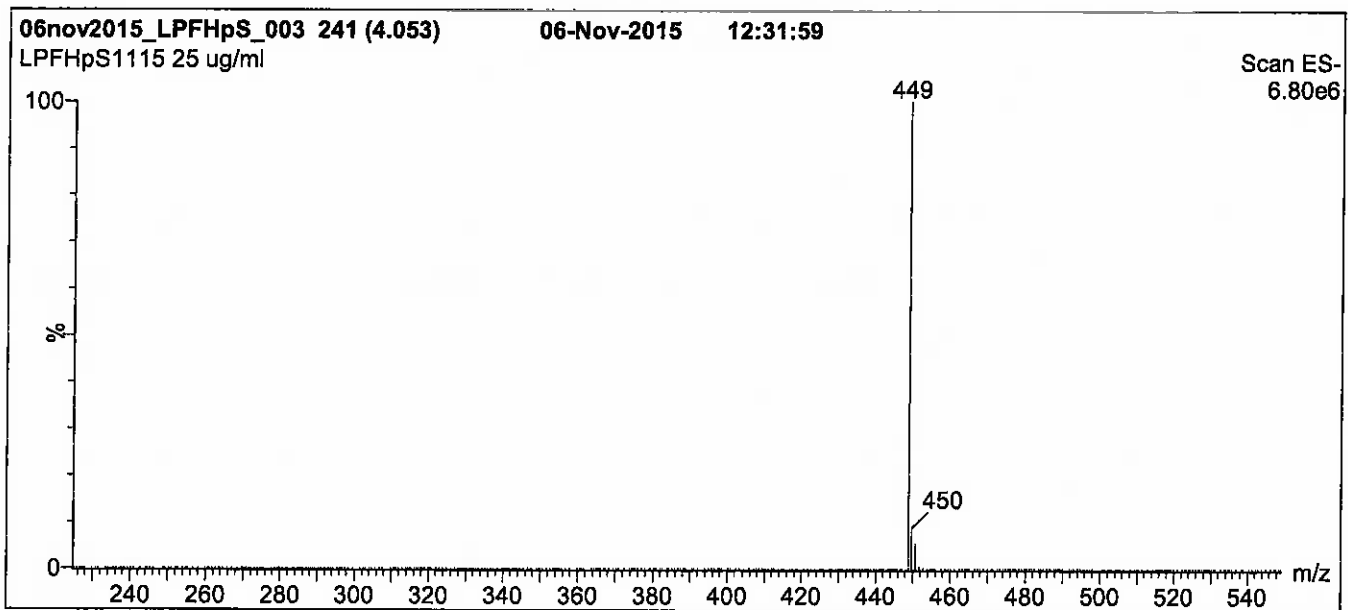
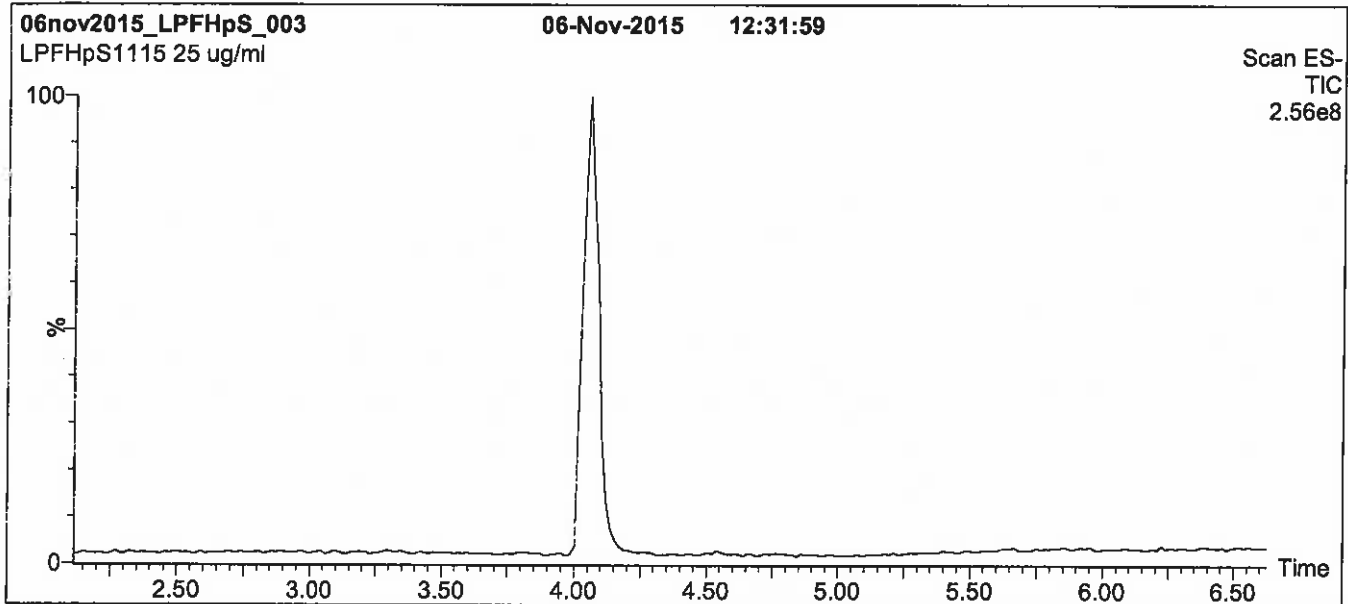
QUALITY MANAGEMENT:

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Figure 1: L-PFHpS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{1A}
1.7 μ m, 2.1 x 100 mm

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

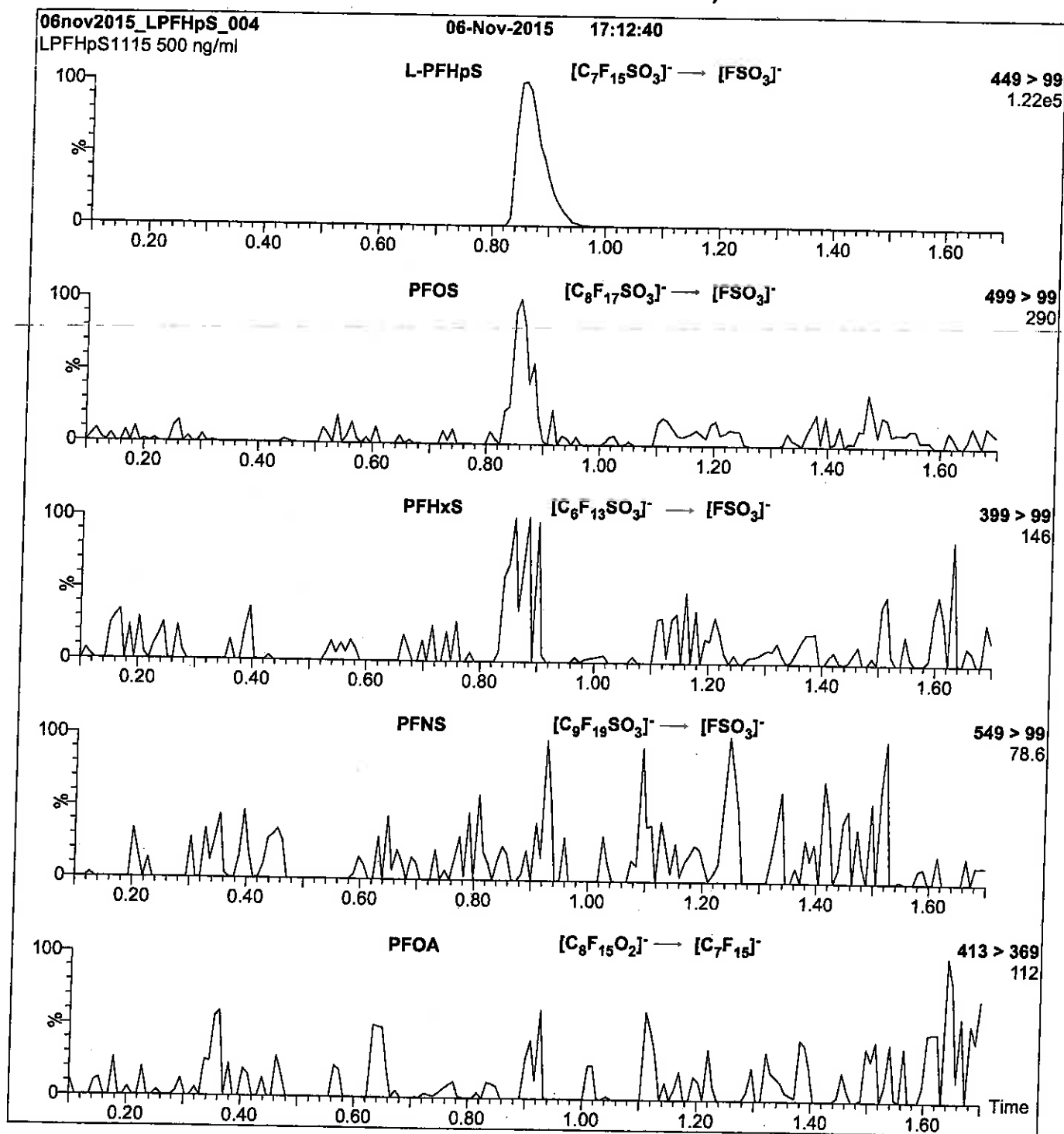
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
 Collision Energy (eV) = 35

Reagent

LCPFHpS_00010

Scanned
10/14/16 SP
R: 8BC 9/13/16



730635
ID: LCPFHpS_00009
Exp: 11/06/20 Prpd: SBC
PFHpS at 47.6ug/mL



730639
ID: LCPFHpS_00010
Exp: 11/06/20 Prpd: SBC
PFHpS at 47.6ug/mL



WELLINGTON LABORATORIES

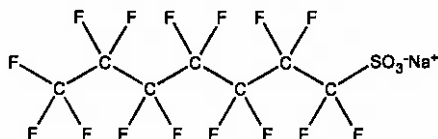
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: LPFHpS1115

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₇F₁₅SO₃Na
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt)
47.6 ± 2.4 µg/ml (PFHpS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/06/2015
EXPIRY DATE: (mm/dd/yyyy) 11/06/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 472.10
SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.1% of L-PFHxS (C₆F₁₃SO₃Na) and ~ 0.2% of L-PFOS (C₈F₁₇SO₃Na).

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
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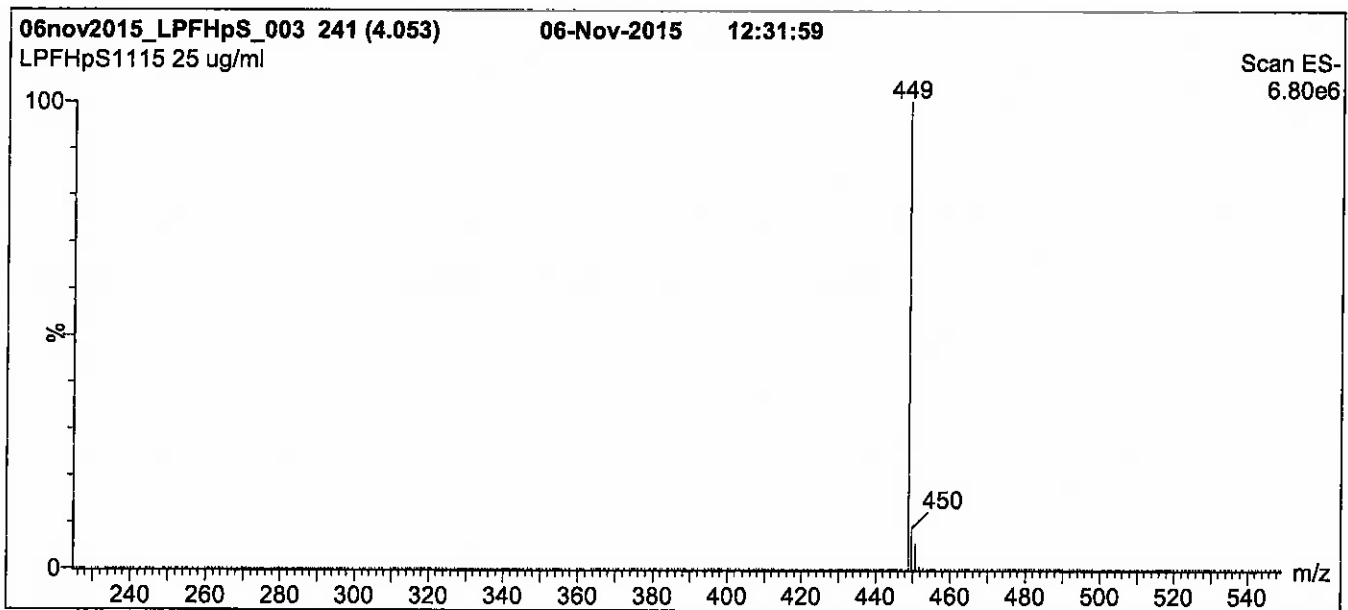
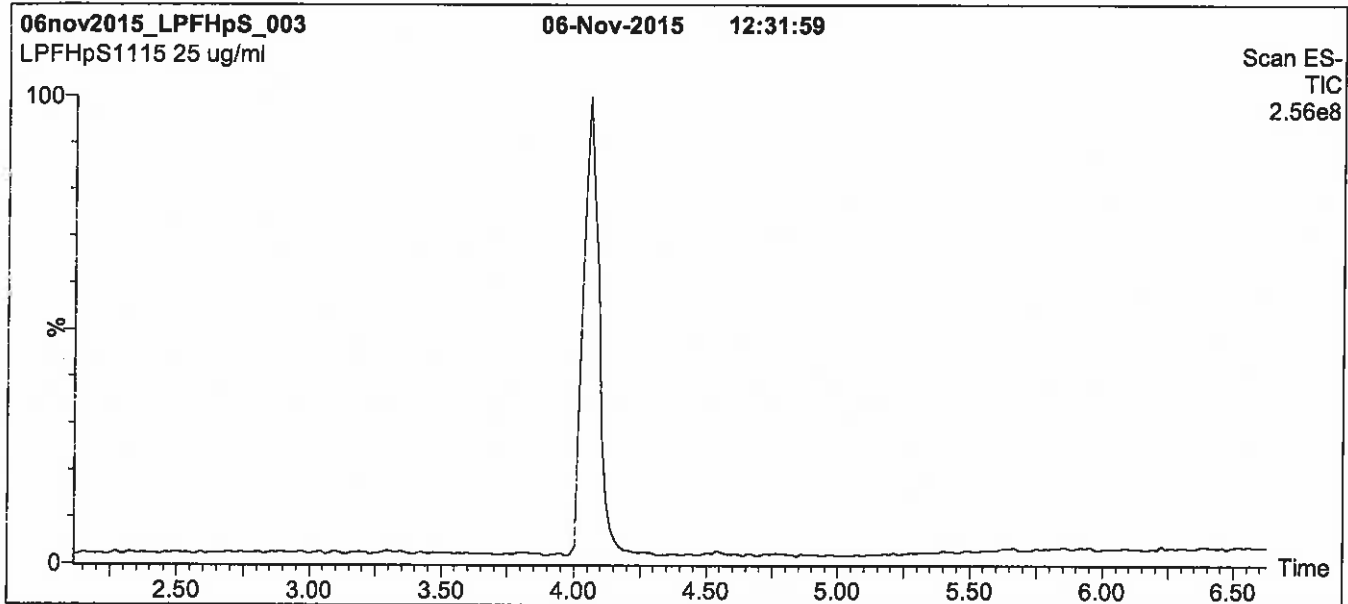
QUALITY MANAGEMENT:

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-PFHpS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

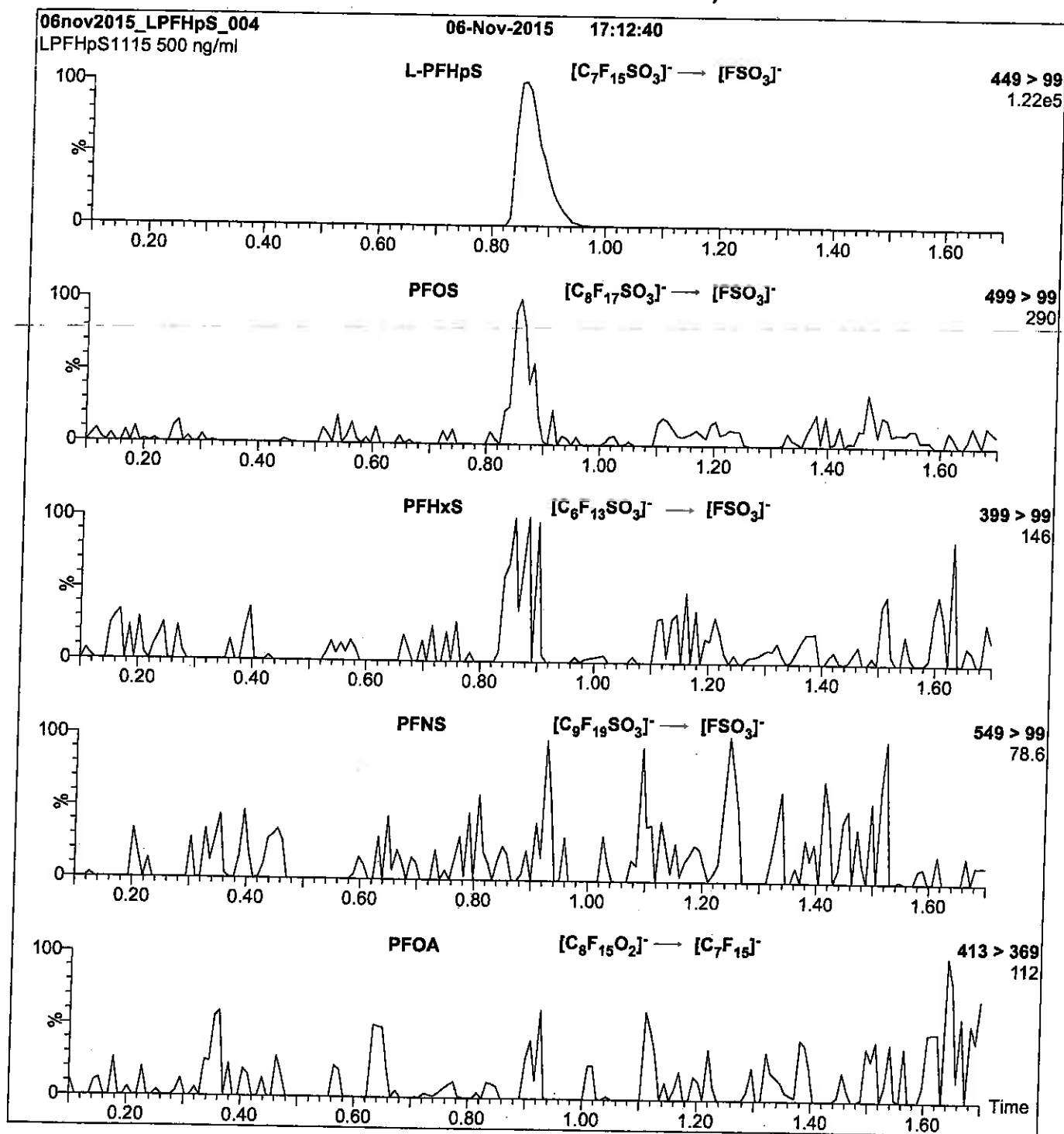
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
 Collision Energy (eV) = 35

Reagent

LCPFHxA_00005

R: 832 9/13/16



730551
ID: LCPFHxA_00005
Exp: 12/22/20 Prod: SBC
PF-n-hexanoic acid



730552
ID: LCPFHxA_00006
Exp: 12/22/20 Prod: SBC
PF-n-hexanoic acid



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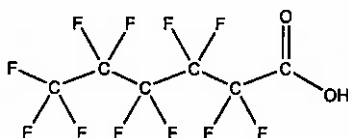
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxA
COMPOUND: Perfluoro-n-hexanoic acid

LOT NUMBER: PFHxA1215

STRUCTURE:

CAS #: 307-24-4



MOLECULAR FORMULA: C₆HF₁₁O₂
CONCENTRATION: 50 ± 2.5 µg/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

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:

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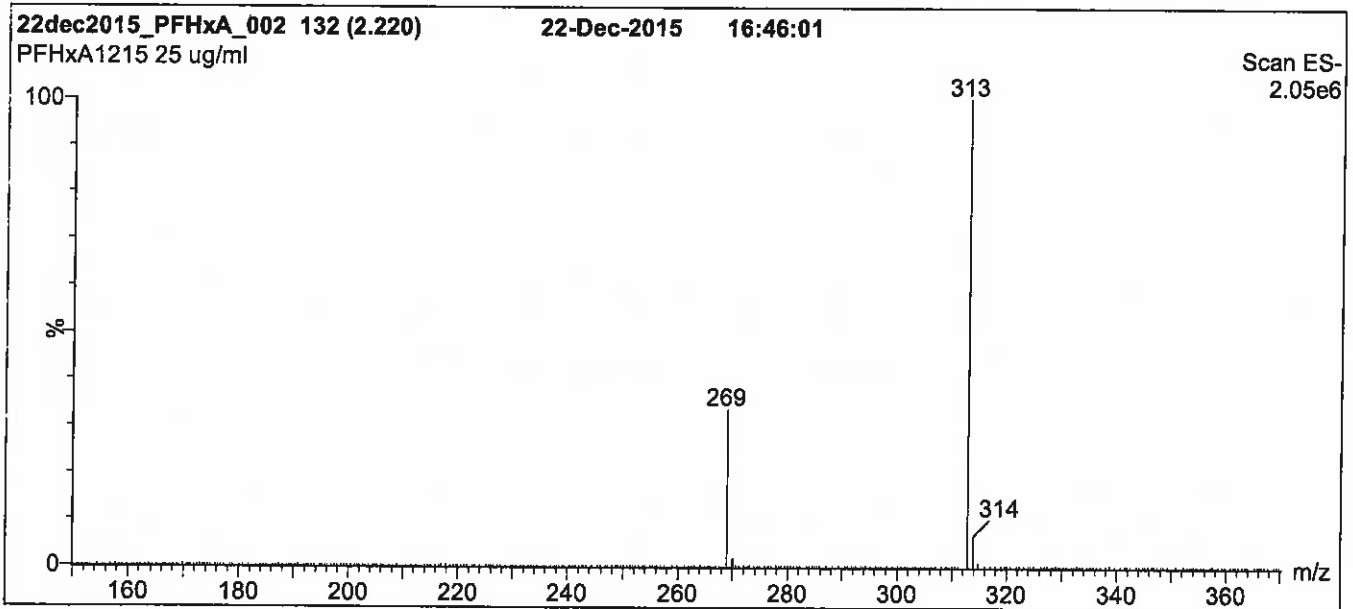
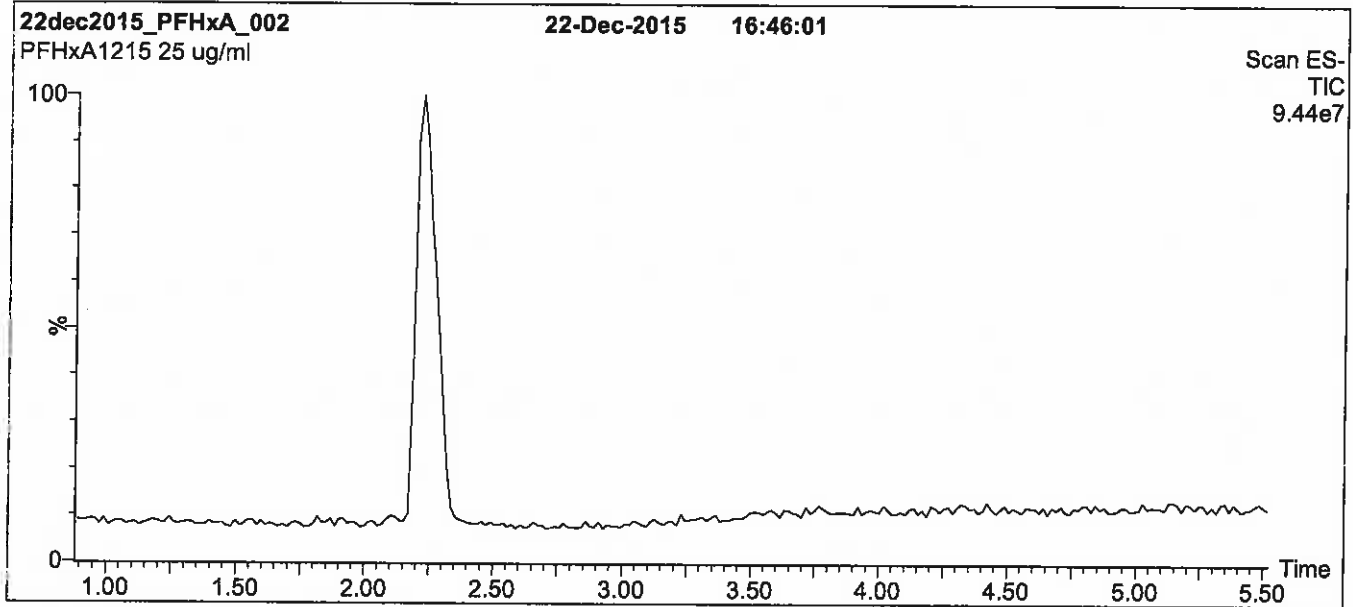
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

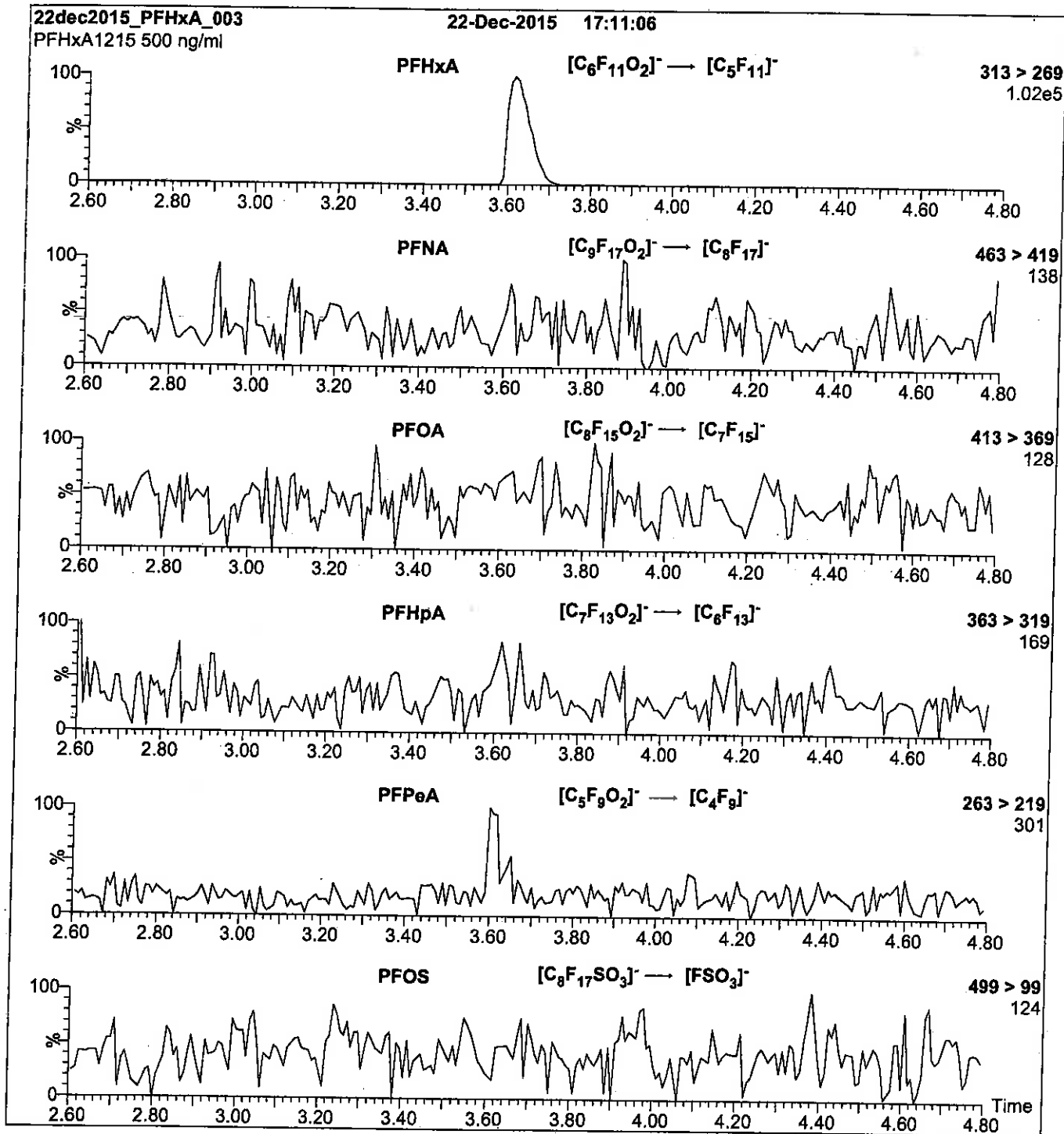
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
 Collision Energy (eV) = 10

Reagent

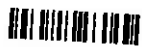
LCPFHxDA_00006

R: SBC 9/13/16

Scanned 10/14/16



WELLINGTON LABORATORIES



730630
ID: LCPFHxDA_00006
Exp: 05/25/21 Prod: SBC
PFHxDA stock 50ug/mL

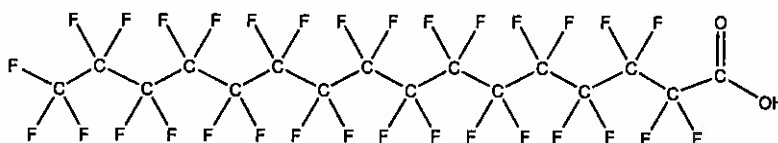


730631
ID: LCPFHxDA_00007
Exp: 05/25/21 Prod: SBC
PFHxDA stock 50ug/mL

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0516
COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆H₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/25/2016
EXPIRY DATE: (mm/dd/yyyy) 05/25/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.4% of PFODA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/27/2016
(mm/dd/yyyy)

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

INTENDED USE:

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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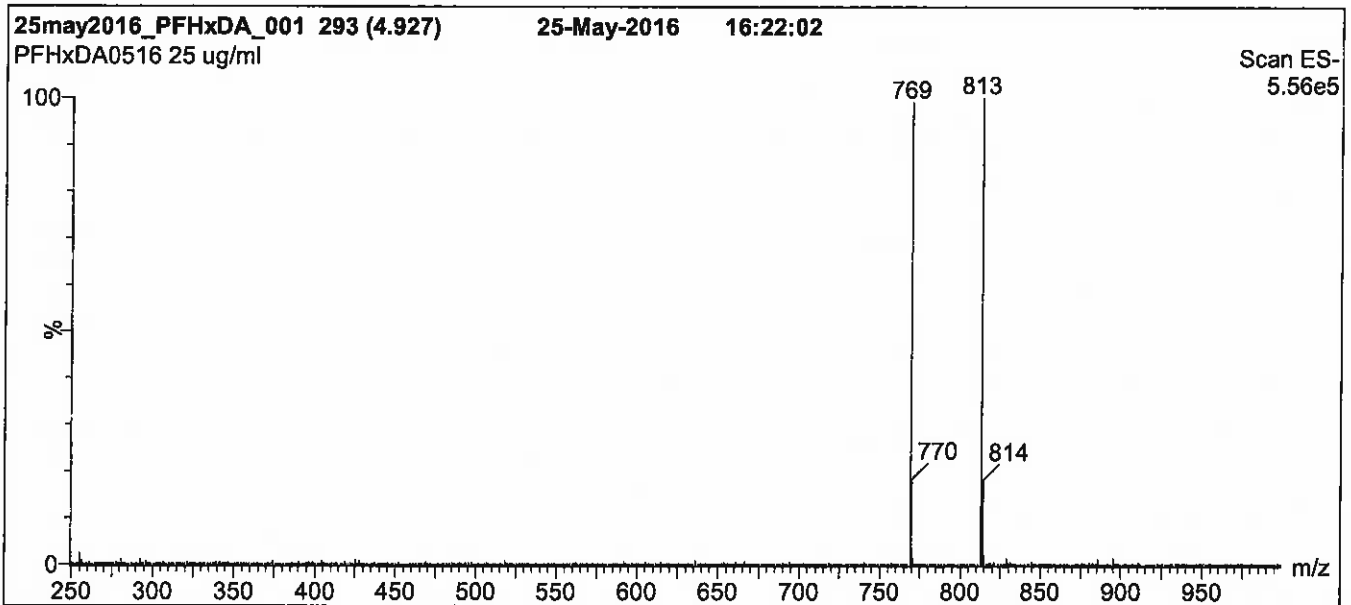
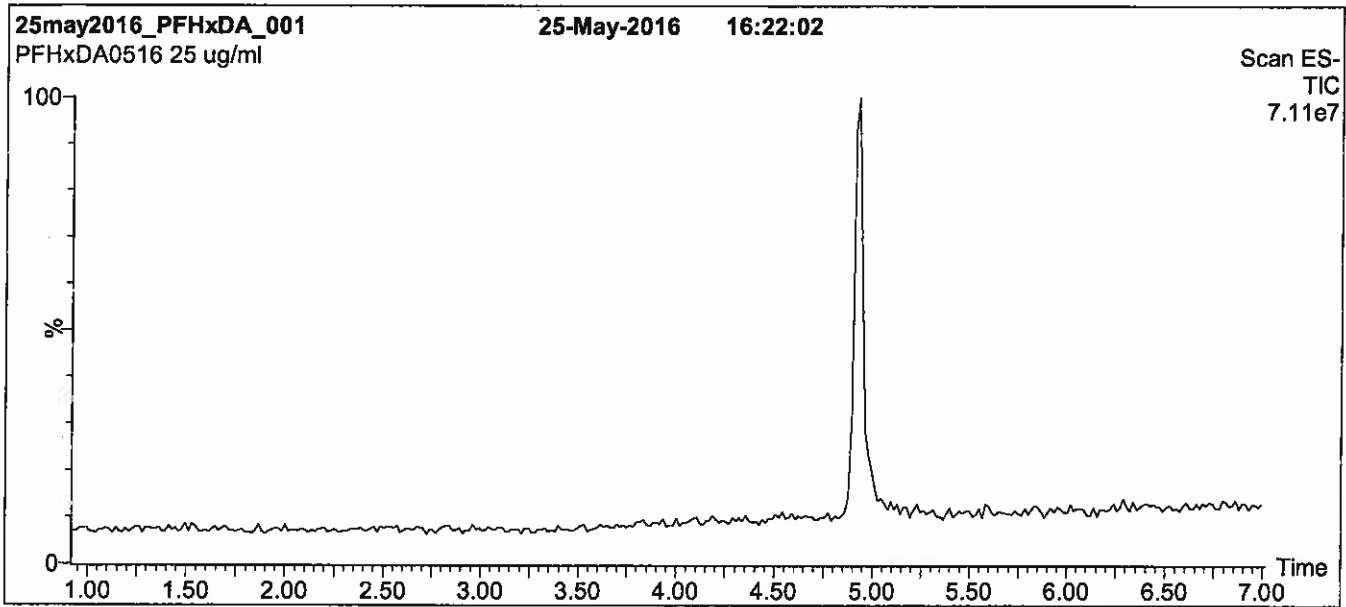
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Figure 1: PFHxDA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 70% (80:20 MeOH:ACN) / 30% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 95% organic over 6 min and hold for 2.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

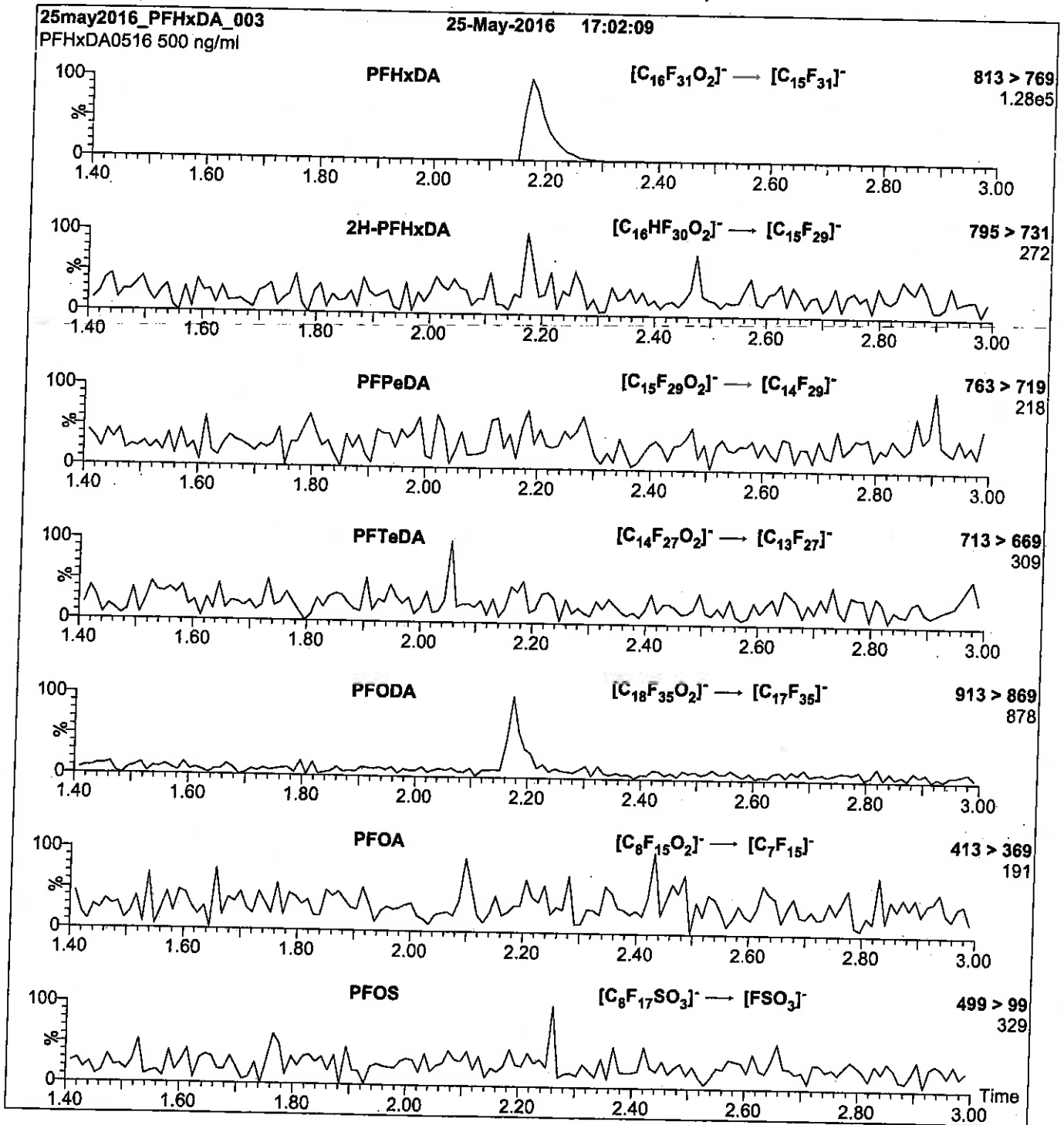
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
 Collision Energy (eV) = 15

Reagent

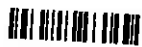
LCPFHxDA_00007

R: SBC 9/13/16

Scanned 10/14/16



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730630
ID: LCPFHxDA_00006
Exp: 05/25/21 Prod: SBC
PFHxDA stock 50ug/mL

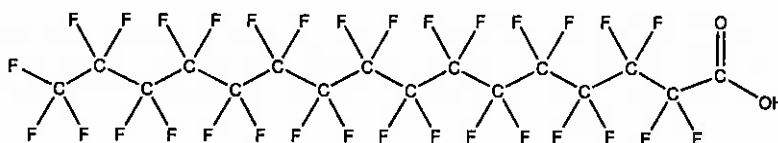


730631
ID: LCPFHxDA_00007
Exp: 05/25/21 Prod: SBC
PFHxDA stock 50ug/mL

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0516
COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆H₃₁O₂ **MOLECULAR WEIGHT:** 814.13
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/25/2016
EXPIRY DATE: (mm/dd/yyyy) 05/25/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.4% of PFODA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 05/27/2016
(mm/dd/yyyy)

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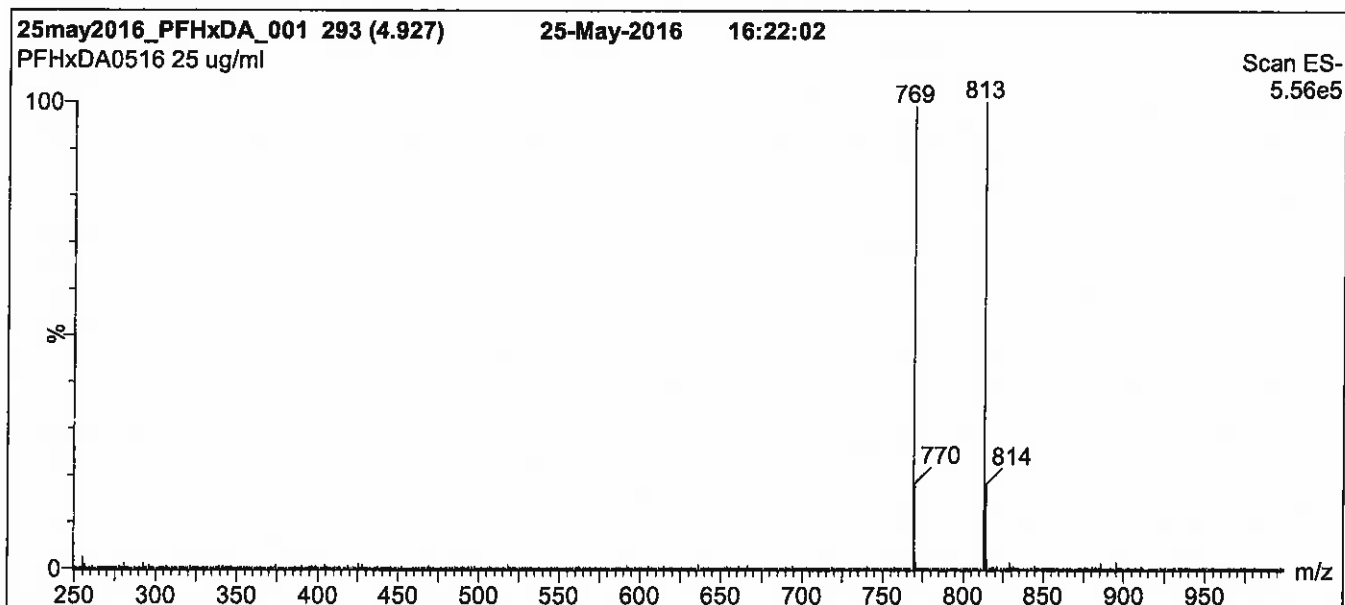
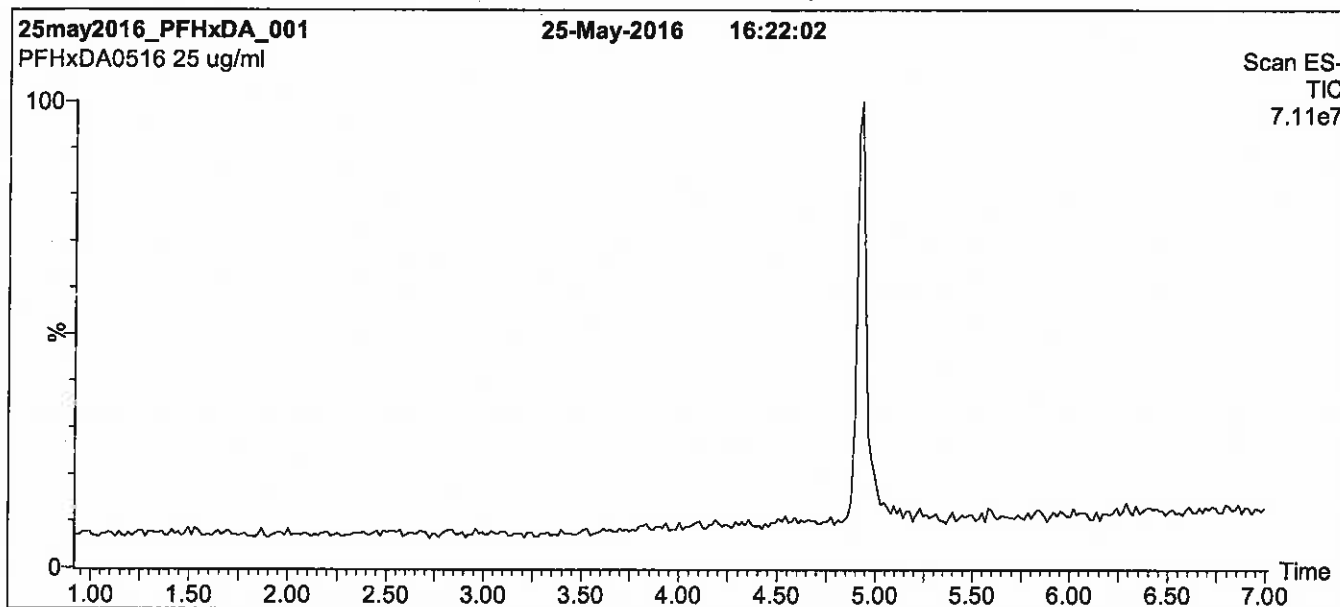
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 70% (80:20 MeOH:ACN) / 30% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 95% organic over 6 min and hold for 2.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

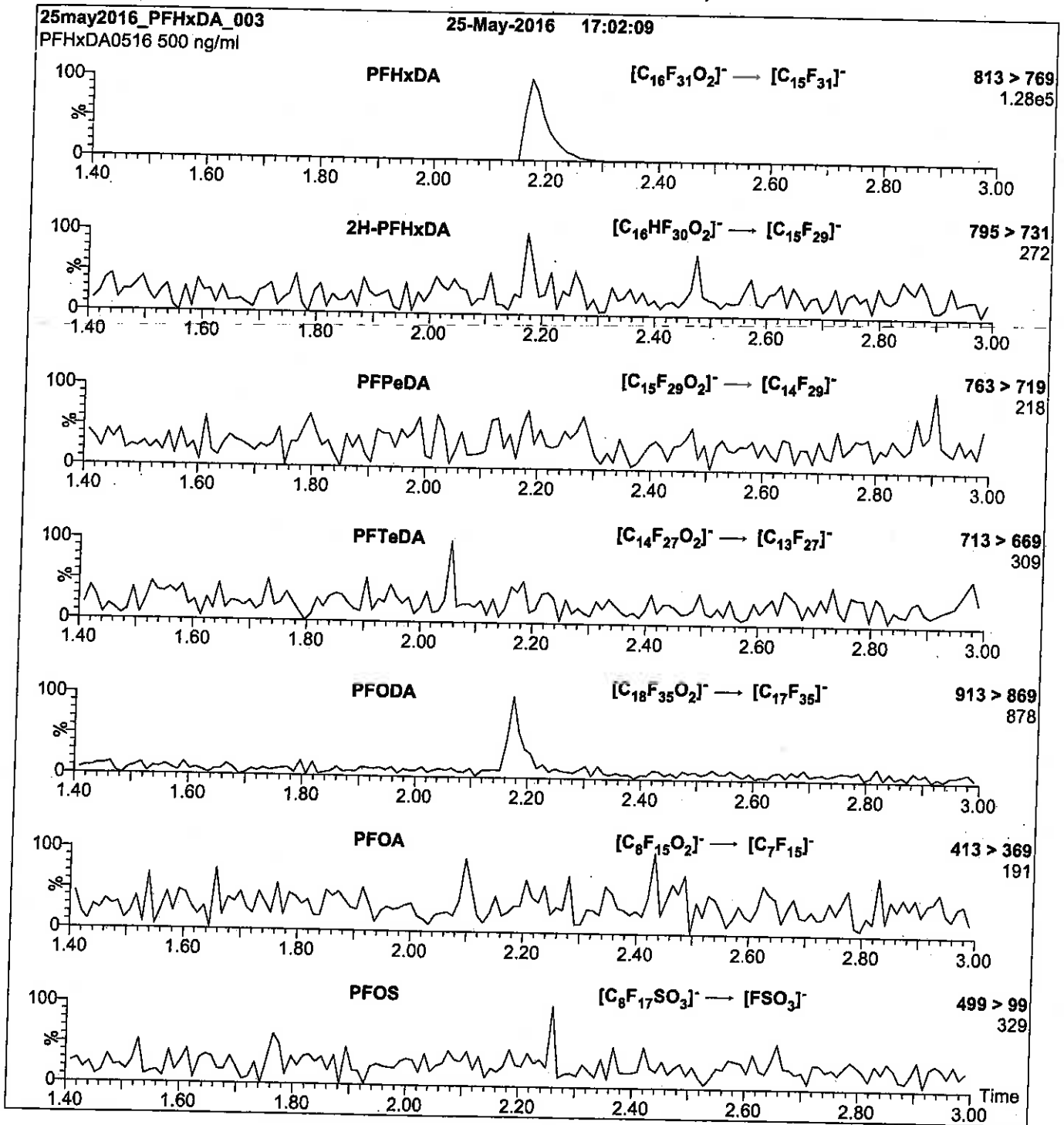
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
 Collision Energy (eV) = 15

Reagent

LCPFHxS-br_00002

SBC
R: 9/13/16



730513
ID: LCPFHxS-br_00002
Exp: 07/03/20 Ppfd: SBC
Potassium Perfluorohexane



730514
ID: LCPFHxS-br_00003
Exp: 07/03/20 Ppfd: SBC
Potassium Perfluorohexane



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFHxSK

**Potassium Perfluorohexanesulfonate
Solution/Mixture of Linear and
Branched Isomers**

PRODUCT CODE: br-PFHxSK
LOT NUMBER: brPFHxSK0615
CONCENTRATION: 50.0 ± 2.5 µg/ml (total potassium salt)
45.5 ± 2.3 µg/ml (total PFHxS anion)
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 06/29/2015
LAST TESTED: (mm/dd/yyyy) 07/03/2015
EXPIRY DATE: (mm/dd/yyyy) 07/03/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorohexanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.5% of perfluoro-1-pentanesulfonate and ~ 0.2% of perfluoro-1-octanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

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.

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QUALITY MANAGEMENT:

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Table A: br-PFHxSK; Isomeric Components and Percent Composition (by ¹⁹F-NMR)*

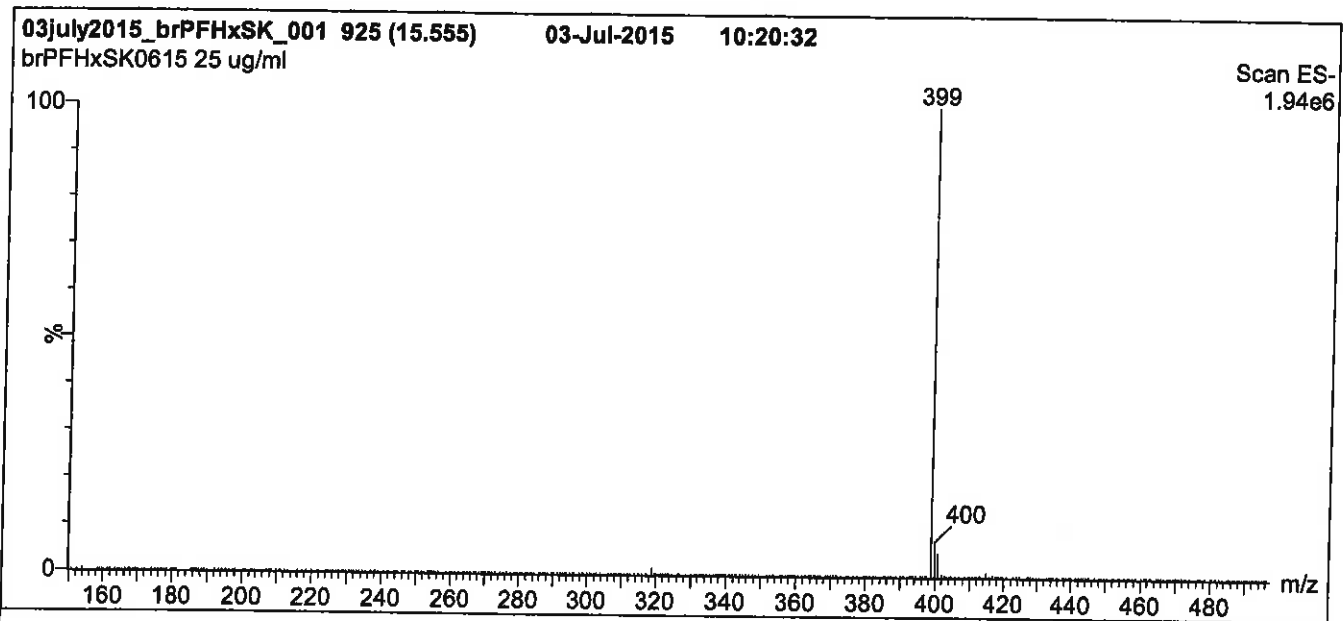
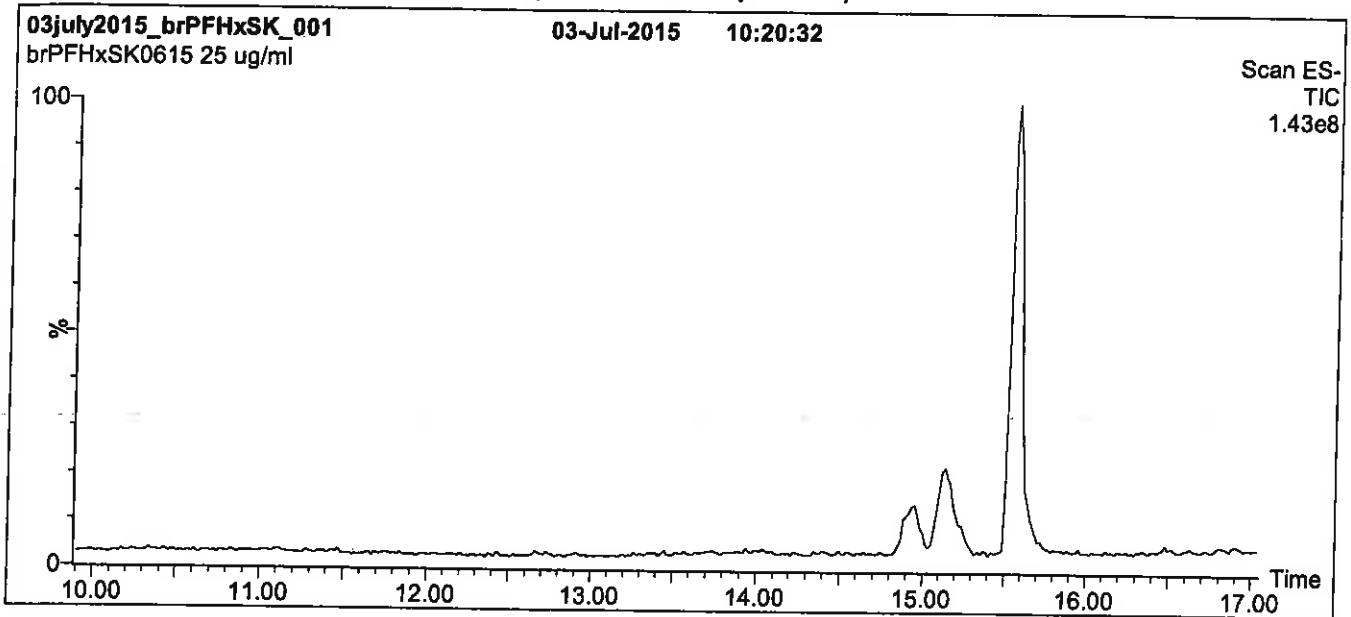
Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR
1	Potassium perfluoro-1-hexanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ ⁻ K ⁺	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	1.4
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	5.0
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	8.9
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CCF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.2
7	Other Unidentified Isomers		0.5

* Percent of total perfluorohexanesulfonate isomers only.
 ** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Certified By: 
 B.G. Chittim

Date: 07/15/2015
(mm/dd/yyyy)

Figure 1: br-PFHxSK; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 20% (80:20 MeOH:ACN) / 80% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 50% organic over 14 min. Ramp to
90% organic over 3 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 20 min

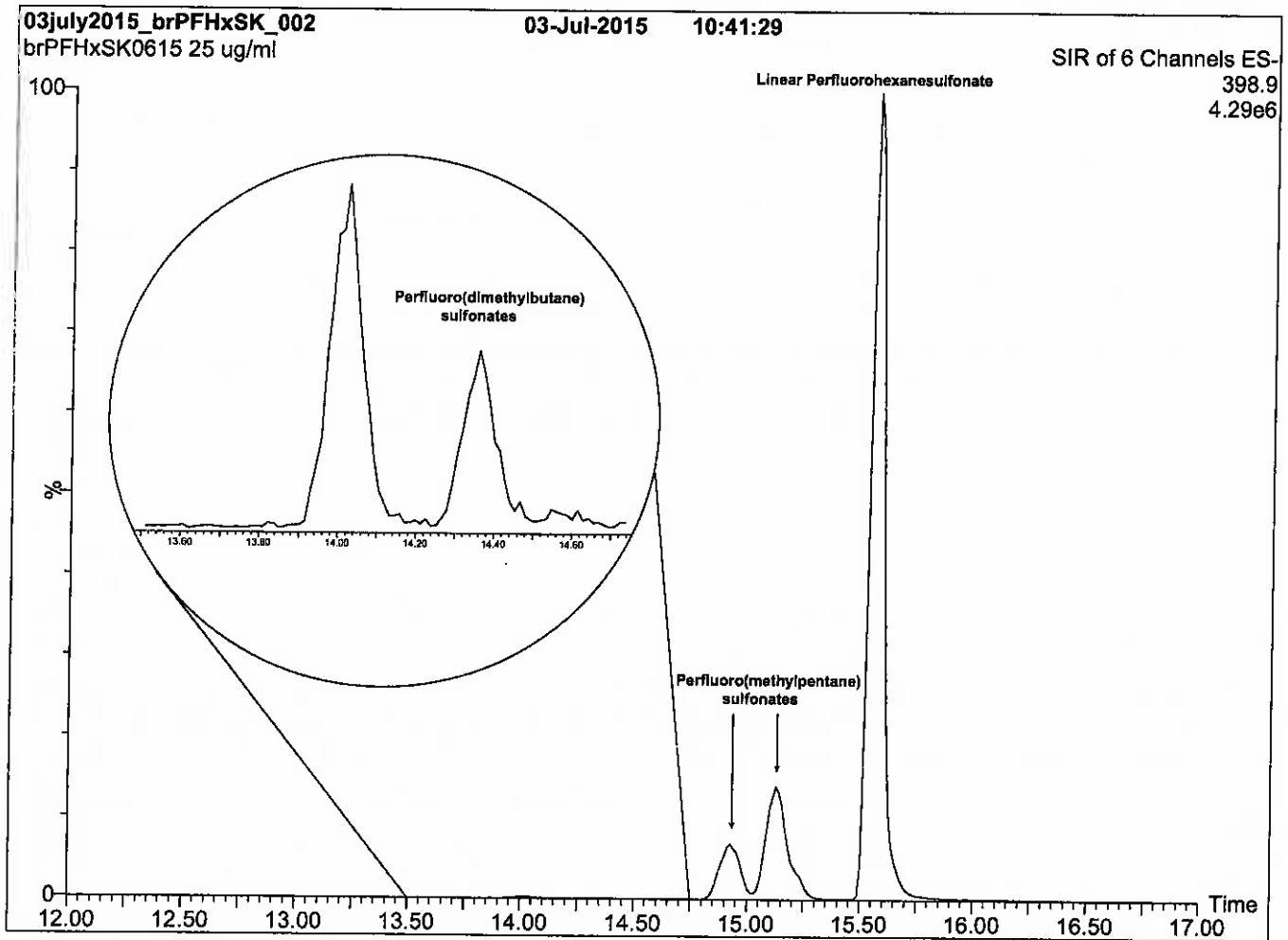
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

Figure 2: br-PFHxSK; LC/MS Data



Conditions for Figure 2:

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

Chromatographic Conditions

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

Mobile phase: Gradient
 Start: 20% (80:20 MeOH:ACN) / 80% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 50% organic over 14 min. Ramp to
 90% organic over 3 min and hold for 1.5 min
 before returning to initial conditions in 0.5 min.
 Time: 20 min

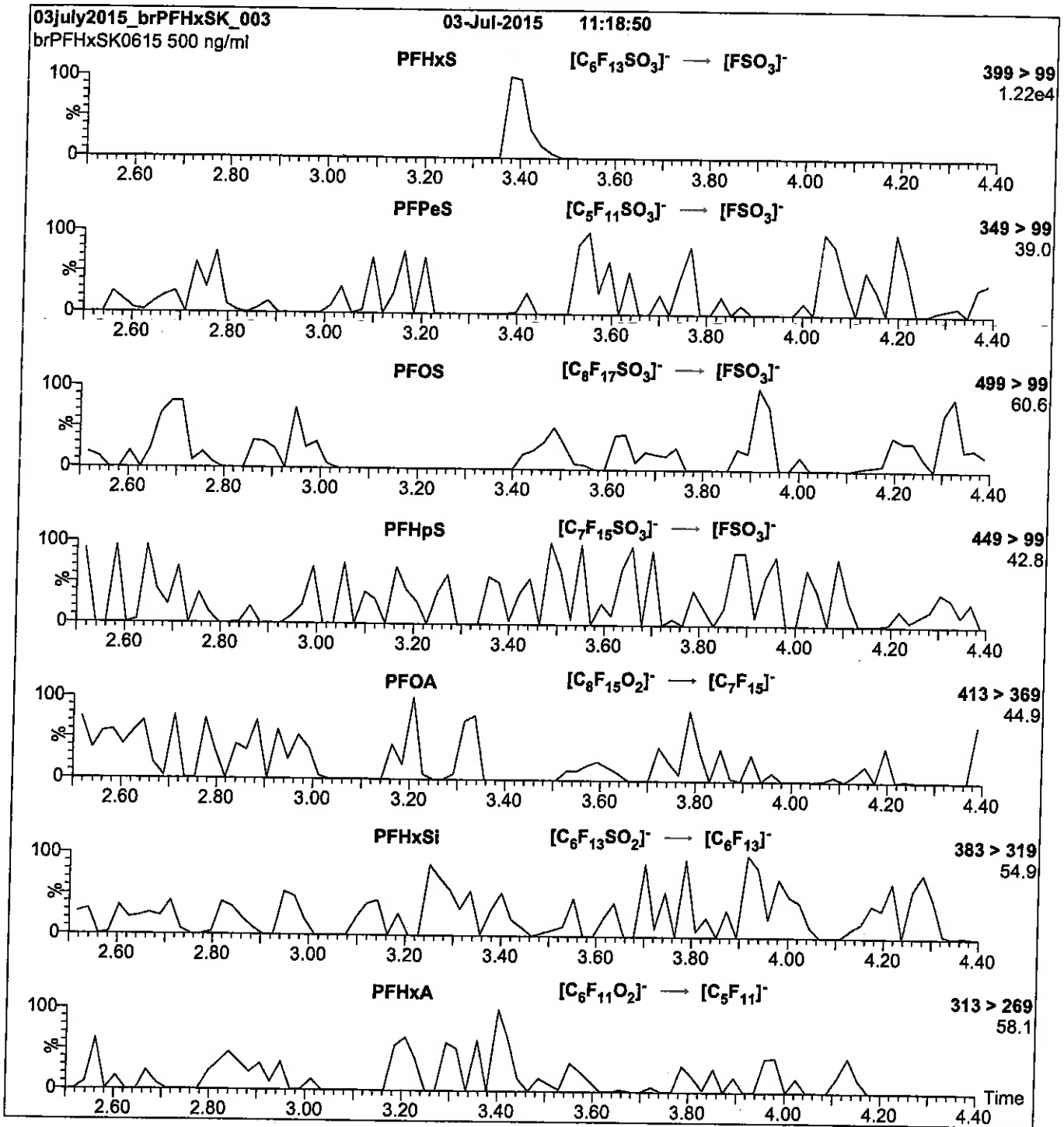
Flow: 300 μ l/min

MS Parameters

Experiment: SIR (6 channels)

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

Figure 3: br-PFHxSK; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 3:

Injection: Direct loop injection
10 μ l (500 ng/ml br-PFHxSK)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% 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

LCPFHxS-br_00003

SBC
R: 9/13/16



730513
ID: LCPFHxS-br_00002
Exp: 07/03/20 Ppfd: SBC
Potassium Perfluorohexane



730514
ID: LCPFHxS-br_00003
Exp: 07/03/20 Ppfd: SBC
Potassium Perfluorohexane



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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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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UNCERTAINTY:

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

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

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

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

TRACEABILITY:

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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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Table A: br-PFHxSK; Isomeric Components and Percent Composition (by ¹⁹F-NMR)*

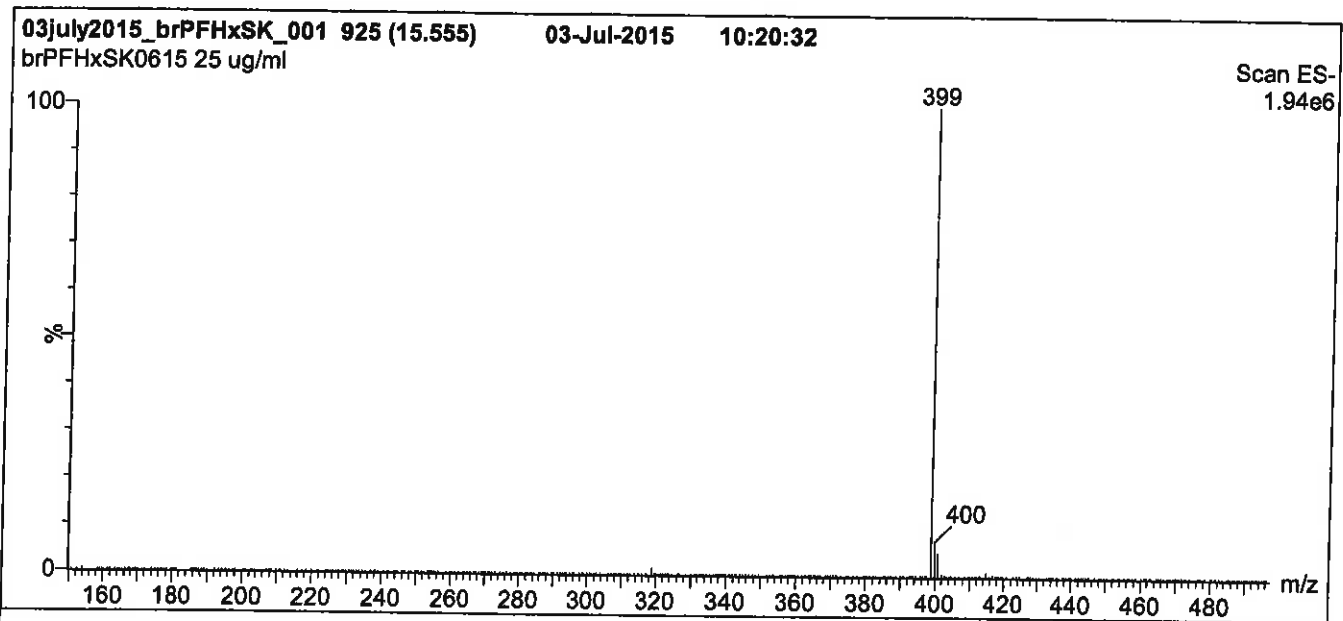
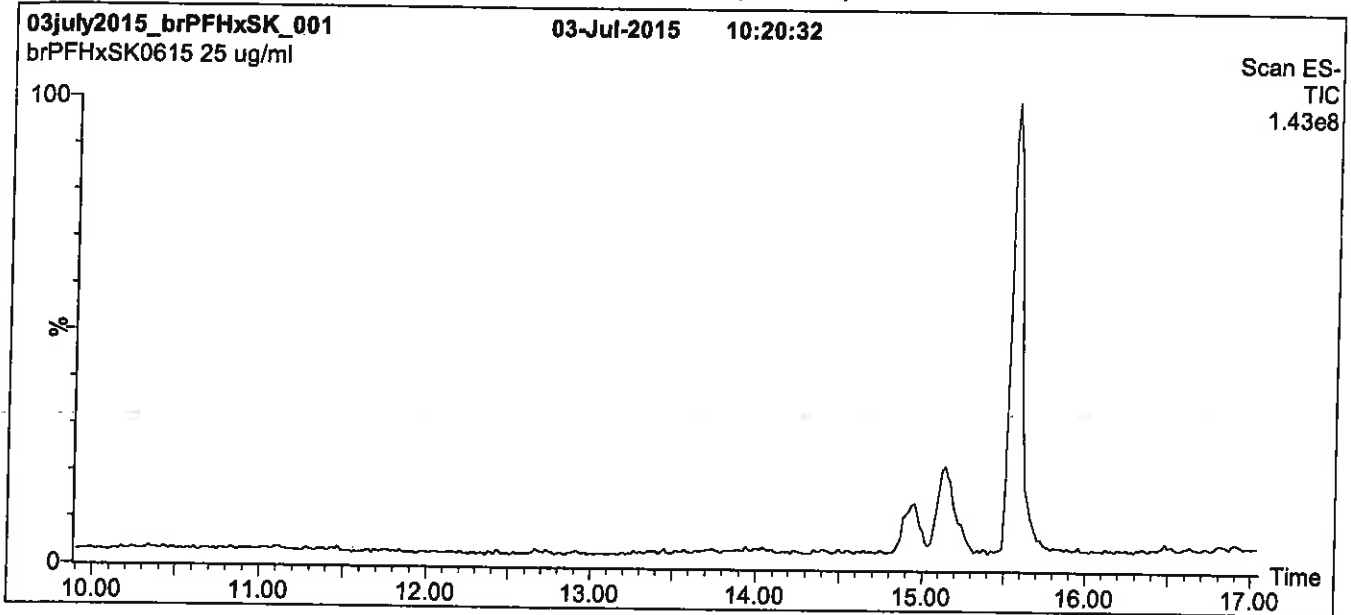
Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR
1	Potassium perfluoro-1-hexanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ ⁻ K ⁺	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	1.4
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	5.0
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	8.9
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CCF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.2
7	Other Unidentified Isomers		0.5

* Percent of total perfluorohexanesulfonate isomers only.
 ** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Certified By: 
 B.G. Chittim

Date: 07/15/2015
(mm/dd/yyyy)

Figure 1: br-PFHxSK; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 20% (80:20 MeOH:ACN) / 80% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 50% organic over 14 min. Ramp to
90% organic over 3 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 20 min

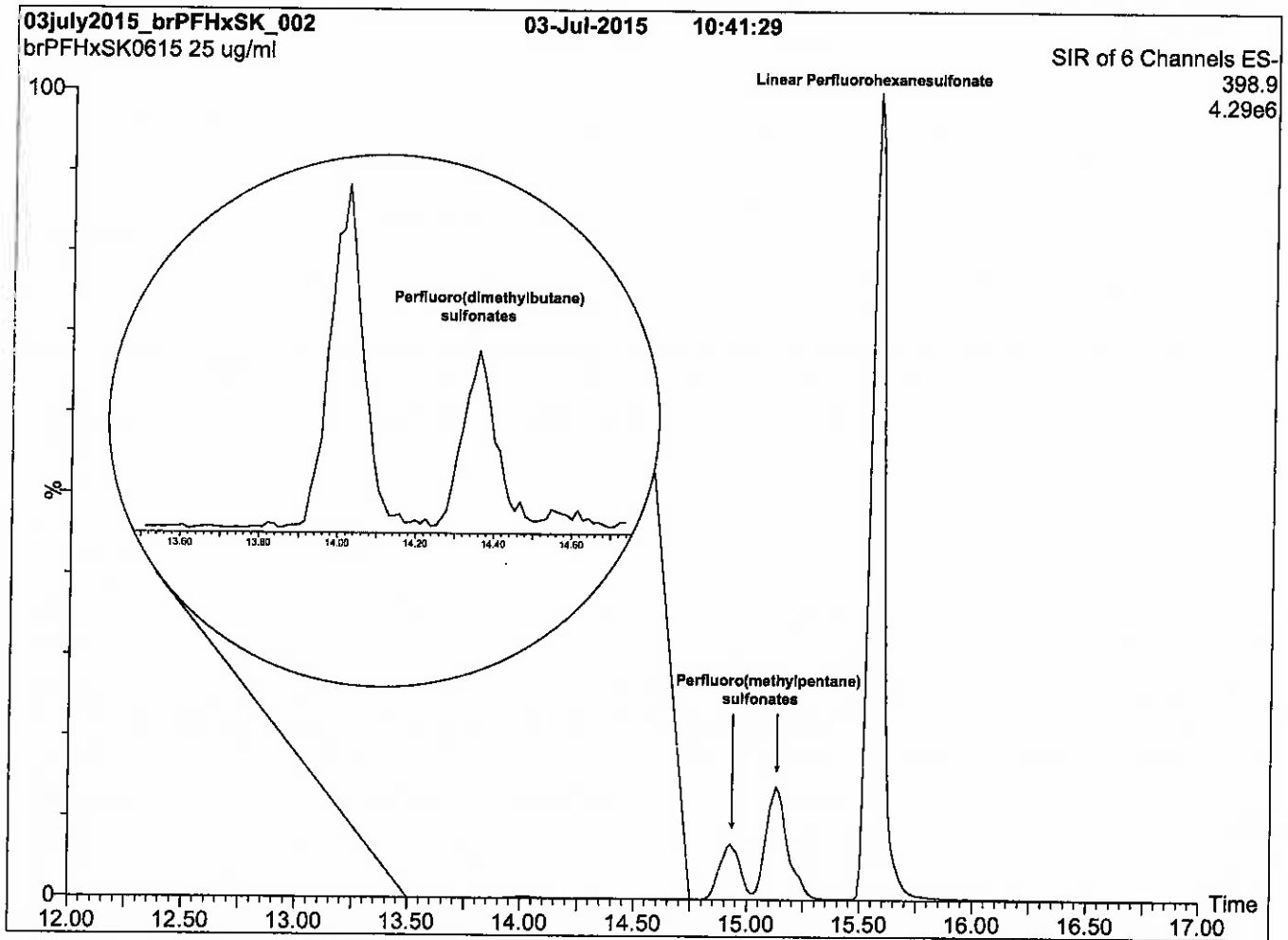
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

Figure 2: br-PFHxSK; LC/MS Data



Conditions for Figure 2:

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

Chromatographic Conditions

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

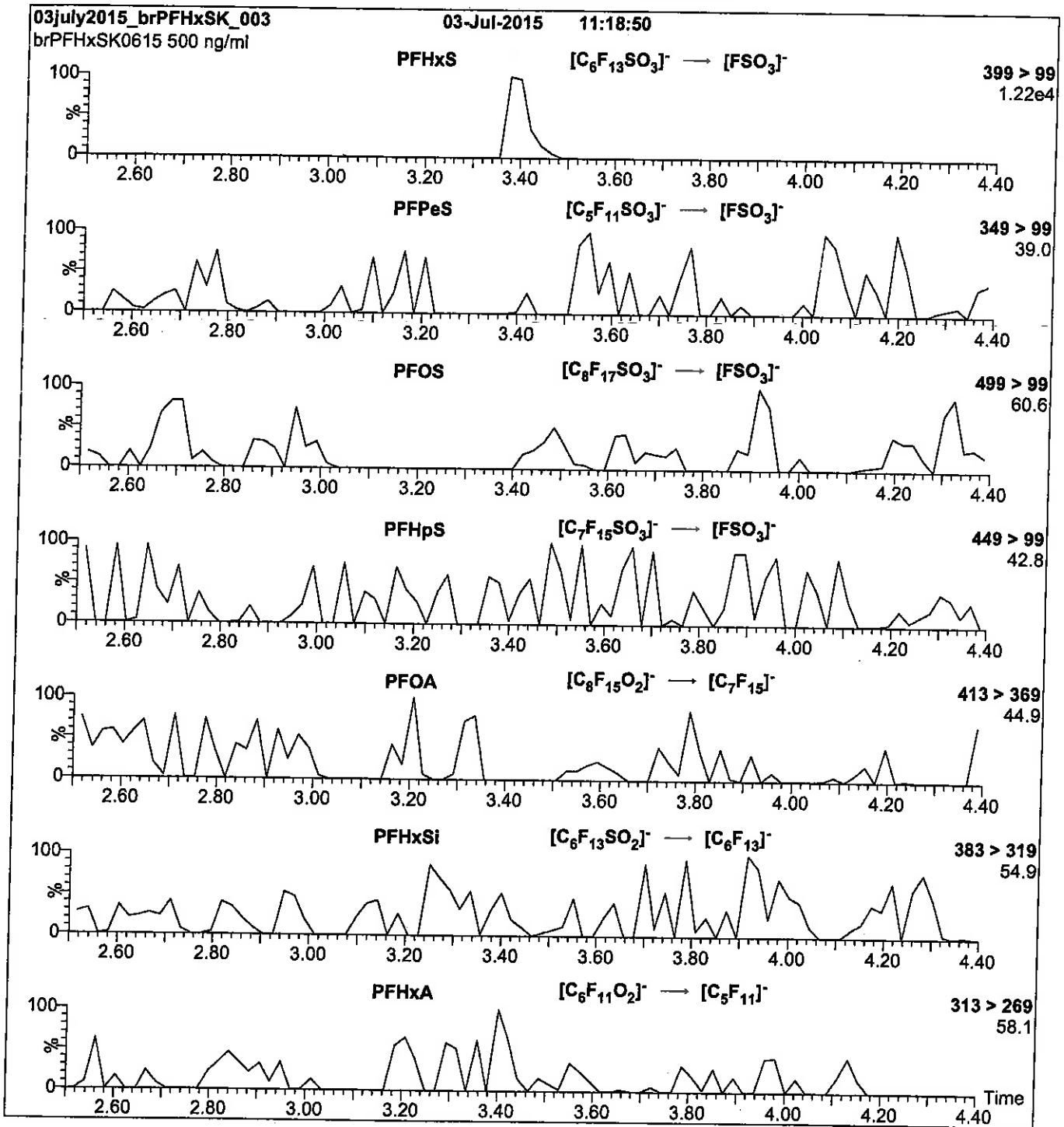
Mobile phase: Gradient
Start: 20% (80:20 MeOH:ACN) / 80% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 50% organic over 14 min. Ramp to
90% organic over 3 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 20 min

Flow: 300 μ l/min

MS Parameters

Experiment: SIR (6 channels)
Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 3: br-PFHxSK; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 3:

Injection: Direct loop injection
10 μ l (500 ng/ml br-PFHxSK)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% 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_00006

R: SBC 9/13/16
Scanned 10/14/16



730559
ID: LCPFNA_00006
Exp: 10/23/20 Ppfd: SBC
PF-n-nonanoic acid



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



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

PFNA

LOT NUMBER:

PFNA1015

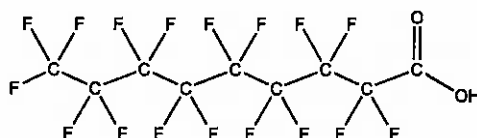
COMPOUND:

Perfluoro-n-nonanoic acid

STRUCTURE:

CAS #:

375-95-1



MOLECULAR FORMULA:

C₉H_F₁₇O₂

MOLECULAR WEIGHT:

464.08

CONCENTRATION:

50 ± 2.5 µg/ml

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

10/23/2015

EXPIRY DATE: (mm/dd/yyyy)

10/23/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:
B.G. Chittim

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

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

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

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

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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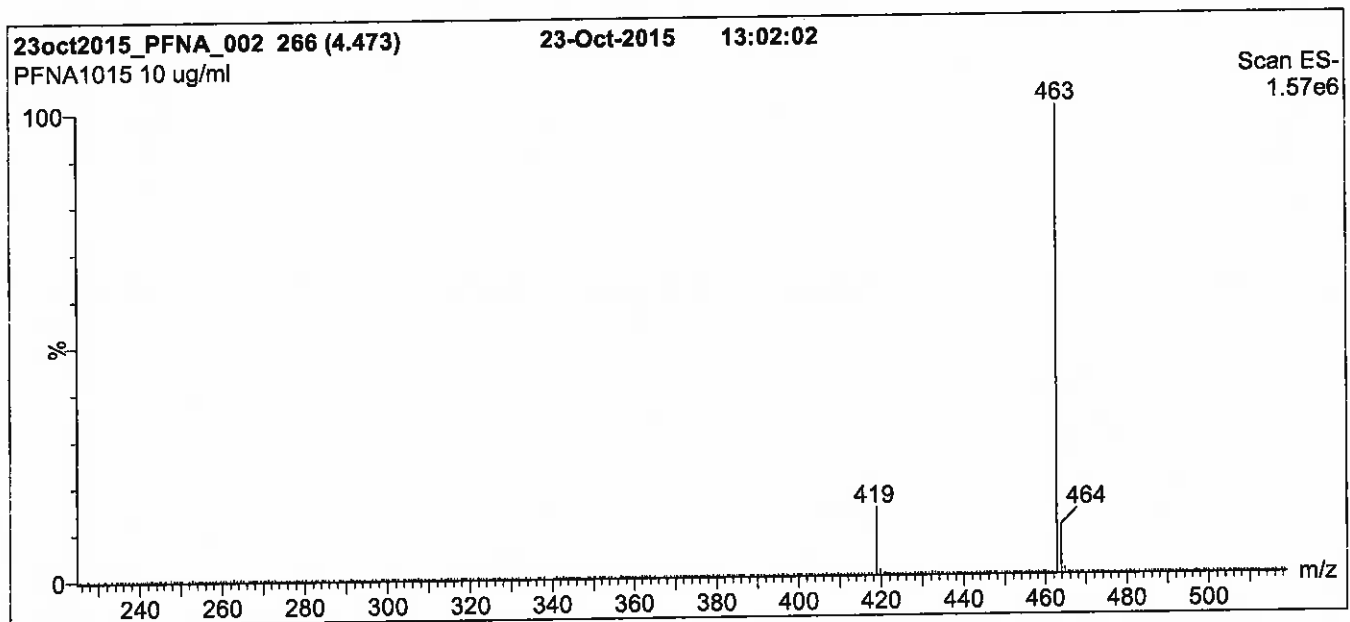
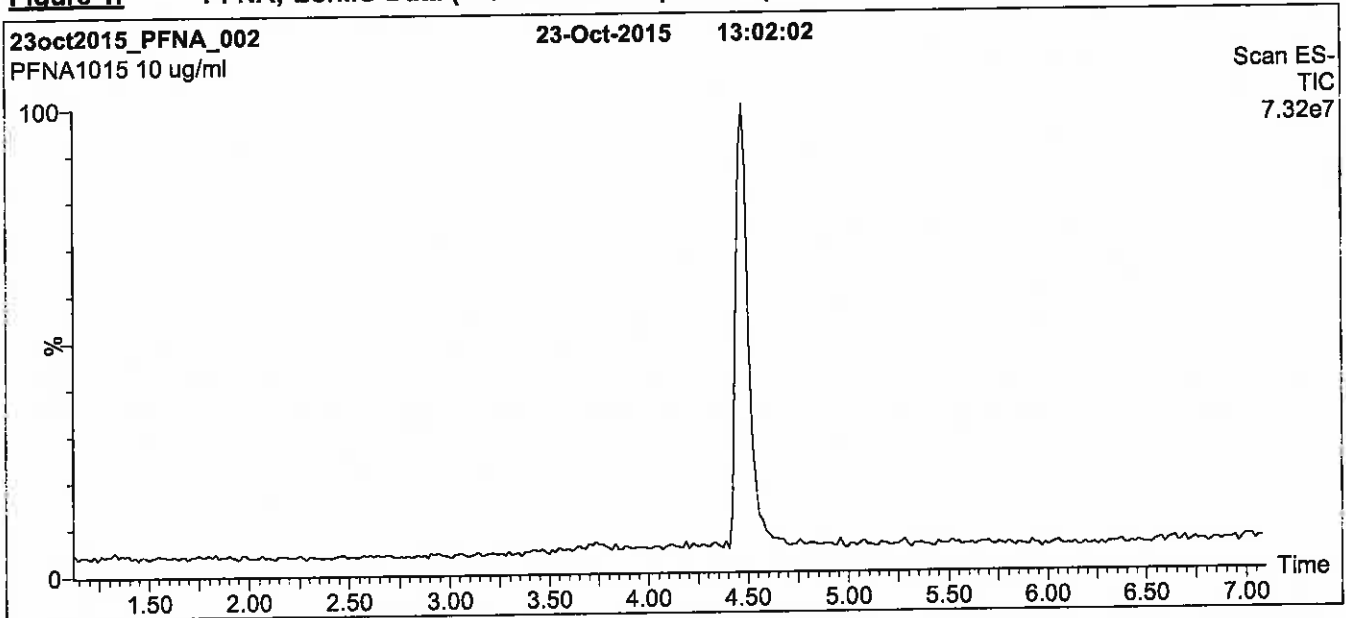
QUALITY MANAGEMENT:

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Figure 1: 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

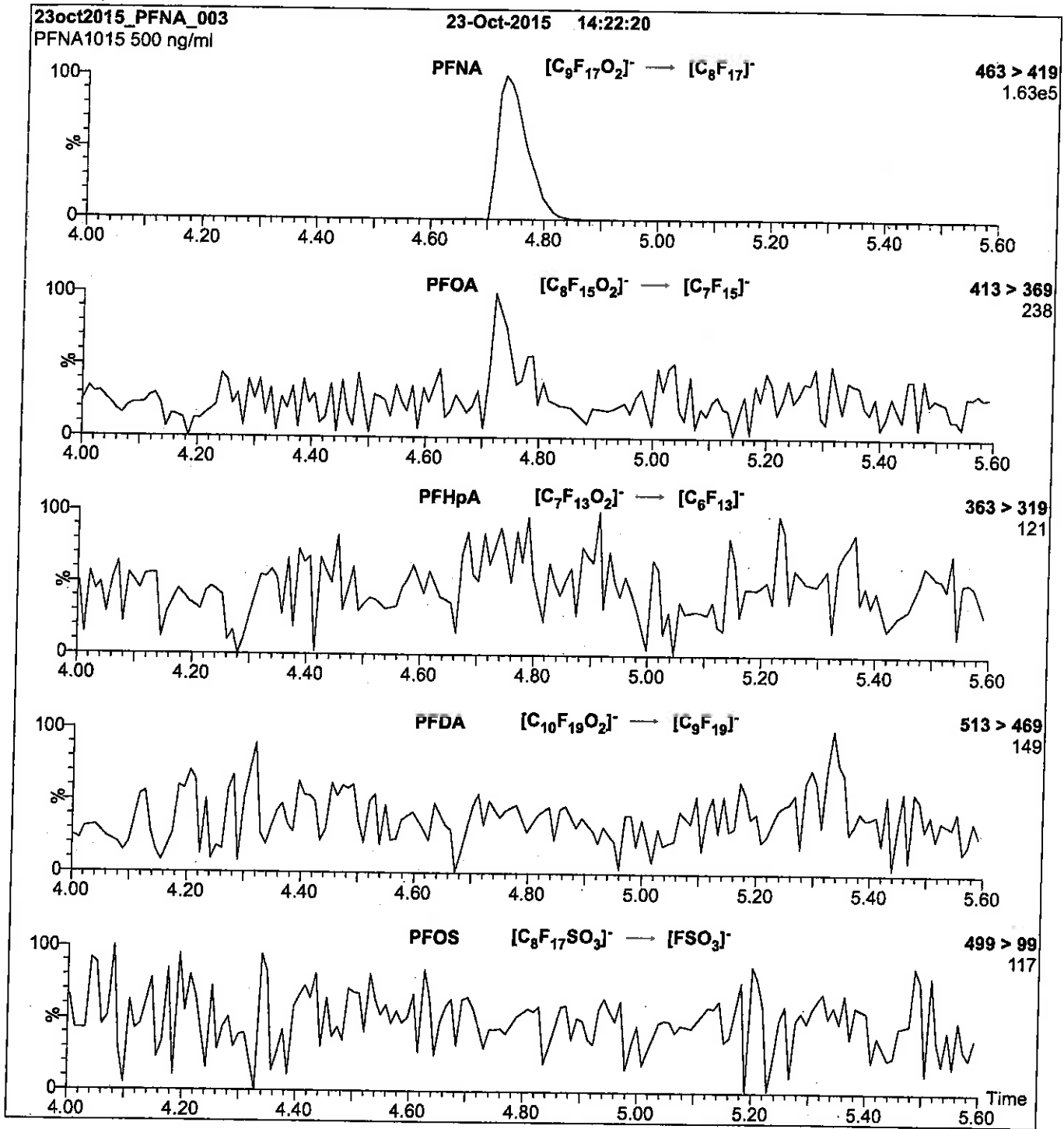
Flow: 300 μ l/min

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

LCPFNA_00007

R: SBC 9/13/16
Scanned 10/14/16



730559
ID: LCPFNA_00006
Exp: 10/23/20 Ppfd: SBC
PF-n-nonanoic acid



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



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFNA

LOT NUMBER:

PFNA1015

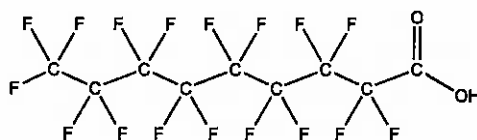
COMPOUND:

Perfluoro-n-nonanoic acid

STRUCTURE:

CAS #:

375-95-1



MOLECULAR FORMULA:

C₉H_F₁₇O₂

MOLECULAR WEIGHT:

464.08

CONCENTRATION:

50 ± 2.5 µg/ml

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

10/23/2015

EXPIRY DATE: (mm/dd/yyyy)

10/23/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 10/30/2015

(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

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:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

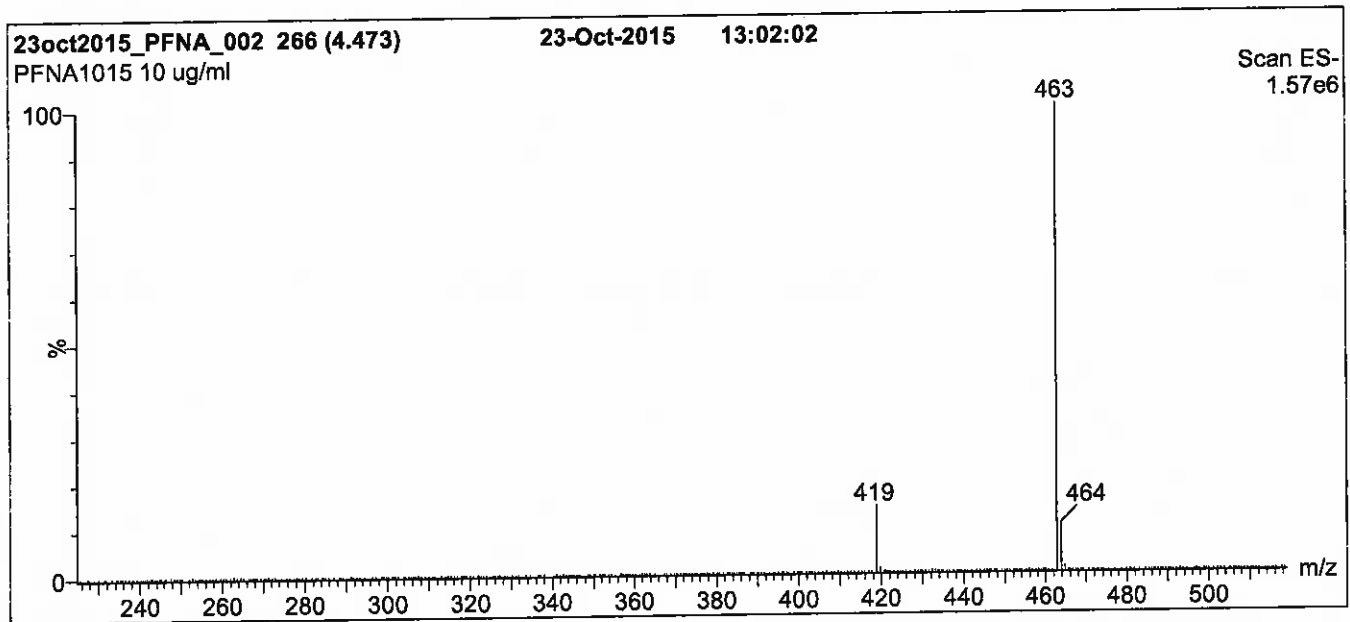
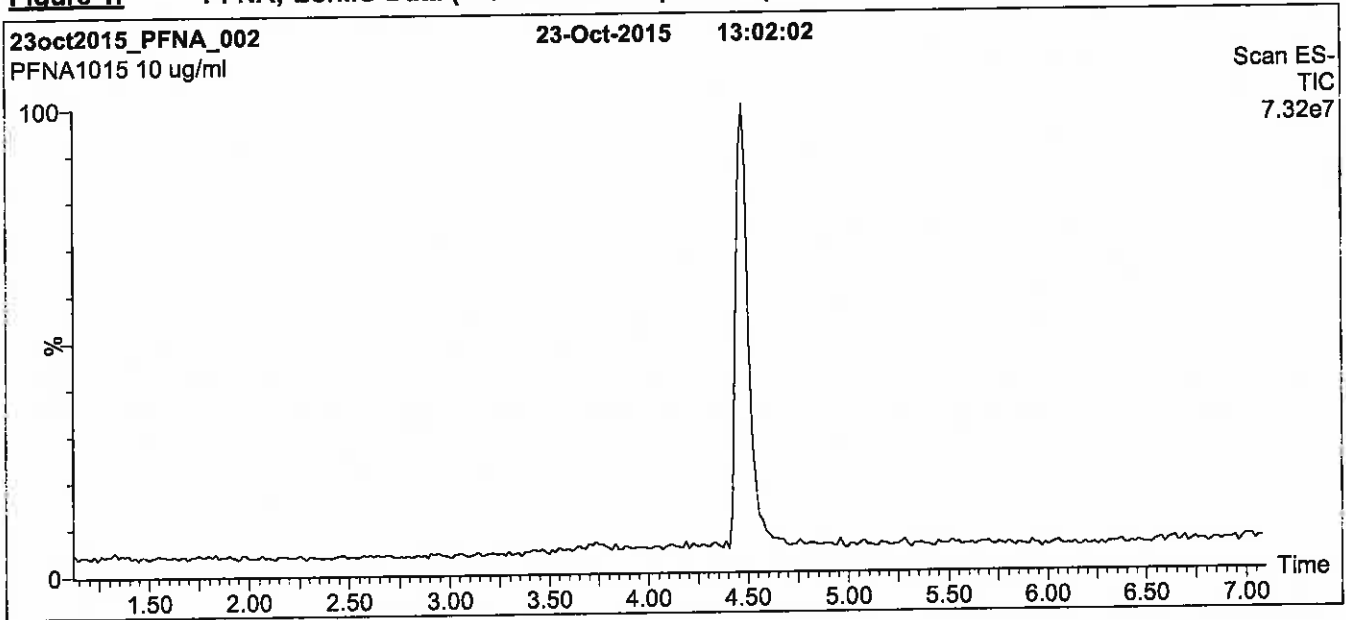
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



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Figure 1: PFNA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

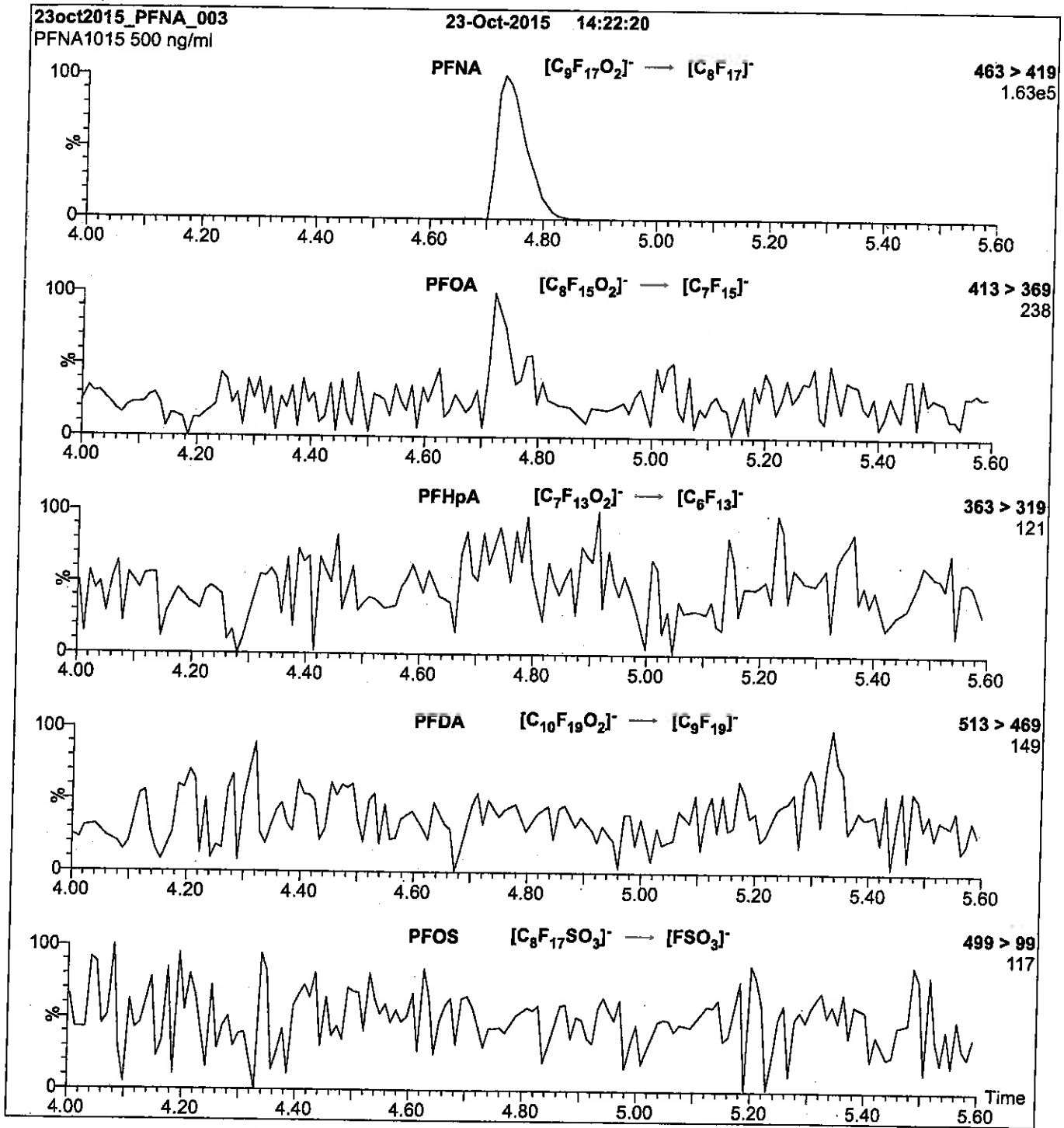
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: PFNA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFNA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 11

Reagent

LCPFOA_00006

R-7/6/16 CBW

671577
ID: LCPFOA_00006
Exp: 11/06/20 Prod: CBW
PF-n-octanoic acid

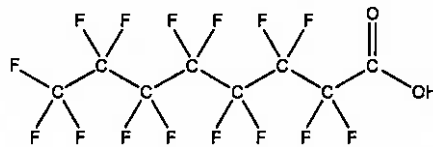


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFOA **LOT NUMBER:** PFOA1115
COMPOUND: Perfluoro-n-octanoic acid

STRUCTURE: **CAS #:** 335-67-1



MOLECULAR FORMULA: C₈HF₁₅O₂ **MOLECULAR WEIGHT:** 414.07
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/06/2015
EXPIRY DATE: (mm/dd/yyyy) 11/06/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 11/11/2015
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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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:

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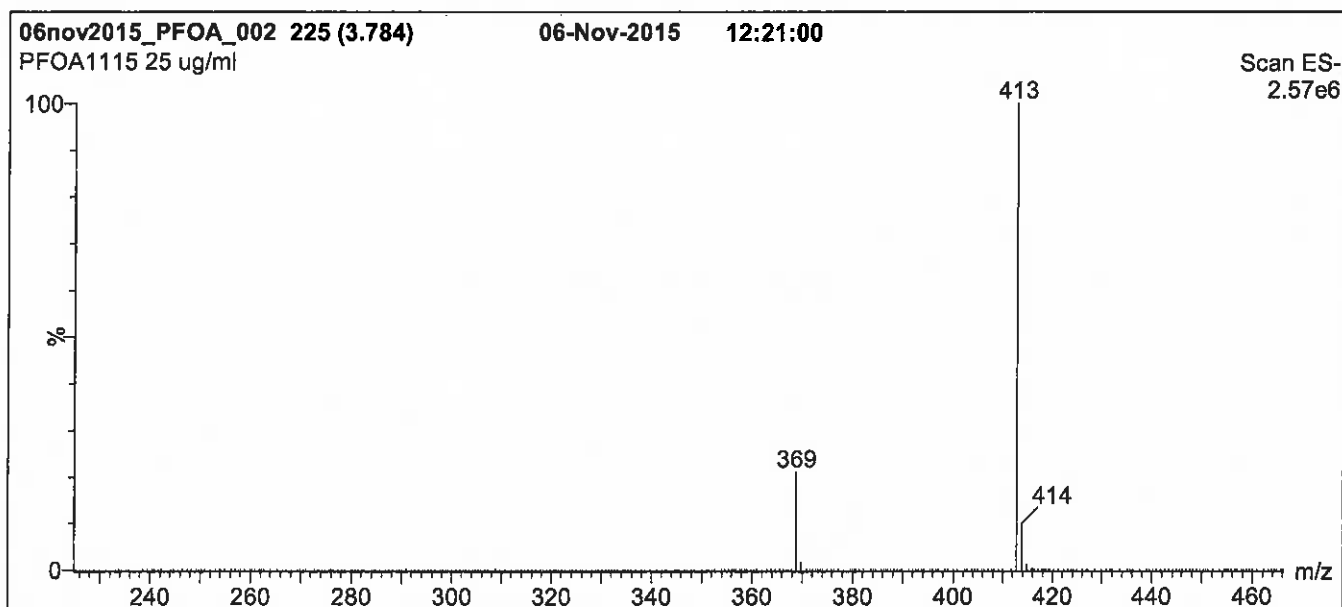
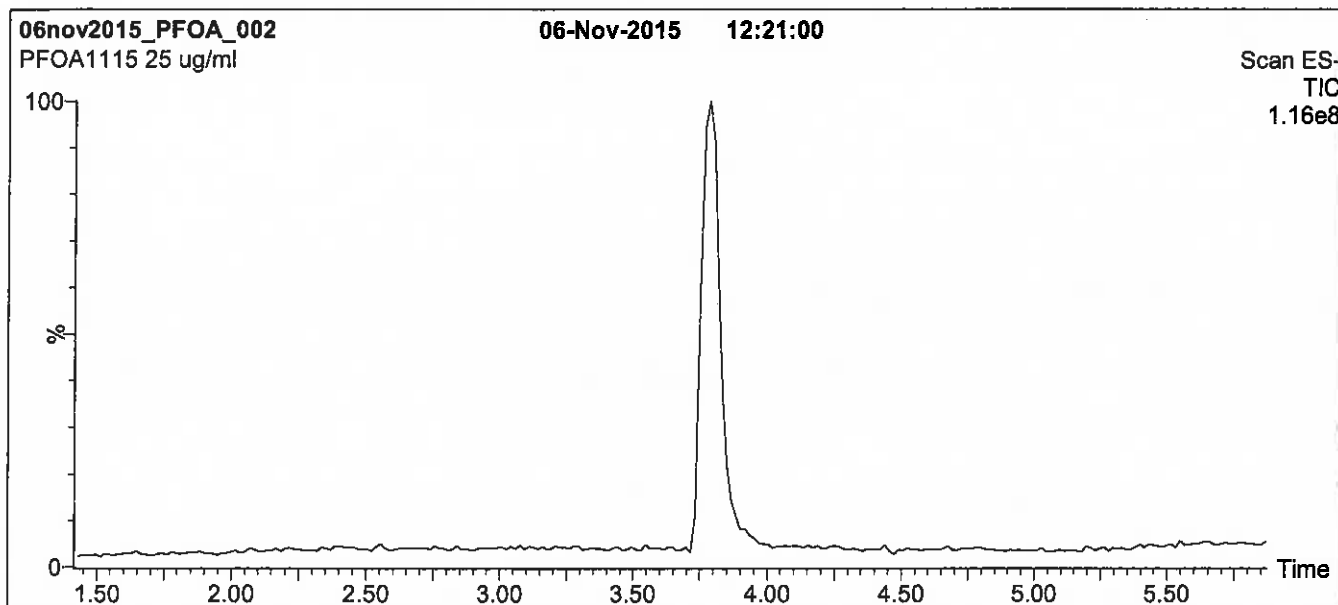
QUALITY MANAGEMENT:

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Figure 1: PFOA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈,
 1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
 Start: 50% (80:20 MeOH:ACN) / 50% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min and hold for
 2 min before returning to initial conditions in 0.5 min.
 Time: 10 min

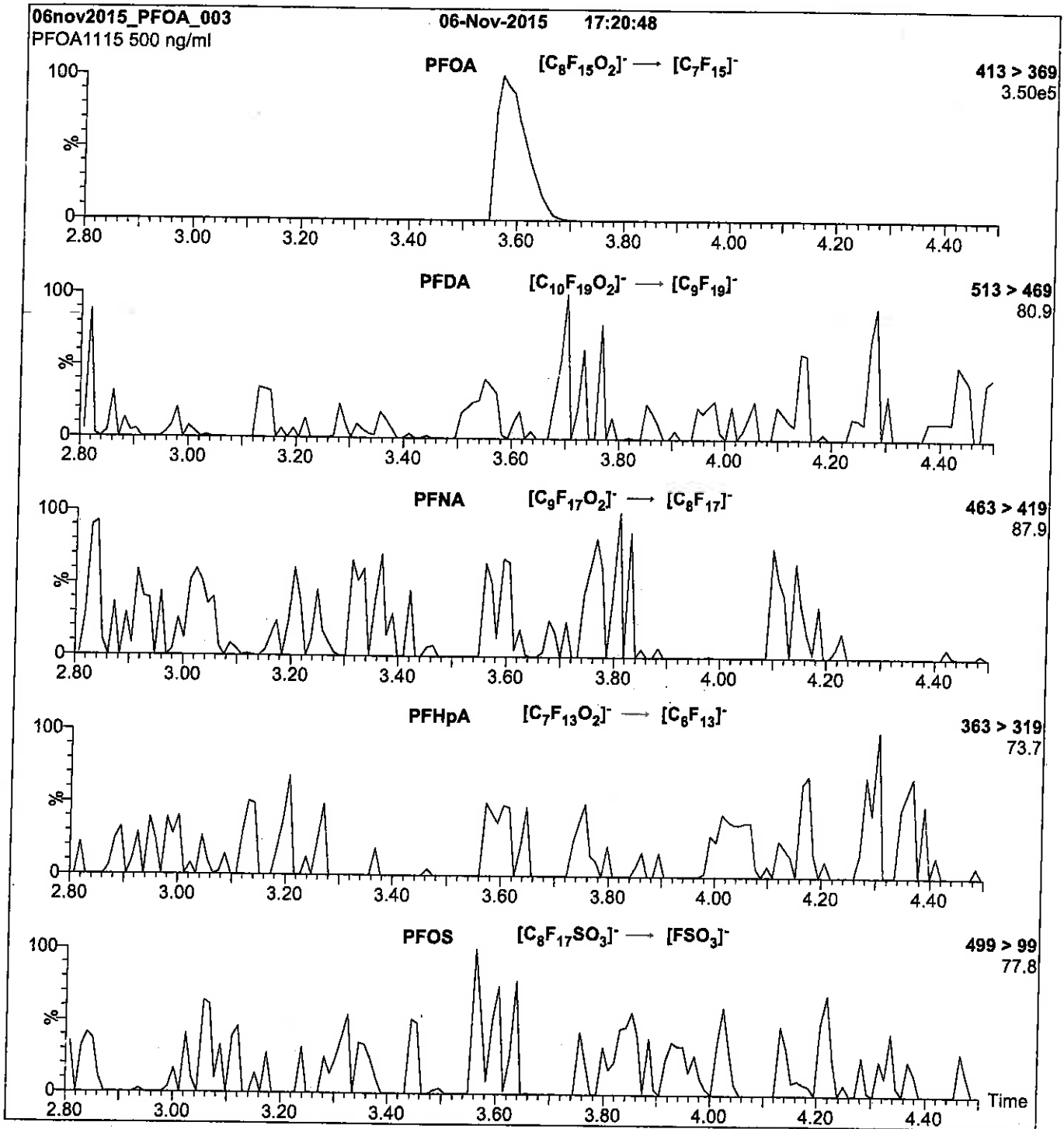
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 15.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

Figure 2: PFOA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFOA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.17e-3
Collision Energy (eV) = 10

Reagent

LCPFOA_00007

n: 12/24/16 Spd



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFOA

LOT NUMBER:

PFOA0716

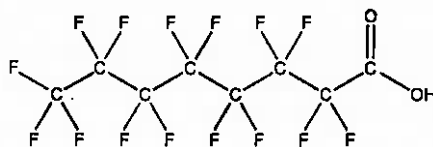
COMPOUND:

Perfluoro-n-octanoic acid

STRUCTURE:

CAS #:

335-67-1



MOLECULAR FORMULA:

$C_8HF_{16}O_2$

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)

08/02/2016

EXPIRY DATE: (mm/dd/yyyy)

08/02/2021

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: 08/05/2016

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
 519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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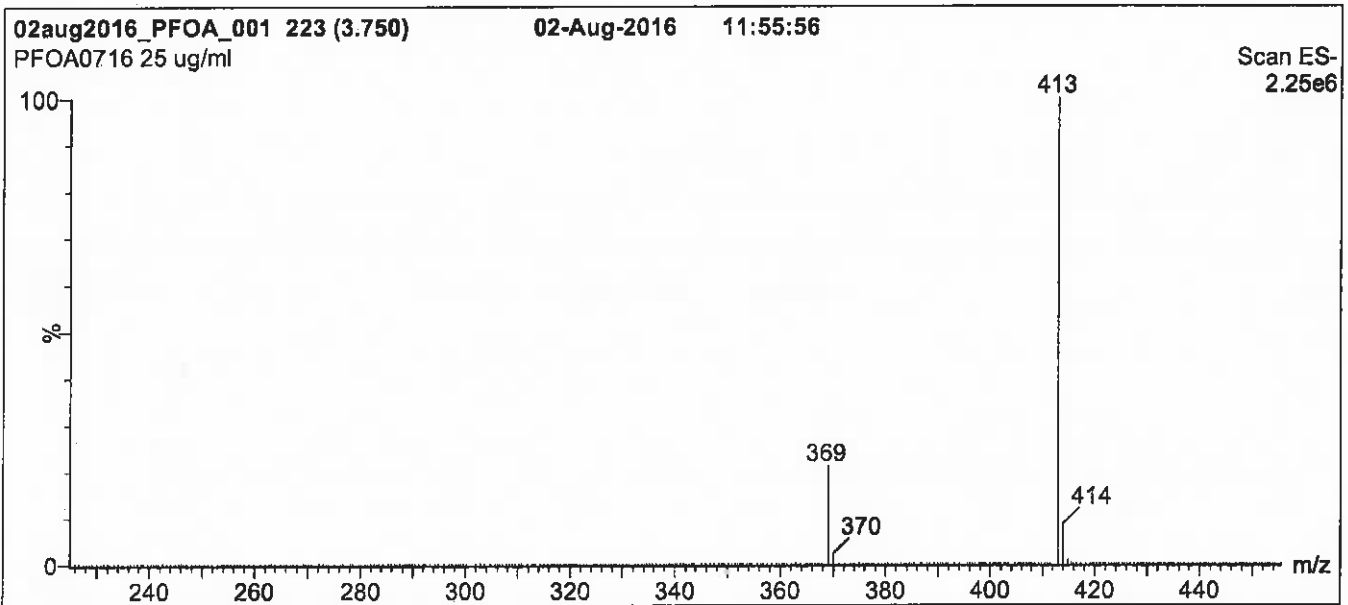
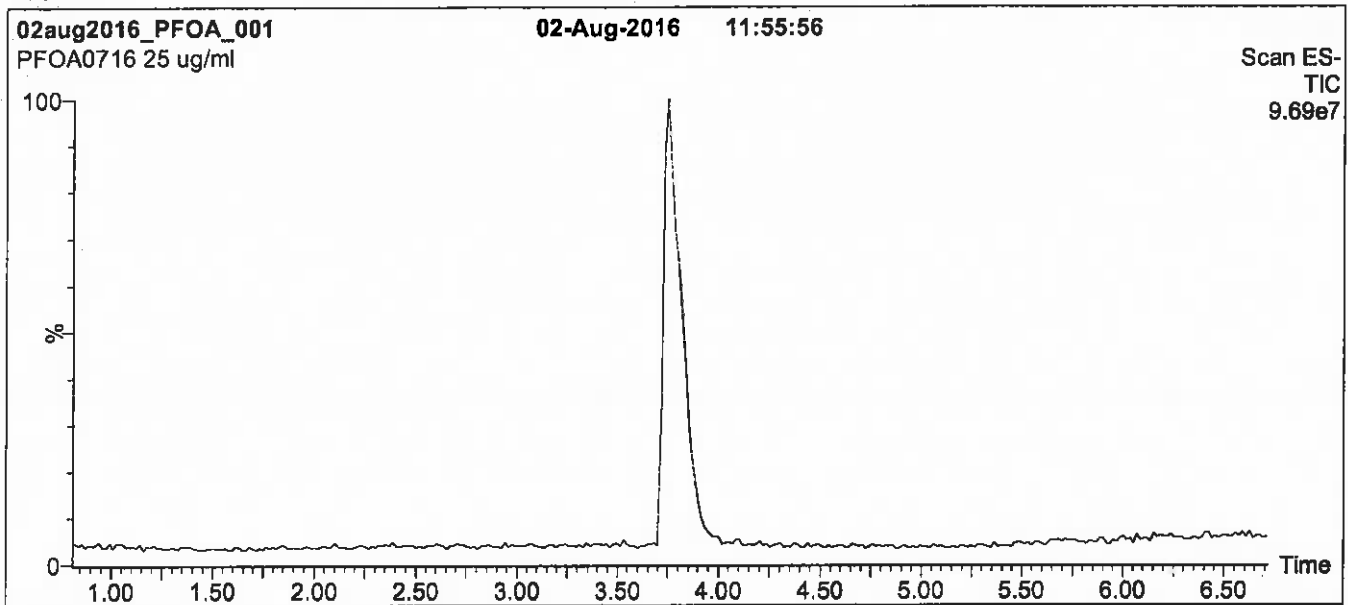
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Figure 1: PFOA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈,
 1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
 Start: 50% (80:20 MeOH:ACN) / 50% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min and hold for
 1.5 min before returning to initial conditions in 0.5 min.
 Time: 10 min

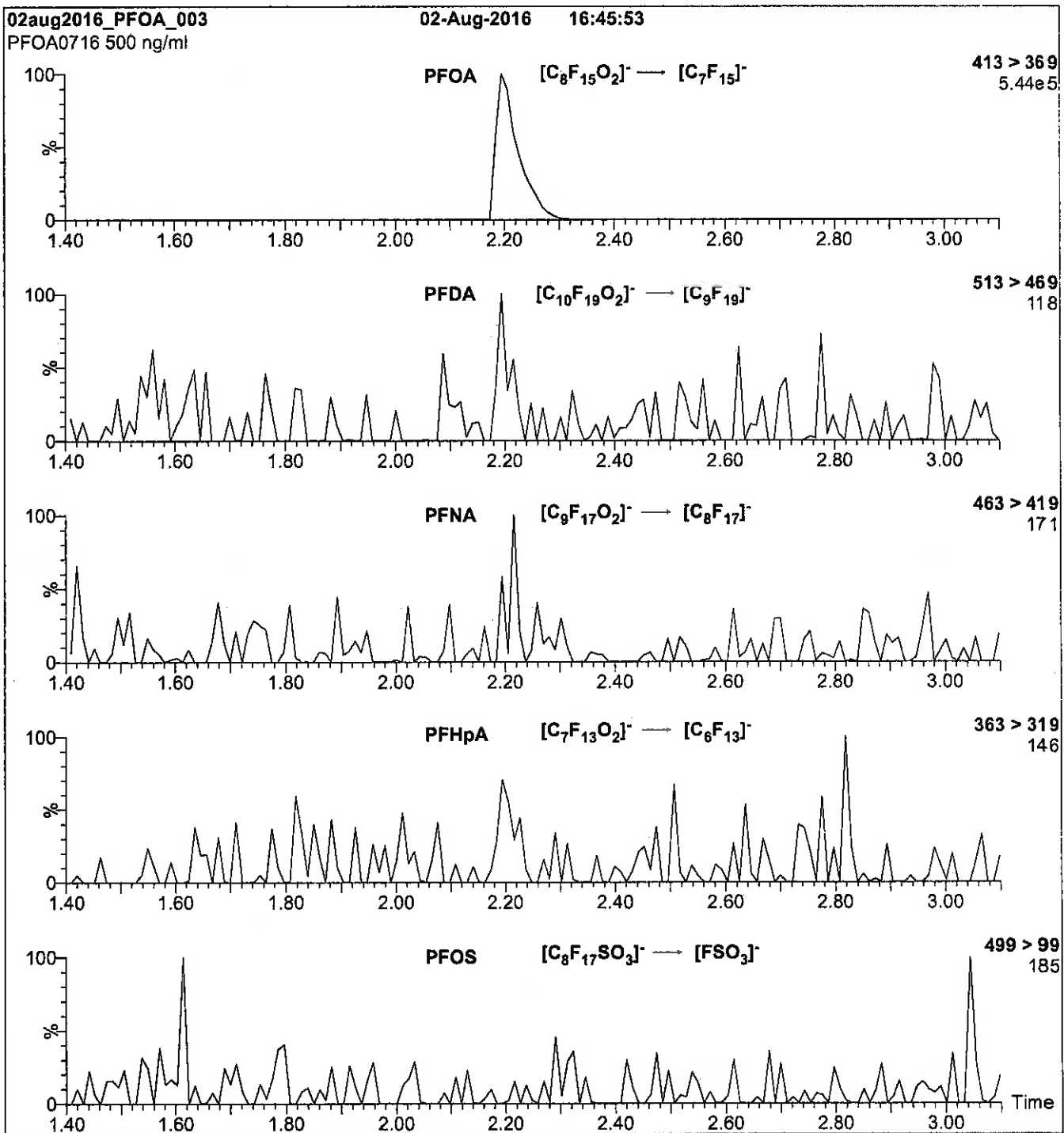
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 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) = 3.43e-3
Collision Energy (eV) = 10

Reagent

LCPFODA_00006

Scanned
07/14/16

R: SBC
9/13/16

730632
ID: LCPFOA_00006
Exp: 04/29/21 Prod: SBC
PFODA stock 50ug/mL

730633
ID: LCPFOA_00007
Exp: 04/29/21 Prod: SBC
PFODA stock 50ug/mL

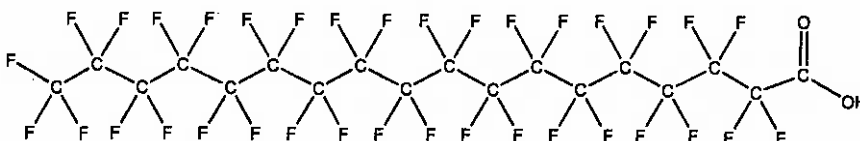


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFODA **LOT NUMBER:** PFODA0416
COMPOUND: Perfluoro-n-octadecanoic acid

STRUCTURE: **CAS #:** 16517-11-6



MOLECULAR FORMULA: $C_{18}HF_{36}O_2$ **MOLECULAR WEIGHT:** 914.14
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 04/29/2016
EXPIRY DATE: (mm/dd/yyyy) 04/29/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 05/20/2016
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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HAZARDS:

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$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

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.

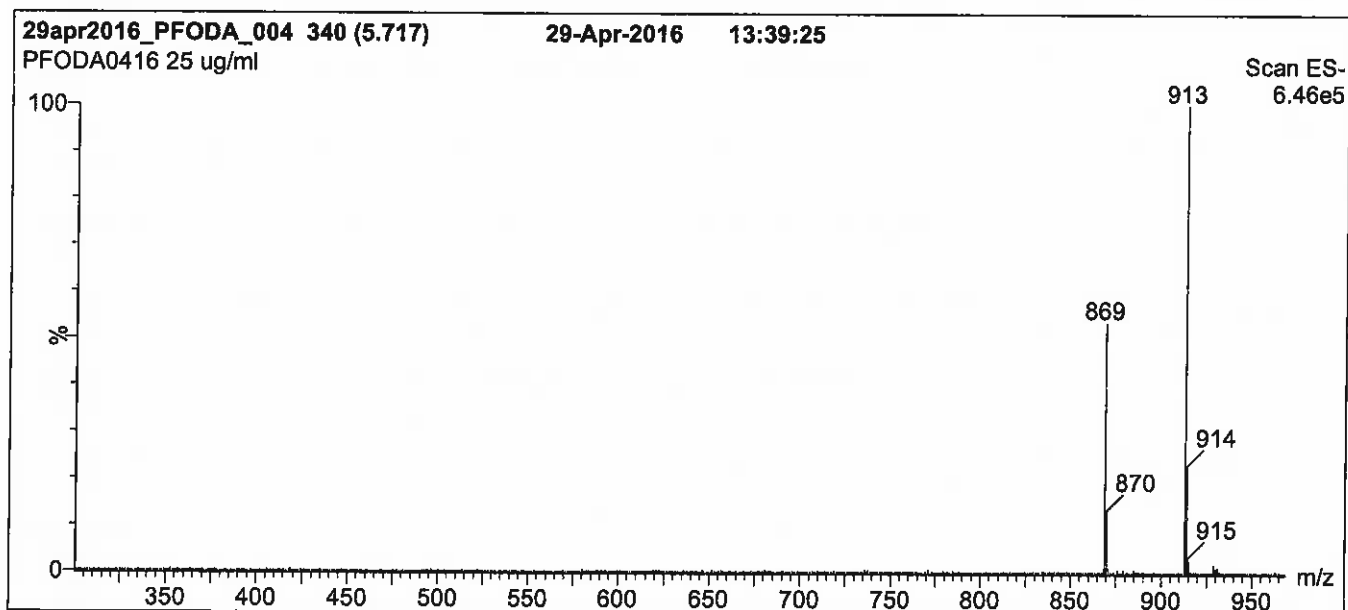
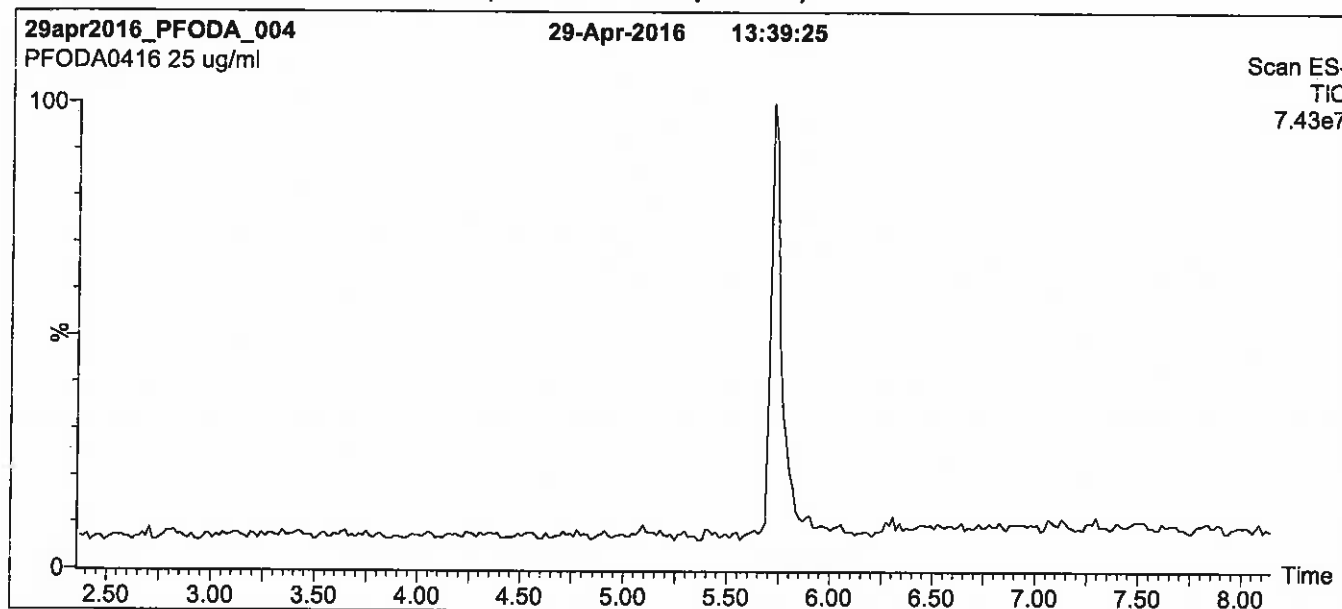
QUALITY MANAGEMENT:

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: PFODA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
 Start: 70% (80:20 MeOH:ACN) / 30% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 95% organic over 6 min and hold for
 2.5 min before returning to initial conditions in 0.5 min.
 Time: 10 min

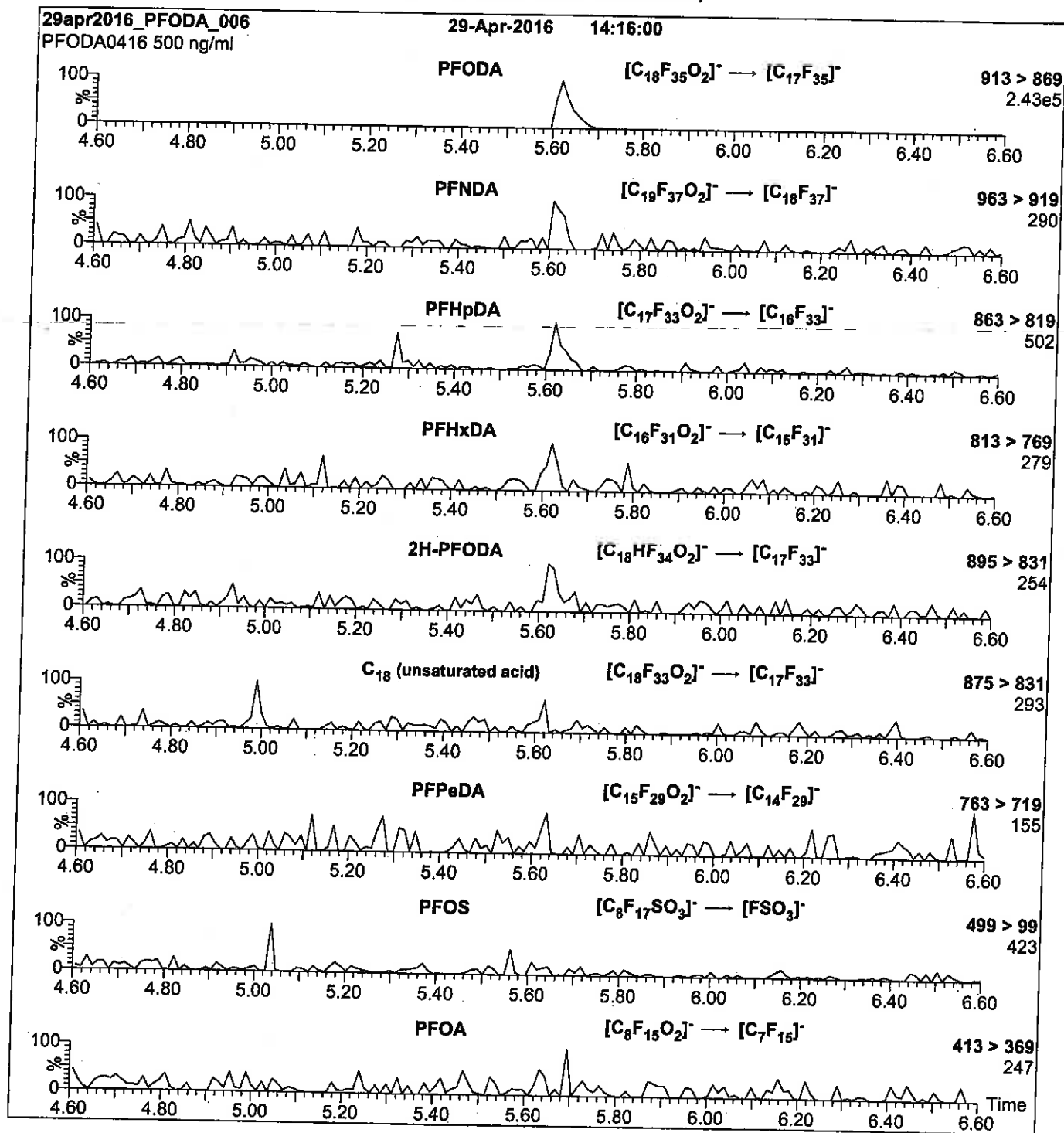
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1000 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 25.00
 Cone Gas Flow (l/hr) = 50
 Desolvation Gas Flow (l/hr) = 750

Figure 2: PFODA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFODA)

Mobile phase: Isocratic 90% (80:20 MeOH:ACN) / 10% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 15

Reagent

LCPFODA_00007

Scanned
07/14/16

R: SBC
9/13/16



730632
ID: LCPFODA_00006
Exp: 04/29/21 Prod: SBC
PFODA stock 50ug/mL



730633
ID: LCPFODA_00007
Exp: 04/29/21 Prod: SBC
PFODA stock 50ug/mL

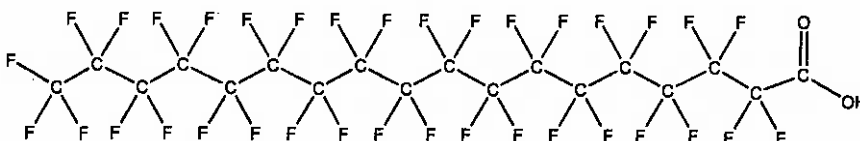


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFODA **LOT NUMBER:** PFODA0416
COMPOUND: Perfluoro-n-octadecanoic acid

STRUCTURE: **CAS #:** 16517-11-6



MOLECULAR FORMULA: $C_{18}HF_{36}O_2$ **MOLECULAR WEIGHT:** 914.14
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 04/29/2016
EXPIRY DATE: (mm/dd/yyyy) 04/29/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/20/2016
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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:

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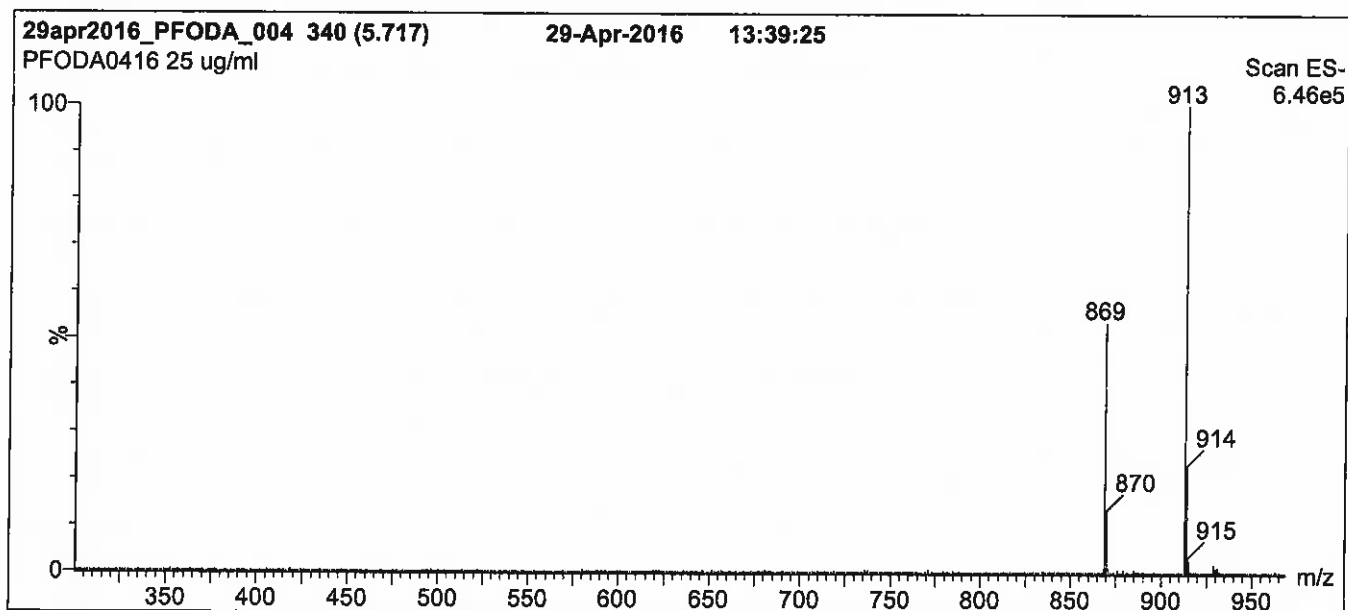
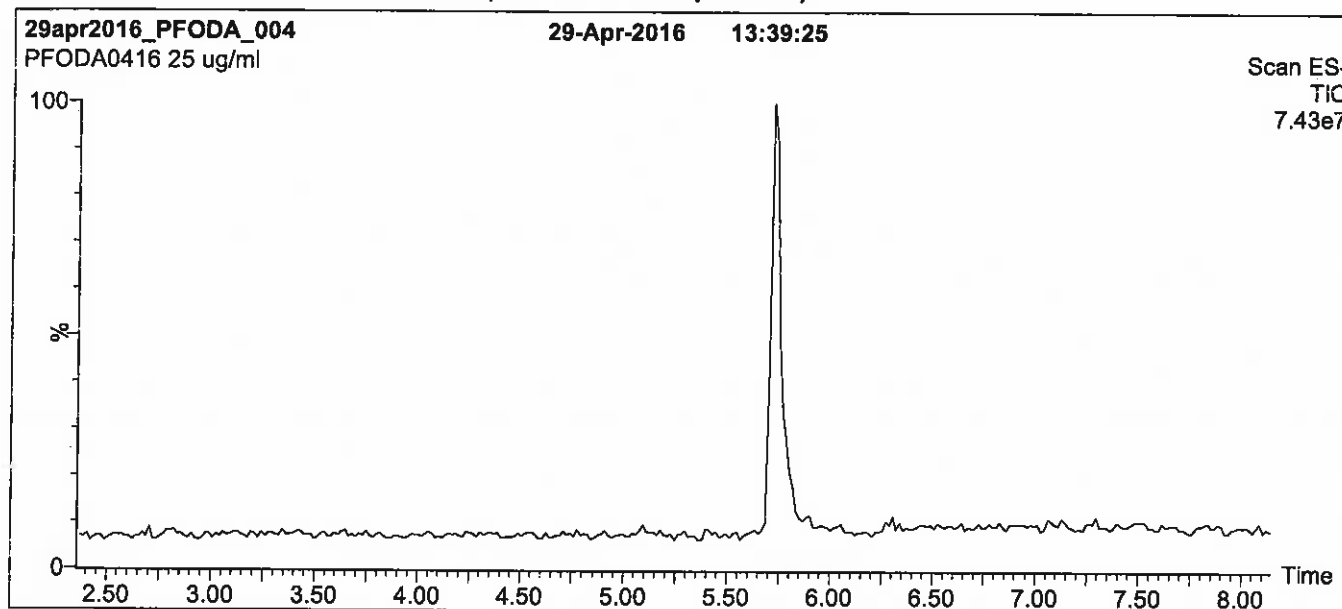
QUALITY MANAGEMENT:

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: 70% (80:20 MeOH:ACN) / 30% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 95% organic over 6 min and hold for
2.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

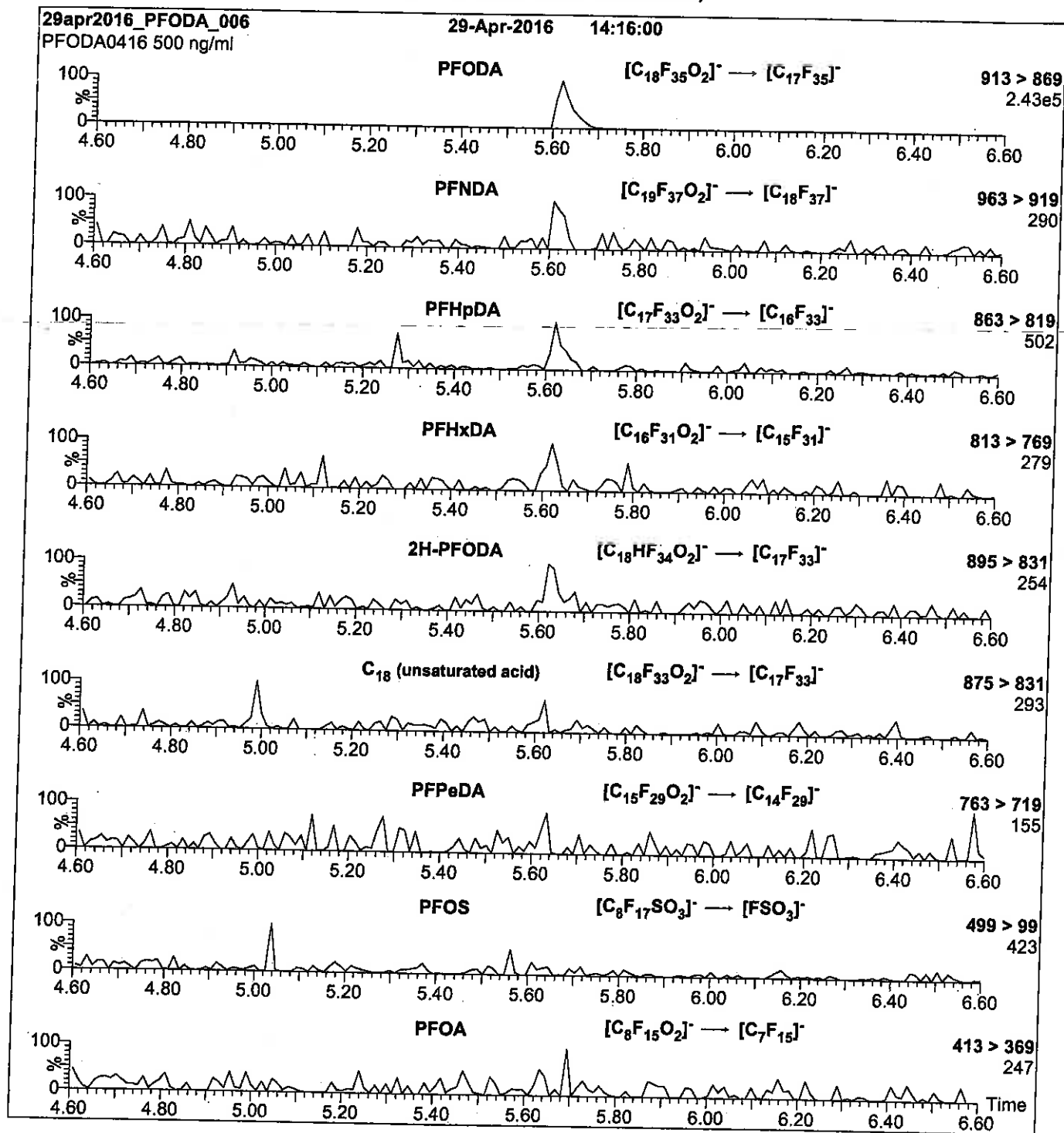
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1000 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: PFODA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFODA)

Mobile phase: Isocratic 90% (80:20 MeOH:ACN) / 10% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 15

Reagent

LCPFOS-br_00002

Scanned
10/14/16 SR

R: SBC 9/13/16



730515
ID: LCPFOS-br_00002
Exp: 10/14/20 Prpt: SBC
Potassium Perfluorooctane



730516
ID: LCPFOS-br_00003
Exp: 10/14/20 Prpt: SBC
Potassium Perfluorooctane



**WELLINGTON
LABORATORIES**

**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

br-PFOSK

**Potassium Perfluorooctanesulfonate
Solution/Mixture of Linear and
Branched Isomers**

PRODUCT CODE: br-PFOSK
LOT NUMBER: brPFOSK1015
CONCENTRATION: 50 ± 2.5 µg/ml (total potassium salt)
46.4 ± 2.3 µg/ml (total PFOS anion)
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 10/13/2015
LAST TESTED: (mm/dd/yyyy) 10/14/2015
EXPIRY DATE: (mm/dd/yyyy) 10/14/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorooctanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- A 5-point calibration curve was generated using linear PFOS (potassium salt) and mass-labelled PFOS as an internal standard to enable quantitation of br-PFOSK using isotopic dilution.
- CAS#: 2795-39-3 (for linear isomer; potassium salt).

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:

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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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Table A: br-PFOSK; Isomeric Components and Percent Composition (by ¹⁹F-NMR)*

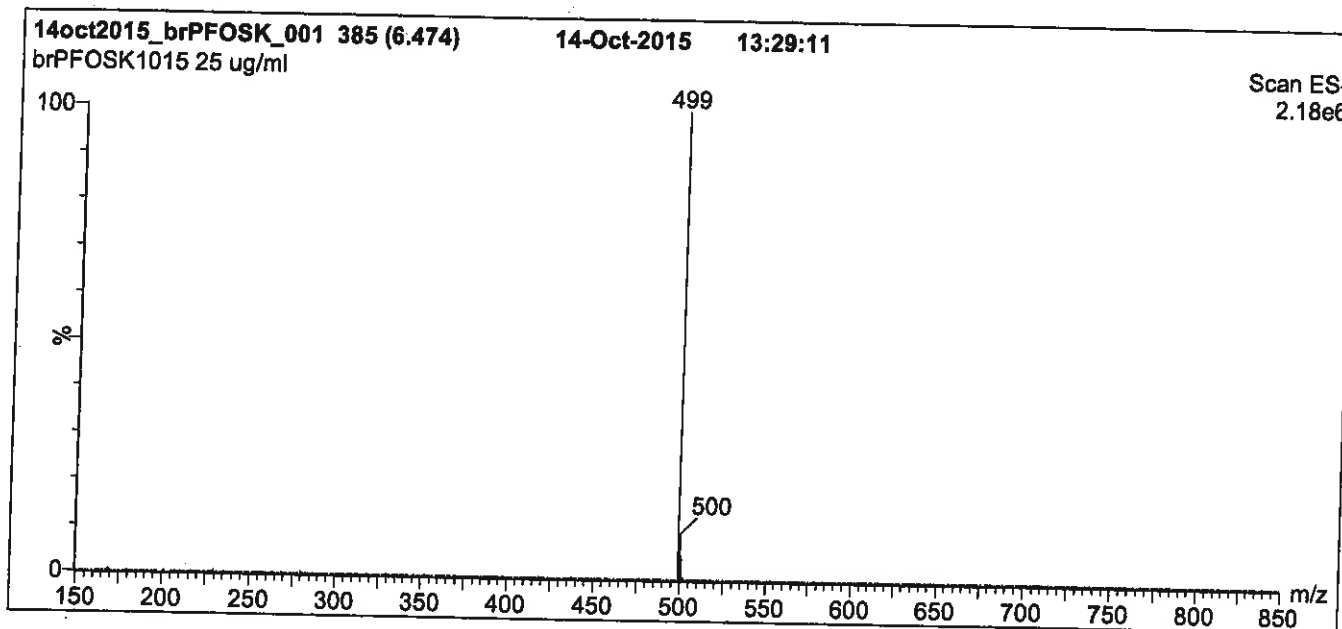
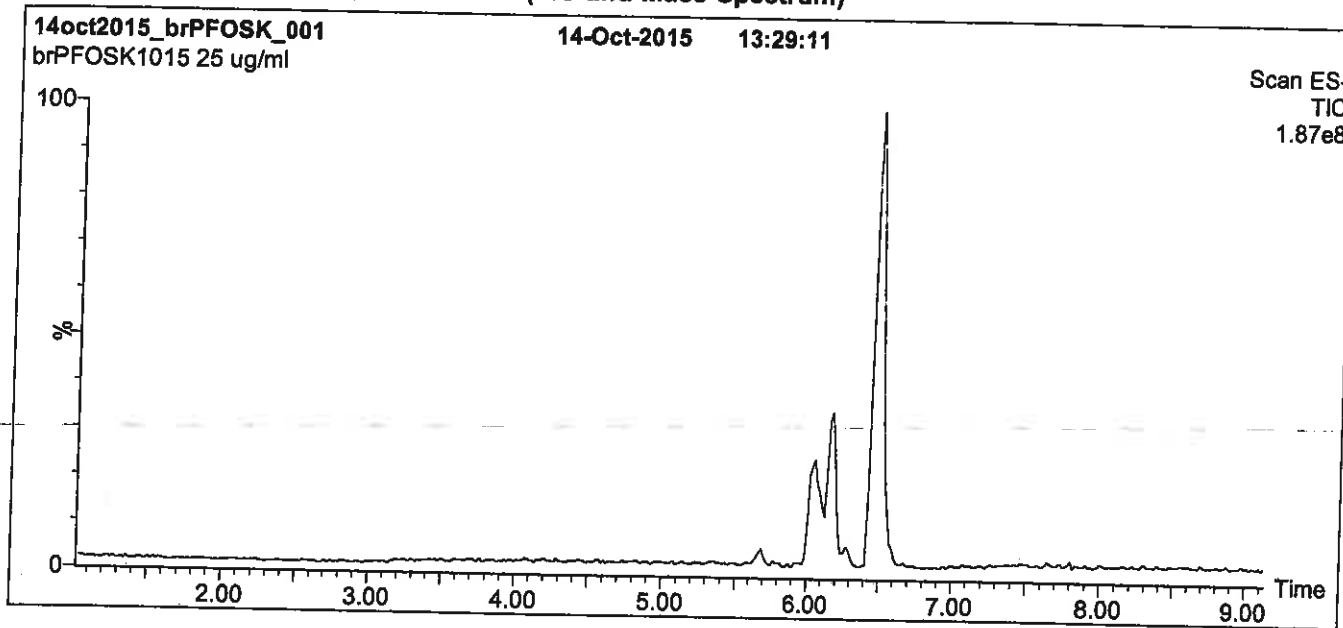
Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR
1	Potassium perfluoro-1-octanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ K ⁺	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}(\text{SO}_3\text{K}^+) \\ \\ \text{CF}_3 \end{array}$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}(\text{CF}_3)\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.6
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	1.9
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	2.2
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	4.5
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	10.0
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3-\text{C}-\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.2
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CF}_2-\text{C}-\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.03
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3-\text{CF}(\text{CF}_3)-\text{CF}(\text{CF}_3)-\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \end{array}$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3-\text{CF}(\text{CF}_3)-\text{CF}_2-\text{CF}(\text{CF}_3)-\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \end{array}$	0.07

* Percent of total perfluorooctanesulfonate isomers only. Isomers are labeled 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

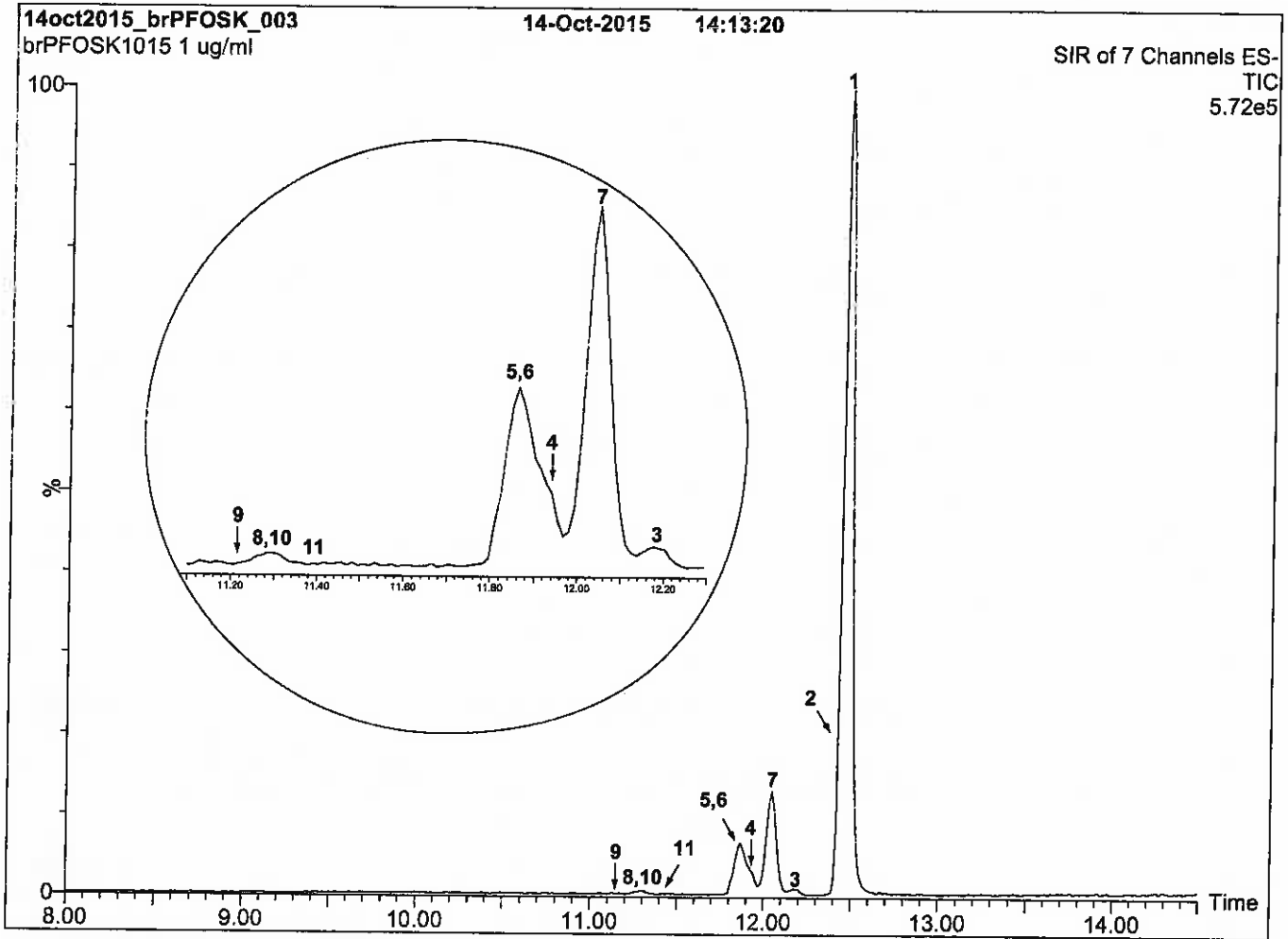
Flow: 300 μ l/min

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

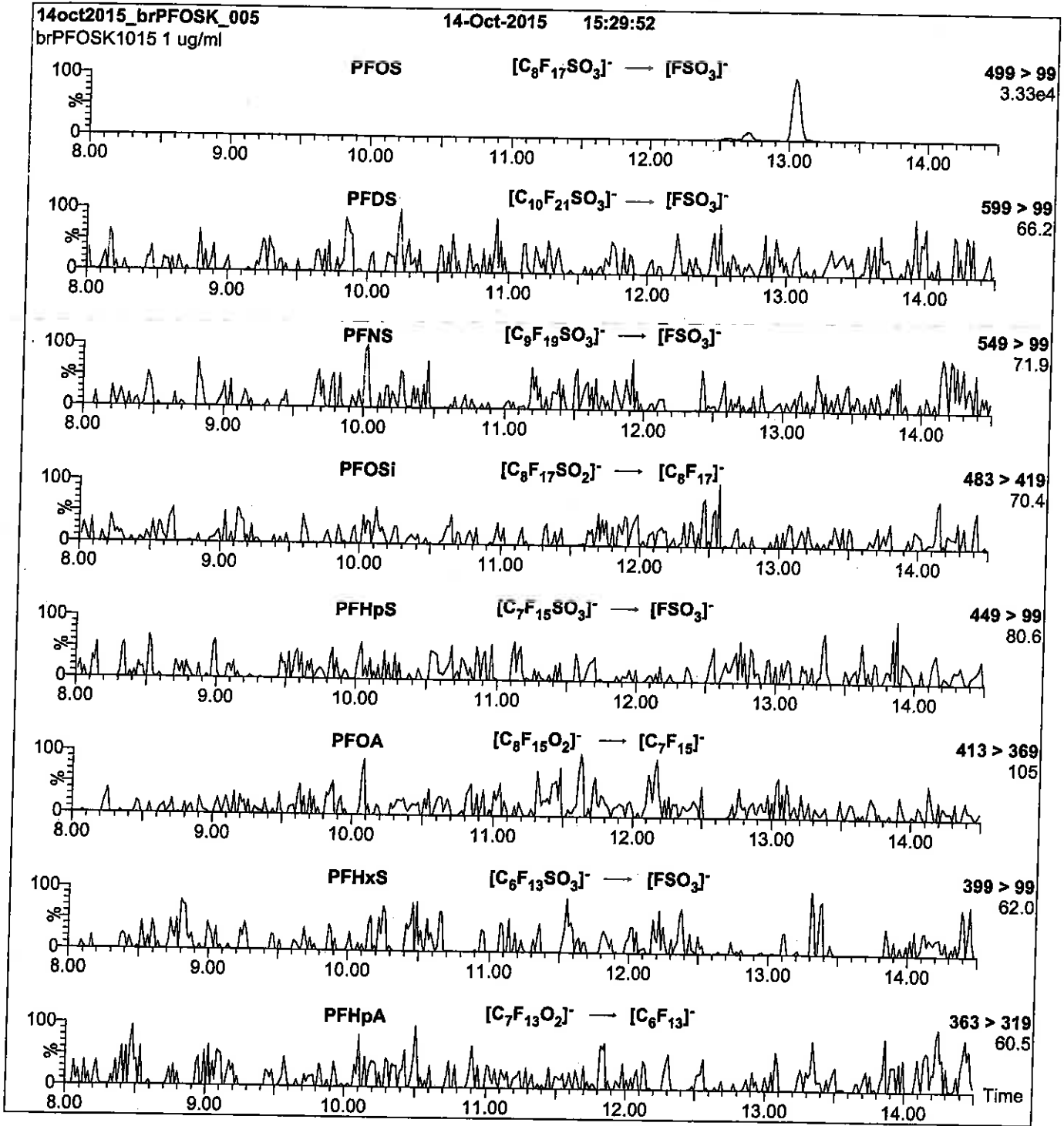
Chromatographic Conditions:

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 °C
Desolvation = 325 °C
Cone Voltage = 60V

Figure 3: br-PFOSK; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 3:

Injection: On-column

Mobile phase: Same as Figure 2

Flow: 300 μ /min

MS Parameters

Collision Gas (mbar) = 3.06e-3

Collision Energy (eV) = 11-50 (variable)

Reagent

LCPFOS-br_00003

Scanned
10/14/16 SR

R: SBC 9/13/16



730515
ID: LCPFOS-br_00002
Exp: 10/14/20 Prpt: SBC
Potassium Perfluorooctane



730516
ID: LCPFOS-br_00003
Exp: 10/14/20 Prpt: SBC
Potassium Perfluorooctane



WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate
Solution/Mixture of Linear and
Branched Isomers

PRODUCT CODE: br-PFOSK
LOT NUMBER: brPFOSK1015
CONCENTRATION: 50 ± 2.5 µg/ml (total potassium salt)
46.4 ± 2.3 µg/ml (total PFOS anion)
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 10/13/2015
LAST TESTED: (mm/dd/yyyy) 10/14/2015
EXPIRY DATE: (mm/dd/yyyy) 10/14/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorooctanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- A 5-point calibration curve was generated using linear PFOS (potassium salt) and mass-labelled PFOS as an internal standard to enable quantitation of br-PFOSK using isotopic dilution.
- CAS#: 2795-39-3 (for linear isomer; potassium salt).

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

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

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

Table A: br-PFOSK; Isomeric Components and Percent Composition (by ¹⁹F-NMR)*

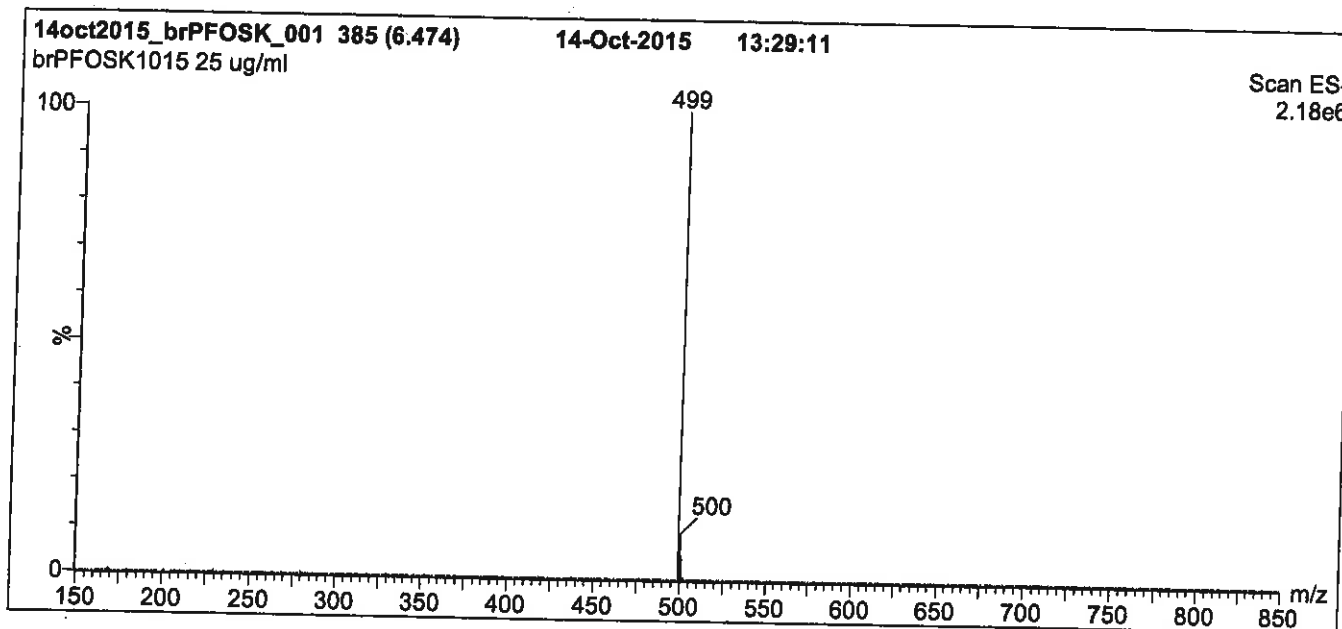
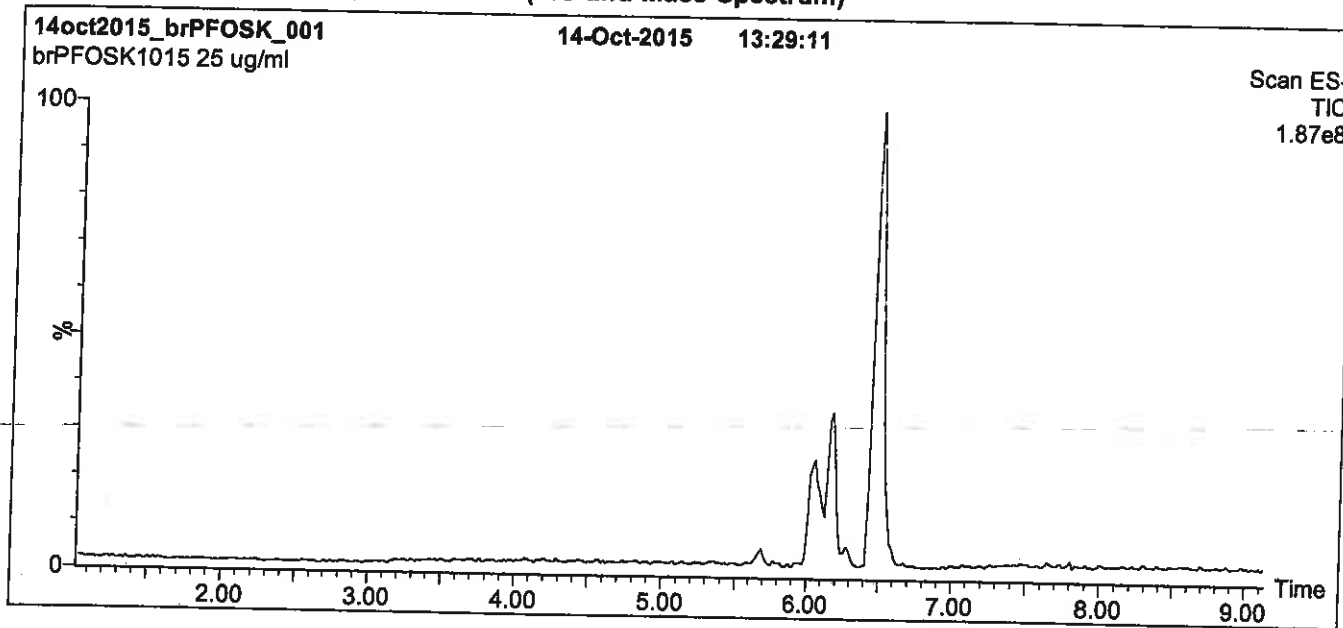
Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR
1	Potassium perfluoro-1-octanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ K ⁺	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.6
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	1.9
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	2.2
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	4.5
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	10.0
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3-\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.2
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CF}_2-\text{C}-\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.03
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3-\text{CF}-\text{CF}-\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \quad \\ \text{CF}_3 \quad \text{CF}_3 \end{array}$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3-\text{CF}-\text{CF}_2-\text{CF}-\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \quad \quad \\ \text{CF}_3 \quad \quad \text{CF}_3 \end{array}$	0.07

* Percent of total perfluorooctanesulfonate isomers only. Isomers are labeled 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

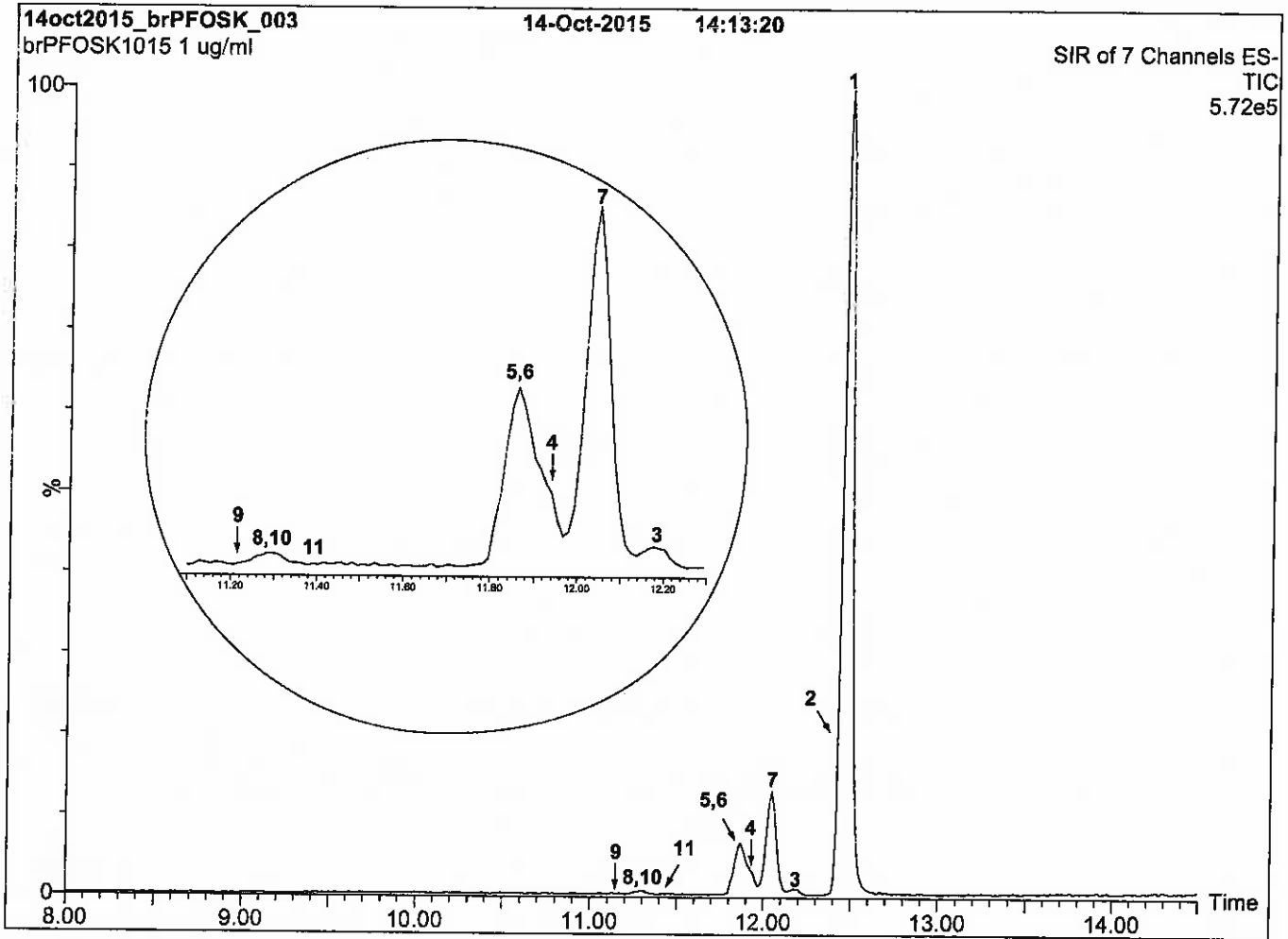
Flow: 300 μ l/min

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

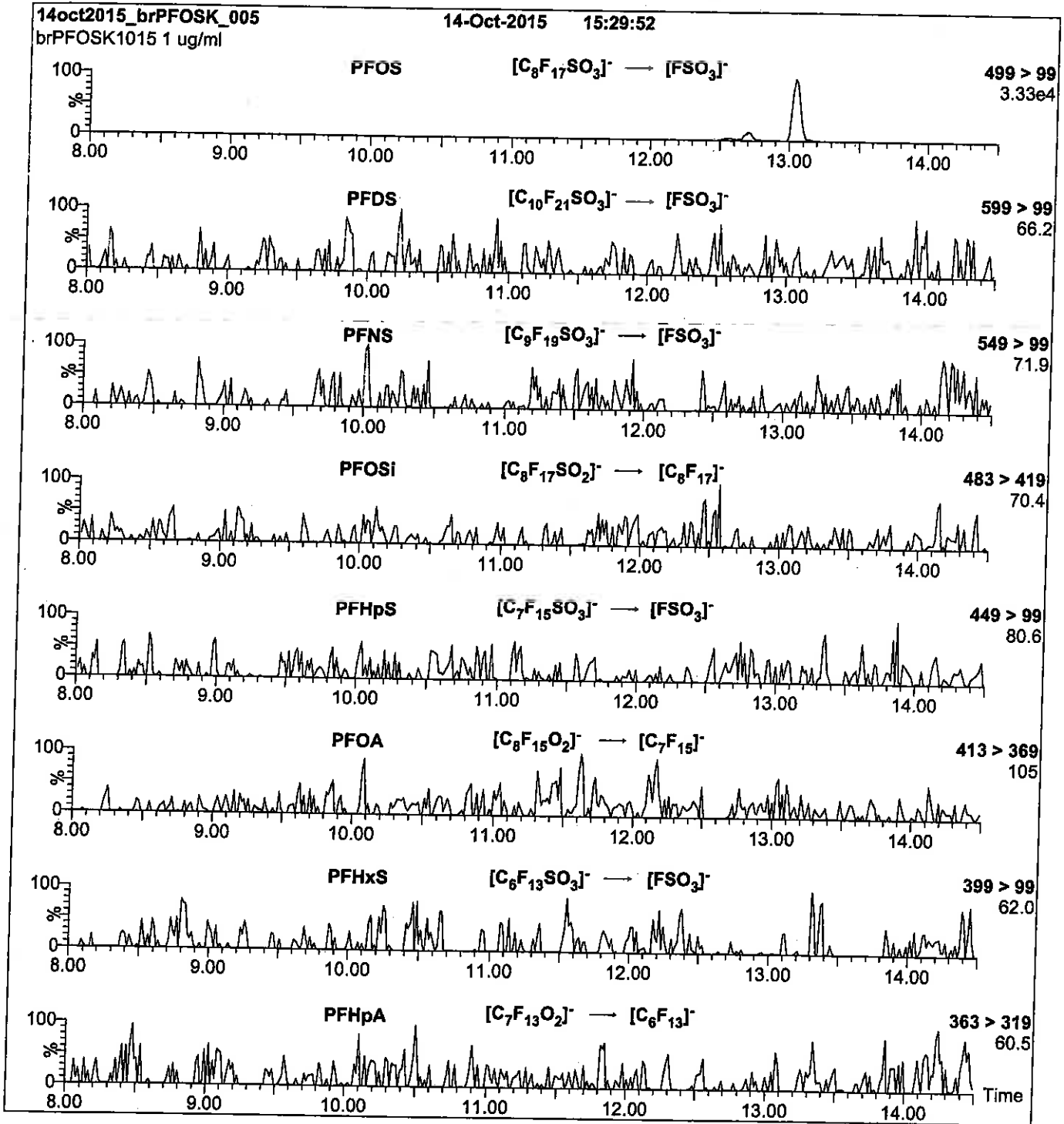
Chromatographic Conditions:

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 °C
Desolvation = 325 °C
Cone Voltage = 60V

Figure 3: br-PFOSK; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 3:

Injection: On-column

Mobile phase: Same as Figure 2

Flow: 300 μ /min

MS Parameters

Collision Gas (mbar) = 3.06e-3

Collision Energy (eV) = 11-50 (variable)

Reagent

LCFPPeA_00005

R: 7/6/16 CBW



671579
ID: LCPFPeA_00005
Exp: 01/30/20 Prod: CBW
PF-n-pentanoic acid



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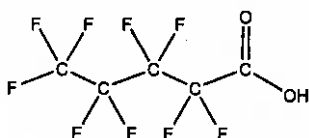
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFPeA
COMPOUND: Perfluoro-n-pentanoic acid

LOT NUMBER: PFPeA0115

STRUCTURE:

CAS #: 2706-90-3



MOLECULAR FORMULA: $C_5HF_9O_2$
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$

MOLECULAR WEIGHT: 264.05
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/30/2015
EXPIRY DATE: (mm/dd/yyyy) 01/30/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of Perfluoro-n-heptanoic acid (PFHpA) and ~ 0.2% of $C_5H_2F_8O_2$ (hydrido - derivative) as measured by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim

Date: 03/26/2015
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

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The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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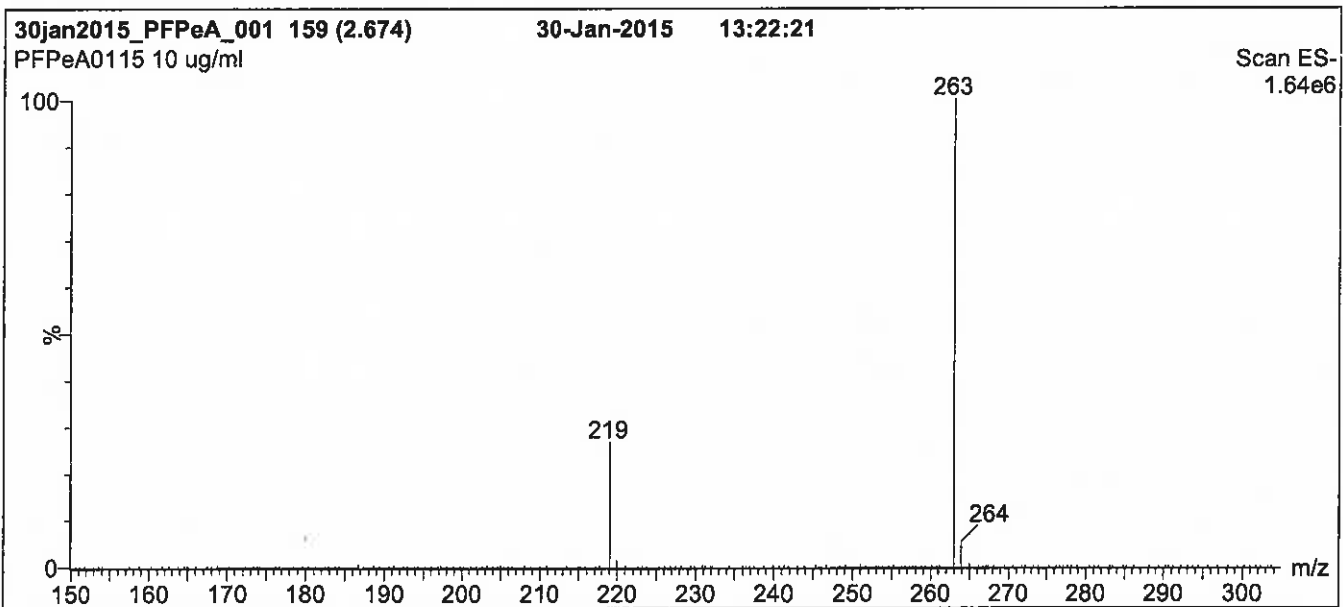
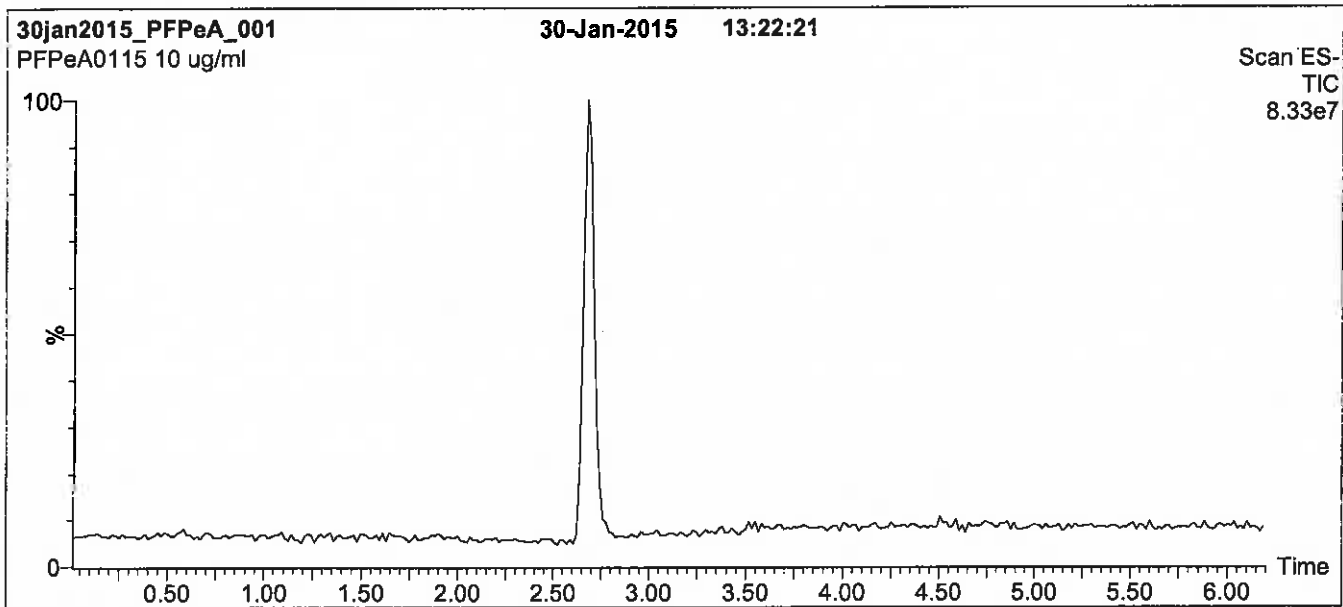
QUALITY MANAGEMENT:

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: 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

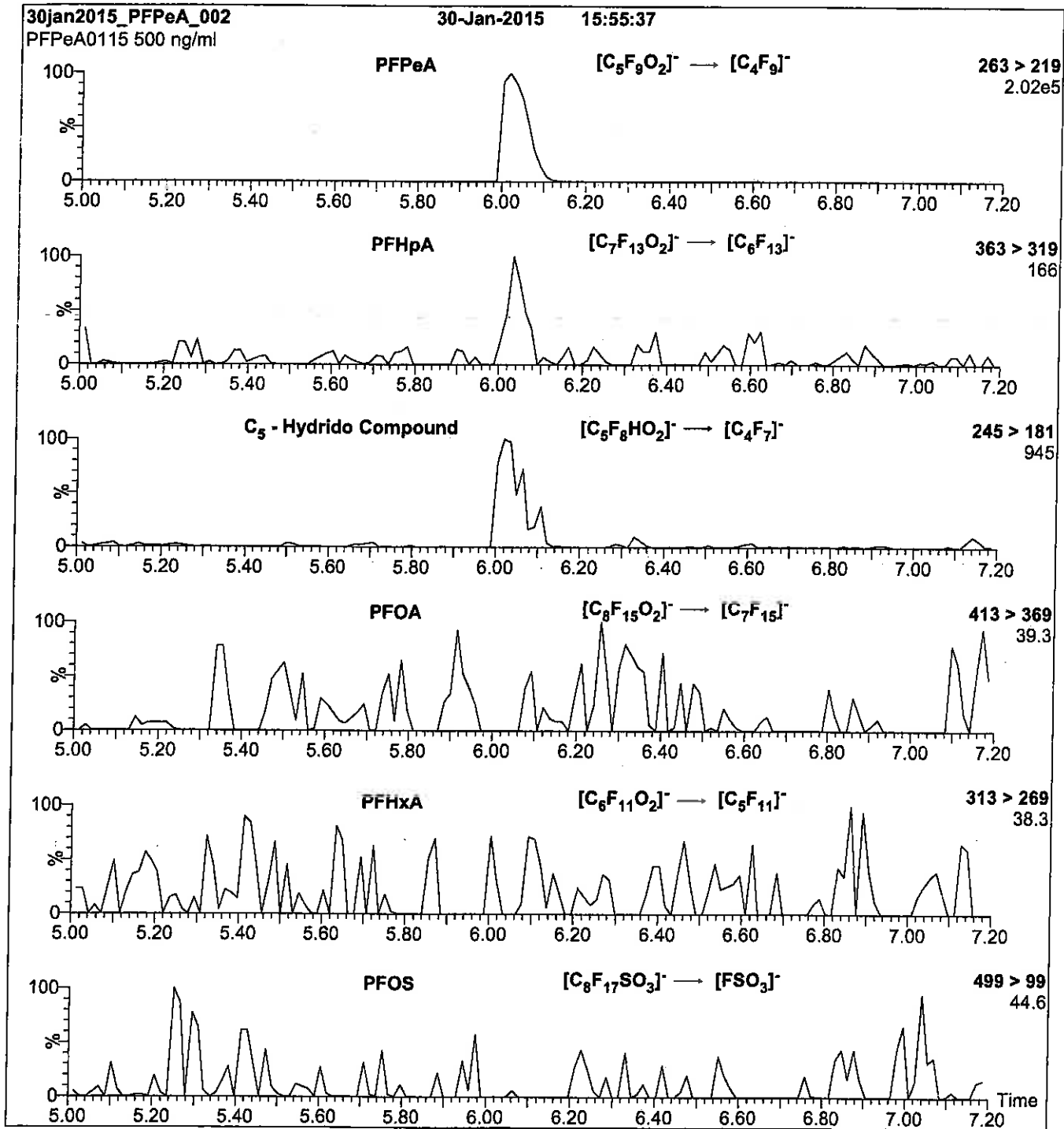
Flow: 300 μ l/min

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

LCFPeA_00006

r: 12/21/16 Std
s: 1/6/17 Std

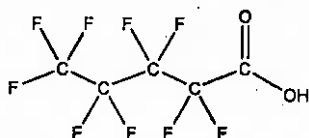


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFPeA **LOT NUMBER:** PFPeA0516
COMPOUND: Perfluoro-n-pentanoic acid

STRUCTURE: **CAS #:** 2706-90-3



MOLECULAR FORMULA: $C_5HF_8O_2$ **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) 05/31/2016
EXPIRY DATE: (mm/dd/yyyy) 05/31/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of Perfluoro-n-heptanoic acid (PFHpA) and ~ 0.2% of $C_8H_2F_8O_2$ (hydrido - derivative) as measured by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 06/02/2016
B.G. Chittim (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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where x is expressed as a relative standard uncertainty of the individual parameter.

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EXPIRY DATE / PERIOD OF VALIDITY:

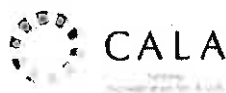
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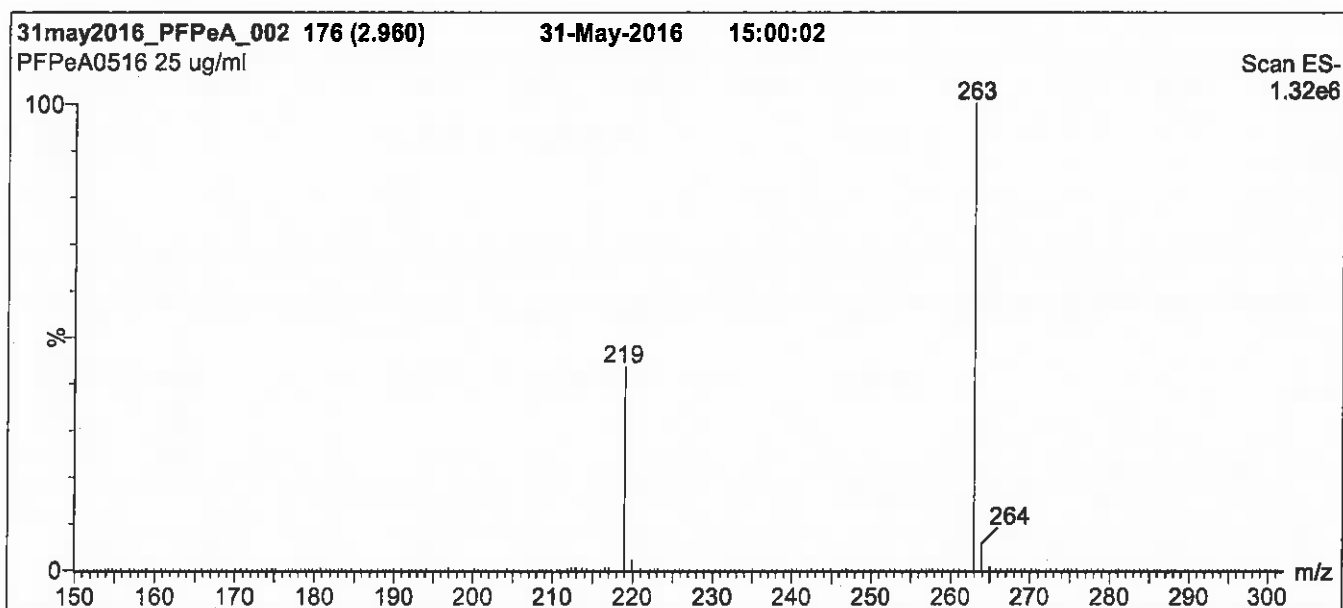
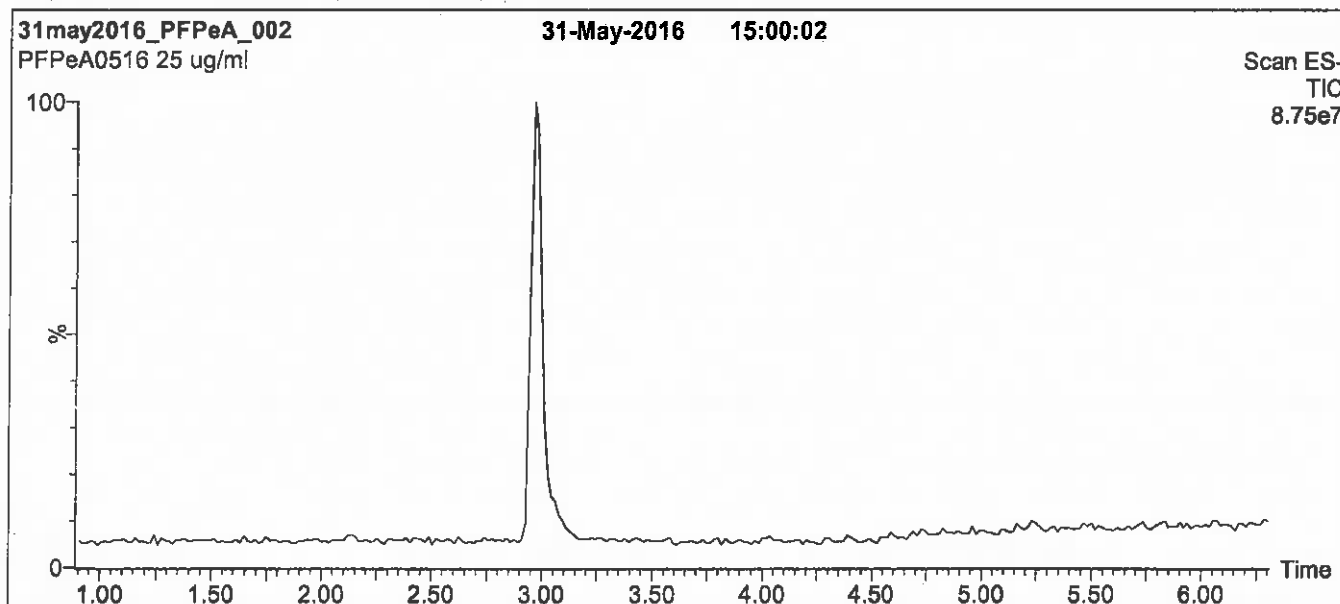
QUALITY MANAGEMENT:

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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 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

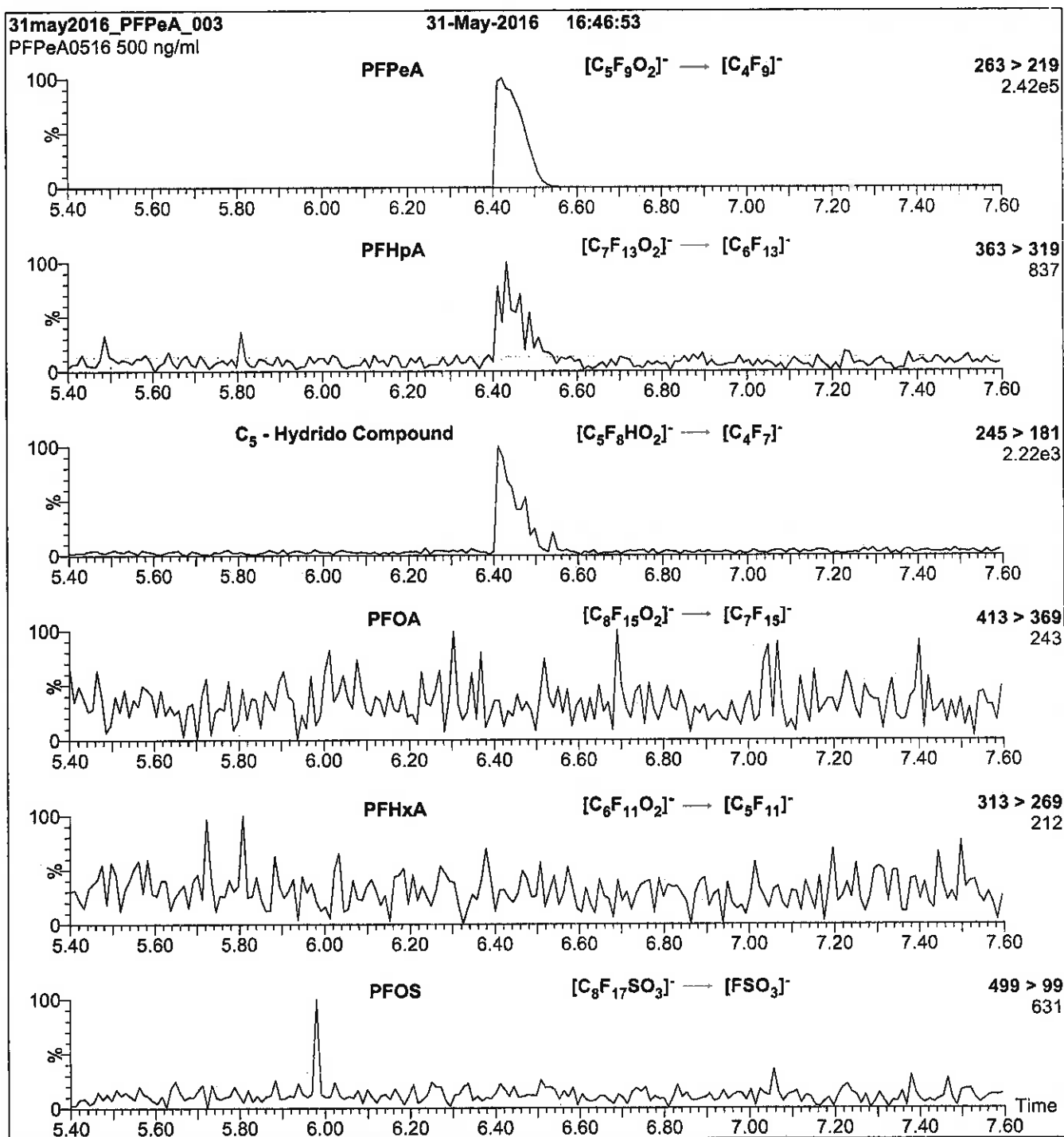
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 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) = 3.20e-3
Collision Energy (eV) = 9

Reagent

LCPFTeDA_00005

R: SBG 9/13/16



730645
ID: LCPFTeDA_00005
Exp: 12/09/20 Prpd: SBC
PF-n-tetradecanoic acid



730659
ID: LCPFTeDA_00006
Exp: 12/09/20 Prpd: SBC
PF-n-tetradecanoic acid

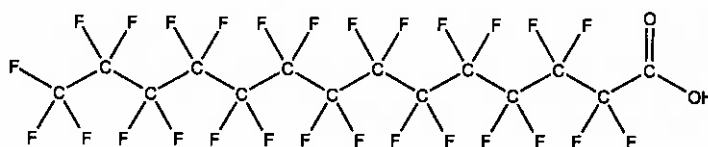


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTeDA **LOT NUMBER:** PFTeDA1215
COMPOUND: Perfluoro-n-tetradecanoic acid

STRUCTURE: **CAS #:** 376-06-7



MOLECULAR FORMULA: C₁₄H_{F₂₇}O₂ **MOLECULAR WEIGHT:** 714.11
CONCENTRATION: 50 ± 2.5 µg/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 PFDoA (C₁₂H_{F₂₃}O₂) and ~ 0.2% of PFPeDA (C₁₆H_{F₂₉}O₂).

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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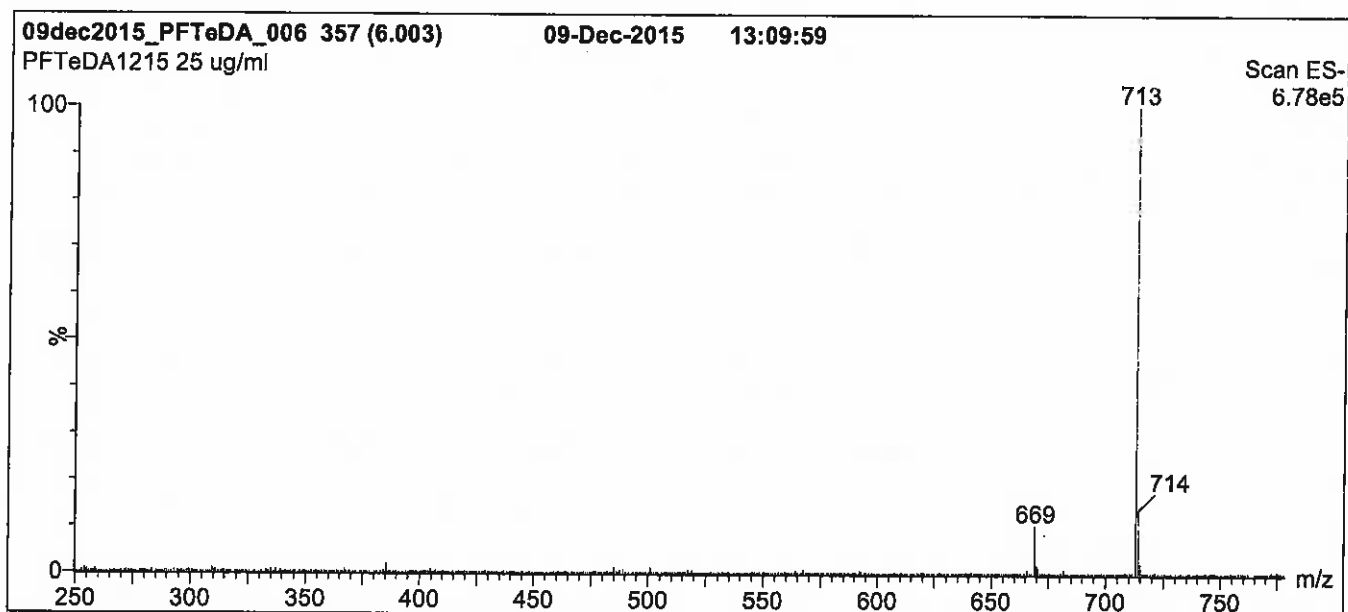
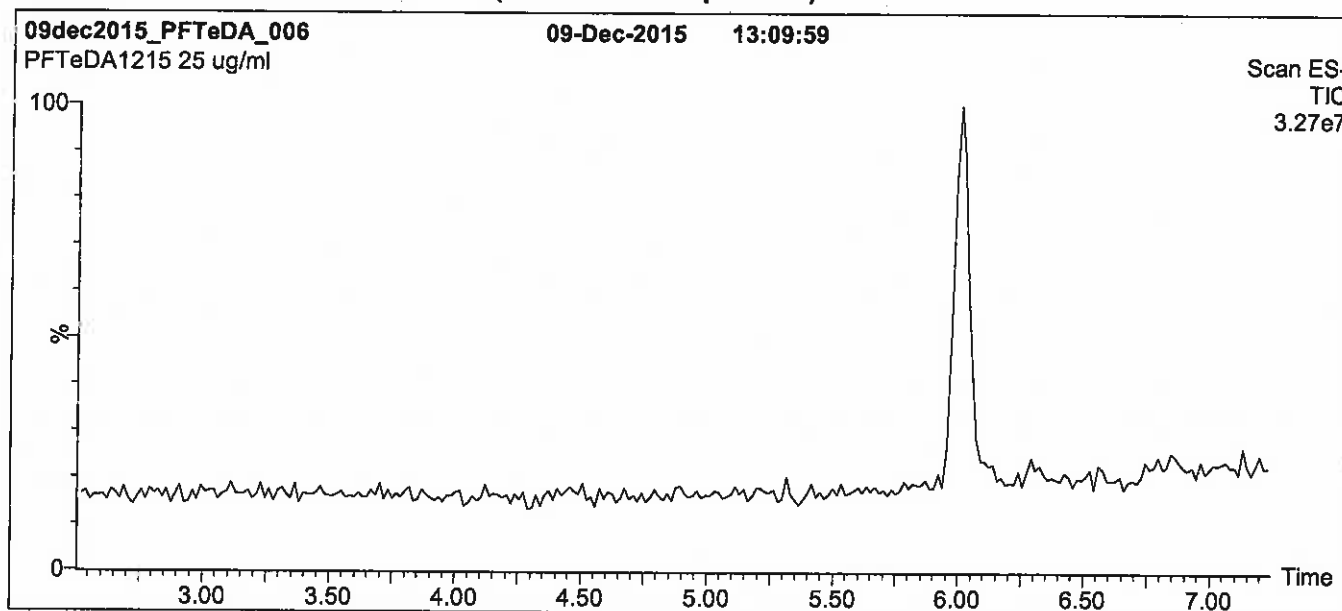
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Figure 1: PFTeDA; LC/MS Data (TIC and Mass Spectrum)



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

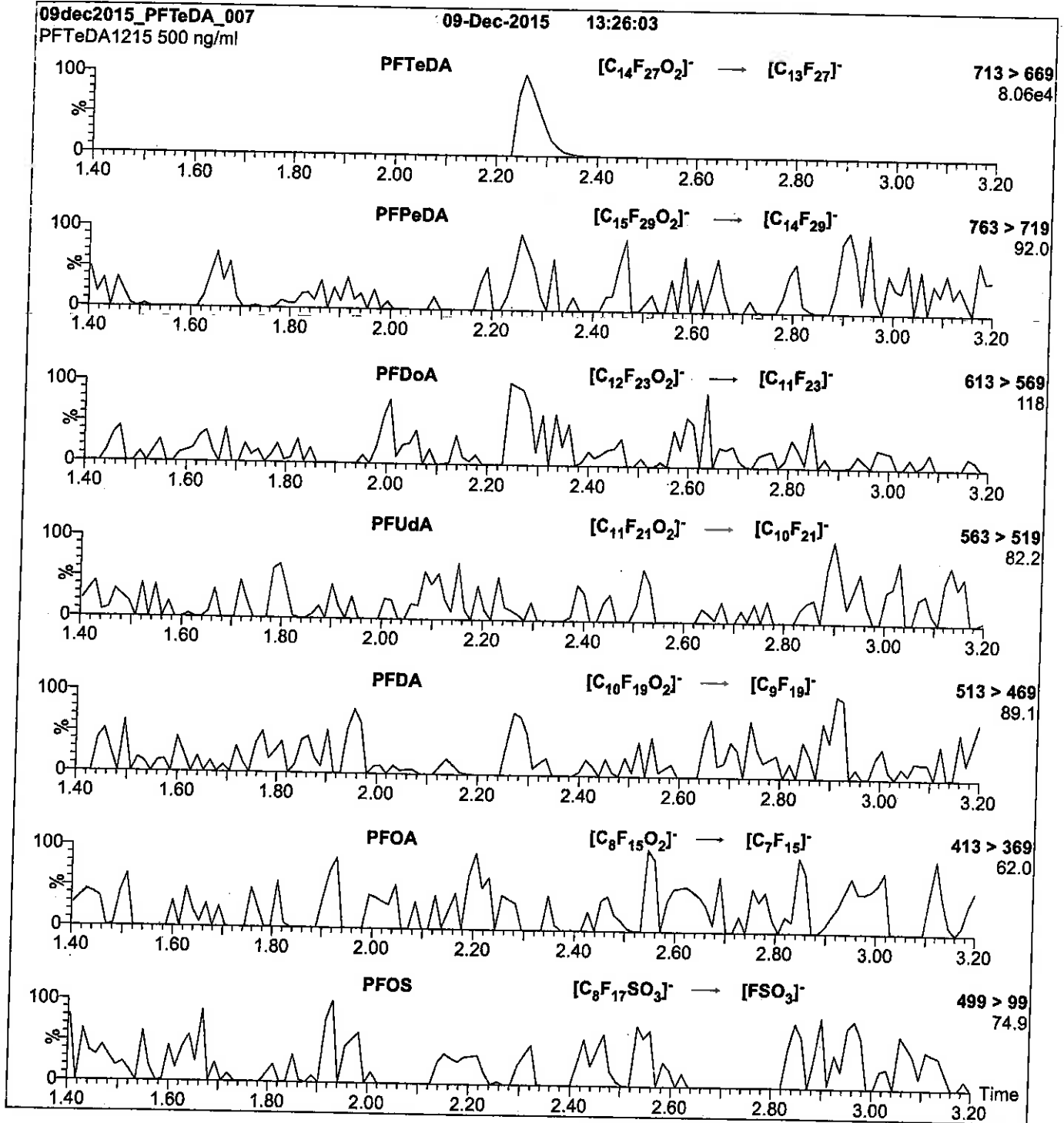
Flow: 300 μ l/min

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% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 14

Reagent

LCPFT_rDA_00005

R: SBC 9/13/16



730665
ID: LCPFTrDA_00005
Exp: 02/12/21 Prod: SBC
PF-n-tridecanoic acid



730666
ID: LCPFTrDA_00006
Exp: 02/12/21 Prod: SBC
PF-n-tridecanoic acid

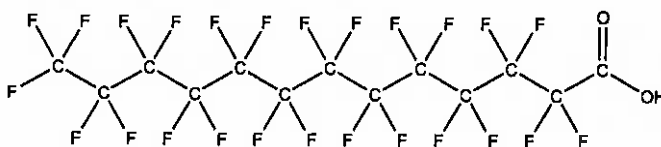


WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTTrDA **LOT NUMBER:** PFTTrDA0216
COMPOUND: Perfluoro-n-tridecanoic acid

STRUCTURE: **CAS #:** 72629-94-8



MOLECULAR FORMULA: $C_{13}HF_{25}O_2$ **MOLECULAR WEIGHT:** 664.11
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/12/2016
EXPIRY DATE: (mm/dd/yyyy) 02/12/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of PFUdA ($C_{11}HF_{21}O_2$), ~ 0.4% of PFDdA ($C_{12}HF_{23}O_2$), and ~ 0.1% of PFTeDA ($C_{14}HF_{27}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 02/16/2016
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

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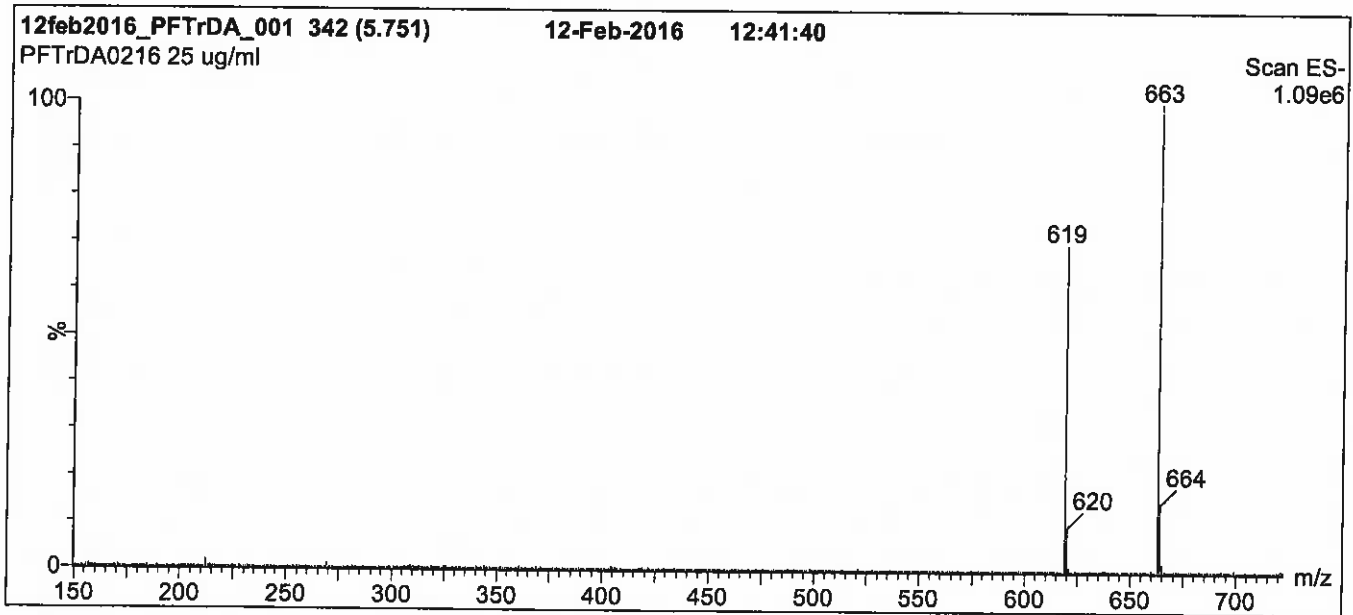
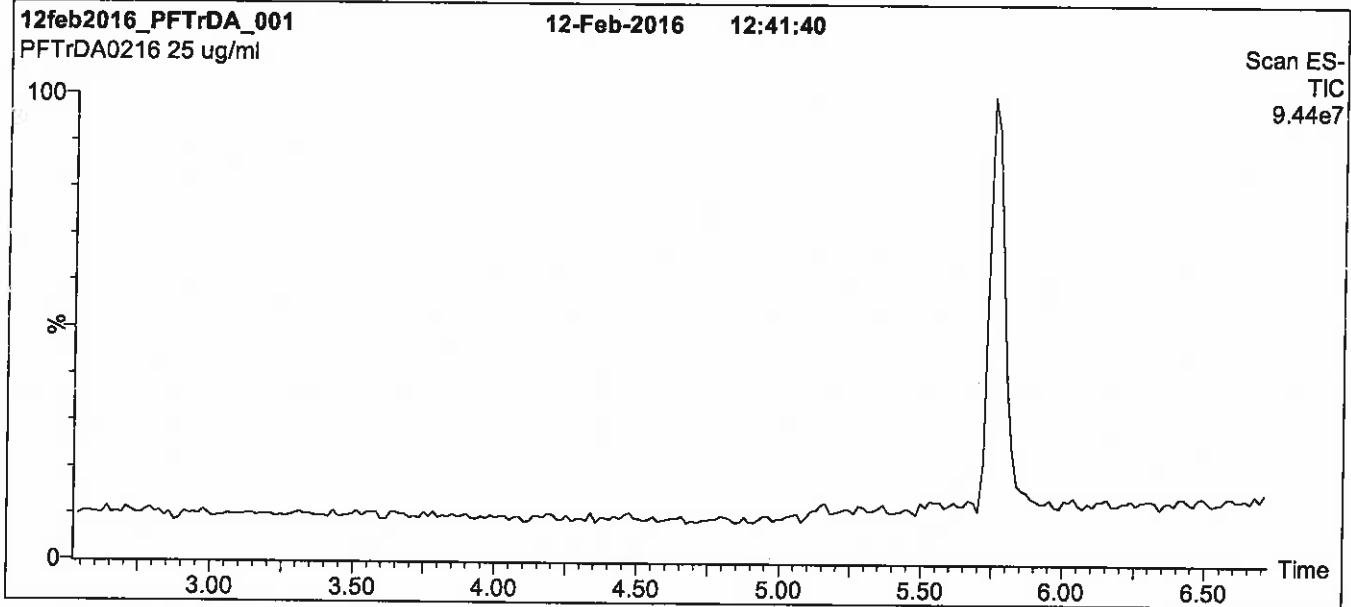
QUALITY MANAGEMENT:

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Figure 1: PFTTrDA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

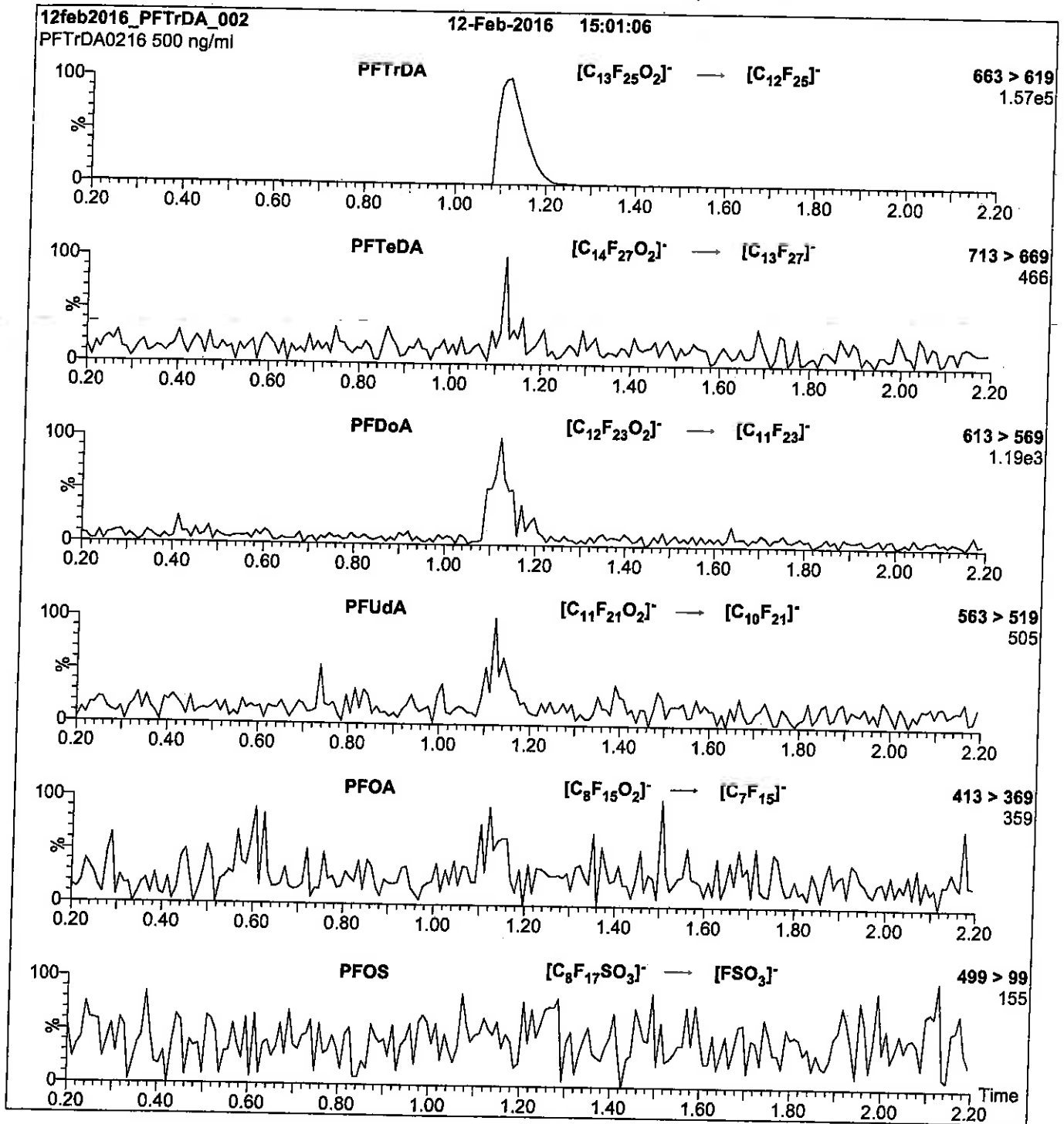
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 22.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 650

Figure 2: PFTrDA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFTrDA)

Mobile phase: Isocratic 80% MeOH / 20% H₂O

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 15

Reagent

LCPFUdA_00005

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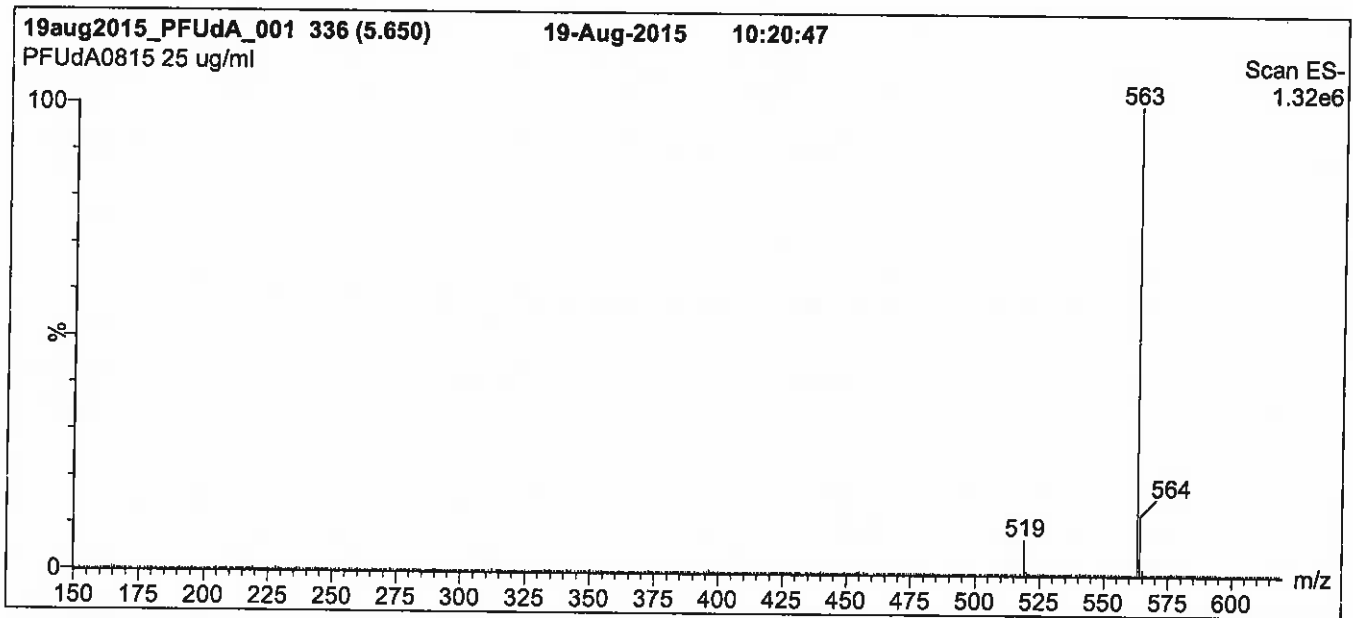
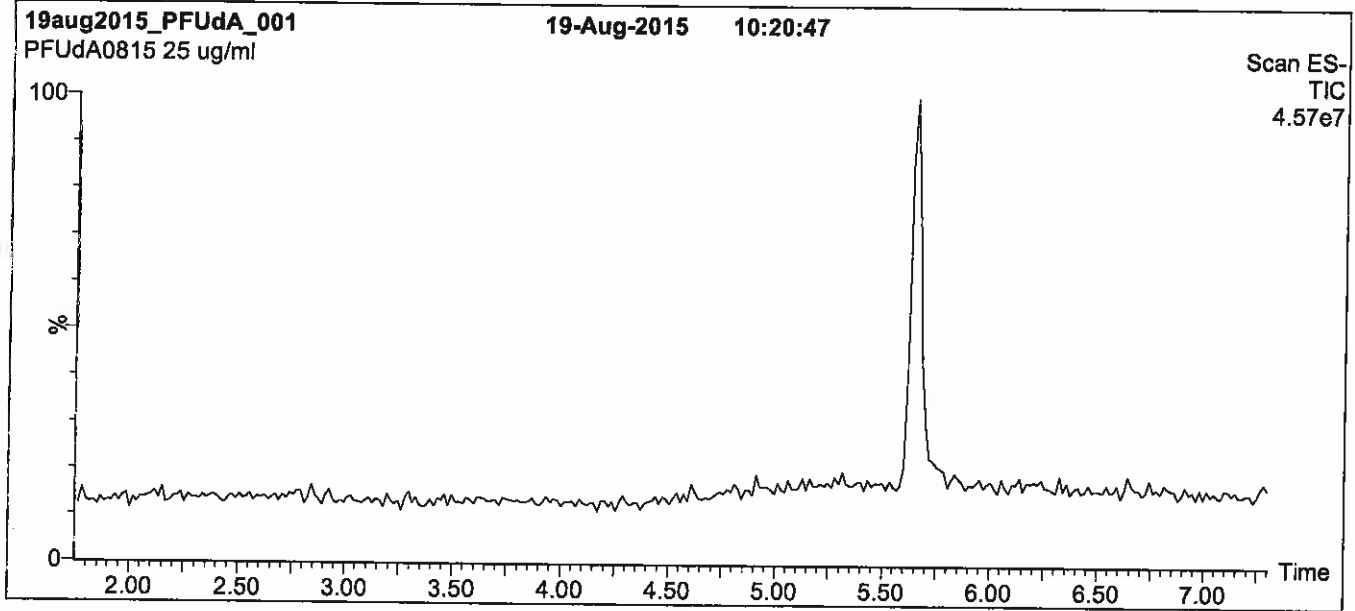
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Figure 1: PFUdA; LC/MS Data (TIC and Mass Spectrum)



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MS: Micromass Quattro micro API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
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before returning to initial conditions in 0.5 min.
Time: 10 min

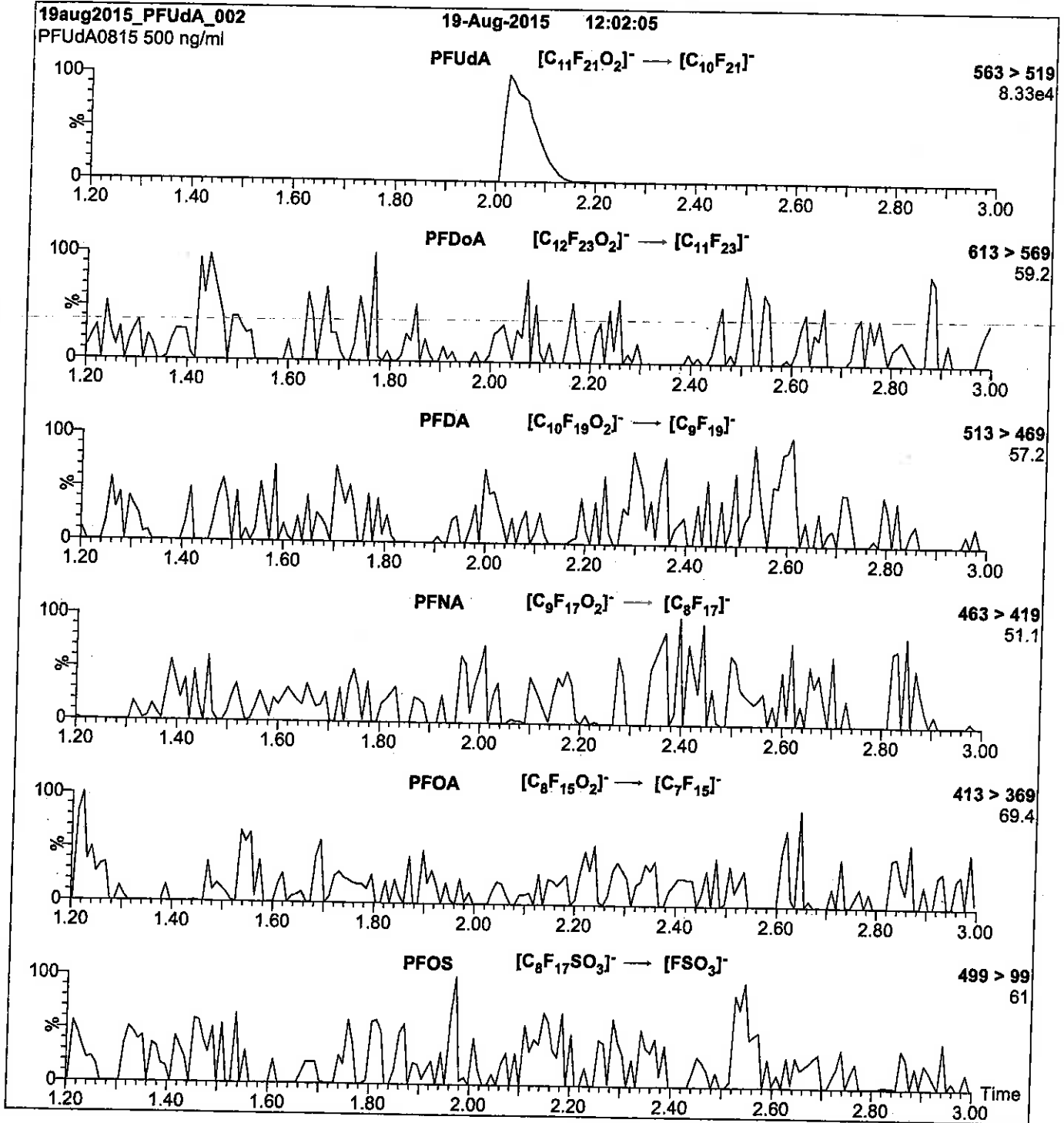
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 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

Reagent

LCPFUdA_00006

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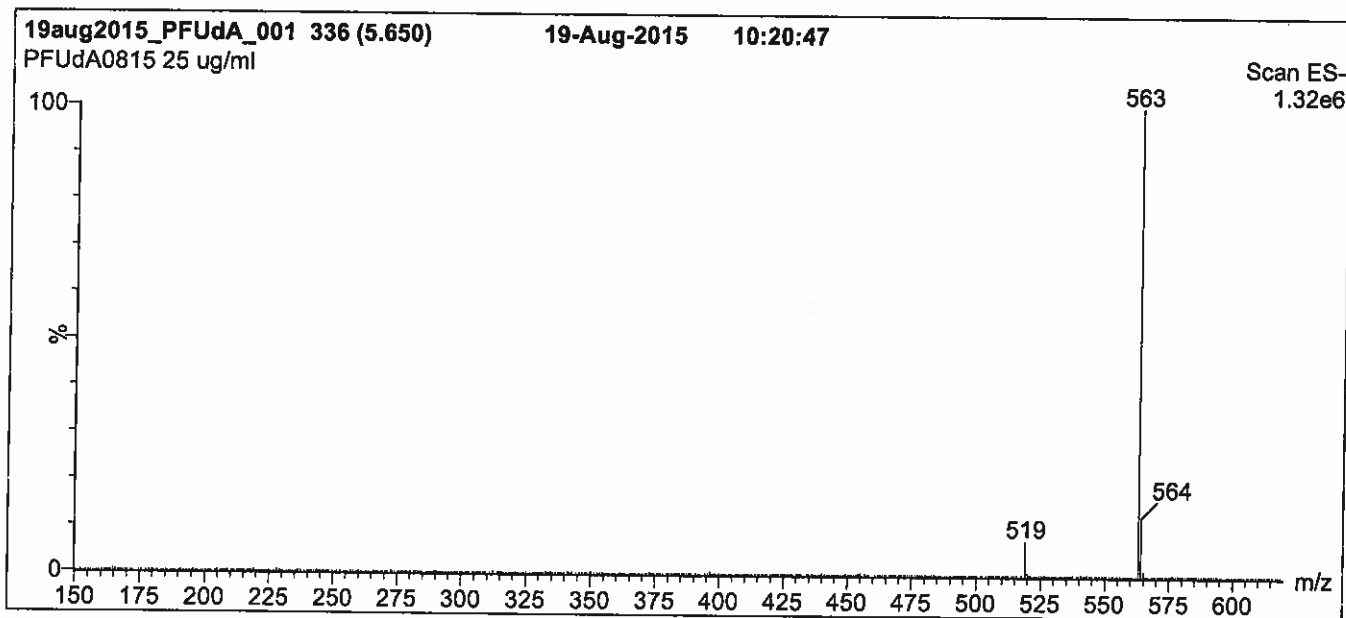
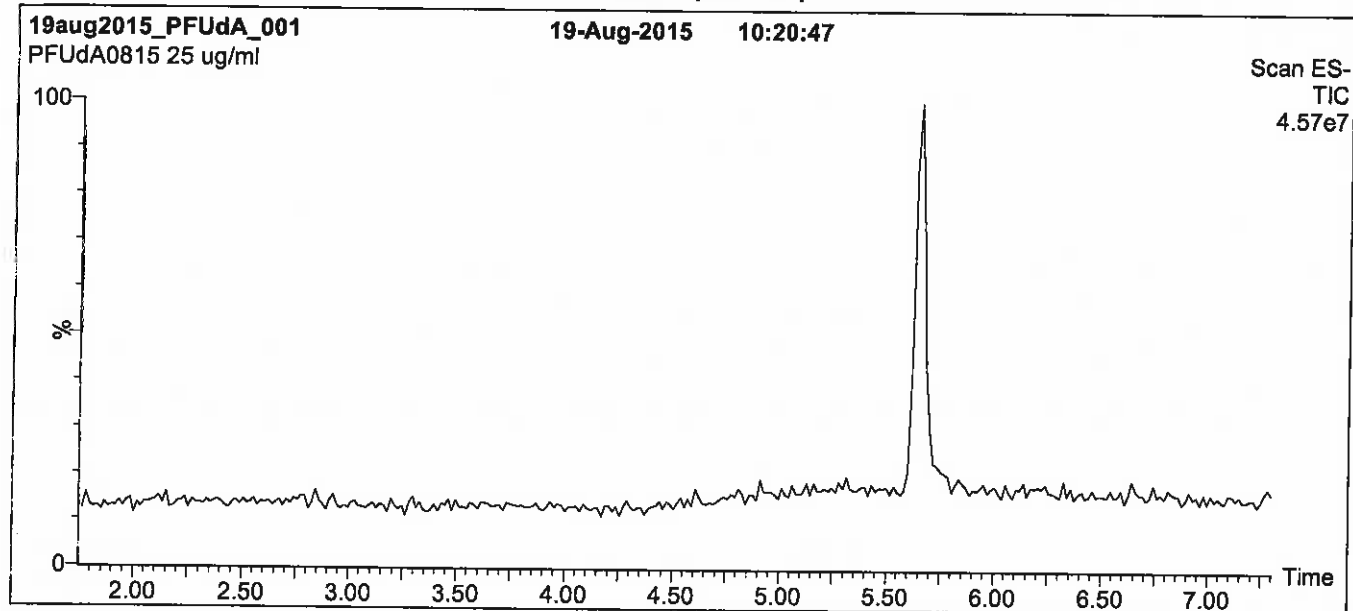
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MS: Micromass Quattro micro API MS

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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

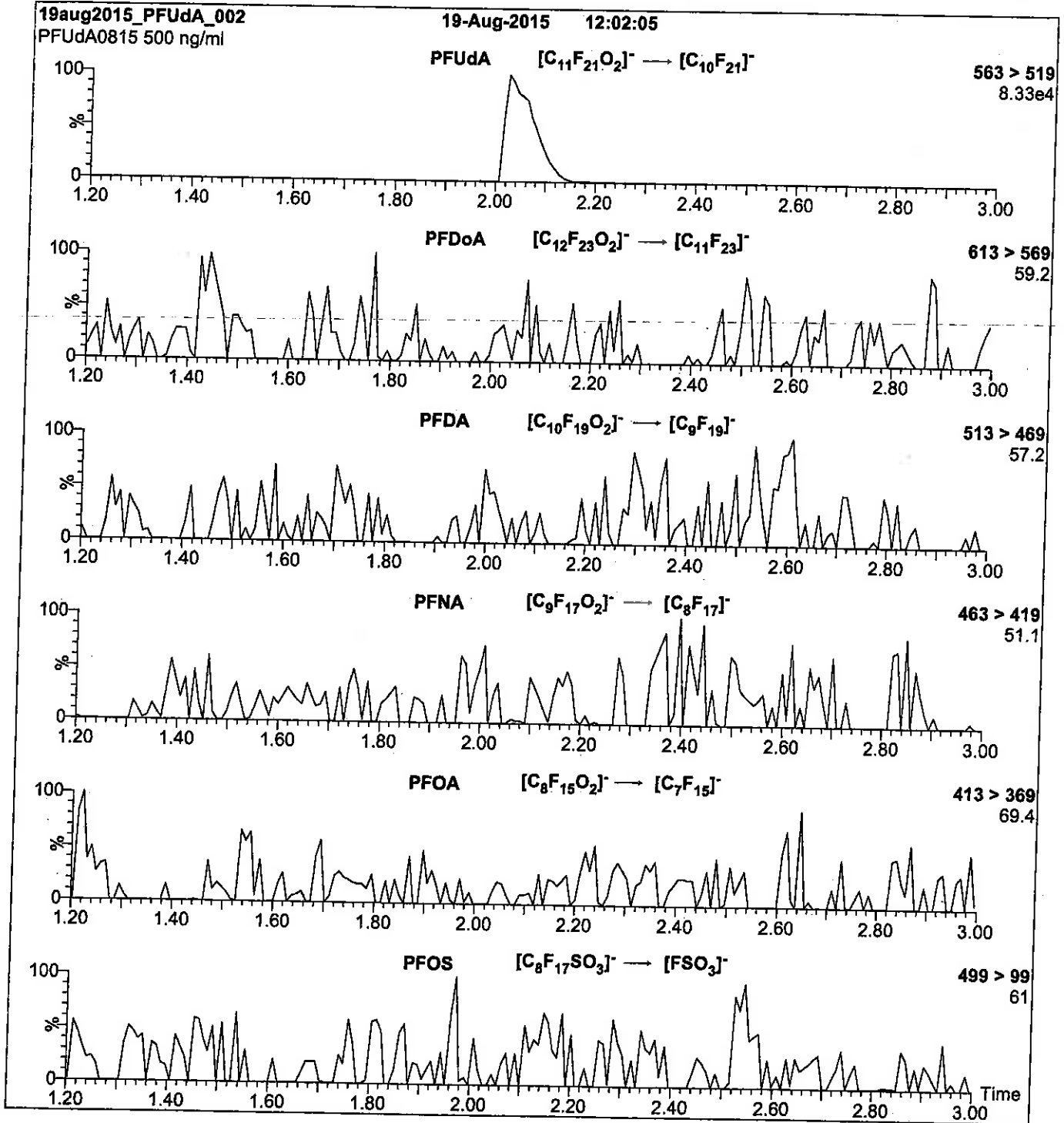
Flow: 300 μ l/min

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.: 320-28286-1

SDG No.: _____

Matrix: Solid

Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFHxS #	PFOA #	PFOS #
MEAFF-T-45C-2005-S B01-0001	320-28286-1	72	92	45
MEAFF-T-45C-2005-S B01-0204	320-28286-2	68	84	39
MEAFF-Unknown11-SB 01-0001	320-28286-3	78	88	51
MEAFF-Unknown11-SB 01-0204	320-28286-4	68	77	35
MEAFF-EASTB-SB01-0 001	320-28286-5	83	97	72
MEAFF-EASTB-SB01-0 204	320-28286-6	80	91	55
MEAFF-Unknown10-SB 01-0001	320-28286-7	90	105	71
MEAFF-Unknown10-SB 01-0204	320-28286-8	83	95	62
MEAFF-EASTA-SB01-0 001	320-28286-9	92	100	81
MEAFF-EASTA-SB01-0 204	320-28286-10	87	96	73
MEAFF-TA-4J-1987-S B01-0001	320-28286-14	92	109	79
MEAFF-TA-4J-1987-S B01-0204	320-28286-15	98	106	91
MEAFF-Unknown20-SB 01-0001	320-28286-16	89	106	77
MEAFF-Unknown20-SB 01-0204	320-28286-17	71	87	41
MEAFF-ArrestingGea rArea-SB01-0001	320-28286-18	81	87	42
MEAFF-ArrestingGea rArea-SB01-0204	320-28286-19	80	90	48
MEAFF-Unknown16-SB 01-0001	320-28286-20	79	92	46
MEAFF-Unknown16-SB 01-0204	320-28286-21	65	72	40
MEAFF-FD06-051417	320-28286-22	66	77	38
MEAFF-T-45C-03-200 8-SB01-0001	320-28286-23	69	80	38
MEAFF-T-45C-03-200 8-SB01-0204	320-28286-24	68	94	57
MEAFF-TA-4-Unknown -SB01-0001	320-28286-25	74	83	65
MEAFF-TA-4-Unknown -SB01-0204	320-28286-26	88	108	83
MEAFF-Unknown17-SB 01-0001	320-28286-27	90	100	83
MEAFF-Unknown17-SB 01-0204	320-28286-28	60	74	51

QC LIMITS

PFHxS = 1802 PFHxS
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS

25-150
25-150
25-150

Column to be used to flag recovery values

FORM II 537 (Modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

SDG No.: _____

Matrix: Solid

Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFHxS #	PFOA #	PFOS #
MEAFF-TA-4J-1992-S B01-0001	320-28286-29	64	77	60
MEAFF-TA-4J-1992-S B01-0204	320-28286-30	77	95	60
MEAFF-TA-4J-1985-S B01-0001	320-28286-32	69	91	51
MEAFF-TA-4J-1985-S B01-0204	320-28286-33	71	94	58
	MB 320-165234/1-A	91	99	75
	MB 320-165287/1-A	84	103	83
	LCS 320-165234/2-A	87	95	74
	LCS 320-165287/2-A	83	95	86
MEAFF-Unknown11-SB 01-0204 MS	320-28286-4 MS	69	77	31
MEAFF-T-45C-03-200 8-SB01-0204 MS	320-28286-24 MS	68	88	51
MEAFF-Unknown11-SB 01-0204 MSD	320-28286-4 MSD	67	72	40
MEAFF-T-45C-03-200 8-SB01-0204 MSD	320-28286-24 MSD	77	99	59

PFHxS = 1802 PFHxS
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS

QC LIMITS
25-150
25-150
25-150

Column to be used to flag recovery values

FORM II 537 (Modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFHxS #	PFOA #	PFOS #
MEAFF-EB05-051317	320-28286-11	111	129	112
MEAFF-EB06-051317	320-28286-12	109	136	113
MEAFF-EB07-051317	320-28286-13	109	130	109
MEAFF-EB08-051517	320-28286-31	112	129	108
	MB 320-165207/1-A	110	124	114
	LCS 320-165207/2-A	107	117	106
	LCSD 320-165207/3-A	101	114	102

PFHxS = 1802 PFHxS
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS

QC LIMITS
25-150
25-150
25-150

Column to be used to flag recovery values

FORM II 537 (Modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.05.19B_003.d
 Lab ID: LCS 320-165207/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	40.0	38.4	96	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	35.4	95	60-140	
13C4 PFOA	100	117	117	25-150	
13C4 PFOS	95.6	102	106	25-150	
Perfluorobutanesulfonic acid (PFBS)	35.4	36.6	103	50-150	
18O2 PFHxS	94.6	101	107	25-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (Modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Matrix: Solid Level: Low Lab File ID: 2017.06.07B_017.d
 Lab ID: LCS 320-165234/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	4.00	4.15	104	60-140	
Perfluorooctanesulfonic acid (PFOS)	3.71	4.08	110	60-140	
13C4 PFOA	10.0	9.53	95	25-150	
13C4 PFOS	9.56	7.11	74	25-150	
Perfluorobutanesulfonic acid (PFBS)	3.54	4.01	113	50-150	
18O2 PFHxS	9.46	8.25	87	25-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (Modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Matrix: Solid Level: Low Lab File ID: 2017.05.24C_033.d
 Lab ID: LCS 320-165287/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	4.00	4.00	100	60-140	
Perfluorooctanesulfonic acid (PFOS)	3.71	3.44	93	60-140	
13C4 PFOA	10.0	9.47	95	25-150	
13C4 PFOS	9.56	8.20	86	25-150	
Perfluorobutanesulfonic acid (PFBS)	3.54	3.60	102	50-150	
18O2 PFHxS	9.46	7.82	83	25-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (Modified)

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: 2017.05.19B_004.d

Lab ID: LCSD 320-165207/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanoic acid (PFOA)	40.0	38.1	95	1	30	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	34.6	93	2	30	60-140	
13C4 PFOA	100	114	114			25-150	
13C4 PFOS	95.6	97.6	102			25-150	
Perfluorobutanesulfonic acid (PFBS)	35.4	37.1	105	1	30	50-150	
18O2 PFHxS	94.6	95.8	101			25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (Modified)

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Matrix: Solid Level: Low Lab File ID: 2017.06.07B_022.d
 Lab ID: 320-28286-4 MS Client ID: MEAFF-Unknown11-SB01-0204 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	4.38	0.33 U	4.54	104	60-140	
Perfluorooctanesulfonic acid (PFOS)	4.06	0.33 U	4.40	108	60-140	
13C4 PFOA	10.9	8.6	8.47	77	25-150	
13C4 PFOS	10.5	3.7	3.27	31	25-150	
Perfluorobutanesulfonic acid (PFBS)	3.87	0.33 U	4.97	128	50-150	
18O2 PFHxS	10.4	7.2	7.13	69	25-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (Modified)

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Matrix: Solid Level: Low Lab File ID: 2017.05.24C_035.d
 Lab ID: 320-28286-24 MS Client ID: MEAFF-T-45C-03-2008-SB01-0204 M

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	4.48	0.33 U	4.35	97	60-140	
Perfluorooctanesulfonic acid (PFOS)	4.16	0.33 U	4.19	101	60-140	
13C4 PFOA	11.2	10	9.87	88	25-150	
13C4 PFOS	10.7	6.1	5.46	51	25-150	
Perfluorobutanesulfonic acid (PFBS)	3.96	0.33 U	3.95	100	50-150	
18O2 PFHxS	10.6	7.2	7.16	68	25-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (Modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Matrix: Solid Level: Low Lab File ID: 2017.06.07B_023.d
 Lab ID: 320-28286-4 MSD Client ID: MEAFF-Unknown11-SB01-0204 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanoic acid (PFOA)	4.39	4.51	103	1	30	60-140	
Perfluorooctanesulfonic acid (PFOS)	4.07	4.52	111	3	30	60-140	
13C4 PFOA	11.0	7.91	72			25-150	
13C4 PFOS	10.5	4.16	40			25-150	
Perfluorobutanesulfonic acid (PFBS)	3.88	4.99	129	0	30	50-150	
18O2 PFHxS	10.4	6.97	67			25-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (Modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Matrix: Solid Level: Low Lab File ID: 2017.05.24C_036.d
 Lab ID: 320-28286-24 MSD Client ID: MEAFF-T-45C-03-2008-SB01-0204 M

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanoic acid (PFOA)	4.50	4.37	97	0	30	60-140	
Perfluorooctanesulfonic acid (PFOS)	4.17	4.09	98	2	30	60-140	
13C4 PFOA	11.2	11.1	99			25-150	
13C4 PFOS	10.7	6.31	59			25-150	
Perfluorobutanesulfonic acid (PFBS)	3.97	4.08	103	3	30	50-150	
18O2 PFHxS	10.6	8.15	77			25-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (Modified)

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab File ID: 2017.05.19B_002.d Lab Sample ID: MB 320-165207/1-A
 Matrix: Water Date Extracted: 05/18/2017 17:41
 Instrument ID: A8_N Date Analyzed: 05/20/2017 05:49
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-165207/2-A	2017.05.19B 003.d	05/20/2017 05:57
	LCSD 320-165207/3-A	2017.05.19B 004.d	05/20/2017 06:04
MEAFF-EB05-051317	320-28286-11	2017.05.19B 009.d	05/20/2017 06:42
MEAFF-EB06-051317	320-28286-12	2017.05.19B 010.d	05/20/2017 06:50
MEAFF-EB07-051317	320-28286-13	2017.05.19B 011.d	05/20/2017 06:57
MEAFF-EB08-051517	320-28286-31	2017.05.19B 013.d	05/20/2017 07:12

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab File ID: 2017.06.07B_016.d Lab Sample ID: MB 320-165234/1-A
 Matrix: Solid Date Extracted: 05/19/2017 08:07
 Instrument ID: A8_N Date Analyzed: 06/07/2017 16:45
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-165234/2-A	2017.06.07B 017.d	06/07/2017 16:53
MEAFF-T-45C-2005-SB01-0001	320-28286-1	2017.06.07B 018.d	06/07/2017 17:01
MEAFF-T-45C-2005-SB01-0204	320-28286-2	2017.06.07B 019.d	06/07/2017 17:09
MEAFF-Unknown11-SB01-0001	320-28286-3	2017.06.07B 020.d	06/07/2017 17:16
MEAFF-Unknown11-SB01-0204	320-28286-4	2017.06.07B 021.d	06/07/2017 17:24
MEAFF-Unknown11-SB01-0204 MS	320-28286-4 MS	2017.06.07B 022.d	06/07/2017 17:32
MEAFF-Unknown11-SB01-0204 MSD	320-28286-4 MSD	2017.06.07B 023.d	06/07/2017 17:39
MEAFF-EASTB-SB01-0001	320-28286-5	2017.06.07B 024.d	06/07/2017 17:47
MEAFF-EASTB-SB01-0204	320-28286-6	2017.06.07B 025.d	06/07/2017 17:55
MEAFF-Unknown10-SB01-0001	320-28286-7	2017.06.07B 027.d	06/07/2017 18:10
MEAFF-Unknown10-SB01-0204	320-28286-8	2017.06.07B 028.d	06/07/2017 18:18
MEAFF-EASTA-SB01-0001	320-28286-9	2017.06.07B 029.d	06/07/2017 18:26
MEAFF-EASTA-SB01-0204	320-28286-10	2017.06.07B 030.d	06/07/2017 18:33
MEAFF-TA-4J-1987-SB01-0001	320-28286-14	2017.06.07B 031.d	06/07/2017 18:41
MEAFF-TA-4J-1987-SB01-0204	320-28286-15	2017.06.07B 032.d	06/07/2017 18:49
MEAFF-Unknown20-SB01-0001	320-28286-16	2017.06.07B 033.d	06/07/2017 18:56
MEAFF-Unknown20-SB01-0204	320-28286-17	2017.06.07B 034.d	06/07/2017 19:04
MEAFF-ArrestingGearArea-SB01-0001	320-28286-18	2017.06.07B 035.d	06/07/2017 19:12
MEAFF-ArrestingGearArea-SB01-0204	320-28286-19	2017.06.07B 036.d	06/07/2017 19:20
MEAFF-Unknown16-SB01-0001	320-28286-20	2017.06.07B 038.d	06/07/2017 19:35
MEAFF-Unknown16-SB01-0204	320-28286-21	2017.06.07B 039.d	06/07/2017 19:43
MEAFF-FD06-051417	320-28286-22	2017.06.07B 040.d	06/07/2017 19:50

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
SDG No.: _____
Lab File ID: 2017.06.07B_016.d Lab Sample ID: MB 320-165234/1-A
Matrix: Solid Date Extracted: 05/19/2017 08:07
Instrument ID: A8_N Date Analyzed: 06/07/2017 16:45
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
MEAFF-T-45C-03-2008-SB01-0001	320-28286-23	2017.06.07B 041.d	06/07/2017 19:58

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab File ID: 2017.05.24C_032.d Lab Sample ID: MB 320-165287/1-A
 Matrix: Solid Date Extracted: 05/19/2017 09:45
 Instrument ID: A8_N Date Analyzed: 05/24/2017 21:43
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-165287/2-A	2017.05.24C 033.d	05/24/2017 21:50
MEAFF-T-45C-03-2008-SB01-0204	320-28286-24	2017.05.24C 034.d	05/24/2017 21:58
MEAFF-T-45C-03-2008-SB01-0204 MS	320-28286-24 MS	2017.05.24C 035.d	05/24/2017 22:05
MEAFF-T-45C-03-2008-SB01-0204 MSD	320-28286-24 MSD	2017.05.24C 036.d	05/24/2017 22:13
MEAFF-TA-4-Unknown-SB01-0001	320-28286-25	2017.05.24C 037.d	05/24/2017 22:20
MEAFF-TA-4-Unknown-SB01-0204	320-28286-26	2017.05.24C 038.d	05/24/2017 22:28
MEAFF-Unknown17-SB01-0001	320-28286-27	2017.05.24C 039.d	05/24/2017 22:35
MEAFF-Unknown17-SB01-0204	320-28286-28	2017.05.24C 040.d	05/24/2017 22:43
MEAFF-TA-4J-1992-SB01-0001	320-28286-29	2017.05.24C 041.d	05/24/2017 22:50
MEAFF-TA-4J-1992-SB01-0204	320-28286-30	2017.05.24C 043.d	05/24/2017 23:05
MEAFF-TA-4J-1985-SB01-0001	320-28286-32	2017.05.24C 044.d	05/24/2017 23:13
MEAFF-TA-4J-1985-SB01-0204	320-28286-33	2017.05.24C 045.d	05/24/2017 23:20

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_018.d
 Lims ID: 320-28286-A-1-A
 Client ID: MEAFF-T-45C-2005-SB01-0001
 Sample Type: Client
 Inject. Date: 07-Jun-2017 17:01:19 ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-1-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 09-Jun-2017 13:43:01 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK027

First Level Reviewer: rainey Date: 07-Jun-2017 18:07:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.043	2.051	-0.008	1.000	21988	0.0815				M
298.90 > 99.00	2.043	2.051	-0.008	1.000	9272		2.37(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.721	2.730	-0.009		7820168	33.9		71.7	14062	
* 62 13C2-PFOA										
415.00 > 370.00	3.087	3.110	-0.023		5643	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.087	3.110	-0.023	1.000	27410	0.1543			9.5	
413.00 > 169.00	3.087	3.110	-0.023	1.000	20814		1.32(0.90-1.10)		28.1	
D 14 13C4 PFOA										
417.00 > 372.00	3.087	3.110	-0.023		8312230	46.1		92.2	12794	
D 18 13C4 PFOS										
503.00 > 80.00	3.462	3.485	-0.023		3869543	21.7		45.4	7552	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_018.d

Injection Date: 07-Jun-2017 17:01:19

Instrument ID: A8_N

Lims ID: 320-28286-A-1-A

Lab Sample ID: 320-28286-1

Client ID: MEAFF-T-45C-2005-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

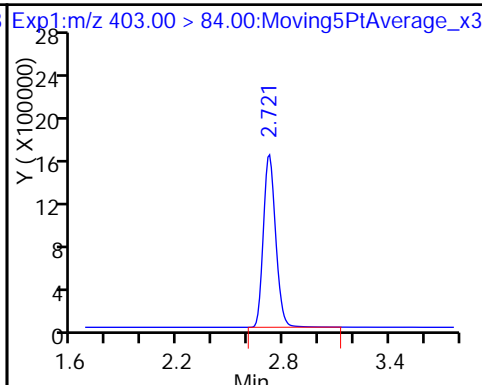
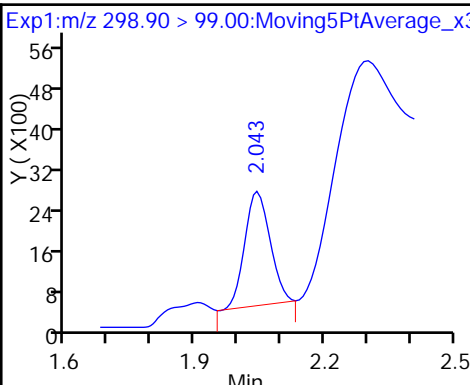
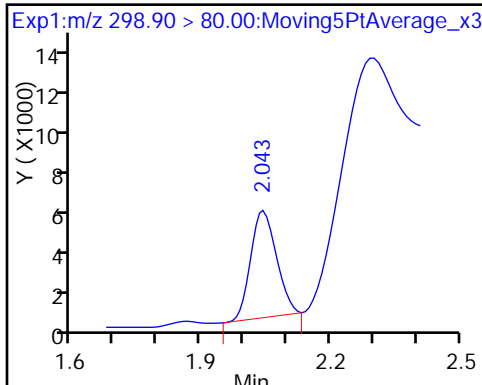
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

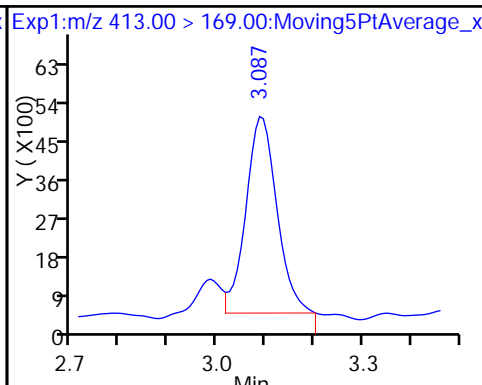
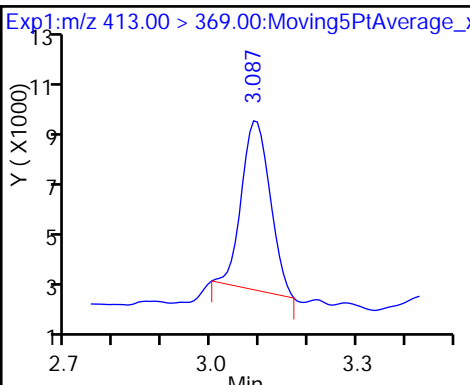
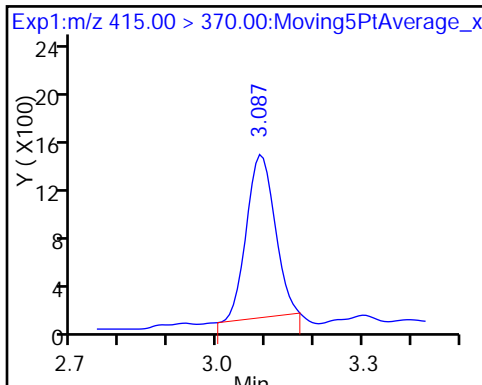
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

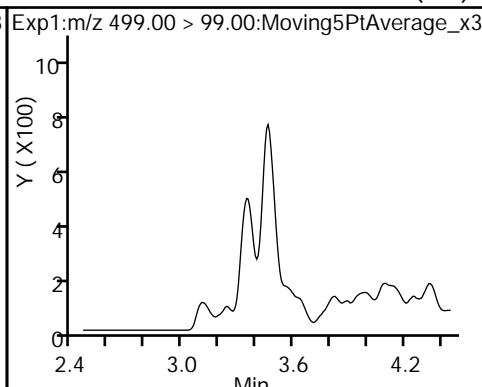
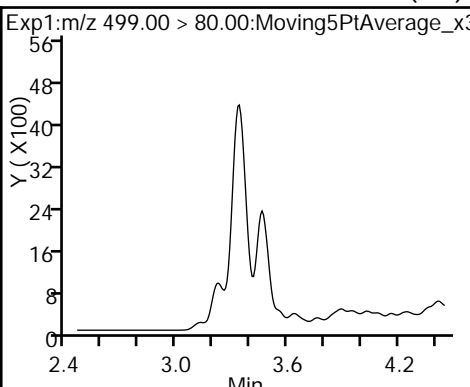
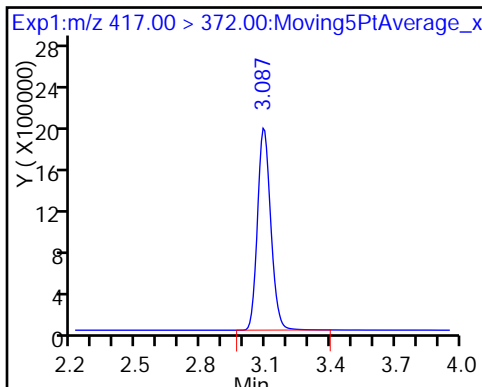
15 Perfluorooctanoic acid



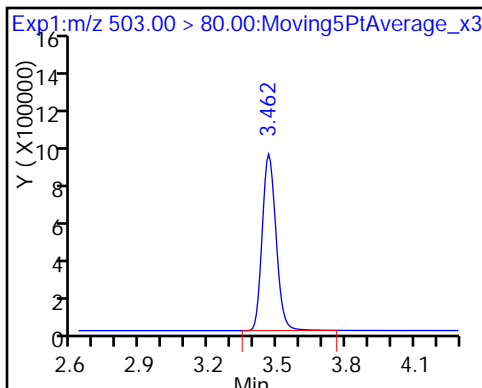
D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)



D 18 13C4 PFOS



TestAmerica Sacramento

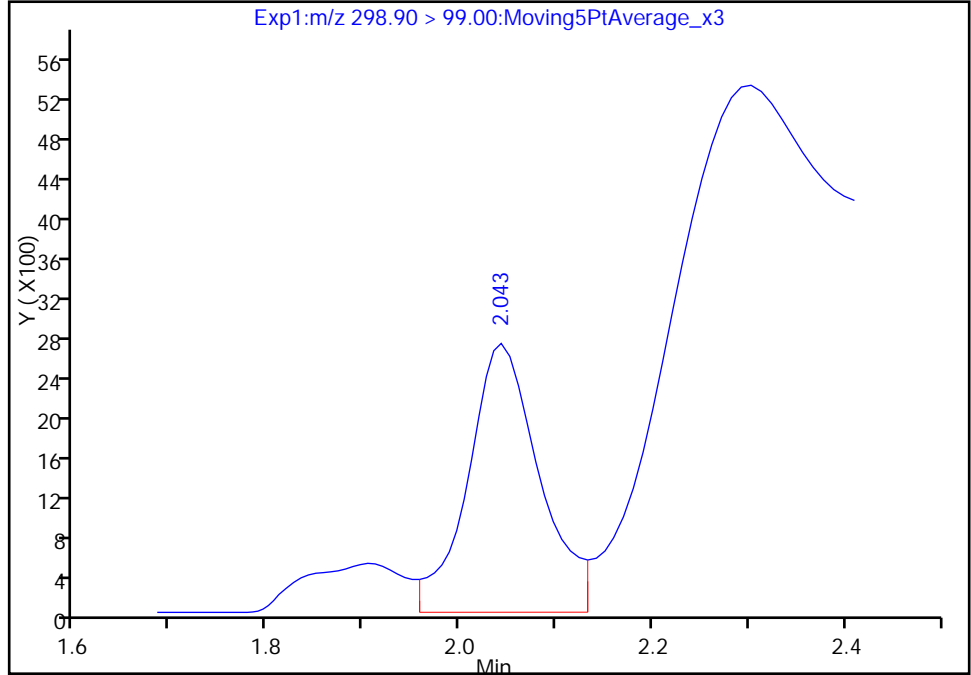
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_018.d
Injection Date: 07-Jun-2017 17:01:19 Instrument ID: A8_N
Lims ID: 320-28286-A-1-A Lab Sample ID: 320-28286-1
Client ID: MEAFF-T-45C-2005-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

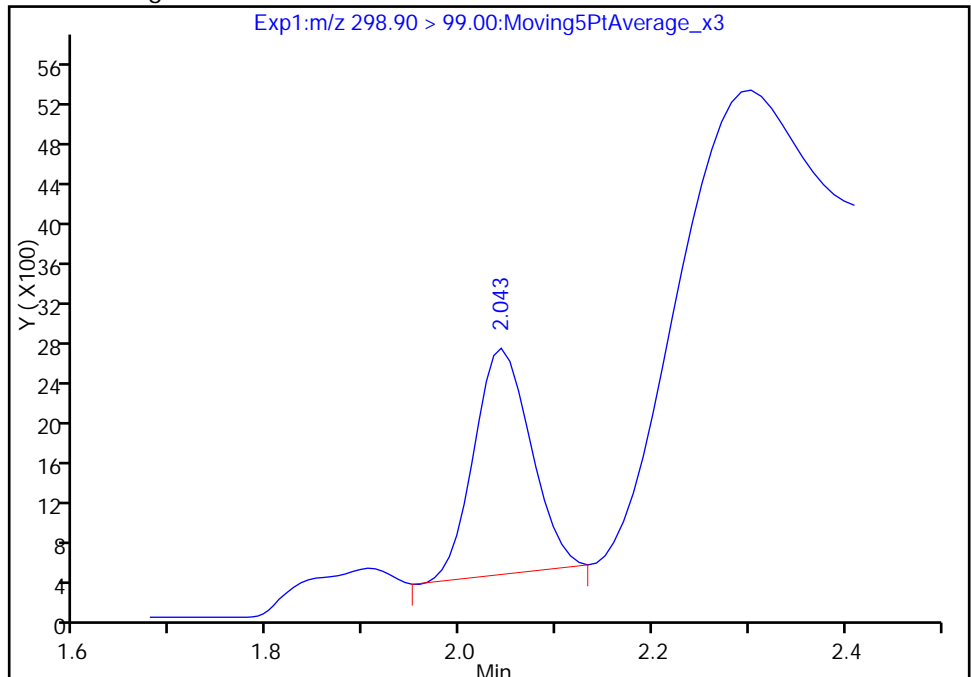
RT: 2.04
Area: 13765
Amount: 0.102051
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 9272
Amount: 0.081466
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:06:47
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

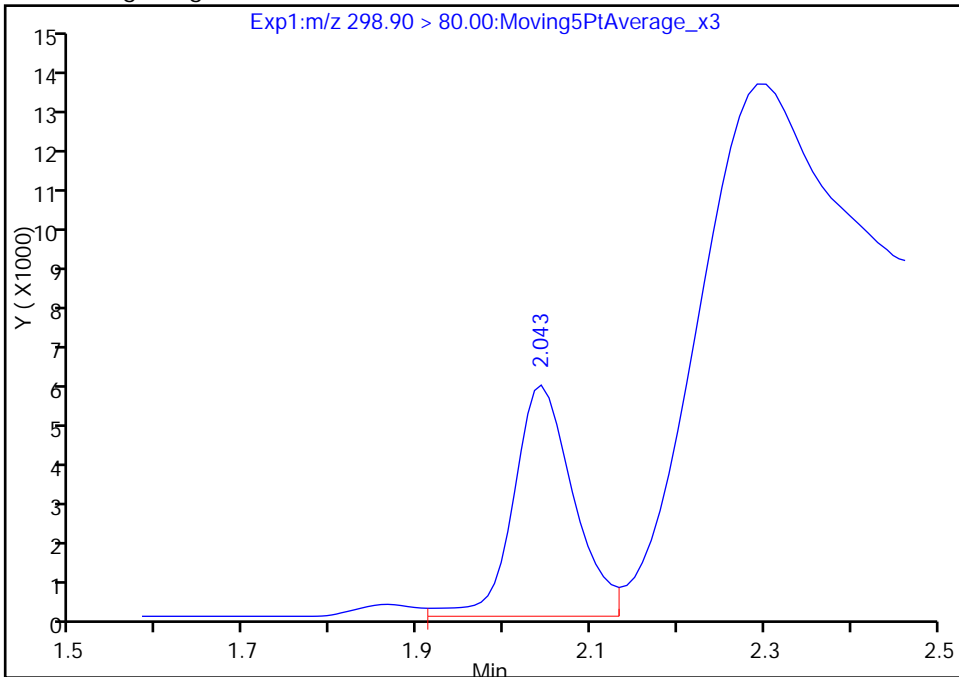
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Injection Date: 07-Jun-2017 17:01:19 Instrument ID: A8_N
Lims ID: 320-28286-A-1-A Lab Sample ID: 320-28286-1
Client ID: MEAFF-T-45C-2005-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

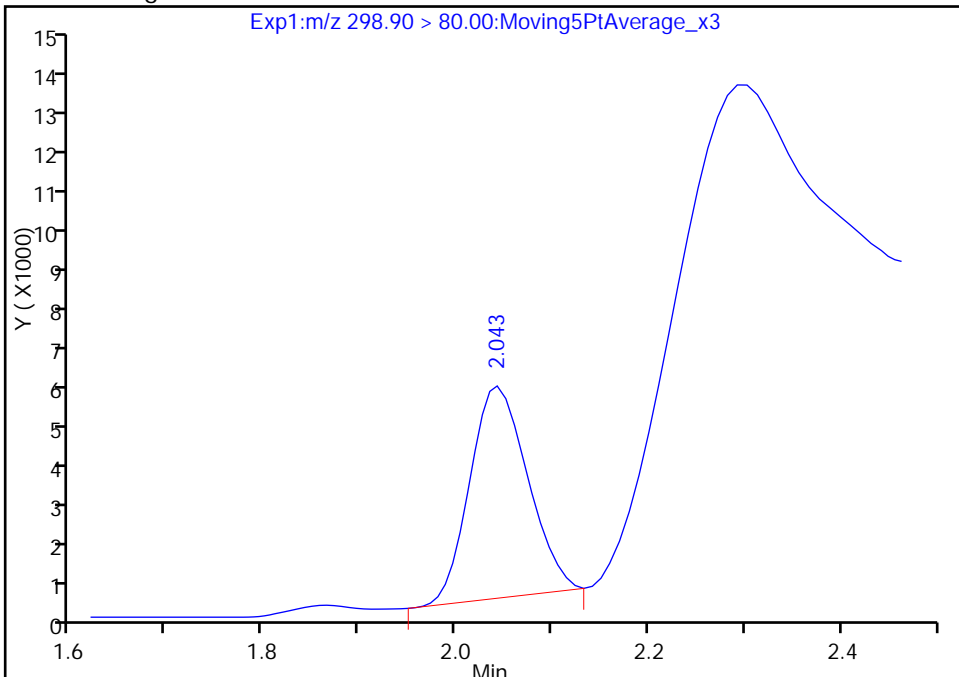
RT: 2.04
Area: 27544
Amount: 0.102051
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 21988
Amount: 0.081466
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:06:47

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_019.d
 Lims ID: 320-28286-A-2-A
 Client ID: MEAFF-T-45C-2005-SB01-0204
 Sample Type: Client
 Inject. Date: 07-Jun-2017 17:09:01 ALS Bottle#: 4 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-2-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 18:07:01 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 18:07:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.043	2.051	-0.008	1.000	18950	0.0743				
298.90 > 99.00	2.043	2.051	-0.008	1.000	5040		3.76(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.721	2.730	-0.009		7384923	32.0		67.7	12352	
D 14 13C4 PFOA										
417.00 > 372.00	3.095	3.110	-0.015		7579198	42.0		84.1	23173	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.095	3.110	-0.015	1.000	18796	0.1161			6.8	
413.00 > 169.00	3.102	3.110	-0.008	1.002	9667		1.94(0.90-1.10)		15.1	
* 62 13C2-PFOA										
415.00 > 370.00	3.095	3.110	-0.015		4242	50.0				
D 18 13C4 PFOS										
503.00 > 80.00	3.470	3.485	-0.015		3326683	18.7		39.1	9675	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_019.d

Injection Date: 07-Jun-2017 17:09:01

Instrument ID: A8_N

Lims ID: 320-28286-A-2-A

Lab Sample ID: 320-28286-2

Client ID: MEAFF-T-45C-2005-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 4

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

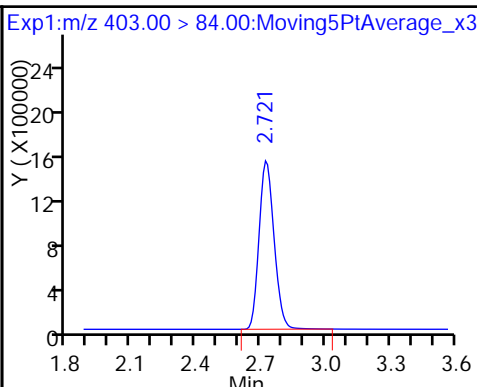
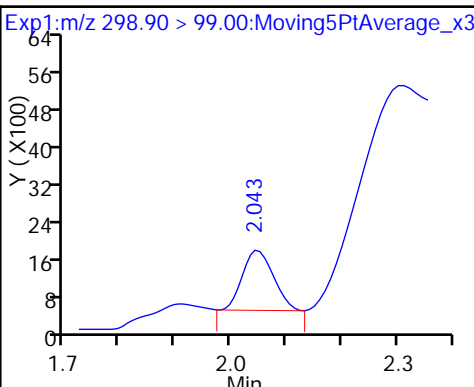
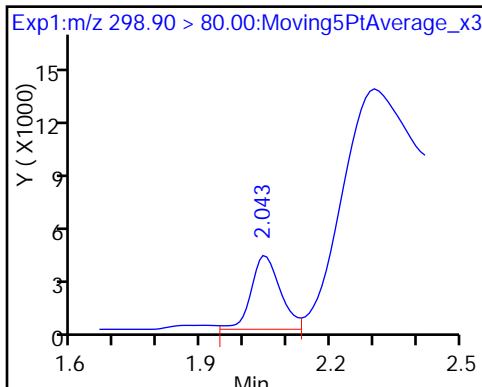
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid

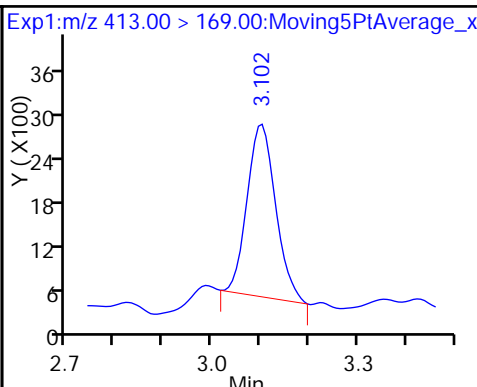
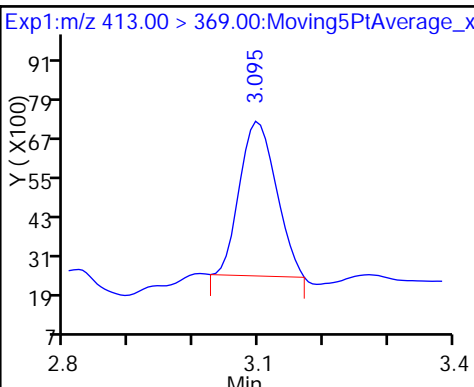
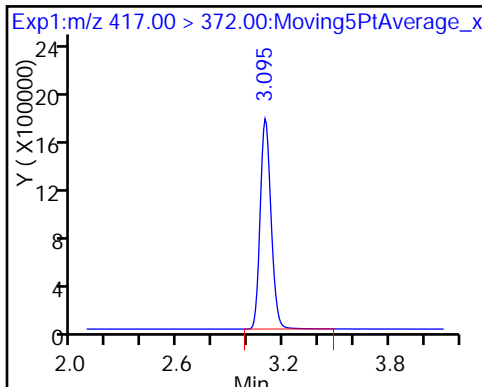
D 11 1802 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

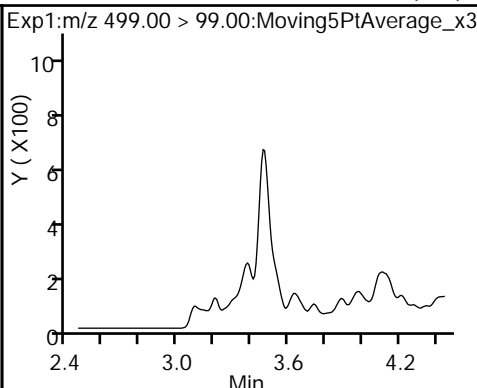
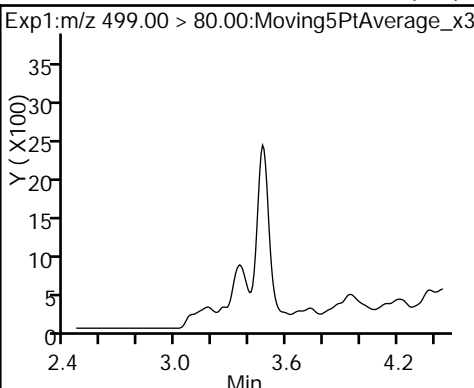
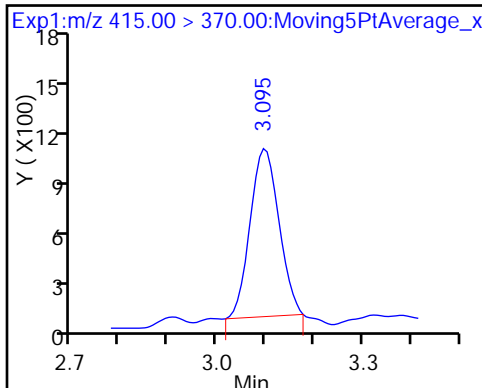
15 Perfluorooctanoic acid



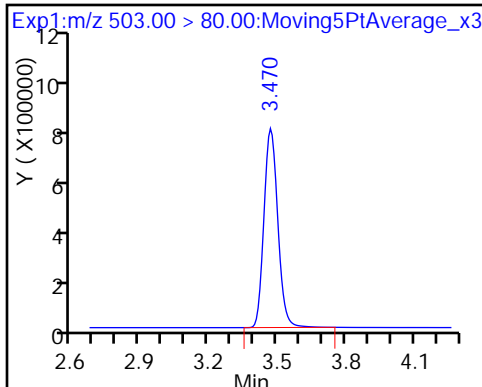
* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)



D 18 13C4 PFOS



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown11-SB01-0001 Lab Sample ID: 320-28286-3
 Matrix: Solid Lab File ID: 2017.06.07B_020.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 10:54
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.00(g) Date Analyzed: 06/07/2017 17:16
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 11.8 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.24	J	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	88		25-150
STL00991	13C4 PFOS	51		25-150
STL00994	18O2 PFHxS	78		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_020.d
 Lims ID: 320-28286-A-3-A
 Client ID: MEAFF-Unknown11-SB01-0001
 Sample Type: Client
 Inject. Date: 07-Jun-2017 17:16:45 ALS Bottle#: 5 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-3-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 18:29:15 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 18:08:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.051	2.051	0.0	1.000	11602	0.0397				M
298.90 > 99.00	2.051	2.051	0.0	1.000	2416		4.80(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.730	2.730	0.0		8464649	36.7		77.6	18339	
D 14 13C4 PFOA										
417.00 > 372.00	3.103	3.110	-0.007		7917347	43.9		87.8	20044	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.103	3.110	-0.007	1.000	47527	0.2809			17.6	M
413.00 > 169.00	3.103	3.110	-0.007	1.000	34154		1.39(0.90-1.10)		50.6	M
* 62 13C2-PFOA										
415.00 > 370.00	3.103	3.110	-0.007		5365	50.0				
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.354	3.454	-0.100	1.000	104274	1.08			84.9	
499.00 > 99.00	3.478	3.454	0.024	1.037	19036		5.48(0.90-1.10)		100	
D 18 13C4 PFOS										
503.00 > 80.00	3.478	3.485	-0.007		4383159	24.6		51.5	12677	

QC Flag Legend

Review Flags
M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_020.d

Injection Date: 07-Jun-2017 17:16:45

Instrument ID: A8_N

Lims ID: 320-28286-A-3-A

Lab Sample ID: 320-28286-3

Client ID: MEAFF-Unknown11-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

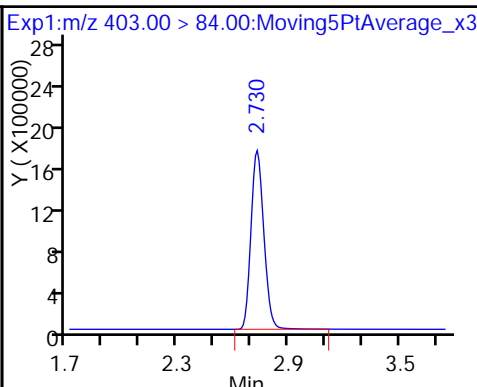
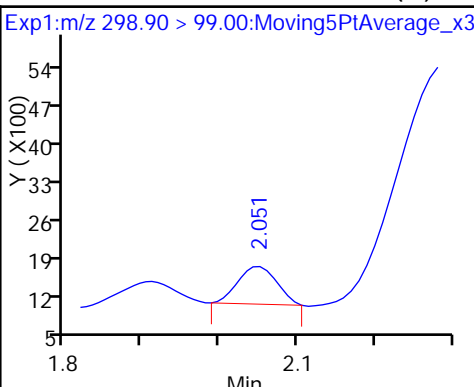
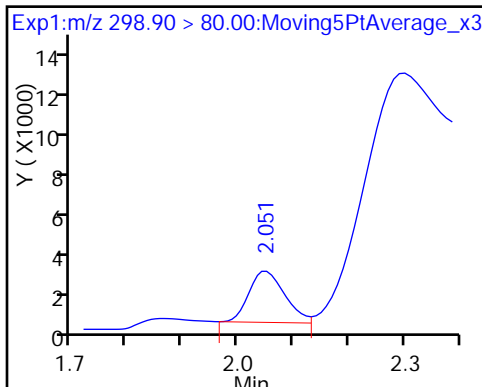
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid (M)

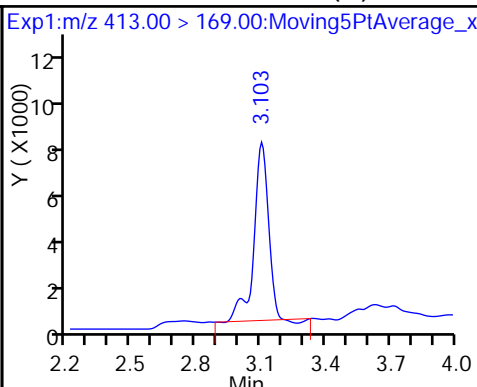
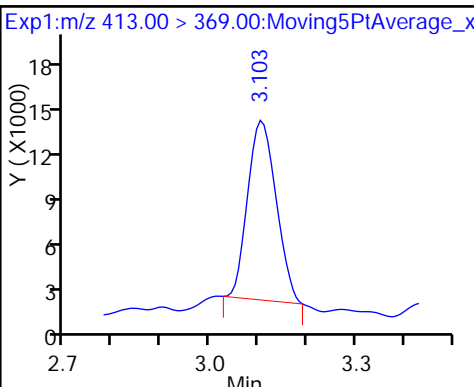
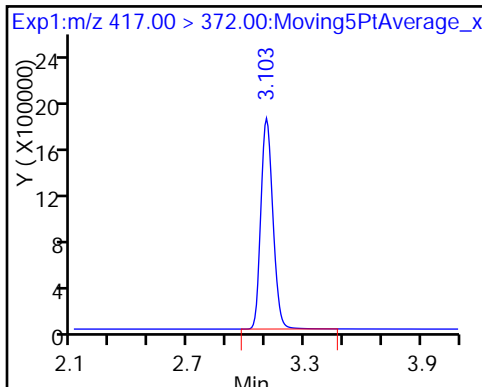
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

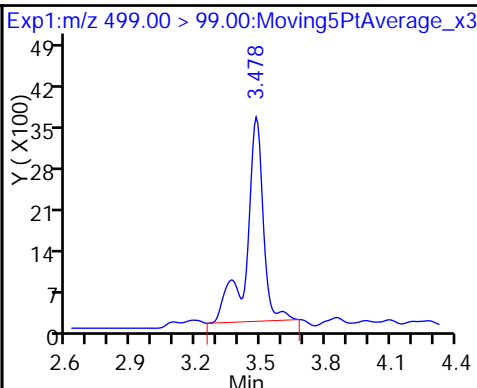
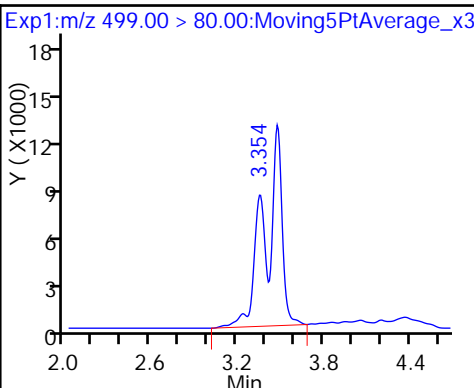
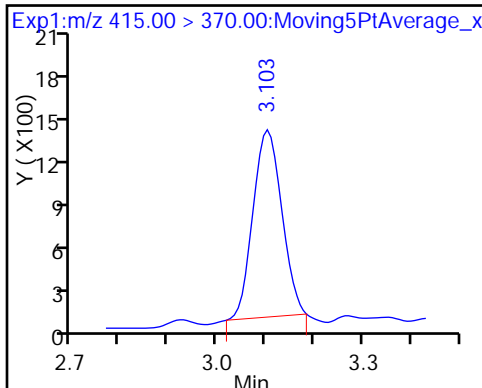
15 Perfluorooctanoic acid (M)



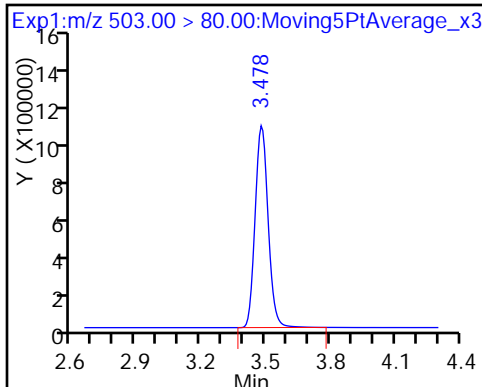
* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



TestAmerica Sacramento

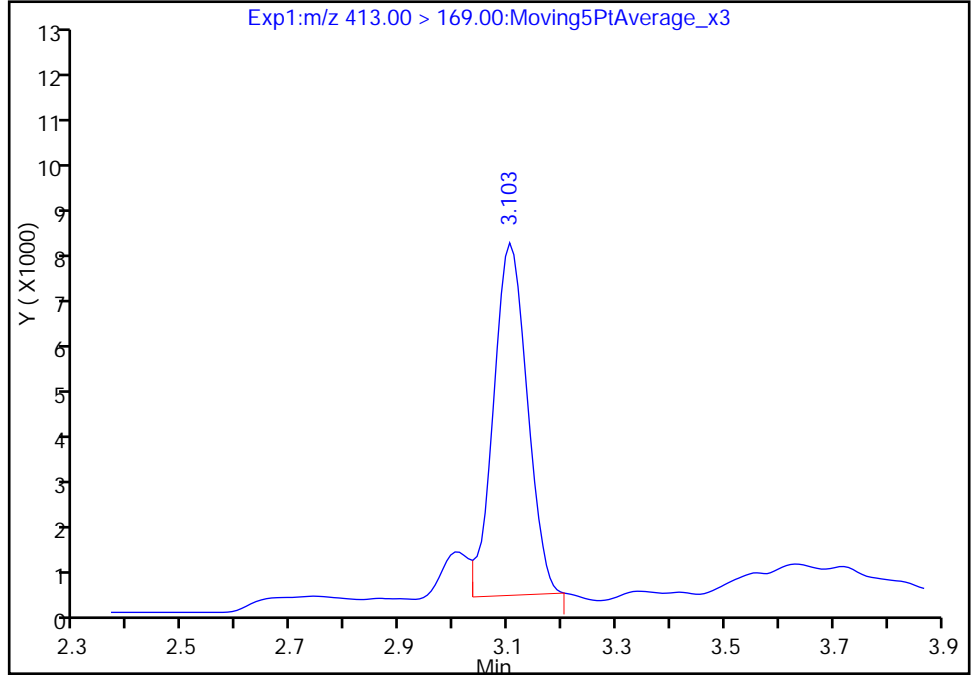
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_020.d
Injection Date: 07-Jun-2017 17:16:45 Instrument ID: A8_N
Lims ID: 320-28286-A-3-A Lab Sample ID: 320-28286-3
Client ID: MEAFF-Unknown11-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

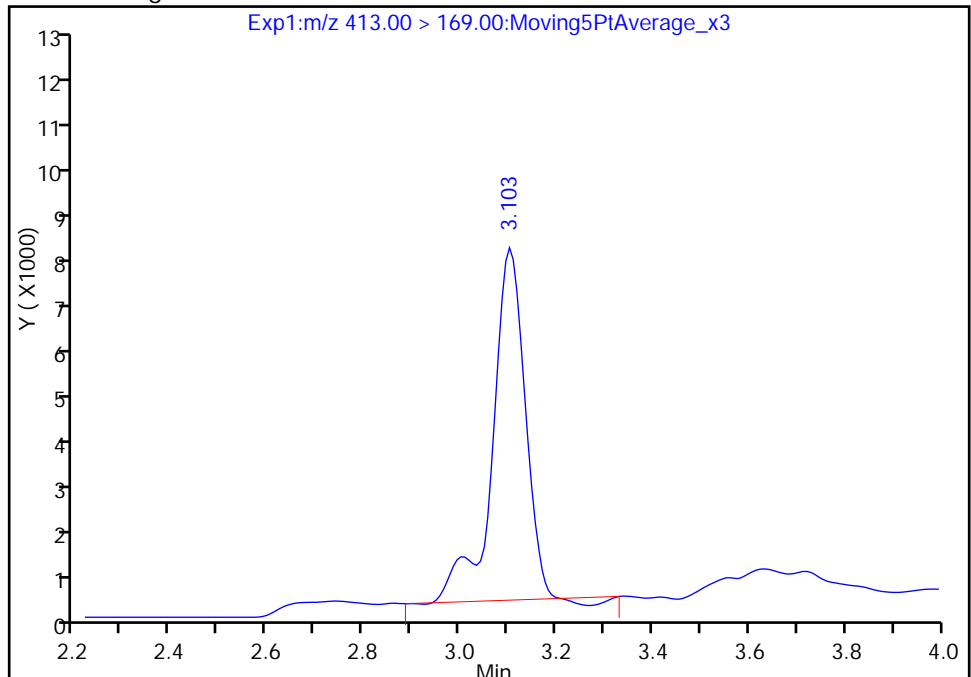
RT: 3.10
Area: 31642
Amount: 0.280917
Amount Units: ng/ml

Processing Integration Results



RT: 3.10
Area: 34154
Amount: 0.280917
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:08:34
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

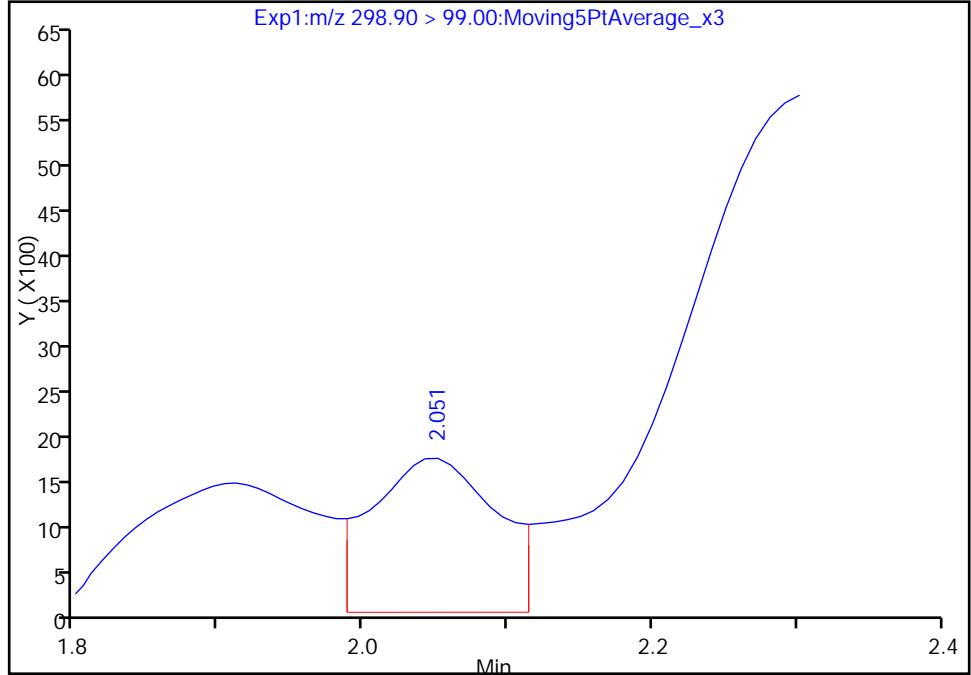
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_020.d
Injection Date: 07-Jun-2017 17:16:45 Instrument ID: A8_N
Lims ID: 320-28286-A-3-A Lab Sample ID: 320-28286-3
Client ID: MEAFF-Unknown11-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

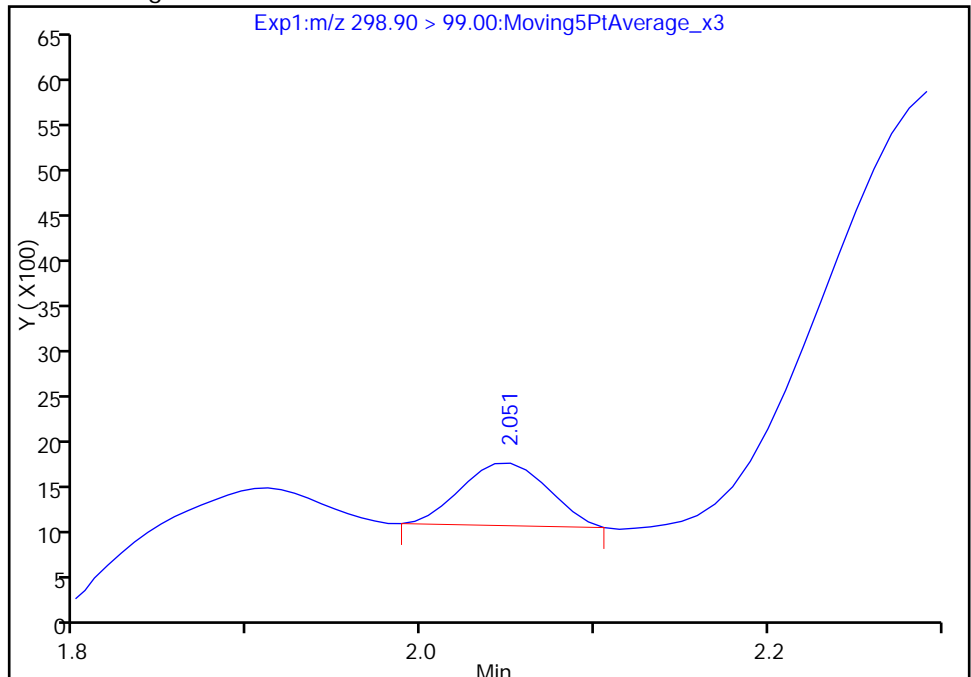
RT: 2.05
Area: 10043
Amount: 0.039713
Amount Units: ng/ml

Processing Integration Results



RT: 2.05
Area: 2416
Amount: 0.039713
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:08:22
Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown11-SB01-0204 Lab Sample ID: 320-28286-4
 Matrix: Solid Lab File ID: 2017.06.07B_021.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 10:58
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 4.99(g) Date Analyzed: 06/07/2017 17:24
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 9.7 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.33	U M	0.55	0.33	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.55	0.33	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.33	U M	0.44	0.33	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	77		25-150
STL00991	13C4 PFOS	35		25-150
STL00994	18O2 PFHxS	68		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_021.d
 Lims ID: 320-28286-A-4-A
 Client ID: MEAFF-Unknown11-SB01-0204
 Sample Type: Client
 Inject. Date: 07-Jun-2017 17:24:28 ALS Bottle#: 6 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-4-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 18:29:15 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 18:29:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00	> 172.00	1.689	1.692	-0.003	13091221	39.7	79.4	53746	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.693	1.692	0.001	1.000	29657	0.1233		11.0		M
D 3 13C5-PFPeA	267.90	> 223.00	2.004	2.011	-0.007	10044750	45.7	91.3	52982	
D 47 13C3-PFBS	301.90	> 83.00	2.043	2.051	-0.008	203561	NC			
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	2.052	2.051	0.001	1.000	22368	0.0873				M
298.90 > 99.00	2.043	2.051	-0.008	0.996	9340		2.39(0.00-0.00)			M
D 7 13C2 PFHxA	315.00	> 270.00	2.345	2.345	0.0	8362825	43.4	86.7	18520	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.345	2.345	0.0	1.000	23596	0.1394			18.1	
D 60 M2-4:2FTS	329.00	> 309.00	2.302	2.372	-0.070	8007	NC			
D 9 13C4-PFHpA	367.00	> 322.00	2.711	2.721	-0.010	8219263	46.2	92.4	20717	
D 11 18O2 PFHxS	403.00	> 84.00	2.731	2.730	0.001	7427893	32.2	68.1	17090	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.731	2.740	-0.009	1.000	286928	1.67				
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	3.080	3.087	-0.007	1.000	15017	NR				
D 14 13C4 PFOA	417.00	> 372.00	3.103	3.110	-0.007	6964284	38.6	77.2	15335	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										M
413.00 > 369.00	3.103	3.110	-0.007	1.000	18670	0.1255			4.9	M
413.00 > 169.00	3.096	3.110	-0.014	0.998	12224		1.53(0.90-1.10)		12.5	M
* 62 13C2-PFOA										
415.00 > 370.00	3.103	3.110	-0.007		4337	50.0				
D 18 13C4 PFOS										
503.00 > 80.00	3.471	3.485	-0.014		2978930	16.7		35.0	9123	
D 19 13C5 PFNA										
468.00 > 423.00	3.486	3.493	-0.007		4333052	28.4		56.8	19800	
D 21 13C8 FOSA										
506.00 > 78.00	3.808	3.808	0.0		1969124	6.56		13.1	6206	
D 23 13C2 PFDA										
515.00 > 470.00	3.843	3.851	-0.008		2803753	18.6		37.2	10103	
D 30 13C2 PFUnA										
565.00 > 520.00	4.165	4.172	-0.007		2461792	20.5		41.1	7263	
D 32 d5-NEtFOSAA										
589.00 > 419.00	4.165	4.172	-0.007		2777	0.0318		0.0		
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.165	4.172	-0.007	1.000	9126	0.1740			26.6	
D 36 13C2 PFDoA										
615.00 > 570.00	4.442	4.459	-0.017		3164156	25.4		50.8	5189	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.933	4.954	-0.021		7619709	29.6		59.3	11046	
42 Perfluorotetradecanoic acid										M
712.50 > 668.90	4.925	4.954	-0.030	1.000	17915	0.0925			24.7	M
713.00 > 169.00	4.933	4.954	-0.021	1.002	3699		4.84(0.00-0.00)		93.6	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.340	5.363	-0.023		3936416	28.8		57.5	4776	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.348	5.371	-0.023	1.000	53050	0.0877			56.3	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_021.d

Injection Date: 07-Jun-2017 17:24:28

Instrument ID: A8_N

Lims ID: 320-28286-A-4-A

Lab Sample ID: 320-28286-4

Client ID: MEAFF-Unknown11-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 6

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

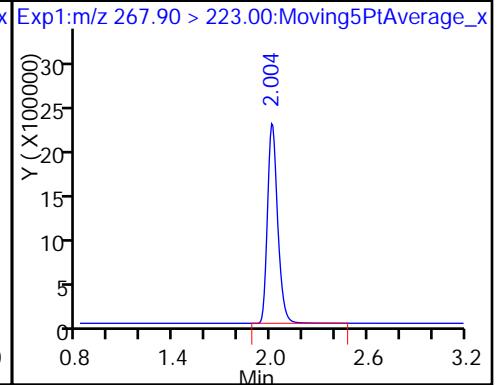
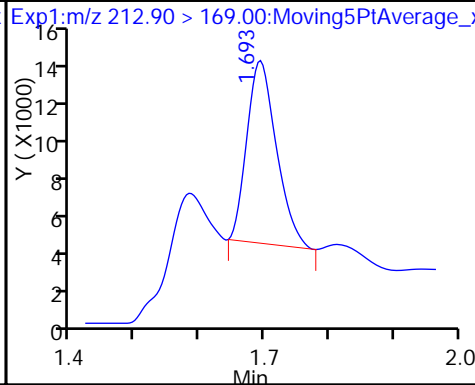
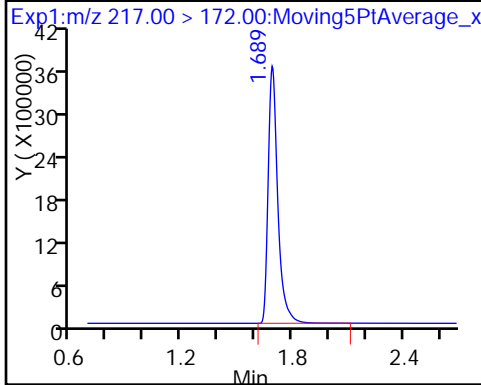
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid (M)

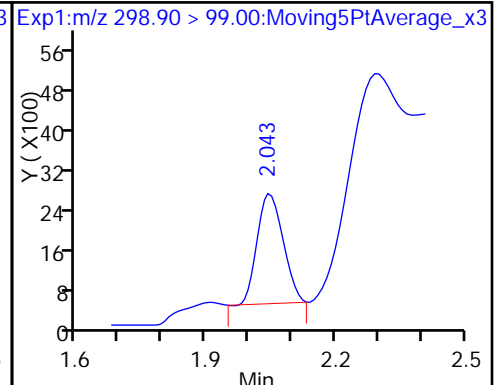
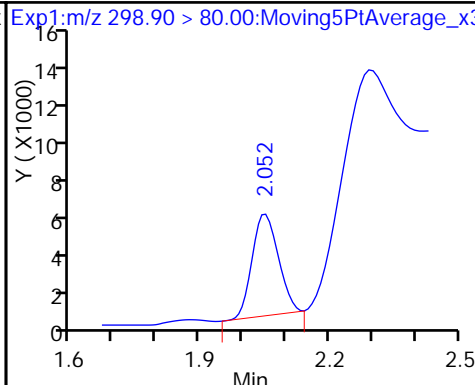
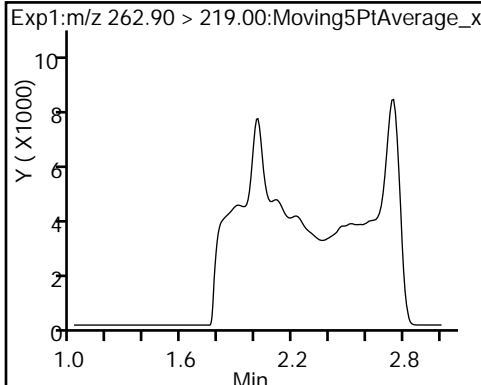
D 3 13C5-PFPeA



4 Perfluoropentanoic acid (ND)

5 Perfluorobutanesulfonic acid (M)

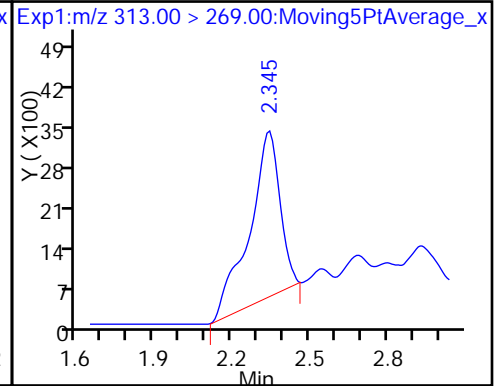
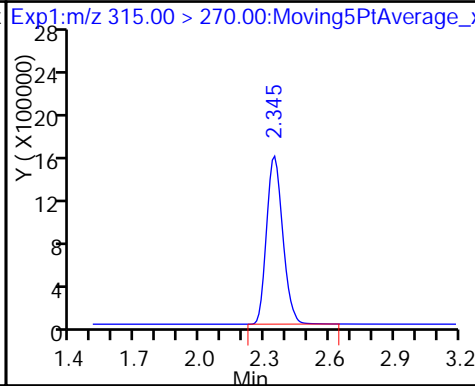
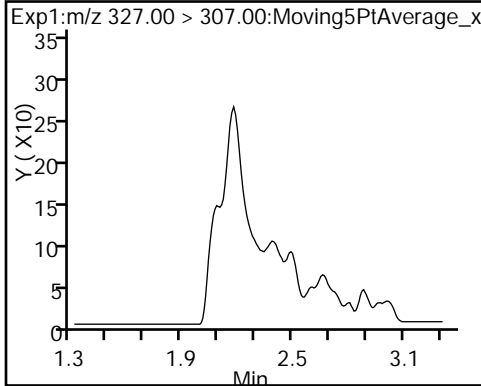
5 Perfluorobutanesulfonic acid (M)



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid (ND)

D 5 13C2 PFHxA

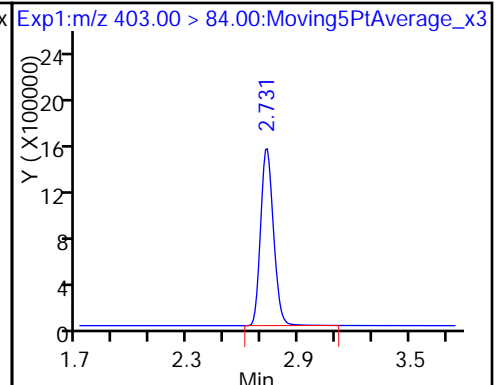
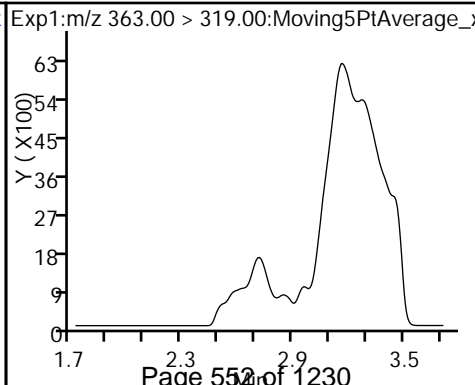
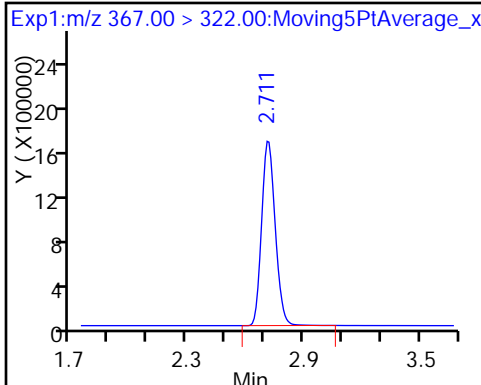
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid (ND)

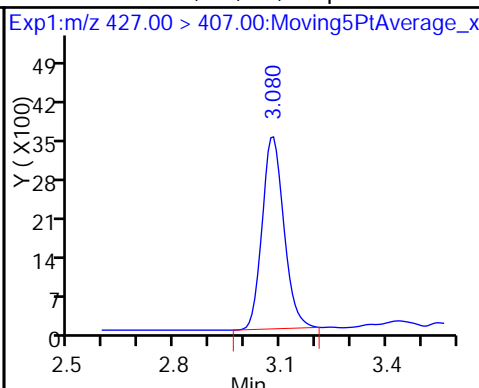
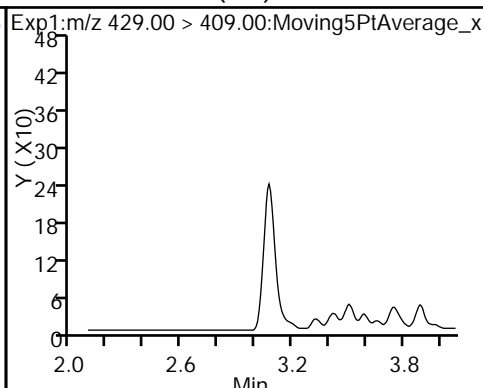
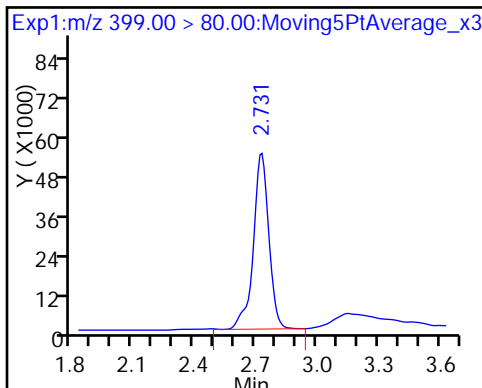
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS (ND)

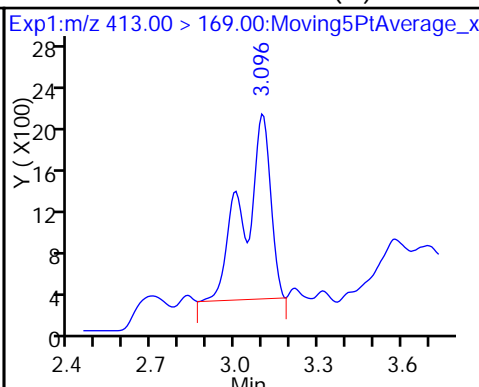
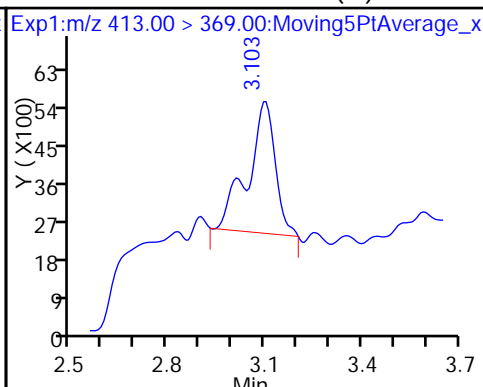
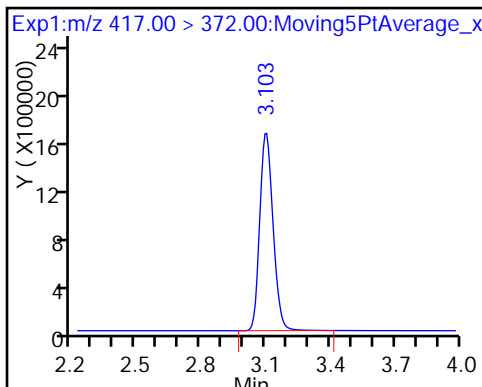
13 Sodium 1H,1H,2H,2H-perfluorooctane



D 14 13C4 PFOA

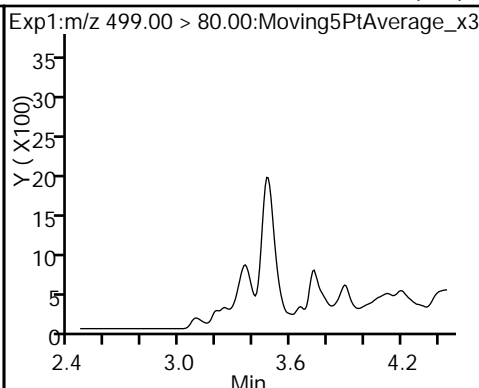
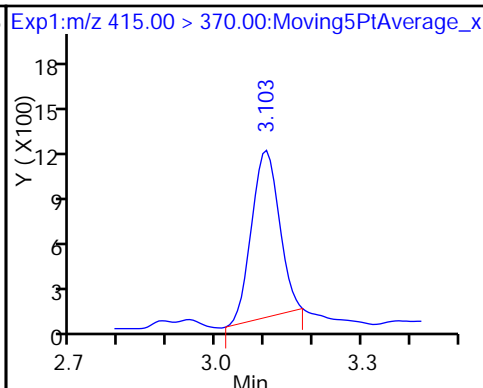
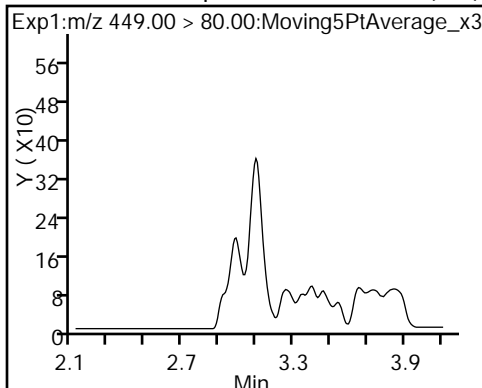
15 Perfluorooctanoic acid (M)

15 Perfluorooctanoic acid (M)



16 Perfluoroheptanesulfonic Acid (ND) * 62 13C2-PFOA

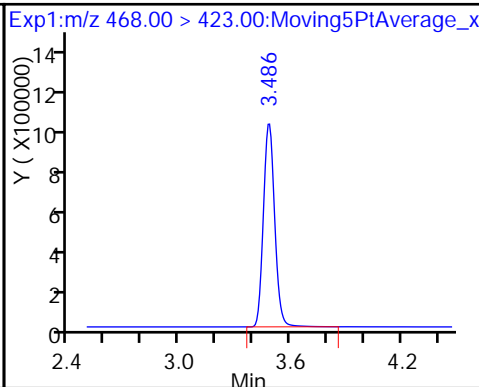
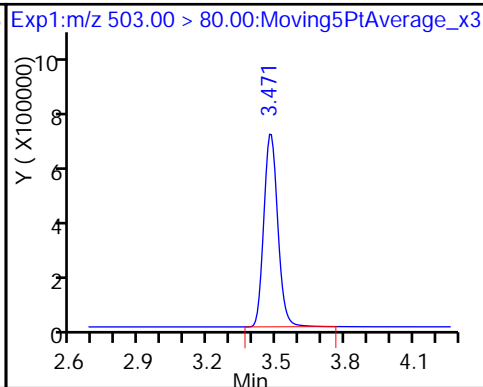
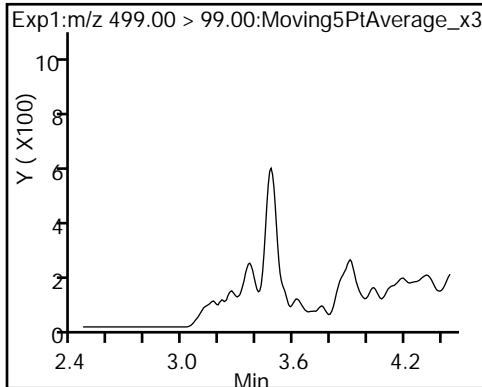
17 Perfluorooctane sulfonic acid (ND)

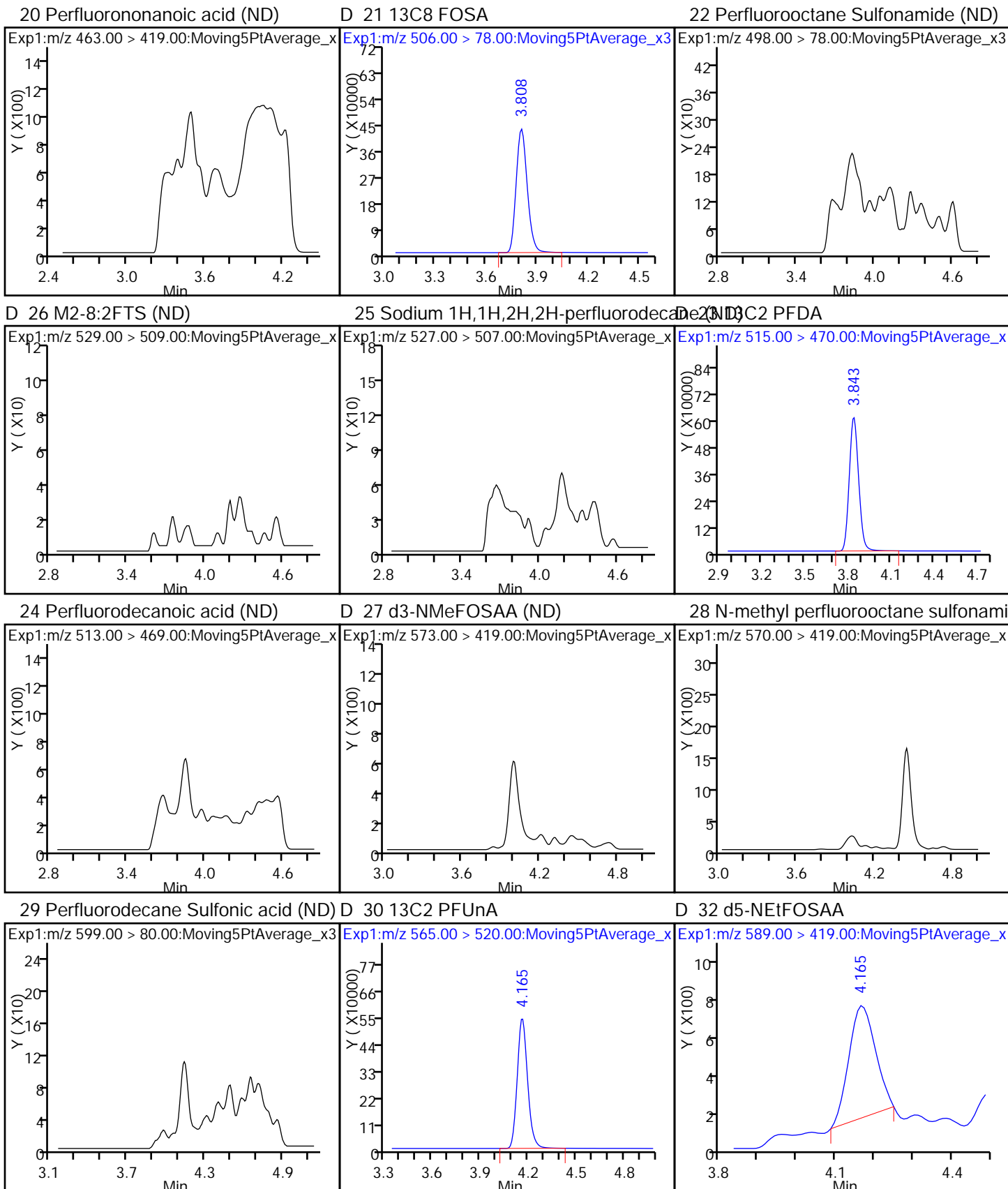


17 Perfluorooctane sulfonic acid (ND)

D 18 13C4 PFOS

D 19 13C5 PFNA

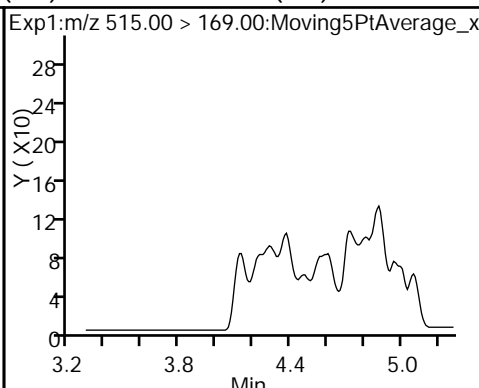
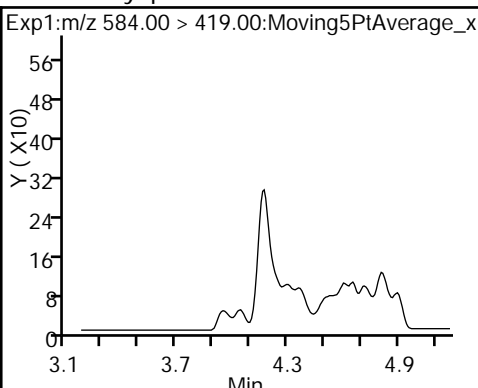
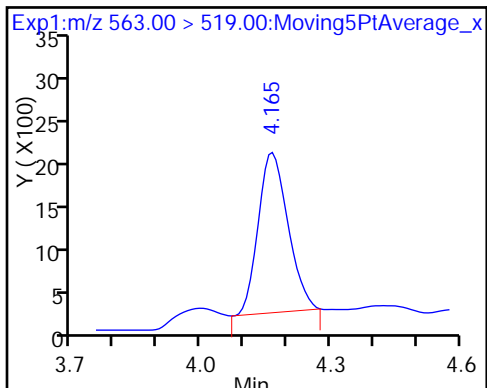




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid (ND)

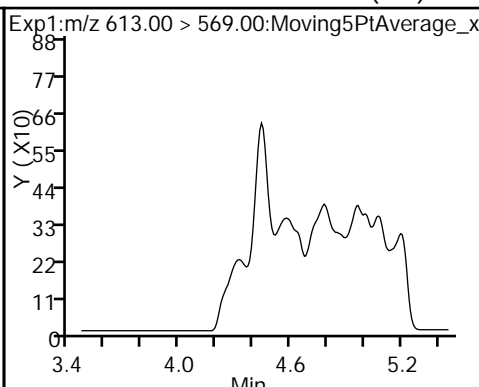
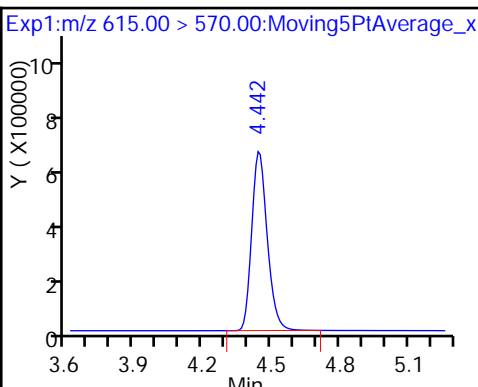
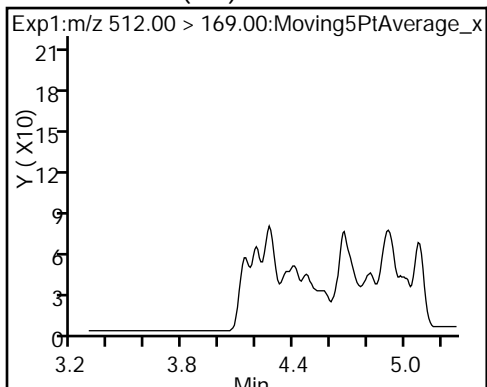
34 d-N-MeFOSA-M (ND)



35 MeFOSA (ND)

D 36 13C2 PFDaA

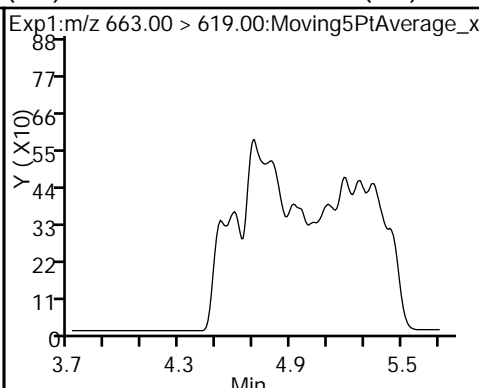
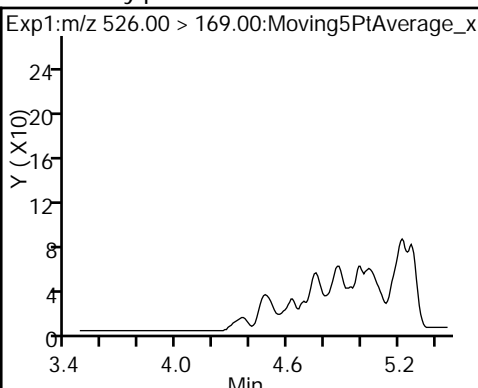
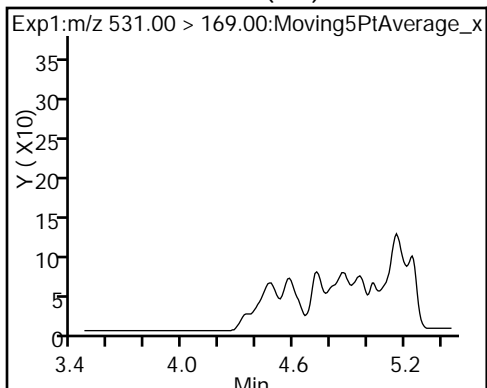
37 Perfluorododecanoic acid (ND)



D 38 d-N-EtFOSA-M (ND)

39 N-ethylperfluoro-1-octanesulfonami (ND)

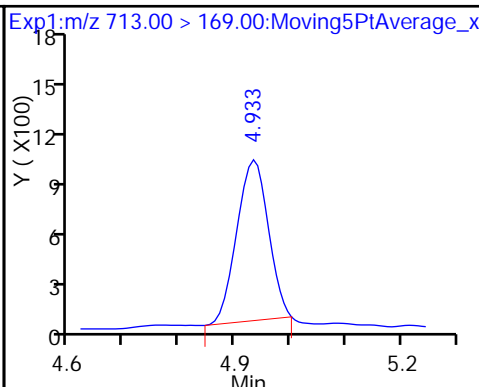
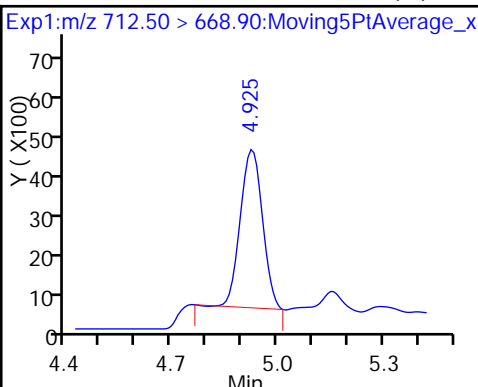
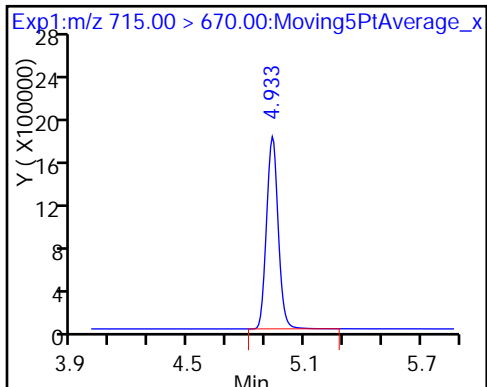
Perfluorotridecanoic acid (ND)



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid (M)

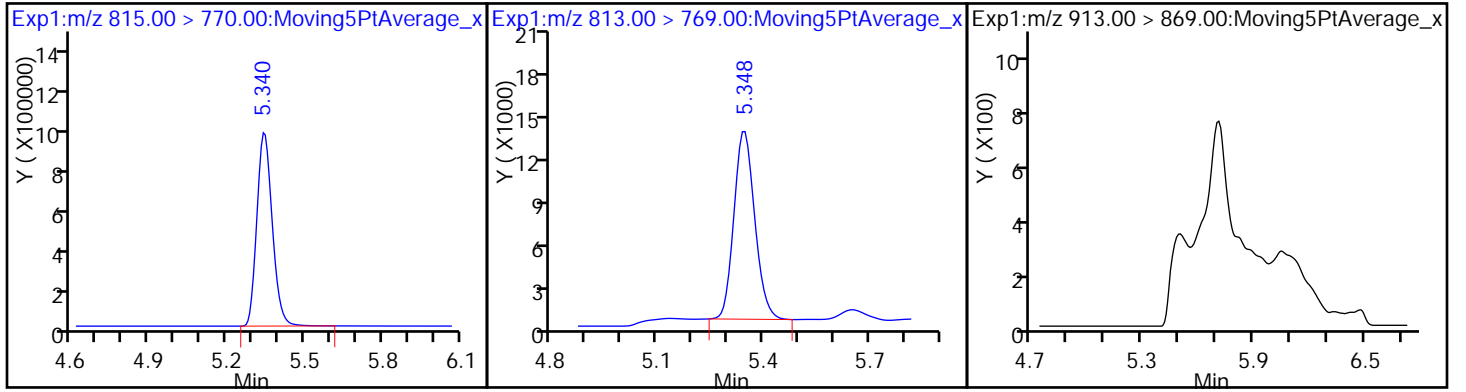
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid (ND)



TestAmerica Sacramento

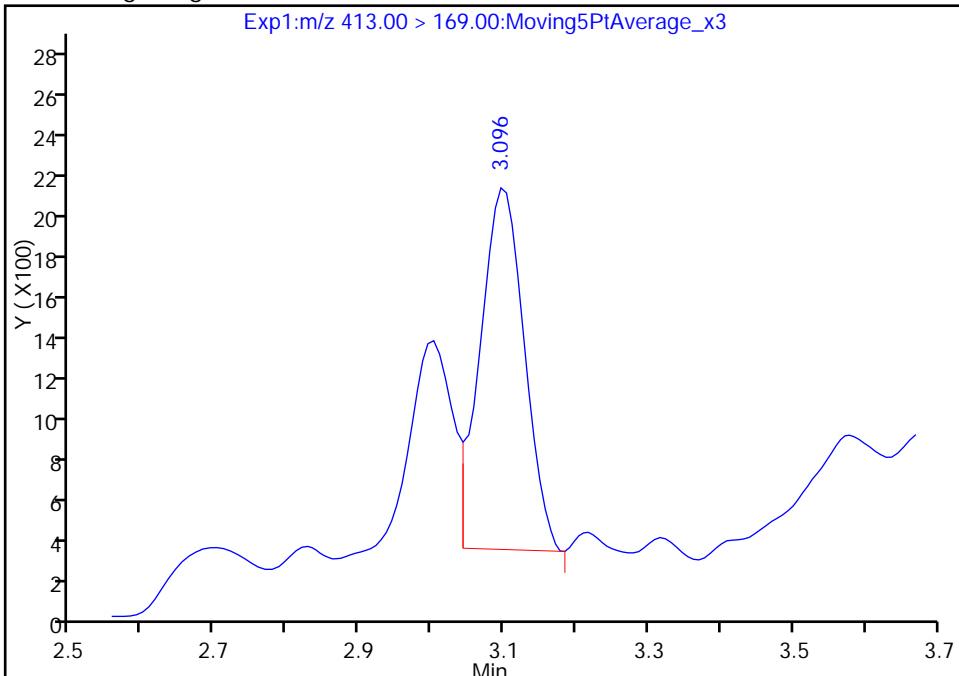
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_021.d
Injection Date: 07-Jun-2017 17:24:28 Instrument ID: A8_N
Lims ID: 320-28286-A-4-A Lab Sample ID: 320-28286-4
Client ID: MEAFF-Unknown11-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

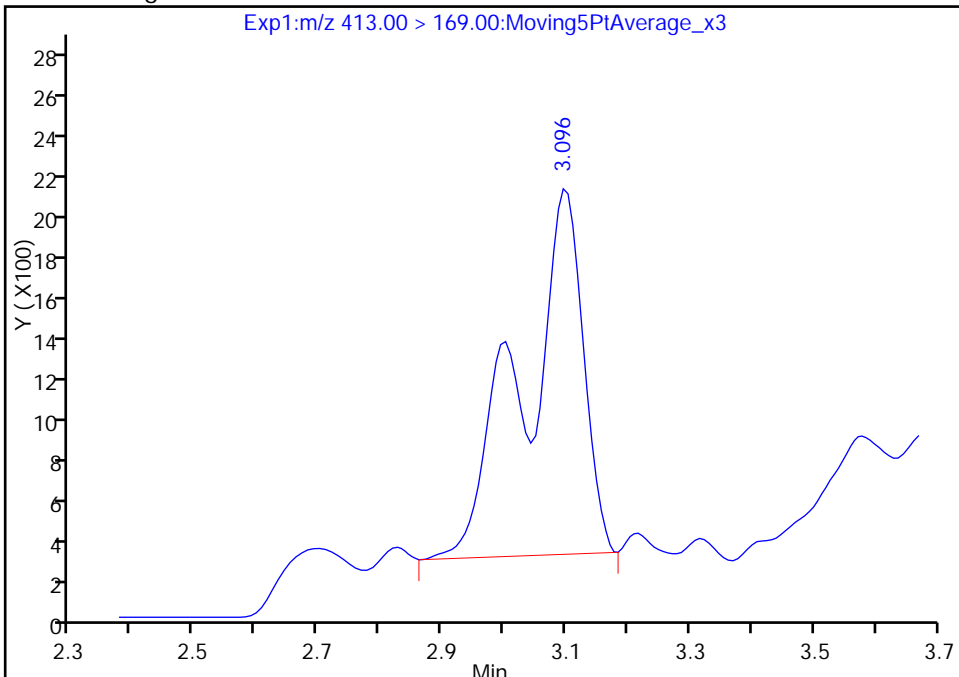
RT: 3.10
Area: 7571
Amount: 0.057513
Amount Units: ng/ml

Processing Integration Results



RT: 3.10
Area: 12224
Amount: 0.125454
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:25:37
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

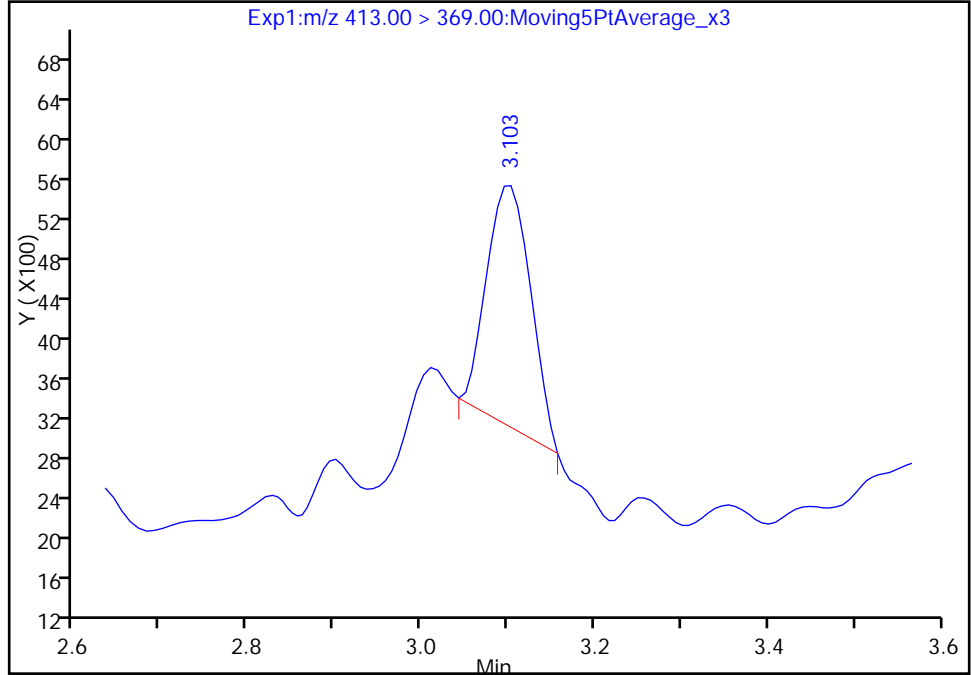
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_021.d
Injection Date: 07-Jun-2017 17:24:28 Instrument ID: A8_N
Lims ID: 320-28286-A-4-A Lab Sample ID: 320-28286-4
Client ID: MEAFF-Unknown11-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

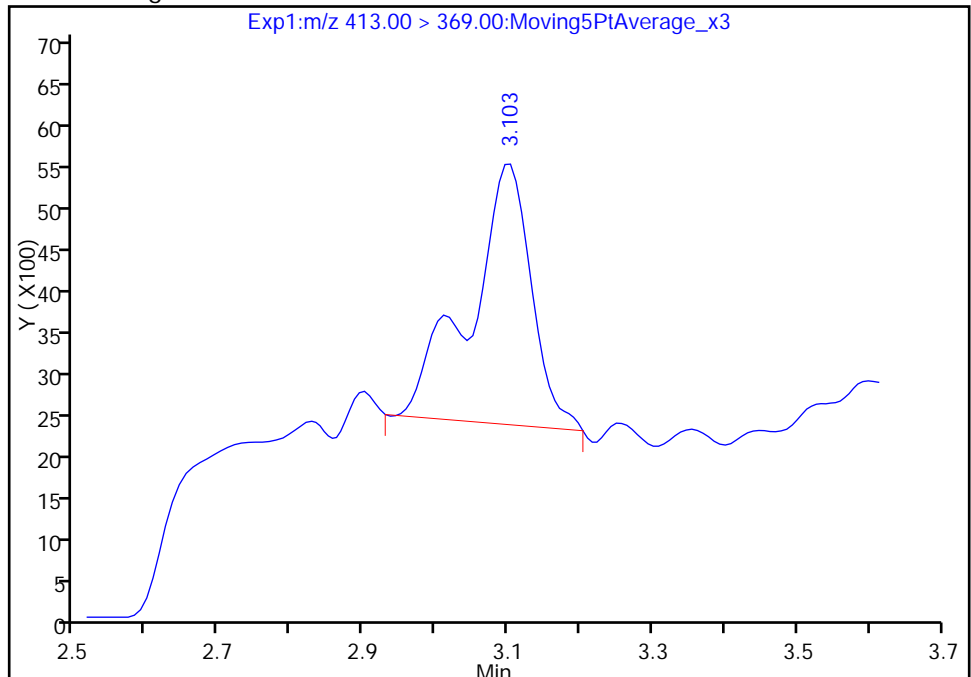
RT: 3.10
Area: 8559
Amount: 0.057513
Amount Units: ng/ml

Processing Integration Results



RT: 3.10
Area: 18670
Amount: 0.125454
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:25:45

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

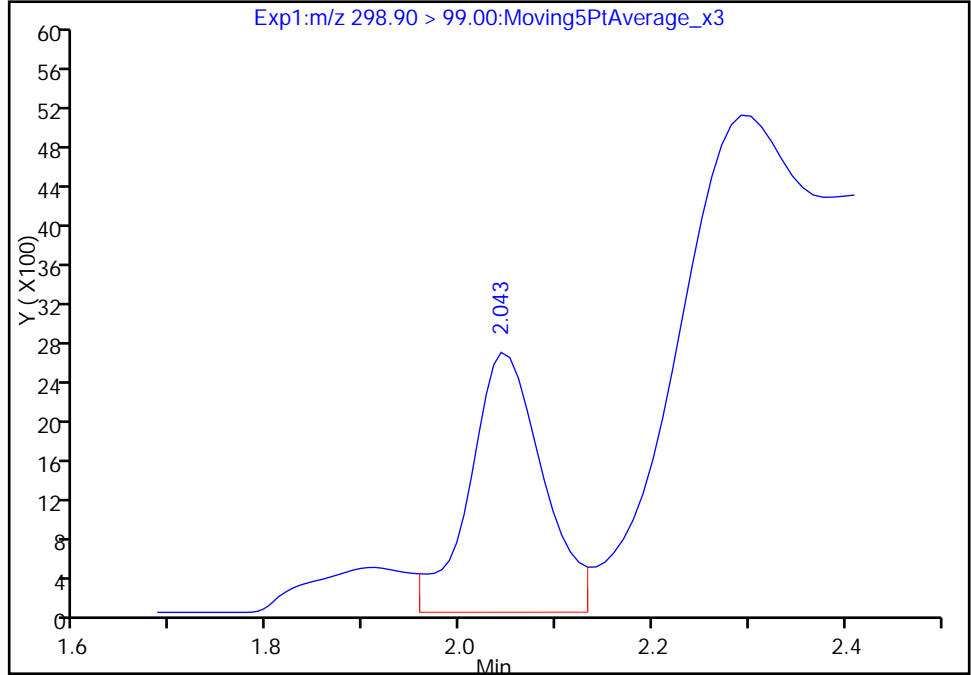
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_021.d
Injection Date: 07-Jun-2017 17:24:28 Instrument ID: A8_N
Lims ID: 320-28286-A-4-A Lab Sample ID: 320-28286-4
Client ID: MEAFF-Unknown11-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

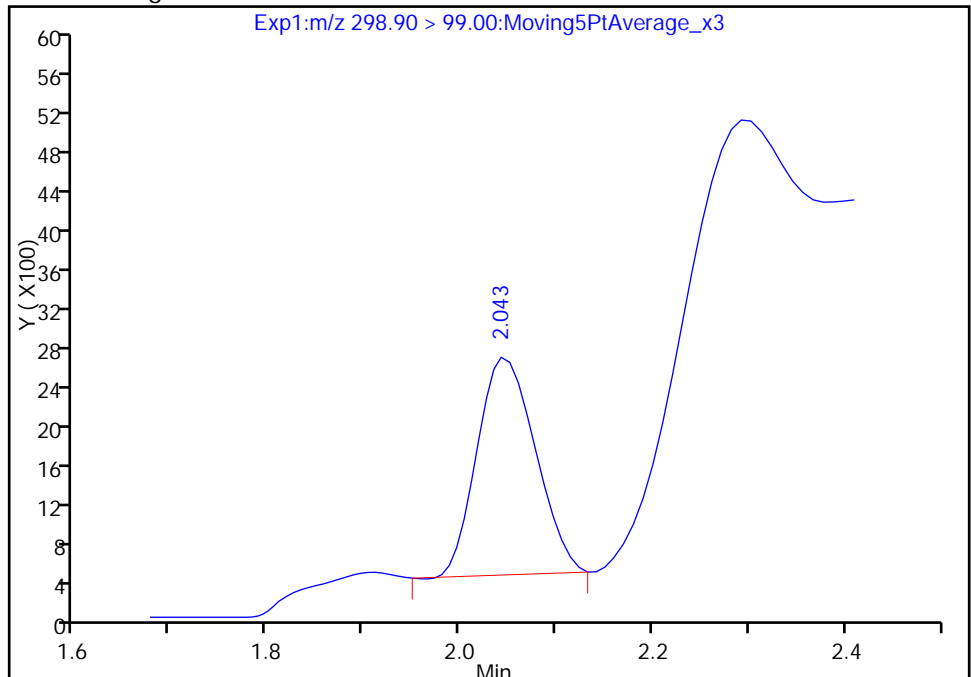
RT: 2.04
Area: 13845
Amount: 0.109020
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 9340
Amount: 0.087250
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:25:04
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

