NAVFAC
Naval Facilities Engineering Command

Groundwater Sample Results, Level 2 Laboratory Report, Level 4 Laboratory Report, Electronic Data Deliverable, Data Validation Report, and the Sample Location Report, SDG J26263-1

Naval Air Station Meridian
Meridian, Mississippi

July 2019

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
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West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-26263-1
Client Project/Site: Meridian 10006-7-105420 JM01 Navy Clean
Revision: 1

For:
CH2M Hill, Inc.
2411 Dulles Corner Park
Suite 500
Herndon, Virginia 20171

Attn: Mr. Michael Zamboni

Authorized for release by:
3/27/2017 5:11:55 PM

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Definitions/Glossary

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

TestAmerica Job ID: 320-26263-1

Qualifiers

LCMS

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

Glossary

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

Job ID: 320-26263-1

Laboratory: TestAmerica Sacramento

Narrative

CASE NARRATIVE

Client: CH2M Hill, Inc.

Project: Meridian 10006-7-105420 JM01 Navy Clean

Report Number: 320-26263-1

Revision - March 27, 2017
Revision created to include PFBS in the method 537 Mod analyte list.

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

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

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

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

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

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

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

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

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

RECEIPT
The samples were received on 03/02/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.7 C.

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

The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: MEAFF-WWTP-MW01-0317 (320-26263-1) and MEAFF-PWMA-MW01-0317 (320-26263-2). These analytes have been qualified; however,

Job ID: 320-26263-1 (Continued)

Laboratory: TestAmerica Sacramento (Continued)

the peaks did not saturate the instrument detector. Historical data indicate that for the isotope dilution method, dilution and re-analysis will not produce significantly different results from those reported above the calibration range.

Samples MEAFF-WWTP-MW01-0317 (320-26263-1)[5X], MEAFF-PWMA-MW01-0317 (320-26263-2)[10X] and MEAFF-PWMA-MW01-0317 (320-26263-2)[25X] required dilution prior to analysis due to matrix and/or elevated analyte levels. The reporting limits have been adjusted accordingly.

The concentration of Perfluorooctanoic acid (PFOA) exceeded the instrument calibration range in the following sample: MEAFF-PWMA-MW01-0317 (320-26263-2). This analyte has been qualified; however, the peak did not saturate the instrument detector. Historical data indicate that for the isotope dilution method, dilution and re-analysis will not produce significantly different results from those reported above the calibration range.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 320-153501.

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: 320-26263-1

Client Sample ID: MEAFF-WWTP-MW01-0317 — Lab Sample ID: 320-26263-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	260	M	2.4	0.72	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	370	M E	3.8	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	25	M	2.4	0.88	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	270	D M	12	3.6	ng/L	5		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	380	D M	19	6.1	ng/L	5		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	18	D M	12	4.4	ng/L	5		537 (Modified)	Total/NA

Client Sample ID: MEAFF-PWMA-MW01-0317 — Lab Sample ID: 320-26263-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	2500	M E	2.3	0.69	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1300	M E	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	650	M E	2.3	0.84	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	4400	D M E	23	6.9	ng/L	10		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	1600	D M	37	12	ng/L	10		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	830	D	23	8.4	ng/L	10		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL2	4500	D M	57	17	ng/L	25		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL2	1500	D M	92	29	ng/L	25		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL2	730	D	57	21	ng/L	25		537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown22-MW01-0317 — Lab Sample ID: 320-26263-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	9.0	M	2.3	0.69	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.0	J M	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.7		2.3	0.85	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MEAFF-FD04-030117 — Lab Sample ID: 320-26263-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	8.1	M	2.3	0.69	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.2	J M	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.6		2.3	0.85	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MEAFF-WWTP-MW01-0317

Lab Sample ID: 320-26263-1

Date Collected: 03/01/17 12:40

Matrix: Water

Date Received: 03/02/17 10:15

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	260	M	2.4	0.72	ng/L		03/06/17 16:19	03/10/17 22:52	1
Perfluorooctanesulfonic acid (PFOS)	370	M E	3.8	1.2	ng/L		03/06/17 16:19	03/10/17 22:52	1
Perfluorobutanesulfonic acid (PFBS)	25	M	2.4	0.88	ng/L		03/06/17 16:19	03/10/17 22:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*85*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:52*	*1*
13C4 PFOS	*107*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:52*	*1*
18O2 PFHxS	*110*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:52*	*1*

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	270	D M	12	3.6	ng/L		03/06/17 16:19	03/13/17 17:16	5
Perfluorooctanesulfonic acid (PFOS)	380	D M	19	6.1	ng/L		03/06/17 16:19	03/13/17 17:16	5
Perfluorobutanesulfonic acid (PFBS)	18	D M	12	4.4	ng/L		03/06/17 16:19	03/13/17 17:16	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*81*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:16*	*5*
13C4 PFOS	*98*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:16*	*5*
18O2 PFHxS	*116*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:16*	*5*

Client Sample ID: MEAFF-PWMA-MW01-0317

Lab Sample ID: 320-26263-2

Date Collected: 03/01/17 14:00

Matrix: Water

Date Received: 03/02/17 10:15

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	2500	M E	2.3	0.69	ng/L		03/06/17 16:19	03/10/17 23:00	1
Perfluorooctanesulfonic acid (PFOS)	1300	M E	3.7	1.2	ng/L		03/06/17 16:19	03/10/17 23:00	1
Perfluorobutanesulfonic acid (PFBS)	650	M E	2.3	0.84	ng/L		03/06/17 16:19	03/10/17 23:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*48*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:00*	*1*
13C4 PFOS	*99*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:00*	*1*
18O2 PFHxS	*46*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:00*	*1*

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	4400	D M E	23	6.9	ng/L		03/06/17 16:19	03/13/17 17:23	10
Perfluorooctanesulfonic acid (PFOS)	1600	D M	37	12	ng/L		03/06/17 16:19	03/13/17 17:23	10
Perfluorobutanesulfonic acid (PFBS)	830	D	23	8.4	ng/L		03/06/17 16:19	03/13/17 17:23	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*83*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:23*	*10*
13C4 PFOS	*112*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:23*	*10*
18O2 PFHxS	*97*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:23*	*10*

Client Sample ID: MEAFF-PWMA-MW01-0317

Lab Sample ID: 320-26263-2

Date Collected: 03/01/17 14:00

Matrix: Water

Date Received: 03/02/17 10:15

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL2

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	4500	D M	57	17	ng/L		03/06/17 16:19	03/14/17 15:13	25
Perfluorooctanesulfonic acid (PFOS)	1500	D M	92	29	ng/L		03/06/17 16:19	03/14/17 15:13	25
Perfluorobutanesulfonic acid (PFBS)	730	D	57	21	ng/L		03/06/17 16:19	03/14/17 15:13	25

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*108*		*25 - 150*	*03/06/17 16:19*	*03/14/17 15:13*	*25*
13C4 PFOS	*112*		*25 - 150*	*03/06/17 16:19*	*03/14/17 15:13*	*25*
18O2 PFHxS	*108*		*25 - 150*	*03/06/17 16:19*	*03/14/17 15:13*	*25*

Client Sample ID: MEAFF-Unknown22-MW01-0317

Lab Sample ID: 320-26263-3

Date Collected: 03/01/17 15:05

Matrix: Water

Date Received: 03/02/17 10:15

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	9.0	M	2.3	0.69	ng/L		03/06/17 16:19	03/10/17 23:07	1
Perfluorooctanesulfonic acid (PFOS)	2.0	J M	3.7	1.2	ng/L		03/06/17 16:19	03/10/17 23:07	1
Perfluorobutanesulfonic acid (PFBS)	3.7		2.3	0.85	ng/L		03/06/17 16:19	03/10/17 23:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*87*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:07*	*1*
13C4 PFOS	*118*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:07*	*1*
18O2 PFHxS	*125*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:07*	*1*

Client Sample ID: MEAFF-FD04-030117

Lab Sample ID: 320-26263-4

Date Collected: 03/01/17 00:00

Matrix: Water

Date Received: 03/02/17 10:15

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	8.1	M	2.3	0.69	ng/L		03/06/17 16:19	03/10/17 23:15	1
Perfluorooctanesulfonic acid (PFOS)	1.2	J M	3.7	1.2	ng/L		03/06/17 16:19	03/10/17 23:15	1
Perfluorobutanesulfonic acid (PFBS)	3.6		2.3	0.85	ng/L		03/06/17 16:19	03/10/17 23:15	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*83*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:15*	*1*
13C4 PFOS	*134*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:15*	*1*
18O2 PFHxS	*137*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:15*	*1*

Isotope Dilution Summary

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

TestAmerica Job ID: 320-26263-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	3C4 PFO/ (25-150)	3C4 PFOS (25-150)	3O2 PFHx (25-150)						
320-26263-1	MEAFF-WWTP-MW01-0317	85	107	110						
320-26263-1 - DL	MEAFF-WWTP-MW01-0317	81	98	116						
320-26263-2	MEAFF-PWMA-MW01-0317	48	99	46						
320-26263-2 - DL	MEAFF-PWMA-MW01-0317	83	112	97						
320-26263-2 - DL2	MEAFF-PWMA-MW01-0317	108	112	108						
320-26263-3	MEAFF-Unknown22-MW01-0317	87	118	125						
320-26263-4	MEAFF-FD04-030117	83	134	137						
LCS 320-153501/2-A	Lab Control Sample	148	132	137						
LCSD 320-153501/3-A	Lab Control Sample Dup	140	123	128						
MB 320-153501/1-A	Method Blank	130	116	124						

Surrogate Legend

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

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-153501/1-A
Matrix: Water
Analysis Batch: 154459

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153501

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	2.0	U M	2.5	0.75	ng/L		03/06/17 16:19	03/10/17 22:30	1
Perfluorooctanesulfonic acid (PFOS)	3.0	U M	4.0	1.3	ng/L		03/06/17 16:19	03/10/17 22:30	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	0.92	ng/L		03/06/17 16:19	03/10/17 22:30	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*130*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:30*	*1*
13C4 PFOS	*116*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:30*	*1*
18O2 PFHxS	*124*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:30*	*1*

Lab Sample ID: LCS 320-153501/2-A
Matrix: Water
Analysis Batch: 154459

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153501

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanoic acid (PFOA)	40.0	39.9		ng/L		100	60 - 140
Perfluorooctanesulfonic acid (PFOS)	37.1	37.8	M	ng/L		102	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.4	40.0		ng/L		113	50 - 150

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFOA	*148*		*25 - 150*
13C4 PFOS	*132*		*25 - 150*
18O2 PFHxS	*137*		*25 - 150*

Lab Sample ID: LCSD 320-153501/3-A
Matrix: Water
Analysis Batch: 154459

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 153501

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)	40.0	39.6		ng/L		99	60 - 140	1	30
Perfluorooctanesulfonic acid (PFOS)	37.1	39.4	M	ng/L		106	60 - 140	4	30
Perfluorobutanesulfonic acid (PFBS)	35.4	41.6		ng/L		118	50 - 150	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFOA	*140*		*25 - 150*
13C4 PFOS	*123*		*25 - 150*
18O2 PFHxS	*128*		*25 - 150*

QC Association Summary

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

TestAmerica Job ID: 320-26263-1

LCMS

Prep Batch: 153501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26263-1	MEAFF-WWTP-MW01-0317	Total/NA	Water	3535	
320-26263-1 - DL	MEAFF-WWTP-MW01-0317	Total/NA	Water	3535	
320-26263-2 - DL2	MEAFF-PWMA-MW01-0317	Total/NA	Water	3535	
320-26263-2 - DL	MEAFF-PWMA-MW01-0317	Total/NA	Water	3535	
320-26263-2	MEAFF-PWMA-MW01-0317	Total/NA	Water	3535	
320-26263-3	MEAFF-Unknown22-MW01-0317	Total/NA	Water	3535	
320-26263-4	MEAFF-FD04-030117	Total/NA	Water	3535	
MB 320-153501/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-153501/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-153501/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 154459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26263-1	MEAFF-WWTP-MW01-0317	Total/NA	Water	537 (Modified)	153501
320-26263-2	MEAFF-PWMA-MW01-0317	Total/NA	Water	537 (Modified)	153501
320-26263-3	MEAFF-Unknown22-MW01-0317	Total/NA	Water	537 (Modified)	153501
320-26263-4	MEAFF-FD04-030117	Total/NA	Water	537 (Modified)	153501
MB 320-153501/1-A	Method Blank	Total/NA	Water	537 (Modified)	153501
LCS 320-153501/2-A	Lab Control Sample	Total/NA	Water	537 (Modified)	153501
LCSD 320-153501/3-A	Lab Control Sample Dup	Total/NA	Water	537 (Modified)	153501

Analysis Batch: 154808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26263-1 - DL	MEAFF-WWTP-MW01-0317	Total/NA	Water	537 (Modified)	153501
320-26263-2 - DL	MEAFF-PWMA-MW01-0317	Total/NA	Water	537 (Modified)	153501

Analysis Batch: 155009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26263-2 - DL2	MEAFF-PWMA-MW01-0317	Total/NA	Water	537 (Modified)	153501

Lab Chronicle

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

TestAmerica Job ID: 320-26263-1

Client Sample ID: MEAFF-WWTP-MW01-0317

Lab Sample ID: 320-26263-1
Matrix: Water
Date Collected: 03/01/17 12:40
Date Received: 03/02/17 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			261.2 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154459	03/10/17 22:52	TC1	TAL SAC
Total/NA	Prep	3535	DL		261.2 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	5			154808	03/13/17 17:16	CBW	TAL SAC

Client Sample ID: MEAFF-PWMA-MW01-0317

Lab Sample ID: 320-26263-2
Matrix: Water
Date Collected: 03/01/17 14:00
Date Received: 03/02/17 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			272.2 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154459	03/10/17 23:00	TC1	TAL SAC
Total/NA	Prep	3535	DL		272.2 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	10			154808	03/13/17 17:23	CBW	TAL SAC
Total/NA	Prep	3535	DL2		272.2 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL2	25			155009	03/14/17 15:13	CBW	TAL SAC

Client Sample ID: MEAFF-Unknown22-MW01-0317

Lab Sample ID: 320-26263-3
Matrix: Water
Date Collected: 03/01/17 15:05
Date Received: 03/02/17 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			269.1 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154459	03/10/17 23:07	TC1	TAL SAC

Client Sample ID: MEAFF-FD04-030117

Lab Sample ID: 320-26263-4
Matrix: Water
Date Collected: 03/01/17 00:00
Date Received: 03/02/17 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			270.9 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154459	03/10/17 23:15	TC1	TAL SAC

Laboratory References:

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

Certification Summary

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

TestAmerica Job ID: 320-26263-1

Laboratory: TestAmerica Sacramento

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

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

* Certification renewal pending - certification considered valid.

Method Summary

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

TestAmerica Job ID: 320-26263-1

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

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

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

TestAmerica Job ID: 320-26263-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-26263-1	MEAFF-WWTP-MW01-0317	Water	03/01/17 12:40	03/02/17 10:15
320-26263-2	MEAFF-PWMA-MW01-0317	Water	03/01/17 14:00	03/02/17 10:15
320-26263-3	MEAFF-Unknown22-MW01-0317	Water	03/01/17 15:05	03/02/17 10:15
320-26263-4	MEAFF-FD04-030117	Water	03/01/17 00:00	03/02/17 10:15

Chain of Custody Record

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Bryan Burkingstock	Site Contact: Ryan Brown	Date: 3/1/17	COC No: 5
Company Name CH2M	Tel/Fax: 603-736-4111	Lab Contact: Jill Kellmann	Carrier: FedEx	1 of 1 COCs
6600 Peachtree Dunwoody Road. 400 Embassy Row, Suite 600	Analysis Turnaround Time			Sampler: J. McCann
Atlanta GA 30328	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(678) 530-4060 Phone	TAT if different from Below 21 Days			Walk-in Client:
(770) 604-9153 Fax	☐ 2 weeks			Lab Sampling:
Project Name: Meridian 10006-7-105420 JM01 Navy CLEAN	☐ 1 week			
Site: NAS Meridian	☐ 2 days			Job / SDG No.:
P O # 10006-7-105420	☐ 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)	PFC	Sample Specific Notes:
MEAFF-WWTP-MW01-0317	3/1/2017	1240	G	GW	2	N	N	X	
MEAFF-PWMA-MW01-0317	3/1/2017	1400	G	GW	2	N	N	X	
MEAFF-Unknown22-MW01-0317	3/1/2017	1505	G	GW	2	N	N	X	
FD-04	3/1/2017	--	G	GW	2	N	N	X	Field Duplicate

320-26263 Chain of Custody

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

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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

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

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 2.4 Corr'd: 2.7		Therm ID No.: AIC-1
Relinquished by: Justine McCann	Company: CH2M HILL	Date/Time: 3/1/17 1800	Received by:	Company: FAWS	Date/Time: 3-2-17 1015
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.8, dated 11/04/2015

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 320-26263-1

Login Number: 26263
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?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Job Number: 320-26263-1

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

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

Attention: Mr. Michael Zamboni

Approved for release.
Jill Kellmann
Manager of Project Management
3/27/2017 5:13 PM

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

Table of Contents

Table of Contents

Qualifiers

LCMS

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

Glossary

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

CASE NARRATIVE

Client: CH2M Hill, Inc.

Project: Meridian 10006-7-105420 JM01 Navy Clean

Report Number: 320-26263-1

Revision - March 27, 2017
Revision created to include PFBS in the method 537 Mod analyte list.

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

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

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

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

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

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

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

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

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

RECEIPT
The samples were received on 03/02/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.7 C.

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

The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: MEAFF-WWTP-MW01-0317 (320-26263-1) and MEAFF-PWMA-MW01-0317 (320-26263-2). These analytes have been qualified; however, the peaks did not saturate the instrument detector. Historical data indicate that for the isotope dilution method, dilution and re-analysis will not produce significantly different results from those reported above the calibration range.

Samples MEAFF-WWTP-MW01-0317 (320-26263-1)[5X], MEAFF-PWMA-MW01-0317 (320-26263-2)[10X] and MEAFF-PWMA-MW01-0317 (320-26263-2)[25X] required dilution prior to analysis due to matrix and/or elevated analyte levels. The reporting limits have been adjusted accordingly.

The concentration of Perfluorooctanoic acid (PFOA) exceeded the instrument calibration range in the following sample: MEAFF-PWMA-MW01-0317 (320-26263-2). This analyte has been qualified; however, the peak did not saturate the instrument detector. Historical data indicate that for the isotope dilution method, dilution and re-analysis will not produce significantly different results from those reported above the calibration range.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 320-153501.

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: 320-26263-1

Client Sample ID: MEAFF-WWTP-MW01-0317 — Lab Sample ID: 320-26263-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	260	M	2.4	0.72	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	370	M E	3.8	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	25	M	2.4	0.88	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	270	D M	12	3.6	ng/L	5		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	380	D M	19	6.1	ng/L	5		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	18	D M	12	4.4	ng/L	5		537 (Modified)	Total/NA

Client Sample ID: MEAFF-PWMA-MW01-0317 — Lab Sample ID: 320-26263-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	2500	M E	2.3	0.69	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1300	M E	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	650	M E	2.3	0.84	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	4400	D M E	23	6.9	ng/L	10		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	1600	D M	37	12	ng/L	10		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	830	D	23	8.4	ng/L	10		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL2	4500	D M	57	17	ng/L	25		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL2	1500	D M	92	29	ng/L	25		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL2	730	D	57	21	ng/L	25		537 (Modified)	Total/NA

Client Sample ID: MEAFF-Unknown22-MW01-0317 — Lab Sample ID: 320-26263-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	9.0	M	2.3	0.69	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.0	J M	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.7		2.3	0.85	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MEAFF-FD04-030117 — Lab Sample ID: 320-26263-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	8.1	M	2.3	0.69	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.2	J M	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.6		2.3	0.85	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MEAFF-WWTP-MW01-0317

Lab Sample ID: 320-26263-1

Date Collected: 03/01/17 12:40

Matrix: Water

Date Received: 03/02/17 10:15

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	260	M	2.4	0.72	ng/L		03/06/17 16:19	03/10/17 22:52	1
Perfluorooctanesulfonic acid (PFOS)	370	M E	3.8	1.2	ng/L		03/06/17 16:19	03/10/17 22:52	1
Perfluorobutanesulfonic acid (PFBS)	25	M	2.4	0.88	ng/L		03/06/17 16:19	03/10/17 22:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*85*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:52*	*1*
13C4 PFOS	*107*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:52*	*1*
18O2 PFHxS	*110*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:52*	*1*

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	270	D M	12	3.6	ng/L		03/06/17 16:19	03/13/17 17:16	5
Perfluorooctanesulfonic acid (PFOS)	380	D M	19	6.1	ng/L		03/06/17 16:19	03/13/17 17:16	5
Perfluorobutanesulfonic acid (PFBS)	18	D M	12	4.4	ng/L		03/06/17 16:19	03/13/17 17:16	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*81*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:16*	*5*
13C4 PFOS	*98*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:16*	*5*
18O2 PFHxS	*116*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:16*	*5*

Client Sample ID: MEAFF-PWMA-MW01-0317

Lab Sample ID: 320-26263-2

Date Collected: 03/01/17 14:00

Matrix: Water

Date Received: 03/02/17 10:15

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	2500	M E	2.3	0.69	ng/L		03/06/17 16:19	03/10/17 23:00	1
Perfluorooctanesulfonic acid (PFOS)	1300	M E	3.7	1.2	ng/L		03/06/17 16:19	03/10/17 23:00	1
Perfluorobutanesulfonic acid (PFBS)	650	M E	2.3	0.84	ng/L		03/06/17 16:19	03/10/17 23:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*48*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:00*	*1*
13C4 PFOS	*99*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:00*	*1*
18O2 PFHxS	*46*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:00*	*1*

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	4400	D M E	23	6.9	ng/L		03/06/17 16:19	03/13/17 17:23	10
Perfluorooctanesulfonic acid (PFOS)	1600	D M	37	12	ng/L		03/06/17 16:19	03/13/17 17:23	10
Perfluorobutanesulfonic acid (PFBS)	830	D	23	8.4	ng/L		03/06/17 16:19	03/13/17 17:23	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*83*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:23*	*10*
13C4 PFOS	*112*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:23*	*10*
18O2 PFHxS	*97*		*25 - 150*	*03/06/17 16:19*	*03/13/17 17:23*	*10*

Client Sample ID: MEAFF-PWMA-MW01-0317

Lab Sample ID: 320-26263-2

Date Collected: 03/01/17 14:00
Matrix: Water
Date Received: 03/02/17 10:15

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL2

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	4500	D M	57	17	ng/L		03/06/17 16:19	03/14/17 15:13	25
Perfluorooctanesulfonic acid (PFOS)	1500	D M	92	29	ng/L		03/06/17 16:19	03/14/17 15:13	25
Perfluorobutanesulfonic acid (PFBS)	730	D	57	21	ng/L		03/06/17 16:19	03/14/17 15:13	25

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*108*		*25 - 150*	*03/06/17 16:19*	*03/14/17 15:13*	*25*
13C4 PFOS	*112*		*25 - 150*	*03/06/17 16:19*	*03/14/17 15:13*	*25*
18O2 PFHxS	*108*		*25 - 150*	*03/06/17 16:19*	*03/14/17 15:13*	*25*

Client Sample ID: MEAFF-Unknown22-MW01-0317

Lab Sample ID: 320-26263-3

Date Collected: 03/01/17 15:05
Matrix: Water
Date Received: 03/02/17 10:15

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	9.0	M	2.3	0.69	ng/L		03/06/17 16:19	03/10/17 23:07	1
Perfluorooctanesulfonic acid (PFOS)	2.0	J M	3.7	1.2	ng/L		03/06/17 16:19	03/10/17 23:07	1
Perfluorobutanesulfonic acid (PFBS)	3.7		2.3	0.85	ng/L		03/06/17 16:19	03/10/17 23:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*87*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:07*	*1*
13C4 PFOS	*118*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:07*	*1*
18O2 PFHxS	*125*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:07*	*1*

Client Sample ID: MEAFF-FD04-030117

Lab Sample ID: 320-26263-4

Date Collected: 03/01/17 00:00
Matrix: Water
Date Received: 03/02/17 10:15

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	8.1	M	2.3	0.69	ng/L		03/06/17 16:19	03/10/17 23:15	1
Perfluorooctanesulfonic acid (PFOS)	1.2	J M	3.7	1.2	ng/L		03/06/17 16:19	03/10/17 23:15	1
Perfluorobutanesulfonic acid (PFBS)	3.6		2.3	0.85	ng/L		03/06/17 16:19	03/10/17 23:15	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*83*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:15*	*1*
13C4 PFOS	*134*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:15*	*1*
18O2 PFHxS	*137*		*25 - 150*	*03/06/17 16:19*	*03/10/17 23:15*	*1*

Default Detection Limits

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

TestAmerica Job ID: 320-26263-1

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)

Isotope Dilution Summary

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

TestAmerica Job ID: 320-26263-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)								
		3C4 PFO/	3C4 PFOS	3O2 PFHx						
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)						
320-26263-1	MEAFF-WWTP-MW01-0317	85	107	110						
320-26263-1 - DL	MEAFF-WWTP-MW01-0317	81	98	116						
320-26263-2	MEAFF-PWMA-MW01-0317	48	99	46						
320-26263-2 - DL	MEAFF-PWMA-MW01-0317	83	112	97						
320-26263-2 - DL2	MEAFF-PWMA-MW01-0317	108	112	108						
320-26263-3	MEAFF-Unknown22-MW01-031	87	118	125						
320-26263-4	MEAFF-FD04-030117	83	134	137						
LCS 320-153501/2-A	Lab Control Sample	148	132	137						
LCSD 320-153501/3-A	Lab Control Sample Dup	140	123	128						
MB 320-153501/1-A	Method Blank	130	116	124						

Surrogate Legend

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

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-153501/1-A
Matrix: Water
Analysis Batch: 154459

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153501

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	2.0	U M	2.5	0.75	ng/L		03/06/17 16:19	03/10/17 22:30	1
Perfluorooctanesulfonic acid (PFOS)	3.0	U M	4.0	1.3	ng/L		03/06/17 16:19	03/10/17 22:30	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.5	0.92	ng/L		03/06/17 16:19	03/10/17 22:30	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*130*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:30*	*1*
13C4 PFOS	*116*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:30*	*1*
18O2 PFHxS	*124*		*25 - 150*	*03/06/17 16:19*	*03/10/17 22:30*	*1*

Lab Sample ID: LCS 320-153501/2-A
Matrix: Water
Analysis Batch: 154459

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153501

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanoic acid (PFOA)	40.0	39.9		ng/L		100	60 - 140
Perfluorooctanesulfonic acid (PFOS)	37.1	37.8	M	ng/L		102	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.4	40.0		ng/L		113	50 - 150

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFOA	*148*		*25 - 150*
13C4 PFOS	*132*		*25 - 150*
18O2 PFHxS	*137*		*25 - 150*

Lab Sample ID: LCSD 320-153501/3-A
Matrix: Water
Analysis Batch: 154459

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 153501

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)	40.0	39.6		ng/L		99	60 - 140	1	30
Perfluorooctanesulfonic acid (PFOS)	37.1	39.4	M	ng/L		106	60 - 140	4	30
Perfluorobutanesulfonic acid (PFBS)	35.4	41.6		ng/L		118	50 - 150	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFOA	*140*		*25 - 150*
13C4 PFOS	*123*		*25 - 150*
18O2 PFHxS	*128*		*25 - 150*

LCMS

Prep Batch: 153501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26263-1 - DL	MEAFF-WWTP-MW01-0317	Total/NA	Water	3535	
320-26263-1	MEAFF-WWTP-MW01-0317	Total/NA	Water	3535	
320-26263-2	MEAFF-PWMA-MW01-0317	Total/NA	Water	3535	
320-26263-2 - DL	MEAFF-PWMA-MW01-0317	Total/NA	Water	3535	
320-26263-2 - DL2	MEAFF-PWMA-MW01-0317	Total/NA	Water	3535	
320-26263-3	MEAFF-Unknown22-MW01-0317	Total/NA	Water	3535	
320-26263-4	MEAFF-FD04-030117	Total/NA	Water	3535	
MB 320-153501/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-153501/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-153501/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 154459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26263-1	MEAFF-WWTP-MW01-0317	Total/NA	Water	537 (Modified)	153501
320-26263-2	MEAFF-PWMA-MW01-0317	Total/NA	Water	537 (Modified)	153501
320-26263-3	MEAFF-Unknown22-MW01-0317	Total/NA	Water	537 (Modified)	153501
320-26263-4	MEAFF-FD04-030117	Total/NA	Water	537 (Modified)	153501
MB 320-153501/1-A	Method Blank	Total/NA	Water	537 (Modified)	153501
LCS 320-153501/2-A	Lab Control Sample	Total/NA	Water	537 (Modified)	153501
LCSD 320-153501/3-A	Lab Control Sample Dup	Total/NA	Water	537 (Modified)	153501

Analysis Batch: 154808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26263-1 - DL	MEAFF-WWTP-MW01-0317	Total/NA	Water	537 (Modified)	153501
320-26263-2 - DL	MEAFF-PWMA-MW01-0317	Total/NA	Water	537 (Modified)	153501

Analysis Batch: 155009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26263-2 - DL2	MEAFF-PWMA-MW01-0317	Total/NA	Water	537 (Modified)	153501

Client Sample ID: MEAFF-WWTP-MW01-0317 — Lab Sample ID: 320-26263-1

Date Collected: 03/01/17 12:40 — **Matrix: Water**
Date Received: 03/02/17 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154459	03/10/17 22:52	TC1	TAL SAC
Total/NA	Prep	3535	DL		153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	5	154808	03/13/17 17:16	CBW	TAL SAC

Client Sample ID: MEAFF-PWMA-MW01-0317 — Lab Sample ID: 320-26263-2

Date Collected: 03/01/17 14:00 — **Matrix: Water**
Date Received: 03/02/17 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154459	03/10/17 23:00	TC1	TAL SAC
Total/NA	Prep	3535	DL		153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	10	154808	03/13/17 17:23	CBW	TAL SAC
Total/NA	Prep	3535	DL2		153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL2	25	155009	03/14/17 15:13	CBW	TAL SAC

Client Sample ID: MEAFF-Unknown22-MW01-0317 — Lab Sample ID: 320-26263-3

Date Collected: 03/01/17 15:05 — **Matrix: Water**
Date Received: 03/02/17 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154459	03/10/17 23:07	TC1	TAL SAC

Client Sample ID: MEAFF-FD04-030117 — Lab Sample ID: 320-26263-4

Date Collected: 03/01/17 00:00 — **Matrix: Water**
Date Received: 03/02/17 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154459	03/10/17 23:15	TC1	TAL SAC

Laboratory References:

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

Certification Summary

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

TestAmerica Job ID: 320-26263-1

Laboratory: TestAmerica Sacramento

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

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

* Certification renewal pending - certification considered valid.

Method Summary

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

TestAmerica Job ID: 320-26263-1

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

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

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

TestAmerica Job ID: 320-26263-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-26263-1	MEAFF-WWTP-MW01-0317	Water	03/01/17 12:40	03/02/17 10:15
320-26263-2	MEAFF-PWMA-MW01-0317	Water	03/01/17 14:00	03/02/17 10:15
320-26263-3	MEAFF-Unknown22-MW01-0317	Water	03/01/17 15:05	03/02/17 10:15
320-26263-4	MEAFF-FD04-030117	Water	03/01/17 00:00	03/02/17 10:15

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 152681

Lab Sample ID: IC 320-152681/2 Client Sample ID:

Date Analyzed: 03/01/17 11:08 Lab File ID: 2017.03.01CURVE_003.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

Lab Sample ID: IC 320-152681/4 Client Sample ID:

Date Analyzed: 03/01/17 11:23 Lab File ID: 2017.03.01CURVE_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

Lab Sample ID: IC 320-152681/5 Client Sample ID:

Date Analyzed: 03/01/17 11:31 Lab File ID: 2017.03.01CURVE_006.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

537 (Modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 152681

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

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

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

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

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

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

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 154455

Lab Sample ID: CCV 320-154455/2 CCVL Client Sample ID:

Date Analyzed: 03/10/17 17:37 Lab File ID: 2017.03.10B_002.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanoic acid (PFBA)	1.54	Incomplete Integration	phomsopha t	03/13/17 09:40
Perfluorohexanesulfonic acid (PFHxS)	2.48	Incomplete Integration	phomsopha t	03/13/17 09:40
Perfluorooctanesulfonic acid (PFOS)	3.20	Incomplete Integration	phomsopha t	03/13/17 09:40
Perfluorotridecanoic Acid (PFTriA)	4.44	Incomplete Integration	phomsopha t	03/13/17 09:40

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 154459

Lab Sample ID: CCV 320-154459/19 Client Sample ID:

Date Analyzed: 03/10/17 22:22 Lab File ID: 2017.03.10B_040.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.47	Isomers	changnoit	03/13/17 11:33
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	changnoit	03/13/17 11:33

Lab Sample ID: MB 320-153501/1-A Client Sample ID:

Date Analyzed: 03/10/17 22:30 Lab File ID: 2017.03.10B_041.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/13/17 11:21
Perfluorooctanesulfonic acid (PFOS)	3.17	Isomers	changnoit	03/13/17 11:22

Lab Sample ID: LCS 320-153501/2-A Client Sample ID:

Date Analyzed: 03/10/17 22:37 Lab File ID: 2017.03.10B_042.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/13/17 11:25

Lab Sample ID: LCSD 320-153501/3-A Client Sample ID:

Date Analyzed: 03/10/17 22:45 Lab File ID: 2017.03.10B_043.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/13/17 11:26

537 (Modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 154459

Lab Sample ID: 320-26263-1 Client Sample ID: MEAFF-WWTP-MW01-0317

Date Analyzed: 03/10/17 22:52 Lab File ID: 2017.03.10B_044.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.84	Baseline	chandrasenas	03/27/17 12:07
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/27/17 12:06
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/27/17 12:06

Lab Sample ID: 320-26263-2 Client Sample ID: MEAFF-PWMA-MW01-0317

Date Analyzed: 03/10/17 23:00 Lab File ID: 2017.03.10B_045.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.86	Baseline	chandrasenas	03/27/17 12:07
Perfluorooctanoic acid (PFOA)	2.79	Isomers	chandrasenas	03/27/17 12:07
Perfluorooctanesulfonic acid (PFOS)	3.05	Isomers	chandrasenas	03/27/17 12:07

Lab Sample ID: 320-26263-3 Client Sample ID: MEAFF-Unknown22-MW01-0317

Date Analyzed: 03/10/17 23:07 Lab File ID: 2017.03.10B_046.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.80	Isomers	changnoit	03/27/17 12:07
Perfluorooctanesulfonic acid (PFOS)	3.17	Isomers	changnoit	03/27/17 12:07

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 154459

Lab Sample ID: 320-26263-4 Client Sample ID: MEAFF-FD04-030117

Date Analyzed: 03/10/17 23:15 Lab File ID: 2017.03.10B_047.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.82	Isomers	changnoit	03/27/17 12:08
Perfluorooctanesulfonic acid (PFOS)	3.07	Baseline	chandrasenas	03/27/17 12:08

Lab Sample ID: CCV 320-154459/30 Client Sample ID:

Date Analyzed: 03/10/17 23:45 Lab File ID: 2017.03.10B_051.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	2.46	Isomers	changnoit	03/13/17 11:31
Perfluorooctanesulfonic acid (PFOS)	3.18	Isomers	changnoit	03/13/17 11:31

537 (Modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 154721

Lab Sample ID: CCV 320-154721/1 CCVL Client Sample ID:

Date Analyzed: 03/13/17 11:39 Lab File ID: 2017.03.13A_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

537 (Modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 154808

Lab Sample ID: CCV 320-154808/11 Client Sample ID:

Date Analyzed: 03/13/17 17:08 Lab File ID: 2017.03.13A_047.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

Lab Sample ID: 320-26263-1 DL Client Sample ID: MEAFF-WWTP-MW01-0317 DL

Date Analyzed: 03/13/17 17:16 Lab File ID: 2017.03.13A_048.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.85	Baseline	chandrasenas	03/27/17 12:22
Perfluorooctanoic acid (PFOA)	2.81	Isomers	westendorfc	03/27/17 12:22
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	westendorfc	03/27/17 12:22

Lab Sample ID: 320-26263-2 DL Client Sample ID: MEAFF-PWMA-MW01-0317 DL

Date Analyzed: 03/13/17 17:23 Lab File ID: 2017.03.13A_049.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.83	Isomers	westendorfc	03/27/17 12:25
Perfluorooctanesulfonic acid (PFOS)	3.07	Isomers	westendorfc	03/27/17 12:25

Lab Sample ID: CCV 320-154808/17 Client Sample ID:

Date Analyzed: 03/13/17 17:53 Lab File ID: 2017.03.13A_053.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	westendorfc	03/14/17 13:30

537 (Modified)

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 155009

Lab Sample ID: 320-26263-2 DL2 Client Sample ID: MEAFF-PWMA-MW01-0317 DL2

Date Analyzed: 03/14/17 15:13 Lab File ID: 2017.03.14A_020.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.86	Isomers	westendorfc	03/27/17 12:34
Perfluorooctanesulfonic acid (PFOS)	3.11	Isomers	westendorfc	03/27/17 12:34

Lab Sample ID: CCV 320-155009/7 Client Sample ID:

Date Analyzed: 03/14/17 15:21 Lab File ID: 2017.03.14A_021.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	3.22	Isomers	westendorfc	03/15/17 11:36

537 (Modified)

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
.LCM2PFHxDA_00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
.LCM2PFTeDA_00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
.LCM4PFHPA_00007	05/27/21	Wellington Laboratories, Lot M4PFHpA0516			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
.LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
.LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
.LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
.LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
.LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
.LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
.LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
.LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
.LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LCMPFUdA_00009	02/12/21	Wellington Laboratories, Lot MPFUdA0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
LCPFC_FULL-L1_00001	06/14/17	02/16/17	MeOH/H2O, Lot 90285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00025	25 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ng/mL
							N-ethylperfluoro-1-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
					LCPFCSP_00078	25 uL	Perfluorobutyric acid	0.5 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ng/mL
							Perfluorodecanoic acid	0.5 ng/mL
							Perfluorododecanoic acid	0.5 ng/mL
							Perfluorodecane Sulfonic acid	0.482 ng/mL
							Perfluoroheptanoic acid	0.5 ng/mL
							Perfluoroheptanesulfonic Acid	0.476 ng/mL
							Perfluorohexanoic acid	0.5 ng/mL
							Perfluorohexadecanoic acid	0.5 ng/mL
							Perfluorohexanesulfonic acid	0.455 ng/mL
							Perfluorononanoic acid	0.5 ng/mL
							Perfluorooctanoic acid (PFOA)	0.5 ng/mL
							Perfluorooctadecanoic acid	0.5 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.464 ng/mL
							Perfluorooctane Sulfonamide	0.5 ng/mL
							Perfluoropentanoic acid	0.5 ng/mL
							Perfluorotetradecanoic acid	0.5 ng/mL
							Perfluorotridecanoic acid	0.5 ng/mL
							Perfluoroundecanoic acid	0.5 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M_00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00007	05/27/21	Wellington Laboratories, Lot M4PFHpA0516			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00009	02/12/21	Wellington Laboratories, Lot MPFUdA0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC2SP_00025	06/28/17	01/30/17	Methanol, Lot 104453	10000 uL	LCPFC2SP_00020	2000 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.0958 ug/mL
							N-ethylperfluoro-1-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_00020	06/28/17	12/28/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfonamide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
					LCN-MeFOSA-M_00002	100 uL	MeFOSA	0.5 ug/mL
					LCN-MeFOSAA_00003	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
...LC6:2FTS_00002	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00002	10/23/20	WELLINGTON, Lot 82FTS1015			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00003	05/24/21	WELLINGTON, Lot NEtFOSA0516M			(Purchased Reagent)		N-ethylperfluoro-1-octanesulfonamide	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21	WELLINGTON, Lot NEtFOSAA0116			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21	WELLINGTON, Lot NMeFOSA0714M			(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21	WELLINGTON, Lot NMeFOSAA0116			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00078	06/14/17	01/16/17	Methanol, Lot 090285	10000 uL	LCPFCSP_00075	2000 uL	Perfluorobutyric acid	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid	0.1 ug/mL
							Perfluorododecanoic acid	0.1 ug/mL
							Perfluorodecane Sulfonic acid	0.0964 ug/mL
							Perfluoroheptanoic acid	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid	0.091 ug/mL
							Perfluorononanoic acid	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide	0.1 ug/mL
							Perfluoropentanoic acid	0.1 ug/mL
							Perfluorotetradecanoic acid	0.1 ug/mL
							Perfluorotridecanoic acid	0.1 ug/mL
							Perfluoroundecanoic acid	0.1 ug/mL
..LCPFCSP_00075	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFCSP_00074	5000 uL	Perfluorobutyric acid	0.5 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
							Perfluorodecanoic acid	0.5 ug/mL
							Perfluorododecanoic acid	0.5 ug/mL
							Perfluorodecane Sulfonic acid	0.482 ug/mL
							Perfluoroheptanoic acid	0.5 ug/mL
							Perfluoroheptanesulfonic Acid	0.476 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexanoic acid	0.5 ug/mL
							Perfluorohexadecanoic acid	0.5 ug/mL
							Perfluorohexanesulfonic acid	0.455 ug/mL
							Perfluorononanoic acid	0.5 ug/mL
							Perfluorooctanoic acid (PFOA)	0.5 ug/mL
							Perfluorooctadecanoic acid	0.5 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
							Perfluorooctane Sulfonamide	0.5 ug/mL
							Perfluoropentanoic acid	0.5 ug/mL
							Perfluorotetradecanoic acid	0.5 ug/mL
							Perfluorotridecanoic acid	0.5 ug/mL
							Perfluoroundecanoic acid	0.5 ug/mL
...LCPFCSP_00074	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFBA_00005	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00005	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00006	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00009	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00006	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00002	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00006	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00006	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00002	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00008	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00005	200 uL	Perfluoroundecanoic acid	1 ug/mL
....LCPFBA_00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
....LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
....LCPFDA_00005	07/02/20	Wellington Laboratories, Lot PFDA0615			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
....LCPFDoA_00005	01/30/20	Wellington Laboratories, Lot PFDoA0115			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
....LCPFDS_00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
....LCPFHpA_00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
....LCPFHpS_00009	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
....LCPFHxA_00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
....LCPFHxDA_00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
....LCPFHxS-br_00002	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
....LCPFNA_00006	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
....LCPFOA_00006	11/06/20	Wellington Laboratories, Lot PFOA1115			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
....LCPFODA_00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL

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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
....LCPFOSA_00008	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
....LCPFPeA_00005	01/30/20	Wellington Laboratories, Lot PFPeA0115			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
....LCPFTeDA_00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
....LCPFTrDA_00005	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
....LCPFUdA_00005	08/19/20	Wellington Laboratories, Lot PFUdA0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L2_00001	06/14/17	02/16/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00025	50 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ng/mL
							N-ethylperfluoro-1-octanesulfonamide	1 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	1 ng/mL
							MeFOSA	1 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	1 ng/mL
					LCPFCSP_00078	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

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SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexanoic acid	1 ng/mL
							Perfluorohexadecanoic acid	1 ng/mL
							Perfluorohexanesulfonic acid	0.91 ng/mL
							Perfluorononanoic acid	1 ng/mL
							Perfluorooctanoic acid (PFOA)	1 ng/mL
							Perfluorooctadecanoic acid	1 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	0.928 ng/mL
							Perfluorooctane Sulfonamide	1 ng/mL
							Perfluoropentanoic acid	1 ng/mL
							Perfluorotetradecanoic acid	1 ng/mL
							Perfluorotridecanoic acid	1 ng/mL
							Perfluoroundecanoic acid	1 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M_00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M_00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS_00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M_00004	06/10/21	WELLINGTON, Lot dNEtFOSA0616M			(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M_00003	06/10/21	WELLINGTON, Lot dNMeFOSA0616M			(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA_00003	05/31/21	WELLINGTON, Lot d3NMeFOSAA0516			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00003	08/02/21	WELLINGTON, Lot d5NEtFOSAA0716			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00003	01/08/21	WELLINGTON, Lot M262FTS0116			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00003	01/08/21	WELLINGTON, Lot M282FTS0116			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00007	05/27/21	Wellington Laboratories, Lot M4PFHpA0516			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL

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Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00009	02/12/21	Wellington Laboratories, Lot MPFUdA0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC2SP_00025	06/28/17	01/30/17	Methanol, Lot 104453	10000 uL	LCPFC2SP_00020	2000 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.0958 ug/mL
							N-ethylperfluoro-1-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_00020	06/28/17	12/28/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfonamide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
					LCN-MeFOSA-M_00002	100 uL	MeFOSA	0.5 ug/mL
					LCN-MeFOSAA_00003	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
...LC6:2FTS_00002	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00002	10/23/20	WELLINGTON, Lot 82FTS1015			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00003	05/24/21	WELLINGTON, Lot NEtFOSA0516M			(Purchased Reagent)		N-ethylperfluoro-1-octanesulfonamide	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21	WELLINGTON, Lot NEtFOSAA0116			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21	WELLINGTON, Lot NMeFOSA0714M			(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21	WELLINGTON, Lot NMeFOSAA0116			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00078	06/14/17	01/16/17	Methanol, Lot 090285	10000 uL	LCPFCSP_00075	2000 uL	Perfluorobutyric acid	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid	0.1 ug/mL
							Perfluorododecanoic acid	0.1 ug/mL

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SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							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_00075	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFCSP_00074	5000 uL	Perfluorobutyric acid	0.5 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
							Perfluorodecanoic acid	0.5 ug/mL
							Perfluorododecanoic acid	0.5 ug/mL
							Perfluorodecane Sulfonic acid	0.482 ug/mL
							Perfluoroheptanoic acid	0.5 ug/mL
							Perfluoroheptanesulfonic Acid	0.476 ug/mL
							Perfluorohexanoic acid	0.5 ug/mL
							Perfluorohexadecanoic acid	0.5 ug/mL
							Perfluorohexanesulfonic acid	0.455 ug/mL
							Perfluorononanoic acid	0.5 ug/mL
							Perfluorooctanoic acid (PFOA)	0.5 ug/mL
							Perfluorooctadecanoic acid	0.5 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
							Perfluorooctane Sulfonamide	0.5 ug/mL
							Perfluoropentanoic acid	0.5 ug/mL
							Perfluorotetradecanoic acid	0.5 ug/mL
							Perfluorotridecanoic acid	0.5 ug/mL
							Perfluoroundecanoic acid	0.5 ug/mL
...LCPFCSP_00074	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFBA_00005	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00005	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00006	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00009	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00006	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00002	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL

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Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFNA_00006	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00006	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00002	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00008	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00005	200 uL	Perfluoroundecanoic acid	1 ug/mL
....LCPFBA_00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
....LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
....LCPFDA_00005	07/02/20	Wellington Laboratories, Lot PFDA0615			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
....LCPFDoA_00005	01/30/20	Wellington Laboratories, Lot PFDoA0115			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
....LCPFDS_00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
....LCPFHpA_00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
....LCPFHpS_00009	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
....LCPFHxA_00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
....LCPFHxDA_00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
....LCPFHxS-br_00002	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
....LCPFNA_00006	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
....LCPFOA_00006	11/06/20	Wellington Laboratories, Lot PFOA1115			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
....LCPFODA_00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
....LCPFOS-br_00002	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
....LCPFOSA_00008	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
....LCPFPeA_00005	01/30/20	Wellington Laboratories, Lot PFPeA0115			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
....LCPFTeDA_00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
....LCPFTrDA_00005	02/12/21	Wellington Laboratories, Lot 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_00001	06/14/17	02/16/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL

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SDG No.:

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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00007	05/27/21	Wellington Laboratories, Lot M4PFHpA0516			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00009	02/12/21	Wellington Laboratories, Lot MPFUdA0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC2SP_00025	06/28/17	01/30/17	Methanol, Lot 104453	10000 uL	LCPFC2SP_00020	2000 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.0958 ug/mL
							N-ethylperfluoro-1-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_00020	06/28/17	12/28/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL

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SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfonamide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
					LCN-MeFOSA-M_00002	100 uL	MeFOSA	0.5 ug/mL
					LCN-MeFOSAA_00003	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
...LC6:2FTS_00002	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00002	10/23/20	WELLINGTON, Lot 82FTS1015			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00003	05/24/21	WELLINGTON, Lot NEtFOSA0516M			(Purchased Reagent)		N-ethylperfluoro-1-octanesulfonamide	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21	WELLINGTON, Lot NEtFOSAA0116			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21	WELLINGTON, Lot NMeFOSA0714M			(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21	WELLINGTON, Lot NMeFOSAA0116			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00078	06/14/17	01/16/17	Methanol, Lot 090285	10000 uL	LCPFCSP_00075	2000 uL	Perfluorobutyric acid	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid	0.1 ug/mL
							Perfluorododecanoic acid	0.1 ug/mL
							Perfluorodecane Sulfonic acid	0.0964 ug/mL
							Perfluoroheptanoic acid	0.1 ug/mL
							Perfluoroheptanesulfonic Acid	0.0952 ug/mL
							Perfluorohexanoic acid	0.1 ug/mL
							Perfluorohexadecanoic acid	0.1 ug/mL
							Perfluorohexanesulfonic acid	0.091 ug/mL
							Perfluorononanoic acid	0.1 ug/mL
							Perfluorooctanoic acid (PFOA)	0.1 ug/mL
							Perfluorooctadecanoic acid	0.1 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.0928 ug/mL
							Perfluorooctane Sulfonamide	0.1 ug/mL
							Perfluoropentanoic acid	0.1 ug/mL
							Perfluorotetradecanoic acid	0.1 ug/mL
							Perfluorotridecanoic acid	0.1 ug/mL
							Perfluoroundecanoic acid	0.1 ug/mL
..LCPFCSP_00075	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFCSP_00074	5000 uL	Perfluorobutyric acid	0.5 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
							Perfluorodecanoic acid	0.5 ug/mL
							Perfluorododecanoic acid	0.5 ug/mL
							Perfluorodecane Sulfonic acid	0.482 ug/mL
							Perfluoroheptanoic acid	0.5 ug/mL
							Perfluoroheptanesulfonic Acid	0.476 ug/mL

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SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexanoic acid	0.5 ug/mL
							Perfluorohexadecanoic acid	0.5 ug/mL
							Perfluorohexanesulfonic acid	0.455 ug/mL
							Perfluorononanoic acid	0.5 ug/mL
							Perfluorooctanoic acid (PFOA)	0.5 ug/mL
							Perfluorooctadecanoic acid	0.5 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
							Perfluorooctane Sulfonamide	0.5 ug/mL
							Perfluoropentanoic acid	0.5 ug/mL
							Perfluorotetradecanoic acid	0.5 ug/mL
							Perfluorotridecanoic acid	0.5 ug/mL
							Perfluoroundecanoic acid	0.5 ug/mL
...LCPFCSP_00074	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFBA_00005	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00005	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00006	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00009	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00006	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00002	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00006	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00006	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00002	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00008	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00005	200 uL	Perfluoroundecanoic acid	1 ug/mL
....LCPFBA_00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
....LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
....LCPFDA_00005	07/02/20	Wellington Laboratories, Lot PFDA0615			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
....LCPFDoA_00005	01/30/20	Wellington Laboratories, Lot PFDoA0115			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
....LCPFDS_00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
....LCPFHpA_00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
....LCPFHpS_00009	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
....LCPFHxA_00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
....LCPFHxDA_00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
....LCPFHxS-br_00002	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
....LCPFNA_00006	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
....LCPFOA_00006	11/06/20	Wellington Laboratories, Lot PFOA1115			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
....LCPFODA_00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL

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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
....LCPFOSA_00008	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
....LCPFPeA_00005	01/30/20	Wellington Laboratories, Lot PFPeA0115			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
....LCPFTeDA_00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
....LCPFTrDA_00005	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
....LCPFUdA_00005	08/19/20	Wellington Laboratories, Lot PFUdA0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L4_00001	06/14/17	02/16/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							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_00026	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	18.96 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	19.16 ng/mL
							N-ethylperfluoro-1-octanesulfonamide	20 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	20 ng/mL
							MeFOSA	20 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	20 ng/mL
					LCPFCSP_00074	100 uL	Perfluorobutyric acid	20 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	17.68 ng/mL
							Perfluorodecanoic acid	20 ng/mL
							Perfluorododecanoic acid	20 ng/mL
							Perfluorodecane Sulfonic acid	19.28 ng/mL
							Perfluoroheptanoic acid	20 ng/mL
							Perfluoroheptanesulfonic Acid	19.04 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexanoic acid	20 ng/mL
							Perfluorohexadecanoic acid	20 ng/mL
							Perfluorohexanesulfonic acid	18.2 ng/mL
							Perfluorononanoic acid	20 ng/mL
							Perfluorooctanoic acid (PFOA)	20 ng/mL
							Perfluorooctadecanoic acid	20 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	18.56 ng/mL
							Perfluorooctane Sulfonamide	20 ng/mL
							Perfluoropentanoic acid	20 ng/mL
							Perfluorotetradecanoic acid	20 ng/mL
							Perfluorotridecanoic acid	20 ng/mL
							Perfluoroundecanoic acid	20 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M_00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M_00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS_00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M_00004	06/10/21	WELLINGTON, Lot dNEtFOSA0616M			(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M_00003	06/10/21	WELLINGTON, Lot dNMeFOSA0616M			(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA_00003	05/31/21	WELLINGTON, Lot d3NMeFOSAA0516			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00003	08/02/21	WELLINGTON, Lot d5NEtFOSAA0716			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00003	01/08/21	WELLINGTON, Lot M262FTS0116			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00003	01/08/21	WELLINGTON, Lot M282FTS0116			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00007	05/27/21	Wellington Laboratories, Lot M4PFHpA0516			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00009	02/12/21	Wellington Laboratories, Lot MPFUdA0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC2SP_00026	07/30/17	01/30/17	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfonamide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
					LCN-MeFOSA-M_00002	100 uL	MeFOSA	0.5 ug/mL
					LCN-MeFOSAA_00003	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
..LC6:2FTS_00002	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20	WELLINGTON, Lot 82FTS1015			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21	WELLINGTON, Lot NEtFOSA0516M			(Purchased Reagent)		N-ethylperfluoro-1-octanesulfonamide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21	WELLINGTON, Lot NEtFOSAA0116			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21	WELLINGTON, Lot NMeFOSA0714M			(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21	WELLINGTON, Lot NMeFOSAA0116			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00074	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFBA_00005	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00005	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00006	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00009	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00006	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00002	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00006	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00006	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00002	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00008	200 uL	Perfluorooctane Sulfonamide	1 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00005	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCPFBA_00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00005	07/02/20	Wellington Laboratories, Lot PFDA0615			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00005	01/30/20	Wellington Laboratories, Lot PFDoA0115			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFDS_00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA_00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHpS_00009	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00002	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00006	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00006	11/06/20	Wellington Laboratories, Lot PFOA1115			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00002	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00008	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
..LCPFPeA_00005	01/30/20	Wellington Laboratories, Lot PFPeA0115			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
..LCPFTeDA_00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00005	02/12/21	Wellington Laboratories, Lot 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_00001	06/14/17	02/16/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00026	500 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ng/mL

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

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 (8:2)	47.9 ng/mL
							N-ethylperfluoro-1-octanesulfonamide	50 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	50 ng/mL
							MeFOSA	50 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	50 ng/mL
					LCPFCSP_00074	250 uL	Perfluorobutyric acid	50 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	44.2 ng/mL
							Perfluorodecanoic acid	50 ng/mL
							Perfluorododecanoic acid	50 ng/mL
							Perfluorodecane Sulfonic acid	48.2 ng/mL
							Perfluoroheptanoic acid	50 ng/mL
							Perfluoroheptanesulfonic Acid	47.6 ng/mL
							Perfluorohexanoic acid	50 ng/mL
							Perfluorohexadecanoic acid	50 ng/mL
							Perfluorohexanesulfonic acid	45.5 ng/mL
							Perfluorononanoic acid	50 ng/mL
							Perfluorooctanoic acid (PFOA)	50 ng/mL
							Perfluorooctadecanoic acid	50 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	46.4 ng/mL
							Perfluorooctane Sulfonamide	50 ng/mL
							Perfluoropentanoic acid	50 ng/mL
							Perfluorotetradecanoic acid	50 ng/mL
							Perfluorotridecanoic acid	50 ng/mL
							Perfluoroundecanoic acid	50 ng/mL
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M_00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
					LCd-NMeFOSA-M_00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS_00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M_00004	06/10/21	WELLINGTON, Lot dNEtFOSA0616M			(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M_00003	06/10/21	WELLINGTON, Lot dNMeFOSA0616M			(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA_00003	05/31/21	WELLINGTON, Lot d3NMeFOSAA0516			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00003	08/02/21	WELLINGTON, Lot d5NEtFOSAA0716			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00003	01/08/21	WELLINGTON, Lot M262FTS0116			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00003	01/08/21	WELLINGTON, Lot M282FTS0116			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

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_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00007	05/27/21	Wellington Laboratories, Lot M4PFHpA0516			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00009	02/12/21	Wellington Laboratories, Lot MPFUdA0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC2SP_00026	07/30/17	01/30/17	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfonamide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
					LCN-MeFOSA-M_00002	100 uL	MeFOSA	0.5 ug/mL
					LCN-MeFOSAA_00003	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
..LC6:2FTS_00002	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20	WELLINGTON, Lot 82FTS1015			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21	WELLINGTON, Lot NEtFOSA0516M			(Purchased Reagent)		N-ethylperfluoro-1-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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCPFCSP_00074	06/14/17	12/14/16	Methanol, Lot 090285	10000 uL	LCPFBA_00005	200 uL	Perfluorobutyric acid	1 ug/mL
					LCPFBS_00005	200 uL	Perfluorobutanesulfonic acid (PFBS)	0.884 ug/mL
					LCPFDA_00005	200 uL	Perfluorodecanoic acid	1 ug/mL
					LCPFDoA_00005	200 uL	Perfluorododecanoic acid	1 ug/mL
					LCPFDS_00006	200 uL	Perfluorodecane Sulfonic acid	0.964 ug/mL
					LCPFHpA_00006	200 uL	Perfluoroheptanoic acid	1 ug/mL
					LCPFHpS_00009	200 uL	Perfluoroheptanesulfonic Acid	0.952 ug/mL
					LCPFHxA_00005	200 uL	Perfluorohexanoic acid	1 ug/mL
					LCPFHxDA_00006	200 uL	Perfluorohexadecanoic acid	1 ug/mL
					LCPFHxS-br_00002	200 uL	Perfluorohexanesulfonic acid	0.91 ug/mL
					LCPFNA_00006	200 uL	Perfluorononanoic acid	1 ug/mL
					LCPFOA_00006	200 uL	Perfluorooctanoic acid (PFOA)	1 ug/mL
					LCPFODA_00006	200 uL	Perfluorooctadecanoic acid	1 ug/mL
					LCPFOS-br_00002	200 uL	Perfluorooctanesulfonic acid (PFOS)	0.928 ug/mL
					LCPFOSA_00008	200 uL	Perfluorooctane Sulfonamide	1 ug/mL
					LCPFPeA_00005	200 uL	Perfluoropentanoic acid	1 ug/mL
					LCPFTeDA_00005	200 uL	Perfluorotetradecanoic acid	1 ug/mL
					LCPFTrDA_00005	200 uL	Perfluorotridecanoic acid	1 ug/mL
					LCPFUdA_00005	200 uL	Perfluoroundecanoic acid	1 ug/mL
..LCPFBA_00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00005	07/02/20	Wellington Laboratories, Lot PFDA0615			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00005	01/30/20	Wellington Laboratories, Lot PFDoA0115			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFDS_00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA_00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHpS_00009	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
..LCPFHxS-br_00002	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexanesulfonic acid	45.5 ug/mL
..LCPFNA_00006	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
..LCPFOA_00006	11/06/20	Wellington Laboratories, Lot PFOA1115			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00002	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00008	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
..LCPFPeA_00005	01/30/20	Wellington Laboratories, Lot PFPeA0115			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
..LCPFTeDA_00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00005	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00005	08/19/20	Wellington Laboratories, Lot PFUdA0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L6_00002	06/14/17	02/24/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00027	1000 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	189.6 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	191.6 ng/mL
							N-ethylperfluoro-1-octanesulfonamide	200 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	200 ng/mL
							MeFOSA	200 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	200 ng/mL
					LCPFCSP_00080	2000 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_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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCd-NMeFOSA-M_00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA_00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NEtFOSAA_00003	1000 uL	d5-NEtFOSAA	1 ug/mL
					LCM2-6:FTS_00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS_00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NEtFOSA-M_00004	06/10/21	WELLINGTON, Lot dNEtFOSA0616M			(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M_00003	06/10/21	WELLINGTON, Lot dNMeFOSA0616M			(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA_00003	05/31/21	WELLINGTON, Lot d3NMeFOSAA0516			(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NEtFOSAA_00003	08/02/21	WELLINGTON, Lot d5NEtFOSAA0716			(Purchased Reagent)		d5-NEtFOSAA	50 ug/mL
..LCM2-6:FTS_00003	01/08/21	WELLINGTON, Lot M262FTS0116			(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS_00003	01/08/21	WELLINGTON, Lot M282FTS0116			(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
.LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA_00007	1000 uL	13C4-PFHpA	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112			(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115			(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA_00007	05/27/21	Wellington Laboratories, Lot M4PFHpA0516			(Purchased Reagent)		13C4-PFHpA	50 ug/mL
..LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00009	02/12/21	Wellington Laboratories, Lot MPFUdA0216			(Purchased Reagent)		13C2 PFUnA	50 ug/mL
.LCPFC2SP_00027	08/24/17	02/24/17	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfonamide	1 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCN-EtFOSAA_00002	200 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
					LCN-MeFOSA-M_00002	200 uL	MeFOSA	1 ug/mL
					LCN-MeFOSAA_00003	200 uL	N-methyl perfluorooctane sulfonamidoacetic acid	1 ug/mL
..LC6:2FTS_00002	06/25/21	WELLINGTON, Lot 62FTS0616			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
..LC8:2FTS_00002	10/23/20	WELLINGTON, Lot 82FTS1015			(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
..LCN-EtFOSA-M_00003	05/24/21	WELLINGTON, Lot NEtFOSA0516M			(Purchased Reagent)		N-ethylperfluoro-1-octanesulfonamide	50 ug/mL
..LCN-EtFOSAA_00002	01/20/21	WELLINGTON, Lot NEtFOSAA0116			(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
..LCN-MeFOSA-M_00002	05/24/21	WELLINGTON, Lot NMeFOSA0714M			(Purchased Reagent)		MeFOSA	50 ug/mL
..LCN-MeFOSAA_00003	01/20/21	WELLINGTON, Lot NMeFOSAA0116			(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00080	08/01/17	02/01/17	Methanol, Lot 090285	10000 uL	LCPFBA_00005	100 uL	Perfluorobutyric acid	0.5 ug/mL
					LCPFBS_00005	100 uL	Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFDA_00005	100 uL	Perfluorodecanoic acid	0.5 ug/mL
					LCPFDoA_00005	100 uL	Perfluorododecanoic acid	0.5 ug/mL
					LCPFDS_00006	100 uL	Perfluorodecane Sulfonic acid	0.482 ug/mL
					LCPFHpA_00006	100 uL	Perfluoroheptanoic acid	0.5 ug/mL
					LCPFHpS_00009	100 uL	Perfluoroheptanesulfonic Acid	0.476 ug/mL
					LCPFHxA_00005	100 uL	Perfluorohexanoic acid	0.5 ug/mL
					LCPFHxDA_00006	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL
					LCPFHxS-br_00002	100 uL	Perfluorohexanesulfonic acid	0.455 ug/mL
					LCPFNA_00006	100 uL	Perfluorononanoic acid	0.5 ug/mL
					LCPFOA_00006	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFODA_00006	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
					LCPFOSA_00008	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL
					LCPFPeA_00005	100 uL	Perfluoropentanoic acid	0.5 ug/mL
					LCPFTeDA_00005	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL
					LCPFTrDA_00005	100 uL	Perfluorotridecanoic acid	0.5 ug/mL
					LCPFUdA_00005	100 uL	Perfluoroundecanoic acid	0.5 ug/mL
..LCPFBA_00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
..LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
..LCPFDA_00005	07/02/20	Wellington Laboratories, Lot PFDA0615			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
..LCPFDoA_00005	01/30/20	Wellington Laboratories, Lot PFDoA0115			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
..LCPFDS_00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonic acid	48.2 ug/mL
..LCPFHpA_00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
..LCPFHpS_00009	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptanesulfonic Acid	47.6 ug/mL
..LCPFHxA_00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
..LCPFHxDA_00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

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_00006	11/06/20	Wellington Laboratories, Lot PFOA1115			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
..LCPFODA_00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
..LCPFOS-br_00002	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
..LCPFOSA_00008	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
..LCPFPeA_00005	01/30/20	Wellington Laboratories, Lot PFPeA0115			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
..LCPFTeDA_00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
..LCPFTrDA_00005	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00005	08/19/20	Wellington Laboratories, Lot PFUdA0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFCIC_FULL_00001	06/01/17	02/16/17	MeOH/H2O, Lot 09285	5 mL	LCMPFCSU_00047	250 uL	13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
					LCPFACMXB_00007	125 uL	Perfluorooctanesulfonic acid (PFOS)	47.75 ng/mL
							Perfluorooctanoic acid (PFOA)	50 ng/mL
.LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
..LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LCPFACMXB_00007	11/06/20	Wellington Laboratories, Lot PFACMXB1115			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	1.91 ug/mL
							Perfluorooctanoic acid (PFOA)	2 ug/mL
LCPFCSP_00080	08/01/17	02/01/17	Methanol, Lot 090285	10000 uL	LCPFBA_00005	100 uL	Perfluorobutyric acid	0.5 ug/mL
					LCPFBS_00005	100 uL	Perfluorobutane Sulfonate	0.442 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.442 ug/mL
					LCPFDA_00005	100 uL	Perfluorodecanoic acid	0.5 ug/mL
					LCPFDoA_00005	100 uL	Perfluorododecanoic acid	0.5 ug/mL
					LCPFDS_00006	100 uL	Perfluorodecane Sulfonate	0.482 ug/mL
							Perfluorodecane Sulfonic acid	0.482 ug/mL
					LCPFHpA_00006	100 uL	Perfluoroheptanoic acid	0.5 ug/mL
					LCPFHpS_00009	100 uL	Perfluoroheptane Sulfonate	0.476 ug/mL
							Perfluoroheptanesulfonic Acid	0.476 ug/mL
					LCPFHxA_00005	100 uL	Perfluorohexanoic acid	0.5 ug/mL
					LCPFHxDA_00006	100 uL	Perfluorohexadecanoic acid	0.5 ug/mL
					LCPFHxS-br_00002	100 uL	Perfluorohexane Sulfonate	0.455 ug/mL
							Perfluorohexanesulfonic acid	0.455 ug/mL
					LCPFNA_00006	100 uL	Perfluorononanoic acid	0.5 ug/mL
					LCPFOA_00006	100 uL	Perfluorooctanoic acid (PFOA)	0.5 ug/mL
					LCPFODA_00006	100 uL	Perfluorooctadecanoic acid	0.5 ug/mL
					LCPFOS-br_00002	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.464 ug/mL
					LCPFOSA_00008	100 uL	Perfluorooctane Sulfonamide	0.5 ug/mL
					LCPFPeA_00005	100 uL	Perfluoropentanoic acid	0.5 ug/mL
					LCPFTeDA_00005	100 uL	Perfluorotetradecanoic acid	0.5 ug/mL
					LCPFTrDA_00005	100 uL	Perfluorotridecanoic acid	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFUdA_00005	100 uL	Perfluoroundecanoic acid	0.5 ug/mL
.LCPFBA_00005	05/27/21	Wellington Laboratories, Lot PFBA0516			(Purchased Reagent)		Perfluorobutyric acid	50 ug/mL
.LCPFBS_00005	03/15/21	Wellington Laboratories, Lot LPFBS0316			(Purchased Reagent)		Perfluorobutane Sulfonate	44.2 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	44.2 ug/mL
.LCPFDA_00005	07/02/20	Wellington Laboratories, Lot PFDA0615			(Purchased Reagent)		Perfluorodecanoic acid	50 ug/mL
.LCPFDoA_00005	01/30/20	Wellington Laboratories, Lot PFDoA0115			(Purchased Reagent)		Perfluorododecanoic acid	50 ug/mL
.LCPFDS_00006	05/24/21	Wellington Laboratories, Lot LPFDS0516			(Purchased Reagent)		Perfluorodecane Sulfonate	48.2 ug/mL
							Perfluorodecane Sulfonic acid	48.2 ug/mL
.LCPFHpA_00006	01/22/21	Wellington Laboratories, Lot PFHpA0116			(Purchased Reagent)		Perfluoroheptanoic acid	50 ug/mL
.LCPFHpS_00009	11/06/20	Wellington Laboratories, Lot LPFHpS1115			(Purchased Reagent)		Perfluoroheptane Sulfonate	47.6 ug/mL
							Perfluoroheptanesulfonic Acid	47.6 ug/mL
.LCPFHxA_00005	12/22/20	Wellington Laboratories, Lot PFHxA1215			(Purchased Reagent)		Perfluorohexanoic acid	50 ug/mL
.LCPFHxDA_00006	05/25/21	Wellington Laboratories, Lot PFHxDA0516			(Purchased Reagent)		Perfluorohexadecanoic acid	50 ug/mL
.LCPFHxS-br_00002	07/03/20	Wellington Laboratories, Lot brPFHxSK0615			(Purchased Reagent)		Perfluorohexane Sulfonate	45.5 ug/mL
							Perfluorohexanesulfonic acid	45.5 ug/mL
.LCPFNA_00006	10/23/20	Wellington Laboratories, Lot PFNA1015			(Purchased Reagent)		Perfluorononanoic acid	50 ug/mL
.LCPFOA_00006	11/06/20	Wellington Laboratories, Lot PFOA1115			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	50 ug/mL
.LCPFODA_00006	04/29/21	Wellington Laboratories, Lot PFODA0416			(Purchased Reagent)		Perfluorooctadecanoic acid	50 ug/mL
.LCPFOS-br_00002	10/14/20	Wellington Laboratories, Lot brPFOSK1015			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
.LCPFOSA_00008	09/02/17	Wellington Laboratories, Lot FOSA0815I			(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
.LCPFPeA_00005	01/30/20	Wellington Laboratories, Lot PFPeA0115			(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
.LCPFTeDA_00005	12/09/20	Wellington Laboratories, Lot PFTeDA1215			(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
.LCPFTrDA_00005	02/12/21	Wellington Laboratories, Lot PFTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
.LCPFUdA_00005	08/19/20	Wellington Laboratories, Lot PFUdA0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL

Reagent

LC6:2FTS_00002

R: 8/23/16 SBC

715544
ID: LC6:2FTS_00002
Exp: 06/25/21 Prpd: SBC
6:2FTS

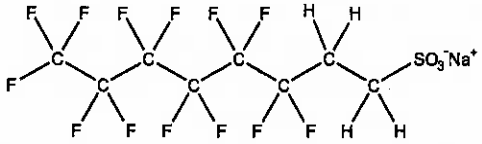
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 6:2FTS **LOT NUMBER:** 62FTS0616

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

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_8H_4F_{13}SO_3Na$		**MOLECULAR WEIGHT:**	450.15
CONCENTRATION:	50.0 ± 2.5 µg/ml	(Na salt)	**SOLVENT(S):**	Methanol
	47.4 ± 2.4 µg/ml	(6:2FTS anion)		
CHEMICAL PURITY:	>98%			
LAST TESTED: (mm/dd/yyyy)	06/25/2016			
EXPIRY DATE: (mm/dd/yyyy)	06/25/2021			
RECOMMENDED STORAGE:	Refrigerate ampoule			

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 06/29/2016 (mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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 ±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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CALA Testing

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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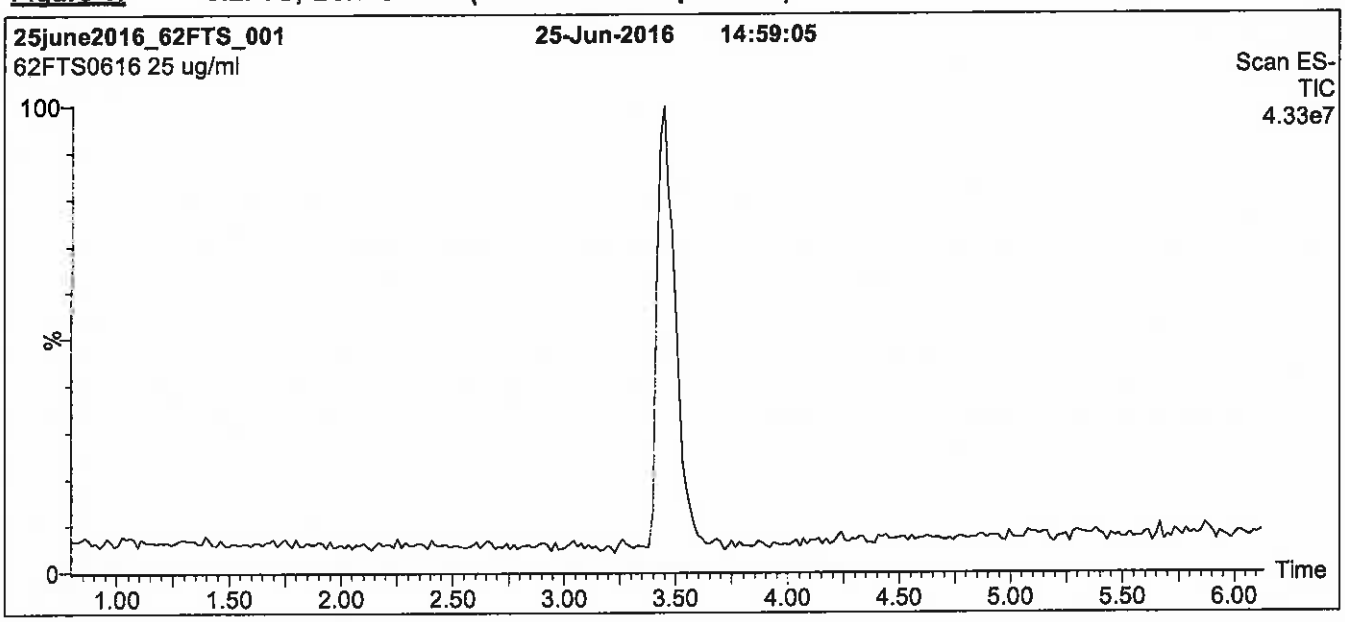
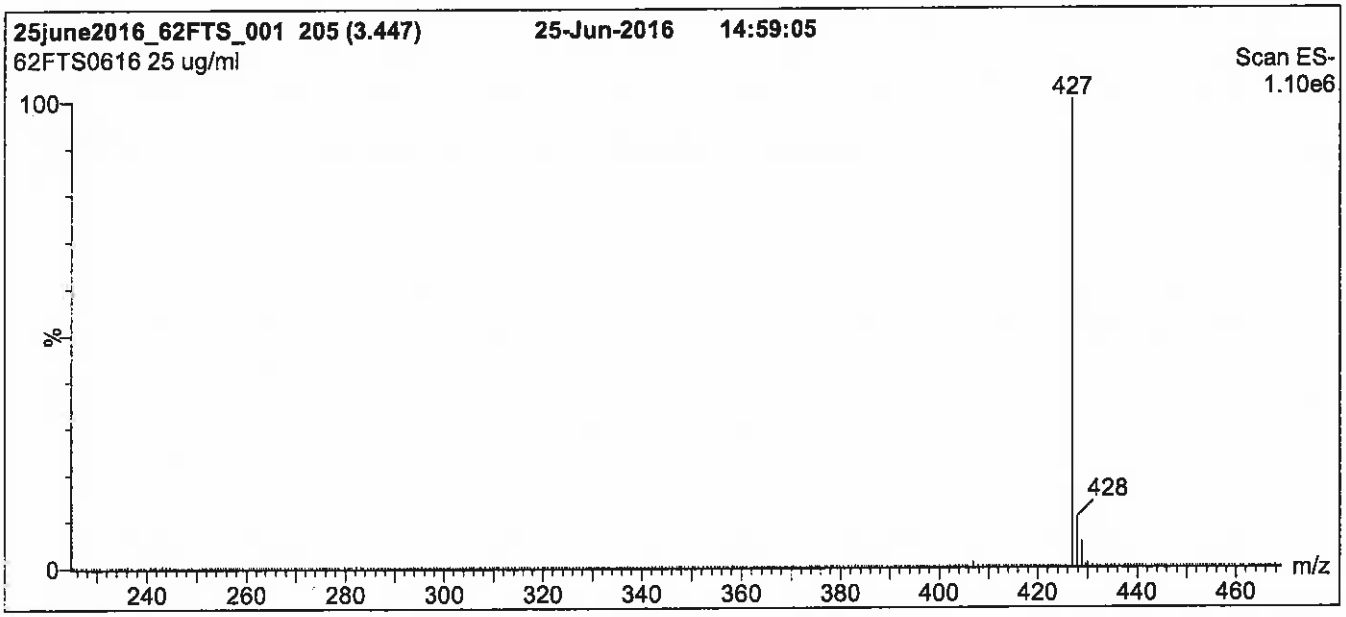
Figure 1: **6:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

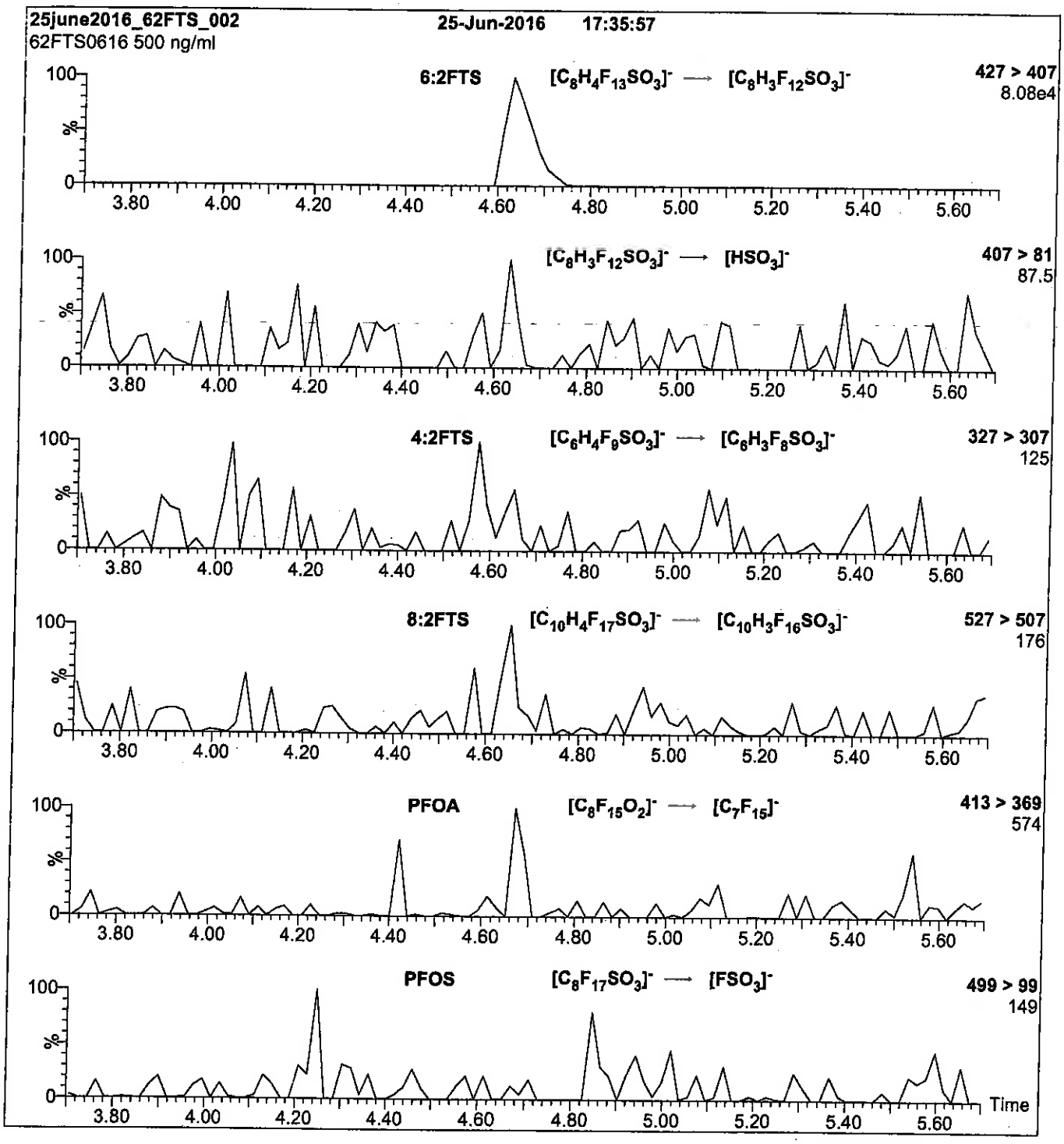
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (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 µl (500 ng/ml 6:2FTS)

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

Flow: 300 µl/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 Prpd: SBC
8:2FTS

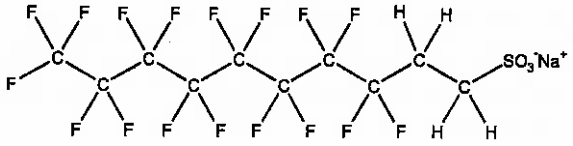
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 8:2FTS **LOT NUMBER:** 82FTS1015

COMPOUND: Sodium 1H,1H,2H,2H-perfluorodecane sulfonate

STRUCTURE: **CAS #:** Not available



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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/27/2015 (mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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CALA

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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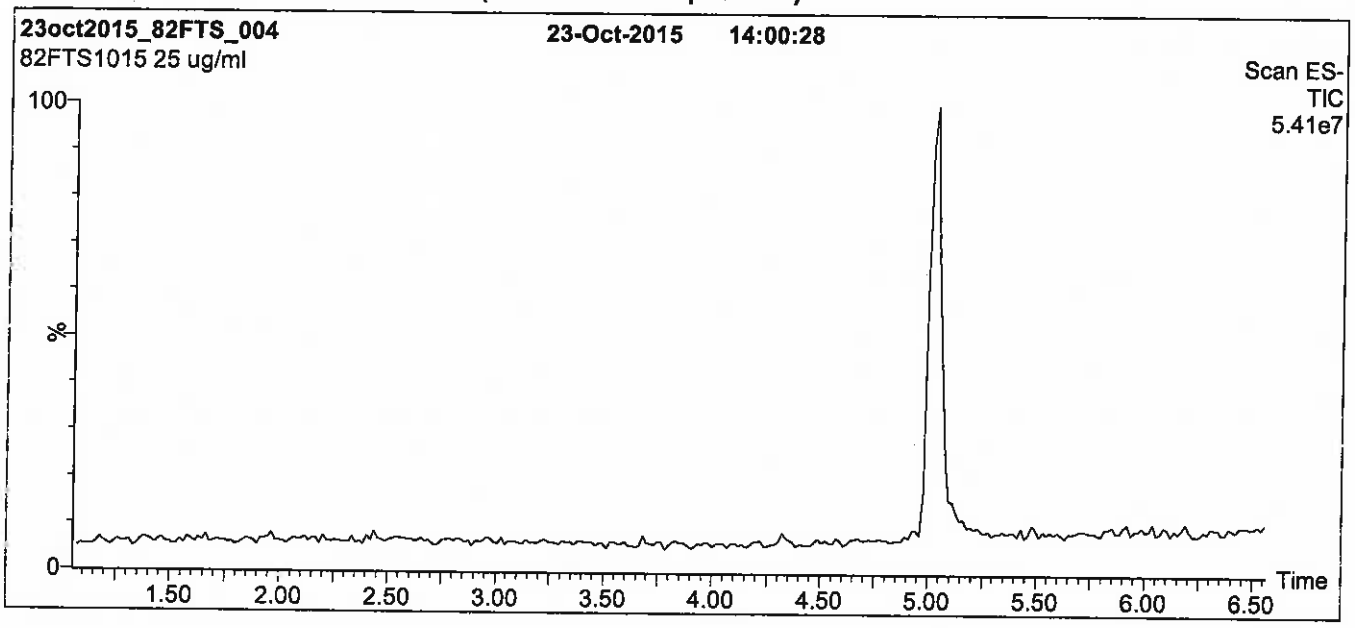
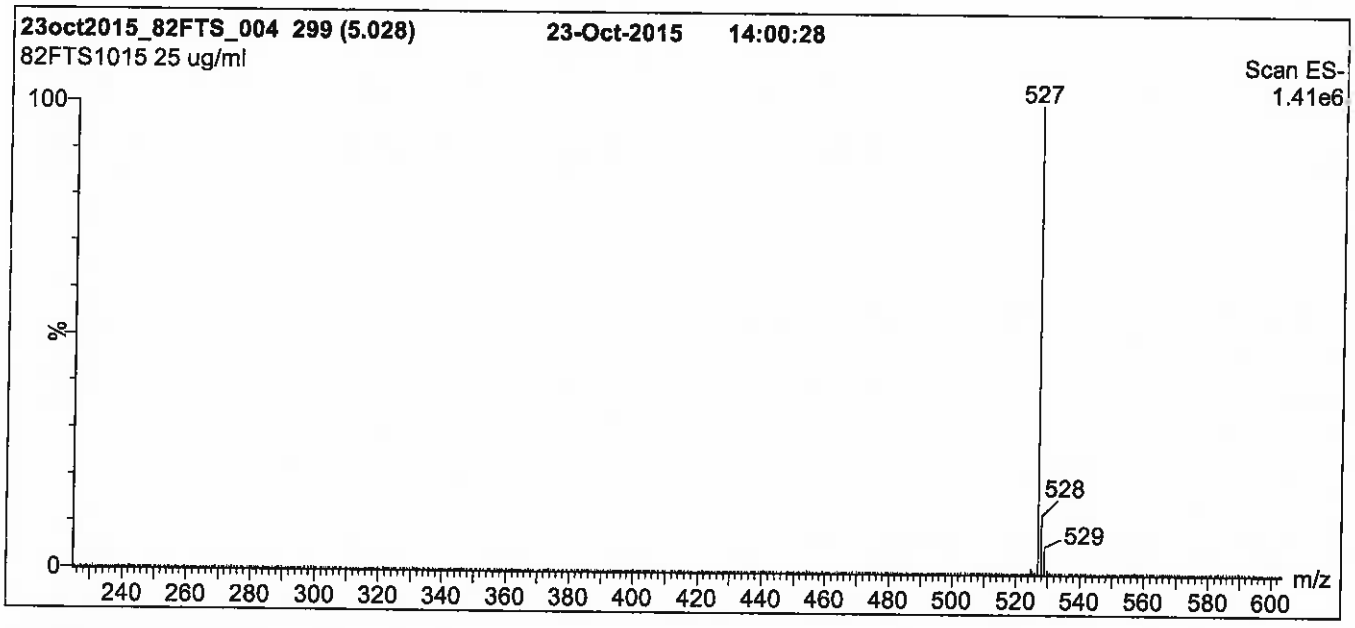




Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min.
Return to Initial conditions in 0.5 min.
Time: 10 min

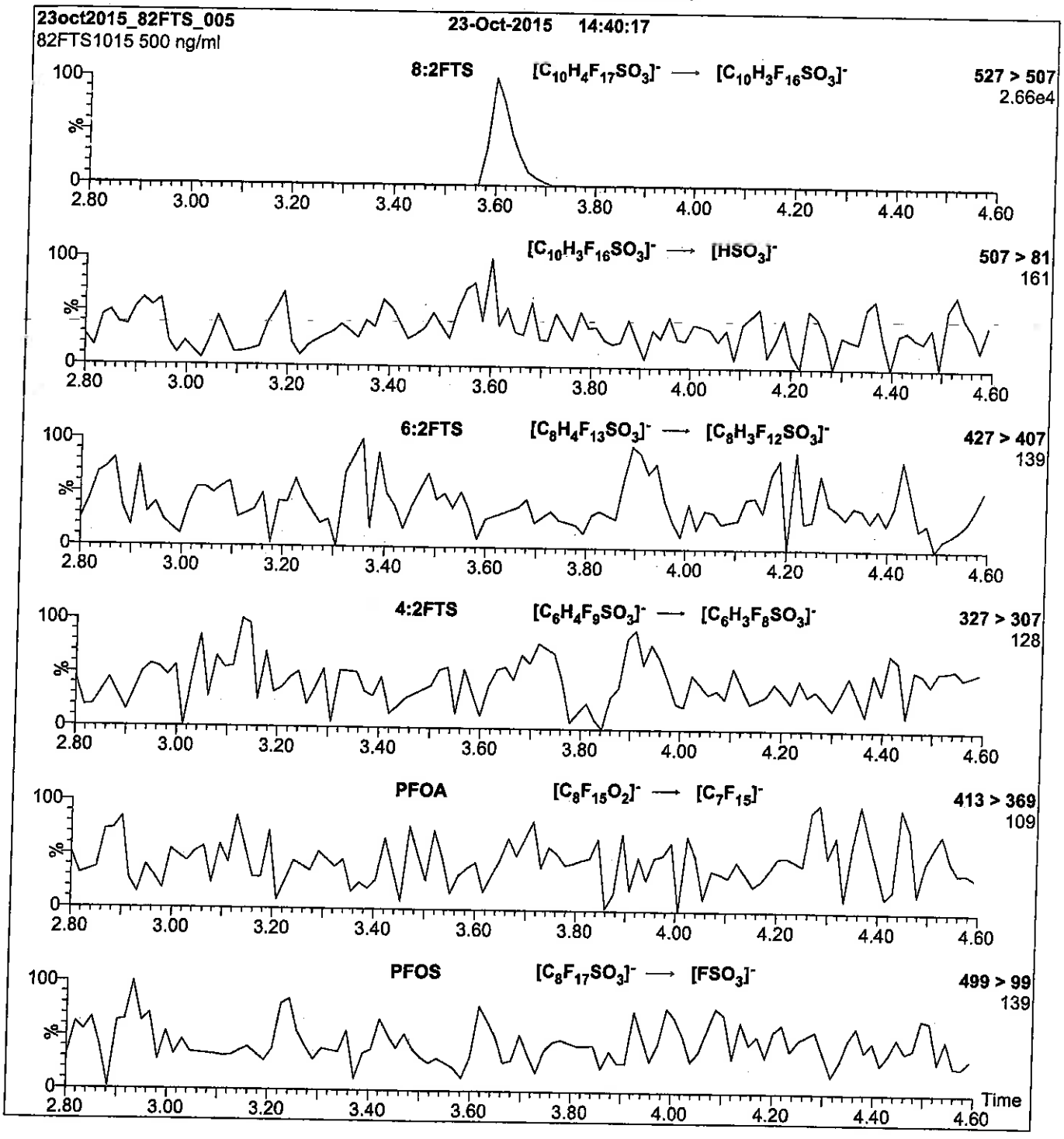
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCd-NMeFOSA-M_00003

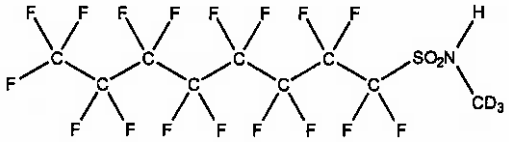
R: 9/9/16 SBC

728303
ID: LCd-NMeFOSA-M_00003
Exp: 06/10/21 Prpd: SBC
d-N-MeFOSA-M

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	d-N-MeFOSA-M	**LOT NUMBER:**	dNMeFOSA0616M
COMPOUND:	N-methyl-d_3-perfluoro-1-octanesulfonamide		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$C_9D_3HF_{17}NO_2S$	**MOLECULAR WEIGHT:**	516.19
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_3$
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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CALA

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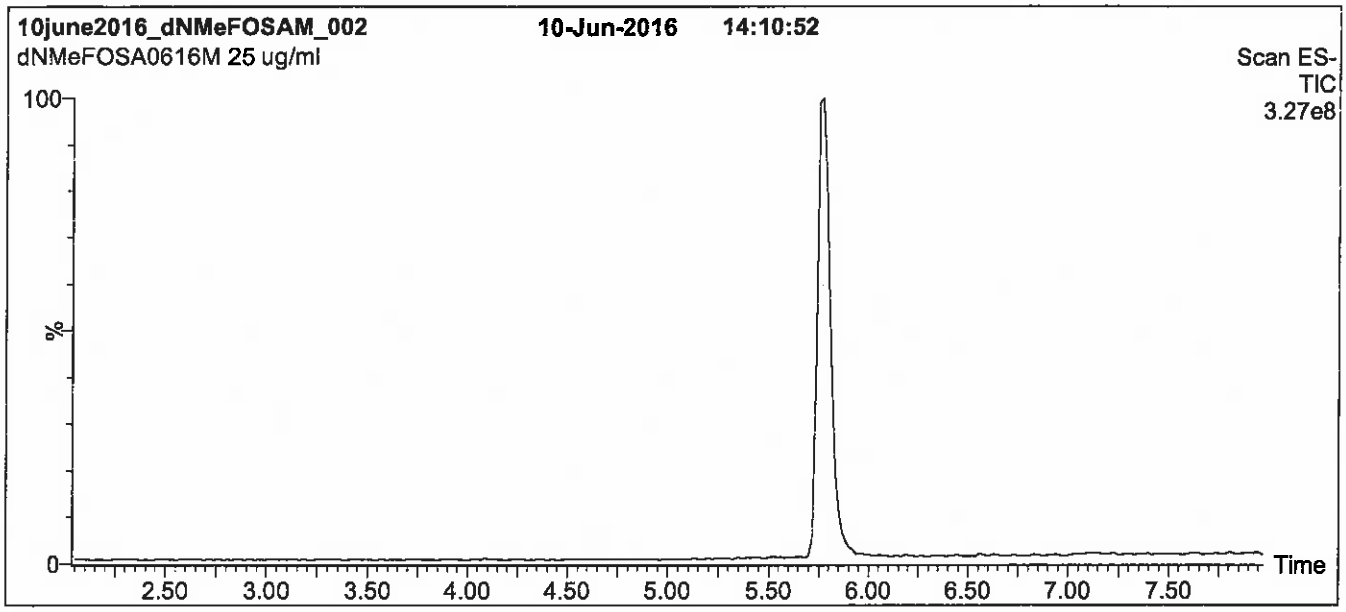
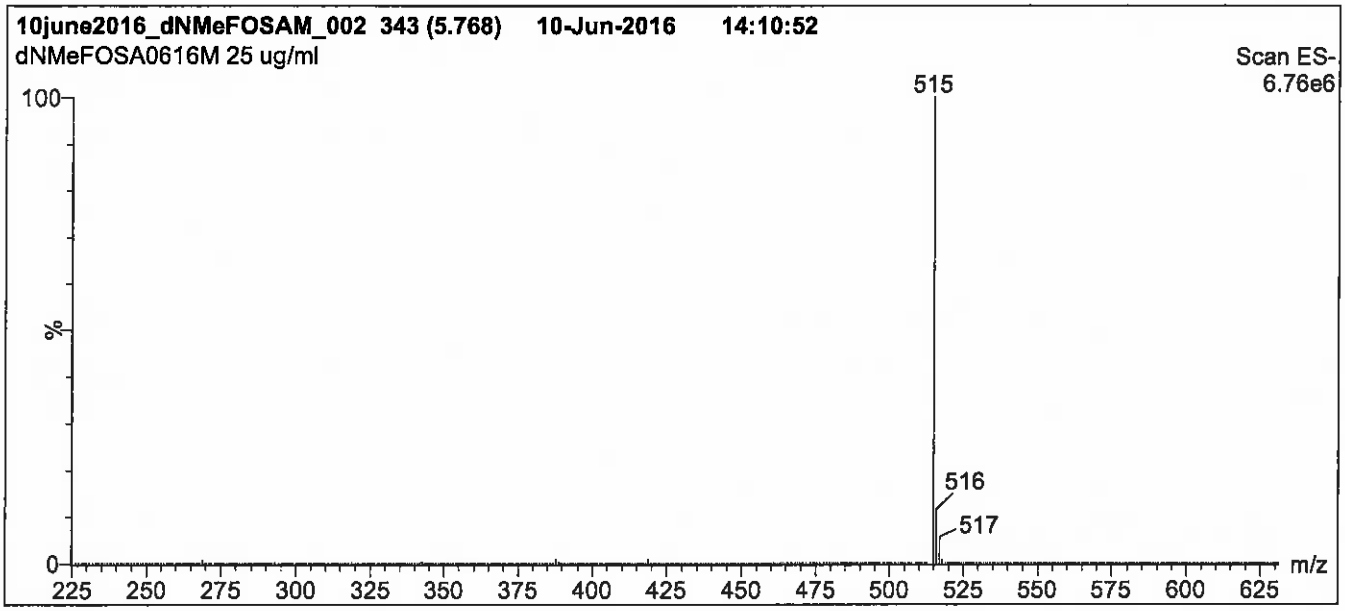
Figure 1: **d-N-MeFOSA-M; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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MS: **Micromass Quattro *micro* API MS**

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Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H_2O / 60% (80:20 MeOH:ACN)
(both with 10mM NH_4OAc 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

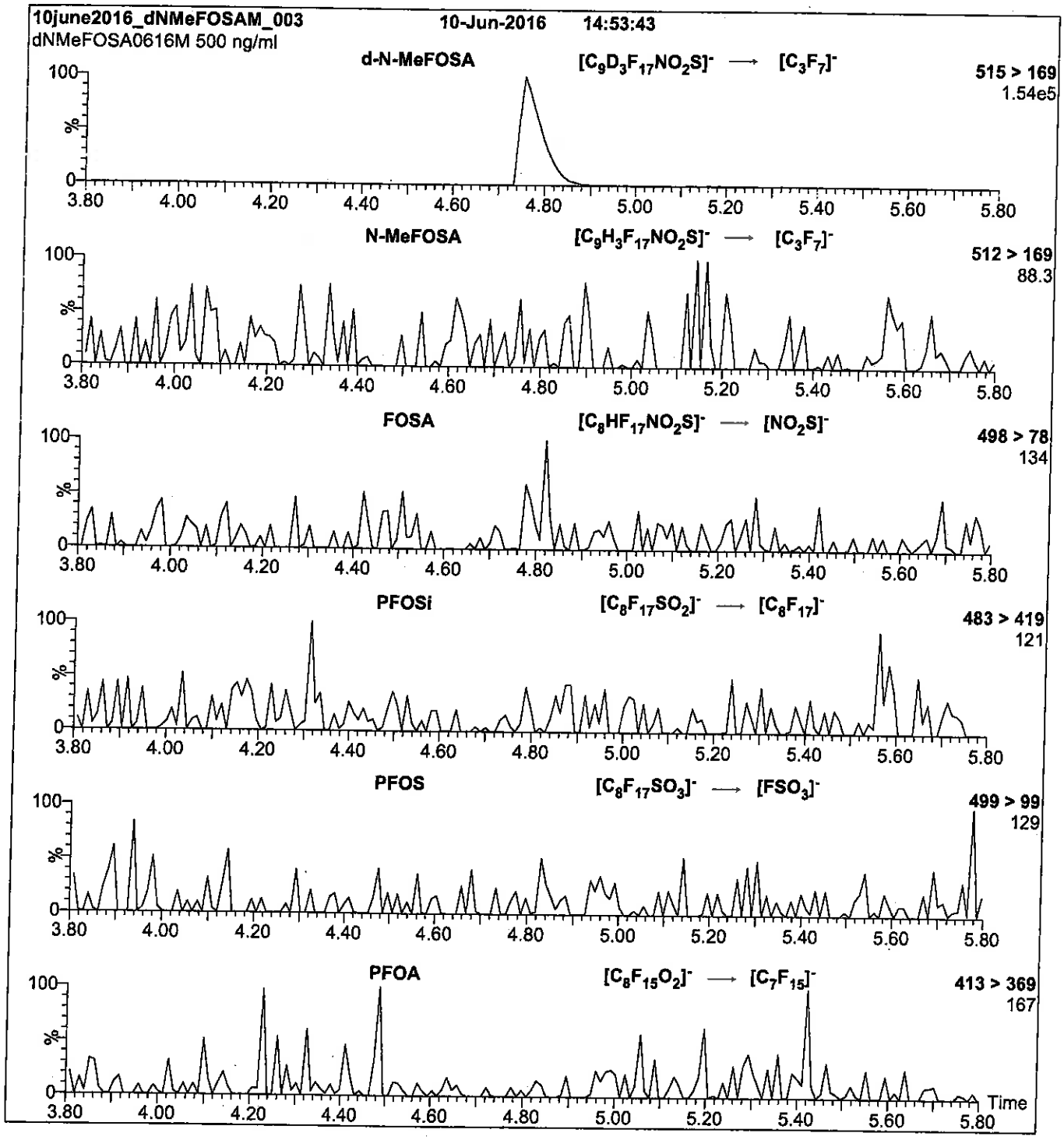
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (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 µl (500 ng/ml d-N-MeFOSA-M)

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCd3-NMeFOSAA_00003

R: 9/9/16 SBC

7283C0
ID: LCd3-NMeFOSAA_00003
Exp: 05/31/21 Prpd: SBC
d3-N-MeFOSAA

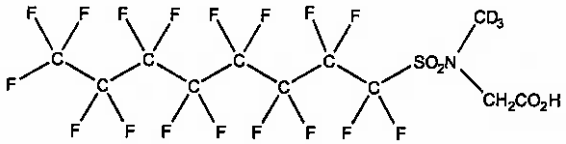
WELLINGTON LABORATORIES

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:	$C_{11}D_3H_3F_{17}NO_4S$	**MOLECULAR WEIGHT:**	574.23
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_3$
LAST TESTED: (mm/dd/yyyy)	05/31/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2021		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

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CALA

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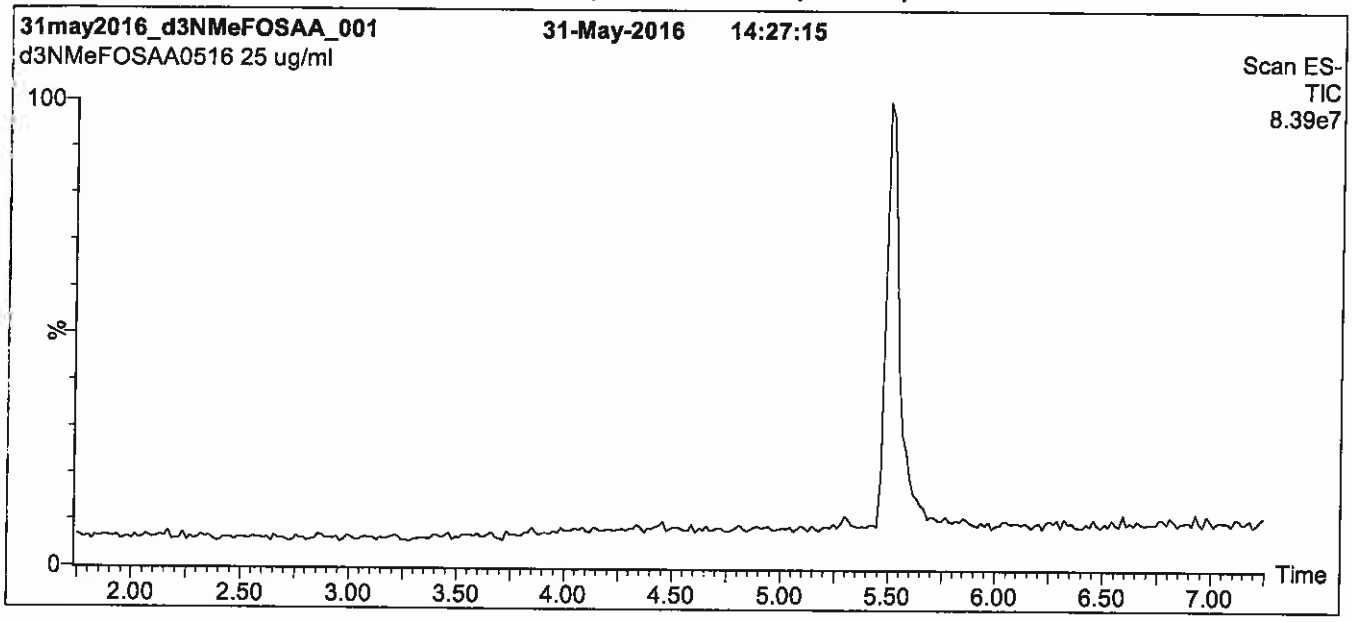
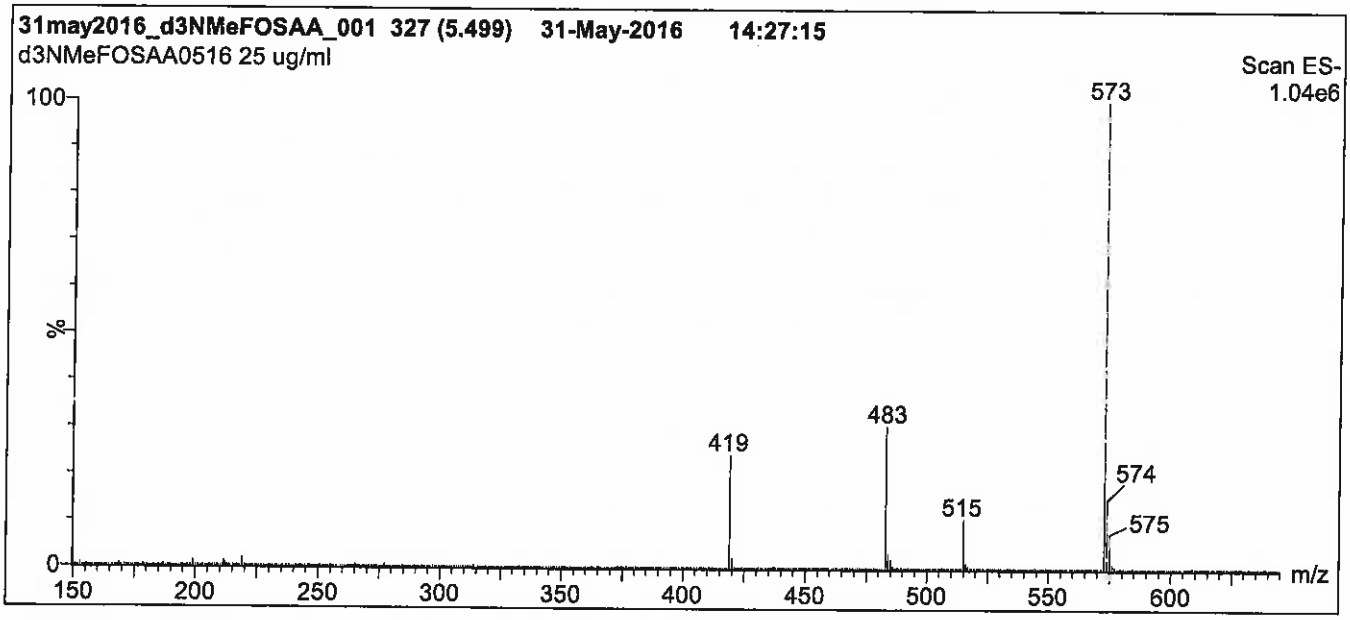
Figure 1: **d3-N-MeFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

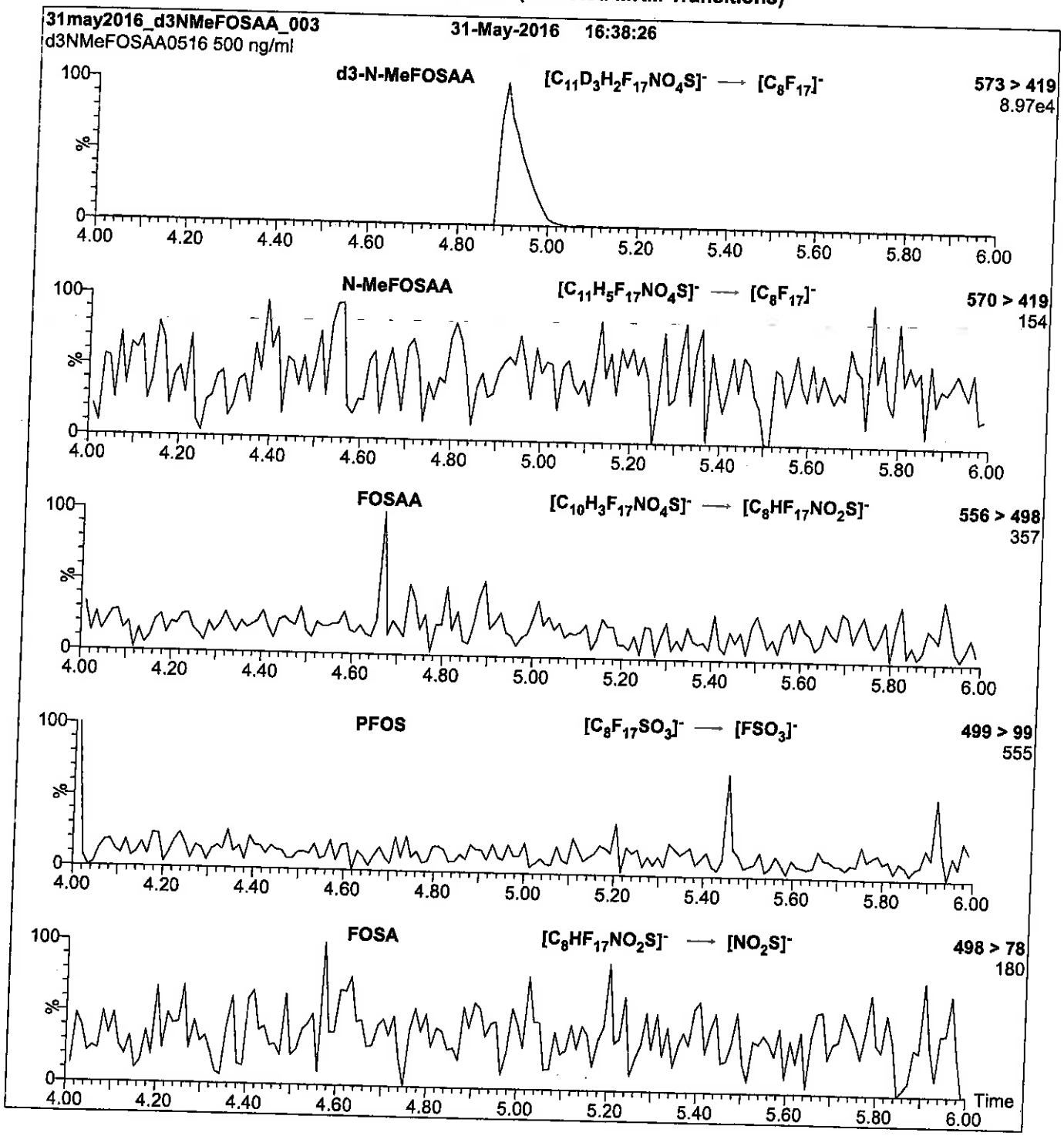
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml d3-N-MeFOSAA)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

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

Reagent

LCd5-NEtFOSAA_00003

R: 9/9/16 SBC

728301
ID: LCd5-NEtFOSAA_00003
Exp: 08/02/21 Prpd: SBC
d5-N-EtFOSAA

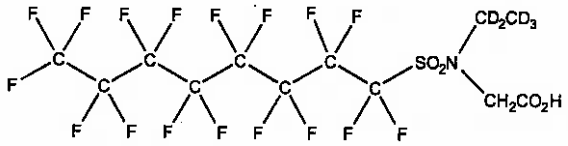
WELLINGTON LABORATORIES

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:	$C_{12}D_5H_3F_{17}NO_4S$	**MOLECULAR WEIGHT:**	590.26
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_5$
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.