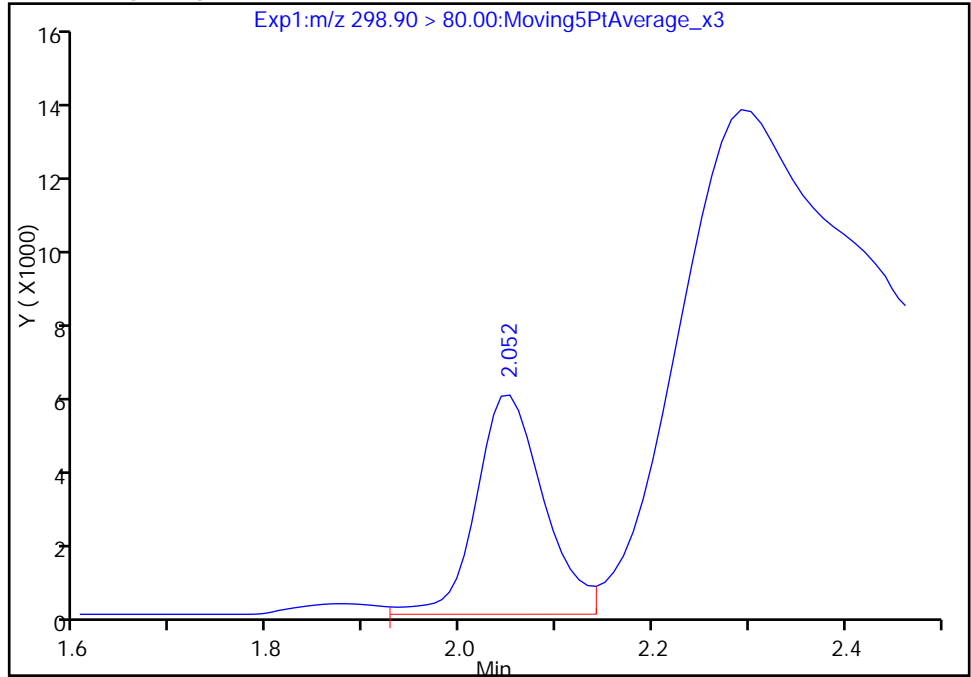
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_021.d
Injection Date: 07-Jun-2017 17:24:28 Instrument ID: A8_N
Lims ID: 320-28286-A-4-A Lab Sample ID: 320-28286-4
Client ID: MEAFF-Unknown11-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

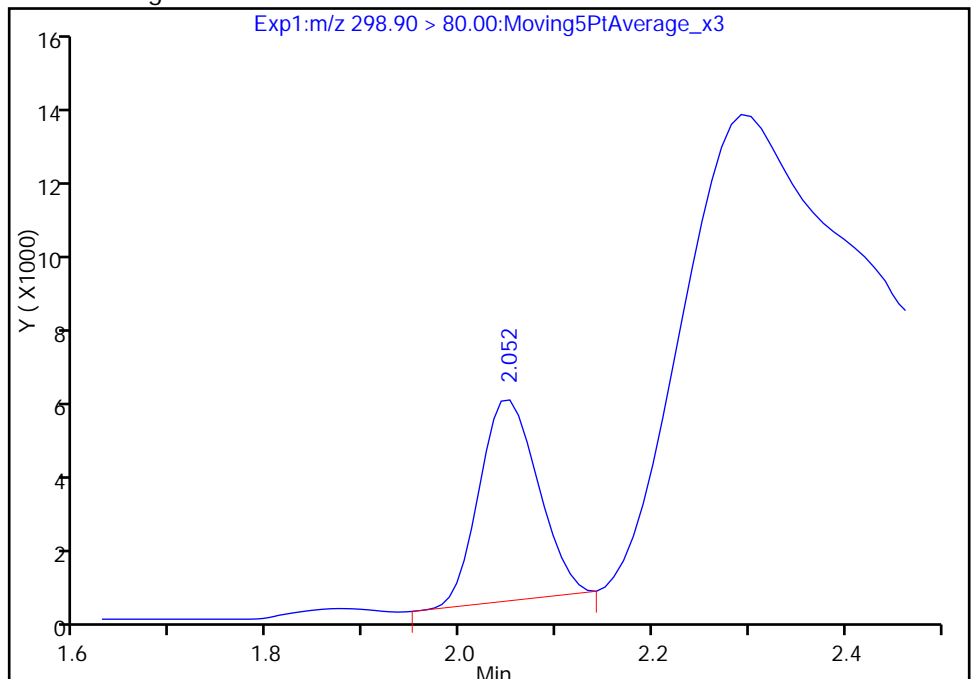
RT: 2.05
Area: 27949
Amount: 0.109020
Amount Units: ng/ml

Processing Integration Results



RT: 2.05
Area: 22368
Amount: 0.087250
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:25:16

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EASTB-SB01-0001 Lab Sample ID: 320-28286-5
 Matrix: Solid Lab File ID: 2017.06.07B_024.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 12:54
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 4.99(g) Date Analyzed: 06/07/2017 17:47
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 11.3 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.14	J M	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.9		0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.92	M	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	97		25-150
STL00991	13C4 PFOS	72		25-150
STL00994	18O2 PFHxS	83		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_024.d
 Lims ID: 320-28286-A-5-A
 Client ID: MEAFF-EASTB-SB01-0001
 Sample Type: Client
 Inject. Date: 07-Jun-2017 17:47:33 ALS Bottle#: 9 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-5-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 18:56:30 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 18:56:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.047	2.051	-0.004	1.000	1277990	4.07				M
298.90 > 99.00	2.047	2.051	-0.004	1.000	500778		2.55(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.720	2.730	-0.010		9088881	39.4		83.3	16007	
D 14 13C4 PFOA										
417.00 > 372.00	3.096	3.110	-0.014		8714068	48.3		96.7	15478	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.096	3.110	-0.014	1.000	113281	0.6083			31.3	M
413.00 > 169.00	3.096	3.110	-0.014	1.000	75345		1.50(0.90-1.10)		67.0	M
* 62 13C2-PFOA										
415.00 > 370.00	3.096	3.110	-0.014		5468	50.0				
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.470	3.454	0.016	1.000	1106626	8.20			1348	
499.00 > 99.00	3.470	3.454	0.016	1.000	247879		4.46(0.90-1.10)		1027	
D 18 13C4 PFOS										
503.00 > 80.00	3.470	3.485	-0.015		6114931	34.3		71.8	10021	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_024.d

Injection Date: 07-Jun-2017 17:47:33

Instrument ID: A8_N

Lims ID: 320-28286-A-5-A

Lab Sample ID: 320-28286-5

Client ID: MEAFF-EASTB-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 9

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

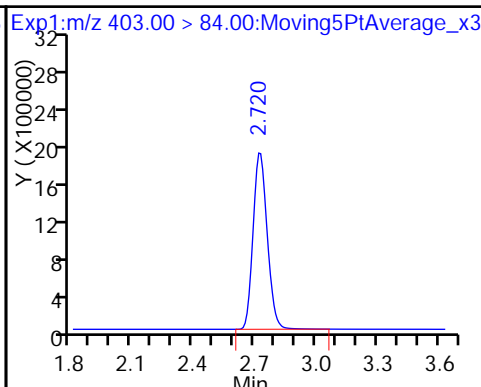
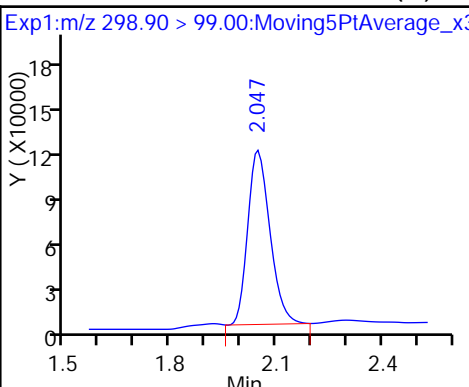
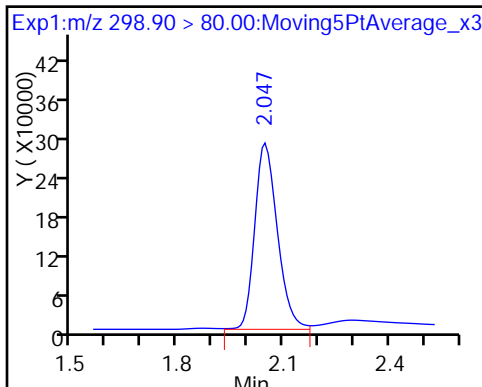
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid (M)

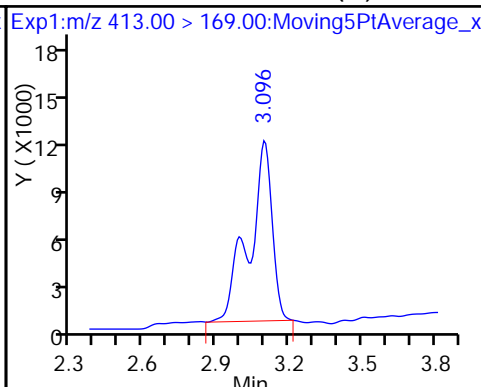
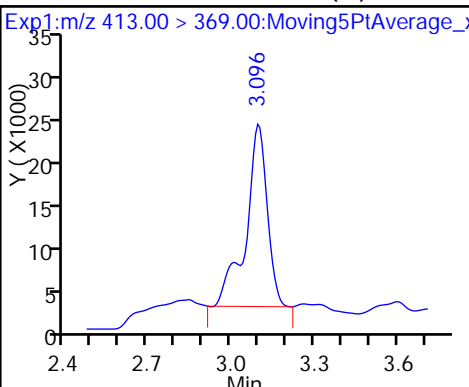
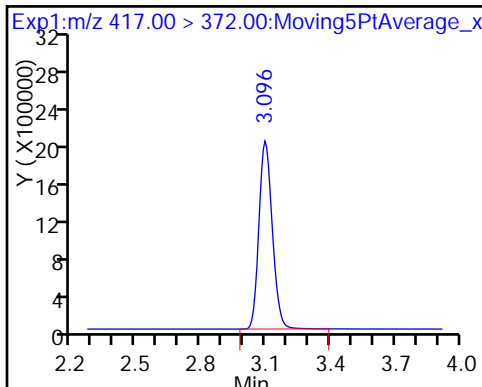
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid (M)

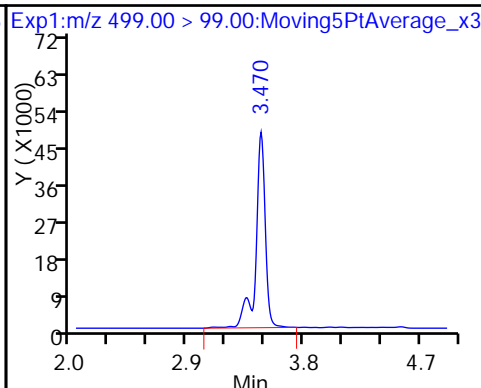
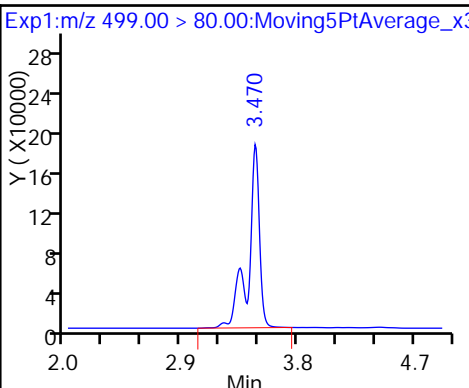
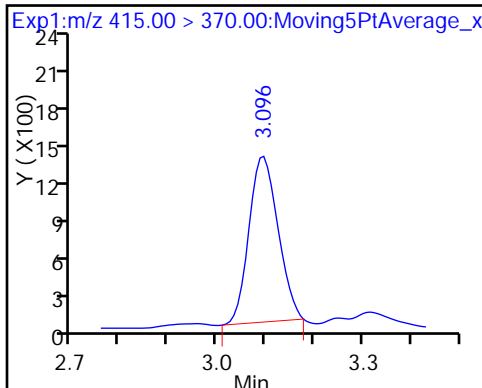
15 Perfluorooctanoic acid (M)



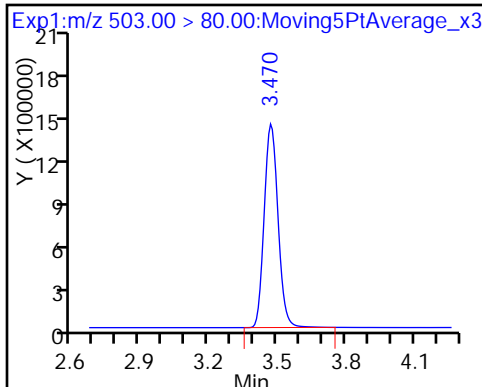
* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



TestAmerica Sacramento

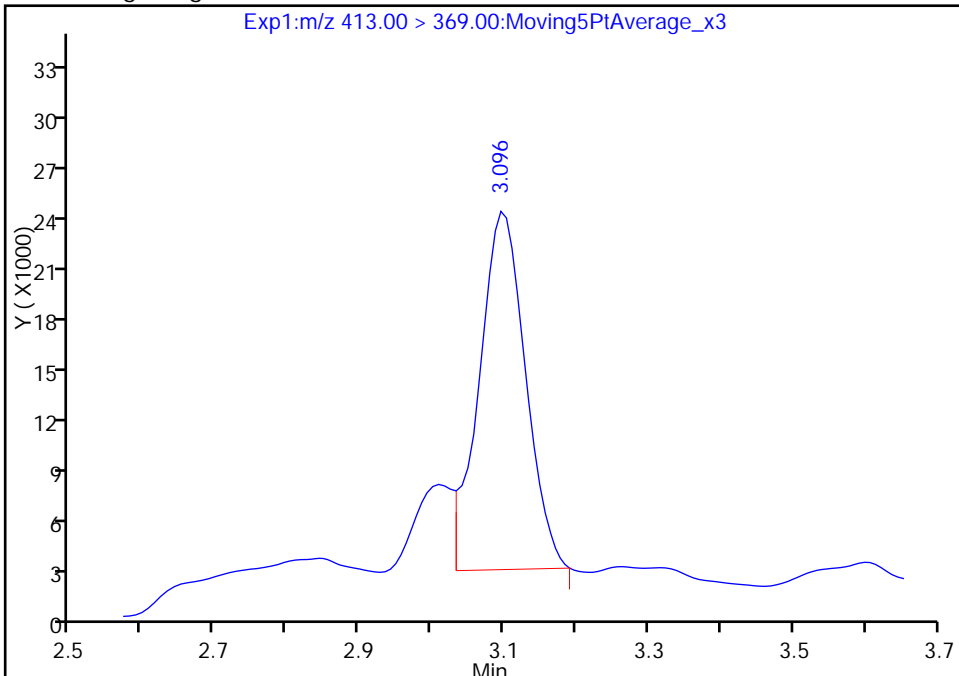
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Injection Date: 07-Jun-2017 17:47:33 Instrument ID: A8_N
Lims ID: 320-28286-A-5-A Lab Sample ID: 320-28286-5
Client ID: MEAFF-EASTB-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

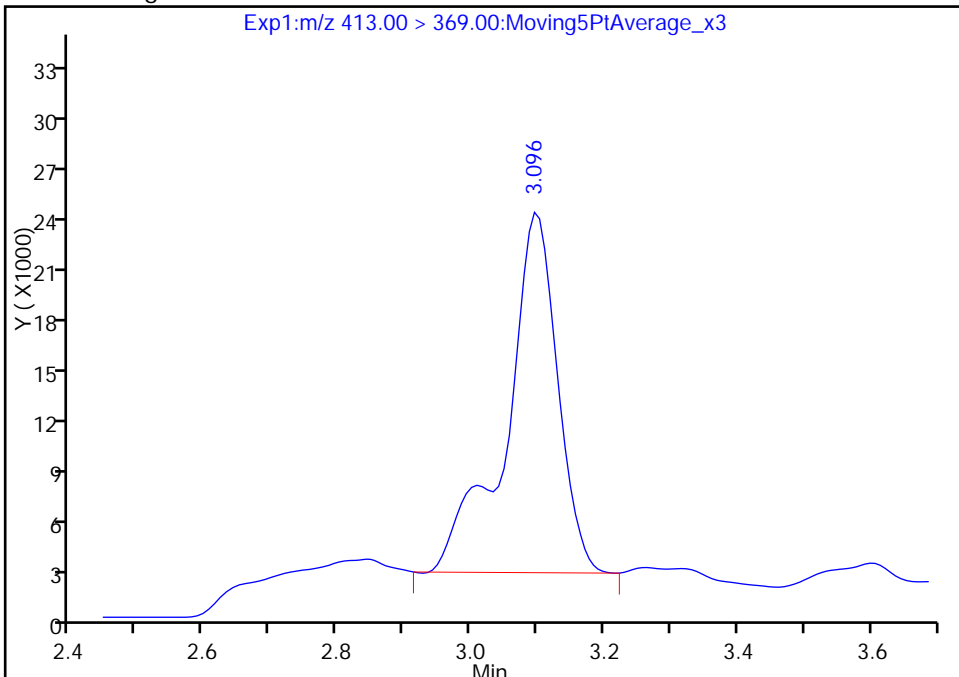
RT: 3.10
Area: 93254
Amount: 0.500799
Amount Units: ng/ml

Processing Integration Results



RT: 3.10
Area: 113281
Amount: 0.608350
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:51:28
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

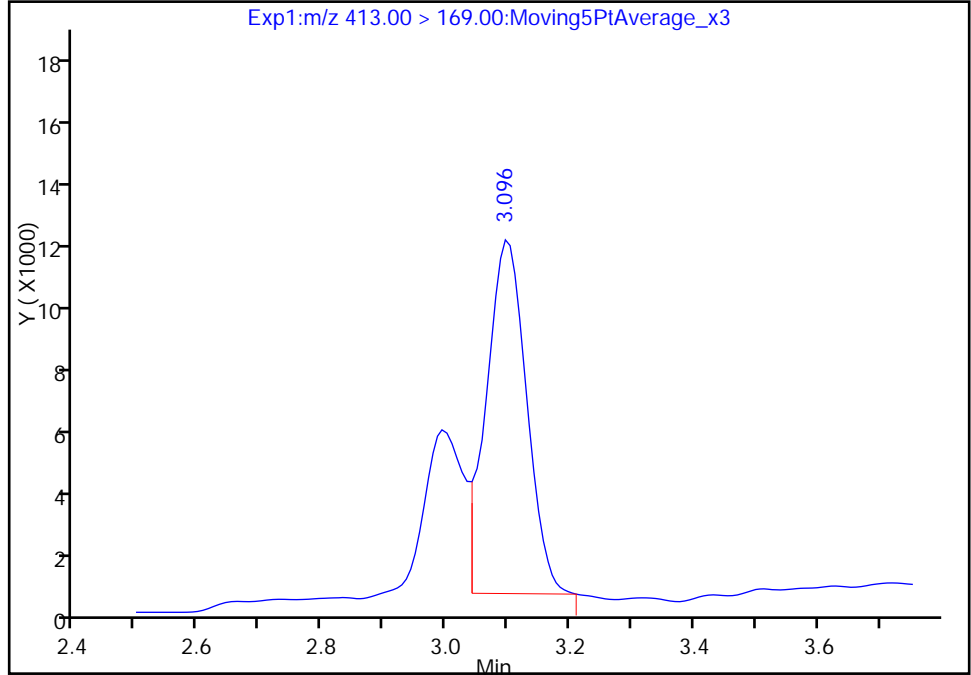
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_024.d
Injection Date: 07-Jun-2017 17:47:33 Instrument ID: A8_N
Lims ID: 320-28286-A-5-A Lab Sample ID: 320-28286-5
Client ID: MEAFF-EASTB-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

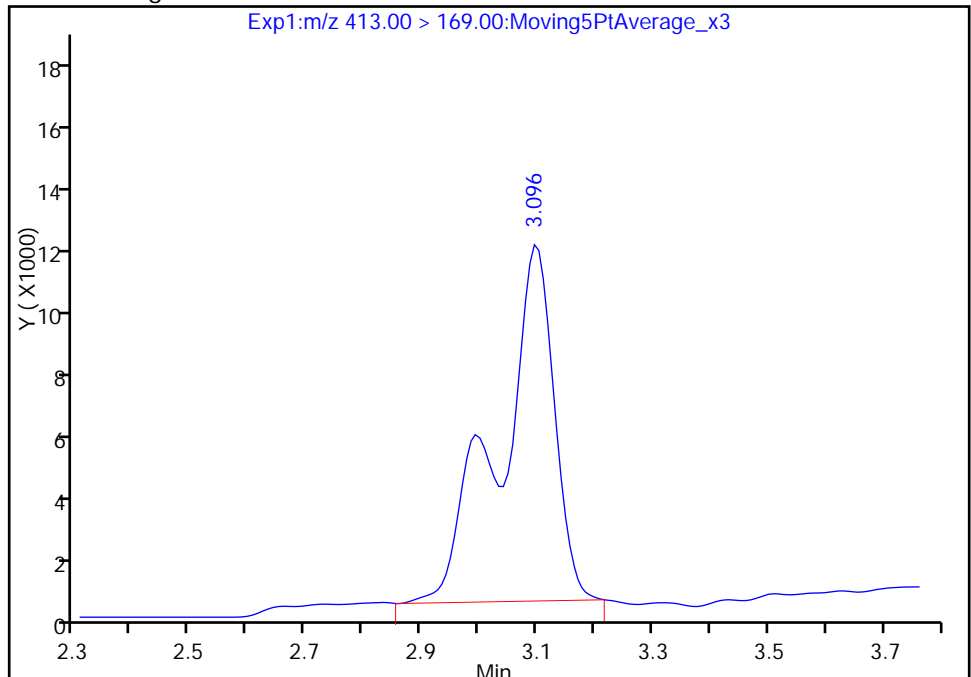
RT: 3.10
Area: 50401
Amount: 0.500799
Amount Units: ng/ml

Processing Integration Results



RT: 3.10
Area: 75345
Amount: 0.608350
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

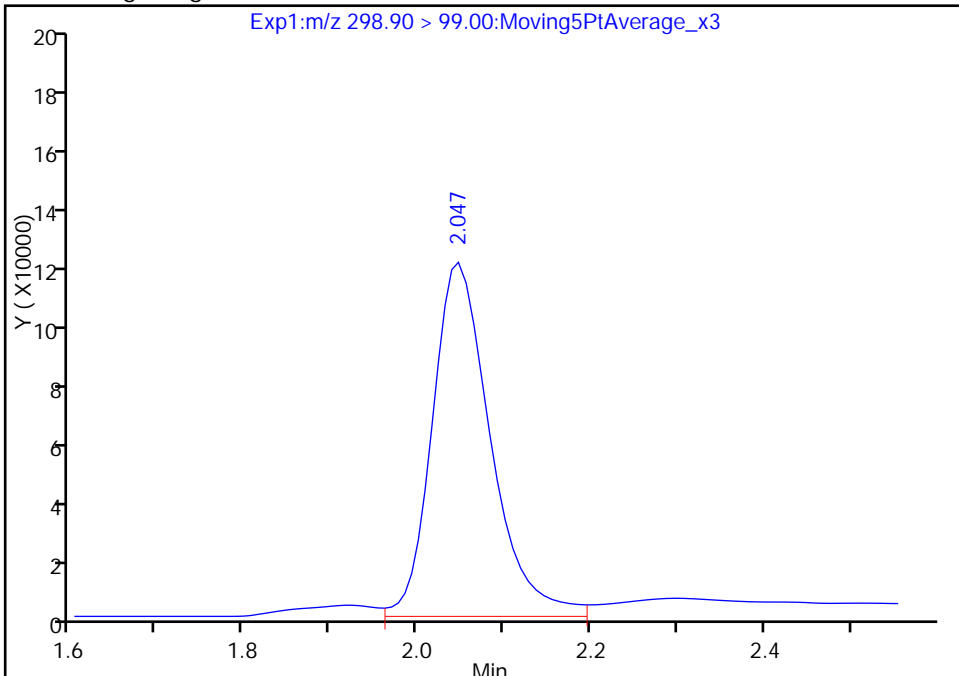
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Injection Date: 07-Jun-2017 17:47:33 Instrument ID: A8_N
Lims ID: 320-28286-A-5-A Lab Sample ID: 320-28286-5
Client ID: MEAFF-EASTB-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

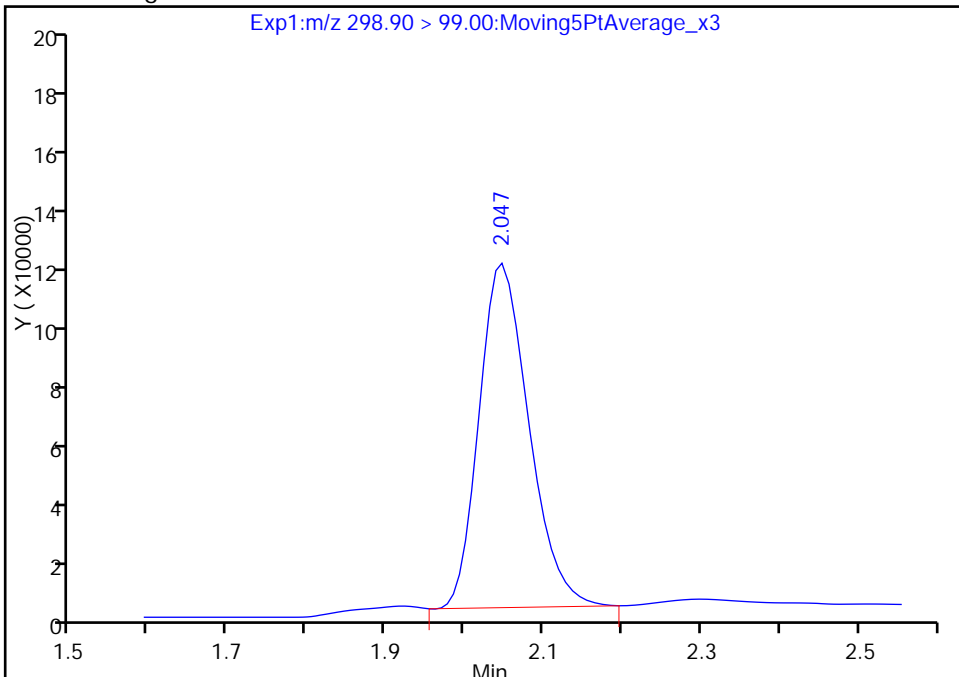
RT: 2.05
Area: 547028
Amount: 4.074010
Amount Units: ng/ml

Processing Integration Results



RT: 2.05
Area: 500778
Amount: 4.074010
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:51:56
Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EASTB-SB01-0204 Lab Sample ID: 320-28286-6
 Matrix: Solid Lab File ID: 2017.06.07B_025.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 12:57
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.05(g) Date Analyzed: 06/07/2017 17:55
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 16.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.35	U M	0.59	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.2		0.59	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	91		25-150
STL00991	13C4 PFOS	55		25-150
STL00994	18O2 PFHxS	80		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_025.d
 Lims ID: 320-28286-A-6-A
 Client ID: MEAFF-EASTB-SB01-0204
 Sample Type: Client
 Inject. Date: 07-Jun-2017 17:55:15 ALS Bottle#: 10 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-6-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 18:57:30 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 18:57:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.043	2.051	-0.008	1.000	86604	0.2871				
298.90 > 99.00	2.043	2.051	-0.008	1.000	35828		2.42(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.721	2.730	-0.009		8739916	37.9		80.1	17702	
D 14 13C4 PFOA										
417.00 > 372.00	3.095	3.110	-0.015		8242702	45.7		91.4	13915	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.095	3.110	-0.015	1.000	45872	0.2604			14.8	M
413.00 > 169.00	3.095	3.110	-0.015	1.000	25291		1.81(0.90-1.10)		33.5	M
* 62 13C2-PFOA										
415.00 > 370.00	3.095	3.110	-0.015		4914	50.0				
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.447	3.454	-0.007	1.000	974127	9.36			1047	
499.00 > 99.00	3.424	3.454	-0.030	0.993	218437		4.46(0.90-1.10)		320	
D 18 13C4 PFOS										
503.00 > 80.00	3.470	3.485	-0.015		4714742	26.5		55.4	9586	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_025.d

Injection Date: 07-Jun-2017 17:55:15

Instrument ID: A8_N

Lims ID: 320-28286-A-6-A

Lab Sample ID: 320-28286-6

Client ID: MEAFF-EASTB-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 10

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

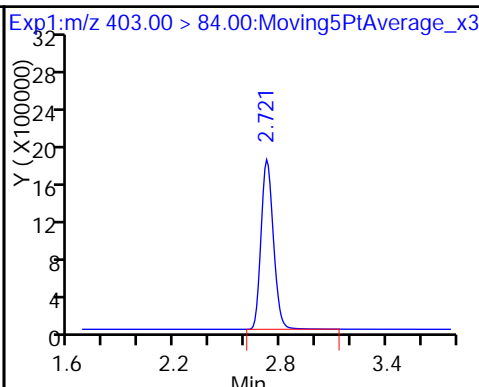
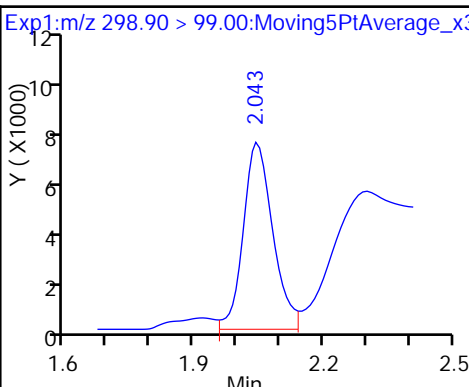
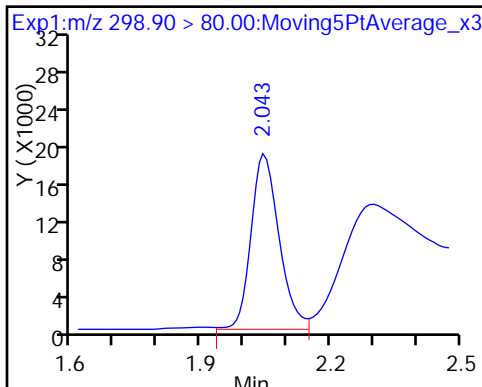
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid

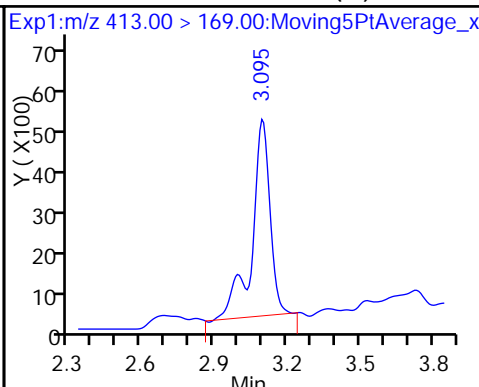
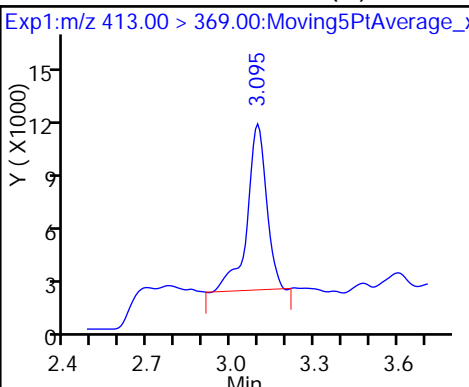
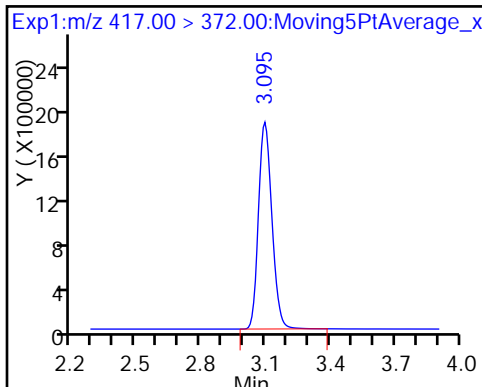
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid (M)

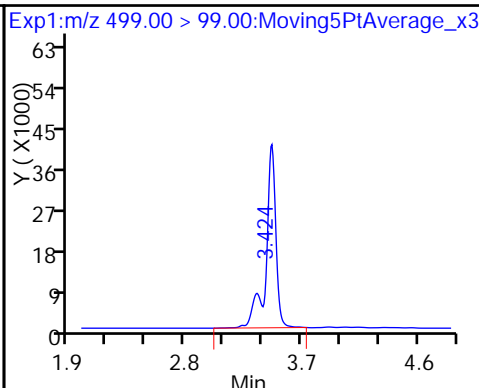
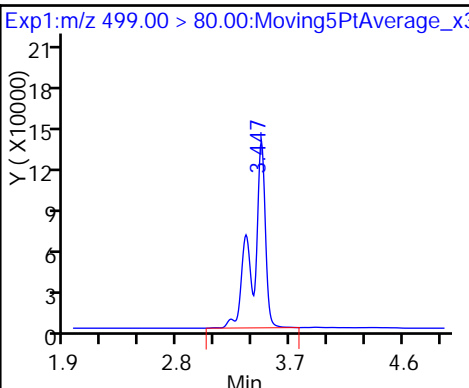
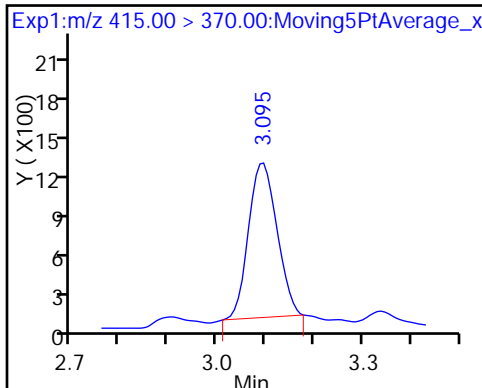
15 Perfluorooctanoic acid (M)



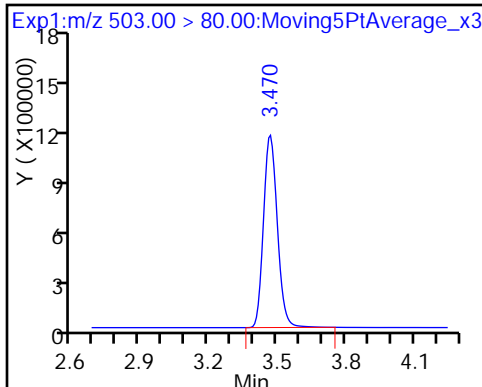
* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



TestAmerica Sacramento

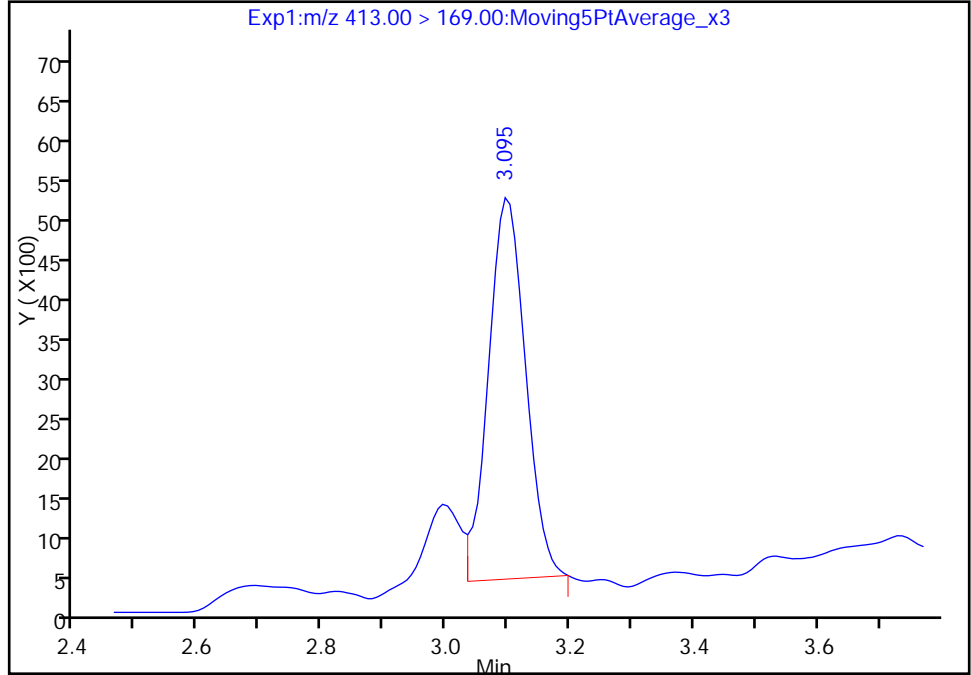
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_025.d
Injection Date: 07-Jun-2017 17:55:15 Instrument ID: A8_N
Lims ID: 320-28286-A-6-A Lab Sample ID: 320-28286-6
Client ID: MEAFF-EASTB-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

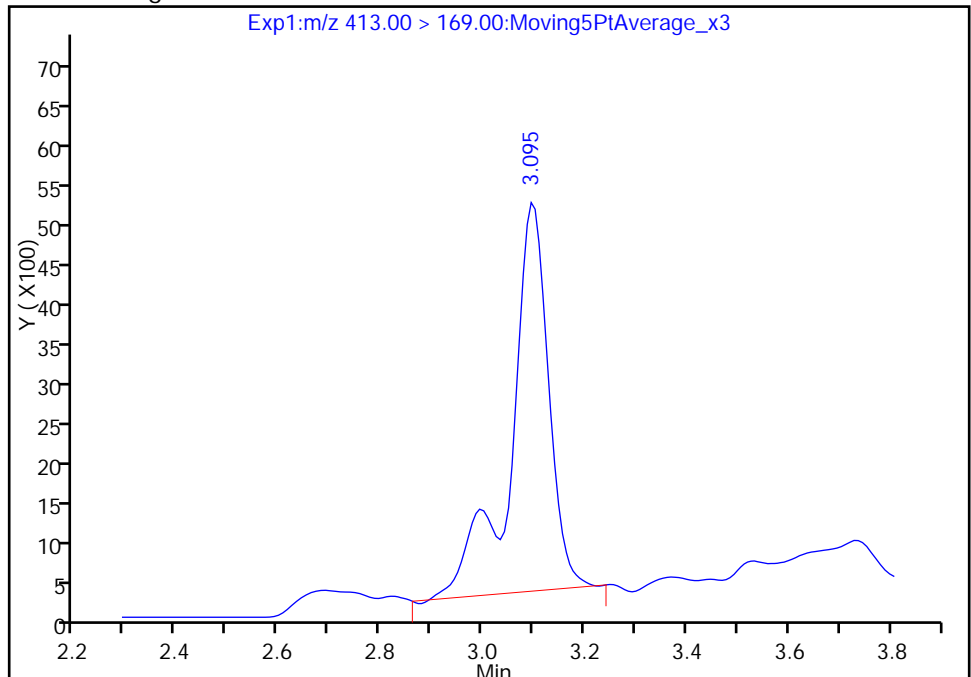
RT: 3.10
Area: 19918
Amount: 0.199367
Amount Units: ng/ml

Processing Integration Results



RT: 3.10
Area: 25291
Amount: 0.260433
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:57:17
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

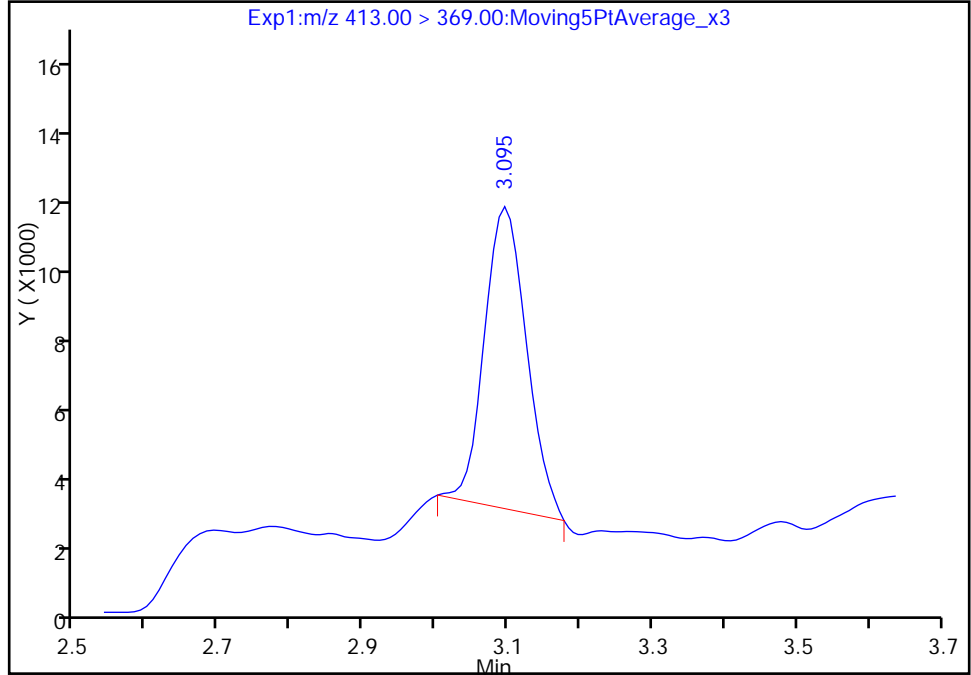
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Injection Date: 07-Jun-2017 17:55:15 Instrument ID: A8_N
Lims ID: 320-28286-A-6-A Lab Sample ID: 320-28286-6
Client ID: MEAFF-EASTB-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

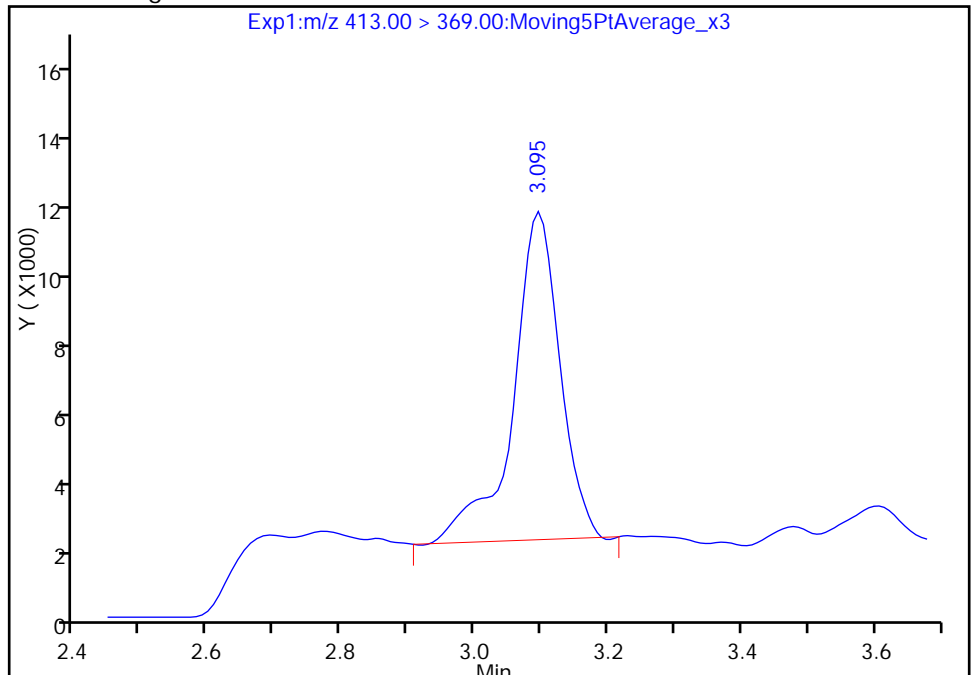
RT: 3.10
Area: 35116
Amount: 0.199367
Amount Units: ng/ml

Processing Integration Results



RT: 3.10
Area: 45872
Amount: 0.260433
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown10-SB01-0001 Lab Sample ID: 320-28286-7
 Matrix: Solid Lab File ID: 2017.06.07B_027.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 14:42
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.02(g) Date Analyzed: 06/07/2017 18:10
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 11.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.16	J M	0.56	0.34	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.23	J	0.56	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	105		25-150
STL00991	13C4 PFOS	71		25-150
STL00994	18O2 PFHxS	90		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_027.d
 Lims ID: 320-28286-A-7-A
 Client ID: MEAFF-Unknown10-SB01-0001
 Sample Type: Client
 Inject. Date: 07-Jun-2017 18:10:40 ALS Bottle#: 11 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-7-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 18:59:14 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 18:59:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.043	2.051	-0.008	1.000	37983	0.1118				M
298.90 > 99.00	2.043	2.051	-0.008	1.000	14036		2.71(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.721	2.730	-0.009		9845047	42.7		90.3	20750	
D 14 13C4 PFOA										
417.00 > 372.00	3.096	3.103	-0.007		9508288	52.7		105	19360	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.096	3.103	-0.007	1.000	143245	0.7050			51.8	M
413.00 > 169.00	3.096	3.103	-0.007	1.000	91259		1.57(0.90-1.10)		146	M
* 62 13C2-PFOA										
415.00 > 370.00	3.096	3.103	-0.007		9048	50.0				
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.447	3.478	-0.031	1.000	135675	1.02			145	
499.00 > 99.00	3.470	3.478	-0.008	1.007	29457		4.61(0.90-1.10)		124	
D 18 13C4 PFOS										
503.00 > 80.00	3.470	3.478	-0.008		6045633	33.9		71.0	12573	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_027.d

Injection Date: 07-Jun-2017 18:10:40

Instrument ID: A8_N

Lims ID: 320-28286-A-7-A

Lab Sample ID: 320-28286-7

Client ID: MEAFF-Unknown10-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 11

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

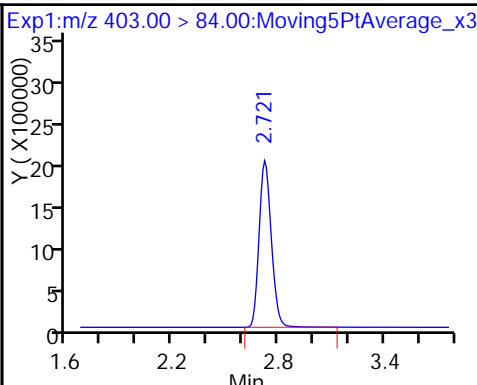
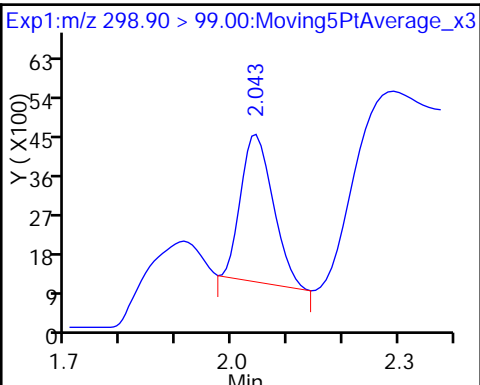
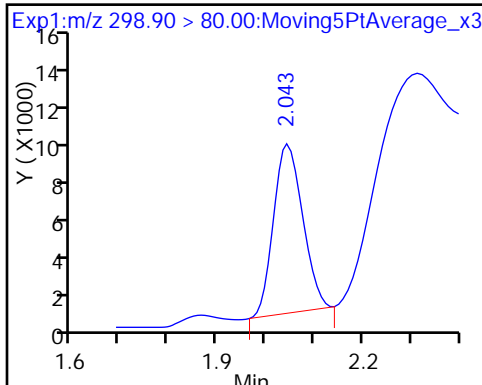
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

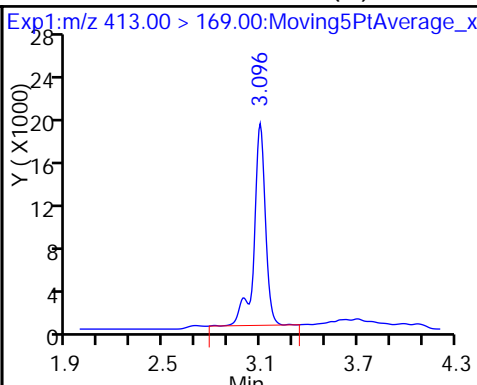
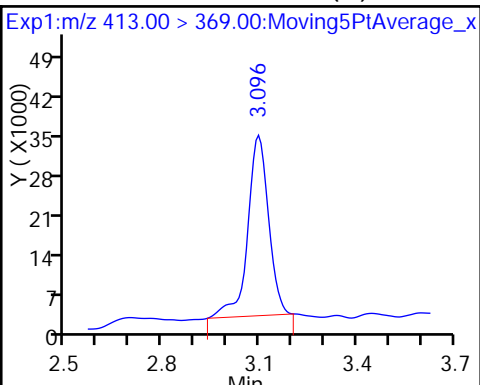
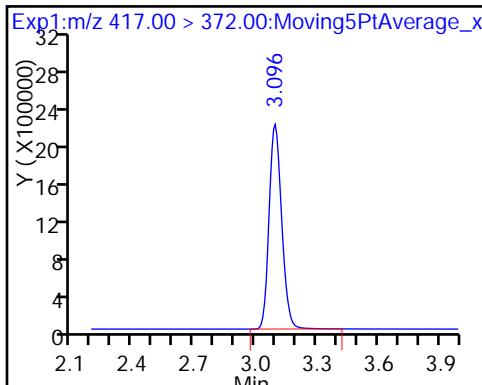
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid (M)

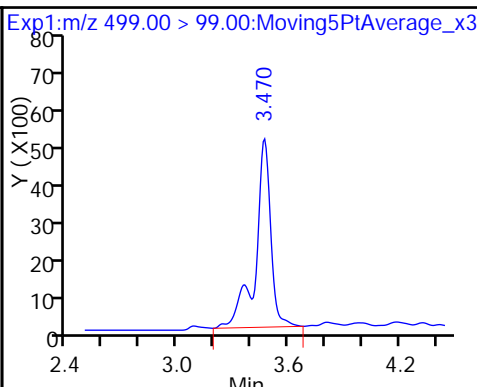
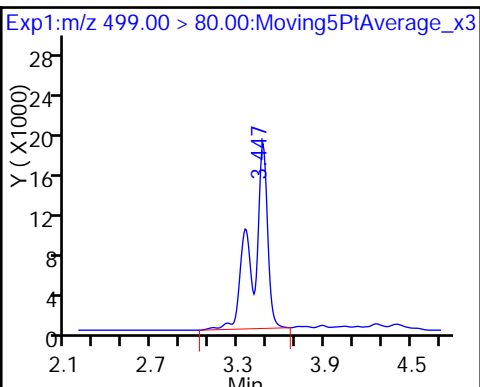
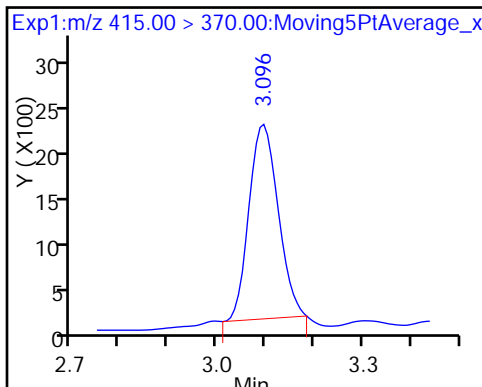
15 Perfluorooctanoic acid (M)



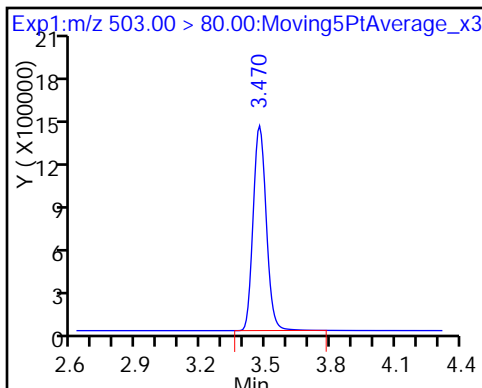
* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



TestAmerica Sacramento

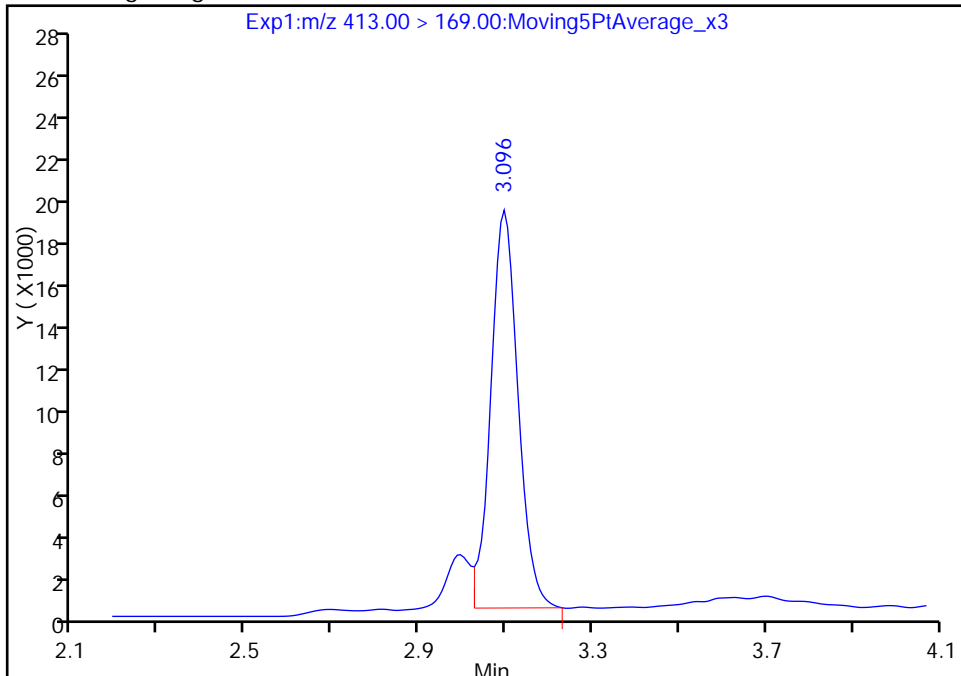
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_027.d
Injection Date: 07-Jun-2017 18:10:40 Instrument ID: A8_N
Lims ID: 320-28286-A-7-A Lab Sample ID: 320-28286-7
Client ID: MEAFF-Unknown10-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

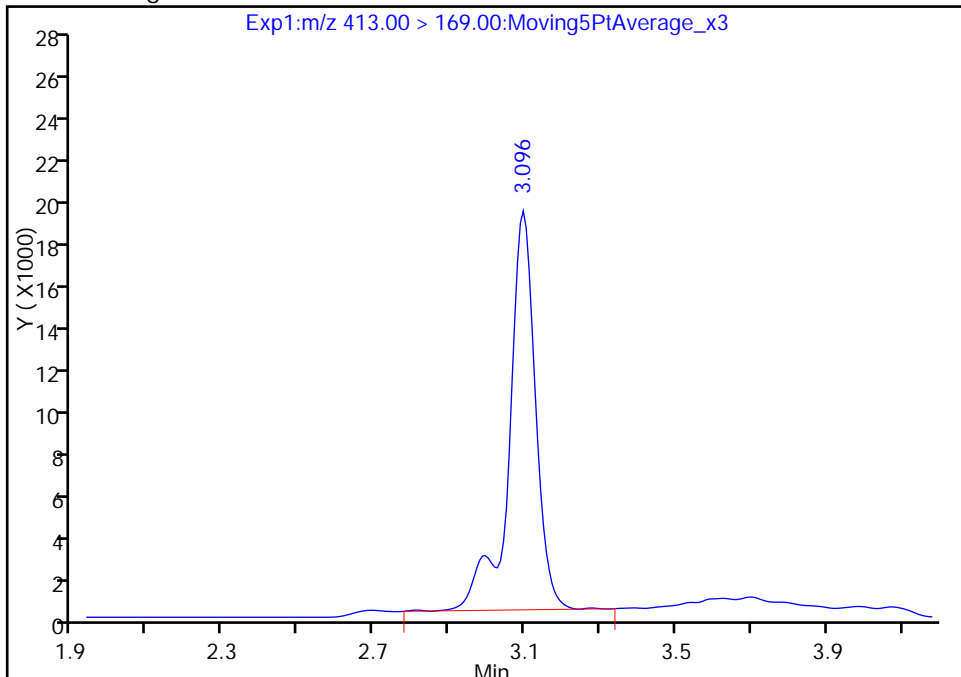
RT: 3.10
Area: 80368
Amount: 0.620985
Amount Units: ng/ml

Processing Integration Results



RT: 3.10
Area: 91259
Amount: 0.705008
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:59:05
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

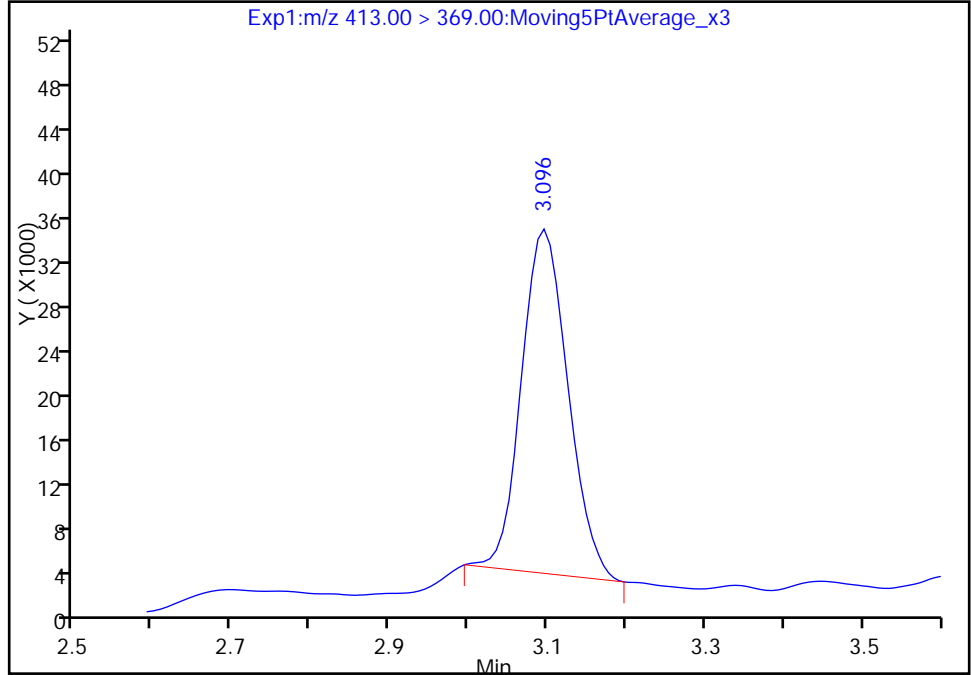
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_027.d
Injection Date: 07-Jun-2017 18:10:40 Instrument ID: A8_N
Lims ID: 320-28286-A-7-A Lab Sample ID: 320-28286-7
Client ID: MEAFF-Unknown10-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

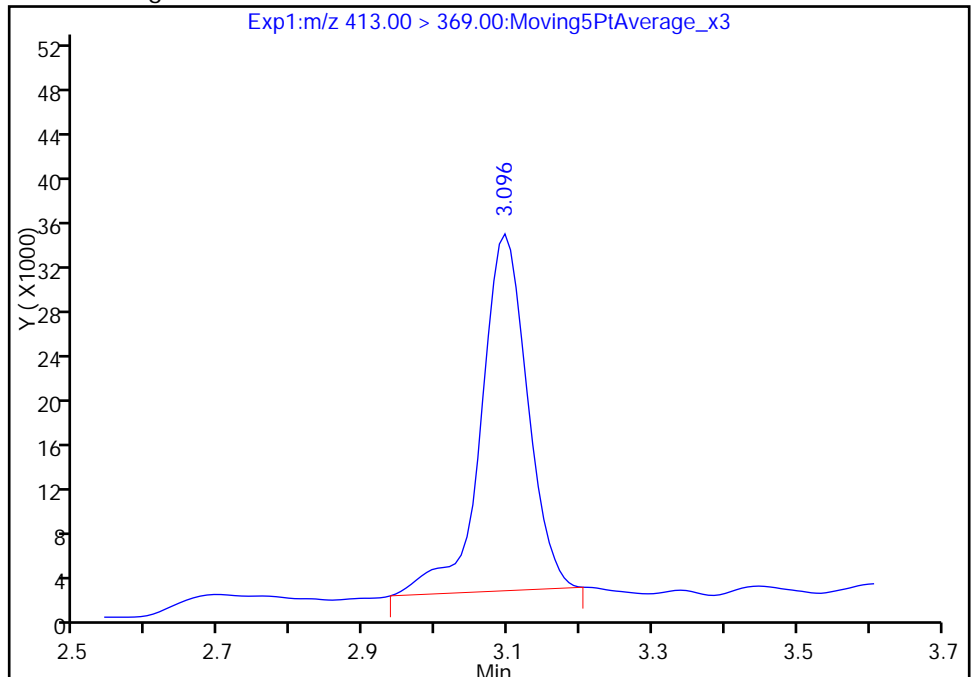
RT: 3.10
Area: 126173
Amount: 0.620985
Amount Units: ng/ml

Processing Integration Results



RT: 3.10
Area: 143245
Amount: 0.705008
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 18:59:09

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

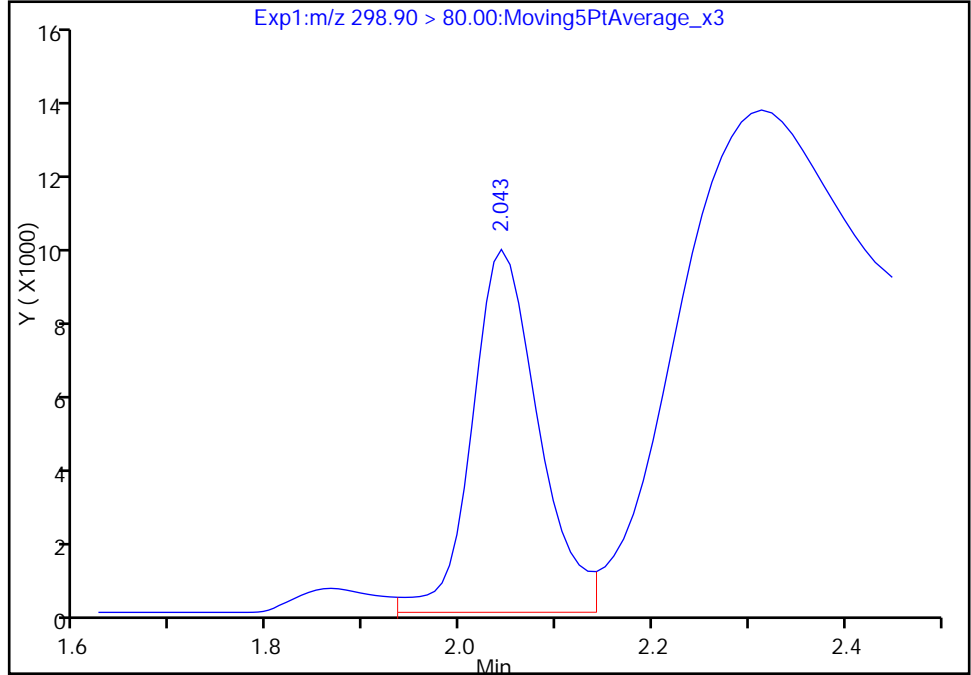
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_027.d
Injection Date: 07-Jun-2017 18:10:40 Instrument ID: A8_N
Lims ID: 320-28286-A-7-A Lab Sample ID: 320-28286-7
Client ID: MEAFF-Unknown10-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

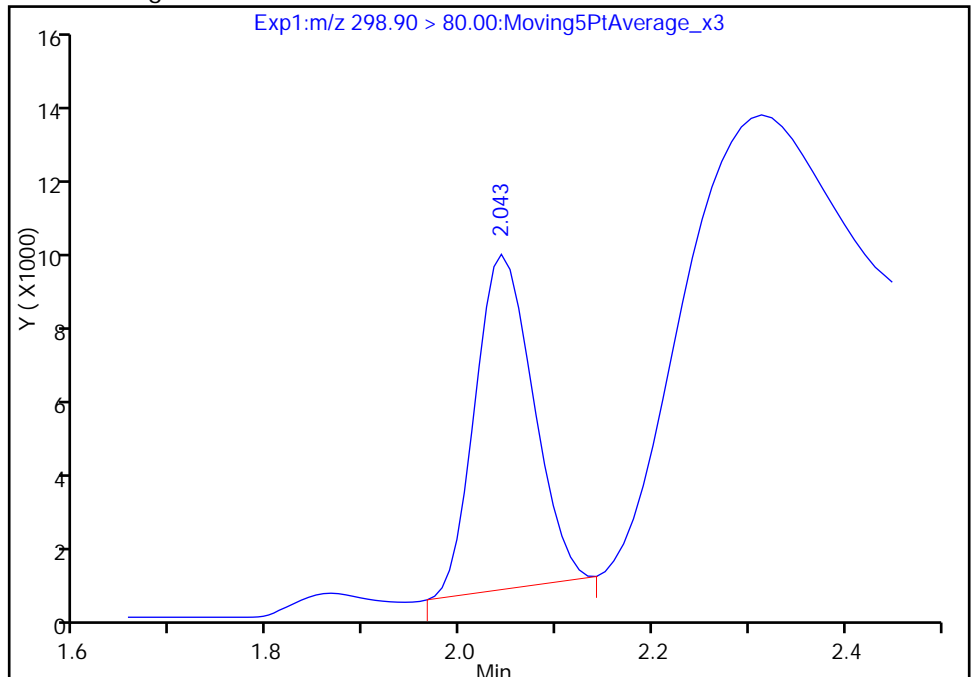
RT: 2.04
Area: 47039
Amount: 0.138435
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 37983
Amount: 0.111783
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

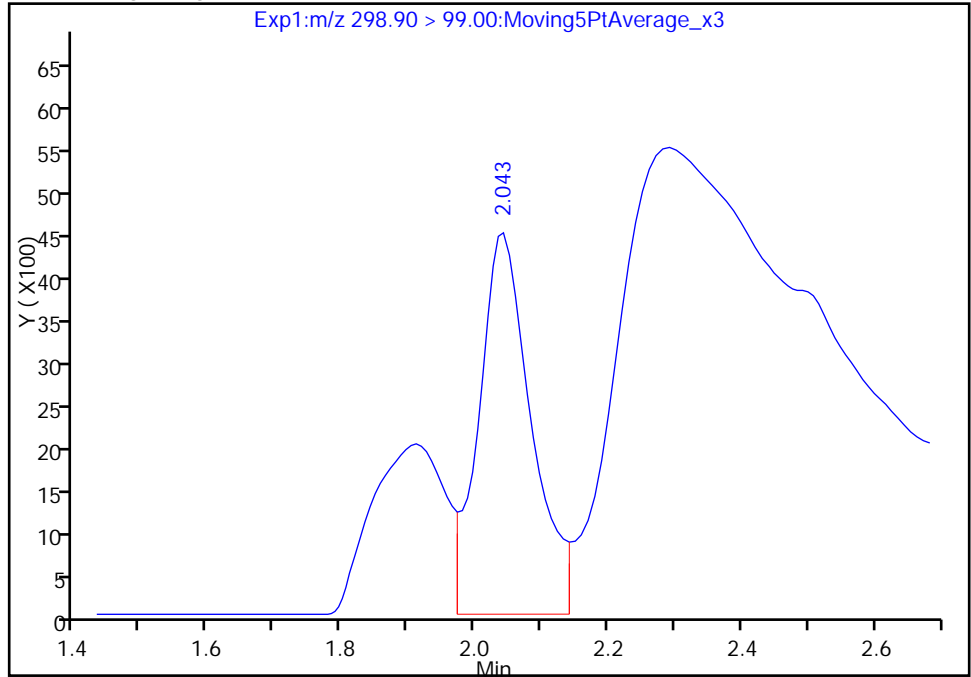
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Injection Date: 07-Jun-2017 18:10:40 Instrument ID: A8_N
Lims ID: 320-28286-A-7-A Lab Sample ID: 320-28286-7
Client ID: MEAFF-Unknown10-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

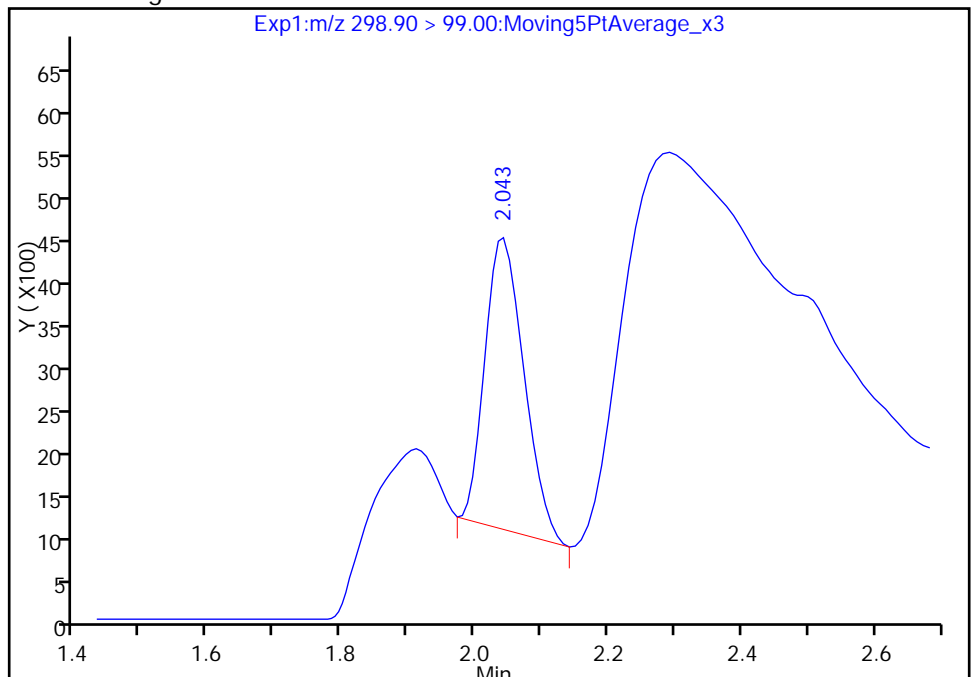
RT: 2.04
Area: 24388
Amount: 0.138435
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 14036
Amount: 0.111783
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown10-SB01-0204 Lab Sample ID: 320-28286-8
 Matrix: Solid Lab File ID: 2017.06.07B_028.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 14:44
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.02(g) Date Analyzed: 06/07/2017 18:18
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 12.7 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	95		25-150
STL00991	13C4 PFOS	62		25-150
STL00994	18O2 PFHxS	83		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_028.d
 Lims ID: 320-28286-A-8-A
 Client ID: MEAFF-Unknown10-SB01-0204
 Sample Type: Client
 Inject. Date: 07-Jun-2017 18:18:22 ALS Bottle#: 12 Worklist Smp#: 14
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-8-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 19:01:07 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 20:08:35

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.043	2.051	-0.008	1.000	8278	0.0265				M
298.90 > 99.00	2.043	2.051	-0.008	1.000	2916		2.84(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.723	2.730	-0.007		9058239	39.3		83.1	11963	
D 14 13C4 PFOA										
417.00 > 372.00	3.095	3.103	-0.008		8608274	47.7		95.5	13045	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.095	3.103	-0.008	1.000	11924	0.0648			4.5	
413.00 > 169.00	3.095	3.103	-0.008	1.000	7590		1.57(0.90-1.10)		13.2	
* 62 13C2-PFOA										
415.00 > 370.00	3.095	3.103	-0.008		4991	50.0				
D 18 13C4 PFOS										
503.00 > 80.00	3.470	3.478	-0.008		5246063	29.5		61.6	9264	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_028.d

Injection Date: 07-Jun-2017 18:18:22

Instrument ID: A8_N

Lims ID: 320-28286-A-8-A

Lab Sample ID: 320-28286-8

Client ID: MEAFF-Unknown10-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 12

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

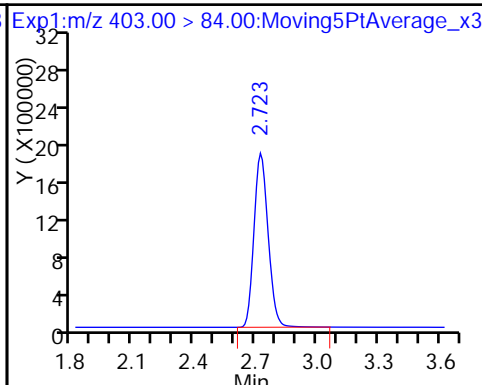
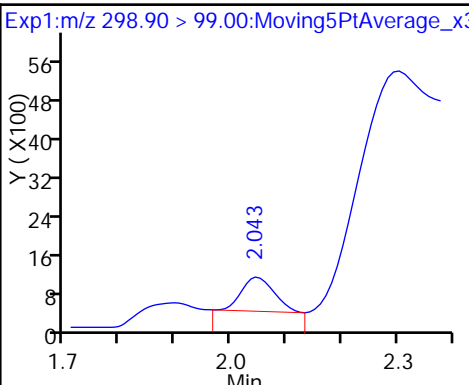
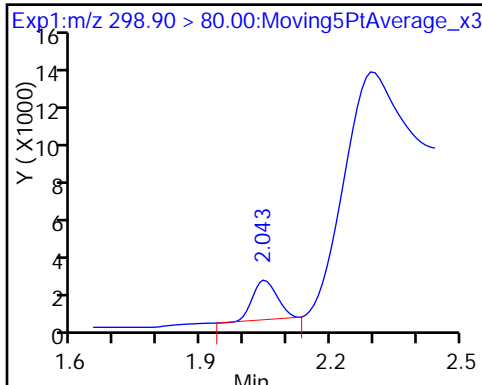
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

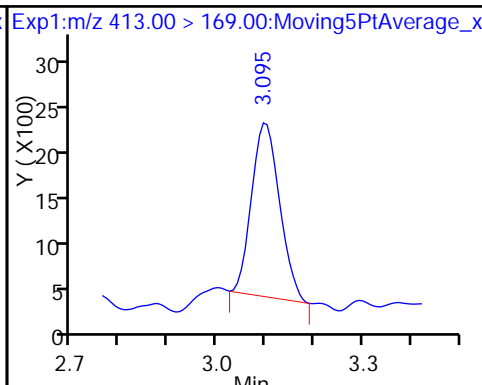
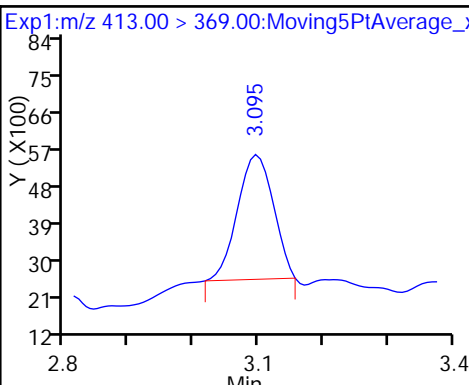
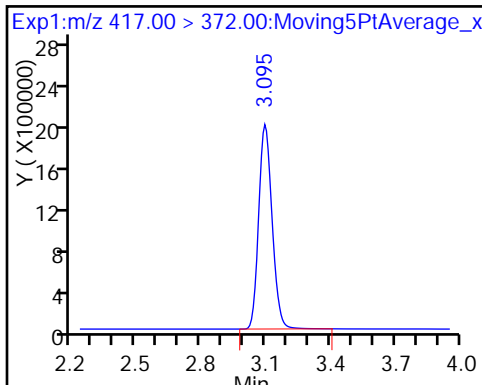
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

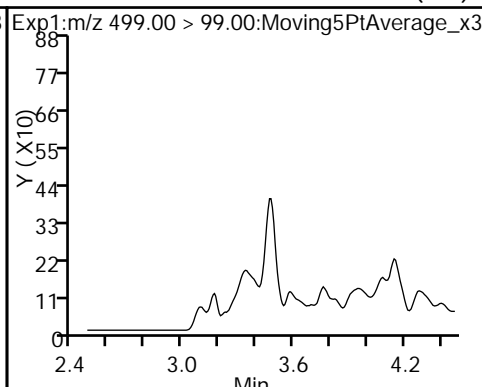
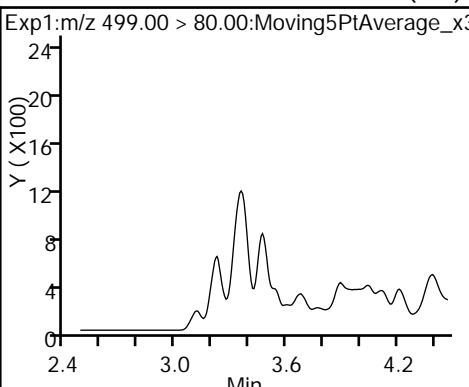
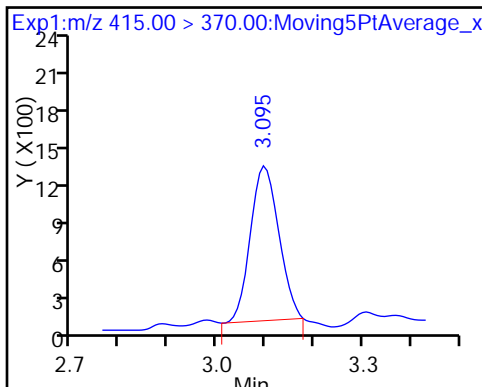
15 Perfluorooctanoic acid



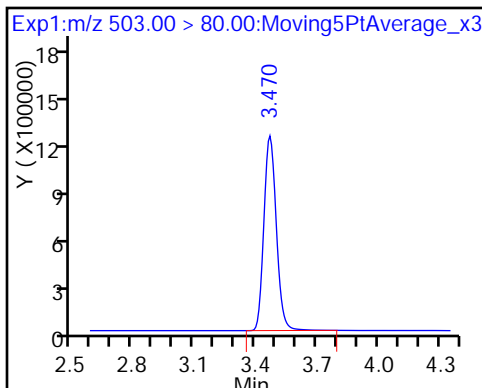
* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)



D 18 13C4 PFOS



TestAmerica Sacramento

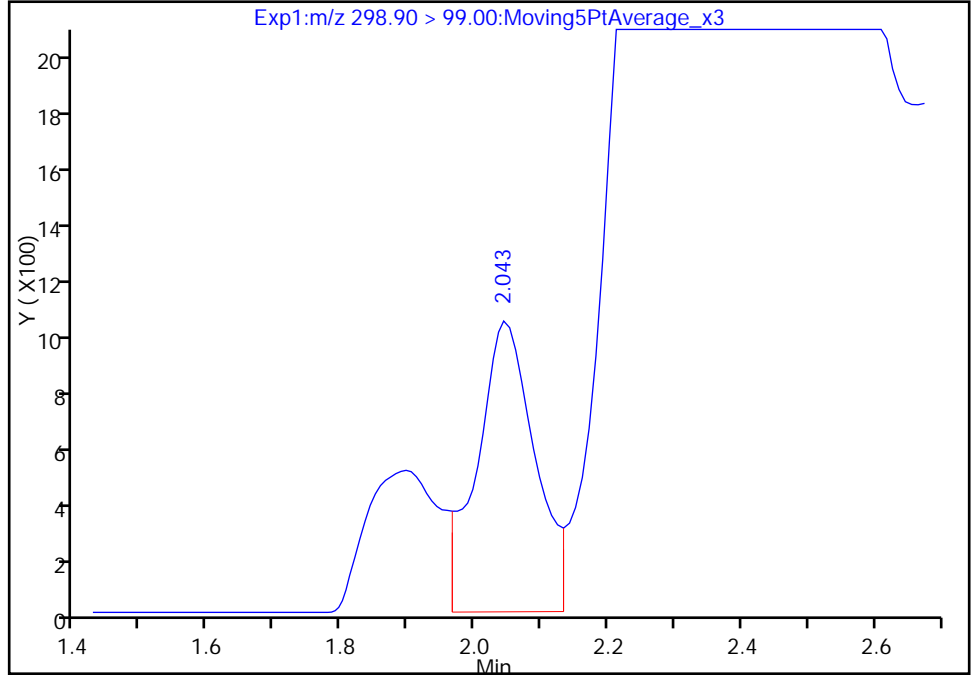
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_028.d
Injection Date: 07-Jun-2017 18:18:22 Instrument ID: A8_N
Lims ID: 320-28286-A-8-A Lab Sample ID: 320-28286-8
Client ID: MEAFF-Unknown10-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 12 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

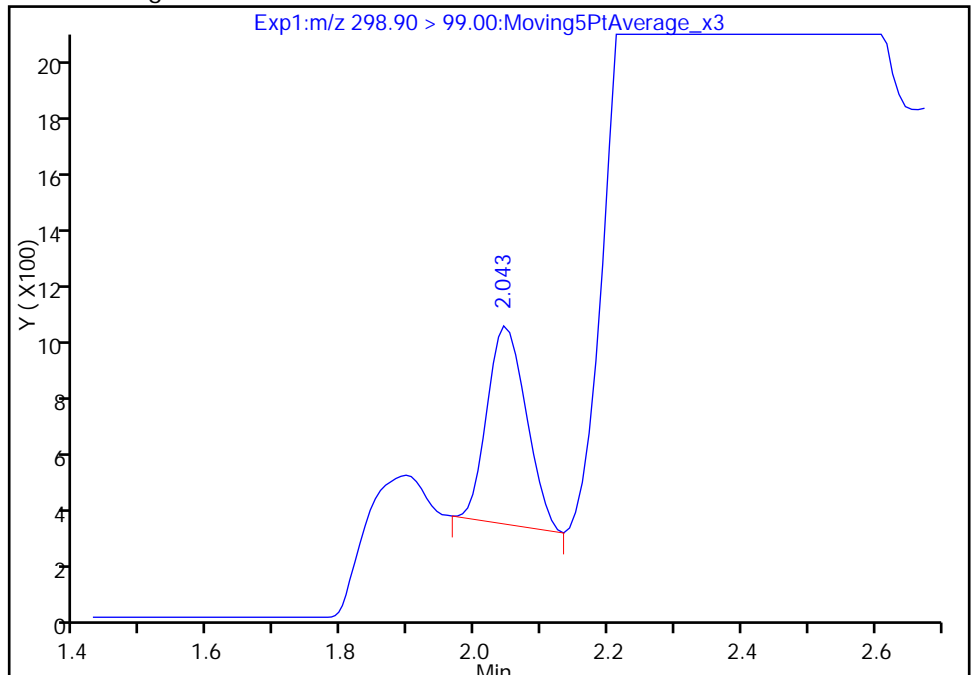
RT: 2.04
Area: 6238
Amount: 0.032530
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 2916
Amount: 0.026478
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 19:00:51
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

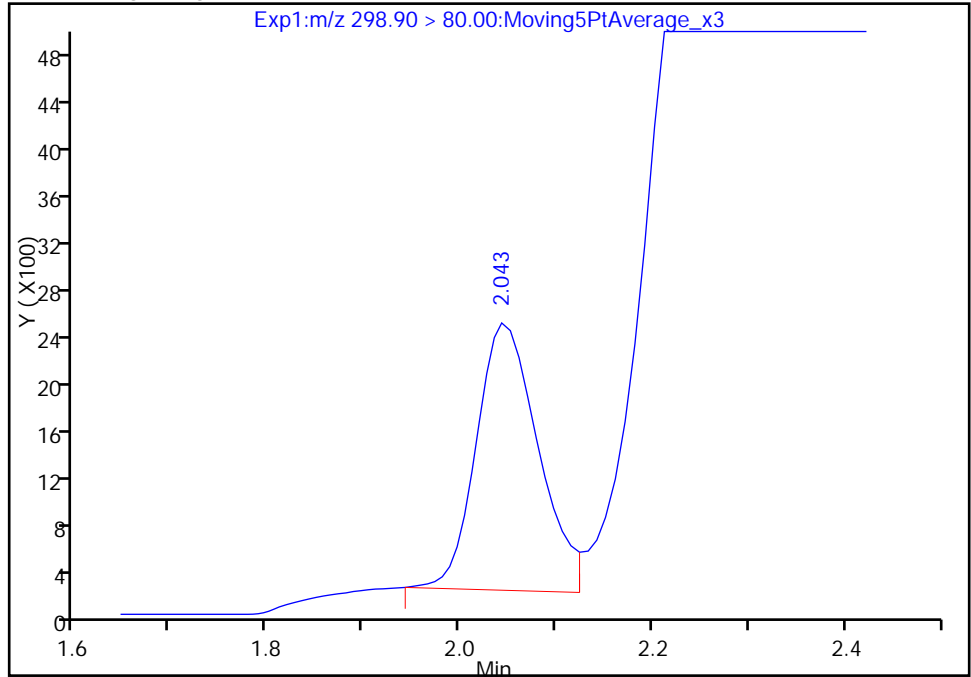
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_028.d
Injection Date: 07-Jun-2017 18:18:22 Instrument ID: A8_N
Lims ID: 320-28286-A-8-A Lab Sample ID: 320-28286-8
Client ID: MEAFF-Unknown10-SB01-0204
Operator ID: SACINSTLCS01 ALS Bottle#: 12 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

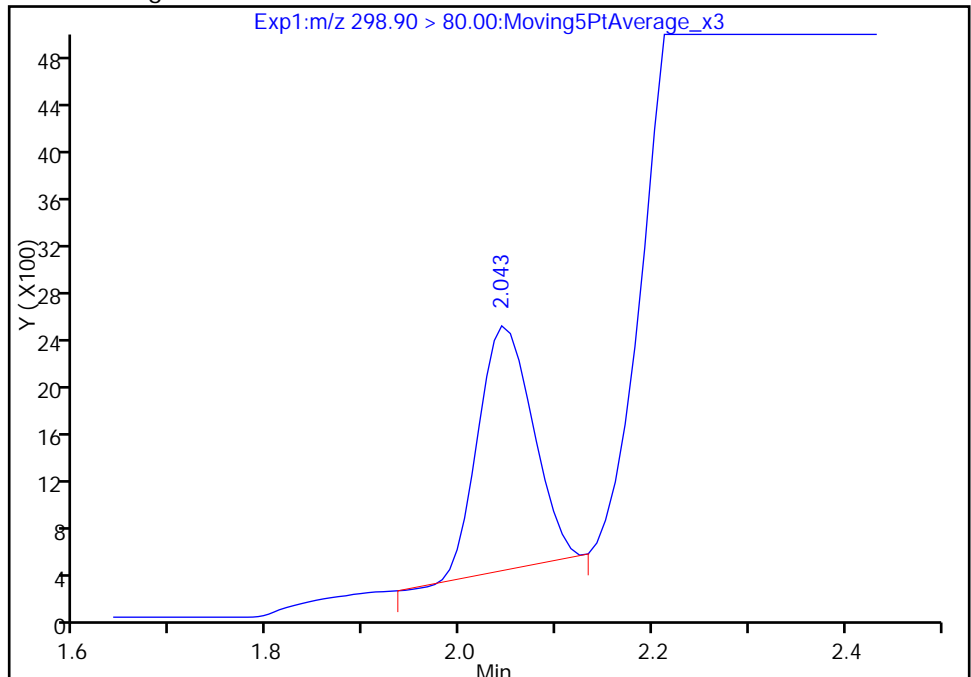
RT: 2.04
Area: 10170
Amount: 0.032530
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 8278
Amount: 0.026478
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 19:00:56

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EASTA-SB01-0001 Lab Sample ID: 320-28286-9
 Matrix: Solid Lab File ID: 2017.06.07B_029.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 15:44
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.06(g) Date Analyzed: 06/07/2017 18:26
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 5.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.31	U	0.52	0.31	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.31	U	0.52	0.31	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.31	U M	0.42	0.31	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	100		25-150
STL00991	13C4 PFOS	81		25-150
STL00994	18O2 PFHxS	92		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_029.d
 Lims ID: 320-28286-A-9-A
 Client ID: MEAFF-EASTA-SB01-0001
 Sample Type: Client
 Inject. Date: 07-Jun-2017 18:26:05 ALS Bottle#: 13 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-9-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 08-Jun-2017 10:56:09 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK023

First Level Reviewer: rainey Date: 08-Jun-2017 10:56:09

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.043	2.051	-0.008	1.000	5093	0.0147				M
298.90 > 99.00	2.043	2.051	-0.008	1.000	1192		4.27(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.721	2.730	-0.009		10010608	43.4		91.8	18297	
* 62 13C2-PFOA										
415.00 > 370.00	3.096	3.103	-0.007		6471	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.096	3.103	-0.007	1.000	14250	0.0743			6.9	
413.00 > 169.00	3.096	3.103	-0.007	1.000	9017		1.58(0.90-1.10)		12.5	
D 14 13C4 PFOA										
417.00 > 372.00	3.096	3.103	-0.007		8975630	49.8		99.6	15751	
D 18 13C4 PFOS										
503.00 > 80.00	3.470	3.478	-0.008		6885324	38.7		80.9	16473	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_029.d

Injection Date: 07-Jun-2017 18:26:05

Instrument ID: A8_N

Lims ID: 320-28286-A-9-A

Lab Sample ID: 320-28286-9

Client ID: MEAFF-EASTA-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

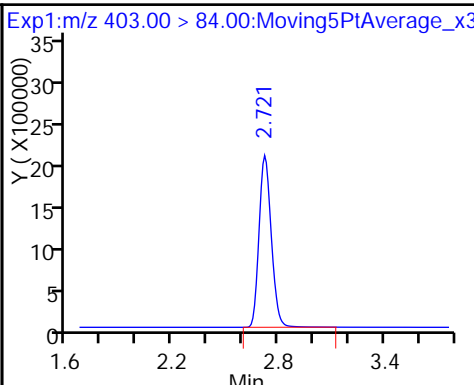
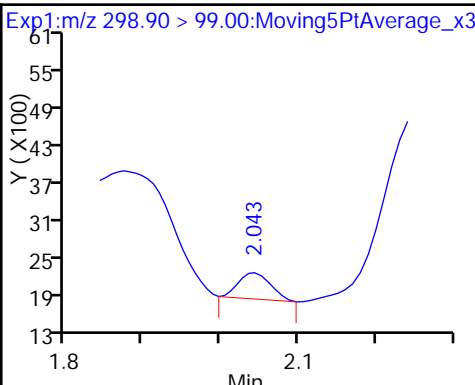
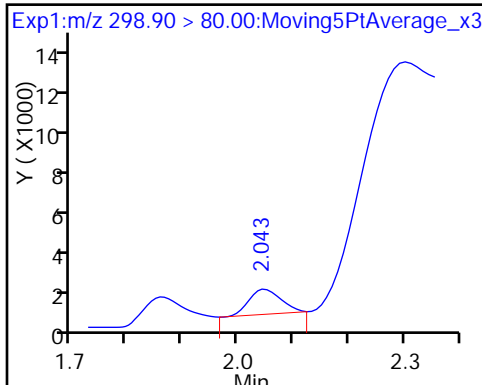
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

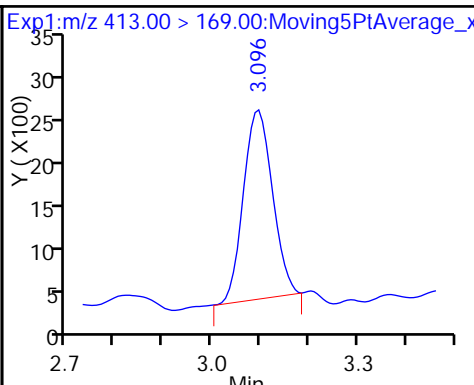
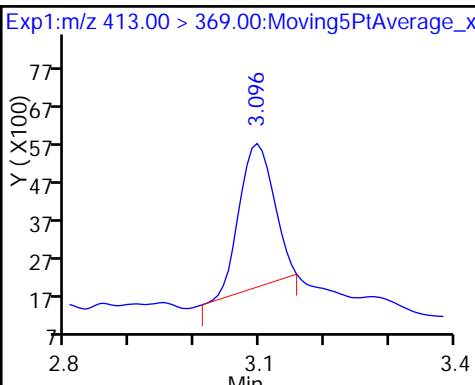
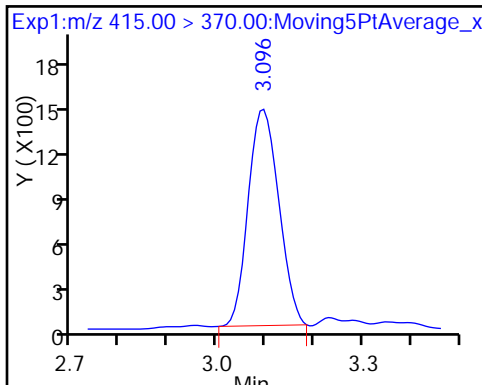
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

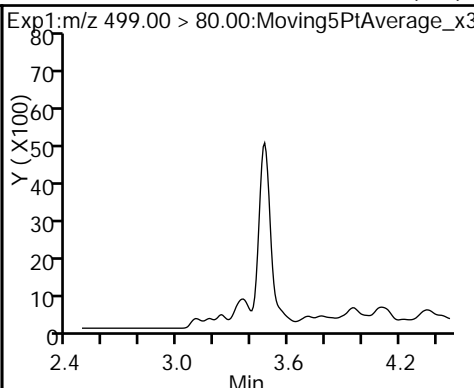
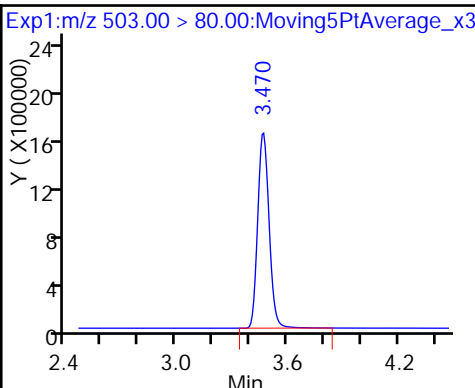
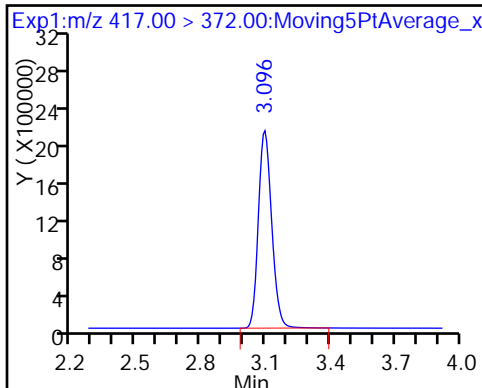
15 Perfluorooctanoic acid



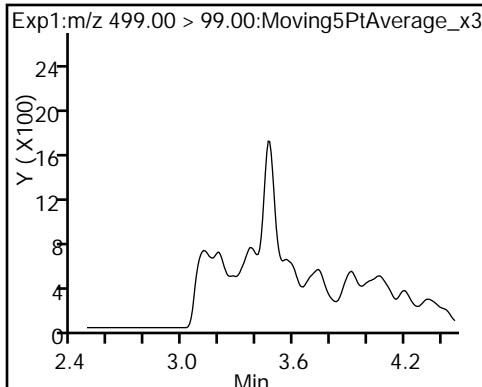
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



TestAmerica Sacramento

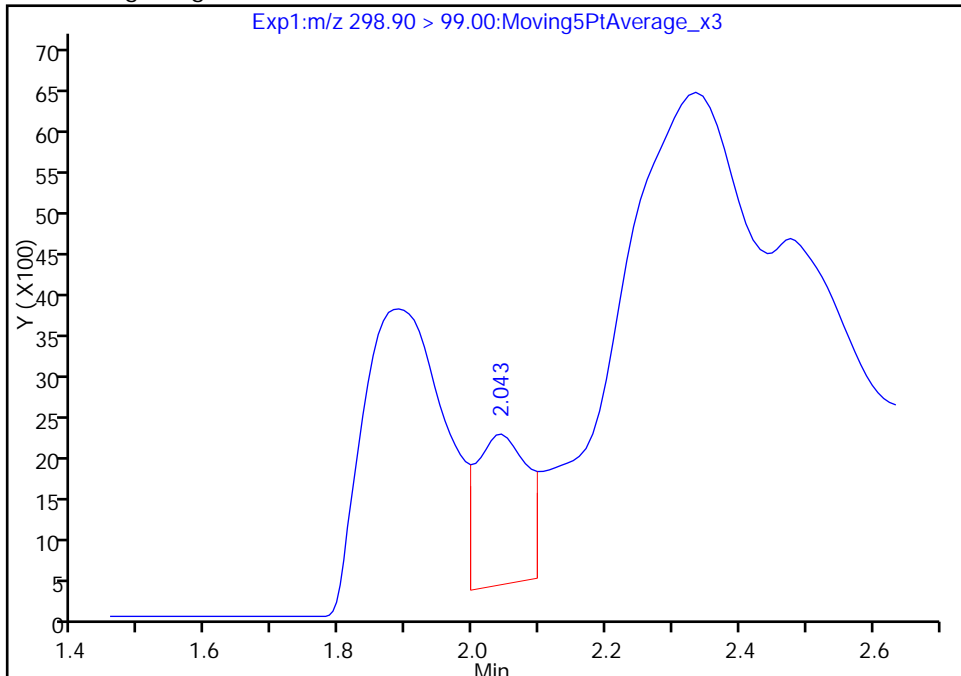
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_029.d
Injection Date: 07-Jun-2017 18:26:05 Instrument ID: A8_N
Lims ID: 320-28286-A-9-A Lab Sample ID: 320-28286-9
Client ID: MEAFF-EASTA-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

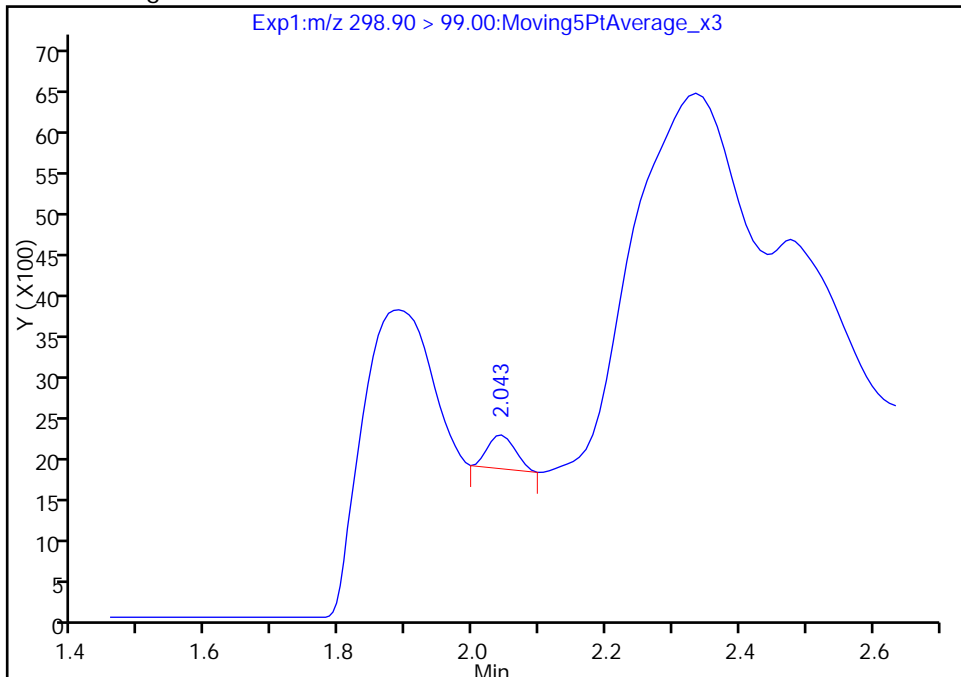
RT: 2.04
Area: 9740
Amount: 0.032451
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 1192
Amount: 0.014741
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 08-Jun-2017 10:56:00
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

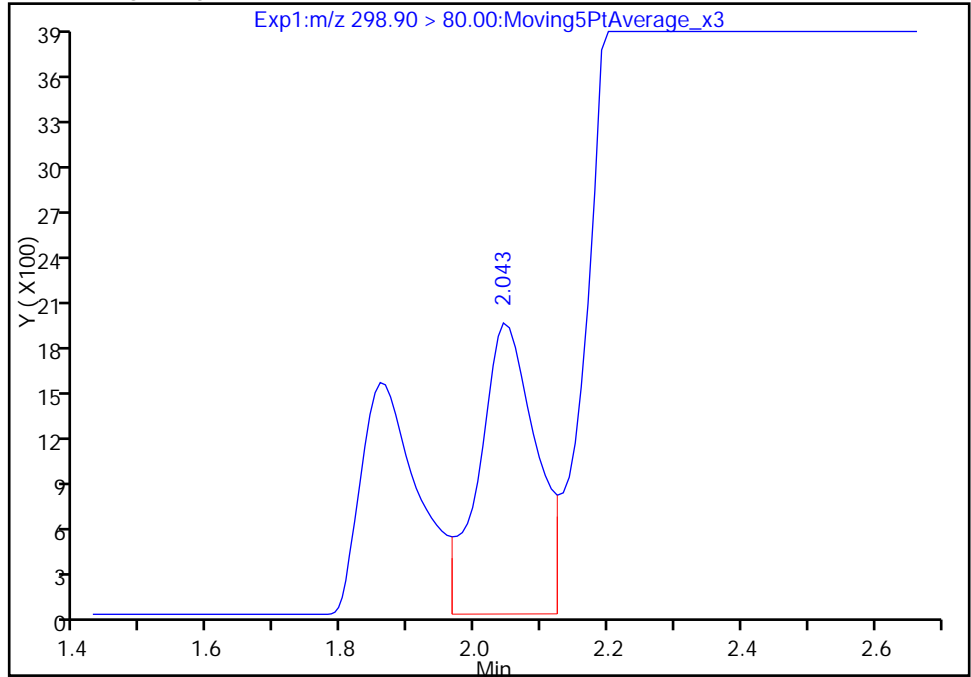
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_029.d
Injection Date: 07-Jun-2017 18:26:05 Instrument ID: A8_N
Lims ID: 320-28286-A-9-A Lab Sample ID: 320-28286-9
Client ID: MEAFF-EASTA-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

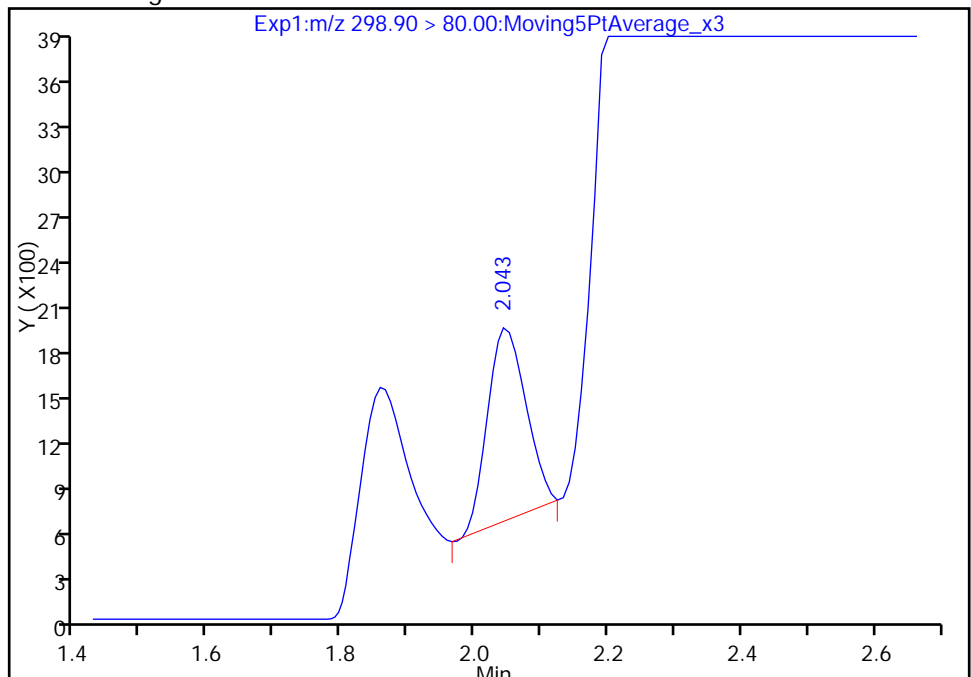
RT: 2.04
Area: 11212
Amount: 0.032451
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 5093
Amount: 0.014741
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 08-Jun-2017 10:56:03

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EASTA-SB01-0204 Lab Sample ID: 320-28286-10
 Matrix: Solid Lab File ID: 2017.06.07B_030.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 15:47
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.11(g) Date Analyzed: 06/07/2017 18:33
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 7.3 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.32	U	0.53	0.32	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.32	U	0.53	0.32	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.32	U	0.42	0.32	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	96		25-150
STL00991	13C4 PFOS	73		25-150
STL00994	18O2 PFHxS	87		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_030.d
 Lims ID: 320-28286-A-10-A
 Client ID: MEAFF-EASTA-SB01-0204
 Sample Type: Client
 Inject. Date: 07-Jun-2017 18:33:47 ALS Bottle#: 14 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-10-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 20:09:32 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 20:10:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.042	2.051	-0.009	1.000	6919	0.0212				
298.90 > 99.00	2.042	2.051	-0.009	1.000	2368		2.92(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.720	2.730	-0.010		9469541	41.1		86.8	15038	
* 62 13C2-PFOA										
415.00 > 370.00	3.088	3.103	-0.015		5220	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.095	3.103	-0.008	1.000	18884	0.1024			6.9	
413.00 > 169.00	3.095	3.103	-0.008	1.000	10743		1.76(0.90-1.10)		19.2	
D 14 13C4 PFOA										
417.00 > 372.00	3.095	3.103	-0.008		8630983	47.9		95.7	13338	
D 18 13C4 PFOS										
503.00 > 80.00	3.463	3.478	-0.015		6219045	34.9		73.0	14320	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_030.d

Injection Date: 07-Jun-2017 18:33:47

Instrument ID: A8_N

Lims ID: 320-28286-A-10-A

Lab Sample ID: 320-28286-10

Client ID: MEAFF-EASTA-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

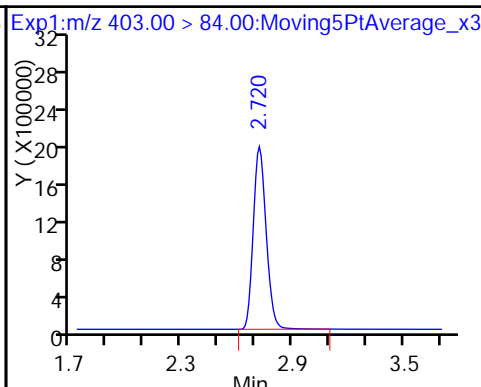
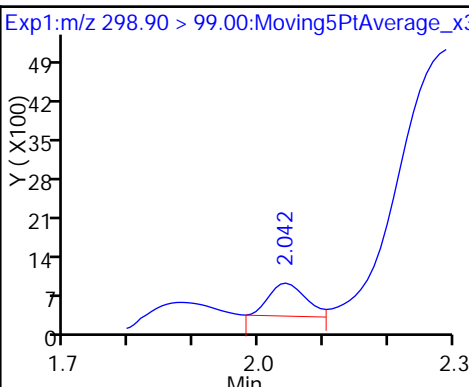
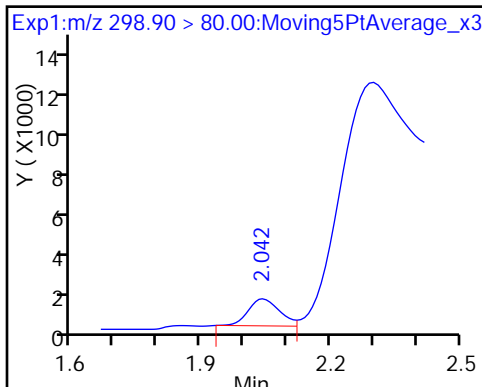
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid

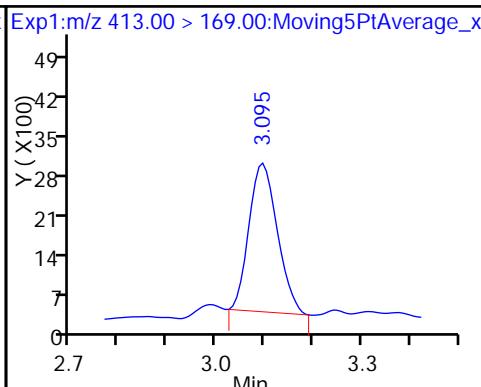
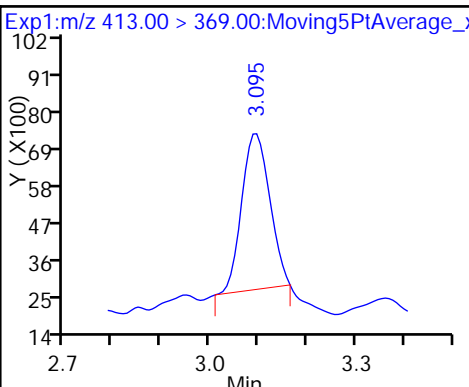
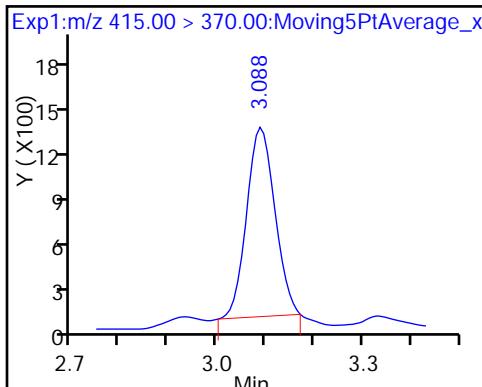
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

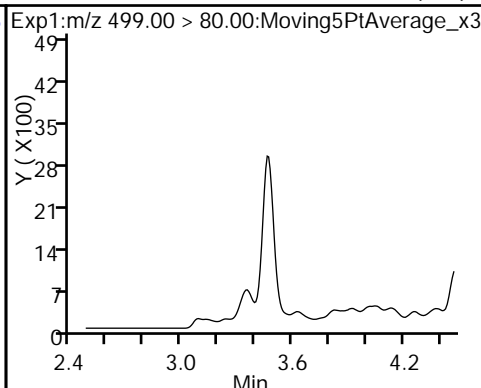
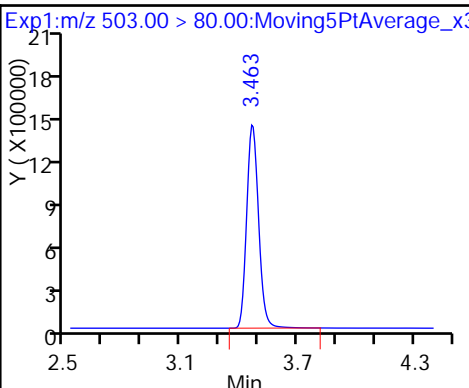
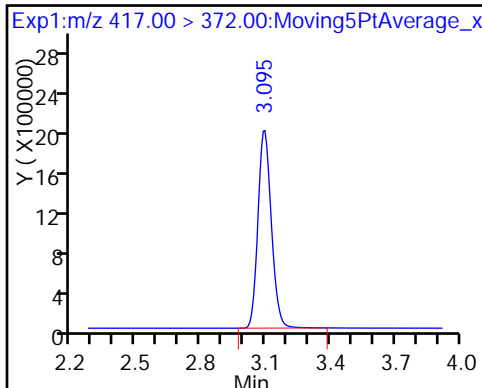
15 Perfluorooctanoic acid



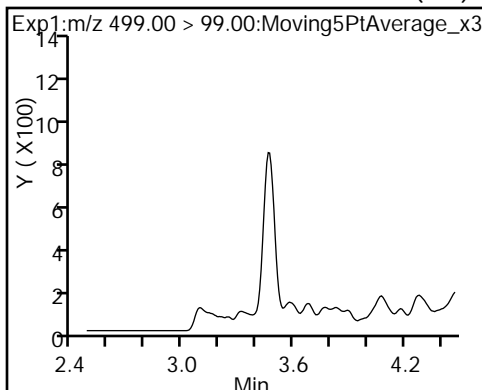
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EB05-051317 Lab Sample ID: 320-28286-11
 Matrix: Water Lab File ID: 2017.05.19B_009.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 16:30
 Extraction Method: 3535 Date Extracted: 05/18/2017 17:41
 Sample wt/vol: 284.6(mL) Date Analyzed: 05/20/2017 06:42
 Con. Extract Vol.: 0.50(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165487 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U M	2.2	1.8	0.66
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.6	U M	3.5	2.6	1.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	1.8	0.81

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	129		25-150
STL00991	13C4 PFOS	112		25-150
STL00994	18O2 PFHxS	111		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_009.d
 Lims ID: 320-28286-A-11-A
 Client ID: MEAFF-EB05-051317
 Sample Type: Client
 Inject. Date: 20-May-2017 06:42:31 ALS Bottle#: 8 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-11-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 12:21:50 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK016

First Level Reviewer: chandrasenas Date: 22-May-2017 12:04:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS	403.00 > 84.00	3.193	3.213	-0.020	16499826	52.4		111	237577	
* 62 13C2-PFOA	415.00 > 370.00	3.570	3.590	-0.020	8897	49.5				
D 14 13C4 PFOA	417.00 > 372.00	3.577	3.598	-0.021	14570718	64.4		129	94566	
15 Perfluorooctanoic acid										M
413.00 > 369.00	3.570	3.598	-0.028	1.000	27229	0.0824			3.0	
413.00 > 169.00	3.577	3.598	-0.021	1.002	15837		1.72(0.90-1.10)		28.7	M
D 18 13C4 PFOS	503.00 > 80.00	3.943	3.959	-0.016	12689284	53.5		112	54887	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.943	3.959	-0.016	1.000	63151	0.2063			89.8	M
499.00 > 99.00	3.943	3.959	-0.016	1.000	12394		5.10(0.90-1.10)		24.6	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_009.d

Injection Date: 20-May-2017 06:42:31

Instrument ID: A8_N

Lims ID: 320-28286-A-11-A

Lab Sample ID: 320-28286-11

Client ID: MEAFF-EB05-051317

Operator ID: SACINSTLCMS01

ALS Bottle#: 8

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

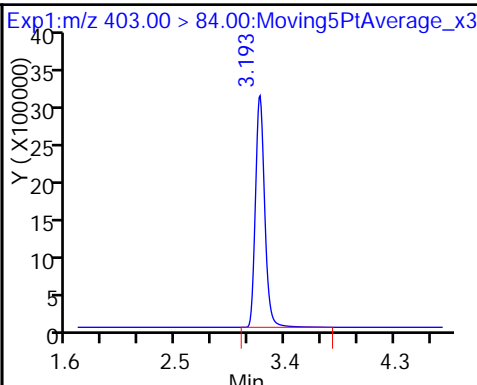
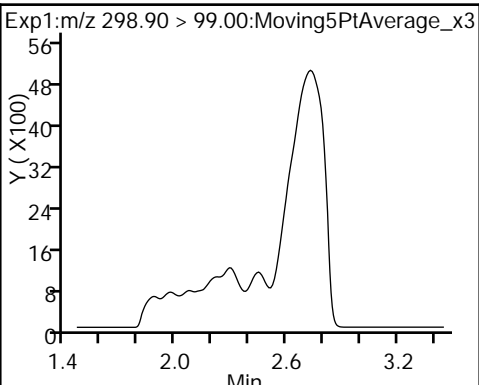
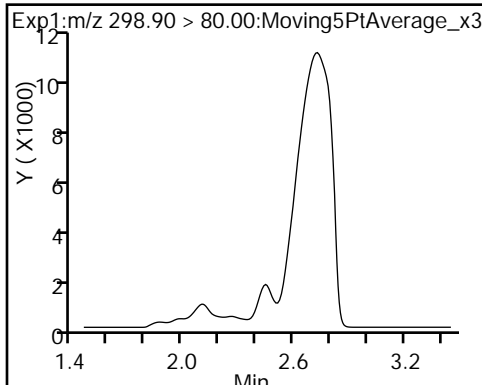
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

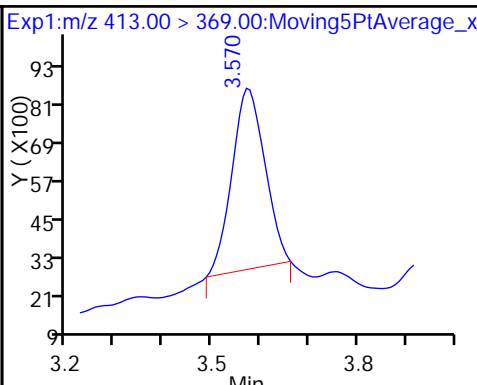
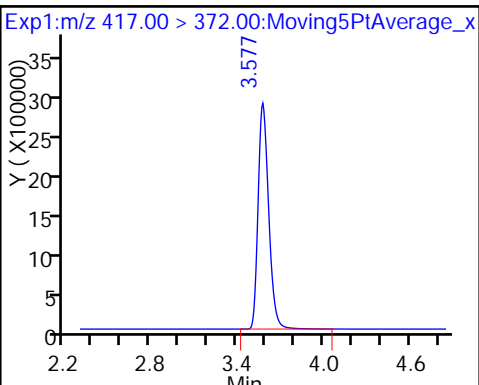
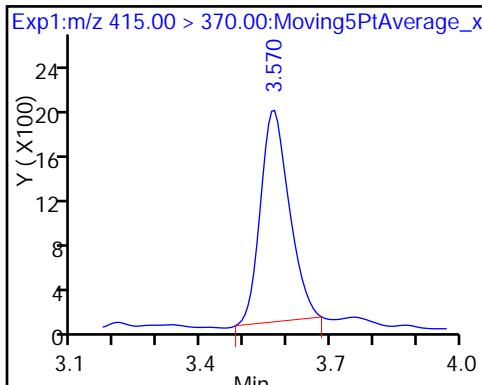
D 11 18O2 PFHxS



* 62 13C2-PFOA

D 14 13C4 PFOA

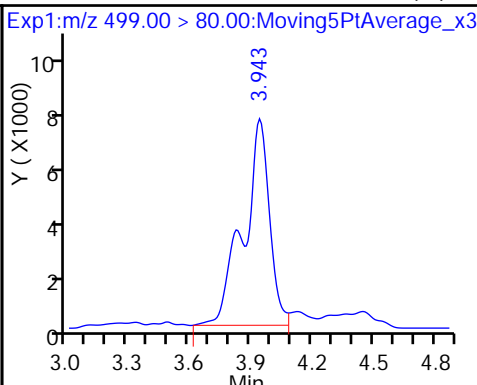
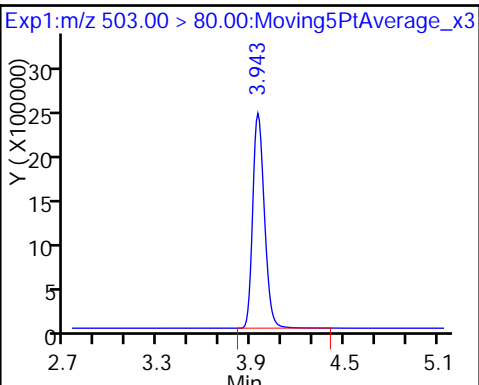
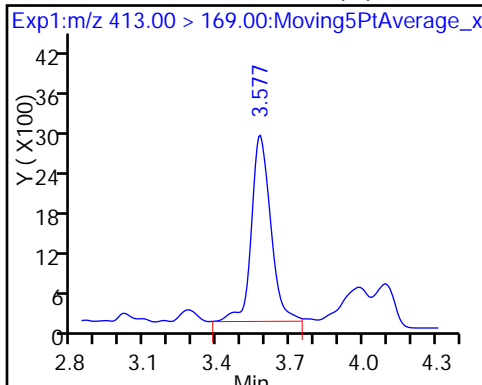
15 Perfluorooctanoic acid



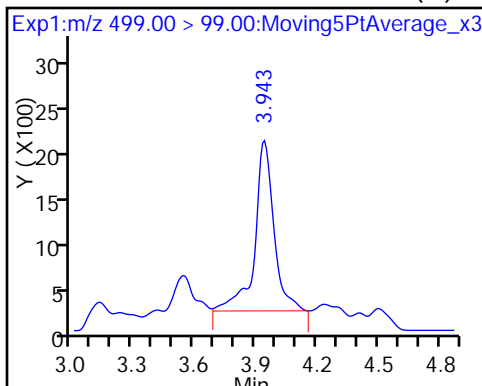
15 Perfluorooctanoic acid (M)

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

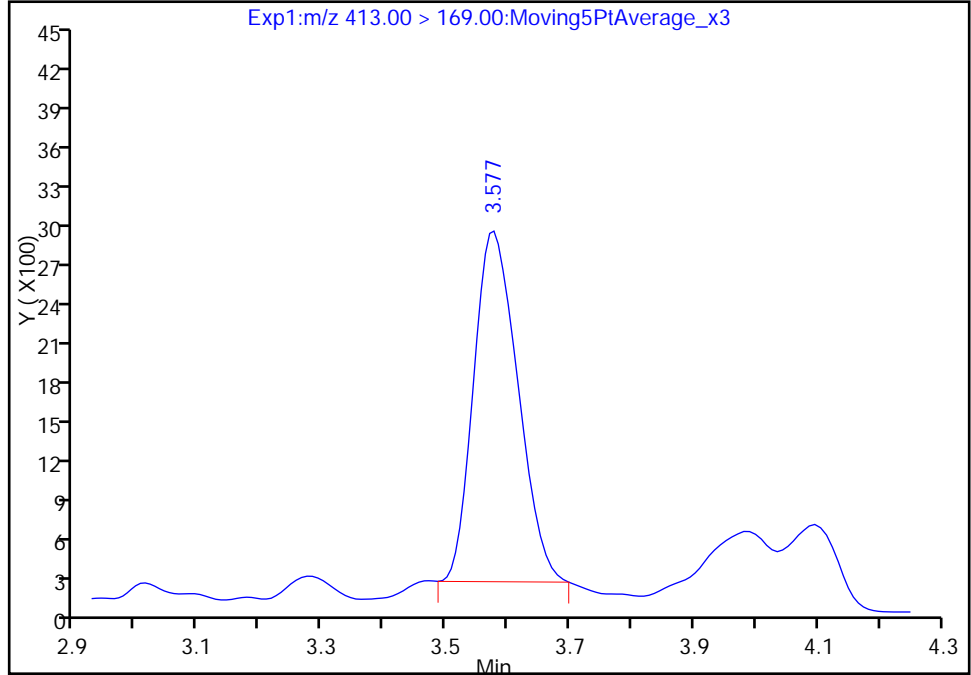
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Injection Date: 20-May-2017 06:42:31 Instrument ID: A8_N
Lims ID: 320-28286-A-11-A Lab Sample ID: 320-28286-11
Client ID: MEAFF-EB05-051317
Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

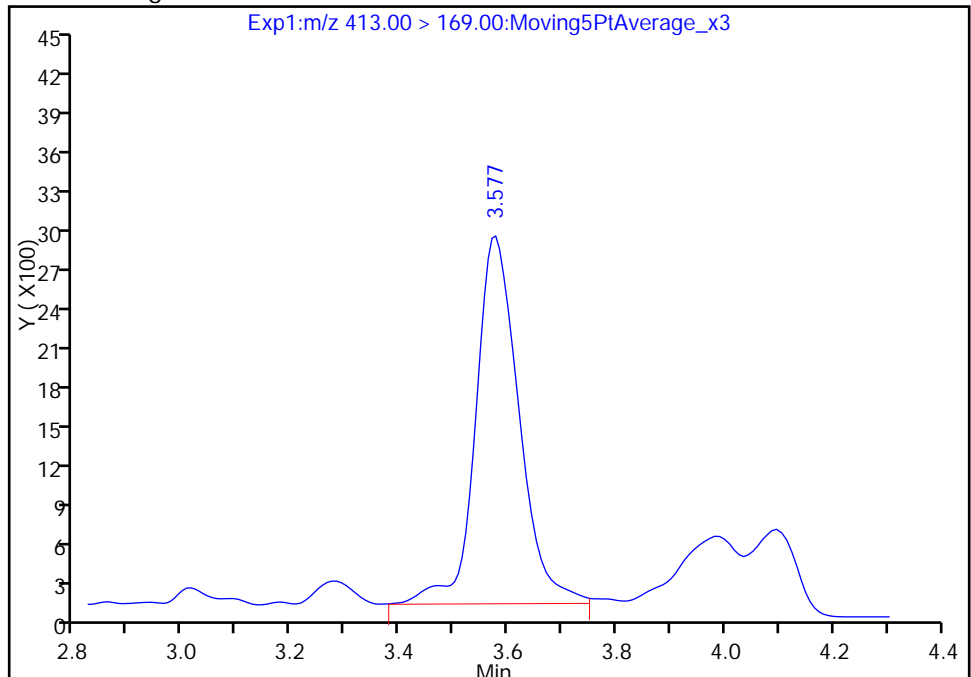
RT: 3.58
Area: 13432
Amount: 0.082430
Amount Units: ng/ml

Processing Integration Results



RT: 3.58
Area: 15837
Amount: 0.082430
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 22-May-2017 12:04:11

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

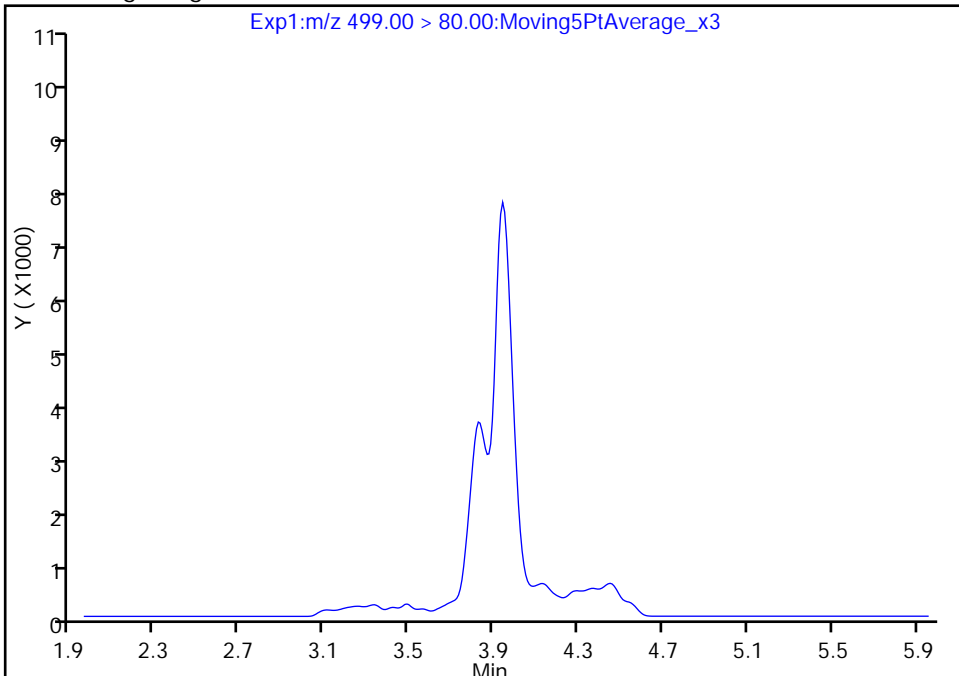
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_009.d
Injection Date: 20-May-2017 06:42:31 Instrument ID: A8_N
Lims ID: 320-28286-A-11-A Lab Sample ID: 320-28286-11
Client ID: MEAFF-EB05-051317
Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

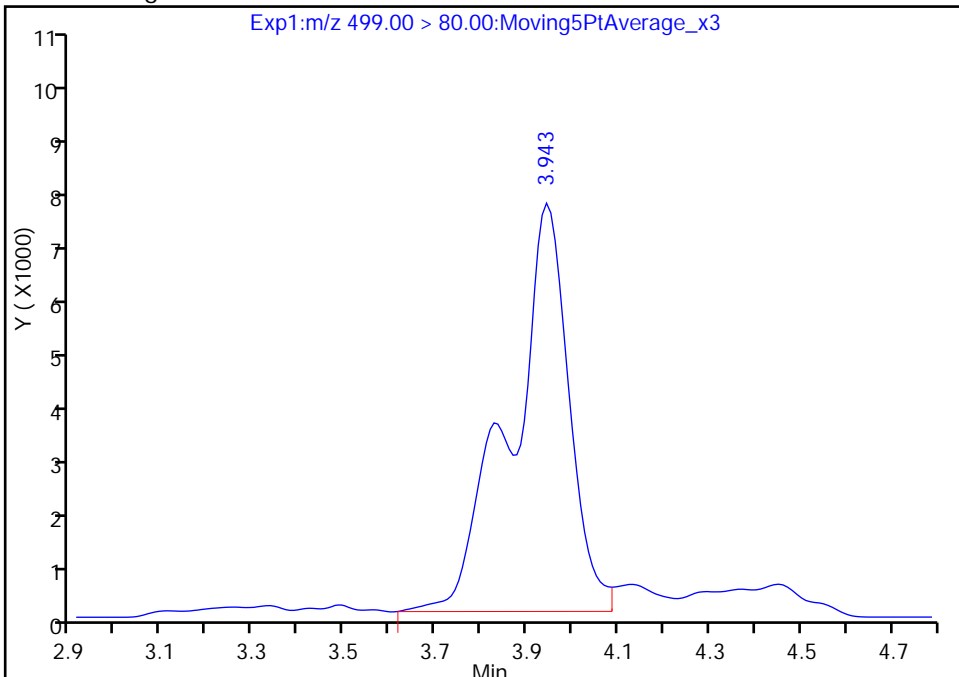
Not Detected
Expected RT: 3.96

Processing Integration Results



Manual Integration Results

RT: 3.94
Area: 63151
Amount: 0.206306
Amount Units: ng/ml



Reviewer: chandrasenas, 22-May-2017 12:04:32
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

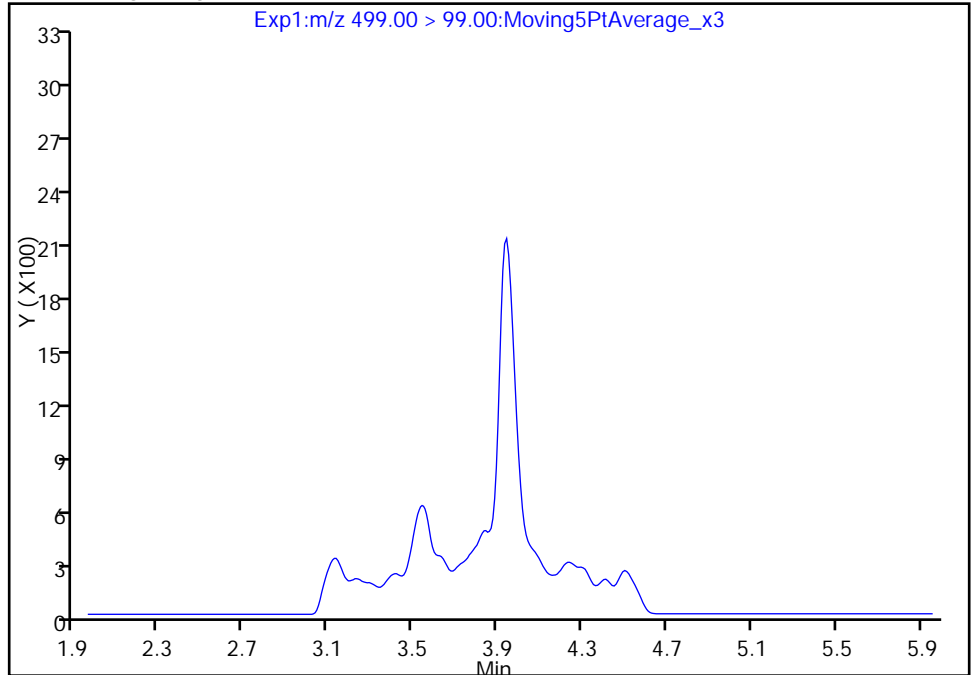
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Injection Date: 20-May-2017 06:42:31 Instrument ID: A8_N
Lims ID: 320-28286-A-11-A Lab Sample ID: 320-28286-11
Client ID: MEAFF-EB05-051317
Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

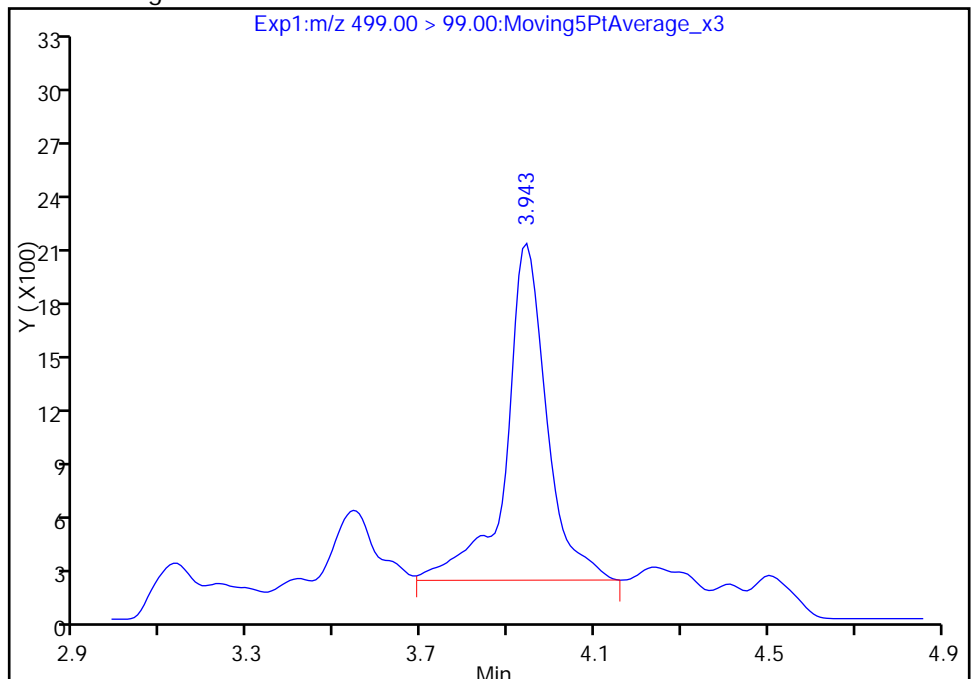
Not Detected
Expected RT: 3.96

Processing Integration Results



Manual Integration Results

RT: 3.94
Area: 12394
Amount: 0.206306
Amount Units: ng/ml



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EB06-051317 Lab Sample ID: 320-28286-12
 Matrix: Water Lab File ID: 2017.05.19B_010.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 16:35
 Extraction Method: 3535 Date Extracted: 05/18/2017 17:41
 Sample wt/vol: 276.6(mL) Date Analyzed: 05/20/2017 06:50
 Con. Extract Vol.: 0.50(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165487 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U	2.3	1.8	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.7	U M	3.6	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	1.8	0.83

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	136		25-150
STL00991	13C4 PFOS	113		25-150
STL00994	18O2 PFHxS	109		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_010.d
 Lims ID: 320-28286-A-12-A
 Client ID: MEAFF-EB06-051317
 Sample Type: Client
 Inject. Date: 20-May-2017 06:50:05 ALS Bottle#: 9 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-12-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 12:21:50 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK016

First Level Reviewer: chandrasenas Date: 22-May-2017 12:05:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS	403.00 > 84.00	3.214	3.213	0.001	16278163	51.6		109	433927	
* 62 13C2-PFOA	415.00 > 370.00	3.598	3.590	0.008	8094	49.5				
D 14 13C4 PFOA	417.00 > 372.00	3.606	3.598	0.008	15339597	67.8		136	76530	
15 Perfluorooctanoic acid	413.00 > 369.00	3.606	3.598	0.008	19759	0.0568			2.0	
	413.00 > 169.00	3.606	3.598	0.008	14432		1.37(0.90-1.10)		39.9	
D 18 13C4 PFOS	503.00 > 80.00	3.964	3.959	0.005	12793195	53.9		113	41867	
17 Perfluorooctane sulfonic acid	499.00 > 80.00	3.964	3.959	0.005	72099	0.2336			189	M
	499.00 > 99.00	3.964	3.959	0.005	11763		6.13(0.90-1.10)		17.3	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_010.d

Injection Date: 20-May-2017 06:50:05

Instrument ID: A8_N

Lims ID: 320-28286-A-12-A

Lab Sample ID: 320-28286-12

Client ID: MEAFF-EB06-051317

Operator ID: SACINSTLCMS01

ALS Bottle#: 9

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

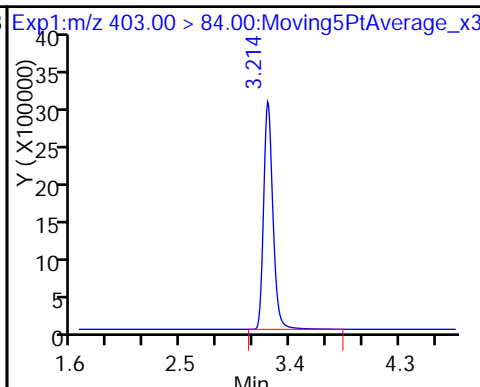
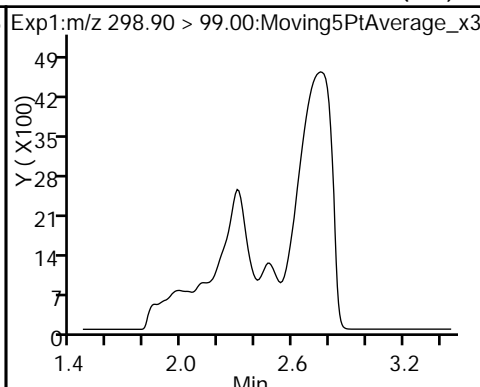
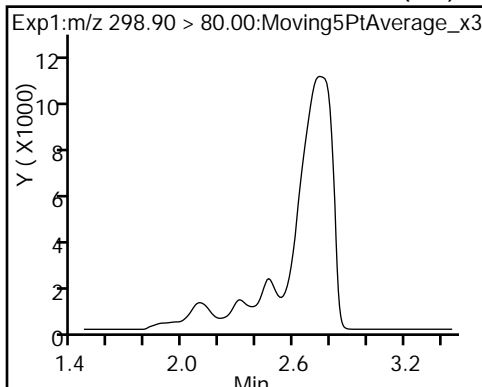
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

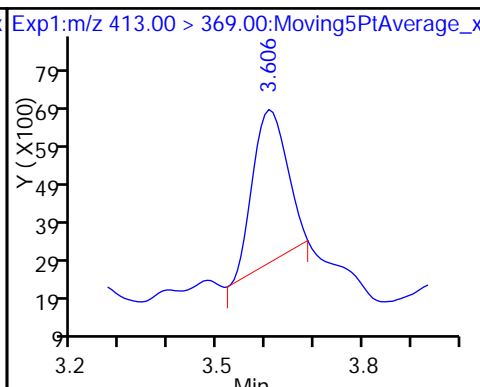
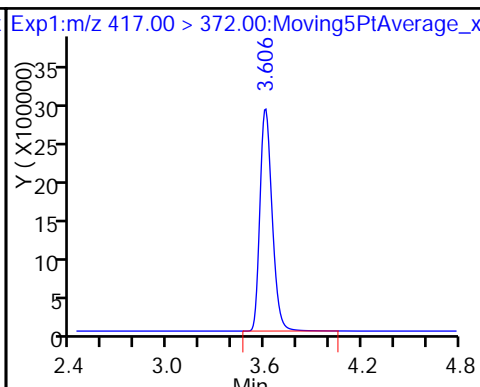
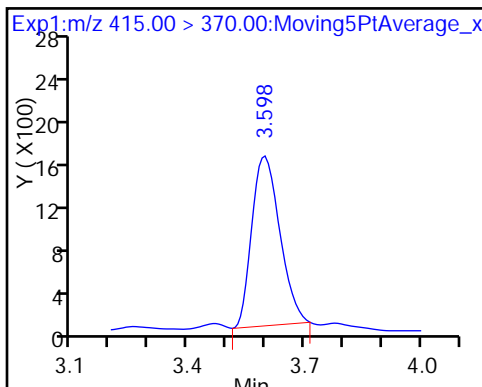
D 11 18O2 PFHxS



* 62 13C2-PFOA

D 14 13C4 PFOA

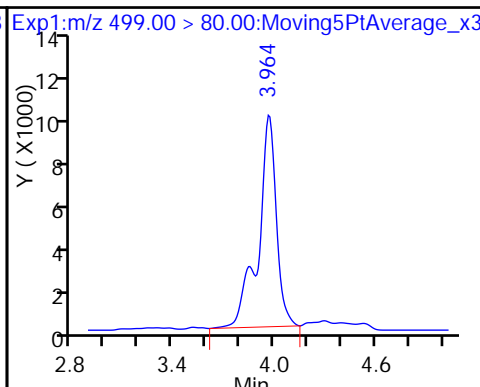
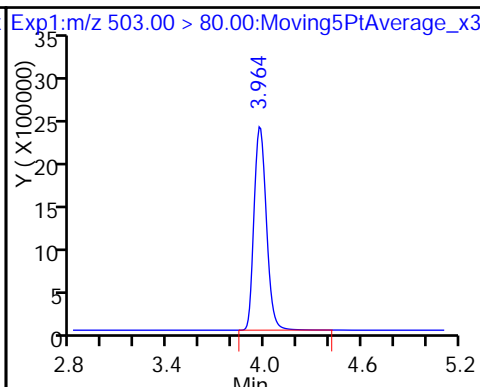
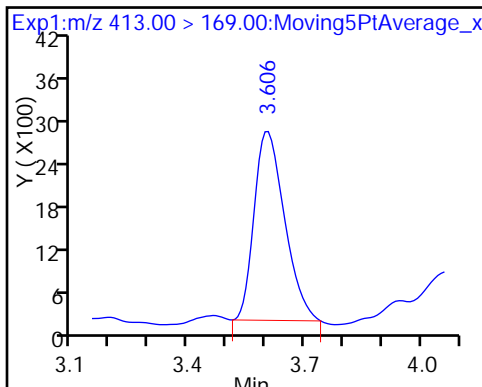
15 Perfluorooctanoic acid



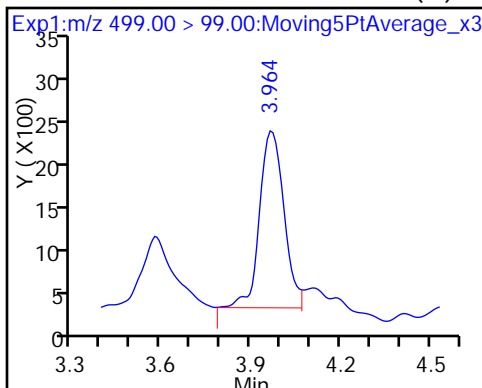
15 Perfluorooctanoic acid

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

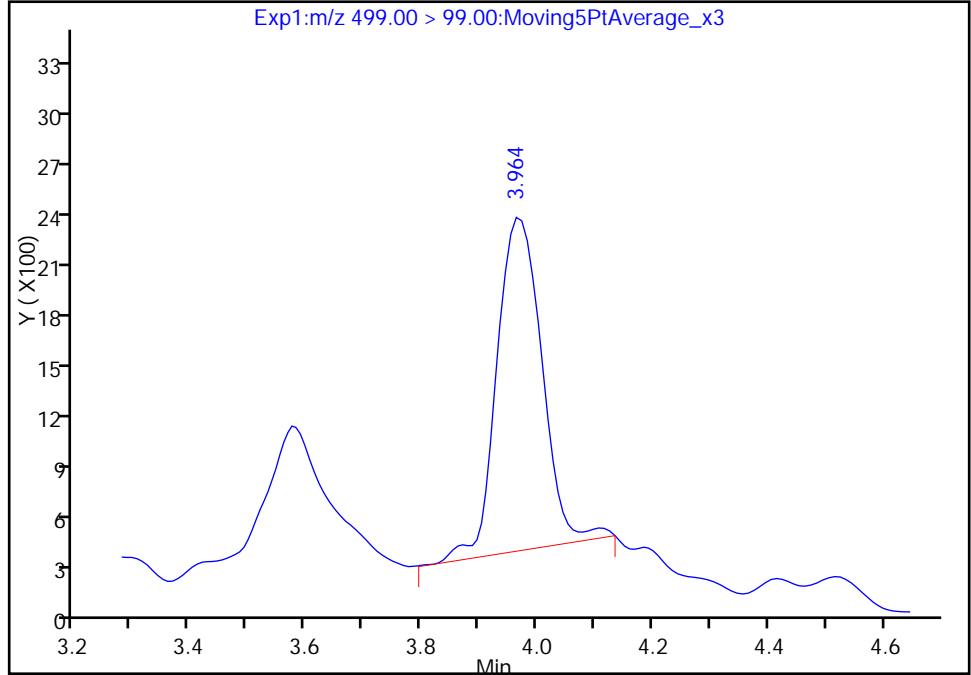
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_010.d
Injection Date: 20-May-2017 06:50:05 Instrument ID: A8_N
Lims ID: 320-28286-A-12-A Lab Sample ID: 320-28286-12
Client ID: MEAFF-EB06-051317
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

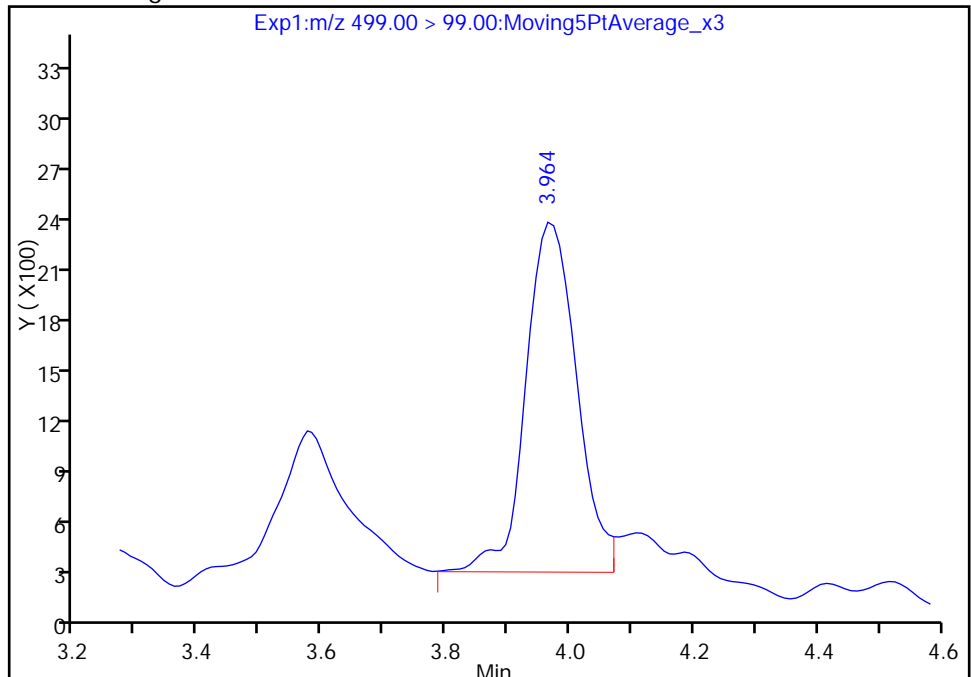
RT: 3.96
Area: 10673
Amount: 0.233625
Amount Units: ng/ml

Processing Integration Results



RT: 3.96
Area: 11763
Amount: 0.233625
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 22-May-2017 12:05:10

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EB07-051317 Lab Sample ID: 320-28286-13
 Matrix: Water Lab File ID: 2017.05.19B_011.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 08:33
 Extraction Method: 3535 Date Extracted: 05/18/2017 17:41
 Sample wt/vol: 279.8 (mL) Date Analyzed: 05/20/2017 06:57
 Con. Extract Vol.: 0.50 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165487 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U M	2.2	1.8	0.67
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.6	2.7	1.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	1.8	0.82

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	130		25-150
STL00991	13C4 PFOS	109		25-150
STL00994	18O2 PFHxS	109		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_011.d
 Lims ID: 320-28286-A-13-A
 Client ID: MEAFF-EB07-051317
 Sample Type: Client
 Inject. Date: 20-May-2017 06:57:37 ALS Bottle#: 10 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-13-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 12:21:50 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK016

First Level Reviewer: chandrasenas Date: 22-May-2017 12:05:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 11 18O2 PFHxS	403.00 > 84.00	3.204	3.213	-0.009	16252248	51.6		109	179029	
* 62 13C2-PFOA	415.00 > 370.00	3.587	3.590	-0.003	8965	49.5				
D 14 13C4 PFOA	417.00 > 372.00	3.587	3.598	-0.011	14698353	65.0		130	113681	
15 Perfluorooctanoic acid										M
413.00 > 369.00	3.587	3.598	-0.011	1.000	19083	0.0573			2.4	
413.00 > 169.00	3.587	3.598	-0.011	1.000	14509		1.32(0.90-1.10)		54.5	M
D 18 13C4 PFOS	503.00 > 80.00	3.958	3.959	-0.001	12315014	51.9		109	40993	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_011.d

Injection Date: 20-May-2017 06:57:37

Instrument ID: A8_N

Lims ID: 320-28286-A-13-A

Lab Sample ID: 320-28286-13

Client ID: MEAFF-EB07-051317

Operator ID: SACINSTLCMS01

ALS Bottle#: 10

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

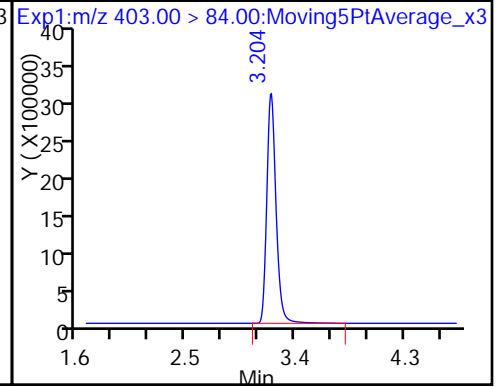
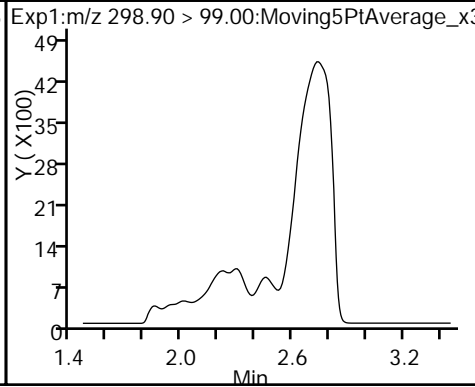
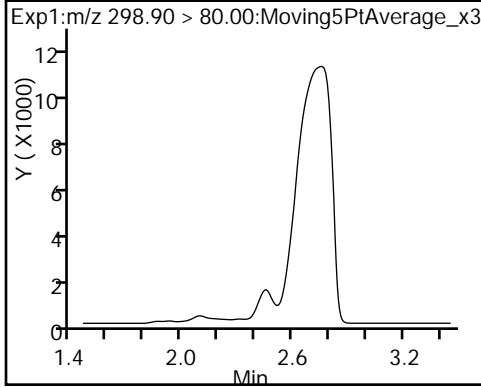
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

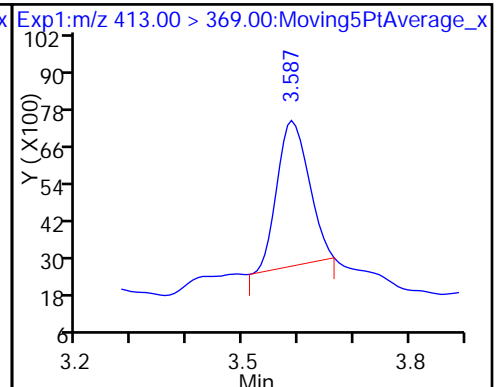
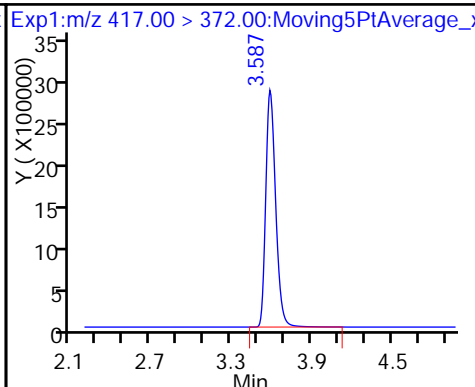
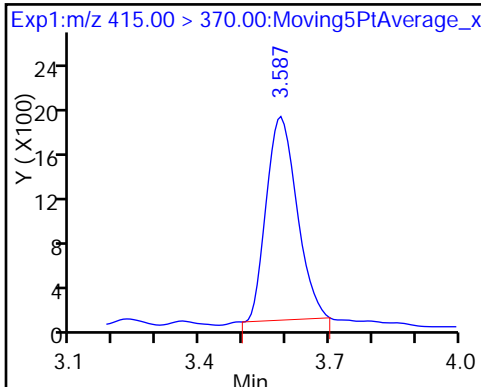
D 11 18O2 PFHxS



* 62 13C2-PFOA

D 14 13C4 PFOA

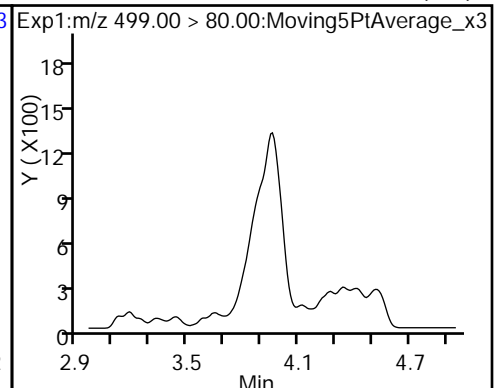
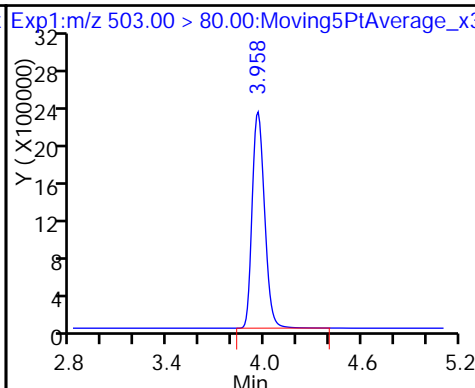
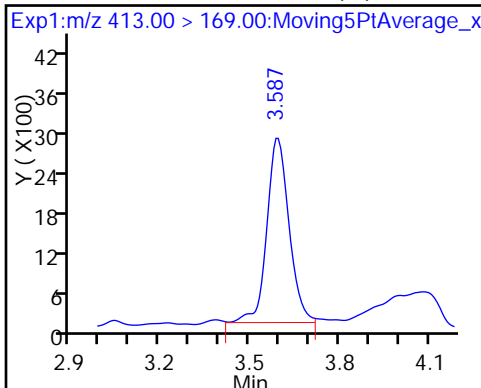
15 Perfluorooctanoic acid



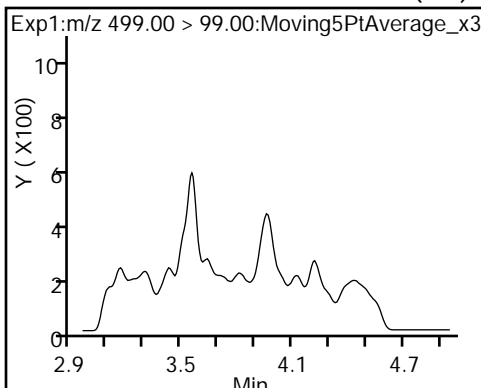
15 Perfluorooctanoic acid (M)

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



TestAmerica Sacramento

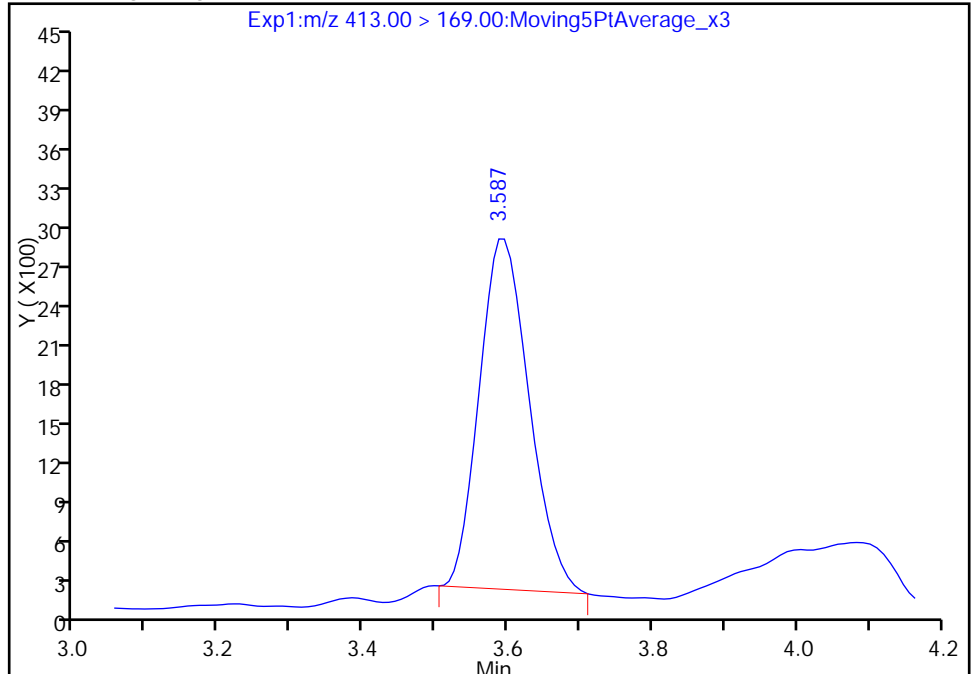
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_011.d
Injection Date: 20-May-2017 06:57:37 Instrument ID: A8_N
Lims ID: 320-28286-A-13-A Lab Sample ID: 320-28286-13
Client ID: MEAFF-EB07-051317
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

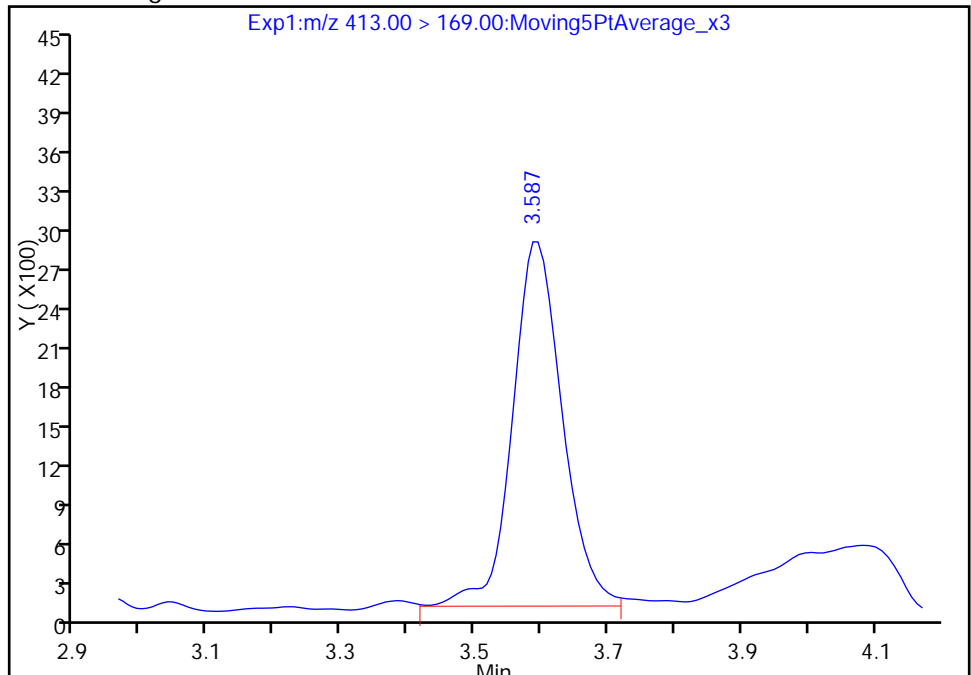
RT: 3.59
Area: 12875
Amount: 0.057268
Amount Units: ng/ml

Processing Integration Results



RT: 3.59
Area: 14509
Amount: 0.057268
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 22-May-2017 12:05:48
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_031.d
 Lims ID: 320-28286-A-14-A
 Client ID: MEAFF-TA-4J-1987-SB01-0001
 Sample Type: Client
 Inject. Date: 07-Jun-2017 18:41:29 ALS Bottle#: 15 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-14-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 20:09:32 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 20:10:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS	403.00 > 84.00	2.721	2.730	-0.009	10041765	43.6		92.1	21927	
* 62 13C2-PFOA	415.00 > 370.00	3.095	3.103	-0.008	6472	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.095	3.103	-0.008	1.000	25507	0.1220			9.6	
413.00 > 169.00	3.095	3.103	-0.008	1.000	13987		1.82(0.90-1.10)		19.1	
D 14 13C4 PFOA	417.00 > 372.00	3.095	3.103	-0.008	9783960	54.3		109	26977	
D 18 13C4 PFOS	503.00 > 80.00	3.470	3.478	-0.008	6709049	37.7		78.8	14382	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_031.d

Injection Date: 07-Jun-2017 18:41:29

Instrument ID: A8_N

Lims ID: 320-28286-A-14-A

Lab Sample ID: 320-28286-14

Client ID: MEAFF-TA-4J-1987-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 15

Worklist Smp#: 17

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

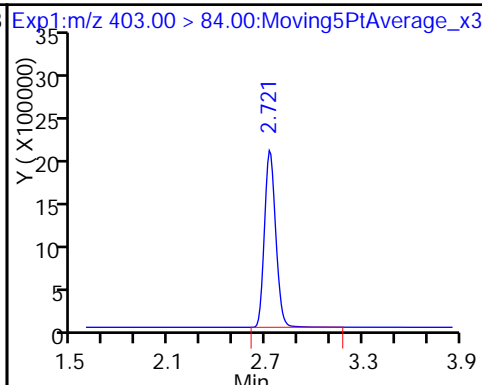
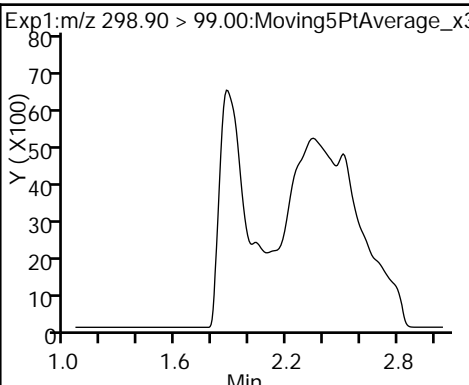
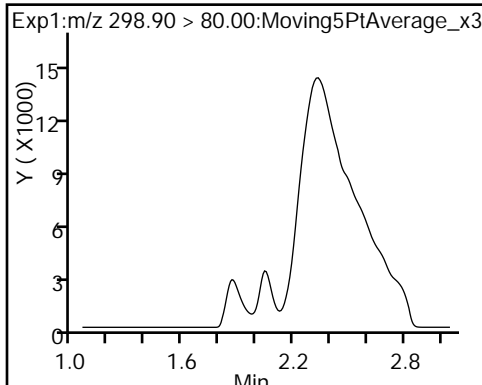
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

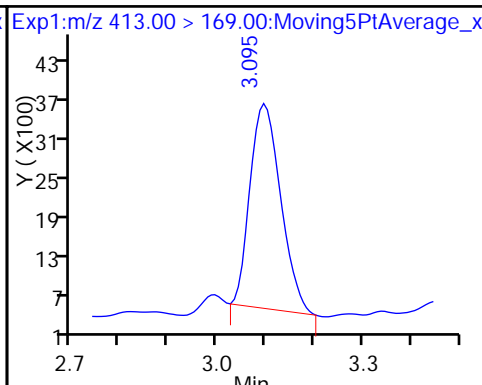
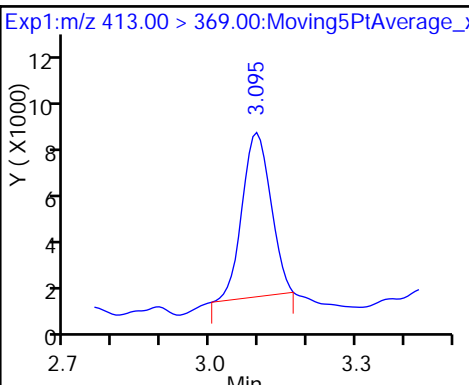
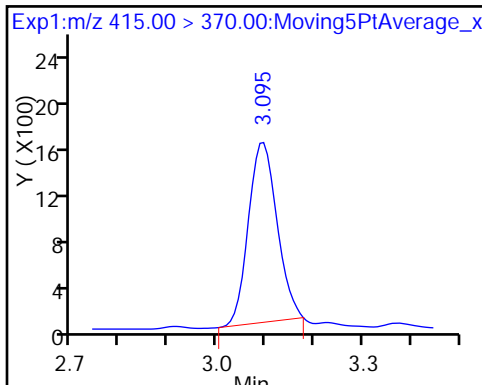
D 11 1802 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

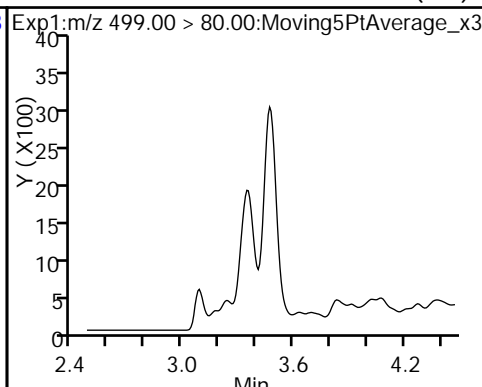
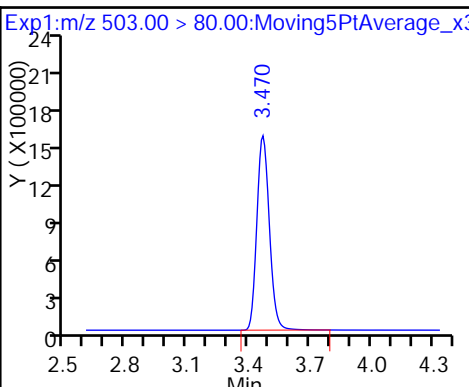
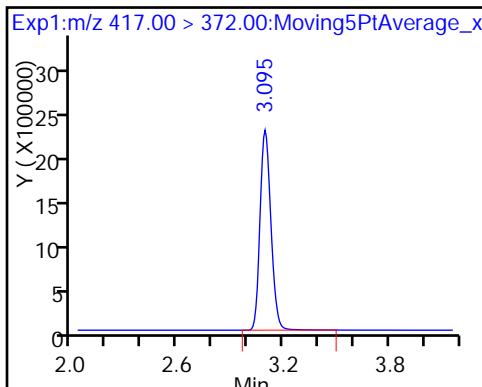
15 Perfluorooctanoic acid



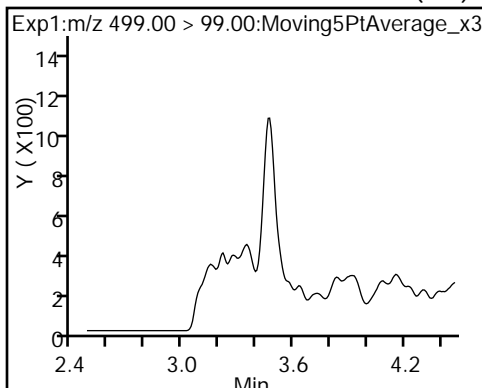
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_032.d
 Lims ID: 320-28286-A-15-A
 Client ID: MEAFF-TA-4J-1987-SB01-0204
 Sample Type: Client
 Inject. Date: 07-Jun-2017 18:49:12 ALS Bottle#: 16 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-15-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 20:11:46 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 20:11:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.051	2.051	0.0	1.000	36734	0.1000				M
298.90 > 99.00	2.042	2.051	-0.009	0.996	8932		4.11(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.720	2.730	-0.010		10643610	46.2		97.6	18877	
* 62 13C2-PFOA										
415.00 > 370.00	3.095	3.103	-0.008		6138	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.095	3.103	-0.008	1.000	51334	0.2521			10.3	M
413.00 > 169.00	3.095	3.103	-0.008	1.000	35905		1.43(0.90-1.10)		30.1	M
D 14 13C4 PFOA										
417.00 > 372.00	3.095	3.103	-0.008		9530630	52.9		106	26716	
D 18 13C4 PFOS										
503.00 > 80.00	3.470	3.478	-0.008		7739525	43.4		90.9	15171	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.346	3.478	-0.132	1.000	52850	0.3093			82.4	M
499.00 > 99.00	3.361	3.478	-0.117	1.005	5655		9.35(0.90-1.10)		9.6	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_032.d

Injection Date: 07-Jun-2017 18:49:12

Instrument ID: A8_N

Lims ID: 320-28286-A-15-A

Lab Sample ID: 320-28286-15

Client ID: MEAFF-TA-4J-1987-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 16

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

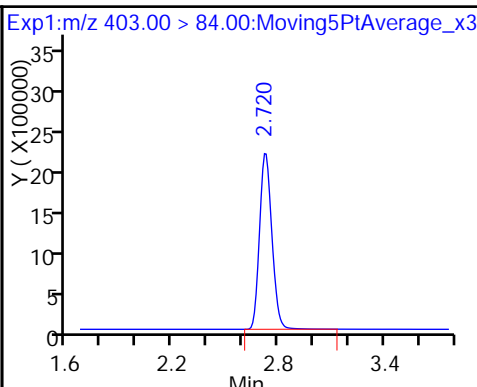
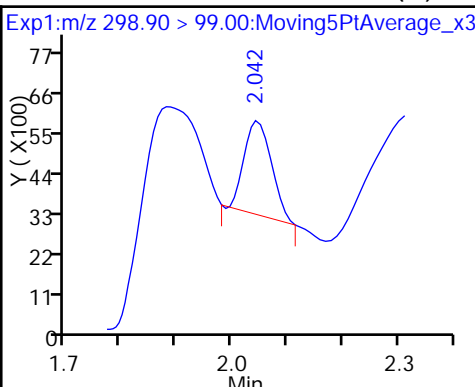
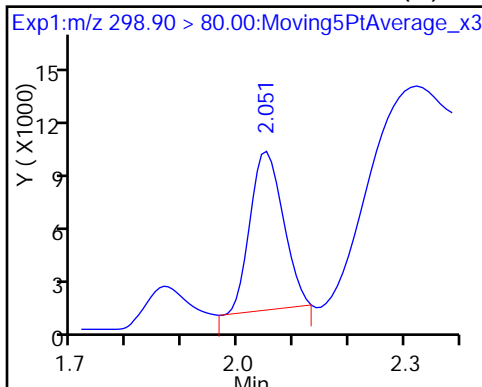
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

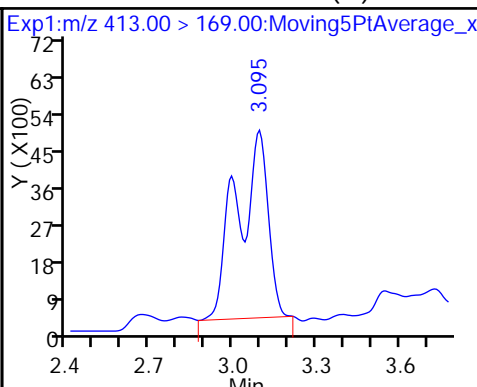
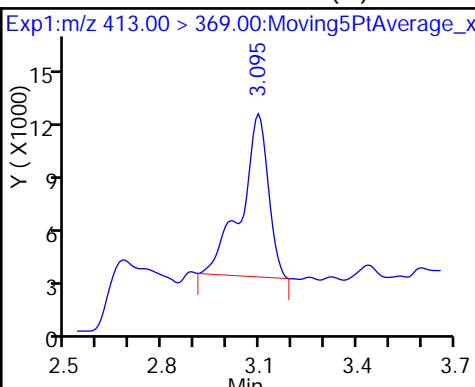
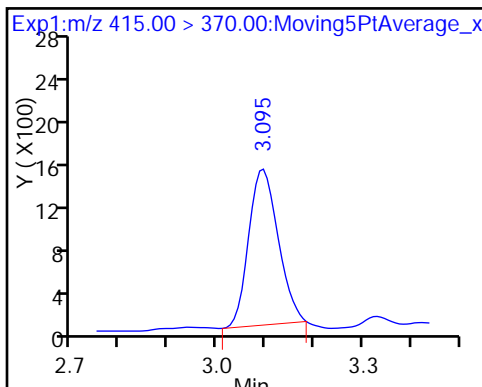
D 11 1802 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid (M)

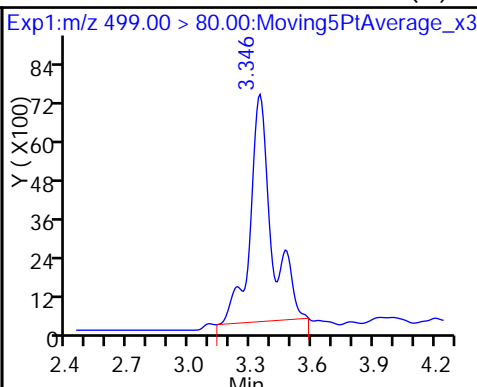
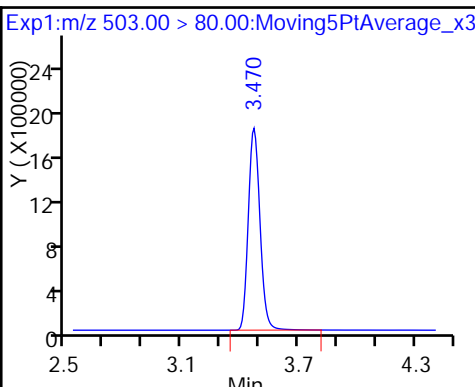
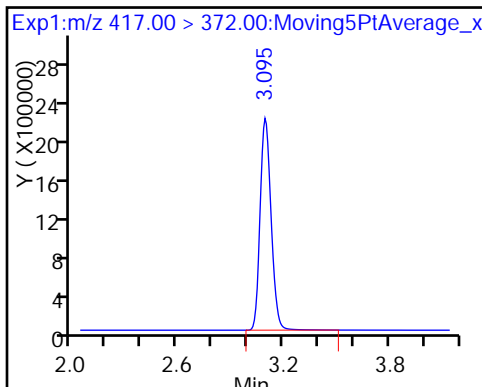
15 Perfluorooctanoic acid (M)



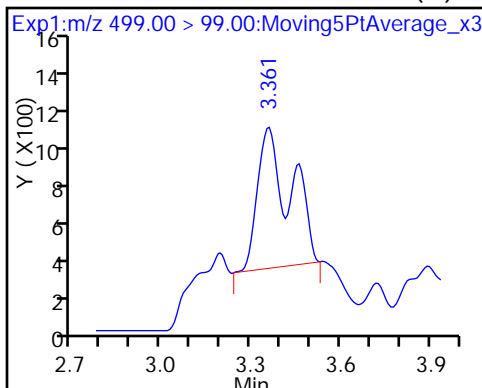
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

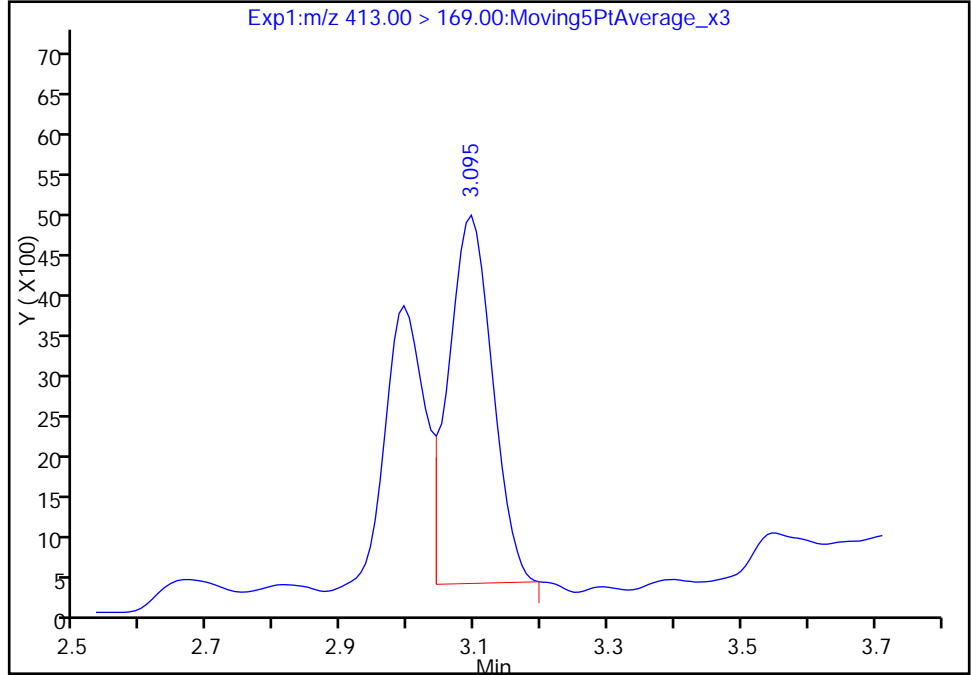
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_032.d
Injection Date: 07-Jun-2017 18:49:12 Instrument ID: A8_N
Lims ID: 320-28286-A-15-A Lab Sample ID: 320-28286-15
Client ID: MEAFF-TA-4J-1987-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

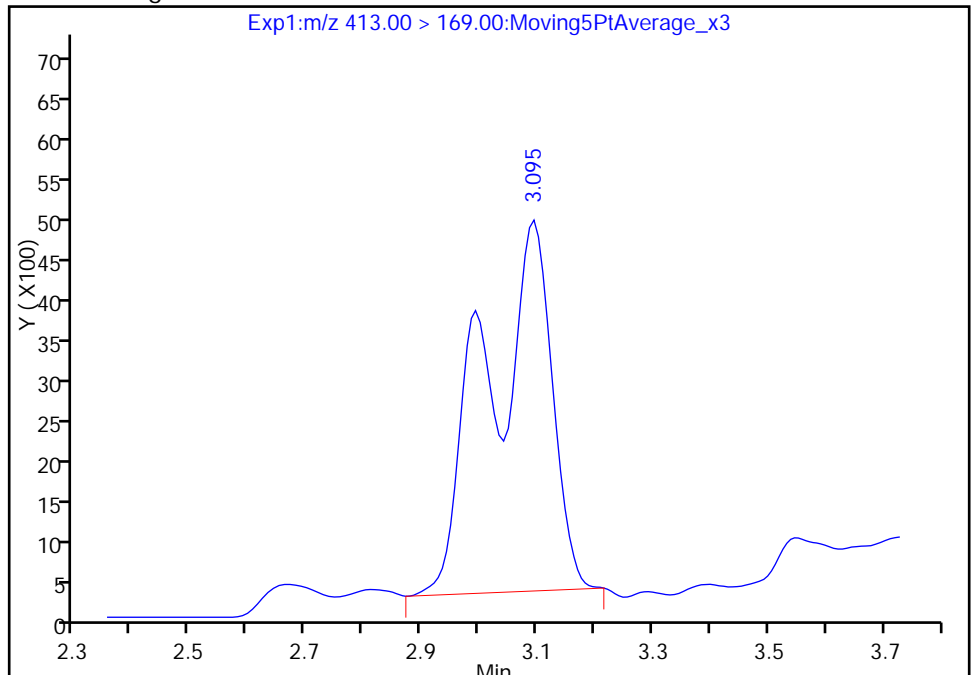
RT: 3.09
Area: 20705
Amount: 0.184278
Amount Units: ng/ml

Processing Integration Results



RT: 3.09
Area: 35905
Amount: 0.252058
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 20:10:55
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

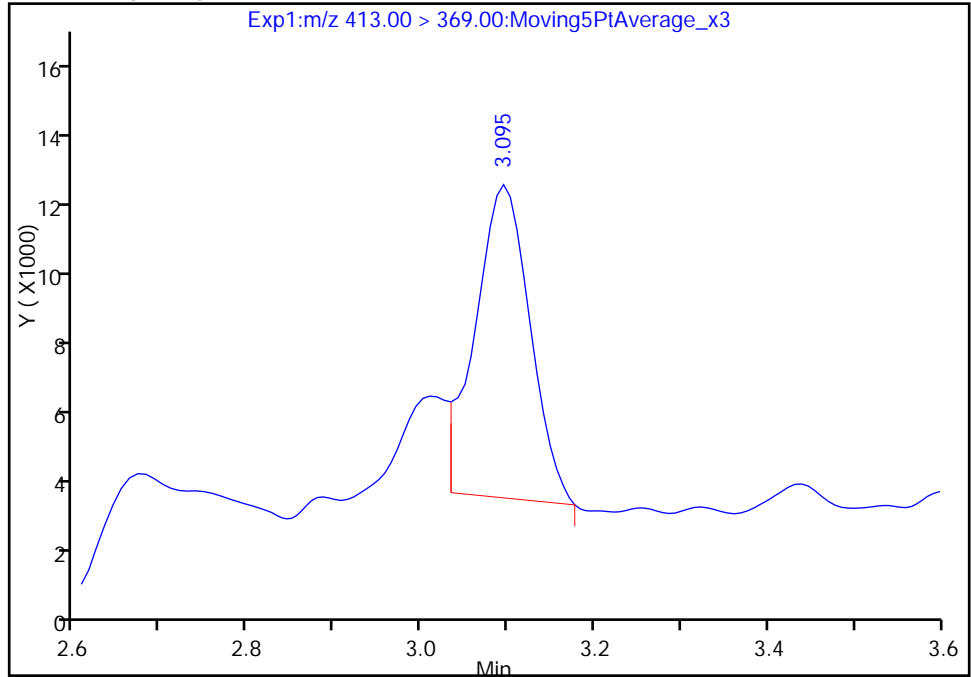
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_032.d
Injection Date: 07-Jun-2017 18:49:12 Instrument ID: A8_N
Lims ID: 320-28286-A-15-A Lab Sample ID: 320-28286-15
Client ID: MEAFF-TA-4J-1987-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

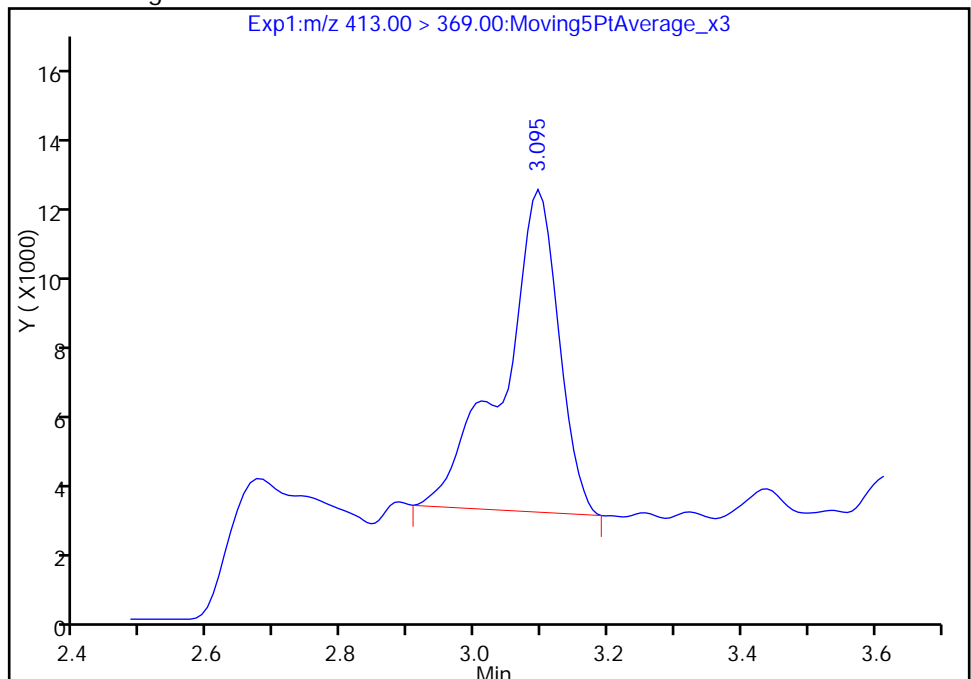
RT: 3.09
Area: 37530
Amount: 0.184278
Amount Units: ng/ml

Processing Integration Results



RT: 3.09
Area: 51334
Amount: 0.252058
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

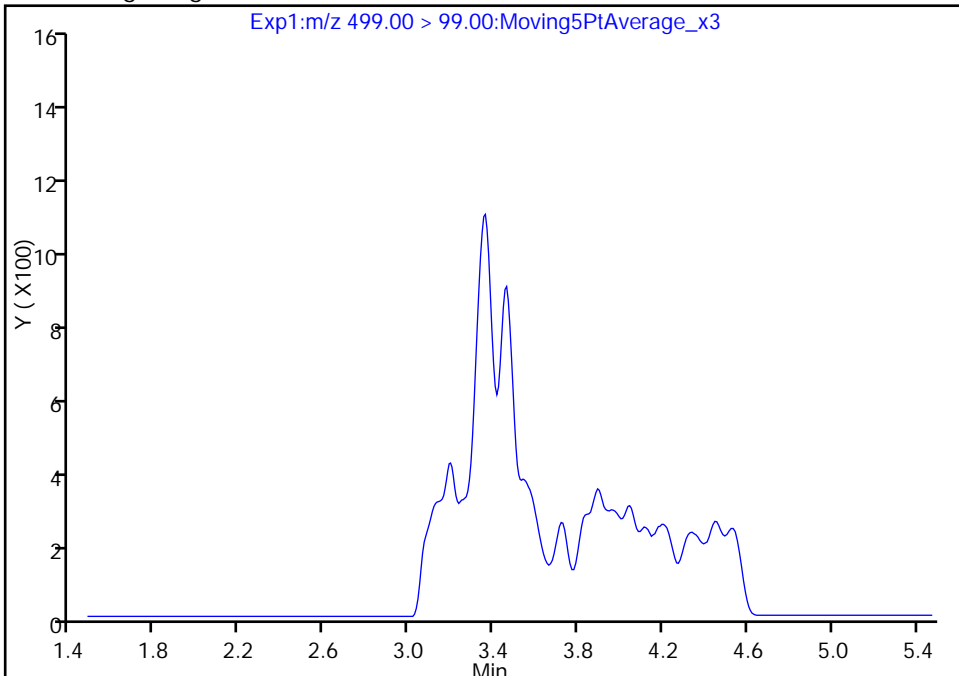
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_032.d
Injection Date: 07-Jun-2017 18:49:12 Instrument ID: A8_N
Lims ID: 320-28286-A-15-A Lab Sample ID: 320-28286-15
Client ID: MEAFF-TA-4J-1987-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

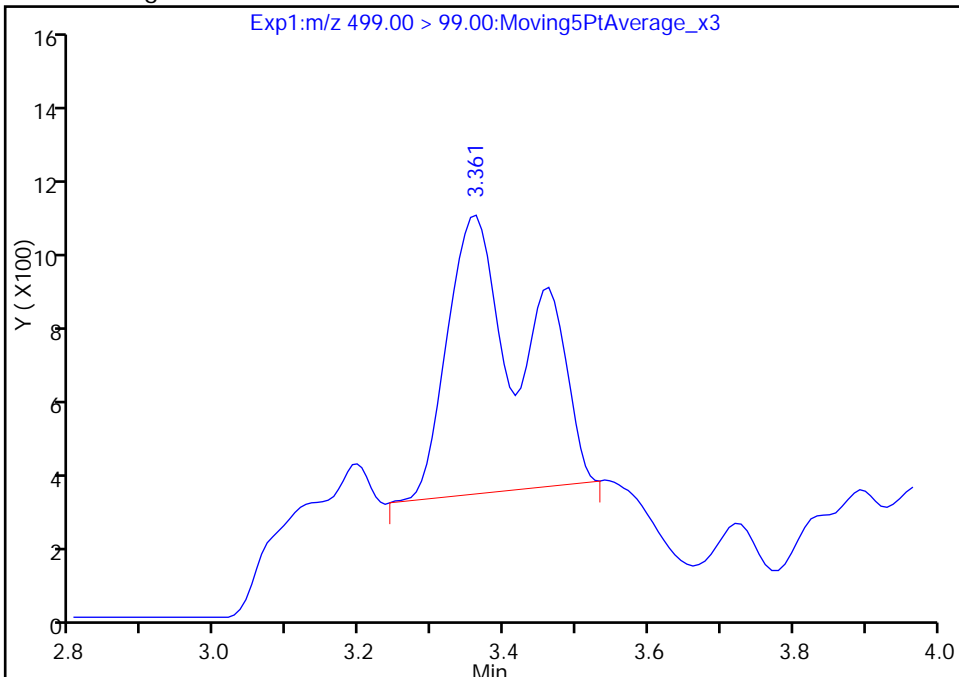
RT: 3.48
Area: 0
Amount: 0.306617
Amount Units: ng/ml

Processing Integration Results



RT: 3.36
Area: 5655
Amount: 0.309274
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 20:11:10
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

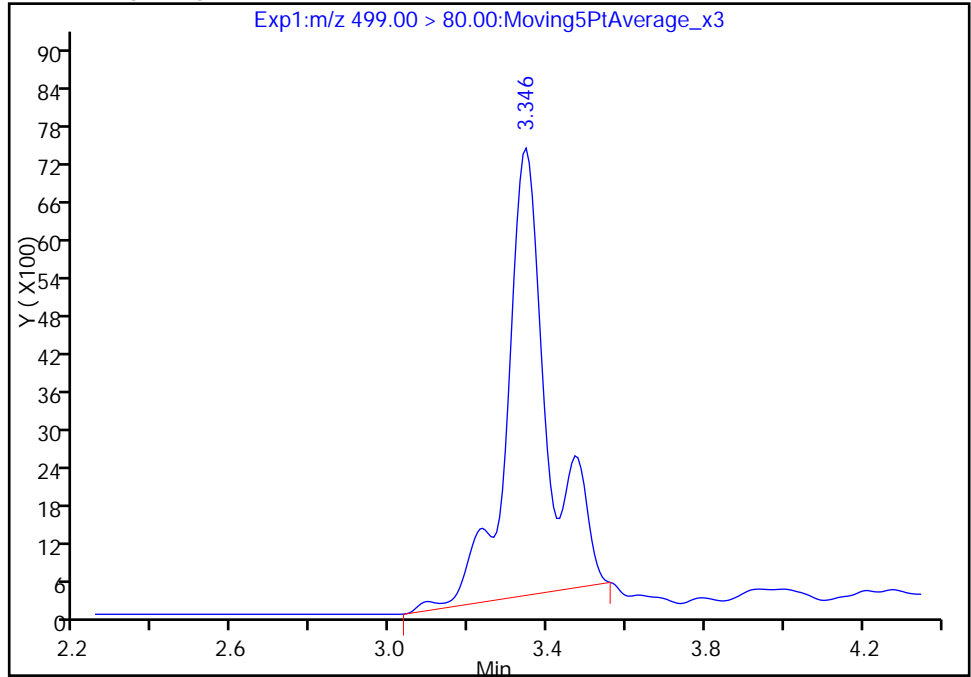
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_032.d
Injection Date: 07-Jun-2017 18:49:12 Instrument ID: A8_N
Lims ID: 320-28286-A-15-A Lab Sample ID: 320-28286-15
Client ID: MEAFF-TA-4J-1987-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

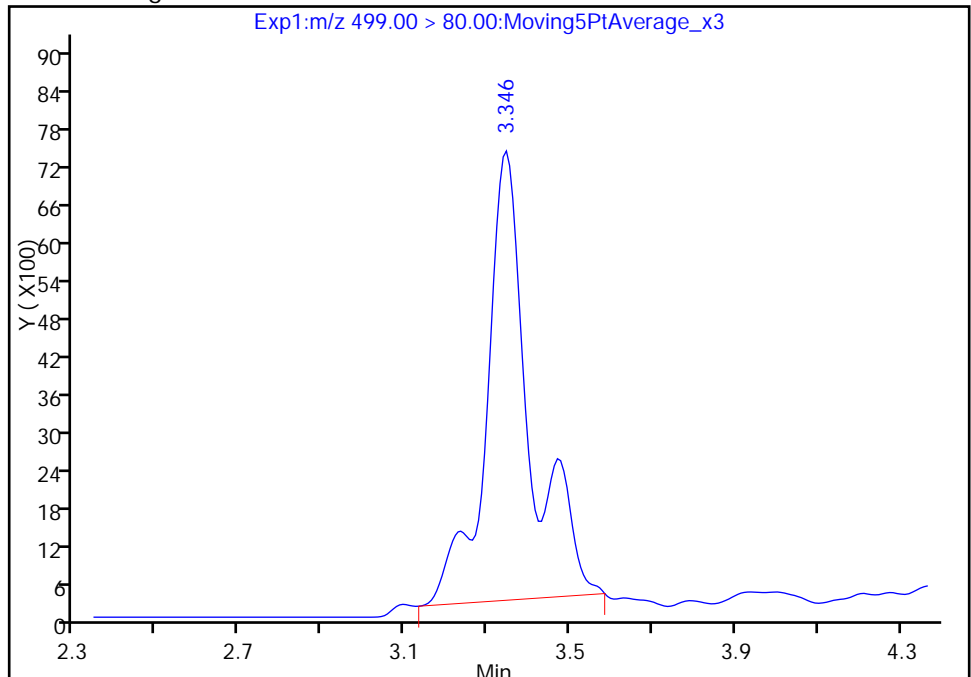
RT: 3.35
Area: 52396
Amount: 0.306617
Amount Units: ng/ml

Processing Integration Results



RT: 3.35
Area: 52850
Amount: 0.309274
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

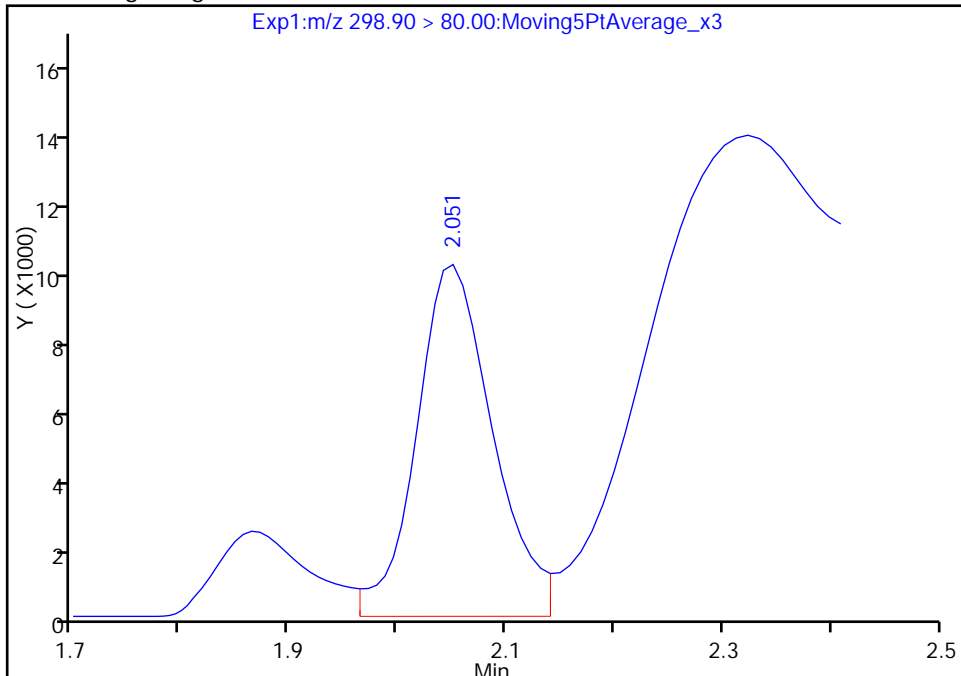
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_032.d
Injection Date: 07-Jun-2017 18:49:12 Instrument ID: A8_N
Lims ID: 320-28286-A-15-A Lab Sample ID: 320-28286-15
Client ID: MEAFF-TA-4J-1987-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

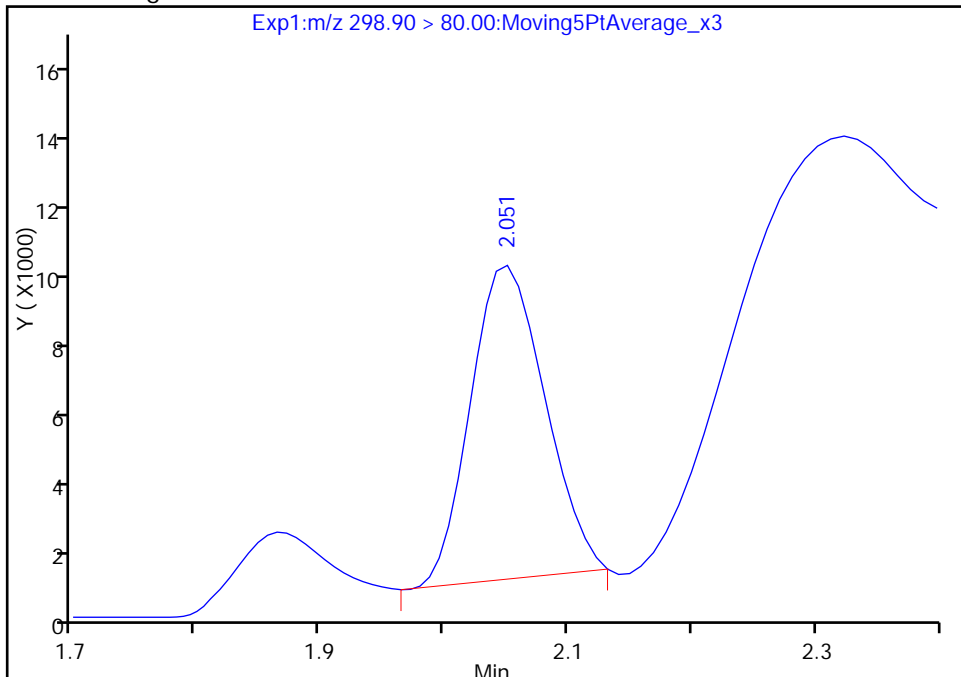
RT: 2.05
Area: 48010
Amount: 0.130692
Amount Units: ng/ml

Processing Integration Results



RT: 2.05
Area: 36734
Amount: 0.099996
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 20:11:33
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

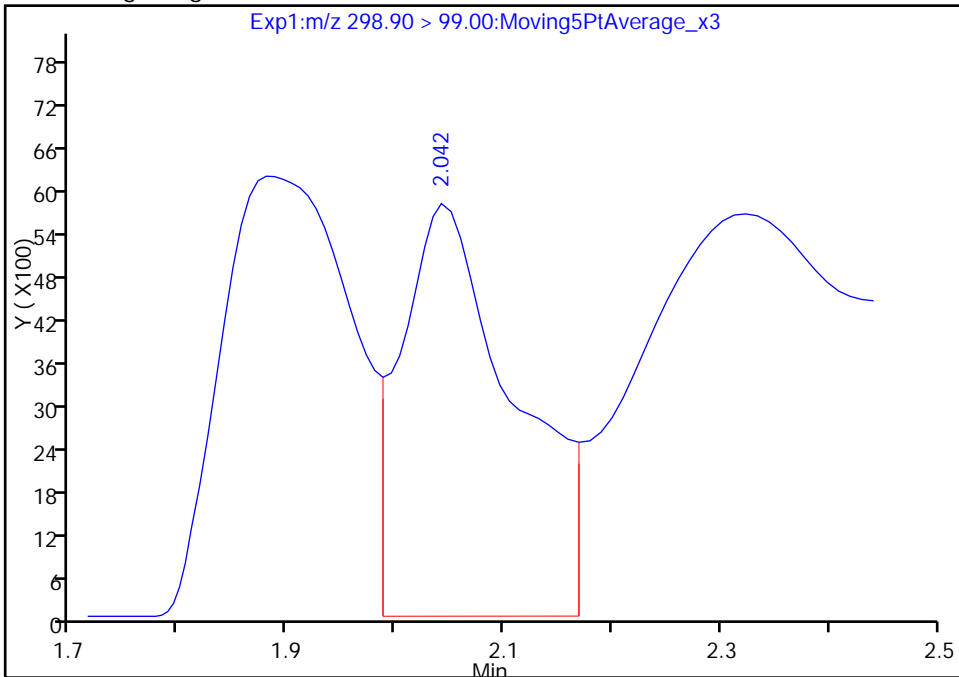
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_032.d
Injection Date: 07-Jun-2017 18:49:12 Instrument ID: A8_N
Lims ID: 320-28286-A-15-A Lab Sample ID: 320-28286-15
Client ID: MEAFF-TA-4J-1987-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

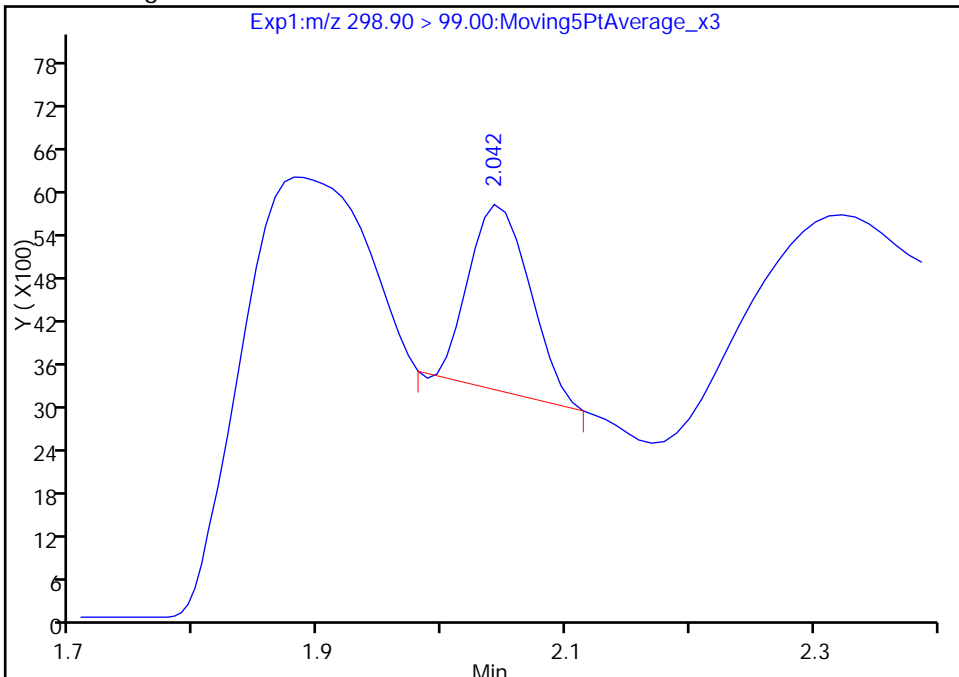
RT: 2.04
Area: 41562
Amount: 0.130692
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 8932
Amount: 0.099996
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown20-SB01-0001 Lab Sample ID: 320-28286-16
 Matrix: Solid Lab File ID: 2017.06.07B_033.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 09:26
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.02(g) Date Analyzed: 06/07/2017 18:56
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 8.0 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	J M	0.54	0.32	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15		0.54	0.32	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.32	U M	0.43	0.32	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	106		25-150
STL00991	13C4 PFOS	77		25-150
STL00994	18O2 PFHxS	89		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_033.d
 Lims ID: 320-28286-A-16-A
 Client ID: MEAFF-Unknown20-SB01-0001
 Sample Type: Client
 Inject. Date: 07-Jun-2017 18:56:54 ALS Bottle#: 17 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-16-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 20:13:07 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 20:13:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.039	2.051	-0.012	1.000	14612	0.0435				M
298.90 > 99.00	2.031	2.051	-0.020	0.996	3122		4.68(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.719	2.730	-0.011		9735224	42.2		89.3	14101	
* 62 13C2-PFOA										
415.00 > 370.00	3.080	3.103	-0.023		5747	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.087	3.103	-0.016	1.000	325169	1.59			99.0	M
413.00 > 169.00	3.087	3.103	-0.016	1.000	191336		1.70(0.90-1.10)		272	M
D 14 13C4 PFOA										
417.00 > 372.00	3.087	3.103	-0.016		9589310	53.2		106	22713	
D 18 13C4 PFOS										
503.00 > 80.00	3.462	3.478	-0.016		6579072	36.9		77.3	15726	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.462	3.478	-0.016	1.000	9976931	68.7			9088	
499.00 > 99.00	3.462	3.478	-0.016	1.000	2334743		4.27(0.90-1.10)		6430	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_033.d

Injection Date: 07-Jun-2017 18:56:54

Instrument ID: A8_N

Lims ID: 320-28286-A-16-A

Lab Sample ID: 320-28286-16

Client ID: MEAFF-Unknown20-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 17

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

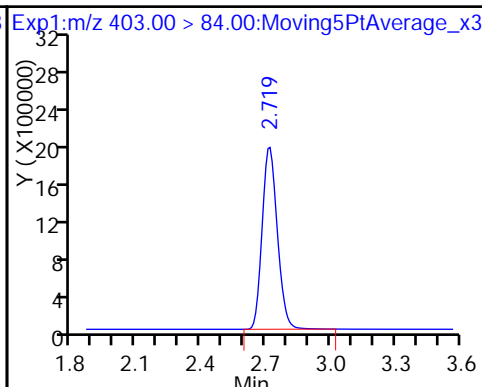
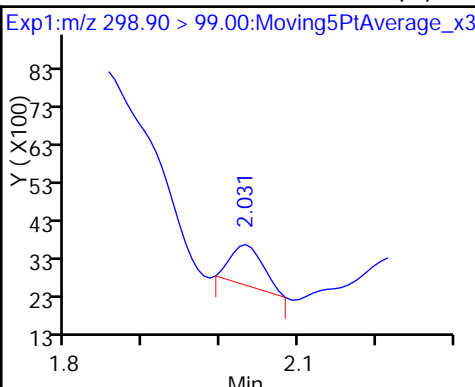
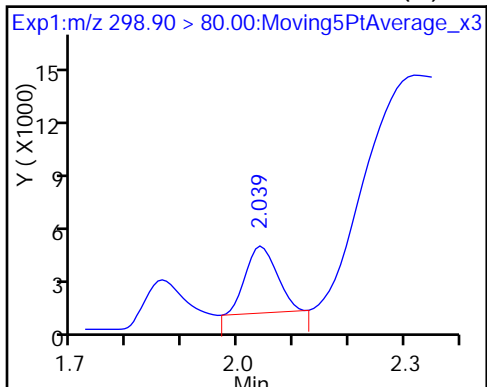
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

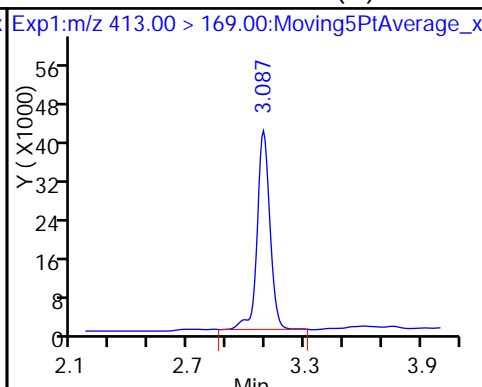
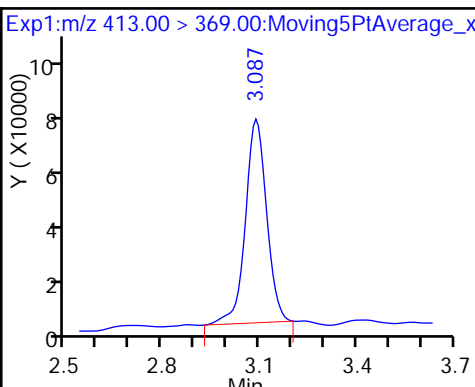
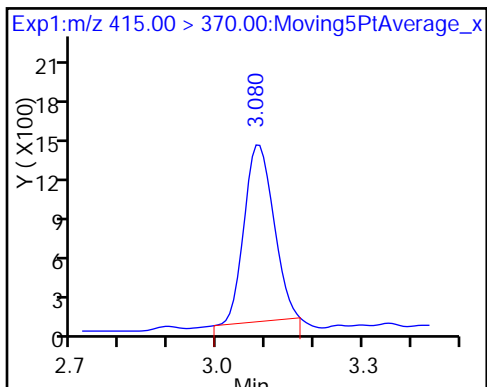
D 11 1802 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

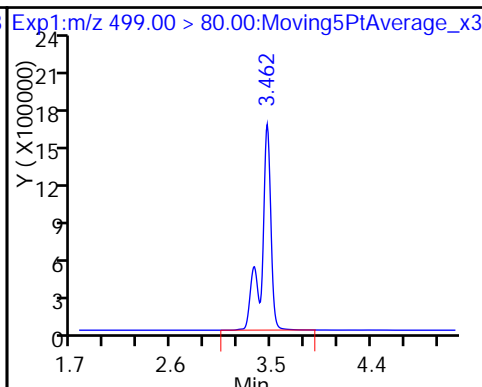
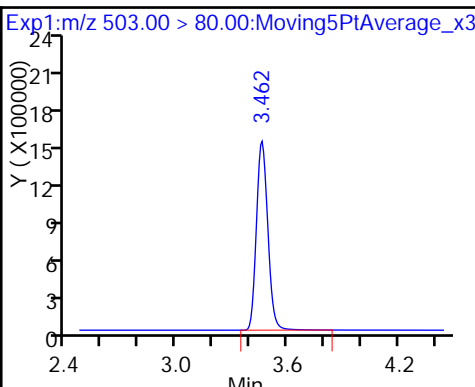
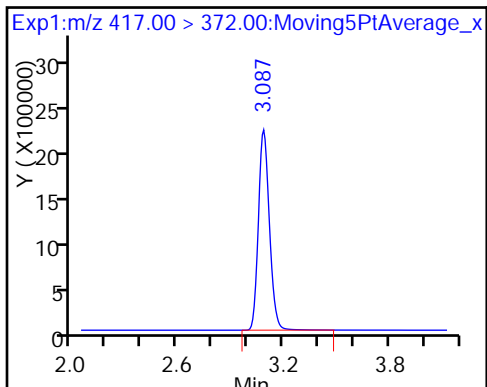
15 Perfluorooctanoic acid (M)



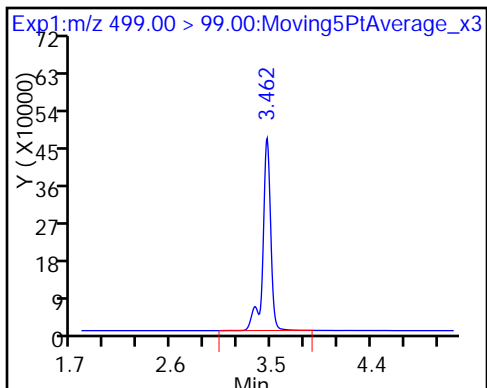
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



TestAmerica Sacramento

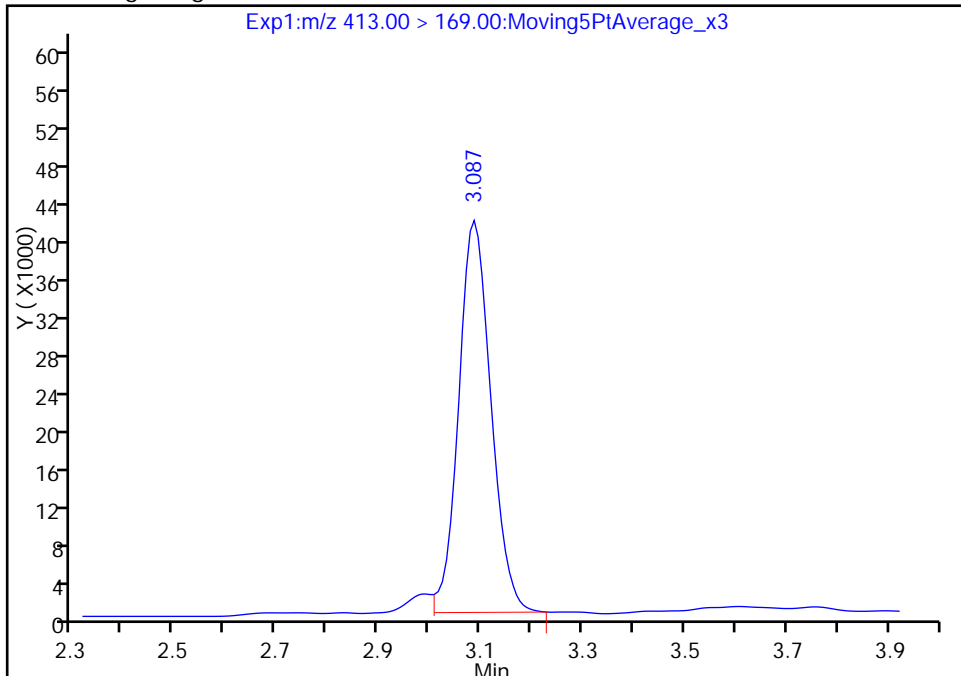
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_033.d
Injection Date: 07-Jun-2017 18:56:54 Instrument ID: A8_N
Lims ID: 320-28286-A-16-A Lab Sample ID: 320-28286-16
Client ID: MEAFF-Unknown20-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

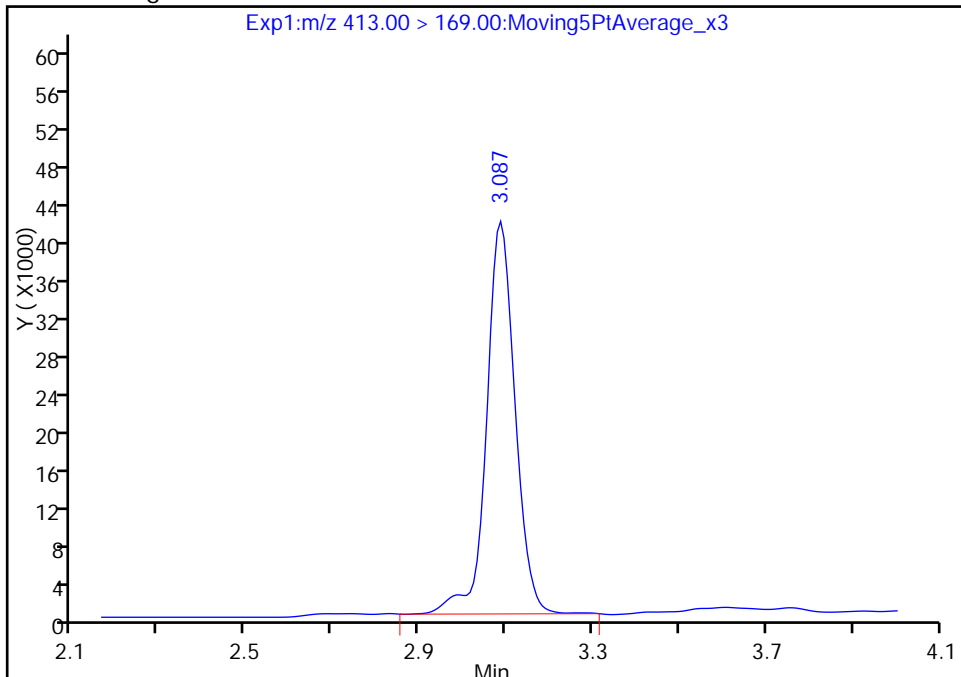
RT: 3.09
Area: 182946
Amount: 1.586861
Amount Units: ng/ml

Processing Integration Results



RT: 3.09
Area: 191336
Amount: 1.586861
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 20:12:42
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

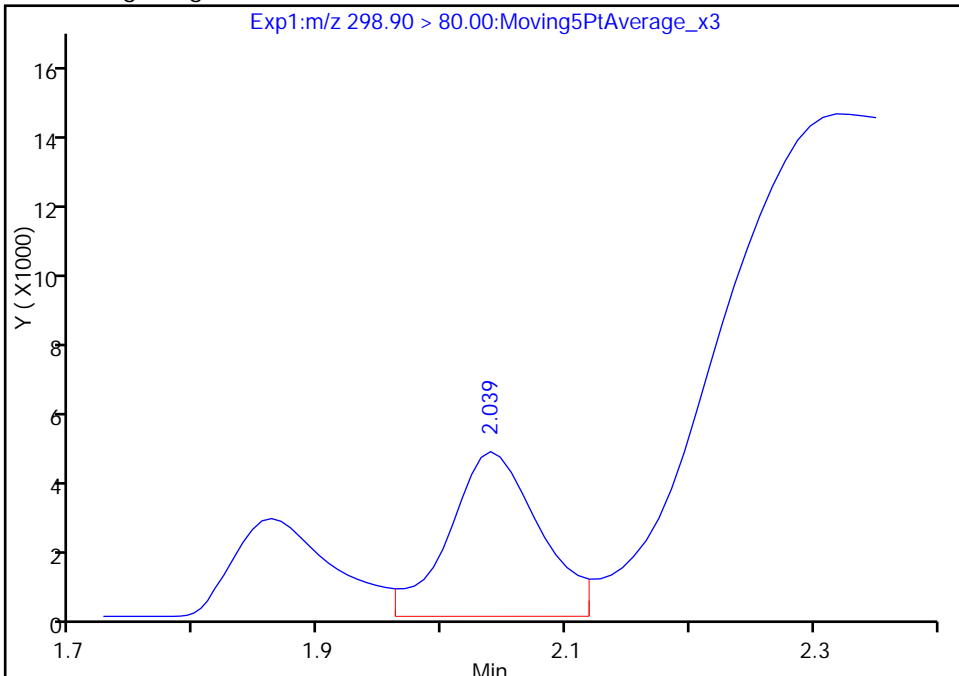
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_033.d
Injection Date: 07-Jun-2017 18:56:54 Instrument ID: A8_N
Lims ID: 320-28286-A-16-A Lab Sample ID: 320-28286-16
Client ID: MEAFF-Unknown20-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

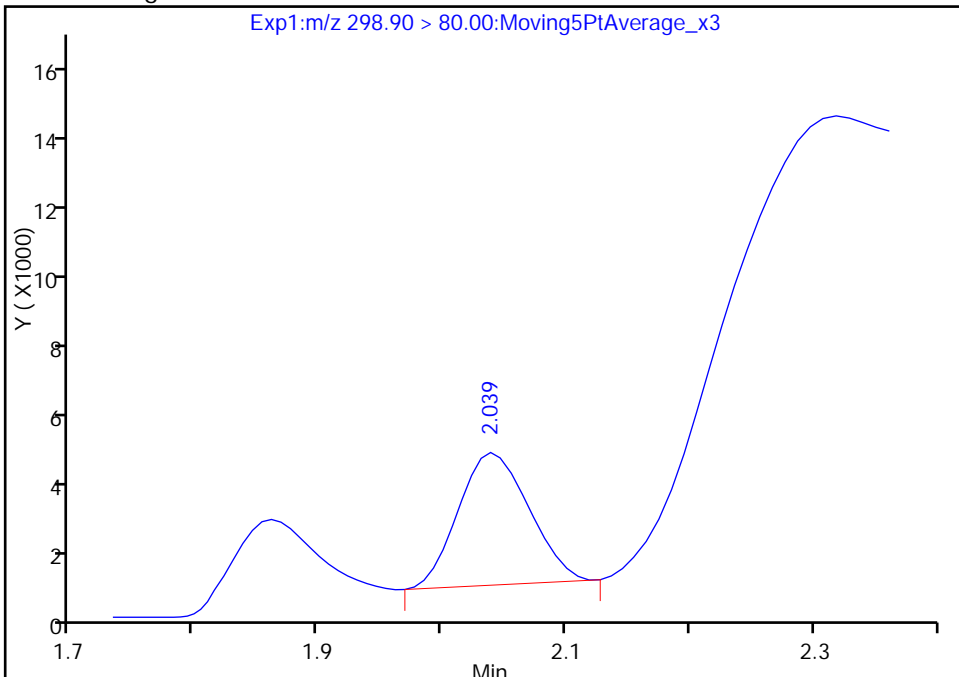
RT: 2.04
Area: 22976
Amount: 0.068381
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 14612
Amount: 0.043488
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 20:12:54
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

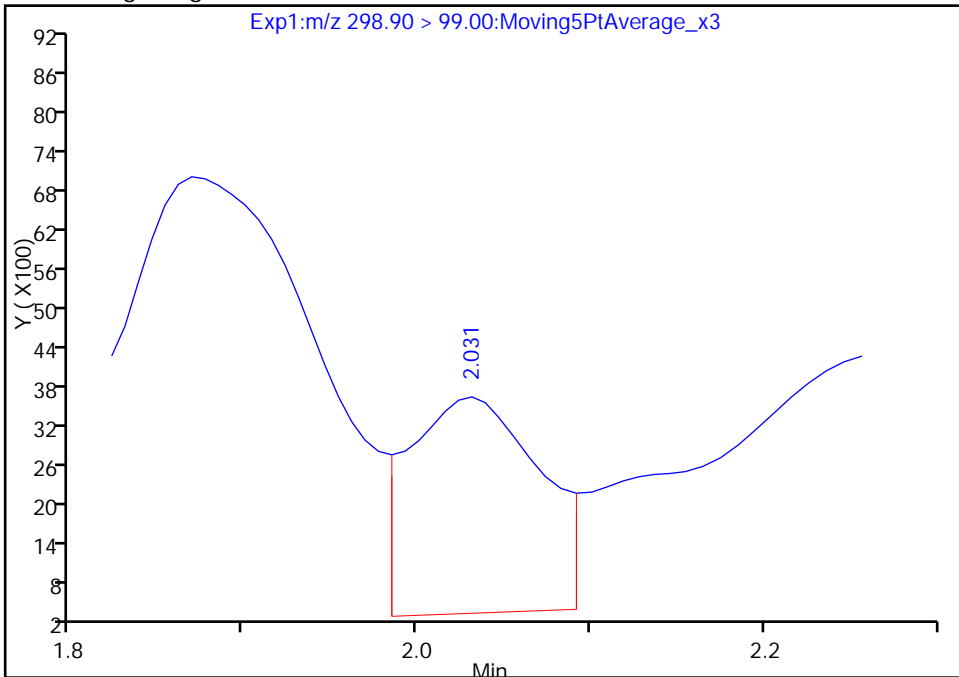
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_033.d
Injection Date: 07-Jun-2017 18:56:54 Instrument ID: A8_N
Lims ID: 320-28286-A-16-A Lab Sample ID: 320-28286-16
Client ID: MEAFF-Unknown20-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

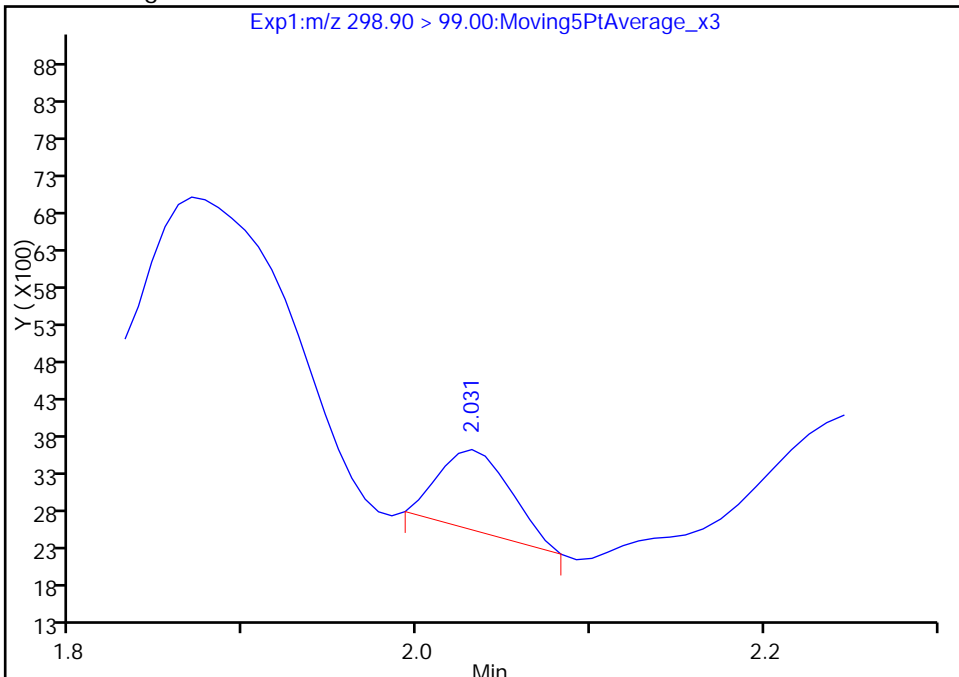
RT: 2.03
Area: 17134
Amount: 0.068381
Amount Units: ng/ml

Processing Integration Results



RT: 2.03
Area: 3122
Amount: 0.043488
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown20-SB01-0204 Lab Sample ID: 320-28286-17
 Matrix: Solid Lab File ID: 2017.06.07B_034.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 09:28
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.00(g) Date Analyzed: 06/07/2017 19:04
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 13.0 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	87		25-150
STL00991	13C4 PFOS	41		25-150
STL00994	18O2 PFHxS	71		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_034.d
 Lims ID: 320-28286-A-17-A
 Client ID: MEAFF-Unknown20-SB01-0204
 Sample Type: Client
 Inject. Date: 07-Jun-2017 19:04:36 ALS Bottle#: 18 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-17-
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 20:13:47 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 20:13:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.035	2.051	-0.016	1.000	12724	0.0477				M
298.90 > 99.00	2.035	2.051	-0.016	1.000	4886		2.60(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.713	2.730	-0.017		7732018	33.5		70.9	17765	
* 62 13C2-PFOA										
415.00 > 370.00	3.080	3.103	-0.023		5316	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.088	3.103	-0.015	1.000	11922	0.0707			4.5	
413.00 > 169.00	3.088	3.103	-0.015	1.000	8946		1.33(0.90-1.10)		14.9	
D 14 13C4 PFOA										
417.00 > 372.00	3.088	3.103	-0.015		7887205	43.7		87.5	14369	
D 18 13C4 PFOS										
503.00 > 80.00	3.455	3.478	-0.023		3452658	19.4		40.5	13266	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_034.d

Injection Date: 07-Jun-2017 19:04:36

Instrument ID: A8_N

Lims ID: 320-28286-A-17-A

Lab Sample ID: 320-28286-17

Client ID: MEAFF-Unknown20-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 18

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

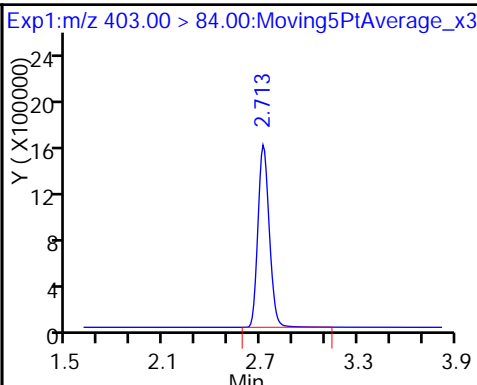
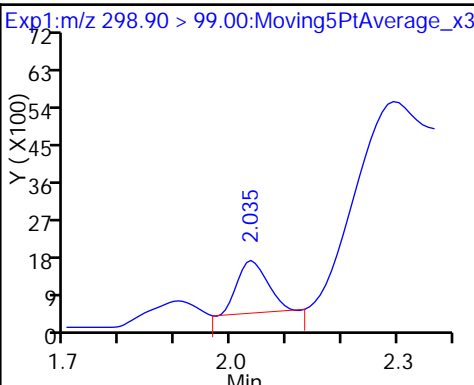
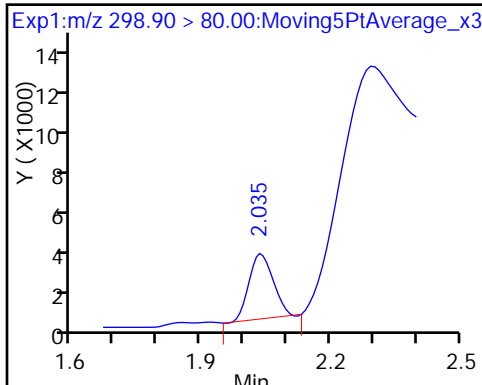
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

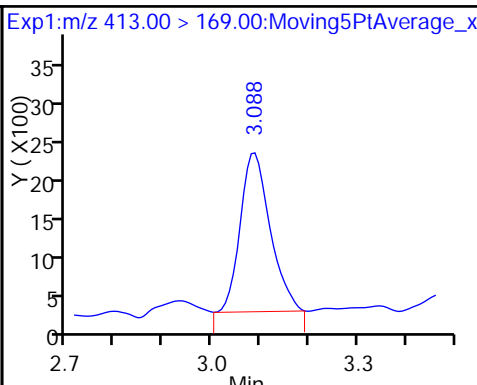
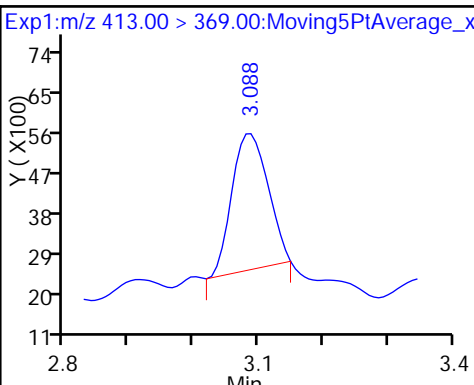
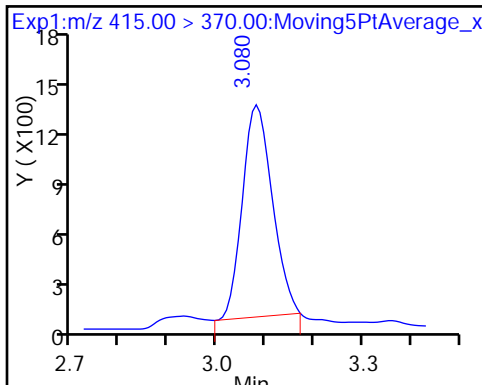
D 11 1802 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

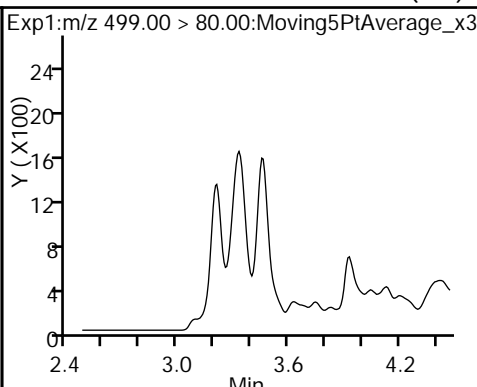
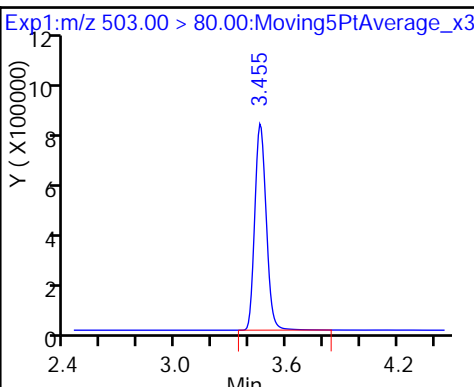
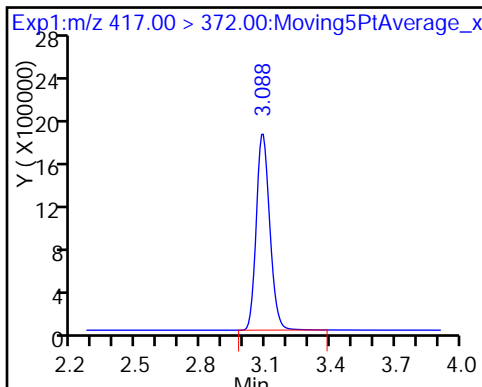
15 Perfluorooctanoic acid



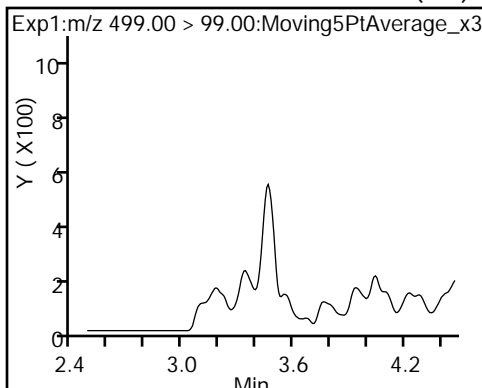
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



TestAmerica Sacramento

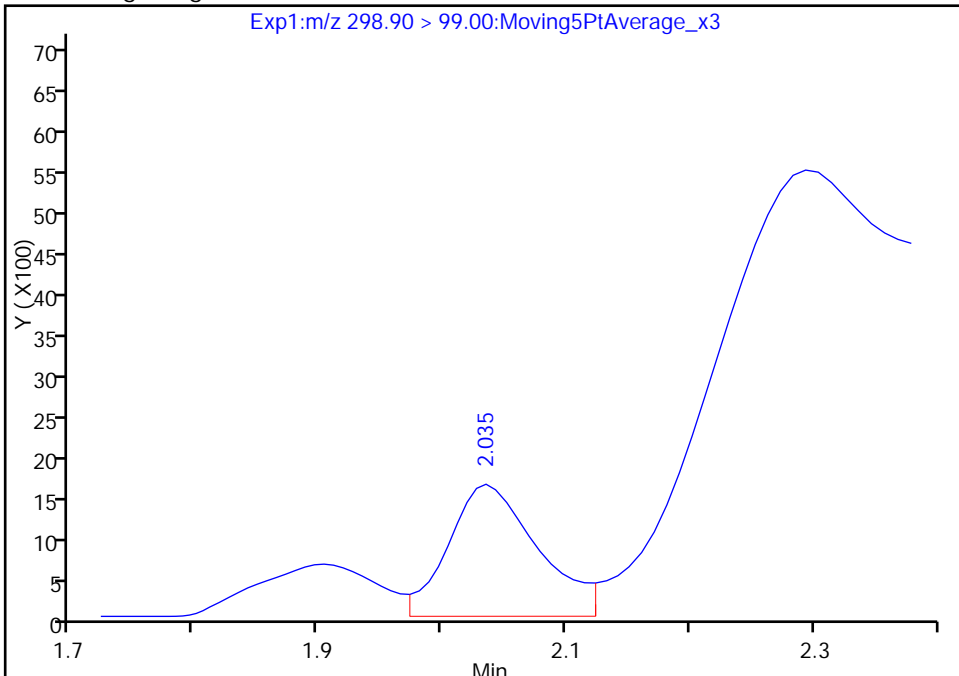
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_034.d
Injection Date: 07-Jun-2017 19:04:36 Instrument ID: A8_N
Lims ID: 320-28286-A-17-A Lab Sample ID: 320-28286-17
Client ID: MEAFF-Unknown20-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

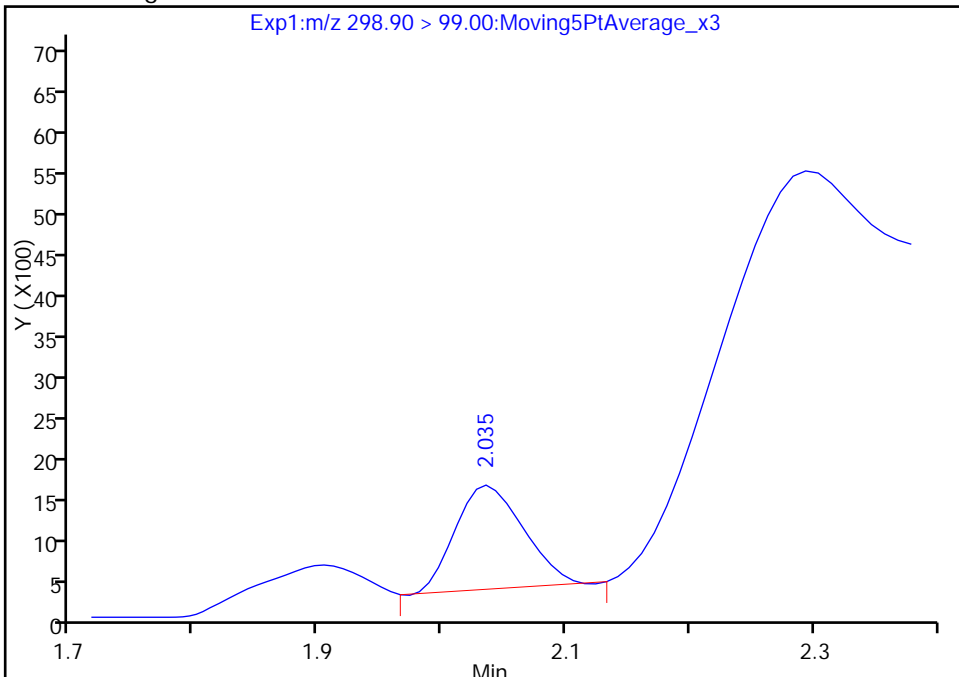
RT: 2.04
Area: 8110
Amount: 0.056812
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 4886
Amount: 0.047680
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 07-Jun-2017 20:13:36
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

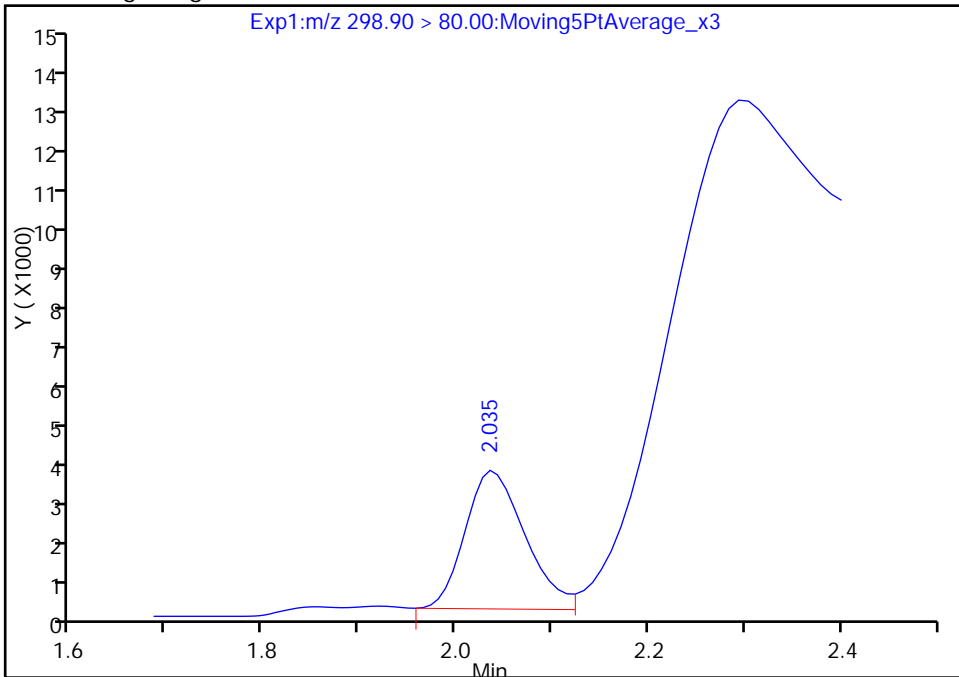
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_034.d
Injection Date: 07-Jun-2017 19:04:36 Instrument ID: A8_N
Lims ID: 320-28286-A-17-A Lab Sample ID: 320-28286-17
Client ID: MEAFF-Unknown20-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

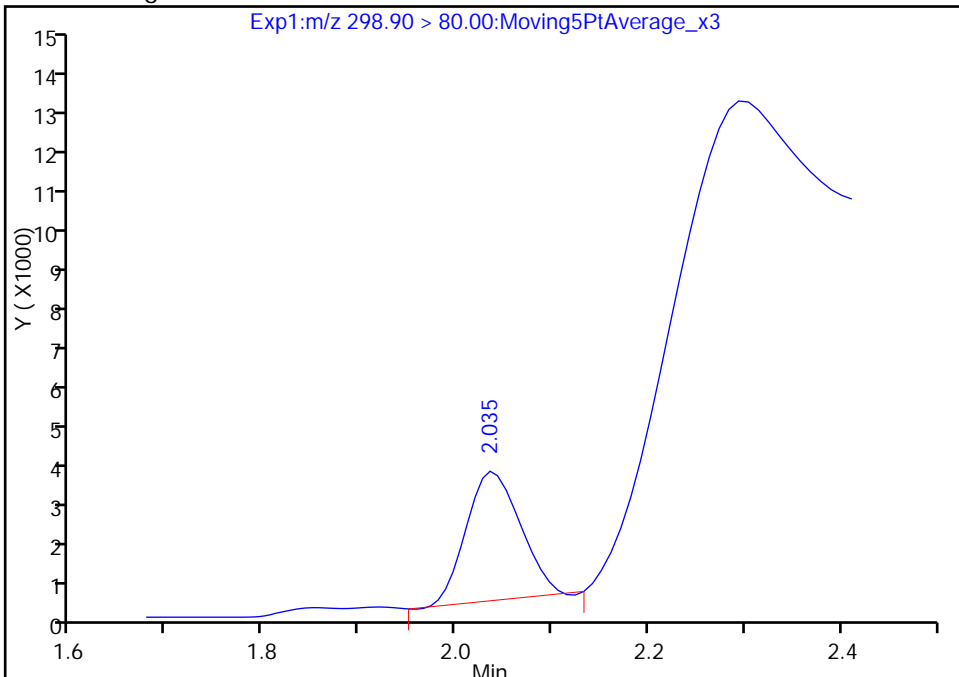
RT: 2.04
Area: 15161
Amount: 0.056812
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 12724
Amount: 0.047680
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-ArrestingGearArea-S B01-0001 Lab Sample ID: 320-28286-18
 Matrix: Solid Lab File ID: 2017.06.07B_035.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 10:42
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.05(g) Date Analyzed: 06/07/2017 19:12
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 11.4 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U M	0.56	0.34	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.56	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	87		25-150
STL00991	13C4 PFOS	42		25-150
STL00994	18O2 PFHxS	81		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_035.d
 Lims ID: 320-28286-A-18-A
 Client ID: MEAFF-ArrestingGearArea-SB01-0001
 Sample Type: Client
 Inject. Date: 07-Jun-2017 19:12:18 ALS Bottle#: 19 Worklist Smp#: 21
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-18-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 08-Jun-2017 10:30:06 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK023

First Level Reviewer: rainey Date: 08-Jun-2017 10:30:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.042	2.051	-0.009	1.000	15535	0.0509				M
298.90 > 99.00	2.042	2.051	-0.009	1.000	5052		3.08(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.711	2.730	-0.019		8837559	38.3		81.0	16035	
* 62 13C2-PFOA										
415.00 > 370.00	3.080	3.103	-0.023		4954	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.087	3.103	-0.016	1.000	17535	0.1046			5.5	M
413.00 > 169.00	3.080	3.103	-0.023	0.998	10013		1.75(0.90-1.10)		15.3	M
D 14 13C4 PFOA										
417.00 > 372.00	3.080	3.103	-0.023		7843056	43.5		87.0	14259	
D 18 13C4 PFOS										
503.00 > 80.00	3.454	3.478	-0.024		3541327	19.9		41.6	15227	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_035.d

Injection Date: 07-Jun-2017 19:12:18

Instrument ID: A8_N

Lims ID: 320-28286-A-18-A

Lab Sample ID: 320-28286-18

Client ID: MEAFF-ArrestingGearArea-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 19

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

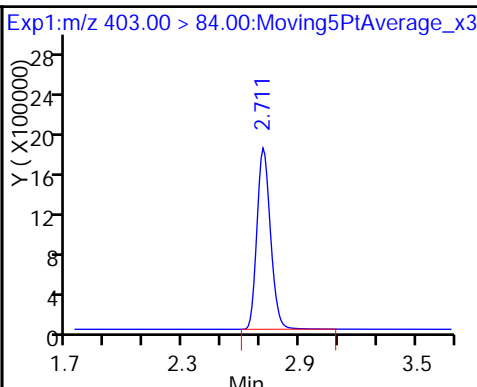
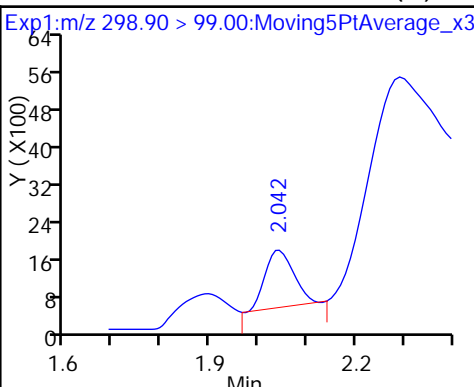
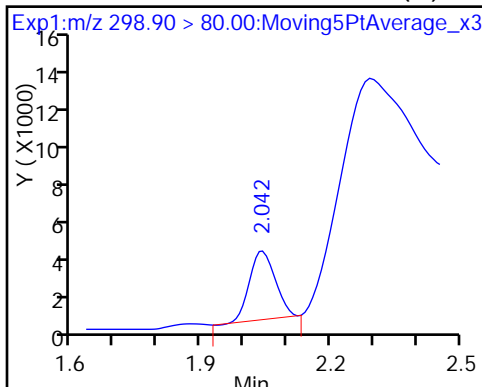
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

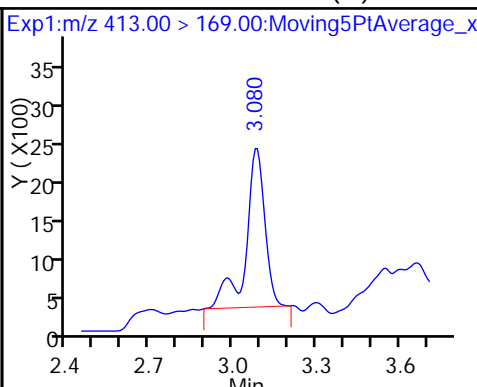
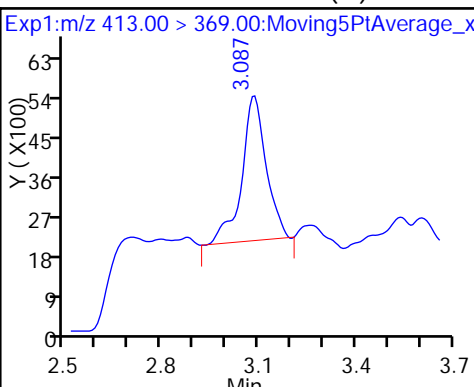
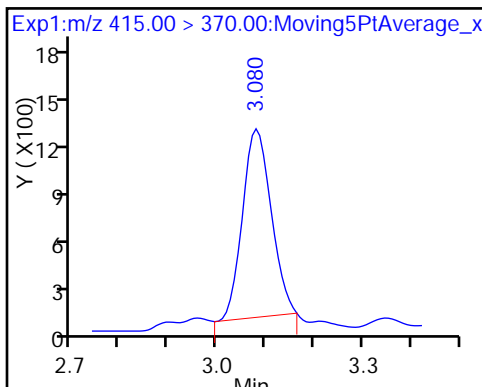
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid (M)

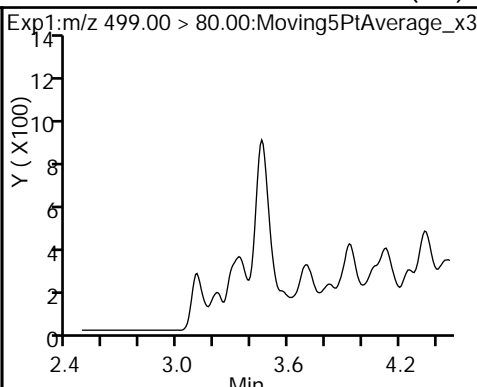
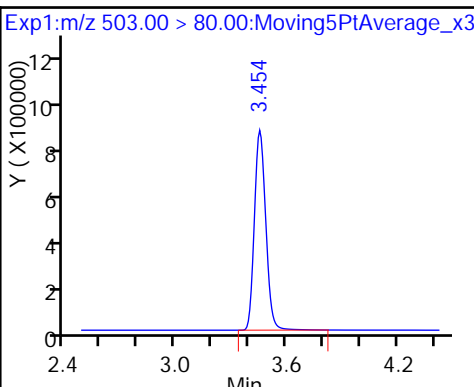
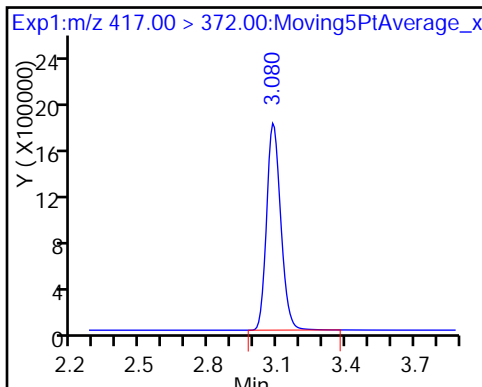
15 Perfluorooctanoic acid (M)



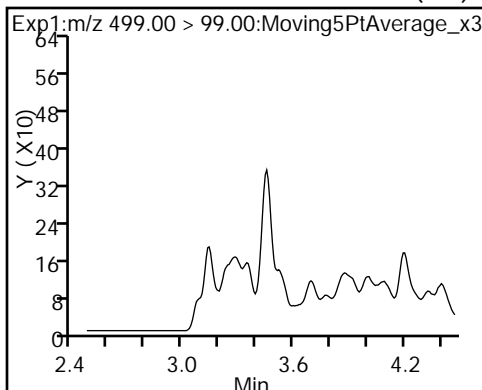
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



TestAmerica Sacramento

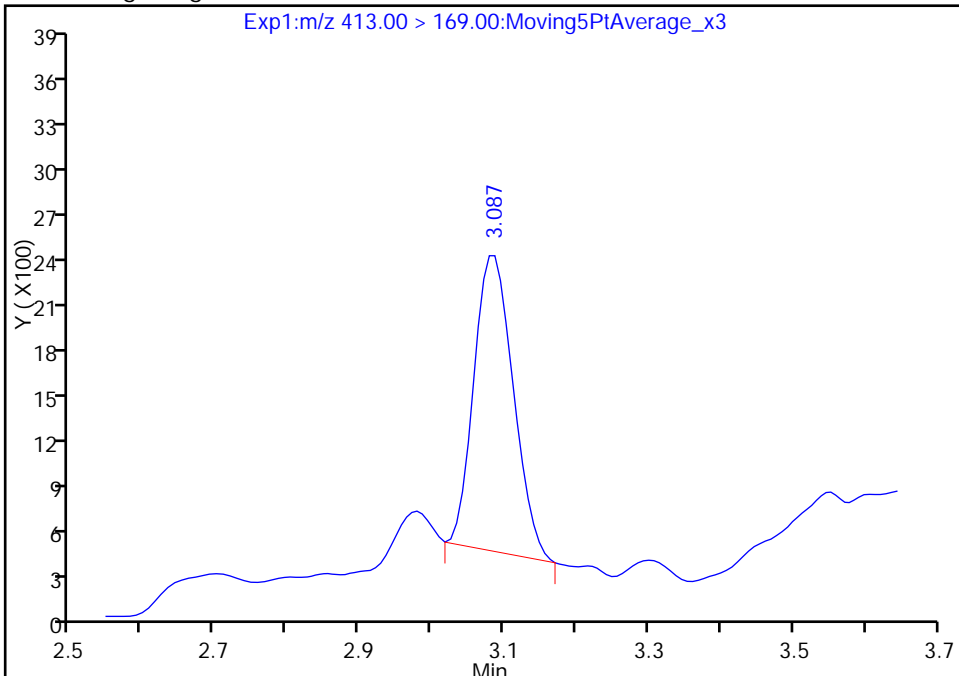
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_035.d
Injection Date: 07-Jun-2017 19:12:18 Instrument ID: A8_N
Lims ID: 320-28286-A-18-A Lab Sample ID: 320-28286-18
Client ID: MEAFF-ArrestingGearArea-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 19 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

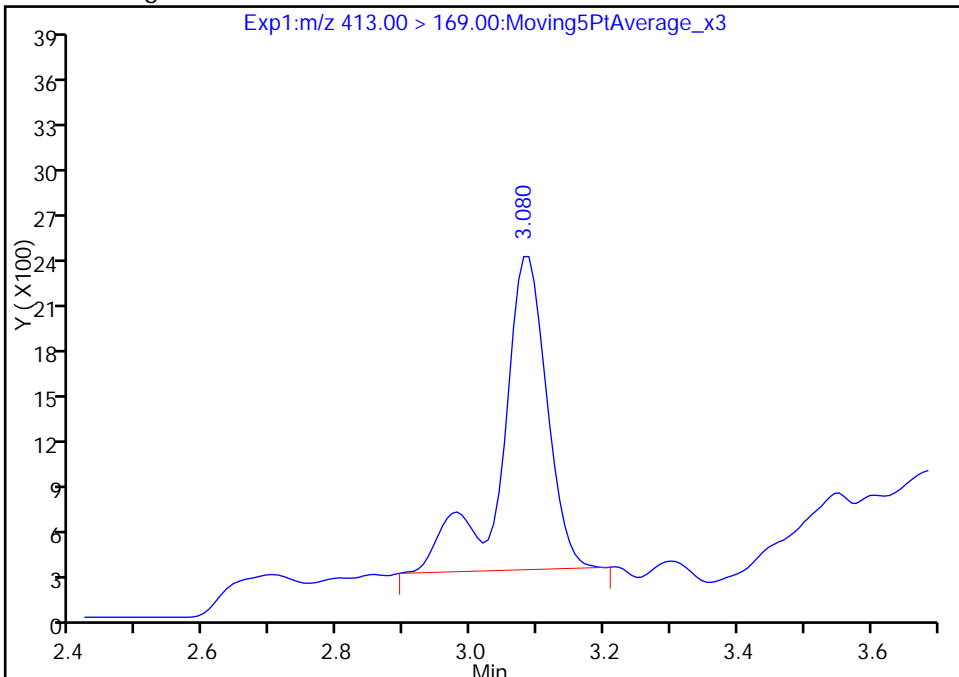
RT: 3.09
Area: 7496
Amount: 0.048927
Amount Units: ng/ml

Processing Integration Results



RT: 3.08
Area: 10013
Amount: 0.104626
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

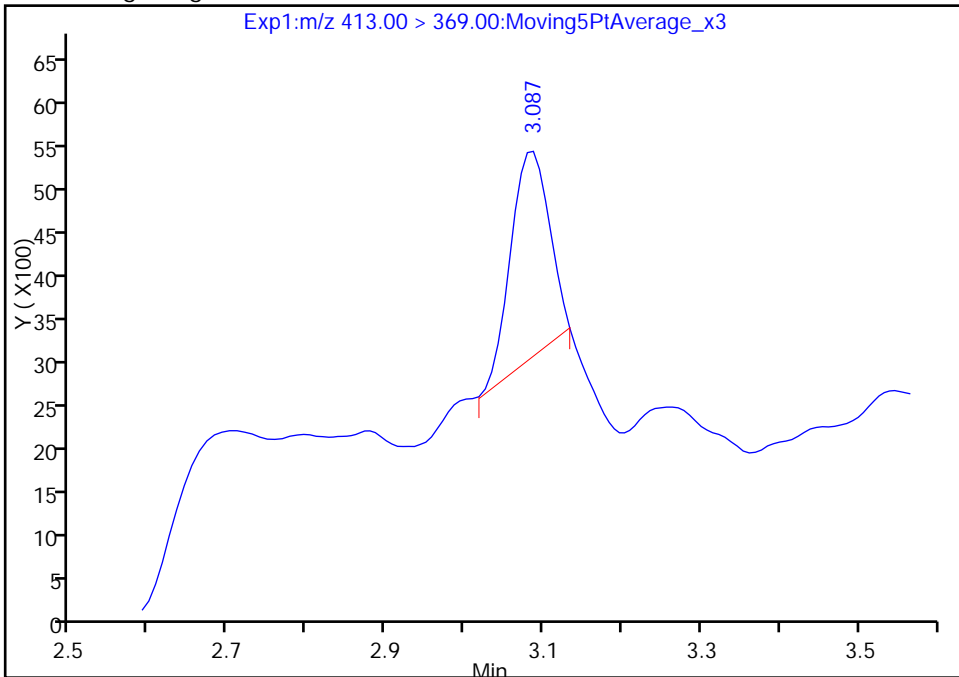
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_035.d
Injection Date: 07-Jun-2017 19:12:18 Instrument ID: A8_N
Lims ID: 320-28286-A-18-A Lab Sample ID: 320-28286-18
Client ID: MEAFF-ArrestingGearArea-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 19 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

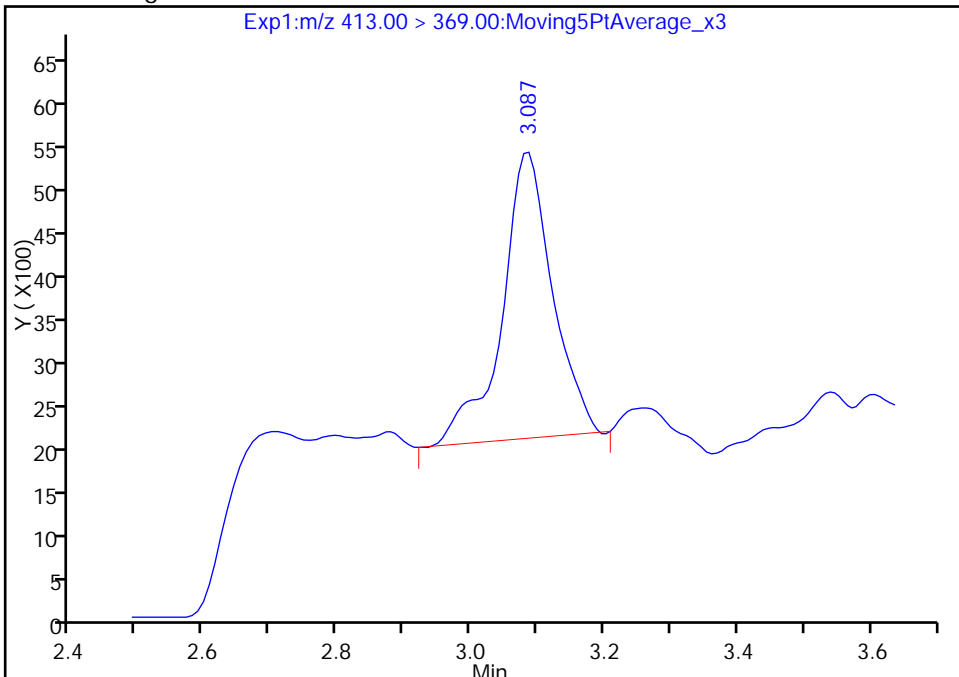
RT: 3.09
Area: 8200
Amount: 0.048927
Amount Units: ng/ml

Processing Integration Results



RT: 3.09
Area: 17535
Amount: 0.104626
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

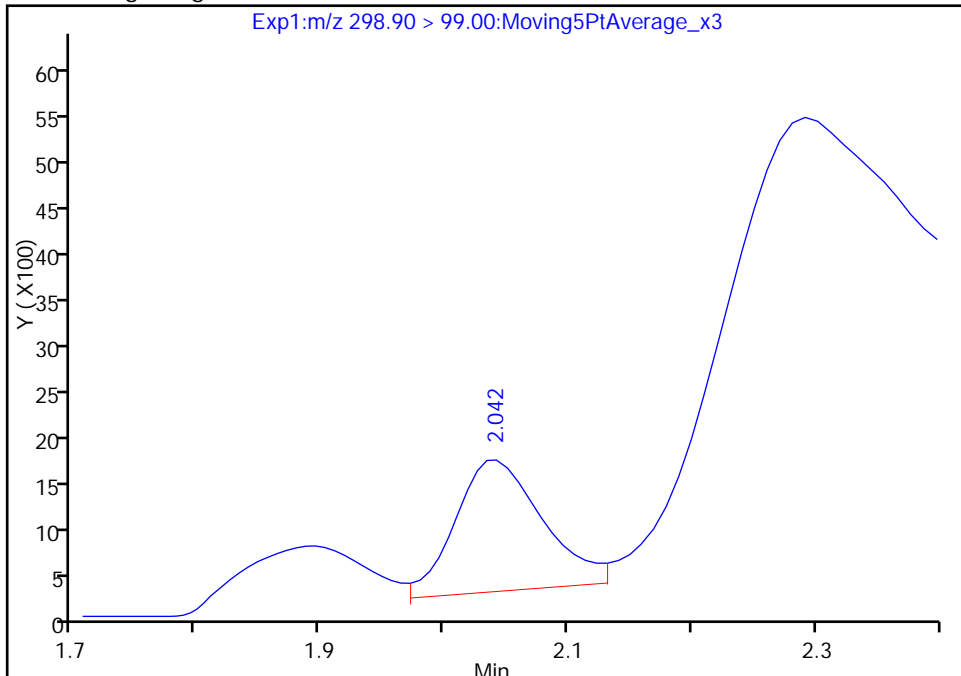
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_035.d
Injection Date: 07-Jun-2017 19:12:18 Instrument ID: A8_N
Lims ID: 320-28286-A-18-A Lab Sample ID: 320-28286-18
Client ID: MEAFF-ArrestingGearArea-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 19 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

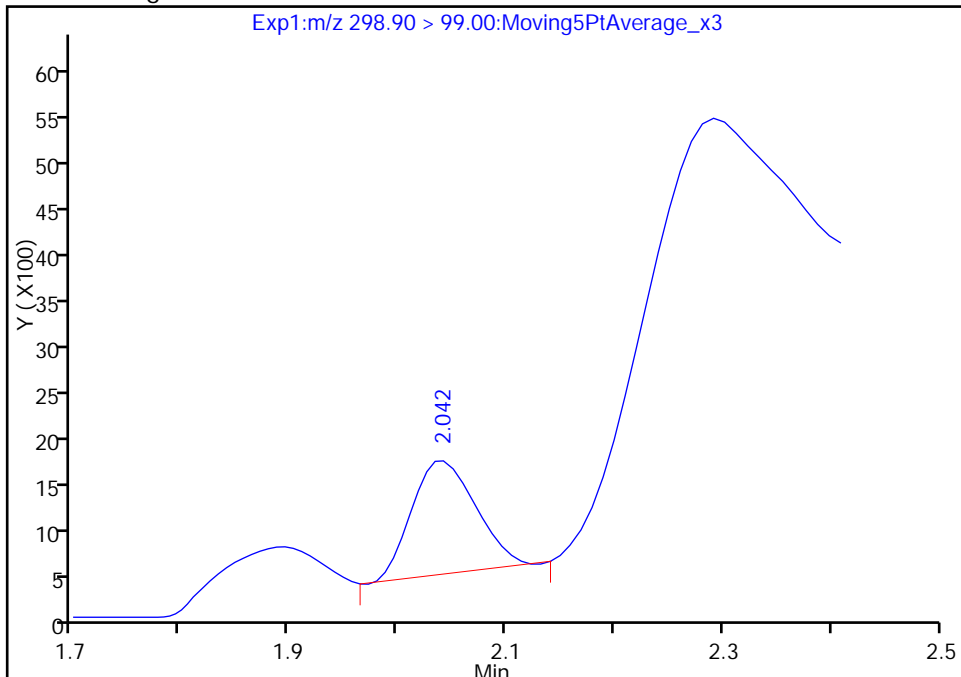
RT: 2.04
Area: 6995
Amount: 0.061717
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 5052
Amount: 0.050931
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 08-Jun-2017 10:29:35
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

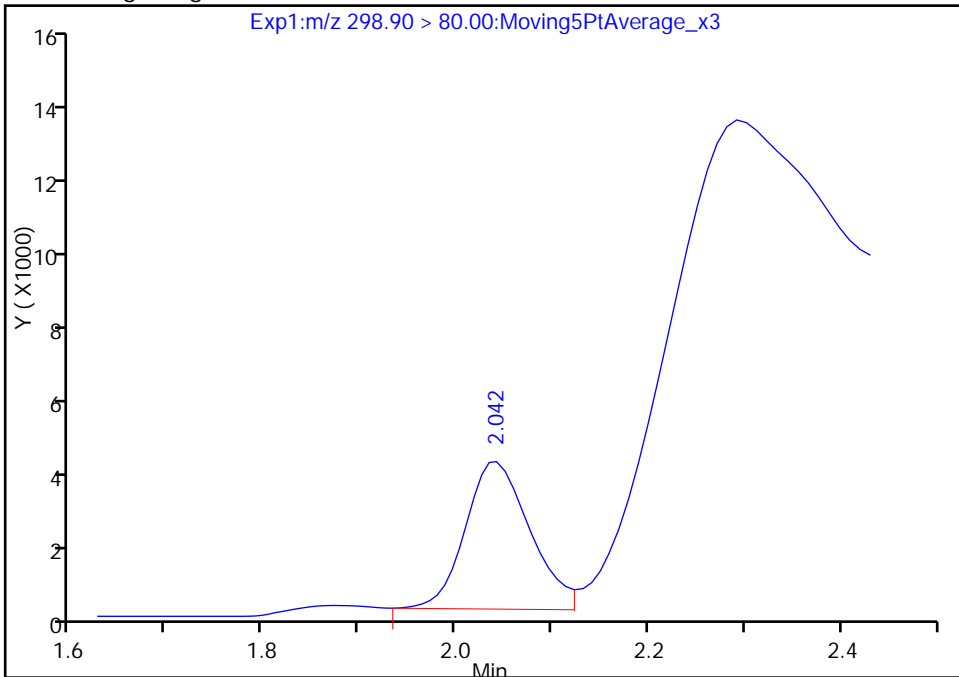
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_035.d
Injection Date: 07-Jun-2017 19:12:18 Instrument ID: A8_N
Lims ID: 320-28286-A-18-A Lab Sample ID: 320-28286-18
Client ID: MEAFF-ArrestingGearArea-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 19 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

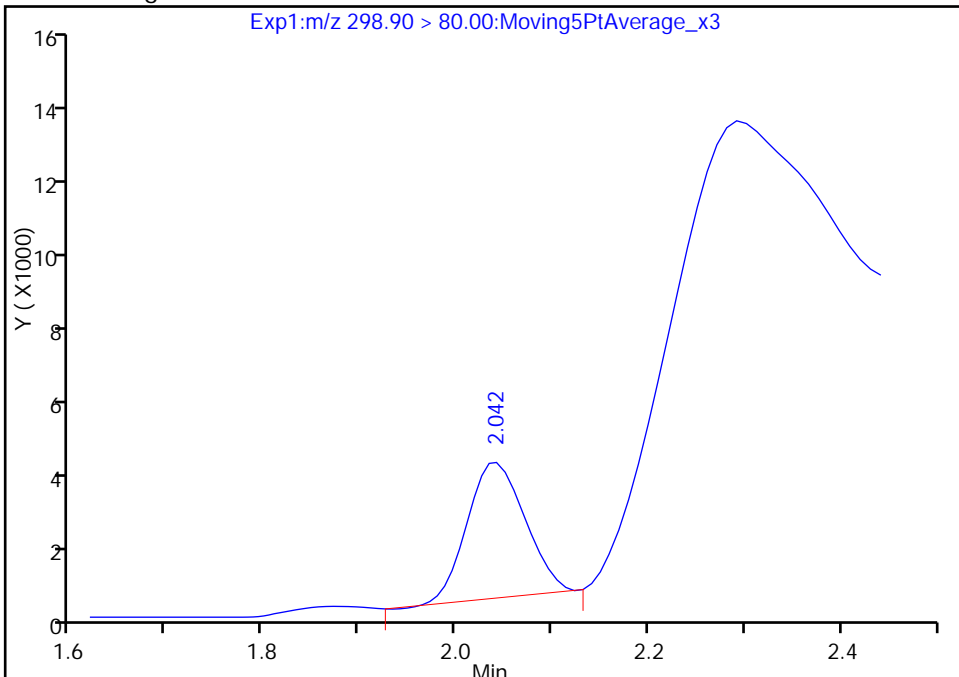
RT: 2.04
Area: 18825
Amount: 0.061717
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 15535
Amount: 0.050931
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-ArrestingGearArea-S B01-0204 Lab Sample ID: 320-28286-19
 Matrix: Solid Lab File ID: 2017.06.07B_036.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 10:49
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.00(g) Date Analyzed: 06/07/2017 19:20
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 16.3 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.36	U	0.60	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.36	U	0.60	0.36	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.48	0.36	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	90		25-150
STL00991	13C4 PFOS	48		25-150
STL00994	18O2 PFHxS	80		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_036.d
 Lims ID: 320-28286-A-19-A
 Client ID: MEAFF-ArrestingGearArea-SB01-0204
 Sample Type: Client
 Inject. Date: 07-Jun-2017 19:20:03 ALS Bottle#: 20 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-19-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 08-Jun-2017 10:30:38 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK023

First Level Reviewer: rainey Date: 08-Jun-2017 10:30:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.039	2.051	-0.012	1.000	6844	0.0227				M
298.90 > 99.00	2.039	2.051	-0.012	1.000	2300		2.98(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.710	2.730	-0.020		8737919	37.9		80.1	13976	
* 62 13C2-PFOA										
415.00 > 370.00	3.080	3.103	-0.023		5168	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.087	3.103	-0.016	1.000	12766	0.0734			5.1	
413.00 > 169.00	3.087	3.103	-0.016	1.000	8199		1.56(0.90-1.10)		14.2	
D 14 13C4 PFOA										
417.00 > 372.00	3.087	3.103	-0.016		8139126	45.1		90.3	15631	
D 18 13C4 PFOS										
503.00 > 80.00	3.454	3.478	-0.024		4094536	23.0		48.1	8664	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_036.d

Injection Date: 07-Jun-2017 19:20:03

Instrument ID: A8_N

Lims ID: 320-28286-A-19-A

Lab Sample ID: 320-28286-19

Client ID: MEAFF-ArrestingGearArea-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 20

Worklist Smp#: 22

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

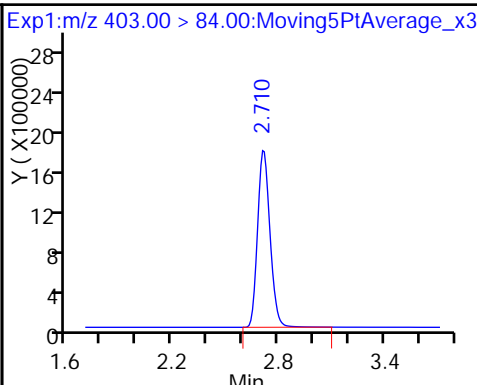
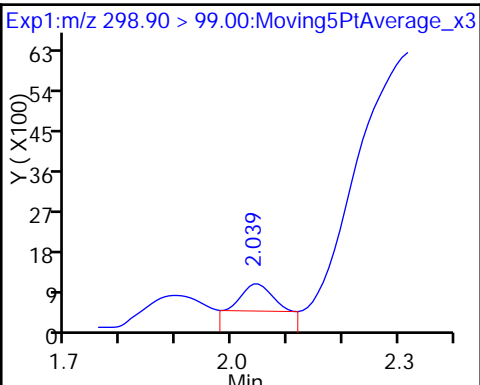
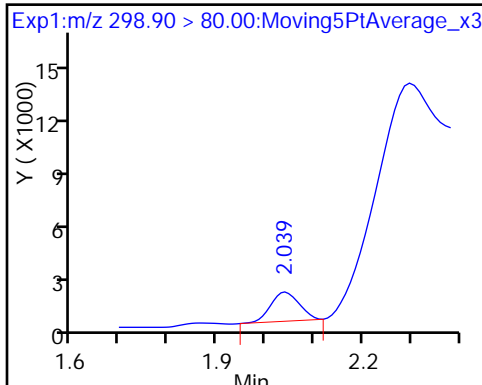
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

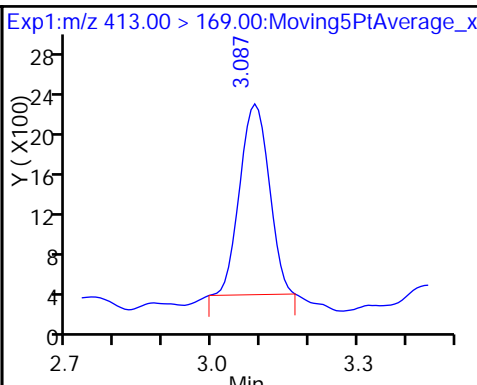
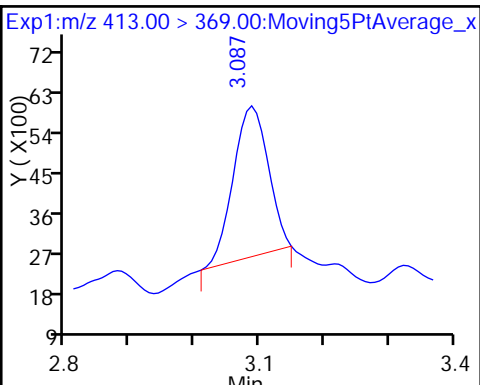
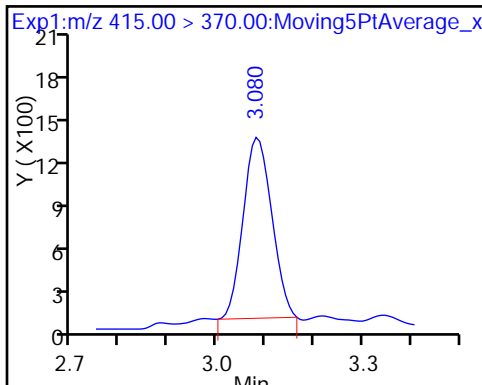
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

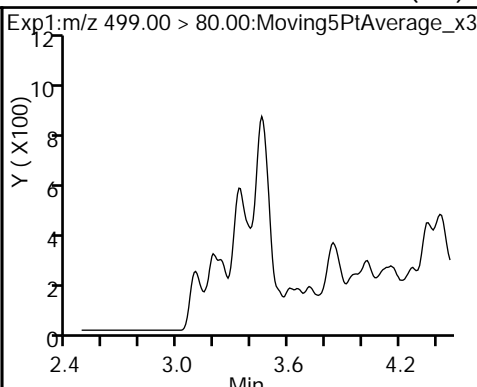
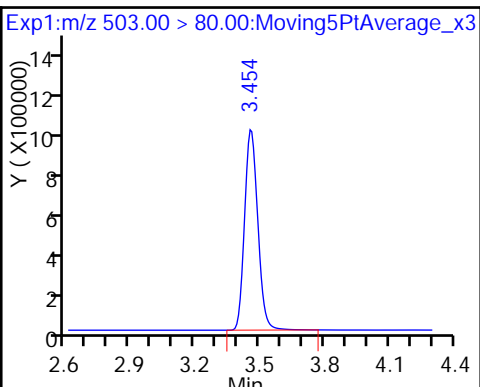
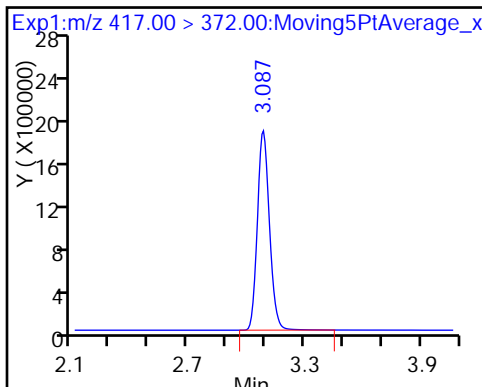
15 Perfluorooctanoic acid



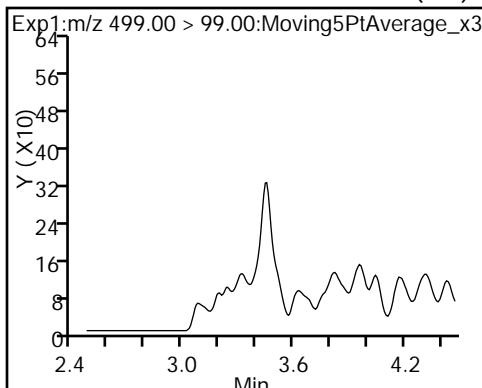
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



TestAmerica Sacramento

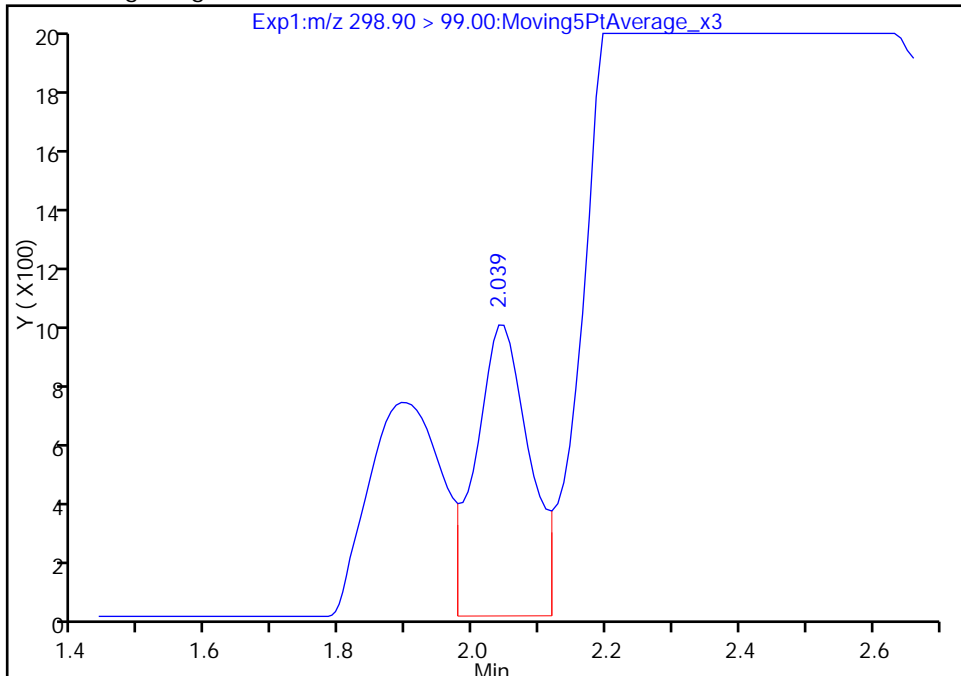
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_036.d
Injection Date: 07-Jun-2017 19:20:03 Instrument ID: A8_N
Lims ID: 320-28286-A-19-A Lab Sample ID: 320-28286-19
Client ID: MEAFF-ArrestingGearArea-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 20 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

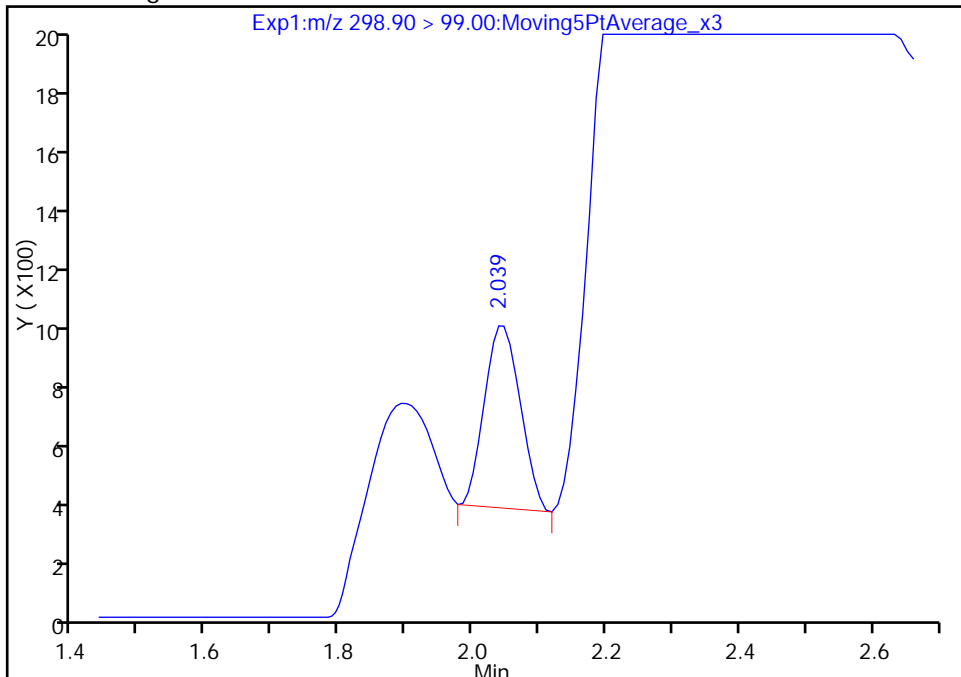
RT: 2.04
Area: 5401
Amount: 0.035344
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 2300
Amount: 0.022694
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 08-Jun-2017 10:30:26
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

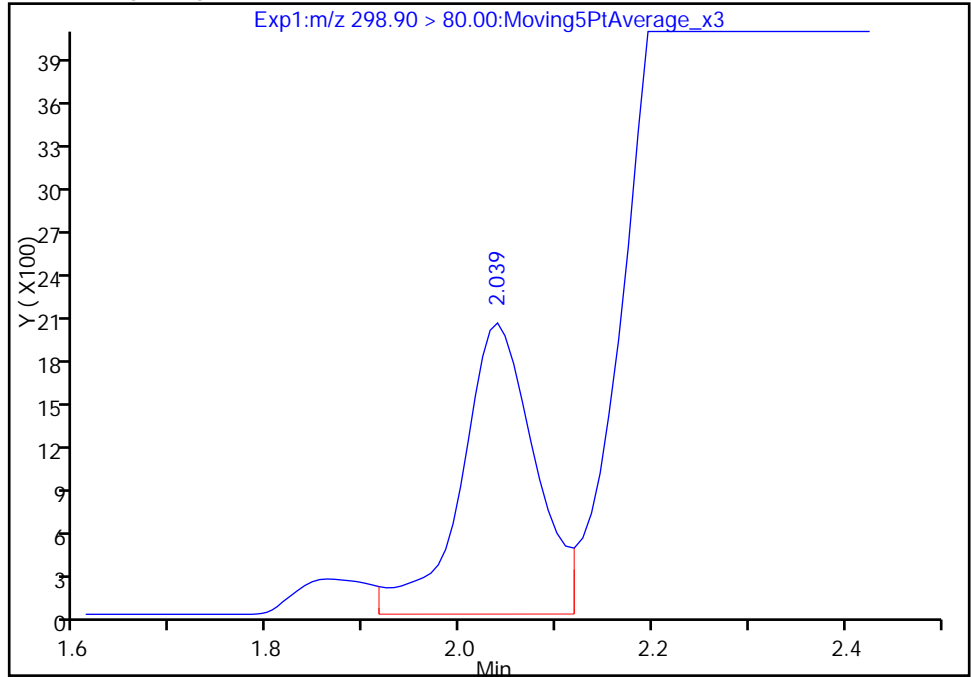
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Injection Date: 07-Jun-2017 19:20:03 Instrument ID: A8_N
Lims ID: 320-28286-A-19-A Lab Sample ID: 320-28286-19
Client ID: MEAFF-ArrestingGearArea-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 20 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

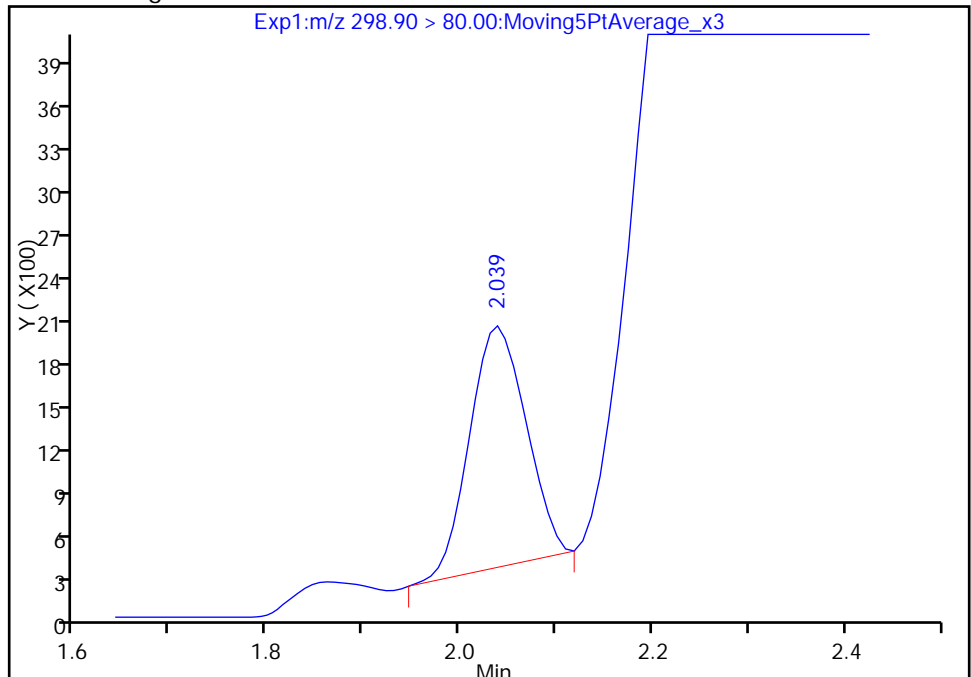
RT: 2.04
Area: 10659
Amount: 0.035344
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 6844
Amount: 0.022694
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown16-SB01-0001 Lab Sample ID: 320-28286-20
 Matrix: Solid Lab File ID: 2017.06.07B_038.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 12:23
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.09(g) Date Analyzed: 06/07/2017 19:35
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 9.9 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.33	U	0.54	0.33	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.54	0.33	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.33	U	0.44	0.33	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	92		25-150
STL00991	13C4 PFOS	46		25-150
STL00994	18O2 PFHxS	79		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_038.d
 Lims ID: 320-28286-A-20-A
 Client ID: MEAFF-Unknown16-SB01-0001
 Sample Type: Client
 Inject. Date: 07-Jun-2017 19:35:26 ALS Bottle#: 21 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-20-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 08-Jun-2017 10:30:55 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK023

First Level Reviewer: rainey Date: 08-Jun-2017 10:31:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.042	2.043	-0.001	1.000	10090	0.0338				
298.90 > 99.00	2.042	2.043	-0.001	1.000	3285		3.07(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.711	2.712	-0.001		8636558	37.5		79.2	11431	
* 62 13C2-PFOA										
415.00 > 370.00	3.079	3.080	-0.001		13123	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.079	3.088	-0.009	1.000	15646	0.0884			5.8	
413.00 > 169.00	3.087	3.088	-0.001	1.002	9829		1.59(0.90-1.10)		18.7	
D 14 13C4 PFOA										
417.00 > 372.00	3.079	3.088	-0.009		8279649	45.9		91.8	16470	
D 18 13C4 PFOS										
503.00 > 80.00	3.456	3.455	0.001		3913377	22.0		46.0	12958	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_038.d

Injection Date: 07-Jun-2017 19:35:26

Instrument ID: A8_N

Lims ID: 320-28286-A-20-A

Lab Sample ID: 320-28286-20

Client ID: MEAFF-Unknown16-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

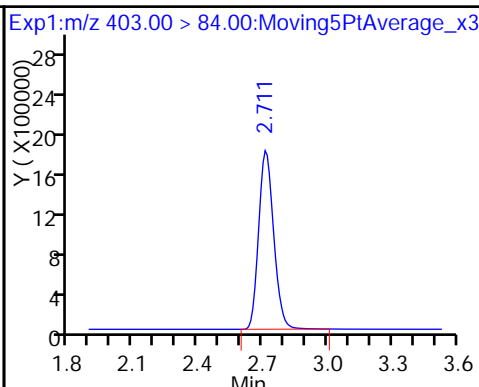
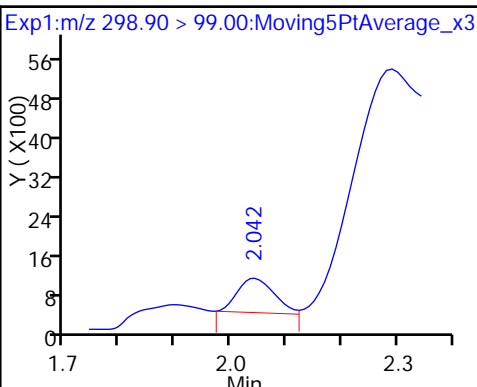
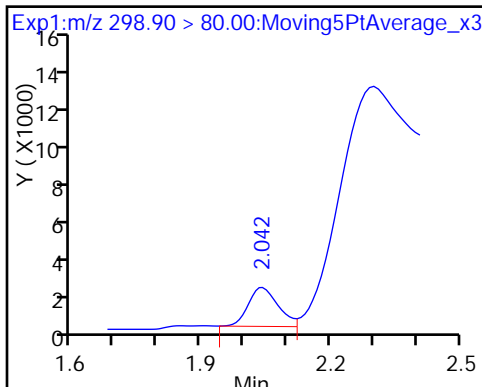
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid

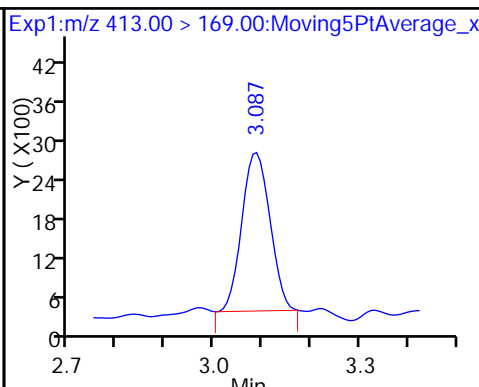
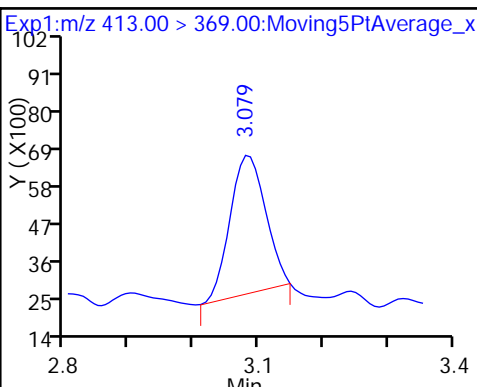
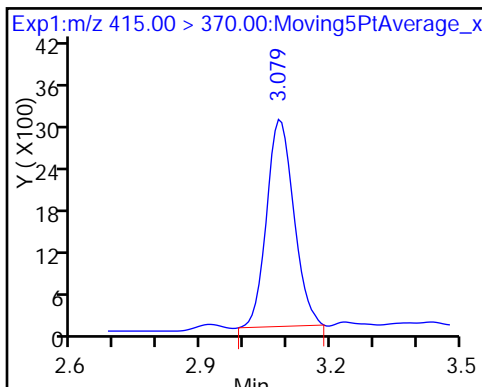
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

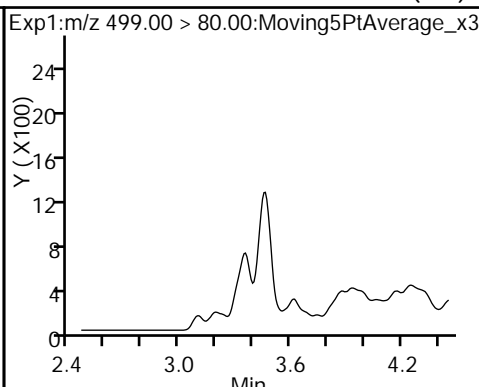
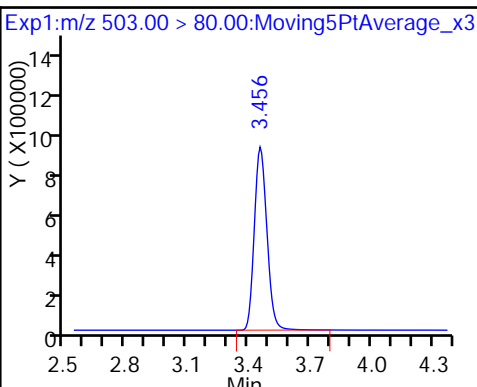
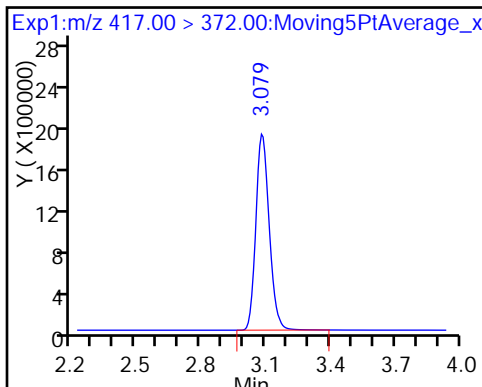
15 Perfluorooctanoic acid



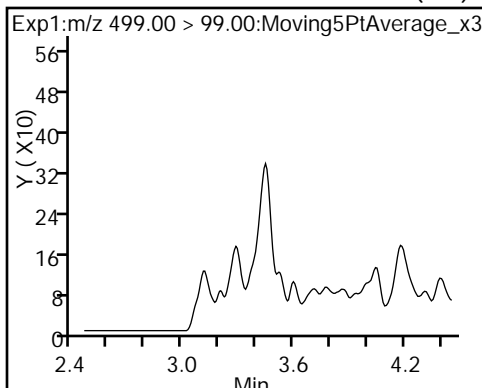
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown16-SB01-0204 Lab Sample ID: 320-28286-21
 Matrix: Solid Lab File ID: 2017.06.07B_039.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 12:25
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.01(g) Date Analyzed: 06/07/2017 19:43
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 13.5 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.35	U	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.46	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	72		25-150
STL00991	13C4 PFOS	40		25-150
STL00994	18O2 PFHxS	65		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_039.d
 Lims ID: 320-28286-A-21-A
 Client ID: MEAFF-Unknown16-SB01-0204
 Sample Type: Client
 Inject. Date: 07-Jun-2017 19:43:09 ALS Bottle#: 22 Worklist Smp#: 25
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-21-
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 08-Jun-2017 10:35:28 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK023

First Level Reviewer: rainey Date: 08-Jun-2017 10:35:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.043	2.043	0.0	1.000	4776	0.0194				M
298.90 > 99.00	2.035	2.043	-0.008	0.996	1420		3.36(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.713	2.712	0.001		7123909	30.9		65.3	18814	
* 62 13C2-PFOA										
415.00 > 370.00	3.080	3.080	0.0		5534	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.088	3.088	0.0	1.000	9026	0.0654			3.5	
413.00 > 169.00	3.088	3.088	0.0	1.000	5812		1.55(0.90-1.10)		10.9	
D 14 13C4 PFOA										
417.00 > 372.00	3.080	3.088	-0.008		6453854	35.8		71.6	18620	
D 18 13C4 PFOS										
503.00 > 80.00	3.455	3.455	0.0		3412192	19.2		40.1	10808	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_039.d

Injection Date: 07-Jun-2017 19:43:09

Instrument ID: A8_N

Lims ID: 320-28286-A-21-A

Lab Sample ID: 320-28286-21

Client ID: MEAFF-Unknown16-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 22

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

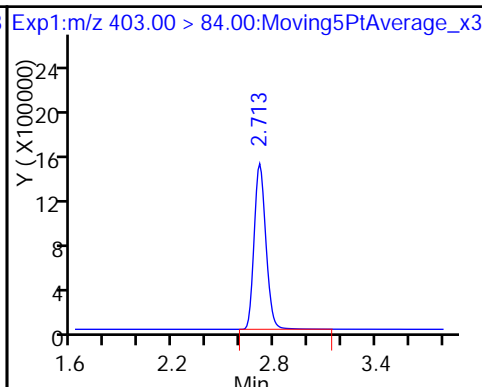
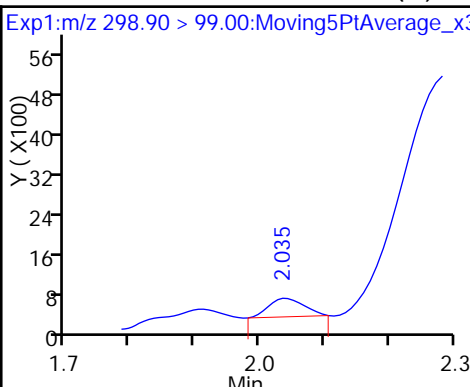
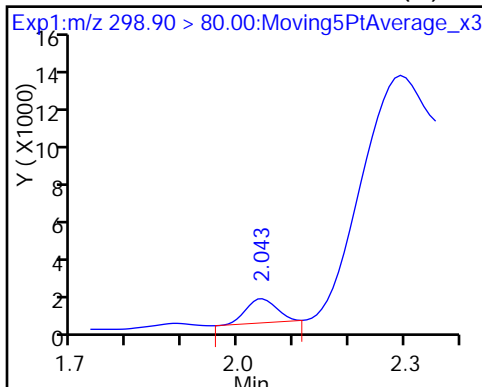
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

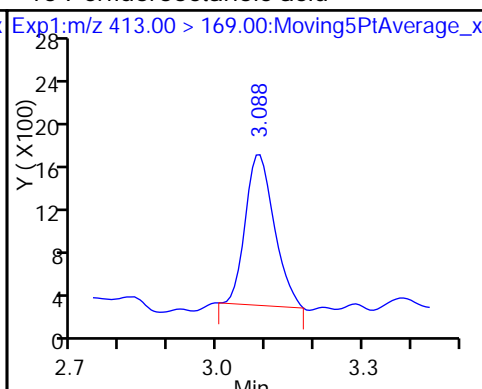
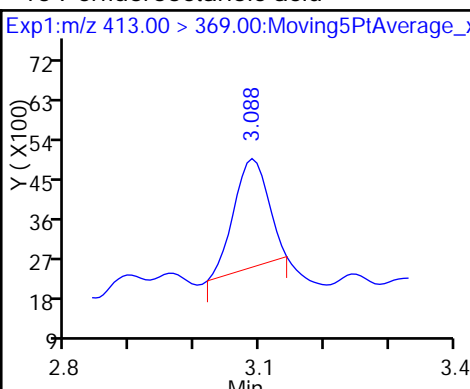
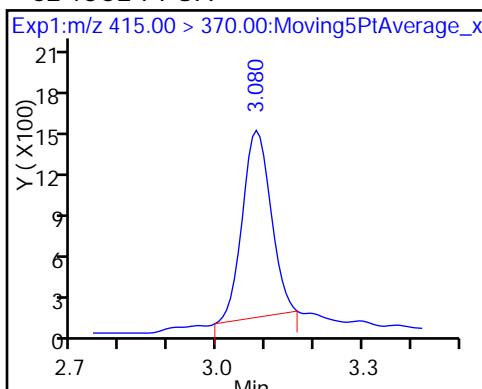
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

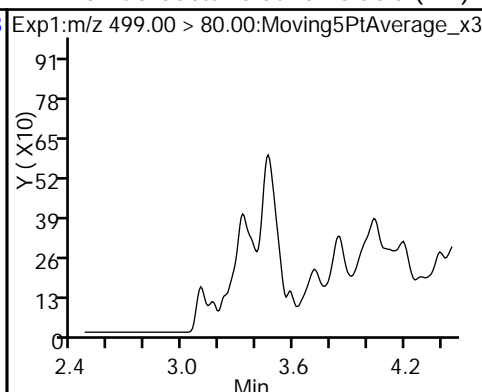
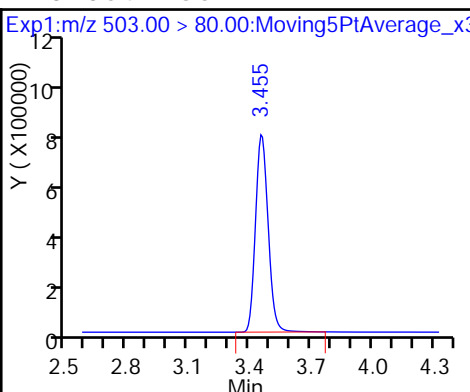
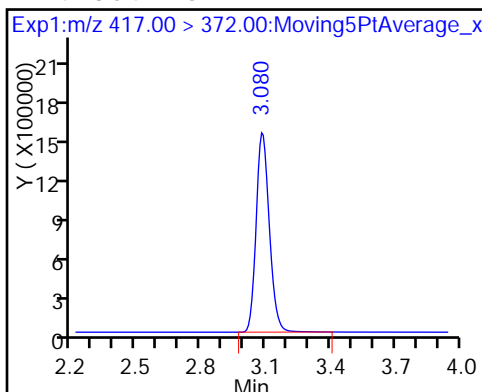
15 Perfluorooctanoic acid



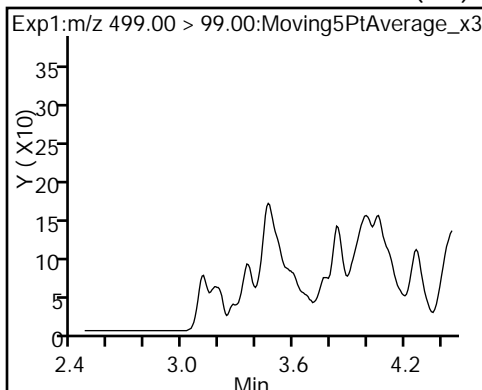
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



TestAmerica Sacramento

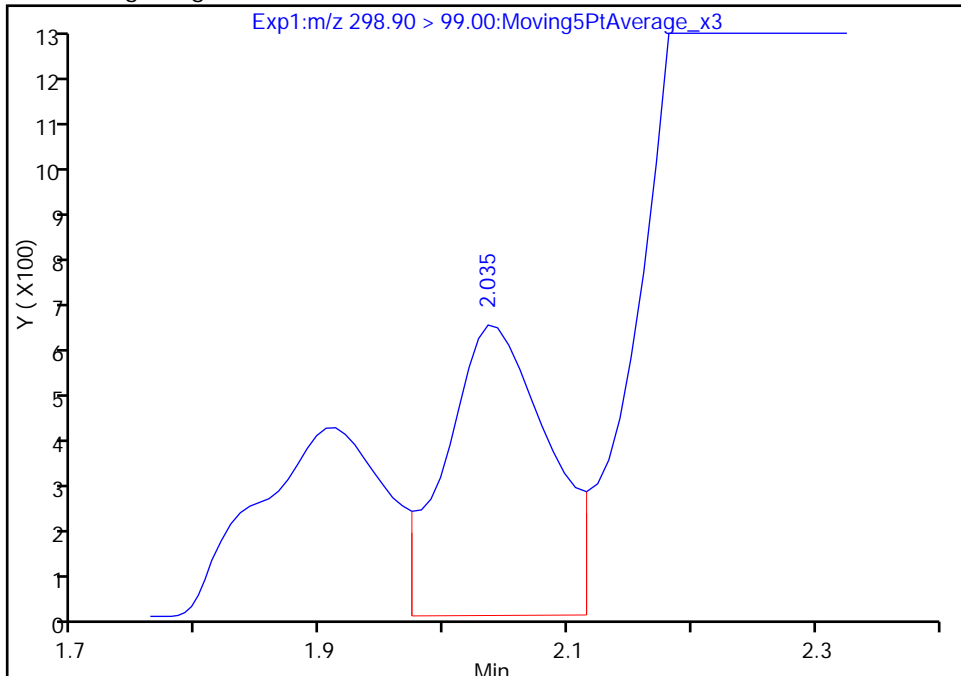
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Injection Date: 07-Jun-2017 19:43:09 Instrument ID: A8_N
Lims ID: 320-28286-A-21-A Lab Sample ID: 320-28286-21
Client ID: MEAFF-Unknown16-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 22 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

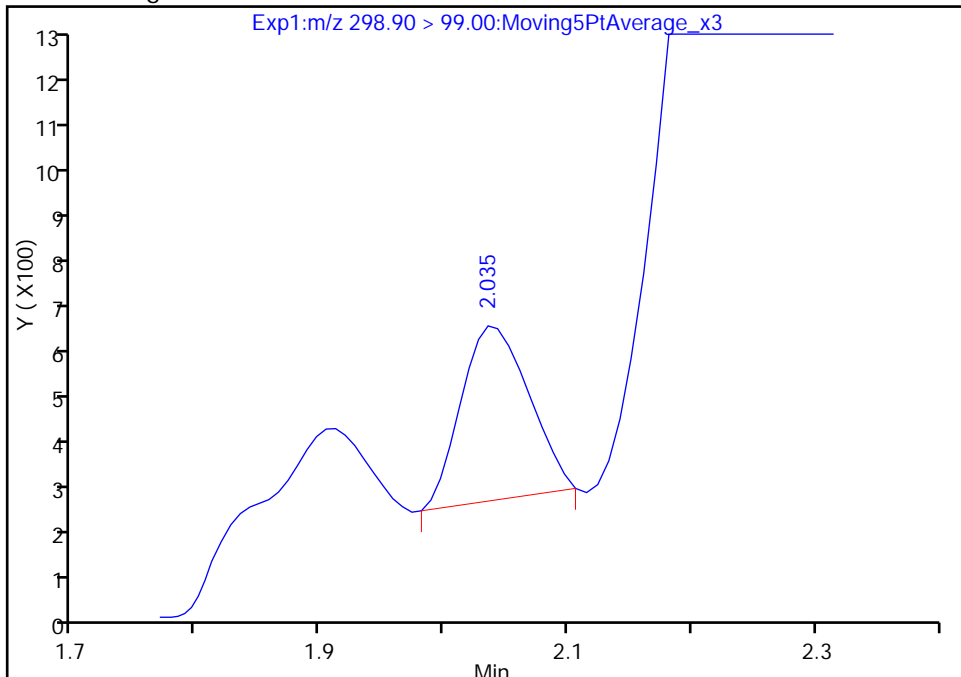
RT: 2.04
Area: 3537
Amount: 0.032114
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 1420
Amount: 0.019425
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 08-Jun-2017 10:35:15
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

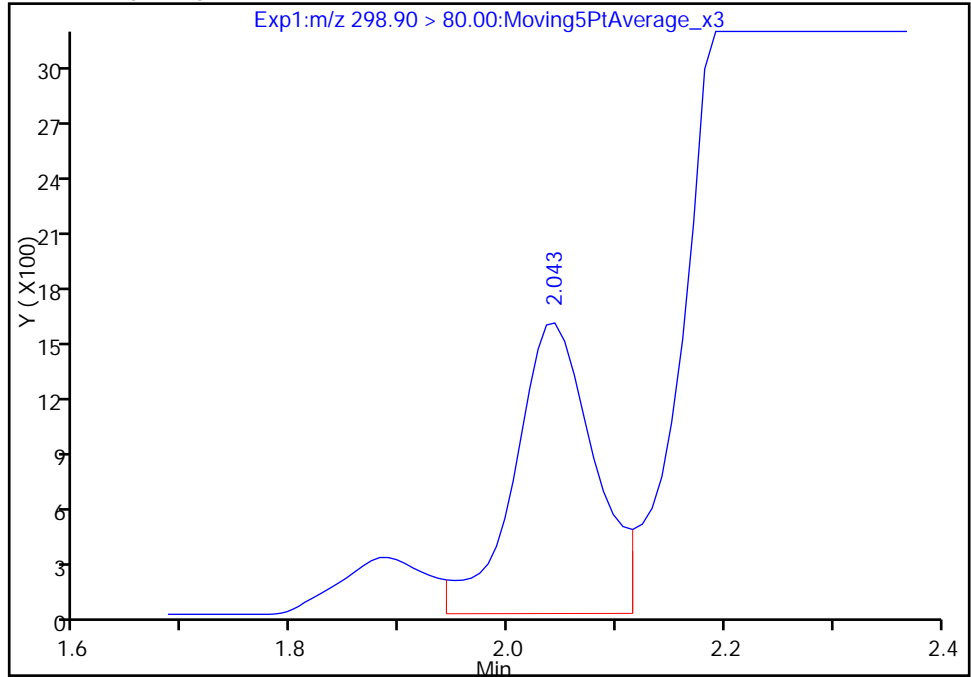
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_039.d
Injection Date: 07-Jun-2017 19:43:09 Instrument ID: A8_N
Lims ID: 320-28286-A-21-A Lab Sample ID: 320-28286-21
Client ID: MEAFF-Unknown16-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 22 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

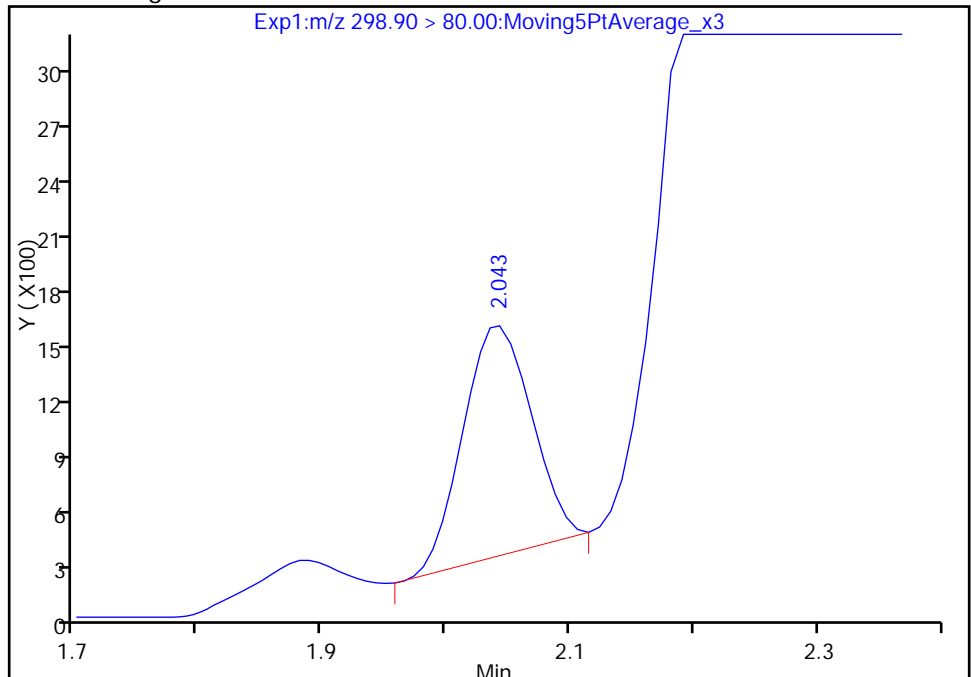
RT: 2.04
Area: 7896
Amount: 0.032114
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 4776
Amount: 0.019425
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-FD06-051417 Lab Sample ID: 320-28286-22
 Matrix: Solid Lab File ID: 2017.06.07B_040.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 00:00
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.00(g) Date Analyzed: 06/07/2017 19:50
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 11.0 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U M	0.56	0.34	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.56	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	77		25-150
STL00991	13C4 PFOS	38		25-150
STL00994	18O2 PFHxS	66		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_040.d
 Lims ID: 320-28286-A-22-A
 Client ID: MEAFF-FD06-051417
 Sample Type: Client
 Inject. Date: 07-Jun-2017 19:50:51 ALS Bottle#: 23 Worklist Smp#: 26
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-22
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 08-Jun-2017 10:36:11 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK023

First Level Reviewer: rainey Date: 08-Jun-2017 10:36:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.039	2.043	-0.004	1.000	4280	0.0173				
298.90 > 99.00	2.039	2.043	-0.004	1.000	805		5.32(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.719	2.712	0.007		7176232	31.1		65.8	11442	
* 62 13C2-PFOA										
415.00 > 370.00	3.080	3.080	0.0		4427	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.080	3.088	-0.008	1.000	14155	0.0953			4.8	M
413.00 > 169.00	3.080	3.088	-0.008	1.000	6510		2.17(0.90-1.10)		12.2	M
D 14 13C4 PFOA										
417.00 > 372.00	3.087	3.088	-0.001		6951421	38.6		77.1	15313	
D 18 13C4 PFOS										
503.00 > 80.00	3.454	3.455	-0.001		3272706	18.4		38.4	8669	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_040.d

Injection Date: 07-Jun-2017 19:50:51

Instrument ID: A8_N

Lims ID: 320-28286-A-22-A

Lab Sample ID: 320-28286-22

Client ID: MEAFF-FD06-051417

Operator ID: SACINSTLCMS01

ALS Bottle#: 23

Worklist Smp#: 26

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

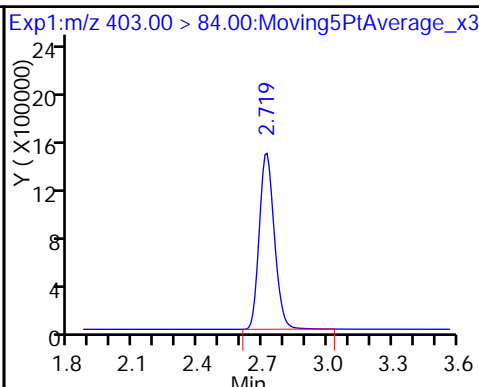
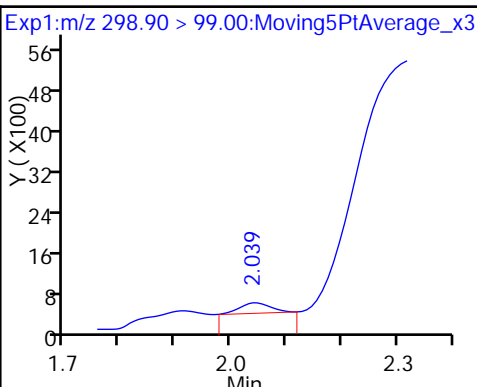
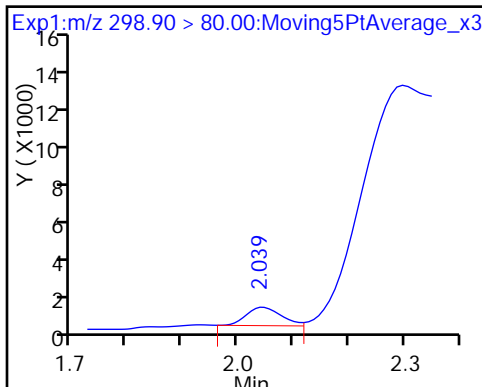
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid

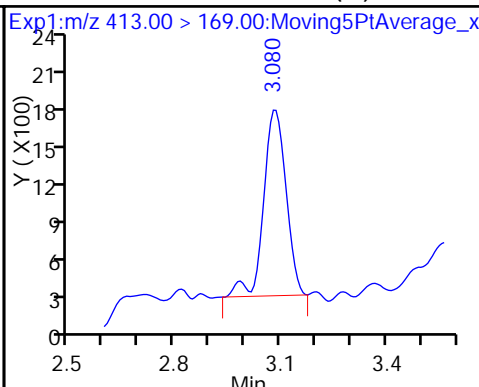
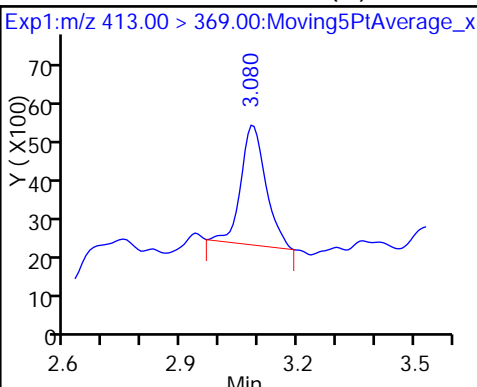
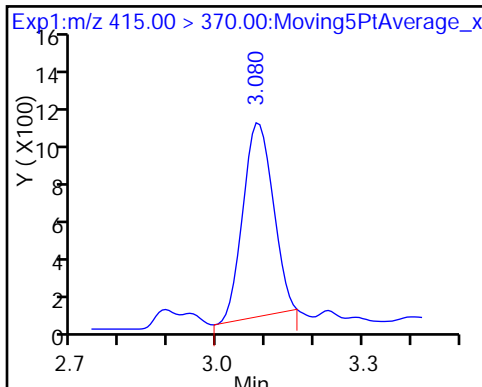
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid (M)

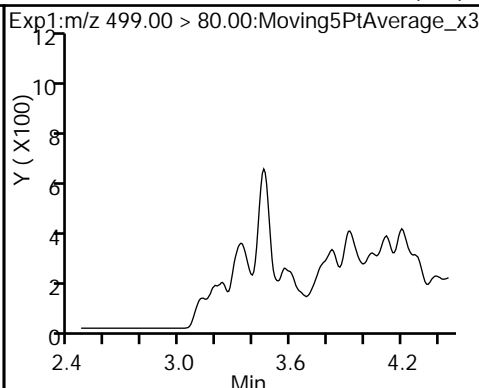
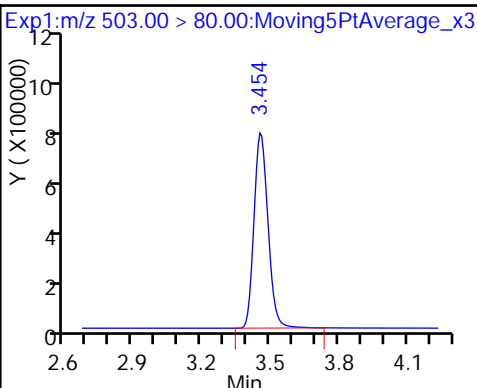
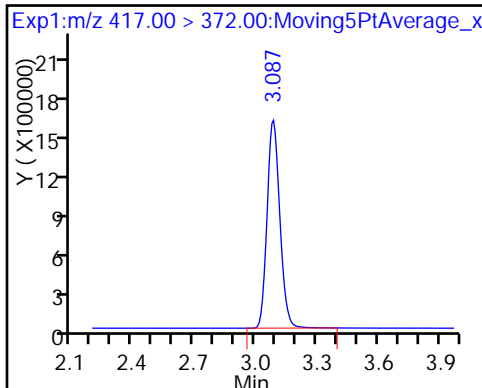
15 Perfluorooctanoic acid (M)



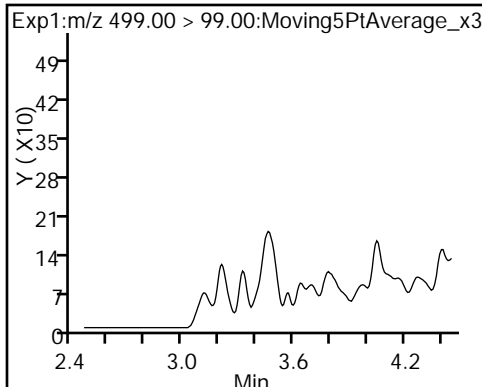
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



TestAmerica Sacramento

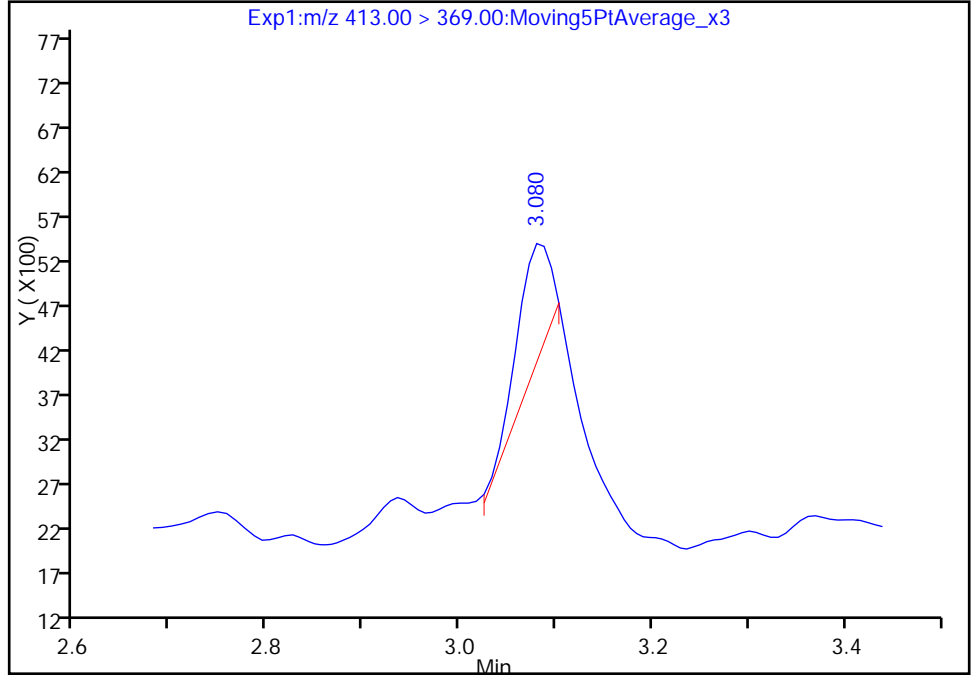
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_040.d
Injection Date: 07-Jun-2017 19:50:51 Instrument ID: A8_N
Lims ID: 320-28286-A-22-A Lab Sample ID: 320-28286-22
Client ID: MEAFF-FD06-051417
Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

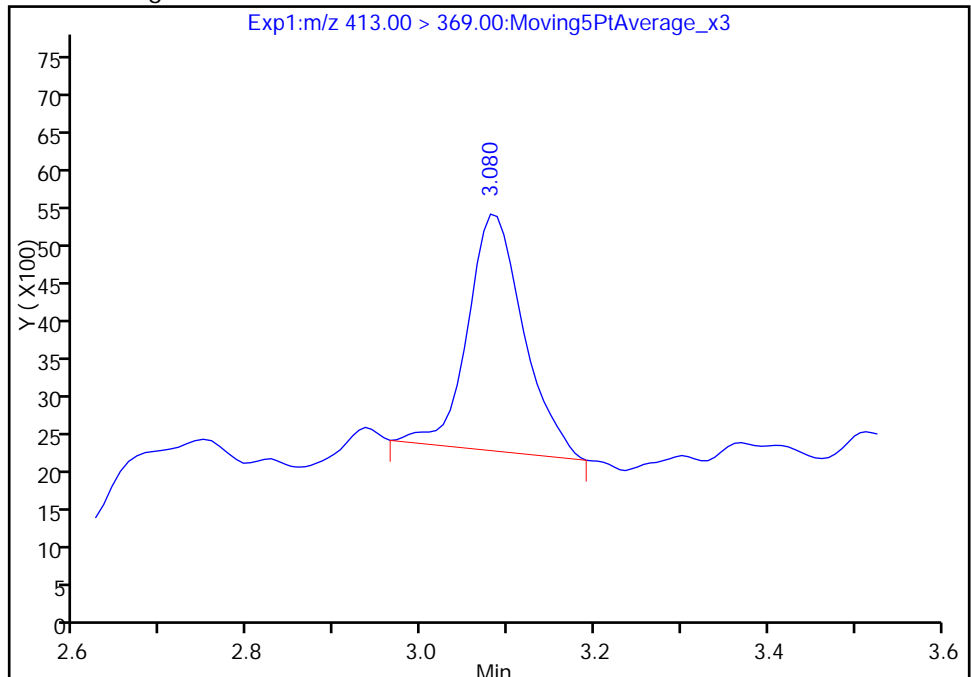
RT: 3.08
Area: 3140
Amount: 0.021138
Amount Units: ng/ml

Processing Integration Results



RT: 3.08
Area: 14155
Amount: 0.095291
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 08-Jun-2017 10:36:01
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

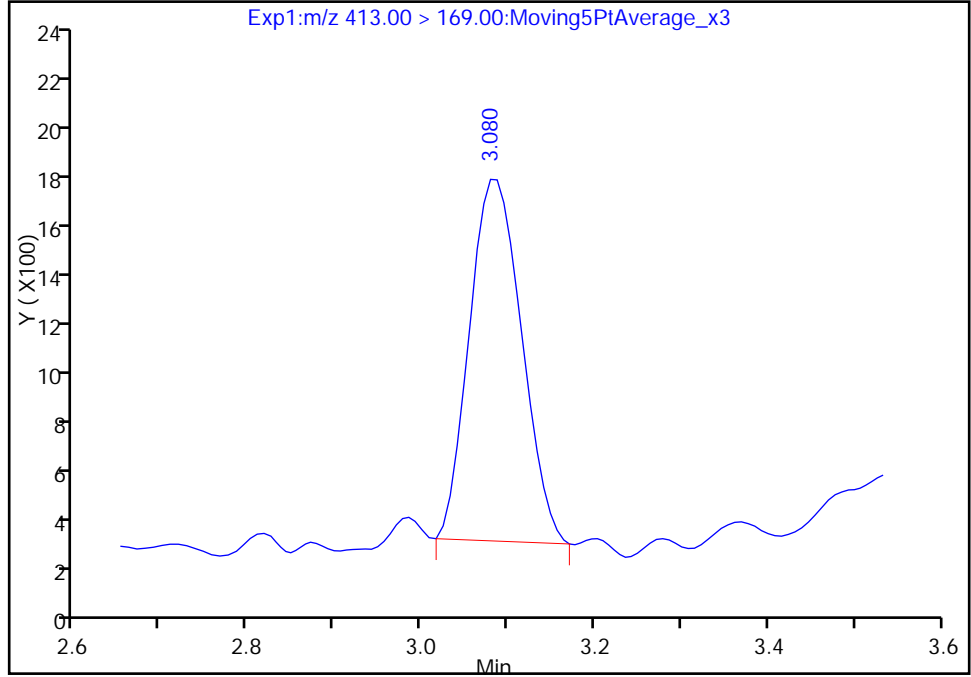
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_040.d
Injection Date: 07-Jun-2017 19:50:51 Instrument ID: A8_N
Lims ID: 320-28286-A-22-A Lab Sample ID: 320-28286-22
Client ID: MEAFF-FD06-051417
Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

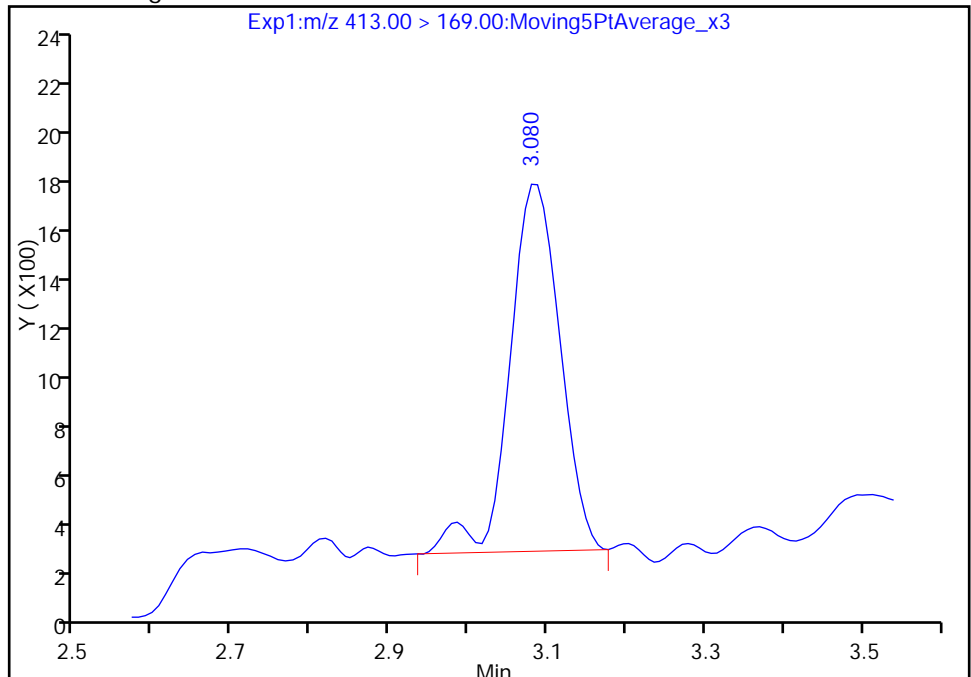
RT: 3.08
Area: 6035
Amount: 0.021138
Amount Units: ng/ml

Processing Integration Results



RT: 3.08
Area: 6510
Amount: 0.095291
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-T-45C-03-2008-SB01-0001 Lab Sample ID: 320-28286-23
 Matrix: Solid Lab File ID: 2017.06.07B_041.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 13:44
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 4.99(g) Date Analyzed: 06/07/2017 19:58
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 12.6 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	80		25-150
STL00991	13C4 PFOS	38		25-150
STL00994	18O2 PFHxS	69		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_041.d
 Lims ID: 320-28286-A-23-A
 Client ID: MEAFF-T-45C-03-2008-SB01-0001
 Sample Type: Client
 Inject. Date: 07-Jun-2017 19:58:34 ALS Bottle#: 24 Worklist Smp#: 27
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-23-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 08-Jun-2017 10:37:35 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK023

First Level Reviewer: rainey Date: 08-Jun-2017 10:37:35

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.042	2.043	-0.001	1.000	7374	0.0284				M
298.90 > 99.00	2.034	2.043	-0.009	0.996	3252		2.27(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.711	2.712	-0.001		7516419	32.6		68.9	14173	
* 62 13C2-PFOA										
415.00 > 370.00	3.079	3.080	-0.001		4970	50.0				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.087	3.088	-0.001	1.000	20782	0.1342			7.1	M
413.00 > 169.00	3.087	3.088	-0.001	1.000	12138		1.71(0.90-1.10)		17.7	M
D 14 13C4 PFOA										
417.00 > 372.00	3.087	3.088	-0.001		7246576	40.2		80.4	22901	
D 18 13C4 PFOS										
503.00 > 80.00	3.462	3.455	0.007		3262467	18.3		38.3	14029	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_041.d

Injection Date: 07-Jun-2017 19:58:34

Instrument ID: A8_N

Lims ID: 320-28286-A-23-A

Lab Sample ID: 320-28286-23

Client ID: MEAFF-T-45C-03-2008-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 24

Worklist Smp#: 27

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

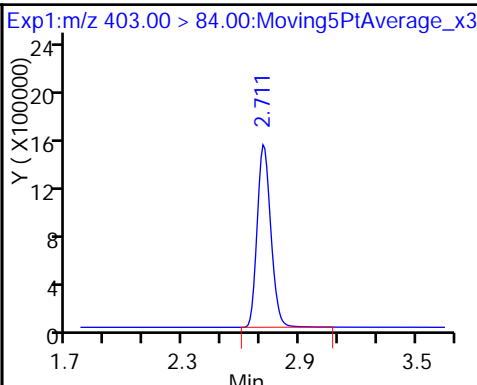
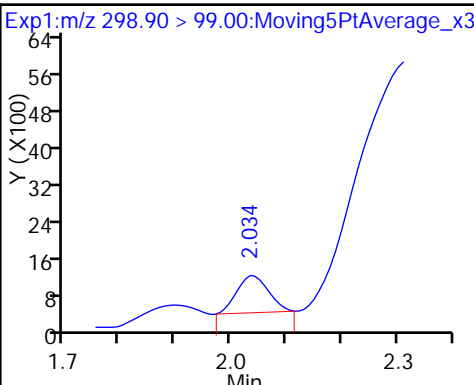
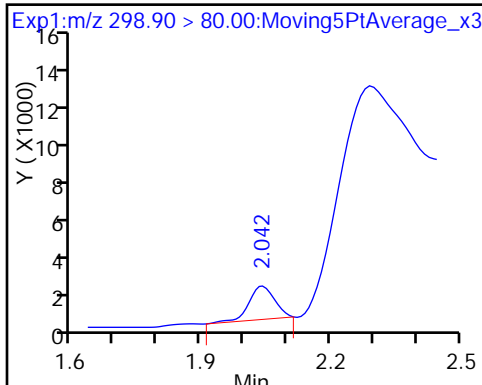
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid (M)