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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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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 ±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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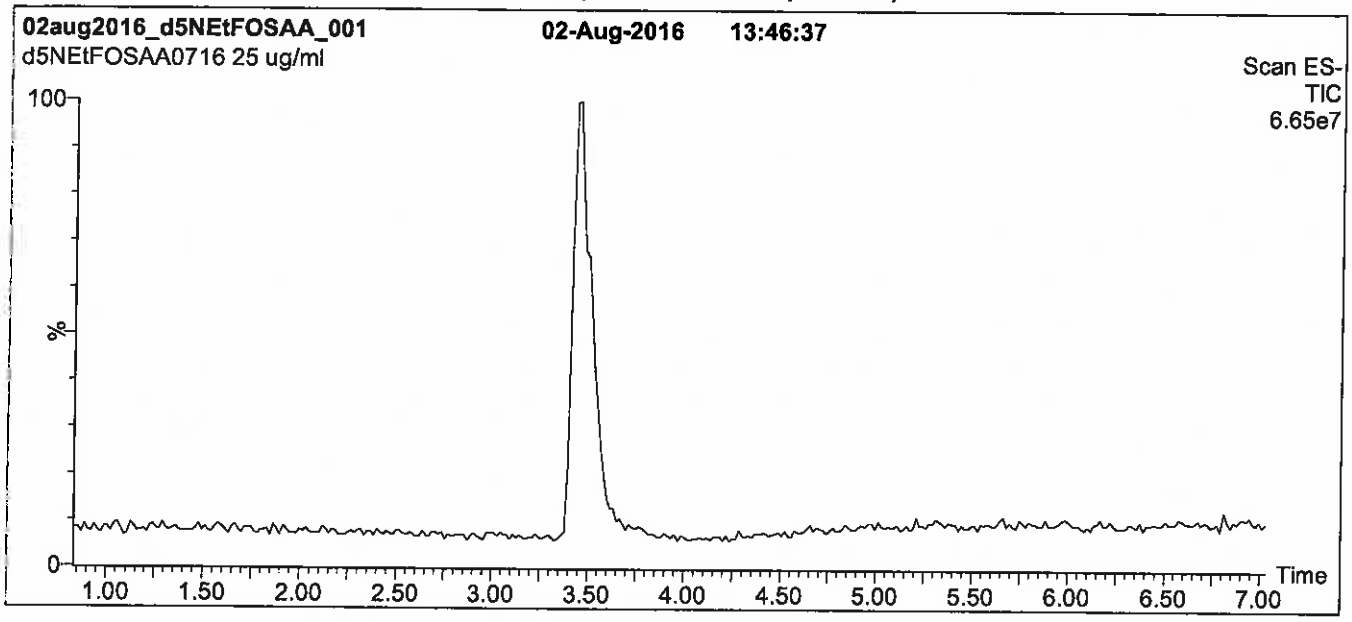

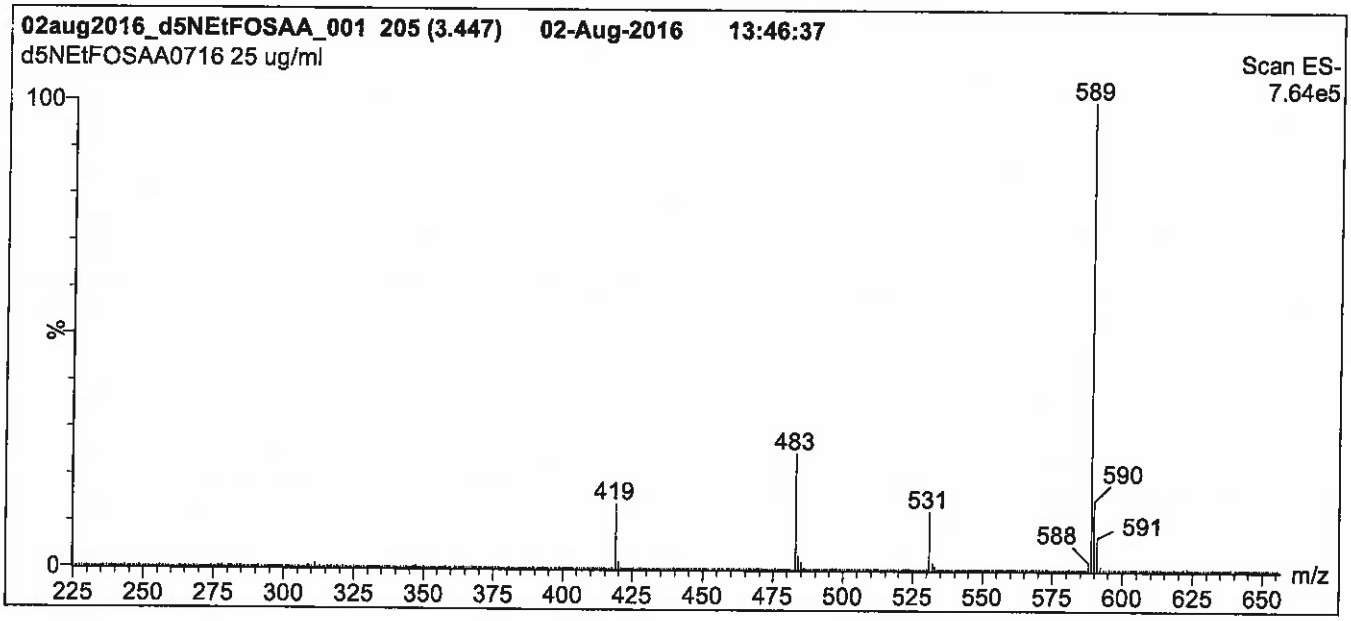

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Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc 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

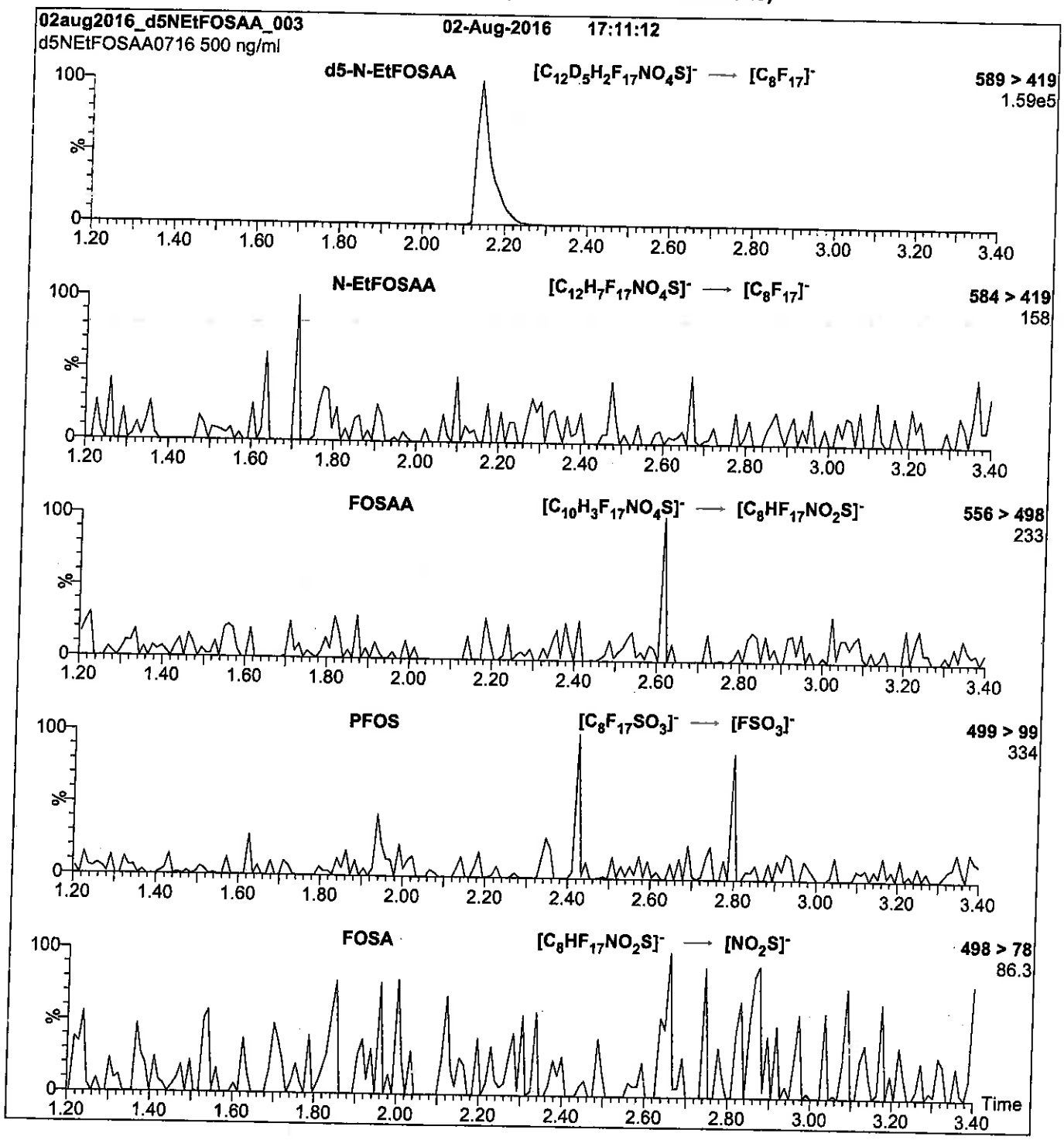
Flow: 350 µl/min

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 µl (500 ng/ml d5-N-EtFOSAA)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

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

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

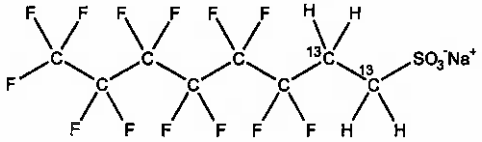
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-6:2FTS **LOT NUMBER:** M262FTS0116

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]octane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**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% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	01/08/2016		
EXPIRY DATE: (mm/dd/yyyy)	01/08/2021		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The native 6:2FTS contains 4.22% of ^{34}S (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).

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Certified By: B.G. Chittim **Date:** 01/11/2016 (mm/dd/yyyy)

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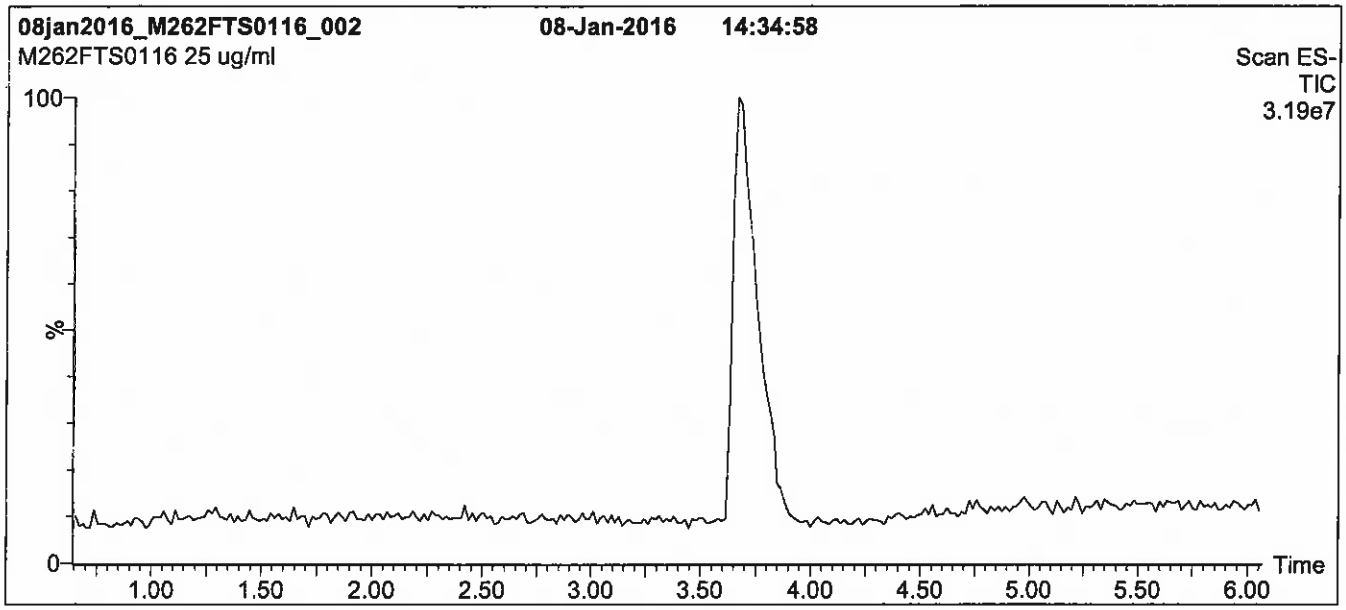
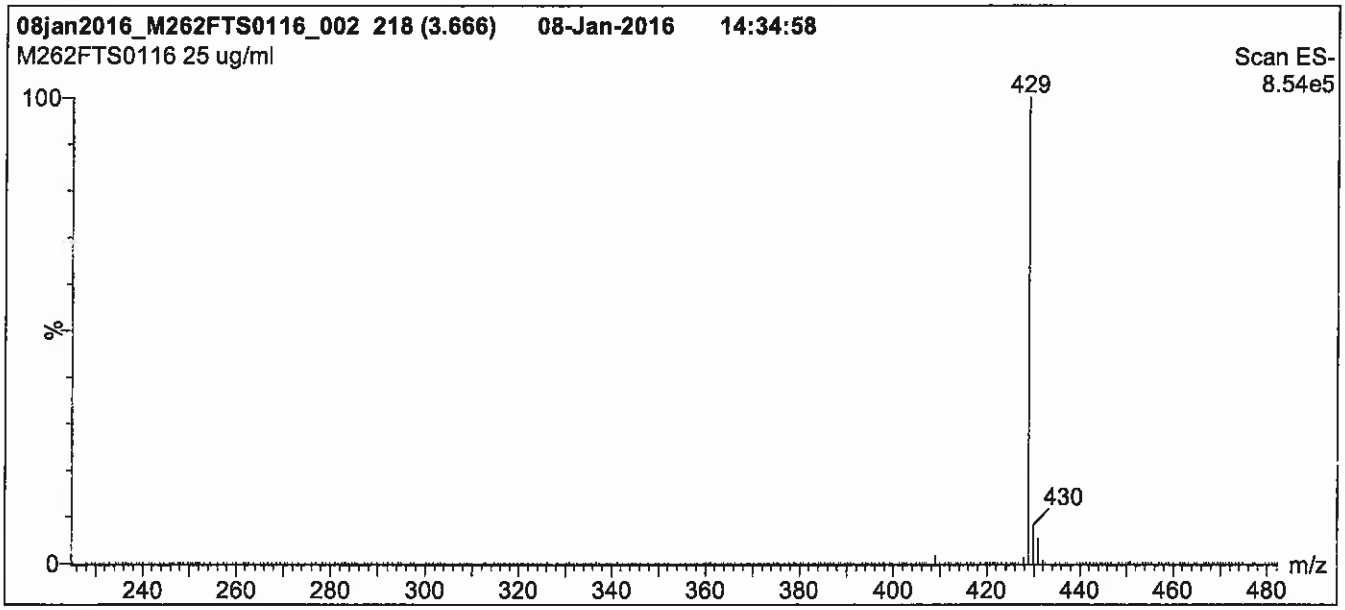
Figure 1: **M2-6:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

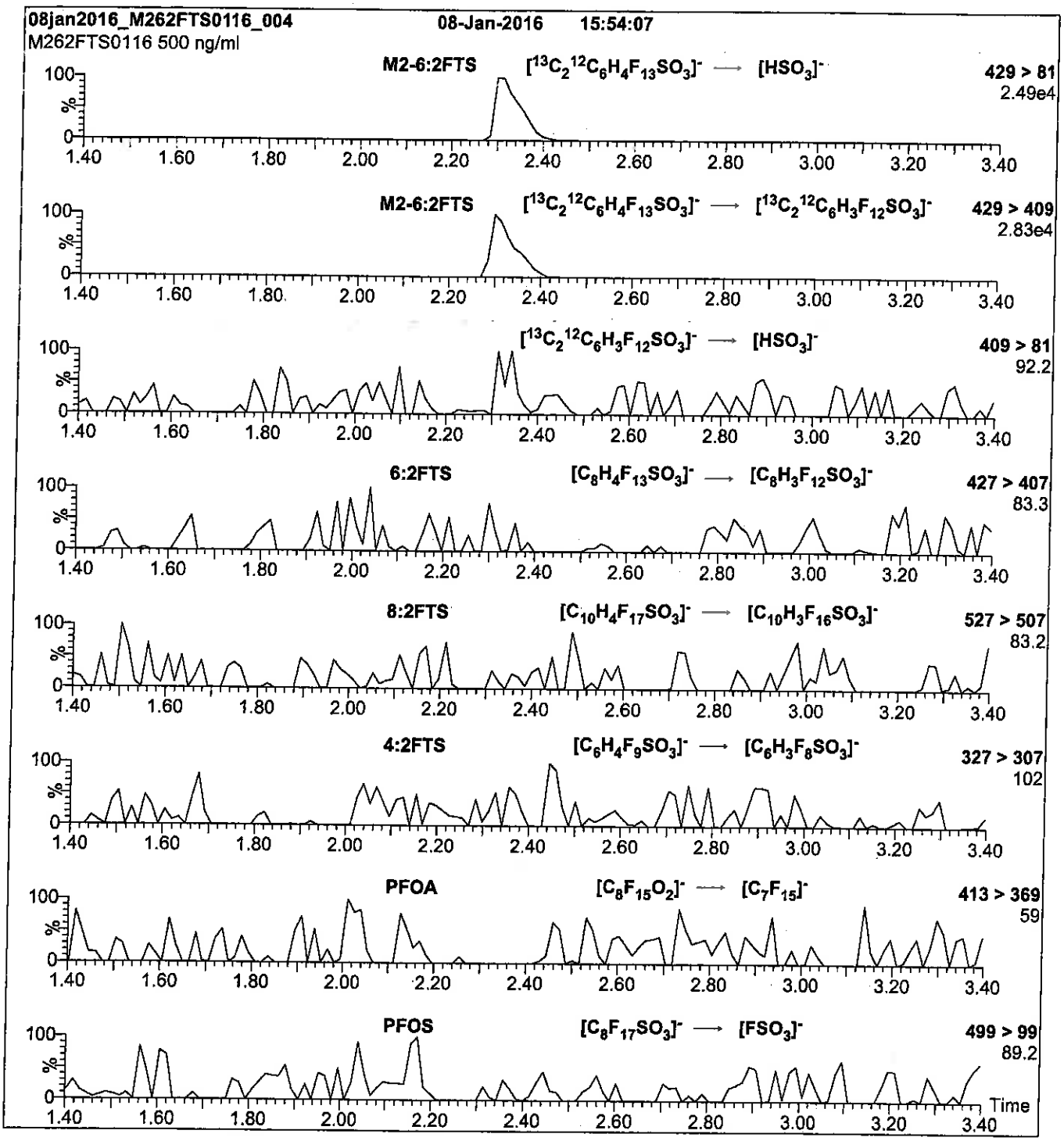
Flow: 300 µl/min

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 µl/min

MS Parameters

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

Reagent

LCM2PFHxDA_00008

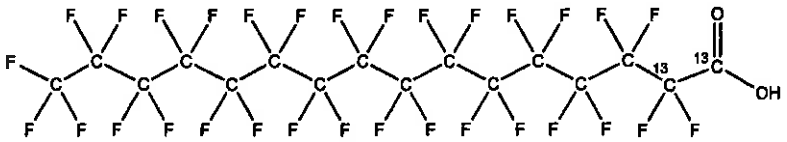
R: SBC 9/22/16

739512
ID: LCM2PFHxDA_00008
Exp: 01/07/21 Prpd: SBC
13C2-PFHxDA at 50ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFHxDA	**LOT NUMBER:**	M2PFHxDA1112
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]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: B.G. Chittim **Date:** 01/11/2016 (mm/dd/yyyy)

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CALA

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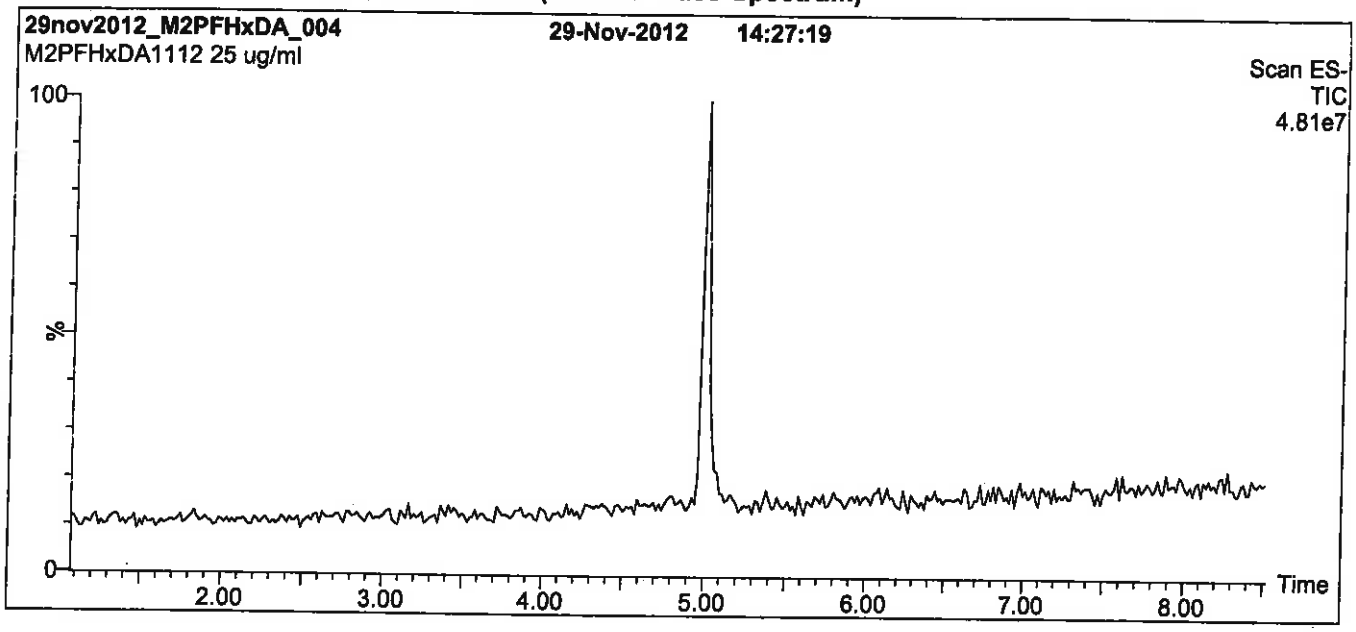
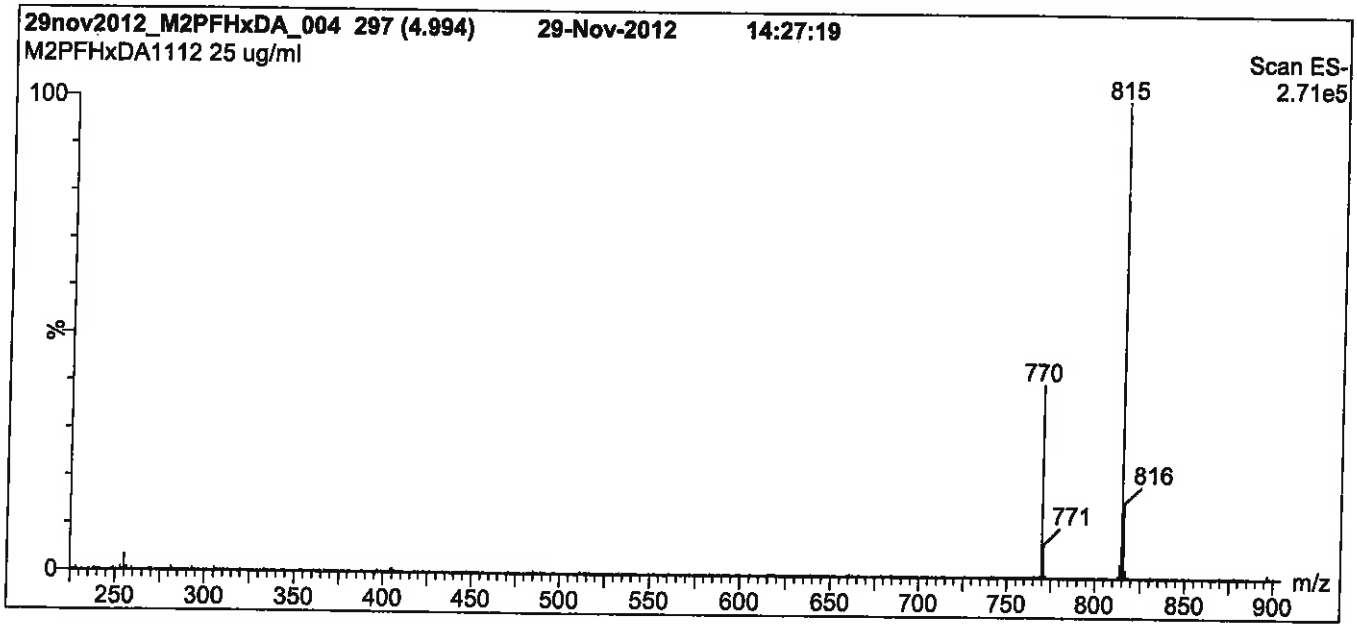
Figure 1: **M2PFHxDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc 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

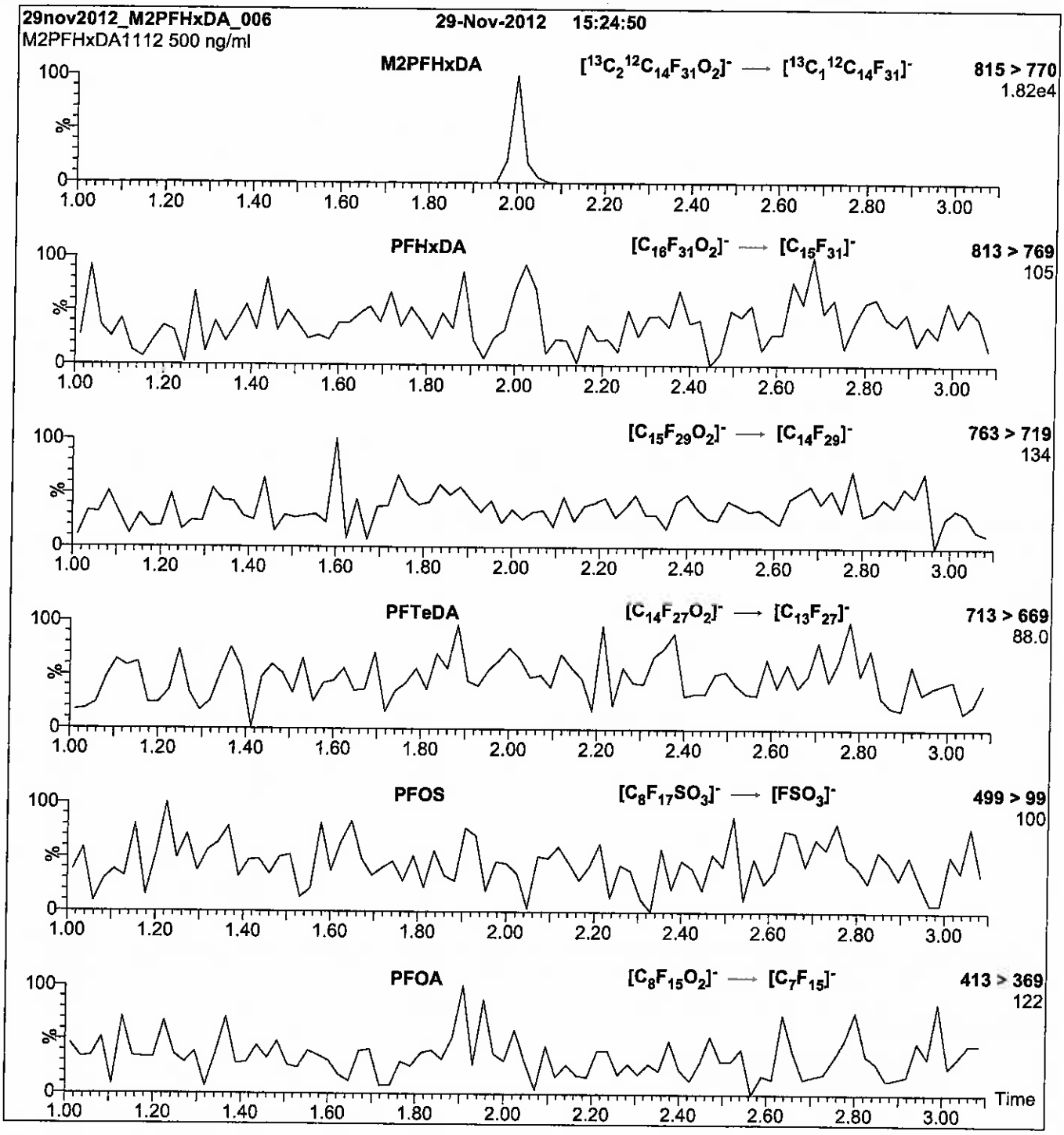
Flow: 300 µl/min

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 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 15

Reagent

LCM2PFTeDA_00007

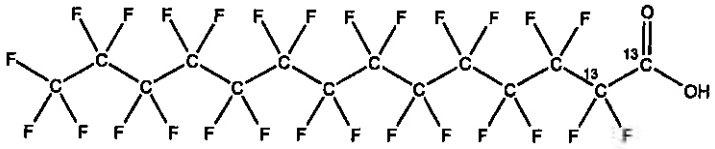
Scanned 10/14/16 R: SBC 9/22/16

738563
ID: LCM2PFTeDA_00007
Exp: 12/07/20 Prpd: SBC
13C2-PFTeDA at 50ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M2PFTeDA	**LOT NUMBER:**	M2PFTeDA1115
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]tetradecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{12}HF_{27}O_2$	**MOLECULAR WEIGHT:**	716.10
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	12/07/2015		
EXPIRY DATE: (mm/dd/yyyy)	12/07/2020		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/08/2015 (mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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 $x_1, x_2, \ldots x_n$ on which it depends is:

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

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 ±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).

CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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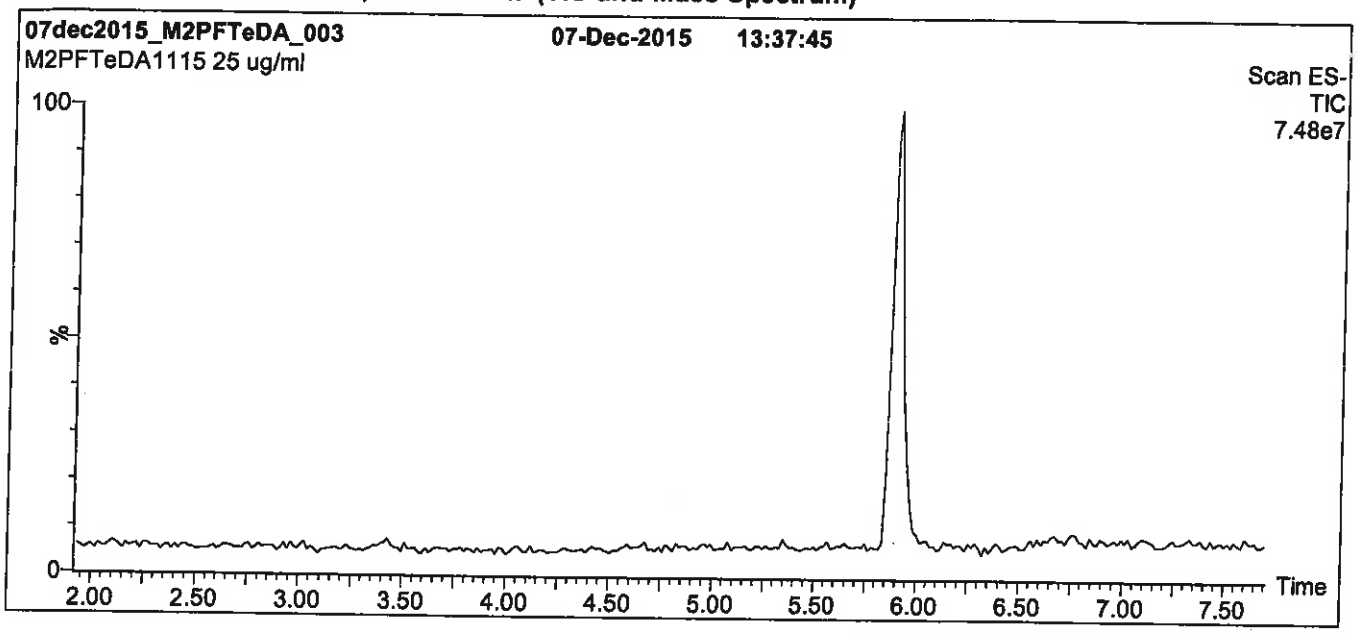
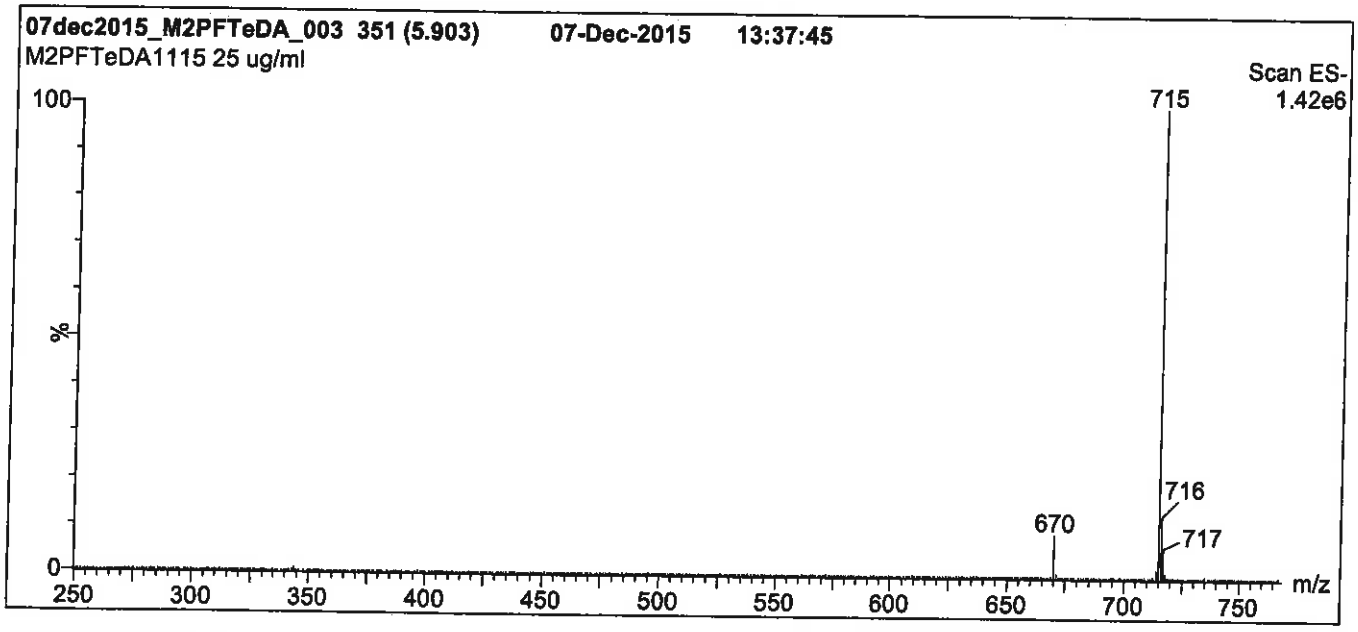
Figure 1: **M2PFTeDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc 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

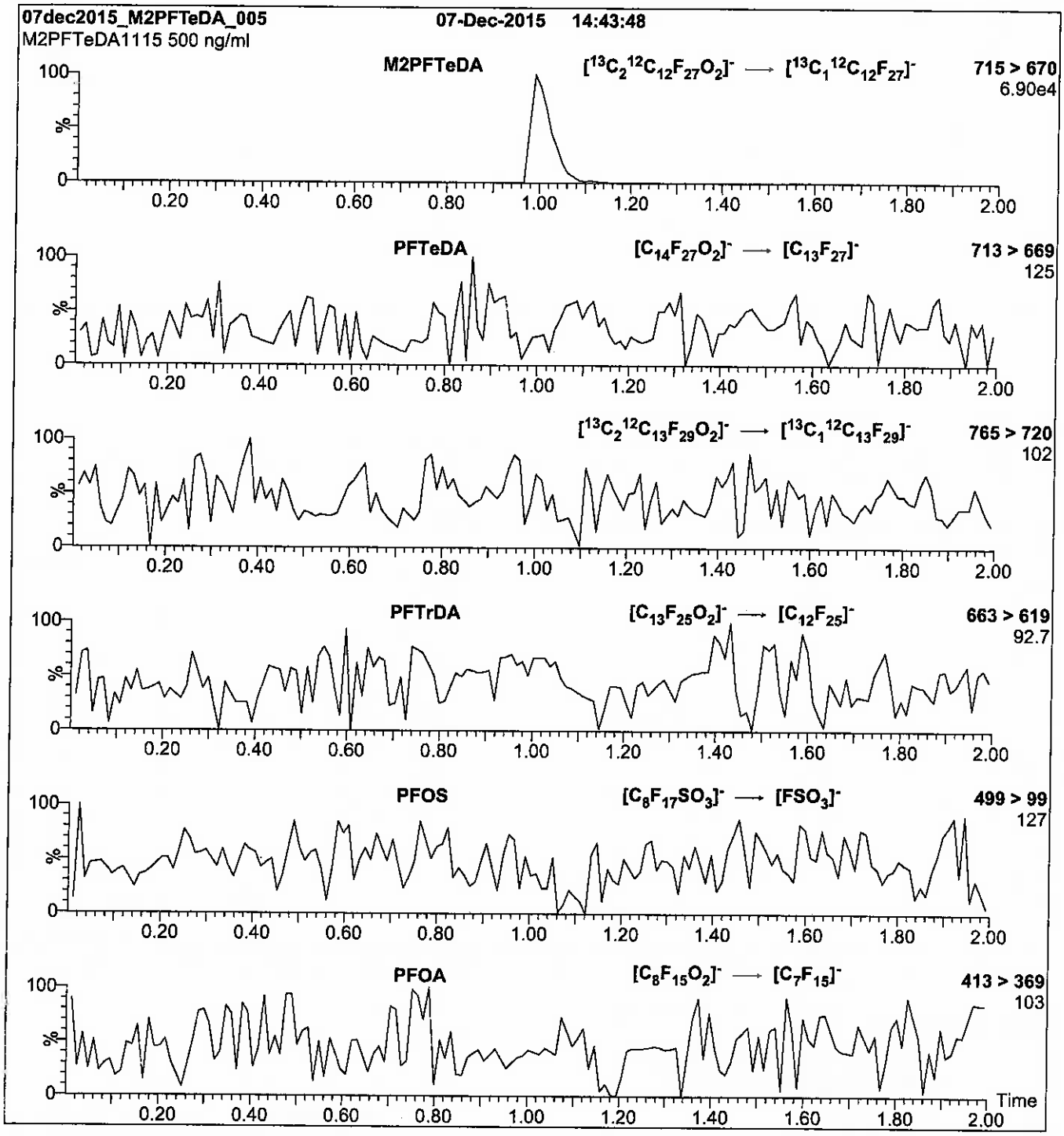
Flow: 300 µl/min

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 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 14

Reagent

LCM4PFHPA_00007

R: SBC 9/22/16

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

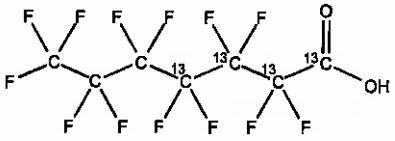
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS

DOCUMENTATION

Scanned 10/14/16 SBC

PRODUCT CODE:	M4PFHpA	**LOT NUMBER:**	M4PFHpA0516
COMPOUND:	Perfluoro-n-[1,2,3,4-$^{13}C_4$]heptanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_3HF_{13}O_2$	**MOLECULAR WEIGHT:**	368.03
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)	05/27/2016		
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:

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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.

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

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TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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).

CALA Testing

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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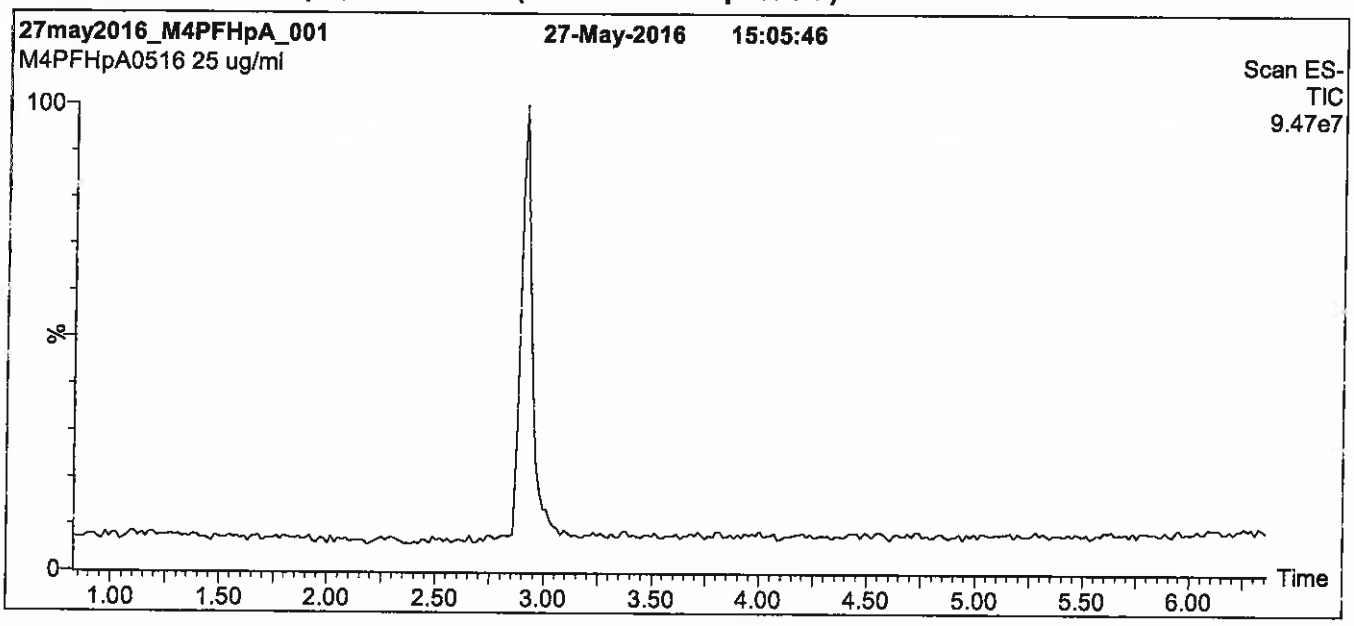
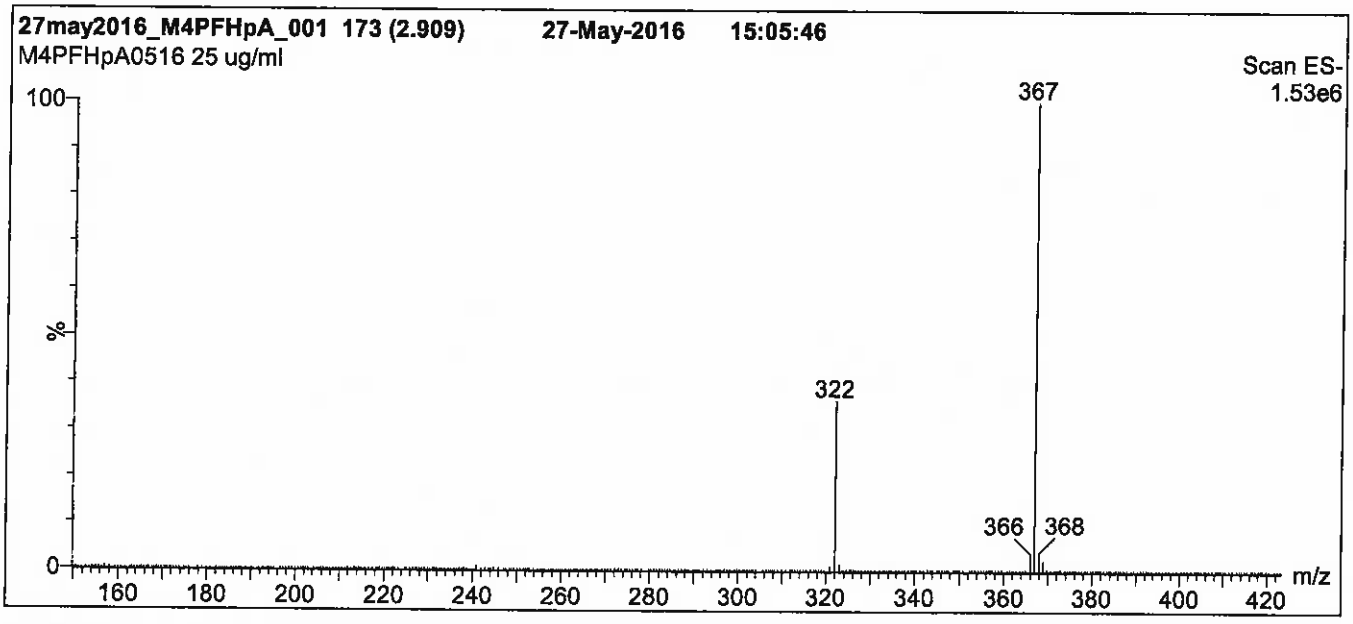
Figure 1: **M4PFHpA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

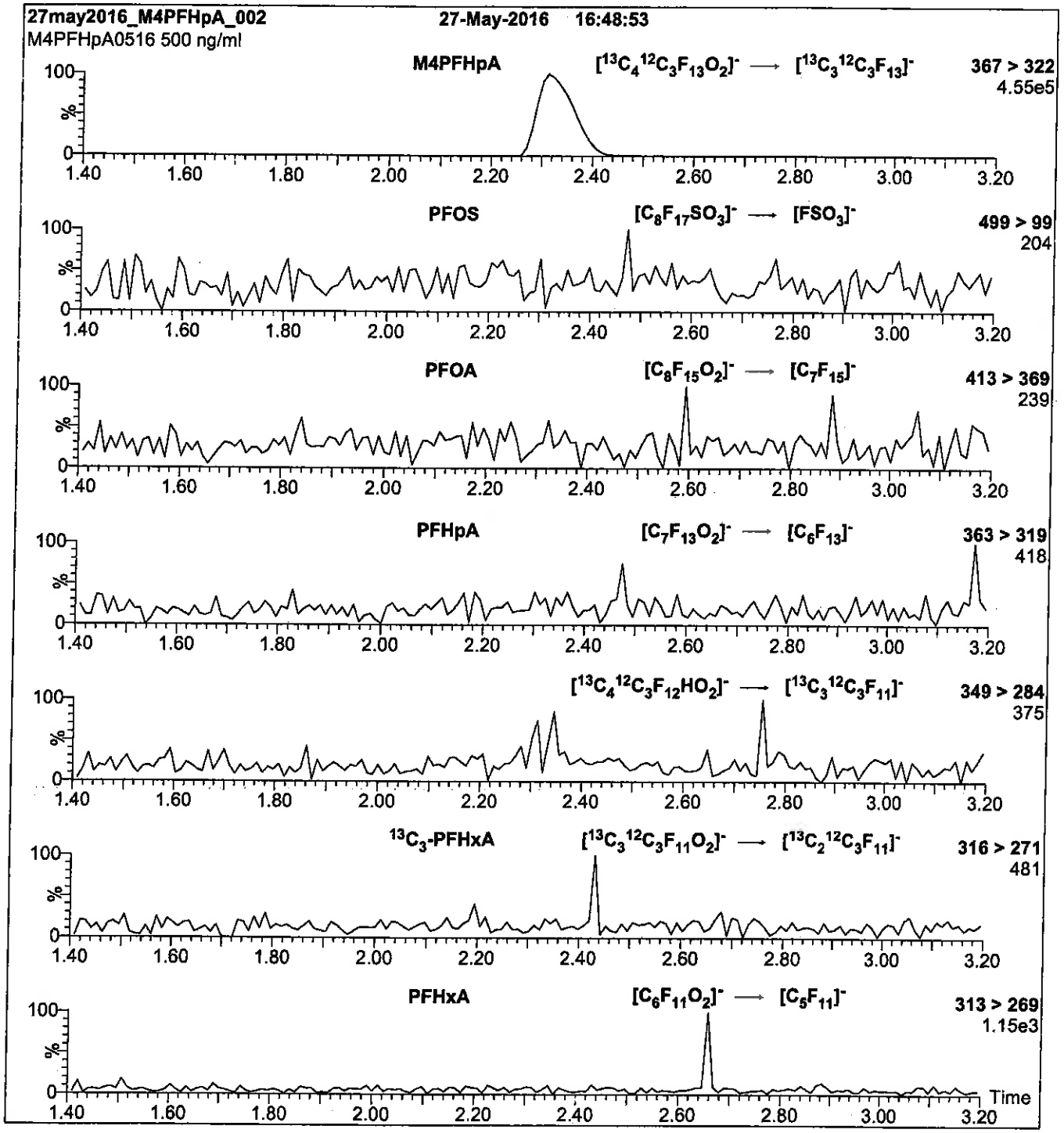
Flow: 300 µl/min

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) = 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 µl/min

MS Parameters

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

Reagent

LCM5PFPEA_00008

R: SBC 9/22/16

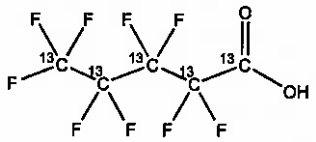
739590
ID: LCM5PFPEA_00008
Exp: 05/22/20 Prpd: SBC
13C5-Perfluoropentanoic a

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

Scanned 10/14/16 SR

PRODUCT CODE:	M5PFPeA	**LOT NUMBER:**	M5PFPeA0515
COMPOUND:	Perfluoro-n-[$^{13}C_5$]pentanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_5HF_9O_2$	**MOLECULAR WEIGHT:**	269.01
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_5$)
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: B.G. Chittim **Date:** 05/25/2015 (mm/dd/yyyy)

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

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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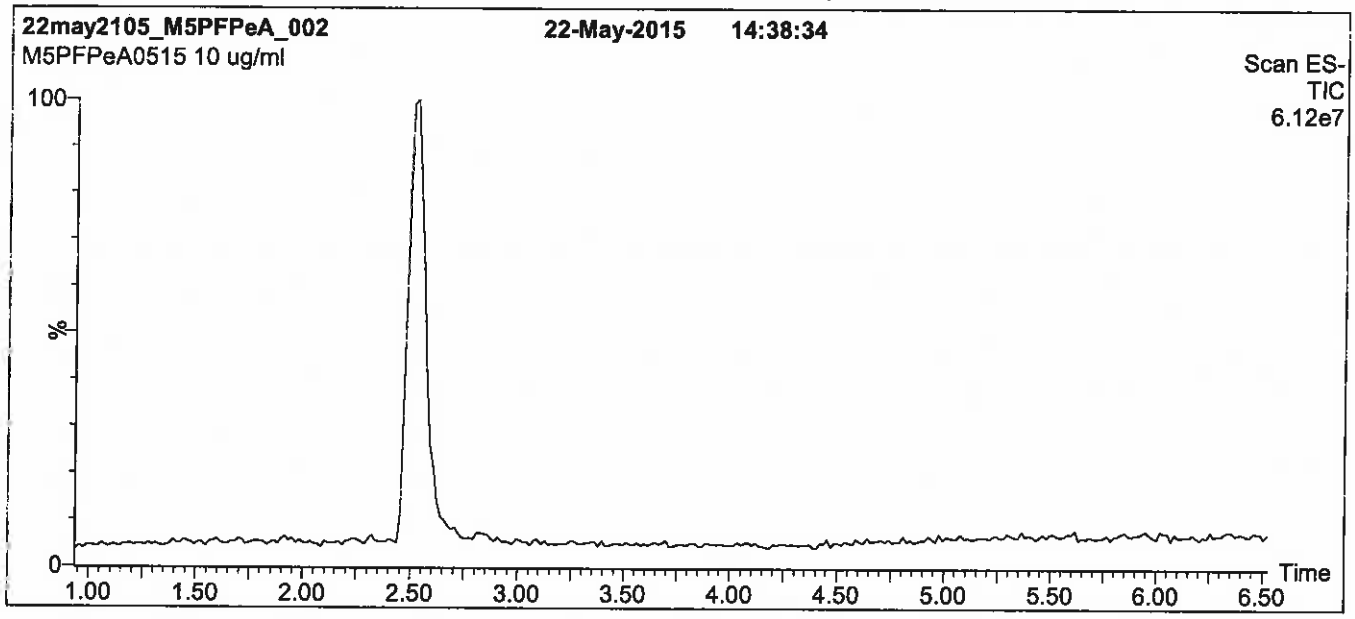
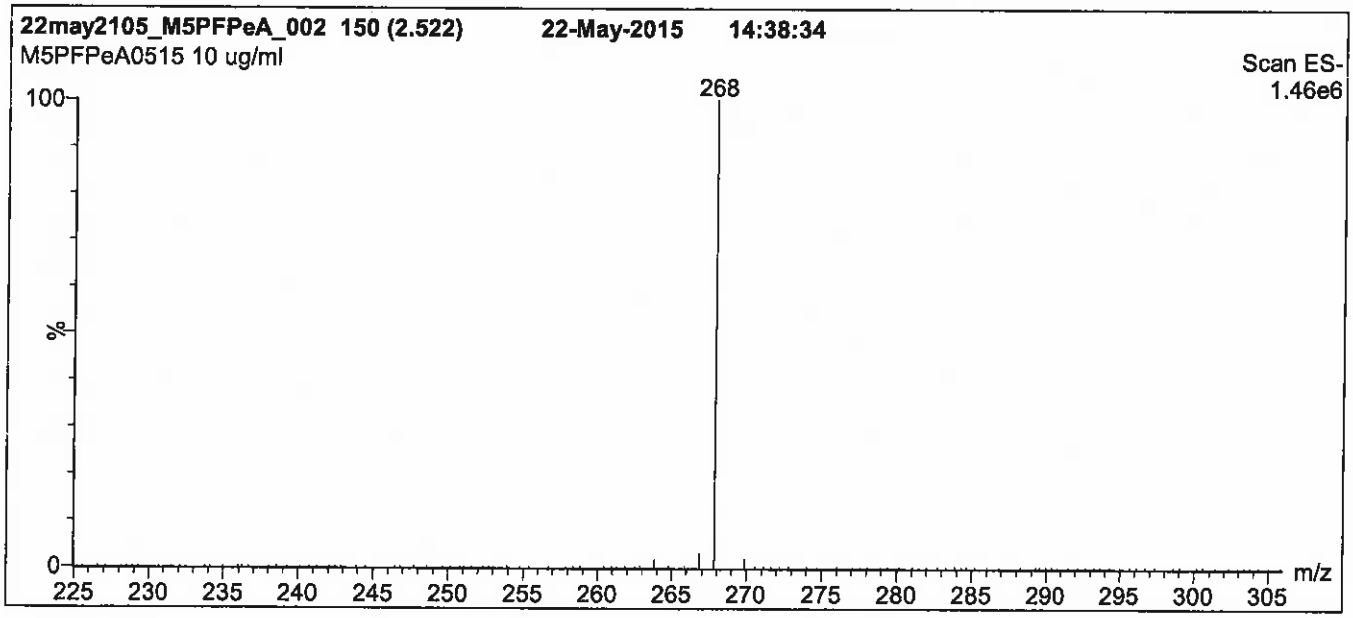
Figure 1: **M5PFPeA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc 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

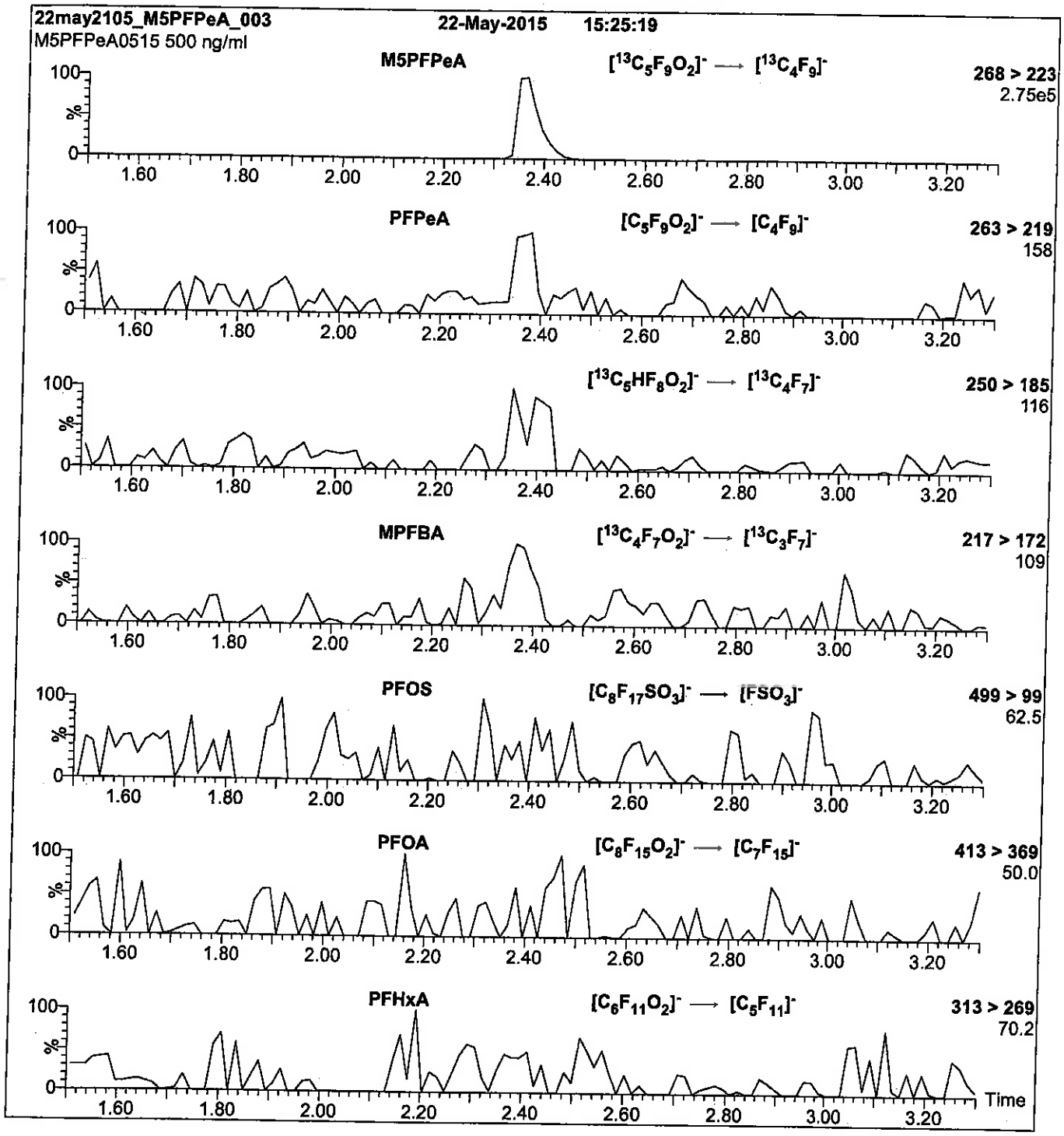
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml M5PFPeA)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

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

Reagent

LCM8FOSA_00011

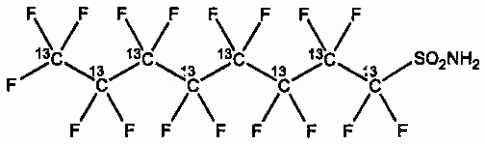
R: SBC 9/22/16
Scanned 10/14/16 SBC

739615
ID: LCM8FOSA_00011
Exp: 12/22/17 Prpd: SBC
13C8-Perfluorooctanesulfo

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M8FOSA-I	**LOT NUMBER:**	M8FOSA1215I
COMPOUND:	Perfluoro-1-[$^{13}C_8$]octanesulfonamide		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_8H_2F_{17}NO_2S$	**MOLECULAR WEIGHT:**	507.09
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Isopropanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	12/22/2015		
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: B.G. Chittim **Date:** 01/14/2016 (mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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 ±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).

CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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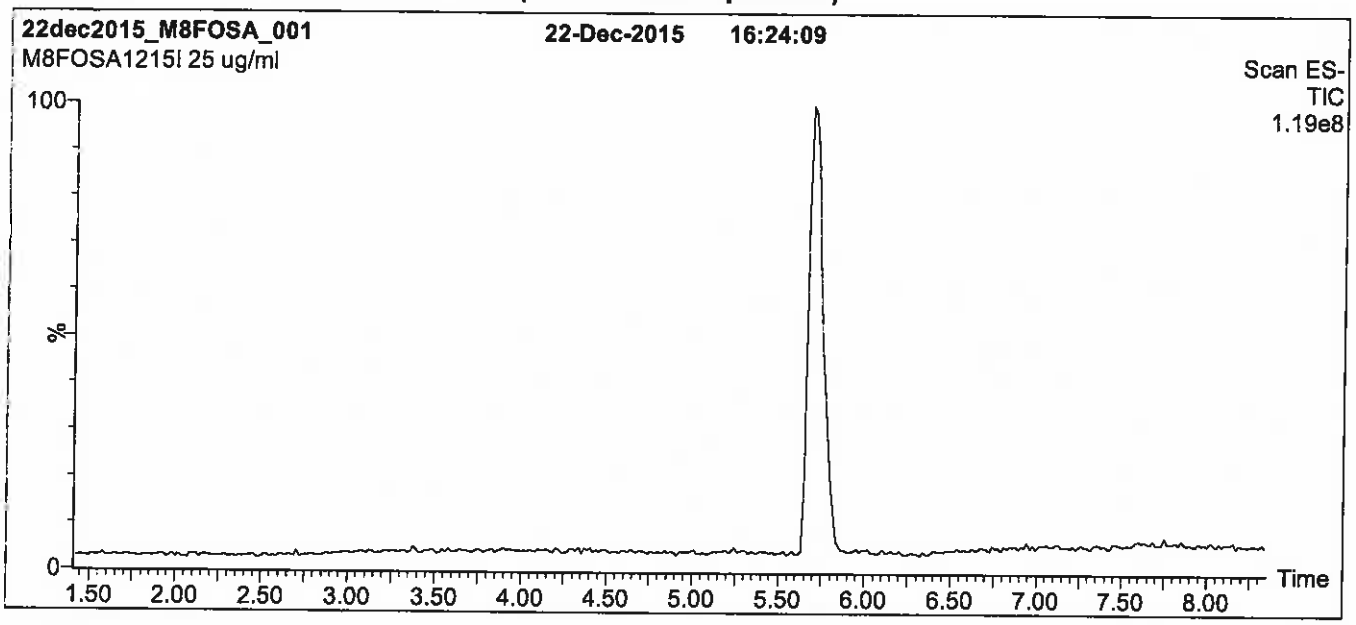
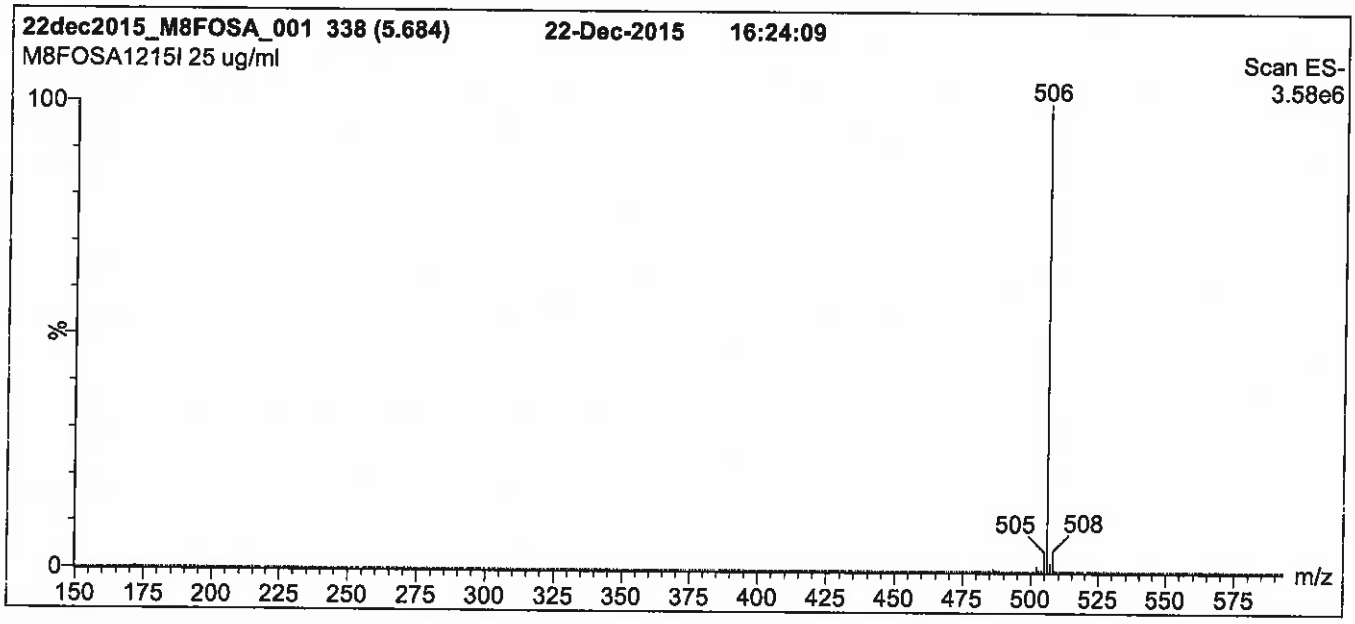
Figure 1: **M8FOSA-I; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

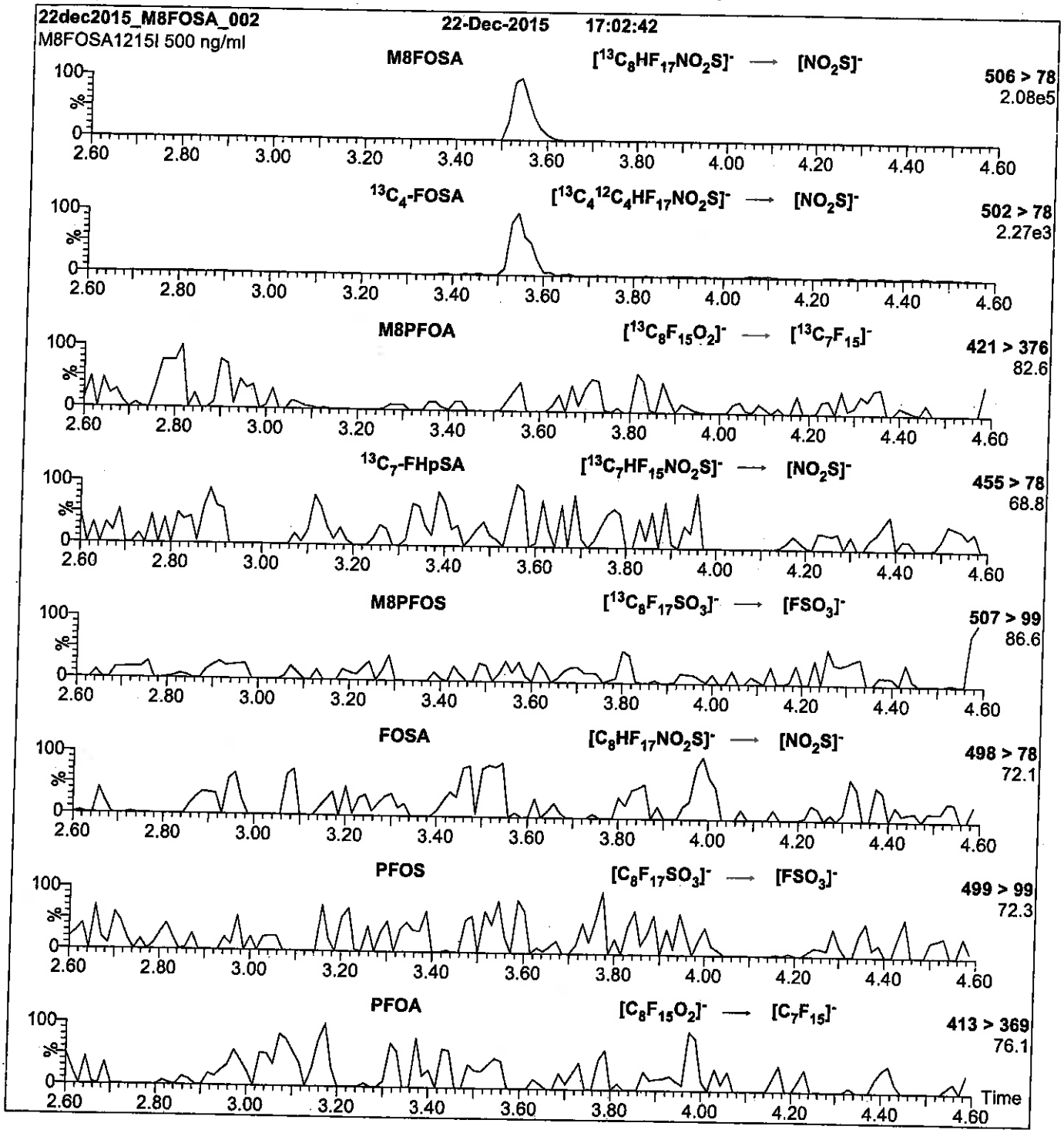
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCMPFBA_00008

R: SBC 9/22/16

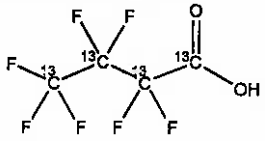
739593
ID: LCMPFBA_00008
Exp: 05/24/21 Prpd: SBC
13C4-Perfluorobutanoic ac

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

Scanned 10/14/16 SR

PRODUCT CODE:	MPFBA	**LOT NUMBER:**	MPFBA0516
COMPOUND:	Perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_4HF_7O_2$	**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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/30/2016 (mm/dd/yyyy)
B.G. Chittim

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

INTENDED USE:

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SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

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 ±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:

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QUALITY MANAGEMENT:

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CALA

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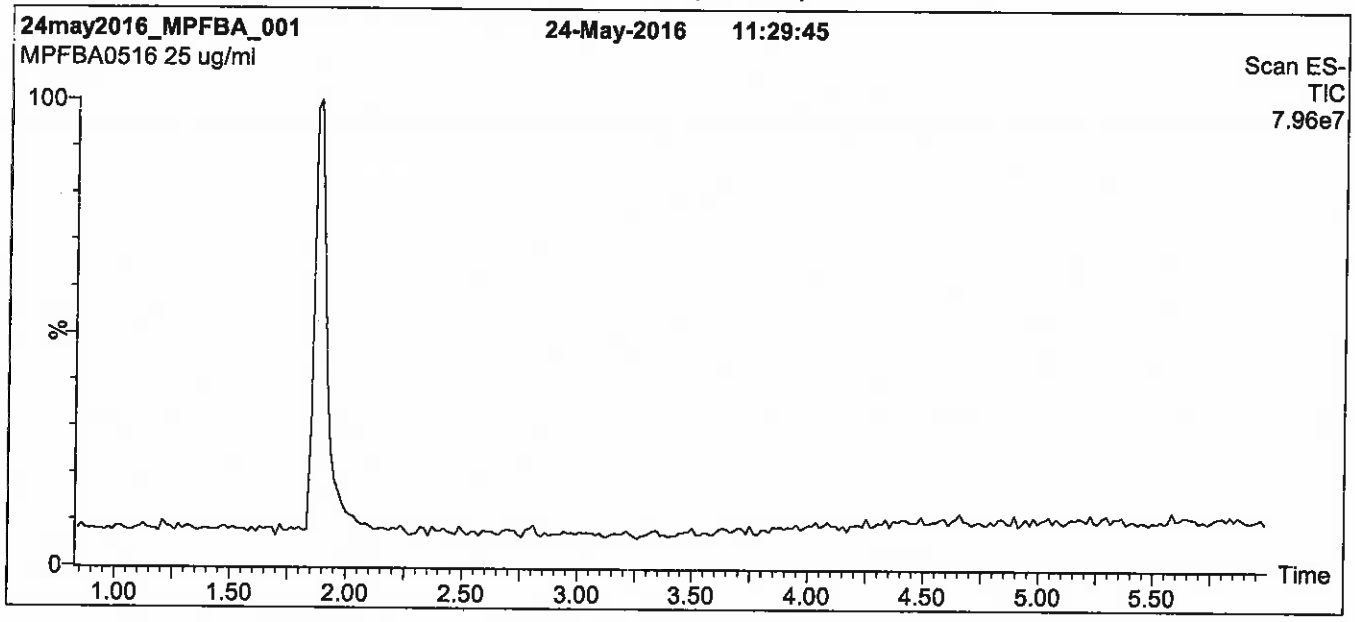
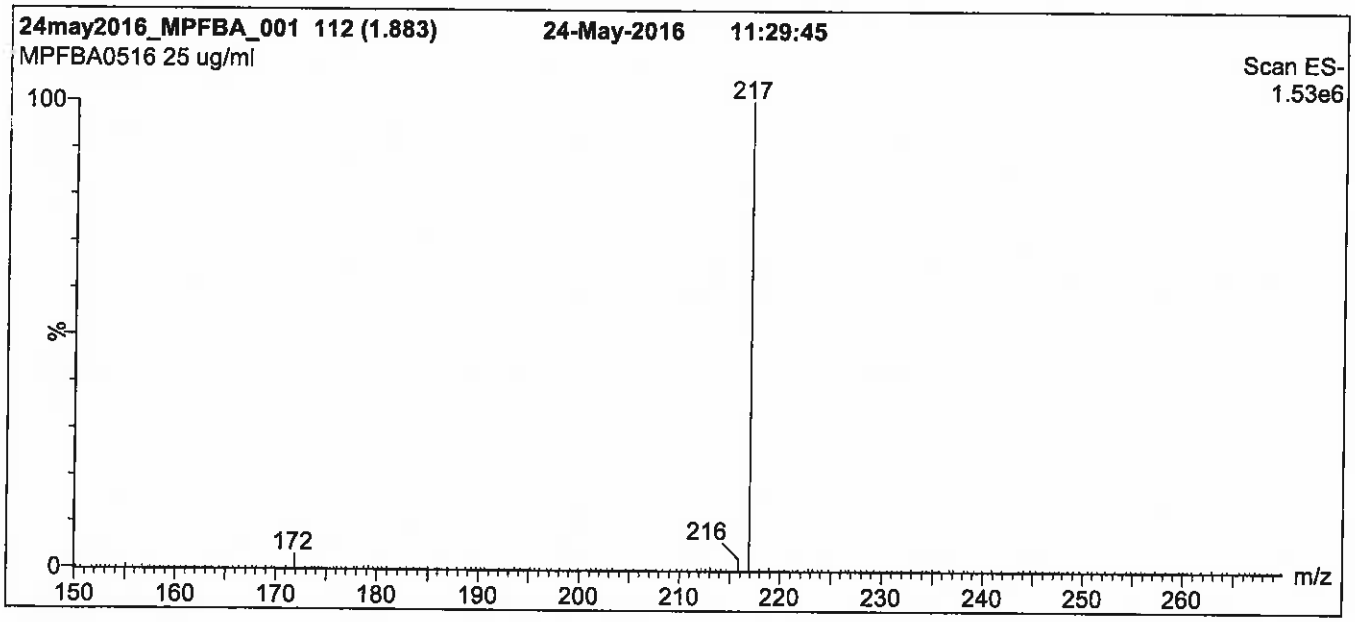
Figure 1: **MPFBA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc 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

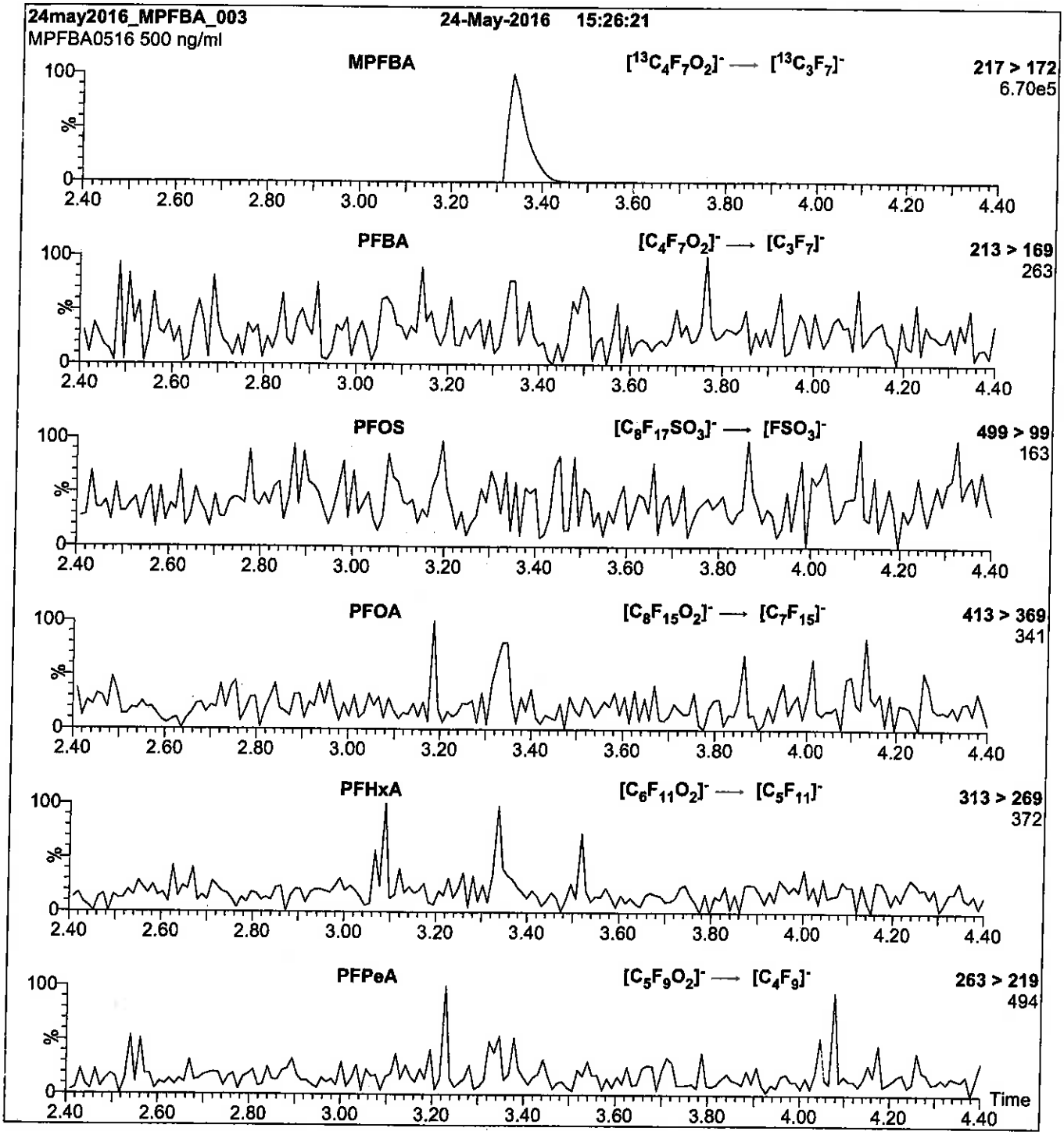
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 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 µl/min

MS Parameters

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

Reagent

LCMPFDA_00011

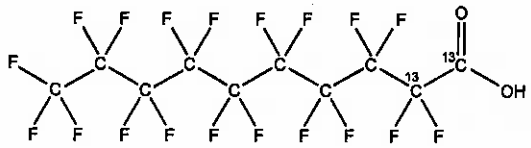
Scanned 10/14/16 R: SBC 9/22/16

739609
ID: LCMPFDA_00011
Exp: 08/19/20 Prpd: SBC
13C2-Perfluorodecanoic a

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFDA	**LOT NUMBER:**	MPFDA0815
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8HF_{19}O_2$	**MOLECULAR WEIGHT:**	516.07
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
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 $^{13}C_1$-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

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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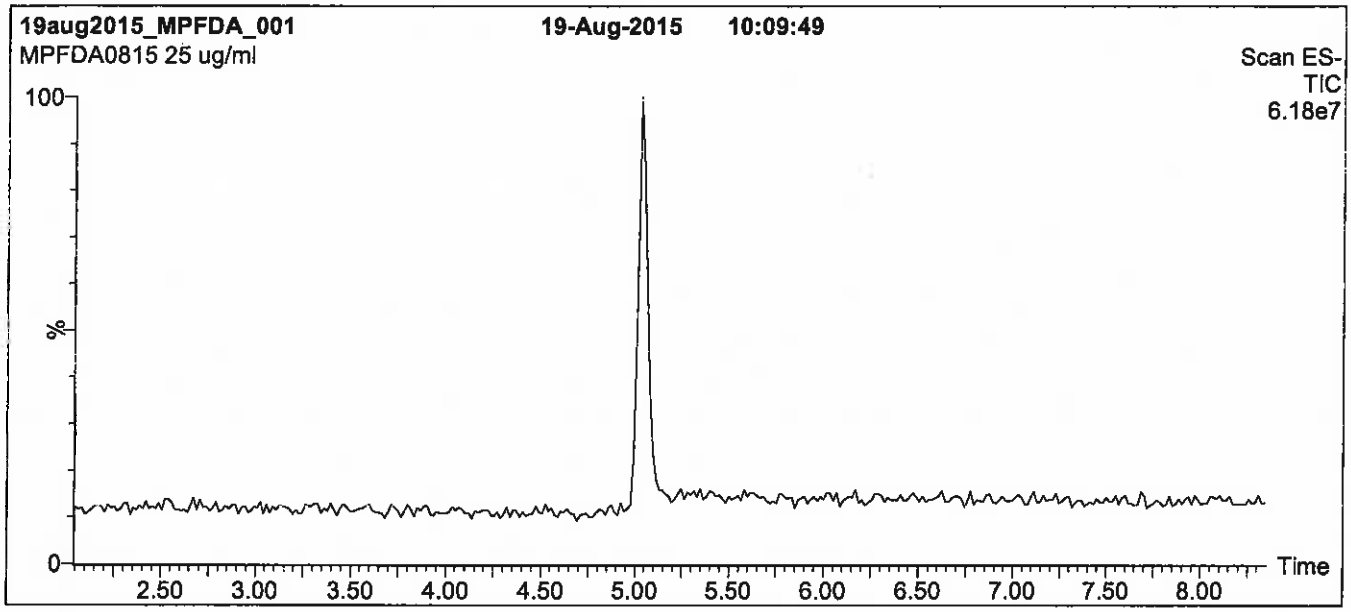
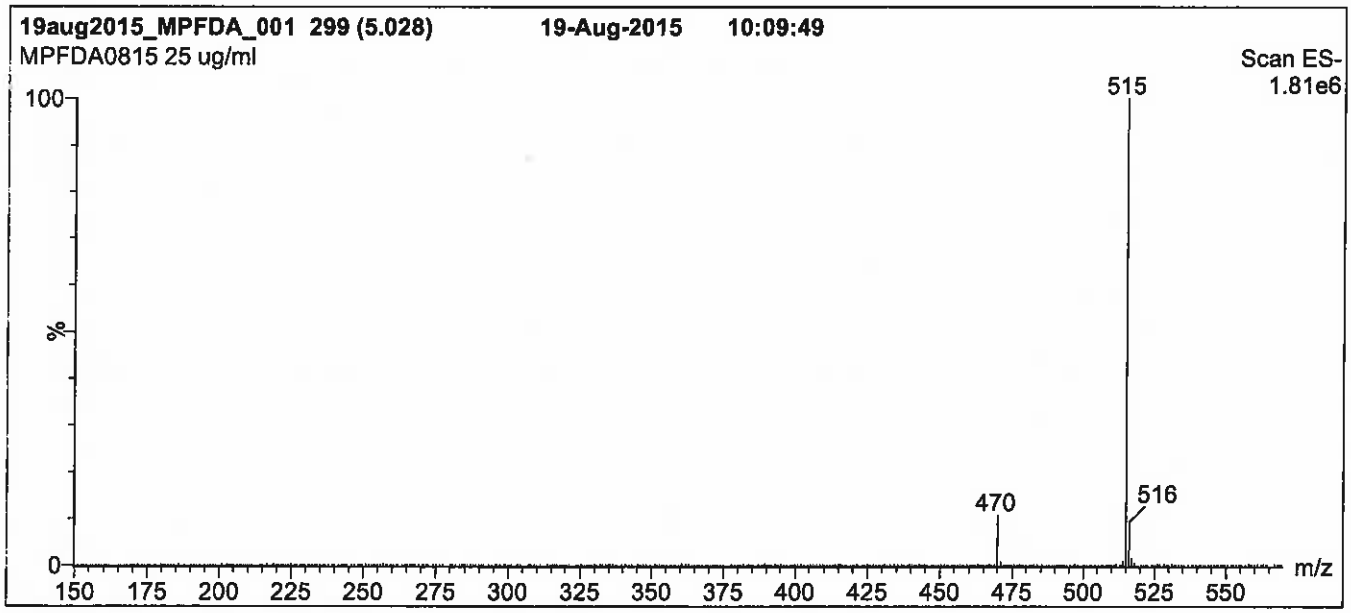
Figure 1: **MPFDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

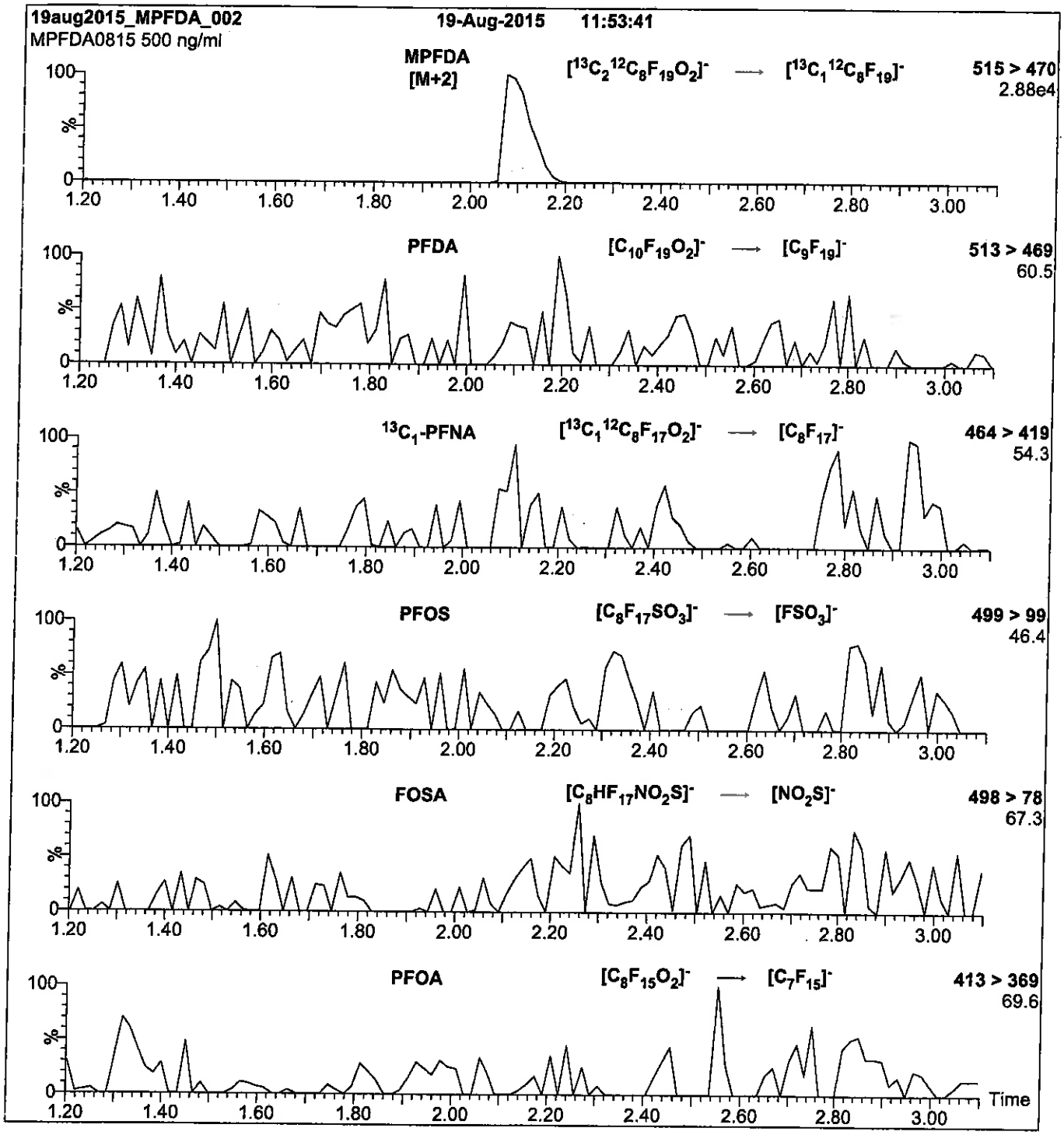
Flow: 300 µl/min

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) = 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 µl/min

MS Parameters

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

Reagent

LCMPFDoA_00008

R: SBC 9/22/16

739598
ID: LCMPFDoA_00008
Exp: 04/08/21 Prpd: SBC
13C2-Perfluorododecanoic

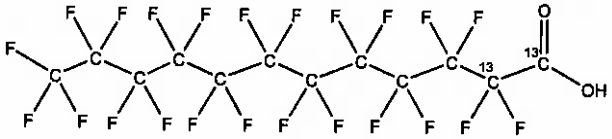
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SR

PRODUCT CODE: MPFDoA
LOT NUMBER: MPFDoA0416
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid

STRUCTURE:
CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_{10}HF_{23}O_2$
MOLECULAR WEIGHT: 616.08
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) 04/08/2016
EXPIRY DATE: (mm/dd/yyyy) 04/08/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 04/15/2016 (mm/dd/yyyy)

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

INTENDED USE:

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 $x_1, x_2, \ldots x_n$ on which it depends is:

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

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 ±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).

CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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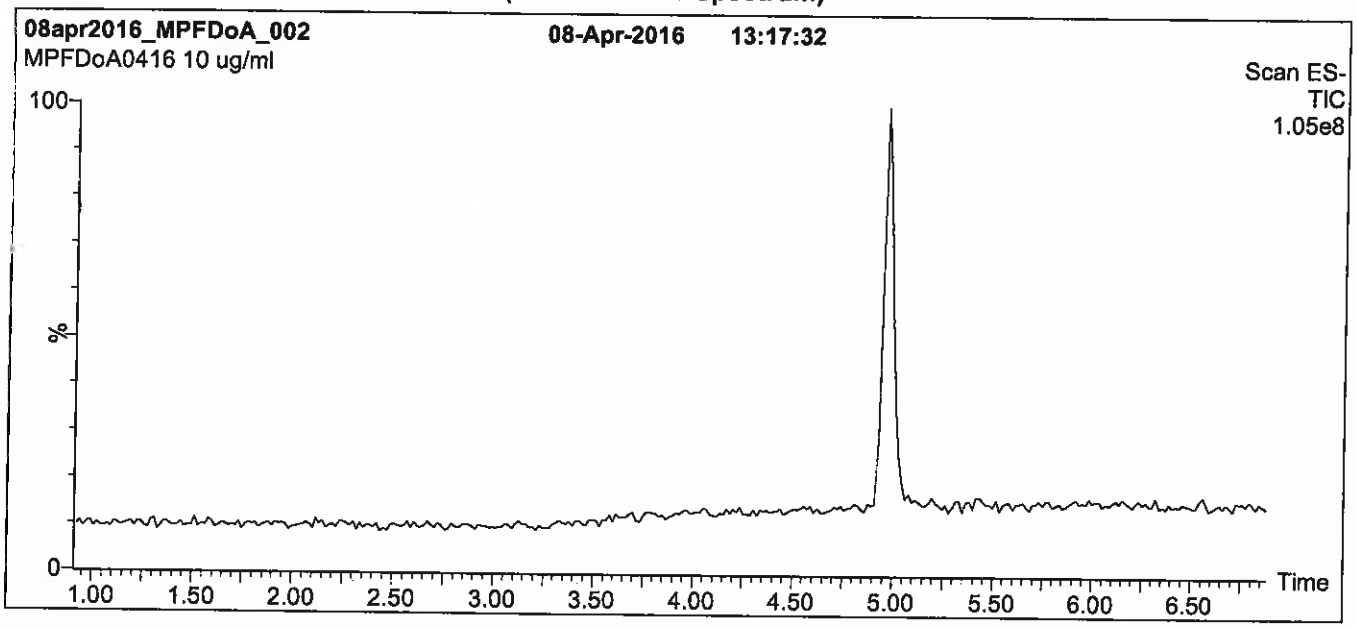
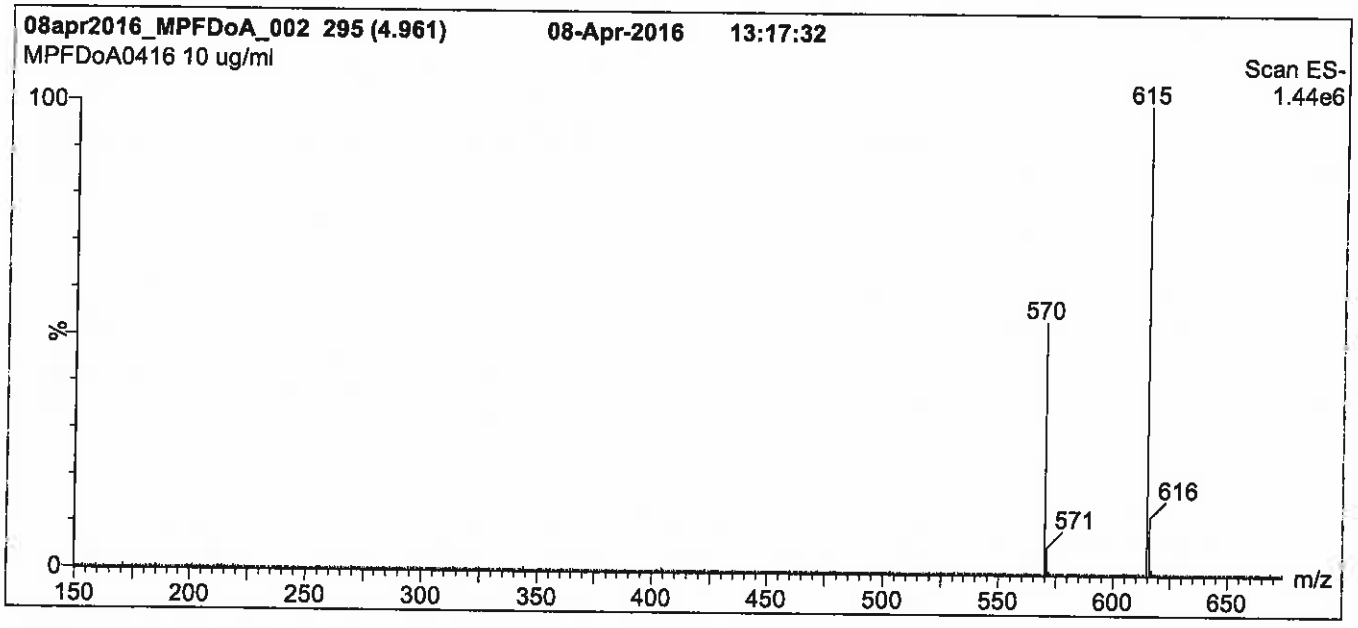
Figure 1: **MPFDoA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc 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

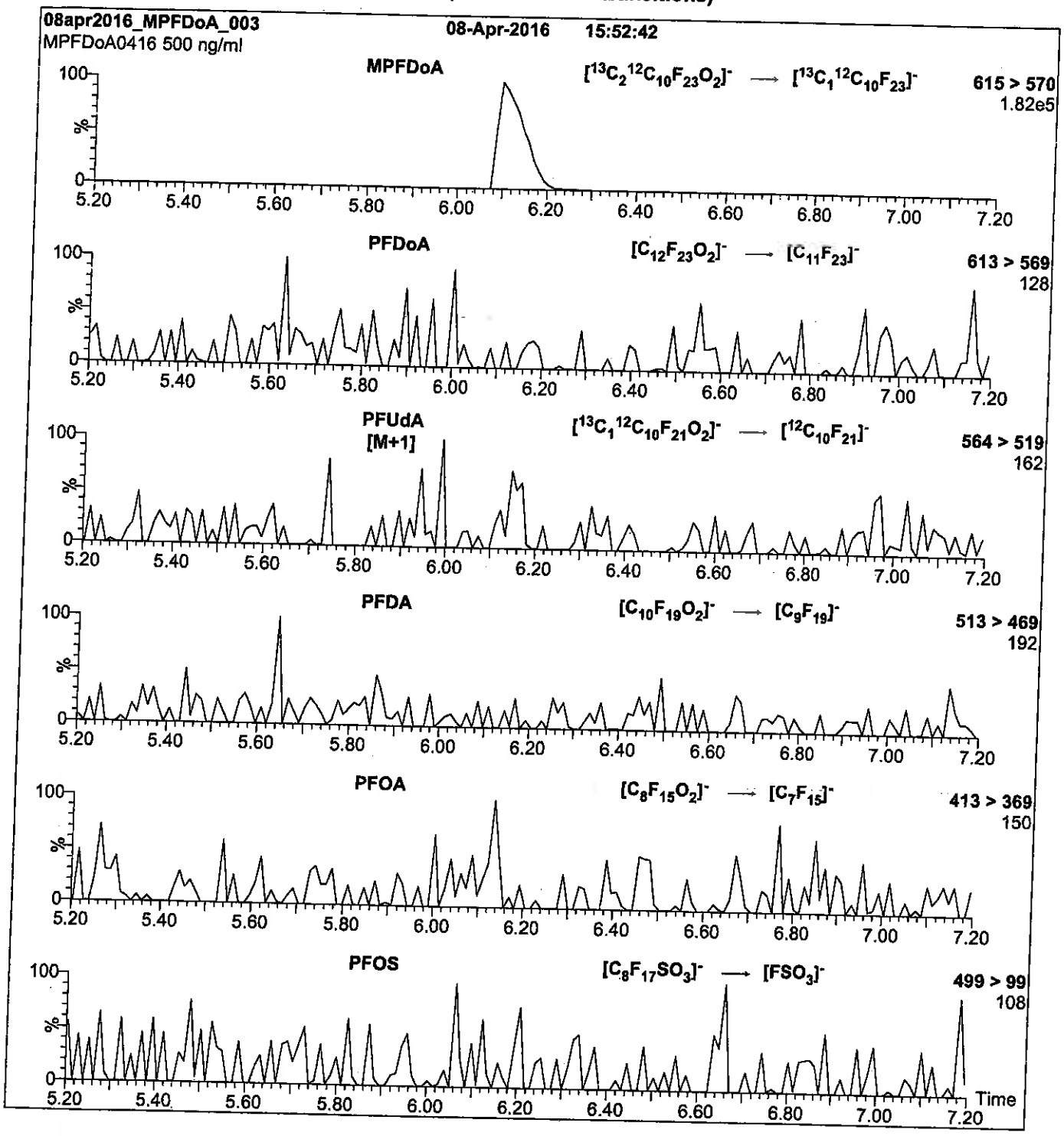
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 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 µl/min

MS Parameters

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

Reagent

LCMPFHxA_00012

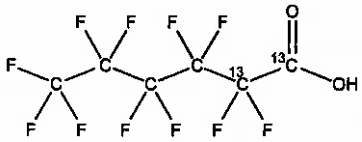
Scanned 10/14/16 JR R: SBC 9/22/16

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

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFHxA	**LOT NUMBER:**	MPFHxA0416
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4HF_{11}O_2$	**MOLECULAR WEIGHT:**	316.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	04/08/2016		
EXPIRY DATE: (mm/dd/yyyy)	04/08/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 04/29/2016 (mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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TRACEABILITY:

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QUALITY MANAGEMENT:

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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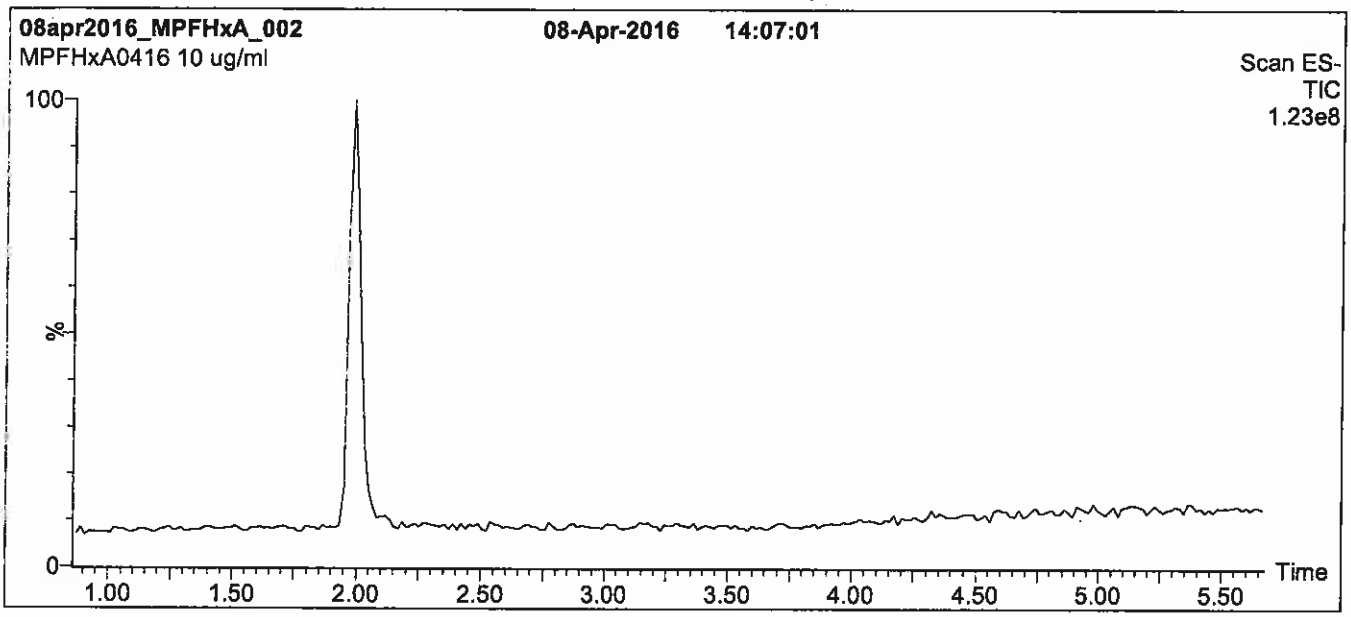
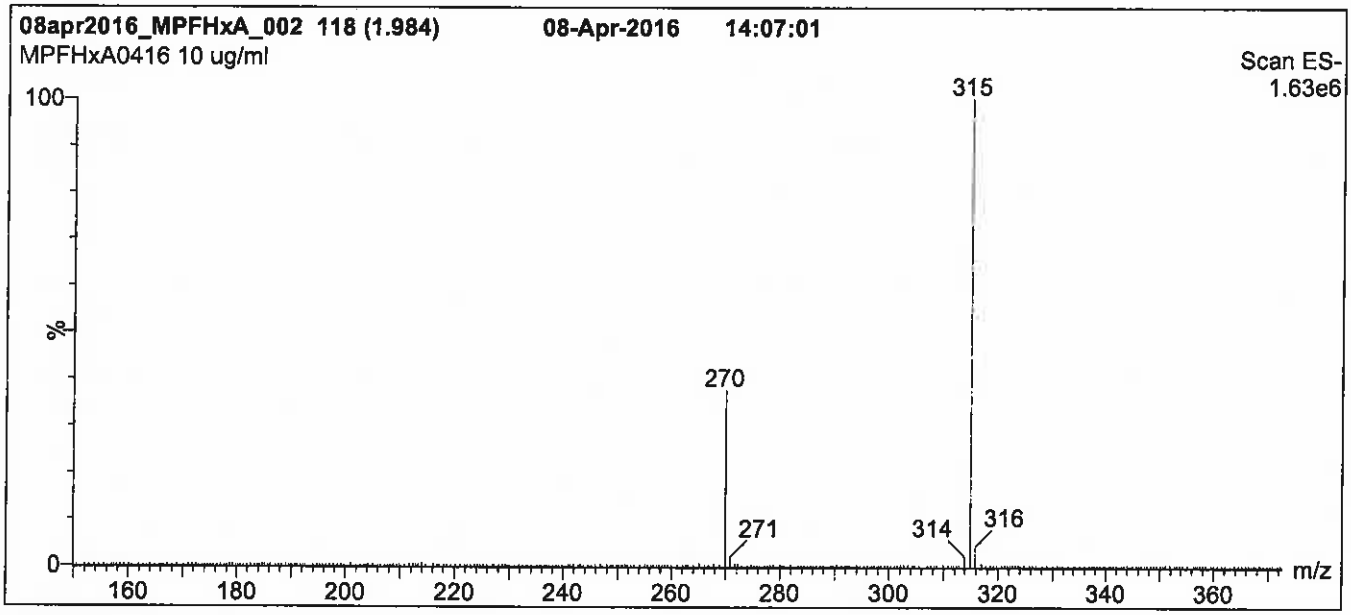
Figure 1: **MPFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions over 0.5 min.
Time: 10 min

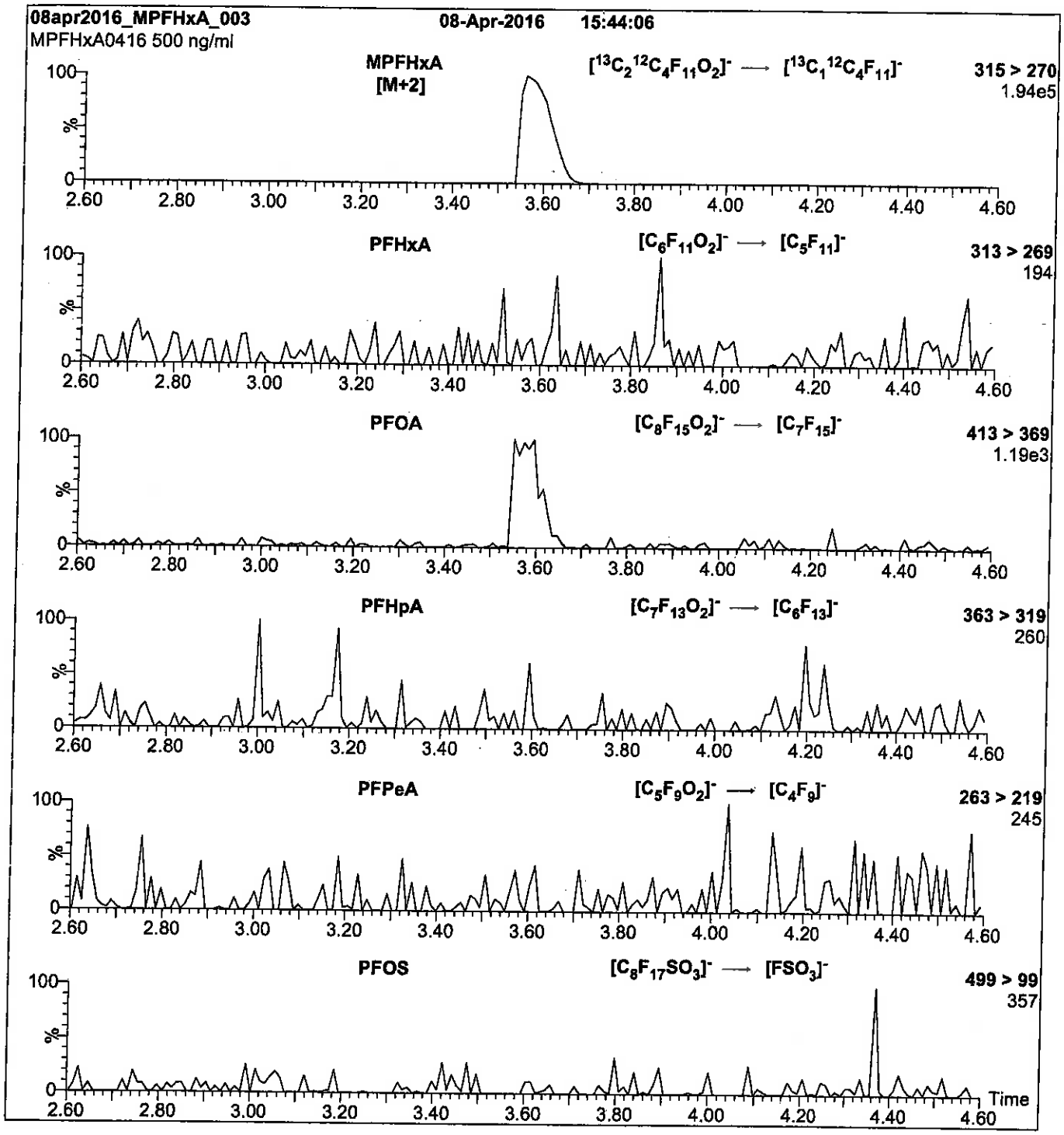
Flow: 300 µl/min

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: **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 µl/min

MS Parameters

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

Reagent

LCMPFHxS_00008

R: SBC 9/22/16

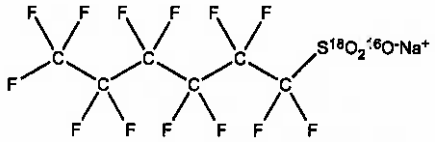
739601
ID: LCMPFHxS_00008
Exp: 10/23/20 Prpd: SBC
18O2-Perfluorohexanesulfo

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

Scanned 10/14/16 SR

PRODUCT CODE:	MPFHxS	**LOT NUMBER:**	MPFHxS1015
COMPOUND:	Sodium perfluoro-1-hexane[$^{18}O_2$]sulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$C_6F_{13}S^{18}O_2{}^{16}ONa$	**MOLECULAR WEIGHT:**	426.10
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.3 ± 2.4 µg/ml (MPFHxS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	>94% ($^{18}O_2$)
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 ($C_6F_{13}S^{18}O_2{}^{16}O^-$) has been observed to be up to 10% lower than for PFHxS ($C_6F_{13}S^{16}O_3^-$) when both compounds are injected together. This difference may vary between instruments.
- Due to the isotopic purity of the starting material ($^{18}O_2$ >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

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

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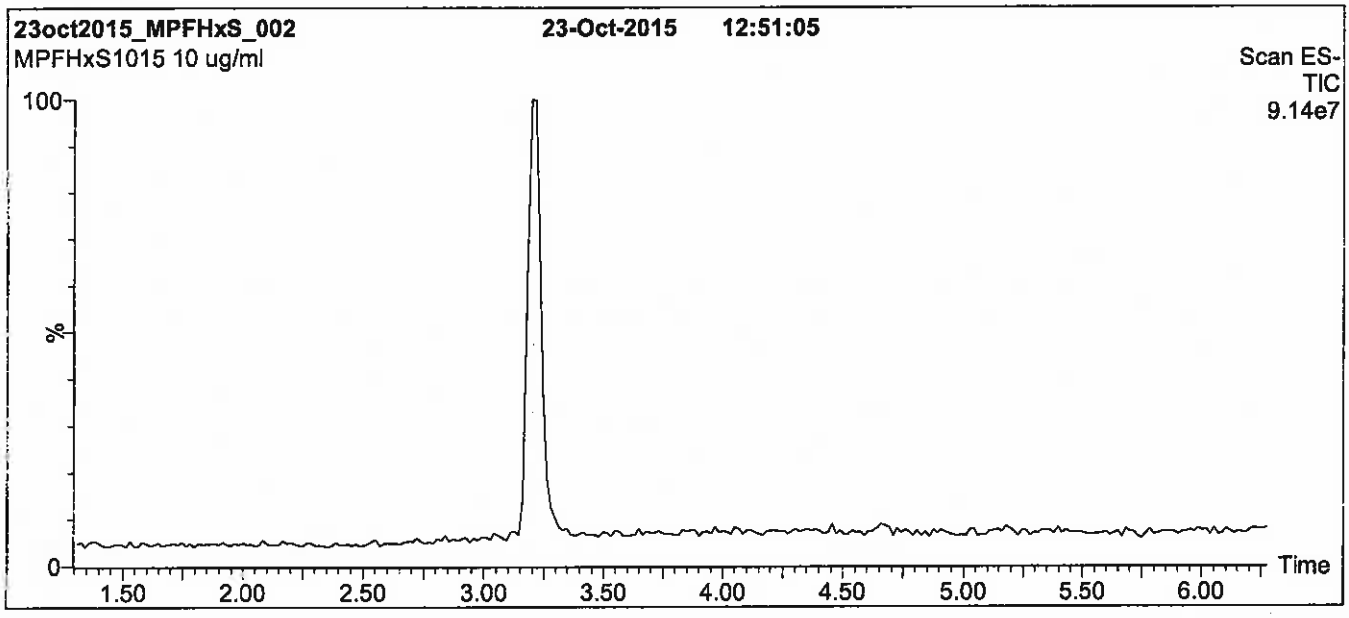
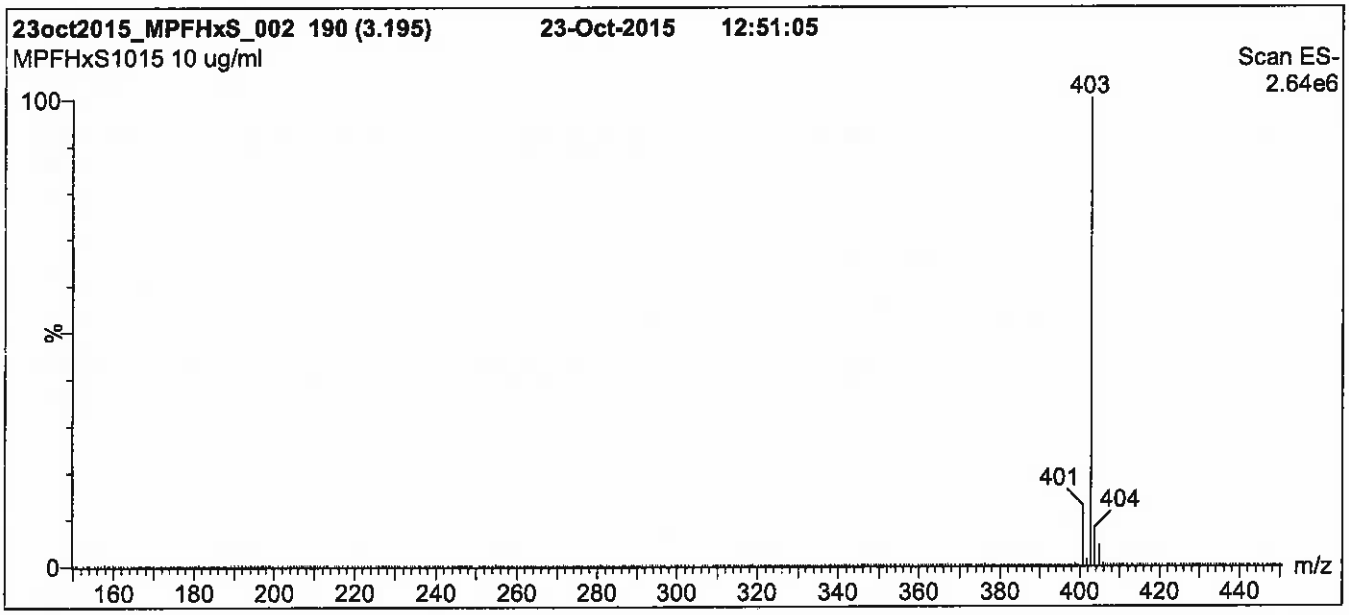




Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

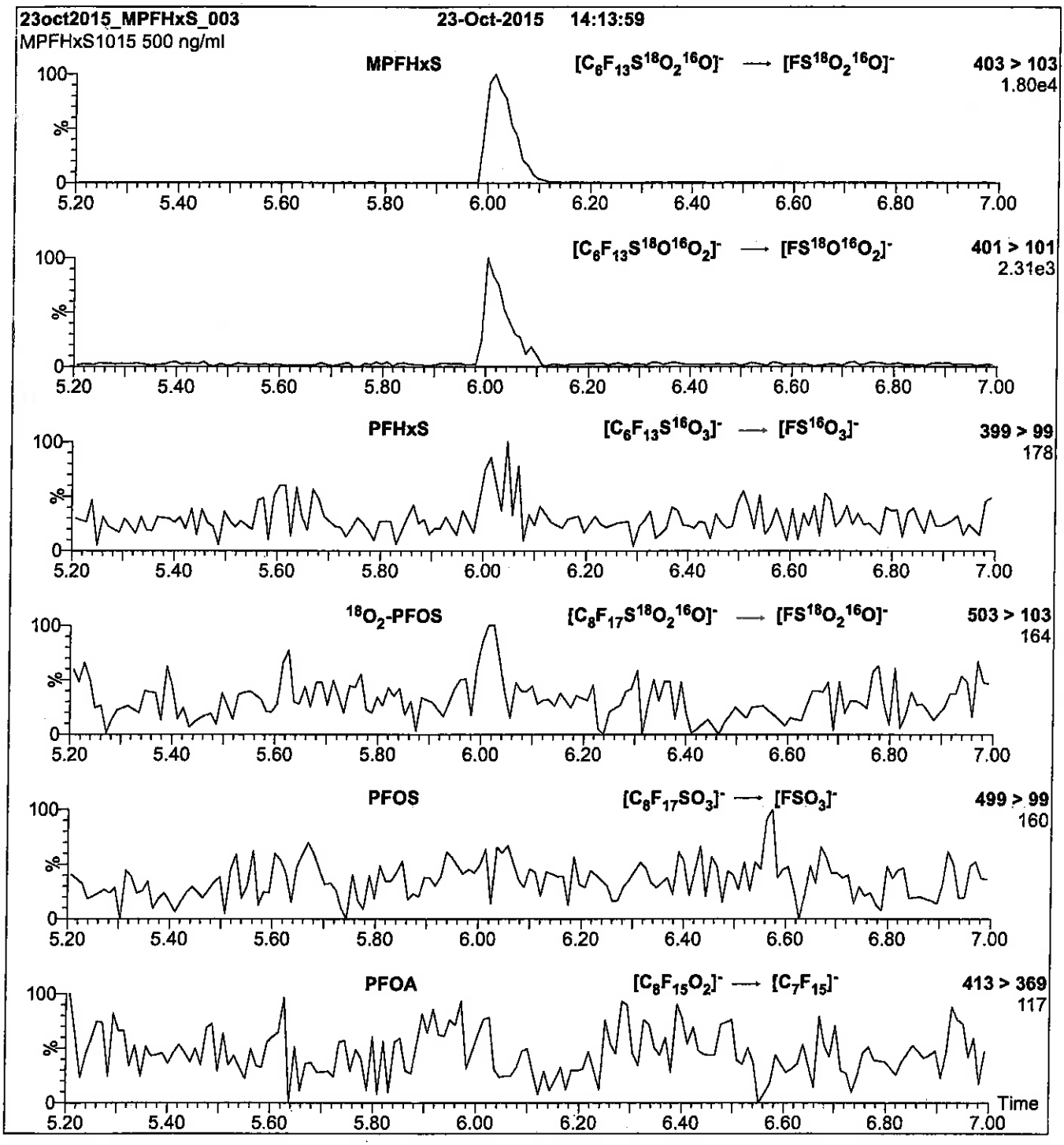
Flow: 300 µl/min

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 µl (500 ng/ml MPFHxS)

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCMPFNA_00008

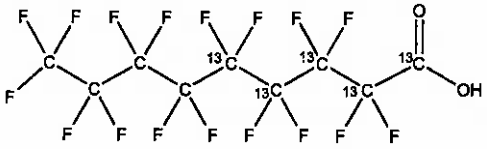
Scanned 10/14/16 R: SBC 9/22/16

739637
ID: LCMPFNA_00008
Exp: 04/13/19 Prpd: SBC
13C5-Perfluorononanoic aci

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFNA	**LOT NUMBER:**	MPFNA0414
COMPOUND:	Perfluoro-n-[1,2,3,4,5-$^{13}C_5$]nonanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_5{}^{12}C_4HF_{17}O_2$	**MOLECULAR WEIGHT:**	469.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4,5-$^{13}C_5$)
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:

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,...x_n on which it depends is:

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

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 ±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:

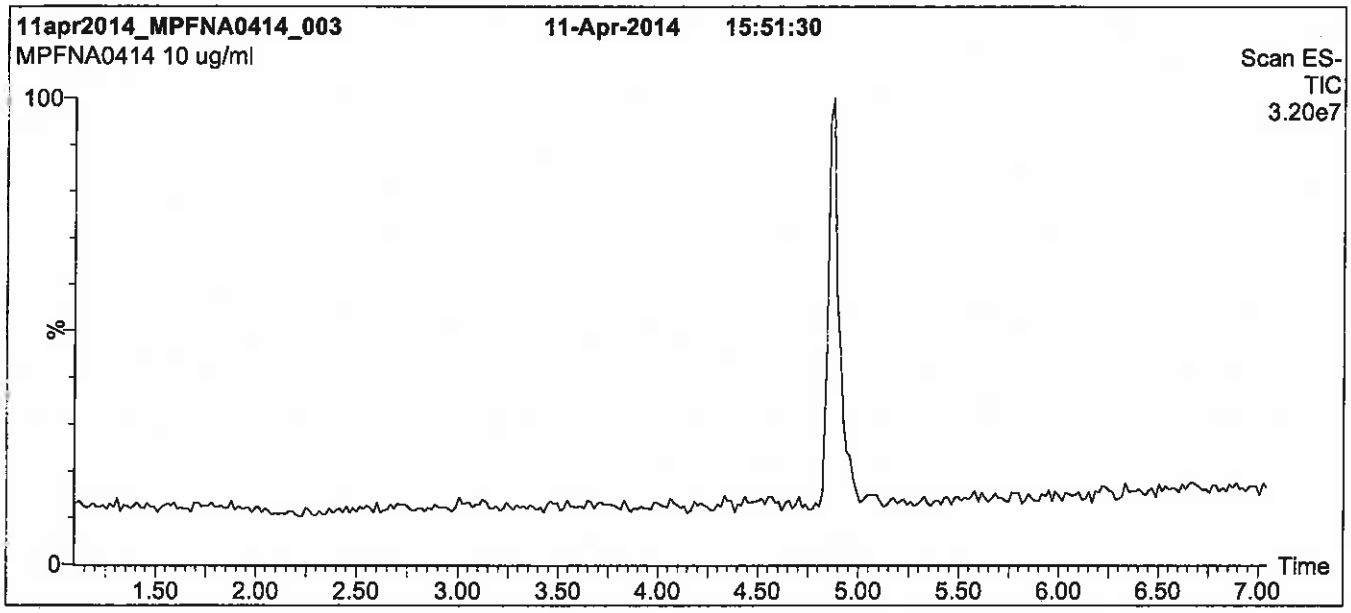
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

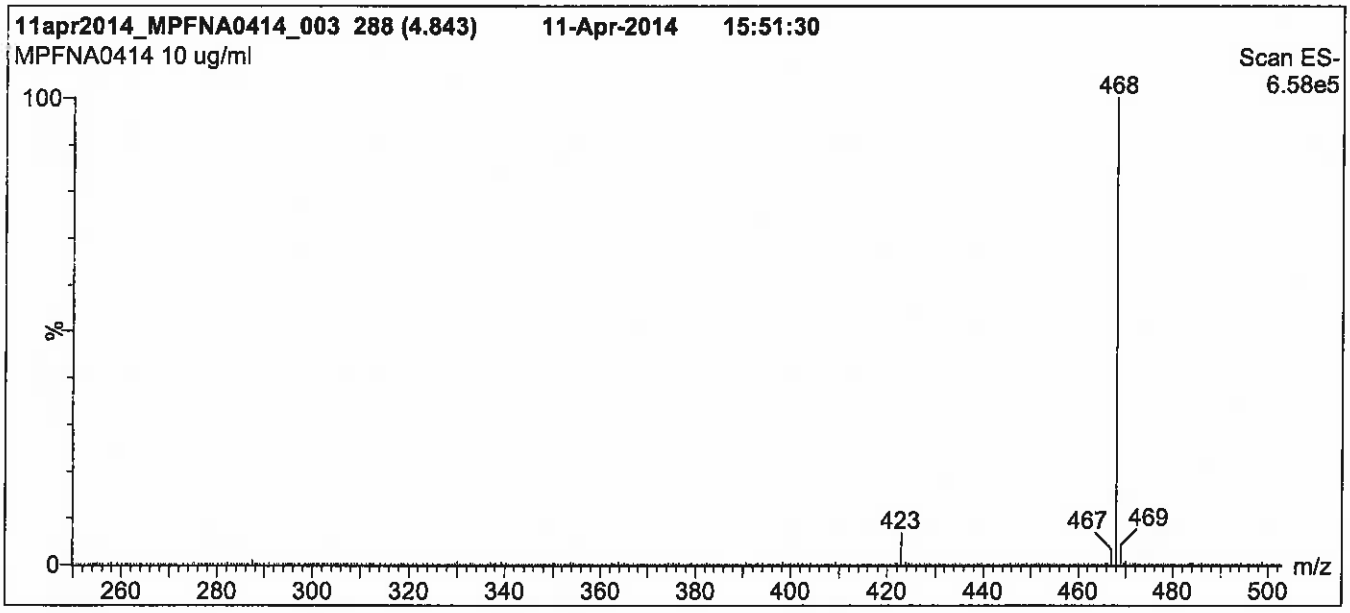
CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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: **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 RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

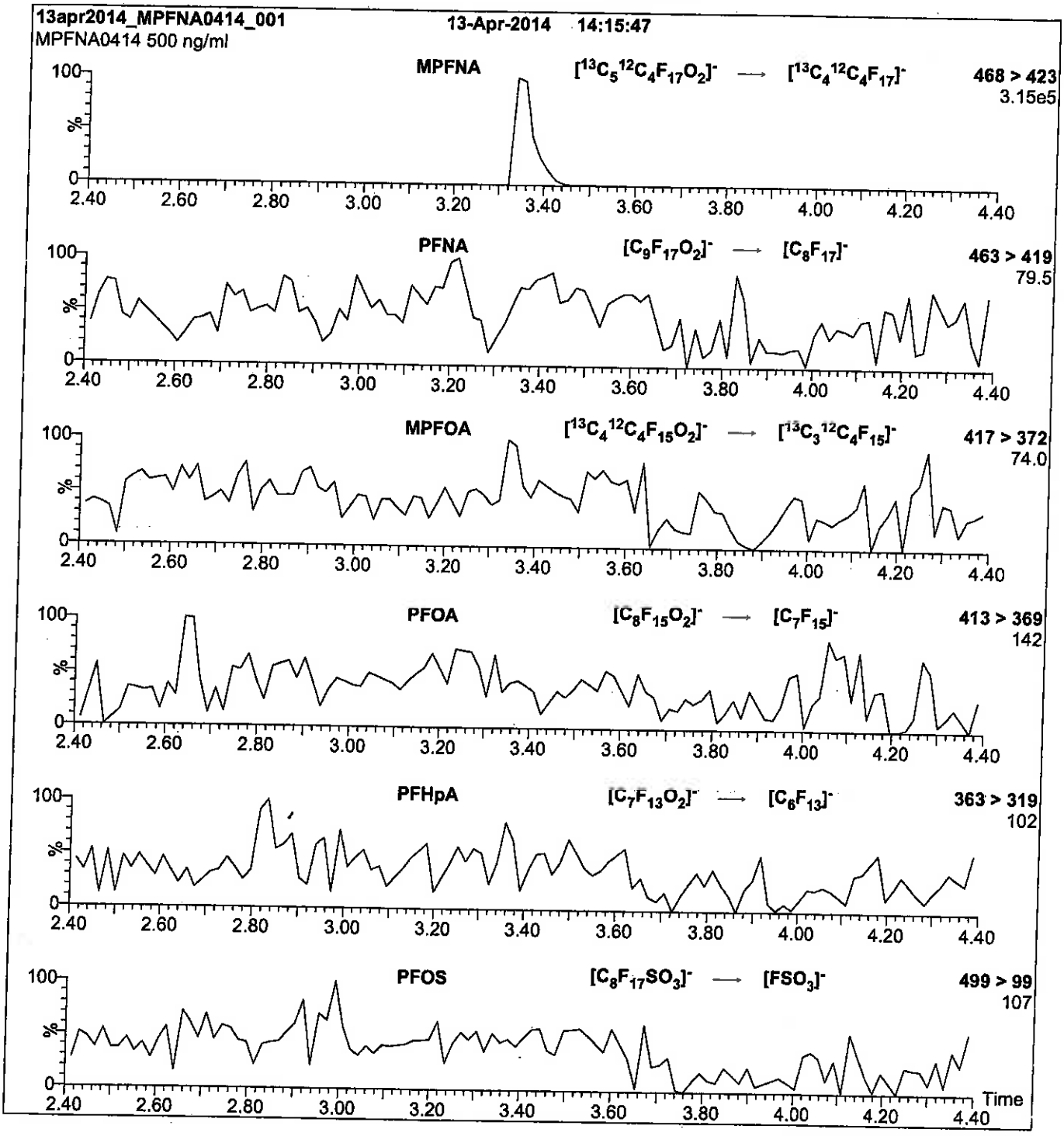
Flow: 300 µl/min

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 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 11

Reagent

LCMPFOA_00012

R: SBC 9/22/16

738683
ID: LCMPFOA_00012
Exp: 01/22/21 Prpd: SBC
13C4-Perfluorooctanoic ac

WELLINGTON LABORATORIES

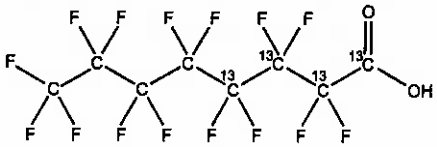
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFOA
COMPOUND: Perfluoro-n-[1,2,3,4-$^{13}C_4$]octanoic acid

LOT NUMBER: MPFOA0116

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_4{}^{12}C_4HF_{15}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

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

MOLECULAR WEIGHT: 418.04
SOLVENT(S): Methanol
Water (<1%)

ISOTOPIC PURITY: ≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 02/01/2016 (mm/dd/yyyy)

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

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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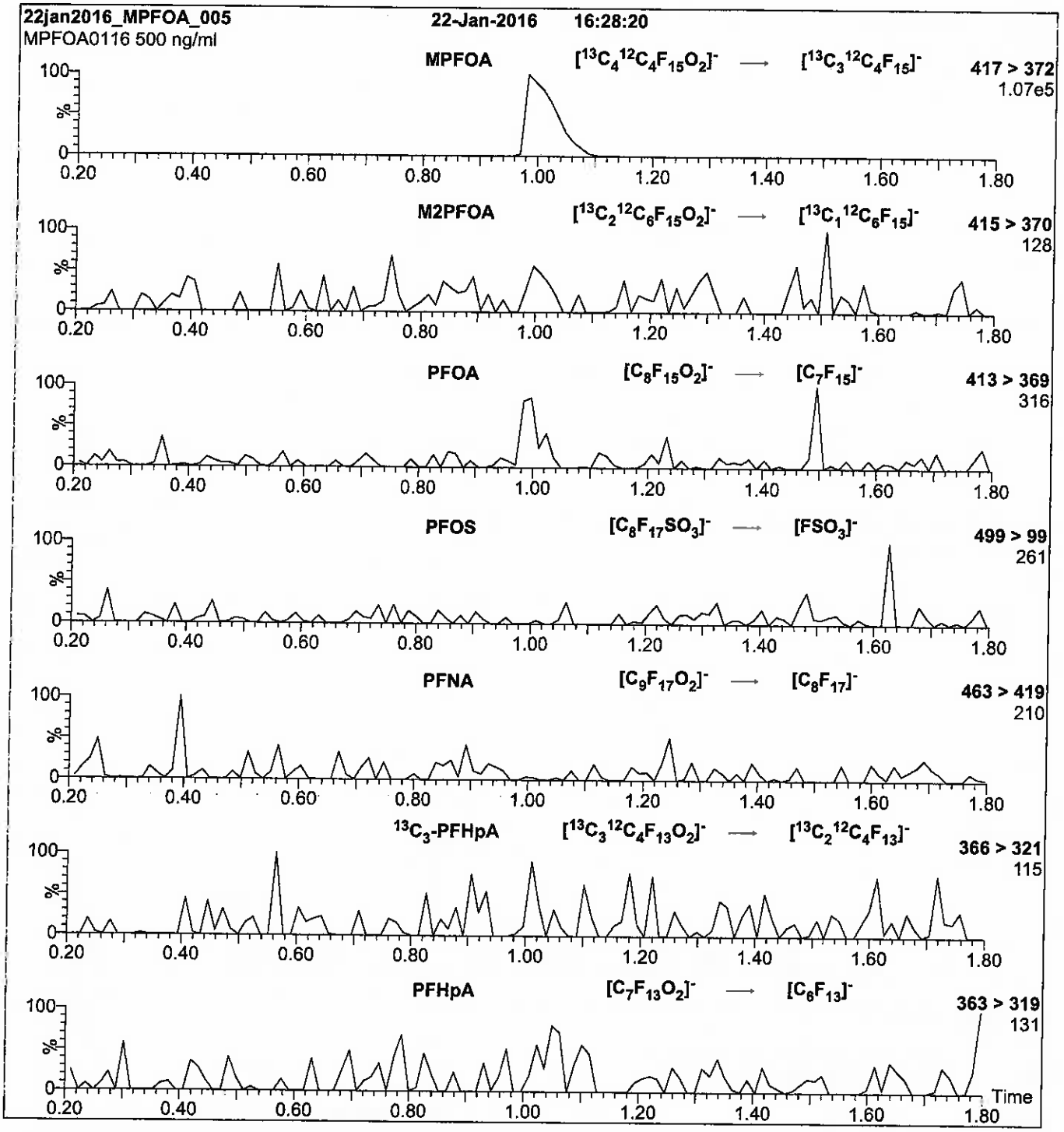
Figure 2: **MPFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

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

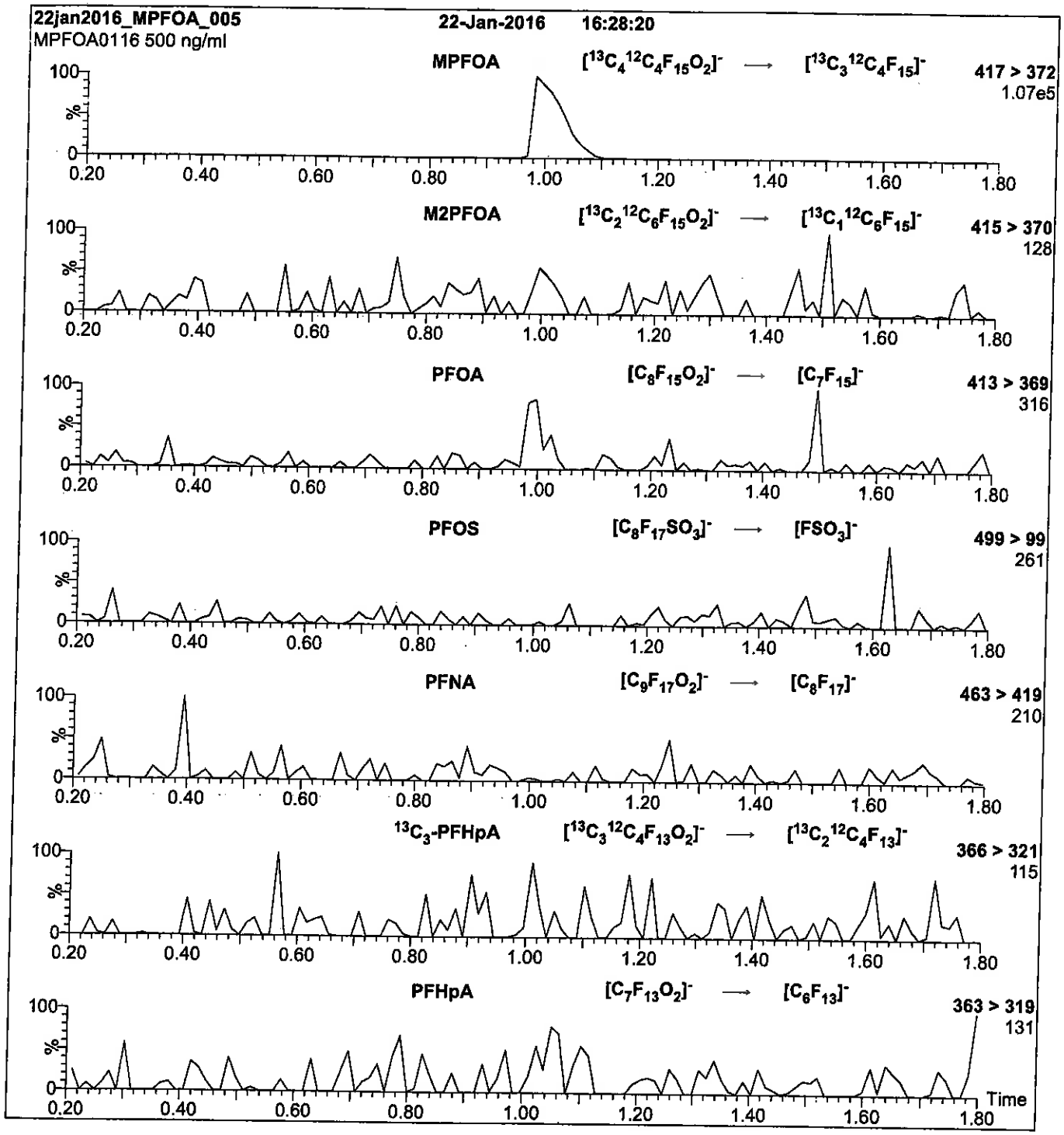
Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.58e-3
Collision Energy (eV) = 10

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



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Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

Collision Gas (mbar) = 3.58e-3
Collision Energy (eV) = 10

Reagent

LCMPFOS_00017

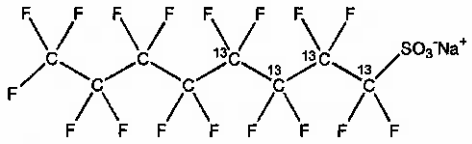
R: 9/9/16 SBC

728309
ID: LCMPFOS_00017
Exp: 08/03/21 Prpd: SBC
13C4-Perfluorooctanesulfo

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS0816
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.8 ± 2.4 µg/ml (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	08/03/2016		
EXPIRY DATE: (mm/dd/yyyy)	08/03/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-$^{13}C_3$]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

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CALA

ANAB ACCREDITED

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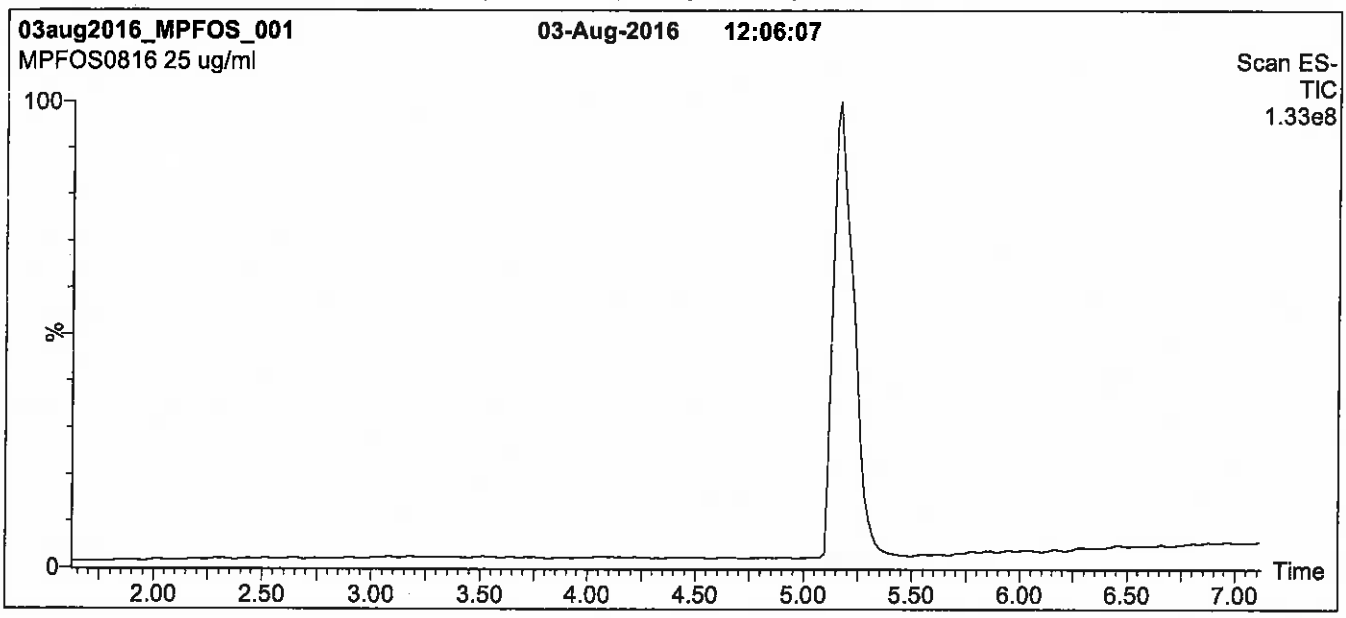
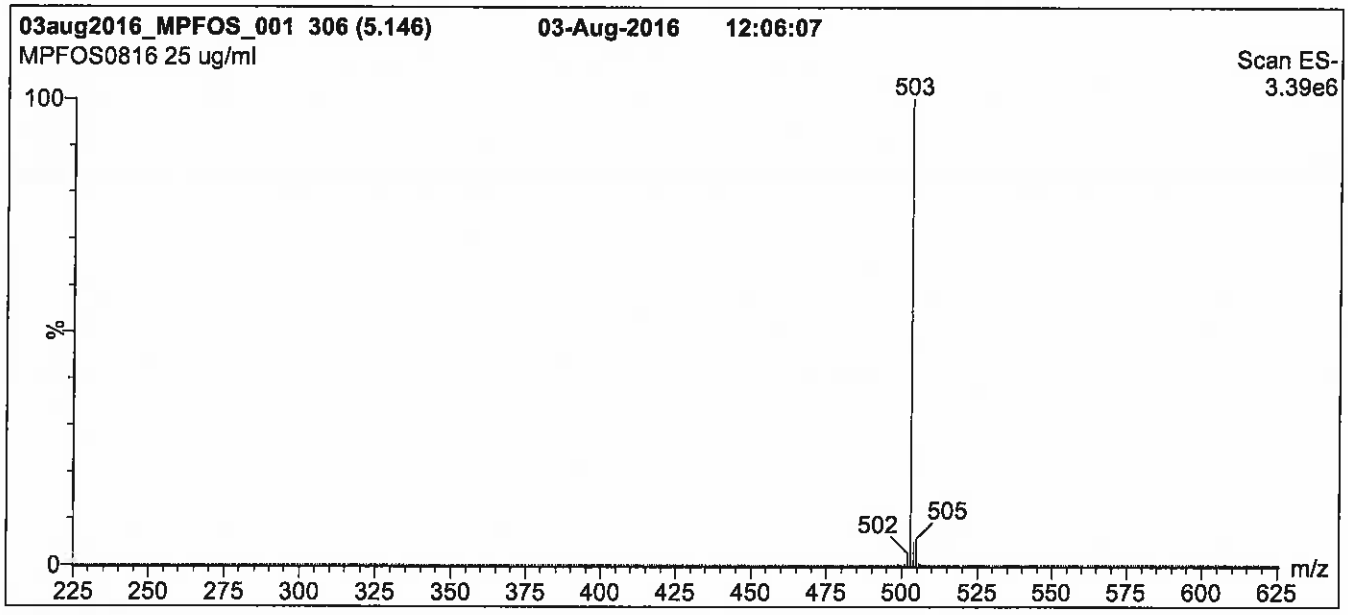
Figure 1: **MPFOS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% (80:20 MeOH:ACN) / 55% H_2O
(both with 10 mM NH_4OAc 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

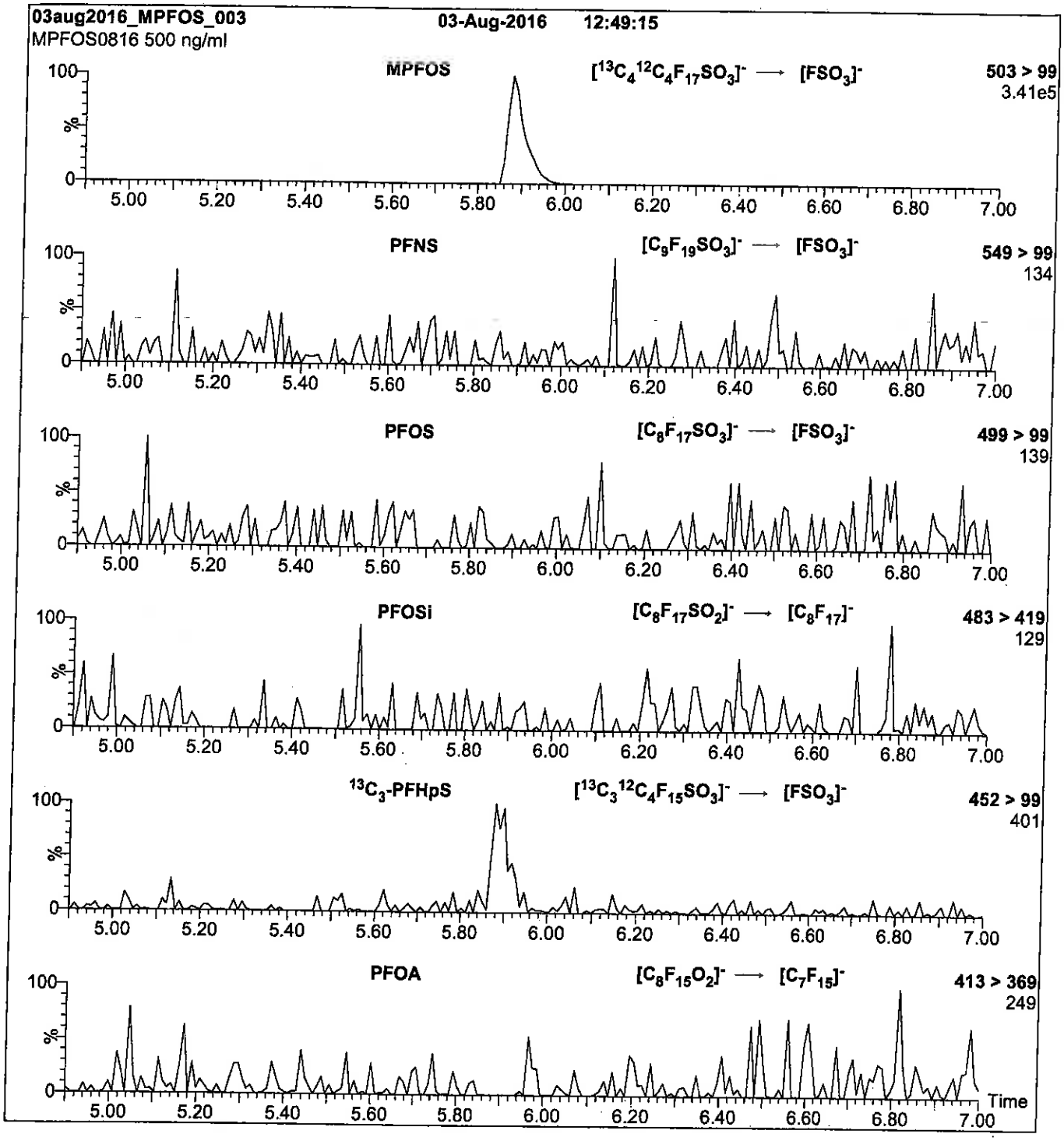
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (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 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 40

Reagent

LCMPFUdA_00009

R: SBC 9/22/16

739604
ID: LCMPFUdA_00009
Exp: 02/12/21 Prpd: SBC
13C2-Perfluoroundecanoic

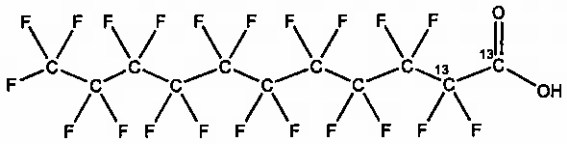
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SBC

PRODUCT CODE: MPFUdA
LOT NUMBER: MPFUdA0216
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]undecanoic acid

STRUCTURE:
CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_9HF_{21}O_2$	**MOLECULAR WEIGHT:**	566.08
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)	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.
- Presence of 1-$^{13}C_1$-PFUdA (~1%; see Figure 2), 2-$^{13}C_1$-PFUdA (~1%), and PFUdA (~0.2%; see Figure 2) are due to the isotopic purity of the ^{13}C-precursor.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 02/24/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

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 ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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LIMITED WARRANTY:

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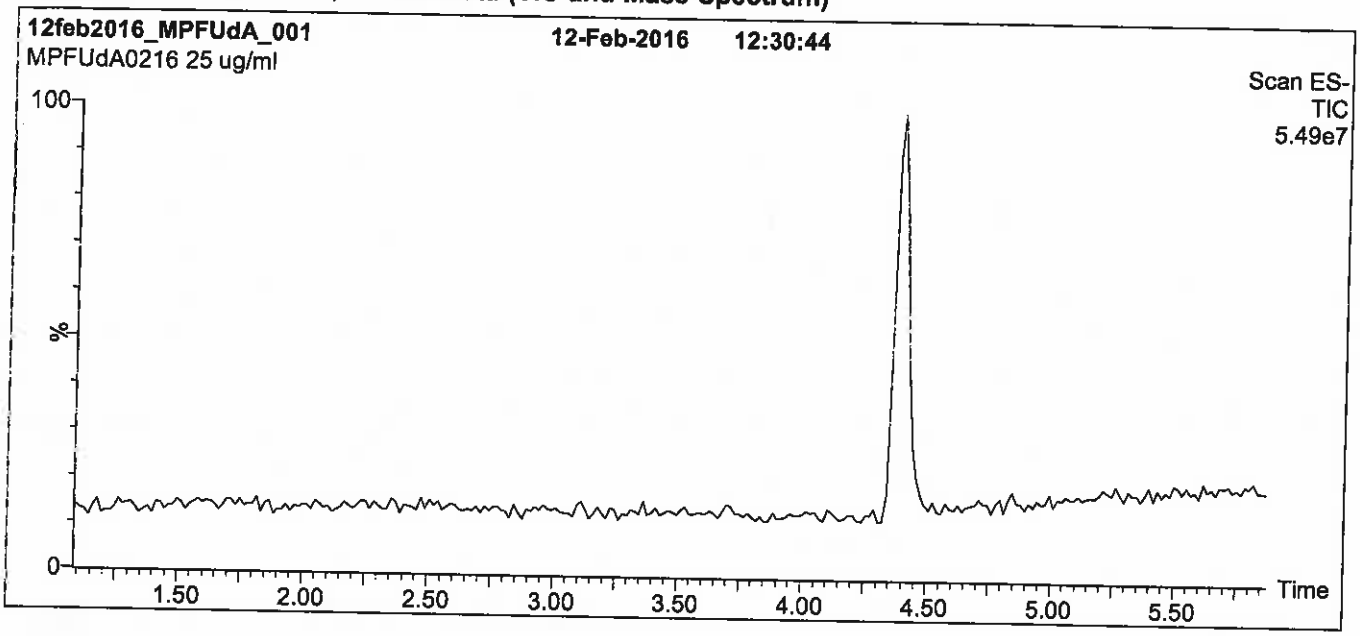
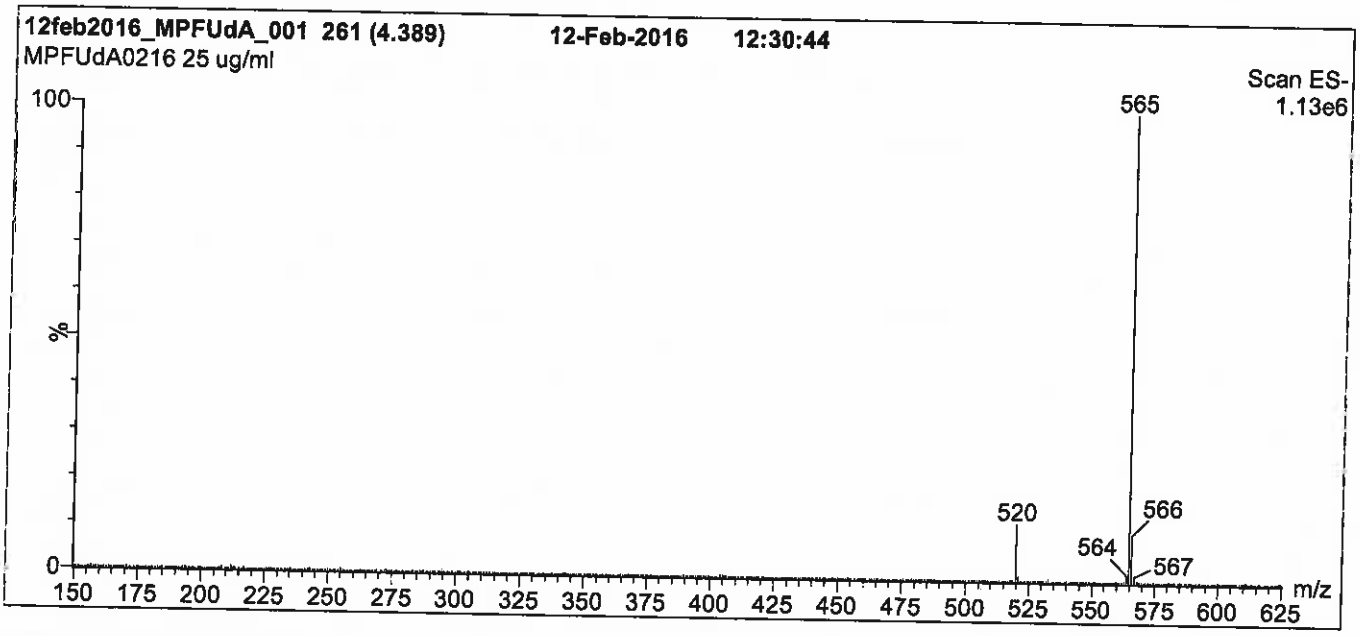
Figure 1: **MPFUdA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc 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

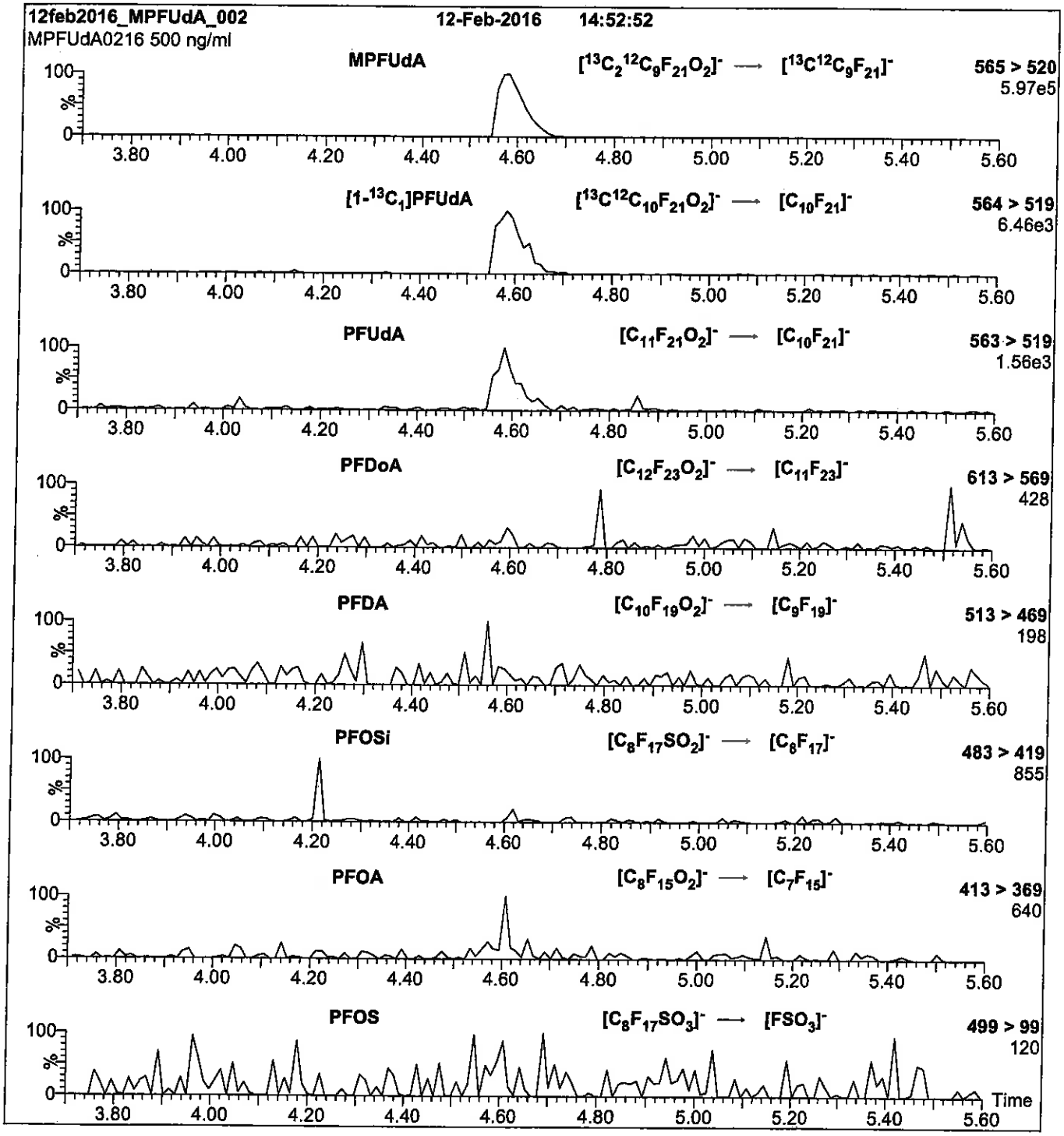
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

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

Reagent

LCN-EtFOSA-M_00003

R: 8/23/16 SBC

715563
ID: LCN-EtFOSA-M_00003
Exp: 05/24/21 Prpd: SBC
N-EtFOSA-M

WELLINGTON LABORATORIES

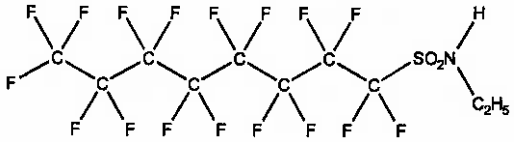
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: NEtFOSA0516M

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:	$C_{10}H_8F_{17}NO_2S$	**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

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CALA Testing

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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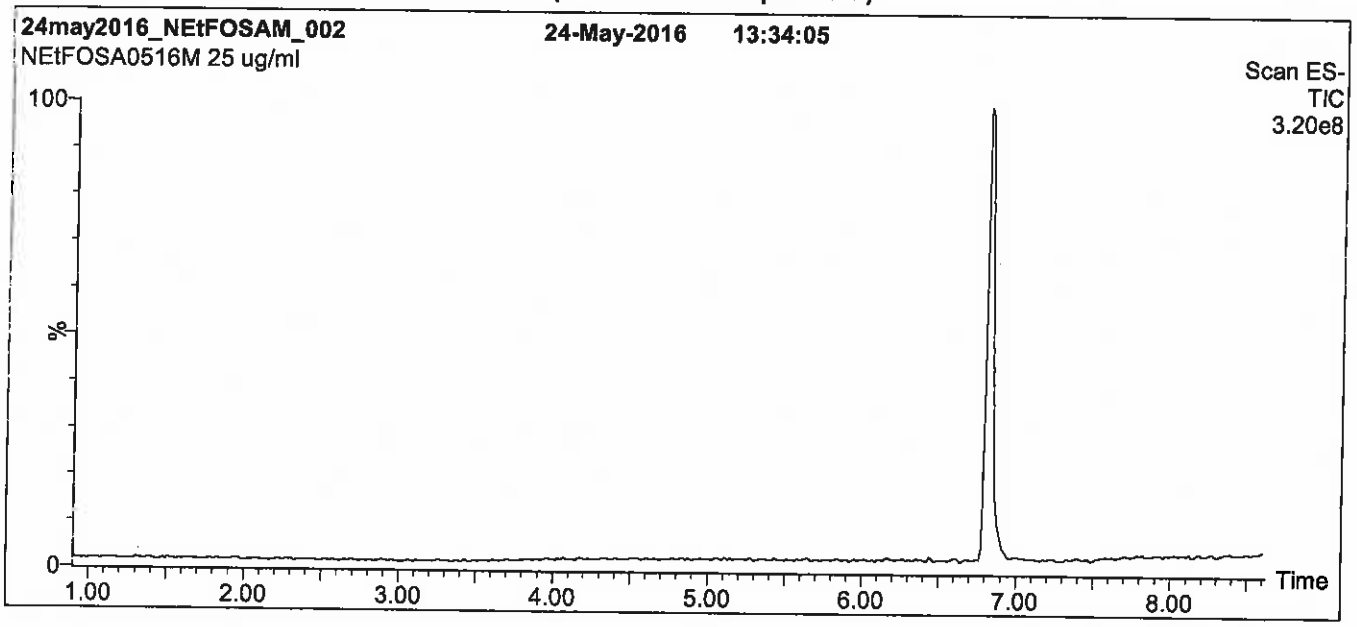
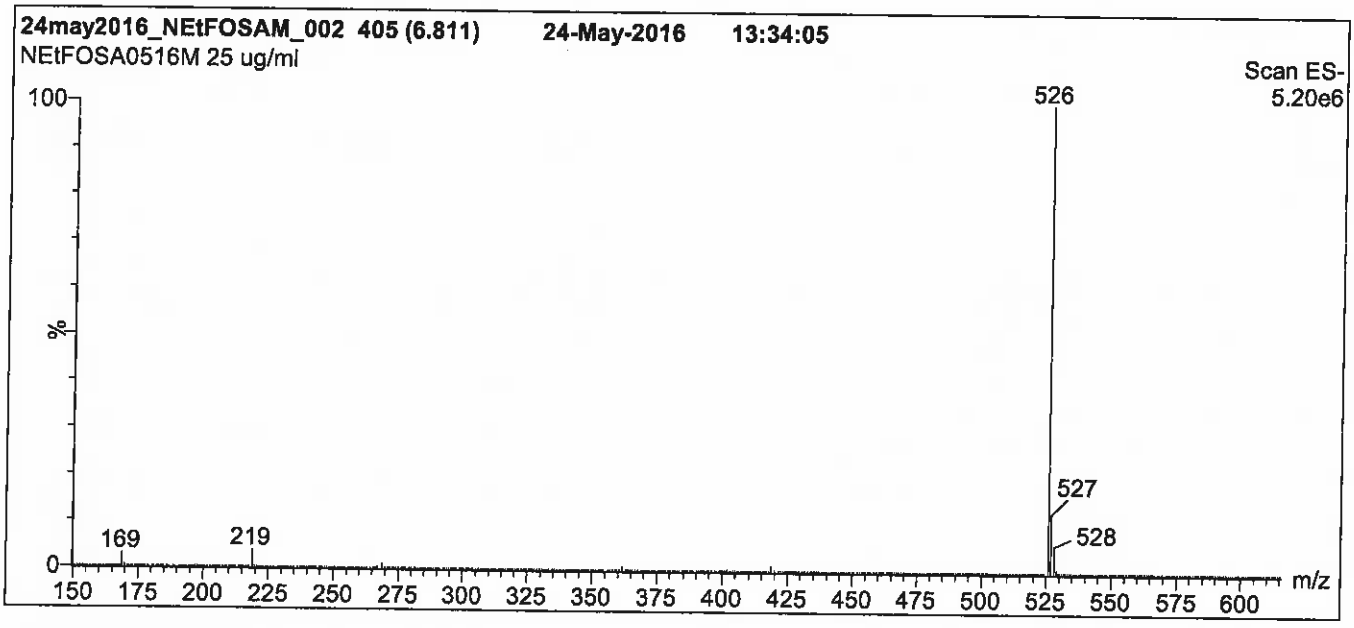
Figure 1: **N-EtFOSA-M; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc 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

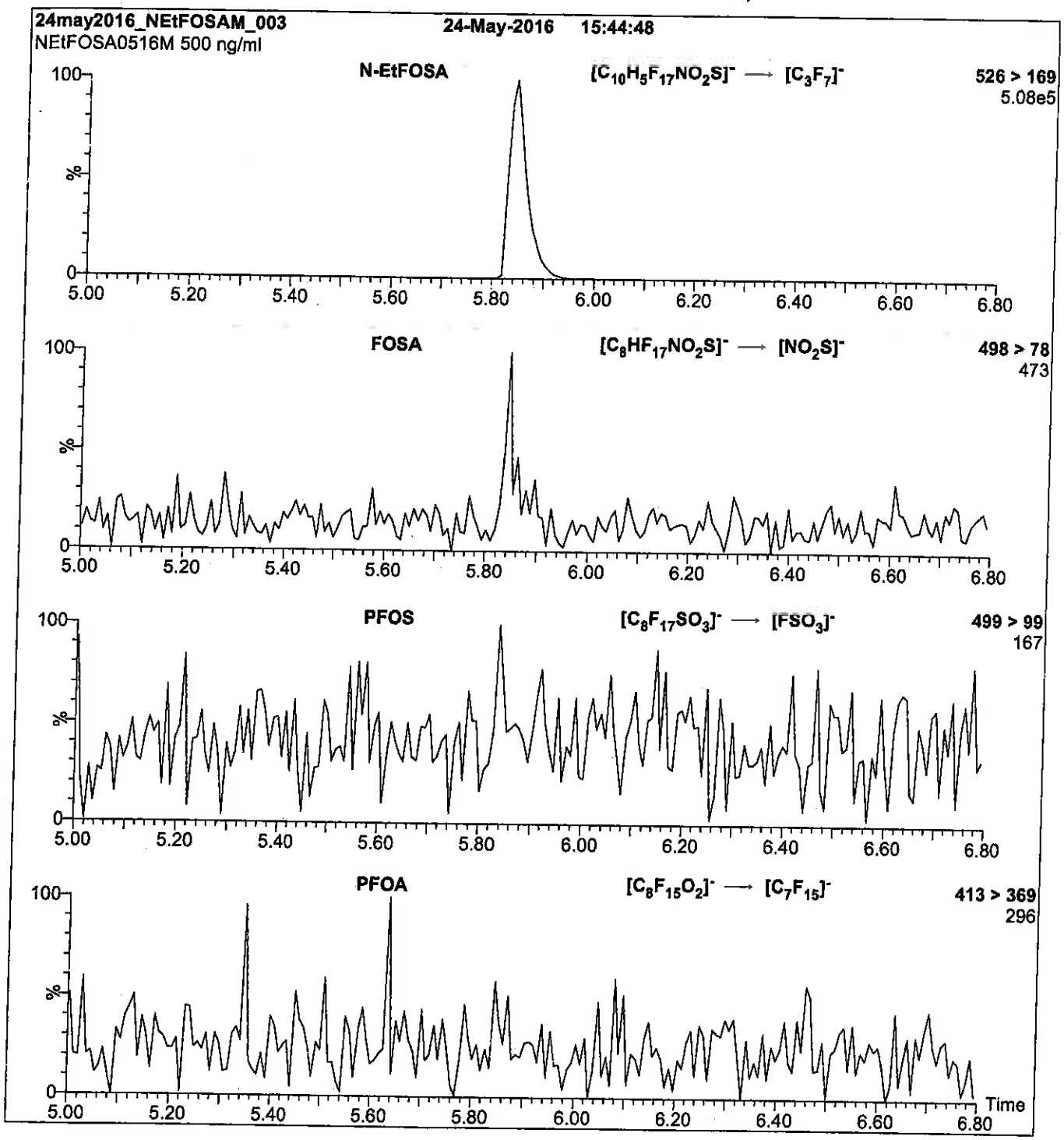
Flow: 300 µl/min

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 µl (500 ng/ml N-EtFOSA-M)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

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

Reagent

LCN-EtFOSAA_00002

R: 8/23/16 SBE

715561
ID: LCN-EtFOSAA_00002
Exp: 01/20/21 Prpd: SBC
N-EtFOSAA

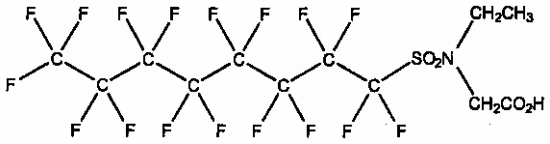
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSAA **LOT NUMBER:** NEtFOSAA0116

COMPOUND: N-ethylperfluoro-1-octanesulfonamidoacetic acid

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



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

CONCENTRATION: 50 ± 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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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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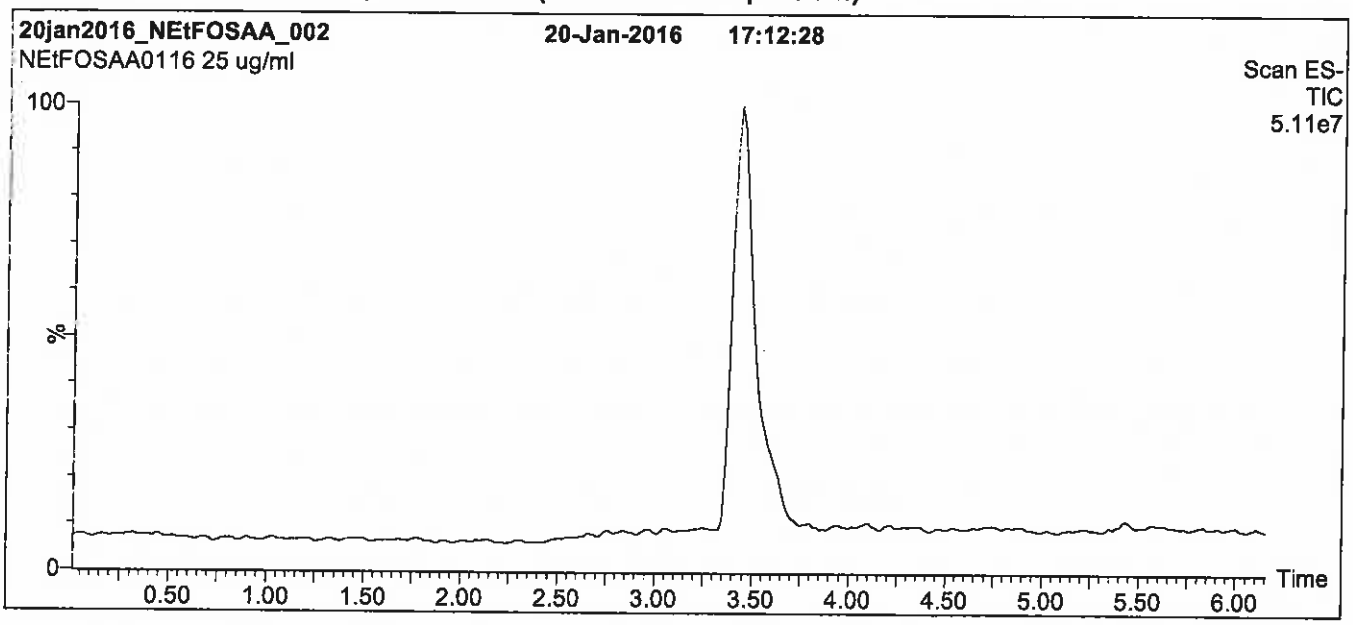
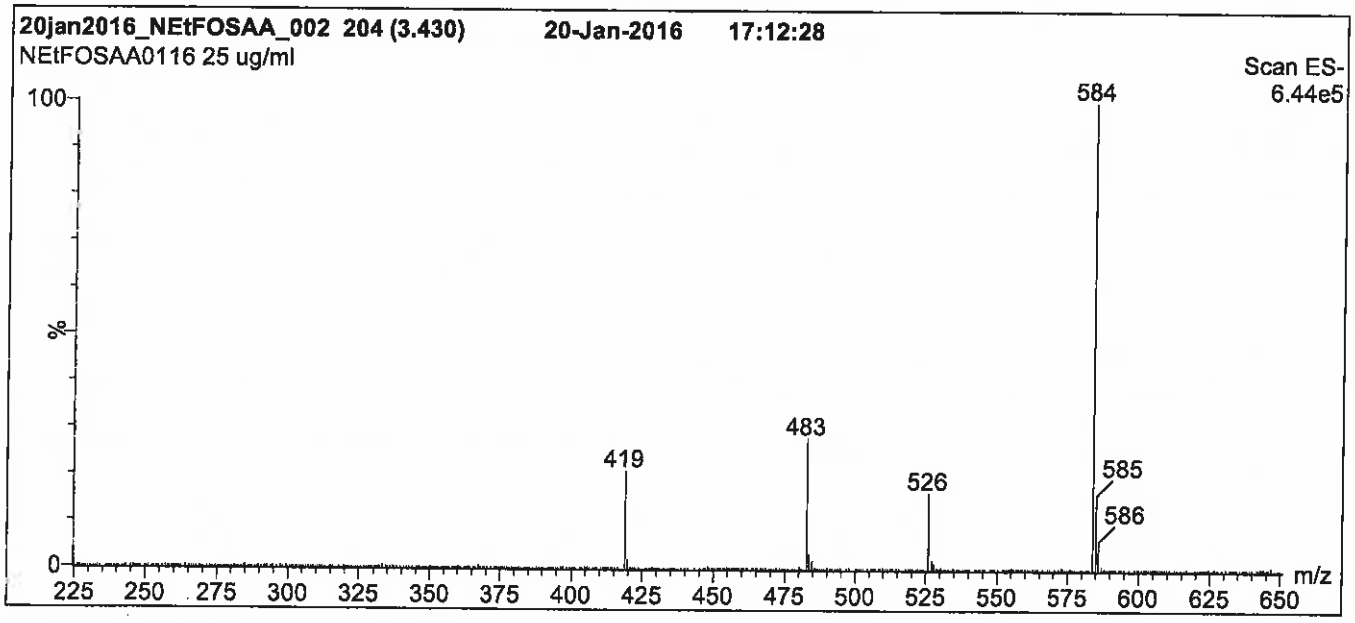
Figure 1: **N-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc 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

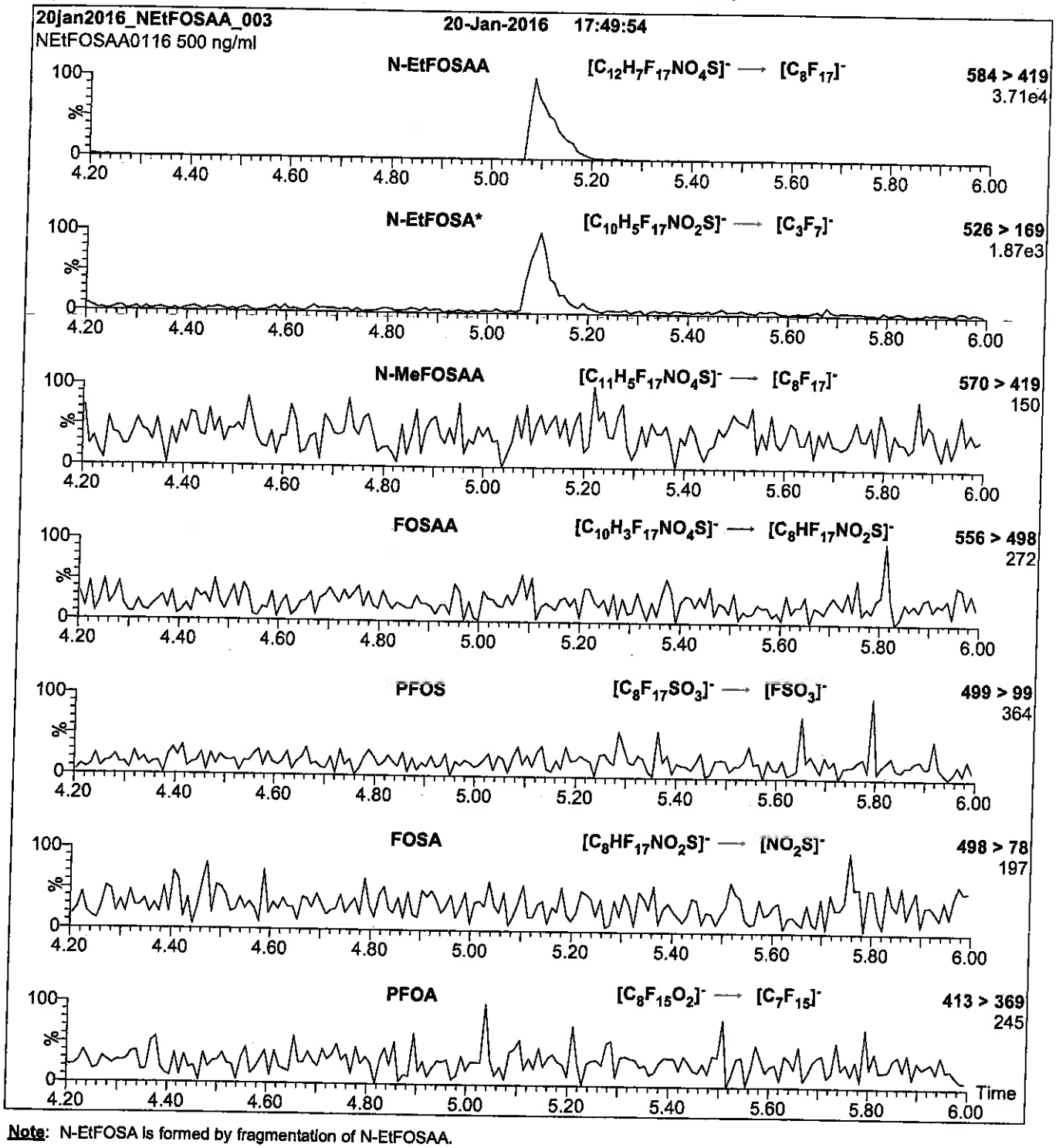
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (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 µl (500 ng/ml N-EtFOSAA)

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
Collision Energy (eV) = 25

Reagent

LCN-MeFOSA-M_00002

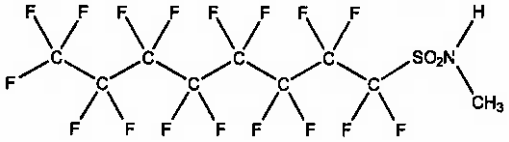
R: 8/23/16 SBC

715564
ID: LCN-MeFOSA-M_00002
Exp: 05/24/21 Prpd: SBC
N-MeFOSA-M

WELLINGTON 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:	$C_8H_4F_{17}NO_2S$	**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		
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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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CALA

ANAB ACCREDITED

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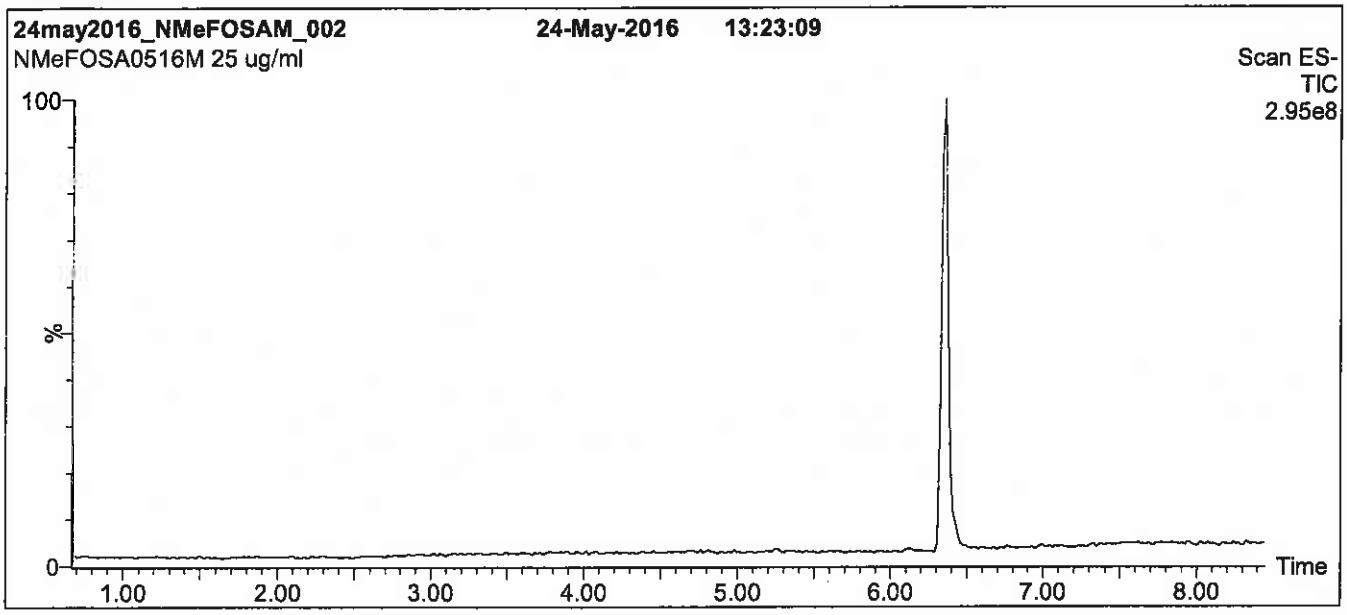
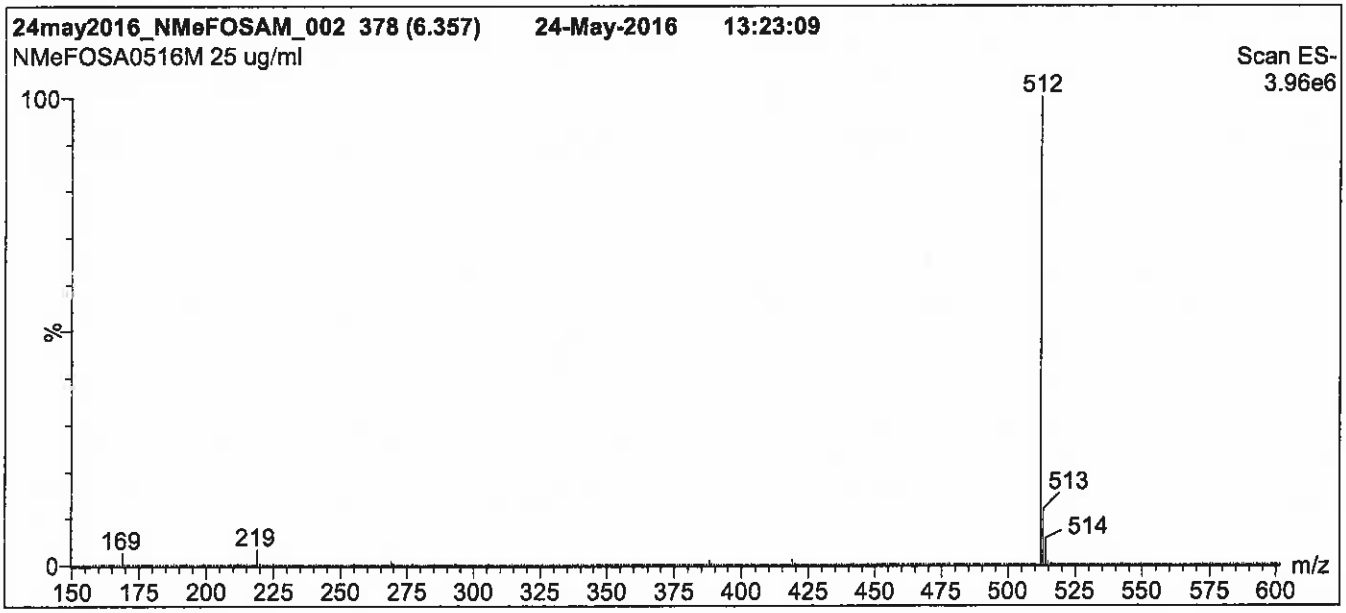
Figure 1: **N-MeFOSA-M; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H_2O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc 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

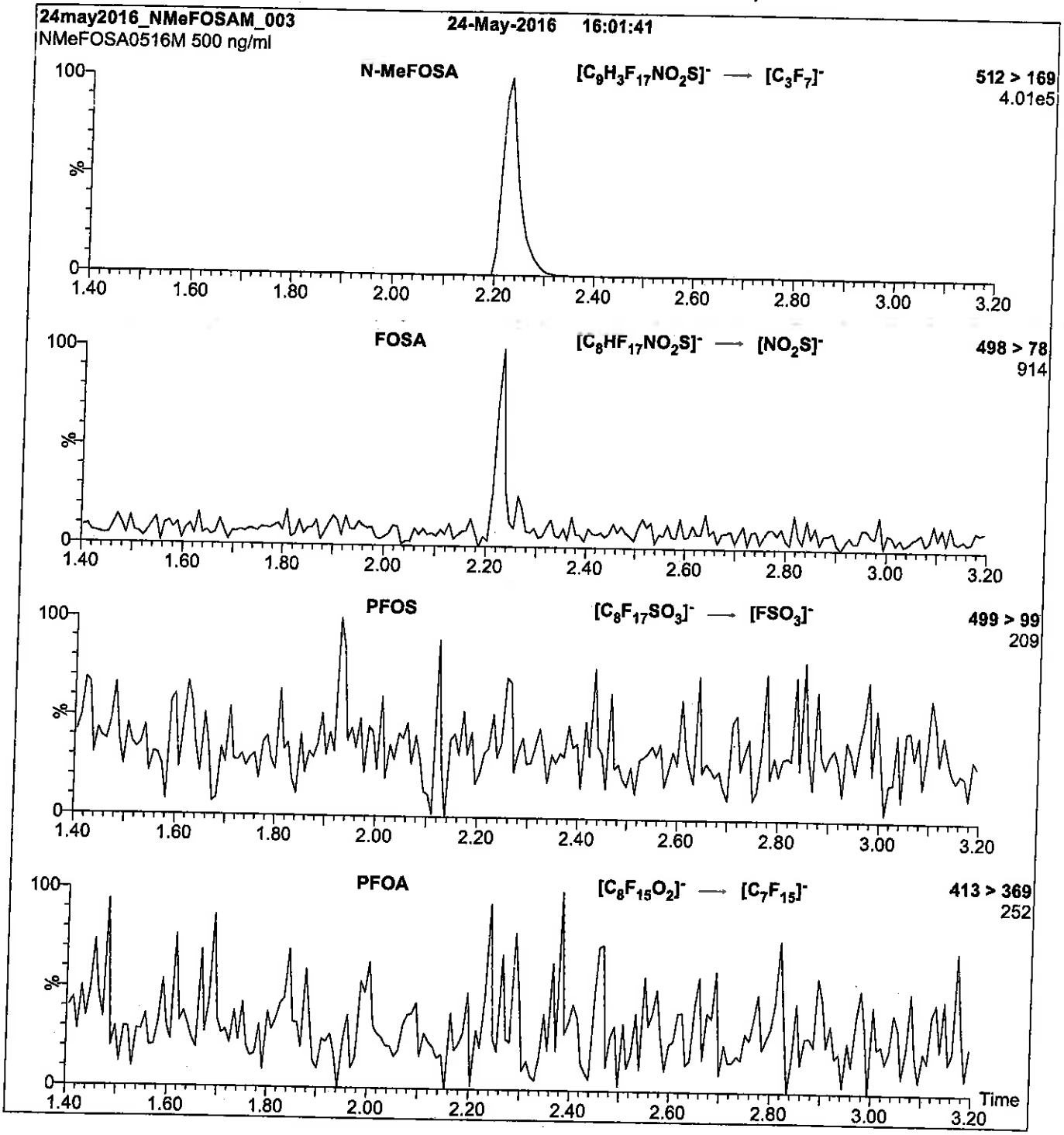
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml N-MeFOSA-M)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

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

Reagent

LCN-MeFOSAA_00003

R: 8/23/16 SBC

715562
ID: LCN-MeFOSAA_00003
Exp: 01/20/21 Prpd: SBC
N-MeFOSAA

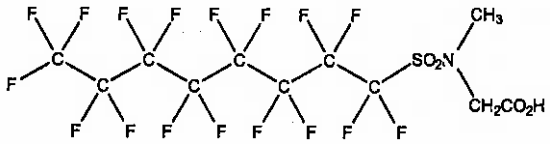
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSAA **LOT NUMBER:** NMeFOSAA0116

COMPOUND: N-methylperfluoro-1-octanesulfonamidoacetic acid

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



MOLECULAR FORMULA: $C_{11}H_6F_{17}NO_4S$ **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: B.G. Chittim **Date:** 01/21/2016 (mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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CALA Testing

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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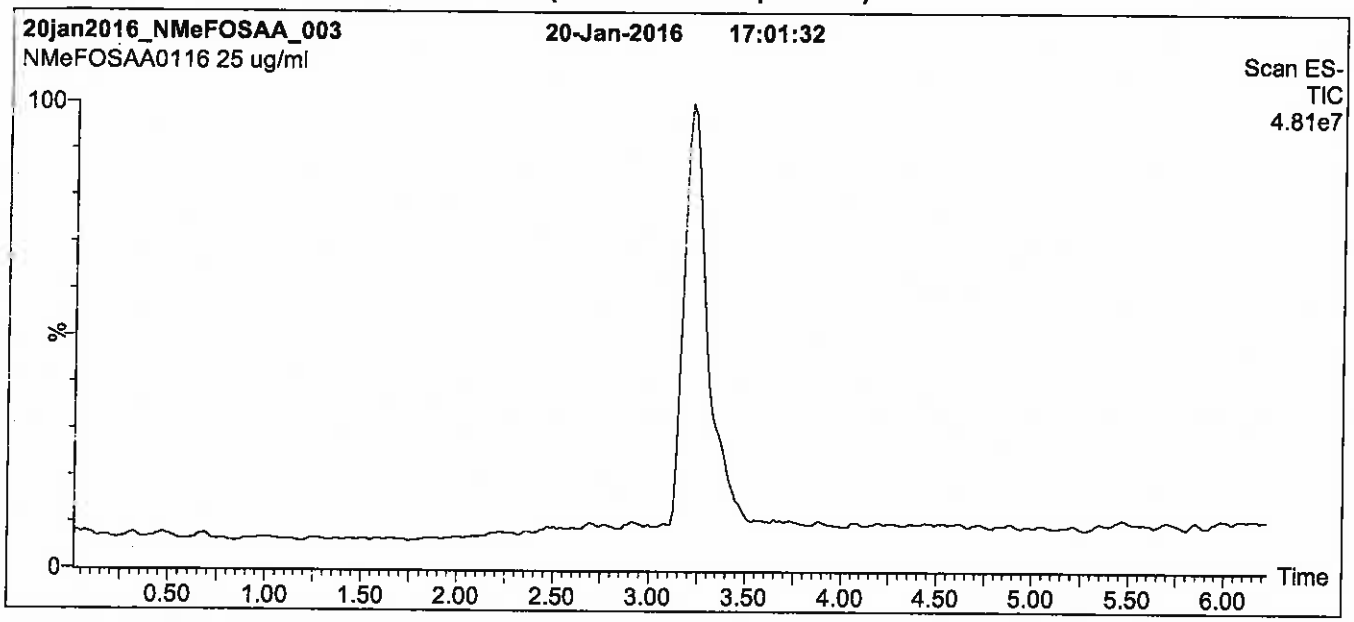
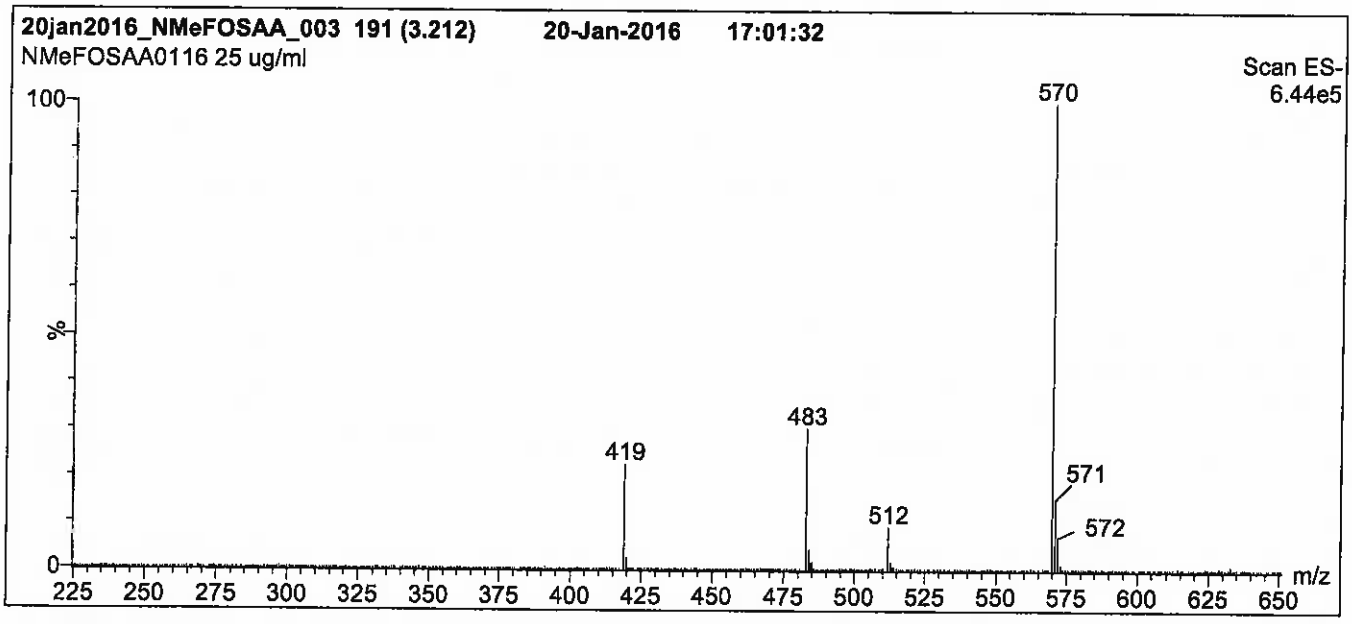
Figure 1: **N-MeFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc 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

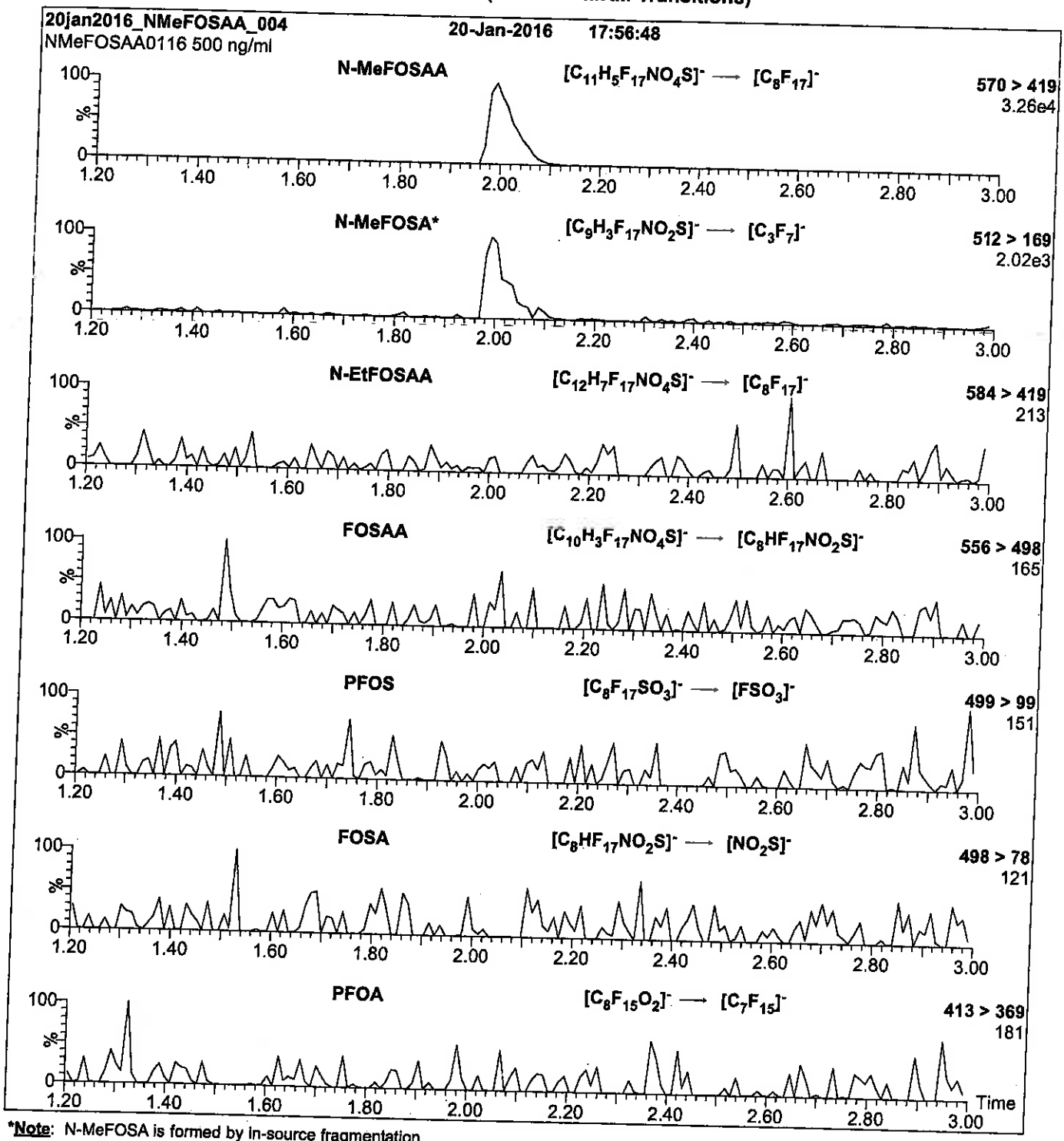
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



***Note**: N-MeFOSA is formed by in-source fragmentation.

Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
Collision Energy (eV) = 25

Reagent

LCPFACMXB_00007

P: 12/30/15 CW

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 (C_4-C_{14}, C_{16}, and C_{18}) and four native perfluoroalkylsulfonates (C_4, C_6, C_8 and C_{10}). The full name, abbreviation and concentration for each of the components are given in Table A.

The individual perfluoroalkylcarboxylic acids and perfluoroalkylsulfonates all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

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

INTENDED USE:

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

HAZARDS:

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HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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CALA Testing

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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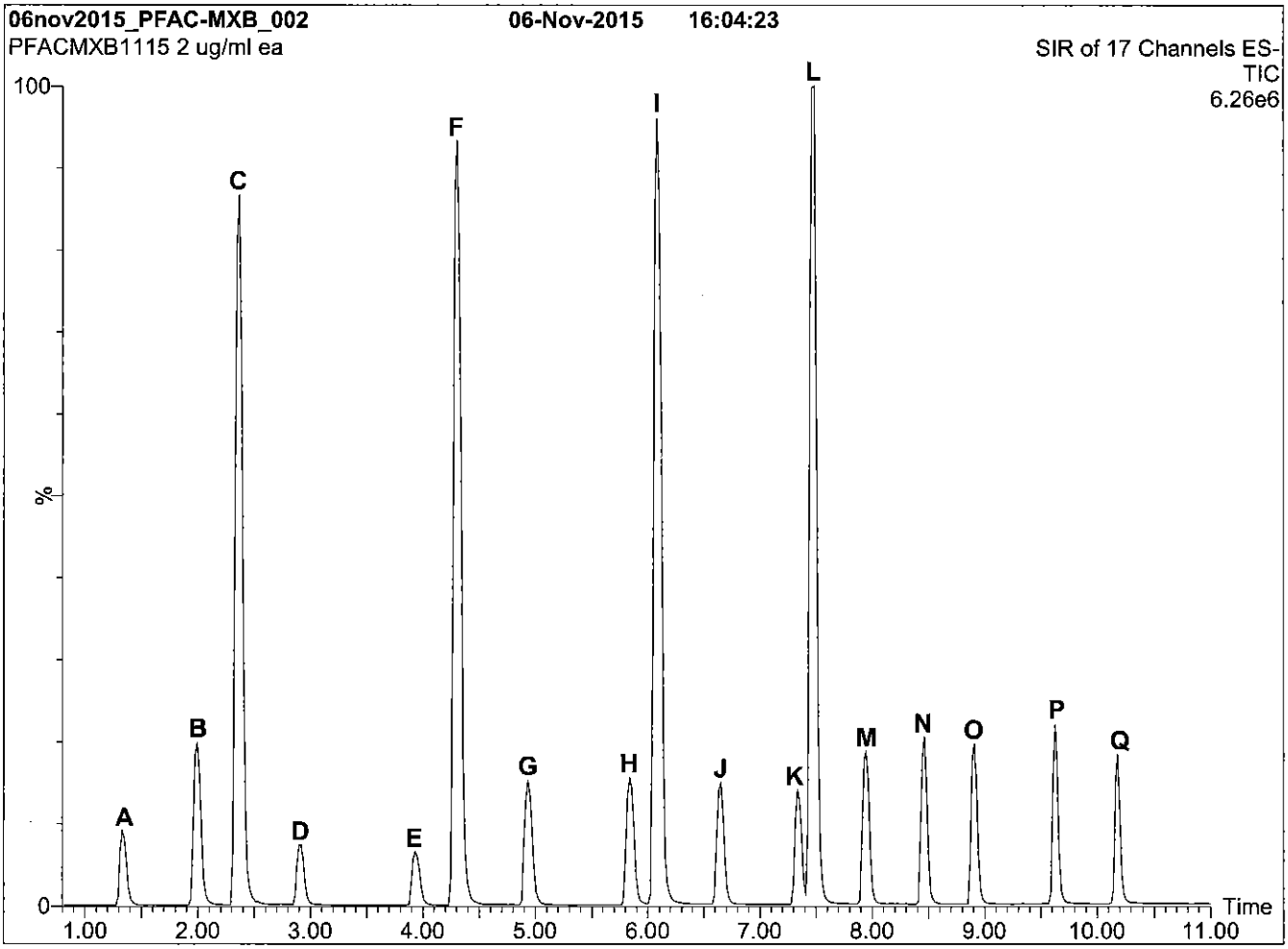
Table A: **PFAC-MXB; Components and Concentrations (ng/ml, ± 5% in Methanol / Water (<1%))**

Name	Abbreviation	Concentration (ng/ml)	Peak Assignment In Figure 1
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 RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% H_2O / 45% (80:20 MeOH:ACN)
(both with 10 mM NH_4OAc 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 µl/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)**

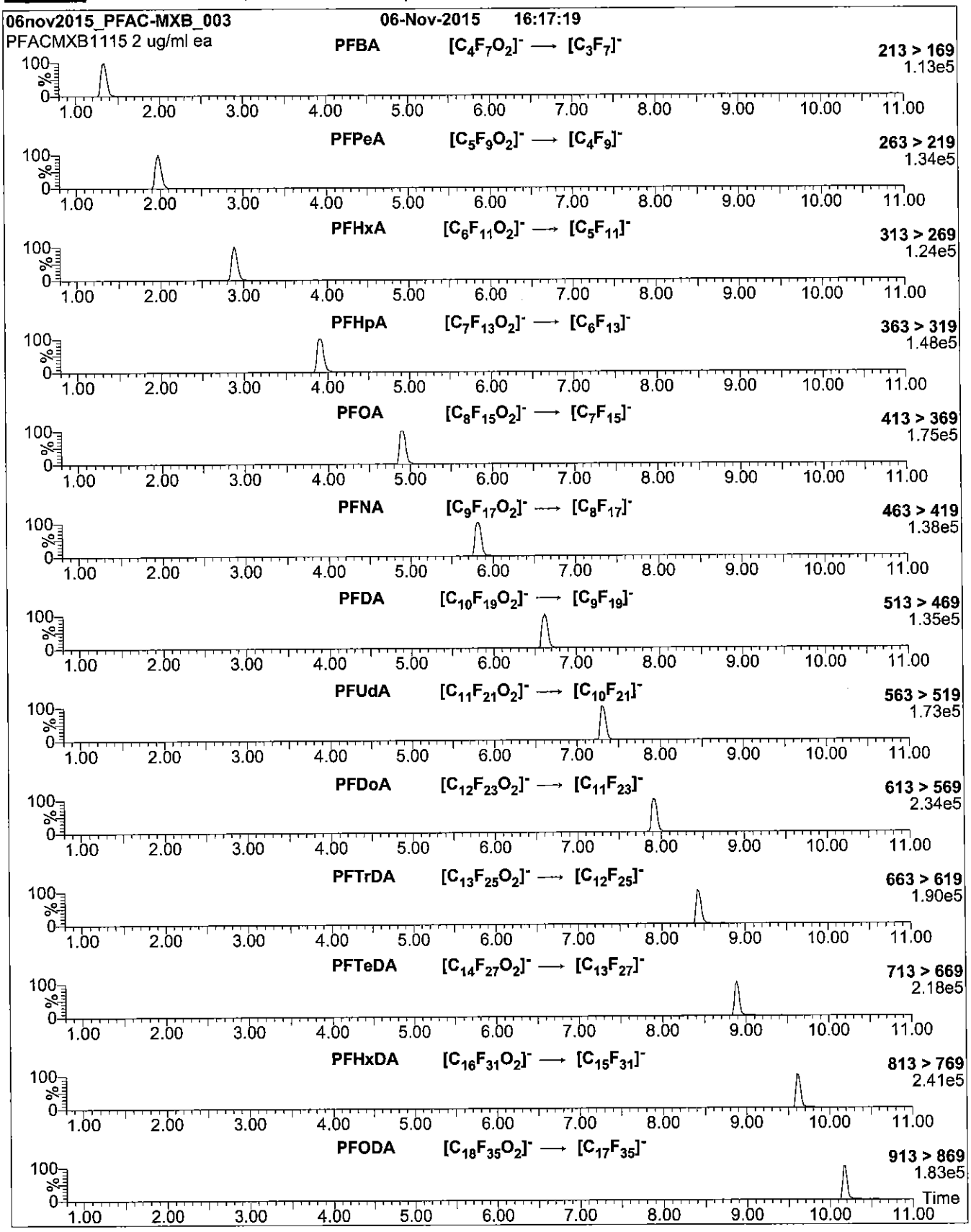
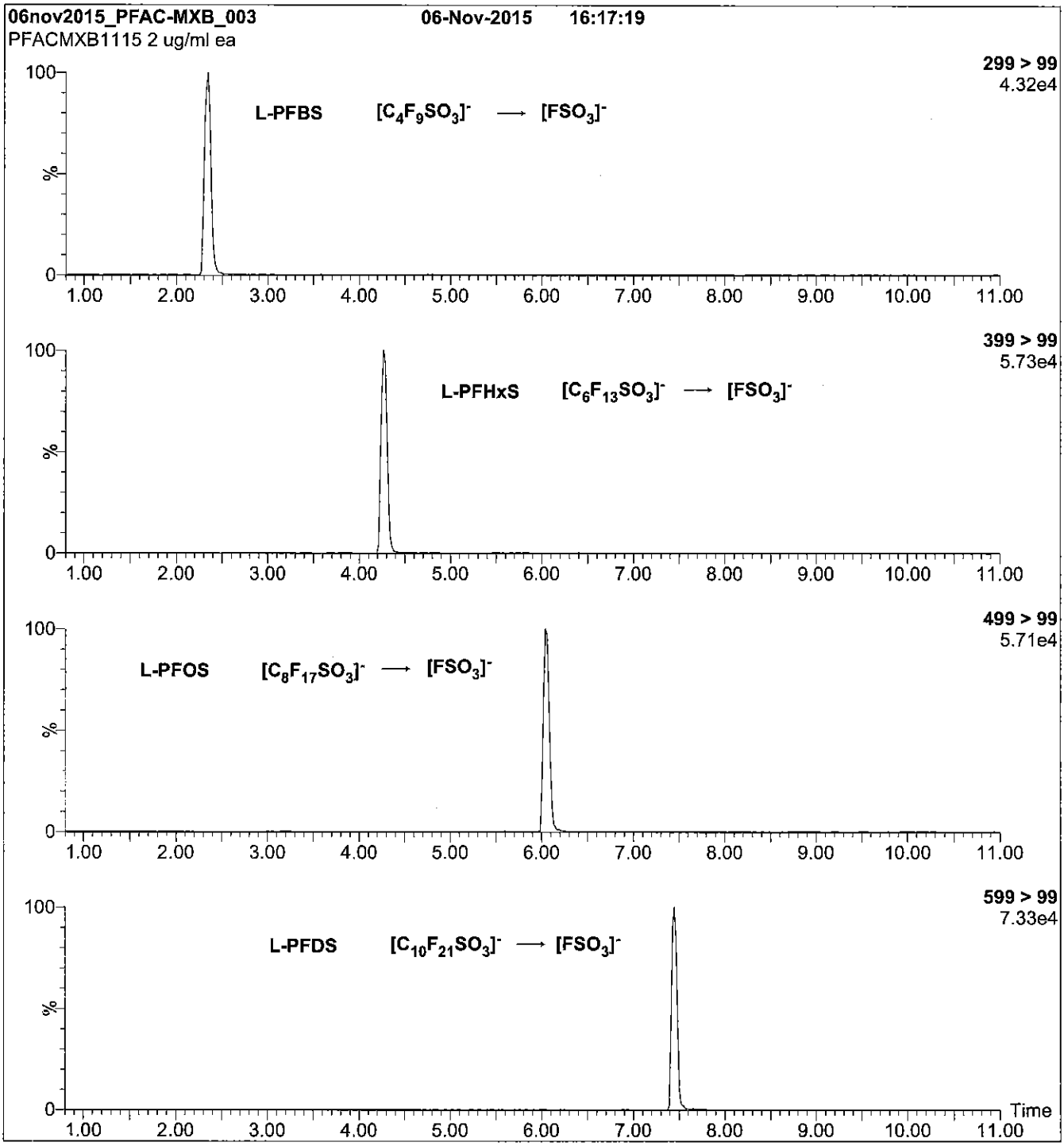


Figure 3: **PFAC-MXB; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figures 2 and 3:

Injection: on-column (PFAC-MXB)

Mobile phase: Same as Figure 1

Flow: 300 µl/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-butanoic acid

730532
ID: LCPFBA_00006
Exp: 05/27/21 Prpd: SBC
PF-n-butanoic acid

WELLINGTON LABORATORIES

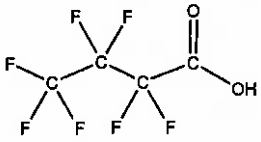
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFBA
COMPOUND: Perfluoro-n-butanoic acid

LOT NUMBER: PFBA0516

STRUCTURE:

CAS #: 375-22-4



MOLECULAR FORMULA: $C_4HF_7O_2$
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.