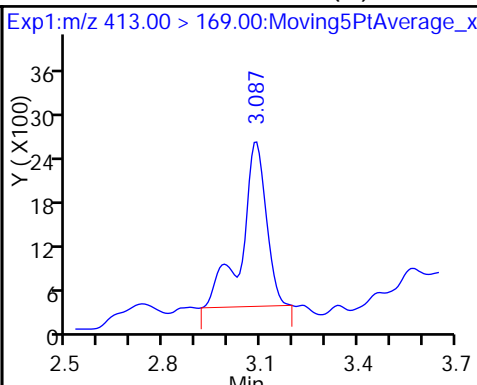
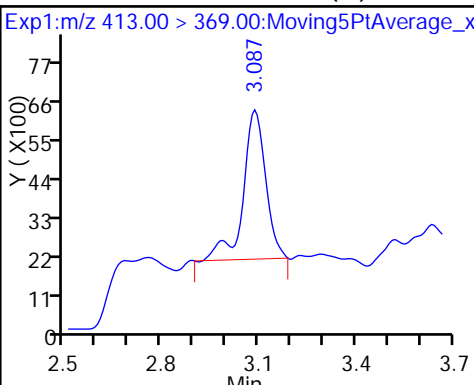
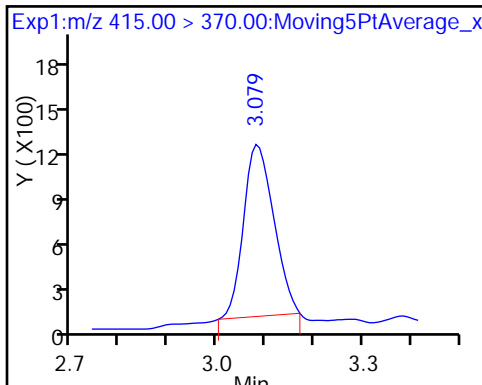
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid (M)

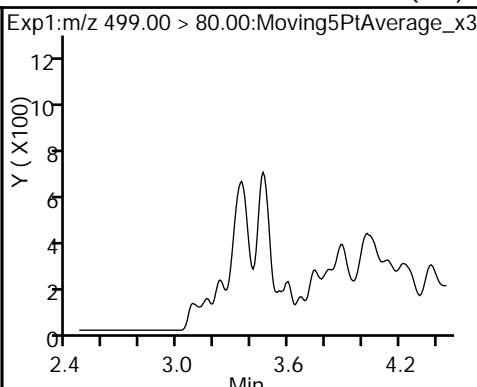
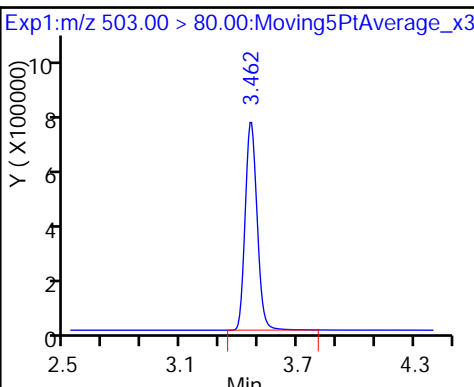
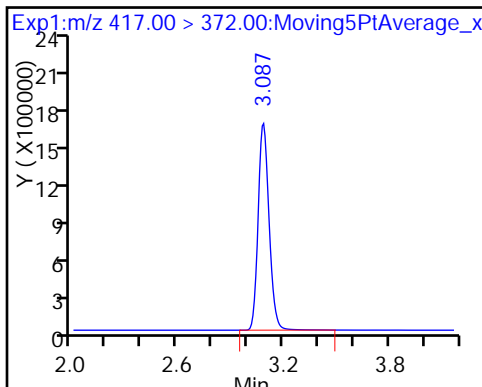
15 Perfluorooctanoic acid (M)



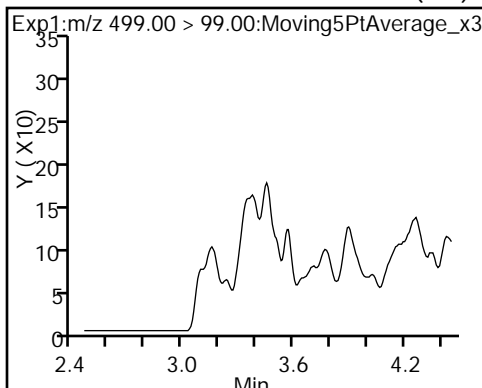
D 14 13C4 PFOA

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



TestAmerica Sacramento

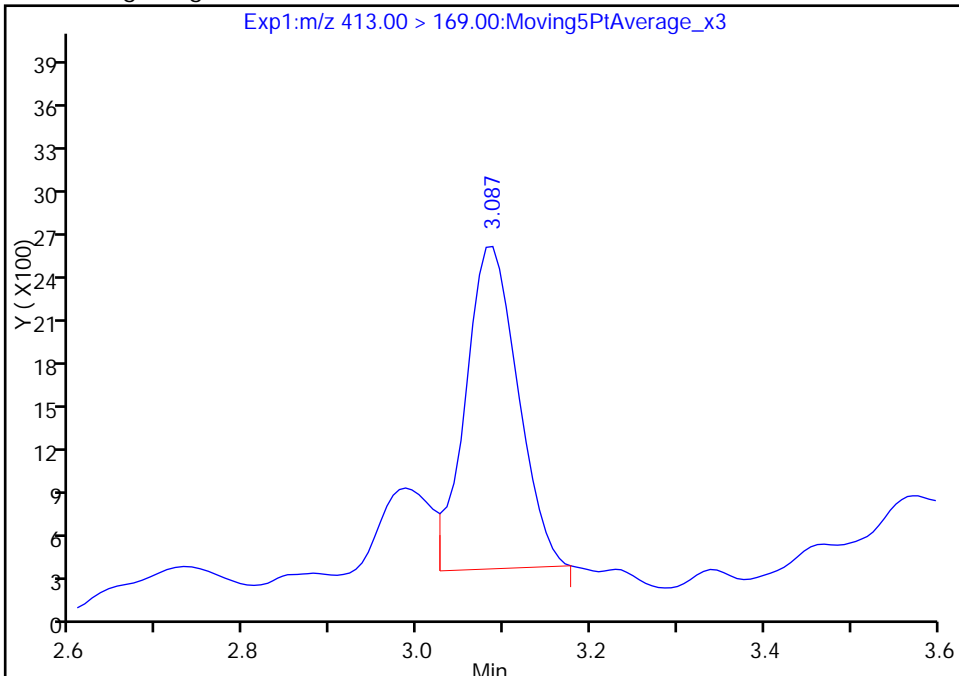
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_041.d
Injection Date: 07-Jun-2017 19:58:34 Instrument ID: A8_N
Lims ID: 320-28286-A-23-A Lab Sample ID: 320-28286-23
Client ID: MEAFF-T-45C-03-2008-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

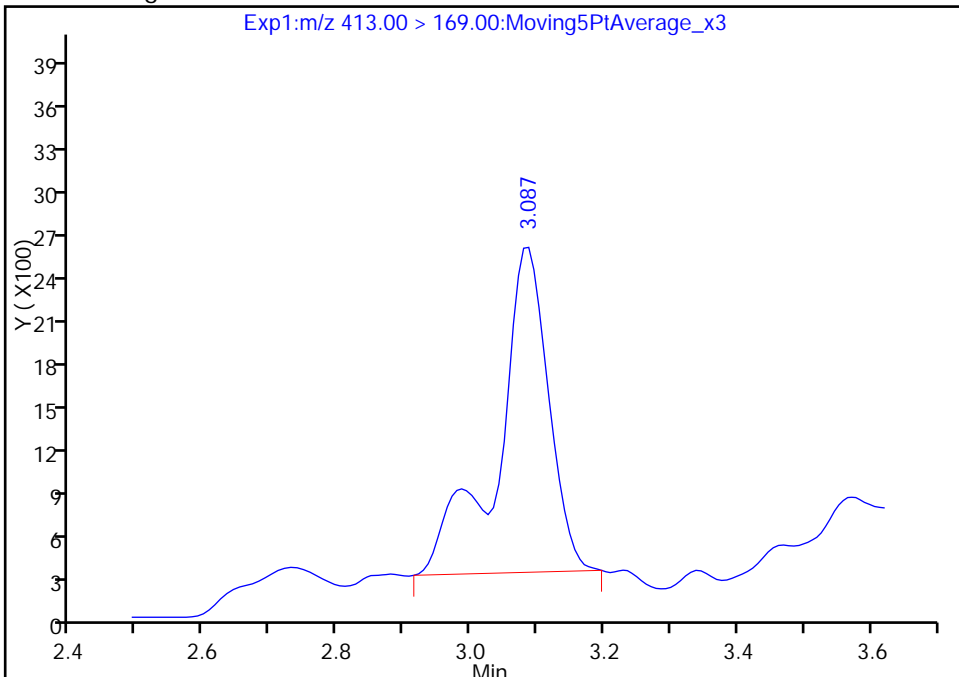
RT: 3.09
Area: 9503
Amount: 0.097610
Amount Units: ng/ml

Processing Integration Results



RT: 3.09
Area: 12138
Amount: 0.134206
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

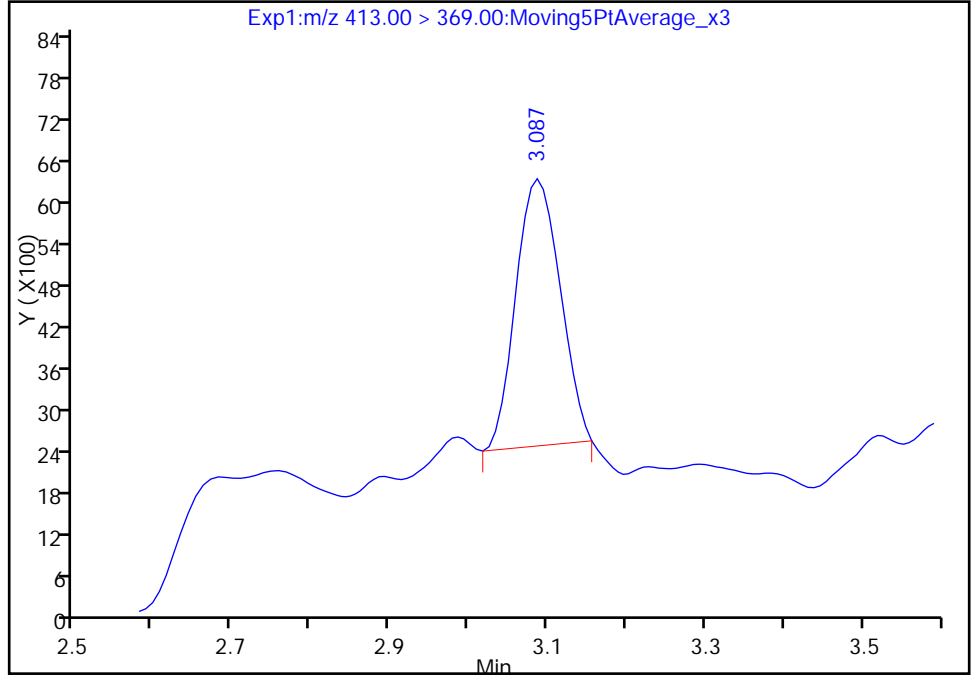
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_041.d
Injection Date: 07-Jun-2017 19:58:34 Instrument ID: A8_N
Lims ID: 320-28286-A-23-A Lab Sample ID: 320-28286-23
Client ID: MEAFF-T-45C-03-2008-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

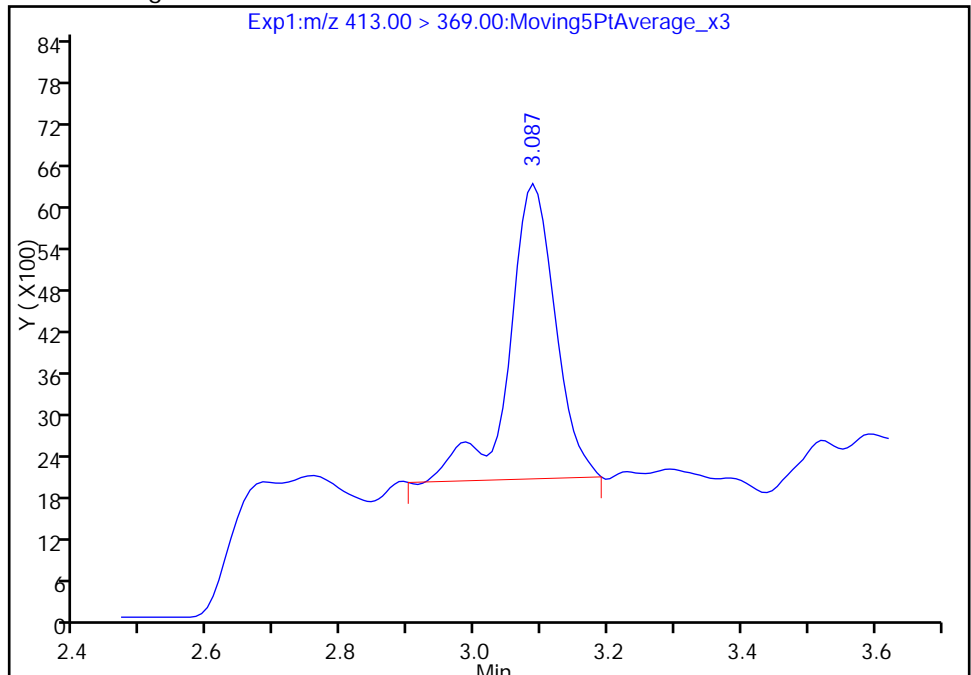
RT: 3.09
Area: 15115
Amount: 0.097610
Amount Units: ng/ml

Processing Integration Results



RT: 3.09
Area: 20782
Amount: 0.134206
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 08-Jun-2017 10:37:25

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

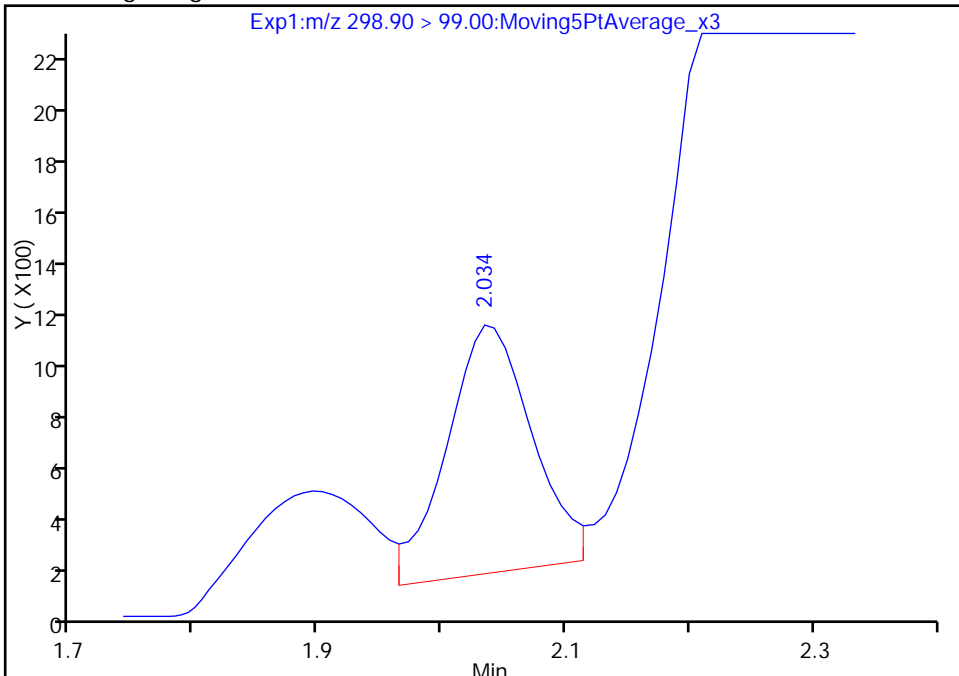
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_041.d
Injection Date: 07-Jun-2017 19:58:34 Instrument ID: A8_N
Lims ID: 320-28286-A-23-A Lab Sample ID: 320-28286-23
Client ID: MEAFF-T-45C-03-2008-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

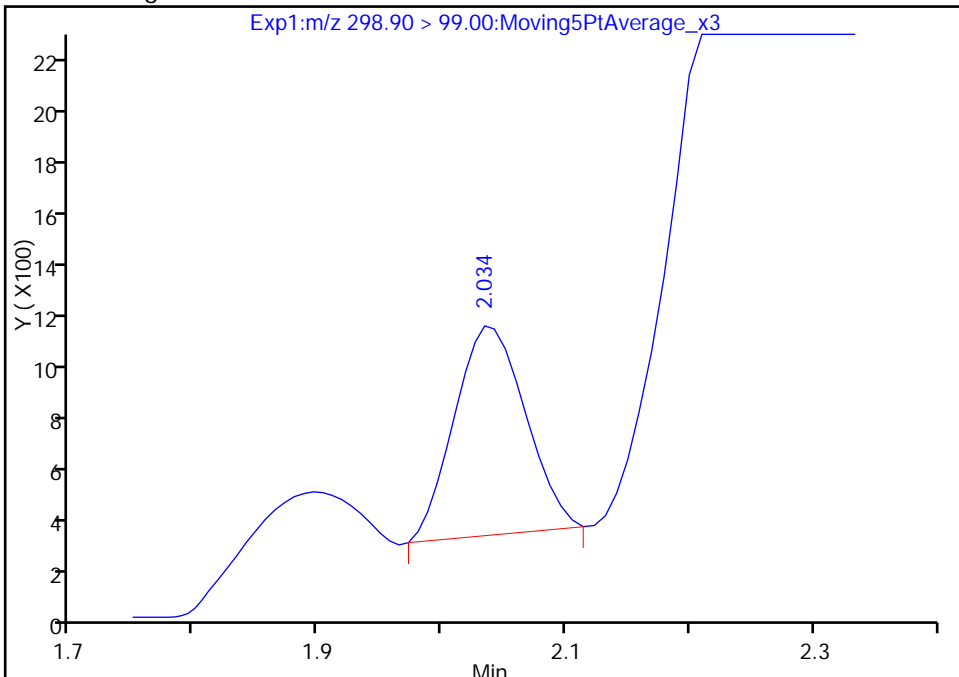
RT: 2.03
Area: 4598
Amount: 0.046777
Amount Units: ng/ml

Processing Integration Results



RT: 2.03
Area: 3252
Amount: 0.028425
Amount Units: ng/ml

Manual Integration Results



Reviewer: rainey, 08-Jun-2017 10:37:05
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

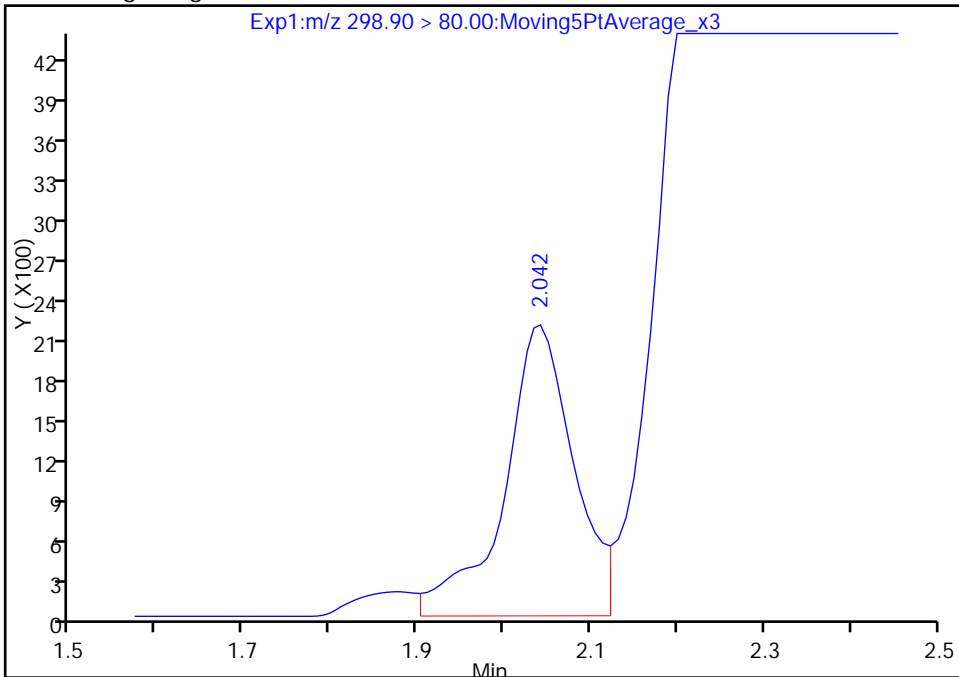
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_041.d
Injection Date: 07-Jun-2017 19:58:34 Instrument ID: A8_N
Lims ID: 320-28286-A-23-A Lab Sample ID: 320-28286-23
Client ID: MEAFF-T-45C-03-2008-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

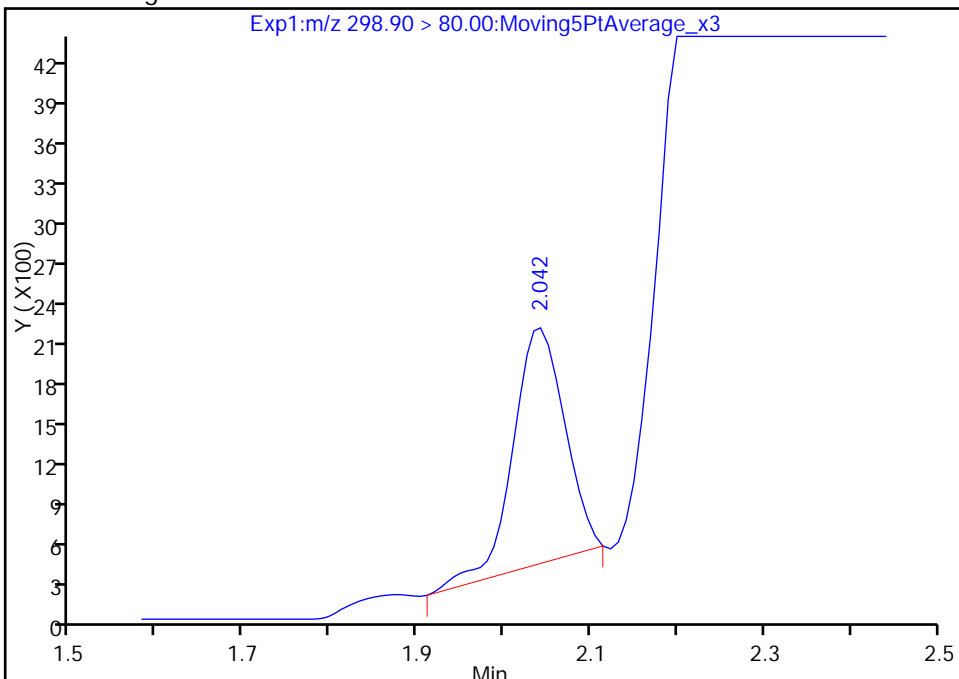
RT: 2.04
Area: 12135
Amount: 0.046777
Amount Units: ng/ml

Processing Integration Results



RT: 2.04
Area: 7374
Amount: 0.028425
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204 Lab Sample ID: 320-28286-24
 Matrix: Solid Lab File ID: 2017.05.24C_034.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 13:47
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.09(g) Date Analyzed: 05/24/2017 21:58
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 11.6 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.33	U M	0.56	0.33	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.56	0.33	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.33	U	0.44	0.33	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	94		25-150
STL00991	13C4 PFOS	57		25-150
STL00994	18O2 PFHxS	68		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_034.d
 Lims ID: 320-28286-A-24-A
 Client ID: MEAFF-T-45C-03-2008-SB01-0204
 Sample Type: Client
 Inject. Date: 24-May-2017 21:58:03 ALS Bottle#: 28 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-24-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:02:54 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:49:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid										
212.90 > 169.00	1.968	1.993	-0.025	1.000	31051	0.0985			8.7	
D 1 13C4 PFBA										
217.00 > 172.00	1.968	1.993	-0.025		15717845	42.2		84.3	121641	
D 3 13C5-PFPeA										
267.90 > 223.00	2.328	2.348	-0.020		10811369	43.9		87.7	157597	
D 47 13C3-PFBS										
301.90 > 83.00	2.368	2.388	-0.020		221496	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.368	2.388	-0.020	1.000	9053	0.0260				
298.90 > 99.00	2.368	2.388	-0.020	1.000	4700		1.93(0.00-0.00)			
6 Perfluorohexanoic acid										
313.00 > 269.00	2.714	2.728	-0.014	1.000	11398	0.0542			12.5	
D 7 13C2 PFHxA										
315.00 > 270.00	2.704	2.728	-0.024		10142335	41.5		83.0	57242	
D 9 13C4-PFHpA										
367.00 > 322.00	3.100	3.122	-0.022		11101873	49.6		99.3	49961	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.117	3.131	-0.014	1.000	40023	0.1505				
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.100	3.131	-0.031	1.000	2626	0.0108			3.6	
D 11 18O2 PFHxS										
403.00 > 84.00	3.109	3.131	-0.022		10394715	32.3		68.2	72541	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	3.487	3.500	-0.013	1.000	24652	NR				
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.495	3.515	-0.020	1.000	5124	0.0280				
* 62 13C2-PFOA										
415.00 > 370.00	3.502	3.523	-0.021							

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										M
413.00 > 369.00	3.502	3.523	-0.021	1.000	14383	0.0598			2.5	
413.00 > 169.00	3.502	3.523	-0.021	1.000	12678		1.13(0.90-1.10)		49.0	M
D 14 13C4 PFOA										
417.00 > 372.00	3.502	3.523	-0.021		10708958	47.2		94.4	49511	
D 18 13C4 PFOS										
503.00 > 80.00	3.869	3.887	-0.018		6407481	27.3		57.1	25694	
D 19 13C5 PFNA										
468.00 > 423.00	3.886	3.905	-0.019		8218478	47.1		94.2	46360	
20 Perfluorononanoic acid										
463.00 > 419.00	3.886	3.905	-0.019	1.000	8772	0.0491			9.2	
D 21 13C8 FOSA										
506.00 > 78.00	4.203	4.215	-0.012		4676128	12.7		25.4	15900	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	4.203	4.224	-0.021	1.000	10791	0.1101			84.4	
D 23 13C2 PFDA										
515.00 > 470.00	4.227	4.245	-0.018		5844400	39.1		78.2	9599	
24 Perfluorodecanoic acid										
513.00 > 469.00	4.227	4.255	-0.028	1.000	7755	0.0652			20.6	
D 27 d3-NMeFOSAA										
573.00 > 419.00	4.391	4.401	-0.010		9249	0.1401		0.0		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	4.401	4.412	-0.011	1.002	3332	NR				
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.514	4.529	-0.015	1.000	3645	0.0392				
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.543	4.558	-0.015	1.000	17161	0.1919			34.8	
D 32 d5-NEtFOSAA										
589.00 > 419.00	4.543	4.558	-0.015		6650	0.1035		0.0		
D 30 13C2 PFUnA										
565.00 > 520.00	4.533	4.558	-0.025		3807920	33.9		67.9	17518	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	4.543	4.568	-0.025	1.000	3787	NR				
D 36 13C2 PFDaA										
615.00 > 570.00	4.810	4.834	-0.024		3204360	29.4		58.9	8241	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.819	4.834	-0.015	1.000	6006	0.0924			1.0	
41 Perfluorotridecanoic acid										
663.00 > 619.00	5.051	5.082	-0.031	1.000	2208	0.0343			0.3	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	5.259	5.295	-0.036	1.000	94325	0.6494			3.3	
713.00 > 169.00	5.273	5.295	-0.022	1.003	6097		15.47(0.00-0.00)		53.5	
D 43 13C2-PFTeDA										
715.00 > 670.00	5.280	5.295	-0.015		7930621	36.8		73.7	11705	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.677	5.696	-0.019		3160945	26.3		52.6	2261	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.677	5.696	-0.019	1.000	47508	0.0360			3.9	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
46 Perfluorooctadecanoic acid	913.00	> 869.00	6.079	6.087	-0.008	1.000	6190	0.0766		0.5

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_034.d

Injection Date: 24-May-2017 21:58:03

Instrument ID: A8_N

Lims ID: 320-28286-A-24-A

Lab Sample ID: 320-28286-24

Client ID: MEAFF-T-45C-03-2008-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

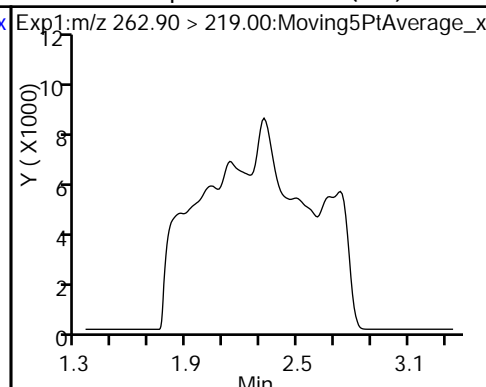
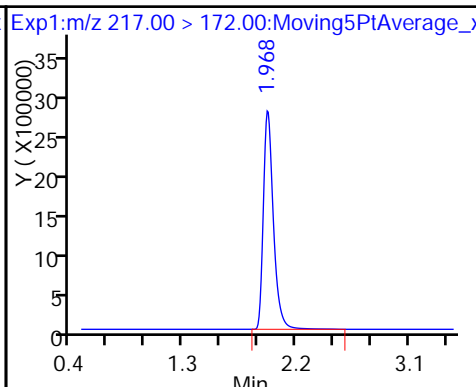
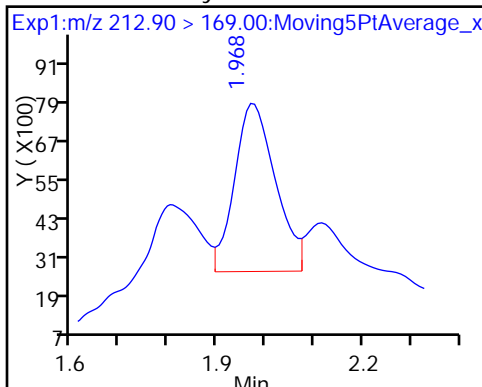
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

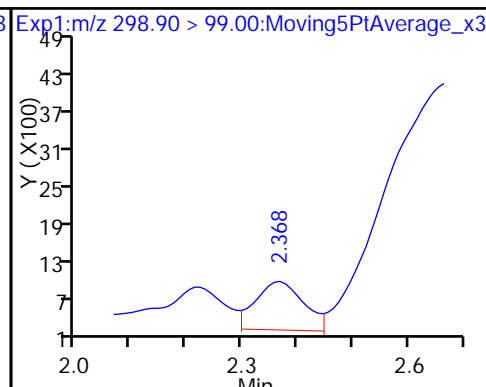
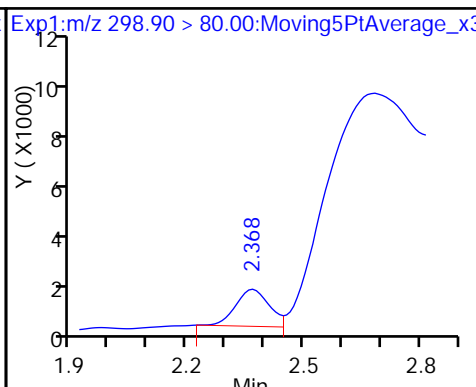
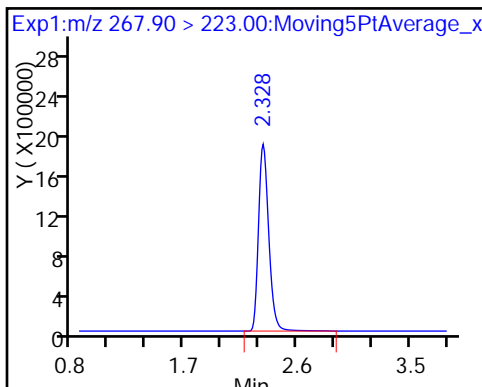
4 Perfluoropentanoic acid (ND)



D 3 13C5-PFPeA

5 Perfluorobutanesulfonic acid

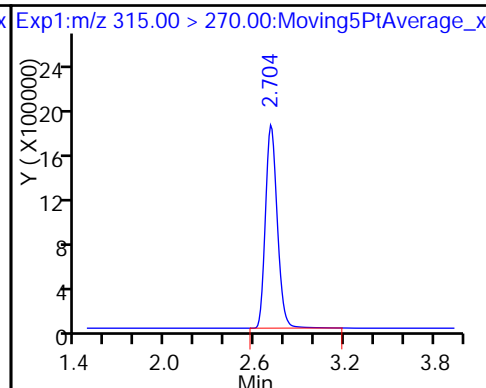
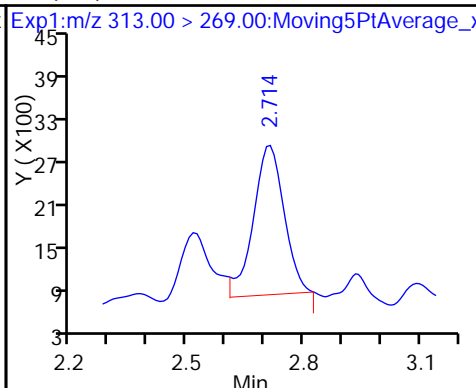
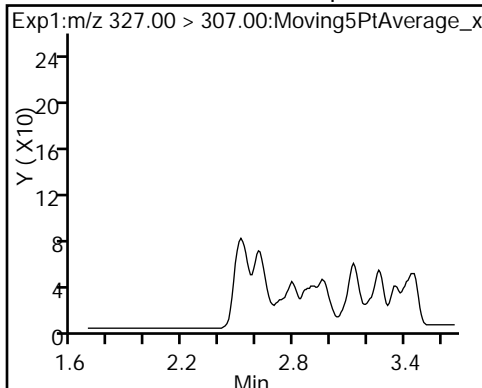
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid (ND)

6 Perfluorohexanoic acid

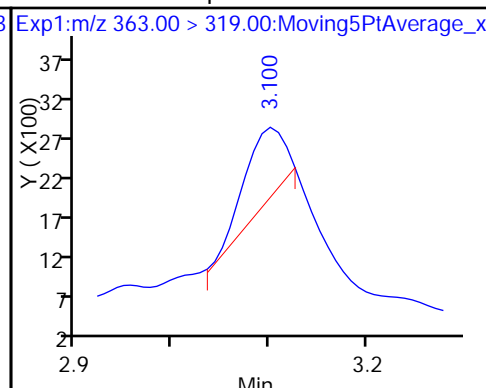
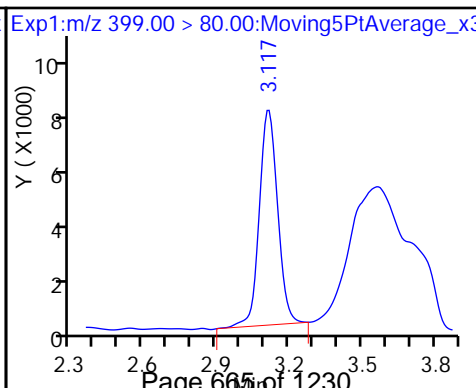
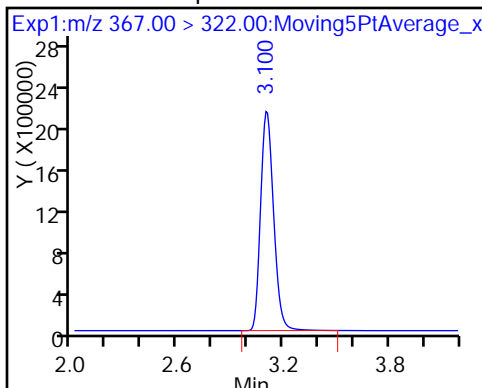
D 7 13C2 PFHxA



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid

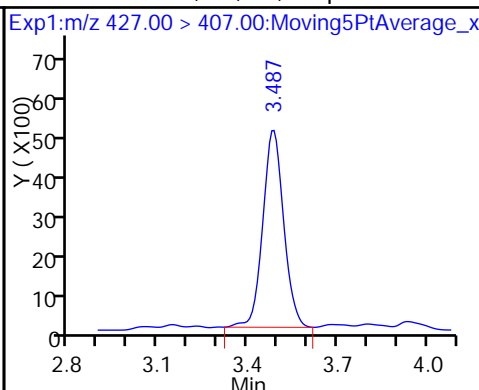
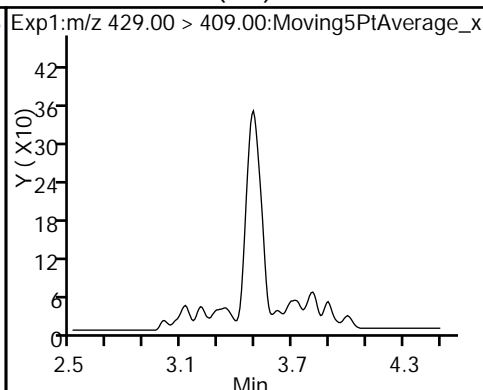
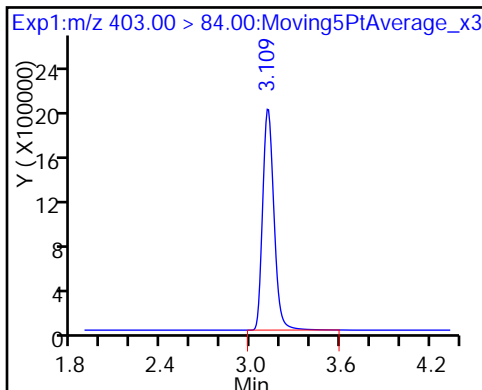
10 Perfluoroheptanoic acid



D 11 18O2 PFHxS

D 12 M2-6:2FTS (ND)

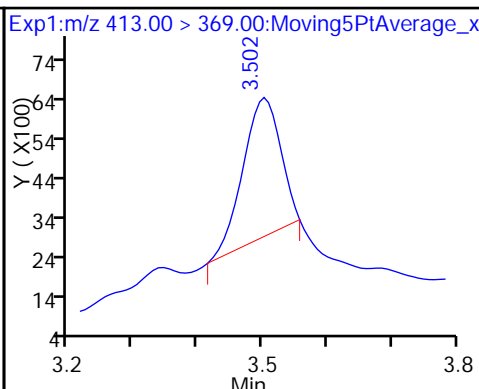
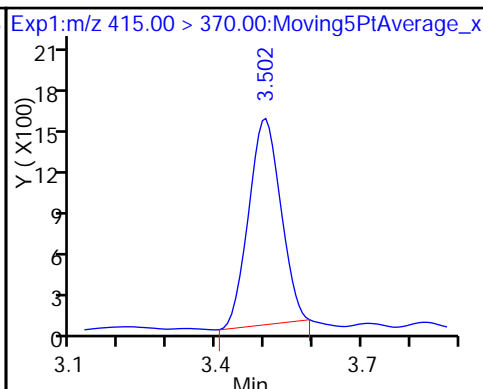
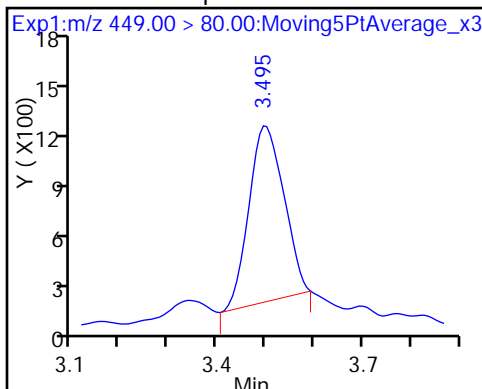
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

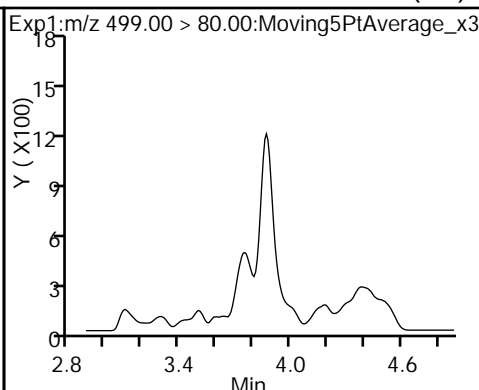
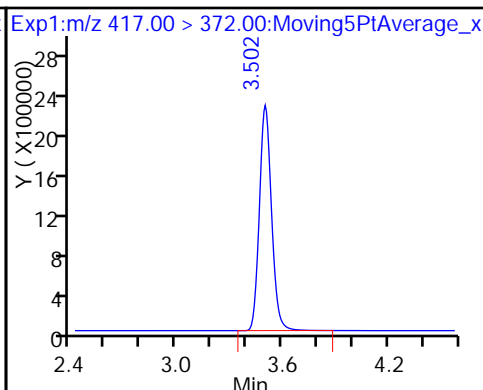
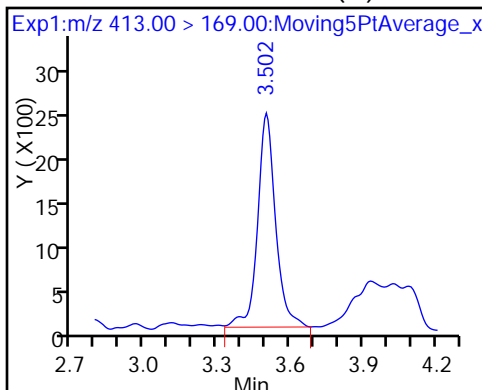
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid (M)

D 14 13C4 PFOA

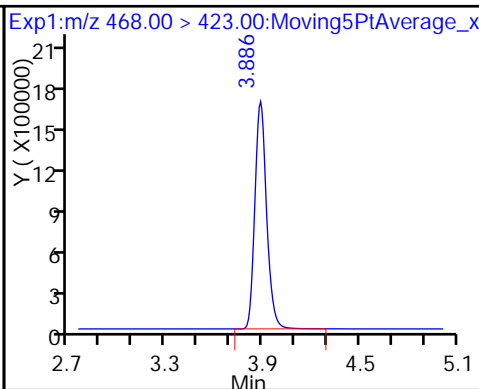
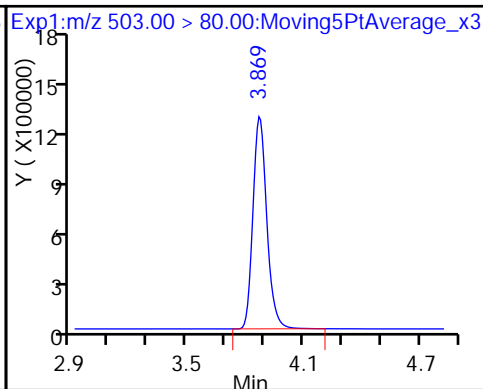
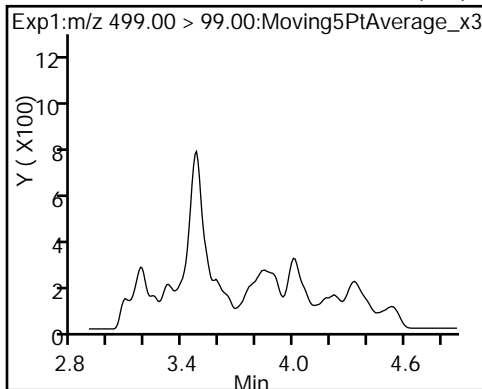
17 Perfluorooctane sulfonic acid (ND)

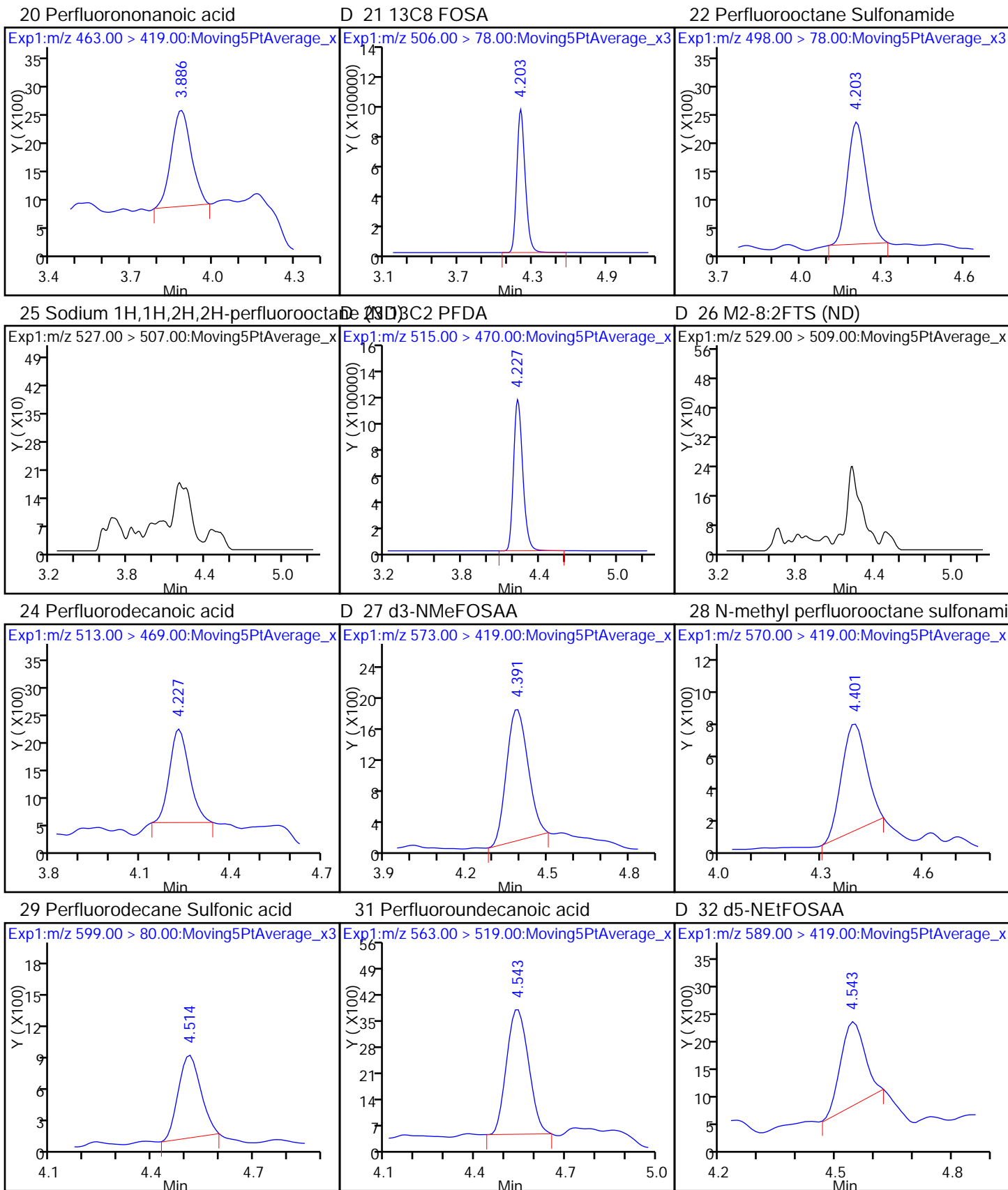


17 Perfluorooctane sulfonic acid (ND)

D 18 13C4 PFOS

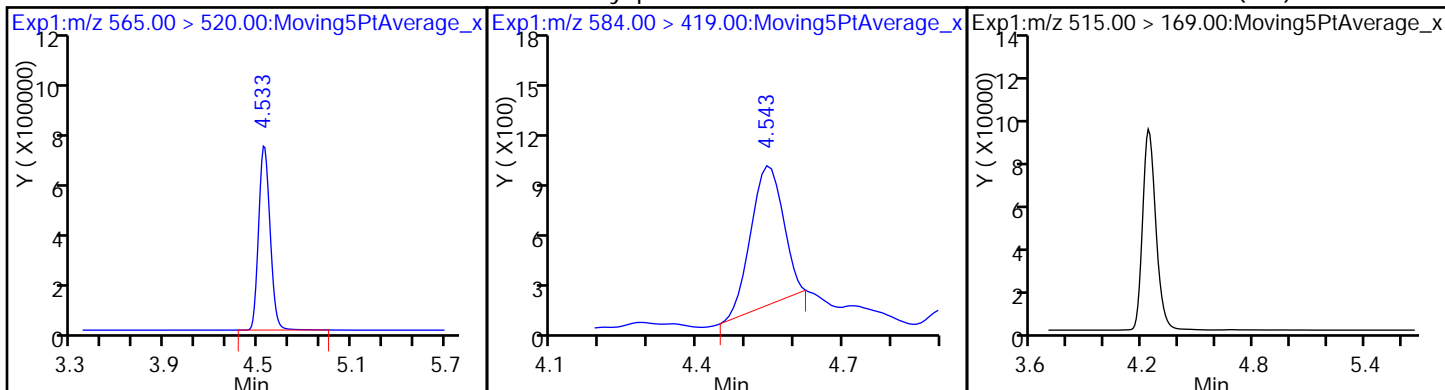
D 19 13C5 PFNA





D 30 13C2 PFUnA

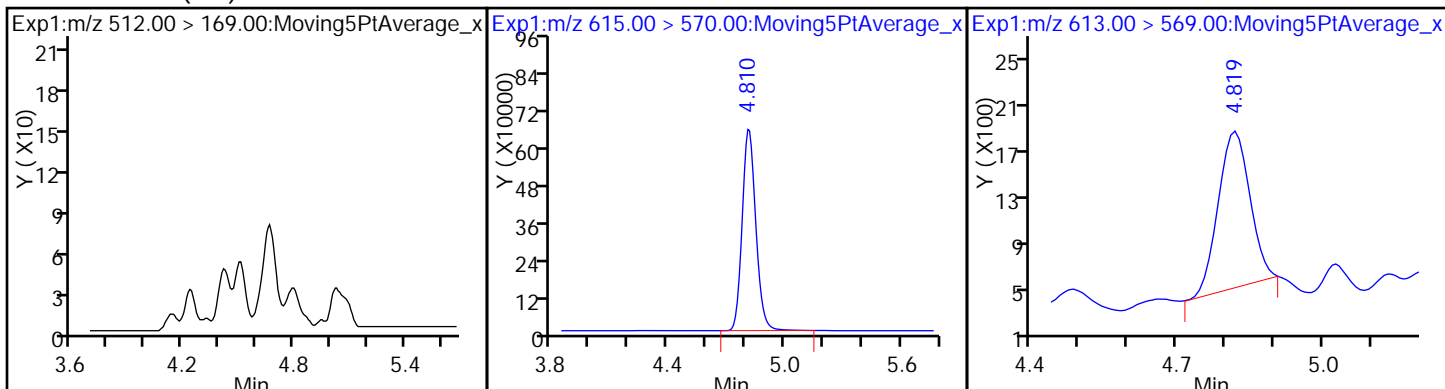
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M (ND)



35 MeFOSA (ND)

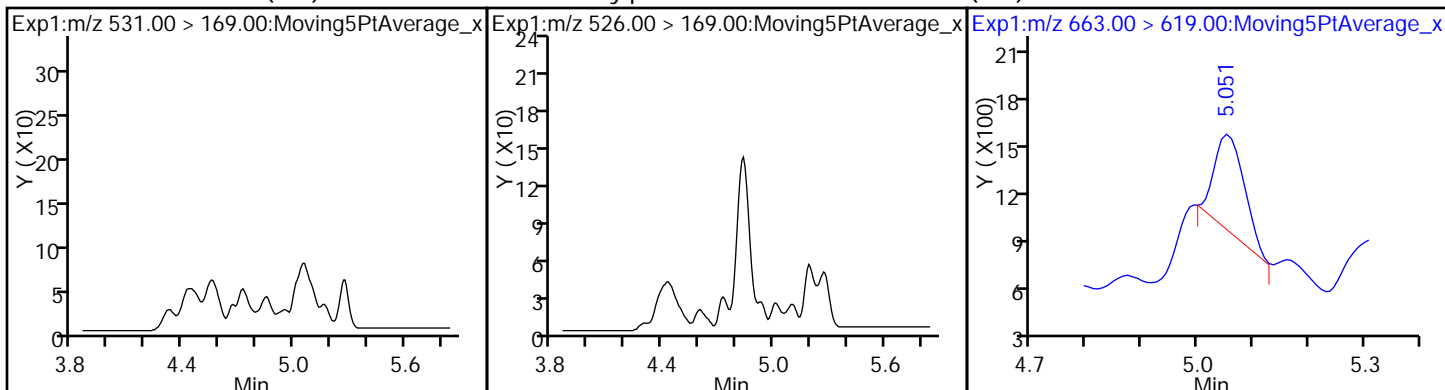
D 36 13C2 PFDaA

37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M (ND)

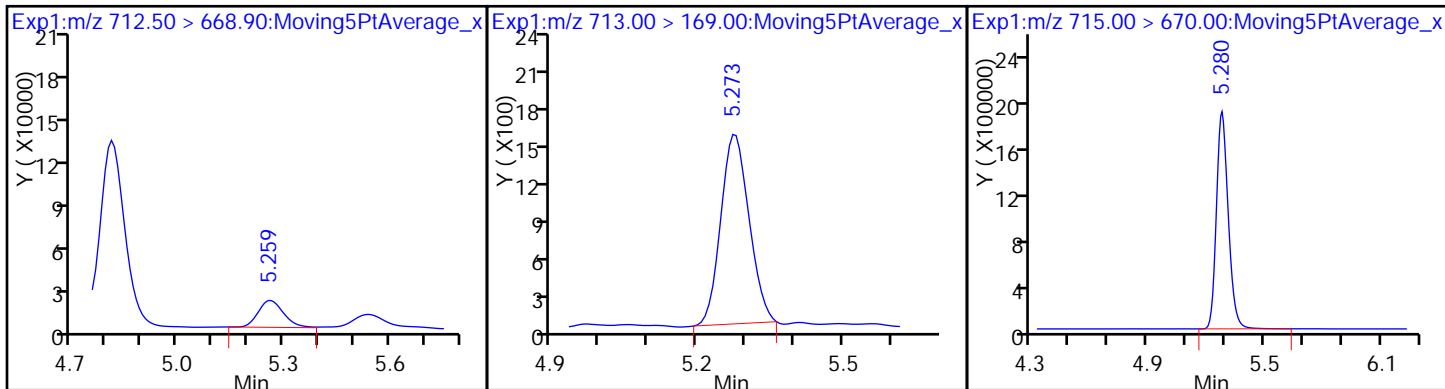
39 N-ethylperfluoro-1-octanesulfonami (ND) Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

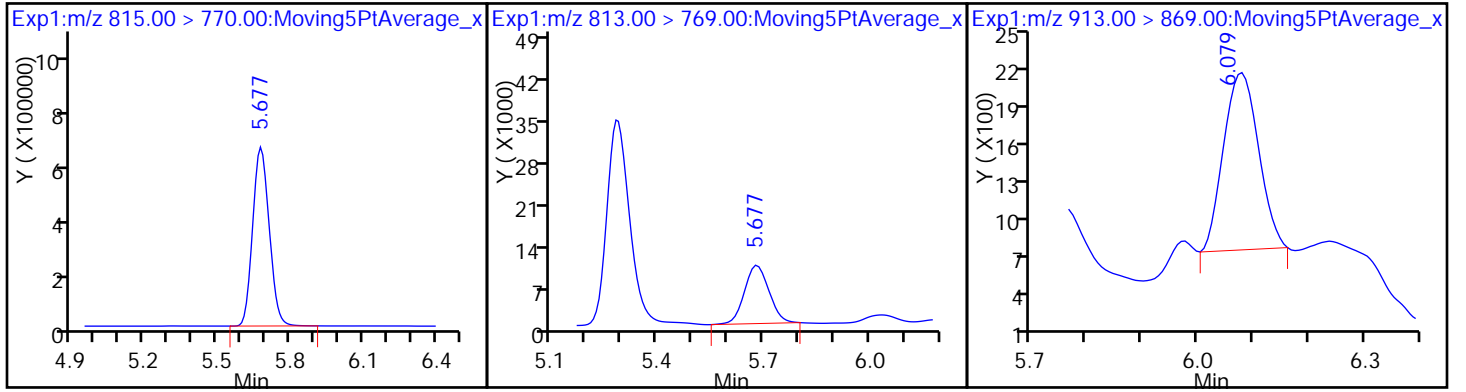
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento

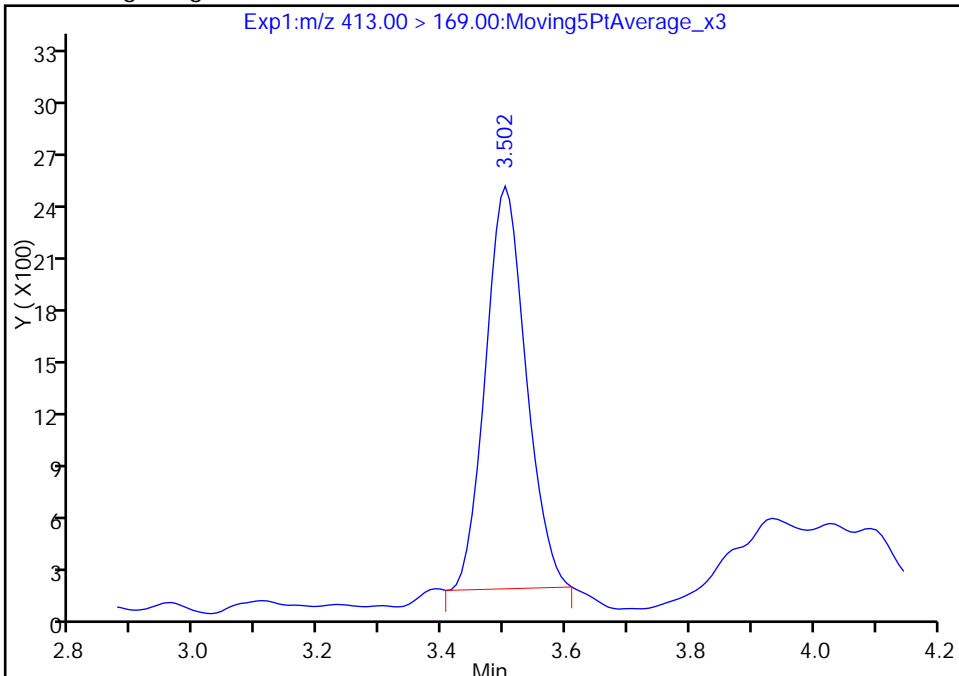
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Injection Date: 24-May-2017 21:58:03 Instrument ID: A8_N
Lims ID: 320-28286-A-24-A Lab Sample ID: 320-28286-24
Client ID: MEAFF-T-45C-03-2008-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

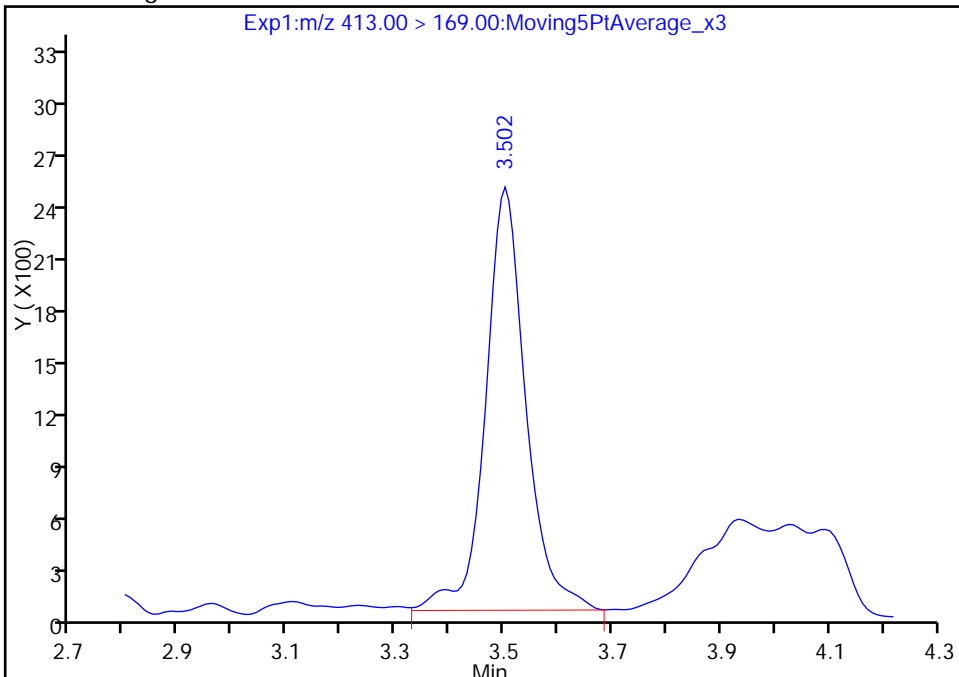
RT: 3.50
Area: 10605
Amount: 0.059810
Amount Units: ng/ml

Processing Integration Results



RT: 3.50
Area: 12678
Amount: 0.059810
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-TA-4-Unknown-SB01-001 Lab Sample ID: 320-28286-25
 Matrix: Solid Lab File ID: 2017.05.24C_037.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 14:35
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.10(g) Date Analyzed: 05/24/2017 22:20
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 19.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.95	M	0.61	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.78	M	0.61	0.36	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.36	U	0.48	0.36	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	83		25-150
STL00991	13C4 PFOS	65		25-150
STL00994	18O2 PFHxS	74		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_037.d
 Lims ID: 320-28286-A-25-A
 Client ID: MEAFF-TA-4-Unknown-SB01-0001
 Sample Type: Client
 Inject. Date: 24-May-2017 22:20:33 ALS Bottle#: 31 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-25-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:02:54 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:53:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 11 18O2 PFHxS	403.00 > 84.00	3.135	3.131	0.004	11248442	34.9		73.8	71236	
* 62 13C2-PFOA	415.00 > 370.00	3.525	3.523	0.002	6185	49.5				
15 Perfluorooctanoic acid										M
413.00 > 369.00	3.525	3.523	0.002	1.000	825892	3.92		99.0		
413.00 > 169.00	3.525	3.523	0.002	1.000	500076		1.65(0.90-1.10)	1111		M
D 14 13C4 PFOA	417.00 > 372.00	3.525	3.523	0.002	9387010	41.4		82.7	51204	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.899	3.887	0.012	1.000	588953	3.24		556		M
499.00 > 99.00	3.891	3.887	0.004	0.998	122983		4.79(0.90-1.10)	52.2		M
D 18 13C4 PFOS	503.00 > 80.00	3.899	3.887	0.012	7329742	31.2		65.4	13116	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_037.d

Injection Date: 24-May-2017 22:20:33

Instrument ID: A8_N

Lims ID: 320-28286-A-25-A

Lab Sample ID: 320-28286-25

Client ID: MEAFF-TA-4-Unknown-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

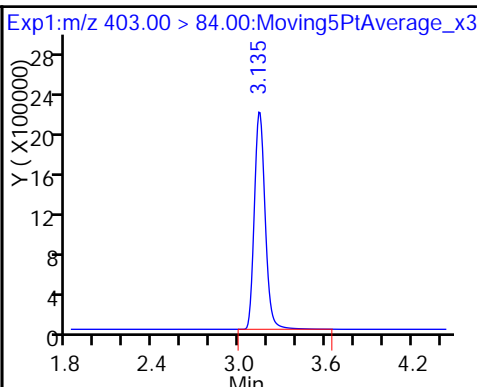
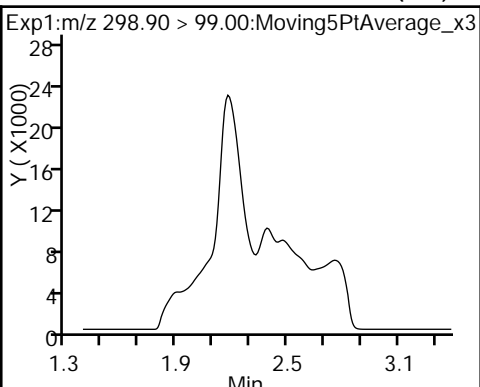
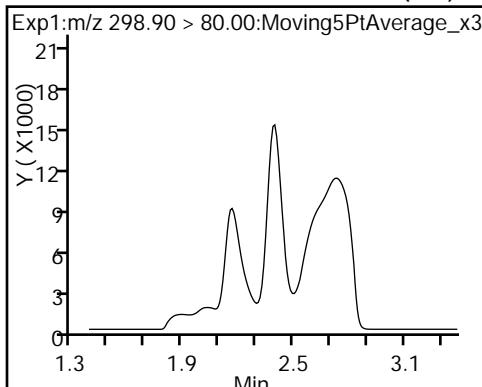
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

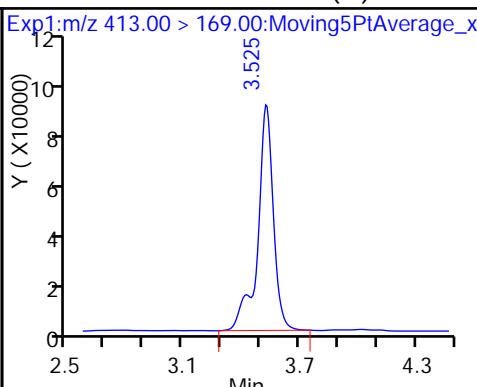
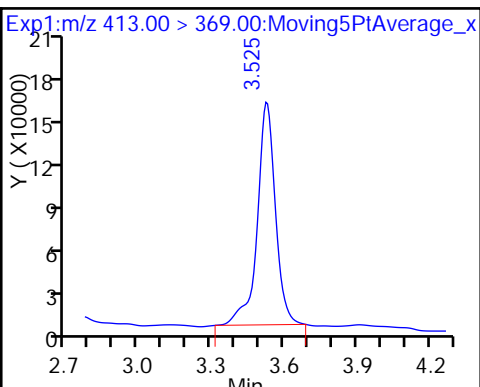
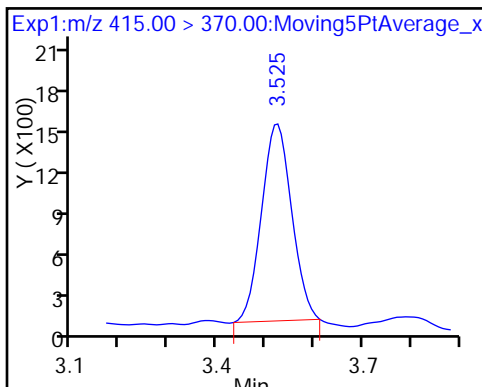
D 11 1802 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

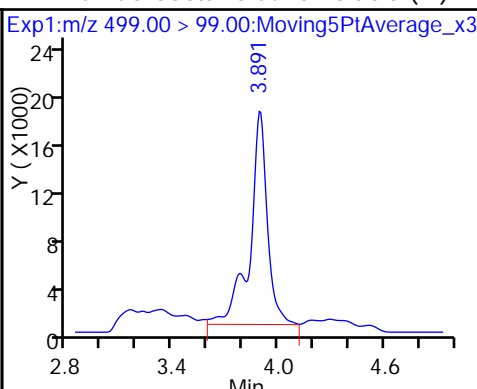
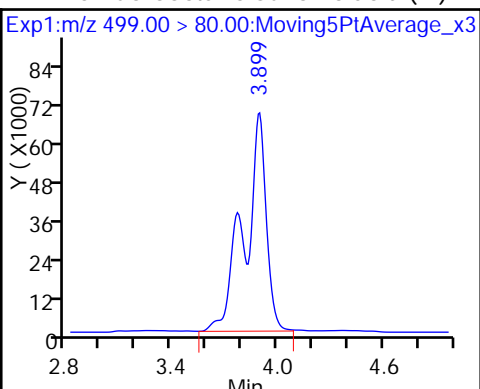
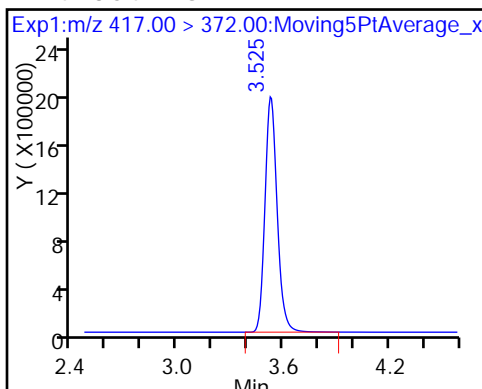
15 Perfluorooctanoic acid (M)



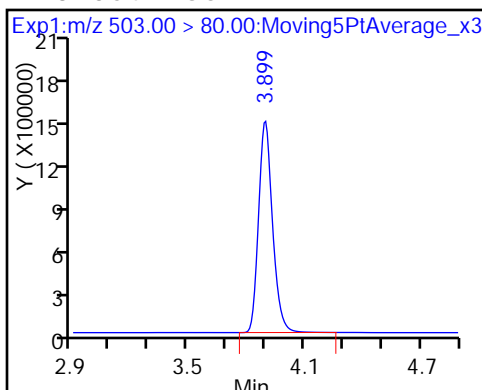
D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS



TestAmerica Sacramento

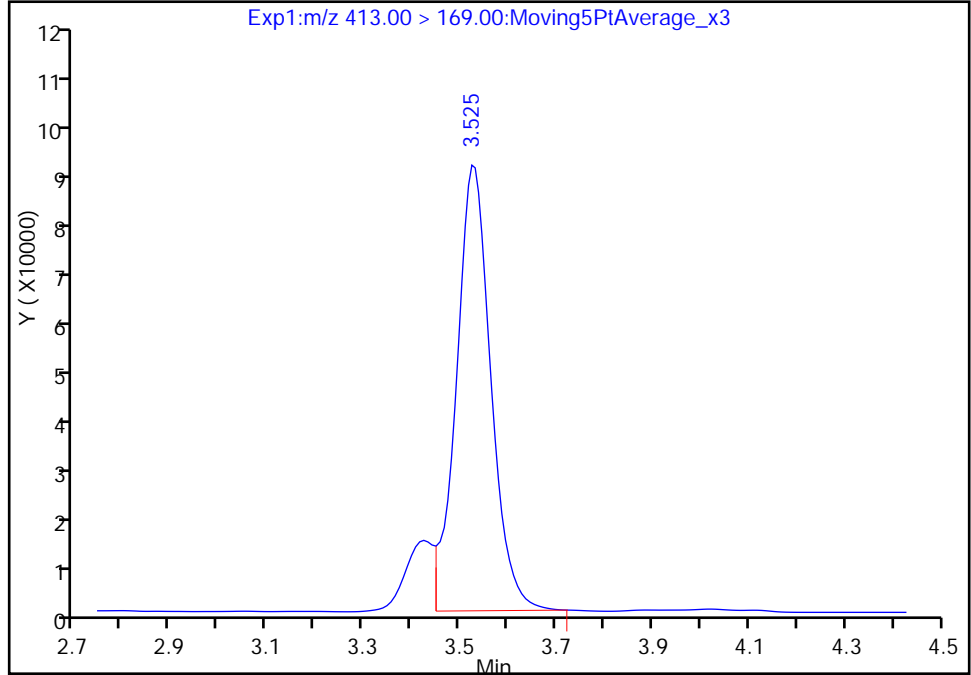
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Injection Date: 24-May-2017 22:20:33 Instrument ID: A8_N
Lims ID: 320-28286-A-25-A Lab Sample ID: 320-28286-25
Client ID: MEAFF-TA-4-Unknown-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

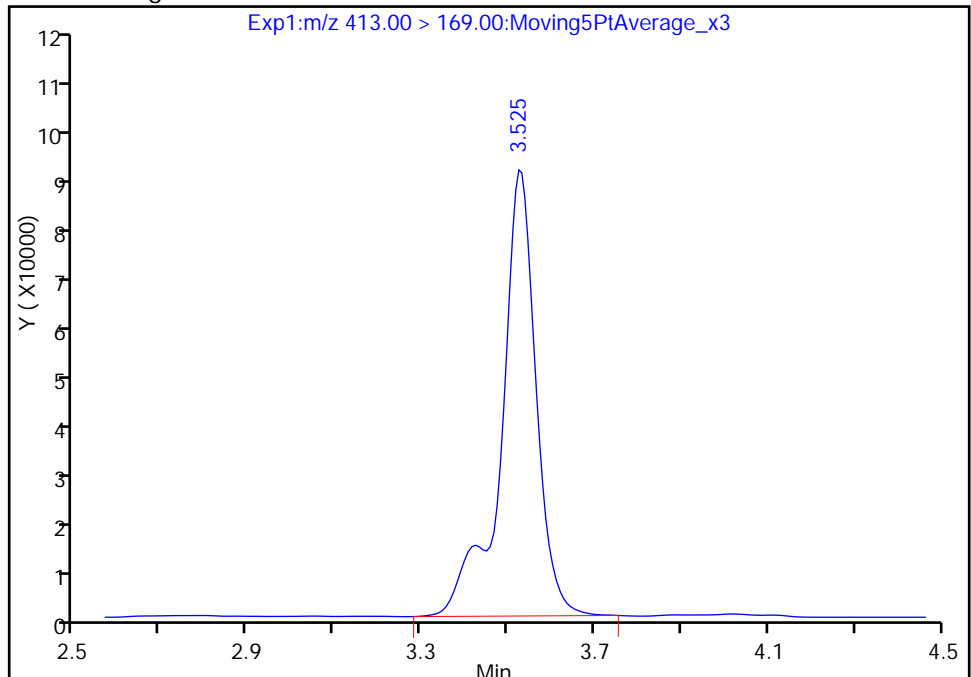
RT: 3.52
Area: 440364
Amount: 3.918000
Amount Units: ng/ml

Processing Integration Results



RT: 3.52
Area: 500076
Amount: 3.918000
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

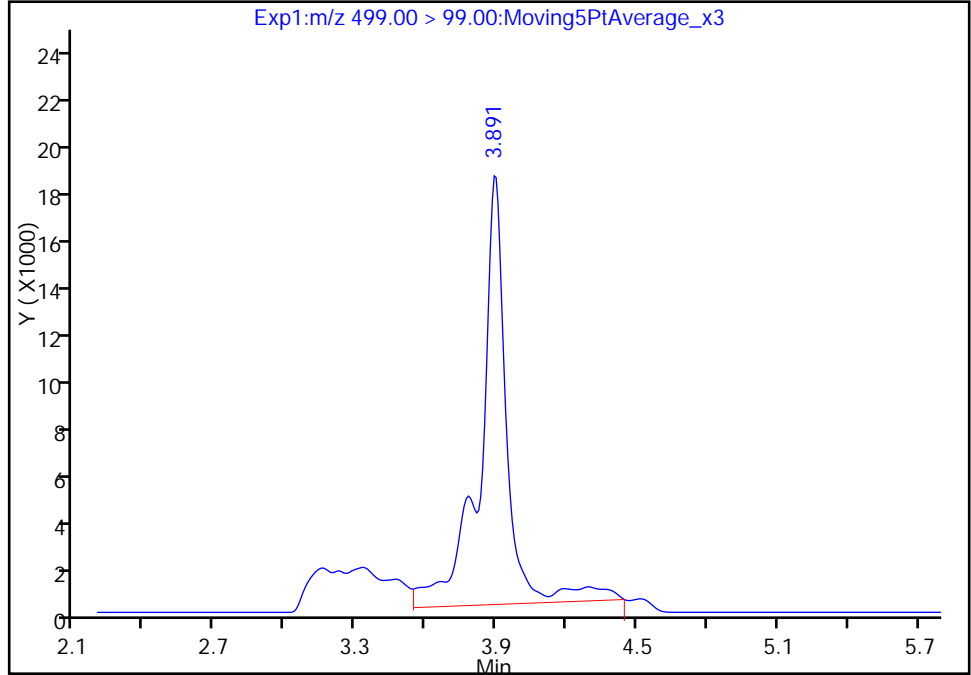
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_037.d
Injection Date: 24-May-2017 22:20:33 Instrument ID: A8_N
Lims ID: 320-28286-A-25-A Lab Sample ID: 320-28286-25
Client ID: MEAFF-TA-4-Unknown-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

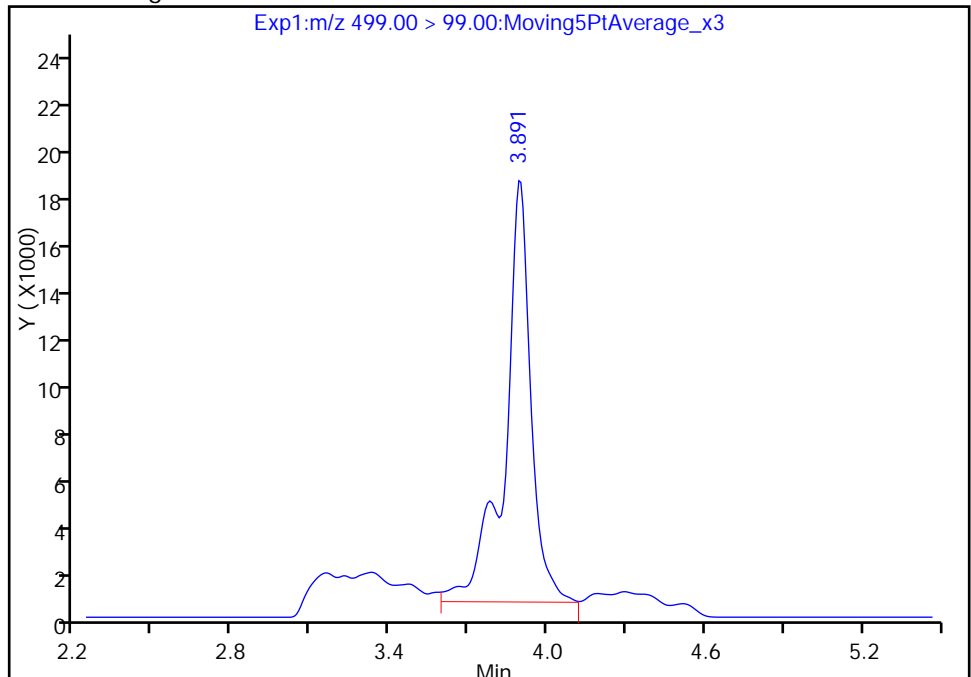
RT: 3.89
Area: 144289
Amount: 2.027897
Amount Units: ng/ml

Processing Integration Results



RT: 3.89
Area: 122983
Amount: 3.236779
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

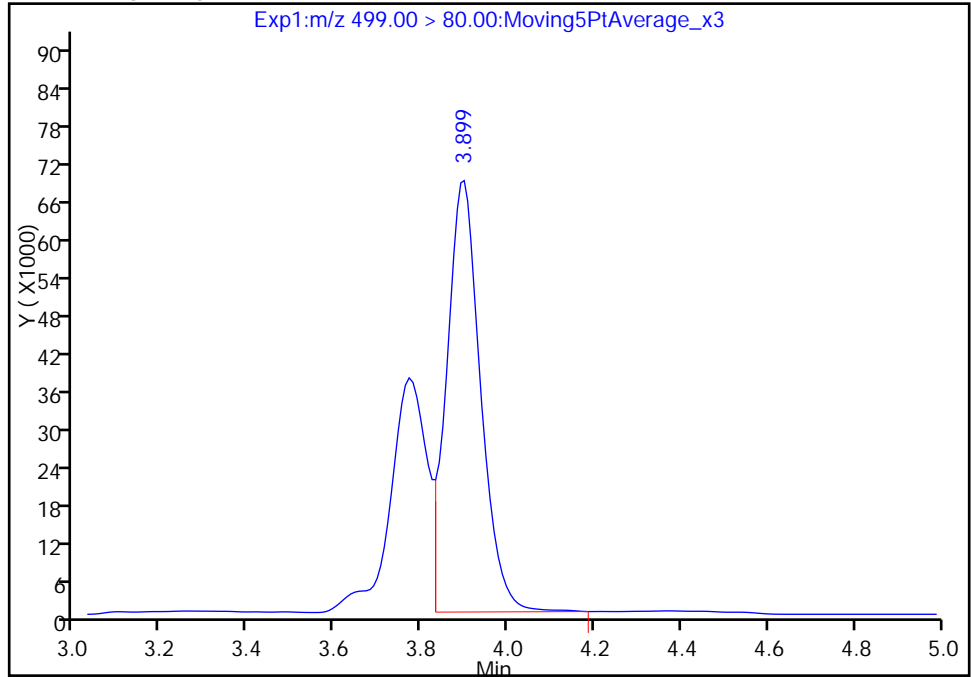
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_037.d
Injection Date: 24-May-2017 22:20:33 Instrument ID: A8_N
Lims ID: 320-28286-A-25-A Lab Sample ID: 320-28286-25
Client ID: MEAFF-TA-4-Unknown-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

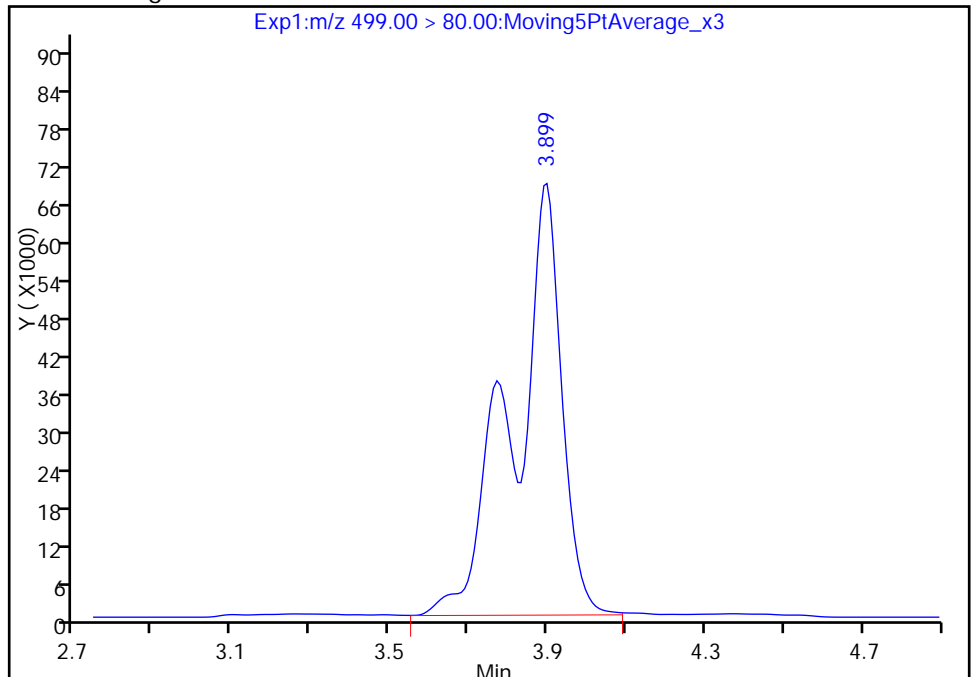
RT: 3.90
Area: 368989
Amount: 2.027897
Amount Units: ng/ml

Processing Integration Results



RT: 3.90
Area: 588953
Amount: 3.236779
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204 Lab Sample ID: 320-28286-26
 Matrix: Solid Lab File ID: 2017.05.24C_038.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 14:38
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.03(g) Date Analyzed: 05/24/2017 22:28
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 26.4 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.33	J M	0.68	0.41	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.17	J M	0.68	0.41	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.41	U	0.54	0.41	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	108		25-150
STL00991	13C4 PFOS	83		25-150
STL00994	18O2 PFHxS	88		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_038.d
 Lims ID: 320-28286-A-26-A
 Client ID: MEAFF-TA-4-Unknown-SB01-0204
 Sample Type: Client
 Inject. Date: 24-May-2017 22:28:04 ALS Bottle#: 32 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-26-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:02:54 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:54:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 11 18O2 PFHxS	403.00 > 84.00	3.124	3.131	-0.007	13422081	41.7		88.1	179849	
* 62 13C2-PFOA	415.00 > 370.00	3.508	3.523	-0.015	7131	49.5				
15 Perfluorooctanoic acid										M
413.00 > 369.00	3.508	3.523	-0.015	1.000	339747	1.23			35.9	
413.00 > 169.00	3.508	3.523	-0.015	1.000	206429		1.65(0.90-1.10)		498	M
D 14 13C4 PFOA	417.00 > 372.00	3.508	3.523	-0.015	12289495	54.2		108	68039	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.758	3.887	-0.129	1.000	148077	0.6432			78.1	
499.00 > 99.00	3.878	3.887	-0.009	1.032	24256		6.10(0.90-1.10)		10.3	M
D 18 13C4 PFOS	503.00 > 80.00	3.878	3.887	-0.009	9273384	39.5		82.7	14100	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_038.d

Injection Date: 24-May-2017 22:28:04

Instrument ID: A8_N

Lims ID: 320-28286-A-26-A

Lab Sample ID: 320-28286-26

Client ID: MEAFF-TA-4-Unknown-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

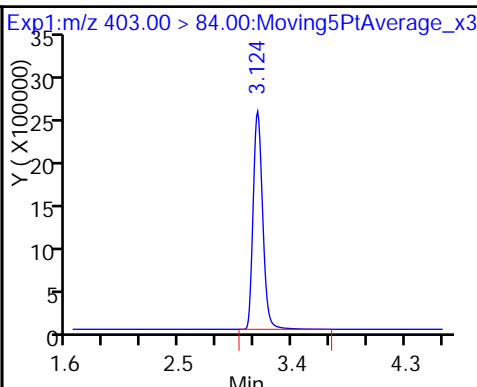
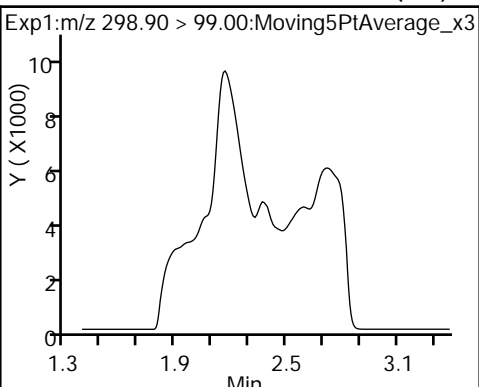
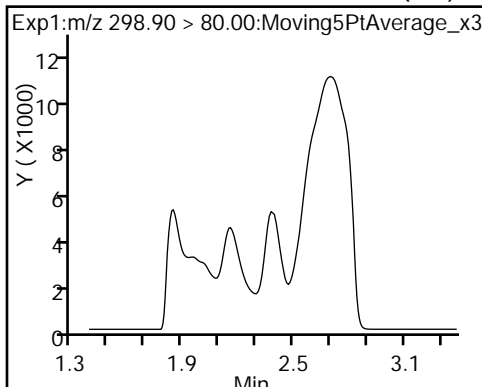
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (ND)

5 Perfluorobutanesulfonic acid (ND)

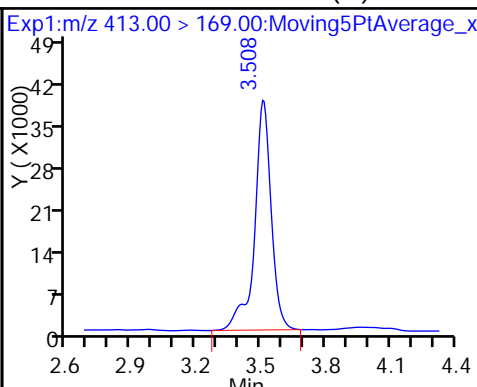
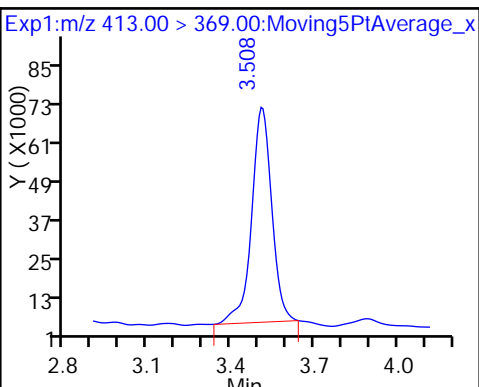
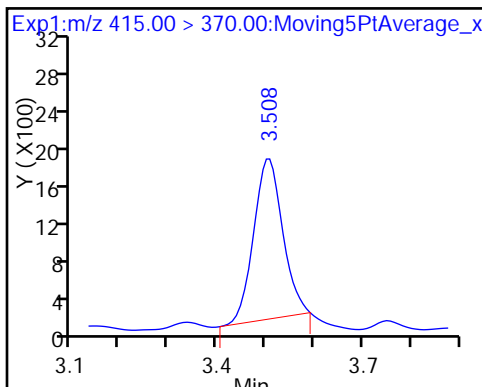
D 11 1802 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

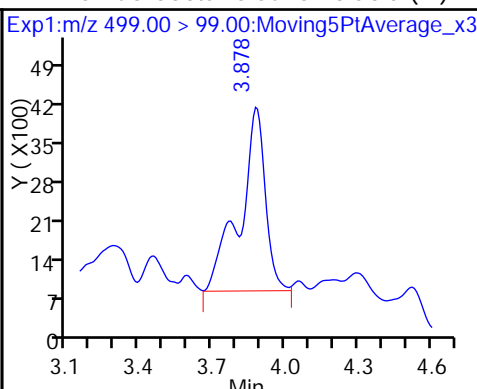
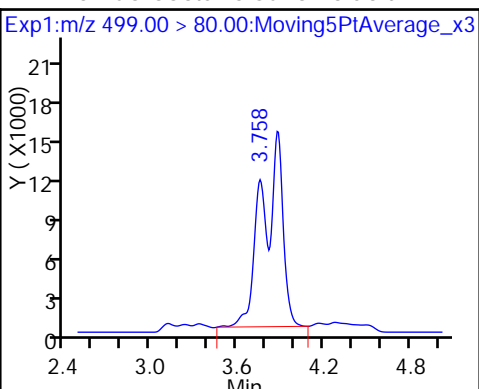
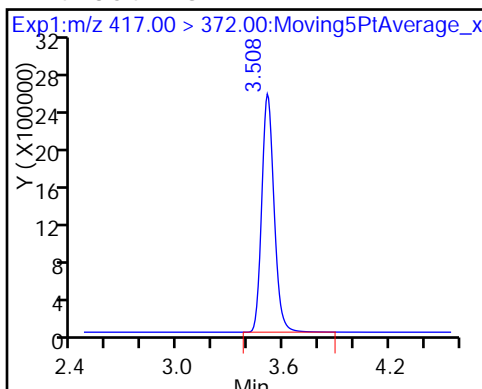
15 Perfluorooctanoic acid (M)



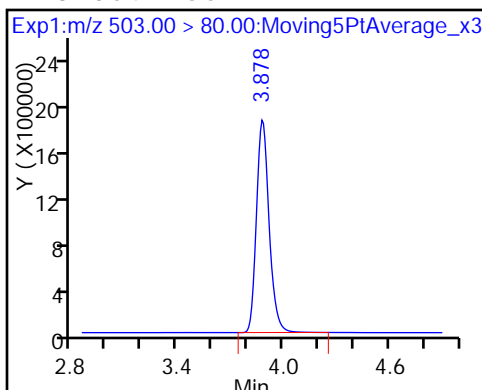
D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS



TestAmerica Sacramento

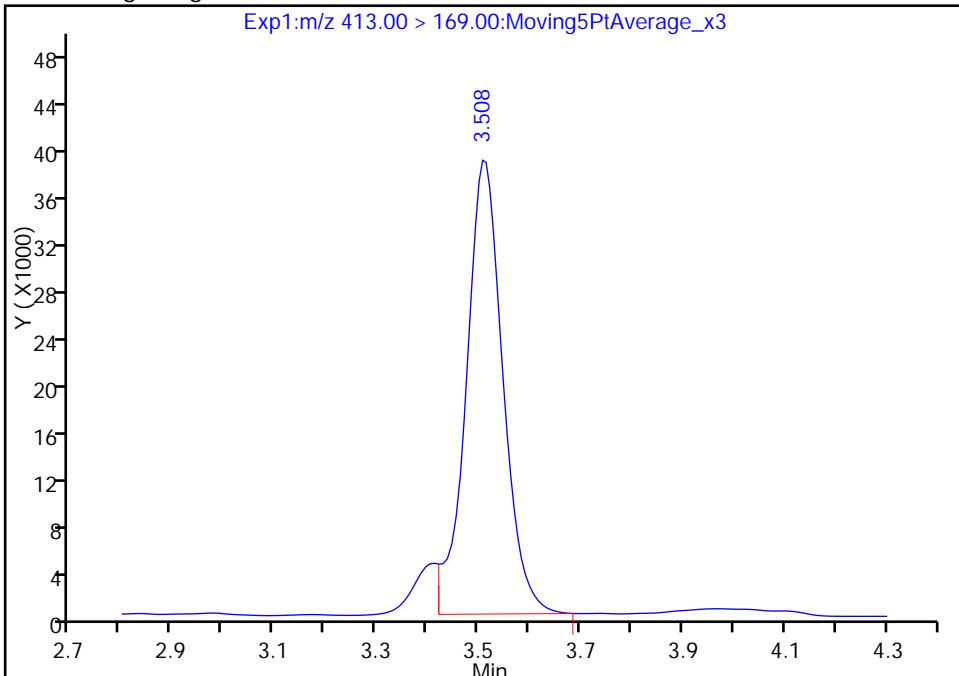
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_038.d
Injection Date: 24-May-2017 22:28:04 Instrument ID: A8_N
Lims ID: 320-28286-A-26-A Lab Sample ID: 320-28286-26
Client ID: MEAFF-TA-4-Unknown-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

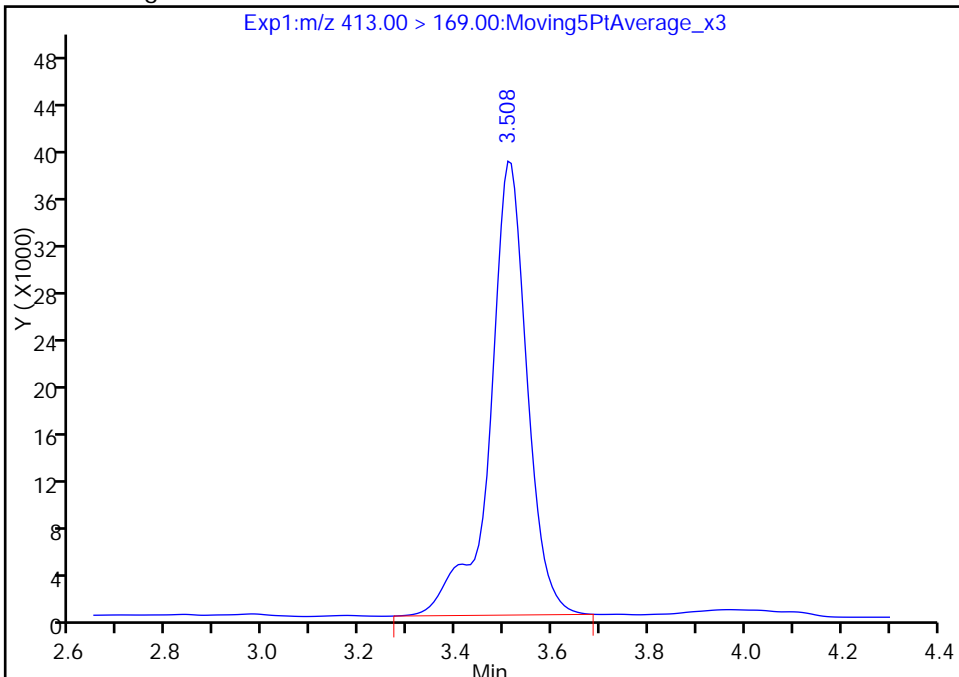
RT: 3.51
Area: 191749
Amount: 1.231091
Amount Units: ng/ml

Processing Integration Results



RT: 3.51
Area: 206429
Amount: 1.231091
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 25-May-2017 10:54:40
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

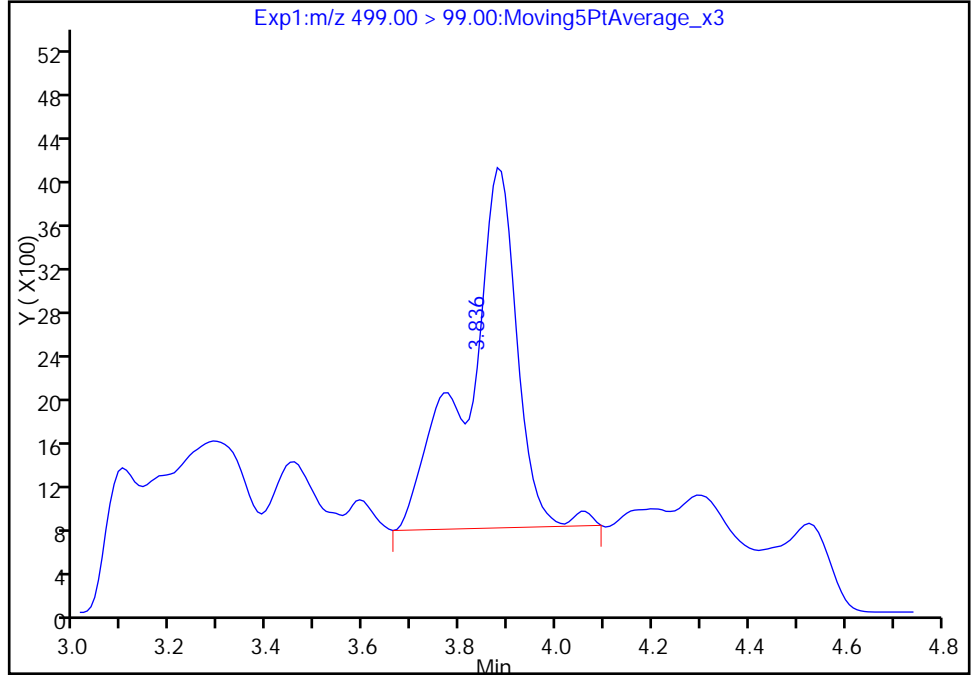
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_038.d
Injection Date: 24-May-2017 22:28:04 Instrument ID: A8_N
Lims ID: 320-28286-A-26-A Lab Sample ID: 320-28286-26
Client ID: MEAFF-TA-4-Unknown-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

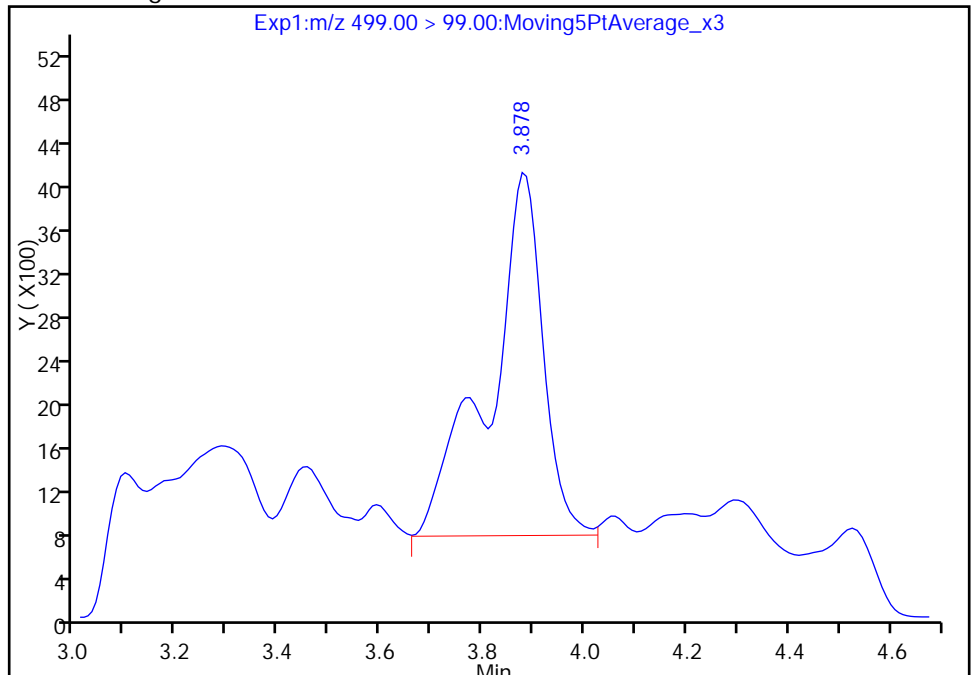
RT: 3.84
Area: 24102
Amount: 0.643236
Amount Units: ng/ml

Processing Integration Results



RT: 3.88
Area: 24256
Amount: 0.643236
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 25-May-2017 10:55:00

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown17-SB01-0001 Lab Sample ID: 320-28286-27
 Matrix: Solid Lab File ID: 2017.05.24C_039.d
 Analysis Method: 537 (Modified) Date Collected: 05/15/2017 09:18
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 4.98(g) Date Analyzed: 05/24/2017 22:35
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 11.6 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.1		0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	100		25-150
STL00991	13C4 PFOS	83		25-150
STL00994	18O2 PFHxS	90		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_039.d
 Lims ID: 320-28286-A-27-A
 Client ID: MEAFF-Unknown17-SB01-0001
 Sample Type: Client
 Inject. Date: 24-May-2017 22:35:34 ALS Bottle#: 33 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-27-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:02:54 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:56:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.398	2.388	0.010	1.000	72716	0.1594				M
298.90 > 99.00	2.388	2.388	0.0	0.996	31290		2.32(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	3.134	3.131	0.003		13641344	42.3		89.5	56683	
* 62 13C2-PFOA										
415.00 > 370.00	3.518	3.523	-0.005		6149	49.5				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.518	3.523	-0.005	1.000	93676	0.3671			12.8	M
413.00 > 169.00	3.518	3.523	-0.005	1.000	53817		1.74(0.90-1.10)		132	M
D 14 13C4 PFOA										
417.00 > 372.00	3.518	3.523	-0.005		11362363	50.1		100	43233	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.895	3.887	0.008	1.000	1107682	4.80			1728	
499.00 > 99.00	3.895	3.887	0.008	1.000	251800		4.40(0.90-1.10)		174	
D 18 13C4 PFOS										
503.00 > 80.00	3.895	3.887	0.008		9292668	39.6		82.9	16316	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_039.d

Injection Date: 24-May-2017 22:35:34

Instrument ID: A8_N

Lims ID: 320-28286-A-27-A

Lab Sample ID: 320-28286-27

Client ID: MEAFF-Unknown17-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

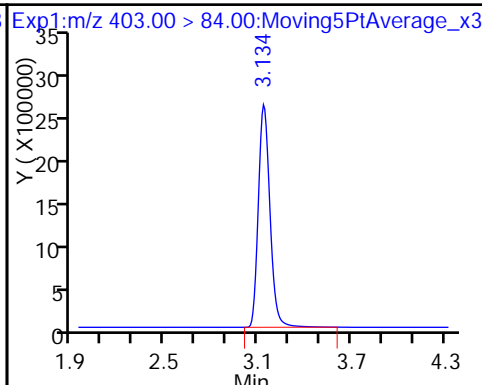
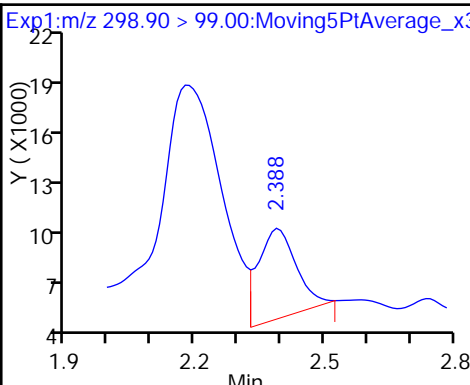
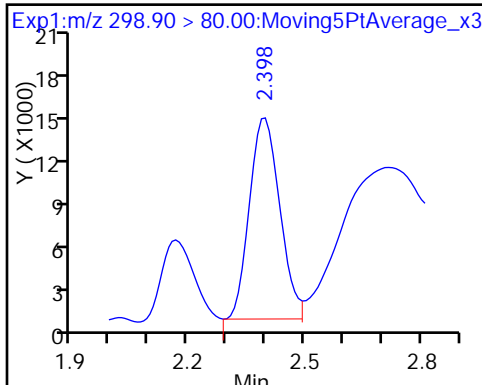
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid (M)

5 Perfluorobutanesulfonic acid

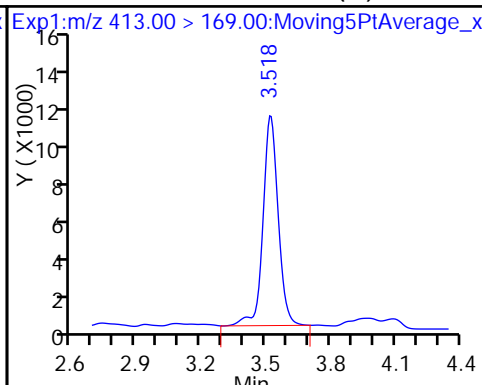
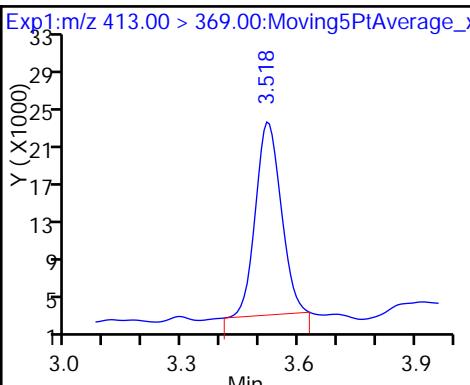
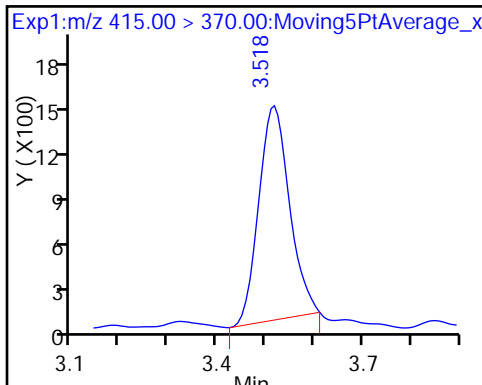
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

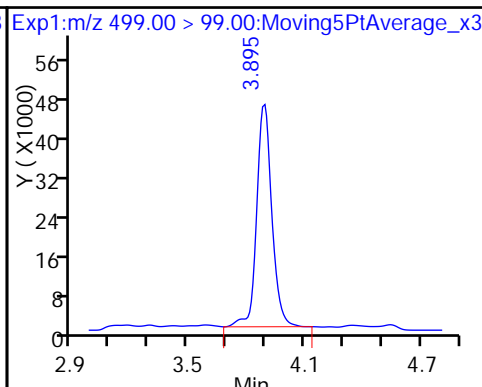
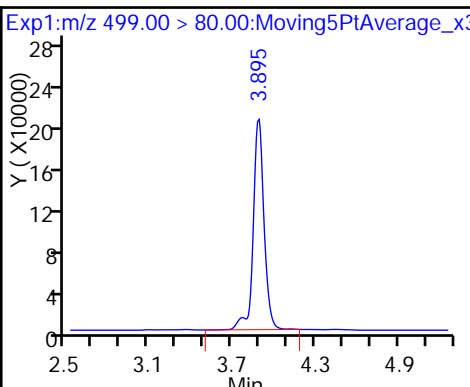
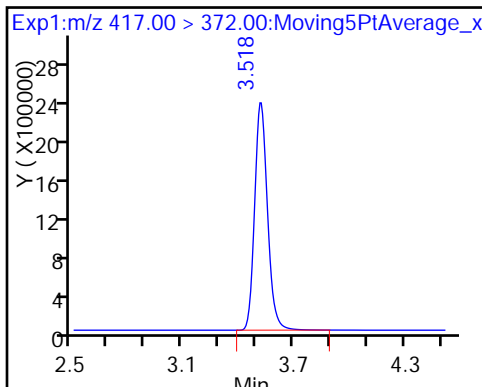
15 Perfluorooctanoic acid (M)



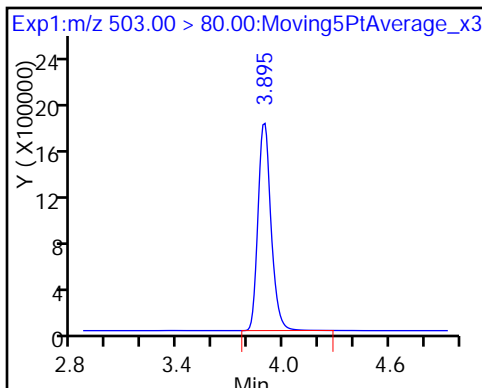
D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



TestAmerica Sacramento

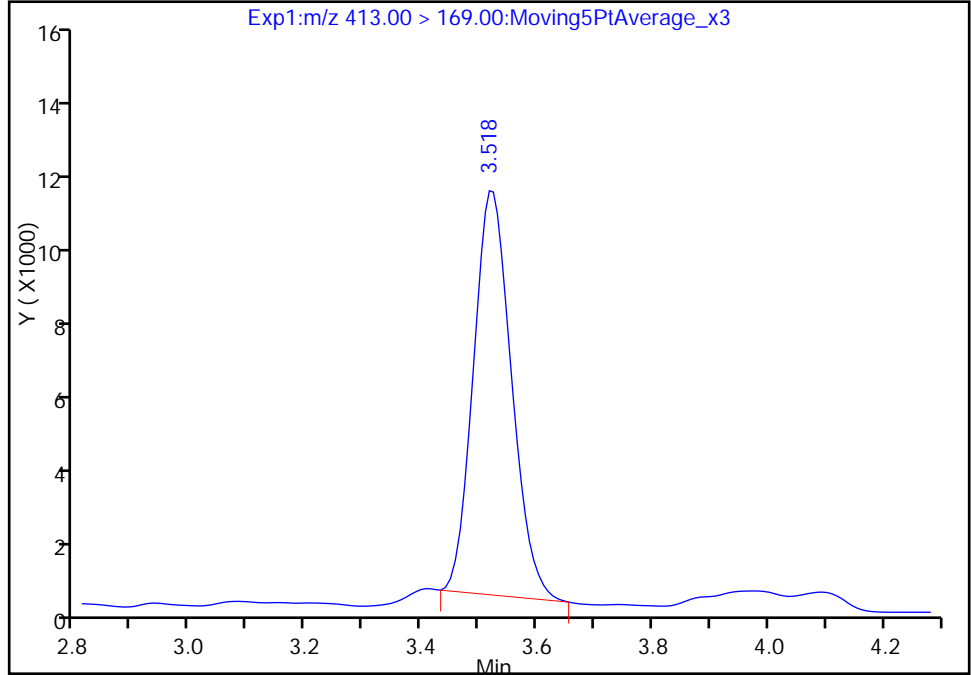
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_039.d
Injection Date: 24-May-2017 22:35:34 Instrument ID: A8_N
Lims ID: 320-28286-A-27-A Lab Sample ID: 320-28286-27
Client ID: MEAFF-Unknown17-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 33 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

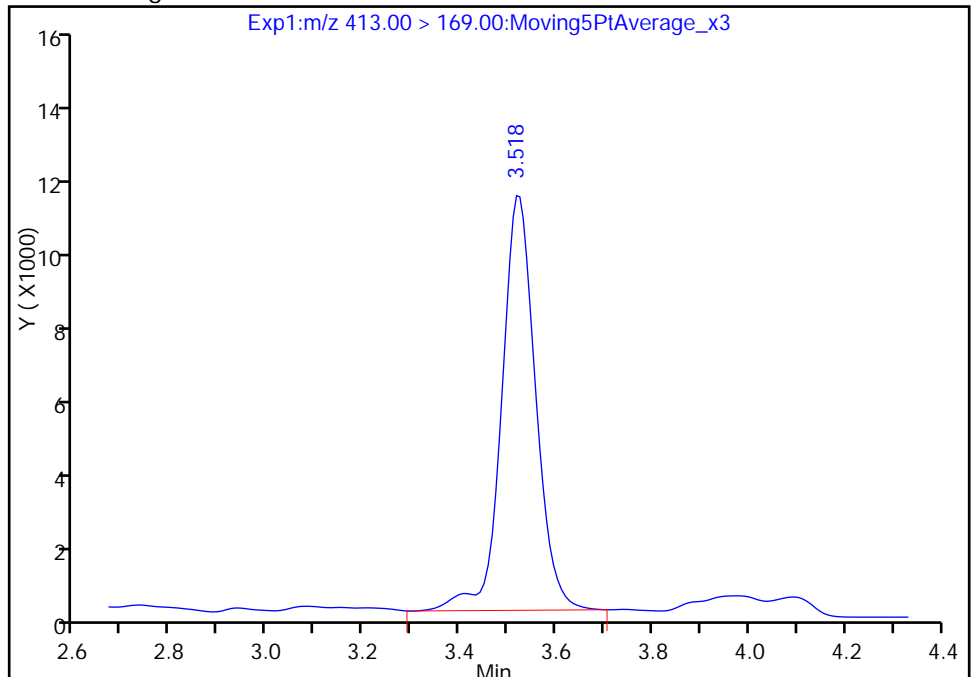
RT: 3.52
Area: 48812
Amount: 0.367137
Amount Units: ng/ml

Processing Integration Results



RT: 3.52
Area: 53817
Amount: 0.367137
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 25-May-2017 10:55:38

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

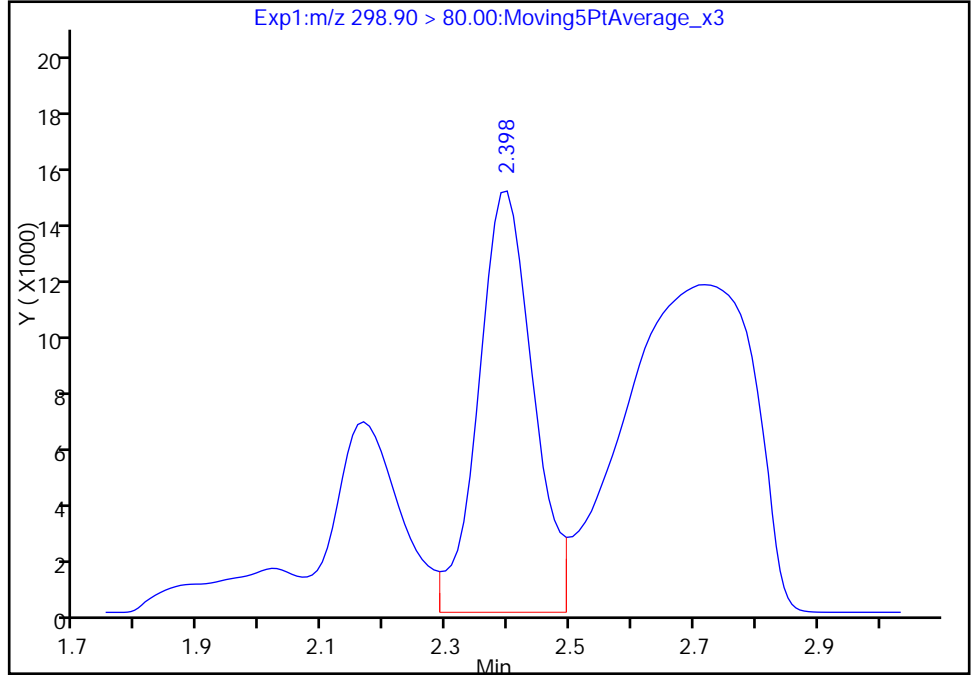
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_039.d
Injection Date: 24-May-2017 22:35:34 Instrument ID: A8_N
Lims ID: 320-28286-A-27-A Lab Sample ID: 320-28286-27
Client ID: MEAFF-Unknown17-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 33 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

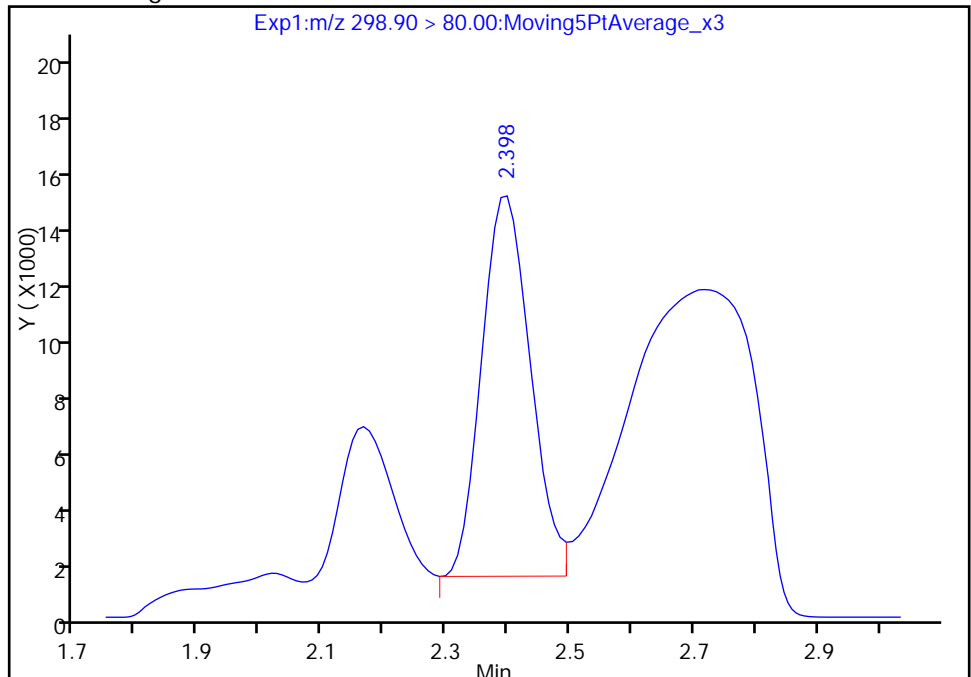
RT: 2.40
Area: 90241
Amount: 0.197807
Amount Units: ng/ml

Processing Integration Results



RT: 2.40
Area: 72716
Amount: 0.159393
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 25-May-2017 10:55:53

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown17-SB01-0204 Lab Sample ID: 320-28286-28
 Matrix: Solid Lab File ID: 2017.05.24C_040.d
 Analysis Method: 537 (Modified) Date Collected: 05/15/2017 09:20
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.05(g) Date Analyzed: 05/24/2017 22:43
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 11.7 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.80		0.56	0.34	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.65		0.56	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	74		25-150
STL00991	13C4 PFOS	51		25-150
STL00994	18O2 PFHxS	60		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_040.d
 Lims ID: 320-28286-A-28-A
 Client ID: MEAFF-Unknown17-SB01-0204
 Sample Type: Client
 Inject. Date: 24-May-2017 22:43:04 ALS Bottle#: 34 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-28-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:02:54 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:56:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.388	2.388	0.0	1.000	19321	0.0627				
298.90 > 99.00	2.388	2.388	0.0	1.000	3679		5.25(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	3.132	3.131	0.001		9213503	28.6		60.5	60940	
* 62 13C2-PFOA										
415.00 > 370.00	3.515	3.523	-0.008		6007	49.5				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.515	3.523	-0.008	1.000	678453	3.58			84.5	
413.00 > 169.00	3.515	3.523	-0.008	1.000	386258		1.76(0.90-1.10)		1422	
D 14 13C4 PFOA										
417.00 > 372.00	3.515	3.523	-0.008		8441448	37.2		74.4	51446	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.768	3.887	-0.119	1.000	407937	2.90			751	
499.00 > 99.00	3.776	3.887	-0.111	1.002	72690		5.61(0.90-1.10)		41.1	
D 18 13C4 PFOS										
503.00 > 80.00	3.887	3.887	0.0		5671925	24.2		50.6	14839	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_040.d

Injection Date: 24-May-2017 22:43:04

Instrument ID: A8_N

Lims ID: 320-28286-A-28-A

Lab Sample ID: 320-28286-28

Client ID: MEAFF-Unknown17-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

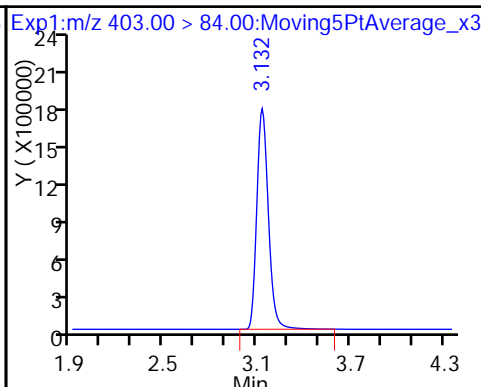
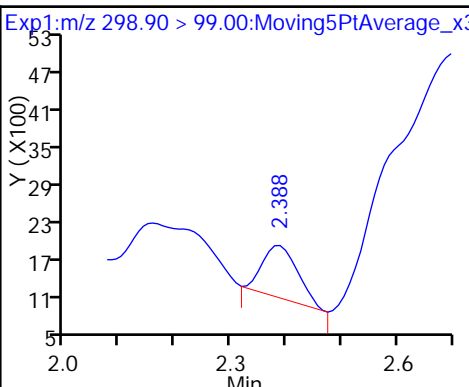
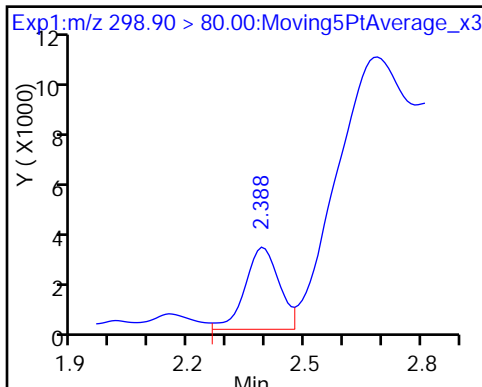
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid

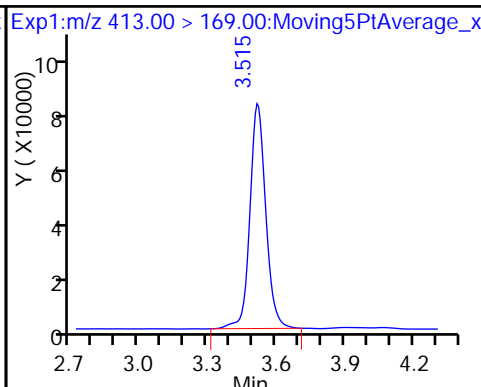
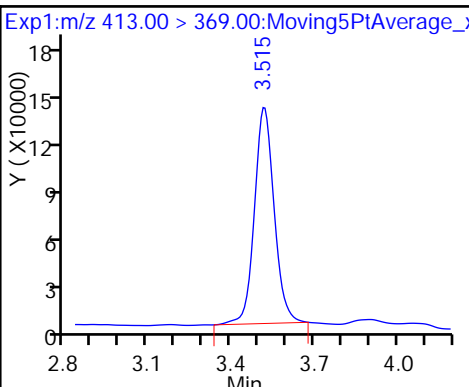
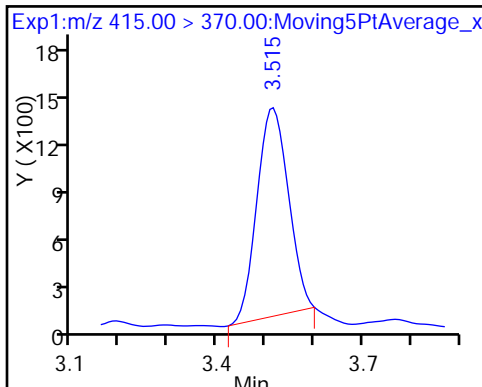
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

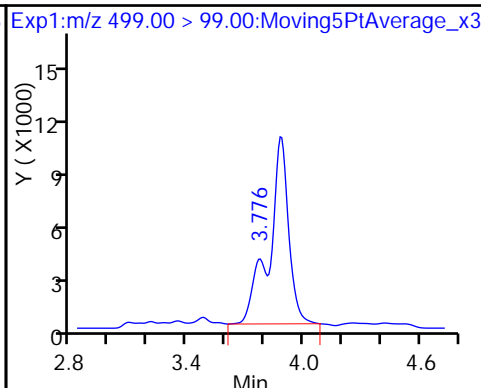
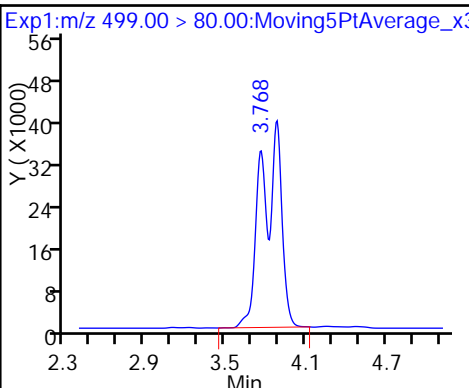
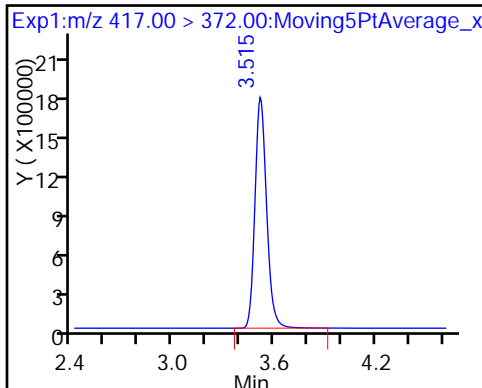
15 Perfluorooctanoic acid



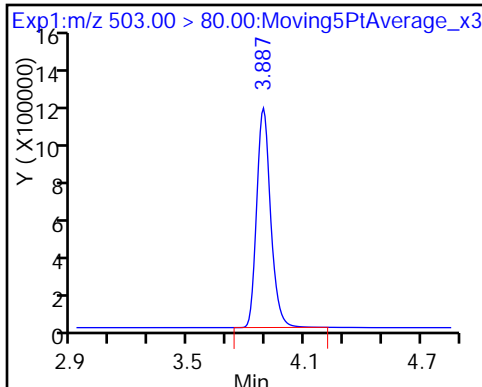
D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_041.d
 Lims ID: 320-28286-A-29-A
 Client ID: MEAFF-TA-4J-1992-SB01-0001
 Sample Type: Client
 Inject. Date: 24-May-2017 22:50:35 ALS Bottle#: 35 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-29-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:02:54 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:58:39

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.378	2.388	-0.010	1.000	10669	0.0325				
298.90 > 99.00	2.378	2.388	-0.010	1.000	5516		1.93(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	3.124	3.131	-0.007		9812787	30.5		64.4	47900	
* 62 13C2-PFOA										
415.00 > 370.00	3.508	3.523	-0.015		5234	49.5				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.508	3.523	-0.015	1.000	14696	0.0753			2.8	M
413.00 > 169.00	3.508	3.523	-0.015	1.000	13205		1.11(0.90-1.10)		44.0	M
D 14 13C4 PFOA										
417.00 > 372.00	3.508	3.523	-0.015		8691052	38.3		76.6	40742	
D 18 13C4 PFOS										
503.00 > 80.00	3.877	3.887	-0.010		6708331	28.6		59.8	16014	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_041.d

Injection Date: 24-May-2017 22:50:35

Instrument ID: A8_N

Lims ID: 320-28286-A-29-A

Lab Sample ID: 320-28286-29

Client ID: MEAFF-TA-4J-1992-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 35

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

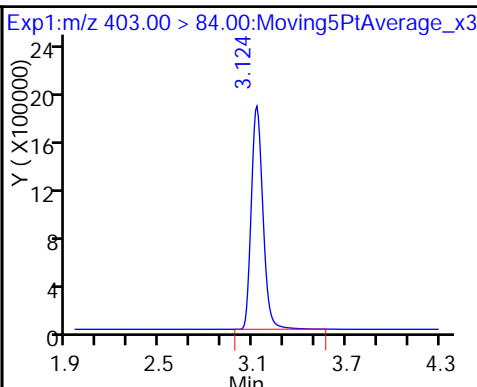
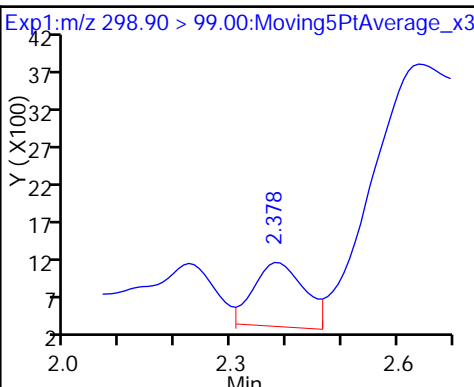
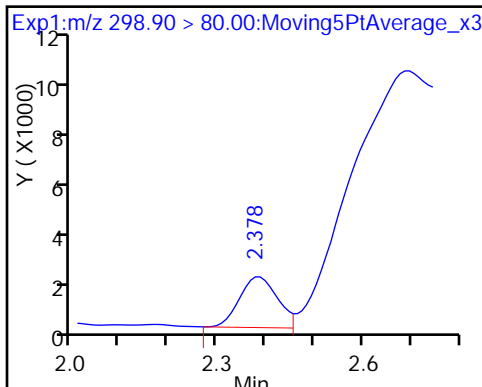
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid

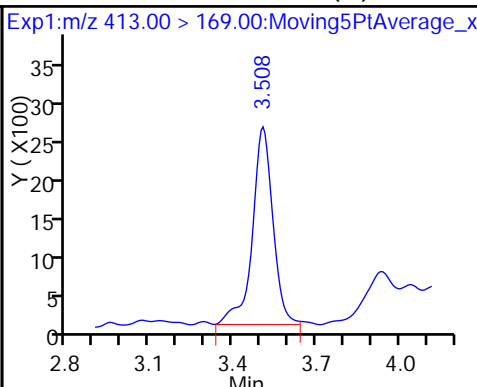
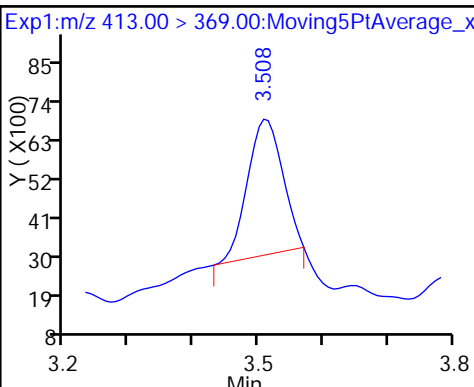
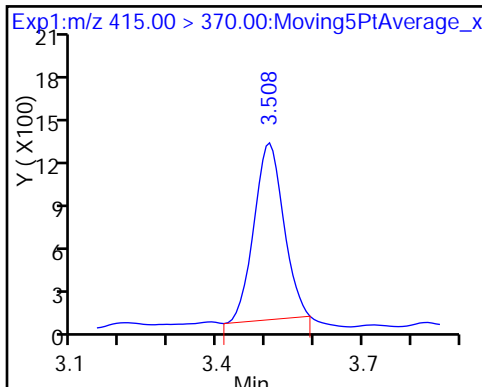
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid

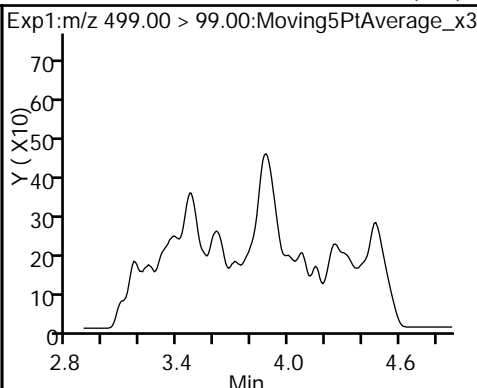
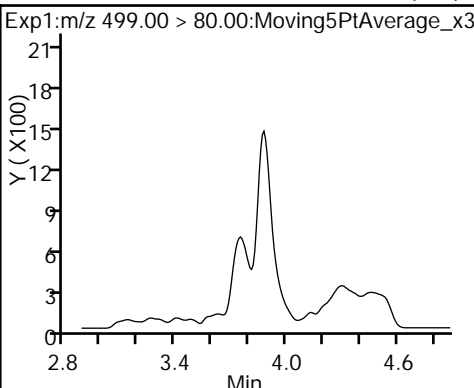
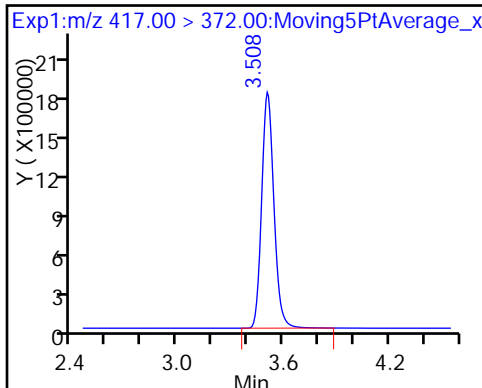
15 Perfluorooctanoic acid (M)



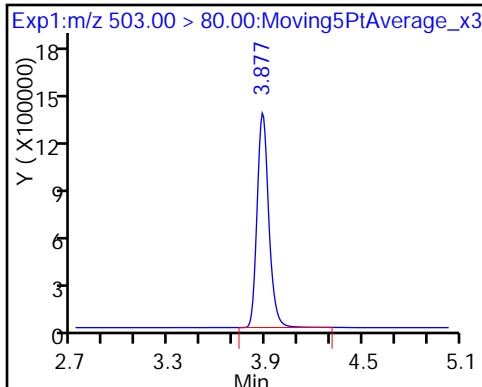
D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)



D 18 13C4 PFOS



TestAmerica Sacramento

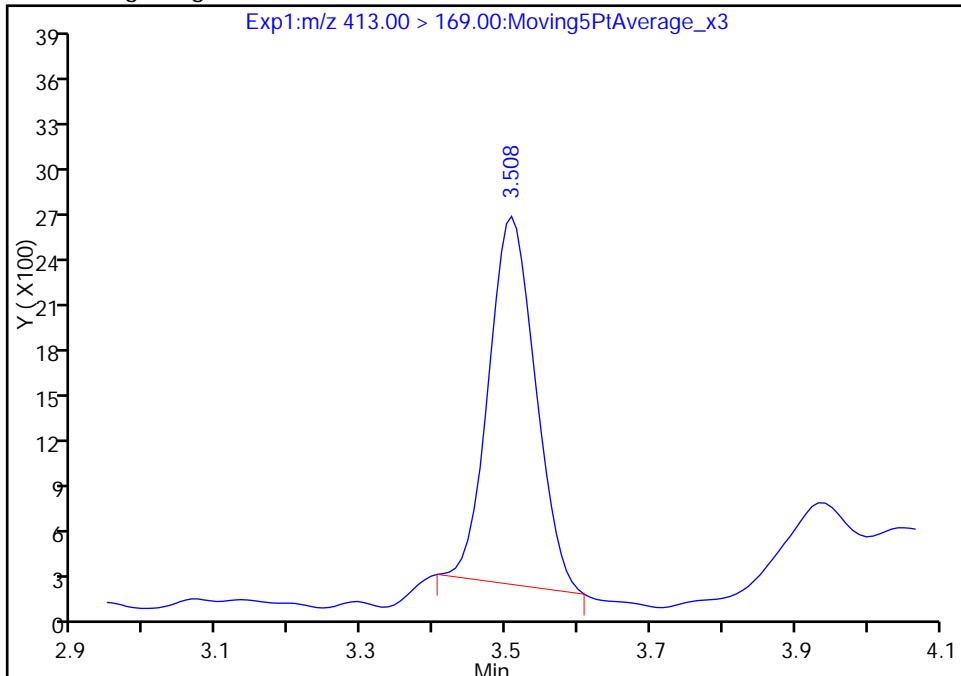
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_041.d
Injection Date: 24-May-2017 22:50:35 Instrument ID: A8_N
Lims ID: 320-28286-A-29-A Lab Sample ID: 320-28286-29
Client ID: MEAFF-TA-4J-1992-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

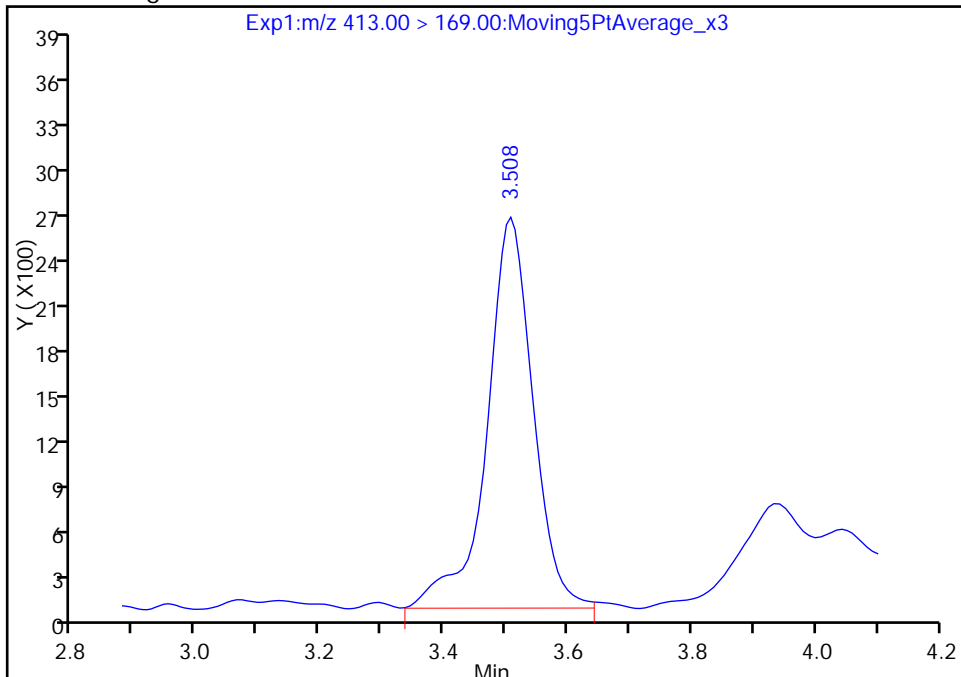
RT: 3.51
Area: 10808
Amount: 0.075300
Amount Units: ng/ml

Processing Integration Results



RT: 3.51
Area: 13205
Amount: 0.075300
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 25-May-2017 10:58:32
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_043.d
 Lims ID: 320-28286-A-30-A
 Client ID: MEAFF-TA-4J-1992-SB01-0204
 Sample Type: Client
 Inject. Date: 24-May-2017 23:05:33 ALS Bottle#: 36 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-30-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:03:25 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 11:00:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.378	2.388	-0.010	1.000	16921	0.0430				
298.90 > 99.00	2.378	2.388	-0.010	1.000	11257		1.50(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	3.122	3.131	-0.009		11773469	36.5		77.3	55505	
* 62 13C2-PFOA										
415.00 > 370.00	3.500	3.523	-0.023		22982	49.5				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.507	3.523	-0.016	1.000	20745	0.0860			2.9	M
413.00 > 169.00	3.507	3.523	-0.016	1.000	16861		1.23(0.90-1.10)		58.4	M
D 14 13C4 PFOA										
417.00 > 372.00	3.500	3.523	-0.023		10742140	47.3		94.7	48764	
D 18 13C4 PFOS										
503.00 > 80.00	3.868	3.887	-0.019		6776646	28.9		60.4	21830	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_043.d

Injection Date: 24-May-2017 23:05:33

Instrument ID: A8_N

Lims ID: 320-28286-A-30-A

Lab Sample ID: 320-28286-30

Client ID: MEAFF-TA-4J-1992-SB01-0204

Operator ID: SACINSTLCMS01

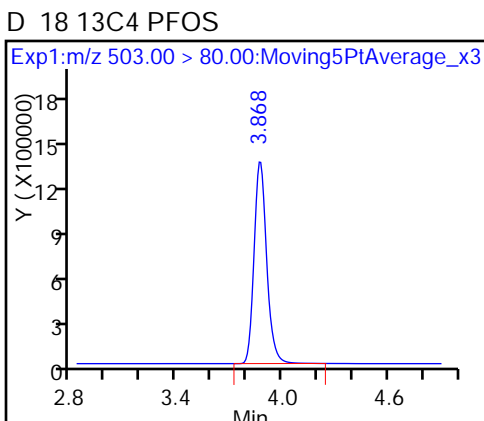
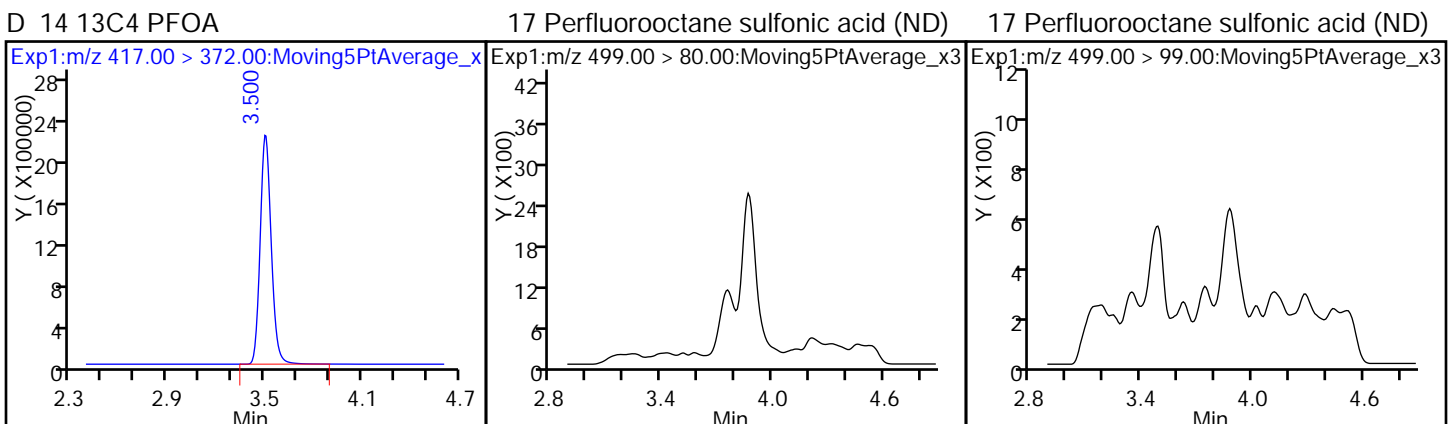
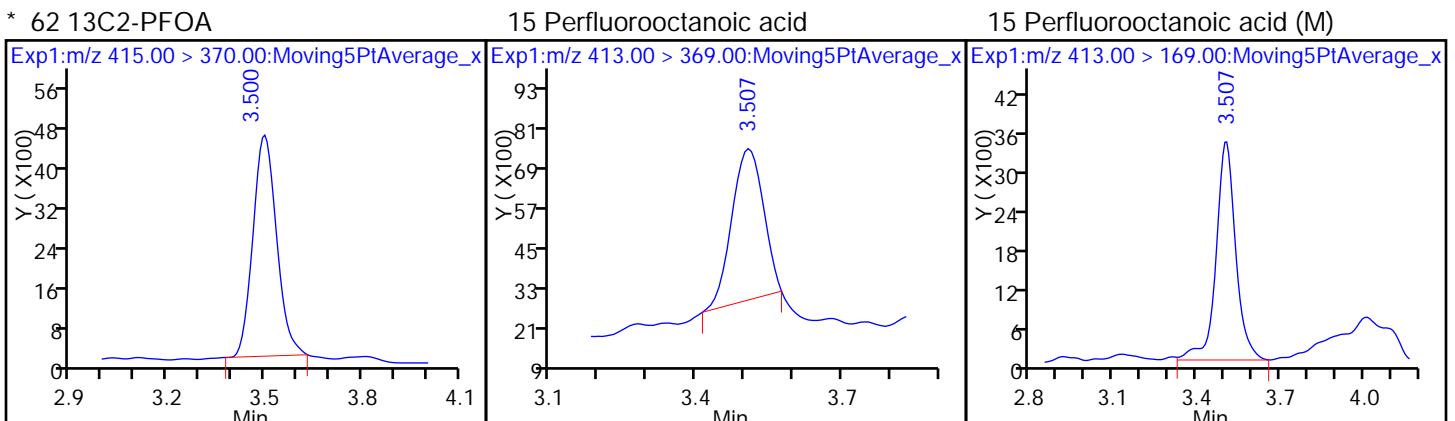
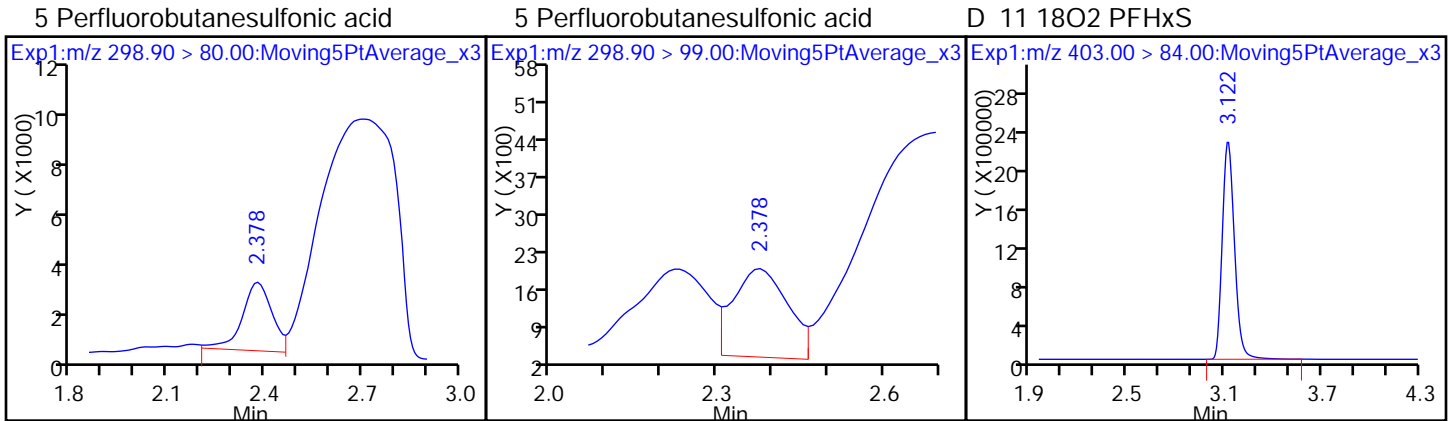
ALS Bottle#: 36 Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL



TestAmerica Sacramento

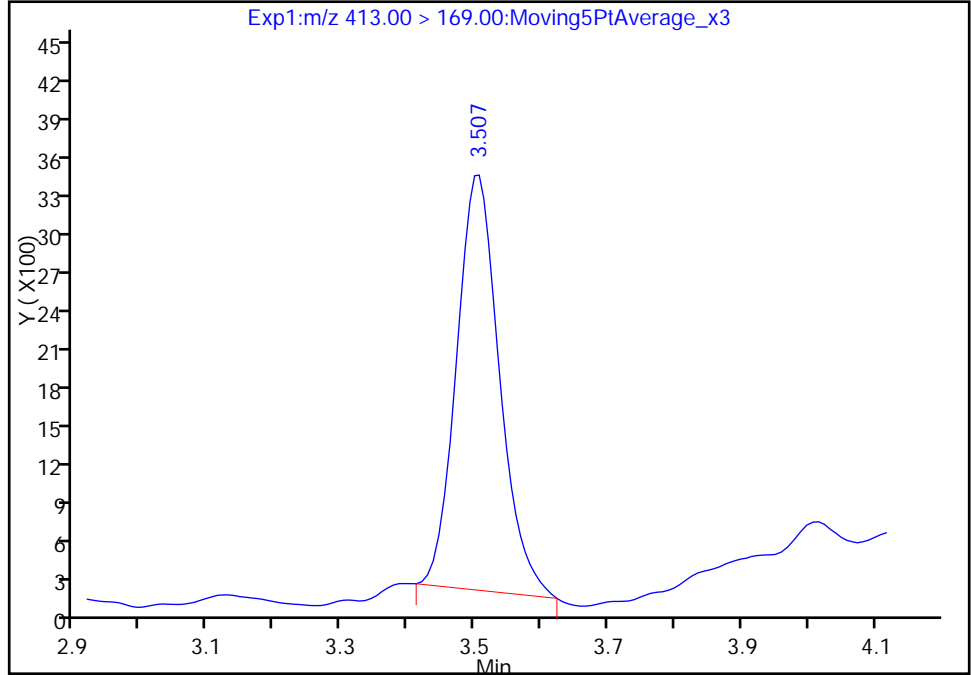
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Injection Date: 24-May-2017 23:05:33 Instrument ID: A8_N
Lims ID: 320-28286-A-30-A Lab Sample ID: 320-28286-30
Client ID: MEAFF-TA-4J-1992-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 36 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

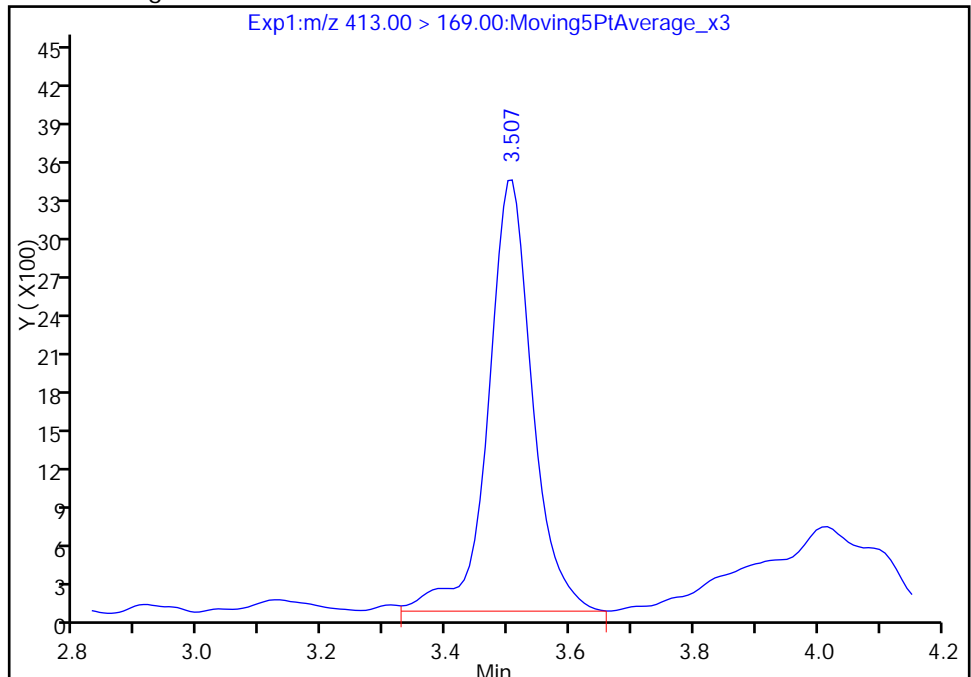
RT: 3.51
Area: 14655
Amount: 0.085999
Amount Units: ng/ml

Processing Integration Results



RT: 3.51
Area: 16861
Amount: 0.085999
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 25-May-2017 11:00:08

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EB08-051517 Lab Sample ID: 320-28286-31
 Matrix: Water Lab File ID: 2017.05.19B_013.d
 Analysis Method: 537 (Modified) Date Collected: 05/15/2017 10:16
 Extraction Method: 3535 Date Extracted: 05/18/2017 17:41
 Sample wt/vol: 273.4 (mL) Date Analyzed: 05/20/2017 07:12
 Con. Extract Vol.: 0.50 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165487 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U	2.3	1.8	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.7	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	1.8	0.84

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	129		25-150
STL00991	13C4 PFOS	108		25-150
STL00994	18O2 PFHxS	112		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_013.d
 Lims ID: 320-28286-A-31-A
 Client ID: MEAFF-EB08-051517
 Sample Type: Client
 Inject. Date: 20-May-2017 07:12:41 ALS Bottle#: 11 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-31-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 12:22:07 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK016

First Level Reviewer: chandrasenas Date: 22-May-2017 12:06:27

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.466	2.459	0.007	1.000	36944	0.0686				
298.90 > 99.00	2.466	2.459	0.007	1.000	12181		3.03(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	3.217	3.213	0.004		16645262	52.8		112	391323	
* 62 13C2-PFOA										
415.00 > 370.00	3.594	3.590	0.004		18908	49.5				
D 14 13C4 PFOA										
417.00 > 372.00	3.603	3.598	0.005		14568224	64.4		129	87189	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.603	3.598	0.005	1.000	38241	0.1158			3.8	
413.00 > 169.00	3.603	3.598	0.005	1.000	25048		1.53(0.90-1.10)		82.0	
D 18 13C4 PFOS										
503.00 > 80.00	3.970	3.959	0.011		12210180	51.5		108	51782	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_013.d

Injection Date: 20-May-2017 07:12:41

Instrument ID: A8_N

Lims ID: 320-28286-A-31-A

Lab Sample ID: 320-28286-31

Client ID: MEAFF-EB08-051517

Operator ID: SACINSTLCMS01

ALS Bottle#: 11

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

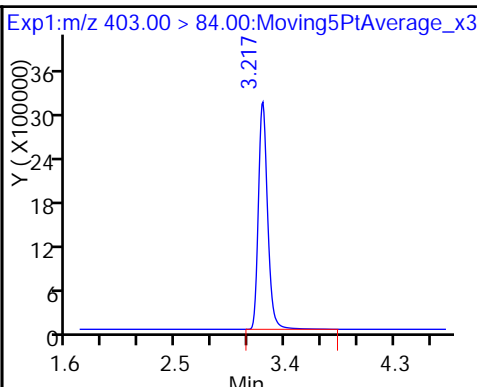
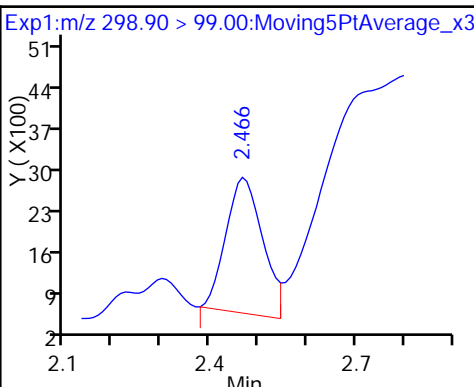
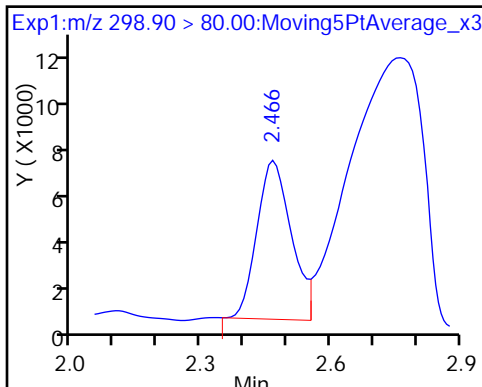
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid

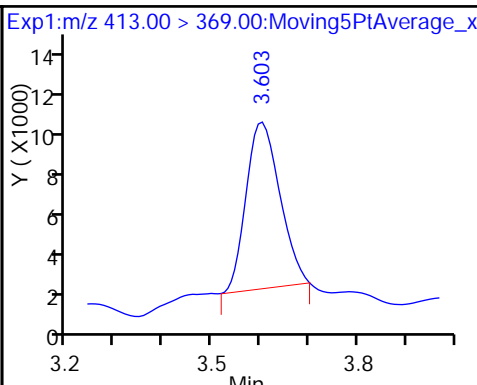
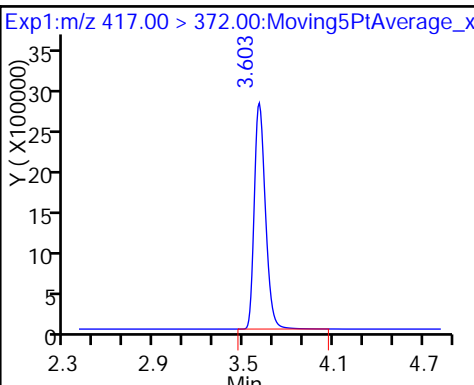
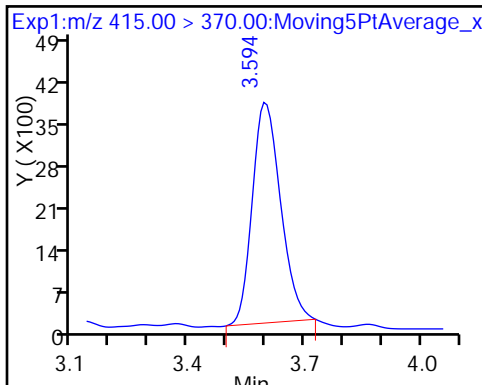
D 11 18O2 PFHxS



* 62 13C2-PFOA

D 14 13C4 PFOA

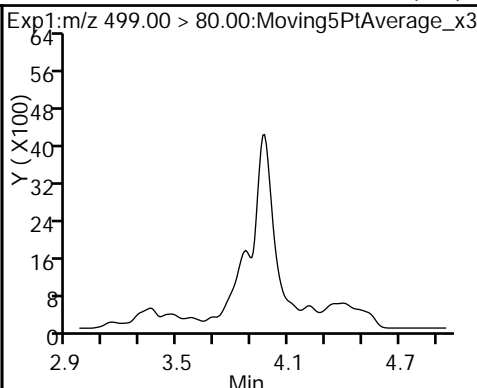
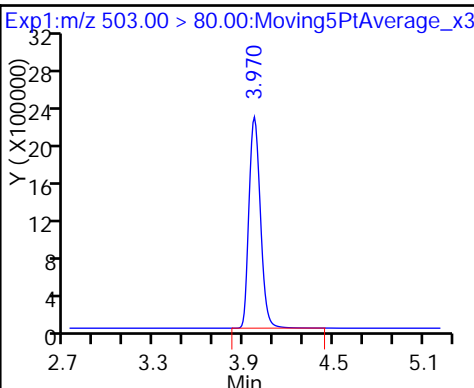
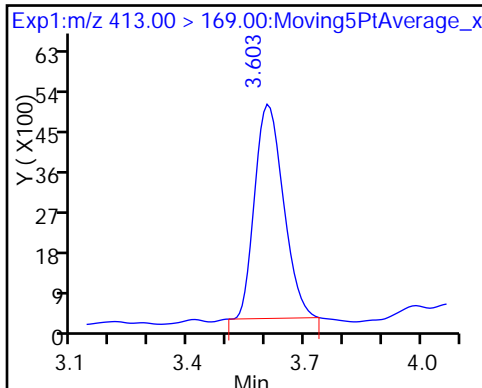
15 Perfluorooctanoic acid



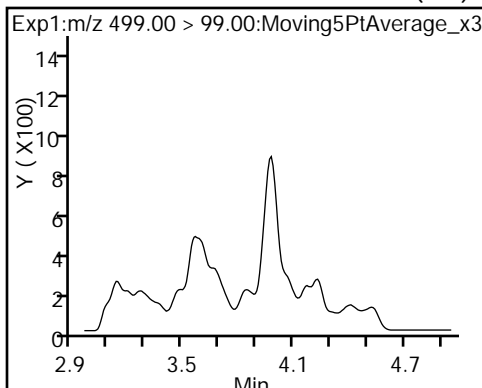
15 Perfluorooctanoic acid

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (ND)



17 Perfluorooctane sulfonic acid (ND)



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_044.d
 Lims ID: 320-28286-A-32-A
 Client ID: MEAFF-TA-4J-1985-SB01-0001
 Sample Type: Client
 Inject. Date: 24-May-2017 23:13:02 ALS Bottle#: 37 Worklist Smp#: 14
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-32-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:03:25 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 11:01:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.378	2.388	-0.010	1.000	19073	0.0546				
298.90 > 99.00	2.378	2.388	-0.010	1.000	17769		1.07(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	3.124	3.131	-0.007		10452048	32.4		68.6	48785	
* 62 13C2-PFOA										
415.00 > 370.00	3.501	3.523	-0.022		7864	49.5				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.508	3.523	-0.015	1.000	58927	0.2552			5.4	M
413.00 > 169.00	3.508	3.523	-0.015	1.000	25987		2.27(0.90-1.10)		64.3	M
D 14 13C4 PFOA										
417.00 > 372.00	3.508	3.523	-0.015		10282430	45.3		90.6	85333	
D 18 13C4 PFOS										
503.00 > 80.00	3.878	3.887	-0.009		5685437	24.2		50.7	17769	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_044.d

Injection Date: 24-May-2017 23:13:02

Instrument ID: A8_N

Lims ID: 320-28286-A-32-A

Lab Sample ID: 320-28286-32

Client ID: MEAFF-TA-4J-1985-SB01-0001

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

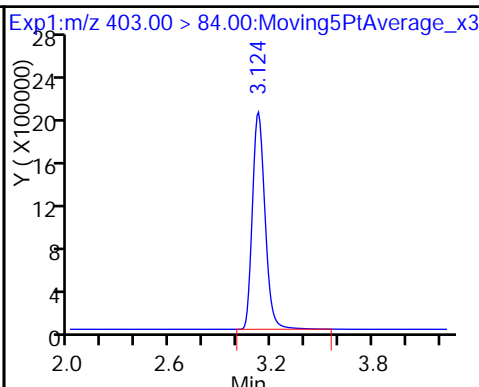
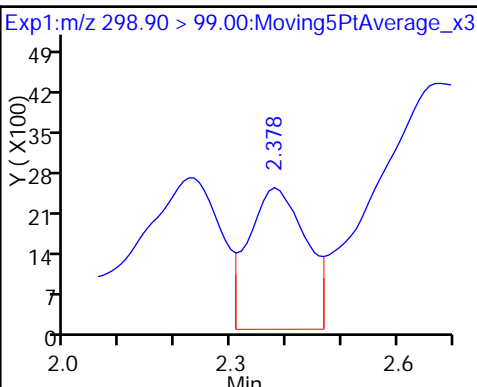
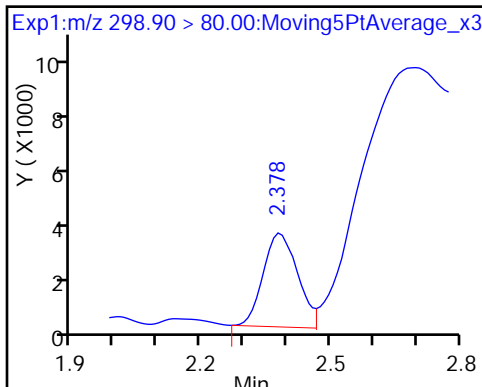
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid

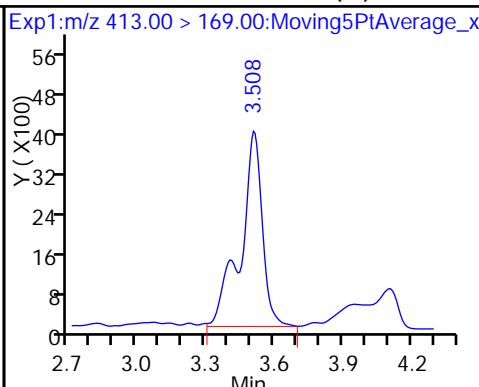
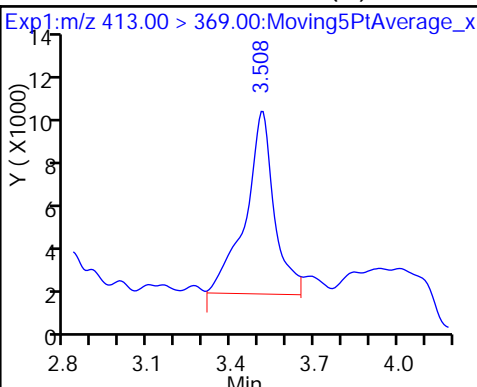
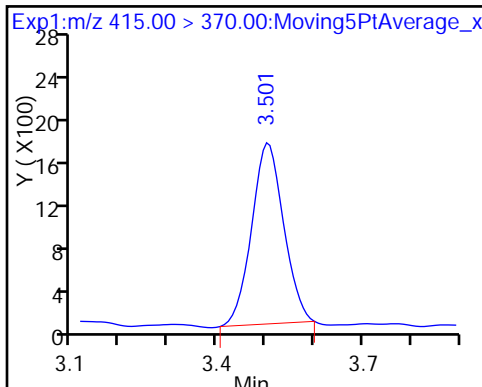
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid (M)

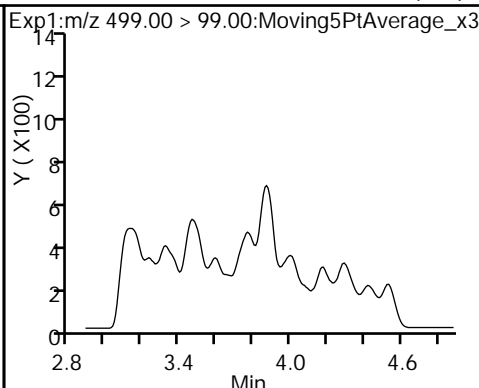
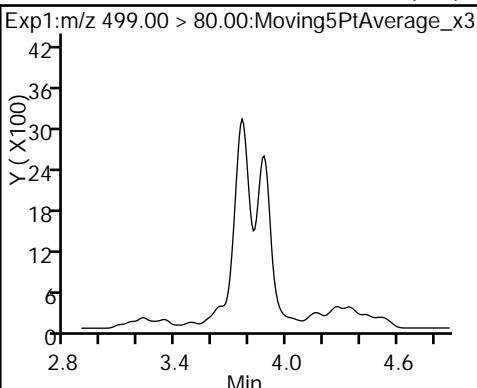
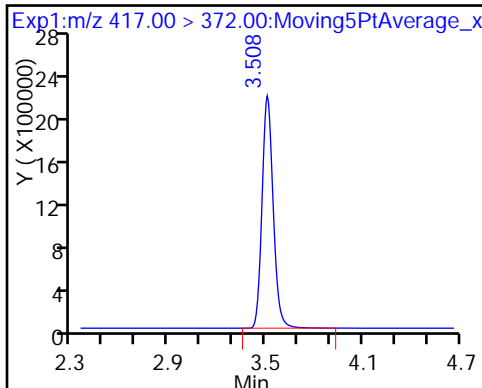
15 Perfluorooctanoic acid (M)



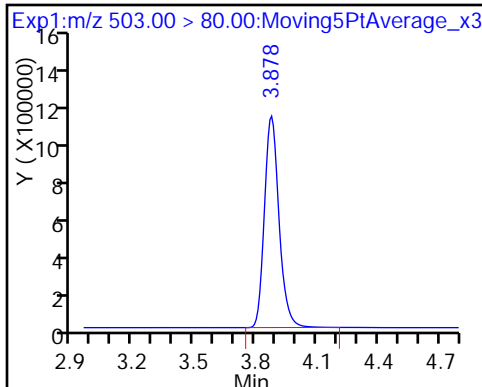
D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)



D 18 13C4 PFOS



TestAmerica Sacramento

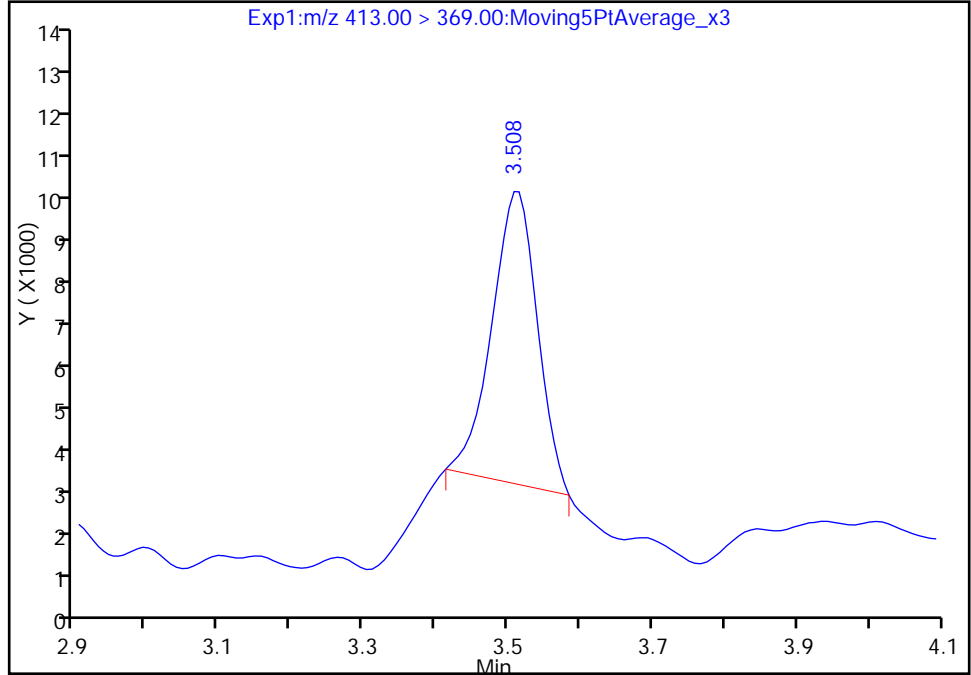
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_044.d
Injection Date: 24-May-2017 23:13:02 Instrument ID: A8_N
Lims ID: 320-28286-A-32-A Lab Sample ID: 320-28286-32
Client ID: MEAFF-TA-4J-1985-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

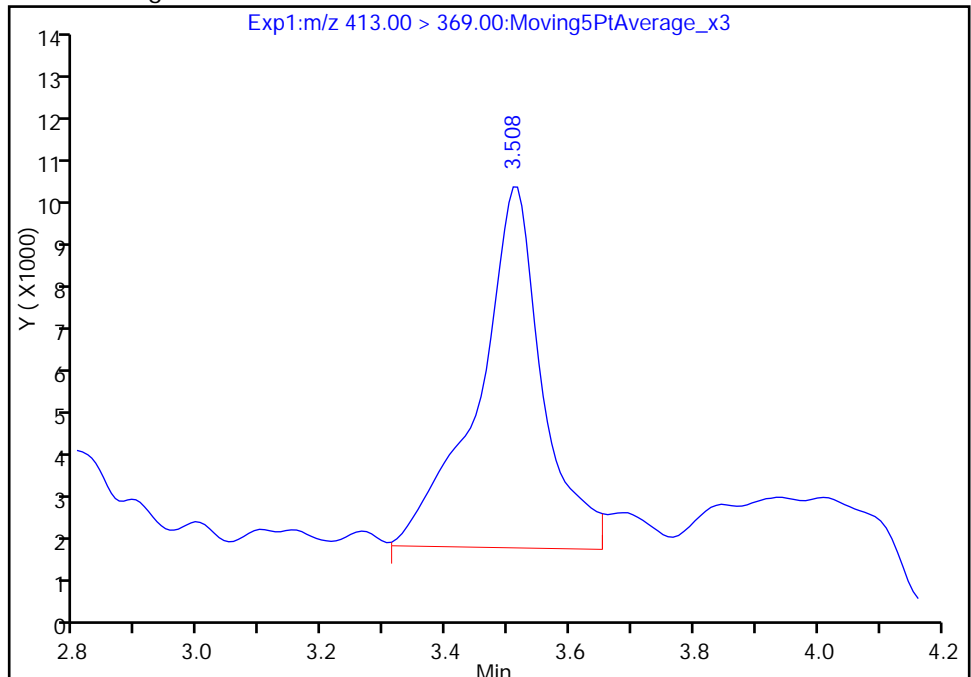
RT: 3.51
Area: 27273
Amount: 0.118115
Amount Units: ng/ml

Processing Integration Results



RT: 3.51
Area: 58927
Amount: 0.255204
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 25-May-2017 11:01:39

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

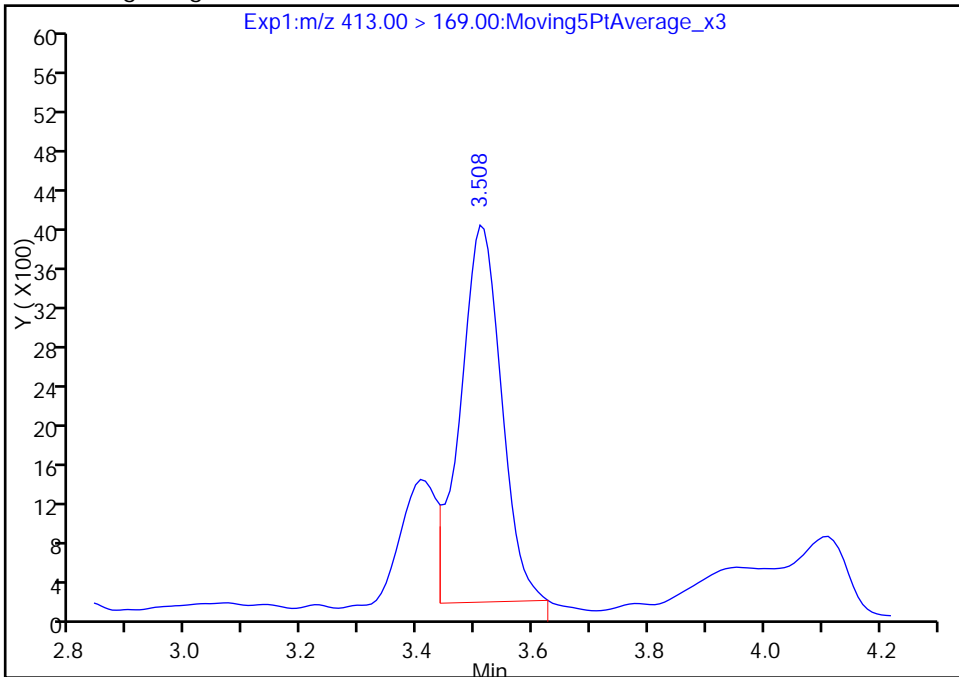
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Injection Date: 24-May-2017 23:13:02 Instrument ID: A8_N
Lims ID: 320-28286-A-32-A Lab Sample ID: 320-28286-32
Client ID: MEAFF-TA-4J-1985-SB01-0001
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

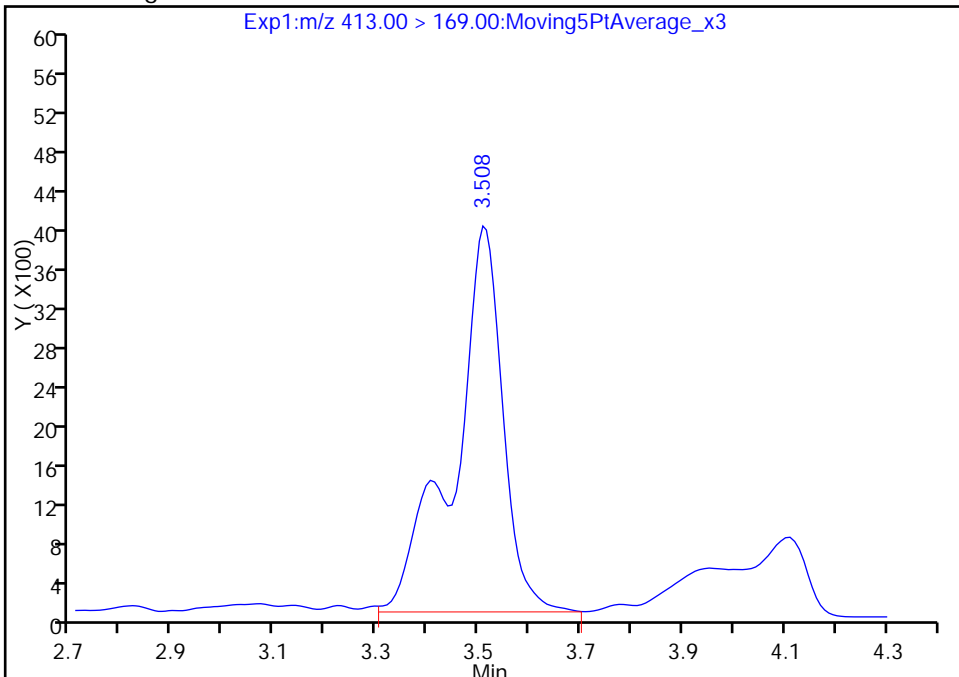
RT: 3.51
Area: 18825
Amount: 0.118115
Amount Units: ng/ml

Processing Integration Results



RT: 3.51
Area: 25987
Amount: 0.255204
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_045.d
 Lims ID: 320-28286-A-33-A
 Client ID: MEAFF-TA-4J-1985-SB01-0204
 Sample Type: Client
 Inject. Date: 24-May-2017 23:20:33 ALS Bottle#: 38 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-33-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:03:25 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 11:02:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.378	2.388	-0.010	1.000	30453	0.0843				
298.90 > 99.00	2.388	2.388	0.0	1.004	11317		2.69(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	3.124	3.131	-0.007		10799680	33.5		70.9	73103	
* 62 13C2-PFOA										
415.00 > 370.00	3.516	3.523	-0.007		6922	49.5				
15 Perfluorooctanoic acid										
413.00 > 369.00	3.509	3.523	-0.014	1.000	54819	0.2281			6.3	M
413.00 > 169.00	3.509	3.523	-0.014	1.000	34451		1.59(0.90-1.10)		108	M
D 14 13C4 PFOA										
417.00 > 372.00	3.516	3.523	-0.007		10702751	47.2		94.3	44488	
D 18 13C4 PFOS										
503.00 > 80.00	3.880	3.887	-0.007		6525154	27.8		58.2	22971	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_045.d

Injection Date: 24-May-2017 23:20:33

Instrument ID: A8_N

Lims ID: 320-28286-A-33-A

Lab Sample ID: 320-28286-33

Client ID: MEAFF-TA-4J-1985-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 38

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

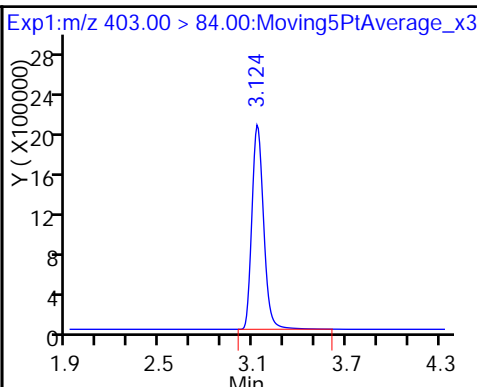
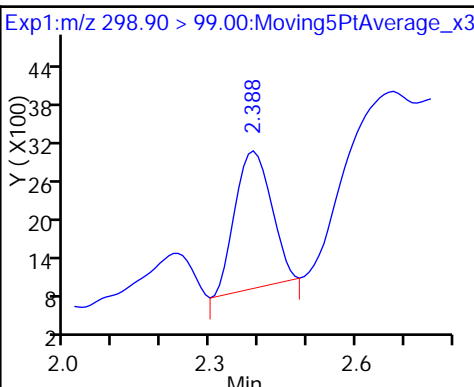
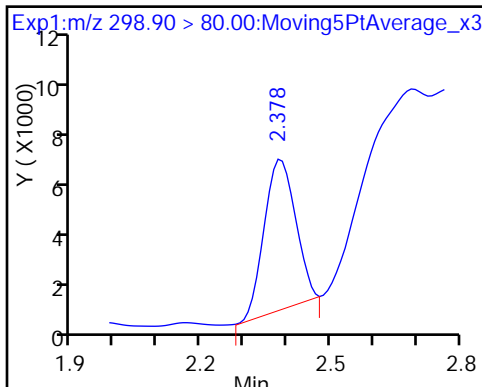
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid

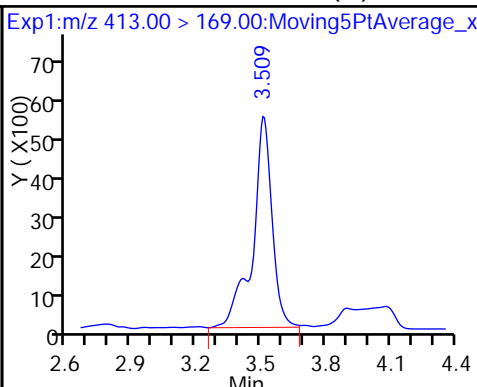
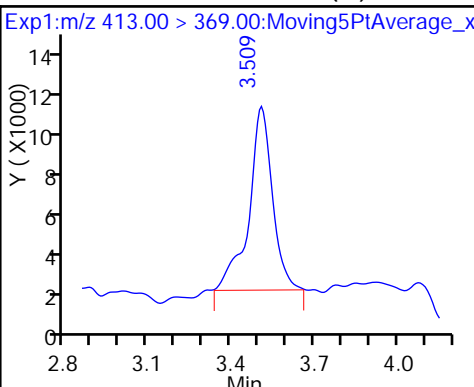
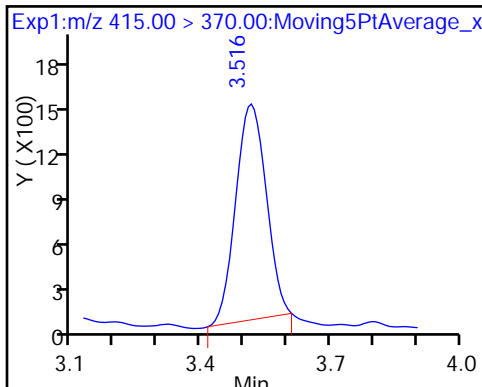
D 11 18O2 PFHxS



* 62 13C2-PFOA

15 Perfluorooctanoic acid (M)

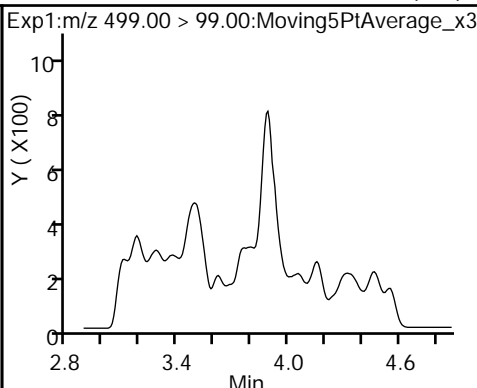
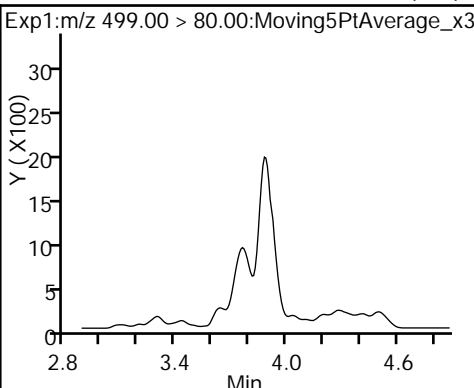
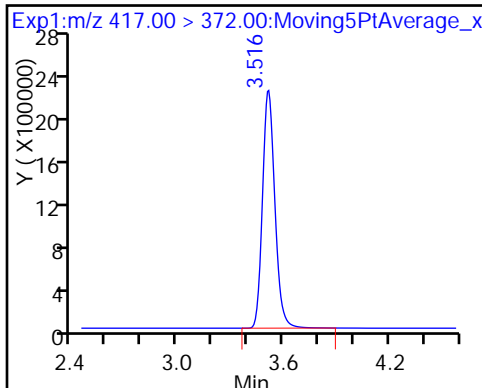
15 Perfluorooctanoic acid (M)



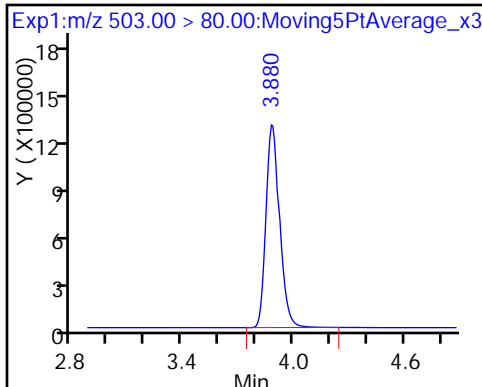
D 14 13C4 PFOA

17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)



D 18 13C4 PFOS



TestAmerica Sacramento

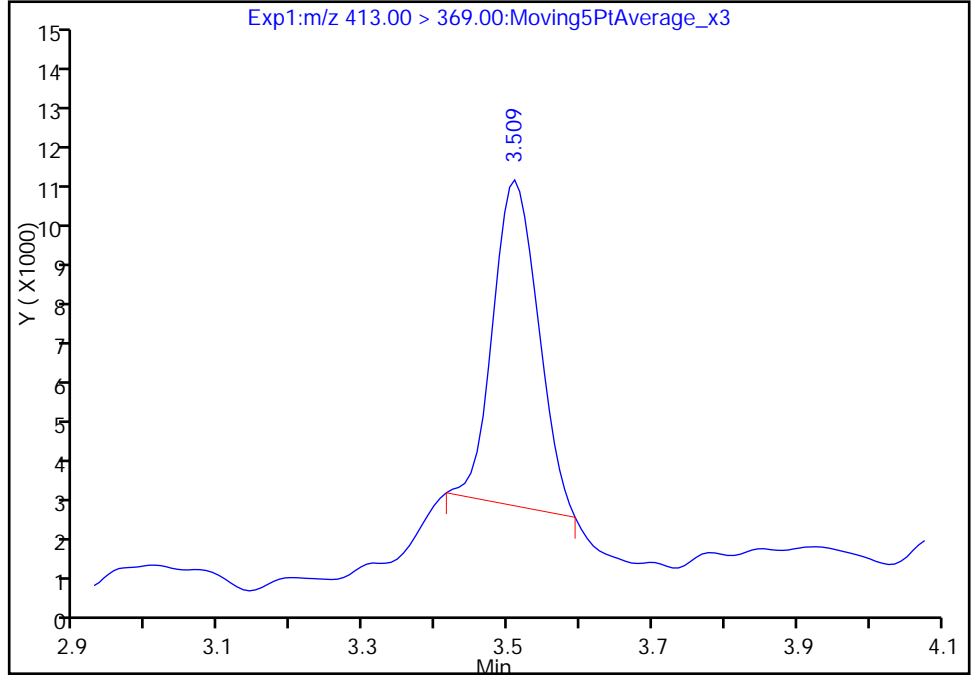
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_045.d
Injection Date: 24-May-2017 23:20:33 Instrument ID: A8_N
Lims ID: 320-28286-A-33-A Lab Sample ID: 320-28286-33
Client ID: MEAFF-TA-4J-1985-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 38 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

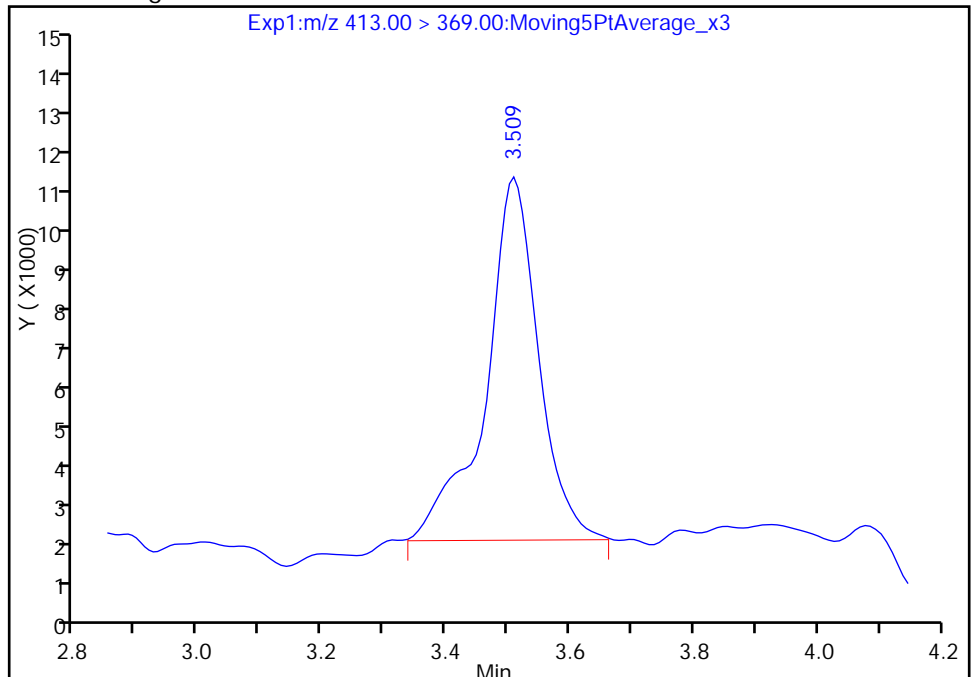
RT: 3.51
Area: 34357
Amount: 0.142951
Amount Units: ng/ml

Processing Integration Results



RT: 3.51
Area: 54819
Amount: 0.228089
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 25-May-2017 11:02:09

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

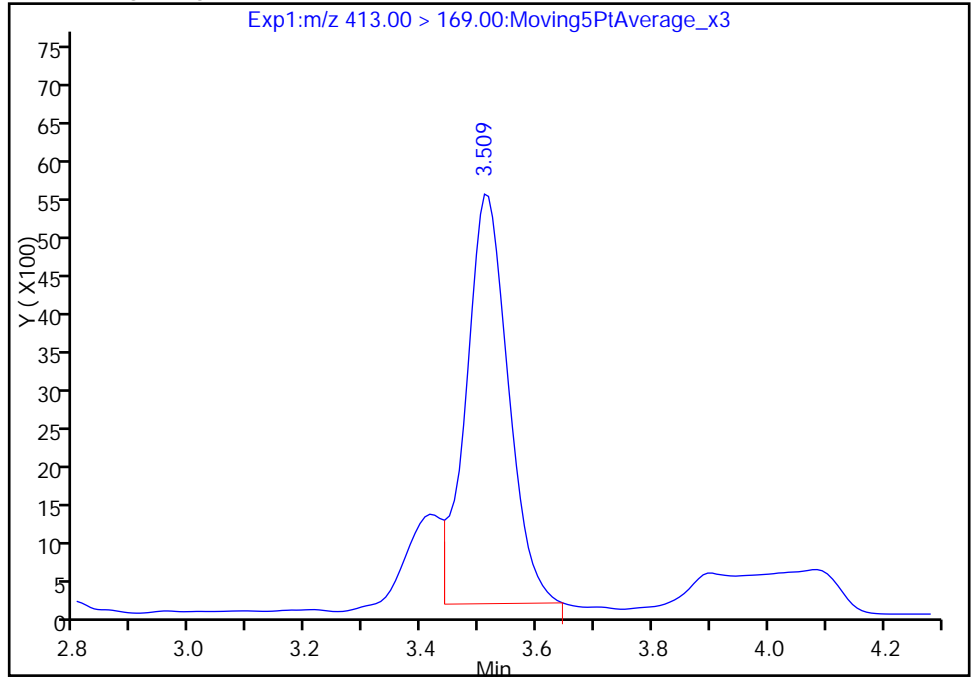
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_045.d
Injection Date: 24-May-2017 23:20:33 Instrument ID: A8_N
Lims ID: 320-28286-A-33-A Lab Sample ID: 320-28286-33
Client ID: MEAFF-TA-4J-1985-SB01-0204
Operator ID: SACINSTLCMS01 ALS Bottle#: 38 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

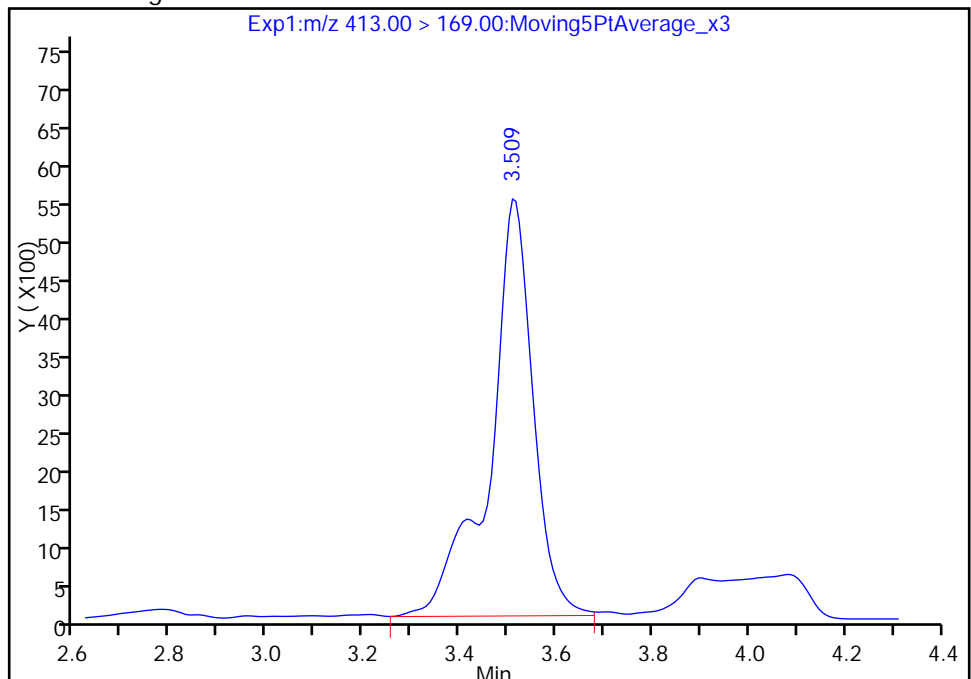
RT: 3.51
Area: 27296
Amount: 0.142951
Amount Units: ng/ml

Processing Integration Results



RT: 3.51
Area: 34451
Amount: 0.228089
Amount Units: ng/ml

Manual Integration Results



FORM VI
 LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
 RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165422

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/19/2017 20:56 Calibration End Date: 05/19/2017 21:41 Calibration ID: 30523

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165422/3	2017.05.19_CURVE_003.d
Level 2	IC 320-165422/4	2017.05.19_CURVE_004.d
Level 3	IC 320-165422/5	2017.05.19_CURVE_005.d
Level 4	IC 320-165422/6	2017.05.19_CURVE_006.d
Level 5	IC 320-165422/7	2017.05.19_CURVE_007.d
Level 6	IC 320-165422/8	2017.05.19_CURVE_008.d
Level 7	IC 320-165422/9	2017.05.19_CURVE_009.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7				RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	1.993	2.002	2.001	1.993	2.002	2.001	2.001				1.749 - 2.249	1.999
Perfluoropentanoic acid (PFPeA)	2.349	2.349	2.348	2.349	2.349	2.348	2.358				2.100 - 2.600	2.350
Perfluorobutanesulfonic acid (PFBS)	2.389	2.389	2.388	2.389	2.389	2.398	2.398				2.211 - 2.571	2.391
4:2 FTS	2.674	2.683	2.671	2.675	2.681	2.676	2.681				2.427 - 2.927	2.677
Perfluorohexanoic acid (PFHxA)	2.722	2.722	2.719	2.724	2.730	2.725	2.730				2.474 - 2.974	2.725
Perfluoroheptanoic acid (PFHpA)	3.113	3.117	3.113	3.115	3.120	3.126	3.123				2.868 - 3.368	3.118
Perfluorohexanesulfonic acid (PFHxS)	3.122	3.126	3.122	3.124	3.128	3.126	3.132				2.876 - 3.376	3.126
6:2 FTS	+++	3.489	3.484	3.485	3.490	3.491	3.490				3.238 - 3.738	3.488
Perfluoroheptanesulfonic Acid (PFHpS)	3.499	3.503	3.499	3.508	3.505	3.513	3.513				3.256 - 3.756	3.506
Perfluorooctanoic acid (PFOA)	3.506	3.510	3.506	3.515	3.513	3.520	3.520				3.263 - 3.763	3.513
Perfluorooctanesulfonic acid (PFOS)	3.826	3.873	3.868	3.875	3.874	3.829	3.875				3.610 - 4.110	3.860
Perfluorononanoic acid (PFNA)	3.884	3.882	3.885	3.883	3.892	3.892	3.892				3.637 - 4.137	3.887
Perfluorooctane Sulfonamide (FOSA)	4.209	4.213	4.208	4.209	4.212	4.218	4.211				3.962 - 4.462	4.211
8:2 FTS	4.225	4.222	4.224	4.226	4.231	4.237	4.240				3.979 - 4.479	4.229
Perfluorodecanoic acid (PFDA)	4.225	4.231	4.224	4.226	4.231	4.237	4.240				3.981 - 4.481	4.231
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	4.376	4.382	4.384	4.390	4.385	4.392	4.395				4.137 - 4.637	4.386
Perfluorodecanesulfonic acid (PFDS)	4.507	4.504	4.506	4.512	4.509	4.517	4.510				4.259 - 4.759	4.509
Perfluoroundecanoic acid (PFUnA)	4.527	4.533	4.535	4.531	4.538	4.546	4.539				4.286 - 4.786	4.536
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	4.536	4.543	4.535	4.541	4.548	4.555	4.549				4.294 - 4.794	4.544
MeFOSA	4.672	4.670	4.671	4.673	4.669	4.679	4.674				4.423 - 4.923	4.673
Perfluorododecanoic acid (PFDoA)	4.807	4.803	4.803	4.808	4.812	4.816	4.811				4.558 - 5.058	4.809
N-EtFOSA-M	4.842	4.839	4.836	4.842	4.845	4.851	4.847				4.593 - 5.093	4.843
Perfluorotridecanoic Acid (PFTriA)	5.048	5.047	5.051	5.056	5.057	5.062	5.058				4.804 - 5.304	5.054
Perfluorotetradecanoic acid (PFTeA)	5.272	5.271	5.274	5.272	5.270	5.282	5.277				5.024 - 5.524	5.274
Perfluoro-n-hexadecanoic acid (PFHxDA)	+++	5.666	5.667	5.675	5.667	5.680	5.677				5.421 - 5.921	5.672
Perfluoro-n-octadecanoic acid (PFODA)	5.992	5.998	5.994	5.999	6.000	+++	+++				5.747 - 6.247	5.997
13C4 PFBA	1.993	1.993	1.993	1.993	1.993	2.001	2.001				1.746 - 2.246	1.995
13C5-PFPeA	2.349	2.349	2.348	2.349	2.349	2.348	2.348				2.098 - 2.598	2.349
13C2 PFHxA	2.722	2.722	2.719	2.724	2.730	2.725	2.730				2.474 - 2.974	2.725
13C4-PFHpA	3.113	3.117	3.113	3.115	3.120	3.126	3.123				2.868 - 3.368	3.118
18O2 PFHxS	3.122	3.126	3.122	3.124	3.128	3.126	3.132				2.876 - 3.376	3.126
M2-6:2 FTS	3.485	3.489	3.484	3.485	3.490	3.491	3.490				3.238 - 3.738	3.488

FORM VI
 LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
 RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165422
 SDG No.: _____
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N
 Calibration Start Date: 05/19/2017 20:56 Calibration End Date: 05/19/2017 21:41 Calibration ID: 30523

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7				RT WINDOW	AVG RT
13C4 PFOA	3.506	3.510	3.506	3.508	3.513	3.513	3.513				3.260 - 3.760	3.510
13C4 PFOS	3.868	3.873	3.868	3.875	3.874	3.883	3.875				3.624 - 4.124	3.874
13C5 PFNA	3.884	3.882	3.885	3.883	3.892	3.892	3.892				3.637 - 4.137	3.887
13C8 FOSA	4.209	4.205	4.208	4.209	4.212	4.218	4.211				3.960 - 4.460	4.210
M2-8:2FTS	4.225	4.222	4.224	4.226	4.231	4.237	4.229				3.978 - 4.478	4.228
13C2 PFDA	4.225	4.222	4.224	4.226	4.231	4.237	4.240				3.979 - 4.479	4.229
d3-NMeFOSAA	4.376	4.382	4.375	4.380	4.385	4.392	4.385				4.132 - 4.632	4.382
13C2 PFUnA	4.527	4.533	4.535	4.531	4.538	4.546	4.539				4.286 - 4.786	4.536
d5-NEtFOSAA	4.536	4.533	4.535	4.531	4.538	4.546	4.549				4.288 - 4.788	4.538
d-N-MeFOSA-M	4.672	4.670	4.664	4.665	4.669	4.679	4.674				4.421 - 4.921	4.670
13C2 PFDoA	4.807	4.803	4.803	4.808	4.812	4.816	4.811				4.558 - 5.058	4.809
d-N-EtFOSA-M	4.833	4.839	4.836	4.833	4.837	4.842	4.838				4.587 - 5.087	4.837
13C2-PFTeDA	5.272	5.271	5.274	5.272	5.270	5.282	5.277				5.024 - 5.524	5.274
13C2-PFHxDA	5.666	5.666	5.667	5.666	5.667	5.680	5.677				5.420 - 5.920	5.670

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165422

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/19/2017 20:56 Calibration End Date: 05/19/2017 21:41 Calibration ID: 30523

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165422/3	2017.05.19_CURVE_003.d
Level 2	IC 320-165422/4	2017.05.19_CURVE_004.d
Level 3	IC 320-165422/5	2017.05.19_CURVE_005.d
Level 4	IC 320-165422/6	2017.05.19_CURVE_006.d
Level 5	IC 320-165422/7	2017.05.19_CURVE_007.d
Level 6	IC 320-165422/8	2017.05.19_CURVE_008.d
Level 7	IC 320-165422/9	2017.05.19_CURVE_009.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4		B	M1	M2								
13C4 PFBA	423119 358226	402553 344226	385601 335081	368388	Ave		373884.642			8.5		50.0				
13C5-PFPeA	283110 238563	276576 228158	261214 209745	249660	Ave		249575.297			10.5		50.0				
13C2 PFHxA	283219 242707	280960 228302	261767 211066	249365	Ave		251055.051			10.6		50.0				
13C4-PFHpA	256636 214230	258762 200917	235009 176000	217954	Ave		222786.804			13.4		50.0				
18O2 PFHxS	355281 309235	351684 284968	328790 269425	306777	Ave		315165.699			10.2		50.0				
M2-6:2FTS	124890 129857	129261 106450	125684 100482	136001	Ave		121803.415			10.8		50.0				
13C4 PFOA	259334 224818	251057 195443	245240 170690	236956	Ave		226219.560			14.2		50.0				
13C4 PFOS	250781 233846	261049 232322	250327 200251	232159	Ave		237247.787			8.3		50.0				
13C5 PFNA	209434 174824	211048 165616	195306 146268	182014	Ave		183501.515			12.9		50.0				
13C8 FOSA	393472 372227	406709 341085	388737 304586	378210	Ave		369289.463			9.5		50.0				
M2-8:2FTS	108835 96323	116774 94318	106160 91280	101396	Ave		102155.087			8.8		50.0				
13C2 PFDA	177606 148854	179008 144073	172086 125934	154252	Ave		157401.672			12.6		50.0				
d3-NMeFOSAA	71149 69965	77224 70923	70192 67379	68343	Ave		70739.5083			4.5		50.0				
13C2 PFUnA	125237 113847	134033 102687	125799 90795	117224	Ave		115660.087			12.8		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.: 320-28286-1 Analy Batch No.: 165422

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/19/2017 20:56 Calibration End Date: 05/19/2017 21:41 Calibration ID: 30523

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4		B	M1	M2								
d5-NETFOSAA	74073 70553	77770 64374	72083 57389	71101	Ave		69620.5668			9.7			50.0			
d-N-MeFOSA-M	100241 106207	113083 105704	103418 99544	102987	Ave		104454.829			4.4			50.0			
13C2 PFDcA	120080 113817	131476 109136	123991 104960	114255	Ave		116816.427			7.8			50.0			
d-N-EtFOSA-M	94607 99762	109345 99240	98731 96012	98251	Ave		99421.0237			4.8			50.0			
13C2-PFTeDA	229931 236001	250656 215046	237660 199247	235285	Ave		229118.015			7.4			50.0			
13C2-PFHxDA	122319 131085	143506 129566	131109 109316	129300	Ave		128028.671			8.1			50.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

Analy Batch No.: 165422

SDG No.: _____

Instrument ID: A8_N

GC Column: GeminiC18 3 ID: 3(mm)

Heated Purge: (Y/N) N

Calibration Start Date: 05/19/2017 20:56

Calibration End Date: 05/19/2017 21:41

Calibration ID: 30523

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Perfluorobutanoic acid (PFBA)	1.0382 0.9501	1.0589 0.7879	1.0480	1.0399	1.0285	AveID		0.9931			9.8		35.0				
Perfluoropentanoic acid (PFPeA)	1.2469 1.0526	1.1352 0.9320	1.0604	1.1076	1.0958	AveID		1.0901			8.7		35.0				
Perfluorobutanesulfonic acid (PFBS)	1.5182 1.4738	1.5291 1.2096	1.5892	1.7536	1.6321	AveID		1.5294			11.0		50.0				
4:2 FTS	0.9157 0.8233	0.8011 0.8206	0.8192	0.6817	0.7467	AveID		0.8012			9.1		35.0				
Perfluorohexanoic acid (PFHxA)	1.1289 0.9950	1.0609 0.8819	1.0590	1.0666	1.0160	AveID		1.0298			7.5		35.0				
Perfluoroheptanoic acid (PFHpA)	1.1380 1.0503	1.1353 0.9559	1.1409	1.1308	1.0796	AveID		1.0901			6.3		35.0				
Perfluorohexanesulfonic acid (PFHxS)	1.4022 1.2078	1.3087 1.0318	1.1824	1.2418	1.1874	AveID		1.2232			9.4		35.0				
6:2FTS	++++ 0.8992	1.0920 0.8471	1.0962	1.0467	0.9291	AveID		0.9850			10.9		35.0				
Perfluoroheptanesulfonic Acid (PFHpS)	1.4069 1.1979	1.3770 1.1090	1.3680	1.3851	1.3147	AveID		1.3084			8.6		50.0				
Perfluorooctanoic acid (PFOA)	1.2637 1.1018	1.2326 0.9898	1.0822	1.1433	1.1214	AveID		1.1335			8.2		35.0				
Perfluorooctanesulfonic acid (PFOS)	1.1728 1.1152	1.1490 1.1245	1.1376	1.2064	1.1660	AveID		1.1531			2.7		35.0				
Perfluorononanoic acid (PFNA)	1.1950 1.0331	1.1037 0.9638	1.0993	1.1032	1.1039	AveID		1.0860			6.6		35.0				
Perfluorooctane Sulfonamide (FOSA)	1.1754 0.9938	1.1977 0.8427	1.1444	1.1034	1.0419	AveID		1.0713			11.6		35.0				
8:2FTS	1.0570 0.9240	1.0226 0.8631	1.0747	1.0220	1.0224	AveID		0.9980			7.6		35.0				
Perfluorodecanoic acid (PFDA)	1.0274 0.9848	1.0584 0.9260	0.9967	1.0725	1.0251	AveID		1.0130			4.9		35.0				
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	1.1102 0.9635	0.9709 0.9956	1.0520	1.0400	1.0077	AveID		1.0200			5.0		35.0				
Perfluorodecanesulfonic acid (PFDS)	0.6547 0.6327	0.6765 0.6180	0.6811	0.7067	0.6980	AveID		0.6668			5.0		50.0				
Perfluoroundecanoic acid (PFUnA)	1.4338 1.1147	1.1876 1.0401	1.1452	1.1342	1.1186	AveID		1.1678			10.7		35.0				
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.9322 0.9744	0.9583 1.0121	0.9358	0.9583	0.9136	AveID		0.9550			3.4		35.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165422

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/19/2017 20:56 Calibration End Date: 05/19/2017 21:41 Calibration ID: 30523

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
MeFOSA	0.9465 0.9743	0.9395 0.9981	0.9962	1.0059	0.9480	AveID		0.9726			2.9		35.0				
Perfluorododecanoic acid (PFDoA)	1.1145 0.9863	1.0840 0.8909	1.0335	1.0183	1.0070	AveID		1.0192			7.1		35.0				
N-EtFOSA-M	1.0036 1.0068	0.9675 1.0350	1.0218	1.0555	1.0025	AveID		1.0133			2.8		35.0				
Perfluorotridecanoic Acid (PFTriA)	1.0219 0.9788	1.0310 0.8718	0.9952	1.0434	0.9596	AveID		0.9859			5.9		50.0				
Perfluorotetradecanoic acid (PFTeA)	2.5245 2.1029	2.3322 1.7448	2.2108	2.3554	2.2596	AveID		2.2186			11.1		50.0				
Perfluoro-n-hexadecanoic acid (PFHxDA)	++++ 1.0764	1.8308 0.8974	1.2046	1.0855	1.0910	L2ID	0.8048	1.0235						0.9950		0.9900	
Perfluoro-n-octadecanoic acid (PFODA)	0.1747 ++++	0.1461 ++++	0.1007	0.0713	0.0757	L1ID	0.0604	0.0738						0.9950		0.9900	

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165422

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/19/2017 20:56 Calibration End Date: 05/19/2017 21:41 Calibration ID: 30523

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165422/3	2017.05.19_CURVE_003.d
Level 2	IC 320-165422/4	2017.05.19_CURVE_004.d
Level 3	IC 320-165422/5	2017.05.19_CURVE_005.d
Level 4	IC 320-165422/6	2017.05.19_CURVE_006.d
Level 5	IC 320-165422/7	2017.05.19_CURVE_007.d
Level 6	IC 320-165422/8	2017.05.19_CURVE_008.d
Level 7	IC 320-165422/9	2017.05.19_CURVE_009.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 6	LVL 7			
13C4 PFBA	Ave	20946464 17040870	19928351 16588160	19089145	18237050	17733945	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C5-PFPeA	Ave	14015359 11294954	13691903 10383407	12931368	12359427	11810071	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2 PFHxA	Ave	14020740 11302098	13908898 10448809	12958756	12344784	12015190	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C4-PFHpA	Ave	12704749 9946404	12810000 8712874	11634103	10789788	10605430	49.5 49.5	49.5 49.5	49.5	49.5	49.5
18O2 PFHxS	Ave	16638408 13345525	16469964 12617635	15397787	14366874	14481988	46.8 46.8	46.8 46.8	46.8	46.8	46.8
M2-6:2FTS	Ave	5873526 5006310	6079086 4725636	5910865	6396080	6107146	47.0 47.0	47.0 47.0	47.0	47.0	47.0
13C4 PFOA	Ave	12838316 9675393	12428543 8449990	12140595	11730499	11129581	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C4 PFOS	Ave	11868634 10995027	12354578 9477225	11847176	10987310	11067188	47.3 47.3	47.3 47.3	47.3	47.3	47.3
13C5 PFNA	Ave	10368030 8198800	10447939 7241010	9668596	9010585	8654674	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C8 FOSA	Ave	19478811 16885401	20134108 15078518	19244389	18723287	18427082	49.5 49.5	49.5 49.5	49.5	49.5	49.5
M2-8:2FTS	Ave	5161584 4473106	5538104 4329042	5034699	4808757	4568174	47.4 47.4	47.4 47.4	47.4	47.4	47.4
13C2 PFDA	Ave	8792352 7132319	8861766 6234340	8519086	7636260	7369011	49.5 49.5	49.5 49.5	49.5	49.5	49.5
d3-NMeFOSAA	Ave	3522223 3511047	3822986 3335618	3474858	3383329	3463630	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2 PFUnA	Ave	6199837 5083512	6635286 4494787	6227664	5803175	5635967	49.5 49.5	49.5 49.5	49.5	49.5	49.5
d5-NETfOSAA	Ave	3666994 3186829	3850006 2841057	3568475	3519853	3492725	49.5 49.5	49.5 49.5	49.5	49.5	49.5

FORM VI
 LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
 RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165422

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/19/2017 20:56 Calibration End Date: 05/19/2017 21:41 Calibration ID: 30523

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
d-N-MeFOSA-M	Ave	4962424 5232878	5598173 4927929	5119696	5098367	5257751	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2 PFDoA	Ave	5944545 5402762	6508701 5196043	6138188	5656173	5634528	49.5 49.5	49.5 49.5	49.5	49.5	49.5
d-N-EtFOSA-M	Ave	4683517 4912874	5413115 4753052	4887676	4863887	4938709	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2-PFTeDA	Ave	11382724 10645823	12408720 9863727	11765368	11647771	11683199	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2-PFHxDA	Ave	6055375 6414148	7104241 5411688	6490560	6401014	6489345	49.5 49.5	49.5 49.5	49.5	49.5	49.5

Curve Type Legend:

Ave = Average

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165422

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/19/2017 20:56 Calibration End Date: 05/19/2017 21:41 Calibration ID: 30523

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165422/3	2017.05.19_CURVE_003.d
Level 2	IC 320-165422/4	2017.05.19_CURVE_004.d
Level 3	IC 320-165422/5	2017.05.19_CURVE_005.d
Level 4	IC 320-165422/6	2017.05.19_CURVE_006.d
Level 5	IC 320-165422/7	2017.05.19_CURVE_007.d
Level 6	IC 320-165422/8	2017.05.19_CURVE_008.d
Level 7	IC 320-165422/9	2017.05.19_CURVE_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7				LVL 6	LVL 7			
Perfluorobutanoic acid (PFBA)		AveID	217458 32380396	422027 52280174	2000457	7586176	18239624	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluoropentanoic acid (PFPeA)		AveID	174762 23777570	310858 38710028	1371183	5475681	12941847	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorobutanesulfonic acid (PFBS)		AveID	236043 36760115	470681 57048130	2286664	9416929	22087169	0.438 87.5	0.875 175	4.38	17.5	43.8
4:2 FTS		AveID	52878 8104402	95760 15250713	476052	1714589	4483594	0.462 92.5	0.925 185	4.62	18.5	46.2
Perfluorohexanoic acid (PFHxA)		AveID	158286 22491456	295127 36861165	1372344	5266794	12207004	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluoroheptanoic acid (PFHpA)		AveID	144578 20894109	290872 33314862	1327335	4880624	11449697	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorohexanesulfonic acid (PFHxS)		AveID	224433 31011685	414686 50094915	1751413	6864631	16541881	0.450 90.1	0.901 180	4.50	18.0	45.0
6:2FTS		AveID	++++ 8984010	132486 15977858	646568	2672197	5662506	++++ 93.9	0.939 188	4.69	18.8	46.9
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	166276 26230774	338818 41864067	1613910	6061866	14489237	0.471 94.3	0.943 189	4.71	18.9	47.1
Perfluorooctanoic acid (PFOA)		AveID	162238 21321620	306378 33456363	1313806	5364503	12480788	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorooctanesulfonic acid (PFOS)		AveID	135123 23804841	275589 41378858	1308292	5146889	12526640	0.459 91.9	0.919 184	4.59	18.4	45.9
Perfluorononanoic acid (PFNA)		AveID	123902 16940969	230627 27914412	1062856	3976321	9553483	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorooctane Sulfonamide (FOSA)		AveID	228958 33560326	482310 50826558	2202248	8263488	19199709	0.495 99.0	0.990 198	4.95	19.8	49.5
8:2FTS		AveID	54557 8266156	113267 14946131	541101	1965729	4670406	0.474 94.9	0.949 190	4.74	19.0	47.4
Perfluorodecanoic acid (PFDA)		AveID	90335 14047898	187590 23091858	849062	3275944	7553966	0.495 99.0	0.990 198	4.95	19.8	49.5

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165422

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/19/2017 20:56 Calibration End Date: 05/19/2017 21:41 Calibration ID: 30523

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7				LVL 6	LVL 7			
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	39103 6765893	74233 13284315	365541	1407451	3490209	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorodecanesulfonic acid (PFDS)		AveID	78352 14029908	168548 23624738	813694	3131881	7789097	0.477 95.4	0.954 191	4.77	19.1	47.7
Perfluoroundecanoic acid (PFUnA)		AveID	88896 11333073	157597 18699831	713215	2632819	6304520	0.495 99.0	0.990 198	4.95	19.8	49.5
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	34185 6210495	73791 11501550	333940	1349250	3191104	0.495 99.0	0.990 198	4.95	19.8	49.5
MeFOSA		AveID	46967 10196709	105191 19673688	510048	2051360	4984144	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorododecanoic acid (PFDoA)		AveID	66251 10657322	141103 18516997	634373	2303838	5673834	0.495 99.0	0.990 198	4.95	19.8	49.5
N-EtFOSA-M		AveID	47006 9893054	104748 19678368	499411	2053517	4950967	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorotridecanoic Acid (PFTriA)		AveID	60747 10576044	134207 18118762	610884	2360581	5406884	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorotetradecanoic acid (PFTeA)		AveID	150070 22722640	303590 36265204	1357019	5328965	12731663	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluoro-n-hexadecanoic acid (PFHxDA)		L2ID	++++ 11630860	238326 18652239	739425	2455876	6147381	++++ 99.0	0.990 198	4.95	19.8	49.5
Perfluoro-n-octadecanoic acid (PFODA)		L1ID	10388 ++++	19012 ++++	61783	161388	426770	0.495 ++++	0.990 ++++	4.95	19.8	49.5

Curve Type Legend:

AveID = Average isotope dilution
L1ID = Linear 1/conc IsoDil
L2ID = Linear 1/conc^2 IsoDil

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_003.d
 Lims ID: IC L1 Full
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 19-May-2017 20:56:56 ALS Bottle#: 28 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L1-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 10:52:08 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.993	1.996	-0.003	20946464	56.0		113	177904	
2 Perfluorobutyric acid	212.90 > 169.00	1.993	1.999	-0.006	1.000	217458	0.5175	105	68.5	
D 3 13C5-PFPeA	267.90 > 223.00	2.349	2.348	0.001	14015359	56.2		113	269782	
4 Perfluoropentanoic acid	262.90 > 219.00	2.349	2.350	-0.001	1.000	174762	0.5663	114	47.9	
D 47 13C3-PFBS	301.90 > 83.00	2.379	2.386	-0.007	357530	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.389	2.391	-0.002	1.000	236043	0.4344	99.3		
	298.90 > 99.00	2.389	2.391	-0.002	1.000	107858	2.19(0.00-0.00)	99.3		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.674	2.677	-0.003	1.000	52878	0.5285	114		
6 Perfluorohexanoic acid	313.00 > 269.00	2.722	2.724	-0.002	1.000	158286	0.5427	110	390	
D 7 13C2 PFHxA	315.00 > 270.00	2.722	2.724	-0.002	14020740	55.8		113	313799	
D 9 13C4-PFHpA	367.00 > 322.00	3.113	3.118	-0.005	12704749	57.0		115	33996	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.113	3.118	-0.005	1.000	144578	0.5168	104	144	
D 11 18O2 PFHxS	403.00 > 84.00	3.122	3.126	-0.004	16638408	52.8		113	449148	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.122	3.126	-0.004	1.000	224433	0.5164	115		
D 12 M2-6:2FTS	429.00 > 409.00	3.485	3.488	-0.003	5873526	48.2		103		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.485	3.488	-0.003	1.000	298179	2.42	516	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.499	3.506	-0.007	1.000	166276	0.5068	108	
* 62 13C2-PFOA	415.00	> 370.00	3.499	3.507	-0.008		12261722	49.5		
D 14 13C4 PFOA	417.00	> 372.00	3.506	3.510	-0.004		12838316	56.8	115	58763
15 Perfluorooctanoic acid	413.00	> 369.00	3.506	3.513	-0.007	1.000	162238	0.5519	111	17.2
	413.00	> 169.00	3.506	3.513	-0.007	1.000	99263	1.63(0.90-1.10)	111	414
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.826	3.860	-0.034	1.000	135123	0.4673	102	330
	499.00	> 99.00	3.868	3.860	0.008	1.011	30015	4.50(0.90-1.10)	102	203
D 18 13C4 PFOS	503.00	> 80.00	3.868	3.874	-0.006		11868634	50.0	106	15053
D 19 13C5 PFNA	468.00	> 423.00	3.884	3.887	-0.003		10368030	56.5	114	22902
20 Perfluorononanoic acid	463.00	> 419.00	3.884	3.887	-0.003	1.000	123902	0.5448	110	206
D 21 13C8 FOSA	506.00	> 78.00	4.209	4.210	-0.001		19478811	52.7	107	20554
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.209	4.212	-0.003	1.000	228958	0.5432	110	3338
D 26 M2-8:2FTS	529.00	> 509.00	4.225	4.228	-0.003		5161584	50.5	107	
D 23 13C2 PFDA	515.00	> 470.00	4.225	4.229	-0.004		8792352	55.9	113	11141
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.225	4.229	-0.004	1.000	54557	0.5023	106	
24 Perfluorodecanoic acid	513.00	> 469.00	4.225	4.231	-0.006	1.000	90335	0.5021	101	172
D 27 d3-NMeFOSAA	573.00	> 419.00	4.376	4.382	-0.006		3522223	49.8	101	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.376	4.387	-0.011	1.000	39103	0.5388	109	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.507	4.509	-0.002	1.000	78352	0.4685	98.2	
D 30 13C2 PFUnA	565.00	> 520.00	4.527	4.536	-0.009		6199837	53.6	108	7460
31 Perfluoroundecanoic acid	563.00	> 519.00	4.527	4.536	-0.009	1.000	88896	0.6079	123	244
D 32 d5-NEtFOSAA	589.00	> 419.00	4.536	4.538	-0.002		3666994	52.7	106	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.536	4.544	-0.008	1.000	34185	0.4833	97.6	
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.672	4.671	0.001		4962424	47.5	96.0	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.672	4.673	-0.001	1.000	46967	0.4817	97.3		
D 36 13C2 PFDaA	615.00 > 570.00	4.807	4.808	-0.001		5944545	50.9	103	5902	
37 Perfluorododecanoic acid	613.00 > 569.00	4.807	4.808	-0.001	1.000	66251	0.5413	109	5.6	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.833	4.837	-0.004		4683517	47.1	95.2		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.842	4.843	-0.001	1.000	47006	0.4904	99.1		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.048	5.054	-0.006	1.000	60747	0.5131	104	3.5	
D 43 13C2-PFTeDA	715.00 > 670.00	5.272	5.274	-0.002		11382724	49.7	100	6348	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.272	5.274	-0.002	1.000	150070	0.5633	114	1.9	
	713.00 > 169.00	5.261	5.274	-0.013	0.998	24473	6.13(0.00-0.00)	114	98.0	
D 44 13C2-PFHxDA	815.00 > 770.00	5.666	5.670	-0.004		6055375	47.3	95.5	2956	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.666	5.671	-0.005	1.000	140681	0.3583	72.4	7.1	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.992	5.997	-0.005	1.000	10388	0.3535	71.4	0.8	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L1_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_003.d

Injection Date: 19-May-2017 20:56:56

Instrument ID: A8_N

Lims ID: IC L1 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

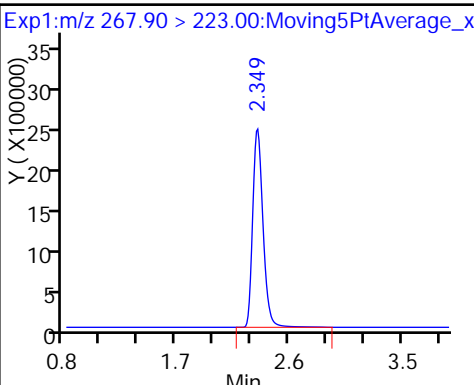
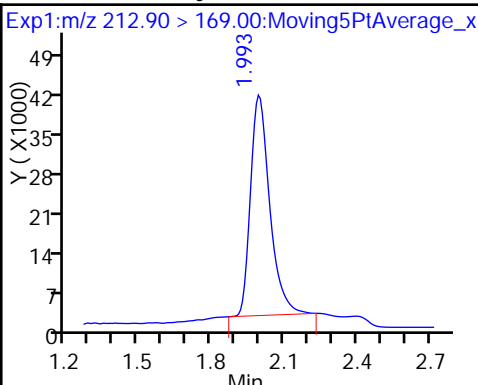
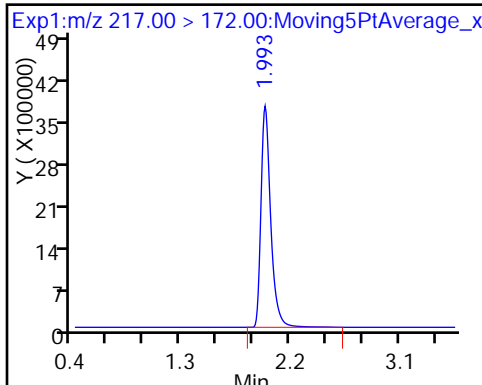
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

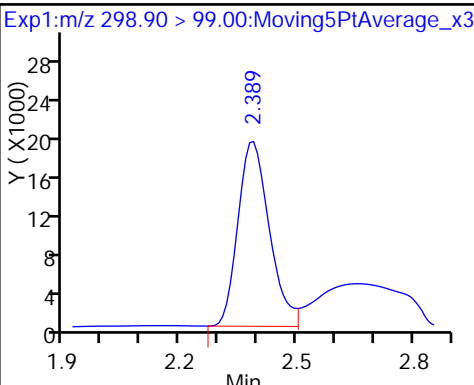
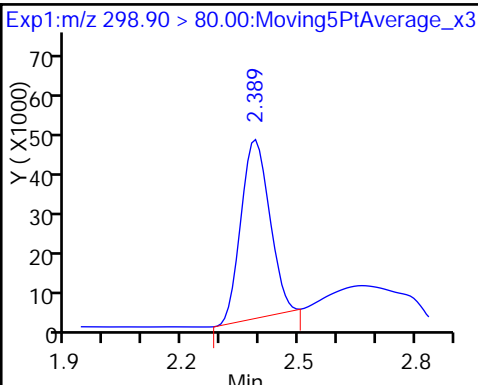
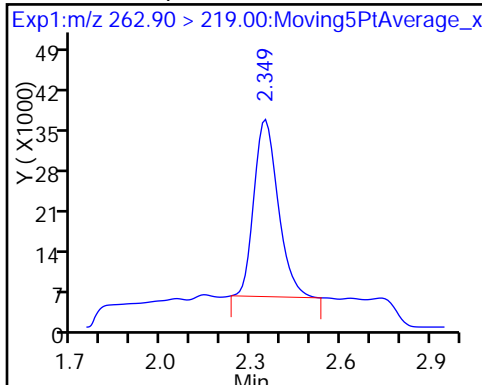
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

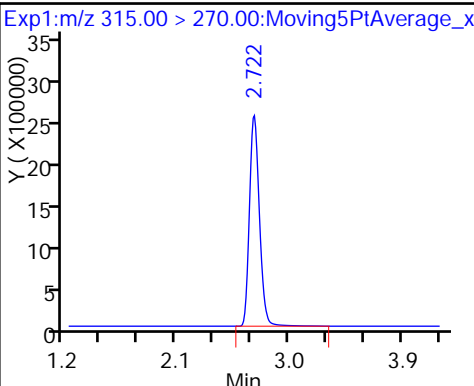
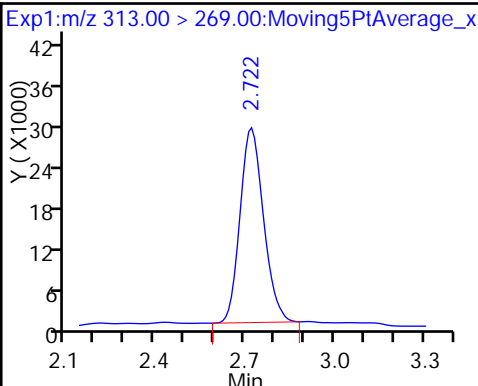
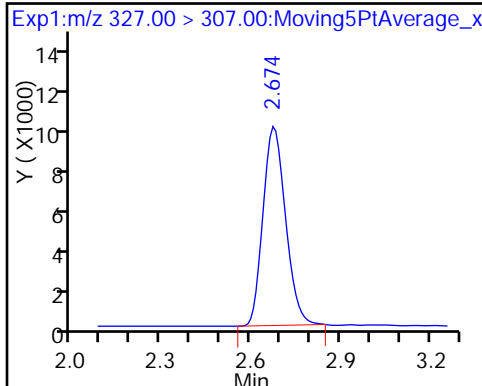
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

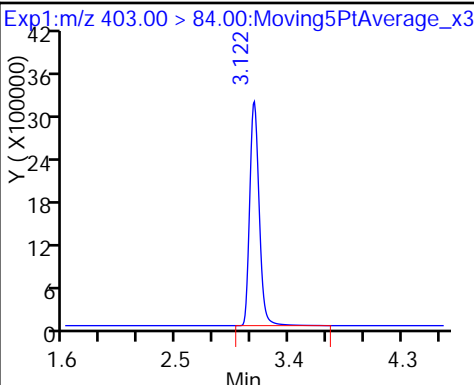
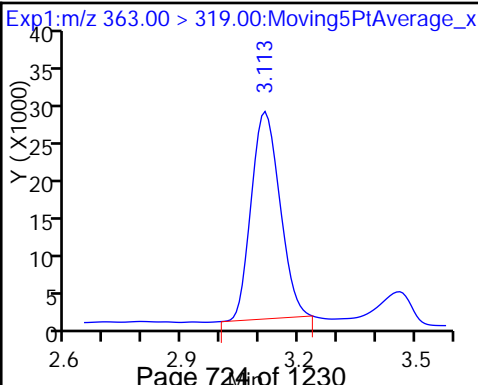
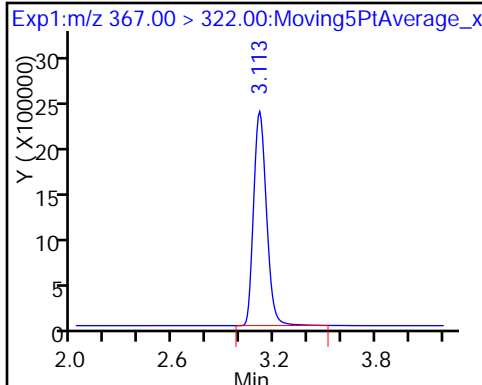
D 7 13C2 PFHxA



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

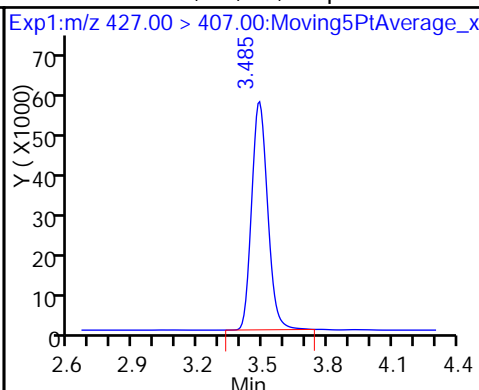
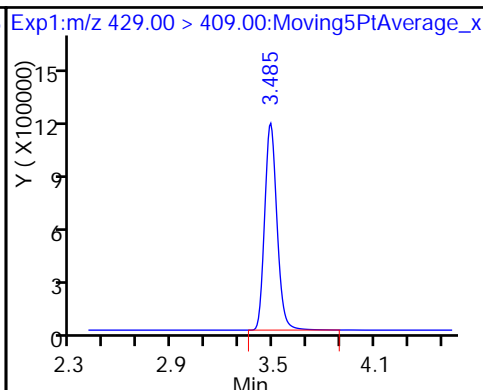
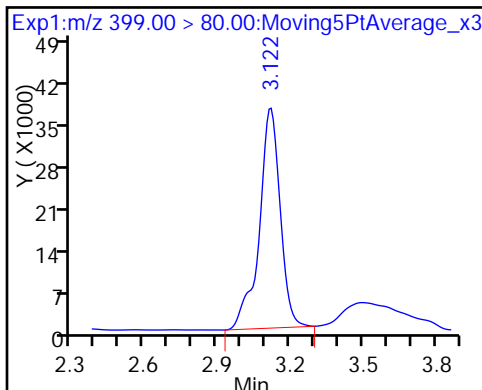
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

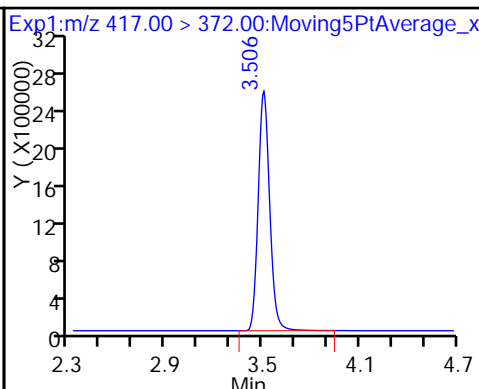
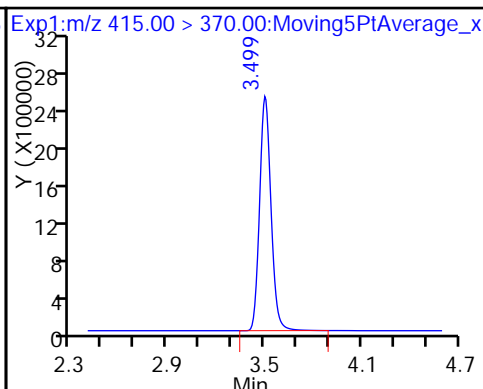
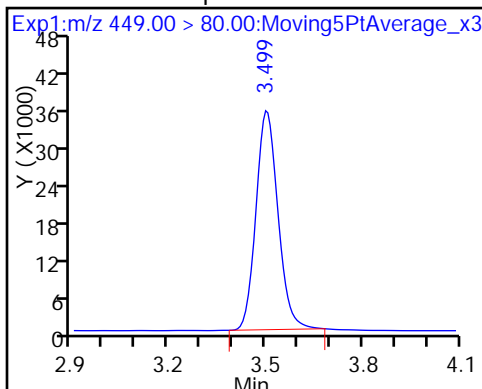
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

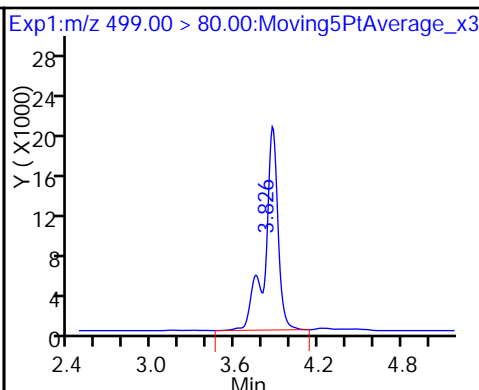
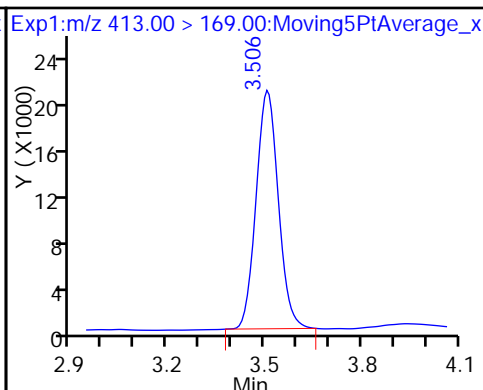
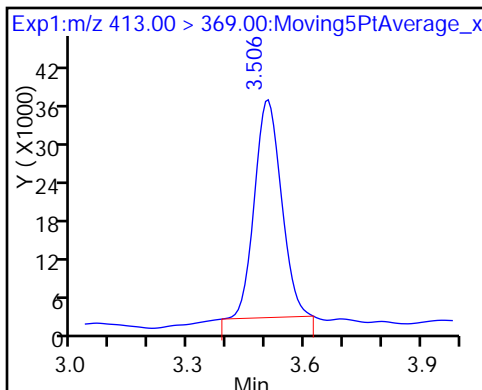
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

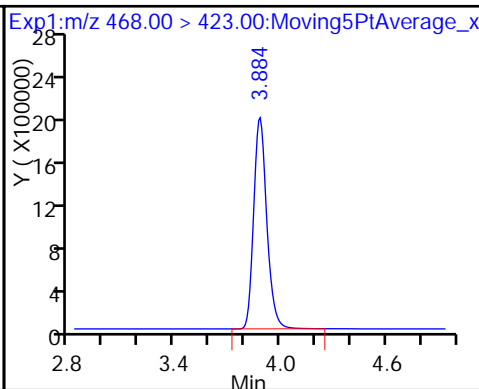
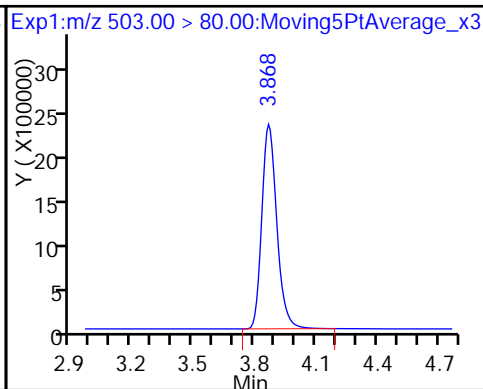
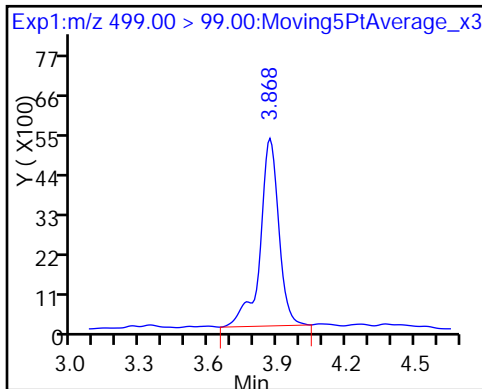
17 Perfluorooctane sulfonic acid

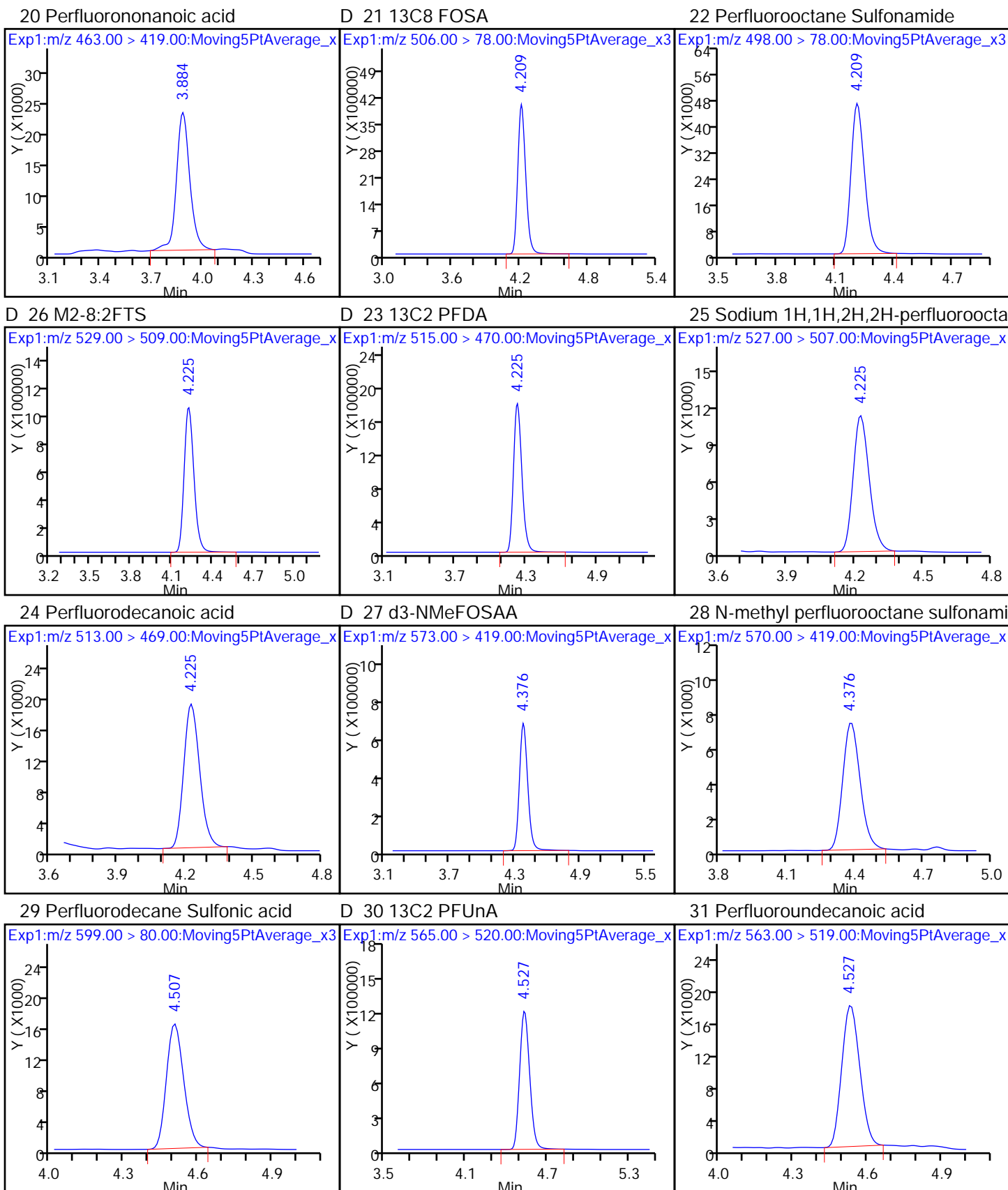


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

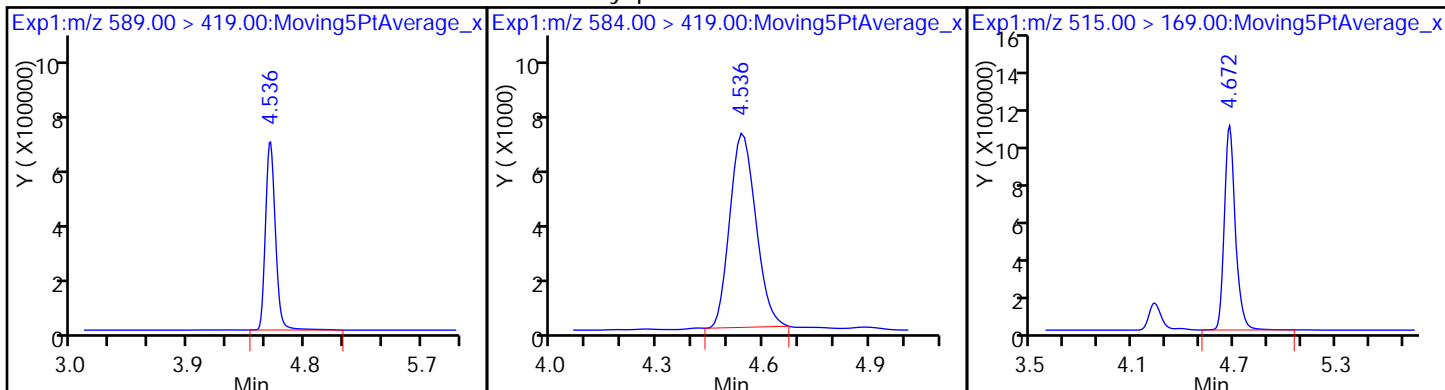




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

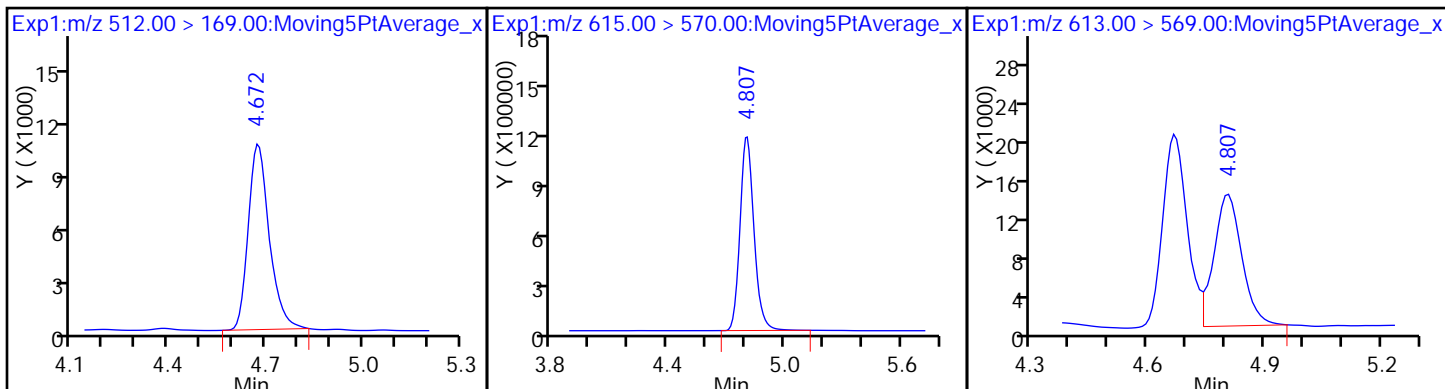
D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

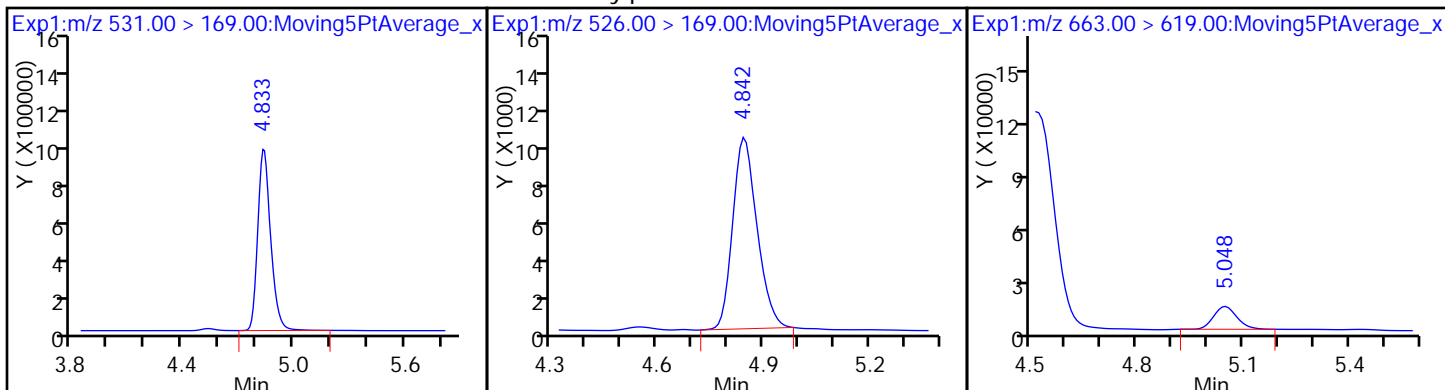
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

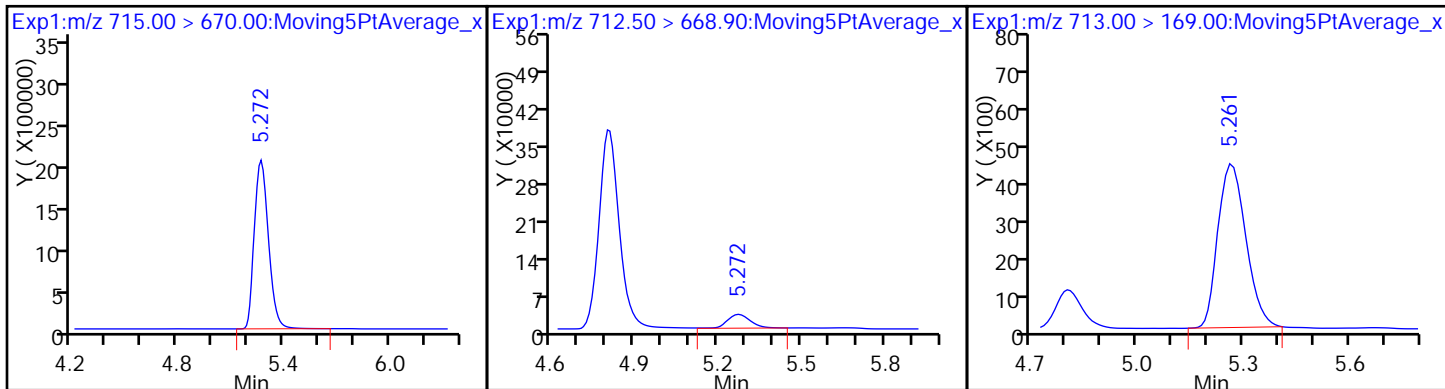
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

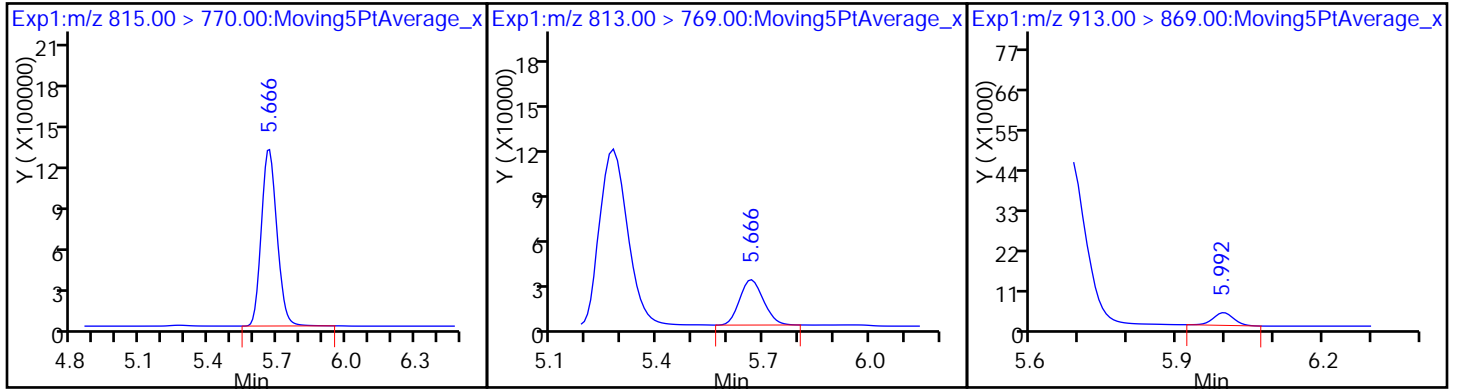
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_004.d
 Lims ID: IC L2 Full
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 19-May-2017 21:04:27 ALS Bottle#: 29 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L2-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 10:52:13 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.993	1.996	-0.003	19928351	53.3		108	146598	
2 Perfluorobutyric acid	212.90 > 169.00	2.002	1.999	0.003	422027	1.06		107	126	
D 3 13C5-PFPeA	267.90 > 223.00	2.349	2.348	0.001	13691903	54.9		111	219142	
4 Perfluoropentanoic acid	262.90 > 219.00	2.349	2.350	-0.001	310858	1.03		104	88.1	
D 47 13C3-PFBS	301.90 > 83.00	2.389	2.386	0.003	347992	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.389	2.391	-0.002	470681	0.8751		100.0		
	298.90 > 99.00	2.389	2.391	-0.002	187505		2.51(0.00-0.00)	100.0		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.683	2.677	0.006	95760	0.9247		100		
D 7 13C2 PFHxA	315.00 > 270.00	2.722	2.724	-0.002	13908898	55.4		112	310357	
6 Perfluorohexanoic acid	313.00 > 269.00	2.722	2.724	-0.002	295127	1.02		103	709	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.117	3.118	-0.001	290872	1.03		104	289	
D 9 13C4-PFHpA	367.00 > 322.00	3.117	3.118	-0.001	12810000	57.5		116	37182	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.126	3.126	0.0	414686	0.9640		107		
D 11 18O2 PFHxS	403.00 > 84.00	3.126	3.126	0.0	16469964	52.3		112	347745	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.489	3.488	0.001	132486	1.04		111		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.489	3.488	0.001	6079086	49.9	106		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.503	3.506	-0.003	1.000	338818	0.99	105	
* 62 13C2-PFOA	415.00	> 370.00	3.503	3.507	-0.004	12324775	49.5			
D 14 13C4 PFOA	417.00	> 372.00	3.510	3.510	0.0	12428543	54.9	111	52692	
15 Perfluorooctanoic acid	413.00	> 369.00	3.510	3.513	-0.003	1.000	306378	1.08	109	31.5
17 Perfluorooctane sulfonic acid	413.00	> 169.00	3.510	3.513	-0.003	1.000	174190	1.76(0.90-1.10)	109	707
499.00 > 80.00	3.873	3.860	0.013	1.000	275589	0.9155		99.6	1172	
499.00 > 99.00	3.873	3.860	0.013	1.000	61270		4.50(0.90-1.10)	99.6	396	
D 18 13C4 PFOS	503.00	> 80.00	3.873	3.874	-0.001	12354578	52.1	110	29859	
20 Perfluorononanoic acid	463.00	> 419.00	3.882	3.887	-0.005	1.000	230627	1.01	102	345
D 19 13C5 PFNA	468.00	> 423.00	3.882	3.887	-0.005	10447939	56.9	115	32848	
D 21 13C8 FOSA	506.00	> 78.00	4.205	4.210	-0.005	20134108	54.5	110	38964	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.213	4.212	0.001	1.000	482310	1.11	112	5170
D 26 M2-8:2FTS	529.00	> 509.00	4.222	4.228	-0.006	5538104	54.2	114		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.222	4.229	-0.007	1.000	113267	0.9719	102	
D 23 13C2 PFDA	515.00	> 470.00	4.222	4.229	-0.007	8861766	56.3	114	12740	
24 Perfluorodecanoic acid	513.00	> 469.00	4.231	4.231	0.0	1.000	187590	1.03	104	303
D 27 d3-NMeFOSAA	573.00	> 419.00	4.382	4.382	0.0	3822986	54.0	109		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.382	4.387	-0.005	1.000	74233	0.9424	95.2	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.504	4.509	-0.005	1.000	168548	0.9683	101	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.533	4.536	-0.003	1.000	157597	1.01	102	425
D 30 13C2 PFUnA	565.00	> 520.00	4.533	4.536	-0.003	6635286	57.4	116	15945	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.533	4.538	-0.005	3850006	55.3	112		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.543	4.544	-0.001	1.002	73791	0.99	100	
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.670	4.671	-0.001	5598173	53.6	108		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.670	4.673	-0.003	1.000	105191	0.9564	96.6		
37 Perfluorododecanoic acid	613.00 > 569.00	4.803	4.808	-0.005	1.000	141103	1.05	106	9.3	
D 36 13C2 PFDaA	615.00 > 570.00	4.803	4.808	-0.005		6508701	55.7	113	7433	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.839	4.837	0.002		5413115	54.4	110		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.839	4.843	-0.004	1.000	104748	0.9454	95.5		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.047	5.054	-0.007	1.000	134207	1.04	105	6.7	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.271	5.274	-0.003	1.000	303590	1.04	105	3.7	
	713.00 > 169.00	5.259	5.274	-0.015	0.998	42304	7.18(0.00-0.00)	105	154	
D 43 13C2-PFTeDA	715.00 > 670.00	5.271	5.274	-0.003		12408720	54.2	109	7270	
D 44 13C2-PFHxDA	815.00 > 770.00	5.666	5.670	-0.004		7104241	55.5	112	3454	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.666	5.671	-0.005	1.000	238326	0.9847	99.5	10.9	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.998	5.997	0.001	1.000	19012	1.14	115	1.7	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L2_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_004.d

Injection Date: 19-May-2017 21:04:27

Instrument ID: A8_N

Lims ID: IC L2 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

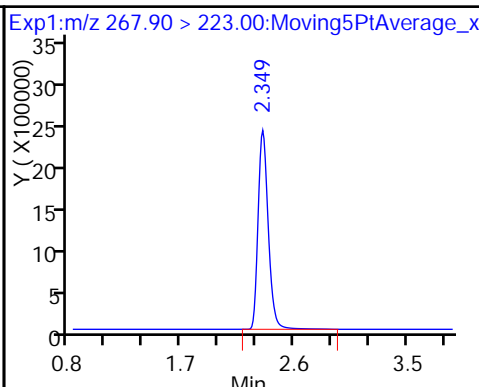
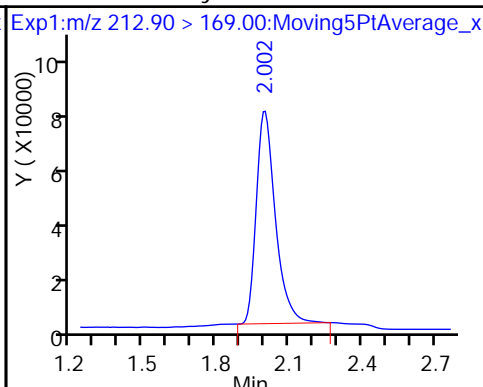
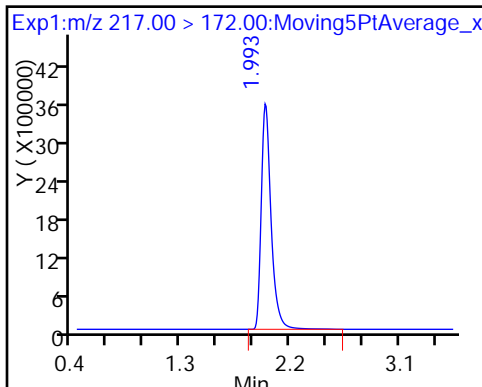
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

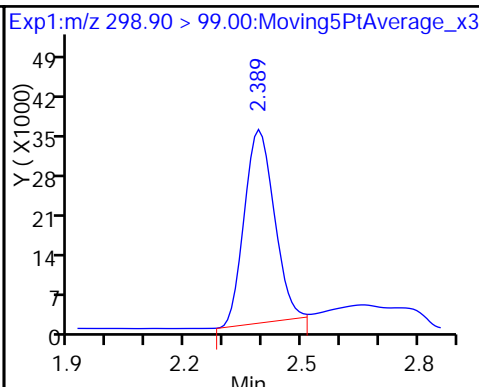
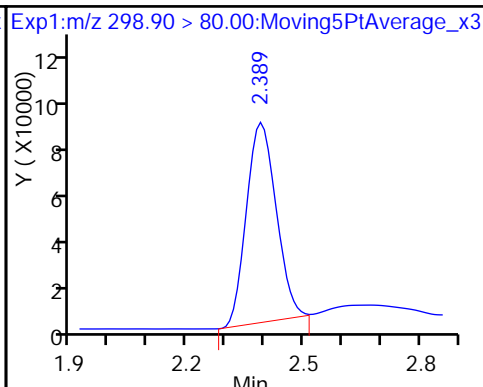
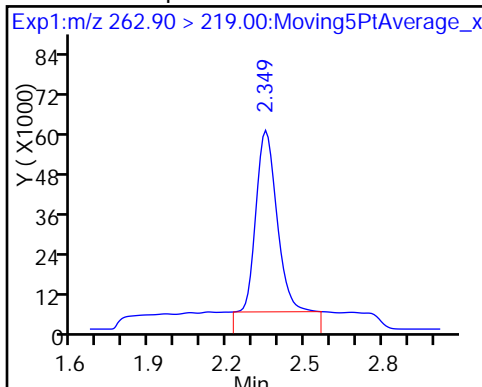
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

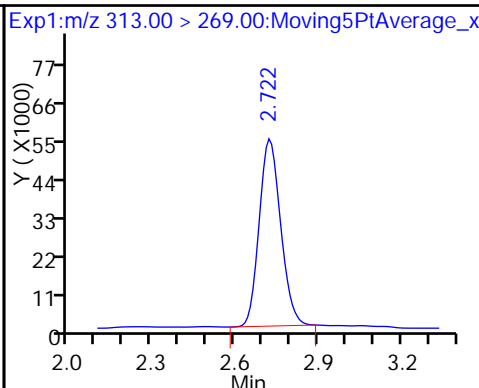
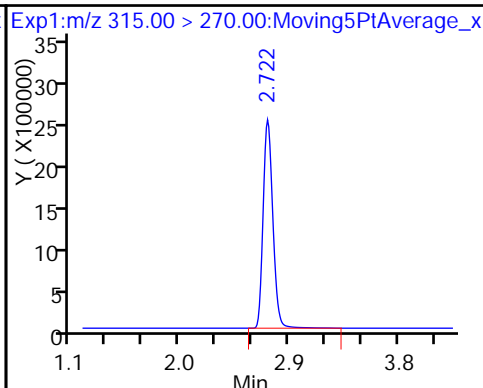
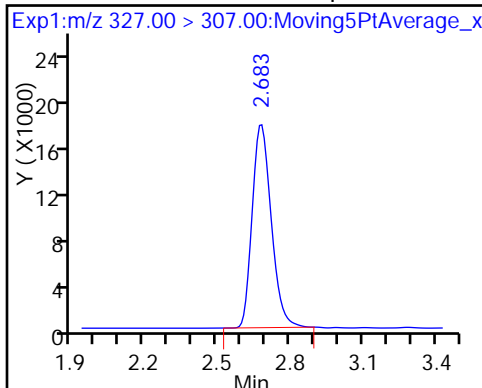
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

D 7 13C2 PFHxA

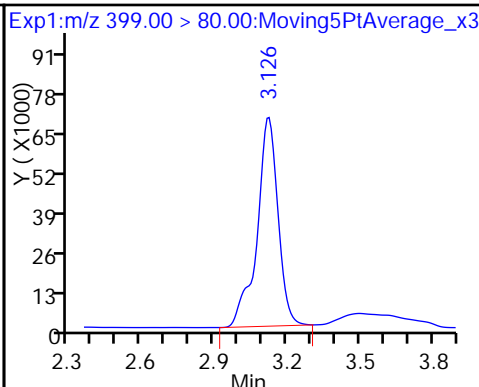
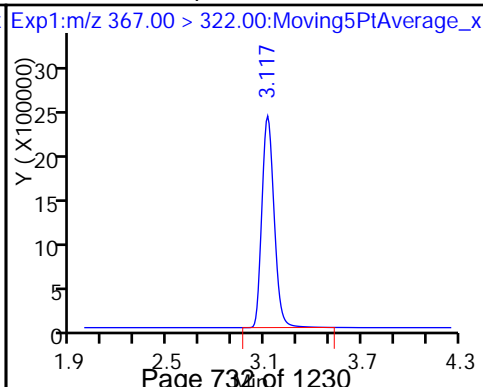
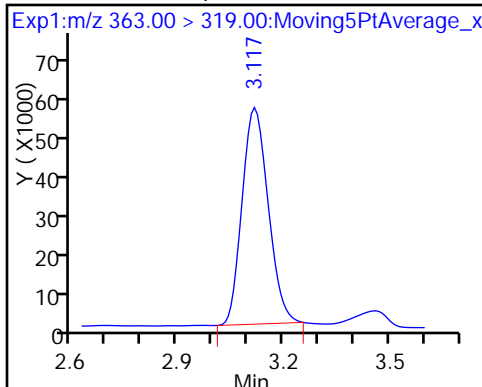
6 Perfluorohexanoic acid



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

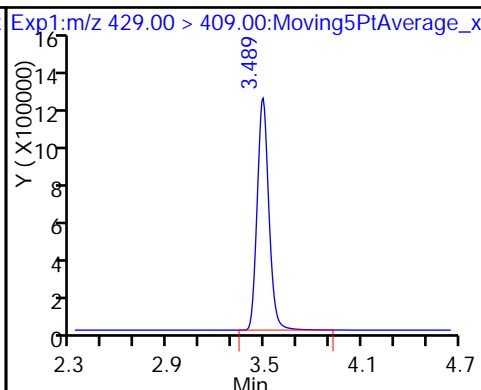
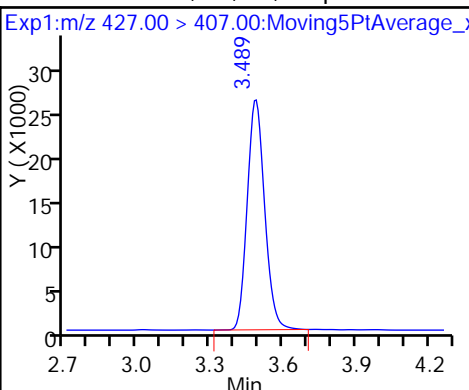
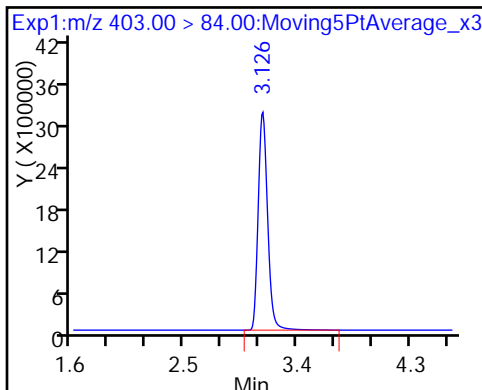
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

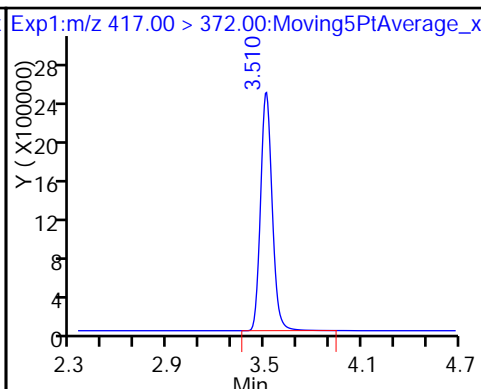
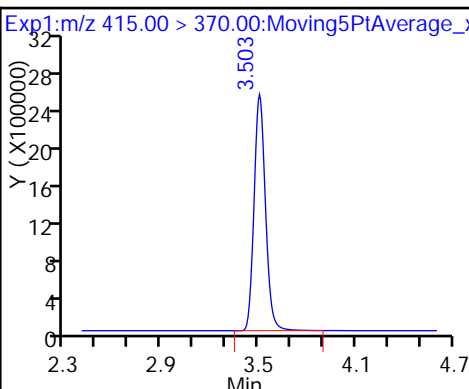
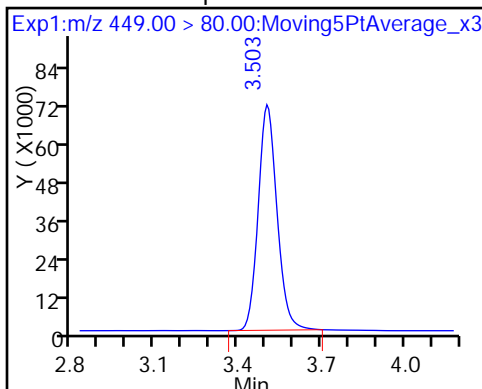
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

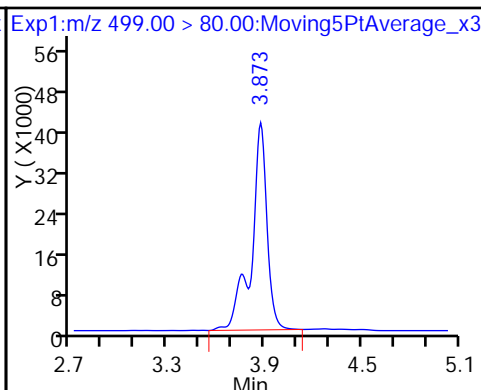
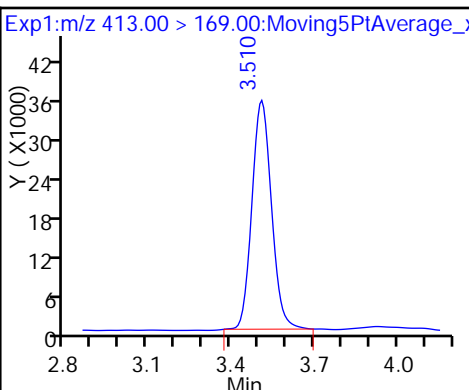
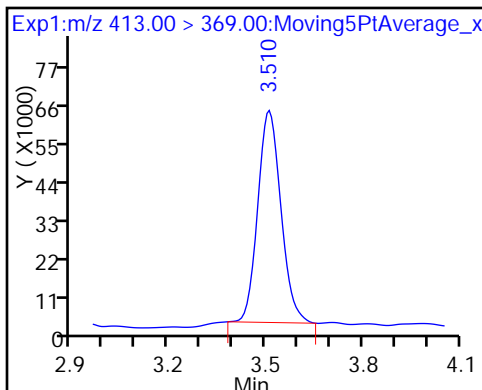
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

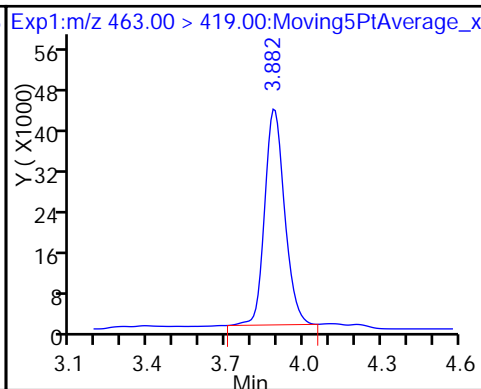
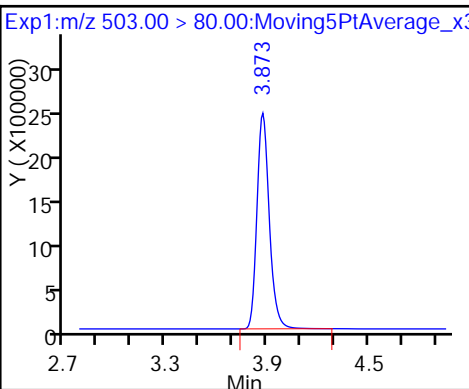
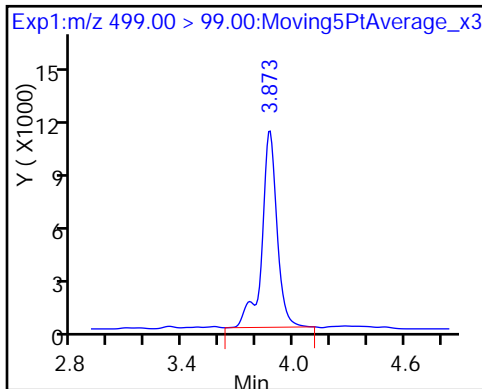
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

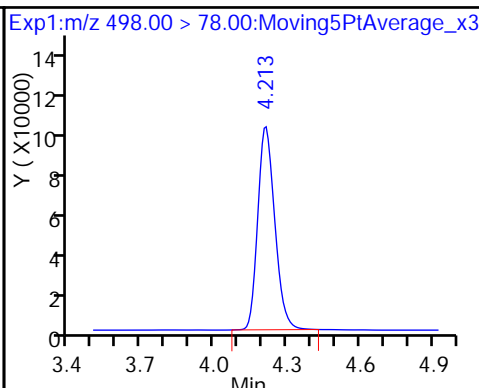
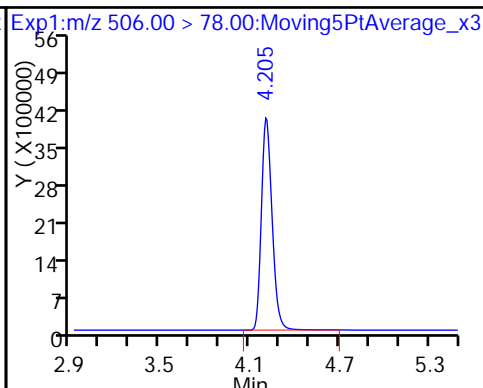
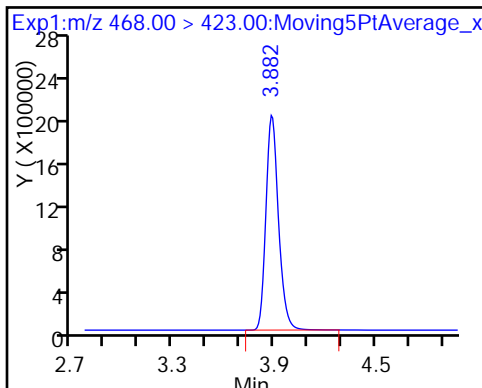
20 Perfluorononanoic acid



D 19 13C5 PFNA

D 21 13C8 FOSA

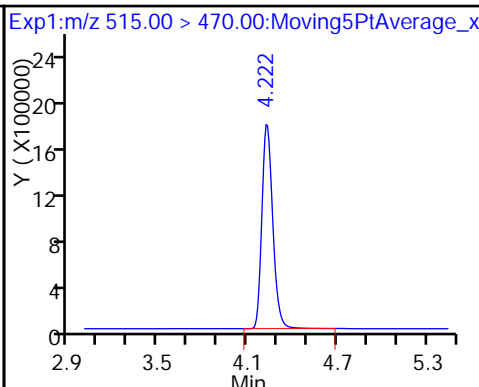
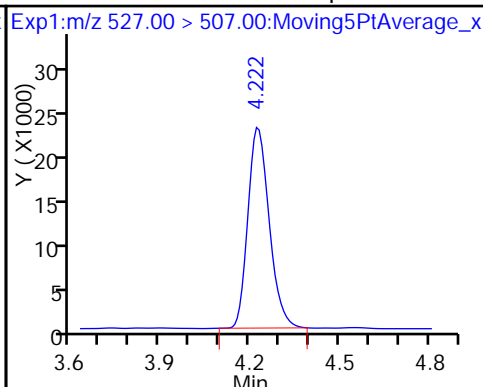
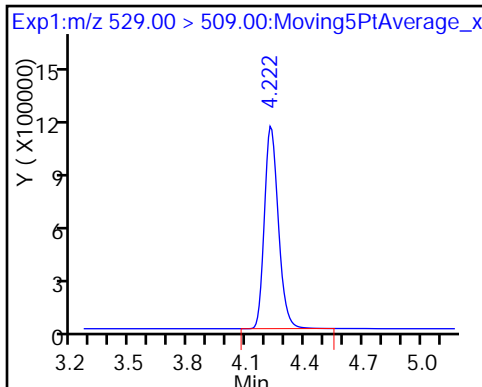
22 Perfluorooctane Sulfonamide



D 26 M2-8:2FTS

25 Sodium 1H,1H,2H,2H-perfluorooctane

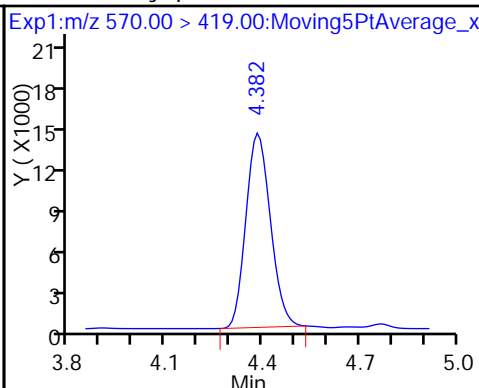
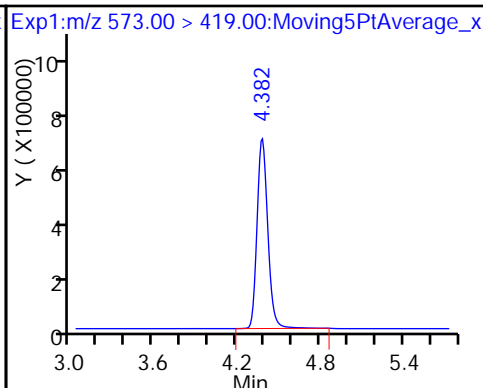
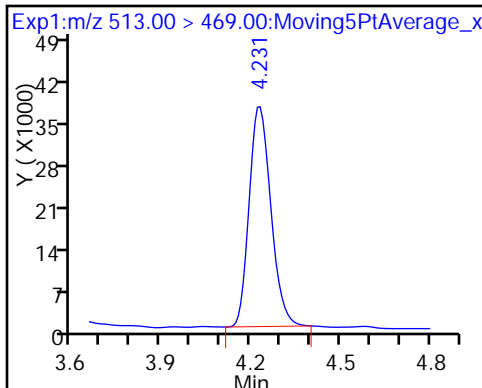
De 23 13C2 PFDA



24 Perfluorodecanoic acid

D 27 d3-NMeFOSAA

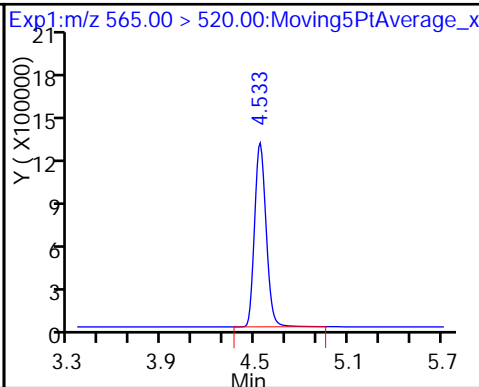
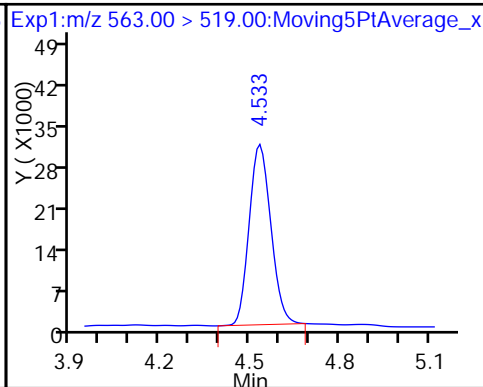
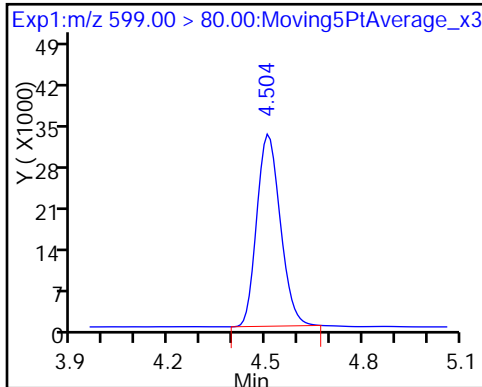
28 N-methyl perfluorooctane sulfonami



29 Perfluorodecane Sulfonic acid

31 Perfluoroundecanoic acid

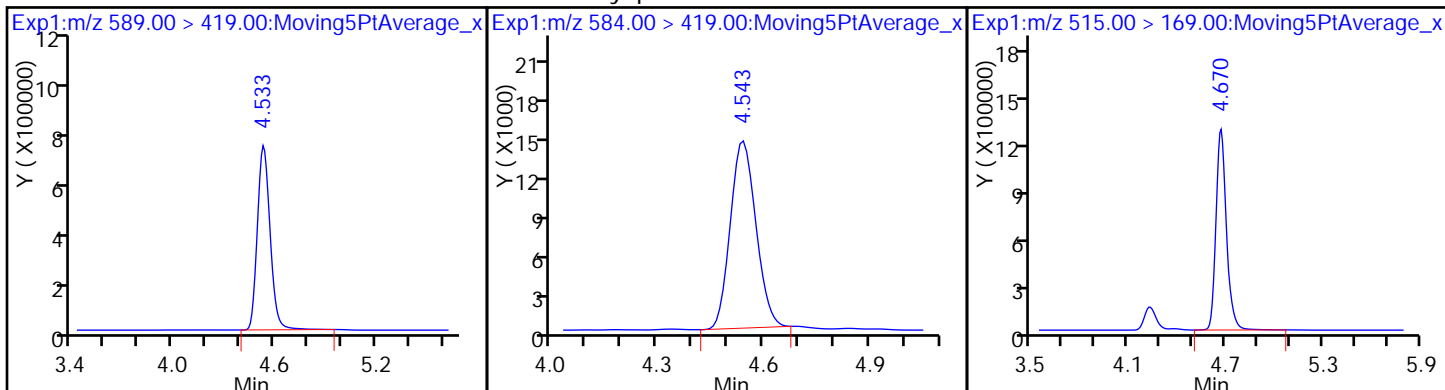
D 30 13C2 PFUnA



D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

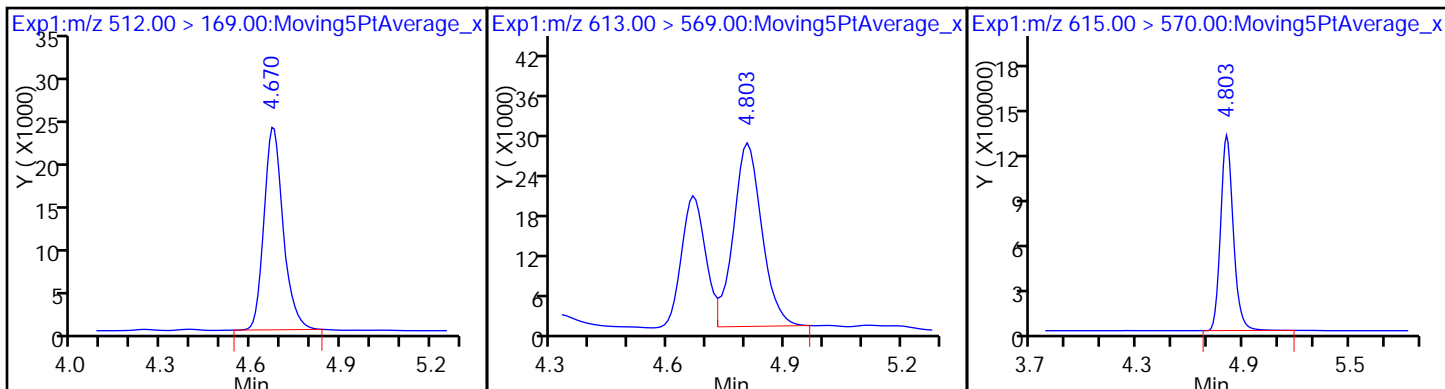
D 34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

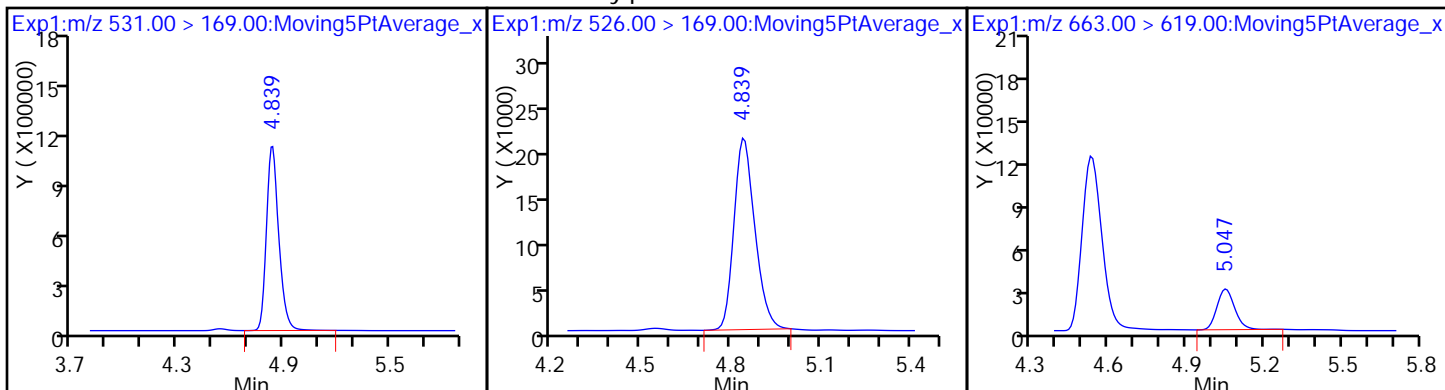
D 36 13C2 PFDaA



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

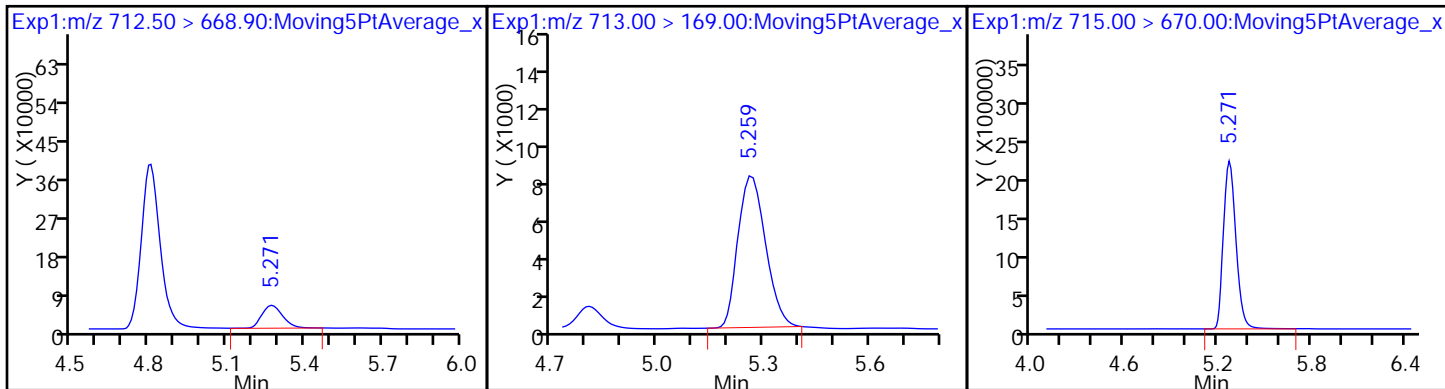
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

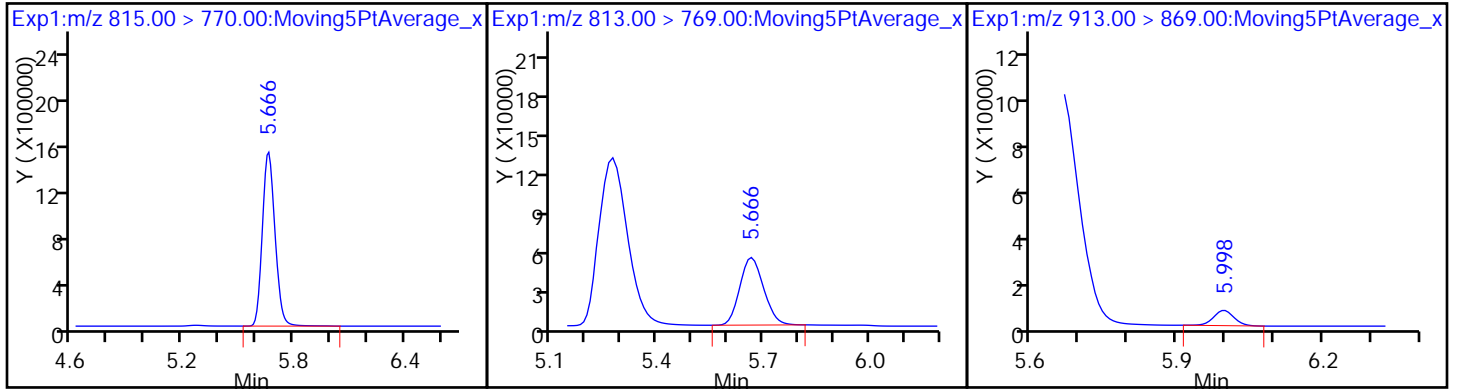
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_005.d
 Lims ID: IC L3 Full
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 19-May-2017 21:11:56 ALS Bottle#: 30 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L3-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 10:52:18 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d

Column 1 : Det: EXP1

Process Host: XAWRK016

First Level Reviewer: chandrasenas

Date: 22-May-2017 10:51:39

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.993	1.996	-0.003	19089145	51.1		103	135900	
2 Perfluorobutyric acid	212.90 > 169.00	2.001	1.999	0.002	2000457	5.22		106	670	
D 3 13C5-PFPeA	267.90 > 223.00	2.348	2.348	0.0	12931368	51.8		105	251073	
4 Perfluoropentanoic acid	262.90 > 219.00	2.348	2.350	-0.002	1371183	4.82		97.3	393	
D 47 13C3-PFBS	301.90 > 83.00	2.378	2.386	-0.008	312138	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.388	2.391	-0.003	2286664	4.55		104		
	298.90 > 99.00	2.388	2.391	-0.003	981700		2.33(0.00-0.00)	104		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.671	2.677	-0.006	476052	4.73		102		
6 Perfluorohexanoic acid	313.00 > 269.00	2.719	2.724	-0.005	1372344	5.09		103	3414	
D 7 13C2 PFHxA	315.00 > 270.00	2.719	2.724	-0.005	12958756	51.6		104	387159	
D 9 13C4-PFHpA	367.00 > 322.00	3.113	3.118	-0.005	11634103	52.2		105	35379	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.113	3.118	-0.005	1327335	5.18		105	1203	
D 11 18O2 PFHxS	403.00 > 84.00	3.122	3.126	-0.004	15397787	48.9		104	324006	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.122	3.126	-0.004	1751413	4.35		96.7		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.484	3.488	-0.004	5910865	48.5	103		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.484	3.488	-0.004	1.000	646568	5.22	111	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.499	3.506	-0.007	1.000	1613910	4.93	105	
* 62 13C2-PFOA	415.00	> 370.00	3.499	3.507	-0.008		11501710	49.5		
D 14 13C4 PFOA	417.00	> 372.00	3.506	3.510	-0.004		12140595	53.7	108	62869
15 Perfluorooctanoic acid	413.00	> 369.00	3.506	3.513	-0.007	1.000	1313806	4.73	95.5	148
	413.00	> 169.00	3.506	3.513	-0.007	1.000	788196	1.67(0.90-1.10)	95.5	2972
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.868	3.860	0.008	1.000	1308292	4.53	98.7	3986
	499.00	> 99.00	3.868	3.860	0.008	1.000	285311	4.59(0.90-1.10)	98.7	2474
D 18 13C4 PFOS	503.00	> 80.00	3.868	3.874	-0.006		11847176	49.9	106	27052
D 19 13C5 PFNA	468.00	> 423.00	3.885	3.887	-0.002		9668596	52.7	106	43113
20 Perfluorononanoic acid	463.00	> 419.00	3.885	3.887	-0.002	1.000	1062856	5.01	101	1951
D 21 13C8 FOSA	506.00	> 78.00	4.208	4.210	-0.002		19244389	52.1	105	32821
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.208	4.212	-0.004	1.000	2202248	5.29	107	15582
D 26 M2-8:2FTS	529.00	> 509.00	4.224	4.228	-0.004		5034699	49.3	104	
D 23 13C2 PFDA	515.00	> 470.00	4.224	4.229	-0.005		8519086	54.1	109	11935
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.224	4.229	-0.005	1.000	541101	5.11	108	
24 Perfluorodecanoic acid	513.00	> 469.00	4.224	4.231	-0.007	1.000	849062	4.87	98.4	1762
D 27 d3-NMeFOSAA	573.00	> 419.00	4.375	4.382	-0.007		3474858	49.1	99.2	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.384	4.387	-0.003	1.002	365541	5.11	103	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.506	4.509	-0.003	1.000	813694	4.87	102	
D 30 13C2 PFUnA	565.00	> 520.00	4.535	4.536	-0.001		6227664	53.8	109	34137
31 Perfluoroundecanoic acid	563.00	> 519.00	4.535	4.536	-0.001	1.000	713215	4.86	98.1	1986
D 32 d5-NEtFOSAA	589.00	> 419.00	4.535	4.538	-0.003		3568475	51.3	104	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.535	4.544	-0.009	1.000	333940	4.85	98.0	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.664	4.671	-0.007	5119696	49.0	99.0		
35 MeFOSA	512.00	> 169.00	4.671	4.673	-0.002	1.000	510048	5.07	102	
D 36 13C2 PFDaA	615.00	> 570.00	4.803	4.808	-0.005	6138188	52.5	106	7491	
37 Perfluorododecanoic acid	613.00	> 569.00	4.803	4.808	-0.005	1.000	634373	5.02	101	55.0
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.836	4.837	-0.001	4887676	49.2	99.3		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.836	4.843	-0.007	1.000	499411	4.99	101	
41 Perfluorotridecanoic acid	663.00	> 619.00	5.051	5.054	-0.003	1.000	610884	5.00	101	31.7
D 43 13C2-PFTeDA	715.00	> 670.00	5.274	5.274	0.0	11765368	51.4	104	8018	
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.274	5.274	0.0	1.000	1357019	4.93	99.6	16.8
	713.00	> 169.00	5.263	5.274	-0.011	0.998	172363	7.87(0.00-0.00)	99.6	538
D 44 13C2-PFHxDA	815.00	> 770.00	5.667	5.670	-0.003	6490560	50.7	102	3198	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.667	5.671	-0.004	1.000	739425	5.04	102	35.3
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.994	5.997	-0.003	1.000	61783	5.93	120	4.0

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L3_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_005.d

Injection Date: 19-May-2017 21:11:56

Instrument ID: A8_N

Lims ID: IC L3 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 30

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

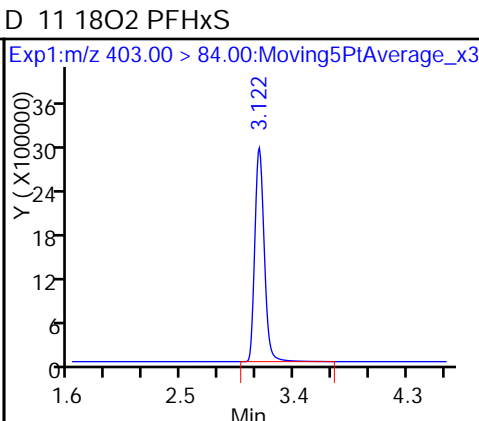
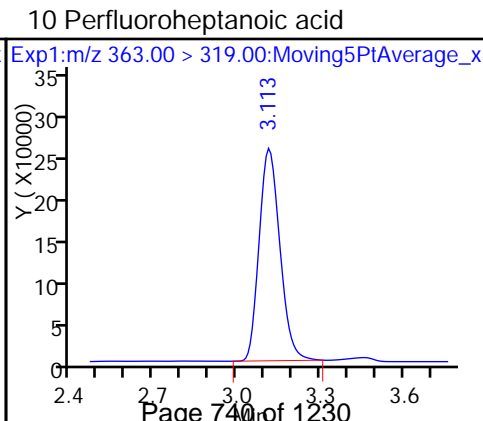
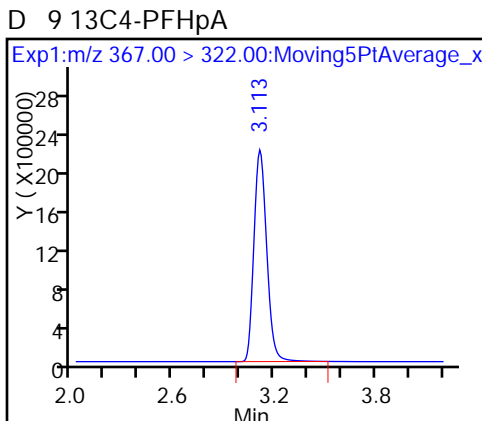
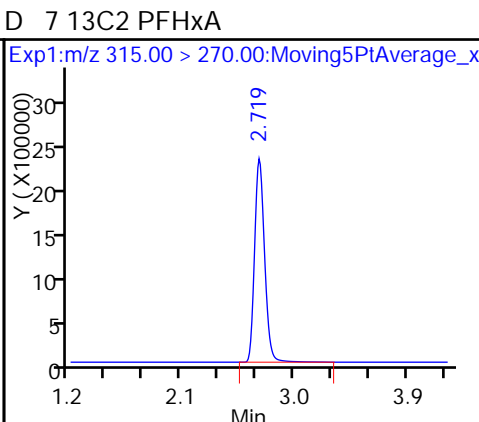
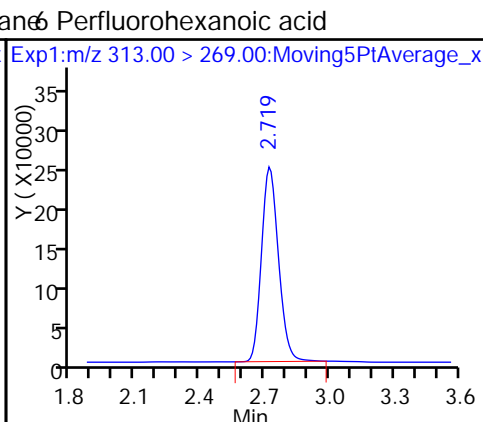
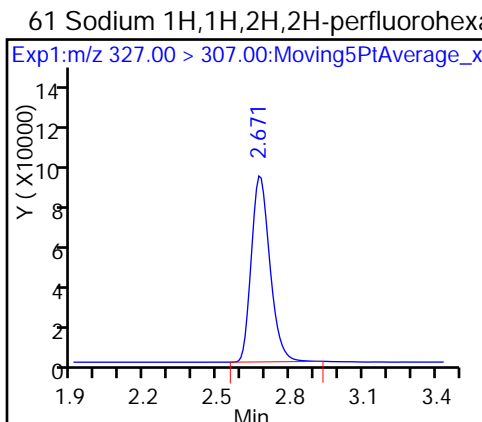
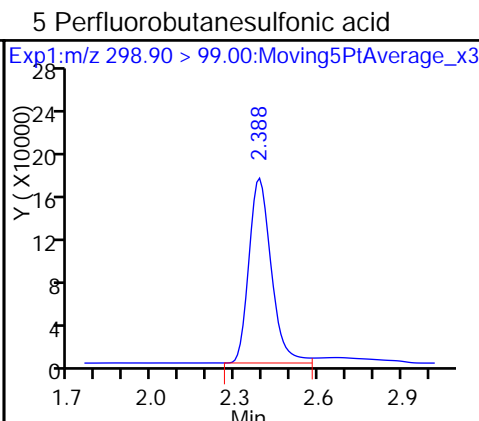
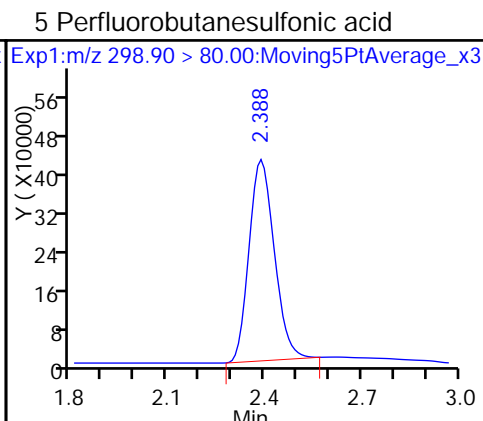
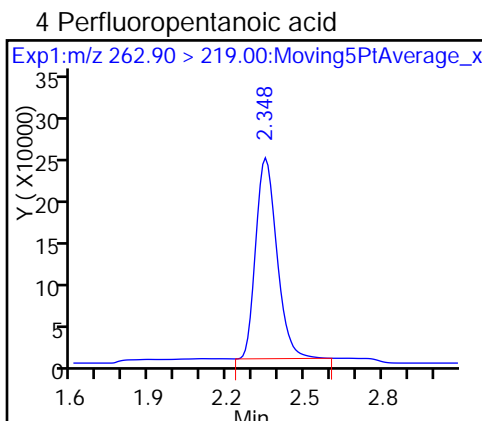
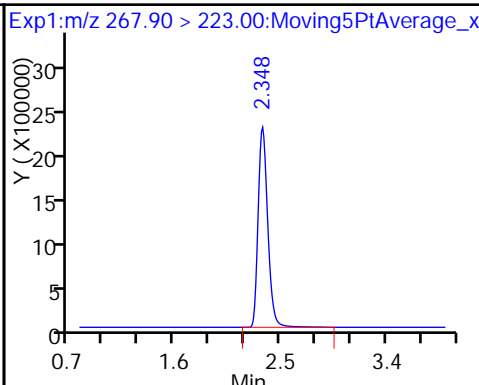
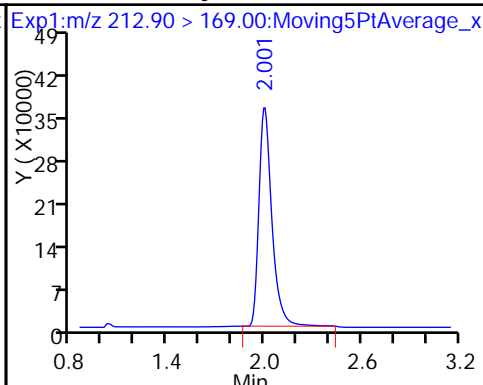
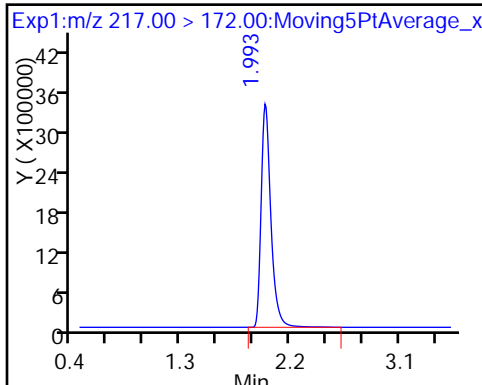
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

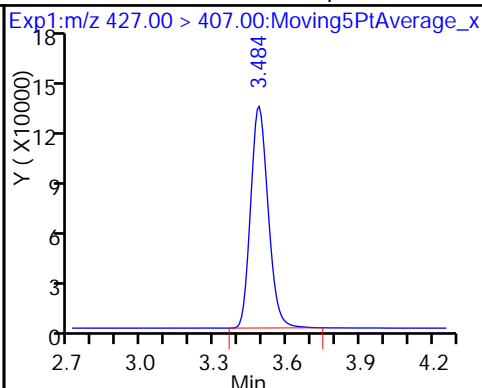
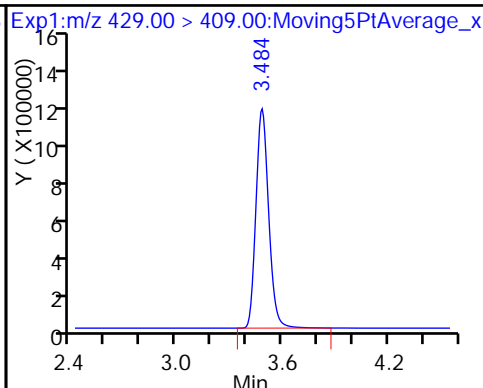
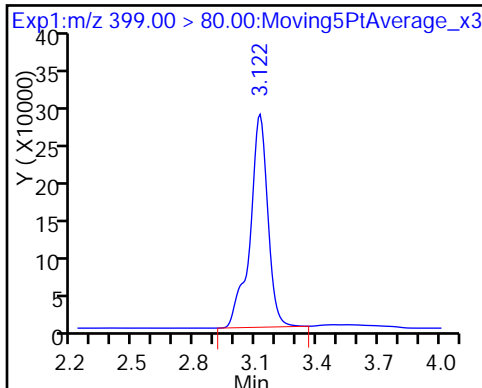
D 3 13C5-PFPeA



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

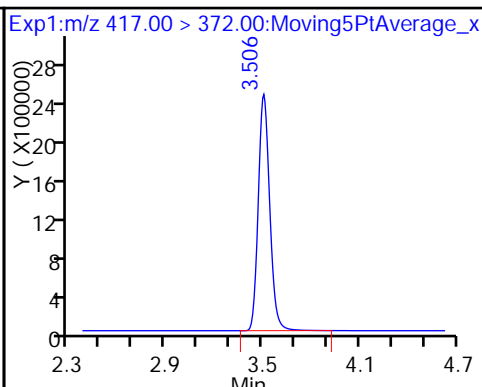
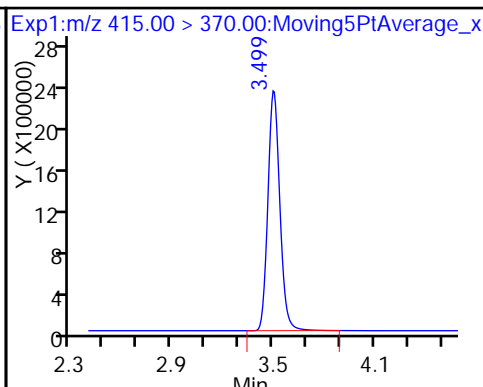
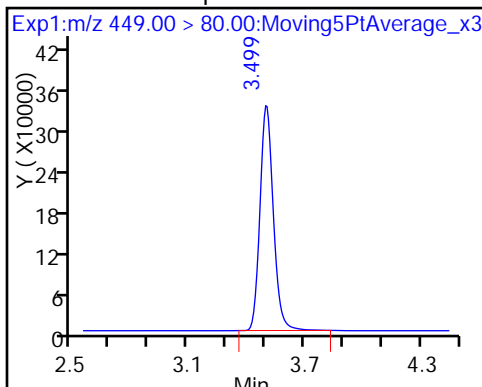
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

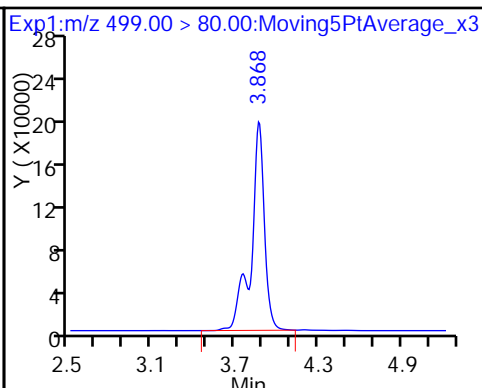
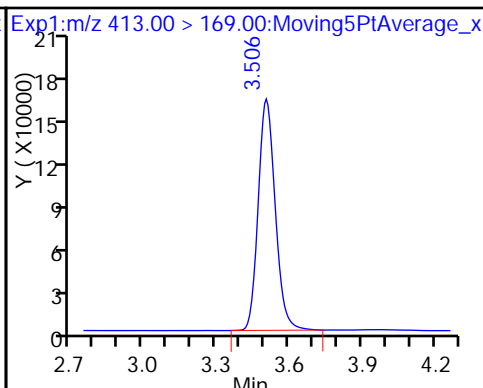
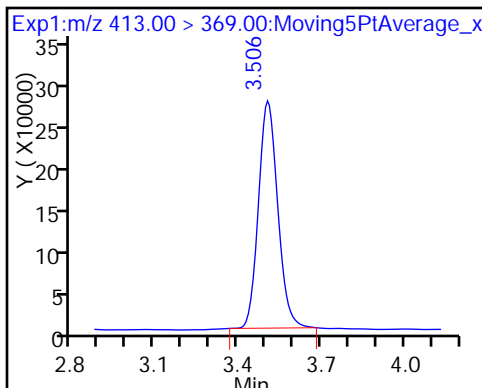
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

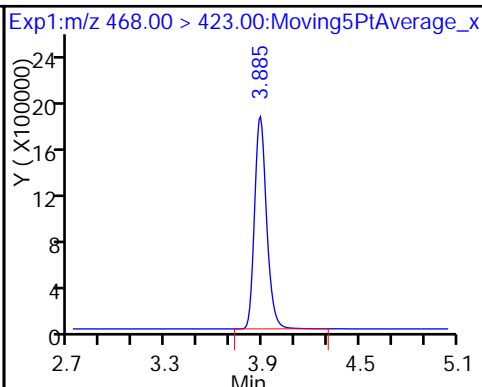
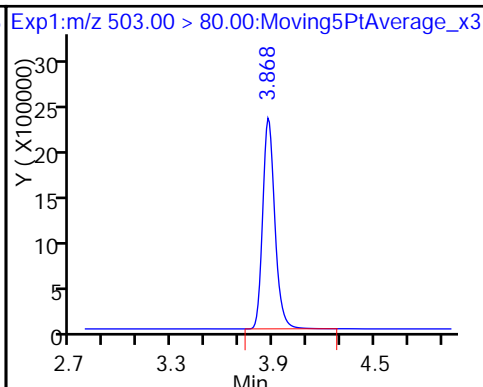
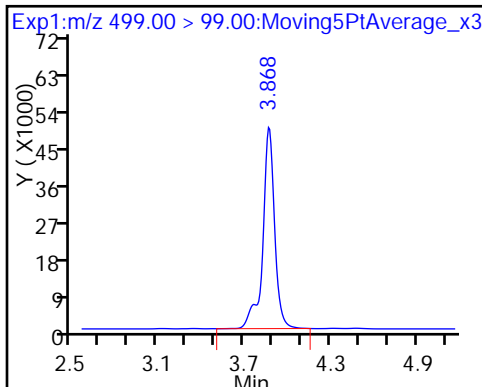
17 Perfluorooctane sulfonic acid

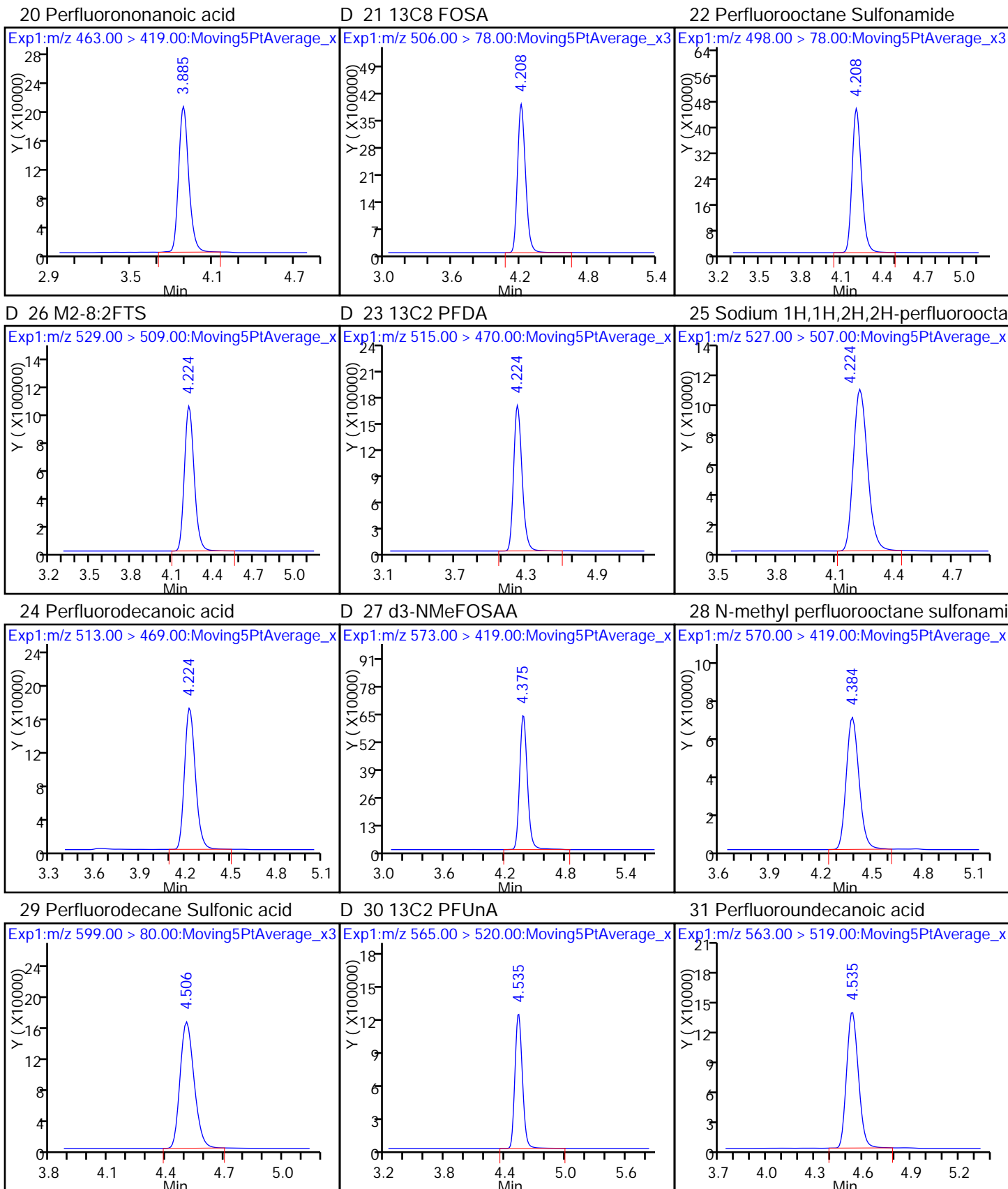


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

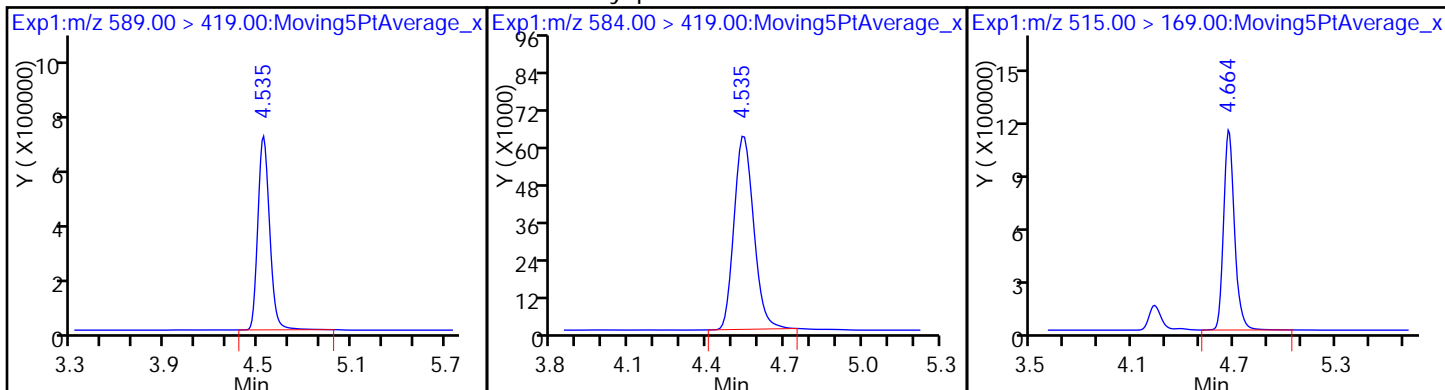
D 19 13C5 PFNA





D 32 d5-NEtFOSAA

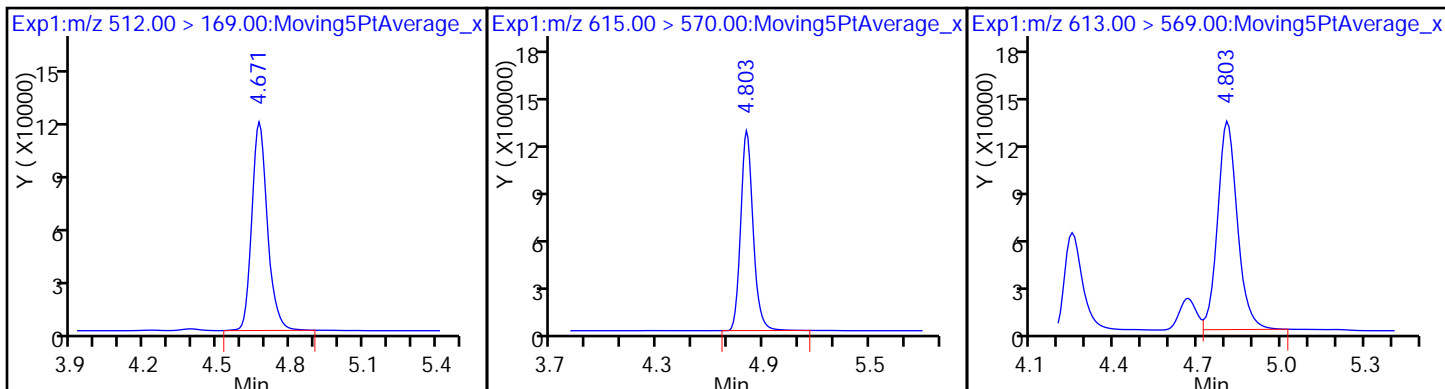
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

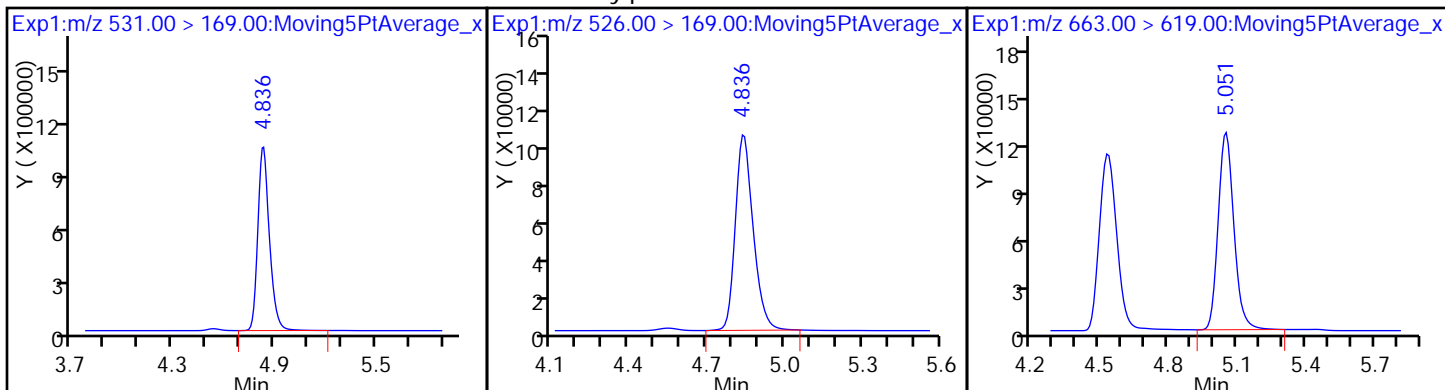
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

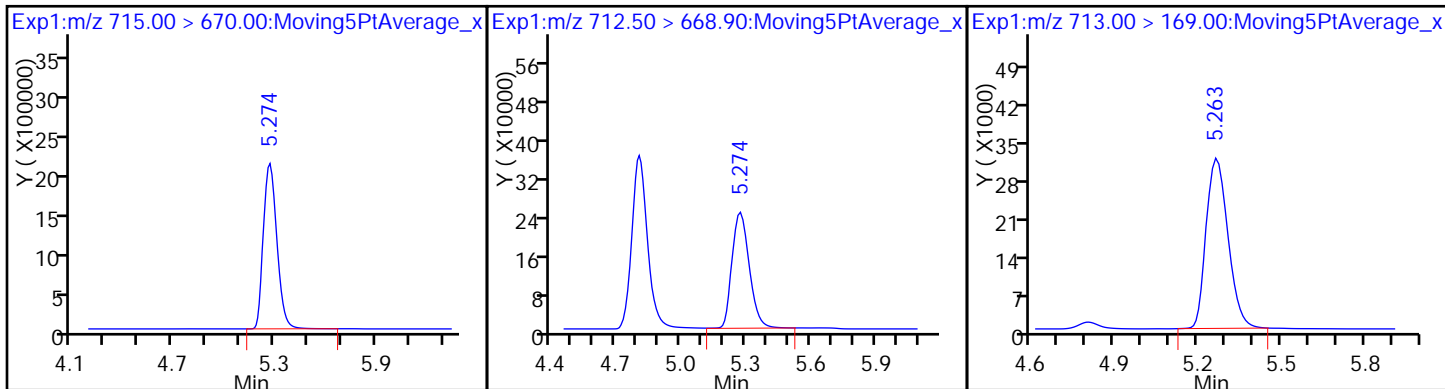
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

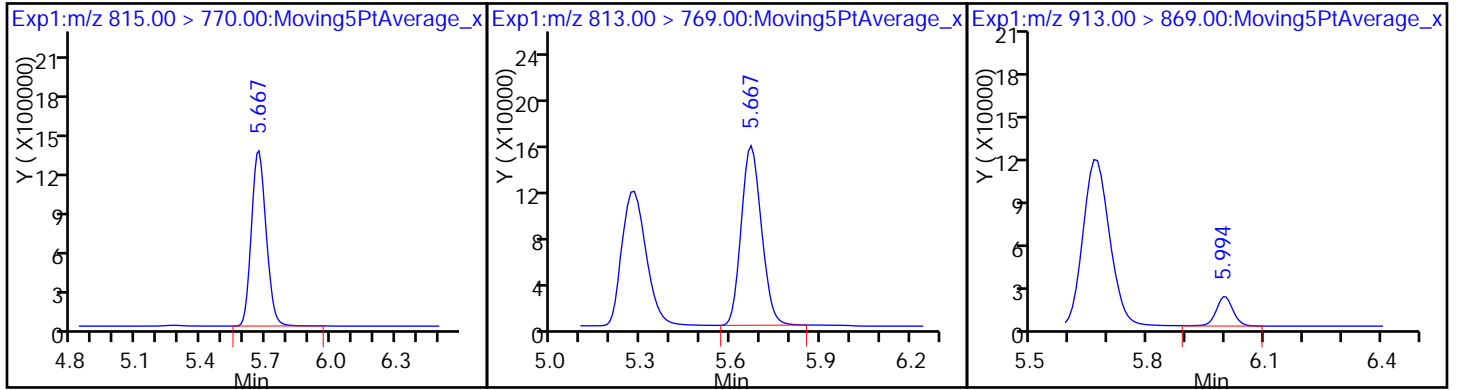
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_006.d
 Lims ID: IC L4 Full
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 19-May-2017 21:19:26 ALS Bottle#: 31 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L4-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 10:52:22 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.993	1.996	-0.003	18237050	48.8		98.5	217468	
2 Perfluorobutyric acid	212.90 > 169.00	1.993	1.999	-0.006	7586176	20.7		105	2257	
D 3 13C5-PFPeA	267.90 > 223.00	2.349	2.348	0.001	12359427	49.5		100	52997	
4 Perfluoropentanoic acid	262.90 > 219.00	2.349	2.350	-0.001	5475681	20.1		102	1563	
D 47 13C3-PFBS	301.90 > 83.00	2.389	2.386	0.003	306417	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.389	2.391	-0.002	9416929	20.1		115		
	298.90 > 99.00	2.389	2.391	-0.002	3832531		2.46(0.00-0.00)	115		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.675	2.677	-0.002	1714589	15.7		85.1		
D 7 13C2 PFHxA	315.00 > 270.00	2.724	2.724	0.0	12344784	49.2		99.3	66527	
6 Perfluorohexanoic acid	313.00 > 269.00	2.724	2.724	0.0	5266794	20.5		104	19590	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.115	3.118	-0.003	4880624	20.5		104	2088	
D 9 13C4-PFHpA	367.00 > 322.00	3.115	3.118	-0.003	10789788	48.4		97.8	40079	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.124	3.126	-0.002	6864631	18.3		102		
D 11 18O2 PFHxS	403.00 > 84.00	3.124	3.126	-0.002	14366874	45.6		97.3	49538	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.485	3.488	-0.003	2672197	19.9		106		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.485	3.488	-0.003	6396080	52.5	112		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.508	3.506	0.002	1.000	6061866	20.0	106	
* 62 13C2-PFOA	415.00	> 370.00	3.508	3.507	0.001	11478303	49.5			
D 14 13C4 PFOA	417.00	> 372.00	3.508	3.510	-0.002	11730499	51.9	105	46439	
15 Perfluorooctanoic acid	413.00	> 369.00	3.515	3.513	0.002	1.000	5364503	20.0	101	504
17 Perfluorooctane sulfonic acid	413.00	> 169.00	3.508	3.513	-0.005	0.998	3097822	1.73(0.90-1.10)	101	8357
499.00 > 80.00	3.875	3.860	0.014	1.000	5146889	19.2		105	9331	
499.00 > 99.00	3.875	3.860	0.014	1.000	1126713		4.57(0.90-1.10)	105	5737	
D 18 13C4 PFOS	503.00	> 80.00	3.875	3.874	0.0	10987310	46.3	97.9	15677	
20 Perfluorononanoic acid	463.00	> 419.00	3.883	3.887	-0.004	1.000	3976321	20.1	102	6123
D 19 13C5 PFNA	468.00	> 423.00	3.883	3.887	-0.004	9010585	49.1	99.2	26133	
D 21 13C8 FOSA	506.00	> 78.00	4.209	4.210	-0.001	18723287	50.7	102	40625	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.209	4.212	-0.003	1.000	8263488	20.4	103	34882
D 26 M2-8:2FTS	529.00	> 509.00	4.226	4.228	-0.002	4808757	47.1	99.3		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.226	4.229	-0.003	1.000	1965729	19.4	102	
D 23 13C2 PFDA	515.00	> 470.00	4.226	4.229	-0.003	7636260	48.5	98.0	10788	
24 Perfluorodecanoic acid	513.00	> 469.00	4.226	4.231	-0.005	1.000	3275944	21.0	106	6184
D 27 d3-NMeFOSAA	573.00	> 419.00	4.380	4.382	-0.002	3383329	47.8	96.6		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.390	4.387	0.003	1.002	1407451	20.2	102	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.512	4.509	0.003	1.000	3131881	20.2	106	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.531	4.536	-0.005	1.000	2632819	19.2	97.1	6327
D 30 13C2 PFUnA	565.00	> 520.00	4.531	4.536	-0.005	5803175	50.2	101	24550	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.531	4.538	-0.007	3519853	50.6	102		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.541	4.544	-0.003	1.002	1349250	19.9	100	
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.665	4.671	-0.006	5098367	48.8	98.6		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.673	4.673	0.0	1.000	2051360	20.5	103		
37 Perfluorododecanoic acid	613.00 > 569.00	4.808	4.808	0.0	1.000	2303838	19.8	99.9	177	
D 36 13C2 PFDaA	615.00 > 570.00	4.808	4.808	0.0		5656173	48.4	97.8	11310	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.833	4.837	-0.004		4863887	48.9	98.8		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.842	4.843	-0.001	1.000	2053517	20.6	104		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.056	5.054	0.002	1.000	2360581	21.0	106	124	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.272	5.274	-0.002	1.000	5328965	21.0	106	57.8	
	713.00 > 169.00	5.272	5.274	-0.002	1.000	673333		7.91(0.00-0.00)	106	1901
D 43 13C2-PFTeDA	715.00 > 670.00	5.272	5.274	-0.002		11647771	50.8	103	11168	
D 44 13C2-PFHxDA	815.00 > 770.00	5.666	5.670	-0.004		6401014	50.0	101	3355	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.675	5.671	0.004	1.000	2455876	20.2	102	129	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.999	5.997	0.002	1.000	161388	18.3	92.5	10.5	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L4_00002

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_006.d

Injection Date: 19-May-2017 21:19:26

Instrument ID: A8_N

Lims ID: IC L4 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

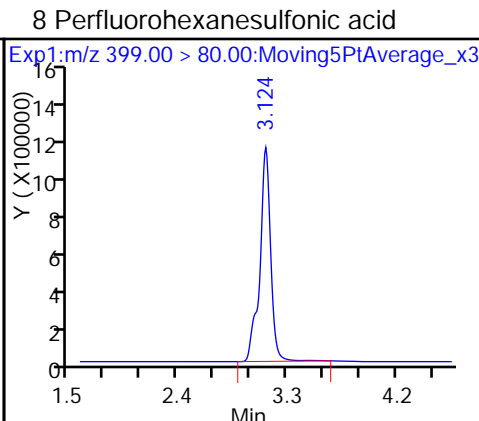
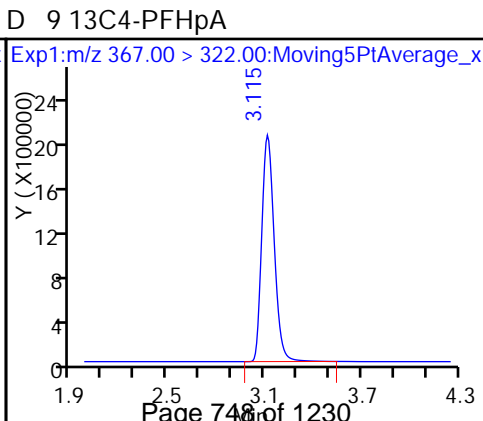
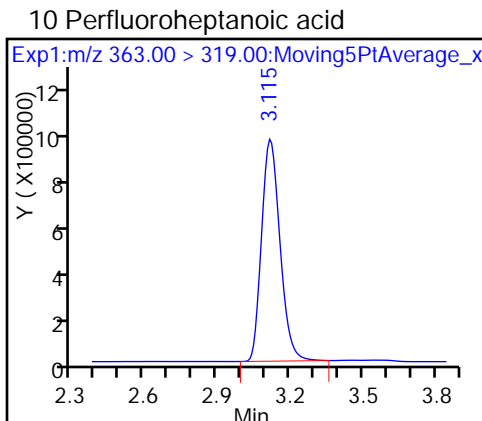
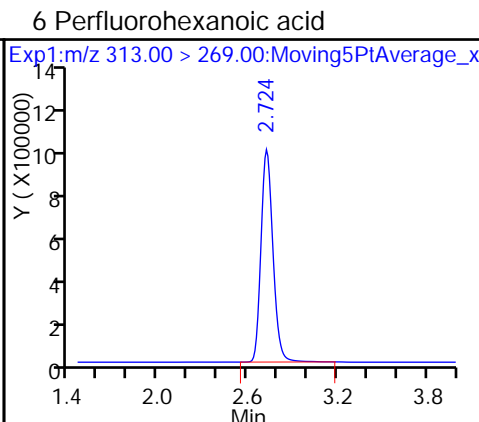
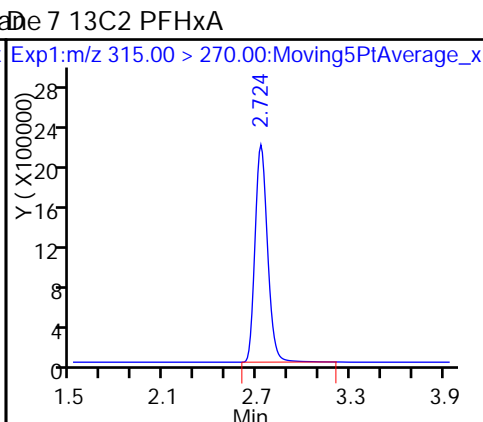
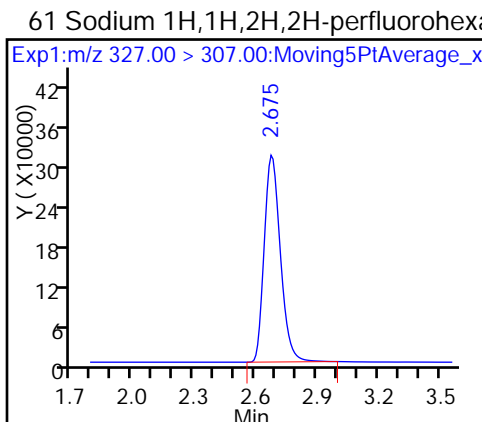
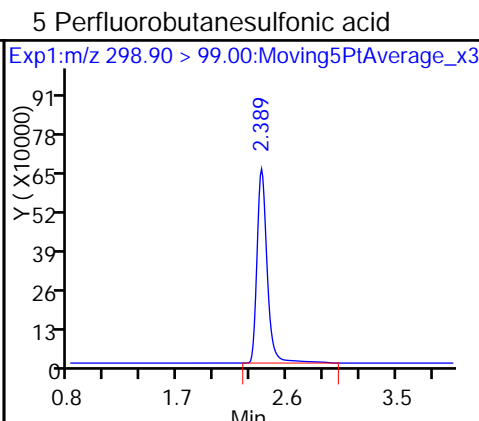
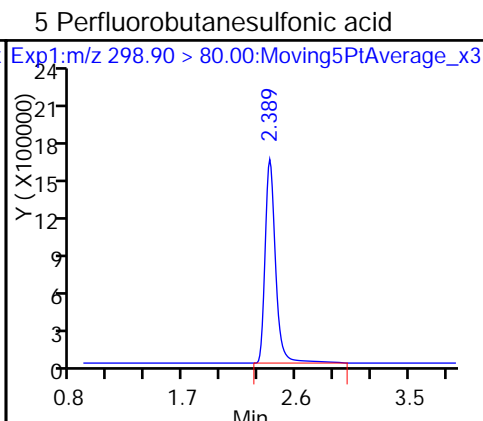
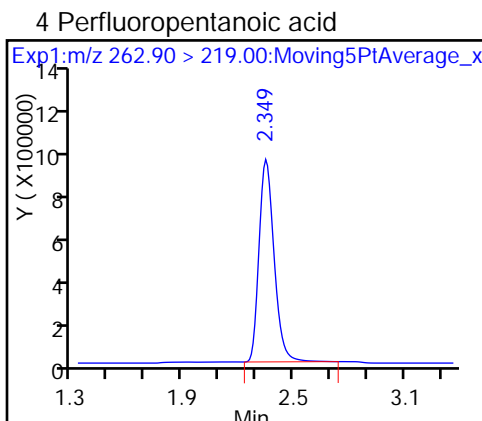
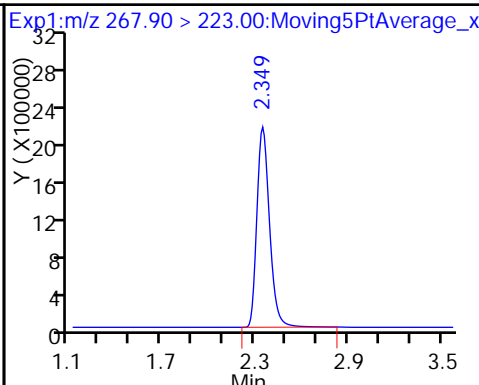
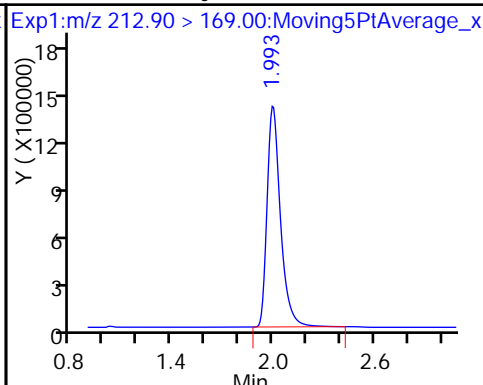
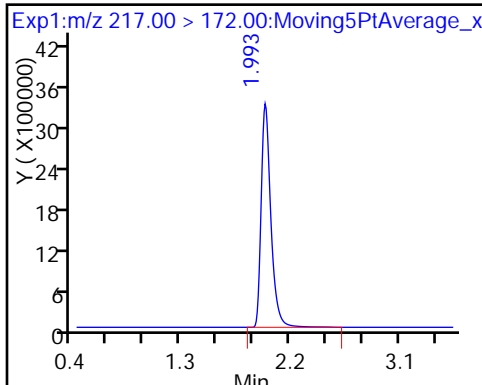
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