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Certified By: B.G. Chittim **Date:** 05/31/2016 (mm/dd/yyyy)

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CALA

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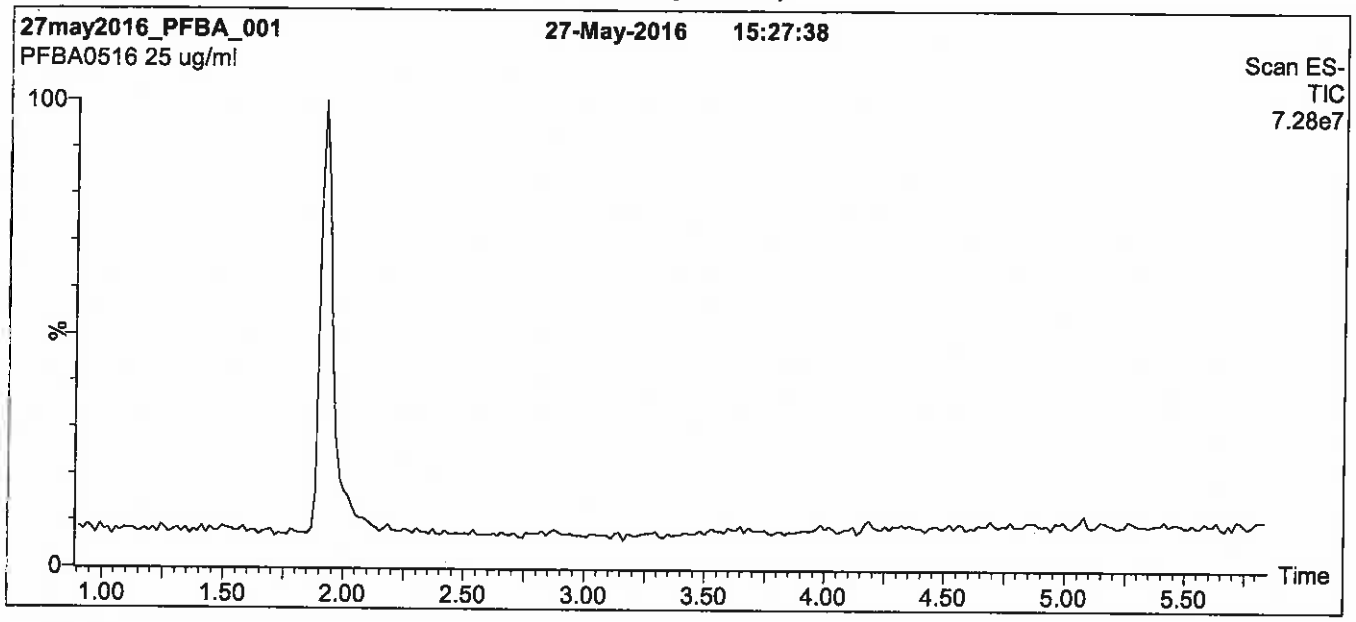
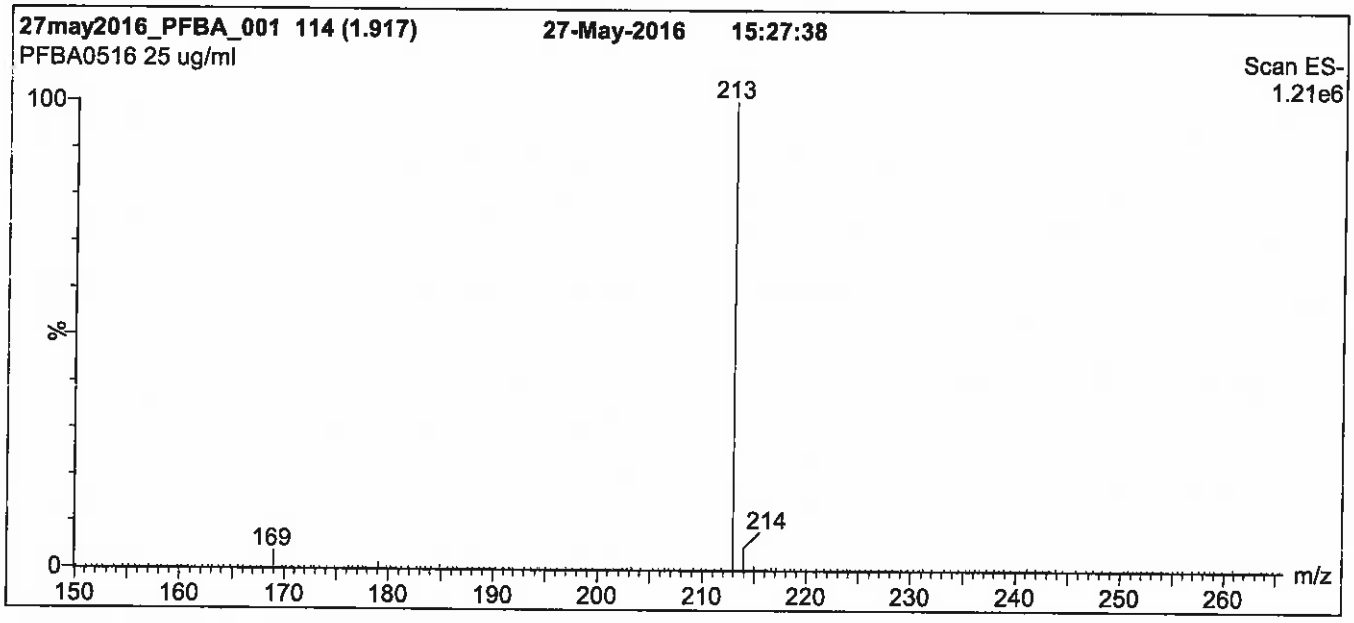
Figure 1: **PFBA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc 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

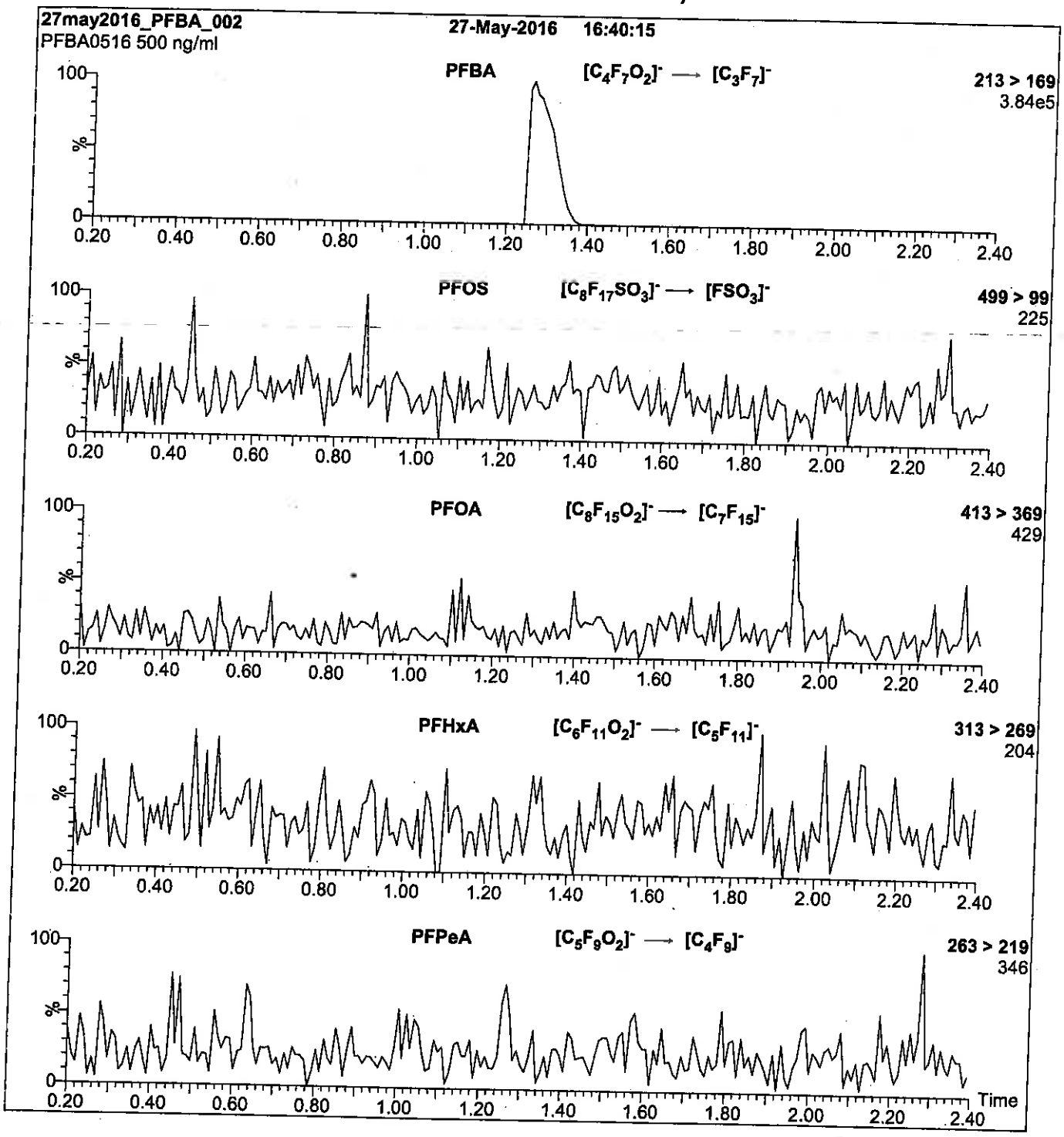
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 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 µl (500 ng/ml PFBA)

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.62e-3
Collision Energy (eV) = 10

Reagent

LCPFBS_00005

R: 9/9/16 SBC

728306
ID: LCM2-8:2FTS_00003
Exp: 01/08/21 Prpd: SBC
M2-8:2FTS

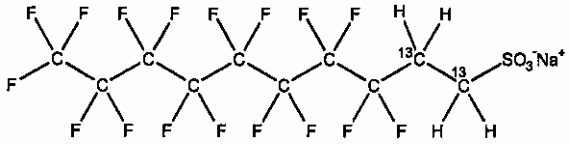
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0116

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]decane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8H_4F_{17}SO_3Na$	**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% ^{13}C
LAST TESTED: (mm/dd/yyyy)	01/08/2016		(1,2-$^{13}C_2$)
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 ^{34}S (due to natural isotopic abundance) therefore both native 8:2FTS and M2-8:2FTS will produce signals in the m/z 529 to m/z 509 channel during SRM analysis. We recommend using the m/z 529 to m/z 81 transition to monitor for M2-8:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 01/18/2016 (mm/dd/yyyy)

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

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 ±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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CALA

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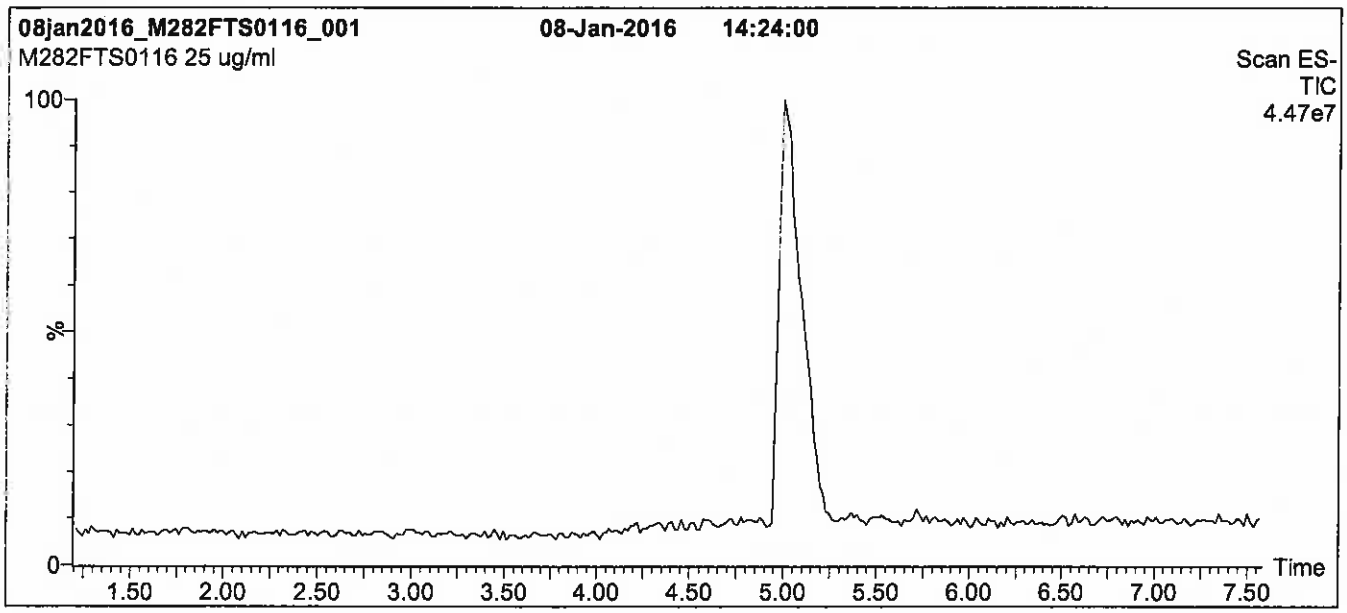
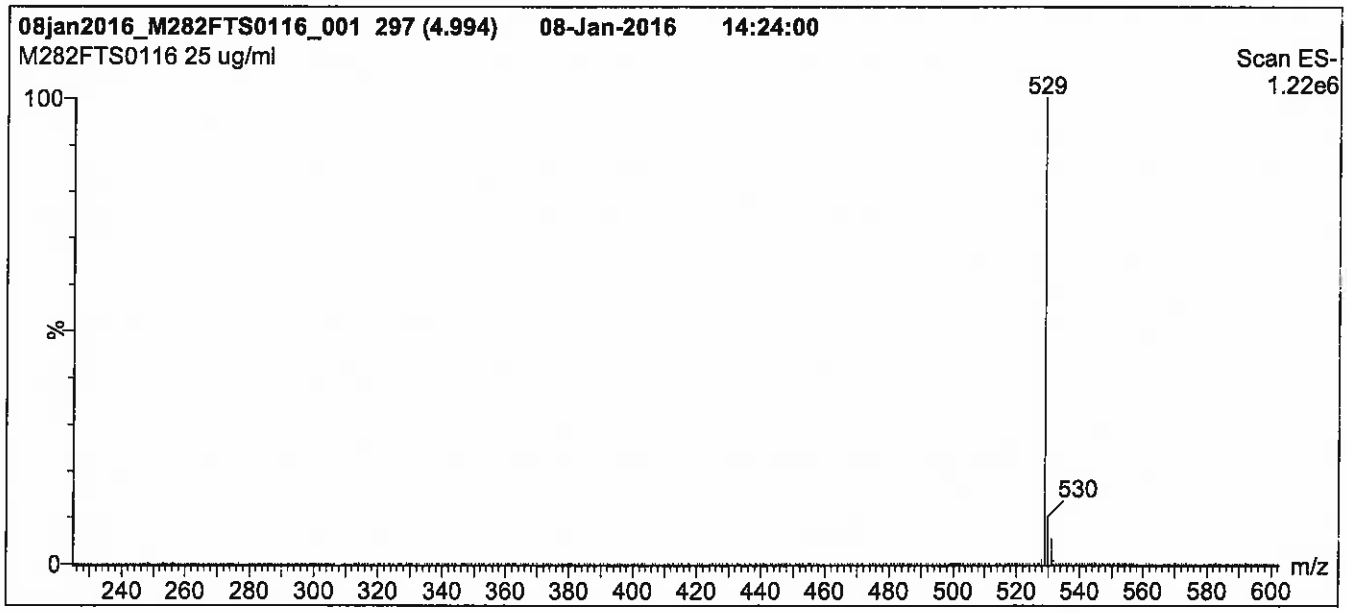




Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

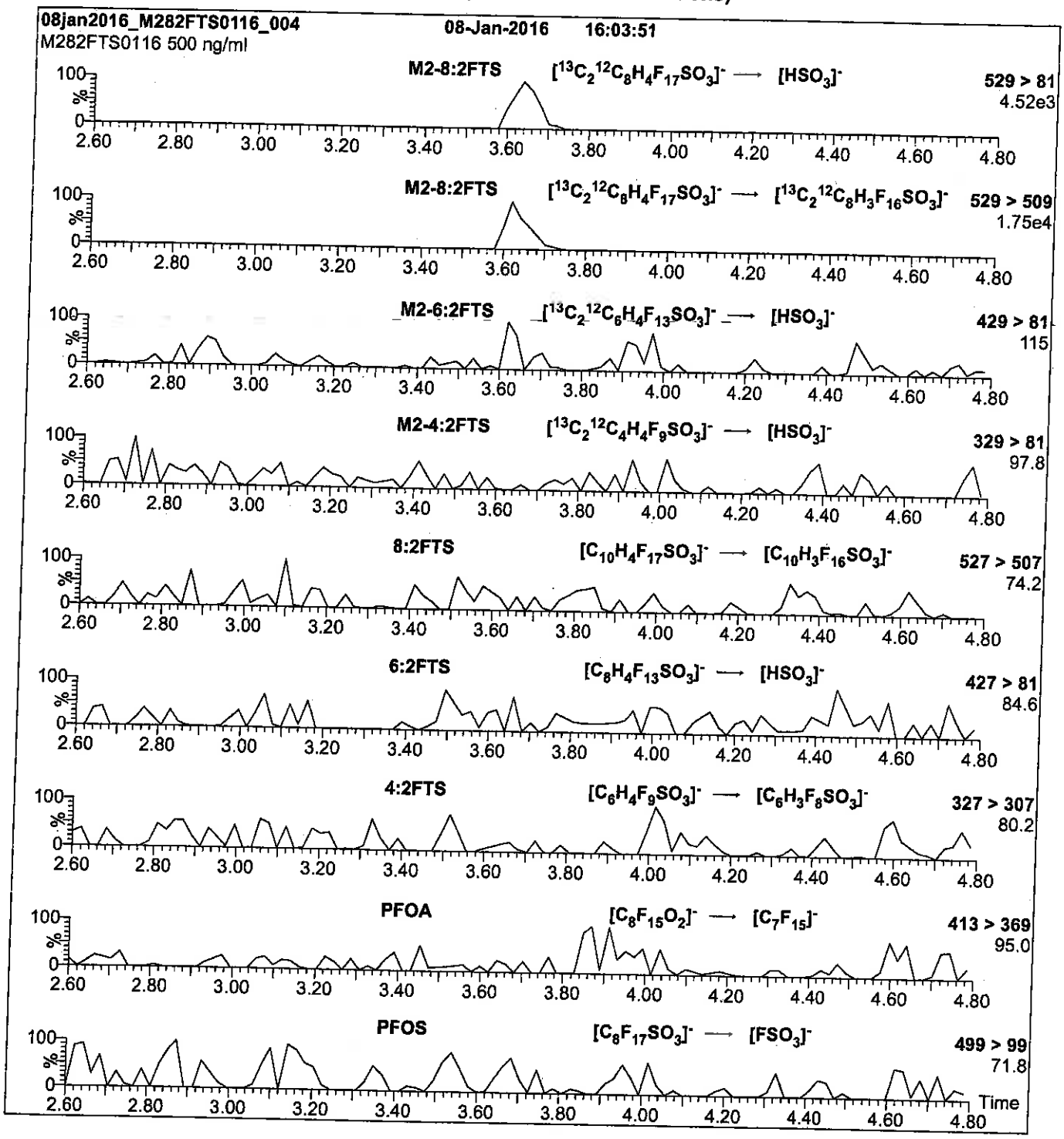
Flow: 300 µl/min

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 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 30

R: SBC 9/13/16

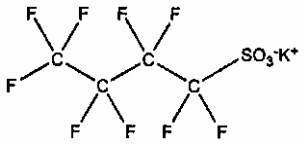
730511
ID: LCPFBS_00005
Exp: 03/15/21 Prpd: SBC
PF-1-butanesulfonate K sa

730512
ID: LCPFBS_00006
Exp: 03/15/21 Prpd: SBC
PF-1-butanesulfonate K sa

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFBS
LOT NUMBER: LPFBS0316
COMPOUND: Potassium perfluoro-1-butanesulfonate
STRUCTURE:
CAS #: 29420-49-3



MOLECULAR FORMULA:	$C_4F_9SO_3K$	**MOLECULAR WEIGHT:**	338.19
CONCENTRATION:	50.0 ± 2.5 µg/ml (K salt) 44.2 ± 2.2 µg/ml (PFBS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	03/15/2016		
EXPIRY DATE: (mm/dd/yyyy)	03/15/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 03/21/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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CALA Testing Accreditation No. A1226

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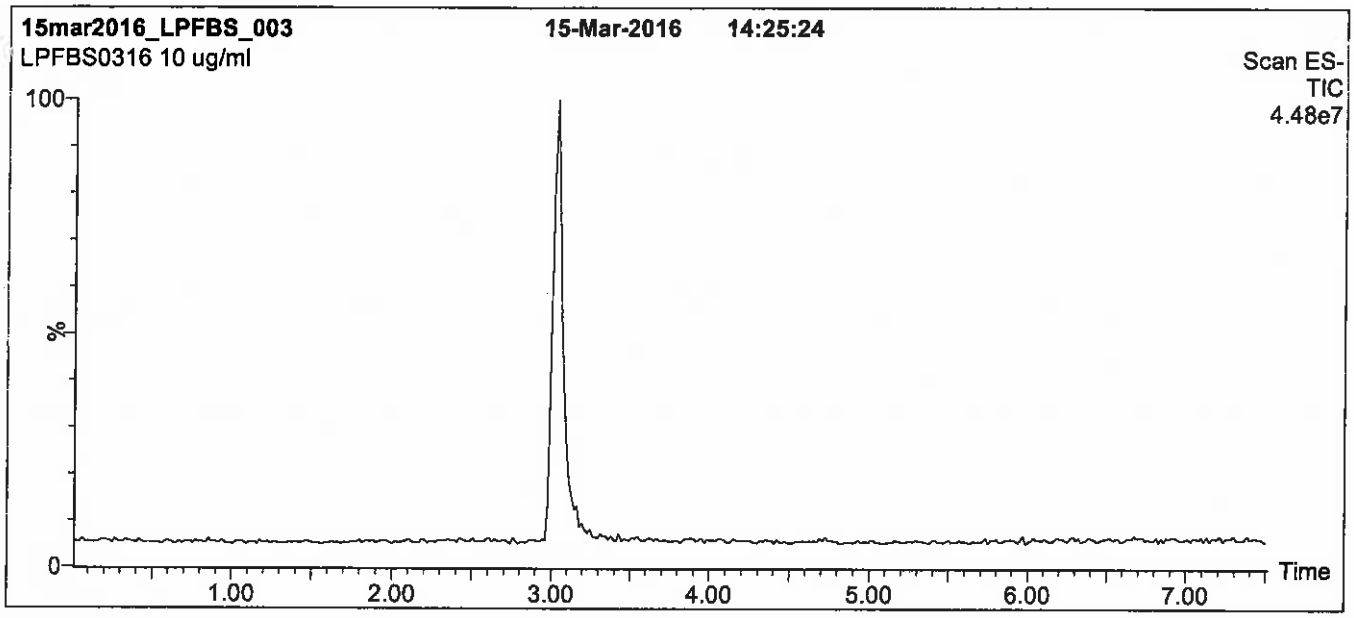
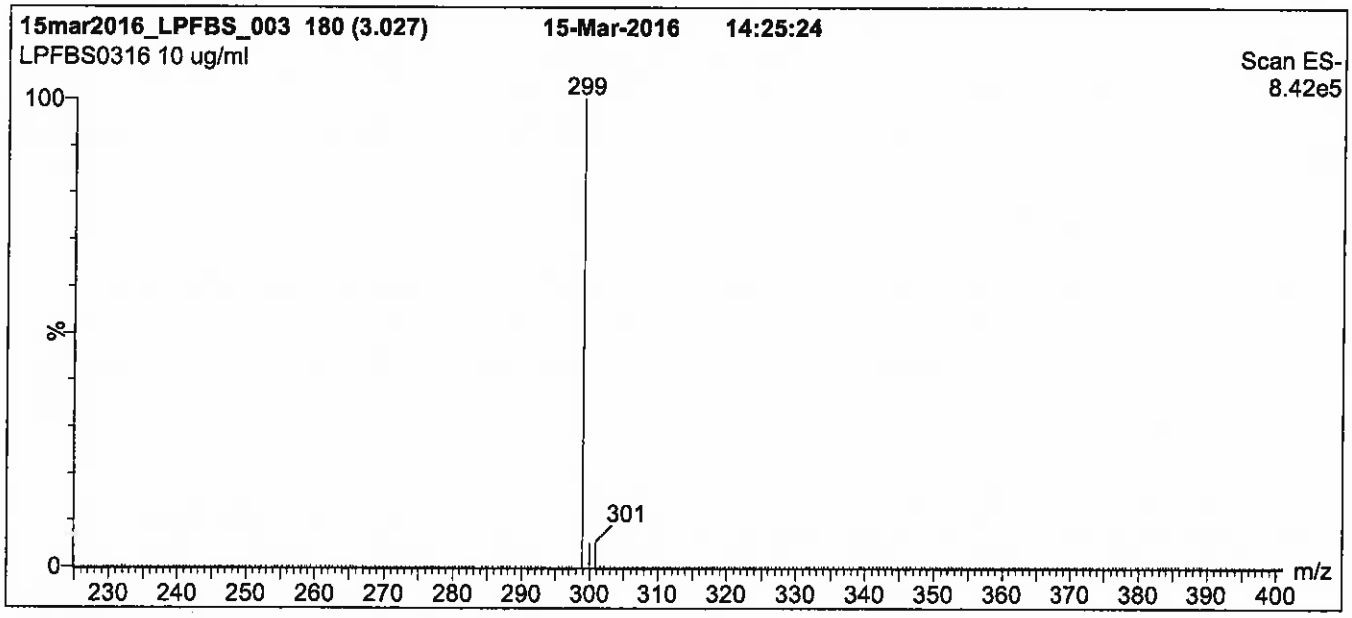
Figure 1: **L-PFBS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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MS: **Micromass Quattro *micro* API MS**

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Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc 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

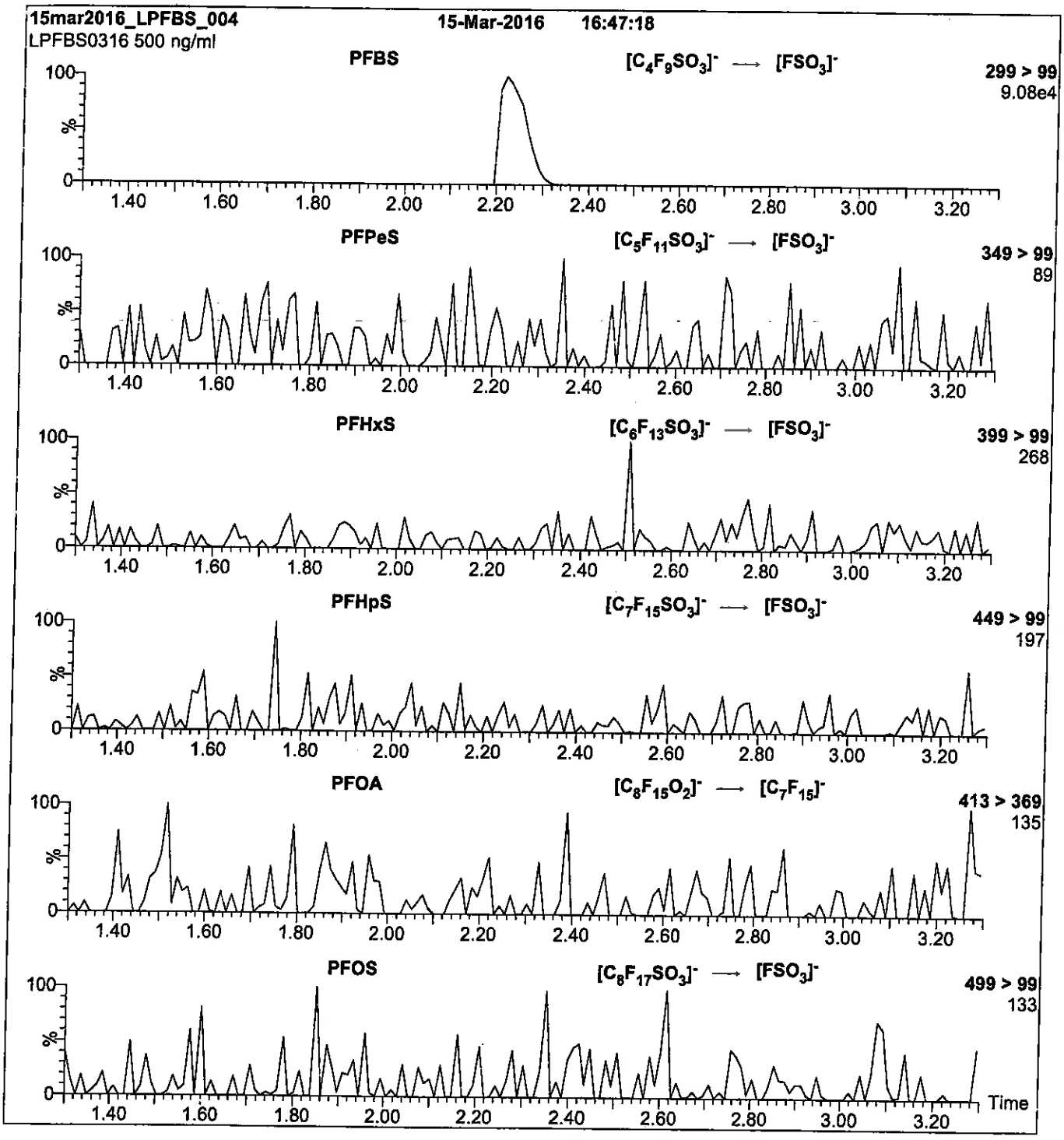
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (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 µl (500 ng/ml L-PFBS)

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 25

Reagent

LCPFDA_00005

R: 7/16/16 CBW

671576
ID: LCPFDA_00005
Exp: 07/02/20 Prpd: CBW
PF-n-decanoic acid

WELLINGTON LABORATORIES

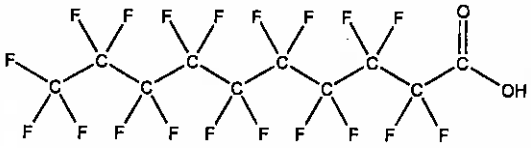
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFDA
COMPOUND: Perfluoro-n-decanoic acid

LOT NUMBER: PFDA0615

STRUCTURE:

CAS #: 335-76-2



MOLECULAR FORMULA: $C_{10}HF_{19}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 514.08
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/02/2015
EXPIRY DATE: (mm/dd/yyyy) 07/02/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 07/24/2015 (mm/dd/yyyy)

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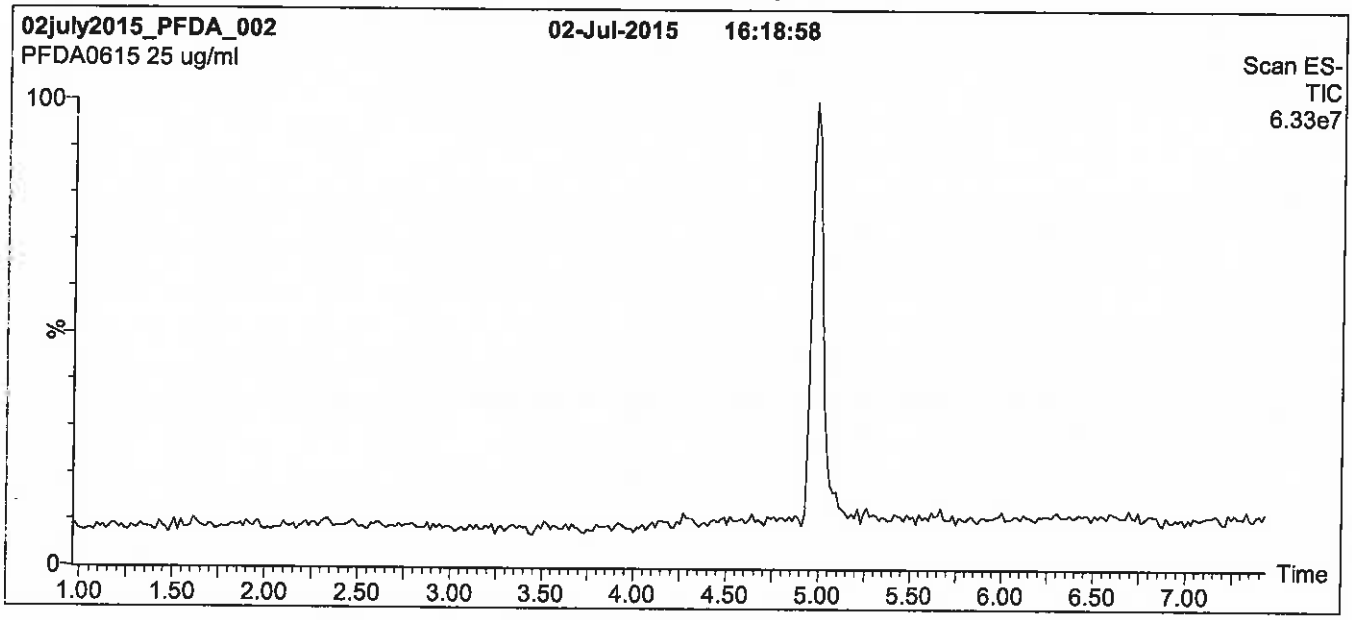
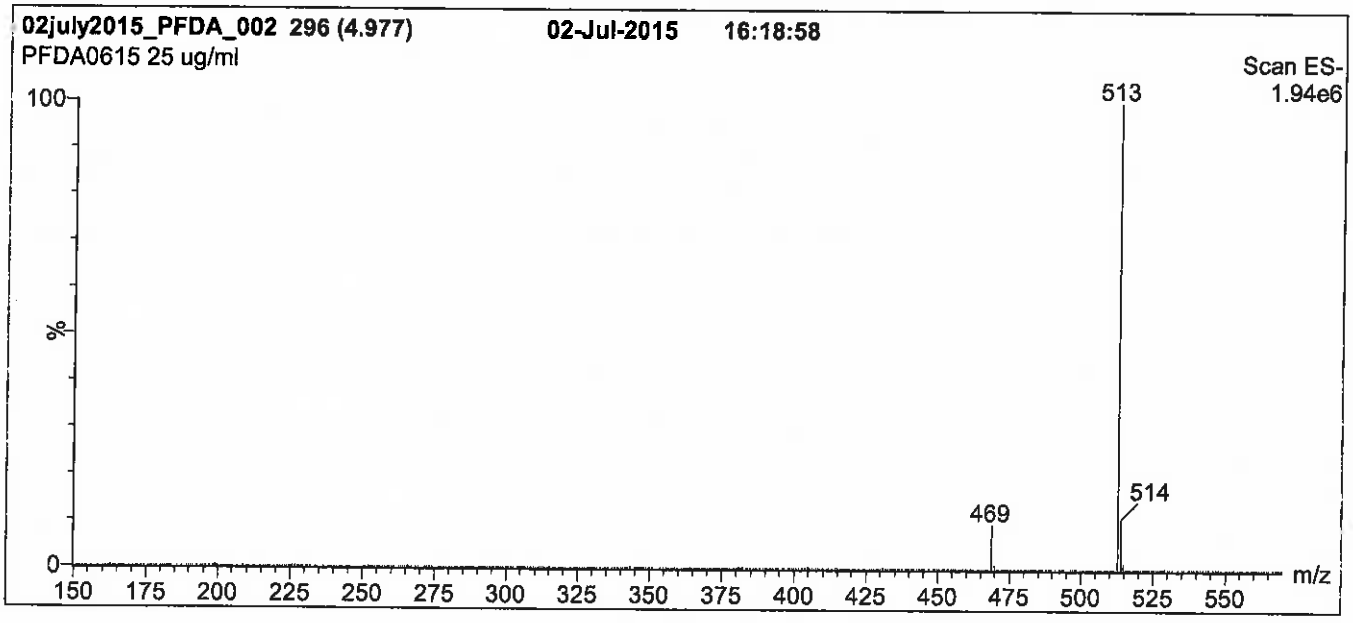
Figure 1: **PFDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

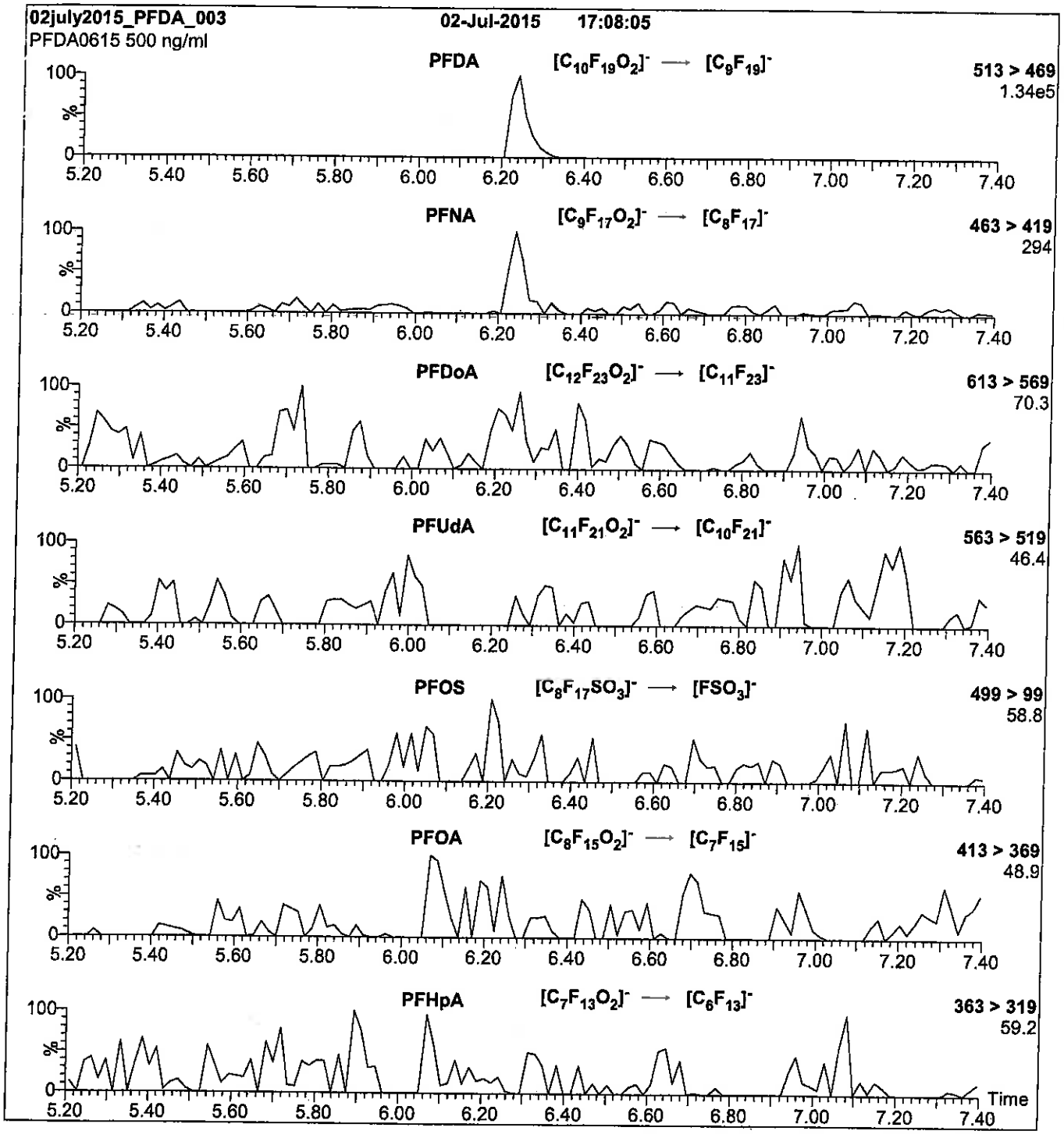
Flow: 300 µl/min

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) = 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 µl (500 ng/ml PFDA)

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCPFDoA_00005

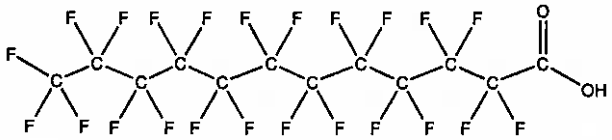
R: 7/6/16 ca

671601
ID: LCPFDoA_00005
Exp: 01/30/20 Prpd: CBW
PF-n-dodecanoic acid

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFDoA	**LOT NUMBER:**	PFDoA0115
COMPOUND:	Perfluoro-n-dodecanoic acid		
STRUCTURE:		**CAS #:**	307-55-1



MOLECULAR FORMULA:	$C_{12}HF_{23}O_2$	**MOLECULAR WEIGHT:**	614.10
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	01/30/2015		
EXPIRY DATE: (mm/dd/yyyy)	01/30/2020		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 03/25/2015 (mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

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 ±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.

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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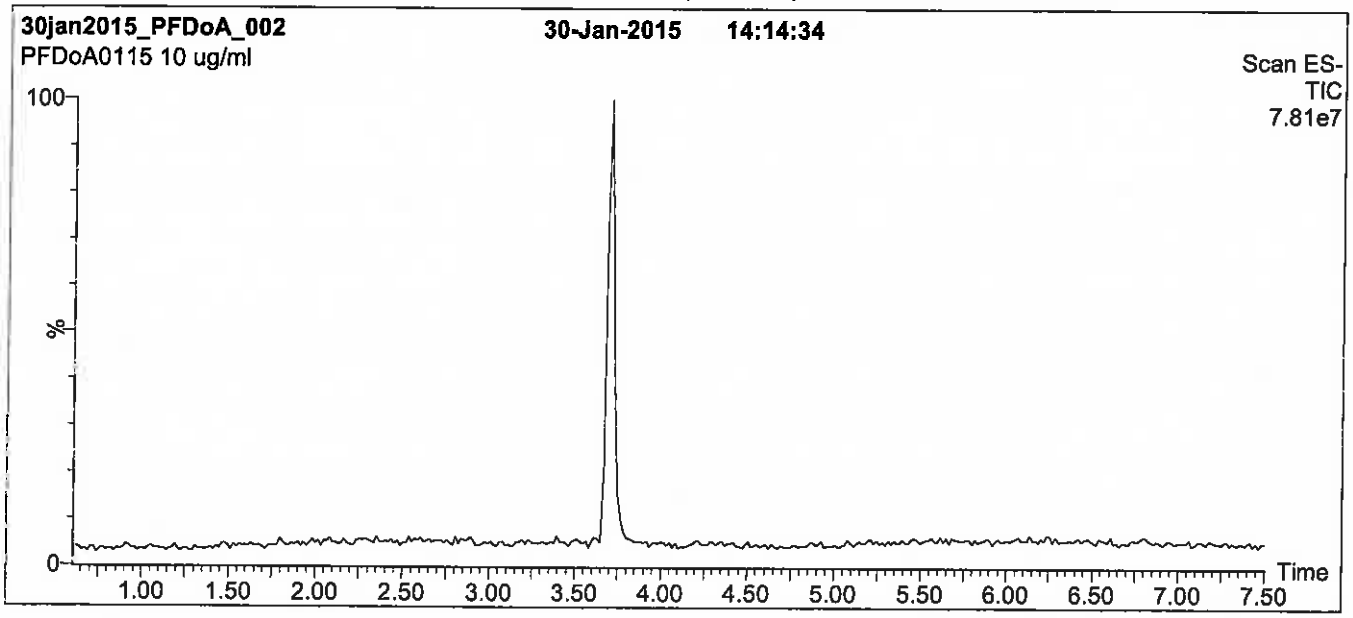
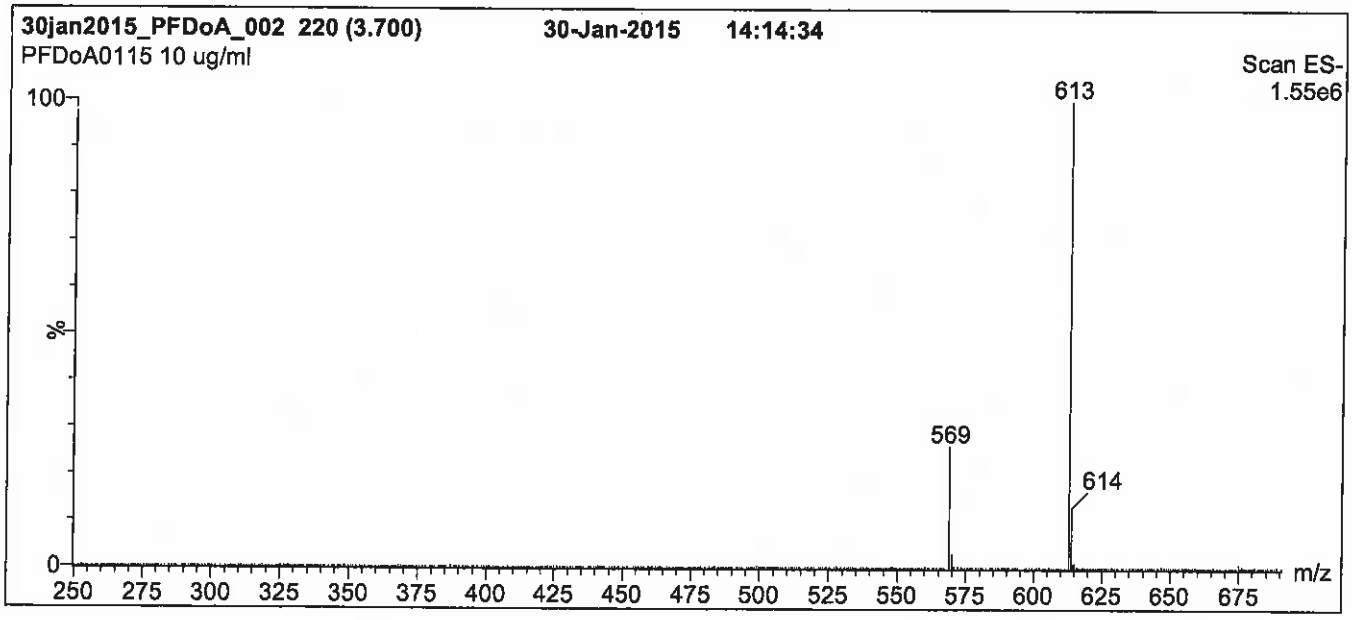
Figure 1: **PFDoA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc 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

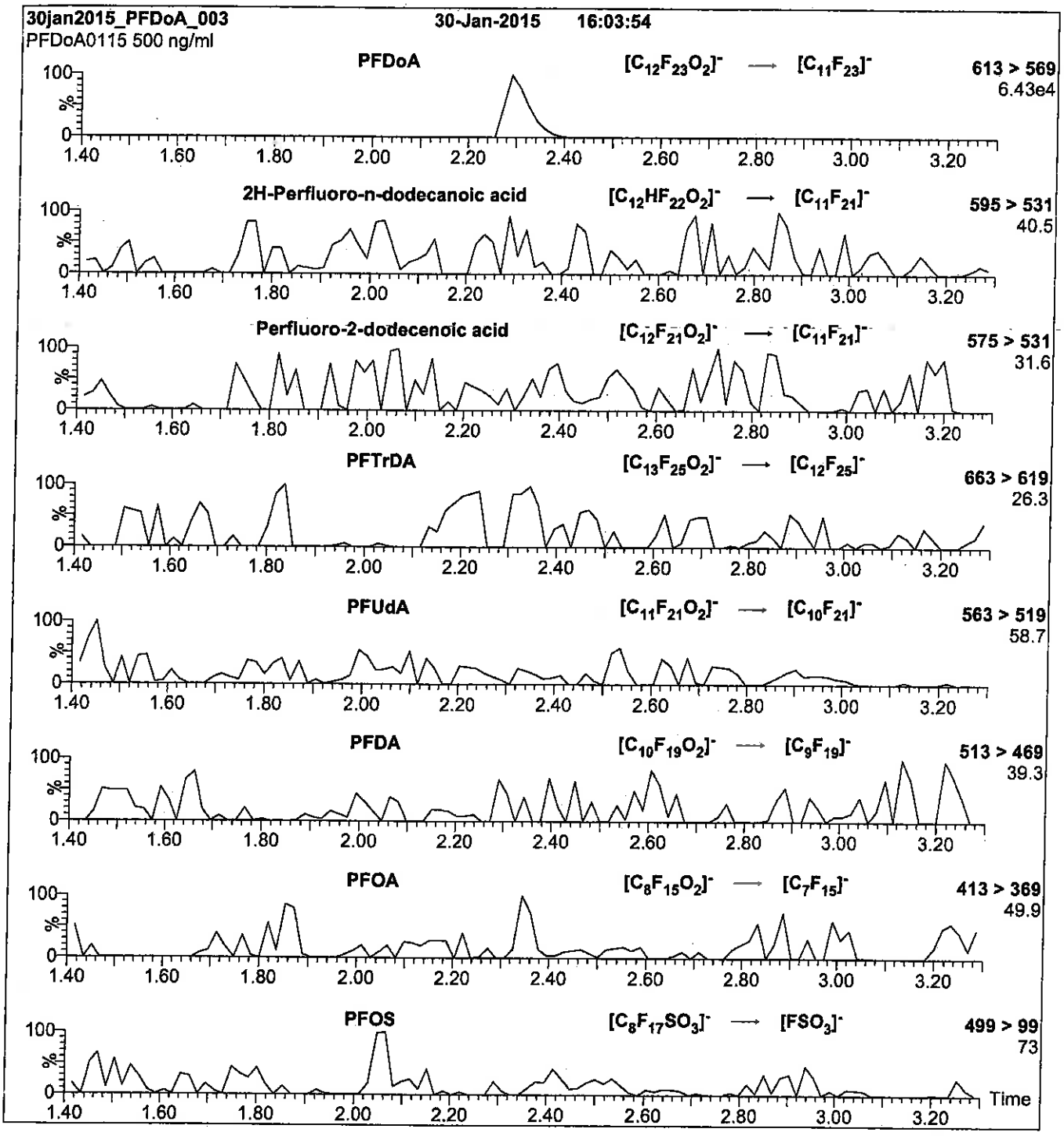
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (250 - 1000 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCPFHpA_00006

Scanned 10/4/16 SM R: SBC 9/13/16

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

WELLINGTON LABORATORIES

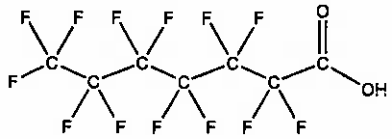
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHpA
COMPOUND: Perfluoro-n-heptanoic acid

LOT NUMBER: PFHpA0116

STRUCTURE:

CAS #: 375-85-9



MOLECULAR FORMULA: $C_7HF_{13}O_2$
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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EXPIRY DATE / PERIOD OF VALIDITY:

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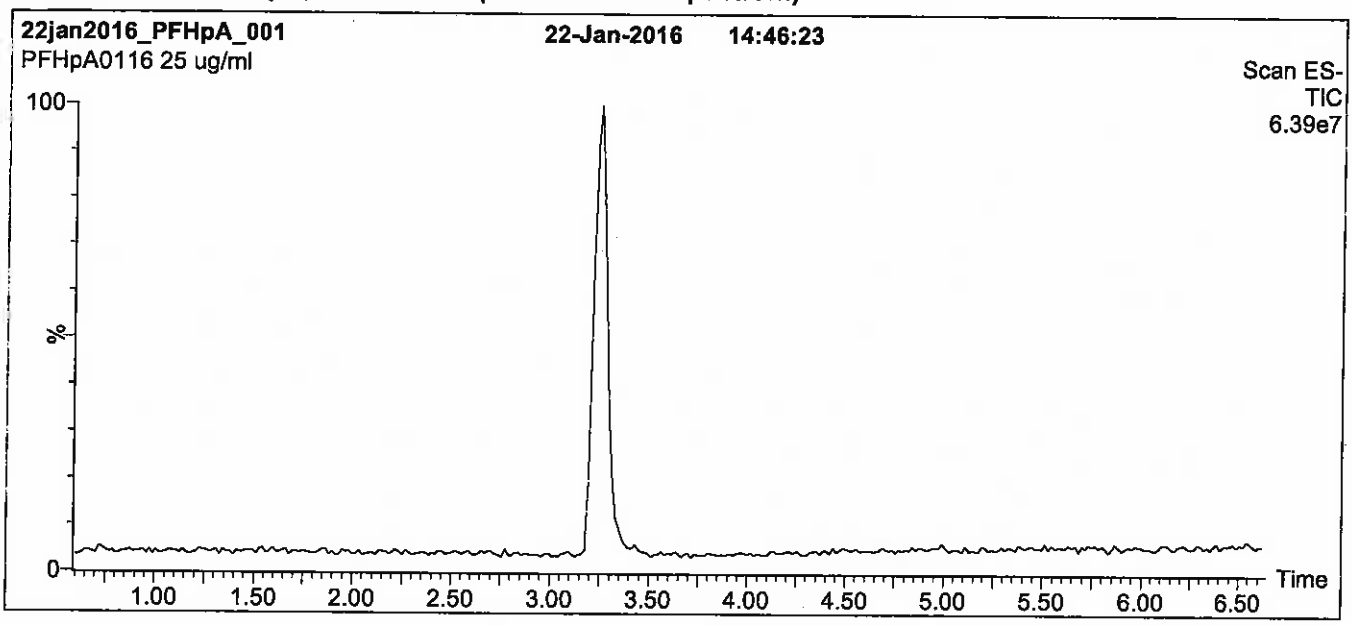
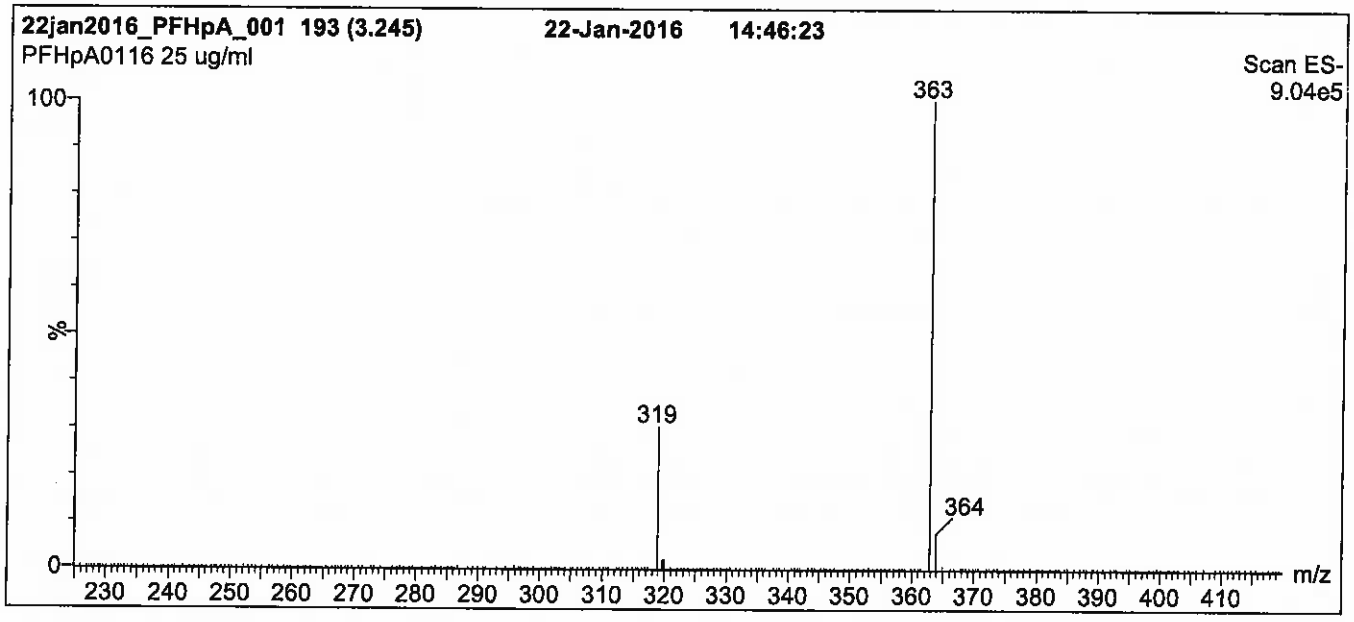
Figure 1: **PFHpA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc 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

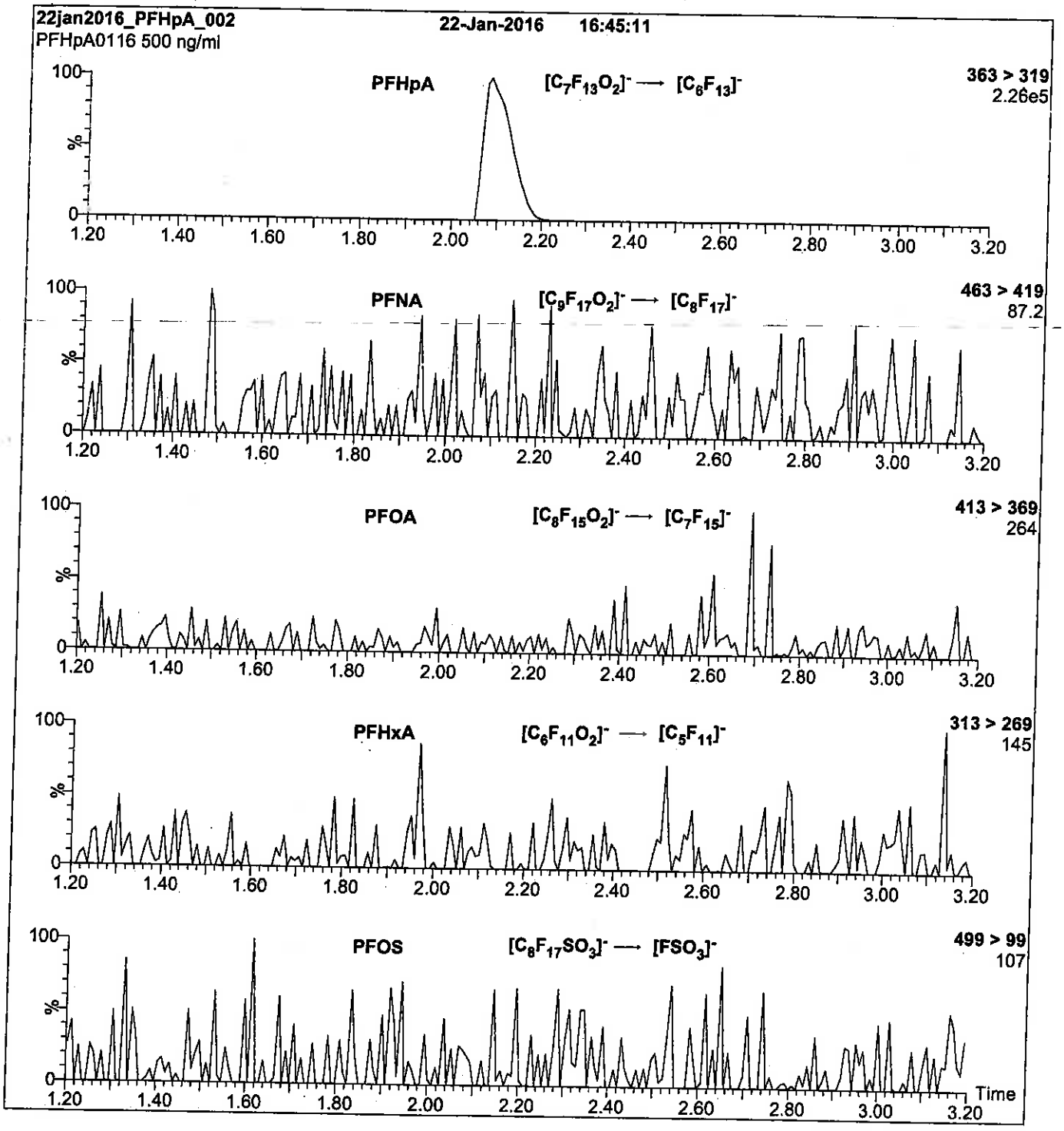
Flow: 300 µl/min

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 µl (500 ng/ml PFHpA)

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 11

Reagent

LCPFHpS_00009

Scanned 10/14/16 SR R: SBC 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

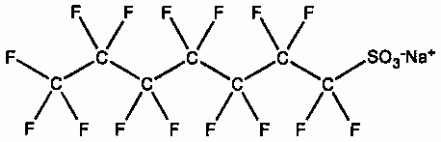
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFHpS
COMPOUND: Sodium perfluoro-1-heptanesulfonate
LOT NUMBER: LPFHpS1115

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$C_7F_{15}SO_3Na$	**MOLECULAR WEIGHT:**	472.10
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.6 ± 2.4 µg/ml (PFHpS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	11/06/2015		
EXPIRY DATE: (mm/dd/yyyy)	11/06/2020		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.1% of L-PFHxS ($C_6F_{13}SO_3Na$) and ~ 0.2% of L-PFOS ($C_8F_{17}SO_3Na$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 11/09/2015 (mm/dd/yyyy)

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

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CALA

ANAB ACCREDITED

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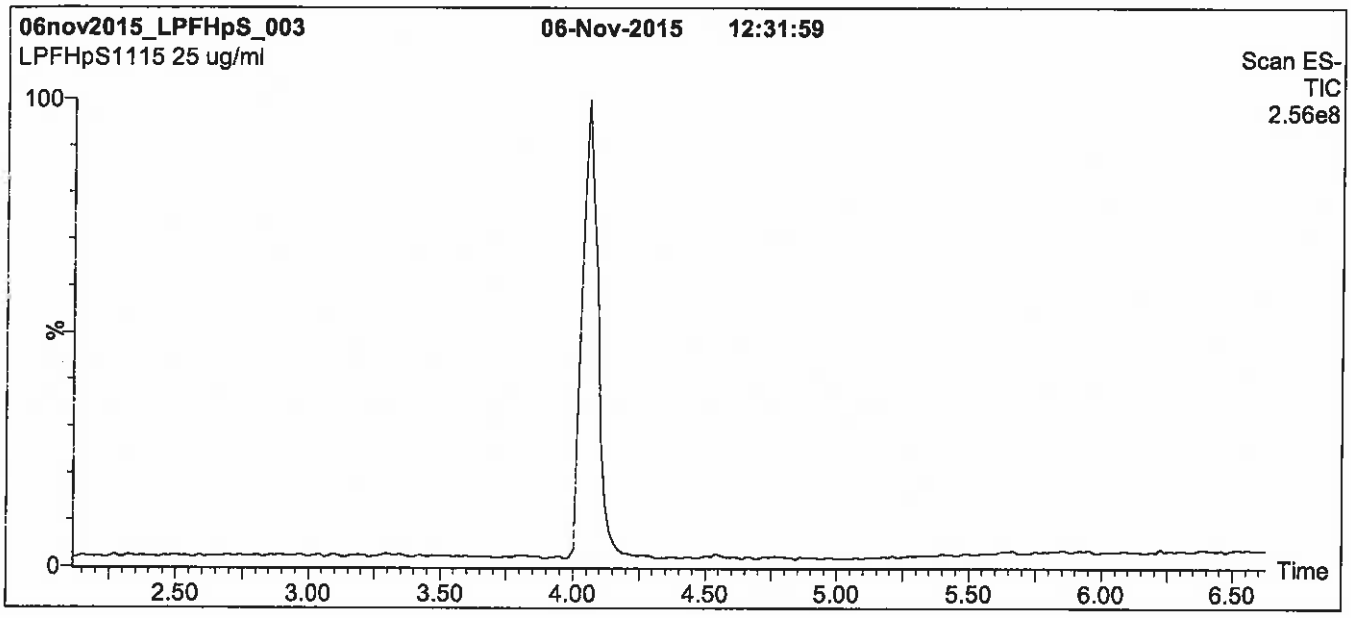
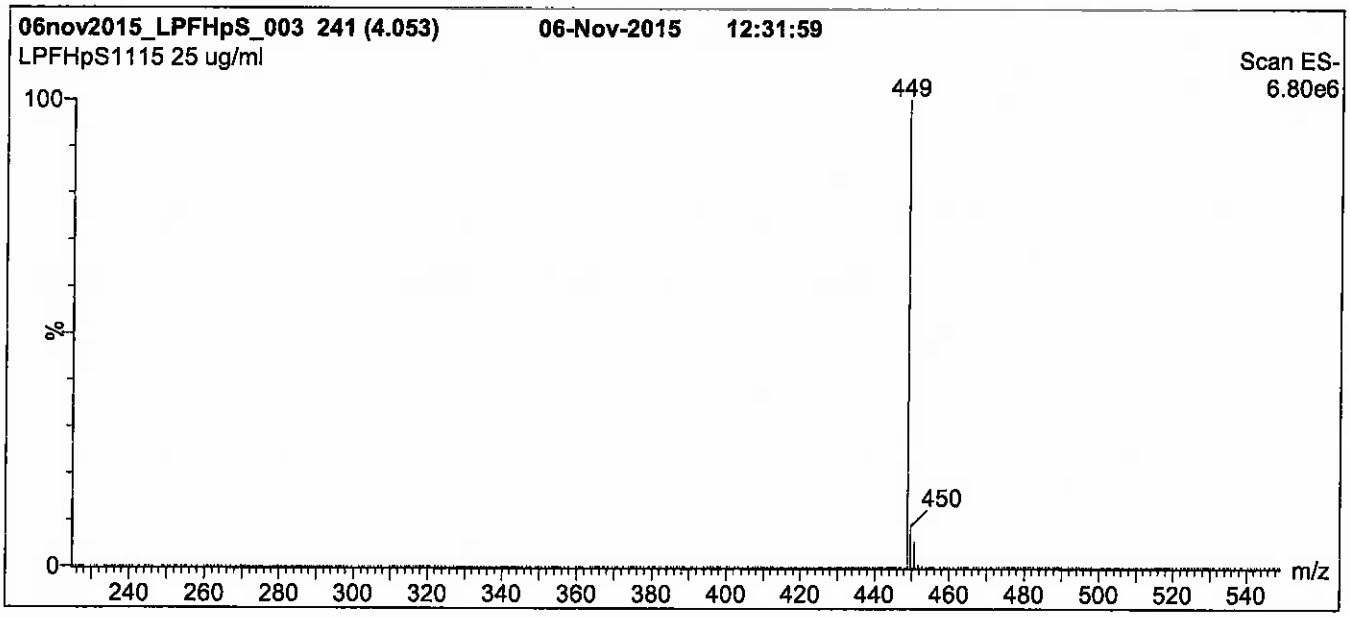
Figure 1: **L-PFHpS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

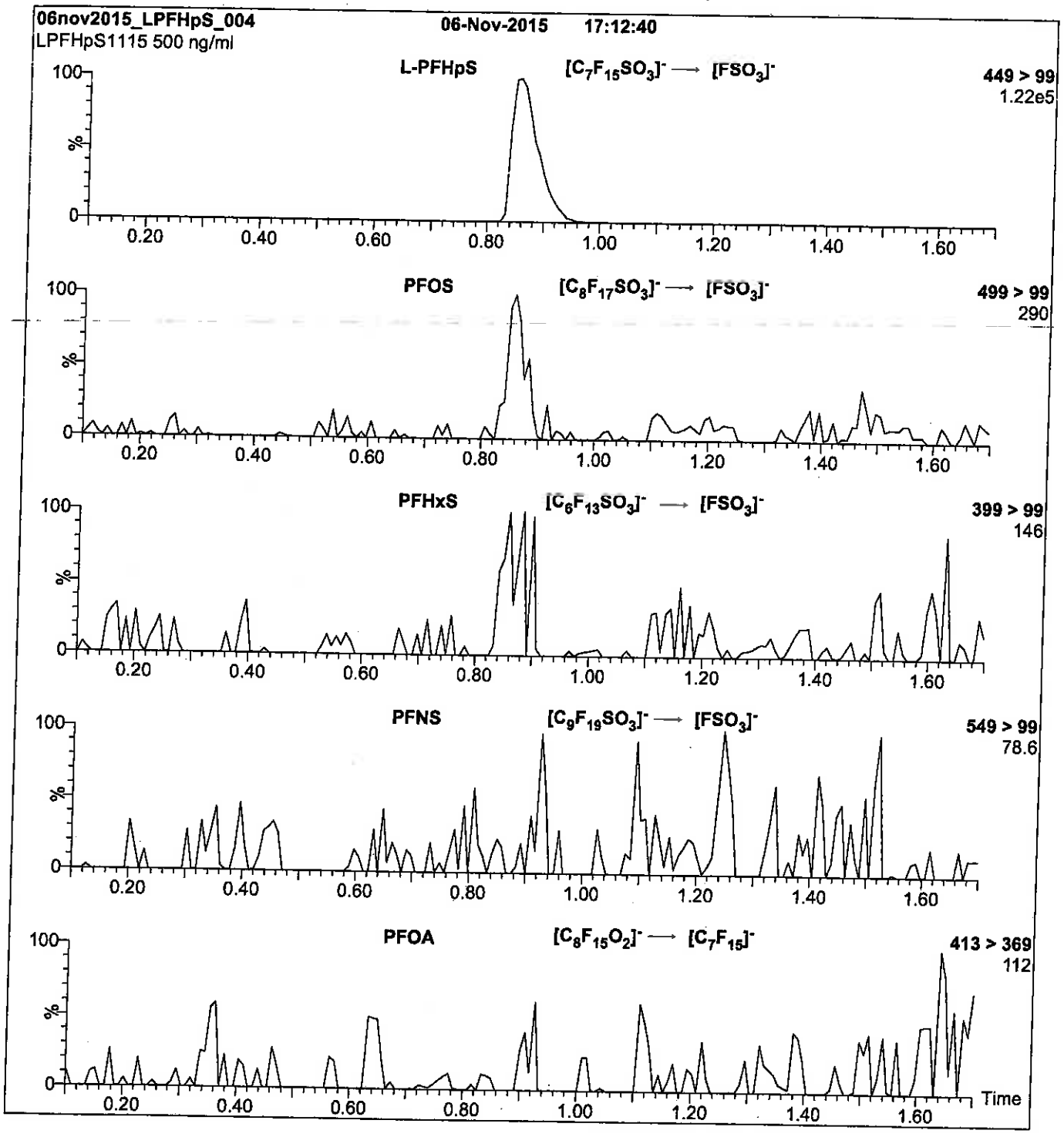
Flow: 300 µl/min

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 µl (500 ng/ml L-PFHpS)

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 35

Reagent

LCPFHxA_00005

R: SBC 9/13/16

730551
ID: LCPFHxA_00005
Exp: 12/22/20 Prpd: SBC
PF-n-hexanoic acid

730552
ID: LCPFHxA_00006
Exp: 12/22/20 Prpd: SBC
PF-n-hexanoic acid

WELLINGTON LABORATORIES

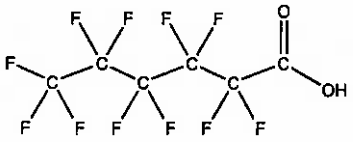
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxA
COMPOUND: Perfluoro-n-hexanoic acid

LOT NUMBER: PFHxA1215

STRUCTURE:

CAS #: 307-24-4



MOLECULAR FORMULA: $C_6HF_{11}O_2$
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.

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:

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

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

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 ±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:

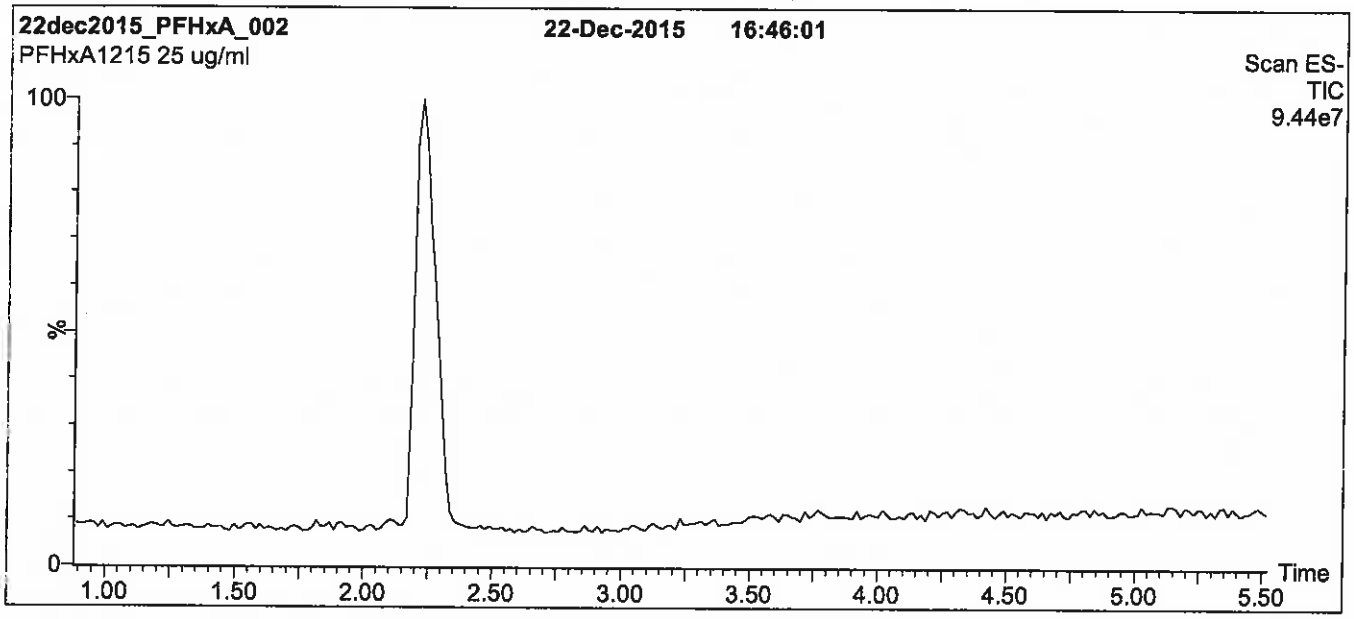
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

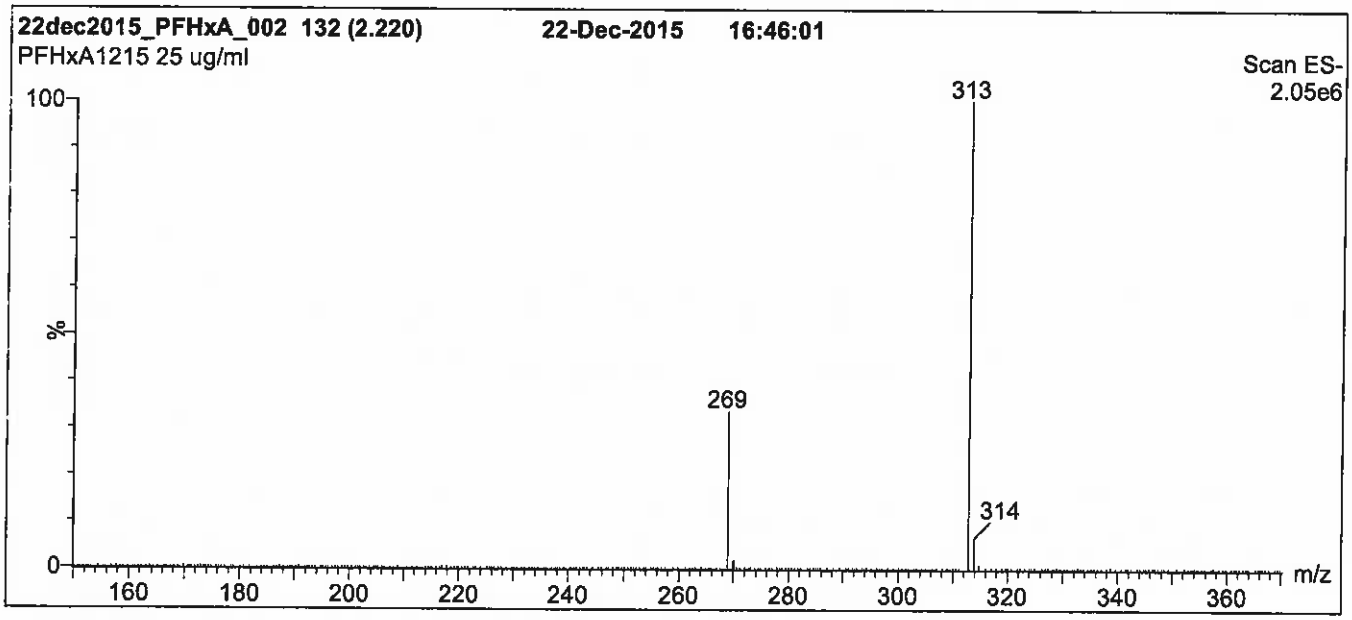
CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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: **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 RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

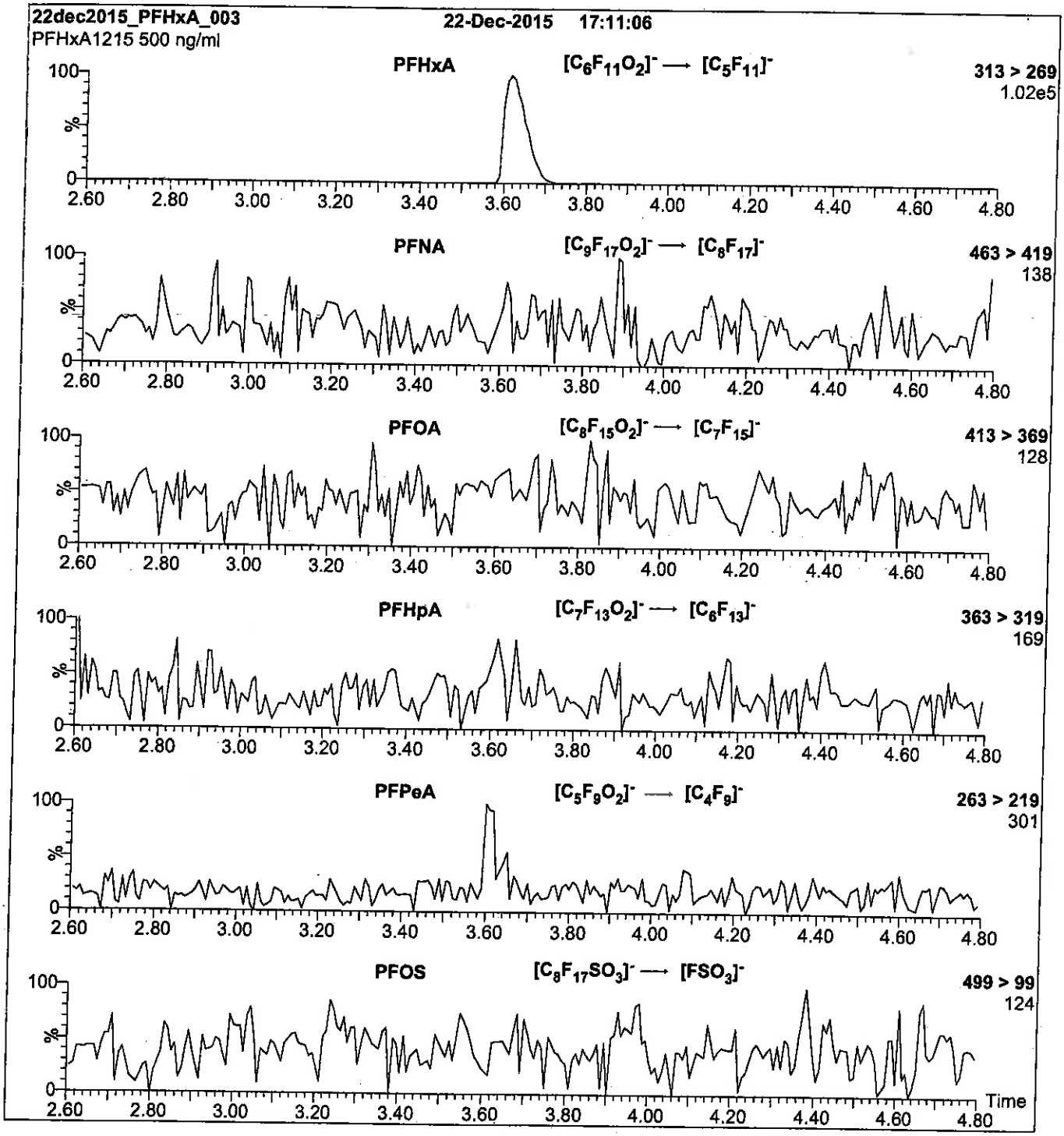
Flow: 300 µl/min

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: **PFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

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

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

Flow: 300 µl/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 SK

730630
ID: LCPFHxDA_00006
Exp: 05/25/21 Prpd: SBC
PFHxDA stock 50ug/mL

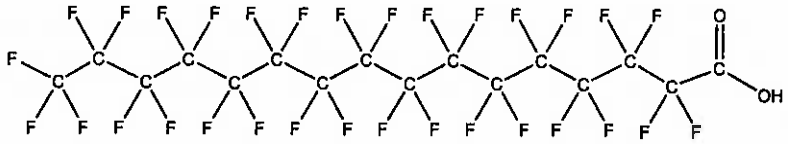
730631
ID: LCPFHxDA_00007
Exp: 05/25/21 Prpd: SBC
PFHxDA stock 50ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxDA
COMPOUND: Perfluoro-n-hexadecanoic acid
LOT NUMBER: PFHxDA0516

STRUCTURE:
CAS #: 67905-19-5



MOLECULAR FORMULA: $C_{16}HF_{31}O_2$
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

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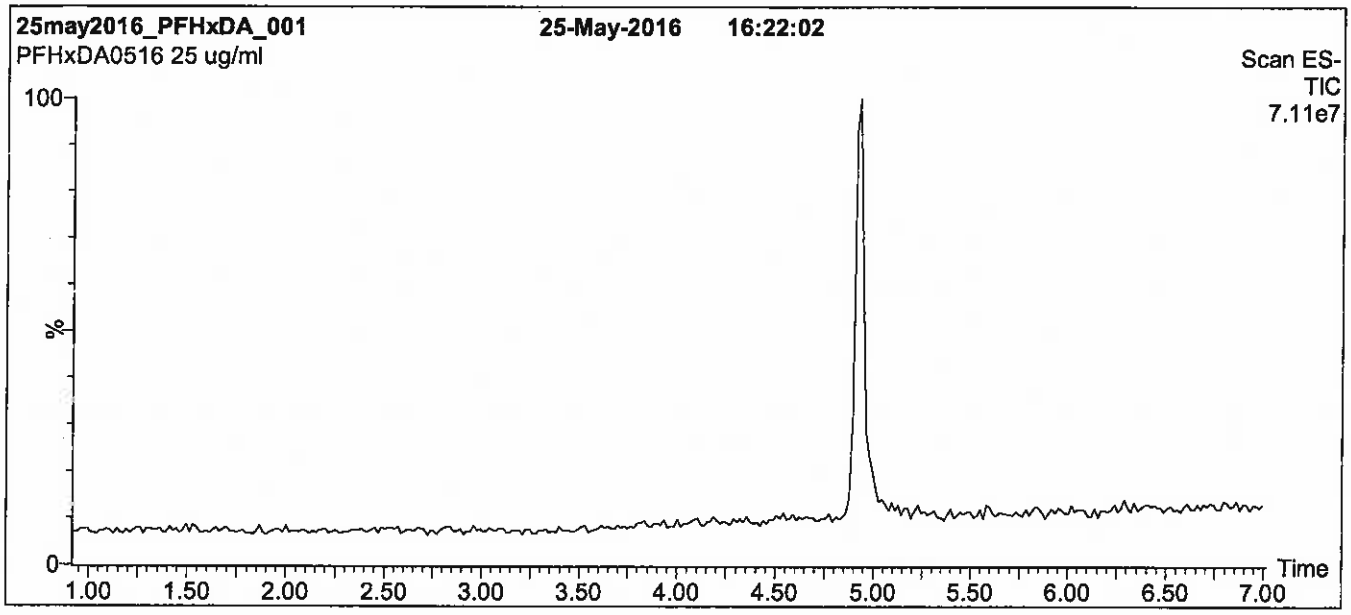
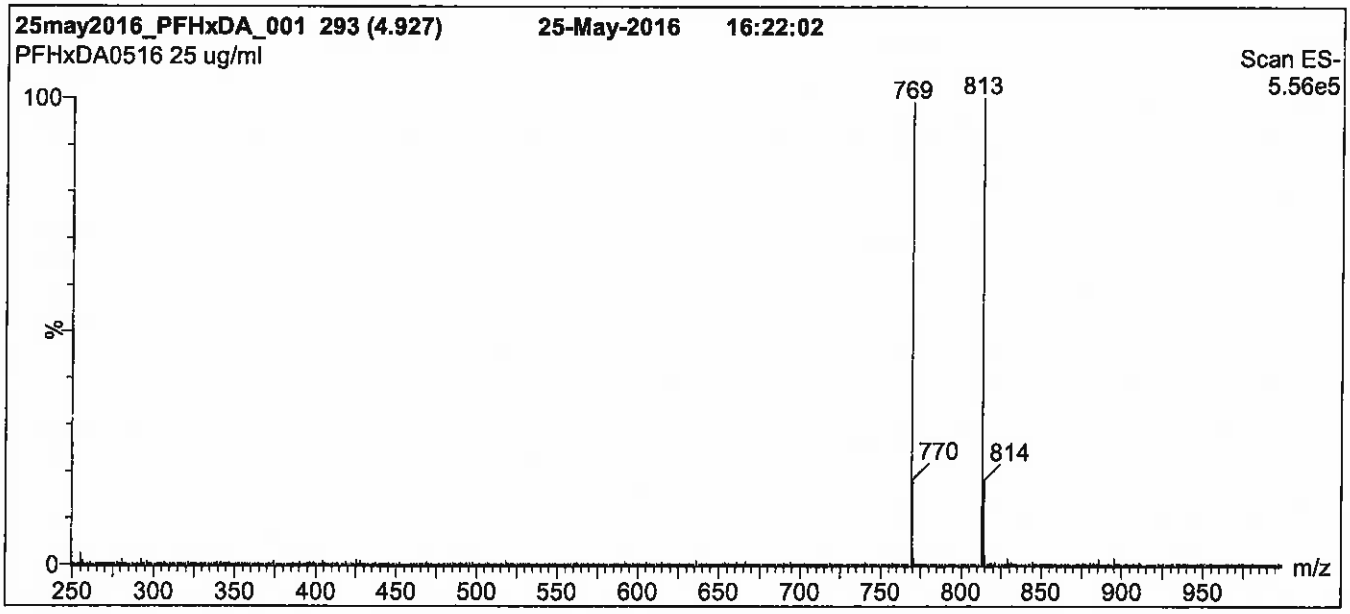
Figure 1: **PFHxDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 70% (80:20 MeOH:ACN) / 30% H_2O
(both with 10 mM NH_4OAc 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

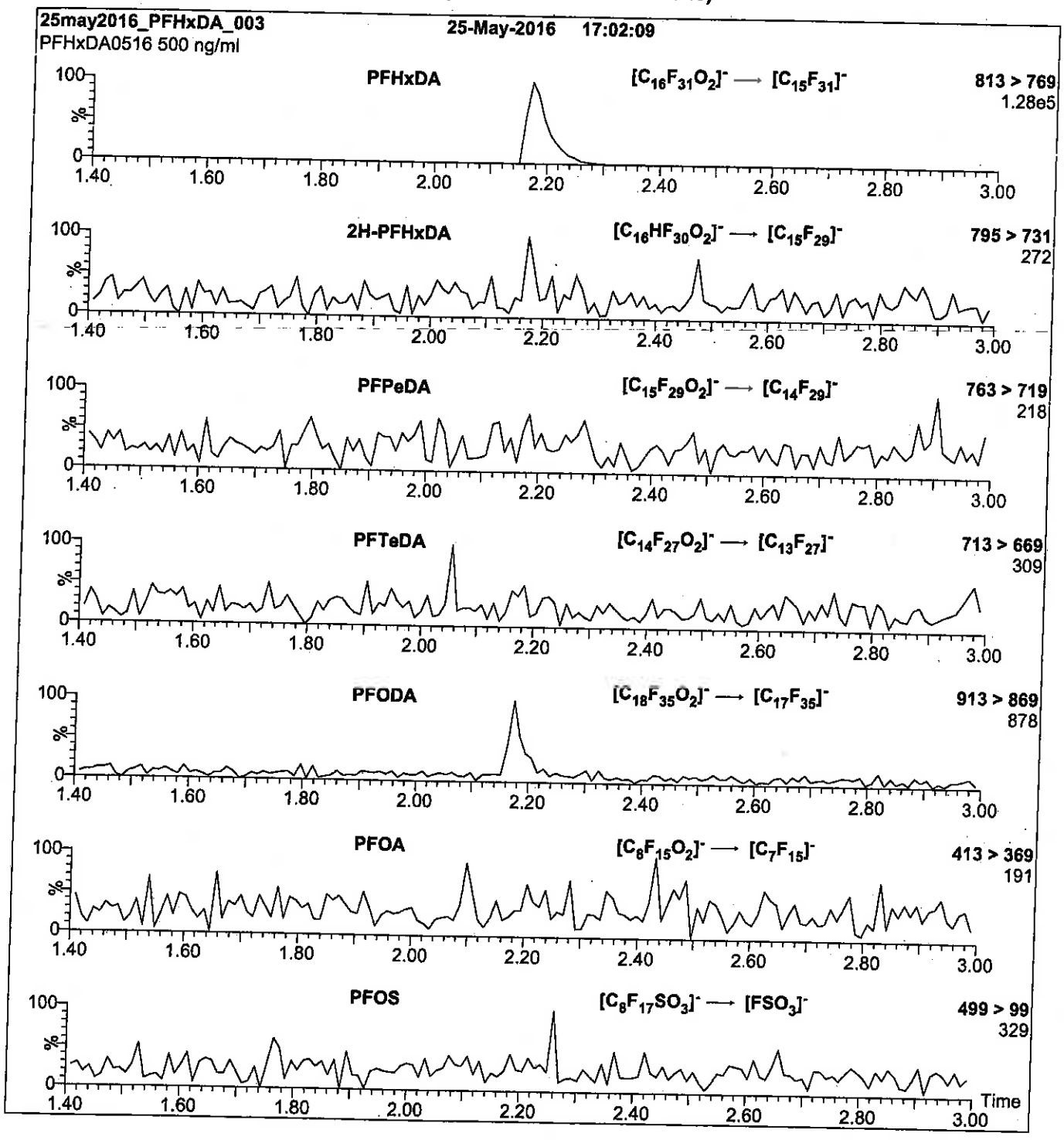
Flow: 300 µl/min

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 µl (500 ng/ml PFHxDA)

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

Flow: 300 µl/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 Prpd: SBC
Potassium Perfluorohexane

730514
ID: LCPFHxS-br_00003
Exp: 07/03/20 Prpd: 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 ^{19}F-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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$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

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 ±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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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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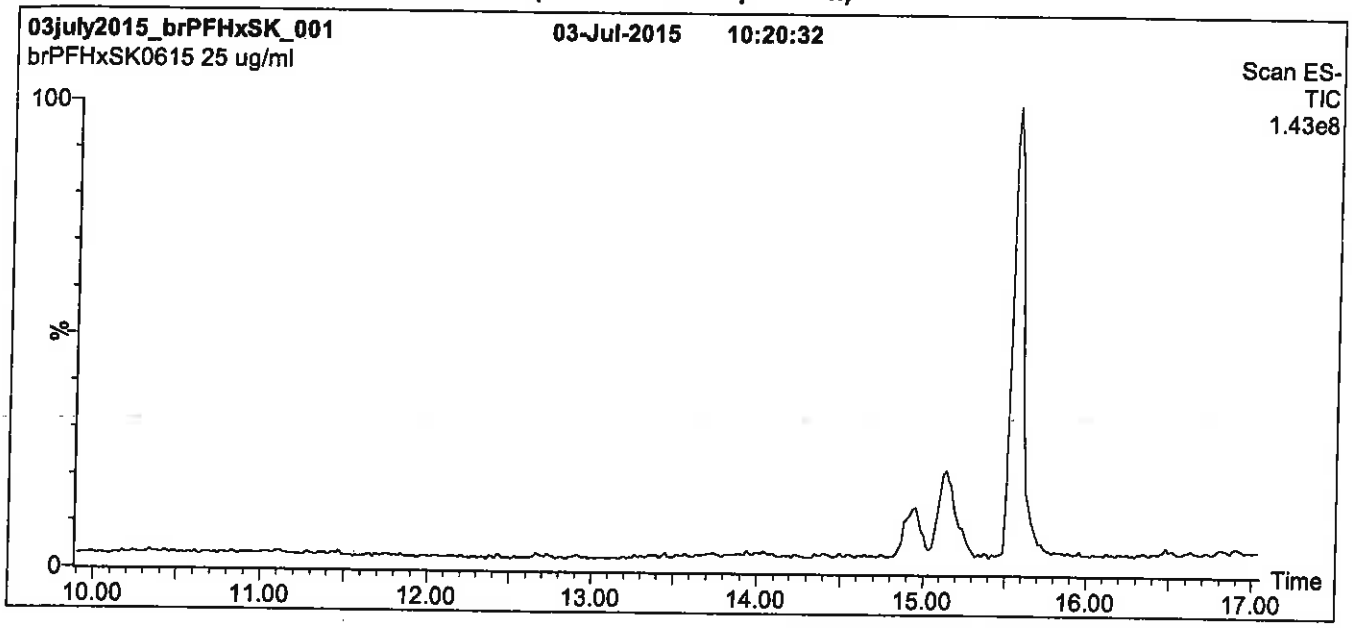
Table A: **br-PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

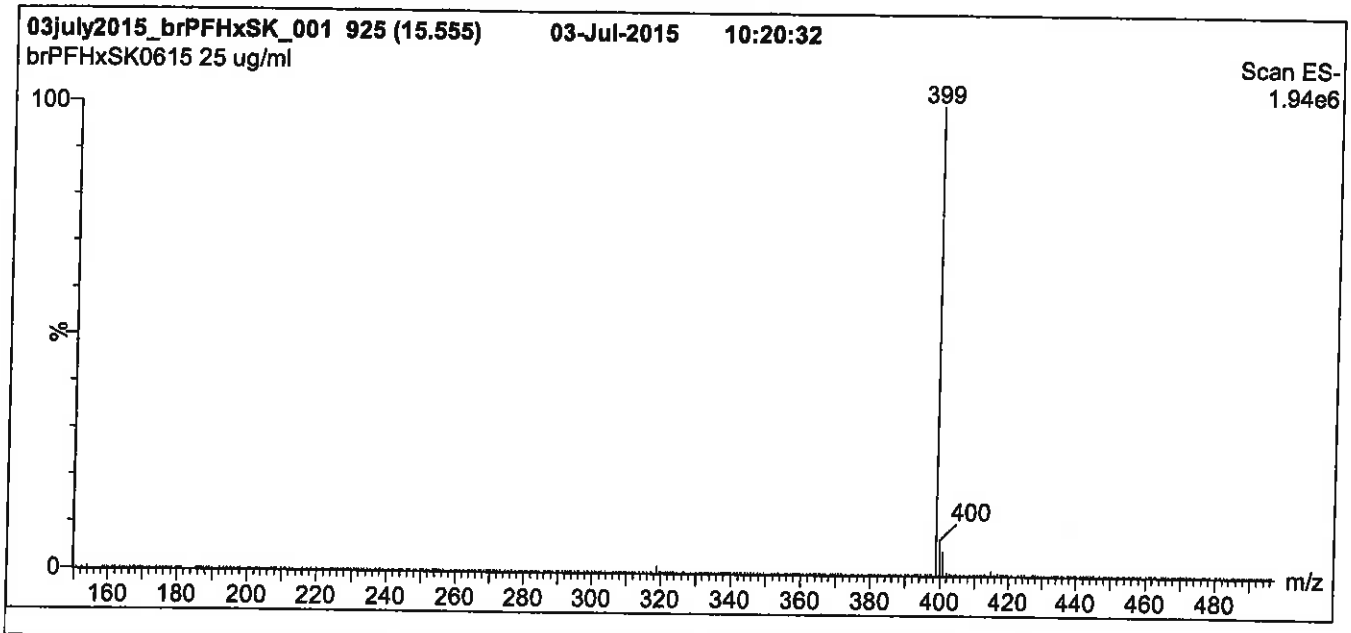
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2CF_2SO_3^-K^+$ (CF3 branch)	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2CF_2CF_2SO_3^-K^+$ (CF3 branch)	1.4
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2CF_2CF_2SO_3^-K^+$ (CF3 branch)	5.0
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2CF_2CF_2SO_3^-K^+$ (CF3 branch)	8.9
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3C(CF_3)CF_2CF_2SO_3^-K^+$	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 RP_{18}
1.7 µm, 2.1 x 100 mm

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

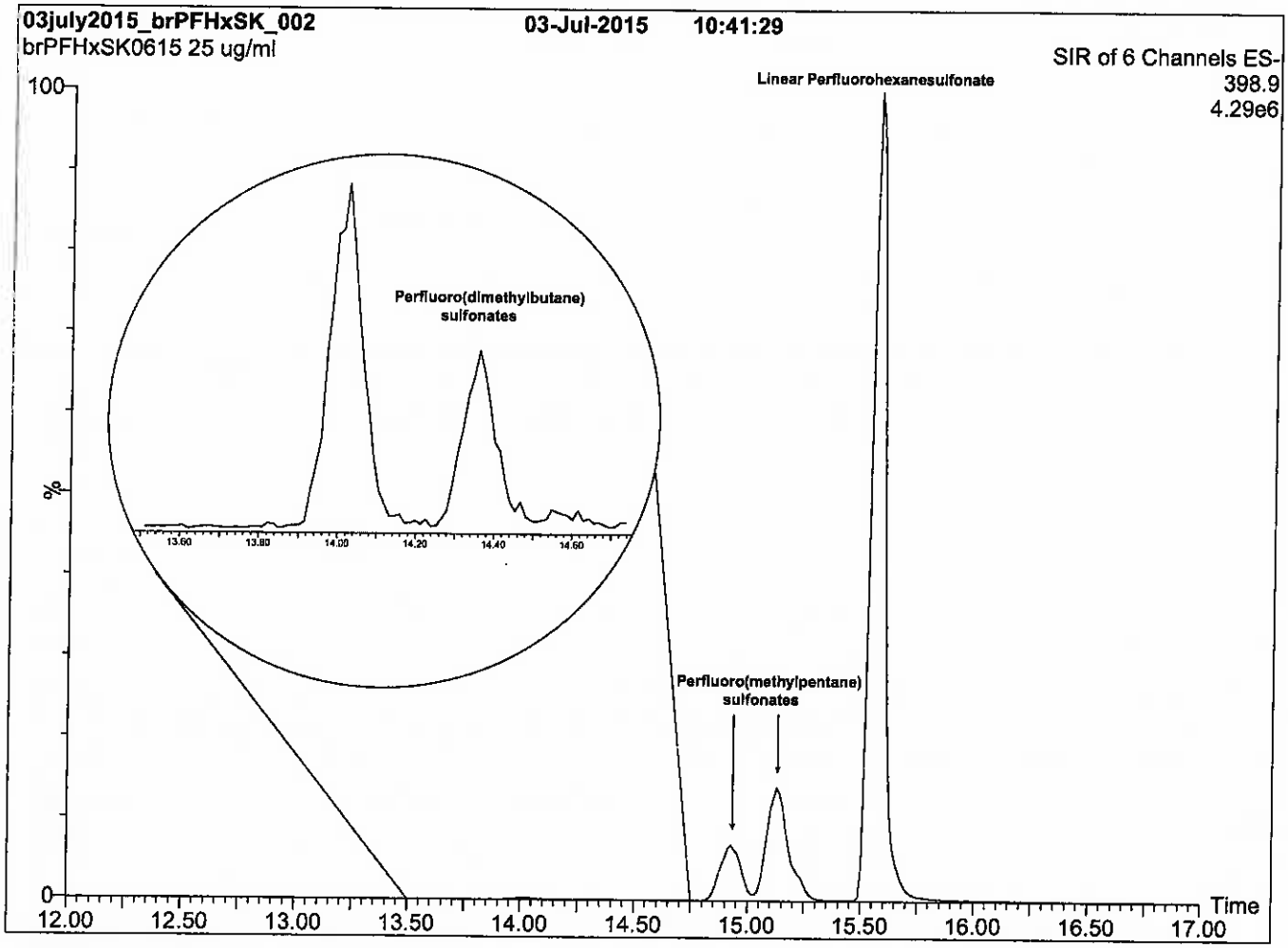
Flow: 300 µl/min

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 RP_{18}
1.7 µm, 2.1 x 100 mm