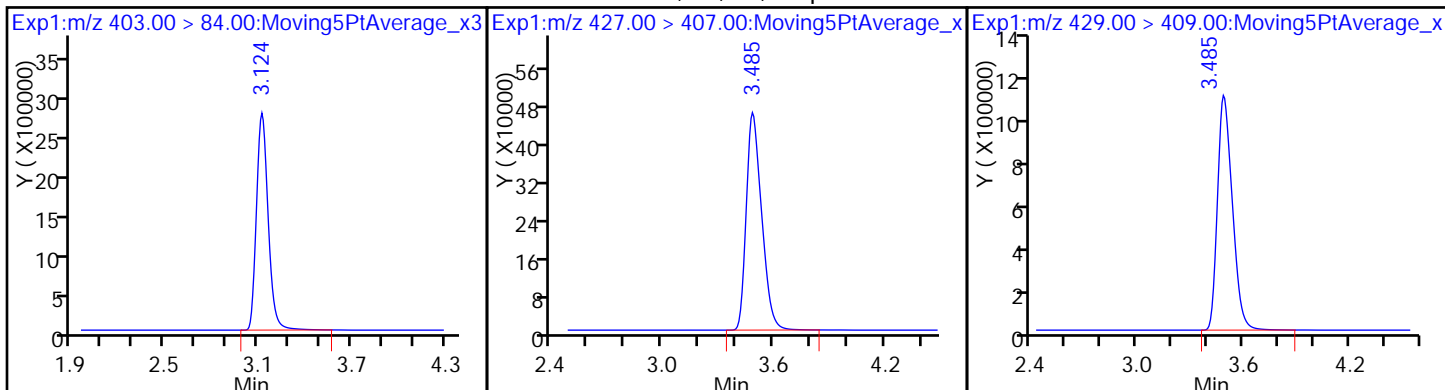
D 3 13C5-PFPeA



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctanoate

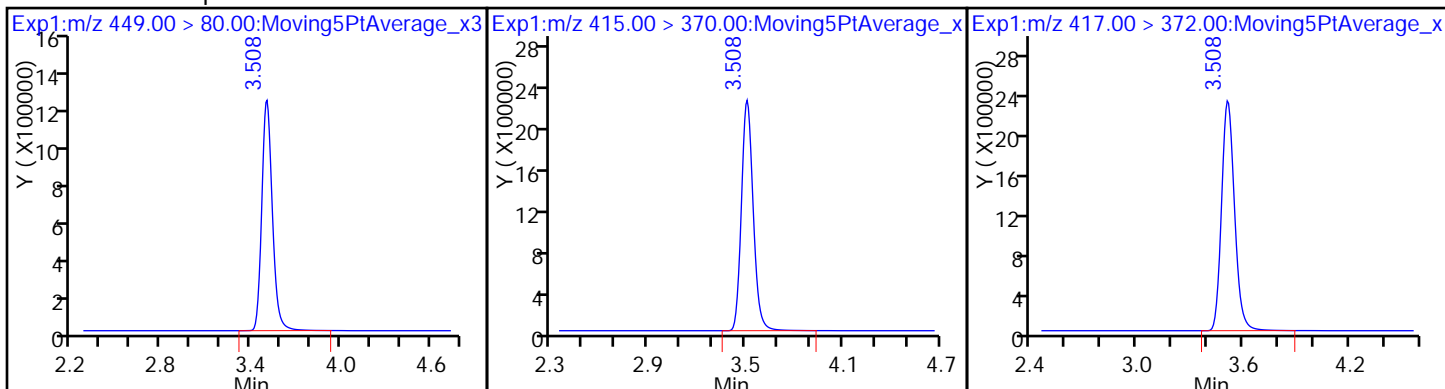
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

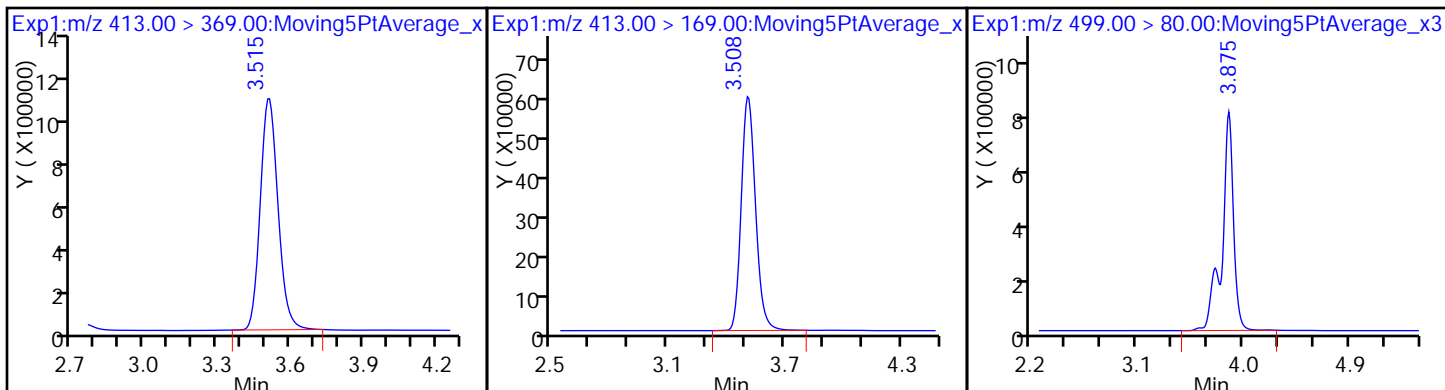
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

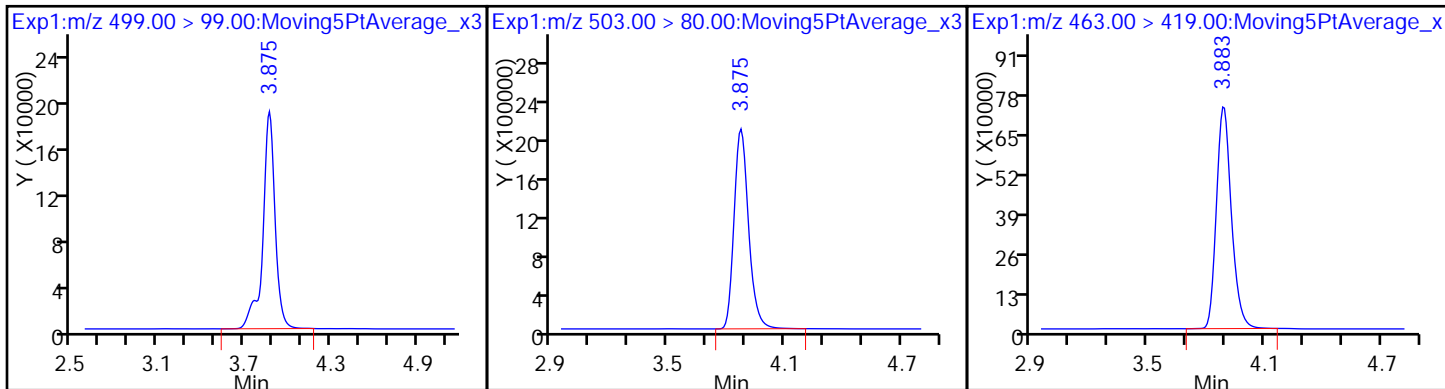
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

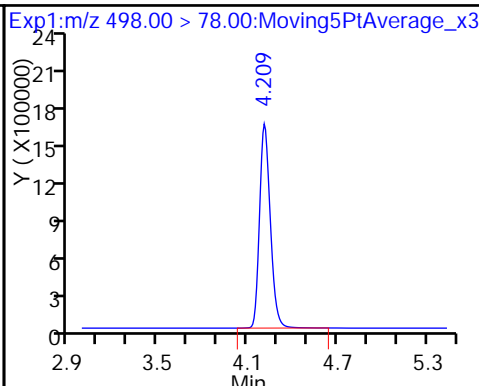
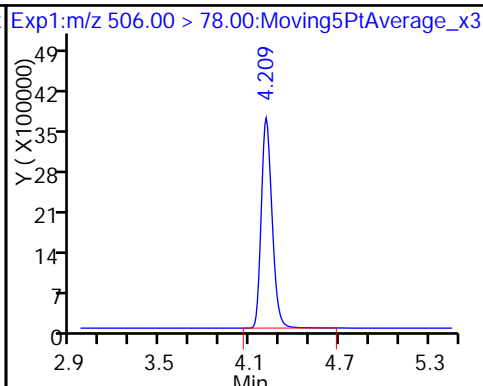
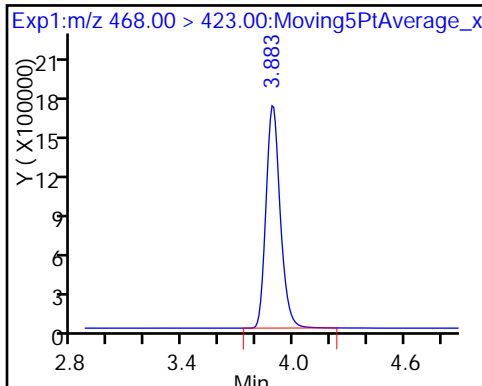
20 Perfluorononanoic acid



D 19 13C5 PFNA

D 21 13C8 FOSA

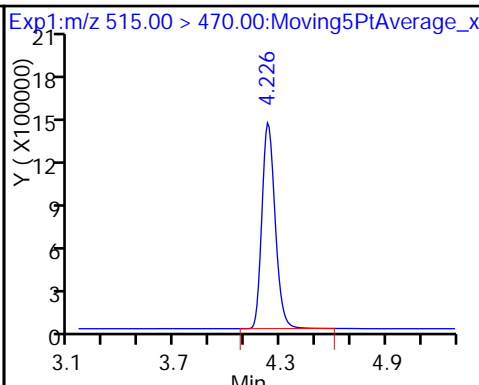
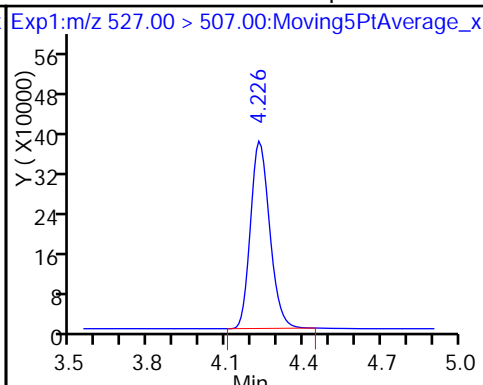
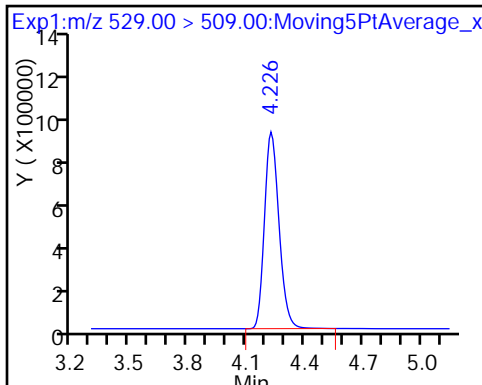
22 Perfluorooctane Sulfonamide



D 26 M2-8:2FTS

25 Sodium 1H,1H,2H,2H-perfluorooctane

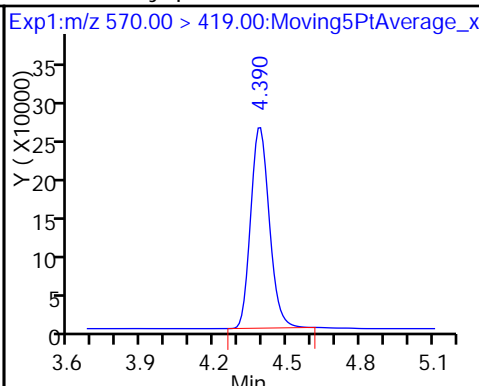
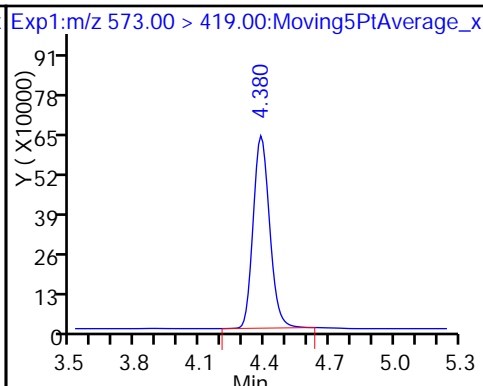
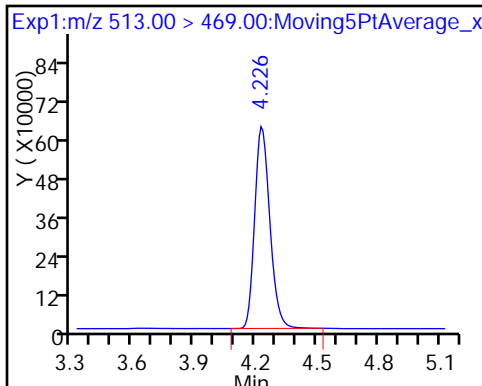
D 23 13C2 PFDA



24 Perfluorodecanoic acid

D 27 d3-NMeFOSAA

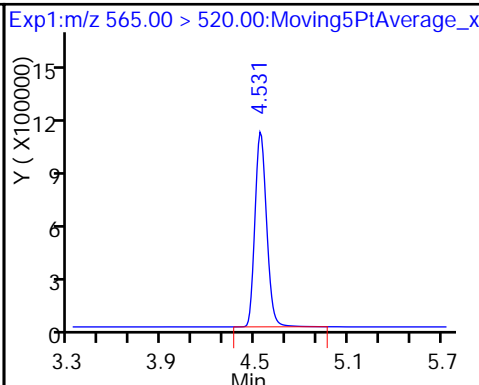
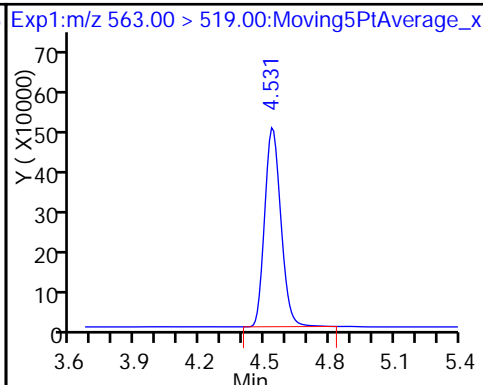
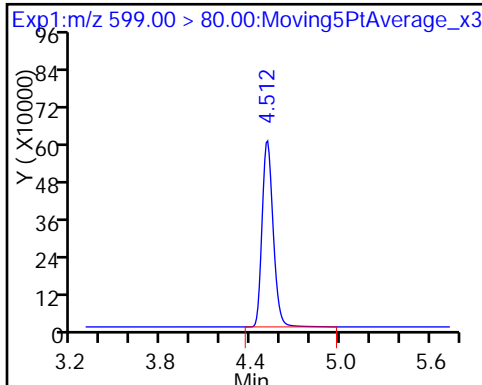
28 N-methyl perfluorooctane sulfonami



29 Perfluorodecane Sulfonic acid

31 Perfluoroundecanoic acid

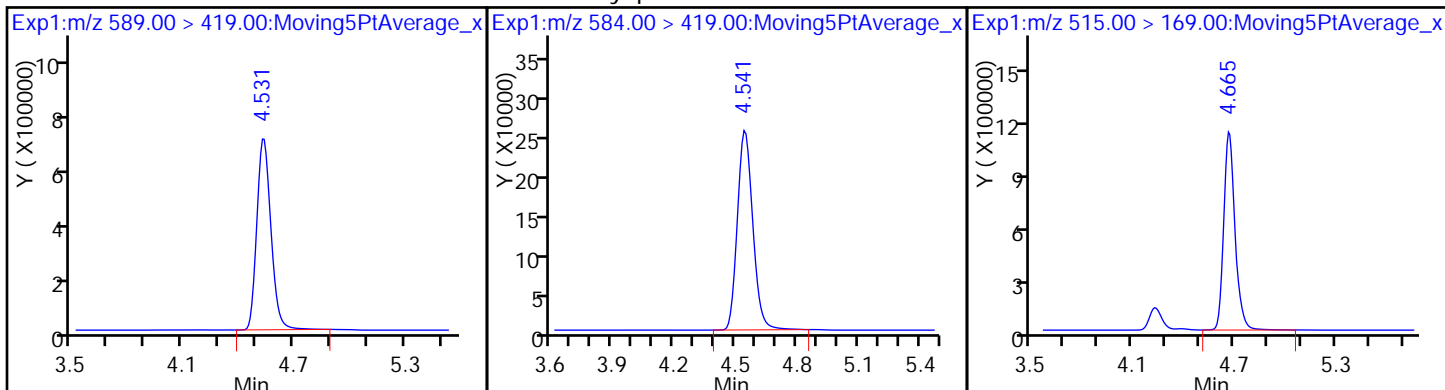
D 30 13C2 PFUnA



D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

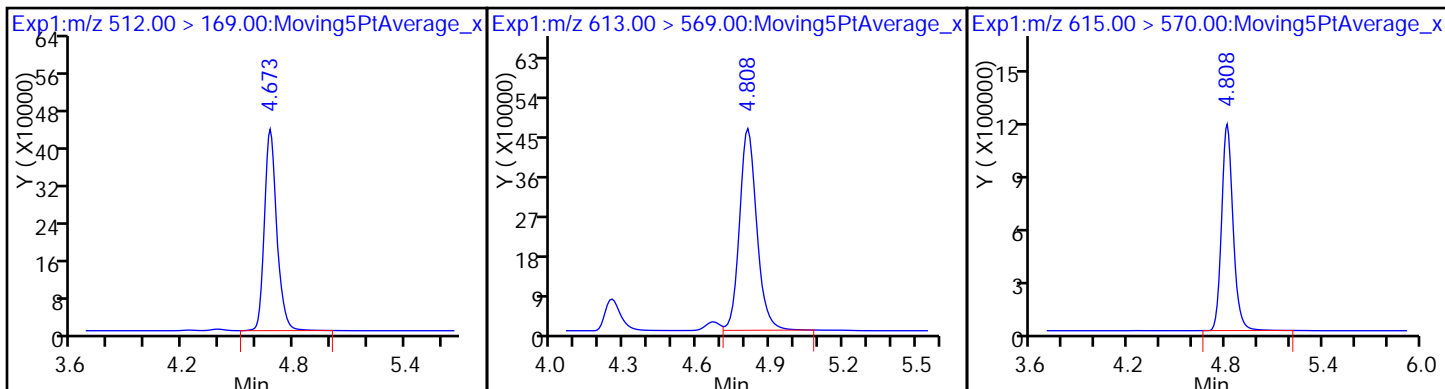
D 34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

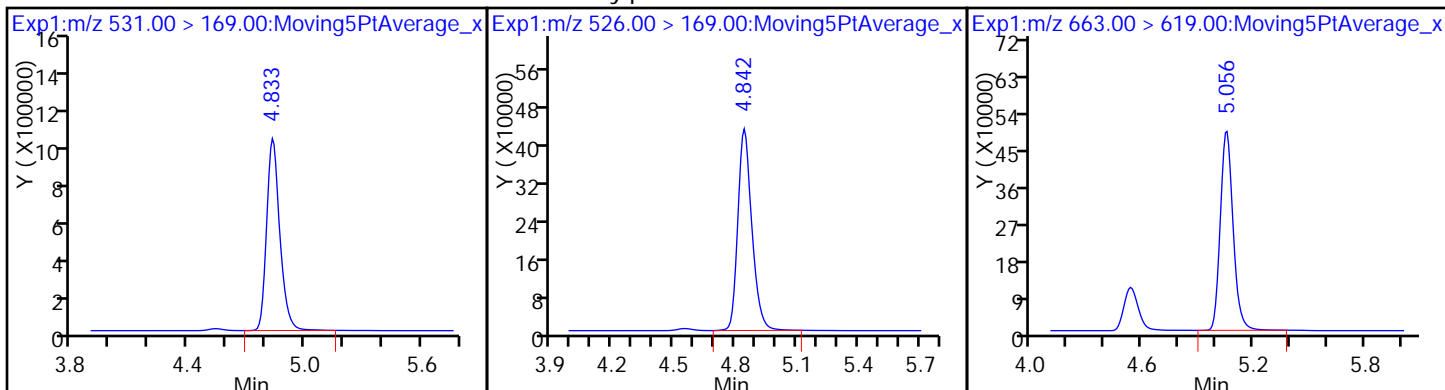
D 36 13C2 PFDaA



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

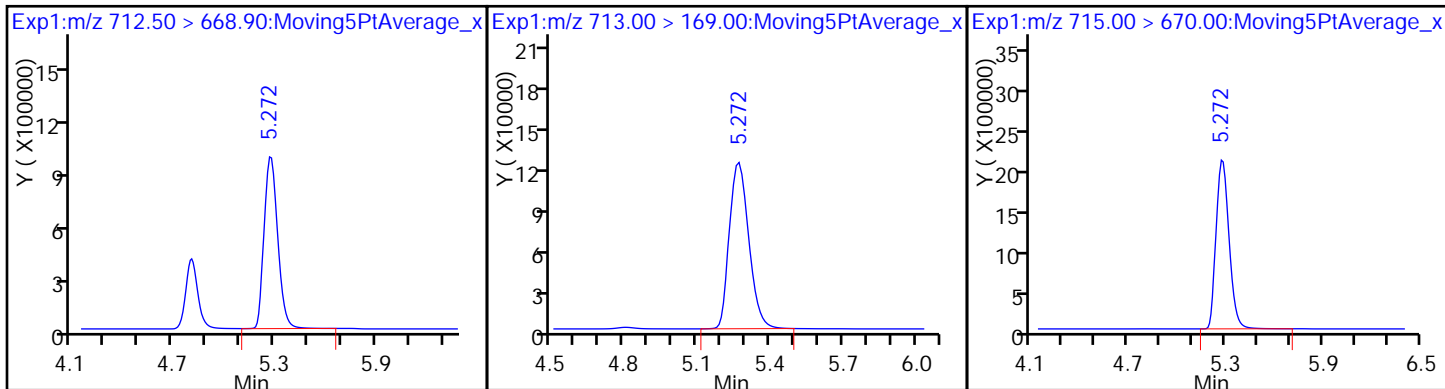
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

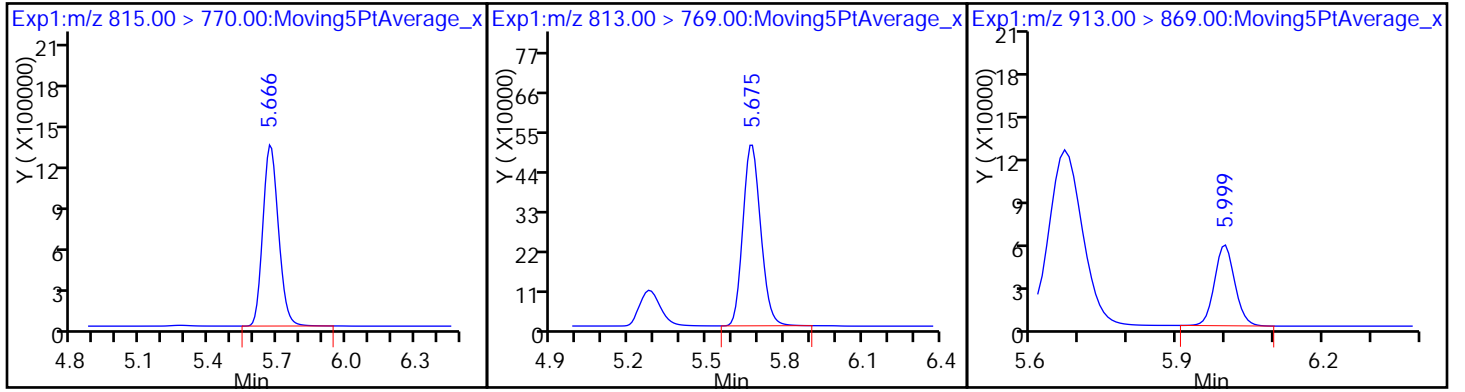
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_007.d
Lims ID: IC L5 Full

Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 19-May-2017 21:26:56 ALS Bottle#: 32 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L5-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub19

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 22-May-2017 10:52:28 Calib Date: 19-May-2017 21:49:23
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d

Column 1 : Det: EXP1
Process Host: XAWRK016

First Level Reviewer: westendorfc Date: 22-May-2017 08:56:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.993	1.996	-0.003	17733945	47.4		95.8	257757	
2 Perfluorobutyric acid	212.90 > 169.00	2.002	1.999	0.003	18239624	51.3		104	6078	
D 3 13C5-PFPeA	267.90 > 223.00	2.349	2.348	0.001	11810071	47.3		95.6	291183	
4 Perfluoropentanoic acid	262.90 > 219.00	2.349	2.350	-0.001	12941847	49.8		101	3409	
D 47 13C3-PFBS	301.90 > 83.00	2.389	2.386	0.003	293115	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.389	2.391	-0.002	22087169	46.7		107		
	298.90 > 99.00	2.389	2.391	-0.002	9387444		2.35(0.00-0.00)	107		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.681	2.677	0.004	4483594	43.1		93.2		
6 Perfluorohexanoic acid	313.00 > 269.00	2.730	2.724	0.006	12207004	48.8		98.7	22274	
D 7 13C2 PFHxA	315.00 > 270.00	2.730	2.724	0.006	12015190	47.9		96.7	421801	
D 9 13C4-PFHpA	367.00 > 322.00	3.120	3.118	0.002	10605430	47.6		96.2	31996	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.120	3.118	0.002	11449697	49.0		99.0	4118	
D 11 18O2 PFHxS	403.00 > 84.00	3.128	3.126	0.002	14481988	46.0		98.1	449743	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.128	3.126	0.002	16541881	43.7		97.1		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
D 12 M2-6:2FTS	429.00	> 409.00	3.490	3.488	0.002	6107146	50.1	107			
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.490	3.488	0.002	1.000	5662506	44.3	94.3		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.505	3.506	-0.001	1.000	14489237	47.4	100		
* 62 13C2-PFOA	415.00	> 370.00	3.513	3.507	0.006		10790654	49.5			
D 14 13C4 PFOA	417.00	> 372.00	3.513	3.510	0.003		11129581	49.2	99.4	41348	
15 Perfluorooctanoic acid	413.00	> 369.00	3.513	3.513	0.0	1.000	12480788	49.0	98.9	1257	
	413.00	> 169.00	3.513	3.513	0.0	1.000	7371435		1.69(0.90-1.10)	98.9	16955
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.874	3.860	0.014	1.000	12526640	46.5	101	10423	
	499.00	> 99.00	3.874	3.860	0.014	1.000	2737915		4.58(0.90-1.10)	101	10349
D 18 13C4 PFOS	503.00	> 80.00	3.874	3.874	0.0		11067188	46.6	98.6	18410	
D 19 13C5 PFNA	468.00	> 423.00	3.892	3.887	0.005		8654674	47.2	95.3	35956	
20 Perfluorononanoic acid	463.00	> 419.00	3.892	3.887	0.005	1.000	9553483	50.3	102	12691	
D 21 13C8 FOSA	506.00	> 78.00	4.212	4.210	0.002		18427082	49.9	101	72369	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.212	4.212	0.0	1.000	19199709	48.1	97.3	30783	
D 26 M2-8:2FTS	529.00	> 509.00	4.231	4.228	0.003		4568174	44.7	94.3		
D 23 13C2 PFDA	515.00	> 470.00	4.231	4.229	0.002		7369011	46.8	94.6	10583	
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.231	4.229	0.002	1.000	4670406	48.6	102		
24 Perfluorodecanoic acid	513.00	> 469.00	4.231	4.231	0.0	1.000	7553966	50.1	101	8516	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.385	4.382	0.003		3463630	49.0	98.9		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.385	4.387	-0.002	1.000	3490209	48.9	98.8		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.509	4.509	0.0	1.000	7789097	50.0	105		
D 30 13C2 PFUnA	565.00	> 520.00	4.538	4.536	0.002		5635967	48.7	98.4	32271	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.538	4.536	0.002	1.000	6304520	47.4	95.8	6511	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.538	4.538	0.0		3492725	50.2	101		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.548	4.544	0.004	1.002	3191104	47.4	95.7		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.669	4.671	-0.002	5257751	50.3	102		
35 MeFOSA	512.00	> 169.00	4.669	4.673	-0.004	1.000	4984144	48.2	97.5	
D 36 13C2 PFDaA	615.00	> 570.00	4.812	4.808	0.004	5634528	48.2	97.4	9749	
37 Perfluorododecanoic acid	613.00	> 569.00	4.812	4.808	0.004	1.000	5673834	48.9	98.8	432
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.837	4.837	0.0	4938709	49.7	100		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.845	4.843	0.002	1.000	4950967	49.0	98.9	
41 Perfluorotridecanoic acid	663.00	> 619.00	5.057	5.054	0.003	1.000	5406884	48.2	97.3	288
D 43 13C2-PFTeDA	715.00	> 670.00	5.270	5.274	-0.004	11683199	51.0	103	17973	
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.270	5.274	-0.004	1.000	12731663	50.4	102	151
	713.00	> 169.00	5.270	5.274	-0.004	1.000	1569571	8.11(0.00-0.00)	102	4006
D 44 13C2-PFHxDA	815.00	> 770.00	5.667	5.670	-0.003	6489345	50.7	102	3682	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.667	5.671	-0.004	1.000	6147381	52.0	105	305
46 Perfluorooctadecanoic acid	913.00	> 869.00	6.000	5.997	0.003	1.000	426770	50.0	101	34.3

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L5_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_007.d

Injection Date: 19-May-2017 21:26:56

Instrument ID: A8_N

Lims ID: IC L5 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

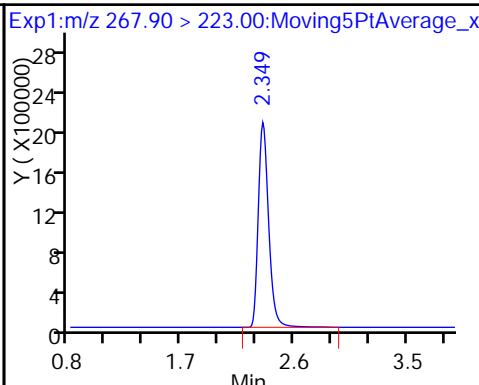
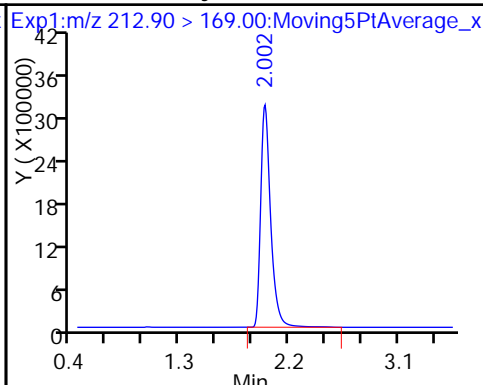
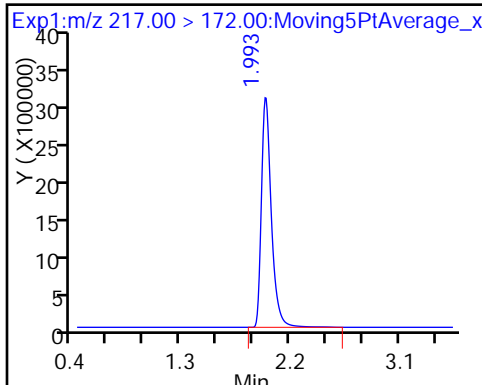
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

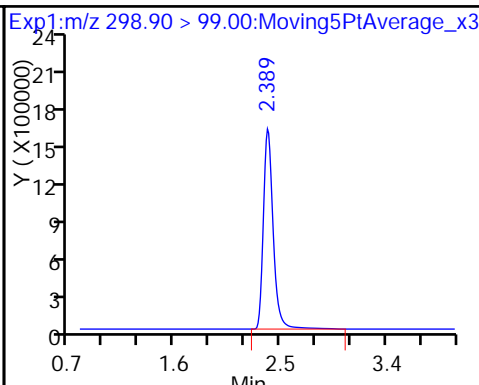
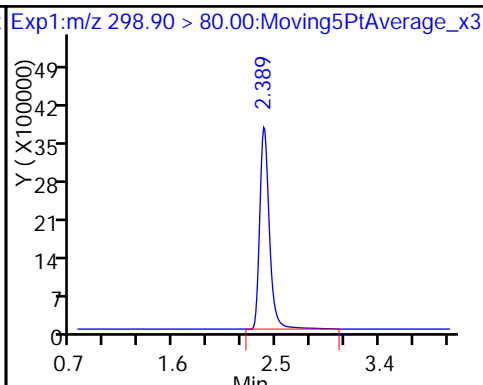
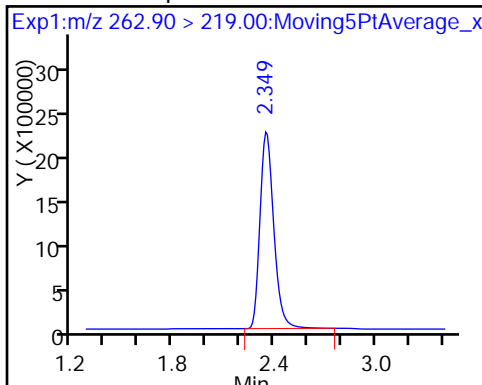
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

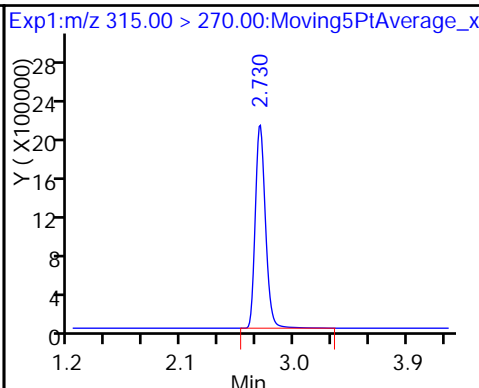
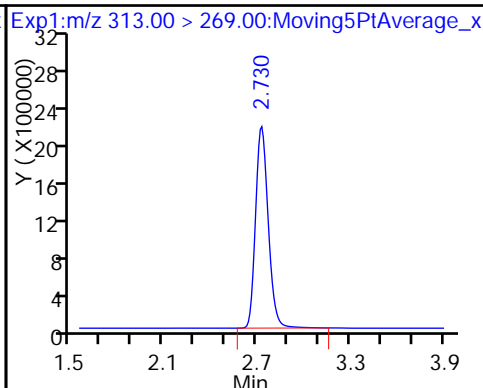
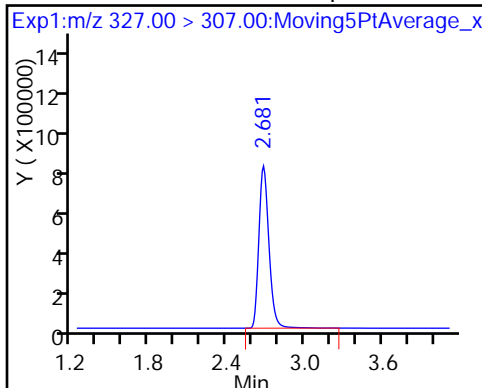
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoate

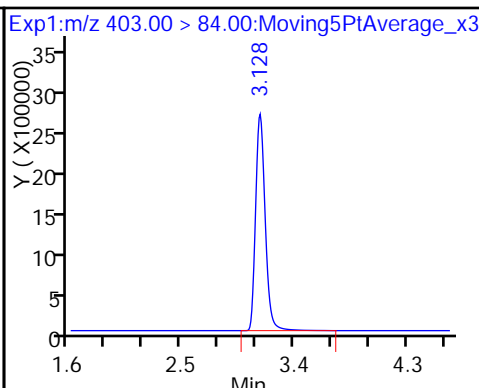
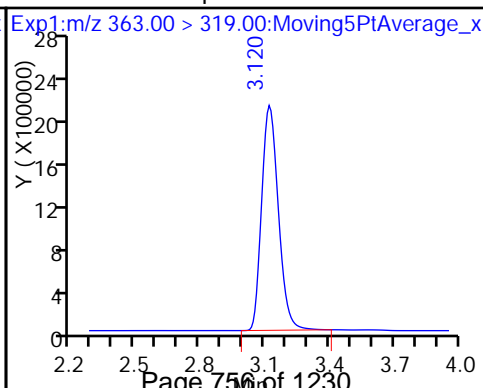
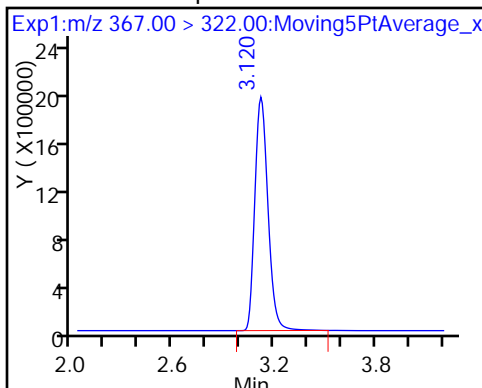
D 7 13C2 PFHxA



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

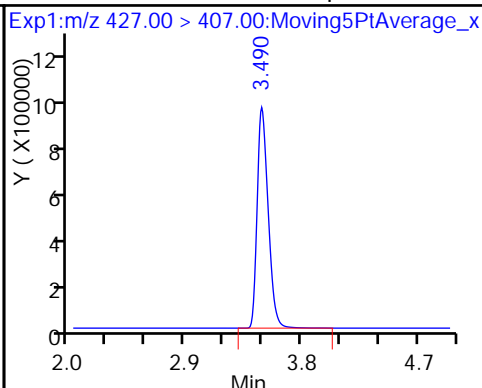
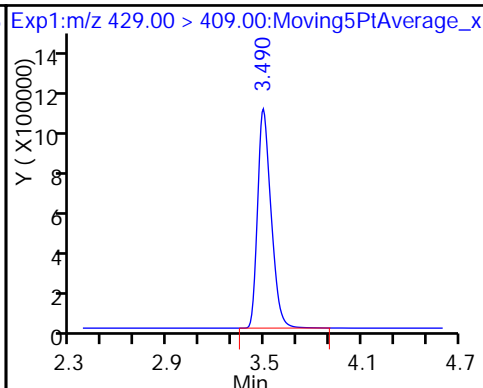
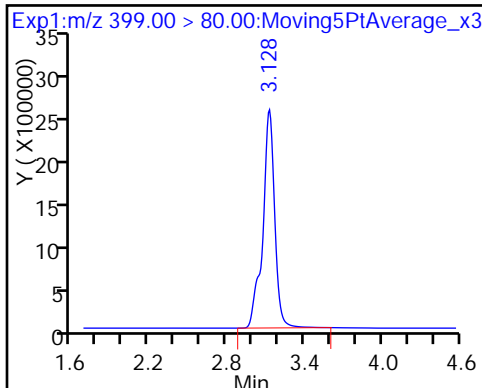
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

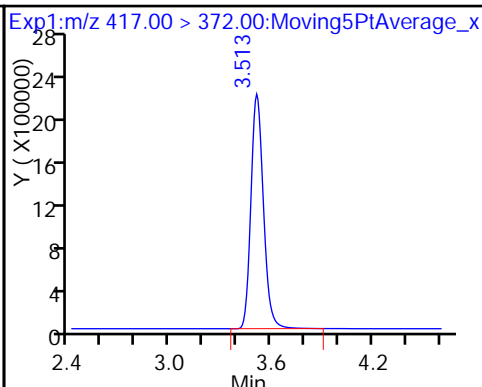
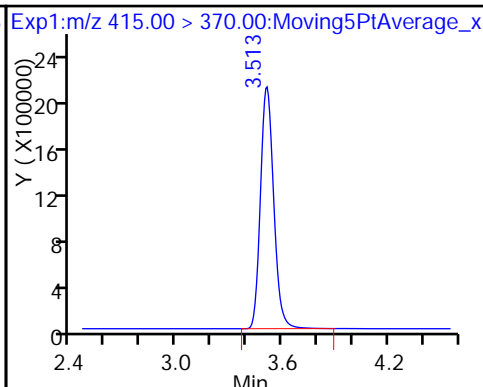
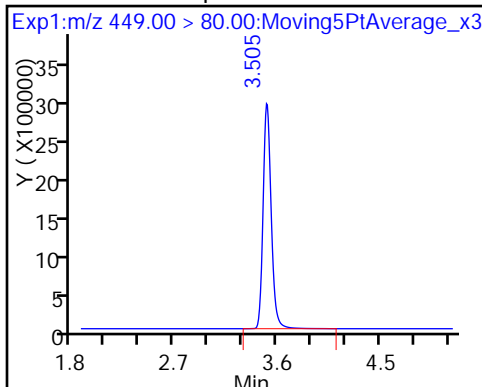
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

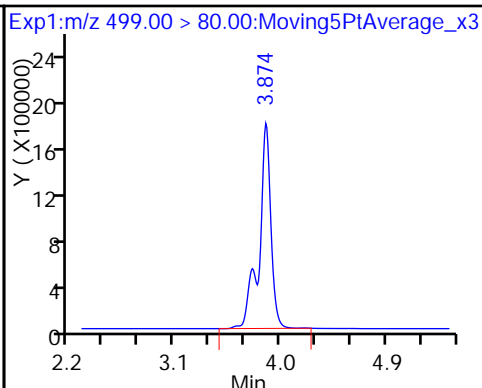
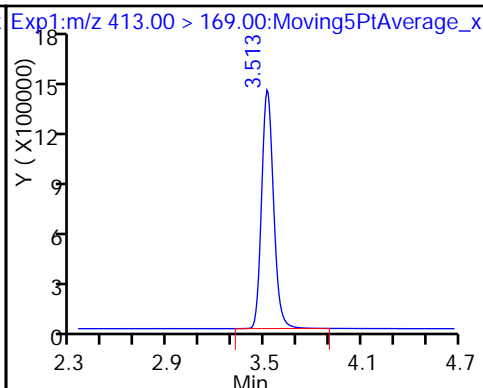
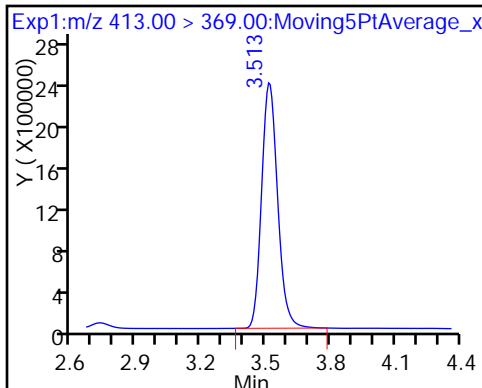
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

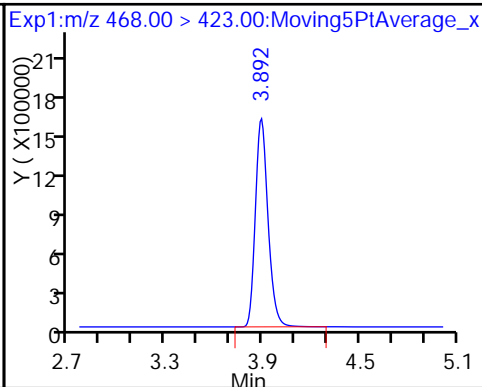
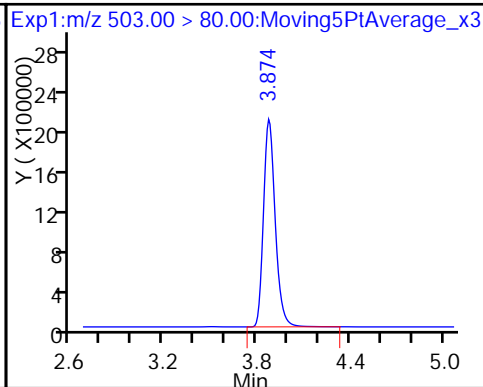
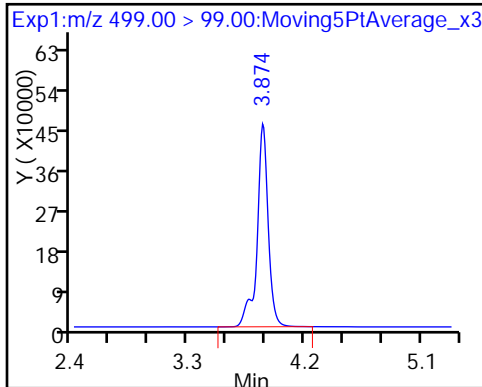
17 Perfluorooctane sulfonic acid

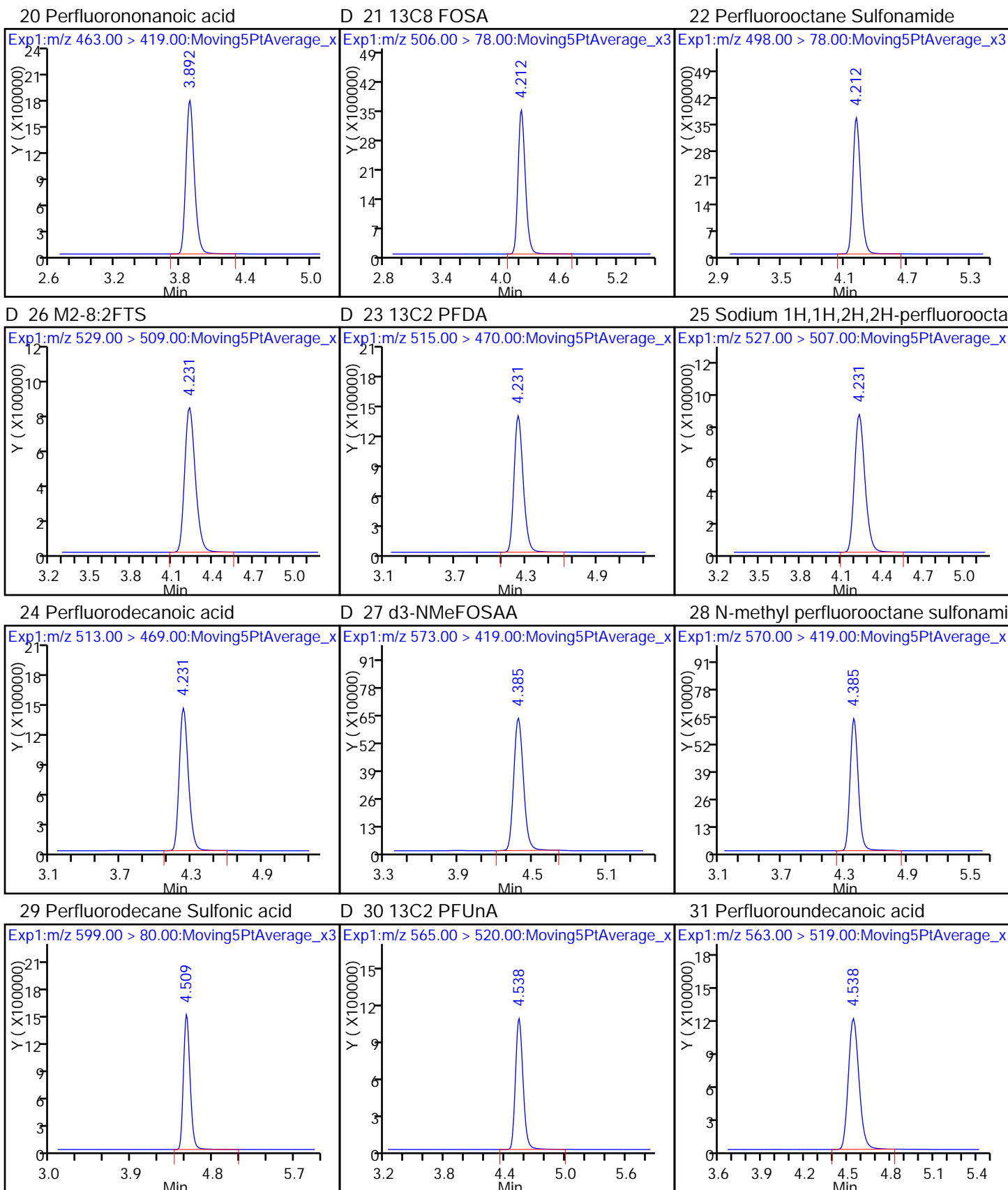


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

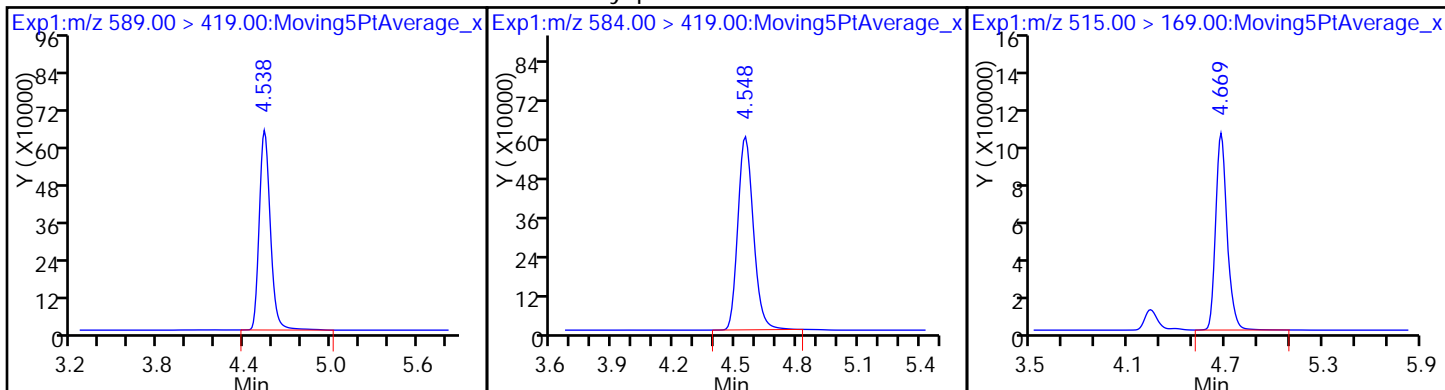




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

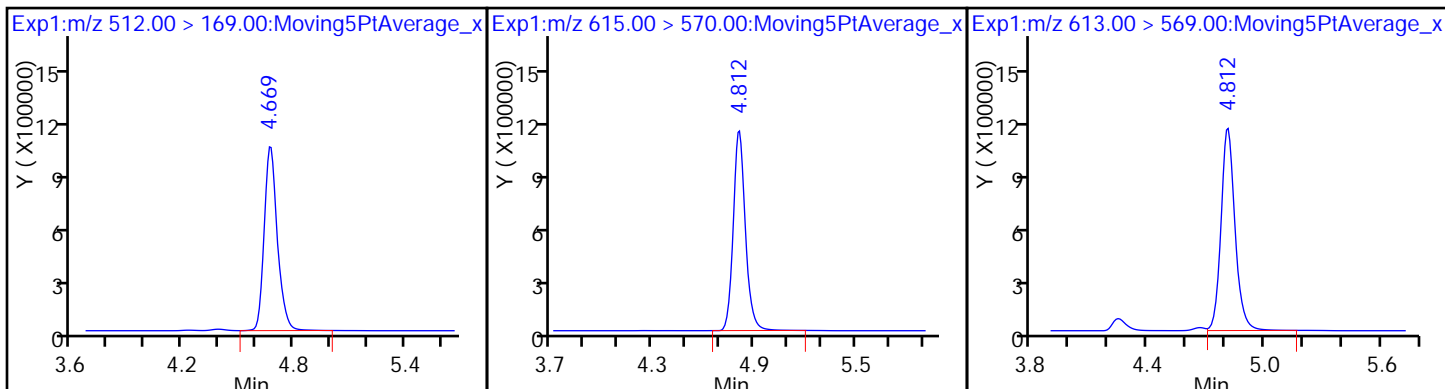
D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

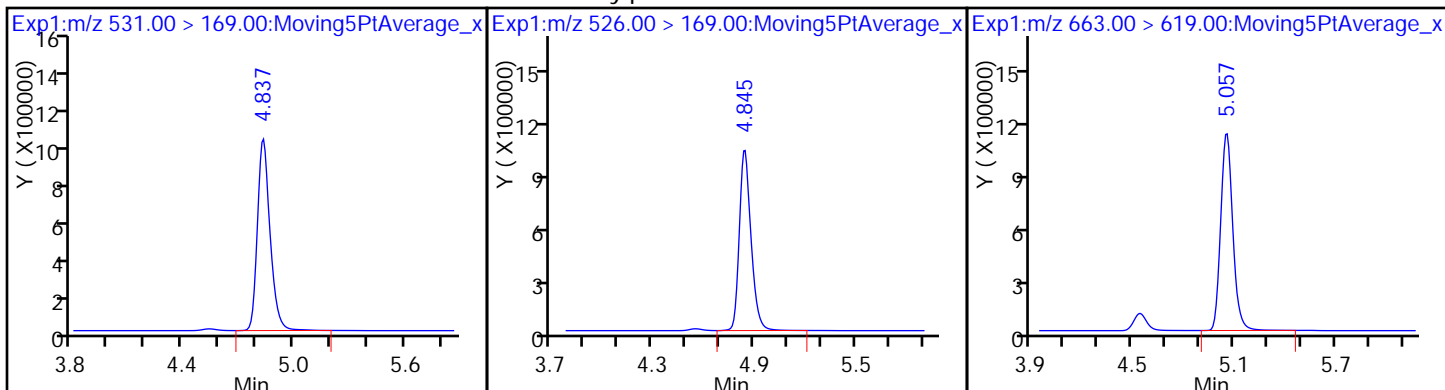
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

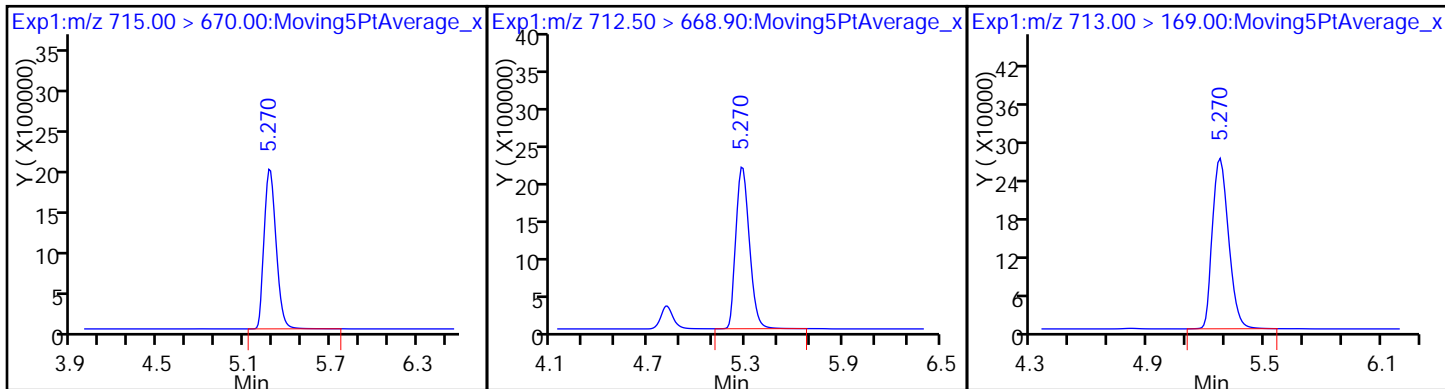
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

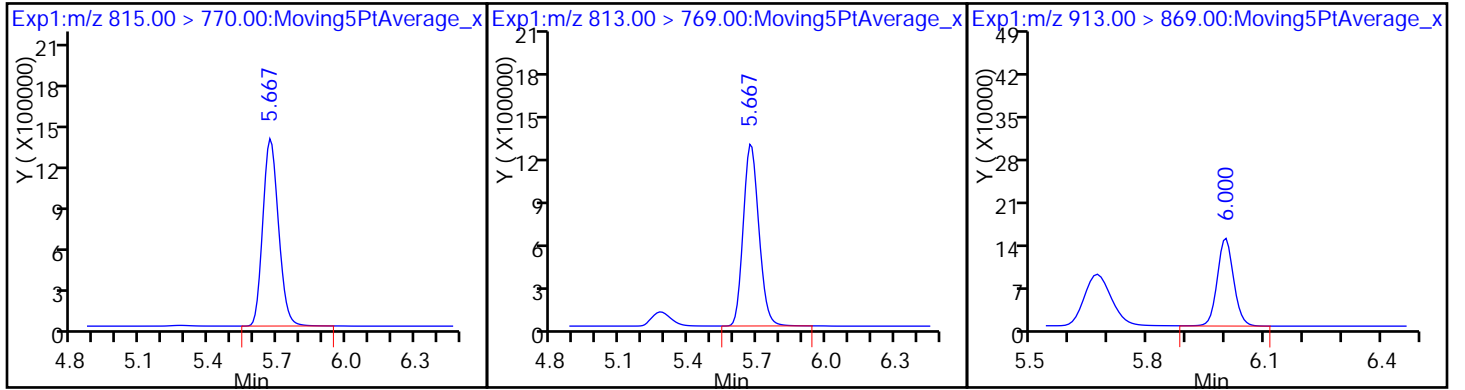
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_008.d
 Lims ID: IC L6 Full
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 19-May-2017 21:34:25 ALS Bottle#: 33 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L6-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 10:52:35 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.001	1.996	0.005	17040870	45.6		92.1	33437	
2 Perfluorobutyric acid	212.90 > 169.00	2.001	1.999	0.002	32380396	94.7		95.7	9524	
D 3 13C5-PFPeA	267.90 > 223.00	2.348	2.348	0.0	11294954	45.3		91.4	22843	
4 Perfluoropentanoic acid	262.90 > 219.00	2.348	2.350	-0.002	23777570	95.6		96.6	5873	
D 47 13C3-PFBS	301.90 > 83.00	2.388	2.386	0.002	292028	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.398	2.391	0.007	36760115	84.3		96.4		
	298.90 > 99.00	2.388	2.391	-0.003	16361976		2.25(0.00-0.00)	96.4		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.676	2.677	-0.001	8104402	95.0		103		
D 7 13C2 PFHxA	315.00 > 270.00	2.725	2.724	0.001	11302098	45.0		90.9	85467	
6 Perfluorohexanoic acid	313.00 > 269.00	2.725	2.724	0.001	22491456	95.7		96.6	38867	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.126	3.118	0.008	20894109	95.4		96.3	10432	
D 9 13C4-PFHpA	367.00 > 322.00	3.126	3.118	0.008	9946404	44.6		90.2	29872	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.126	3.126	0.0	31011685	89.0		98.7		
D 11 18O2 PFHxS	403.00 > 84.00	3.126	3.126	0.0	13345525	42.3		90.4	38409	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.491	3.488	0.003	8984010	85.7		91.3		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS										
429.00 > 409.00	3.491	3.488	0.003		5006310	41.1		87.4		
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.513	3.506	0.007	1.000	26230774	86.3		91.6		
* 62 13C2-PFOA										
415.00 > 370.00	3.513	3.507	0.006		9626444	49.5				
D 14 13C4 PFOA										
417.00 > 372.00	3.513	3.510	0.003		9675393	42.8		86.4	38096	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.520	3.513	0.007	1.000	21321620	96.2		97.2	2041	
413.00 > 169.00	3.513	3.513	0.0	0.998	12239305		1.74(0.90-1.10)	97.2	16111	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.829	3.860	-0.031	1.000	23804841	88.9		96.7	1531	
499.00 > 99.00	3.883	3.860	0.023	1.014	5256931		4.53(0.90-1.10)	96.7	8828	
D 18 13C4 PFOS										
503.00 > 80.00	3.883	3.874	0.009		10995027	46.3		97.9	8843	
20 Perfluorononanoic acid										
463.00 > 419.00	3.892	3.887	0.005	1.000	16940969	94.2		95.1	11202	
D 19 13C5 PFNA										
468.00 > 423.00	3.892	3.887	0.005		8198800	44.7		90.3	18811	
D 21 13C8 FOSA										
506.00 > 78.00	4.218	4.210	0.008		16885401	45.7		92.4	18547	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	4.218	4.212	0.006	1.000	33560326	91.8		92.8	19022	
D 26 M2-8:2FTS										
529.00 > 509.00	4.237	4.228	0.009		4473106	43.8		92.3		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	4.237	4.229	0.008	1.000	8266156	87.8		92.6		
D 23 13C2 PFDA										
515.00 > 470.00	4.237	4.229	0.008		7132319	45.3		91.5	7632	
24 Perfluorodecanoic acid										
513.00 > 469.00	4.237	4.231	0.006	1.000	14047898	96.3		97.2	13246	
D 27 d3-NMeFOSAA										
573.00 > 419.00	4.392	4.382	0.010		3511047	49.6		100		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	4.392	4.387	0.005	1.000	6765893	93.5		94.5		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.517	4.509	0.008	1.000	14029908	90.6		94.9		
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.546	4.536	0.010	1.000	11333073	94.5		95.5	14306	
D 30 13C2 PFUnA										
565.00 > 520.00	4.546	4.536	0.010		5083512	44.0		88.8	27031	
D 32 d5-NEtFOSAA										
589.00 > 419.00	4.546	4.538	0.008		3186829	45.8		92.5		
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	4.555	4.544	0.011	1.002	6210495	101.0		102		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.679	4.671	0.008		5232878	50.1		101		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.679	4.673	0.006	1.000	10196709	99.2	100		
37 Perfluorododecanoic acid	613.00 > 569.00	4.816	4.808	0.008	1.000	10657322	95.8	96.8	809	
D 36 13C2 PFDaA	615.00 > 570.00	4.816	4.808	0.008		5402762	46.3	93.4	9555	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.842	4.837	0.005		4912874	49.4	99.8		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.851	4.843	0.008	1.000	9893054	98.4	99.4		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.062	5.054	0.008	1.000	10576044	98.3	99.3	678	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.282	5.274	0.008	1.000	22722640	93.8	94.8	259	
	713.00 > 169.00	5.282	5.274	0.008	1.000	3163821		7.18(0.00-0.00)	94.8	4965
D 43 13C2-PFTeDA	715.00 > 670.00	5.282	5.274	0.008		10645823	46.5	93.9	6646	
D 44 13C2-PFHxDA	815.00 > 770.00	5.680	5.670	0.010		6414148	50.1	101	3933	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.680	5.671	0.009	1.000	11630860	103.3	104	515	
46 Perfluorooctadecanoic acid	913.00 > 869.00	6.001	5.997	0.004	1.000	295628	35.9	36.2	20.6	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L6_00003

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_008.d

Injection Date: 19-May-2017 21:34:25

Instrument ID: A8_N

Lims ID: IC L6 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

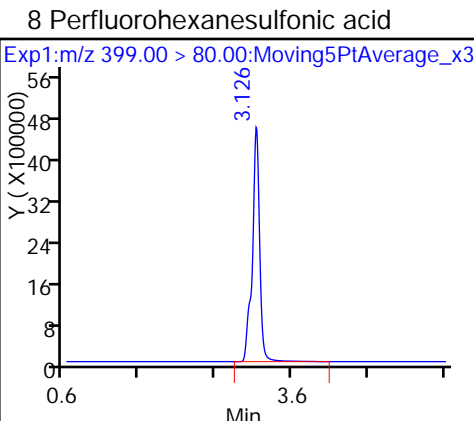
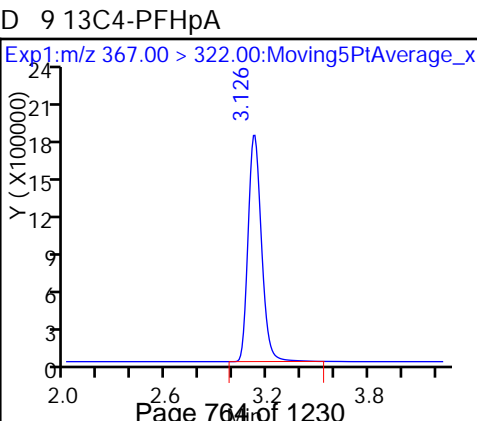
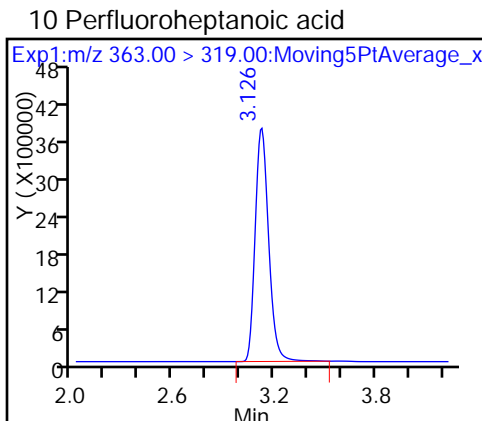
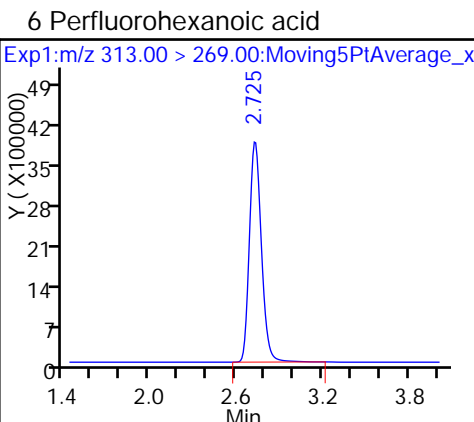
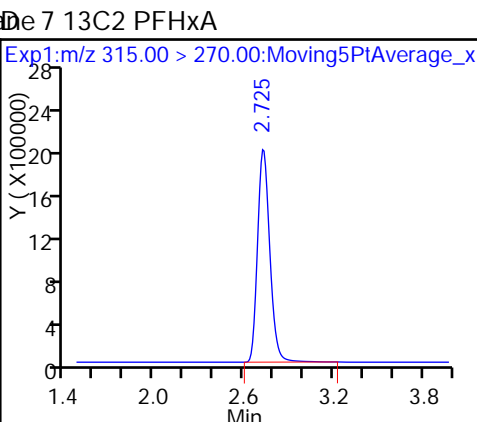
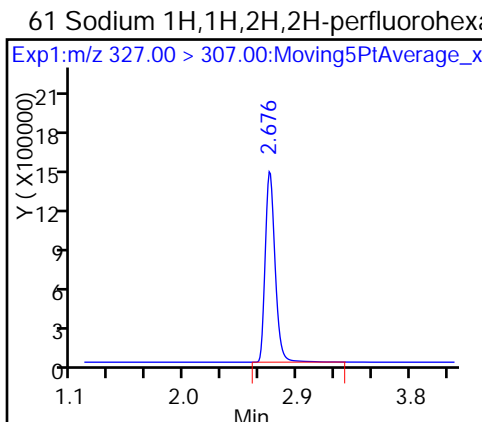
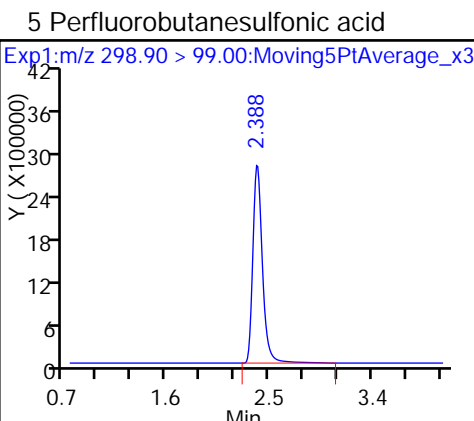
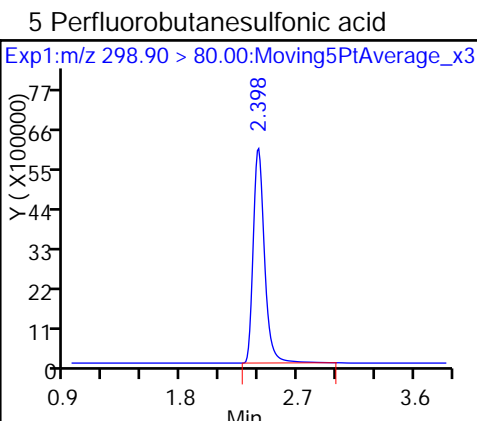
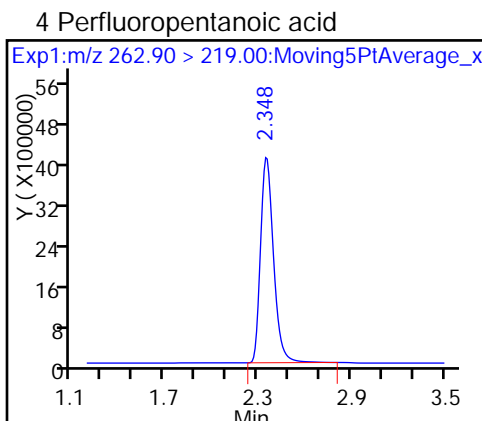
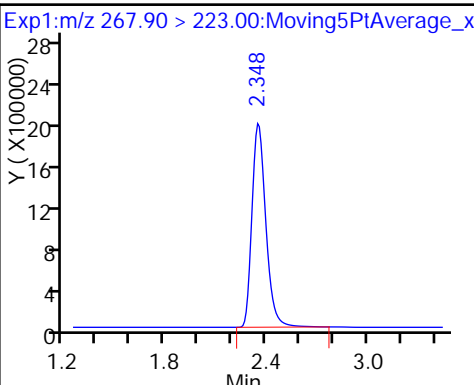
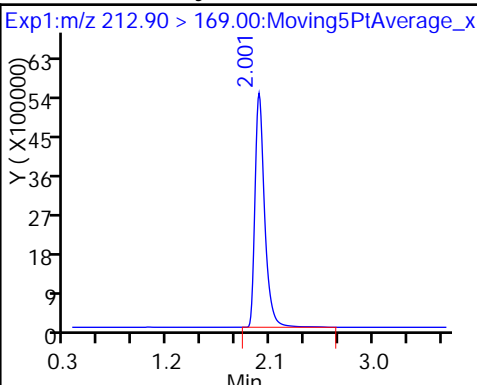
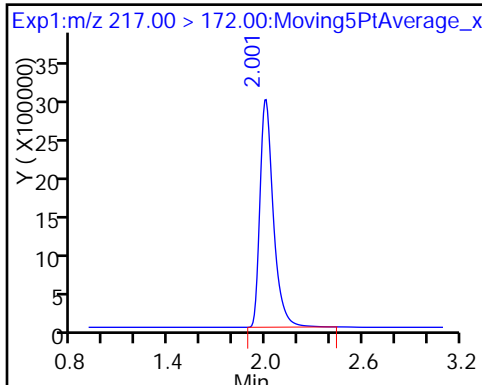
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

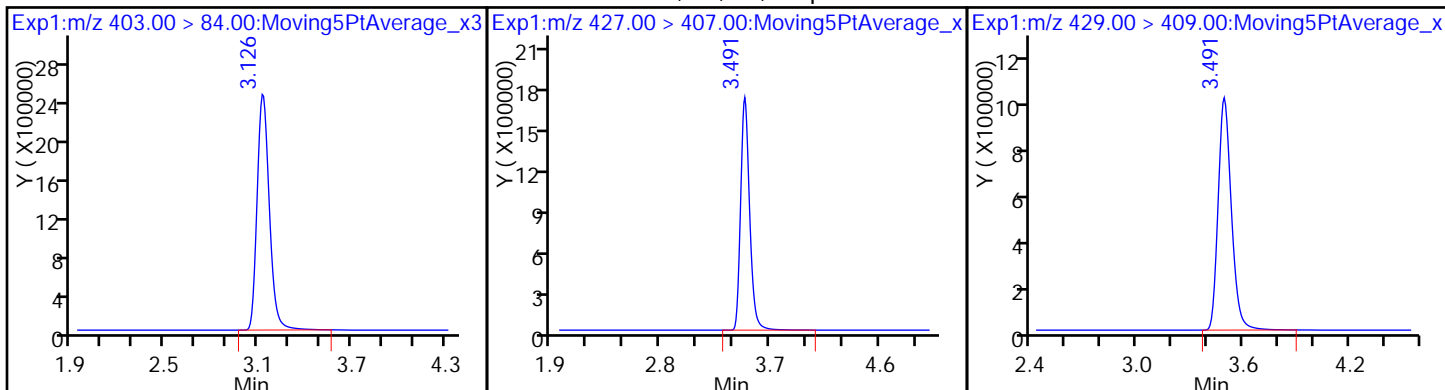
D 3 13C5-PFPeA



D 11 18O2 PFHxS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

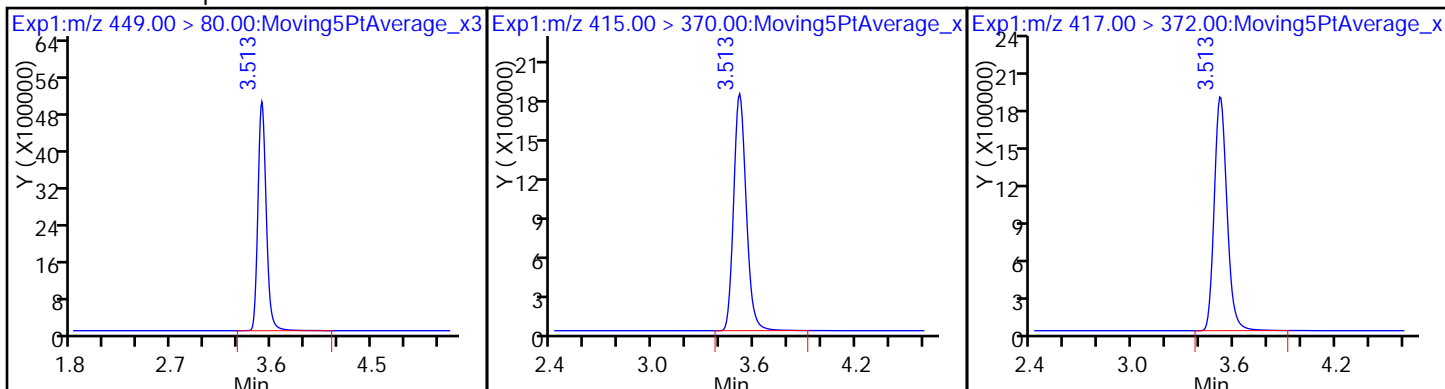
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

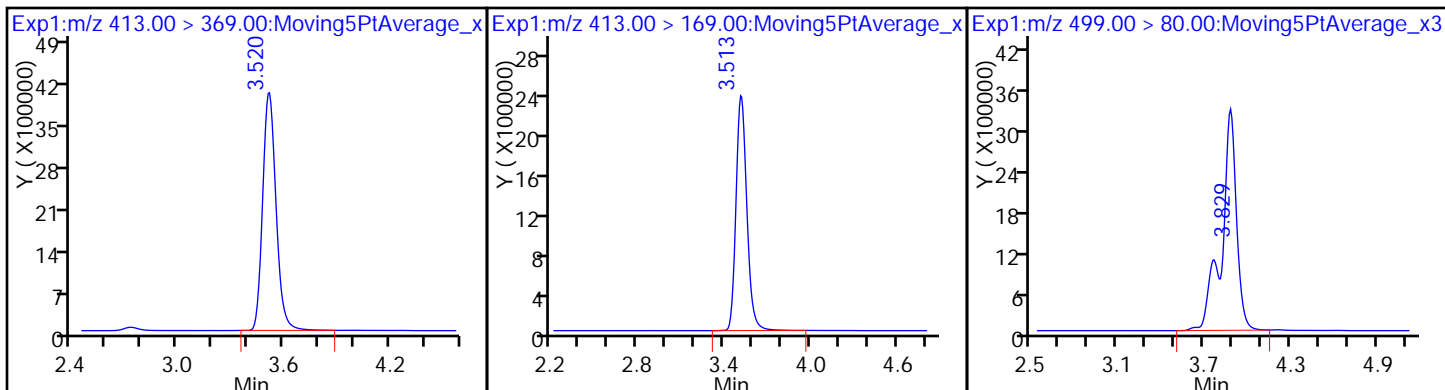
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

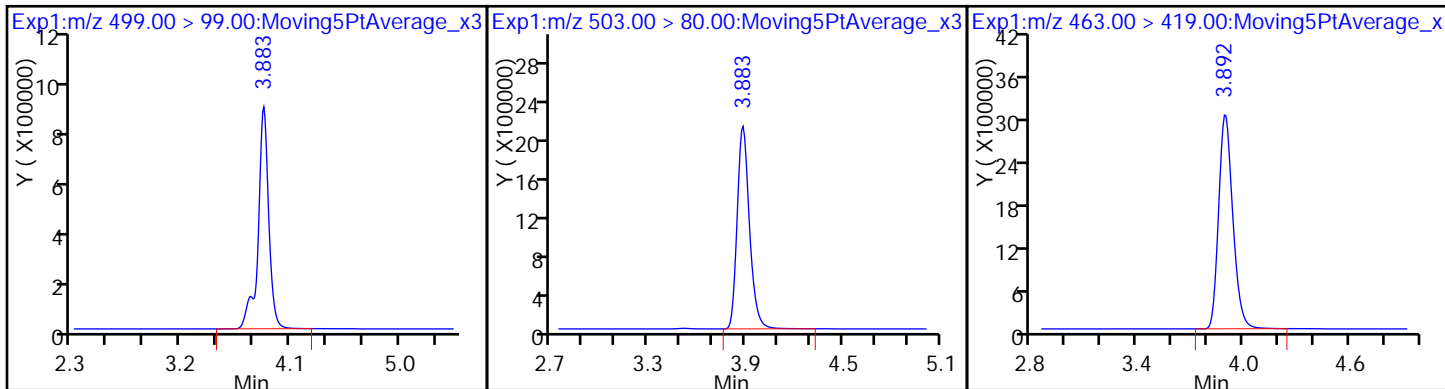
17 Perfluorooctane sulfonic acid



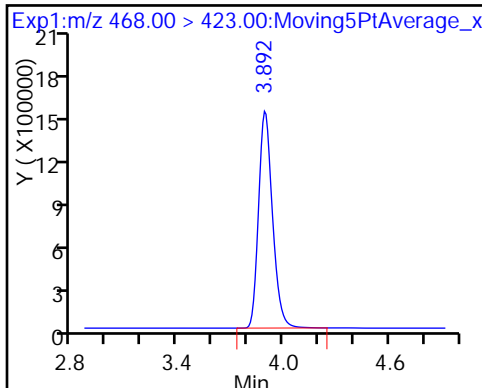
17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

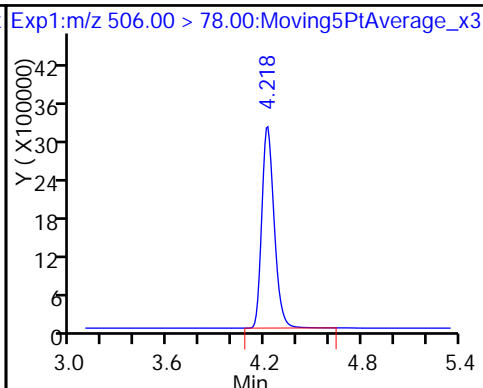
20 Perfluorononanoic acid



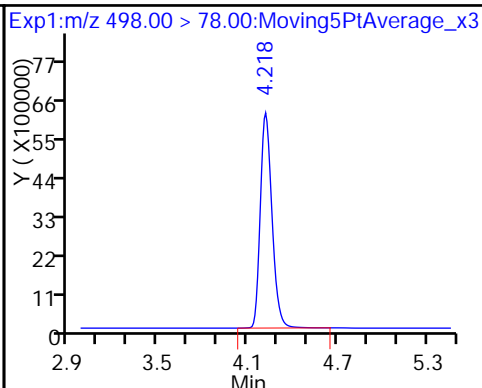
D 19 13C5 PFNA



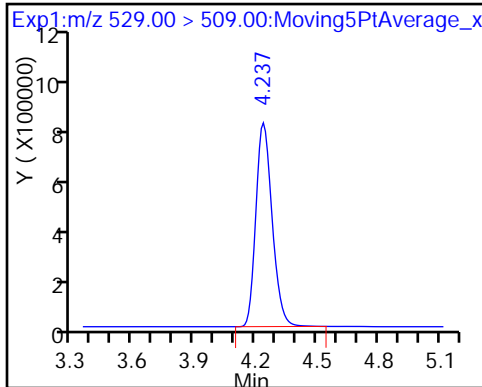
D 21 13C8 FOSA



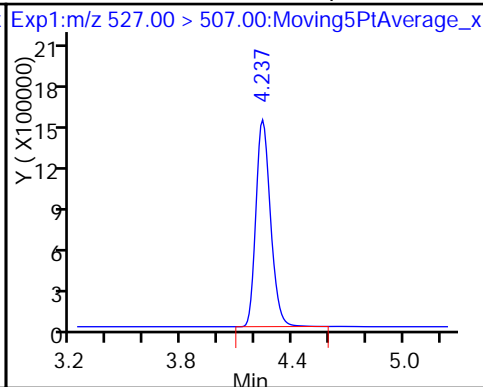
22 Perfluorooctane Sulfonamide



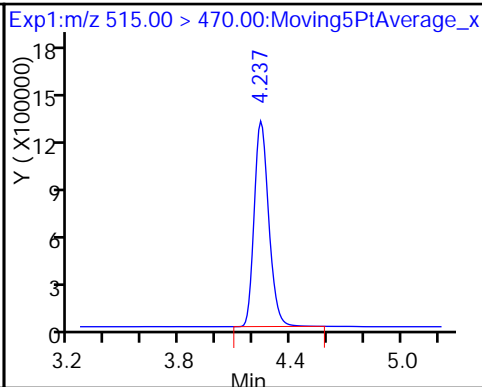
D 26 M2-8:2FTS



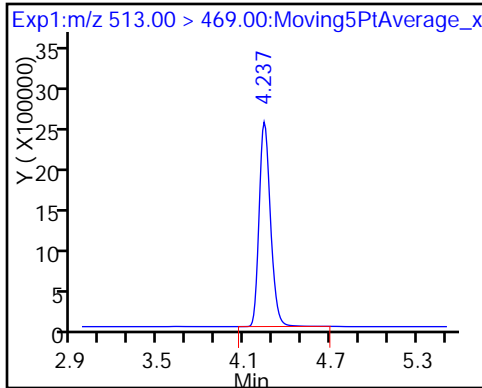
25 Sodium 1H,1H,2H,2H-perfluorooctane



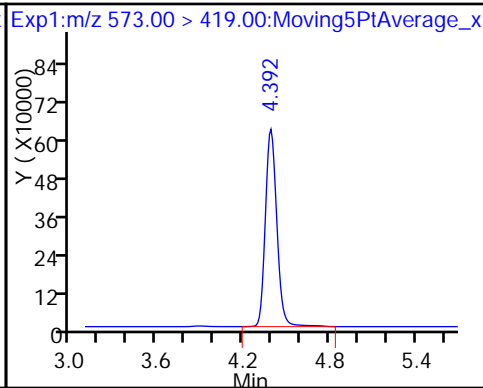
D 23 13C2 PFDA



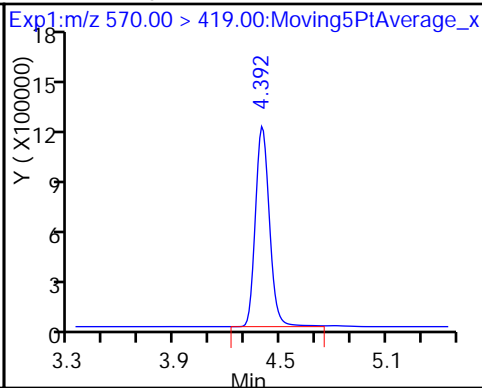
24 Perfluorodecanoic acid



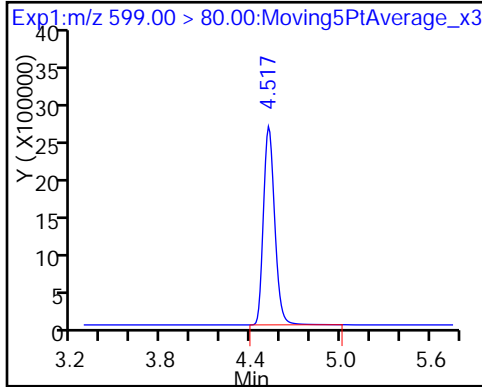
D 27 d3-NMeFOSAA



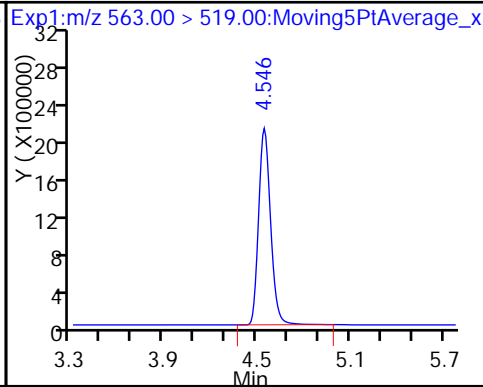
28 N-methyl perfluorooctane sulfonami



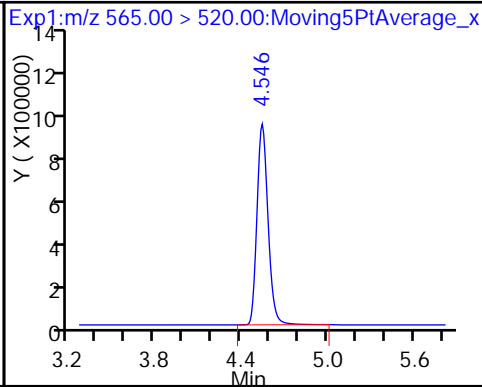
29 Perfluorodecane Sulfonic acid



31 Perfluoroundecanoic acid



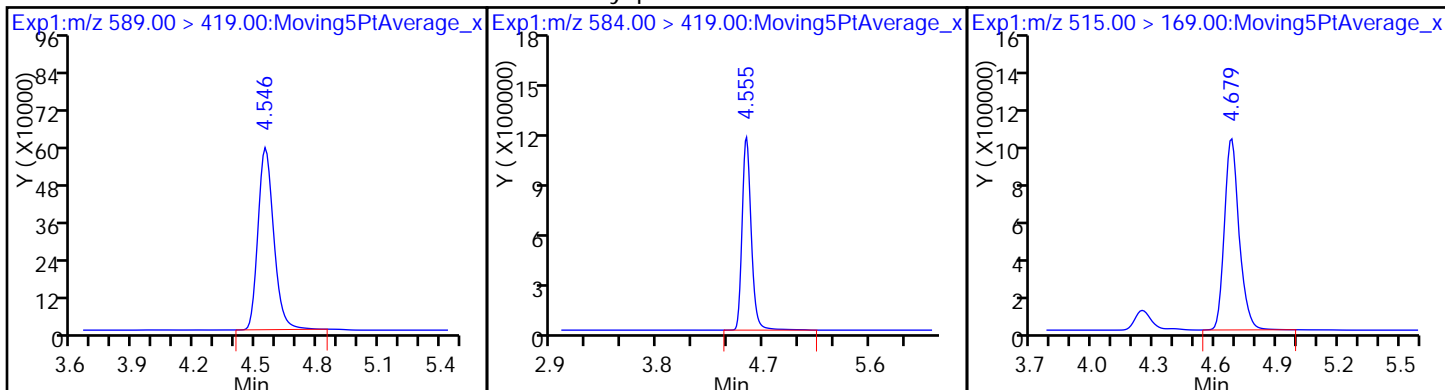
D 30 13C2 PFUnA



D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

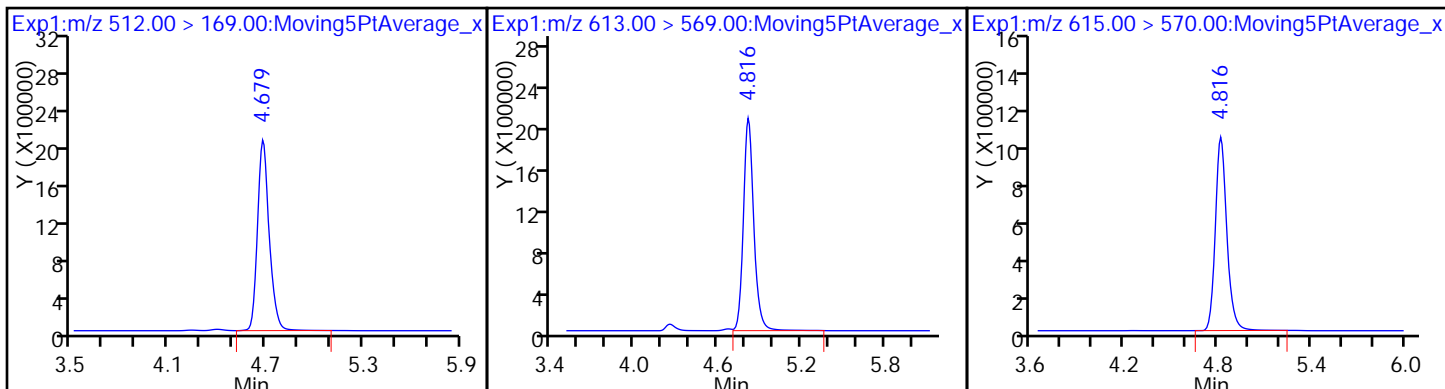
D 34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

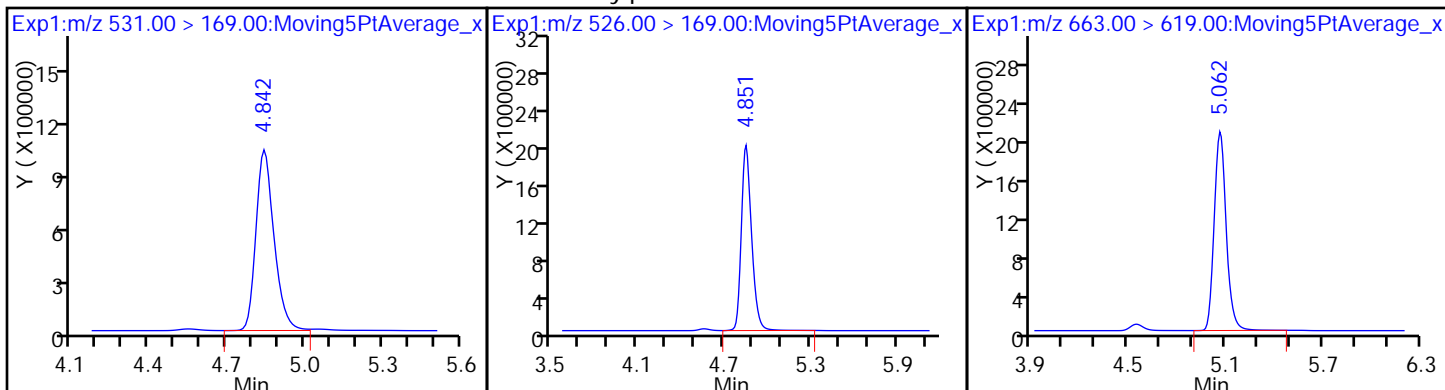
D 36 13C2 PFDaA



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

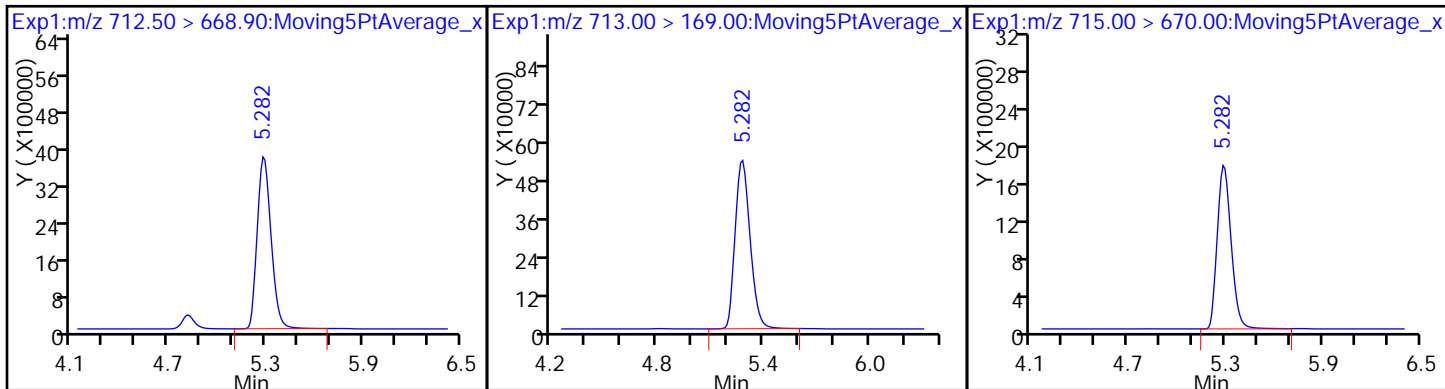
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

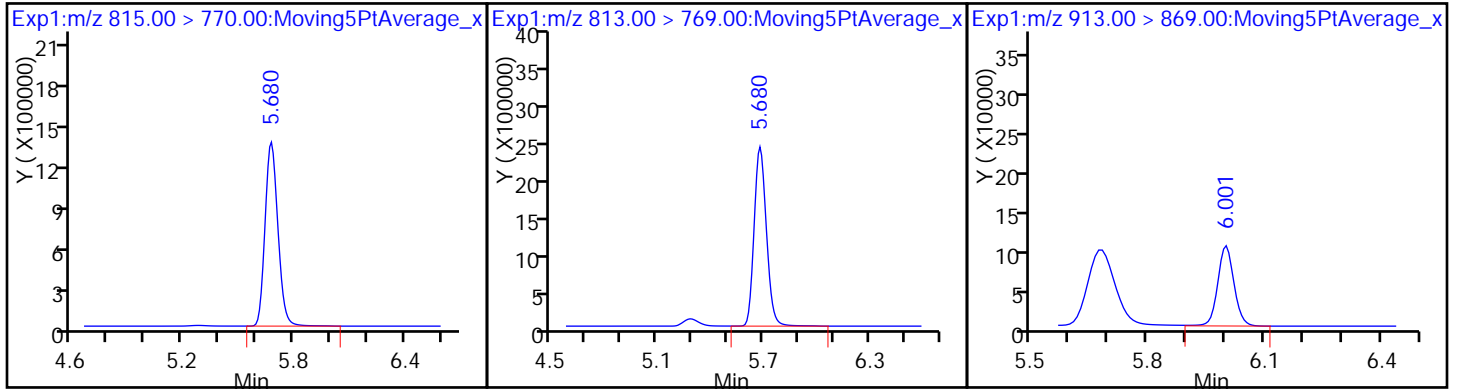
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_009.d
 Lims ID: IC L7 Full
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 19-May-2017 21:41:53 ALS Bottle#: 34 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L7-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 10:52:40 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.001	1.996	0.005	16588160	44.4		89.6	22181	
2 Perfluorobutyric acid	212.90 > 169.00	2.001	1.999	0.002	52280174	157.1		79.3	8882	
D 3 13C5-PFPeA	267.90 > 223.00	2.348	2.348	0.0	10383407	41.6		84.0	21537	
4 Perfluoropentanoic acid	262.90 > 219.00	2.358	2.350	0.008	38710028	169.3		85.5	13517	
D 47 13C3-PFBS	301.90 > 83.00	2.388	2.386	0.002	273236	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.398	2.391	0.007	57048130	138.4		79.1		
	298.90 > 99.00	2.398	2.391	0.007	28491062		2.00(0.00-0.00)	79.1		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.681	2.677	0.004	15250713	189.4		102		
6 Perfluorohexanoic acid	313.00 > 269.00	2.730	2.724	0.006	36861165	169.6		85.6	19731	
D 7 13C2 PFHxA	315.00 > 270.00	2.730	2.724	0.006	10448809	41.6		84.1	25836	
D 9 13C4-PFHpA	367.00 > 322.00	3.123	3.118	0.005	8712874	39.1		79.0	28831	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.123	3.118	0.005	33314862	173.6		87.7	12681	
D 11 18O2 PFHxS	403.00 > 84.00	3.132	3.126	0.006	12617635	40.0		85.5	32075	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.132	3.126	0.006	50094915	152.0		84.4		
D 12 M2-6:2FTS	429.00 > 409.00	3.490	3.488	0.002	4725636	38.8		82.5		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.490	3.488	0.002	1.000	15977858	161.4	86.0		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.513	3.506	0.007	1.000	41864067	159.8	84.8		
* 62 13C2-PFOA	415.00	> 370.00	3.513	3.507	0.006		8230828	49.5			
D 14 13C4 PFOA	417.00	> 372.00	3.513	3.510	0.003		8449990	37.4	75.5	34442	
15 Perfluorooctanoic acid	413.00	> 369.00	3.520	3.513	0.007	1.000	33456363	172.9	87.3	3149	
	413.00	> 169.00	3.520	3.513	0.007	1.000	20583947		1.63(0.90-1.10)	87.3	20597
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.875	3.860	0.015	1.000	41378858	179.2	97.5	27799	
	499.00	> 99.00	3.875	3.860	0.015	1.000	9607826		4.31(0.90-1.10)	97.5	14372
D 18 13C4 PFOS	503.00	> 80.00	3.875	3.874	0.001		9477225	39.9	84.4	4954	
D 19 13C5 PFNA	468.00	> 423.00	3.892	3.887	0.005		7241010	39.5	79.7	25904	
20 Perfluorononanoic acid	463.00	> 419.00	3.892	3.887	0.005	1.000	27914412	175.7	88.7	13513	
D 21 13C8 FOSA	506.00	> 78.00	4.211	4.210	0.001		15078518	40.8	82.5	14585	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.211	4.212	-0.001	1.000	50826558	155.8	78.7	18311	
D 26 M2-8:2FTS	529.00	> 509.00	4.229	4.228	0.001		4329042	42.4	89.4		
D 23 13C2 PFDA	515.00	> 470.00	4.240	4.229	0.011		6234340	39.6	80.0	6895	
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.240	4.229	0.011	1.002	14946131	164.1	86.5		
24 Perfluorodecanoic acid	513.00	> 469.00	4.240	4.231	0.009	1.000	23091858	181.0	91.4	20122	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.385	4.382	0.003		3335618	47.2	95.3		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.395	4.387	0.008	1.002	13284315	193.3	97.6		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.510	4.509	0.001	1.000	23624738	176.9	92.7		
D 30 13C2 PFUnA	565.00	> 520.00	4.539	4.536	0.003		4494787	38.9	78.5	8580	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.539	4.536	0.003	1.000	18699831	176.4	89.1	43550	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.549	4.538	0.011		2841057	40.8	82.4		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.549	4.544	0.005	1.000	11501550	209.9	106		
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.674	4.671	0.003		4927929	47.2	95.3		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.674	4.673	0.001	1.000	19673688	203.2	103		
D 36 13C2 PFDaA	615.00 > 570.00	4.811	4.808	0.003		5196043	44.5	89.9	12957	
37 Perfluorododecanoic acid	613.00 > 569.00	4.811	4.808	0.003	1.000	18516997	173.1	87.4	1784	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.838	4.837	0.001		4753052	47.8	96.6		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.847	4.843	0.004	1.000	19678368	202.3	102		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.058	5.054	0.004	1.000	18118762	175.1	88.4	1372	
D 43 13C2-PFTeDA	715.00 > 670.00	5.277	5.274	0.003		9863727	43.1	87.0	7026	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.277	5.274	0.003	1.000	36265204	155.7	78.6	502	
	713.00 > 169.00	5.277	5.274	0.003	1.000	5501803		6.59(0.00-0.00)	78.6	6618
D 44 13C2-PFHxDA	815.00 > 770.00	5.677	5.670	0.007		5411688	42.3	85.4	2878	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.677	5.671	0.006	1.000	18652239	172.8	87.3	899	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.998	5.997	0.001	1.000	313658	39.7	20.0	22.5	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L7_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_009.d

Injection Date: 19-May-2017 21:41:53

Instrument ID: A8_N

Lims ID: IC L7 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

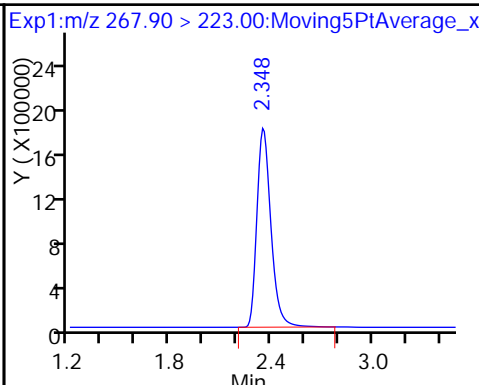
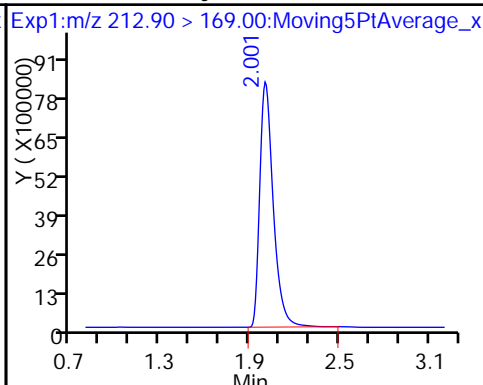
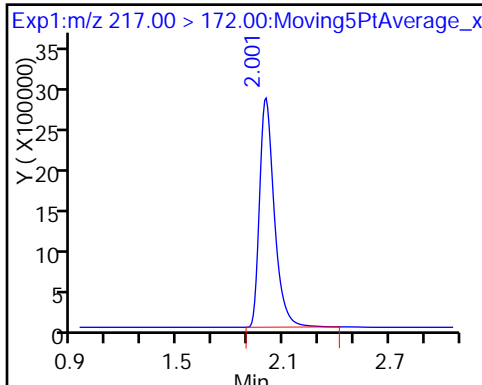
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

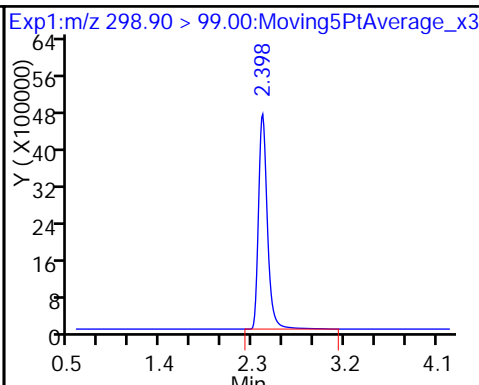
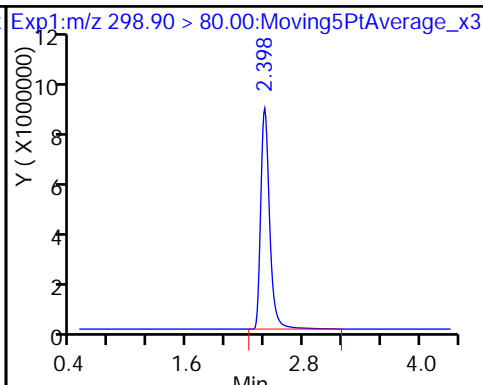
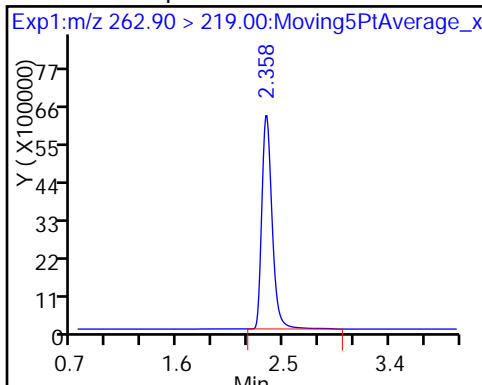
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

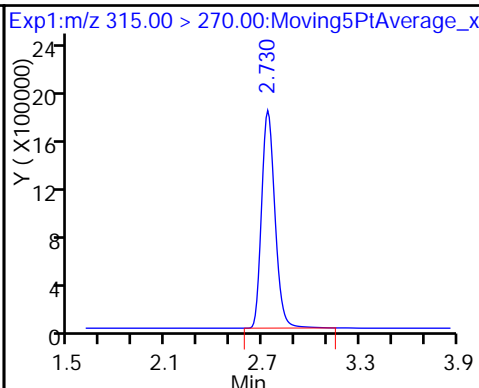
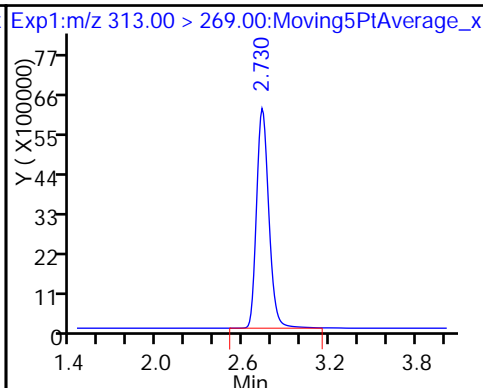
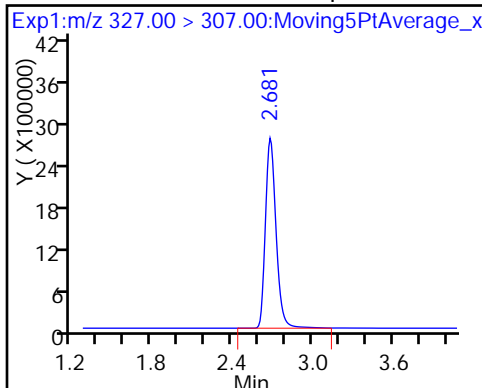
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

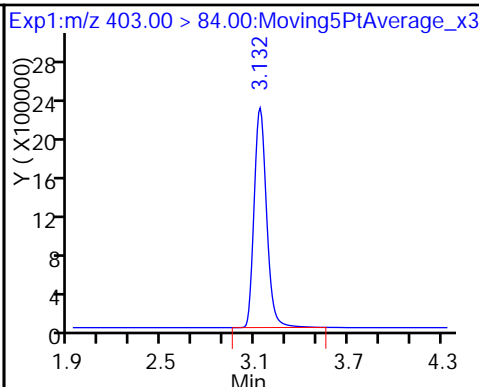
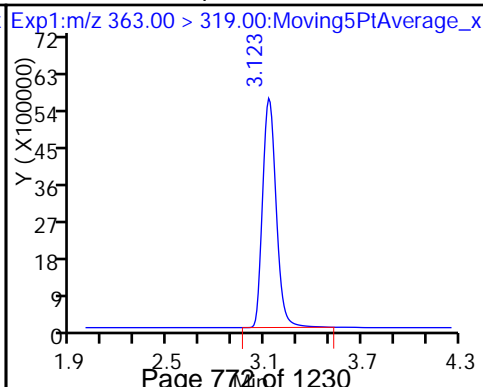
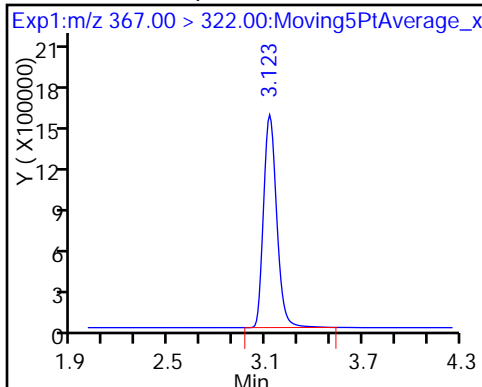
D 7 13C2 PFHxA



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

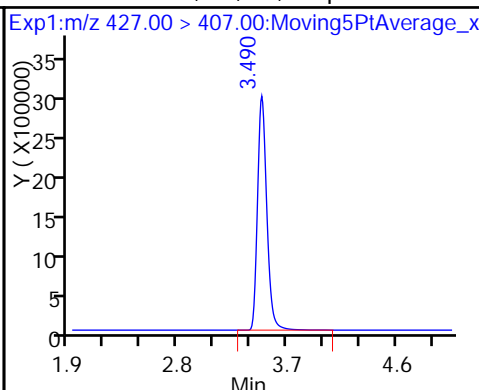
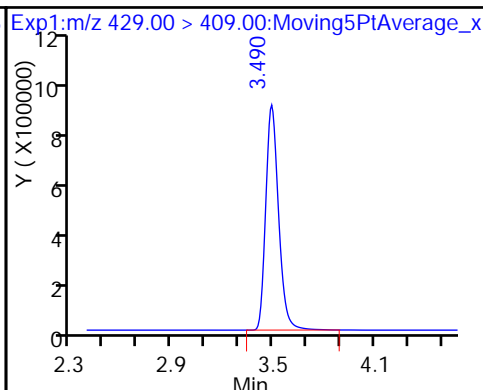
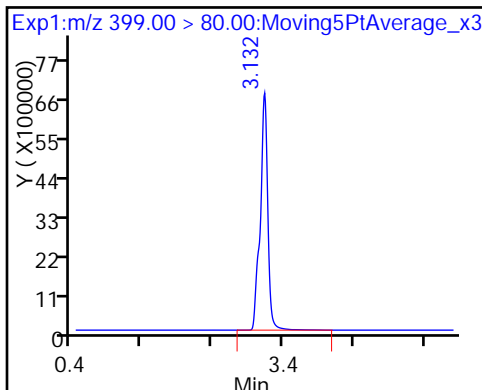
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

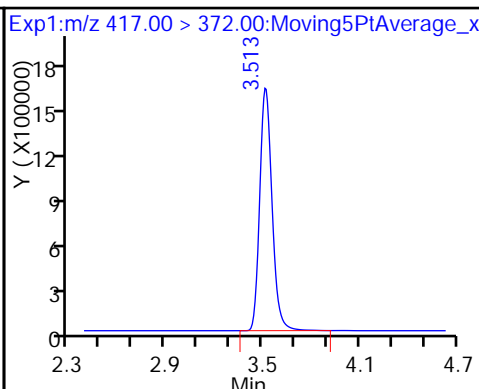
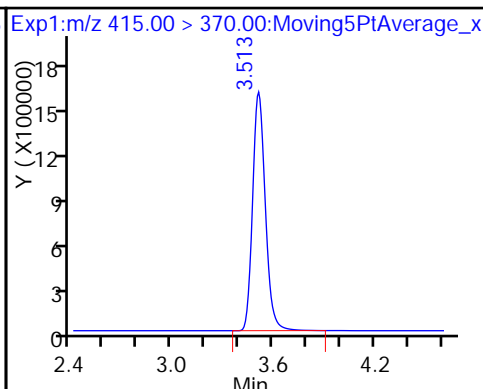
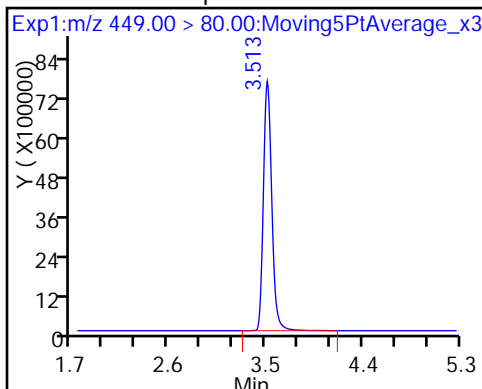
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

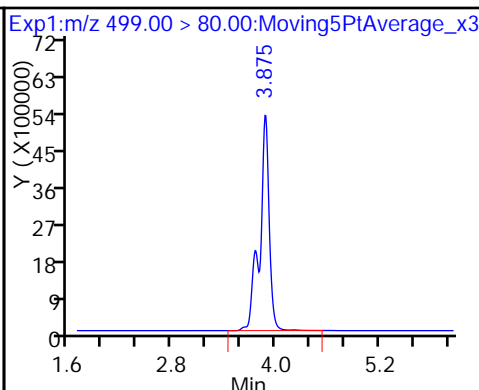
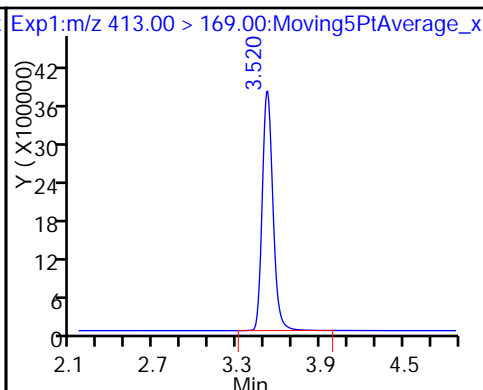
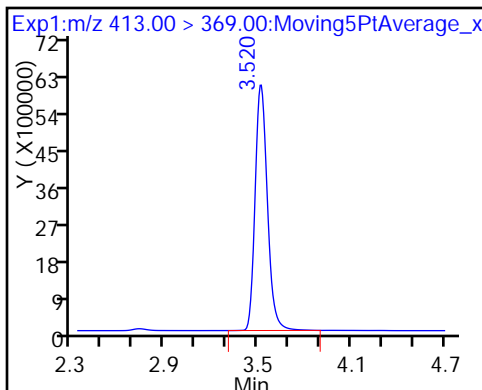
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

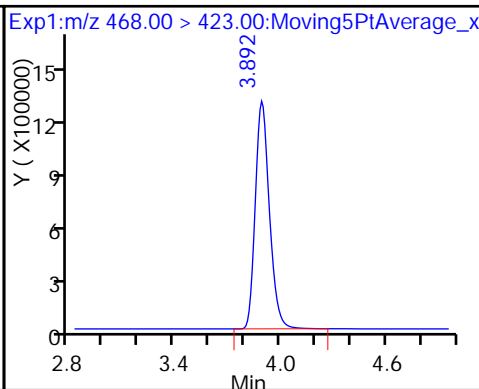
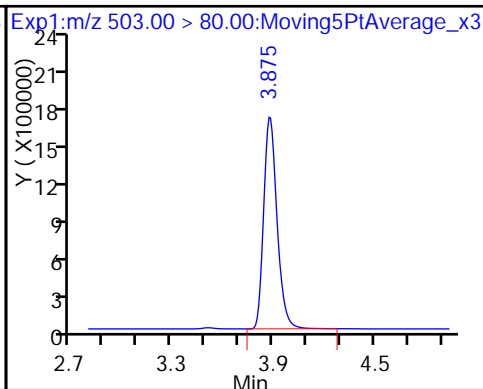
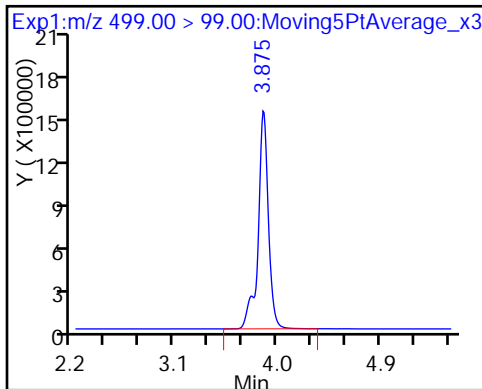
17 Perfluorooctane sulfonic acid

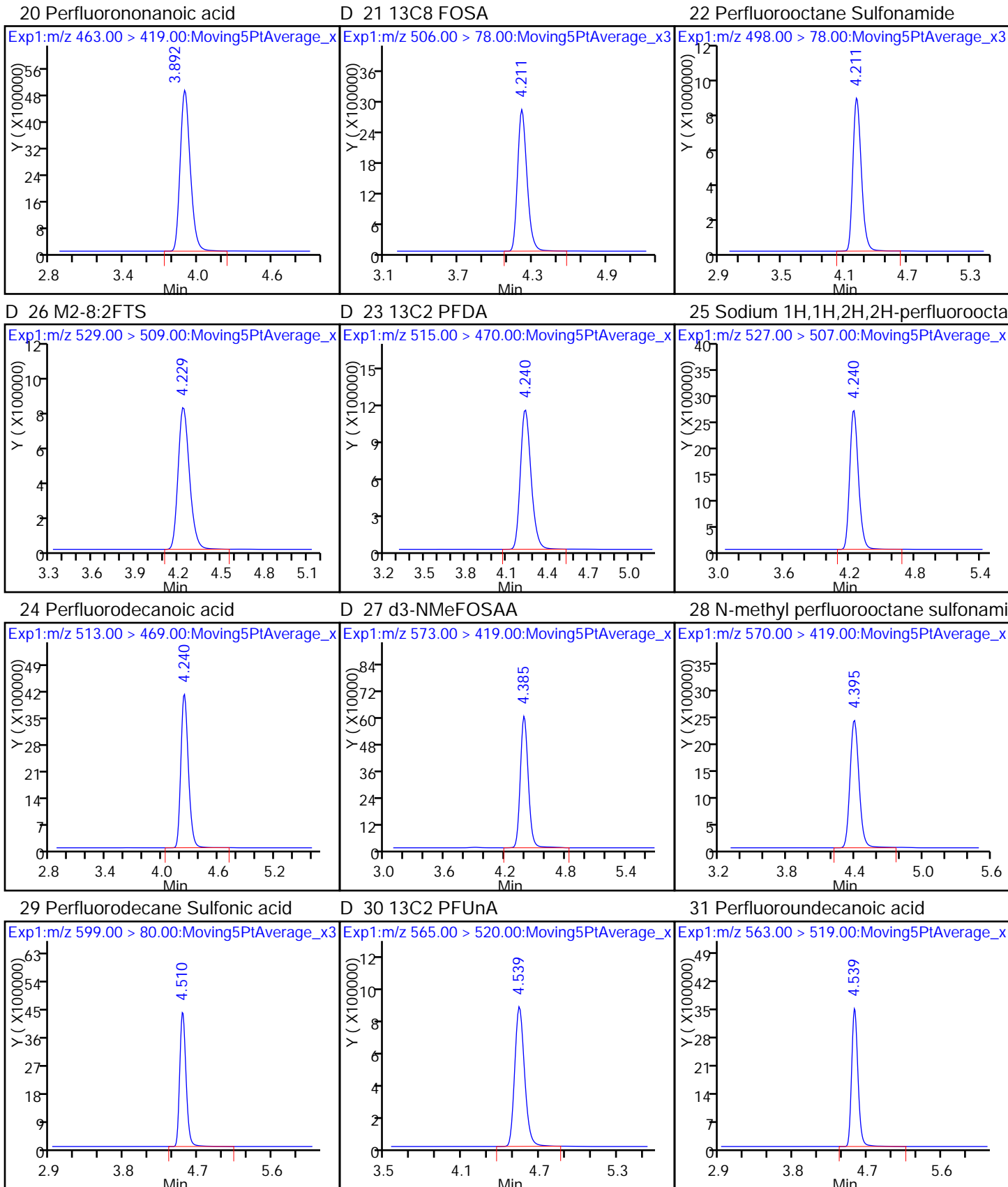


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

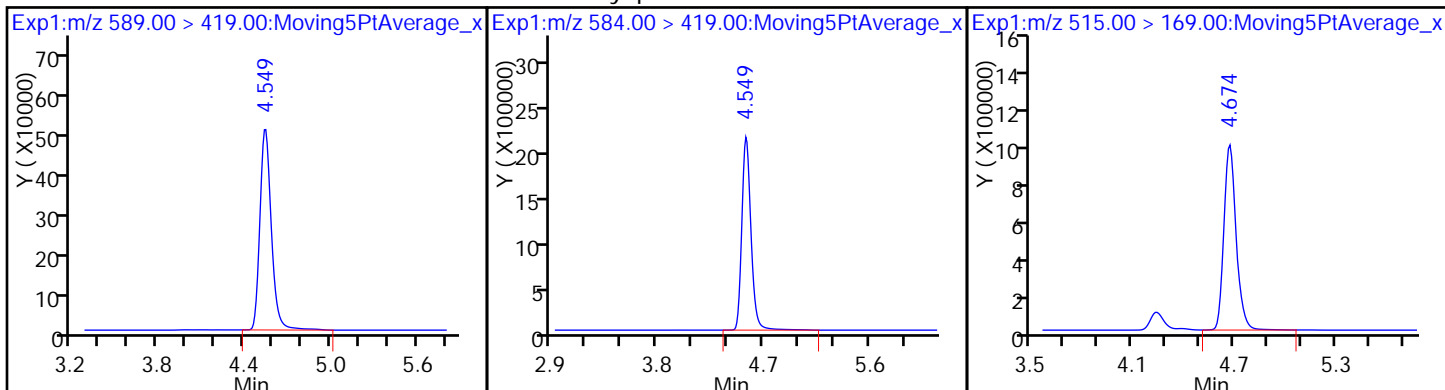




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

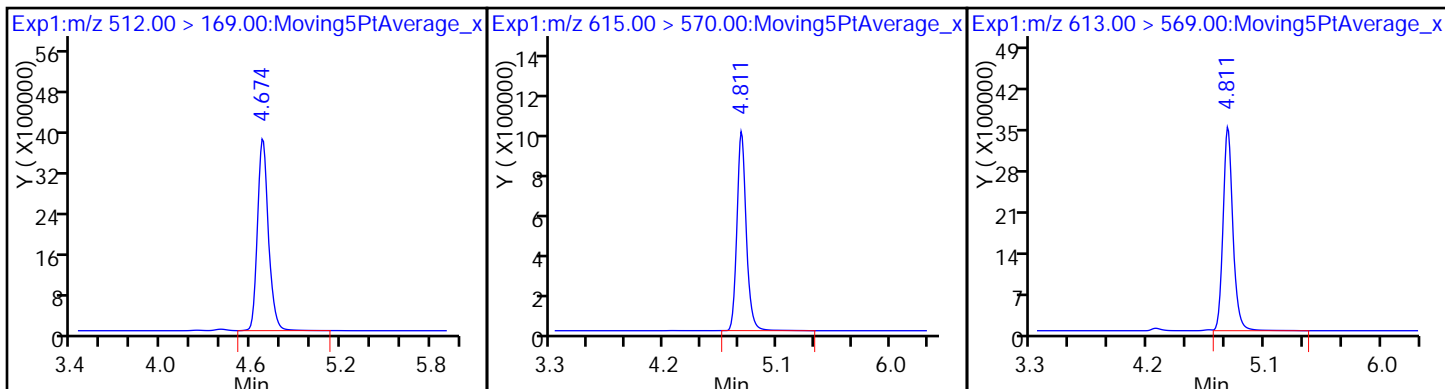
D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

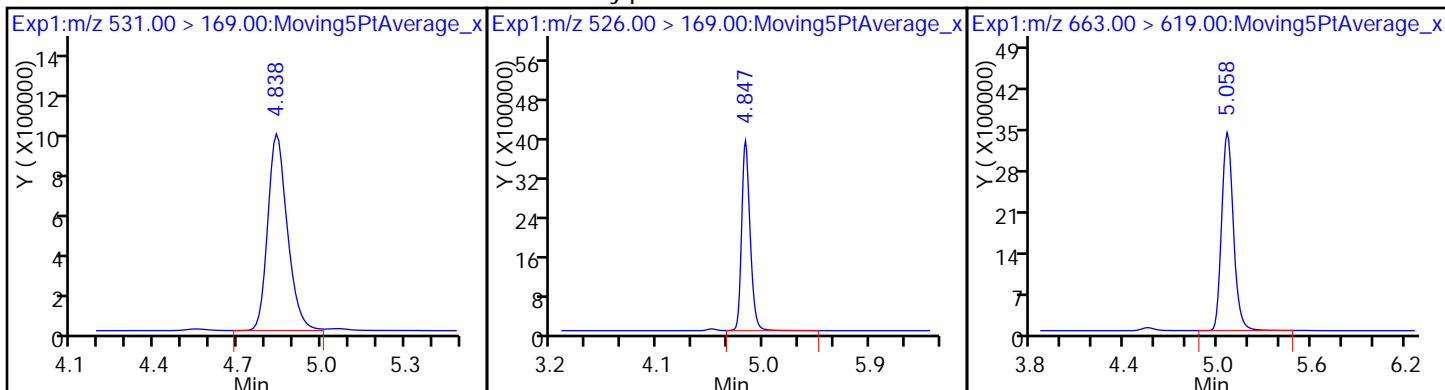
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

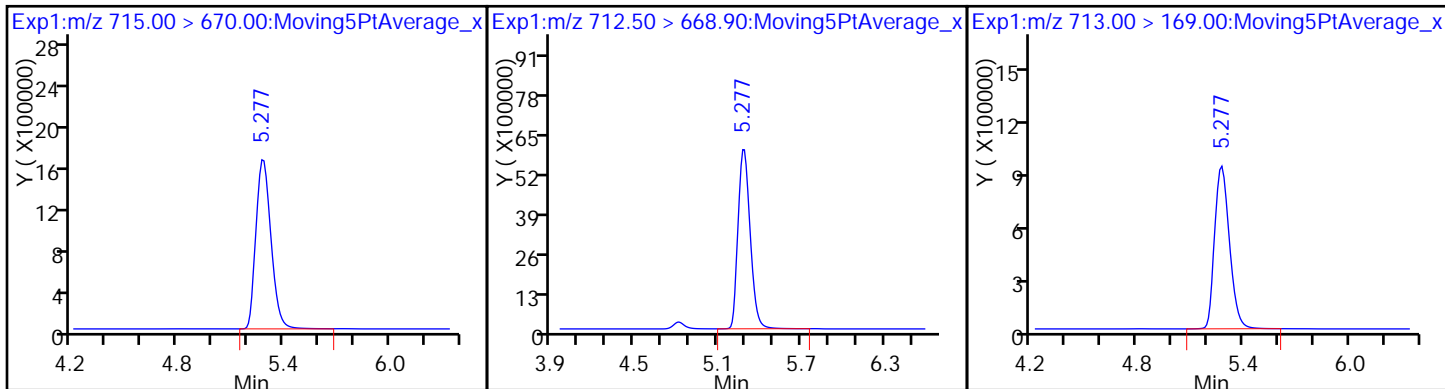
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

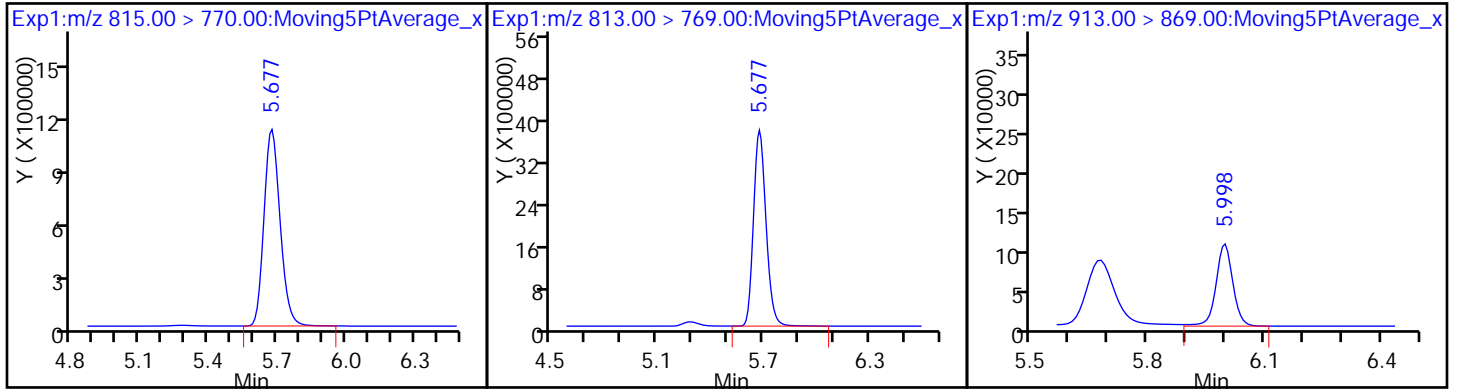
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165657

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/22/2017 18:42 Calibration End Date: 05/22/2017 19:26 Calibration ID: 30578

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165657/3	2017.05.22D_CURVE_003.d
Level 2	IC 320-165657/4	2017.05.22D_CURVE_004.d
Level 3	IC 320-165657/5	2017.05.22D_CURVE_005.d
Level 4	IC 320-165657/6	2017.05.22D_CURVE_006.d
Level 5	IC 320-165657/7	2017.05.22D_CURVE_007.d
Level 6	IC 320-165657/8	2017.05.22D_CURVE_008.d
Level 7	IC 320-165657/9	2017.05.22D_CURVE_009.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7				RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	2.050	2.049	2.034	2.042	2.043	2.042	2.050				1.794 - 2.294	2.044
Perfluoropentanoic acid (PFPeA)	2.418	2.417	2.398	2.408	2.409	2.408	2.408				2.160 - 2.660	2.409
Perfluorobutanesulfonic acid (PFBS)	2.466	2.455	2.438	2.448	2.449	2.448	2.458				2.272 - 2.632	2.452
4:2 FTS	2.761	2.750	2.738	2.751	2.743	2.750	2.746				2.498 - 2.998	2.748
Perfluorohexanoic acid (PFHxA)	2.807	2.806	2.786	2.799	2.791	2.798	2.804				2.549 - 3.049	2.799
Perfluoroheptanoic acid (PFHpA)	3.213	3.205	3.188	3.209	3.198	3.203	3.203				2.953 - 3.453	3.203
Perfluorohexanesulfonic acid (PFHxS)	3.221	3.213	3.196	3.209	3.198	3.212	3.212				2.959 - 3.459	3.209
6:2 FTS	3.581	3.580	3.566	3.584	3.573	3.573	3.574				3.326 - 3.826	3.576
Perfluoroheptanesulfonic Acid (PFHpS)	3.605	3.595	3.580	3.601	3.588	3.596	3.598				3.345 - 3.845	3.595
Perfluorooctanoic acid (PFOA)	3.613	3.603	3.587	3.610	3.596	3.596	3.598				3.351 - 3.851	3.600
Perfluorooctanesulfonic acid (PFOS)	3.976	3.974	3.952	3.972	3.957	3.969	3.970				3.717 - 4.217	3.967
Perfluorononanoic acid (PFNA)	3.986	3.984	3.972	3.983	3.979	3.980	3.981				3.731 - 4.231	3.981
Perfluorooctane Sulfonamide (FOSA)	4.307	4.305	4.289	4.303	4.288	4.294	4.295				4.047 - 4.547	4.297
8:2 FTS	4.337	4.325	4.309	4.325	4.322	4.317	4.318				4.072 - 4.572	4.322
Perfluorodecanoic acid (PFDA)	4.337	4.325	4.309	4.325	4.322	4.317	4.329				4.073 - 4.573	4.323
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	4.487	4.474	4.468	4.484	4.473	4.479	4.482				4.228 - 4.728	4.478
Perfluorodecanesulfonic acid (PFDS)	4.613	4.602	4.588	4.603	4.595	4.592	4.594				4.348 - 4.848	4.598
Perfluoroundecanoic acid (PFUnA)	4.638	4.627	4.614	4.629	4.623	4.622	4.624				4.375 - 4.875	4.625
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	4.647	4.635	4.622	4.640	4.632	4.632	4.634				4.385 - 4.885	4.635
MeFOSA	4.772	4.758	4.740	4.763	4.754	4.746	4.751				4.505 - 5.005	4.755
Perfluorododecanoic acid (PFDoA)	4.905	4.894	4.885	4.901	4.891	4.898	4.893				4.645 - 5.145	4.895
N-EtFOSA-M	4.931	4.929	4.912	4.928	4.919	4.916	4.921				4.672 - 5.172	4.922
Perfluorotridecanoic Acid (PFTriA)	5.148	5.139	5.130	5.147	5.135	5.132	5.139				4.889 - 5.389	5.139
Perfluorotetradecanoic acid (PFTeA)	5.366	5.356	5.346	5.365	5.353	5.353	5.363				5.107 - 5.607	5.357
Perfluoro-n-hexadecanoic acid (PFHxDA)	++++	5.743	5.738	5.745	5.740	5.743	5.747				5.493 - 5.993	5.743
Perfluoro-n-octadecanoic acid (PFODA)	6.140	6.140	6.134	6.147	6.144	6.148	6.149				5.893 - 6.393	6.143
13C4 PFBA	2.050	2.041	2.034	2.042	2.034	2.034	2.042				1.790 - 2.290	2.040
13C5-PFPeA	2.418	2.417	2.398	2.408	2.399	2.408	2.408				2.158 - 2.658	2.408
13C2 PFHxA	2.807	2.806	2.786	2.799	2.791	2.798	2.804				2.549 - 3.049	2.799
13C4-PFHpA	3.213	3.205	3.188	3.209	3.198	3.203	3.203				2.953 - 3.453	3.203
18O2 PFHxS	3.221	3.213	3.196	3.209	3.198	3.212	3.212				2.959 - 3.459	3.209
M2-6:2 FTS	3.581	3.580	3.566	3.584	3.573	3.573	3.574				3.326 - 3.826	3.576

FORM VI
 LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
 RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165657
 SDG No.: _____
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N
 Calibration Start Date: 05/22/2017 18:42 Calibration End Date: 05/22/2017 19:26 Calibration ID: 30578

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7				RT WINDOW	AVG RT
13C4 PFOA	3.613	3.603	3.587	3.610	3.596	3.596	3.598				3.351 - 3.851	3.600
13C4 PFOS	3.976	3.974	3.952	3.972	3.957	3.958	3.970				3.716 - 4.216	3.966
13C5 PFNA	3.986	3.984	3.962	3.983	3.979	3.980	3.981				3.729 - 4.229	3.979
13C8 FOSA	4.307	4.305	4.280	4.303	4.288	4.294	4.295				4.046 - 4.546	4.296
M2-8:2FTS	4.327	4.325	4.309	4.325	4.322	4.317	4.318				4.070 - 4.570	4.320
13C2 PFDA	4.327	4.325	4.309	4.325	4.322	4.317	4.329				4.072 - 4.572	4.322
d3-NMeFOSAA	4.487	4.474	4.458	4.484	4.463	4.469	4.471				4.222 - 4.722	4.472
13C2 PFUnA	4.630	4.627	4.614	4.629	4.623	4.622	4.624				4.374 - 4.874	4.624
d5-NEtFOSAA	4.638	4.627	4.614	4.629	4.623	4.622	4.634				4.377 - 4.877	4.627
d-N-MeFOSA-M	4.761	4.758	4.740	4.752	4.742	4.746	4.751				4.500 - 5.000	4.750
13C2 PFDoA	4.905	4.894	4.885	4.901	4.891	4.898	4.893				4.645 - 5.145	4.895
d-N-EtFOSA-M	4.931	4.920	4.903	4.919	4.910	4.907	4.912				4.665 - 5.165	4.915
13C2-PFTEdA	5.366	5.356	5.346	5.365	5.353	5.353	5.363				5.107 - 5.607	5.357
13C2-PFHxDA	5.744	5.743	5.730	5.745	5.740	5.743	5.747				5.492 - 5.992	5.742

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165657

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/22/2017 18:42 Calibration End Date: 05/22/2017 19:26 Calibration ID: 30578

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165657/3	2017.05.22D_CURVE_003.d
Level 2	IC 320-165657/4	2017.05.22D_CURVE_004.d
Level 3	IC 320-165657/5	2017.05.22D_CURVE_005.d
Level 4	IC 320-165657/6	2017.05.22D_CURVE_006.d
Level 5	IC 320-165657/7	2017.05.22D_CURVE_007.d
Level 6	IC 320-165657/8	2017.05.22D_CURVE_008.d
Level 7	IC 320-165657/9	2017.05.22D_CURVE_009.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4		B	M1	M2								
13C4 PFBA	377996 377004	404170 354499	395941 326328	373182	Ave		372731.505			7.0		50.0				
13C5-PFPeA	255073 248127	267438 233622	267330 204471	249417	Ave		246496.883			8.9		50.0				
13C2 PFHxA	250139 239780	270754 233137	262788 207533	247295	Ave		244489.479			8.5		50.0				
13C4-PFHpA	237385 218837	250509 202889	250366 175582	230382	Ave		223707.310			12.2		50.0				
18O2 PFHxS	328377 333485	344409 311334	345145 268731	323565	Ave		322149.533			8.2		50.0				
M2-6:2FTS	127675 148127	135734 118286	131550 102878	155245	Ave		131356.399			13.4		50.0				
13C4 PFOA	231513 245880	251143 200703	249988 166567	242420	Ave		226887.618			14.0		50.0				
13C4 PFOS	230110 231226	249865 225139	262424 202854	240873	Ave		234641.651			8.1		50.0				
13C5 PFNA	183058 171244	198791 158173	193207 137581	179317	Ave		174481.627			12.1		50.0				
13C8 FOSA	361877 395204	391365 350450	385540 313766	375940	Ave		367734.504			7.8		50.0				
M2-8:2FTS	95788 100945	109483 94919	105406 90642	100075	Ave		99608.1730			6.5		50.0				
13C2 PFDA	151829 146552	165515 143109	167449 121396	151048	Ave		149557.023			10.3		50.0				
d3-NMeFOSAA	62338 68242	69890 62285	68799 62760	67691	Ave		66000.6633			5.1		50.0				
13C2 PFUnA	119746 108531	126720 103945	123750 87317	115585	Ave		112227.573			12.1		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.: 320-28286-1 Analy Batch No.: 165657

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/22/2017 18:42 Calibration End Date: 05/22/2017 19:26 Calibration ID: 30578

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4		B	M1	M2								
d5-NEtFOSAA	64396 65239	73418 57624	69854 54302	65053	Ave		64269.5493			10.2			50.0			
d-N-MeFOSA-M	93011 107225	99710 100586	100009 92179	100226	Ave		98992.1171			5.1			50.0			
13C2 PFDcA	111449 112515	116760 105336	112216 94090	109773	Ave		108877.065			6.8			50.0			
d-N-EtFOSA-M	91696 101712	98893 97822	96563 88689	96025	Ave		95914.3528			4.6			50.0			
13C2-PFTEdA	218262 220162	230101 202402	225897 189532	221094	Ave		215350.085			6.6			50.0			
13C2-PFHxDA	116211 128284	125439 118693	125103 107880	120090	Ave		120242.884			5.7			50.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

Analy Batch No.: 165657

SDG No.: _____

Instrument ID: A8_N

GC Column: GeminiC18 3 ID: 3(mm)

Heated Purge: (Y/N) N

Calibration Start Date: 05/22/2017 18:42

Calibration End Date: 05/22/2017 19:26

Calibration ID: 30578

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Perfluorobutanoic acid (PFBA)	1.0346 0.9538	1.0648 0.8121	1.0559	1.0660	1.0355	AveID		1.0032			9.2		35.0				
Perfluoropentanoic acid (PFPeA)	1.1778 1.0365	1.1448 0.9547	1.0805	1.1220	1.0692	AveID		1.0837			6.9		35.0				
Perfluorobutanesulfonic acid (PFBS)	1.7141 1.3905	1.6948 1.2105	1.7060	1.7409	1.6162	AveID		1.5819			12.8		50.0				
4:2 FTS	0.6963 0.7505	0.7876 0.7836	0.7760	0.6792	0.6536	AveID		0.7324			7.5		35.0				
Perfluorohexanoic acid (PFHxA)	1.1197 0.9732	1.0969 0.8761	1.0776	1.0399	1.0676	AveID		1.0359			8.2		35.0				
Perfluoroheptanoic acid (PFHpA)	1.1567 1.0470	1.1472 0.9744	1.1161	1.1310	1.1023	AveID		1.0964			5.9		35.0				
Perfluorohexanesulfonic acid (PFHxS)	1.4581 1.1178	1.3077 1.0637	1.1566	1.1884	1.1766	AveID		1.2098			11.0		35.0				
6:2FTS	0.9996 0.8947	0.9890 0.8572	1.0446	1.0043	0.9509	AveID		0.9629			6.9		35.0				
Perfluoroheptanesulfonic Acid (PFHpS)	1.4898 1.2854	1.3942 1.1171	1.3684	1.4242	1.4752	AveID		1.3649			9.5		50.0				
Perfluorooctanoic acid (PFOA)	1.2264 1.0953	1.1632 1.0019	1.1319	1.1492	1.0917	AveID		1.1228			6.2		35.0				
Perfluorooctanesulfonic acid (PFOS)	1.2802 1.1802	1.2035 1.1284	1.1218	1.1794	1.2128	AveID		1.1866			4.5		35.0				
Perfluorononanoic acid (PFNA)	1.1603 1.0568	1.1118 0.9743	1.1203	1.0955	1.0933	AveID		1.0875			5.4		35.0				
Perfluorooctane Sulfonamide (FOSA)	1.1921 0.9644	1.1435 0.8164	1.1364	1.0924	0.9922	AveID		1.0482			12.5		35.0				
8:2FTS	1.0143 0.8870	0.9819 0.8846	1.0867	0.9676	1.0073	AveID		0.9756			7.4		35.0				
Perfluorodecanoic acid (PFDA)	1.0318 0.9500	1.0847 0.9335	1.0179	1.0336	1.0713	AveID		1.0176			5.6		35.0				
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	1.0114 1.0473	0.9794 1.0228	0.9882	0.9843	1.0137	AveID		1.0067			2.4		35.0				
Perfluorodecanesulfonic acid (PFDS)	0.7497 0.6702	0.6864 0.6168	0.6711	0.7179	0.7492	AveID		0.6945			6.9		50.0				
Perfluoroundecanoic acid (PFUnA)	1.4012 1.0746	1.2201 1.0611	1.1299	1.1726	1.1604	AveID		1.1743			9.7		35.0				
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.8914 1.0008	0.9045 1.0001	0.9460	0.9864	0.9564	AveID		0.9551			4.6		35.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165657
 SDG No.: _____
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N
 Calibration Start Date: 05/22/2017 18:42 Calibration End Date: 05/22/2017 19:26 Calibration ID: 30578

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
MeFOSA	1.0036 0.9614	0.9128 0.9740	0.9616	0.9773	0.9507	AveID		0.9631			2.9		35.0				
Perfluorododecanoic acid (PFDoA)	1.0519 0.9761	1.0167 0.9342	1.0858	1.0260	1.0122	AveID		1.0147			4.9		35.0				
N-EtFOSA-M	0.9945 1.0019	1.0264 1.0349	1.0407	1.0434	0.9936	AveID		1.0194			2.2		35.0				
Perfluorotridecanoic Acid (PFTriA)	1.0884 0.9384	1.0063 0.8852	1.0655	1.0438	1.0020	AveID		1.0042			7.1		50.0				
Perfluorotetradecanoic acid (PFTeA)	2.2882 1.9490	2.2579 1.8033	2.1799	2.1764	2.1337	L2ID	0.1443	2.0442						0.9950		0.9900	
Perfluoro-n-hexadecanoic acid (PFHxDA)	++++ 1.0295	1.7360 0.9934	1.2359	1.0853	1.0534	L2ID	0.7040	1.0366						0.9990		0.9900	
Perfluoro-n-octadecanoic acid (PFODA)	1.2488 1.3797	1.2515 1.3227	1.2584	1.2520	1.1100	AveID		1.2604			6.6		50.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165657

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/22/2017 18:42 Calibration End Date: 05/22/2017 19:26 Calibration ID: 30578

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165657/3	2017.05.22D_CURVE_003.d
Level 2	IC 320-165657/4	2017.05.22D_CURVE_004.d
Level 3	IC 320-165657/5	2017.05.22D_CURVE_005.d
Level 4	IC 320-165657/6	2017.05.22D_CURVE_006.d
Level 5	IC 320-165657/7	2017.05.22D_CURVE_007.d
Level 6	IC 320-165657/8	2017.05.22D_CURVE_008.d
Level 7	IC 320-165657/9	2017.05.22D_CURVE_009.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 6	LVL 7			
13C4 PFBA	Ave	18712695 17549466	20008414 16154859	19601054	18474348	18663547	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C5-PFPeA	Ave	12627388 11565435	13239521 10122315	13234174	12347367	12283512	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2 PFHxA	Ave	12383138 11541454	13403642 10273898	13009289	12242347	11870309	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C4-PFHpA	Ave	11751747 10044024	12401431 8692180	12394373	11405067	10833513	49.5 49.5	49.5 49.5	49.5	49.5	49.5
18O2 PFHxS	Ave	15378462 14580299	16129253 12585133	16163702	15153103	15617682	46.8 46.8	46.8 46.8	46.8	46.8	46.8
M2-6:2FTS	Ave	6004536 5562943	6383540 4838306	6186737	7301148	6966357	47.0 47.0	47.0 47.0	47.0	47.0	47.0
13C4 PFOA	Ave	11461033 9935792	12432800 8245886	12375651	12000973	12172287	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C4 PFOS	Ave	10890376 10655089	11825280 9600426	12419687	11399730	10943171	47.3 47.3	47.3 47.3	47.3	47.3	47.3
13C5 PFNA	Ave	9062291 7830337	9841139 6810957	9564710	8877067	8477429	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C8 FOSA	Ave	17914690 17349029	19374502 15532960	19086132	18610902	19564534	49.5 49.5	49.5 49.5	49.5	49.5	49.5
M2-8:2FTS	Ave	4542812 4501607	5192316 4298748	4998946	4746132	4787380	47.4 47.4	47.4 47.4	47.4	47.4	47.4
13C2 PFDA	Ave	7516286 7084599	8193830 6009714	8289567	7477625	7255070	49.5 49.5	49.5 49.5	49.5	49.5	49.5
d3-NMeFOSAA	Ave	3086050 3083421	3459902 3106910	3405870	3351061	3378303	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2 PFUnA	Ave	5928001 5145772	6273263 4322608	6126225	5722034	5372840	49.5 49.5	49.5 49.5	49.5	49.5	49.5
d5-NETfOSAA	Ave	3187933 2852661	3634540 2688238	3458142	3220459	3229653	49.5 49.5	49.5 49.5	49.5	49.5	49.5

FORM VI
 LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
 RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165657

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/22/2017 18:42 Calibration End Date: 05/22/2017 19:26 Calibration ID: 30578

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
d-N-MeFOSA-M	Ave	4604505 4979486	4936124 4563318	4950944	4961666	5308156	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2 PFDoA	Ave	5517284 5214667	5780215 4657915	5555241	5434290	5570064	49.5 49.5	49.5 49.5	49.5	49.5	49.5
d-N-EtFOSA-M	Ave	4539395 4842697	4895716 4390542	4780350	4753712	5035235	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2-PFTeDA	Ave	10805071 10019917	11391150 9382750	11183033	10945258	10899088	49.5 49.5	49.5 49.5	49.5	49.5	49.5
13C2-PFHxDA	Ave	5753014 5875896	6209832 5340611	6193222	5945062	6350689	49.5 49.5	49.5 49.5	49.5	49.5	49.5

Curve Type Legend:

Ave = Average

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165657

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/22/2017 18:42 Calibration End Date: 05/22/2017 19:26 Calibration ID: 30578

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-165657/3	2017.05.22D_CURVE_003.d
Level 2	IC 320-165657/4	2017.05.22D_CURVE_004.d
Level 3	IC 320-165657/5	2017.05.22D_CURVE_005.d
Level 4	IC 320-165657/6	2017.05.22D_CURVE_006.d
Level 5	IC 320-165657/7	2017.05.22D_CURVE_007.d
Level 6	IC 320-165657/8	2017.05.22D_CURVE_008.d
Level 7	IC 320-165657/9	2017.05.22D_CURVE_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7				LVL 6	LVL 7			
Perfluorobutanoic acid (PFBA)		AveID	193597 33476103	426086 52479021	2069688	7877767	19325461	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluoropentanoic acid (PFPeA)		AveID	148727 23976197	303124 38656387	1430018	5541269	13133534	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorobutanesulfonic acid (PFBS)		AveID	246332 37889028	510898 56941145	2576863	9860190	23586758	0.438 87.5	0.875 175	4.38	17.5	43.8
4:2 FTS		AveID	41107 8209759	98857 14910321	471975	1950166	4476458	0.462 92.5	0.925 185	4.62	18.5	46.2
Perfluorohexanoic acid (PFHxA)		AveID	138660 22464530	294053 36005812	1401897	5092358	12672346	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluoroheptanoic acid (PFHpA)		AveID	135938 21032185	284534 33880310	1383361	5159865	11942089	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorohexanesulfonic acid (PFHxS)		AveID	215695 31354964	405799 51510303	1798289	6928848	17676839	0.450 90.1	0.901 180	4.50	18.0	45.0
6:2FTS		AveID	59892 9933471	126006 16553838	644930	2926960	6610589	0.469 93.9	0.939 188	4.69	18.8	46.9
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	161563 27277622	328366 42720681	1692427	6466937	16075546	0.471 94.3	0.943 189	4.71	18.9	47.1
Perfluorooctanoic acid (PFOA)		AveID	140556 21765053	289246 33045047	1400741	5516810	13288734	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorooctanesulfonic acid (PFOS)		AveID	135333 24413711	276288 42064820	1352424	5220228	12883372	0.459 91.9	0.919 184	4.59	18.4	45.9
Perfluorononanoic acid (PFNA)		AveID	105154 16550265	218822 26543600	1071551	3889974	9267999	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorooctane Sulfonamide (FOSA)		AveID	213560 33463766	443087 50726310	2169003	8131898	19411569	0.495 99.0	0.990 198	4.95	19.8	49.5
8:2FTS		AveID	46078 7985644	101968 15211498	543240	1836951	4822527	0.474 94.9	0.949 190	4.74	19.0	47.4
Perfluorodecanoic acid (PFDA)		AveID	77552 13460915	177758 22439977	843818	3091638	7772525	0.495 99.0	0.990 198	4.95	19.8	49.5

FORM VI
 LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
 RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 165657

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/22/2017 18:42 Calibration End Date: 05/22/2017 19:26 Calibration ID: 30578

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	31213 6458818	67775 12710937	336567	1319337	3424676	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorodecanesulfonic acid (PFDS)		AveID	82325 14400726	163704 23885111	840497	3301006	8267758	0.477 95.4	0.954 191	4.77	19.1	47.7
Perfluoroundecanoic acid (PFUnA)		AveID	83062 11059402	153074 18347734	692202	2683789	6234397	0.495 99.0	0.990 198	4.95	19.8	49.5
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	28416 5709634	65749 10753519	327150	1270688	3088961	0.495 99.0	0.990 198	4.95	19.8	49.5
MeFOSA		AveID	46209 9574334	90112 17779562	476093	1939572	5046570	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorododecanoic acid (PFDoA)		AveID	58035 10179993	117539 17405363	603161	2230341	5637879	0.495 99.0	0.990 198	4.95	19.8	49.5
N-EtFOSA-M		AveID	45145 9703450	100500 18175745	497504	1983991	5003258	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorotridecanoic Acid (PFTriA)		AveID	60049 9786992	116327 16492283	591927	2268888	5581442	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluorotetradecanoic acid (PFTeA)		L2ID	126246 20327129	261023 33597608	1210978	4730974	11884827	0.495 99.0	0.990 198	4.95	19.8	49.5
Perfluoro-n-hexadecanoic acid (PFHxDA)		L2ID	+++++ 10737443	200684 18507930	686588	2359088	5867704	+++++ 99.0	0.990 198	4.95	19.8	49.5
Perfluoro-n-octadecanoic acid (PFODA)		AveID	68898 14389541	144683 24643267	699047	2721484	6182845	0.495 99.0	0.990 198	4.95	19.8	49.5

Curve Type Legend:

AveID = Average isotope dilution
L2ID = Linear 1/conc^2 IsoDil

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_003.d
 Lims ID: IC L1 Full
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 22-May-2017 18:42:00 ALS Bottle#: 28 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L1-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 23-May-2017 08:42:34 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK028

First Level Reviewer: westendorfc Date: 23-May-2017 08:20:39

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.050	2.040	0.010	18712695	50.2		101	60957	
2 Perfluorobutyric acid	212.90 > 169.00	2.050	2.044	0.006	193597	0.5105		103	110	
D 3 13C5-PFPeA	267.90 > 223.00	2.418	2.408	0.010	12627388	51.2		103	127176	
4 Perfluoropentanoic acid	262.90 > 219.00	2.418	2.410	0.008	148727	0.5381		109	41.6	
D 47 13C3-PFBS	301.90 > 83.00	2.456	2.448	0.008	314717	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.466	2.452	0.014	246332	0.4742		108		
	298.90 > 99.00	2.466	2.452	0.014	97194		2.53(0.00-0.00)	108		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.761	2.748	0.013	41107	0.4396		95.1		
D 7 13C2 PFHxA	315.00 > 270.00	2.807	2.799	0.008	12383138	50.6		102	176646	
6 Perfluorohexanoic acid	313.00 > 269.00	2.807	2.799	0.008	138660	0.5351		108	262	
D 9 13C4-PFHpA	367.00 > 322.00	3.213	3.203	0.010	11751747	52.5		106	36618	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.213	3.203	0.010	135938	0.5223		106	211	
D 11 18O2 PFHxS	403.00 > 84.00	3.221	3.209	0.012	15378462	47.7		102	70141	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.221	3.209	0.012	215695	0.5429		121		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.581	3.576	0.005	1.000	59892	0.4872	104		
D 12 M2-6:2FTS	429.00	> 409.00	3.581	3.576	0.005		6004536	45.7	97.2		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.605	3.595	0.010	1.000	161563	0.5144	109		
* 62 13C2-PFOA	415.00	> 370.00	3.605	3.595	0.010		10635112	49.5			
D 14 13C4 PFOA	417.00	> 372.00	3.613	3.601	0.012		11461033	50.5	102	32655	
15 Perfluorooctanoic acid	413.00	> 369.00	3.613	3.601	0.012	1.000	140556	0.5407	109	12.2	
	413.00	> 169.00	3.613	3.601	0.012	1.000	87704		1.60(0.90-1.10)	109	355
D 18 13C4 PFOS	503.00	> 80.00	3.976	3.966	0.010		10890376	46.4	98.1	15297	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.976	3.967	0.009	1.000	135333	0.4956	108	2035	
	499.00	> 99.00	3.976	3.967	0.009	1.000	29621		4.57(0.90-1.10)	108	159
D 19 13C5 PFNA	468.00	> 423.00	3.986	3.979	0.007		9062291	51.9	105	17457	
20 Perfluorononanoic acid	463.00	> 419.00	3.986	3.981	0.005	1.000	105154	0.5282	107	149	
D 21 13C8 FOSA	506.00	> 78.00	4.307	4.296	0.011		17914690	48.7	98.4	12373	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.307	4.297	0.010	1.000	213560	0.5630	114	2695	
D 26 M2-8:2FTS	529.00	> 509.00	4.327	4.320	0.007		4542812	45.6	96.2		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.337	4.322	0.015	1.002	46078	0.4931	104		
D 23 13C2 PFDA	515.00	> 470.00	4.327	4.322	0.005		7516286	50.3	102	2953	
24 Perfluorodecanoic acid	513.00	> 469.00	4.337	4.323	0.014	1.000	77552	0.5020	101	7.2	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.487	4.472	0.015		3086050	46.8	94.5		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.487	4.478	0.009	1.000	31213	0.4974	100		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.613	4.598	0.015	1.000	82325	0.5152	108		
D 30 13C2 PFUnA	565.00	> 520.00	4.630	4.624	0.006		5928001	52.8	107	5170	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.638	4.625	0.013	1.000	83062	0.5907	119	262	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.638	4.627	0.011		3187933	49.6	100		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.647	4.635	0.012	1.002	28416	0.4620	93.3		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.761	4.750	0.011	4604505	46.5		94.0		
35 MeFOSA	512.00 > 169.00	4.772	4.755	0.017	1.000	46209	0.5159	104		
D 36 13C2 PFDaA	615.00 > 570.00	4.905	4.895	0.010	5517284	50.7		102	3494	
37 Perfluorododecanoic acid	613.00 > 569.00	4.905	4.895	0.010	1.000	58035	0.5132	104	3.0	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.931	4.915	0.016	4539395	47.3		95.6		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.931	4.922	0.009	1.000	45145	0.4830	97.6		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.148	5.139	0.009	1.000	60049	0.5365	108	2.6	
D 43 13C2-PFTeDA	715.00 > 670.00	5.366	5.357	0.009	10805071	50.2		101	4570	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.366	5.357	0.009	1.000	126246	0.4835	97.7	1.9	
	713.00 > 169.00	5.357	5.357	0.0	0.998	21843	5.78(0.00-0.00)	97.7	76.1	
D 44 13C2-PFHxDA	815.00 > 770.00	5.744	5.742	0.002	5753014	47.8		96.6	1272	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.744	5.743	0.001	1.000	139137	0.5252	106	4.6	
46 Perfluorooctadecanoic acid	913.00 > 869.00	6.140	6.143	-0.003	1.000	68898	0.4905	99.1	2.4	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L1_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_003.d

Injection Date: 22-May-2017 18:42:00

Instrument ID: A8_N

Lims ID: IC L1 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

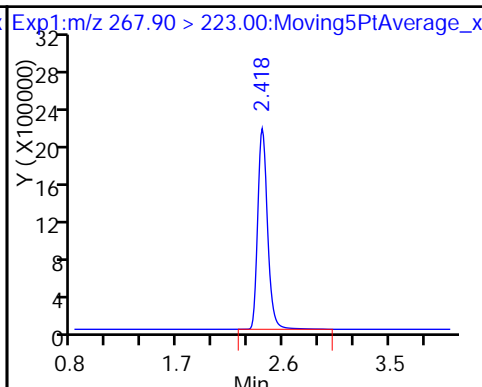
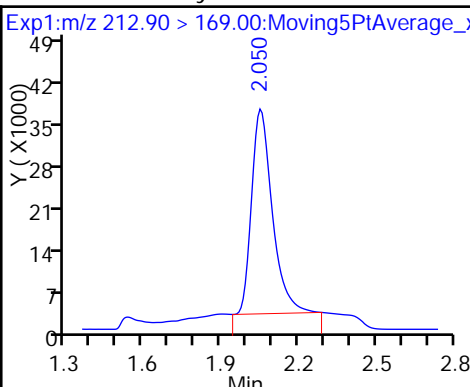
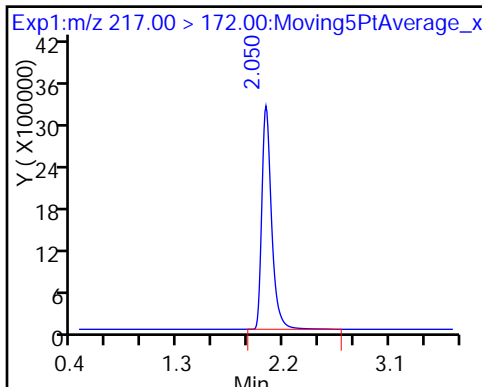
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

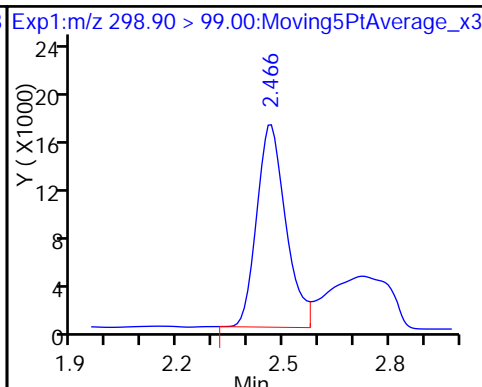
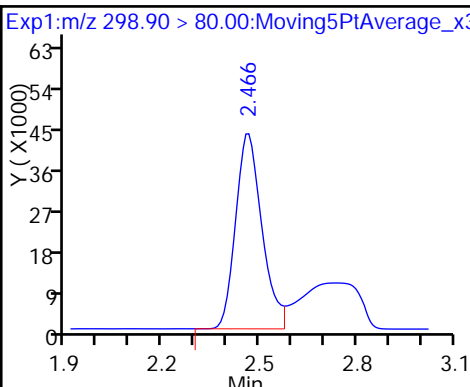
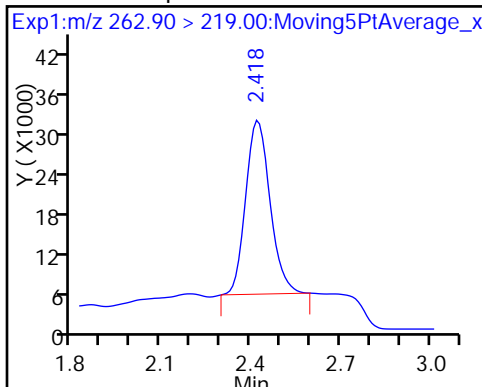
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

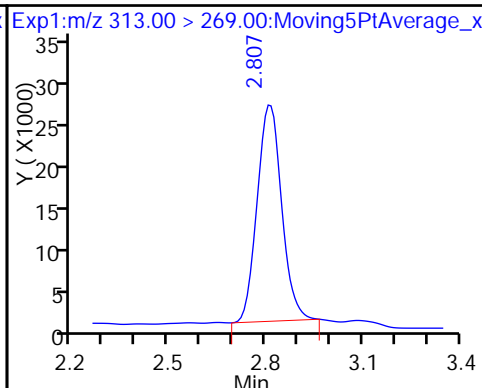
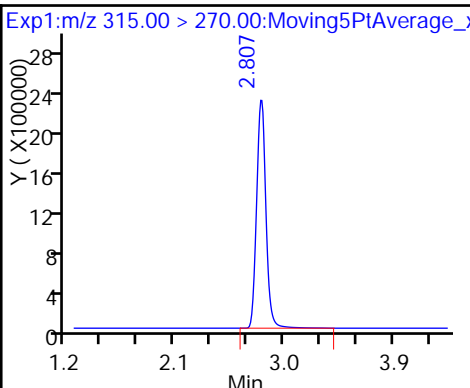
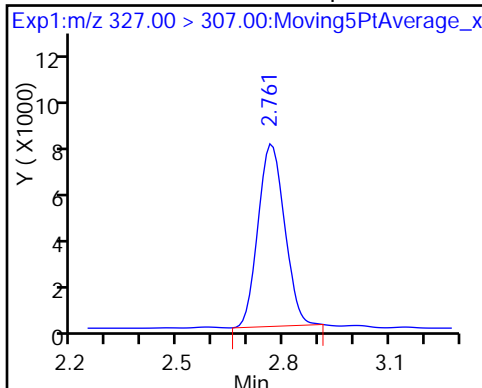
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

De 7 13C2 PFHxA

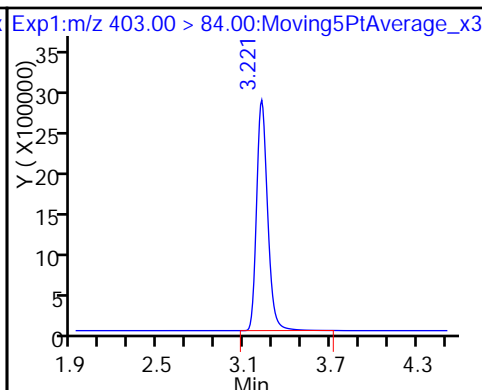
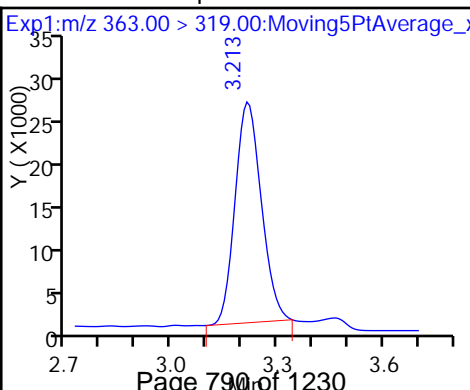
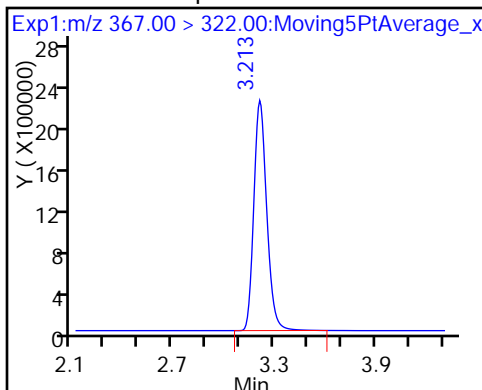
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

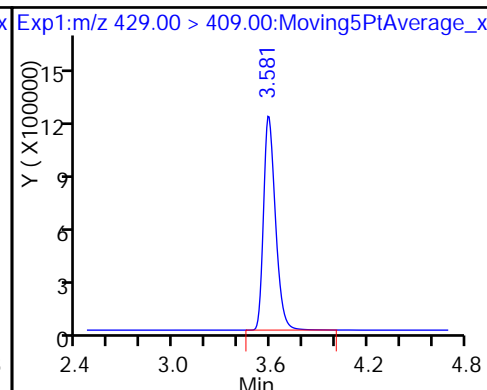
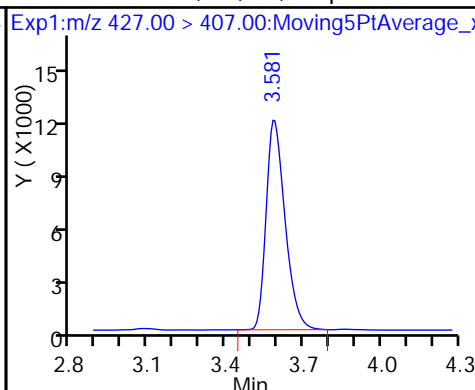
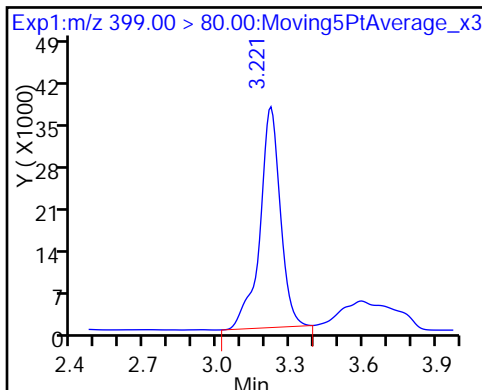
10 Perfluoroheptanoic acid

D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

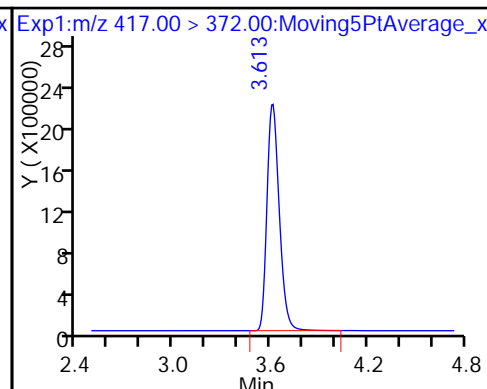
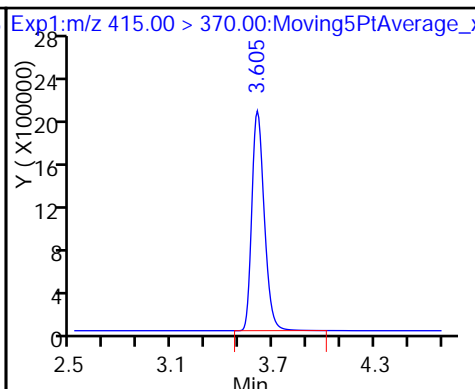
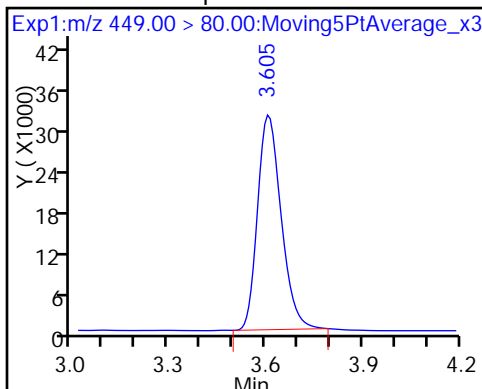
13 Sodium 1H,1H,2H,2H-perfluorooctadecane-12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

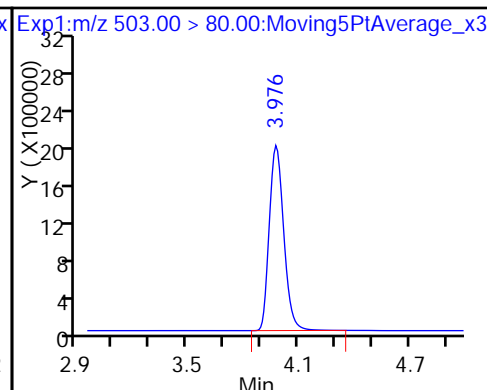
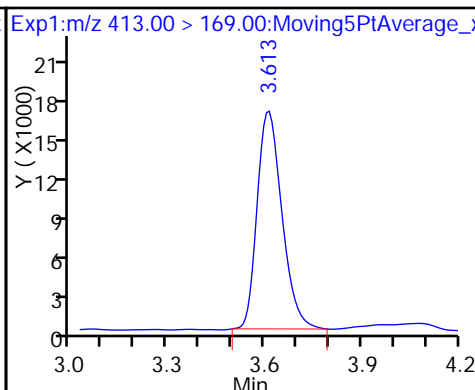
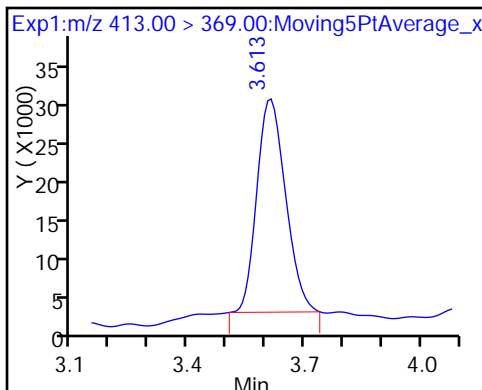
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

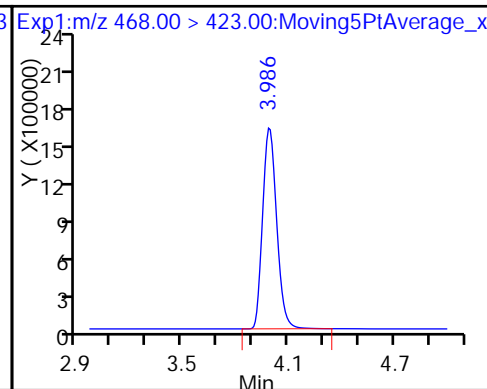
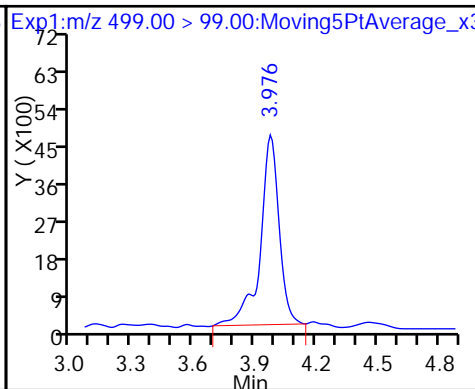
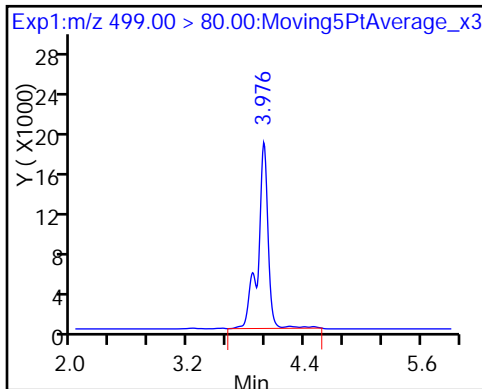
D 18 13C4 PFOS

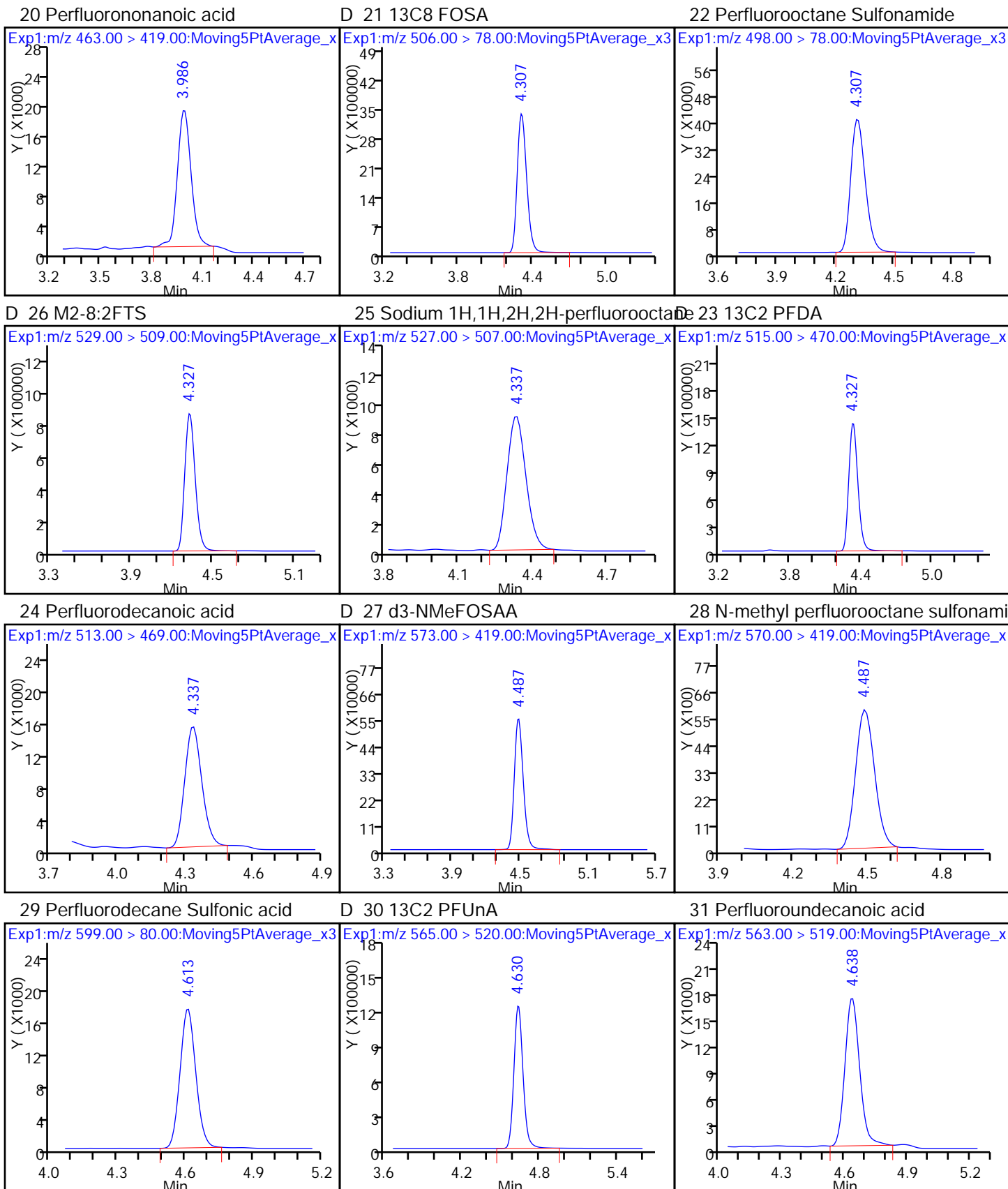


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

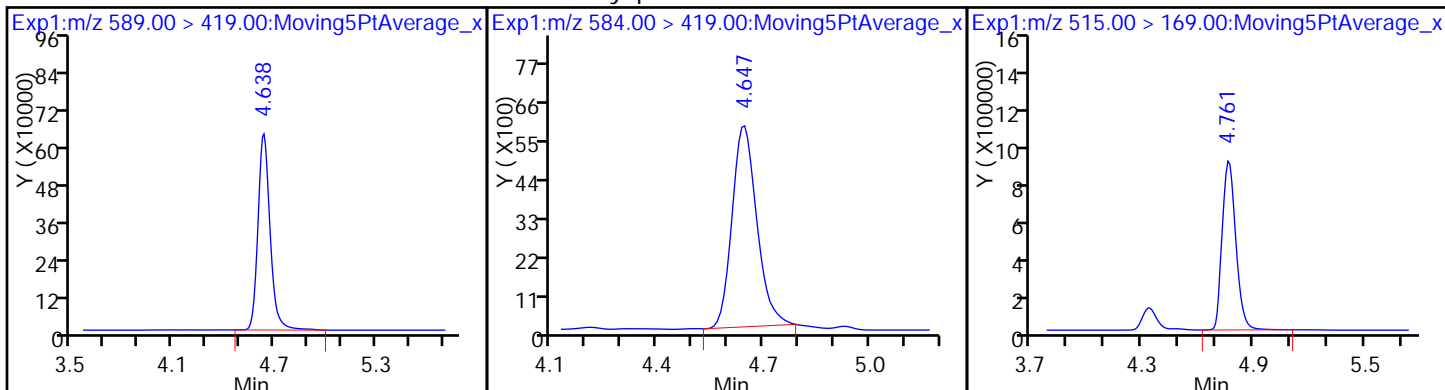




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

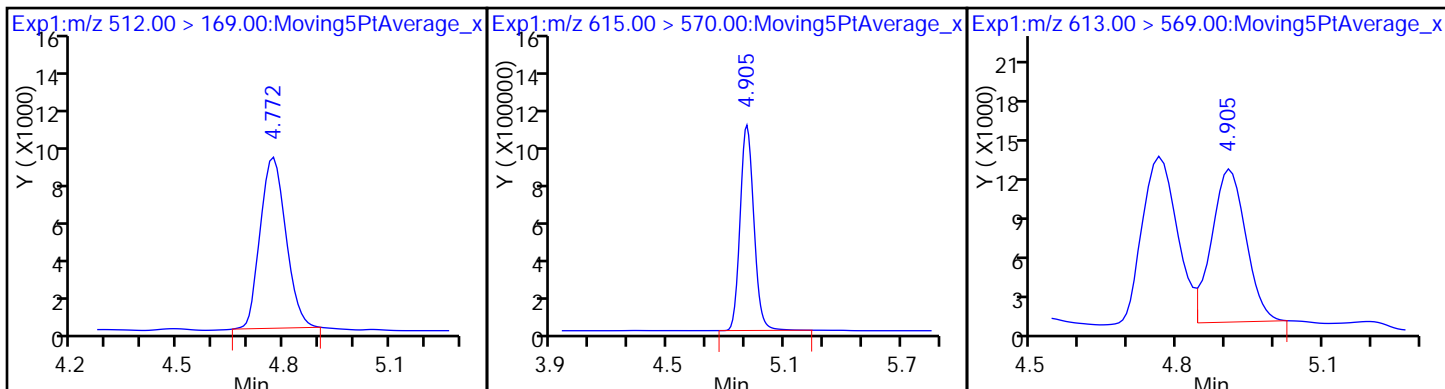
D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

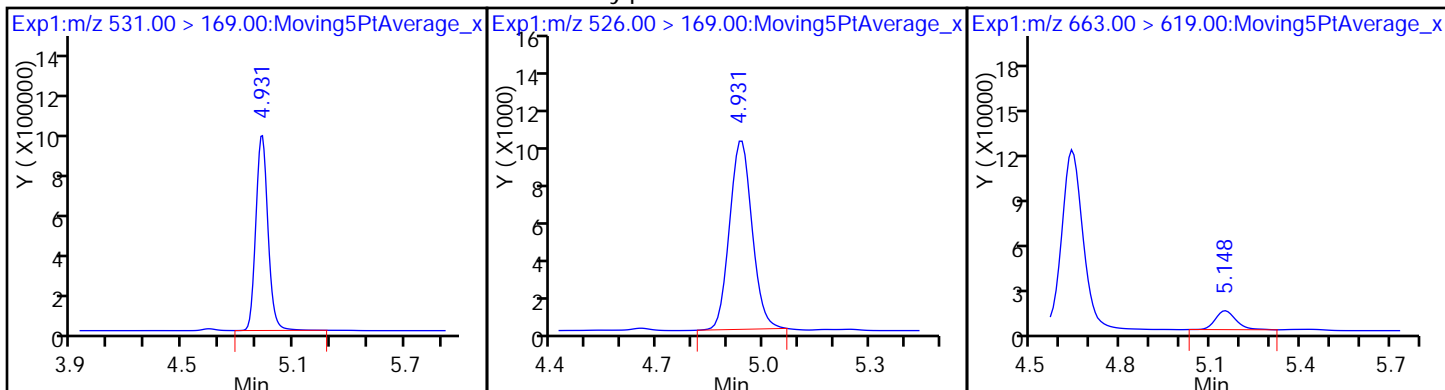
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

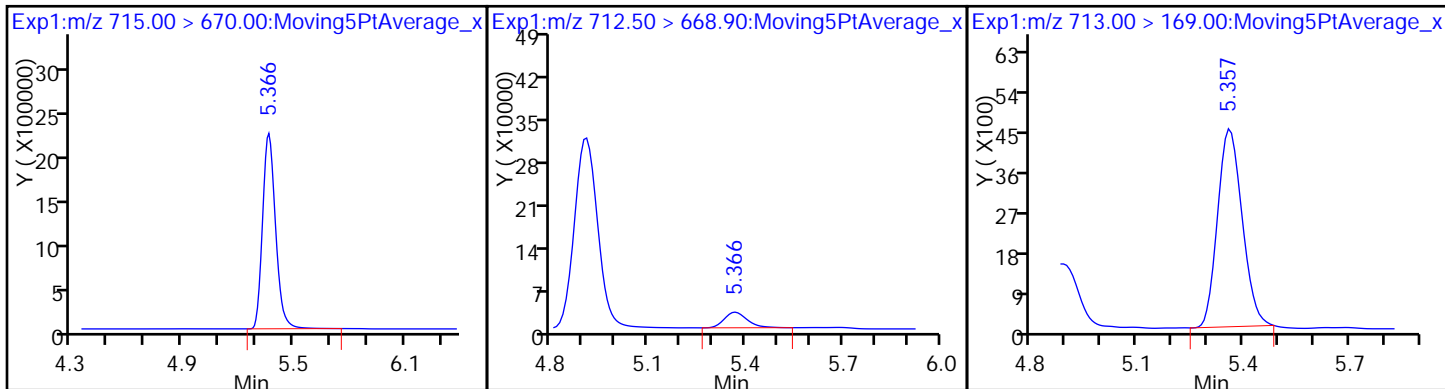
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

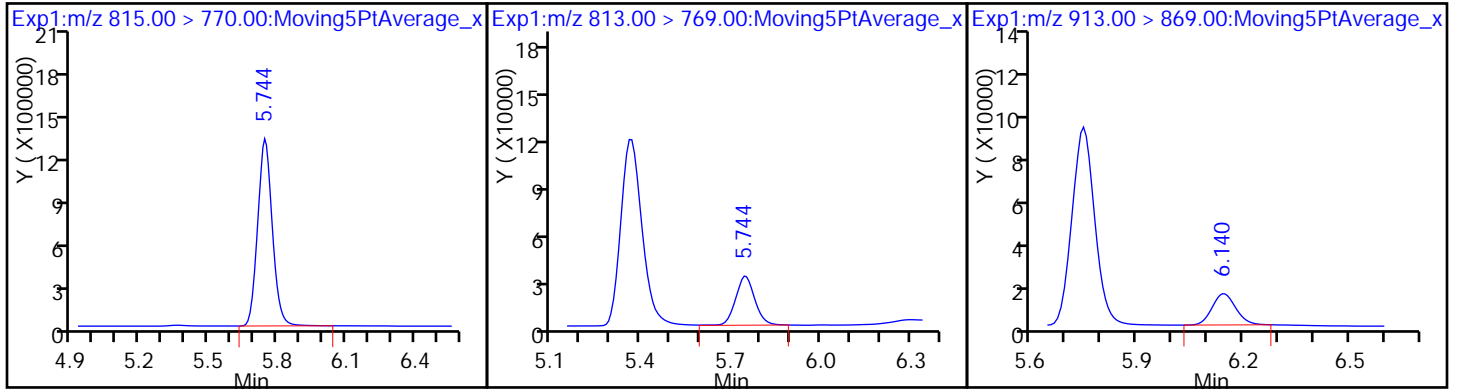
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_004.d
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 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 22-May-2017 18:49:29 ALS Bottle#: 29 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L2-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 23-May-2017 08:42:37 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK028

First Level Reviewer: westendorfc Date: 23-May-2017 08:21:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.041	2.040	0.001	20008414	53.7		108	85549	
2 Perfluorobutyric acid	212.90 > 169.00	2.049	2.044	0.005	426086	1.05		106	277	
D 3 13C5-PFPeA	267.90 > 223.00	2.417	2.408	0.009	13239521	53.7		108	140357	
4 Perfluoropentanoic acid	262.90 > 219.00	2.417	2.410	0.007	303124	1.05		106	88.8	
D 47 13C3-PFBS	301.90 > 83.00	2.455	2.448	0.007	341919	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.455	2.452	0.003	510898	0.9378		107		
	298.90 > 99.00	2.455	2.452	0.003	204173		2.50(0.00-0.00)	107		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.750	2.748	0.002	98857	0.99		108		
6 Perfluorohexanoic acid	313.00 > 269.00	2.806	2.799	0.007	294053	1.05		106	576	
D 7 13C2 PFHxA	315.00 > 270.00	2.806	2.799	0.007	13403642	54.8		111	65380	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.205	3.203	0.002	284534	1.04		105	433	
D 9 13C4-PFHpA	367.00 > 322.00	3.205	3.203	0.002	12401431	55.4		112	52622	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.213	3.209	0.004	405799	0.9739		108		
D 11 18O2 PFHxS	403.00 > 84.00	3.213	3.209	0.004	16129253	50.1		107	234448	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.580	3.576	0.004	6383540	48.6	103		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.580	3.576	0.004	1.000	126006	0.9641	103	
* 62 13C2-PFOA	415.00	> 370.00	3.595	3.595	0.0	11478263	49.5			
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.595	3.595	0.0	1.000	328366	0.9628	102	
15 Perfluorooctanoic acid	413.00	> 369.00	3.603	3.601	0.002	1.000	289246	1.03	104	23.2
	413.00	> 169.00	3.603	3.601	0.002	1.000	181400	1.59(0.90-1.10)	104	680
D 14 13C4 PFOA	417.00	> 372.00	3.603	3.601	0.002	12432800	54.8	111	45518	
D 18 13C4 PFOS	503.00	> 80.00	3.974	3.966	0.008	11825280	50.4	106	34953	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.974	3.967	0.007	1.000	276288	0.9319	101	1260
	499.00	> 99.00	3.964	3.967	-0.003	0.997	59289	4.66(0.90-1.10)	101	299
D 19 13C5 PFNA	468.00	> 423.00	3.984	3.979	0.005	9841139	56.4	114	41433	
20 Perfluorononanoic acid	463.00	> 419.00	3.984	3.981	0.003	1.000	218822	1.01	102	281
D 21 13C8 FOSA	506.00	> 78.00	4.305	4.296	0.009	19374502	52.7	106	68439	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.305	4.297	0.008	1.000	443087	1.08	109	4681
D 26 M2-8:2FTS	529.00	> 509.00	4.325	4.320	0.005	5192316	52.1	110		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.325	4.322	0.003	1.000	101968	0.9546	101	
D 23 13C2 PFDA	515.00	> 470.00	4.325	4.322	0.003	8193830	54.8	111	3689	
24 Perfluorodecanoic acid	513.00	> 469.00	4.325	4.323	0.002	1.000	177758	1.06	107	18.0
D 27 d3-NMeFOSAA	573.00	> 419.00	4.474	4.472	0.002	3459902	52.4	106		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.474	4.478	-0.004	1.000	67775	0.9632	97.3	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.602	4.598	0.004	1.000	163704	0.9434	98.8	
D 30 13C2 PFUnA	565.00	> 520.00	4.627	4.624	0.003	6273263	55.9	113	8054	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.627	4.625	0.002	1.000	153074	1.03	104	445
D 32 d5-NEtFOSAA	589.00	> 419.00	4.627	4.627	0.0	3634540	56.6	114		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.635	4.635	0.0	1.002	65749	0.9377	94.7	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.758	4.750	0.008	4936124	49.9	101		
35 MeFOSA	512.00	> 169.00	4.758	4.755	0.003	1.000	90112	0.9384	94.8	
37 Perfluorododecanoic acid	613.00	> 569.00	4.894	4.895	-0.001	1.000	117539	0.99	100	5.7
D 36 13C2 PFDaA	615.00	> 570.00	4.894	4.895	-0.001		5780215	53.1	107	6075
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.920	4.915	0.005		4895716	51.0	103	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.929	4.922	0.007	1.000	100500	1.00	101	
41 Perfluorotridecanoic acid	663.00	> 619.00	5.139	5.139	0.0	1.000	116327	0.99	100	4.6
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.356	5.357	-0.001	1.000	261023	1.02	103	3.5
	713.00	> 169.00	5.356	5.357	-0.001	1.000	40868	6.39(0.00-0.00)	103	155
D 43 13C2-PFTeDA	715.00	> 670.00	5.356	5.357	-0.001		11391150	52.9	107	7043
D 44 13C2-PFHxDA	815.00	> 770.00	5.743	5.742	0.001		6209832	51.6	104	1716
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.743	5.743	0.0	1.000	200684	0.9789	98.9	6.8
46 Perfluorooctadecanoic acid	913.00	> 869.00	6.140	6.143	-0.003	1.000	144683	0.9831	99.3	4.6

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L2_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_004.d

Injection Date: 22-May-2017 18:49:29

Instrument ID: A8_N

Lims ID: IC L2 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

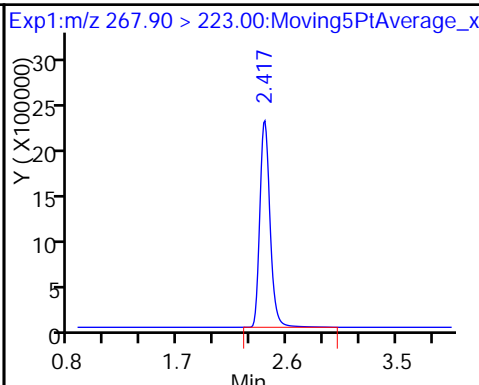
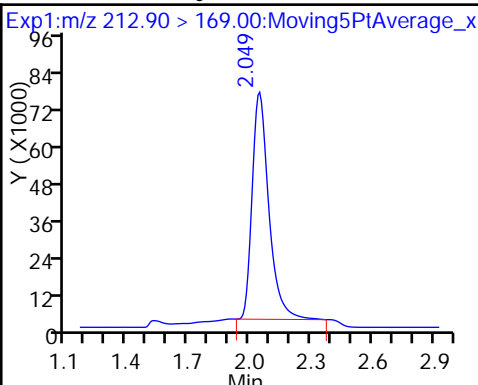
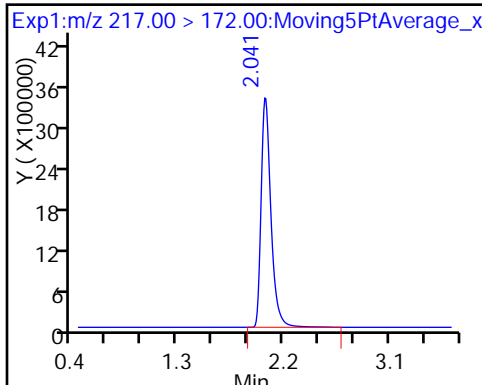
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

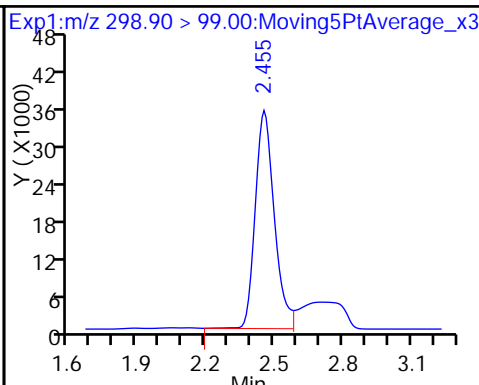
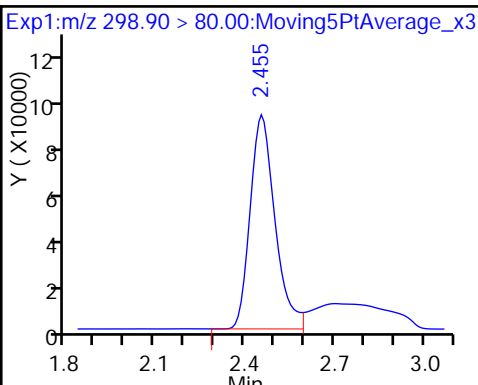
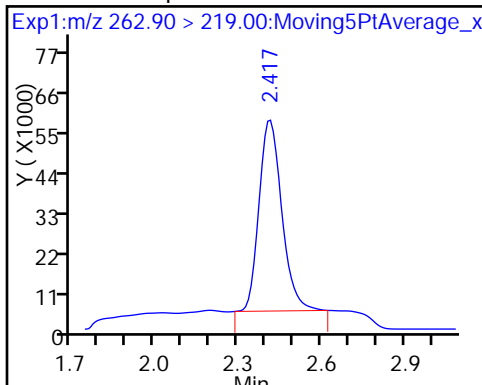
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

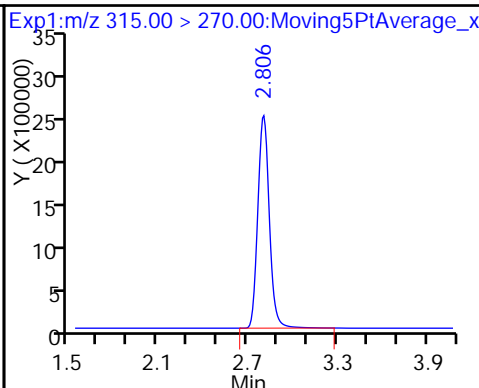
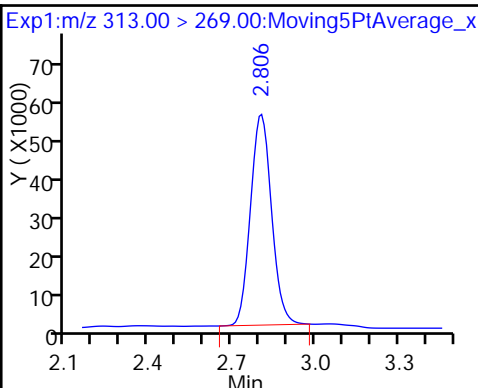
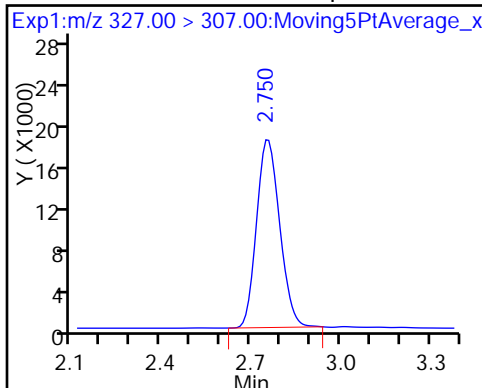
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

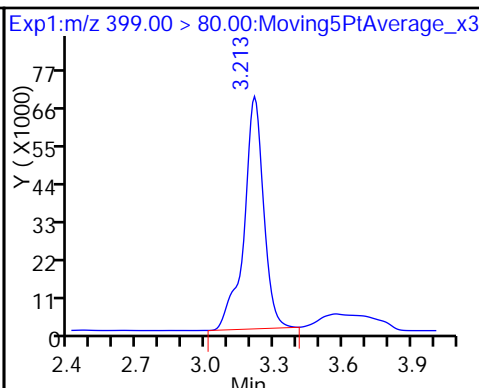
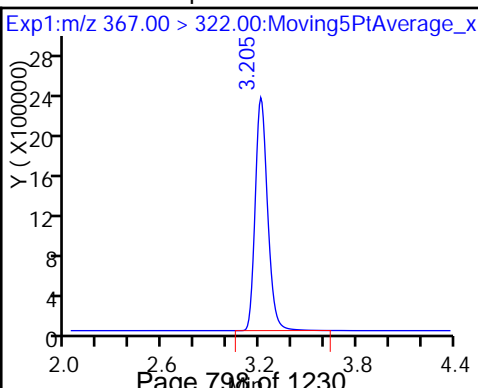
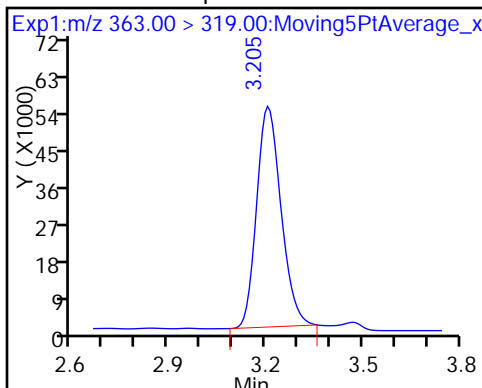
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

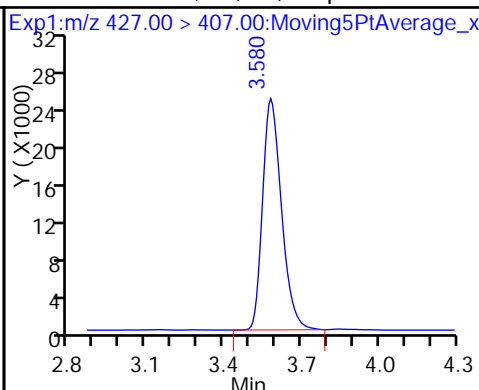
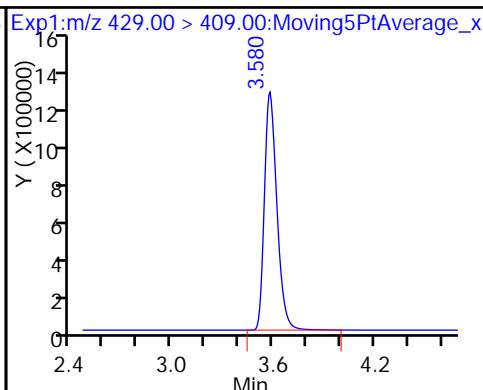
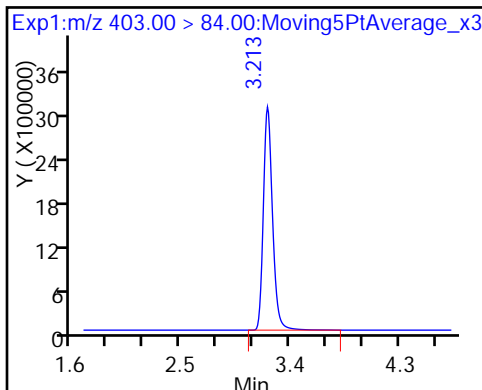
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

D 12 M2-6:2FTS

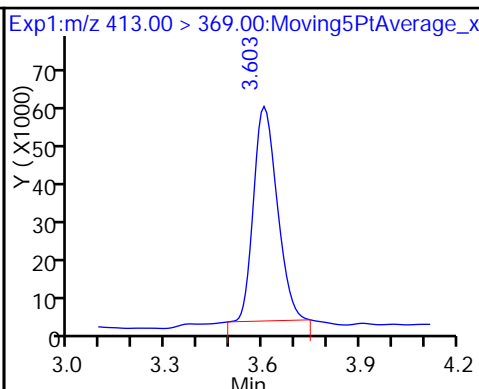
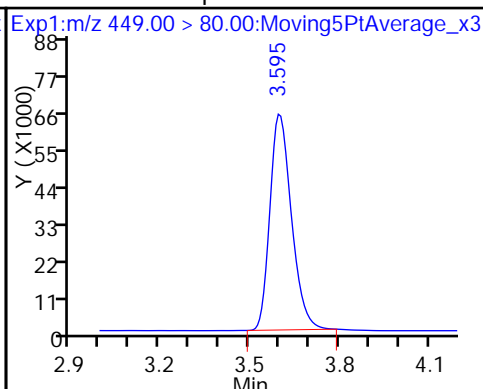
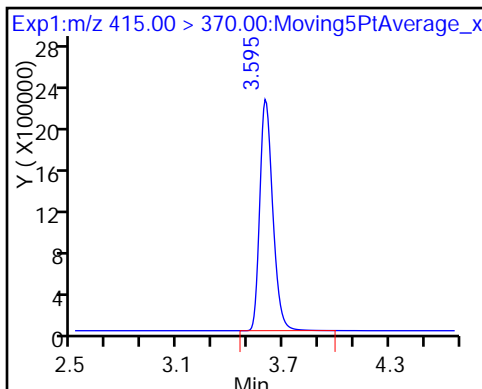
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

16 Perfluoroheptanesulfonic Acid

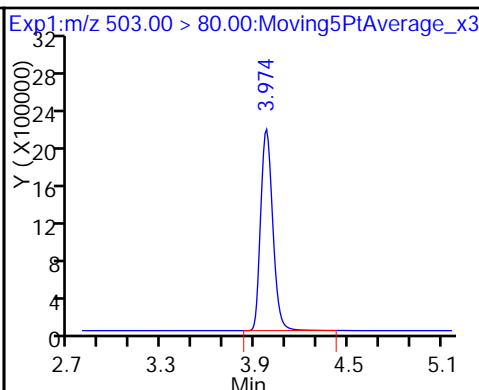
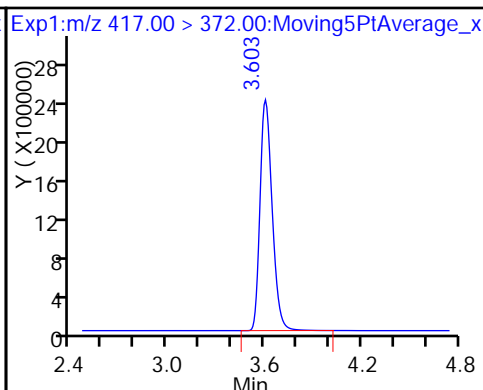
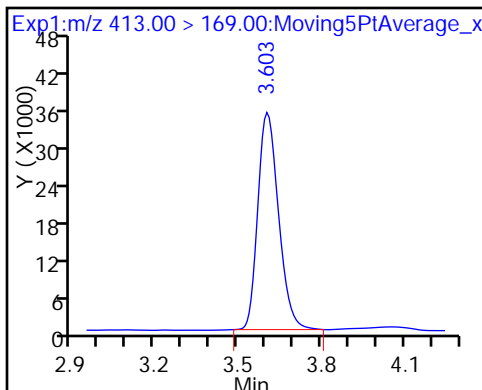
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

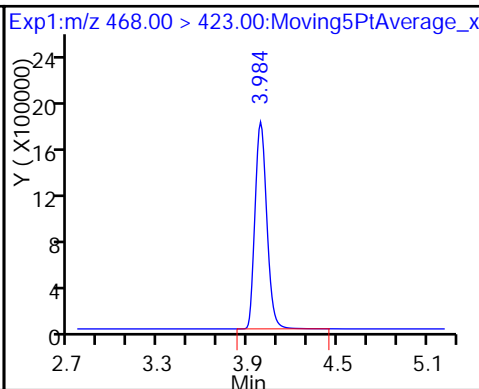
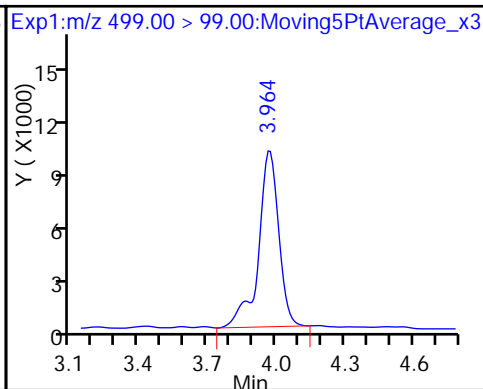
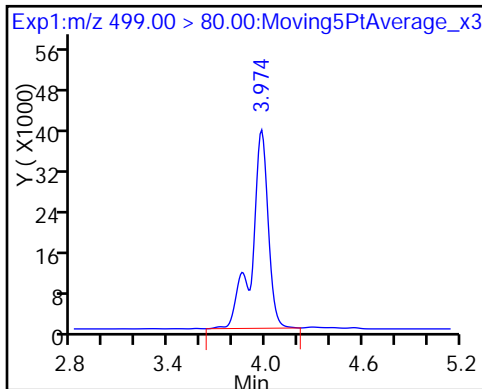
D 18 13C4 PFOS

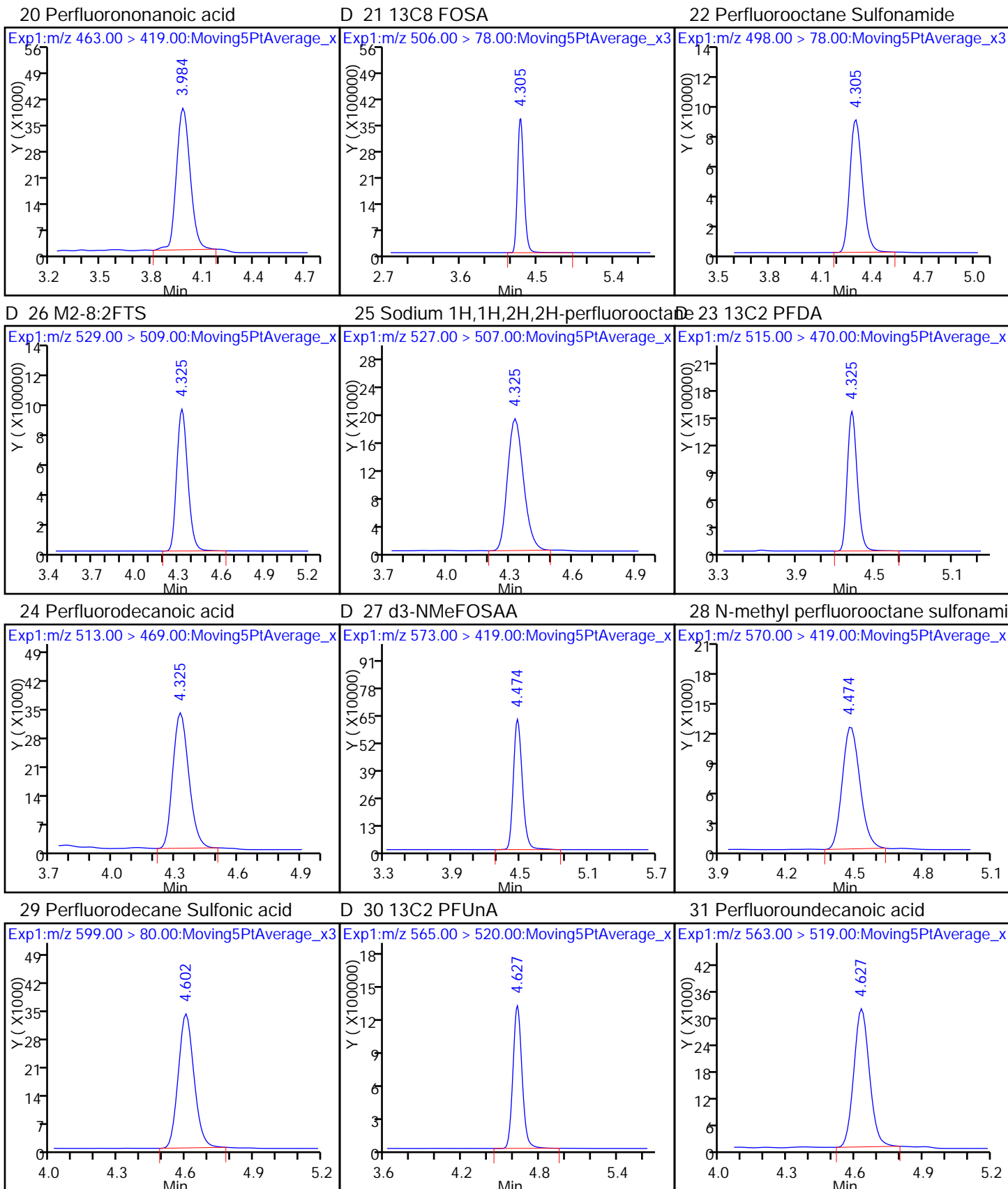


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

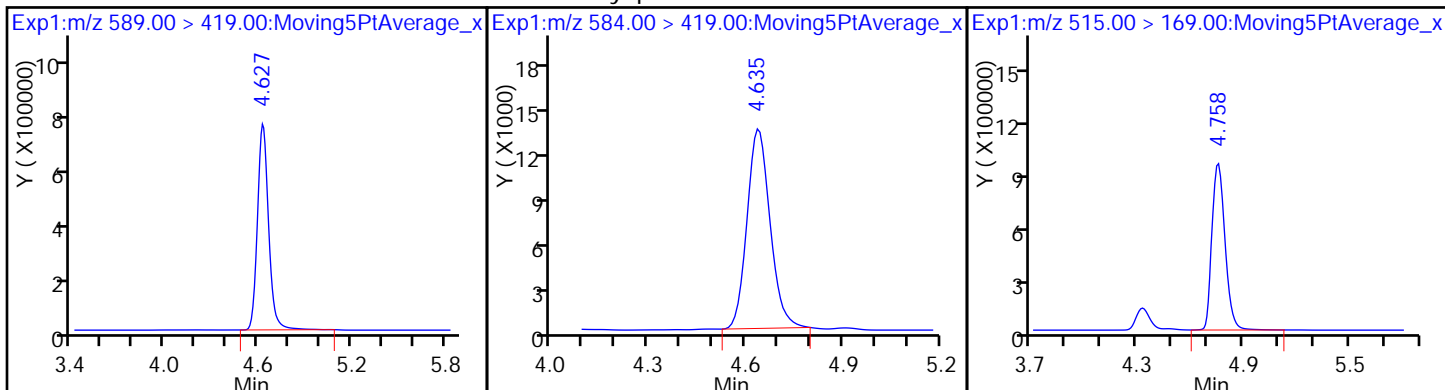




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

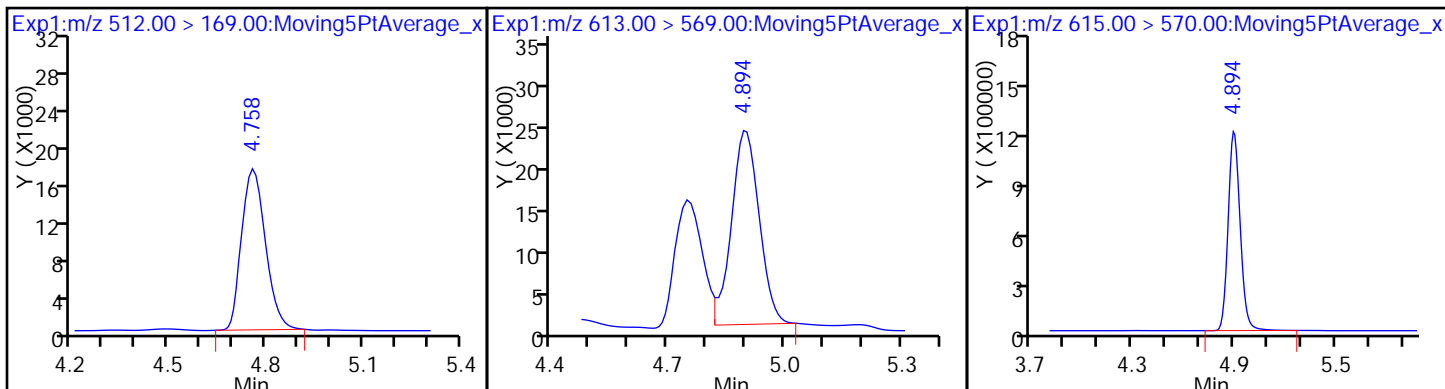
D 34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

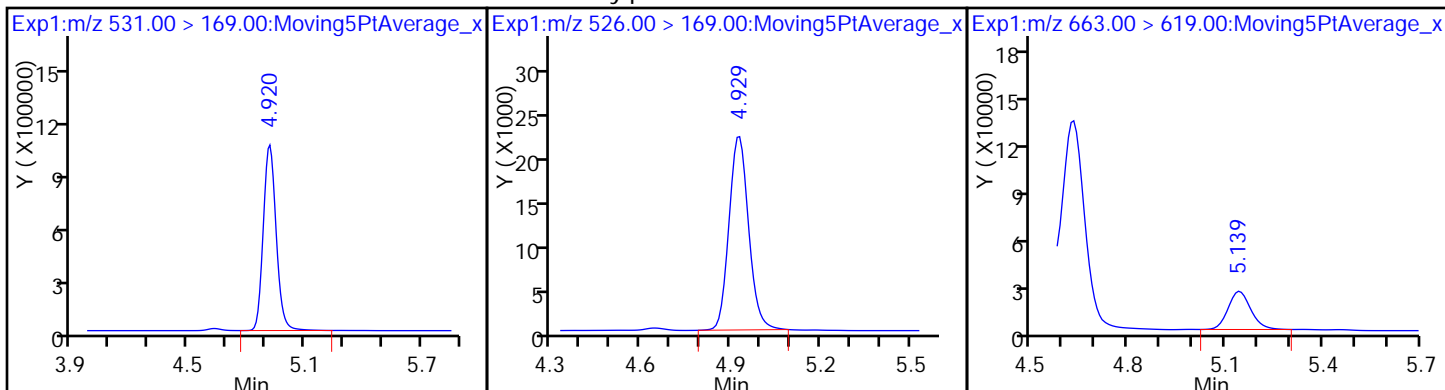
D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

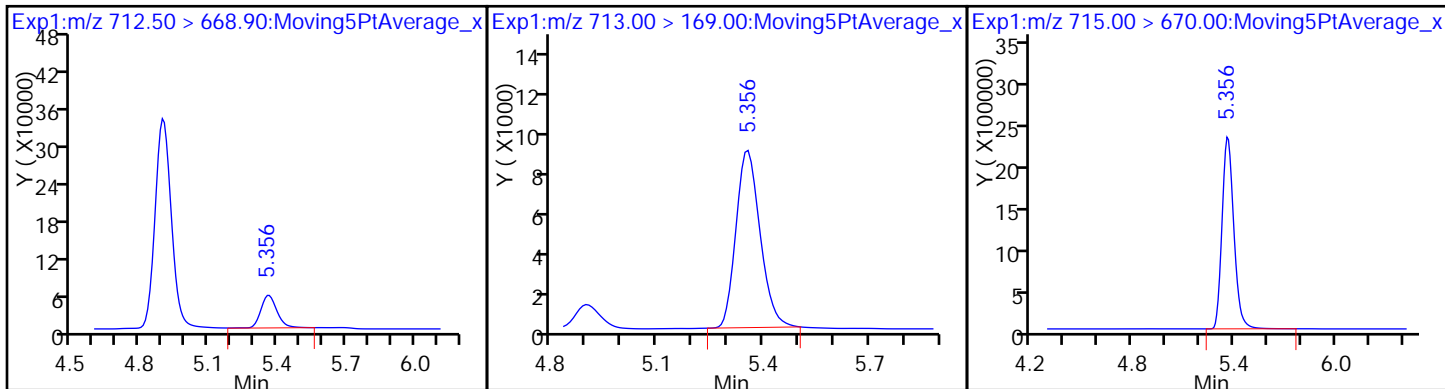
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

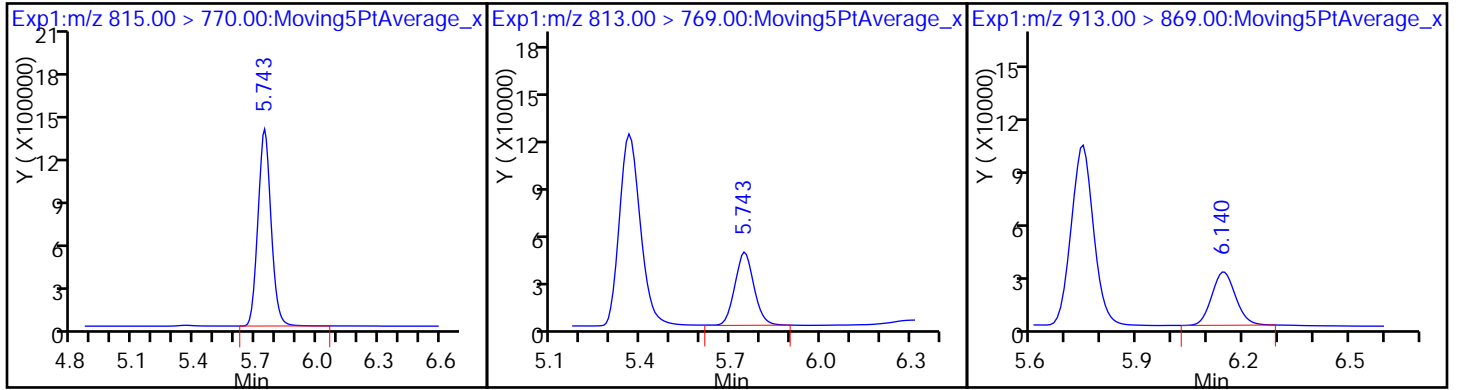
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_005.d
 Lims ID: IC L3 Full
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 22-May-2017 18:56:59 ALS Bottle#: 30 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L3-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 23-May-2017 08:42:40 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK028

First Level Reviewer: westendorfc Date: 23-May-2017 08:19:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.034	2.040	-0.006	19601054	52.6		106	177048	
2 Perfluorobutyric acid	212.90 > 169.00	2.034	2.044	-0.010	2069688	5.21		105	1560	
D 3 13C5-PFPeA	267.90 > 223.00	2.398	2.408	-0.010	13234174	53.7		108	284156	
4 Perfluoropentanoic acid	262.90 > 219.00	2.398	2.410	-0.012	1430018	4.94		99.7	469	
D 47 13C3-PFBS	301.90 > 83.00	2.438	2.448	-0.010	335882	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.438	2.452	-0.014	2576863	4.72		108		
	298.90 > 99.00	2.438	2.452	-0.014	994887		2.59(0.00-0.00)	108		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.738	2.748	-0.010	471975	4.90		106		
D 7 13C2 PFHxA	315.00 > 270.00	2.786	2.799	-0.013	13009289	53.2		107	390089	
6 Perfluorohexanoic acid	313.00 > 269.00	2.786	2.799	-0.013	1401897	5.15		104	3144	
D 9 13C4-PFHpA	367.00 > 322.00	3.188	3.203	-0.015	12394373	55.4		112	135765	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.188	3.203	-0.015	1383361	5.04		102	1788	
D 11 18O2 PFHxS	403.00 > 84.00	3.196	3.209	-0.013	16163702	50.2		107	108972	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.196	3.209	-0.013	1798289	4.31		95.6		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.566	3.576	-0.010	1.000	644930	5.09	108		
D 12 M2-6:2FTS	429.00	> 409.00	3.566	3.576	-0.010		6186737	47.1	100		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.580	3.595	-0.015	1.000	1692427	4.73	100		
* 62 13C2-PFOA	415.00	> 370.00	3.580	3.595	-0.015		11640783	49.5			
D 14 13C4 PFOA	417.00	> 372.00	3.587	3.601	-0.014		12375651	54.5	110	44352	
15 Perfluorooctanoic acid	413.00	> 369.00	3.587	3.601	-0.014	1.000	1400741	4.99	101	116	
	413.00	> 169.00	3.587	3.601	-0.014	1.000	858239		1.63(0.90-1.10)	101	2710
D 18 13C4 PFOS	503.00	> 80.00	3.952	3.966	-0.014		12419687	52.9	112	42243	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.952	3.967	-0.015	1.000	1352424	4.34	94.5	3655	
	499.00	> 99.00	3.952	3.967	-0.015	1.000	301029		4.49(0.90-1.10)	94.5	1698
D 19 13C5 PFNA	468.00	> 423.00	3.962	3.979	-0.017		9564710	54.8	111	26553	
20 Perfluorononanoic acid	463.00	> 419.00	3.972	3.981	-0.009	1.000	1071551	5.10	103	1655	
D 21 13C8 FOSA	506.00	> 78.00	4.280	4.296	-0.016		19086132	51.9	105	20316	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.289	4.297	-0.008	1.000	2169003	5.37	108	32057	
D 26 M2-8:2FTS	529.00	> 509.00	4.309	4.320	-0.011		4998946	50.2	106		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.309	4.322	-0.013	1.000	543240	5.28	111		
D 23 13C2 PFDA	515.00	> 470.00	4.309	4.322	-0.013		8289567	55.4	112	5503	
24 Perfluorodecanoic acid	513.00	> 469.00	4.309	4.323	-0.014	1.000	843818	4.95	100	159	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.458	4.472	-0.014		3405870	51.6	104		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.468	4.478	-0.010	1.002	336567	4.86	98.2		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.588	4.598	-0.010	1.000	840497	4.61	96.6		
D 30 13C2 PFUnA	565.00	> 520.00	4.614	4.624	-0.010		6126225	54.6	110	11297	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.614	4.625	-0.011	1.000	692202	4.76	96.2	2131	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.614	4.627	-0.013		3458142	53.8	109		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.622	4.635	-0.013	1.002	327150	4.90	99.1		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.740	4.750	-0.010		4950944	50.0	101		
35 MeFOSA	512.00 > 169.00	4.740	4.755	-0.015	1.000	476093	4.94	99.9		
D 36 13C2 PFDaA	615.00 > 570.00	4.885	4.895	-0.010		5555241	51.0	103	5550	
37 Perfluorododecanoic acid	613.00 > 569.00	4.885	4.895	-0.010	1.000	603161	5.30	107	26.5	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.903	4.915	-0.012		4780350	49.8	101		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.912	4.922	-0.010	1.000	497504	5.05	102		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.130	5.139	-0.009	1.000	591927	5.25	106	25.2	
D 43 13C2-PFTeDA	715.00 > 670.00	5.346	5.357	-0.011		11183033	51.9	105	9505	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.346	5.357	-0.011	1.000	1210978	5.21	105	17.3	
	713.00 > 169.00	5.346	5.357	-0.011	1.000	178939	6.77(0.00-0.00)	105	644	
D 44 13C2-PFHxDA	815.00 > 770.00	5.730	5.742	-0.012		6193222	51.5	104	1817	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.738	5.743	-0.005	1.000	686588	5.22	106	21.4	
46 Perfluorooctadecanoic acid	913.00 > 869.00	6.134	6.143	-0.009	1.000	699047	4.94	99.8	20.5	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L3_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_005.d

Injection Date: 22-May-2017 18:56:59

Instrument ID: A8_N

Lims ID: IC L3 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 30

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

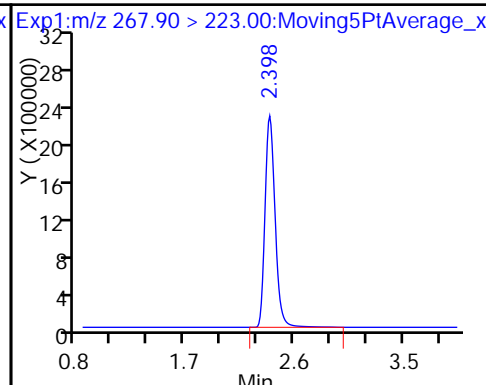
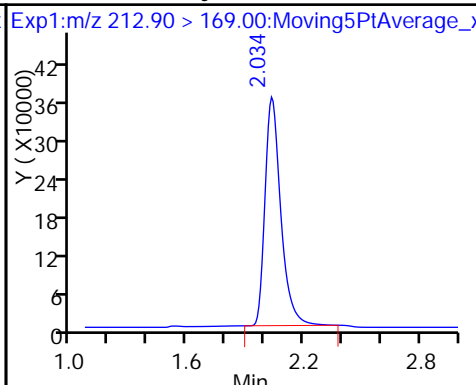
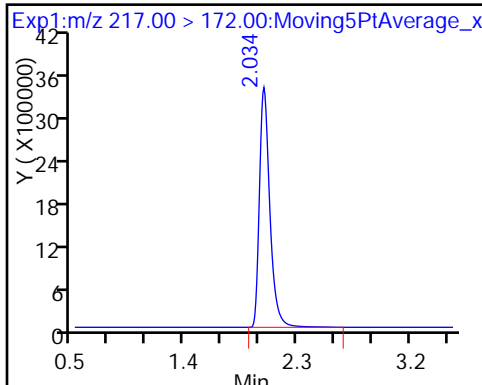
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

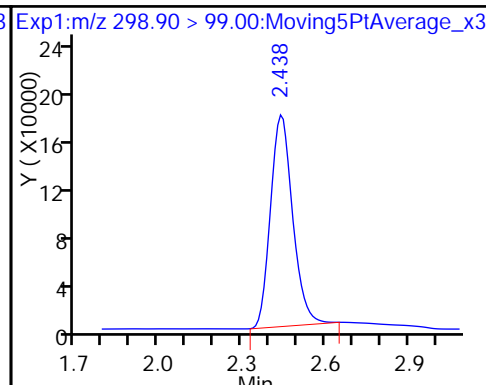
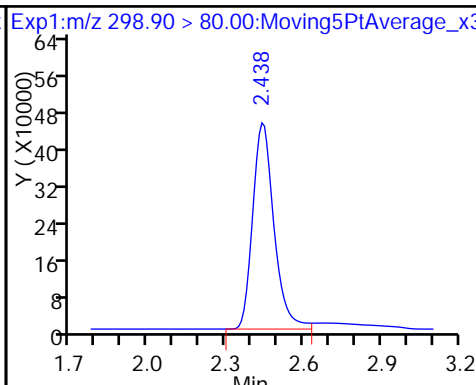
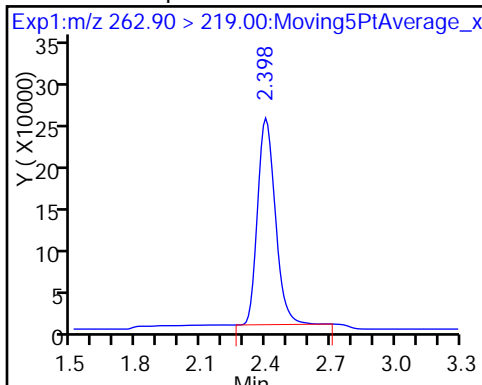
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

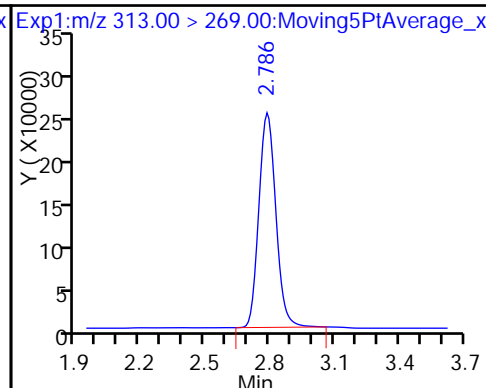
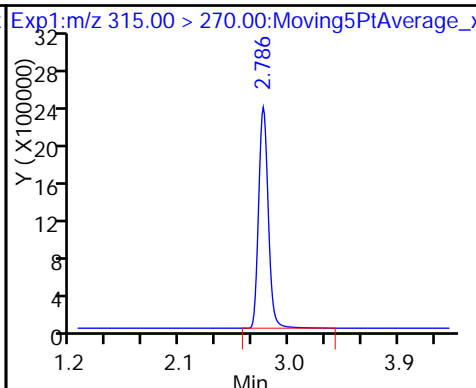
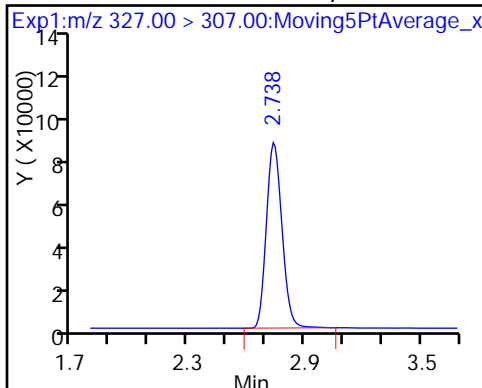
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

De 7 13C2 PFHxA

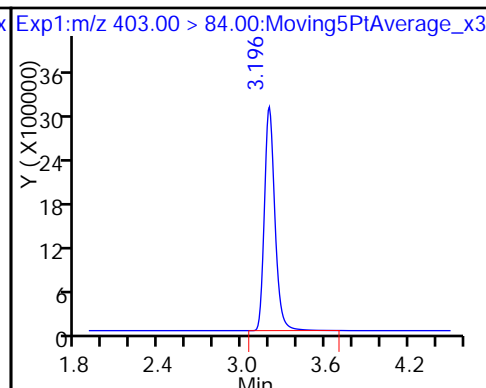
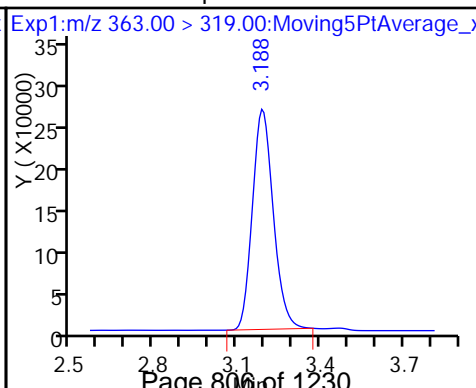
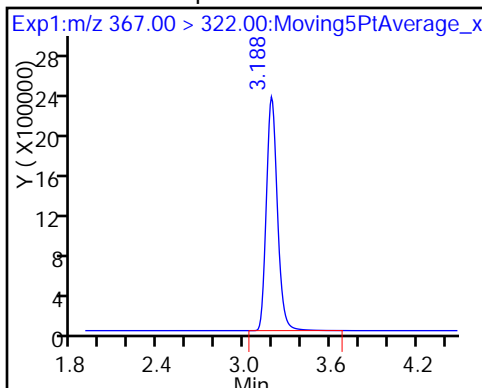
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

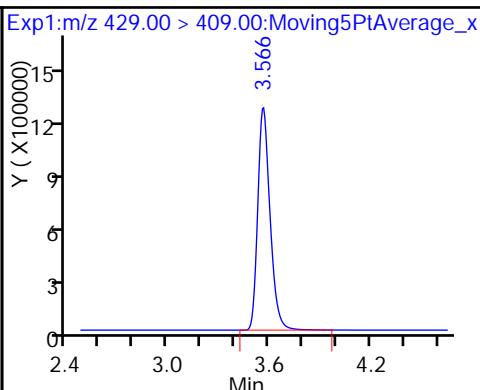
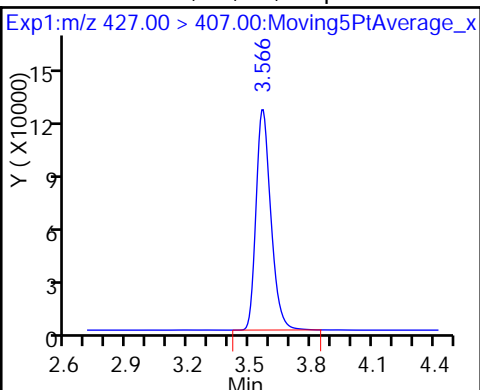
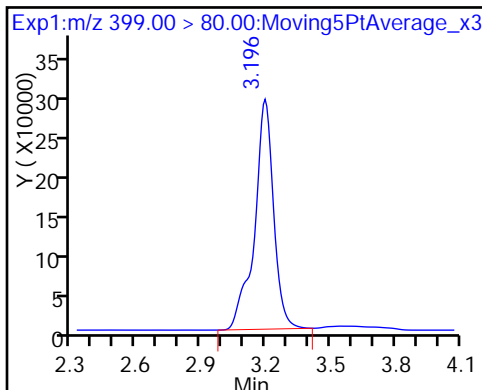
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8 Perfluorohexanesulfonic acid

13 Sodium 1H,1H,2H,2H-perfluorooctanoate

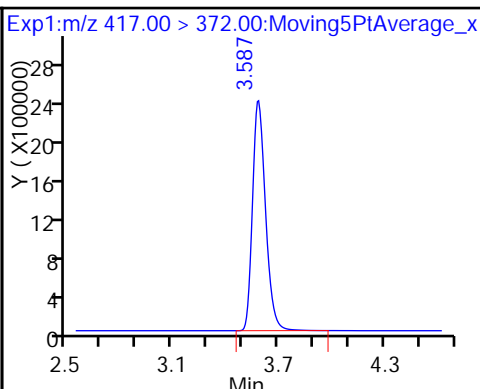
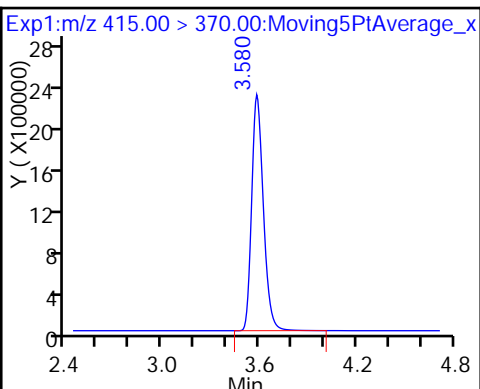
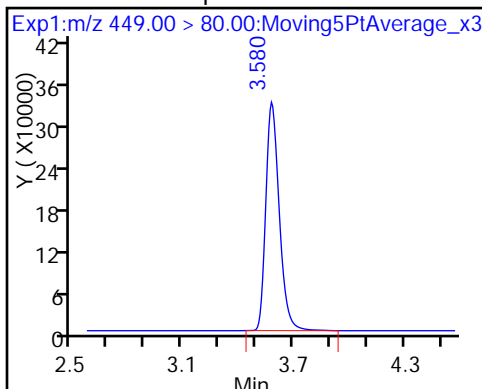
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

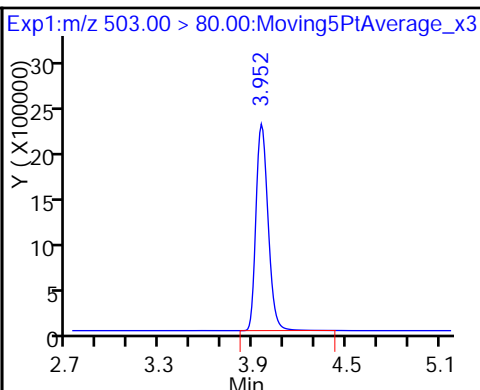
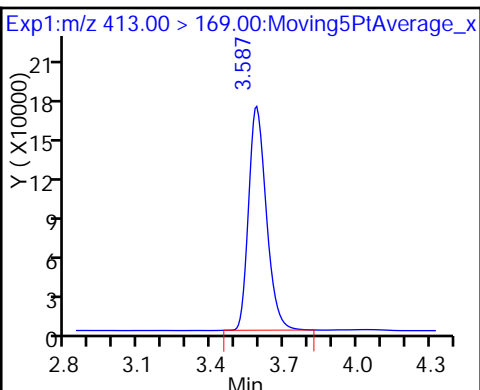
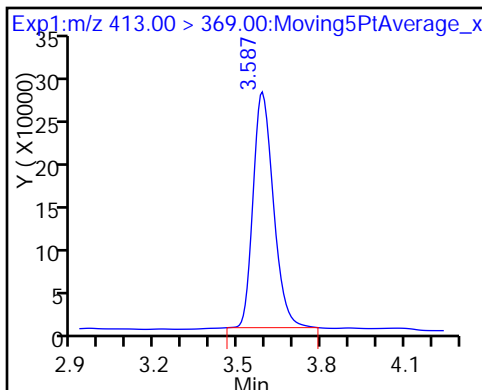
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

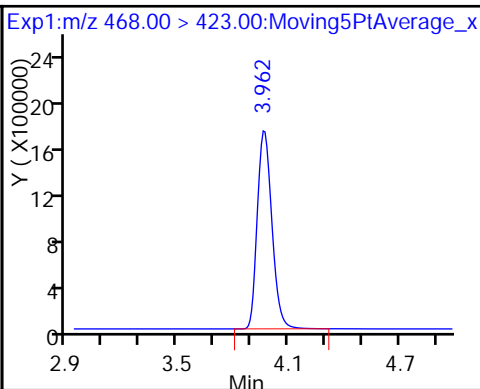
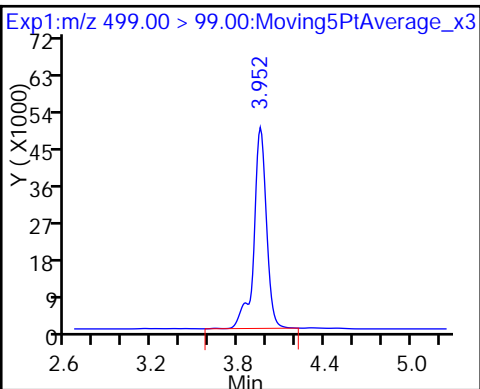
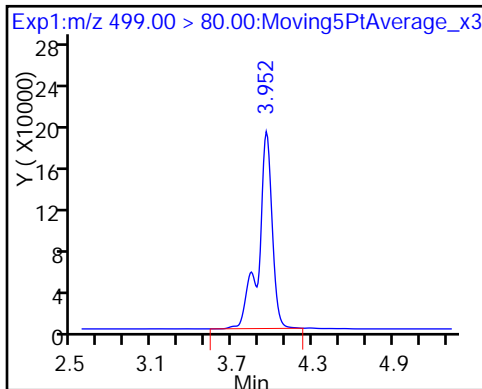
D 18 13C4 PFOS

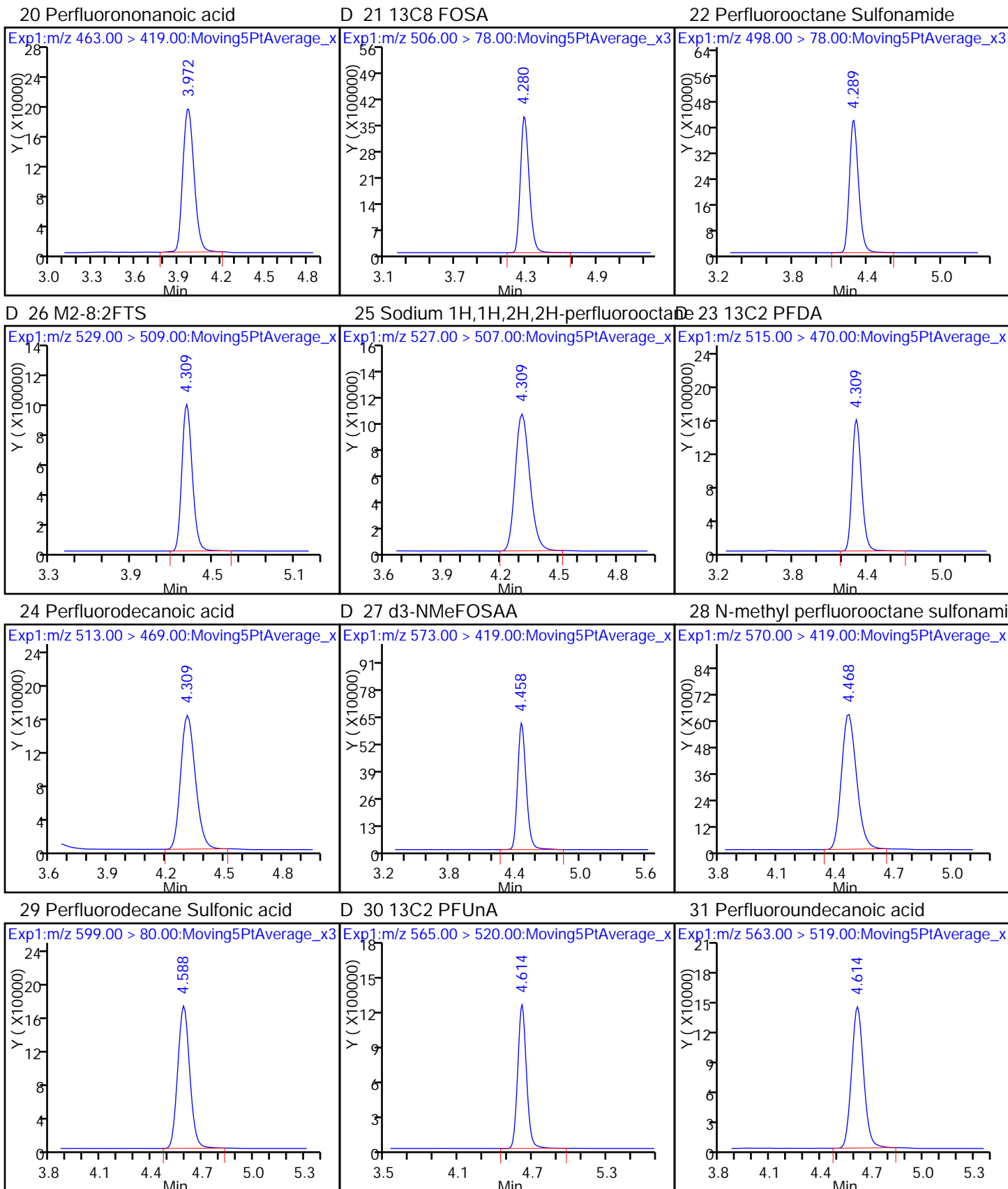


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

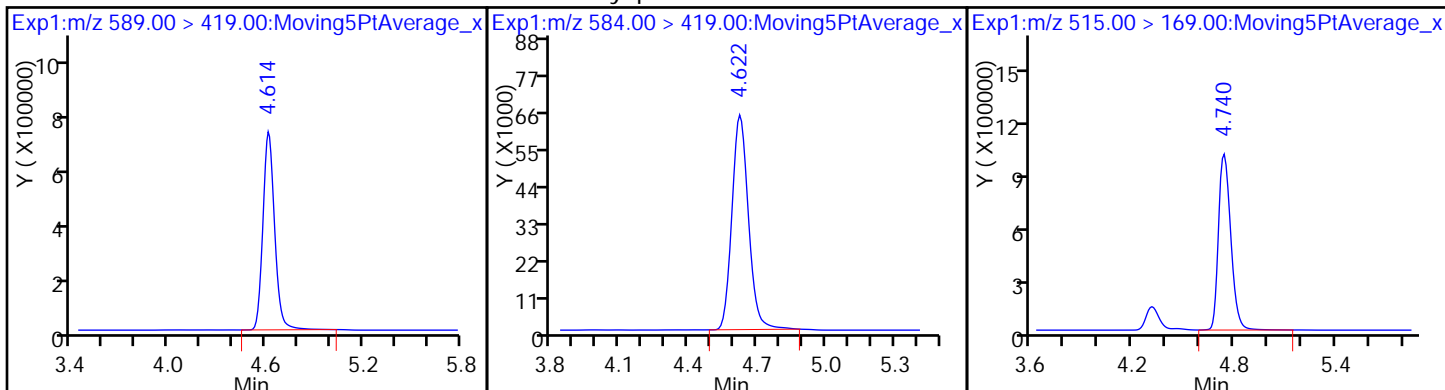
D 19 13C5 PFNA





D 32 d5-NEtFOSAA

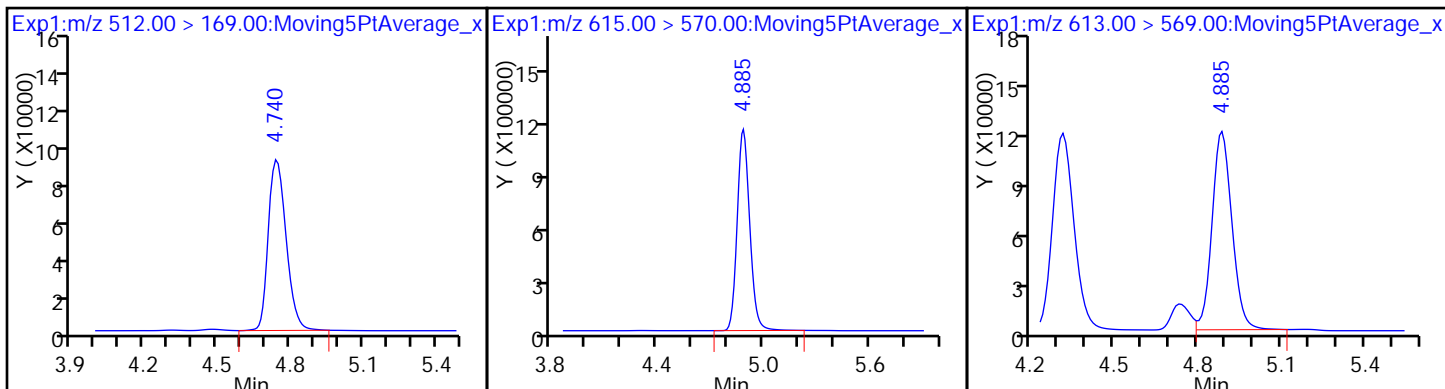
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

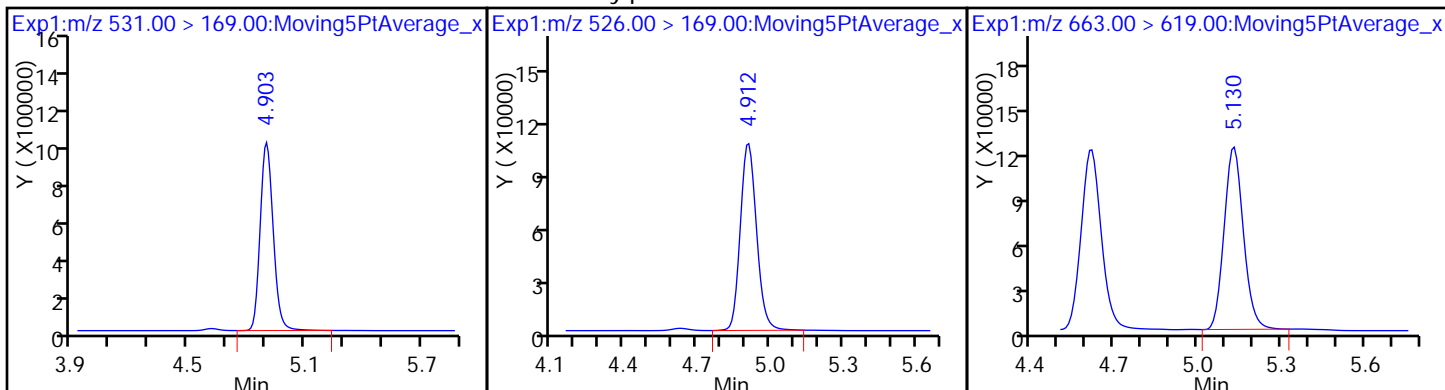
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

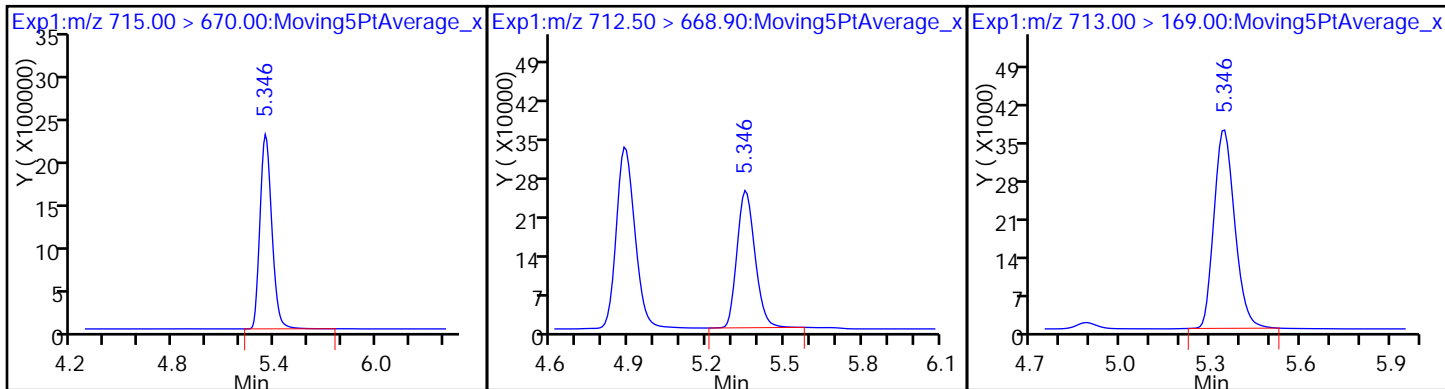
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

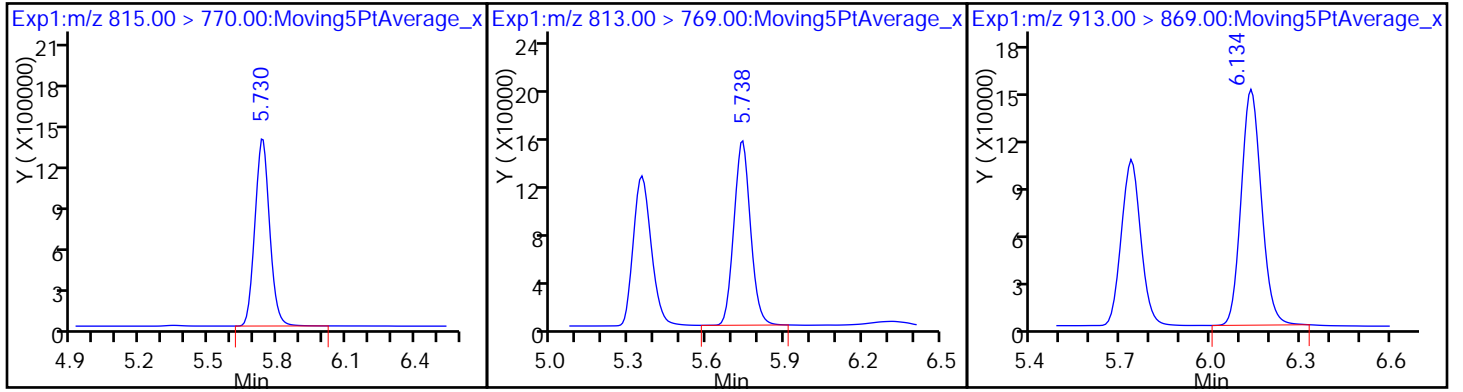
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_006.d
 Lims ID: IC L4 Full
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 22-May-2017 19:04:30 ALS Bottle#: 31 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L4-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 23-May-2017 08:42:43 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK028

First Level Reviewer: westendorfc Date: 23-May-2017 08:21:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.042	2.040	0.002	18474348	49.6		100	177375	
2 Perfluorobutyric acid	212.90 > 169.00	2.042	2.044	-0.002	7877767	21.0		106	6220	
D 3 13C5-PFPeA	267.90 > 223.00	2.408	2.408	0.0	12347367	50.1		101	293938	
4 Perfluoropentanoic acid	262.90 > 219.00	2.408	2.410	-0.002	5541269	20.5		104	1620	
D 47 13C3-PFBS	301.90 > 83.00	2.448	2.448	0.0	310679	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.448	2.452	-0.004	9860190	19.3		110		
	298.90 > 99.00	2.448	2.452	-0.004	4012456		2.46(0.00-0.00)	110		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.751	2.748	0.003	1950166	17.2		92.7		
6 Perfluorohexanoic acid	313.00 > 269.00	2.799	2.799	0.0	5092358	19.9		100	9179	
D 7 13C2 PFHxA	315.00 > 270.00	2.799	2.799	0.0	12242347	50.1		101	267940	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.209	3.203	0.006	5159865	20.4		103	2026	
D 9 13C4-PFHpA	367.00 > 322.00	3.209	3.203	0.006	11405067	51.0		103	43336	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.209	3.209	0.0	6928848	17.7		98.2		
D 11 18O2 PFHxS	403.00 > 84.00	3.209	3.209	0.0	15153103	47.0		100	551369	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.584	3.576	0.008	7301148	55.6		118	
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.584	3.576	0.008	1.000	2926960	19.6		104
* 62 13C2-PFOA	415.00	> 370.00	3.601	3.595	0.006		11759205	49.5		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.601	3.595	0.006	1.000	6466937	19.7		104
15 Perfluorooctanoic acid	413.00	> 369.00	3.610	3.601	0.009	1.000	5516810	20.3		102 465
	413.00	> 169.00	3.610	3.601	0.009	1.000	3309836		1.67(0.90-1.10)	102 10435
D 14 13C4 PFOA	417.00	> 372.00	3.610	3.601	0.009		12000973	52.9		107 57092
D 18 13C4 PFOS	503.00	> 80.00	3.972	3.966	0.006		11399730	48.6		103 16122
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.972	3.967	0.005	1.000	5220228	18.3		99.4 7326
	499.00	> 99.00	3.972	3.967	0.005	1.000	1150579		4.54(0.90-1.10)	99.4 4859
D 19 13C5 PFNA	468.00	> 423.00	3.983	3.979	0.004		8877067	50.9		103 30006
20 Perfluorononanoic acid	463.00	> 419.00	3.983	3.981	0.002	1.000	3889974	19.9		101 3305
D 21 13C8 FOSA	506.00	> 78.00	4.303	4.296	0.007		18610902	50.6		102 20119
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.303	4.297	0.006	1.000	8131898	20.6		104 15951
D 26 M2-8:2FTS	529.00	> 509.00	4.325	4.320	0.005		4746132	47.6		100
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.325	4.322	0.003	1.000	1836951	18.8		99.2
D 23 13C2 PFDA	515.00	> 470.00	4.325	4.322	0.003		7477625	50.0		101 4077
24 Perfluorodecanoic acid	513.00	> 469.00	4.325	4.323	0.002	1.000	3091638	20.1		102 382
D 27 d3-NMeFOSAA	573.00	> 419.00	4.484	4.472	0.012		3351061	50.8		103
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.484	4.478	0.006	1.000	1319337	19.4		97.8
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.603	4.598	0.005	1.000	3301006	19.7		103
D 30 13C2 PFUnA	565.00	> 520.00	4.629	4.624	0.005		5722034	51.0		103 9126
31 Perfluoroundecanoic acid	563.00	> 519.00	4.629	4.625	0.004	1.000	2683789	19.8		99.9 9979
D 32 d5-NEtFOSAA	589.00	> 419.00	4.629	4.627	0.002		3220459	50.1		101
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.640	4.635	0.005	1.002	1270688	20.5		103

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.752	4.750	0.002		4961666		50.1		101
35 MeFOSA	512.00 > 169.00	4.763	4.755	0.008	1.000	1939572		20.1		101
37 Perfluorododecanoic acid	613.00 > 569.00	4.901	4.895	0.006	1.000	2230341		20.0		101 136
D 36 13C2 PFDaA	615.00 > 570.00	4.901	4.895	0.006		5434290		49.9		101 3932
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.919	4.915	0.004		4753712		49.6		100
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.928	4.922	0.006	1.000	1983991		20.3		102
41 Perfluorotridecanoic acid	663.00 > 619.00	5.147	5.139	0.008	1.000	2268888		20.6		104 113
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.365	5.357	0.008	1.000	4730974		21.0		106 62.1
	713.00 > 169.00	5.356	5.357	-0.001	0.998	692980	6.83(0.00-0.00)			106 2112
D 43 13C2-PFTeDA	715.00 > 670.00	5.365	5.357	0.008		10945258		50.8		103 6778
D 44 13C2-PFHxDA	815.00 > 770.00	5.745	5.742	0.003		5945062		49.4		99.9 1534
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.745	5.743	0.002	1.000	2359088		20.1		101 67.9
46 Perfluorooctadecanoic acid	913.00 > 869.00	6.147	6.143	0.004	1.000	2721484		19.7		99.3 75.6

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L4_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_006.d

Injection Date: 22-May-2017 19:04:30

Instrument ID: A8_N

Lims ID: IC L4 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

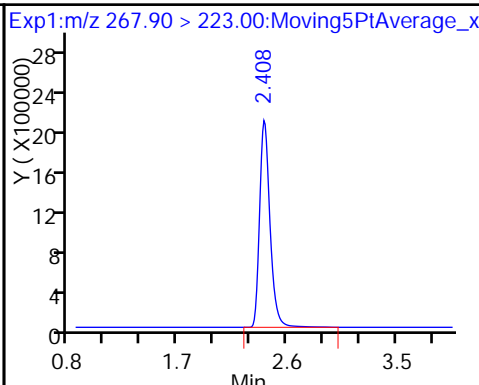
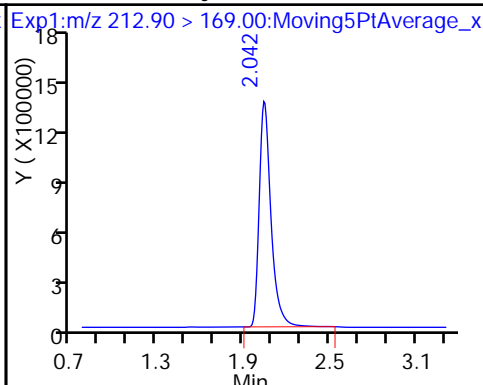
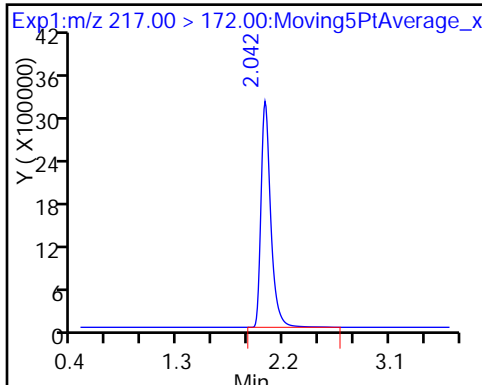
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

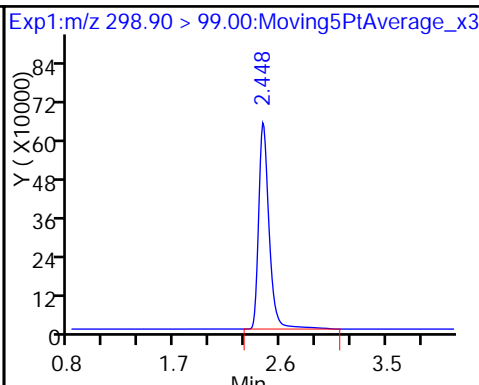
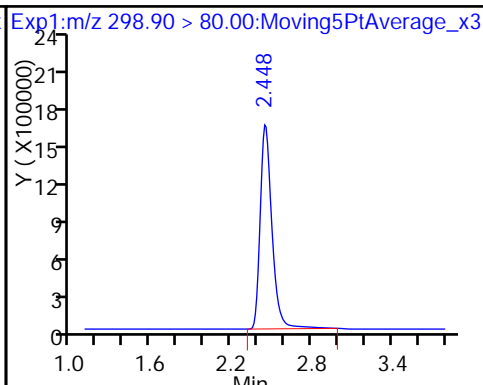
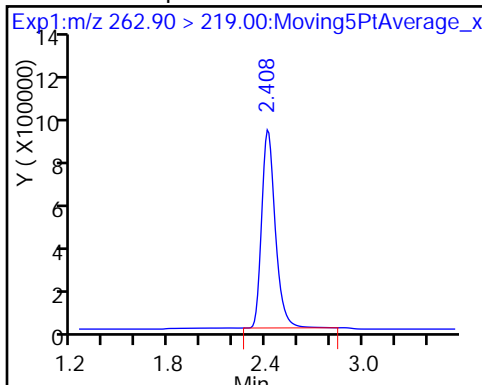
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

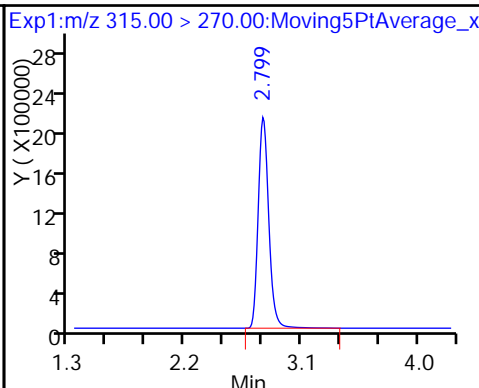
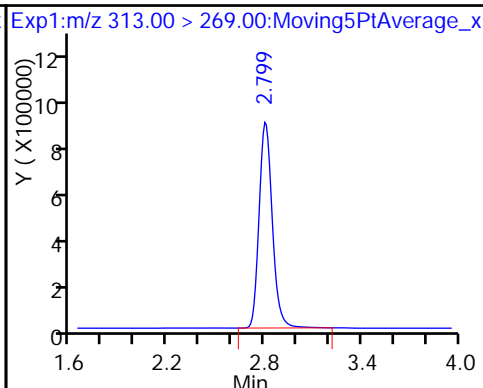
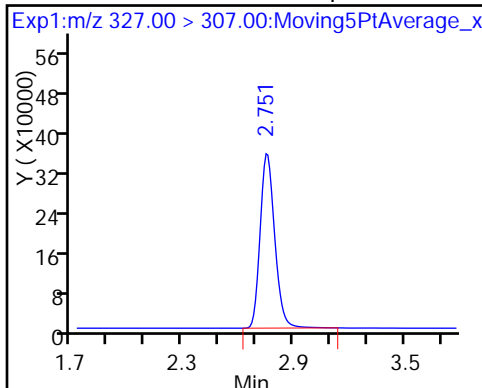
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

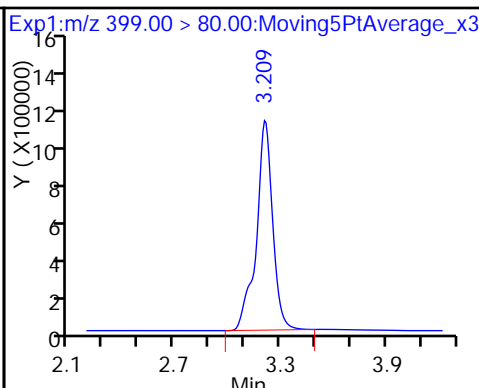
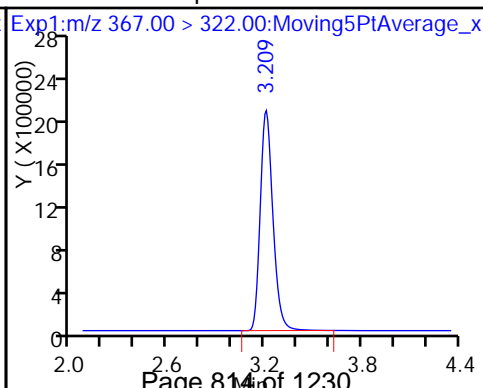
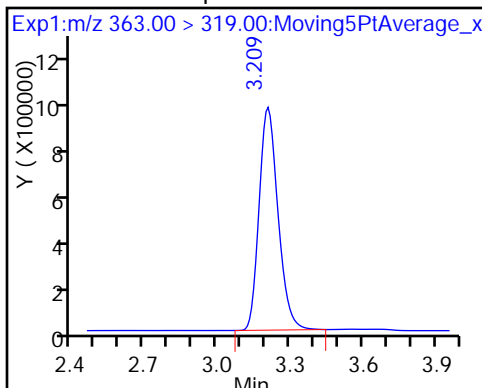
D 7 13C2 PFHxA



10 Perfluoroheptanoic acid

D 9 13C4-PFHpA

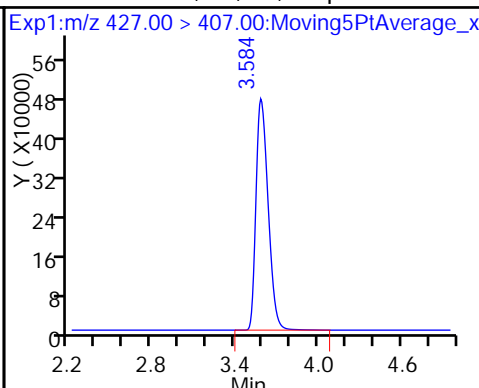
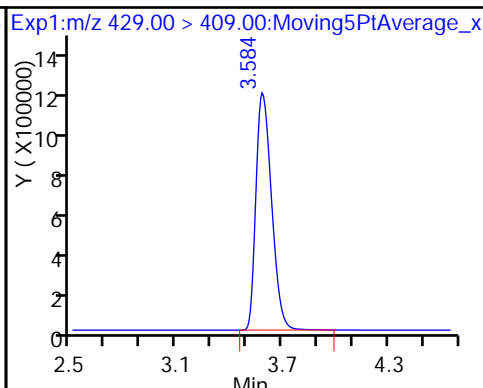
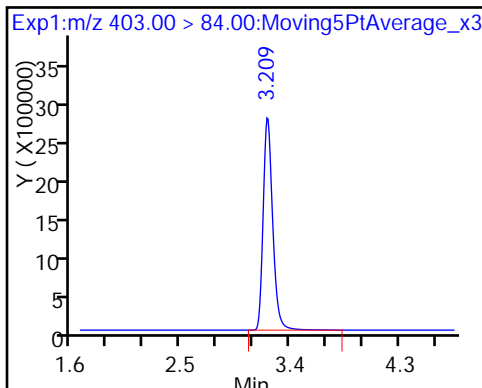
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

D 12 M2-6:2FTS

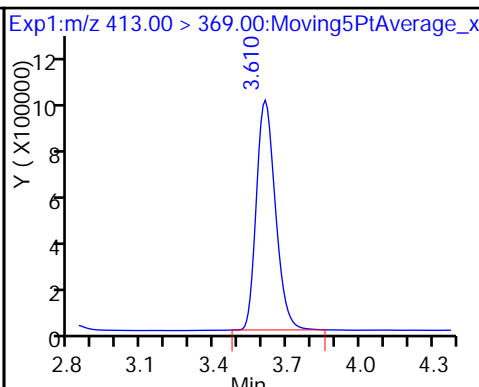
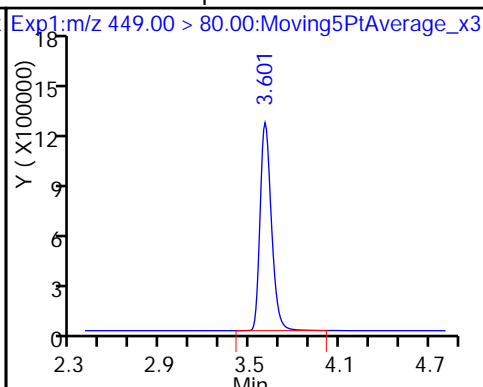
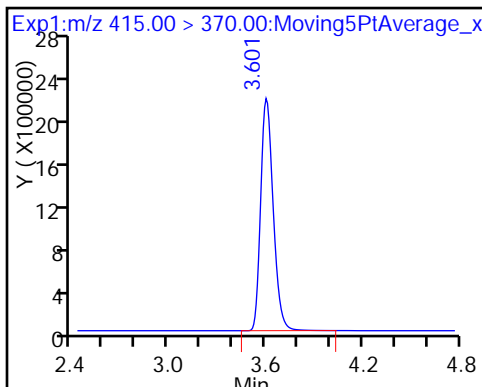
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

16 Perfluoroheptanesulfonic Acid

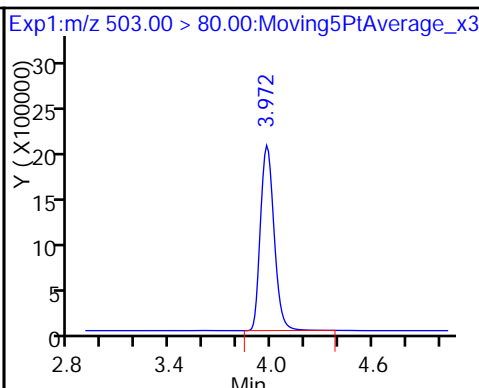
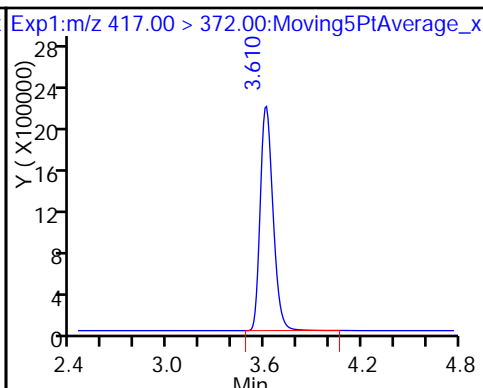
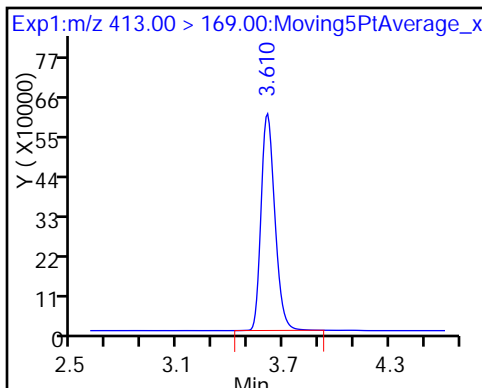
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

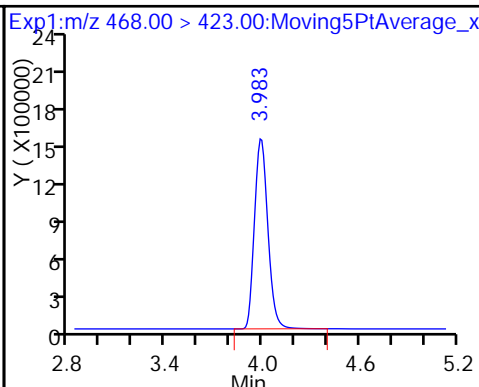
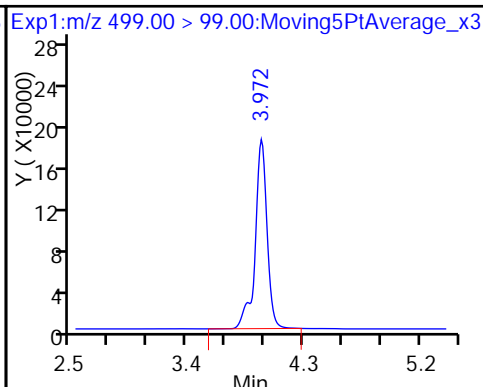
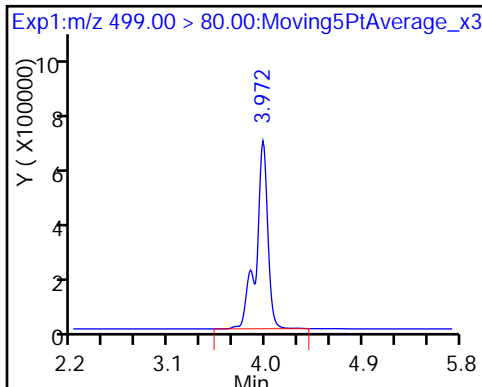
D 18 13C4 PFOS

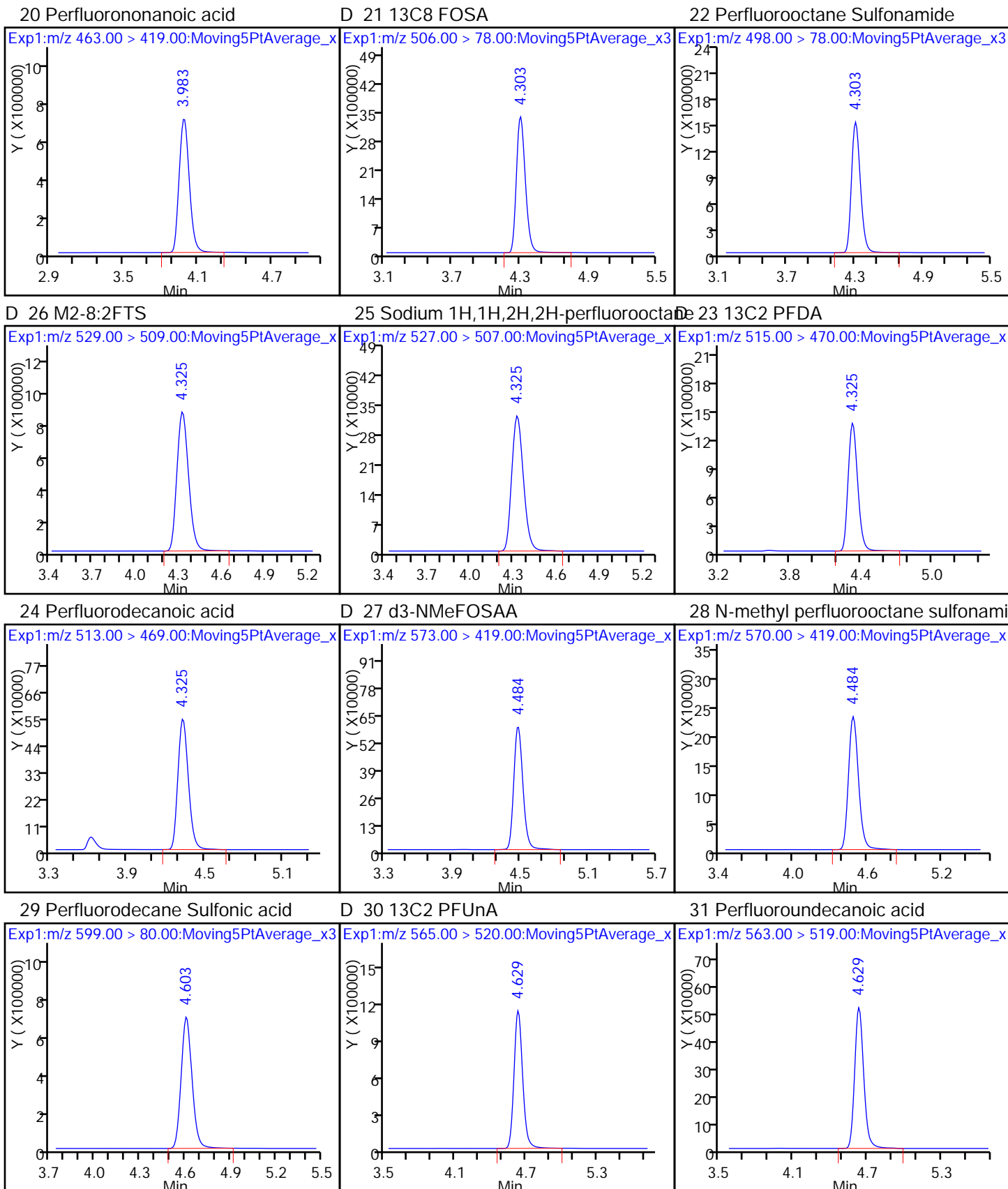


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

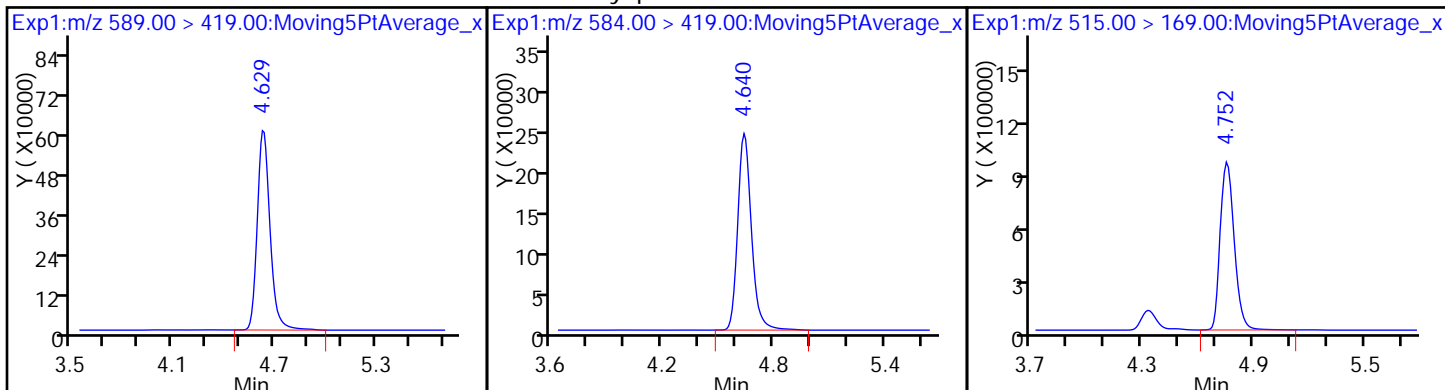




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

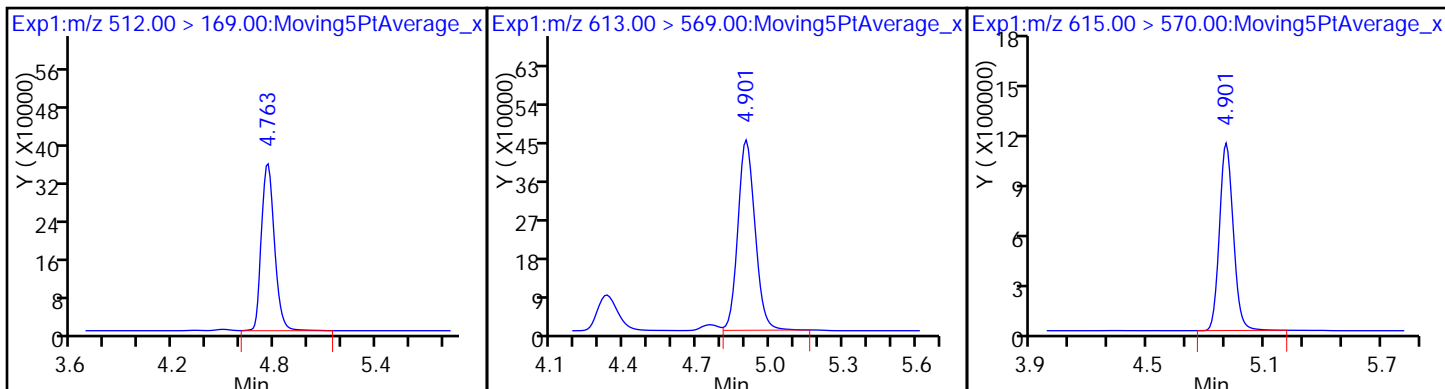
D 34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

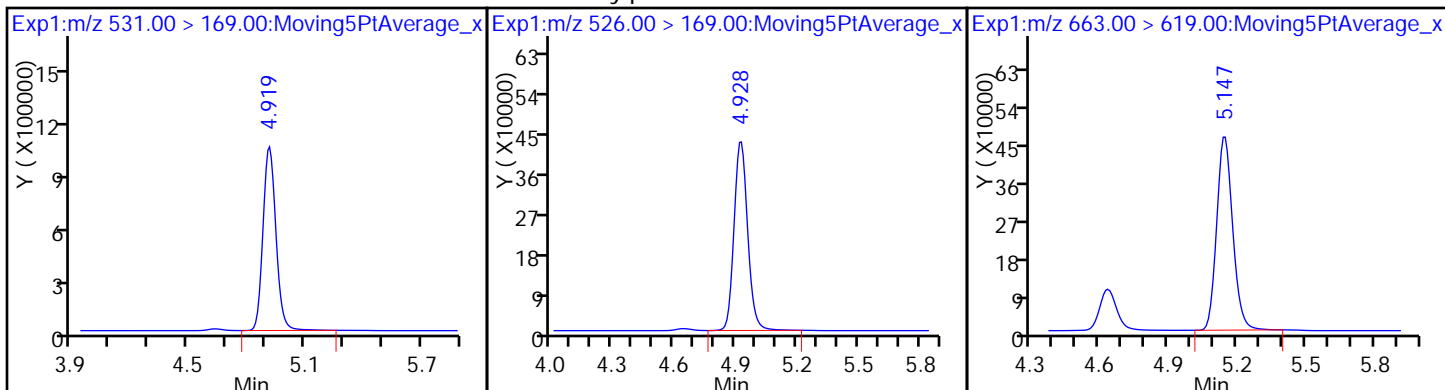
D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

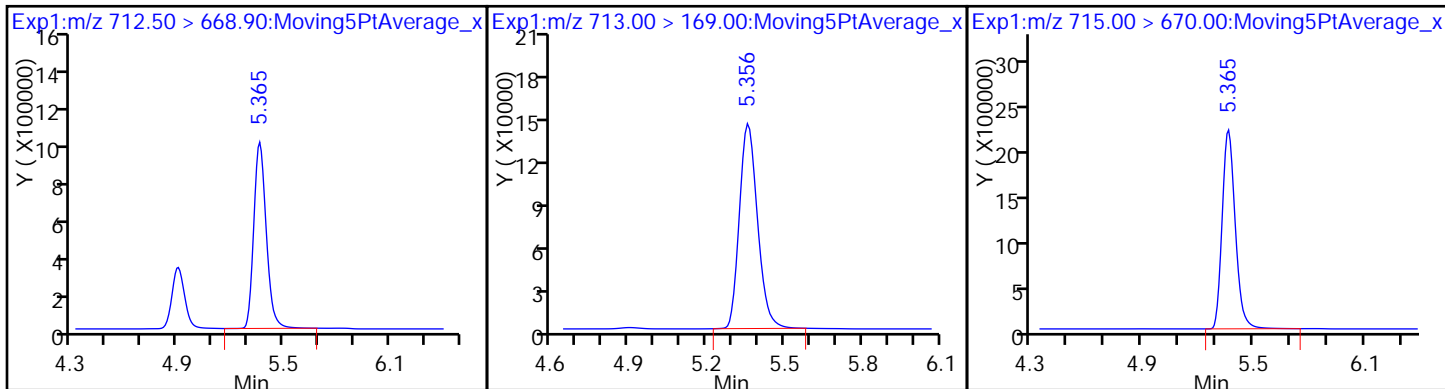
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

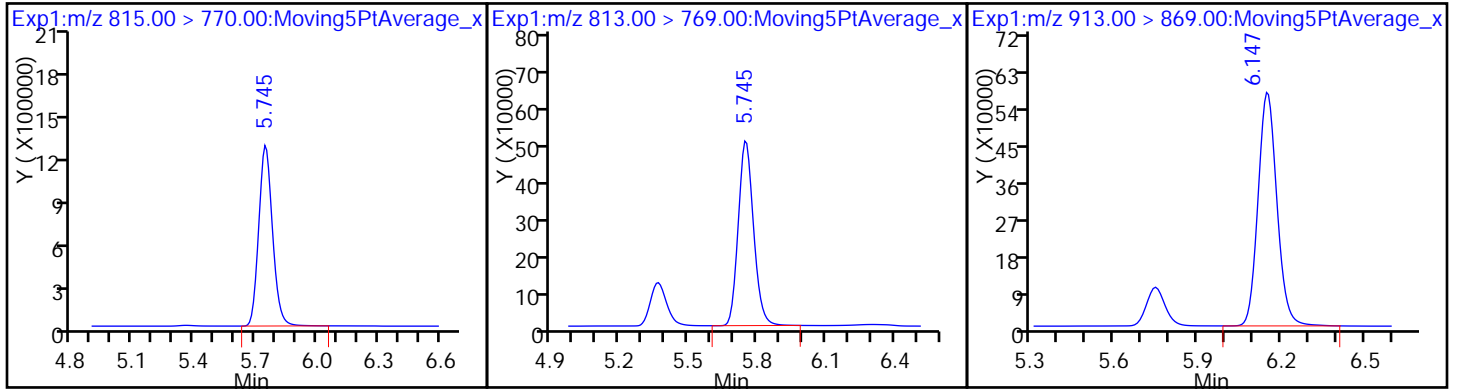
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_007.d
 Lims ID: IC L5 Full
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 22-May-2017 19:12:00 ALS Bottle#: 32 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L5-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 23-May-2017 08:42:46 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK028

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.034	2.040	-0.006	18663547	50.1		101	93114	
2 Perfluorobutyric acid	212.90 > 169.00	2.043	2.044	-0.001	19325461	51.1		103	11042	
D 3 13C5-PFPeA	267.90 > 223.00	2.399	2.408	-0.009	12283512	49.8		101	127653	
4 Perfluoropentanoic acid	262.90 > 219.00	2.409	2.410	-0.001	13133534	48.8		98.7	3630	
D 47 13C3-PFBS	301.90 > 83.00	2.439	2.448	-0.009	305570	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.449	2.452	-0.003	23586758	44.7		102		
	298.90 > 99.00	2.449	2.452	-0.003	9947714		2.37(0.00-0.00)	102		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.743	2.748	-0.005	4476458	41.3		89.2		
D 7 13C2 PFHxA	315.00 > 270.00	2.791	2.799	-0.008	11870309	48.6		98.1	47069	
6 Perfluorohexanoic acid	313.00 > 269.00	2.791	2.799	-0.008	12672346	51.0		103	23908	
D 9 13C4-PFHpA	367.00 > 322.00	3.198	3.203	-0.005	10833513	48.4		97.8	74083	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.198	3.203	-0.005	11942089	49.8		101	3985	
D 11 18O2 PFHxS	403.00 > 84.00	3.198	3.209	-0.011	15617682	48.5		104	235318	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.198	3.209	-0.011	17676839	43.8		97.3		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.573	3.576	-0.003	6610589	46.3		98.8		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
D 12 M2-6:2FTS	429.00	> 409.00	3.573	3.576	-0.003	6966357	53.0	113			
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.588	3.595	-0.007	1.000	16075546	50.9	108		
* 62 13C2-PFOA	415.00	> 370.00	3.588	3.595	-0.007		11194388	49.5			
D 14 13C4 PFOA	417.00	> 372.00	3.596	3.601	-0.005		12172287	53.6	108	41308	
15 Perfluorooctanoic acid	413.00	> 369.00	3.596	3.601	-0.005	1.000	13288734	48.1	97.2	1084	
	413.00	> 169.00	3.596	3.601	-0.005	1.000	8002829		1.66(0.90-1.10)	97.2	14801
D 18 13C4 PFOS	503.00	> 80.00	3.957	3.966	-0.009		10943171	46.6	98.5	11776	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.957	3.967	-0.010	1.000	12883372	47.0	102	9621	
	499.00	> 99.00	3.957	3.967	-0.010	1.000	2850850		4.52(0.90-1.10)	102	10031
D 19 13C5 PFNA	468.00	> 423.00	3.979	3.979	0.0		8477429	48.6	98.1	23108	
20 Perfluorononanoic acid	463.00	> 419.00	3.979	3.981	-0.002	1.000	9267999	49.8	101	8918	
D 21 13C8 FOSA	506.00	> 78.00	4.288	4.296	-0.008		19564534	53.2	107	78601	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.288	4.297	-0.009	1.000	19411569	46.9	94.7	226868	
D 26 M2-8:2FTS	529.00	> 509.00	4.322	4.320	0.002		4787380	48.1	101		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.322	4.322	0.0	1.000	4822527	49.0	103		
D 23 13C2 PFDA	515.00	> 470.00	4.322	4.322	0.0		7255070	48.5	98.0	4950	
24 Perfluorodecanoic acid	513.00	> 469.00	4.322	4.323	-0.001	1.000	7772525	52.1	105	1437	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.463	4.472	-0.009		3378303	51.2	103		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.473	4.478	-0.005	1.002	3424676	49.8	101		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.595	4.598	-0.003	1.000	8267758	51.5	108		
D 30 13C2 PFUnA	565.00	> 520.00	4.623	4.624	-0.001		5372840	47.9	96.7	7180	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.623	4.625	-0.002	1.000	6234397	48.9	98.8	6027	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.623	4.627	-0.004		3229653	50.3	102		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.632	4.635	-0.003	1.002	3088961	49.6	100		
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.742	4.750	-0.008		5308156	53.6	108		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.754	4.755	-0.001	1.000	5046570	48.9	98.7		
D 36 13C2 PFDaA	615.00 > 570.00	4.891	4.895	-0.004		5570064	51.2	103	6728	
37 Perfluorododecanoic acid	613.00 > 569.00	4.891	4.895	-0.004	1.000	5637879	49.4	99.8	293	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.910	4.915	-0.005		5035235	52.5	106		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.919	4.922	-0.003	1.000	5003258	48.3	97.5		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.135	5.139	-0.004	1.000	5581442	49.4	99.8	255	
D 43 13C2-PFTeDA	715.00 > 670.00	5.353	5.357	-0.004		10899088	50.6	102	7094	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.353	5.357	-0.004	1.000	11884827	51.6	104	171	
	713.00 > 169.00	5.353	5.357	-0.004	1.000	1669325		7.12(0.00-0.00)	104	4857
D 44 13C2-PFHxDA	815.00 > 770.00	5.740	5.742	-0.002		6350689	52.8	107	1752	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.740	5.743	-0.003	1.000	5867704	49.6	100	174	
46 Perfluorooctadecanoic acid	913.00 > 869.00	6.144	6.143	0.001	1.000	6182845	43.6	88.1	177	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L5_00002

Amount Added: 1.00

Units: mL

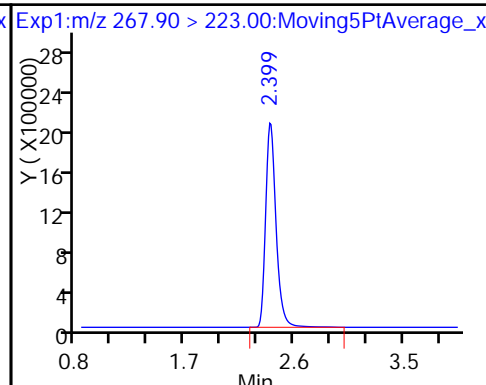
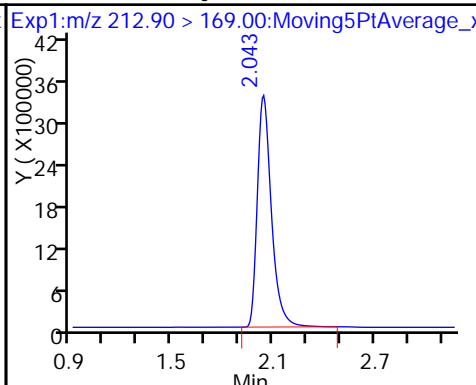
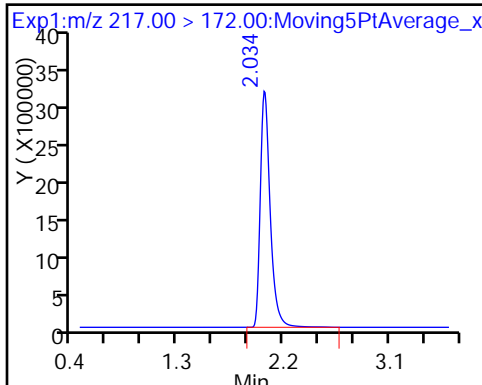
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_007.d
Injection Date: 22-May-2017 19:12:00 Instrument ID: A8_N
Lims ID: IC L5 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

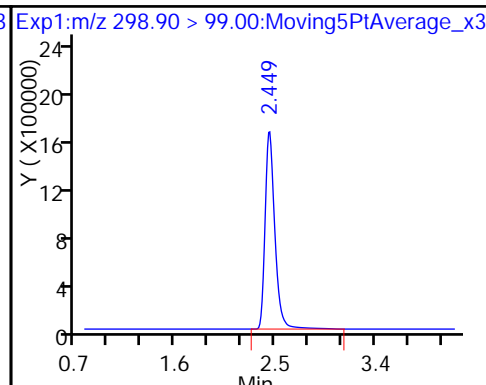
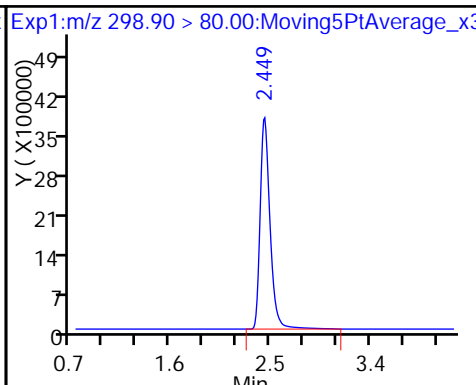
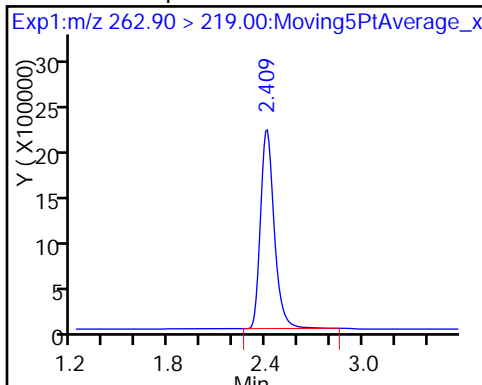
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

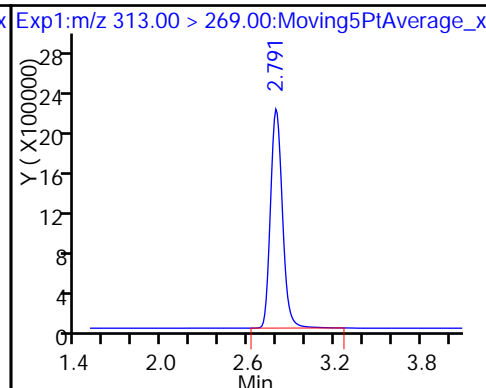
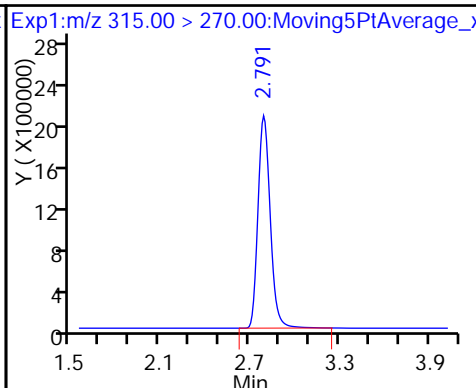
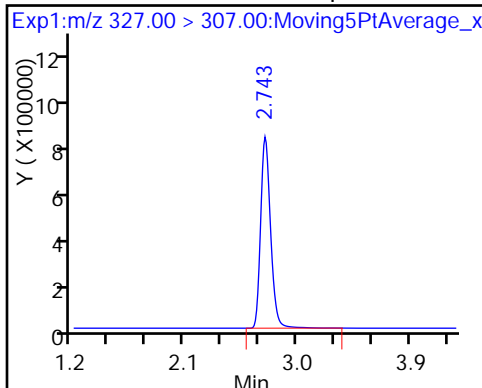
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

De 7 13C2 PFHxA

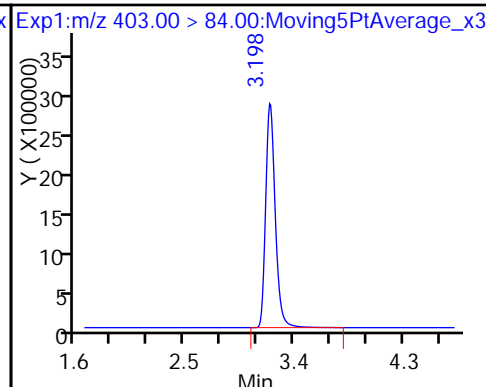
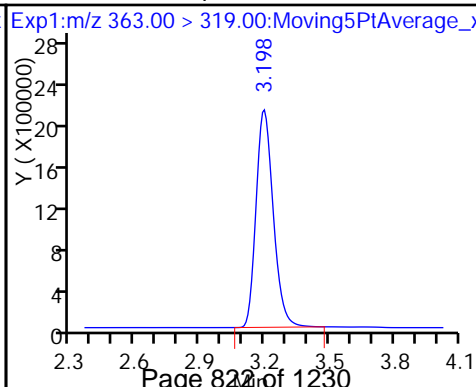
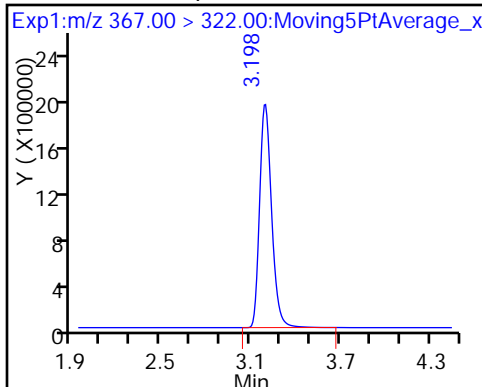
6 Perfluorohexanoic acid



D 9 13C4-PFHpa

10 Perfluoroheptanoic acid

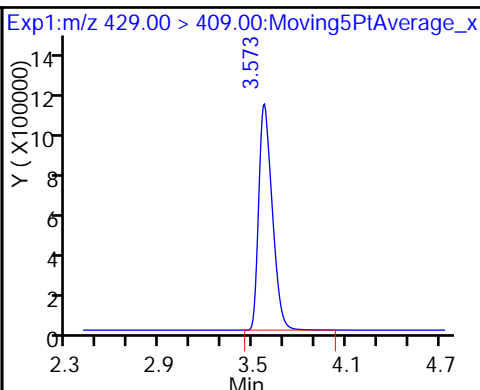
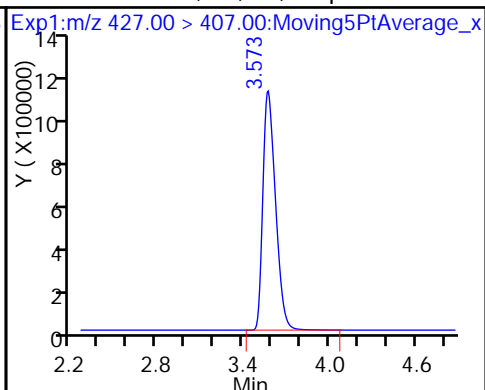
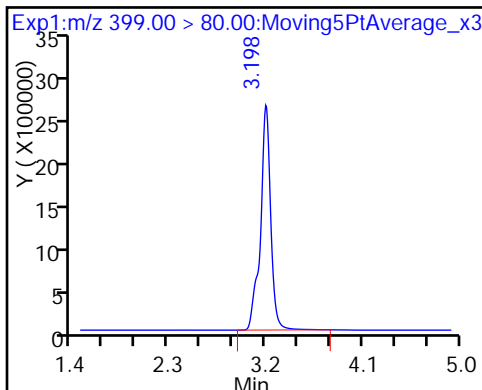
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

13 Sodium 1H,1H,2H,2H-perfluorooctanoate

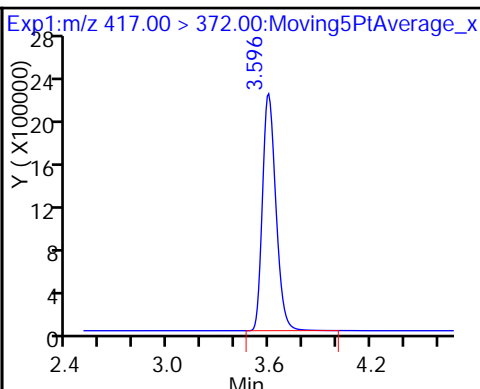
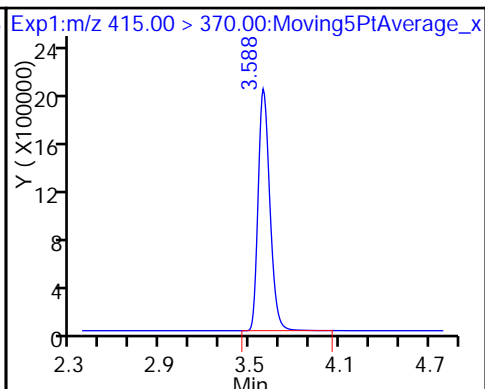
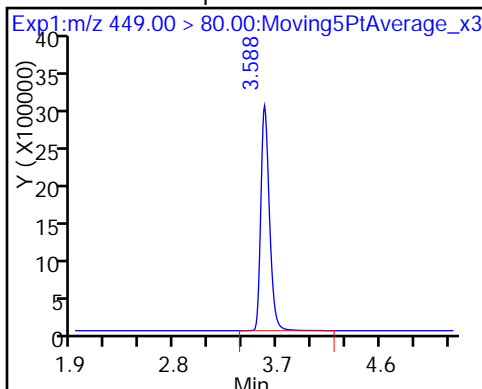
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

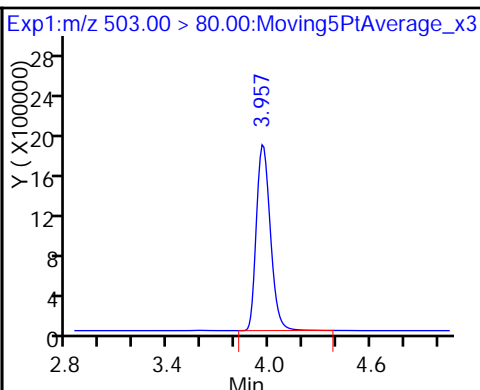
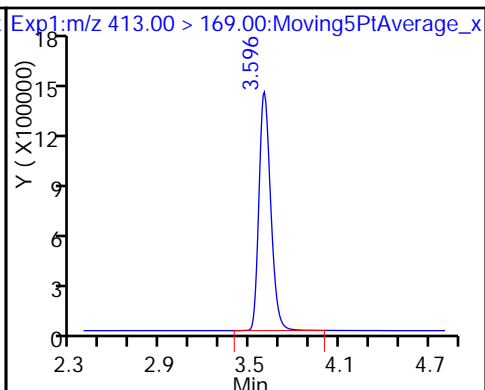
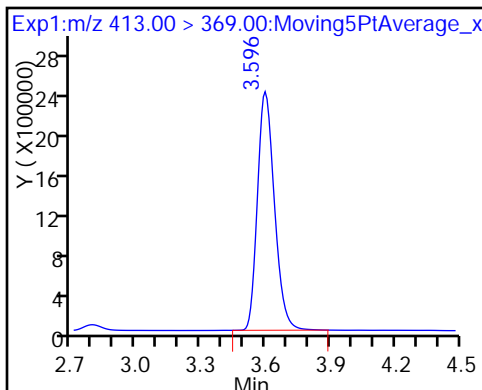
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

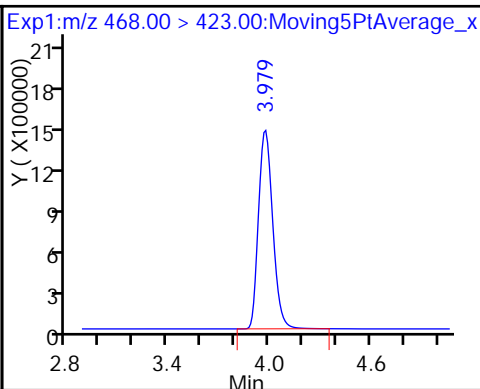
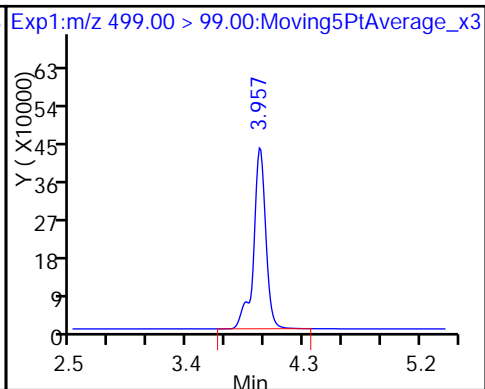
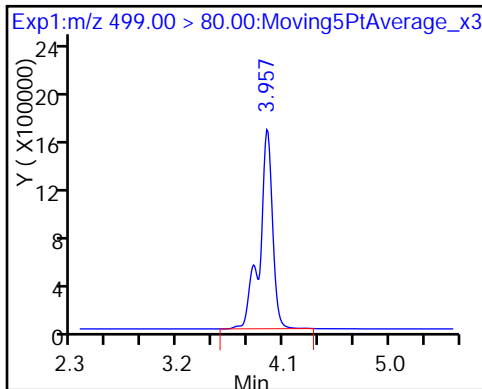
D 18 13C4 PFOS

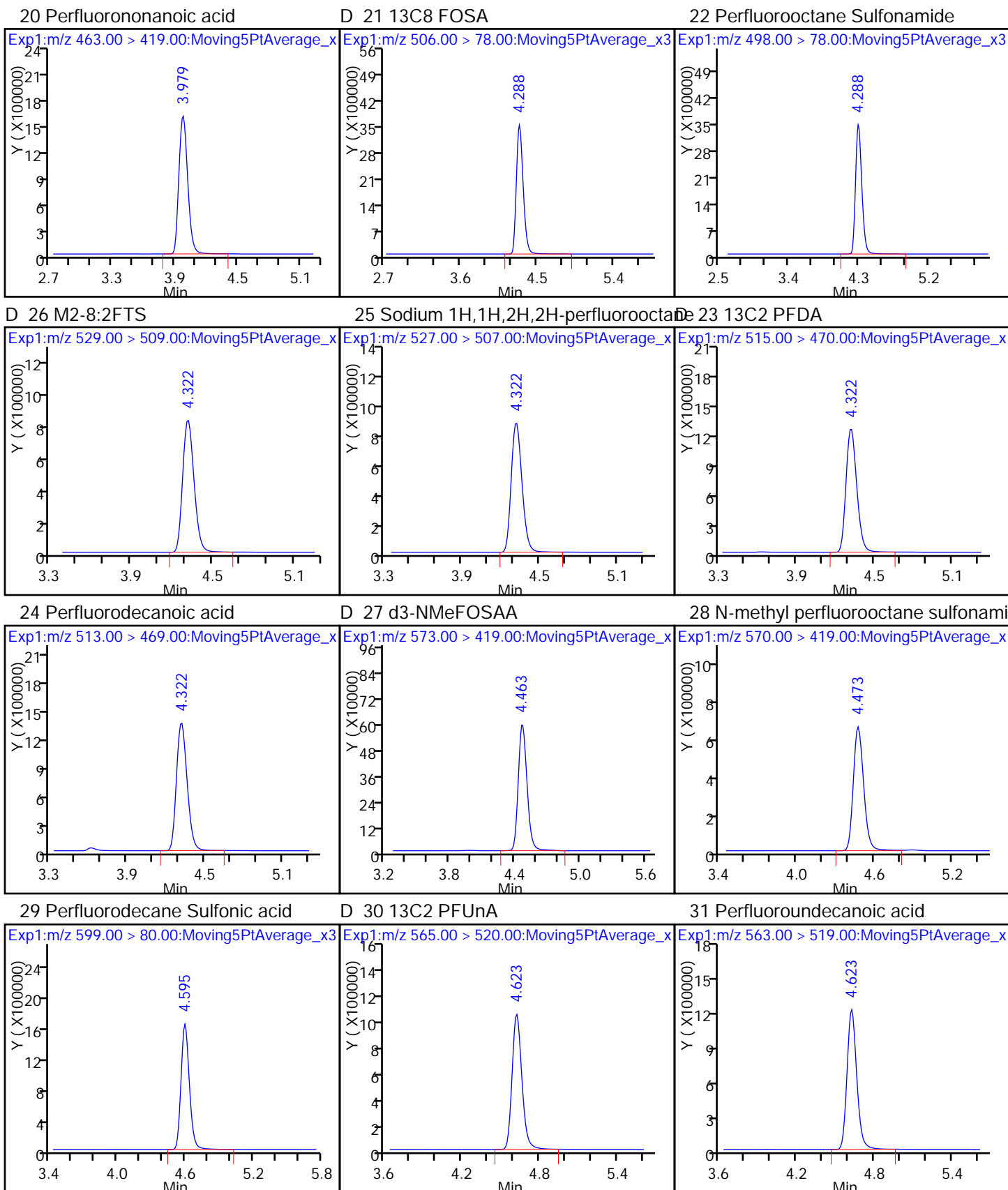


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

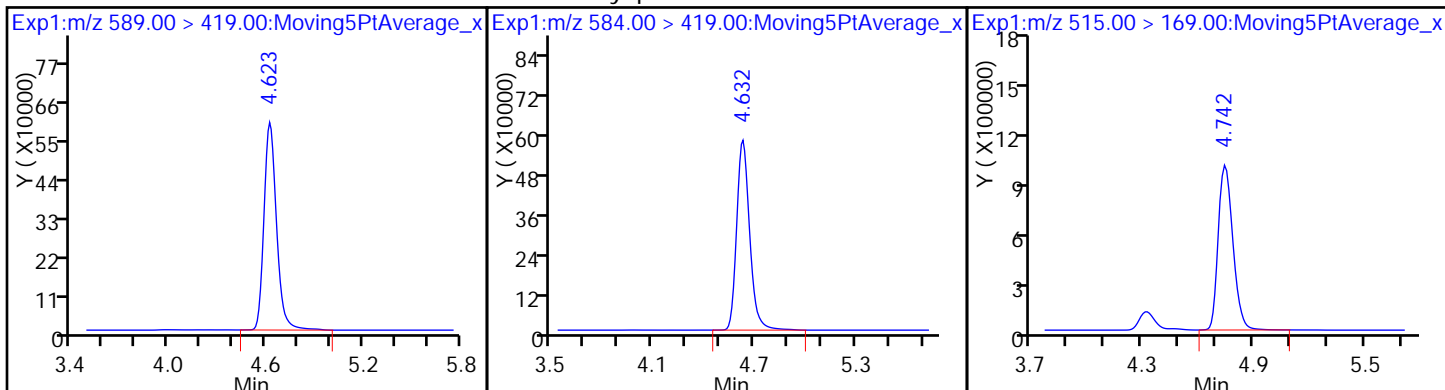




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

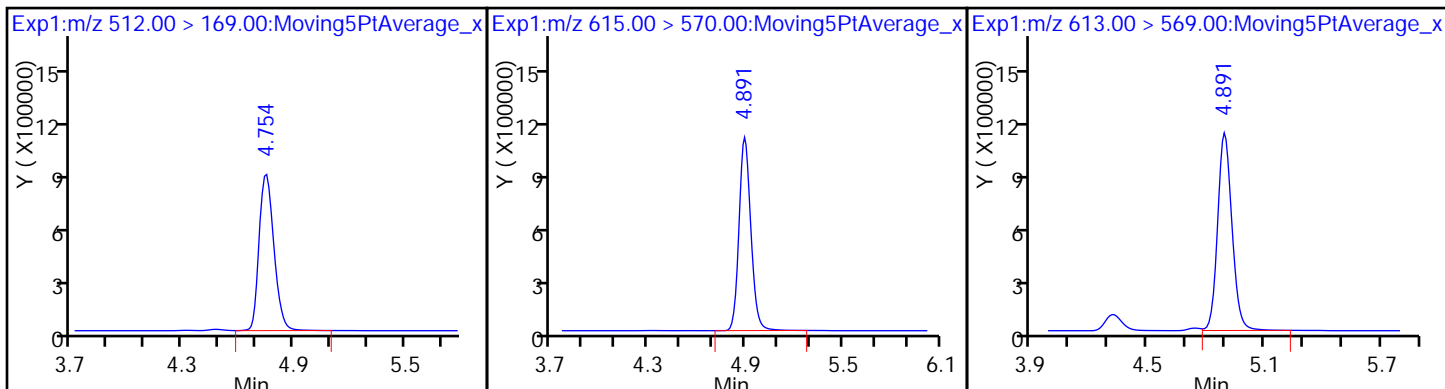
D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

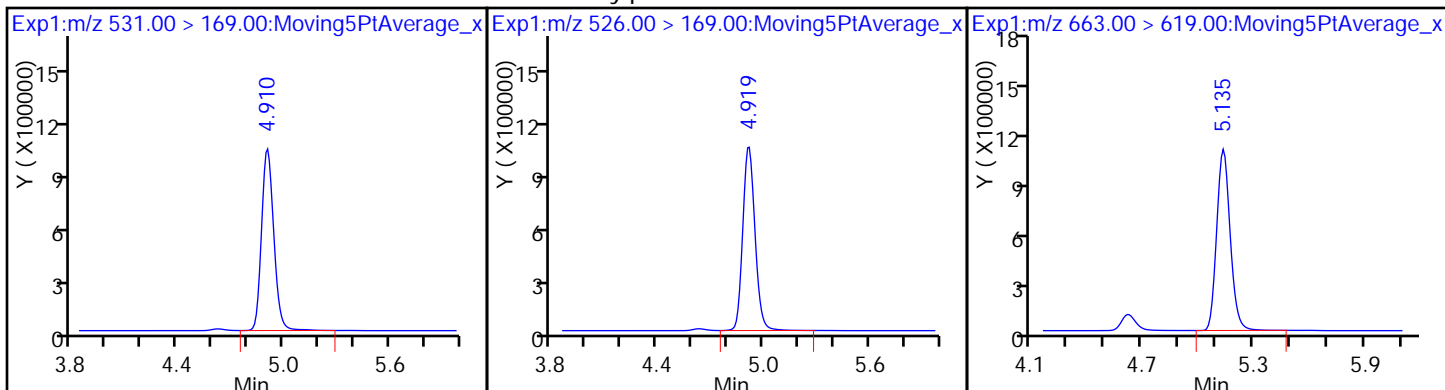
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

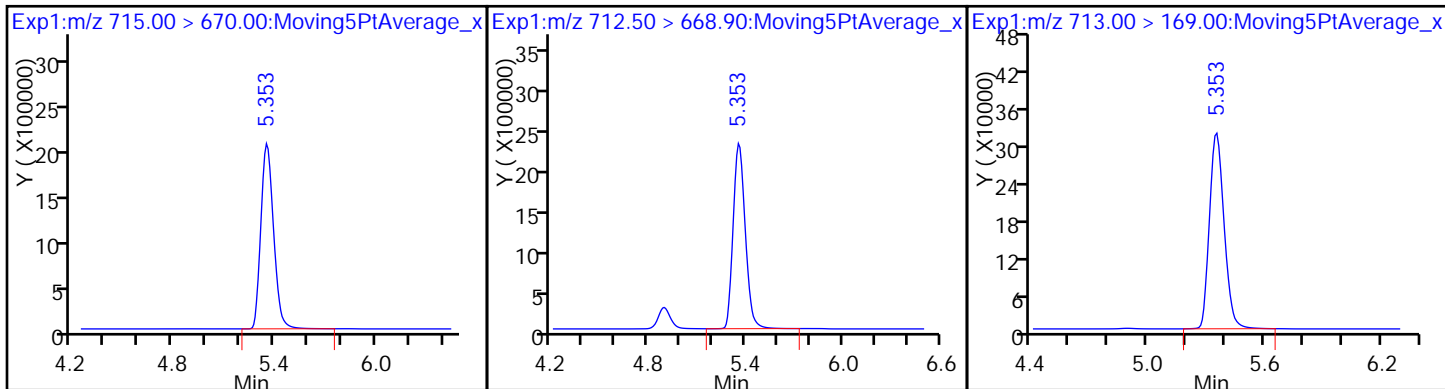
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

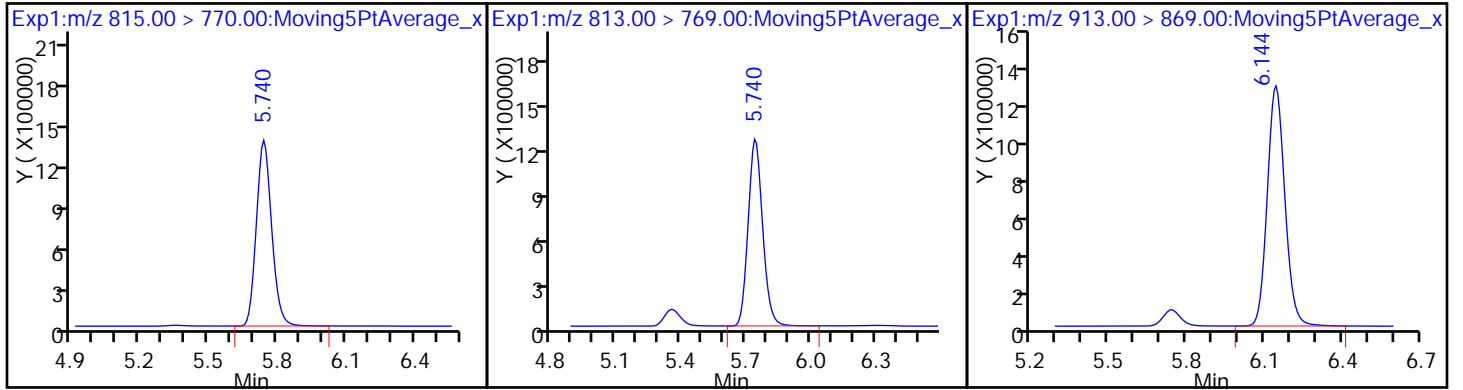
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_008.d
 Lims ID: IC L6 Full
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 22-May-2017 19:19:29 ALS Bottle#: 33 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L6-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 23-May-2017 08:42:49 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK028

First Level Reviewer: westendorfc Date: 23-May-2017 08:25:20

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.034	2.040	-0.006	17549466	47.1		95.1	163784	
2 Perfluorobutyric acid	212.90 > 169.00	2.042	2.044	-0.002	33476103	94.1		95.1	27396	
D 3 13C5-PFPeA	267.90 > 223.00	2.408	2.408	0.0	11565435	46.9		94.8	240640	
4 Perfluoropentanoic acid	262.90 > 219.00	2.408	2.410	-0.002	23976197	94.7		95.7	7823	
D 47 13C3-PFBS	301.90 > 83.00	2.448	2.448	0.0	298884	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.448	2.452	-0.004	37889028	76.9		87.9		
	298.90 > 99.00	2.448	2.452	-0.004	17113762		2.21(0.00-0.00)	87.9		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.750	2.748	0.002	8209759	94.8		102		
6 Perfluorohexanoic acid	313.00 > 269.00	2.798	2.799	-0.001	22464530	93.0		94.0	26277	
D 7 13C2 PFHxA	315.00 > 270.00	2.798	2.799	-0.001	11541454	47.2		95.4	54091	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.203	3.203	0.0	21032185	94.5		95.5	6639	
D 9 13C4-PFHpA	367.00 > 322.00	3.203	3.203	0.0	10044024	44.9		90.7	47536	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.212	3.209	0.003	31354964	83.2		92.4		
D 11 18O2 PFHxS	403.00 > 84.00	3.212	3.209	0.003	14580299	45.3		96.6	372207	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.573	3.576	-0.003	5562943	42.3	90.0		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.573	3.576	-0.003	1.000	9933471	87.2	92.9	
* 62 13C2-PFOA	415.00	> 370.00	3.596	3.595	0.001	9507602	49.5			
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.596	3.595	0.001	1.000	27277622	88.8	94.2	
15 Perfluorooctanoic acid	413.00	> 369.00	3.596	3.601	-0.005	1.000	21765053	96.6	97.5	1820
	413.00	> 169.00	3.596	3.601	-0.005	1.000	12870557	1.69(0.90-1.10)	97.5	17702
D 14 13C4 PFOA	417.00	> 372.00	3.596	3.601	-0.005	9935792	43.8	88.5	85750	
D 18 13C4 PFOS	503.00	> 80.00	3.958	3.966	-0.008	10655089	45.4	96.0	8634	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.969	3.967	0.002	1.000	24413711	91.4	99.5	20048
	499.00	> 99.00	3.958	3.967	-0.009	0.997	5487121	4.45(0.90-1.10)	99.5	12733
D 19 13C5 PFNA	468.00	> 423.00	3.980	3.979	0.001	7830337	44.9	90.7	30020	
20 Perfluorononanoic acid	463.00	> 419.00	3.980	3.981	-0.001	1.000	16550265	96.2	97.2	20146
D 21 13C8 FOSA	506.00	> 78.00	4.294	4.296	-0.002	17349029	47.2	95.3	100603	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.294	4.297	-0.003	1.000	33463766	91.1	92.0	228018
D 26 M2-8:2FTS	529.00	> 509.00	4.317	4.320	-0.003	4501607	45.2	95.3		
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.317	4.322	-0.005	1.000	7985644	86.2	90.9	
D 23 13C2 PFDA	515.00	> 470.00	4.317	4.322	-0.005	7084599	47.4	95.7	5076	
24 Perfluorodecanoic acid	513.00	> 469.00	4.317	4.323	-0.006	1.000	13460915	92.4	93.4	1643
D 27 d3-NMeFOSAA	573.00	> 419.00	4.469	4.472	-0.003	3083421	46.7	94.4		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.479	4.478	0.001	1.002	6458818	103.0	104	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.592	4.598	-0.006	1.000	14400726	92.1	96.5	
D 30 13C2 PFUnA	565.00	> 520.00	4.622	4.624	-0.002	5145772	45.9	92.6	15556	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.622	4.625	-0.003	1.000	11059402	90.6	91.5	12471
D 32 d5-NEtFOSAA	589.00	> 419.00	4.622	4.627	-0.005	2852661	44.4	89.7		
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.632	4.635	-0.003	1.002	5709634	103.7	105	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.746	4.750	-0.004	4979486	50.3	102			
35 MeFOSA	512.00	> 169.00	4.746	4.755	-0.009	1.000	9574334	98.8			
37 Perfluorododecanoic acid	613.00	> 569.00	4.898	4.895	0.003	1.000	10179993	95.2	584		
D 36 13C2 PFDaA	615.00	> 570.00	4.898	4.895	0.003		5214667	47.9	96.7	7381	
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.907	4.915	-0.008		4842697	50.5	102		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.916	4.922	-0.006	1.000	9703450	97.3	98.3		
41 Perfluorotridecanoic acid	663.00	> 619.00	5.132	5.139	-0.007	1.000	9786992	92.5	93.4	537	
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.353	5.357	-0.005	1.000	20327129	94.3	95.3	320	
	713.00	> 169.00	5.353	5.357	-0.005	1.000	3128202		6.50(0.00-0.00)	95.3	6946
D 43 13C2-PFTeDA	715.00	> 670.00	5.353	5.357	-0.005		10019917	46.5	94.0	7948	
D 44 13C2-PFHxDA	815.00	> 770.00	5.743	5.742	0.001		5875896	48.9	98.7	1765	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.743	5.743	0.0	1.000	10737443	97.7	98.6	288	
46 Perfluorooctadecanoic acid	913.00	> 869.00	6.148	6.143	0.005	1.000	14389541	108.4	109	397	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L6_00003

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_008.d

Injection Date: 22-May-2017 19:19:29

Instrument ID: A8_N

Lims ID: IC L6 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

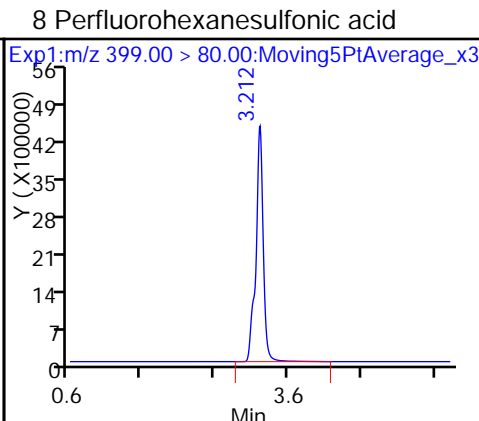
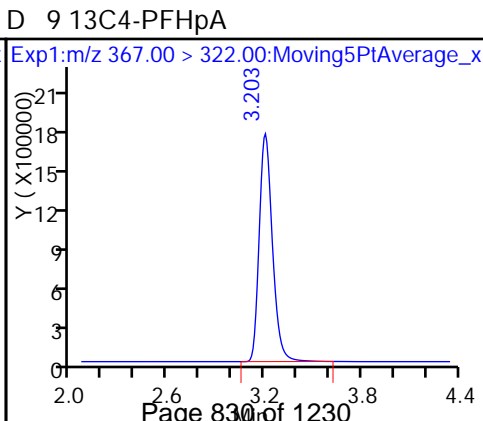
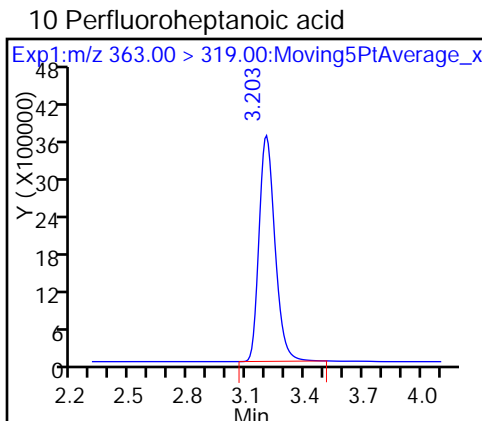
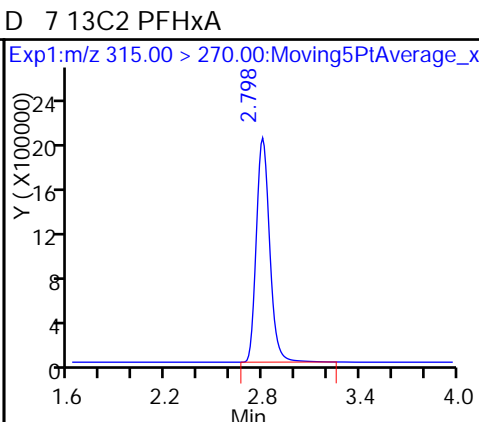
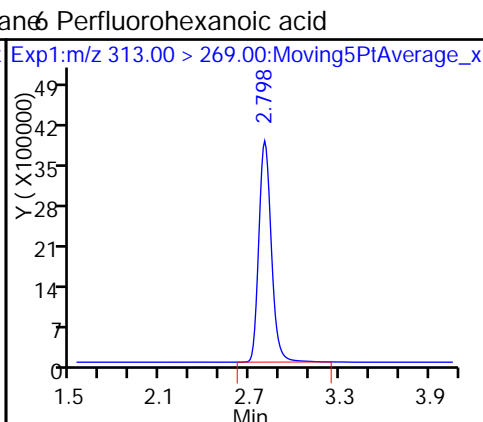
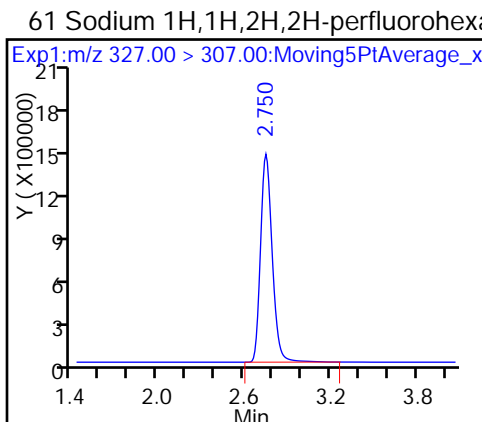
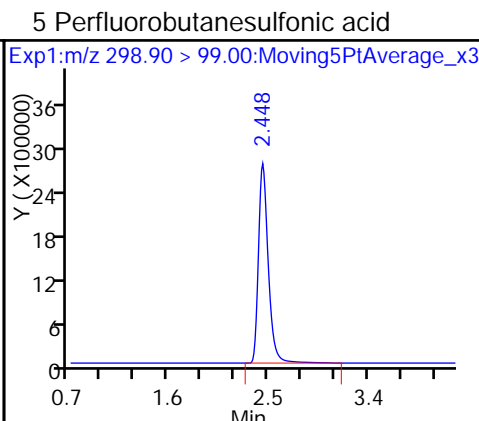
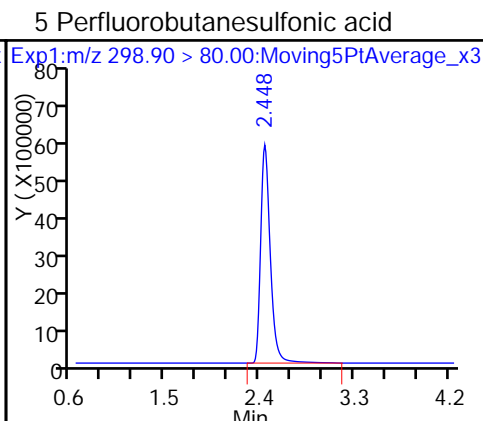
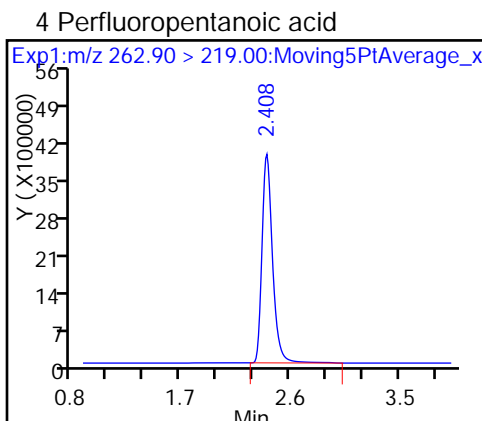
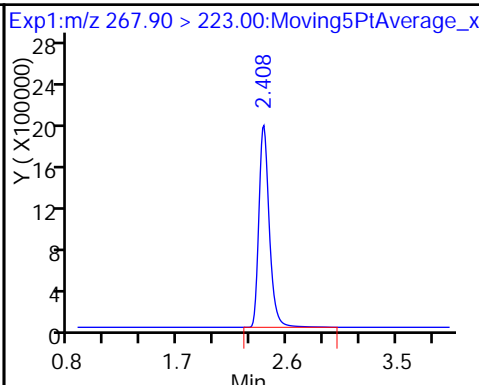
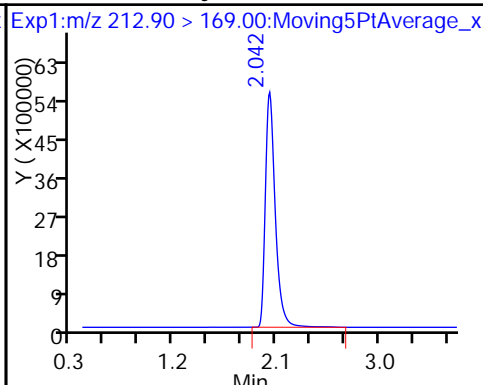
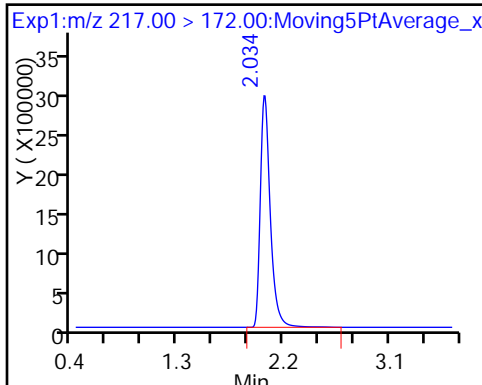
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