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

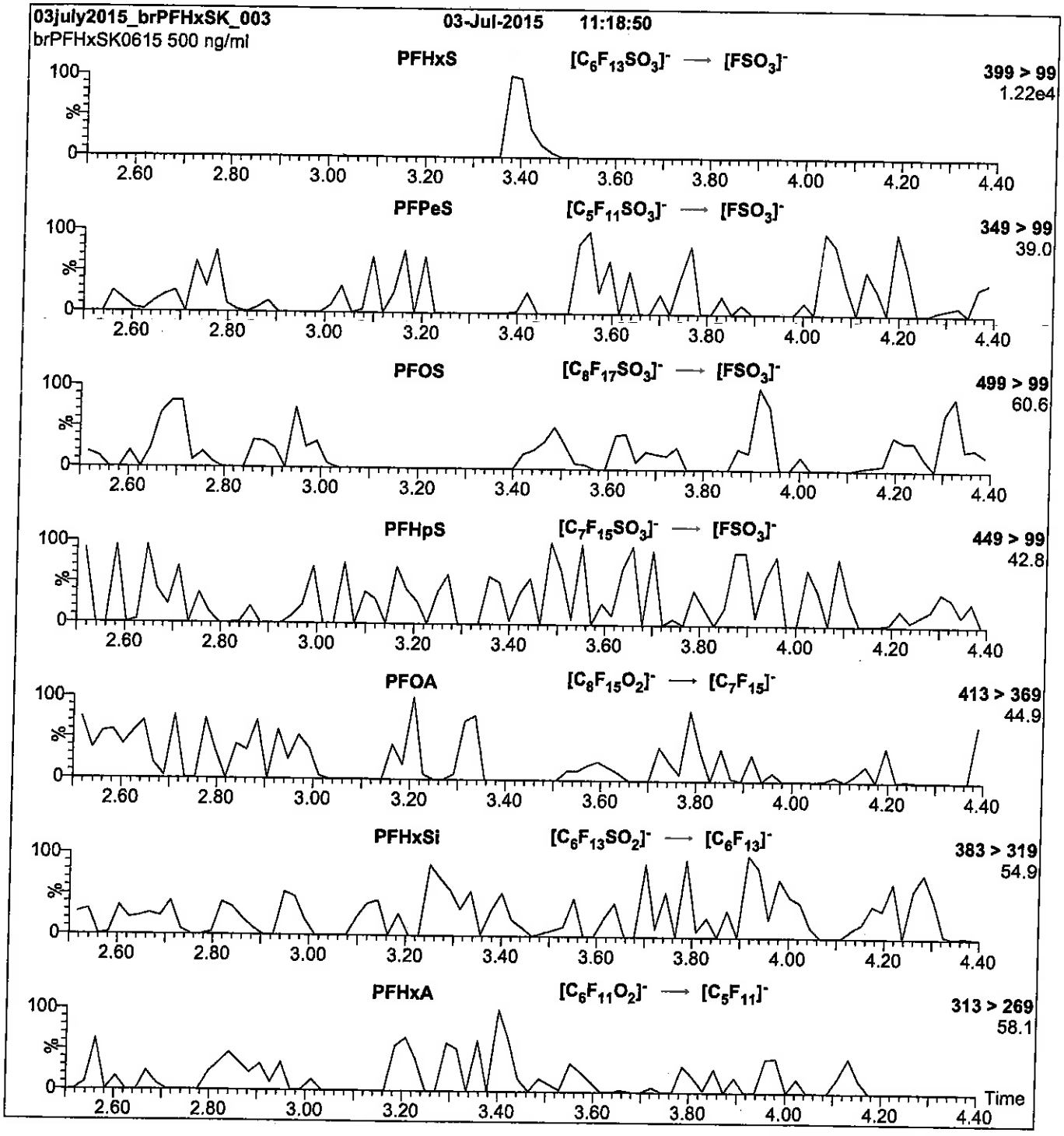
Flow: 300 µl/min

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 µl (500 ng/ml br-PFHxSK)

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

Flow: 300 µl/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

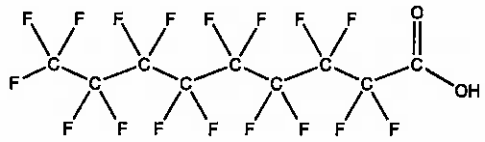
730559
ID: LCPFNA_00006
Exp: 10/23/20 Prpd: SBC
PF-n-nonanoic acid

730560
ID: LCPFNA_00007
Exp: 10/23/20 Prpd: 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:	$C_9HF_{17}O_2$	**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:

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 $x_1, x_2, \ldots x_n$ on which it depends is:

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

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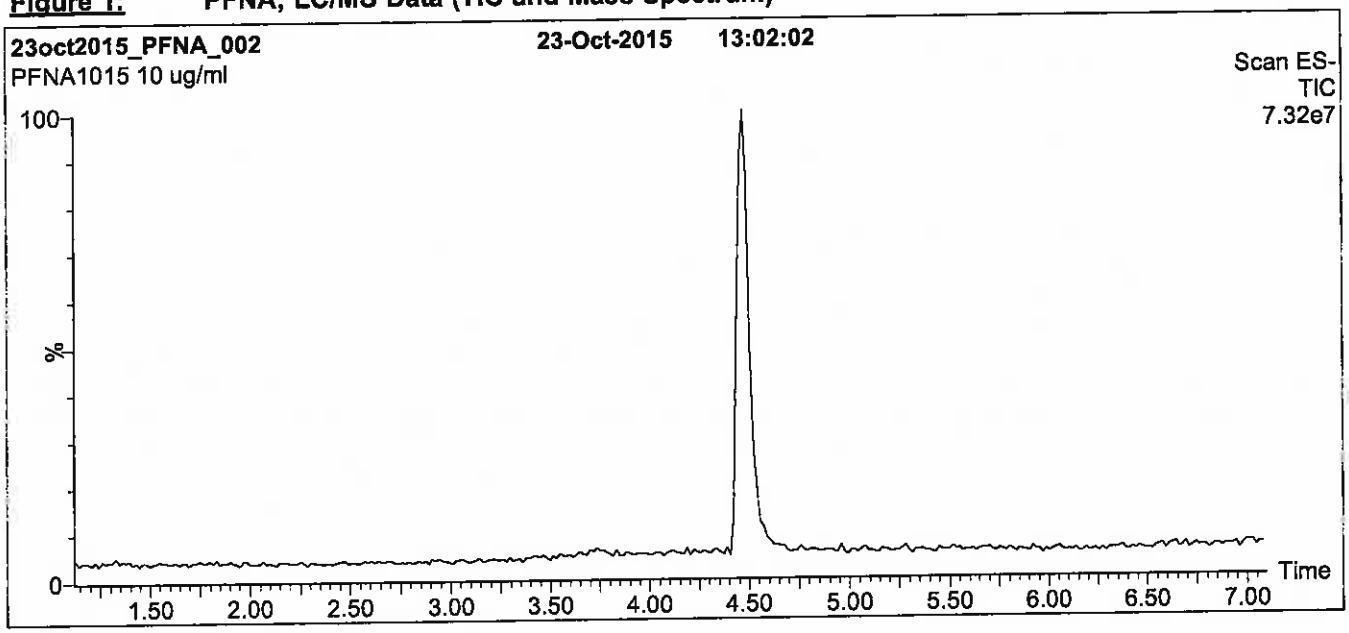
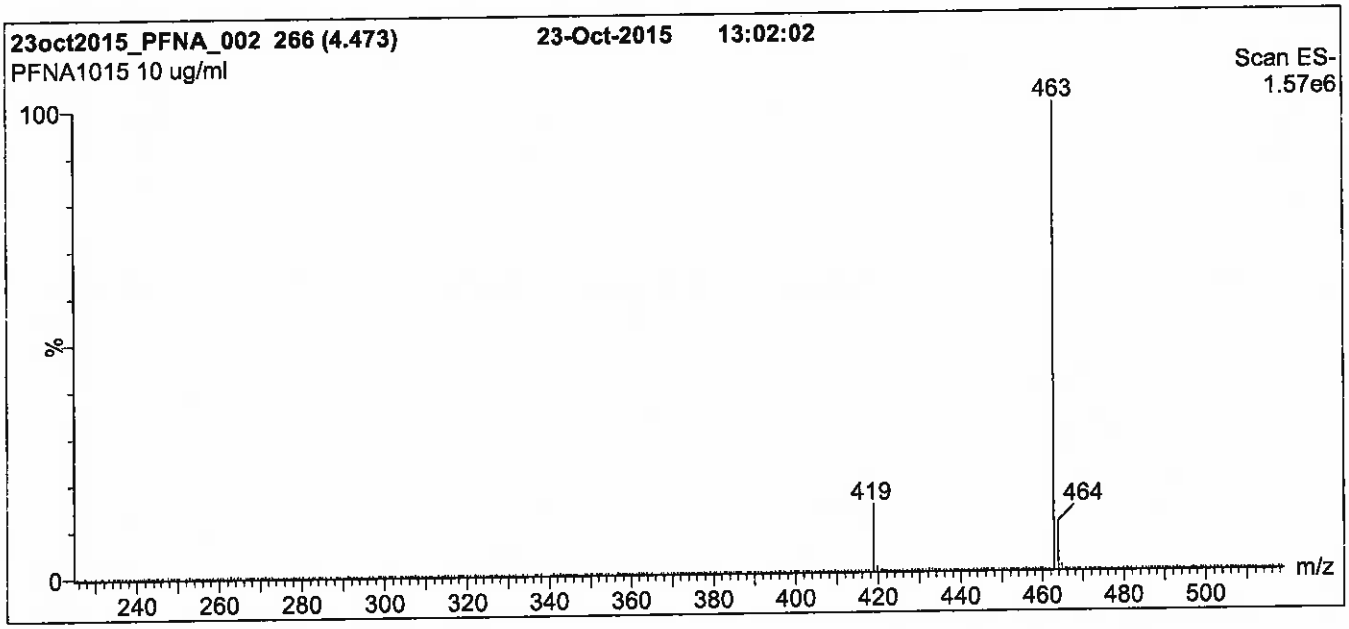
Figure 1: **PFNA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

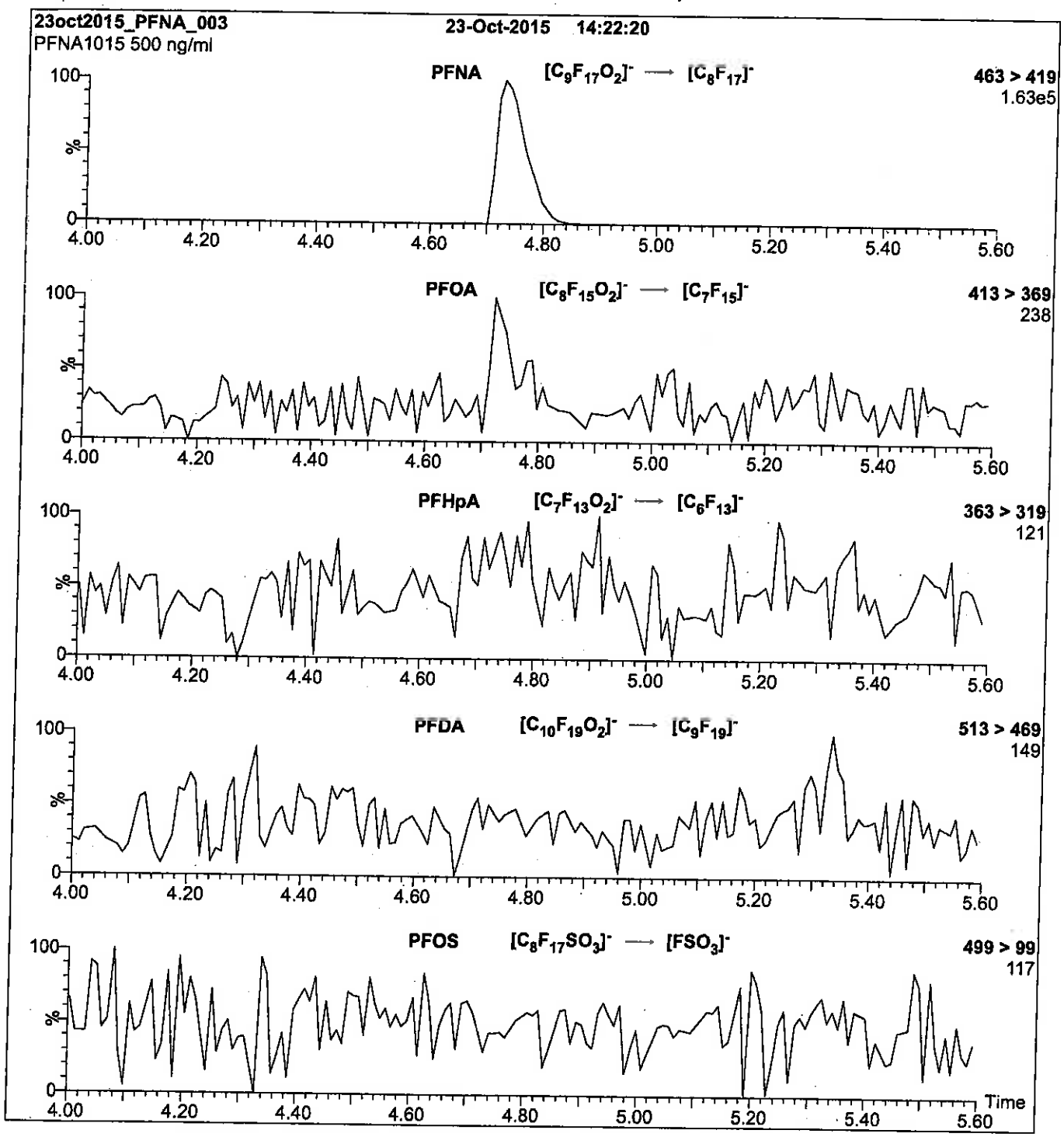
Flow: 300 µl/min

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 µl (500 ng/ml PFNA)

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 11

Reagent

LCPFOA_00006

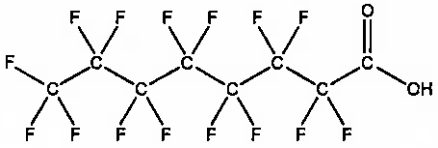
R-7/6/16 CBW

671577
ID: LCPFOA_00006
Exp: 11/06/20 Prpd: CBW
PF-n-octanoic acid

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFOA	**LOT NUMBER:**	PFOA1115
COMPOUND:	Perfluoro-n-octanoic acid		
STRUCTURE:		**CAS #:**	335-67-1



MOLECULAR FORMULA:	$C_8HF_{15}O_2$	**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

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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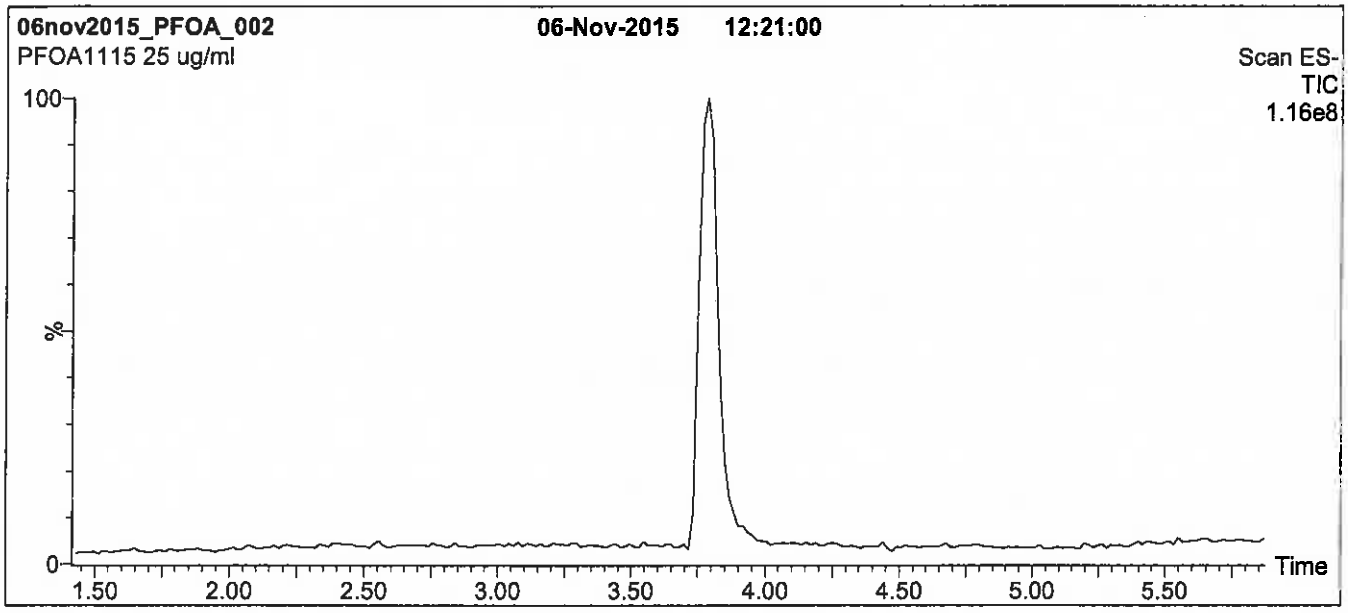
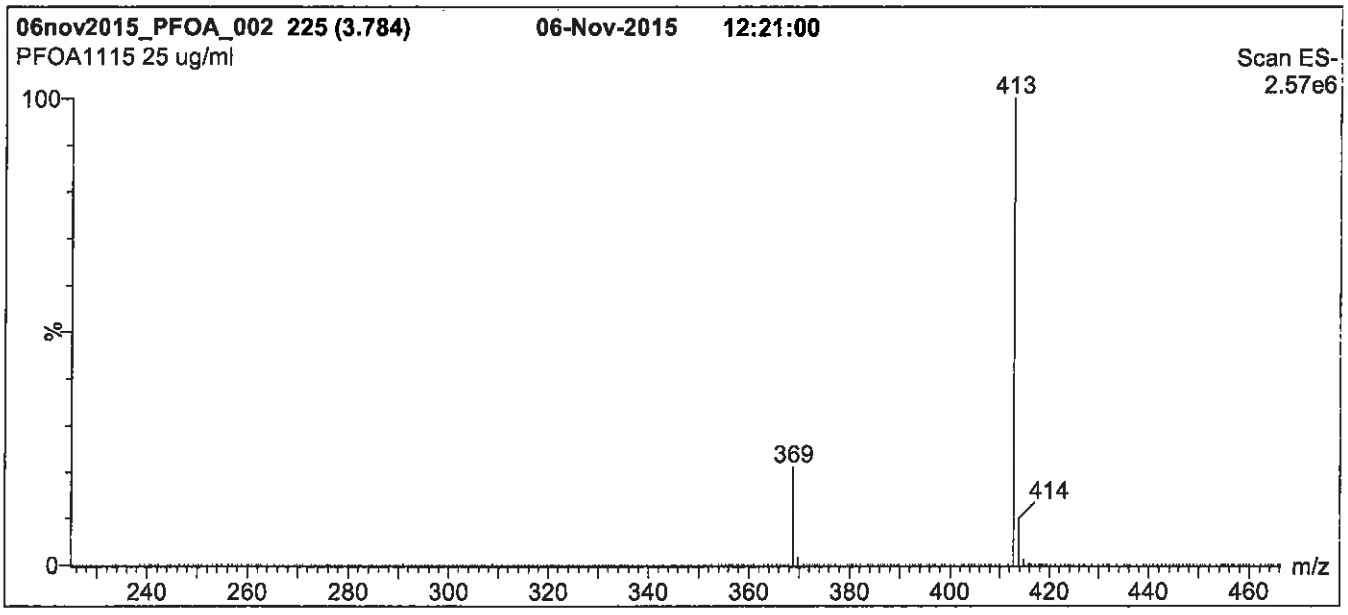
Figure 1: **PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

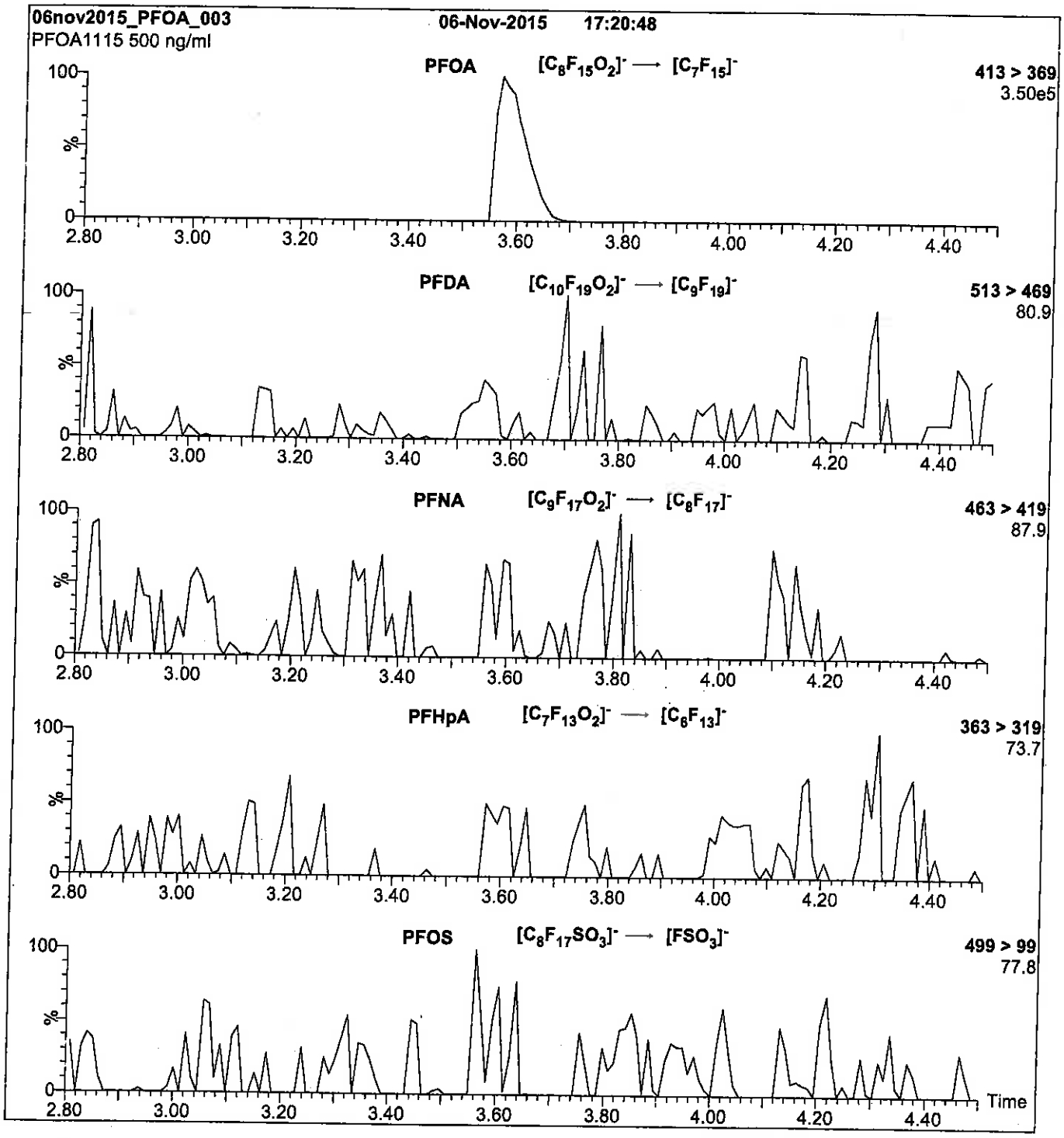
Flow: 300 µl/min

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 µl (500 ng/ml PFOA)

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.17e-3
Collision Energy (eV) = 10

Reagent

LCPFODA_00006

Scanned 10/14/16 R: SBC 9/13/16

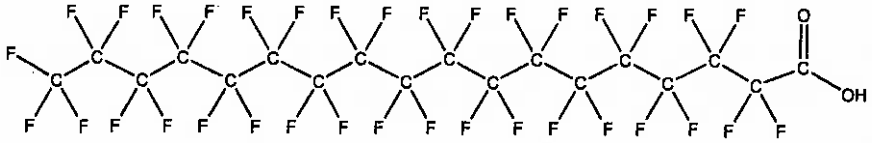
730632
ID: LCPFODA_00006
Exp: 04/29/21 Prpd: SBC
PFODA stock 50ug/mL

730633
ID: LCPFODA_00007
Exp: 04/29/21 Prpd: 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: $C_{18}HF_{35}O_2$
MOLECULAR WEIGHT: 914.14
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 04/29/2016
EXPIRY DATE: (mm/dd/yyyy) 04/29/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 05/20/2016 (mm/dd/yyyy)

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

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CALA Testing A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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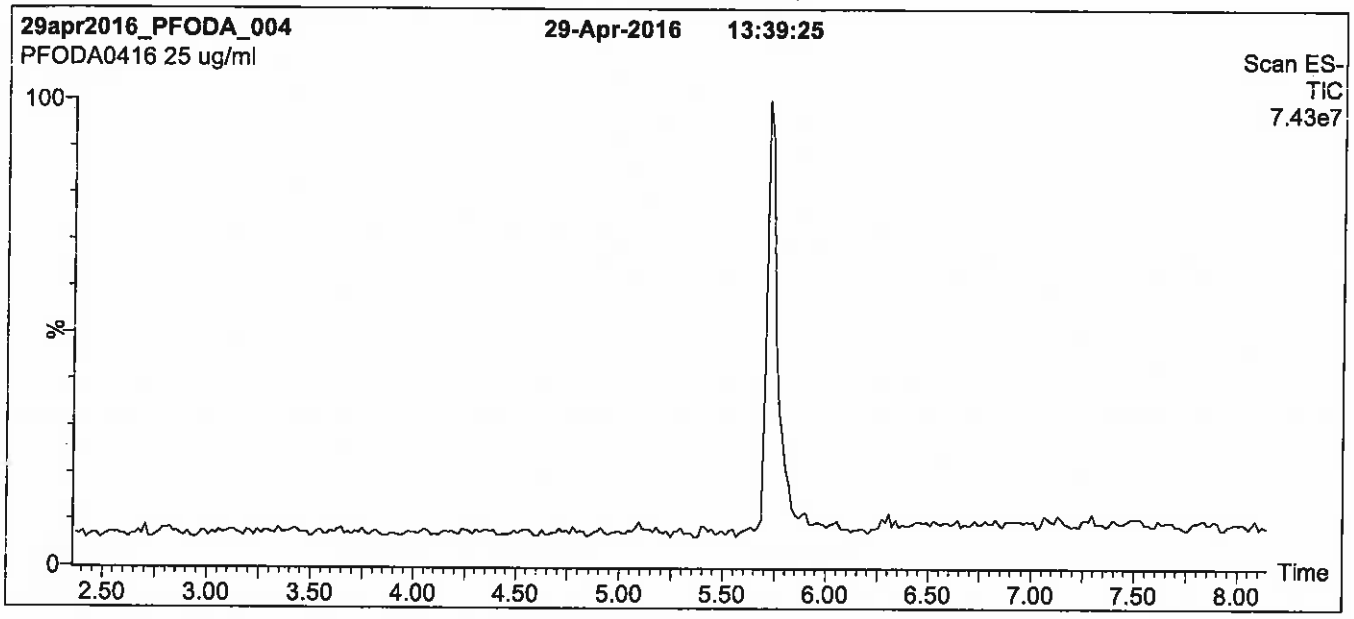
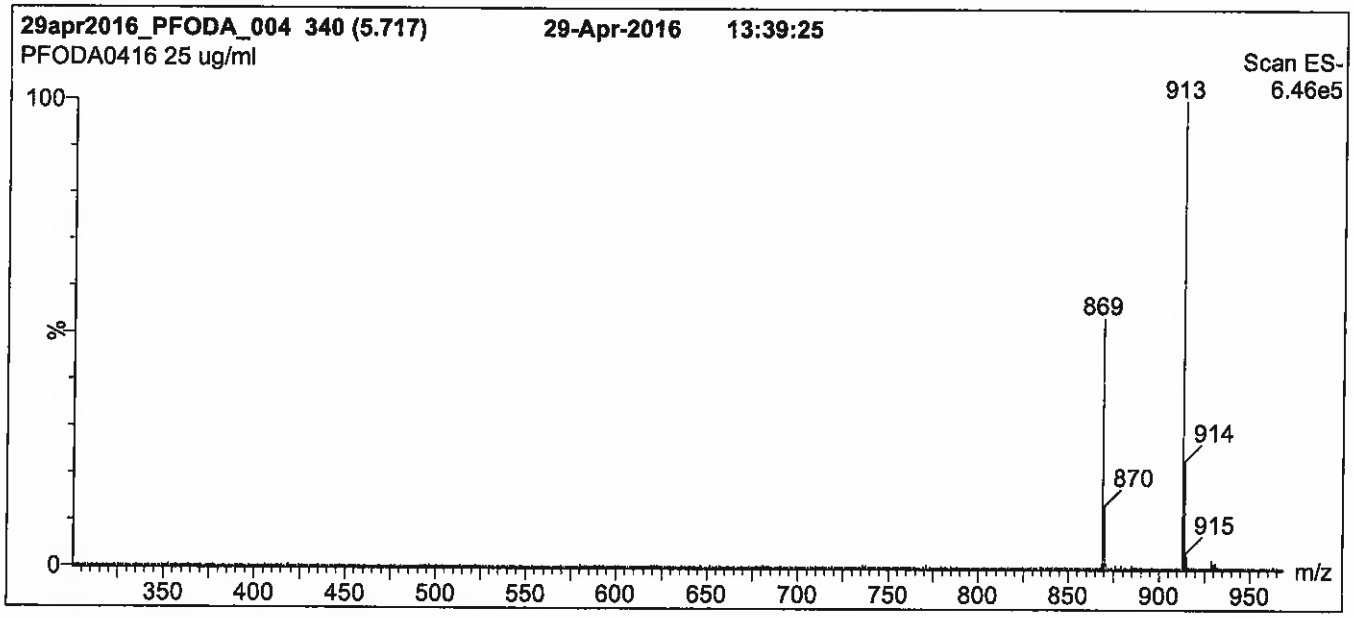
Figure 1: **PFODA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 70% (80:20 MeOH:ACN) / 30% H_2O
(both with 10 mM NH_4OAc 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

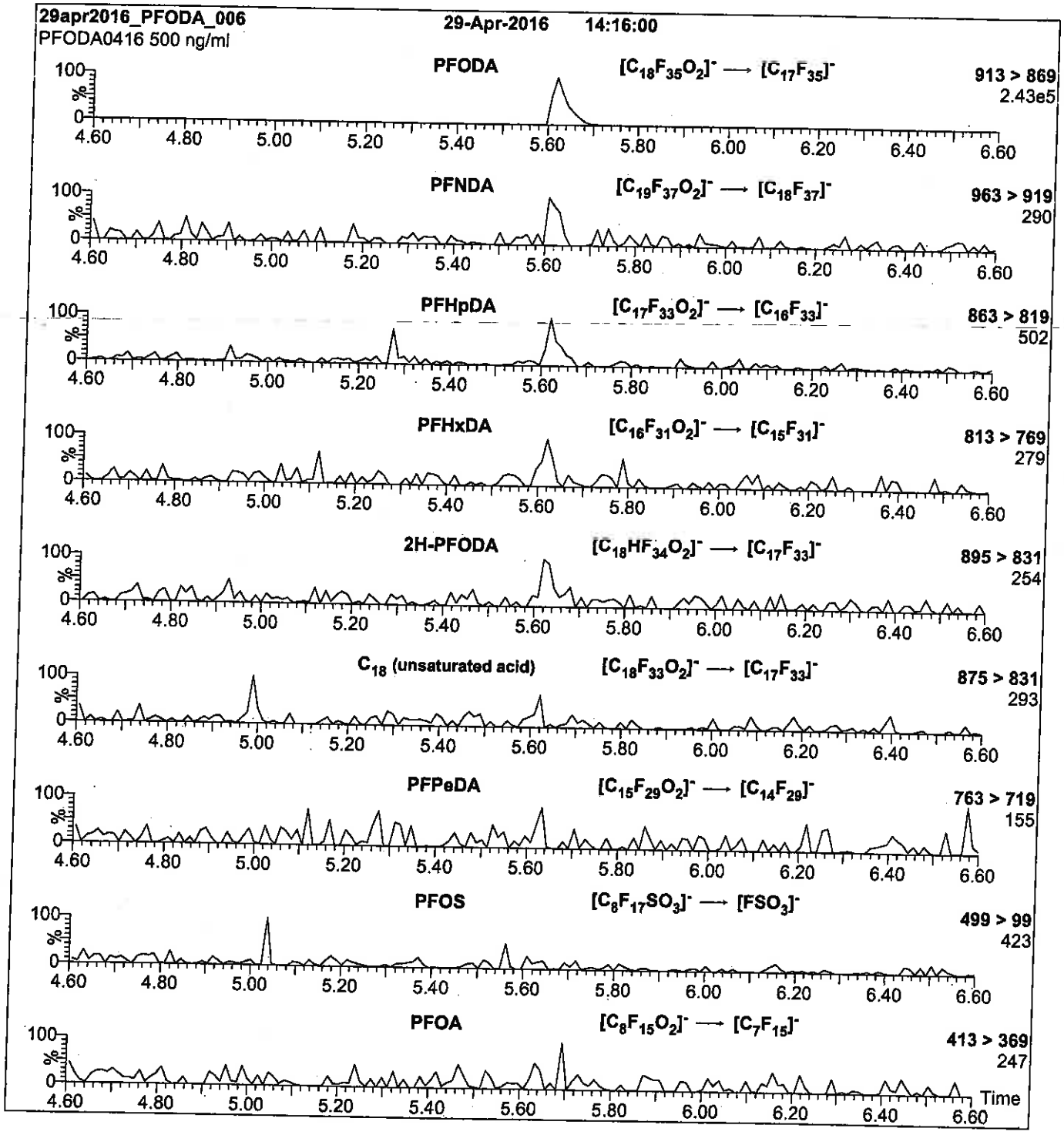
Flow: 300 µl/min

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% H_2O
(both with 10 mM NH_4OAc 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 SC

R: SBC 9/13/16

730515
ID: LCPFOS-br_00002
Exp: 10/14/20 Prpd: SBC
Potassium Perfluorooctane

730516
ID: LCPFOS-br_00003
Exp: 10/14/20 Prpd: 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 ^{19}F-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 $x_1, x_2, \ldots x_n$ on which it depends is:

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

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 ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

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

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LIMITED WARRANTY:

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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).

CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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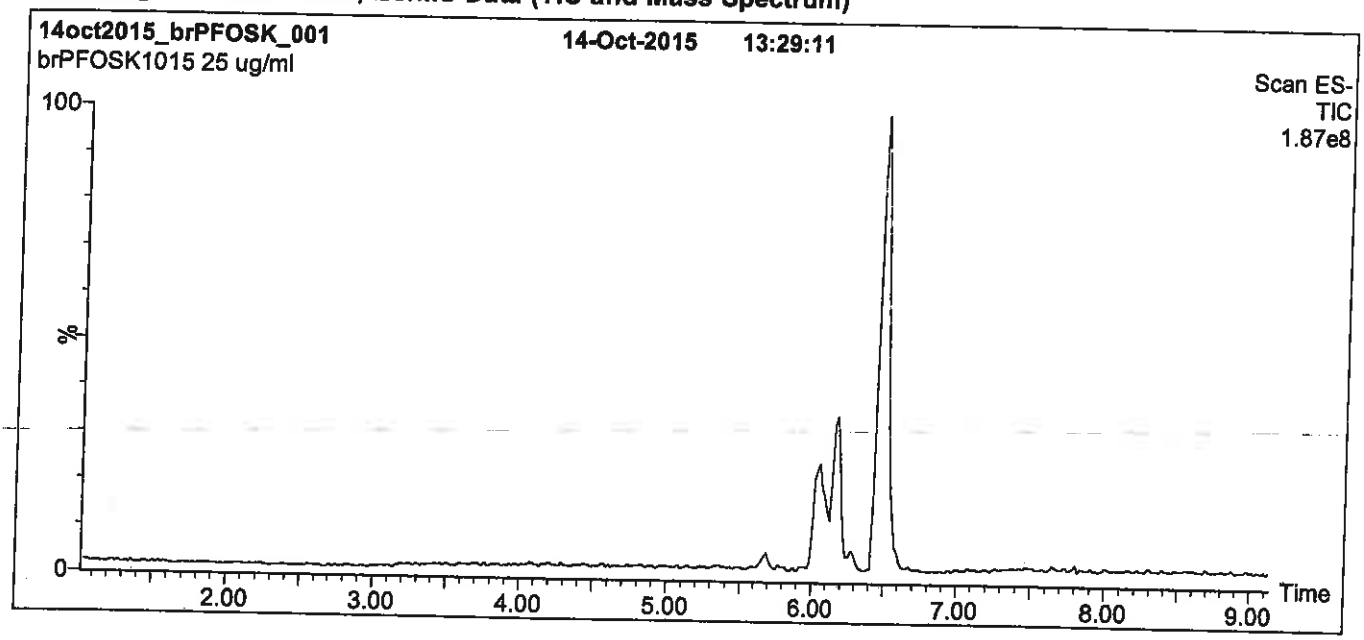
Table A: **br-PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

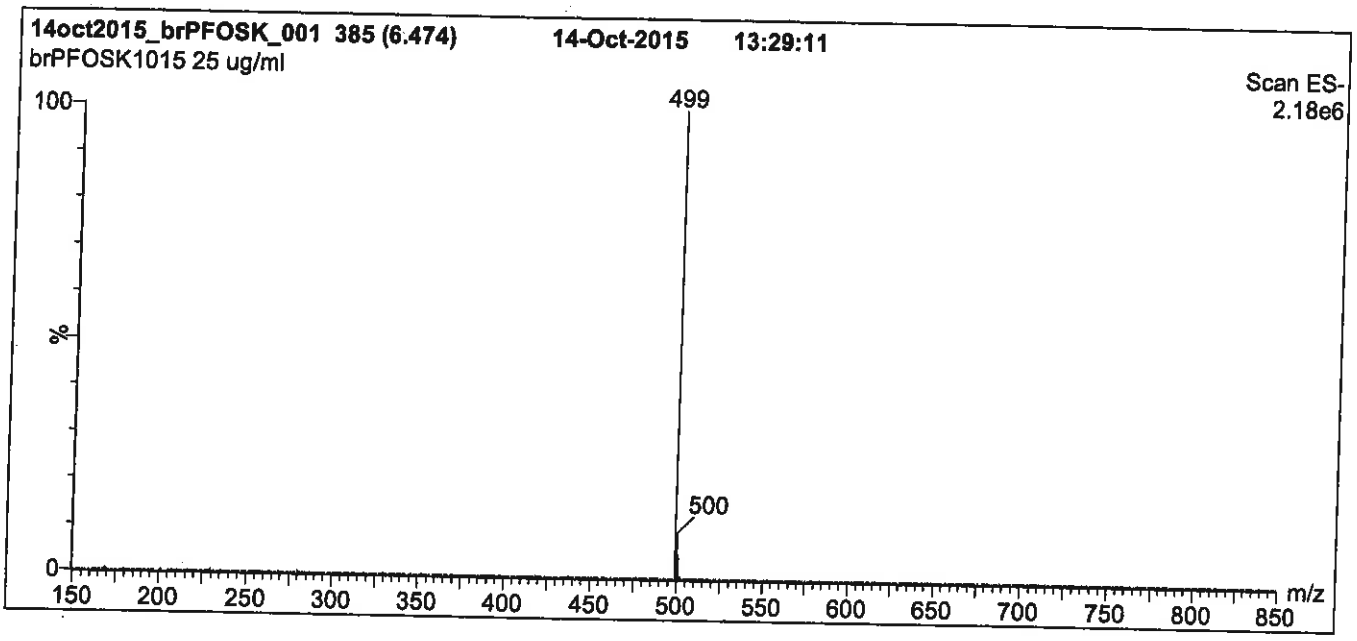
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	0.6
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	1.9
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	2.2
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	4.5
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	10.0
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3-C(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2-C(CF_3)CF_2CF_2CF_2SO_3^-K^+$	0.03
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3-CF(CF_3)-CF(CF_3)-CF_2CF_2CF_2SO_3^-K^+$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3-CF(CF_3)-CF_2-CF(CF_3)-CF_2CF_2SO_3^-K^+$	0.07

* Percent of total perfluorooctanesulfonate isomers only. Isomers are labelled in Figure 2.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Certified By: _____ **Date:** 10/15/2015
B.G. Chittim (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 RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% (80:20 MeOH:ACN) / 55% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 12 min and hold for 2 min.
Return to initial conditions over 0.5 min.
Time: 16 min

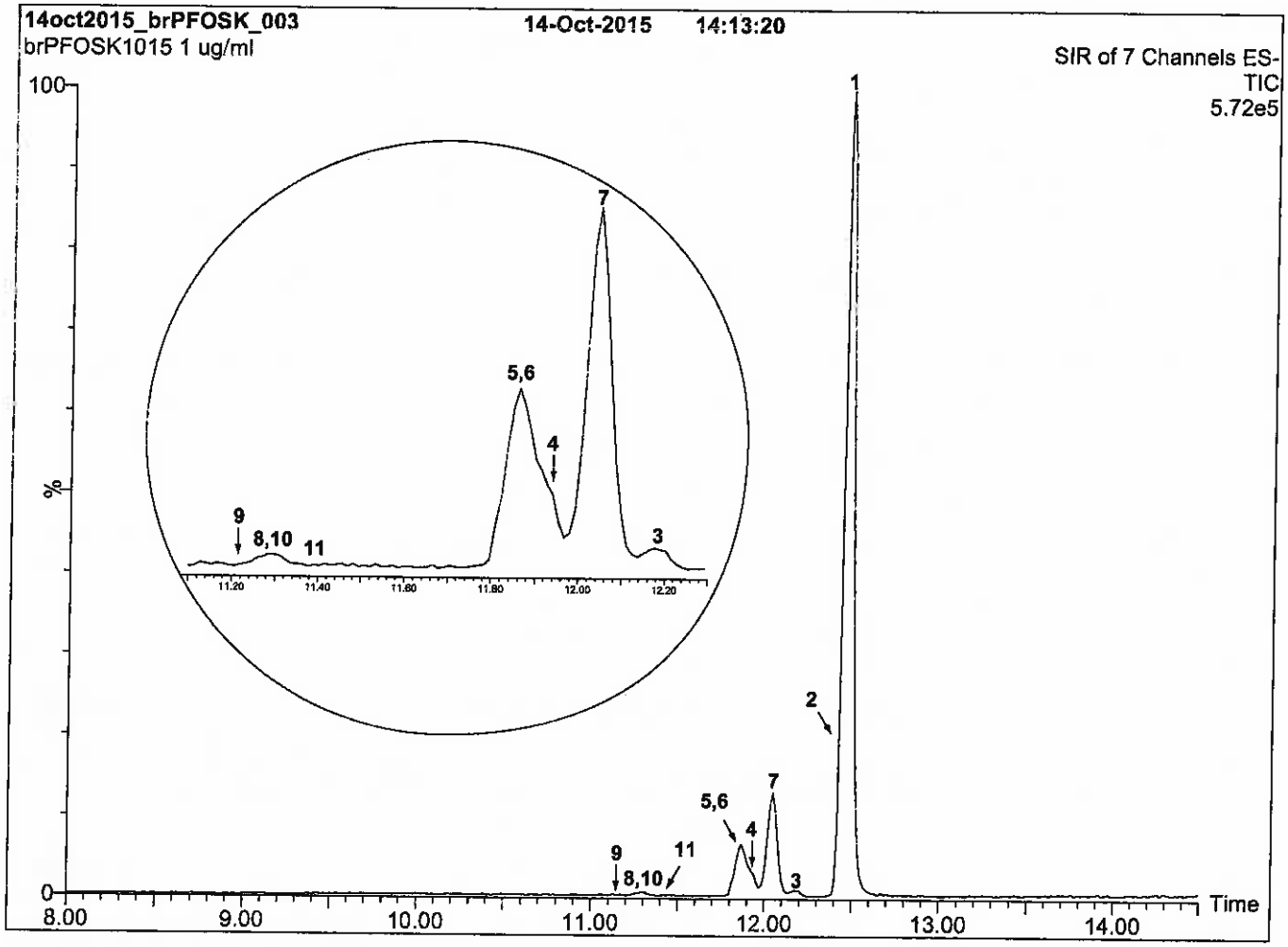
Flow: 300 µl/min

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 RP_{18} (1.7 µm, 2.1 x 100 mm)

Injection: 1.0 µg/ml of br-PFOSK

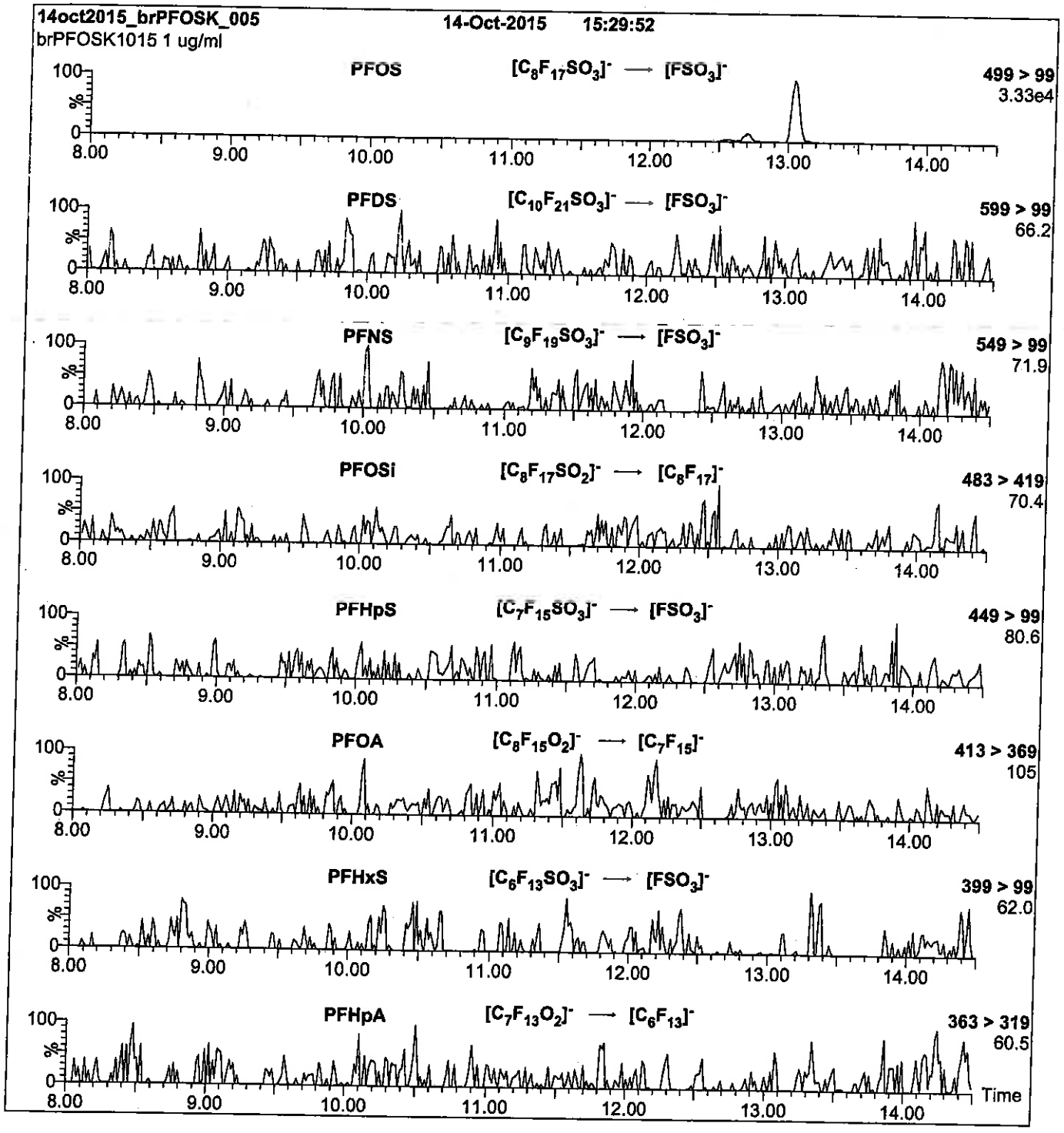
Mobile Phase: Gradient
45% (80:20 MeOH:ACN) / 55% H_2O (both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 15 min and hold for 3 min.
Return to initial conditions over 1 min.
Time: 20 min

Flow: 300 µl/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 µl/min

MS Parameters

Collision Gas (mbar) = 3.06e-3
Collision Energy (eV) = 11-50 (variable)

Reagent

LCPFOSA_00008

Scanned 10/14/16

R: SBC 9/13/16

730534
ID: LCPFOSA_00009
Exp: 09/02/17 Prpd: SBC
PF-1-octanesulfonamide

730533
ID: LCPFOSA_00008
Exp: 09/02/17 Prpd: SBC
PF-1-octanesulfonamide

WELLINGTON LABORATORIES

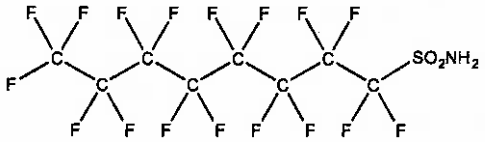
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FOSA-I
COMPOUND: Perfluoro-1-octanesulfonamide

LOT NUMBER: FOSA0815I

STRUCTURE:

CAS #: 754-91-6



MOLECULAR FORMULA:	$C_8H_2F_{17}NO_2S$	**MOLECULAR WEIGHT:**	499.14
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Isopropanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/02/2015		
EXPIRY DATE: (mm/dd/yyyy)	09/02/2017		
RECOMMENDED STORAGE:	Refrigerate ampoule		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 09/11/2015 (mm/dd/yyyy)

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

INTENDED USE:

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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 ±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:

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LIMITED WARRANTY:

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CALA Testing

ANAB ACCREDITED ISO 17025 REFERENCE MATERIAL PRODUCER

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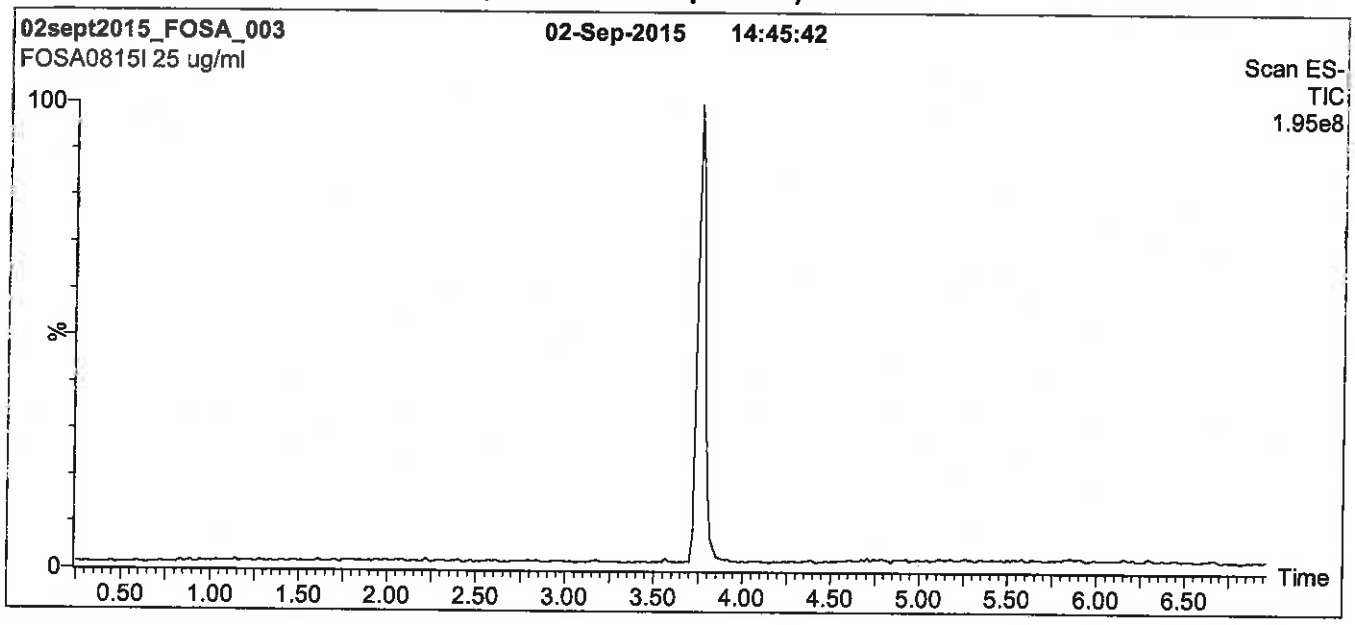
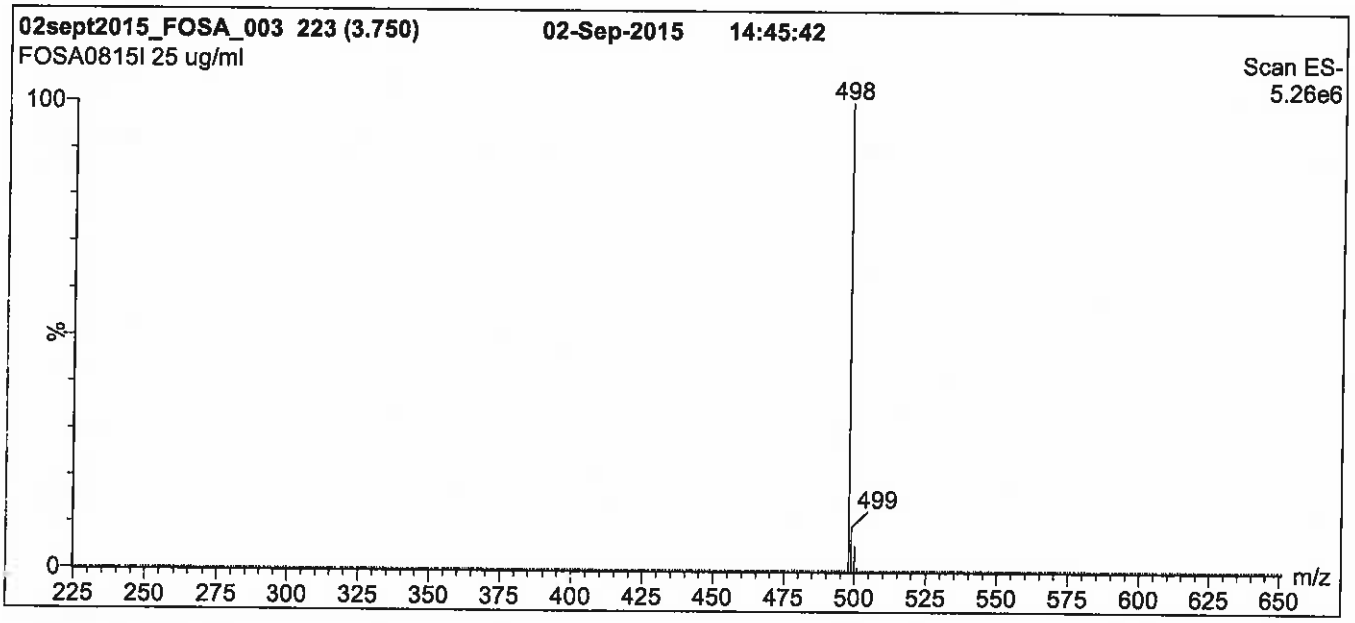
Figure 1: **FOSA-I; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc 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

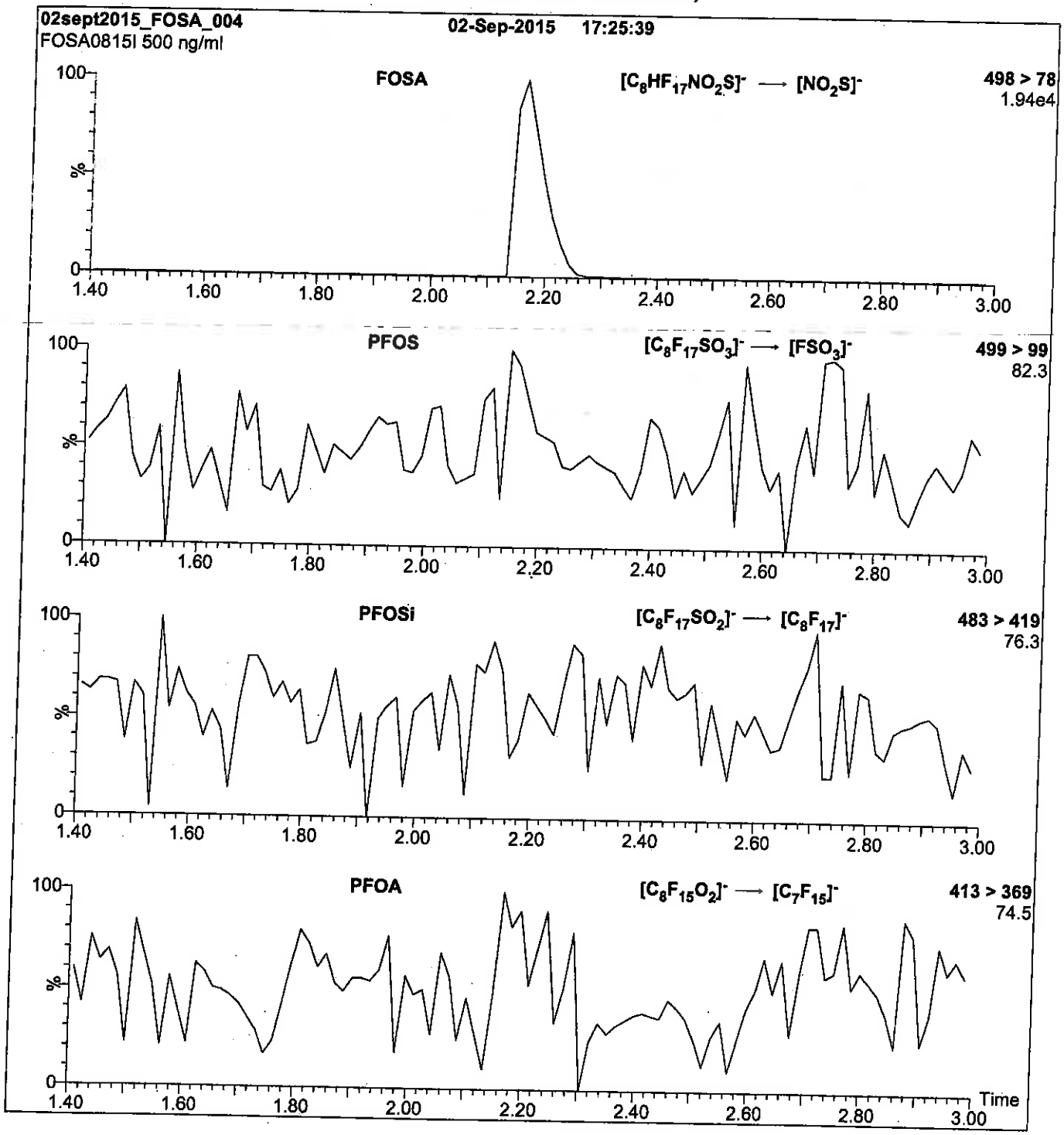
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCPFPeA_00005

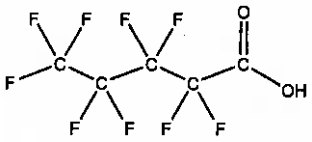
R: 7/6/16 CBW

671579
ID: LCPFPeA_00005
Exp: 01/30/20 Prpd: CBW
PF-n-pentanoic acid

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	PFPeA	**LOT NUMBER:**	PFPeA0115
COMPOUND:	Perfluoro-n-pentanoic acid		
STRUCTURE:		**CAS #:**	2706-90-3



MOLECULAR FORMULA:	$C_5HF_9O_2$	**MOLECULAR WEIGHT:**	264.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	01/30/2015		
EXPIRY DATE: (mm/dd/yyyy)	01/30/2020		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of Perfluoro-n-heptanoic acid (PFHpA) and ~ 0.2% of $C_5H_2F_8O_2$ (hydrido - derivative) as measured by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 03/26/2015 (mm/dd/yyyy)

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

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CALA

ANAB ACCREDITED

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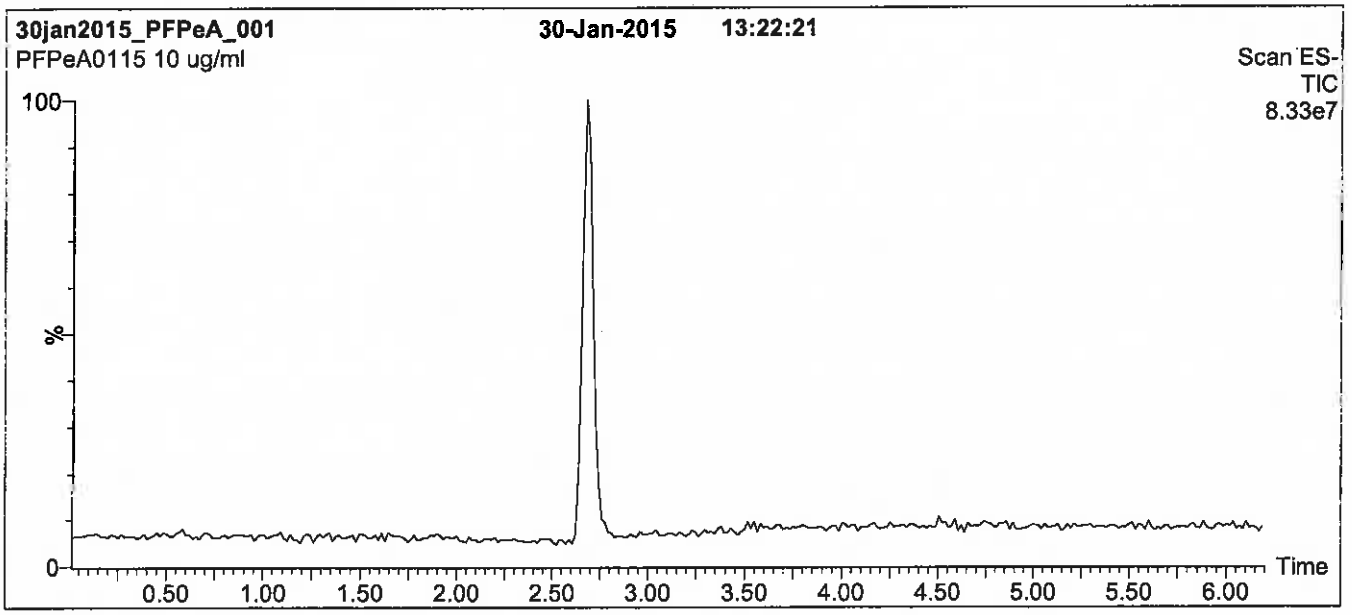
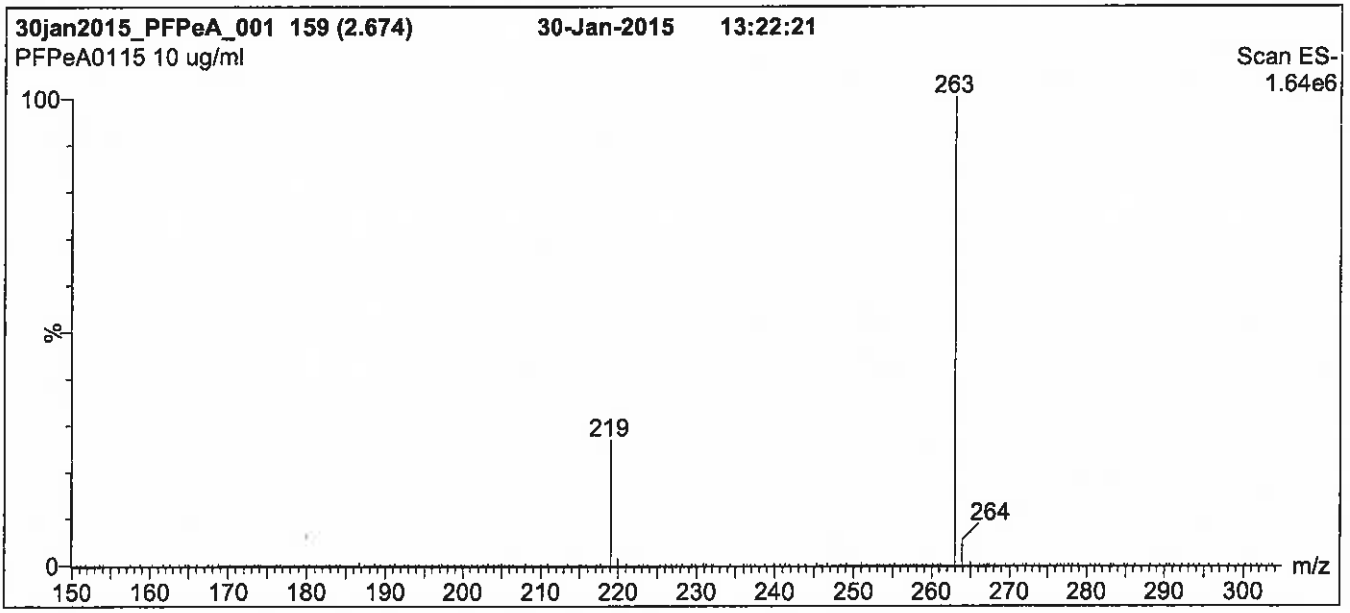
Figure 1: **PFPeA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc 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

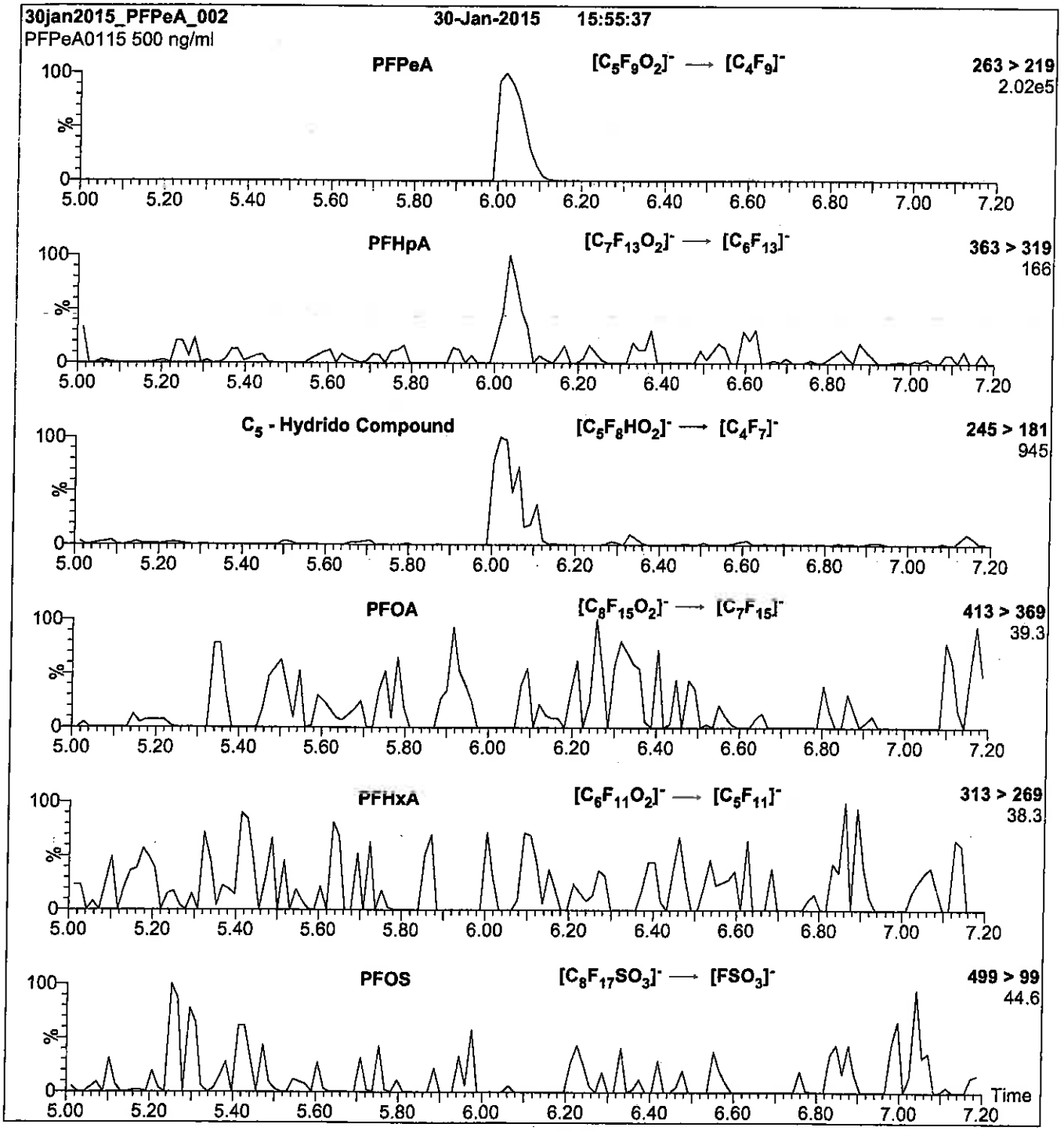
Flow: 300 µl/min

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) = 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 µl (500 ng/ml PFPeA)

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-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

WELLINGTON LABORATORIES

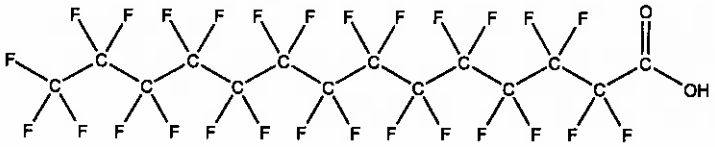
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTeDA
COMPOUND: Perfluoro-n-tetradecanoic acid

LOT NUMBER: PFTeDA1215

STRUCTURE:

CAS #: 376-06-7



MOLECULAR FORMULA:	$C_{14}HF_{27}O_2$	**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 ($C_{12}HF_{23}O_2$) and ~ 0.2% of PFPeDA ($C_{15}HF_{29}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/09/2015 (mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

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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:

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

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

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 ±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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CALA

ANAB ACCREDITED

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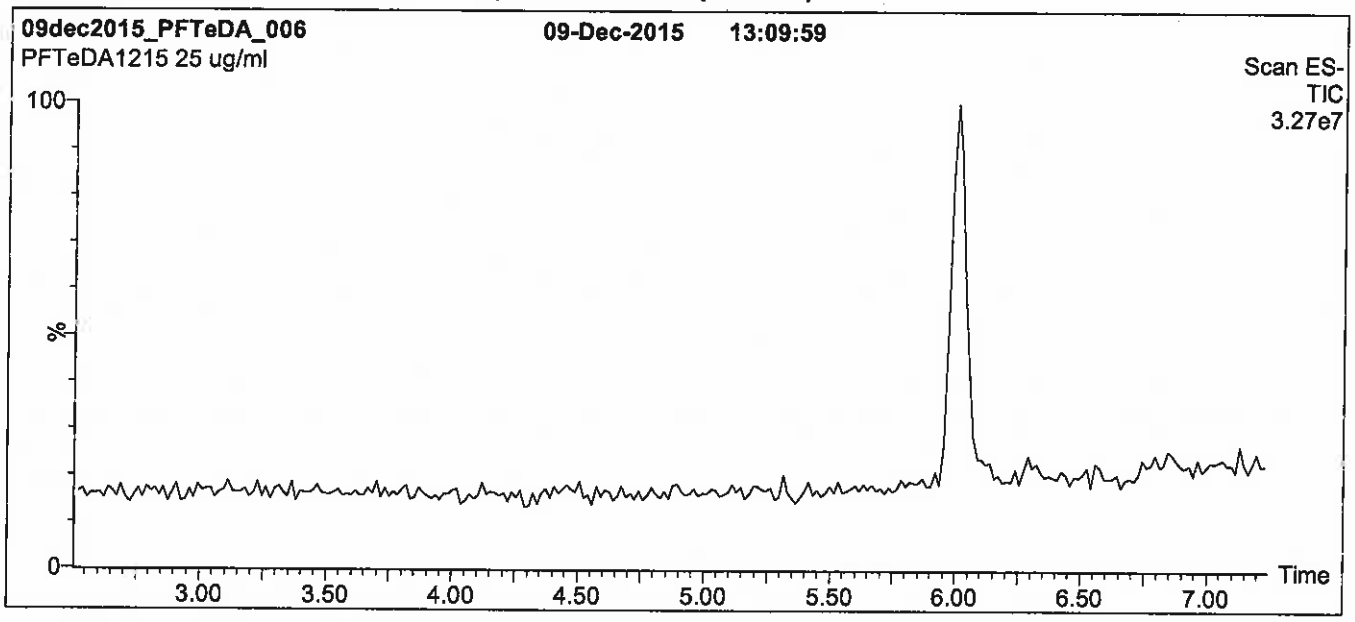
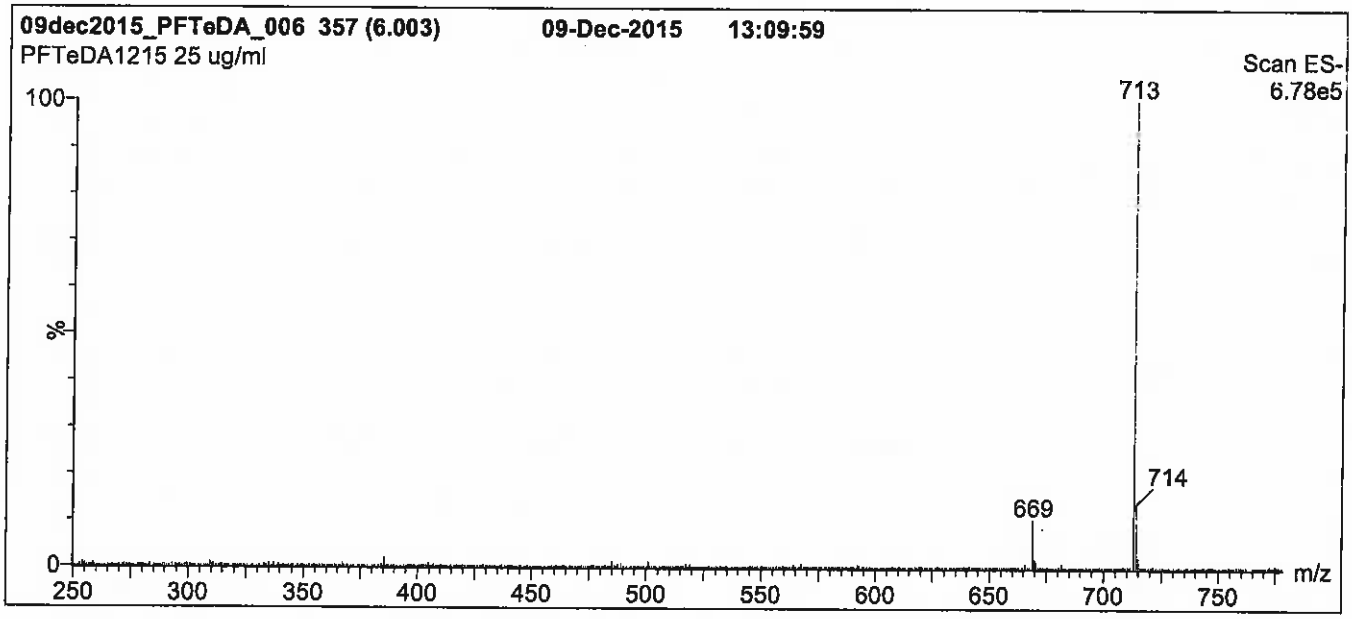
Figure 1: **PFTeDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc 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

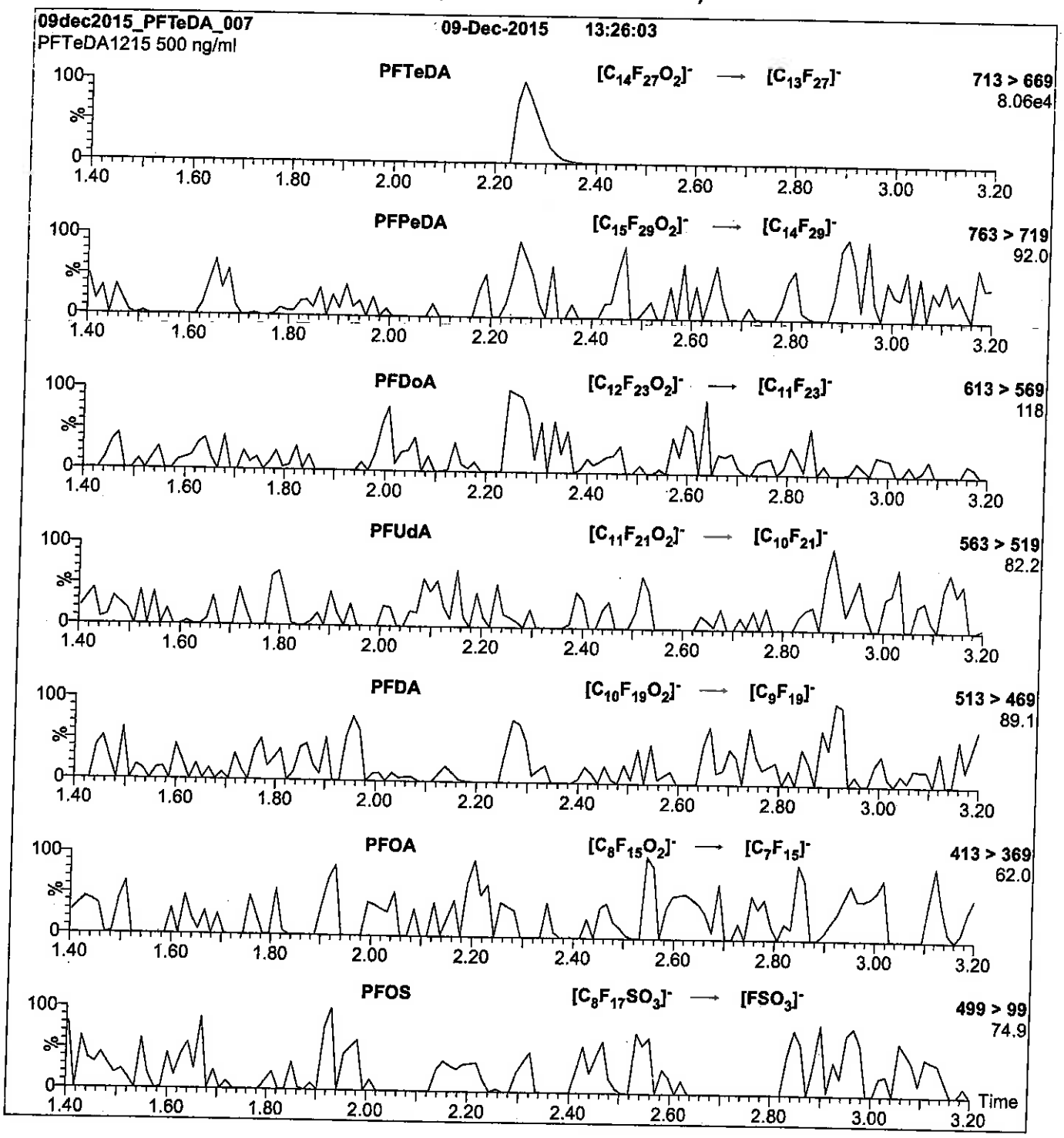
Flow: 300 µl/min

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 µl (500 ng/ml PFTeDA)

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 14

Reagent

LCPFTrDA_00005

R: SBC 9/13/16

730665
ID: LCPFTrDA_00005
Exp: 02/12/21 Prpd: SBC
PF-n-tridecanoic acid

730666
ID: LCPFTrDA_00006
Exp: 02/12/21 Prpd: SBC
PF-n-tridecanoic acid

WELLINGTON LABORATORIES

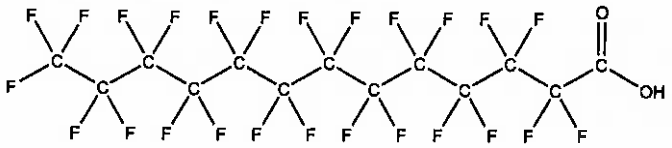
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTrDA
COMPOUND: Perfluoro-n-tridecanoic acid

LOT NUMBER: PFTrDA0216

STRUCTURE:

CAS #: 72629-94-8



MOLECULAR FORMULA: $C_{13}HF_{25}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 664.11
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 PFDoA ($C_{12}HF_{23}O_2$), 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:

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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 ±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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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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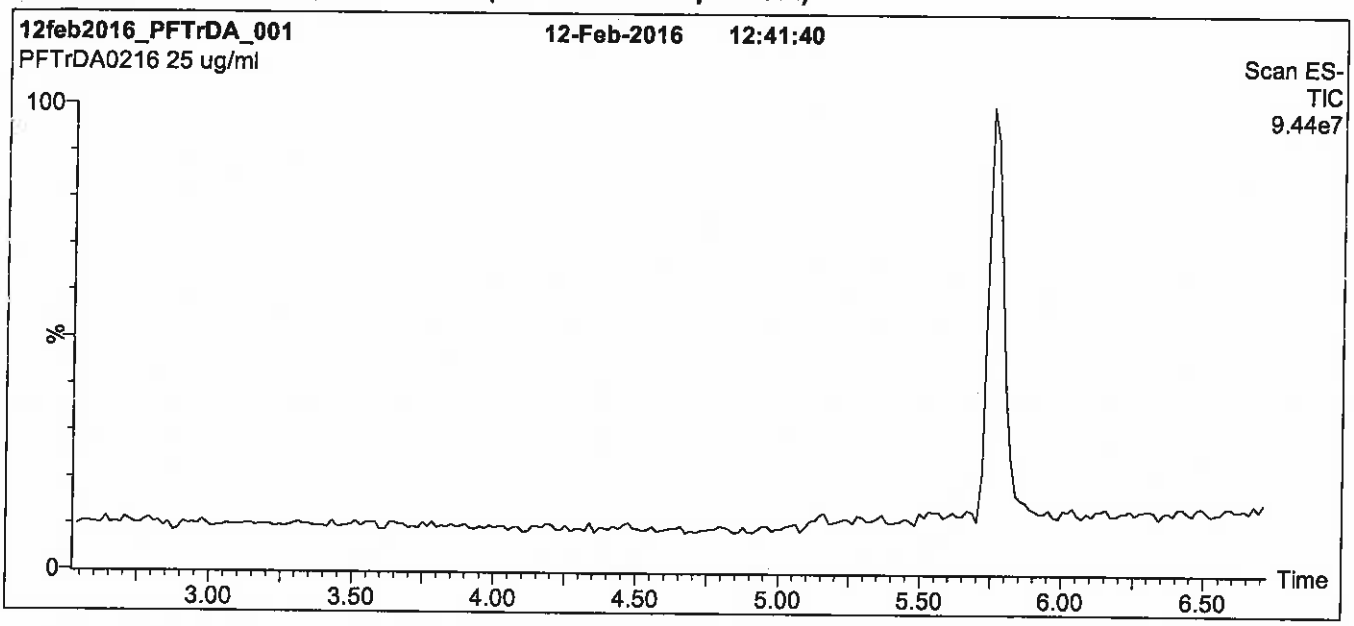
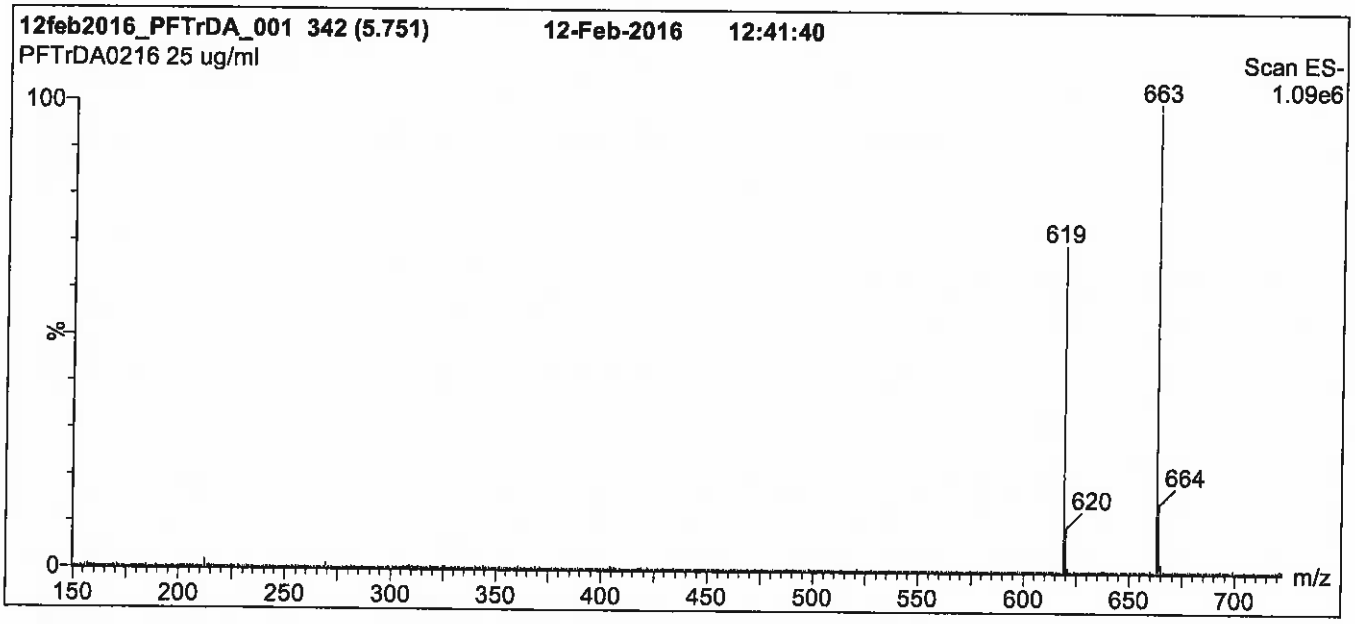
Figure 1: **PFTrDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc 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

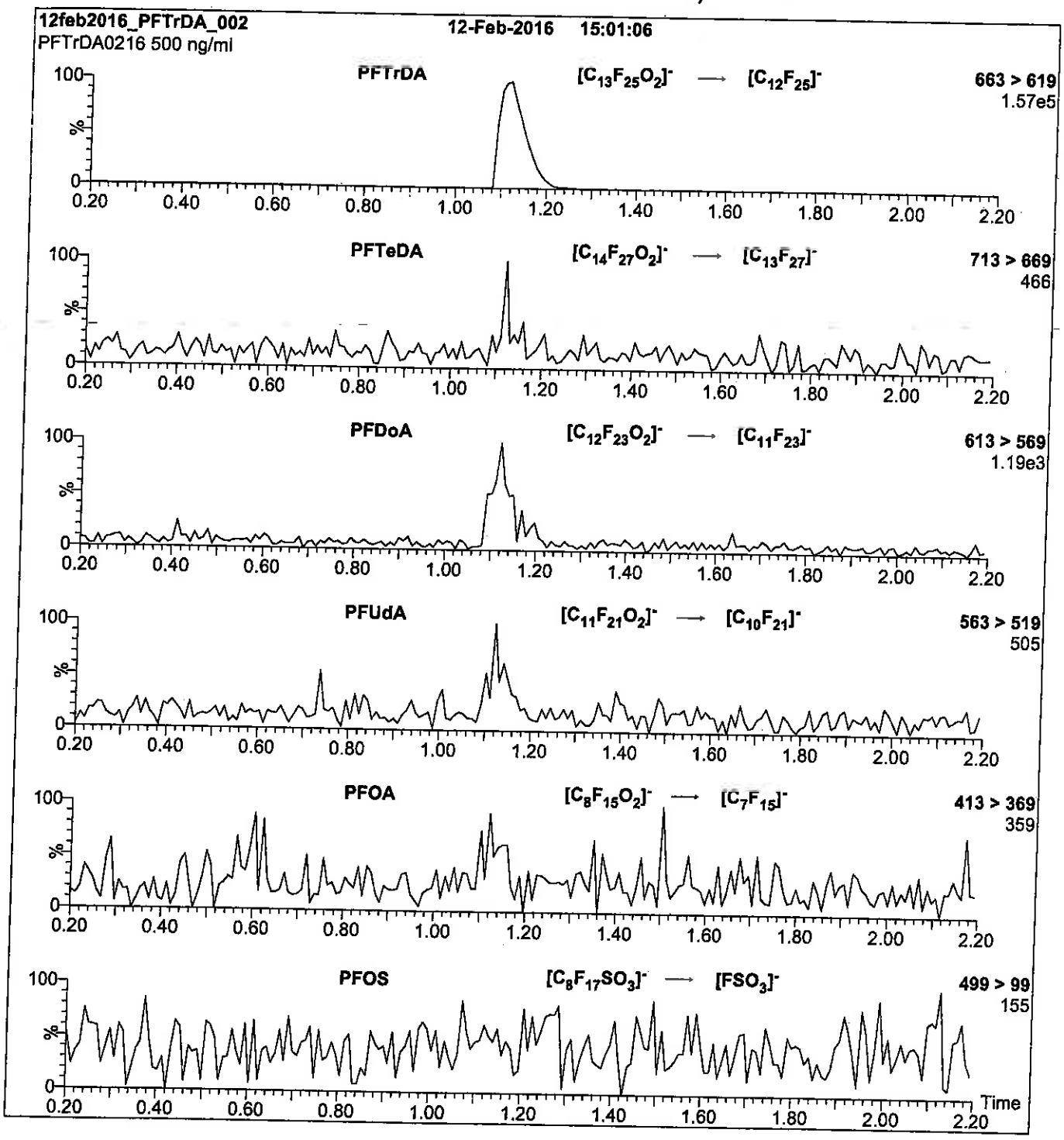
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 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 µl (500 ng/ml PFTrDA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 15

Reagent

LCPFUdA_00005

Scanned 10/14/16 R: SBC 9/13/16

730535
ID: LCPFUdA_00005
Exp: 08/19/20 Prpd: SBC
PF-n-undecanoic acid

730536
ID: LCPFUdA_00006
Exp: 08/19/20 Prpd: SBC
PF-n-undecanoic acid

WELLINGTON LABORATORIES

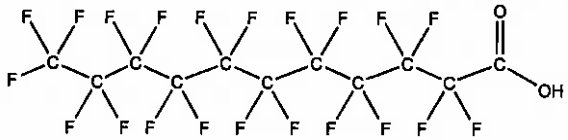
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

LOT NUMBER: PFUdA0815

STRUCTURE:

CAS #: 2058-94-8



MOLECULAR FORMULA: $C_{11}HF_{21}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 564.09
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 08/19/2015
EXPIRY DATE: (mm/dd/yyyy) 08/19/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 08/21/2015 (mm/dd/yyyy)

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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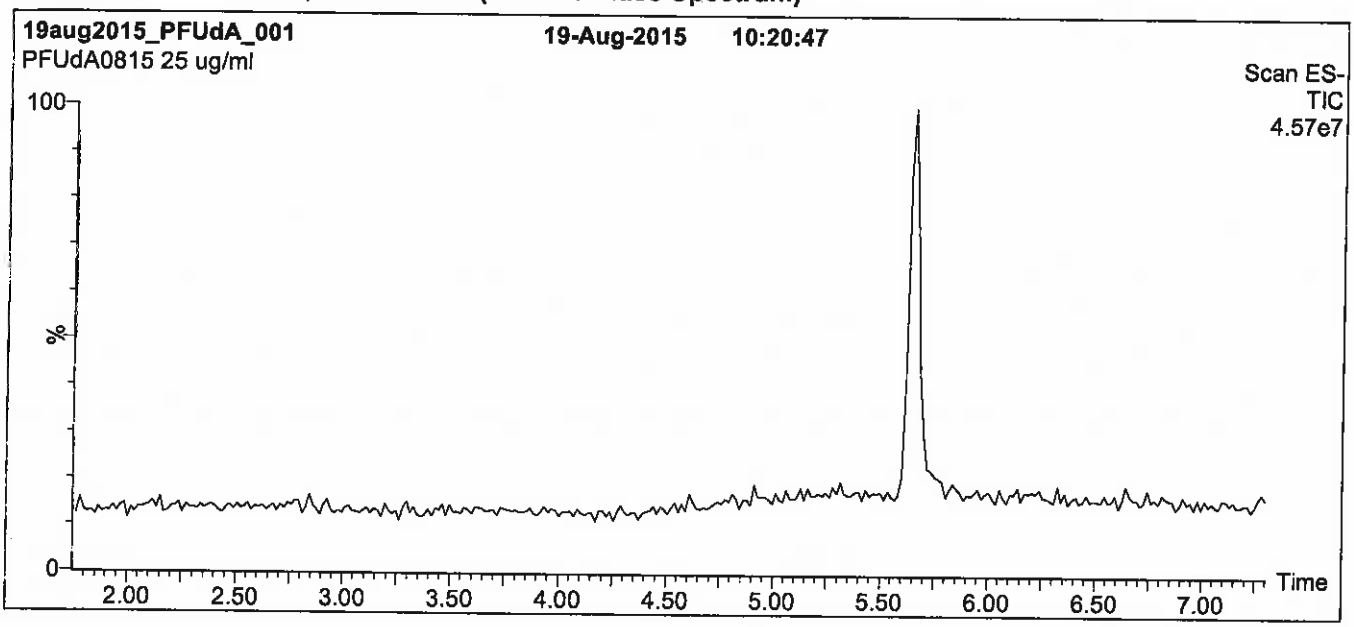
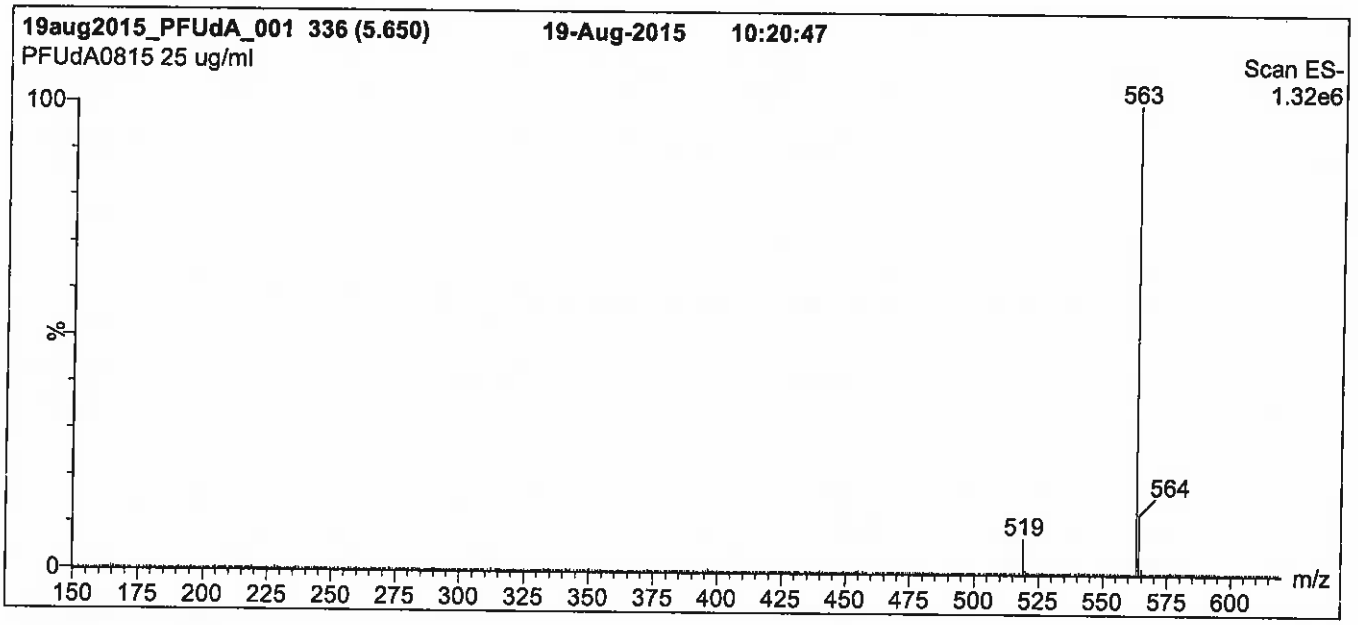
Figure 1: **PFUdA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{18}
1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc 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

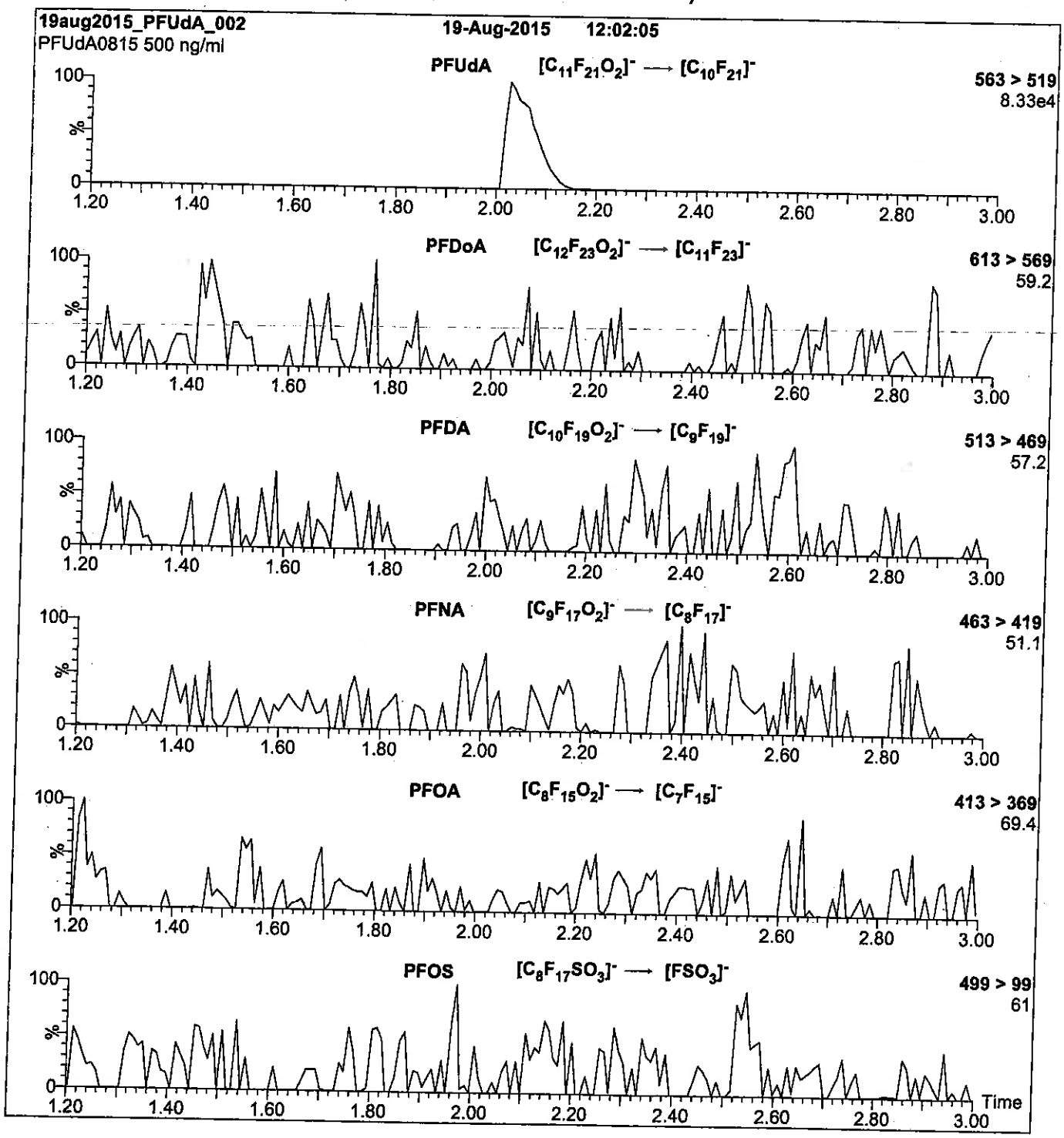
Flow: 300 µl/min

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 µl (500 ng/ml PFUdA)

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

Flow: 300 µl/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.: 320-26263-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxS #	PFOA #	PFOS #
MEAFF-WWTP-MW01-0317	320-26263-1	110	85	107
MEAFF-WWTP-MW01-0317 DL	320-26263-1 DL	116	81	98
MEAFF-PWMA-MW01-0317	320-26263-2	46	48	99
MEAFF-PWMA-MW01-0317 DL	320-26263-2 DL	97	83	112
MEAFF-PWMA-MW01-0317 DL2	320-26263-2 DL2	108	108	112
MEAFF-Unknown22-MW01-0317	320-26263-3	125	87	118
MEAFF-FD04-030117	320-26263-4	137	83	134
	MB 320-153501/1-A	124	130	116
	LCS 320-153501/2-A	137	148	132
	LCSD 320-153501/3-A	128	140	123

	QC LIMITS
PFHxS = 18O2 PFHxS	25-150
PFOA = 13C4 PFOA	25-150
PFOS = 13C4 PFOS	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.: 320-26263-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.03.10B_042.d

Lab ID: LCS 320-153501/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	40.0	39.9	100	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	37.8	102	60-140	M
13C4 PFOA	100	148	148	25-150	
13C4 PFOS	95.6	126	132	25-150	
Perfluorobutanesulfonic acid (PFBS)	35.4	40.0	113	50-150	
18O2 PFHxS	94.6	129	137	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.: 320-26263-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.03.10B_043.d

Lab ID: LCSD 320-153501/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	40.0	39.6	99	1	30	60-140	
Perfluorooctanesulfonic acid (PFOS)	37.1	39.4	106	4	30	60-140	M
13C4 PFOA	100	140	140			25-150	
13C4 PFOS	95.6	117	123			25-150	
Perfluorobutanesulfonic acid (PFBS)	35.4	41.6	118	4	30	50-150	
18O2 PFHxS	94.6	121	128			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.: 320-26263-1

SDG No.:

Lab File ID: 2017.03.10B_041.d Lab Sample ID: MB 320-153501/1-A

Matrix: Water Date Extracted: 03/06/2017 16:19

Instrument ID: A8_N Date Analyzed: 03/10/2017 22:30

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-153501/2-A	2017.03.10B_042.d	03/10/2017 22:37
	LCSD 320-153501/3-A	2017.03.10B_043.d	03/10/2017 22:45
MEAFF-WWTP-MW01-0317	320-26263-1	2017.03.10B_044.d	03/10/2017 22:52
MEAFF-PWMA-MW01-0317	320-26263-2	2017.03.10B_045.d	03/10/2017 23:00
MEAFF-Unknown22-MW01-0317	320-26263-3	2017.03.10B_046.d	03/10/2017 23:07
MEAFF-FD04-030117	320-26263-4	2017.03.10B_047.d	03/10/2017 23:15
MEAFF-WWTP-MW01-0317 DL	320-26263-1 DL	2017.03.13A_048.d	03/13/2017 17:16
MEAFF-PWMA-MW01-0317 DL	320-26263-2 DL	2017.03.13A_049.d	03/13/2017 17:23
MEAFF-PWMA-MW01-0317 DL2	320-26263-2 DL2	2017.03.14A_020.d	03/14/2017 15:13

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-WWTP-MW01-0317 | Lab Sample ID: 320-26263-1

Matrix: Water | Lab File ID: 2017.03.10B_044.d

Analysis Method: 537 (Modified) | Date Collected: 03/01/2017 12:40

Extraction Method: 3535 | Date Extracted: 03/06/2017 16:19

Sample wt/vol: 261.2(mL) | Date Analyzed: 03/10/2017 22:52

Con. Extract Vol.: 0.5(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 154459 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	260	M	2.4	1.9	0.72
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*370*	*M E*	*3.8*	2.9	*1.2*
375-73-5	Perfluorobutanesulfonic acid (PFBS)	25	M	2.4	1.9	0.88

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	85		25-150
STL00991	13C4 PFOS	107		25-150
STL00994	18O2 PFHxS	110		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_044.d
Lims ID: 320-26263-A-1-A
Client ID: MEAFF-WWTP-MW01-0317
Sample Type: Client
Inject. Date: 10-Mar-2017 22:52:31 ALS Bottle#: 34 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-26263-a-1-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: A8-PC\A8 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 27-Mar-2017 12:07:22 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK006

First Level Reviewer: chandrasenas Date: 27-Mar-2017 12:07:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.842	1.861	-0.019	1.000	5969498	13.0				
298.90 > 99.00	1.842	1.861	-0.019	1.000	1604503		3.72(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.460	2.464	-0.004		15144536	52.1		110	413686	
D 14 13C4 PFOA										
417.00 > 372.00	2.802	2.814	-0.012		8661573	42.3		84.5	356482	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.810	2.814	-0.004	1.000	23671342	133.7			132427	M
413.00 > 169.00	2.802	2.814	-0.012	0.997	14940350		1.58(0.90-1.10)		214233	M
D 18 13C4 PFOS										
503.00 > 80.00	3.176	3.188	-0.012		12304224	50.9		107	142571	
17 Perfluorooctane sulfonic acid										EM
499.00 > 80.00	3.176	3.197	-0.021	1.000	48798791	192.8			96193	EM
499.00 > 99.00	3.184	3.197	-0.013	1.003	10335852		4.72(0.90-1.10)		146343	M

QC Flag Legend

Processing Flags
E - Exceeded Maximum Amount
Review Flags
M - Manually Integrated

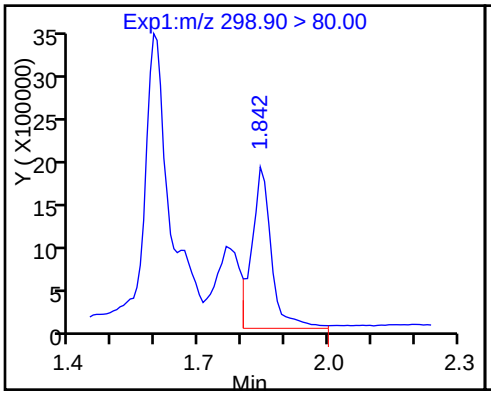
Report Date: 27-Mar-2017 12:07:23 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