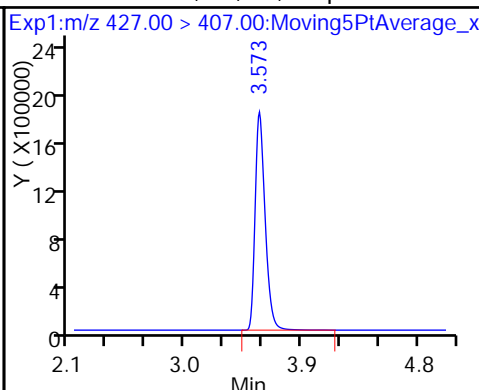
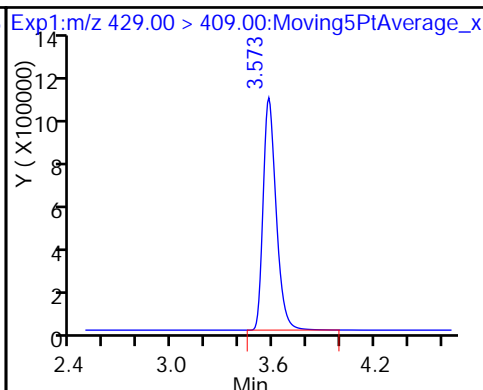
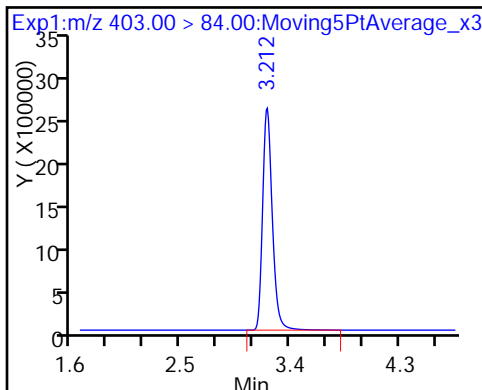
D 3 13C5-PFPeA



D 11 18O2 PFHxS

D 12 M2-6:2FTS

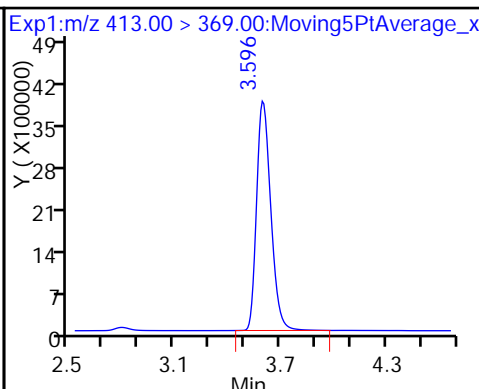
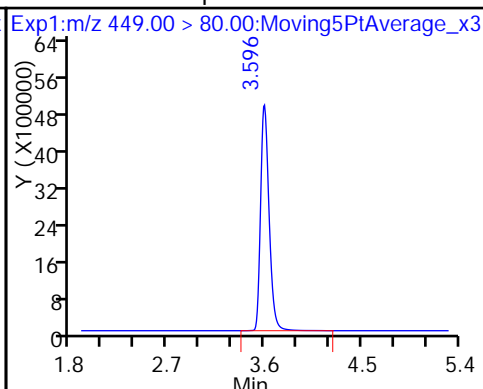
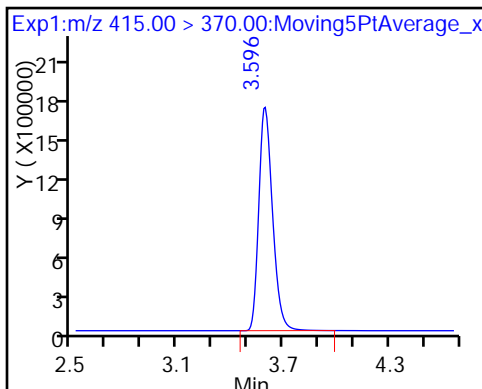
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

16 Perfluoroheptanesulfonic Acid

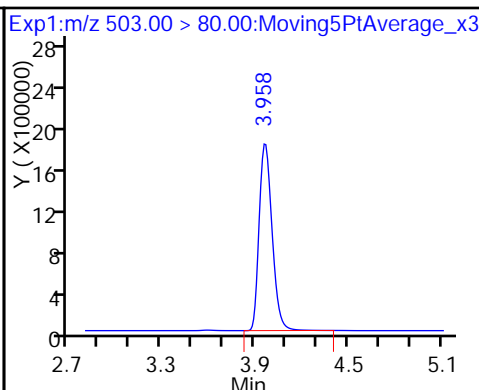
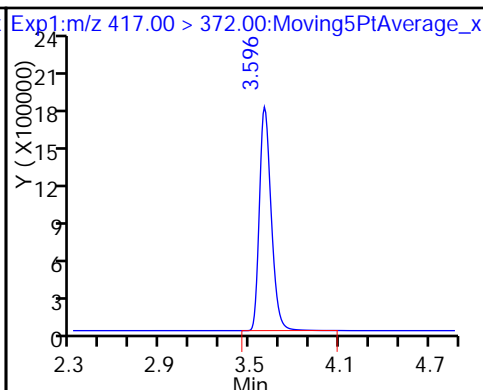
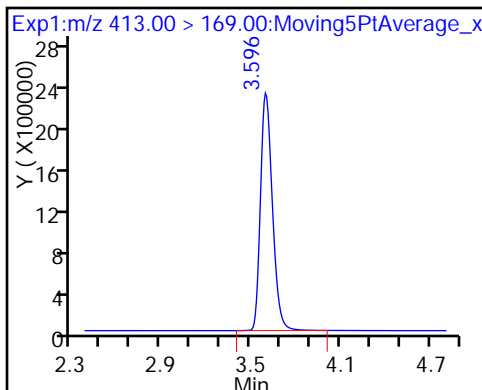
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

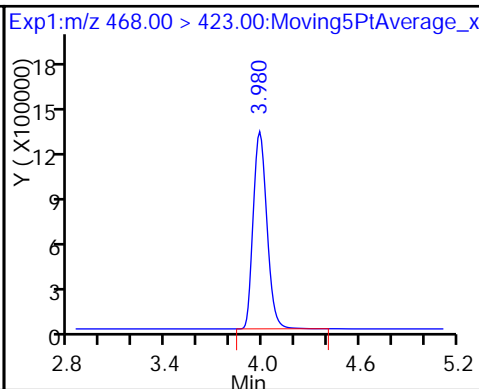
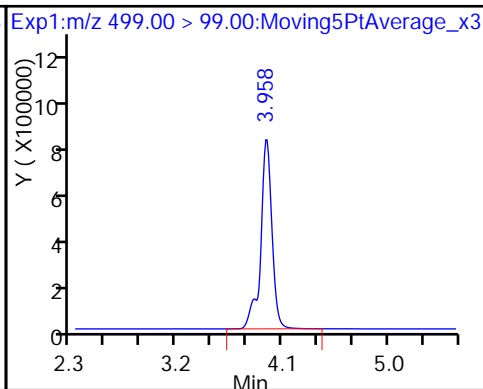
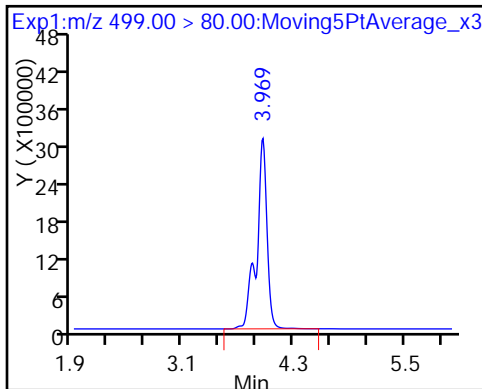
D 18 13C4 PFOS

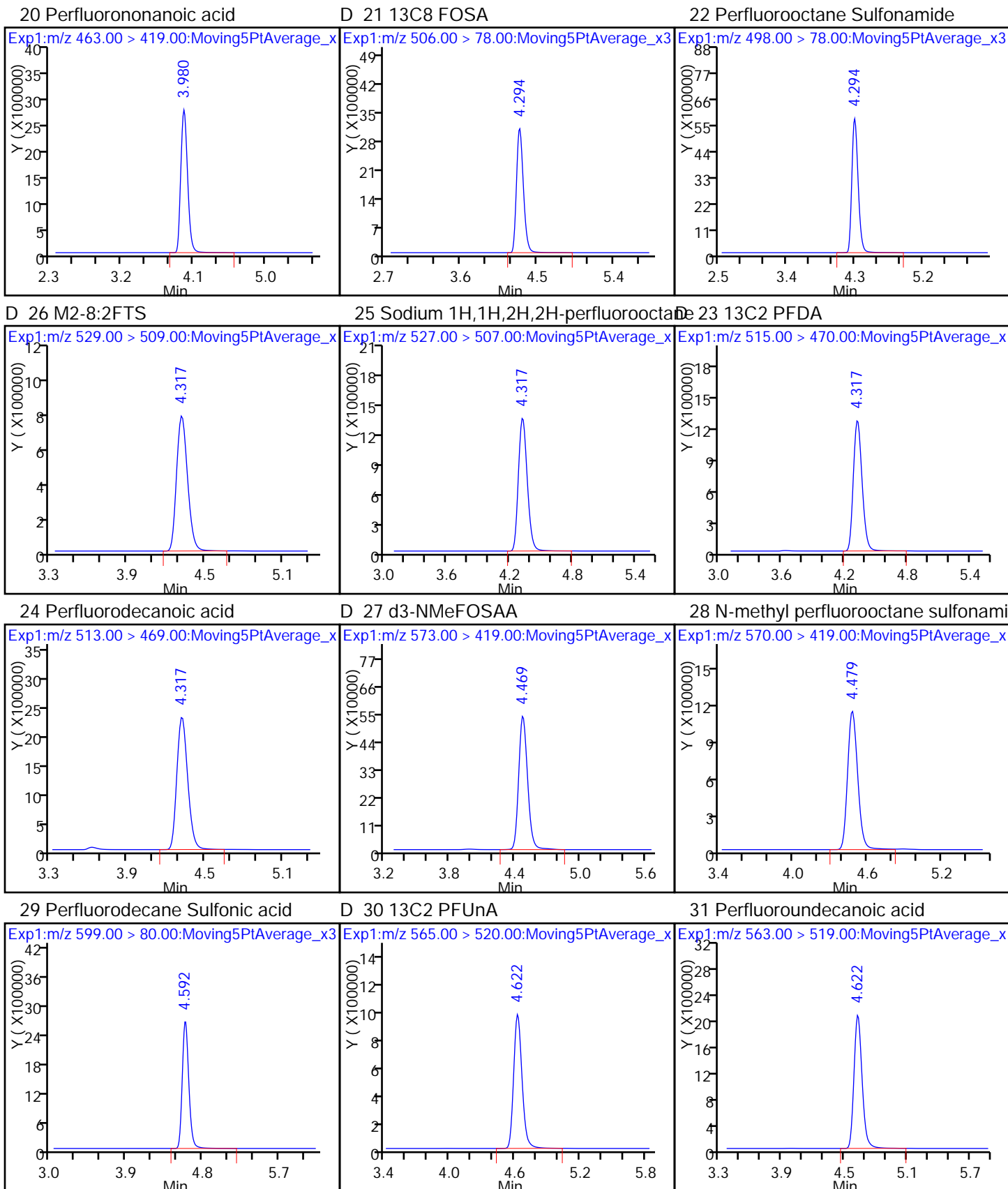


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

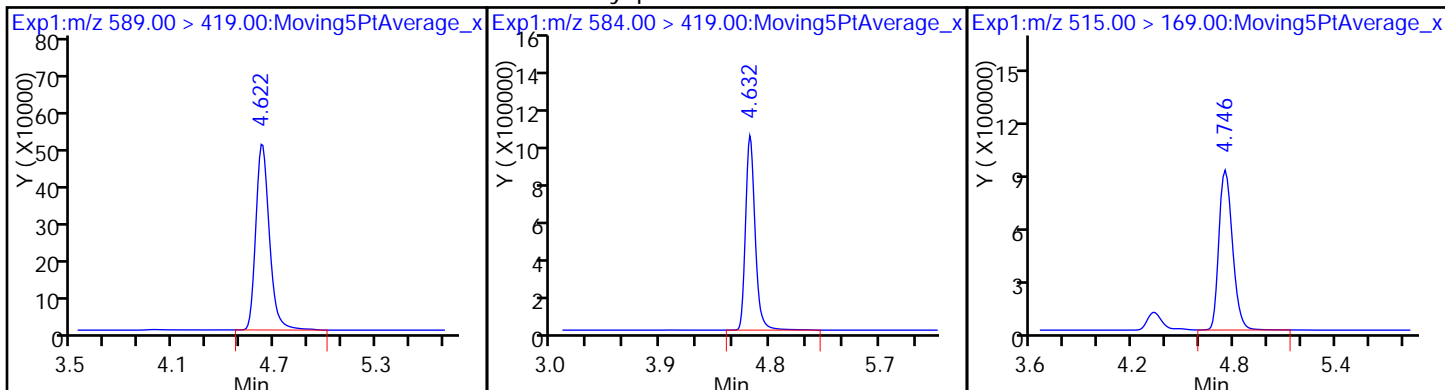




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

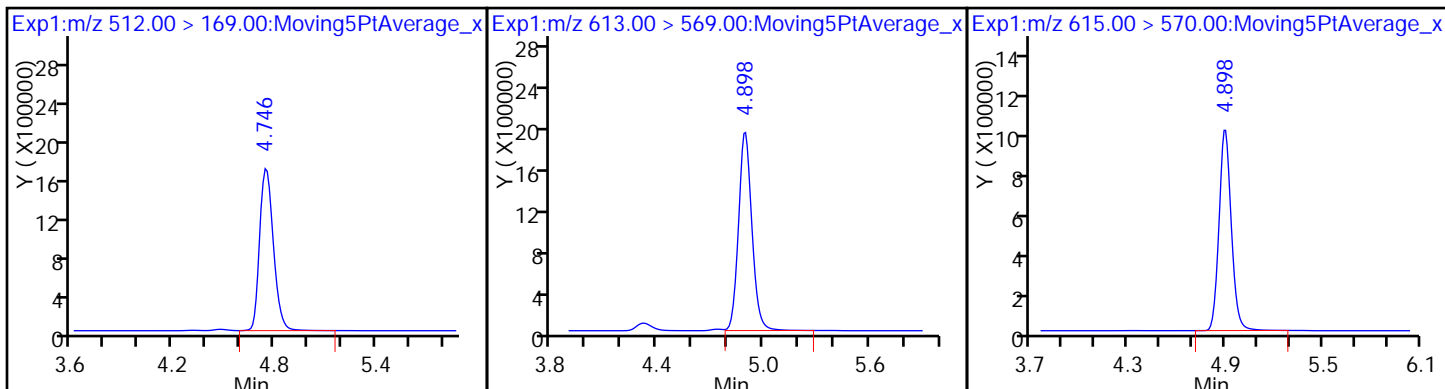
D 34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

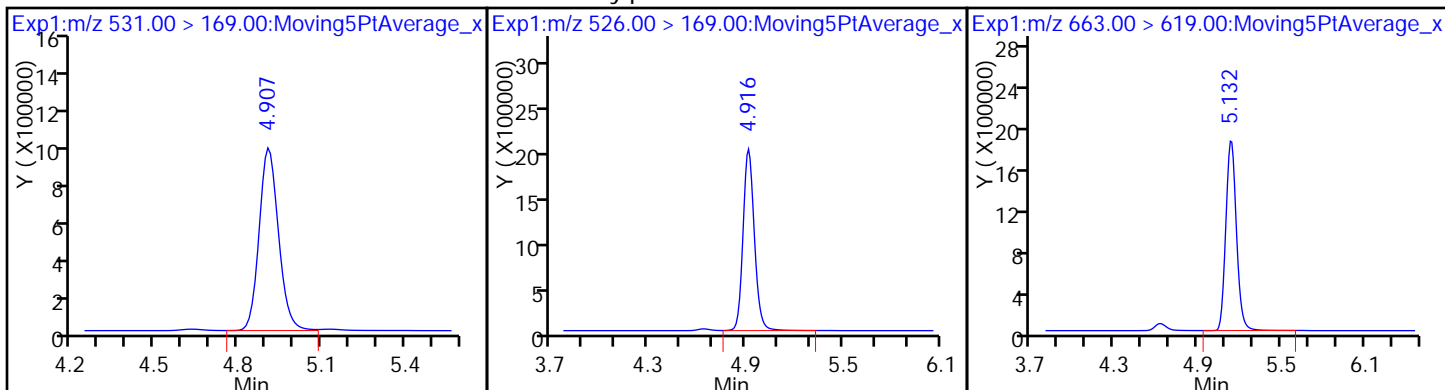
D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

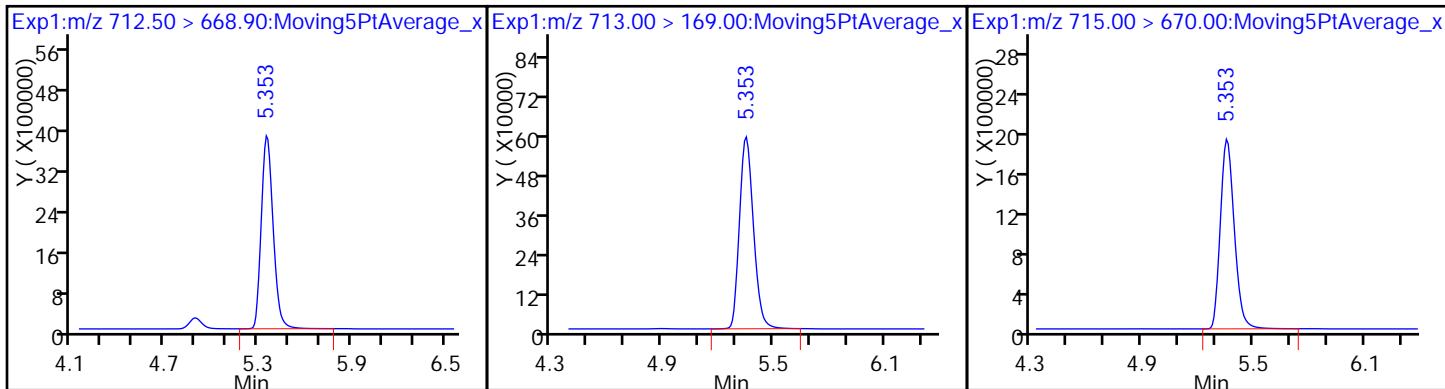
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

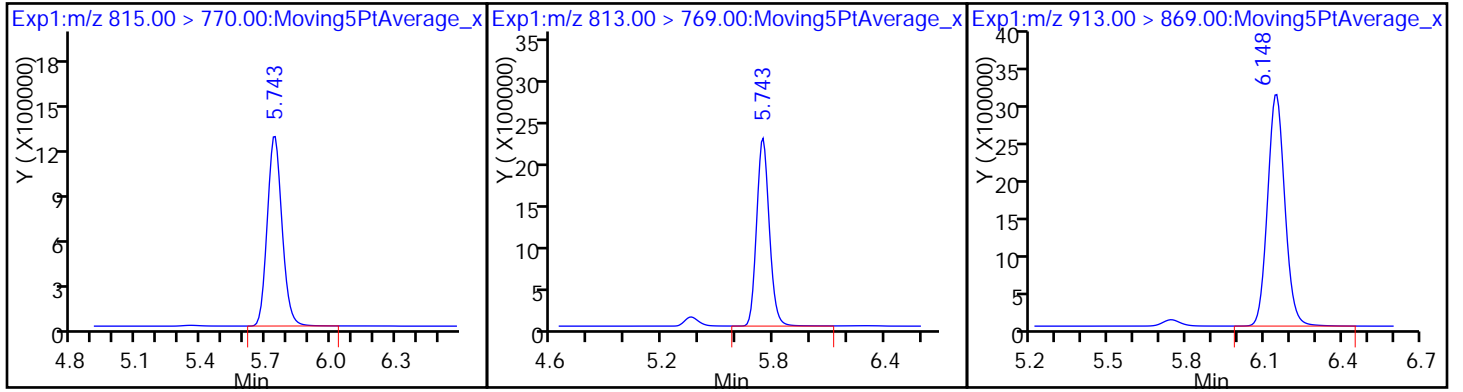
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_009.d
 Lims ID: IC L7 Full
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 22-May-2017 19:26:58 ALS Bottle#: 34 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L7-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 23-May-2017 08:42:52 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK028

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.042	2.040	0.002	16154859	43.3		87.6	167738	
2 Perfluorobutyric acid	212.90 > 169.00	2.050	2.044	0.006	1.000	52479021	160.3	81.0	39696	
D 3 13C5-PFPeA	267.90 > 223.00	2.408	2.408	0.0	10122315	41.1		83.0	27821	
4 Perfluoropentanoic acid	262.90 > 219.00	2.408	2.410	-0.002	1.000	38656387	174.5	88.1	11596	
D 47 13C3-PFBS	301.90 > 83.00	2.448	2.448	0.0	267868	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.458	2.452	0.006	1.000	56941145	133.9	76.5		
	298.90 > 99.00	2.458	2.452	0.006	1.000	28187352	2.02(0.00-0.00)	76.5		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.746	2.748	-0.002	1.000	14910321	197.9	107		
D 7 13C2 PFHxA	315.00 > 270.00	2.804	2.799	0.005	10273898	42.0		84.9	35608	
6 Perfluorohexanoic acid	313.00 > 269.00	2.804	2.799	0.005	1.000	36005812	167.5	84.6	37196	
D 9 13C4-PFHpA	367.00 > 322.00	3.203	3.203	0.0	8692180	38.9		78.5	38480	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.203	3.203	0.0	1.000	33880310	176.0	88.9	13746	
D 11 18O2 PFHxS	403.00 > 84.00	3.212	3.209	0.003	12585133	39.1		83.4	34300	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.212	3.209	0.003	1.000	51510303	158.4	87.9		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.574	3.576	-0.002	1.000	16553838	167.1	89.0		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS										
429.00 > 409.00	3.574	3.576	-0.002		4838306	36.8		78.3		
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.598	3.595	0.003	1.000	42720681	154.3		81.8		
* 62 13C2-PFOA										
415.00 > 370.00	3.598	3.595	0.003		7922052	49.5				
D 14 13C4 PFOA										
417.00 > 372.00	3.598	3.601	-0.003		8245886	36.3		73.4	28337	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.598	3.601	-0.003	1.000	33045047	176.7		89.2	2567	
413.00 > 169.00	3.598	3.601	-0.003	1.000	21035900		1.57(0.90-1.10)	89.2	11824	
D 18 13C4 PFOS										
503.00 > 80.00	3.970	3.966	0.004		9600426	40.9		86.5	5580	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.970	3.967	0.003	1.000	42064820	174.8		95.1	13331	
499.00 > 99.00	3.970	3.967	0.003	1.000	9446045		4.45(0.90-1.10)	95.1	9273	
D 19 13C5 PFNA										
468.00 > 423.00	3.981	3.979	0.002		6810957	39.0		78.9	19800	
20 Perfluorononanoic acid										
463.00 > 419.00	3.981	3.981	0.0	1.000	26543600	177.4		89.6	13774	
D 21 13C8 FOSA										
506.00 > 78.00	4.295	4.296	-0.001		15532960	42.2		85.3	14642	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	4.295	4.297	-0.002	1.000	50726310	154.2		77.9	7333	
D 26 M2-8:2FTS										
529.00 > 509.00	4.318	4.320	-0.002		4298748	43.2		91.0		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	4.318	4.322	-0.004	1.000	15211498	172.0		90.7		
D 23 13C2 PFDA										
515.00 > 470.00	4.329	4.322	0.007		6009714	40.2		81.2	3335	
24 Perfluorodecanoic acid										
513.00 > 469.00	4.329	4.323	0.006	1.000	22439977	181.7		91.7	2706	
D 27 d3-NMeFOSAA										
573.00 > 419.00	4.471	4.472	-0.001		3106910	47.1		95.1		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	4.482	4.478	0.004	1.002	12710937	201.2		102		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.594	4.598	-0.004	1.000	23885111	169.5		88.8		
D 30 13C2 PFUnA										
565.00 > 520.00	4.624	4.624	0.0		4322608	38.5		77.8	26527	
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.624	4.625	-0.001	1.000	18347734	178.9		90.4	21411	
D 32 d5-NEtFOSAA										
589.00 > 419.00	4.634	4.627	0.007		2688238	41.8		84.5		
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	4.634	4.635	-0.001	1.000	10753519	207.3		105		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.751	4.750	0.001		4563318	46.1		93.1		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.751	4.755	-0.004	1.000	17779562	200.3	101		
D 36 13C2 PFDaA	615.00 > 570.00	4.893	4.895	-0.002		4657915	42.8	86.4	3428	
37 Perfluorododecanoic acid	613.00 > 569.00	4.893	4.895	-0.002	1.000	17405363	182.3	92.1	1185	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.912	4.915	-0.003		4390542	45.8	92.5		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.921	4.922	-0.001	1.000	18175745	201.0	102		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.139	5.139	0.0	1.000	16492283	174.5	88.1	1000	
D 43 13C2-PFTeDA	715.00 > 670.00	5.363	5.357	0.006		9382750	43.6	88.0	5928	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.363	5.357	0.006	1.000	33597608	174.6	88.2	504	
	713.00 > 169.00	5.353	5.357	-0.004	0.998	5270541		6.37(0.00-0.00)	88.2	7935
D 44 13C2-PFHxDA	815.00 > 770.00	5.747	5.742	0.005		5340611	44.4	89.7	1522	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.747	5.743	0.004	1.000	18507930	189.1	95.5	484	
46 Perfluorooctadecanoic acid	913.00 > 869.00	6.149	6.143	0.006	1.000	24643267	207.8	105	594	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L7_00001

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_009.d

Injection Date: 22-May-2017 19:26:58

Instrument ID: A8_N

Lims ID: IC L7 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

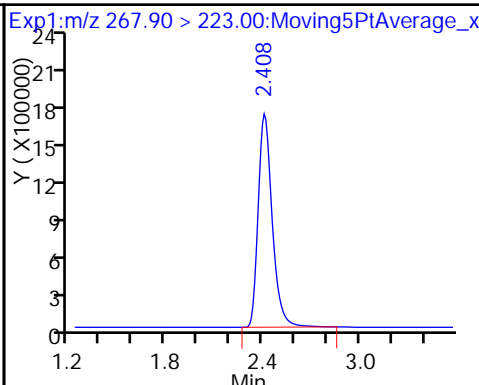
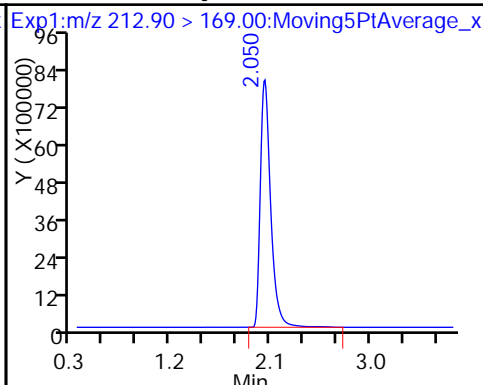
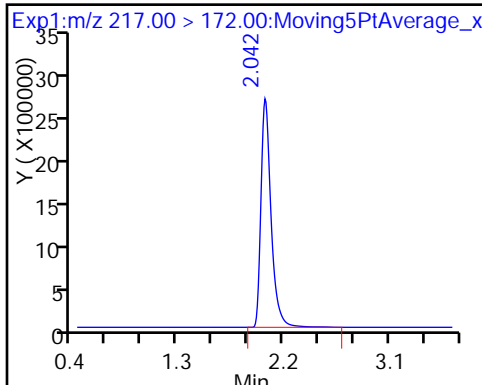
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

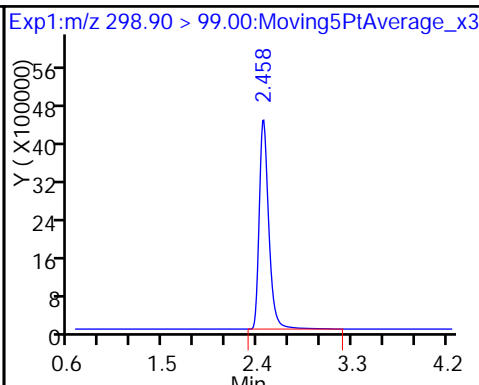
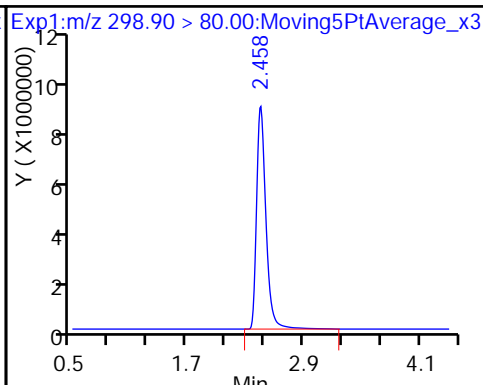
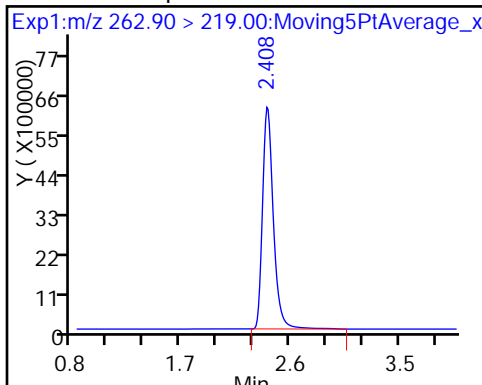
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

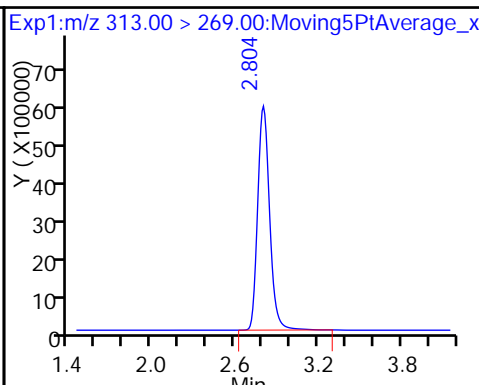
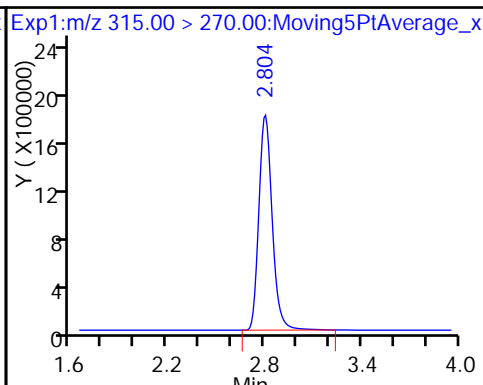
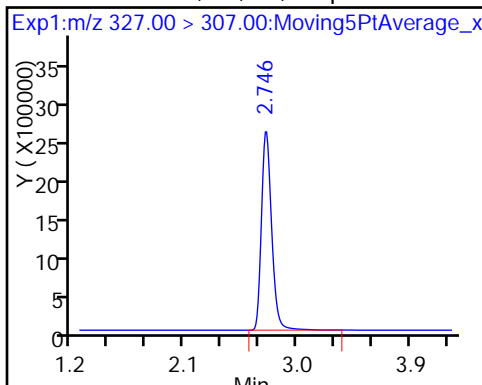
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

De 7 13C2 PFHxA

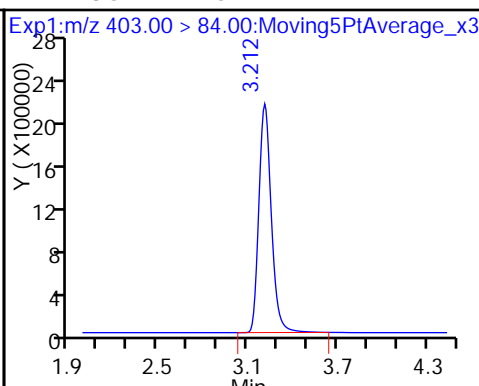
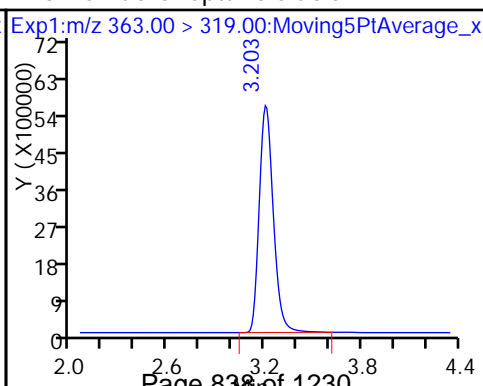
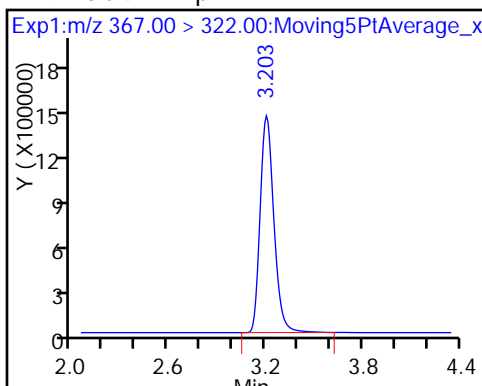
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

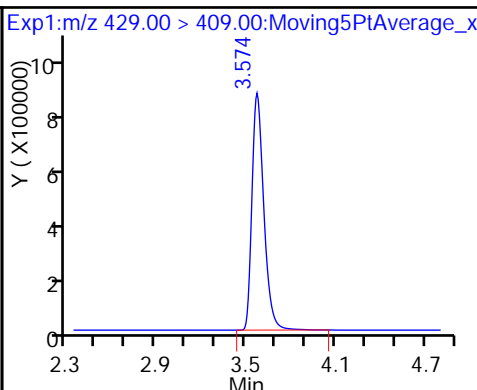
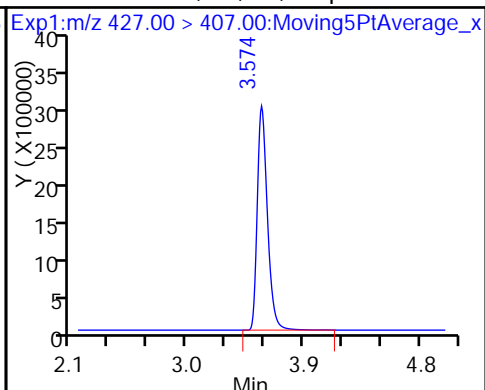
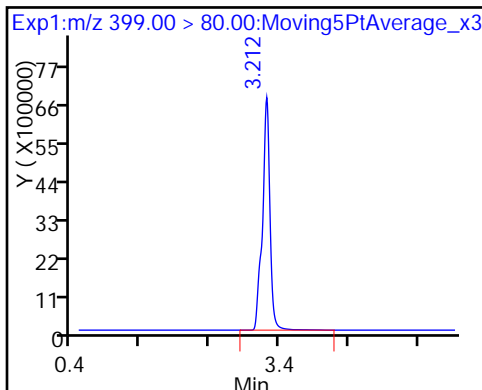
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

13 Sodium 1H,1H,2H,2H-perfluorooctanoate

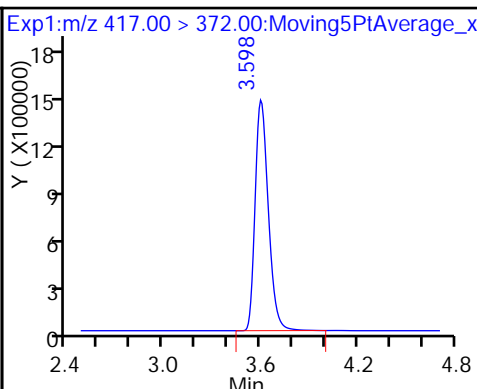
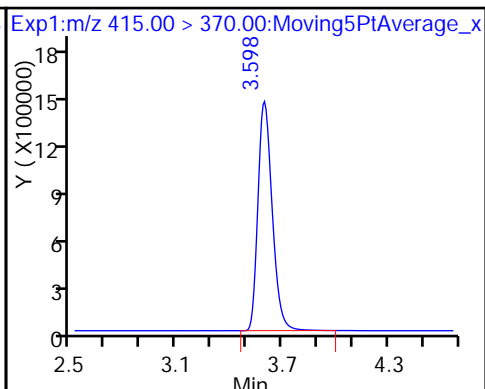
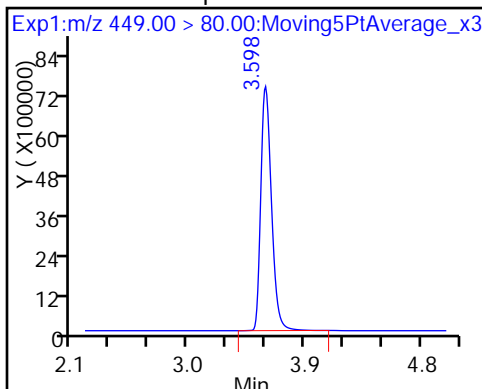
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

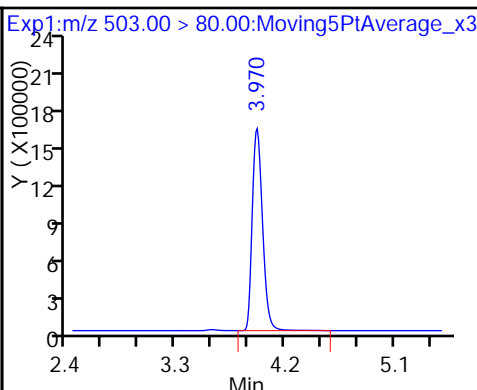
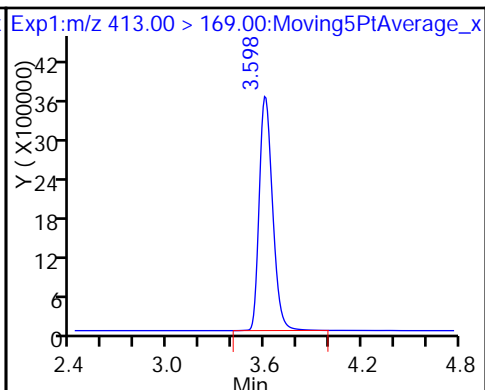
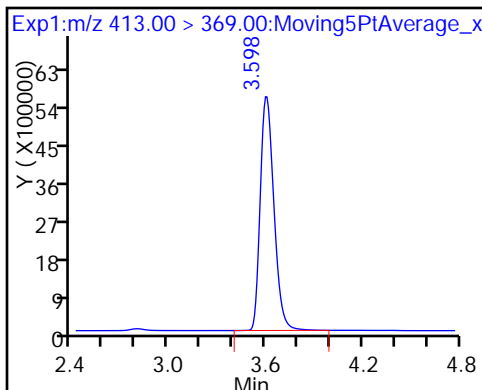
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

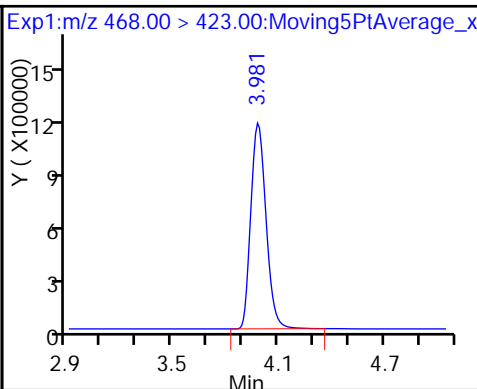
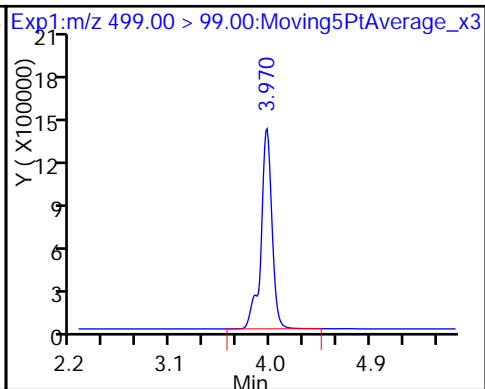
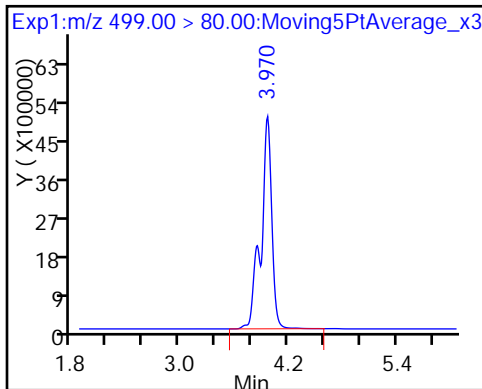
D 18 13C4 PFOS

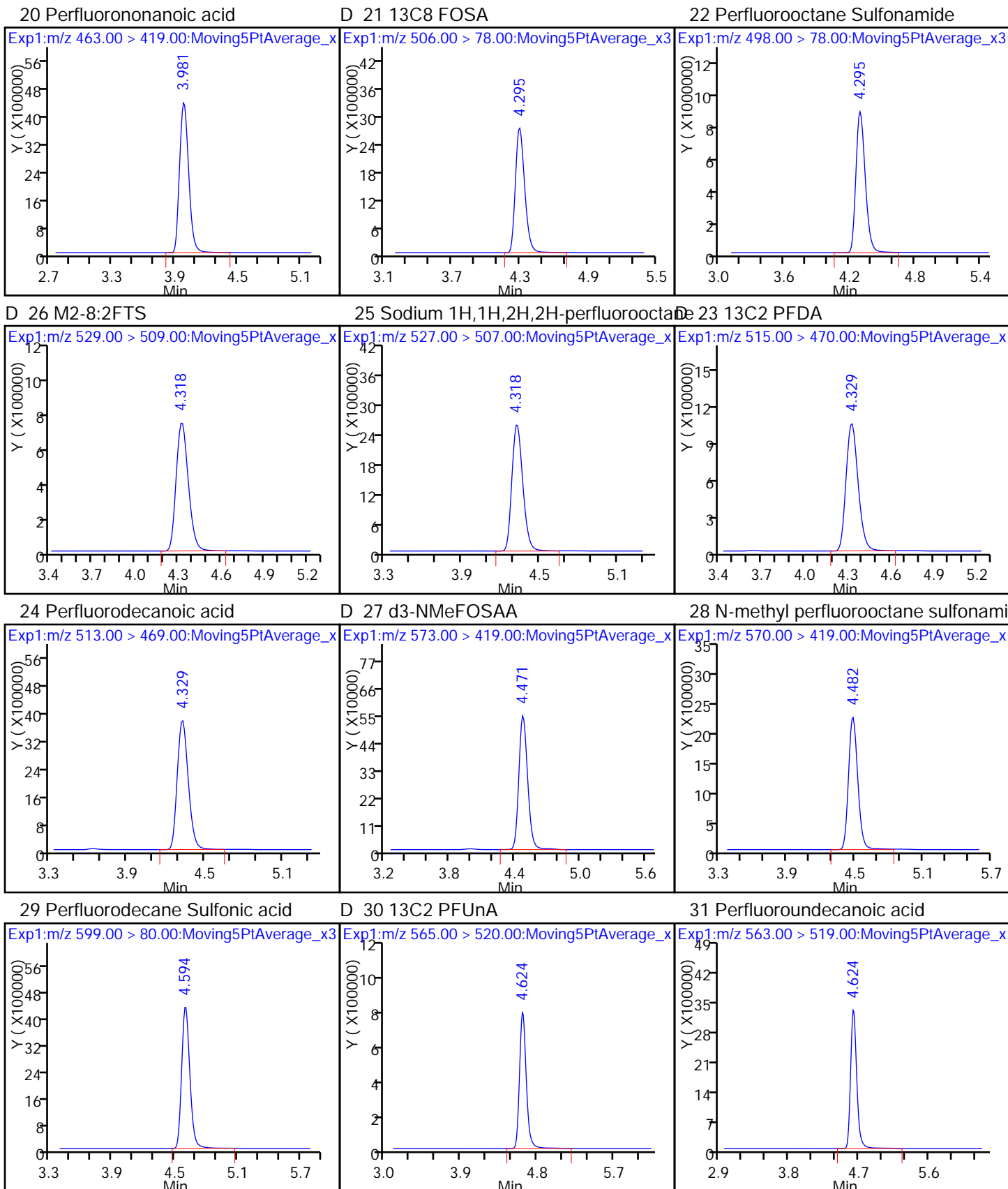


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

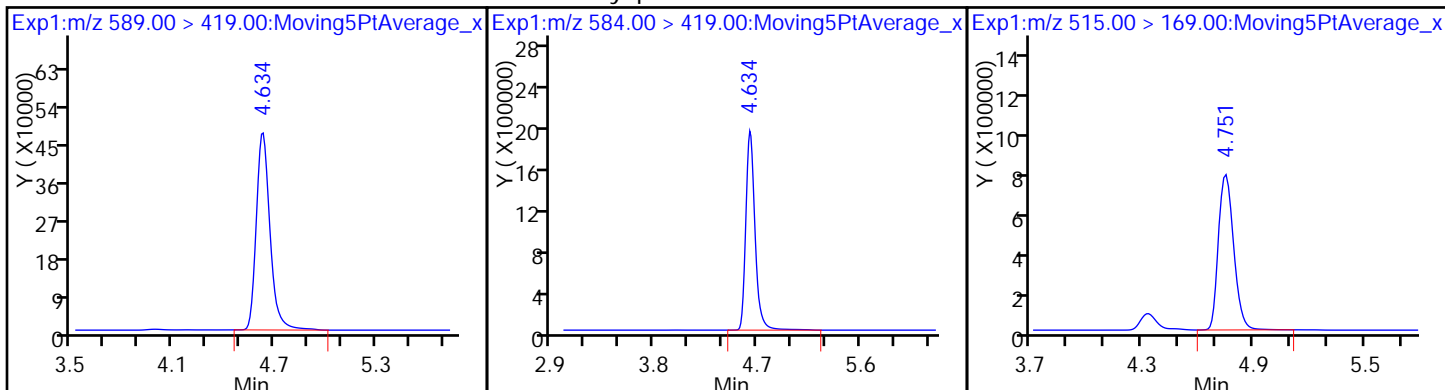




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

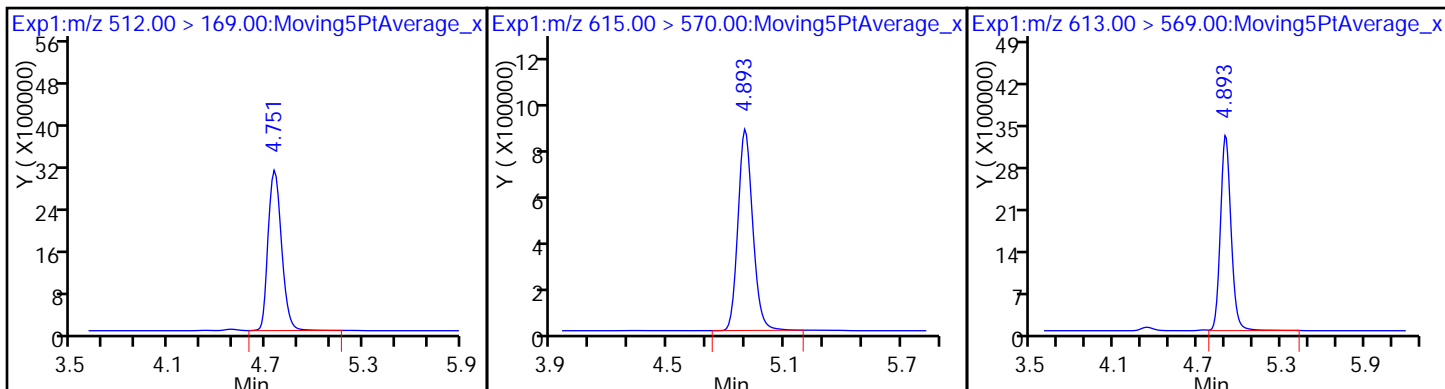
D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

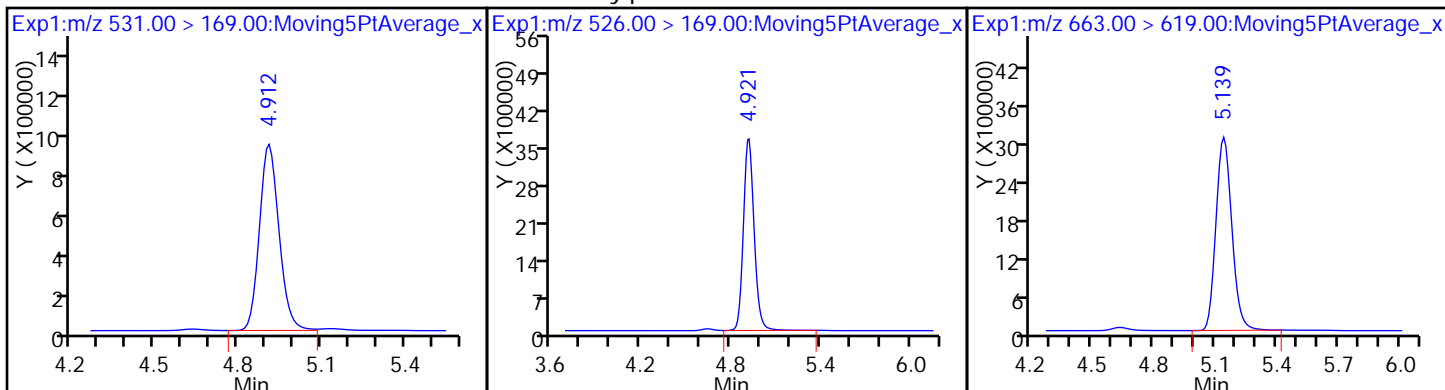
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

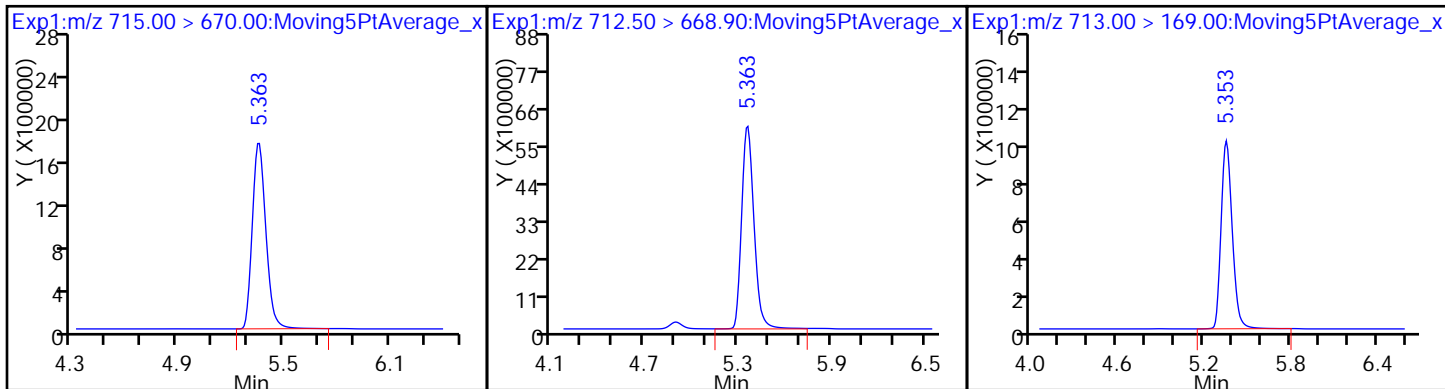
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

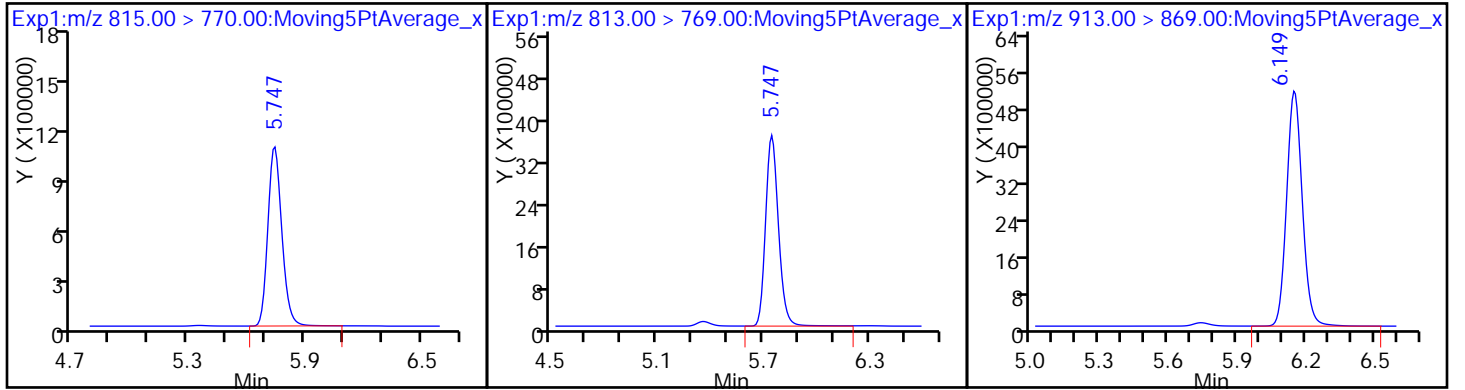
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 167755

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2017 13:31 Calibration End Date: 06/06/2017 14:25 Calibration ID: 31092

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-167755/2	2017.06.06CURVE_003.d
Level 2	IC 320-167755/3	2017.06.06CURVE_004.d
Level 3	IC 320-167755/4	2017.06.06CURVE_005.d
Level 4	IC 320-167755/5	2017.06.06CURVE_006.d
Level 5	IC 320-167755/6	2017.06.06CURVE_007.d
Level 6	IC 320-167755/7	2017.06.06CURVE_008.d
Level 7	IC 320-167755/8	2017.06.06CURVE_009.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7				RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	1.757	1.754	1.754	1.757	1.757	1.719	1.742				1.499 - 1.999	1.749
Perfluoropentanoic acid (PFPeA)	2.087	2.078	2.083	2.083	2.074	2.042	2.069				1.824 - 2.324	2.074
Perfluorobutanesulfonic acid (PFBS)	2.123	2.114	2.119	2.119	2.110	2.087	2.105				1.931 - 2.291	2.111
4:2 FTS	2.387	2.377	2.383	2.383	2.362	2.355	2.366				2.123 - 2.623	2.373
Perfluorohexanoic acid (PFHxA)	2.430	2.420	2.426	2.426	2.394	2.398	2.409				2.165 - 2.665	2.415
Perfluoroheptanoic acid (PFHpA)	2.811	2.796	2.803	2.802	2.767	2.787	2.787				2.543 - 3.043	2.793
Perfluorohexanesulfonic acid (PFHxS)	2.819	2.812	2.811	2.810	2.777	2.795	2.795				2.553 - 3.053	2.803
6:2 FTS	3.170	3.159	3.165	3.164	3.118	3.148	3.149				2.903 - 3.403	3.153
Perfluorooctanoic acid (PFOA)	3.196	3.186	3.184	3.190	3.141	3.177	3.170				2.928 - 3.428	3.178
Perfluoroheptanesulfonic Acid (PFHpS)	3.196	3.186	3.184	3.190	3.141	3.177	3.177				2.929 - 3.429	3.179
Perfluorooctanesulfonic acid (PFOS)	3.566	3.441	3.439	3.439	3.507	3.431	3.546				3.231 - 3.731	3.481
Perfluorononanoic acid (PFNA)	3.572	3.562	3.567	3.566	3.520	3.559	3.552				3.307 - 3.807	3.557
Perfluorooctane Sulfonamide (FOSA)	3.906	3.895	3.893	3.901	3.851	3.892	3.885				3.639 - 4.139	3.889
8:2 FTS	3.921	3.910	3.908	3.915	3.860	3.907	3.900				3.662 - 4.162	3.903
Perfluorodecanoic acid (PFDA)	3.921	3.917	3.915	3.923	3.868	3.914	3.907				3.659 - 4.159	3.909
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	4.084	4.072	4.079	4.078	4.029	4.069	4.061				3.817 - 4.317	4.067
Perfluorodecanesulfonic acid (PFDS)	4.221	4.208	4.206	4.214	4.165	4.204	4.196				3.952 - 4.452	4.202
Perfluoroundecanoic acid (PFUnA)	4.238	4.234	4.232	4.241	4.190	4.229	4.221				3.976 - 4.476	4.226
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	4.248	4.243	4.241	4.241	4.190	4.238	4.230				3.983 - 4.483	4.233
MeFOSA	4.384	4.379	4.377	4.377	4.331	4.375	4.367				4.120 - 4.620	4.370
Perfluorododecanoic acid (PFDoA)	4.516	4.519	4.518	4.517	4.469	4.516	4.507				4.259 - 4.759	4.509
N-EtFOSA-M	4.565	4.559	4.557	4.557	4.508	4.555	4.547				4.300 - 4.800	4.550
Perfluorotridecanoic Acid (PFTriA)	4.772	4.775	4.774	4.773	4.716	4.772	4.754				4.512 - 5.012	4.762
Perfluorotetradecanoic acid (PFTeA)	4.994	4.996	4.995	5.002	4.947	4.994	4.987				4.738 - 5.238	4.988
Perfluoro-n-hexadecanoic acid (PFHxDA)	+++	5.403	5.402	5.409	5.355	5.401	5.393				5.145 - 5.645	5.394
Perfluoro-n-octadecanoic acid (PFODA)	5.751	5.757	5.752	5.760	5.701	5.751	5.744				5.495 - 5.995	5.745
13C4 PFBA	1.754	1.750	1.754	1.753	1.757	1.715	1.739				1.496 - 1.996	1.746
13C5-PFPeA	2.087	2.078	2.074	2.083	2.074	2.042	2.069				1.823 - 2.323	2.072
13C2 PFHxA	2.430	2.420	2.416	2.426	2.394	2.398	2.409				2.163 - 2.663	2.413
13C4-PFHpA	2.811	2.796	2.803	2.802	2.767	2.778	2.787				2.542 - 3.042	2.792
18O2 PFHxS	2.819	2.812	2.811	2.810	2.777	2.795	2.795				2.553 - 3.053	2.803
M2-6:2 FTS	3.170	3.159	3.157	3.164	3.118	3.148	3.141				2.901 - 3.401	3.151

FORM VI
 LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
 RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 167755
 SDG No.: _____
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N
 Calibration Start Date: 06/06/2017 13:31 Calibration End Date: 06/06/2017 14:25 Calibration ID: 31092

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7				RT WINDOW	AVG RT
13C4 PFOA	3.190	3.186	3.184	3.190	3.141	3.170	3.170				2.926 - 3.426	3.176
13C4 PFOS	3.566	3.555	3.553	3.560	3.507	3.546	3.539				3.296 - 3.796	3.547
13C5 PFNA	3.572	3.562	3.560	3.566	3.513	3.559	3.552				3.305 - 3.805	3.555
13C8 FOSA	3.906	3.895	3.893	3.901	3.843	3.892	3.885				3.638 - 4.138	3.888
M2-8:2FTS	3.921	3.910	3.908	3.915	3.860	3.907	3.900				3.653 - 4.153	3.903
13C2 PFDA	3.921	3.917	3.915	3.915	3.868	3.914	3.907				3.658 - 4.158	3.908
d3-NMeFOSAA	4.076	4.072	4.070	4.078	4.021	4.069	4.061				3.814 - 4.314	4.064
d5-NEtFOSAA	4.238	4.234	4.232	4.241	4.181	4.229	4.221				3.975 - 4.475	4.225
13C2 PFUnA	4.238	4.234	4.232	4.241	4.190	4.229	4.221				3.976 - 4.476	4.226
d-N-MeFOSA-M	4.375	4.370	4.368	4.377	4.331	4.366	4.358				4.114 - 4.614	4.364
13C2 PFDoA	4.516	4.519	4.518	4.517	4.469	4.516	4.507				4.259 - 4.759	4.509
d-N-EtFOSA-M	4.555	4.549	4.547	4.547	4.498	4.545	4.537				4.290 - 4.790	4.540
13C2-PFTeDA	4.994	4.996	4.995	5.002	4.947	4.994	4.987				4.738 - 5.238	4.988
13C2-PFHxDA	5.401	5.403	5.402	5.402	5.348	5.401	5.386				5.141 - 5.641	5.392

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 167755

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2017 13:31 Calibration End Date: 06/06/2017 14:25 Calibration ID: 31092

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-167755/2	2017.06.06CURVE_003.d
Level 2	IC 320-167755/3	2017.06.06CURVE_004.d
Level 3	IC 320-167755/4	2017.06.06CURVE_005.d
Level 4	IC 320-167755/5	2017.06.06CURVE_006.d
Level 5	IC 320-167755/6	2017.06.06CURVE_007.d
Level 6	IC 320-167755/7	2017.06.06CURVE_008.d
Level 7	IC 320-167755/8	2017.06.06CURVE_009.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4		B	M1	M2								
13C4 PFBA	346103 331961	345092 308736	349075 293409	333719	Ave		329727.797			6.4			50.0			
13C5-PFPeA	230569 216709	237670 209567	228725 187056	229545	Ave		219977.191			7.9			50.0			
13C2 PFHxA	207312 184845	204374 180009	203453 166161	203769	Ave		192846.077			8.2			50.0			
13C4-PFHpA	189604 173031	195593 162363	190795 149905	183891	Ave		177882.943			9.5			50.0			
18O2 PFHxS	244451 225323	251401 212419	246944 193508	239734	Ave		230540.136			9.2			50.0			
M2-6:2FTS	90705 84443	105680 82480	89684 86534	82339	Ave		88837.8135			9.1			50.0			
13C4 PFOA	188243 171300	207512 165673	195181 147060	187285	Ave		180322.043			11.3			50.0			
13C4 PFOS	187471 169346	192642 167496	188814 155849	185294	Ave		178130.093			7.8			50.0			
13C5 PFNA	165366 143197	167523 143103	164629 124172	160679	Ave		152666.940			10.6			50.0			
13C8 FOSA	323370 287307	322088 278867	328734 247881	313184	Ave		300204.537			10.0			50.0			
M2-8:2FTS	77292 74843	85710 85674	82977 78846	87673	Ave		81859.2514			6.0			50.0			
13C2 PFDA	159276 137602	167045 142263	165413 122807	161074	Ave		150782.906			11.1			50.0			
d3-NMeFOSAA	91609 89388	89456 83333	89889 83137	89622	Ave		88061.8371			3.8			50.0			
d5-NEtFOSAA	96959 86228	94999 76630	93034 68748	94453	Ave		87292.9371			12.3			50.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
 LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
 CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 167755

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2017 13:31 Calibration End Date: 06/06/2017 14:25 Calibration ID: 31092

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4		B	M1	M2								
13C2 PFUnA	128933 118203	134031 106582	131416 92233	127462	Ave		119837.151			12.8			50.0			
d-N-MeFOSA-M	87350 87518	90180 89491	91151 85721	88740	Ave		88592.9429			2.1			50.0			
13C2 PFDoA	125746 124443	127394 126074	133266 111396	123080	Ave		124485.494			5.3			50.0			
d-N-EtFOSA-M	83617 82956	84499 82487	85530 78260	81972	Ave		82760.1971			2.8			50.0			
13C2-PFTEdA	267141 261332	271193 247209	270333 219411	262981	Ave		257085.743			7.2			50.0			
13C2-PFHxDA	141412 133156	146497 130975	145589 121543	138804	Ave		136853.586			6.5			50.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento

Job No.: 320-28286-1

Analy Batch No.: 167755

SDG No.: _____

Instrument ID: A8_N

GC Column: GeminiC18 3 ID: 3(mm)

Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2017 13:31

Calibration End Date: 06/06/2017 14:25

Calibration ID: 31092

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Perfluorobutanoic acid (PFBA)	0.9437 0.8904	0.9206 0.7754	0.9816	0.9729	0.9453	AveID		0.9186			7.6		35.0				
Perfluoropentanoic acid (PFPeA)	1.1183 1.0258	1.0155 0.9126	1.0947	1.0468	1.0714	AveID		1.0407			6.5		35.0				
Perfluorobutanesulfonic acid (PFBS)	1.5986 1.6307	1.5479 1.3961	1.6810	1.7760	1.7972	AveID		1.6325			8.5		50.0				
4:2 FTS	0.8229 0.8838	0.7147 0.7976	0.8943	1.0299	0.8832	AveID		0.8609			11.4		35.0				
Perfluorohexanoic acid (PFHxA)	1.0175 1.0338	1.0069 0.9144	1.0358	1.0177	1.0603	AveID		1.0123			4.6		35.0				
Perfluoroheptanoic acid (PFHpA)	1.0646 1.0707	1.0257 0.9660	1.0794	1.0531	1.0754	AveID		1.0478			3.9		35.0				
Perfluorohexanesulfonic acid (PFHxS)	1.3201 1.0784	1.0975 1.0315	1.0786	1.0185	1.0459	AveID		1.0958			9.4		35.0				
6:2FTS	1.0299 1.0067	1.0250 0.8378	1.0031	1.0278	0.9851	AveID		0.9879			6.9		35.0				
Perfluorooctanoic acid (PFOA)	1.1722 1.0523	1.0449 0.9854	1.0617	1.0720	1.0908	AveID		1.0684			5.3		35.0				
Perfluoroheptanesulfonic Acid (PFHpS)	1.0961 1.1669	1.1108 1.0255	1.2252	1.1681	1.1915	AveID		1.1406			5.9		50.0				
Perfluorooctanesulfonic acid (PFOS)	0.9812 1.1008	1.0077 1.0703	1.0673	1.0458	1.1148	AveID		1.0554			4.5		35.0				
Perfluorononanoic acid (PFNA)	0.9993 1.0045	0.9618 0.9673	1.0359	0.9996	1.0481	AveID		1.0024			3.2		35.0				
Perfluorooctane Sulfonamide (FOSA)	0.9790 0.9581	1.0046 0.8204	1.0151	1.0204	0.9873	AveID		0.9693			7.1		35.0				
8:2FTS	1.0052 0.9369	0.9799 0.8784	1.0008	1.0465	0.9532	AveID		0.9716			5.6		35.0				
Perfluorodecanoic acid (PFDA)	0.9373 0.9707	0.8970 0.9503	0.9766	0.9398	0.9938	AveID		0.9522			3.3		35.0				
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	0.9477 1.0788	0.9681 1.0608	0.9864	1.1032	1.0539	AveID		1.0284			5.9		35.0				
Perfluorodecanesulfonic acid (PFDS)	0.6160 0.6988	0.6137 0.6271	0.6678	0.6502	0.7356	AveID		0.6584			6.9		50.0				
Perfluoroundecanoic acid (PFUnA)	1.2452 1.0282	1.1127 1.0056	1.0408	1.0087	1.0154	AveID		1.0652			8.2		35.0				
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.8343 0.9716	0.9335 0.9951	0.9490	0.9531	0.9709	AveID		0.9439			5.5		35.0				

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 167755
 SDG No.: _____
 Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N
 Calibration Start Date: 06/06/2017 13:31 Calibration End Date: 06/06/2017 14:25 Calibration ID: 31092

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
MeFOSA	0.8878 0.9996	0.8955 0.9878	0.9433	1.0038	1.0253	AveID		0.9633			5.7		35.0				
Perfluorododecanoic acid (PFDoA)	0.9800 0.9698	0.9538 0.8916	0.9717	0.9898	0.9368	AveID		0.9562			3.5		35.0				
N-EtFOSA-M	0.9164 1.0694	0.9263 1.0280	0.9730	1.0468	1.0427	AveID		1.0004			6.2		35.0				
Perfluorotridecanoic Acid (PFTriA)	1.0201 0.9327	1.0014 0.8929	1.0008	1.0809	1.0691	AveID		0.9997			6.8		50.0				
Perfluorotetradecanoic acid (PFTeA)	2.2158 1.9502	2.2153 1.7677	2.1711	2.2507	2.2303	L2ID	0.0916	2.0715						0.9920		0.9900	
Perfluoro-n-hexadecanoic acid (PFHxDA)	++++ 0.9205	1.6871 0.8982	1.1031	1.0175	0.9612	L2ID	0.7562	0.9360						0.9990		0.9900	
Perfluoro-n-octadecanoic acid (PFODA)	0.8363 0.8550	0.9351 0.8405	0.9571	0.9342	0.8375	AveID		0.8851			6.1		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.: 320-28286-1 Analy Batch No.: 167755

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2017 13:31 Calibration End Date: 06/06/2017 14:25 Calibration ID: 31092

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-167755/2	2017.06.06CURVE_003.d
Level 2	IC 320-167755/3	2017.06.06CURVE_004.d
Level 3	IC 320-167755/4	2017.06.06CURVE_005.d
Level 4	IC 320-167755/5	2017.06.06CURVE_006.d
Level 5	IC 320-167755/6	2017.06.06CURVE_007.d
Level 6	IC 320-167755/7	2017.06.06CURVE_008.d
Level 7	IC 320-167755/8	2017.06.06CURVE_009.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C4 PFBA	Ave	17305149 15436785	17254592 14670457	17453757	16685960	16598029	50.0 50.0	50.0 50.0	50.0	50.0	50.0
13C5-PFPeA	Ave	11528458 10478326	11883512 9352823	11436238	11477234	10835426	50.0 50.0	50.0 50.0	50.0	50.0	50.0
13C2 PFHxA	Ave	10365586 9000471	10218685 8308032	10172648	10188431	9242274	50.0 50.0	50.0 50.0	50.0	50.0	50.0
13C4-PFHpA	Ave	9480183 8118133	9779640 7495237	9539730	9194541	8651566	50.0 50.0	50.0 50.0	50.0	50.0	50.0
18O2 PFHxS	Ave	11562555 10047436	11891249 9152921	11680454	11339438	10657786	47.3 47.3	47.3 47.3	47.3	47.3	47.3
M2-6:2FTS	Ave	4308473 3917803	5019816 4110352	4259968	3911109	4011052	47.5 47.5	47.5 47.5	47.5	47.5	47.5
13C4 PFOA	Ave	9412163 8283659	10375611 7352976	9759048	9364253	8565005	50.0 50.0	50.0 50.0	50.0	50.0	50.0
13C4 PFOS	Ave	8961127 8006290	9208275 7449567	9025287	8857038	8094745	47.8 47.8	47.8 47.8	47.8	47.8	47.8
13C5 PFNA	Ave	8268279 7155137	8376141 6208617	8231460	8033929	7159866	50.0 50.0	50.0 50.0	50.0	50.0	50.0
13C8 FOSA	Ave	16168522 13943325	16104401 12394073	16436681	15659216	14365370	50.0 50.0	50.0 50.0	50.0	50.0	50.0
M2-8:2FTS	Ave	3702308 4103773	4105522 3776708	3974583	4199515	3584998	47.9 47.9	47.9 47.9	47.9	47.9	47.9
13C2 PFDA	Ave	7963788 7113155	8352262 6140363	8270641	8053713	6880095	50.0 50.0	50.0 50.0	50.0	50.0	50.0
d3-NMeFOSAA	Ave	4580441 4166659	4472776 4156833	4494472	4481079	4469383	50.0 50.0	50.0 50.0	50.0	50.0	50.0
d5-NEtFOSAA	Ave	4847930 3831476	4749964 3437412	4651680	4722646	4311420	50.0 50.0	50.0 50.0	50.0	50.0	50.0
13C2 PFUnA	Ave	6446658 5329123	6701532 4611652	6570792	6373111	5910135	50.0 50.0	50.0 50.0	50.0	50.0	50.0

FORM VI
 LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
 RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 167755

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2017 13:31 Calibration End Date: 06/06/2017 14:25 Calibration ID: 31092

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
d-N-MeFOSA-M	Ave	4367482 4474532	4508975 4286058	4557564	4437019	4375900	50.0 50.0	50.0 50.0	50.0	50.0	50.0
13C2 PFDoA	Ave	6287318 6303717	6369681 5569779	6663278	6153979	6222171	50.0 50.0	50.0 50.0	50.0	50.0	50.0
d-N-EtFOSA-M	Ave	4180858 4124361	4224964 3912999	4276499	4098578	4147810	50.0 50.0	50.0 50.0	50.0	50.0	50.0
13C2-PFTeDA	Ave	13357074 12360442	13559654 10970549	13516644	13149033	13066614	50.0 50.0	50.0 50.0	50.0	50.0	50.0
13C2-PFHxDA	Ave	7070589 6548753	7324836 6077148	7279427	6940209	6657793	50.0 50.0	50.0 50.0	50.0	50.0	50.0

Curve Type Legend:

Ave = Average

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 167755

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2017 13:31 Calibration End Date: 06/06/2017 14:25 Calibration ID: 31092

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-167755/2	2017.06.06CURVE_003.d
Level 2	IC 320-167755/3	2017.06.06CURVE_004.d
Level 3	IC 320-167755/4	2017.06.06CURVE_005.d
Level 4	IC 320-167755/5	2017.06.06CURVE_006.d
Level 5	IC 320-167755/6	2017.06.06CURVE_007.d
Level 6	IC 320-167755/7	2017.06.06CURVE_008.d
Level 7	IC 320-167755/8	2017.06.06CURVE_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorobutanoic acid (PFBA)		AveID	163317 27491311	317703 45503740	1713334	6493513	15690403	0.500 100	1.00 200	5.00	20.0	50.0
Perfluoropentanoic acid (PFPeA)		AveID	128926 21498244	241349 34142749	1251931	4805868	11608590	0.500 100	1.00 200	5.00	20.0	50.0
Perfluorobutanesulfonic acid (PFBS)		AveID	172729 30621227	344009 47764002	1834796	7527479	17899004	0.442 88.4	0.884 177	4.42	17.7	44.2
4:2 FTS		AveID	34859 6808579	70543 12892114	374572	1584153	3482714	0.467 93.4	0.934 187	4.67	18.7	46.7
Perfluorohexanoic acid (PFHxA)		AveID	105468 18608789	205783 30388186	1053687	4147414	9799146	0.500 100	1.00 200	5.00	20.0	50.0
Perfluoroheptanoic acid (PFHpA)		AveID	100930 17384856	200613 28962446	1029680	3873044	9303637	0.500 100	1.00 200	5.00	20.0	50.0
Perfluorohexanesulfonic acid (PFHxS)		AveID	146827 20846360	251075 36326380	1211890	4443874	10722835	0.455 91.0	0.910 182	4.55	18.2	45.5
6:2FTS		AveID	44278 7871580	102685 13746035	426423	1604502	3942830	0.474 94.8	0.948 190	4.74	19.0	47.4
Perfluorooctanoic acid (PFOA)		AveID	110327 17433456	216821 28982100	1036095	4015277	9342547	0.500 100	1.00 200	5.00	20.0	50.0
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	97814 18606449	203708 30429275	1101144	4121001	9604345	0.476 95.2	0.952 190	4.76	19.0	47.6
Perfluorooctanesulfonic acid (PFOS)		AveID	85347 17109959	180154 30958564	935018	3596640	8759357	0.464 92.8	0.928 186	4.64	18.6	46.4
Perfluorononanoic acid (PFNA)		AveID	82628 14375092	161116 24022877	852732	3212440	7504157	0.500 100	1.00 200	5.00	20.0	50.0
Perfluorooctane Sulfonamide (FOSA)		AveID	158290 26718233	323576 40674110	1668408	6391277	14183021	0.500 100	1.00 200	5.00	20.0	50.0
8:2FTS		AveID	37217 7689657	80461 13269259	397779	1757951	3417126	0.479 95.8	0.958 192	4.79	19.2	47.9
Perfluorodecanoic acid (PFDA)		AveID	74641 13809842	149846 23341247	807683	3027625	6837691	0.500 100	1.00 200	5.00	20.0	50.0

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1 Analy Batch No.: 167755

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/06/2017 13:31 Calibration End Date: 06/06/2017 14:25 Calibration ID: 31092

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	43409 8990148	86601 17638254	443332	1977330	4710158	0.500 100	1.00 200	5.00	20.0	50.0
Perfluorodecanesulfonic acid (PFDS)		AveID	55658 11283031	113968 18842939	607766	2322699	6004418	0.482 96.4	0.964 193	4.82	19.3	48.2
Perfluoroundecanoic acid (PFUnA)		AveID	80271 10958427	149138 18549751	683898	2571433	6001124	0.500 100	1.00 200	5.00	20.0	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	40446 7444963	88680 13681734	441438	1800439	4185883	0.500 100	1.00 200	5.00	20.0	50.0
MeFOSA		AveID	38773 8945690	80752 16935326	429934	1781501	4486631	0.500 100	1.00 200	5.00	20.0	50.0
Perfluorododecanoic acid (PFDoA)		AveID	61616 12226133	121510 19864028	647442	2436486	5829140	0.500 100	1.00 200	5.00	20.0	50.0
N-EtFOSA-M		AveID	38312 8820848	78271 16090825	416107	1716234	4324767	0.500 100	1.00 200	5.00	20.0	50.0
Perfluorotridecanoic Acid (PFTriA)		AveID	64138 11758359	127566 19892555	666888	2660759	6652200	0.500 100	1.00 200	5.00	20.0	50.0
Perfluorotetradecanoic acid (PFTeA)		L2ID	139315 24586938	282213 39382531	1446661	5540367	13877084	0.500 100	1.00 200	5.00	20.0	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)		L2ID	++++ 11604953	214925 20012102	735058	2504738	5980612	++++ 100	1.00 200	5.00	20.0	50.0
Perfluoro-n-octadecanoic acid (PFODA)		AveID	52583 10779764	119125 18725750	637726	2299688	5210924	0.500 100	1.00 200	5.00	20.0	50.0

Curve Type Legend:

AveID = Average isotope dilution
L2ID = Linear 1/conc^2 IsoDil

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_003.d
 Lims ID: IC L1 Full
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 06-Jun-2017 13:31:58 ALS Bottle#: 28 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L1-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 08:20:07 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK033

First Level Reviewer: chandrasenas Date: 06-Jun-2017 14:39:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.754	1.746	0.008	17305149	52.5		105	182216	
2 Perfluorobutyric acid	212.90 > 169.00	1.757	1.749	0.008	1.000	163317	0.5137	103	120	
D 3 13C5-PFPeA	267.90 > 223.00	2.087	2.073	0.014	11528458	52.4		105	45666	
4 Perfluoropentanoic acid	262.90 > 219.00	2.087	2.074	0.013	1.000	128926	0.5373	107	41.3	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.123	2.111	0.012	1.000	172729	0.4328	97.9		
	298.90 > 99.00	2.123	2.111	0.012	1.000	72290	2.39(0.00-0.00)	97.9		
D 47 13C3-PFBS	301.90 > 83.00	2.123	2.111	0.012	274776	NC				
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.387	2.373	0.014	1.000	34859	0.4464	95.6		
D 7 13C2 PFHxA	315.00 > 270.00	2.430	2.413	0.017	10365586	53.8		108	31813	
6 Perfluorohexanoic acid	313.00 > 269.00	2.430	2.415	0.015	1.000	105468	0.5025	101	261	
D 9 13C4-PFHpA	367.00 > 322.00	2.811	2.792	0.019	9480183	53.3		107	29935	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.811	2.793	0.018	1.000	100930	0.5080	102	52.4	
D 11 18O2 PFHxS	403.00 > 84.00	2.819	2.803	0.016	11562555	50.2		106	20803	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.819	2.803	0.016	1.000	146827	0.5481	120		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.170	3.151	0.019	4308473	48.5	102		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.170	3.153	0.017	1.000	44278	0.4941	104	
* 62 13C2-PFOA	415.00	> 370.00	3.190	3.174	0.016	10163286	50.0			
D 14 13C4 PFOA	417.00	> 372.00	3.190	3.176	0.014	9412163	52.2	104	29013	
15 Perfluorooctanoic acid	413.00	> 369.00	3.196	3.178	0.018	1.000	110327	0.5485	110	42.0
	413.00	> 169.00	3.196	3.178	0.018	1.000	62073	1.78(0.90-1.10)	110	221
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.196	3.179	0.017	1.000	97814	0.4575	96.1	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.566	3.481	0.085	1.000	85347	0.4314	93.0	407
	499.00	> 99.00	3.566	3.481	0.085	1.000	19844	4.30(0.90-1.10)	93.0	211
D 18 13C4 PFOS	503.00	> 80.00	3.566	3.546	0.020	8961127	50.3	105	13702	
D 19 13C5 PFNA	468.00	> 423.00	3.572	3.555	0.017	8268279	54.2	108	20640	
20 Perfluorononanoic acid	463.00	> 419.00	3.572	3.557	0.015	1.000	82628	0.4985	99.7	115
D 21 13C8 FOSA	506.00	> 78.00	3.906	3.888	0.018	16168522	53.9	108	16956	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.906	3.889	0.017	1.000	158290	0.5050	101	1866
D 26 M2-8:2FTS	529.00	> 509.00	3.921	3.903	0.018	3702308	45.2	94.4		
D 23 13C2 PFDA	515.00	> 470.00	3.921	3.908	0.013	7963788	52.8	106	12802	
24 Perfluorodecanoic acid	513.00	> 469.00	3.921	3.909	0.012	1.000	74641	0.4921	98.4	339
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.921	3.912	0.009	1.000	37217	0.4956	103	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.076	4.064	0.012	4580441	52.0	104		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.084	4.067	0.017	1.002	43409	0.4608	92.2	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.221	4.202	0.019	1.000	55658	0.4509	93.5	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.238	4.225	0.013	4847930	55.5	111		
D 30 13C2 PFUnA	565.00	> 520.00	4.238	4.226	0.012	6446658	53.8	108	12646	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.238	4.226	0.012	1.000	80271	0.5845	117	293
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.248	4.233	0.015	1.002	40446	0.4419	88.4	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.375	4.364	0.011	4367482	49.3	98.6		
35 MeFOSA	512.00	> 169.00	4.384	4.370	0.014	1.000	38773	0.4608	92.2	
37 Perfluorododecanoic acid	613.00	> 569.00	4.516	4.509	0.007	1.000	61616	0.5124	102	24.9
D 36 13C2 PFDaA	615.00	> 570.00	4.516	4.509	0.007		6287318	50.5	101	6401
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.555	4.540	0.015		4180858	50.5	101	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.565	4.550	0.015	1.000	38312	0.4580	91.6	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.772	4.762	0.010	1.000	64138	0.5102	102	75.8
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.994	4.988	0.006	1.000	139315	0.4906	98.1	143
	713.00	> 169.00	4.994	4.988	0.006	1.000	23417	5.95(0.00-0.00)	98.1	414
D 43 13C2-PFTeDA	715.00	> 670.00	4.994	4.988	0.006		13357074	52.0	104	14253
D 44 13C2-PFHxDA	815.00	> 770.00	5.401	5.391	0.009		7070589	51.7	103	5929
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.401	5.395	0.005	1.000	153166	0.4934	98.7	115
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.751	5.745	0.006	1.000	52583	0.4724	94.5	80.0

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L1_00004

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_003.d

Injection Date: 06-Jun-2017 13:31:58

Instrument ID: A8_N

Lims ID: IC L1 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

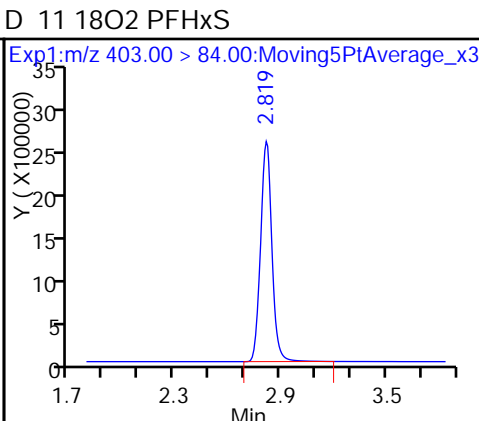
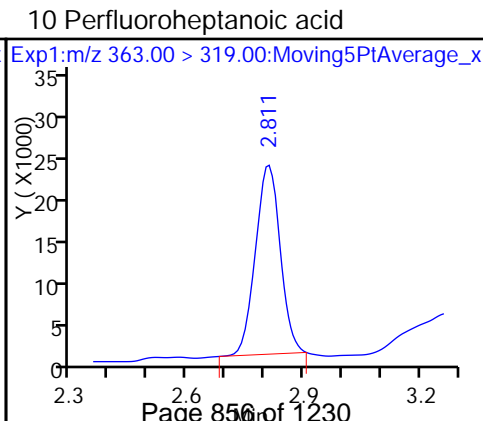
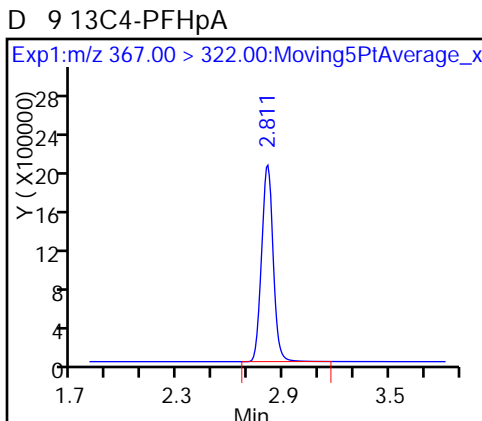
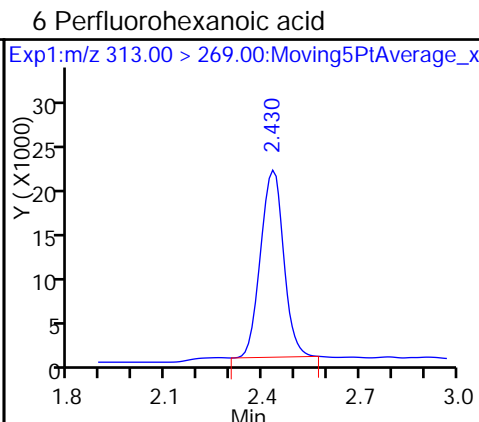
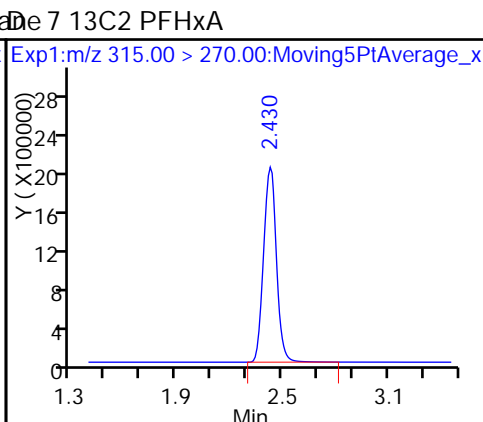
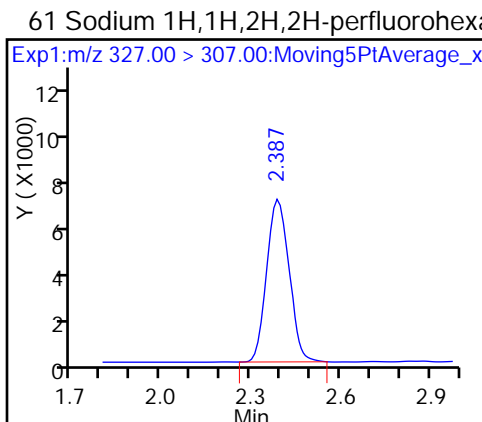
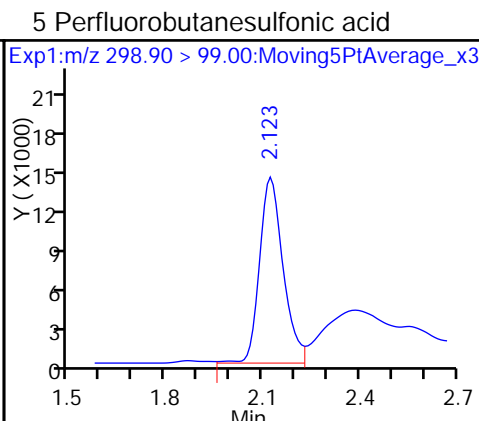
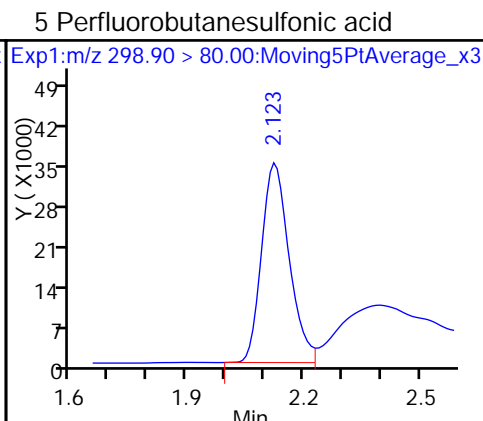
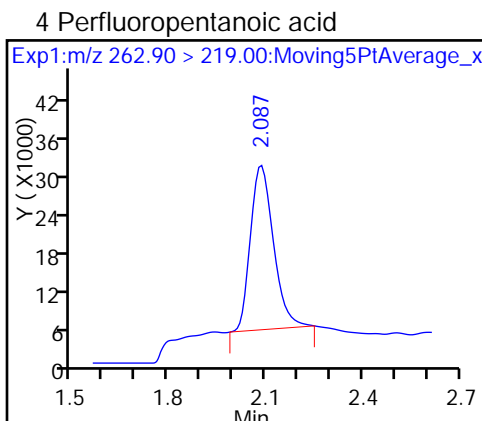
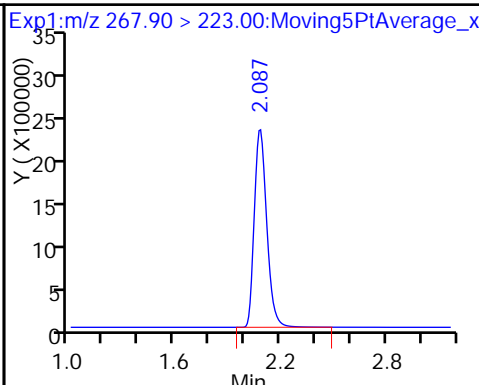
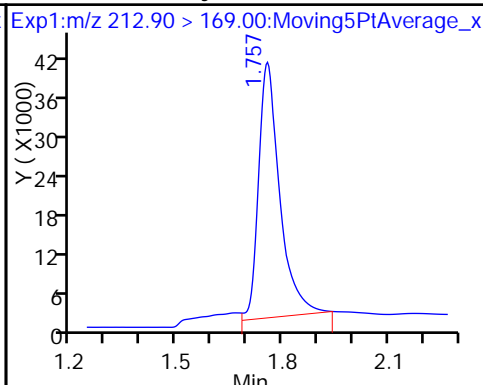
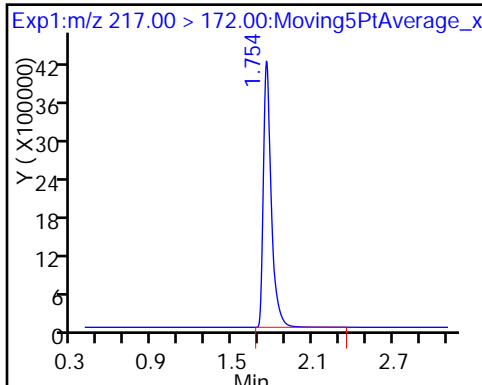
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

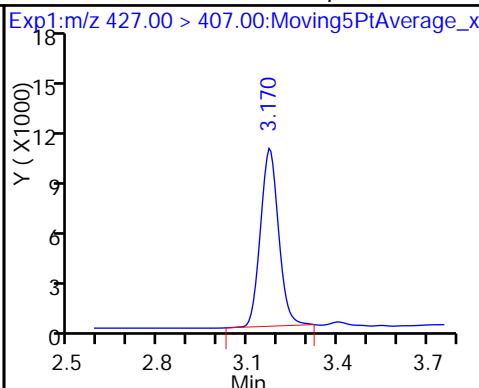
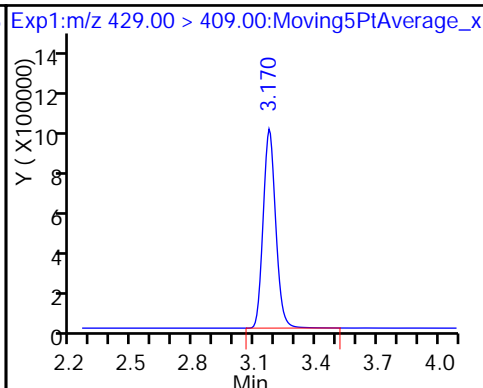
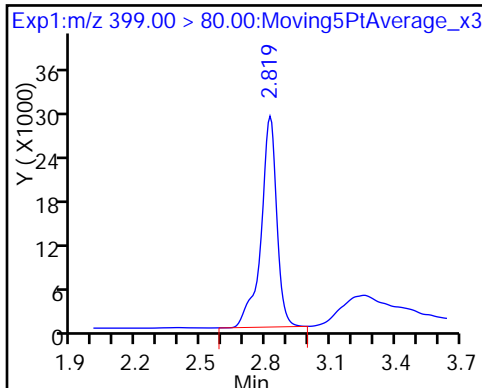
D 3 13C5-PFPeA



8 Perfluorohexanesulfonic acid

D 12 M2-6:2F5TS

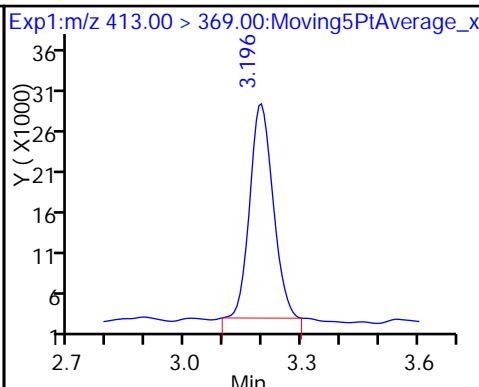
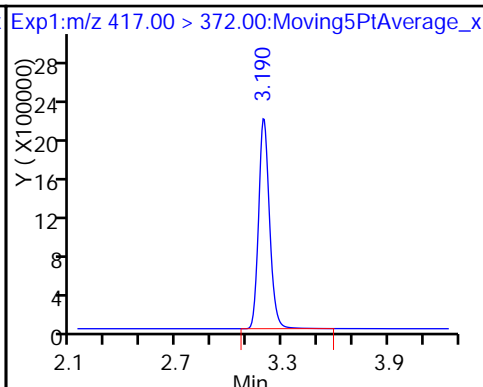
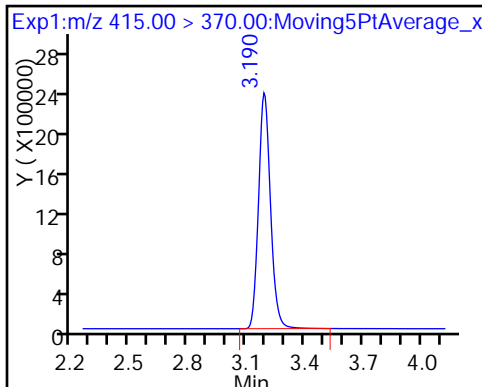
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

D 14 13C4 PFOA

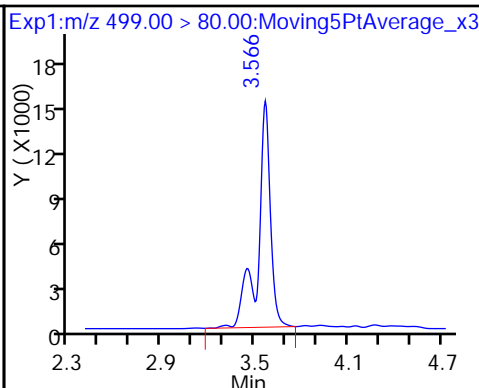
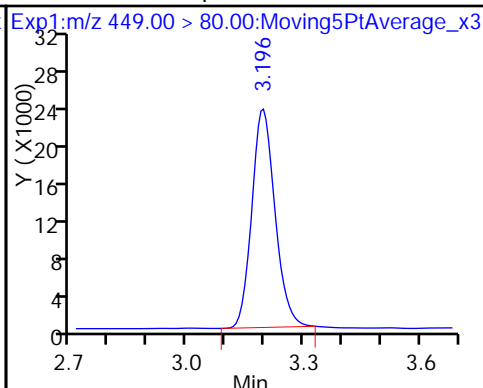
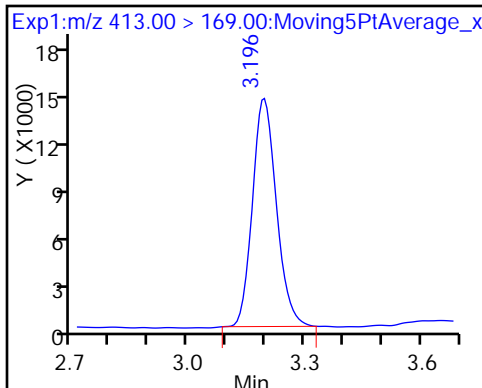
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

16 Perfluoroheptanesulfonic Acid

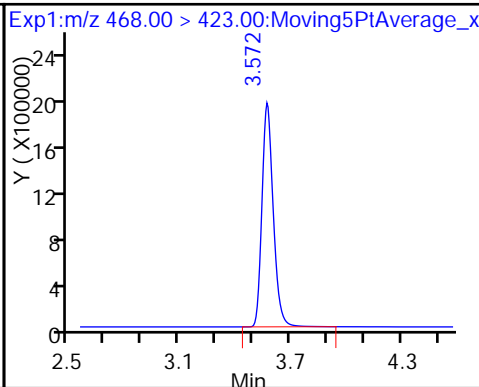
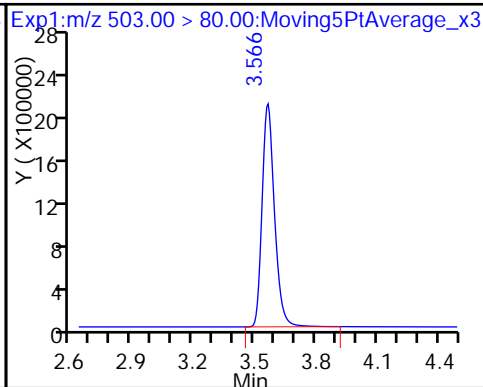
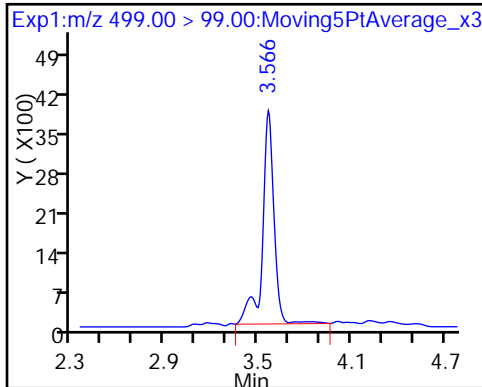
17 Perfluorooctane sulfonic acid

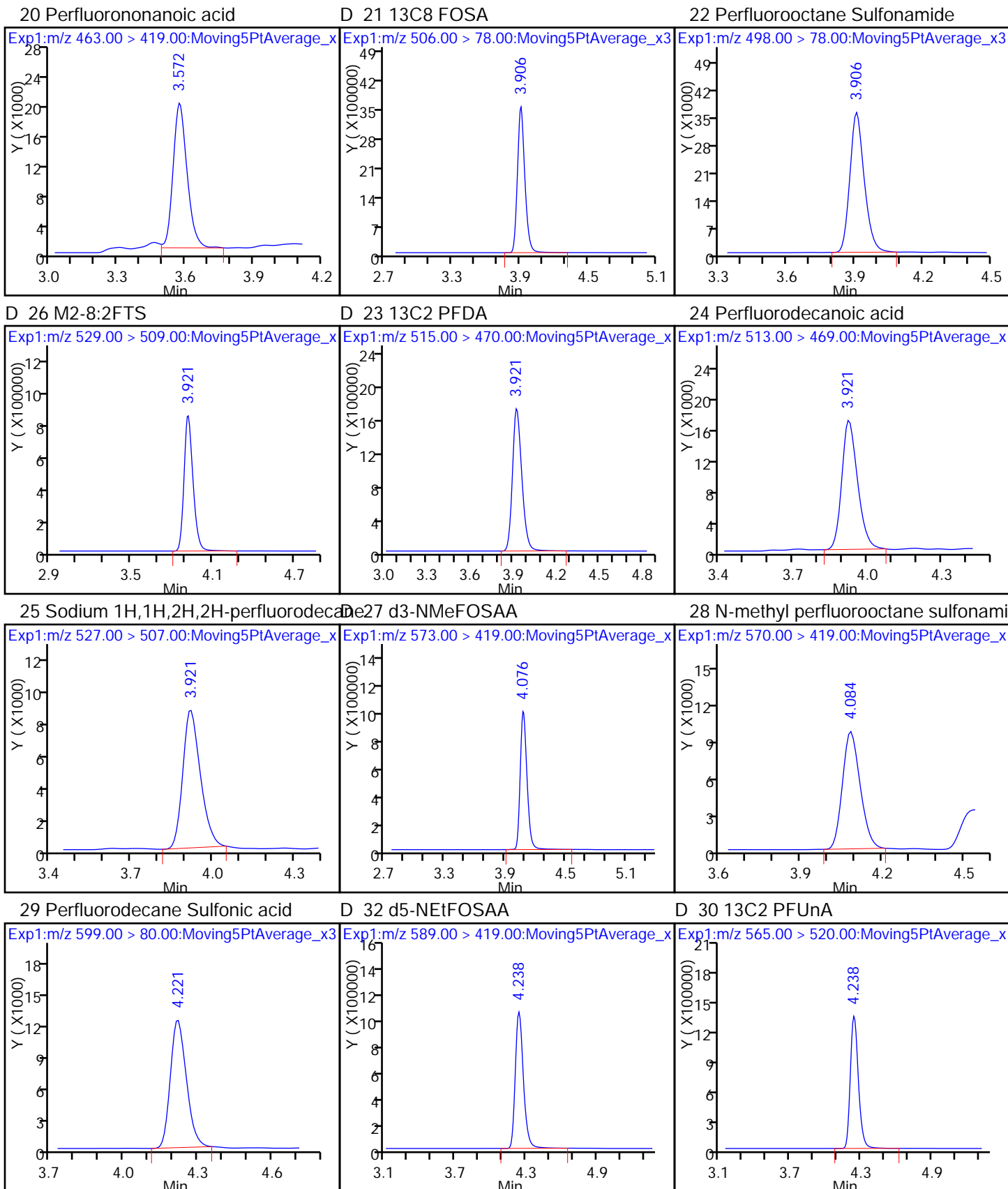


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

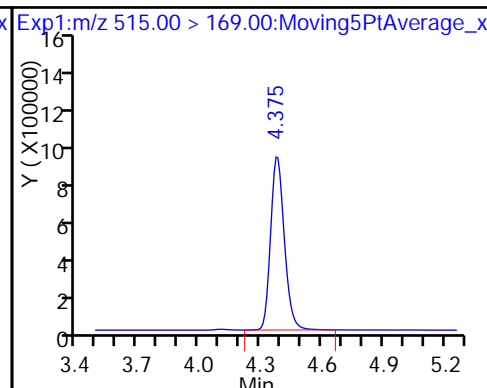
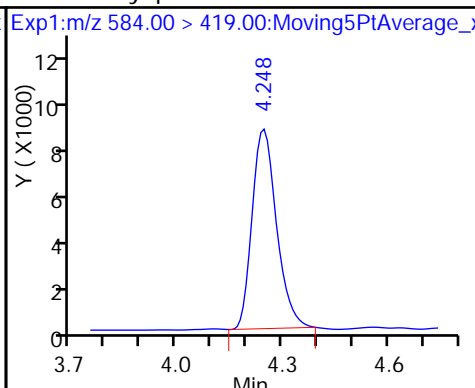
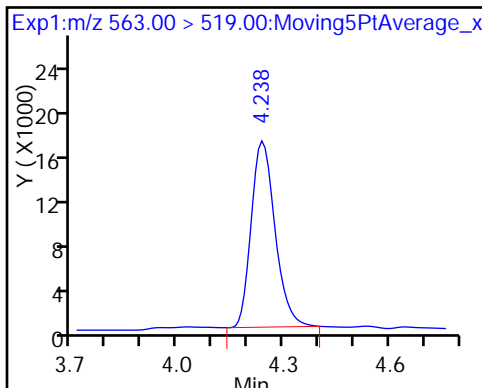




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

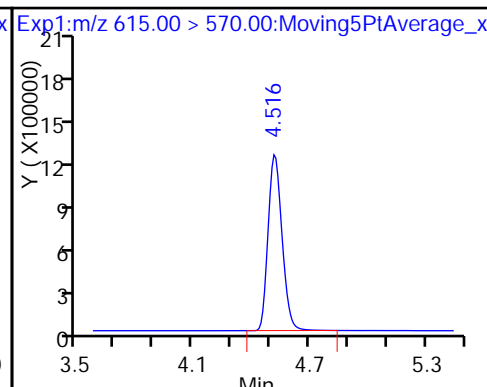
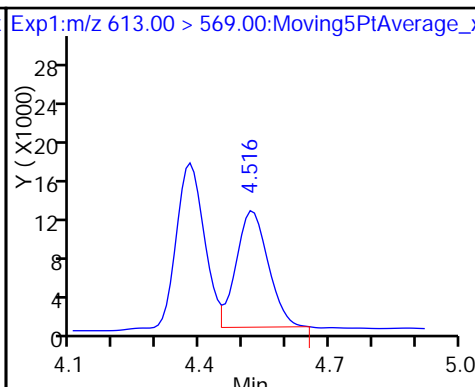
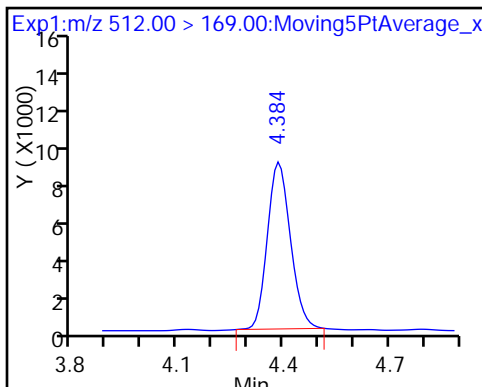
34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

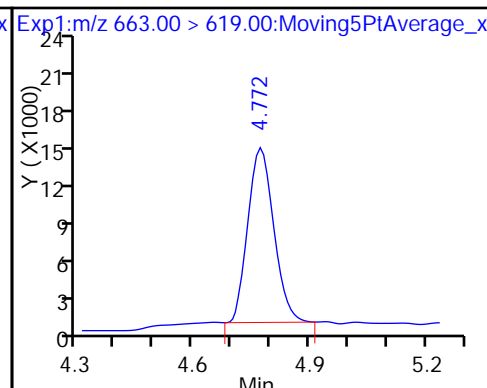
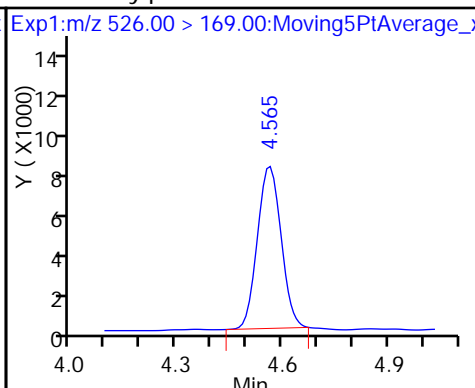
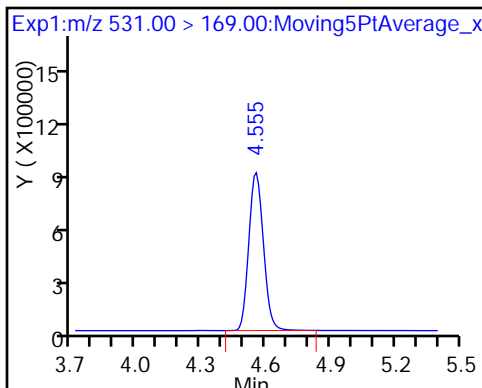
D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

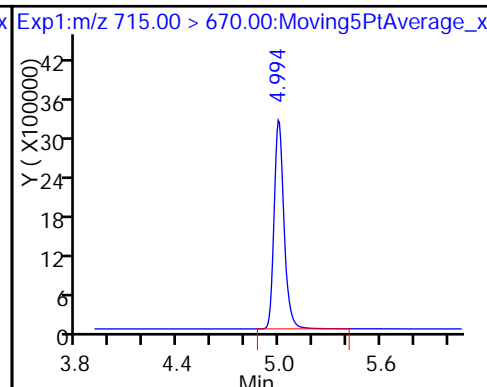
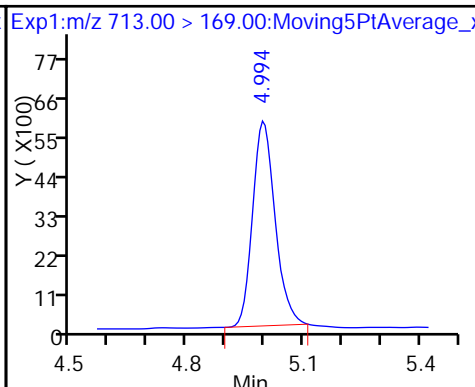
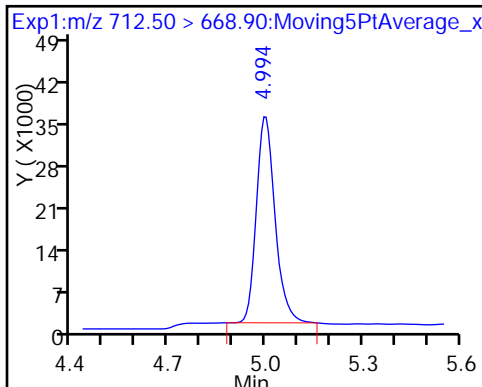
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

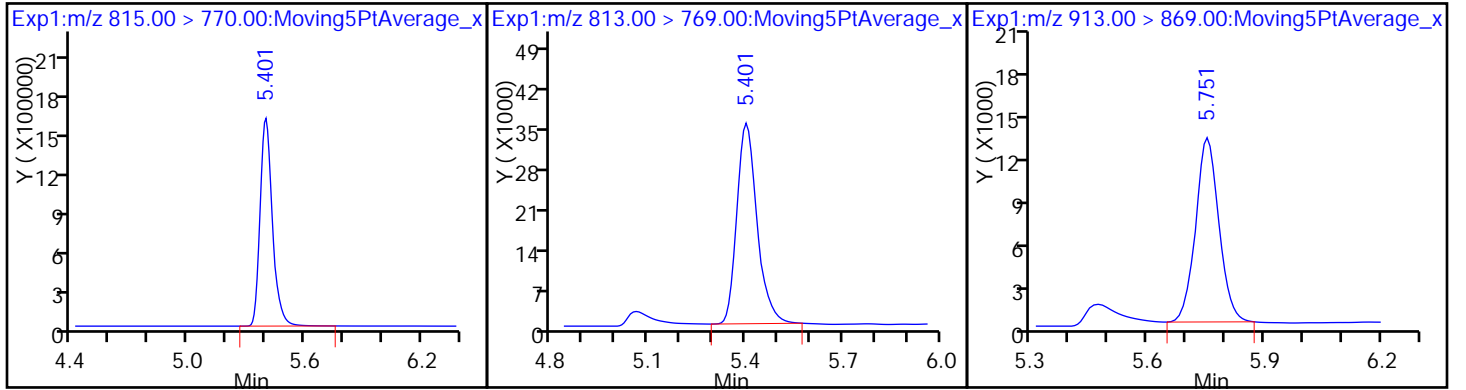
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_004.d
 Lims ID: IC L2 Full
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 06-Jun-2017 13:39:40 ALS Bottle#: 29 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L2-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 08:20:11 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK033

First Level Reviewer: chandrasenas Date: 06-Jun-2017 14:49:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.750	1.746	0.004	17254592	52.3		105	191685	
2 Perfluorobutyric acid	212.90 > 169.00	1.754	1.749	0.005	1.000	317703	1.00	100	216	
D 3 13C5-PFPeA	267.90 > 223.00	2.078	2.073	0.005	11883512	54.0		108	37541	
4 Perfluoropentanoic acid	262.90 > 219.00	2.078	2.074	0.004	1.000	241349	0.9757	97.6	78.9	
D 47 13C3-PFBS	301.90 > 83.00	2.114	2.111	0.003	276154	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.114	2.111	0.003	1.000	344009	0.8382	94.8		
	298.90 > 99.00	2.114	2.111	0.003	1.000	140489	2.45(0.00-0.00)	94.8		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.377	2.373	0.004	1.000	70543	0.7753	83.0		
D 7 13C2 PFHxA	315.00 > 270.00	2.420	2.413	0.007	10218685	53.0		106	31598	
6 Perfluorohexanoic acid	313.00 > 269.00	2.420	2.415	0.005	1.000	205783	0.99	99.5	513	
D 9 13C4-PFHpA	367.00 > 322.00	2.796	2.792	0.004	9779640	55.0		110	31517	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.796	2.793	0.003	1.000	200613	0.9788	97.9	92.7	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.812	2.803	0.009	1.000	251075	0.9114	100		
D 11 18O2 PFHxS	403.00 > 84.00	2.812	2.803	0.009	11891249	51.6		109	17575	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.159	3.151	0.008	5019816	56.5	119		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.159	3.153	0.006	102685	0.9836	104		
* 62 13C2-PFOA	415.00	> 370.00	3.180	3.174	0.006	10951161	50.0			
D 14 13C4 PFOA	417.00	> 372.00	3.186	3.176	0.010	10375611	57.5	115	25600	
15 Perfluorooctanoic acid	413.00	> 369.00	3.186	3.178	0.008	216821	0.9779	97.8	80.9	
	413.00	> 169.00	3.186	3.178	0.008	128447	1.69(0.90-1.10)	97.8	442	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.186	3.179	0.007	203708	0.9271	97.4		
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.441	3.481	-0.040	180154	0.8861	95.5	253	
	499.00	> 99.00	3.555	3.481	0.074	37658	4.78(0.90-1.10)	95.5	326	
D 18 13C4 PFOS	503.00	> 80.00	3.555	3.546	0.009	9208275	51.7	108	17255	
D 19 13C5 PFNA	468.00	> 423.00	3.562	3.555	0.007	8376141	54.9	110	30103	
20 Perfluorononanoic acid	463.00	> 419.00	3.562	3.557	0.005	161116	0.9595	95.9	224	
D 21 13C8 FOSA	506.00	> 78.00	3.895	3.888	0.007	16104401	53.6	107	20166	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.895	3.889	0.006	323576	1.04	104	3122	
D 26 M2-8:2FTS	529.00	> 509.00	3.910	3.903	0.007	4105522	50.2	105		
D 23 13C2 PFDA	515.00	> 470.00	3.917	3.908	0.009	8352262	55.4	111	13503	
24 Perfluorodecanoic acid	513.00	> 469.00	3.917	3.909	0.008	149846	0.9420	94.2	620	
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.910	3.912	-0.002	80461	0.9662	101		
D 27 d3-NMeFOSAA	573.00	> 419.00	4.072	4.064	0.008	4472776	50.8	102		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.072	4.067	0.005	86601	0.9414	94.1		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.208	4.202	0.006	113968	0.8985	93.2		
D 32 d5-NEtFOSAA	589.00	> 419.00	4.234	4.225	0.009	4749964	54.4	109		
31 Perfluoroundecanoic acid	563.00	> 519.00	4.234	4.226	0.008	149138	1.04	104	558	
D 30 13C2 PFUnA	565.00	> 520.00	4.234	4.226	0.008	6701532	55.9	112	11883	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.243	4.233	0.010	88680	0.9890	98.9		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.370	4.364	0.006		4508975		50.9	102	
35 MeFOSA	512.00 > 169.00	4.379	4.370	0.009	1.000	80752		0.9296	93.0	
D 36 13C2 PFDaA	615.00 > 570.00	4.519	4.509	0.010		6369681		51.2	102	7081
37 Perfluorododecanoic acid	613.00 > 569.00	4.519	4.509	0.010	1.000	121510		1.00	99.7	47.3
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.549	4.540	0.009		4224964		51.1	102	
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.559	4.550	0.009	1.000	78271		0.9260	92.6	
41 Perfluorotridecanoic acid	663.00 > 619.00	4.775	4.762	0.013	1.000	127566		1.00	100	150
D 43 13C2-PFTeDA	715.00 > 670.00	4.996	4.988	0.008		13559654		52.7	105	14462
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.996	4.988	0.008	1.000	282213		1.03	103	280
	713.00 > 169.00	4.996	4.988	0.008	1.000	43496	6.49(0.00-0.00)		103	903
D 44 13C2-PFHxDA	815.00 > 770.00	5.403	5.391	0.012		7324836		53.5	107	5364
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.403	5.395	0.008	1.000	214925		0.99	99.5	152
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.757	5.745	0.012	1.000	119125		1.06	106	133

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L2_00005

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_004.d

Injection Date: 06-Jun-2017 13:39:40

Instrument ID: A8_N

Lims ID: IC L2 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

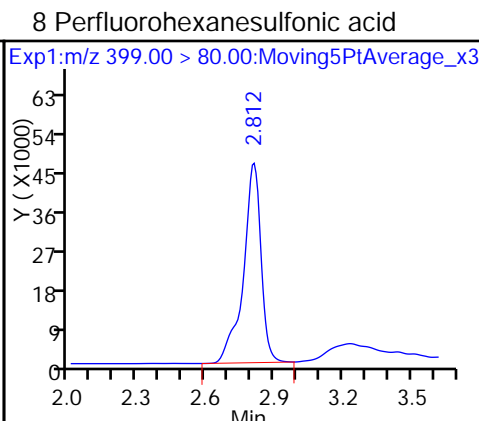
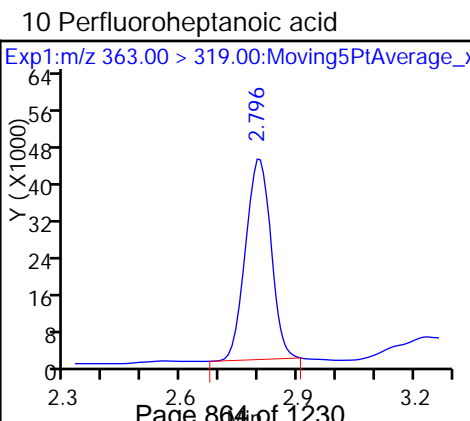
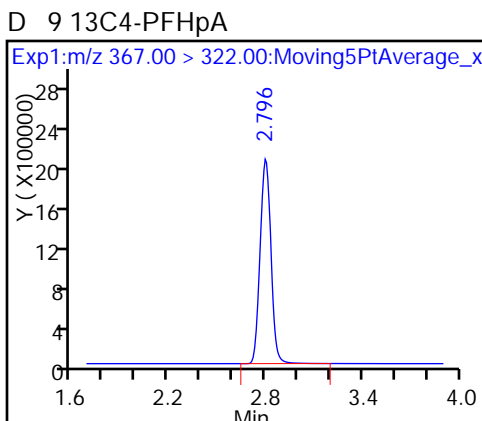
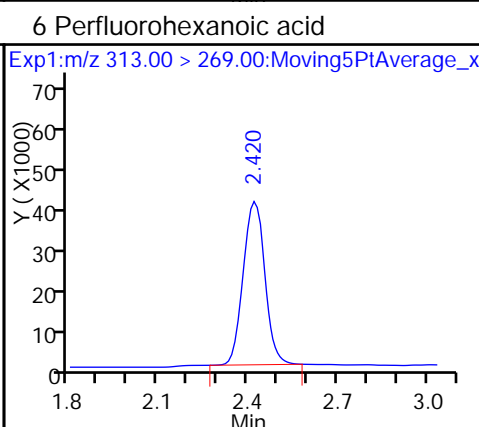
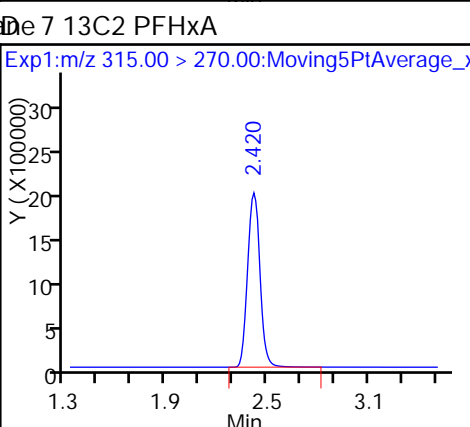
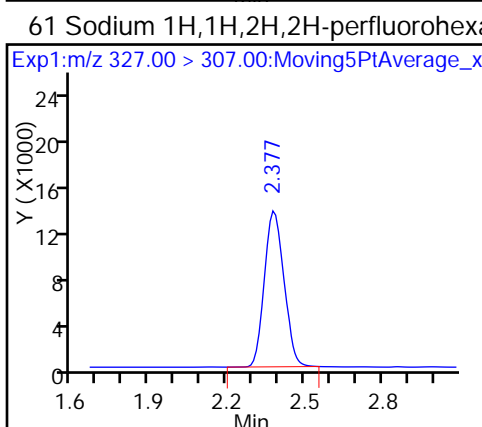
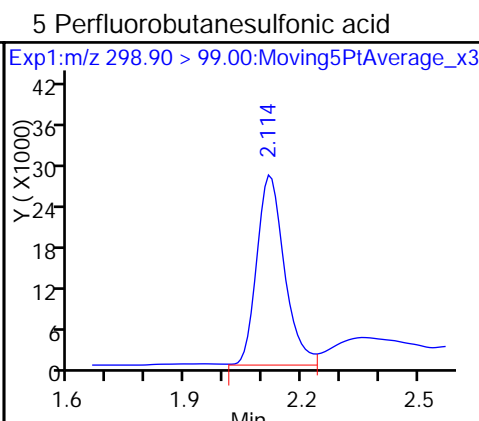
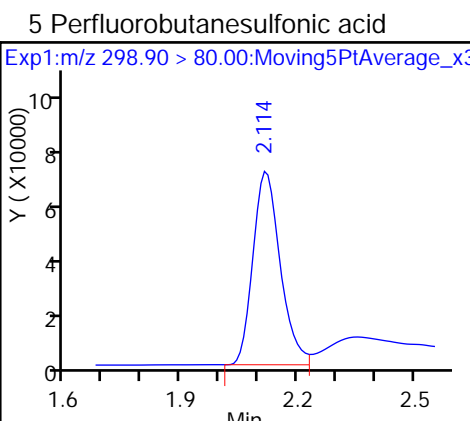
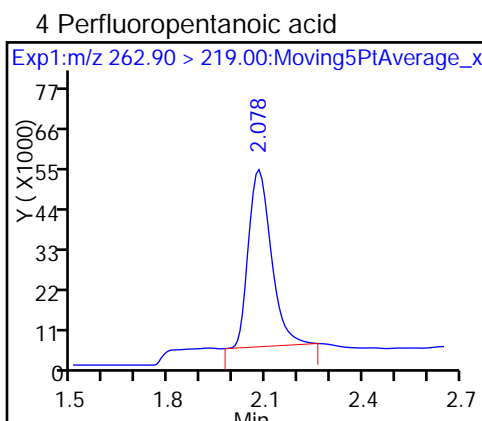
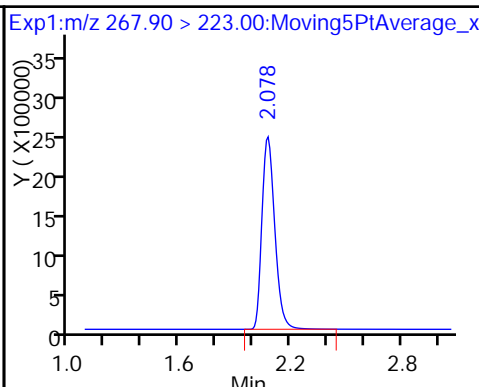
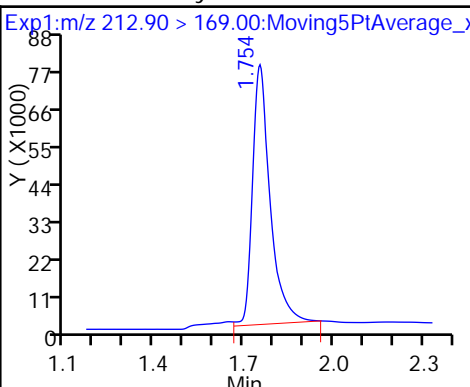
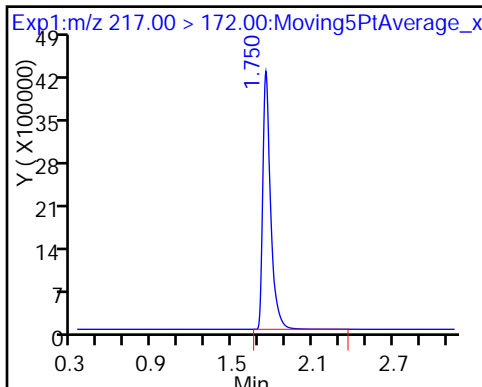
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

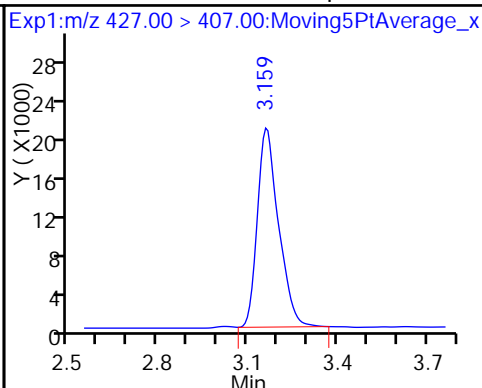
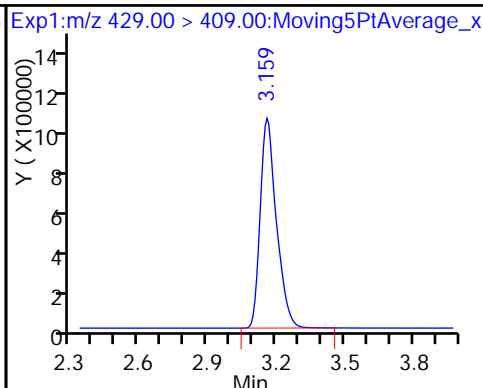
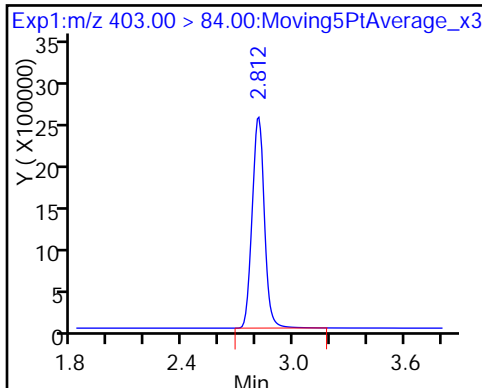
D 3 13C5-PFPeA



D 11 18O2 PFHxS

D 12 M2-6:2FTS

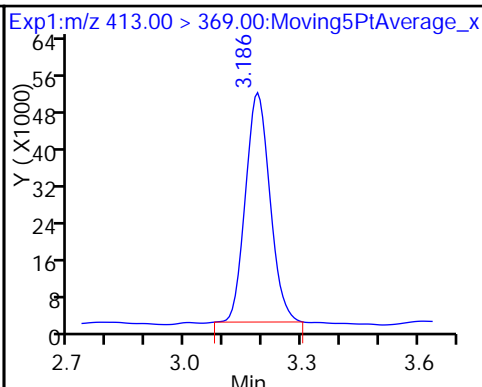
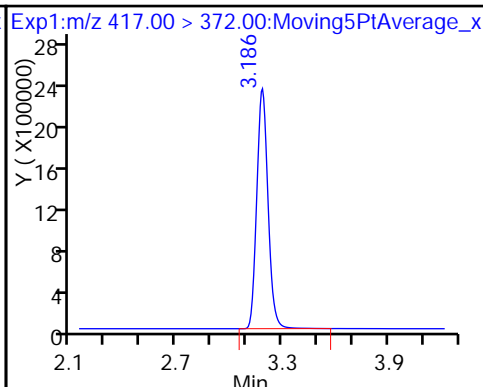
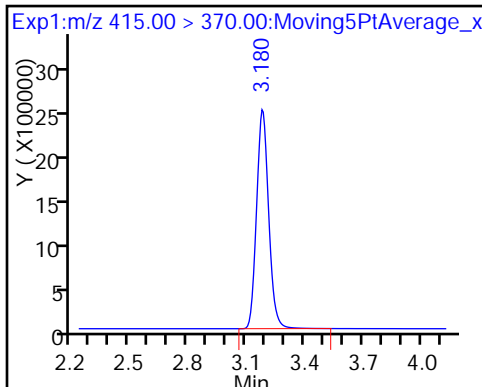
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

D 14 13C4 PFOA

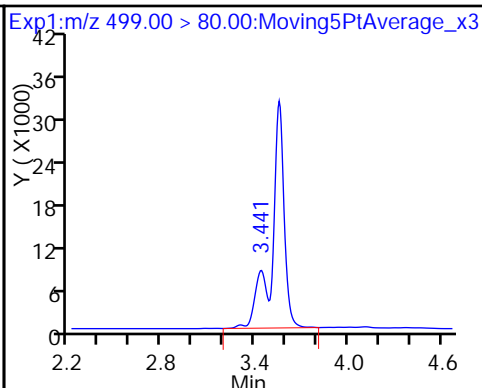
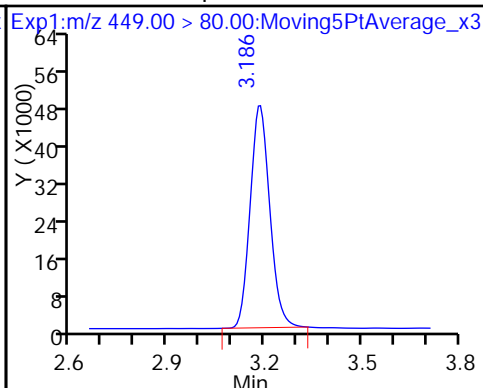
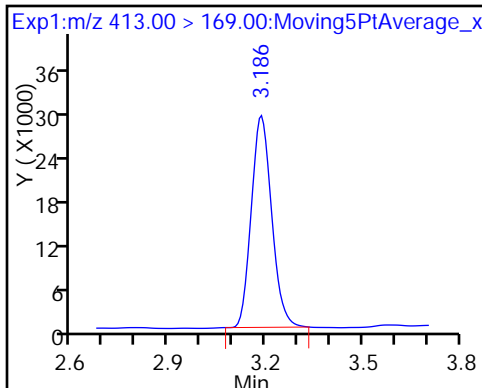
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

16 Perfluoroheptanesulfonic Acid

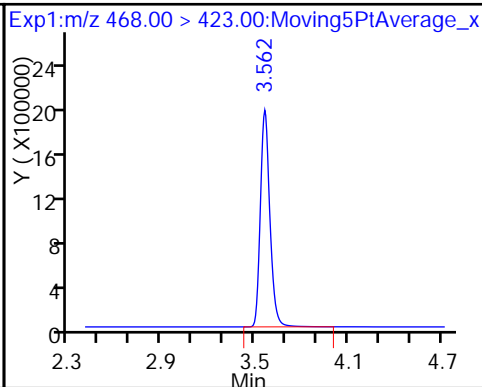
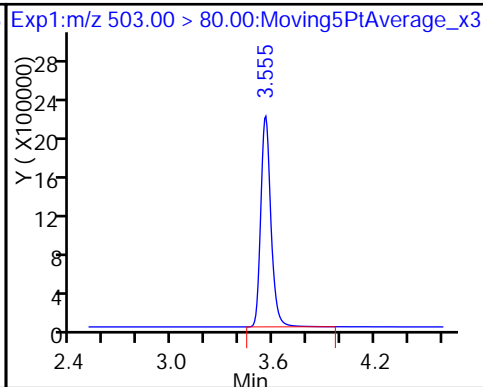
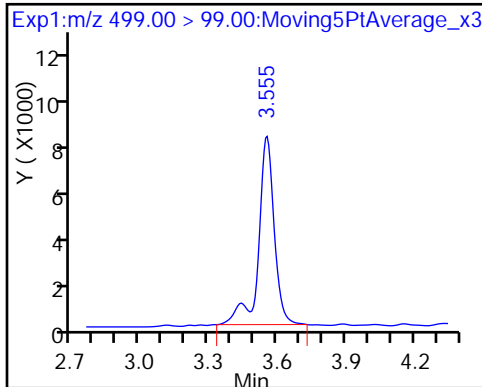
17 Perfluorooctane sulfonic acid

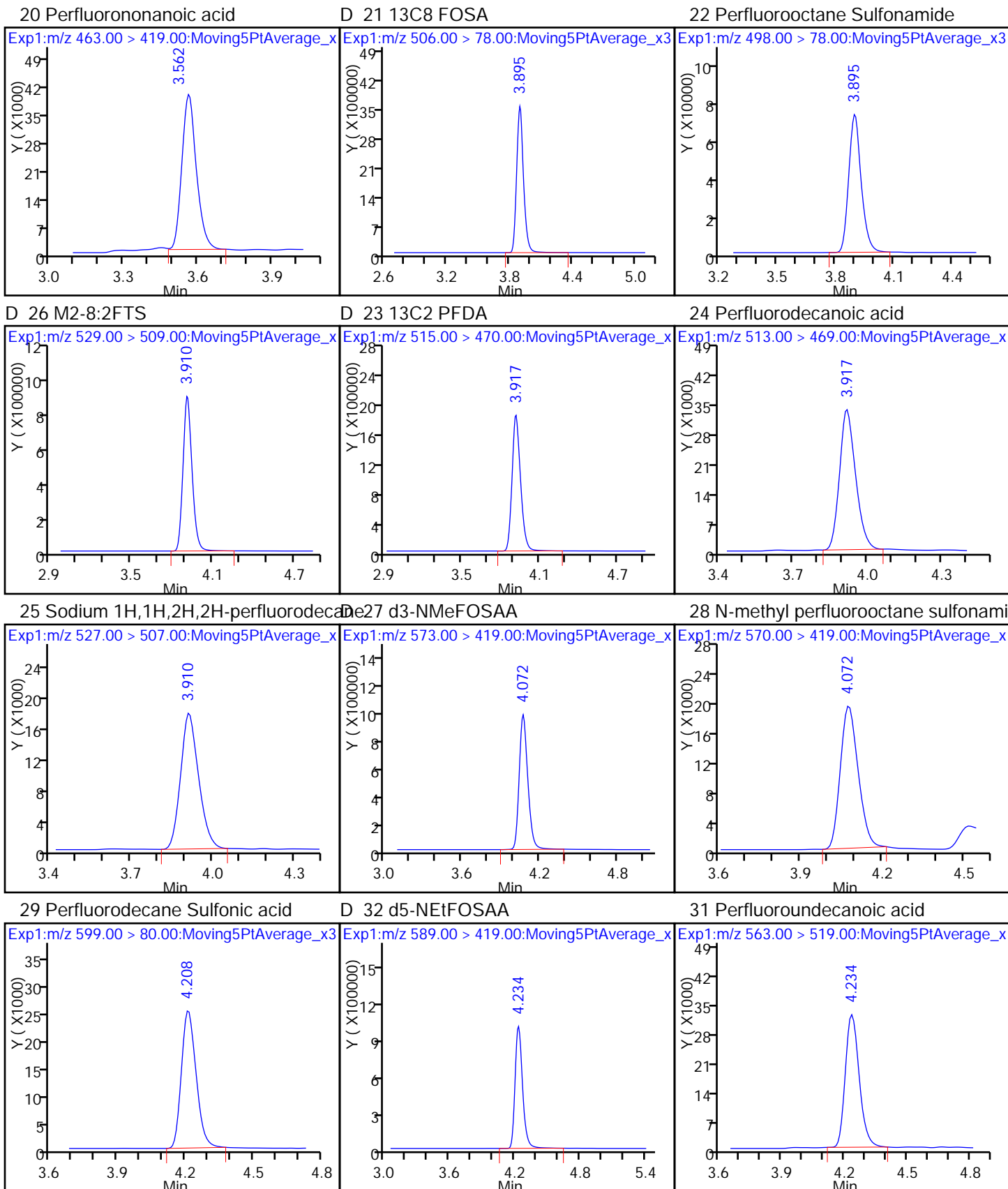


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

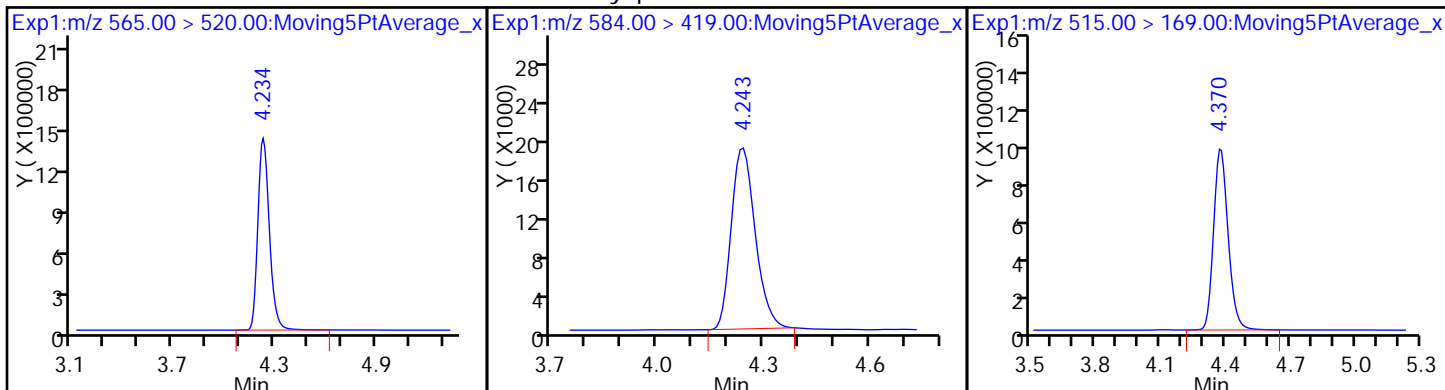
D 19 13C5 PFNA





D 30 13C2 PFUnA

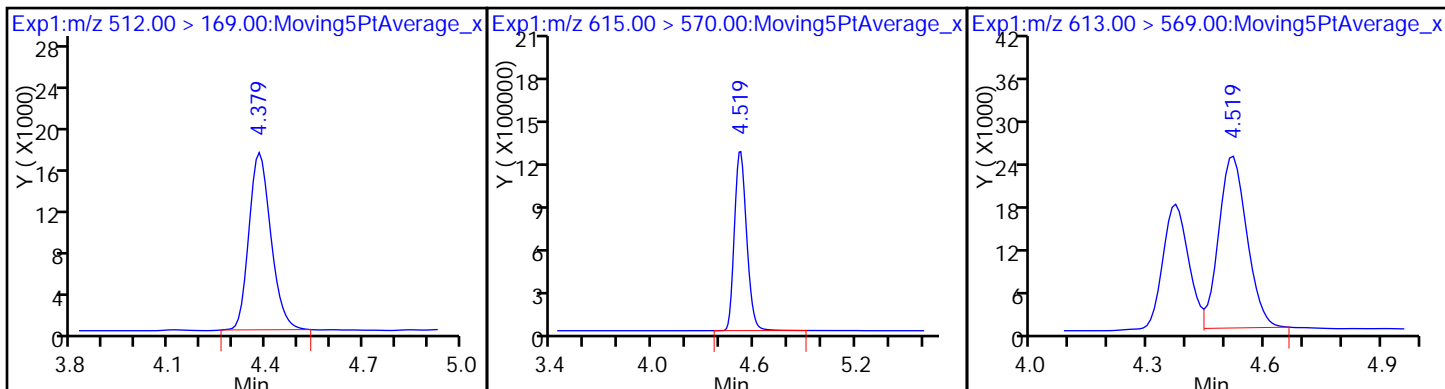
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

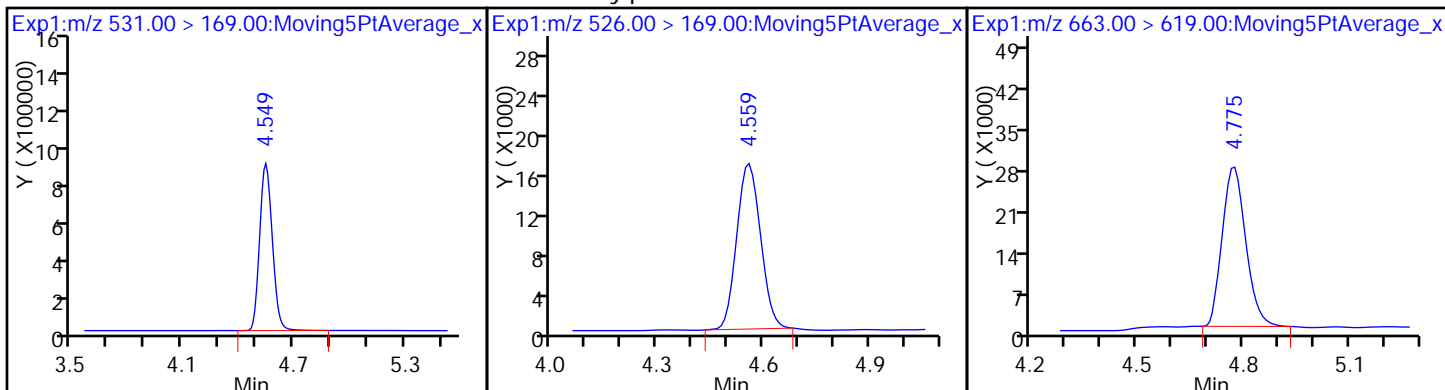
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

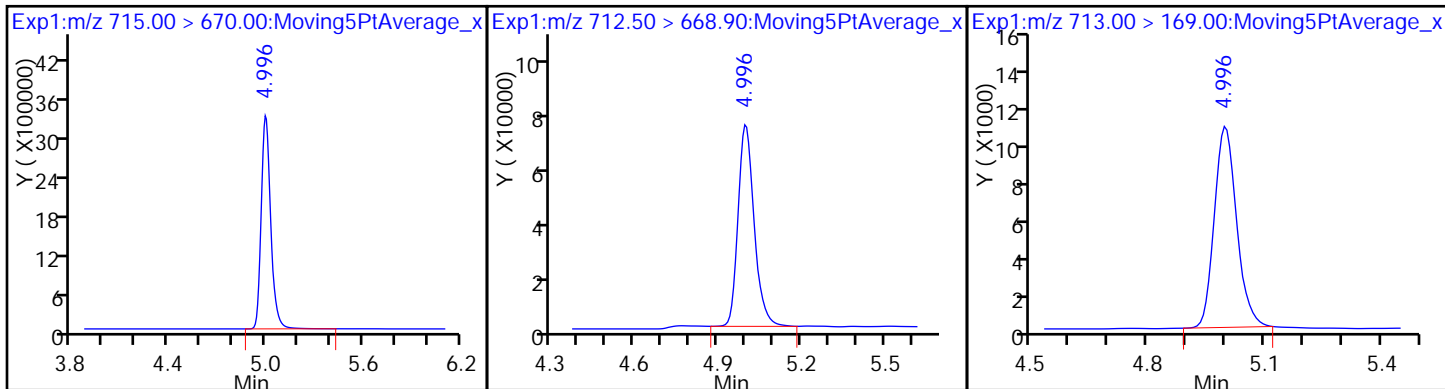
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

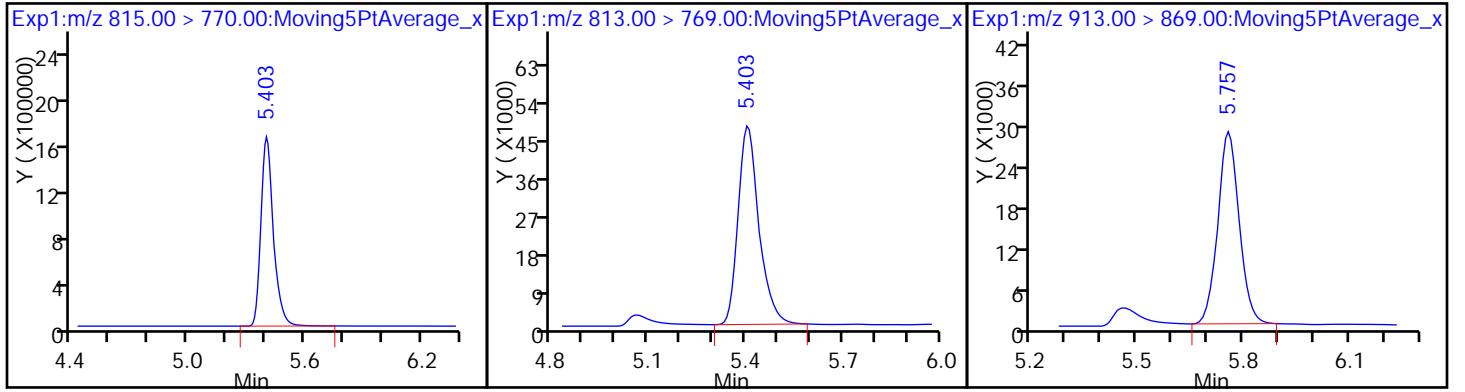
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_005.d

Lims ID: IC L3 Full

Client ID:

Sample Type: IC Calib Level: 3

Inject. Date: 06-Jun-2017 13:47:22 ALS Bottle#: 30 Worklist Smp#: 4

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info: L3-FULL

Misc. Info.: Plate: 1 Rack: 1

Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Sublist: chrom-A8_N*sub19

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\A8_N.m

Limit Group: LC PFC_DOD ICAL

Last Update: 07-Jun-2017 08:20:14 Calib Date: 06-Jun-2017 14:25:49

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Column 1 : Det: EXP1

Process Host: XAWRK033

First Level Reviewer: chandrasenas Date: 06-Jun-2017 14:53:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.754	1.746	0.008	17453757	52.9		106	211992	
2 Perfluorobutyric acid	212.90 > 169.00	1.754	1.749	0.005	1713334	5.34		107	1649	
D 3 13C5-PFPeA	267.90 > 223.00	2.074	2.073	0.001	11436238	52.0		104	41254	
4 Perfluoropentanoic acid	262.90 > 219.00	2.083	2.074	0.009	1251931	5.26		105	466	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.119	2.111	0.008	1834796	4.55		103		M
	298.90 > 99.00	2.119	2.111	0.008	732090		2.51(0.00-0.00)	103		M
D 47 13C3-PFBS	301.90 > 83.00	2.119	2.111	0.008	259952	NC				
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.383	2.373	0.010	374572	4.85		104		
D 7 13C2 PFHxA	315.00 > 270.00	2.416	2.413	0.003	10172648	52.8		106	30939	
6 Perfluorohexanoic acid	313.00 > 269.00	2.426	2.415	0.011	1053687	5.12		102	2219	
D 9 13C4-PFHpA	367.00 > 322.00	2.803	2.792	0.011	9539730	53.6		107	29011	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.803	2.793	0.010	1029680	5.15		103	493	
D 11 18O2 PFHxS	403.00 > 84.00	2.811	2.803	0.008	11680454	50.7		107	17273	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.811	2.803	0.008	1211890	4.48		98.4		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.157	3.151	0.006	4259968	48.0	101		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.165	3.153	0.012	1.000	426423	4.81	102	
* 62 13C2-PFOA	415.00	> 370.00	3.178	3.174	0.004	10257572	50.0			
D 14 13C4 PFOA	417.00	> 372.00	3.184	3.176	0.008	9759048	54.1	108	30642	
15 Perfluorooctanoic acid	413.00	> 369.00	3.184	3.178	0.006	1.000	1036095	4.97	99.4	403
16 Perfluoroheptanesulfonic Acid	413.00	> 169.00	3.184	3.178	0.006	1.000	587899	1.76(0.90-1.10)	99.4	1841
17 Perfluorooctane sulfonic acid	449.00	> 80.00	3.184	3.179	0.005	1.000	1101144	5.11	107	
18 Perfluorooctane sulfonic acid	499.00	> 80.00	3.439	3.481	-0.042	1.000	935018	4.69	101	781
19 Perfluorooctane sulfonic acid	499.00	> 99.00	3.553	3.481	0.072	1.033	203675	4.59(0.90-1.10)	101	2020
D 18 13C4 PFOS	503.00	> 80.00	3.553	3.546	0.007	9025287	50.7	106	14494	
D 19 13C5 PFNA	468.00	> 423.00	3.560	3.555	0.005	8231460	53.9	108	19823	
20 Perfluorononanoic acid	463.00	> 419.00	3.567	3.557	0.009	1.000	852732	5.17	103	1117
D 21 13C8 FOSA	506.00	> 78.00	3.893	3.888	0.005	16436681	54.8	110	22217	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.893	3.889	0.004	1.000	1668408	5.24	105	7776
D 26 M2-8:2FTS	529.00	> 509.00	3.908	3.903	0.005	3974583	48.6	101		
D 23 13C2 PFDA	515.00	> 470.00	3.915	3.908	0.007	8270641	54.9	110	13892	
24 Perfluorodecanoic acid	513.00	> 469.00	3.915	3.909	0.006	1.000	807683	5.13	103	3433
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.908	3.914	-0.006	1.000	397779	4.93	103	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.070	4.064	0.006	4494472	51.0	102		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.079	4.067	0.012	1.002	443332	4.80	95.9	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.206	4.202	0.004	1.000	607766	4.89	101	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.232	4.225	0.007	4651680	53.3	107		
D 30 13C2 PFUnA	565.00	> 520.00	4.232	4.226	0.006	6570792	54.8	110	14691	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.232	4.226	0.006	1.000	683898	4.89	97.7	2251
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.241	4.233	0.008	1.002	441438	5.03	101	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.368	4.364	0.004	4557564	51.4	103		
35 MeFOSA	512.00	> 169.00	4.377	4.370	0.007	1.000	429934	4.90	97.9	
37 Perfluorododecanoic acid	613.00	> 569.00	4.518	4.509	0.009	1.000	647442	5.08	102	249
D 36 13C2 PFDaA	615.00	> 570.00	4.518	4.509	0.009		6663278	53.5	107	7186
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.547	4.540	0.007		4276499	51.7	103	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.557	4.550	0.007	1.000	416107	4.86	97.3	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.774	4.762	0.012	1.000	666888	5.01	100	748
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.995	4.988	0.007	1.000	1446661	5.20	104	1405
	713.00	> 169.00	4.995	4.988	0.007	1.000	196772	7.35(0.00-0.00)	104	1948
D 43 13C2-PFTeDA	715.00	> 670.00	4.995	4.988	0.007		13516644	52.6	105	16617
D 44 13C2-PFHxDA	815.00	> 770.00	5.402	5.391	0.011		7279427	53.2	106	6305
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.402	5.395	0.007	1.000	735058	5.09	102	520
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.752	5.745	0.007	1.000	637726	5.41	108	765

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L3_00004

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_005.d

Injection Date: 06-Jun-2017 13:47:22

Instrument ID: A8_N

Lims ID: IC L3 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 30

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

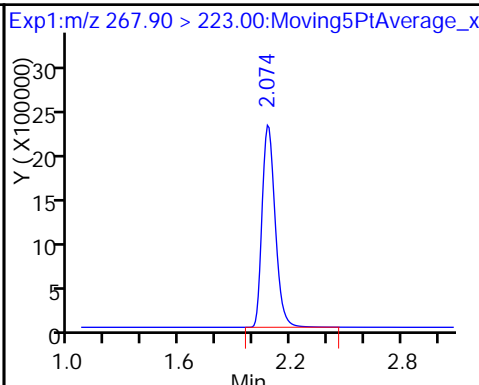
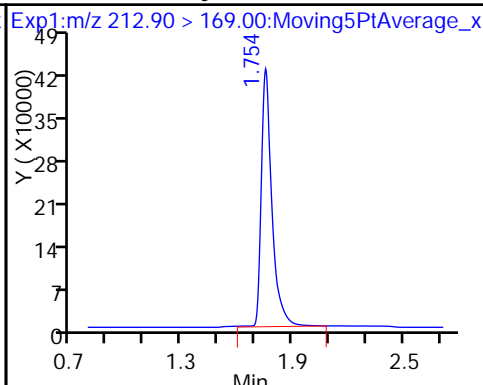
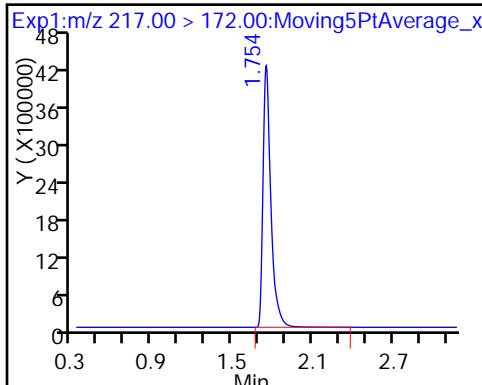
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

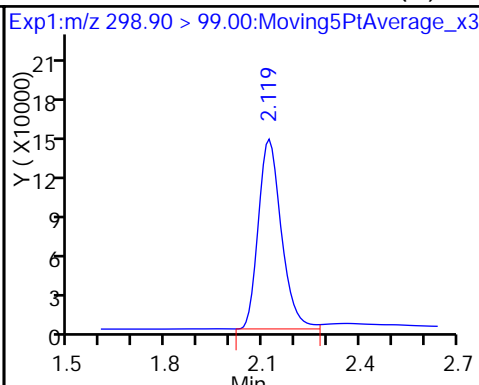
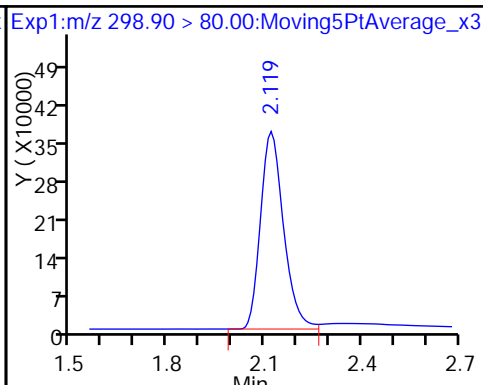
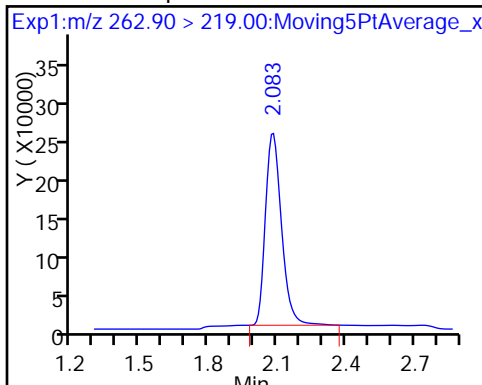
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

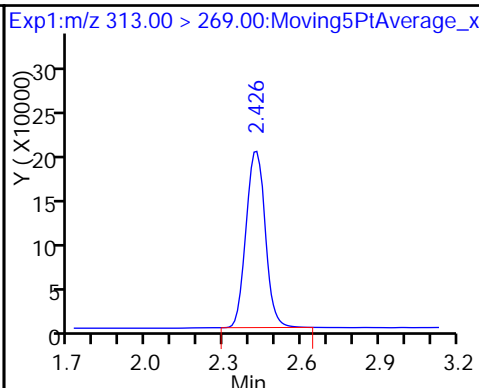
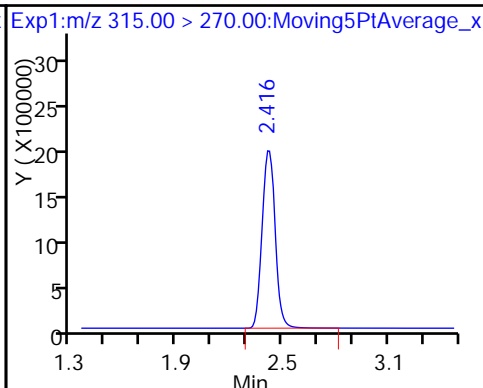
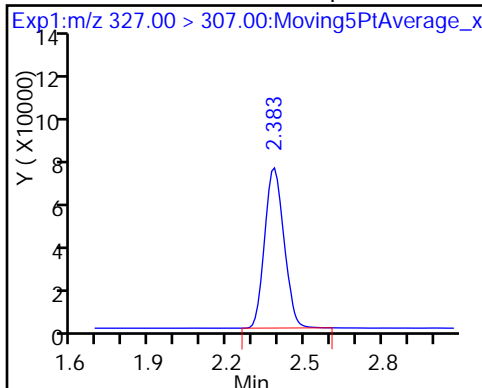
5 Perfluorobutanesulfonic acid (M)



61 Sodium 1H,1H,2H,2H-perfluorohexa

De 7 13C2 PFHxA

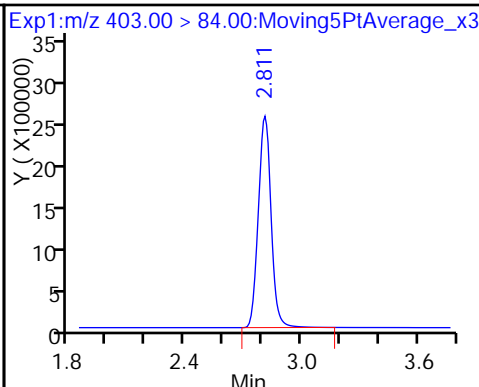
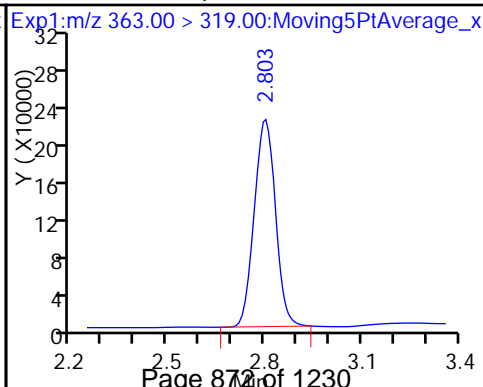
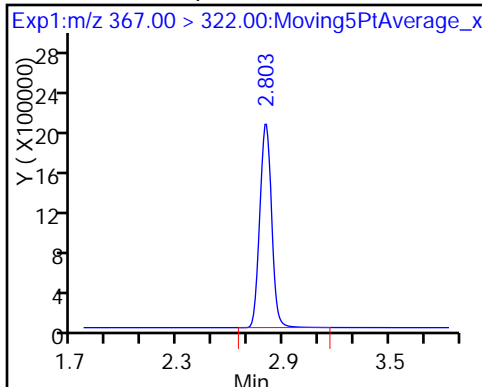
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

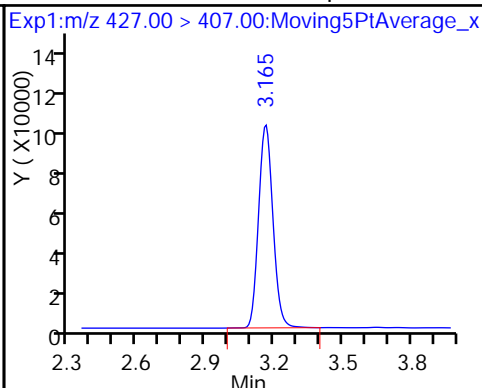
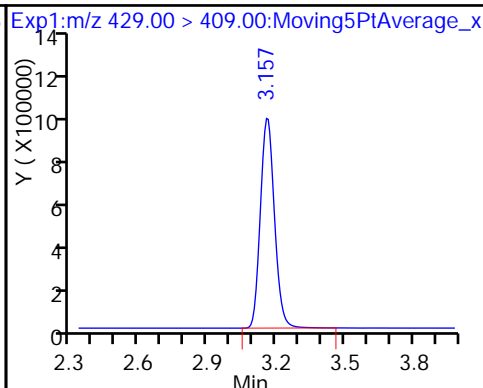
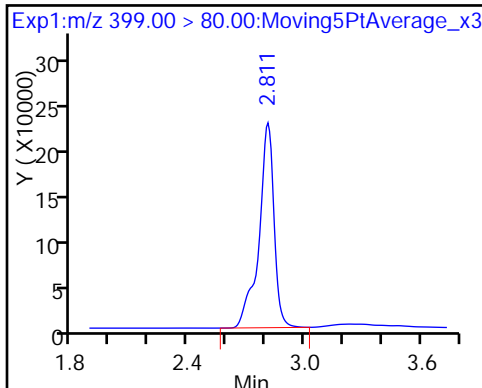
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

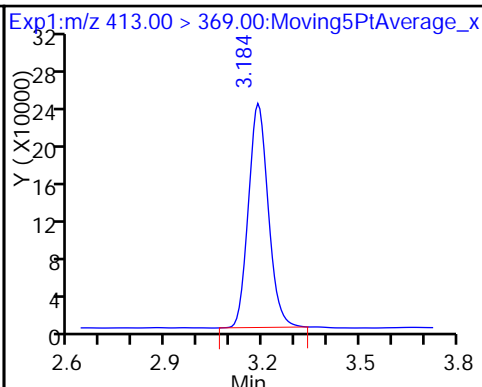
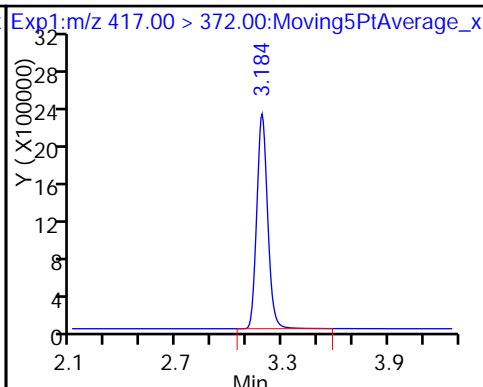
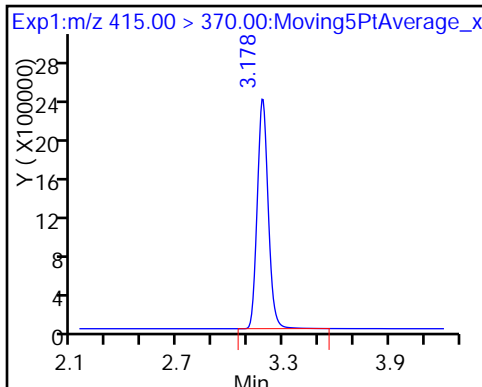
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

D 14 13C4 PFOA

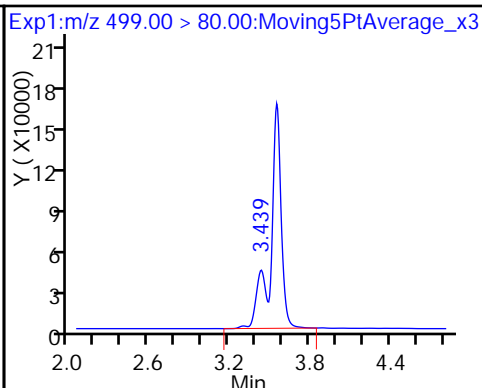
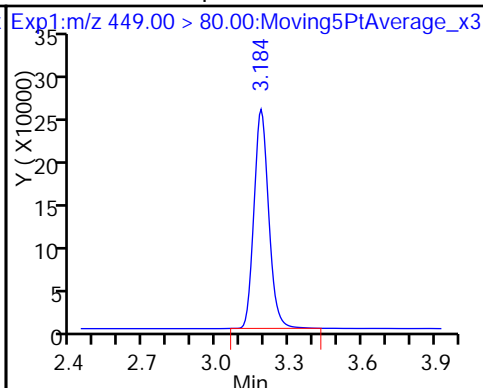
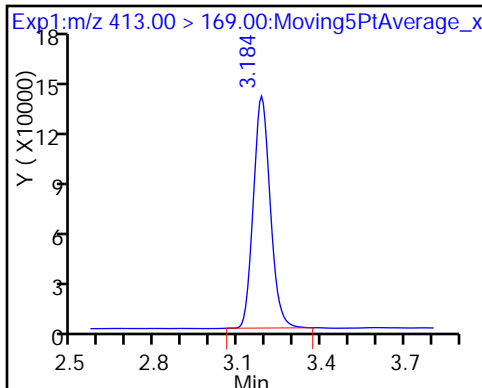
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

16 Perfluoroheptanesulfonic Acid

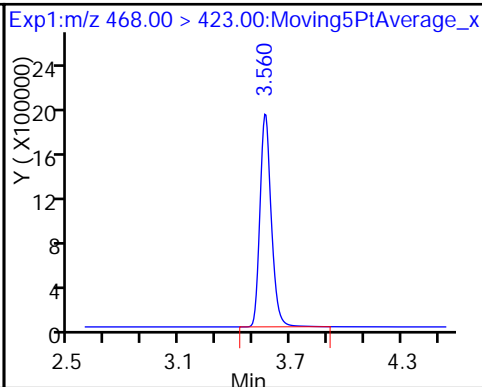
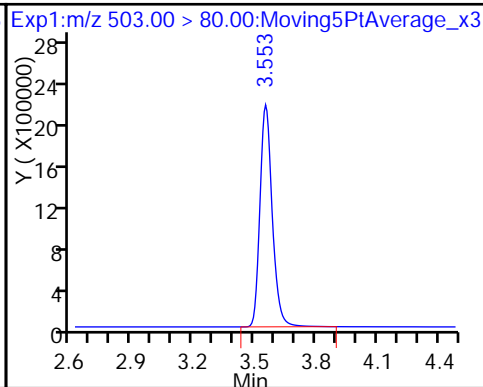
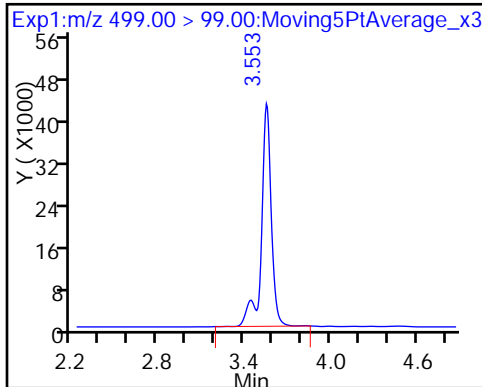
17 Perfluorooctane sulfonic acid

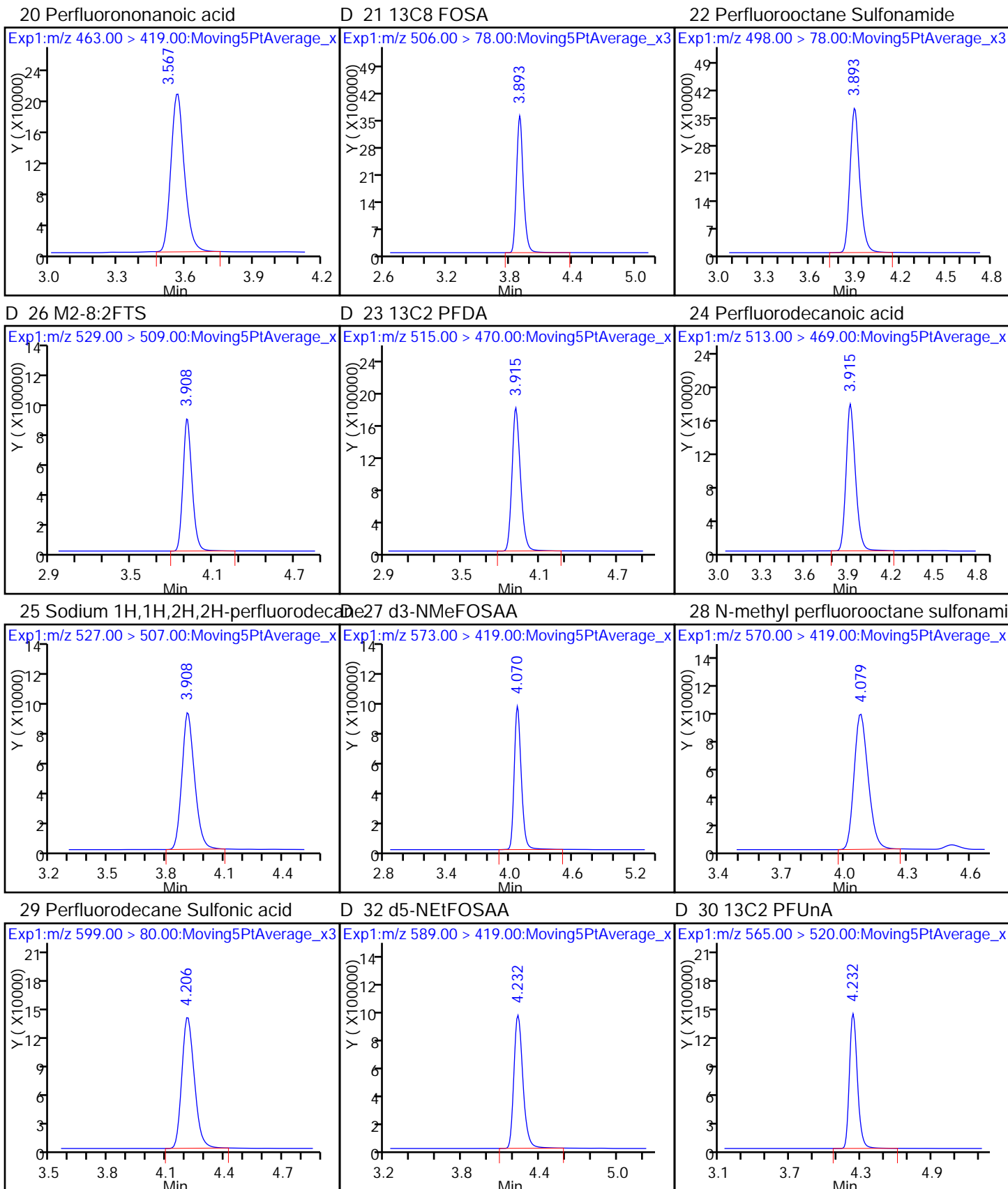


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

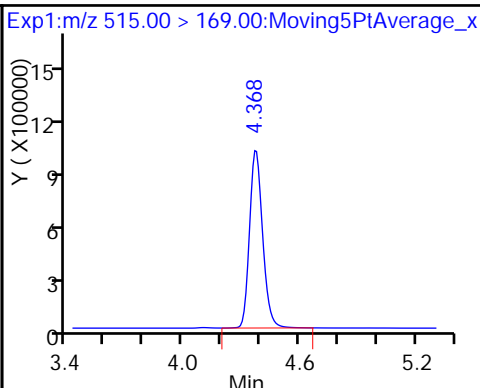
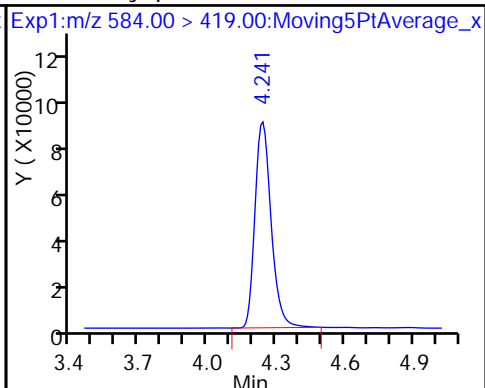
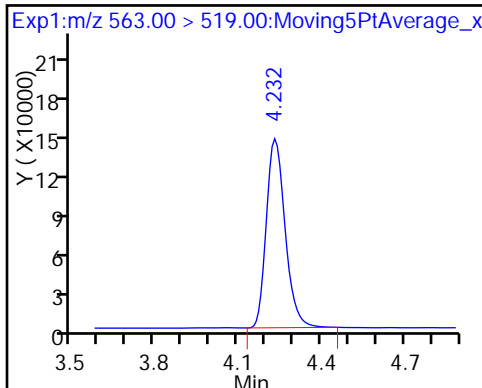




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

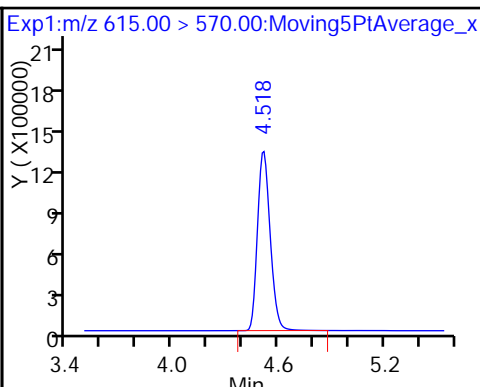
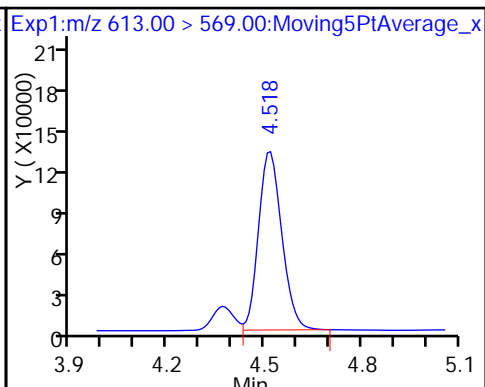
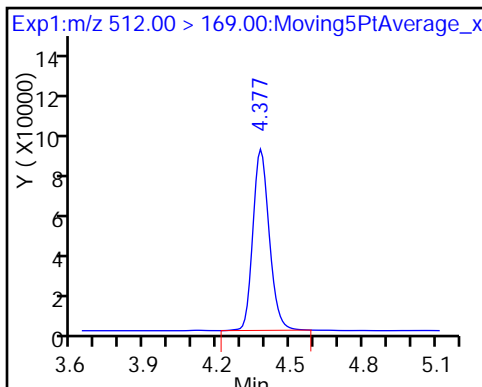
34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

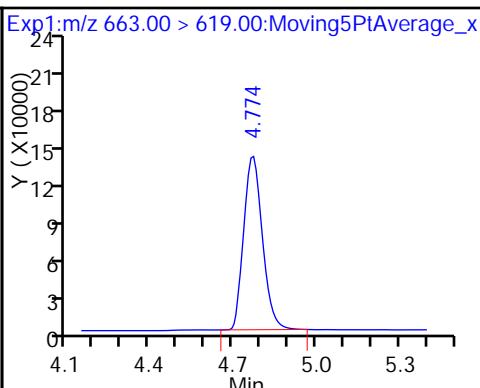
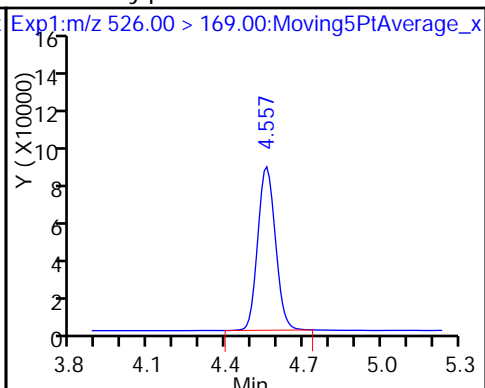
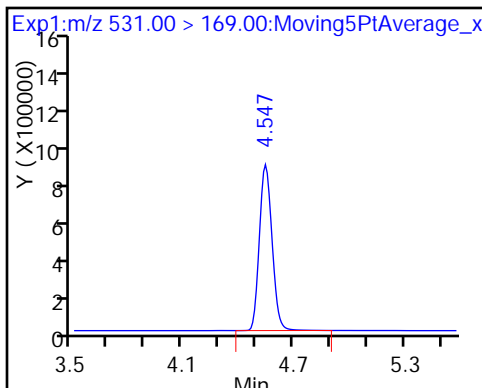
D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

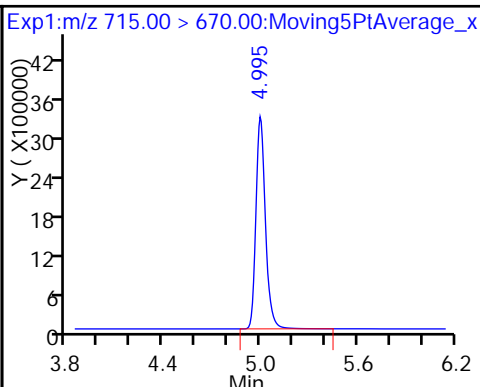
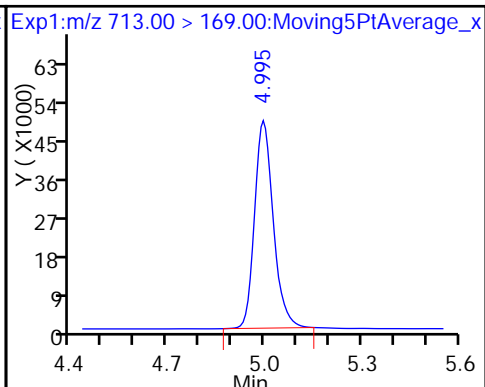
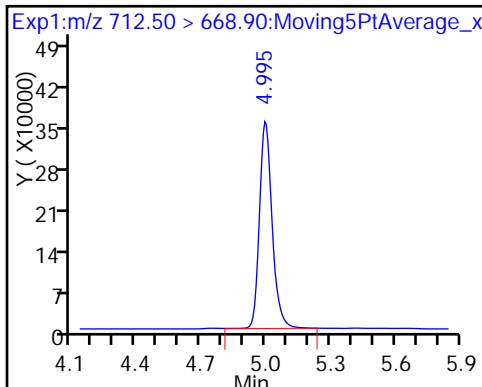
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

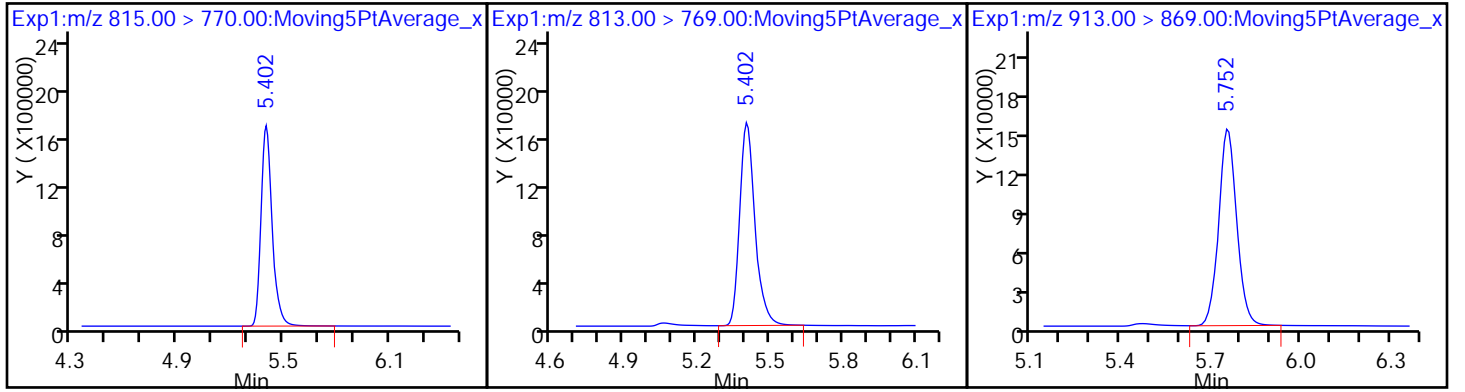
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento

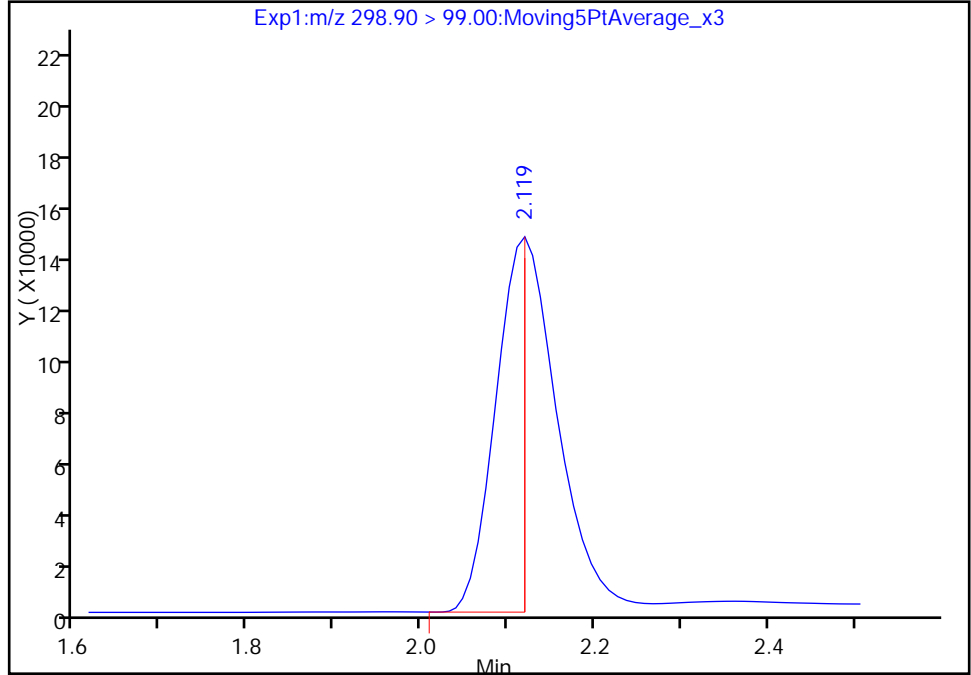
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_005.d
Injection Date: 06-Jun-2017 13:47:22 Instrument ID: A8_N
Lims ID: IC L3 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

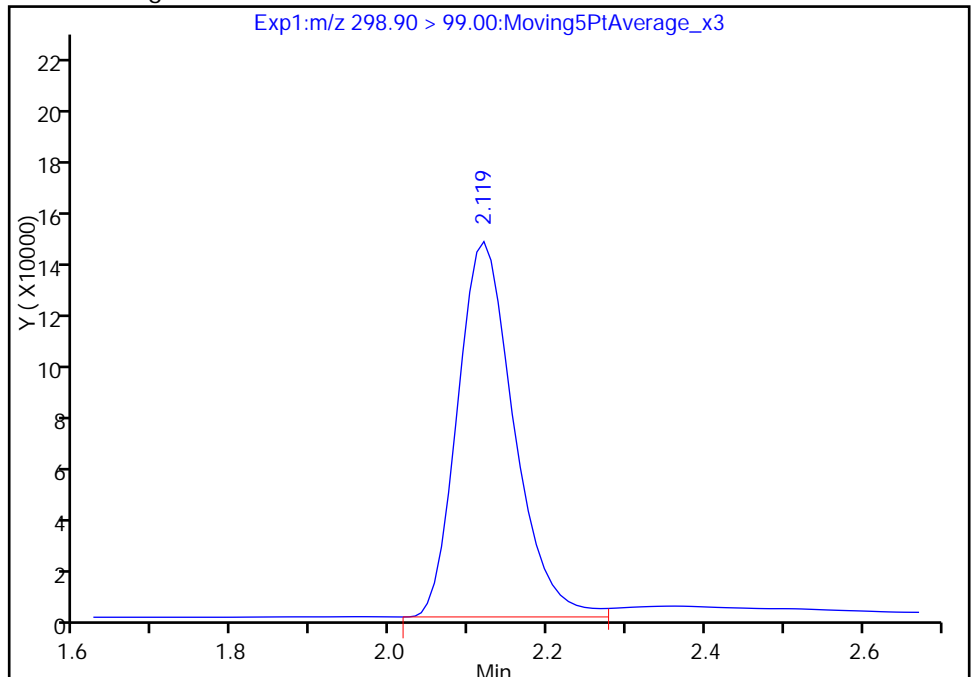
RT: 2.12
Area: 333095
Amount: 4.551275
Amount Units: ng/ml

Processing Integration Results



RT: 2.12
Area: 732090
Amount: 4.551275
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 06-Jun-2017 14:52:41

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_006.d
 Lims ID: IC L4 Full
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 06-Jun-2017 13:55:04 ALS Bottle#: 31 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L4-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 08:20:18 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK033

First Level Reviewer: chandrasenas Date: 06-Jun-2017 14:54:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.753	1.746	0.007	16685960	50.6		101	442339	
2 Perfluorobutyric acid	212.90 > 169.00	1.757	1.749	0.008	1.000	6493513	21.2	106	5002	
D 3 13C5-PFPeA	267.90 > 223.00	2.083	2.073	0.010	11477234	52.2		104	40015	
4 Perfluoropentanoic acid	262.90 > 219.00	2.083	2.074	0.009	1.000	4805868	20.1	101	1753	
D 47 13C3-PFBS	301.90 > 83.00	2.119	2.111	0.008	283860	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.119	2.111	0.008	1.000	7527479	19.2	109		
	298.90 > 99.00	2.119	2.111	0.008	1.000	3059630	2.46(0.00-0.00)	109		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.383	2.373	0.010	1.000	1584153	22.3	120		
D 7 13C2 PFHxA	315.00 > 270.00	2.426	2.413	0.013	10188431	52.8		106	32304	
6 Perfluorohexanoic acid	313.00 > 269.00	2.426	2.415	0.011	1.000	4147414	20.1	101	9583	
D 9 13C4-PFHpA	367.00 > 322.00	2.802	2.792	0.010	9194541	51.7		103	33524	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.802	2.793	0.009	1.000	3873044	20.1	101	1774	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.810	2.803	0.007	1.000	4443874	16.9	92.9		
D 11 18O2 PFHxS	403.00 > 84.00	2.810	2.803	0.007	11339438	49.2		104	19321	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.164	3.151	0.013	3911109	44.0	92.7		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.164	3.153	0.011	1.000	1604502	19.7	104	
* 62 13C2-PFOA	415.00	> 370.00	3.184	3.174	0.010		9977237	50.0		
D 14 13C4 PFOA	417.00	> 372.00	3.190	3.176	0.014		9364253	51.9	104	27796
15 Perfluorooctanoic acid	413.00	> 369.00	3.190	3.178	0.012	1.000	4015277	20.1	100	1372
	413.00	> 169.00	3.190	3.178	0.012	1.000	2262426	1.77(0.90-1.10)	100	5937
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.190	3.179	0.011	1.000	4121001	19.5	102	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.439	3.481	-0.042	1.000	3596640	18.4	99.1	1183
	499.00	> 99.00	3.560	3.481	0.079	1.035	784484	4.58(0.90-1.10)	99.1	5350
D 18 13C4 PFOS	503.00	> 80.00	3.560	3.546	0.014		8857038	49.7	104	24285
D 19 13C5 PFNA	468.00	> 423.00	3.566	3.555	0.011		8033929	52.6	105	19652
20 Perfluorononanoic acid	463.00	> 419.00	3.566	3.557	0.009	1.000	3212440	19.9	99.7	5325
D 21 13C8 FOSA	506.00	> 78.00	3.901	3.888	0.013		15659216	52.2	104	21034
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.901	3.889	0.012	1.000	6391277	21.1	105	18445
D 26 M2-8:2FTS	529.00	> 509.00	3.915	3.903	0.012		4199515	51.3	107	
D 23 13C2 PFDA	515.00	> 470.00	3.915	3.908	0.007		8053713	53.4	107	12050
24 Perfluorodecanoic acid	513.00	> 469.00	3.923	3.909	0.014	1.000	3027625	19.7	98.7	9278
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.915	3.911	0.004	1.000	1757951	20.6	108	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.078	4.064	0.014		4481079	50.9	102	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.078	4.067	0.011	1.000	1977330	21.5	107	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.214	4.202	0.012	1.000	2322699	19.0	98.7	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.241	4.225	0.016		4722646	54.1	108	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.241	4.226	0.015	1.000	2571433	18.9	94.7	5550
D 30 13C2 PFUnA	565.00	> 520.00	4.241	4.226	0.015		6373111	53.2	106	15696
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.241	4.233	0.008	1.000	1800439	20.2	101	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.377	4.364	0.013	4437019	50.1	100		
35 MeFOSA	512.00	> 169.00	4.377	4.370	0.007	1.000	1781501	20.8	104	
D 36 13C2 PFDaA	615.00	> 570.00	4.517	4.509	0.008	6153979	49.4	98.9	6043	
37 Perfluorododecanoic acid	613.00	> 569.00	4.517	4.509	0.008	1.000	2436486	20.7	104	999
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.547	4.540	0.007	4098578	49.5	99.0		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.557	4.550	0.007	1.000	1716234	20.9	105	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.773	4.762	0.011	1.000	2660759	21.6	108	2831
D 43 13C2-PFTeDA	715.00	> 670.00	5.002	4.988	0.014	13149033	51.1	102	14246	
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.002	4.988	0.014	1.000	5540367	21.7	108	4303
	713.00	> 169.00	4.995	4.988	0.007	0.999	756413	7.32(0.00-0.00)	108	4961
D 44 13C2-PFHxDA	815.00	> 770.00	5.402	5.391	0.011	6940209	50.7	101	6237	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.409	5.395	0.014	1.000	2504738	20.9	105	1470
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.760	5.745	0.015	1.000	2299688	21.1	106	2445

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L4_00005

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_006.d

Injection Date: 06-Jun-2017 13:55:04

Instrument ID: A8_N

Lims ID: IC L4 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

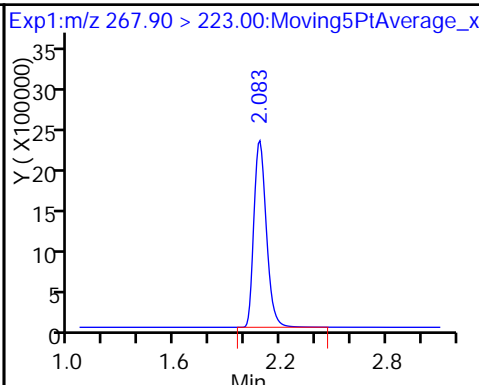
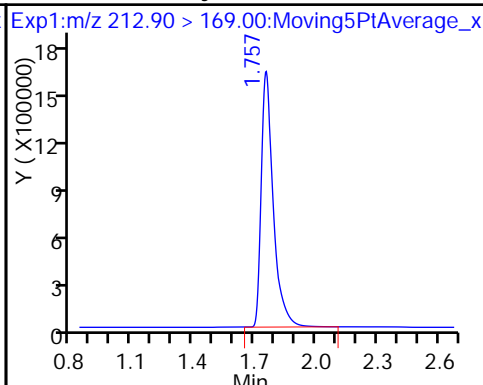
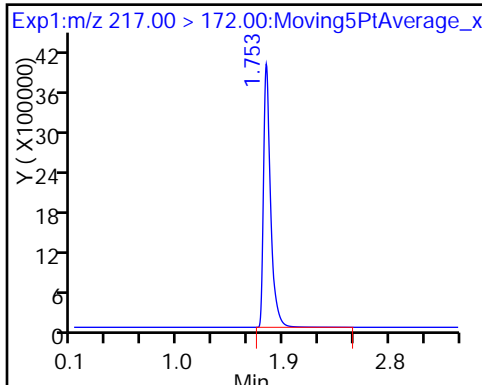
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

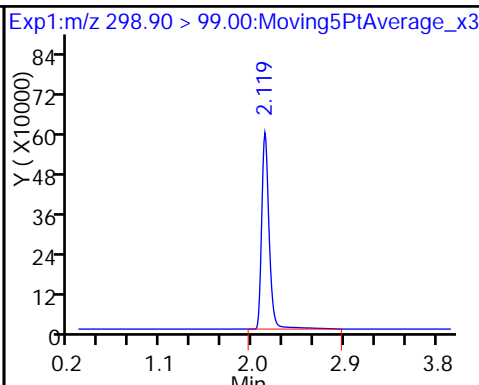
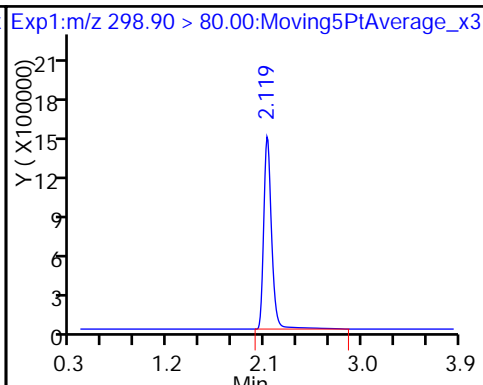
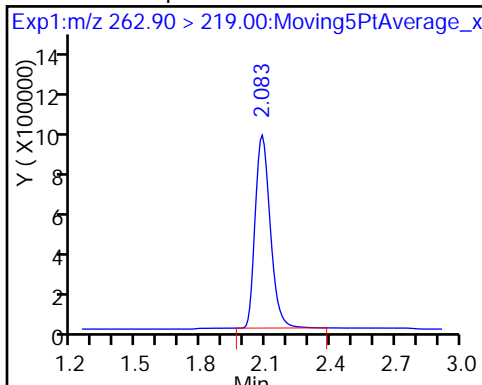
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

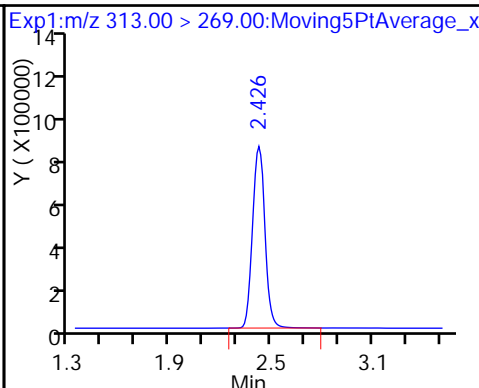
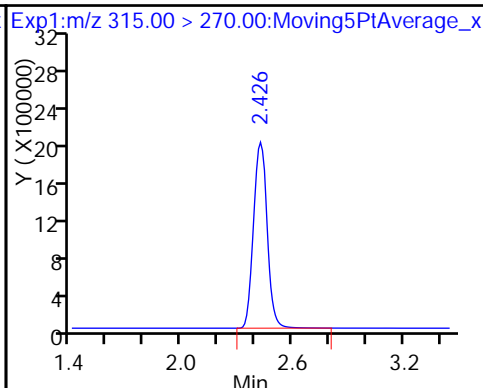
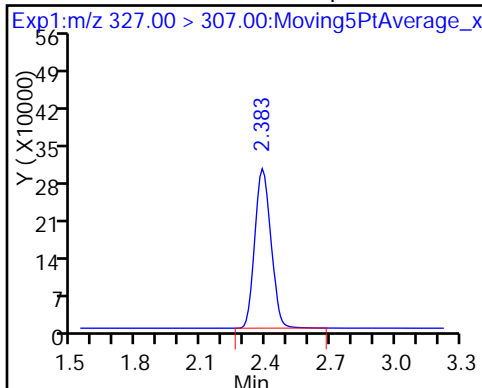
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

De 7 13C2 PFHxA

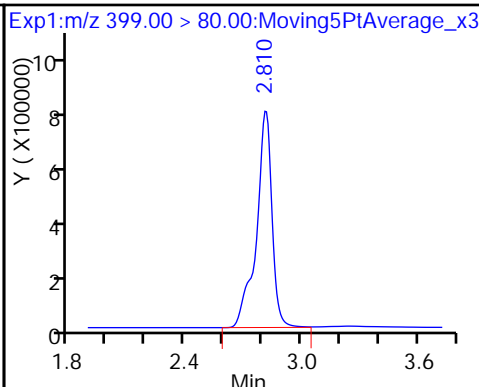
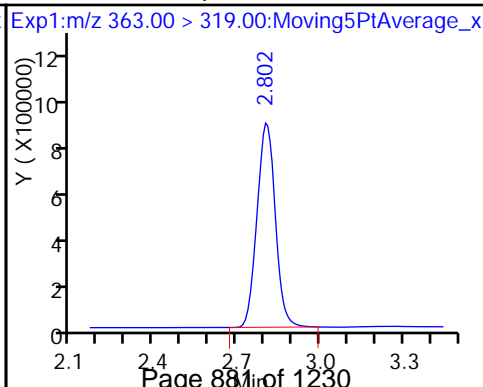
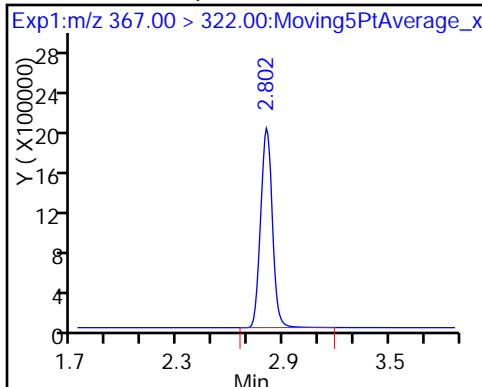
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

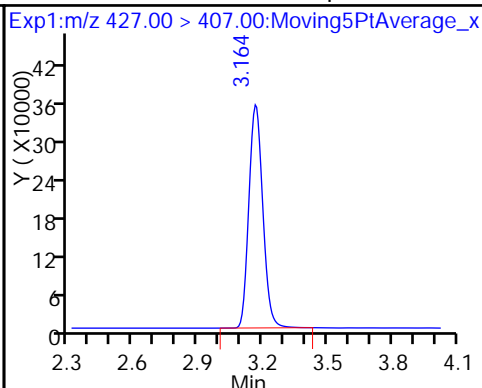
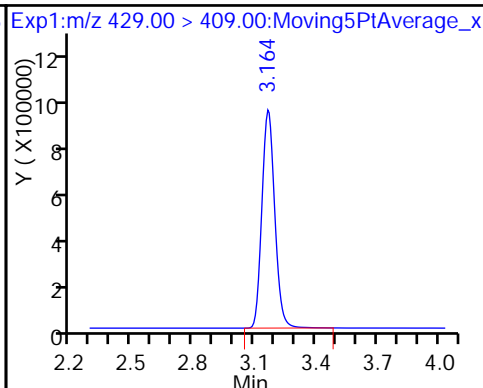
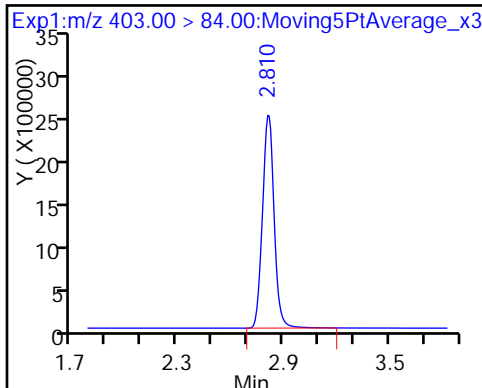
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

D 12 M2-6:2FTS

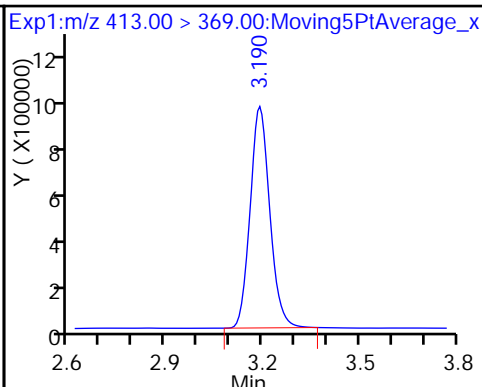
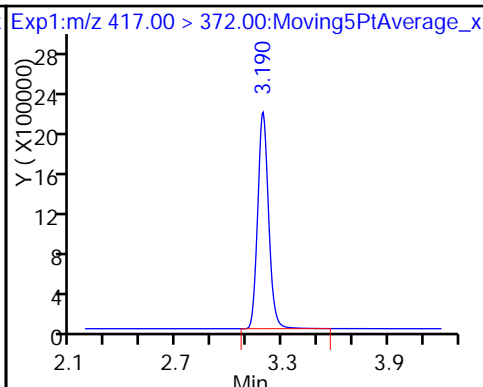
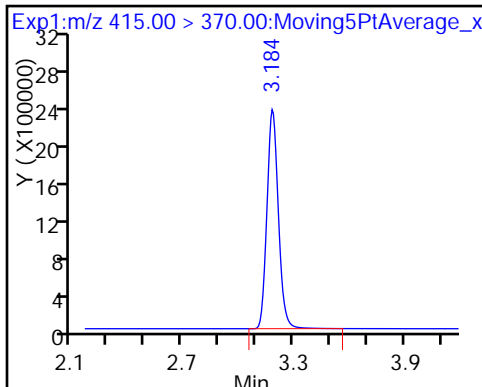
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

D 14 13C4 PFOA

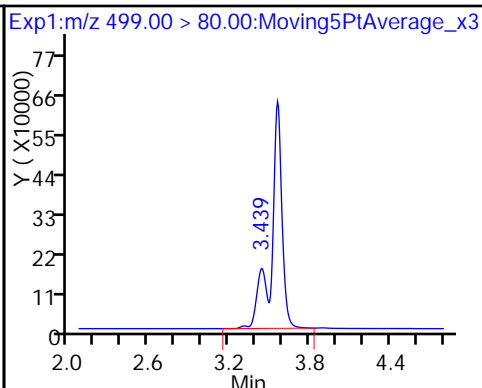
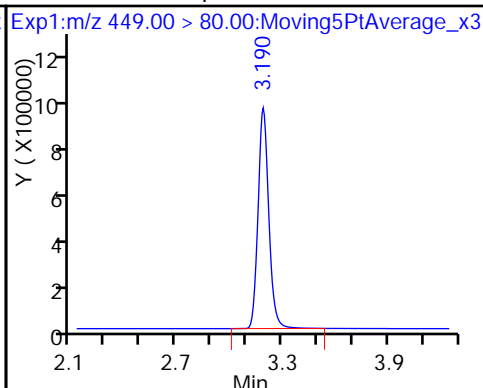
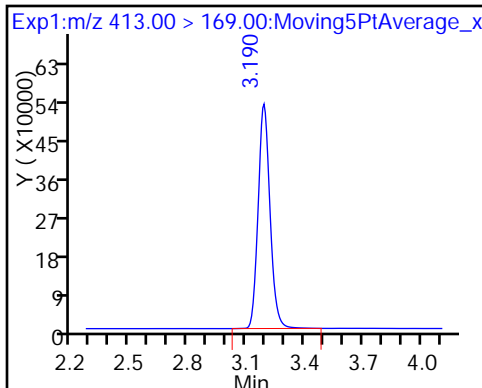
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

16 Perfluoroheptanesulfonic Acid

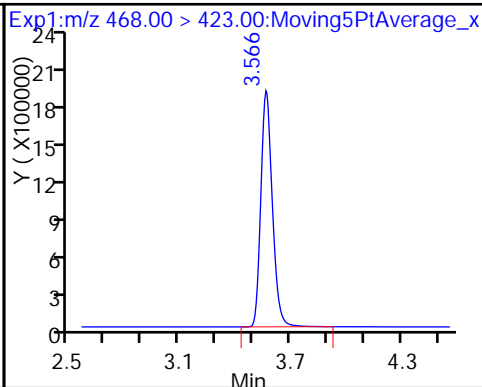
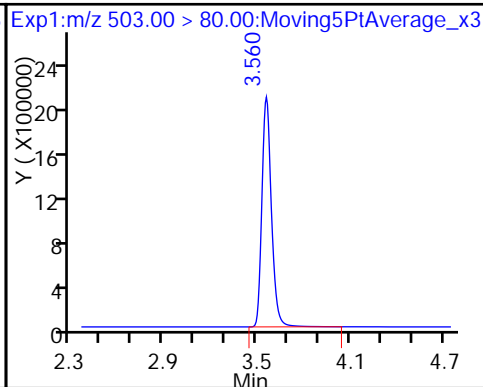
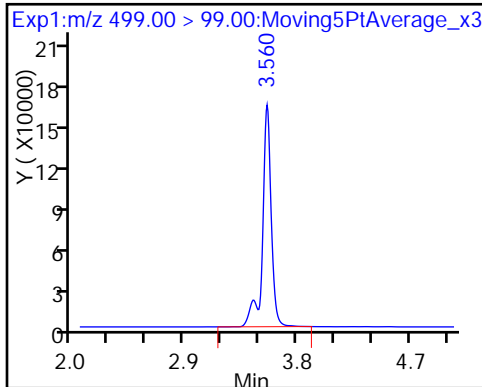
17 Perfluorooctane sulfonic acid

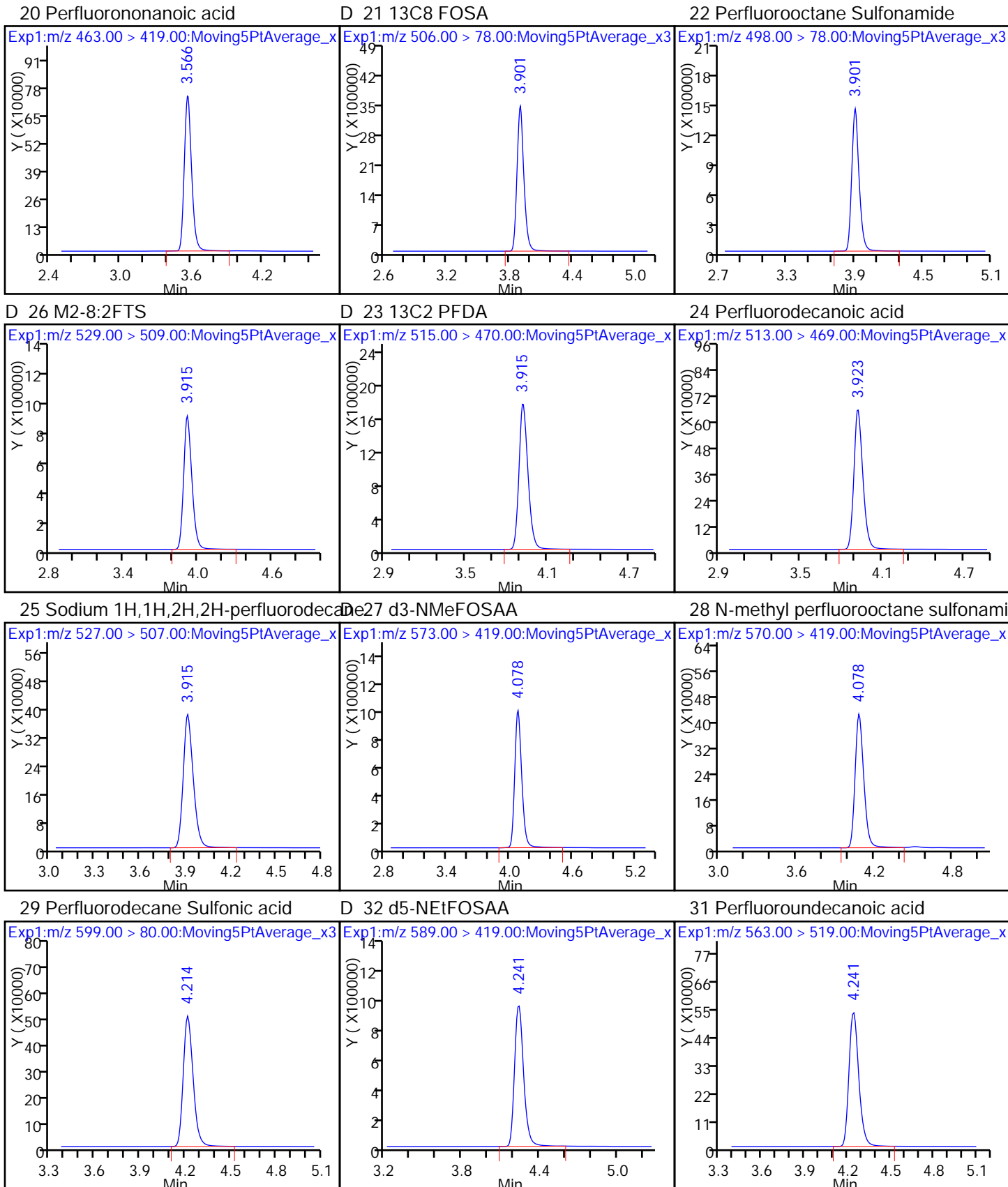


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

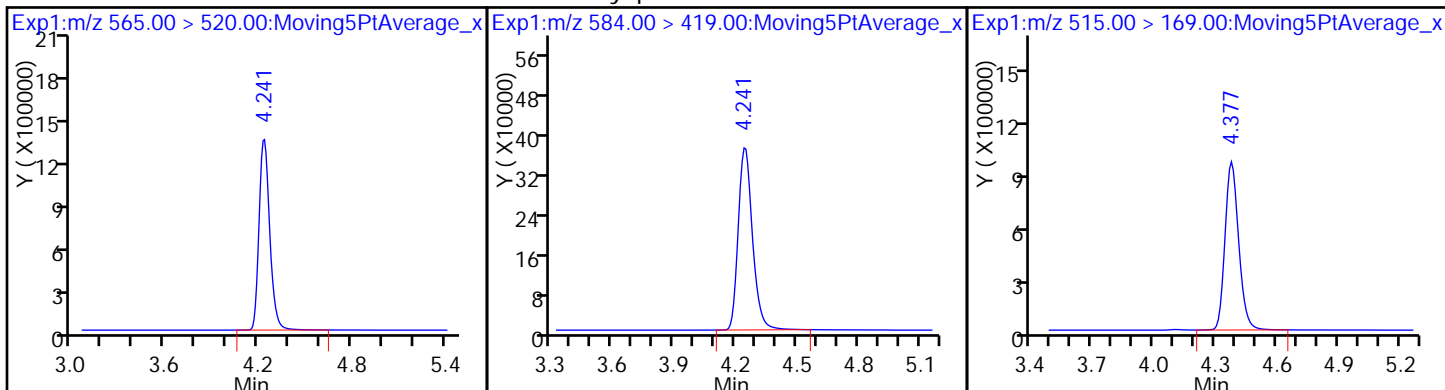
D 19 13C5 PFNA





D 30 13C2 PFUnA

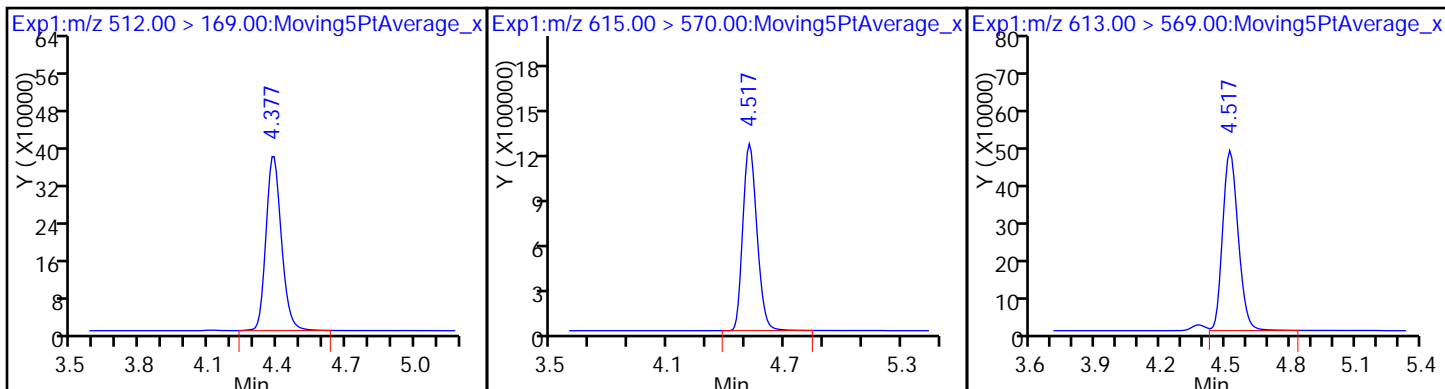
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

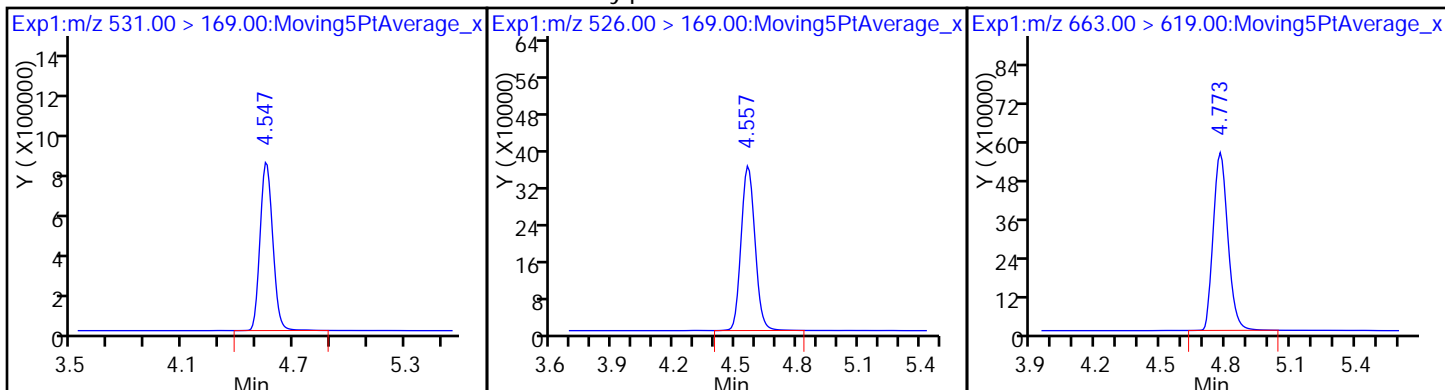
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

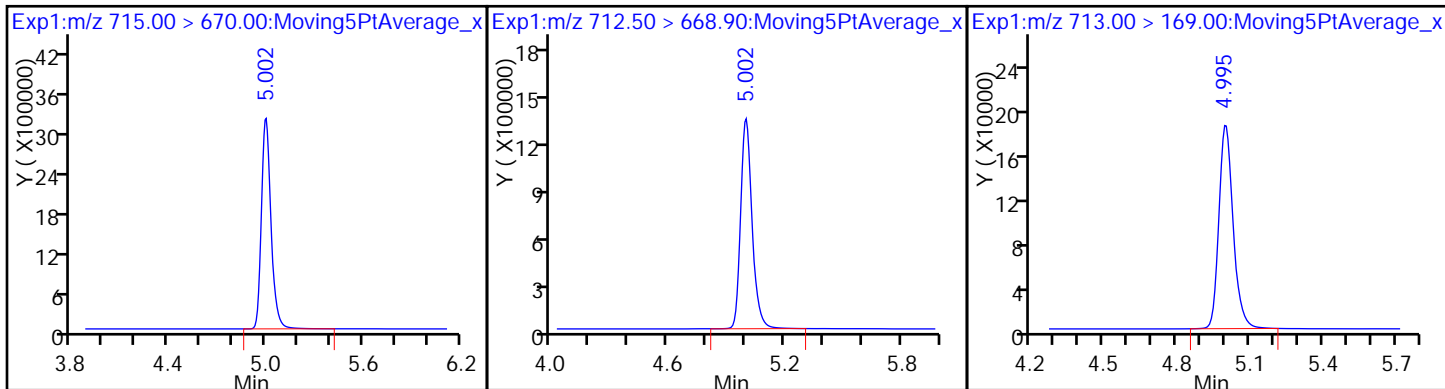
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

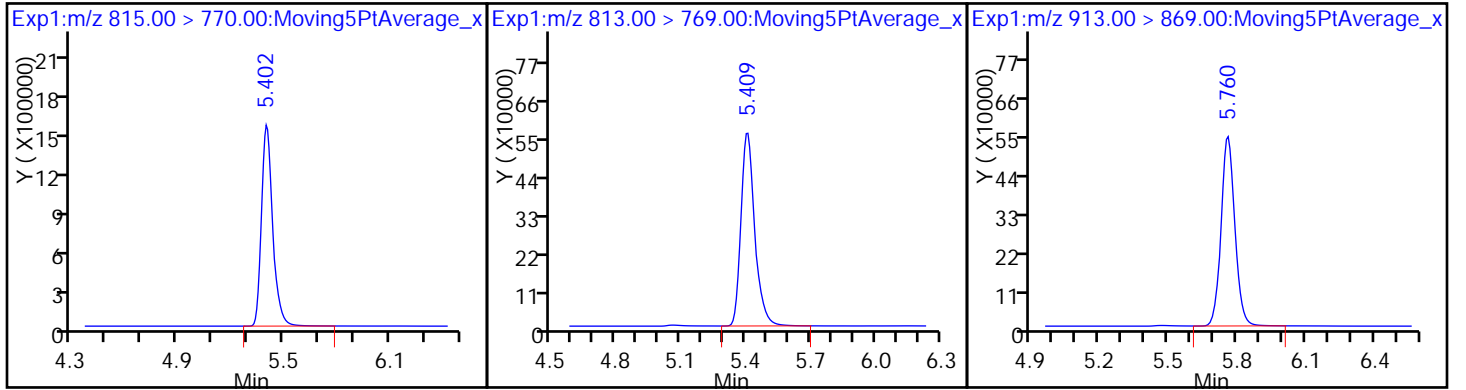
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_007.d
 Lims ID: IC L5 Full
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 06-Jun-2017 14:02:45 ALS Bottle#: 32 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L5-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 08:20:21 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK033

First Level Reviewer: chandrasenas Date: 06-Jun-2017 14:54:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.757	1.746	0.011	16598029	50.3		101	178721	
2 Perfluorobutyric acid	212.90 > 169.00	1.757	1.749	0.008	15690403	51.5		103	18433	
D 3 13C5-PFPeA	267.90 > 223.00	2.074	2.073	0.001	10835426	49.3		98.5	42448	
4 Perfluoropentanoic acid	262.90 > 219.00	2.074	2.074	0.0	11608590	51.5		103	4354	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.110	2.111	-0.001	17899004	48.7		110		
	298.90 > 99.00	2.110	2.111	-0.001	7342663		2.44(0.00-0.00)	110		
D 47 13C3-PFBS	301.90 > 83.00	2.110	2.111	-0.001	271280	NC				
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.362	2.373	-0.011	3482714	47.9		103		
D 7 13C2 PFHxA	315.00 > 270.00	2.394	2.413	-0.019	9242274	47.9		95.9	28030	
6 Perfluorohexanoic acid	313.00 > 269.00	2.394	2.415	-0.021	9799146	52.4		105	16882	
D 9 13C4-PFHpA	367.00 > 322.00	2.767	2.792	-0.025	8651566	48.6		97.3	23262	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.767	2.793	-0.026	9303637	51.3		103	3256	
D 11 18O2 PFHxS	403.00 > 84.00	2.777	2.803	-0.026	10657786	46.2		97.7	16613	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.777	2.803	-0.026	10722835	43.4		95.4		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.118	3.151	-0.033	4011052	45.2	95.1		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.118	3.153	-0.035	1.000	3942830	47.3	99.7	
* 62 13C2-PFOA	415.00	> 370.00	3.141	3.174	-0.033		8752967	50.0		
D 14 13C4 PFOA	417.00	> 372.00	3.141	3.176	-0.035		8565005	47.5	95.0	21021
15 Perfluorooctanoic acid	413.00	> 369.00	3.141	3.178	-0.037	1.000	9342547	51.0	102	2884
	413.00	> 169.00	3.141	3.178	-0.037	1.000	5234883	1.78(0.90-1.10)	102	9079
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.141	3.179	-0.038	1.000	9604345	49.7	104	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.507	3.481	0.026	1.000	8759357	49.0	106	14172
	499.00	> 99.00	3.507	3.481	0.026	1.000	1881570	4.66(0.90-1.10)	106	7210
D 18 13C4 PFOS	503.00	> 80.00	3.507	3.546	-0.039		8094745	45.4	95.1	11925
D 19 13C5 PFNA	468.00	> 423.00	3.513	3.555	-0.042		7159866	46.9	93.8	16388
20 Perfluorononanoic acid	463.00	> 419.00	3.520	3.557	-0.037	1.000	7504157	52.3	105	11155
D 21 13C8 FOSA	506.00	> 78.00	3.843	3.888	-0.045		14365370	47.9	95.7	14663
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.851	3.889	-0.038	1.000	14183021	50.9	102	12501
D 26 M2-8:2FTS	529.00	> 509.00	3.860	3.903	-0.043		3584998	43.8	91.4	
D 23 13C2 PFDA	515.00	> 470.00	3.868	3.908	-0.040		6880095	45.6	91.3	9486
24 Perfluorodecanoic acid	513.00	> 469.00	3.868	3.909	-0.041	1.000	6837691	52.2	104	11934
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.860	3.903	-0.043	1.000	3417126	47.0	98.1	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.021	4.064	-0.043		4469383	50.8	102	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.029	4.067	-0.038	1.002	4710158	51.2	102	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.165	4.202	-0.037	1.000	6004418	53.8	112	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.181	4.225	-0.044		4311420	49.4	98.8	
D 30 13C2 PFUnA	565.00	> 520.00	4.190	4.226	-0.036		5910135	49.3	98.6	11505
31 Perfluoroundecanoic acid	563.00	> 519.00	4.190	4.226	-0.036	1.000	6001124	47.7	95.3	9093
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.190	4.233	-0.043	1.002	4185883	51.4	103	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.331	4.364	-0.033	4375900	49.4	98.8		
35 MeFOSA	512.00	> 169.00	4.331	4.370	-0.039	1.000	4486631	53.2	106	
37 Perfluorododecanoic acid	613.00	> 569.00	4.469	4.509	-0.040	1.000	5829140	49.0	98.0	2201
D 36 13C2 PFDaA	615.00	> 570.00	4.469	4.509	-0.040		6222171	50.0	100.0	5426
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.498	4.540	-0.042		4147810	50.1	100	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.508	4.550	-0.042	1.000	4324767	52.1	104	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.716	4.762	-0.046	1.000	6652200	53.5	107	4731
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.947	4.988	-0.041	1.000	13877084	53.8	108	7570
	713.00	> 169.00	4.947	4.988	-0.041	1.000	1916664	7.24(0.00-0.00)	108	6121
D 43 13C2-PFTeDA	715.00	> 670.00	4.947	4.988	-0.041		13066614	50.8	102	12166
D 44 13C2-PFHxDA	815.00	> 770.00	5.348	5.391	-0.043		6657793	48.6	97.3	5621
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.355	5.395	-0.040	1.000	5980612	50.5	101	3813
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.701	5.745	-0.044	1.000	5210924	47.3	94.6	5184

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L5_00005

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_007.d

Injection Date: 06-Jun-2017 14:02:45

Instrument ID: A8_N

Lims ID: IC L5 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

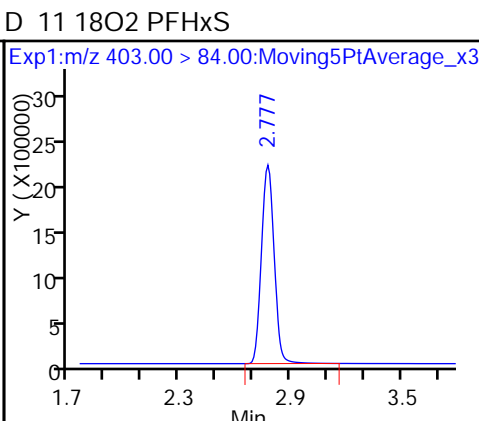
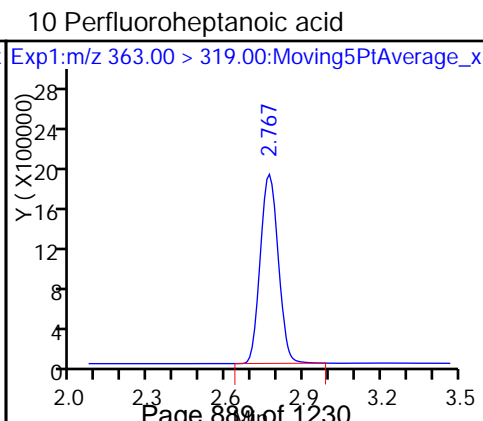
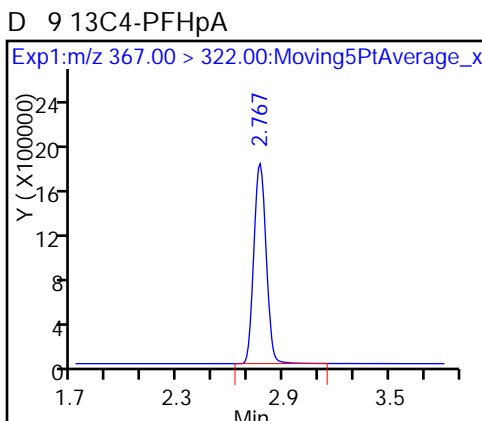
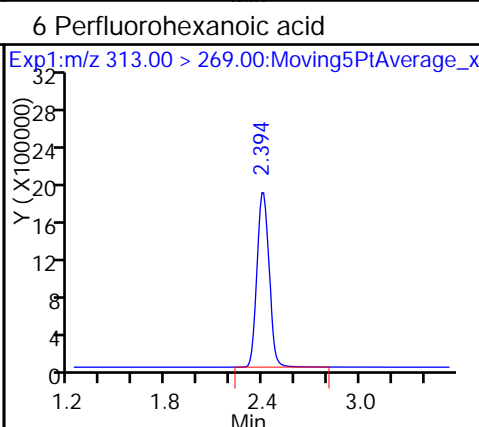
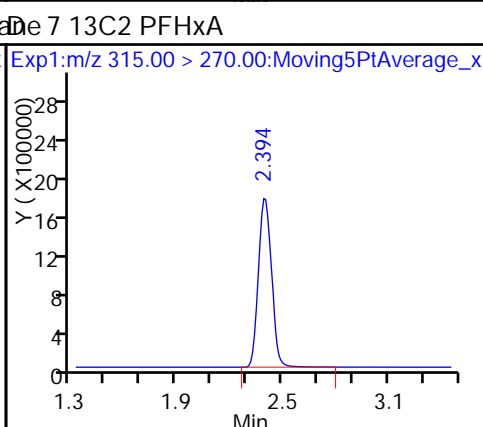
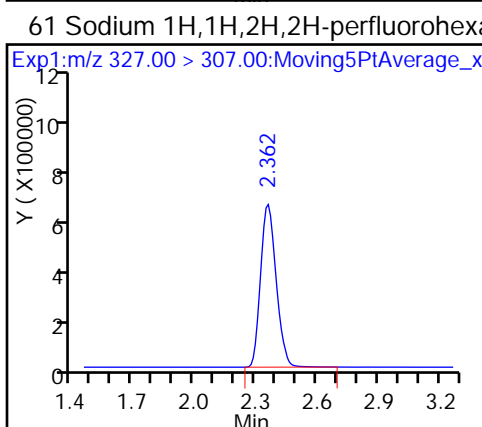
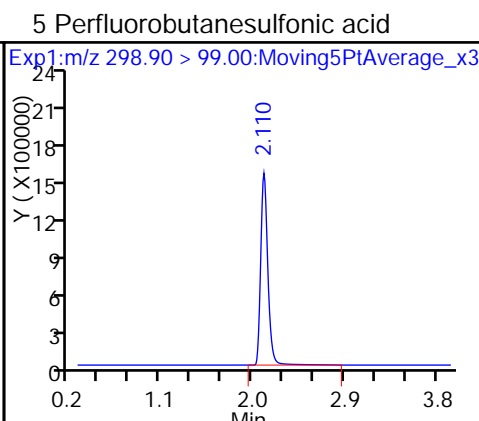
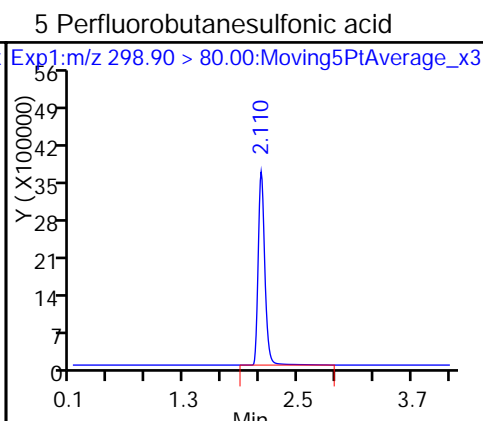
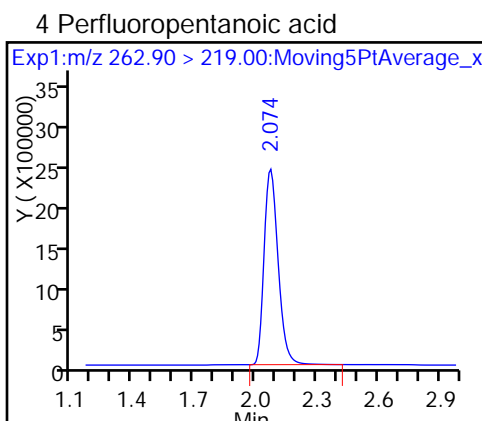
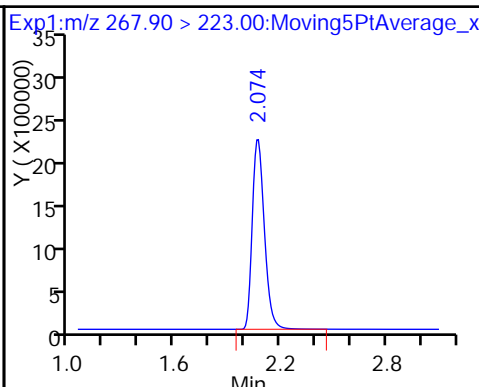
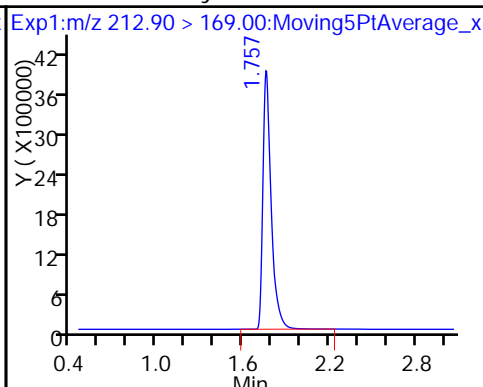
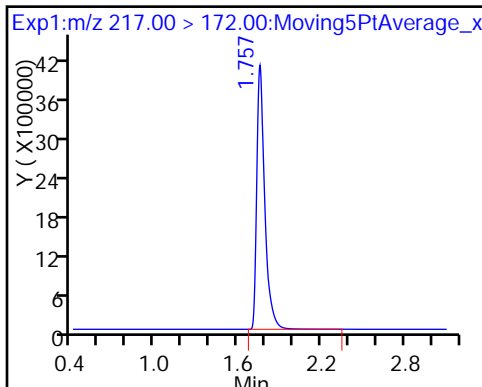
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

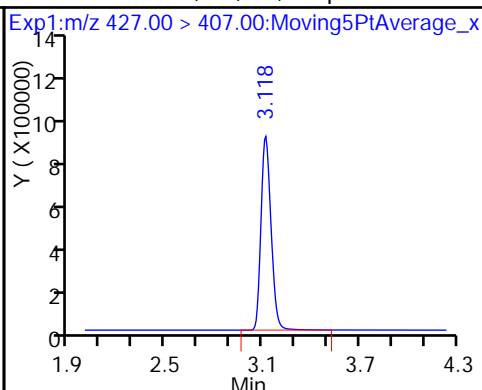
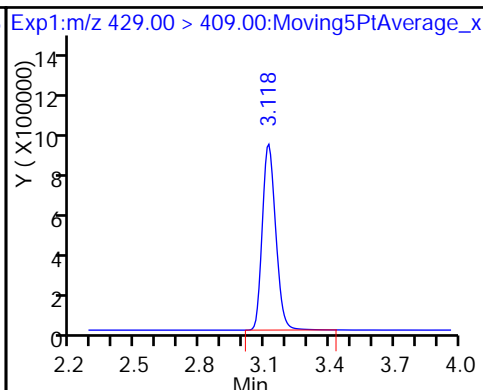
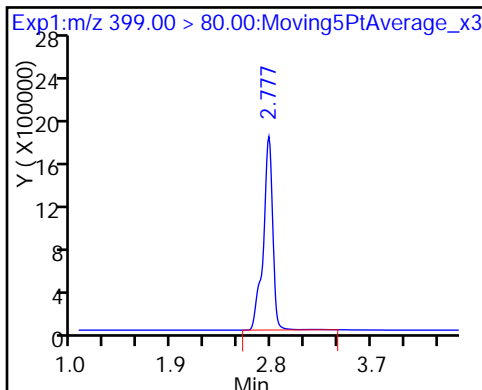
D 3 13C5-PFPeA



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

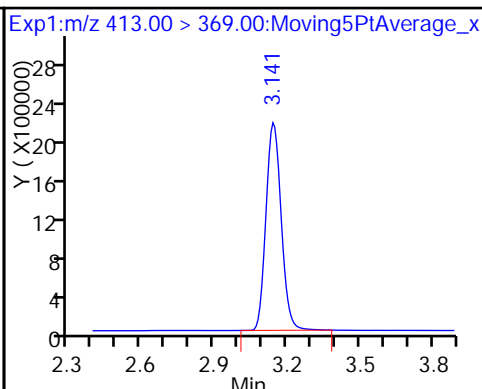
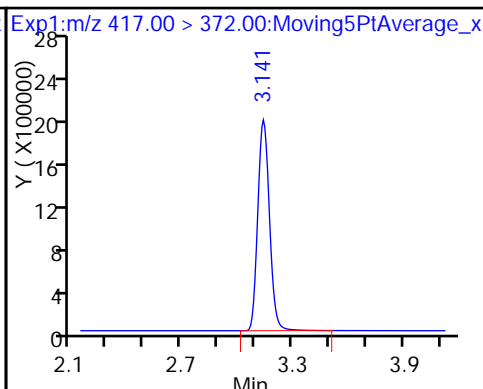
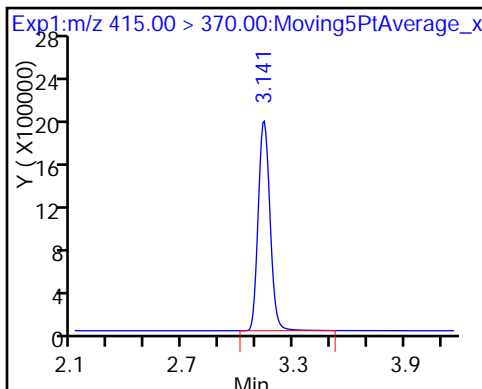
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

D 14 13C4 PFOA

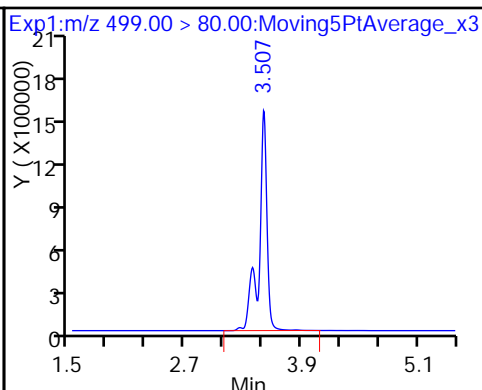
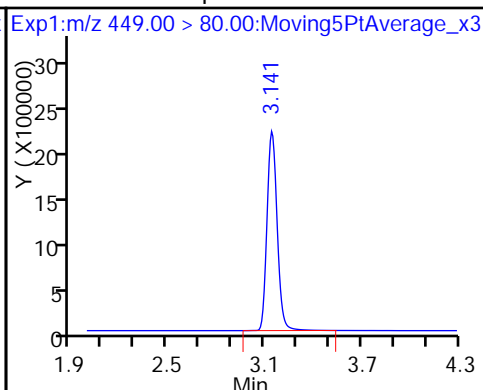
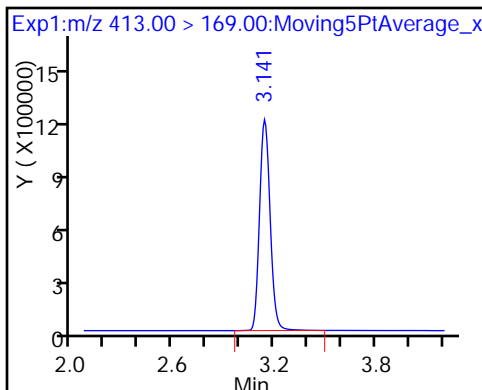
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

16 Perfluoroheptanesulfonic Acid

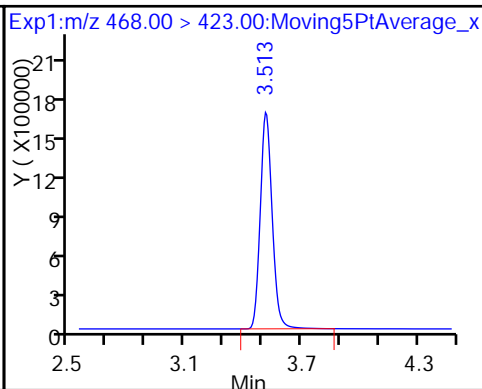
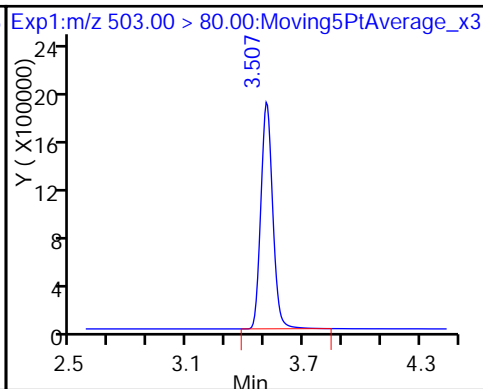
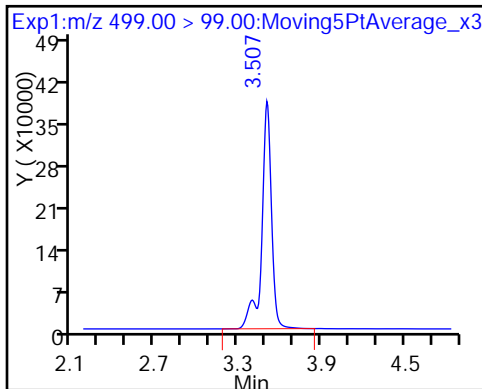
17 Perfluorooctane sulfonic acid

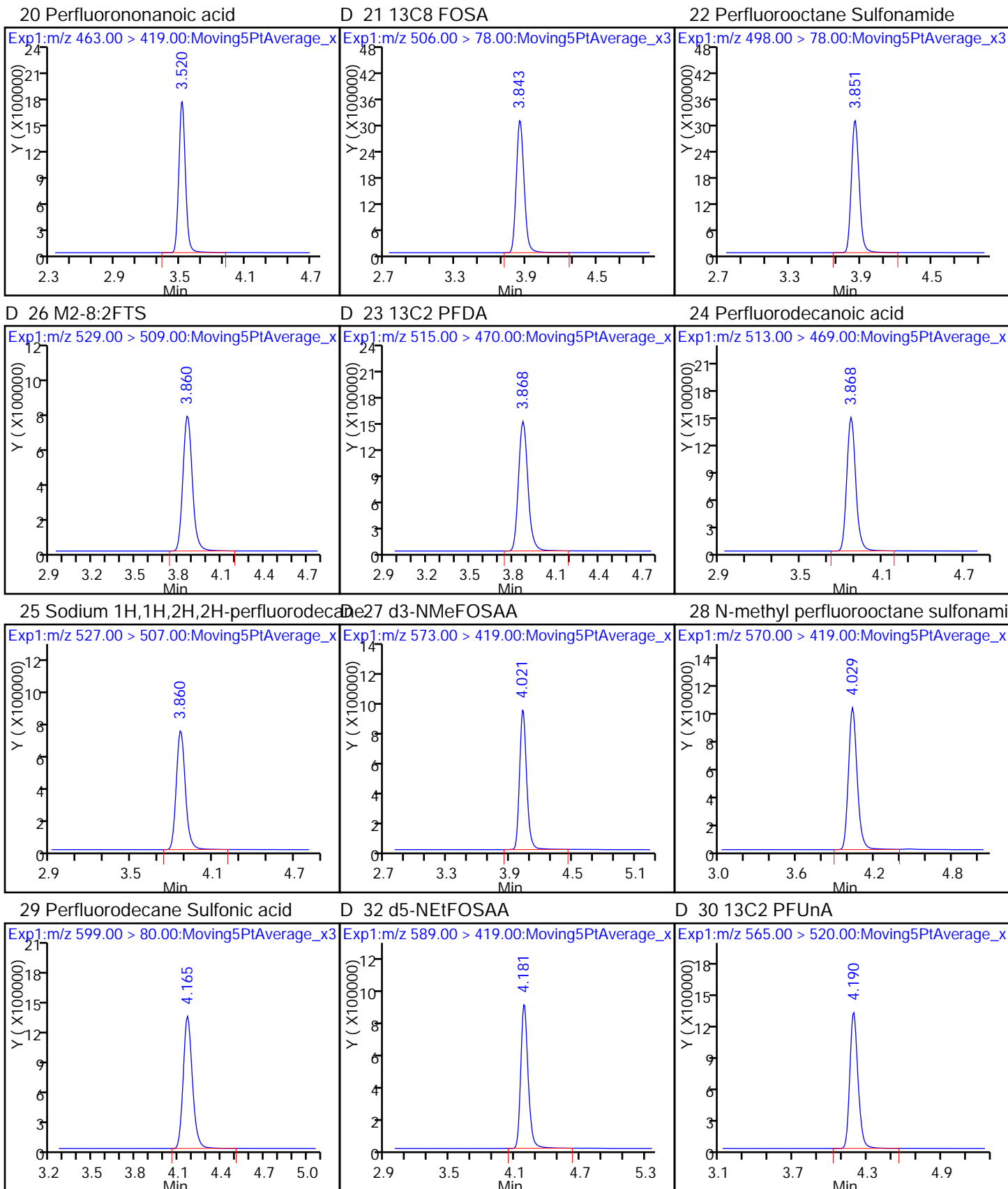


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

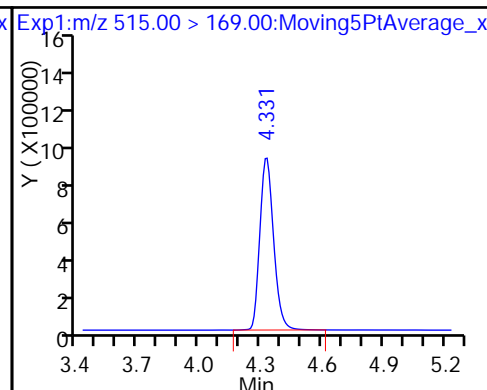
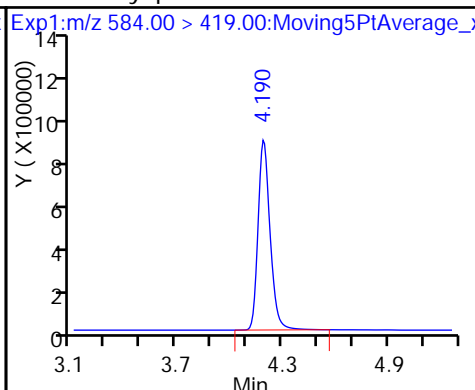
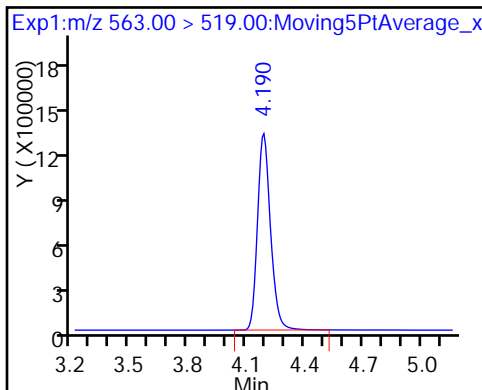




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

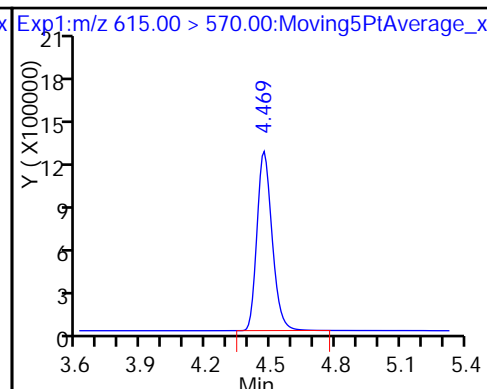
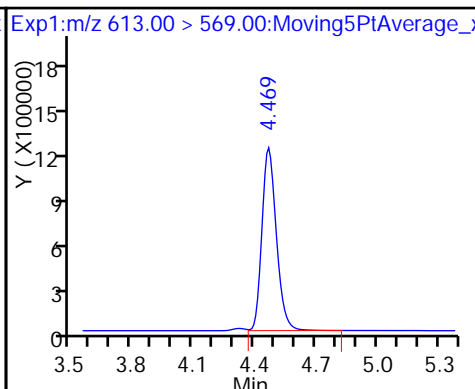
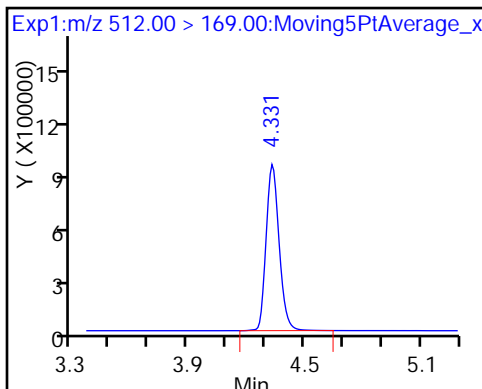
34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

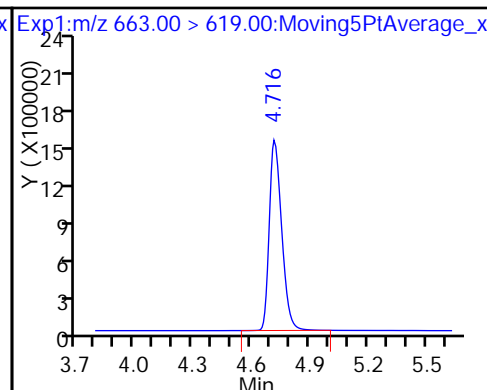
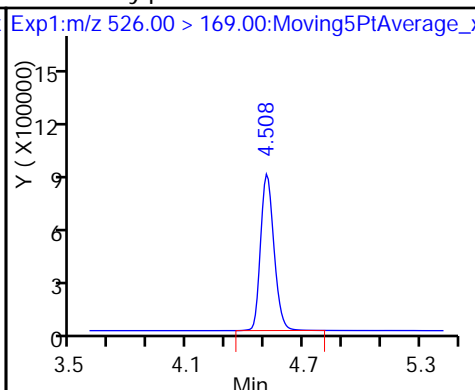
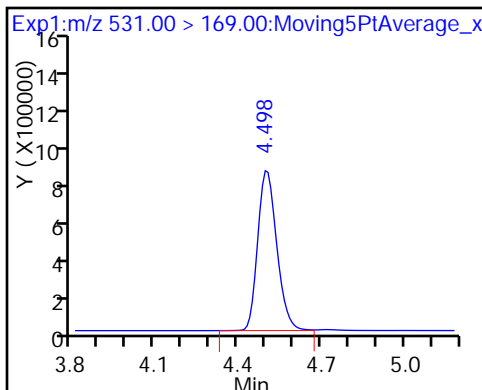
D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

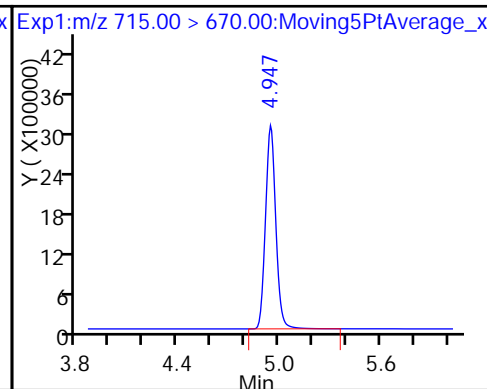
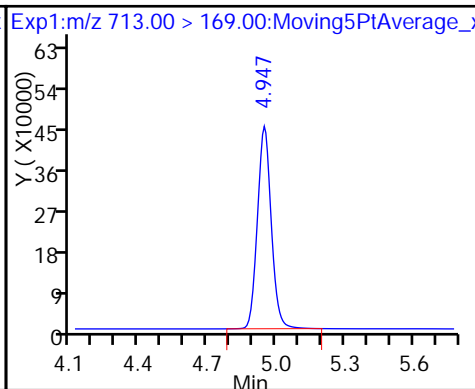
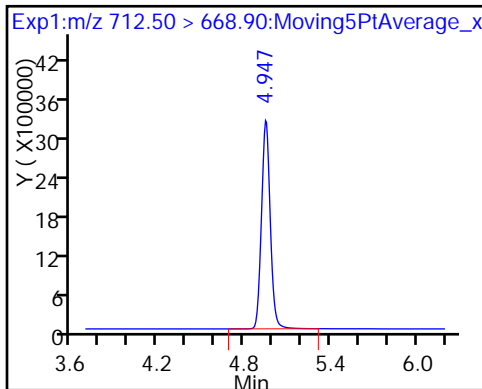
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

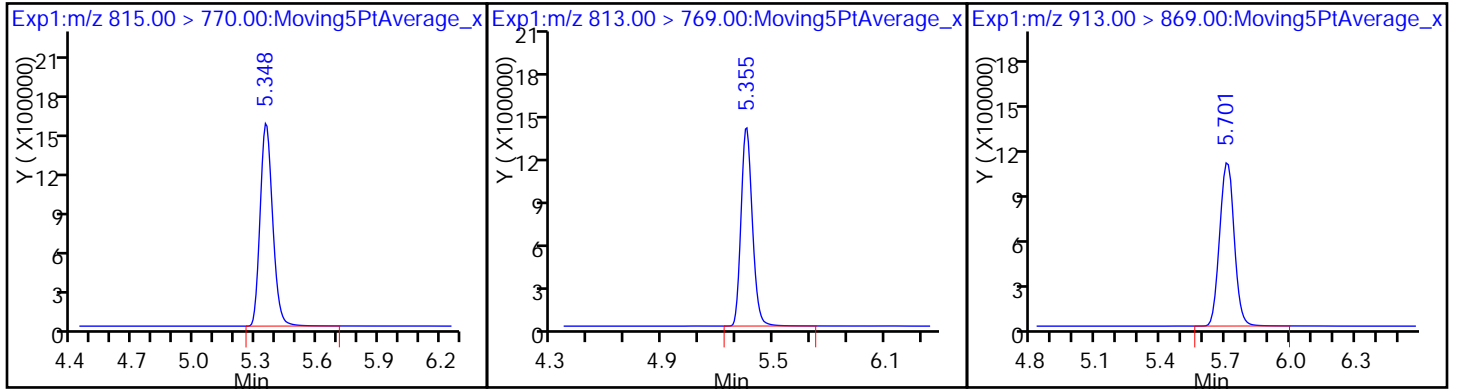
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_008.d
 Lims ID: IC L6 Full
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 06-Jun-2017 14:10:26 ALS Bottle#: 33 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L6-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 08:20:24 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK033

First Level Reviewer: chandrasenas Date: 06-Jun-2017 14:54:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.715	1.746	-0.031	15436785	46.8		93.6	46809	
2 Perfluorobutyric acid	212.90 > 169.00	1.719	1.749	-0.030	1.000	27491311	96.9	96.9	16262	
D 3 13C5-PFPeA	267.90 > 223.00	2.042	2.073	-0.031	10478326	47.6		95.3	37185	
4 Perfluoropentanoic acid	262.90 > 219.00	2.042	2.074	-0.032	1.000	21498244	98.6	98.6	7791	
D 47 13C3-PFBS	301.90 > 83.00	2.087	2.111	-0.024	259832	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.087	2.111	-0.024	1.000	30621227	88.3	99.9		
	298.90 > 99.00	2.087	2.111	-0.024	1.000	13713346	2.23(0.00-0.00)	99.9		
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.355	2.373	-0.018	1.000	6808579	95.9	103		
D 7 13C2 PFHxA	315.00 > 270.00	2.398	2.413	-0.015	9000471	46.7		93.3	25763	
6 Perfluorohexanoic acid	313.00 > 269.00	2.398	2.415	-0.017	1.000	18608789	102.1	102	21484	
D 9 13C4-PFHpA	367.00 > 322.00	2.778	2.792	-0.014	8118133	45.6		91.3	29341	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.787	2.793	-0.006	1.000	17384856	102.2	102	5962	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.795	2.803	-0.008	1.000	20846360	89.6	98.4		
D 11 18O2 PFHxS	403.00 > 84.00	2.795	2.803	-0.008	10047436	43.6		92.1	19220	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.148	3.151	-0.003	3917803	44.1	92.8		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.148	3.153	-0.005	1.000	7871580	96.6	102	
* 62 13C2-PFOA	415.00	> 370.00	3.170	3.174	-0.004		8164671	50.0		
D 14 13C4 PFOA	417.00	> 372.00	3.170	3.176	-0.006		8283659	45.9	91.9	26857
15 Perfluorooctanoic acid	413.00	> 369.00	3.177	3.178	-0.001	1.000	17433456	98.5	98.5	5012
	413.00	> 169.00	3.170	3.178	-0.008	0.998	10332505	1.69(0.90-1.10)	98.5	14786
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.177	3.179	-0.002	1.000	18606449	97.4	102	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.431	3.481	-0.050	1.000	17109959	96.8	104	1463
	499.00	> 99.00	3.546	3.481	0.065	1.034	3717551	4.60(0.90-1.10)	104	8989
D 18 13C4 PFOS	503.00	> 80.00	3.546	3.546	0.0		8006290	44.9	94.0	27184
D 19 13C5 PFNA	468.00	> 423.00	3.559	3.555	0.004		7155137	46.9	93.7	23746
20 Perfluorononanoic acid	463.00	> 419.00	3.559	3.557	0.002	1.000	14375092	100.2	100	20834
D 21 13C8 FOSA	506.00	> 78.00	3.892	3.888	0.004		13943325	46.4	92.9	13180
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.892	3.889	0.003	1.000	26718233	98.8	98.8	39002
D 26 M2-8:2FTS	529.00	> 509.00	3.907	3.903	0.004		4103773	50.1	105	
D 23 13C2 PFDA	515.00	> 470.00	3.914	3.908	0.006		7113155	47.2	94.3	12460
24 Perfluorodecanoic acid	513.00	> 469.00	3.914	3.909	0.005	1.000	13809842	101.9	102	21720
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.907	3.904	0.003	1.000	7689657	92.4	96.4	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.069	4.064	0.005		4166659	47.3	94.6	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.069	4.067	0.002	1.000	8990148	104.9	105	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.204	4.202	0.002	1.000	11283031	102.3	106	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.229	4.225	0.004		3831476	43.9	87.8	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.229	4.226	0.003	1.000	10958427	96.5	96.5	17817
D 30 13C2 PFUnA	565.00	> 520.00	4.229	4.226	0.003		5329123	44.5	88.9	8219
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.238	4.233	0.005	1.002	7444963	102.9	103	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.366	4.364	0.002	4474532	50.5		101		
35 MeFOSA	512.00 > 169.00	4.375	4.370	0.005	1.000	8945690	103.8	104		
D 36 13C2 PFDaA	615.00 > 570.00	4.516	4.509	0.007	6303717	50.6		101	6804	
37 Perfluorododecanoic acid	613.00 > 569.00	4.516	4.509	0.007	1.000	12226133	101.4	101	3870	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.545	4.540	0.005	4124361	49.8		99.7		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.555	4.550	0.005	1.000	8820848	106.9	107		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.772	4.762	0.010	1.000	11758359	93.3	93.3	4980	
D 43 13C2-PFTeDA	715.00 > 670.00	4.994	4.988	0.006	12360442	48.1		96.2	13822	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.994	4.988	0.006	1.000	24586938	94.1	94.1	11584	
	713.00 > 169.00	4.994	4.988	0.006	1.000	3590205	6.85(0.00-0.00)	94.1	10499	
D 44 13C2-PFHxDA	815.00 > 770.00	5.401	5.391	0.010	6548753	47.9		95.7	6011	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.401	5.395	0.006	1.000	11604953	97.5	97.5	4554	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.751	5.745	0.006	1.000	10779764	96.6	96.6	9450	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L6_00005

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_008.d

Injection Date: 06-Jun-2017 14:10:26

Instrument ID: A8_N

Lims ID: IC L6 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

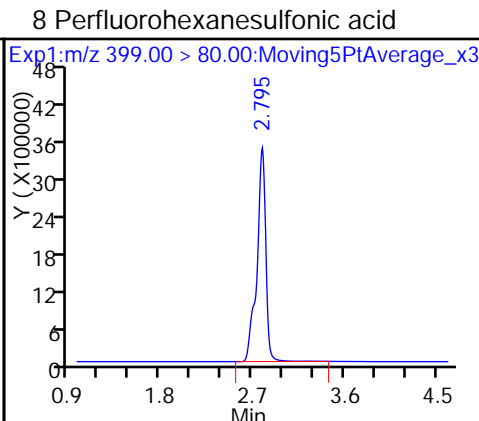
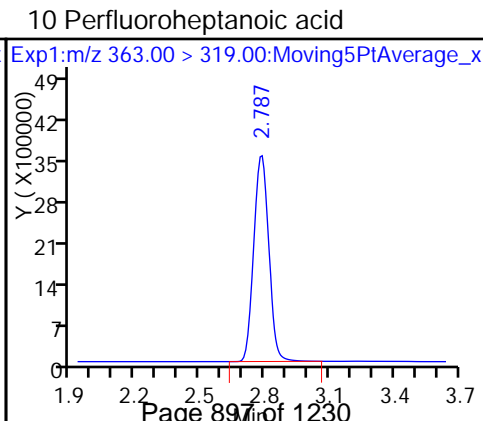
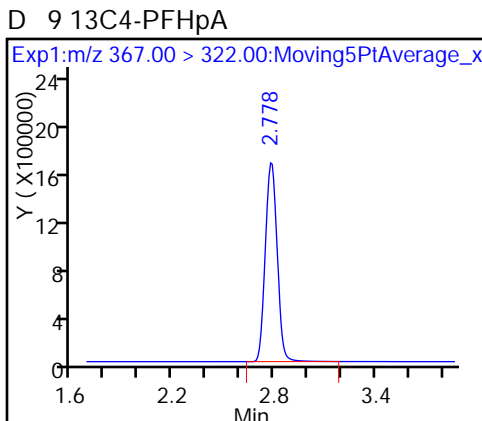
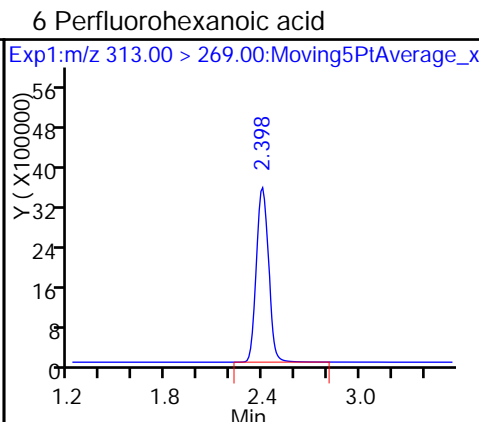
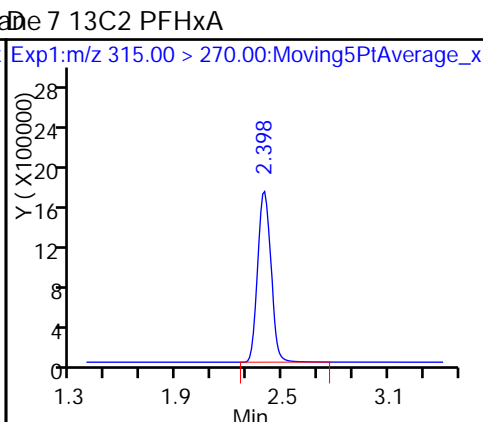
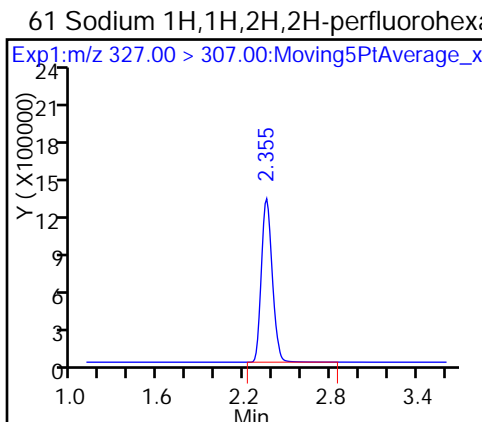
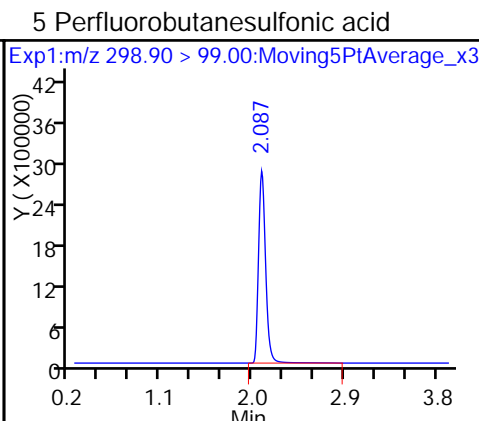
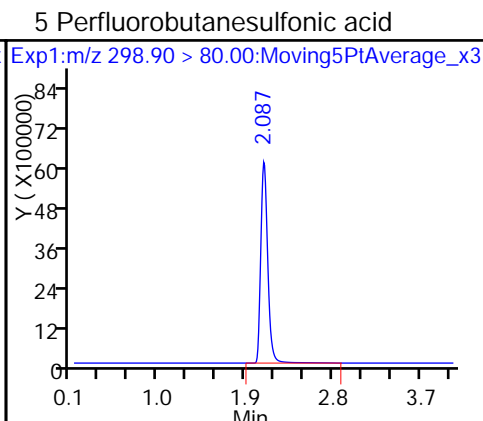
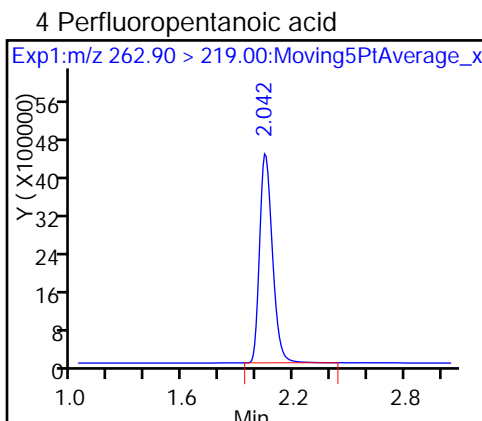
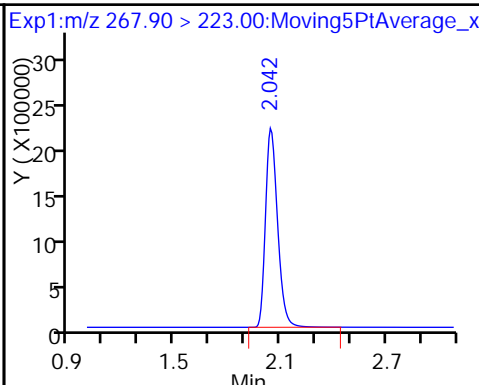
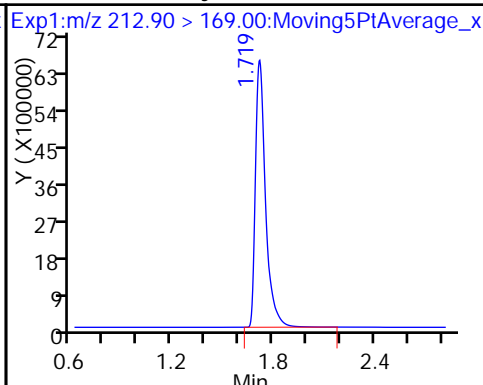
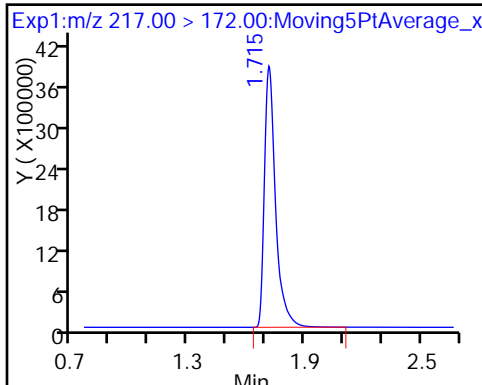
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

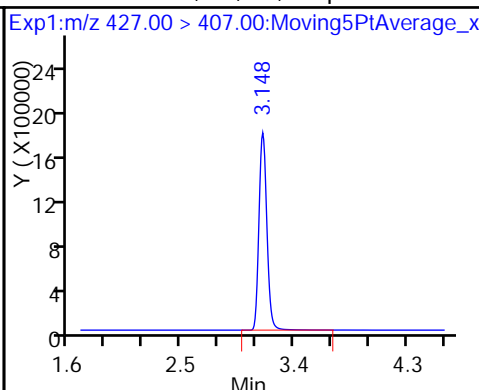
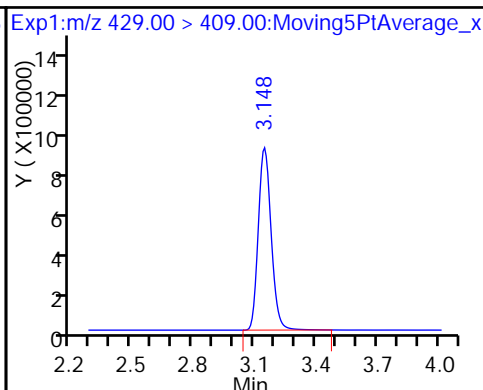
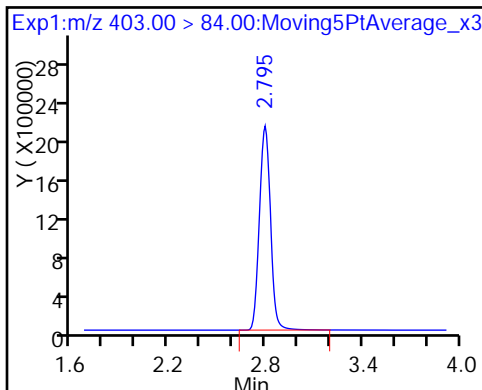
D 3 13C5-PFPeA



D 11 18O2 PFHxS

D 12 M2-6:2FTS

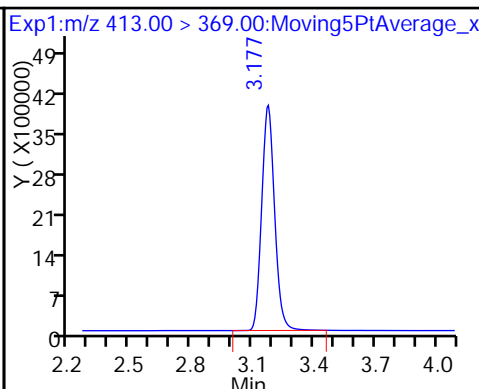
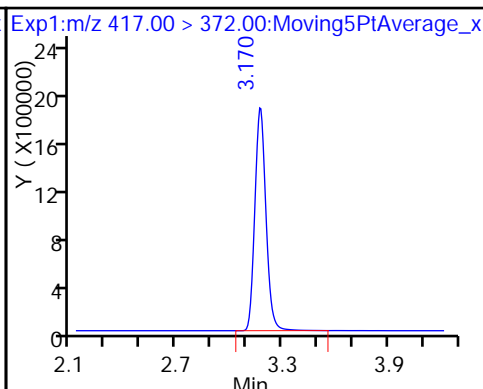
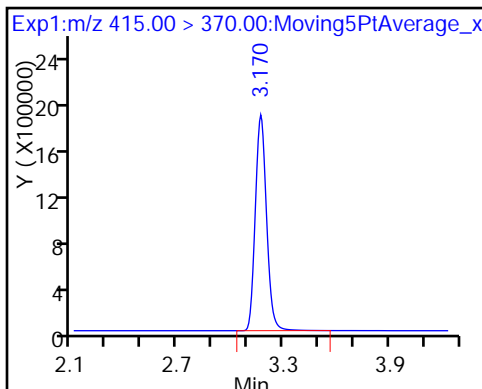
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

D 14 13C4 PFOA

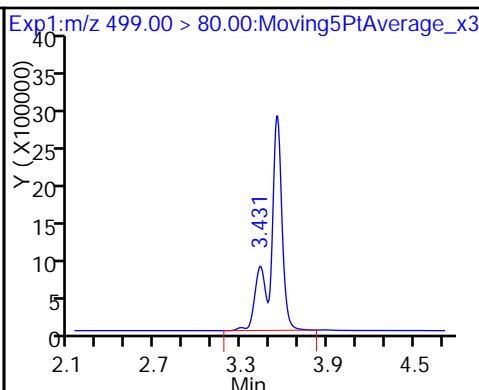
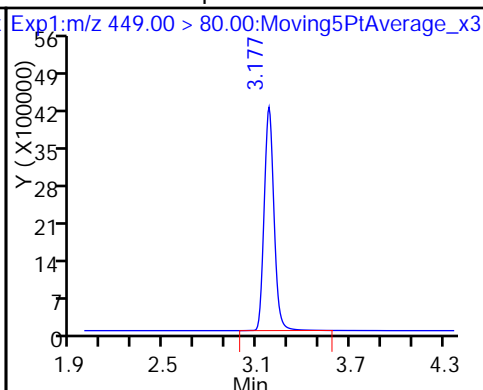
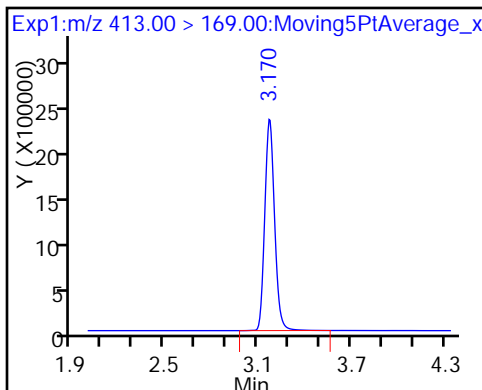
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

16 Perfluoroheptanesulfonic Acid

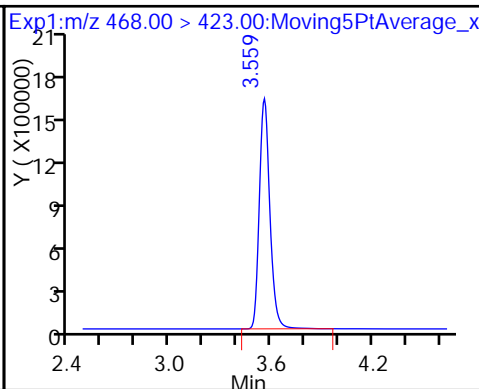
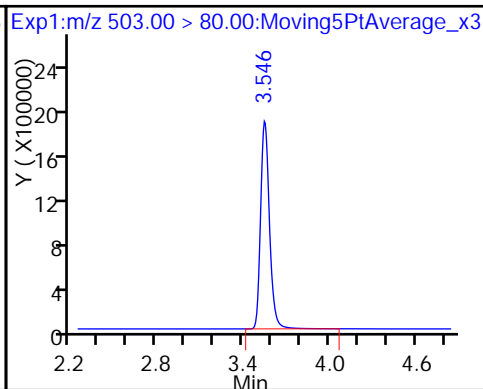
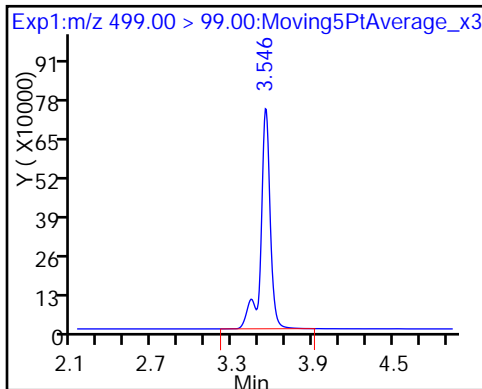
17 Perfluorooctane sulfonic acid

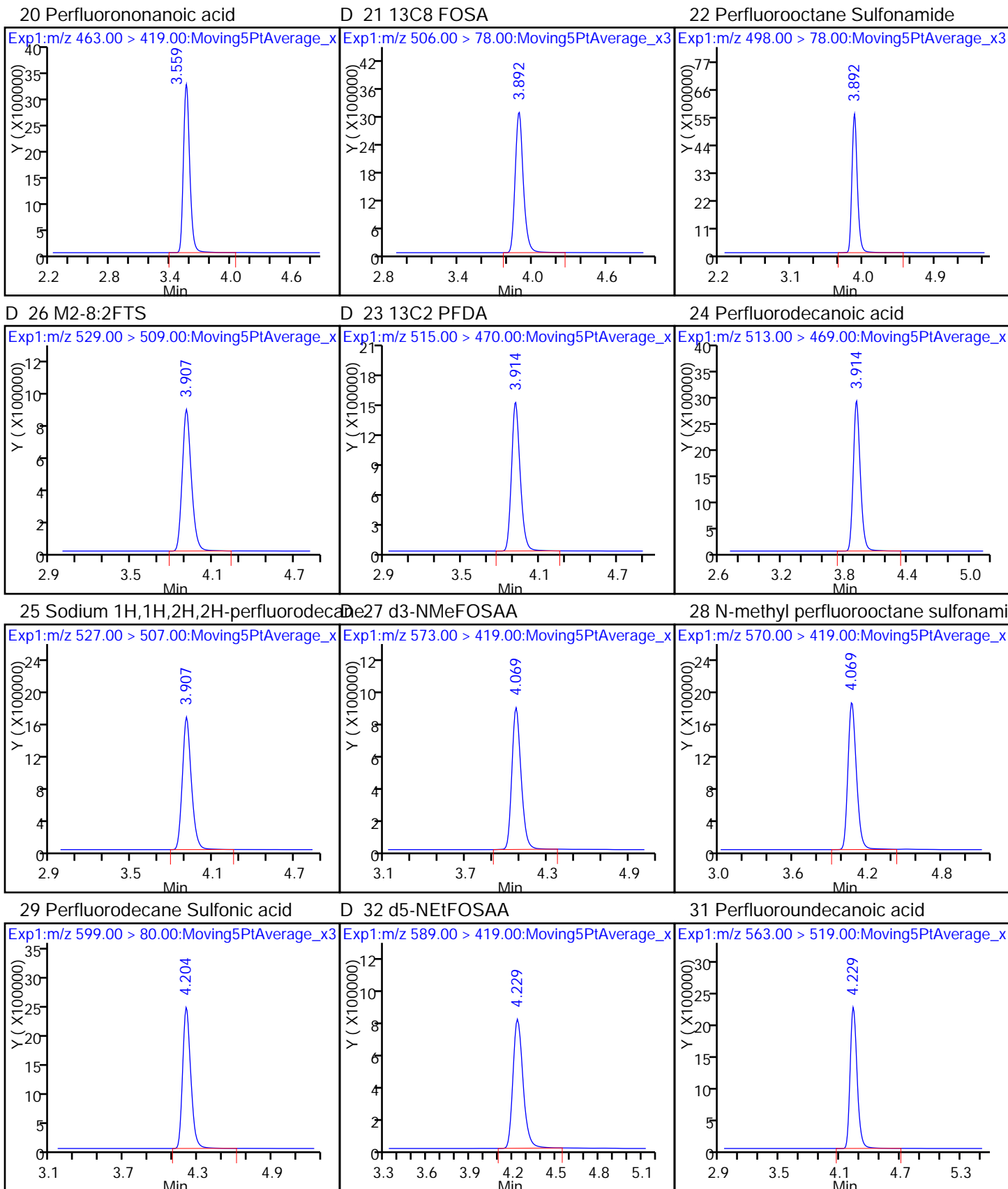


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

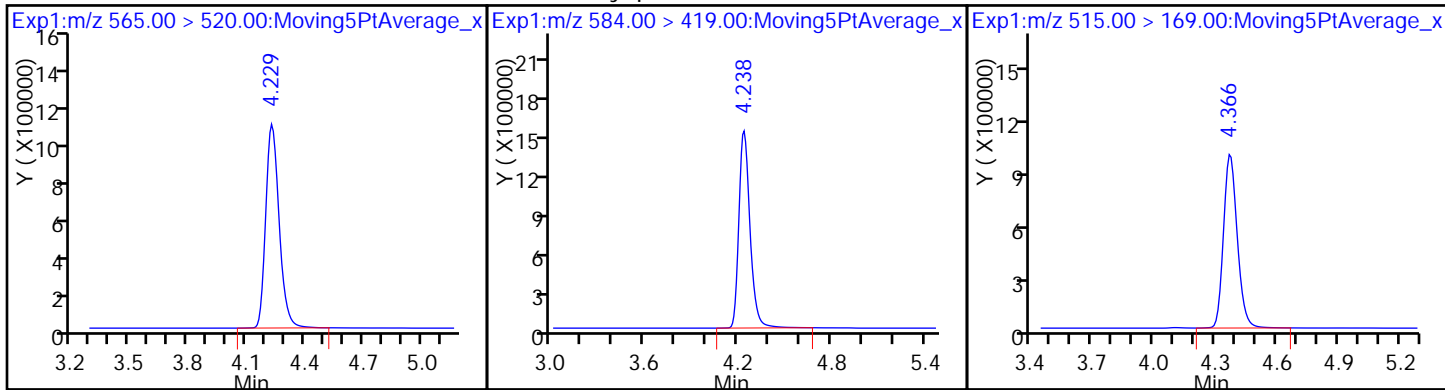
D 19 13C5 PFNA





D 30 13C2 PFUnA

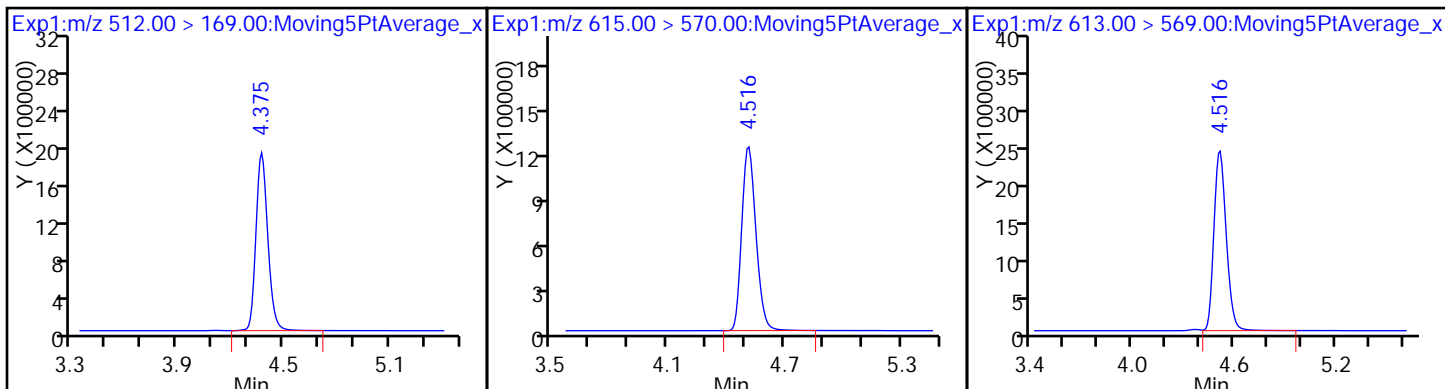
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

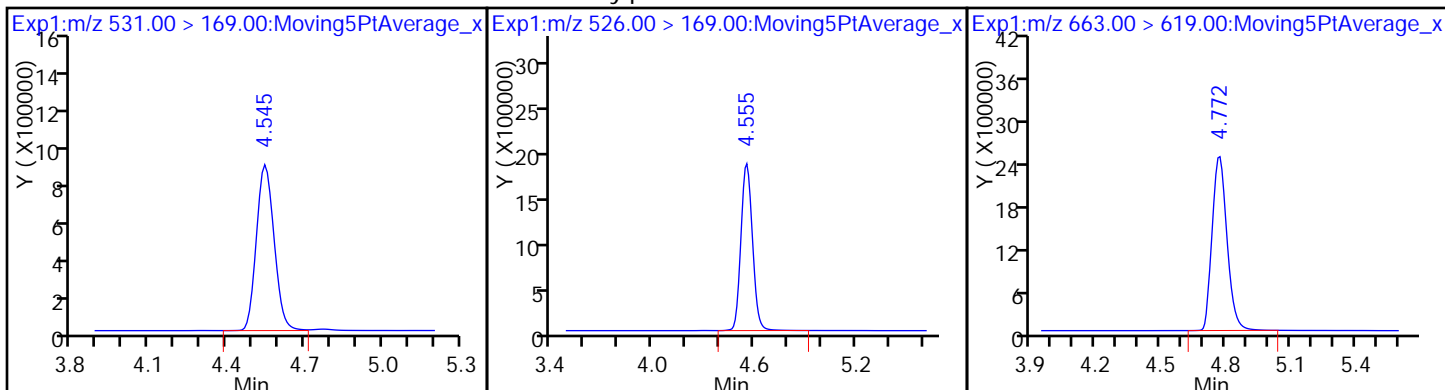
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

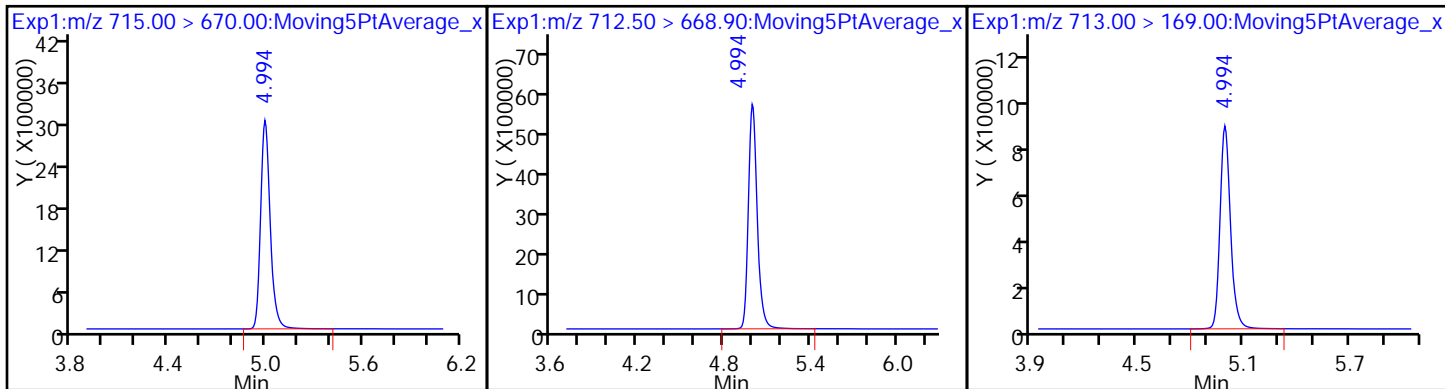
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

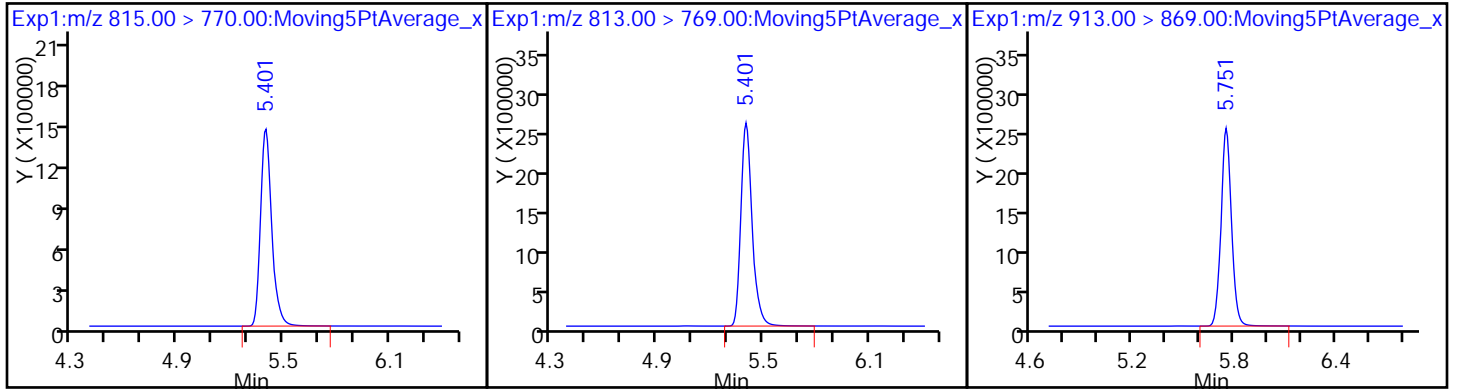
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_009.d
 Lims ID: IC L7 Full
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 06-Jun-2017 14:18:07 ALS Bottle#: 34 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L7-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 08:20:27 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK033

First Level Reviewer: chandrasenas Date: 06-Jun-2017 14:55:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.739	1.746	-0.007	14670457	44.5		89.0	45018	
2 Perfluorobutyric acid	212.90 > 169.00	1.742	1.749	-0.007	1.000	45503740	168.8	84.4	15510	
D 3 13C5-PFPeA	267.90 > 223.00	2.069	2.073	-0.004	9352823	42.5		85.0	32880	
4 Perfluoropentanoic acid	262.90 > 219.00	2.069	2.074	-0.005	1.000	34142749	175.4	87.7	10909	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.105	2.111	-0.006	1.000	47764002	151.2	85.5		
	298.90 > 99.00	2.105	2.111	-0.006	1.000	24454335	1.95(0.00-0.00)	85.5		
D 47 13C3-PFBS	301.90 > 83.00	2.105	2.111	-0.006	246644	NC				
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.366	2.373	-0.007	1.000	12892114	173.1	92.6		
D 7 13C2 PFHxA	315.00 > 270.00	2.409	2.413	-0.004	8308032	43.1		86.2	26882	
6 Perfluorohexanoic acid	313.00 > 269.00	2.409	2.415	-0.006	1.000	30388186	180.7	90.3	20803	
D 9 13C4-PFHpA	367.00 > 322.00	2.787	2.792	-0.005	7495237	42.1		84.3	25914	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.787	2.793	-0.006	1.000	28962446	184.4	92.2	9755	
D 11 18O2 PFHxS	403.00 > 84.00	2.795	2.803	-0.008	9152921	39.7		83.9	15050	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.795	2.803	-0.008	1.000	36326380	171.3	94.1		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.141	3.151	-0.010	4110352	46.3	97.4		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.149	3.153	-0.004	1.000	13746035	160.8	84.8	
* 62 13C2-PFOA	415.00	> 370.00	3.170	3.174	-0.004	7333905	50.0			
D 14 13C4 PFOA	417.00	> 372.00	3.170	3.176	-0.006	7352976	40.8	81.6	24417	
15 Perfluorooctanoic acid	413.00	> 369.00	3.170	3.178	-0.008	1.000	28982100	184.5	92.2	7491
16 Perfluoroheptanesulfonic Acid	413.00	> 169.00	3.170	3.178	-0.008	1.000	17861227	1.62(0.90-1.10)	92.2	14762
17 Perfluorooctane sulfonic acid	449.00	> 80.00	3.177	3.179	-0.002	1.000	30429275	171.2	89.9	
18 Perfluorooctane sulfonic acid	499.00	> 80.00	3.546	3.481	0.065	1.000	30958564	188.2	101	20617
19 Perfluorooctane sulfonic acid	499.00	> 99.00	3.539	3.481	0.058	0.998	7005303	4.42(0.90-1.10)	101	12998
D 18 13C4 PFOS	503.00	> 80.00	3.539	3.546	-0.007	7449567	41.8	87.5	15738	
D 19 13C5 PFNA	468.00	> 423.00	3.552	3.555	-0.003	6208617	40.7	81.3	20153	
20 Perfluorononanoic acid	463.00	> 419.00	3.552	3.557	-0.005	1.000	24022877	193.0	96.5	16868
D 21 13C8 FOSA	506.00	> 78.00	3.885	3.888	-0.003	12394073	41.3	82.6	11846	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.885	3.889	-0.004	1.000	40674110	169.3	84.6	10940
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.900	3.903	-0.003	1.000	13269259	173.2	90.4	
D 26 M2-8:2FTS	529.00	> 509.00	3.900	3.903	-0.003	3776708	46.1	96.3		
D 23 13C2 PFDA	515.00	> 470.00	3.907	3.908	-0.001	6140363	40.7	81.4	9540	
24 Perfluorodecanoic acid	513.00	> 469.00	3.907	3.909	-0.002	1.000	23341247	199.6	99.8	14495
D 27 d3-NMeFOSAA	573.00	> 419.00	4.061	4.064	-0.003	4156833	47.2	94.4		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.061	4.067	-0.006	1.000	17638254	206.3	103	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.196	4.202	-0.006	1.000	18842939	183.6	95.2	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.221	4.225	-0.004	3437412	39.4	78.8		
D 30 13C2 PFUnA	565.00	> 520.00	4.221	4.226	-0.005	4611652	38.5	77.0	9620	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.221	4.226	-0.005	1.000	18549751	188.8	94.4	14182
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.230	4.233	-0.003	1.002	13681734	210.8	105	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.358	4.364	-0.006	4286058	48.4	96.8		
35 MeFOSA	512.00	> 169.00	4.367	4.370	-0.003	1.000	16935326	205.1	103	
37 Perfluorododecanoic acid	613.00	> 569.00	4.507	4.509	-0.002	1.000	19864028	186.5	93.2	5672
D 36 13C2 PFDaA	615.00	> 570.00	4.507	4.509	-0.002		5569779	44.7	89.5	6026
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.537	4.540	-0.003		3912999	47.3	94.6	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.547	4.550	-0.003	1.000	16090825	205.5	103	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.754	4.762	-0.008	1.000	19892555	178.6	89.3	7939
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.987	4.988	-0.001	1.000	39382531	170.6	85.3	14980
	713.00	> 169.00	4.981	4.988	-0.007	0.999	6616037	5.95(0.00-0.00)	85.3	8281
D 43 13C2-PFTeDA	715.00	> 670.00	4.987	4.988	-0.001		10970549	42.7	85.3	12199
D 44 13C2-PFHxDA	815.00	> 770.00	5.386	5.391	-0.005		6077148	44.4	88.8	5202
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.393	5.395	-0.002	1.000	20012102	191.1	95.6	5408
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.744	5.745	-0.001	1.000	18725750	189.9	95.0	12102

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L7_00003

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_009.d

Injection Date: 06-Jun-2017 14:18:07

Instrument ID: A8_N

Lims ID: IC L7 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

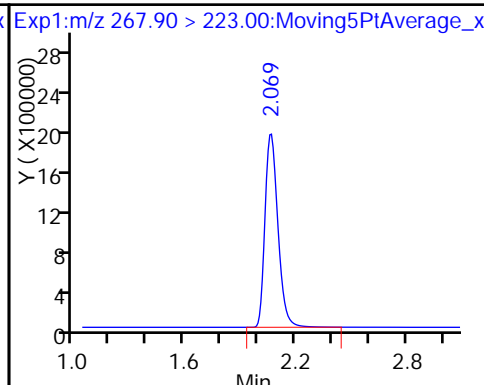
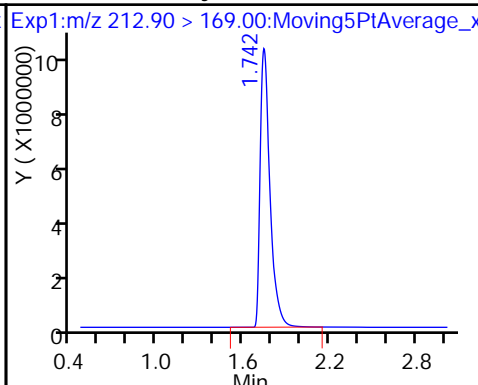
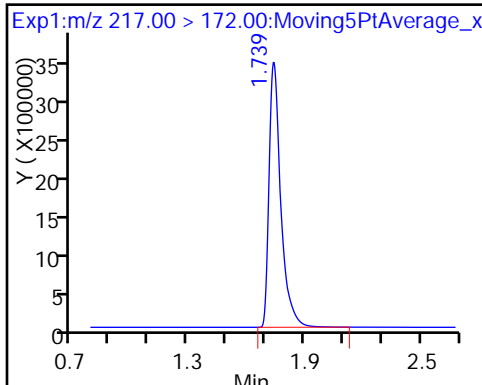
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

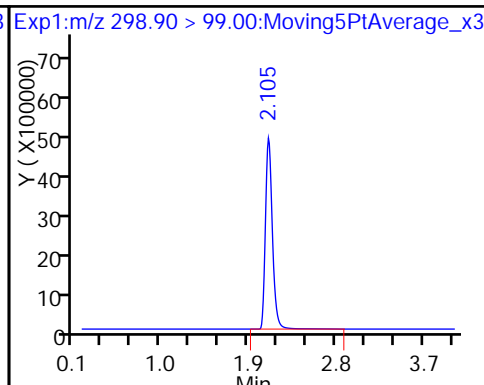
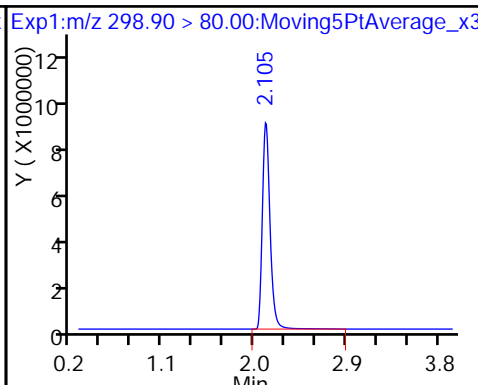
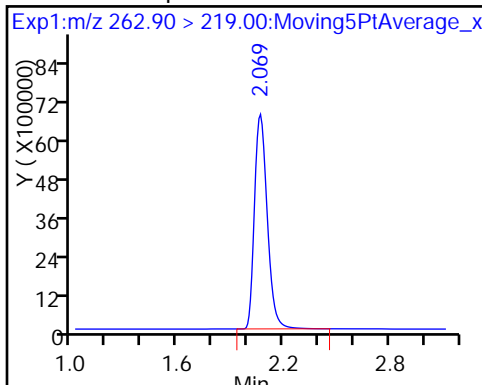
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

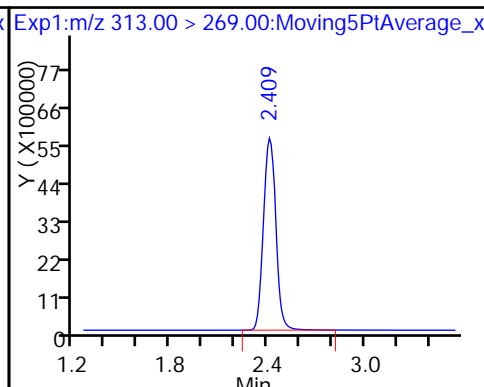
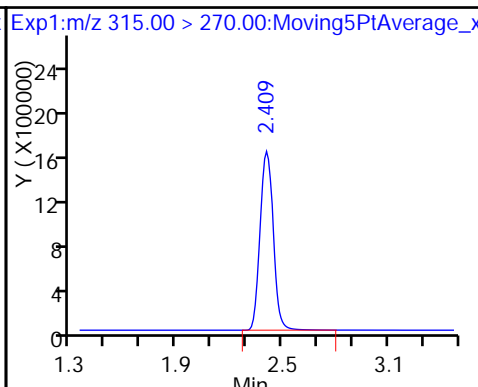
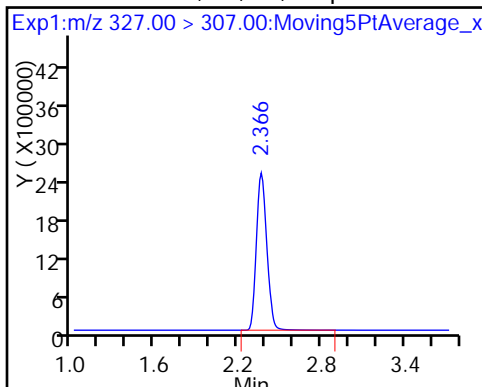
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

D 7 13C2 PFHxA

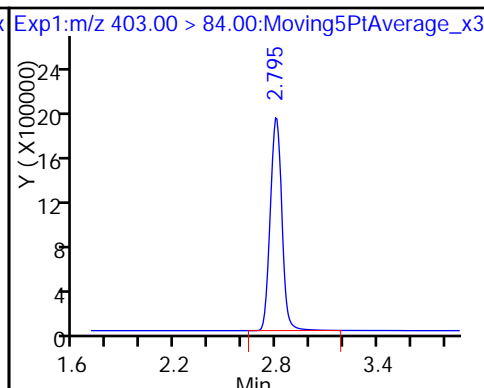
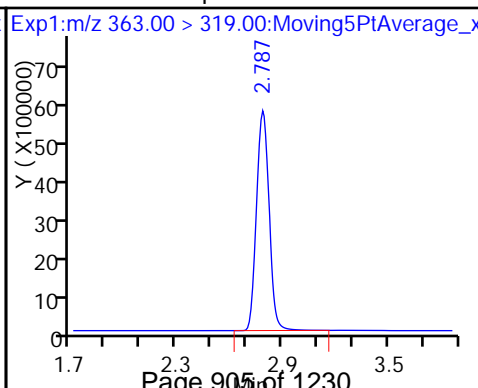
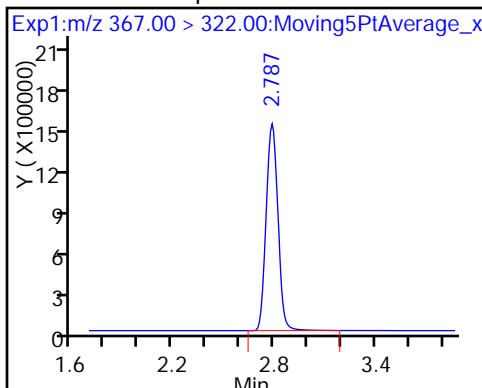
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

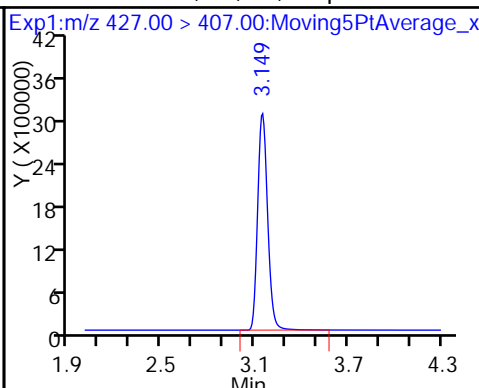
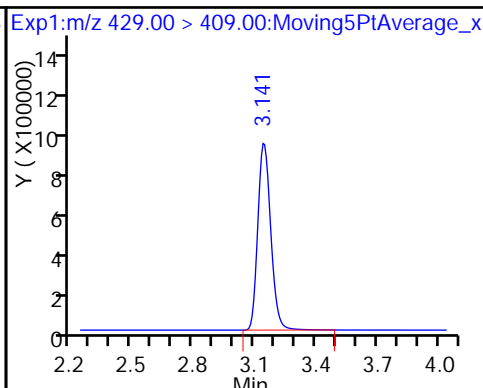
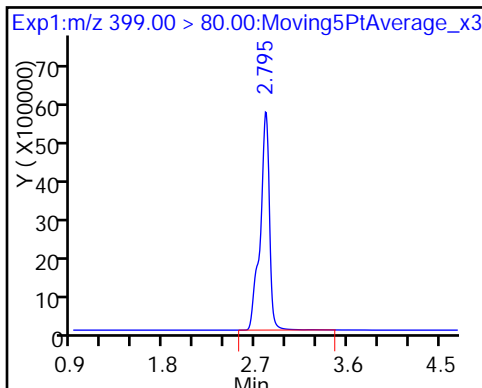
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

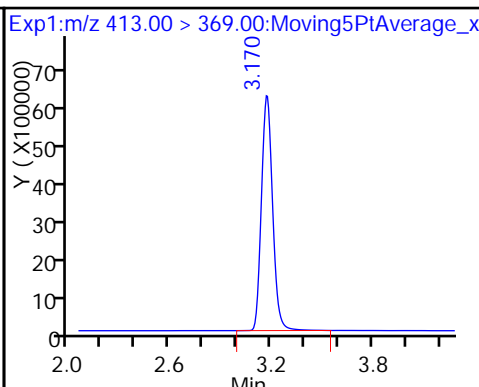
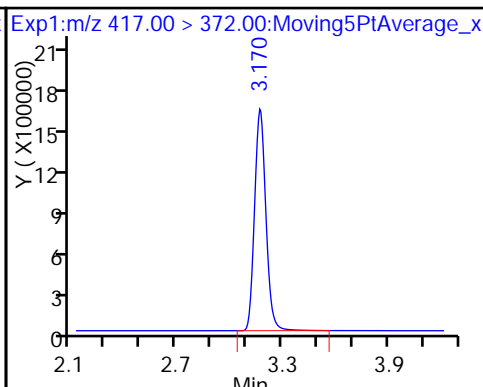
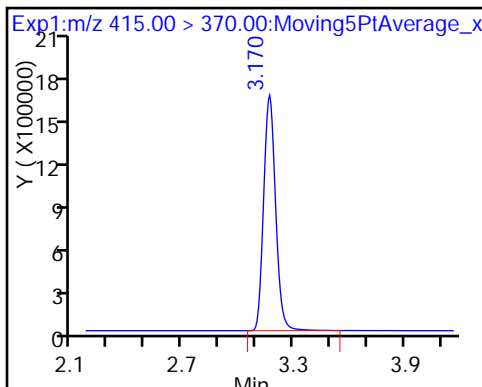
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

D 14 13C4 PFOA

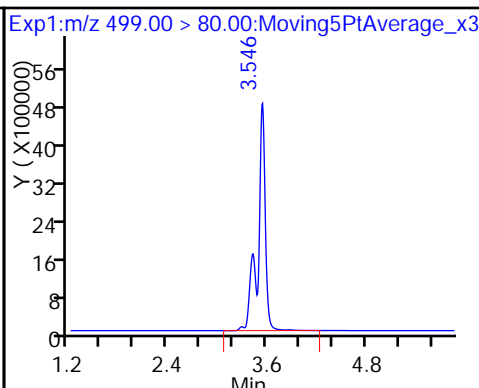
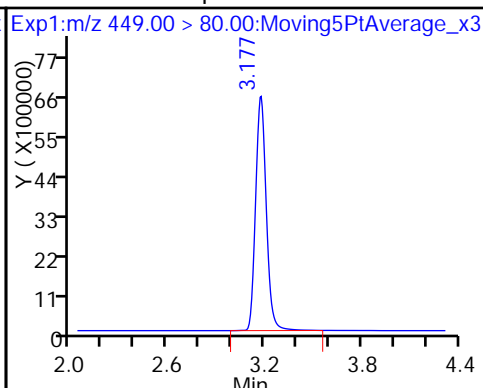
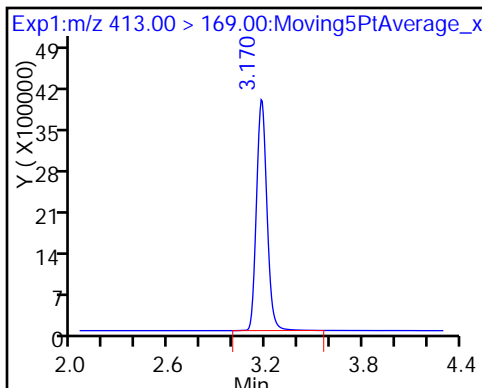
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

16 Perfluoroheptanesulfonic Acid

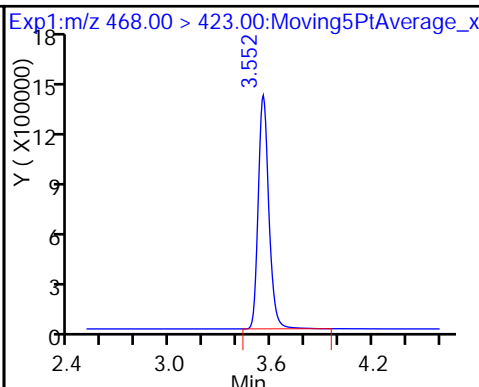
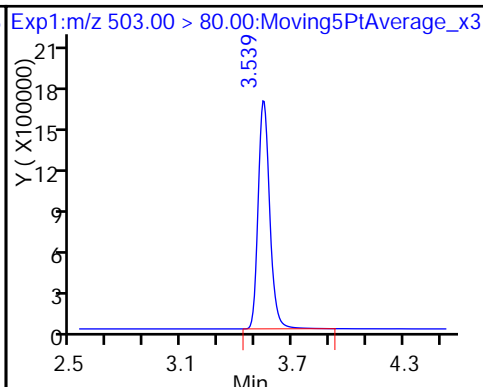
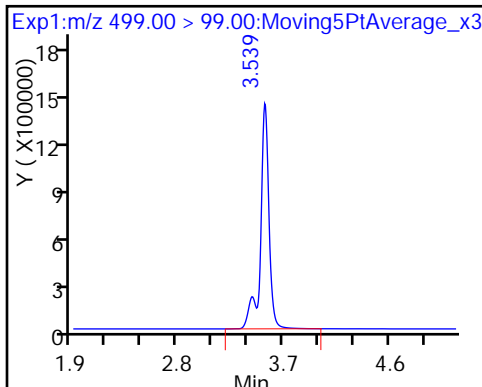
17 Perfluorooctane sulfonic acid

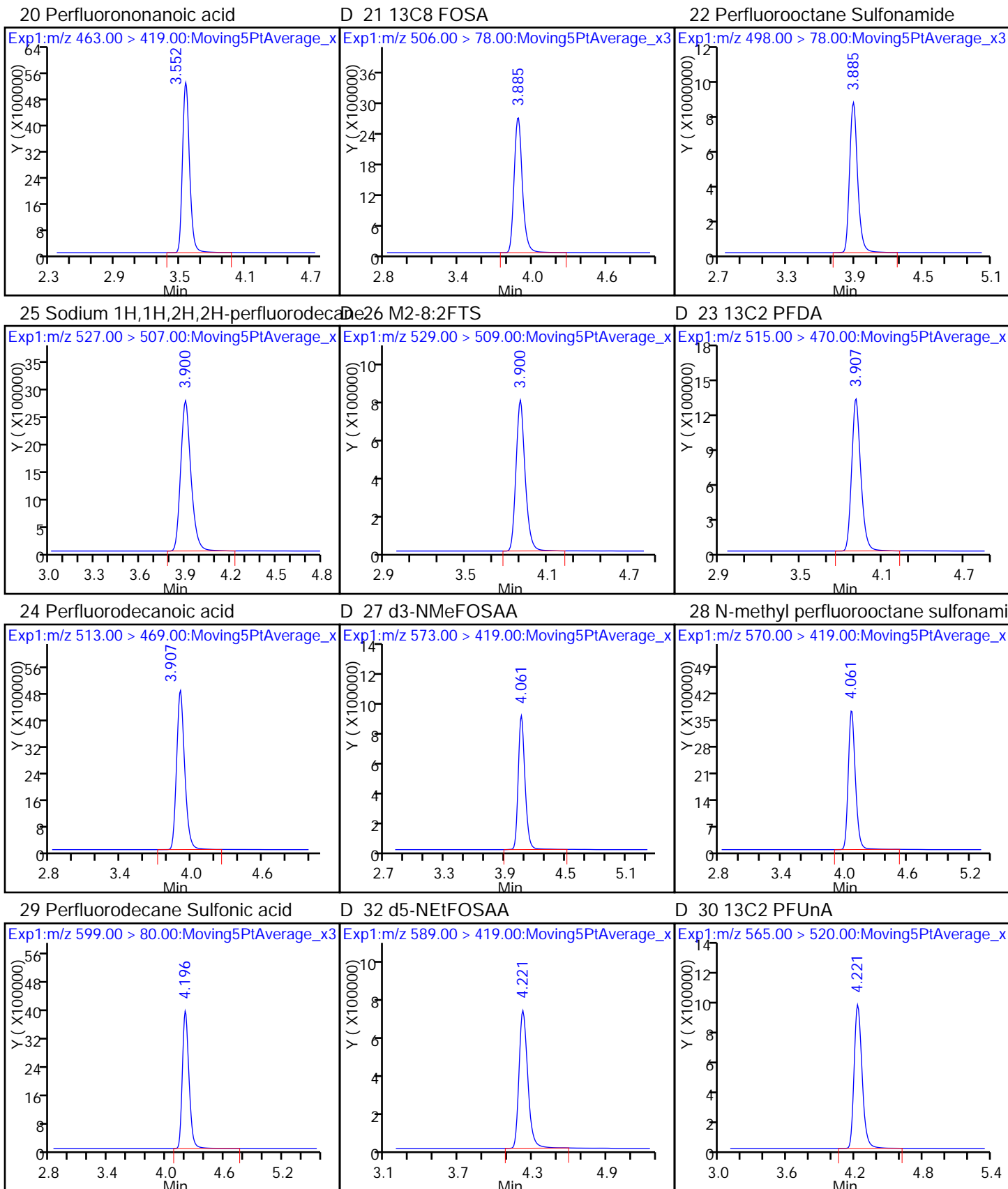


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

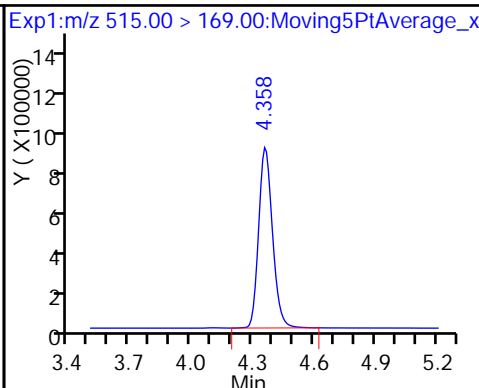
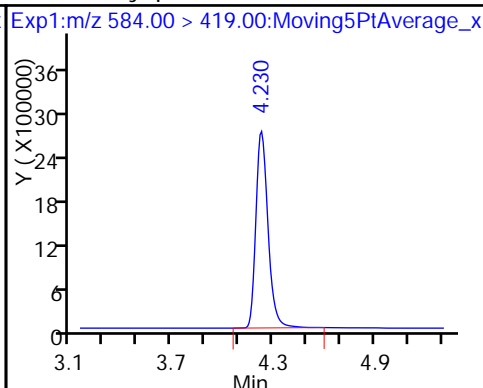
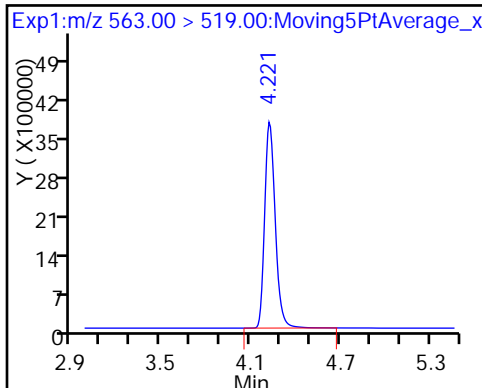




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

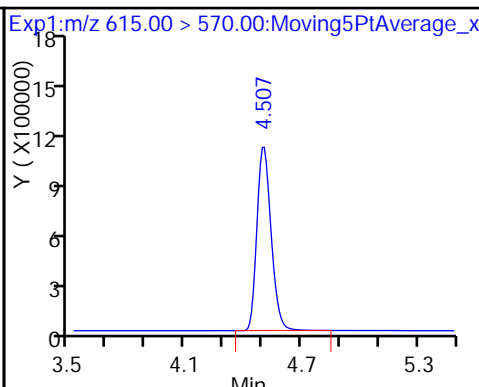
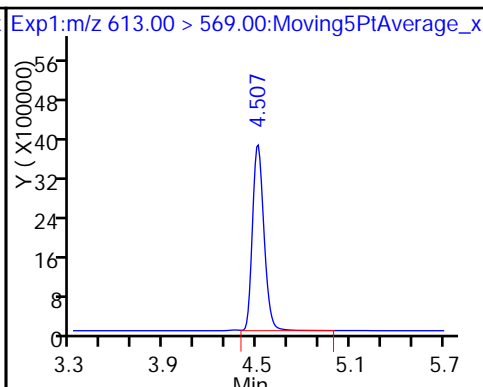
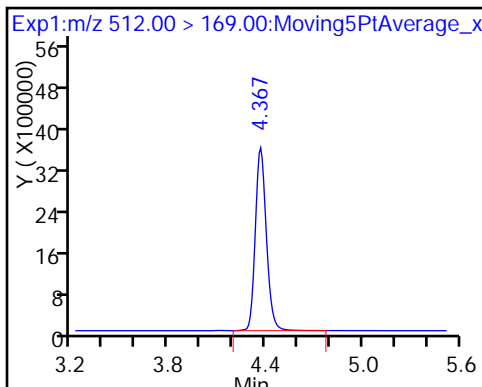
34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

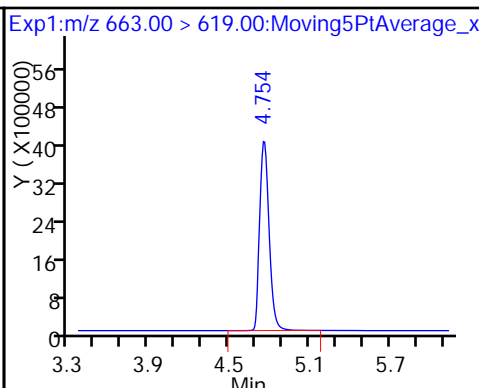
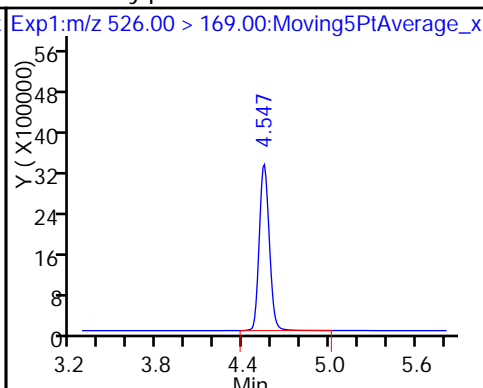
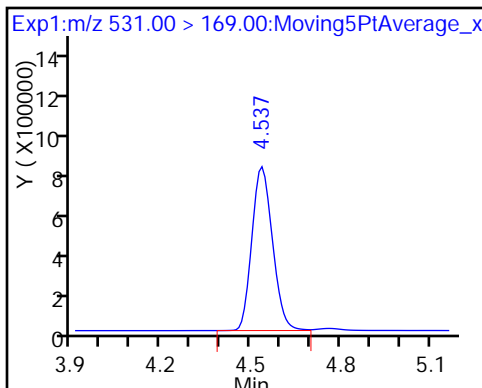
D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

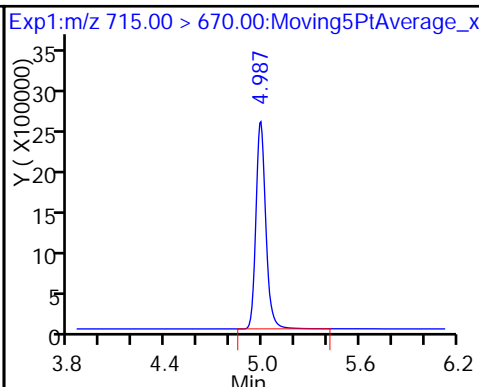
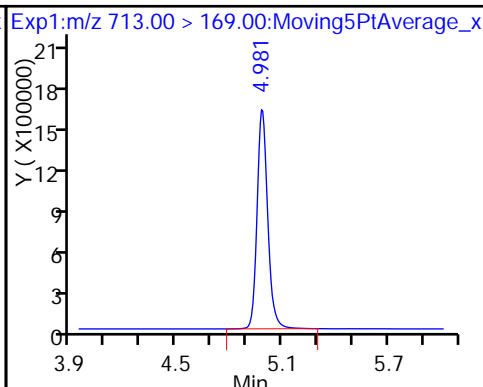
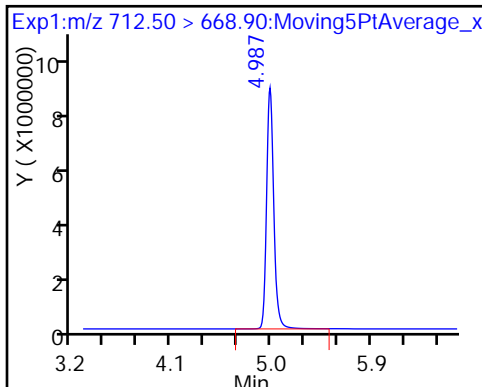
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

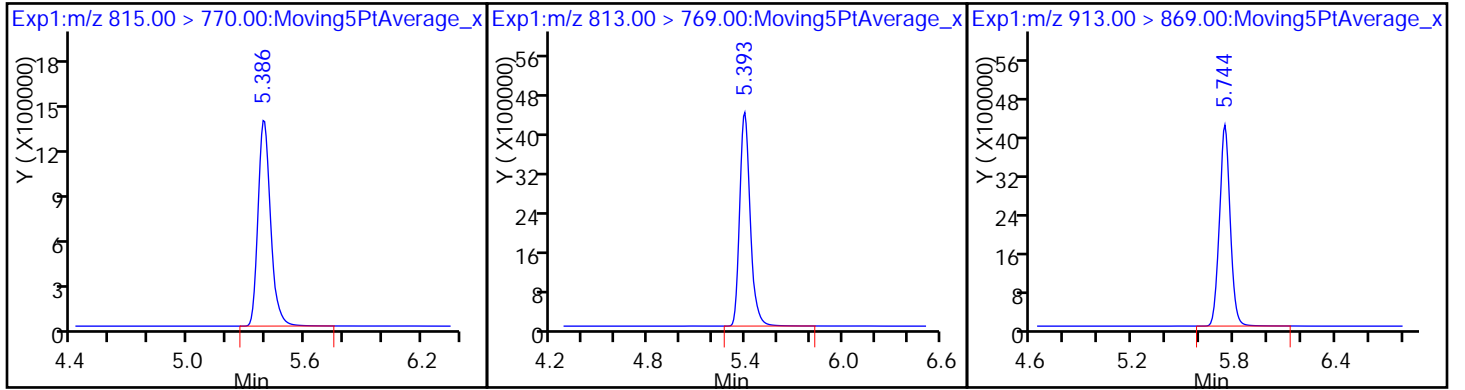
D 43 13C2-PFTeDa



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Lims ID: IC M2-4:2FTS
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 06-Jun-2017 14:25:49 ALS Bottle#: 37 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: M2:4-2FTS Calibration Std
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub19
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 08:20:30 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK033

First Level Reviewer: chandrasenas Date: 06-Jun-2017 16:47:09

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 60 M2-4:2FTS
 329.00 > 309.00 2.372 2.372 0.0 3924126 NC
 * 62 13C2-PFOA
 415.00 > 370.00 3.177 3.174 0.003 9827231 50.0

QC Flag Legend

Processing Flags
 NC - Not Calibrated

Reagents:

LCM2-4:2FTSIC_00002 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Injection Date: 06-Jun-2017 14:25:49

Instrument ID: A8_N

Lims ID: IC M2-4:2FTS

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 9

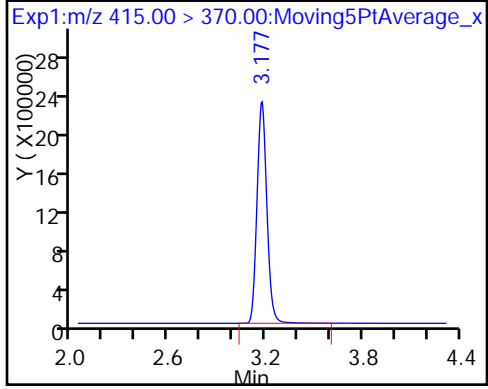
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL

* 62 13C2-PFOA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: ICV 320-165422/12 Calibration Date: 05/19/2017 22:04
 Instrument ID: A8_N Calib Start Date: 05/19/2017 20:56
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/19/2017 21:41
 Lab File ID: 2017.05.19_CURVE_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9931	0.8884		44.3	49.5	-10.5	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.090	1.021		46.4	49.5	-6.3	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.529	1.463		41.9	43.8	-4.3	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	0.9517		45.7	49.5	-7.6	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.090	0.9878		44.9	49.5	-9.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.223	1.012		38.7	46.8	-17.3	25.0
6:2FTS	AveID	0.9850	0.998		47.5	46.9	1.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.308	1.153		41.5	47.1	-11.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.134	1.008		44.0	49.5	-11.1	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.153	0.9090		37.3	47.3	-21.2	25.0
Perfluorononanoic acid (PFNA)	AveID	1.086	0.9895		45.1	49.5	-8.9	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.071	0.9578		44.3	49.5	-10.6	25.0
8:2FTS	AveID	0.998	1.022		48.6	47.4	2.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.013	0.9113		44.5	49.5	-10.0	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.020	1.008		48.9	49.5	-1.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6668	0.5568		39.9	47.8	-16.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.168	0.9491		40.2	49.5	-18.7	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9550	0.9612		49.8	49.5	0.7	25.0
MeFOSA	AveID	0.9726	0.9824		50.0	49.5	1.0	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.019	0.9172		44.6	49.5	-10.0	25.0
N-EtFOSA-M	AveID	1.013	1.041		50.8	49.5	2.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9859	0.8634		43.4	49.5	-12.4	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	2.219	1.846		41.2	49.5	-16.8	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.8630		41.0	49.5	-17.3	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L1ID		0.0225		14.3	49.5	-71.1*	25.0
13C4 PFBA	Ave	373885	370114		49.0	49.5	-1.0	50.0
13C5-PFPeA	Ave	249575	246956		49.0	49.5	-1.0	50.0
13C2 PFHxA	Ave	251055	251110		49.5	49.5	0.0	50.0
13C4-PFHpA	Ave	222787	219489		48.8	49.5	-1.5	50.0
18O2 PFHxS	Ave	315166	311279		46.3	46.8	-1.2	50.0
M2-6:2FTS	Ave	121803	115224		44.5	47.0	-5.4	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: ICV 320-165422/12 Calibration Date: 05/19/2017 22:04
 Instrument ID: A8_N Calib Start Date: 05/19/2017 20:56
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/19/2017 21:41
 Lab File ID: 2017.05.19_CURVE_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	226220	224620		49.2	49.5	-0.7	50.0
13C4 PFOS	Ave	237248	239686		47.8	47.3	1.0	50.0
13C5 PFNA	Ave	183502	177564		47.9	49.5	-3.2	50.0
13C8 FOSA	Ave	369289	358038		48.0	49.5	-3.0	50.0
13C2 PFDA	Ave	157402	154096		48.5	49.5	-2.1	50.0
M2-8:2FTS	Ave	102155	97797		45.4	47.4	-4.3	50.0
d3-NMeFOSAA	Ave	70740	70538		49.4	49.5	-0.3	50.0
13C2 PFUnA	Ave	115660	110051		47.1	49.5	-4.8	50.0
d5-NEtFOSAA	Ave	69621	66166		47.0	49.5	-5.0	50.0
d-N-MeFOSA-M	Ave	104455	100073		47.4	49.5	-4.2	50.0
13C2 PFDoA	Ave	116816	113722		48.2	49.5	-2.6	50.0
d-N-EtFOSA-M	Ave	99421	95326		47.5	49.5	-4.1	50.0
13C2-PFTeDA	Ave	229118	210003		45.4	49.5	-8.3	50.0
13C2-PFHxDA	Ave	128029	112351		43.4	49.5	-12.2	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_012.d
 Lims ID: ICV Full
 Client ID:
 Sample Type: ICV
 Inject. Date: 19-May-2017 22:04:22 ALS Bottle#: 36 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist:
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 10:52:55 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.994	1.996	-0.002	18322456	49.0		99.0	131918	
2 Perfluorobutyric acid	212.90 > 169.00	1.994	1.999	-0.005	16276847	44.3			5058	
D 3 13C5-PFPeA	267.90 > 223.00	2.339	2.348	-0.009	12225569	49.0		99.0	211255	
4 Perfluoropentanoic acid	262.90 > 219.00	2.339	2.350	-0.011	12487017	46.4			3579	
D 47 13C3-PFBS	301.90 > 83.00	2.379	2.386	-0.007	314820	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.389	2.391	-0.002	19955751	41.9				
	298.90 > 99.00	2.379	2.391	-0.012	8131418		2.45(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.672	2.677	-0.005	4425806	47.9				
6 Perfluorohexanoic acid	313.00 > 269.00	2.720	2.724	-0.004	11830136	45.7			27210	
D 7 13C2 PFHxA	315.00 > 270.00	2.720	2.724	-0.004	12431202	49.5		100	44011	
D 9 13C4-PFHpA	367.00 > 322.00	3.108	3.118	-0.010	10865792	48.8		98.5	73817	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.116	3.118	-0.002	10733471	44.9			3971	
D 11 18O2 PFHxS	403.00 > 84.00	3.116	3.126	-0.010	14577730	46.3		98.8	41301	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.116	3.126	-0.010	14735346	38.7				
D 12 M2-6:2FTS	429.00 > 409.00	3.480	3.488	-0.008	5418940	44.5		94.6		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.480	3.488	-0.008	1.000	5395366	47.5		
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.502	3.506	-0.004	1.000	13024420	41.5		
* 62 13C2-PFOA	415.00	> 370.00	3.502	3.507	-0.005		10432948	49.5		
D 14 13C4 PFOA	417.00	> 372.00	3.502	3.510	-0.008		11119820	49.2	99.3	45313
15 Perfluorooctanoic acid	413.00	> 369.00	3.502	3.513	-0.011	1.000	11211900	44.0		1049
	413.00	> 169.00	3.502	3.513	-0.011	1.000	6398847		1.75(0.90-1.10)	14157
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.869	3.860	0.009	1.000	10300916	37.3		12691
	499.00	> 99.00	3.869	3.860	0.009	1.000	2461927		4.18(0.90-1.10)	8725
D 18 13C4 PFOS	503.00	> 80.00	3.869	3.874	-0.005		11343578	47.8	101	20636
D 19 13C5 PFNA	468.00	> 423.00	3.887	3.887	0.0		8790297	47.9	96.8	26364
20 Perfluorononanoic acid	463.00	> 419.00	3.887	3.887	0.0	1.000	8697918	45.1		8826
D 21 13C8 FOSA	506.00	> 78.00	4.201	4.210	-0.009		17724674	48.0	97.0	21913
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.201	4.212	-0.011	1.000	16975956	44.3		40832
D 26 M2-8:2FTS	529.00	> 509.00	4.228	4.228	0.0		4638093	45.4	95.7	
D 23 13C2 PFDA	515.00	> 470.00	4.228	4.229	-0.001		7628491	48.5	97.9	14621
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.228	4.229	-0.001	1.000	4740354	48.6		
24 Perfluorodecanoic acid	513.00	> 469.00	4.228	4.231	-0.003	1.000	6951491	44.5		7050
D 27 d3-NMeFOSAA	573.00	> 419.00	4.380	4.382	-0.002		3491993	49.4	99.7	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.380	4.387	-0.007	1.000	3519942	48.9		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.504	4.509	-0.005	1.000	6375290	39.9		
D 30 13C2 PFUnA	565.00	> 520.00	4.533	4.536	-0.003		5448071	47.1	95.2	12543
31 Perfluoroundecanoic acid	563.00	> 519.00	4.533	4.536	-0.003	1.000	5170816	40.2		9761
D 32 d5-NEtFOSAA	589.00	> 419.00	4.533	4.538	-0.005		3275569	47.0	95.0	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.542	4.544	-0.002	1.002	3148415	49.8		
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.664	4.671	-0.007		4954107	47.4	95.8	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.664	4.673	-0.009	1.000	4867091	50.0			
D 36 13C2 PFDaA	615.00 > 570.00	4.804	4.808	-0.004		5629799	48.2	97.4	9379	
37 Perfluorododecanoic acid	613.00 > 569.00	4.804	4.808	-0.004	1.000	5163707	44.6		544	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.829	4.837	-0.008		4719104	47.5	95.9		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.837	4.843	-0.006	1.000	4910988	50.8			
41 Perfluorotridecanoic acid	663.00 > 619.00	5.049	5.054	-0.006	1.000	4860785	43.4		290	
D 43 13C2-PFTeDA	715.00 > 670.00	5.278	5.274	0.004		10396211	45.4	91.7	7991	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.278	5.274	0.004	1.000	10394097	41.2		132	
	713.00 > 169.00	5.266	5.274	-0.008	0.998	1351056		7.69(0.00-0.00)	3316	
D 44 13C2-PFHxDA	815.00 > 770.00	5.671	5.670	0.001		5561924	43.4	87.8	2964	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.671	5.671	0.0	1.000	4858419	41.0		261	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.995	5.997	-0.002	1.000	126778	14.3		9.4	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFCIC_FULL_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_012.d

Injection Date: 19-May-2017 22:04:22

Instrument ID: A8_N

Lims ID: ICV Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

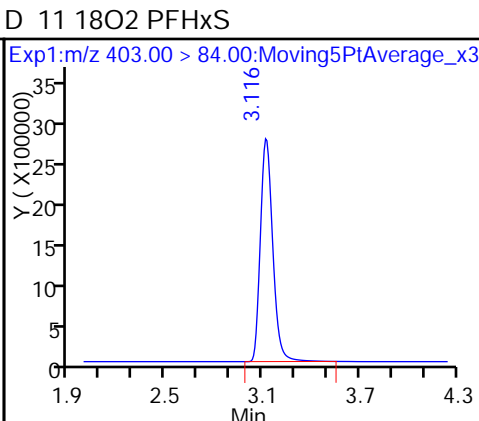
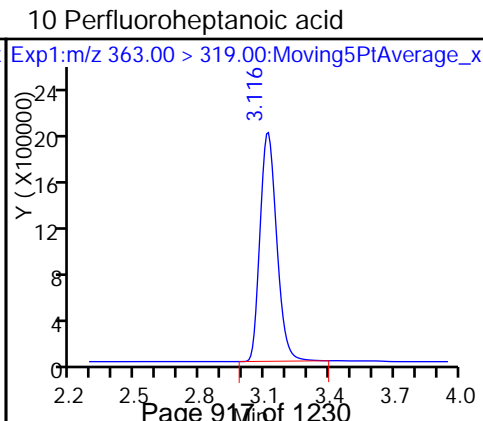
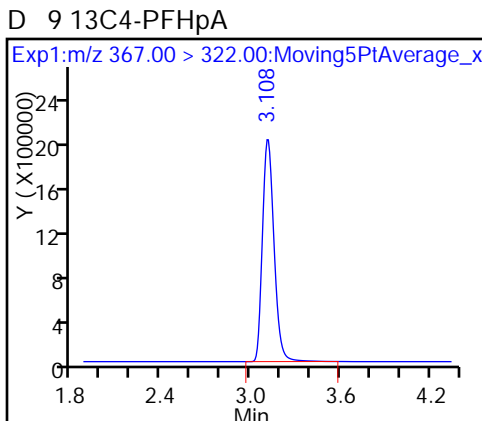
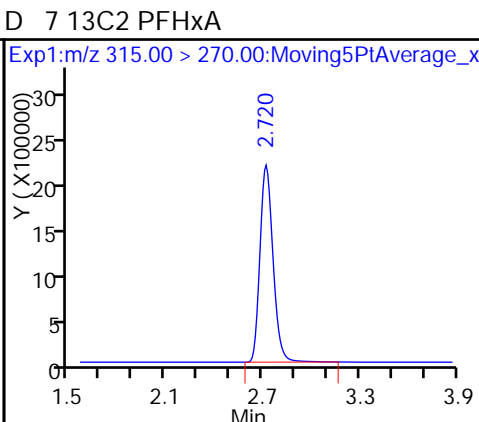
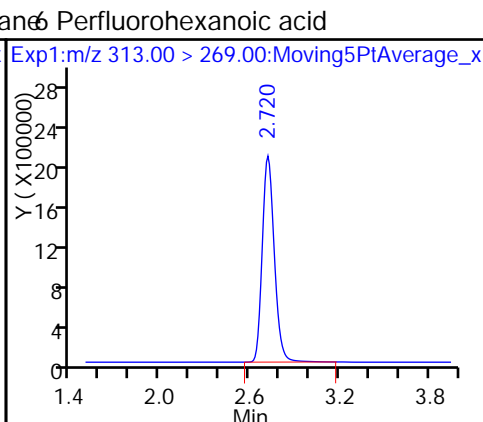
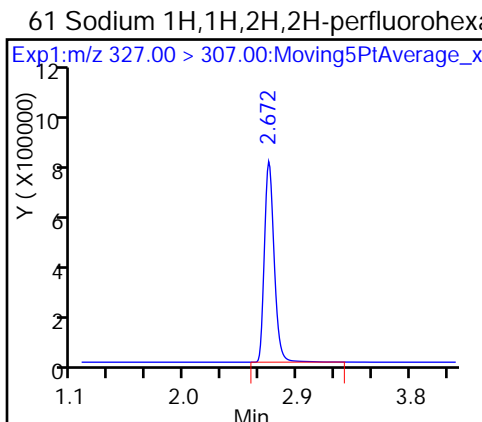
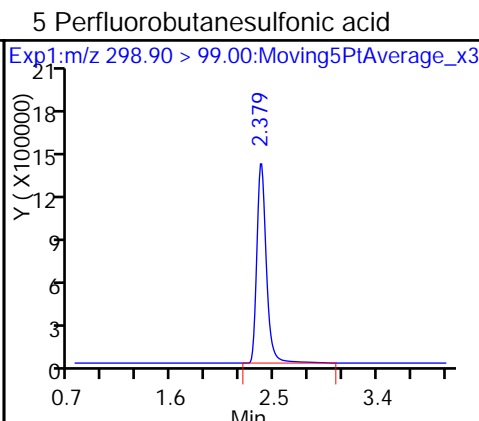
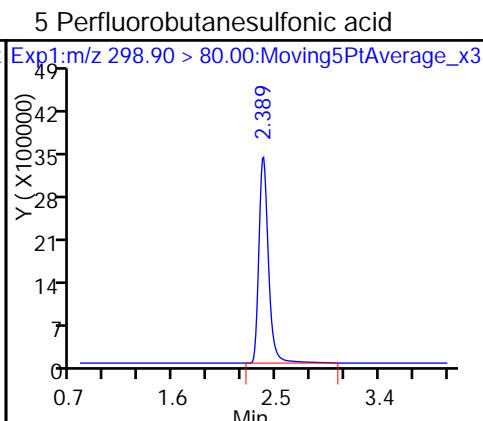
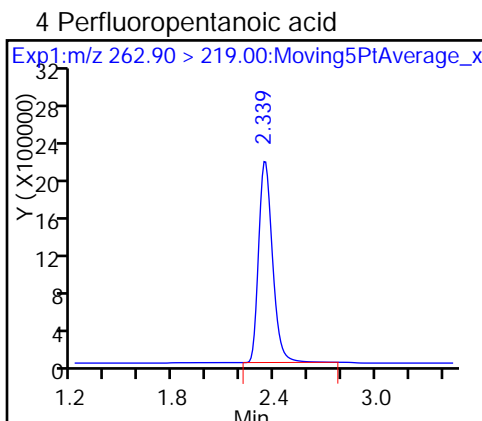
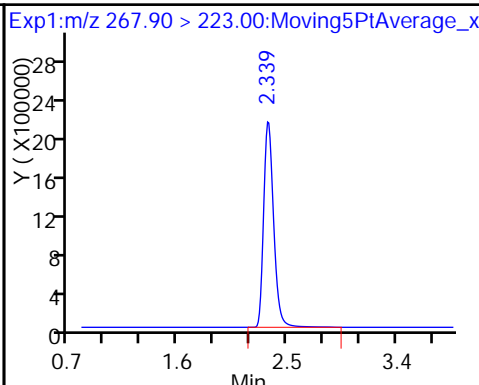
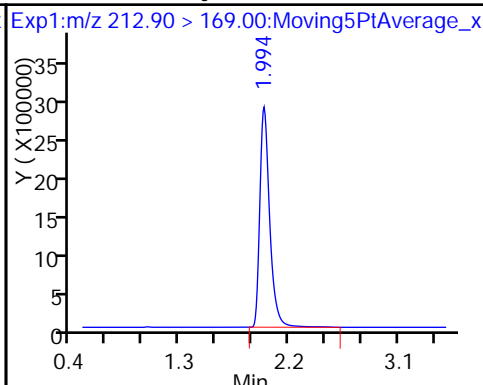
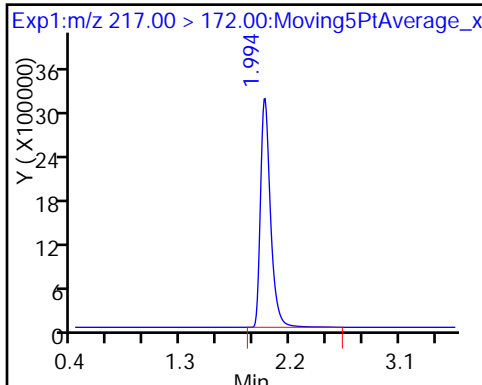
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

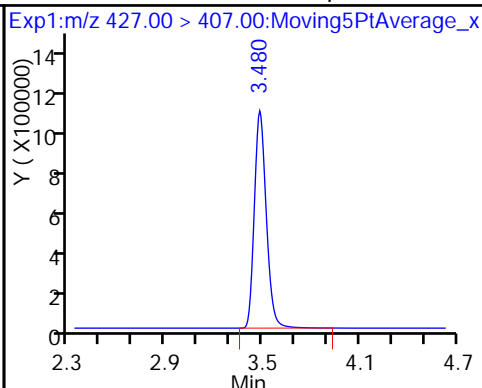
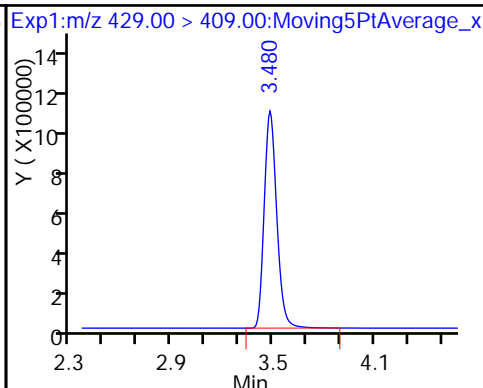
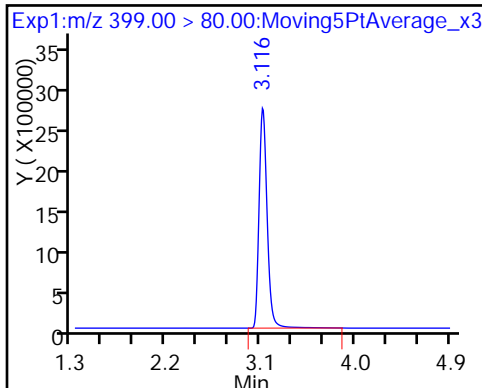
D 3 13C5-PFPeA



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

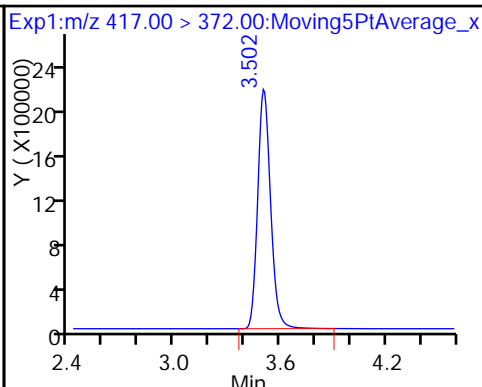
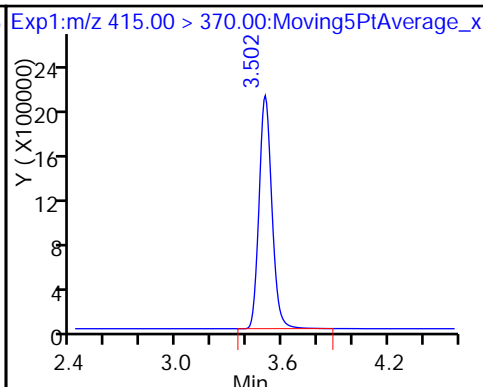
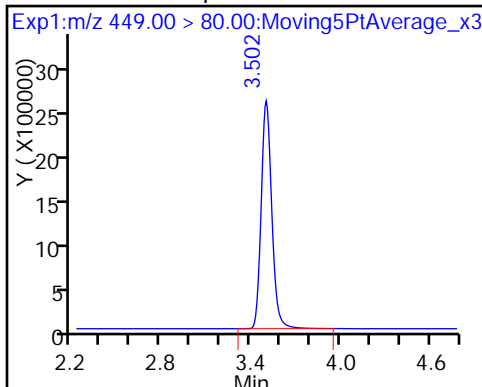
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

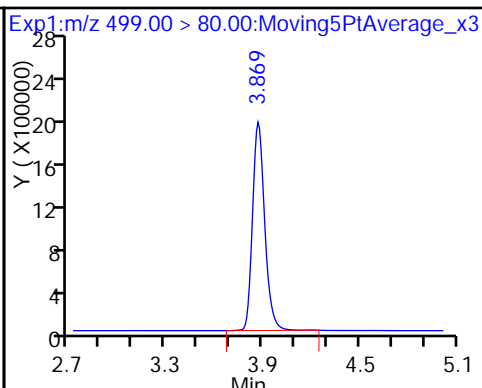
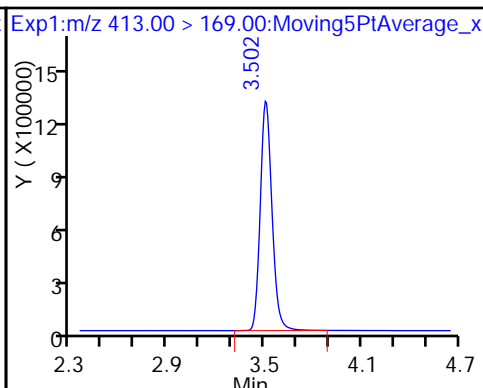
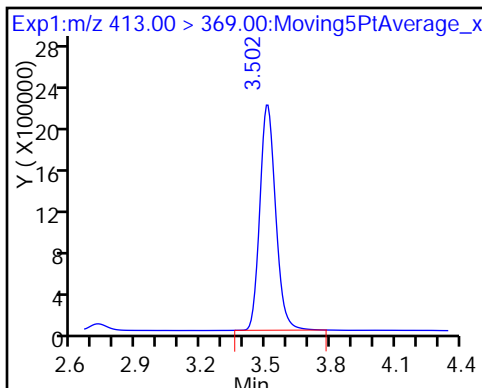
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

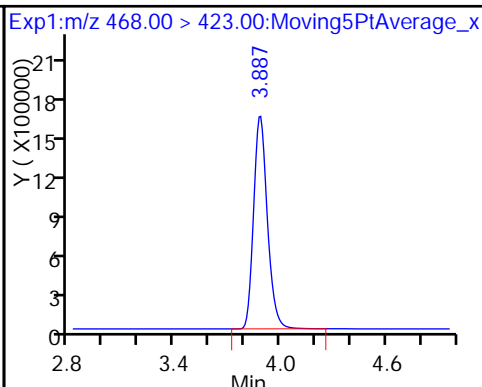
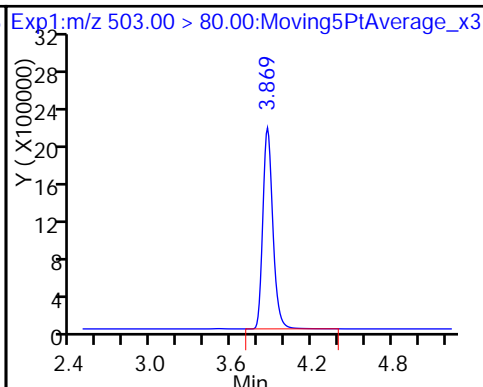
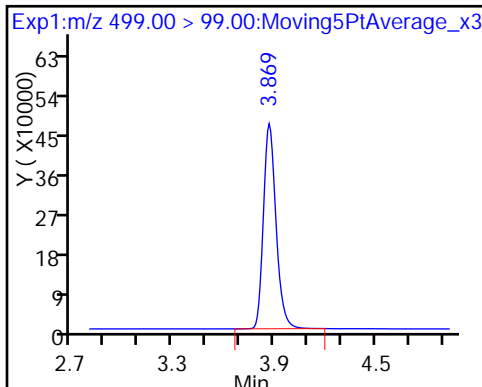
17 Perfluorooctane sulfonic acid

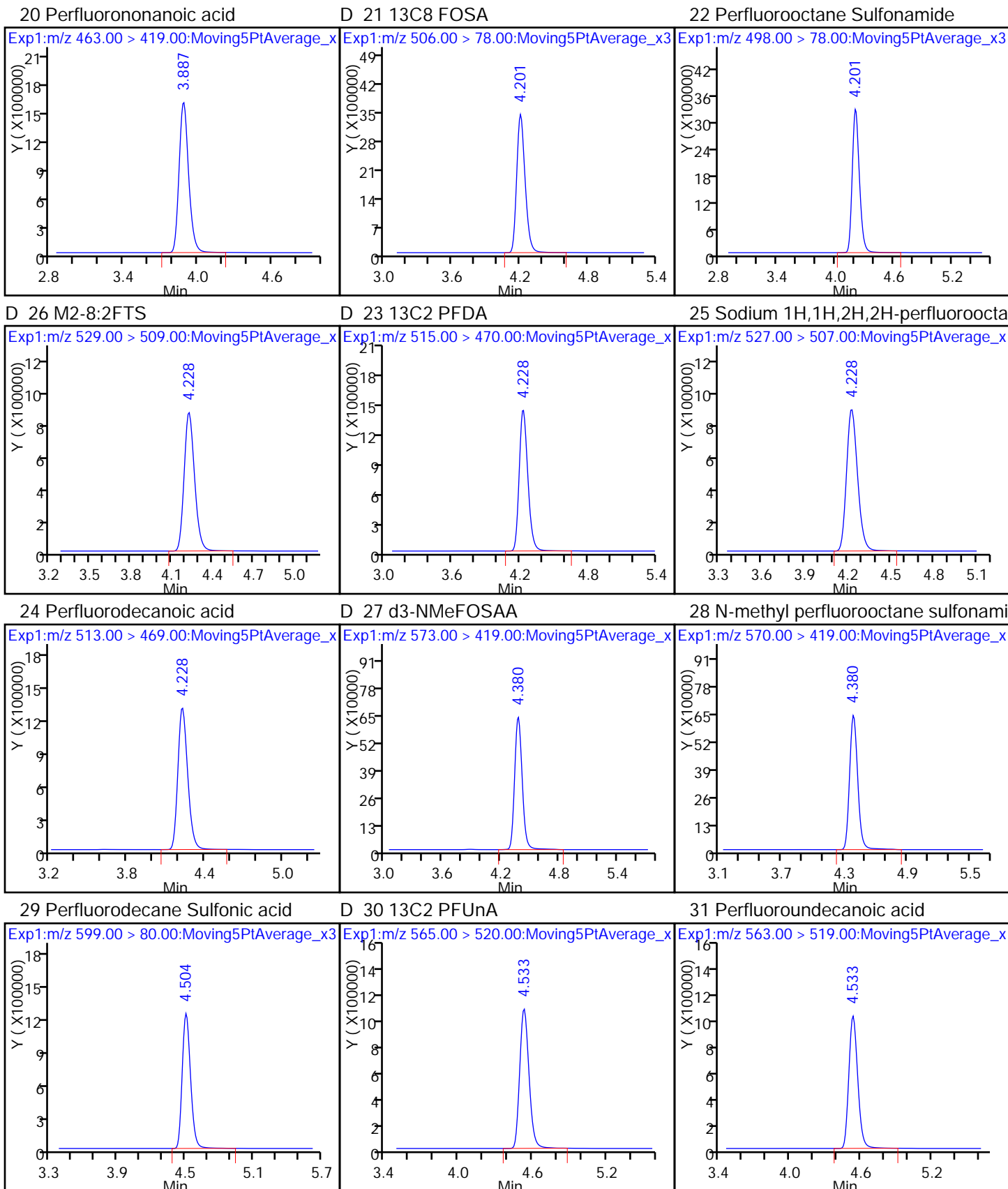


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

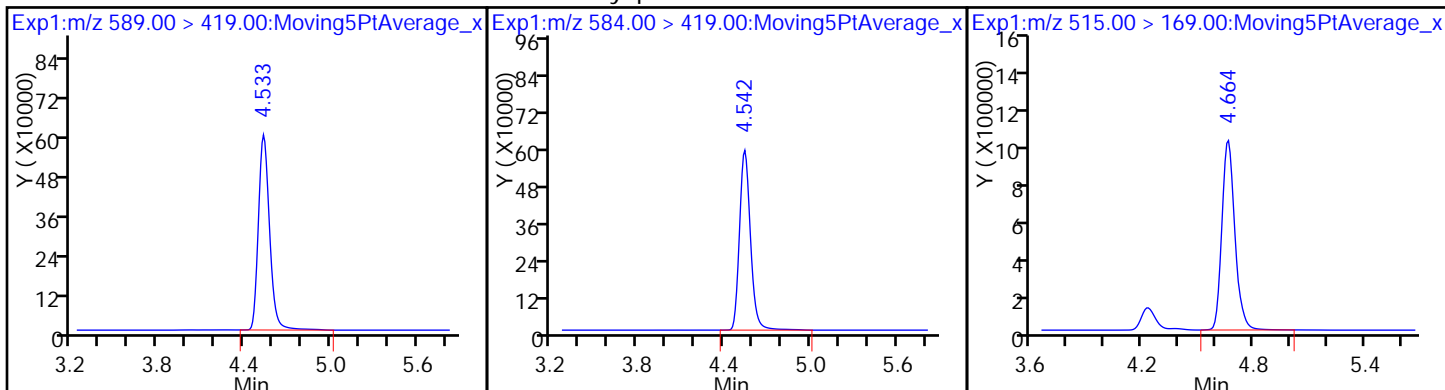
D 19 13C5 PFNA





D 32 d5-NEtFOSAA

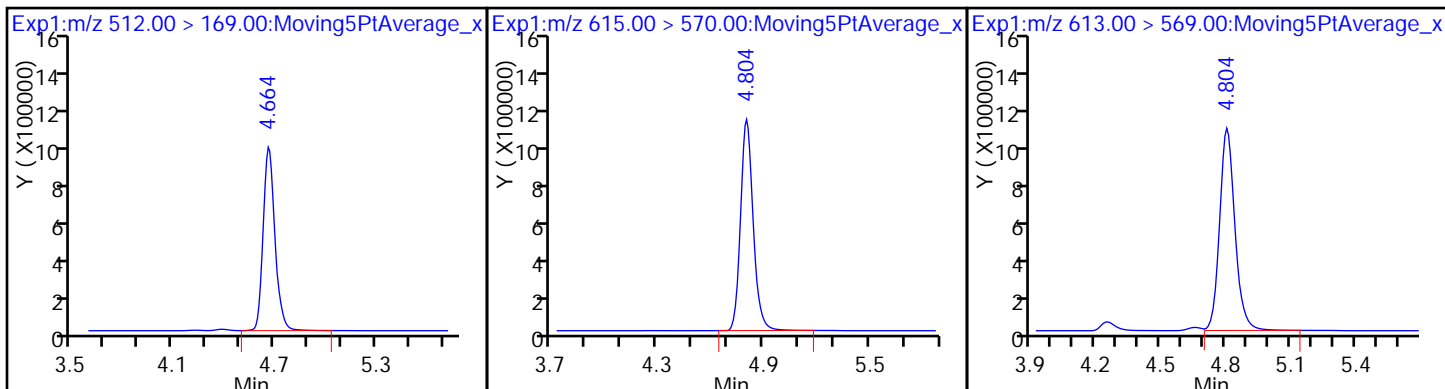
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

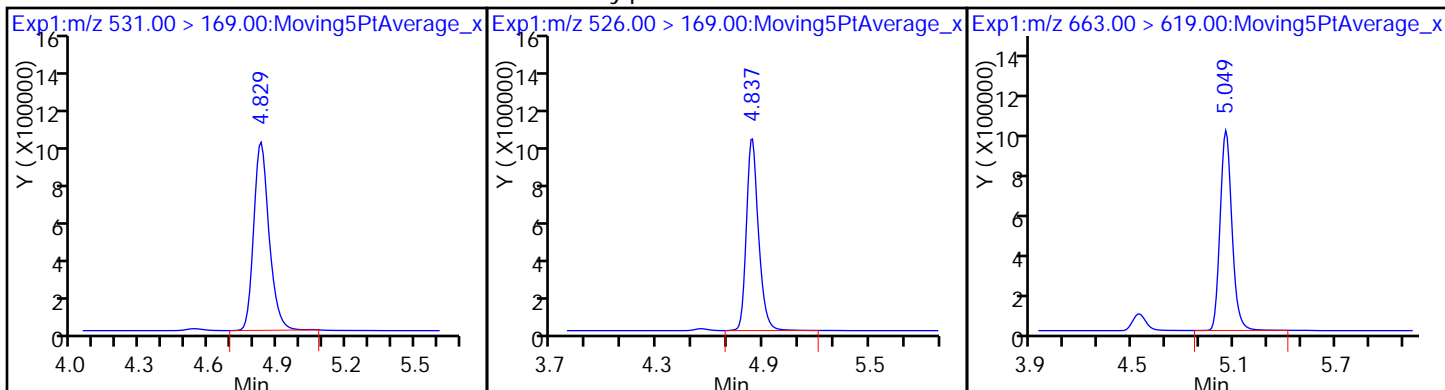
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

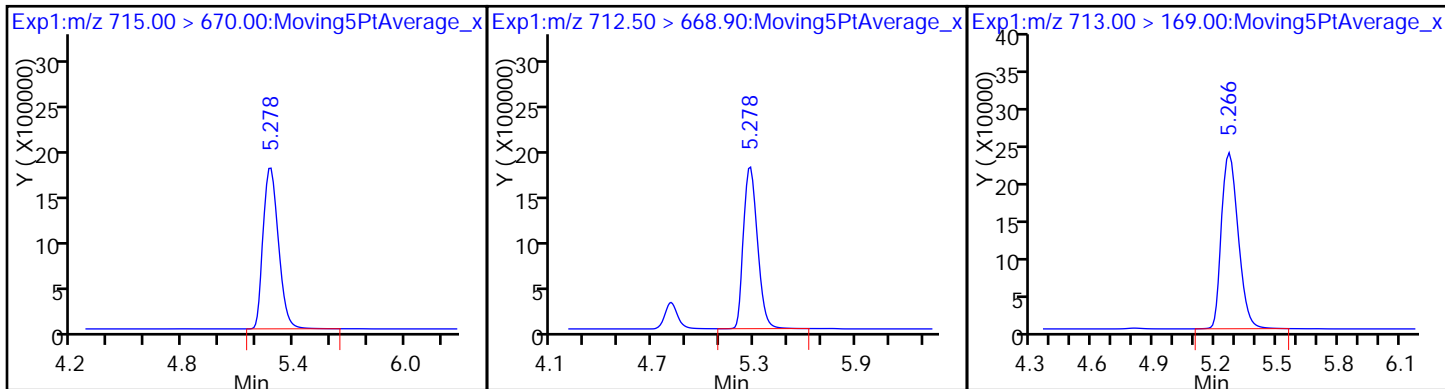
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

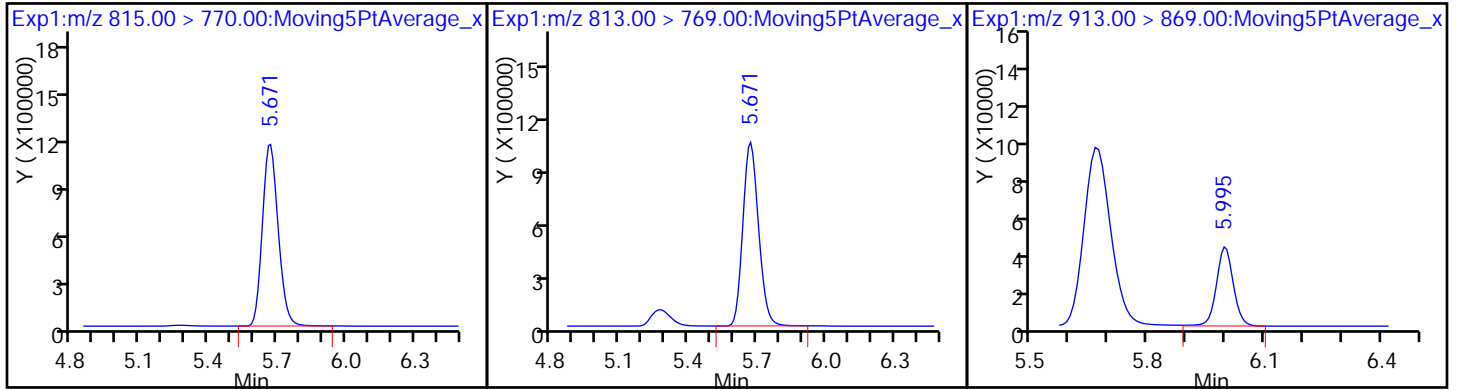
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-165487/1 Calibration Date: 05/20/2017 05:42
 Instrument ID: A8_N Calib Start Date: 05/19/2017 20:56
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/19/2017 21:41
 Lab File ID: 2017.05.19B_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9931	1.079		21.5	19.8	8.7	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.090	1.112		20.2	19.8	2.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.529	1.734		19.8	17.5	13.4	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.041		20.0	19.8	1.1	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.090	1.120		20.4	19.8	2.8	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.223	1.188		17.5	18.0	-2.9	25.0
6:2FTS	AveID	0.9850	0.9814		18.7	18.8	-0.4	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.308	1.378		19.9	18.9	5.4	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.134	1.133		19.8	19.8	-0.0	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.153	1.180		18.8	18.4	2.3	25.0
Perfluorononanoic acid (PFNA)	AveID	1.086	1.115		20.3	19.8	2.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.071	1.078		19.9	19.8	0.6	25.0
8:2FTS	AveID	0.998	1.064		20.2	19.0	6.6	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.013	1.072		21.0	19.8	5.8	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.020	1.064		20.7	19.8	4.4	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6668	0.6847		19.6	19.1	2.7	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.168	1.154		19.6	19.8	-1.2	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9550	0.9846		20.4	19.8	3.1	25.0
MeFOSA	AveID	0.9726	0.9720		19.8	19.8	-0.0	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.019	1.026		19.9	19.8	0.7	25.0
N-EtFOSA-M	AveID	1.013	1.016		19.9	19.8	0.3	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9859	1.059		21.3	19.8	7.4	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	2.219	2.334		20.8	19.8	5.2	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.085		20.2	19.8	2.1	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L1ID				0.200	19.8	-100.0*	25.0
13C4 PFBA	Ave	373885	366979		48.6	49.5	-1.8	50.0
13C5-PFPeA	Ave	249575	258533		51.3	49.5	3.6	50.0
13C2 PFHxA	Ave	251055	251839		49.7	49.5	0.3	50.0
13C4-PFHpA	Ave	222787	231289		51.4	49.5	3.8	50.0
18O2 PFHxS	Ave	315166	329510		49.0	46.8	4.6	50.0
M2-6:2FTS	Ave	121803	154679		59.7	47.0	27.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-165487/1 Calibration Date: 05/20/2017 05:42
 Instrument ID: A8_N Calib Start Date: 05/19/2017 20:56
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/19/2017 21:41
 Lab File ID: 2017.05.19B_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	226220	257741		56.4	49.5	13.9	50.0
13C4 PFOS	Ave	237248	247591		49.4	47.3	4.4	50.0
13C5 PFNA	Ave	183502	189984		51.3	49.5	3.5	50.0
13C8 FOSA	Ave	369289	388768		52.1	49.5	5.3	50.0
13C2 PFDA	Ave	157402	158842		50.0	49.5	0.9	50.0
M2-8:2FTS	Ave	102155	106684		49.5	47.4	4.4	50.0
d3-NMeFOSAA	Ave	70740	73887		51.7	49.5	4.4	50.0
13C2 PFUnA	Ave	115660	121281		51.9	49.5	4.9	50.0
d5-NEtFOSAA	Ave	69621	73968		52.6	49.5	6.2	50.0
d-N-MeFOSA-M	Ave	104455	111717		52.9	49.5	7.0	50.0
13C2 PFDoA	Ave	116816	124380		52.7	49.5	6.5	50.0
d-N-EtFOSA-M	Ave	99421	101738		50.7	49.5	2.3	50.0
13C2-PFTEtDA	Ave	229118	246778		53.3	49.5	7.7	50.0
13C2-PFHxDA	Ave	128029	136697		52.9	49.5	6.8	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_001.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 20-May-2017 05:42:09 ALS Bottle#: 31 Worklist Smp#: 1
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L4
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub18
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 12:21:50 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.035	2.059	-0.024	18167273	48.6		98.2	199475	
2 Perfluorobutyric acid	212.90 > 169.00	2.035	2.059	-0.024	1.000	7842443	21.5	109	2413	
D 3 13C5-PFPeA	267.90 > 223.00	2.389	2.419	-0.030	12798643	51.3		104	218468	
4 Perfluoropentanoic acid	262.90 > 219.00	2.389	2.419	-0.030	1.000	5694058	20.2	102	1688	
D 47 13C3-PFBS	301.90 > 83.00	2.429	2.459	-0.030	318806	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.429	2.459	-0.030	1.000	9999407	19.8	113		
	298.90 > 99.00	2.429	2.459	-0.030	1.000	3989106	2.51(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.729	2.762	-0.033	1.000	1912728	15.4	83.5		
D 7 13C2 PFHxA	315.00 > 270.00	2.768	2.801	-0.032	12467273	49.7		100	310908	
6 Perfluorohexanoic acid	313.00 > 269.00	2.768	2.801	-0.032	1.000	5191005	20.0	101	12025	
D 9 13C4-PFHpA	367.00 > 322.00	3.173	3.205	-0.032	11449960	51.4		104	258656	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.173	3.205	-0.032	1.000	5131740	20.4	103	2121	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.173	3.205	-0.032	1.000	7051099	17.5	97.1		
D 11 18O2 PFHxS	403.00 > 84.00	3.173	3.213	-0.040	15431498	49.0		105	409797	
D 12 M2-6:2FTS	429.00 > 409.00	3.542	3.575	-0.033	7274528	59.7		127		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.542	3.575	-0.033	1.000	2849742	18.7	99.6	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.557	3.590	-0.033	1.000	6433765	19.9	105	
* 62 13C2-PFOA	415.00	> 370.00	3.564	3.590	-0.026		12450767	49.5	100	
D 14 13C4 PFOA	417.00	> 372.00	3.564	3.598	-0.034		12759478	56.4	114	58315
15 Perfluorooctanoic acid	413.00	> 369.00	3.564	3.598	-0.034	1.000	5781236	19.8	99.9	546
	413.00	> 169.00	3.564	3.598	-0.034	1.000	3389861		1.71(0.90-1.10)	11641
D 18 13C4 PFOS	503.00	> 80.00	3.926	3.959	-0.033		11717690	49.4	104	45776
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.926	3.959	-0.033	1.000	5368570	18.8	102	9368
	499.00	> 99.00	3.926	3.959	-0.033	1.000	1199199		4.48(0.90-1.10)	6405
D 19 13C5 PFNA	468.00	> 423.00	3.947	3.981	-0.034		9405159	51.3	104	35388
20 Perfluorononanoic acid	463.00	> 419.00	3.947	3.981	-0.034	1.000	4196383	20.3	103	4421
D 21 13C8 FOSA	506.00	> 78.00	4.258	4.294	-0.036		19245932	52.1	105	154124
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.258	4.294	-0.036	1.000	8298012	19.9	101	26228
D 26 M2-8:2FTS	529.00	> 509.00	4.287	4.316	-0.029		5059591	49.5	104	
D 23 13C2 PFDA	515.00	> 470.00	4.287	4.316	-0.029		7863448	50.0	101	8886
24 Perfluorodecanoic acid	513.00	> 469.00	4.287	4.316	-0.029	1.000	3371212	21.0	106	1934
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.287	4.316	-0.029	1.000	2152356	20.2	107	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.432	4.466	-0.034		3657772	51.7	104	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.442	4.476	-0.034	1.002	1557455	20.7	104	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.569	4.596	-0.027	1.000	3235866	19.6	103	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.597	4.624	-0.027		3661802	52.6	106	
D 30 13C2 PFUnA	565.00	> 520.00	4.588	4.624	-0.036		6004011	51.9	105	16862
31 Perfluoroundecanoic acid	563.00	> 519.00	4.588	4.624	-0.036	1.000	2770392	19.6	98.8	7220
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.597	4.633	-0.036	1.000	1442219	20.4	103	
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.715	4.752	-0.037		5530556	52.9	107	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
35 MeFOSA	512.00 > 169.00	4.715	4.752	-0.037	1.000	2150302	19.8	99.9		
D 36 13C2 PFDaA	615.00 > 570.00	4.859	4.897	-0.038		6157411	52.7	106	9579	
37 Perfluorododecanoic acid	613.00 > 569.00	4.859	4.897	-0.038	1.000	2528217	19.9	101	115	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.878	4.908	-0.030		5036517	50.7	102		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.888	4.919	-0.031	1.000	2046576	19.9	100		
41 Perfluorotridecanoic acid	663.00 > 619.00	5.103	5.143	-0.041	1.000	2607873	21.3	107	115	
D 43 13C2-PFTeDA	715.00 > 670.00	5.328	5.360	-0.032		12216746	53.3	108	6516	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.328	5.360	-0.032	1.000	5749483	20.8	105	66.0	
	713.00 > 169.00	5.317	5.360	-0.043	0.998	731994		7.85(0.00-0.00)	2146	
D 44 13C2-PFHxDA	815.00 > 770.00	5.717	5.753	-0.036		6767179	52.9	107	3795	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.727	5.753	-0.026	1.000	2672985	20.2	102	126	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L4_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_001.d

Injection Date: 20-May-2017 05:42:09

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

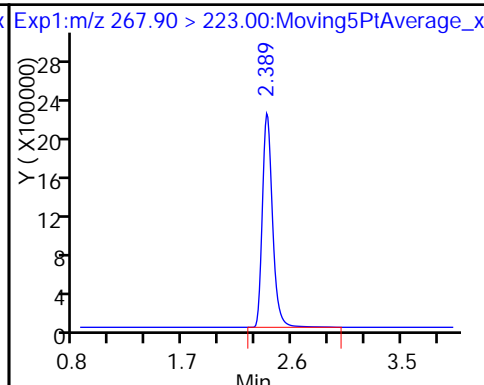
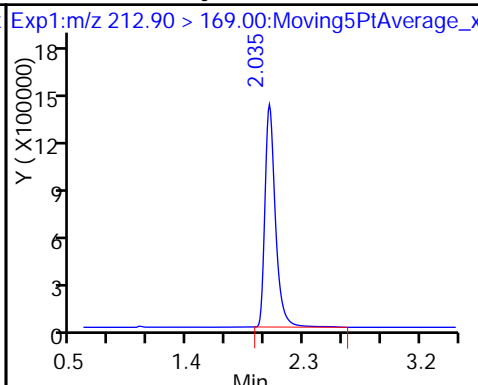
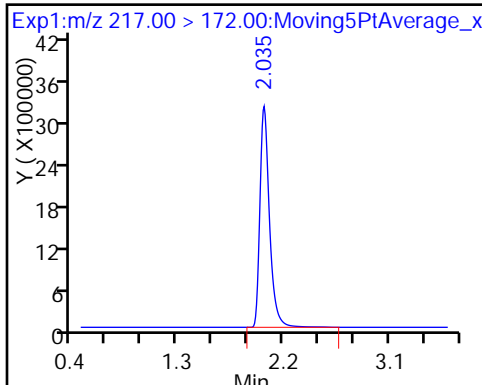
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

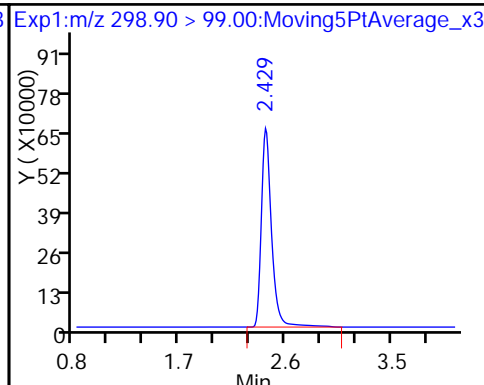
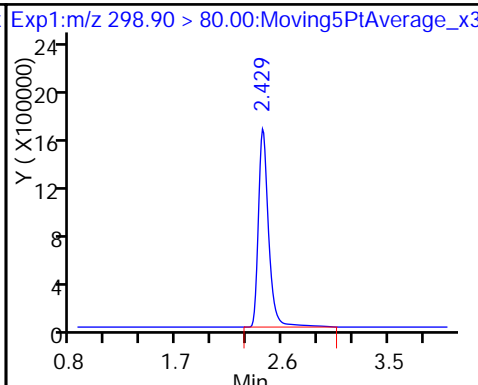
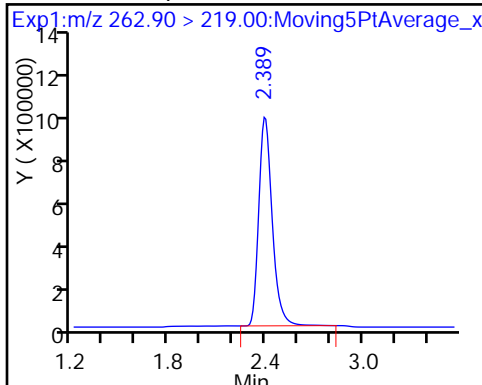
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

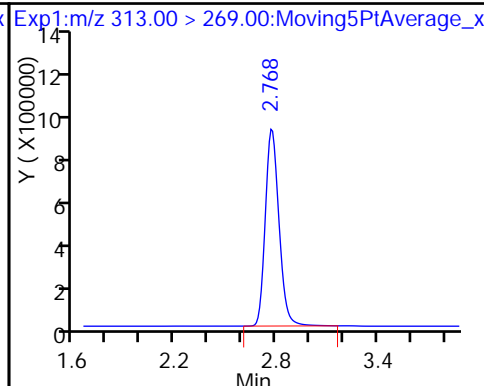
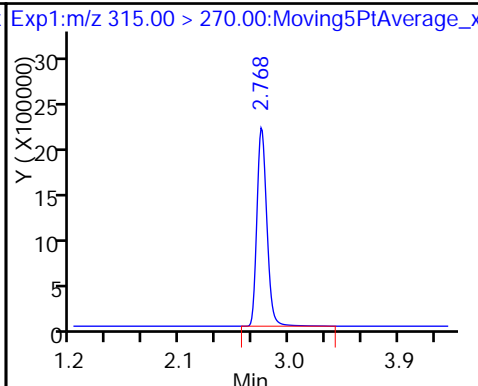
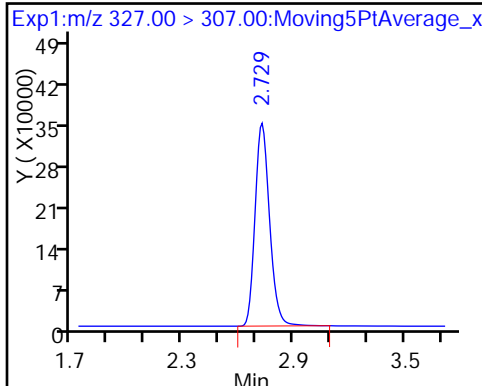
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

De 7 13C2 PFHxA

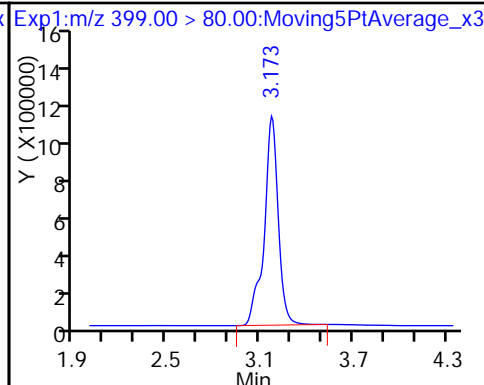
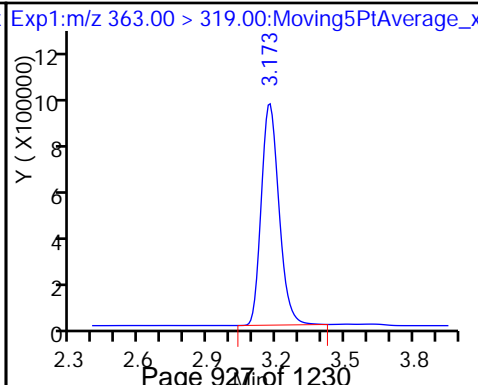
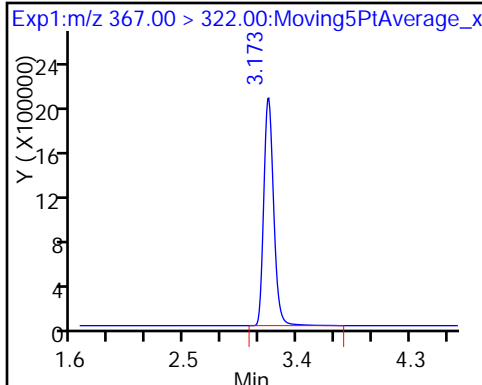
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

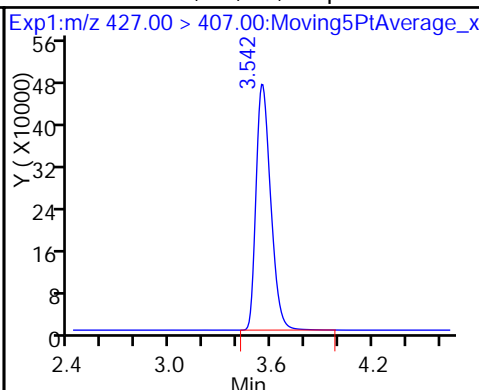
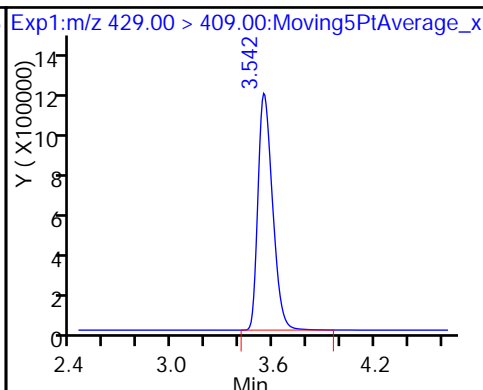
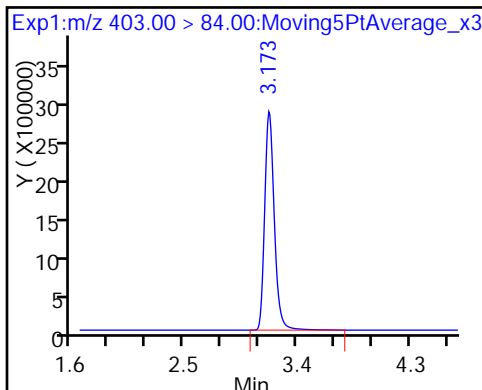
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

D 12 M2-6:2FTS

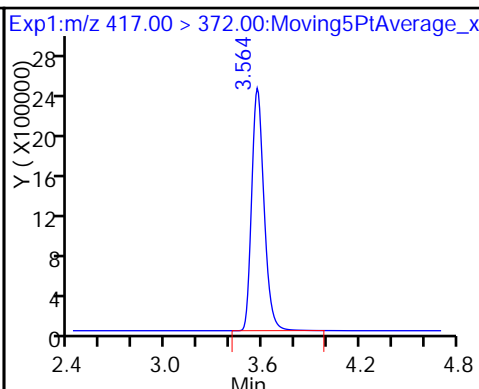
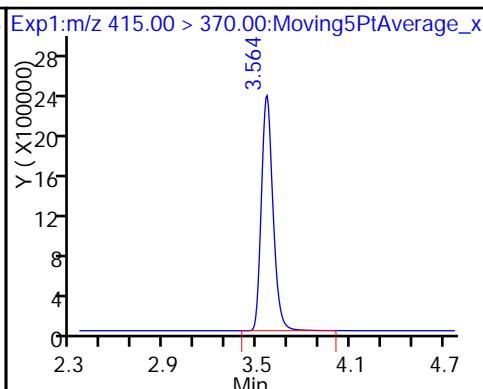
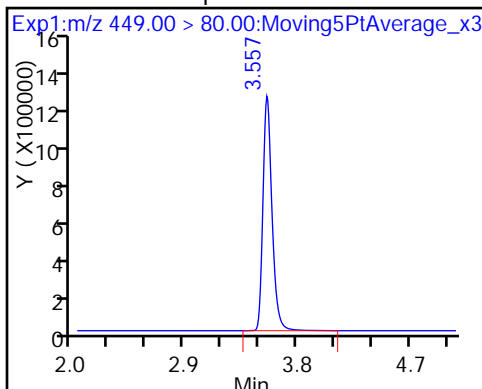
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

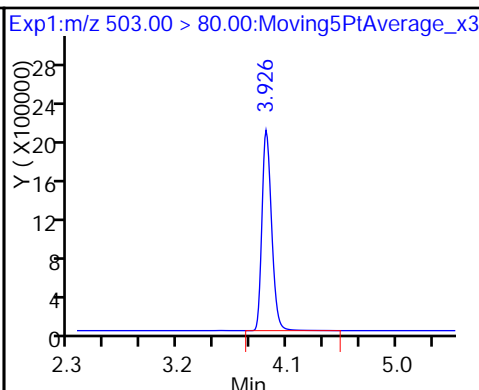
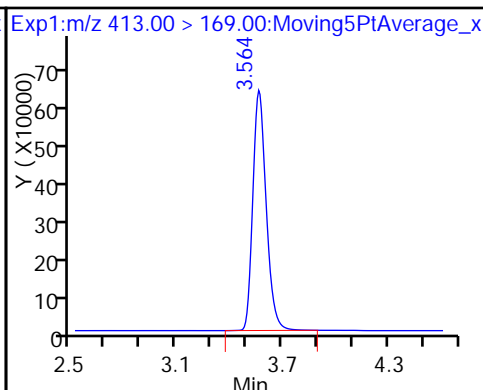
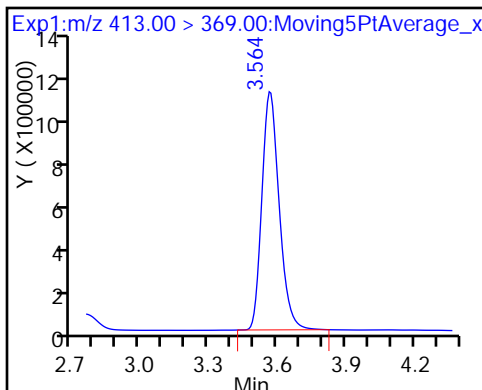
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

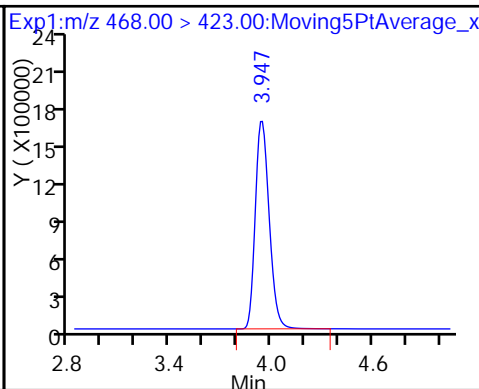
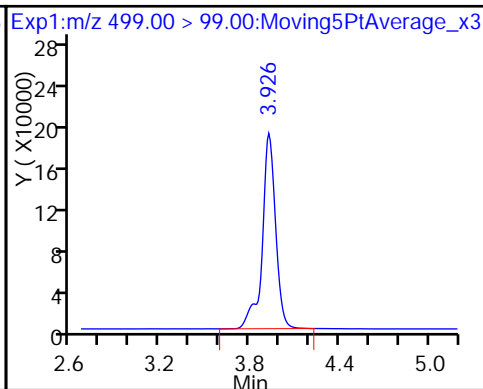
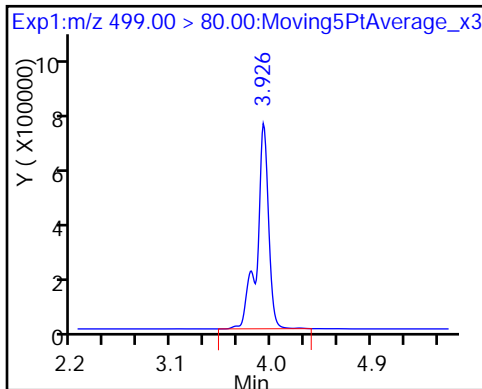
D 18 13C4 PFOS

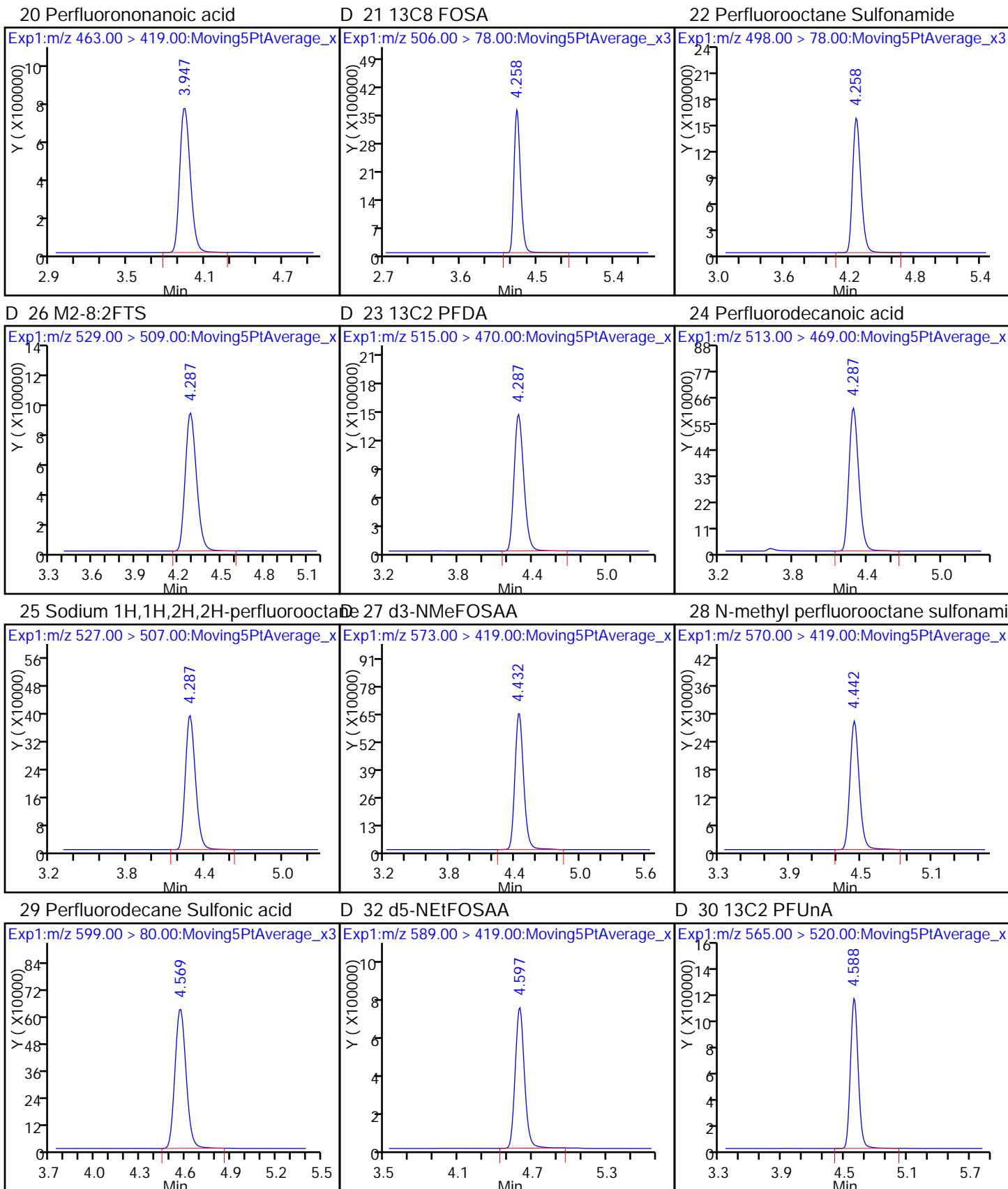


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

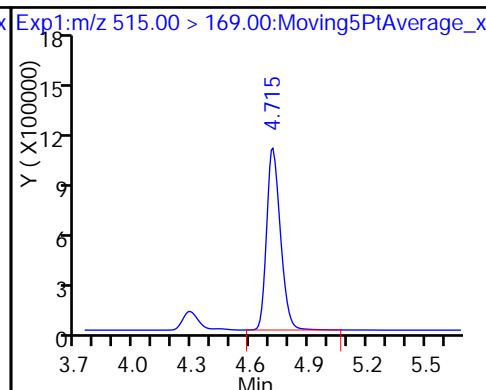
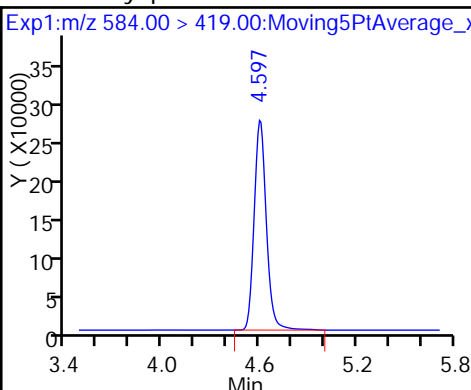
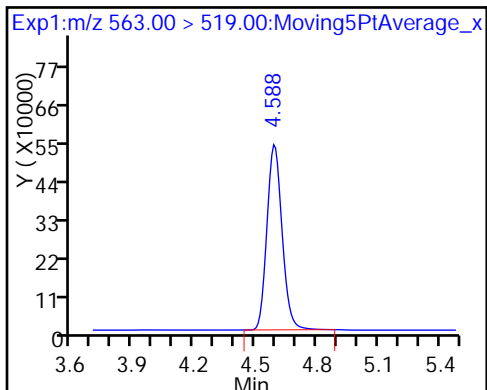




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

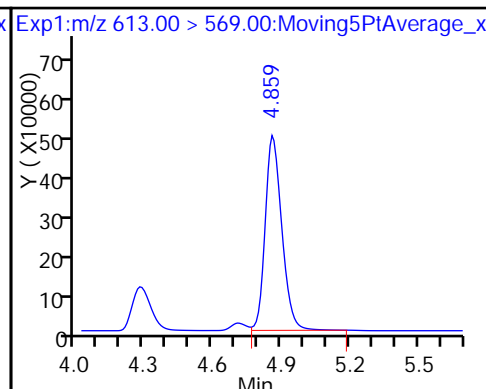
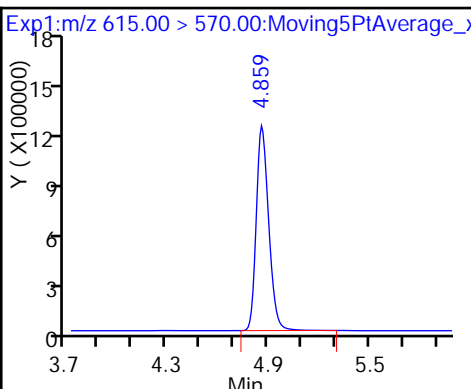
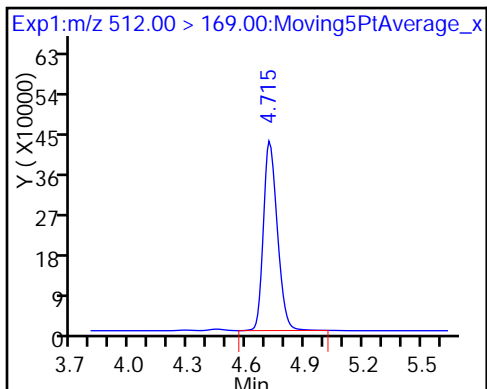
34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

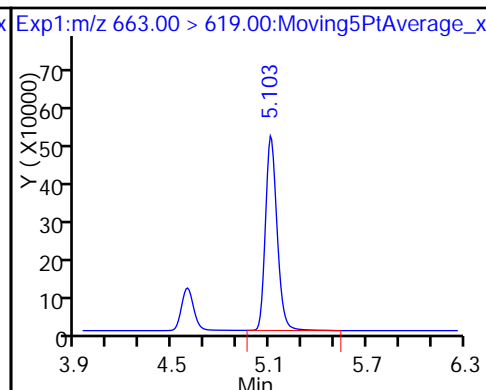
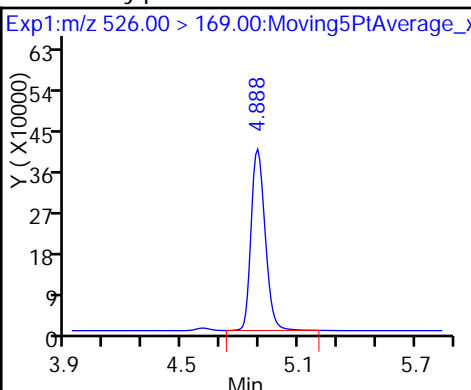
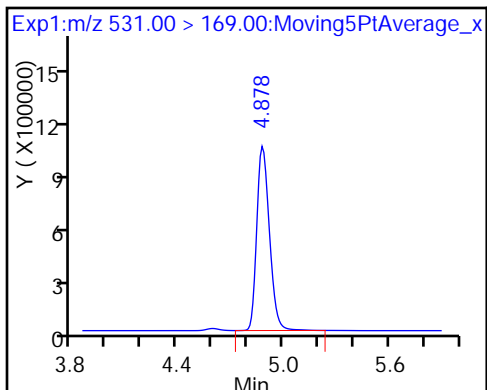
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

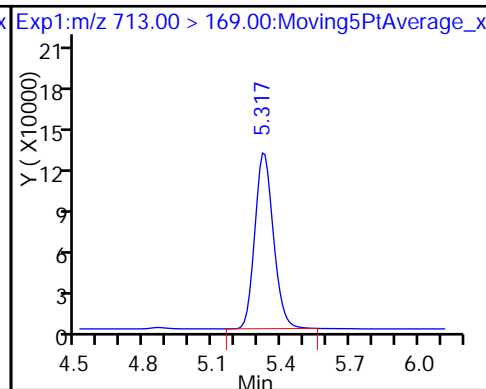
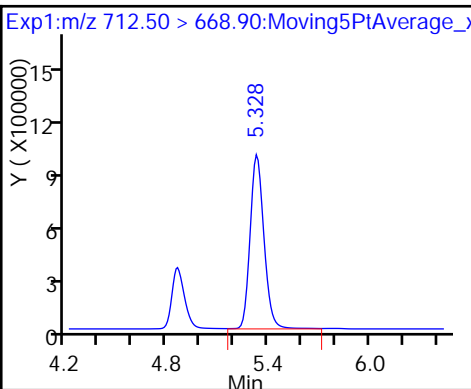
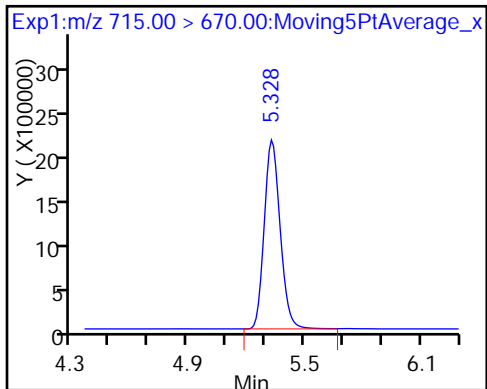
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

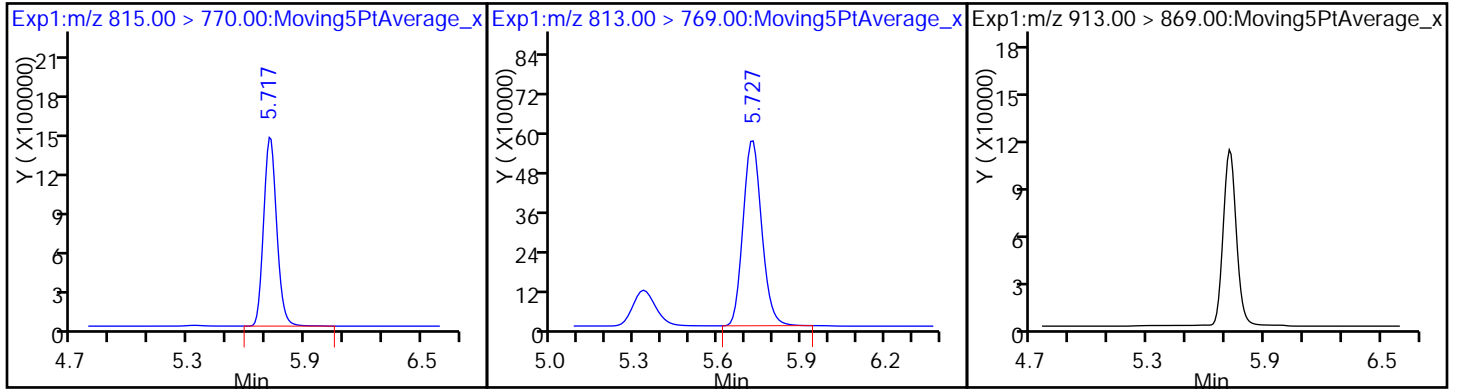
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid (ND)



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-165487/12 Calibration Date: 05/20/2017 07:05
 Instrument ID: A8_N Calib Start Date: 05/19/2017 20:56
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/19/2017 21:41
 Lab File ID: 2017.05.19B_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9931	1.027		51.2	49.5	3.4	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.090	1.088		49.4	49.5	-0.2	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.529	1.670		47.8	43.8	9.2	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.036		49.8	49.5	0.6	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.090	1.113		50.6	49.5	2.1	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.223	1.166		43.0	45.0	-4.7	25.0
6:2FTS	AveID	0.9850	0.9412		44.8	46.9	-4.4	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.308	1.360		49.0	47.1	3.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.134	1.092		47.7	49.5	-3.7	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.153	1.165		46.4	45.9	1.0	25.0
Perfluorononanoic acid (PFNA)	AveID	1.086	1.080		49.2	49.5	-0.6	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.071	1.025		47.4	49.5	-4.3	25.0
8:2FTS	AveID	0.998	1.038		49.3	47.4	4.0	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.013	1.036		50.6	49.5	2.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.020	1.018		49.4	49.5	-0.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6668	0.6968		49.9	47.7	4.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.168	1.141		48.4	49.5	-2.3	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9550	0.9197		47.7	49.5	-3.7	25.0
MeFOSA	AveID	0.9726	0.9642		49.1	49.5	-0.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.019	1.006		48.8	49.5	-1.3	25.0
N-EtFOSA-M	AveID	1.013	1.021		49.9	49.5	0.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9859	1.040		52.2	49.5	5.4	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	2.219	2.184		48.7	49.5	-1.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.195		57.0	49.5	15.1	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L1ID		0.0520		34.0	49.5	-31.3*	25.0
13C4 PFBA	Ave	373885	395411		52.4	49.5	5.8	50.0
13C5-PFPeA	Ave	249575	267844		53.1	49.5	7.3	50.0
13C2 PFHxA	Ave	251055	266954		52.6	49.5	6.3	50.0
13C4-PFHpA	Ave	222787	241153		53.6	49.5	8.2	50.0
18O2 PFHxS	Ave	315166	338331		50.3	46.8	7.4	50.0
M2-6:2FTS	Ave	121803	189459		73.2	47.0	55.5*	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-165487/12 Calibration Date: 05/20/2017 07:05
 Instrument ID: A8_N Calib Start Date: 05/19/2017 20:56
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/19/2017 21:41
 Lab File ID: 2017.05.19B_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	226220	266531		58.3	49.5	17.8	50.0
13C4 PFOS	Ave	237248	253944		50.7	47.3	7.0	50.0
13C5 PFNA	Ave	183502	208281		56.2	49.5	13.5	50.0
13C8 FOSA	Ave	369289	401150		53.8	49.5	8.6	50.0
13C2 PFDA	Ave	157402	182345		57.4	49.5	15.8	50.0
M2-8:2FTS	Ave	102155	150962		70.1	47.4	47.8	50.0
d3-NMeFOSAA	Ave	70740	92439		64.7	49.5	30.7	50.0
13C2 PFUnA	Ave	115660	144396		61.8	49.5	24.8	50.0
d5-NEtFOSAA	Ave	69621	86619		61.6	49.5	24.4	50.0
d-N-MeFOSA-M	Ave	104455	109390		51.8	49.5	4.7	50.0
13C2 PFDoA	Ave	116816	146540		62.1	49.5	25.4	50.0
d-N-EtFOSA-M	Ave	99421	105355		52.5	49.5	6.0	50.0
13C2-PFTeDA	Ave	229118	292339		63.2	49.5	27.6	50.0
13C2-PFHxDA	Ave	128029	184079		71.2	49.5	43.8	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_012.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 20-May-2017 07:05:11 ALS Bottle#: 32 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub18
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 12:22:07 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d

Column 1 : Det: EXP1

Process Host: XAWRK016

First Level Reviewer: chandrasenas

Date: 22-May-2017 12:06:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.059	2.059	0.0	19574791	52.4		106	103162	
2 Perfluorobutyric acid	212.90 > 169.00	2.059	2.059	0.0	1.000	20107501	51.2	103	4059	
D 3 13C5-PFPeA	267.90 > 223.00	2.419	2.419	0.0	13259598	53.1		107	130885	
4 Perfluoropentanoic acid	262.90 > 219.00	2.419	2.419	0.0	1.000	14427041	49.4	99.8	3204	
D 47 13C3-PFBS	301.90 > 83.00	2.459	2.459	0.0	335999	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.459	2.459	0.0	1.000	24728558	47.8	109		
	298.90 > 99.00	2.459	2.459	0.0	1.000	10153394	2.44(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.762	2.762	0.0	1.000	5312185	35.0	75.7		
D 7 13C2 PFHxA	315.00 > 270.00	2.801	2.801	0.0	13215562	52.6		106	208993	
6 Perfluorohexanoic acid	313.00 > 269.00	2.801	2.801	0.0	1.000	13691565	49.8	101	29162	
D 9 13C4-PFHpA	367.00 > 322.00	3.205	3.205	0.0	11938290	53.6		108	174995	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.205	3.205	0.0	1.000	13289301	50.6	102	3745	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.205	3.205	0.0	1.000	17775948	43.0	95.3		
D 11 18O2 PFHxS	403.00 > 84.00	3.213	3.213	0.0	15844593	50.3		107	257656	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS										
429.00 > 409.00	3.575	3.575	0.0		8910185	73.2		156		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	3.575	3.575	0.0	1.000	8368695	44.8		95.6		
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.590	3.590	0.0	1.000	16275300	49.0		104		
* 62 13C2-PFOA										
415.00 > 370.00	3.590	3.590	0.0		12358842	49.5		100		
D 14 13C4 PFOA										
417.00 > 372.00	3.598	3.598	0.0		13194610	58.3		118	158308	
15 Perfluorooctanoic acid										
413.00 > 369.00	3.598	3.598	0.0	1.000	14407642	47.7		96.3	1149	
413.00 > 169.00	3.598	3.598	0.0	1.000	8377494		1.72(0.90-1.10)		14542	
D 18 13C4 PFOS										
503.00 > 80.00	3.959	3.959	0.0		12018334	50.7		107	12166	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.959	3.959	0.0	1.000	13592309	46.4		101	17590	
499.00 > 99.00	3.959	3.959	0.0	1.000	2988299		4.55(0.90-1.10)		12367	
D 19 13C5 PFNA										
468.00 > 423.00	3.981	3.981	0.0		10310960	56.2		114	35782	
20 Perfluorononanoic acid										
463.00 > 419.00	3.981	3.981	0.0	1.000	11133075	49.2		99.4	10128	
D 21 13C8 FOSA										
506.00 > 78.00	4.294	4.294	0.0		19858929	53.8		109	19056	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	4.294	4.294	0.0	1.000	20352828	47.4		95.7	505953	
D 26 M2-8:2FTS										
529.00 > 509.00	4.316	4.316	0.0		7159463	70.1		148		
D 23 13C2 PFDA										
515.00 > 470.00	4.316	4.316	0.0		9027001	57.4		116	6136	
24 Perfluorodecanoic acid										
513.00 > 469.00	4.316	4.316	0.0	1.000	9354438	50.6		102	1686	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	4.316	4.316	0.0	1.000	7433858	49.3		104		
D 27 d3-NMeFOSAA										
573.00 > 419.00	4.466	4.466	0.0		4576193	64.7		131		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	4.476	4.476	0.0	1.002	4659122	49.4		99.8		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.596	4.596	0.0	1.000	8444800	49.9		105		
D 32 d5-NEtFOSAA										
589.00 > 419.00	4.624	4.624	0.0		4288058	61.6		124		
D 30 13C2 PFUnA										
565.00 > 520.00	4.624	4.624	0.0		7148328	61.8		125	31233	
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.624	4.624	0.0	1.000	8155305	48.4		97.7	13281	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	4.633	4.633	0.0	1.002	3943722	47.7		96.3		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.752	4.752	0.0	5415368	51.8	105		
35 MeFOSA	512.00	> 169.00	4.752	4.752	0.0	1.000	5221712	49.1	99.1	
D 36 13C2 PFDaA	615.00	> 570.00	4.897	4.897	0.0		7254469	62.1	125	13643
37 Perfluorododecanoic acid	613.00	> 569.00	4.897	4.897	0.0	1.000	7295391	48.8	98.7	432
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.908	4.908	0.0		5215596	52.5	106	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.919	4.919	0.0	1.000	5324361	49.9	101	
41 Perfluorotridecanoic acid	663.00	> 619.00	5.143	5.143	0.0	1.000	7541756	52.2	105	410
D 43 13C2-PFTeDA	715.00	> 670.00	5.360	5.360	0.0		14472239	63.2	128	9471
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.360	5.360	0.0	1.000	15841460	48.7	98.4	320
	713.00	> 169.00	5.360	5.360	0.0	1.000	2174092		7.29(0.00-0.00)	8756
D 44 13C2-PFHxDA	815.00	> 770.00	5.753	5.753	0.0		9112809	71.2	144	5332
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.753	5.753	0.0	1.000	8666123	57.0	115	499
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.753	5.753	0.0	1.000	376843	34.0	68.7	589

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L5_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_012.d

Injection Date: 20-May-2017 07:05:11

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

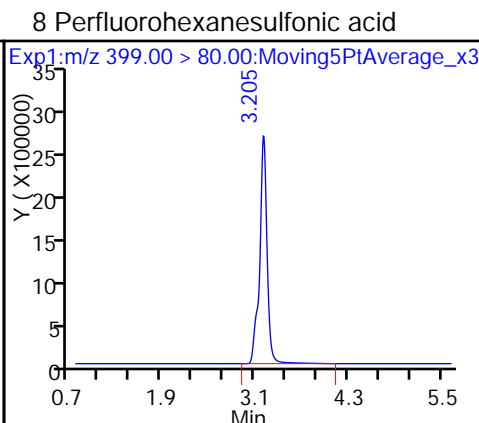
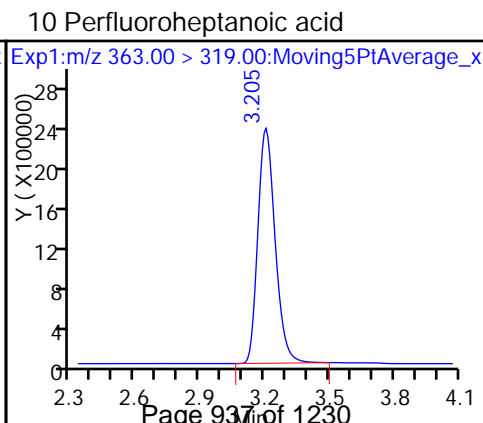
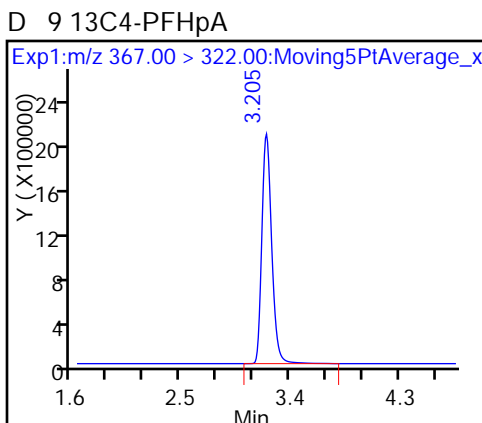
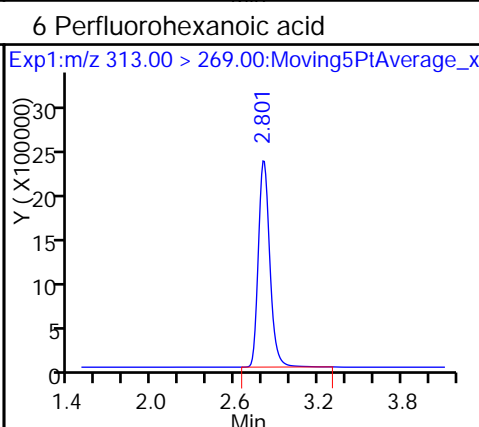
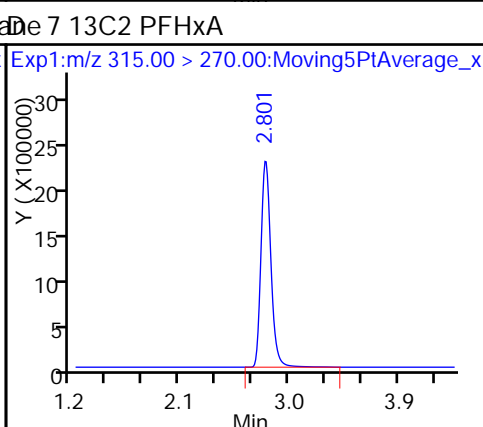
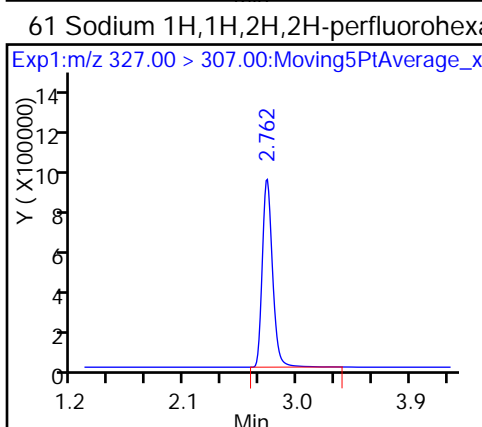
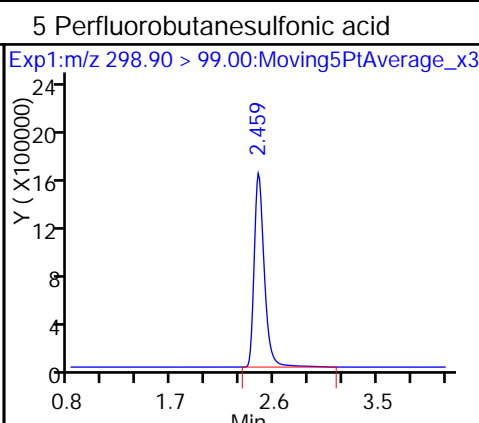
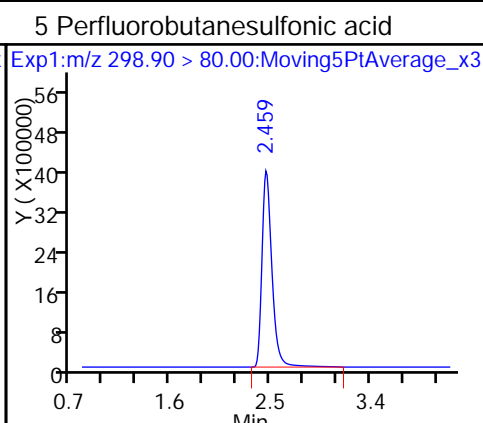
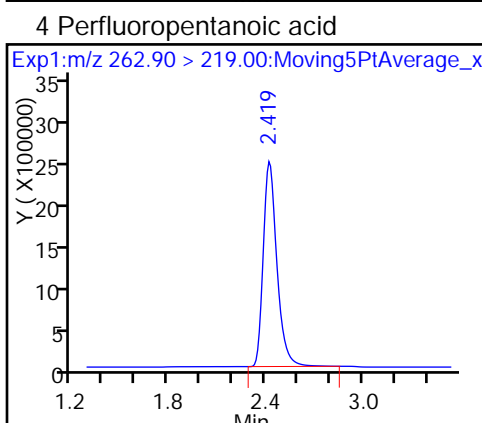
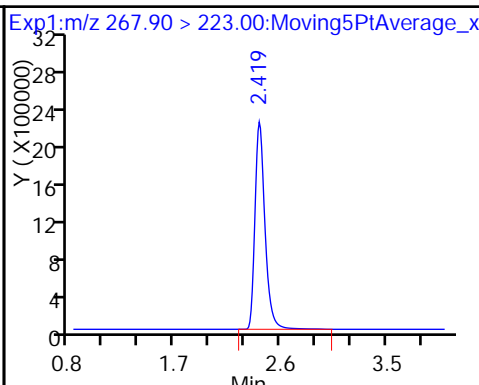
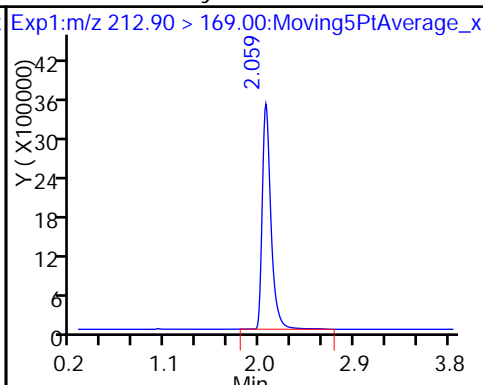
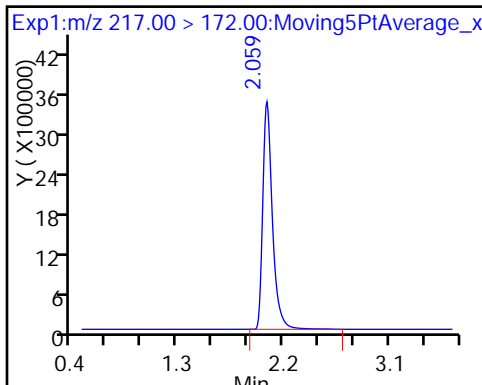
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

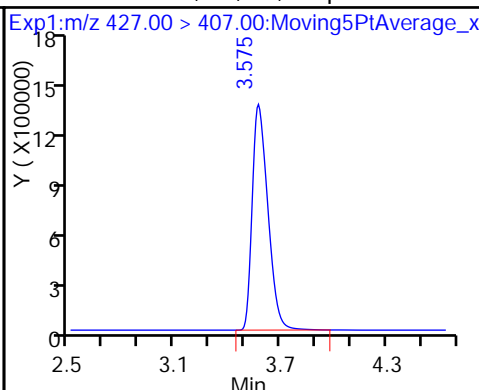
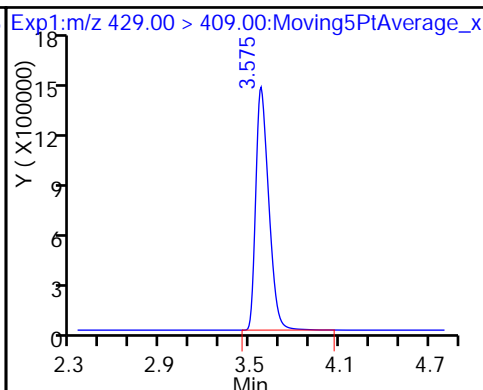
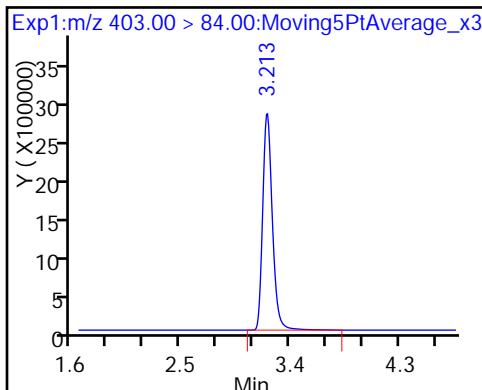
D 3 13C5-PFPeA



D 11 18O2 PFHxS

D 12 M2-6:2FTS

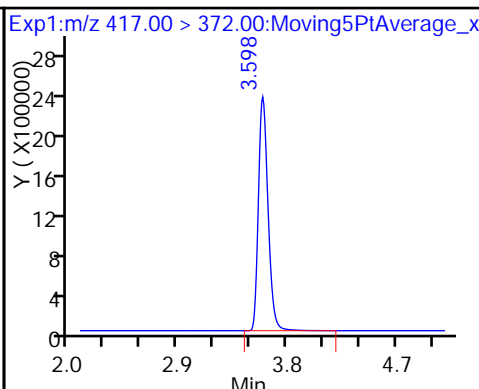
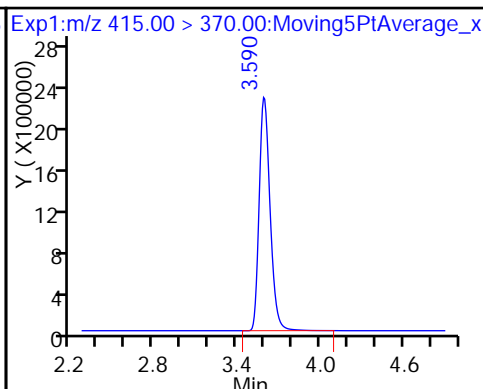
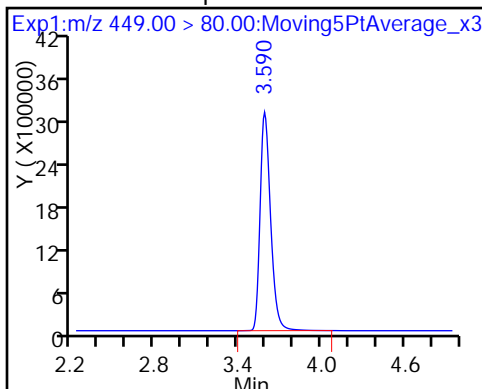
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

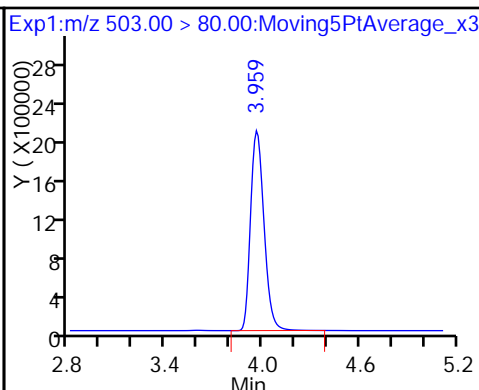
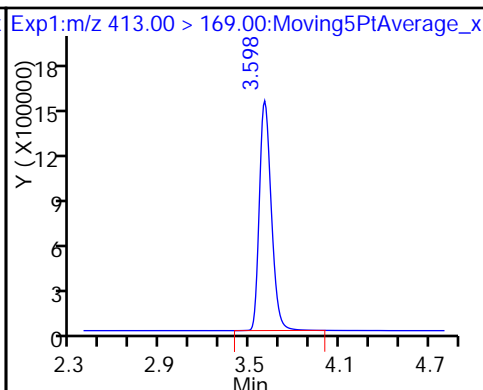
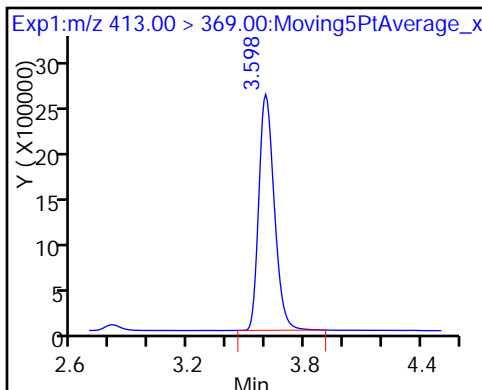
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

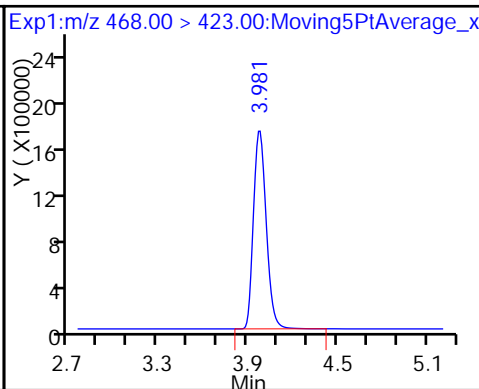
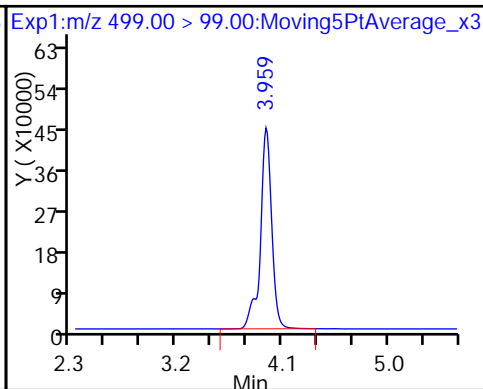
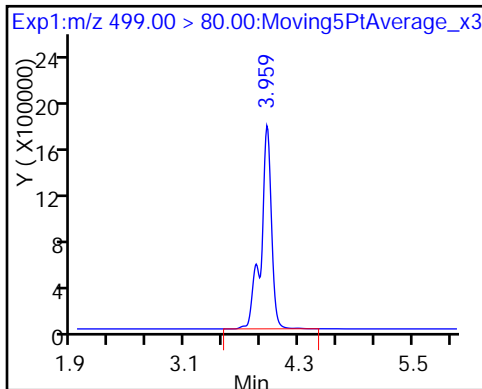
D 18 13C4 PFOS

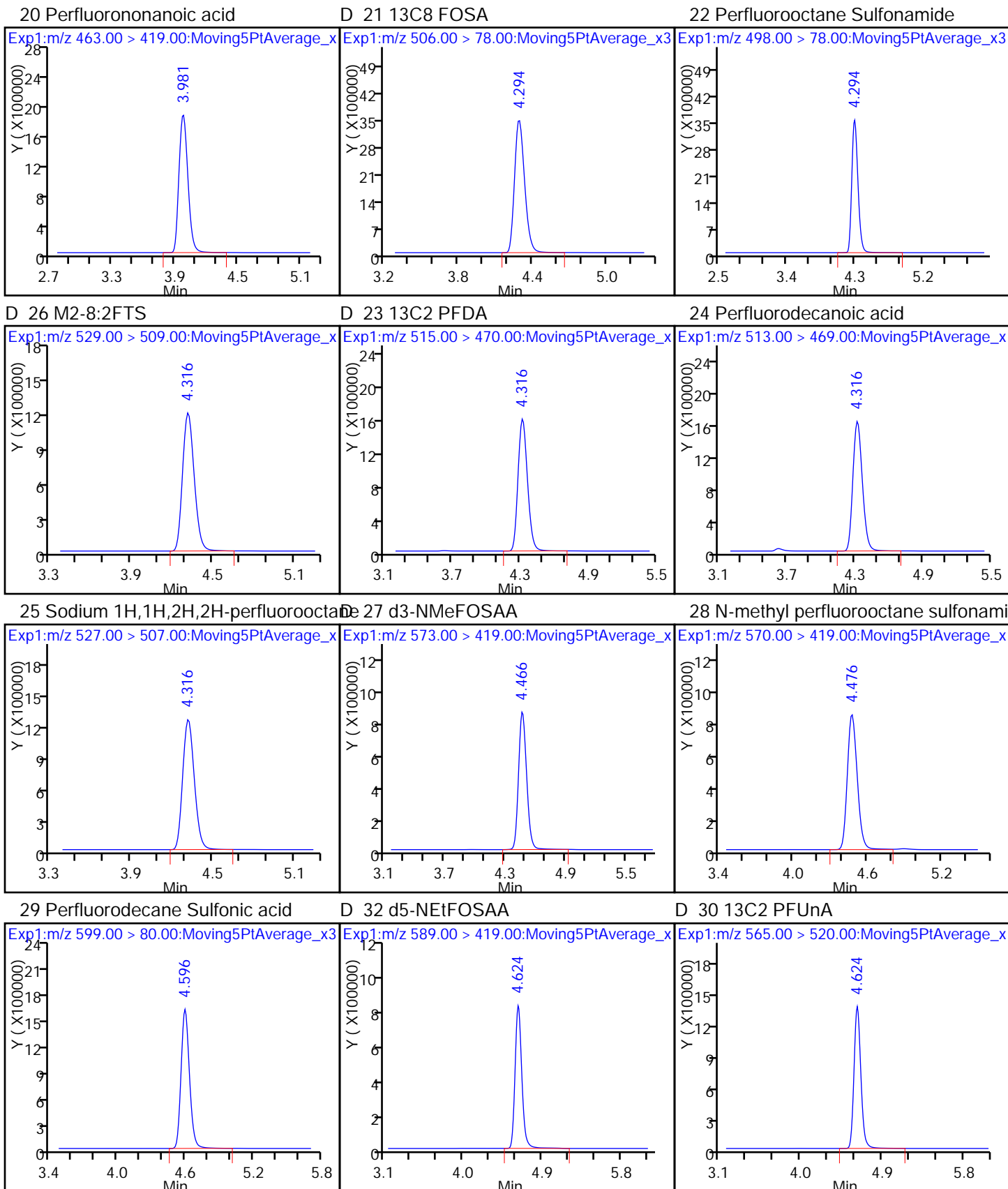


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

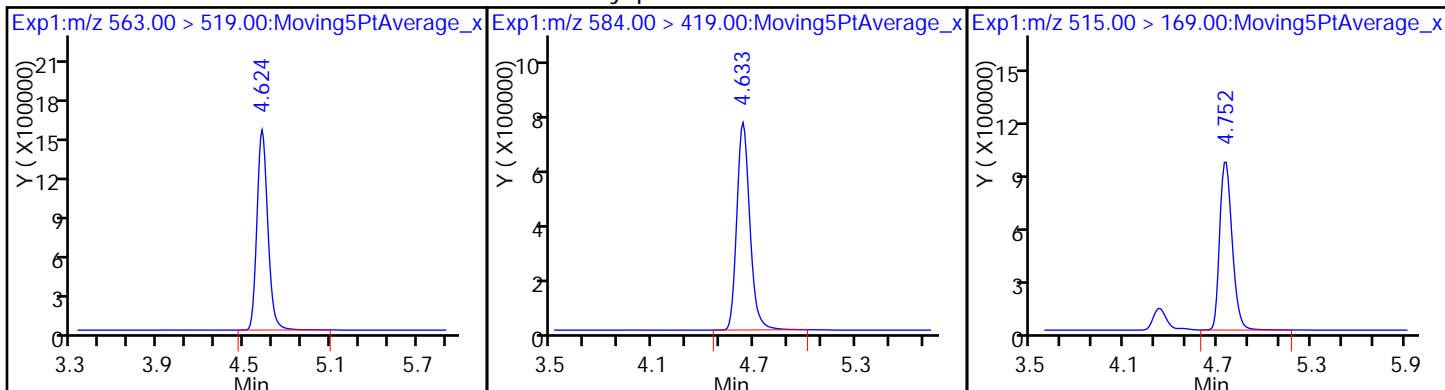




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

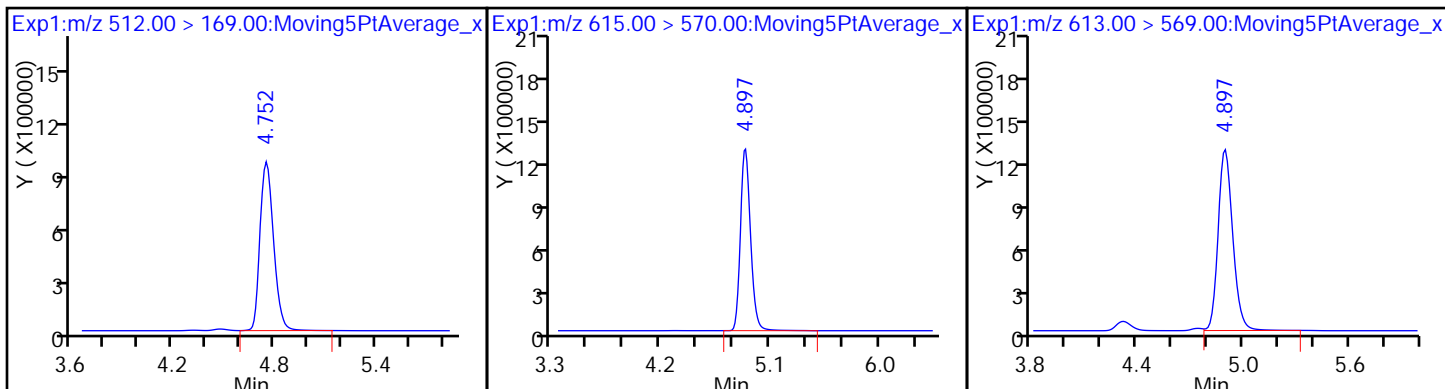
34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

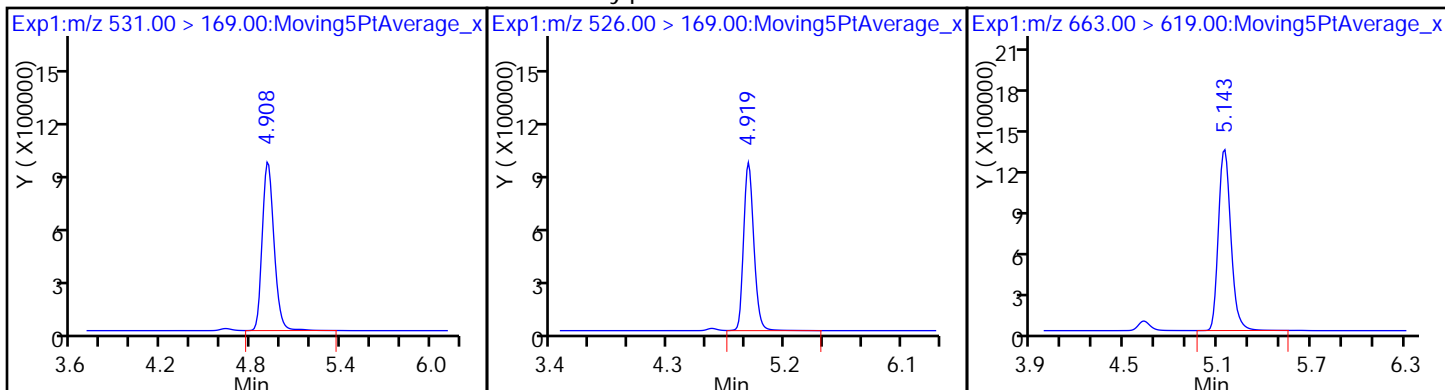
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

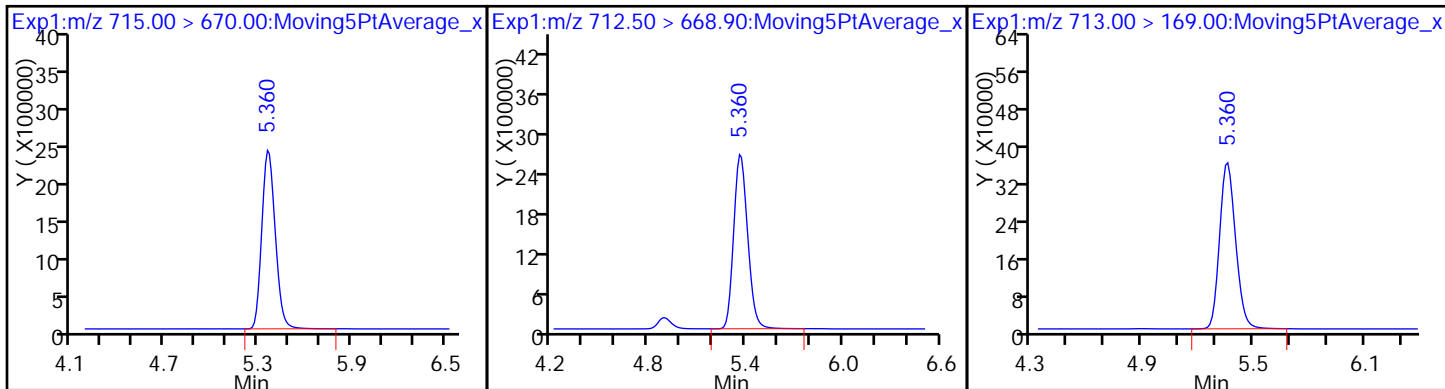
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

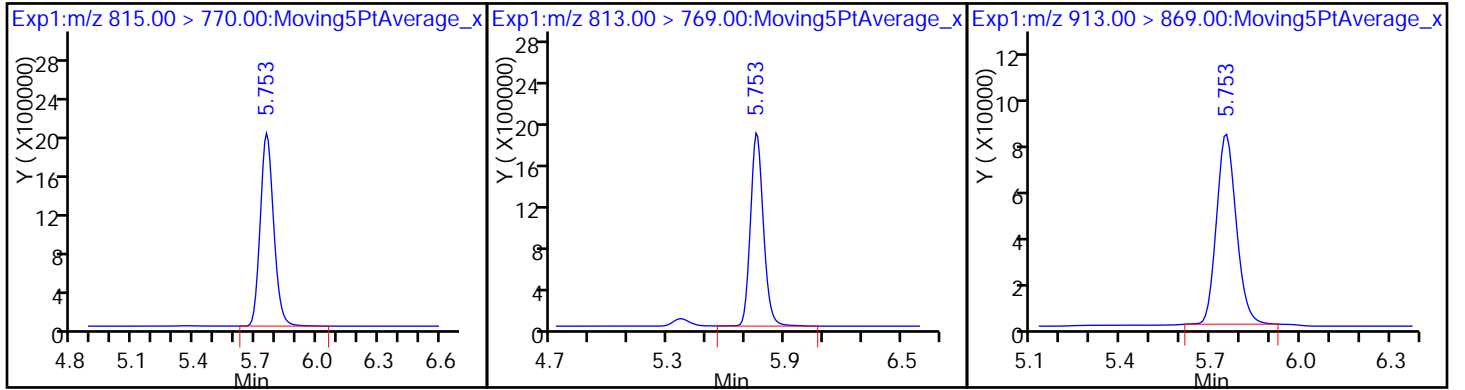
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-165487/23 Calibration Date: 05/20/2017 08:27
 Instrument ID: A8_N Calib Start Date: 05/19/2017 20:56
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/19/2017 21:41
 Lab File ID: 2017.05.19B_023.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9931	1.082		21.6	19.8	9.0	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.090	1.151		20.9	19.8	5.6	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.529	1.743		20.0	17.5	14.0	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.030	1.060		20.4	19.8	2.9	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.090	1.116		20.3	19.8	2.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.223	1.187		17.5	18.0	-2.9	25.0
6:2FTS	AveID	0.9850	1.050		20.0	18.8	6.6	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.308	1.463		21.1	18.9	11.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.134	1.116		19.5	19.8	-1.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.153	1.189		18.9	18.4	3.1	25.0
Perfluorononanoic acid (PFNA)	AveID	1.086	1.142		20.8	19.8	5.2	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.071	1.076		19.9	19.8	0.4	25.0
8:2FTS	AveID	0.998	1.042		19.8	19.0	4.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.013	1.055		20.6	19.8	4.2	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.020	1.062		20.6	19.8	4.1	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6668	0.7242		20.7	19.1	8.6	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.168	1.135		19.3	19.8	-2.8	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9550	0.9850		20.4	19.8	3.1	25.0
MeFOSA	AveID	0.9726	0.9909		20.2	19.8	1.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.019	1.022		19.9	19.8	0.3	25.0
N-EtFOSA-M	AveID	1.013	1.011		19.8	19.8	-0.2	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.9859	1.054		21.2	19.8	6.9	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	2.219	2.205		19.7	19.8	-0.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.044		19.4	19.8	-2.0	25.0
Perfluoro-n-octadecanoic acid (PFODA)	L1ID		0.1735		45.7	19.8	131.0*	25.0
13C4 PFBA	Ave	373885	380724		50.4	49.5	1.8	50.0
13C5-PFPeA	Ave	249575	261308		51.8	49.5	4.7	50.0
13C2 PFHxA	Ave	251055	259121		51.1	49.5	3.2	50.0
13C4-PFHpA	Ave	222787	241567		53.7	49.5	8.4	50.0
18O2 PFHxS	Ave	315166	337042		50.1	46.8	6.9	50.0
M2-6:2FTS	Ave	121803	168702		65.1	47.0	38.5	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-165487/23 Calibration Date: 05/20/2017 08:27
 Instrument ID: A8_N Calib Start Date: 05/19/2017 20:56
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/19/2017 21:41
 Lab File ID: 2017.05.19B_023.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	226220	269906		59.1	49.5	19.3	50.0
13C4 PFOS	Ave	237248	243393		48.6	47.3	2.6	50.0
13C5 PFNA	Ave	183502	201022		54.2	49.5	9.5	50.0
13C8 FOSA	Ave	369289	398730		53.5	49.5	8.0	50.0
13C2 PFDA	Ave	157402	180676		56.8	49.5	14.8	50.0
M2-8:2FTS	Ave	102155	137087		63.6	47.4	34.2	50.0
d3-NMeFOSAA	Ave	70740	80091		56.0	49.5	13.2	50.0
13C2 PFUnA	Ave	115660	140915		60.3	49.5	21.8	50.0
d5-NEtFOSAA	Ave	69621	80836		57.5	49.5	16.1	50.0
d-N-MeFOSA-M	Ave	104455	104745		49.6	49.5	0.3	50.0
13C2 PFDoA	Ave	116816	137922		58.4	49.5	18.1	50.0
d-N-EtFOSA-M	Ave	99421	100190		49.9	49.5	0.8	50.0
13C2-PFTEtDA	Ave	229118	268961		58.1	49.5	17.4	50.0
13C2-PFHxDA	Ave	128029	146291		56.6	49.5	14.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_023.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 20-May-2017 08:27:51 ALS Bottle#: 31 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L4
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub18
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 12:31:18 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK016

First Level Reviewer: chandrasenas Date: 22-May-2017 12:17:09

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.043	2.059	-0.016	18847719	50.4		102	219111	
2 Perfluorobutyric acid	212.90 > 169.00	2.043	2.059	-0.016	1.000	8160940	21.6	109	2094	
D 3 13C5-PFPeA	267.90 > 223.00	2.399	2.419	-0.020	12936040	51.8		105	275939	
4 Perfluoropentanoic acid	262.90 > 219.00	2.399	2.419	-0.020	1.000	5953619	20.9	106	1552	
D 47 13C3-PFBS	301.90 > 83.00	2.439	2.459	-0.020	327660	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.439	2.459	-0.020	1.000	10284665	20.0	114		
	298.90 > 99.00	2.439	2.459	-0.020	1.000	4069070	2.53(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.743	2.762	-0.019	1.000	2059302	15.2	82.4		
D 7 13C2 PFHxA	315.00 > 270.00	2.782	2.801	-0.018	12827765	51.1		103	22470	
6 Perfluorohexanoic acid	313.00 > 269.00	2.782	2.801	-0.018	1.000	5439477	20.4	103	12673	
D 9 13C4-PFHpA	367.00 > 322.00	3.183	3.205	-0.022	11958775	53.7		108	60355	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.183	3.205	-0.022	1.000	5338660	20.3	102	1917	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.191	3.205	-0.014	1.000	7209988	17.5	97.1		
D 11 18O2 PFHxS	403.00 > 84.00	3.191	3.213	-0.022	15784236	50.1		107	482500	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.559	3.575	-0.016	7933987	65.1	139		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.559	3.575	-0.016	1.000	3325735	20.0	107	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.574	3.590	-0.016	1.000	6714608	21.1	112	
* 62 13C2-PFOA	415.00	> 370.00	3.574	3.590	-0.016		12535385	49.5	100	
D 14 13C4 PFOA	417.00	> 372.00	3.581	3.598	-0.017		13361705	59.1	119	42044
15 Perfluorooctanoic acid	413.00	> 369.00	3.581	3.598	-0.017	1.000	5965433	19.5	98.5	545
	413.00	> 169.00	3.581	3.598	-0.017	1.000	3482205	1.71(0.90-1.10)		10035
D 18 13C4 PFOS	503.00	> 80.00	3.944	3.959	-0.015		11519003	48.6	103	14756
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.944	3.959	-0.015	1.000	5315961	18.9	103	7933
	499.00	> 99.00	3.944	3.959	-0.015	1.000	1168911	4.55(0.90-1.10)		5254
D 19 13C5 PFNA	468.00	> 423.00	3.966	3.981	-0.015		9951599	54.2	110	24022
20 Perfluorononanoic acid	463.00	> 419.00	3.966	3.981	-0.015	1.000	4545794	20.8	105	4011
D 21 13C8 FOSA	506.00	> 78.00	4.280	4.294	-0.014		19739089	53.5	108	14766
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.280	4.294	-0.014	1.000	8491734	19.9	100	15132
D 26 M2-8:2FTS	529.00	> 509.00	4.300	4.316	-0.016		6501443	63.6	134	
D 23 13C2 PFDA	515.00	> 470.00	4.300	4.316	-0.016		8944378	56.8	115	6217
24 Perfluorodecanoic acid	513.00	> 469.00	4.300	4.316	-0.016	1.000	3775051	20.6	104	1047
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.300	4.316	-0.016	1.000	2710663	19.8	104	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.456	4.466	-0.010		3964899	56.0	113	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.456	4.476	-0.020	1.000	1684752	20.6	104	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.584	4.596	-0.012	1.000	3364564	20.7	109	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.611	4.624	-0.013	1.000	3168402	19.3	97.2	15204
D 30 13C2 PFUnA	565.00	> 520.00	4.611	4.624	-0.013		6975975	60.3	122	22761
D 32 d5-NEtFOSAA	589.00	> 419.00	4.611	4.624	-0.013		4001800	57.5	116	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.619	4.633	-0.014	1.002	1576634	20.4	103	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.728	4.752	-0.024		5185417		49.6		100
35 MeFOSA	512.00 > 169.00	4.739	4.752	-0.013	1.000	2055260		20.2		102
D 36 13C2 PFDaA	615.00 > 570.00	4.880	4.897	-0.017		6827805		58.4		118 8761
37 Perfluorododecanoic acid	613.00 > 569.00	4.880	4.897	-0.017	1.000	2790577		19.9		100 143
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.902	4.908	-0.006		4959901		49.9		101
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.902	4.919	-0.017	1.000	2005895		19.8		99.8
41 Perfluorotridecanoic acid	663.00 > 619.00	5.124	5.143	-0.019	1.000	2878384		21.2		107 156
D 43 13C2-PFTeDA	715.00 > 670.00	5.343	5.360	-0.017		13314901		58.1		117 7801
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.354	5.360	-0.006	1.000	6020840		19.7		99.4 88.0
	713.00 > 169.00	5.343	5.360	-0.017	0.998	783989	7.68(0.00-0.00)			2975
D 44 13C2-PFHxDA	815.00 > 770.00	5.739	5.753	-0.014		7242132		56.6		114 5091
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.739	5.753	-0.014	1.000	473892		45.7		231 1067
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.739	5.753	-0.014	1.000	2850081		19.4		98.0 143

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L4_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_023.d

Injection Date: 20-May-2017 08:27:51

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

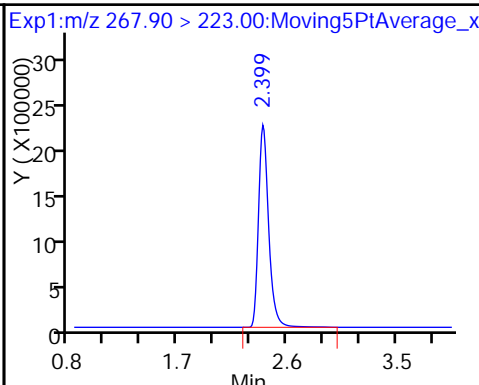
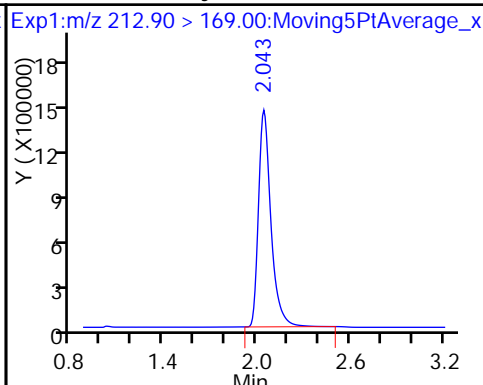
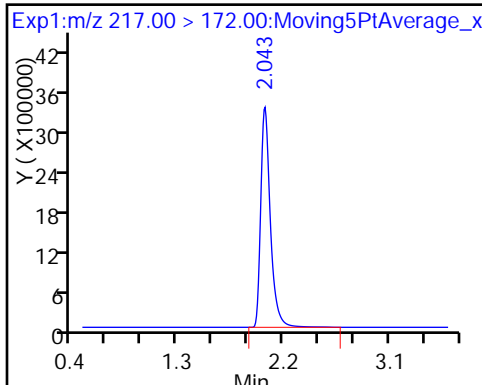
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

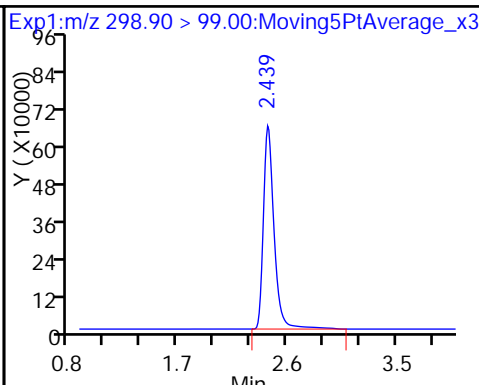
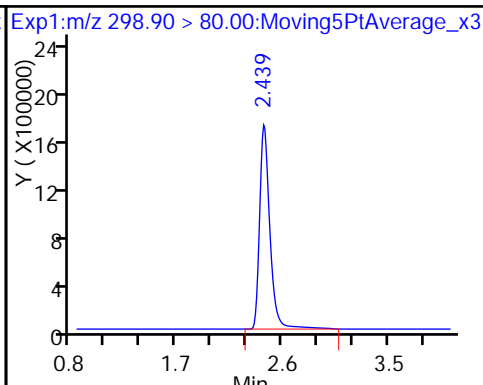
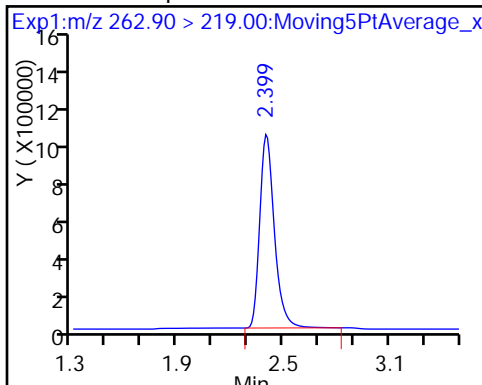
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

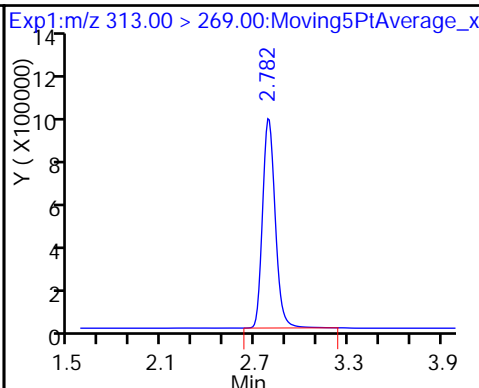
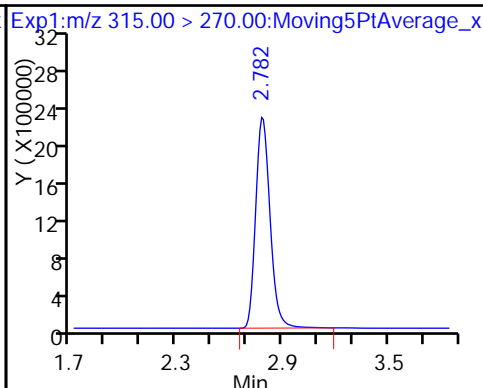
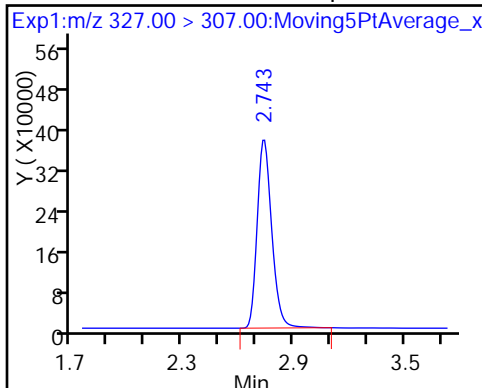
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

De 7 13C2 PFHxA

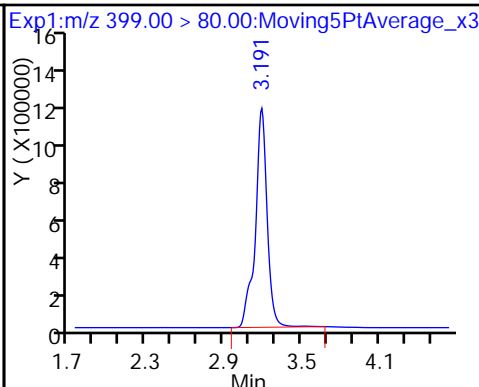
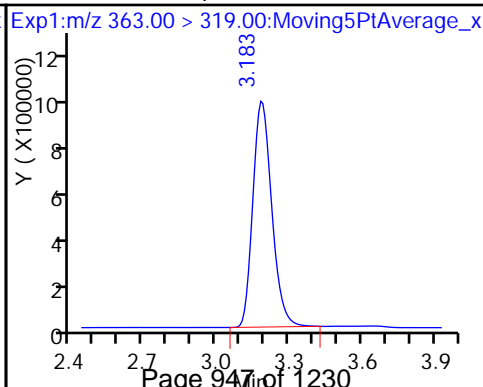
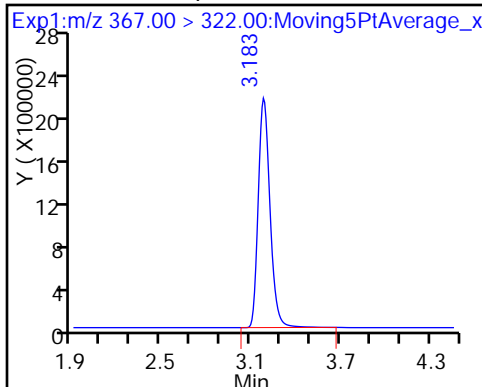
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

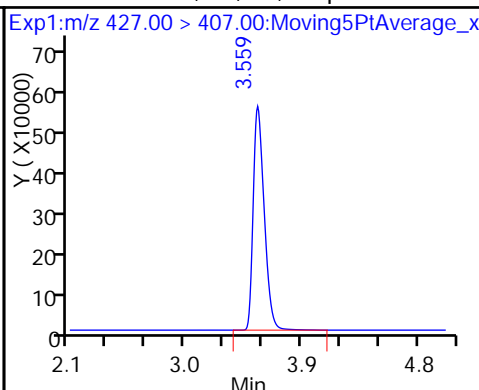
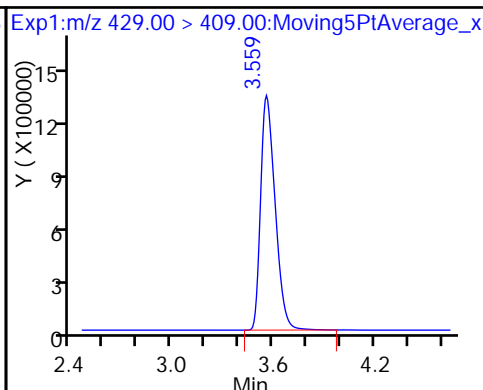
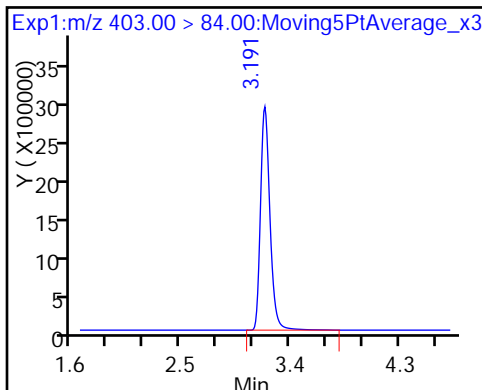
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

D 12 M2-6:2FTS

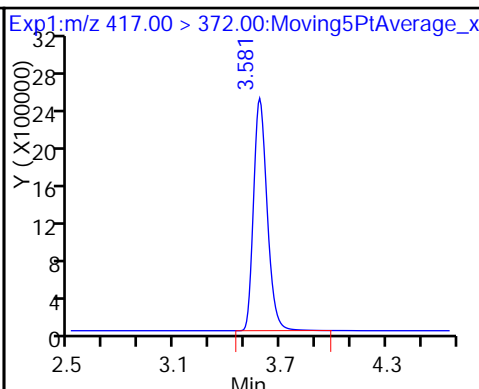
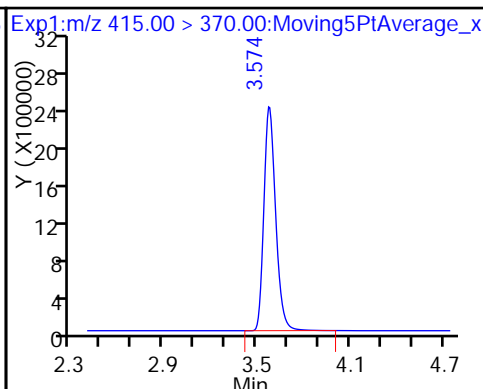
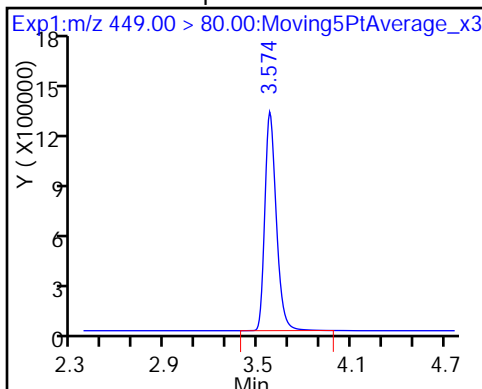
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

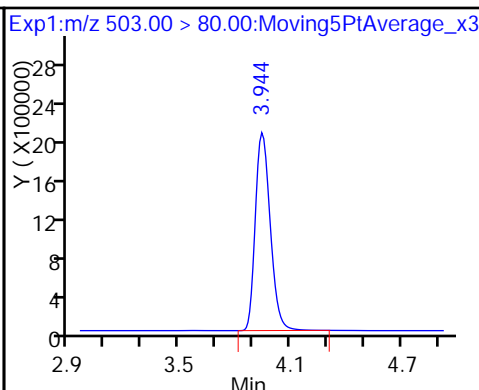
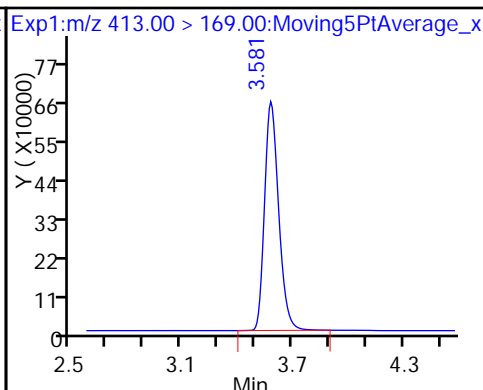
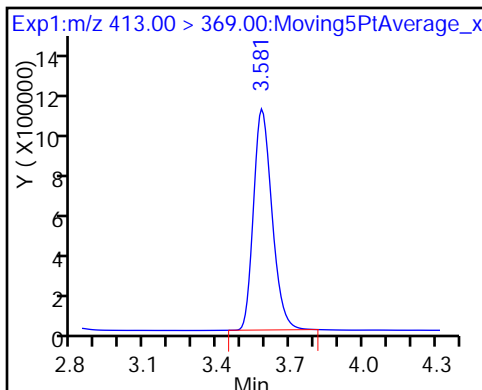
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

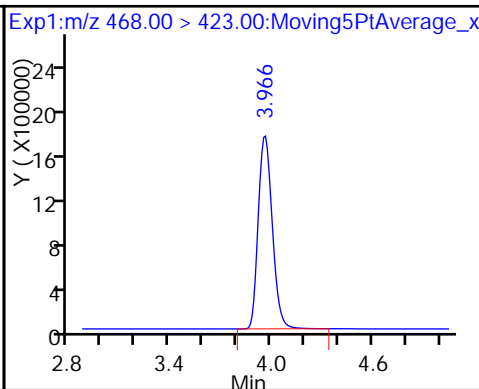
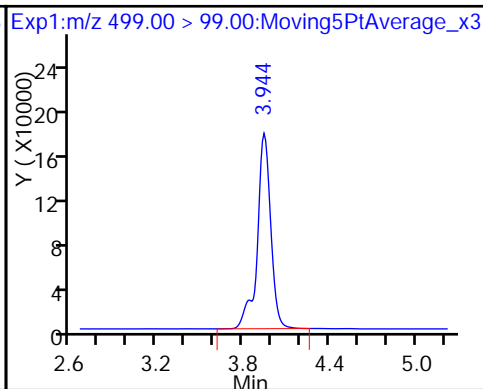
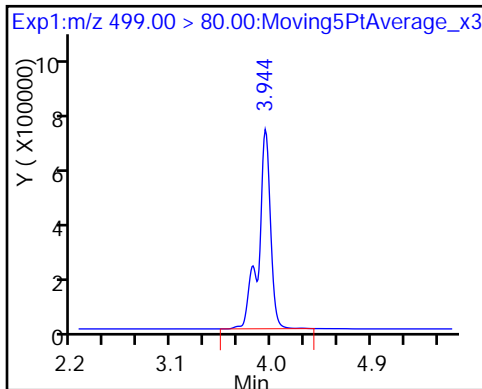
D 18 13C4 PFOS

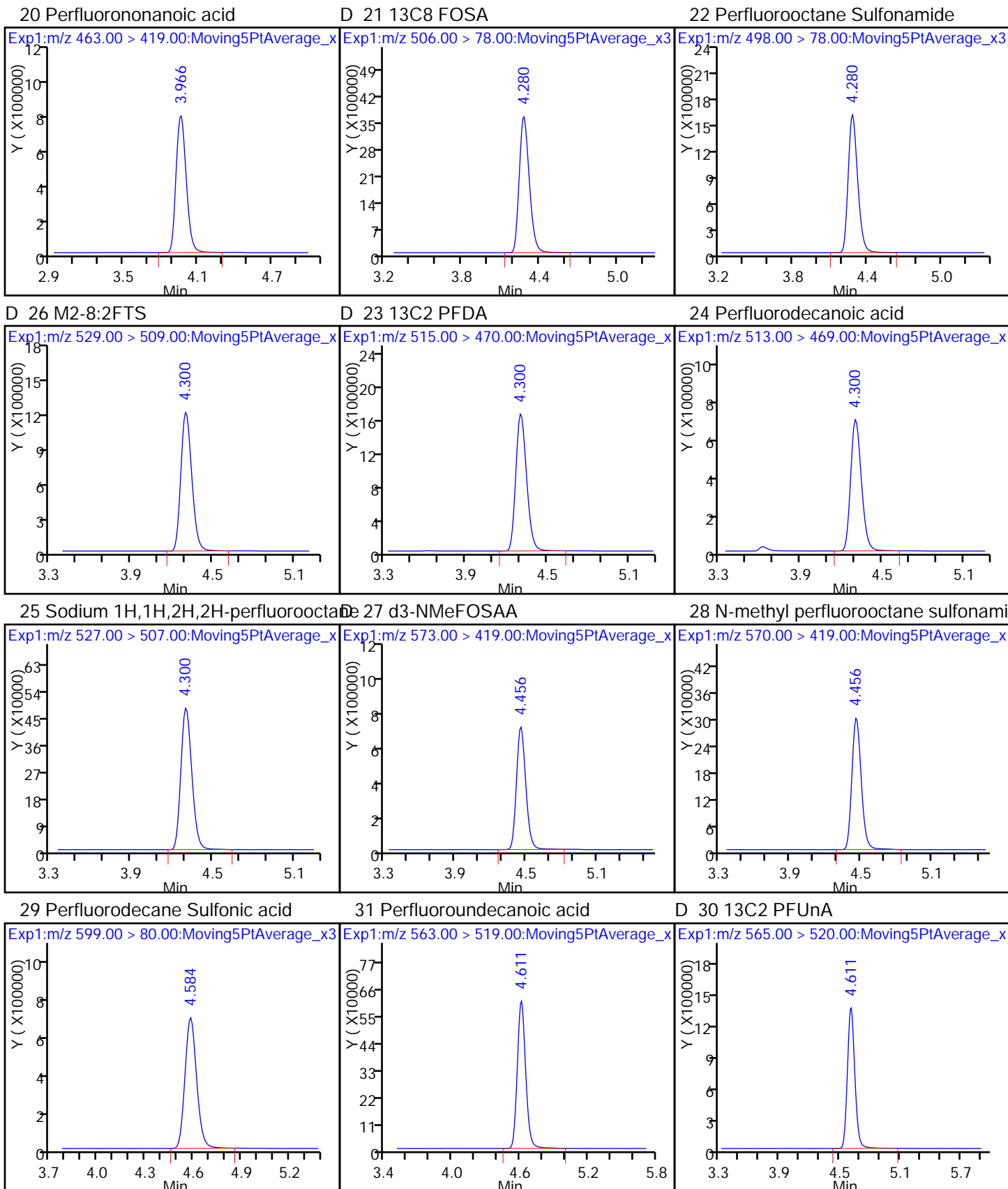


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

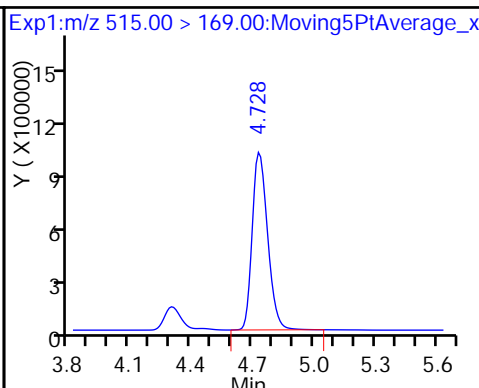
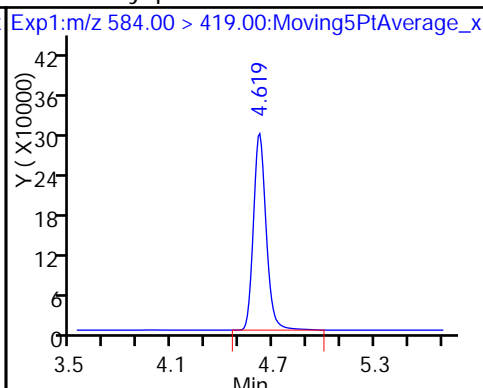
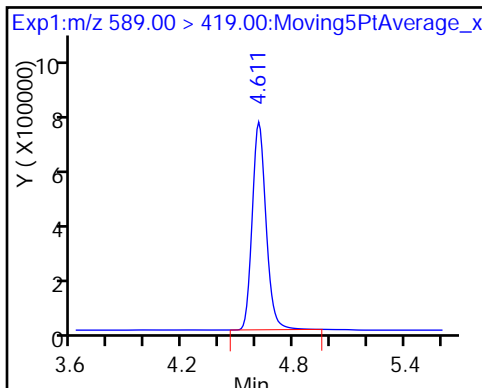




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

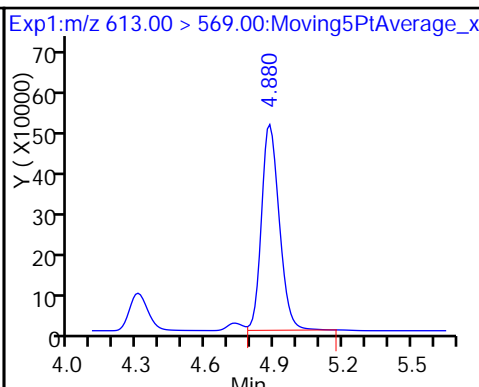
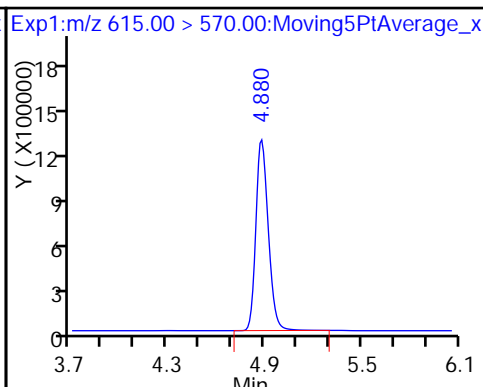
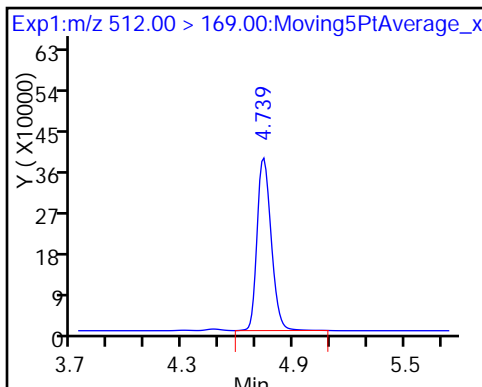
D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDoA

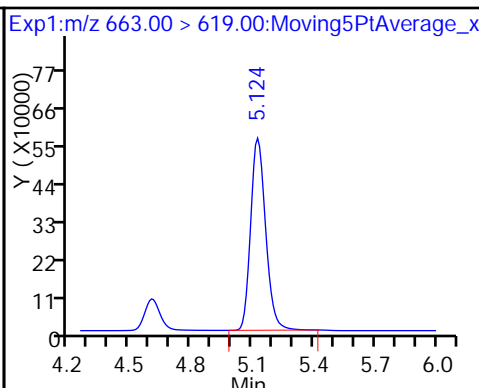
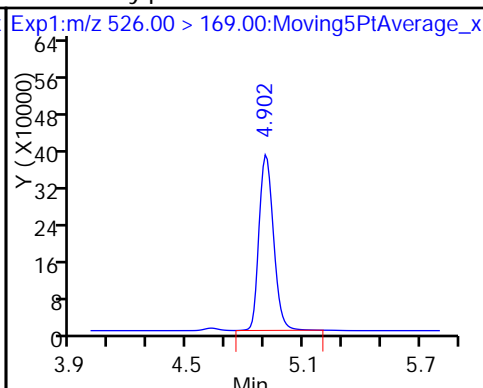
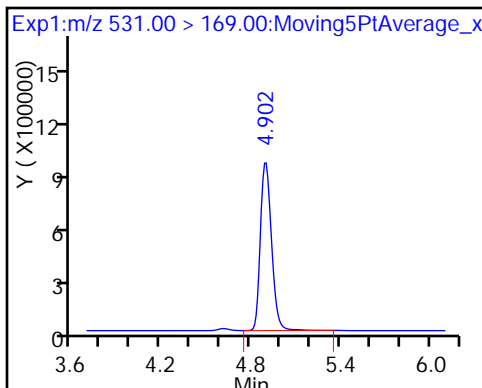
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

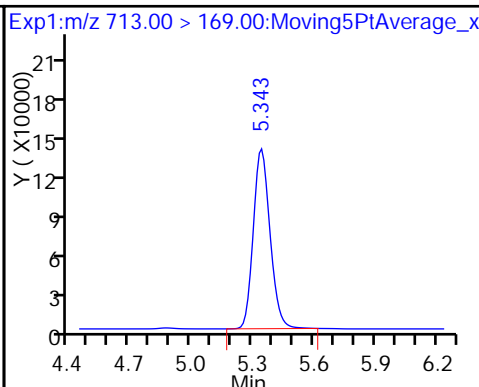
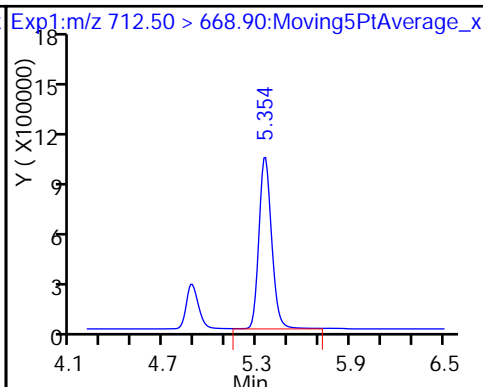
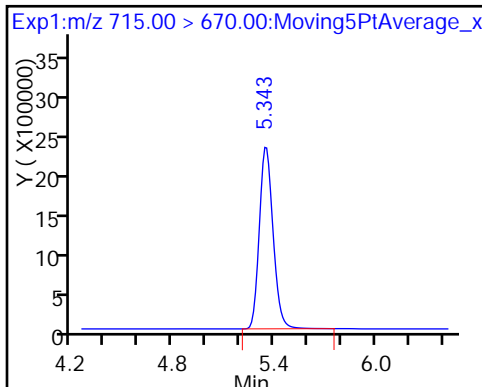
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

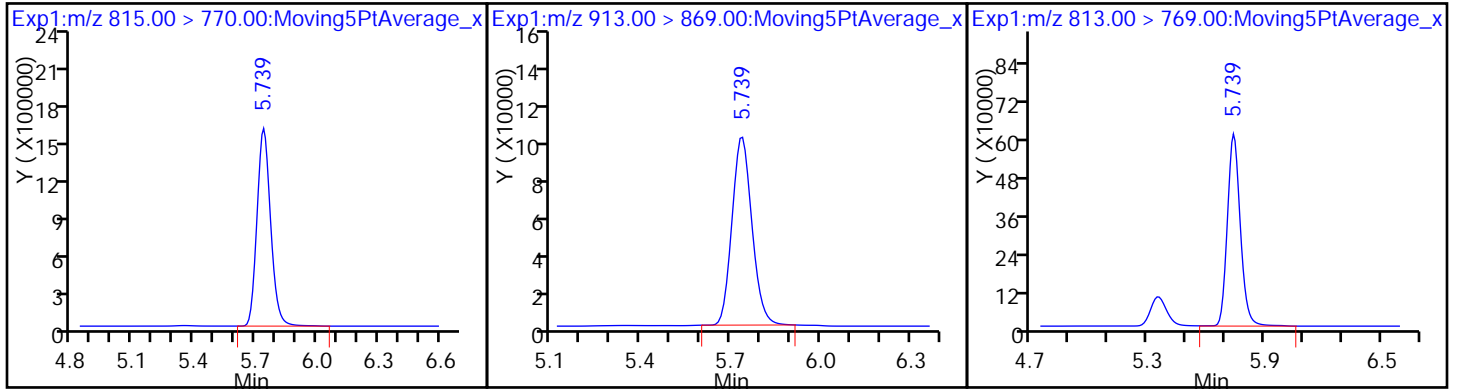
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid

45 Perfluorohexadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: ICV 320-165657/12 Calibration Date: 05/22/2017 19:49
 Instrument ID: A8_N Calib Start Date: 05/22/2017 18:42
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/22/2017 19:26
 Lab File ID: 2017.05.22D_CURVE_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.003	0.9051		44.7	49.5	-9.8	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.084	0.9935		45.4	49.5	-8.3	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.582	1.463		40.5	43.8	-7.5	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.036	0.9136		43.7	49.5	-11.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.096	0.9860		44.5	49.5	-10.1	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.210	0.9841		38.1	46.8	-18.7	25.0
6:2FTS	AveID	0.9629	0.9645		47.0	46.9	0.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.365	1.208		41.7	47.1	-11.5	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.123	1.027		45.3	49.5	-8.5	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.187	0.9214		36.7	47.3	-22.3	25.0
Perfluorononanoic acid (PFNA)	AveID	1.087	0.9597		43.7	49.5	-11.8	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.048	0.9301		43.9	49.5	-11.3	25.0
8:2FTS	AveID	0.9756	0.9756		47.4	47.4	-0.0	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.018	0.9081		44.2	49.5	-10.8	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.007	1.039		51.1	49.5	3.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6945	0.6247		43.0	47.8	-10.0	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.174	0.9818		41.4	49.5	-16.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9551	0.9215		47.8	49.5	-3.5	25.0
MeFOSA	AveID	0.9631	0.995		51.1	49.5	3.3	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.015	0.9008		43.9	49.5	-11.2	25.0
N-EtFOSA-M	AveID	1.019	1.062		51.6	49.5	4.2	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.004	0.8857		43.7	49.5	-11.8	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		1.806		43.7	49.5	-11.8	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.999		47.0	49.5	-5.0	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.260	1.076		42.2	49.5	-14.7	25.0
13C4 PFBA	Ave	372732	364967		48.5	49.5	-2.1	50.0
13C5-PFPeA	Ave	246497	243707		48.9	49.5	-1.1	50.0
13C2 PFHxA	Ave	244489	245348		49.7	49.5	0.4	50.0
13C4-PFHpA	Ave	223707	219830		48.6	49.5	-1.7	50.0
18O2 PFHxS	Ave	322150	312897		45.5	46.8	-2.9	50.0
M2-6:2FTS	Ave	131356	120702		43.2	47.0	-8.1	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: ICV 320-165657/12 Calibration Date: 05/22/2017 19:49
 Instrument ID: A8_N Calib Start Date: 05/22/2017 18:42
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/22/2017 19:26
 Lab File ID: 2017.05.22D_CURVE_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	226888	222108		48.5	49.5	-2.1	50.0
13C4 PFOS	Ave	234642	231278		46.6	47.3	-1.4	50.0
13C5 PFNA	Ave	174482	171777		48.7	49.5	-1.6	50.0
13C8 FOSA	Ave	367735	369407		49.7	49.5	0.5	50.0
13C2 PFDA	Ave	149557	151702		50.2	49.5	1.4	50.0
M2-8:2FTS	Ave	99608	95537		45.5	47.4	-4.1	50.0
d3-NMeFOSAA	Ave	66001	62471		46.9	49.5	-5.3	50.0
13C2 PFUnA	Ave	112228	112281		49.5	49.5	0.0	50.0
d5-NEtFOSAA	Ave	64270	64603		49.8	49.5	0.5	50.0
d-N-MeFOSA-M	Ave	98992	99268		49.6	49.5	0.3	50.0
13C2 PFDoA	Ave	108877	111758		50.8	49.5	2.6	50.0
d-N-EtFOSA-M	Ave	95914	96160		49.6	49.5	0.3	50.0
13C2-PFTeDA	Ave	215350	218886		50.3	49.5	1.6	50.0
13C2-PFHxDA	Ave	120243	124475		51.2	49.5	3.5	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_012.d
 Lims ID: ICV Full
 Client ID:
 Sample Type: ICV
 Inject. Date: 22-May-2017 19:49:26 ALS Bottle#: 36 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 23-May-2017 08:44:18 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK028

First Level Reviewer: westendorfc Date: 23-May-2017 08:26:58

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.042	2.040	0.002	18067669	48.5		97.9	105508	
2 Perfluorobutyric acid	212.90 > 169.00	2.042	2.044	-0.002	16352200	44.7			13199	
D 3 13C5-PFPeA	267.90 > 223.00	2.409	2.408	0.001	12064700	48.9		98.9	25438	
4 Perfluoropentanoic acid	262.90 > 219.00	2.409	2.410	-0.001	11986251	45.4			3214	
D 47 13C3-PFBS	301.90 > 83.00	2.449	2.448	0.001	296662	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.449	2.452	-0.003	20060947	40.5				
	298.90 > 99.00	2.449	2.452	-0.003	8357781		2.40(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.755	2.748	0.007	4288386	48.5				
D 7 13C2 PFHxA	315.00 > 270.00	2.803	2.799	0.004	12145956	49.7		100	301204	
6 Perfluorohexanoic acid	313.00 > 269.00	2.803	2.799	0.004	11096580	43.7			23747	
D 9 13C4-PFHpA	367.00 > 322.00	3.201	3.203	-0.002	10882679	48.6		98.3	48049	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.201	3.203	-0.002	10730010	44.5			3732	
D 11 18O2 PFHxS	403.00 > 84.00	3.210	3.209	0.001	14653505	45.5		97.1	240457	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.210	3.209	0.001	14404990	38.1				

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.579	3.576	0.003	1.000	5463312	47.0		
D 12 M2-6:2FTS	429.00	> 409.00	3.579	3.576	0.003		5676602	43.2	91.9	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.595	3.595	-0.001	1.000	13162714	41.7		
* 62 13C2-PFOA	415.00	> 370.00	3.595	3.595	-0.001		10202220	49.5		
D 14 13C4 PFOA	417.00	> 372.00	3.603	3.601	0.002		10995457	48.5	97.9	49909
15 Perfluorooctanoic acid	413.00	> 369.00	3.603	3.601	0.002	1.000	11290459	45.3		970
	413.00	> 169.00	3.603	3.601	0.002	1.000	6571836		1.72(0.90-1.10)	15382
D 18 13C4 PFOS	503.00	> 80.00	3.966	3.966	0.0		10945652	46.6	98.6	18215
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.966	3.967	-0.001	1.000	10074856	36.7		12058
	499.00	> 99.00	3.966	3.967	-0.001	1.000	2388740		4.22(0.90-1.10)	9934
D 19 13C5 PFNA	468.00	> 423.00	3.977	3.979	-0.002		8503811	48.7	98.4	24576
20 Perfluorononanoic acid	463.00	> 419.00	3.988	3.981	0.007	1.000	8160697	43.7		8034
D 21 13C8 FOSA	506.00	> 78.00	4.289	4.296	-0.007		18287484	49.7	100	78005
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.289	4.297	-0.008	1.000	17008934	43.9		35322
D 26 M2-8:2FTS	529.00	> 509.00	4.323	4.320	0.003		4530911	45.5	95.9	
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.323	4.322	0.001	1.000	4420237	47.4		
D 23 13C2 PFDA	515.00	> 470.00	4.323	4.322	0.001		7510017	50.2	101	3108
24 Perfluorodecanoic acid	513.00	> 469.00	4.323	4.323	0.0	1.000	6819597	44.2		655
D 27 d3-NMeFOSAA	573.00	> 419.00	4.473	4.472	0.001		3092642	46.9	94.7	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.484	4.478	0.006	1.002	3214049	51.1		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.605	4.598	0.007	1.000	6902447	43.0		
D 30 13C2 PFUnA	565.00	> 520.00	4.633	4.624	0.009		5558479	49.5	100	12240
31 Perfluoroundecanoic acid	563.00	> 519.00	4.633	4.625	0.008	1.000	5457310	41.4		9690
D 32 d5-NEtFOSAA	589.00	> 419.00	4.633	4.627	0.006		3198164	49.8	101	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.642	4.635	0.007	1.002	2947108	47.8		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00 > 169.00	4.743	4.750	-0.007		4914234	49.6	100		
35 MeFOSA	512.00 > 169.00	4.755	4.755	0.0	1.000	4889655	51.1			
D 36 13C2 PFDaA	615.00 > 570.00	4.898	4.895	0.003		5532589	50.8	103	7702	
37 Perfluorododecanoic acid	613.00 > 569.00	4.898	4.895	0.003	1.000	4983552	43.9		268	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.916	4.915	0.001		4760387	49.6	100		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.916	4.922	-0.006	1.000	5055497	51.6			
41 Perfluorotridecanoic acid	663.00 > 619.00	5.147	5.139	0.008	1.000	4899924	43.7		221	
D 43 13C2-PFTeDA	715.00 > 670.00	5.366	5.357	0.009		10835935	50.3	102	8295	
42 Perfluorotetradecanoic acid	712.50 > 668.90	5.366	5.357	0.009	1.000	9994519	43.7		138	
	713.00 > 169.00	5.356	5.357	-0.001	0.998	1458161	6.85(0.00-0.00)		3903	
D 44 13C2-PFHxDA	815.00 > 770.00	5.746	5.742	0.004		6162151	51.2	104	1868	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.746	5.743	0.003	1.000	5527777	47.0		158	
46 Perfluorooctadecanoic acid	913.00 > 869.00	6.158	6.143	0.015	1.000	5950540	42.2		144	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFCIC_FULL_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_012.d

Injection Date: 22-May-2017 19:49:26

Instrument ID: A8_N

Lims ID: ICV Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

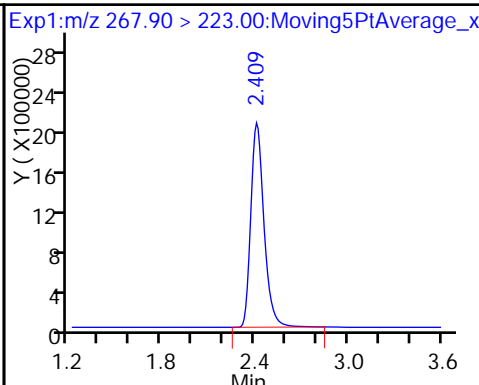
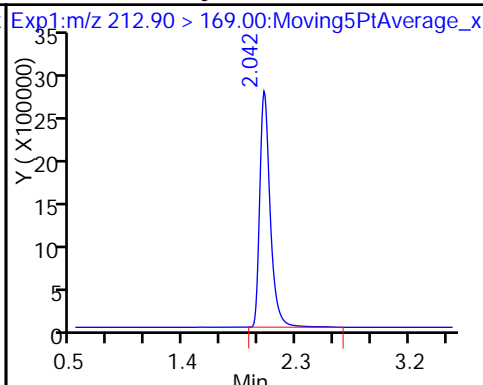
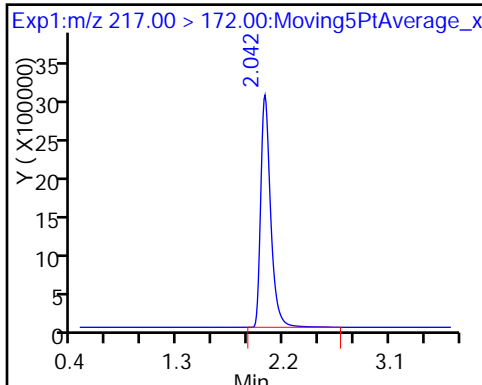
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

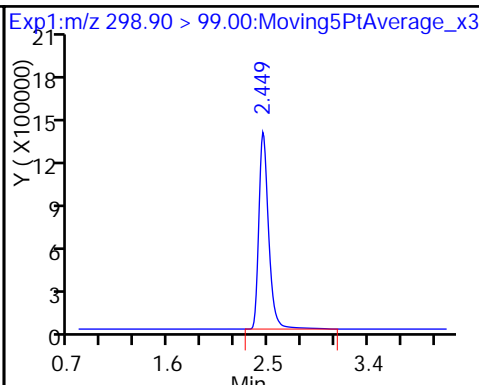
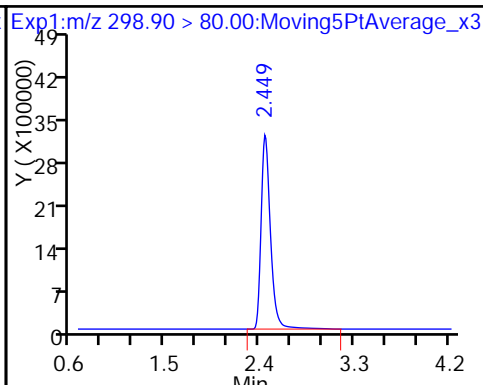
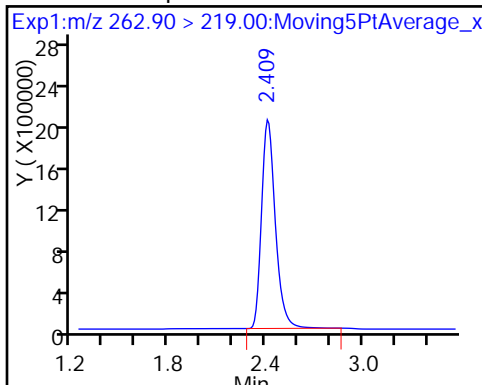
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

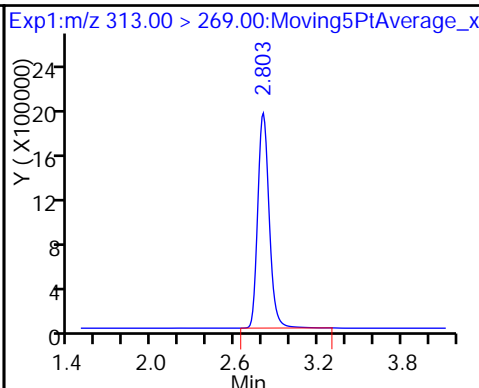
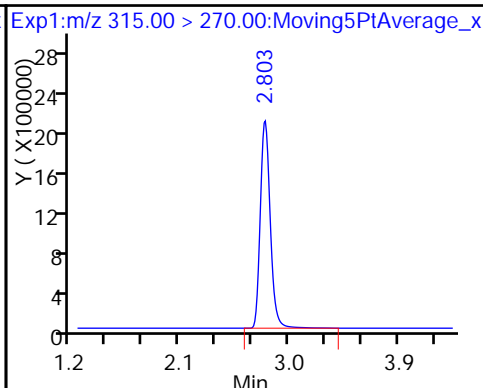
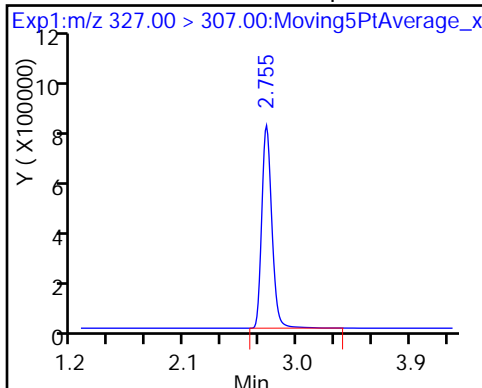
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

D 7 13C2 PFHxA

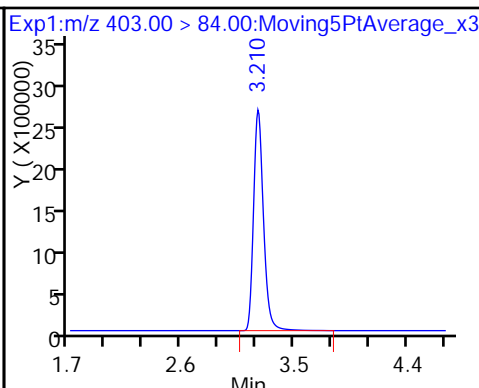
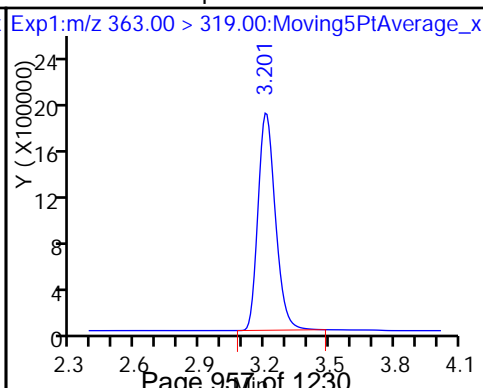
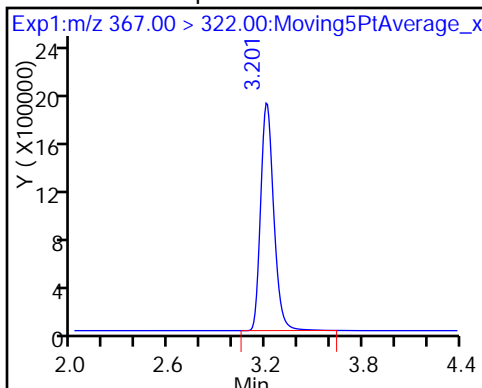
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

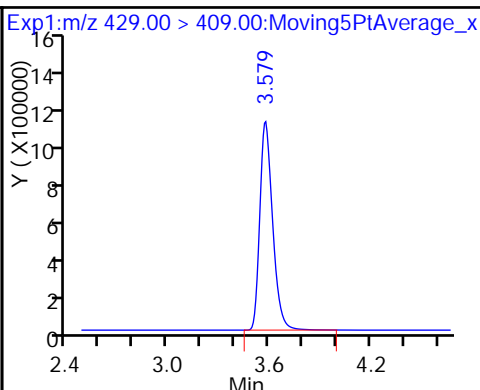
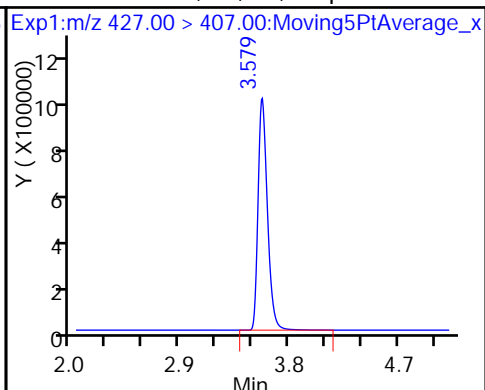
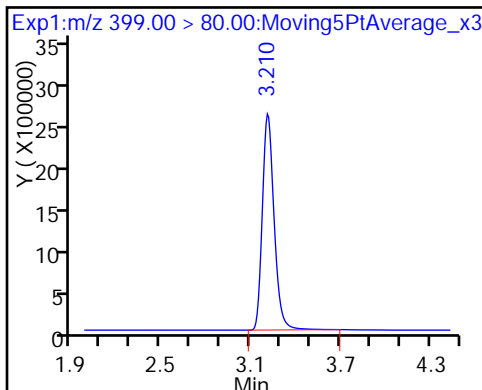
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

13 Sodium 1H,1H,2H,2H-perfluorooctanoate

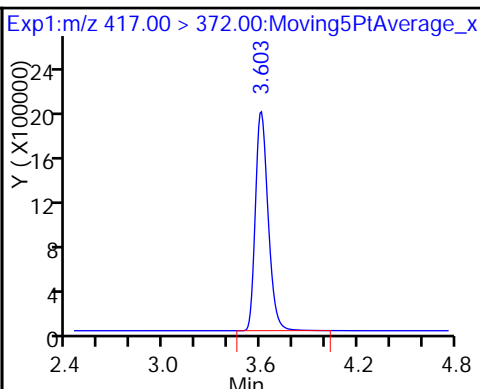
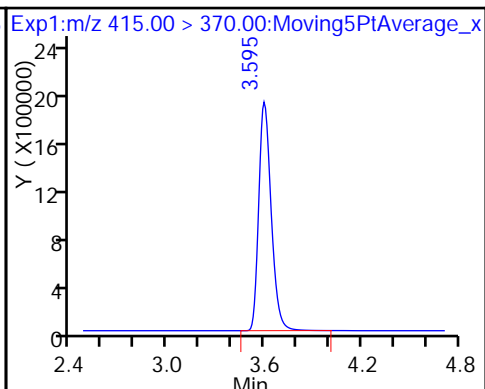
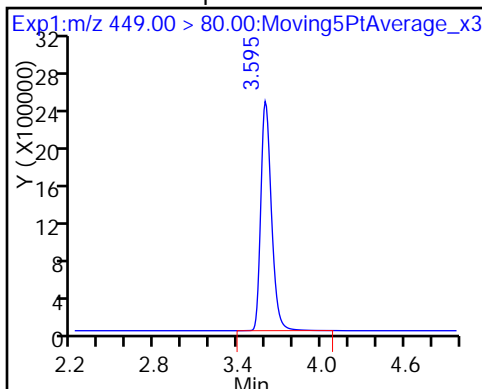
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

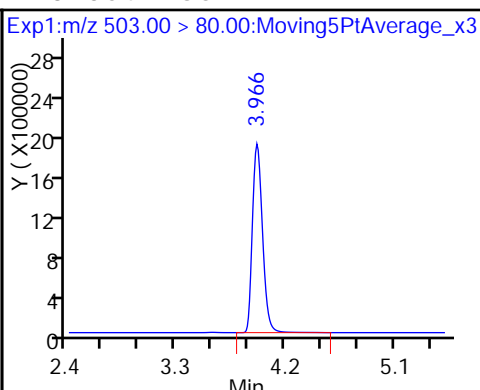
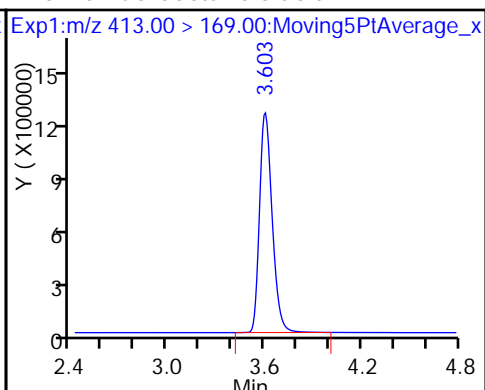
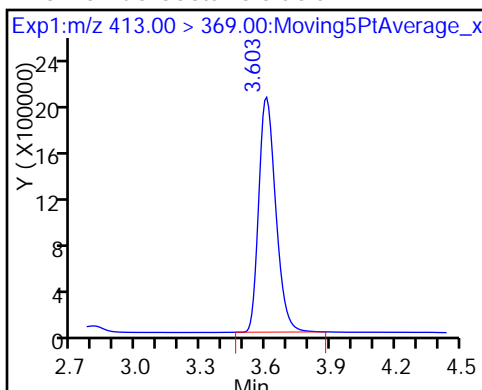
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

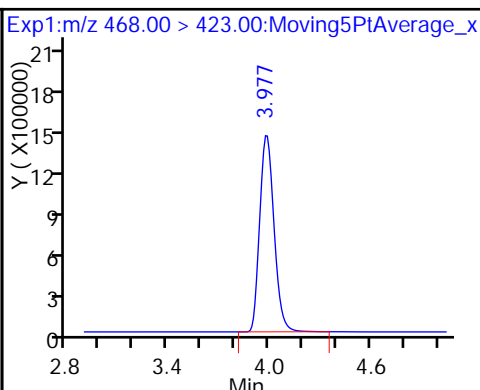
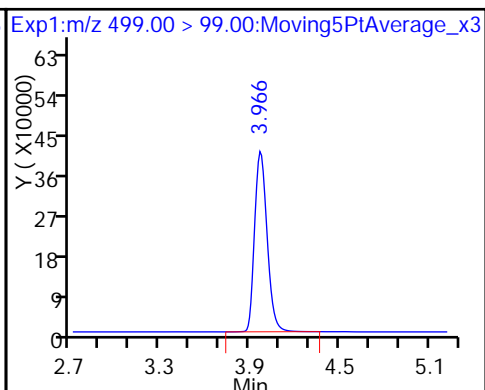
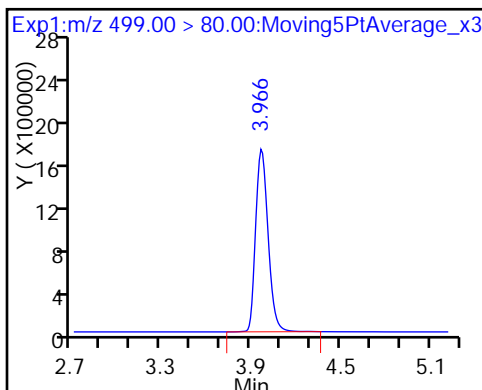
D 18 13C4 PFOS

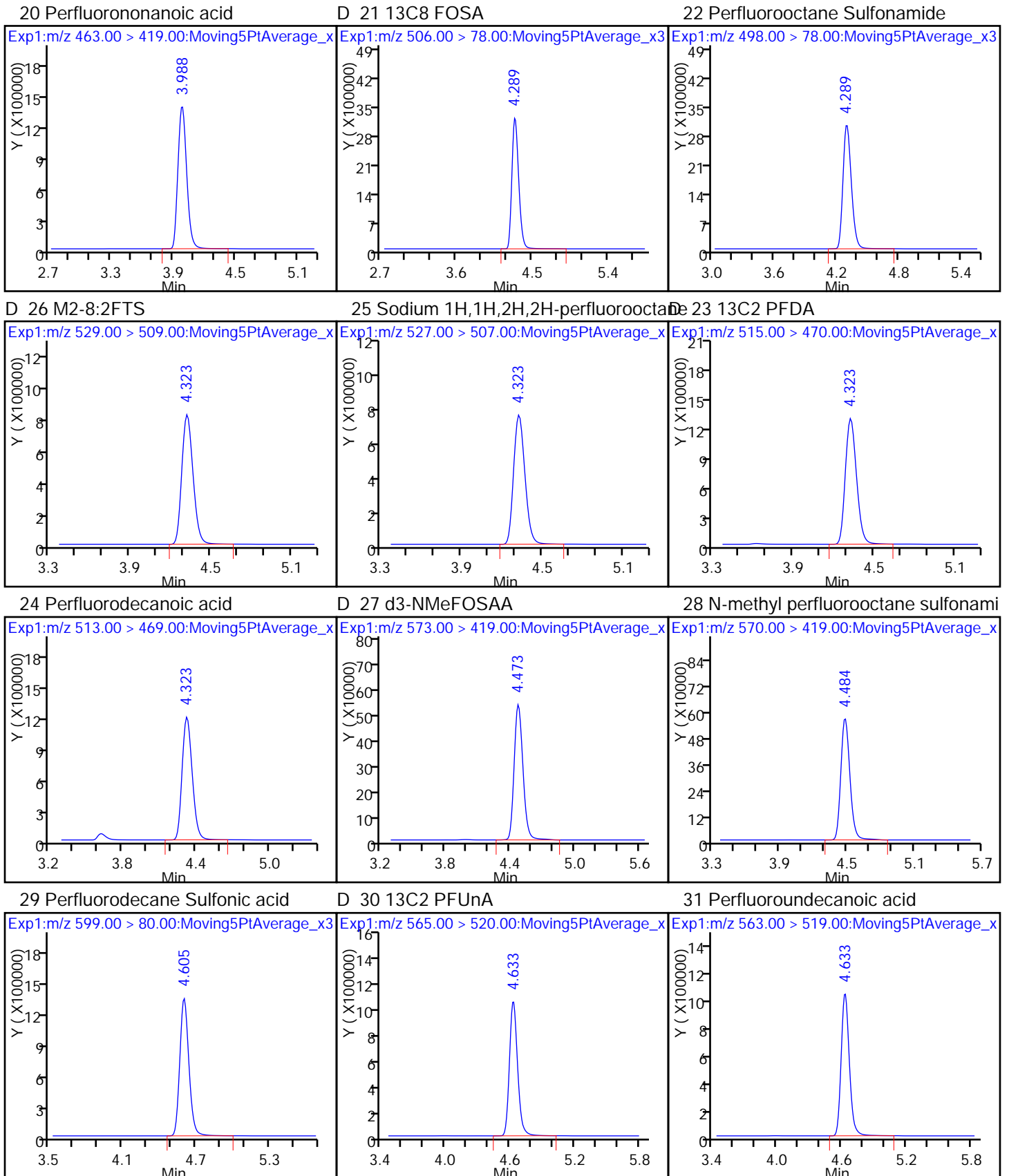


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

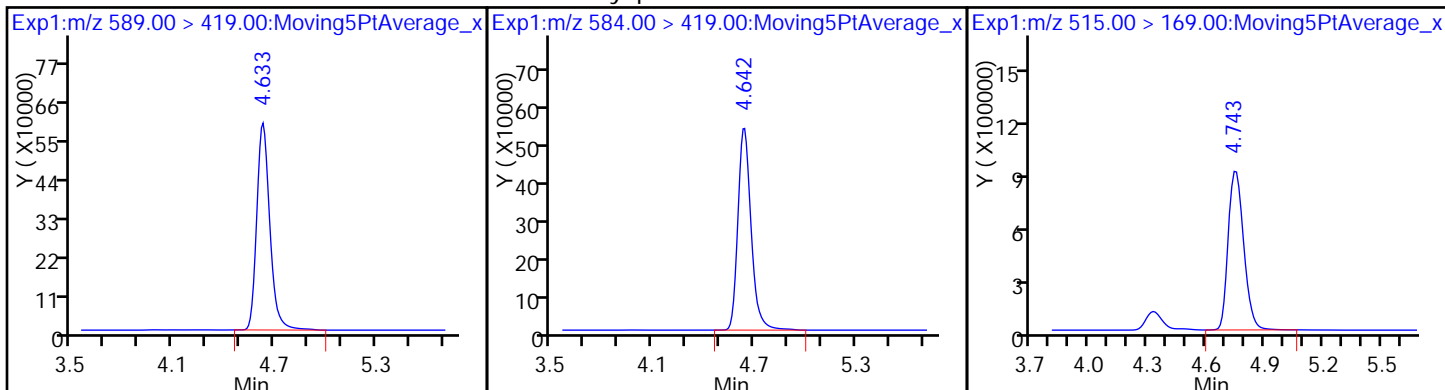




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

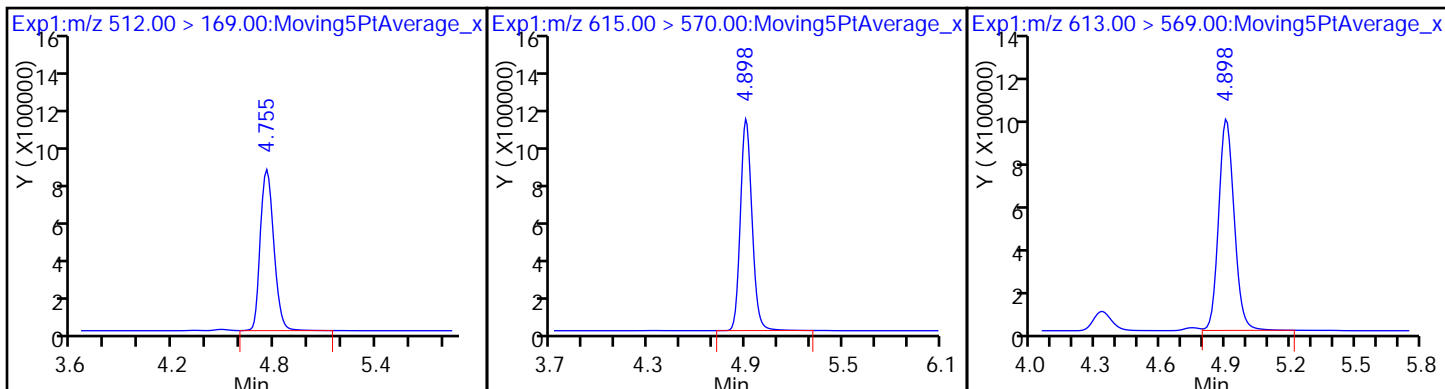
D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

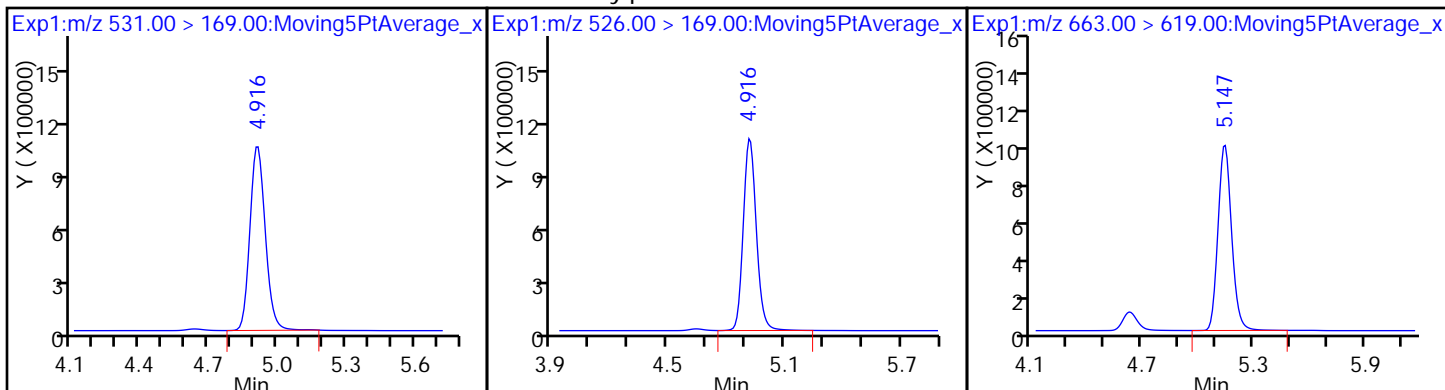
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

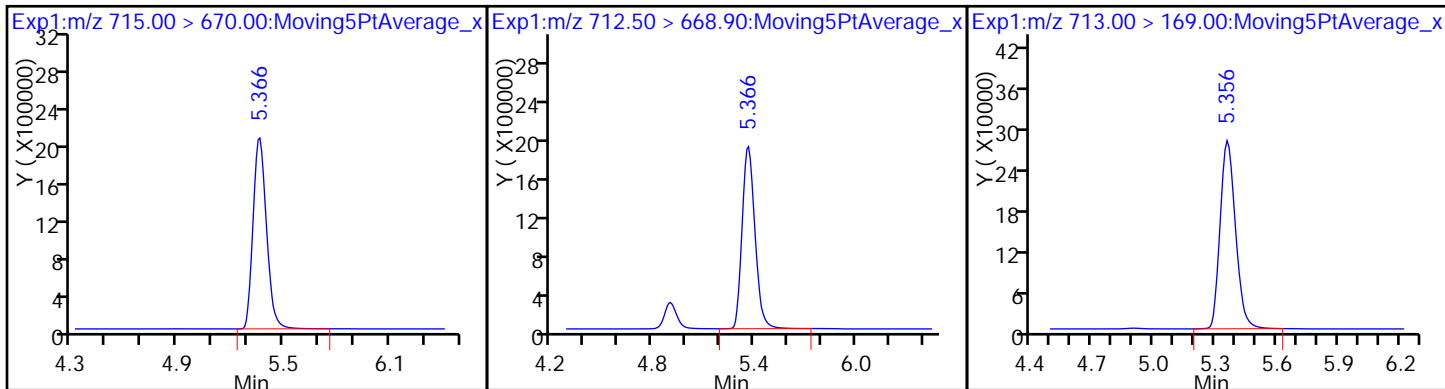
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

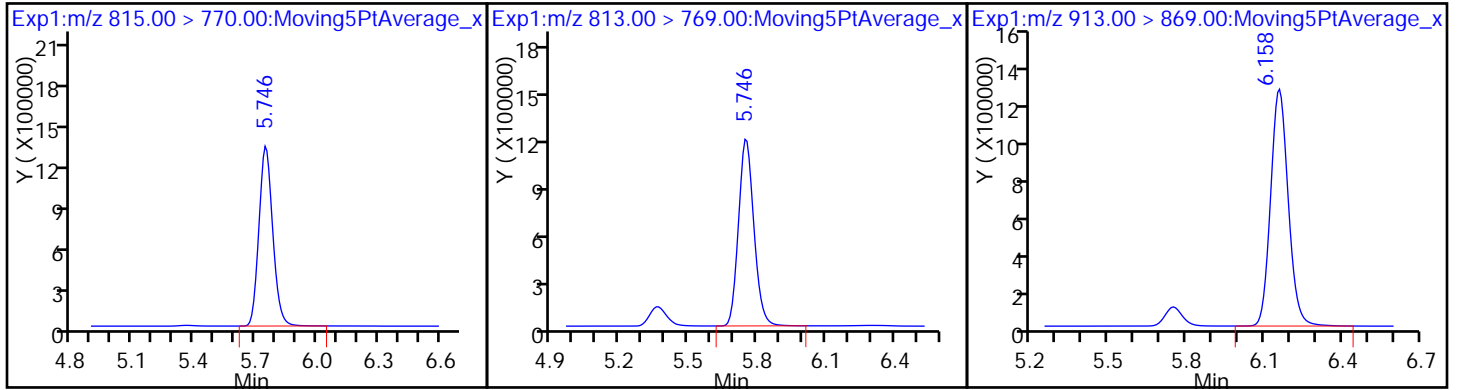
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-165944/1 Calibration Date: 05/24/2017 09:20
 Instrument ID: A8_N Calib Start Date: 05/22/2017 18:42
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/22/2017 19:26
 Lab File ID: 2017.05.24A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.003	1.034		1.02	0.990	3.1	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.084	1.164		1.06	0.990	7.5	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.582	1.619		0.896	0.875	2.4	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.036	1.100		1.05	0.990	6.2	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.096	1.161		1.05	0.990	5.9	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.210	1.331		0.991	0.901	10.0	50.0
6:2FTS	AveID	0.9629	1.105		1.08	0.939	14.8	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.365	1.317		0.910	0.943	-3.5	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.123	1.181		1.04	0.990	5.2	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.187	1.144		0.886	0.919	-3.6	50.0
Perfluorononanoic acid (PFNA)	AveID	1.087	1.138		1.04	0.990	4.6	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.048	1.144		1.08	0.990	9.1	50.0
8:2FTS	AveID	0.9756	1.025		0.997	0.949	5.1	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.018	1.062		1.03	0.990	4.4	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.007	1.056		1.04	0.990	4.9	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6945	0.6376		0.876	0.954	-8.2	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.174	1.247		1.05	0.990	6.2	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9551	0.9352		0.969	0.990	-2.1	50.0
MeFOSA	AveID	0.9631	0.9215		0.947	0.990	-4.3	50.0
N-EtFOSA-M	AveID	1.019	0.9874		0.959	0.990	-3.1	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.015	1.073		1.05	0.990	5.7	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.004	1.054		1.04	0.990	5.0	50.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.315		1.05	0.990	6.1	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.933		1.17	0.990	17.9	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.260	0.8865		0.696	0.990	-29.7	50.0
13C4 PFBA	Ave	372732	348282		46.3	49.5	-6.6	50.0
13C5-PFPeA	Ave	246497	240359		48.3	49.5	-2.5	50.0
13C2 PFHxA	Ave	244489	249334		50.5	49.5	2.0	50.0
13C4-PFHpA	Ave	223707	230298		51.0	49.5	2.9	50.0
18O2 PFHxS	Ave	322150	309752		45.0	46.8	-3.8	50.0
M2-6:2FTS	Ave	131356	122469		43.8	47.0	-6.8	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-165944/1 Calibration Date: 05/24/2017 09:20
 Instrument ID: A8_N Calib Start Date: 05/22/2017 18:42
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/22/2017 19:26
 Lab File ID: 2017.05.24A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	226888	240904		52.6	49.5	6.2	50.0
13C4 PFOS	Ave	234642	236342		47.7	47.3	0.7	50.0
13C5 PFNA	Ave	174482	198793		56.4	49.5	13.9	50.0
13C8 FOSA	Ave	367735	369623		49.8	49.5	0.5	50.0
13C2 PFDA	Ave	149557	171685		56.8	49.5	14.8	50.0
M2-8:2FTS	Ave	99608	112908		53.8	47.4	13.4	50.0
d3-NMeFOSAA	Ave	66001	72066		54.1	49.5	9.2	50.0
13C2 PFUnA	Ave	112228	130839		57.7	49.5	16.6	50.0
d5-NEtFOSAA	Ave	64270	72876		56.1	49.5	13.4	50.0
d-N-MeFOSA-M	Ave	98992	96447		48.2	49.5	-2.6	50.0
d-N-EtFOSA-M	Ave	95914	92752		47.9	49.5	-3.3	50.0
13C2 PFDoA	Ave	108877	124609		56.7	49.5	14.4	50.0
13C2-PFTeDA	Ave	215350	243299		55.9	49.5	13.0	50.0
13C2-PFHxDA	Ave	120243	145822		60.0	49.5	21.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170524-43446.b\2017.05.24A_004.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 24-May-2017 09:20:46 ALS Bottle#: 29 Worklist Smp#: 1
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCVL 2
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub20
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170524-43446.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 24-May-2017 11:54:48 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK017

First Level Reviewer: westendorfc Date: 24-May-2017 11:46:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.968	1.969	-0.001	17241684	46.3		93.4	72380	
2 Perfluorobutyric acid	212.90 > 169.00	1.968	1.969	-0.001	1.000	356560	1.02	103	236	
D 3 13C5-PFPeA	267.90 > 223.00	2.328	2.318	0.010	11898951	48.3		97.5	128400	
4 Perfluoropentanoic acid	262.90 > 219.00	2.328	2.328	0.0	1.000	277099	1.06	107	75.5	
D 47 13C3-PFBS	301.90 > 83.00	2.368	2.368	0.0	298013	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.378	2.368	0.010	1.000	439047	0.8960	102		
	298.90 > 99.00	2.378	2.368	0.010	1.000	182388	2.41(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.675	2.661	0.014	1.000	87799	0.9788	106		
D 7 13C2 PFHxA	315.00 > 270.00	2.714	2.710	0.004	12343244	50.5		102	217421	
6 Perfluorohexanoic acid	313.00 > 269.00	2.714	2.710	0.004	1.000	271530	1.05	106	677	
D 9 13C4-PFHpA	367.00 > 322.00	3.119	3.109	0.010	11400878	51.0		103	76238	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.119	3.109	0.010	1.000	264681	1.05	106	332	
D 11 18O2 PFHxS	403.00 > 84.00	3.127	3.117	0.010	14506222	45.0		96.2	66900	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.127	3.117	0.010	1.000	371550	0.99	110		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.489	3.487	0.002	1.000	127063	1.08	115	
D 12 M2-6:2FTS	429.00	> 409.00	3.497	3.494	0.003		5759680	43.8	93.2	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.517	3.502	0.015	1.000	293410	0.9096	96.5	
* 62 13C2-PFOA	415.00	> 370.00	3.517	3.502	0.015		11178811	49.5	100	
D 14 13C4 PFOA	417.00	> 372.00	3.517	3.509	0.008		11925934	52.6	106	65575
15 Perfluorooctanoic acid	413.00	> 369.00	3.517	3.509	0.008	1.000	281689	1.04	105	33.7
	413.00	> 169.00	3.517	3.509	0.008	1.000	161258	1.75(0.90-1.10)		954
D 18 13C4 PFOS	503.00	> 80.00	3.891	3.877	0.014		11185317	47.7	101	47420
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.771	3.877	-0.106	1.000	248357	0.8856	96.4	388
	499.00	> 99.00	3.891	3.877	0.014	1.032	55062	4.51(0.90-1.10)		518
D 19 13C5 PFNA	468.00	> 423.00	3.899	3.895	0.004		9841236	56.4	114	34248
20 Perfluorononanoic acid	463.00	> 419.00	3.907	3.895	0.012	1.000	223892	1.04	105	350
D 21 13C8 FOSA	506.00	> 78.00	4.184	4.184	0.0		18298177	49.8	101	18979
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.192	4.184	0.008	1.000	418539	1.08	109	4358
D 23 13C2 PFDA	515.00	> 470.00	4.252	4.240	0.012		8499249	56.8	115	8413
D 26 M2-8:2FTS	529.00	> 509.00	4.252	4.240	0.012		5354740	53.8	113	
24 Perfluorodecanoic acid	513.00	> 469.00	4.252	4.240	0.012	1.000	180545	1.03	104	356
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.252	4.240	0.012	1.000	109815	1.00	105	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.407	4.395	0.012		3567615	54.1	109	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.407	4.406	0.001	1.000	75321	1.04	105	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.542	4.531	0.011	1.000	143832	0.8763	91.8	
D 30 13C2 PFUnA	565.00	> 520.00	4.562	4.561	0.001		6477184	57.7	117	9408
31 Perfluoroundecanoic acid	563.00	> 519.00	4.562	4.561	0.001	1.000	161550	1.05	106	436
D 32 d5-NEtFOSAA	589.00	> 419.00	4.562	4.561	0.001		3607704	56.1	113	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.572	4.561	0.011	1.002	67475	0.9694	97.9	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.641	4.637	0.004	4774599	48.2	97.4		
35 MeFOSA	512.00	> 169.00	4.641	4.646	-0.005	1.000	87997	0.9474	95.7	
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.803	4.803	0.0	4591695	47.9	96.7		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.812	4.812	0.0	1.000	90678	0.9591	96.9	
D 36 13C2 PFDaA	615.00	> 570.00	4.840	4.840	0.0	6168786	56.7	114	4432	
37 Perfluorododecanoic acid	613.00	> 569.00	4.840	4.840	0.0	1.000	132336	1.05	106	6.7
41 Perfluorotridecanoic acid	663.00	> 619.00	5.094	5.092	0.002	1.000	130084	1.04	105	6.9
D 43 13C2-PFTeDA	715.00	> 670.00	5.328	5.319	0.009	12044516	55.9	113	3812	
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.328	5.319	0.009	1.000	285644	1.05	106	5.5
	713.00	> 169.00	5.328	5.319	0.009	1.000	42631	6.70(0.00-0.00)	219	
D 44 13C2-PFHxDA	815.00	> 770.00	5.737	5.726	0.011	7218926	60.0	121	1981	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.737	5.735	0.002	1.000	238519	1.17	118	8.6
46 Perfluorooctadecanoic acid	913.00	> 869.00	6.179	6.161	0.018	1.000	109376	0.6964	70.3	4.6

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L2_00003

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170524-43446.b\2017.05.24A_004.d

Injection Date: 24-May-2017 09:20:46

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

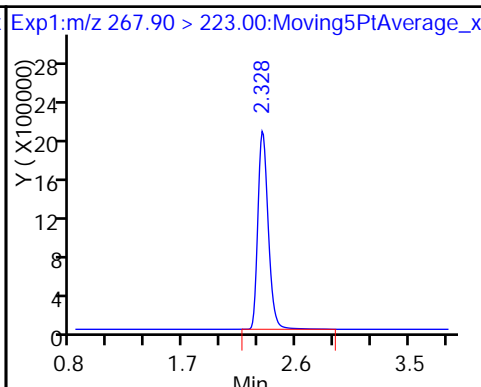
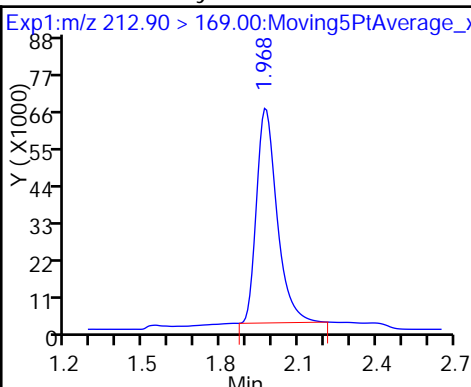
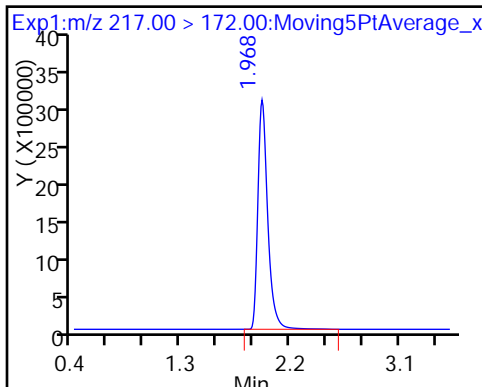
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

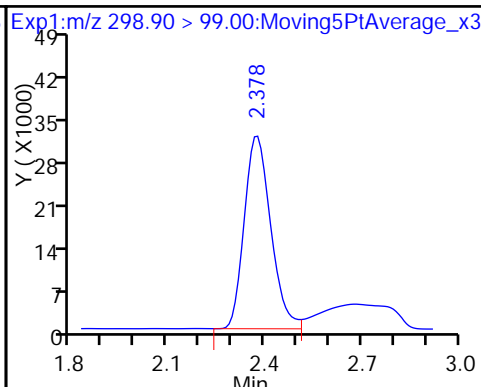
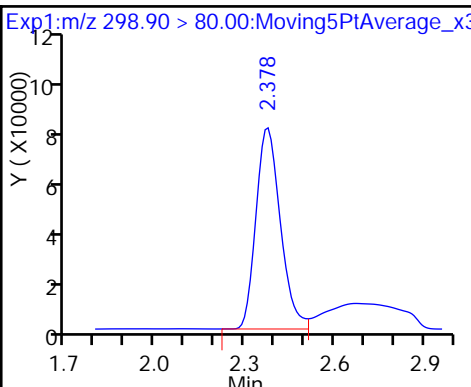
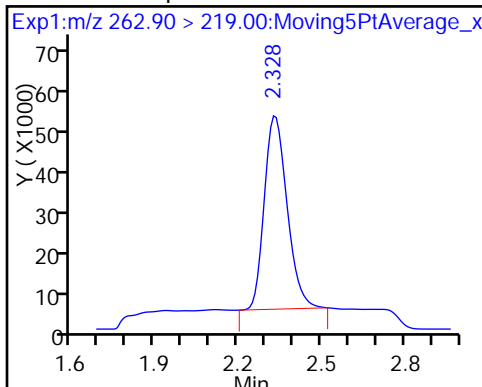
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

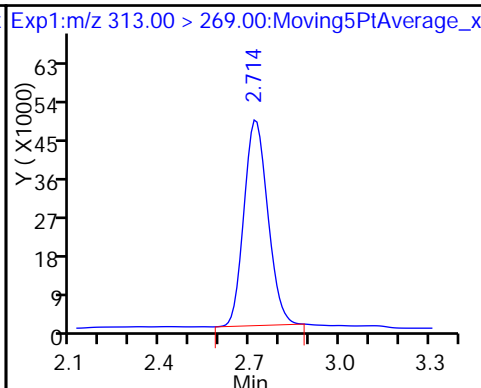
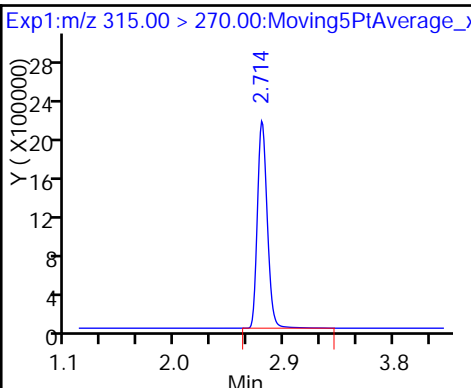
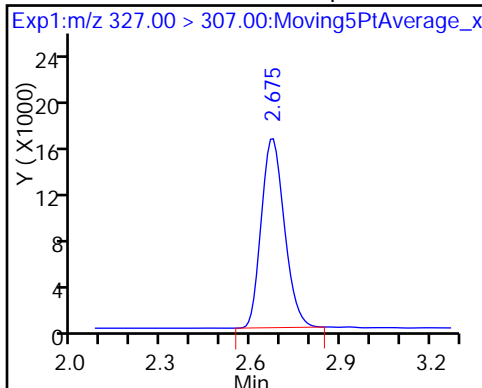
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoate

D 7 13C2 PFHxA

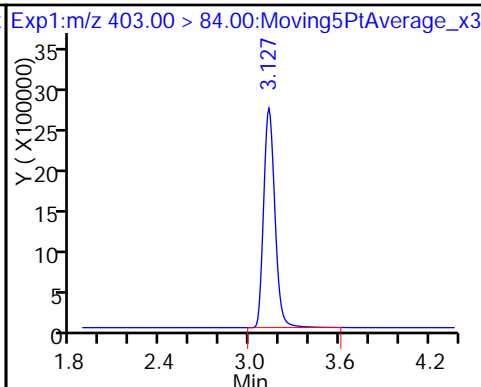
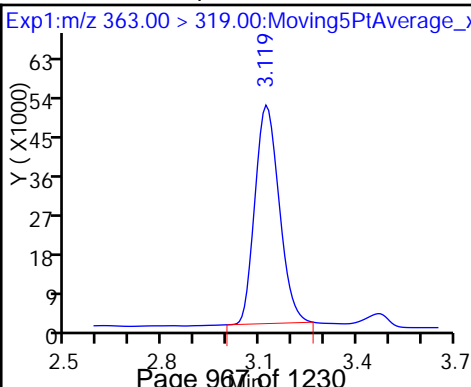
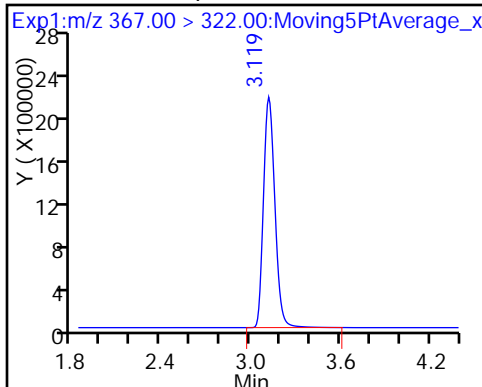
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

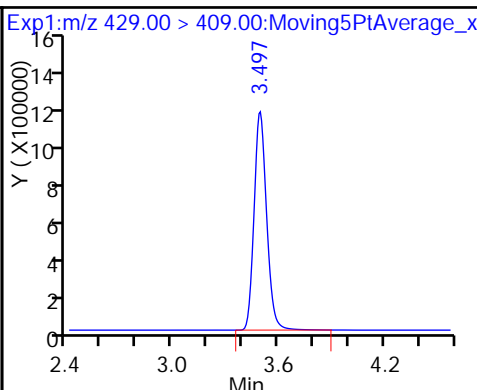
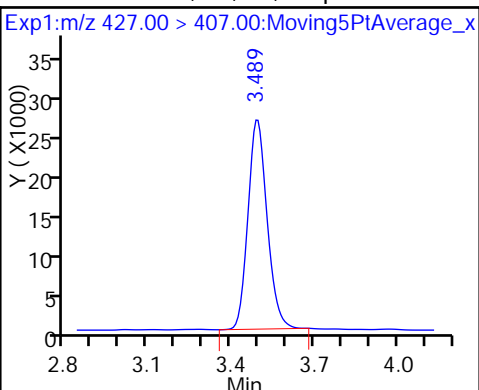
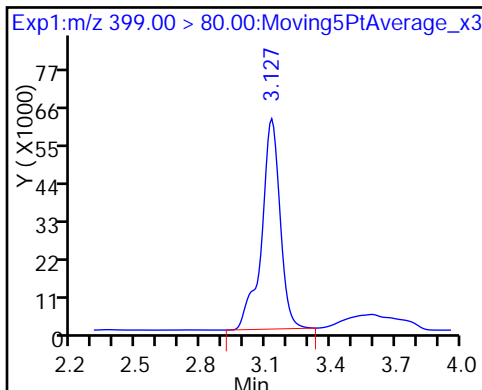
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

13 Sodium 1H,1H,2H,2H-perfluorooctanoate

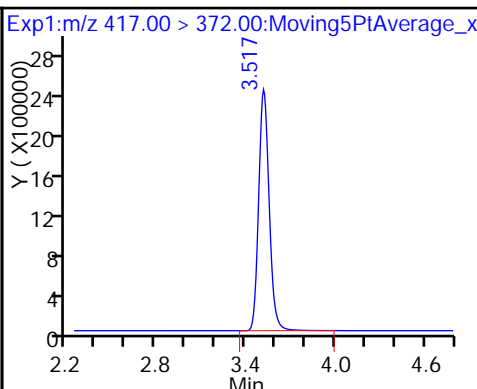
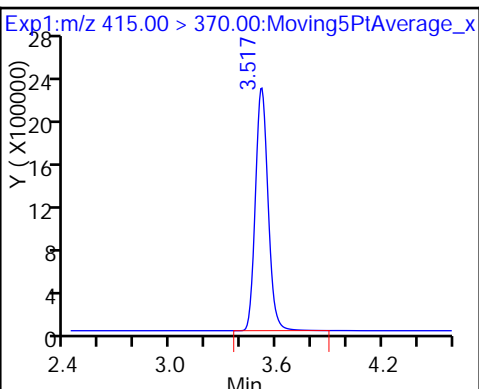
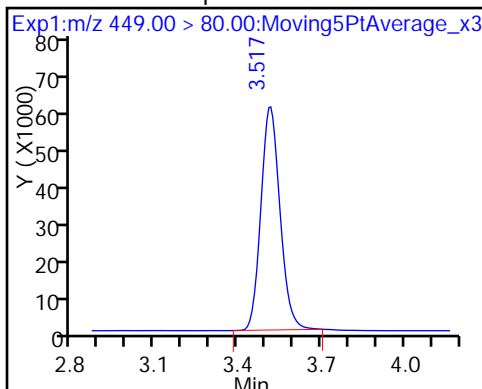
D 12 M2-6:2FTS



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

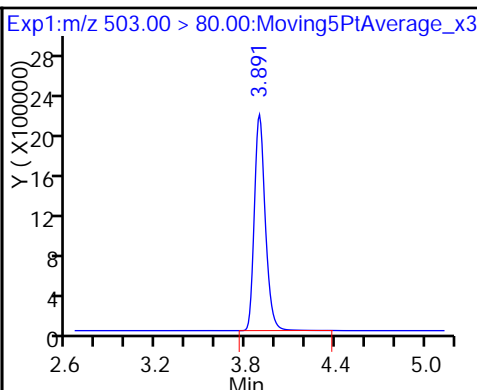
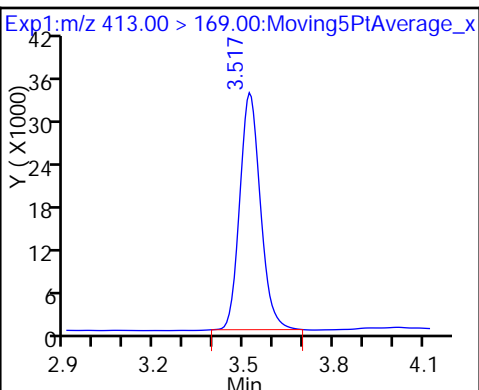
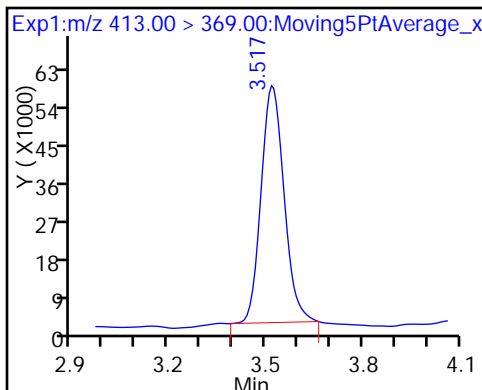
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

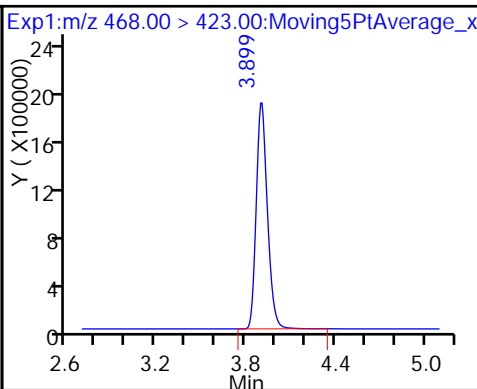
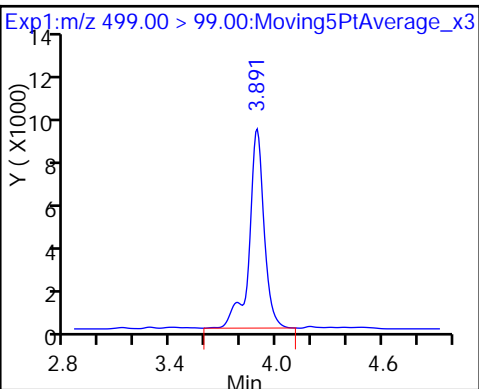
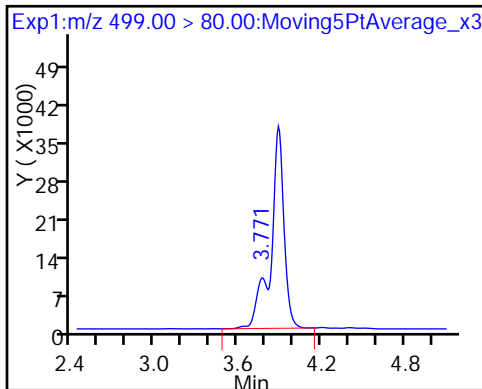
D 18 13C4 PFOS

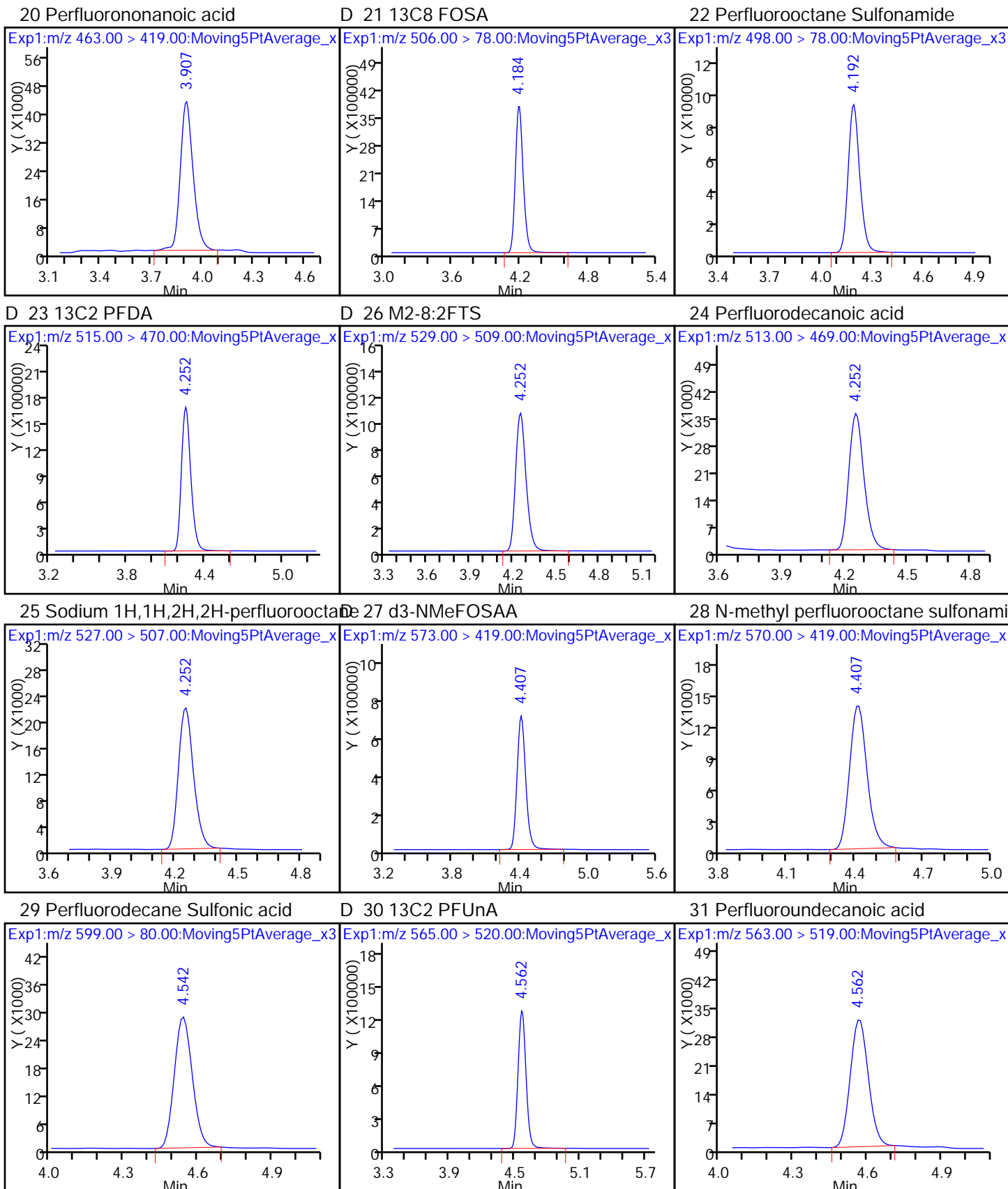


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

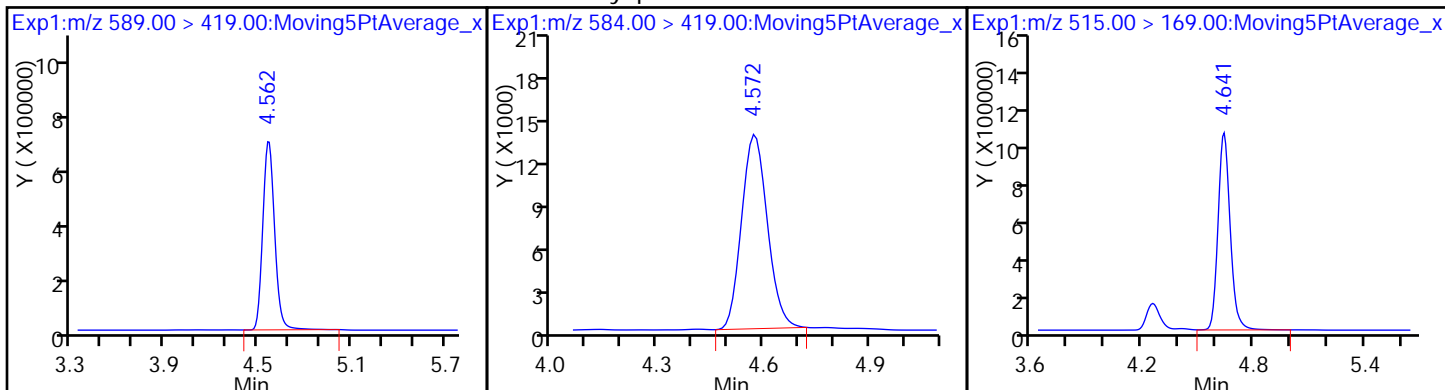




D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

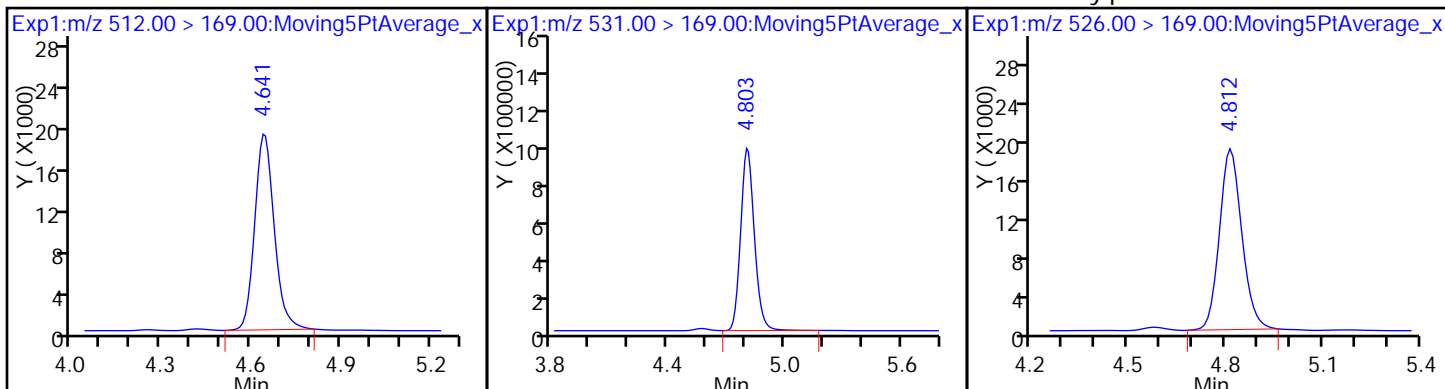
D 34 d-N-MeFOSA-M



35 MeFOSA

D 38 d-N-EtFOSA-M

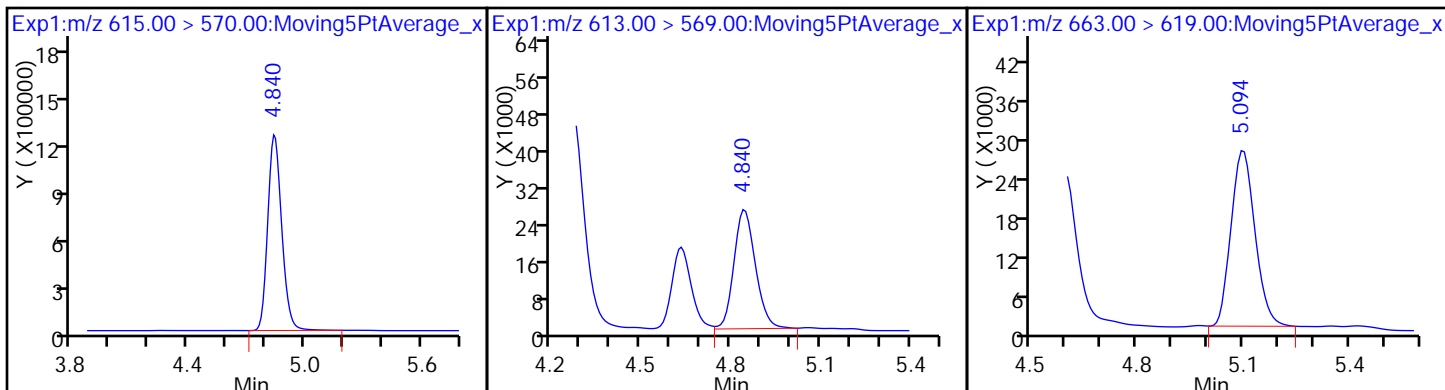
39 N-ethylperfluoro-1-octanesulfonami



D 36 13C2 PFDaA

37 Perfluorododecanoic acid

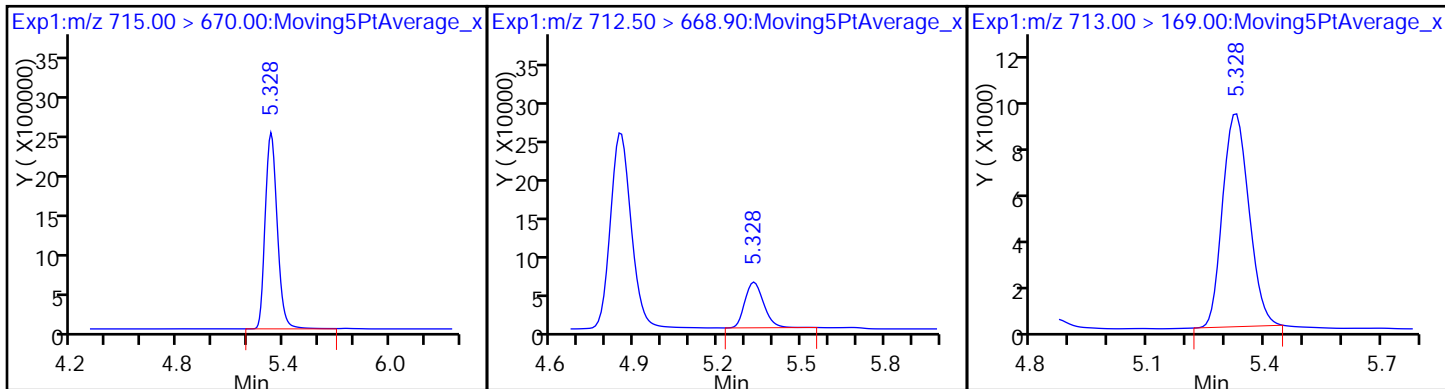
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

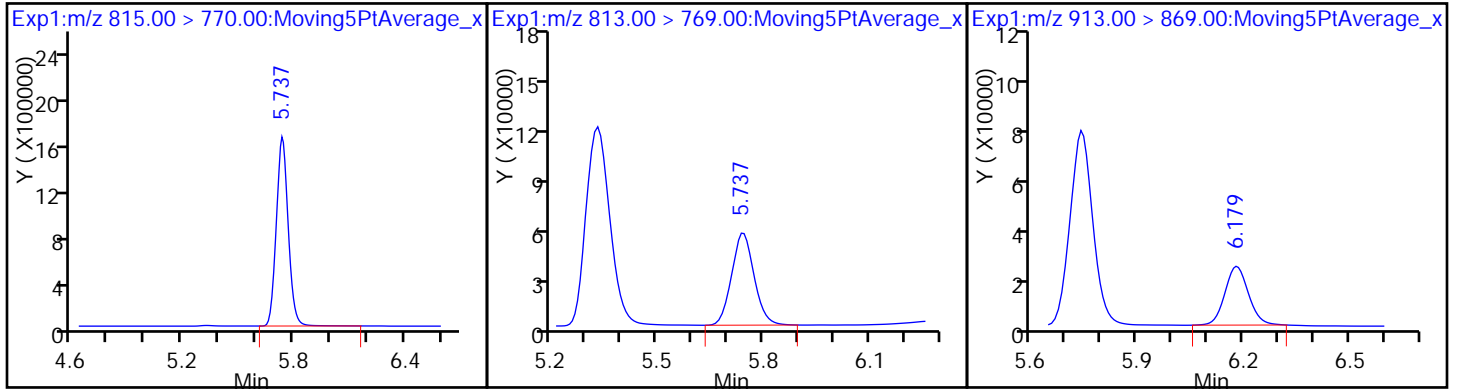
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-166071/1 Calibration Date: 05/24/2017 21:35
 Instrument ID: A8_N Calib Start Date: 05/22/2017 18:42
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/22/2017 19:26
 Lab File ID: 2017.05.24C_031.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.003	1.046		51.6	49.5	4.3	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.084	1.079		49.3	49.5	-0.4	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.582	1.625		44.9	43.8	2.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.036	1.047		50.0	49.5	1.0	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.096	1.089		49.1	49.5	-0.7	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.210	1.202		44.8	45.0	-0.6	25.0
6:2FTS	AveID	0.9629	0.9287		45.3	46.9	-3.6	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.365	1.318		45.5	47.1	-3.5	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.123	1.120		49.4	49.5	-0.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.187	1.154		44.7	45.9	-2.8	25.0
Perfluorononanoic acid (PFNA)	AveID	1.087	1.088		49.5	49.5	0.0	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.048	1.041		49.2	49.5	-0.7	25.0
8:2FTS	AveID	0.9756	0.9756		47.4	47.4	-0.0	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.018	1.042		50.7	49.5	2.4	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.007	1.007		49.5	49.5	0.0	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6945	0.6976		47.9	47.7	0.5	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.174	1.117		47.1	49.5	-4.9	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9551	0.9217		47.8	49.5	-3.5	25.0
MeFOSA	AveID	0.9631	0.9584		49.3	49.5	-0.5	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.015	1.009		49.2	49.5	-0.6	25.0
N-EtFOSA-M	AveID	1.019	1.006		48.9	49.5	-1.3	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.004	1.019		50.2	49.5	1.4	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.262		54.7	49.5	10.5	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.057		49.8	49.5	0.6	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.260	1.156		45.4	49.5	-8.3	25.0
13C4 PFBA	Ave	372732	365501		48.5	49.5	-1.9	50.0
13C5-PFPeA	Ave	246497	244544		49.1	49.5	-0.8	50.0
13C2 PFHxA	Ave	244489	236329		47.9	49.5	-3.3	50.0
13C4-PFHpA	Ave	223707	213776		47.3	49.5	-4.4	50.0
18O2 PFHxS	Ave	322150	303319		44.1	46.8	-5.8	50.0
M2-6:2FTS	Ave	131356	139496		49.9	47.0	6.2	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-166071/1 Calibration Date: 05/24/2017 21:35
 Instrument ID: A8_N Calib Start Date: 05/22/2017 18:42
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/22/2017 19:26
 Lab File ID: 2017.05.24C_031.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	226888	234865		51.2	49.5	3.5	50.0
13C4 PFOS	Ave	234642	233433		47.1	47.3	-0.5	50.0
13C5 PFNA	Ave	174482	184663		52.4	49.5	5.8	50.0
13C8 FOSA	Ave	367735	371728		50.0	49.5	1.1	50.0
13C2 PFDA	Ave	149557	157422		52.1	49.5	5.3	50.0
M2-8:2FTS	Ave	99608	107665		51.3	47.4	8.1	50.0
d3-NMeFOSAA	Ave	66001	78924		59.2	49.5	19.6	50.0
13C2 PFUnA	Ave	112228	117051		51.6	49.5	4.3	50.0
d5-NEtFOSAA	Ave	64270	76233		58.7	49.5	18.6	50.0
d-N-MeFOSA-M	Ave	98992	105712		52.9	49.5	6.8	50.0
13C2 PFDoA	Ave	108877	120384		54.7	49.5	10.6	50.0
d-N-EtFOSA-M	Ave	95914	96054		49.6	49.5	0.1	50.0
13C2-PFTEtDA	Ave	215350	254523		58.5	49.5	18.2	50.0
13C2-PFHxDA	Ave	120243	131051		54.0	49.5	9.0	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_031.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 24-May-2017 21:35:34 ALS Bottle#: 32 Worklist Smp#: 1
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub18
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:02:54 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:54:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid	212.90 > 169.00	1.993	1.993	0.0	1.000	18931334	51.6	104	17556	
D 1 13C4 PFBA	217.00 > 172.00	1.993	1.993	0.0		18094102	48.5	98.1	241523	
4 Perfluoropentanoic acid	262.90 > 219.00	2.348	2.348	0.0	1.000	13066989	49.3	99.6	3450	
D 3 13C5-PFPeA	267.90 > 223.00	2.348	2.348	0.0		12106137	49.1	99.2	301103	
D 47 13C3-PFBS	301.90 > 83.00	2.388	2.388	0.0		283150	NC			
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.388	2.388	0.0	1.000	21565641	44.9	103		
	298.90 > 99.00	2.388	2.388	0.0	1.000	8891507	2.43(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.680	2.680	0.0	1.000	4077151	39.9	86.3		
6 Perfluorohexanoic acid	313.00 > 269.00	2.728	2.728	0.0	1.000	12245298	50.0	101	24740	
D 7 13C2 PFHxA	315.00 > 270.00	2.728	2.728	0.0		11699463	47.9	96.7	411681	
D 9 13C4-PFHpA	367.00 > 322.00	3.122	3.122	0.0		10582959	47.3	95.6	66464	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.131	3.131	0.0	1.000	16428739	44.8	99.4		
10 Perfluoroheptanoic acid	363.00 > 319.00	3.131	3.131	0.0	1.000	11520065	49.1	99.3	4183	
D 11 18O2 PFHxS	403.00 > 84.00	3.131	3.131	0.0		14204929	44.1	94.2	42369	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.500	3.500	0.0	6560437	49.9	106		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.500	3.500	0.0	1.000	6079674	45.3	96.4	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.515	3.515	0.0	1.000	14495232	45.5	96.5	
* 62 13C2-PFOA	415.00	> 370.00	3.523	3.523	0.0		11076829	49.5	100	
15 Perfluorooctanoic acid	413.00	> 369.00	3.523	3.523	0.0	1.000	13025926	49.4	99.8	1396
	413.00	> 169.00	3.523	3.523	0.0	1.000	7406169		1.76(0.90-1.10)	16392
D 14 13C4 PFOA	417.00	> 372.00	3.523	3.523	0.0		11626993	51.2	104	50493
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.887	3.887	0.0	1.000	12370831	44.7	97.2	21366
	499.00	> 99.00	3.887	3.887	0.0	1.000	2752404		4.49(0.90-1.10)	9708
D 18 13C4 PFOS	503.00	> 80.00	3.887	3.887	0.0		11047610	47.1	99.5	16808
D 19 13C5 PFNA	468.00	> 423.00	3.905	3.905	0.0		9141716	52.4	106	32828
20 Perfluorononanoic acid	463.00	> 419.00	3.905	3.905	0.0	1.000	9949826	49.5	100	10367
D 21 13C8 FOSA	506.00	> 78.00	4.215	4.215	0.0		18402352	50.0	101	383934
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.224	4.224	0.0	1.000	19162476	49.2	99.3	32943
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.245	4.245	0.0	1.000	4981243	47.4	100	
D 23 13C2 PFDA	515.00	> 470.00	4.245	4.245	0.0		7793181	52.1	105	10735
D 26 M2-8:2FTS	529.00	> 509.00	4.245	4.245	0.0		5106099	51.3	108	
24 Perfluorodecanoic acid	513.00	> 469.00	4.255	4.255	0.0	1.000	8123581	50.7	102	10500
D 27 d3-NMeFOSAA	573.00	> 419.00	4.401	4.401	0.0		3907117	59.2	120	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.412	4.412	0.0	1.002	3933391	49.5	100	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.529	4.529	0.0	1.000	7771724	47.9	100	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.558	4.558	0.0	1.000	6473080	47.1	95.1	9045
D 32 d5-NEtFOSAA	589.00	> 419.00	4.558	4.558	0.0		3773897	58.7	119	
D 30 13C2 PFUnA	565.00	> 520.00	4.558	4.558	0.0		5794623	51.6	104	23975
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.568	4.568	0.0	1.002	3478468	47.8	96.5	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.682	4.682	0.0	5233269	52.9	107		
35 MeFOSA	512.00	> 169.00	4.691	4.691	0.0	1.000	5015586	49.3	99.5	
D 36 13C2 PFDaA	615.00	> 570.00	4.834	4.834	0.0		5959608	54.7	111	7790
37 Perfluorododecanoic acid	613.00	> 569.00	4.834	4.834	0.0	1.000	6011031	49.2	99.4	319
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.853	4.853	0.0		4755166	49.6	100	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.853	4.853	0.0	1.000	4784380	48.9	98.7	
41 Perfluorotridecanoic acid	663.00	> 619.00	5.082	5.082	0.0	1.000	6071080	50.2	101	315
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.295	5.295	0.0	1.000	13481428	54.7	111	211
	713.00	> 169.00	5.295	5.295	0.0	1.000	1764638	7.64(0.00-0.00)		5515
D 43 13C2-PFTeDA	715.00	> 670.00	5.295	5.295	0.0		12600136	58.5	118	11536
D 44 13C2-PFHxDA	815.00	> 770.00	5.696	5.696	0.0		6487680	54.0	109	2489
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.696	5.696	0.0	1.000	6302115	49.8	101	177
46 Perfluorooctadecanoic acid	913.00	> 869.00	6.087	6.087	0.0	1.000	6889779	45.4	91.7	178

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L5_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_031.d

Injection Date: 24-May-2017 21:35:34

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

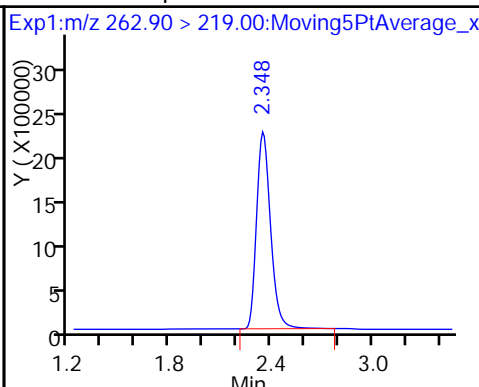
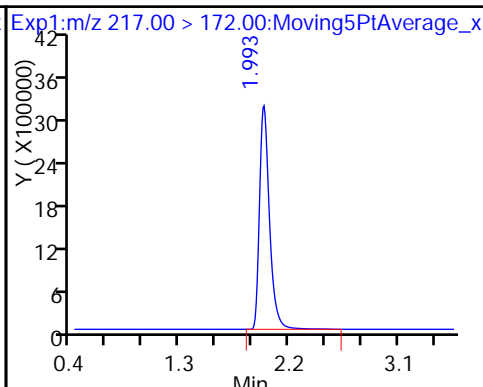
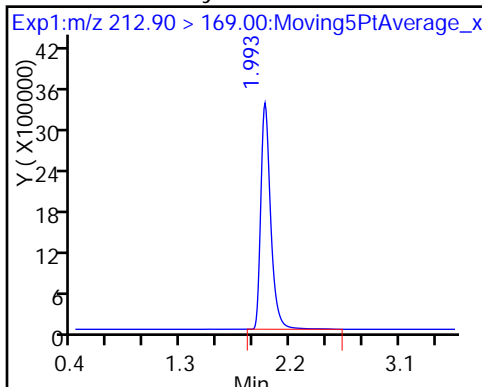
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

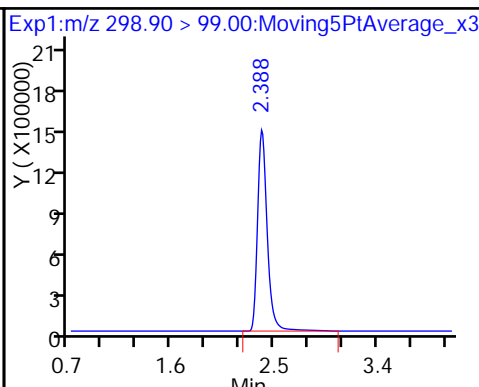
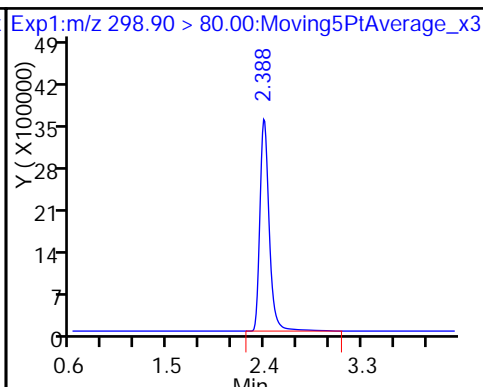
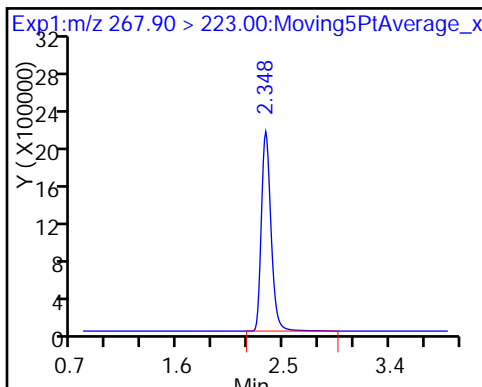
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

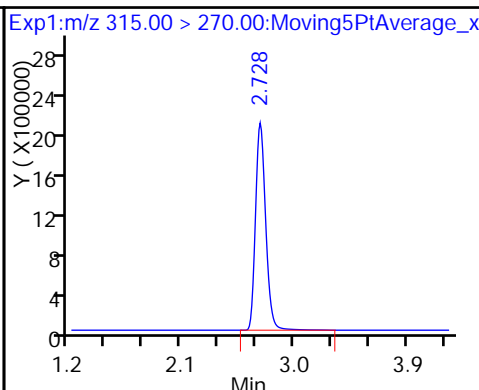
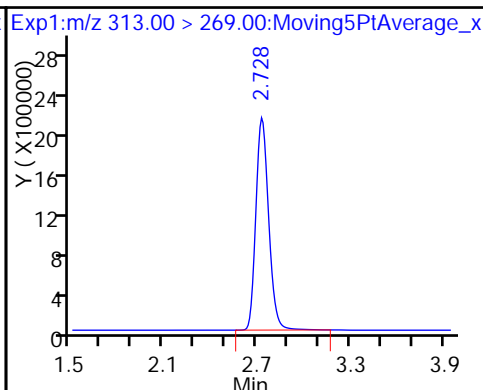
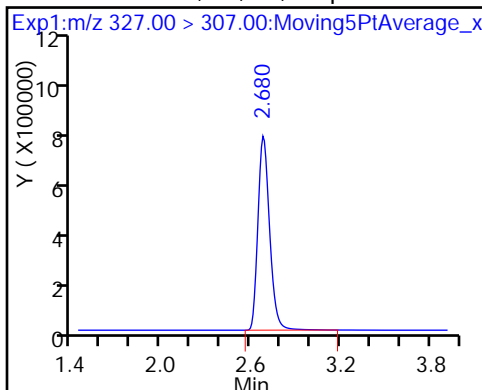
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

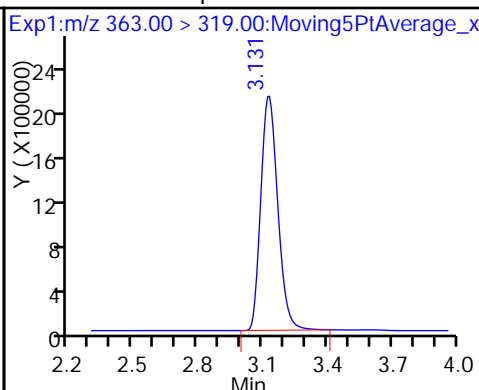
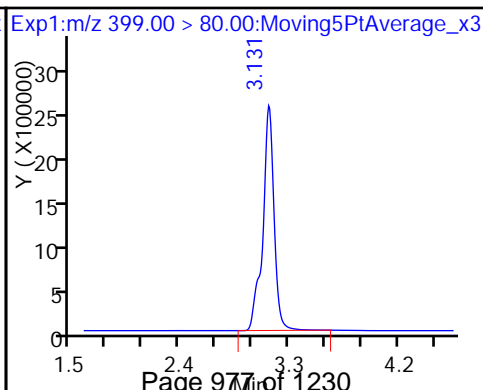
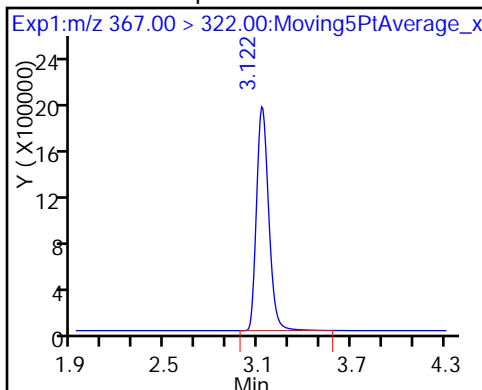
D 7 13C2 PFHxA



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid

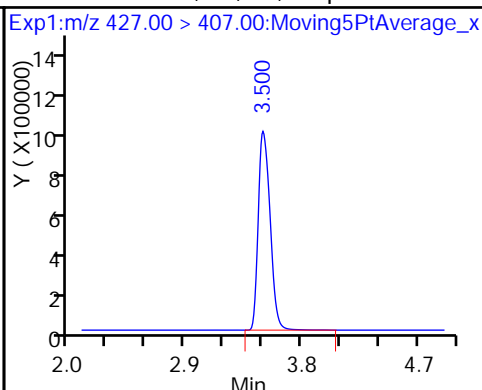
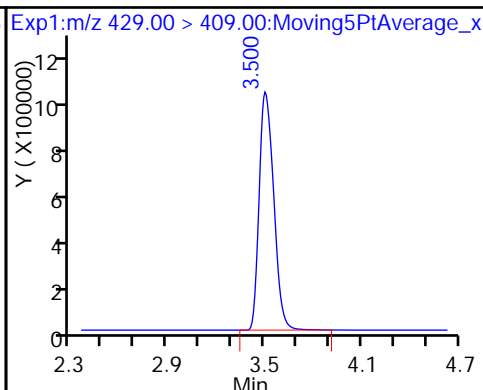
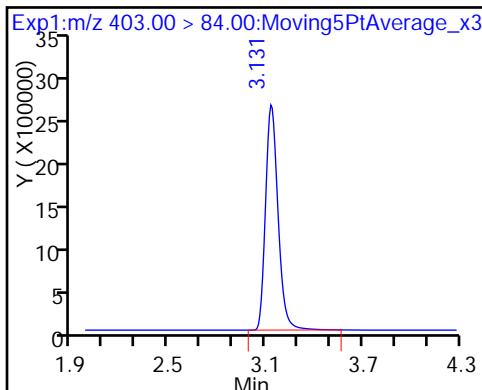
10 Perfluoroheptanoic acid



D 11 18O2 PFHxS

D 12 M2-6:2FTS

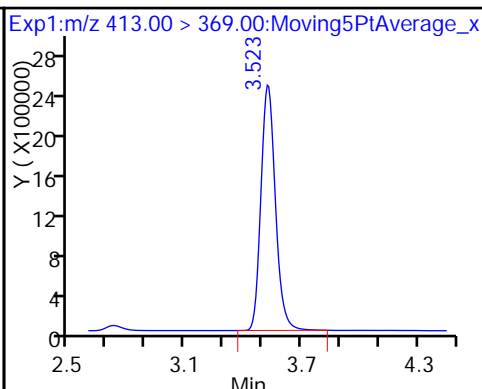
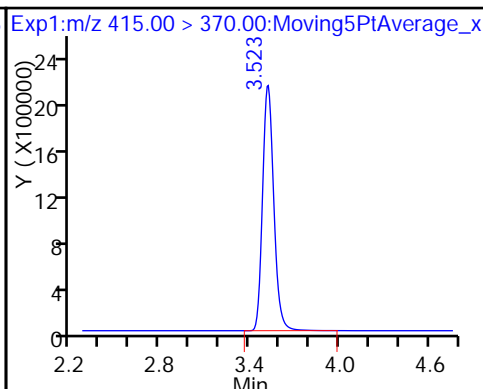
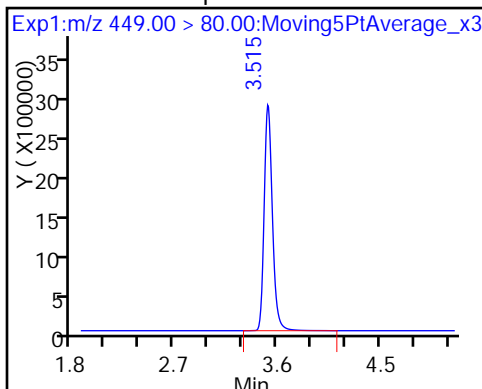
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

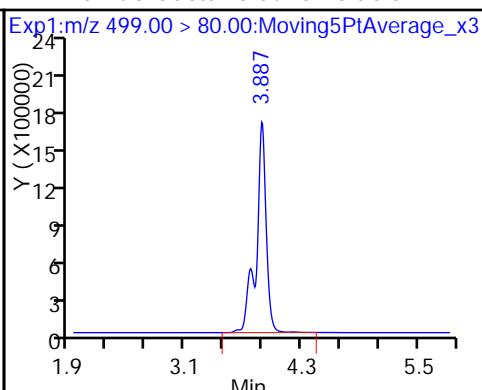
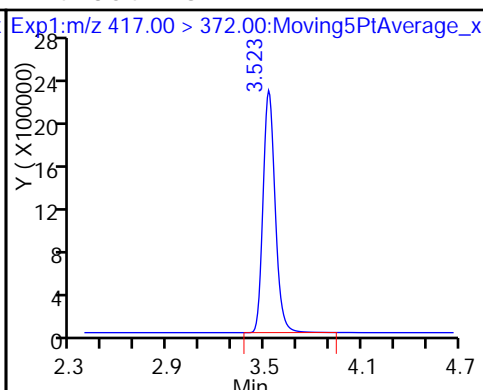
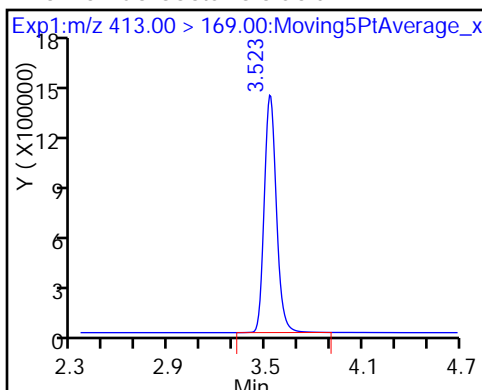
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

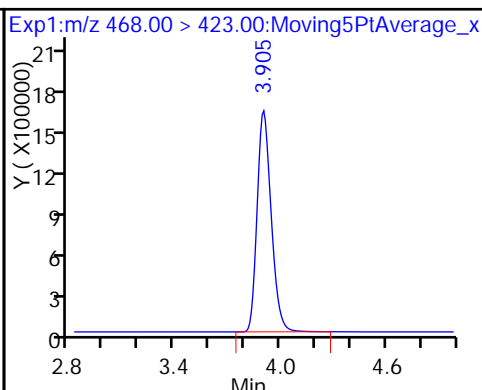
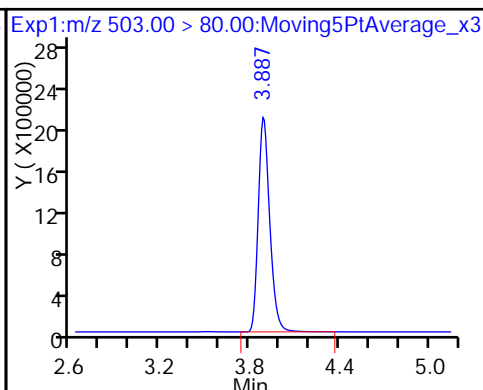
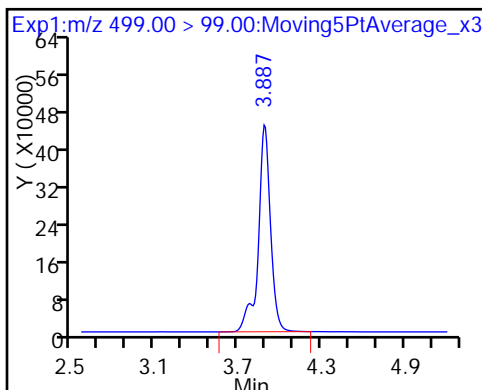
17 Perfluorooctane sulfonic acid

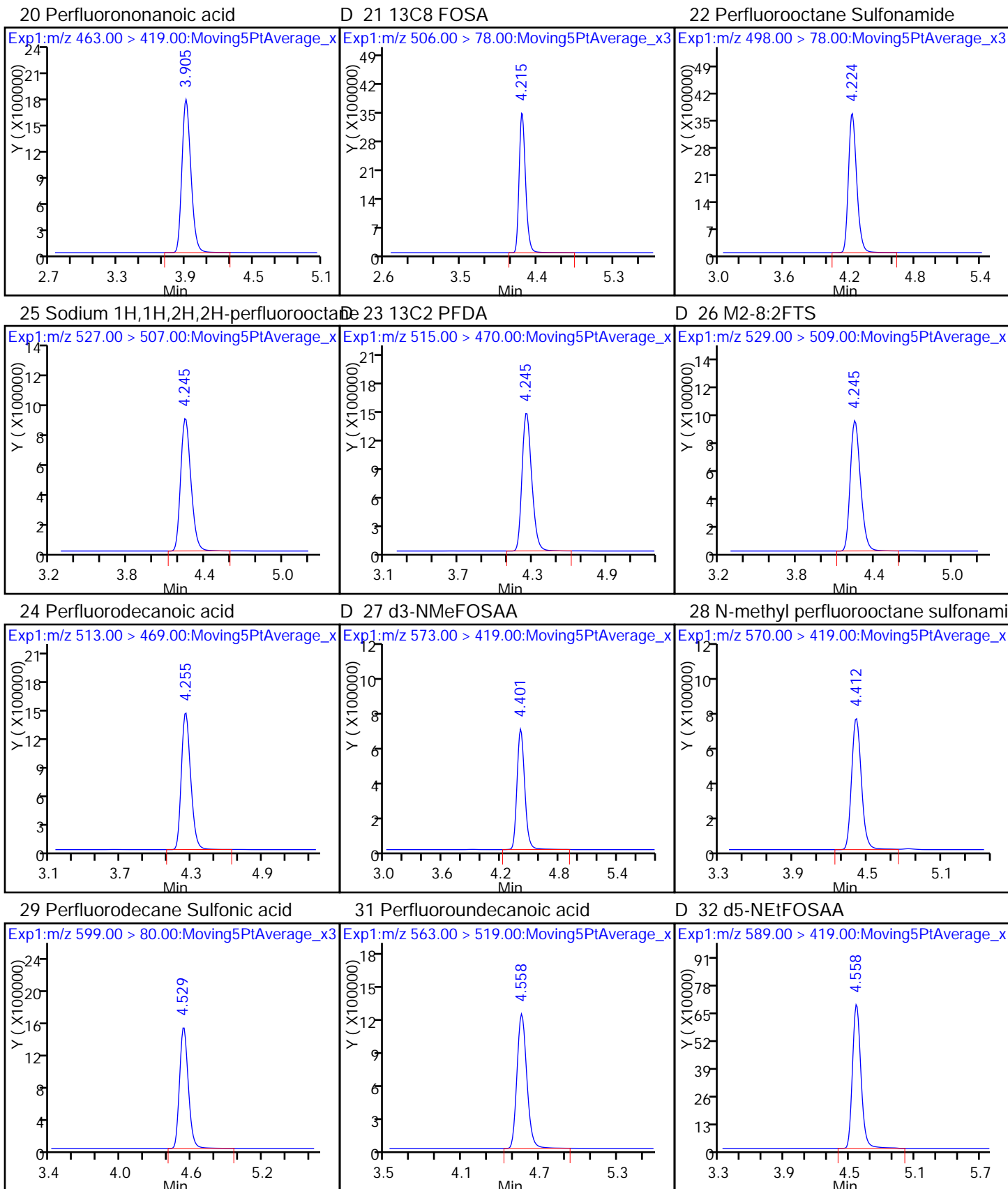


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

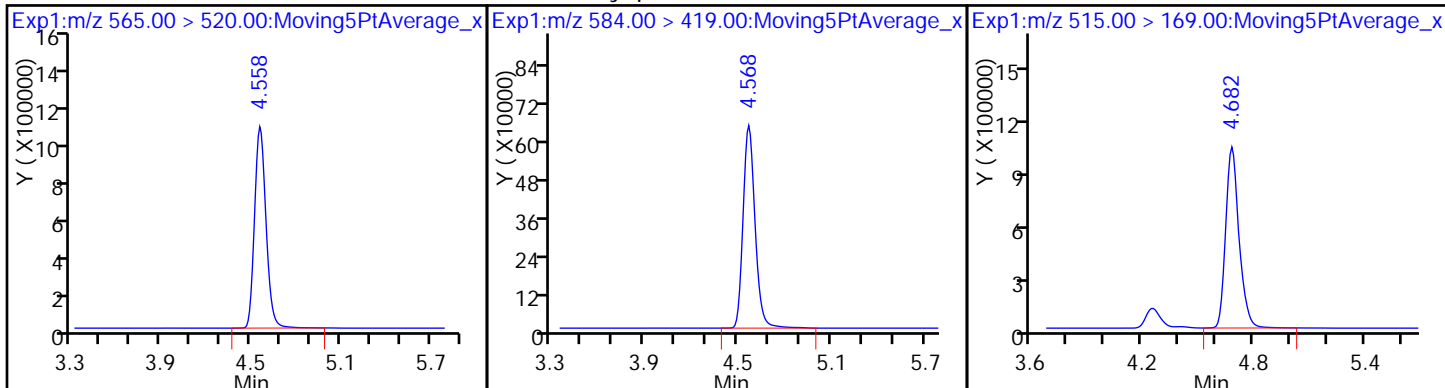
D 19 13C5 PFNA





D 30 13C2 PFUnA

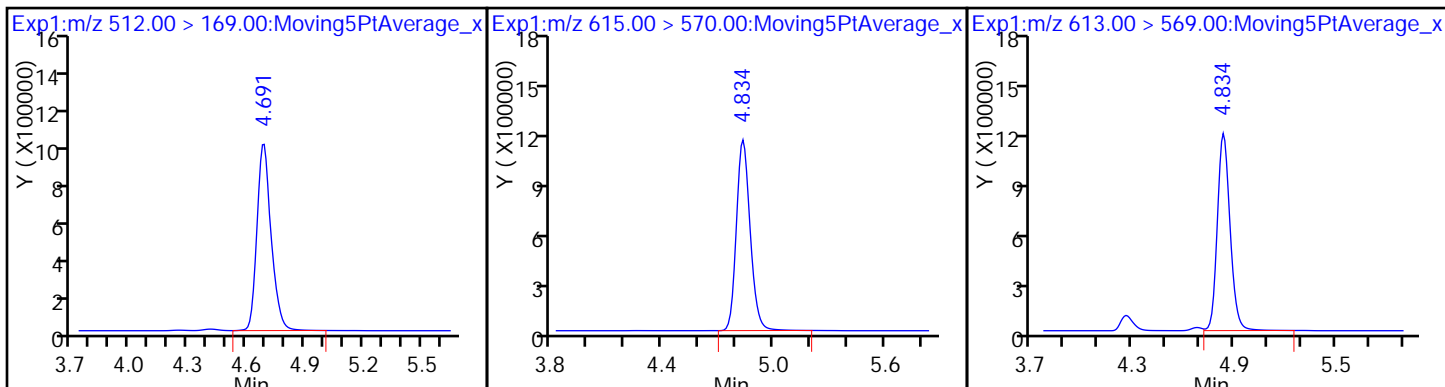
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

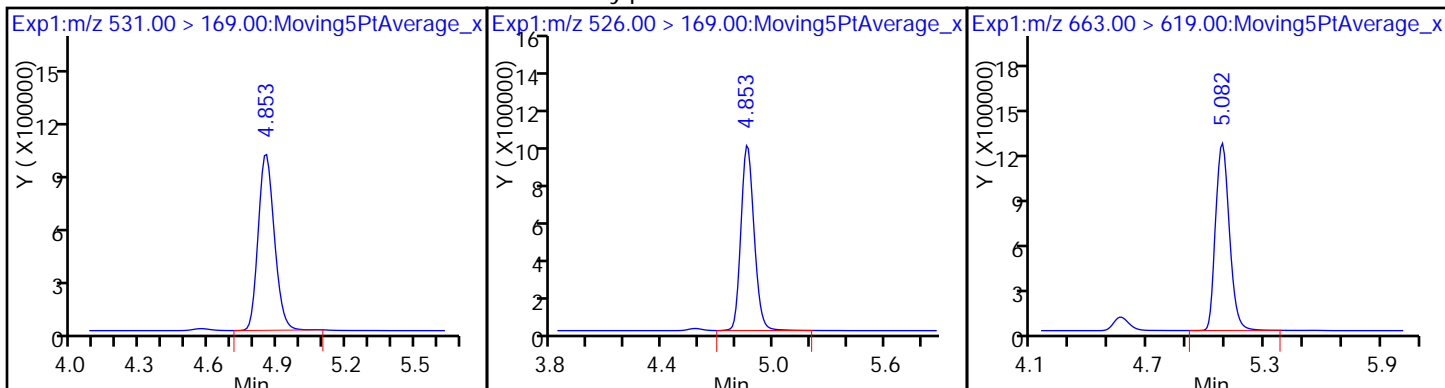
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

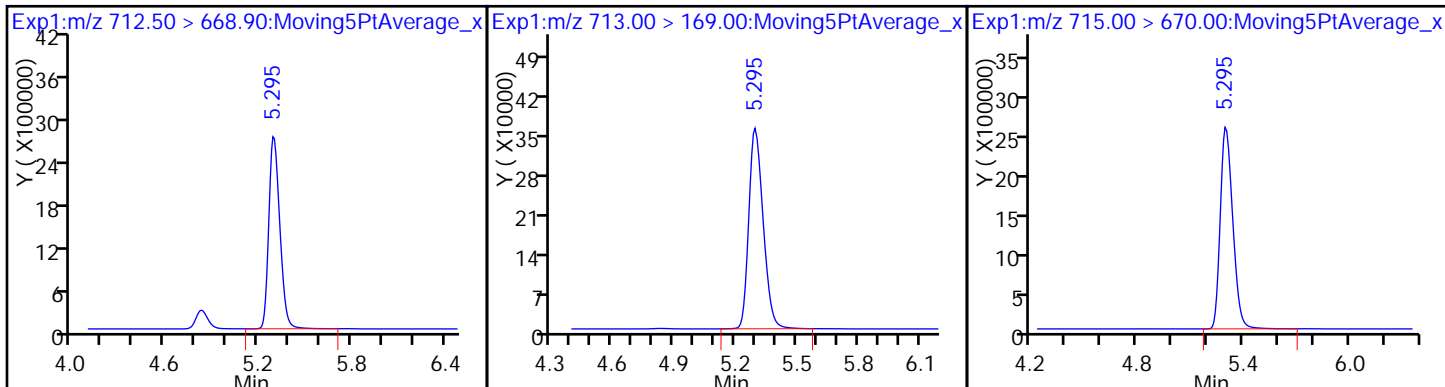
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

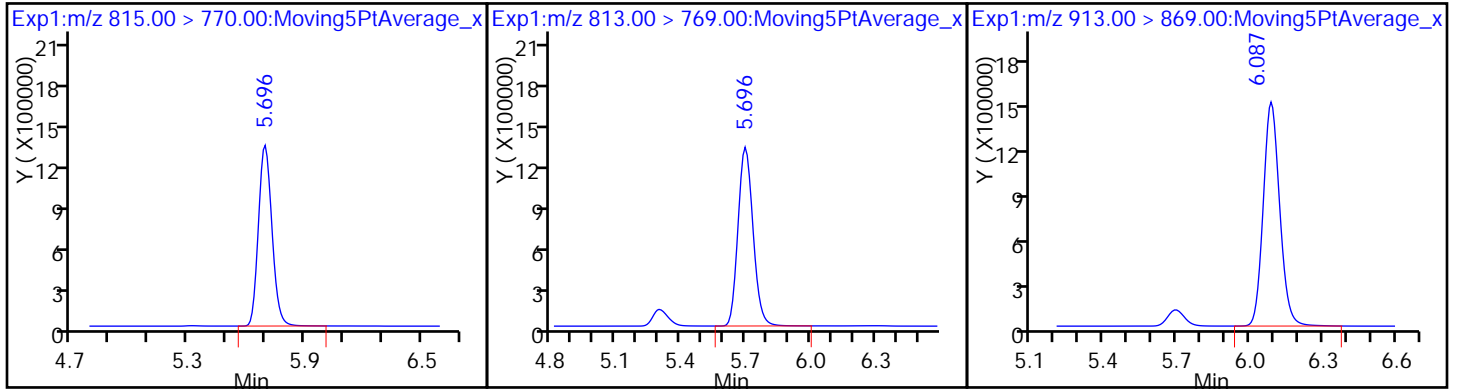
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-166071/12 Calibration Date: 05/24/2017 22:58
 Instrument ID: A8_N Calib Start Date: 05/22/2017 18:42
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/22/2017 19:26
 Lab File ID: 2017.05.24C_042.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.003	1.070		21.1	19.8	6.7	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.084	1.106		20.2	19.8	2.1	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.582	1.682		18.6	17.5	6.3	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.036	1.057		20.2	19.8	2.0	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.096	1.141		20.6	19.8	4.1	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.210	1.203		17.9	18.0	-0.5	25.0
6:2FTS	AveID	0.9629	0.9883		19.3	18.8	2.6	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.365	1.353		18.7	18.9	-0.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.123	1.132		20.0	19.8	0.8	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.187	1.177		18.2	18.4	-0.8	25.0
Perfluorononanoic acid (PFNA)	AveID	1.087	1.126		20.5	19.8	3.5	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.048	1.090		20.6	19.8	4.0	25.0
8:2FTS	AveID	0.9756	1.051		20.4	19.0	7.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.018	1.025		20.0	19.8	0.8	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.007	1.019		20.0	19.8	1.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6945	0.7050		19.4	19.1	1.5	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9551	0.9774		20.3	19.8	2.3	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.174	1.154		19.5	19.8	-1.7	25.0
MeFOSA	AveID	0.9631	0.9809		20.2	19.8	1.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.015	1.042		20.3	19.8	2.7	25.0
N-EtFOSA-M	AveID	1.019	1.014		19.7	19.8	-0.5	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.004	1.056		20.8	19.8	5.2	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.350		22.7	19.8	14.6	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.053		19.4	19.8	-1.9	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.260	1.206		18.9	19.8	-4.3	25.0
13C4 PFBA	Ave	372732	363875		48.3	49.5	-2.4	50.0
13C5-PFPeA	Ave	246497	246482		49.5	49.5	-0.0	50.0
13C2 PFHxA	Ave	244489	241770		49.0	49.5	-1.1	50.0
13C4-PFHpA	Ave	223707	225998		50.0	49.5	1.0	50.0
18O2 PFHxS	Ave	322150	317102		46.1	46.8	-1.6	50.0
M2-6:2FTS	Ave	131356	157315		56.3	47.0	19.8	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-166071/12 Calibration Date: 05/24/2017 22:58
 Instrument ID: A8_N Calib Start Date: 05/22/2017 18:42
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/22/2017 19:26
 Lab File ID: 2017.05.24C_042.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	226888	255244		55.7	49.5	12.5	50.0
13C4 PFOS	Ave	234642	239593		48.3	47.3	2.1	50.0
13C5 PFNA	Ave	174482	201456		57.2	49.5	15.5	50.0
13C8 FOSA	Ave	367735	388487		52.3	49.5	5.6	50.0
M2-8:2FTS	Ave	99608	125791		59.9	47.4	26.3	50.0
13C2 PFDA	Ave	149557	176135		58.3	49.5	17.8	50.0
d3-NMeFOSAA	Ave	66001	82322		61.7	49.5	24.7	50.0
13C2 PFUnA	Ave	112228	130200		57.4	49.5	16.0	50.0
d5-NEtFOSAA	Ave	64270	80837		62.3	49.5	25.8	50.0
d-N-MeFOSA-M	Ave	98992	107127		53.6	49.5	8.2	50.0
13C2 PFDoA	Ave	108877	127364		57.9	49.5	17.0	50.0
d-N-EtFOSA-M	Ave	95914	100093		51.7	49.5	4.4	50.0
13C2-PFTeDA	Ave	215350	266460		61.3	49.5	23.7	50.0
13C2-PFHxDA	Ave	120243	137688		56.7	49.5	14.5	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_042.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 24-May-2017 22:58:05 ALS Bottle#: 31 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L4
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub18
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:03:25 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:58:50

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid	212.90 > 169.00	1.993	1.993	0.0	1.000	7710855	21.1	107	4567	
D 1 13C4 PFBA	217.00 > 172.00	1.985	1.993	-0.008		18013618	48.3	97.6	174147	
4 Perfluoropentanoic acid	262.90 > 219.00	2.348	2.348	0.0	1.000	5399471	20.2	102	1572	
D 3 13C5-PFPeA	267.90 > 223.00	2.348	2.348	0.0		12202097	49.5	100	230958	
D 47 13C3-PFBS	301.90 > 83.00	2.388	2.388	0.0		293225	NC			
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.388	2.388	0.0	1.000	9335161	18.6	106		
	298.90 > 99.00	2.388	2.388	0.0	1.000	3723780	2.51(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.680	2.680	0.0	1.000	1815578	15.8	85.2		
6 Perfluorohexanoic acid	313.00 > 269.00	2.729	2.728	0.001	1.000	5059946	20.2	102	12085	
D 7 13C2 PFHxA	315.00 > 270.00	2.729	2.728	0.001		11968808	49.0	98.9	38922	
D 9 13C4-PFHpA	367.00 > 322.00	3.120	3.122	-0.002		11188028	50.0	101	35303	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.128	3.131	-0.003	1.000	6876899	17.9	99.5		
10 Perfluoroheptanoic acid	363.00 > 319.00	3.120	3.131	-0.011	1.000	5105712	20.6	104	2253	
D 11 18O2 PFHxS	403.00 > 84.00	3.128	3.131	-0.003		14850434	46.1	98.4	460906	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.496	3.500	-0.004	7398463	56.3	120		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.496	3.500	-0.004	1.000	2918732	19.3	103	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.511	3.515	-0.004	1.000	6111630	18.7	99.1	
* 62 13C2-PFOA	415.00	> 370.00	3.511	3.523	-0.012		12374520	49.5	100	
15 Perfluorooctanoic acid	413.00	> 369.00	3.518	3.523	-0.005	1.000	5722018	20.0	101	639
	413.00	> 169.00	3.518	3.523	-0.005	1.000	3260288	1.76(0.90-1.10)		8353
D 14 13C4 PFOA	417.00	> 372.00	3.518	3.523	-0.005		12635843	55.7	112	37507
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.879	3.887	-0.008	1.000	5181371	18.2	99.2	6769
	499.00	> 99.00	3.879	3.887	-0.008	1.000	1116784	4.64(0.90-1.10)		4297
D 18 13C4 PFOS	503.00	> 80.00	3.879	3.887	-0.008		11339135	48.3	102	17884
D 19 13C5 PFNA	468.00	> 423.00	3.897	3.905	-0.008		9973060	57.2	115	43358
20 Perfluorononanoic acid	463.00	> 419.00	3.897	3.905	-0.008	1.000	4491639	20.5	104	4791
D 21 13C8 FOSA	506.00	> 78.00	4.207	4.215	-0.008		19232008	52.3	106	218361
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.216	4.224	-0.008	1.000	8388962	20.6	104	21456
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.234	4.245	-0.011	1.000	2508070	20.4	108	
D 23 13C2 PFDA	515.00	> 470.00	4.244	4.245	-0.001		8719539	58.3	118	8279
D 26 M2-8:2FTS	529.00	> 509.00	4.234	4.245	-0.011		5965746	59.9	126	
24 Perfluorodecanoic acid	513.00	> 469.00	4.244	4.255	-0.011	1.000	3575701	20.0	101	7248
D 27 d3-NMeFOSAA	573.00	> 419.00	4.397	4.401	-0.004		4075367	61.7	125	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.397	4.412	-0.015	1.000	1660391	20.0	101	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.523	4.529	-0.006	1.000	3224178	19.4	102	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.552	4.558	-0.006	1.000	2975266	19.5	98.3	5074
D 32 d5-NEtFOSAA	589.00	> 419.00	4.552	4.558	-0.006		4001826	62.3	126	
D 30 13C2 PFUnA	565.00	> 520.00	4.552	4.558	-0.006		6445554	57.4	116	14701
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.552	4.568	-0.016	1.000	1564554	20.3	102	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.668	4.682	-0.014	5303328	53.6	108		
35 MeFOSA	512.00	> 169.00	4.677	4.691	-0.014	1.000	2080840	20.2	102	
D 36 13C2 PFDaA	615.00	> 570.00	4.819	4.834	-0.015	6305155	57.9	117	5739	
37 Perfluorododecanoic acid	613.00	> 569.00	4.819	4.834	-0.015	1.000	2628706	20.3	103	158
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.837	4.853	-0.016	4955109	51.7	104		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.847	4.853	-0.006	1.000	2010162	19.7	99.5	
41 Perfluorotridecanoic acid	663.00	> 619.00	5.070	5.082	-0.012	1.000	2663975	20.8	105	143
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.290	5.295	-0.005	1.000	5927267	22.7	115	117
	713.00	> 169.00	5.283	5.295	-0.012	0.999	775700	7.64(0.00-0.00)		2920
D 43 13C2-PFTeDA	715.00	> 670.00	5.290	5.295	-0.005	13191067	61.3	124	8869	
D 44 13C2-PFHxDA	815.00	> 770.00	5.689	5.696	-0.007	6816217	56.7	115	2406	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.689	5.696	-0.007	1.000	2654912	19.4	98.1	91.5
46 Perfluorooctadecanoic acid	913.00	> 869.00	6.079	6.087	-0.008	1.000	3040919	18.9	95.7	107

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L4_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_042.d

Injection Date: 24-May-2017 22:58:05

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

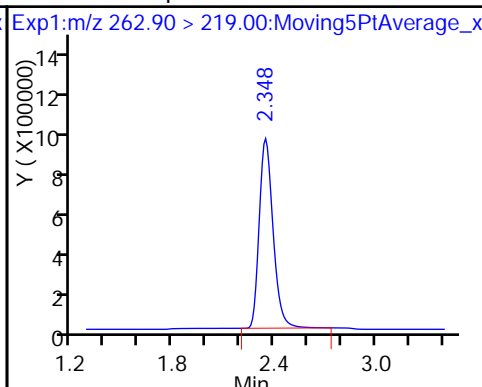
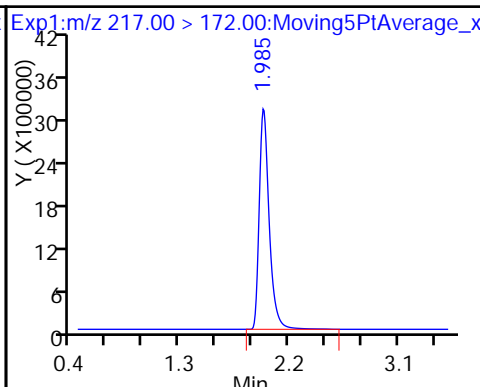
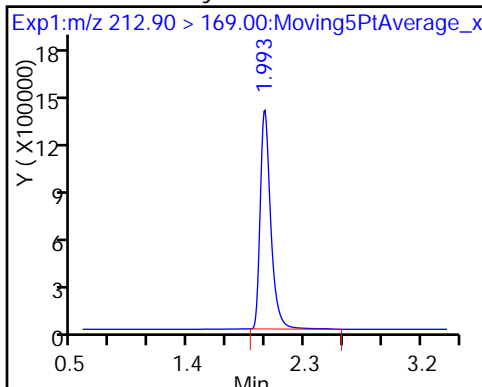
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

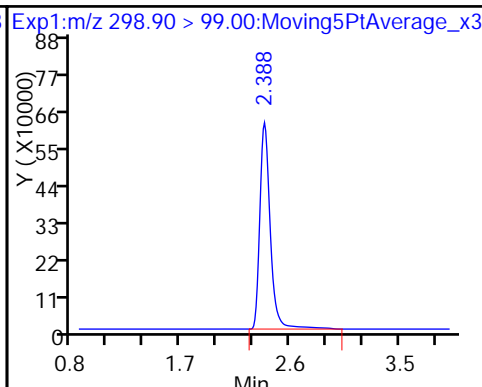
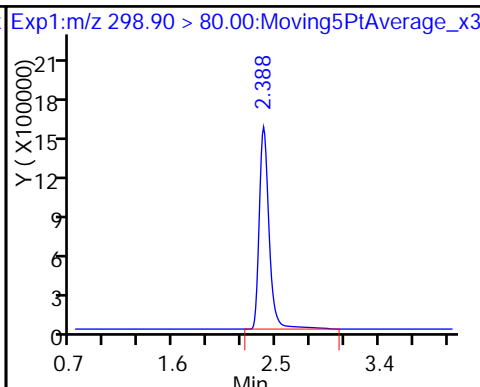
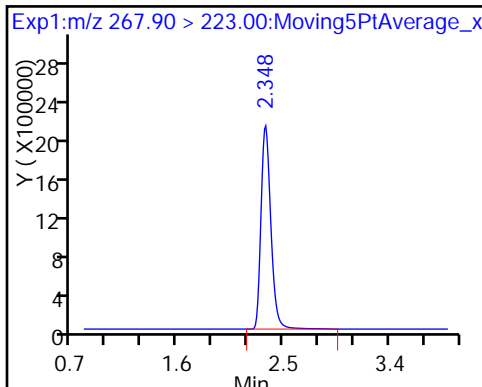
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

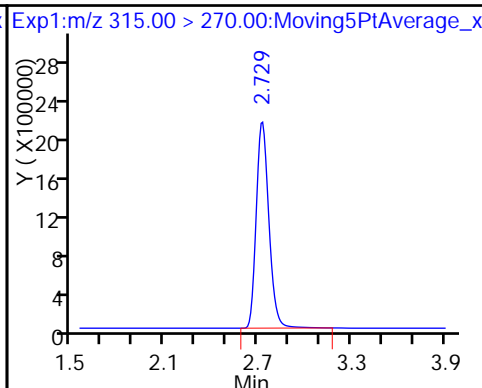
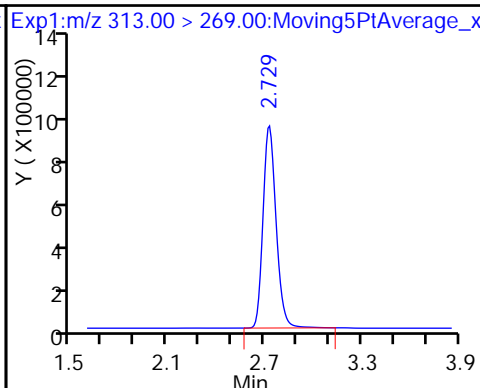
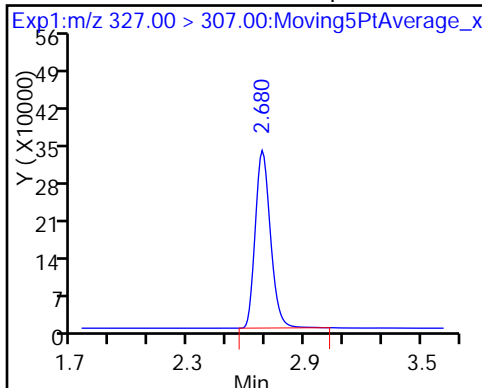
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

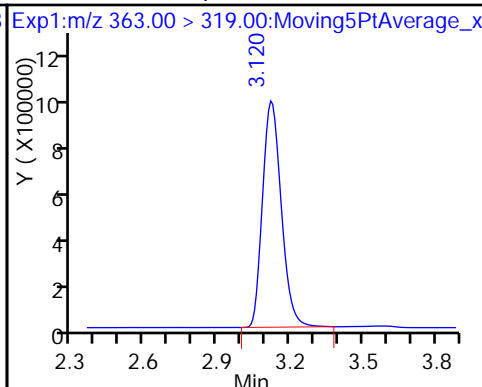
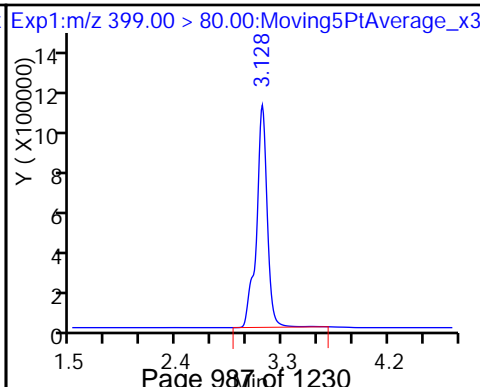
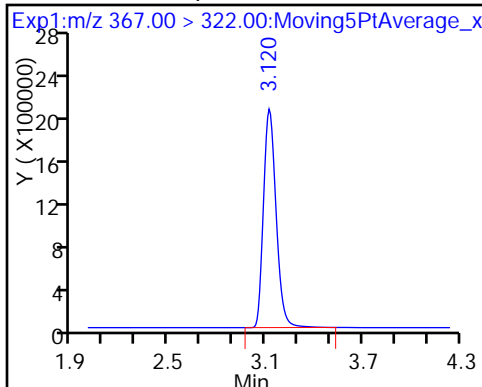
D 7 13C2 PFHxA



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid

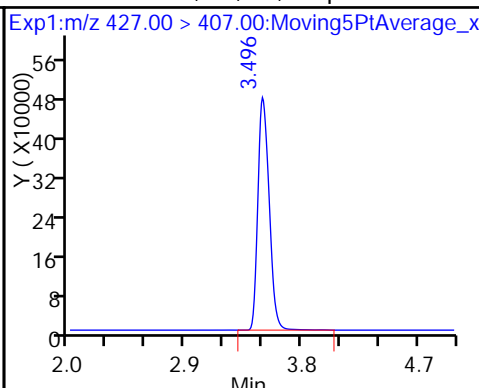
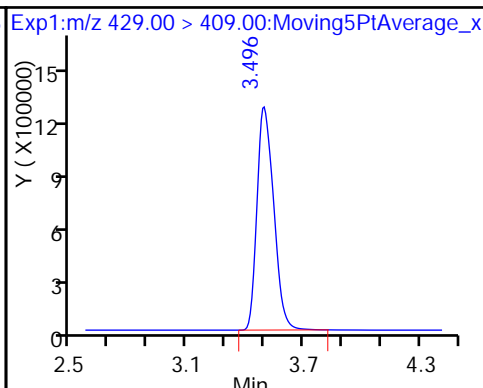
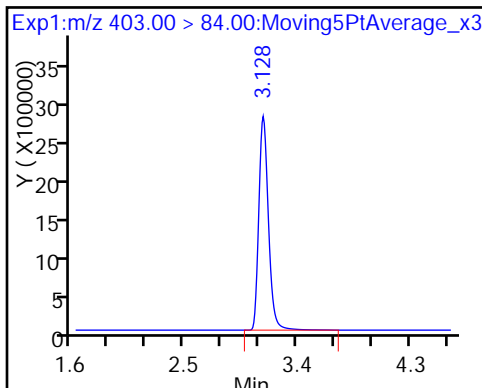
10 Perfluoroheptanoic acid



D 11 18O2 PFHxS

D 12 M2-6:2FTS

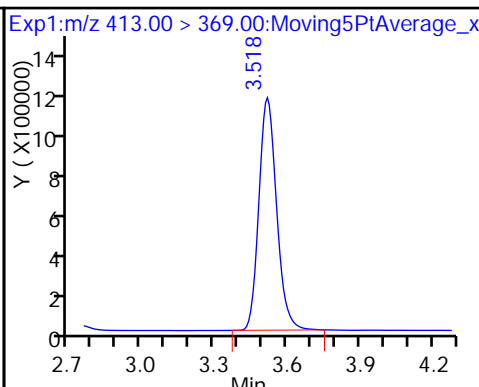
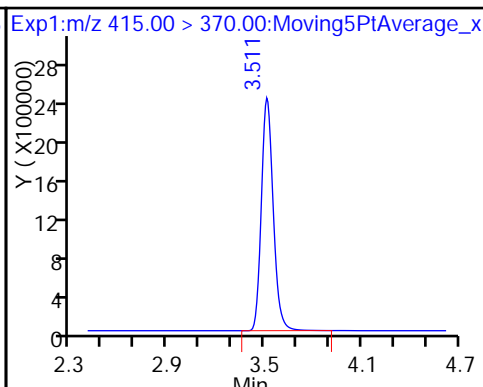
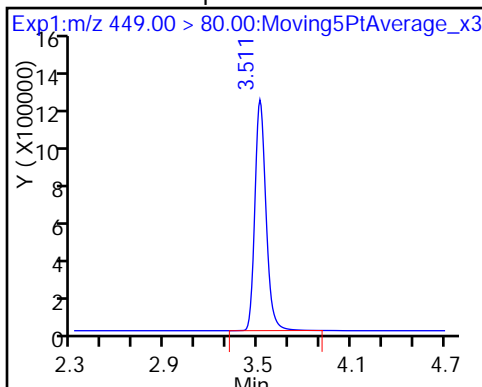
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

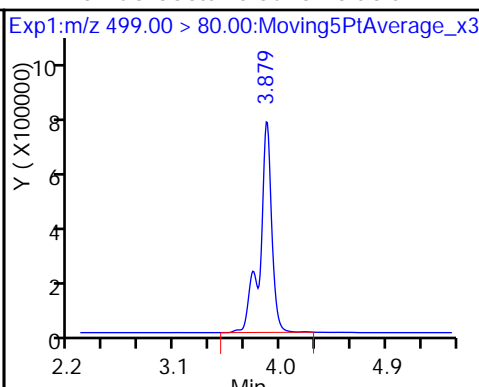
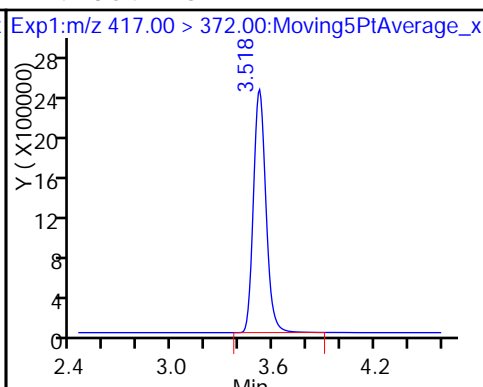
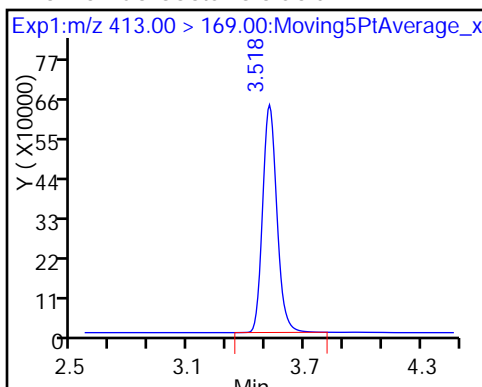
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

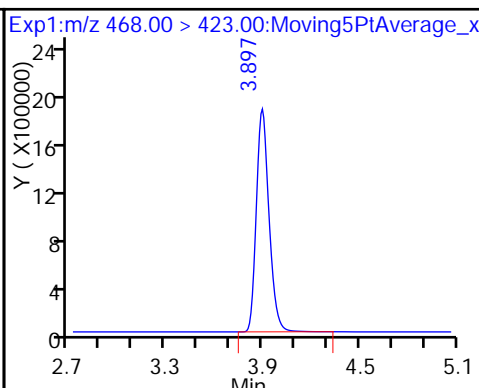
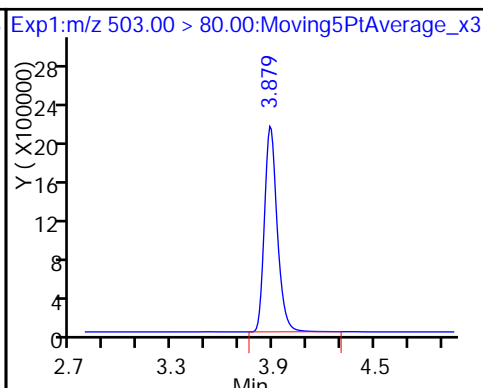
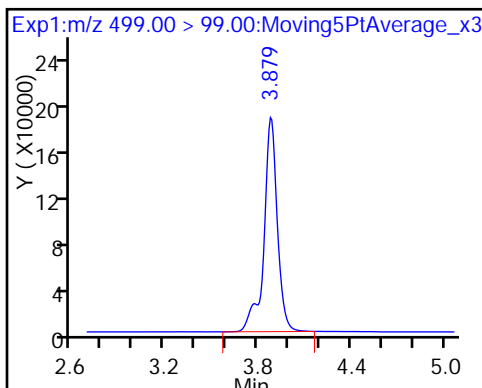
17 Perfluorooctane sulfonic acid

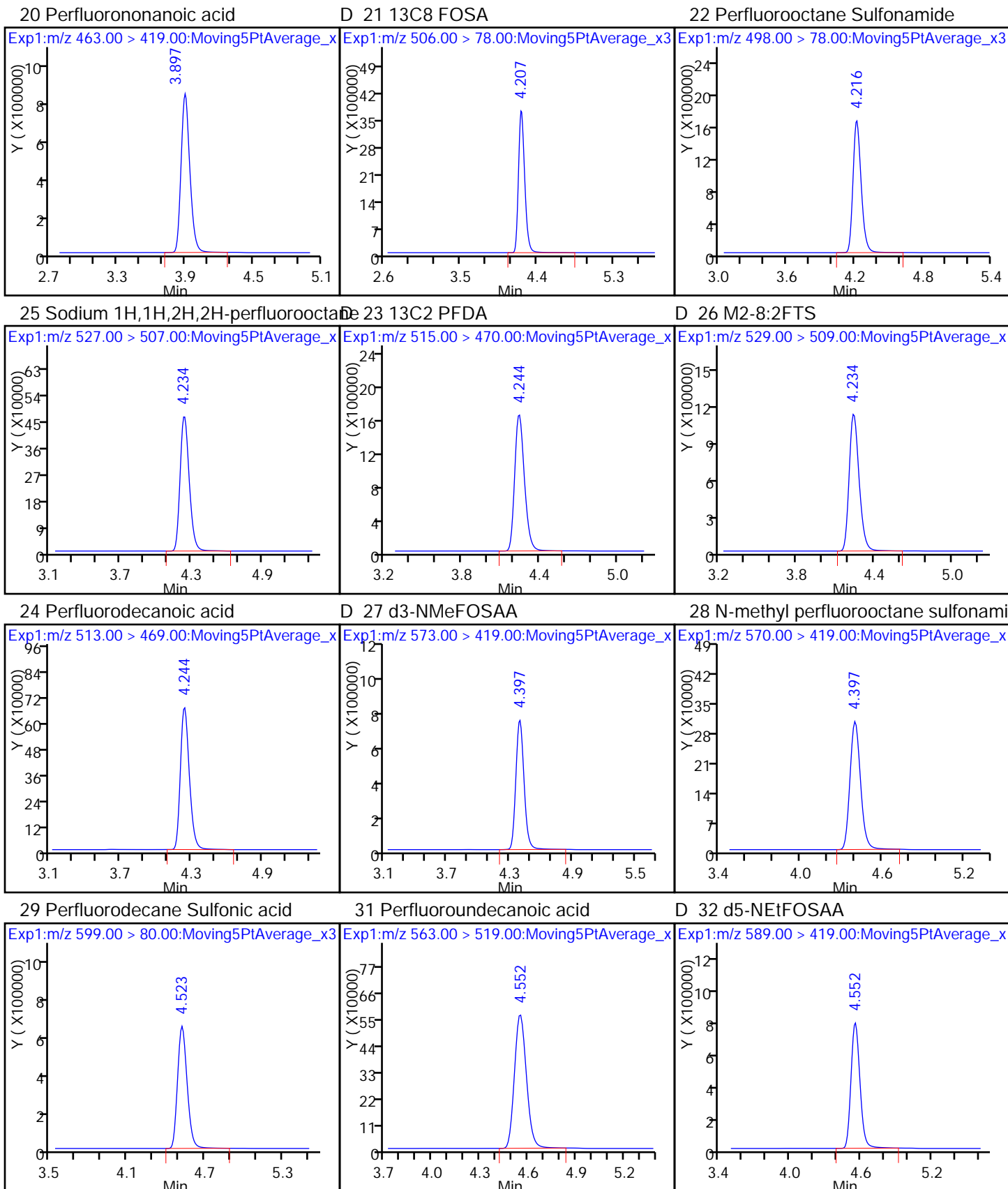


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

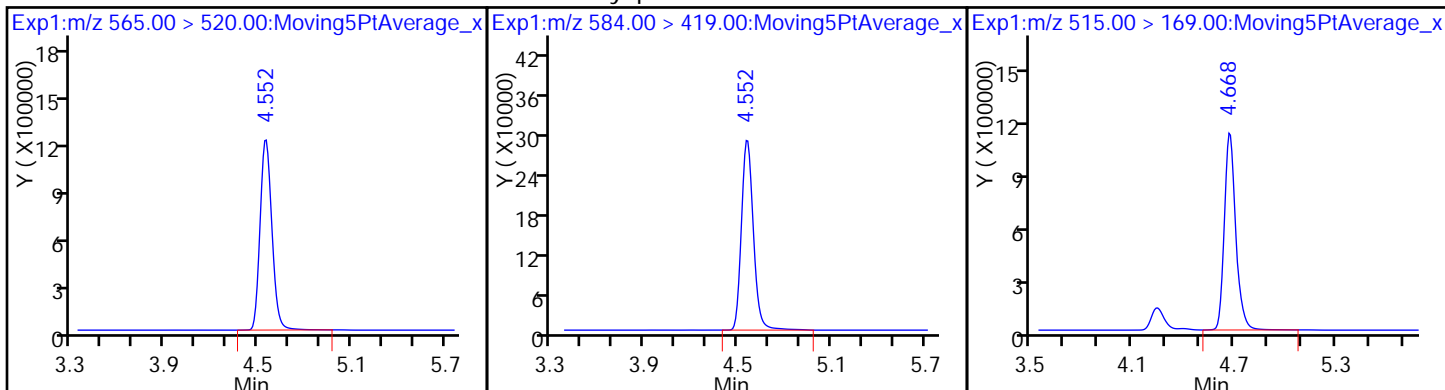
D 19 13C5 PFNA





D 30 13C2 PFUnA

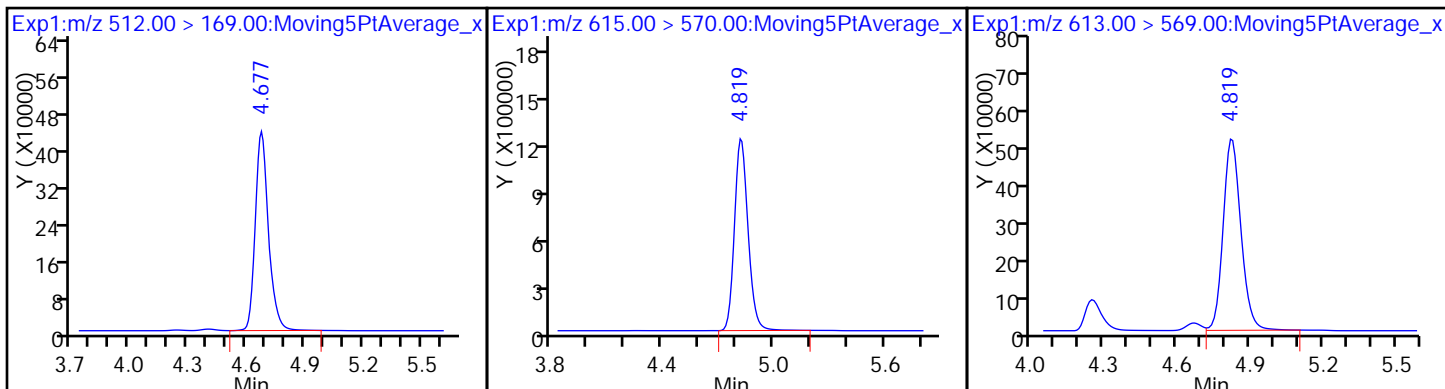
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

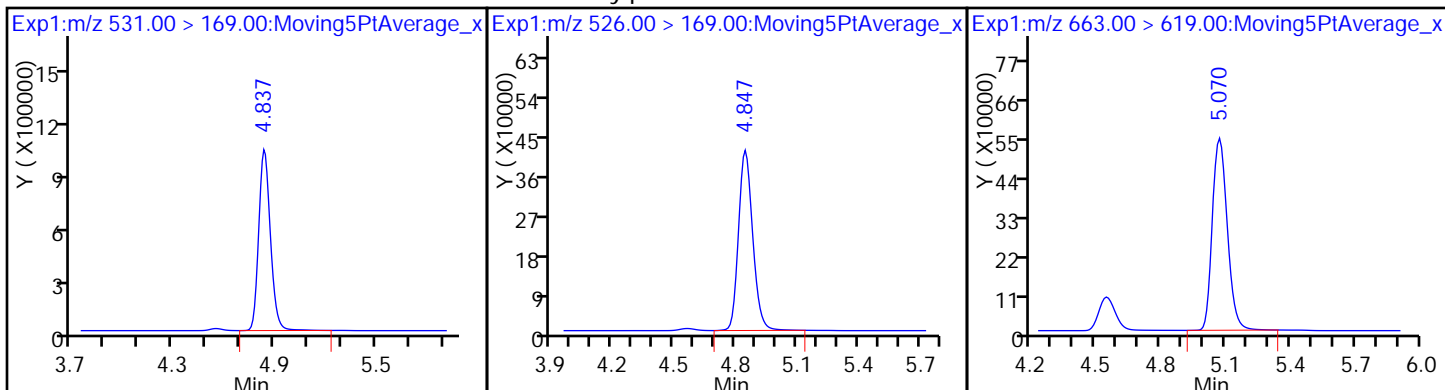
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

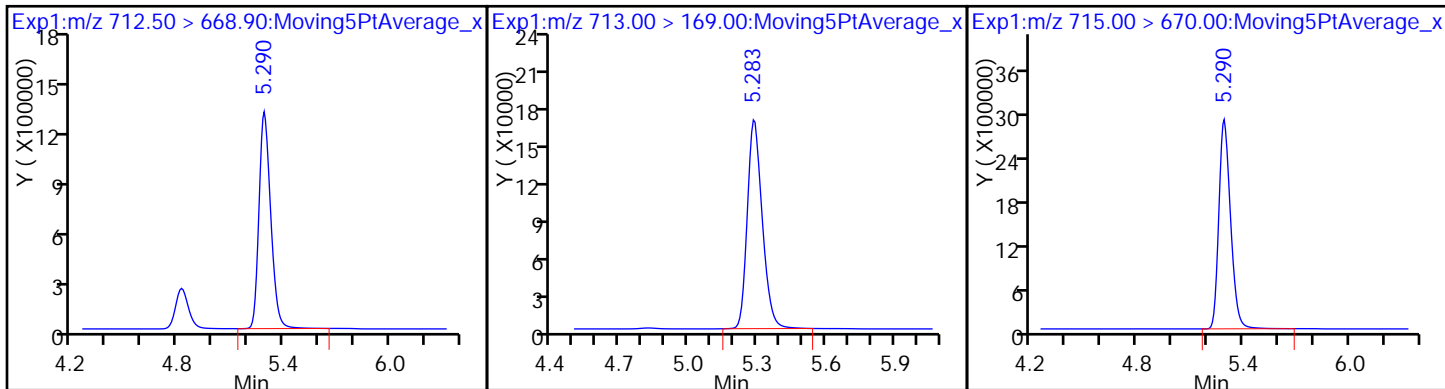
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

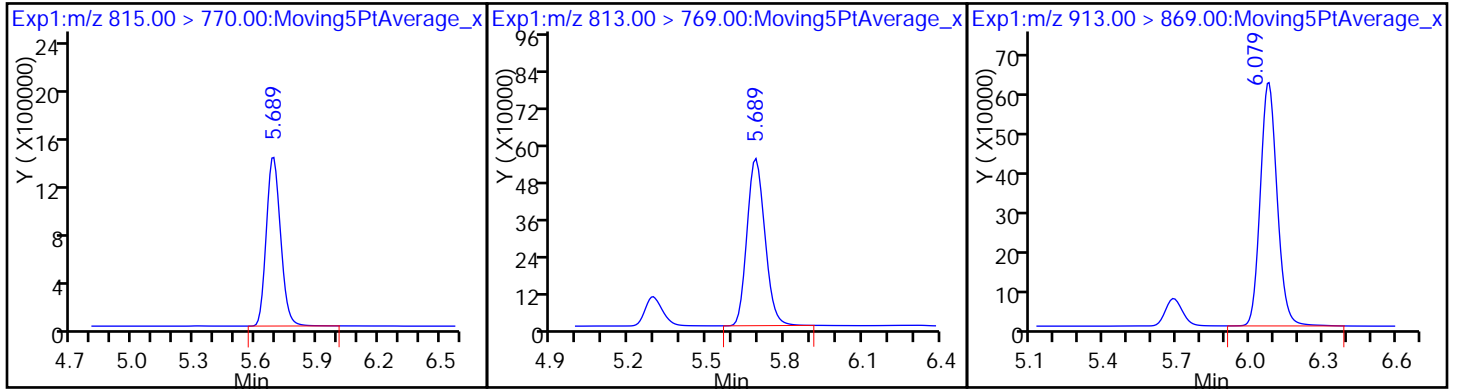
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-166071/23 Calibration Date: 05/25/2017 00:20
 Instrument ID: A8_N Calib Start Date: 05/22/2017 18:42
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/22/2017 19:26
 Lab File ID: 2017.05.24C_053.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.003	1.034		51.0	49.5	3.1	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.084	1.084		49.5	49.5	0.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.582	1.579		43.7	43.8	-0.2	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.036	1.035		49.4	49.5	-0.1	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.096	1.083		48.9	49.5	-1.2	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.210	1.150		42.8	45.0	-5.0	25.0
6:2FTS	AveID	0.9629	0.9114		44.4	46.9	-5.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.365	1.351		46.6	47.1	-1.1	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.123	1.134		50.0	49.5	1.0	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.187	1.190		46.1	45.9	0.3	25.0
Perfluorononanoic acid (PFNA)	AveID	1.087	1.094		49.8	49.5	0.6	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.048	1.035		48.9	49.5	-1.3	25.0
8:2FTS	AveID	0.9756	0.999		48.6	47.4	2.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	1.018	1.062		51.7	49.5	4.4	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.007	1.074		52.8	49.5	6.6	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6945	0.7086		48.7	47.7	2.0	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.174	1.114		47.0	49.5	-5.1	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9551	0.9704		50.3	49.5	1.6	25.0
MeFOSA	AveID	0.9631	0.9651		49.6	49.5	0.2	25.0
Perfluorododecanoic acid (PFDoA)	AveID	1.015	1.005		49.0	49.5	-1.0	25.0
N-EtFOSA-M	AveID	1.019	1.021		49.6	49.5	0.1	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.004	0.9642		47.5	49.5	-4.0	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.179		52.7	49.5	6.4	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9765		46.0	49.5	-7.2	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.260	0.999		39.2	49.5	-20.8	25.0
13C4 PFBA	Ave	372732	359178		47.7	49.5	-3.6	50.0
13C5-PFPeA	Ave	246497	235607		47.3	49.5	-4.4	50.0
13C2 PFHxA	Ave	244489	228048		46.2	49.5	-6.7	50.0
13C4-PFHpA	Ave	223707	214986		47.6	49.5	-3.9	50.0
18O2 PFHxS	Ave	322150	303091		44.1	46.8	-5.9	50.0
M2-6:2FTS	Ave	131356	153951		55.1	47.0	17.2	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-166071/23 Calibration Date: 05/25/2017 00:20
 Instrument ID: A8_N Calib Start Date: 05/22/2017 18:42
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/22/2017 19:26
 Lab File ID: 2017.05.24C_053.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	226888	232301		50.7	49.5	2.4	50.0
13C4 PFOS	Ave	234642	219737		44.3	47.3	-6.4	50.0
13C5 PFNA	Ave	174482	194072		55.1	49.5	11.2	50.0
13C8 FOSA	Ave	367735	359820		48.4	49.5	-2.2	50.0
13C2 PFDA	Ave	149557	162482		53.8	49.5	8.6	50.0
M2-8:2FTS	Ave	99608	134920		64.2	47.4	35.5	50.0
d3-NMeFOSAA	Ave	66001	80725		60.5	49.5	22.3	50.0
13C2 PFUnA	Ave	112228	125233		55.2	49.5	11.6	50.0
d5-NEtFOSAA	Ave	64270	77452		59.7	49.5	20.5	50.0
d-N-MeFOSA-M	Ave	98992	102515		51.3	49.5	3.6	50.0
13C2 PFDoA	Ave	108877	129118		58.7	49.5	18.6	50.0
d-N-EtFOSA-M	Ave	95914	92954		48.0	49.5	-3.1	50.0
13C2-PFTeDA	Ave	215350	263500		60.6	49.5	22.4	50.0
13C2-PFHxDA	Ave	120243	131409		54.1	49.5	9.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_053.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 25-May-2017 00:20:35 ALS Bottle#: 32 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub18
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:03:38 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 11:02:41

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid	212.90 > 169.00	1.993	1.993	0.0	1.000	18394035	51.0	103	11007	
D 1 13C4 PFBA	217.00 > 172.00	1.993	1.993	0.0		17781092	47.7	96.4	172361	
4 Perfluoropentanoic acid	262.90 > 219.00	2.348	2.348	0.0	1.000	12644755	49.5	100	3158	
D 3 13C5-PFPeA	267.90 > 223.00	2.348	2.348	0.0		11663724	47.3	95.6	198995	
D 47 13C3-PFBS	301.90 > 83.00	2.388	2.388	0.0		271760	NC			
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.398	2.398	0.0	1.000	20943197	43.7	99.8		
	298.90 > 99.00	2.388	2.398	-0.010	0.996	8808862	2.38(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.680	2.680	0.0	1.000	4313235	38.3	82.7		
6 Perfluorohexanoic acid	313.00 > 269.00	2.729	2.729	0.0	1.000	11679929	49.4	99.9	17792	
D 7 13C2 PFHxA	315.00 > 270.00	2.729	2.729	0.0		11289519	46.2	93.3	31169	
D 9 13C4-PFHpA	367.00 > 322.00	3.122	3.122	0.0		10642884	47.6	96.1	30266	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.131	3.131	0.0	1.000	15698847	42.8	95.0		
10 Perfluoroheptanoic acid	363.00 > 319.00	3.131	3.131	0.0	1.000	11528477	48.9	98.8	3653	
D 11 18O2 PFHxS	403.00 > 84.00	3.131	3.131	0.0		14194277	44.1	94.1	50389	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.494	3.494	0.0	7240253	55.1	117		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.494	3.494	0.0	1.000	6585162	44.4	94.7	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.516	3.516	0.0	1.000	13986104	46.6	98.9	
* 62 13C2-PFOA	415.00	> 370.00	3.516	3.516	0.0		11265340	49.5	100	
15 Perfluorooctanoic acid	413.00	> 369.00	3.523	3.523	0.0	1.000	13041208	50.0	101	1332
	413.00	> 169.00	3.523	3.523	0.0	1.000	7492197	1.74(0.90-1.10)		11902
D 14 13C4 PFOA	417.00	> 372.00	3.523	3.523	0.0		11500044	50.7	102	31687
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.889	3.889	0.0	1.000	12012882	46.1	100	6513
	499.00	> 99.00	3.889	3.889	0.0	1.000	2570988	4.67(0.90-1.10)		6988
D 18 13C4 PFOS	503.00	> 80.00	3.889	3.889	0.0		10399427	44.3	93.6	11149
D 19 13C5 PFNA	468.00	> 423.00	3.897	3.897	0.0		9607538	55.1	111	27841
20 Perfluorononanoic acid	463.00	> 419.00	3.906	3.906	0.0	1.000	10509623	49.8	101	3555
D 21 13C8 FOSA	506.00	> 78.00	4.215	4.215	0.0		17812878	48.4	97.8	62905
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.215	4.215	0.0	1.000	18434731	48.9	98.7	21869
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.245	4.245	0.0	1.000	6392386	48.6	102	
D 23 13C2 PFDA	515.00	> 470.00	4.245	4.245	0.0		8043673	53.8	109	9511
D 26 M2-8:2FTS	529.00	> 509.00	4.245	4.245	0.0		6398700	64.2	135	
24 Perfluorodecanoic acid	513.00	> 469.00	4.245	4.245	0.0	1.000	8543578	51.7	104	6081
D 27 d3-NMeFOSAA	573.00	> 419.00	4.402	4.402	0.0		3996304	60.5	122	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.402	4.402	0.0	1.000	4290517	52.8	107	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.529	4.529	0.0	1.000	7430964	48.7	102	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.558	4.558	0.0	1.000	6909155	47.0	94.9	8797
D 32 d5-NEtFOSAA	589.00	> 419.00	4.558	4.558	0.0		3834272	59.7	121	
D 30 13C2 PFUnA	565.00	> 520.00	4.558	4.558	0.0		6199636	55.2	112	12515
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.568	4.568	0.0	1.002	3720575	50.3	102	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.682	4.682	0.0	5074988	51.3	104		
35 MeFOSA	512.00	> 169.00	4.682	4.682	0.0	1.000	4898028	49.6	100	
D 36 13C2 PFDaA	615.00	> 570.00	4.834	4.834	0.0	6391971	58.7	119	6173	
37 Perfluorododecanoic acid	613.00	> 569.00	4.834	4.834	0.0	1.000	6422247	49.0	99.0	463
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.843	4.843	0.0	4601674	48.0	96.9		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.853	4.853	0.0	1.000	4697504	49.6	100	
41 Perfluorotridecanoic acid	663.00	> 619.00	5.076	5.076	0.0	1.000	6163159	47.5	96.0	401
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.297	5.297	0.0	1.000	13924901	52.7	106	295
	713.00	> 169.00	5.289	5.297	-0.008	0.998	1892233	7.36(0.00-0.00)		6438
D 43 13C2-PFTeDA	715.00	> 670.00	5.297	5.297	0.0	13044531	60.6	122	8650	
D 44 13C2-PFHxDA	815.00	> 770.00	5.687	5.687	0.0	6505409	54.1	109	2237	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.687	5.687	0.0	1.000	6241844	46.0	92.8	238
46 Perfluorooctadecanoic acid	913.00	> 869.00	6.080	6.080	0.0	1.000	6384350	39.2	79.2	243

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L5_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_053.d

Injection Date: 25-May-2017 00:20:35

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

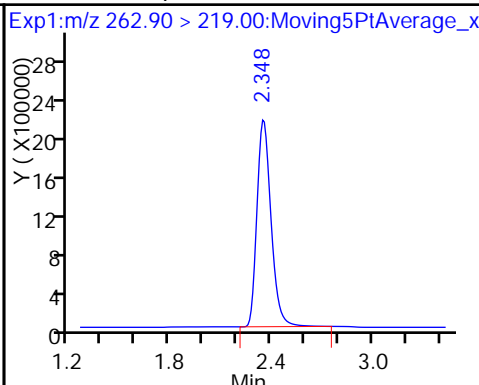
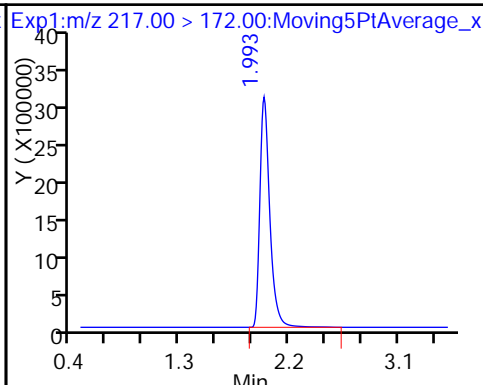
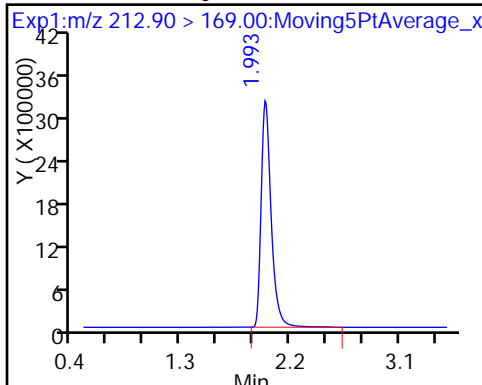
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

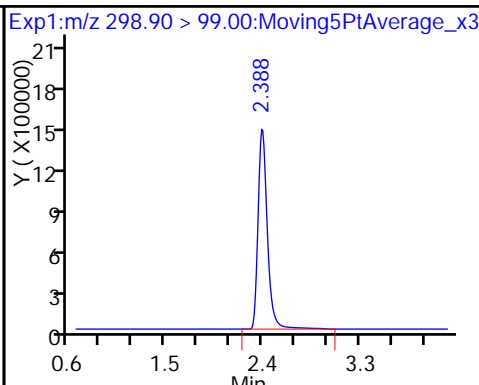
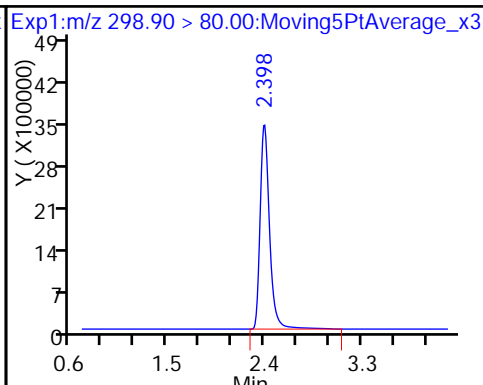
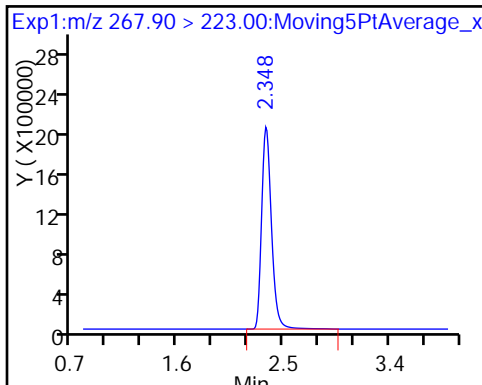
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

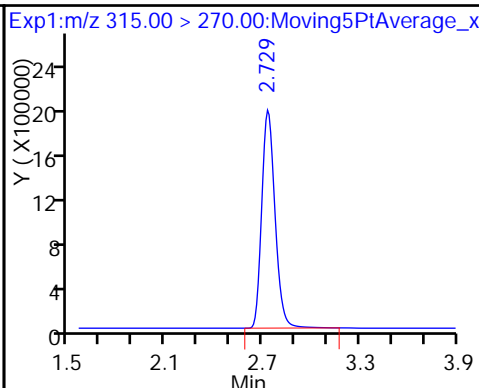
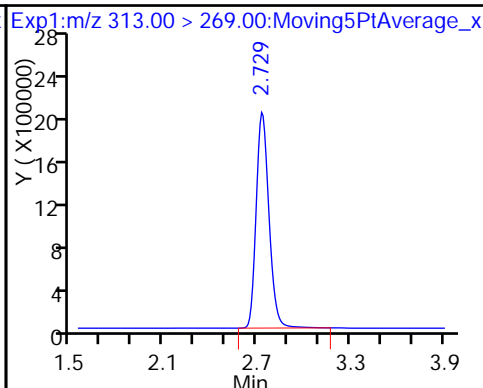
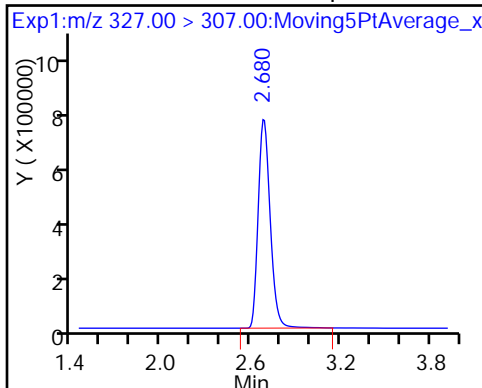
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

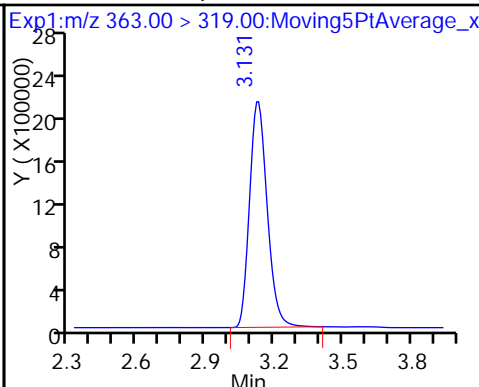
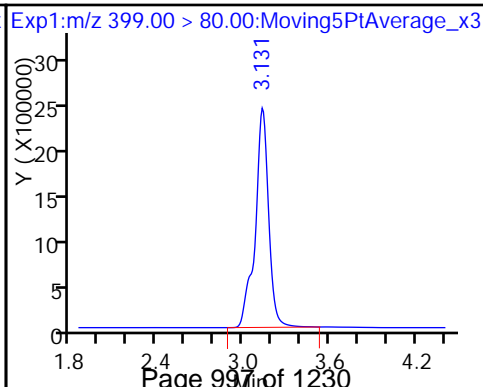
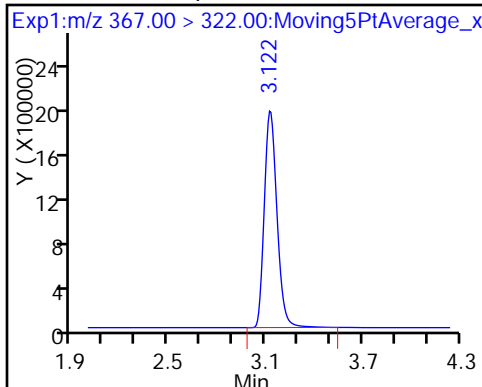
D 7 13C2 PFHxA



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid

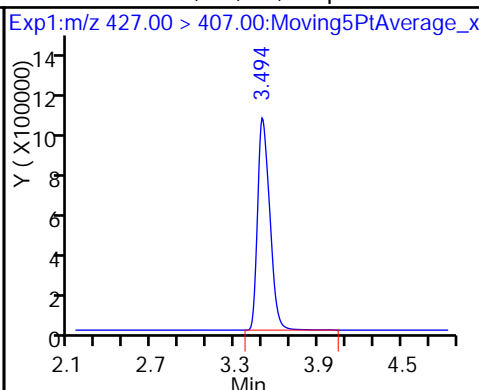
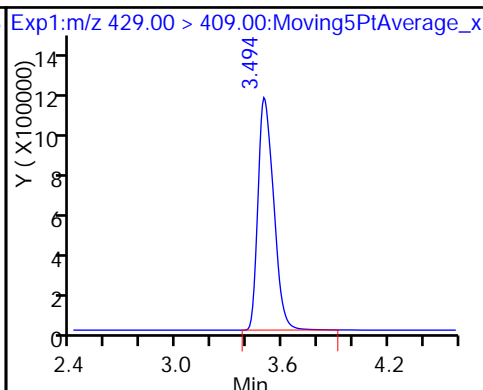
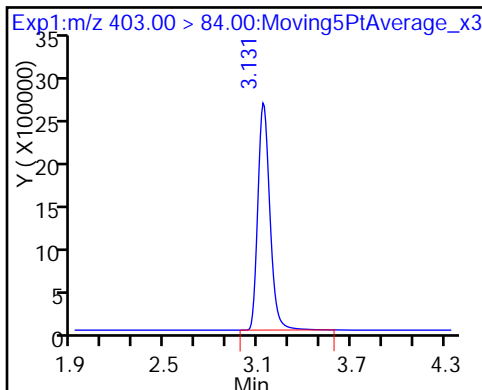
10 Perfluoroheptanoic acid



D 11 18O2 PFHxS

D 12 M2-6:2FTS

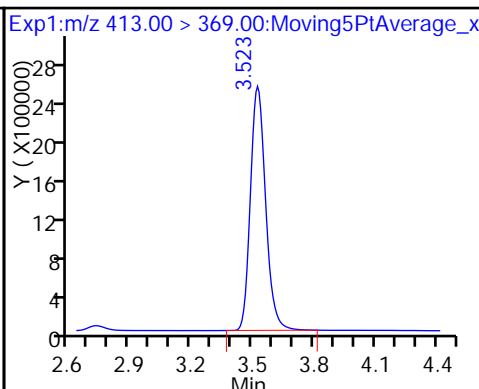
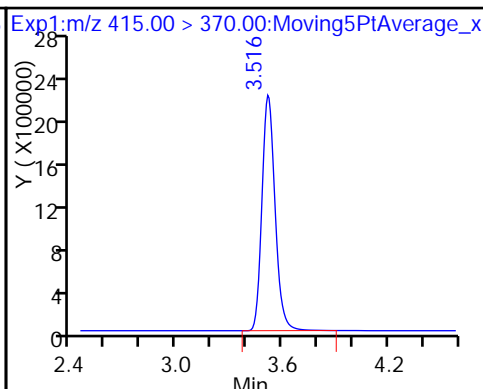
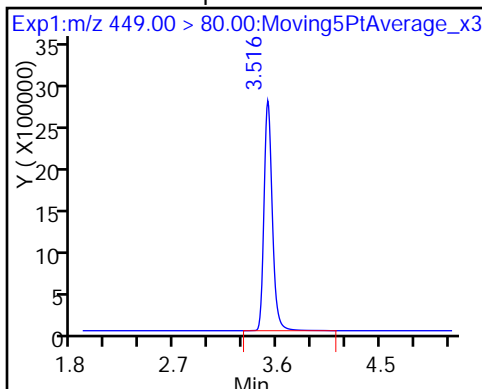
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

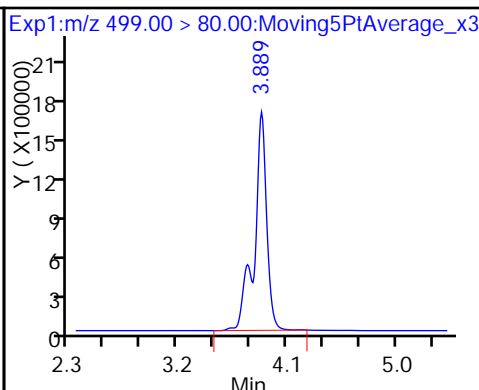
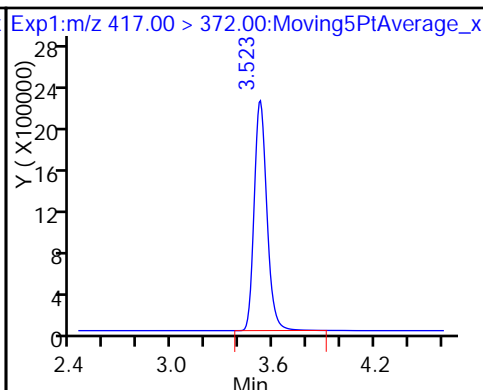
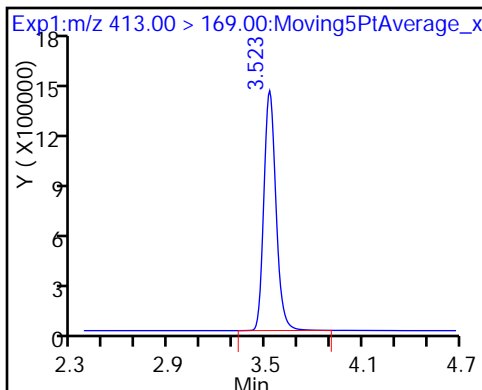
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

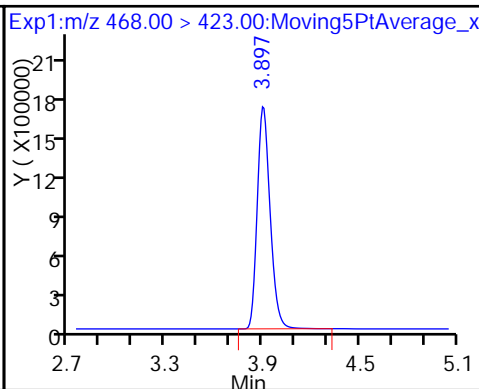
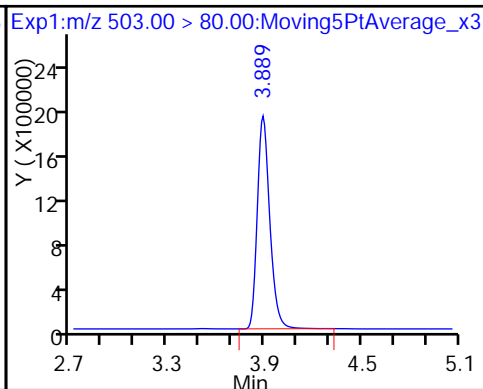
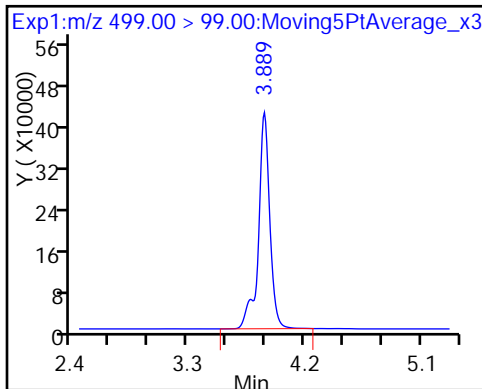
17 Perfluorooctane sulfonic acid

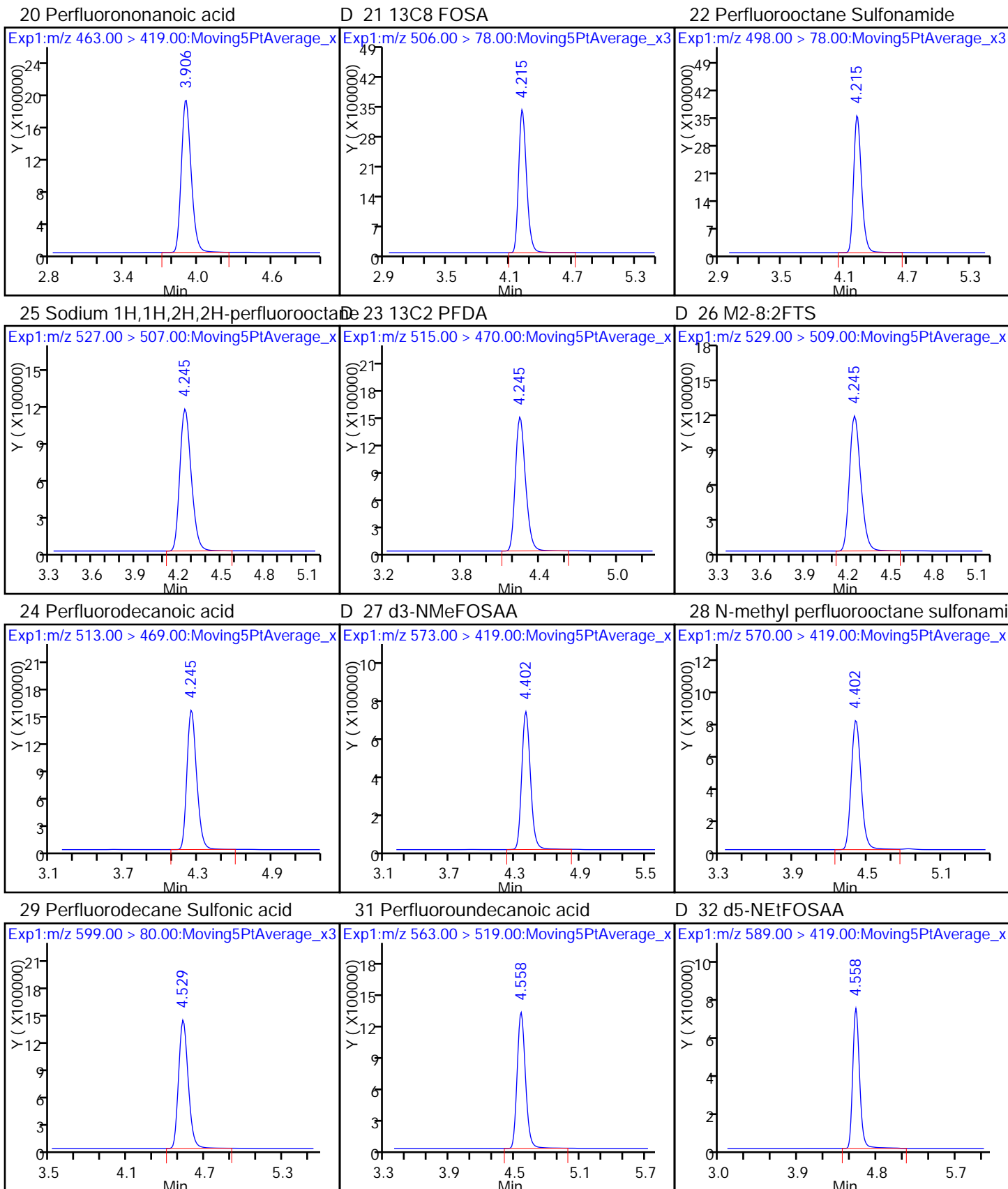


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

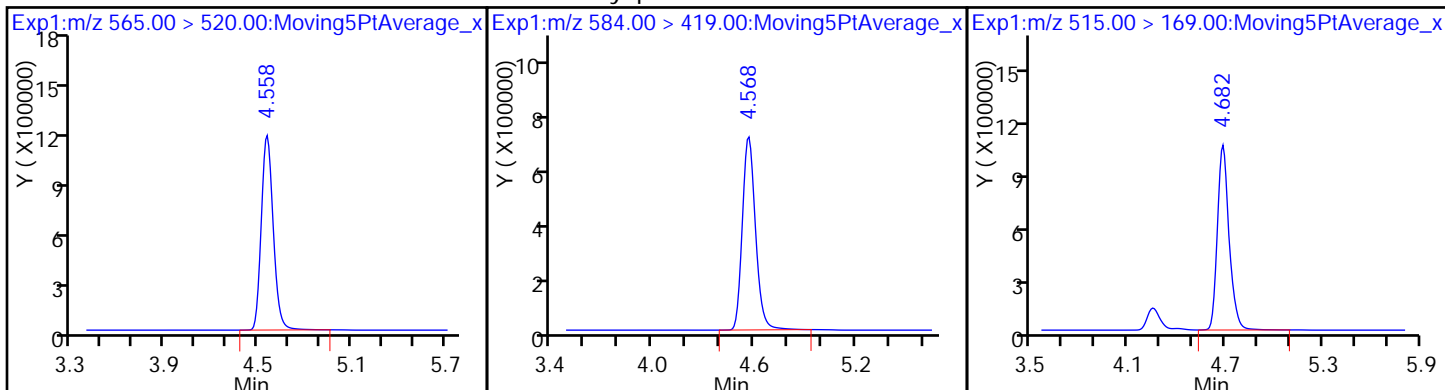
D 19 13C5 PFNA





D 30 13C2 PFUnA

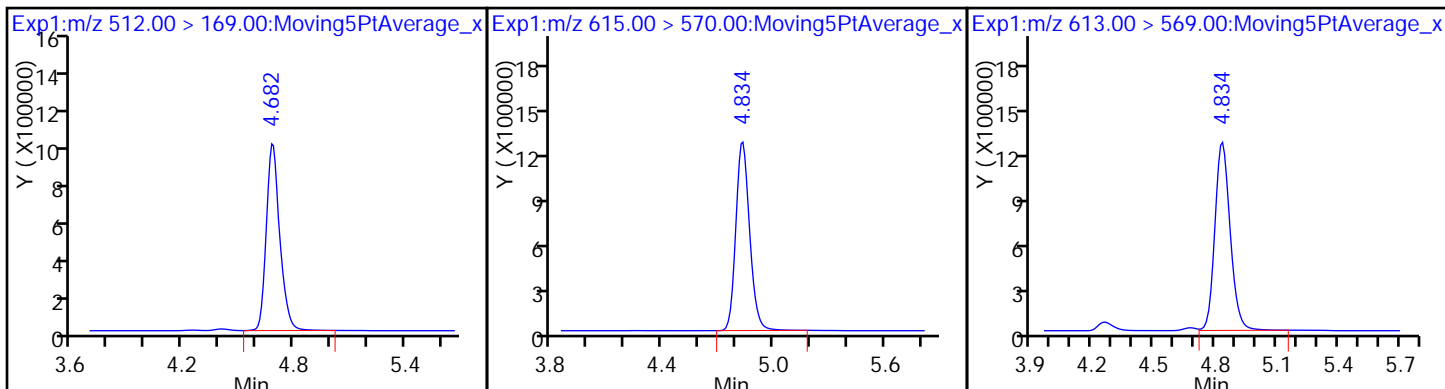
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

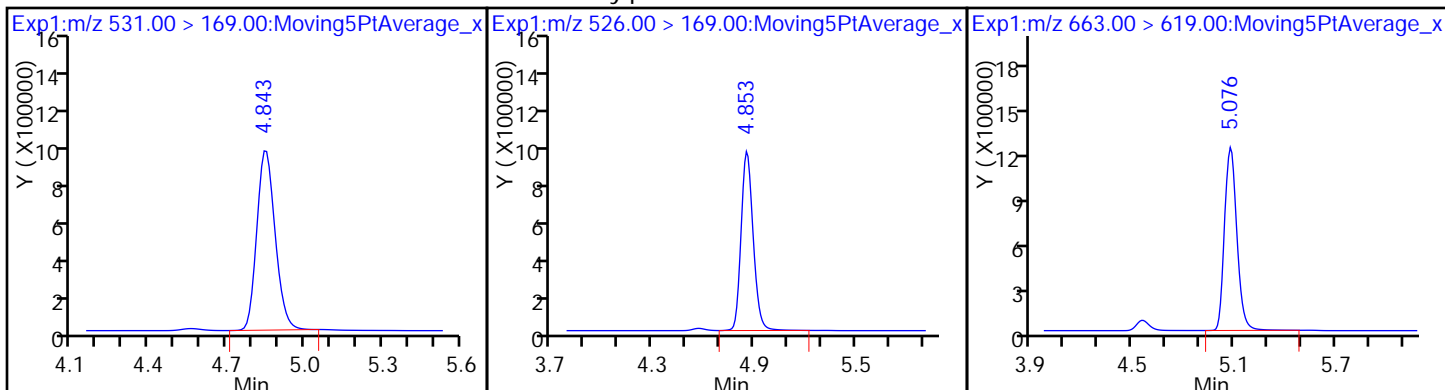
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

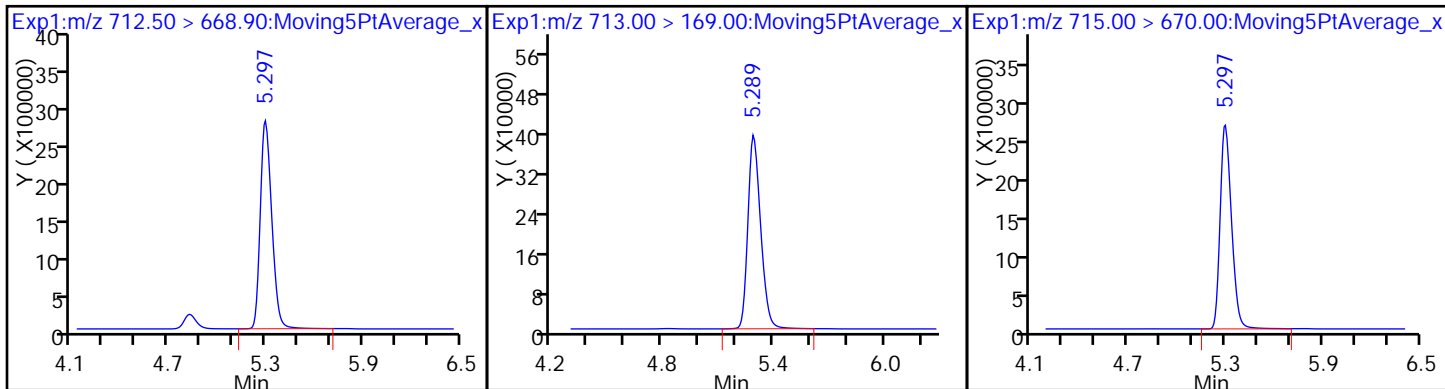
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

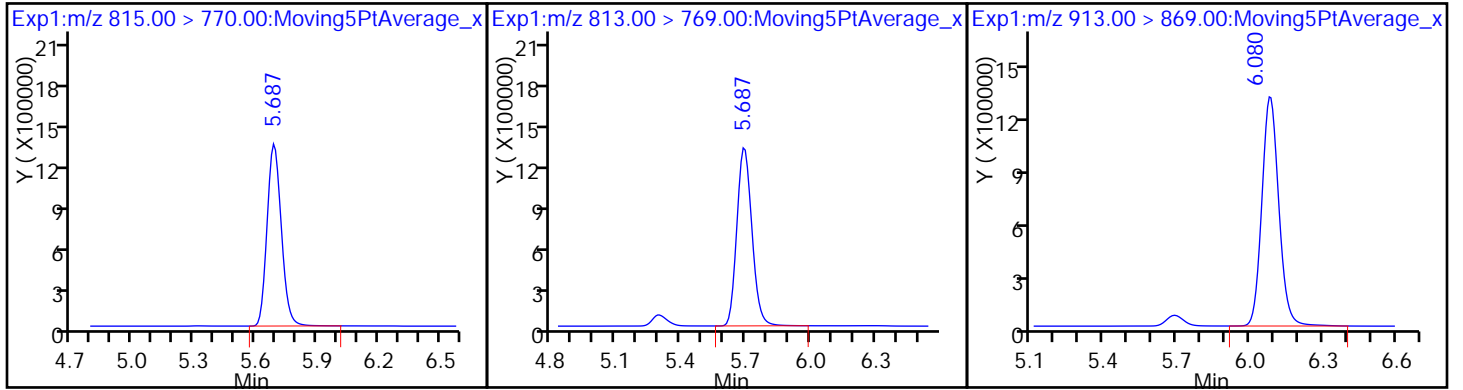
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: ICV 320-167755/11 Calibration Date: 06/06/2017 14:41
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.06CURVE_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9186	0.9694		52.2	49.5	5.5	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.041	1.089		51.8	49.5	4.6	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.633	1.866		50.1	43.8	14.3	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.012	1.071		52.4	49.5	5.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.048	1.085		51.3	49.5	3.6	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.096	1.109		47.3	46.8	1.2	25.0
6:2FTS	AveID	0.9879	0.9593		45.6	46.9	-2.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.068	1.084		50.2	49.5	1.5	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.141	1.173		48.5	47.1	2.9	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.055	1.001		44.8	47.3	-5.2	25.0
Perfluorononanoic acid (PFNA)	AveID	1.002	1.070		52.8	49.5	6.7	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9693	0.9769		49.9	49.5	0.8	25.0
8:2FTS	AveID	0.9716	0.9903		48.3	47.4	1.9	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9522	1.021		53.1	49.5	7.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.028	1.000		48.1	49.5	-2.8	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6584	0.6775		49.2	47.8	2.9	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.065	1.104		51.3	49.5	3.7	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9439	0.9495		49.8	49.5	0.6	25.0
MeFOSA	AveID	0.9633	0.9344		48.0	49.5	-3.0	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9562	1.013		52.5	49.5	6.0	25.0
N-EtFOSA-M	AveID	1.000	1.003		49.6	49.5	0.3	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.000	1.003		49.7	49.5	0.3	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.214		52.9	49.5	6.8	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.084		56.5	49.5	14.2	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.8851	0.9911		55.4	49.5	12.0	25.0
13C4 PFBA	Ave	329728	333357		50.0	49.5	1.1	50.0
13C5-PFPeA	Ave	219977	220707		49.7	49.5	0.3	50.0
13C2 PFHxA	Ave	192846	187651		48.2	49.5	-2.7	50.0
13C4-PFHpA	Ave	177883	180087		50.1	49.5	1.2	50.0
18O2 PFHxS	Ave	230540	227539		46.2	46.8	-1.3	50.0
M2-6:2FTS	Ave	88838	84814		44.9	47.0	-4.5	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: ICV 320-167755/11 Calibration Date: 06/06/2017 14:41
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.06CURVE_012.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	180322	182980		50.2	49.5	1.5	50.0
13C4 PFOS	Ave	178130	177178		47.1	47.3	-0.5	50.0
13C5 PFNA	Ave	152667	152782		49.5	49.5	0.0	50.0
13C8 FOSA	Ave	300205	300644		49.6	49.5	0.1	50.0
M2-8:2FTS	Ave	81859	86277		50.0	47.4	5.4	50.0
13C2 PFDA	Ave	150783	148999		48.9	49.5	-1.2	50.0
d3-NMeFOSAA	Ave	88062	89218		50.2	49.5	1.3	50.0
13C2 PFUnA	Ave	119837	116179		48.0	49.5	-3.1	50.0
d5-NEtFOSAA	Ave	87293	82982		47.1	49.5	-4.9	50.0
d-N-MeFOSA-M	Ave	88593	95059		53.1	49.5	7.3	50.0
13C2 PFDoA	Ave	124485	122180		48.6	49.5	-1.9	50.0
d-N-EtFOSA-M	Ave	82760	87829		52.5	49.5	6.1	50.0
13C2-PFTEtDA	Ave	257086	258569		49.8	49.5	0.6	50.0
13C2-PFHxDA	Ave	136854	140280		50.7	49.5	2.5	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_012.d
 Lims ID: ICV Full
 Client ID:
 Sample Type: ICV
 Inject. Date: 06-Jun-2017 14:41:14 ALS Bottle#: 36 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist:
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 08:20:34 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK033

First Level Reviewer: chandrasenas Date: 06-Jun-2017 16:48:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.742	1.746	-0.004	16502805	50.0		101	66036	
2 Perfluorobutyric acid	212.90 > 169.00	1.746	1.749	-0.003	15997787	52.2			23049	
D 3 13C5-PFPeA	267.90 > 223.00	2.069	2.073	-0.004	10926065	49.7		100	36677	
4 Perfluoropentanoic acid	262.90 > 219.00	2.069	2.074	-0.005	11893270	51.8			4437	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.114	2.111	0.003	18600028	50.1				
	298.90 > 99.00	2.114	2.111	0.003	7680989		2.42(0.00-0.00)			
D 47 13C3-PFBS	301.90 > 83.00	2.105	2.111	-0.006	270335	NC				
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.366	2.373	-0.007	3796091	52.0				
D 7 13C2 PFHxA	315.00 > 270.00	2.409	2.413	-0.004	9289652	48.2		97.3	30813	
6 Perfluorohexanoic acid	313.00 > 269.00	2.409	2.415	-0.006	9951617	52.4			17824	
D 9 13C4-PFHpA	367.00 > 322.00	2.795	2.792	0.003	8915183	50.1		101	32164	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.795	2.793	0.002	9675307	51.3			3712	
D 11 18O2 PFHxS	403.00 > 84.00	2.803	2.803	0.0	10656046	46.2		98.7	18483	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.803	2.803	0.0	11801895	47.3				

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.156	3.151	0.005	3988766	44.9	95.5		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.156	3.153	0.003	1.000	3818271	45.6		
* 62 13C2-PFOA	415.00	> 370.00	3.177	3.174	0.003		8968382	49.5		
D 14 13C4 PFOA	417.00	> 372.00	3.177	3.176	0.001		9058408	50.2	101	25001
15 Perfluorooctanoic acid	413.00	> 369.00	3.177	3.178	-0.001	1.000	9822150	50.2		2892
	413.00	> 169.00	3.177	3.178	-0.001	1.000	5918405	1.66(0.90-1.10)		10211
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.183	3.179	0.004	1.000	9798061	48.5		
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.552	3.481	0.071	1.000	8383847	44.8		11329
	499.00	> 99.00	3.552	3.481	0.071	1.000	1935113	4.33(0.90-1.10)		8079
D 18 13C4 PFOS	503.00	> 80.00	3.552	3.546	0.006		8385238	47.1	99.5	17480
D 19 13C5 PFNA	468.00	> 423.00	3.559	3.555	0.004		7563443	49.5	100	24634
20 Perfluorononanoic acid	463.00	> 419.00	3.559	3.557	0.002	1.000	8089333	52.8		12796
D 21 13C8 FOSA	506.00	> 78.00	3.891	3.888	0.003		14883381	49.6	100	17695
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.891	3.889	0.002	1.000	14539162	49.9		23285
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.906	3.903	0.003	1.000	4051904	48.3		
D 26 M2-8:2FTS	529.00	> 509.00	3.906	3.903	0.003		4091740	50.0	105	
D 23 13C2 PFDA	515.00	> 470.00	3.913	3.908	0.005		7376165	48.9	98.8	14243
24 Perfluorodecanoic acid	513.00	> 469.00	3.913	3.909	0.004	1.000	7533186	53.1		22134
D 27 d3-NMeFOSAA	573.00	> 419.00	4.067	4.064	0.003		4416719	50.2	101	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.076	4.067	0.009	1.002	4414521	48.1		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.204	4.202	0.002	1.000	5734533	49.2		
D 32 d5-NEtFOSAA	589.00	> 419.00	4.229	4.225	0.004		4108032	47.1	95.1	
D 30 13C2 PFUnA	565.00	> 520.00	4.229	4.226	0.003		5751442	48.0	96.9	9483
31 Perfluoroundecanoic acid	563.00	> 519.00	4.229	4.226	0.003	1.000	6351729	51.3		10021
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.238	4.233	0.005	1.002	3900544	49.8		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.366	4.364	0.002	4705883	53.1	107		
35 MeFOSA	512.00	> 169.00	4.375	4.370	0.005	1.000	4397283	48.0		
37 Perfluorododecanoic acid	613.00	> 569.00	4.516	4.509	0.007	1.000	6128264	52.5	2212	
D 36 13C2 PFDaA	615.00	> 570.00	4.506	4.509	-0.003	6048520	48.6	98.1	5563	
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.545	4.540	0.005	4347976	52.5	106		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.545	4.550	-0.005	1.000	4361151	49.6		
41 Perfluorotridecanoic acid	663.00	> 619.00	4.763	4.762	0.001	1.000	6065786	49.7	3689	
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.994	4.988	0.006	1.000	13390423	52.9	9540	
	713.00	> 169.00	4.994	4.988	0.006	1.000	1855509	7.22(0.00-0.00)	6411	
D 43 13C2-PFTeDA	715.00	> 670.00	4.994	4.988	0.006	12800459	49.8	101	17883	
D 44 13C2-PFHxDA	815.00	> 770.00	5.393	5.391	0.002	6944535	50.7	103	5768	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.400	5.395	0.005	1.000	6556007	56.5	3411	
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.751	5.745	0.006	1.000	5994905	55.4	5413	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFCIC_FULL_00003