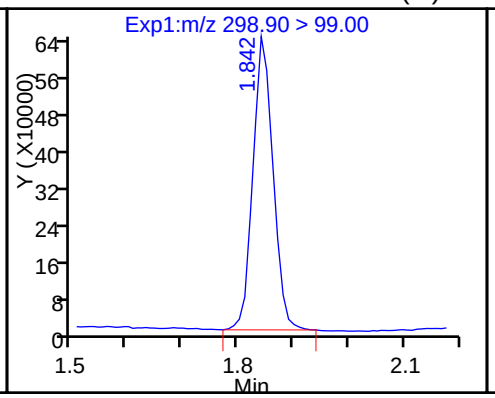
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_044.d

Injection Date:	10-Mar-2017 22:52:31	Instrument ID:	A8_N		
Lims ID:	320-26263-A-1-A	Lab Sample ID:	320-26263-1		
Client ID:	MEAFF-WWTP-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	34	Worklist Smp#:	23
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		

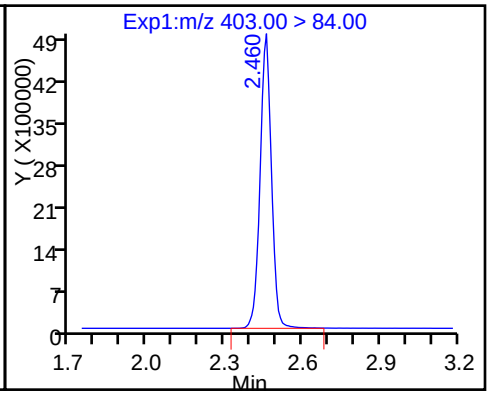
5 Perfluorobutanesulfonic acid



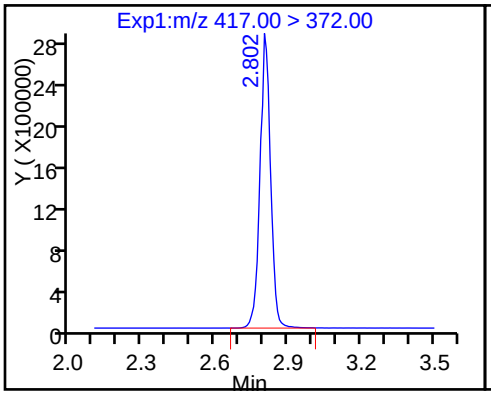
5 Perfluorobutanesulfonic acid (M)



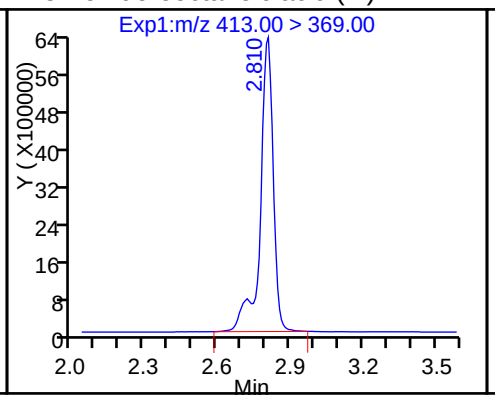
D 11 18O2 PFHxS



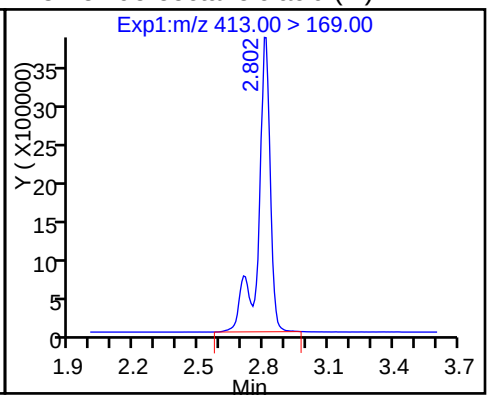
D 14 13C4 PFOA



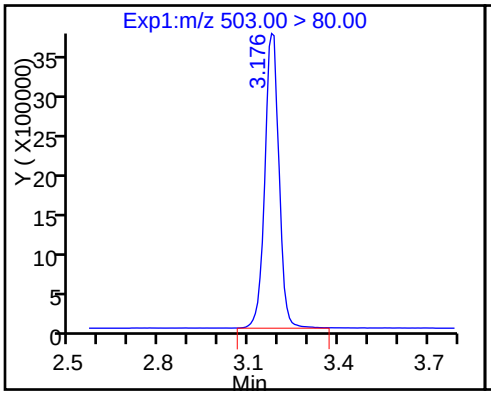
15 Perfluorooctanoic acid (M)



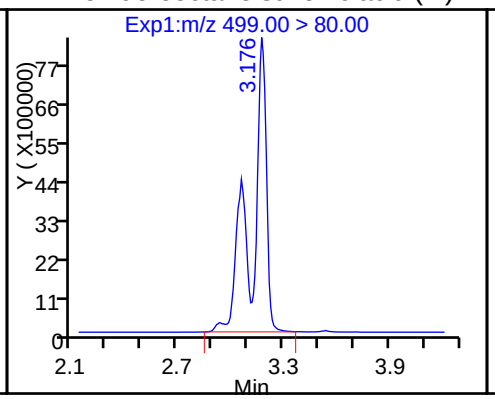
15 Perfluorooctanoic acid (M)



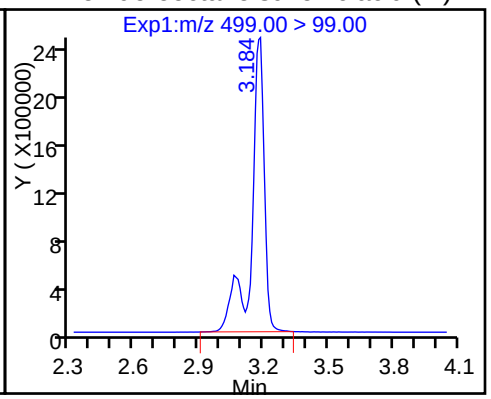
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

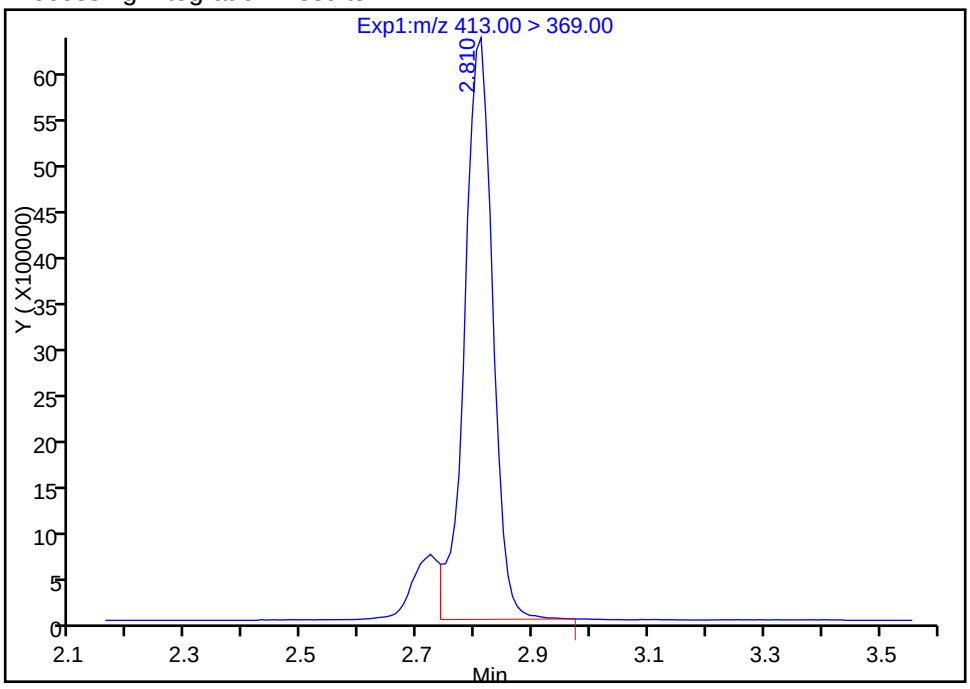
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_044.d				
Injection Date:	10-Mar-2017 22:52:31	Instrument ID:	A8_N		
Lims ID:	320-26263-A-1-A	Lab Sample ID:	320-26263-1		
Client ID:	MEAFF-WWTP-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	34	Worklist Smp#:	23
Injection 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

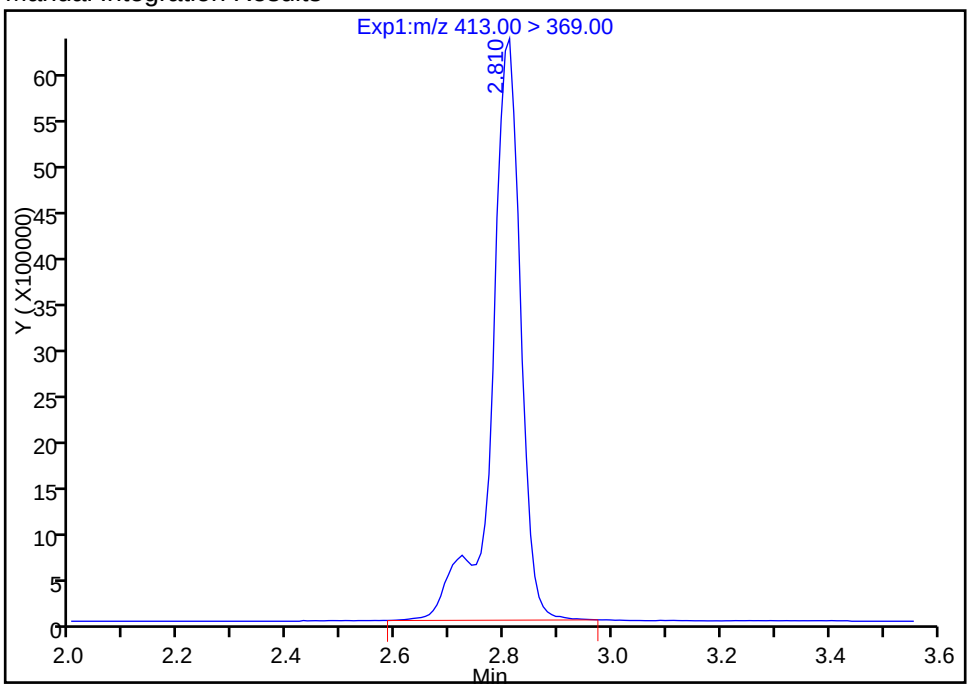
Processing Integration Results

RT: 2.81
Area: 21431970
Amount: 121.0959
Amount Units: ng/ml



Manual Integration Results

RT: 2.81
Area: 23671342
Amount: 133.7490
Amount Units: ng/ml



Reviewer: changnoit, 27-Mar-2017 12:06:49

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

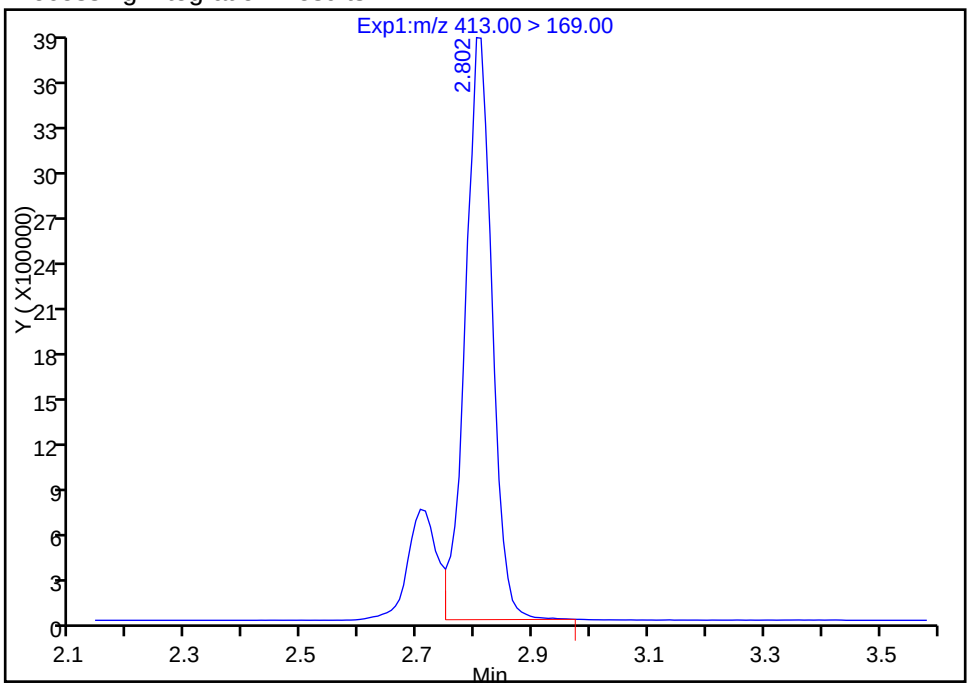
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_044.d				
Injection Date:	10-Mar-2017 22:52:31	Instrument ID:	A8_N		
Lims ID:	320-26263-A-1-A	Lab Sample ID:	320-26263-1		
Client ID:	MEAFF-WWTP-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	34	Worklist Smp#:	23
Injection 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

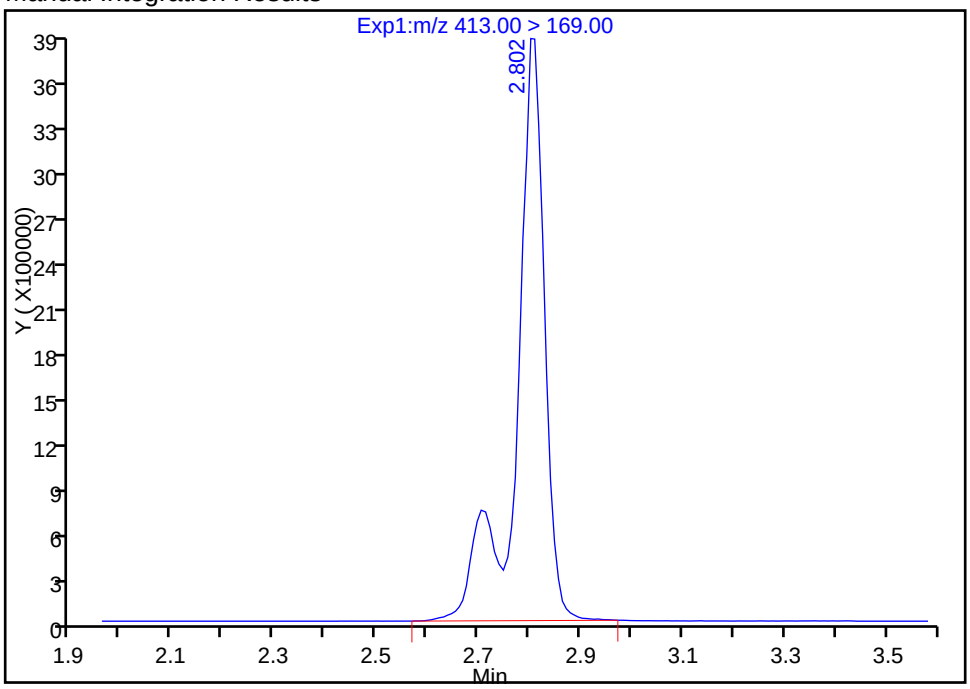
Processing Integration Results

RT: 2.80
Area: 12357060
Amount: 121.0959
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 14940350
Amount: 133.7490
Amount Units: ng/ml



Reviewer: changnoit, 27-Mar-2017 12:06:49

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

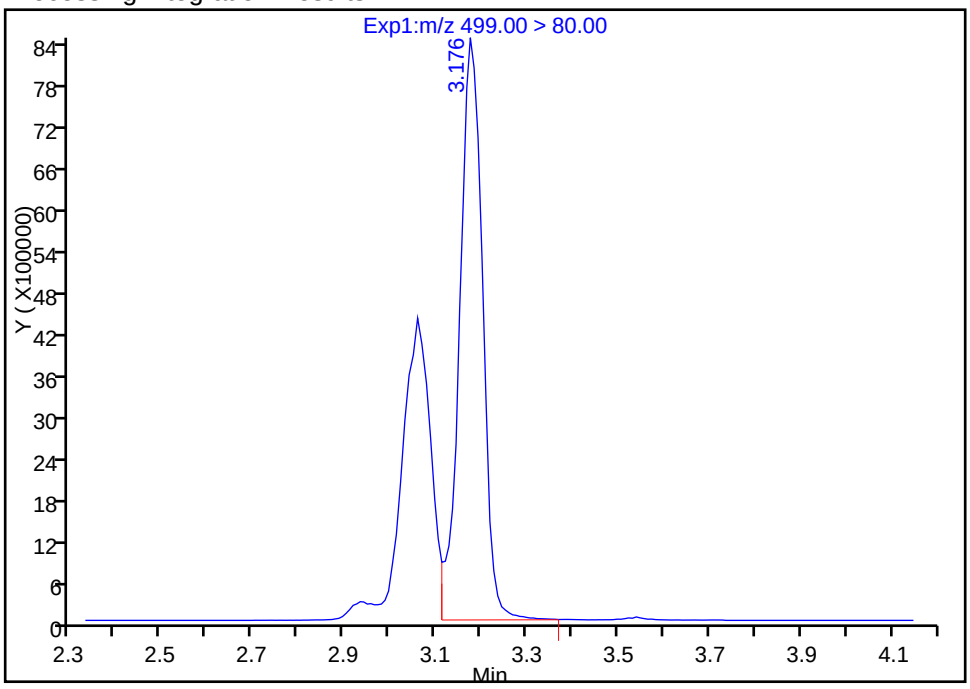
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_044.d				
Injection Date:	10-Mar-2017 22:52:31	Instrument ID:	A8_N		
Lims ID:	320-26263-A-1-A	Lab Sample ID:	320-26263-1		
Client ID:	MEAFF-WWTP-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	34	Worklist Smp#:	23
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 1

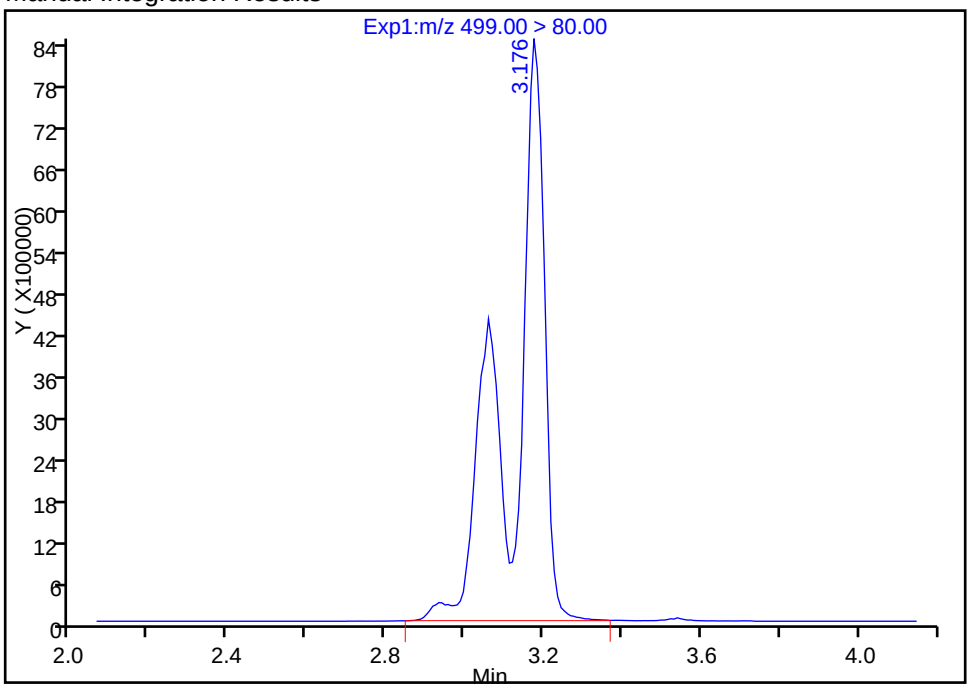
Processing Integration Results

RT: 3.18
Area: 29559762
Amount: 116.7638
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 48798791
Amount: 192.7597
Amount Units: ng/ml



Reviewer: changnoit, 27-Mar-2017 12:06:49

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

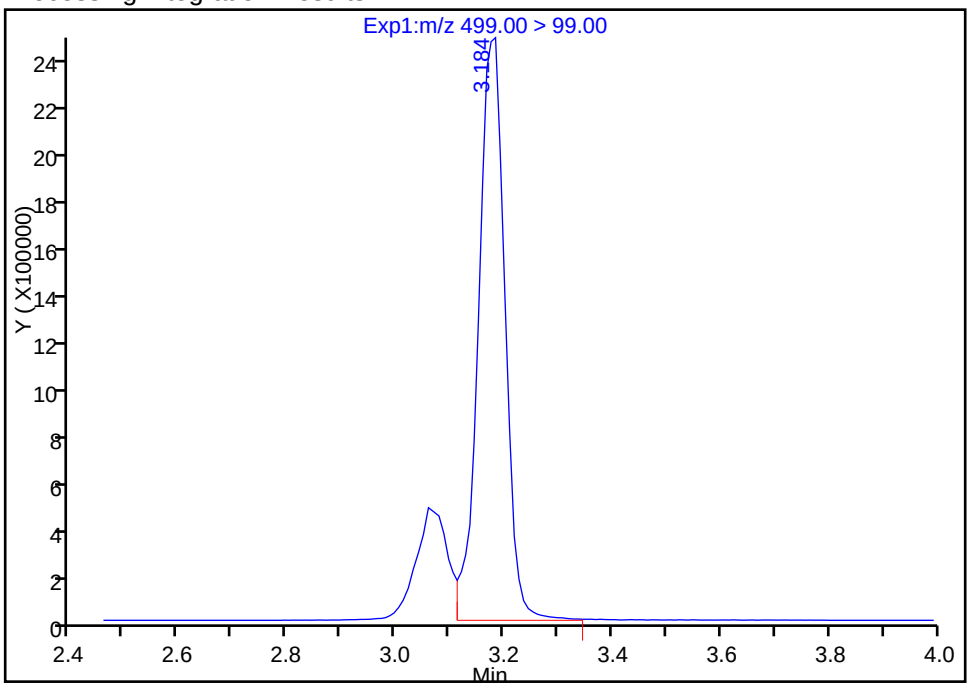
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_044.d				
Injection Date:	10-Mar-2017 22:52:31	Instrument ID:	A8_N		
Lims ID:	320-26263-A-1-A	Lab Sample ID:	320-26263-1		
Client ID:	MEAFF-WWTP-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	34	Worklist Smp#:	23
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 2

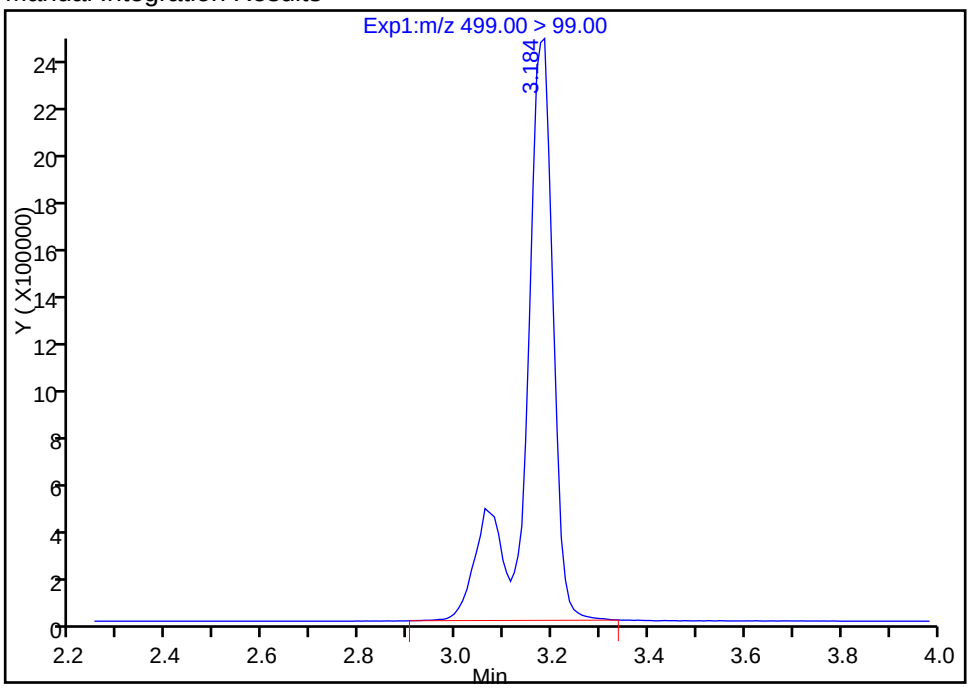
Processing Integration Results

RT: 3.18
Area: 8469366
Amount: 116.7638
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 10335852
Amount: 192.7597
Amount Units: ng/ml



Reviewer: changnoit, 27-Mar-2017 12:06:49

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

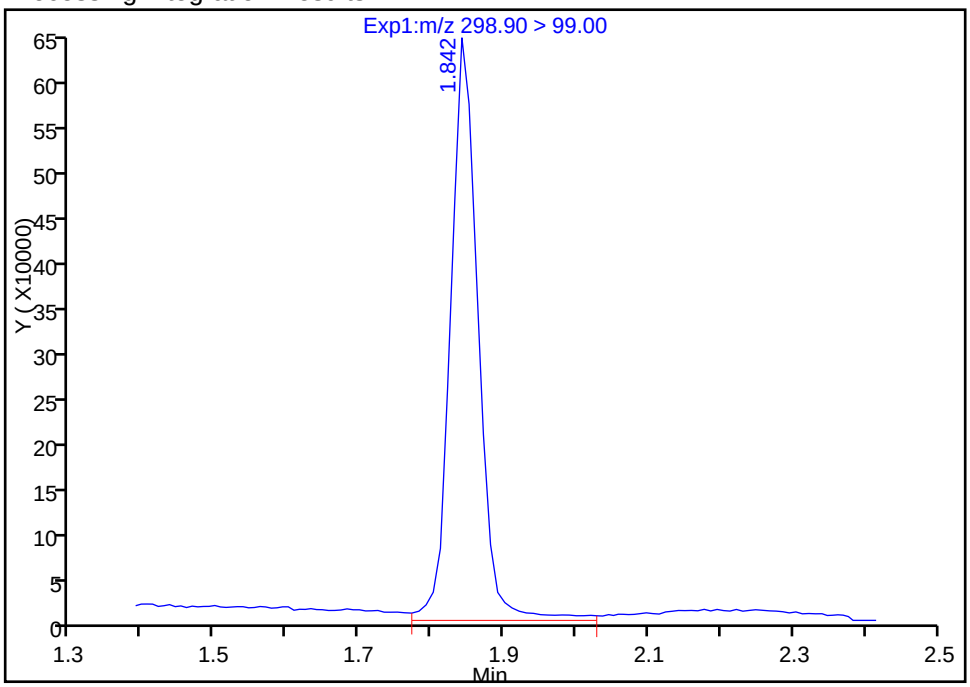
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_044.d				
Injection Date:	10-Mar-2017 22:52:31	Instrument ID:	A8_N		
Lims ID:	320-26263-A-1-A	Lab Sample ID:	320-26263-1		
Client ID:	MEAFF-WWTP-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	34	Worklist Smp#:	23
Injection 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

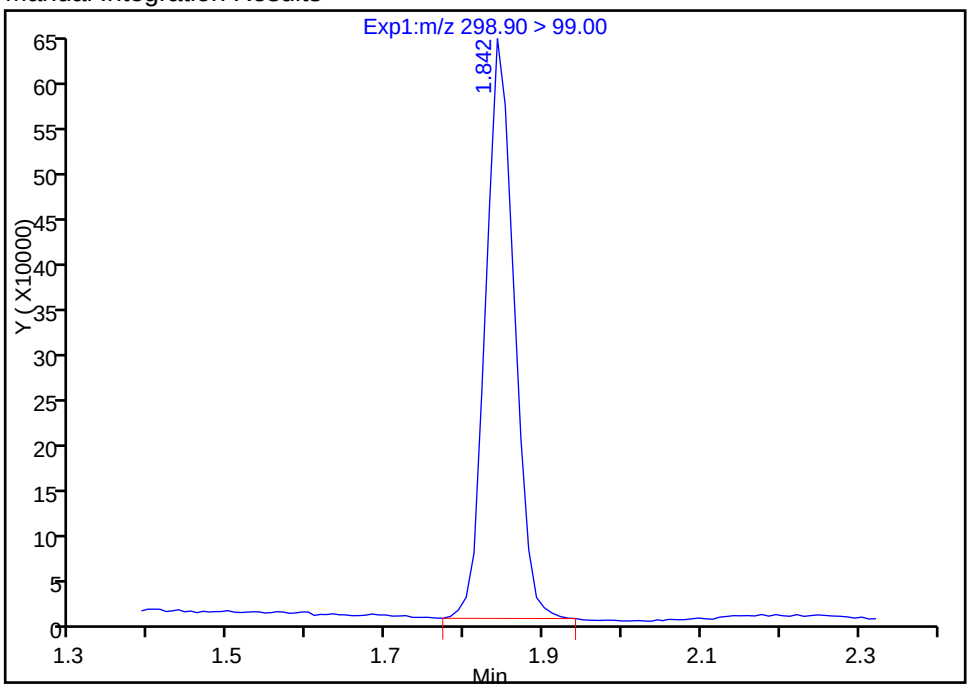
Processing Integration Results

RT: 1.84
Area: 1714365
Amount: 13.015070
Amount Units: ng/ml



Manual Integration Results

RT: 1.84
Area: 1604503
Amount: 13.015070
Amount Units: ng/ml



Reviewer: chandrasenas, 27-Mar-2017 12:07:17

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-WWTP-MW01-0317 DL Lab Sample ID: 320-26263-1 DL

Matrix: Water Lab File ID: 2017.03.13A_048.d

Analysis Method: 537 (Modified) Date Collected: 03/01/2017 12:40

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 261.2(mL) Date Analyzed: 03/13/2017 17:16

Con. Extract Vol.: 0.5(mL) Dilution Factor: 5

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 154808 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	*Perfluorooctanoic acid (PFOA)*	*270*	*D M*	*12*	9.6	*3.6*
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	380	D M	19	14	6.1
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*18*	*D M*	*12*	9.6	*4.4*

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	81		25-150
STL00991	13C4 PFOS	98		25-150
STL00994	18O2 PFHxS	116		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_048.d
Lims ID: 320-26263-A-1-A
Client ID: MEAFF-WWTP-MW01-0317
Sample Type: Client
Inject. Date: 13-Mar-2017 17:16:06 ALS Bottle#: 31 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 5.0000
Sample Info: 320-26263-a-1-a 5X
Misc. Info.: Plate: 1 Rack: 3
Operator ID: A8-PC\A8 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 27-Mar-2017 12:22:38 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK006

First Level Reviewer: westendorfc Date: 14-Mar-2017 13:26:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.853	1.863	-0.010	1.000	916877	1.89				M
298.90 > 99.00	1.853	1.863	-0.010	1.000	314683		2.91(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.471	2.480	-0.009		3202799	11.0		23.3	158754	
D 14 13C4 PFOA										
417.00 > 372.00	2.822	2.822	0.0		1670249	8.15		16.3	95107	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.814	2.822	-0.008	1.000	4814315	28.2			96563	M
413.00 > 169.00	2.814	2.822	-0.008	1.000	3009665		1.60(0.90-1.10)		119144	M
D 18 13C4 PFOS										
503.00 > 80.00	3.188	3.188	0.0		2257240	9.34		19.5	53630	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.188	3.197	-0.009	1.000	9168857	39.5			67852	M
499.00 > 99.00	3.188	3.197	-0.009	1.000	1835566		5.00(0.90-1.10)		99283	M

QC Flag Legend

Review Flags
M - Manually Integrated

Report Date: 27-Mar-2017 12:22:38 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_048.d

Injection Date: 13-Mar-2017 17:16:06 Instrument ID: A8_N

Lims ID: 320-26263-A-1-A Lab Sample ID: 320-26263-1

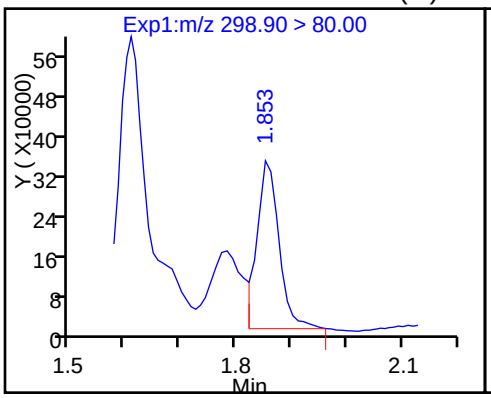
Client ID: MEAFF-WWTP-MW01-0317

Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 12

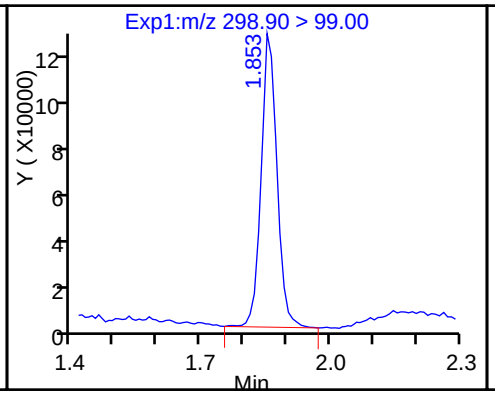
Injection Vol: 2.0 ul Dil. Factor: 5.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

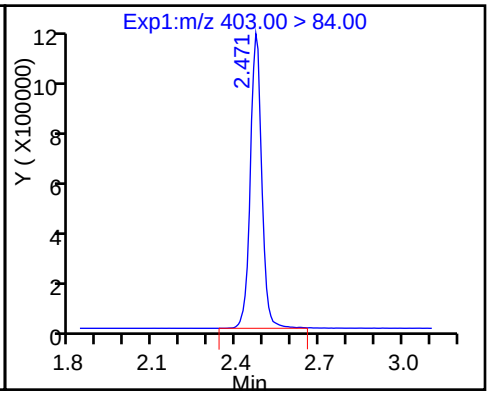
5 Perfluorobutanesulfonic acid (M)



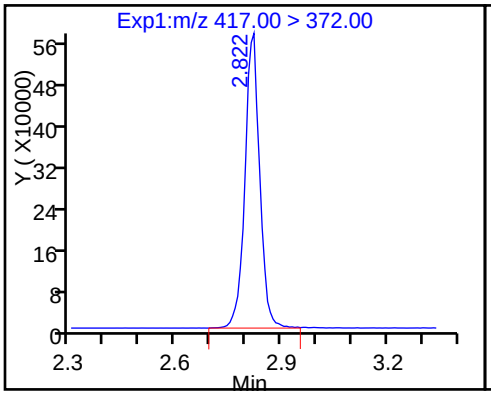
5 Perfluorobutanesulfonic acid



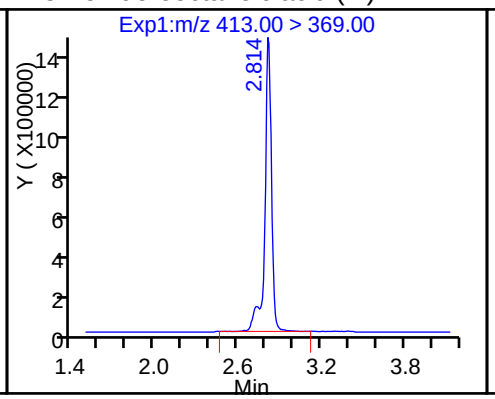
D 11 18O2 PFHxS



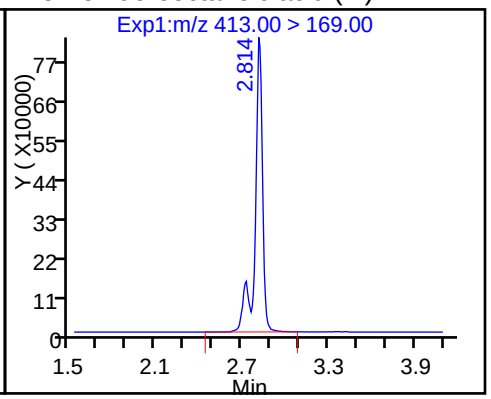
D 14 13C4 PFOA



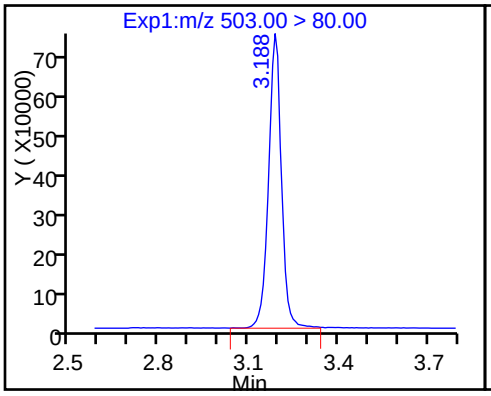
15 Perfluorooctanoic acid (M)



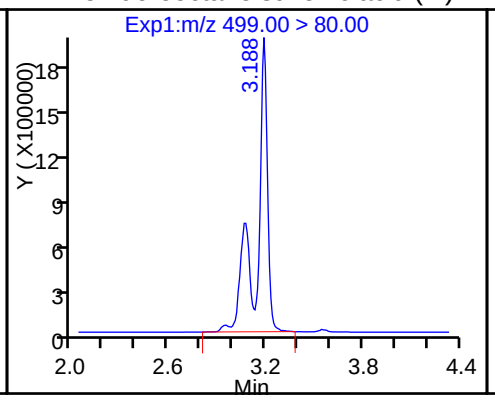
15 Perfluorooctanoic acid (M)



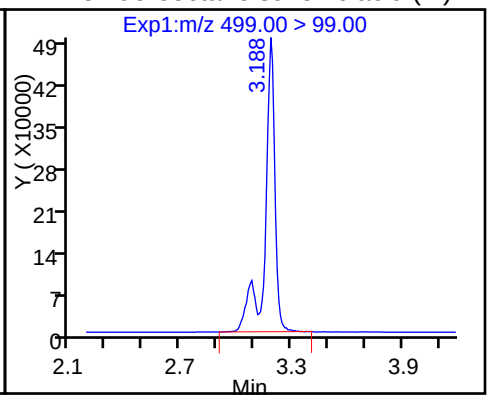
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

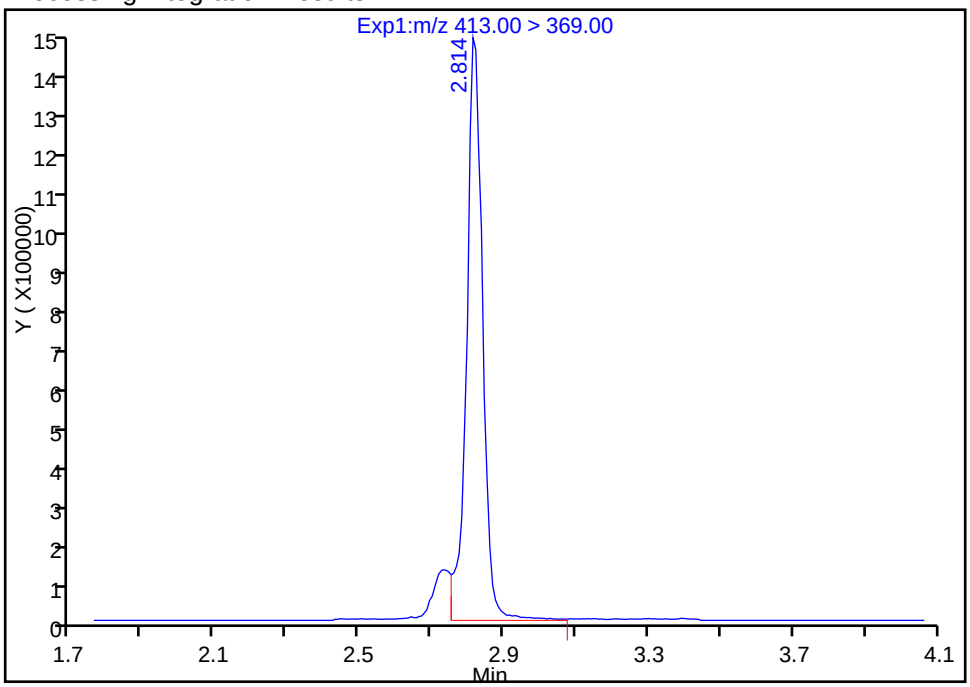
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_048.d				
Injection Date:	13-Mar-2017 17:16:06	Instrument ID:	A8_N		
Lims ID:	320-26263-A-1-A	Lab Sample ID:	320-26263-1		
Client ID:	MEAFF-WWTP-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	31	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	5.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

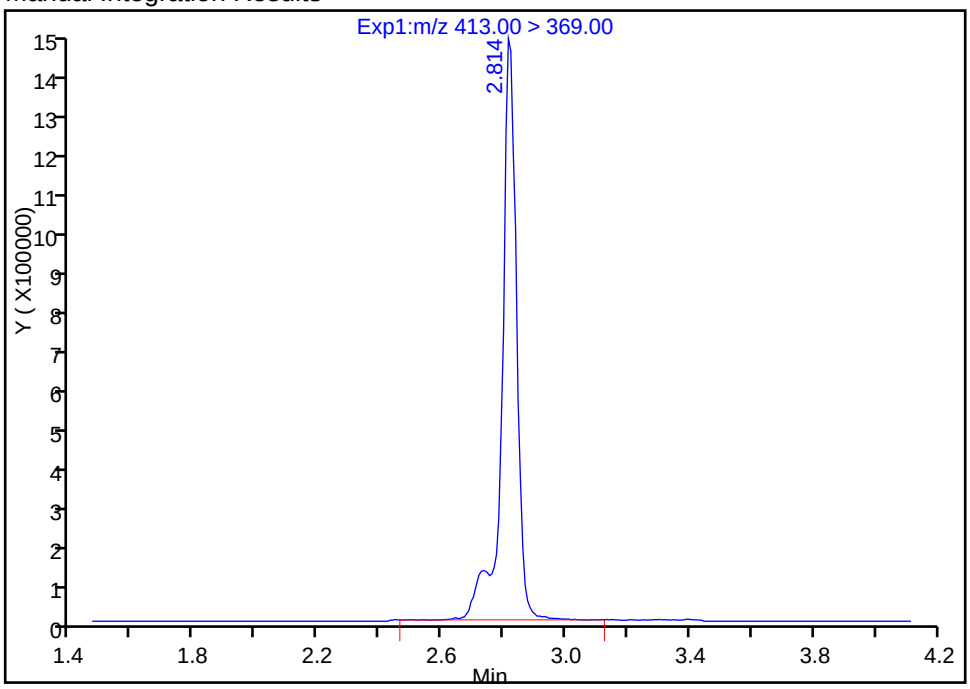
Processing Integration Results

RT: 2.81
Area: 4480121
Amount: 26.254443
Amount Units: ng/ml



Manual Integration Results

RT: 2.81
Area: 4814315
Amount: 28.212889
Amount Units: ng/ml



Reviewer: westendorfc, 27-Mar-2017 12:22:03

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

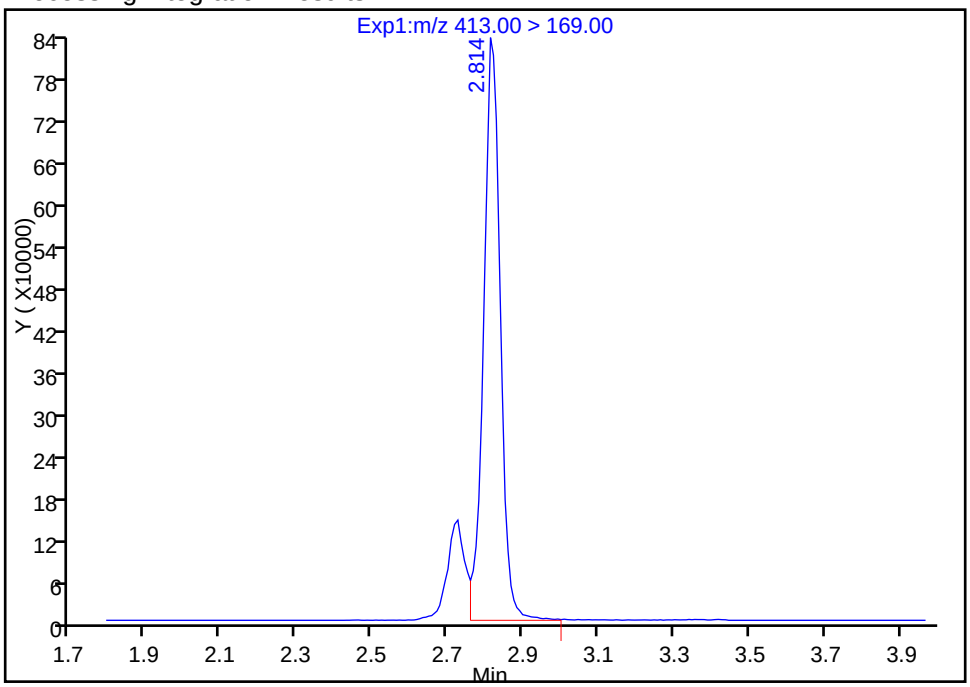
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_048.d				
Injection Date:	13-Mar-2017 17:16:06	Instrument ID:	A8_N		
Lims ID:	320-26263-A-1-A	Lab Sample ID:	320-26263-1		
Client ID:	MEAFF-WWTP-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	31	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	5.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

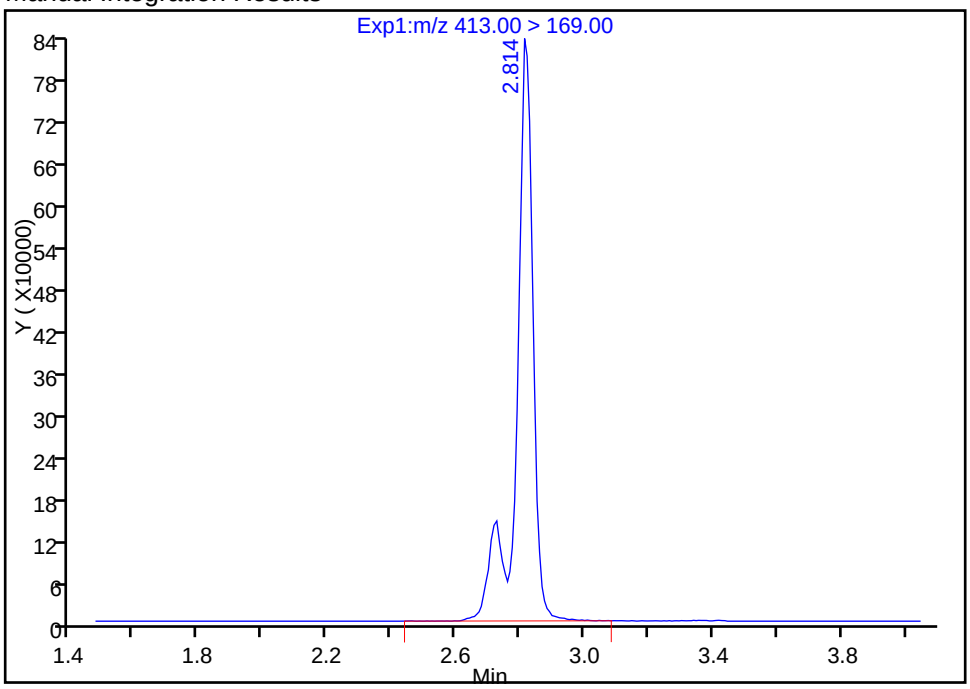
Processing Integration Results

RT: 2.81
Area: 2551450
Amount: 26.254443
Amount Units: ng/ml



Manual Integration Results

RT: 2.81
Area: 3009665
Amount: 28.212889
Amount Units: ng/ml



Reviewer: westendorfc, 27-Mar-2017 12:22:03

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

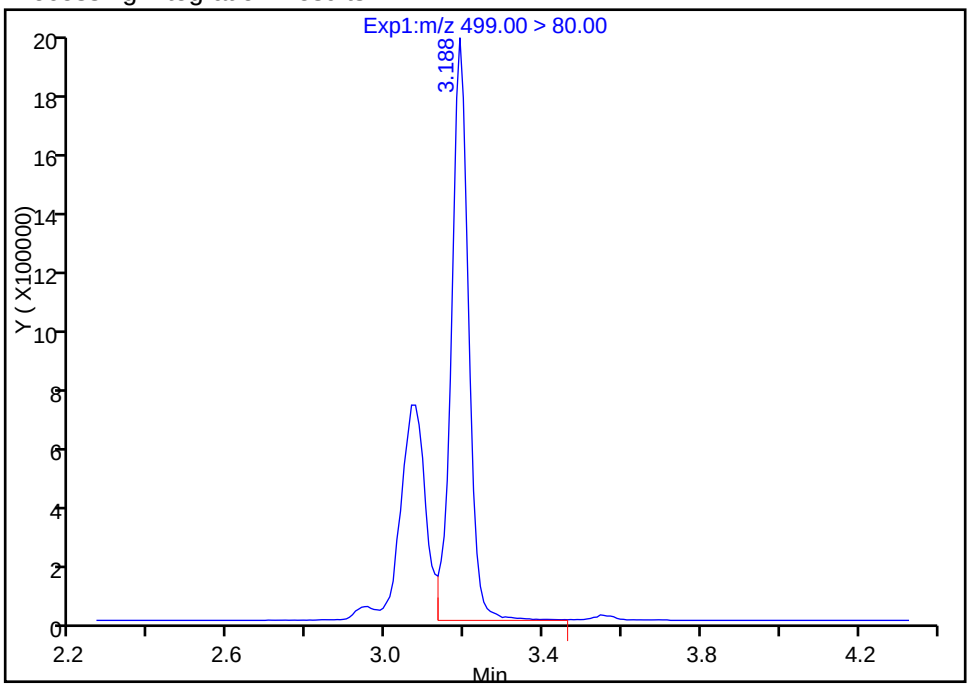
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_048.d				
Injection Date:	13-Mar-2017 17:16:06	Instrument ID:	A8_N		
Lims ID:	320-26263-A-1-A	Lab Sample ID:	320-26263-1		
Client ID:	MEAFF-WWTP-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	31	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	5.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 1

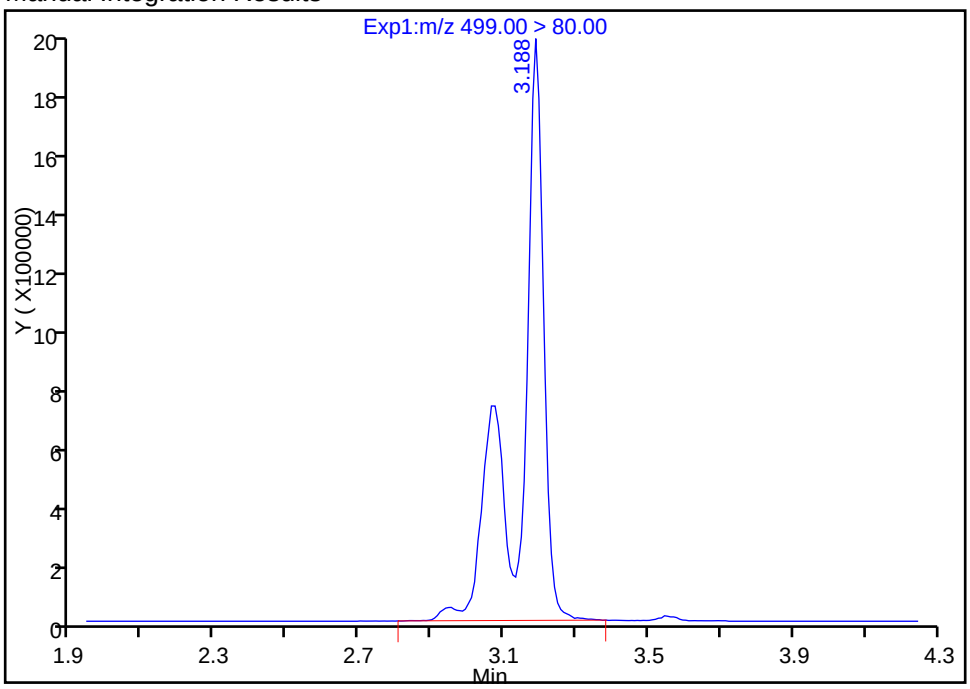
Processing Integration Results

RT: 3.19
Area: 5939089
Amount: 25.576048
Amount Units: ng/ml



Manual Integration Results

RT: 3.19
Area: 9168857
Amount: 39.484697
Amount Units: ng/ml



Reviewer: westendorfc, 27-Mar-2017 12:22:03

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

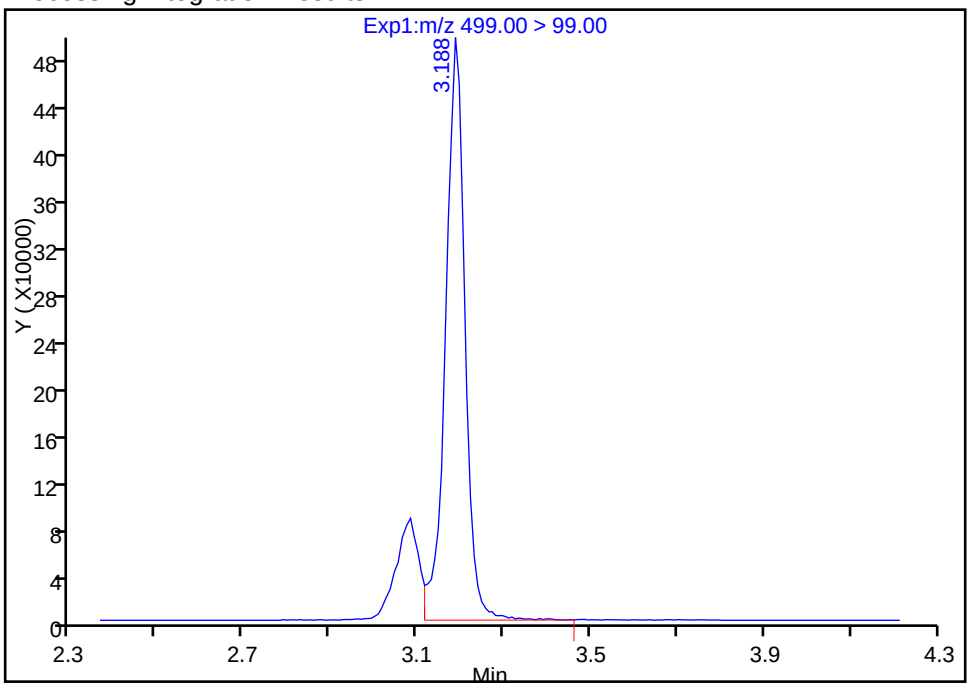
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_048.d				
Injection Date:	13-Mar-2017 17:16:06	Instrument ID:	A8_N		
Lims ID:	320-26263-A-1-A	Lab Sample ID:	320-26263-1		
Client ID:	MEAFF-WWTP-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	31	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	5.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 2

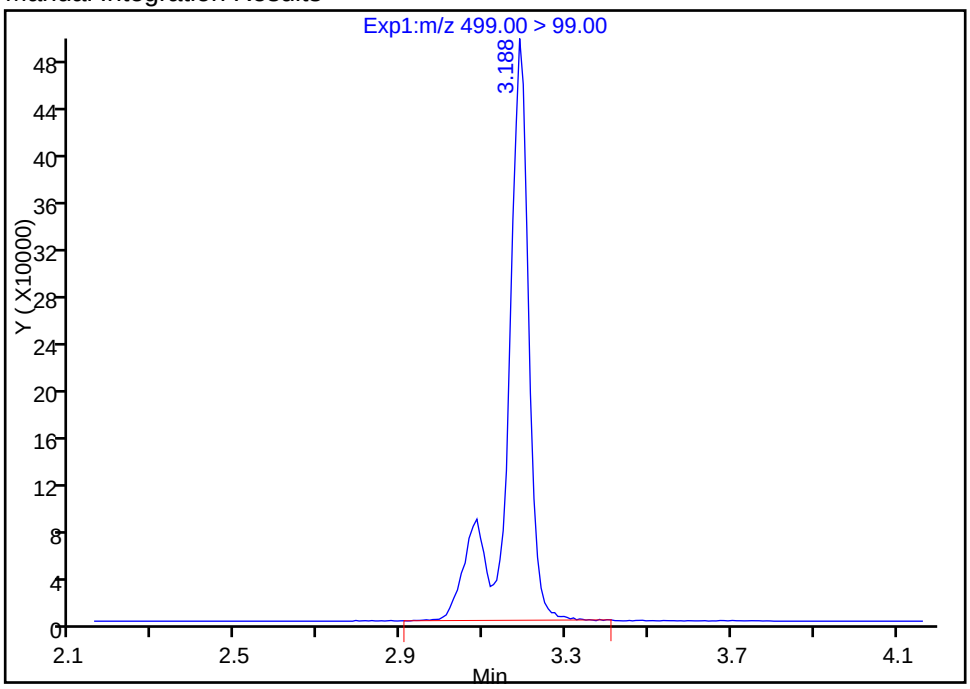
Processing Integration Results

RT: 3.19
Area: 1539678
Amount: 25.576048
Amount Units: ng/ml



Manual Integration Results

RT: 3.19
Area: 1835566
Amount: 39.484697
Amount Units: ng/ml



Reviewer: westendorfc, 27-Mar-2017 12:22:03

Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento

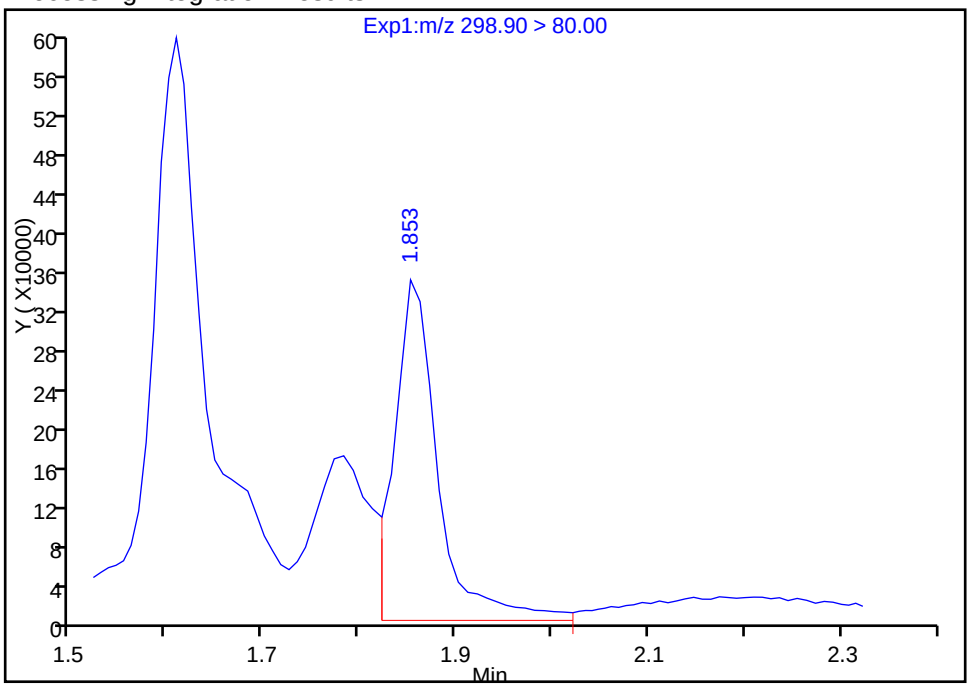
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_048.d				
Injection Date:	13-Mar-2017 17:16:06	Instrument ID:	A8_N		
Lims ID:	320-26263-A-1-A	Lab Sample ID:	320-26263-1		
Client ID:	MEAFF-WWTP-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	31	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	5.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

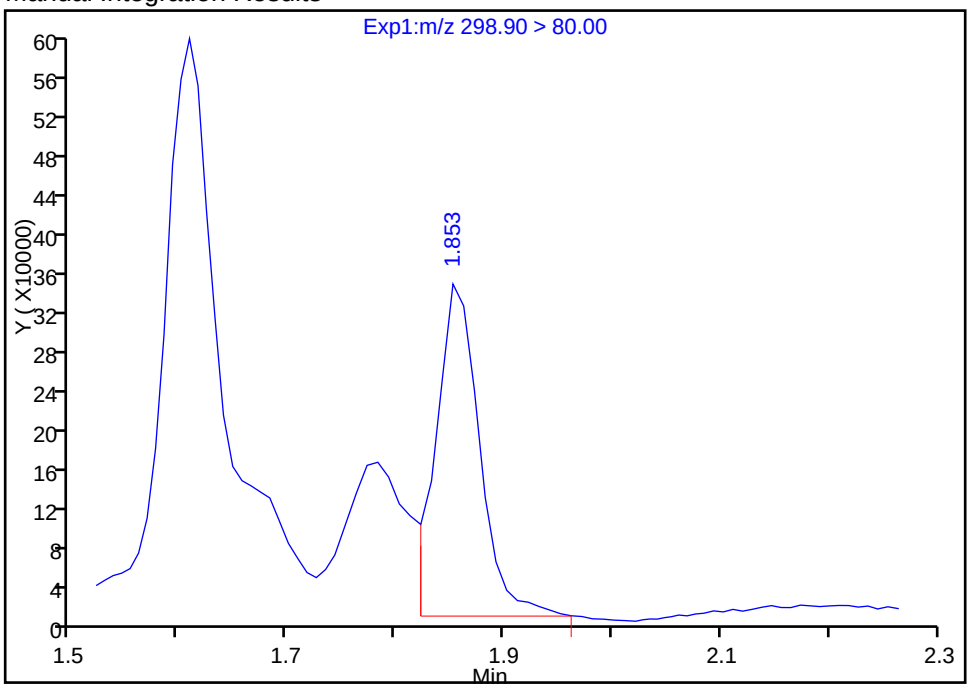
Processing Integration Results

RT: 1.85
Area: 1060934
Amount: 2.187527
Amount Units: ng/ml



Manual Integration Results

RT: 1.85
Area: 916877
Amount: 1.890497
Amount Units: ng/ml



Reviewer: chandrasenas, 27-Mar-2017 12:22:26
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-PWMA-MW01-0317 | Lab Sample ID: 320-26263-2

Matrix: Water | Lab File ID: 2017.03.10B_045.d

Analysis Method: 537 (Modified) | Date Collected: 03/01/2017 14:00

Extraction Method: 3535 | Date Extracted: 03/06/2017 16:19

Sample wt/vol: 272.2(mL) | Date Analyzed: 03/10/2017 23:00

Con. Extract Vol.: 0.5(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 154459 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	*Perfluorooctanoic acid (PFOA)*	*2500*	*M E*	*2.3*	1.8	*0.69*
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*1300*	*M E*	*3.7*	2.8	*1.2*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*650*	*M E*	*2.3*	1.8	*0.84*

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	48		25-150
STL00991	13C4 PFOS	99		25-150
STL00994	18O2 PFHxS	46		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_045.d
Lims ID: 320-26263-A-2-A
Client ID: MEAFF-PWMA-MW01-0317
Sample Type: Client
Inject. Date: 10-Mar-2017 23:00:01 ALS Bottle#: 35 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-26263-a-2-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: A8-PC\A8 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 27-Mar-2017 12:07:44 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK006

First Level Reviewer: changnoit Date: 13-Mar-2017 11:27:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										EM
298.90 > 80.00	1.863	1.861	0.002	1.000	67675340	352.7				EM
298.90 > 99.00	1.853	1.861	-0.008	0.995	41659135		1.62(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.470	2.464	0.006		6336194	21.8		46.0	170401	
D 14 13C4 PFOA										
417.00 > 372.00	2.810	2.814	-0.004		4951673	24.2		48.3	111777	
15 Perfluorooctanoic acid										EM
413.00 > 369.00	2.794	2.814	-0.020	1.000	136978846	1353.8			140383	EM
413.00 > 169.00	2.802	2.814	-0.012	1.003	123359546		1.11(0.90-1.10)		255035	M
D 18 13C4 PFOS										
503.00 > 80.00	3.176	3.188	-0.012		11447006	47.4		99.1	94720	
17 Perfluorooctane sulfonic acid										EM
499.00 > 80.00	3.051	3.197	-0.146	1.000	164210894	697.2			247812	EM
499.00 > 99.00	3.176	3.197	-0.021	1.041	45170669		3.64(0.90-1.10)		359397	M

QC Flag Legend

Processing Flags
E - Exceeded Maximum Amount
Review Flags
M - Manually Integrated

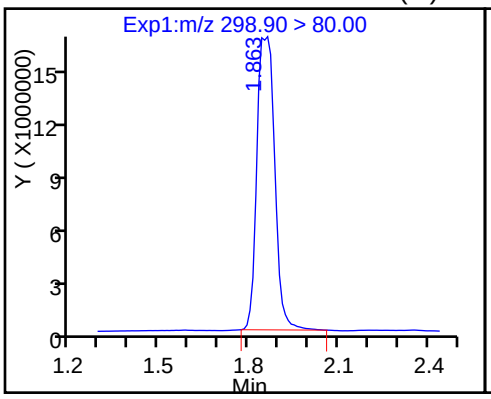
Report Date: 27-Mar-2017 12:07:44 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

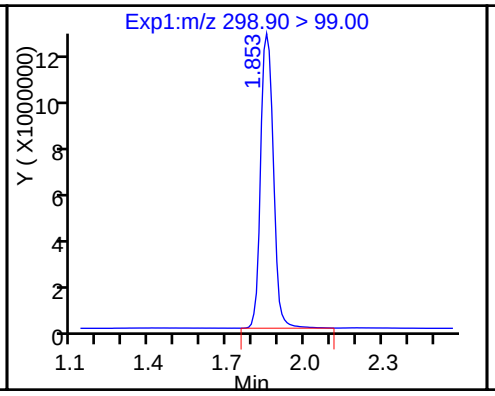
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_045.d

Injection Date:	10-Mar-2017 23:00:01	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	35	Worklist Smp#:	24
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		

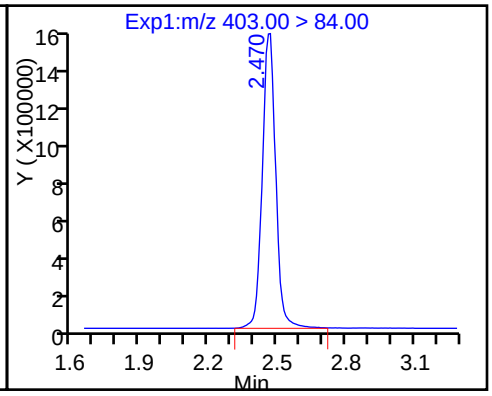
5 Perfluorobutanesulfonic acid (M)



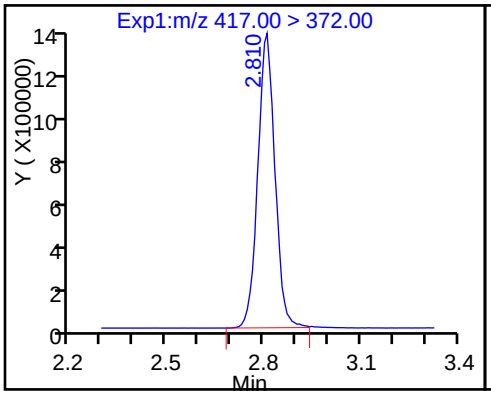
5 Perfluorobutanesulfonic acid



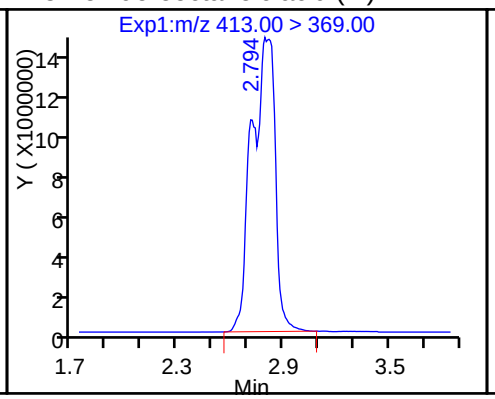
D 11 18O2 PFHxS



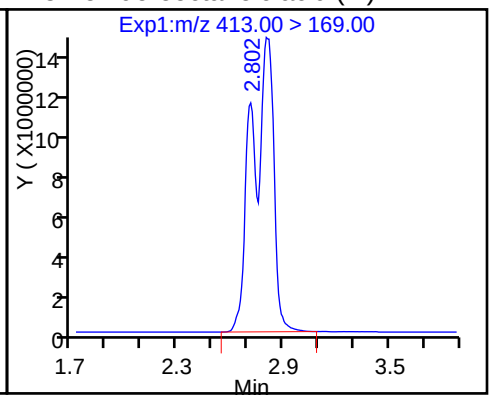
D 14 13C4 PFOA



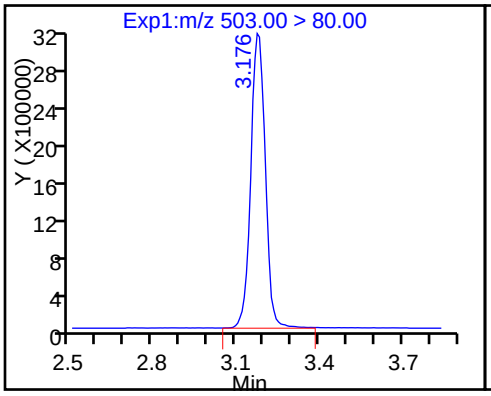
15 Perfluorooctanoic acid (M)



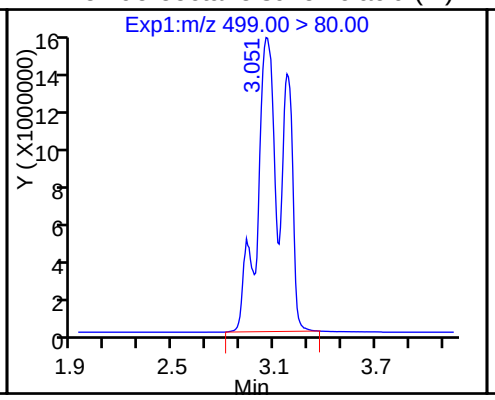
15 Perfluorooctanoic acid (M)



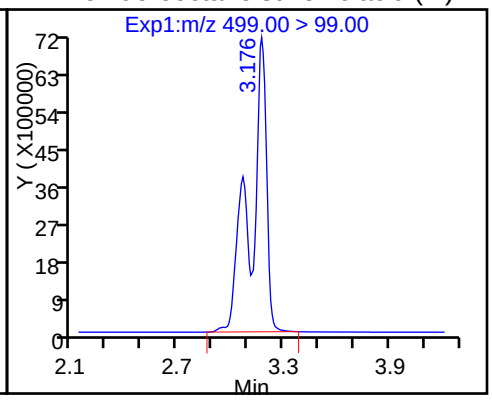
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

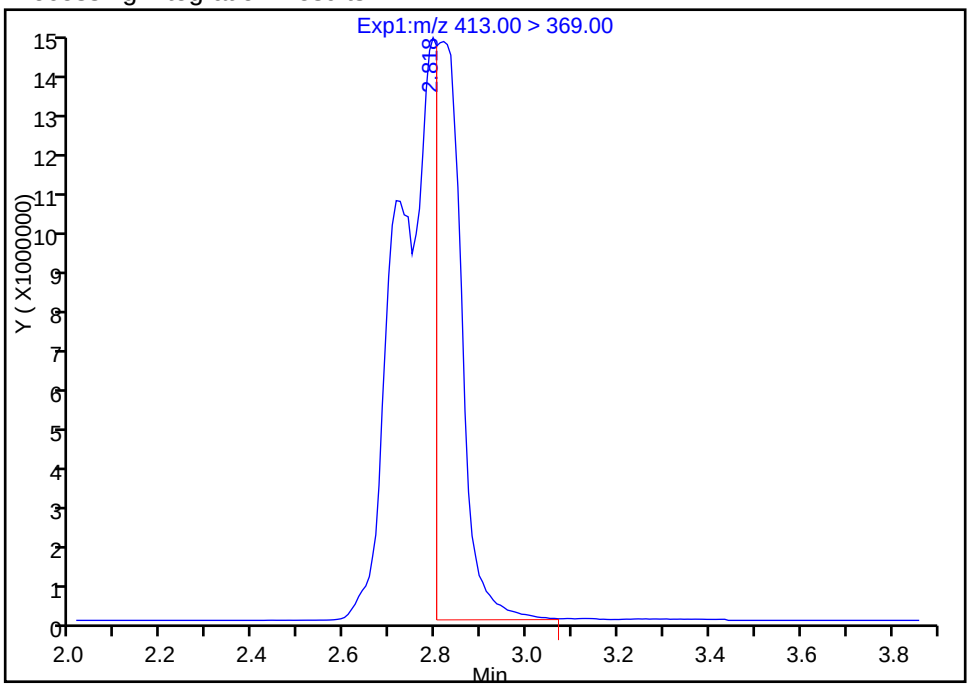
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_045.d				
Injection Date:	10-Mar-2017 23:00:01	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	35	Worklist Smp#:	24
Injection 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

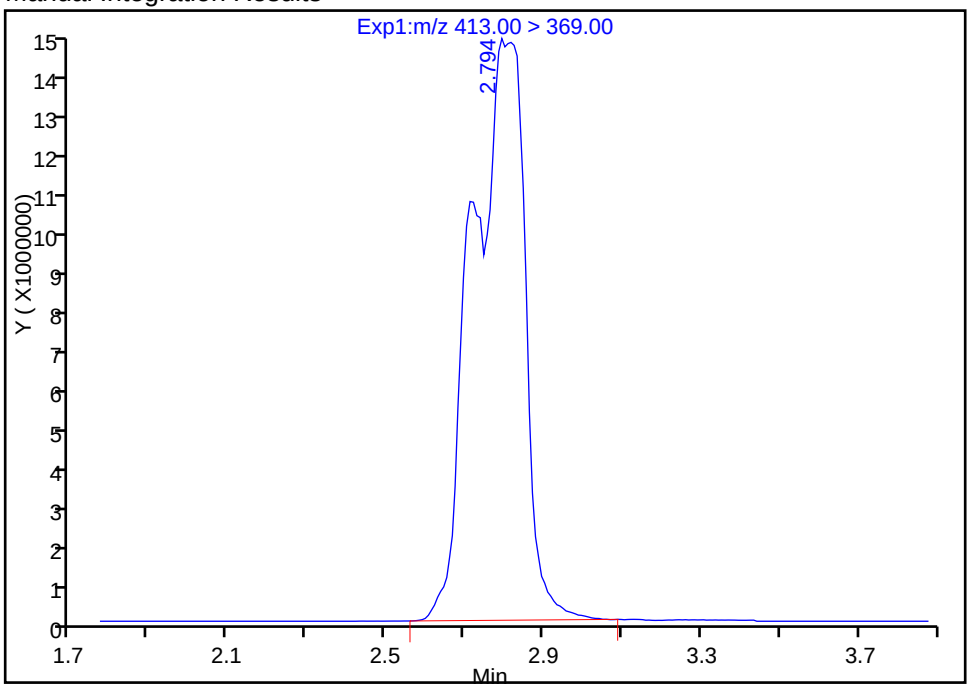
Processing Integration Results

RT: 2.82
Area: 54220323
Amount: 535.8885
Amount Units: ng/ml



Manual Integration Results

RT: 2.79
Area: 136978846
Amount: 1353.8353
Amount Units: ng/ml



Reviewer: chandrasenas, 27-Mar-2017 12:07:24

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

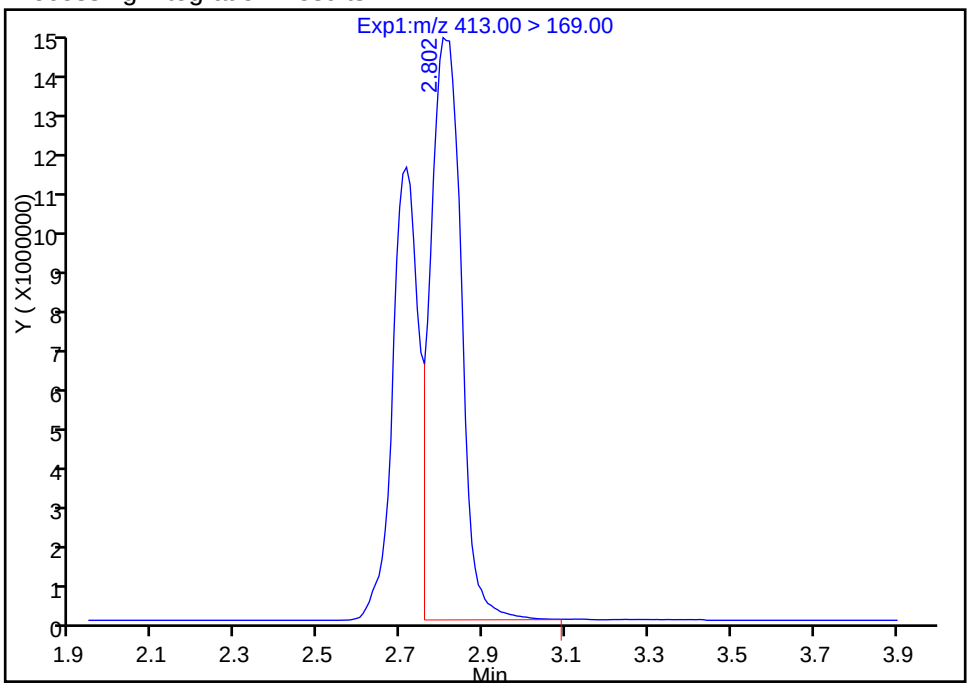
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_045.d				
Injection Date:	10-Mar-2017 23:00:01	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	35	Worklist Smp#:	24
Injection 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

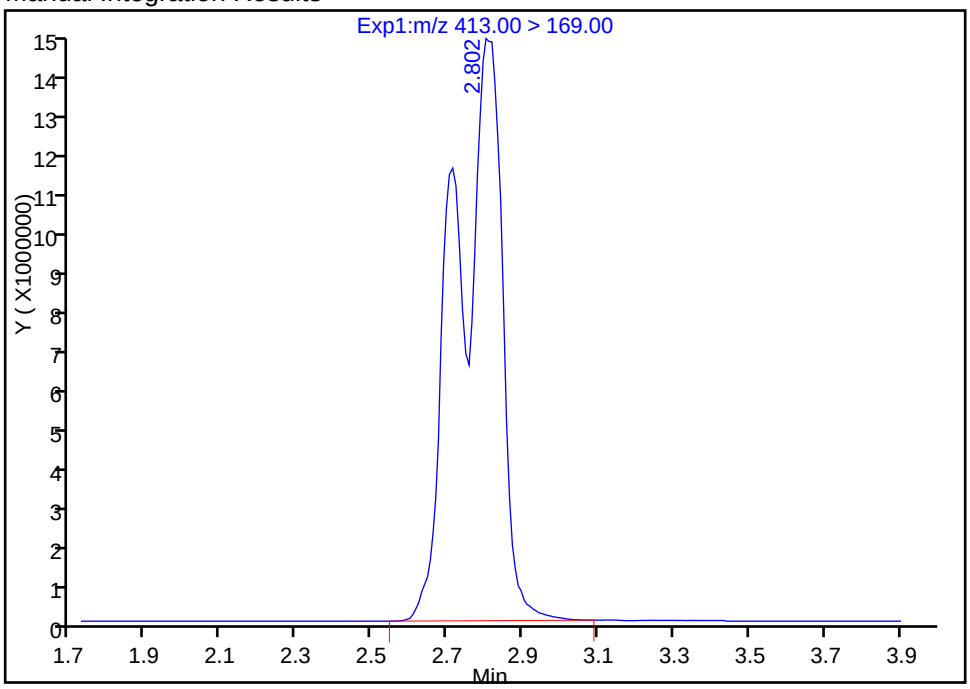
Processing Integration Results

RT: 2.80
Area: 74207569
Amount: 535.8885
Amount Units: ng/ml



Manual Integration Results

RT: 2.80
Area: 123359546
Amount: 1353.8353
Amount Units: ng/ml



Reviewer: chandrasenas, 27-Mar-2017 12:07:24

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

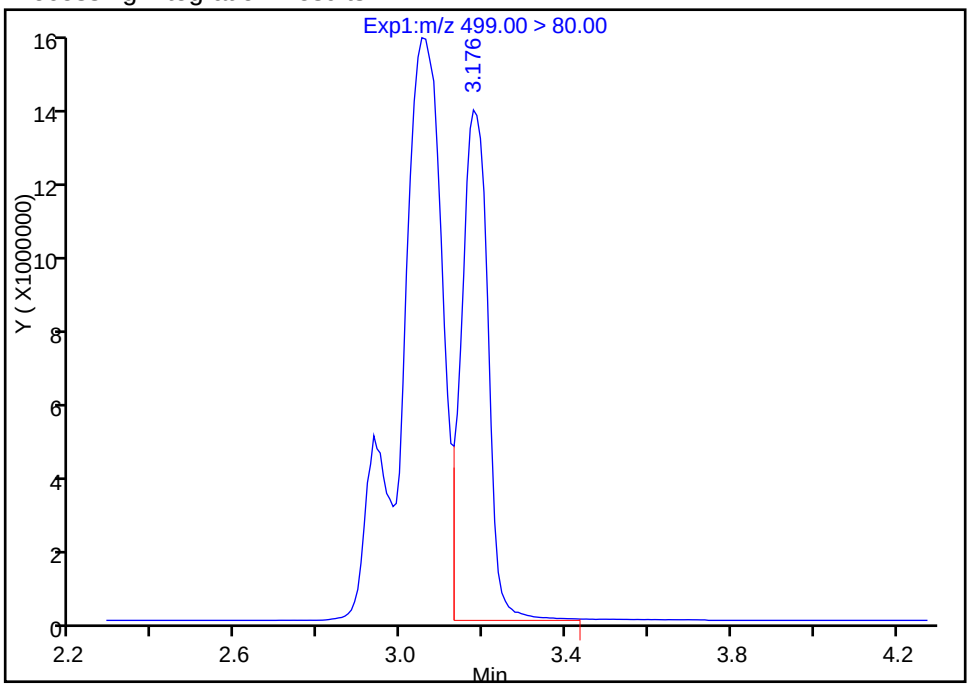
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_045.d				
Injection Date:	10-Mar-2017 23:00:01	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	35	Worklist Smp#:	24
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 1

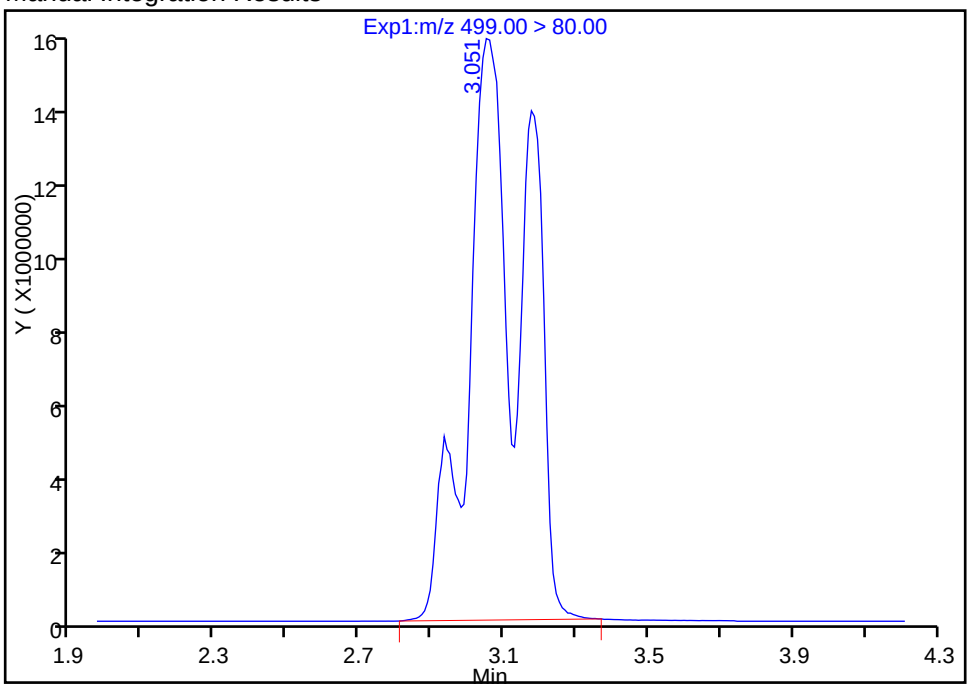
Processing Integration Results

RT: 3.18
Area: 58517563
Amount: 248.4595
Amount Units: ng/ml



Manual Integration Results

RT: 3.05
Area: 164210894
Amount: 697.2225
Amount Units: ng/ml



Reviewer: chandrasenas, 27-Mar-2017 12:07:24

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

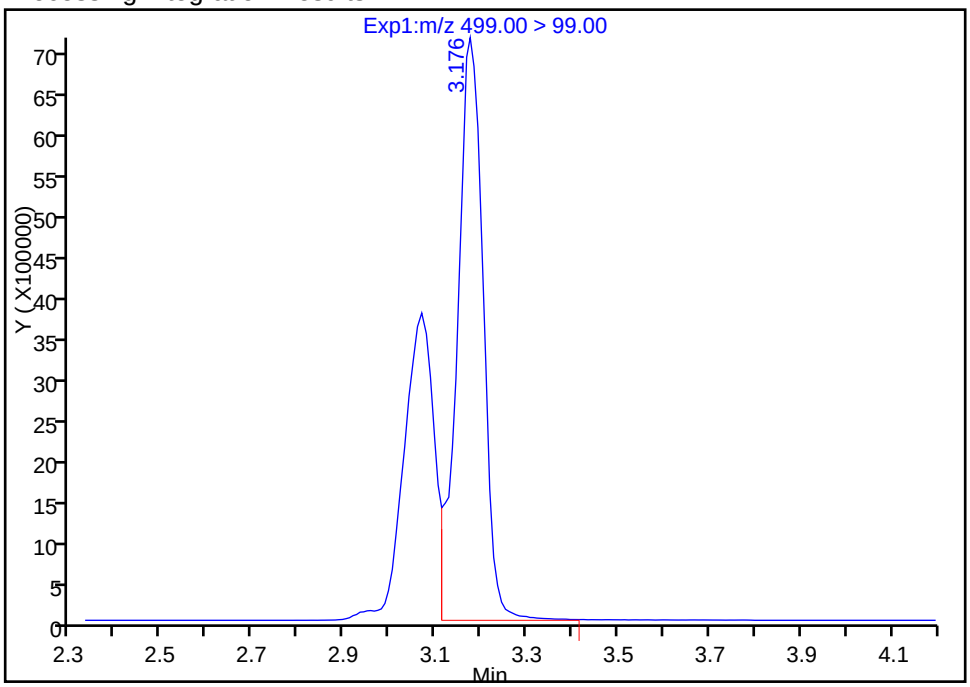
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_045.d				
Injection Date:	10-Mar-2017 23:00:01	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	35	Worklist Smp#:	24
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 2

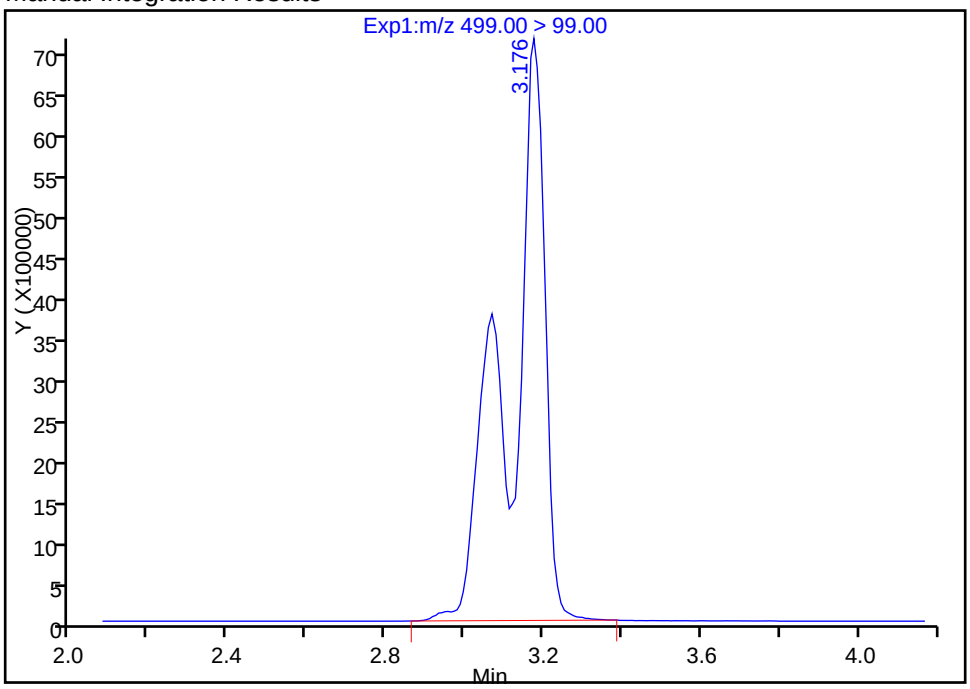
Processing Integration Results

RT: 3.18
Area: 28184159
Amount: 248.4595
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 45170669
Amount: 697.2225
Amount Units: ng/ml



Reviewer: chandrasenas, 27-Mar-2017 12:07:24

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

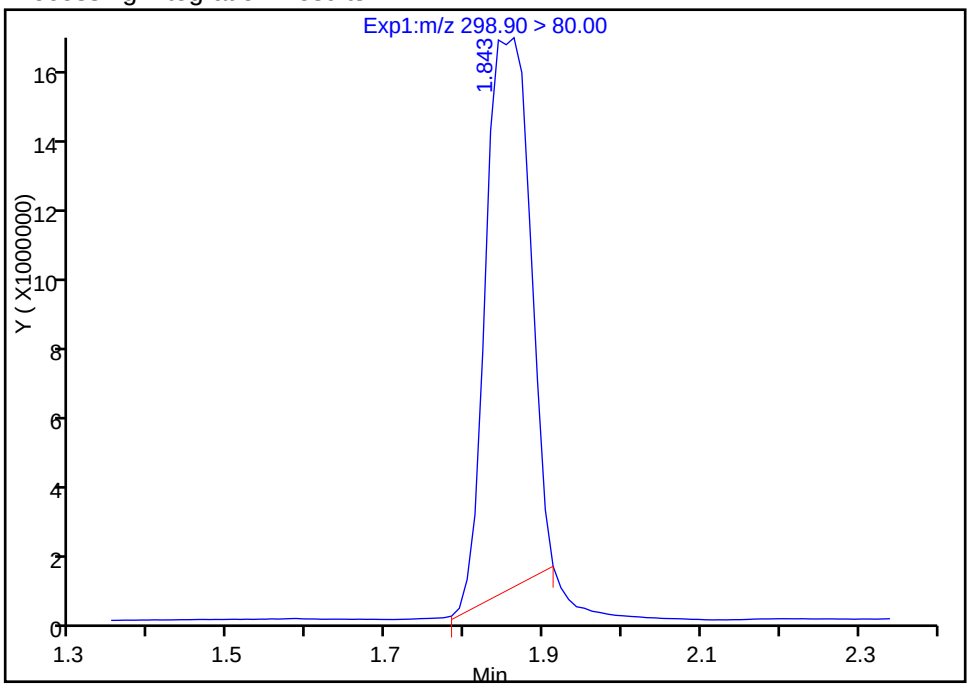
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_045.d				
Injection Date:	10-Mar-2017 23:00:01	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	35	Worklist Smp#:	24
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

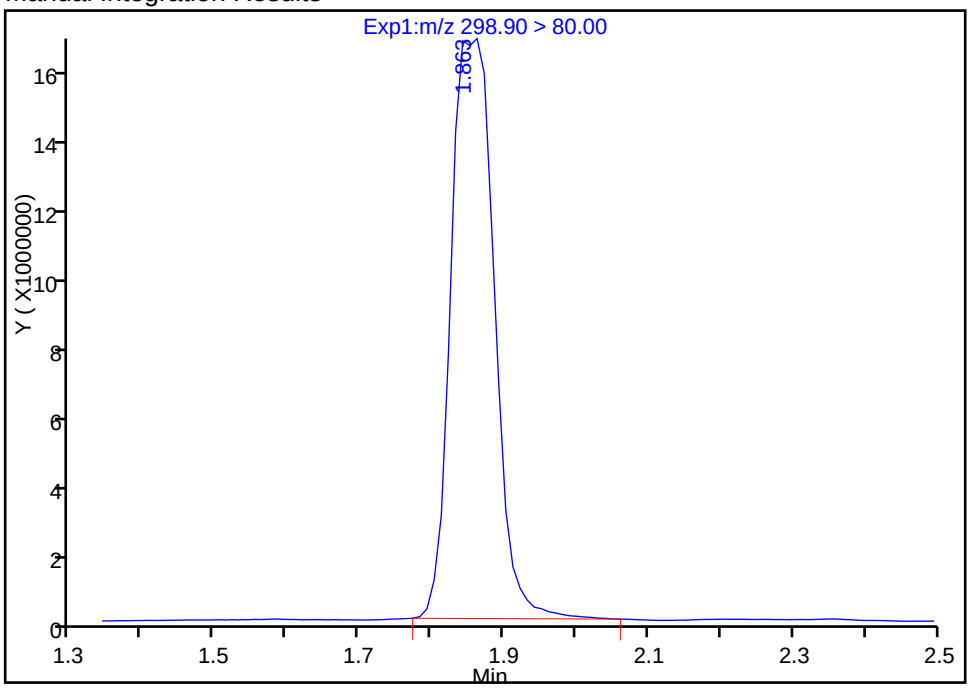
Processing Integration Results

RT: 1.84
Area: 60184317
Amount: 313.6314
Amount Units: ng/ml



Manual Integration Results

RT: 1.86
Area: 67675340
Amount: 352.6685
Amount Units: ng/ml



Reviewer: chandrasenas, 27-Mar-2017 12:07:35

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-PWMA-MW01-0317 DL Lab Sample ID: 320-26263-2 DL

Matrix: Water Lab File ID: 2017.03.13A_049.d

Analysis Method: 537 (Modified) Date Collected: 03/01/2017 14:00

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 272.2(mL) Date Analyzed: 03/13/2017 17:23

Con. Extract Vol.: 0.5(mL) Dilution Factor: 10

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 154808 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	*Perfluorooctanoic acid (PFOA)*	*4400*	*D M E*	*23*	18	*6.9*
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1600	D M	37	28	12
375-73-5	Perfluorobutanesulfonic acid (PFBS)	830	D	23	18	8.4

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	83		25-150
STL00991	13C4 PFOS	112		25-150
STL00994	18O2 PFHxS	97		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_049.d
Lims ID: 320-26263-A-2-A
Client ID: MEAFF-PWMA-MW01-0317
Sample Type: Client
Inject. Date: 13-Mar-2017 17:23:36 ALS Bottle#: 32 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 10.0000
Sample Info: 320-26263-a-2-a 10X
Misc. Info.: Plate: 1 Rack: 3
Operator ID: A8-PC\A8 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 27-Mar-2017 12:24:16 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK006

First Level Reviewer: westendorfc Date: 15-Mar-2017 11:40:35

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	1.853	1.863	-0.010	1.000	18383437	45.3				
298.90 > 99.00	1.853	1.863	-0.010	1.000	7852029		2.34(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.468	2.480	-0.012		1339174	4.60		9.7	80507	
D 14 13C4 PFOA										
417.00 > 372.00	2.818	2.822	-0.004		849095	4.14		8.3	52904	
15 Perfluorooctanoic acid										EM
413.00 > 369.00	2.826	2.822	0.004	1.000	41596963	239.8			362352	EM
413.00 > 169.00	2.826	2.822	0.004	1.000	30305831		1.37(0.90-1.10)		1032829	M
D 18 13C4 PFOS										
503.00 > 80.00	3.184	3.188	-0.004		1288466	5.33		11.2	36010	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.070	3.197	-0.127	1.000	23752722	89.6			1804	M
499.00 > 99.00	3.079	3.197	-0.118	1.003	4864660		4.88(0.90-1.10)		59081	

QC Flag Legend

Processing Flags
E - Exceeded Maximum Amount
Review Flags
M - Manually Integrated

Report Date: 27-Mar-2017 12:25:34 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_049.d

Injection Date: 13-Mar-2017 17:23:36 Instrument ID: A8_N

Lims ID: 320-26263-A-2-A Lab Sample ID: 320-26263-2

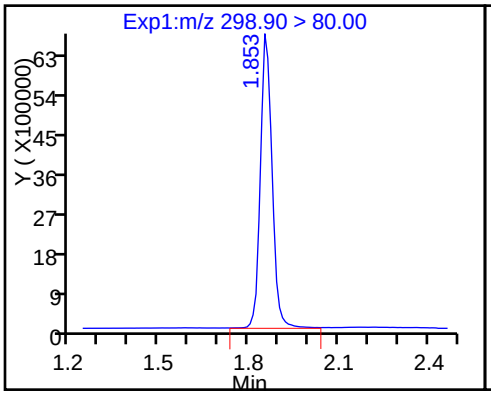
Client ID: MEAFF-PWMA-MW01-0317

Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 13

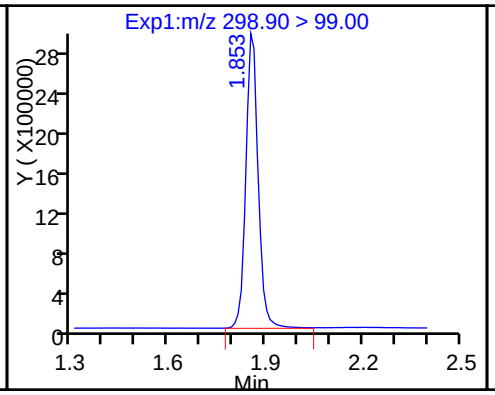
Injection Vol: 2.0 ul Dil. Factor: 10.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

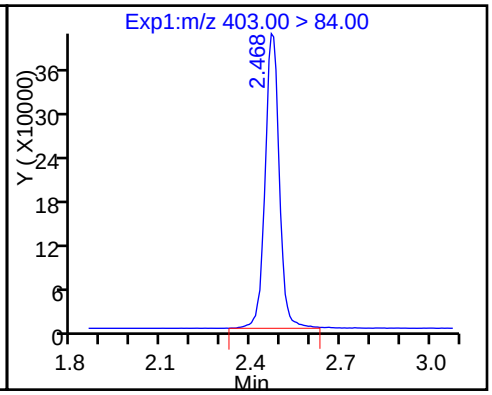
5 Perfluorobutanesulfonic acid



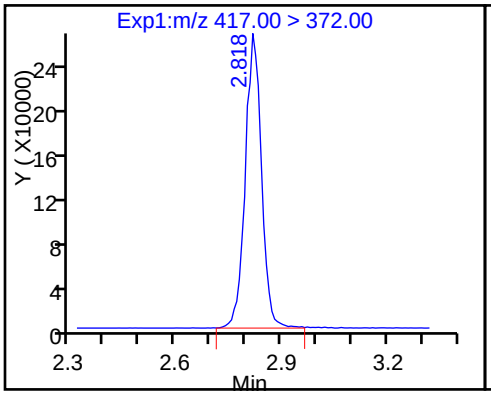
5 Perfluorobutanesulfonic acid



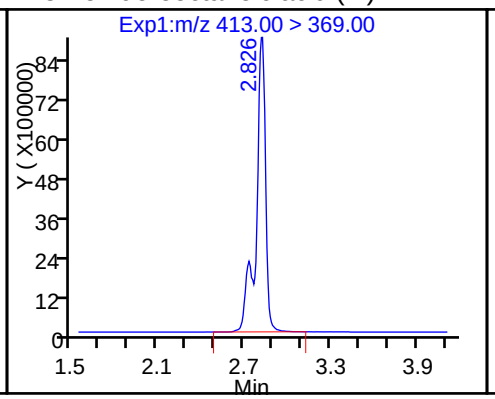
D 11 18O2 PFHxS



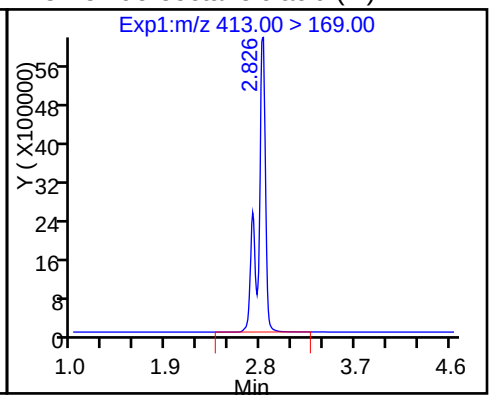
D 14 13C4 PFOA



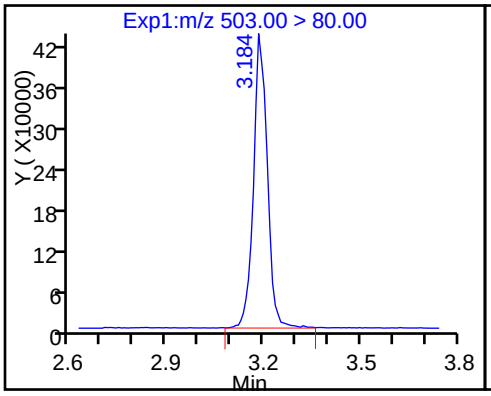
15 Perfluorooctanoic acid (M)



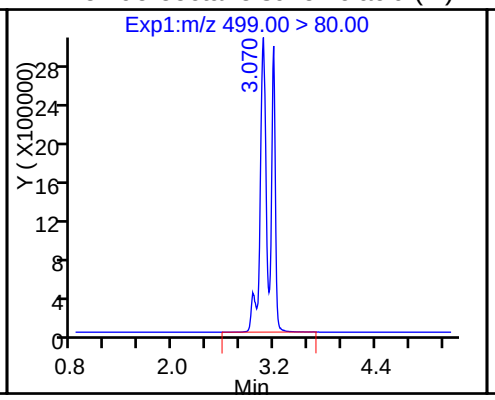
15 Perfluorooctanoic acid (M)



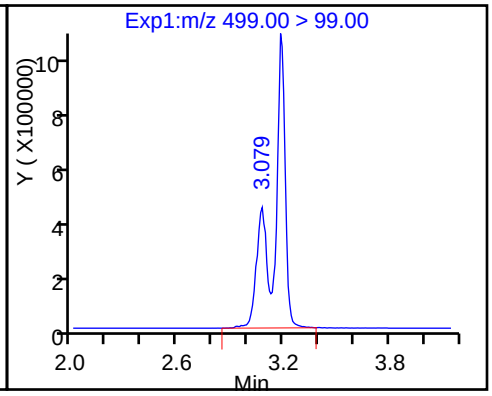
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

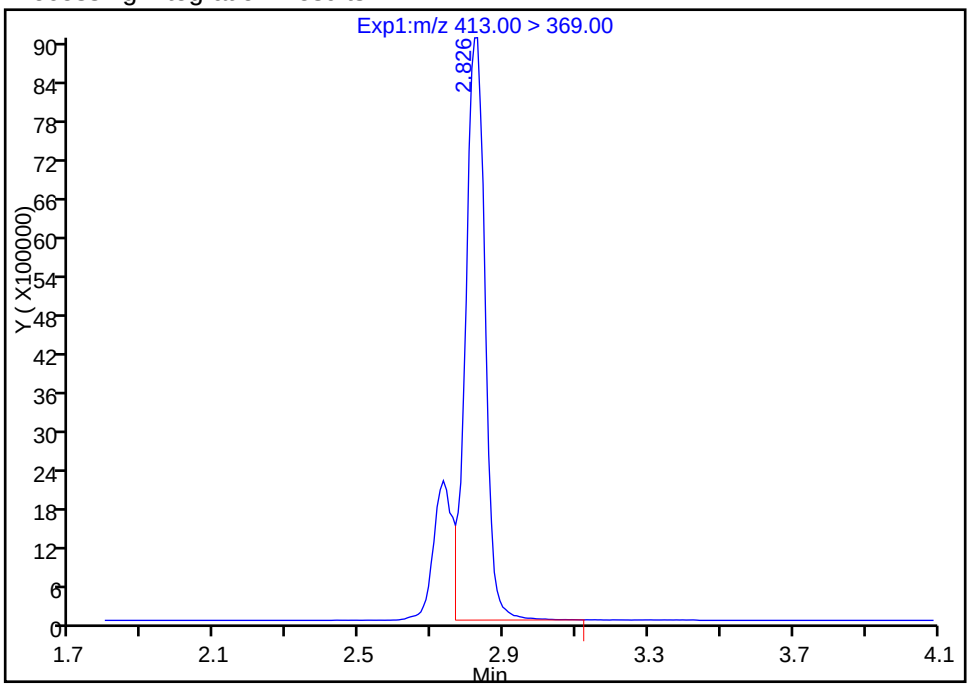
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_049.d				
Injection Date:	13-Mar-2017 17:23:36	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	32	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	10.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