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_012.d

Injection Date: 06-Jun-2017 14:41:14

Instrument ID: A8_N

Lims ID: ICV Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

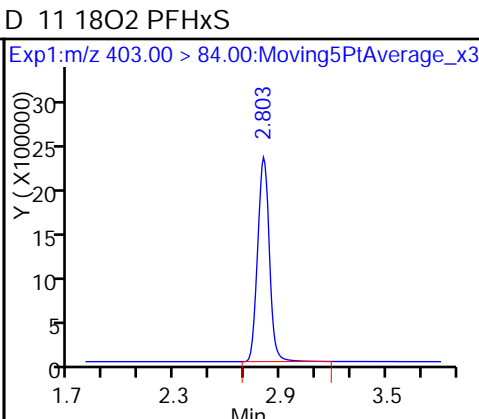
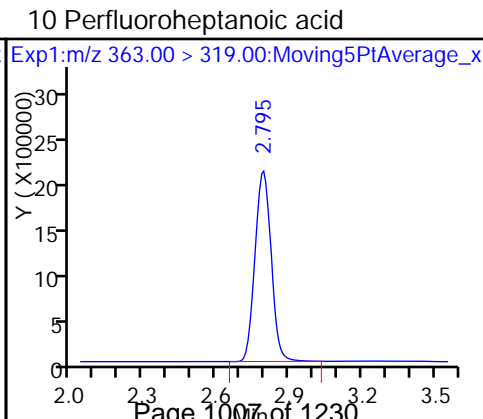
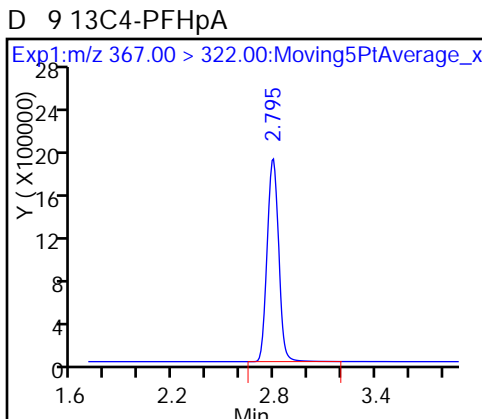
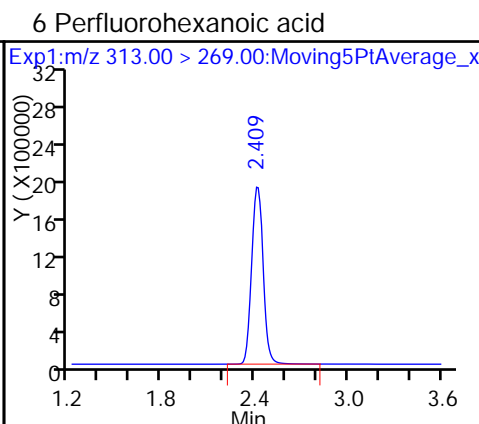
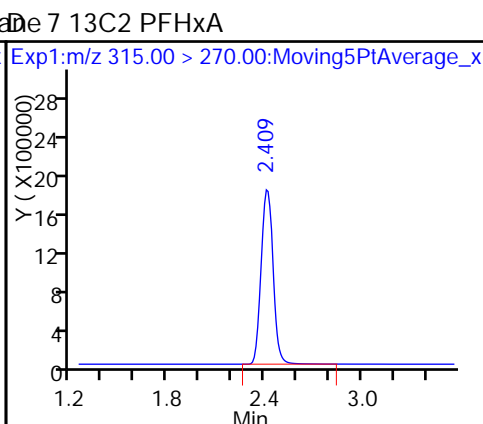
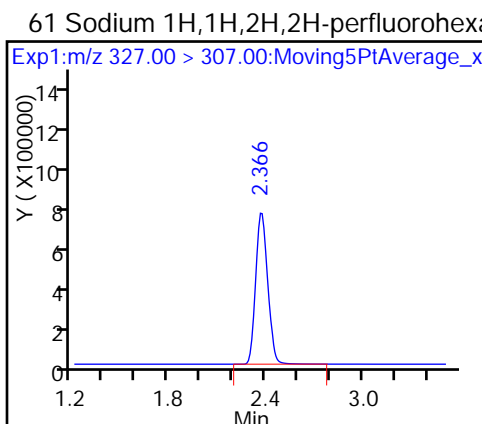
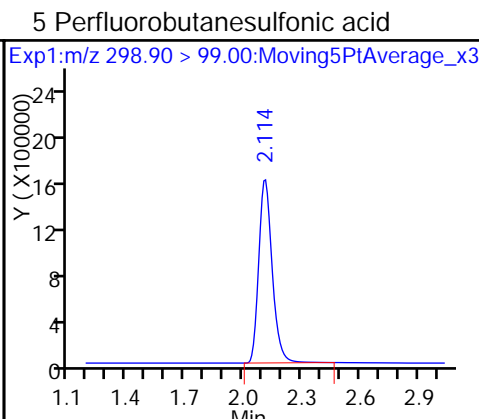
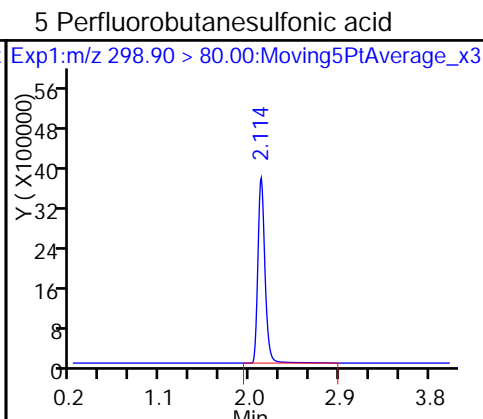
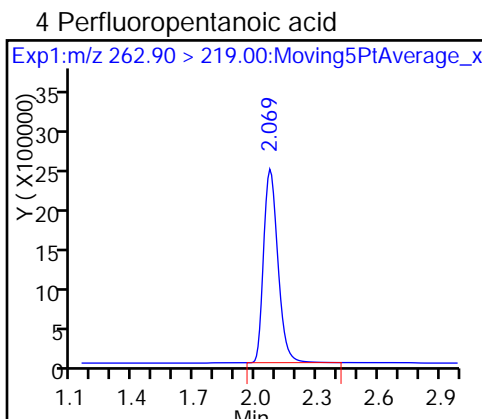
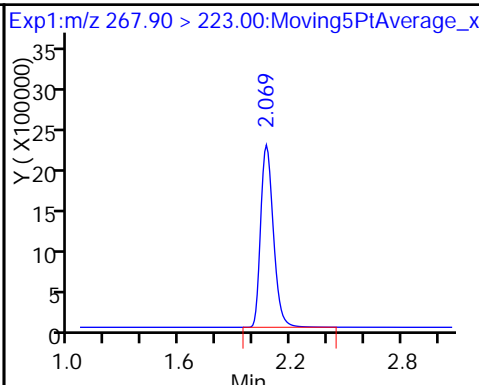
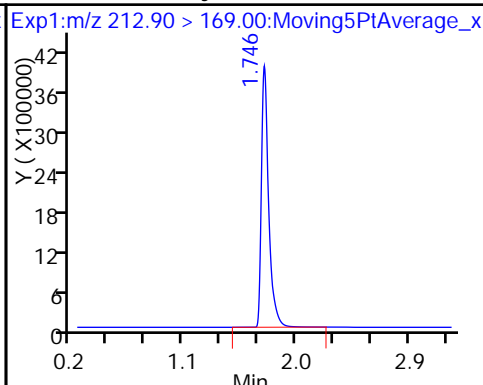
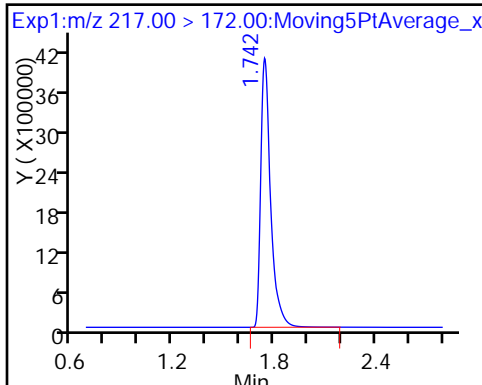
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

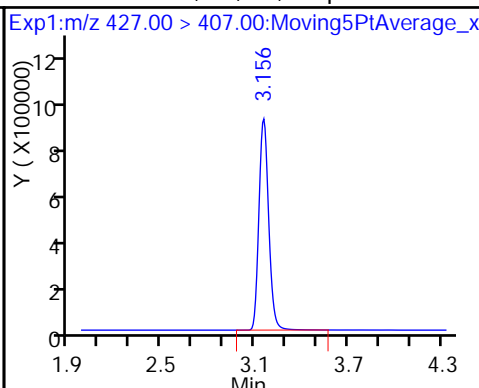
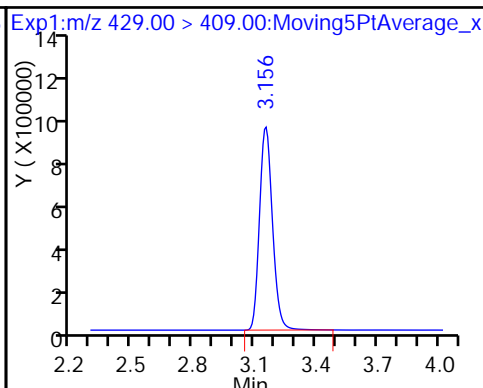
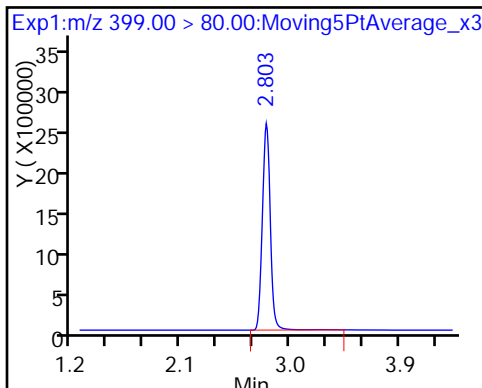
D 3 13C5-PFPeA



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

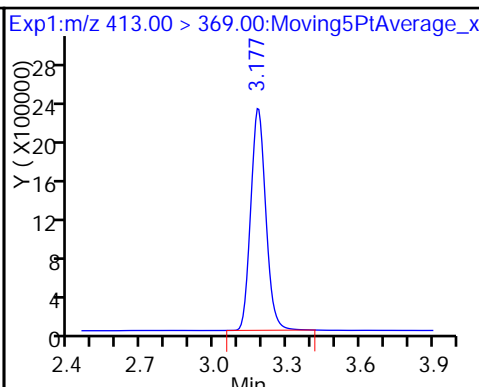
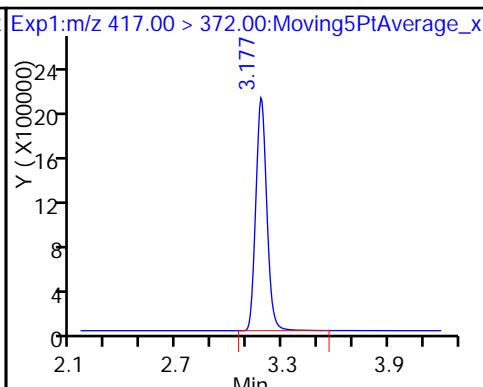
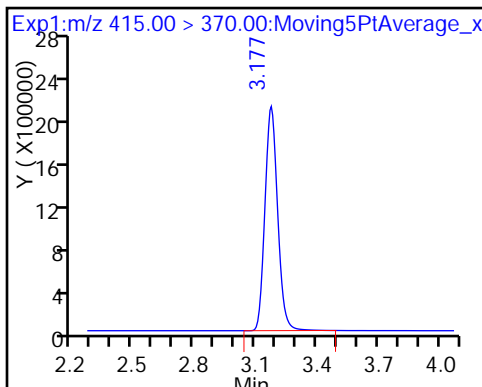
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

D 14 13C4 PFOA

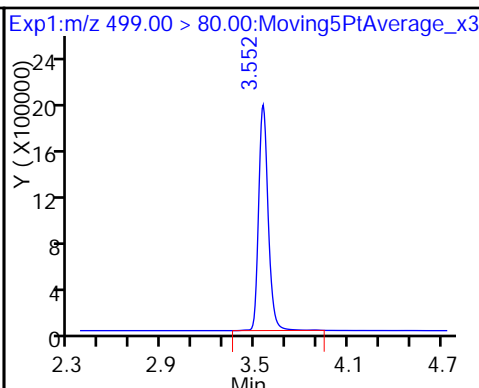
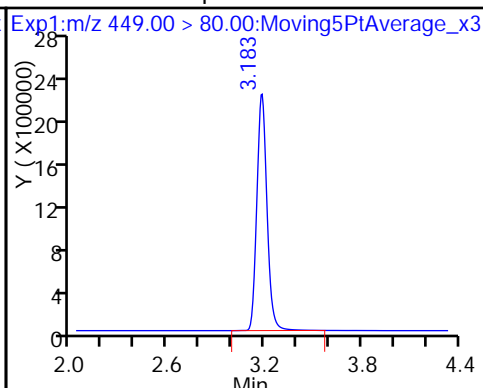
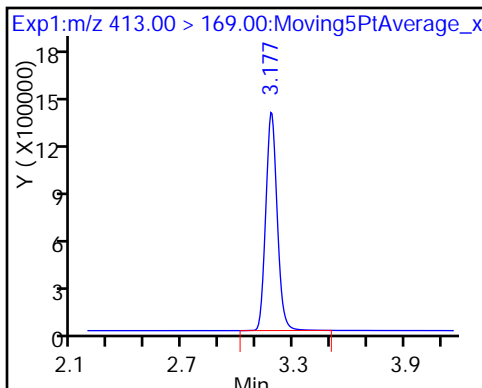
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

16 Perfluoroheptanesulfonic Acid

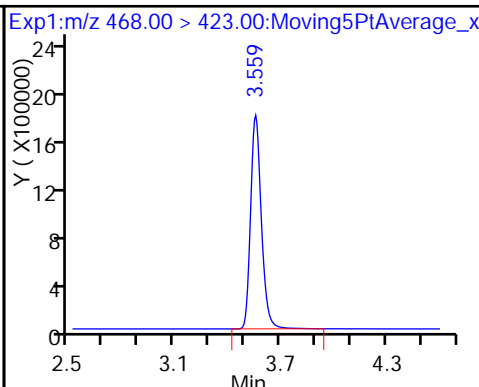
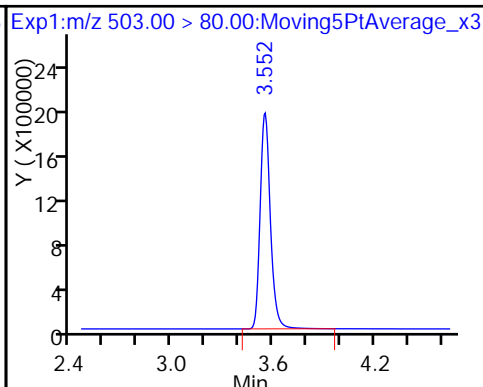
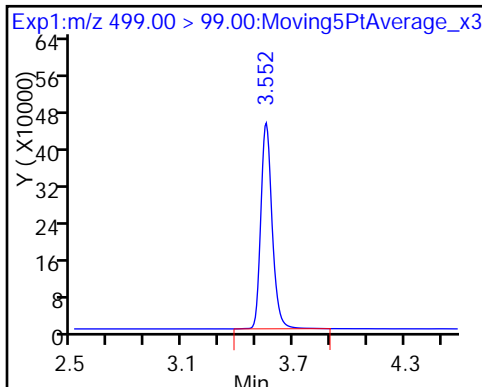
17 Perfluorooctane sulfonic acid

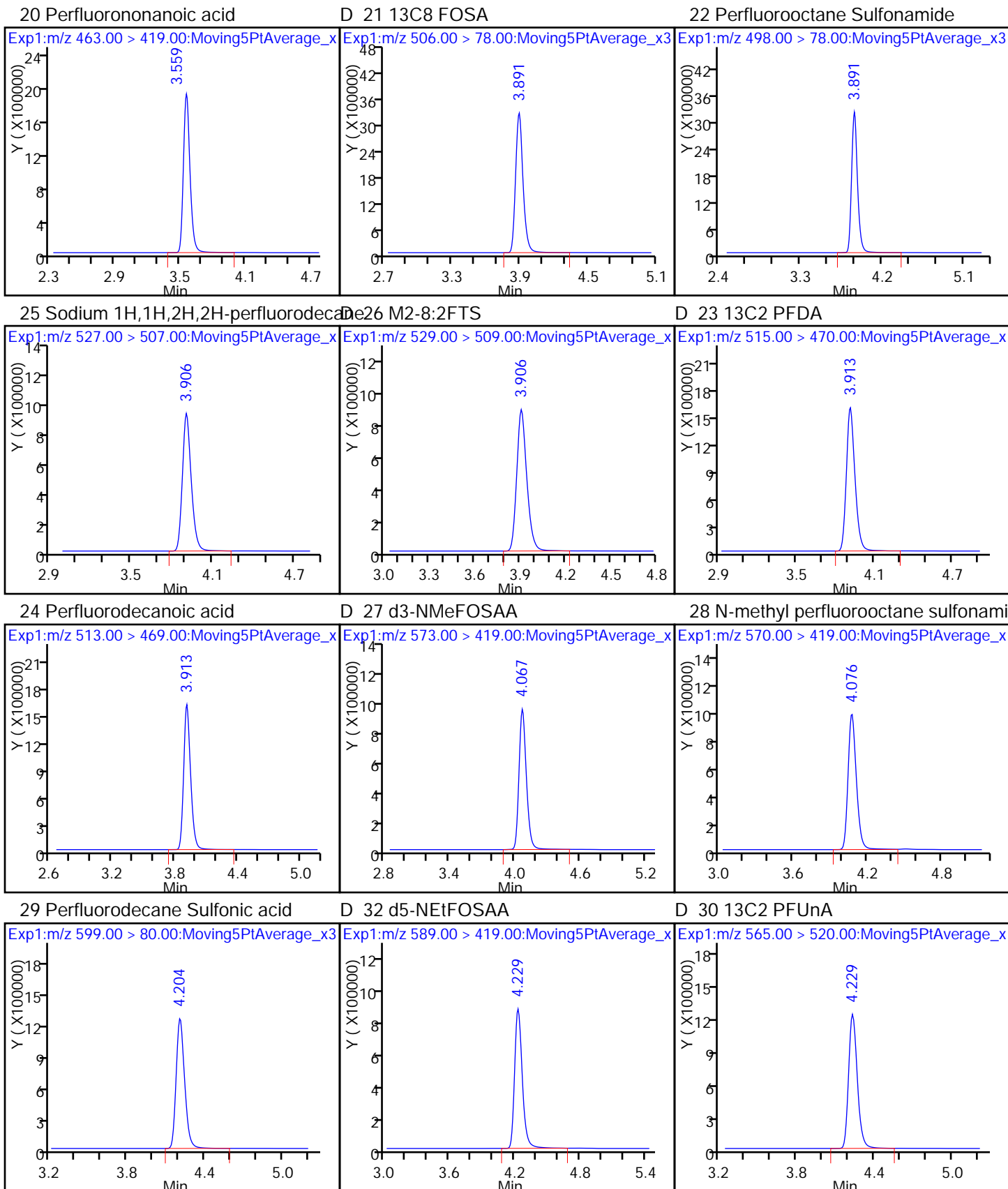


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

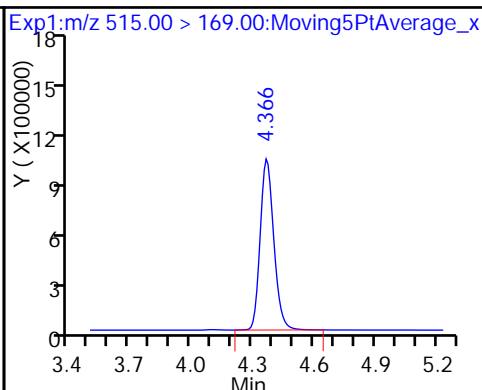
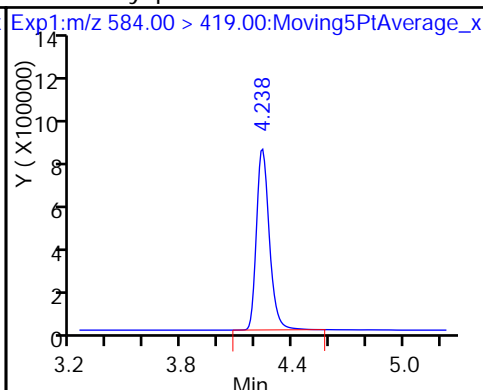
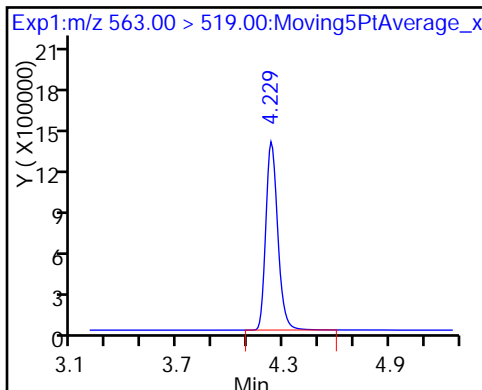




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

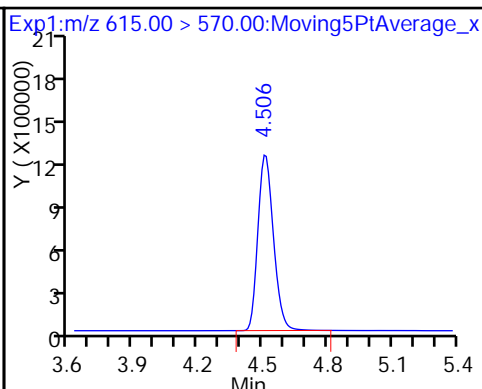
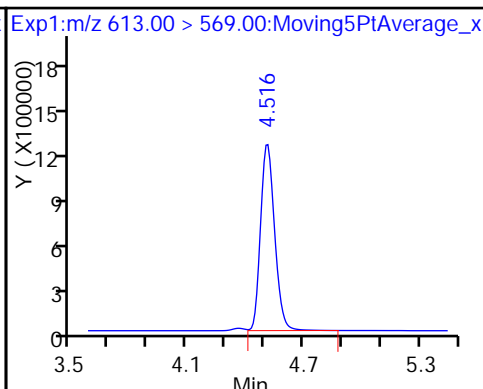
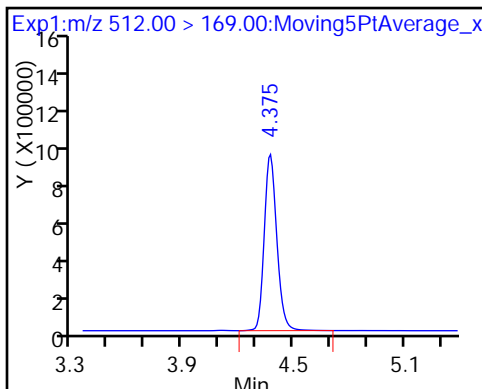
34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

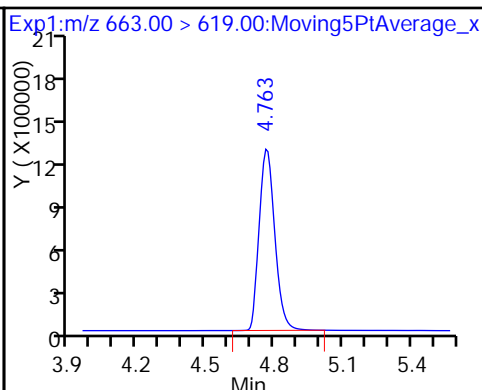
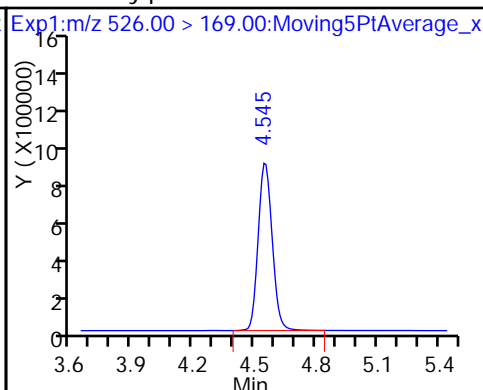
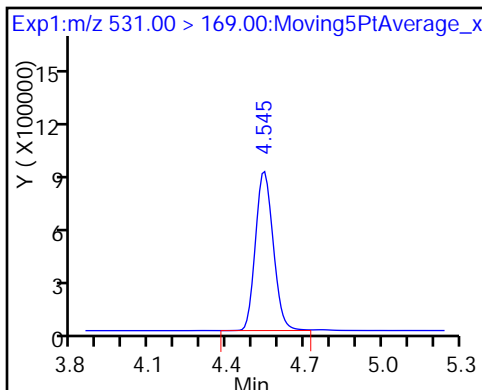
D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

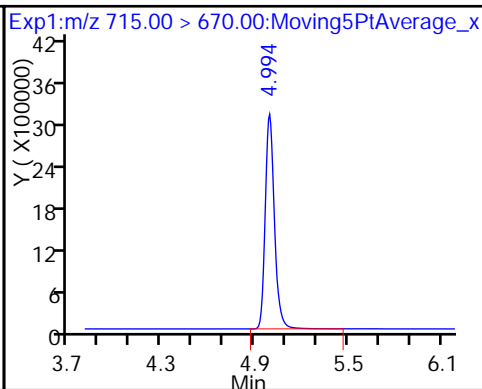
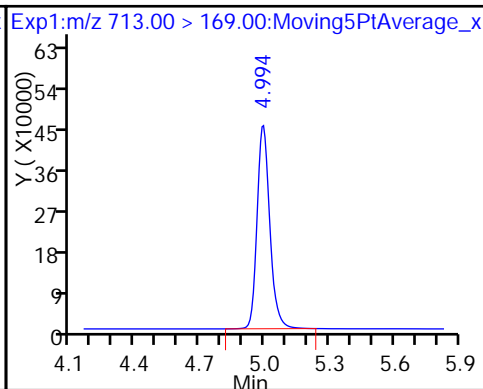
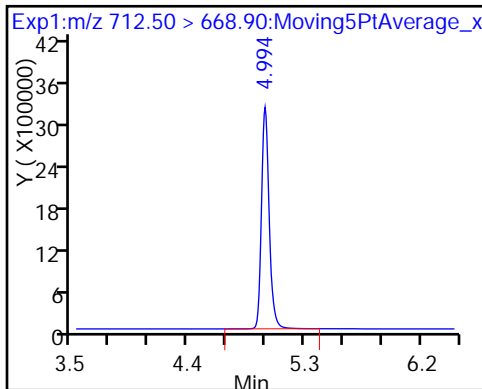
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

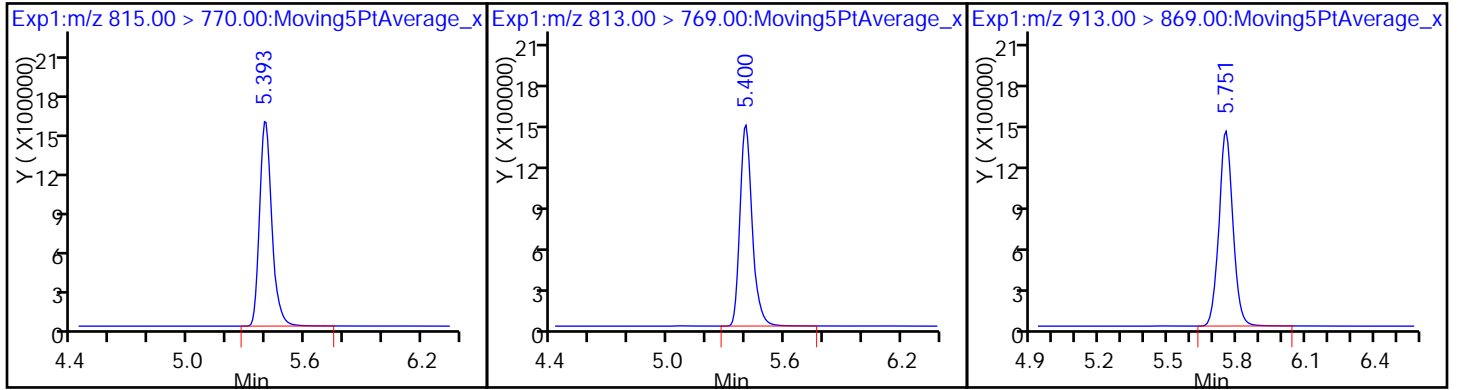
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-167950/2 Calibration Date: 06/07/2017 09:03
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.07A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9186	0.9009		0.971	0.990	-1.9	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.041	1.047		0.996	0.990	0.6	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.633	1.672		0.897	0.875	2.4	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.012	1.032		1.01	0.990	1.9	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.048	1.032		0.975	0.990	-1.5	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.096	1.191		0.979	0.901	8.7	50.0
6:2FTS	AveID	0.9879	0.9718		0.923	0.939	-1.6	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.141	1.131		0.935	0.943	-0.8	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.068	1.127		1.04	0.990	5.5	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.055	1.089		0.948	0.919	3.2	50.0
Perfluorononanoic acid (PFNA)	AveID	1.002	0.9530		0.941	0.990	-4.9	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9693	0.9529		0.973	0.990	-1.7	50.0
8:2FTS	AveID	0.9716	0.9325		0.910	0.949	-4.0	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9522	0.9281		0.965	0.990	-2.5	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.028	0.9508		0.915	0.990	-7.5	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6584	0.6211		0.900	0.954	-5.7	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9439	0.8742		0.917	0.990	-7.4	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.065	1.107		1.03	0.990	3.9	50.0
MeFOSA	AveID	0.9633	0.9739		1.00	0.990	1.1	50.0
N-EtFOSA-M	AveID	1.000	0.9458		0.936	0.990	-5.5	50.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9562	0.9384		0.972	0.990	-1.9	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.000	1.153		1.14	0.990	15.3	50.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.611		1.20	0.990	21.6	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		2.277		1.60	0.990	61.7*	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.8851	1.240		1.39	0.990	40.1	50.0
13C4 PFBA	Ave	329728	336686		50.5	49.5	2.1	50.0
13C5-PFPeA	Ave	219977	233972		52.7	49.5	6.4	50.0
13C2 PFHxA	Ave	192846	204107		52.4	49.5	5.8	50.0
13C4-PFHpA	Ave	177883	189477		52.7	49.5	6.5	50.0
18O2 PFHxS	Ave	230540	233936		47.5	46.8	1.5	50.0
M2-6:2FTS	Ave	88838	185015		97.9	47.0	108.3*	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-167950/2 Calibration Date: 06/07/2017 09:03
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.07A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	180322	222717		61.1	49.5	23.5	50.0
13C4 PFOS	Ave	178130	182339		48.4	47.3	2.4	50.0
13C5 PFNA	Ave	152667	165899		53.8	49.5	8.7	50.0
13C8 FOSA	Ave	300205	265165		43.7	49.5	-11.7	50.0
M2-8:2FTS	Ave	81859	69461		40.2	47.4	-15.1	50.0
13C2 PFDA	Ave	150783	152366		50.0	49.5	1.0	50.0
d3-NMeFOSAA	Ave	88062	83057		46.7	49.5	-5.7	50.0
d5-NEtFOSAA	Ave	87293	92688		52.6	49.5	6.2	50.0
13C2 PFUnA	Ave	119837	117837		48.7	49.5	-1.7	50.0
d-N-MeFOSA-M	Ave	88593	81464		45.5	49.5	-8.0	50.0
d-N-EtFOSA-M	Ave	82760	75199		45.0	49.5	-9.1	50.0
13C2 PFDoA	Ave	124485	112931		44.9	49.5	-9.3	50.0
13C2-PFtTeDA	Ave	257086	289431		55.7	49.5	12.6	50.0
13C2-PFHxDA	Ave	136854	172650		62.5	49.5	26.2	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43932.b\2017.06.07A_004.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 07-Jun-2017 09:03:01 ALS Bottle#: 29 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCVL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub20
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43932.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 14:02:58 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK033

First Level Reviewer: westendorfc Date: 07-Jun-2017 10:11:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.742	1.746	-0.004	16667648	50.5		102	104761	
2 Perfluorobutyric acid	212.90 > 169.00	1.746	1.746	0.0	300311	0.9710		98.1	211	
D 3 13C5-PFPeA	267.90 > 223.00	2.074	2.078	-0.004	11582764	52.7		106	46147	
4 Perfluoropentanoic acid	262.90 > 219.00	2.074	2.078	-0.004	242635	1.00		101	104	
D 47 13C3-PFBS	301.90 > 83.00	2.110	2.114	-0.004	261465	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.110	2.123	-0.013	342389	0.8965		102		
	298.90 > 99.00	2.110	2.123	-0.013	131380		2.61(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.383	2.388	-0.005	65089	0.4086		44.2		
D 7 13C2 PFHxA	315.00 > 270.00	2.415	2.431	-0.016	10104328	52.4		106	32482	
6 Perfluorohexanoic acid	313.00 > 269.00	2.426	2.431	-0.005	208545	1.01		102	282	
D 9 13C4-PFHpA	367.00 > 322.00	2.803	2.812	-0.009	9380036	52.7		107	25993	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.803	2.812	-0.009	193597	0.9751		98.5	91.9	
D 11 18O2 PFHxS	403.00 > 84.00	2.811	2.828	-0.017	10955633	47.5		101	17784	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.811	2.828	-0.017	250953	0.9790		109		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.184	3.177	0.007	8701201	97.9	208		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.184	3.177	0.007	1.000	168762	0.9233	98.4	
15 Perfluorooctanoic acid	413.00	> 369.00	3.191	3.203	-0.012	1.000	248536	1.04	105	79.9
	413.00	> 169.00	3.191	3.203	-0.012	1.000	141774	1.75(0.90-1.10)	178	
D 14 13C4 PFOA	417.00	> 372.00	3.191	3.203	-0.012		11025575	61.1	124	38517
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.191	3.203	-0.012	1.000	194456	0.9350	99.2	
* 62 13C2-PFOA	415.00	> 370.00	3.191	3.197	-0.006		12095054	49.5	100	
D 18 13C4 PFOS	503.00	> 80.00	3.567	3.579	-0.012		8629500	48.4	102	14729
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.447	3.579	-0.132	1.000	182453	0.9481	103	72.8
	499.00	> 99.00	3.567	3.579	-0.012	1.035	45052	4.05(0.90-1.10)	232	
D 19 13C5 PFNA	468.00	> 423.00	3.573	3.585	-0.012		8212842	53.8	109	25544
20 Perfluorononanoic acid	463.00	> 419.00	3.573	3.585	-0.012	1.000	156532	0.9413	95.1	305
D 21 13C8 FOSA	506.00	> 78.00	3.877	3.893	-0.016		13126972	43.7	88.3	20071
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.877	3.893	-0.016	1.000	250185	0.9734	98.3	1669
D 26 M2-8:2FTS	529.00	> 509.00	3.923	3.940	-0.017		3294228	40.2	84.9	
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.931	3.940	-0.009	1.002	61438	0.9104	96.0	
D 23 13C2 PFDA	515.00	> 470.00	3.931	3.940	-0.009		7542871	50.0	101	20984
24 Perfluorodecanoic acid	513.00	> 469.00	3.931	3.940	-0.009	1.000	140003	0.9650	97.5	680
D 27 d3-NMeFOSAA	573.00	> 419.00	4.087	4.105	-0.018		4111738	46.7	94.3	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.096	4.105	-0.009	1.002	78187	0.9154	92.5	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.232	4.241	-0.009	1.000	108099	0.9004	94.3	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.250	4.267	-0.017		4588504	52.6	106	
D 30 13C2 PFUnA	565.00	> 520.00	4.259	4.267	-0.008		5833534	48.7	98.3	13544
31 Perfluoroundecanoic acid	563.00	> 519.00	4.259	4.267	-0.008	1.000	129105	1.03	104	447
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.259	4.276	-0.017	1.002	80228	0.9170	92.6	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.341	4.359	-0.018	4032860	45.5	92.0		
35 MeFOSA	512.00	> 169.00	4.350	4.368	-0.018	1.000	78550	1.00	101	
37 Perfluorododecanoic acid	613.00	> 569.00	4.538	4.557	-0.019	1.000	104924	0.9716	98.1	68.3
D 36 13C2 PFDaA	615.00	> 570.00	4.538	4.547	-0.009		5590644	44.9	90.7	5584
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.518	4.537	-0.019		3722734	45.0	90.9	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.528	4.547	-0.019	1.000	70420	0.9361	94.5	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.800	4.809	-0.009	1.000	128879	1.14	115	270
D 43 13C2-PFTeDA	715.00	> 670.00	5.035	5.042	-0.007		14328245	55.7	113	19501
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.035	5.042	-0.007	1.000	291939	1.20	122	362
	713.00	> 169.00	5.028	5.042	-0.014	0.999	43455	6.72(0.00-0.00)		698
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.459	5.459	0.0	1.000	254591	1.60	162	77.9
D 44 13C2-PFHxDA	815.00	> 770.00	5.459	5.459	0.0		8547008	62.5	126	6175
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.836	5.836	0.0	1.000	138696	1.39	140	25.0

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L2_00003

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43932.b\2017.06.07A_004.d

Injection Date: 07-Jun-2017 09:03:01

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

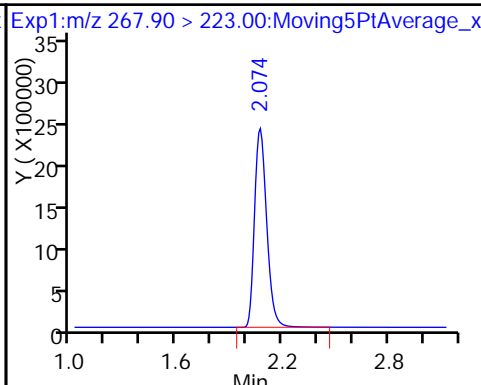
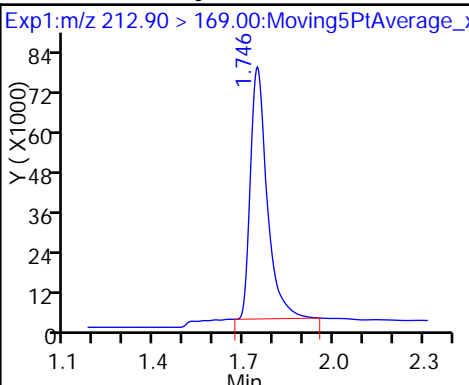
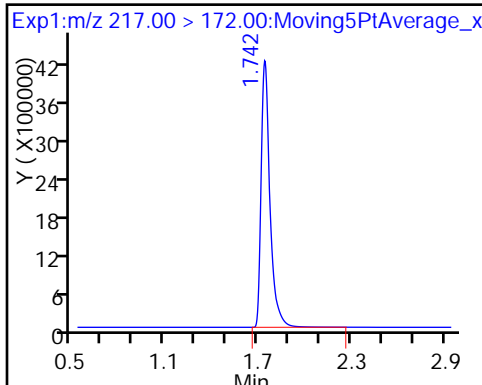
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

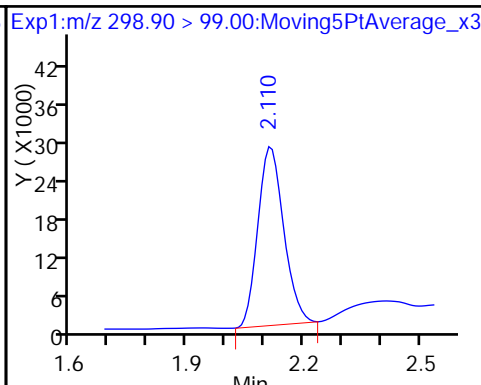
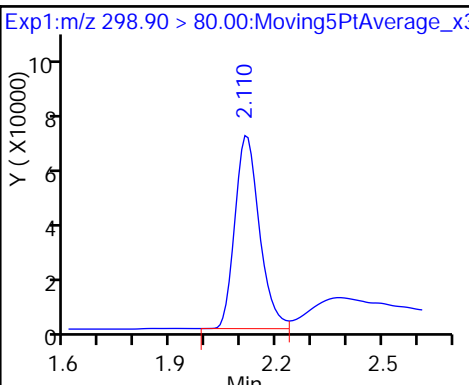
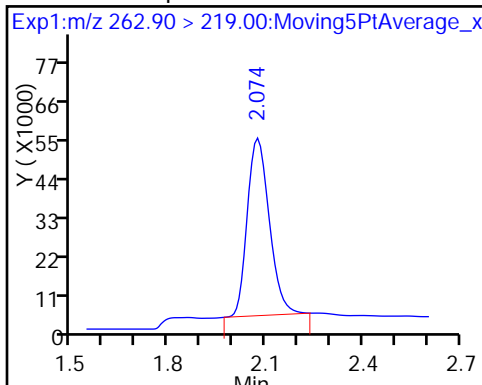
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

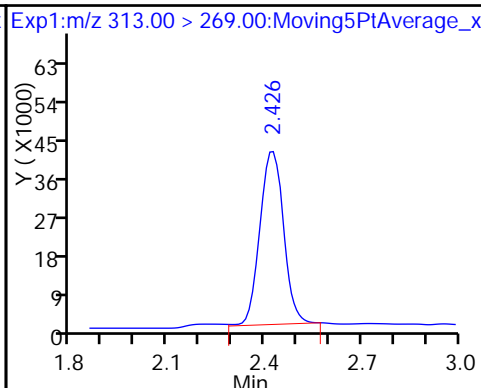
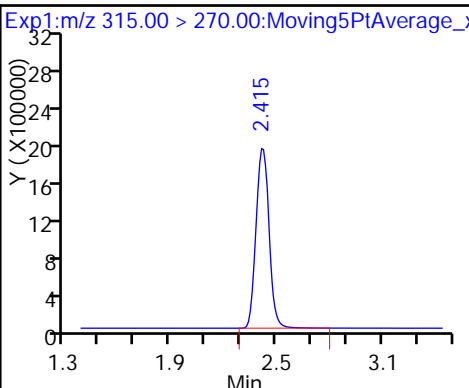
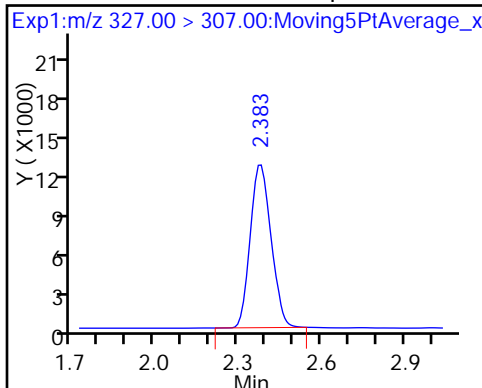
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

De 7 13C2 PFHxA

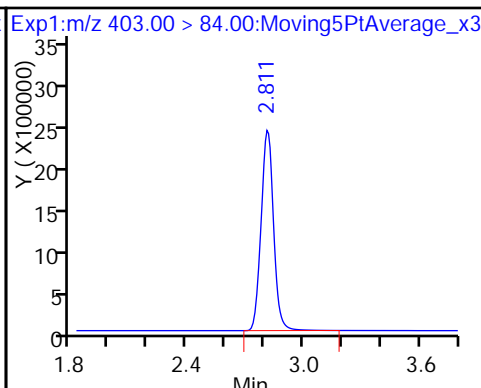
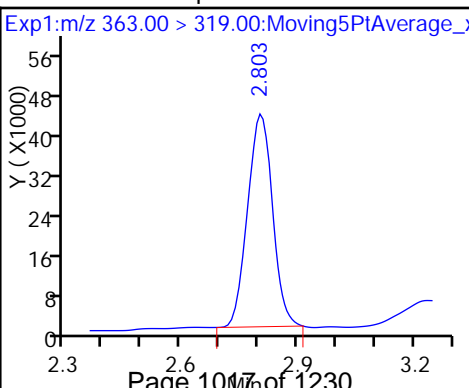
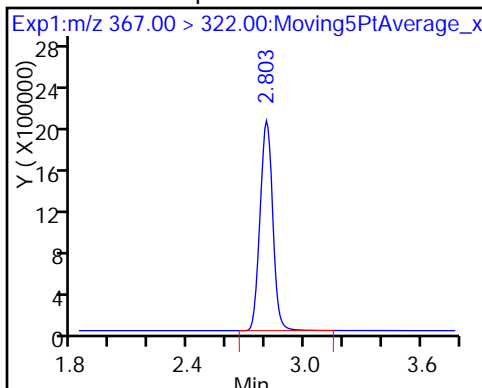
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

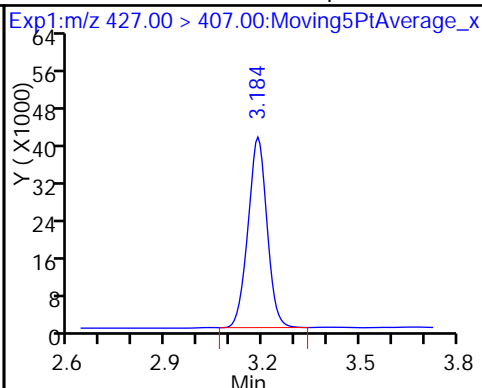
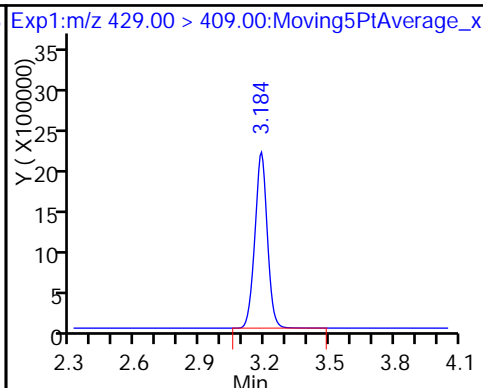
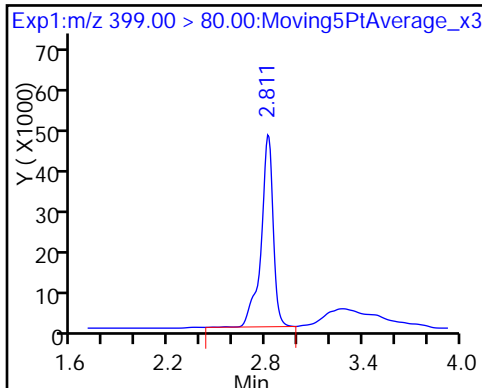
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

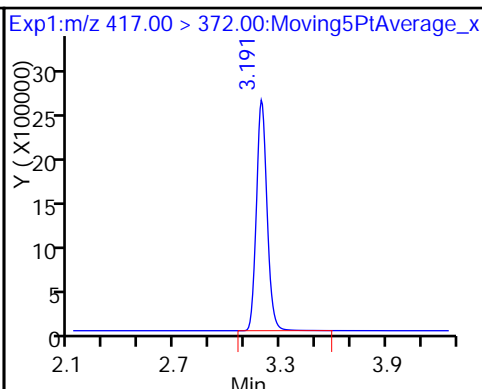
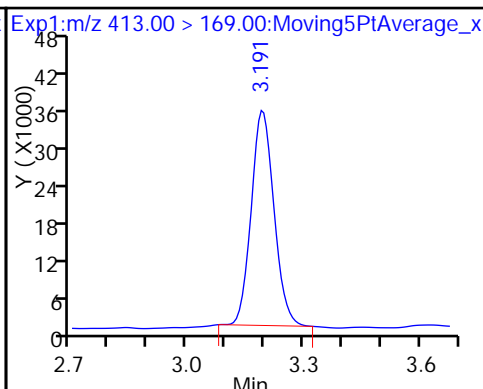
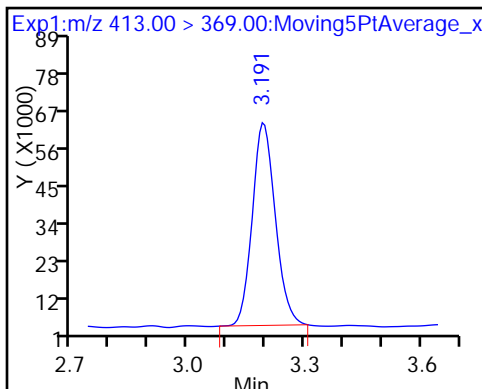
13 Sodium 1H,1H,2H,2H-perfluorooctane



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

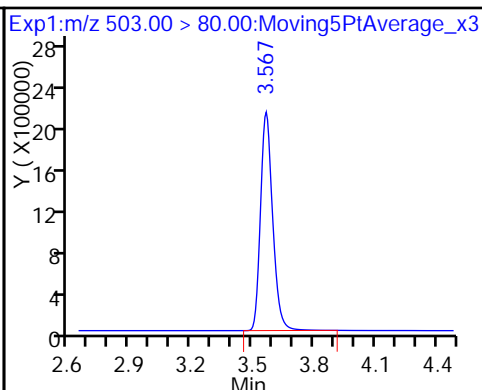
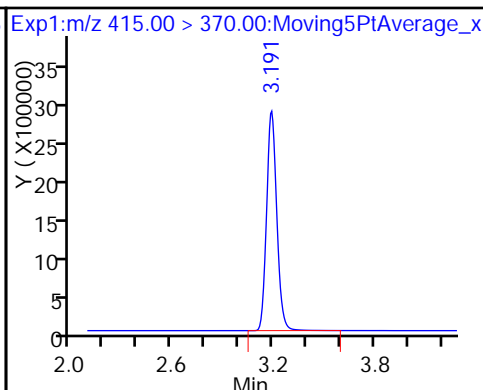
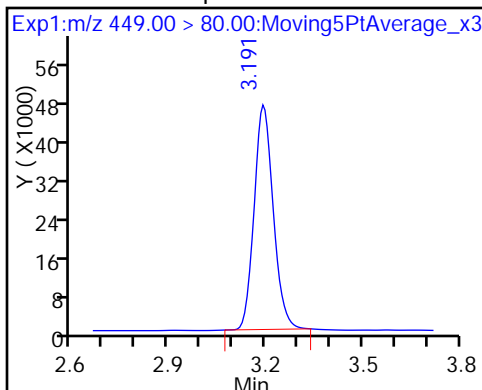
D 14 13C4 PFOA



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

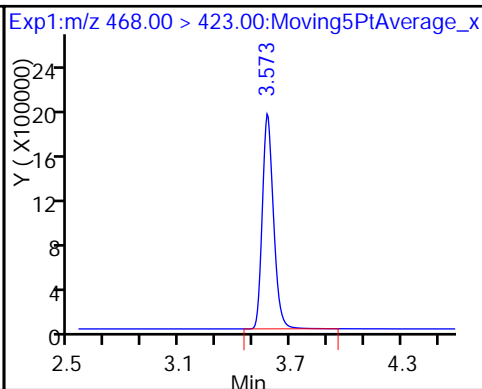
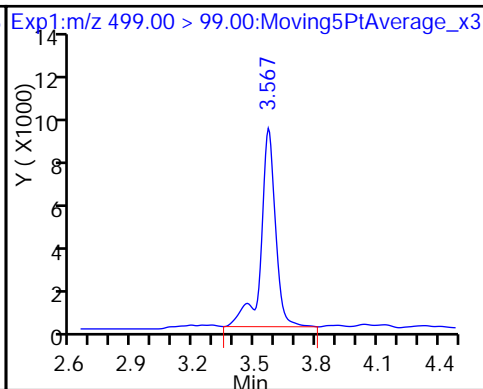
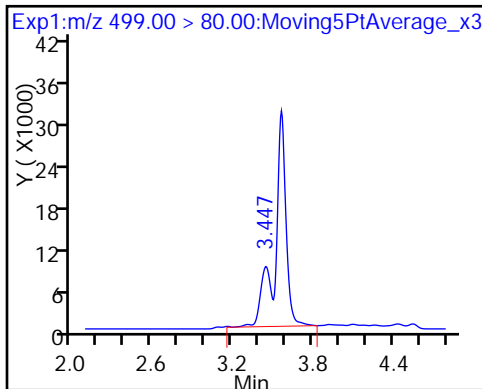
D 18 13C4 PFOS

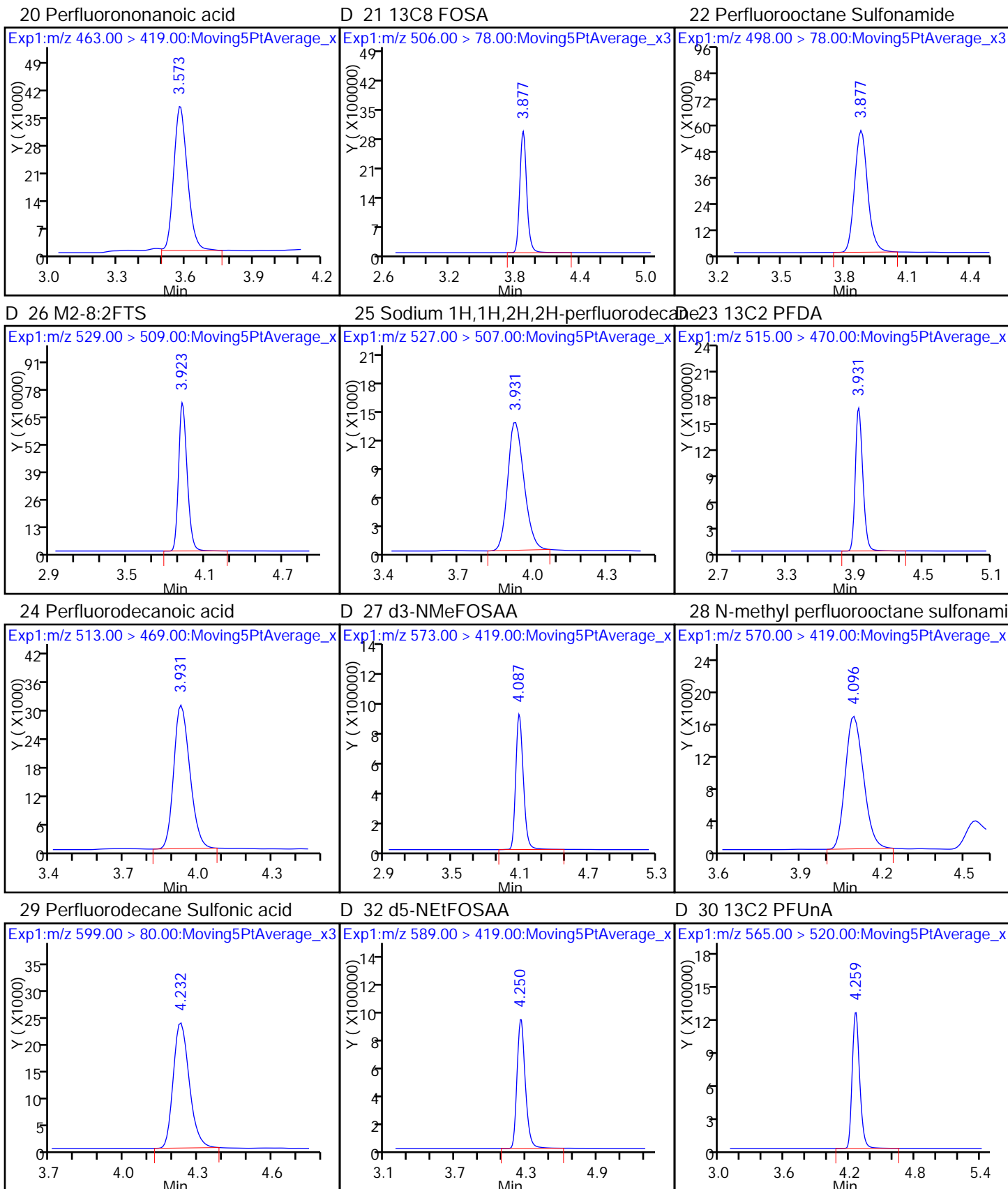


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

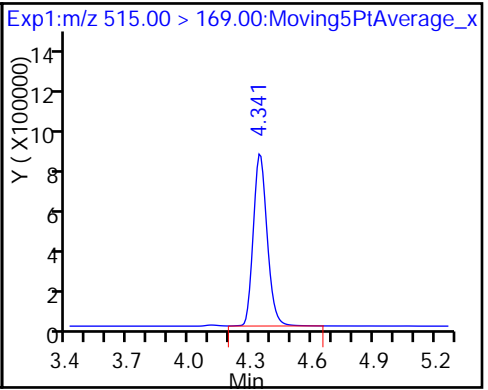
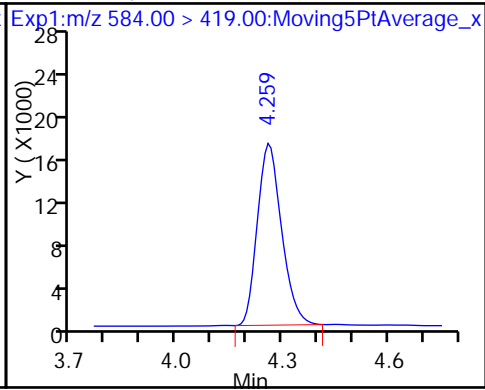
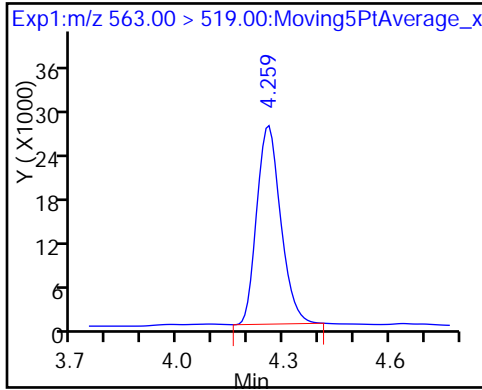




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

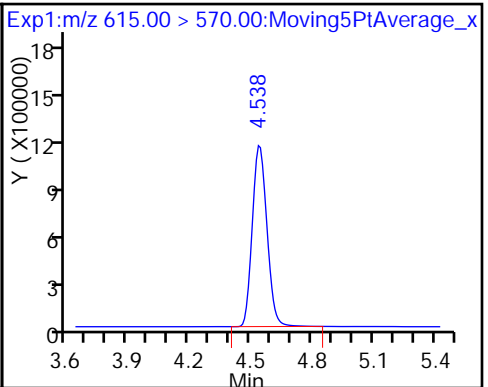
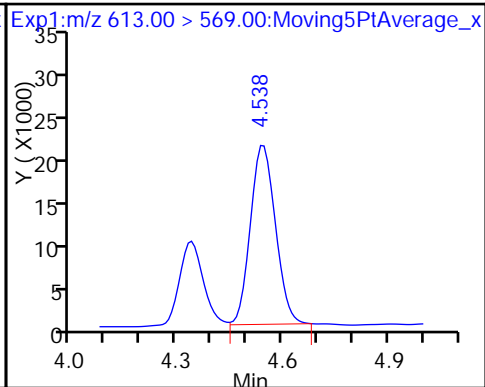
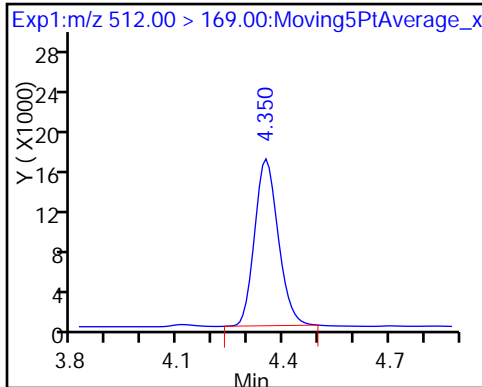
34 d-N-MeFOSA-M



35 MeFOSA

37 Perfluorododecanoic acid

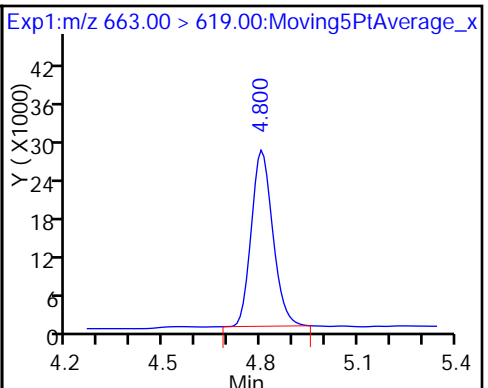
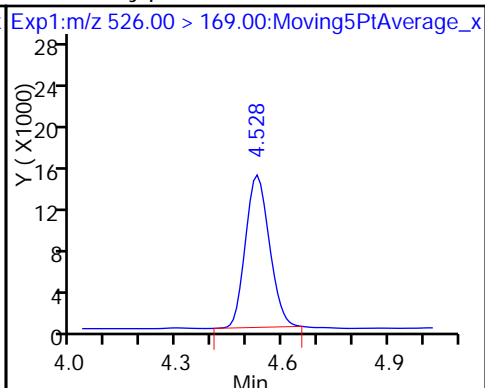
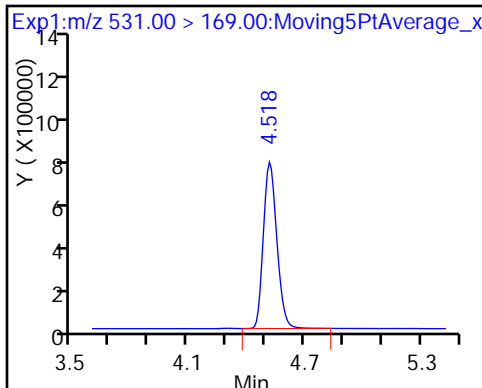
D 36 13C2 PFDa



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

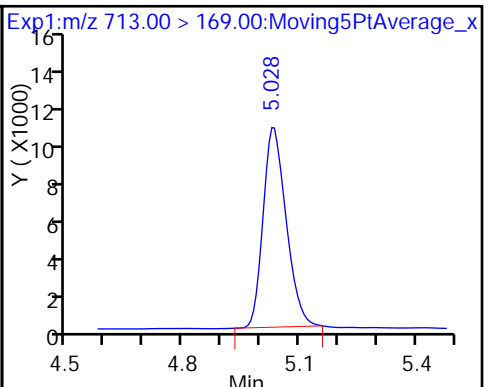
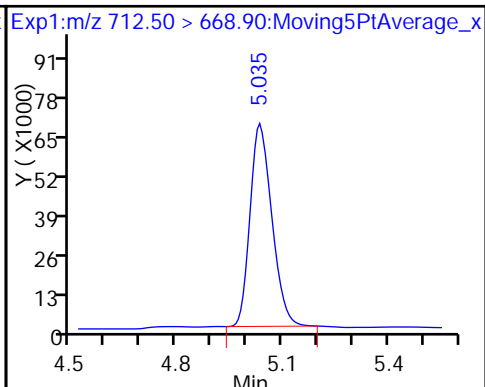
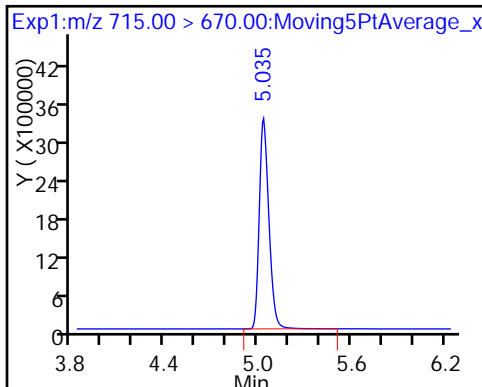
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

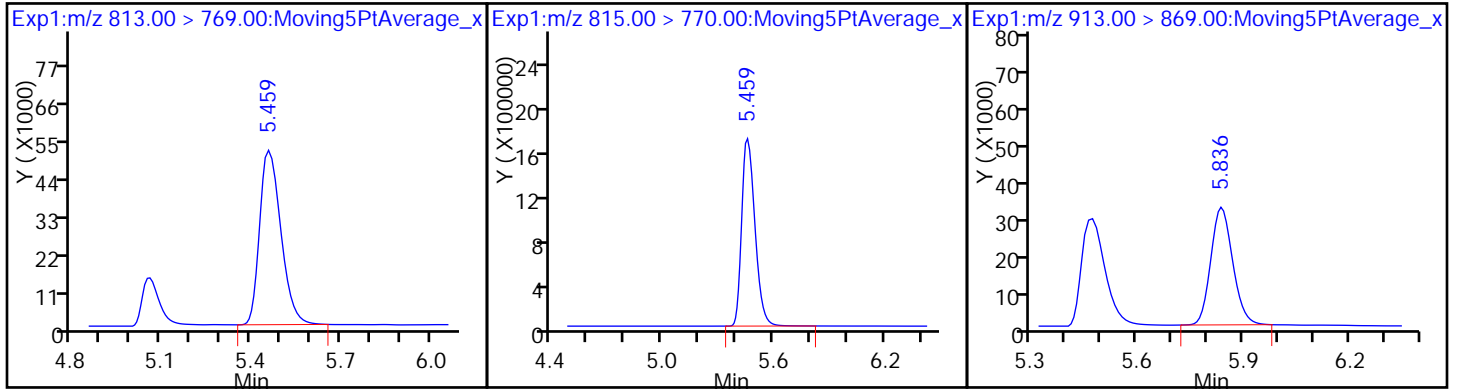
42 Perfluorotetradecanoic acid



45 Perfluorohexadecanoic acid

D 44 13C2-PFHxDA

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-168107/1 Calibration Date: 06/07/2017 16:38
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.07B_015.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9186	0.9481		20.4	19.8	3.2	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.041	1.027		19.5	19.8	-1.3	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.633	1.762		18.9	17.5	7.9	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.012	1.031		20.2	19.8	1.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.048	1.050		19.8	19.8	0.2	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.096	1.032		17.0	18.0	-5.8	25.0
6:2FTS	AveID	0.9879	1.056		20.1	18.8	6.9	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.141	1.185		19.6	18.9	3.9	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.068	1.061		19.7	19.8	-0.7	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.055	1.047		18.2	18.4	-0.8	25.0
Perfluorononanoic acid (PFNA)	AveID	1.002	1.003		19.8	19.8	0.0	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9693	0.9948		20.3	19.8	2.6	25.0
8:2FTS	AveID	0.9716	1.076		21.0	19.0	10.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9522	0.9566		19.9	19.8	0.5	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.028	1.091		21.0	19.8	6.1	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6584	0.6993		20.3	19.1	6.2	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.065	1.006		18.7	19.8	-5.6	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9439	0.9646		20.2	19.8	2.2	25.0
MeFOSA	AveID	0.9633	0.9698		19.9	19.8	0.7	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9562	0.9584		19.8	19.8	0.2	25.0
N-EtFOSA-M	AveID	1.000	1.052		20.8	19.8	5.2	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.000	1.169		23.2	19.8	16.9	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.352		22.4	19.8	13.3	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.247		25.6	19.8	29.1*	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.8851	1.232		27.6	19.8	39.2*	25.0
13C4 PFBA	Ave	329728	313806		47.1	49.5	-4.8	50.0
13C5-PFPeA	Ave	219977	224749		50.6	49.5	2.2	50.0
13C2 PFHxA	Ave	192846	191510		49.2	49.5	-0.7	50.0
13C4-PFHpA	Ave	177883	183442		51.1	49.5	3.1	50.0
18O2 PFHxS	Ave	230540	214417		43.6	46.8	-7.0	50.0
M2-6:2FTS	Ave	88838	71414		37.8	47.0	-19.6	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-168107/1 Calibration Date: 06/07/2017 16:38
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.07B_015.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	180322	176181		48.4	49.5	-2.3	50.0
13C4 PFOS	Ave	178130	158897		42.2	47.3	-10.8	50.0
13C5 PFNA	Ave	152667	152954		49.6	49.5	0.2	50.0
13C8 FOSA	Ave	300205	252838		41.7	49.5	-15.8	50.0
M2-8:2FTS	Ave	81859	60878		35.3	47.4	-25.6	50.0
13C2 PFDA	Ave	150783	134244		44.1	49.5	-11.0	50.0
d3-NMeFOSAA	Ave	88062	76906		43.2	49.5	-12.7	50.0
13C2 PFUnA	Ave	119837	112913		46.6	49.5	-5.8	50.0
d5-NEtFOSAA	Ave	87293	79043		44.8	49.5	-9.5	50.0
d-N-MeFOSA-M	Ave	88593	83841		46.8	49.5	-5.4	50.0
13C2 PFDoA	Ave	124485	116434		46.3	49.5	-6.5	50.0
d-N-EtFOSA-M	Ave	82760	77426		46.3	49.5	-6.4	50.0
13C2-PFTeDA	Ave	257086	268571		51.7	49.5	4.5	50.0
13C2-PFHxDA	Ave	136854	160746		58.1	49.5	17.5	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_015.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 07-Jun-2017 16:38:14 ALS Bottle#: 31 Worklist Smp#: 1
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L4
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub20
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 09-Jun-2017 13:31:44 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Column 1 : Det: EXP1

Process Host: XAWRK027

First Level Reviewer: rainey

Date: 07-Jun-2017 18:03:50

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.692	1.692	0.0	15534968	47.1		95.2	56647	
2 Perfluorobutyric acid	212.90 > 169.00	1.692	1.692	0.0	1.000	5891394	20.4	103	5280	
D 3 13C5-PFPeA	267.90 > 223.00	2.011	2.011	0.0	11126172	50.6		102	50130	
4 Perfluoropentanoic acid	262.90 > 219.00	2.011	2.011	0.0	1.000	4569625	19.5	98.7	2826	
D 47 13C3-PFBS	301.90 > 83.00	2.051	2.051	0.0	244158	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.051	2.051	0.0	1.000	6613659	18.9	108		
	298.90 > 99.00	2.051	2.051	0.0	1.000	2645510	2.50(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.313	2.313	0.0	1.000	1281412	20.8	113		
D 7 13C2 PFHxA	315.00 > 270.00	2.345	2.345	0.0	9480697	49.2		99.3	28169	
6 Perfluorohexanoic acid	313.00 > 269.00	2.345	2.345	0.0	1.000	3908419	20.2	102	5374	
D 9 13C4-PFHpA	367.00 > 322.00	2.721	2.721	0.0	9081272	51.1		103	14645	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.721	2.721	0.0	1.000	3814243	19.8	100	1369	
D 11 18O2 PFHxS	403.00 > 84.00	2.730	2.730	0.0	10041516	43.6		93.0	16583	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.740	2.740	0.0	1.000	3986626	17.0	94.2		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.087	3.087	0.0	3358581	37.8	80.4		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.087	3.087	0.0	1416188	20.1	107		
* 62 13C2-PFOA	415.00	> 370.00	3.110	3.110	0.0	9060663	49.5	100		
15 Perfluorooctanoic acid	413.00	> 369.00	3.110	3.110	0.0	1.000	3700058	19.7	99.3	1091
	413.00	> 169.00	3.110	3.110	0.0	1.000	2097789	1.76(0.90-1.10)		2790
D 14 13C4 PFOA	417.00	> 372.00	3.110	3.110	0.0	8721808	48.4	97.7	23839	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.110	3.110	0.0	1.000	3549974	19.6	104	
D 18 13C4 PFOS	503.00	> 80.00	3.485	3.485	0.0	7520088	42.2	89.2	23703	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.454	3.454	0.0	1.000	3057499	18.2	99.2	1572
	499.00	> 99.00	3.485	3.454	0.031	1.009	660202	4.63(0.90-1.10)		3558
D 19 13C5 PFNA	468.00	> 423.00	3.493	3.493	0.0	7571969	49.6	100	26998	
20 Perfluorononanoic acid	463.00	> 419.00	3.493	3.493	0.0	1.000	3037389	19.8	100	5130
D 21 13C8 FOSA	506.00	> 78.00	3.808	3.808	0.0	12516756	41.7	84.2	13050	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.808	3.808	0.0	1.000	4980856	20.3	103	8773
D 26 M2-8:2FTS	529.00	> 509.00	3.843	3.843	0.0	2887179	35.3	74.4		
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.843	3.843	0.0	1.000	1242468	21.0	111	
D 23 13C2 PFDA	515.00	> 470.00	3.851	3.851	0.0	6645730	44.1	89.0	12366	
24 Perfluorodecanoic acid	513.00	> 469.00	3.851	3.851	0.0	1.000	2542978	19.9	100	6188
D 27 d3-NMeFOSAA	573.00	> 419.00	4.012	4.012	0.0	3807248	43.2	87.3		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.012	4.012	0.0	1.000	1661264	21.0	106	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.156	4.156	0.0	1.000	2121104	20.3	106	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.172	4.172	0.0	3913037	44.8	90.5		
D 30 13C2 PFUnA	565.00	> 520.00	4.172	4.172	0.0	5589766	46.6	94.2	11063	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.172	4.172	0.0	1.000	2249496	18.7	94.4	4412
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.180	4.180	0.0	1.002	1509777	20.2	102	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.284	4.284	0.0	4150527	46.8	94.6		
35 MeFOSA	512.00	> 169.00	4.284	4.284	0.0	1.000	1610140	19.9	101	
D 36 13C2 PFDaA	615.00	> 570.00	4.459	4.459	0.0	5764084	46.3	93.5	5623	
37 Perfluorododecanoic acid	613.00	> 569.00	4.459	4.459	0.0	1.000	2209665	19.8	100	1353
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.459	4.459	0.0	3832955	46.3	93.6		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.469	4.469	0.0	1.000	1613381	20.8	105	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.716	4.716	0.0	1.000	2695219	23.2	117	3122
D 43 13C2-PFTeDA	715.00	> 670.00	4.954	4.954	0.0	13295574	51.7	104	9478	
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.954	4.954	0.0	1.000	5421976	22.4	113	3949
	713.00	> 169.00	4.954	4.954	0.0	1.000	778936	6.96(0.00-0.00)		3813
D 44 13C2-PFHxDA	815.00	> 770.00	5.363	5.363	0.0	7957741	58.1	117	6533	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.371	5.371	0.0	1.000	2874930	25.6	129	2329
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.737	5.737	0.0	1.000	2840851	27.6	139	3548

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L4_00003

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_015.d

Injection Date: 07-Jun-2017 16:38:14

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

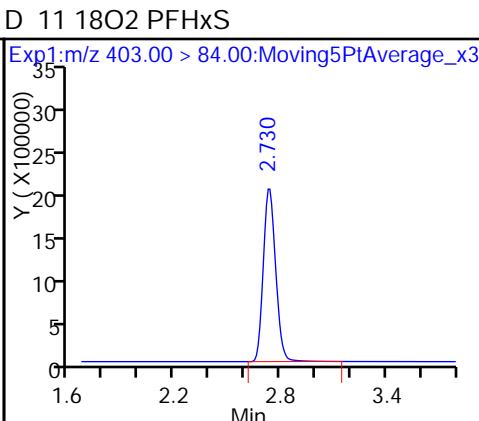
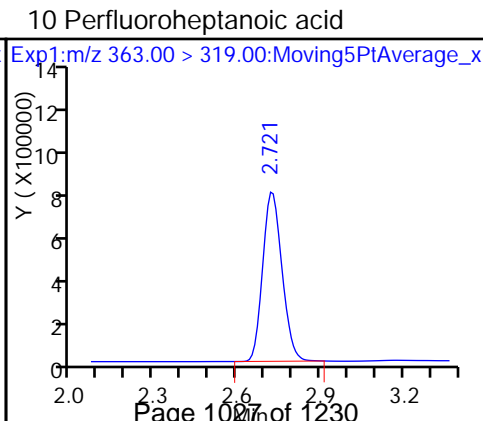
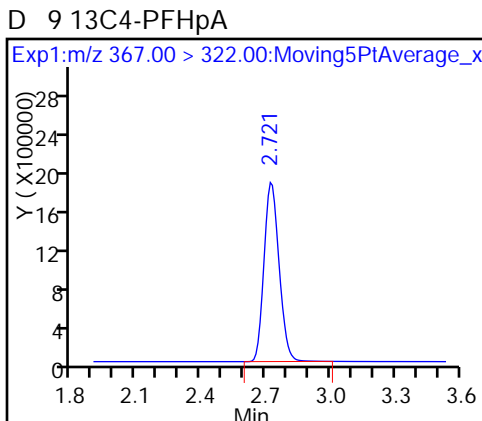
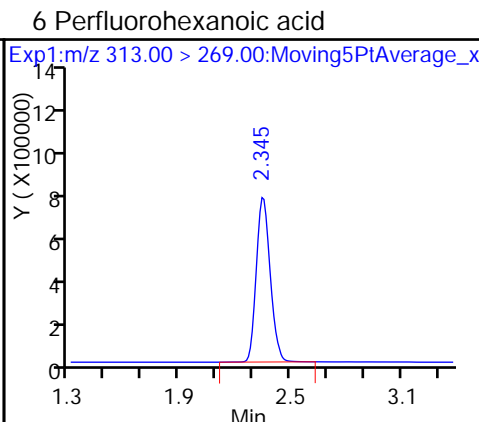
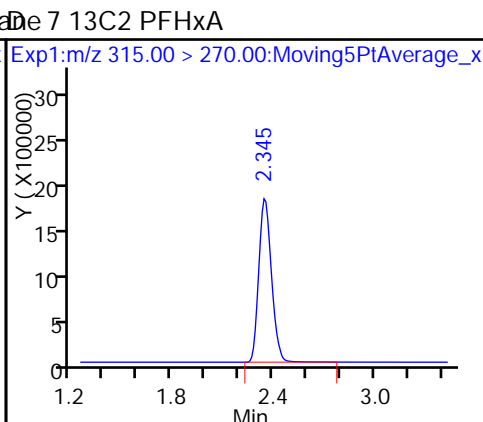
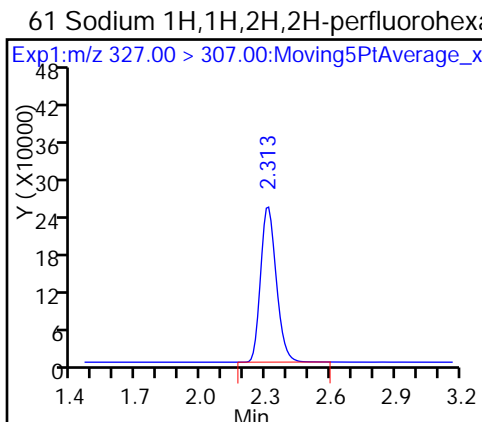
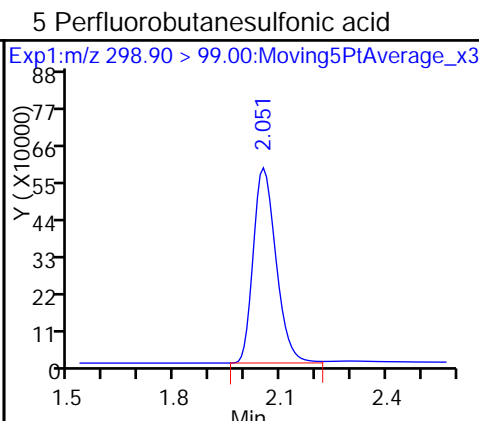
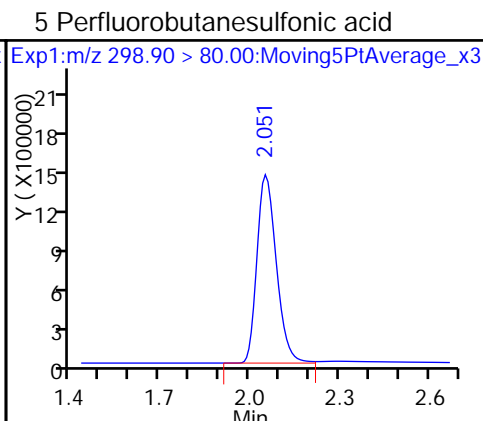
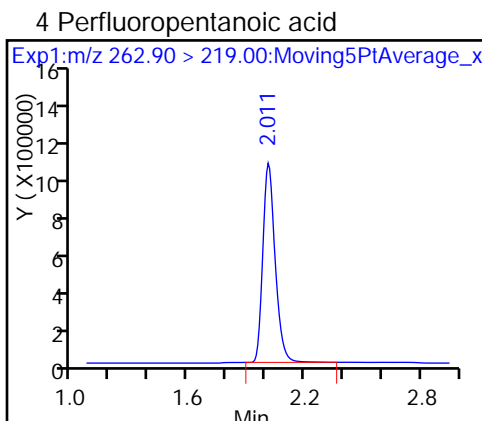
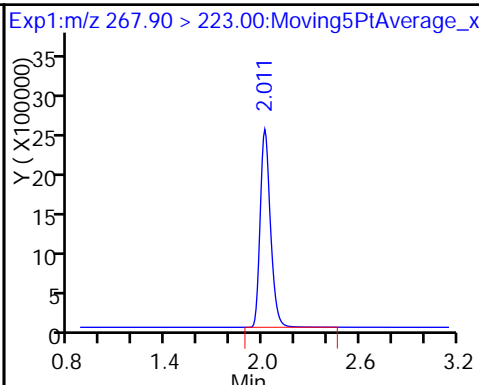
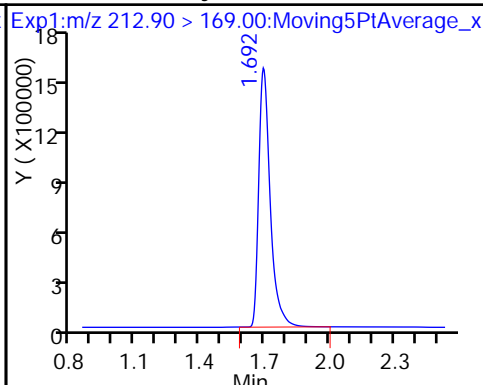
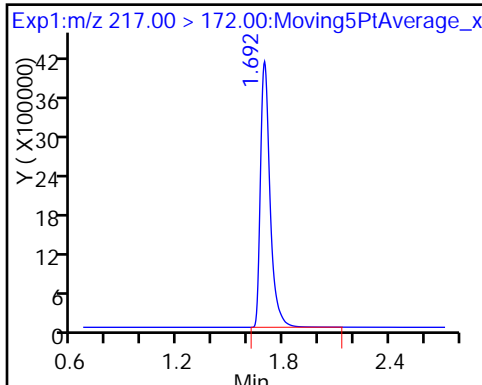
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

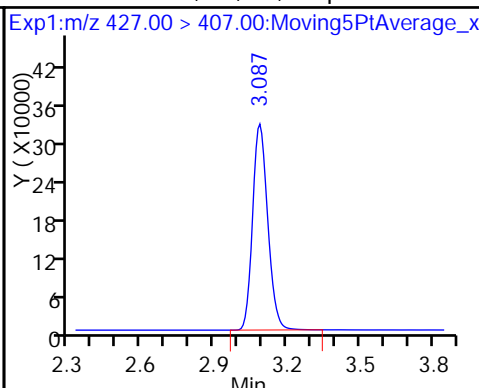
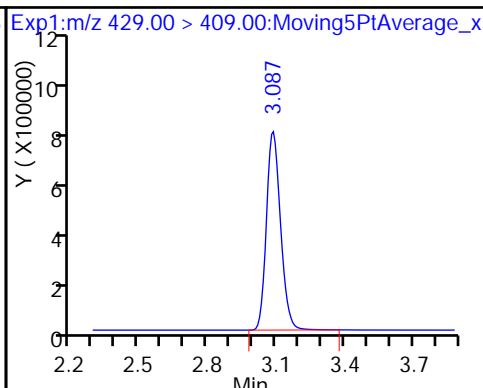
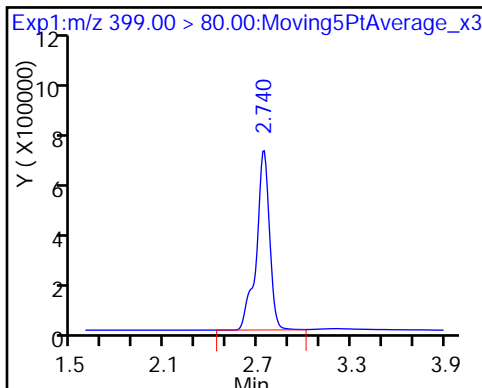
D 3 13C5-PFPeA



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

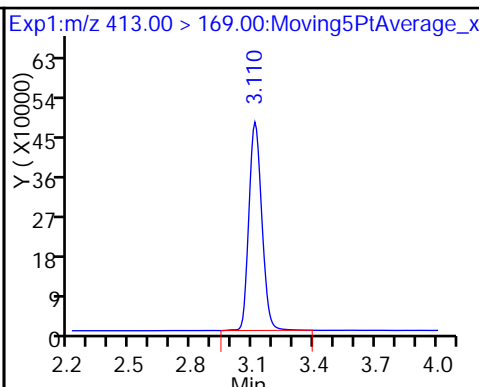
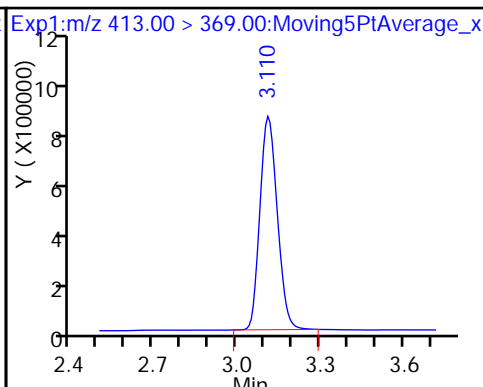
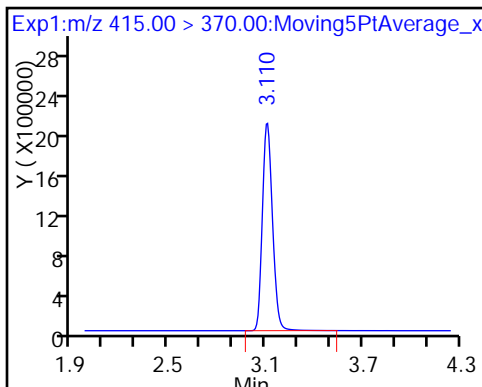
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

15 Perfluorooctanoic acid

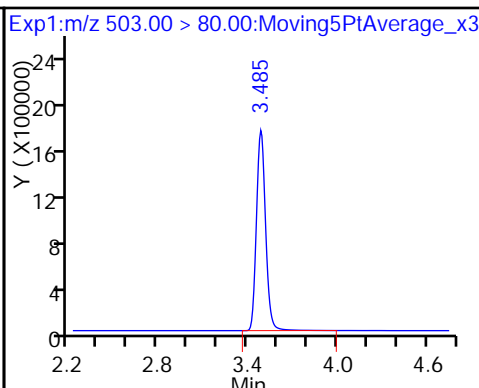
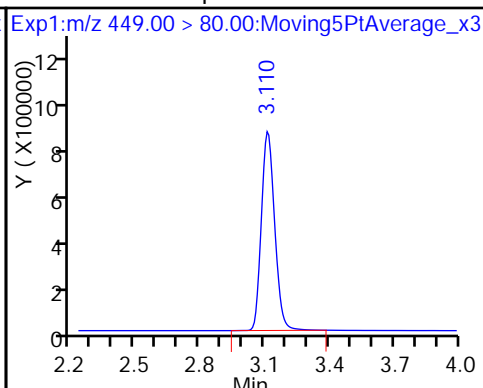
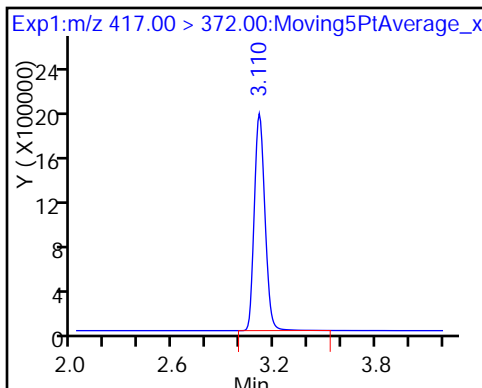
15 Perfluorooctanoic acid



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic Acid

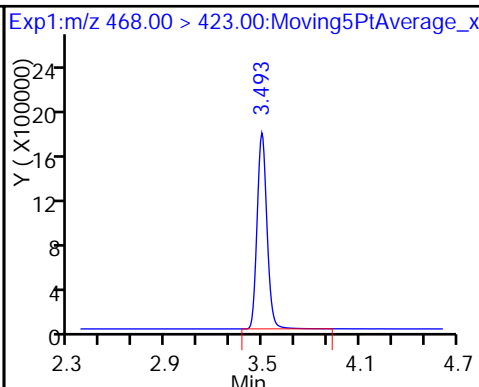
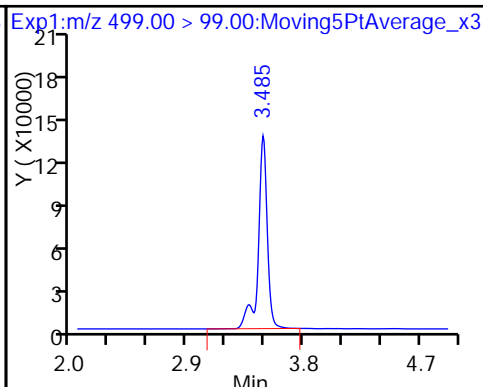
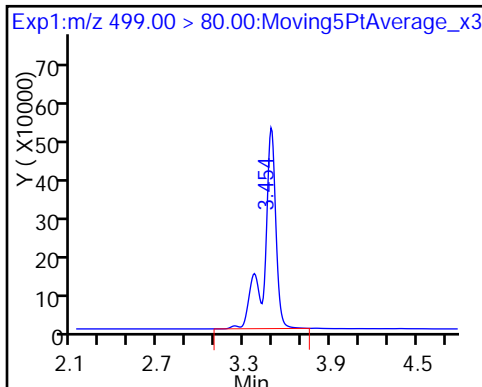
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

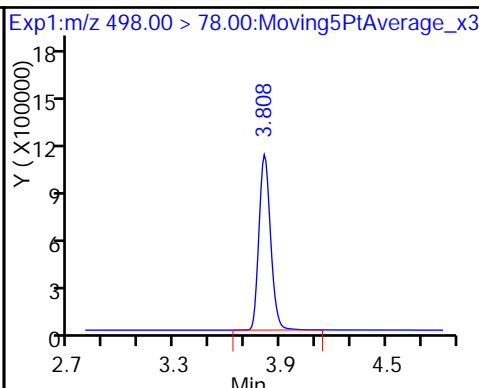
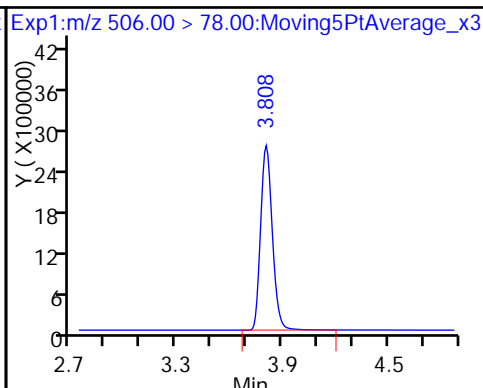
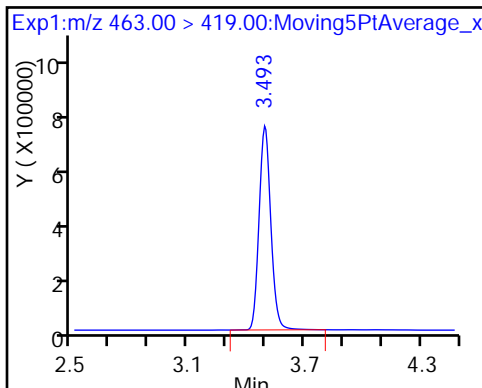
D 19 13C5 PFNA



20 Perfluorononanoic acid

D 21 13C8 FOSA

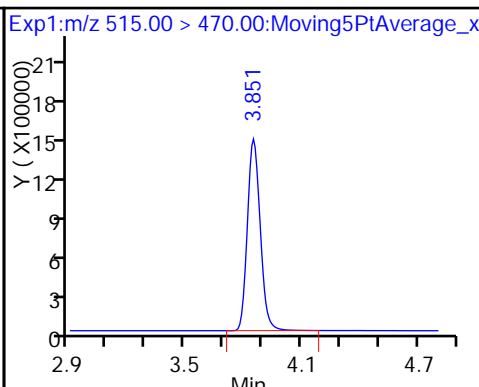
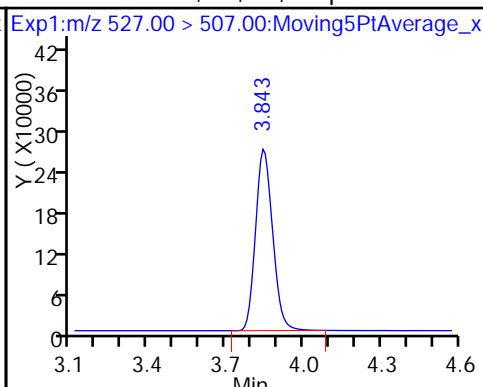
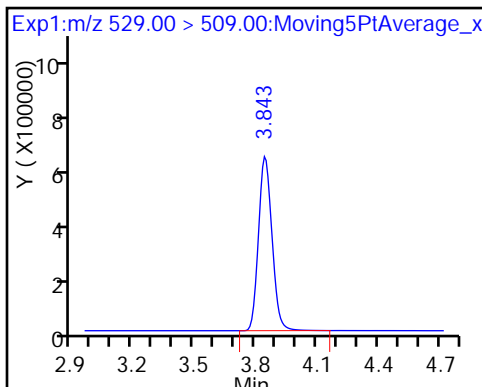
22 Perfluorooctane Sulfonamide



D 26 M2-8:2FTS

25 Sodium 1H,1H,2H,2H-perfluorodeca

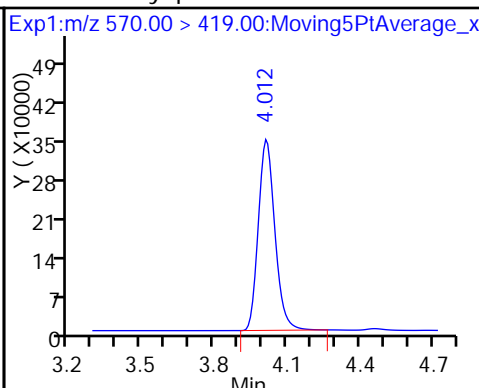
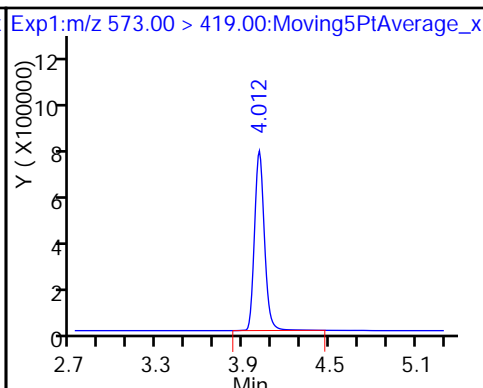
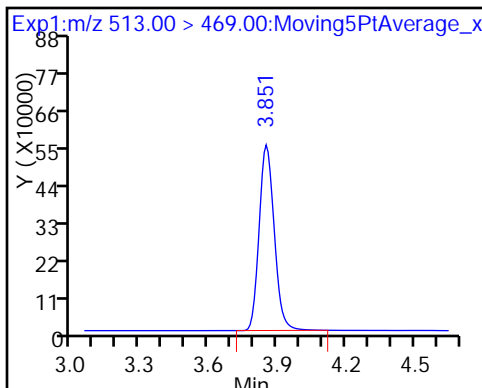
De23 13C2 PFDA



24 Perfluorodecanoic acid

D 27 d3-NMeFOSAA

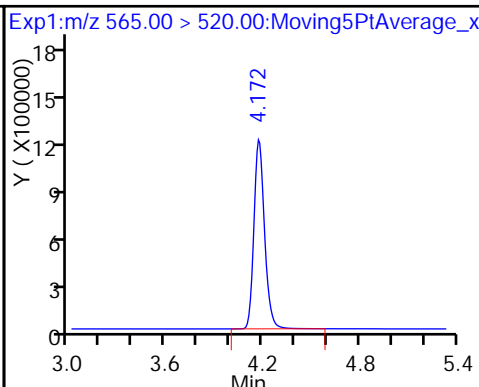
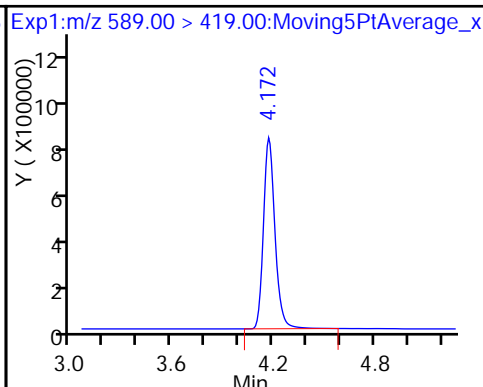
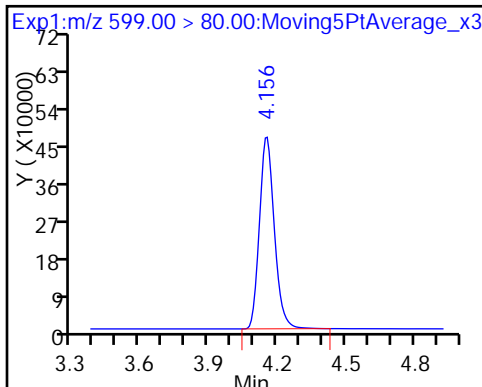
28 N-methyl perfluorooctane sulfonami



29 Perfluorodecane Sulfonic acid

D 32 d5-NEtFOSAA

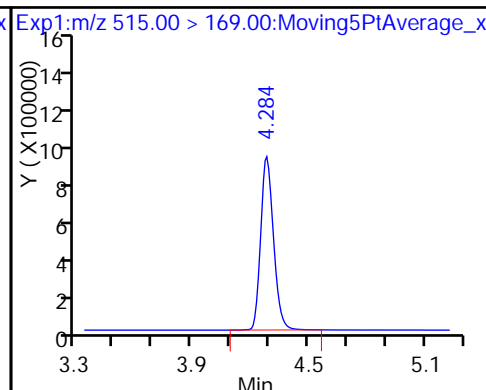
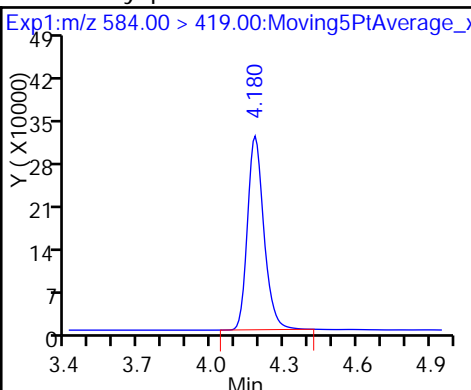
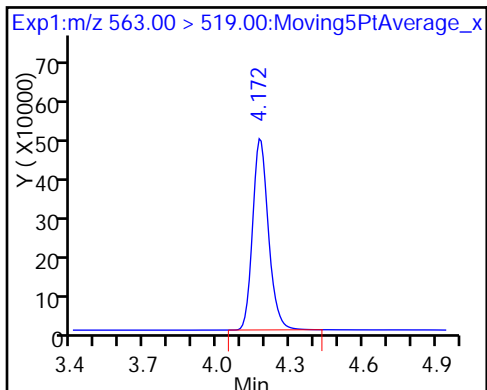
D 30 13C2 PFUnA



31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

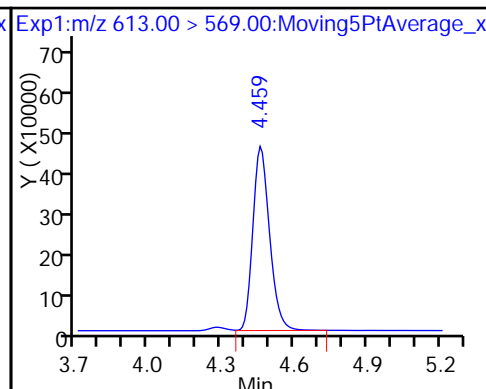
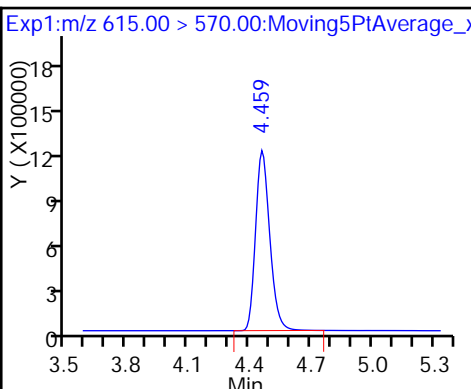
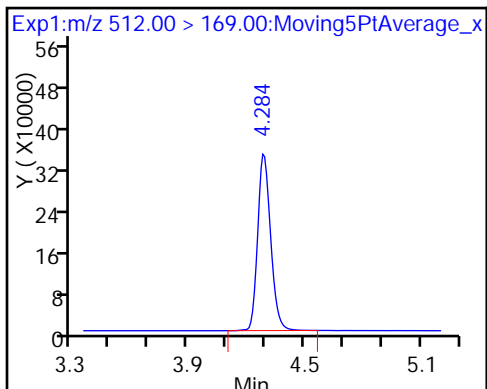
34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

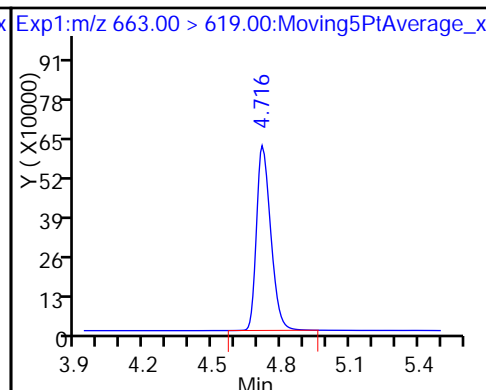
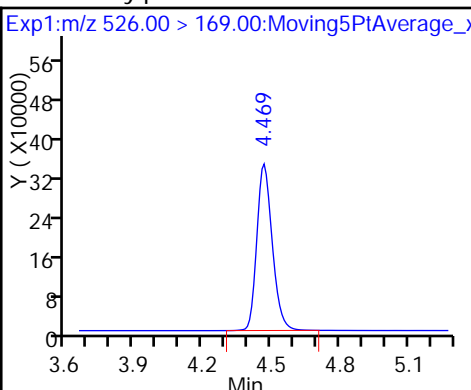
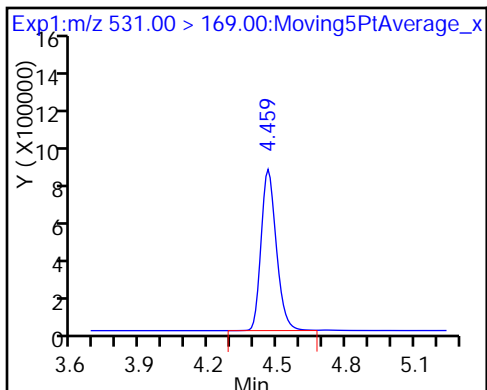
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

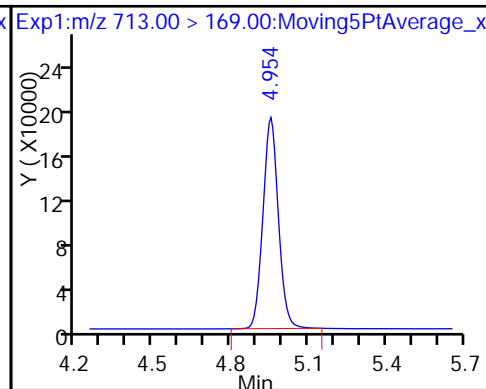
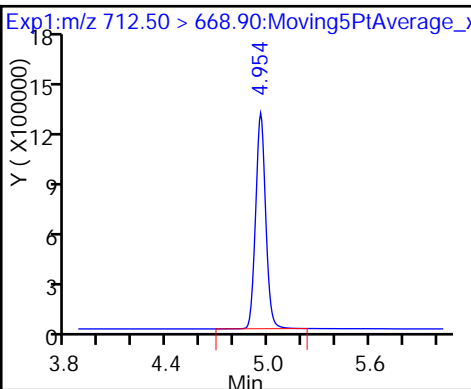
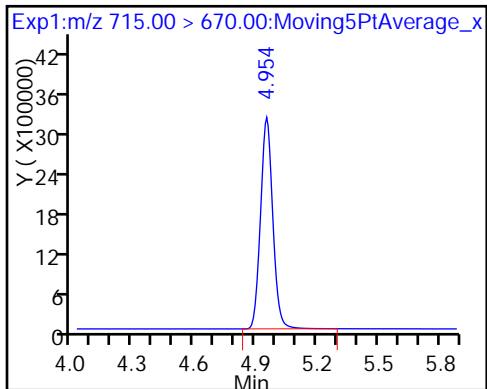
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

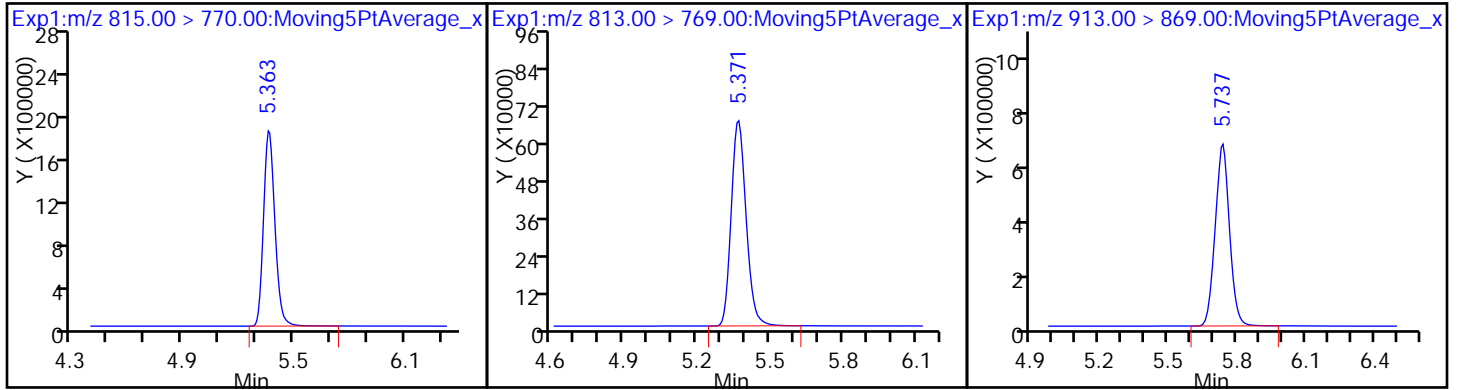
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-168107/12 Calibration Date: 06/07/2017 18:02
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.07B_026.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9186	0.9461		51.0	49.5	3.0	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.041	1.076		51.2	49.5	3.3	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.633	1.879		50.4	43.8	15.1	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.012	1.045		51.1	49.5	3.2	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.048	1.072		50.6	49.5	2.3	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.096	1.036		42.6	45.0	-5.4	25.0
6:2FTS	AveID	0.9879	0.9899		47.0	46.9	0.2	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.141	1.193		49.3	47.1	4.6	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.068	1.035		47.9	49.5	-3.1	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.055	1.066		46.4	45.9	1.0	25.0
Perfluorononanoic acid (PFNA)	AveID	1.002	1.037		51.2	49.5	3.5	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9693	0.9661		49.3	49.5	-0.3	25.0
8:2FTS	AveID	0.9716	1.072		52.3	47.4	10.4	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9522	0.9876		51.3	49.5	3.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.028	1.099		52.9	49.5	6.9	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6584	0.7225		52.4	47.7	9.7	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.065	1.035		48.1	49.5	-2.8	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9439	0.9745		51.1	49.5	3.2	25.0
MeFOSA	AveID	0.9633	1.020		52.4	49.5	5.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9562	0.9436		48.9	49.5	-1.3	25.0
N-EtFOSA-M	AveID	1.000	1.007		49.8	49.5	0.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.000	1.158		57.4	49.5	15.8	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.326		55.5	49.5	12.2	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.166		60.9	49.5	22.9	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.8851	1.093		61.1	49.5	23.4	25.0
13C4 PFBA	Ave	329728	321873		48.3	49.5	-2.4	50.0
13C5-PFPeA	Ave	219977	228813		51.5	49.5	4.0	50.0
13C2 PFHxA	Ave	192846	196543		50.5	49.5	1.9	50.0
13C4-PFHpA	Ave	177883	176075		49.0	49.5	-1.0	50.0
18O2 PFHxS	Ave	230540	218337		44.4	46.8	-5.3	50.0
M2-6:2FTS	Ave	88838	73636		39.0	47.0	-17.1	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-168107/12 Calibration Date: 06/07/2017 18:02
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.07B_026.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	180322	183433		50.4	49.5	1.7	50.0
13C4 PFOS	Ave	178130	160985		42.8	47.3	-9.6	50.0
13C5 PFNA	Ave	152667	149984		48.6	49.5	-1.8	50.0
13C8 FOSA	Ave	300205	253222		41.8	49.5	-15.7	50.0
M2-8:2FTS	Ave	81859	64179		37.2	47.4	-21.6	50.0
13C2 PFDA	Ave	150783	138354		45.4	49.5	-8.2	50.0
d3-NMeFOSAA	Ave	88062	79787		44.9	49.5	-9.4	50.0
13C2 PFUnA	Ave	119837	111815		46.2	49.5	-6.7	50.0
d5-NEtFOSAA	Ave	87293	81189		46.0	49.5	-7.0	50.0
d-N-MeFOSA-M	Ave	88593	83073		46.4	49.5	-6.2	50.0
13C2 PFDoA	Ave	124485	119131		47.4	49.5	-4.3	50.0
d-N-EtFOSA-M	Ave	82760	81627		48.8	49.5	-1.4	50.0
13C2-PFTeDA	Ave	257086	265976		51.2	49.5	3.5	50.0
13C2-PFHxDA	Ave	136854	154044		55.7	49.5	12.6	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_026.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 07-Jun-2017 18:02:59 ALS Bottle#: 32 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub20
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 18:58:00 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 18:57:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.693	1.693	0.0	15934288	48.3		97.6	47290	
2 Perfluorobutyric acid	212.90 > 169.00	1.696	1.696	0.0	15075613	51.0		103	13448	
D 3 13C5-PFPeA	267.90 > 223.00	2.012	2.012	0.0	11327381	51.5		104	41932	
4 Perfluoropentanoic acid	262.90 > 219.00	2.012	2.012	0.0	12182810	51.2		103	6645	
D 47 13C3-PFBS	301.90 > 83.00	2.051	2.051	0.0	264614	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.051	2.051	0.0	17954104	50.4		115		
	298.90 > 99.00	2.051	2.051	0.0	7229126		2.48(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.302	2.302	0.0	3358296	53.0		115		
D 7 13C2 PFHxA	315.00 > 270.00	2.345	2.345	0.0	9729840	50.5		102	22780	
6 Perfluorohexanoic acid	313.00 > 269.00	2.345	2.345	0.0	10163426	51.1		103	10178	
D 9 13C4-PFHpA	367.00 > 322.00	2.721	2.721	0.0	8716590	49.0		99.0	20219	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.721	2.721	0.0	9344163	50.6		102	2751	
D 11 18O2 PFHxS	403.00 > 84.00	2.730	2.730	0.0	10225093	44.4		94.7	14318	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.730	2.730	0.0	10192024	42.6		94.6		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.080	3.080	0.0	3463071	39.0	82.9		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.080	3.080	0.0	1.000	3420867	47.0	100	
D 14 13C4 PFOA	417.00	> 372.00	3.103	3.103	0.0	9080863	50.4	102	18818	
15 Perfluorooctanoic acid	413.00	> 369.00	3.103	3.103	0.0	1.000	9397514	47.9	96.9	2525
	413.00	> 169.00	3.103	3.103	0.0	1.000	5422101	1.73(0.90-1.10)	6708	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.103	3.103	0.0	1.000	9048321	49.3	105	
* 62 13C2-PFOA	415.00	> 370.00	3.103	3.103	0.0	9155746	49.5	100		
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.478	3.478	0.0	1.000	7886326	46.4	101	7975
	499.00	> 99.00	3.478	3.478	0.0	1.000	1697393	4.65(0.90-1.10)	6147	
D 18 13C4 PFOS	503.00	> 80.00	3.478	3.478	0.0	7618907	42.8	90.4	15194	
D 19 13C5 PFNA	468.00	> 423.00	3.485	3.485	0.0	7424930	48.6	98.2	19749	
20 Perfluorononanoic acid	463.00	> 419.00	3.485	3.485	0.0	1.000	7699419	51.2	103	10914
D 21 13C8 FOSA	506.00	> 78.00	3.808	3.808	0.0	12535722	41.8	84.3	11508	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.817	3.817	0.0	1.000	12110850	49.3	99.7	10569
D 26 M2-8:2FTS	529.00	> 509.00	3.834	3.834	0.0	3043734	37.2	78.4		
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.834	3.834	0.0	1.000	3263535	52.3	110	
D 23 13C2 PFDA	515.00	> 470.00	3.843	3.843	0.0	6849211	45.4	91.8	10241	
24 Perfluorodecanoic acid	513.00	> 469.00	3.843	3.843	0.0	1.000	6764314	51.3	104	9406
D 27 d3-NMeFOSAA	573.00	> 419.00	4.004	4.004	0.0	3949849	44.9	90.6		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.004	4.004	0.0	1.000	4340560	52.9	107	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.140	4.140	0.0	1.000	5550553	52.4	110	
D 30 13C2 PFUnA	565.00	> 520.00	4.165	4.165	0.0	5535415	46.2	93.3	10654	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.165	4.165	0.0	4019271	46.0	93.0		
31 Perfluoroundecanoic acid	563.00	> 519.00	4.165	4.165	0.0	1.000	5729861	48.1	97.2	6777
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.173	4.173	0.0	1.002	3916559	51.1	103	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.293	4.293	0.0	4112538	46.4	93.8		
35 MeFOSA	512.00	> 169.00	4.293	4.293	0.0	1.000	4193661	52.4	106	
D 36 13C2 PFDaA	615.00	> 570.00	4.450	4.450	0.0	5897554	47.4	95.7	4719	
37 Perfluorododecanoic acid	613.00	> 569.00	4.450	4.450	0.0	1.000	5564707	48.9	98.7	2269
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.469	4.469	0.0	4040935	48.8	98.6		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.478	4.478	0.0	1.000	4069804	49.8	101	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.702	4.702	0.0	1.000	6830148	57.4	116	4525
D 43 13C2-PFTeDA	715.00	> 670.00	4.940	4.940	0.0	13167106	51.2	103	9058	
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.940	4.940	0.0	1.000	13718400	55.5	112	6592
	713.00	> 169.00	4.940	4.940	0.0	1.000	1989827	6.89(0.00-0.00)	4371	
D 44 13C2-PFHxDA	815.00	> 770.00	5.348	5.348	0.0	7625935	55.7	113	5105	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.348	5.348	0.0	1.000	6876716	60.9	123	3753
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.708	5.708	0.0	1.000	6444011	61.1	123	3898

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L5_00004

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_026.d

Injection Date: 07-Jun-2017 18:02:59

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

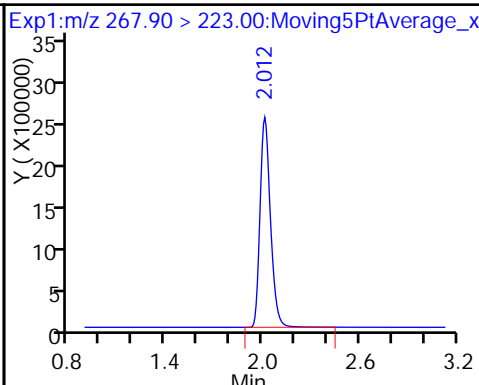
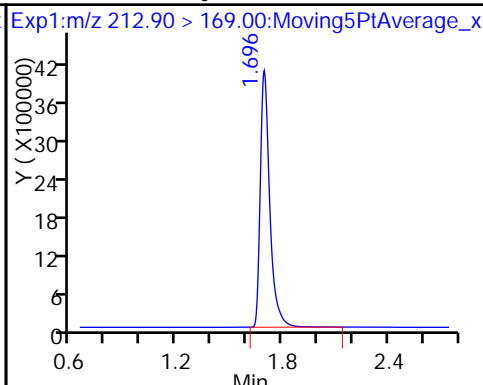
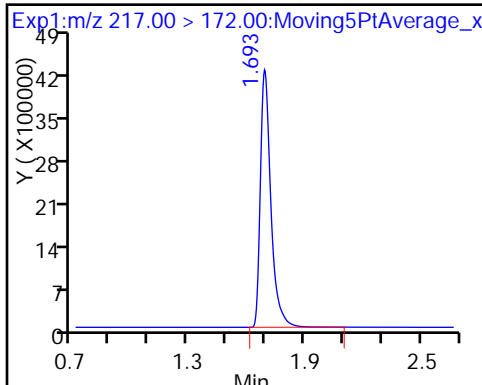
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

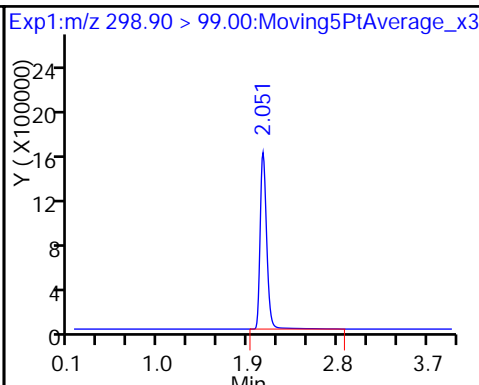
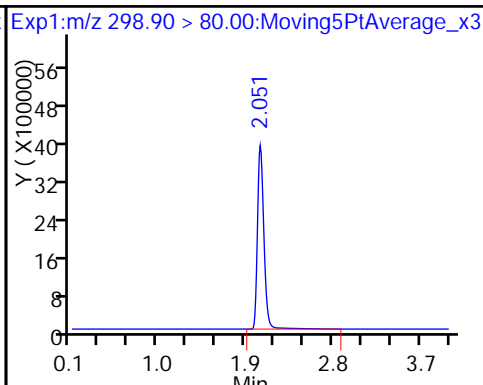
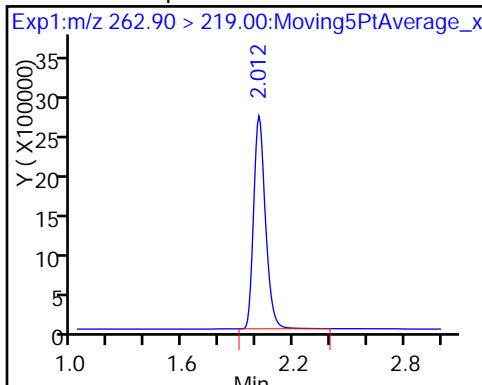
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

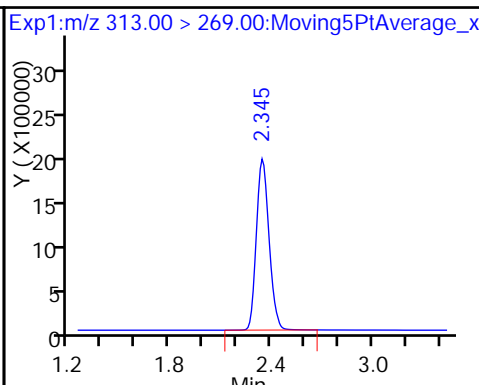
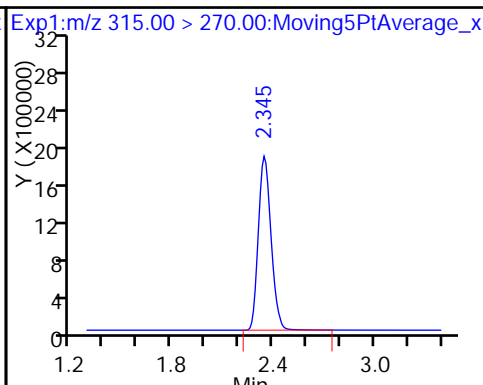
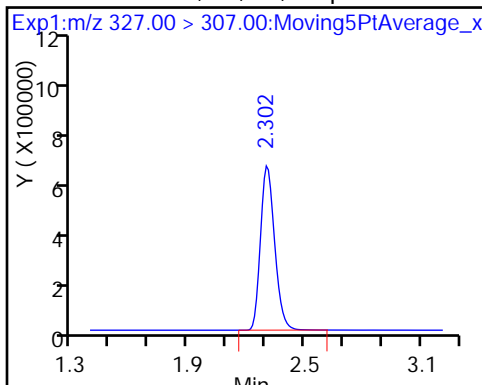
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoate

D 7 13C2 PFHxA

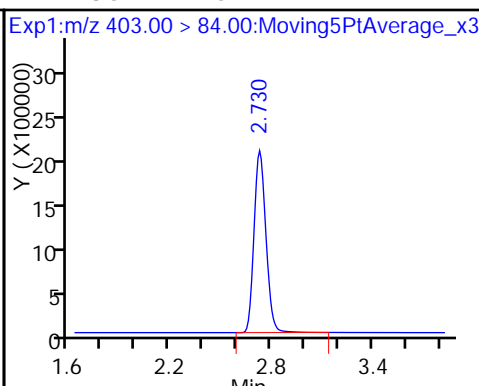
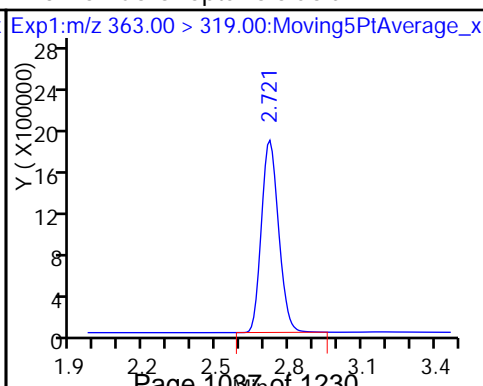
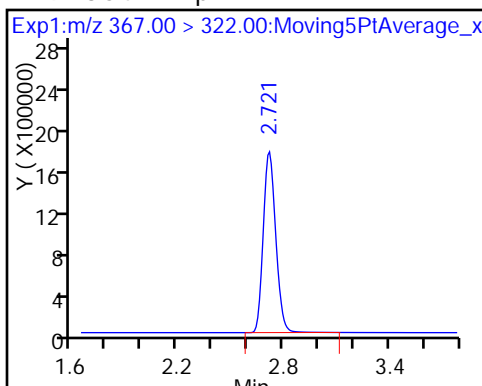
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

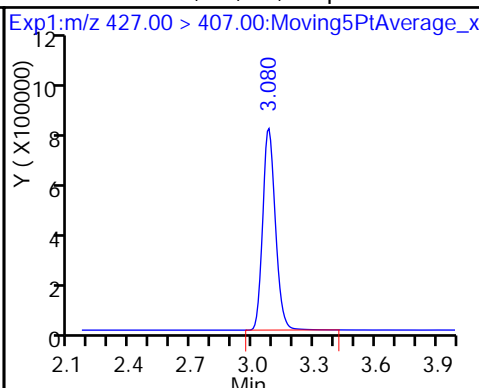
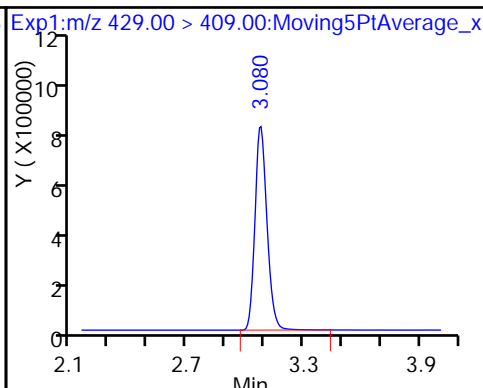
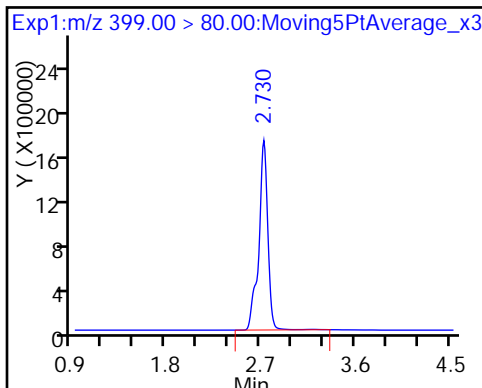
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

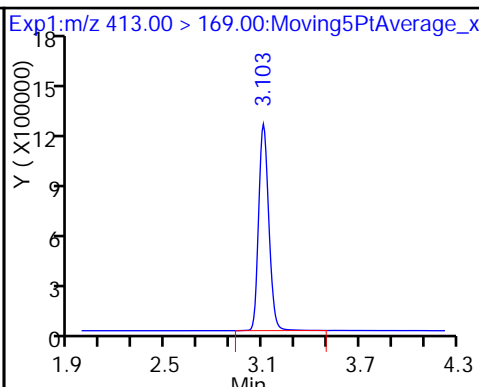
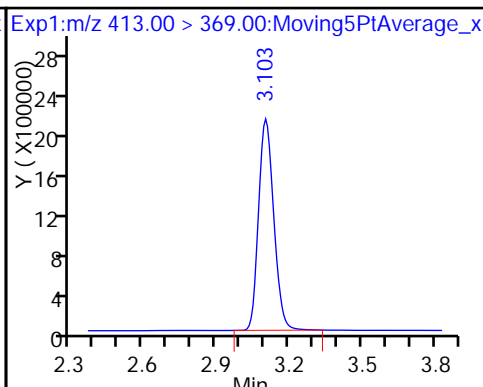
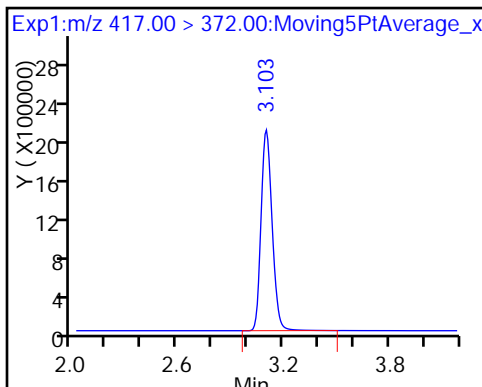
13 Sodium 1H,1H,2H,2H-perfluorooctane



D 14 13C4 PFOA

15 Perfluorooctanoic acid

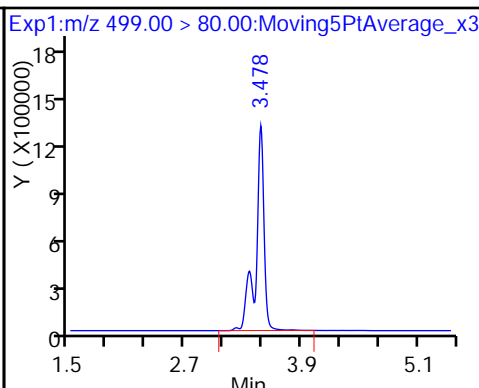
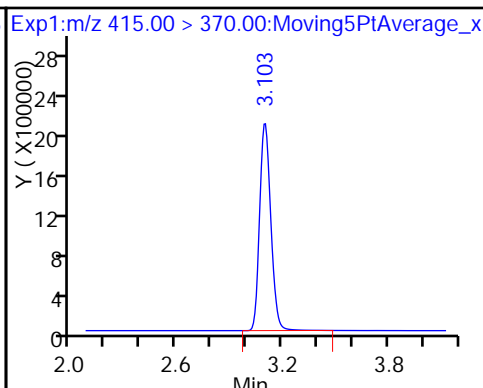
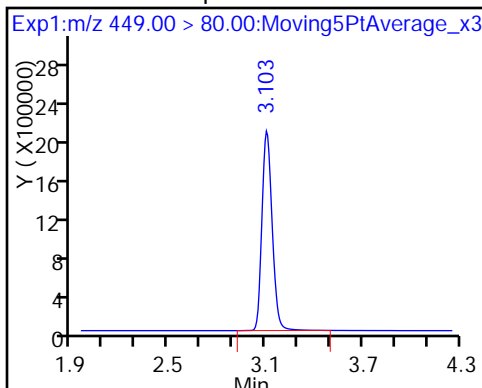
15 Perfluorooctanoic acid



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

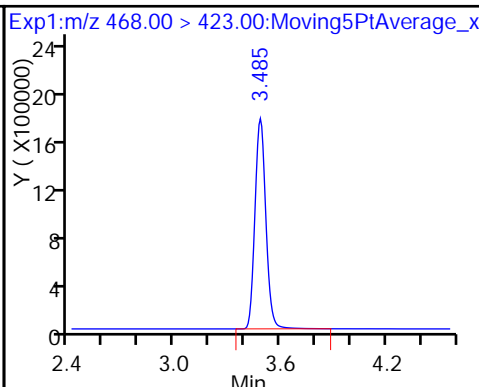
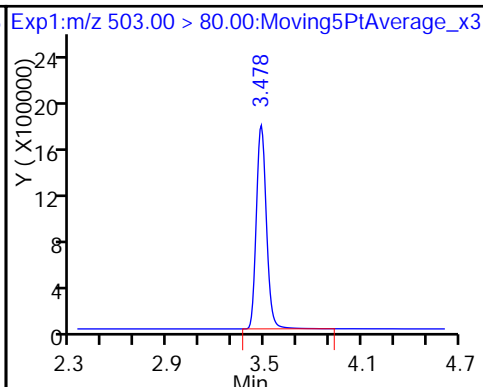
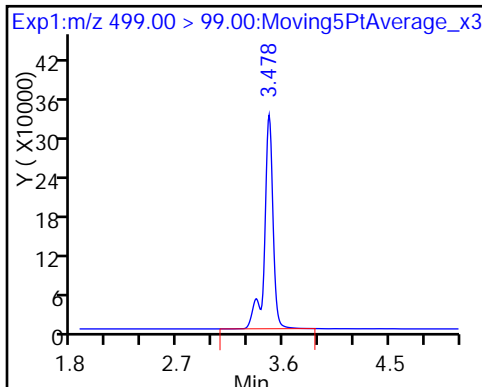
17 Perfluorooctane sulfonic acid

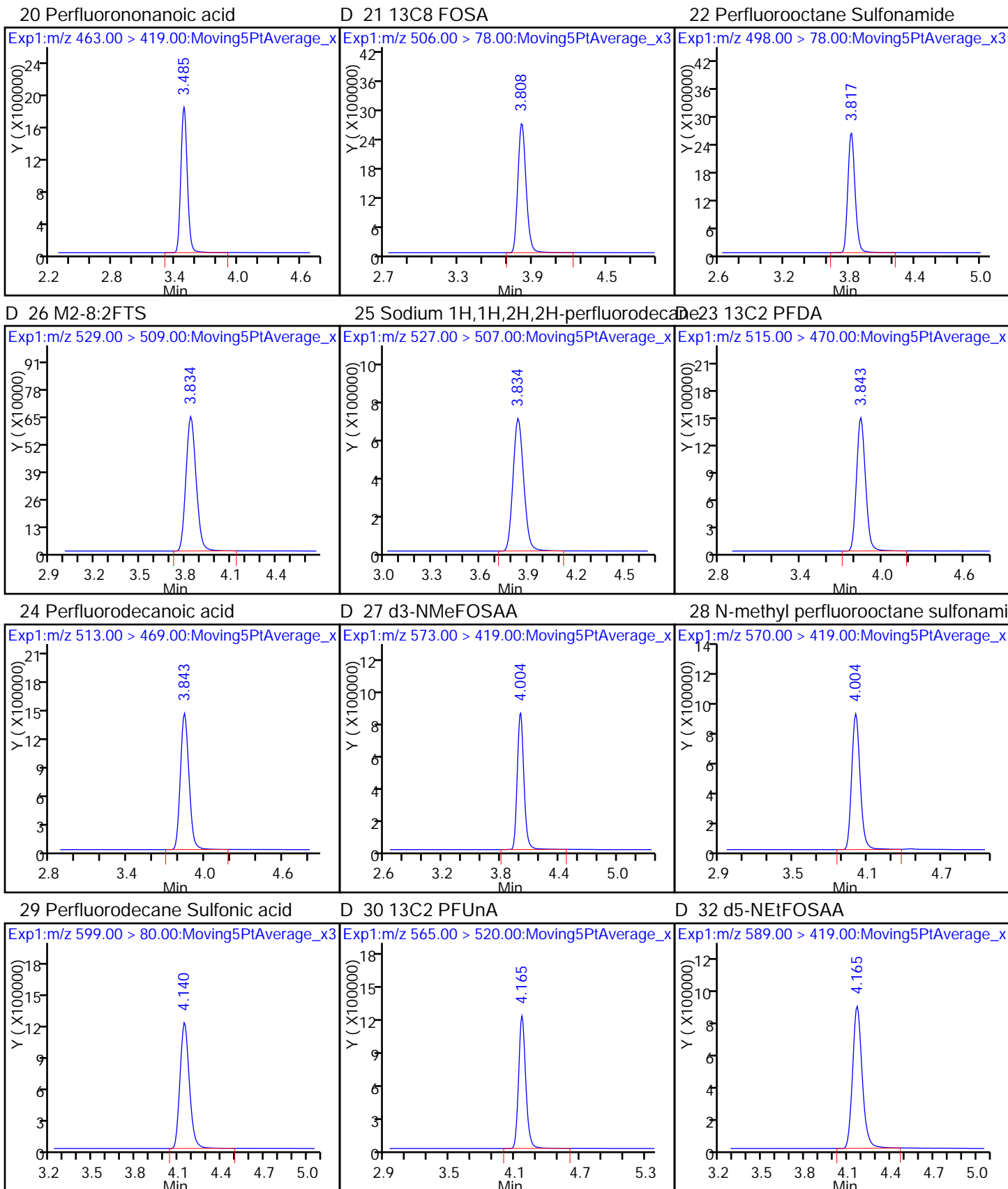


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

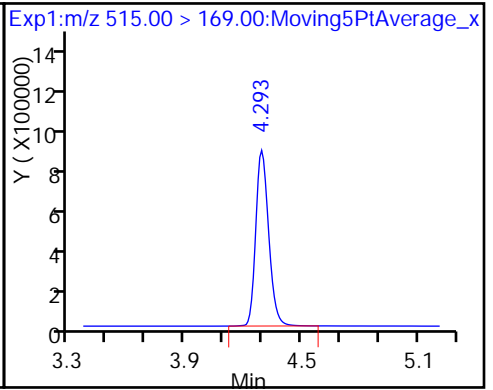
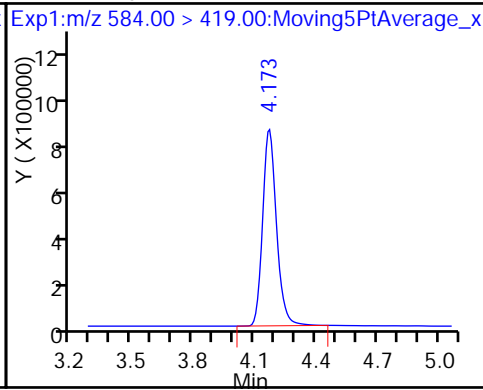
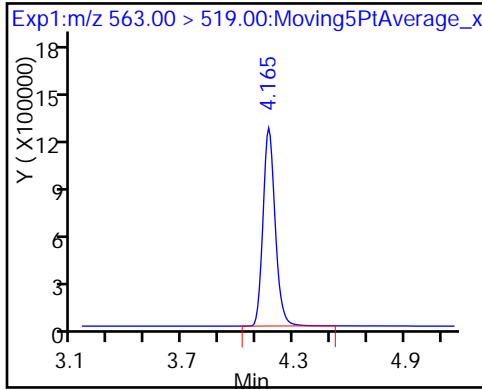




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

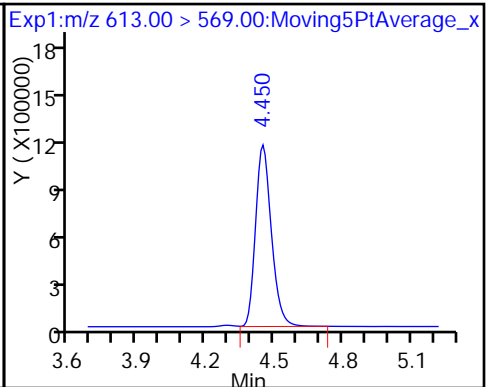
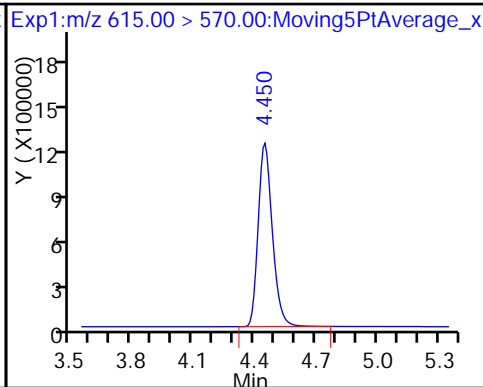
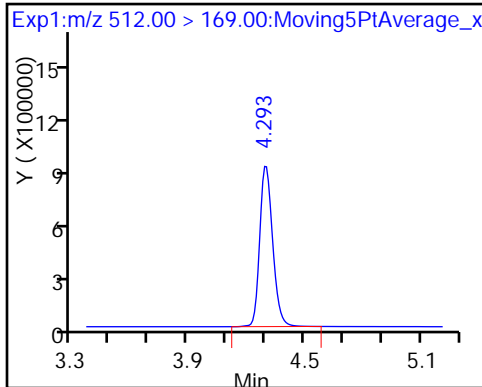
34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

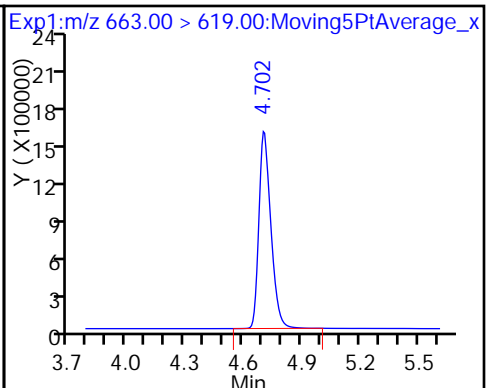
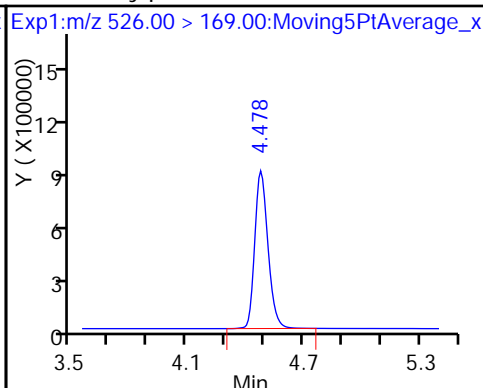
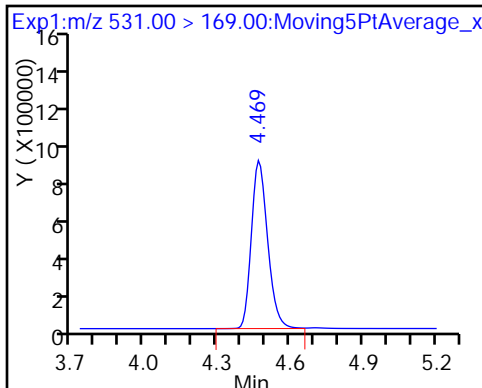
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

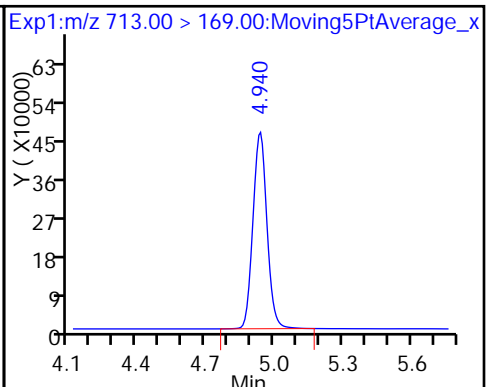
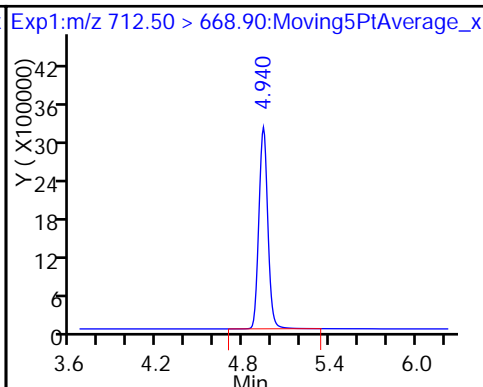
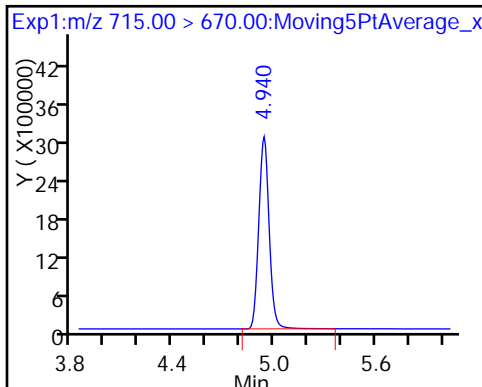
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

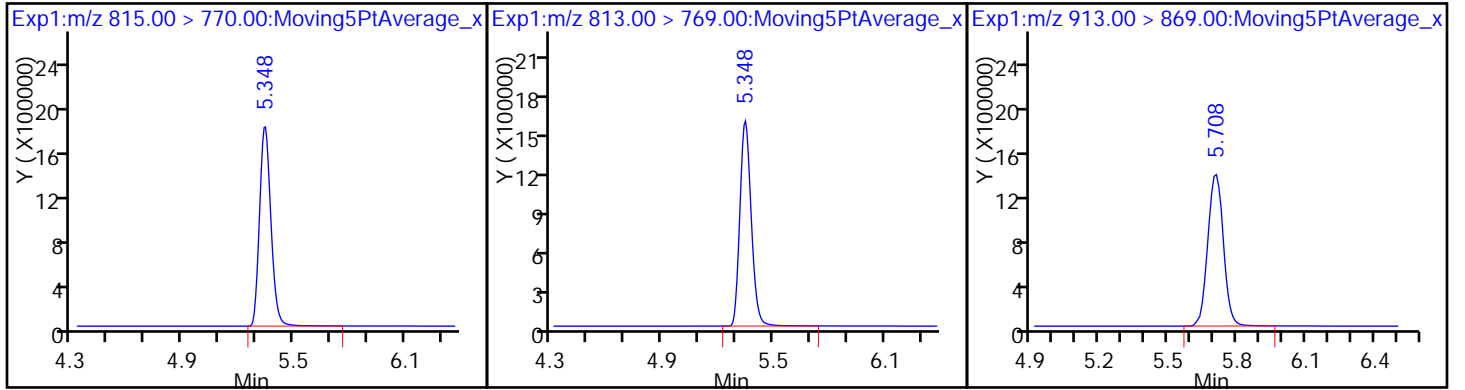
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-168107/23 Calibration Date: 06/07/2017 19:27
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.07B_037.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9186	0.9603		20.7	19.8	4.5	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.041	1.072		20.4	19.8	3.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.633	1.786		19.1	17.5	9.4	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.012	1.043		20.4	19.8	3.1	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.048	1.062		20.1	19.8	1.3	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.096	1.049		17.3	18.0	-4.2	25.0
6:2FTS	AveID	0.9879	0.9809		18.6	18.8	-0.7	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.141	1.217		20.1	18.9	6.7	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.068	1.072		19.9	19.8	0.4	25.0
Perfluorononanoic acid (PFNA)	AveID	1.002	0.996		19.7	19.8	-0.6	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.055	1.026		17.9	18.4	-2.8	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9693	1.006		20.5	19.8	3.8	25.0
8:2FTS	AveID	0.9716	1.134		22.1	19.0	16.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9522	0.9911		20.6	19.8	4.1	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.028	1.073		20.7	19.8	4.4	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6584	0.6857		19.9	19.1	4.1	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9439	0.9614		20.2	19.8	1.9	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.065	1.001		18.6	19.8	-6.0	25.0
MeFOSA	AveID	0.9633	0.999		20.5	19.8	3.7	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9562	0.9391		19.4	19.8	-1.8	25.0
N-EtFOSA-M	AveID	1.000	1.016		20.1	19.8	1.6	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.000	1.153		22.8	19.8	15.3	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.499		23.8	19.8	20.4	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.208		24.7	19.8	25.0	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.8851	1.126		25.2	19.8	27.3*	25.0
13C4 PFBA	Ave	329728	309691		46.5	49.5	-6.1	50.0
13C5-PFPeA	Ave	219977	214657		48.3	49.5	-2.4	50.0
13C2 PFHxA	Ave	192846	194900		50.0	49.5	1.1	50.0
13C4-PFHpA	Ave	177883	180275		50.2	49.5	1.3	50.0
18O2 PFHxS	Ave	230540	213987		43.5	46.8	-7.2	50.0
M2-6:2FTS	Ave	88838	71012		37.6	47.0	-20.1	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-168107/23 Calibration Date: 06/07/2017 19:27
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.07B_037.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	180322	176597		48.5	49.5	-2.1	50.0
13C4 PFOS	Ave	178130	155831		41.4	47.3	-12.5	50.0
13C5 PFNA	Ave	152667	146286		47.4	49.5	-4.2	50.0
13C8 FOSA	Ave	300205	239431		39.5	49.5	-20.2	50.0
M2-8:2FTS	Ave	81859	58552		33.9	47.4	-28.5	50.0
13C2 PFDA	Ave	150783	133626		43.9	49.5	-11.4	50.0
d3-NMeFOSAA	Ave	88062	77566		43.6	49.5	-11.9	50.0
d5-NEtFOSAA	Ave	87293	85179		48.3	49.5	-2.4	50.0
13C2 PFUnA	Ave	119837	111512		46.1	49.5	-6.9	50.0
d-N-MeFOSA-M	Ave	88593	82687		46.2	49.5	-6.7	50.0
13C2 PFDoA	Ave	124485	113648		45.2	49.5	-8.7	50.0
d-N-EtFOSA-M	Ave	82760	77195		46.2	49.5	-6.7	50.0
13C2-PFTeDA	Ave	257086	255749		49.2	49.5	-0.5	50.0
13C2-PFHxDA	Ave	136854	143723		52.0	49.5	5.0	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_037.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 07-Jun-2017 19:27:45 ALS Bottle#: 31 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L4
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub20
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 08-Jun-2017 10:30:55 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK023

First Level Reviewer: rainey Date: 08-Jun-2017 10:30:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.689	1.689	0.0	15331234	46.5		93.9	53144	
2 Perfluorobutyric acid	212.90 > 169.00	1.689	1.689	0.0	1.000	5889063	20.7	105	3826	
D 3 13C5-PFPeA	267.90 > 223.00	2.004	2.004	0.0	10626571	48.3		97.6	42653	
4 Perfluoropentanoic acid	262.90 > 219.00	2.004	2.004	0.0	1.000	4557083	20.4	103	2362	
D 47 13C3-PFBS	301.90 > 83.00	2.043	2.043	0.0	247316	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.043	2.043	0.0	1.000	6688400	19.1	109		
	298.90 > 99.00	2.043	2.043	0.0	1.000	2679920	2.50(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.292	2.292	0.0	1.000	1315530	21.5	116		
D 7 13C2 PFHxA	315.00 > 270.00	2.335	2.335	0.0	9648522	50.0		101	22699	
6 Perfluorohexanoic acid	313.00 > 269.00	2.335	2.335	0.0	1.000	4027187	20.4	103	6197	
D 9 13C4-PFHpA	367.00 > 322.00	2.702	2.702	0.0	8924529	50.2		101	16323	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.702	2.702	0.0	1.000	3789833	20.1	101	1299	
D 11 18O2 PFHxS	403.00 > 84.00	2.712	2.712	0.0	10021353	43.5		92.8	11703	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.712	2.712	0.0	1.000	4046255	17.3	95.8		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.065	3.065	0.0	3339669	37.6	79.9		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.065	3.065	0.0	1.000	1307566	18.6	99.3	
* 62 13C2-PFOA	415.00	> 370.00	3.080	3.080	0.0		9096623	49.5	100	
15 Perfluorooctanoic acid	413.00	> 369.00	3.088	3.088	0.0	1.000	3750414	19.9	100	1137
	413.00	> 169.00	3.088	3.088	0.0	1.000	2183438	1.72(0.90-1.10)		2723
D 14 13C4 PFOA	417.00	> 372.00	3.088	3.088	0.0		8742440	48.5	97.9	21238
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.088	3.088	0.0	1.000	3575212	20.1	107	
D 18 13C4 PFOS	503.00	> 80.00	3.455	3.455	0.0		7374963	41.4	87.5	13307
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.463	3.463	0.0	1.000	2937929	17.9	97.2	4374
	499.00	> 99.00	3.455	3.463	-0.008	0.998	637210	4.61(0.90-1.10)		3658
D 19 13C5 PFNA	468.00	> 423.00	3.463	3.463	0.0		7241869	47.4	95.8	12062
20 Perfluorononanoic acid	463.00	> 419.00	3.463	3.463	0.0	1.000	2886491	19.7	99.4	4052
D 21 13C8 FOSA	506.00	> 78.00	3.799	3.799	0.0		11853034	39.5	79.8	9761
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.799	3.799	0.0	1.000	4767938	20.5	104	9489
D 26 M2-8:2FTS	529.00	> 509.00	3.817	3.817	0.0		2776881	33.9	71.5	
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.817	3.817	0.0	1.000	1259463	22.1	117	
D 23 13C2 PFDA	515.00	> 470.00	3.826	3.826	0.0		6615156	43.9	88.6	9648
24 Perfluorodecanoic acid	513.00	> 469.00	3.826	3.826	0.0	1.000	2622454	20.6	104	6001
D 27 d3-NMeFOSAA	573.00	> 419.00	3.977	3.977	0.0		3839896	43.6	88.1	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	3.986	3.986	0.0	1.002	1648761	20.7	104	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.123	4.123	0.0	1.000	2039756	19.9	104	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.141	4.141	0.0		4216761	48.3	97.6	
D 30 13C2 PFUnA	565.00	> 520.00	4.149	4.149	0.0		5520389	46.1	93.1	9349
31 Perfluoroundecanoic acid	563.00	> 519.00	4.149	4.149	0.0	1.000	2211178	18.6	94.0	4146
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.149	4.149	0.0	1.002	1621662	20.2	102	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.276	4.276	0.0	4093436	46.2	93.3		
35 MeFOSA	512.00	> 169.00	4.284	4.284	0.0	1.000	1635030	20.5	104	
D 36 13C2 PFDaA	615.00	> 570.00	4.432	4.432	0.0	5626139	45.2	91.3	4797	
37 Perfluorododecanoic acid	613.00	> 569.00	4.432	4.432	0.0	1.000	2113390	19.4	98.2	1140
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.451	4.451	0.0	3821537	46.2	93.3		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.460	4.460	0.0	1.000	1553069	20.1	102	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.682	4.682	0.0	1.000	2594022	22.8	115	3187
D 43 13C2-PFTeDA	715.00	> 670.00	4.915	4.915	0.0	12660839	49.2	99.5	8839	
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.915	4.915	0.0	1.000	5622784	23.8	120	4421
	713.00	> 169.00	4.915	4.915	0.0	1.000	736012	7.64(0.00-0.00)		3969
D 44 13C2-PFHxDA	815.00	> 770.00	5.324	5.324	0.0	7114983	52.0	105	5684	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.324	5.324	0.0	1.000	2718138	24.7	125	2061
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.680	5.680	0.0	1.000	2535053	25.2	127	2452

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULLL-L4_00003

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_037.d

Injection Date: 07-Jun-2017 19:27:45

Instrument ID: A8_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

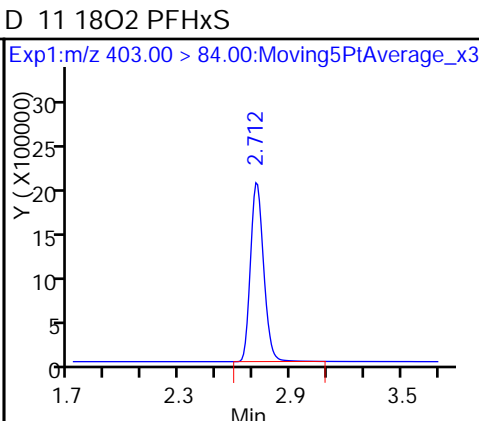
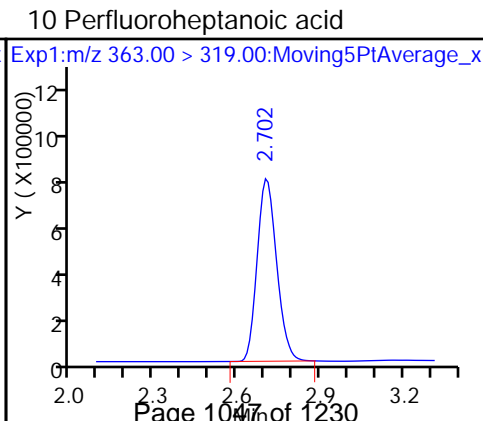
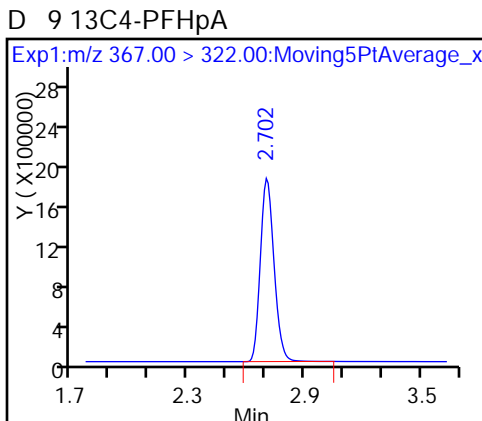
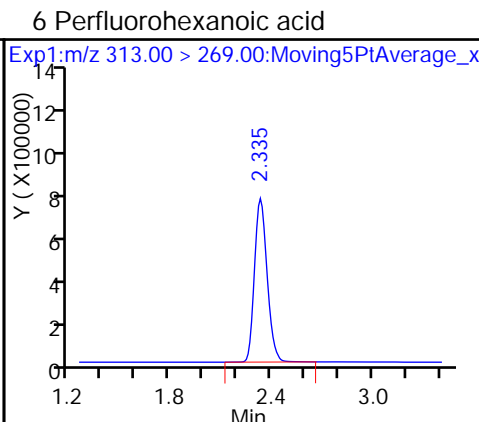
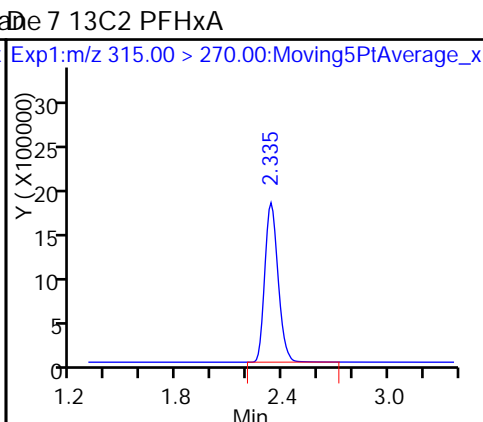
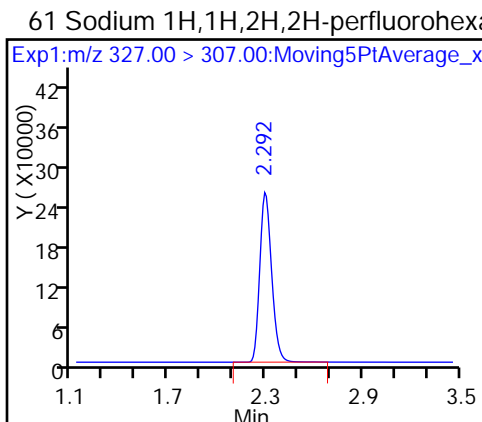
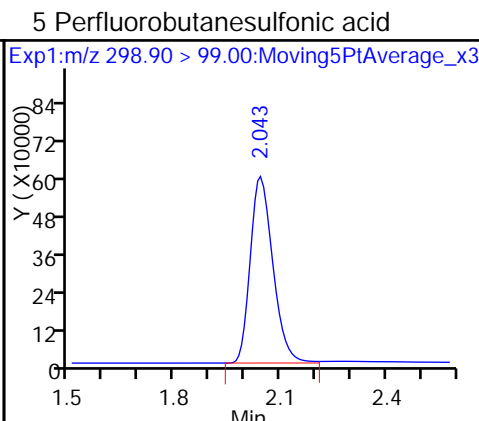
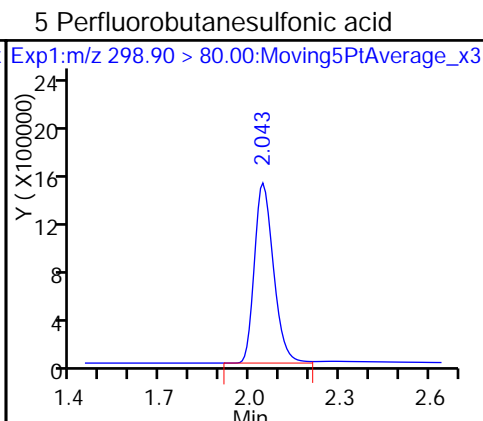
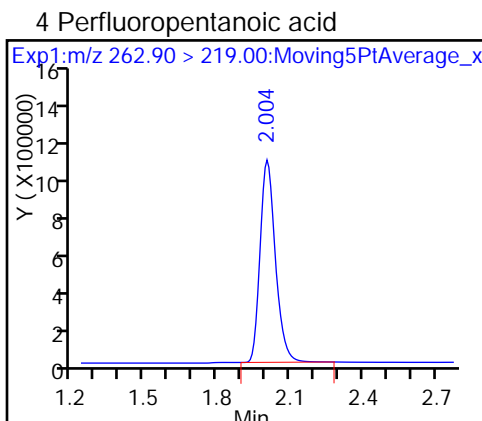
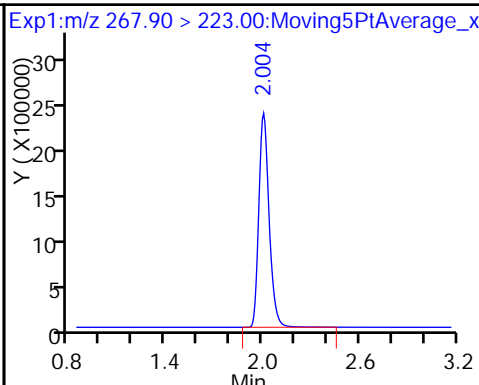
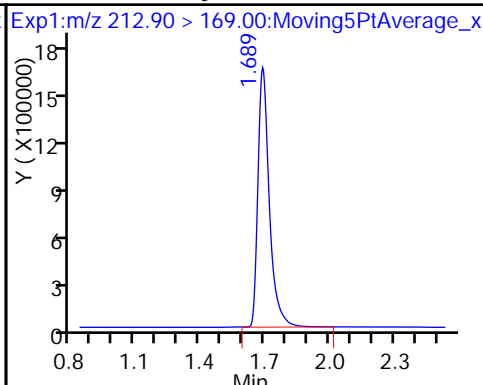
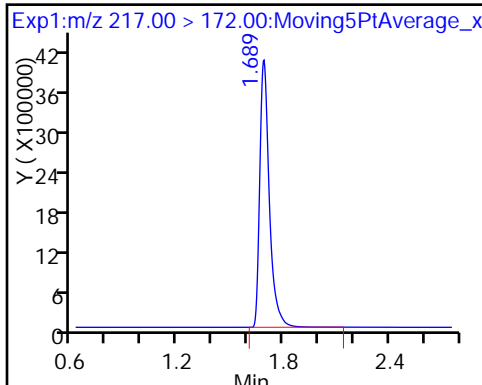
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

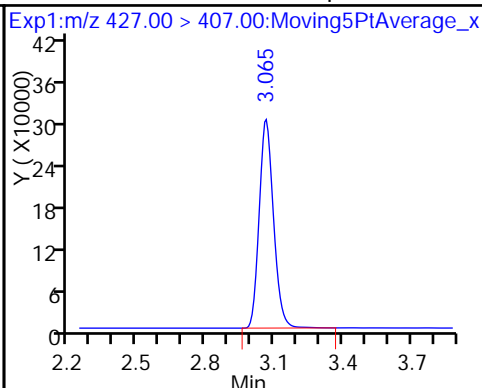
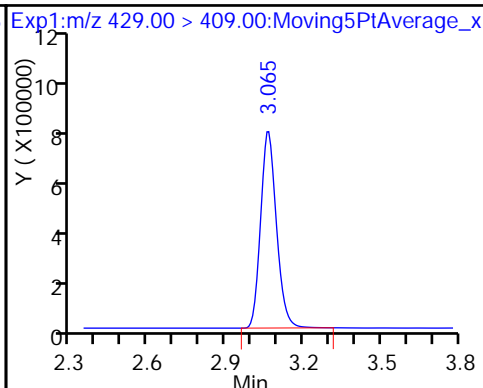
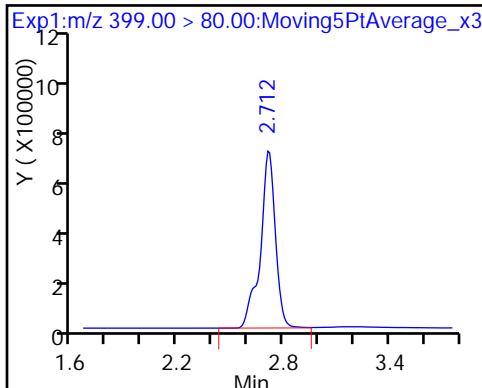
D 3 13C5-PFPeA



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

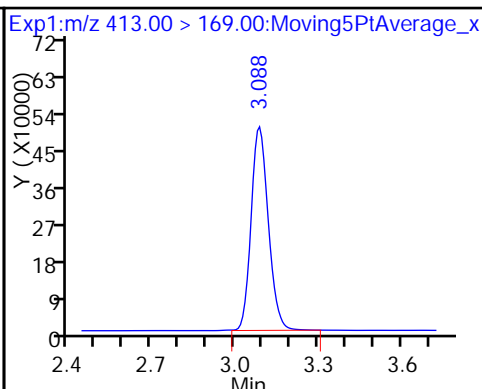
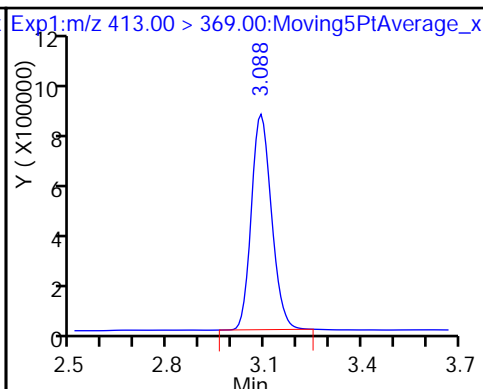
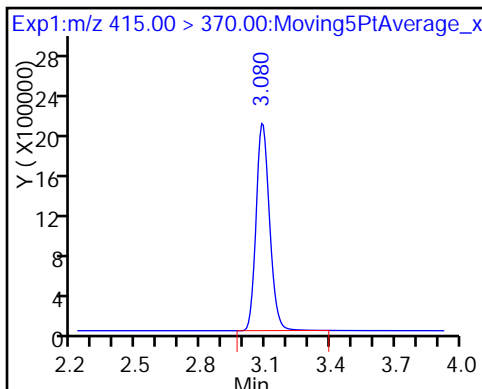
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

15 Perfluorooctanoic acid

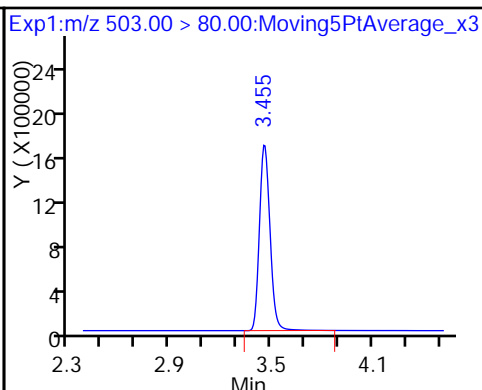
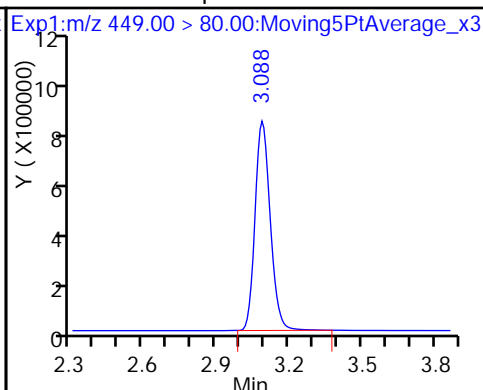
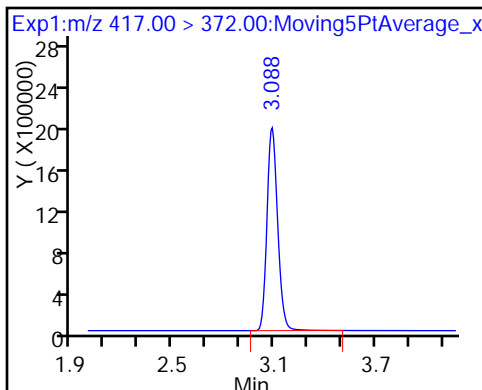
15 Perfluorooctanoic acid



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic Acid

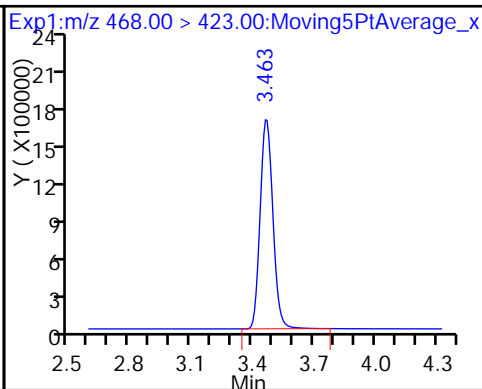
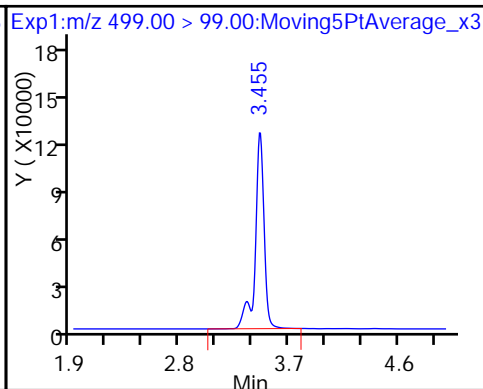
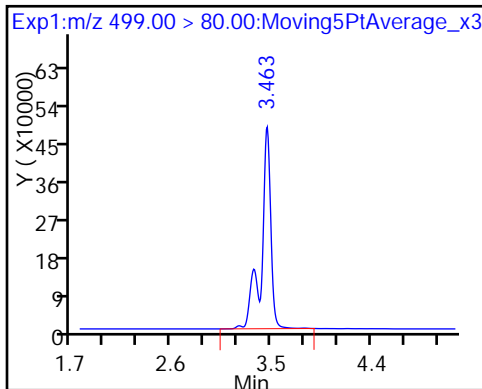
D 18 13C4 PFOS

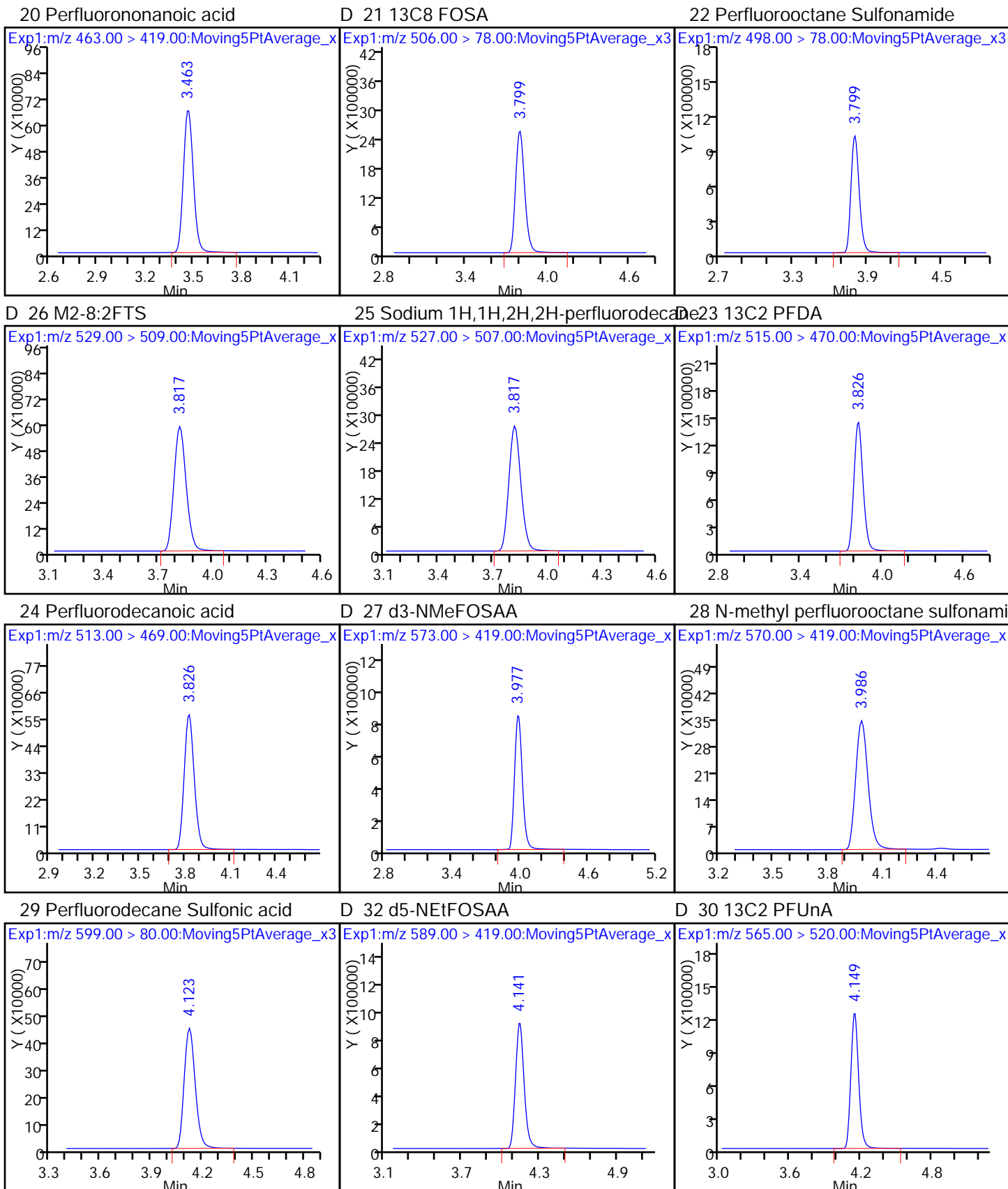


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

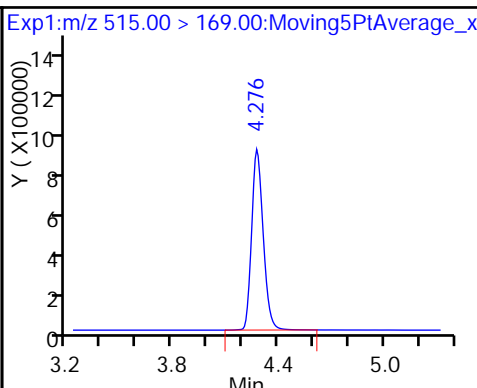
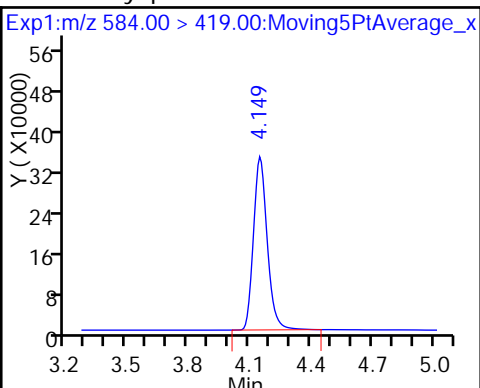
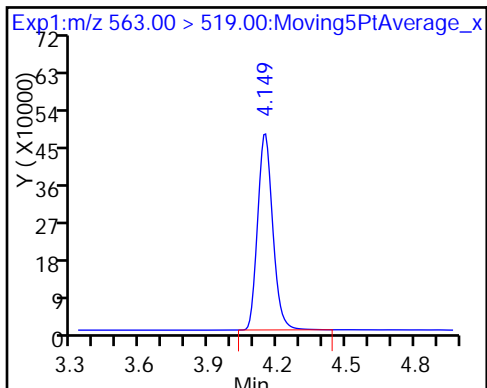




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

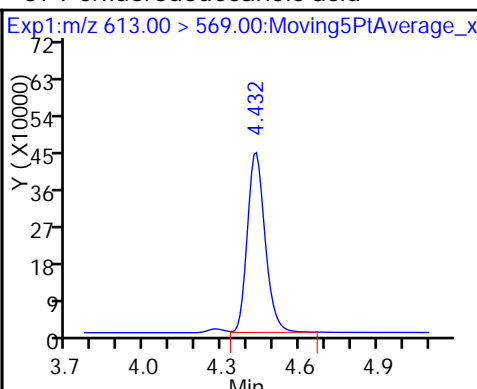
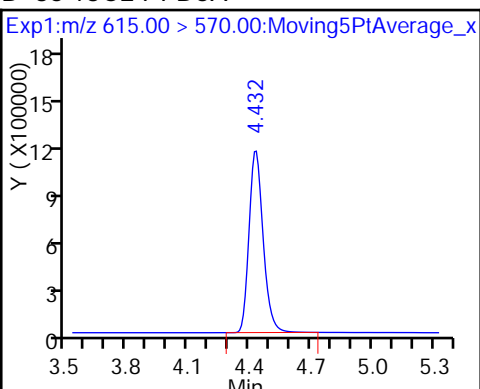
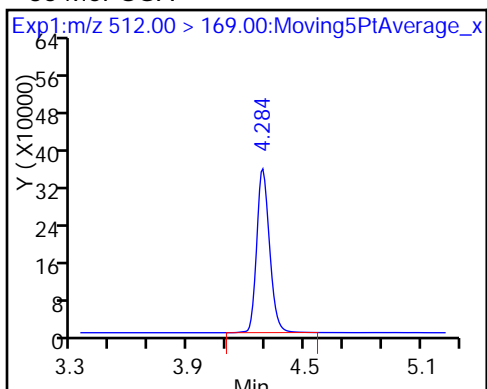
34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

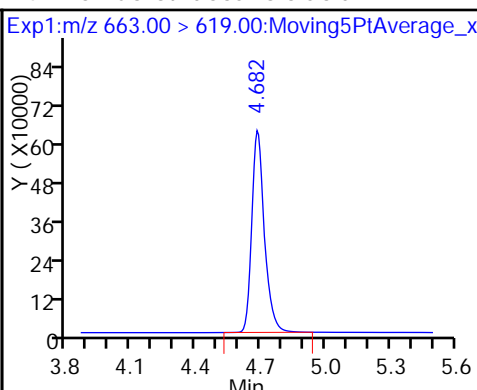
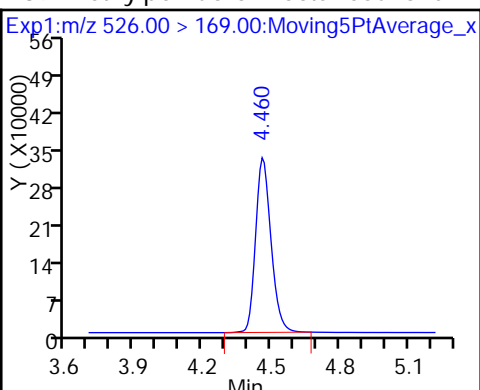
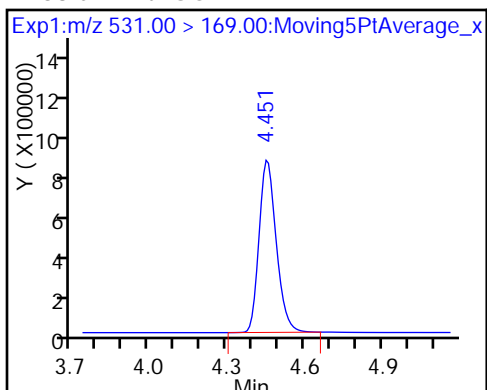
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

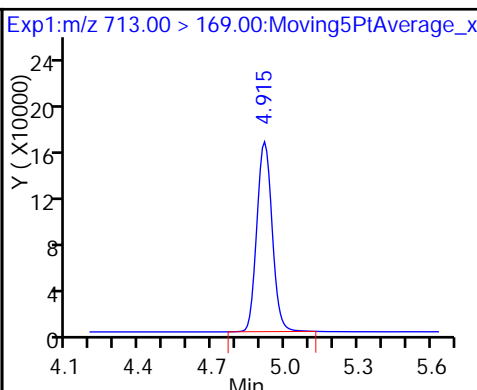
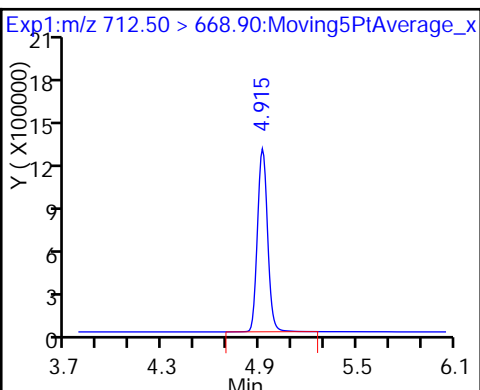
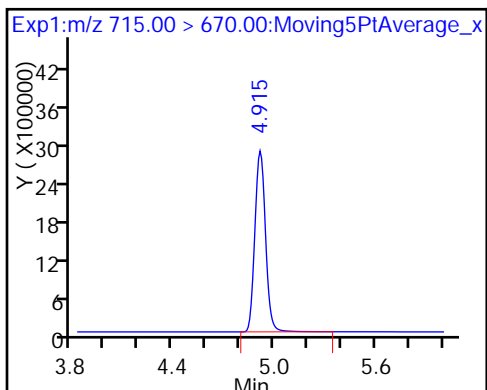
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

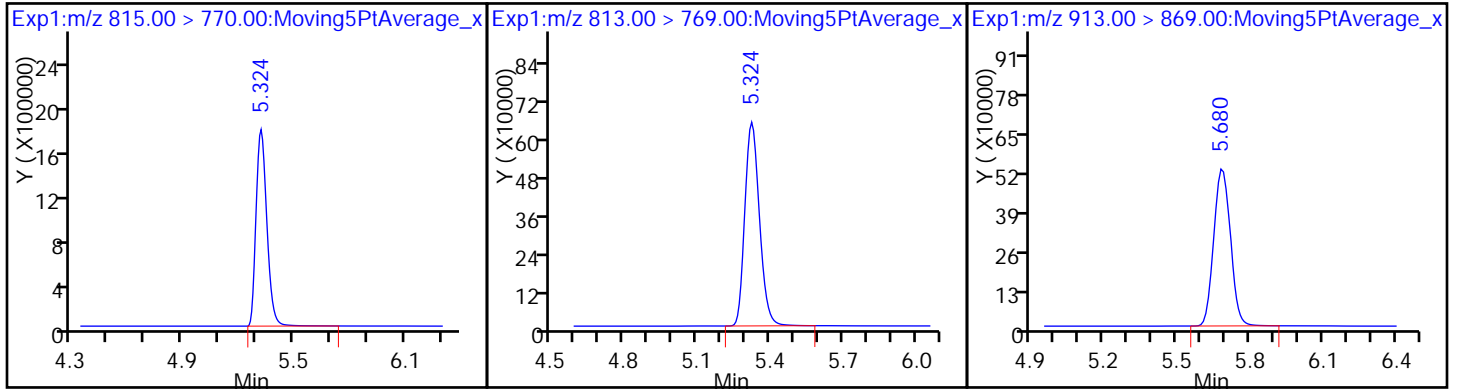
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-168107/28 Calibration Date: 06/07/2017 20:06
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.07B_042.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9186	0.9545		51.4	49.5	3.9	25.0
Perfluoropentanoic acid (PFPeA)	AveID	1.041	1.050		49.9	49.5	0.9	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.633	1.901		51.0	43.8	16.5	25.0
Perfluorohexanoic acid (PFHxA)	AveID	1.012	1.067		52.2	49.5	5.4	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.048	1.043		49.3	49.5	-0.5	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.096	1.118		46.0	45.0	2.0	25.0
6:2FTS	AveID	0.9879	1.065		50.6	46.9	7.8	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.141	1.192		49.2	47.1	4.5	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.068	1.082		50.2	49.5	1.3	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.055	1.068		46.5	45.9	1.2	25.0
Perfluorononanoic acid (PFNA)	AveID	1.002	1.022		50.5	49.5	1.9	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9693	1.004		51.3	49.5	3.6	25.0
8:2FTS	AveID	0.9716	1.002		48.9	47.4	3.2	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9522	0.9856		51.2	49.5	3.5	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	1.028	1.086		52.3	49.5	5.6	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6584	0.6797		49.3	47.7	3.2	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.065	1.044		48.5	49.5	-2.0	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9439	1.040		54.6	49.5	10.2	25.0
MeFOSA	AveID	0.9633	1.008		51.8	49.5	4.7	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9562	0.9775		50.6	49.5	2.2	25.0
N-EtFOSA-M	AveID	1.000	1.008		49.9	49.5	0.7	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.000	1.107		54.8	49.5	10.7	25.0
Perfluorotetradecanoic acid (PFTeA)	L2ID		2.558		61.1	49.5	23.4	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.219		63.6	49.5	28.6*	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.8851	1.121		62.7	49.5	26.7*	25.0
13C4 PFBA	Ave	329728	313053		47.0	49.5	-5.1	50.0
13C5-PFPeA	Ave	219977	224373		50.5	49.5	2.0	50.0
13C2 PFHxA	Ave	192846	189382		48.6	49.5	-1.8	50.0
13C4-PFHpA	Ave	177883	181872		50.6	49.5	2.2	50.0
18O2 PFHxS	Ave	230540	210599		42.8	46.8	-8.6	50.0
M2-6:2FTS	Ave	88838	70196		37.2	47.0	-21.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Lab Sample ID: CCV 320-168107/28 Calibration Date: 06/07/2017 20:06
 Instrument ID: A8_N Calib Start Date: 06/06/2017 13:31
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 06/06/2017 14:25
 Lab File ID: 2017.06.07B_042.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	180322	174410		47.9	49.5	-3.3	50.0
13C4 PFOS	Ave	178130	159783		42.5	47.3	-10.3	50.0
13C5 PFNA	Ave	152667	145576		47.2	49.5	-4.6	50.0
13C8 FOSA	Ave	300205	237252		39.1	49.5	-21.0	50.0
M2-8:2FTS	Ave	81859	66270		38.4	47.4	-19.0	50.0
13C2 PFDA	Ave	150783	134731		44.2	49.5	-10.6	50.0
d3-NMeFOSAA	Ave	88062	75607		42.5	49.5	-14.1	50.0
13C2 PFUnA	Ave	119837	105525		43.6	49.5	-11.9	50.0
d5-NEtFOSAA	Ave	87293	77518		44.0	49.5	-11.2	50.0
d-N-MeFOSA-M	Ave	88593	87773		49.0	49.5	-0.9	50.0
13C2 PFDoA	Ave	124485	112933		44.9	49.5	-9.3	50.0
d-N-EtFOSA-M	Ave	82760	80678		48.3	49.5	-2.5	50.0
13C2-PFTeDA	Ave	257086	251686		48.5	49.5	-2.1	50.0
13C2-PFHxDA	Ave	136854	141636		51.2	49.5	3.5	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_042.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 07-Jun-2017 20:06:16 ALS Bottle#: 32 Worklist Smp#: 28
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub20
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 08-Jun-2017 10:41:10 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d

Column 1 : Det: EXP1
 Process Host: XAWRK023

First Level Reviewer: rainey Date: 08-Jun-2017 10:41:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.682	1.682	0.0	15497680	47.0		94.9	75883	
2 Perfluorobutyric acid	212.90 > 169.00	1.686	1.686	0.0	14791724	51.4		104	10816	
D 3 13C5-PFPeA	267.90 > 223.00	1.997	1.997	0.0	11107551	50.5		102	40752	
4 Perfluoropentanoic acid	262.90 > 219.00	1.997	1.997	0.0	11658329	49.9		101	6689	
D 47 13C3-PFBS	301.90 > 83.00	2.036	2.036	0.0	259058	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.036	2.036	0.0	17524271	51.0		116		
	298.90 > 99.00	2.036	2.036	0.0	7156025		2.45(0.00-0.00)			
61 Sodium 1H,1H,2H,2H-perfluorohexane	327.00 > 307.00	2.284	2.284	0.0	3478928	57.6		125		
D 7 13C2 PFHxA	315.00 > 270.00	2.326	2.326	0.0	9375371	48.6		98.2	21583	
6 Perfluorohexanoic acid	313.00 > 269.00	2.326	2.326	0.0	10004350	52.2		105	12799	
D 9 13C4-PFHpA	367.00 > 322.00	2.694	2.694	0.0	9003579	50.6		102	13731	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.694	2.694	0.0	9387801	49.3		99.5	2667	
D 11 18O2 PFHxS	403.00 > 84.00	2.713	2.713	0.0	9862729	42.8		91.4	9724	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.713	2.713	0.0	10607041	46.0		102		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS	429.00	> 409.00	3.057	3.057	0.0	3301280	37.2	79.0		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.057	3.057	0.0	1.000	3508885	50.6	108	
* 62 13C2-PFOA	415.00	> 370.00	3.079	3.079	0.0		8574291	49.5	100	
15 Perfluorooctanoic acid	413.00	> 369.00	3.079	3.079	0.0	1.000	9346256	50.2	101	2594
	413.00	> 169.00	3.079	3.079	0.0	1.000	5267298	1.77(0.90-1.10)	5682	
D 14 13C4 PFOA	417.00	> 372.00	3.079	3.079	0.0		8634148	47.9	96.7	19695
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.079	3.079	0.0	1.000	8973906	49.2	104	
D 18 13C4 PFOS	503.00	> 80.00	3.454	3.454	0.0		7561992	42.5	89.7	8432
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.454	3.454	0.0	1.000	7836426	46.5	101	8396
	499.00	> 99.00	3.454	3.454	0.0	1.000	1698567	4.61(0.90-1.10)	5396	
D 19 13C5 PFNA	468.00	> 423.00	3.462	3.462	0.0		7206715	47.2	95.4	16702
20 Perfluorononanoic acid	463.00	> 419.00	3.462	3.462	0.0	1.000	7361952	50.5	102	8566
D 21 13C8 FOSA	506.00	> 78.00	3.789	3.789	0.0		11745155	39.1	79.0	9469
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.789	3.789	0.0	1.000	11791344	51.3	104	13384
D 26 M2-8:2FTS	529.00	> 509.00	3.807	3.807	0.0		3142907	38.4	81.0	
25 Sodium 1H,1H,2H,2H-perfluorodecane	527.00	> 507.00	3.807	3.807	0.0	1.000	3150254	48.9	103	
D 23 13C2 PFDA	515.00	> 470.00	3.816	3.816	0.0		6669861	44.2	89.4	11714
24 Perfluorodecanoic acid	513.00	> 469.00	3.816	3.816	0.0	1.000	6573713	51.2	104	9523
D 27 d3-NMeFOSAA	573.00	> 419.00	3.976	3.976	0.0		3742933	42.5	85.9	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	3.976	3.976	0.0	1.000	4063453	52.3	106	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.112	4.112	0.0	1.000	5182684	49.3	103	
D 32 d5-NEtFOSAA	589.00	> 419.00	4.139	4.139	0.0		3837519	44.0	88.8	
D 30 13C2 PFUnA	565.00	> 520.00	4.139	4.139	0.0		5224018	43.6	88.1	7789
31 Perfluoroundecanoic acid	563.00	> 519.00	4.139	4.139	0.0	1.000	5454238	48.5	98.0	6724
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.147	4.147	0.0	1.002	3992666	54.6	110	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.275	4.275	0.0	4345208	49.0	99.1		
35 MeFOSA	512.00	> 169.00	4.275	4.275	0.0	1.000	4381317	51.8	105	
D 36 13C2 PFDaA	615.00	> 570.00	4.422	4.422	0.0	5590755	44.9	90.7	4500	
37 Perfluorododecanoic acid	613.00	> 569.00	4.422	4.422	0.0	1.000	5465017	50.6	102	2326
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.450	4.450	0.0	3993938	48.3	97.5		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.459	4.459	0.0	1.000	4024692	49.9	101	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.681	4.681	0.0	1.000	6186827	54.8	111	4612
D 43 13C2-PFTeDA	715.00	> 670.00	4.914	4.914	0.0	12459704	48.5	97.9	9306	
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.914	4.914	0.0	1.000	14299352	61.1	123	11318
	713.00	> 169.00	4.914	4.914	0.0	1.000	1874632	7.63(0.00-0.00)		4916
D 44 13C2-PFHxDA	815.00	> 770.00	5.324	5.324	0.0	7011664	51.2	103	5381	
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.324	5.324	0.0	1.000	6813270	63.6	129	3164
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.680	5.680	0.0	1.000	6267664	62.7	127	4264

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L5_00004

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_042.d

Injection Date: 07-Jun-2017 20:06:16

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 28

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

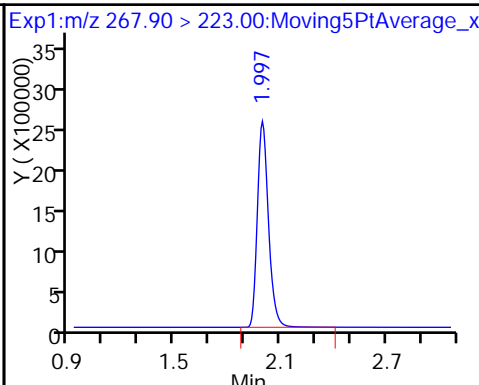
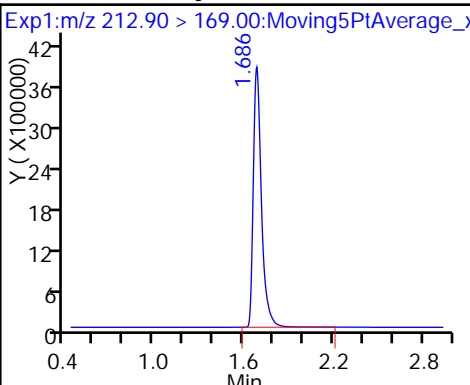
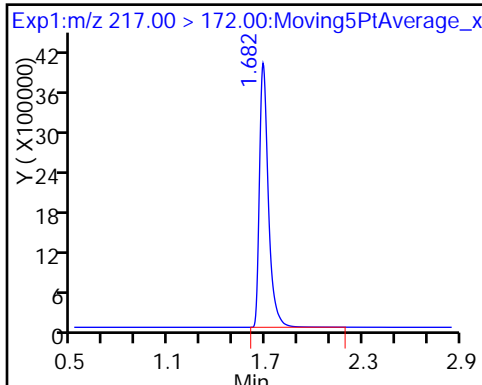
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

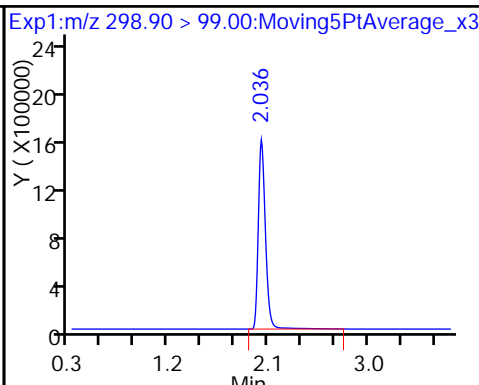
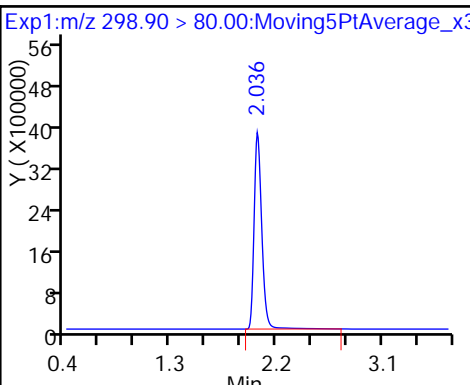
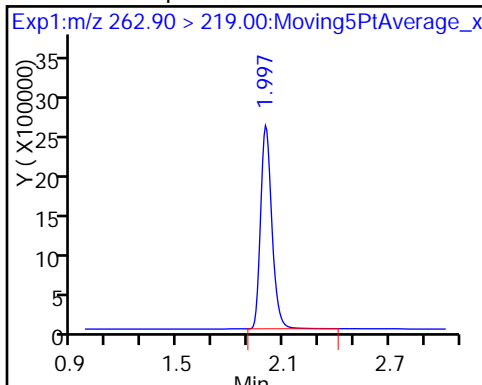
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

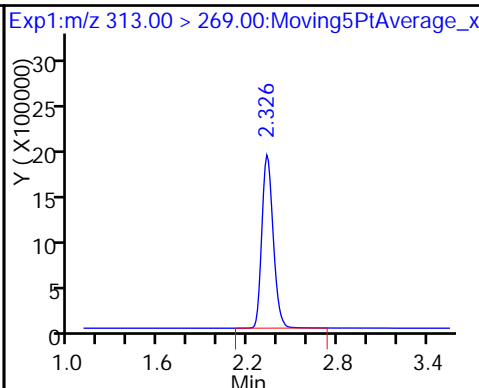
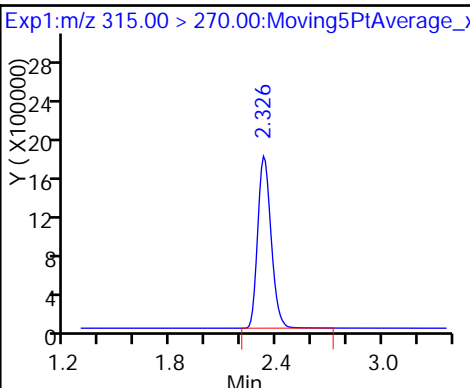
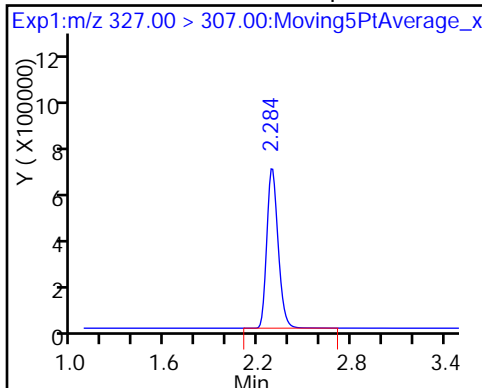
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

De 7 13C2 PFHxA

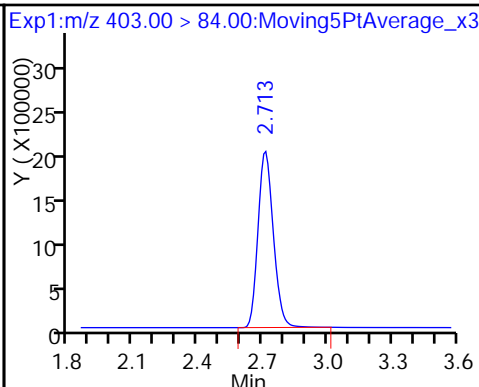
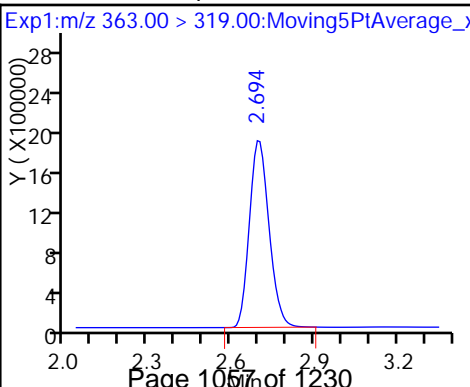
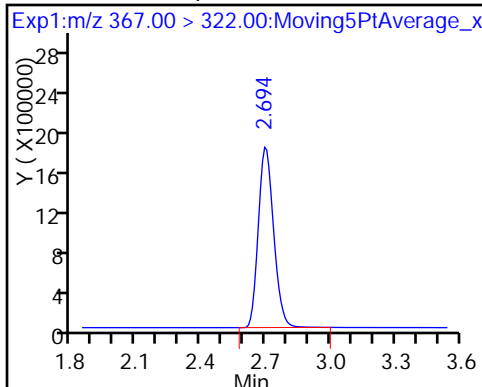
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

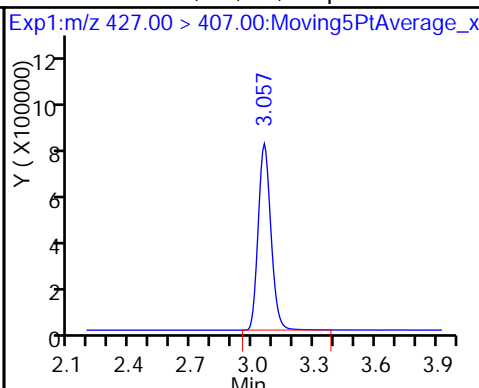
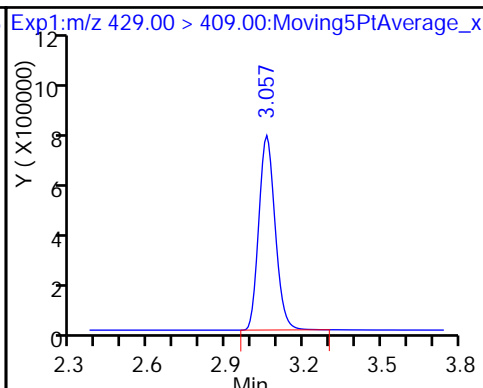
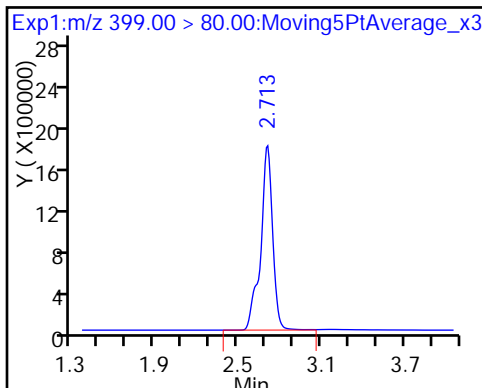
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

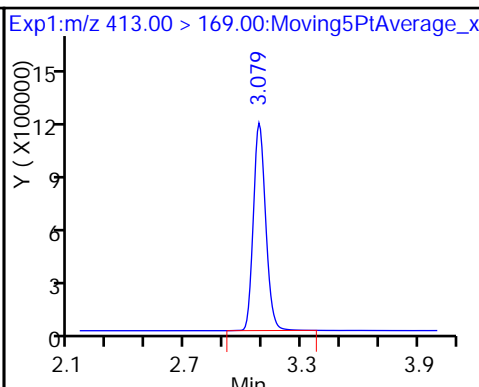
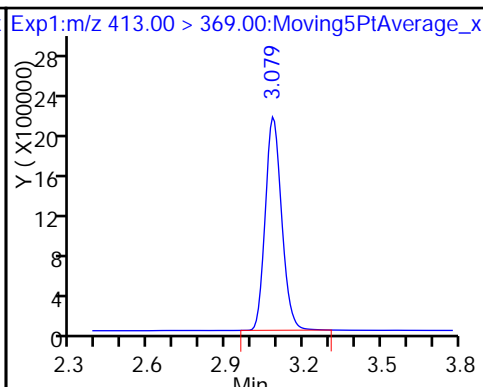
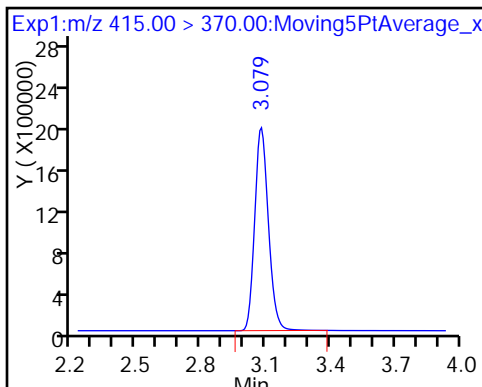
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

15 Perfluorooctanoic acid

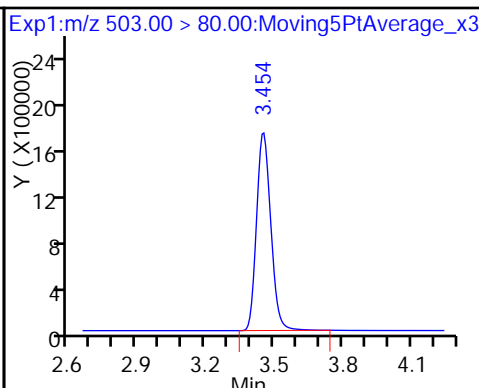
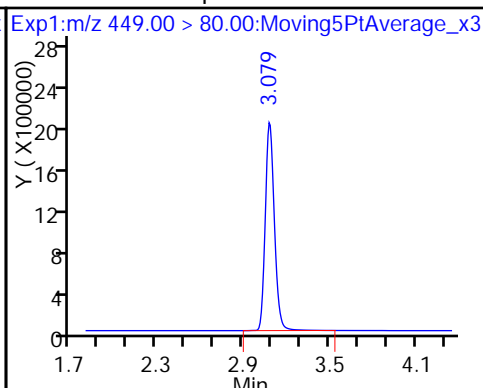
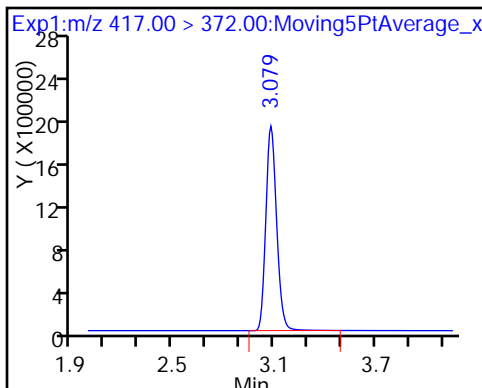
15 Perfluorooctanoic acid



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic Acid

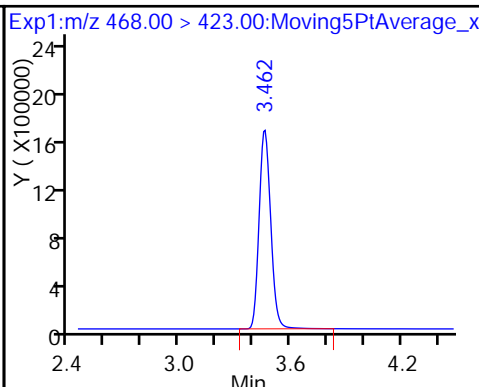
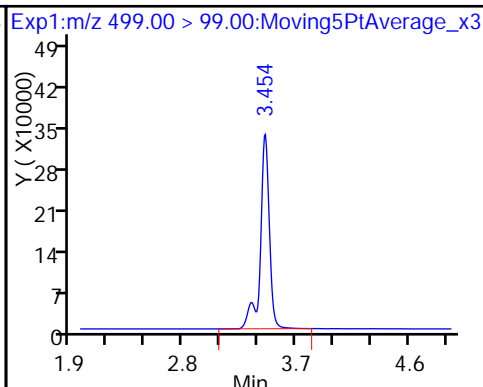
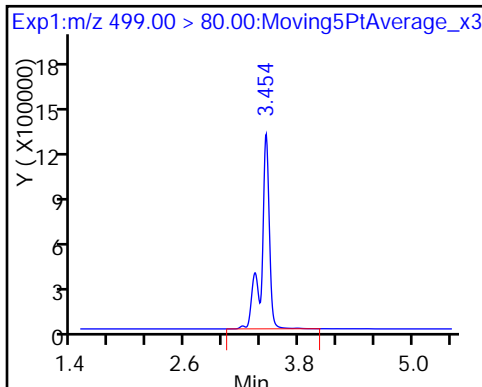
D 18 13C4 PFOS

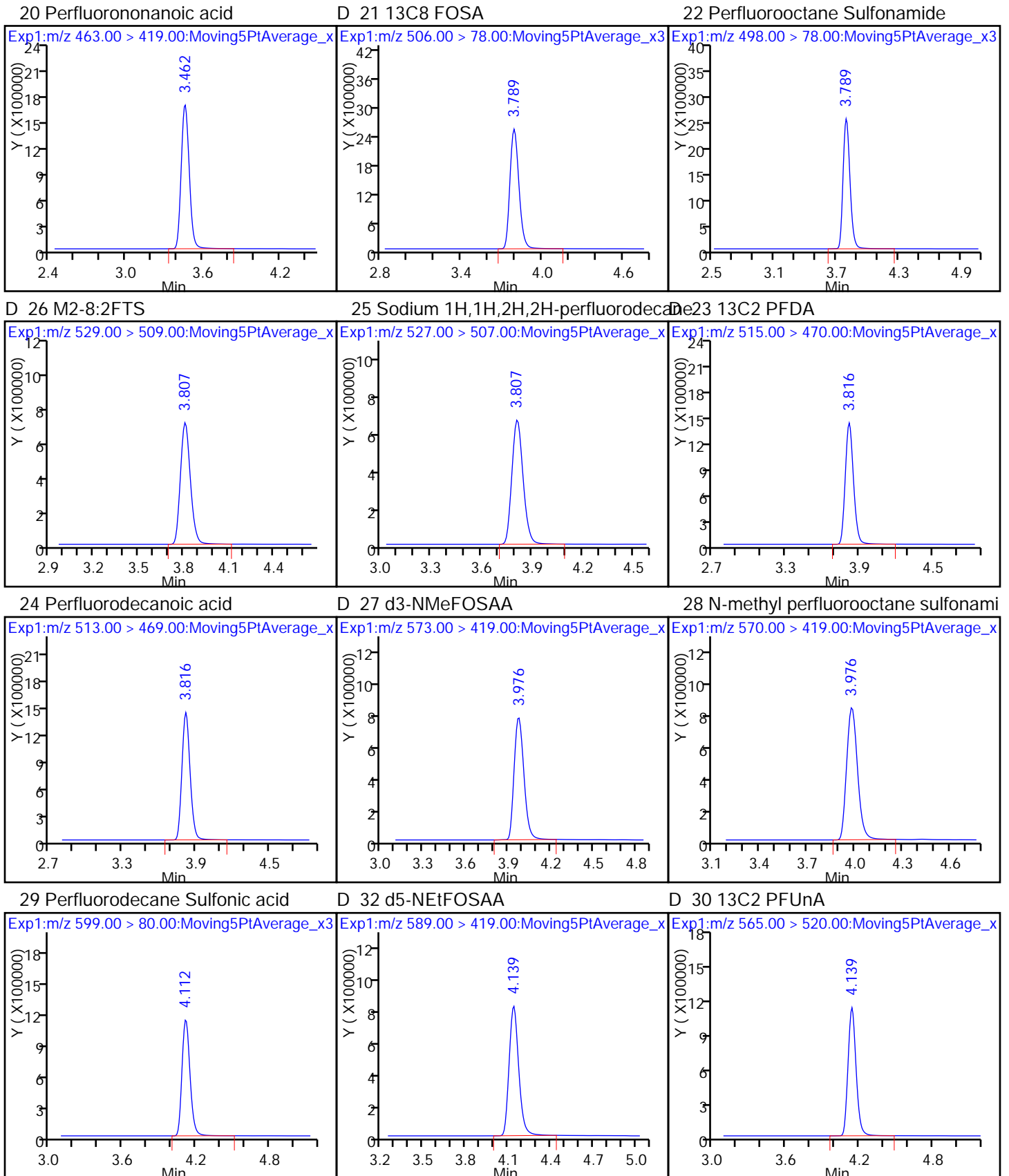


17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

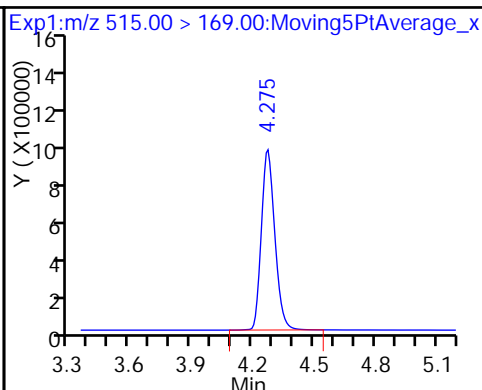
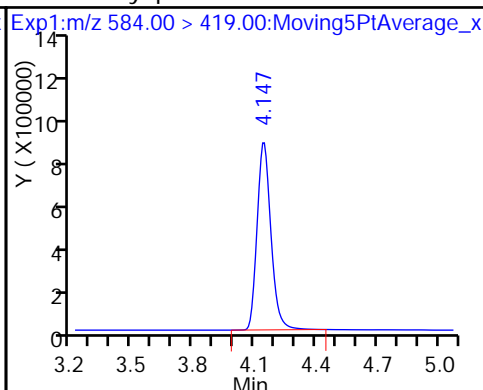
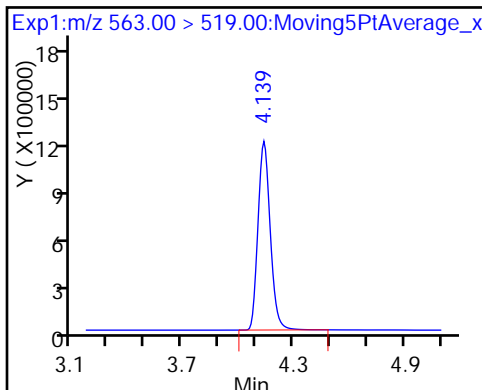




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

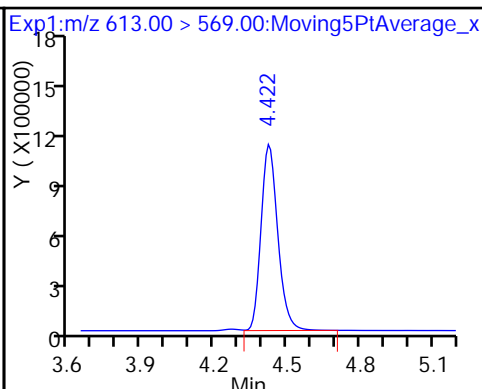
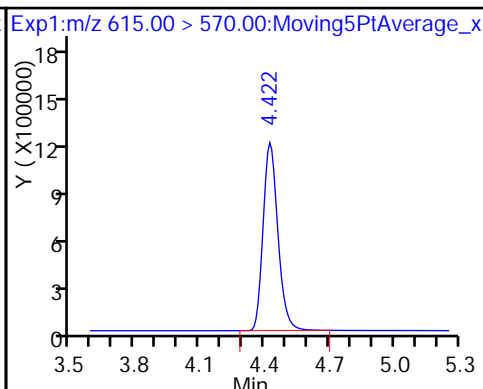
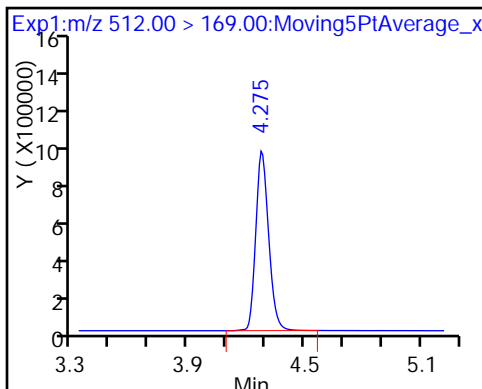
34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

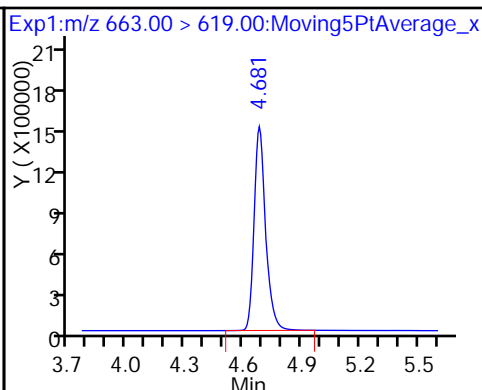
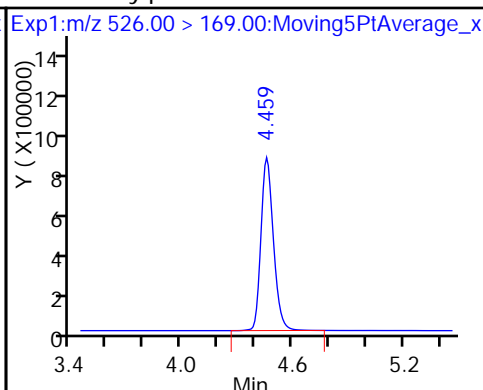
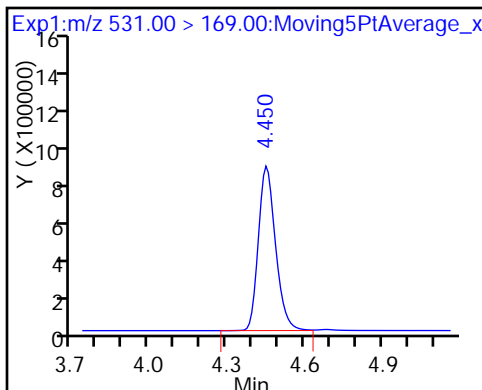
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

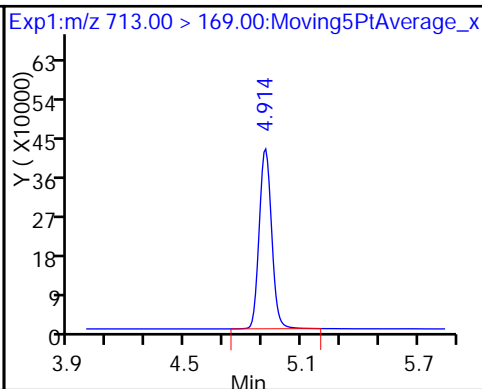
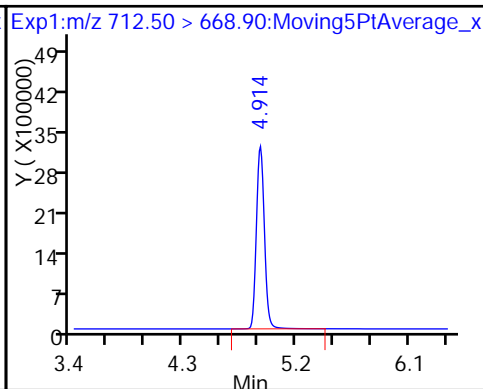
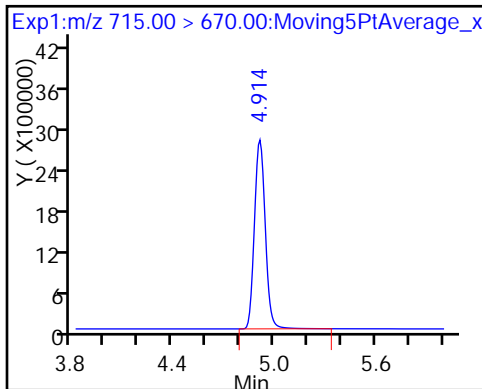
41 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

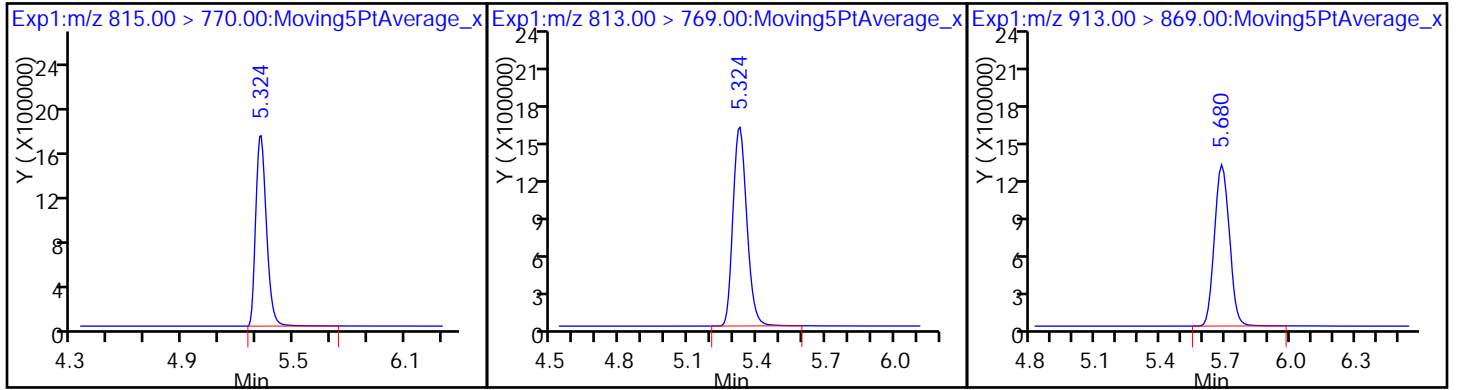
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-165207/1-A
 Matrix: Water Lab File ID: 2017.05.19B_002.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 05/18/2017 17:41
 Sample wt/vol: 250.00 (mL) Date Analyzed: 05/20/2017 05:49
 Con. Extract Vol.: 0.50 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165487 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U	4.0	3.0	1.3
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	2.0	0.92

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	124		25-150
STL00991	13C4 PFOS	114		25-150
STL00994	18O2 PFHxS	110		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_002.d
 Lims ID: MB 320-165207/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 20-May-2017 05:49:38 ALS Bottle#: 1 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-165207/1-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 12:21:50 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK016

First Level Reviewer: chandrasenas Date: 22-May-2017 11:59:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.035	2.059	-0.024	20671380	55.3		111	259395	
2 Perfluorobutyric acid										M
212.90 > 169.00	2.043	2.059	-0.016	1.000	84769	0.2065		19.0		M
D 3 13C5-PFPeA	267.90 > 223.00	2.399	2.419	-0.020	13901983	55.7		111	216787	
D 47 13C3-PFBS	301.90 > 83.00	2.439	2.459	-0.020	332284	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.439	2.459	-0.020	1.000	6149	0.0116				
298.90 > 99.00	2.429	2.459	-0.030	0.996	4307		1.43(0.00-0.00)			
D 7 13C2 PFHxA	315.00 > 270.00	2.779	2.801	-0.021	13288398	52.9		106	297444	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.769	2.801	-0.031	1.000	11050	0.0404			17.5	
D 9 13C4-PFHpA	367.00 > 322.00	3.169	3.205	-0.036	13435570	60.3		121	357138	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.177	3.205	-0.028	1.000	62045	0.1461				
D 11 18O2 PFHxS	403.00 > 84.00	3.177	3.213	-0.036	16421245	52.1		110	394697	
D 12 M2-6:2FTS	429.00 > 409.00	3.541	3.575	-0.034	4526	0.0372		0.0		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	3.548	3.575	-0.027	1.000	25449	NR				
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.576	3.590	-0.014	1.000	3850	0.0108				
* 62 13C2-PFOA	415.00 > 370.00	3.562	3.590	-0.028						

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA	417.00	> 372.00	3.562	3.598	-0.036	14025491	62.0	124	47909	
15 Perfluorooctanoic acid	413.00	> 369.00	3.569	3.598	-0.029	1.000	26535		3.0	
	413.00	> 169.00	3.569	3.598	-0.029	1.000	15242	1.74(0.90-1.10)	57.6	
D 18 13C4 PFOS	503.00	> 80.00	3.932	3.959	-0.027	12974014	54.7	114	59395	
D 19 13C5 PFNA	468.00	> 423.00	3.941	3.981	-0.040	10751804	58.6	117	31565	
20 Perfluorononanoic acid	463.00	> 419.00	3.932	3.981	-0.049	1.000	7692	0.0329	9.0	
D 21 13C8 FOSA	506.00	> 78.00	4.264	4.294	-0.030	3913500	10.6	21.2	8151	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.264	4.294	-0.030	1.000	17348	0.2069	125	
D 26 M2-8:2FTS	529.00	> 509.00	4.282	4.316	-0.034	7693	0.0753	0.0		
D 23 13C2 PFDA	515.00	> 470.00	4.282	4.316	-0.034	9544574	60.6	121	8200	
24 Perfluorodecanoic acid	513.00	> 469.00	4.292	4.316	-0.024	1.000	12068	0.0624	37.5	
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.292	4.316	-0.024	1.002	4067	NR		
D 27 d3-NMeFOSAA	573.00	> 419.00	4.439	4.466	-0.027	54026	0.7637	0.0		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.449	4.476	-0.027	1.002	19696	NR		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.565	4.596	-0.031	1.000	4638	0.0256		
D 32 d5-NEtFOSAA	589.00	> 419.00	4.601	4.624	-0.023	59692	0.8574	0.0		
D 30 13C2 PFUnA	565.00	> 520.00	4.593	4.624	-0.031	6993622	60.5	121	10820	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.593	4.624	-0.031	1.000	27246	0.1668	65.3	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.608	4.633	-0.025	1.002	17208	NR		
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.723	4.752	-0.029	4854	0.0465	0.0		
D 36 13C2 PFDoA	615.00	> 570.00	4.860	4.897	-0.037	6426095	55.0	110	10287	
37 Perfluorododecanoic acid	613.00	> 569.00	4.860	4.897	-0.037	1.000	9079	0.0693	0.5	
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.879	4.908	-0.029	5317	0.0535	0.0		
41 Perfluorotridecanoic acid	663.00	> 619.00	5.104	5.143	-0.039	1.000	9847	0.0777	0.5	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 43 13C2-PFTeDA										
715.00 > 670.00	5.331	5.360	-0.029		16225689	70.8		142	12313	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	5.320	5.360	-0.040	1.000	132006	0.4630			1.7	
713.00 > 169.00	5.320	5.360	-0.040	1.000	10486		12.59(0.00-0.00)		46.1	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.722	5.753	-0.031		6494390	50.7		101	5890	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.730	5.753	-0.023	1.000	98194	-0.0399			9.6	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

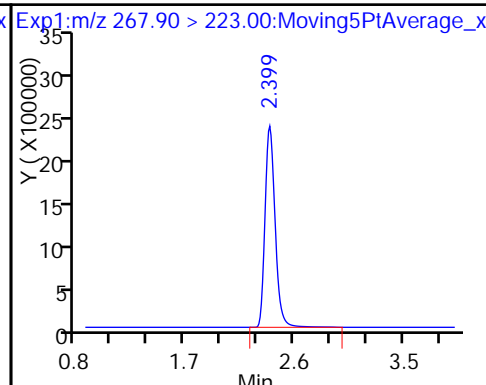
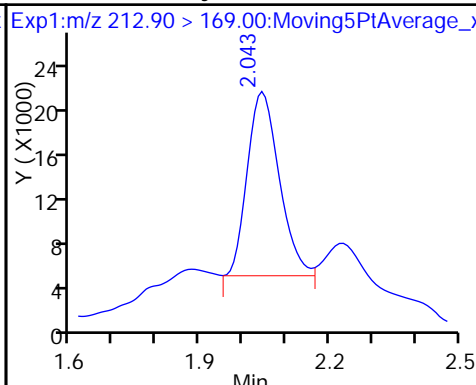
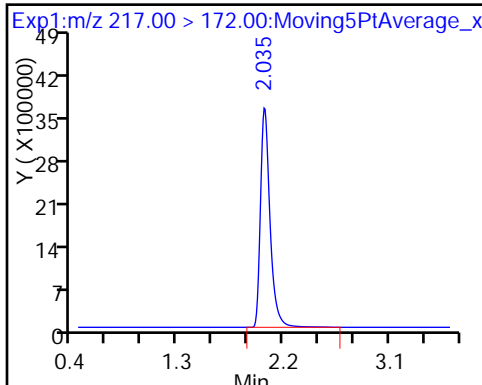
Review Flags

M - Manually Integrated

D 1 13C4 PFBA

2 Perfluorobutyric acid (M)

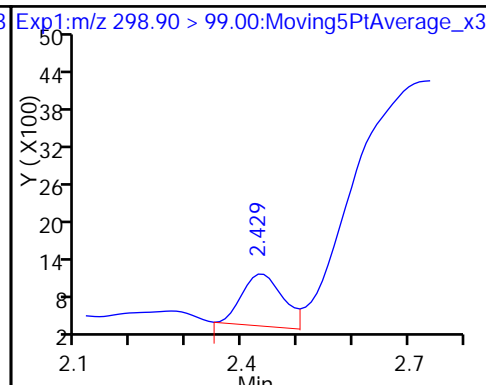
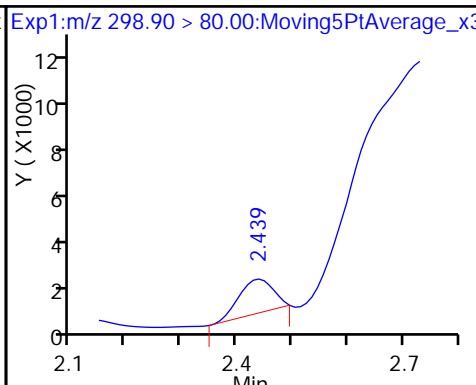
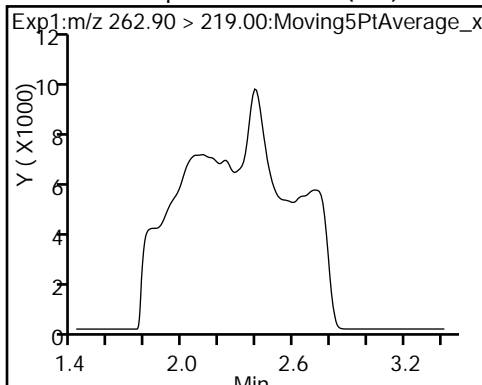
D 3 13C5-PFPeA



4 Perfluoropentanoic acid (ND)

5 Perfluorobutanesulfonic acid

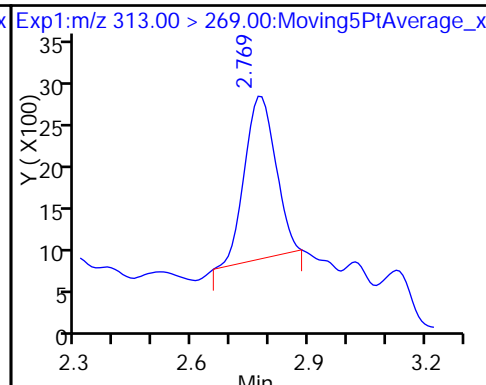
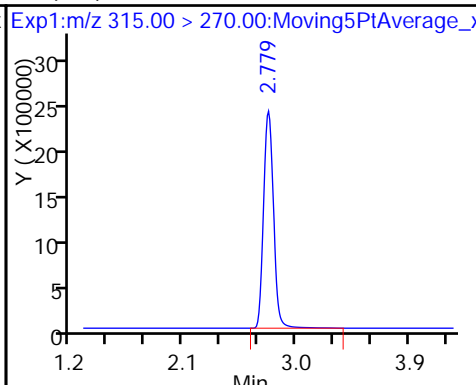
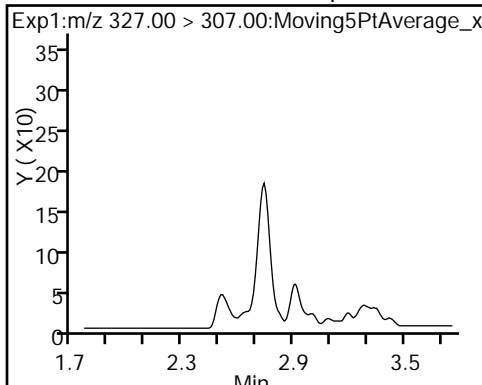
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid (ND)

10 Perfluoroheptanoic acid (ND)

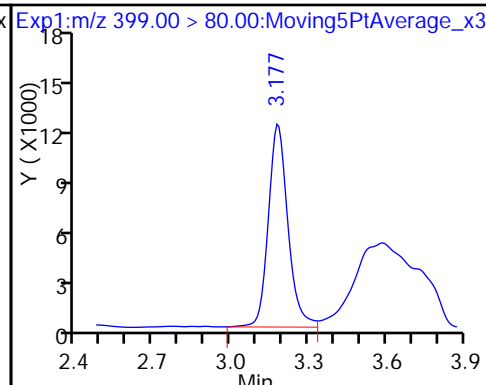
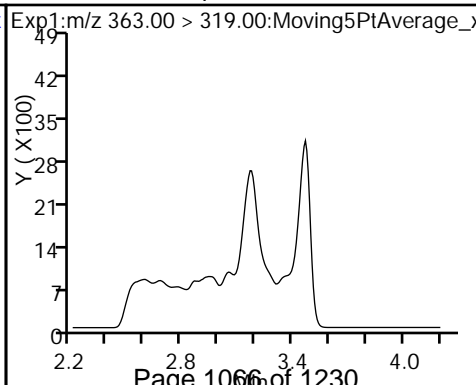
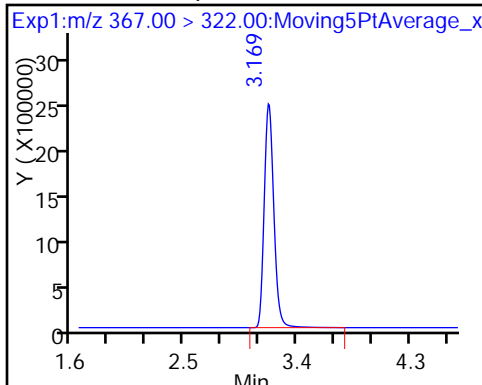
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid (ND)

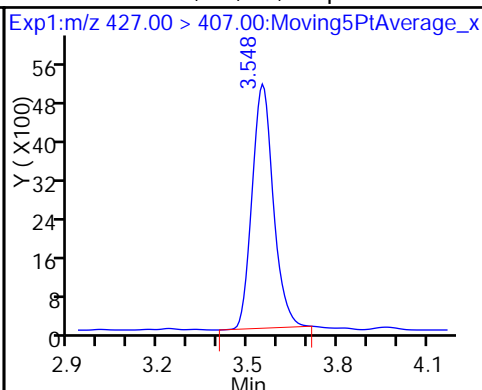
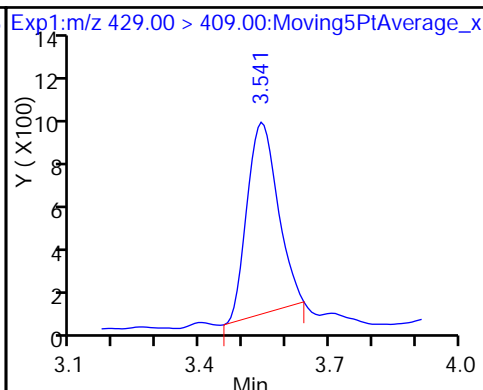
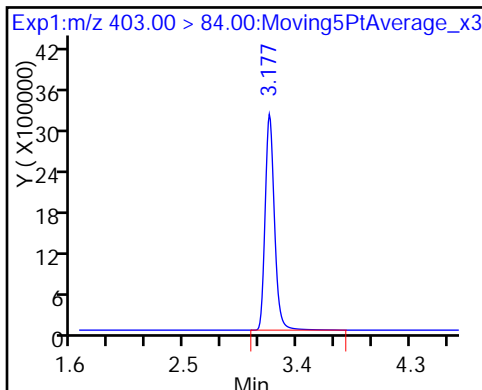
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

D 12 M2-6:2FTS

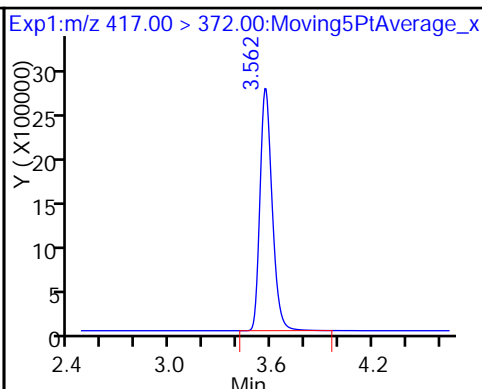
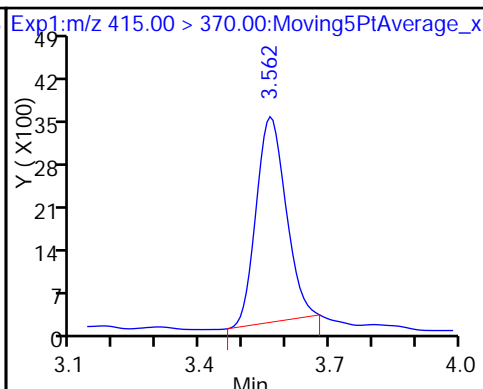
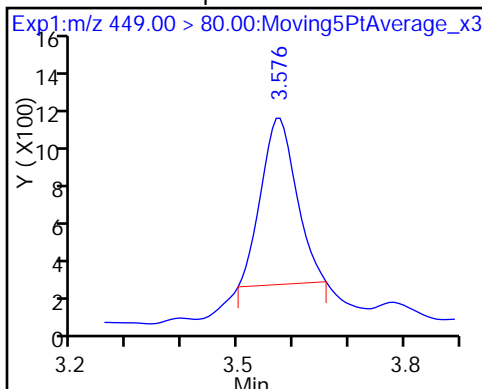
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

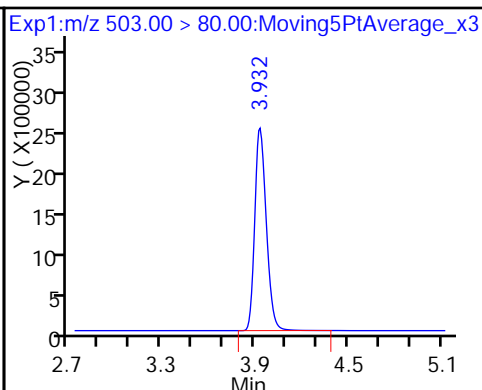
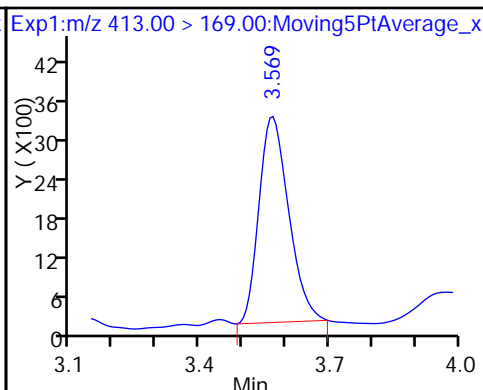
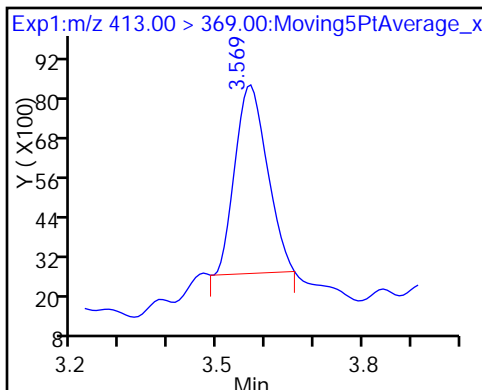
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

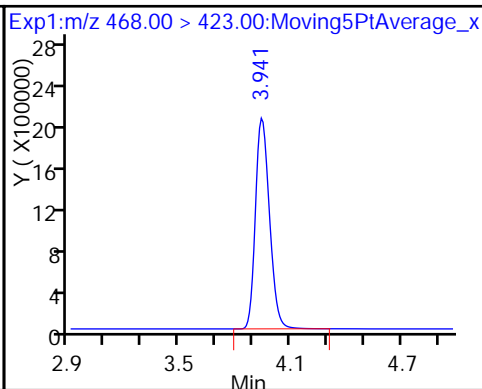
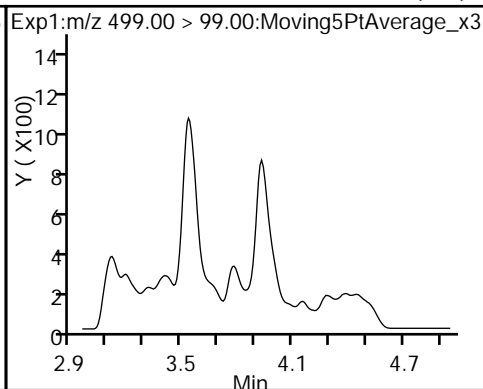
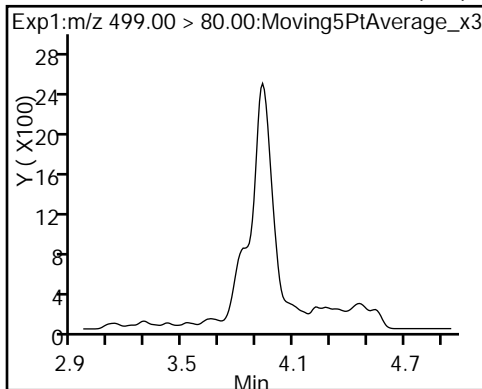
D 18 13C4 PFOS

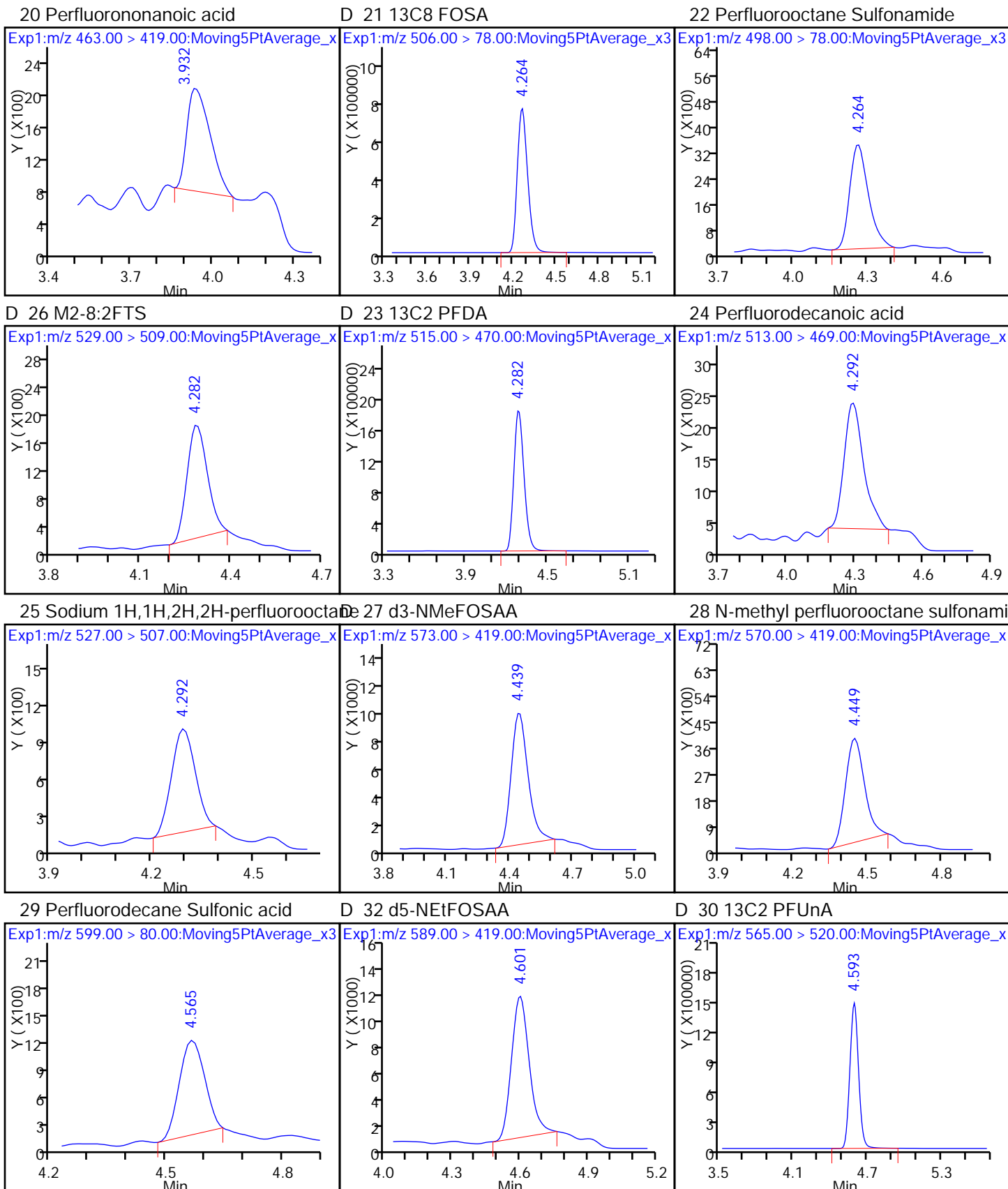


17 Perfluorooctane sulfonic acid (ND)

17 Perfluorooctane sulfonic acid (ND)

D 19 13C5 PFNA

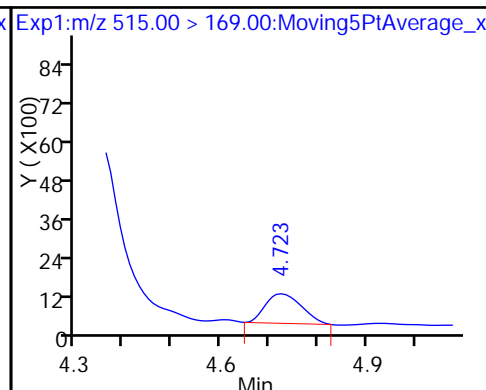
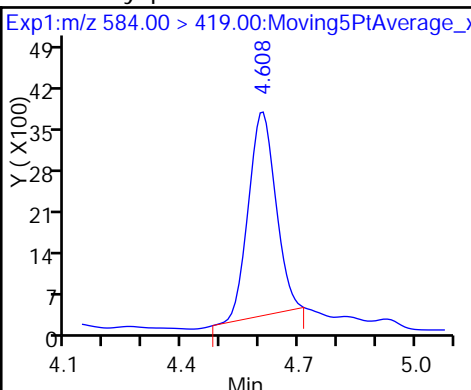
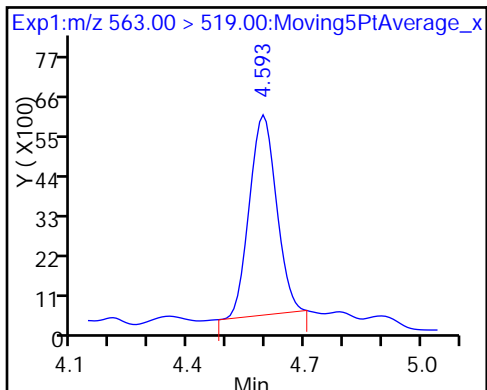




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

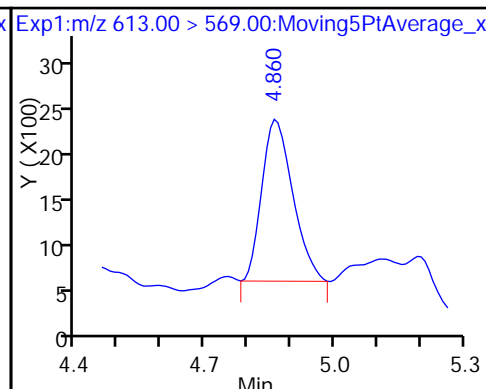
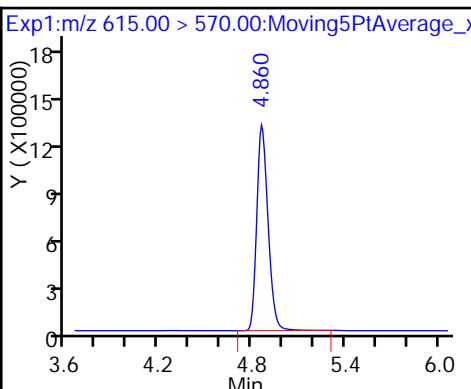
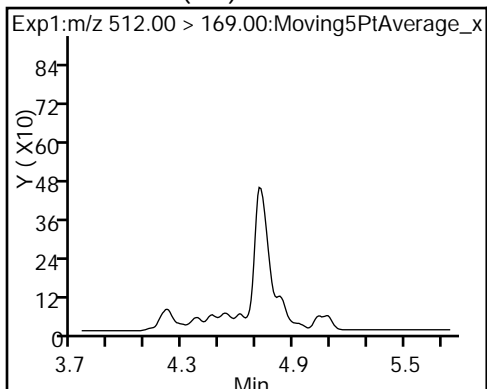
34 d-N-MeFOSA-M



35 MeFOSA (ND)

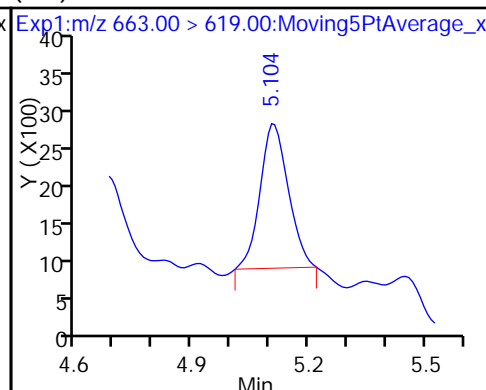
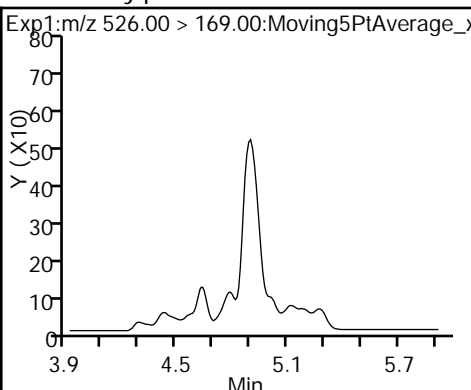
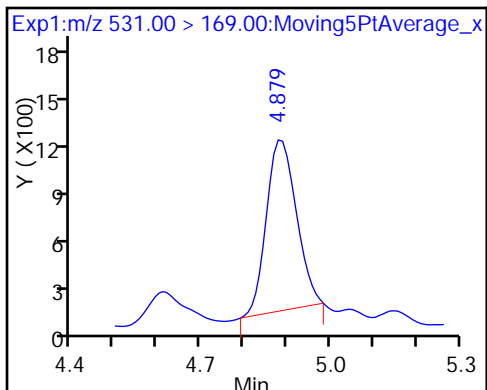
D 36 13C2 PFDaA

37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

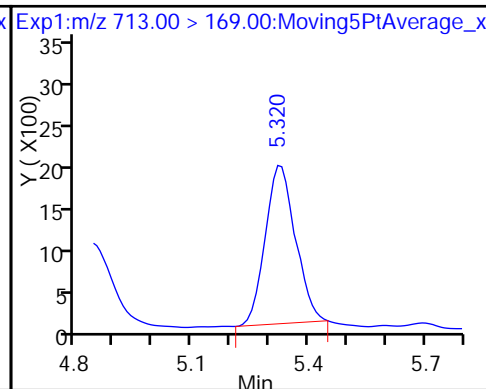
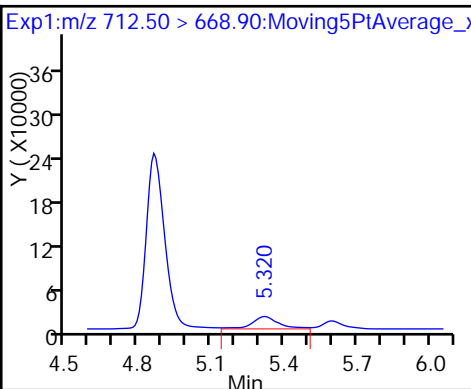
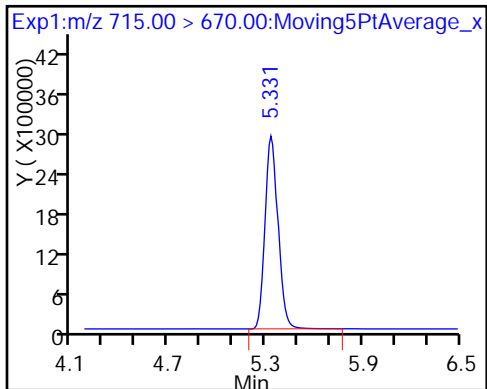
39 N-ethylperfluoro-1-octanesulfonami (ND) Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

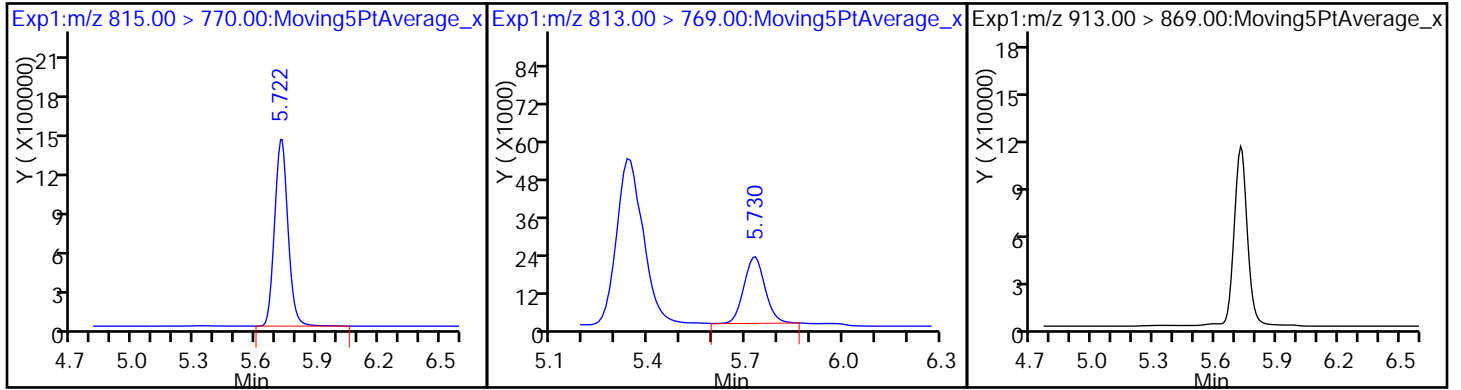
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-165234/1-A
 Matrix: Solid Lab File ID: 2017.06.07B_016.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.00(g) Date Analyzed: 06/07/2017 16:45
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.30	U	0.50	0.30	0.10
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.30	U	0.50	0.30	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.30	U	0.40	0.30	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	99		25-150
STL00991	13C4 PFOS	75		25-150
STL00994	18O2 PFHxS	91		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_016.d
 Lims ID: MB 320-165234/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 07-Jun-2017 16:45:55 ALS Bottle#: 1 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-165234/1-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 09-Jun-2017 13:31:44 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK027

First Level Reviewer: rainey Date: 07-Jun-2017 18:04:41

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.693	1.692	0.001	14588309	44.2		88.5	99391	
2 Perfluorobutyric acid	212.90 > 169.00	1.700	1.692	0.008	33545	0.1252			18.4	
D 57 d9-N-EtFOSE-M	212.90 > 169.00	1.819	1.857	-0.038	3690	NC				
D 56 d7-N-MeFOSE-M	212.90 > 169.00	1.819	1.857	-0.038	3690	NC				
D 40 d-N-EtFOSE-M	212.90 > 169.00	1.819	1.857	-0.038	3690	NC				
D 3 13C5-PFPeA	267.90 > 223.00	2.012	2.011	0.001	10030573	45.6		91.2	41854	
D 47 13C3-PFBS	301.90 > 83.00	2.051	2.051	0.0	224861	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.051	2.051	0.0	6947	0.0203				
	298.90 > 99.00	2.051	2.051	0.0	1939		3.58(0.00-0.00)			
D 7 13C2 PFHxA	315.00 > 270.00	2.345	2.345	0.0	9044699	46.9		93.8	23857	
6 Perfluorohexanoic acid	313.00 > 269.00	2.345	2.345	0.0	12792	0.0699			12.5	
D 9 13C4-PFHpA	367.00 > 322.00	2.721	2.721	0.0	9254862	52.0		104	16952	
D 11 18O2 PFHxS	403.00 > 84.00	2.730	2.730	0.0	9936475	43.1		91.1	17346	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.730	2.740	-0.010	36021	0.1565				
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	3.080	3.087	-0.007	13327					

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
* 62 13C2-PFOA	415.00	> 370.00	3.103	3.110	-0.007	7729	50.0			
15 Perfluorooctanoic acid	413.00	> 369.00	3.103	3.110	-0.007	14030	0.0739		5.0	
	413.00	> 169.00	3.103	3.110	-0.007	9557	1.47(0.90-1.10)		15.6	
D 14 13C4 PFOA	417.00	> 372.00	3.103	3.110	-0.007	8881271	49.3	98.5	16440	
D 18 13C4 PFOS	503.00	> 80.00	3.478	3.485	-0.007	6359289	35.7	74.7	14530	
D 19 13C5 PFNA	468.00	> 423.00	3.485	3.493	-0.008	7074858	46.3	92.7	21602	
20 Perfluorononanoic acid	463.00	> 419.00	3.493	3.493	0.0	2846	0.0201		5.1	
D 21 13C8 FOSA	506.00	> 78.00	3.808	3.808	0.0	2792974	9.30	18.6	6308	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.799	3.808	-0.009	4913	0.0907		29.6	
D 23 13C2 PFDA	515.00	> 470.00	3.843	3.851	-0.008	5887798	39.0	78.1	9763	
24 Perfluorodecanoic acid	513.00	> 469.00	3.851	3.851	0.0	5538	0.0494		23.8	
D 27 d3-NMeFOSAA	573.00	> 419.00	4.004	4.012	-0.008	26433	0.3002	0.0		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.012	4.012	0.0	11691	NR			
D 32 d5-NEtFOSAA	589.00	> 419.00	4.173	4.172	0.001	32799	0.3757	0.0		
D 30 13C2 PFUnA	565.00	> 520.00	4.165	4.172	-0.007	4433940	37.0	74.0	8383	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.165	4.172	-0.007	14520	0.1537		45.5	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.173	4.180	-0.007	12374	NR			
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.276	4.284	-0.008	1902	0.0215	0.0		
D 36 13C2 PFDoA	615.00	> 570.00	4.451	4.459	-0.008	4249024	34.1	68.3	5151	
37 Perfluorododecanoic acid	613.00	> 569.00	4.451	4.459	-0.008	5409	0.0666		14.1	
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.460	4.459	0.001	1936	0.0234	0.0		
41 Perfluorotridecanoic acid	663.00	> 619.00	4.710	4.716	-0.006	3798	0.0447		8.1	
D 43 13C2-PFTeDA	715.00	> 670.00	4.947	4.954	-0.007	8800863	34.2	68.5	15131	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.940	4.954	-0.014	1.000	31697	0.1358			33.8	
713.00 > 169.00	4.947	4.954	-0.007	1.001	4661		6.80(0.00-0.00)		82.5	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.355	5.363	-0.008		4434820	32.4		64.8	4508	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.355	5.371	-0.016	1.000	60814	-0.0434			67.8	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.730	5.737	-0.007	1.000	7595	0.1010			14.2	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_016.d

Injection Date: 07-Jun-2017 16:45:55

Instrument ID: A8_N

Lims ID: MB 320-165234/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

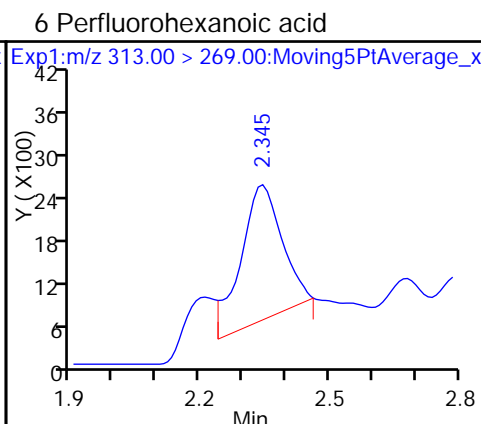
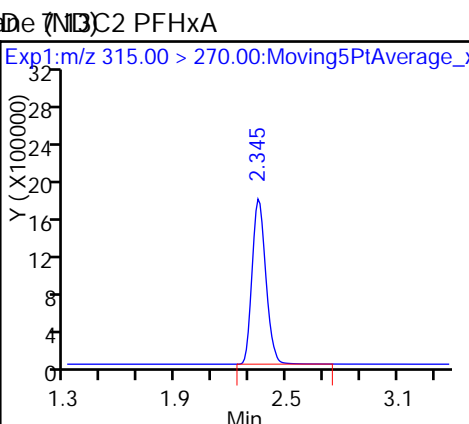
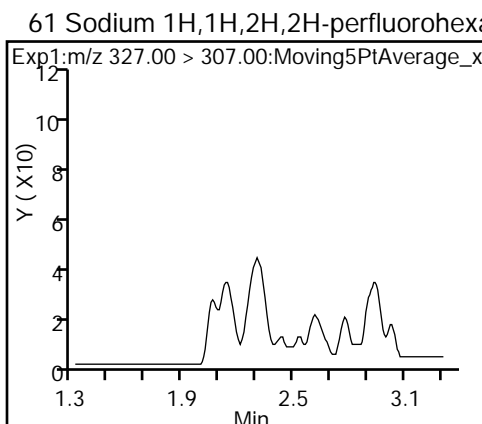
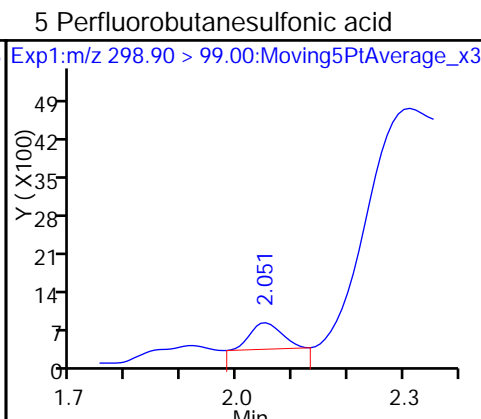
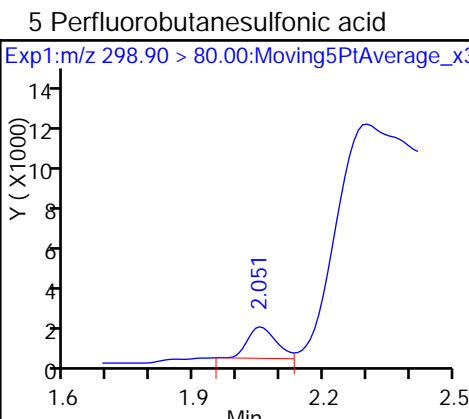
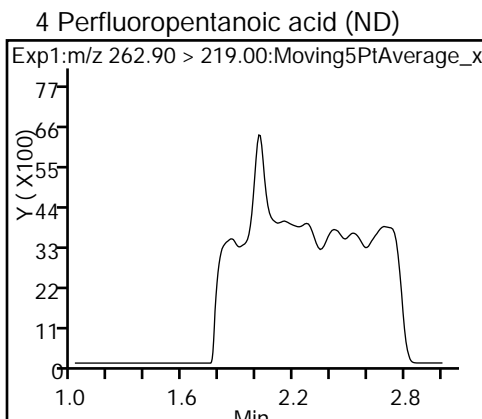
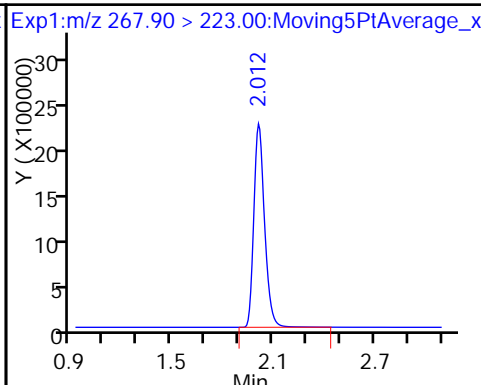
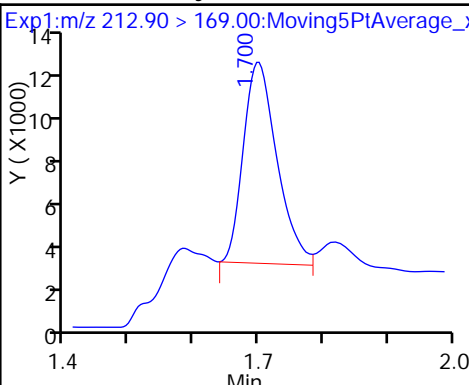
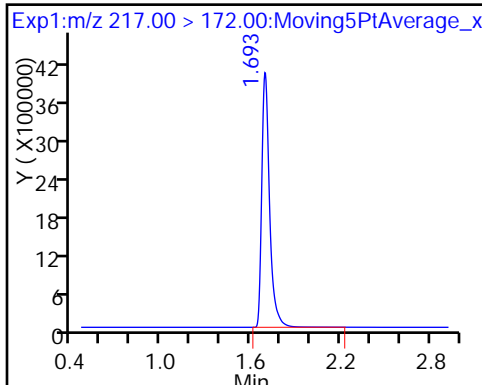
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

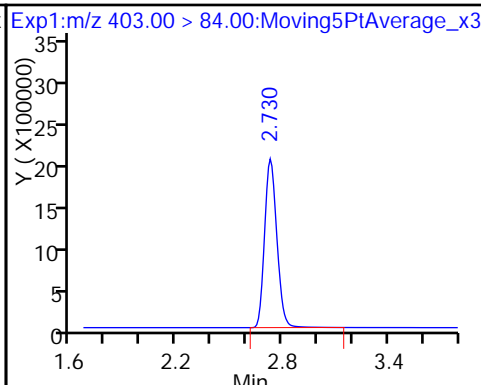
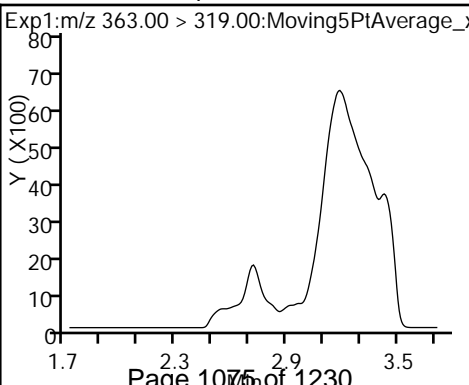
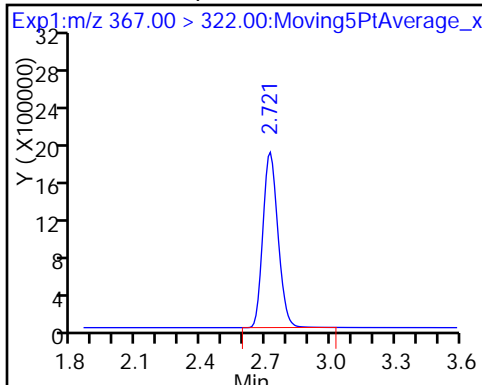
D 3 13C5-PFPeA



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid (ND)

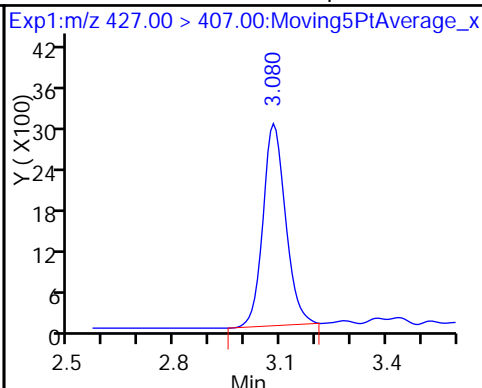
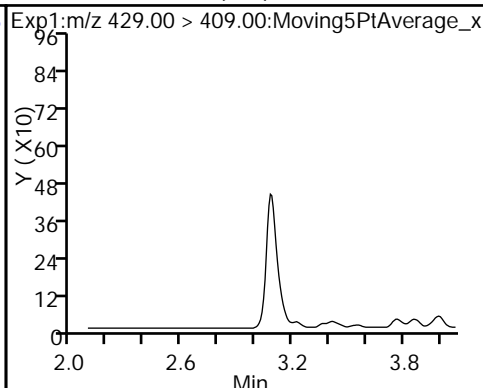
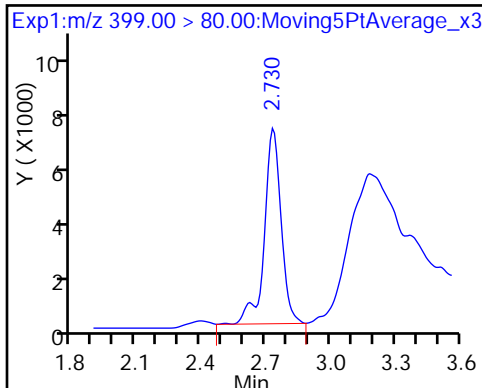
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS (ND)

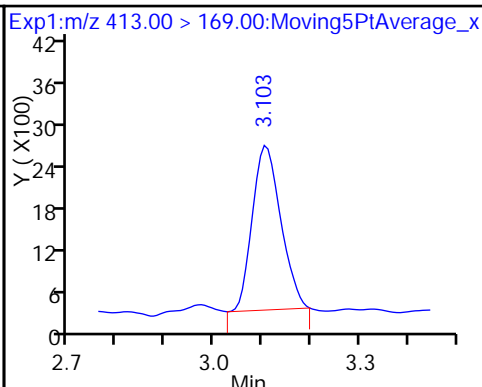
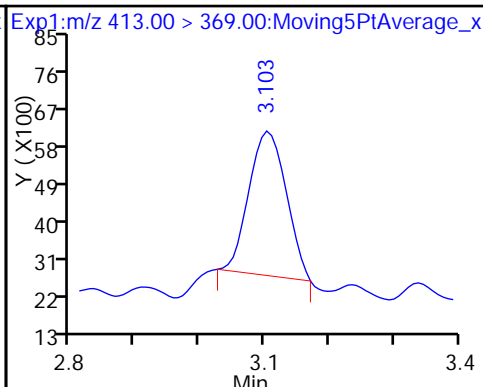
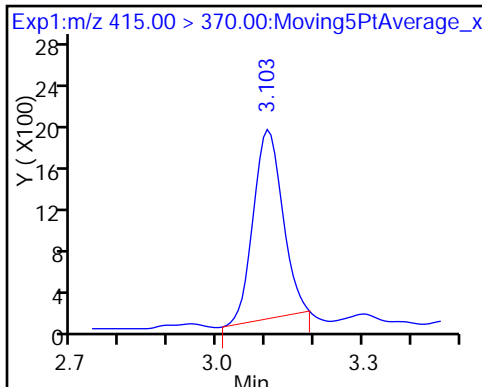
13 Sodium 1H,1H,2H,2H-perfluorooctane



* 62 13C2-PFOA

15 Perfluorooctanoic acid

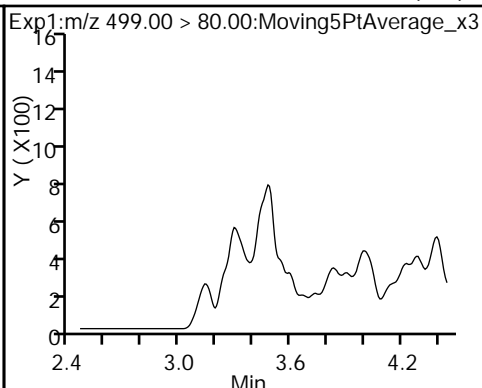
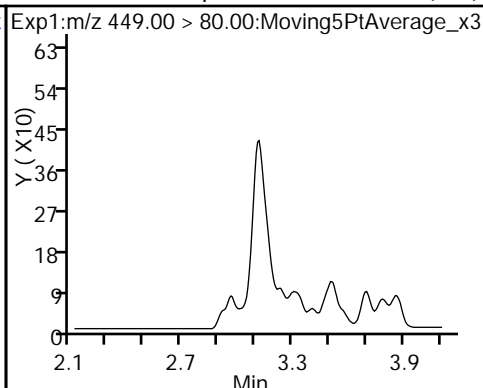
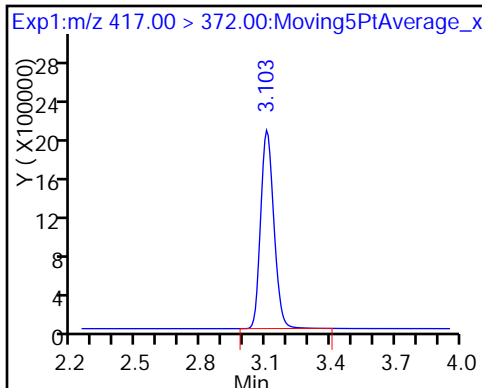
15 Perfluorooctanoic acid



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic Acid (ND)

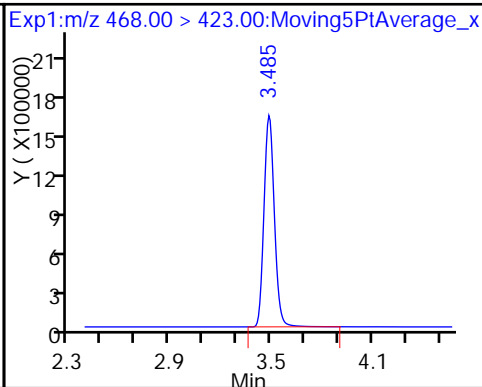
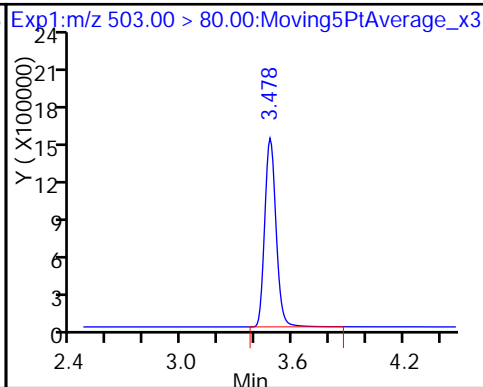
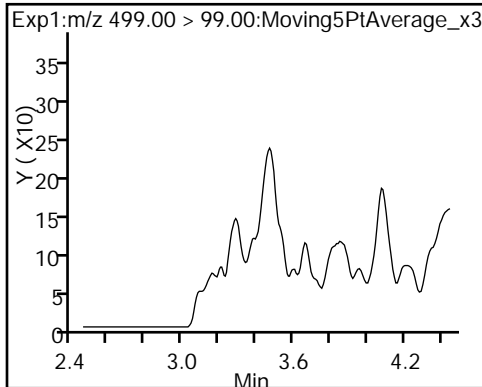
17 Perfluorooctane sulfonic acid (ND)

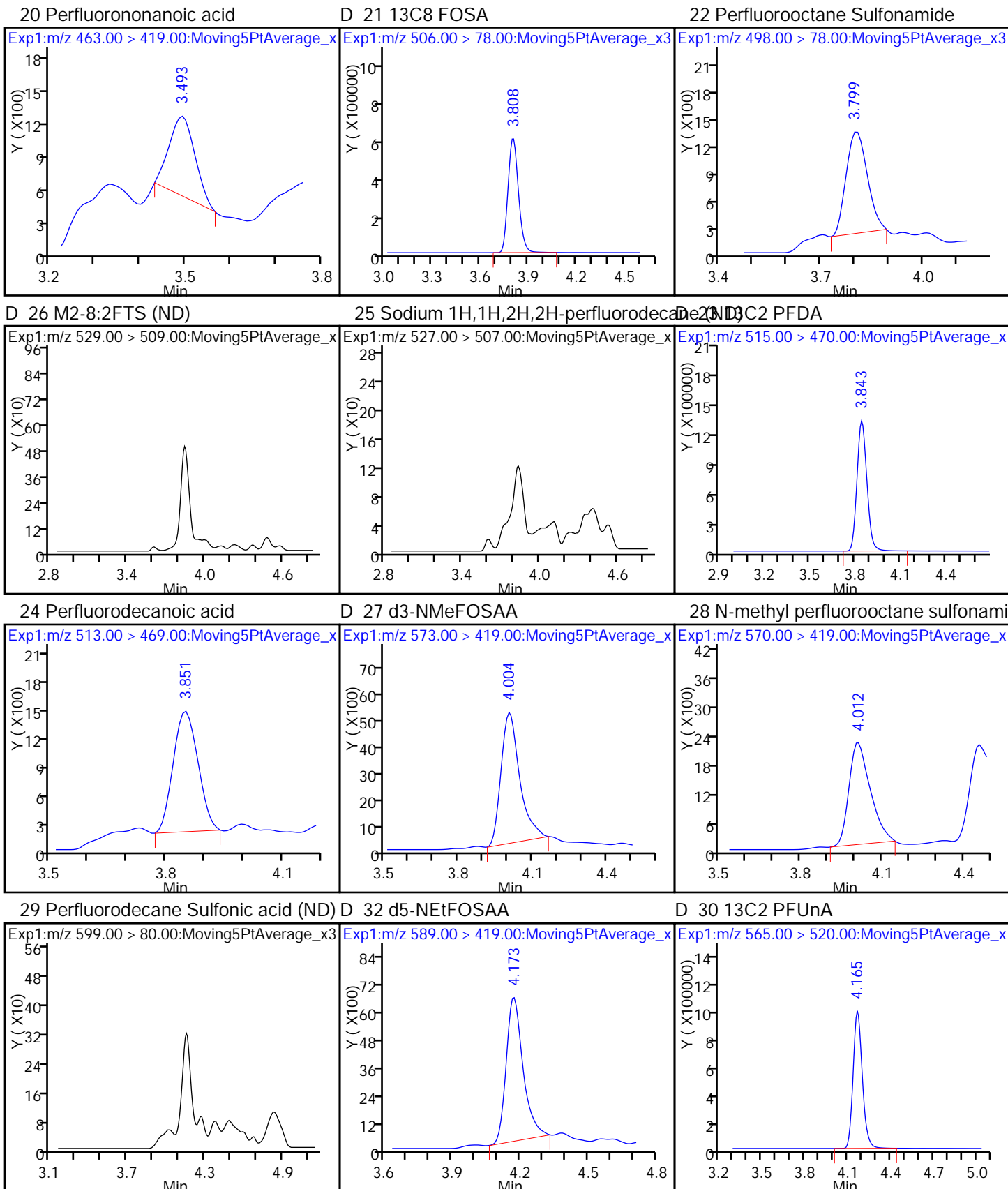


17 Perfluorooctane sulfonic acid (ND)

D 18 13C4 PFOS

D 19 13C5 PFNA

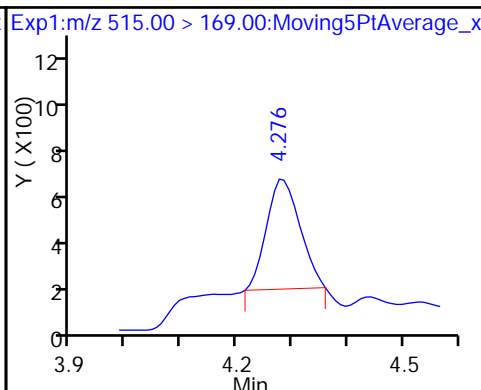
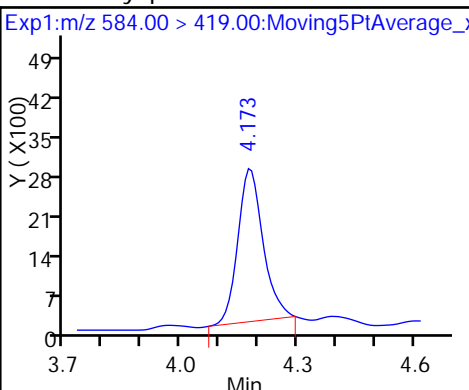
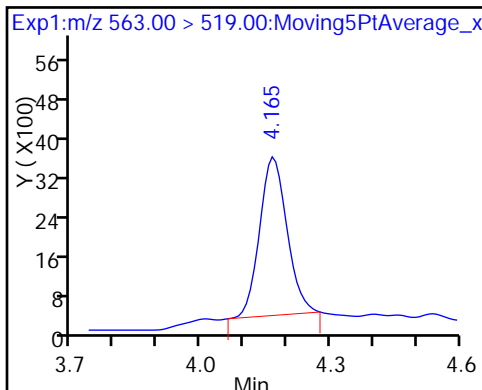




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid D

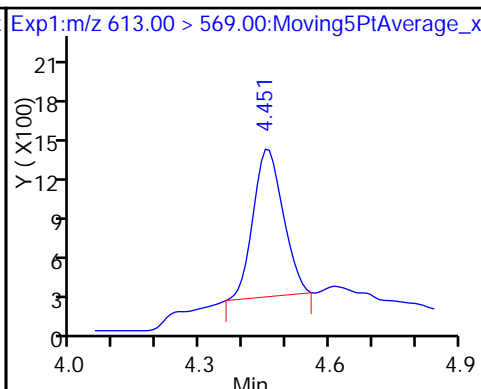
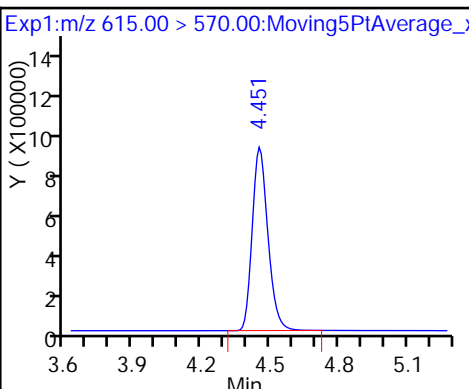
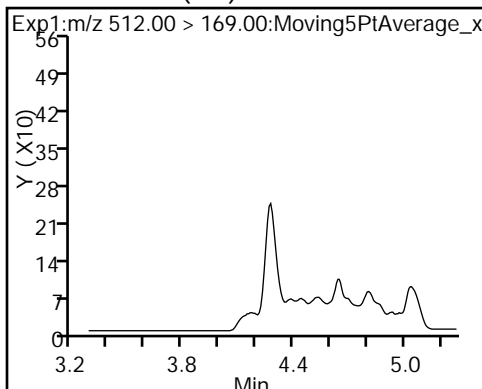
34 d-N-MeFOSA-M



35 MeFOSA (ND)

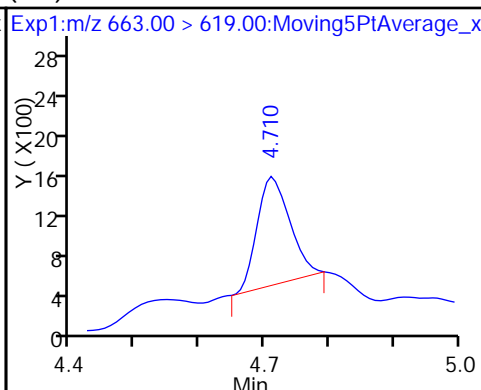
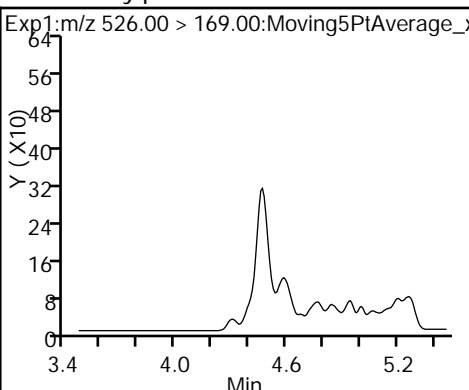
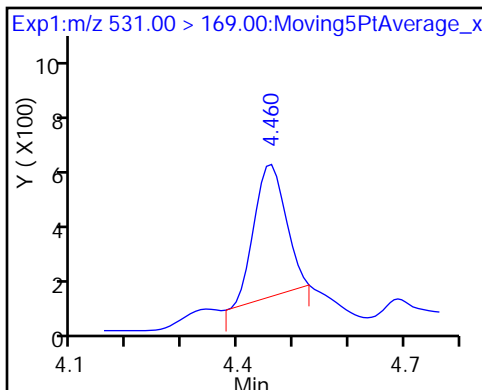
D 36 13C2 PFDaA

37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

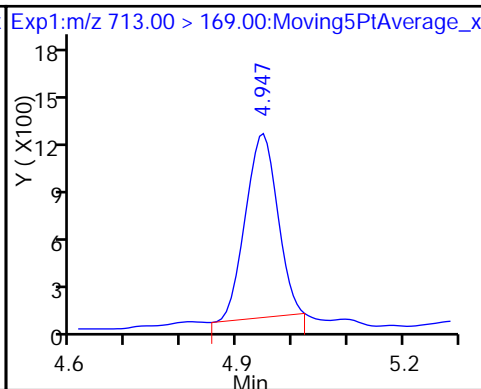
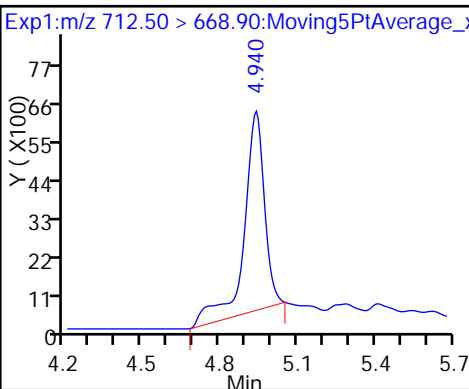
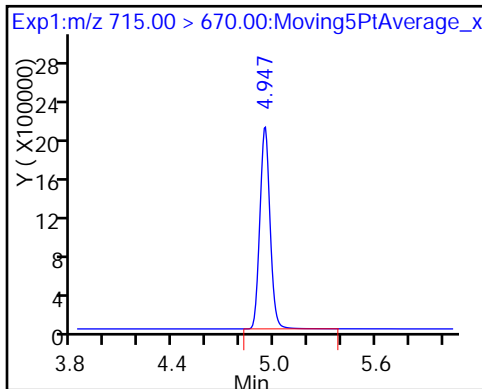
39 N-ethylperfluoro-1-octanesulfonami (ND)Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

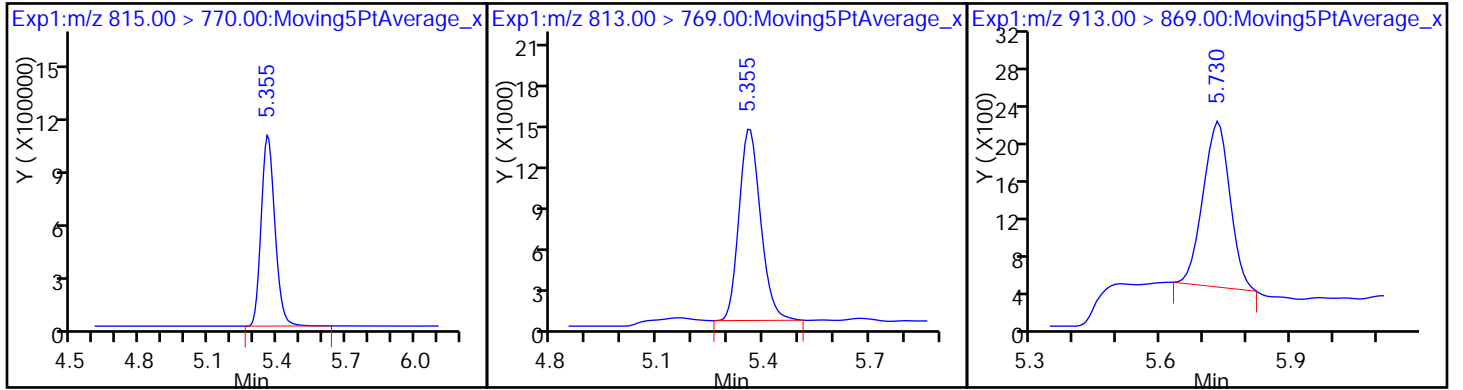
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-165287/1-A
 Matrix: Solid Lab File ID: 2017.05.24C_032.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.00(g) Date Analyzed: 05/24/2017 21:43
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.30	U	0.50	0.30	0.10
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.30	U	0.50	0.30	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.30	U	0.40	0.30	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	103		25-150
STL00991	13C4 PFOS	83		25-150
STL00994	18O2 PFHxS	84		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_032.d
 Lims ID: MB 320-165287/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 24-May-2017 21:43:03 ALS Bottle#: 26 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-165287/1-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:02:54 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:48:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid										
212.90 > 169.00	1.985	1.993	-0.008	1.000	51985	0.1571			21.1	
D 1 13C4 PFBA										
217.00 > 172.00	1.985	1.993	-0.008		16487945	44.2		88.5	291854	
D 3 13C5-PFPeA										
267.90 > 223.00	2.349	2.348	0.001		10858350	44.1		88.1	267192	
D 47 13C3-PFBS										
301.90 > 83.00	2.389	2.388	0.001		266008	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.389	2.388	0.001	1.000	8394	0.0196				
298.90 > 99.00	2.389	2.388	0.001	1.000	4169		2.01(0.00-0.00)			
6 Perfluorohexanoic acid										
313.00 > 269.00	2.728	2.728	0.0	1.000	11127	0.0503			15.4	
D 7 13C2 PFHxA										
315.00 > 270.00	2.728	2.728	0.0		10684847	43.7		87.4	50067	
D 9 13C4-PFHpA										
367.00 > 322.00	3.125	3.122	0.003		11667409	52.2		104	109646	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.133	3.131	0.002	1.000	49325	0.1506				
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.125	3.131	-0.006	1.000	2475	0.009674			3.6	
D 11 18O2 PFHxS										
403.00 > 84.00	3.133	3.131	0.002		12801728	39.7		84.0	299119	
D 12 M2-6:2FTS										
429.00 > 409.00	3.496	3.500	-0.004		3465	0.0264		0.0		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	3.503	3.500	0.003	1.000	28098	NR				
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.524	3.515	0.009	1.000	6382	0.0239				

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
* 62 13C2-PFOA	415.00	> 370.00	3.517	3.523	-0.006	12634	49.5			
15 Perfluorooctanoic acid	413.00	> 369.00	3.517	3.523	-0.006	1.000	21006	0.0802		3.1
	413.00	> 169.00	3.517	3.523	-0.006	1.000	12819	1.64(0.90-1.10)		55.1
D 14 13C4 PFOA	417.00	> 372.00	3.517	3.523	-0.006	11663317	51.4		103	49787
D 18 13C4 PFOS	503.00	> 80.00	3.890	3.887	0.003	9347441	39.8		83.3	20960
D 19 13C5 PFNA	468.00	> 423.00	3.898	3.905	-0.007	9116906	52.3		105	24570
20 Perfluorononanoic acid	463.00	> 419.00	3.898	3.905	-0.007	1.000	9691	0.0489		11.5
D 21 13C8 FOSA	506.00	> 78.00	4.217	4.215	0.002	5648527	15.4		30.7	14053
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.217	4.224	-0.007	1.000	25031	0.2114		147
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.252	4.245	0.007	1.002	4628	NR		
D 23 13C2 PFDA	515.00	> 470.00	4.243	4.245	-0.002	7677317	51.3		103	9615
D 26 M2-8:2FTS	529.00	> 509.00	4.243	4.245	-0.002	6005	0.0603		0.0	
24 Perfluorodecanoic acid	513.00	> 469.00	4.243	4.255	-0.012	1.000	15237	0.0975		43.6
D 27 d3-NMeFOSAA	573.00	> 419.00	4.407	4.401	0.006	40831	0.6186		0.0	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	4.407	4.412	-0.005	1.000	37191	NR		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.532	4.529	0.003	1.000	5945	0.0438		
31 Perfluoroundecanoic acid	563.00	> 519.00	4.552	4.558	-0.006	1.000	26745	0.2034		59.5
D 32 d5-NEtFOSAA	589.00	> 419.00	4.562	4.558	0.004	42712	0.6646		0.0	
D 30 13C2 PFUnA	565.00	> 520.00	4.552	4.558	-0.006	5598290	49.9		99.8	11944
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	4.562	4.568	-0.006	1.000	29096	NR		
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.677	4.682	-0.005	2821	0.0285		0.0	
35 MeFOSA	512.00	> 169.00	4.684	4.691	-0.007	1.000	3308	NR		
D 36 13C2 PFDaA	615.00	> 570.00	4.828	4.834	-0.006	4937349	45.3		90.7	5254
37 Perfluorododecanoic acid	613.00	> 569.00	4.828	4.834	-0.006	1.000	13923	0.1390		1.2

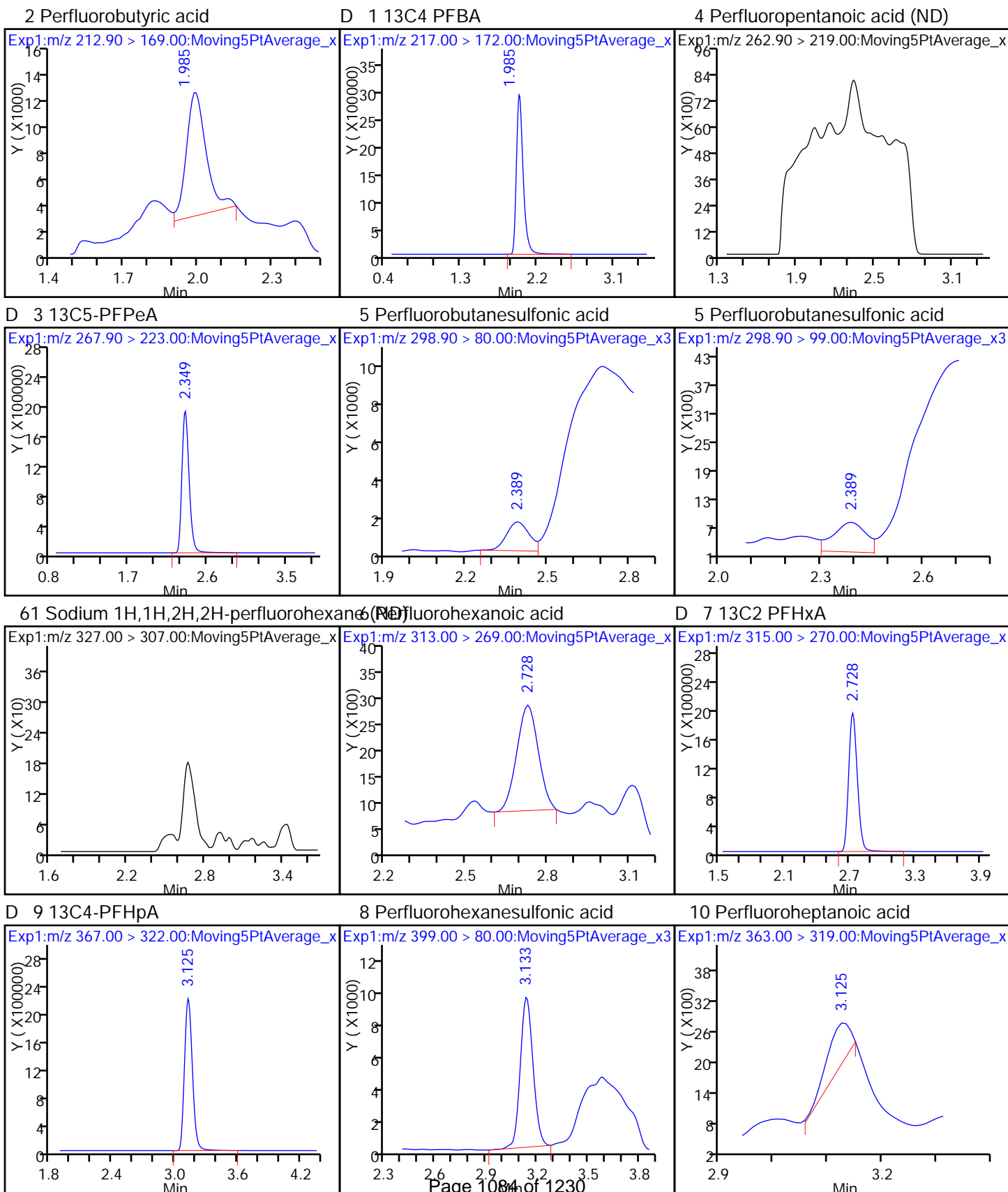
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.846	4.853	-0.007		3201	0.0334		0.0		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.855	4.853	0.002	1.000	3192	NR				
41 Perfluorotridecanoic acid										
663.00 > 619.00	5.080	5.082	-0.002	1.000	11790	0.1189			0.8	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	5.278	5.295	-0.017	1.000	137278	0.6095			3.2	
713.00 > 169.00	5.293	5.295	-0.002	1.003	8286		16.57(0.00-0.00)		45.5	
D 43 13C2-PFTeDA										
715.00 > 670.00	5.293	5.295	-0.002		8791213	40.8		81.6	8473	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.689	5.696	-0.007		2048488	17.0		34.1	1164	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.689	5.696	-0.007	1.000	40105	-0.2874			3.4	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	6.091	6.087	0.004	1.000	22442	0.1803			2.2	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

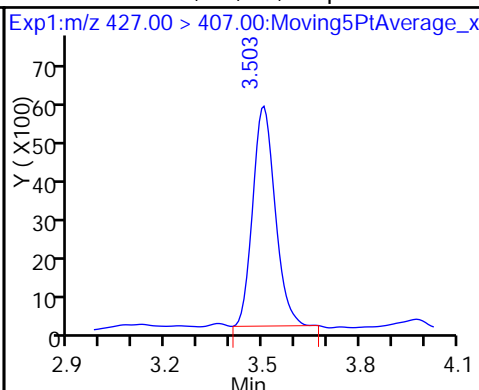
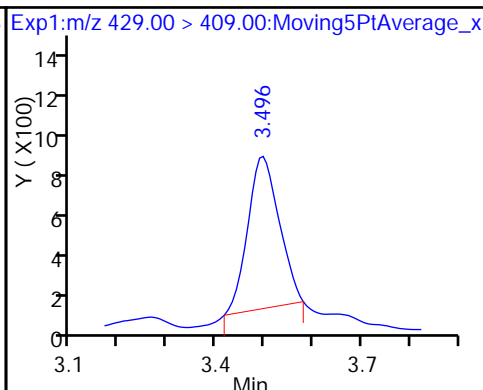
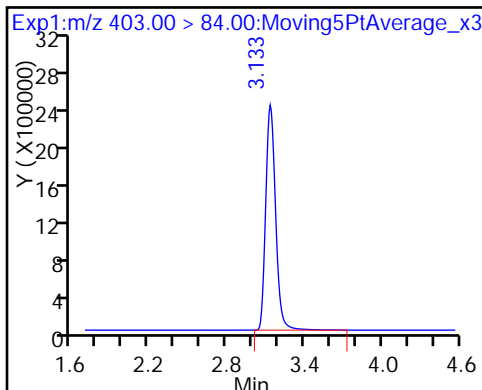
NC - Not Calibrated



D 11 18O2 PFHxS

D 12 M2-6:2FTS

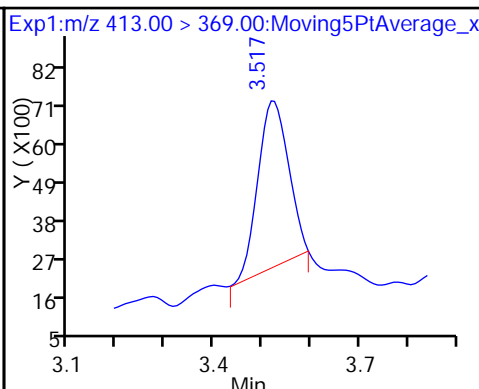
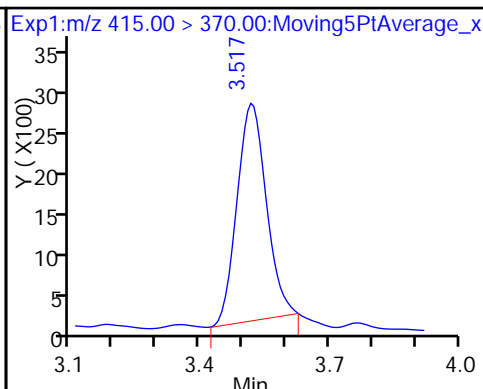
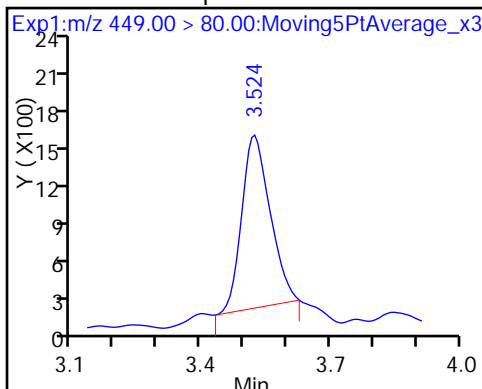
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

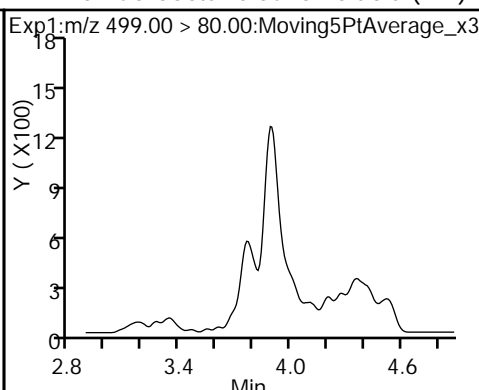
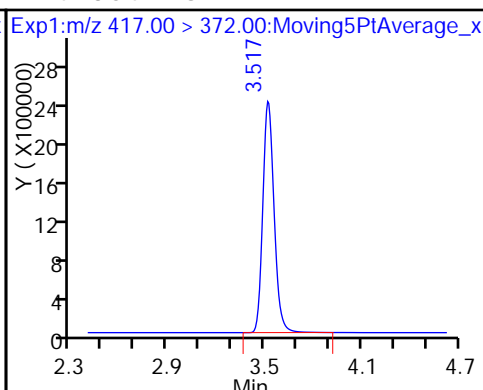
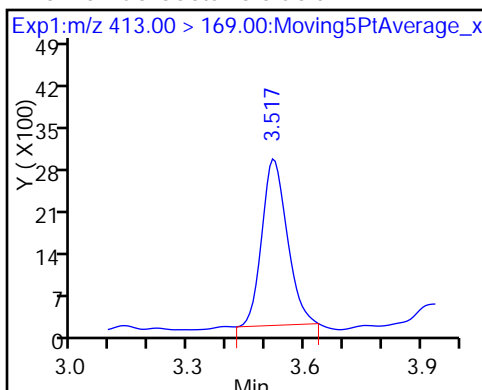
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

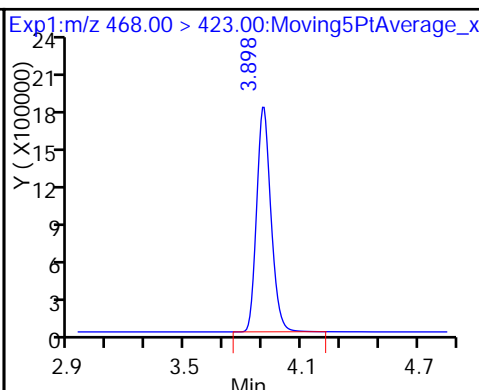
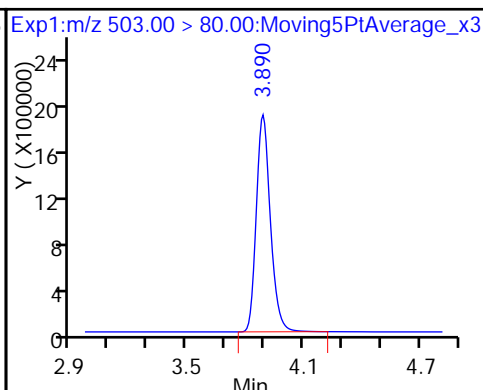
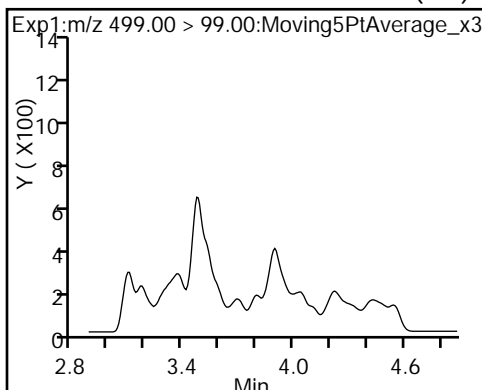
17 Perfluorooctane sulfonic acid (ND)

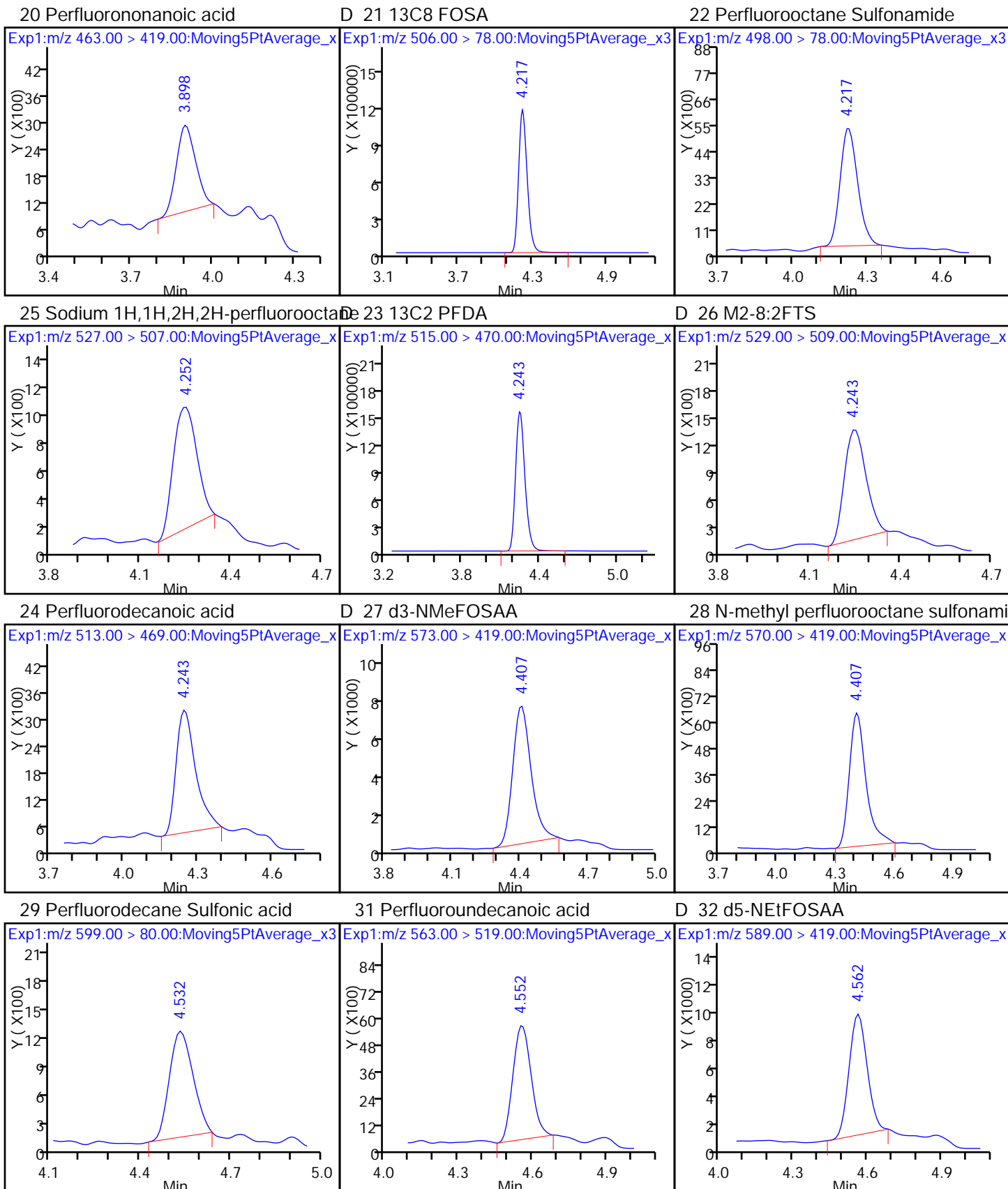


17 Perfluorooctane sulfonic acid (ND)

D 18 13C4 PFOS

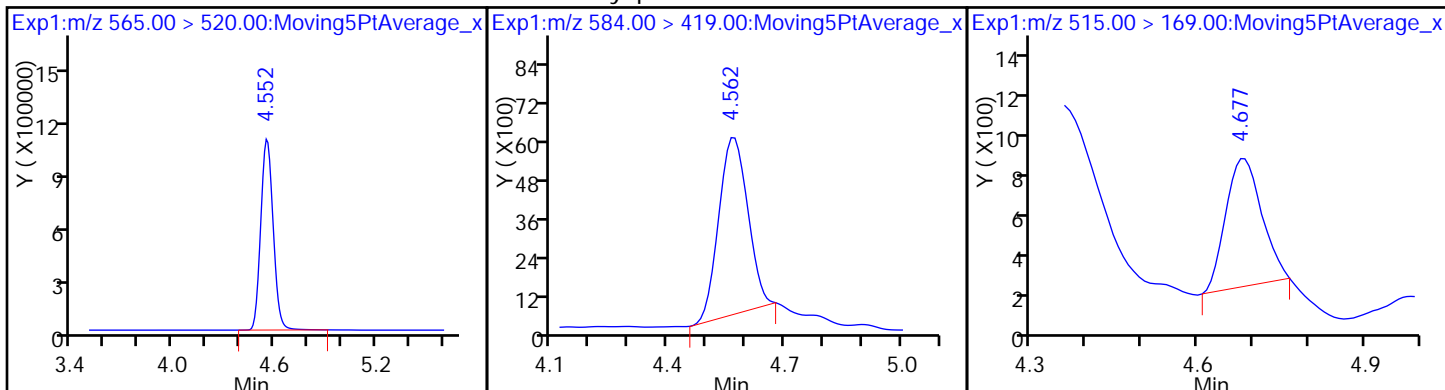
D 19 13C5 PFNA





D 30 13C2 PFUnA

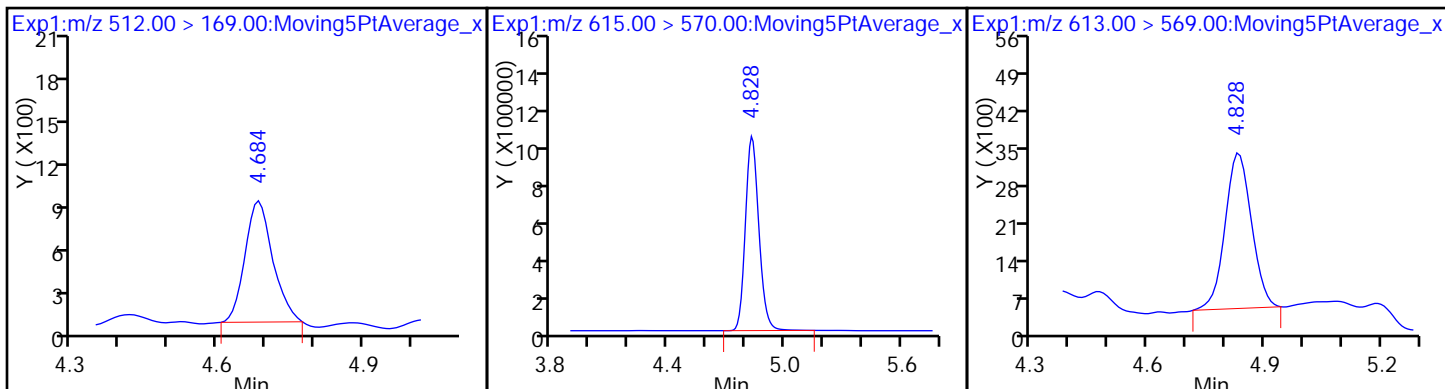
33 N-ethyl perfluorooctane sulfonamid D 34 d-N-MeFOSA-M



35 MeFOSA

D 36 13C2 PFDaA

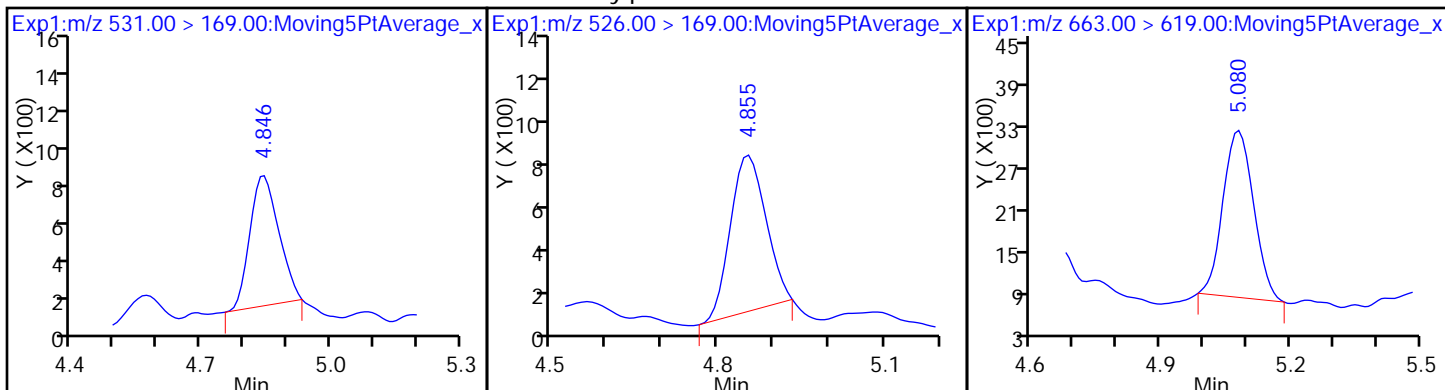
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami

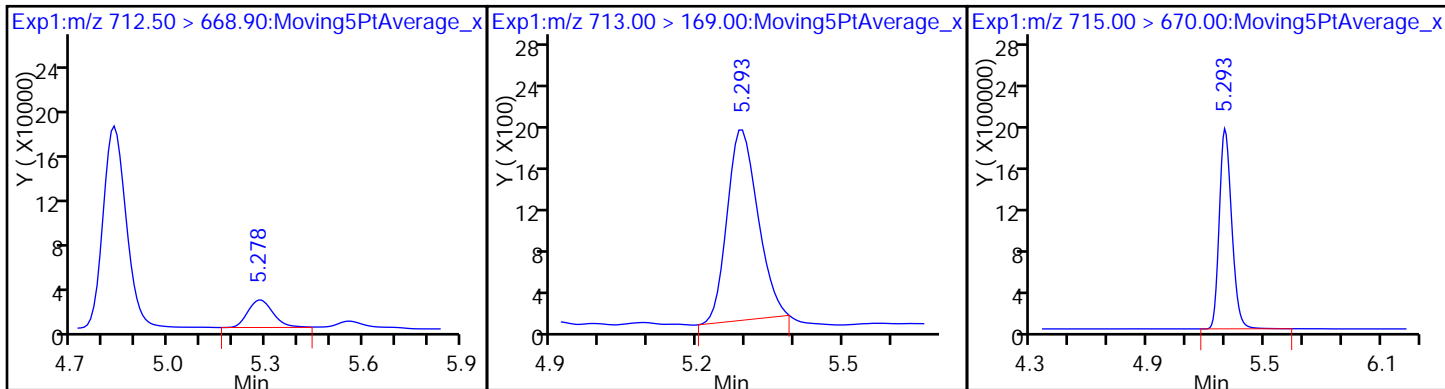
41 Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

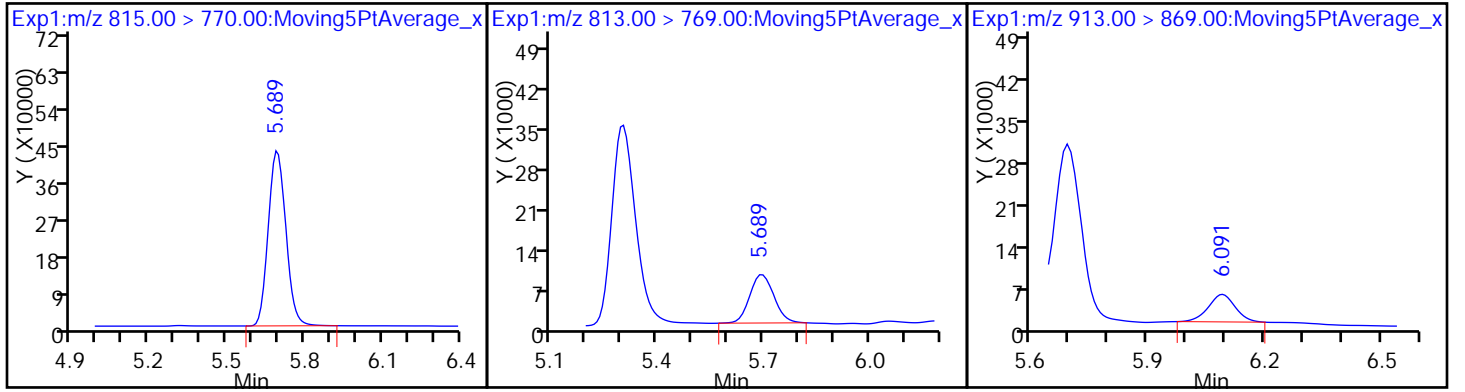
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 320-165207/2-A
 Matrix: Water Lab File ID: 2017.05.19B_003.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 05/18/2017 17:41
 Sample wt/vol: 250.00 (mL) Date Analyzed: 05/20/2017 05:57
 Con. Extract Vol.: 0.50 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165487 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	38.4		2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	35.4		4.0	3.0	1.3
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36.6		2.5	2.0	0.92

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	117		25-150
STL00991	13C4 PFOS	106		25-150
STL00994	18O2 PFHxS	107		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_003.d
 Lims ID: LCS 320-165207/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 20-May-2017 05:57:12 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-165207/2-
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 12:21:50 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK016

First Level Reviewer: chandrasenas Date: 22-May-2017 11:59:41

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.043	2.059	-0.016	19666798	52.6		105	120351	
2 Perfluorobutyric acid	212.90 > 169.00	2.043	2.059	-0.016	1.000	8309719	21.3	106	1988	
D 3 13C5-PFPeA	267.90 > 223.00	2.399	2.419	-0.020	13481510	54.0		108	126020	
4 Perfluoropentanoic acid	262.90 > 219.00	2.399	2.419	-0.020	1.000	5432966	18.5	92.4	1015	
D 47 13C3-PFBS	301.90 > 83.00	2.439	2.459	-0.020	334161	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.439	2.459	-0.020	1.000	9435932	18.3	103		
	298.90 > 99.00	2.439	2.459	-0.020	1.000	3776229	2.50(0.00-0.00)			
D 7 13C2 PFHxA	315.00 > 270.00	2.781	2.801	-0.019	13356448	53.2		106	236495	
6 Perfluorohexanoic acid	313.00 > 269.00	2.781	2.801	-0.019	1.000	5175023	18.8	94.1	6231	
D 9 13C4-PFHpA	367.00 > 322.00	3.181	3.205	-0.024	12695214	57.0		114	194108	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.181	3.205	-0.024	1.000	5340822	19.3	96.5	1925	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.189	3.205	-0.016	1.000	7030622	17.0	93.6		
D 11 18O2 PFHxS	403.00 > 84.00	3.189	3.213	-0.024	15951080	50.6		107	268344	
16 Perfluoroheptanesulfonic Acid	449.00 > 80.00	3.572	3.590	-0.018	1.000	6817417	20.7	109		
D 14 13C4 PFOA	417.00 > 372.00	3.572	3.598	-0.026	13257378	58.6		117	57172	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	3.572	3.598	-0.026	1.000	5774115	19.2		96.1	574	
413.00 > 169.00	3.572	3.598	-0.026	1.000	3244146		1.78(0.90-1.10)		9765	
D 18 13C4 PFOS										
503.00 > 80.00	3.935	3.959	-0.024		12051212	50.8		106	29746	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.935	3.959	-0.024	1.000	5151527	17.7		95.5	8717	
499.00 > 99.00	3.935	3.959	-0.024	1.000	1135979		4.53(0.90-1.10)		2391	
D 19 13C5 PFNA										
468.00 > 423.00	3.956	3.981	-0.025		10187205	55.5		111	39406	
20 Perfluorononanoic acid										
463.00 > 419.00	3.956	3.981	-0.025	1.000	4276709	19.3		96.6	3922	
D 21 13C8 FOSA										
506.00 > 78.00	4.267	4.294	-0.027		2250847	6.10		12.2	16229	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	4.267	4.294	-0.027	1.000	945214	19.6		98.0	7042	
D 23 13C2 PFDA										
515.00 > 470.00	4.286	4.316	-0.030		9399620	59.7		119	7642	
24 Perfluorodecanoic acid										
513.00 > 469.00	4.286	4.316	-0.030	1.000	3513531	18.5		92.3	6432	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.570	4.596	-0.026	1.000	3258047	19.4		101		
D 30 13C2 PFUnA										
565.00 > 520.00	4.598	4.624	-0.026		6908145	59.7		119	14525	
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.598	4.624	-0.026	1.000	2928351	18.2		90.8	10442	
D 36 13C2 PFDaA										
615.00 > 570.00	4.865	4.897	-0.032		6824861	58.4		117	9447	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.865	4.897	-0.032	1.000	2777029	20.0		99.8	163	
41 Perfluorotridecanoic acid										
663.00 > 619.00	5.109	5.143	-0.034	1.000	2956800	22.0		110	180	
D 43 13C2-PFTeDA										
715.00 > 670.00	5.337	5.360	-0.023		16302047	71.2		142	13608	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	5.337	5.360	-0.023	1.000	6718904	22.2		111	138	
713.00 > 169.00	5.326	5.360	-0.034	0.998	912567		7.36(0.00-0.00)		3886	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.721	5.753	-0.032		6700570	52.3		105	5080	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.730	5.753	-0.023	1.000	2627145	18.0		90.1	221	

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_003.d

Injection Date: 20-May-2017 05:57:12

Instrument ID: A8_N

Lims ID: LCS 320-165207/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

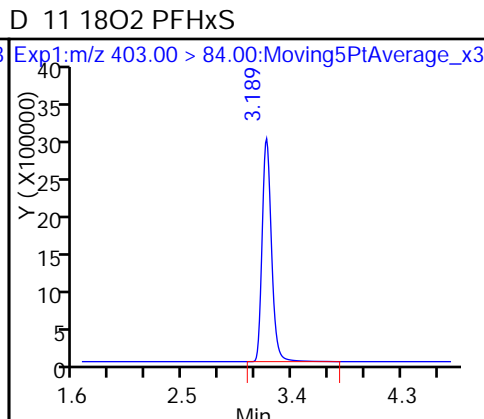
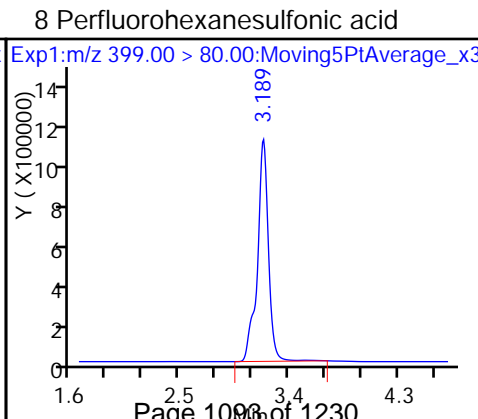
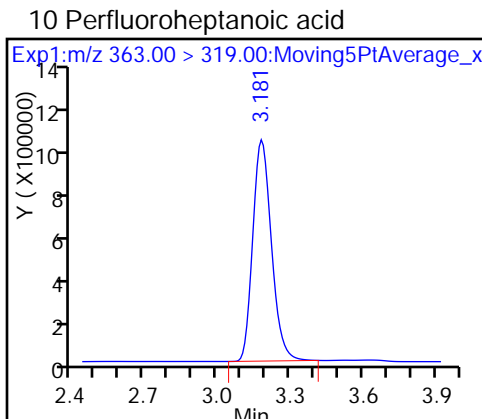
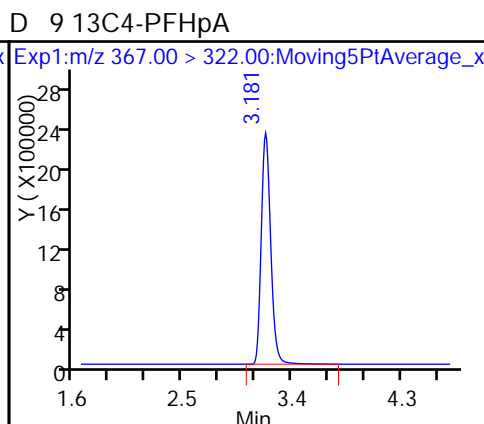
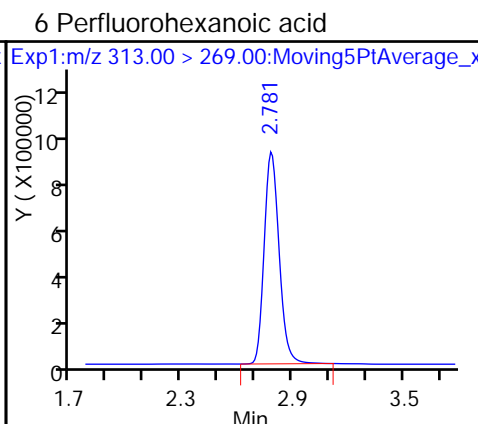
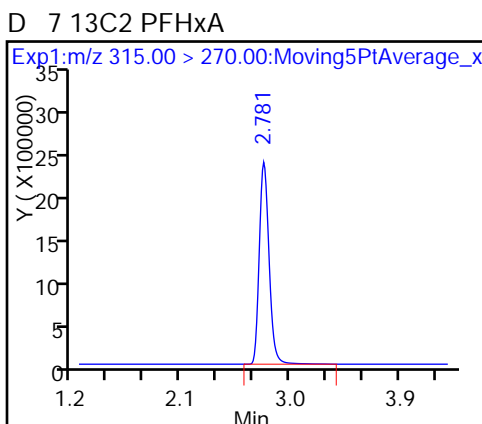
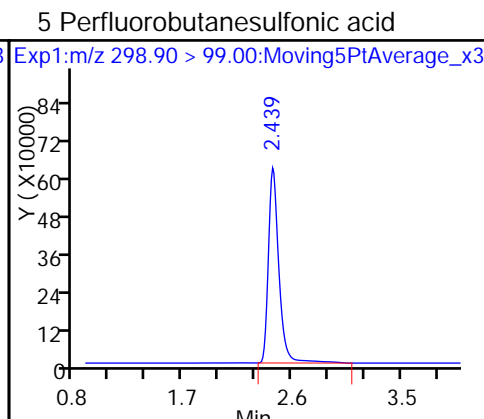
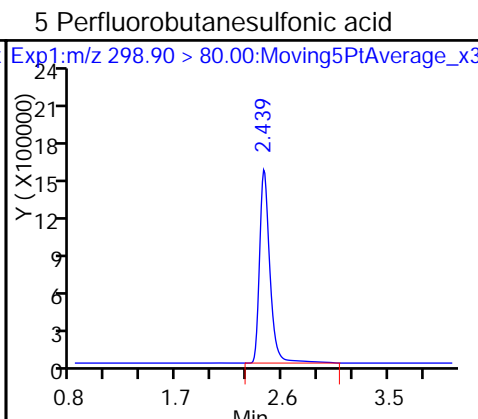
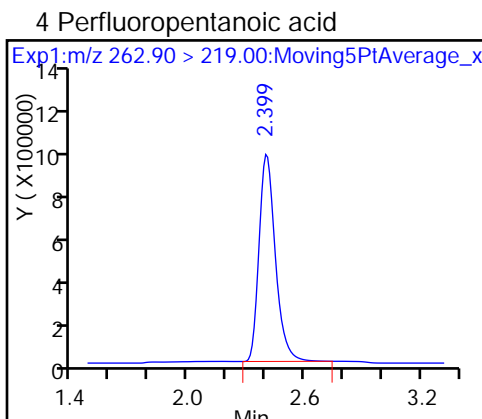
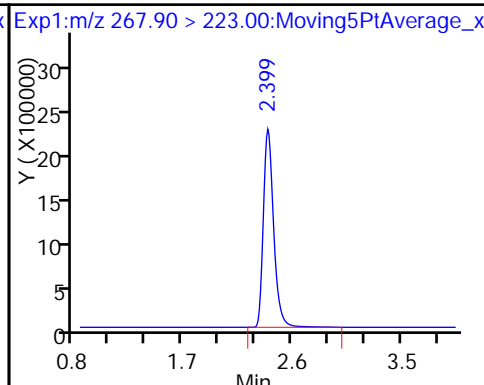
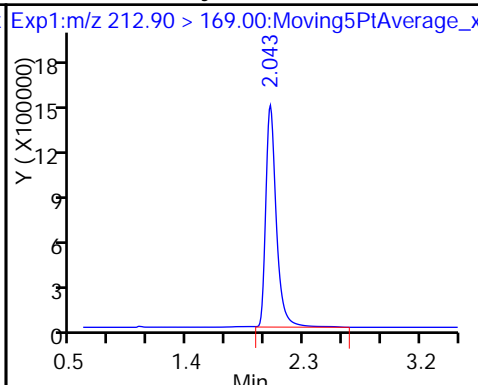
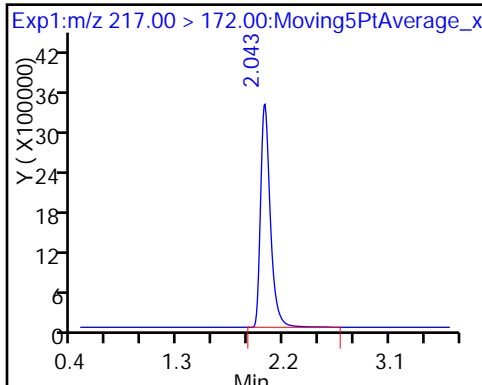
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

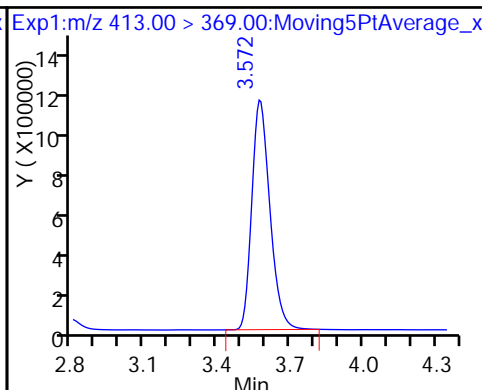
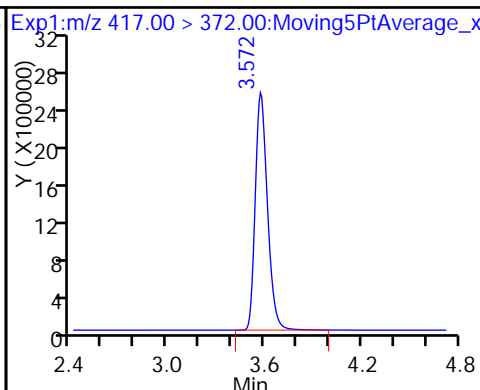
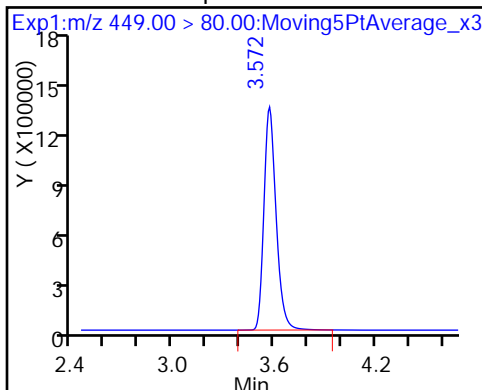
D 3 13C5-PFPeA



16 Perfluoroheptanesulfonic Acid

D 14 13C4 PFOA

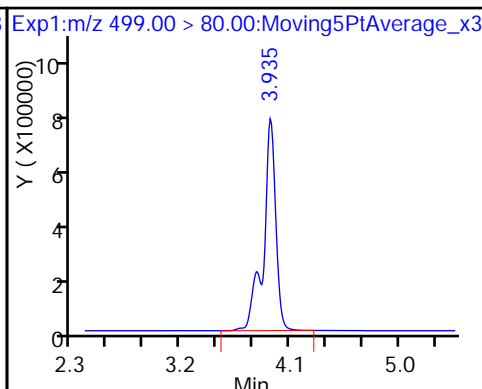
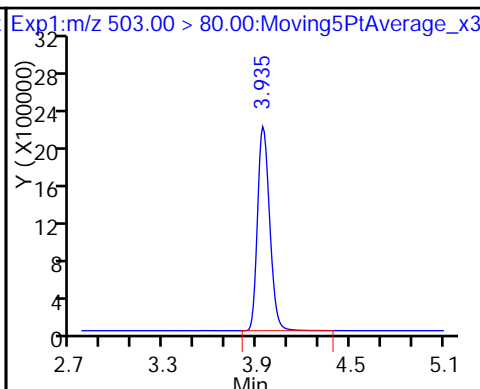
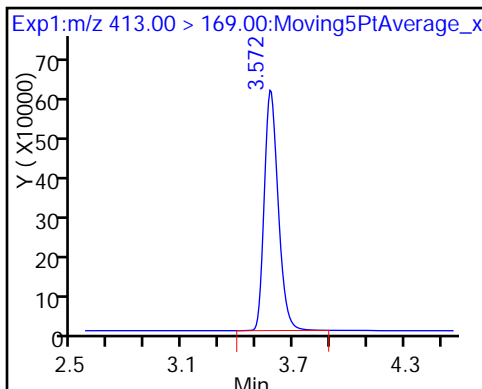
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 18 13C4 PFOS

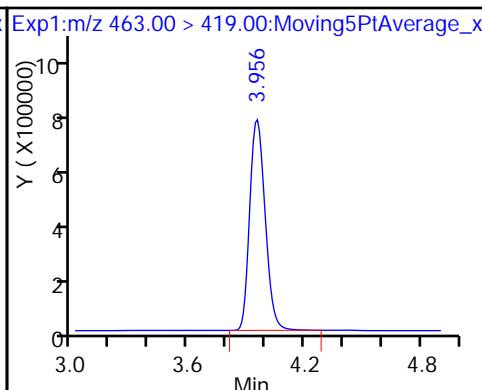
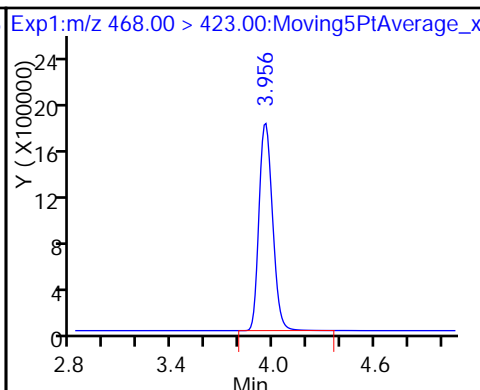
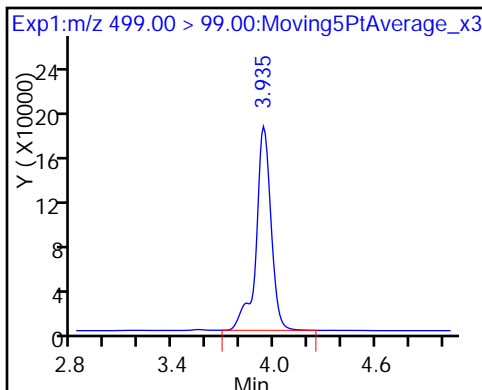
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

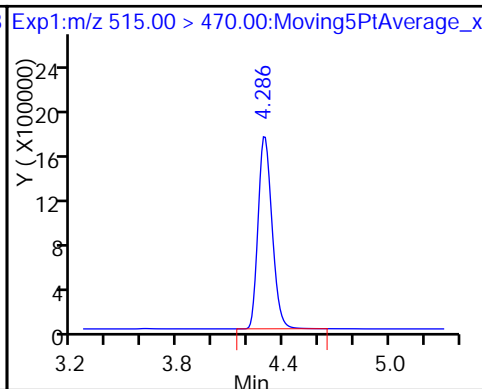
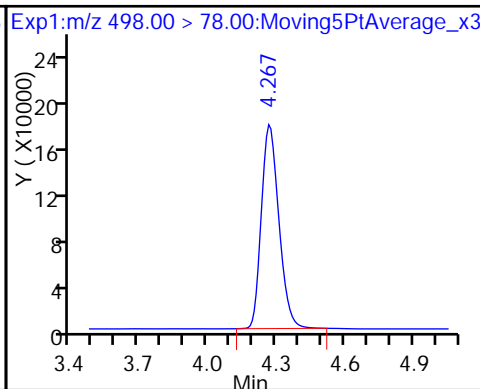
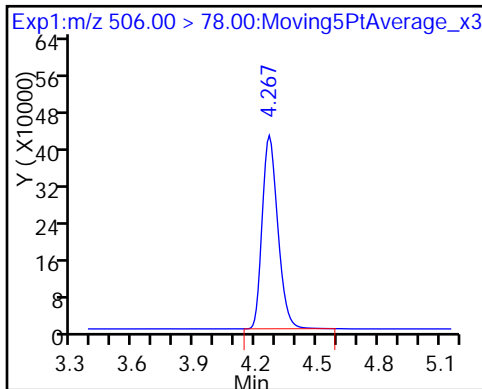
20 Perfluorononanoic acid



D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide

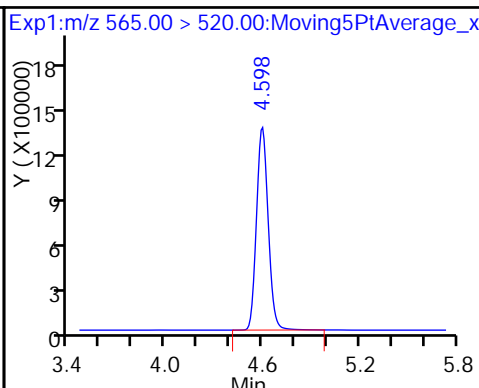
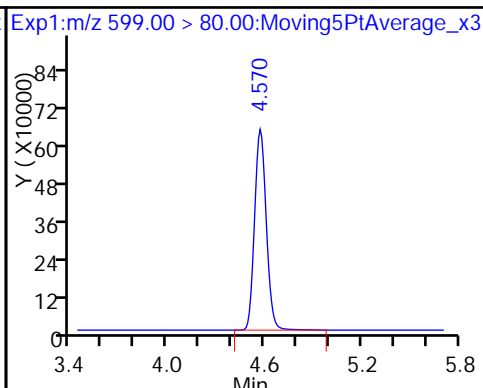
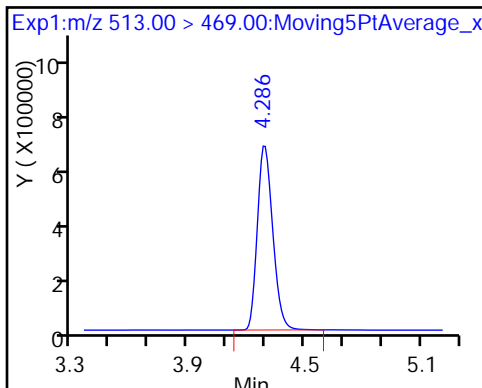
D 23 13C2 PFDA



24 Perfluorodecanoic acid

29 Perfluorodecane Sulfonic acid

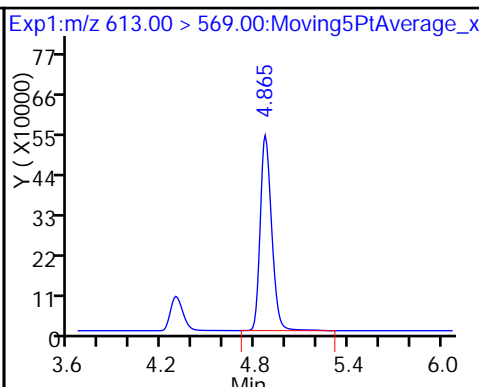
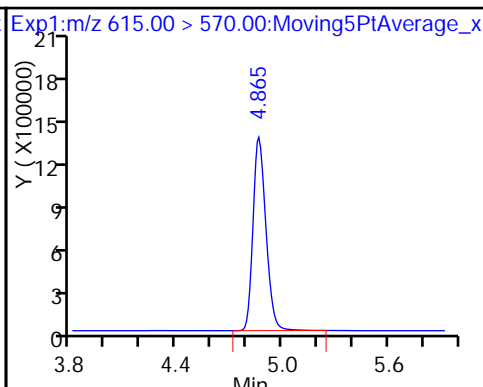
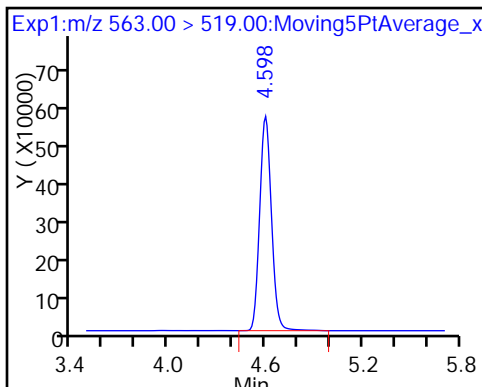
D 30 13C2 PFUnA



31 Perfluoroundecanoic acid

D 36 13C2 PFDaA

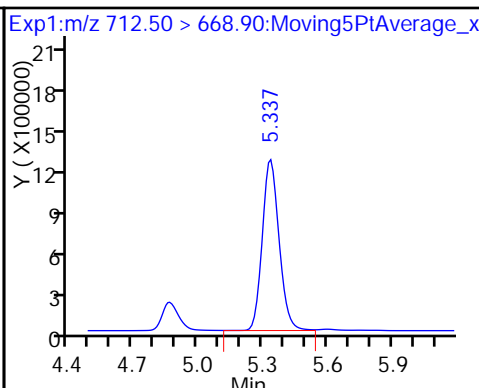
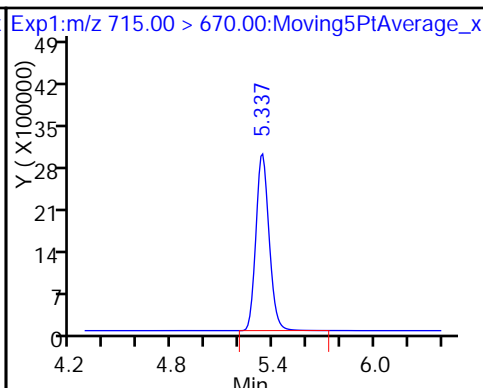
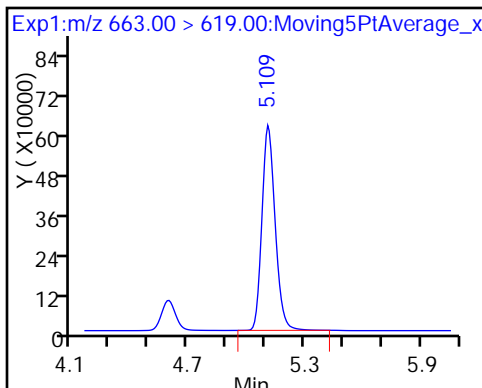
37 Perfluorododecanoic acid



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

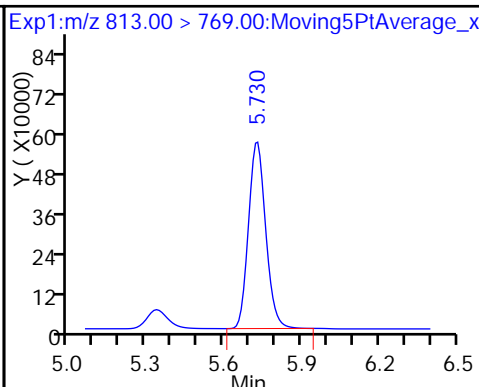
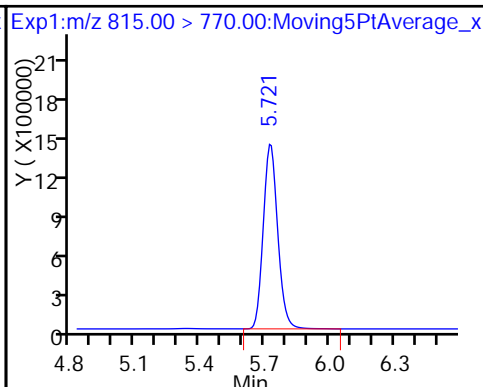
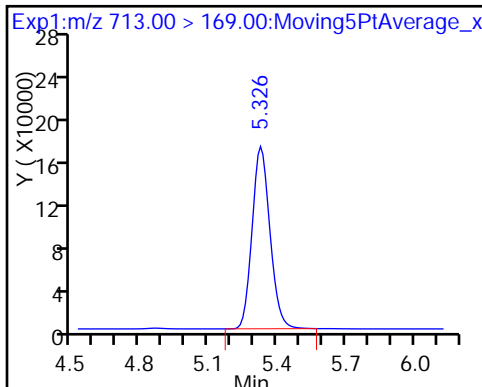
42 Perfluorotetradecanoic acid



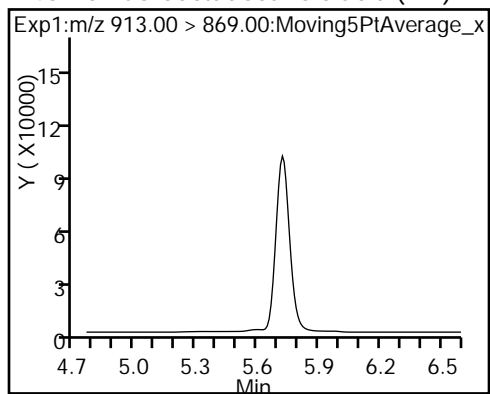
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid (ND)



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 320-165234/2-A
 Matrix: Solid Lab File ID: 2017.06.07B_017.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.00(g) Date Analyzed: 06/07/2017 16:53
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	4.15		0.50	0.30	0.10
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	4.08		0.50	0.30	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	4.01		0.40	0.30	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	95		25-150
STL00991	13C4 PFOS	74		25-150
STL00994	18O2 PFHxS	87		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_017.d
 Lims ID: LCS 320-165234/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 07-Jun-2017 16:53:37 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-165234/2-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 09-Jun-2017 13:31:44 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK027

First Level Reviewer: rainey Date: 07-Jun-2017 18:06:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00	> 172.00	1.688	1.692	-0.004	14567264	44.2	88.4	146094	
2 Perfluorobutyric acid	212.90	> 169.00	1.692	1.692	0.0	1.000	6038790	22.6	113	3033
D 3 13C5-PFPeA	267.90	> 223.00	2.009	2.011	-0.002	10446513	47.5	95.0	39024	
4 Perfluoropentanoic acid	262.90	> 219.00	2.009	2.011	-0.002	1.000	4473941	20.6	103	2338
D 47 13C3-PFBS	301.90	> 83.00	2.047	2.051	-0.004	239099	NC			
5 Perfluorobutanesulfonic acid	298.90	> 80.00	2.047	2.051	-0.004	1.000	6584661	20.1	113	
	298.90	> 99.00	2.047	2.051	-0.004	1.000	2641571	2.49(0.00-0.00)		
D 7 13C2 PFHxA	315.00	> 270.00	2.340	2.345	-0.005	9004533	46.7	93.4	17720	
6 Perfluorohexanoic acid	313.00	> 269.00	2.340	2.345	-0.005	1.000	3661982	20.1	100	4358
D 9 13C4-PFHpA	367.00	> 322.00	2.710	2.721	-0.011	8766088	49.3	98.6	14797	
10 Perfluoroheptanoic acid	363.00	> 319.00	2.710	2.721	-0.011	1.000	3872592	21.1	105	1313
D 11 18O2 PFHxS	403.00	> 84.00	2.729	2.730	-0.001	9513206	41.3	87.2	19303	
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.729	2.740	-0.011	1.000	4155312	18.9	104	
15 Perfluorooctanoic acid	413.00	> 369.00	3.095	3.110	-0.015	1.000	3811255	20.8	104	1148
	413.00	> 169.00	3.095	3.110	-0.015	1.000	2126341	1.79(0.90-1.10)		2589

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	3.095	3.110	-0.015		8587969	47.6		95.3	24629	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.103	3.110	-0.007	1.000	3871363	25.6		135		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.470	3.454	0.016	1.000	2850043	20.4		110	3487	
499.00 > 99.00	3.470	3.454	0.016	1.000	603822		4.72(0.90-1.10)		3025	
D 18 13C4 PFOS										
503.00 > 80.00	3.470	3.485	-0.015		6328085	35.5		74.3	13337	
D 19 13C5 PFNA										
468.00 > 423.00	3.478	3.493	-0.015		6903332	45.2		90.4	23494	
20 Perfluorononanoic acid										
463.00 > 419.00	3.478	3.493	-0.015	1.000	2892221	20.9		104	4223	
D 21 13C8 FOSA										
506.00 > 78.00	3.799	3.808	-0.009		3608634	12.0		24.0	8372	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.799	3.808	-0.009	1.000	1427959	20.4		102	6140	
D 23 13C2 PFDA										
515.00 > 470.00	3.834	3.851	-0.017		5982351	39.7		79.4	12057	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.834	3.851	-0.017	1.000	2421393	21.3		106	6876	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.140	4.156	-0.016	1.000	1638292	18.8		97.5		
D 30 13C2 PFUnA										
565.00 > 520.00	4.157	4.172	-0.015		4660149	38.9		77.8	8708	
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.157	4.172	-0.015	1.000	2056875	20.7		104	5117	
D 36 13C2 PFDoA										
615.00 > 570.00	4.441	4.459	-0.018		4293330	34.5		69.0	4967	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.441	4.459	-0.018	1.000	1789204	21.8		109	3055	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.702	4.716	-0.014	1.000	1785620	20.8		104	2581	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.932	4.954	-0.022		8670984	33.7		67.5	8079	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.940	4.954	-0.014	1.000	3473003	19.5		97.4	3343	
713.00 > 169.00	4.932	4.954	-0.022	0.998	490901		7.07(0.00-0.00)		3837	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.348	5.363	-0.015		3690379	27.0		53.9	3853	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.348	5.371	-0.023	1.000	1442981	17.1		85.7	1433	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.722	5.737	-0.015	1.000	1180759	15.5		77.7	1795	

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_017.d

Injection Date: 07-Jun-2017 16:53:37

Instrument ID: A8_N

Lims ID: LCS 320-165234/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

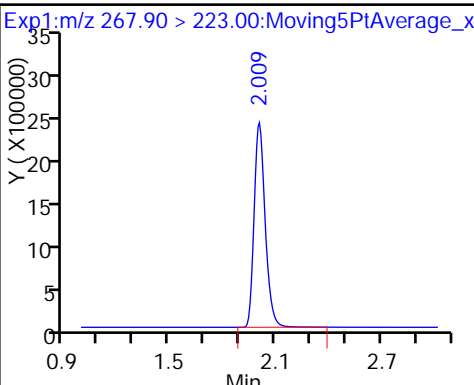
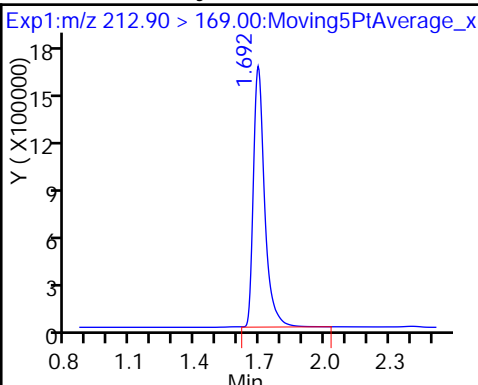
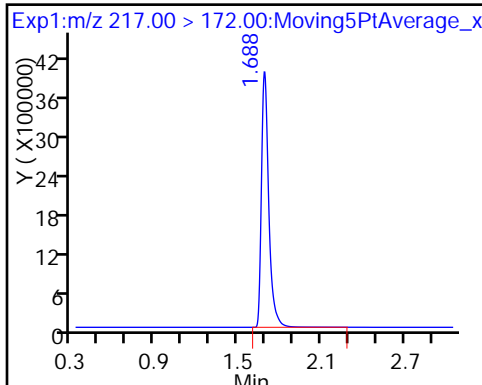
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

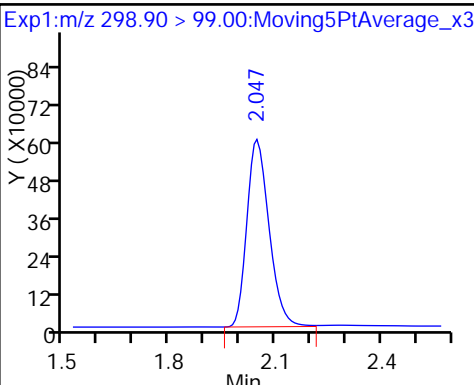
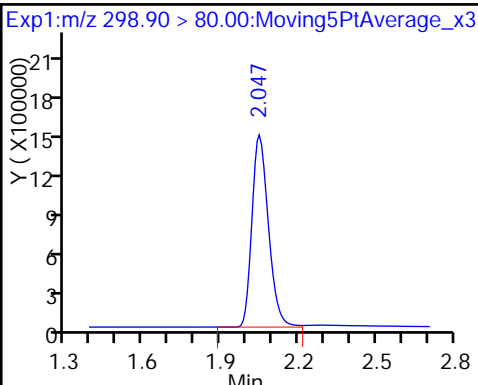
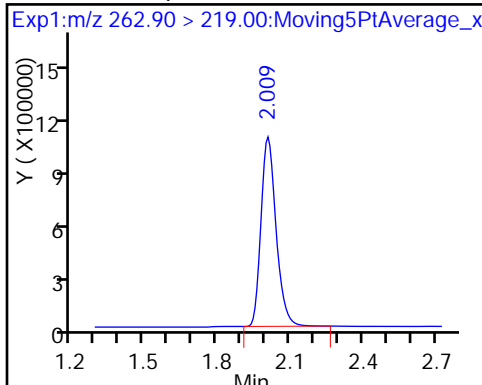
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

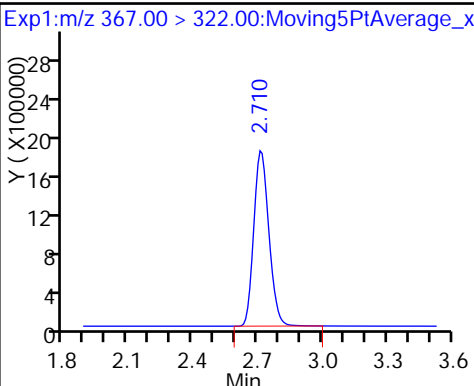
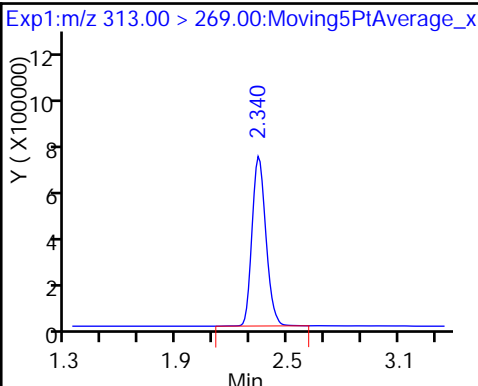
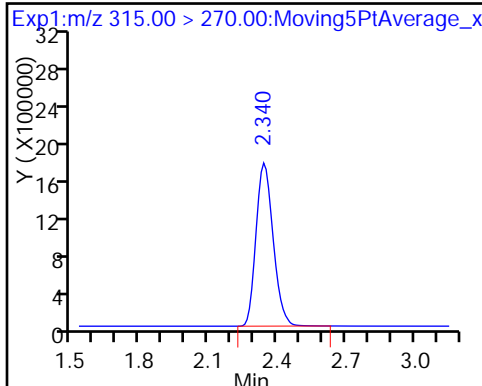
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

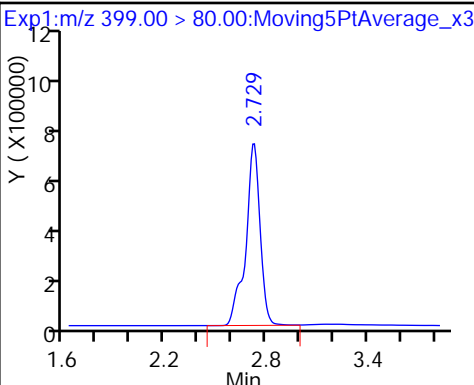
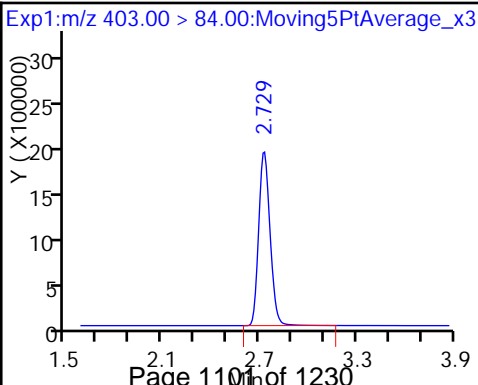
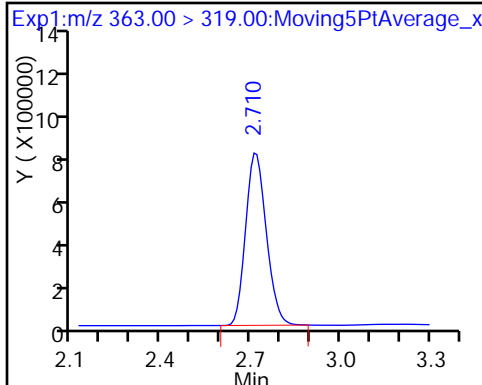
D 9 13C4-PFHpA

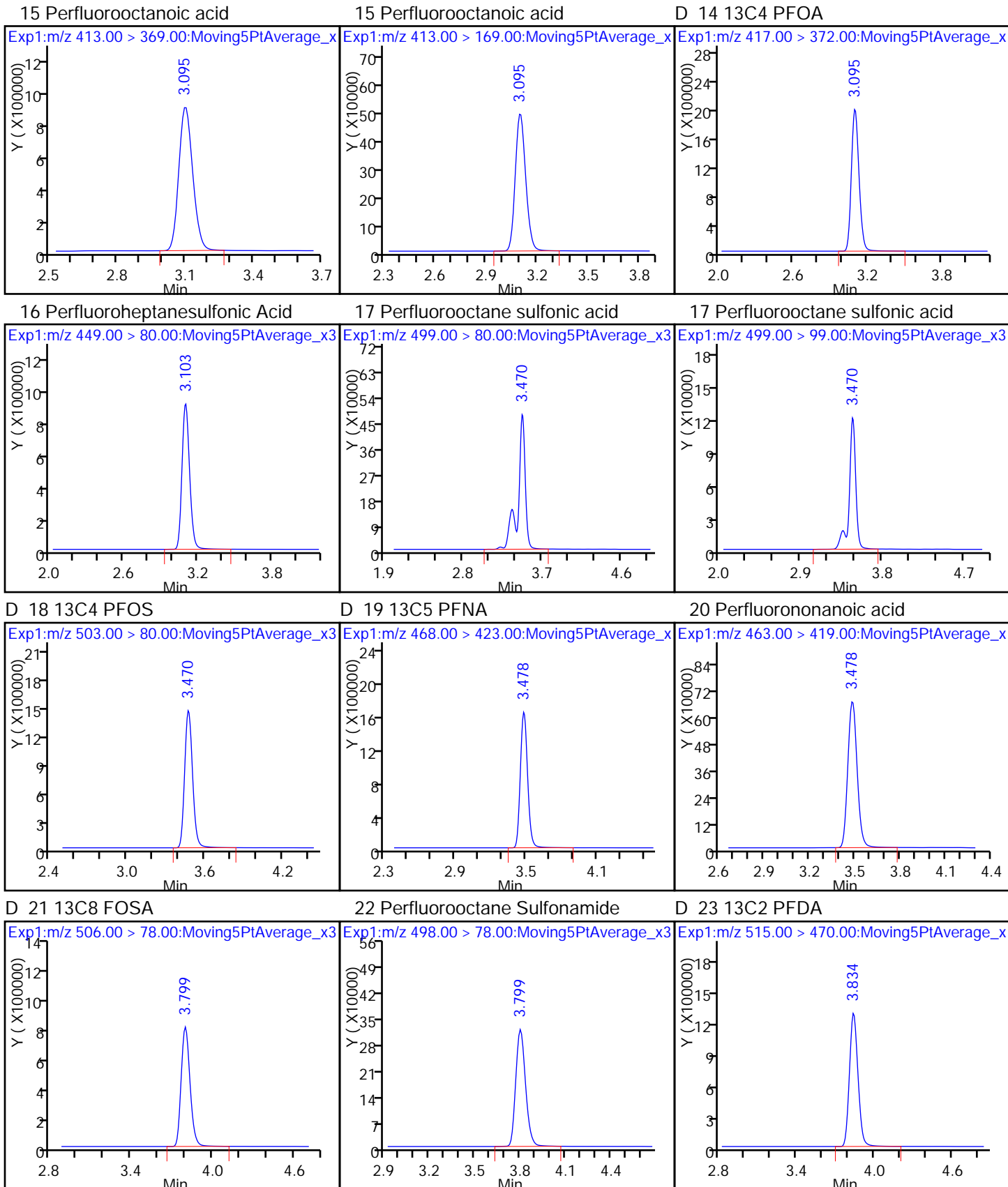


10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid

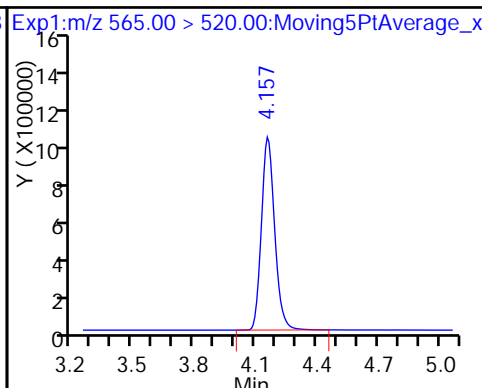
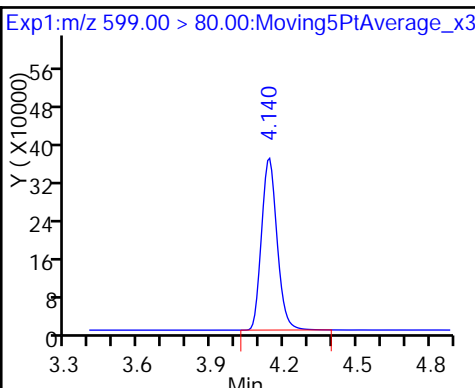
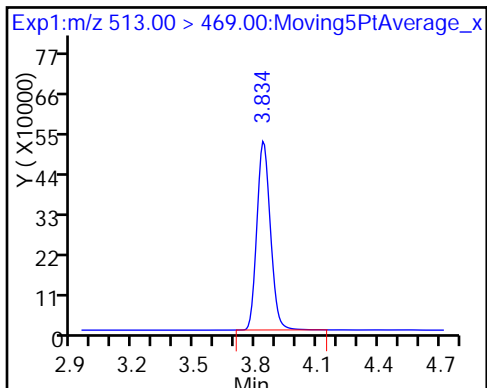




24 Perfluorodecanoic acid

29 Perfluorodecane Sulfonic acid

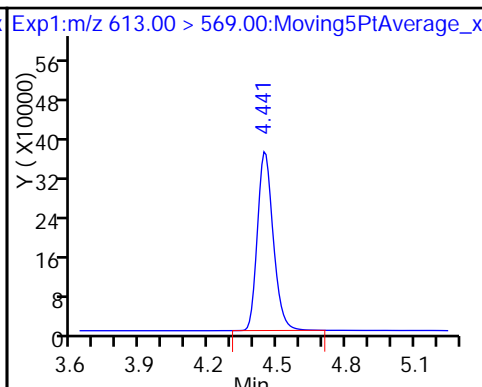
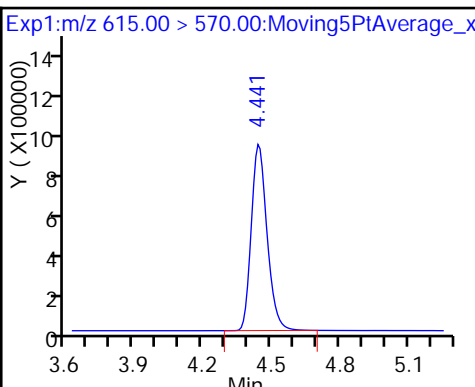
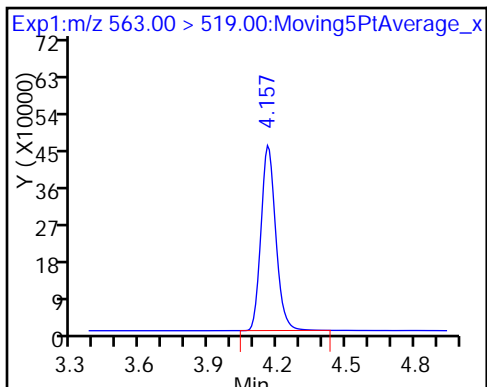
D 30 13C2 PFUnA



31 Perfluoroundecanoic acid

D 36 13C2 PFDaA

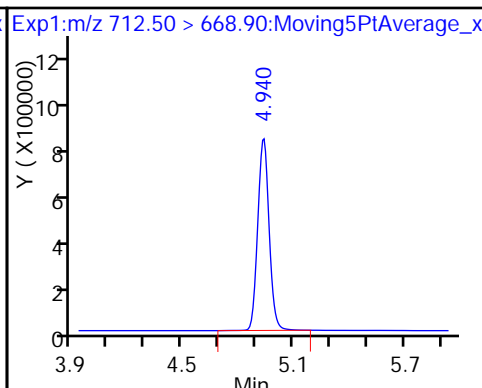
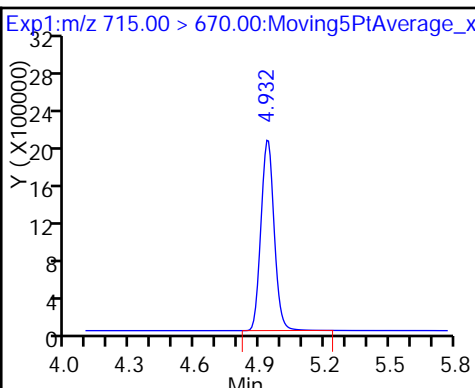
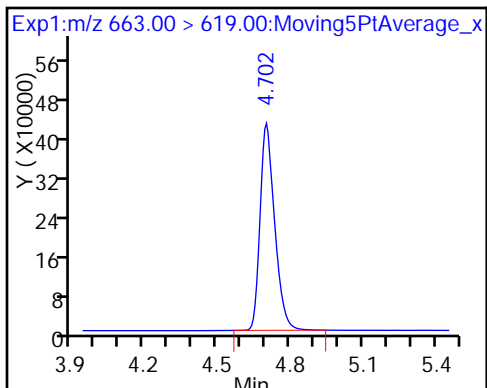
37 Perfluorododecanoic acid



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

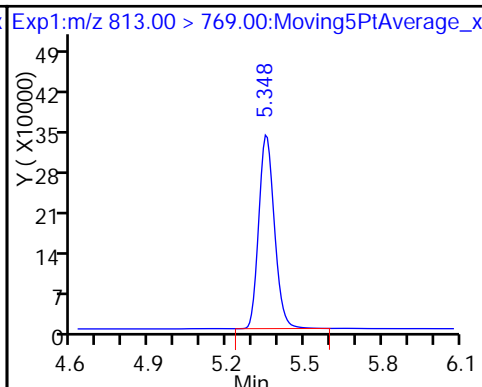
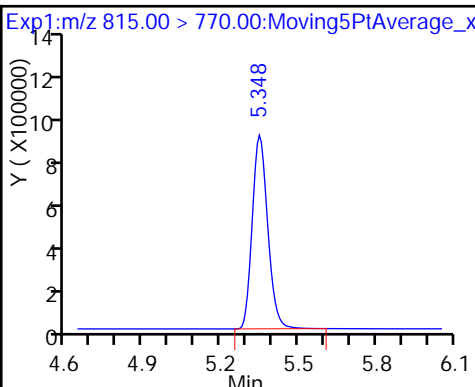
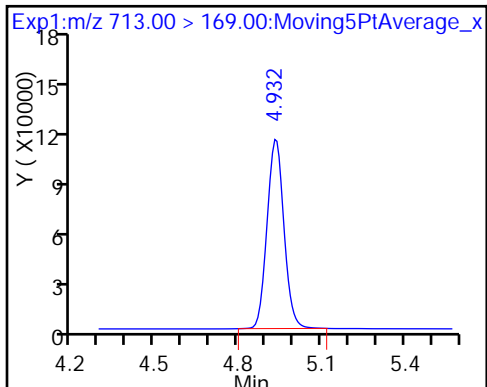
42 Perfluorotetradecanoic acid



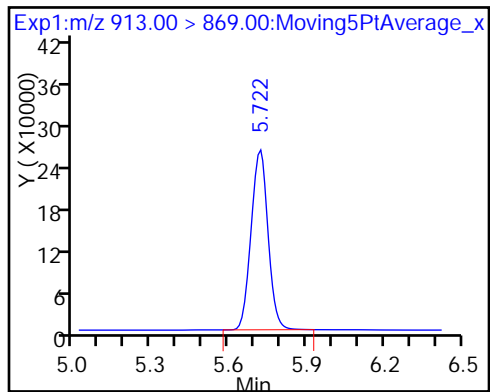
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 320-165287/2-A
 Matrix: Solid Lab File ID: 2017.05.24C_033.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.00 (g) Date Analyzed: 05/24/2017 21:50
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	4.00		0.50	0.30	0.10
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.44		0.50	0.30	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.60		0.40	0.30	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	95		25-150
STL00991	13C4 PFOS	86		25-150
STL00994	18O2 PFHxS	83		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_033.d
 Lims ID: LCS 320-165287/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 24-May-2017 21:50:34 ALS Bottle#: 27 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-165287/2-a
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:02:54 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:48:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid										
212.90 > 169.00	1.985	1.993	-0.008	1.000	6409026	20.1		101	2289	
D 1 13C4 PFBA										
217.00 > 172.00	1.985	1.993	-0.008		15889768	42.6		85.3	148788	
4 Perfluoropentanoic acid										
262.90 > 219.00	2.348	2.348	0.0	1.000	4362817	18.7		93.4	1085	
D 3 13C5-PFPeA										
267.90 > 223.00	2.338	2.348	-0.010		10779893	43.7		87.5	204851	
D 47 13C3-PFBS										
301.90 > 83.00	2.378	2.388	-0.010		262887	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.388	2.388	0.0	1.000	7588387	18.0		102		
298.90 > 99.00	2.388	2.388	0.0	1.000	2870963		2.64(0.00-0.00)			
6 Perfluorohexanoic acid										
313.00 > 269.00	2.719	2.728	-0.009	1.000	4238777	19.3		96.7	6671	
D 7 13C2 PFHxA										
315.00 > 270.00	2.719	2.728	-0.009		10576867	43.3		86.5	311389	
D 9 13C4-PFHpA										
367.00 > 322.00	3.124	3.122	0.002		10839499	48.5		96.9	43291	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.133	3.131	0.002	1.000	5442926	16.9		92.8		
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.124	3.131	-0.007	1.000	4847291	20.4		102	2202	
D 11 18O2 PFHxS										
403.00 > 84.00	3.133	3.131	0.002		12592946	39.1		82.6	293072	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.514	3.515	-0.001	1.000	5206094	18.9		99.5		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	3.514	3.523	-0.009	1.000	4826213	20.0		100	589	
413.00 > 169.00	3.514	3.523	-0.009	1.000	2626475		1.84(0.90-1.10)		7273	
D 14 13C4 PFOA										
417.00 > 372.00	3.514	3.523	-0.009		10742837	47.3		94.7	54601	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.838	3.887	-0.049	1.000	4110321	17.2		92.7	2132	
499.00 > 99.00	3.882	3.887	-0.005	1.012	890195		4.62(0.90-1.10)		2767	
D 18 13C4 PFOS										
503.00 > 80.00	3.882	3.887	-0.005		9622931	41.0		85.8	26278	
D 19 13C5 PFNA										
468.00 > 423.00	3.899	3.905	-0.006		8843729	50.7		101	54365	
20 Perfluorononanoic acid										
463.00 > 419.00	3.899	3.905	-0.006	1.000	3754791	19.5		97.6	5620	
D 21 13C8 FOSA										
506.00 > 78.00	4.210	4.215	-0.005		8352653	22.7		45.4	16981	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	4.219	4.224	-0.005	1.000	3326840	19.0		95.0	12354	
D 23 13C2 PFDA										
515.00 > 470.00	4.237	4.245	-0.008		7639972	51.1		102	9680	
24 Perfluorodecanoic acid										
513.00 > 469.00	4.247	4.255	-0.008	1.000	3030632	19.5		97.5	17750	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.528	4.529	-0.001	1.000	2419776	17.3		89.8		
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.548	4.558	-0.010	1.000	2433469	18.6		93.2	6455	
D 30 13C2 PFUnA										
565.00 > 520.00	4.548	4.558	-0.010		5557230	49.5		99.0	9167	
D 36 13C2 PFDoA										
615.00 > 570.00	4.826	4.834	-0.008		4900631	45.0		90.0	5613	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.826	4.834	-0.008	1.000	2042141	20.5		103	192	
41 Perfluorotridecanoic acid										
663.00 > 619.00	5.069	5.082	-0.013	1.000	1616864	16.4		82.1	105	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	5.291	5.295	-0.004	1.000	3400984	16.9		84.5	80.4	
713.00 > 169.00	5.283	5.295	-0.012	0.999	448736		7.58(0.00-0.00)		2196	
D 43 13C2-PFTeDA										
715.00 > 670.00	5.291	5.295	-0.004		8401317	39.0		78.0	12632	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.683	5.696	-0.013		2223533	18.5		37.0	1417	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.692	5.696	-0.004	1.000	892502	8.11		40.5	64.7	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	6.084	6.087	-0.003	1.000	906221	7.34		36.7	65.5	

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_033.d

Injection Date: 24-May-2017 21:50:34

Instrument ID: A8_N

Lims ID: LCS 320-165287/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 27

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

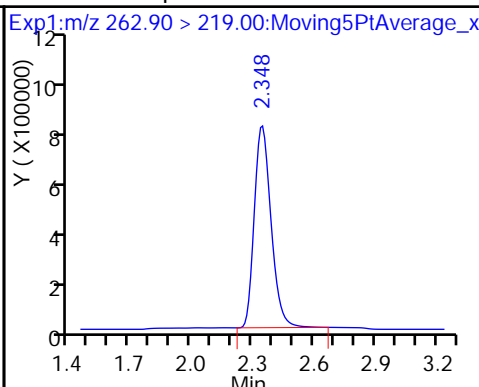
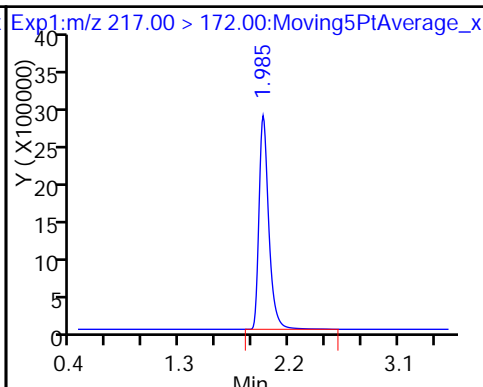
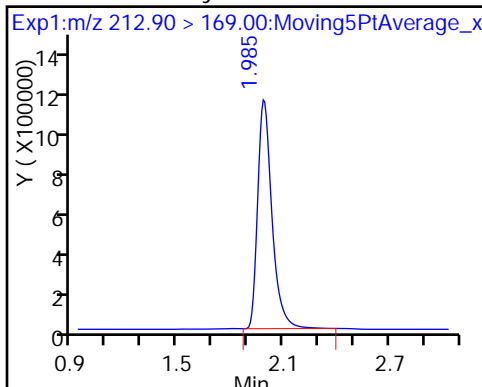
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

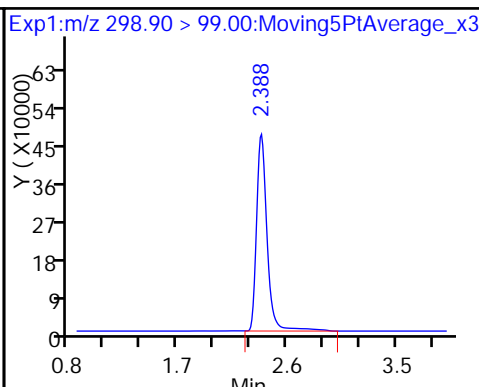
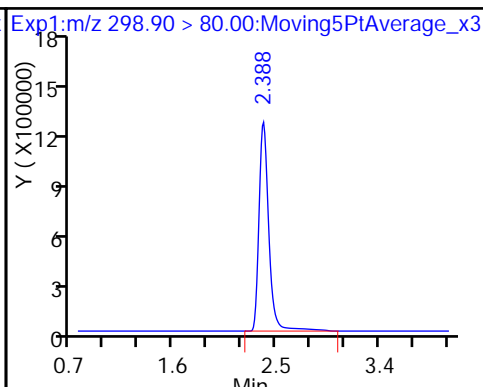
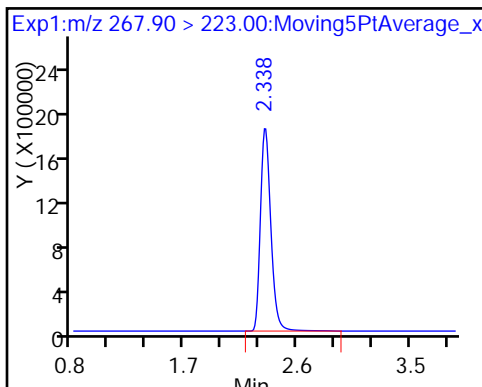
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

5 Perfluorobutanesulfonic acid

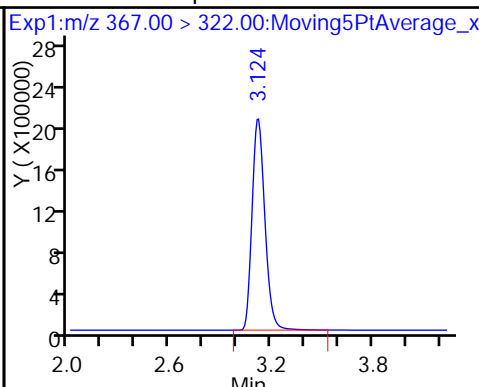
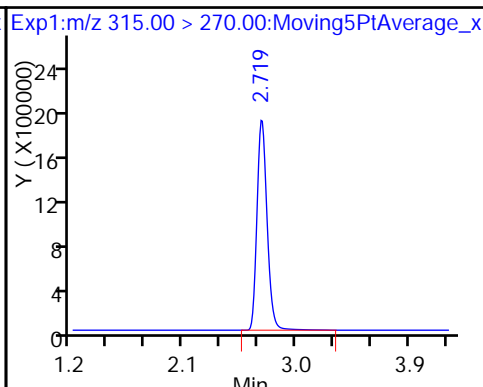
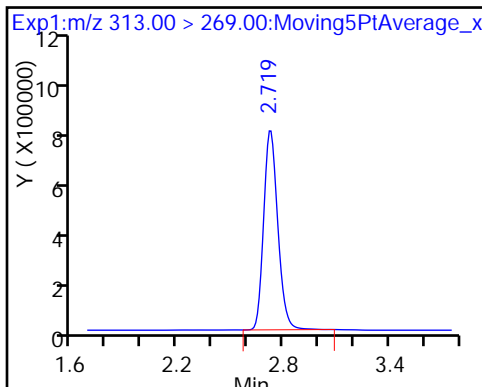
5 Perfluorobutanesulfonic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

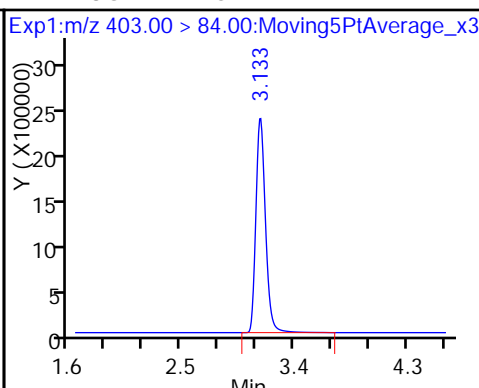
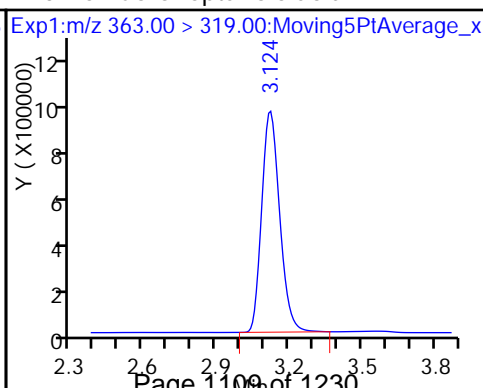
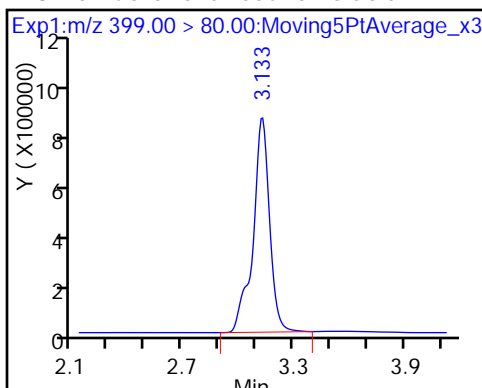
D 9 13C4-PFHpA

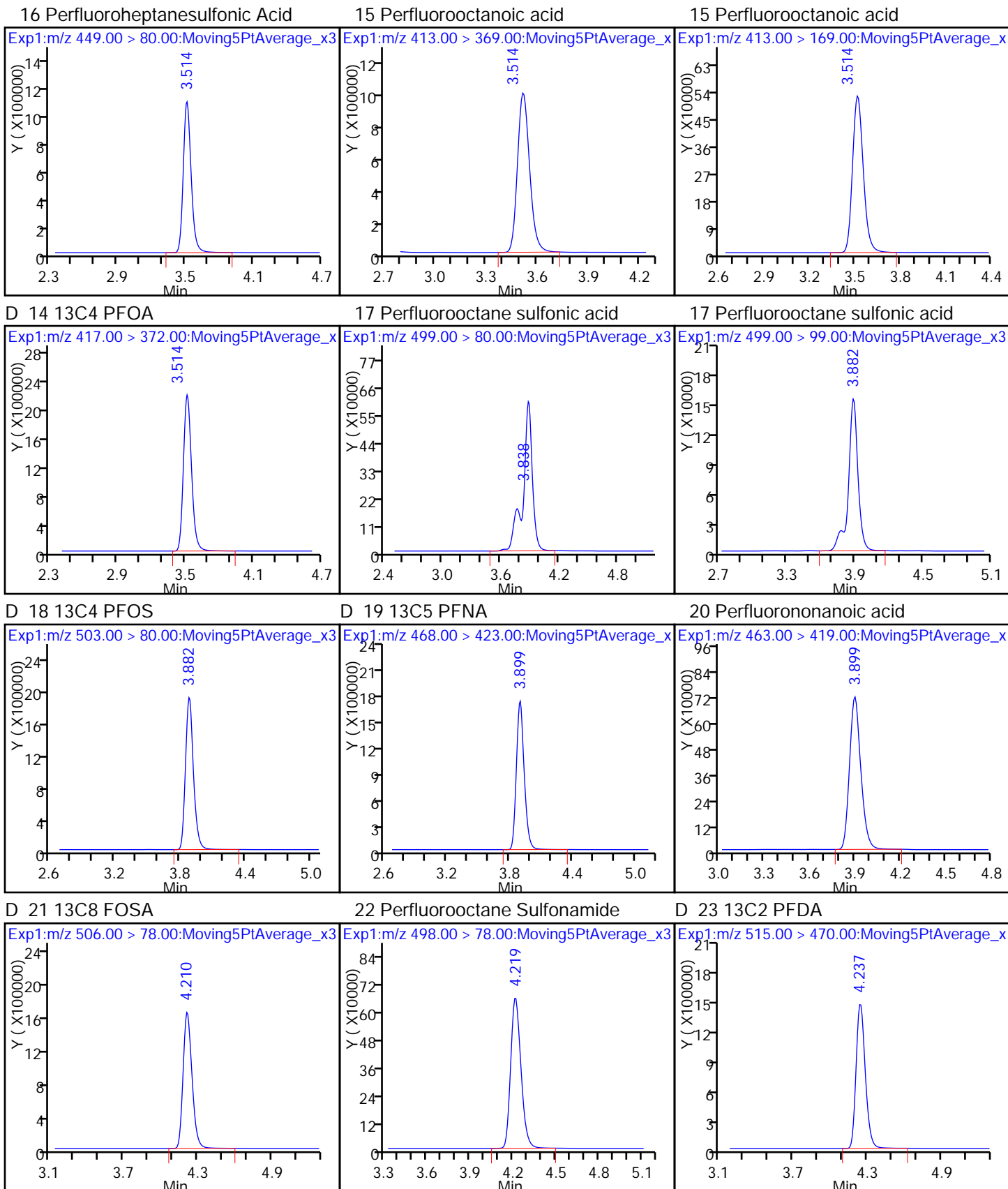


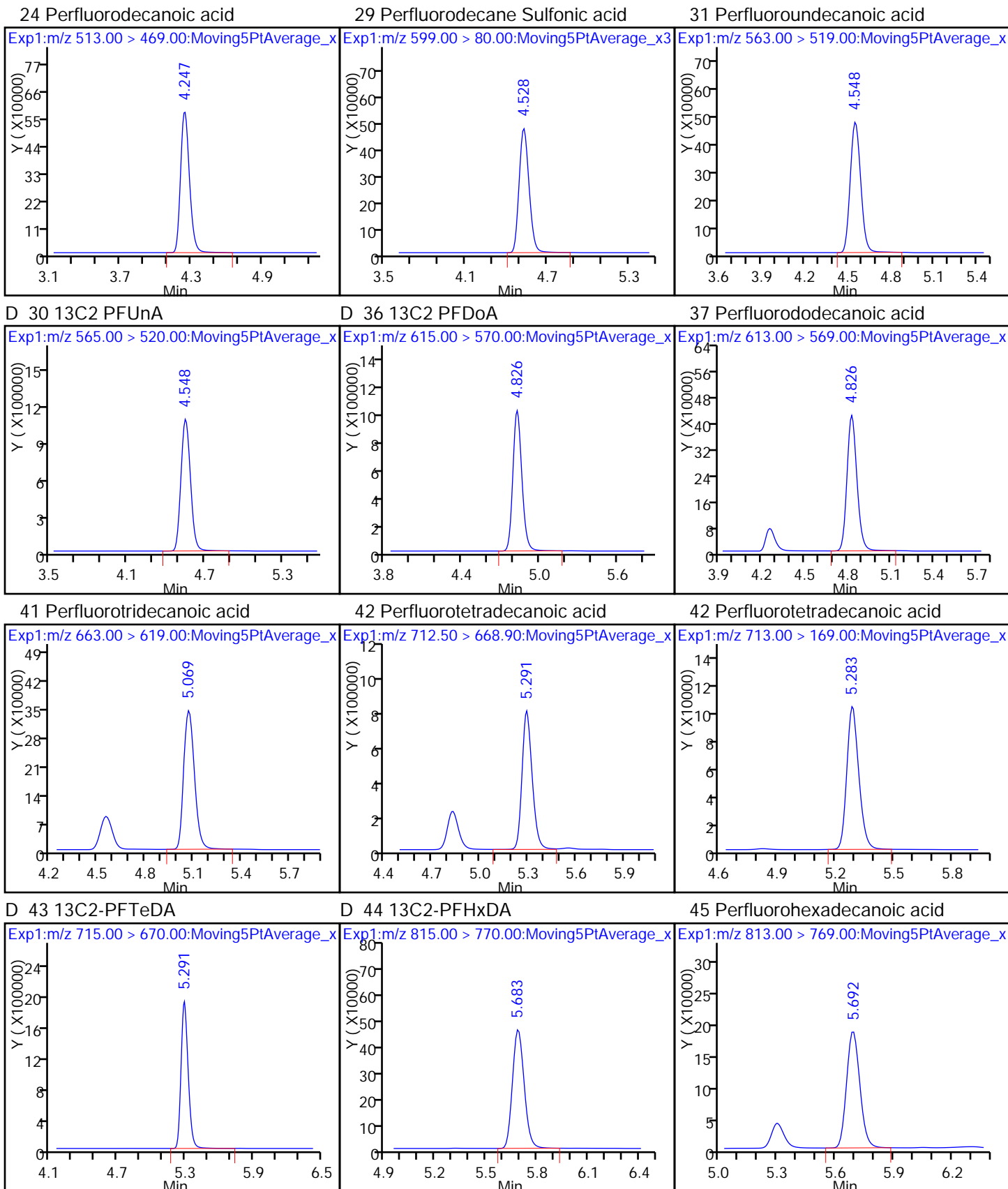
8 Perfluorohexanesulfonic acid

10 Perfluoroheptanoic acid

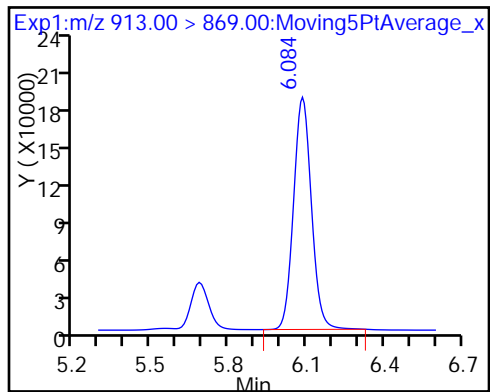
D 11 18O2 PFHxS







46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCSD 320-165207/3-A
 Matrix: Water Lab File ID: 2017.05.19B_004.d
 Analysis Method: 537 (Modified) Date Collected: _____
 Extraction Method: 3535 Date Extracted: 05/18/2017 17:41
 Sample wt/vol: 250.00 (mL) Date Analyzed: 05/20/2017 06:04
 Con. Extract Vol.: 0.50 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165487 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	38.1		2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34.6		4.0	3.0	1.3
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37.1		2.5	2.0	0.92

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	114		25-150
STL00991	13C4 PFOS	102		25-150
STL00994	18O2 PFHxS	101		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_004.d
 Lims ID: LCSD 320-165207/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 20-May-2017 06:04:45 ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcsd 320-165207/3-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 22-May-2017 12:21:50 Calib Date: 19-May-2017 21:49:23
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170522-43317.b\2017.05.19_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK016

First Level Reviewer: chandrasenas Date: 22-May-2017 12:00:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	2.042	2.059	-0.017	19216694	51.4		103	208651	
2 Perfluorobutyric acid	212.90 > 169.00	2.050	2.059	-0.009	1.000	7804765	20.4	102	1783	
D 3 13C5-PFPeA	267.90 > 223.00	2.408	2.419	-0.011	12471974	50.0		99.9	192074	
4 Perfluoropentanoic acid	262.90 > 219.00	2.408	2.419	-0.011	1.000	5114815	18.8	94.1	940	
D 47 13C3-PFBS	301.90 > 83.00	2.438	2.459	-0.021	304842	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.448	2.459	-0.011	1.000	9047082	18.5	105		
	298.90 > 99.00	2.448	2.459	-0.011	1.000	3544436	2.55(0.00-0.00)			
D 7 13C2 PFHxA	315.00 > 270.00	2.782	2.801	-0.018	12361878	49.2		98.5	360993	
6 Perfluorohexanoic acid	313.00 > 269.00	2.791	2.801	-0.009	1.000	5012759	19.7	98.4	8635	
D 9 13C4-PFHpA	367.00 > 322.00	3.179	3.205	-0.026	12119363	54.4		109	279030	
10 Perfluoroheptanoic acid	363.00 > 319.00	3.179	3.205	-0.026	1.000	5232933	19.8	99.0	2038	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	3.188	3.205	-0.017	1.000	6651134	17.0	93.6		
D 11 18O2 PFHxS	403.00 > 84.00	3.188	3.213	-0.025	15099702	47.9		101	402672	
16 Perfluoroheptanesulfonic Acid	449.00 > 80.00	3.571	3.590	-0.019	1.000	6452992	20.4	107		
D 14 13C4 PFOA	417.00 > 372.00	3.571	3.598	-0.027	12841883	56.9		114	51310	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	3.578	3.598	-0.020	1.000	5550976	19.0		95.2	582	
413.00 > 169.00	3.578	3.598	-0.020	1.000	3177661		1.75(0.90-1.10)		10043	
D 18 13C4 PFOS										
503.00 > 80.00	3.934	3.959	-0.025		11572743	48.8		102	21858	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.934	3.959	-0.025	1.000	4830203	17.3		93.2	9971	
499.00 > 99.00	3.934	3.959	-0.025	1.000	1061702		4.55(0.90-1.10)		2085	
D 19 13C5 PFNA										
468.00 > 423.00	3.954	3.981	-0.027		9493179	51.7		103	26889	
20 Perfluorononanoic acid										
463.00 > 419.00	3.954	3.981	-0.027	1.000	3953163	19.2		95.9	6256	
D 21 13C8 FOSA										
506.00 > 78.00	4.265	4.294	-0.029		2501873	6.77		13.5	15335	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	4.275	4.294	-0.020	1.000	952114	17.8		88.8	6620	
D 23 13C2 PFDA										
515.00 > 470.00	4.294	4.316	-0.022		8690456	55.2		110	7240	
24 Perfluorodecanoic acid										
513.00 > 469.00	4.294	4.316	-0.022	1.000	3364908	19.1		95.6	15433	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	4.571	4.596	-0.025	1.000	3026662	18.7		97.2		
D 30 13C2 PFUnA										
565.00 > 520.00	4.597	4.624	-0.027		6355664	55.0		110	10609	
31 Perfluoroundecanoic acid										
563.00 > 519.00	4.597	4.624	-0.027	1.000	2710673	18.3		91.3	9762	
D 36 13C2 PFDoA										
615.00 > 570.00	4.867	4.897	-0.031		6147704	52.6		105	6216	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.867	4.897	-0.031	1.000	2463777	19.7		98.3	171	
41 Perfluorotridecanoic acid										
663.00 > 619.00	5.111	5.143	-0.032	1.000	2647911	21.8		109	148	
D 43 13C2-PFTeDA										
715.00 > 670.00	5.340	5.360	-0.020		15863079	69.2		138	13275	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	5.340	5.360	-0.020	1.000	6613926	24.2		121	156	
713.00 > 169.00	5.330	5.360	-0.030	0.998	884452		7.48(0.00-0.00)		3683	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.733	5.753	-0.020		6302486	49.2		98.5	6856	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.733	5.753	-0.020	1.000	2498609	19.1		95.3	236	

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b\2017.05.19B_004.d

Injection Date: 20-May-2017 06:04:45

Instrument ID: A8_N

Lims ID: LCSD 320-165207/3-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

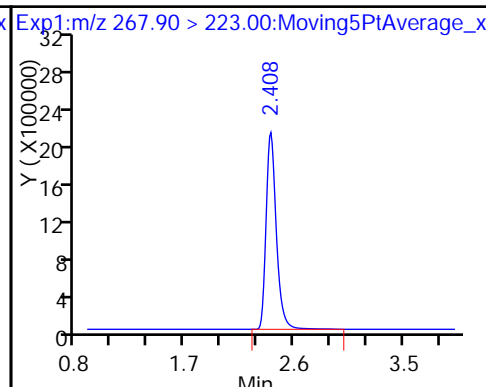
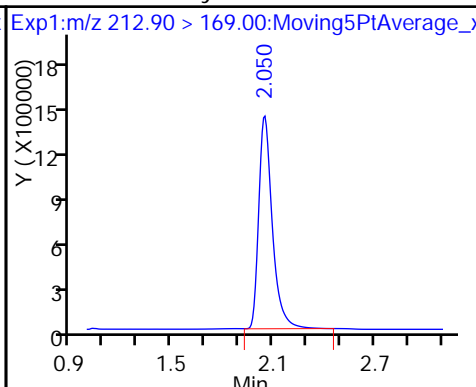
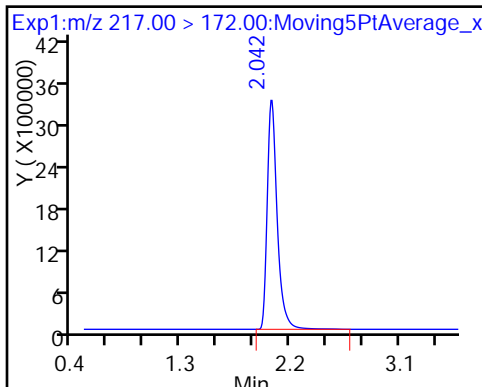
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

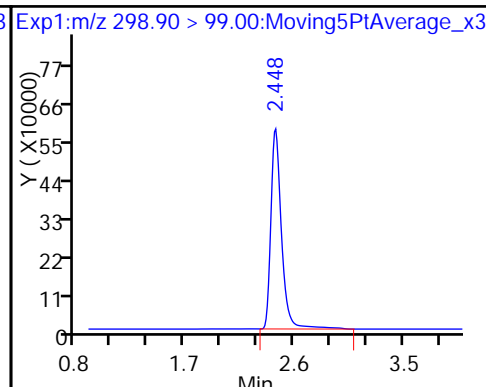
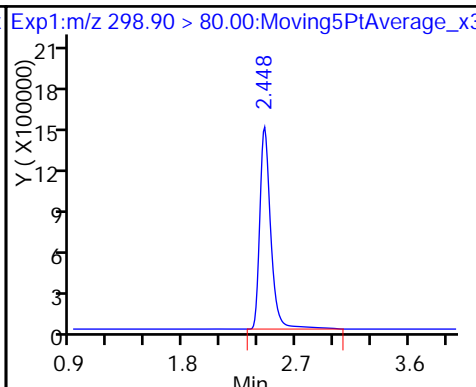
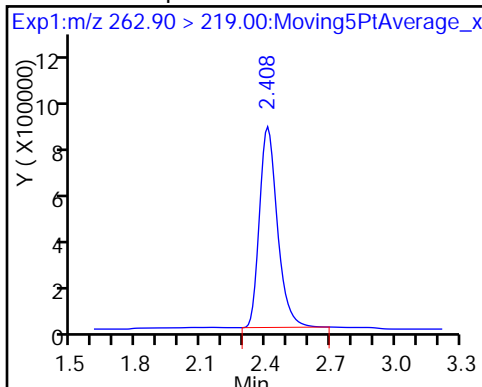
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

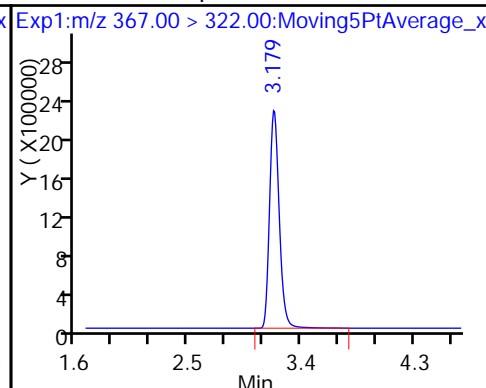
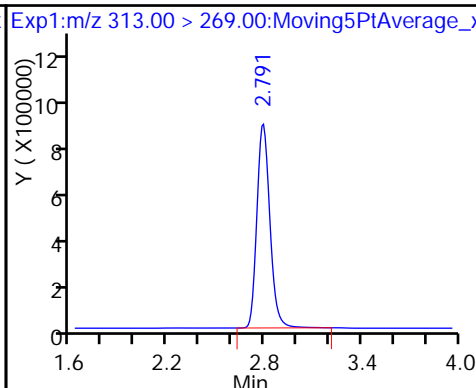
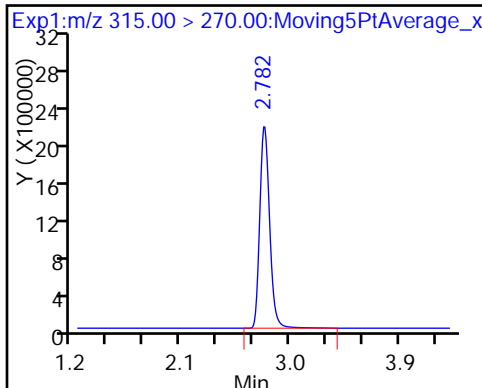
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

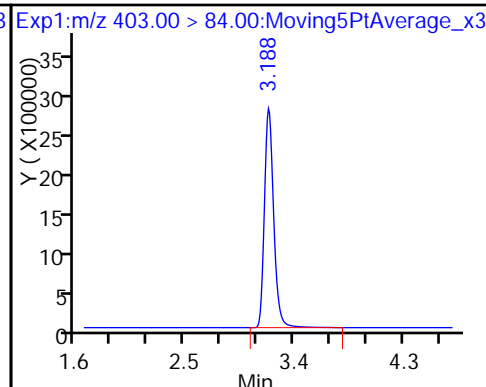
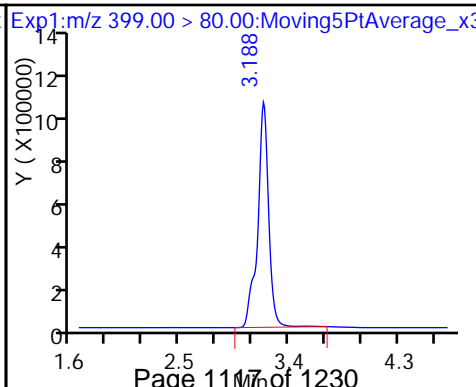
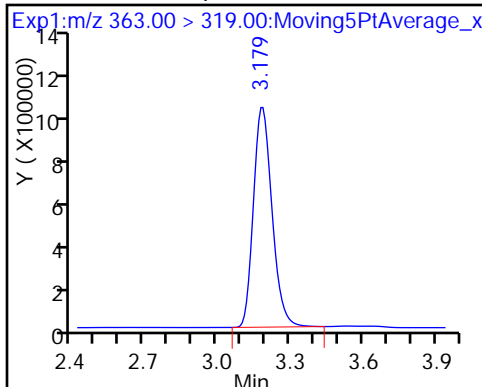
D 9 13C4-PFHpA



10 Perfluoroheptanoic acid

8 Perfluorohexanesulfonic acid

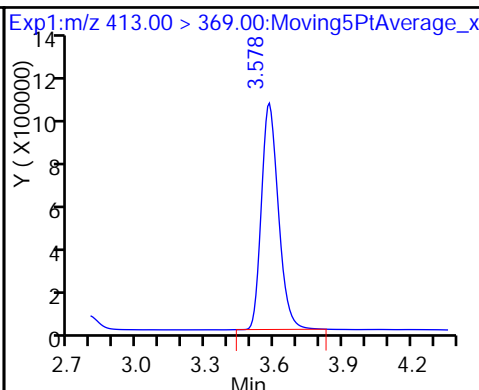
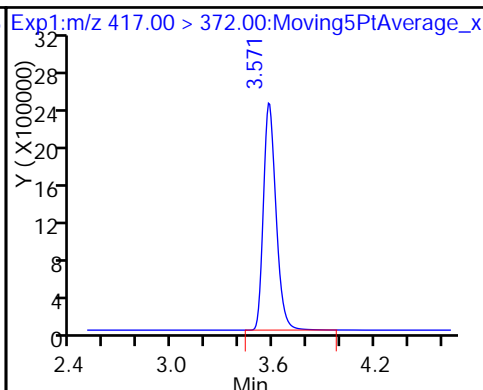
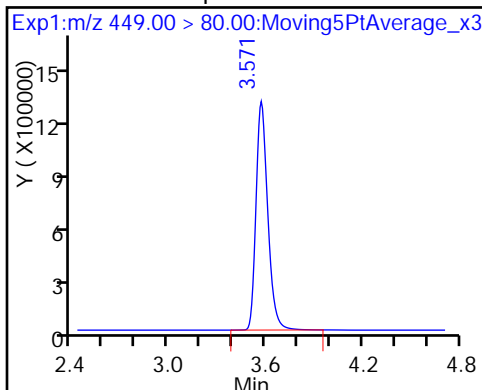
D 11 18O2 PFHxS



16 Perfluoroheptanesulfonic Acid

D 14 13C4 PFOA

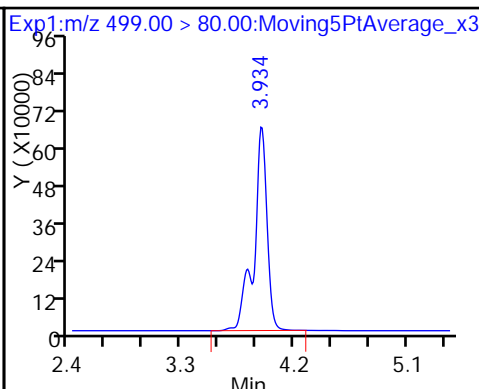
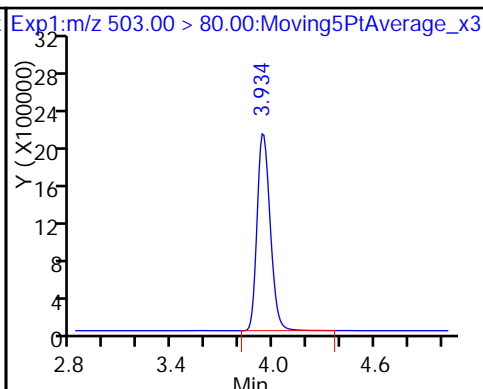
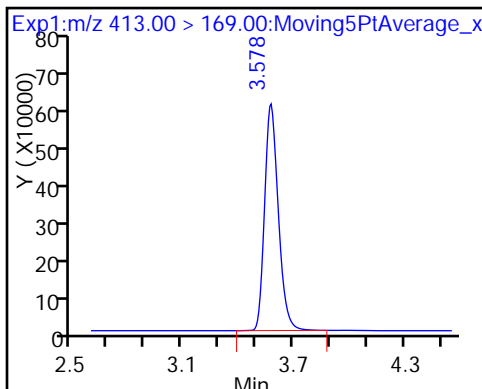
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 18 13C4 PFOS

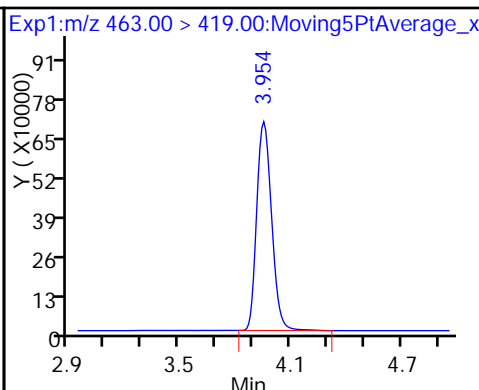
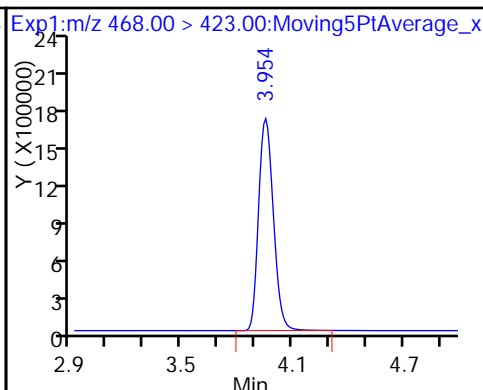
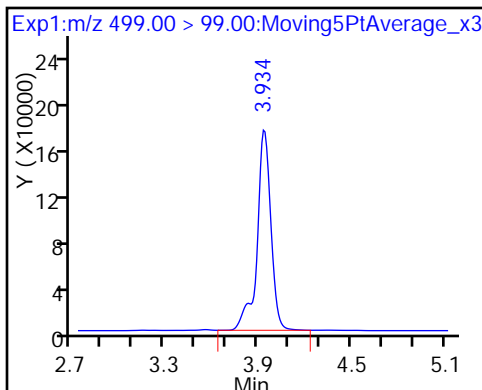
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

D 19 13C5 PFNA

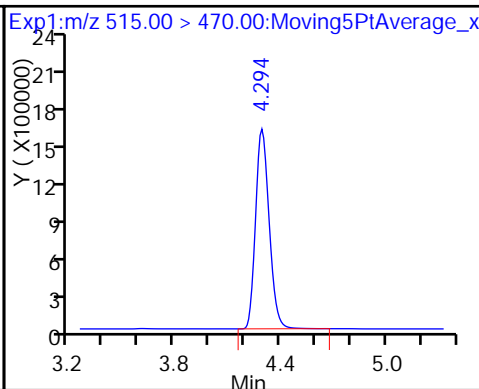
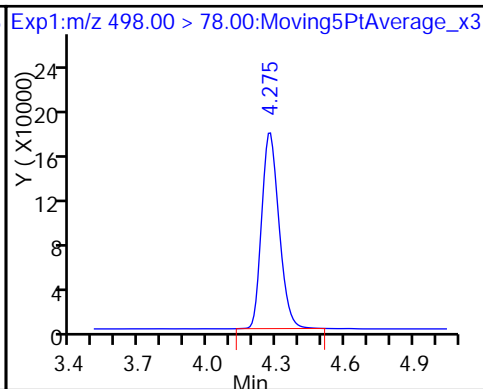
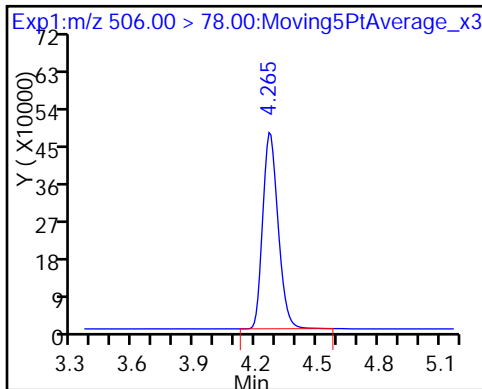
20 Perfluorononanoic acid



D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide

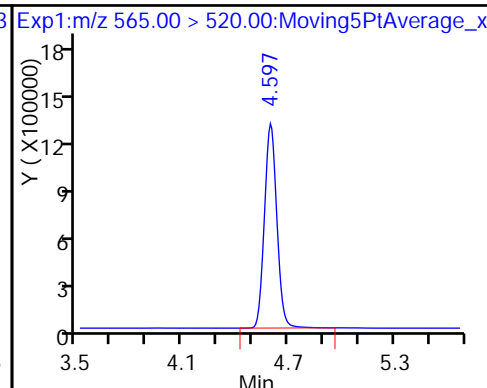
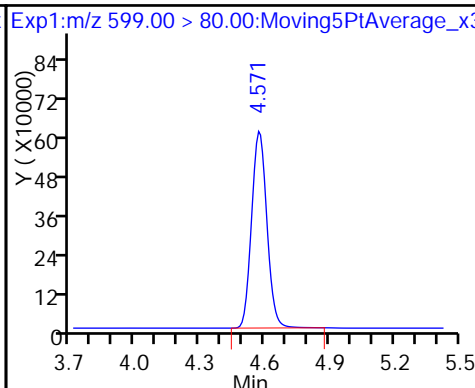
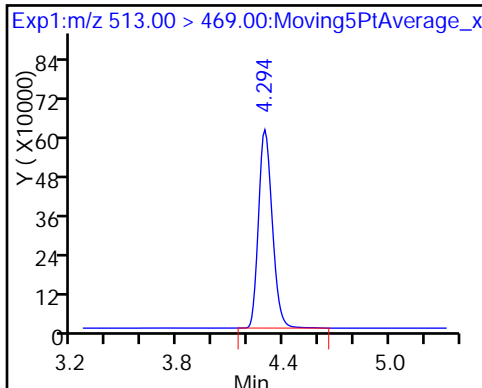
D 23 13C2 PFDA



24 Perfluorodecanoic acid

29 Perfluorodecane Sulfonic acid

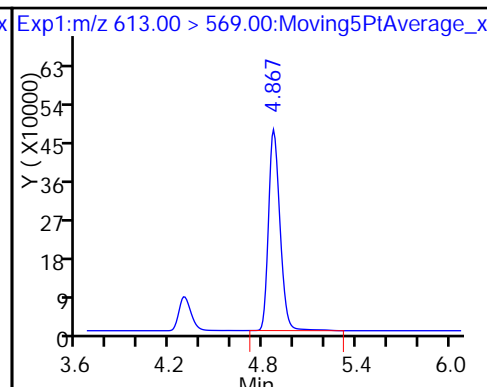
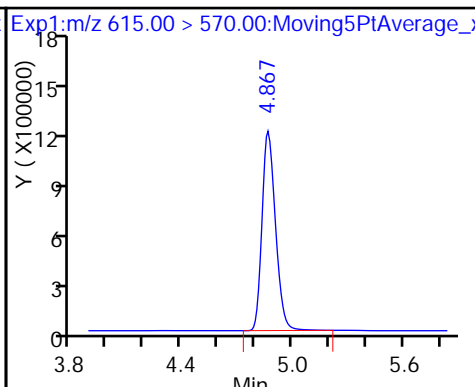
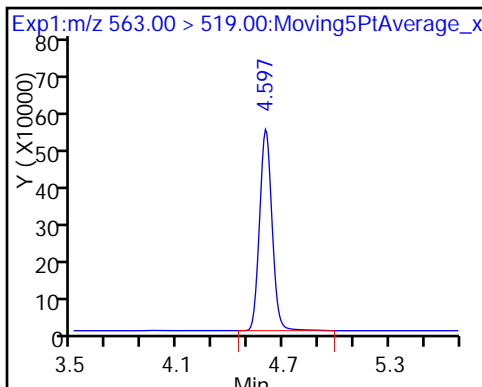
D 30 13C2 PFUnA



31 Perfluoroundecanoic acid

D 36 13C2 PFDaA

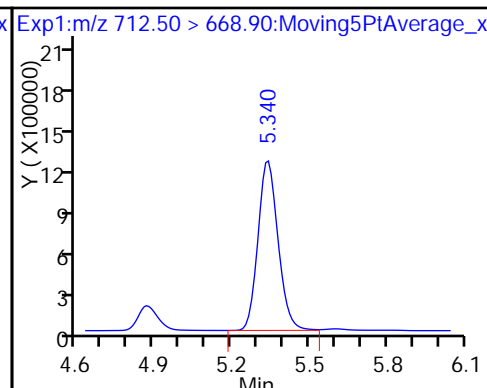
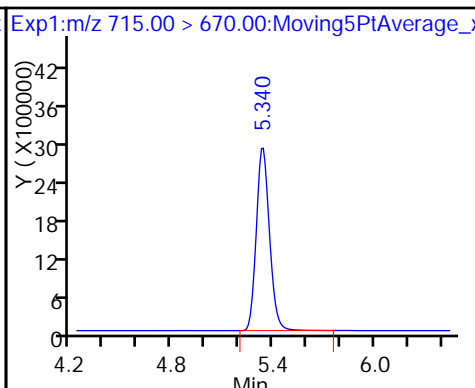
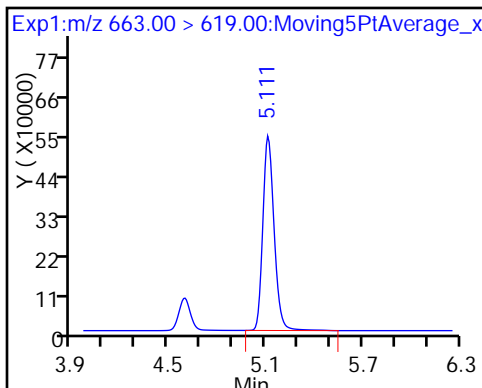
37 Perfluorododecanoic acid



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

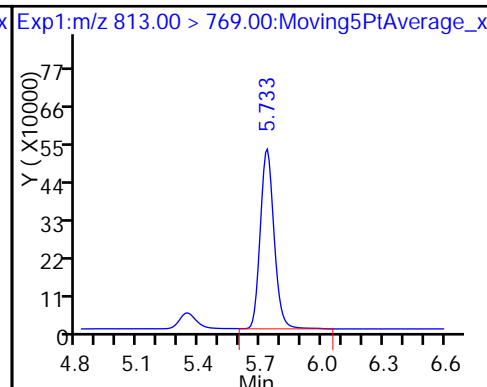
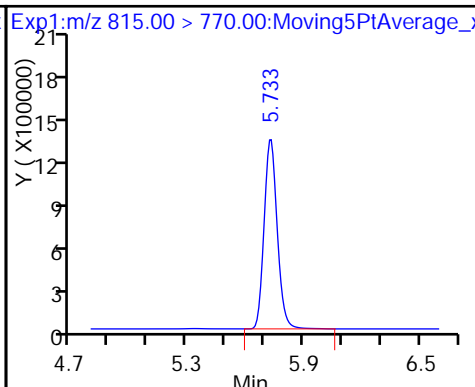
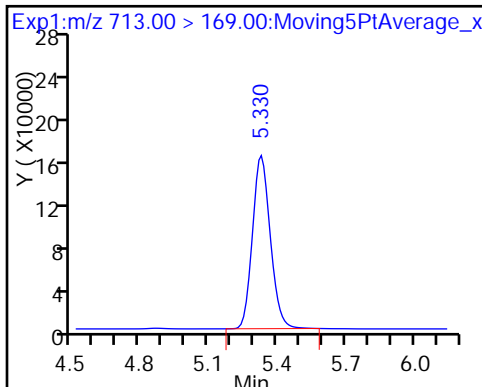
42 Perfluorotetradecanoic acid



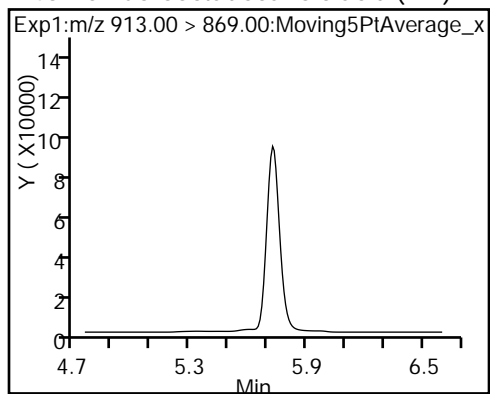
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid (ND)



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_022.d
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 Client ID: MEAFF-Unknown11-SB01-0204
 Sample Type: MS
 Inject. Date: 07-Jun-2017 17:32:09 ALS Bottle#: 7 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-4-b ms
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 18:48:57 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 18:50:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.689	1.692	-0.003	13003719	39.4		78.9	29236	
2 Perfluorobutyric acid	212.90 > 169.00	1.689	1.692	-0.003	5414610	22.7		113	2257	
D 40 d-N-EtFOSE-M	212.90 > 169.00	1.689	1.857	-0.168	5414610	NC				
D 3 13C5-PFPeA	267.90 > 223.00	2.004	2.011	-0.007	10414237	47.3		94.7	39167	
4 Perfluoropentanoic acid	262.90 > 219.00	2.012	2.011	0.001	4420454	20.4		102	2458	
D 47 13C3-PFBS	301.90 > 83.00	2.043	2.051	-0.008	213118	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.043	2.051	-0.008	5881340	22.7		128		
	298.90 > 99.00	2.043	2.051	-0.008	2388930		2.46(0.00-0.00)			
D 7 13C2 PFHxA	315.00 > 270.00	2.345	2.345	0.0	8591879	44.6		89.1	16737	
6 Perfluorohexanoic acid	313.00 > 269.00	2.345	2.345	0.0	3464090	19.9		99.6	4070	
D 60 M2-4:2FTS	329.00 > 309.00	2.302	2.372	-0.070	8149	NC				
D 9 13C4-PFHpA	367.00 > 322.00	2.712	2.721	-0.009	8150261	45.8		91.6	20749	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.721	2.721	0.0	3548609	20.8		104	1155	
D 11 18O2 PFHxS	403.00 > 84.00	2.731	2.730	0.001	7508549	32.6		68.9	22829	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.731	2.740	-0.009	2570964	20.5		113		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.073	3.087	-0.014	1.000	14239	NR	0.0	
D 14 13C4 PFOA	417.00	> 372.00	3.103	3.110	-0.007		6976771	38.7	77.4	15496
15 Perfluorooctanoic acid	413.00	> 369.00	3.103	3.110	-0.007	1.000	3089536	20.7	104	961
	413.00	> 169.00	3.103	3.110	-0.007	1.000	1688645		1.83(0.90-1.10)	2257
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.103	3.110	-0.007	1.000	2118445	33.4	175	
* 62 13C2-PFOA	415.00	> 370.00	3.096	3.110	-0.014		7182	50.0	0.0	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.362	3.454	-0.092	1.000	1181233	20.1	108	542
	499.00	> 99.00	3.478	3.454	0.024	1.035	262480		4.50(0.90-1.10)	1764
D 18 13C4 PFOS	503.00	> 80.00	3.478	3.485	-0.007		2660754	14.9	31.2	8958
D 19 13C5 PFNA	468.00	> 423.00	3.486	3.493	-0.007		4149161	27.2	54.4	15188
20 Perfluorononanoic acid	463.00	> 419.00	3.486	3.493	-0.007	1.000	1773817	21.3	107	2850
D 21 13C8 FOSA	506.00	> 78.00	3.808	3.808	0.0		1285387	4.28	8.6	4738
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.808	3.808	0.0	1.000	514757	20.7	103	3181
D 23 13C2 PFDA	515.00	> 470.00	3.843	3.851	-0.008		2581208	17.1	34.2	8028
24 Perfluorodecanoic acid	513.00	> 469.00	3.843	3.851	-0.008	1.000	1083093	22.0	110	2720
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.140	4.156	-0.016	1.000	870611	23.8	123	
D 30 13C2 PFUnA	565.00	> 520.00	4.165	4.172	-0.007		2190313	18.3	36.6	6170
31 Perfluoroundecanoic acid	563.00	> 519.00	4.165	4.172	-0.007	1.000	961249	20.6	103	2387
D 36 13C2 PFDaA	615.00	> 570.00	4.451	4.459	-0.008		2694675	21.6	43.3	4347
37 Perfluorododecanoic acid	613.00	> 569.00	4.451	4.459	-0.008	1.000	1105124	21.4	107	2189
41 Perfluorotridecanoic acid	663.00	> 619.00	4.702	4.716	-0.014	1.000	1197953	22.2	111	1842
D 43 13C2-PFTeDA	715.00	> 670.00	4.940	4.954	-0.014		6567131	25.5	51.1	7589
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.940	4.954	-0.014	1.000	2708549	24.2	121	3247
	713.00	> 169.00	4.932	4.954	-0.022	0.998	378196		7.16(0.00-0.00)	3121
D 44 13C2-PFHxDA	815.00	> 770.00	5.347	5.363	-0.016		3001537	21.9	43.9	3670

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.347	5.371	-0.024	1.000	1174815	22.5	112	1048
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.711	5.737	-0.026	1.000	690798	14.5	72.4	993

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_022.d

Injection Date: 07-Jun-2017 17:32:09

Instrument ID: A8_N

Lims ID: 320-28286-A-4-B MS

Client ID: MEAFF-Unknown11-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 7

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

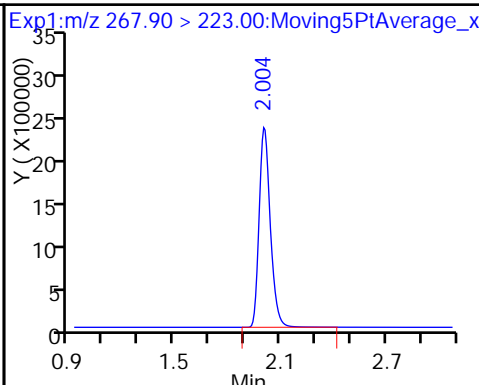
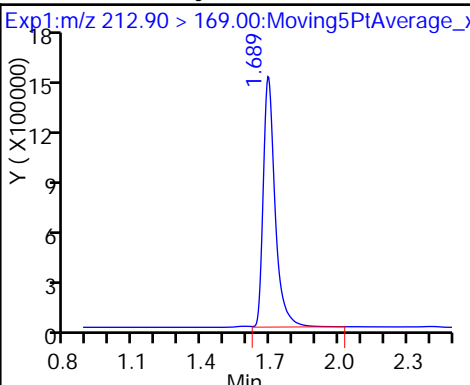
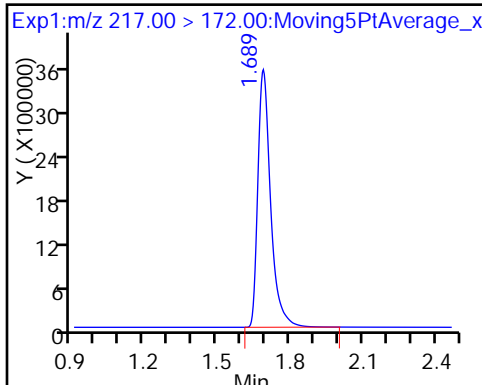
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

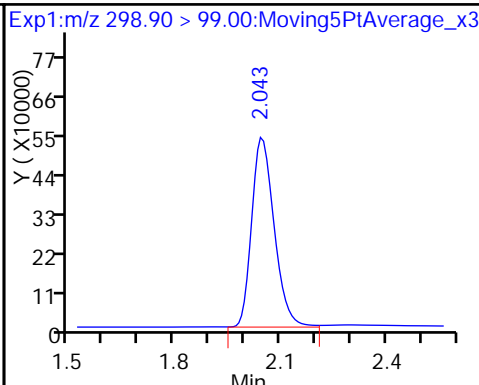
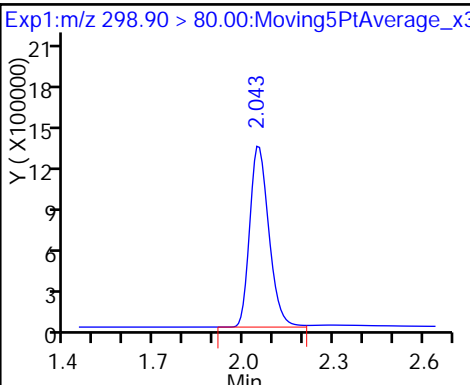
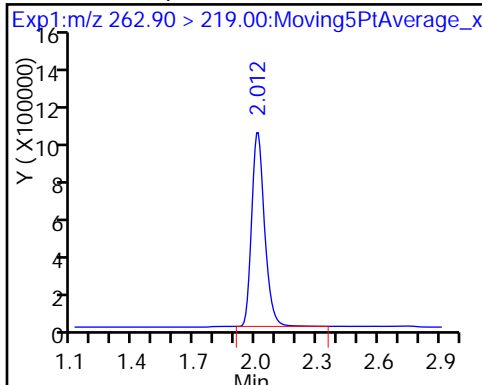
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

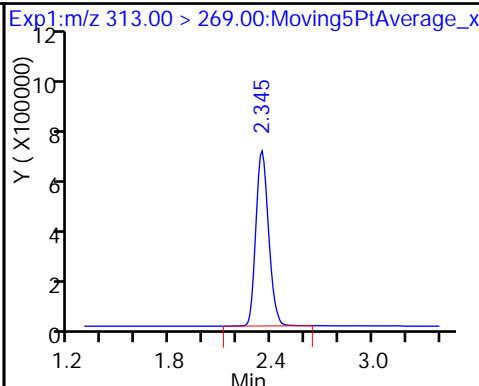
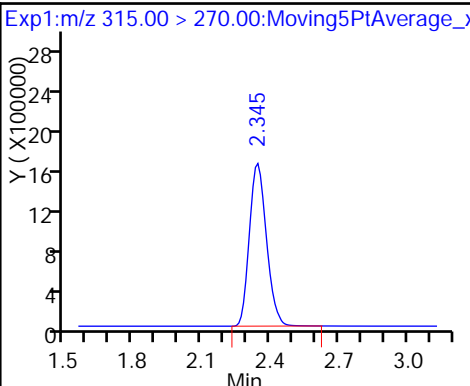
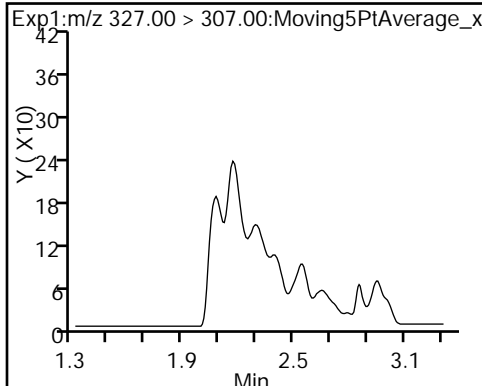
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid (N13)C2 PFHxA

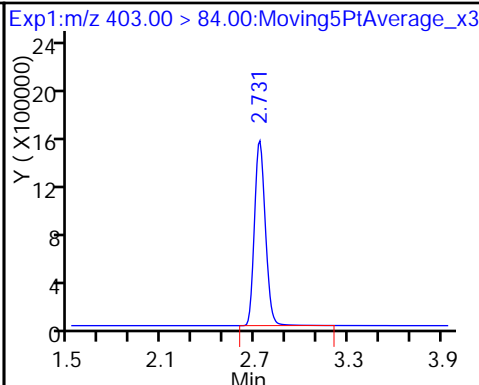
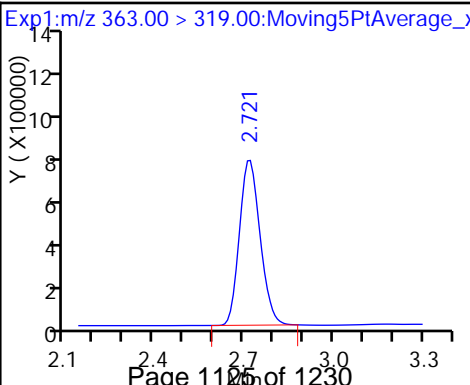
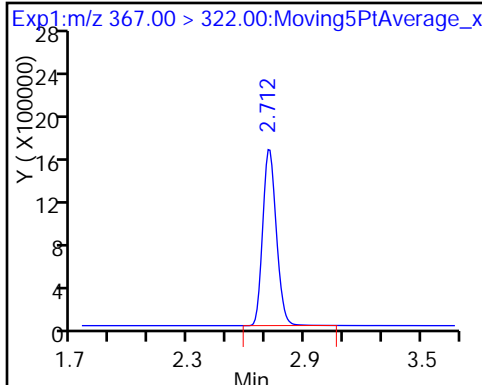
6 Perfluorohexanoic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

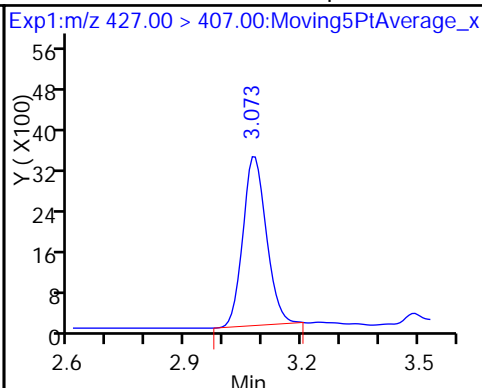
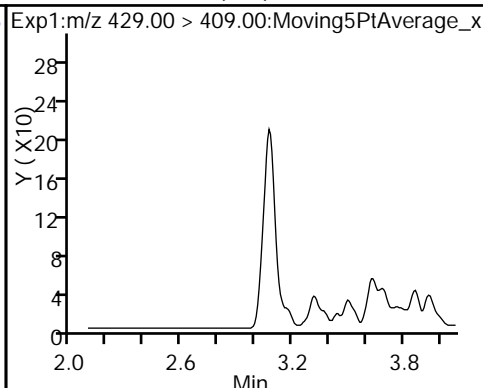
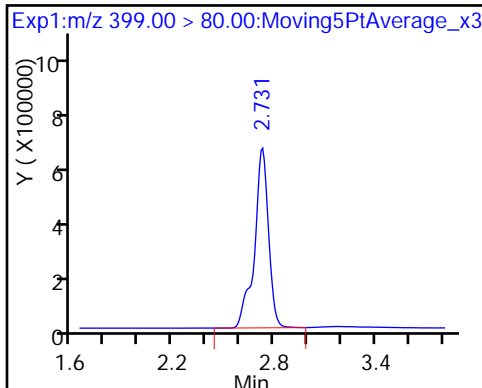
D 11 18O2 PFHxS



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS (ND)

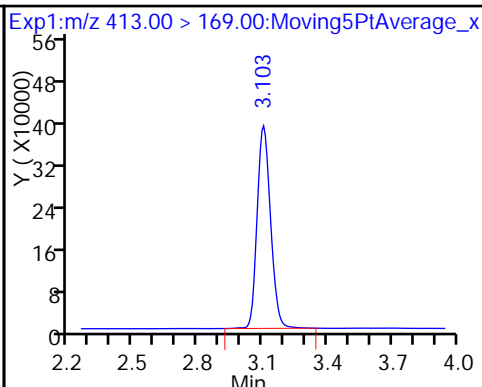
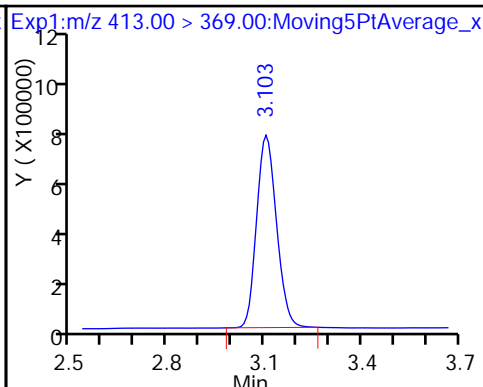
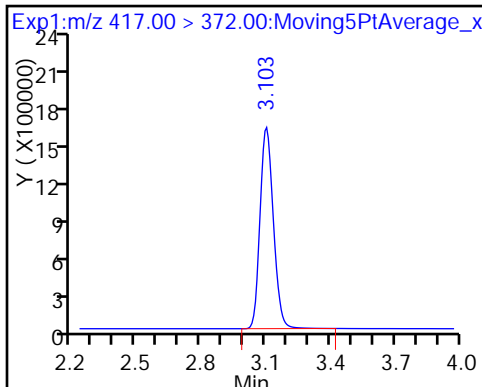
13 Sodium 1H,1H,2H,2H-perfluorooctane



D 14 13C4 PFOA

15 Perfluorooctanoic acid

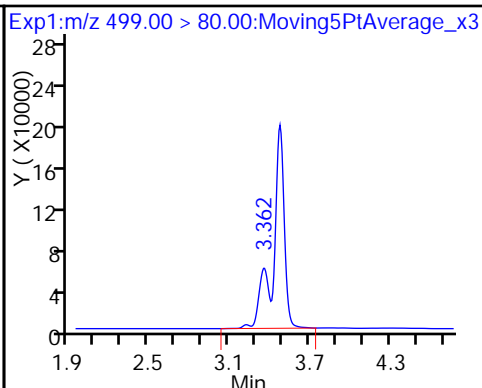
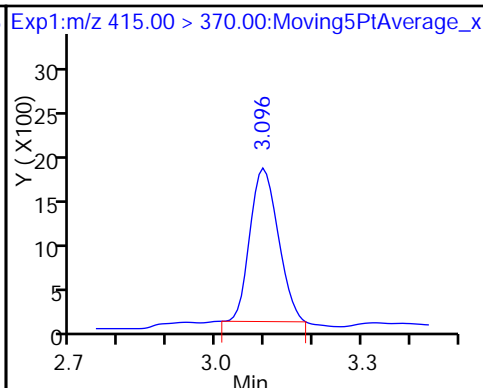
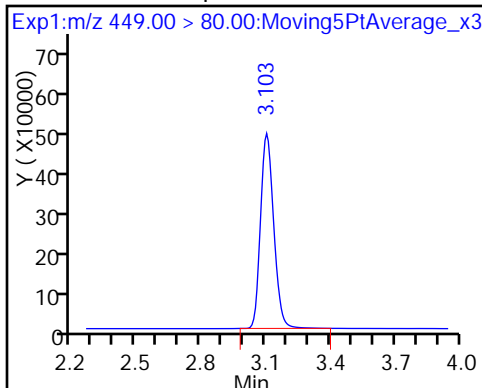
15 Perfluorooctanoic acid



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

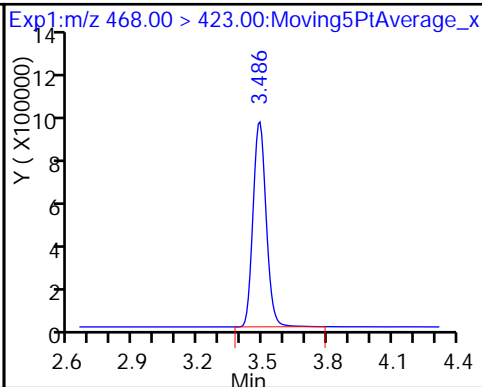
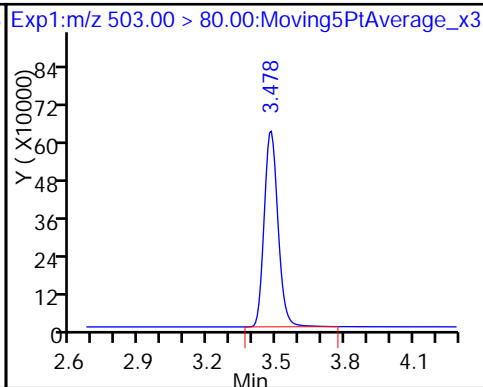
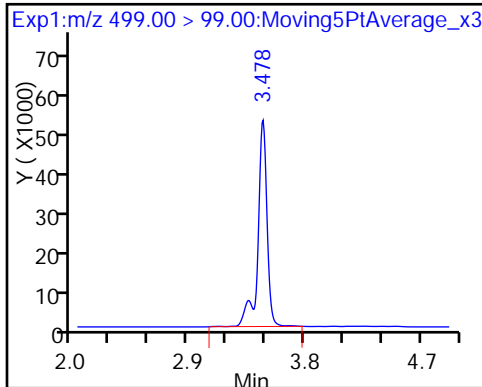
17 Perfluorooctane sulfonic acid

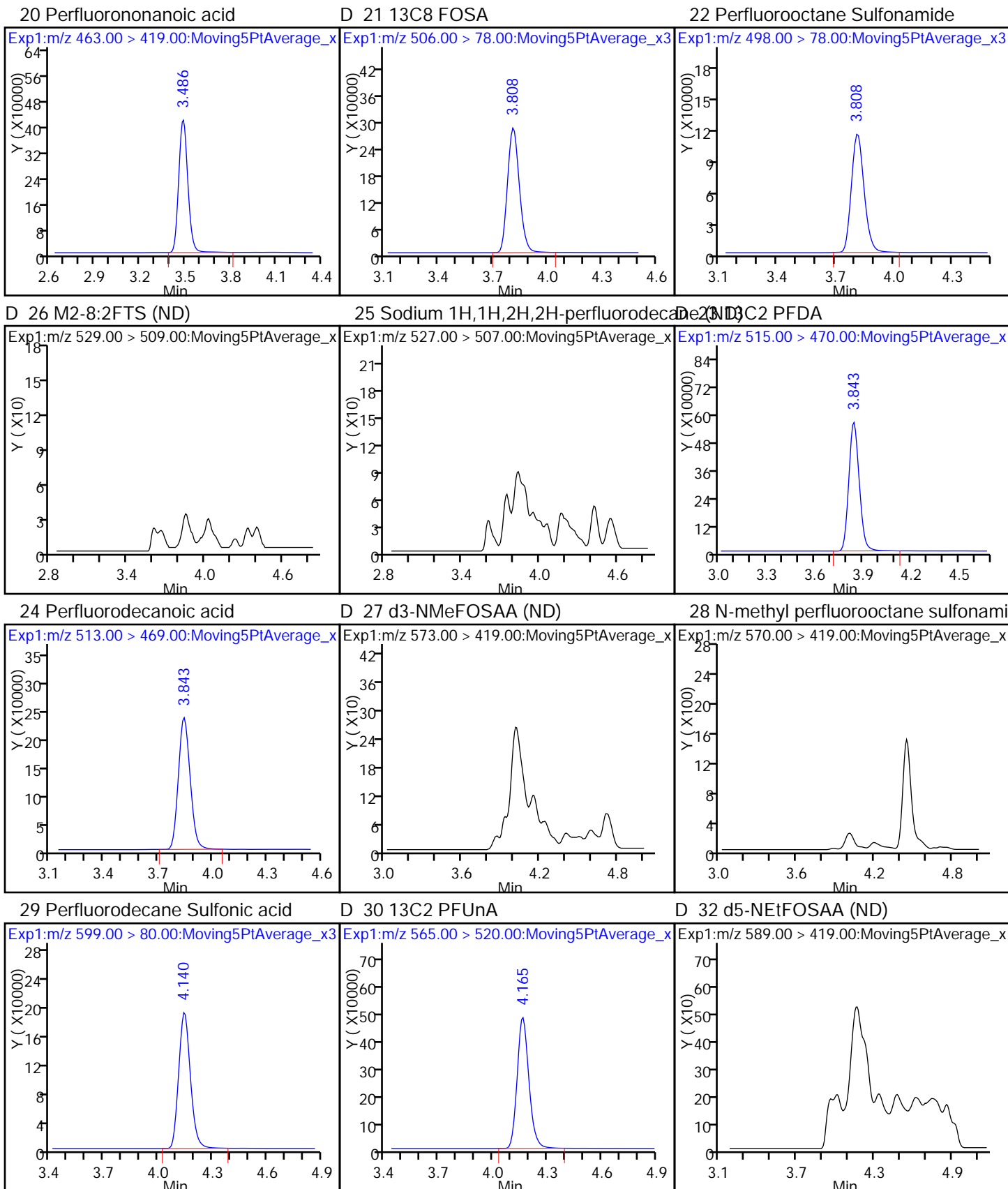


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

D 19 13C5 PFNA

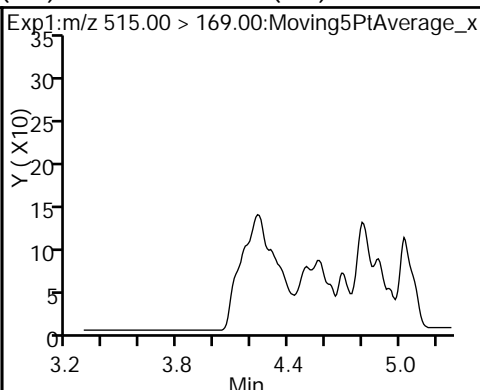
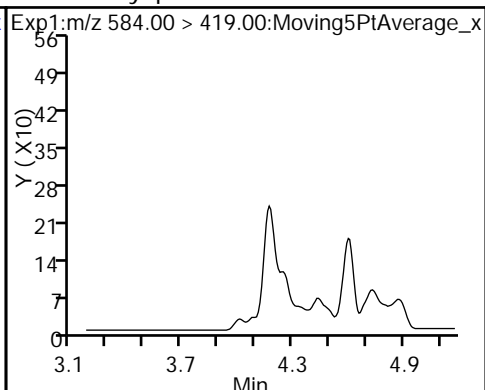
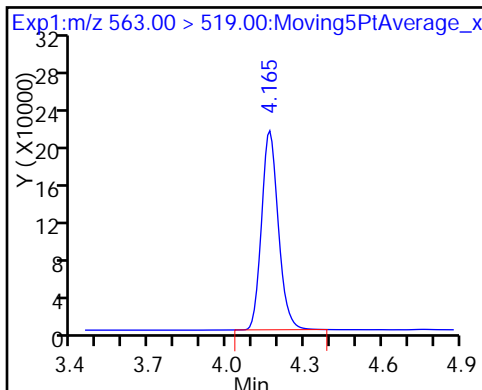




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid (ND)

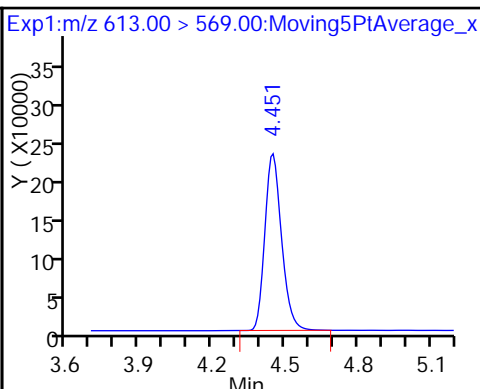
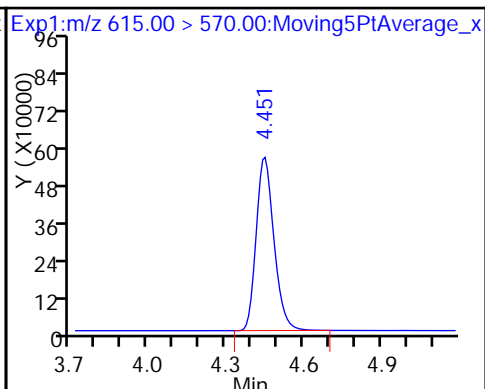
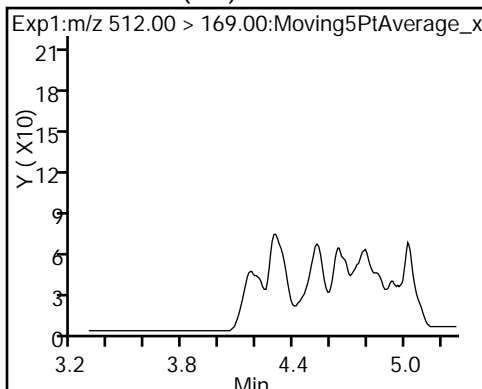
34 d-N-MeFOSA-M (ND)



35 MeFOSA (ND)

D 36 13C2 PFDaA

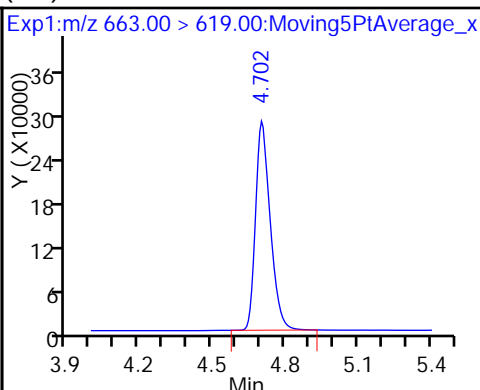
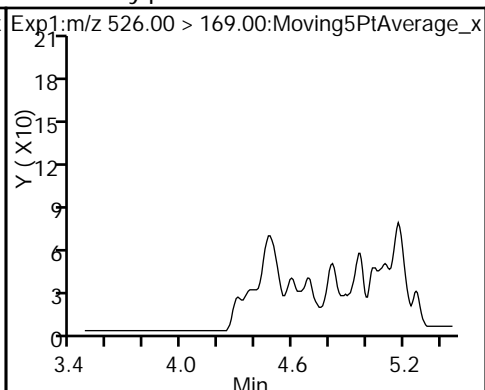
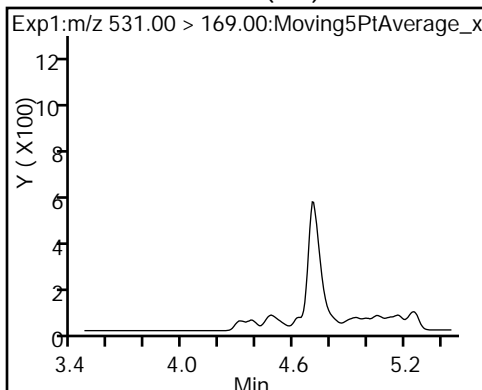
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M (ND)

39 N-ethylperfluoro-1-octanesulfonami (ND)

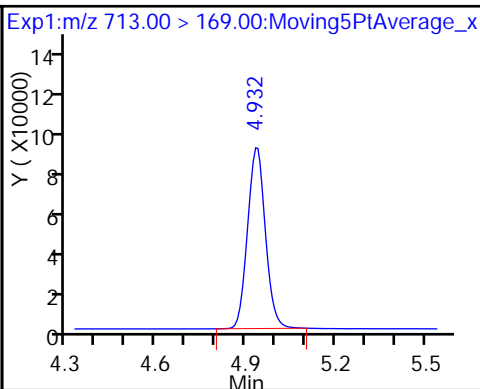
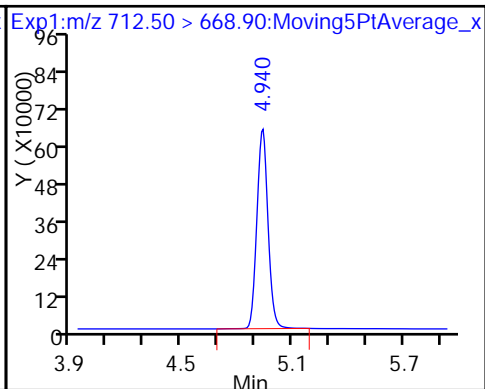
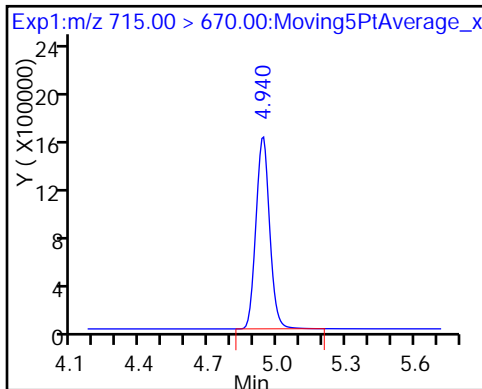
Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

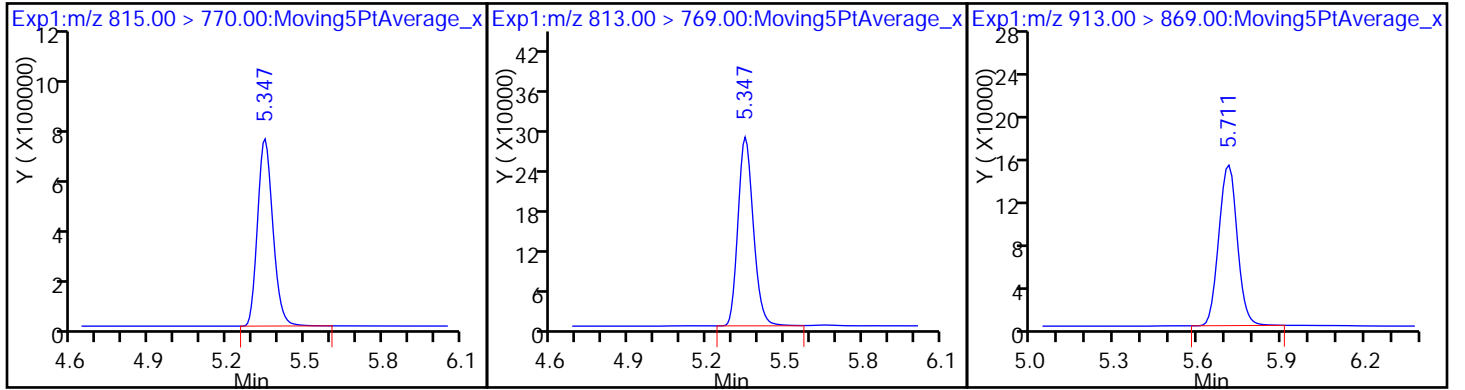
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204 MS Lab Sample ID: 320-28286-24 MS
 Matrix: Solid Lab File ID: 2017.05.24C_035.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 13:47
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.05(g) Date Analyzed: 05/24/2017 22:05
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 11.6 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	4.35		0.56	0.34	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	4.19		0.56	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.95		0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	88		25-150
STL00991	13C4 PFOS	51		25-150
STL00994	18O2 PFHxS	68		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_035.d
 Lims ID: 320-28286-A-24-B MS
 Client ID:
 Sample Type: MS
 Inject. Date: 24-May-2017 22:05:34 ALS Bottle#: 29 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-24-b ms
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:02:54 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:52:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid										
212.90 > 169.00	1.993	1.993	0.0	1.000	6009958	20.4		102	2350	
D 1 13C4 PFBA										
217.00 > 172.00	1.993	1.993	0.0		14710462	39.5		78.9	198649	
4 Perfluoropentanoic acid										
262.90 > 219.00	2.348	2.348	0.0	1.000	4177068	19.2		95.9	969	
D 3 13C5-PFPeA										
267.90 > 223.00	2.348	2.348	0.0		10046053	40.8		81.5	191792	
D 47 13C3-PFBS										
301.90 > 83.00	2.389	2.388	0.0		212449	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.389	2.388	0.0	1.000	6083683	17.7		99.8		
298.90 > 99.00	2.389	2.388	0.0	1.000	2547064		2.39(0.00-0.00)			
6 Perfluorohexanoic acid										
313.00 > 269.00	2.729	2.728	0.001	1.000	3915984	19.3		96.6	5588	
D 7 13C2 PFHxA										
315.00 > 270.00	2.729	2.728	0.001		9780656	40.0		80.0	290410	
D 9 13C4-PFHpA										
367.00 > 322.00	3.123	3.122	0.001		10433677	46.6		93.3	52504	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.132	3.131	0.001	1.000	4448140	16.9		92.7		
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.123	3.131	-0.008	1.000	4571851	20.0		99.9	1917	
D 11 18O2 PFHxS										
403.00 > 84.00	3.132	3.131	0.001		10306301	32.0		67.6	33169	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	3.498	3.500	-0.002	1.000	24581	NR		0.0		
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.513	3.515	-0.002	1.000	4414101	24.6		129		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
* 62 13C2-PFOA	415.00	> 370.00	3.513	3.523	-0.010	9982	49.5	0.0		
15 Perfluorooctanoic acid	413.00	> 369.00	3.521	3.523	-0.002	1.000	4368412	19.4	97.2	572
	413.00	> 169.00	3.521	3.523	-0.002	1.000	2468731	1.77(0.90-1.10)		6832
D 14 13C4 PFOA	417.00	> 372.00	3.521	3.523	-0.002	10002912	44.1	88.2		48556
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.835	3.887	-0.052	1.000	2654131	18.7	101	1574
	499.00	> 99.00	3.885	3.887	-0.002	1.013	573062	4.63(0.90-1.10)		1552
D 18 13C4 PFOS	503.00	> 80.00	3.885	3.887	-0.002	5719700	24.4	51.0		15308
D 19 13C5 PFNA	468.00	> 423.00	3.901	3.905	-0.004	7697485	44.1	88.2		42839
20 Perfluorononanoic acid	463.00	> 419.00	3.901	3.905	-0.004	1.000	3204722	19.1	95.7	4667
D 21 13C8 FOSA	506.00	> 78.00	4.212	4.215	-0.003	3141021	8.54	17.1		13342
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.221	4.224	-0.003	1.000	1272501	19.3	96.6	6208
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.239	4.245	-0.006	1.000	18312	NR	0.0	
D 23 13C2 PFDA	515.00	> 470.00	4.248	4.245	0.003	5415905	36.2	72.4		7761
24 Perfluorodecanoic acid	513.00	> 469.00	4.248	4.255	-0.007	1.000	2131501	19.3	96.7	5554
D 27 d3-NMeFOSAA	573.00	> 419.00	4.405	4.401	0.004	5067	0.0768	0.0		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.529	4.529	0.0	1.000	1322065	15.9	82.5	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.549	4.558	-0.009	1.000	1564201	18.2	91.0	3895
D 32 d5-NEtFOSAA	589.00	> 419.00	4.549	4.558	-0.009	4598	0.0715	0.0		
D 30 13C2 PFUnA	565.00	> 520.00	4.549	4.558	-0.009	3661169	32.6	65.2		11478
D 36 13C2 PFDaA	615.00	> 570.00	4.829	4.834	-0.005	3277828	30.1	60.2		8936
37 Perfluorododecanoic acid	613.00	> 569.00	4.829	4.834	-0.005	1.000	1349016	20.3	101	185
D 38 d-N-EtFOSA-M	531.00	> 169.00	5.080	4.853	0.227	2503	0.0261	0.0		
41 Perfluorotridecanoic acid	663.00	> 619.00	5.071	5.082	-0.011	1.000	1253461	19.0	95.2	141
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.289	5.295	-0.006	1.000	3193156	23.8	119	118
	713.00	> 169.00	5.289	5.295	-0.006	1.000	411903	7.75(0.00-0.00)		2951

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 43 13C2-PFTeDA	715.00 > 670.00	5.289	5.295	-0.006		7632555	35.4	70.9	10004	
D 44 13C2-PFHxDA	815.00 > 770.00	5.688	5.696	-0.008		2283484	19.0	38.0	1419	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.688	5.696	-0.008	1.000	889905	12.4	62.1	75.9	
46 Perfluorooctadecanoic acid	913.00 > 869.00	6.089	6.087	0.002	1.000	558845	6.76	33.8	52.6	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_035.d

Injection Date: 24-May-2017 22:05:34

Instrument ID: A8_N

Lims ID: 320-28286-A-24-B MS

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

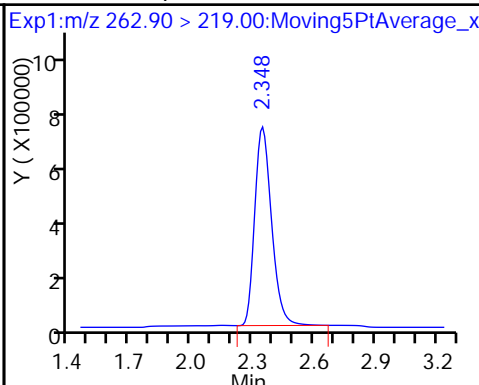
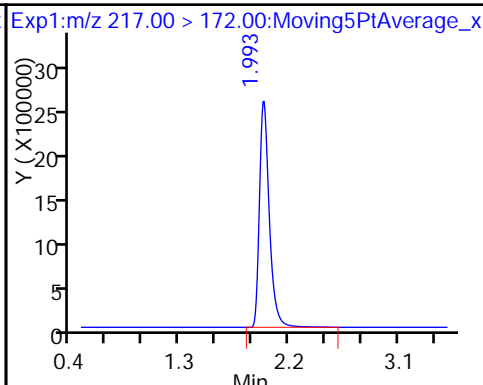
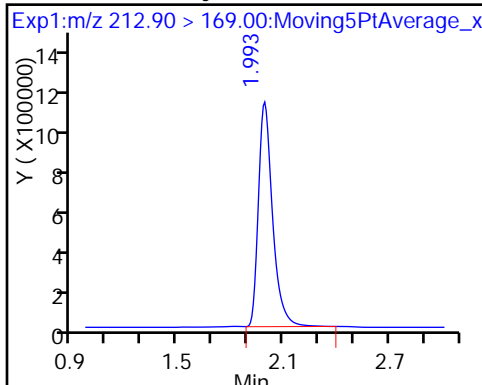
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid

D 1 13C4 PFBA

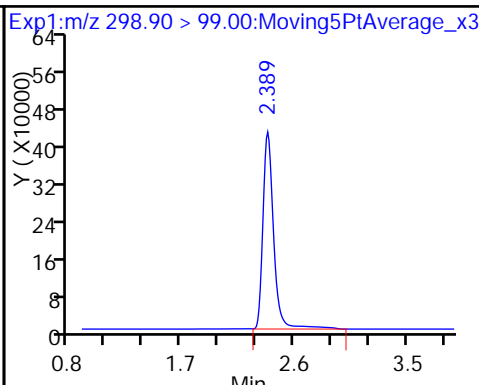
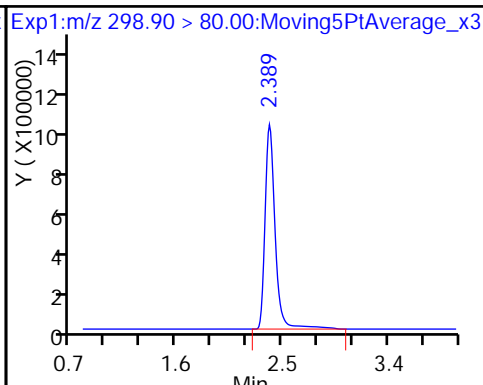
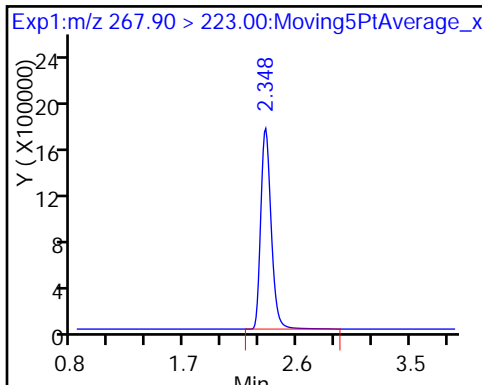
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

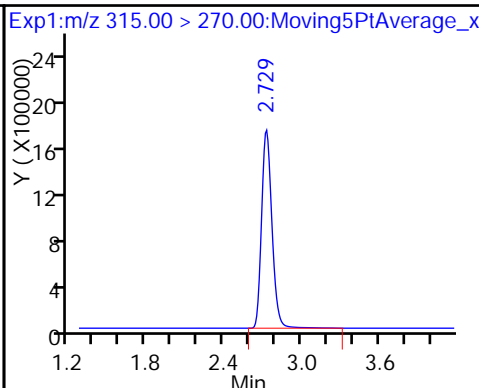
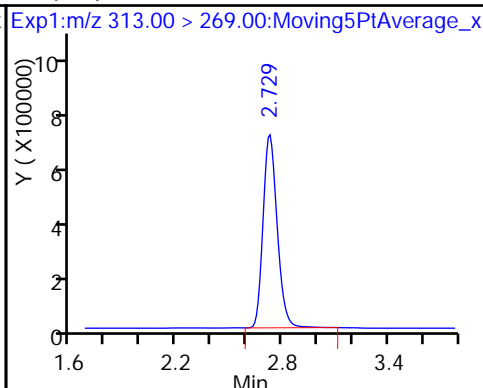
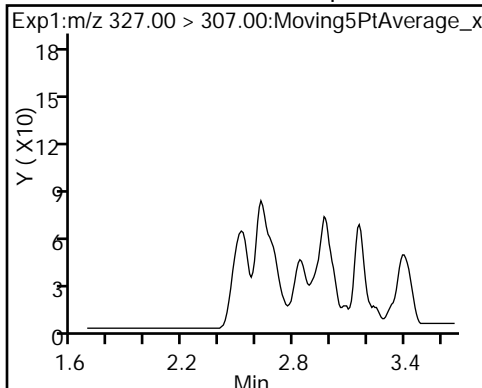
5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid (Na)

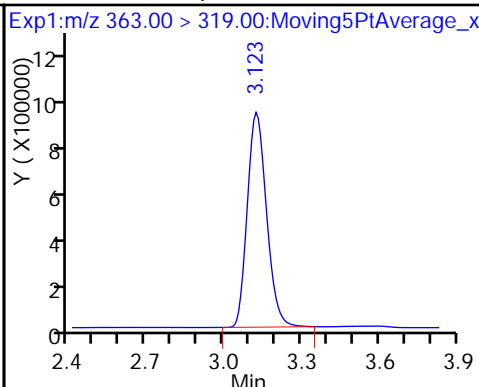
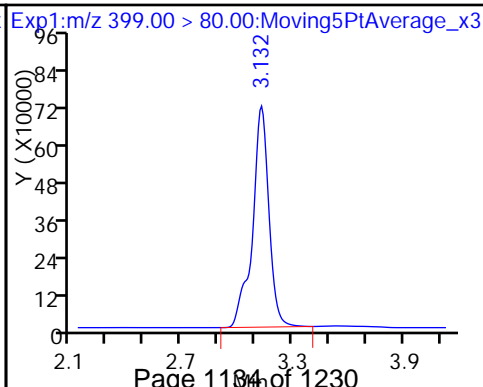
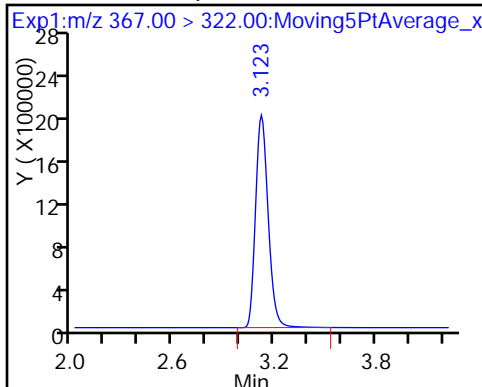
D 7 13C2 PFHxA



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid

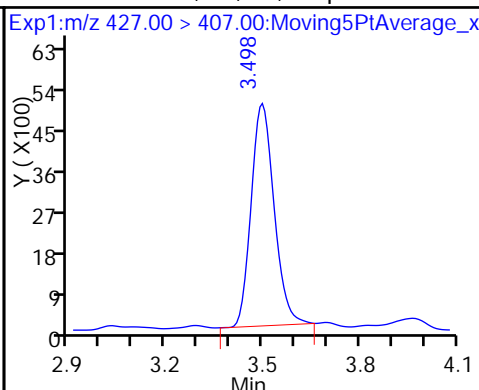
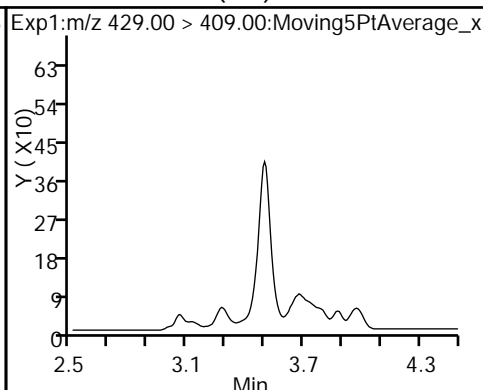
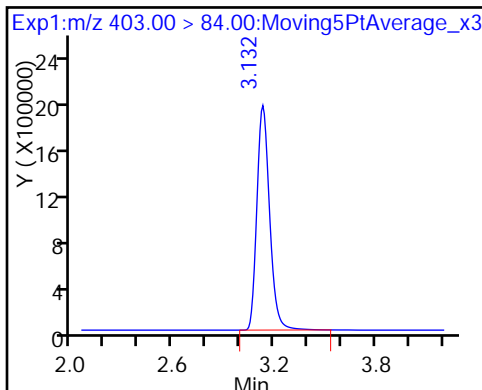
10 Perfluoroheptanoic acid



D 11 18O2 PFHxS

D 12 M2-6:2FTS (ND)

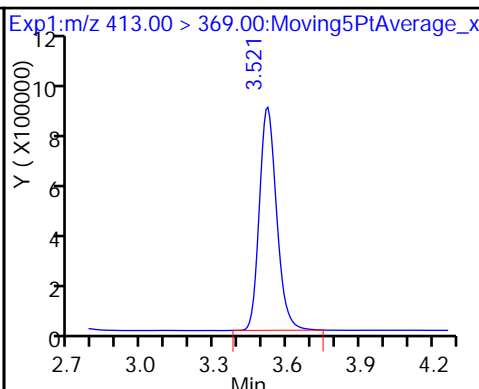
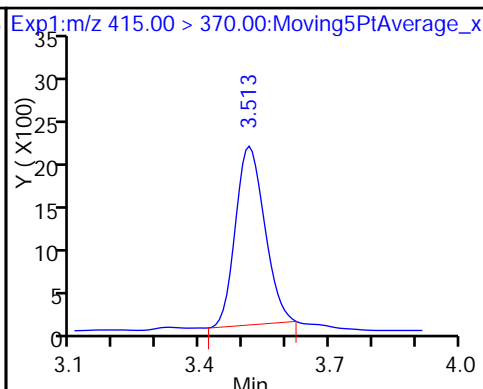
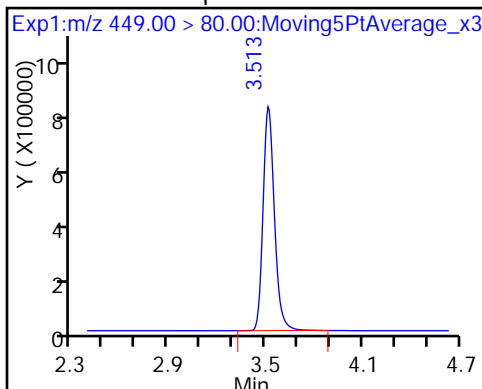
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

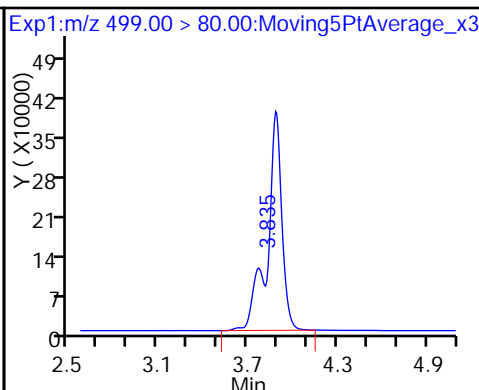
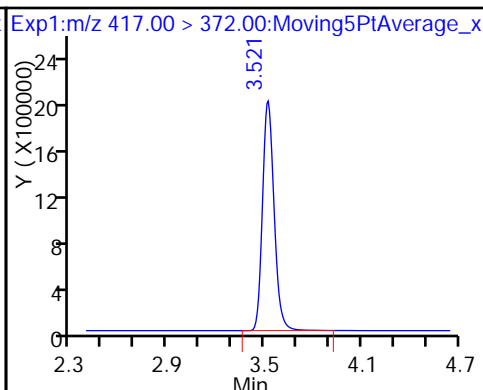
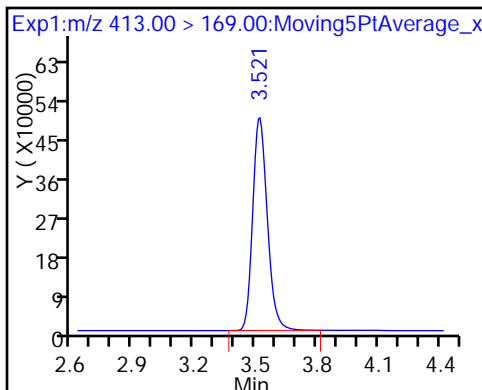
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

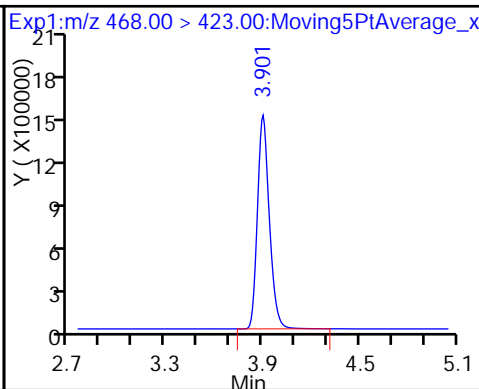
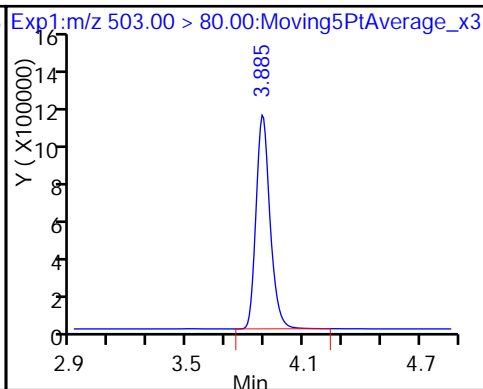
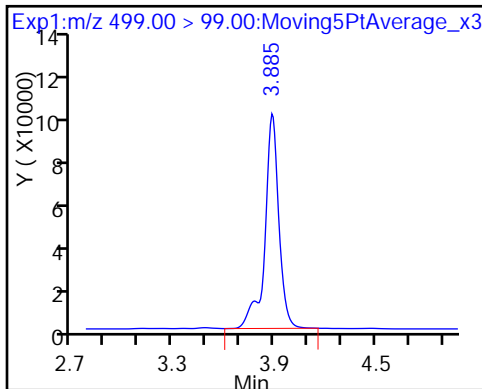
17 Perfluorooctane sulfonic acid

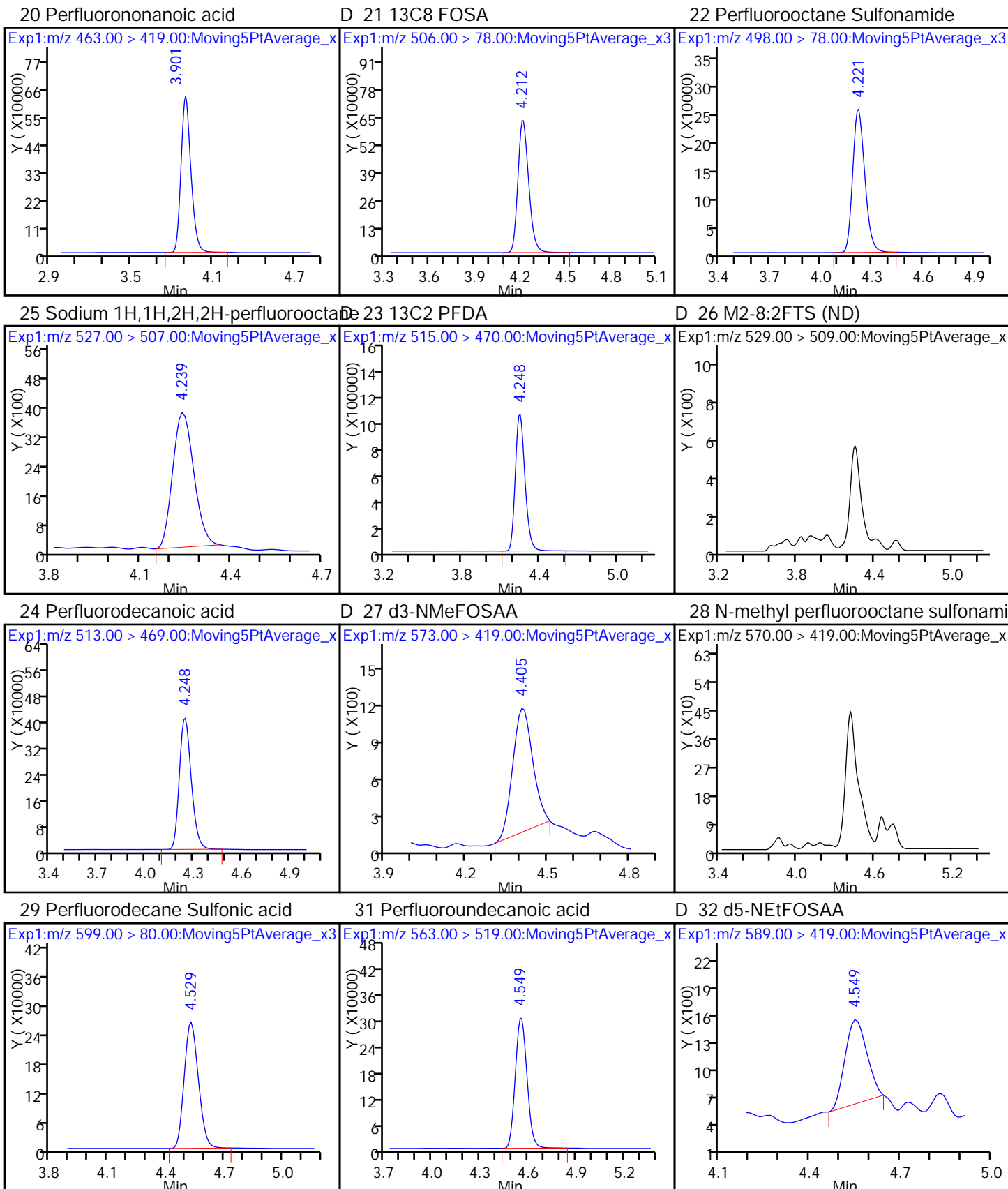


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

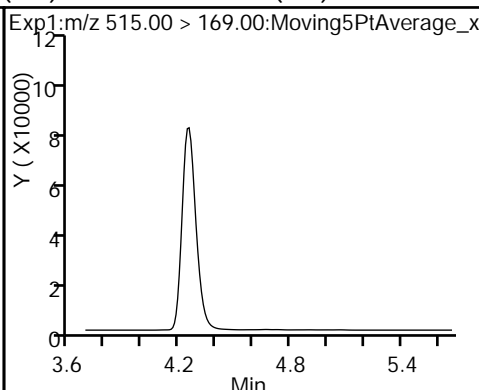
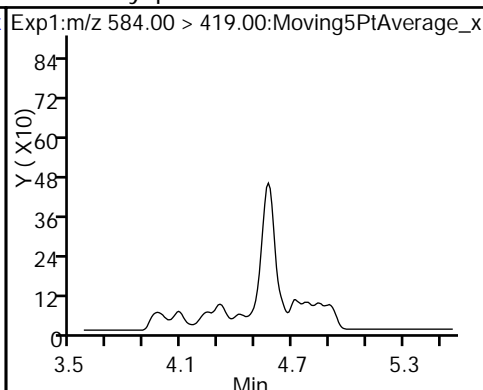
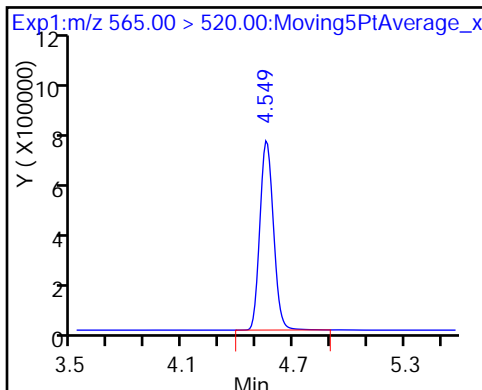
D 19 13C5 PFNA





D 30 13C2 PFUnA

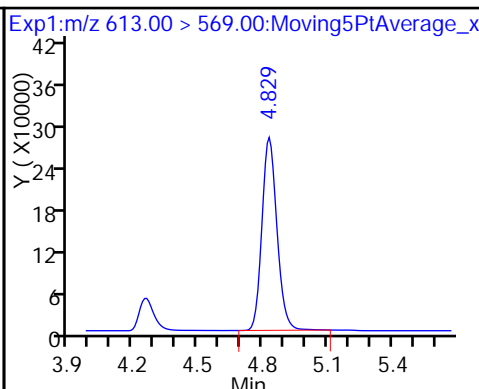
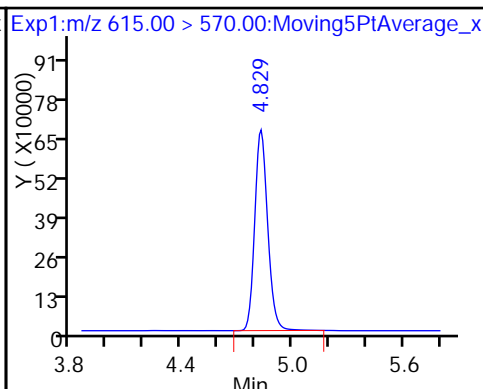
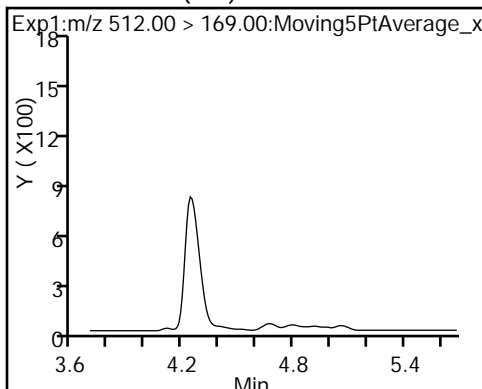
33 N-ethyl perfluorooctane sulfonamid (ND) ~~D 34~~ d-N-MeFOSA-M (ND)



35 MeFOSA (ND)

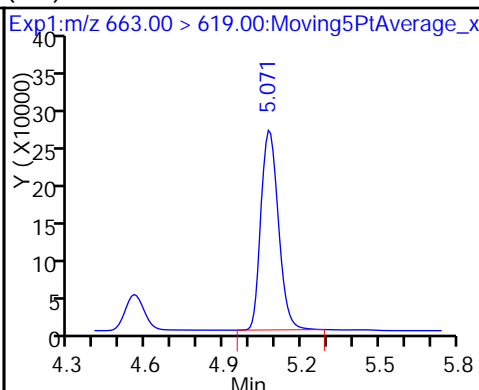
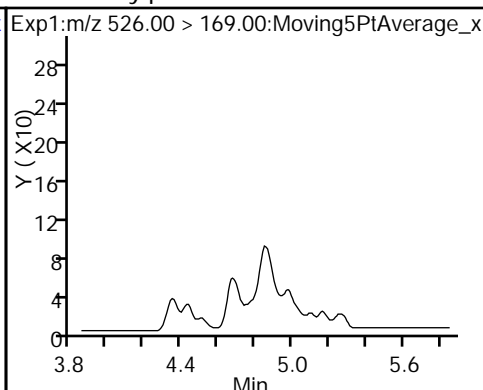
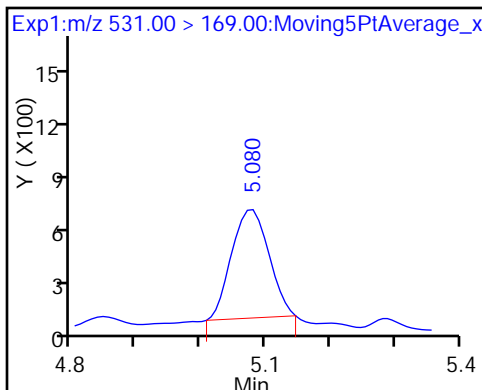
D 36 13C2 PFDaA

37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

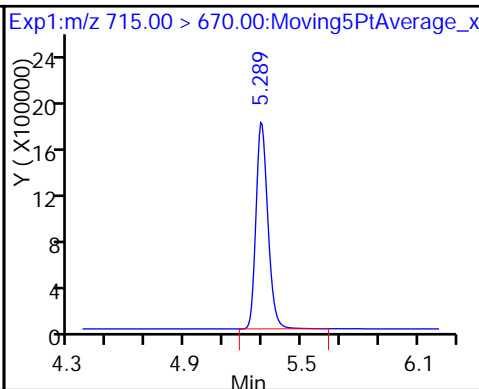
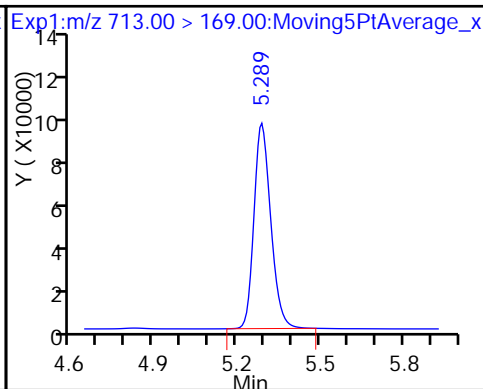
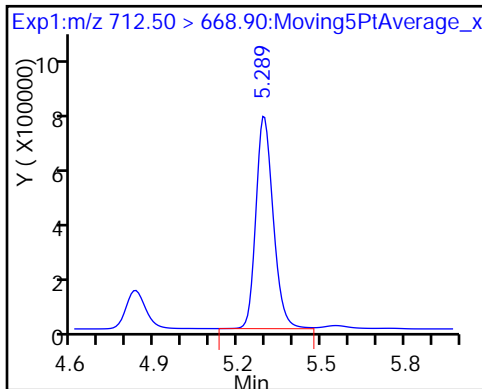
39 N-ethylperfluoro-1-octanesulfonami (ND) Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

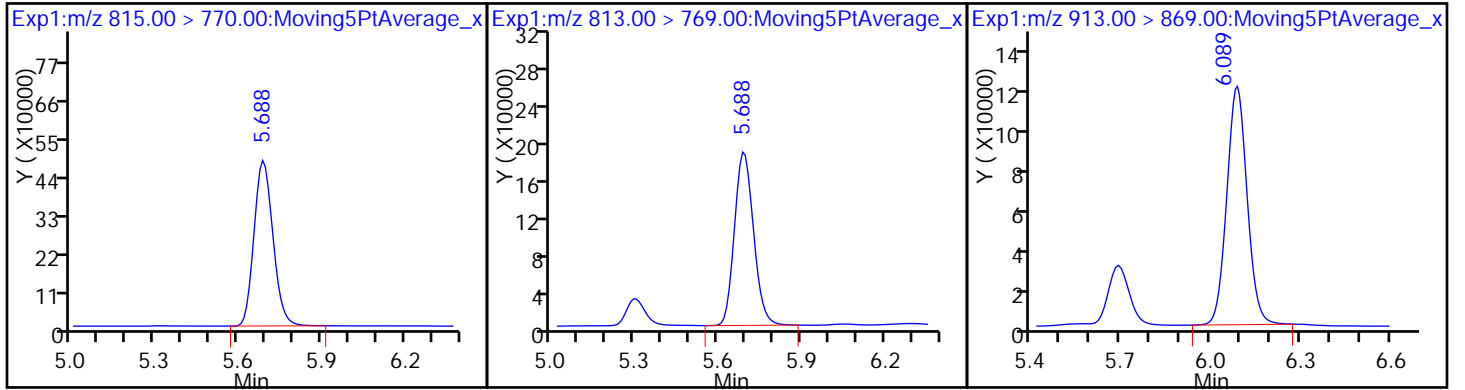
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_023.d
 Lims ID: 320-28286-A-4-C MSD
 Client ID: MEAFF-Unknown11-SB01-0204
 Sample Type: MSD
 Inject. Date: 07-Jun-2017 17:39:51 ALS Bottle#: 8 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-4-c msd
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 07-Jun-2017 18:48:57 Calib Date: 06-Jun-2017 14:25:49
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170606-43899.b\2017.06.06CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: rainey Date: 07-Jun-2017 18:50:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.690	1.692	-0.002	12240661	37.1		74.2	42234	
2 Perfluorobutyric acid	212.90 > 169.00	1.690	1.692	-0.002	1.000	5069391		113	2306	
D 40 d-N-EtFOSE-M	212.90 > 169.00	1.690	1.857	-0.167	5069391	NC				
D 3 13C5-PFPeA	267.90 > 223.00	2.005	2.011	-0.006	9637609	43.8		87.6	44178	
4 Perfluoropentanoic acid	262.90 > 219.00	2.005	2.011	-0.006	1.000	4101616		102	2089	
D 47 13C3-PFBS	301.90 > 83.00	2.043	2.051	-0.008	203880	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	2.043	2.051	-0.008	1.000	5750224		129		
	298.90 > 99.00	2.043	2.051	-0.008	1.000	2250027	2.56(0.00-0.00)			
D 7 13C2 PFHxA	315.00 > 270.00	2.336	2.345	-0.009	8141308	42.2		84.4	19447	
6 Perfluorohexanoic acid	313.00 > 269.00	2.336	2.345	-0.009	1.000	3351156		102	3640	
D 60 M2-4:2FTS	329.00 > 309.00	2.315	2.372	-0.057	6808	NC				
D 9 13C4-PFHpA	367.00 > 322.00	2.713	2.721	-0.008	7943083	44.7		89.3	13904	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.713	2.721	-0.008	1.000	3348081		101	1127	
D 11 18O2 PFHxS	403.00 > 84.00	2.723	2.730	-0.007	7329389	31.8		67.2	17147	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.723	2.740	-0.017	1.000	2509988		114		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	3.073	3.087	-0.015	1.000	15675	NR	0.0	
D 14 13C4 PFOA	417.00	> 372.00	3.096	3.110	-0.014		6502446	36.1	72.1	15611
15 Perfluorooctanoic acid	413.00	> 369.00	3.096	3.110	-0.014	1.000	2856789	20.6	103	913
	413.00	> 169.00	3.096	3.110	-0.014	1.000	1616051	1.77(0.90-1.10)		2232
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	3.103	3.110	-0.007	1.000	2316077	28.7	151	
* 62 13C2-PFOA	415.00	> 370.00	3.096	3.110	-0.014		6890	50.0	0.0	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.478	3.454	0.024	1.000	1539427	20.6	111	2539
	499.00	> 99.00	3.470	3.454	0.016	0.998	334648	4.60(0.90-1.10)		2130
D 18 13C4 PFOS	503.00	> 80.00	3.470	3.485	-0.015		3381440	19.0	39.7	13909
D 19 13C5 PFNA	468.00	> 423.00	3.478	3.493	-0.015		3842157	25.2	50.3	13983
20 Perfluorononanoic acid	463.00	> 419.00	3.478	3.493	-0.015	1.000	1637941	21.3	106	2146
D 21 13C8 FOSA	506.00	> 78.00	3.808	3.808	0.0		1996825	6.65	13.3	6655
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.808	3.808	0.0	1.000	784333	20.3	101	4382
D 23 13C2 PFDA	515.00	> 470.00	3.834	3.851	-0.017		3421760	22.7	45.4	9646
24 Perfluorodecanoic acid	513.00	> 469.00	3.834	3.851	-0.017	1.000	1284199	19.7	98.5	3571
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.141	4.156	-0.015	1.000	1281028	27.5	143	
D 30 13C2 PFUnA	565.00	> 520.00	4.157	4.172	-0.015		3366472	28.1	56.2	10210
31 Perfluoroundecanoic acid	563.00	> 519.00	4.157	4.172	-0.015	1.000	1452629	20.3	101	3132
D 36 13C2 PFDaA	615.00	> 570.00	4.441	4.459	-0.018		3699885	29.7	59.4	4719
37 Perfluorododecanoic acid	613.00	> 569.00	4.441	4.459	-0.018	1.000	1513067	21.4	107	2770
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.702	4.459	0.243		3781	0.0457	0.0	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.702	4.716	-0.014	1.000	1515038	20.5	102	2311
D 43 13C2-PFTeDA	715.00	> 670.00	4.932	4.954	-0.022		8613957	33.5	67.0	13900
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.932	4.954	-0.022	1.000	3631426	23.6	118	3735
	713.00	> 169.00	4.932	4.954	-0.022	1.000	491536	7.39(0.00-0.00)		3767

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 44 13C2-PFHxDA	815.00 > 770.00	5.339	5.363	-0.024		3975523	29.0	58.1	4785	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.339	5.371	-0.032	1.000	1539844	21.4	107	1228	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.700	5.737	-0.037	1.000	922172	14.1	70.4	1402	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b\2017.06.07B_023.d

Injection Date: 07-Jun-2017 17:39:51

Instrument ID: A8_N

Lims ID: 320-28286-A-4-C MSD

Client ID: MEAFF-Unknown11-SB01-0204

Operator ID: SACINSTLCMS01

ALS Bottle#: 8

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

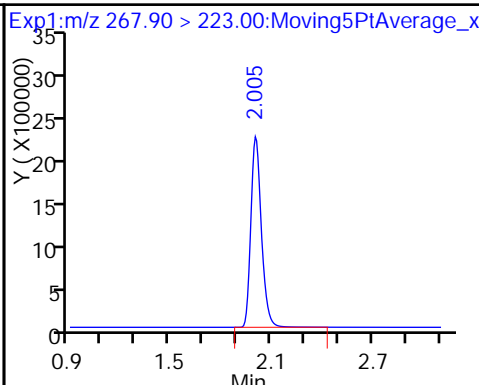
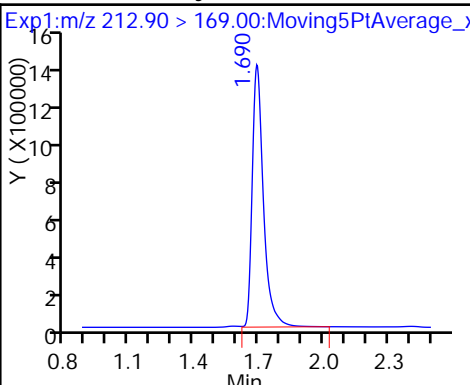
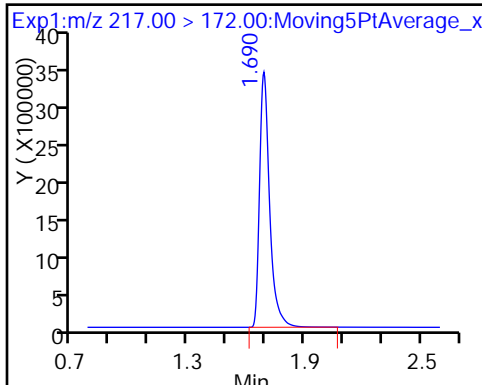
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

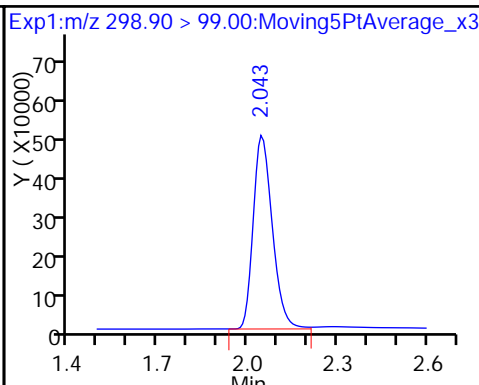
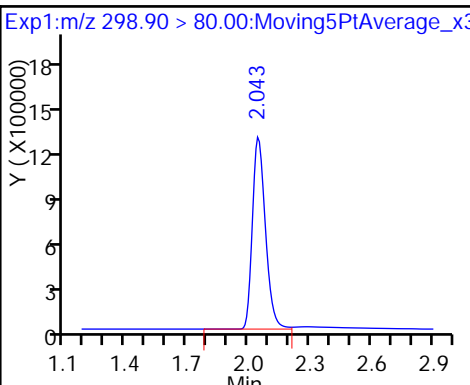
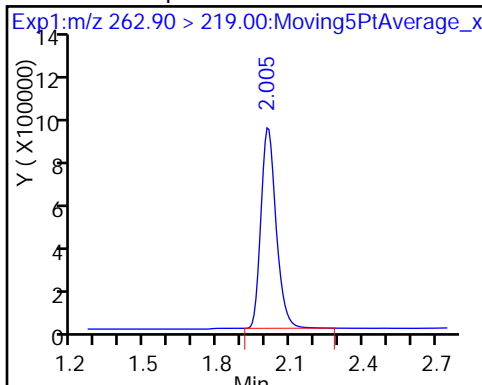
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

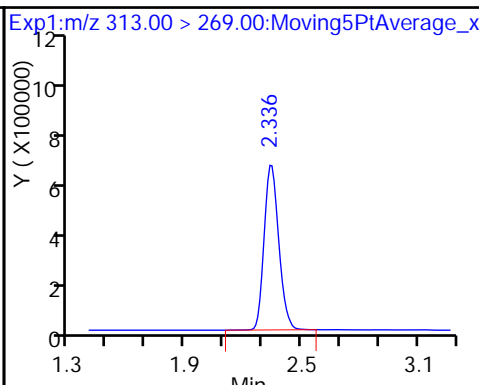
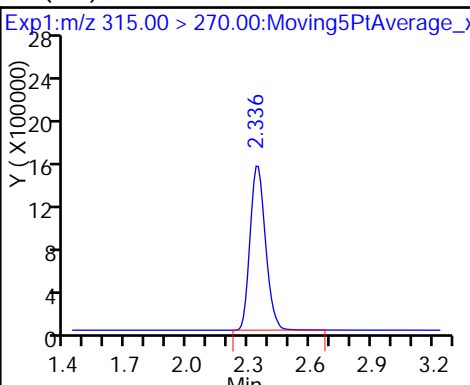
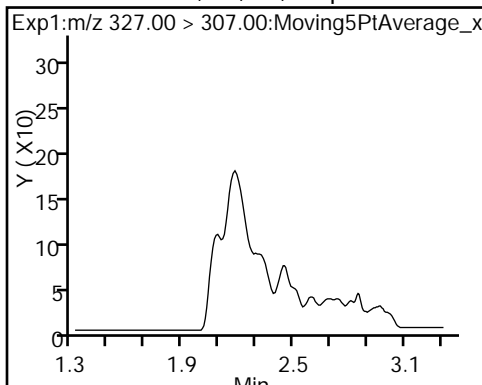
5 Perfluorobutanesulfonic acid



61 Sodium 1H,1H,2H,2H-perfluorohexa

De (N13)C2 PFHxA

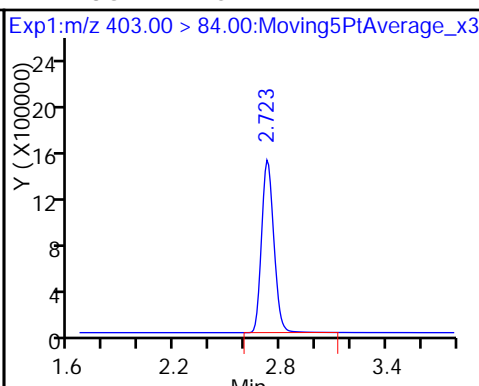
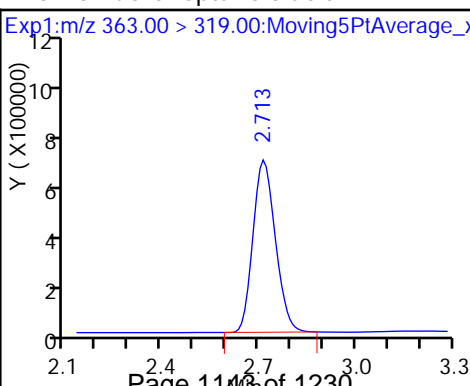
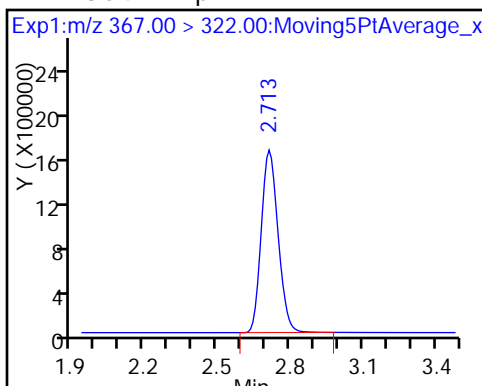
6 Perfluorohexanoic acid

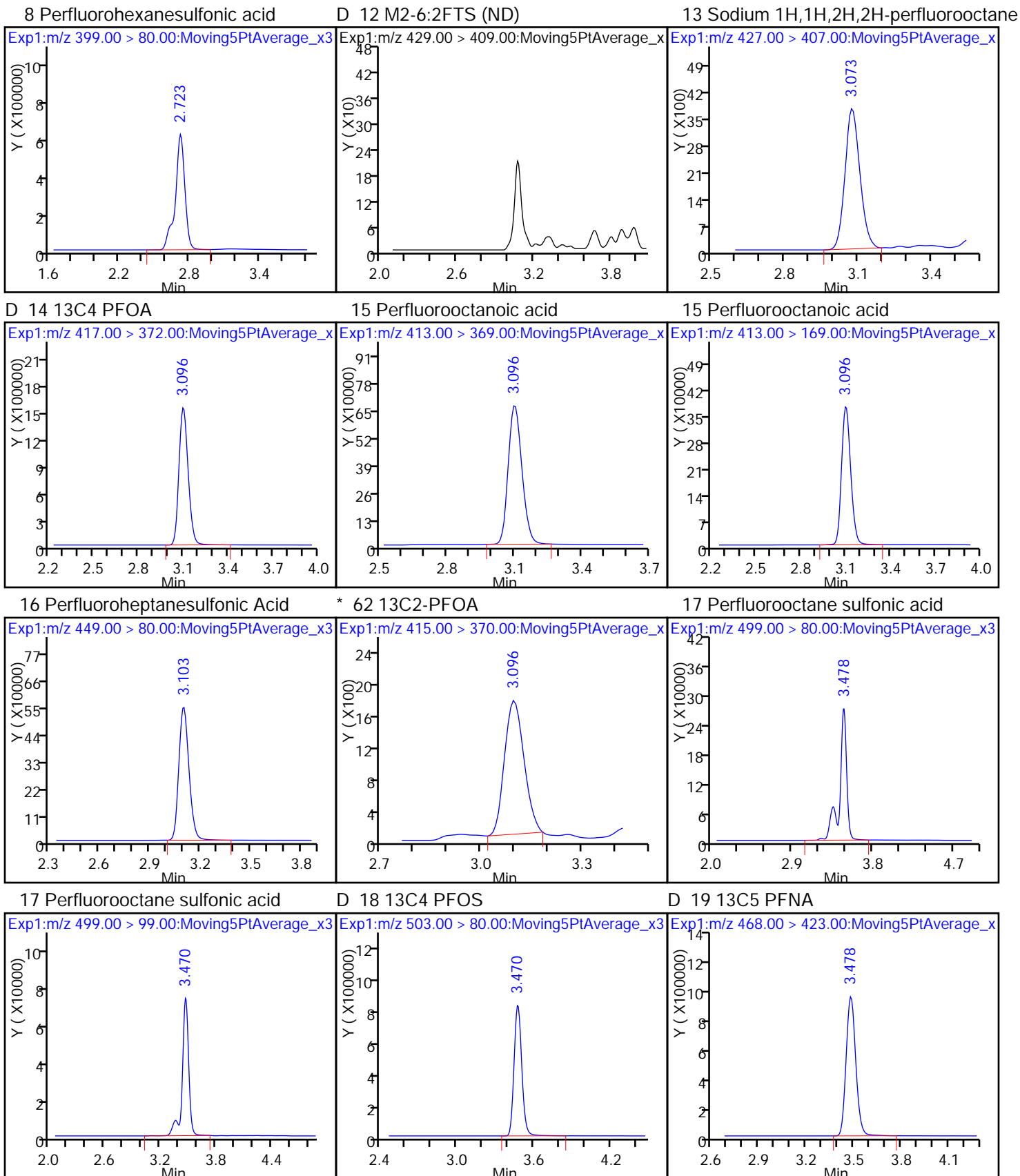


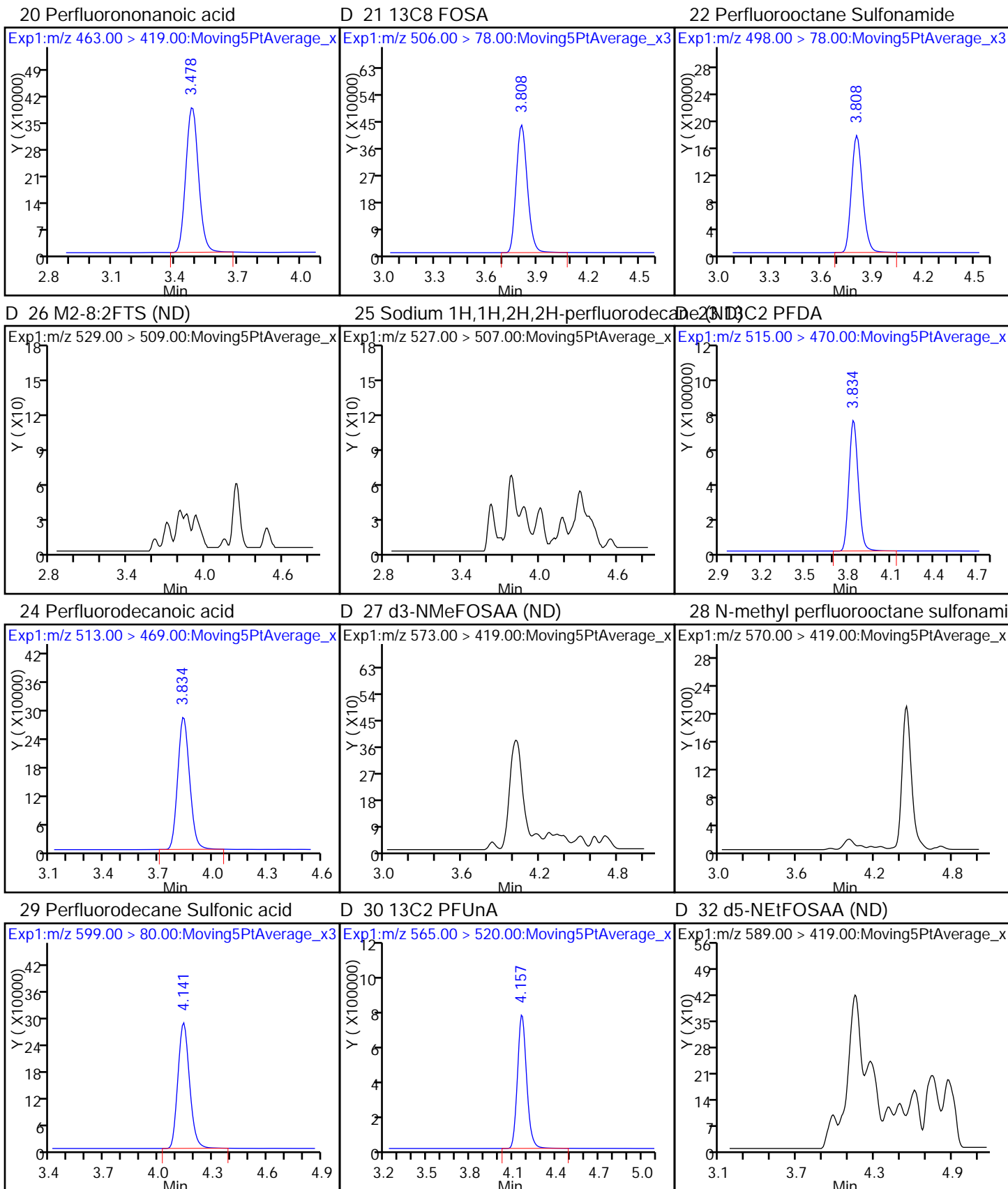
D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

D 11 18O2 PFHxS



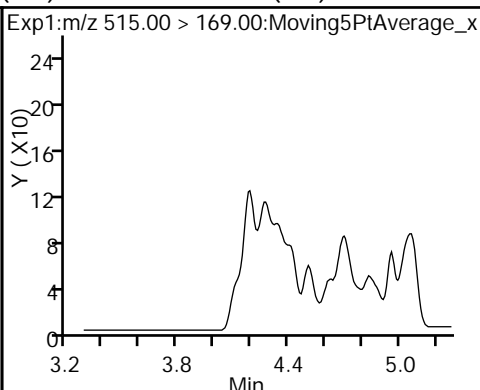
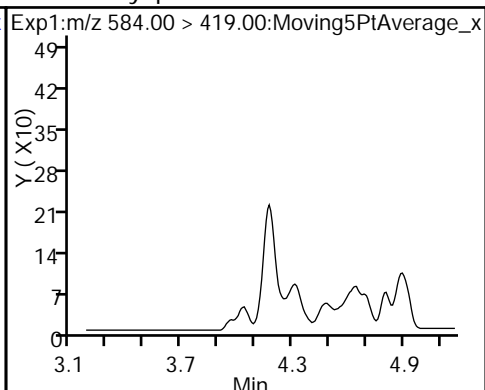
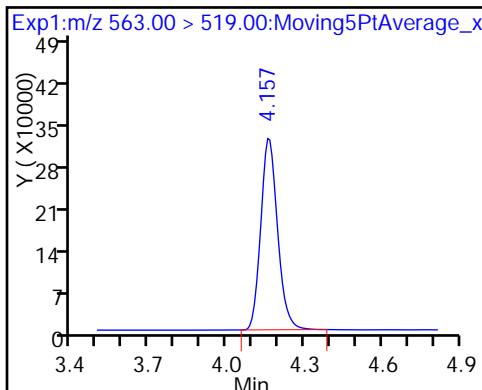




31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid (ND)

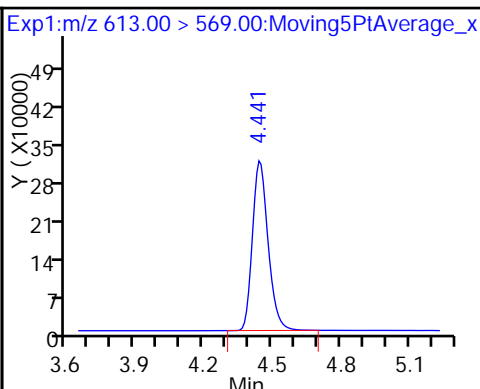
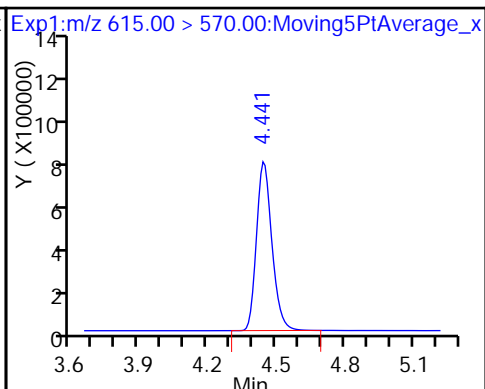
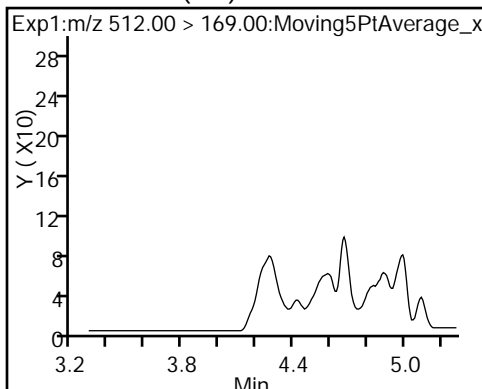
D 34 d-N-MeFOSA-M (ND)



35 MeFOSA (ND)

D 36 13C2 PFDaA

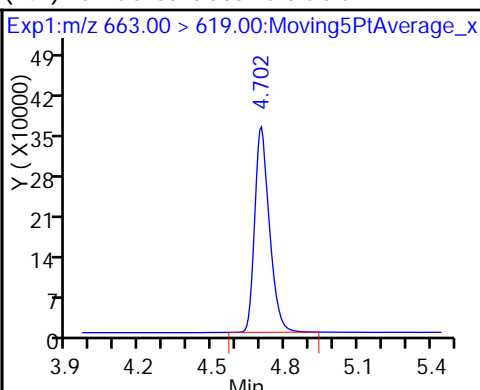
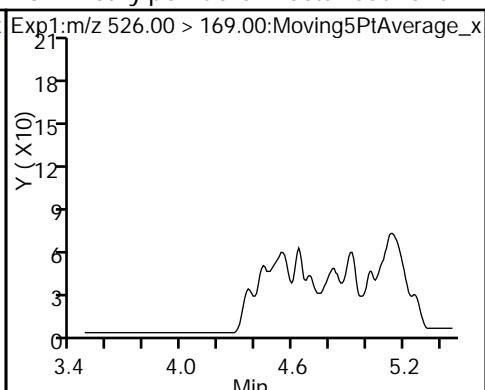
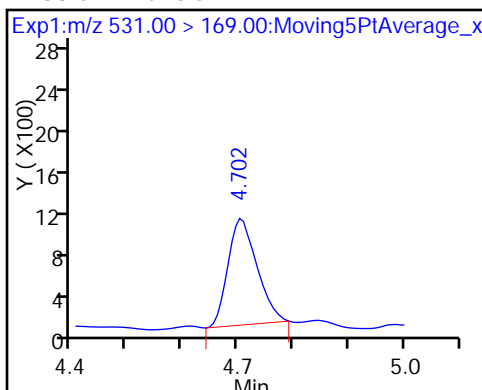
37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

39 N-ethylperfluoro-1-octanesulfonami (ND)

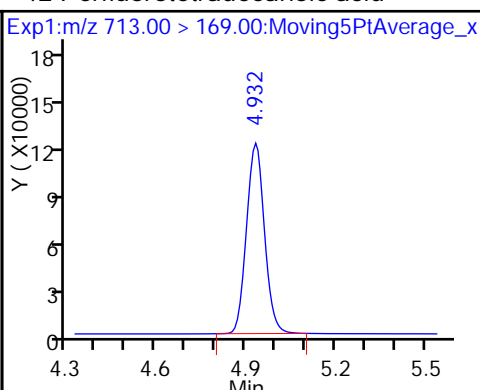
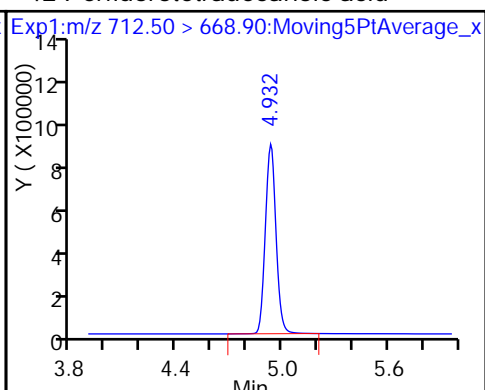
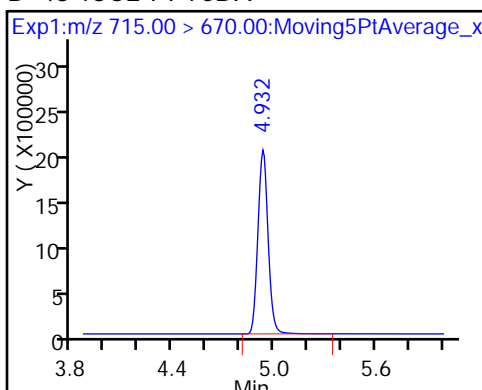
D 40 Perfluorotridecanoic acid



D 43 13C2-PFTeDA

42 Perfluorotetradecanoic acid

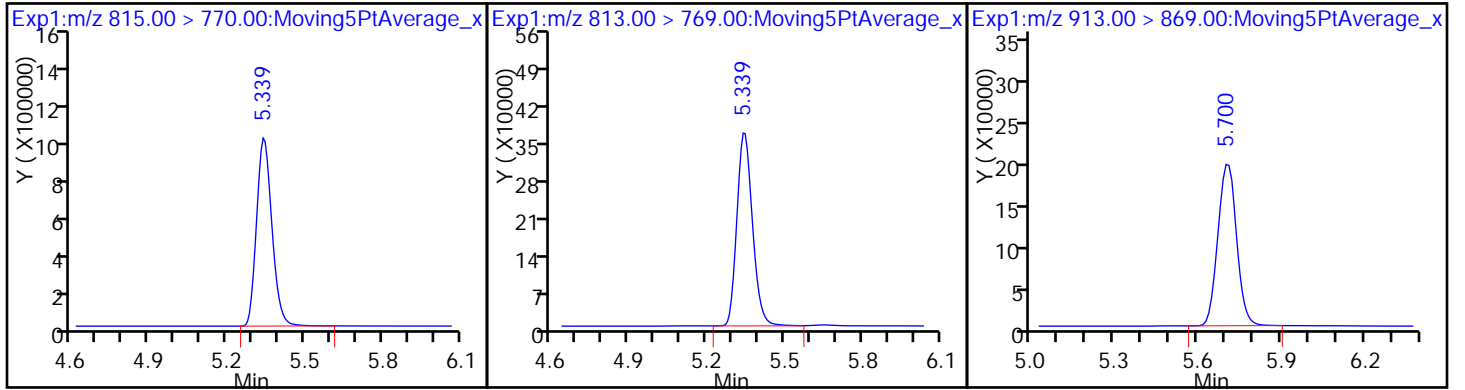
42 Perfluorotetradecanoic acid



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204 MSD Lab Sample ID: 320-28286-24 MSD
 Matrix: Solid Lab File ID: 2017.05.24C_036.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 13:47
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.03(g) Date Analyzed: 05/24/2017 22:13
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: 11.6 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	4.37		0.56	0.34	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	4.09		0.56	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	4.08		0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	99		25-150
STL00991	13C4 PFOS	59		25-150
STL00994	18O2 PFHxS	77		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_036.d
 Lims ID: 320-28286-A-24-C MSD
 Client ID:
 Sample Type: MSD
 Inject. Date: 24-May-2017 22:13:05 ALS Bottle#: 30 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-28286-a-24-c msd
 Misc. Info.: Plate: 1 Rack: 5
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 25-May-2017 11:02:54 Calib Date: 22-May-2017 19:34:28
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170523-43375.b\2017.05.22D_CURVE_010.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: chandrasenas Date: 25-May-2017 10:52:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid										
212.90 > 169.00	1.993	1.993	0.0	1.000	6816302	19.8		99.1	2017	
D 1 13C4 PFBA										
217.00 > 172.00	1.985	1.993	-0.008		17133389	46.0		91.9	120334	
4 Perfluoropentanoic acid										
262.90 > 219.00	2.349	2.348	0.001	1.000	4556049	18.9		94.3	995	
D 3 13C5-PFPeA										
267.90 > 223.00	2.349	2.348	0.001		11141071	45.2		90.4	145944	
D 47 13C3-PFBS										
301.90 > 83.00	2.389	2.388	0.001		249303	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	2.389	2.388	0.001	1.000	7083219	18.1		103		
298.90 > 99.00	2.389	2.388	0.001	1.000	2894546		2.45(0.00-0.00)			
6 Perfluorohexanoic acid										
313.00 > 269.00	2.730	2.728	0.002	1.000	4318145	19.6		98.1	6753	
D 7 13C2 PFHxA										
315.00 > 270.00	2.730	2.728	0.002		10624465	43.5		86.9	78148	
D 9 13C4-PFHpA										
367.00 > 322.00	3.126	3.122	0.004		11787659	52.7		105	61383	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	3.135	3.131	0.004	1.000	5146263	17.2		94.7		
10 Perfluoroheptanoic acid										
363.00 > 319.00	3.126	3.131	-0.005	1.000	5012521	19.4		97.0	2031	
D 11 18O2 PFHxS										
403.00 > 84.00	3.126	3.131	-0.005		11675978	36.2		76.6	80907	
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	3.495	3.500	-0.005	1.000	29880	NR		0.0		
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	3.517	3.515	0.002	1.000	4599245	24.5		128		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
* 62 13C2-PFOA	415.00	> 370.00	3.510	3.523	-0.013	11173	49.5	0.0		
15 Perfluorooctanoic acid	413.00	> 369.00	3.517	3.523	-0.006	1.000	4915691	19.5	97.3	596
	413.00	> 169.00	3.517	3.523	-0.006	1.000	2765854	1.78(0.90-1.10)		8132
D 14 13C4 PFOA	417.00	> 372.00	3.517	3.523	-0.006	11250380	49.6	99.2	44960	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.887	3.887	0.0	1.000	2972146	18.2	97.9	7938
	499.00	> 99.00	3.887	3.887	0.0	1.000	680610	4.37(0.90-1.10)		2298
D 18 13C4 PFOS	503.00	> 80.00	3.887	3.887	0.0	6588465	28.1	58.7	18773	
D 19 13C5 PFNA	468.00	> 423.00	3.895	3.905	-0.010	8502592	48.7	97.5	27516	
20 Perfluorononanoic acid	463.00	> 419.00	3.895	3.905	-0.010	1.000	3641520	19.7	98.5	5382
D 21 13C8 FOSA	506.00	> 78.00	4.215	4.215	0.0	4557222	12.4	24.8	12372	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	4.215	4.224	-0.009	1.000	1792955	18.8	93.8	8575
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	4.243	4.245	-0.002	1.000	22211	NR	0.0	
D 23 13C2 PFDA	515.00	> 470.00	4.243	4.245	-0.002	5868767	39.2	78.5	8174	
24 Perfluorodecanoic acid	513.00	> 469.00	4.243	4.255	-0.012	1.000	2426072	20.3	102	6847
D 27 d3-NMeFOSAA	573.00	> 419.00	4.409	4.401	0.008	4838	0.0733	0.0		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	4.524	4.529	-0.005	1.000	1503802	15.7	81.5	
31 Perfluoroundecanoic acid	563.00	> 519.00	4.553	4.558	-0.005	1.000	1748191	18.5	92.7	3611
D 32 d5-NEtFOSAA	589.00	> 419.00	4.553	4.558	-0.005	4552	0.0708	0.0		
D 30 13C2 PFUnA	565.00	> 520.00	4.553	4.558	-0.005	4014682	35.8	71.5	7524	
D 36 13C2 PFDaA	615.00	> 570.00	4.828	4.834	-0.006	3714233	34.1	68.2	5386	
37 Perfluorododecanoic acid	613.00	> 569.00	4.828	4.834	-0.006	1.000	1504211	20.0	99.8	168
D 38 d-N-EtFOSA-M	531.00	> 169.00	5.071	4.853	0.218	2898	0.0302	0.0		
41 Perfluorotridecanoic acid	663.00	> 619.00	5.071	5.082	-0.011	1.000	1459810	19.6	97.8	133
42 Perfluorotetradecanoic acid	712.50	> 668.90	5.293	5.295	-0.002	1.000	3482203	22.9	114	116
	713.00	> 169.00	5.285	5.295	-0.010	0.999	468465	7.43(0.00-0.00)		2475

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 43 13C2-PFTeDA	715.00 > 670.00	5.293	5.295	-0.002	8574818	39.8		79.6	13077	
D 44 13C2-PFHxDA	815.00 > 770.00	5.688	5.696	-0.008	2831699	23.5		47.1	1698	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.688	5.696	-0.008	1101612	13.6	1.000	68.1	78.1	
46 Perfluorooctadecanoic acid	913.00 > 869.00	6.082	6.087	-0.005	776387	8.29	1.000	41.5	55.5	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b\2017.05.24C_036.d

Injection Date: 24-May-2017 22:13:05

Instrument ID: A8_N

Lims ID: 320-28286-A-24-C MSD

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 30

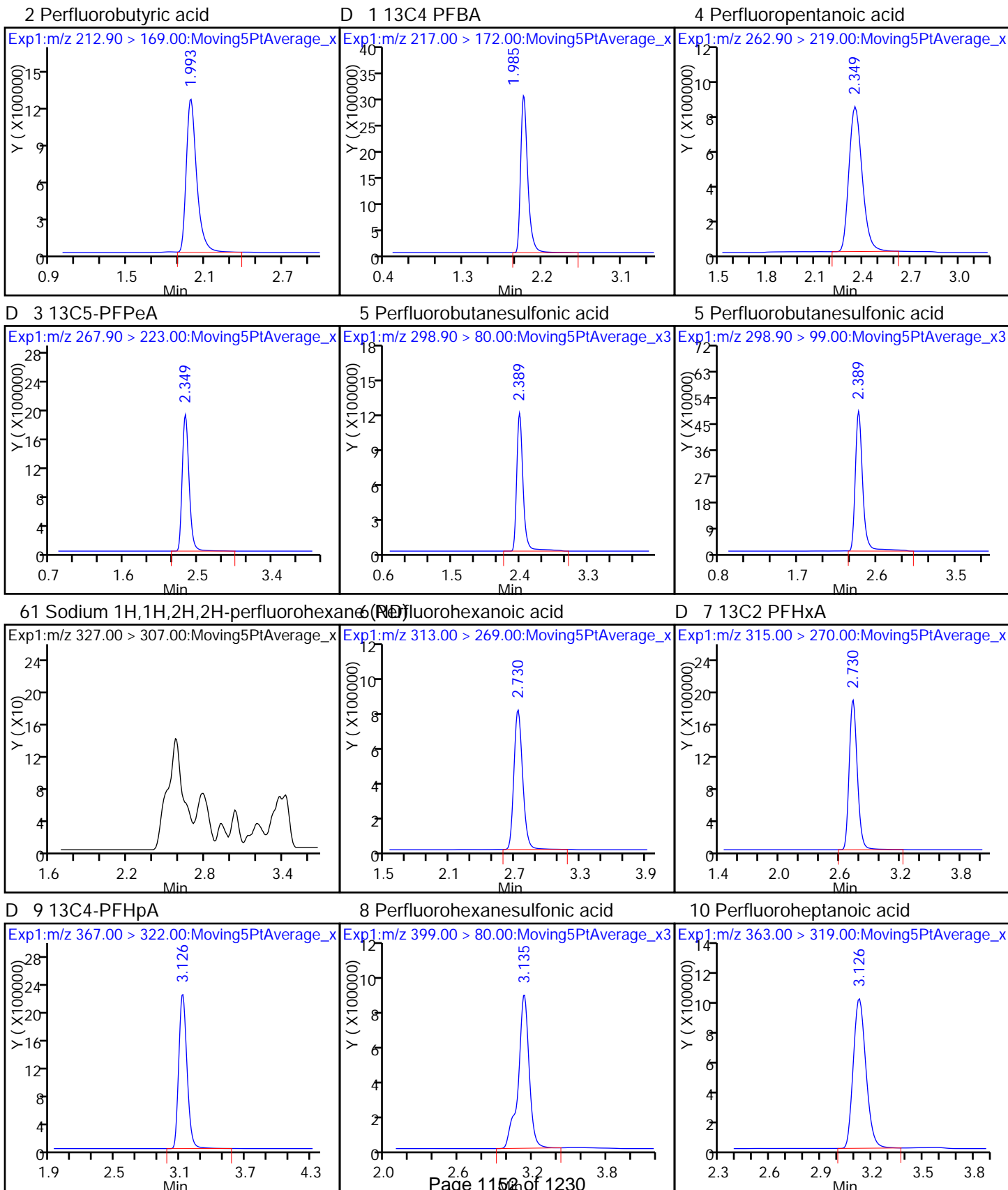
Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

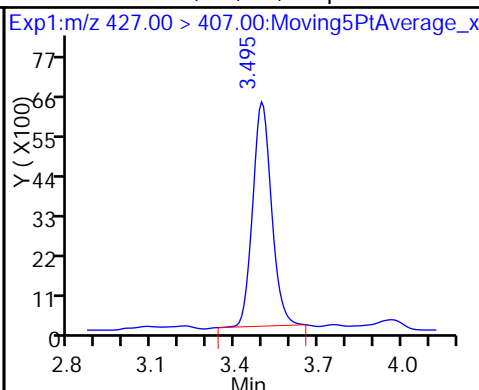
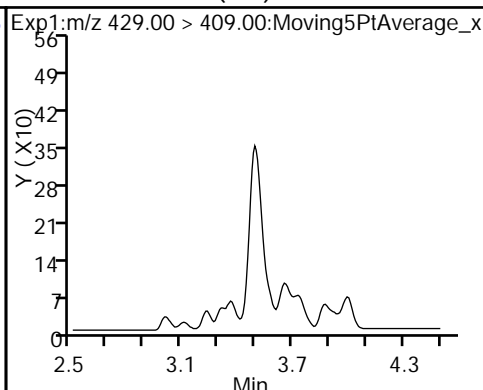
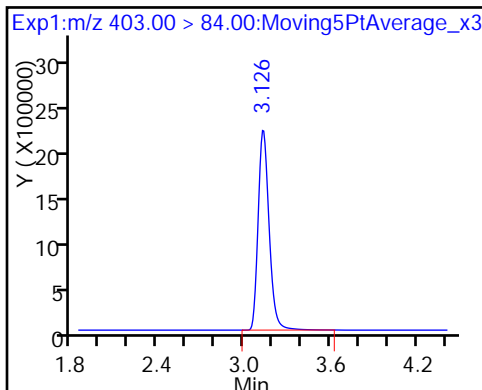
Limit Group: LC PFC_DOD ICAL



D 11 18O2 PFHxS

D 12 M2-6:2FTS (ND)

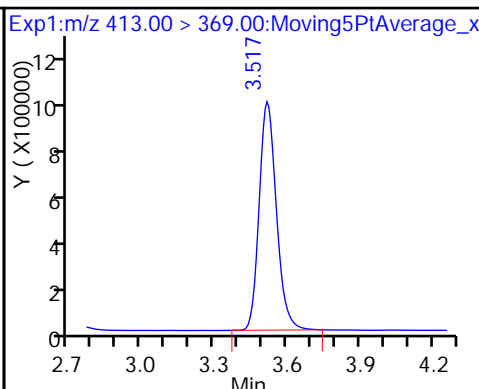
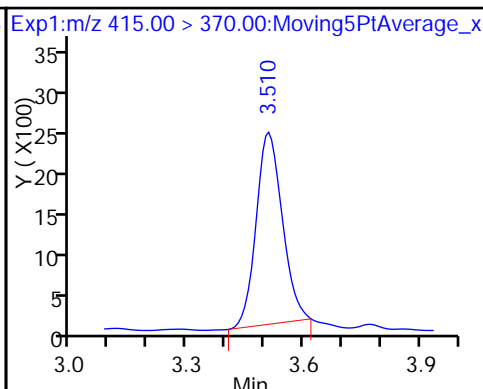
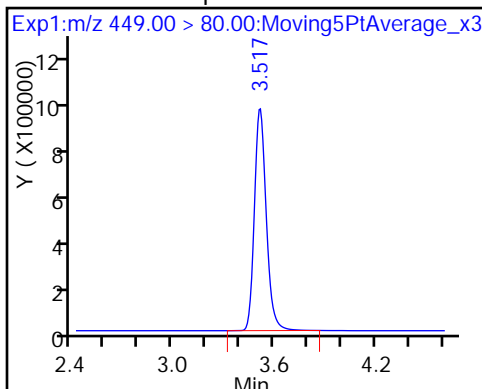
13 Sodium 1H,1H,2H,2H-perfluorooctane



16 Perfluoroheptanesulfonic Acid

* 62 13C2-PFOA

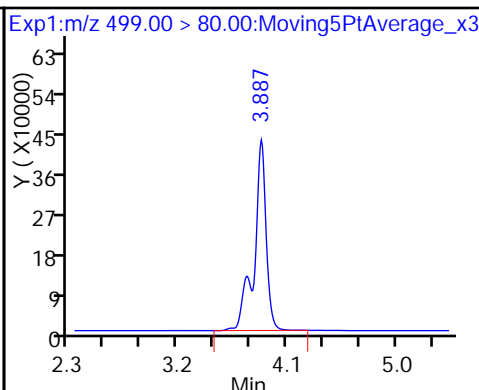
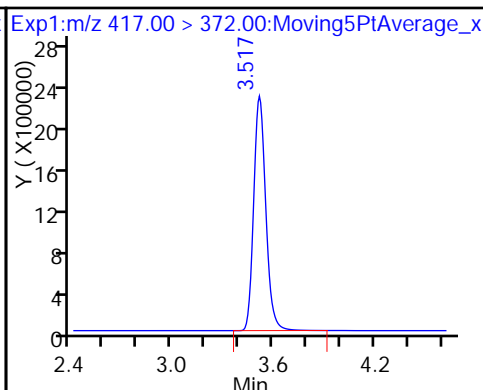
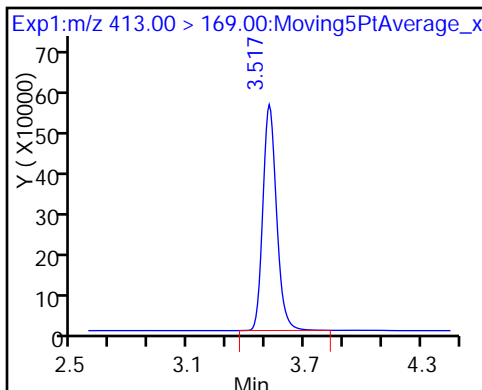
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

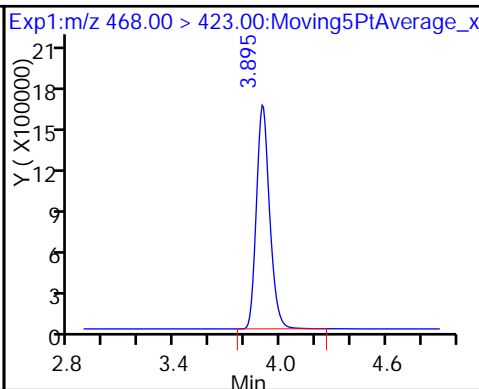
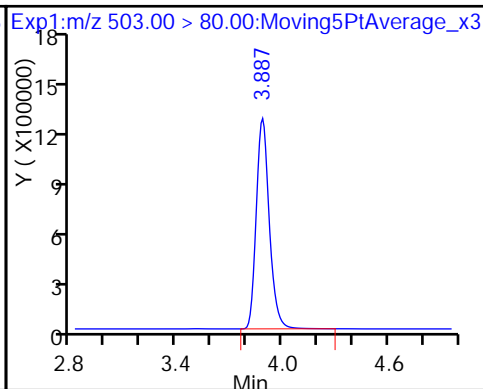
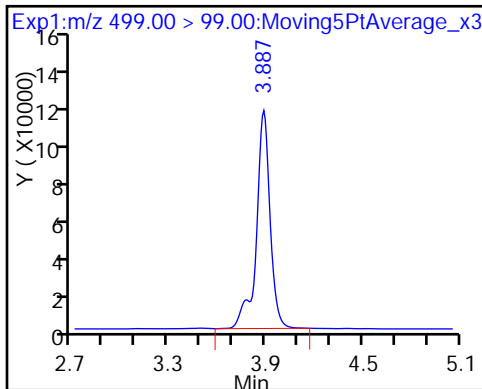
17 Perfluorooctane sulfonic acid

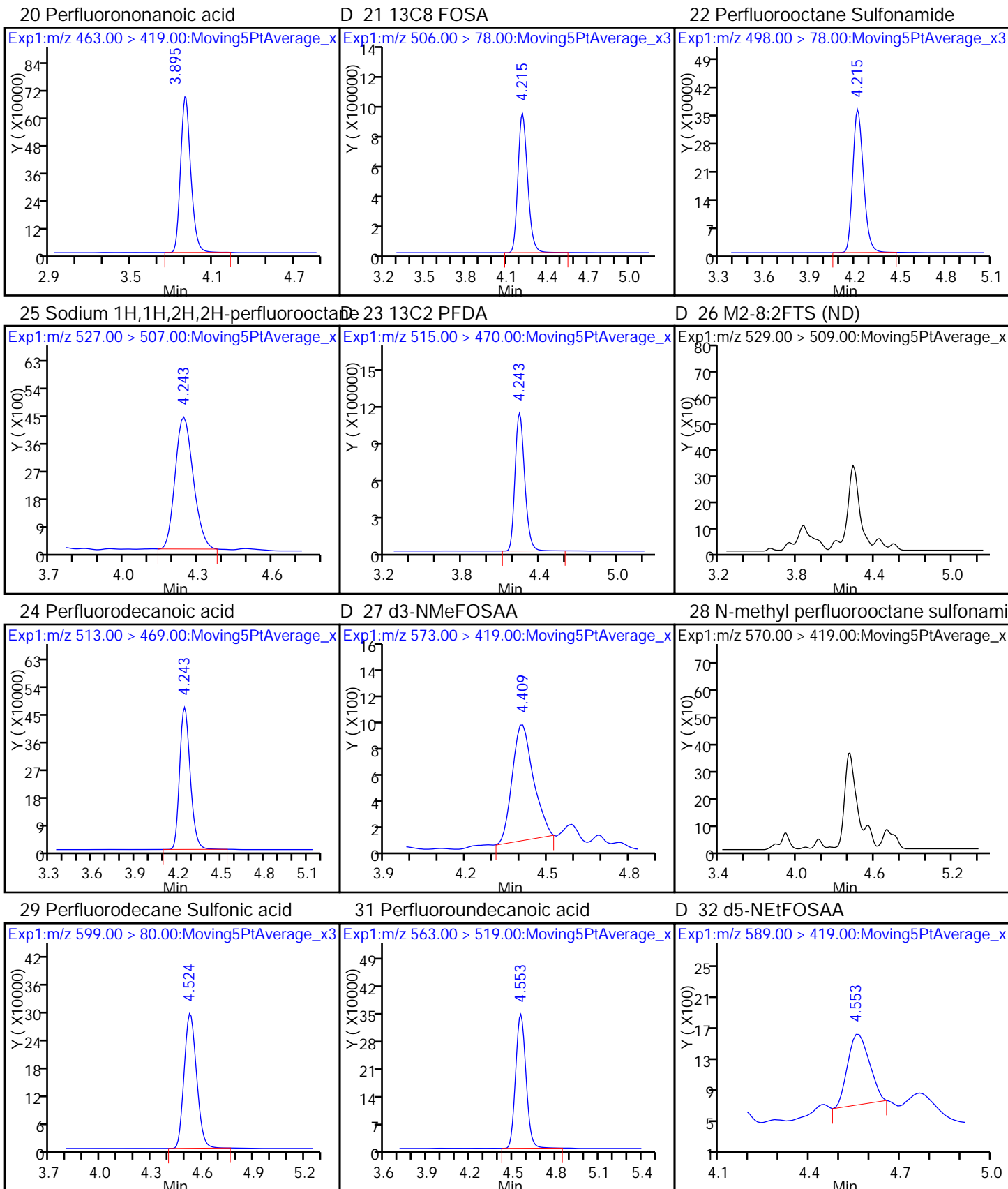


17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

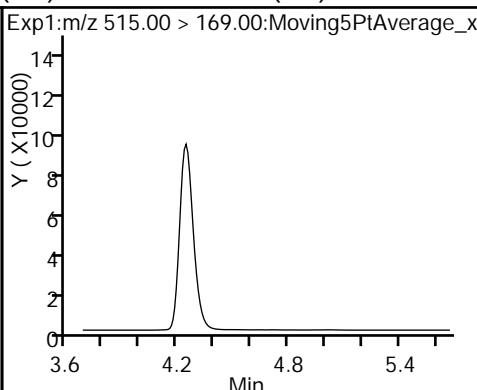
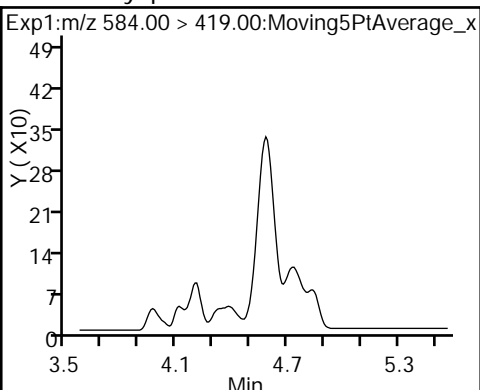
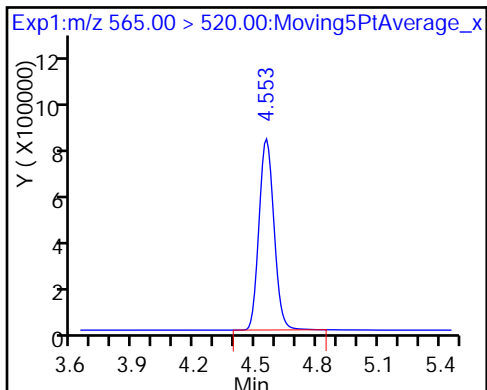
D 19 13C5 PFNA





D 30 13C2 PFUnA

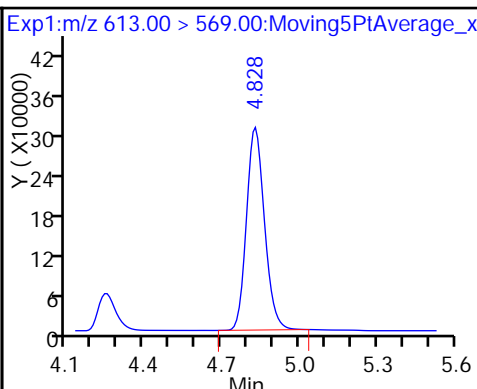
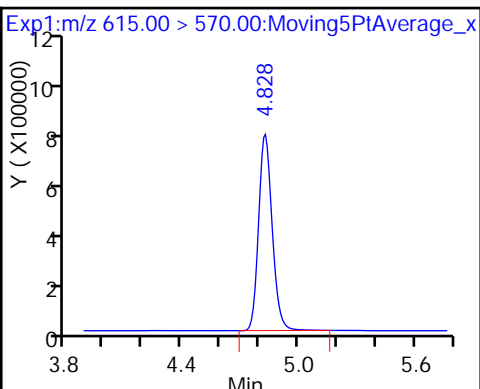
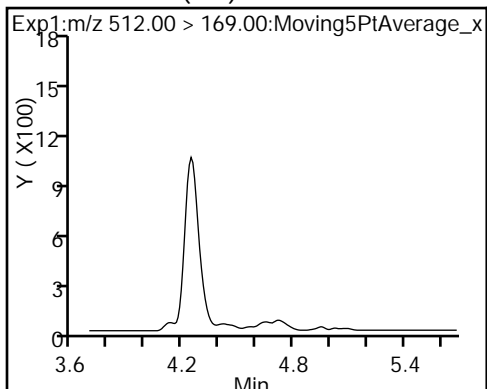
33 N-ethyl perfluorooctane sulfonamid (ND) ~~(D3)~~ d-N-MeFOSA-M (ND)



35 MeFOSA (ND)

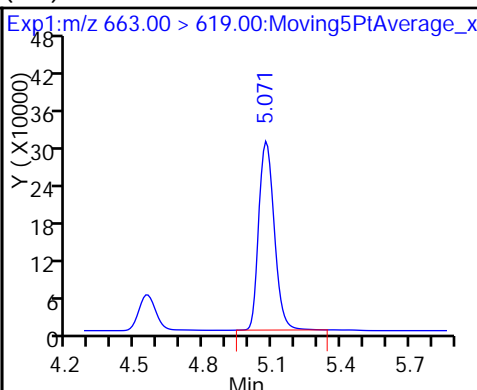
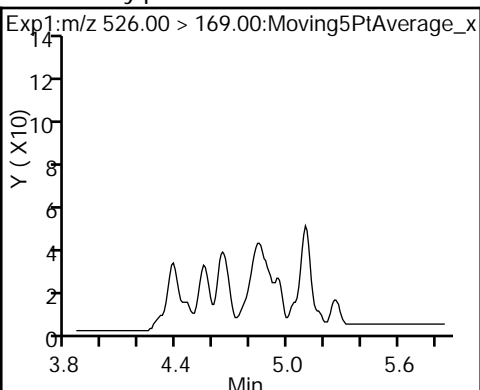
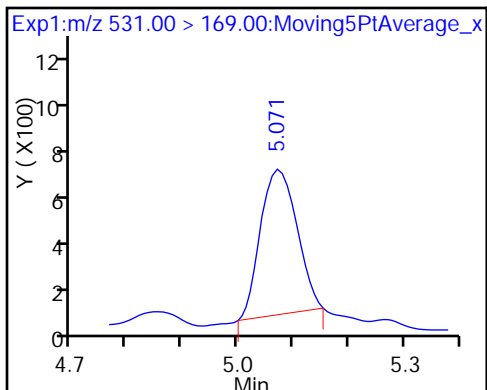
D 36 13C2 PFDaA

37 Perfluorododecanoic acid



D 38 d-N-EtFOSA-M

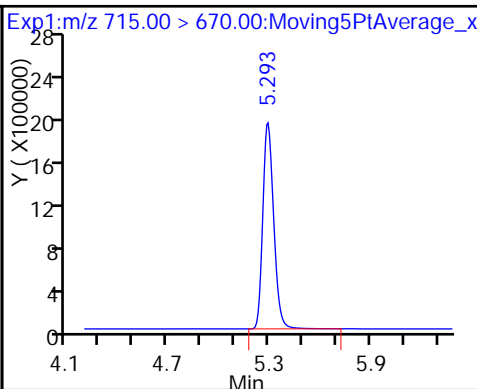
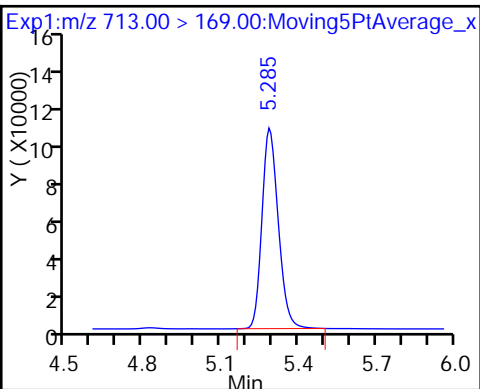
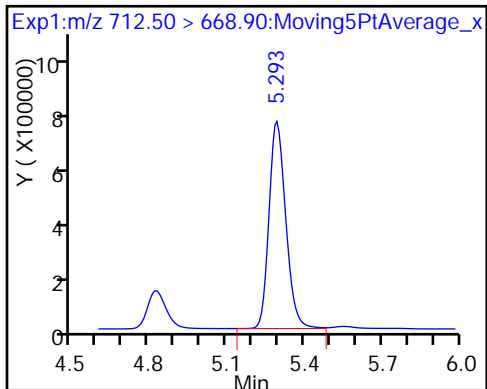
39 N-ethylperfluoro-1-octanesulfonami (ND) Perfluorotridecanoic acid



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

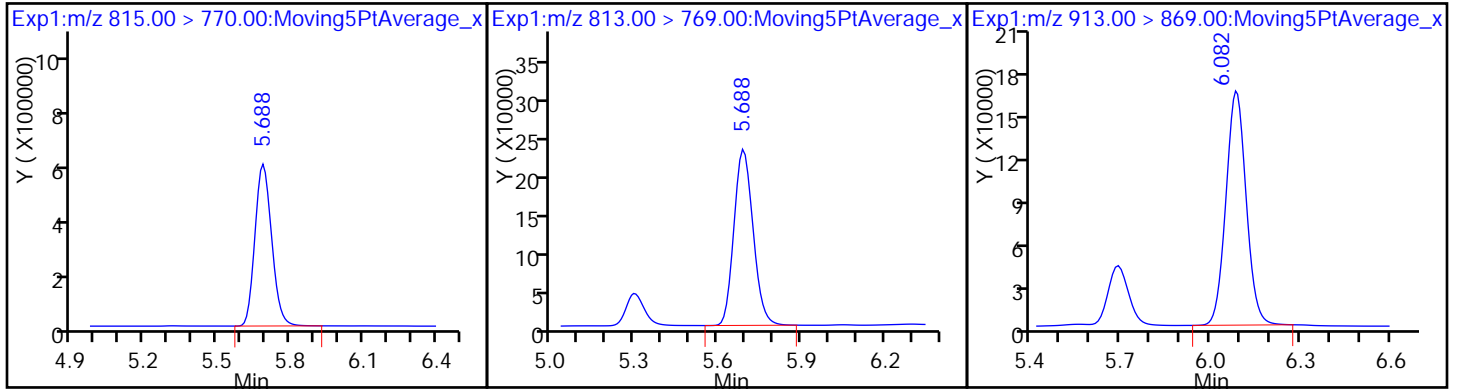
D 43 13C2-PFTeDA



D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Start Date: 05/19/2017 20:56

Analysis Batch Number: 165422 End Date: 05/19/2017 22:04

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-165422/3		05/19/2017 20:56	1	2017.05.19_CURV E 003.d	GeminiC18 3x100 3(mm)
IC 320-165422/4		05/19/2017 21:04	1	2017.05.19_CURV E 004.d	GeminiC18 3x100 3(mm)
IC 320-165422/5		05/19/2017 21:11	1	2017.05.19_CURV E 005.d	GeminiC18 3x100 3(mm)
IC 320-165422/6		05/19/2017 21:19	1	2017.05.19_CURV E 006.d	GeminiC18 3x100 3(mm)
IC 320-165422/7		05/19/2017 21:26	1	2017.05.19_CURV E 007.d	GeminiC18 3x100 3(mm)
IC 320-165422/8		05/19/2017 21:34	1	2017.05.19_CURV E 008.d	GeminiC18 3x100 3(mm)
IC 320-165422/9		05/19/2017 21:41	1	2017.05.19_CURV E 009.d	GeminiC18 3x100 3(mm)
ICB 320-165422/11		05/19/2017 21:56	1		GeminiC18 3x100 3(mm)
ICV 320-165422/12		05/19/2017 22:04	1	2017.05.19_CURV E 012.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Start Date: 05/20/2017 05:42

Analysis Batch Number: 165487 End Date: 05/20/2017 09:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-165487/1		05/20/2017 05:42	1	2017.05.19B_001.d	GeminiC18 3x100 3(mm)
MB 320-165207/1-A		05/20/2017 05:49	1	2017.05.19B_002.d	GeminiC18 3x100 3(mm)
LCS 320-165207/2-A		05/20/2017 05:57	1	2017.05.19B_003.d	GeminiC18 3x100 3(mm)
LCSD 320-165207/3-A		05/20/2017 06:04	1	2017.05.19B_004.d	GeminiC18 3x100 3(mm)
ZZZZZ		05/20/2017 06:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/20/2017 06:19	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/20/2017 06:27	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/20/2017 06:34	1		GeminiC18 3x100 3(mm)
320-28286-11		05/20/2017 06:42	1	2017.05.19B_009.d	GeminiC18 3x100 3(mm)
320-28286-12		05/20/2017 06:50	1	2017.05.19B_010.d	GeminiC18 3x100 3(mm)
320-28286-13		05/20/2017 06:57	1	2017.05.19B_011.d	GeminiC18 3x100 3(mm)
CCV 320-165487/12		05/20/2017 07:05	1	2017.05.19B_012.d	GeminiC18 3x100 3(mm)
320-28286-31		05/20/2017 07:12	1	2017.05.19B_013.d	GeminiC18 3x100 3(mm)
CCV 320-165487/23		05/20/2017 08:27	1	2017.05.19B_023.d	GeminiC18 3x100 3(mm)
CCV 320-165487/28		05/20/2017 09:05	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Start Date: 05/22/2017 18:42

Analysis Batch Number: 165657 End Date: 05/22/2017 19:56

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-165657/3		05/22/2017 18:42	1	2017.05.22D_CUR VE 003.d	GeminiC18 3x100 3(mm)
IC 320-165657/4		05/22/2017 18:49	1	2017.05.22D_CUR VE 004.d	GeminiC18 3x100 3(mm)
IC 320-165657/5		05/22/2017 18:56	1	2017.05.22D_CUR VE 005.d	GeminiC18 3x100 3(mm)
IC 320-165657/6		05/22/2017 19:04	1	2017.05.22D_CUR VE 006.d	GeminiC18 3x100 3(mm)
IC 320-165657/7		05/22/2017 19:12	1	2017.05.22D_CUR VE 007.d	GeminiC18 3x100 3(mm)
IC 320-165657/8		05/22/2017 19:19	1	2017.05.22D_CUR VE 008.d	GeminiC18 3x100 3(mm)
IC 320-165657/9		05/22/2017 19:26	1	2017.05.22D_CUR VE 009.d	GeminiC18 3x100 3(mm)
ICB 320-165657/11		05/22/2017 19:41	1		GeminiC18 3x100 3(mm)
ICV 320-165657/12		05/22/2017 19:49	1	2017.05.22D_CUR VE 012.d	GeminiC18 3x100 3(mm)
ZZZZZ		05/22/2017 19:56	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Start Date: 05/24/2017 09:20

Analysis Batch Number: 165944 End Date: 05/24/2017 10:43

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-165944/1		05/24/2017 09:20	1	2017.05.24A_004 .d	GeminiC18 3x100 3(mm)
CCV 320-165944/2		05/24/2017 09:28	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 09:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 09:43	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 09:50	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 09:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 10:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 10:13	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 10:20	100		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 10:28	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 10:35	1		GeminiC18 3x100 3(mm)
CCV 320-165944/12		05/24/2017 10:43	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Start Date: 05/24/2017 21:35

Analysis Batch Number: 166071 End Date: 05/25/2017 01:50

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-166071/1		05/24/2017 21:35	1	2017.05.24C_031 .d	GeminiC18 3x100 3(mm)
MB 320-165287/1-A		05/24/2017 21:43	1	2017.05.24C_032 .d	GeminiC18 3x100 3(mm)
LCS 320-165287/2-A		05/24/2017 21:50	1	2017.05.24C_033 .d	GeminiC18 3x100 3(mm)
320-28286-24		05/24/2017 21:58	1	2017.05.24C_034 .d	GeminiC18 3x100 3(mm)
320-28286-24 MS		05/24/2017 22:05	1	2017.05.24C_035 .d	GeminiC18 3x100 3(mm)
320-28286-24 MSD		05/24/2017 22:13	1	2017.05.24C_036 .d	GeminiC18 3x100 3(mm)
320-28286-25		05/24/2017 22:20	1	2017.05.24C_037 .d	GeminiC18 3x100 3(mm)
320-28286-26		05/24/2017 22:28	1	2017.05.24C_038 .d	GeminiC18 3x100 3(mm)
320-28286-27		05/24/2017 22:35	1	2017.05.24C_039 .d	GeminiC18 3x100 3(mm)
320-28286-28		05/24/2017 22:43	1	2017.05.24C_040 .d	GeminiC18 3x100 3(mm)
320-28286-29		05/24/2017 22:50	1	2017.05.24C_041 .d	GeminiC18 3x100 3(mm)
CCV 320-166071/12		05/24/2017 22:58	1	2017.05.24C_042 .d	GeminiC18 3x100 3(mm)
320-28286-30		05/24/2017 23:05	1	2017.05.24C_043 .d	GeminiC18 3x100 3(mm)
320-28286-32		05/24/2017 23:13	1	2017.05.24C_044 .d	GeminiC18 3x100 3(mm)
320-28286-33		05/24/2017 23:20	1	2017.05.24C_045 .d	GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 23:28	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 23:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 23:43	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 23:50	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/24/2017 23:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/25/2017 00:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/25/2017 00:13	1		GeminiC18 3x100 3(mm)
CCV 320-166071/23		05/25/2017 00:20	1	2017.05.24C_053 .d	GeminiC18 3x100 3(mm)
ZZZZZ		05/25/2017 00:28	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/25/2017 00:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/25/2017 00:43	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/25/2017 00:50	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/25/2017 00:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		05/25/2017 01:05	1		GeminiC18 3x100 3(mm)
CCV 320-166071/30		05/25/2017 01:13	1		GeminiC18 3x100 3(mm)
CCV 320-166071/35		05/25/2017 01:50	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Start Date: 06/06/2017 13:31

Analysis Batch Number: 167755 End Date: 06/06/2017 14:41

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-167755/2		06/06/2017 13:31	1	2017.06.06CURVE 003.d	GeminiC18 3x100 3(mm)
IC 320-167755/3		06/06/2017 13:39	1	2017.06.06CURVE 004.d	GeminiC18 3x100 3(mm)
IC 320-167755/4		06/06/2017 13:47	1	2017.06.06CURVE 005.d	GeminiC18 3x100 3(mm)
IC 320-167755/5		06/06/2017 13:55	1	2017.06.06CURVE 006.d	GeminiC18 3x100 3(mm)
IC 320-167755/6		06/06/2017 14:02	1	2017.06.06CURVE 007.d	GeminiC18 3x100 3(mm)
IC 320-167755/7		06/06/2017 14:10	1	2017.06.06CURVE 008.d	GeminiC18 3x100 3(mm)
IC 320-167755/8		06/06/2017 14:18	1	2017.06.06CURVE 009.d	GeminiC18 3x100 3(mm)
IC 320-167755/9		06/06/2017 14:25	1	2017.06.06CURVE 010.d	GeminiC18 3x100 3(mm)
ICB 320-167755/10		06/06/2017 14:33	1		GeminiC18 3x100 3(mm)
ICV 320-167755/11		06/06/2017 14:41	1	2017.06.06CURVE 012.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Start Date: 06/07/2017 08:47

Analysis Batch Number: 167950 End Date: 06/07/2017 13:50

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		06/07/2017 08:47	1		GeminiC18 3x100 3(mm)
CCVL 320-167950/2		06/07/2017 09:03	1	2017.06.07A_004.d	GeminiC18 3x100 3(mm)
CCV 320-167950/3		06/07/2017 09:10	1		GeminiC18 3x100 3(mm)
CCV 320-167950/5		06/07/2017 09:26	1		GeminiC18 3x100 3(mm)
CCV 320-167950/8		06/07/2017 13:34	1		GeminiC18 3x100 3(mm)
ZZZZZ		06/07/2017 13:42	1		GeminiC18 3x100 3(mm)
CCV 320-167950/9		06/07/2017 13:50	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: A8_N Start Date: 06/07/2017 16:38

Analysis Batch Number: 168107 End Date: 06/07/2017 20:06

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-168107/1		06/07/2017 16:38	1	2017.06.07B_015 .d	GeminiC18 3x100 3(mm)
MB 320-165234/1-A		06/07/2017 16:45	1	2017.06.07B_016 .d	GeminiC18 3x100 3(mm)
LCS 320-165234/2-A		06/07/2017 16:53	1	2017.06.07B_017 .d	GeminiC18 3x100 3(mm)
320-28286-1		06/07/2017 17:01	1	2017.06.07B_018 .d	GeminiC18 3x100 3(mm)
320-28286-2		06/07/2017 17:09	1	2017.06.07B_019 .d	GeminiC18 3x100 3(mm)
320-28286-3		06/07/2017 17:16	1	2017.06.07B_020 .d	GeminiC18 3x100 3(mm)
320-28286-4		06/07/2017 17:24	1	2017.06.07B_021 .d	GeminiC18 3x100 3(mm)
320-28286-4 MS		06/07/2017 17:32	1	2017.06.07B_022 .d	GeminiC18 3x100 3(mm)
320-28286-4 MSD		06/07/2017 17:39	1	2017.06.07B_023 .d	GeminiC18 3x100 3(mm)
320-28286-5		06/07/2017 17:47	1	2017.06.07B_024 .d	GeminiC18 3x100 3(mm)
320-28286-6		06/07/2017 17:55	1	2017.06.07B_025 .d	GeminiC18 3x100 3(mm)
CCV 320-168107/12		06/07/2017 18:02	1	2017.06.07B_026 .d	GeminiC18 3x100 3(mm)
320-28286-7		06/07/2017 18:10	1	2017.06.07B_027 .d	GeminiC18 3x100 3(mm)
320-28286-8		06/07/2017 18:18	1	2017.06.07B_028 .d	GeminiC18 3x100 3(mm)
320-28286-9		06/07/2017 18:26	1	2017.06.07B_029 .d	GeminiC18 3x100 3(mm)
320-28286-10		06/07/2017 18:33	1	2017.06.07B_030 .d	GeminiC18 3x100 3(mm)
320-28286-14		06/07/2017 18:41	1	2017.06.07B_031 .d	GeminiC18 3x100 3(mm)
320-28286-15		06/07/2017 18:49	1	2017.06.07B_032 .d	GeminiC18 3x100 3(mm)
320-28286-16		06/07/2017 18:56	1	2017.06.07B_033 .d	GeminiC18 3x100 3(mm)
320-28286-17		06/07/2017 19:04	1	2017.06.07B_034 .d	GeminiC18 3x100 3(mm)
320-28286-18		06/07/2017 19:12	1	2017.06.07B_035 .d	GeminiC18 3x100 3(mm)
320-28286-19		06/07/2017 19:20	1	2017.06.07B_036 .d	GeminiC18 3x100 3(mm)
CCV 320-168107/23		06/07/2017 19:27	1	2017.06.07B_037 .d	GeminiC18 3x100 3(mm)
320-28286-20		06/07/2017 19:35	1	2017.06.07B_038 .d	GeminiC18 3x100 3(mm)
320-28286-21		06/07/2017 19:43	1	2017.06.07B_039 .d	GeminiC18 3x100 3(mm)
320-28286-22		06/07/2017 19:50	1	2017.06.07B_040 .d	GeminiC18 3x100 3(mm)
320-28286-23		06/07/2017 19:58	1	2017.06.07B_041 .d	GeminiC18 3x100 3(mm)
CCV 320-168107/28		06/07/2017 20:06	1	2017.06.07B_042 .d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Batch Number: 165207 Batch Start Date: 05/18/17 17:41 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 05/19/17 15:07

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFCSU 00068	LCPFCSU 00092
MB 320-165207/1		3535, 537 (Modified)				250.00 mL	0.50 mL	500 uL	
LCS 320-165207/2		3535, 537 (Modified)				250.00 mL	0.50 mL	500 uL	500 uL
LCSD 320-165207/3		3535, 537 (Modified)				250.00 mL	0.50 mL	500 uL	500 uL
320-28286-A-11	MEAFF-EB05-05131 7	3535, 537 (Modified)	T	311.76 g	27.15 g	284.6 mL	0.50 mL	500 uL	
320-28286-A-12	MEAFF-EB06-05131 7	3535, 537 (Modified)	T	303.84 g	27.20 g	276.6 mL	0.50 mL	500 uL	
320-28286-A-13	MEAFF-EB07-05131 7	3535, 537 (Modified)	T	306.47 g	26.66 g	279.8 mL	0.50 mL	500 uL	
320-28286-A-31	MEAFF-EB08-05151 7	3535, 537 (Modified)	T	300.98 g	27.63 g	273.4 mL	0.50 mL	500 uL	

Batch Notes	
Balance ID	QA-070
H2O ID	5/16/17
Hexane ID	921666
Manifold ID	8, 14
Methanol ID	924277
Sodium Hydroxide ID	924543
Pipette ID	MD05306
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Solvent Lot #	932747
Solvent Name	0.3% NH4OH/MeOH
SOP Number	WS-LC-0025
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	002836112A

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Batch Number: 165234 Batch Start Date: 05/19/17 08:07 Batch Analyst: Arauz, Horacio J

Batch Method: SHAKE Batch End Date: 05/26/17 14:34

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	LCMPFCSU 00068	LCPFCSP 00092		
MB 320-165234/1		SHAKE, 537 (Modified)		5.00 g	1.00 mL	1 mL			
LCS 320-165234/2		SHAKE, 537 (Modified)		5.00 g	1.00 mL	1 mL	1 mL		
320-28286-A-1	MEAFF-T-45C-2005-SB01-0001	SHAKE, 537 (Modified)	T	5.04 g	1.00 mL	1 mL			
320-28286-A-2	MEAFF-T-45C-2005-SB01-0204	SHAKE, 537 (Modified)	T	5.08 g	1.00 mL	1 mL			
320-28286-A-3	MEAFF-Unknown11-SB01-0001	SHAKE, 537 (Modified)	T	5.00 g	1.00 mL	1 mL			
320-28286-A-4	MEAFF-Unknown11-SB01-0204	SHAKE, 537 (Modified)	T	4.99 g	1.00 mL	1 mL			
320-28286-A-4 MS	MEAFF-Unknown11-SB01-0204	SHAKE, 537 (Modified)	T	5.06 g	1.00 mL	1 mL	1 mL		
320-28286-A-4 MSD	MEAFF-Unknown11-SB01-0204	SHAKE, 537 (Modified)	T	5.05 g	1.00 mL	1 mL	1 mL		
320-28286-A-5	MEAFF-EASTB-SB01-0001	SHAKE, 537 (Modified)	T	4.99 g	1.00 mL	1 mL			
320-28286-A-6	MEAFF-EASTB-SB01-0204	SHAKE, 537 (Modified)	T	5.05 g	1.00 mL	1 mL			
320-28286-A-7	MEAFF-Unknown10-SB01-0001	SHAKE, 537 (Modified)	T	5.02 g	1.00 mL	1 mL			
320-28286-A-8	MEAFF-Unknown10-SB01-0204	SHAKE, 537 (Modified)	T	5.02 g	1.00 mL	1 mL			
320-28286-A-9	MEAFF-EASTA-SB01-0001	SHAKE, 537 (Modified)	T	5.06 g	1.00 mL	1 mL			
320-28286-A-10	MEAFF-EASTA-SB01-0204	SHAKE, 537 (Modified)	T	5.11 g	1.00 mL	1 mL			
320-28286-A-14	MEAFF-TA-4J-1987-SB01-0001	SHAKE, 537 (Modified)	T	5.09 g	1.00 mL	1 mL			
320-28286-A-15	MEAFF-TA-4J-1987-SB01-0204	SHAKE, 537 (Modified)	T	5.03 g	1.00 mL	1 mL			
320-28286-A-16	MEAFF-Unknown20-SB01-0001	SHAKE, 537 (Modified)	T	5.02 g	1.00 mL	1 mL			
320-28286-A-17	MEAFF-Unknown20-SB01-0204	SHAKE, 537 (Modified)	T	5.00 g	1.00 mL	1 mL			
320-28286-A-18	MEAFF-ArrestingGearArea-SB01-0001	SHAKE, 537 (Modified)	T	5.05 g	1.00 mL	1 mL			
320-28286-A-19	MEAFF-ArrestingGearArea-SB01-0204	SHAKE, 537 (Modified)	T	5.00 g	1.00 mL	1 mL			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Batch Number: 165234 Batch Start Date: 05/19/17 08:07 Batch Analyst: Arauz, Horacio J

Batch Method: SHAKE Batch End Date: 05/26/17 14:34

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	LCMPFCSU 00068	LCPFCSU 00092		
320-28286-A-20	MEAFF-Unknown16-SB01-0001	SHAKE, 537 (Modified)	T	5.09 g	1.00 mL	1 mL			
320-28286-A-21	MEAFF-Unknown16-SB01-0204	SHAKE, 537 (Modified)	T	5.01 g	1.00 mL	1 mL			
320-28286-A-22	MEAFF-FD06-051417	SHAKE, 537 (Modified)	T	5.00 g	1.00 mL	1 mL			
320-28286-A-23	MEAFF-T-45C-03-2008-SB01-0001	SHAKE, 537 (Modified)	T	4.99 g	1.00 mL	1 mL			

Batch Notes	
Acetic Acid ID	429065
Balance ID	QA-070
Batch Comment	Spike Bottle #2
Hexane ID	921664
Manifold ID	6,8
Methanol ID	924280
Methanolic Potassium Hydroxide ID	923364
Millipore Water Dispense Date	05-23-17
Sodium Hydroxide ID	924542
Ammonium Hydroxide/MeOH ID	938109
Analyst ID - Reagent Drop Witness	NSH
Blank Sand Lot #	162639
SPE Cartridge ID	017037054A
SPE Cartridge Type	WAX 150mg

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Batch Number: 165287 Batch Start Date: 05/19/17 09:45 Batch Analyst: Arauz, Horacio J

Batch Method: SHAKE Batch End Date: 05/24/17 12:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	LCMPFCSU 00068	LCPFCSP 00092		
MB 320-165287/1		SHAKE, 537 (Modified)		5.00 g	1.00 mL	1 mL			
LCS 320-165287/2		SHAKE, 537 (Modified)		5.00 g	1.00 mL	1 mL	1 mL		
320-28286-A-24	MEAFF-T-45C-03-2008-SB01-0204	SHAKE, 537 (Modified)	T	5.09 g	1.00 mL	1 mL			
320-28286-A-24 MS	MEAFF-T-45C-03-2008-SB01-0204	SHAKE, 537 (Modified)	T	5.05 g	1.00 mL	1 mL	1 mL		
320-28286-A-24 MSD	MEAFF-T-45C-03-2008-SB01-0204	SHAKE, 537 (Modified)	T	5.03 g	1.00 mL	1 mL	1 mL		
320-28286-A-25	MEAFF-TA-4-Unknown-SB01-0001	SHAKE, 537 (Modified)	T	5.10 g	1.00 mL	1 mL			
320-28286-A-26	MEAFF-TA-4-Unknown-SB01-0204	SHAKE, 537 (Modified)	T	5.03 g	1.00 mL	1 mL			
320-28286-A-27	MEAFF-Unknown17-SB01-0001	SHAKE, 537 (Modified)	T	4.98 g	1.00 mL	1 mL			
320-28286-A-28	MEAFF-Unknown17-SB01-0204	SHAKE, 537 (Modified)	T	5.05 g	1.00 mL	1 mL			
320-28286-A-29	MEAFF-TA-4J-1992-SB01-0001	SHAKE, 537 (Modified)	T	5.08 g	1.00 mL	1 mL			
320-28286-A-30	MEAFF-TA-4J-1992-SB01-0204	SHAKE, 537 (Modified)	T	4.99 g	1.00 mL	1 mL			
320-28286-A-32	MEAFF-TA-4J-1985-SB01-0001	SHAKE, 537 (Modified)	T	5.07 g	1.00 mL	1 mL			
320-28286-A-33	MEAFF-TA-4J-1985-SB01-0204	SHAKE, 537 (Modified)	T	5.06 g	1.00 mL	1 mL			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Batch Number: 165287 Batch Start Date: 05/19/17 09:45 Batch Analyst: Arauz, Horacio J

Batch Method: SHAKE Batch End Date: 05/24/17 12:45

Batch Notes	
Acetic Acid ID	429065
Balance ID	QA-070
Batch Comment	Spike Bottle #2
Hexane ID	921664
Manifold ID	6
Methanol ID	924280
Methanolic Potassium Hydroxide ID	923364
Millipore Water Dispense Date	5-19-17
Sodium Hydroxide ID	924542
Ammonium Hydroxide/MeOH ID	934328
Analyst ID - Reagent Drop Witness	Bottle #3 NSH
Blank Sand Lot #	162639
SPE Cartridge ID	017037054A
SPE Cartridge Type	WAX 150mg

Basis	Basis Description
T	Total/NA

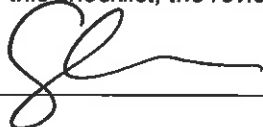
The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

HPLC/LCMS Data Review Checklist

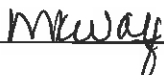
26286; 28630
 Job Number(s): 28077; 28142; 28285; 28110 Work List ID(s): 43327; 43377
 Extraction Batch: 165207; 165261 Analysis Batch(es): 165487; 165488; 165669; 165670
 Delivery Rank: 4; 2 Due Date: 5/20/17; 5/26/17; 6/1/17; 6/22/17; 5/24/17

A. Calibration/Instrument Run QC	1 st Level	2 nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# <u>165422; 165425</u>	✓	✓	
2. ICAL, CCV Frequency & Criteria met.	✓	✓	
• RF _{average} criteria appropriate for the method.	✓	✓	
• Linear Regression criteria appropriate if required ($r \geq 0.995$).	✓	✓	
• Quadratic fit criteria appropriate if required ($r^2 \geq 0.990$).			✓
• For Linear Regression and Quadratic fit – Does the y-intercept support ½ the reporting limit as described in CA-Q-S-005?	✓	✓	
• All curve points show calculated concentrations.	✓	✓	
3. Peaks correctly ID'd by data system.	✓	✓	
5. Tune check frequency & criteria met and Tune check report attached.	✓	✓	
B. QA/QC			
1. Are all QC samples properly linked in TALS?	✓	✓	
2. Method blank, LCS/LCSD and MS/SD frequencies met.	✓	✓	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present.	✓	✓	
4. Are MS/MSD recoveries and RPD within control limits?	✓	✓	
5. Holding Times were met for prep and analytical.	✓	✓	
6. IS/Surrogate recoveries meet criteria or properly noted.	✓	✓	
C. Sample Analysis			
1. Was correct analysis performed and were project instructions followed?	✓	✓	
2. If required, are compounds within RT windows?	✓	✓	
3. If required, are positive hits confirmed and >40% RPD flagged?			✓
4. Manual Integrations reviewed and appropriate.	✓	✓	
5. All analytes correctly reported. (Primary, secondary, acceptable status)	✓	✓	
6. Correct reporting limits used. (based on client request, prep factors, and dilutions)	✓	✓	
D. Documentation			
1. Are all non-conformances documented/attached? NCM#	✓	✓	
2. Do results make sense (e.g. dilutions, etc.)?	✓	✓	
3. Have all flags been reviewed for appropriateness?	✓	✓	
4. For level 3 and 4 reports, have forms and raw data been reviewed?		✓	
5. Was QC Checker run for this job?	✓	✓	

*Upon completion of this checklist, the reviewer must scan and attach the checklist to the TALS job.

1st Level (Analyst): 

Date: 5/23/17

2nd Level Reviewer: 

Date: 5/23/2017

88276; 88432; 88275; 88433

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 19MAY2017E_PFC

Worklist Number: 43327

Instrument Name: A8_N

Chrom Method: A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170522-43327.b

QC Batching: Disabled

Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 165487	LC PFC ICAL Raw Batch: 165488	LC PFAS ICAL Raw Batch: 165489
# 1 CCV L4	# 1 CCV L4	# 1 CCV L4	
# 2 MB 320-165207/1-A	# 2 MB 320-165207/1-A	# 2 MB 320-165207/1-A	
# 3 LCS 320-165207/2-A	# 3 LCS 320-165207/2-A	# 3 LCS 320-165207/2-A	RI for PFODA
# 4 LCSD 320-165207/3-A	# 4 LCSD 320-165207/3-A	# 4 LCSD 320-165207/3-A	
# 5 320-28110-A-1-A	# 5 320-28110-A-1-A 20x		
# 6 320-28110-A-2-A	# 6 320-28110-A-2-A RI c/o		
# 7 320-28110-A-3-A	# 7 320-28110-A-3-A		
# 8 320-28110-A-4-A	# 8 320-28110-A-4-A		
# 9 320-28286-A-11-A	# 9 320-28286-A-11-A		
# 10 320-28286-A-12-A	# 10 320-28286-A-12-A		
# 11 320-28286-A-13-A	# 11 320-28286-A-13-A		
# 12 CCV L5	# 12 CCV L5	# 12 CCV L5	
# 13 320-28286-A-31-A	# 13 320-28286-A-31-A		
# 14 320-28077-A-1-A	# 14 320-28077-A-1-A	# 14 320-28077-A-1-A RI	→ Rx needed FOSA IDA < 1%
# 15 320-28077-A-2-A	# 15 320-28077-A-2-A	# 15 320-28077-A-2-A RI	
# 16 320-28142-A-1-A	# 16 320-28142-A-1-A	# 16 320-28142-A-1-A	
# 17 320-28285-A-2-A	# 17 320-28285-A-2-A	# 17 320-28285-A-2-A	
# 18 320-28285-A-3-A	# 18 320-28285-A-3-A	# 18 320-28285-A-3-A	
# 19 320-28285-A-3-B MS	# 19 320-28285-A-3-B MS	# 19 320-28285-A-3-B MS	
# 20 320-28285-A-4-A	# 20 320-28285-A-4-A	# 20 320-28285-A-4-A	
# 21 320-28285-A-5-A	# 21 320-28285-A-5-A	# 21 320-28285-A-5-A	
# 22 320-28285-A-6-A	# 22 320-28285-A-6-A	# 22 320-28285-A-6-A	
# 23 CCV L4	# 23 CCV L4	# 23 CCV L4	
# 24 320-28285-A-7-A	# 24 320-28285-A-7-A	# 24 320-28285-A-7-A	
# 25 320-28285-A-8-A	# 25 320-28285-A-8-A	# 25 320-28285-A-8-A	
# 26 320-28285-A-9-A	# 26 320-28285-A-9-A	# 26 320-28285-A-9-A	
# 27 320-28285-A-13-A	# 27 320-28285-A-13-A	# 27 320-28285-A-13-A	
# 28 CCV L5	# 28 CCV L5	# 28 CCV L5	

ICAL
New

165422

165425

FOSA IDA low 88432

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 22MAY2017C_PFC Worklist Number: 43377
 Instrument Name: A8_N Chrom Method: A8_N
 Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170523-43377.b
 QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 165669	LC PFC ICAL Raw Batch: 165670
# 1 CCV L5 # 2 LCS 320-165057/2-A # 3 LCSD 320-165057/3-A # 4 440-183975-A-1-A # 5 440-183975-A-2-A # 6 MB 320-165207/1-A # 7 LCS 320-165207/2-A # 8 LCSD 320-165207/3-A # 9 320-28077-A-1-A #10 320-28077-A-2-A #11 320-28142-A-1-A #12 CCV L4 #13 320-28110-A-2-A #14 320-28110-A-1-A #15 MB 320-165261/1-A #16 LCS 320-165261/2-A #17 LCSD 320-165261/3-A #18 320-28360-A-1-A #19 320-28360-A-2-A #20 320-28360-A-3-A #21 320-28360-A-4-A #22 CCV L5	# 1 CCV L5 # 6 MB 320-165207/1-A # 7 LCS 320-165207/2-A # 8 LCSD 320-165207/3-A #12 CCV L4 #13 320-28110-A-2-A #14 320-28110-A-1-A <i>PL, DL</i> <i>88433</i> <i>Tune</i> <i>88436</i> #22 CCV L5	# 1 CCV L5 # 2 LCS 320-165057/2-A # 3 LCSD 320-165057/3-A # 4 440-183975-A-1-A # 5 440-183975-A-2-A # 6 MB 320-165207/1-A # 7 LCS 320-165207/2-A # 8 LCSD 320-165207/3-A # 9 320-28077-A-1-A #10 320-28077-A-2-A #11 320-28142-A-1-A #12 CCV L4 #15 MB 320-165261/1-A #16 LCS 320-165261/2-A #17 LCSD 320-165261/3-A #18 320-28360-A-1-A #19 320-28360-A-2-A #20 320-28360-A-3-A #21 320-28360-A-4-A #22 CCV L5

PFODA only

165657

ICAL 165660

88

AS 5/22/17

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165261

Analyst: Sharifi, Nooshin

Batch Open: 5/19/2017 9:01:00AM

Method Code: 320-3535_PFC-320

Batch End: 05/19/17 18:10

Solid-Phase Extraction (SPE)

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InifAmnt FinAmnt	PHS		Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
				Rcvd	Adj1 Adj2					
1 MB-320-165261/1 N/A	N/A		250 mL 0.5 mL			N/A	N/A	N/A		MB 320-165261-1-A
2 LCS-320-165261/2 N/A	N/A		250 mL 0.5 mL			N/A	N/A	N/A		LCS 320-165261-2-A
3 LCS-320-165261/3 N/A	N/A		250 mL 0.5 mL			N/A	N/A	N/A		LCS-320-165261-3-A
4 320-28360-A-1 (PFC_IDA)	N/A (320-28360-1)	291.86 g 27.82 g	264 mL 0.5 mL			5/24/17	4_Day_RUSH	4		320-28360-A-1-A
5 320-28360-A-2 (PFC_IDA)	N/A (320-28360-1)	290.89 g 27.13 g	263.8 mL 0.5 mL			5/24/17	4_Day_RUSH	4		320-28360-A-2-A
6 320-28360-A-3 (PFC_IDA)	N/A (320-28360-1)	291.45 g 28.28 g	263.2 mL 0.5 mL			5/24/17	4_Day_RUSH	4		320-28360-A-3-A
7 320-28360-A-4 (PFC_IDA)	N/A (320-28360-1)	281.72 g 27.83 g	253.9 mL 0.5 mL			5/24/17	4_Day_RUSH	4		320-28360-A-4-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165261

Analyst: Sharifi, Nooshin

Batch Open: 5/19/2017 9:01:00AM

Method Code: 320-3535_PFC-320

Batch End:

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 Adj2					
1 MB-320-165261/1 N/A	N/A		250 mL 0.5 mL			N/A	N/A	N/A		MB-320-165261-1-A
2 LCS-320-165261/2 N/A	N/A		250 mL 0.5 mL			N/A	N/A	N/A		LCS-320-165261-2-A
3 LCS-320-165261/3 N/A	N/A		250 mL 0.5 mL			N/A	N/A	N/A		LCS-320-165261-3-A
4 320-28360-A-1 (PFC_IDA)	N/A (320-28360-1)	291.86 g	0.5 mL			5/24/17	4_Day_RUSH	4		320-28360-A-1-A
5 320-28360-A-2 (PFC_IDA)	N/A (320-28360-1)	290.89 g	0.5 mL			5/24/17	4_Day_RUSH	4		320-28360-A-2-A
6 320-28360-A-3 (PFC_IDA)	N/A (320-28360-1)	291.45 g	0.5 mL			5/24/17	4_Day_RUSH	4		320-28360-A-3-A
7 320-28360-A-4 (PFC_IDA)	N/A (320-28360-1)	281.72 g	0.5 mL			5/24/17	4_Day_RUSH	4		320-28360-A-4-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165261
Method Code: 320-3535_PFC-320

Analyst: Sharifi, Nooshin
Batch Open: 5/19/2017 9:01:00AM
Batch End:

Batch Notes	
Manifold ID	2
Methanol ID	924282
Hexane ID	921666
Sodium Hydroxide ID	924543
First Start time	NA
First End time	NA
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	002836112A
Balance ID	QA-070
H2O ID	5/04/17
Pipette ID	MD05306
Solvent Name	0.3% NH4OH/MEOH
Solvent Lot #	932747
Analyst ID - Reagent Drop	NSH
Analyst ID - SU Reagent Drop	NSH
Analyst ID - SU Reagent Drop Witness	CCB
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
SOP Number	WS-LC-0025

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Sharifi, Nooshin

Batch Number: 320-165261

Batch Open: 5/19/2017 9:01:00AM

Method Code: 320-3535_PFC-320

Batch End:

Batch Comment

	Comments
320-28360-A-1	Method Comments: DuPont QAS_LCSD req if No MS/DU per JOB
320-28360-A-2	Method Comments: DuPont QAS_LCSD req if No MS/DU per JOB
320-28360-A-3	Method Comments: DuPont QAS_LCSD req if No MS/DU per JOB
320-28360-A-4	Method Comments: DuPont QAS_LCSD req if No MS/DU per JOB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Sharifi, Nooshin

Batch Number: 320-165261

Method Code: 320-3535_PFC-320

Batch Open: 5/19/2017 9:01:00AM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-165261/1	LCMPFCSU_00065	500 uL	0.5 mL	NSH 5-19-17	CS 5-19-17
LCS 320-165261/2	LCMPFCSU_00065	500 uL	0.5 mL		
LCS 320-165261/2	LCPFCSU_00092	500 uL	0.5 mL		
LCSD 320-165261/3	LCMPFCSU_00065	500 uL	0.5 mL		
LCSD 320-165261/3	LCPFCSU_00092	500 uL	0.5 mL		
320-28360-A-1	LCMPFCSU_00065	500 uL	0.5 mL		
320-28360-A-2	LCMPFCSU_00065	500 uL	0.5 mL		
320-28360-A-3	LCMPFCSU_00065	500 uL	0.5 mL		
320-28360-A-4	LCMPFCSU_00065	500 uL	0.5 mL		

Page 1177 of 1230

Reagent	Other Reagents:	Amount/Units	Lot#:

Preparation Batch Number(s): 165261

Test: PFC

Earliest Holding Time: 5-31-17

Sample List Tab		1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method		✓	✓
All necessary NCMs filed (including holding time)		✓	✓
Method/sample/login/QAS checked and correct		✓	✓
Worksheet Tab		1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved		NA	N/A
Weights in anticipated range and not targeted		✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)		✓	✓
The pH is transcribed correctly in TALS		NA	N/A
All additional information transcribed into TALS is correct and raw data is attached		✓	✓
Comments are transcribed correctly in TALS		✓	✓
Reagents Tab		1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS		✓	✓
All spike amounts correct and added to necessary samples and QC		✓	✓
Batch Information		1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly		✓	✓
All necessary 'batch information' complete and entered into TALS correctly		✓	✓

1st Level Reviewer: 

Date: 5/19/17

2nd Level Reviewer: 

Date: 05/19/17

Comments: _____

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165207

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 5/18/2017 5:41:00PM

Batch End: 05/19/17 15:07

AB 5/19/17

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					
1 MB-320-165207/1 N/A	N/A		250.00 mL 0.50 mL			N/A	N/A	N/A	RI PFODA	MB-320-165207-1-A
2 LCS-320-165207/2 N/A	N/A		250.00 mL 0.50 mL			N/A	N/A	N/A	RI PFODA	LCS-320-165207-2-A
3 LCS-320-165207/3 N/A	N/A		250.00 mL 0.50 mL			N/A	N/A	N/A	RI PFODA	LCS-320-165207-3-A
4 320-28110-A-1 (PFC_IDA_DOD5)	N/A (320-28110-1)	317.20 g 28.57 g	288.6 mL 0.50 mL			5/26/17	12_Days	2	20X	320-28110-A-1-A
5 320-28110-A-2 (PFC_IDA_DOD5)	N/A (320-28110-1)	320.53 g 28.63 g	291.9 mL 0.50 mL			5/26/17	12_Days	2	RI	320-28110-A-2-A
6 320-28110-A-3 (PFC_IDA_DOD5)	N/A (320-28110-1)	305.24 g 27.62 g	277.6 mL 0.50 mL			5/26/17	12_Days	2		320-28110-A-3-A
7 320-28110-A-4 (PFC_IDA_DOD5)	N/A (320-28110-1)	316.17 g 27.54 g	288.6 mL 0.50 mL			5/26/17	12_Days	2		320-28110-A-4-A
8 320-28286-A-11 (PFC_IDA_DOD5)	N/A (320-28286-1)	311.76 g 27.15 g	284.6 mL 0.50 mL			5/20/17	23_Days	4		320-28286-A-11-A
9 320-28286-A-12 (PFC_IDA_DOD5)	N/A (320-28286-1)	303.84 g 27.20 g	276.6 mL 0.50 mL			5/20/17	23_Days	4		320-28286-A-12-A
10 320-28286-A-13 (PFC_IDA_DOD5)	N/A (320-28286-1)	306.47 g 26.66 g	279.8 mL 0.50 mL			5/20/17	23_Days	4		320-28286-A-13-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165207

Analyst: Reed, Jonathan E

Batch Open: 5/18/2017 5:41:00PM

Method Code: 320-3535_PFC-320

Batch Eng: *5/22/17*

Sample ID	Weight (g)	Volume (mL)	Extraction Date	Days	Notes	Barcode
320-28286-A-1 (PFC_IDA_DOD5)	300.98 g 27.63 g	273.4 mL 0.50 mL	5/20/17	4	<i>RI for PFOA / FOSA-IDA</i>	
320-28077-A-1 (PFC_IDA)	299.06 g 27.70 g	271.4 mL 0.50 mL	6/1/17	4	<i>RI PFOA / FOSA IDA</i>	
320-28077-A-2 (PFC_IDA)	305.18 g 27.67 g	277.5 mL 0.50 mL	6/1/17	4	<i>RI PFOA / FOSA IDA</i>	
320-28142-A-1 (PFC_IDA)	281.12 g 26.91 g	254.2 mL 0.50 mL	6/22/17	4	<i>RI FOSA IDA</i>	
320-28285-A-2 (PFC_IDA)	307.93 g 27.53 g	280.4 mL 0.50 mL	5/26/17	4		
320-28285-A-3 (PFC_IDA)	305.82 g 27.44 g	278.4 mL 0.50 mL	5/26/17	4		
320-28285-A-3-MS (PFC_IDA)	306.37 g 27.81 g	278.6 mL 0.50 mL	5/26/17	4		
320-28285-A-4 (PFC_IDA)	303.90 g 27.66 g	276.2 mL 0.50 mL	5/26/17	4		
320-28285-A-5 (PFC_IDA)	308.53 g 27.03 g	281.5 mL 0.50 mL	5/26/17	4		
320-28285-A-6 (PFC_IDA)	309.76 g 27.58 g	282.2 mL 0.50 mL	5/26/17	4		
320-28285-A-7 (PFC_IDA)	298.78 g 27.39 g	271.4 mL 0.50 mL	5/26/17	4		
320-28285-A-8 (PFC_IDA)	313.73 g 27.06 g	286.7 mL 0.50 mL	5/26/17	4		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)



Batch Number: 320-165207

Analyst: Reed, Jonathan E

Batch Open: 5/18/2017 5:41:00PM

Method Code: 320-3535_PFC-320

Batch End:

#	Sample ID	N/A	Wt	Vol	Date	8_Days	4	Barcode
23	320-28285-A-9 (PFC_IDA)	N/A (320-28285-1)	304.74 g 28.06 g	276.7 mL 0.50 mL	5/26/17	8_Days	4	 320-28285-A-9-A
24	320-28285-A-13 (PFC_IDA)	N/A (320-28285-1)	309.93 g 27.73 g	282.2 mL 0.50 mL	5/26/17	8_Days	4	 320-28285-A-13-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165207

Method Code: 320-3535_PFC-320

Analyst: Reed, Jonathan E

Batch Open: 5/18/2017 5:41:00PM

Batch End:

Batch Notes	
Manifold ID	8, 14
Methanol ID	924277
Hexane ID	921666
Sodium Hydroxide ID	924543
First Start time	NA
First End time	NA
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	002836112A
Balance ID	QA-070
H2O ID	5/16/17
Pipette ID	MD05306
Solvent Name	0.3% NH4OH/MeOH
Solvent Lot #	932747
Analyst ID - Reagent Drop	JER
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	JN
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
SOP Number	WS-LC-0025

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-165207

Method Code: 320-3535_PFC-320

Batch Open: 5/18/2017 5:41:00PM

Batch End:

Batch Comment

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Open: 5/18/2017 5:41:00PM

Batch End:

Batch Number: 320-165207

Method Code: 320-3535_PFC-320

Comments

320-28110-A-1	Method Comments: CAUTION -may contain high levels of PFCs
320-28110-A-2	Method Comments: CAUTION -may contain high levels of PFCs
320-28110-A-3	Method Comments: CAUTION -may contain high levels of PFCs
320-28110-A-4	Method Comments: CAUTION -may contain high levels of PFCs
320-28286-A-11	Method Comments: DOD site, Screen-caution
320-28286-A-12	Method Comments: DOD site, Screen-caution
320-28286-A-13	Method Comments: DOD site, Screen-caution
320-28286-A-31	Method Comments: DOD site, Screen-caution
320-28285-A-2	Method Comments: spls expected to be of moderate contaminant conc.
320-28285-A-3	Method Comments: spls expected to be of moderate contaminant conc.
320-28285-A-3-MS	Method Comments: Caution--Concentrations unknown (samples expected to be of moderate contaminant conc)
320-28285-A-4	Method Comments: Caution--Concentrations unknown (samples expected to be of moderate contaminant conc)
320-28285-A-5	Method Comments: spls expected to be of moderate contaminant conc.
320-28285-A-6	Method Comments: Caution--Concentrations unknown (samples expected to be of moderate contaminant conc)
320-28285-A-7	Method Comments: spls expected to be of moderate contaminant conc.
320-28285-A-8	Method Comments: Caution--Concentrations unknown (samples expected to be of moderate contaminant conc)
320-28285-A-9	Method Comments: spls expected to be of moderate contaminant conc.
320-28285-A-13	Method Comments: Caution--Concentrations unknown (samples expected to be of moderate contaminant conc)
	Method Comments: Caution--Concentrations unknown (samples expected to be of moderate contaminant conc)

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165207


Analyst: Reed, Jonathan E

Batch Open: 5/18/2017 5:41:00PM

Method Code: 320-3535_PFC-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-165207/1	LCMPFCSU_00068	500 uL	0.50 mL	 5/18/17	TH 05/18/17
LCS 320-165207/2	LCMPFCSU_00068	500 uL	0.50 mL		
LCS 320-165207/2	LCPFCSU_00092	500 uL	0.50 mL		
LCSD 320-165207/3	LCMPFCSU_00068	500 uL	0.50 mL		
LCSD 320-165207/3	LCPFCSU_00092	500 uL	0.50 mL		
320-28110-A-1	LCMPFCSU_00068	500 uL	0.50 mL		
320-28110-A-2	LCMPFCSU_00068	500 uL	0.50 mL		
320-28110-A-3	LCMPFCSU_00068	500 uL	0.50 mL		
320-28110-A-4	LCMPFCSU_00068	500 uL	0.50 mL		
320-28286-A-11	LCMPFCSU_00068	500 uL	0.50 mL		
320-28286-A-12	LCMPFCSU_00068	500 uL	0.50 mL		
320-28286-A-13	LCMPFCSU_00068	500 uL	0.50 mL		
320-28286-A-31	LCMPFCSU_00068	500 uL	0.50 mL		
320-28077-A-1	LCMPFCSU_00068	500 uL	0.50 mL		
320-28077-A-2	LCMPFCSU_00068	500 uL	0.50 mL		
320-28142-A-1	LCMPFCSU_00068	500 uL	0.50 mL		
320-28285-A-2	LCMPFCSU_00068	500 uL	0.50 mL		
320-28285-A-3	LCMPFCSU_00068	500 uL	0.50 mL		

Preparation Batch Number(s): 165207 Test: PFC

Earliest Holding Time: 5/22/17

Sample List Tab		
	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	✓	✓
All necessary NCMs filed (including holding time)	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Worksheet Tab		
	1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved	NA	NA
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	✓	✓
The pH is transcribed correctly in TALS	NA	NA
All additional information transcribed into TALS is correct and raw data is attached	✓	✓
Comments are transcribed correctly in TALS	✓	✓
Reagents Tab		
	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Batch Information		
	1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly	✓	✓
All necessary 'batch information' complete and entered into TALS correctly	✓	✓

1st Level Reviewer: [Signature]

Date: 5/19/17

2nd Level Reviewer: [Signature]

Date: 05/19/17

Comments: _____

Method ID PFC-IDA

Job # See below

Analyst (Print Name) Thep Phomsopha

Analyst Initials TP

Date 5/22/17

Sample#	Original F.V. (uL)	Aliquot (uL)	Dilution F.V. (uL)	Dilution Factor
320-28110-1	1000	15	300	20X
320-28308-1	800	15	1500	100X
-2				
-3				
-4				
-5				
-6				
-7				
-8				
-9				
-10				
-11				
-12				
-13				
-14				
-15				
-16				
-17				
-18				

Comments:

HPLC/LCMS Data Review Checklist

Job Number(s): 28286; 240-79500

Work List ID(s): 43461

Extraction Batch: 165287; 165746

Analysis Batch(es): 166071; 166072

Delivery Rank: 4


Due Date: 5/20/17; 6/6/17

A. Calibration/Instrument Run QC	1 st Level	2 nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# <u>165660; 165657</u>	✓	✓	
2. ICAL, CCV Frequency & Criteria met.	✓	✓	
• RF _{average} criteria appropriate for the method.	✓	✓	
• Linear Regression criteria appropriate if required ($r \geq 0.995$).	✓	✓	
• Quadratic fit criteria appropriate if required ($r^2 \geq 0.990$).			✓
• For Linear Regression and Quadratic fit – Does the y-intercept support ½ the reporting limit as described in CA-Q-S-005?	✓	✓	
• All curve points show calculated concentrations.	✓	✓	
3. Peaks correctly ID'd by data system.	✓	✓	
5. Tune check frequency & criteria met and Tune check report attached.	✓	✓	
B. QA/QC			
1. Are all QC samples properly linked in TALS?	✓	✓	
2. Method blank, LCS/LCSD and MS/SD frequencies met.	✓	✓	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present.	✓	✓	
4. Are MS/MSD recoveries and RPD within control limits?	✓	✓	
5. Holding Times were met for prep and analytical.	✓	✓	
6. IS/Surrogate recoveries meet criteria or properly noted.	✓	✓	
C. Sample Analysis			
1. Was correct analysis performed and were project instructions followed?	✓	✓	
2. If required, are compounds within RT windows?	✓	✓	
3. If required, are positive hits confirmed and >40% RPD flagged?			✓
4. Manual Integrations reviewed and appropriate.	✓	✓	
5. All analytes correctly reported. (Primary, secondary, acceptable status)	✓	✓	
6. Correct reporting limits used. (based on client request, prep factors, and dilutions)	✓	✓	
D. Documentation			
1. Are all non-conformances documented/attached? NCM# <u>88436; 88678; 88679;</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): 

Date: 5/25/17

2nd Level Reviewer: 

Date: 5/26/2017

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 24MAY2017H_PFC Worklist Number: 43481
 Instrument Name: A8_N Chrom Method: A8_N
 Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170525-43481.b
 QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 166071	LC PFC ICAL Raw Batch: 166072
# 1 CCV L5	# 1 CCV L5	# 1 CCV L5
# 2 MB 320-165287/1-A	# 2 MB 320-165287/1-A	
# 3 LCS 320-165287/2-A	# 3 LCS 320-165287/2-A	
# 4 320-28286-A-24-A	# 4 320-28286-A-24-A	
# 5 320-28286-A-24-B MS	# 5 320-28286-A-24-B MS	
# 6 320-28286-A-24-C MSD	# 6 320-28286-A-24-C MSD	
# 7 320-28286-A-25-A	# 7 320-28286-A-25-A	
# 8 320-28286-A-26-A	# 8 320-28286-A-26-A	
# 9 320-28286-A-27-A	# 9 320-28286-A-27-A	
#10 320-28286-A-28-A	#10 320-28286-A-28-A	
#11 320-28286-A-29-A	#11 320-28286-A-29-A	
#12 CCV L4	#12 CCV L4	#12 CCV L4
#13 320-28286-A-30-A	#13 320-28286-A-30-A	
#14 320-28286-A-32-A	#14 320-28286-A-32-A	
#15 320-28286-A-33-A	#15 320-28286-A-33-A	
#16 MB 320-165287/1-A	#16 MB 320-165287/1-A	
#17 LCS 320-165287/2-A	#17 LCS 320-165287/2-A	
#18 320-28286-A-24-A	#18 320-28286-A-24-A	
#19 320-28286-A-24-B MS	#19 320-28286-A-24-B MS	
#20 320-28286-A-24-C MSD	#20 320-28286-A-24-C MSD	
#21 320-28286-A-25-A	#21 320-28286-A-25-A	
#22 320-28286-A-26-A	#22 320-28286-A-26-A	
#23 CCV L5	#23 CCV L5	#23 CCV L5
#24 320-28286-A-27-A	#24 320-28286-A-27-A	
#25 320-28286-A-28-A	#25 320-28286-A-28-A	
#26 320-28286-A-29-A	#26 320-28286-A-29-A	
#27 320-28286-A-30-A	#27 320-28286-A-30-A	
#28 320-28286-A-32-A	#28 320-28286-A-32-A	
#29 320-28286-A-33-A	#29 320-28286-A-33-A	
#30 CCV L4	#30 CCV L4	#30 CCV L4
#31 MB 320-165746/1-A	#31 MB 320-165746/1-A	#31 MB 320-165746/1-A
#32 LCS 320-165746/2-A	#32 LCS 320-165746/2-A	#32 LCS 320-165746/2-A
#33 LCSD 320-165746/3-A	#33 LCSD 320-165746/3-A	#33 LCSD 320-165746/3-A
#34 240-79500-A-1-A	#34 240-79500-A-1-A	#34 240-79500-A-1-A
#35 CCV L5	#35 CCV L5	#35 CCV L5

Time 88436

LCS high sample RL 88678
 FOSA 1DA low 88679

~~165660 SBC 5/25/17 165659~~ ~~165657 ICAL SBC 5/25/17~~
 165945 165944 CCV L5 SBC 5/25/17
 165657 165660 ICAL
 CCV L 165944 165945

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

AD 5/24/17

Batch Number: 320-165287

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 9:45:00AM

Method Code: 320-Shake_Bath_14D-320

Batch End: 5-24-17 12:45

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
1 MB-320-165287/1 N/A	N/A	5.00 g	1.00 mL	N/A	N/A	N/A		MB 320-165287-1-A
2 LCS-320-165287/2 N/A	N/A	5.00 g	1.00 mL	N/A	N/A	N/A		LCS 320-165287-2-A
3 320-28286-A-24 (PFC_IDA_DOD5)	N/A	5.09 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-24-A
4 320-28286-A-24-MS (PFC_IDA_DOD5)	(320-28286-1)	5.05 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-24-B
5 320-28286-A-24-MSD (PFC_IDA_DOD5)	N/A	5.03 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-24-C
6 320-28286-A-25 (PFC_IDA_DOD5)	N/A	5.10 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-25-A
7 320-28286-A-26 (PFC_IDA_DOD5)	(320-28286-1)	5.03 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-26-A
8 320-28286-A-27 (PFC_IDA_DOD5)	N/A	4.98 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-27-A
9 320-28286-A-28 (PFC_IDA_DOD5)	(320-28286-1)	5.05 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-28-A
10 320-28286-A-29 (PFC_IDA_DOD5)	N/A	5.08 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-29-A
11 320-28286-A-30 (PFC_IDA_DOD5)	N/A	4.99 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-30-A
12 320-28286-A-32 (PFC_IDA_DOD5)	N/A	5.07 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-32-A
13 320-28286-A-33 (PFC_IDA_DOD5)	(320-28286-1)	5.06 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-33-A

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165287

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 9:45:00AM

Method Code: 320-Shake_Bath_14D-320

Batch End:

	Batch Notes
Balance ID	QA-070
Blank Sand Lot #	162639
Filter ID	NA
Millipore Water Dispense Date	5-19-17
Analyst ID - Reagent Drop Witness	Bottle #3 NSH
SPE Cartridge ID	017037054A
SPE Cartridge Type	WAX 150mg
Hexane ID	921664
Methanol ID	924280
Ammonium Hydroxide/MeOH ID	934328
Sodium Hydroxide ID	924542
Methanolic Potassium Hydroxide ID	923364
Manifold ID	6
Interference check solution ID	NA
Acetic Acid ID	429065
Batch Comment	Spike Bottle #2

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165287

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 9:45:00AM

Method Code: 320-Shake_Bath_14D-320

Batch End:

	Comments
320-28286-A-24	Method Comments: DOD site, Screen-caution
320-28286-A-24-MS	Method Comments: DOD site, Screen-caution
320-28286-A-24-MSD	Method Comments: DOD site, Screen-caution
320-28286-A-25	Method Comments: DOD site, Screen-caution
320-28286-A-26	Method Comments: DOD site, Screen-caution
320-28286-A-27	Method Comments: DOD site, Screen-caution
320-28286-A-28	Method Comments: DOD site, Screen-caution
320-28286-A-29	Method Comments: DOD site, Screen-caution
320-28286-A-30	Method Comments: DOD site, Screen-caution
320-28286-A-32	Method Comments: DOD site, Screen-caution
320-28286-A-33	Method Comments: DOD site, Screen-caution

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165287

Method Code: 320-Shake_Bath_14D-320

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 9:45:00AM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-165287/1	LCMPFCSU_00068	1.00 mL	1.00 mL	HJA 5-19-17	NSH 5-19-17
LCS 320-165287/2	LCMPFCSU_00068	1.00 mL	1.00 mL		
LCS 320-165287/2	LCPFCSU_00092	1.00 mL	1.00 mL		
320-28286-A-24	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-24 MS	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-24 MS	LCPFCSU_00092	1.00 mL	1.00 mL		
320-28286-A-24 MSD	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-24 MSD	LCPFCSU_00092	1.00 mL	1.00 mL		
320-28286-A-25	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-26	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-27	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-28	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-29	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-30	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-32	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-33	LCMPFCSU_00068	1.00 mL	1.00 mL		

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165287

Method Code: 320-Shake_Bath_14D-320

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 9:45:00AM

Batch End:

Reagent	Other Reagents:	Amount/Units	Lot#:

Preparation Batch Number(s): 320-165287 Test: PRC-S

Earliest Holding Time: 5-28-17

	1 st Level Reviewer	2 nd Level Reviewer
Sample List Tab		
Samples identified to the correct method	/	/
All necessary NCMs filed (including holding time)	NA	NA
Method/sample/login/QAS checked and correct	/	/
Worksheet Tab		
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		
All necessary reagents not expired and entered into TALS	/	/
All spike amounts correct and added to necessary samples and QC	/	/
Batch Information		
Date and time accurate and entered into TALS correctly	/	/
All necessary 'batch information' complete and entered into TALS correctly	/	/

1st Level Reviewer: VPM

Date: 5/24/17

2nd Level Reviewer: oeb

Date: 5/24/17

Comments: _____

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165746

Method Code: 320-3535_PFC-320

Analyst: Santos, Jonathan

Batch Open: 5/23/2017 11:52:00AM

Batch End: 5/24/17 12:40

Solid-Phase Extraction (SPE)

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt		PHs Adj1 Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
			FinAmnt	Rcvd						
MB-320-165746/1 N/A	N/A		250 mL		N/A	N/A	N/A	N/A		MB-320-165746/1-A
			0.5 mL							
LCS-320-165746/2 N/A	N/A		250 mL		N/A	N/A	N/A	N/A		LCS-320-165746/2-A
			0.5 mL							
LCSD-320-165746/3 N/A	N/A		250 mL		N/A	N/A	N/A	N/A		LCSD-320-165746/3-A
			0.5 mL							
240-79500-A-1 (PFC_IDA)	N/A (240-79500-1)	290.46 g	268.2 mL		6/6/17	16_Days	4			240-79500-A-1-A
		27.22 g	0.5 mL							

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Santos, Jonathan

Batch Number: 320-165746

Method Code: 320-3535_PFC-320

Batch Open: 5/23/2017 11:52:00AM

Batch End:

	Batch Notes
Manifold ID	8, 11, 13 15 SNS 5/13/17
Methanol ID	931320
Hexane ID	921664
Sodium Hydroxide ID	924543
First Start time	NA
First End time	NA
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	002836112A
Balance ID	QA-070
H2O ID	5/04/17
Pipette ID	MD05306
Solvent Name	0.3% NH4OH/MEOH
Solvent Lot #	932747
Analyst ID - Reagent Drop	VPM
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	JNS
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
SOP Number	WS-LC-0025

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Santos, Jonathan

Batch Number: 320-165746

Method Code: 320-3535_PFC-320

Batch Open: 5/23/2017 11:52:00AM

Batch End:

Batch Comment

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Santos, Jonathan

Batch Number: 320-165746

Method Code: 320-3535_PFC-320

Batch Open: 5/23/2017 11:52:00AM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-165746/1	LCMPFCSU_00067	500 uL	0.5 mL	vpm 5-23-17	JNS 5/23/17
LCS 320-165746/2	LCMPFCSU_00067	500 uL	0.5 mL		
LCS 320-165746/2	LCPFCSP_00092	500 uL	0.5 mL		
LCSD 320-165746/3	LCMPFCSU_00067	500 uL	0.5 mL		
LCSD 320-165746/3	LCPFCSP_00092	500 uL	0.5 mL		
240-79500-A-1	LCMPFCSU_00067	500 uL	0.5 mL		

Other Reagents:

Reagent	Amount/Units	Lot#:

Preparation Batch Number(s): 1105740

Test: PF(-)DACL

Earliest Holding Time: 5/23/17

Sample List Tab		1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method		/	/
All necessary NCMs filed (including holding time)		/	/
Method/sample/login/QAS checked and correct		/	/
Worksheet Tab		1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved		NA	NA
Weights in anticipated range and not targeted		/	/
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)		/	/
The pH is transcribed correctly in TALS		NA	NA
All additional information transcribed into TALS is correct and raw data is attached		/	/
Comments are transcribed correctly in TALS		/	/
Reagents Tab		1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS		/	/
All spike amounts correct and added to necessary samples and QC		/	/
Batch Information		1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly		/	/
All necessary 'batch information' complete and entered into TALS correctly		/	/

1st Level Reviewer: VDM

Date: 5-24-17

2nd Level Reviewer: CS

Date: 5-24-17

Comments: _____

HPLC/LCMS Data Review Checklist

Job Number(s): 28286

Work List ID(s): 43975

Extraction Batch: 165234

Analysis Batch(es): 168107

Delivery Rank: 4

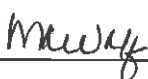
Due Date: 5/20/17

A. Calibration/Instrument Run QC	1 st Level	2 nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# <u>167755</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 ($r^2 > 0.990$).			✓
• 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# <u>89867</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): 

Date: 6/9/17

2nd Level Reviewer: 

Date: 6/11/2017

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 07JUN2017C_PFC
Instrument Name: A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170607-43975.b
QC Batching: Disabled

Worklist Number: 43975
Chrom Method: A8_N
Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 168107	LC PFC ICAL Raw Batch: 168106
# 1 CCV L4	# 1 CCV L4	# 1 CCV L4
# 2 MB 320-165234/1-A	# 2 MB 320-165234/1-A	
# 3 LCS 320-165234/2-A	# 3 LCS 320-165234/2-A	
# 4 320-28286-A-1-A	# 4 320-28286-A-1-A	
# 5 320-28286-A-2-A	# 5 320-28286-A-2-A	
# 6 320-28286-A-3-A	# 6 320-28286-A-3-A	
# 7 320-28286-A-4-A	# 7 320-28286-A-4-A	
# 8 320-28286-A-4-B MS	# 8 320-28286-A-4-B MS	
# 9 320-28286-A-4-C MSD	# 9 320-28286-A-4-C MSD	
#10 320-28286-A-5-A	#10 320-28286-A-5-A	
#11 320-28286-A-6-A	#11 320-28286-A-6-A	
#12 CCV L5	#12 CCV L5	#12 CCV L5
#13 320-28286-A-7-A	#13 320-28286-A-7-A	
#14 320-28286-A-8-A	#14 320-28286-A-8-A	
#15 320-28286-A-9-A	#15 320-28286-A-9-A	
#16 320-28286-A-10-A	#16 320-28286-A-10-A	
#17 320-28286-A-14-A	#17 320-28286-A-14-A	
#18 320-28286-A-15-A	#18 320-28286-A-15-A	
#19 320-28286-A-16-A	#19 320-28286-A-16-A	
#20 320-28286-A-17-A	#20 320-28286-A-17-A	
#21 320-28286-A-18-A	#21 320-28286-A-18-A	
#22 320-28286-A-19-A	#22 320-28286-A-19-A	
#23 CCV L4	#23 CCV L4	#23 CCV L4
#24 320-28286-A-20-A	#24 320-28286-A-20-A	
#25 320-28286-A-21-A	#25 320-28286-A-21-A	
#26 320-28286-A-22-A	#26 320-28286-A-22-A	
#27 320-28286-A-23-A	#27 320-28286-A-23-A	
#28 CCV L5	#28 CCV L5	#28 CCV L5

CCV L6 7956

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

AS 6/6/17 88c 6/6/17
6/7/17

Batch Number: 320-165234

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 8:07:00AM

Method Code: 320-Shake_Bath_14D-320

Batch End: 05/26/17 14:34

Shake Extraction with Ultrasonic Bath Extraction 6/13

Input Sample Lab ID (Analytical Method)	SDG (Job #)	Initial Amount	Final Amount	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-165234/1 N/A	N/A	5.00 g	1.00 mL	N/A	N/A	N/A		MB 320-165234-1-A
2 LCS-320-165234/2 N/A	N/A	5.00 g	1.00 mL	N/A	N/A	N/A		LCS 320-165234-2-A
3 320-28286-A-1 (PFC_IDA_DOD5)	(320-28286-1)	5.04 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-1-A
4 320-28286-A-2 (PFC_IDA_DOD5)	(320-28286-1)	5.08 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-2-A
5 320-28286-A-3 (PFC_IDA_DOD5)	(320-28286-1)	5.00 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-3-A
6 320-28286-A-4 (PFC_IDA_DOD5)	(320-28286-1)	4.99 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-4-A
7 320-28286-A-4-MS (PFC_IDA_DOD5)	(320-28286-1)	5.06 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-4-B-MS
8 320-28286-A-4-MSD (PFC_IDA_DOD5)	(320-28286-1)	5.05 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-4-C-MSD
9 320-28286-A-5 (PFC_IDA_DOD5)	(320-28286-1)	4.99 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-5-A
10 320-28286-A-6 (PFC_IDA_DOD5)	(320-28286-1)	5.05 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-6-A
11 320-28286-A-7 (PFC_IDA_DOD5)	(320-28286-1)	5.02 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-7-A
12 320-28286-A-8 (PFC_IDA_DOD5)	(320-28286-1)	5.02 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-8-A
13 320-28286-A-9 (PFC_IDA_DOD5)	(320-28286-1)	5.06 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-9-A
14 320-28286-A-10 (PFC_IDA_DOD5)	(320-28286-1)	5.11 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-10-A
15 320-28286-A-14 (PFC_IDA_DOD5)	(320-28286-1)	5.09 g	1.00 mL	5/20/17	23_Days	4		320-28286-A-14-A

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)










Batch Number: 320-165234

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 8:07:00AM

Method Code: 320-Shake_Bath_14D-320

Batch End:

Line No.	Sample ID	Container	Weight (g)	Volume (mL)	Date	23_Days	Count	Barcode
16	320-28286-A-15 (PFC_IDA_DOD5)	N/A (320-28286-1)	5.03 g	1.00 mL	5/20/17	23_Days	4	
17	320-28286-A-16 (PFC_IDA_DOD5)	N/A (320-28286-1)	5.02 g	1.00 mL	5/20/17	23_Days	4	
18	320-28286-A-17 (PFC_IDA_DOD5)	N/A (320-28286-1)	5.00 g	1.00 mL	5/20/17	23_Days	4	
19	320-28286-A-18 (PFC_IDA_DOD5)	N/A (320-28286-1)	5.05 g	1.00 mL	5/20/17	23_Days	4	
20	320-28286-A-19 (PFC_IDA_DOD5)	N/A (320-28286-1)	5.00 g	1.00 mL	5/20/17	23_Days	4	
21	320-28286-A-20 (PFC_IDA_DOD5)	N/A (320-28286-1)	5.09 g	1.00 mL	5/20/17	23_Days	4	
22	320-28286-A-21 (PFC_IDA_DOD5)	N/A (320-28286-1)	5.01 g	1.00 mL	5/20/17	23_Days	4	
23	320-28286-A-22 (PFC_IDA_DOD5)	N/A (320-28286-1)	5.00 g	1.00 mL	5/20/17	23_Days	4	
24	320-28286-A-23 (PFC_IDA_DOD5)	N/A (320-28286-1)	4.99 g	1.00 mL	5/20/17	23_Days	4	

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165234

Method Code: 320-Shake_Bath_14D-320

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 8:07:00AM

Batch End:

Batch Notes

Balance ID QA-070

Blank Sand Lot # 162639

Filter ID NA

Millipore Water Dispense Date 05-23-17

Analyst ID - Reagent Drop Witness Bottle #3 NSH

SPE Cartridge ID 017037054A

SPE Cartridge Type WAX 150mg

Hexane ID 921664

Methanol ID 924280

Ammonium Hydroxide/MeOH ID 938109

Sodium Hydroxide ID 924542

Methanolic Potassium Hydroxide ID 923364

Manifold ID 56
1235-12 618

Interference check solution ID NA

Acetic Acid ID 429065

Batch Comment Spilke Bottle #2

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165234

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 8:07:00AM

Method Code: 320-Shake_Bath_14D-320

Batch End:

Comments

320-28286-A-1	Method Comments: DOD site, Screen-caution
320-28286-A-2	Method Comments: DOD site, Screen-caution
320-28286-A-3	Method Comments: DOD site, Screen-caution
320-28286-A-4	Method Comments: DOD site, Screen-caution
320-28286-A-4-MS	Method Comments: DOD site, Screen-caution
320-28286-A-4-MSD	Method Comments: DOD site, Screen-caution
320-28286-A-5	Method Comments: DOD site, Screen-caution
320-28286-A-6	Method Comments: DOD site, Screen-caution
320-28286-A-7	Method Comments: DOD site, Screen-caution
320-28286-A-8	Method Comments: DOD site, Screen-caution
320-28286-A-9	Method Comments: DOD site, Screen-caution
320-28286-A-10	Method Comments: DOD site, Screen-caution
320-28286-A-14	Method Comments: DOD site, Screen-caution
320-28286-A-15	Method Comments: DOD site, Screen-caution
320-28286-A-16	Method Comments: DOD site, Screen-caution
320-28286-A-17	Method Comments: DOD site, Screen-caution
320-28286-A-18	Method Comments: DOD site, Screen-caution
320-28286-A-19	Method Comments: DOD site, Screen-caution
320-28286-A-20	Method Comments: DOD site, Screen-caution

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165234

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 8:07:00AM

Method Code: 320-Shake_Bath_14D-320

Batch End:

320-28286-A-21	Method Comments: DOD site, Screen-caution
320-28286-A-22	Method Comments: DOD site, Screen-caution
320-28286-A-23	Method Comments: DOD site, Screen-caution

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165234

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 8:07:00AM

Method Code: 320-Shake_Bath_14D-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-165234/1	LCMPFCSU_00068	1.00 mL	1.00 mL	HJA 5-19-17	NSH 5-19-17
LCS 320-165234/2	LCMPFCSU_00068	1.00 mL	1.00 mL		
LCS 320-165234/2	LCPFCSU_00092	1.00 mL	1.00 mL		
320-28286-A-1	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-2	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-3	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-4	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-4 MS	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-4 MS	LCPFCSU_00092	1.00 mL	1.00 mL		
320-28286-A-4 MSD	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-4 MSD	LCPFCSU_00092	1.00 mL	1.00 mL		
320-28286-A-5	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-6	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-7	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-8	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-9	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-10	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-14	LCMPFCSU_00068	1.00 mL	1.00 mL		

Solid SW-846-3500 Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-165234

Analyst: Arauz, Horacio J

Batch Open: 5/19/2017 8:07:00AM

Method Code: 320-Shake_Bath_14D-320

Batch End:

320-28286-A-15	LCMPFCSU_00068	1.00 mL	1.00 mL	HJA 5-19-17	NSH 5-19-17
320-28286-A-16	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-17	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-18	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-19	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-20	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-21	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-22	LCMPFCSU_00068	1.00 mL	1.00 mL		
320-28286-A-23	LCMPFCSU_00068	1.00 mL	1.00 mL		

Page 1210 of 1230

Other Reagents:

Reagent

Amount/Units

Lot#:

Preparation Batch Number(s): 320-165234 Test: PFC-S

Earliest Holding Time: 5-27-17

Sample List Tab		1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method		✓	✓
All necessary NCMs filed (including holding time)		NA	NA
Method/sample/login/QAS checked and correct		✓	✓
Worksheet Tab		1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved		NA	NA
Weights in anticipated range and not targeted		✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)		✓	✓
The pH is transcribed correctly in TALS		NA	NA
All additional information transcribed into TALS is correct and raw data is attached		✓	✓
Comments are transcribed correctly in TALS		✓	✓
Reagents Tab		1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS		✓	✓
All spike amounts correct and added to necessary samples and QC		✓	✓
Batch Information		1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly		✓	✓
All necessary 'batch information' complete and entered into TALS correctly		✓	✓

1st Level Reviewer: TN

Date: 05/26/17

2nd Level Reviewer: WMM

Date: 5-20-17

Comments: _____

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento

Job Number: 320-28286-1

SDG No.: _____

Project: Meridian 10006-7-105420 JM01 Navy Clean

Client Sample ID	Lab Sample ID
MEAFF-T-45C-2005-SB01-0001	320-28286-1
MEAFF-T-45C-2005-SB01-0204	320-28286-2
MEAFF-Unknown11-SB01-0001	320-28286-3
MEAFF-Unknown11-SB01-0204	320-28286-4
MEAFF-EASTB-SB01-0001	320-28286-5
MEAFF-EASTB-SB01-0204	320-28286-6
MEAFF-Unknown10-SB01-0001	320-28286-7
MEAFF-Unknown10-SB01-0204	320-28286-8
MEAFF-EASTA-SB01-0001	320-28286-9
MEAFF-EASTA-SB01-0204	320-28286-10
MEAFF-TA-4J-1987-SB01-0001	320-28286-14
MEAFF-TA-4J-1987-SB01-0204	320-28286-15
MEAFF-Unknown20-SB01-0001	320-28286-16
MEAFF-Unknown20-SB01-0204	320-28286-17
MEAFF-ArrestingGearArea-SB01-0001	320-28286-18
MEAFF-ArrestingGearArea-SB01-0204	320-28286-19
MEAFF-Unknown16-SB01-0001	320-28286-20
MEAFF-Unknown16-SB01-0204	320-28286-21
MEAFF-FD06-051417	320-28286-22
MEAFF-T-45C-03-2008-SB01-0001	320-28286-23
MEAFF-T-45C-03-2008-SB01-0204	320-28286-24
MEAFF-TA-4-Unknown-SB01-0001	320-28286-25
MEAFF-TA-4-Unknown-SB01-0204	320-28286-26
MEAFF-Unknown17-SB01-0001	320-28286-27
MEAFF-Unknown17-SB01-0204	320-28286-28
MEAFF-TA-4J-1992-SB01-0001	320-28286-29
MEAFF-TA-4J-1992-SB01-0204	320-28286-30
MEAFF-TA-4J-1985-SB01-0001	320-28286-32
MEAFF-TA-4J-1985-SB01-0204	320-28286-33

Comments:

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento

Job Number: 320-28286-1

SDG Number: _____

Matrix: Solid

Instrument ID: NOEQUIP

Method: D 2216

LOQ Date: 01/01/2012 08:18

Analyte	Wavelength/ Mass	LOQ (%)	
Percent Moisture		0.1	
Percent Solids		0.1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento

Job Number: 320-28286-1

SDG Number: _____

Matrix: Solid

Instrument ID: NOEQUIP

Method: D 2216

XRL Date: 01/01/2012 08:19

Analyte	Wavelength/ Mass	XRL (%)	
Percent Moisture		0.1	
Percent Solids		0.1	

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: NOEQUIP Analysis Method: D 2216

Start Date: 05/20/2017 11:25 End Date: 05/20/2017 11:25

Lab Sample Id	D/F	Type	Time	Analytes																											
				% S	M o i s t																										
ZZZZZZ			11:25																												
ZZZZZZ			11:25																												
ZZZZZZ			11:25																												
ZZZZZZ			11:25																												
ZZZZZZ			11:25																												
ZZZZZZ			11:25																												
ZZZZZZ			11:25																												
ZZZZZZ			11:25																												
ZZZZZZ			11:25																												
ZZZZZZ			11:25																												
ZZZZZZ			11:25																												
320-28286-1		1 T	11:25	X	X																										
320-28286-2		1 T	11:25	X	X																										
320-28286-3		1 T	11:25	X	X																										
320-28286-4		1 T	11:25	X	X																										
320-28286-5		1 T	11:25	X	X																										
320-28286-6		1 T	11:25	X	X																										

Prep Types: _____
T = Total/NA

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: NOEQUIP Analysis Method: D 2216

Start Date: 05/20/2017 12:35 End Date: 05/20/2017 12:35

Lab Sample Id	D/F	T y p e	Time	Analytes																											
				% S o l t	M o i s t																										
320-28286-7		1 T	12:35	X	X																										
320-28286-7 DU		1 T	12:35	X	X																										
320-28286-8		1 T	12:35	X	X																										
320-28286-9		1 T	12:35	X	X																										
320-28286-10		1 T	12:35	X	X																										
320-28286-14		1 T	12:35	X	X																										
320-28286-15		1 T	12:35	X	X																										
320-28286-16		1 T	12:35	X	X																										
320-28286-17		1 T	12:35	X	X																										
320-28286-18		1 T	12:35	X	X																										
320-28286-19		1 T	12:35	X	X																										
320-28286-20		1 T	12:35	X	X																										
320-28286-21		1 T	12:35	X	X																										
320-28286-22		1 T	12:35	X	X																										
320-28286-23		1 T	12:35	X	X																										
320-28286-24		1 T	12:35	X	X																										
320-28286-25		1 T	12:35	X	X																										
320-28286-26		1 T	12:35	X	X																										
320-28286-27		1 T	12:35	X	X																										
320-28286-28		1 T	12:35	X	X																										

Prep Types: _____
T = Total/NA

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Instrument ID: NOEQUIP Analysis Method: D 2216

Start Date: 05/22/2017 16:21 End Date: 05/22/2017 16:21

Lab Sample Id	D/F	Type	Time	Analytes																											
				% S	M o i s t																										
ZZZZZZ			16:21																												
ZZZZZZ			16:21																												
ZZZZZZ			16:21																												
ZZZZZZ			16:21																												
ZZZZZZ			16:21																												
ZZZZZZ			16:21																												
ZZZZZZ			16:21																												
ZZZZZZ			16:21																												
ZZZZZZ			16:21																												
320-28286-29		1 T	16:21	X	X																										
320-28286-30		1 T	16:21	X	X																										
320-28286-32		1 T	16:21	X	X																										
320-28286-33		1 T	16:21	X	X																										
ZZZZZZ			16:21																												
ZZZZZZ			16:21																												

Prep Types: _____
T = Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Batch Number: 165372 Batch Start Date: 05/20/17 11:25 Batch Analyst: Rusti, Constantin

Batch Method: D 2216 Batch End Date: 05/22/17 09:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	DISH#	DishWeight	SampleMassWet	SampleMassDry		
320-28286-A-1	MEAFF-T-45C-2005-SB01-0001	D 2216	T	15	1.05 g	14.25 g	12.79 g		
320-28286-A-2	MEAFF-T-45C-2005-SB01-0204	D 2216	T	16	1.06 g	13.92 g	12.19 g		
320-28286-A-3	MEAFF-Unknown11-SB01-0001	D 2216	T	17	1.08 g	8.80 g	7.89 g		
320-28286-A-4	MEAFF-Unknown11-SB01-0204	D 2216	T	18	1.06 g	9.30 g	8.50 g		
320-28286-A-5	MEAFF-EASTB-SB01-0001	D 2216	T	19	1.04 g	8.54 g	7.69 g		
320-28286-A-6	MEAFF-EASTB-SB01-0204	D 2216	T	20	1.02 g	18.63 g	15.80 g		

Batch Notes	
Balance ID	QA-068 No Unit
Date and Time Samples in Desiccator	05/22/17 @ 08:07
Date and Time Samples out of Desiccator	05/22/17 @ 09:00
Date samples were placed in the oven	05/20/17
Oven Temp In	106 Degrees C
Time samples were place in the oven	11:30
Date samples were removed from oven	05/22/17
Oven Temp Out	108 Degrees C
Time Samples were removed from oven	08:07
Oven ID	Soil Prep # 1
Thermometer ID	151969626

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Batch Number: 165374 Batch Start Date: 05/20/17 12:35 Batch Analyst: Rusti, ConstantinBatch Method: D 2216 Batch End Date: 05/22/17 09:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	DISH#	DishWeight	SampleMassWet	SampleMassDry		
320-28286-A-7	MEAFF-Unknown10-SB01-0001	D 2216	T	1	1.03 g	10.12 g	9.11 g		
320-28286-A-7 DU	MEAFF-Unknown10-SB01-0001	D 2216	T	2	1.03 g	8.57 g	7.78 g		
320-28286-A-8	MEAFF-Unknown10-SB01-0204	D 2216	T	3	1.07 g	15.96 g	14.07 g		
320-28286-A-9	MEAFF-EASTA-SB01-0001	D 2216	T	4	1.01 g	9.04 g	8.63 g		
320-28286-A-10	MEAFF-EASTA-SB01-0204	D 2216	T	5	1.04 g	10.14 g	9.48 g		
320-28286-A-14	MEAFF-TA-4J-1987-SB01-0001	D 2216	T	6	1.02 g	9.20 g	8.75 g		
320-28286-A-15	MEAFF-TA-4J-1987-SB01-0204	D 2216	T	7	1.04 g	10.23 g	9.09 g		
320-28286-A-16	MEAFF-Unknown20-SB01-0001	D 2216	T	8	1.02 g	10.17 g	9.44 g		
320-28286-A-17	MEAFF-Unknown20-SB01-0204	D 2216	T	9	1.01 g	14.14 g	12.43 g		
320-28286-A-18	MEAFF-ArrestingGearArea-SB01-0001	D 2216	T	10	1.05 g	10.02 g	9.00 g		
320-28286-A-19	MEAFF-ArrestingGearArea-SB01-0204	D 2216	T	11	1.07 g	15.22 g	12.91 g		
320-28286-A-20	MEAFF-Unknown16-SB01-0001	D 2216	T	12	1.06 g	10.18 g	9.28 g		
320-28286-A-21	MEAFF-Unknown16-SB01-0204	D 2216	T	13	1.03 g	12.19 g	10.68 g		
320-28286-A-22	MEAFF-FD06-051417	D 2216	T	14	1.09 g	10.06 g	9.07 g		
320-28286-A-23	MEAFF-T-45C-03-2008-SB01-0001	D 2216	T	15	1.05 g	10.76 g	9.54 g		
320-28286-A-24	MEAFF-T-45C-03-2008-SB01-0204	D 2216	T	16	1.07 g	9.37 g	8.41 g		
320-28286-A-25	MEAFF-TA-4-Unknown-SB01-0001	D 2216	T	17	1.04 g	9.99 g	8.28 g		
320-28286-A-26	MEAFF-TA-4-Unknown-SB01-0204	D 2216	T	18	1.03 g	10.32 g	7.87 g		
320-28286-A-27	MEAFF-Unknown17-SB01-0001	D 2216	T	19	1.00 g	9.37 g	8.40 g		
320-28286-A-28	MEAFF-Unknown17-SB01-0204	D 2216	T	20	1.02 g	9.60 g	8.60 g		

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Batch Number: 165374 Batch Start Date: 05/20/17 12:35 Batch Analyst: Rusti, Constantin

Batch Method: D 2216 Batch End Date: 05/22/17 09:00

Batch Notes	
Balance ID	QA-068 No Unit
Date and Time Samples in Desiccator	05/22/17 @ 08:07
Date and Time Samples out of Desiccator	05/22/17 @ 09:00
Date samples were placed in the oven	05/20/17
Oven Temp In	108 Degrees C
Time samples were place in the oven	13:10
Date samples were removed from oven	05/22/17
Oven Temp Out	108 Degrees C
Time Samples were removed from oven	08:07
Oven ID	Soil Prep #1
Thermometer ID	151969626

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Batch Number: 165611 Batch Start Date: 05/22/17 16:21 Batch Analyst: Rusti, Constantin

Batch Method: D 2216 Batch End Date: 05/23/17 09:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	DISH#	DishWeight	SampleMassWet	SampleMassDry		
320-28286-A-29	MEAFF-TA-4J-1992 -SB01-0001	D 2216	T	12	1.06 g	13.70 g	11.09 g		
320-28286-A-30	MEAFF-TA-4J-1992 -SB01-0204	D 2216	T	13	1.04 g	16.19 g	13.96 g		
320-28286-A-32	MEAFF-TA-4J-1985 -SB01-0001	D 2216	T	14	1.06 g	9.54 g	8.31 g		
320-28286-A-33	MEAFF-TA-4J-1985 -SB01-0204	D 2216	T	15	1.01 g	16.30 g	14.30 g		

Batch Notes	
Balance ID	QA-068 No Unit
Date and Time Samples in Desiccator	05/23/17 07:50
Date and Time Samples out of Desiccator	05/23/17 09:45
Date samples were placed in the oven	05/22/17
Oven Temp In	112 Degrees C
Time samples were place in the oven	16:45
Date samples were removed from oven	05/23/17
Oven Temp Out	115 Degrees C
Time Samples were removed from oven	07:50
Oven ID	Soil Prep #2
Thermometer ID	151969607

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

165374

Preparation Batch Number(s): 165371, 165372, Test: % MOISTURE

Earliest Holding Time: NA

370-28275, 28303, 28394, 28286,

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	NA	H/A
All additional information transcribed into TALS is correct and raw data is attached	NA	H/A
Comments are transcribed correctly in TALS	NA	H/A
Reagents Tab		
	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	NA	H/A
All spike amounts correct and added to necessary samples and QC	NA	H/A
Batch Information		
	1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly	✓	✓
All necessary 'batch information' complete and entered into TALS correctly	✓	✓

1st Level Reviewer: TRW

Date: 5/22/17

2nd Level Reviewer: CFR

Date: 5/22/17

Comments: _____

165374

Preparation Batch Number(s): 165371, 165372, Test: % MOISTURE

Earliest Holding Time: NA

370-28275, 28303, 28394, 28286,

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	NA	H/A
All additional information transcribed into TALS is correct and raw data is attached	NA	H/A
Comments are transcribed correctly in TALS	NA	H/A
Reagents Tab		
	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	NA	H/A
All spike amounts correct and added to necessary samples and QC	NA	H/A
Batch Information		
	1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly	✓	✓
All necessary 'batch information' complete and entered into TALS correctly	✓	✓

1st Level Reviewer: TRW

Date: 5/22/17

2nd Level Reviewer: CFR

Date: 5/22/17

Comments: _____

Preparation Batch Number(s): 165569, 611 Test: To MTSJUL
 Earliest Holding Time: Lab IN: 320 - 28363, - 28201, - 28410, - 28336, - 28426, - 28429, - 28286, - 28233

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		NA	NA
All additional information transcribed into TALS is correct and raw data is attached		/	/
Comments are transcribed correctly in TALS		NA	NA
Reagents Tab		1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS		NA	NA
All spike amounts correct and added to necessary samples and QC		NA	NA
Batch Information		1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly		/	/
All necessary 'batch information' complete and entered into TALS correctly		/	/

1st Level Reviewer: 
 2nd Level Reviewer: RS
 Comments: _____

Date: 5/23/17
 Date: 5/23/17

Shipping and Receiving Documents

Client Contact CH2M Hill 6600 Peachtree Dunwoody Rd., 400 Embassy Row, Suite 600 Atlanta, GA 30328 (678) 530-4060 Phone (770) 604-9183 FAX Project Name: Meridian 10006-7-105420 JMO1 Navy Clean Site: NAS Meridian P O #: 10006-7-105420		Regulatory Program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other:		Project Manager: Bryan Burkingstock Tel/Fax:		Site Contact: Ryan Brown Lab Contact: Jill Kellmann		Date: 5/13/17 Carrier: FedEx COC No: 9 of 3 COCs											
Analysis Turnaround Time <input checked="" type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below <u>28 days</u> <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.		Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		Carrier: FedEx	
MEAFF-T-45C-2005-SB01-0001		5/13/17		0845		G		SD		1		N		N		X		PFCs (EPA 037H)	
MEAFF-T-45C-2005-SB01-0104				0850															
MEAFF-Unknown-11-SB01-0001				1054															
MEAFF-Unknown-11-SB01-0204				1058															
MEAFF-EASTB-SB01-0001				1254															
MEAFF-EASTB-SB01-0204				1257															
MEAFF-Unknown-11-SB01-0204MS				1059															
MEAFF-Unknown-11-SB01-0204SD				1100															
MEAFF-Unknown-11-SB01-0001				1442															
MEAFF-Unknown-11-SB01-0204				1444															
MEAFF-EASTA-SB01-0001				1544															
MEAFF-EASTA-SB01-0204				1547															
Preservation Used: 1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other Possible Hazard Identification:																			
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.																			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant																			
<input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown																			
Special Instructions/QC Requirements & Comments: send results to Mike Zamboni - address is on file																			
Relinquished by: <u>Vegan Brown</u>		Relinquished by:		Relinquished by:		Relinquished by:		Relinquished by:		Relinquished by:		Relinquished by:		Relinquished by:		Relinquished by:		Relinquished by:	
Custody Seal No.:		Yes <input type="checkbox"/> No <input type="checkbox"/>		Date/Time: 5/15/17 14:00		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:	
Company: <u>CH2M Hill</u>		Company:		Company:		Company:		Company:		Company:		Company:		Company:		Company:		Company:	
Received by: <u>JAS</u>		Received by:		Received by:		Received by:		Received by:		Received by:		Received by:		Received by:		Received by:		Received by:	
Date/Time: 5/16/17 9:20		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:	
Cooler Temp. (°C): Obs'd: <u>7.2</u> Cor'd: <u>1.5</u>		Therm ID No: <u>AK</u>		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:	
Return to Client <input type="checkbox"/>		Disposal by Lab <input type="checkbox"/>		Archive for <u>3</u> Months		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Barcode: 320-28286 Chain of Custody																			

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Bryan Burkingstock	Date: 5/13/17	COC No.: 9
CH2M Hill	Tel/Fax:	Carrier: FedEx	of 3 COCs
9800 Peachtree Dunwoody Rd., 400 Embassy Row, Suite 600	Analysis Turnaround Time		
Atlanta, GA 30328	<input checked="" type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		
(678) 530-4060 Phone	TAT if different from Below 28 days		
(770) 604-9183 FAX	<input type="checkbox"/> 2 weeks		
Project Name: Meridian 10006-7-105420 JMO1 Navy Clean	<input type="checkbox"/> 1 week		
Site: NAS Meridian	<input type="checkbox"/> 2 days		
P O #: 10006-7-105420	<input type="checkbox"/> 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes
HEAFF-EB05-051317	5/13/17	1630	G	W	2	N	N	equipment blank carbonate liners
HEAFF-EB06-051317	↓	1635	↓	↓	↓	↓	↓	equipment blank hand auger
HEAFF-EB07-051317	5/14/17	0833	↓	↓	↓	↓	↓	equipment blank carbonate liners
HEAFF-TA-4J-1987-SB01-0204	↓	0840	G	SO	1	↓	↓	
HEAFF-TA-4J-1987-SB01-0204	↓	0845	↓	↓	↓	↓	↓	
HEAFF-TA-Unknown-20-SB01-0204	↓	0926	↓	↓	↓	↓	↓	
HEAFF-Unknown-20-SB01-0204	↓	0928	↓	↓	↓	↓	↓	
HEAFF-Arresting Gear Area-SB01-0204	↓	1042	↓	↓	↓	↓	↓	
HEAFF-Arresting Gear Area-SB01-0204	↓	1049	↓	↓	↓	↓	↓	
HEAFF-Unknown-16-SB01-0204	↓	1223	↓	↓	↓	↓	↓	
HEAFF-Unknown-16-SB01-0204	↓	1225	↓	↓	↓	↓	↓	
HEAFF-ED06-051417	↓	---	↓	↓	↓	↓	↓	

Preservation Used: (1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other)

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please list any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Unknown

Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments:
Sand results to Mike Zamboni address is on file

Custody Seal No.: _____ **Yes** **No**

Relinquished by: Ryan Brown

Relinquished by: _____

Relinquished by: _____

Relinquished by: _____

Received by: JAS

Received by: _____

Received in Laboratory by: _____

Company: TMS

Company: _____

Company: _____

Company: _____

Therm ID No.: AK-1

Date/Time: 5/15/17 1400

Date/Time: 5/16/17 920

Date/Time: _____

Date/Time: _____

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

TestAmerica Laboratories, Inc.

Client Contact
CH2M Hill
3600 Peachtree Dunwoody Rd., 400 Embassy Row, Suite 600
Atlanta, GA 30328
(678) 530-4060 Phone
(770) 604-9183 FAX
Project Name: Meridian 10006-7-105420 JMD1 Navy Clean
Site: NAS Meridian
P O #: 10006-7-105420

Regulatory Program: DW NPDES RCRA Other:

Project Manager: Bryan Burkingstock
Tel/Fax:

Site Contact: Ryan Brown
Lab Contact: Jill Kellmann

Date: 5/13/17
Carrier: FedEx
COC No.: 9 of 3 COCs

Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below 28 days
 2 weeks
 1 week
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS (MSD) (Y/N)	Sample Specific Notes:	
MEAFF-T-45C-03-2008-S001-S001-0204	5/14/17	1344	G	SO	1	N	X		
MEAFF-T-45C-03-2008-S001-S001-0204		1347							
MEAFF-TA-4-Unknown-S001-S001-0204		1435							
MEAFF-TA-4-Unknown-S001-S001-0204		1436							
MEAFF-Unknown-17-S001-S001-0204	5/15/17	0918	G	SO	1				
MEAFF-Unknown-17-S001-S001-0204		0919							
MEAFF-TA-4J-1992-S001-S001-0204		0944							
MEAFF-TA-4J-1992-S001-S001-0204		0946							
MEAFF-F008-051517		1016		W	2				equipment blank hand auger
MEAFF-TA-4J-1985-S001-S001-0204		1150		SO	1				
MEAFF-TA-4J-1985-S001-S001-0204		1152							

Preservation Used: (1=Ice), 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Unknown

Return to Client Disposal by Lab Archive for _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Special Instructions/QC Requirements & Comments:
Send results to Mike Zamboni - address is on file

Custody Seal No.: _____
Relinquished by: Ryan Brown
Relinquished by: _____
Relinquished by: _____

Company: CH2M Hill
Date/Time: 5/15/17 1430

Company: Jhus
Date/Time: 5/16/17 920

Company: _____
Date/Time: _____

Company: _____
Date/Time: _____

Therm ID No.: 15
Corr'd: 1.2
Cooler Temp. (°C): Obs'd: _____

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 320-28286-1

Login Number: 28286
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Contract	DO	CTO	Phase	Installation	Sample Name	CH2M	Co	Analysis	PRC	Lab Code	Lab Name	Leachate	Sample	Extraction	Result	Yr	QC	Level	DateTime	Date	Rec	Leachate	Leachate	Extraction	Analysis	Analysis	Lab_Samp	Dilution	Run_Num	Percent	Percent	Chem Name	Analyte	Analyte	Original	Result	Unlab	Qual	Validator	QC	Column	Analysis	Result	No	QC	Contr	QC	Accur	Control	QC	Narr	MDL	Detection	QSM	Ver	LDL	LOD	LOQ	SDG	Analysis	Validator	Ytd	Date
N6247016	IM01			MEDIAW201353-LCS	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	BSD	W	4	03/14/2013	03/14/2013		20170314	15:00:00		20170316	18:05:00	WG201353	1	1	1				Pentachlorophenol	87-86-5	0.00	0.00	UG	L				TRG	USA	115	40	20091101	4.2	1.3	25	50	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCD	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	BSD	W	4	03/14/2013	03/14/2013		20170314	15:00:00		20170316	18:05:00	WG201353	1	1	1				Pyridine	110-86-1	7.99	7.99	UG	L				TRG	USA	96	10	20091101	4.2	1.5	38	50	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCS	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	BSD	W	4	03/14/2013	03/14/2013		20170314	15:00:00		20170316	18:05:00	WG201353	1	1	1				1,4-Dichlorobenzene	106-46-7	35.5	35.5	UG	L				TRG	USA	100	30	20091101	4.2	2.2	7.5	10	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCD	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	BSD	W	4	03/14/2013	03/14/2013		20170314	15:00:00		20170316	18:05:00	WG201353	1	1	1				2-Methylphenol	95-48-7	54.6	54.6	UG	L				TRG	USA	110	40	20091101	4.2	3.8	7.5	10	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCS	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	BSD	W	4	03/14/2013	03/14/2013		20170314	15:00:00		20170316	18:05:00	WG201353	1	1	1				3- and 4-Methylphenol	m&pCRE38	44.2	44.2	UG	L				TRG	USA	110	40	20091101	4.2	5.6	7.5	10	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCD	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	BSD	W	4	03/14/2013	03/14/2013		20170314	15:00:00		20170316	18:05:00	WG201353	1	1	1				Hexachlorobenzene	118-74-1	34.0	34.0	UG	L				TRG	USA	100	30	20091101	4.2	2.3	10	10	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCS	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	BSD	W	4	03/14/2013	03/14/2013		20170314	15:00:00		20170316	18:05:00	WG201353	1	1	1				Nitrobenzene	98-95-3	37.2	37.2	UG	L				TRG	USA	110	45	20091101	4.2	3.1	7.5	10	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCD	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	BSD	W	4	03/14/2013	03/14/2013		20170314	15:00:00		20170316	18:05:00	WG201353	1	1	1				Hexachlorobutadiene	87-68-3	37.3	37.3	UG	L				TRG	USA	105	25	20091101	4.2	1.8	7.5	10	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCS	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	BSD	W	4	03/14/2013	03/14/2013		20170314	15:00:00		20170316	18:05:00	WG201353	1	1	1				2,4,6-Trichlorophenol	88-06-2	87.7	87.7	UG	L				TRG	USA	115	50	20091101	4.2	2.7	7.5	10	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCD	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	BSD	W	4	03/14/2013	03/14/2013		20170314	15:00:00		20170316	18:05:00	WG201353	1	1	1				2,4,5-Trichlorophenol	95-95-4	87.7	87.7	UG	L				TRG	USA	110	50	20091101	4.2	3.6	19	25	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCS	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	REG	W	4	03/14/2013	03/14/2013		20170314	15:00:00		20170316	18:05:00	WG201353	1	1	1				2,4-Dinitrotoluene	121-14-2	44.8	44.8	UG	L				TRG	USA	120	50	20091101	4.2	2.2	7.5	10	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCD	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	REG	W	4	03/03/2013	03/04/2017		20170307	09:56:00		20170314	18:05:00	WG201353	1	1	1	003			Reactive cyanide	REACT-CN	11.1	11.1	MG	KG	U			TRG	USA	100	30	20091101	4.2	0.16	10	20	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCS	TCPL	TCPLS	1311-827	SVOA	KAS	KATHADIN ANALYTIC	NA	SW3530C	000	REG	W	4	03/03/2013	03/04/2017		20170307	09:56:00		20170314	18:05:00	WG201353	1	1	1	1			Reactive cyanide	REACT-CN	11.1	11.1	MG	KG	U			TRG	USA	100	30	20091101	4.2	0.17	11	22	SK1681	WG20140	Preload	C	20170331									
N6247016	IM01			MEDIAW201407-BLANK	NONE	REACT	7.3.3.2	INO	KAS	KATHADIN ANALYTIC	DRY	METHOD	000	BLK	S	4	03/07/2013	03/07/2017		20170307	09:50:00		20170314	18:05:00	WG201401	1	1	1				Reactive cyanide	REACT-CN	10.0	10.0	MG	KG	U			TRG	USA	100	0	20091101	4.2	0.16	10	20	SK1681	WG20140	Preload	C	20170331									
N6247016	IM01			MEDIAW201407-LCS	NONE	REACT	7.3.3.2	INO	KAS	KATHADIN ANALYTIC	DRY	METHOD	000	BLK	S	4	03/07/2013	03/07/2017		20170307	10:25:00		20170314	18:05:00	WG201401	1	1	1				Reactive cyanide	REACT-CN	4.2	4.2	MG	KG	U			TRG	USA	100	0	20091101	4.2	0.31	20	40	SK1681	WG20140	Preload	C	20170331									
N6247016	IM01			MEDIAW201407-LCD	NONE	REACT	7.3.3.2	INO	KAS	KATHADIN ANALYTIC	DRY	METHOD	000	BLK	S	4	03/07/2013	03/07/2017		20170307	10:25:00		20170314	18:05:00	WG201401	1	1	1				Reactive cyanide	REACT-CN	5.1	5.1	MG	KG	U			TRG	USA	100	0	20091101	4.2	0.62	40	80	SK1681	WG20140	Preload	C	20170331									
N6247016	IM01			MEDIAW201407-LCS	NONE	REACT	7.3.4.1	INO	KAS	KATHADIN ANALYTIC	DRY	METHOD	000	REG	W	4	03/03/2013	03/04/2017		20170307	14:02:00		20170314	18:05:00	WG201353	1	1	1				Reactive sulfide	REACT-S	25	25	MG	KG	U			TRG	USA	100	0	20091101	4.2	16.39	25	50	SK1681	WG20093	Preload	C	20170331									
N6247016	IM01			MEDIAW200993-LCS	NONE	REACT	7.3.4.1	INO	KAS	KATHADIN ANALYTIC	DRY	METHOD	000	BLK	S	4	03/07/2013	03/07/2017		20170307	14:03:00		20170314	18:05:00	WG200931	1	1	1				Reactive sulfide	REACT-S	25	25	MG	KG	U			TRG	USA	100	0	20091101	4.2	16.39	25	50	SK1681	WG20093	Preload	C	20170331									
N6247016	IM01			MEDIAW200993-LCD	NONE	REACT	7.3.4.1	INO	KAS	KATHADIN ANALYTIC	DRY	METHOD	000	BLK	S	4	03/07/2013	03/07/2017		20170307	14:03:00		20170314	18:05:00	WG200931	1	1	1				Reactive sulfide	REACT-S	25	25	MG	KG	U			TRG	USA	100	0	20091101	4.2	16.39	25	50	SK1681	WG20093	Preload	C	20170331									
N6247016	IM01			MEDIAW200993-LCS	NONE	REACT	7.3.4.1	INO	KAS	KATHADIN ANALYTIC	DRY	METHOD	000	BS	S	4	03/07/2013	03/07/2017		20170307	14:04:00		20170314	18:05:00	WG200931	1	1	1				Reactive sulfide	REACT-S	880	880	MG	KG	U			TRG	USA	120	30	20091101	4.2	16.39	25	50	SK1681	WG20093	Preload	C	20170331									
N6247016	IM01			MEDIAW200993-LCD	NONE	REACT	7.3.4.1	INO	KAS	KATHADIN ANALYTIC	DRY	METHOD	000	BS	S	4	03/07/2013	03/07/2017		20170307	14:05:00		20170314	18:05:00	WG200931	1	1	1				Reactive sulfide	REACT-S	860	860	MG	KG	U			TRG	USA	120	30	20091101	4.2	16.39	25	50	SK1681	WG20093	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCS	NONE	IGN	1010A	PCHAR	KAS	KATHADIN ANALYTIC	NA	NONE	000	REG	W	4	03/09/2013	03/04/2017		20170309	16:57:00		20170316	18:05:00	WG201353	1	1	1				Ignitability	IGN	71	71	DEG	C	NI			TRG	USA	115	40	20091101	4.2	7.1	71	71	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201353-LCD	NONE	IGN	1010A	PCHAR	KAS	KATHADIN ANALYTIC	NA	NONE	000	REG	W	4	03/09/2013	03/04/2017		20170309	16:57:00		20170316	18:05:00	WG201353	1	1	1				Ignitability	IGN	71	71	DEG	C	NI			TRG	USA	115	40	20091101	4.2	7.1	71	71	SK1681	WG20135	Preload	C	20170331									
N6247016	IM01			MEDIAW201095-LCS	NONE	IGN	1010A	PCHAR	KAS	KATHADIN ANALYTIC	DRY	NONE	000	REG	W	4	03/09/2013	03/09/2017		20170309	16:57:00		20170316	18:05:00	WG201095	1	1	1				Ignitability	IGN	29	29	DEG	C	NI			TRG	USA	120	80	20091101	4.2	7.1	71	71	SK1681	WG20109	Preload	C	20170331									
N6247016	IM01			MEDIAW201095-LCD	NONE	IGN	1010A	PCHAR	KAS	KATHADIN ANALYTIC	DRY	NONE	000	BS	S	4	03/09/2013	03/09/2017		20170309	16:57:00		20170316	18:05:00	WG201095	1	1	1				Ignitability	IGN	27	27	DEG	C	NI			TRG	USA	120	80	20091101	4.2	7.1	71	71	SK1681	WG20109	Preload	C	20170331									
N6247016	IM01			MEDIAW201095-LCS	NONE	CORR	9040C	PCHAR	KAS	KATHADIN ANALYTIC	NA	NONE	000	LR	W	4	03/03/2013	03/04/2017		20170306	18:14:00		20170316	18:05:00	WG201095	1	1	1				Corrosivity (pH units)	CORR	6.1	6.1	PH					TRG	USA	120	80	20091101	4.2	7.1	71	71	SK1681	WG20109	Preload	C	20170331									
N6247016	IM01			MEDIAW201095-LCD	NONE	CORR	9040C	PCHAR	KAS	KATHADIN ANALYTIC	NA	NONE	000	LR	W	4	03/03/2013	03/04/2017		20170306	18:14:00		20170316	18:05:00	WG201095	1	1	1				Corrosivity (pH units)	CORR																														

**DATA VALIDATION SUMMARY REPORT
NAVAL AIR STATION MERIDIAN, MISSISSIPPI**

Client: CH2M HILL, Inc., Virginia Beach, Virginia
 SDG: 320-28286-1
 Laboratory: Test America Laboratories, West Sacramento, California
 Site: Naval Air Station Meridian, JM01, Meridian, Mississippi
 Date: October 29, 2017

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	MEAFF-T-45C-2005-SB01-0001	320-28286-1	Soil
2	MEAFF-T-45C-2005-SB01-0204	320-28286-2	Soil
3	MEAFF-UNKNOWN11-SB01-0001	320-28286-3	Soil
4	MEAFF-UNKNOWN11-SB01-0204	320-28286-4	Soil
4MS	MEAFF-UNKNOWN11-SB01-0204MS	320-28286-4MS	Soil
4MSD	MEAFF-UNKNOWN11-SB01-0204MSD	320-28286-4MSD	Soil
5	MEAFF-EASTB-SB01-0001	320-28286-5	Soil
6	MEAFF-EASTB-SB01-0204	320-28286-6	Soil
7	MEAFF-UNKNOWN10-SB01-0001	320-28286-7	Soil
8	MEAFF-UNKNOWN10-SB01-0204	320-28286-8	Soil
9	MEAFF-EASTA-SB01-0001	320-28286-9	Soil
10	MEAFF-EASTA-SB01-0204	320-28286-10	Soil
11	MEAFF-EB05-051317	320-28286-11	Water
12	MEAFF-EB06-051317	320-28286-12	Water
13	MEAFF-EB07-051317	320-28286-13	Water
14	MEAFF-TA-4J-1987-SB01-0001	320-28286-14	Soil
15	MEAFF-TA-4J-1987-SB01-0204	320-28286-15	Soil
16	MEAFF-UNKNOWN20-SB01-0001	320-28286-16	Soil
17	MEAFF-UNKNOWN20-SB01-0204	320-28286-17	Soil
18	MEAFF-ARRESTINGGEARAREA-SB01-0001	320-28286-18	Soil
19	MEAFF-ARRESTINGGEARAREA-SB01-0204	320-28286-19	Soil
20	MEAFF-UNKNOWN16-SB01-0001	320-28286-20	Soil
21	MEAFF-UNKNOWN16-SB01-0204	320-28286-21	Soil
22	MEAFF-FD06-051417	320-28286-22	Soil
23	MEAFF-T-45C-03-2008-SB01-0001	320-28286-23	Soil
24	MEAFF-T-45C-03-2008-SB01-0204	320-28286-24	Soil
24MS	MEAFF-T-45C-03-2008-SB01-0204MS	320-28286-24MS	Soil
24MSD	MEAFF-T-45C-03-2008-SB01-0204MSD	320-28286-24MSD	Soil
25	MEAFF-TA-4-UNKNWON-SB01-0001	320-28286-25	Soil
26	MEAFF-TA-4-UNKNOWN-SB01-0204	320-28286-26	Soil
27	MEAFF-UNKNOWN17-SB01-0001	320-28286-27	Soil
28	MEAFF-UNKNOWN17-SB01-0204	320-28286-28	Soil
29	MEAFF-TA-4J-1992-SB01-0001	320-28286-29	Soil
30	MEAFF-TA-4J-1992-SB01-0204	320-28286-30	Soil
31	MEAFF-EB08-051517	320-28286-31	Water

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
32	MEAFF-TA-4J-1985-SB01-0001	320-28286-32	Soil
33	MEAFF-TA-4J-1985-SB01-0204	320-28286-33	Soil

A full data validation was performed on the analytical data for twenty-nine soil samples and four aqueous equipment blank samples collected on May 13-15, 2017 by CH2M HILL at the NAS Meridian site in Mississippi. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFCs

Method References
USEPA Method 537 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical methods, the Draft Sampling and Analysis Plan, Perfluorinated Compounds Site Inspection, Naval Air Station Meridian, Task Order JM01, August 2016, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA “Contract Laboratories Program National Functional Guidelines for Superfund Organic Methods Data Review,” January 2017;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Holding times and sample preservation
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is acceptable for the intended purposes. There were no qualifications.

Perfluorinated Compounds (PFCs)

Holding Times

- All samples were extracted within 14 days for water and soil samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- The field blank results are summarized below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
MEAFF-EB05-051317	None - ND	-	-	-
MEAFF-EB06-051317	None - ND	-	-	-
MEAFF-EB07-051317	None - ND	-	-	-
MEAFF-EB08-051317	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Laboratory Control Sample/Laboratory Control Sample (LCS/LCSD)

- The LCS/LCSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

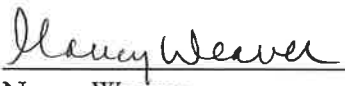
- Several samples results were flagged (M) by the laboratory indicating manual integration. These flags were removed by the reviewer.

Field Duplicate Sample Precision

- Field duplicate results are summarized below.

Compound	MEAFF-UNKNOWN16-SB01-0204 ug/kg	MEAFF-FD06-SB01-0204 ug/kg	RPD	Qualifier
None	ND	ND	-	-

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed: 
Nancy Weaver
Senior Chemist

Dated: 11/3/17

Data Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples.

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2

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
SDG No.: _____
Client Sample ID: MEAFF-T-45C-2005-SB01-020 Lab Sample ID: 320-28286-2
4
Matrix: Solid Lab File ID: 2017.06.07B_019.d
Analysis Method: 537 (Modified) Date Collected: 05/13/2017 08:50
Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
Sample wt/vol: 5.08(g) Date Analyzed: 06/07/2017 17:09
Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
% Moisture: 13.5 GPC Cleanup: (Y/N) N
Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	84		25-150
STL00991	13C4 PFOS	39		25-150
STL00994	18O2 PFHxS	68		25-150

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3

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown11-SB01-0001 Lab Sample ID: 320-28286-3
 Matrix: Solid Lab File ID: 2017.06.07B_020.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 10:54
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.00(g) Date Analyzed: 06/07/2017 17:16
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 11.8 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	UM	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.24	J	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	UM	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	88		25-150
STL00991	13C4 PFOS	51		25-150
STL00994	18O2 PFHxS	78		25-150

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4

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown11-SB01-0204 Lab Sample ID: 320-28286-4
 Matrix: Solid Lab File ID: 2017.06.07B_021.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 10:58
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 4.99(g) Date Analyzed: 06/07/2017 17:24
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 9.7 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.33	U M	0.55	0.33	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.55	0.33	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.33	U M	0.44	0.33	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	77		25-150
STL00991	13C4 PFOS	35		25-150
STL00994	18O2 PFHxS	68		25-150

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5

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EASTB-SB01-0001 Lab Sample ID: 320-28286-5
 Matrix: Solid Lab File ID: 2017.06.07B_024.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 12:54
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 4.99(g) Date Analyzed: 06/07/2017 17:47
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 11.3 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.14	J M	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.9		0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.92		0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	97		25-150
STL00991	13C4 PFOS	72		25-150
STL00994	18O2 PFHxS	83		25-150

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6

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EASTB-SB01-0204 Lab Sample ID: 320-28286-6
 Matrix: Solid Lab File ID: 2017.06.07B_025.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 12:57
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.05(g) Date Analyzed: 06/07/2017 17:55
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 16.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.35	U M	0.59	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.2		0.59	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	91		25-150
STL00991	13C4 PFOS	55		25-150
STL00994	18O2 PFHxS	80		25-150

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7

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown10-SB01-0001 Lab Sample ID: 320-28286-7
 Matrix: Solid Lab File ID: 2017.06.07B_027.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 14:42
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.02(g) Date Analyzed: 06/07/2017 18:10
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 11.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.16	J M	0.56	0.34	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.23	J	0.56	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	105		25-150
STL00991	13C4 PFOS	71		25-150
STL00994	18O2 PFHxS	90		25-150

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8

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown10-SB01-0204 Lab Sample ID: 320-28286-8
 Matrix: Solid Lab File ID: 2017.06.07B_028.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 14:44
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.02(g) Date Analyzed: 06/07/2017 18:18
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 12.7 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	95		25-150
STL00991	13C4 PFOS	62		25-150
STL00994	18O2 PFHxS	83		25-150

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9

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EASTA-SB01-0001 Lab Sample ID: 320-28286-9
 Matrix: Solid Lab File ID: 2017.06.07B_029.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 15:44
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.06(g) Date Analyzed: 06/07/2017 18:26
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 5.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.31	U	0.52	0.31	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.31	U	0.52	0.31	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.31	U M	0.42	0.31	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	100		25-150
STL00991	13C4 PFOS	81		25-150
STL00994	18O2 PFHxS	92		25-150

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10

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EASTA-SB01-0204 Lab Sample ID: 320-28286-10
 Matrix: Solid Lab File ID: 2017.06.07B_030.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 15:47
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.11(g) Date Analyzed: 06/07/2017 18:33
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 7.3 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.32	U	0.53	0.32	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.32	U	0.53	0.32	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.32	U	0.42	0.32	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	96		25-150
STL00991	13C4 PFOS	73		25-150
STL00994	18O2 PFHxS	87		25-150

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11

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EB05-051317 Lab Sample ID: 320-28286-11
 Matrix: Water Lab File ID: 2017.05.19B_009.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 16:30
 Extraction Method: 3535 Date Extracted: 05/18/2017 17:41
 Sample wt/vol: 284.6(mL) Date Analyzed: 05/20/2017 06:42
 Con. Extract Vol.: 0.50(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165487 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U M	2.2	1.8	0.66
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.6	U M	3.5	2.6	1.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	1.8	0.81

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	129		25-150
STL00991	13C4 PFOS	112		25-150
STL00994	18O2 PFHxS	111		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EB06-051317 Lab Sample ID: 320-28286-12
 Matrix: Water Lab File ID: 2017.05.19B_010.d
 Analysis Method: 537 (Modified) Date Collected: 05/13/2017 16:35
 Extraction Method: 3535 Date Extracted: 05/18/2017 17:41
 Sample wt/vol: 276.6(mL) Date Analyzed: 05/20/2017 06:50
 Con. Extract Vol.: 0.50(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165487 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U	2.3	1.8	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.7	U N	3.6	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	1.8	0.83

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	136		25-150
STL00991	13C4 PFOS	113		25-150
STL00994	18O2 PFHxS	109		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EB07-051317 Lab Sample ID: 320-28286-13
 Matrix: Water Lab File ID: 2017.05.19B_011.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 08:33
 Extraction Method: 3535 Date Extracted: 05/18/2017 17:41
 Sample wt/vol: 279.8(mL) Date Analyzed: 05/20/2017 06:57
 Con. Extract Vol.: 0.50(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165487 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U M	2.2	1.8	0.67
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.6	2.7	1.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.2	1.8	0.82

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	130		25-150
STL00991	13C4 PFOS	109		25-150
STL00994	18O2 PFHxS	109		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-TA-4J-1987-SB01-000 Lab Sample ID: 320-28286-14
1
 Matrix: Solid Lab File ID: 2017.06.07B_031.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 08:40
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.09(g) Date Analyzed: 06/07/2017 18:41
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 5.5 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.31	U	0.52	0.31	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.31	U	0.52	0.31	0.13
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.31	U	0.42	0.31	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	109		25-150
STL00991	13C4 PFOS	79		25-150
STL00994	18O2 PFHxS	92		25-150

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15

Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-TA-4J-1987-SB01-020 Lab Sample ID: 320-28286-15
4
 Matrix: Solid Lab File ID: 2017.06.07B_032.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 08:45
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.03(g) Date Analyzed: 06/07/2017 18:49
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 12.4 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U M	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	106		25-150
STL00991	13C4 PFOS	91		25-150
STL00994	18O2 PFHxS	98		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown20-SB01-0001 Lab Sample ID: 320-28286-16
 Matrix: Solid Lab File ID: 2017.06.07B_033.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 09:26
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.02(g) Date Analyzed: 06/07/2017 18:56
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 8.0 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	J M	0.54	0.32	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15		0.54	0.32	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.32	U M	0.43	0.32	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	106		25-150
STL00991	13C4 PFOS	77		25-150
STL00994	18O2 PFHxS	89		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown20-SB01-0204 Lab Sample ID: 320-28286-17
 Matrix: Solid Lab File ID: 2017.06.07B_034.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 09:28
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.00(g) Date Analyzed: 06/07/2017 19:04
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 13.0 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	87		25-150
STL00991	13C4 PFOS	41		25-150
STL00994	18O2 PFHxS	71		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-ArrestingGearArea-S B01-0001 Lab Sample ID: 320-28286-18
 Matrix: Solid Lab File ID: 2017.06.07B_035.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 10:42
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.05(g) Date Analyzed: 06/07/2017 19:12
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 11.4 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U M	0.56	0.34	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.56	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	87		25-150
STL00991	13C4 PFOS	42		25-150
STL00994	18O2 PFHxS	81		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-ArrestingGearArea-S B01-0204 Lab Sample ID: 320-28286-19
 Matrix: Solid Lab File ID: 2017.06.07B_036.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 10:49
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.00(g) Date Analyzed: 06/07/2017 19:20
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 16.3 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.36	U	0.60	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.36	U	0.60	0.36	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.36	U M	0.48	0.36	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	90		25-150
STL00991	13C4 PFOS	48		25-150
STL00994	18O2 PFHxS	80		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown16-SB01-0001 Lab Sample ID: 320-28286-20
 Matrix: Solid Lab File ID: 2017.06.07B_038.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 12:23
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.09(g) Date Analyzed: 06/07/2017 19:35
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 9.9 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.33	U	0.54	0.33	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.54	0.33	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.33	U	0.44	0.33	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	92		25-150
STL00991	13C4 PFOS	46		25-150
STL00994	18O2 PFHxS	79		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown16-SB01-0204 Lab Sample ID: 320-28286-21
 Matrix: Solid Lab File ID: 2017.06.07B_039.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 12:25
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.01(g) Date Analyzed: 06/07/2017 19:43
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 13.5 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.35	U	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U M	0.46	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	72		25-150
STL00991	13C4 PFOS	40		25-150
STL00994	18O2 PFHxS	65		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-FD06-051417 Lab Sample ID: 320-28286-22
 Matrix: Solid Lab File ID: 2017.06.07B_040.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 00:00
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 5.00(g) Date Analyzed: 06/07/2017 19:50
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 11.0 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U M	0.56	0.34	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.56	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	77		25-150
STL00991	13C4 PFOS	38		25-150
STL00994	18O2 PFHxS	66		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-T-45C-03-2008-SB01-0001 Lab Sample ID: 320-28286-23
 Matrix: Solid Lab File ID: 2017.06.07B_041.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 13:44
 Extraction Method: SHAKE Date Extracted: 05/19/2017 08:07
 Sample wt/vol: 4.99(g) Date Analyzed: 06/07/2017 19:58
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 12.6 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 168107 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.34	U	0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.46	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	80		25-150
STL00991	13C4 PFOS	38		25-150
STL00994	18O2 PFHxS	69		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-T-45C-03-2008-SB01-0204 Lab Sample ID: 320-28286-24
 Matrix: Solid Lab File ID: 2017.05.24C_034.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 13:47
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.09(g) Date Analyzed: 05/24/2017 21:58
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 11.6 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.33	U M	0.56	0.33	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.33	U	0.56	0.33	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.33	U	0.44	0.33	0.11

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	94		25-150
STL00991	13C4 PFOS	57		25-150
STL00994	18O2 PFHxS	68		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-TA-4-Unknown-SB01-001 Lab Sample ID: 320-28286-25
 Matrix: Solid Lab File ID: 2017.05.24C_037.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 14:35
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.10(g) Date Analyzed: 05/24/2017 22:20
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 19.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.95	M	0.61	0.36	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.78	M	0.61	0.36	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.36	U	0.48	0.36	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	83		25-150
STL00991	13C4 PFOS	65		25-150
STL00994	18O2 PFHxS	74		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-TA-4-Unknown-SB01-0204 Lab Sample ID: 320-28286-26
 Matrix: Solid Lab File ID: 2017.05.24C_038.d
 Analysis Method: 537 (Modified) Date Collected: 05/14/2017 14:38
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.03(g) Date Analyzed: 05/24/2017 22:28
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 26.4 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.33	J M	0.68	0.41	0.14
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.17	J M	0.68	0.41	0.17
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.41	U	0.54	0.41	0.14

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	108		25-150
STL00991	13C4 PFOS	83		25-150
STL00994	18O2 PFHxS	88		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown17-SB01-0001 Lab Sample ID: 320-28286-27
 Matrix: Solid Lab File ID: 2017.05.24C_039.d
 Analysis Method: 537 (Modified) Date Collected: 05/15/2017 09:18
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 4.98(g) Date Analyzed: 05/24/2017 22:35
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 11.6 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.34	U M	0.57	0.34	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.1		0.57	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U M	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	100		25-150
STL00991	13C4 PFOS	83		25-150
STL00994	18O2 PFHxS	90		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-Unknown17-SB01-0204 Lab Sample ID: 320-28286-28
 Matrix: Solid Lab File ID: 2017.05.24C_040.d
 Analysis Method: 537 (Modified) Date Collected: 05/15/2017 09:20
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.05(g) Date Analyzed: 05/24/2017 22:43
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 11.7 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.80		0.56	0.34	0.11
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.65		0.56	0.34	0.14
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	U	0.45	0.34	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	74		25-150
STL00991	13C4 PFOS	51		25-150
STL00994	18O2 PFHxS	60		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-TA-4J-1992-SB01-000 Lab Sample ID: 320-28286-29
1
 Matrix: Solid Lab File ID: 2017.05.24C_041.d
 Analysis Method: 537 (Modified) Date Collected: 05/15/2017 09:44
 Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45
 Sample wt/vol: 5.08(g) Date Analyzed: 05/24/2017 22:50
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: 20.6 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.37	U M	0.62	0.37	0.13
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.37	U	0.62	0.37	0.16
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.37	U	0.50	0.37	0.13

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	77		25-150
STL00991	13C4 PFOS	60		25-150
STL00994	18O2 PFHxS	64		25-150

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Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-28286-1</u>
SDG No.: _____	
Client Sample ID: <u>MEAFF-TA-4J-1992-SB01-020</u> 4	Lab Sample ID: <u>320-28286-30</u>
Matrix: <u>Solid</u>	Lab File ID: <u>2017.05.24C_043.d</u>
Analysis Method: <u>537 (Modified)</u>	Date Collected: <u>05/15/2017 09:46</u>
Extraction Method: <u>SHAKE</u>	Date Extracted: <u>05/19/2017 09:45</u>
Sample wt/vol: <u>4.99(g)</u>	Date Analyzed: <u>05/24/2017 23:05</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: <u>14.7</u>	GPC Cleanup: <u>(Y/N) N</u>
Analysis Batch No.: <u>166071</u>	Units: <u>ug/Kg</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.35	U M	0.59	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.59	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.47	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	95		25-150
STL00991	13C4 PFOS	60		25-150
STL00994	18O2 PFHxS	77		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1
 SDG No.: _____
 Client Sample ID: MEAFF-EB08-051517 Lab Sample ID: 320-28286-31
 Matrix: Water Lab File ID: 2017.05.19B_013.d
 Analysis Method: 537 (Modified) Date Collected: 05/15/2017 10:16
 Extraction Method: 3535 Date Extracted: 05/18/2017 17:41
 Sample wt/vol: 273.4(mL) Date Analyzed: 05/20/2017 07:12
 Con. Extract Vol.: 0.50(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 165487 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	1.8	U	2.3	1.8	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.7	U	3.7	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.8	U	2.3	1.8	0.84

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	129		25-150
STL00991	13C4 PFOS	108		25-150
STL00994	18O2 PFHxS	112		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-28286-1

SDG No.: _____

Client Sample ID: MEAFF-TA-4J-1985-SB01-000 Lab Sample ID: 320-28286-32
1

Matrix: Solid Lab File ID: 2017.05.24C_044.d

Analysis Method: 537 (Modified) Date Collected: 05/15/2017 11:50

Extraction Method: SHAKE Date Extracted: 05/19/2017 09:45

Sample wt/vol: 5.07(g) Date Analyzed: 05/24/2017 23:13

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: 14.5 GPC Cleanup: (Y/N) N

Analysis Batch No.: 166071 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	0.35	U Q	0.58	0.35	0.12
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.35	U	0.58	0.35	0.15
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.35	U	0.46	0.35	0.12

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	91		25-150
STL00991	13C4 PFOS	51		25-150
STL00994	18O2 PFHxS	69		25-150