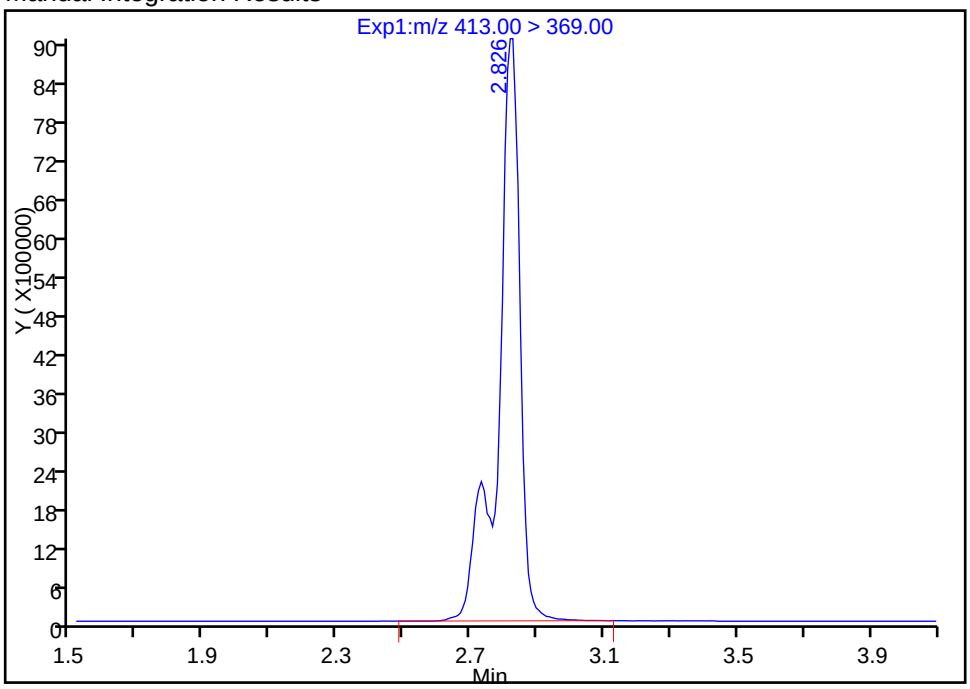
Processing Integration Results

RT: 2.83
Area: 33826231
Amount: 194.9672
Amount Units: ng/ml



Manual Integration Results

RT: 2.83
Area: 41596963
Amount: 239.7561
Amount Units: ng/ml



Reviewer: westendorfc, 27-Mar-2017 12:25:33

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

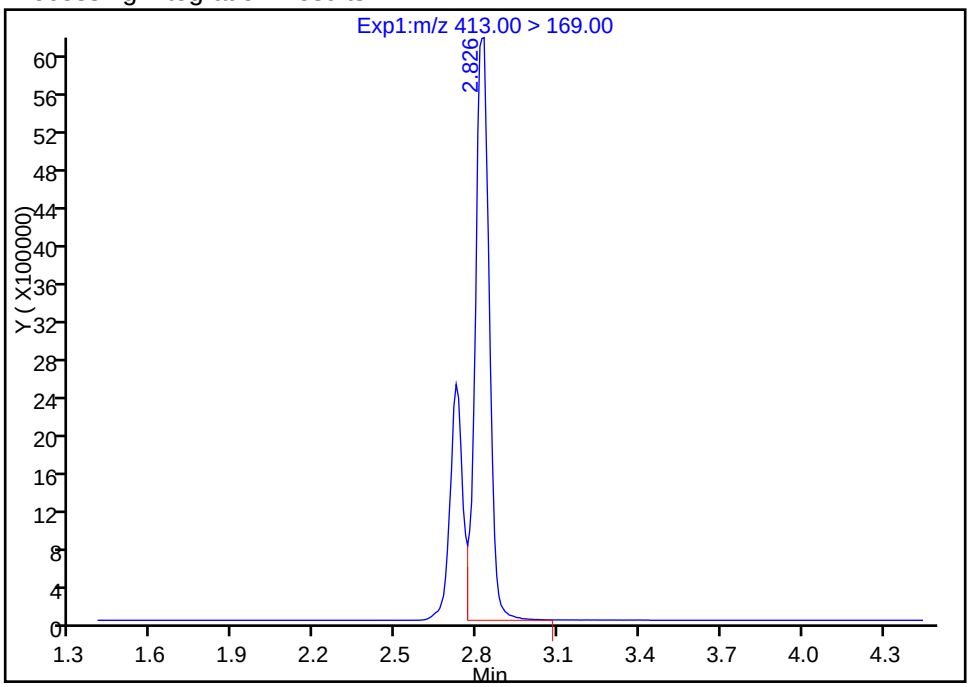
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_049.d				
Injection Date:	13-Mar-2017 17:23:36	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	32	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	10.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

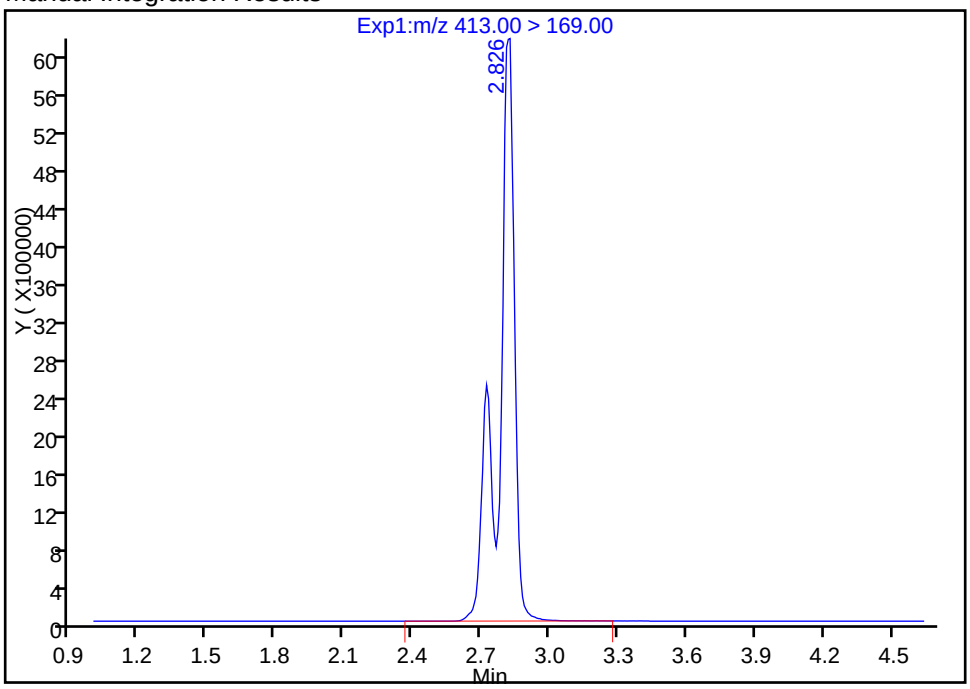
Processing Integration Results

RT: 2.83
Area: 22188832
Amount: 194.9672
Amount Units: ng/ml



Manual Integration Results

RT: 2.83
Area: 30305831
Amount: 239.7561
Amount Units: ng/ml



Reviewer: westendorfc, 27-Mar-2017 12:25:33
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

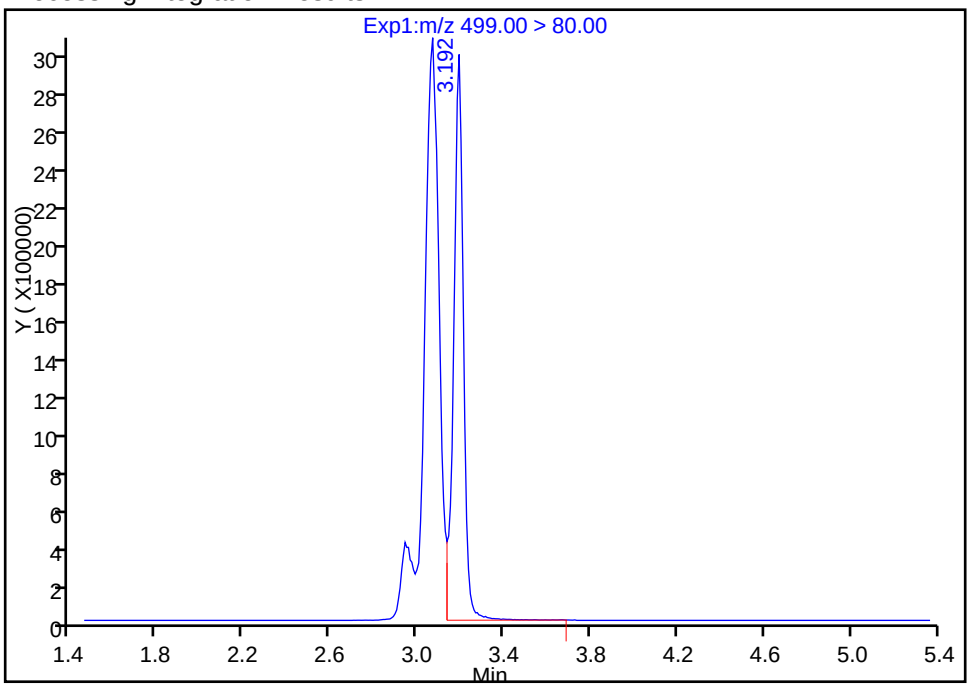
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_049.d				
Injection Date:	13-Mar-2017 17:23:36	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	32	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	10.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 1

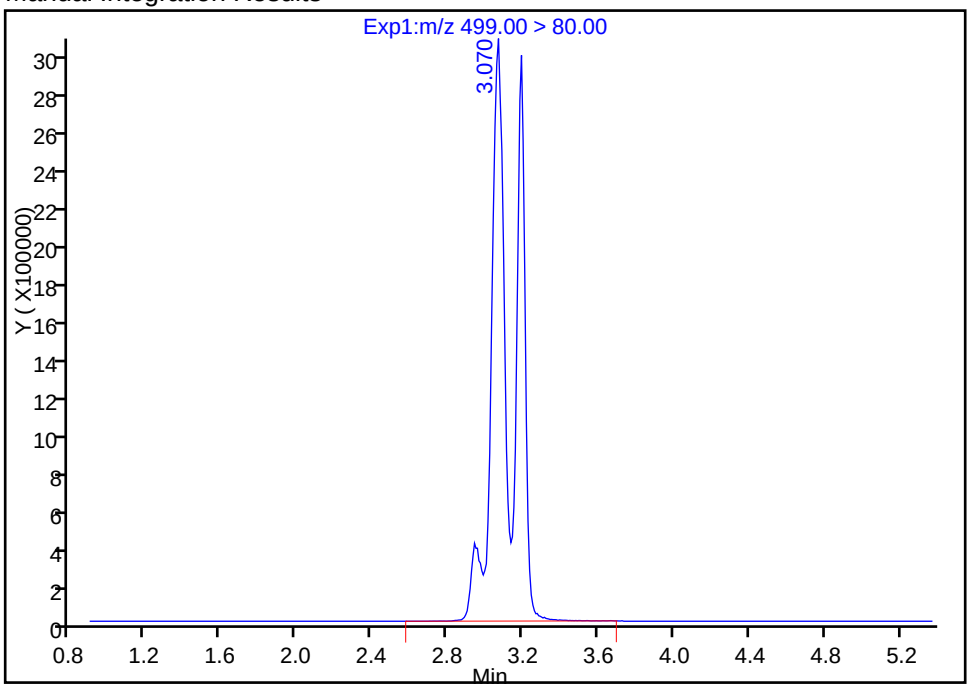
Processing Integration Results

RT: 3.19
Area: 9048033
Amount: 34.130493
Amount Units: ng/ml



Manual Integration Results

RT: 3.07
Area: 23752722
Amount: 89.598713
Amount Units: ng/ml



Reviewer: westendorfc, 27-Mar-2017 12:25:33

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-PWMA-MW01-0317 DL2 Lab Sample ID: 320-26263-2 DL2

Matrix: Water Lab File ID: 2017.03.14A_020.d

Analysis Method: 537 (Modified) Date Collected: 03/01/2017 14:00

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 272.2(mL) Date Analyzed: 03/14/2017 15:13

Con. Extract Vol.: 0.5(mL) Dilution Factor: 25

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 155009 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	4500	D M	57	46	17
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*1500*	*D M*	*92*	69	*29*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*730*	*D*	*57*	46	*21*

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	108		25-150
STL00991	13C4 PFOS	112		25-150
STL00994	18O2 PFHxS	108		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\2017.03.14A_020.d
Lims ID: 320-26263-A-2-A
Client ID: MEAFF-PWMA-MW01-0317
Sample Type: Client
Inject. Date: 14-Mar-2017 15:13:34 ALS Bottle#: 4 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 25.0000
Sample Info: 320-26263-a-2-a 25X
Misc. Info.: Plate: 1 Rack: 3
Operator ID: A8-PC\A8 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 15-Mar-2017 11:46:53 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK006

First Level Reviewer: chandrasenas Date: 27-Mar-2017 12:34:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.872	1.883	-0.011	1.000	7194642	16.0				
298.90 > 99.00	1.872	1.883	-0.011	1.000	2965843		2.43(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.500	2.517	-0.017		595485	2.05		4.3	49015	
D 14 13C4 PFOA										
417.00 > 372.00	2.858	2.868	-0.010		442924	2.16		4.3	49119	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.858	2.876	-0.018	1.000	22236619	98.3			589667	M
413.00 > 169.00	2.858	2.876	-0.018	1.000	14877837		1.49(0.90-1.10)		1808944	M
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.114	3.222	-0.108	1.000	8941828	33.7			0.0	M
499.00 > 99.00	3.122	3.222	-0.100	1.003	1850104		4.83(0.90-1.10)		29191	
D 18 13C4 PFOS										
503.00 > 80.00	3.237	3.248	-0.011		516296	2.14		4.5	24124	

QC Flag Legend

Review Flags
M - Manually Integrated

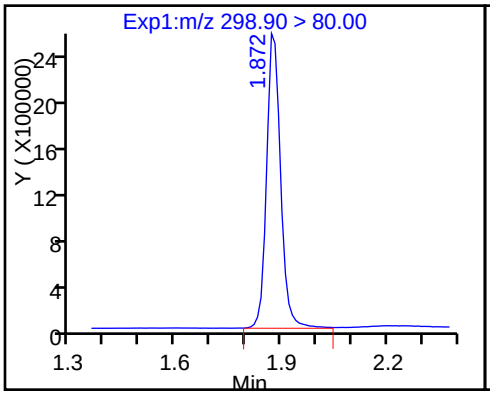
Report Date: 27-Mar-2017 12:35:00 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

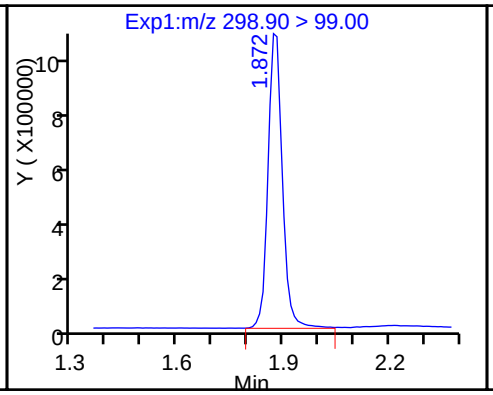
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\2017.03.14A_020.d

Injection Date:	14-Mar-2017 15:13:34	Instrument ID:	A8_N
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2
Client ID:	MEAFF-PWMA-MW01-0317		
Operator ID:	A8-PC\A8	ALS Bottle#:	4 Worklist Smp#: 6
Injection Vol:	2.0 ul	Dil. Factor:	25.0000
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL

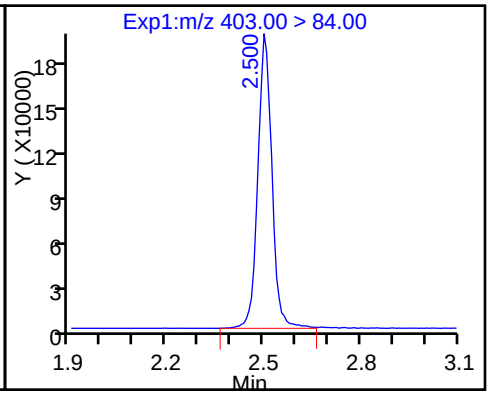
5 Perfluorobutanesulfonic acid



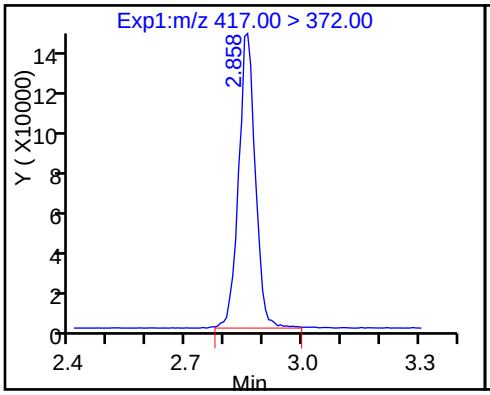
5 Perfluorobutanesulfonic acid



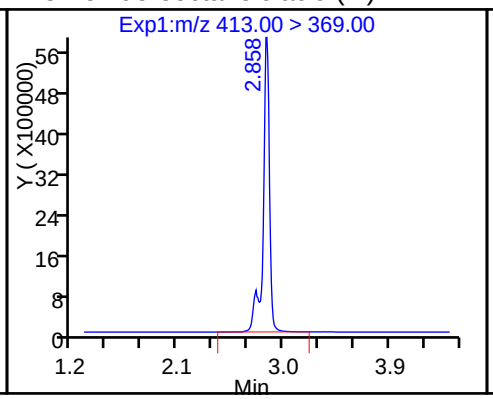
D 11 18O2 PFHxS



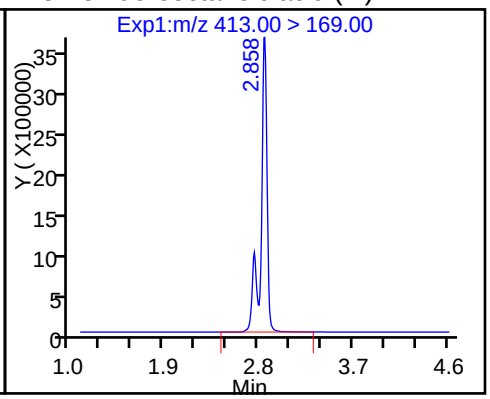
D 14 13C4 PFOA



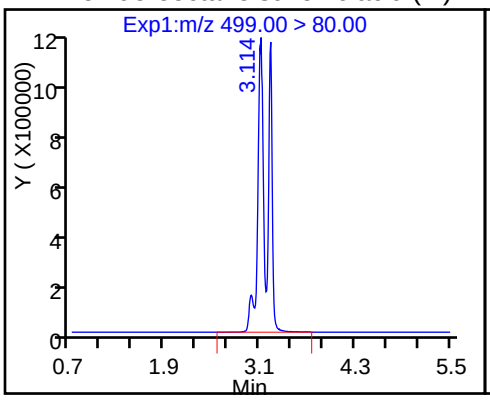
15 Perfluorooctanoic acid (M)



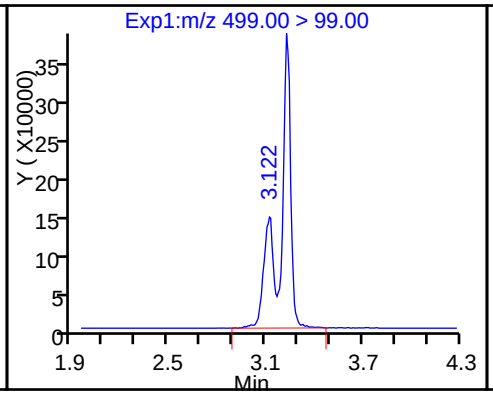
15 Perfluorooctanoic acid (M)



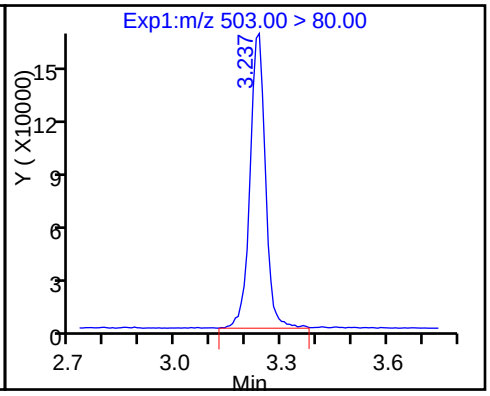
17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

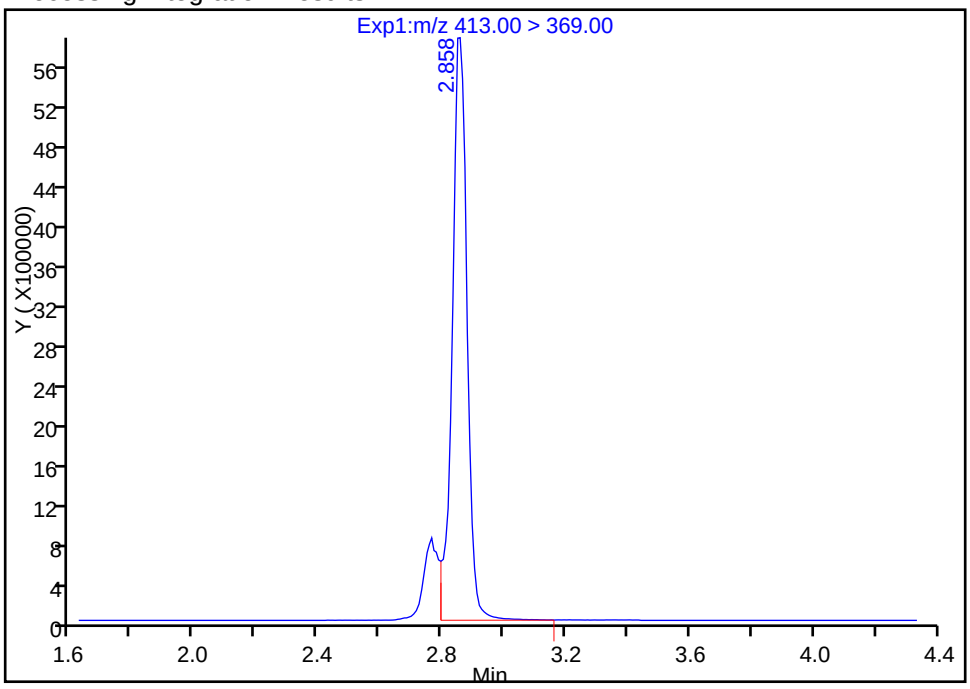
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\2017.03.14A_020.d				
Injection Date:	14-Mar-2017 15:13:34	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	4	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	25.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

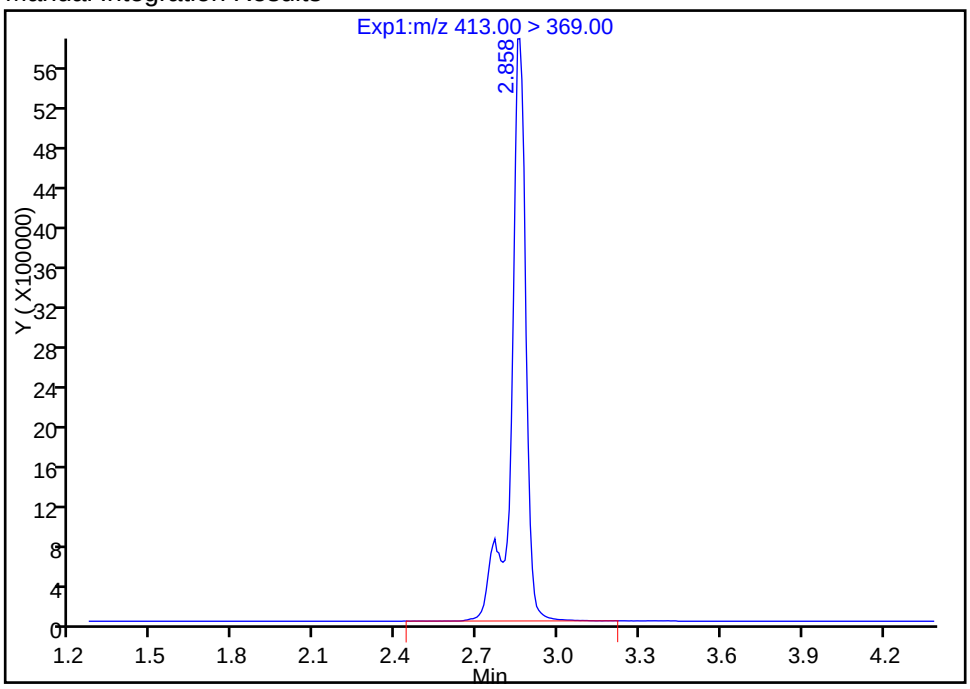
Processing Integration Results

RT: 2.86
Area: 19542421
Amount: 86.372090
Amount Units: ng/ml



Manual Integration Results

RT: 2.86
Area: 22236619
Amount: 98.279699
Amount Units: ng/ml



Reviewer: westendorfc, 27-Mar-2017 12:34:48

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

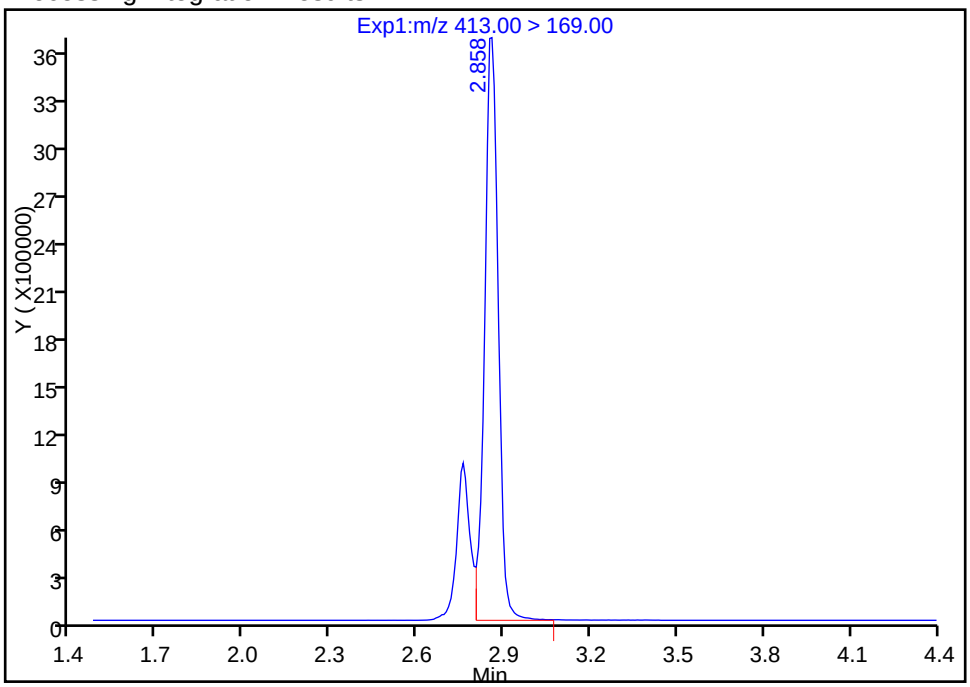
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\2017.03.14A_020.d				
Injection Date:	14-Mar-2017 15:13:34	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	4	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	25.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

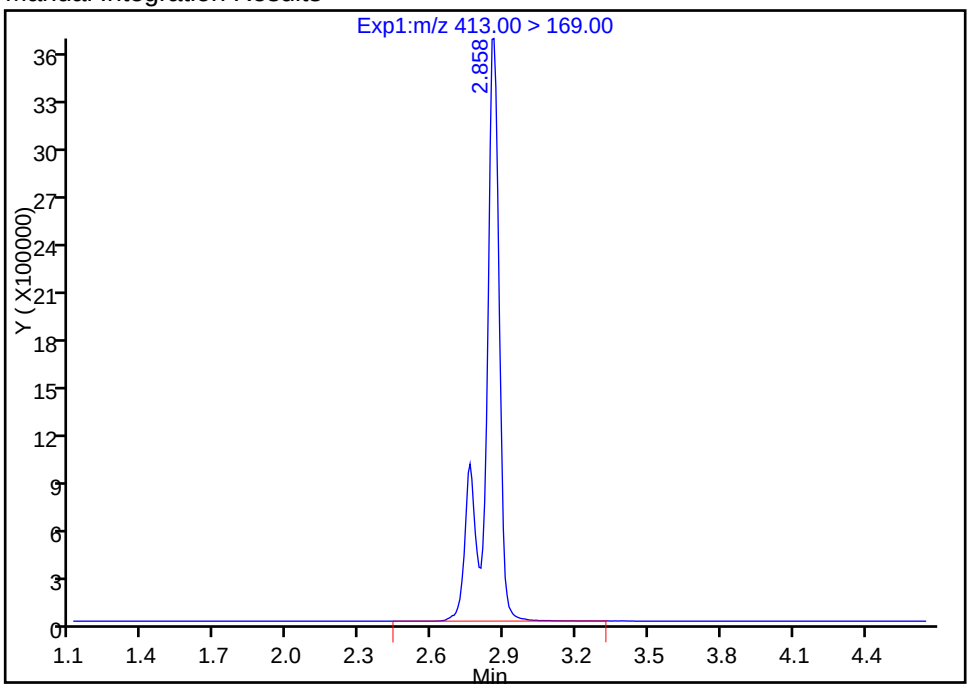
Processing Integration Results

RT: 2.86
Area: 11740110
Amount: 86.372090
Amount Units: ng/ml



Manual Integration Results

RT: 2.86
Area: 14877837
Amount: 98.279699
Amount Units: ng/ml



Reviewer: westendorfc, 27-Mar-2017 12:34:48

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

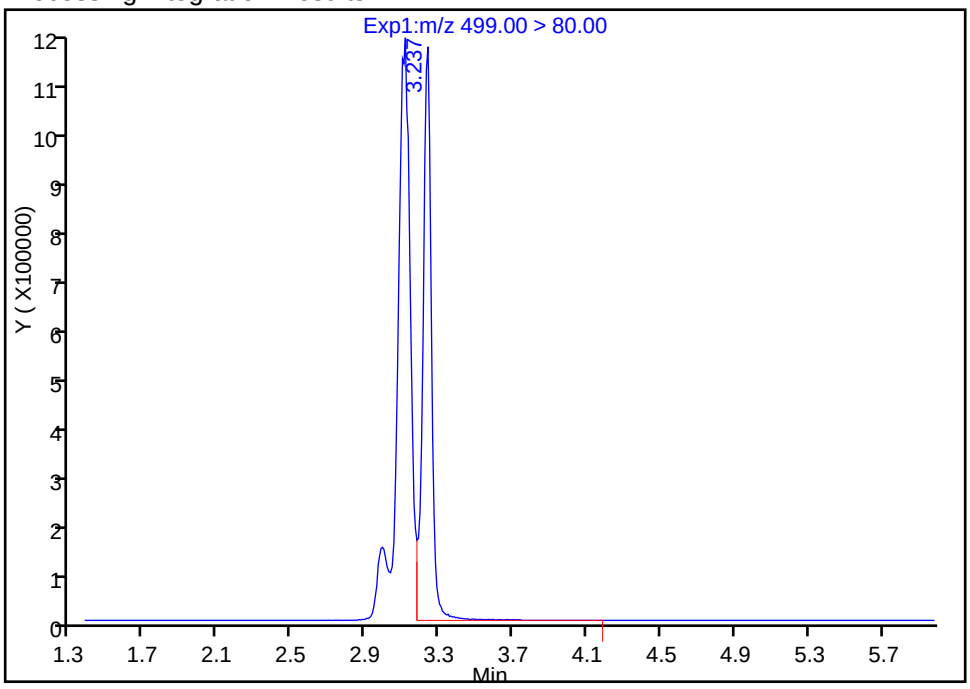
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\2017.03.14A_020.d				
Injection Date:	14-Mar-2017 15:13:34	Instrument ID:	A8_N		
Lims ID:	320-26263-A-2-A	Lab Sample ID:	320-26263-2		
Client ID:	MEAFF-PWMA-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	4	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	25.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 1

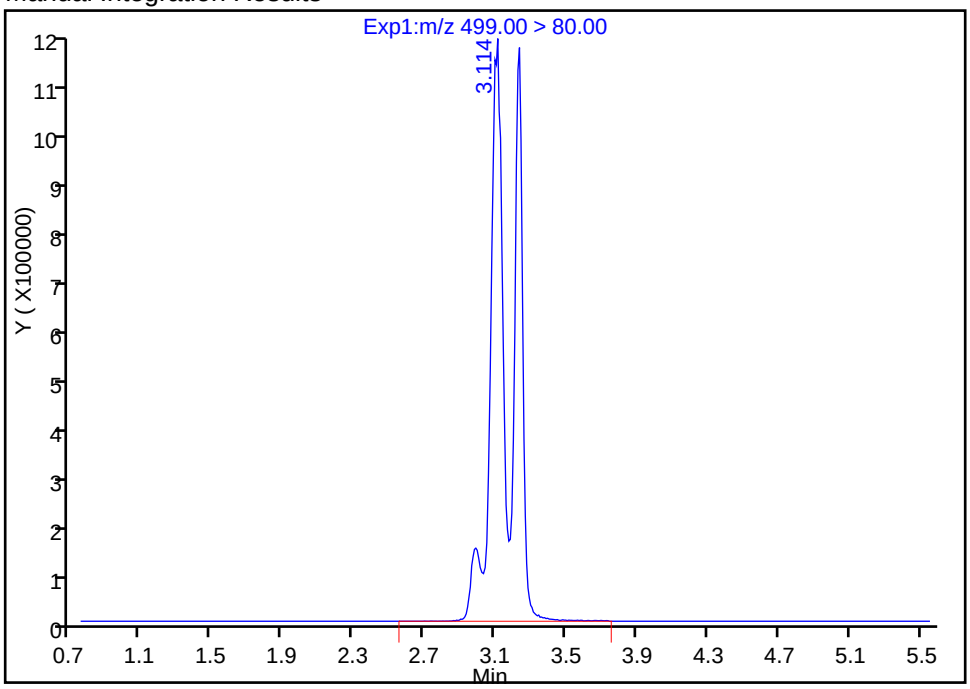
Processing Integration Results

RT: 3.24
Area: 3497699
Amount: 13.170583
Amount Units: ng/ml



Manual Integration Results

RT: 3.11
Area: 8941828
Amount: 33.670448
Amount Units: ng/ml



Reviewer: westendorfc, 27-Mar-2017 12:34:48

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-Unknown22-MW01-0317 Lab Sample ID: 320-26263-3

Matrix: Water Lab File ID: 2017.03.10B_046.d

Analysis Method: 537 (Modified) Date Collected: 03/01/2017 15:05

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 269.1(mL) Date Analyzed: 03/10/2017 23:07

Con. Extract Vol.: 0.5(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 154459 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	9.0	M	2.3	1.9	0.69
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.0	J M	3.7	2.8	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.7		2.3	1.9	0.85

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	87		25-150
STL00991	13C4 PFOS	118		25-150
STL00994	18O2 PFHxS	125		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_046.d
Lims ID: 320-26263-A-3-A
Client ID: MEAFF-Unknown22-MW01-0317
Sample Type: Client
Inject. Date: 10-Mar-2017 23:07:32 ALS Bottle#: 36 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-26263-a-3-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: A8-PC\A8 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 27-Mar-2017 12:07:44 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK006

First Level Reviewer: changnoit Date: 13-Mar-2017 11:28:46

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	1.841	1.861	-0.020	1.000	1052020	2.01				
298.90 > 99.00	1.841	1.861	-0.020	1.000	406177		2.59(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.445	2.464	-0.019		17262235	59.3		125	526530	
D 14 13C4 PFOA										
417.00 > 372.00	2.795	2.814	-0.019		8943614	43.6		87.3	395238	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.795	2.814	-0.019	1.000	887760	4.86			5563	M
413.00 > 169.00	2.795	2.814	-0.019	1.000	644935		1.38(0.90-1.10)		12494	M
D 18 13C4 PFOS										
503.00 > 80.00	3.167	3.188	-0.021		13607968	56.3		118	283018	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.167	3.197	-0.030	1.000	299116	1.07			3437	M
499.00 > 99.00	3.167	3.197	-0.030	1.000	62761		4.77(0.90-1.10)		2153	M

QC Flag Legend

Review Flags
M - Manually Integrated

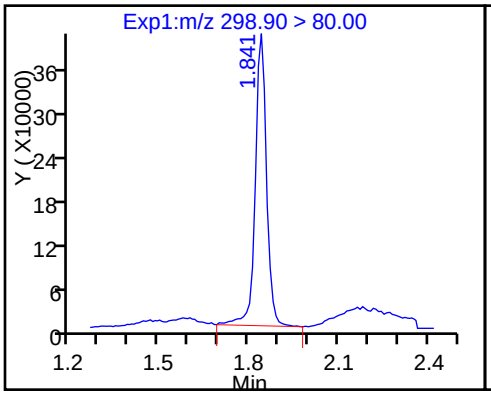
Report Date: 27-Mar-2017 12:08:06 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

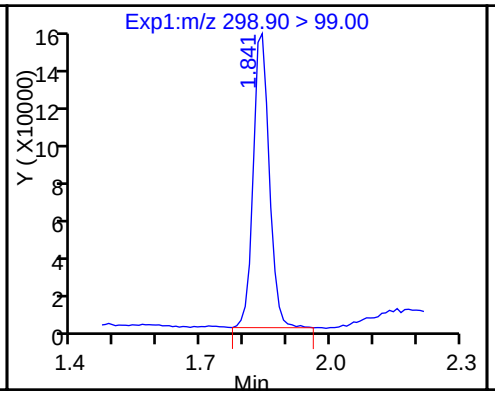
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_046.d

Injection Date:	10-Mar-2017 23:07:32	Instrument ID:	A8_N		
Lims ID:	320-26263-A-3-A	Lab Sample ID:	320-26263-3		
Client ID:	MEAFF-Unknown22-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	36	Worklist Smp#:	25
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		

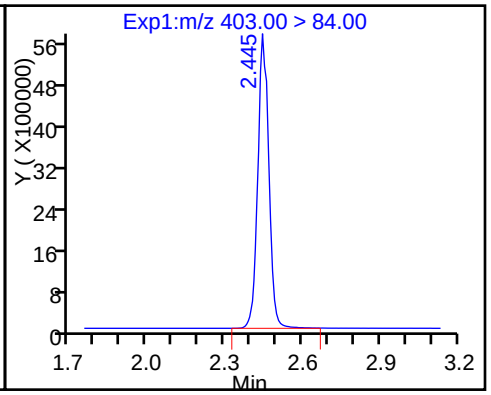
5 Perfluorobutanesulfonic acid



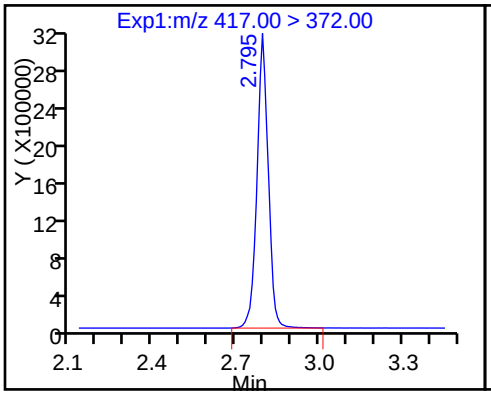
5 Perfluorobutanesulfonic acid



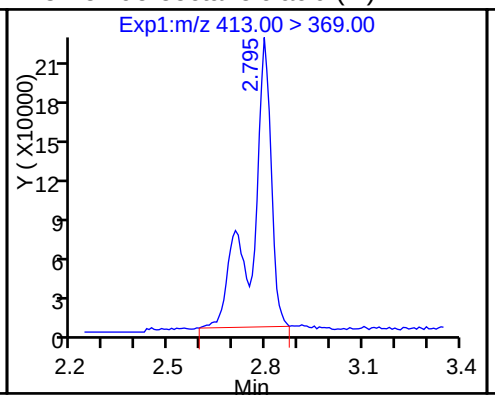
D 11 18O2 PFHxS



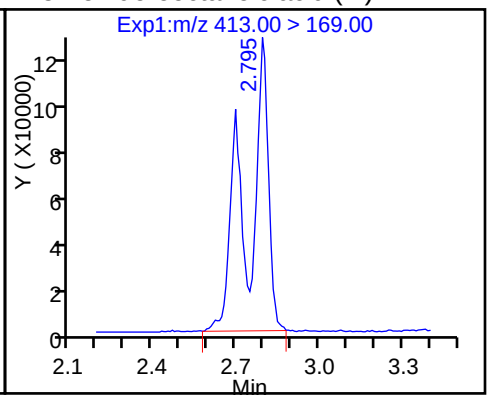
D 14 13C4 PFOA



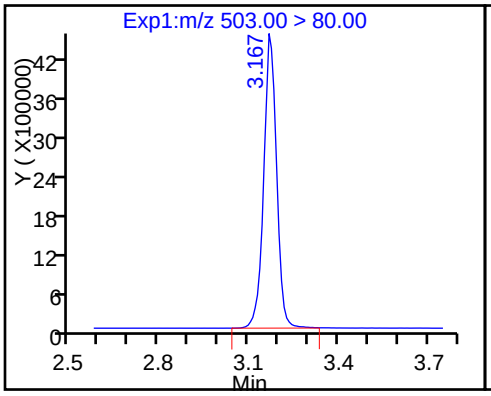
15 Perfluorooctanoic acid (M)



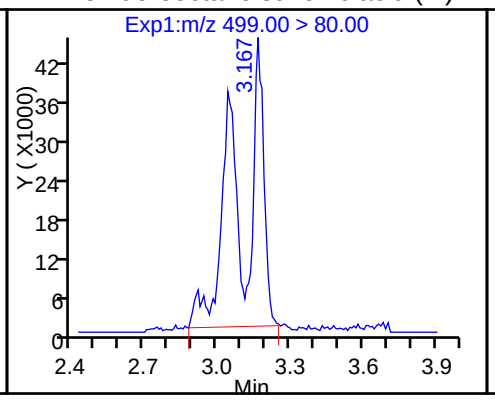
15 Perfluorooctanoic acid (M)



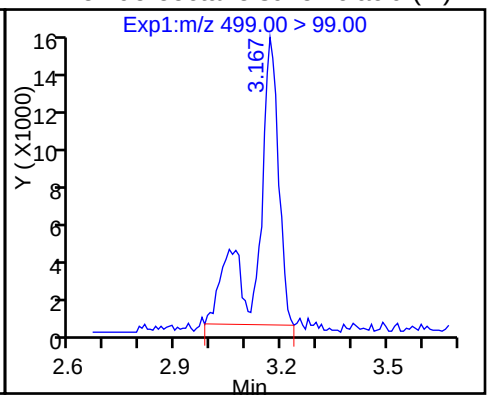
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

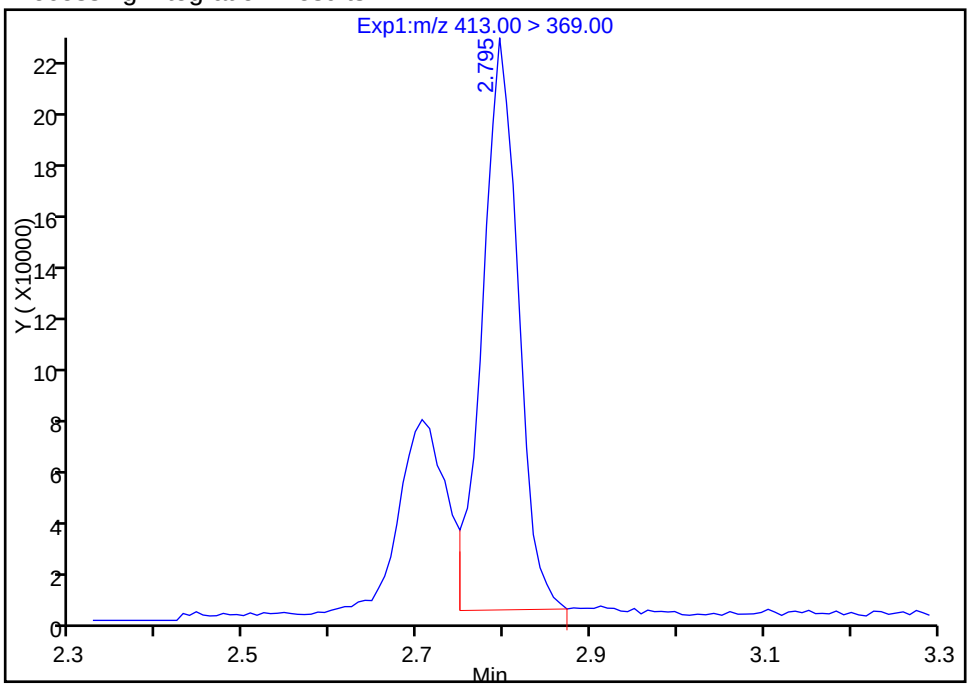
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_046.d				
Injection Date:	10-Mar-2017 23:07:32	Instrument ID:	A8_N		
Lims ID:	320-26263-A-3-A	Lab Sample ID:	320-26263-3		
Client ID:	MEAFF-Unknown22-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	36	Worklist Smp#:	25
Injection 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

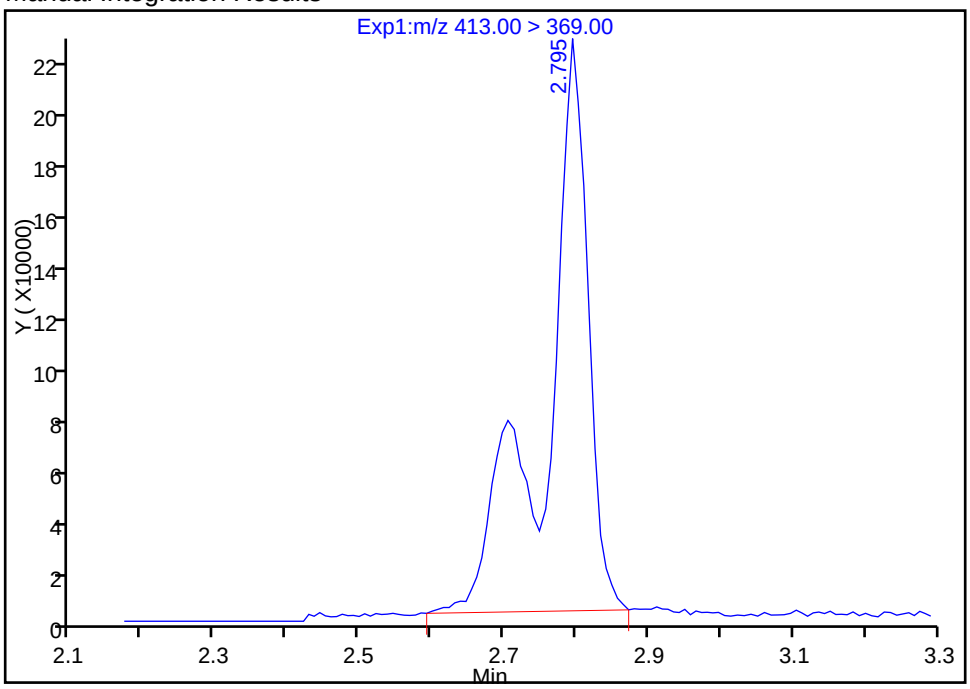
Processing Integration Results

RT: 2.79
Area: 616118
Amount: 3.371438
Amount Units: ng/ml



Manual Integration Results

RT: 2.79
Area: 887760
Amount: 4.857880
Amount Units: ng/ml



Reviewer: changnoit, 27-Mar-2017 12:07:45

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

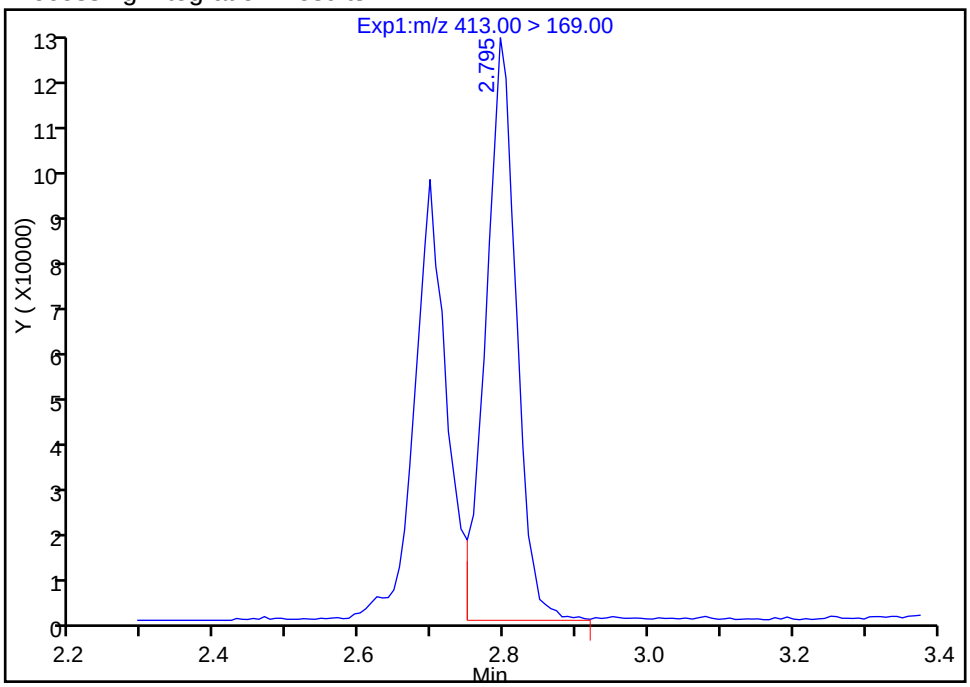
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_046.d				
Injection Date:	10-Mar-2017 23:07:32	Instrument ID:	A8_N		
Lims ID:	320-26263-A-3-A	Lab Sample ID:	320-26263-3		
Client ID:	MEAFF-Unknown22-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	36	Worklist Smp#:	25
Injection 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

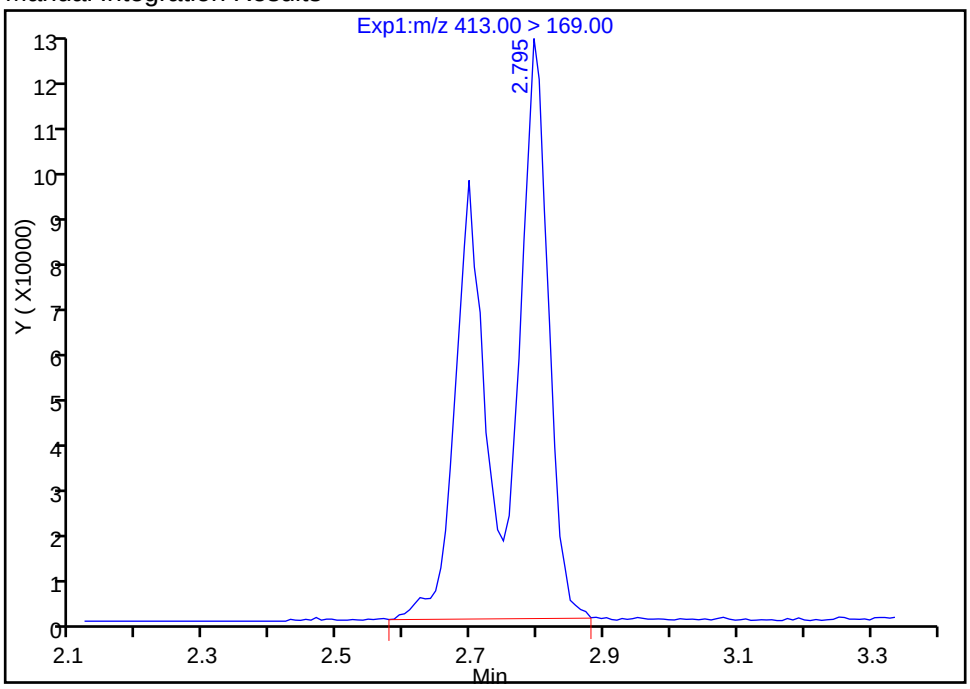
Processing Integration Results

RT: 2.79
Area: 363707
Amount: 3.371438
Amount Units: ng/ml



Manual Integration Results

RT: 2.79
Area: 644935
Amount: 4.857880
Amount Units: ng/ml



Reviewer: changnoit, 27-Mar-2017 12:07:45
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

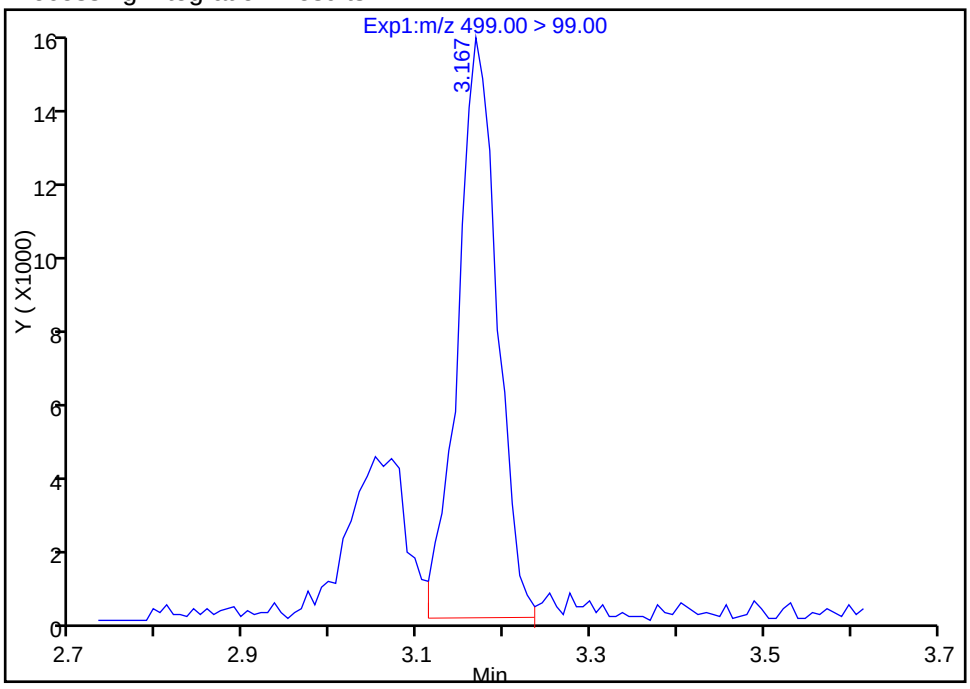
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_046.d				
Injection Date:	10-Mar-2017 23:07:32	Instrument ID:	A8_N		
Lims ID:	320-26263-A-3-A	Lab Sample ID:	320-26263-3		
Client ID:	MEAFF-Unknown22-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	36	Worklist Smp#:	25
Injection 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

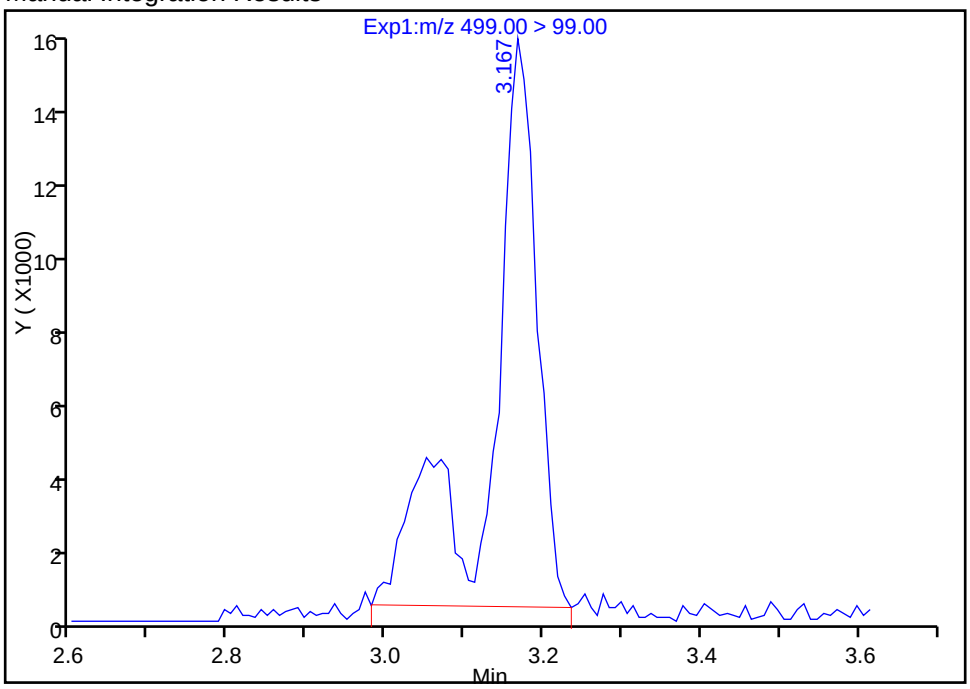
Processing Integration Results

RT: 3.17
Area: 48332
Amount: 0.494262
Amount Units: ng/ml



Manual Integration Results

RT: 3.17
Area: 62761
Amount: 1.068336
Amount Units: ng/ml



Reviewer: changnoit, 27-Mar-2017 12:07:45

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

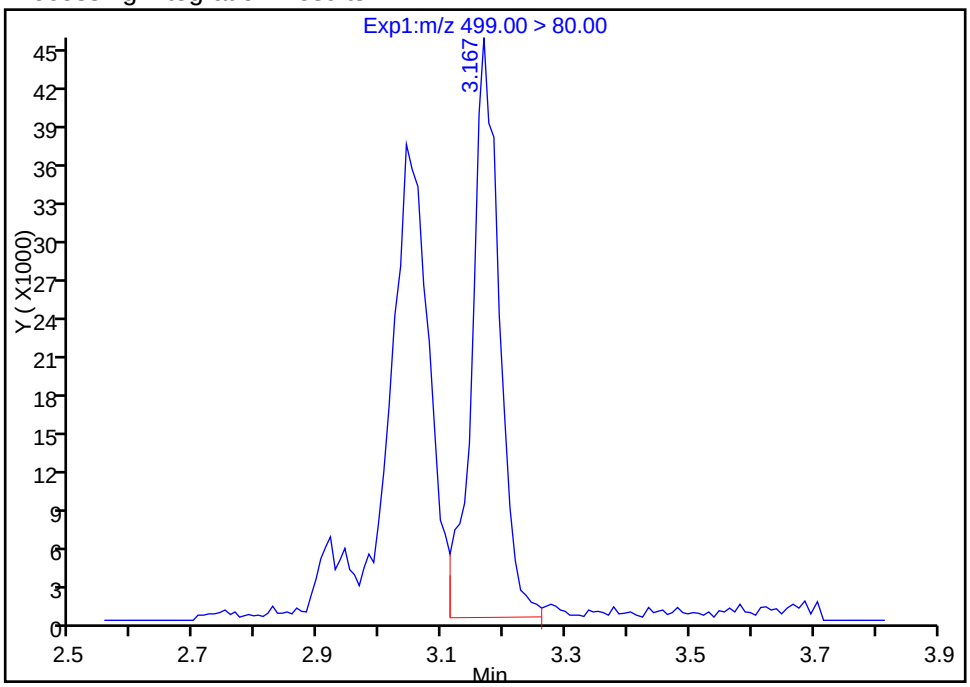
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_046.d				
Injection Date:	10-Mar-2017 23:07:32	Instrument ID:	A8_N		
Lims ID:	320-26263-A-3-A	Lab Sample ID:	320-26263-3		
Client ID:	MEAFF-Unknown22-MW01-0317				
Operator ID:	A8-PC\A8	ALS Bottle#:	36	Worklist Smp#:	25
Injection 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

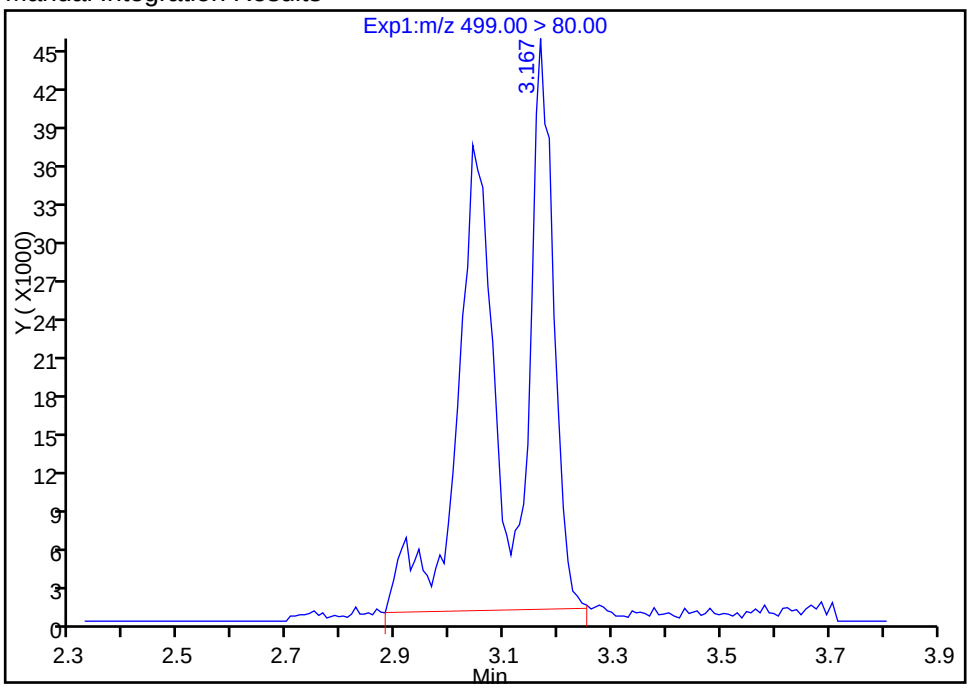
Processing Integration Results

RT: 3.17
Area: 138385
Amount: 0.494262
Amount Units: ng/ml



Manual Integration Results

RT: 3.17
Area: 299116
Amount: 1.068336
Amount Units: ng/ml



Reviewer: changnoit, 27-Mar-2017 12:07:45

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

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-FD04-030117 Lab Sample ID: 320-26263-4

Matrix: Water Lab File ID: 2017.03.10B_047.d

Analysis Method: 537 (Modified) Date Collected: 03/01/2017 00:00

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 270.9(mL) Date Analyzed: 03/10/2017 23:15

Con. Extract Vol.: 0.5(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 154459 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	M	2.3	1.8	0.69
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.2	J M	3.7	2.8	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.6		2.3	1.8	0.85

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	83		25-150
STL00991	13C4 PFOS	134		25-150
STL00994	18O2 PFHxS	137		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_047.d
Lims ID: 320-26263-A-4-A
Client ID: MEAFF-FD04-030117
Sample Type: Client
Inject. Date: 10-Mar-2017 23:15:01 ALS Bottle#: 37 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-26263-a-4-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: A8-PC\A8 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 27-Mar-2017 12:08:39 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK006

First Level Reviewer: changnoit Date: 13-Mar-2017 11:29:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.853	1.861	-0.008	1.000	1106574	1.94				
298.90 > 99.00	1.853	1.861	-0.008	1.000	403460		2.74(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.470	2.464	0.006		18851094	64.8		137	625684	
D 14 13C4 PFOA										
417.00 > 372.00	2.820	2.814	0.006		8482043	41.4		82.8	244462	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.820	2.814	0.006	1.000	761206	4.39			4269	M
413.00 > 169.00	2.820	2.814	0.006	1.000	553184		1.38(0.90-1.10)		11676	M
D 18 13C4 PFOS										
503.00 > 80.00	3.195	3.188	0.007		15420880	63.8		134	313258	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.074	3.197	-0.123	1.000	197745	0.6232			2635	M
499.00 > 99.00	3.186	3.197	-0.011	1.037	39028		5.07(0.90-1.10)		979	M

QC Flag Legend

Review Flags
M - Manually Integrated

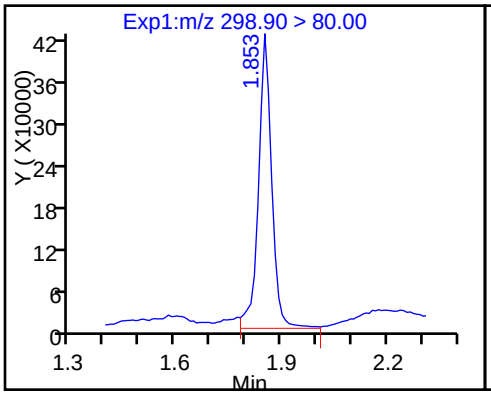
Report Date: 27-Mar-2017 12:08:40 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

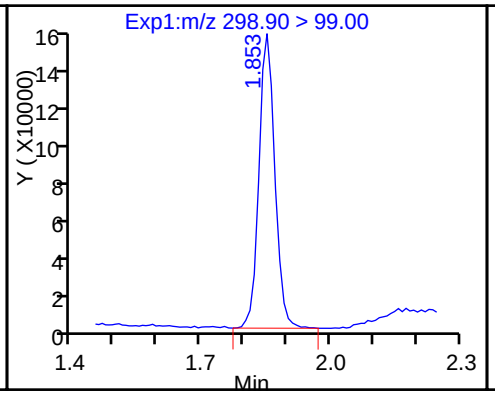
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_047.d

Injection Date:	10-Mar-2017 23:15:01	Instrument ID:	A8_N		
Lims ID:	320-26263-A-4-A	Lab Sample ID:	320-26263-4		
Client ID:	MEAFF-FD04-030117				
Operator ID:	A8-PC\A8	ALS Bottle#:	37	Worklist Smp#:	26
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		

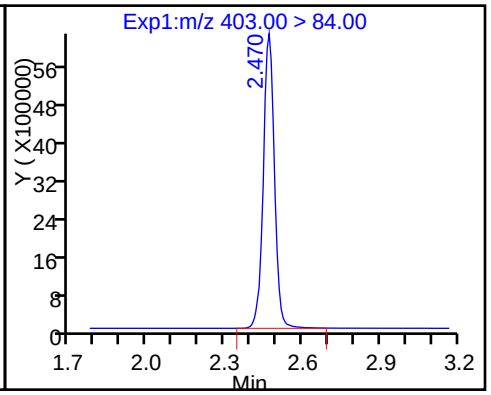
5 Perfluorobutanesulfonic acid



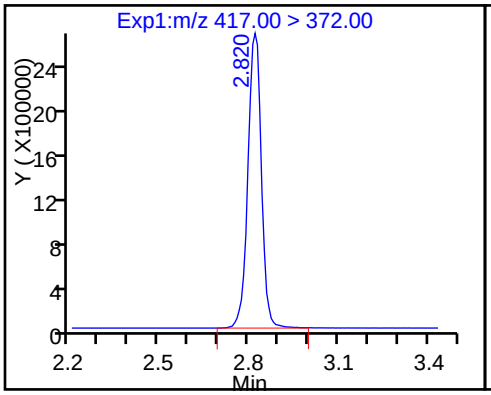
5 Perfluorobutanesulfonic acid



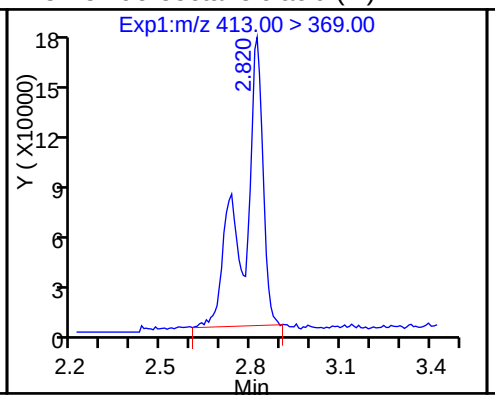
D 11 18O2 PFHxS



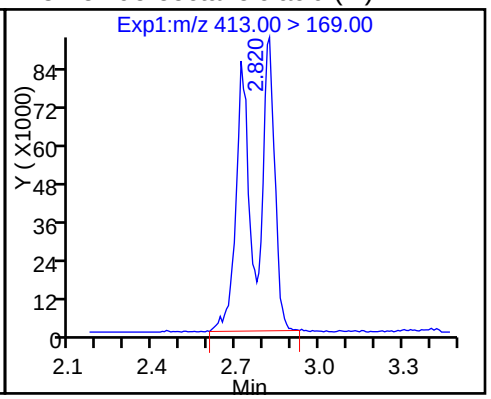
D 14 13C4 PFOA



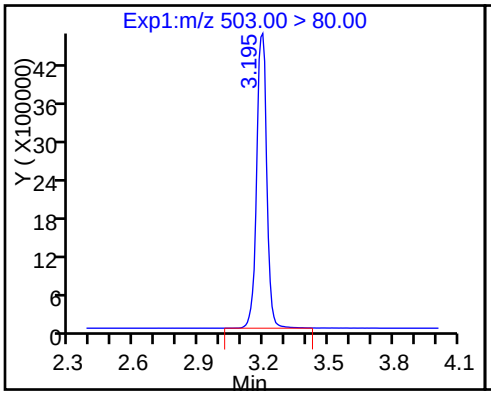
15 Perfluorooctanoic acid (M)



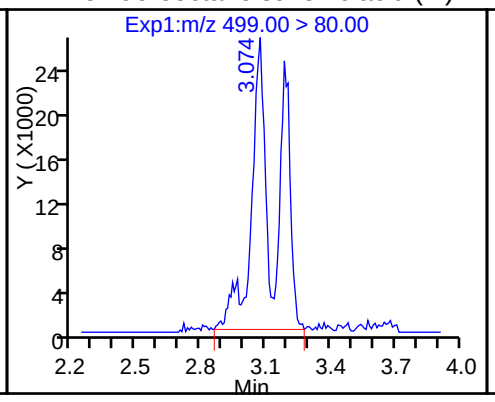
15 Perfluorooctanoic acid (M)



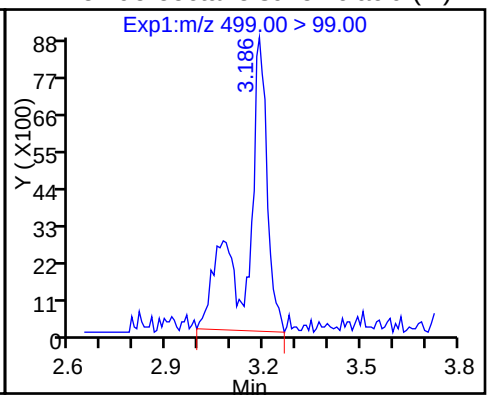
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

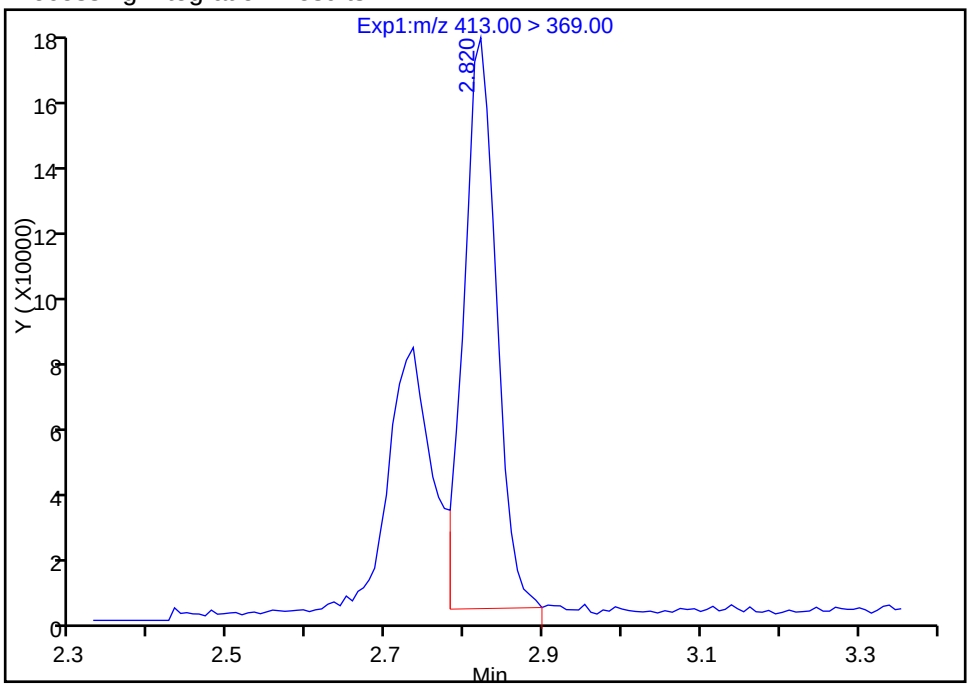
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_047.d				
Injection Date:	10-Mar-2017 23:15:01	Instrument ID:	A8_N		
Lims ID:	320-26263-A-4-A	Lab Sample ID:	320-26263-4		
Client ID:	MEAFF-FD04-030117				
Operator ID:	A8-PC\A8	ALS Bottle#:	37	Worklist Smp#:	26
Injection Vol:	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

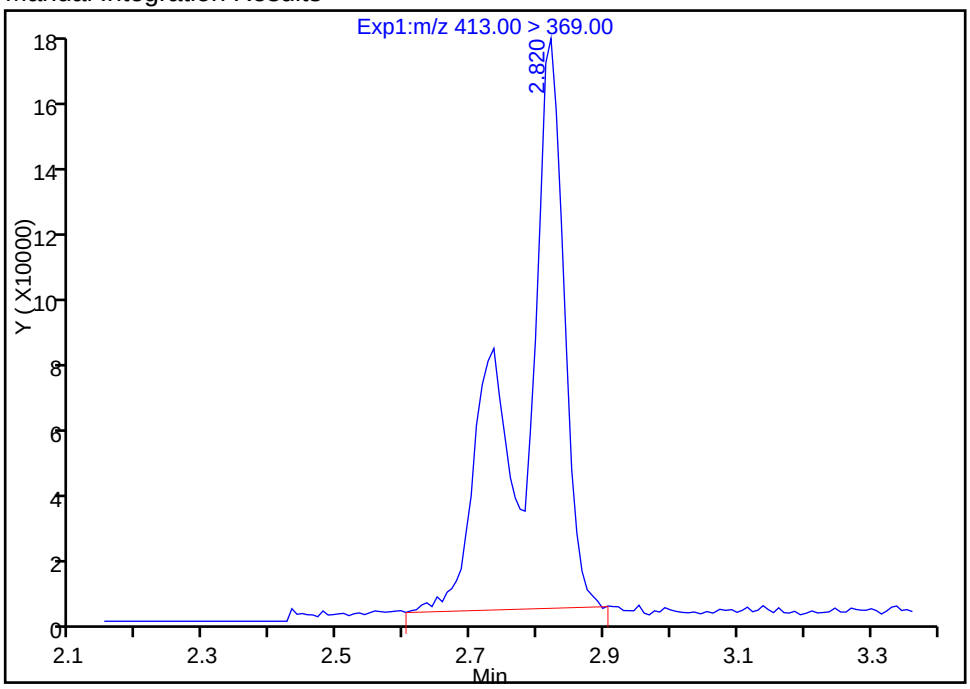
Processing Integration Results

RT: 2.82
Area: 470544
Amount: 2.714964
Amount Units: ng/ml



Manual Integration Results

RT: 2.82
Area: 761206
Amount: 4.392037
Amount Units: ng/ml



Reviewer: changnoit, 27-Mar-2017 12:08:07

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

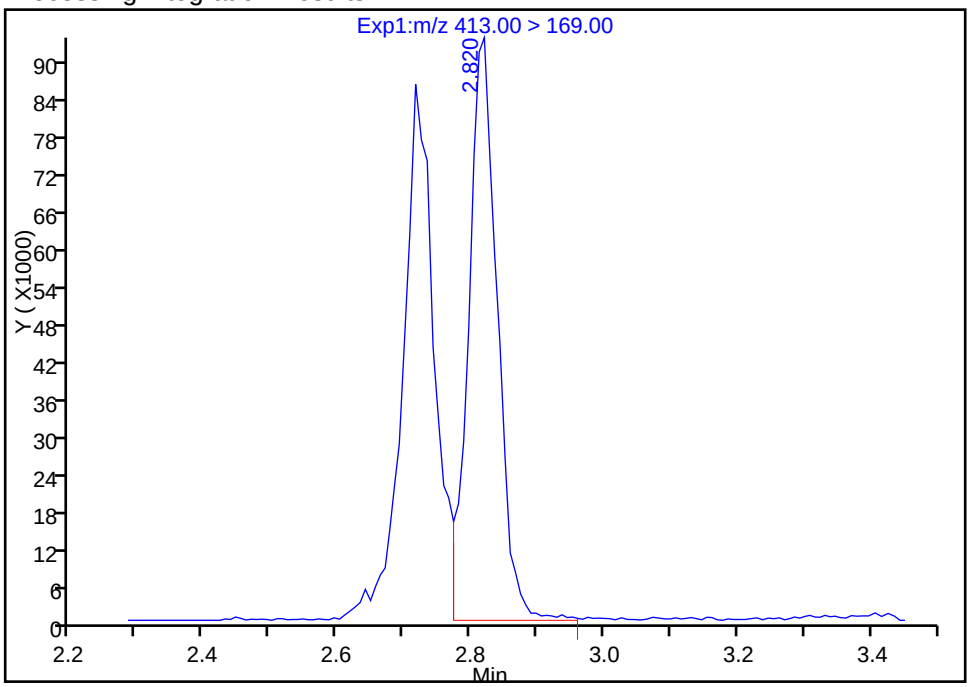
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_047.d				
Injection Date:	10-Mar-2017 23:15:01	Instrument ID:	A8_N		
Lims ID:	320-26263-A-4-A	Lab Sample ID:	320-26263-4		
Client ID:	MEAFF-FD04-030117				
Operator ID:	A8-PC\A8	ALS Bottle#:	37	Worklist Smp#:	26
Injection Vol:	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

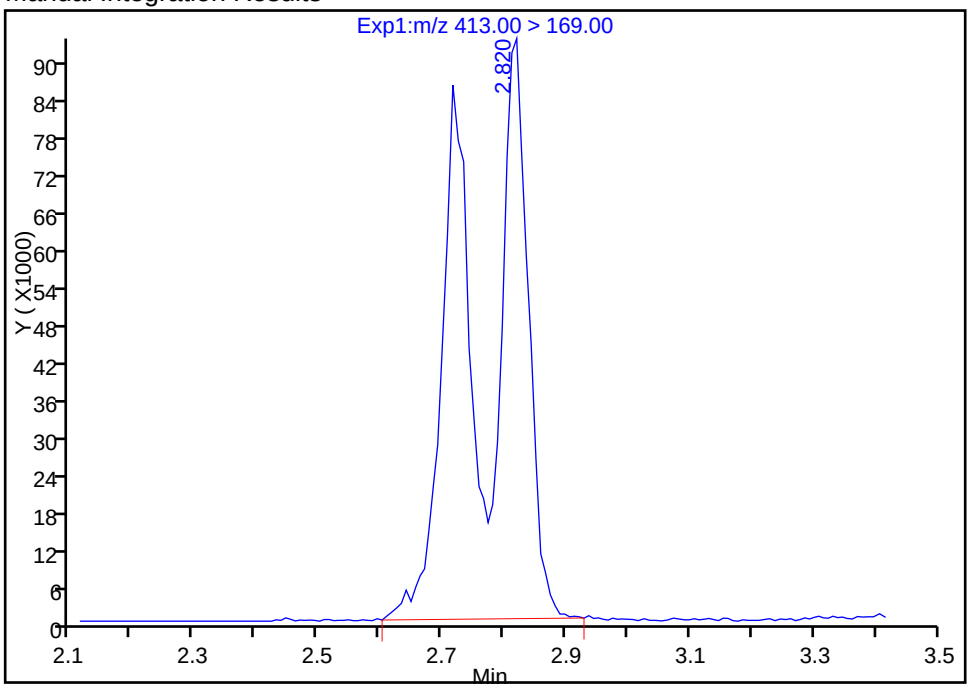
Processing Integration Results

RT: 2.82
Area: 279599
Amount: 2.714964
Amount Units: ng/ml



Manual Integration Results

RT: 2.82
Area: 553184
Amount: 4.392037
Amount Units: ng/ml



Reviewer: changnoit, 27-Mar-2017 12:08:07

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

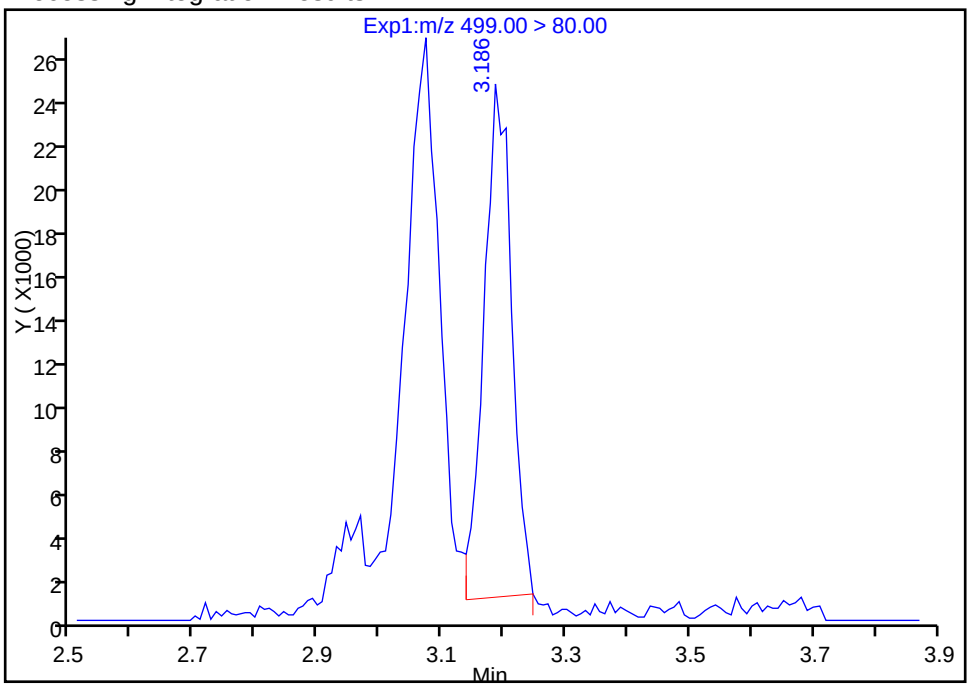
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_047.d				
Injection Date:	10-Mar-2017 23:15:01	Instrument ID:	A8_N		
Lims ID:	320-26263-A-4-A	Lab Sample ID:	320-26263-4		
Client ID:	MEAFF-FD04-030117				
Operator ID:	A8-PC\A8	ALS Bottle#:	37	Worklist Smp#:	26
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 1

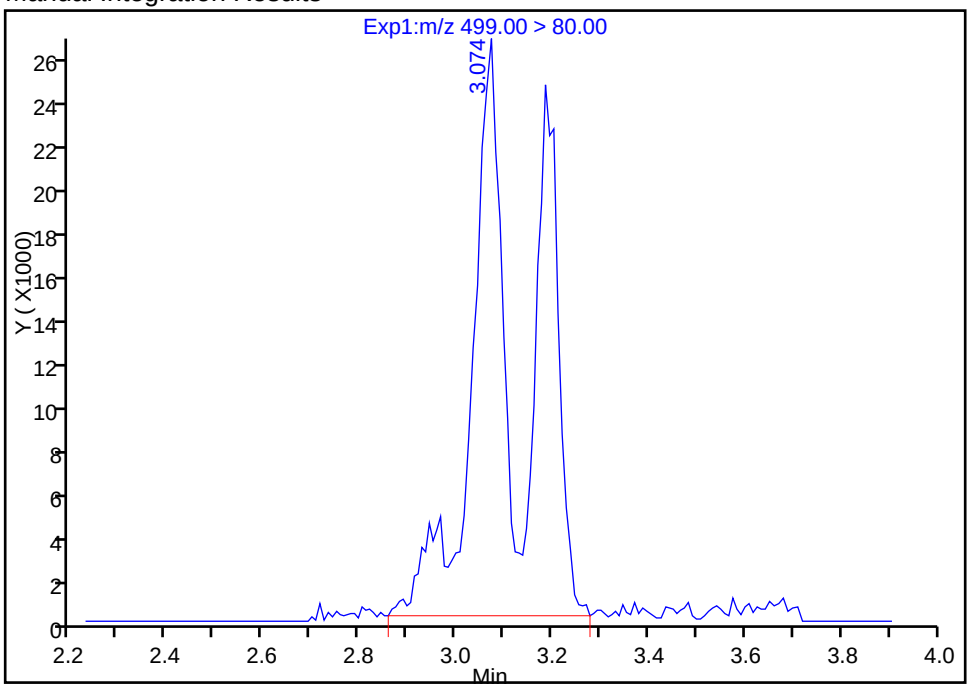
Processing Integration Results

RT: 3.19
Area: 72294
Amount: 0.227853
Amount Units: ng/ml



Manual Integration Results

RT: 3.07
Area: 197745
Amount: 0.623243
Amount Units: ng/ml



Reviewer: chandrasenas, 27-Mar-2017 12:08:07

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

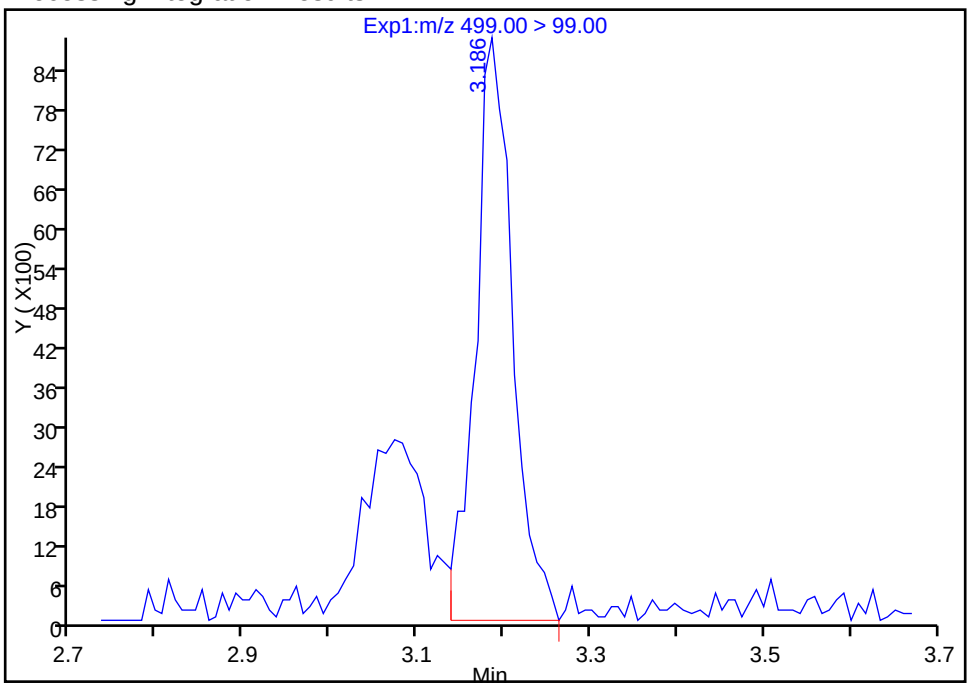
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_047.d				
Injection Date:	10-Mar-2017 23:15:01	Instrument ID:	A8_N		
Lims ID:	320-26263-A-4-A	Lab Sample ID:	320-26263-4		
Client ID:	MEAFF-FD04-030117				
Operator ID:	A8-PC\A8	ALS Bottle#:	37	Worklist Smp#:	26
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 2

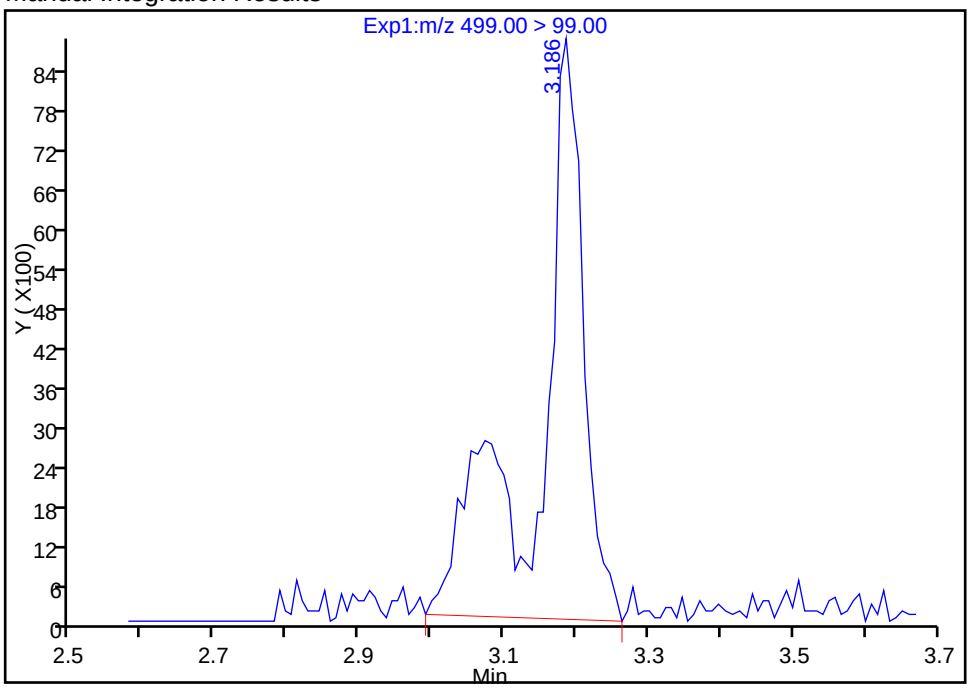
Processing Integration Results

RT: 3.19
Area: 26198
Amount: 0.227853
Amount Units: ng/ml



Manual Integration Results

RT: 3.19
Area: 39028
Amount: 0.623243
Amount Units: ng/ml



Reviewer: chandrasenas, 27-Mar-2017 12:08:07

Audit Action: Manually Integrated Audit Reason: Baseline

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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1 Analy Batch No.: 152681

SDG No.:

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-152681/2	2017.03.01CURVE_003.d
Level 2	IC 320-152681/3	2017.03.01CURVE_004.d
Level 3	IC 320-152681/4	2017.03.01CURVE_005.d
Level 4	IC 320-152681/5	2017.03.01CURVE_006.d
Level 5	IC 320-152681/6	2017.03.01CURVE_007.d
Level 6	IC 320-152681/7	2017.03.01CURVE_008.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	1.563	1.562	1.555	1.562	1.554	1.554					1.308 - 1.808	1.558
Perfluoropentanoic acid (PFPeA)	1.843	1.842	1.833	1.841	1.831	1.822					1.585 - 2.085	1.835
Perfluorobutanesulfonic acid (PFBS)	1.883	1.872	1.873	1.871	1.871	1.861					1.692 - 2.052	1.872
Perfluorohexanoic acid (PFHxA)	2.139	2.145	2.129	2.134	2.127	2.122					1.883 - 2.383	2.133
Perfluoroheptanoic acid (PFHpA)	2.491	2.484	2.471	2.471	2.466	2.461					2.224 - 2.724	2.474
Perfluorohexanesulfonic acid (PFHxS)	+++++	2.500	2.456	2.487	2.481	2.478					2.235 - 2.735	2.480
6:2FTS	2.833	2.818	2.798	2.806	2.793	2.797					2.557 - 3.057	2.808
Perfluorooctanoic acid (PFOA)	+++++	2.841	2.829	2.837	2.824	2.820					2.585 - 3.085	2.830
Perfluoroheptanesulfonic Acid (PFHpS)	2.856	2.857	2.845	2.837	2.831	2.828					2.592 - 3.092	2.842
Perfluorooctanesulfonic acid (PFOS)	3.227	3.105	3.171	3.093	3.087	3.186					2.895 - 3.395	3.145
Perfluorononanoic acid (PFNA)	3.218	3.209	3.205	3.205	3.191	3.186					2.952 - 3.452	3.202
8:2FTS	3.569	3.561	3.539	3.539	3.543	3.523					3.296 - 3.796	3.546
Perfluorodecanoic acid (PFDA)	3.578	3.569	3.556	3.556	3.552	3.548					3.310 - 3.810	3.560
Perfluorooctane Sulfonamide (FOSA)	3.569	3.561	3.556	3.565	3.560	3.557					3.311 - 3.811	3.561
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	3.723	3.723	3.707	3.717	3.702	3.707					3.463 - 3.963	3.713
Perfluorodecanesulfonic acid (PFDS)	3.886	3.876	3.861	3.862	3.859	3.853					3.616 - 4.116	3.866
Perfluoroundecanoic acid (PFUnA)	3.894	3.885	3.878	3.879	3.867	3.862					3.628 - 4.128	3.878
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	3.903	3.885	3.878	3.888	3.876	3.871					3.633 - 4.133	3.884
MeFOSA	4.055	4.064	4.056	4.059	4.058	4.051					3.807 - 4.307	4.057
Perfluorododecanoic acid (PFDoA)	4.176	4.175	4.161	4.165	4.157	4.138					3.912 - 4.412	4.162
N-EtFOSA-M	4.247	4.246	4.237	4.249	4.241	4.236					3.992 - 4.492	4.243
Perfluorotridecanoic Acid (PFTriA)	4.447	4.430	4.421	4.418	4.418	4.407					4.174 - 4.674	4.424
Perfluorotetradecanoic acid (PFTeA)	4.679	4.667	4.655	4.652	4.651	4.635					4.407 - 4.907	4.657
Perfluoro-n-hexadecanoic acid (PFHxDA)	+++++	5.070	5.057	5.057	5.049	5.046					4.809 - 5.309	5.056
Perfluoro-n-octadecanoic acid (PFODA)	5.428	5.414	5.398	5.398	5.383	5.375					5.149 - 5.649	5.399
13C4 PFBA	1.563	1.554	1.555	1.554	1.546	1.546					1.303 - 1.803	1.553
13C5-PFPeA	1.843	1.842	1.833	1.832	1.821	1.822					1.582 - 2.082	1.832
13C2 PFHxA	2.147	2.136	2.138	2.134	2.127	2.122					1.884 - 2.384	2.134
13C4-PFHpA	2.491	2.484	2.471	2.479	2.466	2.461					2.225 - 2.725	2.475
18O2 PFHxS	2.498	2.500	2.487	2.487	2.481	2.478					2.239 - 2.739	2.489
M2-6:2FTS	2.817	2.810	2.806	2.814	2.793	2.789					2.555 - 3.055	2.805
13C4 PFOA	2.848	2.849	2.829	2.837	2.824	2.820					2.585 - 3.085	2.835
13C4 PFOS	3.218	3.218	3.196	3.205	3.199	3.186					2.954 - 3.454	3.204

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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1 Analy Batch No.: 152681

SDG No.:

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
13C5 PFNA	3.218	3.218	3.205	3.214	3.199	3.195					2.958 - 3.458	3.208
M2-8:2FTS	3.569	3.553	3.548	3.539	3.535	3.523					3.295 - 3.795	3.545
13C8 FOSA	3.561	3.561	3.556	3.565	3.560	3.548					3.309 - 3.809	3.559
13C2 PFDA	3.569	3.569	3.556	3.565	3.552	3.548					3.310 - 3.810	3.560
d3-NMeFOSAA	3.723	3.723	3.707	3.707	3.702	3.696					3.460 - 3.960	3.710
d5-NEtFOSAA	3.894	3.885	3.869	3.870	3.867	3.862					3.625 - 4.125	3.875
13C2 PFUnA	3.894	3.885	3.869	3.879	3.867	3.862					3.626 - 4.126	3.876
d-N-MeFOSA-M	4.055	4.055	4.047	4.050	4.048	4.042					3.800 - 4.300	4.050
13C2 PFDoA	4.176	4.175	4.161	4.165	4.157	4.152					3.914 - 4.414	4.164
d-N-EtFOSA-M	4.238	4.237	4.228	4.240	4.241	4.227					3.985 - 4.485	4.235
13C2-PFTeDA	4.679	4.667	4.655	4.652	4.641	4.635					4.405 - 4.905	4.655
13C2-PFHxDA	5.077	5.070	5.057	5.057	5.049	5.035					4.807 - 5.307	5.058

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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1 Analy Batch No.: 152681

SDG No.:

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-152681/2	2017.03.01CURVE_003.d
Level 2	IC 320-152681/3	2017.03.01CURVE_004.d
Level 3	IC 320-152681/4	2017.03.01CURVE_005.d
Level 4	IC 320-152681/5	2017.03.01CURVE_006.d
Level 5	IC 320-152681/6	2017.03.01CURVE_007.d
Level 6	IC 320-152681/7	2017.03.01CURVE_008.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3	LVL 4		B	M1	M2								
13C4 PFBA	295570 298823	282103 245371	289131	342453	Ave		292241.860				10.7		50.0			
13C5-PFPeA	243840 228800	230536 186413	230743	272822	Ave		232192.393				12.0		50.0			
13C2 PFHxA	216513 214399	203387 180899	205221	244884	Ave		210883.903				9.9		50.0			
13C4-PFHpA	196625 198881	194053 153158	196340	218699	Ave		192959.403				11.1		50.0			
18O2 PFHxS	303886 295000	286708 235682	287749	336370	Ave		290899.232				11.2		50.0			
M2-6:2FTS	77170 76852	74128 71775	76996	86146	Ave		77177.6947				6.3		50.0			
13C4 PFOA	218643 200396	211258 153770	209474	236176	Ave		204953.003				13.6		50.0			
13C4 PFOS	248546 248262	230373 208908	237852	275881	Ave		241637.026				9.2		50.0			
13C5 PFNA	187340 178740	181023 139672	176430	203992	Ave		177866.177				11.9		50.0			
M2-8:2FTS	96352 91038	94980 76400	95104	101739	Ave		92601.9868				9.3		50.0			
13C8 FOSA	389836 371174	361792 303762	377175	397768	Ave		366917.947				9.1		50.0			
13C2 PFDA	175335 161485	171862 124531	173776	193236	Ave		166704.327				13.8		50.0			
d3-NMeFOSAA	80206 88198	79979 82300	85034	95399	Ave		85185.7867				6.9		50.0			
d5-NEtFOSAA	85322 82165	81954 62458	86013	90318	Ave		81371.4600				12.0		50.0			
13C2 PFUnA	144662 128397	134819 95431	134602	146921	Ave		130805.323				14.3		50.0			

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

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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1 Analy Batch No.: 152681

SDG No.:

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3	LVL 4		B	M1	M2								
d-N-MeFOSA-M	86833 90989	81090 88671	88728	91589	Ave		87983.4500				4.3		50.0			
13C2 PFDoA	134509 123176	120646 106418	126789	132125	Ave		123944.073				8.1		50.0			
d-N-EtFOSA-M	83930 87690	78408 88518	85474	87472	Ave		85248.5033				4.4		50.0			
13C2-PFTeDA	274175 265148	246188 227078	269935	272468	Ave		259165.203				7.2		50.0			
13C2-PFHxDA	131614 132135	114843 117588	127568	126617	Ave		125060.687				5.8		50.0			

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

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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1 Analy Batch No.: 152681

SDG No.:

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	0.8141 0.7696	0.8385	0.8902	0.8682	0.9030	AveID		0.8473				5.9		35.0			
Perfluoropentanoic acid (PFPeA)	1.0168 0.8556	1.0140	1.0095	0.9684	1.0070	AveID		0.9785				6.4		35.0			
Perfluorobutanesulfonic acid (PFBS)	1.4512 1.1477	1.4372	1.5643	1.5194	1.4753	AveID		1.4325				10.3		50.0			
Perfluorohexanoic acid (PFHxA)	0.8937 0.8394	0.9003	0.9420	0.8558	0.9058	AveID		0.8895				4.1		35.0			
Perfluoroheptanoic acid (PFHpA)	1.0535 0.9266	0.9536	0.9588	0.9499	0.9613	AveID		0.9673				4.5		35.0			
Perfluorohexanesulfonic acid (PFHxS)	+++++ 0.9823	1.1299	1.0303	0.9734	1.0264	AveID		1.0284				6.0		35.0			
6:2FTS	1.1310 0.8276	1.0222	0.9530	0.9038	0.8939	L2ID	0.1204	0.8859							0.9980		0.9900
Perfluorooctanoic acid (PFOA)	+++++ 0.9671	1.0714	1.0527	0.9847	1.0323	AveID		1.0217				4.3		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	0.9372 0.9122	1.0436	1.1203	1.0793	1.0932	AveID		1.0310				8.4		50.0			
Perfluorooctanesulfonic acid (PFOS)	0.9378 1.0254	0.9696	0.9901	0.9549	1.0231	AveID		0.9835				3.7		35.0			
Perfluorononanoic acid (PFNA)	0.8479 0.9328	0.8440	0.9730	0.8905	0.9356	AveID		0.9040				5.8		35.0			
8:2FTS	1.0958 0.8348	0.9785	0.9767	0.9909	0.9344	L2ID	0.0783	0.9239							0.9960		0.9900
Perfluorodecanoic acid (PFDA)	0.8578 0.9743	0.8868	0.9034	0.8481	0.9635	AveID		0.9057				5.8		35.0			
Perfluorooctane Sulfonamide (FOSA)	0.8943 0.7850	0.9384	0.9267	0.9035	0.9430	AveID		0.8985				6.5		35.0			
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	1.0472 0.9897	0.9816	0.9980	0.8887	0.9213	AveID		0.9711				5.9		35.0			
Perfluorodecanesulfonic acid (PFDS)	0.5889 0.6126	0.5647	0.6260	0.5646	0.6173	AveID		0.5957				4.5		50.0			
Perfluoroundecanoic acid (PFUnA)	1.1887 0.9783	1.0233	1.0049	0.8914	0.9951	AveID		1.0136				9.6		35.0			
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.9144 0.9531	0.9405	0.8966	0.8892	0.8680	AveID		0.9103				3.5		35.0			
MeFOSA	1.0035 0.9709	0.9265	0.9122	0.9123	0.8877	AveID		0.9355				4.6		35.0			

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

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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1 Analy Batch No.: 152681

SDG No.:

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorododecanoic acid (PFDoA)	0.8688 0.9119	0.9386	0.9128	0.8906	0.9644	AveID		0.9145				3.7		35.0			
N-EtFOSA-M	1.0272 0.9831	1.0085	0.9951	0.9583	0.9298	AveID		0.9837				3.6		35.0			
Perfluorotridecanoic Acid (PFTriA)	0.8807 0.8636	0.8542	0.8873	0.8354	0.9194	AveID		0.8734				3.3		50.0			
Perfluorotetradecanoic acid (PFTeA)	1.9494 1.8544	1.9776	2.0893	1.8773	2.0509	AveID		1.9665				4.7		50.0			
Perfluoro-n-hexadecanoic acid (PFHxDA)	+++++ 0.9462	1.4217	1.0035	0.7837	0.9248	L1ID	0.3491	0.9270							0.9970		0.9900
Perfluoro-n-octadecanoic acid (PFODA)	0.6950 0.8378	0.6764	0.7116	0.6387	0.7456	AveID		0.7175				9.6		50.0			

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

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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1 Analy Batch No.: 152681

SDG No.:

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-152681/2	2017.03.01CURVE_003.d
Level 2	IC 320-152681/3	2017.03.01CURVE_004.d
Level 3	IC 320-152681/4	2017.03.01CURVE_005.d
Level 4	IC 320-152681/5	2017.03.01CURVE_006.d
Level 5	IC 320-152681/6	2017.03.01CURVE_007.d
Level 6	IC 320-152681/7	2017.03.01CURVE_008.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
13C4 PFBA	Ave	14778495 12268568	14105138	14456536	17122661	14941160	50.0 50.0	50.0	50.0	50.0	50.0
13C5-PFPeA	Ave	12192014 9320645	11526786	11537165	13641103	11440005	50.0 50.0	50.0	50.0	50.0	50.0
13C2 PFHxA	Ave	10825655 9044966	10169363	10261028	12244217	10719942	50.0 50.0	50.0	50.0	50.0	50.0
13C4-PFHpA	Ave	9831264 7657909	9702633	9817002	10934944	9944069	50.0 50.0	50.0	50.0	50.0	50.0
18O2 PFHxS	Ave	14373798 11147782	13561303	13610529	15910284	13953506	47.3 47.3	47.3	47.3	47.3	47.3
M2-6:2FTS	Ave	3665572 3409307	3521088	3657293	4091935	3650448	47.5 47.5	47.5	47.5	47.5	47.5
13C4 PFOA	Ave	10932126 7688496	10562914	10473721	11808824	10019820	50.0 50.0	50.0	50.0	50.0	50.0
13C4 PFOS	Ave	11880498 9985826	11011810	11369327	13187105	11866933	47.8 47.8	47.8	47.8	47.8	47.8
13C5 PFNA	Ave	9367003 6983620	9051156	8821496	10199601	8936977	50.0 50.0	50.0	50.0	50.0	50.0
M2-8:2FTS	Ave	4615245 3659550	4549526	4555474	4873285	4360731	47.9 47.9	47.9	47.9	47.9	47.9
13C8 FOSA	Ave	19491823 15188110	18089578	18858766	19888389	18558718	50.0 50.0	50.0	50.0	50.0	50.0
13C2 PFDA	Ave	8766735 6226569	8593124	8688810	9661817	8074243	50.0 50.0	50.0	50.0	50.0	50.0
d3-NMeFOSAA	Ave	4010288 4115011	3998931	4251681	4769931	4409894	50.0 50.0	50.0	50.0	50.0	50.0
d5-NEtFOSAA	Ave	4266080 3122900	4097675	4300641	4515915	4108227	50.0 50.0	50.0	50.0	50.0	50.0
13C2 PFUnA	Ave	7233118 4771549	6740958	6730080	7346047	6419845	50.0 50.0	50.0	50.0	50.0	50.0
d-N-MeFOSA-M	Ave	4341649 4433562	4054503	4436424	4579449	4549448	50.0 50.0	50.0	50.0	50.0	50.0

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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1 Analy Batch No.: 152681

SDG No.:

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
13C2 PFDoA	Ave	6725474 5320903	6032319	6339474	6606261	6158791	50.0 50.0	50.0	50.0	50.0	50.0
d-N-EtFOSA-M	Ave	4196476 4425922	3920378	4273681	4373613	4384481	50.0 50.0	50.0	50.0	50.0	50.0
13C2-PFTeDA	Ave	13708730 11353892	12309406	13496732	13623388	13257413	50.0 50.0	50.0	50.0	50.0	50.0
13C2-PFHxDA	Ave	6580685 5879424	5742128	6378393	6330845	6606731	50.0 50.0	50.0	50.0	50.0	50.0

Curve Type Legend:
Ave = Average

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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1 Analy Batch No.: 152681

SDG No.:

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-152681/2	2017.03.01CURVE_003.d
Level 2	IC 320-152681/3	2017.03.01CURVE_004.d
Level 3	IC 320-152681/4	2017.03.01CURVE_005.d
Level 4	IC 320-152681/5	2017.03.01CURVE_006.d
Level 5	IC 320-152681/6	2017.03.01CURVE_007.d
Level 6	IC 320-152681/7	2017.03.01CURVE_008.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanoic acid (PFBA)		AveID	120309 37767596	236552	1286888	5946494	13491384	0.500 200	1.00	5.00	20.0	50.0
Perfluoropentanoic acid (PFPeA)		AveID	123967 31900088	233761	1164625	5283919	11520213	0.500 200	1.00	5.00	20.0	50.0
Perfluorobutanesulfonic acid (PFBS)		AveID	194922 47824719	364249	1989498	9035699	19236596	0.442 177	0.884	4.42	17.7	44.2
Perfluorohexanoic acid (PFHxA)		AveID	96748 30367858	183108	966638	4191655	9710439	0.500 200	1.00	5.00	20.0	50.0
Perfluoroheptanoic acid (PFHpA)		AveID	103569 28382869	185040	941301	4154809	9559143	0.500 200	1.00	5.00	20.0	50.0
Perfluorohexanesulfonic acid (PFHxS)		AveID	+++++ 42133990	294799	1348890	5958886	13776740	+++++ 182	0.910	4.55	18.2	45.5
6:2FTS		L2ID	41369 11262289	71833	347809	1476276	3256270	0.474 190	0.948	4.74	19.0	47.4
Perfluorooctanoic acid (PFOA)		AveID	+++++ 29743583	226350	1102619	4651144	10343315	+++++ 200	1.00	5.00	20.0	50.0
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	110873 36282267	228885	1268398	5669268	12919018	0.476 190	0.952	4.76	19.0	47.6
Perfluorooctanesulfonic acid (PFOS)		AveID	108156 39756569	207277	1092724	4889351	11786011	0.464 186	0.928	4.64	18.6	46.4
Perfluorononanoic acid (PFNA)		AveID	79419 26057481	152789	858327	3633207	8361339	0.500 200	1.00	5.00	20.0	50.0
8:2FTS		L2ID	50574 12220206	89032	444929	1931499	4074481	0.479 192	0.958	4.79	19.2	47.9
Perfluorodecanoic acid (PFDA)		AveID	75200 24265114	152408	784974	3277760	7779706	0.500 200	1.00	5.00	20.0	50.0
Perfluorooctane Sulfonamide (FOSA)		AveID	174325 47690261	339522	1747629	7187955	17500489	0.500 200	1.00	5.00	20.0	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	41996 16290792	78506	424299	1695690	4062831	0.500 200	1.00	5.00	20.0	50.0
Perfluorodecanesulfonic acid (PFDS)		AveID	70554 24675284	125403	717648	3002868	7386234	0.482 193	0.964	4.82	19.3	48.2

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

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1 Analy Batch No.: 152681

SDG No.:

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

Calibration Start Date: 03/01/2017 11:08 Calibration End Date: 03/01/2017 11:46 Calibration ID: 28659

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluoroundecanoic acid (PFUnA)		AveID	85977 18672321	137967	676308	2619295	6388091	0.500 200	1.00	5.00	20.0	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	39009 11906031	77078	385576	1606146	3565748	0.500 200	1.00	5.00	20.0	50.0
MeFOSA		AveID	43568 17219029	75129	404698	1671133	4038740	0.500 200	1.00	5.00	20.0	50.0
Perfluorododecanoic acid (PFDoA)		AveID	58428 19408225	113238	578671	2353395	5939325	0.500 200	1.00	5.00	20.0	50.0
N-EtFOSA-M		AveID	43107 17404238	79073	425282	1676481	4076562	0.500 200	1.00	5.00	20.0	50.0
Perfluorotridecanoic Acid (PFTriA)		AveID	59233 18379771	103052	562473	2207561	5662375	0.500 200	1.00	5.00	20.0	50.0
Perfluorotetradecanoic acid (PFTeA)		AveID	131104 39468467	238596	1324493	4960846	12631200	0.500 200	1.00	5.00	20.0	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)		L1ID	+++++ 20137749	171523	636153	2071027	5695645	+++++ 200	1.00	5.00	20.0	50.0
Perfluoro-n-octadecanoic acid (PFODA)		AveID	46744 17831844	81601	451116	1687895	4591929	0.500 200	1.00	5.00	20.0	50.0

Curve Type Legend:

AveID = Average isotope dilution
L1ID = Linear 1/conc IsoDil
L2ID = Linear 1/conc^2 IsoDil

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_003.d
Lims ID: IC L1 Full
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 01-Mar-2017 11:08:52 ALS Bottle#: 28 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L1-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub15

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 01-Mar-2017 15:43:05 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 12:00:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.563	1.553	0.010		14778495	50.6		101	654817	
2 Perfluorobutyric acid										
212.90 > 169.00	1.563	1.558	0.005	1.000	120309	0.4804		96.1	1068	
D 3 13C5-PFPeA										
267.90 > 223.00	1.843	1.832	0.011		12192014	52.5		105	525740	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.843	1.835	0.008	1.000	123967	0.5195		104	1065	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.883	1.872	0.011	1.000	194922	0.4478		101		
298.90 > 99.00	1.883	1.872	0.011	1.000	77860		2.50(0.00-0.00)	101		
6 Perfluorohexanoic acid										
313.00 > 269.00	2.139	2.133	0.006	1.000	96748	0.5024		100	3614	
D 7 13C2 PFHxA										
315.00 > 270.00	2.147	2.134	0.013		10825655	51.3		103	238427	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.491	2.474	0.017	1.000	103569	0.5446		109	891	
D 9 13C4-PFHpA										
367.00 > 322.00	2.491	2.475	0.016		9831264	50.9		102	345749	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.506	2.485	0.021	1.000	182218	0.5830		128		M
D 11 18O2 PFHxS										
403.00 > 84.00	2.498	2.489	0.009		14373798	49.4		104	411887	
D 12 M2-6:2FTS										
429.00 > 409.00	2.817	2.805	0.012		3665572	47.5		100.0		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.833	2.807	0.026	1.000	41369	0.4692		99.0		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.856	2.835	0.021	1.000	120388	0.5389		108	1162	
413.00 > 169.00	2.848	2.835	0.013	0.997	71985		1.67(0.90-1.10)	108	2853	M
D 14 13C4 PFOA										
417.00 > 372.00	2.848	2.835	0.013		10932126	53.3		107	336385	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.856	2.842	0.014	1.000	110873	0.4327		90.9		
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.227	3.145	0.082	1.000	108156	0.4425		95.4	8683	M
499.00 > 99.00	3.218	3.145	0.073	0.997	27348		3.95(0.90-1.10)	95.4	2308	
20 Perfluorononanoic acid										
463.00 > 419.00	3.218	3.202	0.016	1.000	79419	0.4690		93.8	1607	
D 18 13C4 PFOS										
503.00 > 80.00	3.218	3.204	0.014		11880498	49.2		103	335475	
D 19 13C5 PFNA										
468.00 > 423.00	3.218	3.208	0.010		9367003	52.7		105	245715	
D 26 M2-8:2FTS										
529.00 > 509.00	3.569	3.545	0.024		4615245	49.8		104		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.569	3.546	0.023	1.000	50574	0.4834		101		
D 21 13C8 FOSA										
506.00 > 78.00	3.561	3.559	0.002		19491823	53.1		106	285934	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.578	3.560	0.018	1.000	75200	0.4736		94.7	2610	
D 23 13C2 PFDA										
515.00 > 470.00	3.569	3.560	0.009		8766735	52.6		105	186190	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.569	3.561	0.008	1.000	174325	0.4977		99.5	18811	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.723	3.710	0.013		4010288	47.1		94.2		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.723	3.713	0.010	1.000	41996	0.5392		108		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.886	3.866	0.020	1.000	70554	0.4765		98.9		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.894	3.875	0.019		4266080	52.4		105		
D 30 13C2 PFUnA										
565.00 > 520.00	3.894	3.876	0.018		7233118	55.3		111	181410	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.894	3.878	0.016	1.000	85977	0.5863		117	2231	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.903	3.883	0.020	1.002	39009	0.5023		100		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.055	4.050	0.005		4341649	49.3		98.7		
35 MeFOSA										
512.00 > 169.00	4.055	4.057	-0.002	1.000	43568	0.5363		107		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.176	4.162	0.014	1.000	58428	0.4750		95.0	471	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA										
615.00 > 570.00	4.176	4.164	0.012		6725474	54.3		109	175924	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.238	4.235	0.003		4196476	49.2		98.5		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.247	4.242	0.005	1.000	43107	0.5221		104		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.447	4.424	0.023	1.000	59233	0.5042		101	1171	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.679	4.655	0.024		13708730	52.9		106	527093	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.679	4.657	0.022	1.000	131104	0.4956		99.1	372	
713.00 > 169.00	4.670	4.657	0.013	0.998	21850		6.00(0.00-0.00)	99.1	7867	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.077	5.057	0.020		6580685	52.6		105	118608	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.077	5.059	0.018	1.000	146592	0.7991		160	190	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.428	5.399	0.029	1.000	46744	0.4843		96.9	91.5	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L1_00001 Amount Added: 1.00 Units: mL

Report Date: 01-Mar-2017 15:43:05 Chrom Revision: 2.2 03-Feb-2017 15:35:04

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_003.d

Injection Date: 01-Mar-2017 11:08:52 Instrument ID: A8_N

Lims ID: IC L1 Full

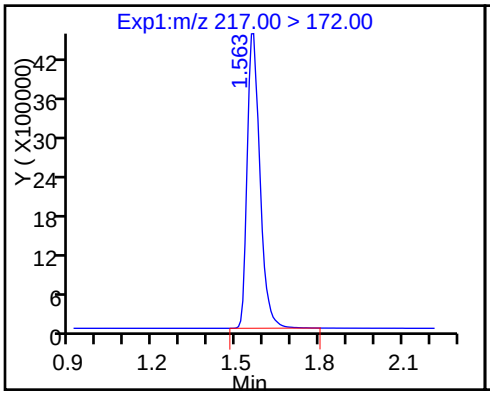
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 2

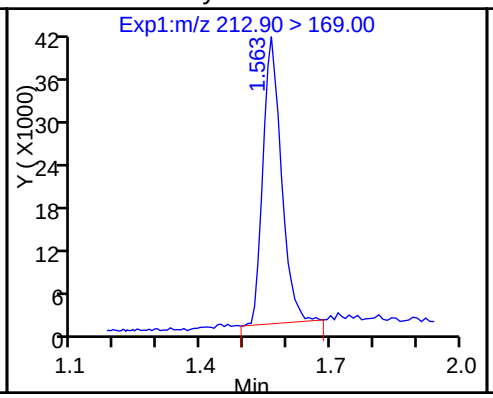
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

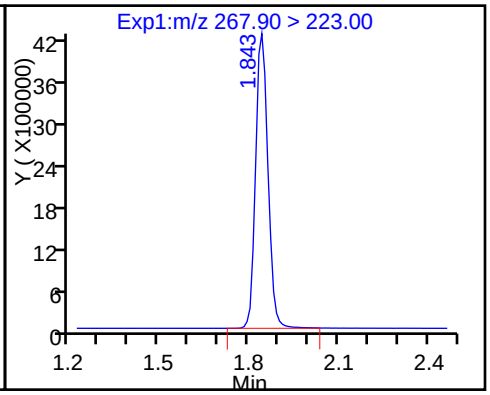
D 1 13C4 PFBA



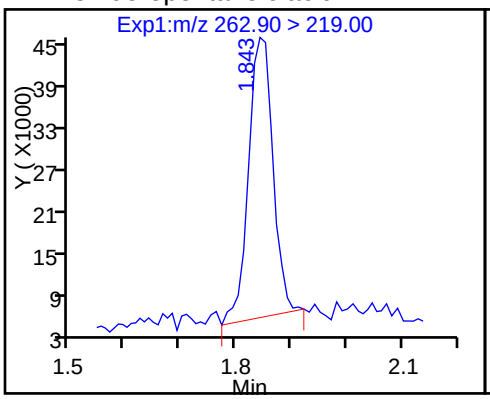
2 Perfluorobutyric acid



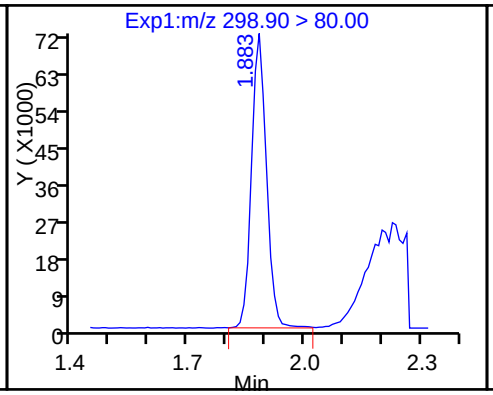
D 3 13C5-PFPeA



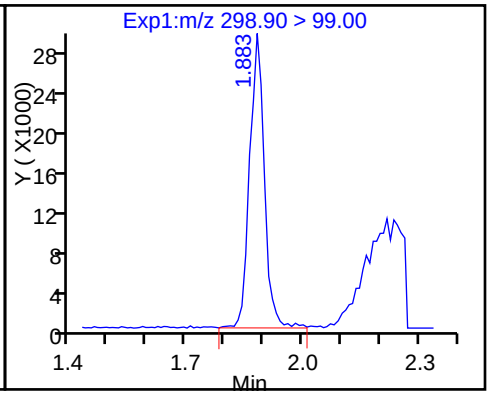
4 Perfluoropentanoic acid



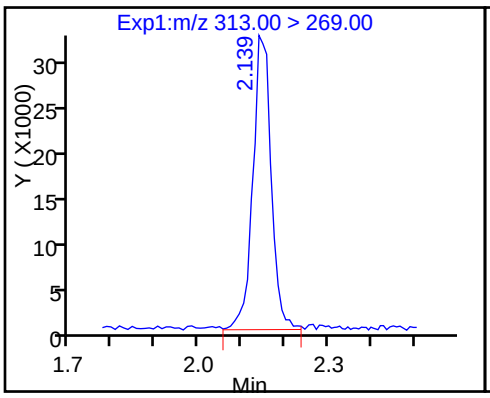
5 Perfluorobutanesulfonic acid



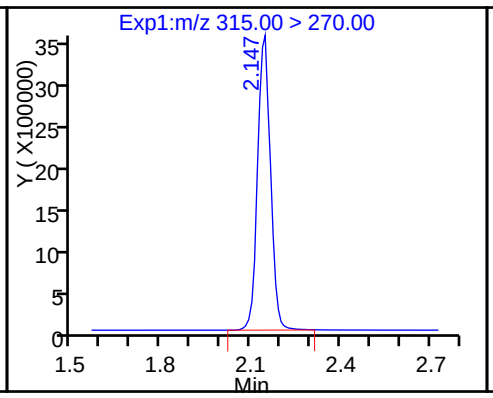
5 Perfluorobutanesulfonic acid



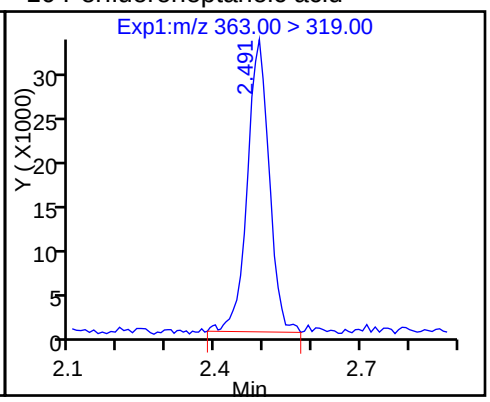
6 Perfluorohexanoic acid



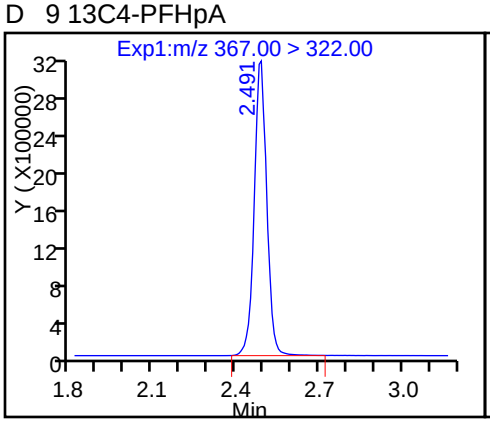
D 7 13C2 PFHxA



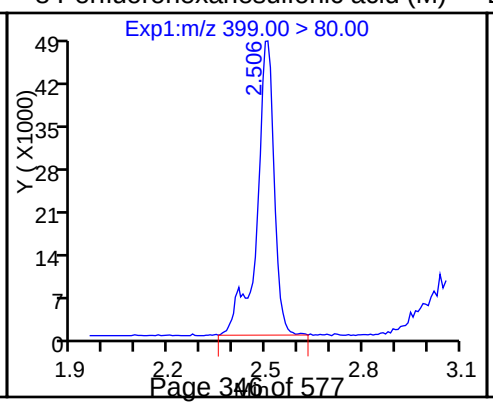
10 Perfluoroheptanoic acid



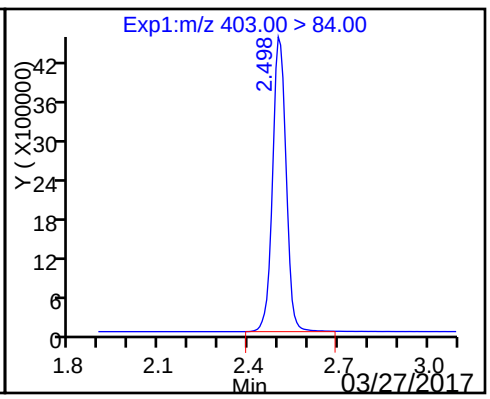
D 9 13C4-PFHpA



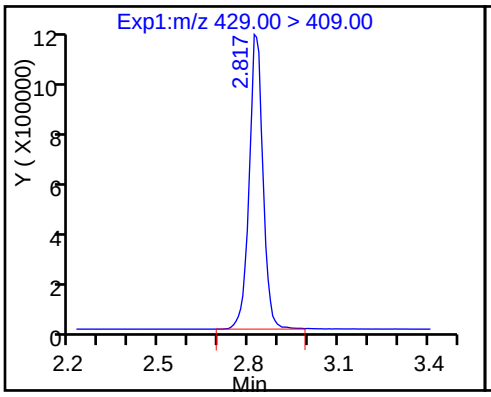
8 Perfluorohexanesulfonic acid (M)



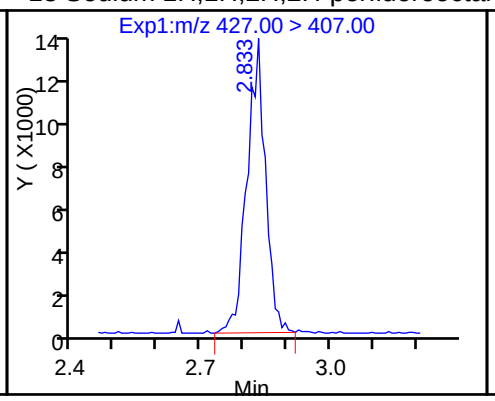
D 11 18O2 PFHxS



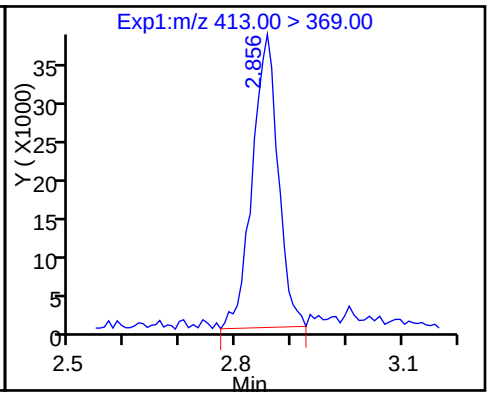
D 12 M2-6:2FTS



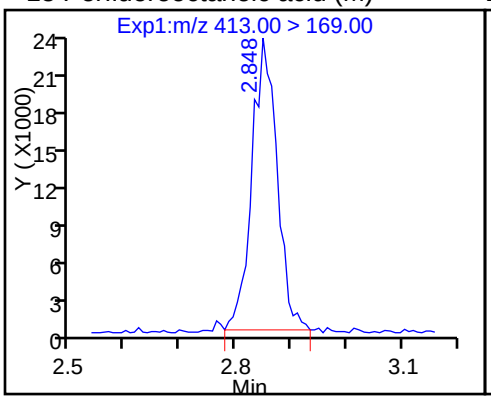
13 Sodium 1H,1H,2H,2H-perfluorooctane



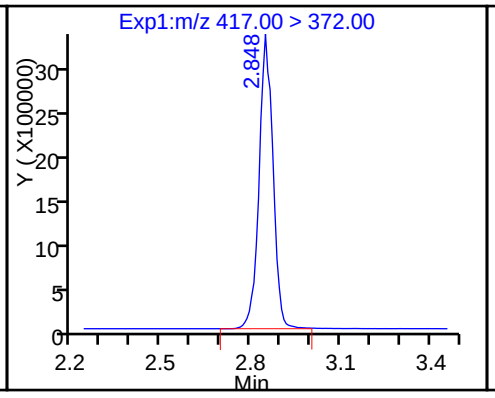
15 Perfluorooctanoic acid



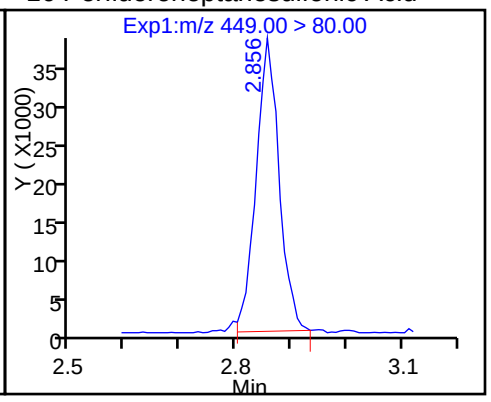
15 Perfluorooctanoic acid (M)



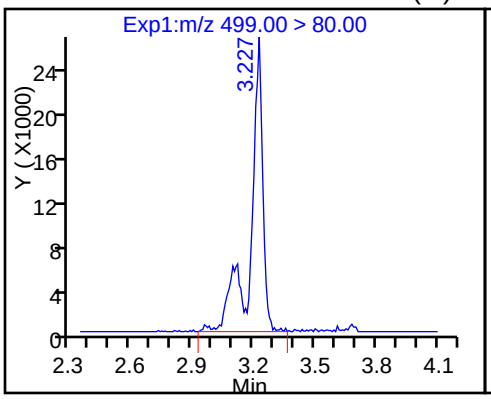
D 14 13C4 PFOA



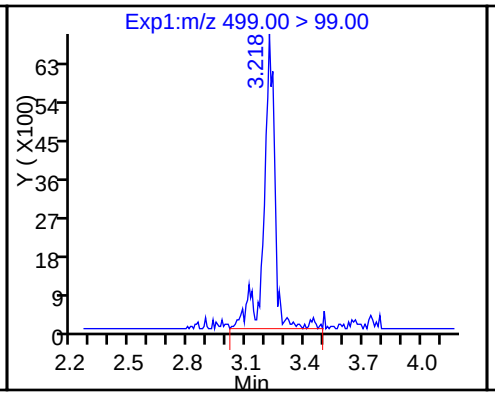
16 Perfluoroheptanesulfonic Acid



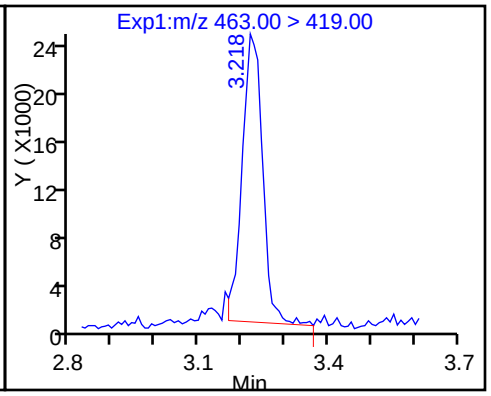
17 Perfluorooctane sulfonic acid (M)



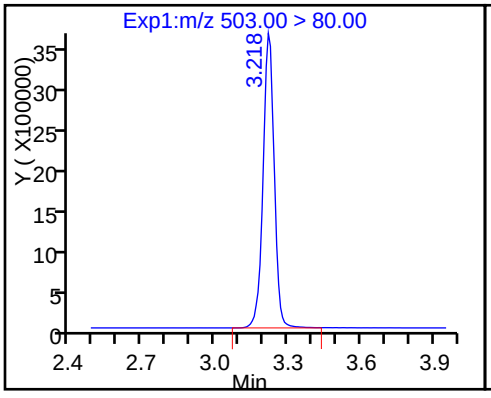
17 Perfluorooctane sulfonic acid



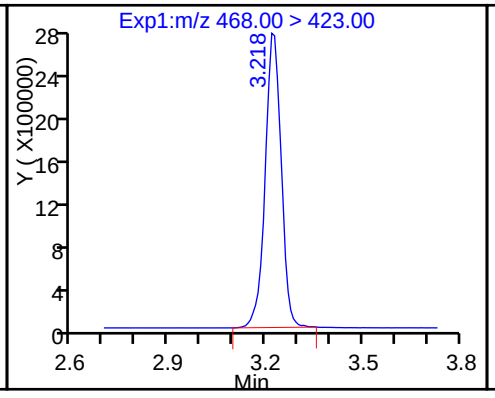
20 Perfluorononanoic acid



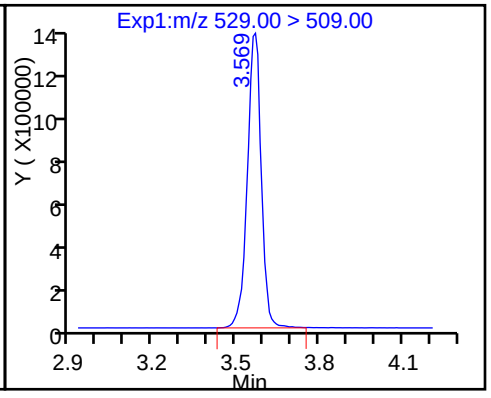
D 18 13C4 PFOS



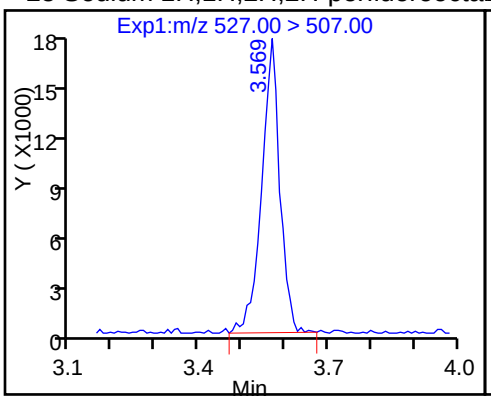
D 19 13C5 PFNA



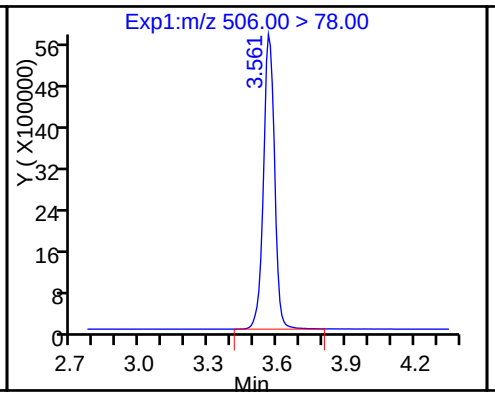
D 26 M2-8:2FTS



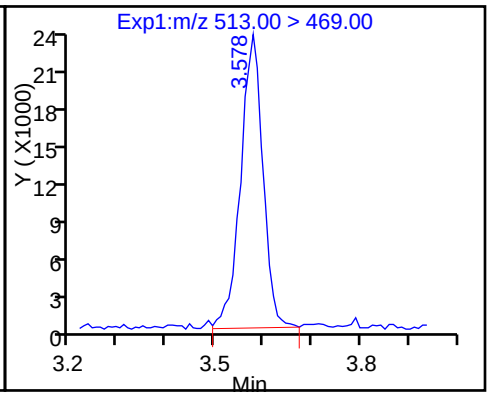
25 Sodium 1H,1H,2H,2H-perfluorooctane



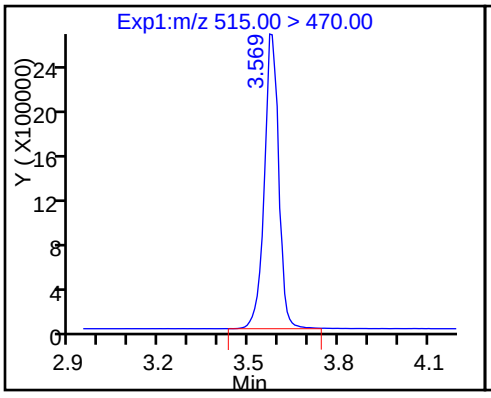
D 21 13C8 FOSA



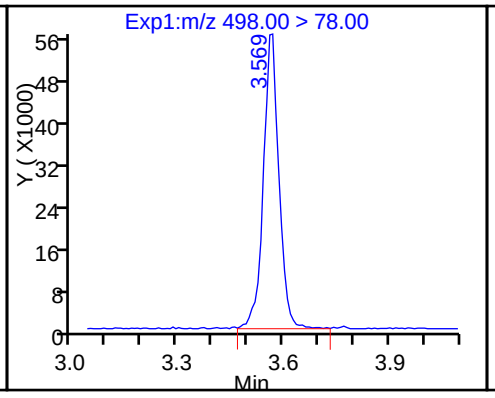
24 Perfluorodecanoic acid



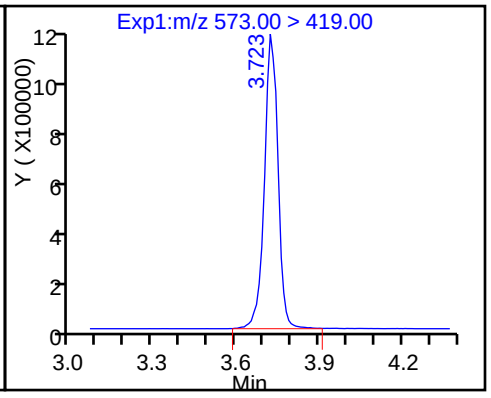
D 23 13C2 PFDA



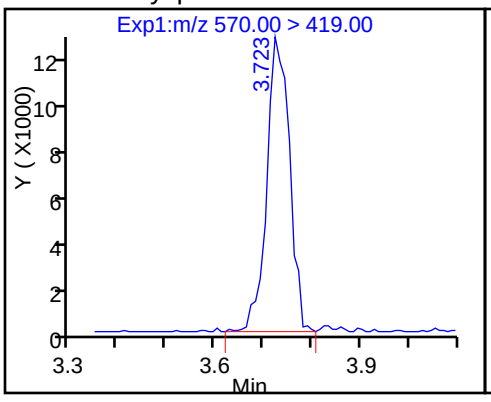
22 Perfluorooctane Sulfonamide



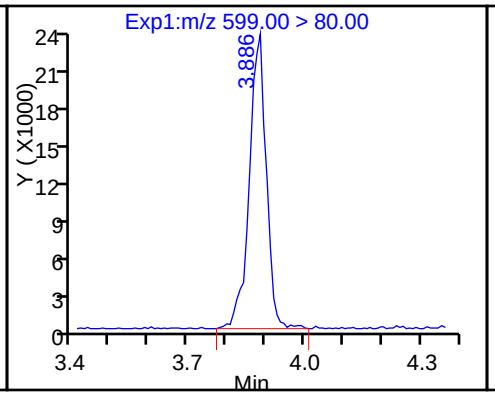
D 27 d3-NMeFOSAA



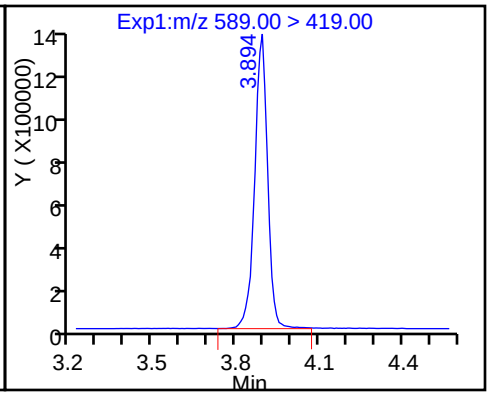
28 N-methyl perfluorooctane sulfonami



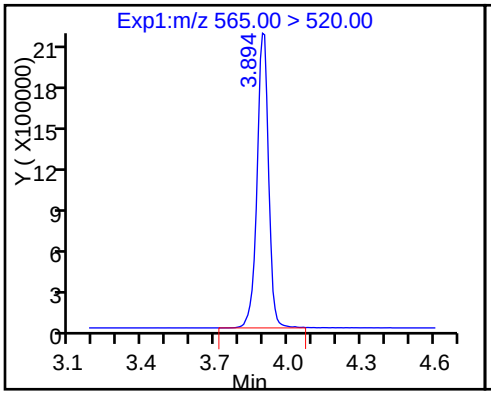
29 Perfluorodecane Sulfonic acid



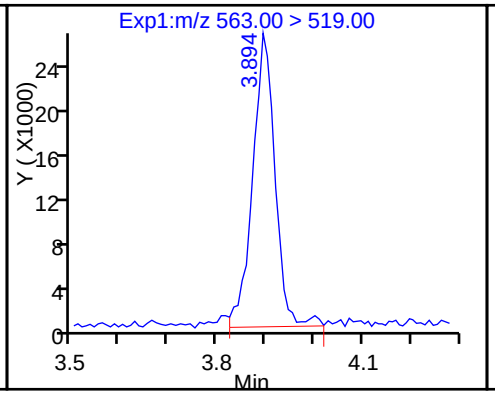
D 32 d5-NEtFOSAA



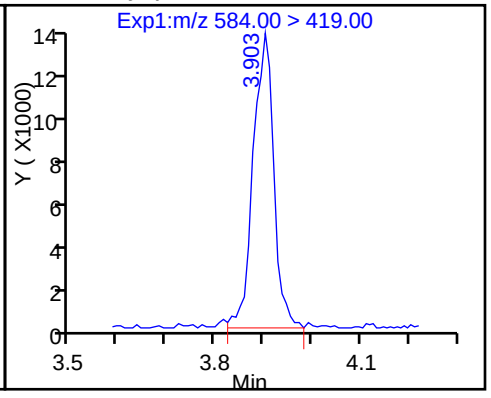
D 30 13C2 PFUnA



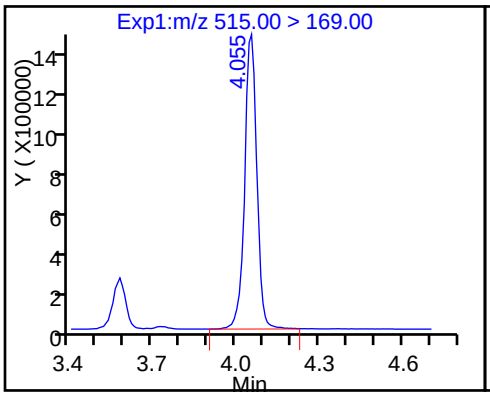
31 Perfluoroundecanoic acid



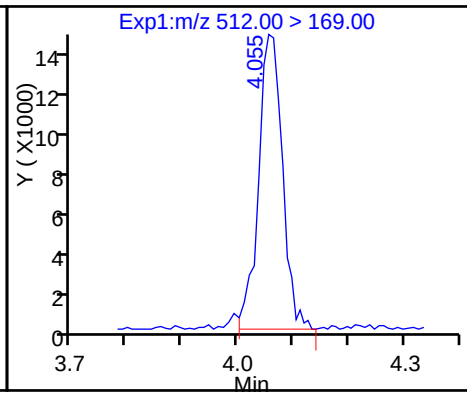
33 N-ethyl perfluorooctane sulfonamid



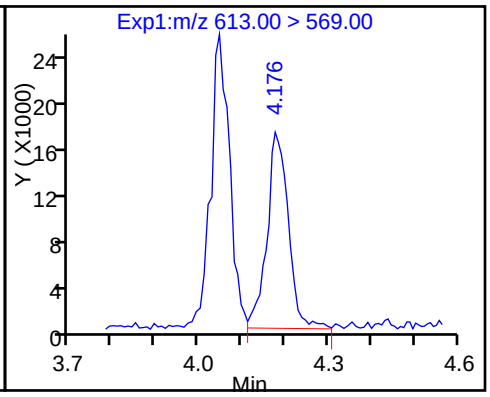
D 34 d-N-MeFOSA-M



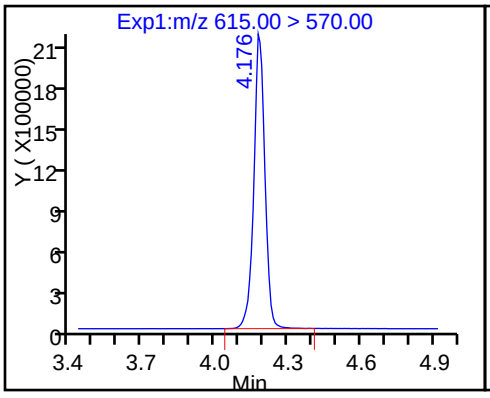
35 MeFOSA



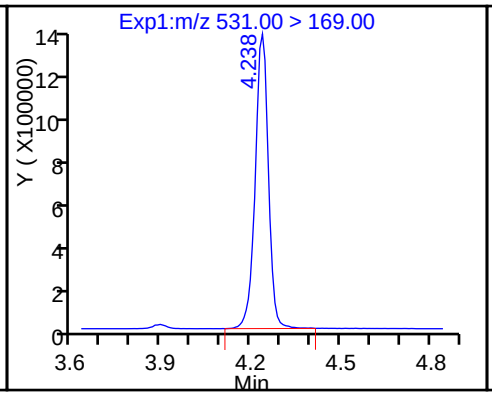
37 Perfluorododecanoic acid



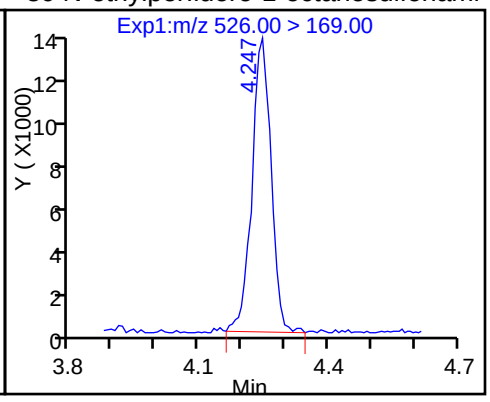
D 36 13C2 PFDoA



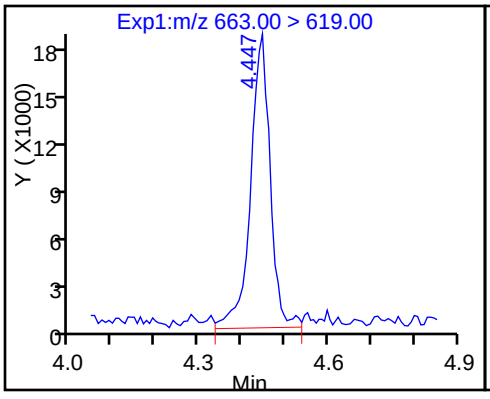
D 38 d-N-EtFOSA-M



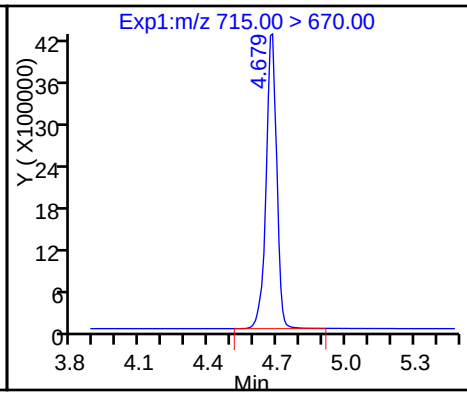
39 N-ethylperfluoro-1-octanesulfonami



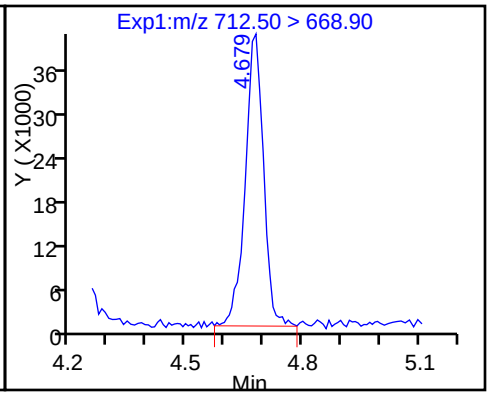
41 Perfluorotridecanoic acid



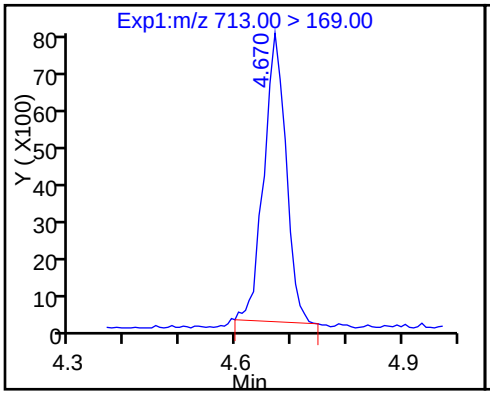
D 43 13C2-PFTeDA



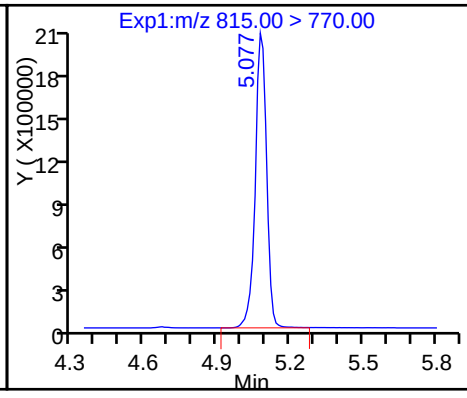
42 Perfluorotetradecanoic acid



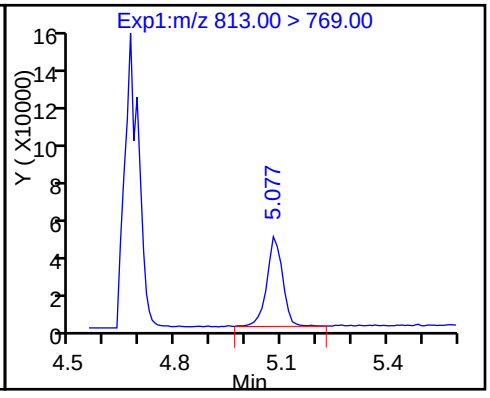
42 Perfluorotetradecanoic acid



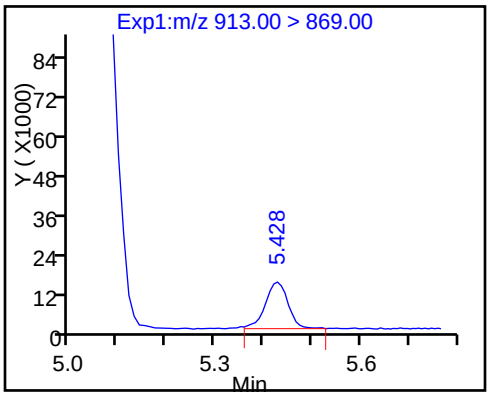
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

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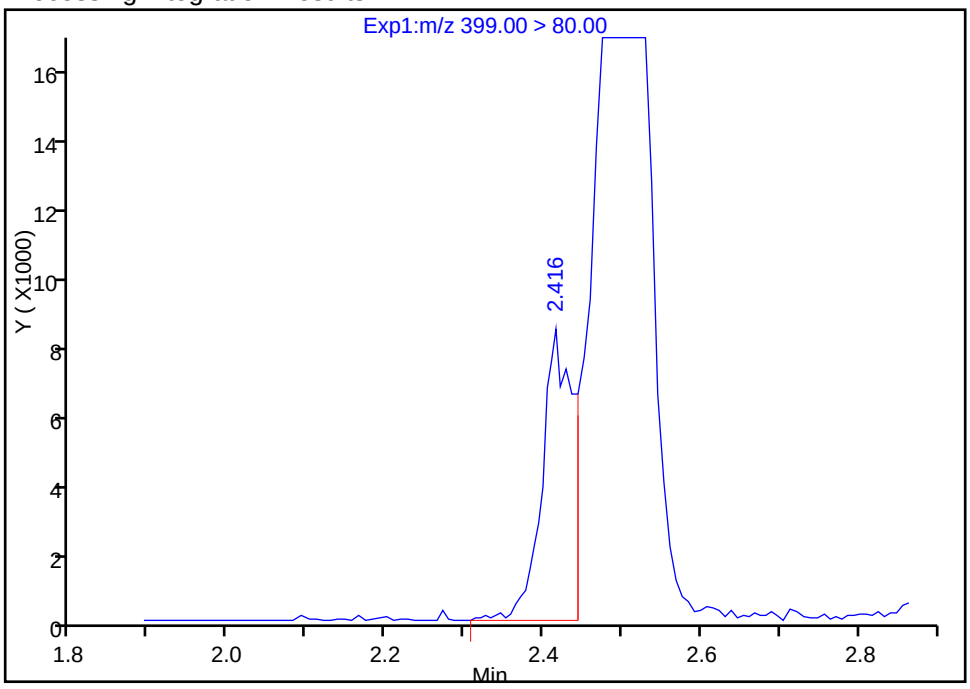
Injection Date: 01-Mar-2017 11:08:52 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

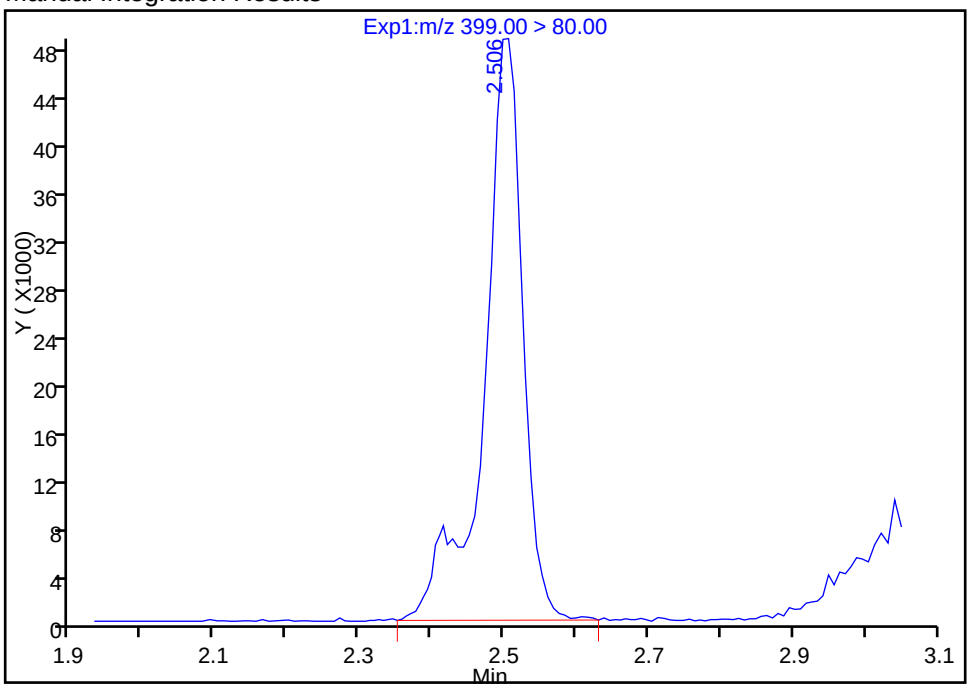
Processing Integration Results

RT: 2.42
Area: 21187
Amount: 0.082505
Amount Units: ng/ml



Manual Integration Results

RT: 2.51
Area: 182218
Amount: 0.583043
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:05
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

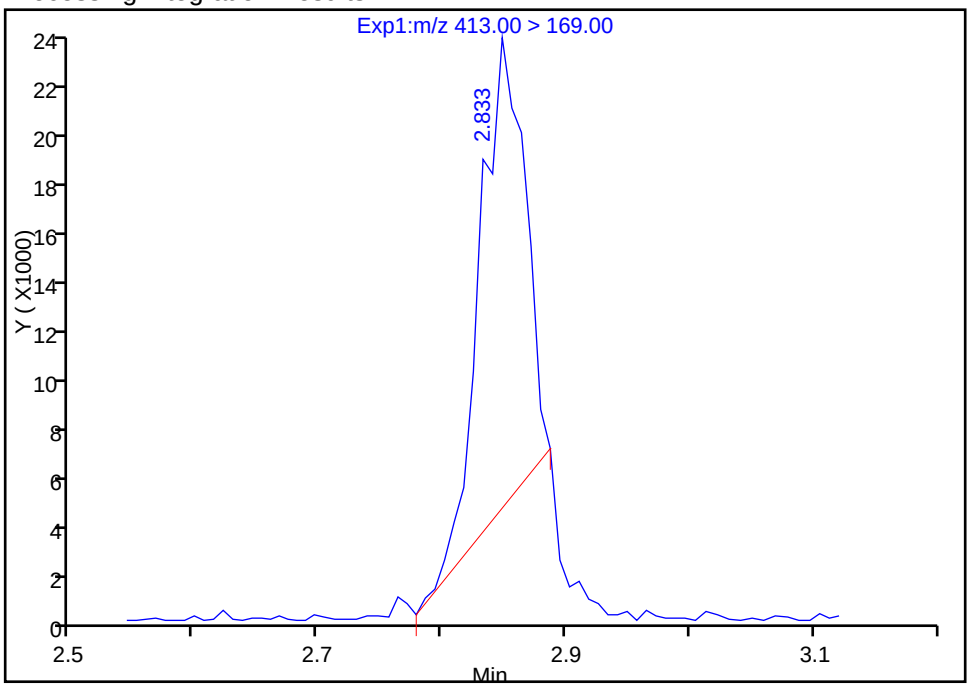
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_003.d
Injection Date: 01-Mar-2017 11:08:52 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

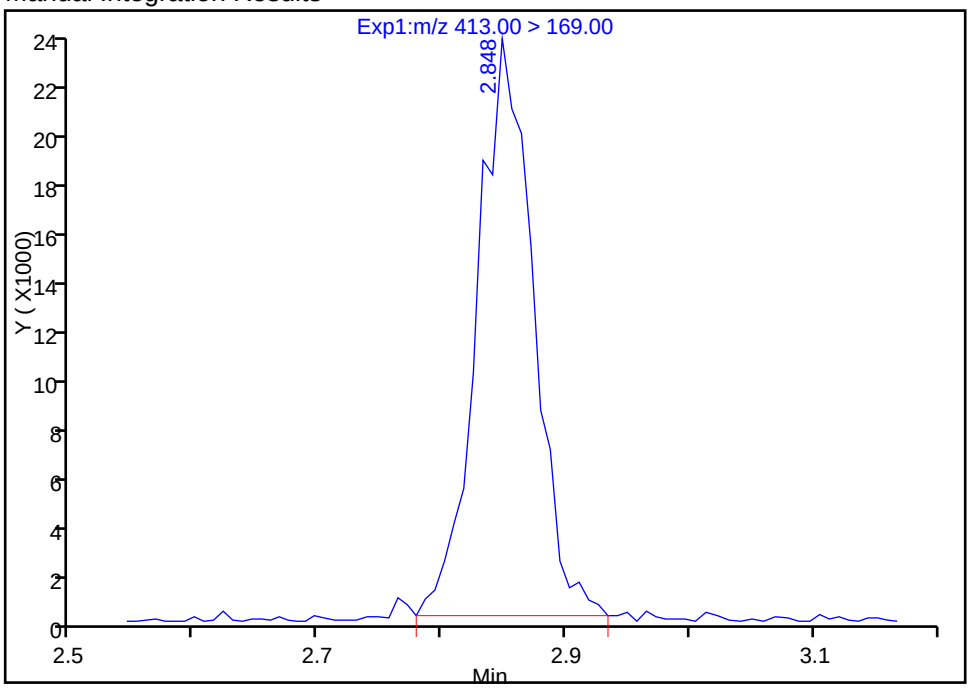
Processing Integration Results

RT: 2.83
Area: 46440
Amount: 0.535520
Amount Units: ng/ml



Manual Integration Results

RT: 2.85
Area: 71985
Amount: 0.538943
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:05
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

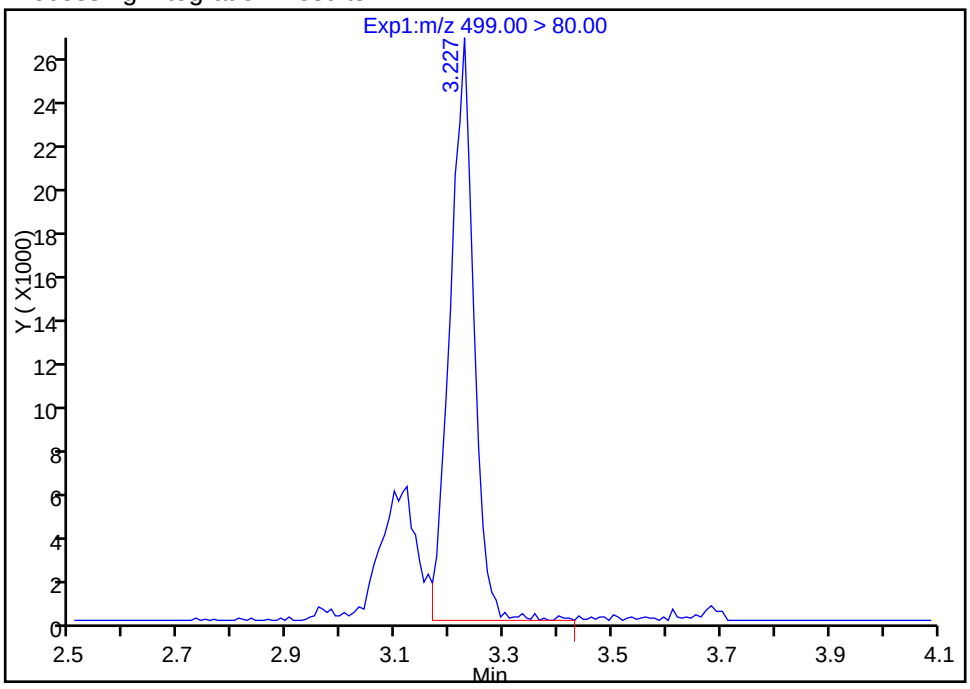
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_003.d
Injection Date: 01-Mar-2017 11:08:52 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

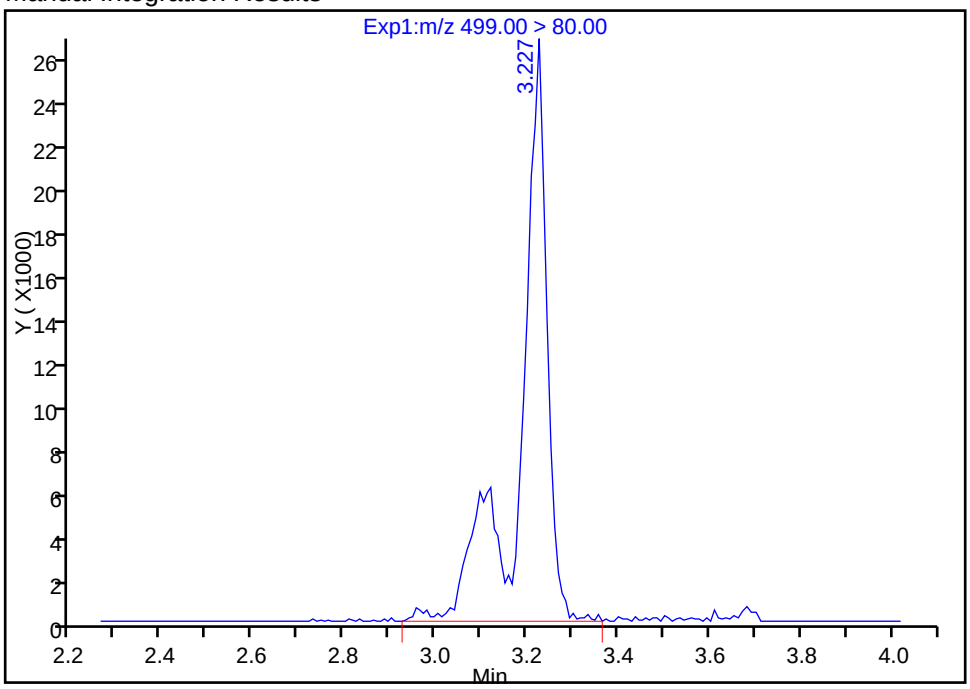
Processing Integration Results

RT: 3.23
Area: 79141
Amount: 0.356104
Amount Units: ng/ml



Manual Integration Results

RT: 3.23
Area: 108156
Amount: 0.442463
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:05
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_004.d
Lims ID: IC L2 Full
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 01-Mar-2017 11:16:22 ALS Bottle#: 29 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L2-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub15

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 01-Mar-2017 15:43:08 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 12:00:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.554	1.553	0.001		14105138	48.3		96.5	750485	
2 Perfluorobutyric acid										
212.90 > 169.00	1.562	1.558	0.004	1.000	236552	0.9897		99.0	2199	
D 3 13C5-PFPeA										
267.90 > 223.00	1.842	1.832	0.010		11526786	49.6		99.3	662915	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.842	1.835	0.007	1.000	233761	1.04		104	2126	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.872	1.872	0.0	1.000	364249	0.8869		100		
298.90 > 99.00	1.881	1.872	0.009	1.005	152095		2.39(0.00-0.00)	100		
6 Perfluorohexanoic acid										
313.00 > 269.00	2.145	2.133	0.012	1.000	183108	1.01		101	6537	
D 7 13C2 PFHxA										
315.00 > 270.00	2.136	2.134	0.002		10169363	48.2		96.4	286031	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.484	2.474	0.010	1.000	185040	0.9858		98.6	1690	
D 9 13C4-PFHpA										
367.00 > 322.00	2.484	2.475	0.009		9702633	50.3		101	436206	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.500	2.485	0.015	1.000	294799	1.00		110		
D 11 18O2 PFHxS										
403.00 > 84.00	2.500	2.489	0.011		13561303	46.6		98.6	442791	
D 12 M2-6:2FTS										
429.00 > 409.00	2.810	2.805	0.005		3521088	45.6		96.0		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.818	2.807	0.011	1.000	71833	0.9579		101		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.849	2.835	0.014		10562914	51.5		103	412762	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.841	2.835	0.006	1.000	226350	1.05		105	2696	
413.00 > 169.00	2.849	2.835	0.014	1.003	125043		1.81(0.90-1.10)	105	5452	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.857	2.842	0.015	1.000	228885	0.9637		101		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.105	3.145	-0.040	1.000	207277	0.9149		98.6	3256	
499.00 > 99.00	3.105	3.145	-0.040	1.000	49944		4.15(0.90-1.10)	98.6	444	
20 Perfluorononanoic acid										
463.00 > 419.00	3.209	3.202	0.007	1.000	152789	0.9337		93.4	2607	
D 18 13C4 PFOS										
503.00 > 80.00	3.218	3.204	0.014		11011810	45.6		95.3	389996	
D 19 13C5 PFNA										
468.00 > 423.00	3.218	3.208	0.010		9051156	50.9		102	347551	
D 26 M2-8:2FTS										
529.00 > 509.00	3.553	3.545	0.008		4549526	49.1		103		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.561	3.546	0.015	1.002	89032	0.9299		97.1		
D 21 13C8 FOSA										
506.00 > 78.00	3.561	3.559	0.002		18089578	49.3		98.6	237400	
D 23 13C2 PFDA										
515.00 > 470.00	3.569	3.560	0.009		8593124	51.5		103	177955	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.569	3.560	0.009	1.000	152408	0.9792		97.9	5902	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.561	3.561	0.0	1.000	339522	1.04		104	20364	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.723	3.710	0.013		3998931	46.9		93.9		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.723	3.713	0.010	1.000	78506	1.01		101		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.876	3.866	0.010	1.000	125403	0.9138		94.8		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.885	3.875	0.010		4097675	50.4		101		
D 30 13C2 PFUnA										
565.00 > 520.00	3.885	3.876	0.009		6740958	51.5		103	252062	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.885	3.878	0.007	1.000	137967	1.01		101	3114	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.885	3.883	0.002	1.000	77078	1.03		103		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.055	4.050	0.005		4054503	46.1		92.2		
35 MeFOSA										
512.00 > 169.00	4.064	4.057	0.007	1.000	75129	0.99		99.0		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.175	4.162	0.013	1.000	113238	1.03		103	1051	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA										
615.00 > 570.00	4.175	4.164	0.011		6032319	48.7		97.3	172379	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.237	4.235	0.002		3920378	46.0		92.0		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.246	4.242	0.004	1.000	79073	1.03		103		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.430	4.424	0.006	1.000	103052	0.9780		97.8	2577	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.667	4.655	0.012		12309406	47.5		95.0	383508	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.667	4.657	0.010	1.000	238596	1.01		101	1077	
713.00 > 169.00	4.667	4.657	0.010	1.000	36141		6.60(0.00-0.00)	101	11217	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.070	5.057	0.013		5742128	45.9		91.8	84169	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.070	5.059	0.011	1.000	171523	1.16		116	217	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.414	5.399	0.015	1.000	81601	0.9426		94.3	179	

Reagents:

LCPFC_FULL-L2_00001 Amount Added: 1.00 Units: mL

Report Date: 01-Mar-2017 15:43:08 Chrom Revision: 2.2 03-Feb-2017 15:35:04

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_004.d

Injection Date: 01-Mar-2017 11:16:22 Instrument ID: A8_N

Lims ID: IC L2 Full

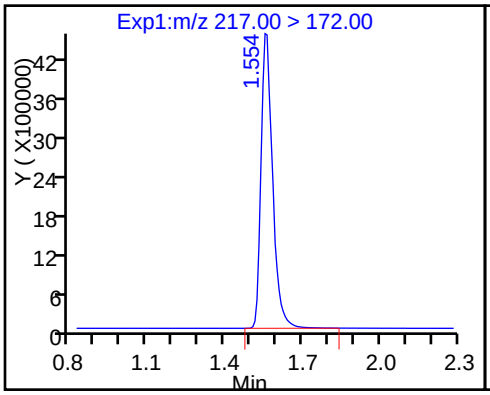
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 3

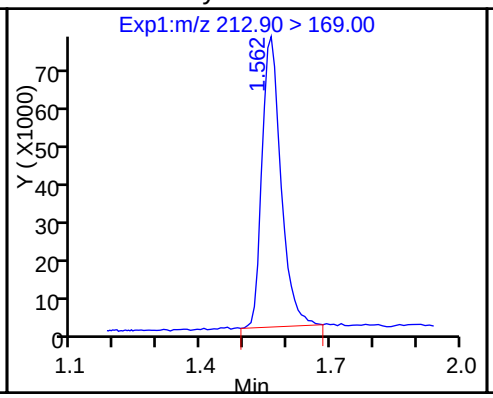
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

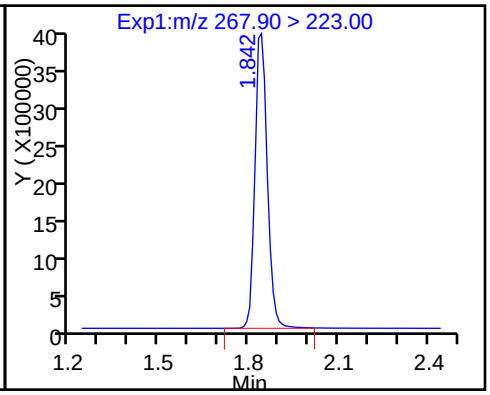
D 1 13C4 PFBA



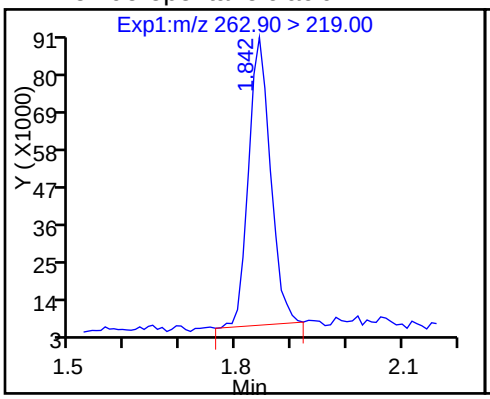
2 Perfluorobutyric acid



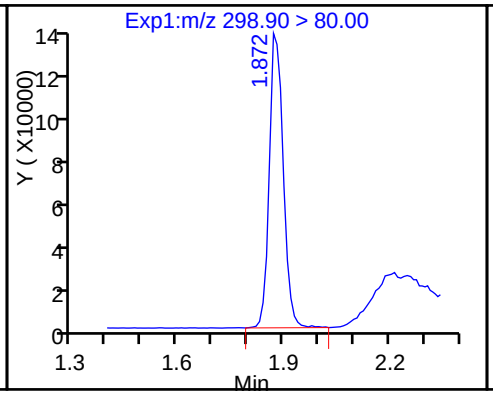
D 3 13C5-PFPeA



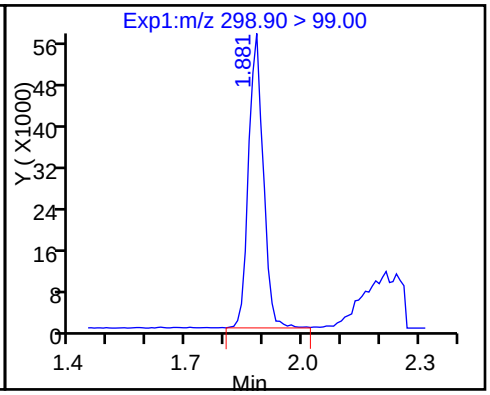
4 Perfluoropentanoic acid



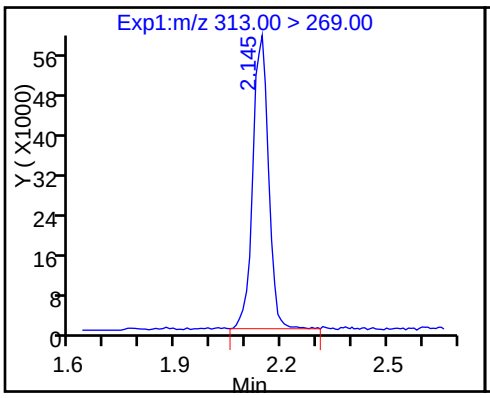
5 Perfluorobutanesulfonic acid



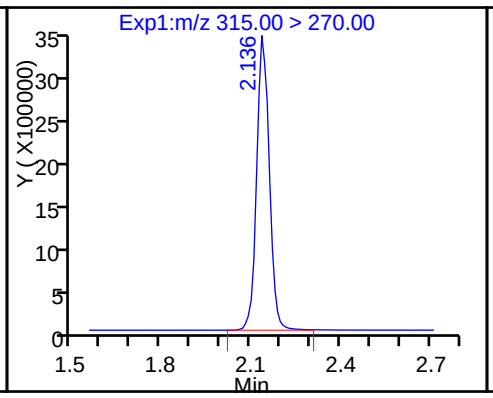
5 Perfluorobutanesulfonic acid



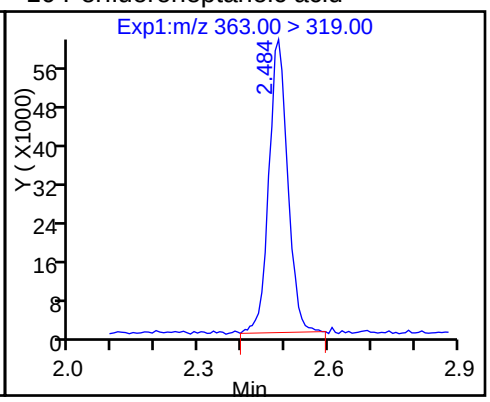
6 Perfluorohexanoic acid



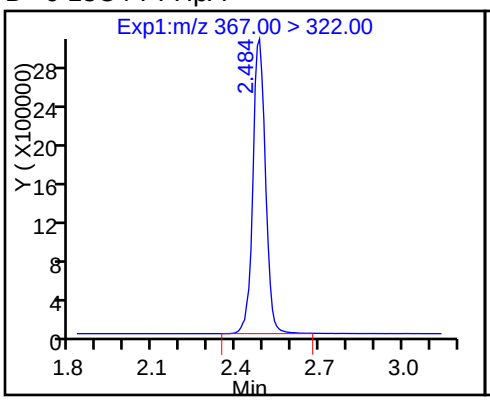
D 7 13C2 PFHxA



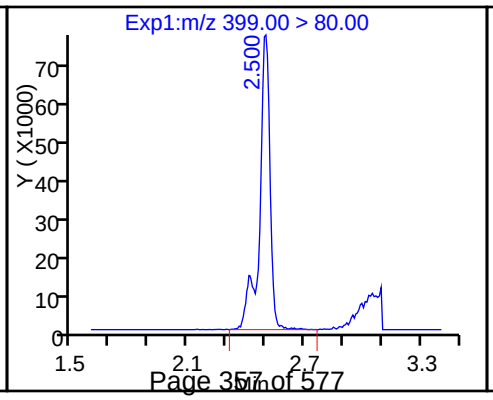
10 Perfluoroheptanoic acid



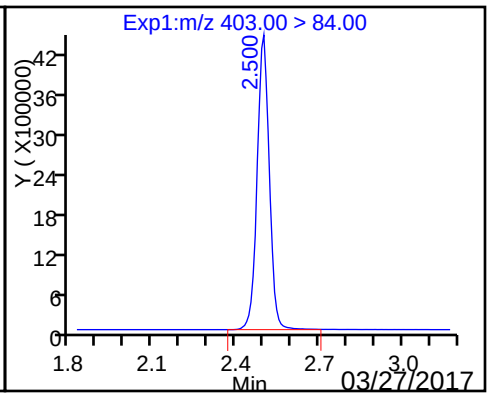
D 9 13C4-PFHpA



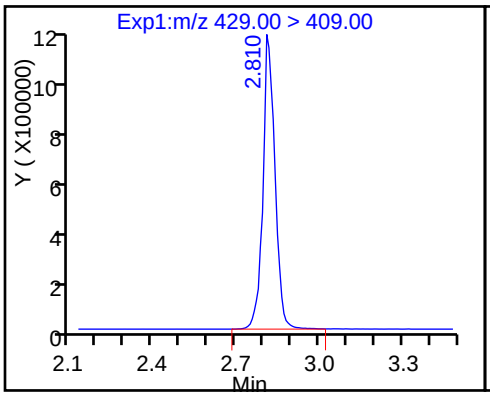
8 Perfluorohexanesulfonic acid



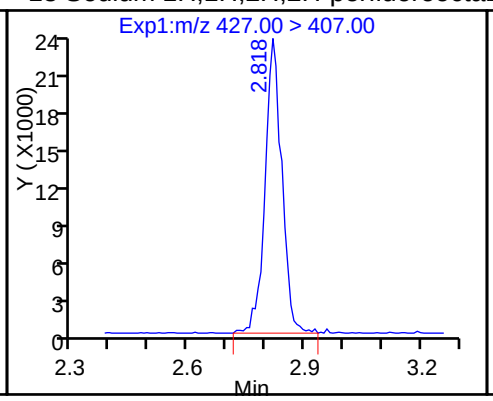
D 11 18O2 PFHxS



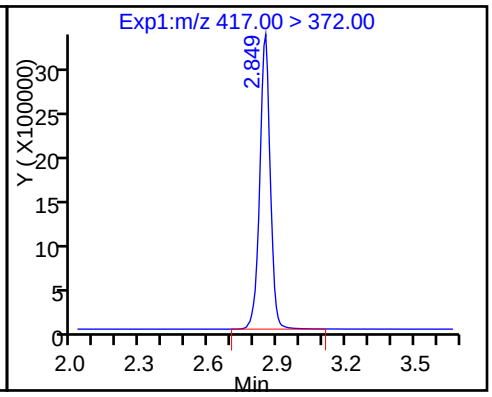
D 12 M2-6:2FTS



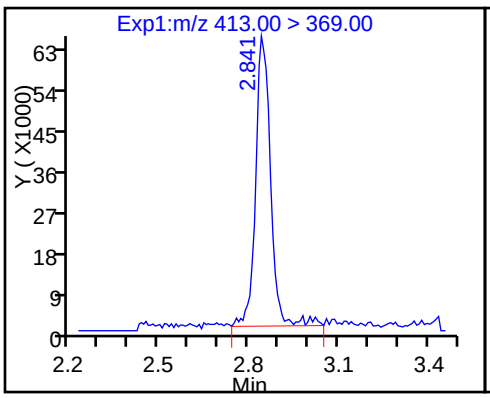
13 Sodium 1H,1H,2H,2H-perfluorooctane



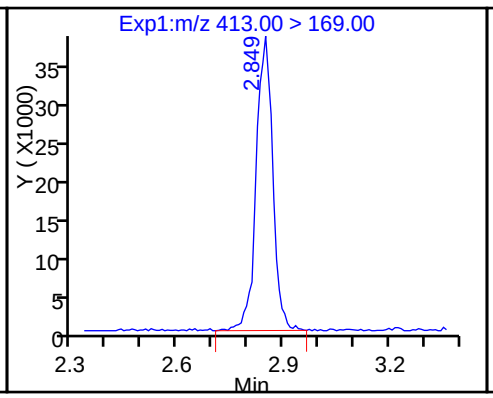
D 14 13C4 PFOA



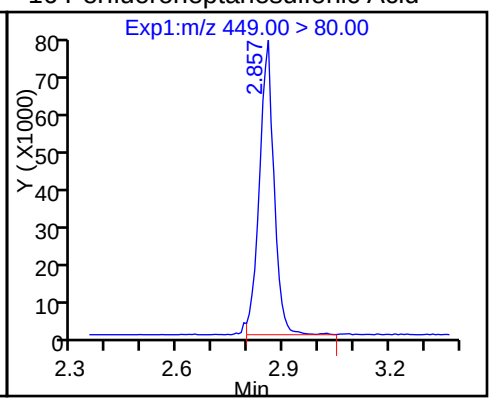
15 Perfluorooctanoic acid



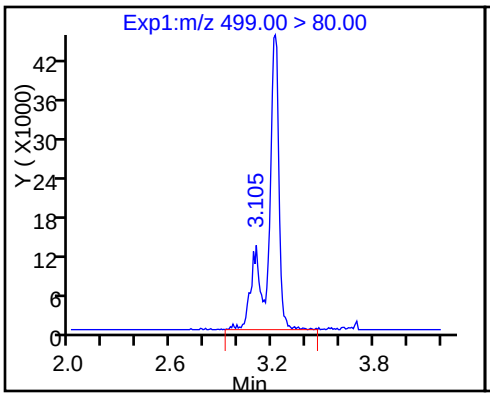
15 Perfluorooctanoic acid



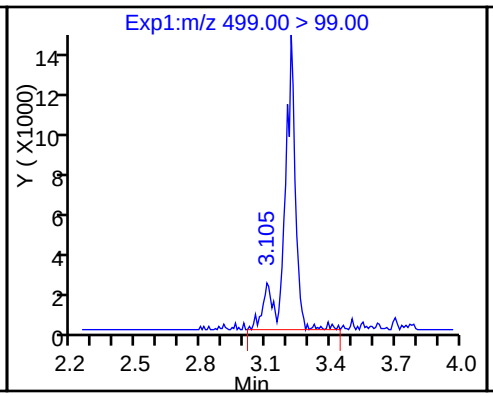
16 Perfluoroheptanesulfonic Acid



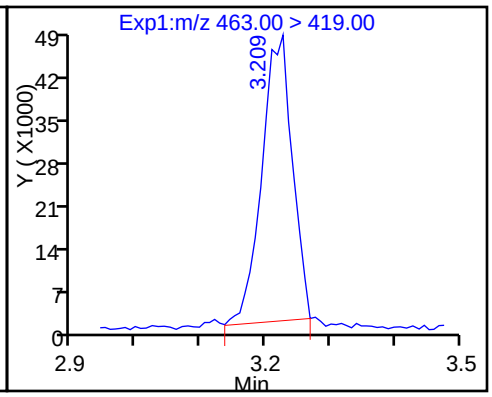
17 Perfluorooctane sulfonic acid



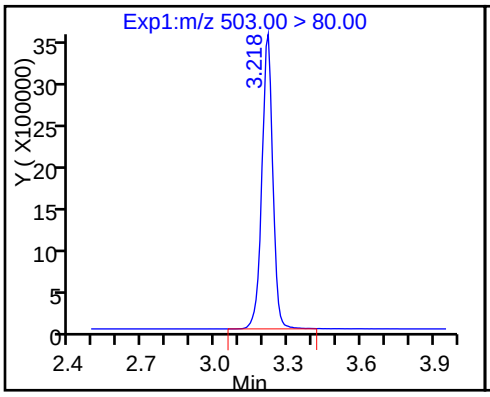
17 Perfluorooctane sulfonic acid



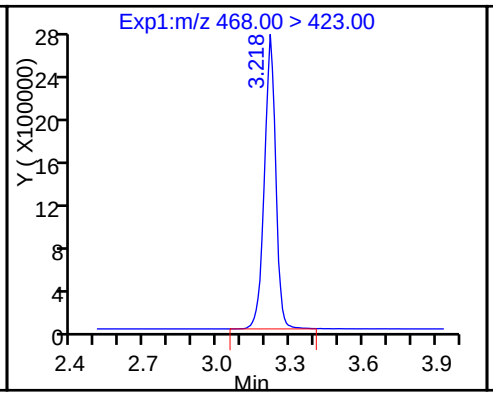
20 Perfluorononanoic acid



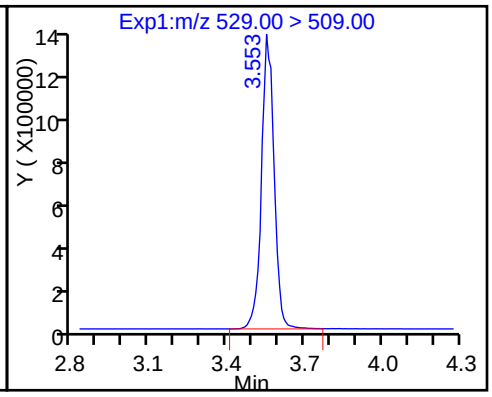
D 18 13C4 PFOS



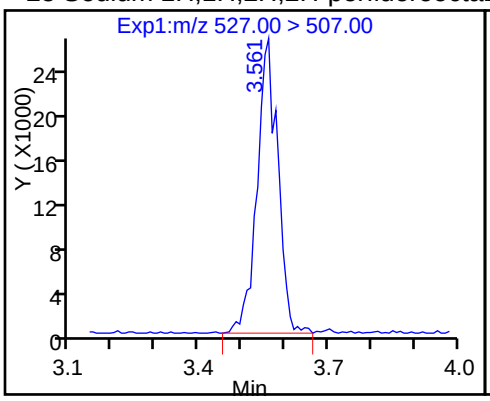
D 19 13C5 PFNA



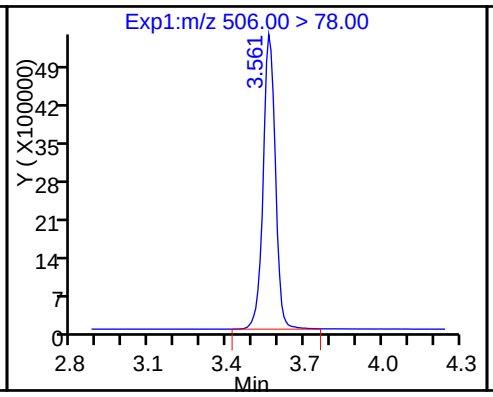
D 26 M2-8:2FTS



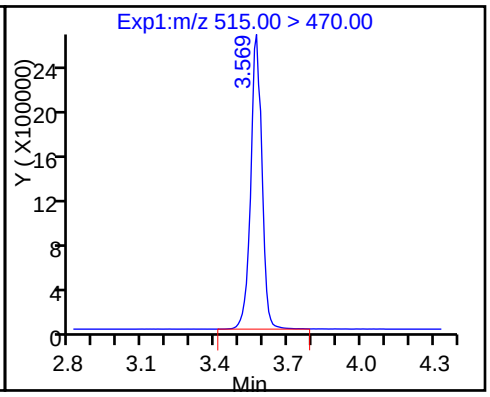
25 Sodium 1H,1H,2H,2H-perfluorooctane



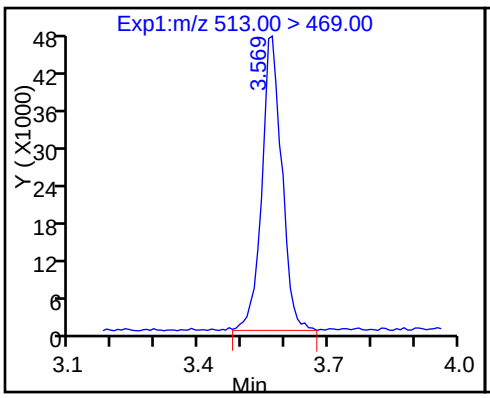
D 21 13C8 FOSA



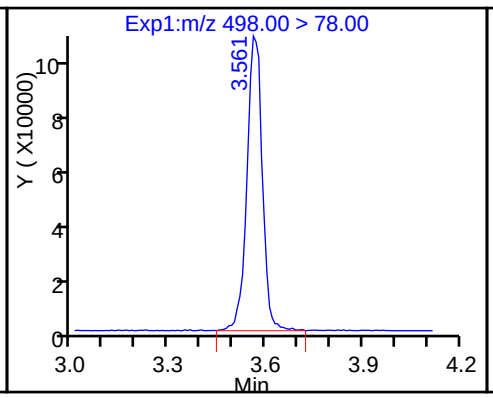
D 23 13C2 PFDA



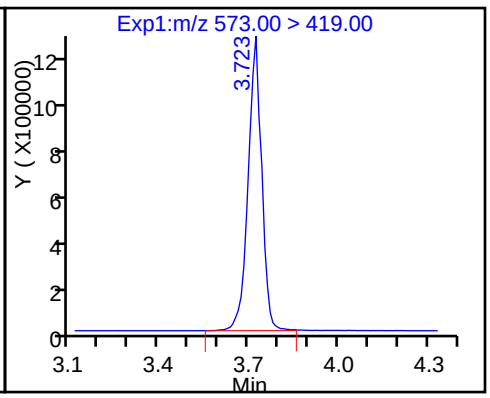
24 Perfluorodecanoic acid



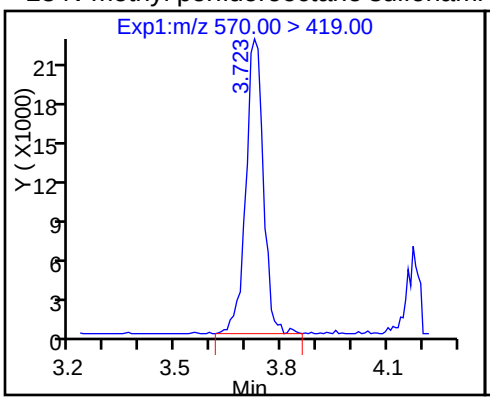
22 Perfluorooctane Sulfonamide



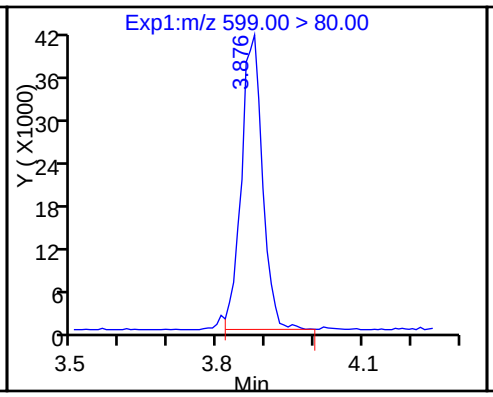
D 27 d3-NMeFOSAA



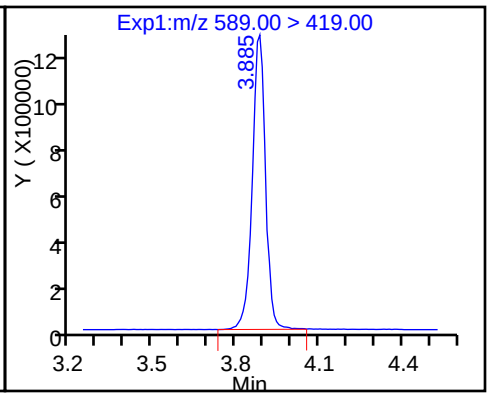
28 N-methyl perfluorooctane sulfonami



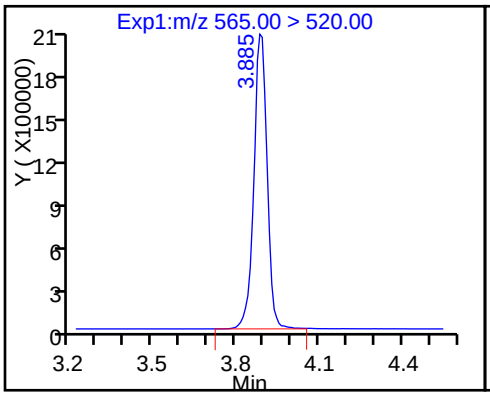
29 Perfluorodecane Sulfonic acid



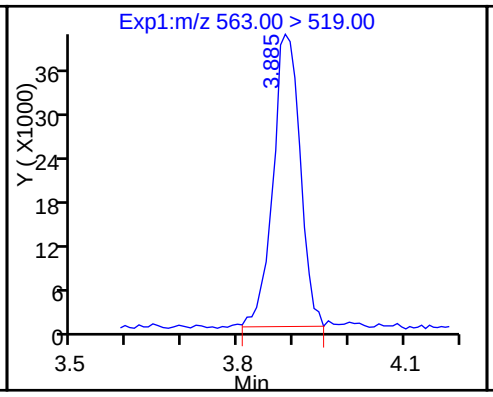
D 32 d5-NEtFOSAA



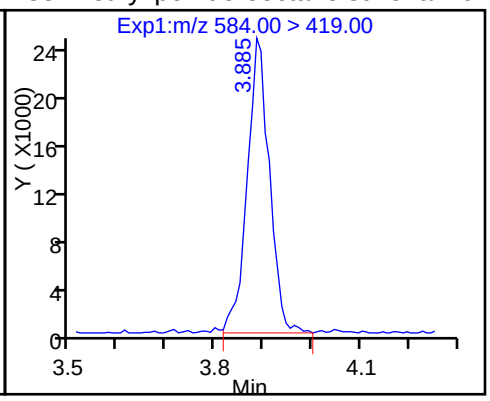
D 30 13C2 PFUnA



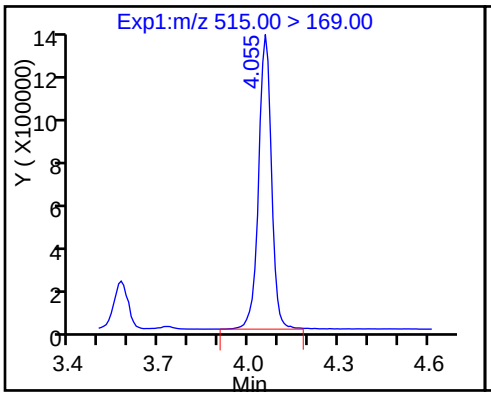
31 Perfluoroundecanoic acid



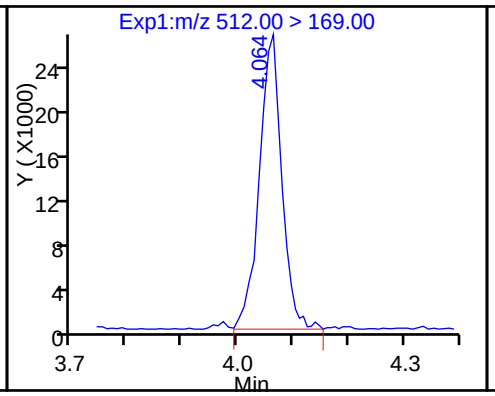
33 N-ethyl perfluorooctane sulfonamid



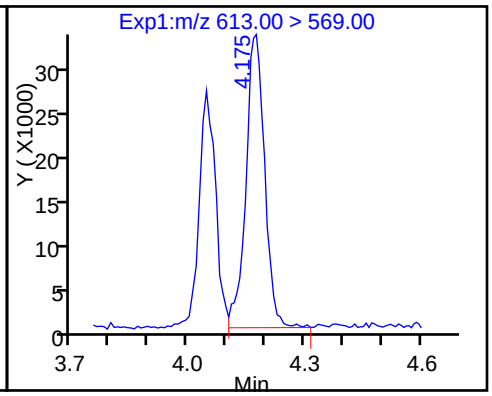
D 34 d-N-MeFOSA-M



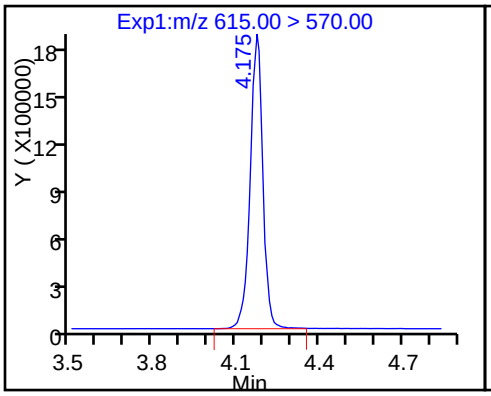
35 MeFOSA



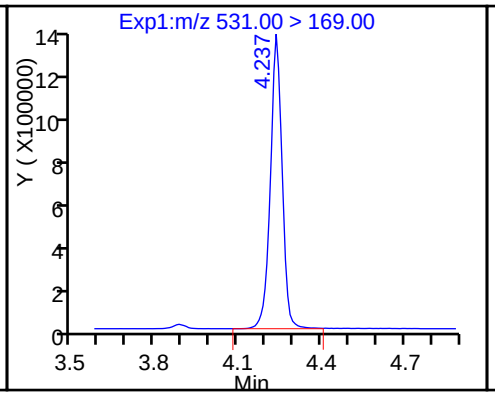
37 Perfluorododecanoic acid



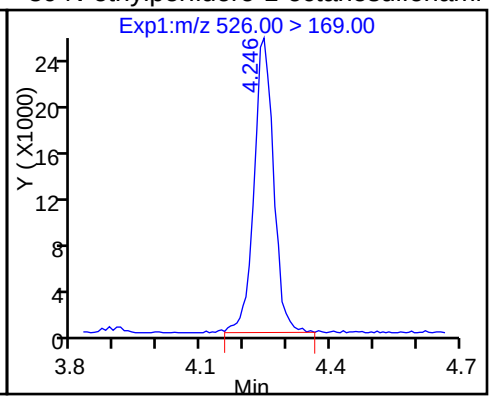
D 36 13C2 PFDoA



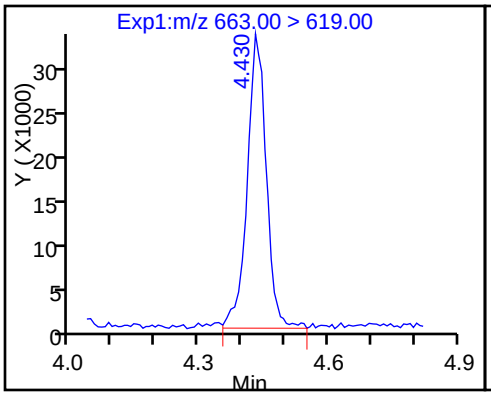
D 38 d-N-EtFOSA-M



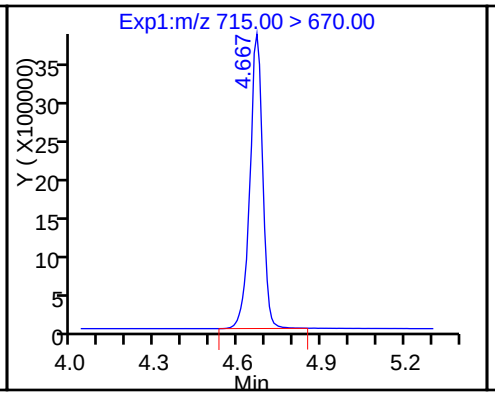
39 N-ethylperfluoro-1-octanesulfonami



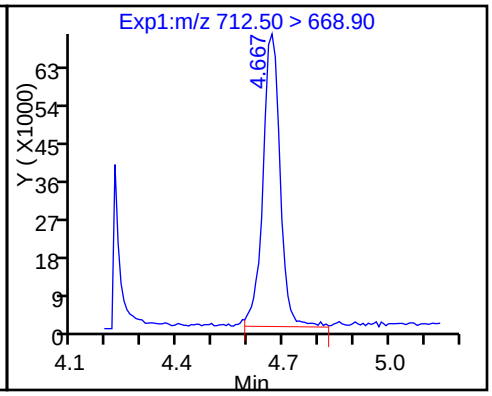
41 Perfluorotridecanoic acid



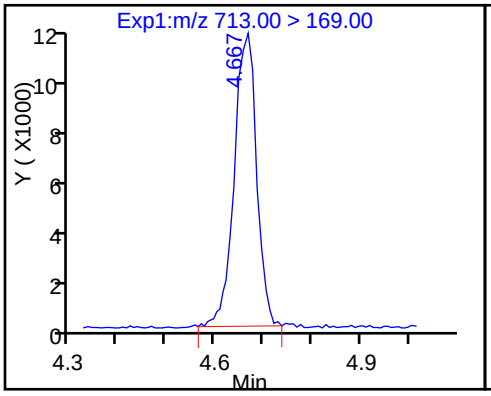
D 43 13C2-PFTeDA



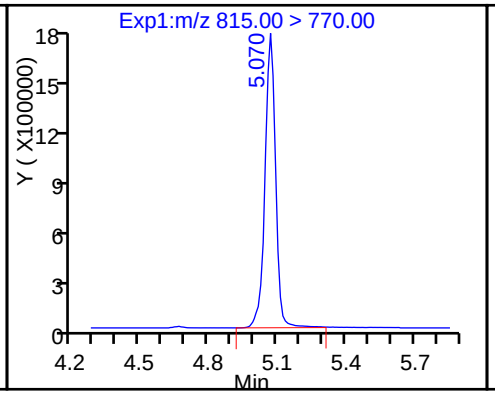
42 Perfluorotetradecanoic acid



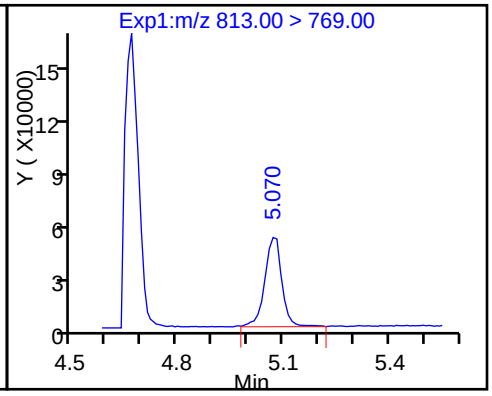
42 Perfluorotetradecanoic acid



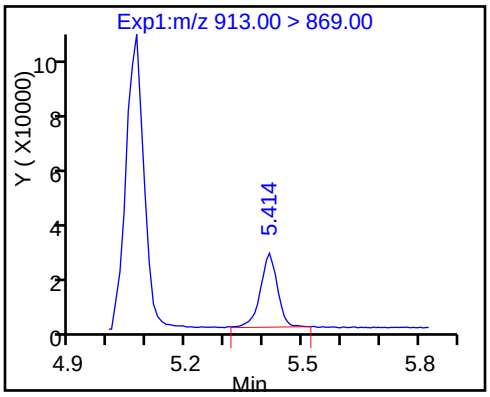
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d
Lims ID: IC L3 Full
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 01-Mar-2017 11:23:51 ALS Bottle#: 30 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L3-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub15

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 01-Mar-2017 15:43:10 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 12:01:48

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.555	1.553	0.002		14456536	49.5		98.9	922551	
2 Perfluorobutyric acid										
212.90 > 169.00	1.555	1.558	-0.003	1.000	1286888	5.25		105	14254	
D 3 13C5-PFPeA										
267.90 > 223.00	1.833	1.832	0.001		11537165	49.7		99.4	809835	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.833	1.835	-0.002	1.000	1164625	5.16		103	11285	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.873	1.872	0.001	1.000	1989498	4.83		109		
298.90 > 99.00	1.873	1.872	0.001	1.000	781702		2.55(0.00-0.00)	109		
6 Perfluorohexanoic acid										
313.00 > 269.00	2.129	2.133	-0.004	1.000	966638	5.30		106	49503	
D 7 13C2 PFHxA										
315.00 > 270.00	2.138	2.134	0.004		10261028	48.7		97.3	342136	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.471	2.474	-0.003	1.000	941301	4.96		99.1	8016	
D 9 13C4-PFHpA										
367.00 > 322.00	2.471	2.475	-0.004		9817002	50.9		102	288379	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.456	2.485	-0.029	1.000	1348890	4.56		100		
D 11 18O2 PFHxS										
403.00 > 84.00	2.487	2.489	-0.002		13610529	46.8		98.9	351937	
D 12 M2-6:2FTS										
429.00 > 409.00	2.806	2.805	0.001		3657293	47.4		99.8		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.798	2.807	-0.009	1.000	347809	4.96		105		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.829	2.835	-0.006	1.000	1102619	5.15		103	10643	M
413.00 > 169.00	2.829	2.835	-0.006	1.000	620161		1.78(0.90-1.10)	103	22054	M
D 14 13C4 PFOA										
417.00 > 372.00	2.829	2.835	-0.006		10473721	51.1		102	311740	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.845	2.842	0.003	1.000	1268398	5.17		109		
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.171	3.145	0.026	1.000	1092724	4.67		101	18758	
499.00 > 99.00	3.196	3.145	0.051	1.008	254615		4.29(0.90-1.10)	101	16421	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.205	3.202	0.003	1.000	858327	5.38		108	23748	
D 18 13C4 PFOS										
503.00 > 80.00	3.196	3.204	-0.008		11369327	47.1		98.4	321748	
D 19 13C5 PFNA										
468.00 > 423.00	3.205	3.208	-0.003		8821496	49.6		99.2	242559	
D 26 M2-8:2FTS										
529.00 > 509.00	3.548	3.545	0.003		4555474	49.2		103		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.539	3.546	-0.007	0.998	444929	4.98		104		
D 21 13C8 FOSA										
506.00 > 78.00	3.556	3.559	-0.003		18858766	51.4		103	371997	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.556	3.560	-0.004	1.000	784974	4.99		99.8	29400	
D 23 13C2 PFDA										
515.00 > 470.00	3.556	3.560	-0.004		8688810	52.1		104	216415	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.556	3.561	-0.005	1.000	1747629	5.16		103	92835	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.707	3.710	-0.003		4251681	49.9		99.8		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.707	3.713	-0.006	1.000	424299	5.14		103		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.861	3.866	-0.005	1.000	717648	5.07		105		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.869	3.875	-0.006		4300641	52.9		106		
D 30 13C2 PFUnA										
565.00 > 520.00	3.869	3.876	-0.007		6730080	51.5		103	147236	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.878	3.878	0.0	1.000	676308	4.96		99.1	20230	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.878	3.883	-0.005	1.002	385576	4.92		98.5		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.047	4.050	-0.003		4436424	50.4		101		
35 MeFOSA										
512.00 > 169.00	4.056	4.057	-0.001	1.000	404698	4.88		97.5		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.161	4.162	-0.001	1.000	578671	4.99		99.8	4705	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA										
615.00 > 570.00	4.161	4.164	-0.003		6339474	51.1		102	145230	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.228	4.235	-0.007		4273681	50.1		100		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.237	4.242	-0.005	1.000	425282	5.06		101		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.421	4.424	-0.003	1.000	562473	5.08		102	11889	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.655	4.655	0.0		13496732	52.1		104	332789	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.655	4.657	-0.002	1.000	1324493	5.31		106	11007	
713.00 > 169.00	4.645	4.657	-0.012	0.998	177791		7.45(0.00-0.00)	106	28707	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.057	5.057	0.0		6378393	51.0		102	93636	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.057	5.059	-0.002	1.000	636153	5.04		101	676	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.398	5.399	-0.001	1.000	451116	4.96		99.2	634	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L3_00001 Amount Added: 1.00 Units: mL

Report Date: 01-Mar-2017 15:43:11 Chrom Revision: 2.2 03-Feb-2017 15:35:04

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d

Injection Date: 01-Mar-2017 11:23:51 Instrument ID: A8_N

Lims ID: IC L3 Full

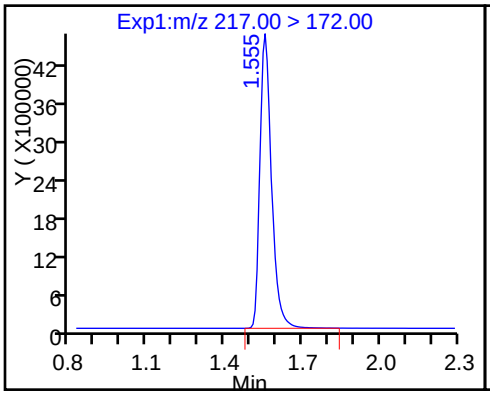
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 4

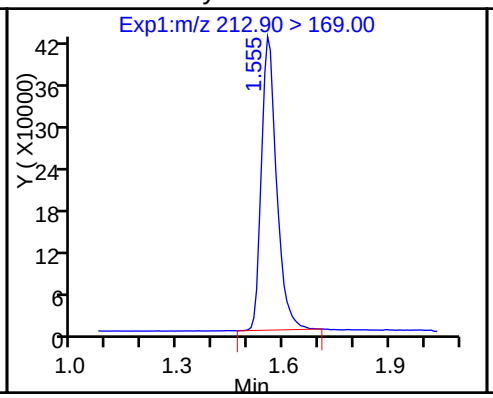
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

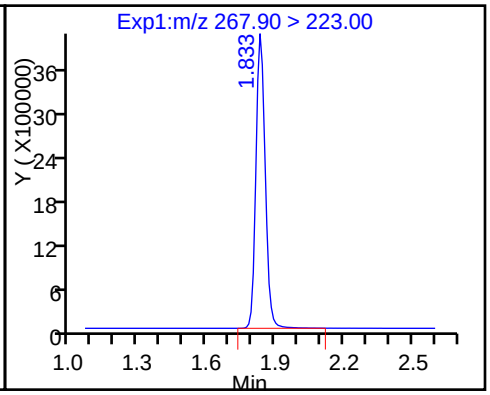
D 1 13C4 PFBA



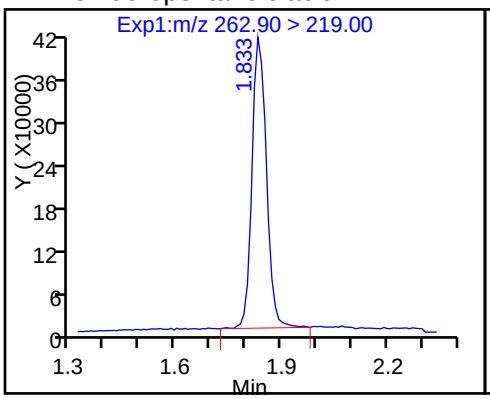
2 Perfluorobutyric acid



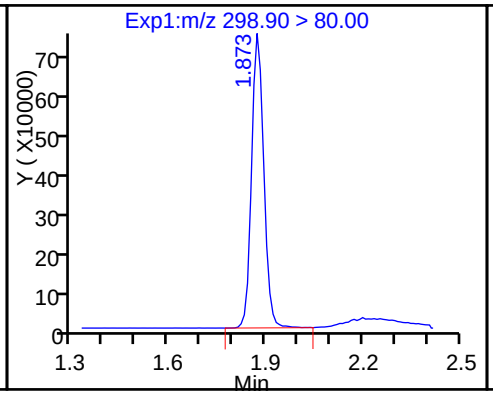
D 3 13C5-PFPeA



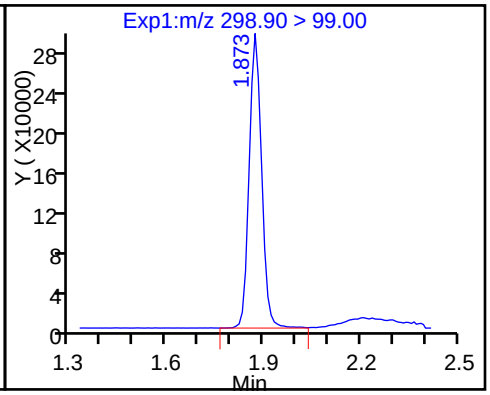
4 Perfluoropentanoic acid



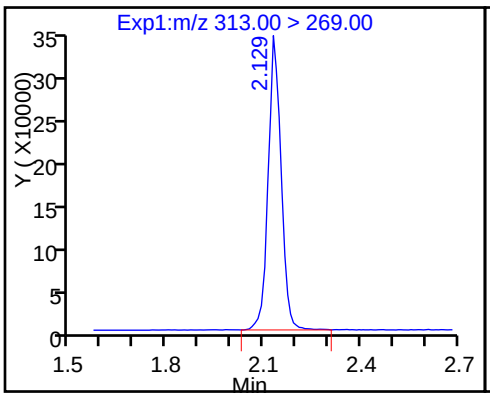
5 Perfluorobutanesulfonic acid



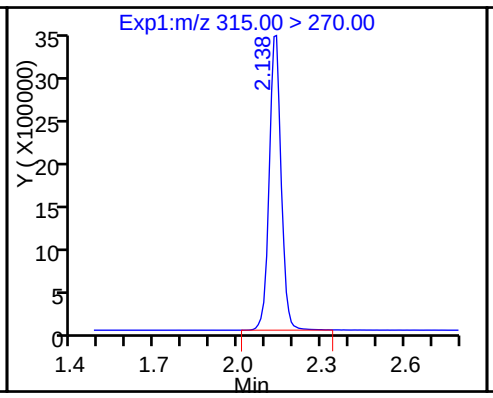
5 Perfluorobutanesulfonic acid



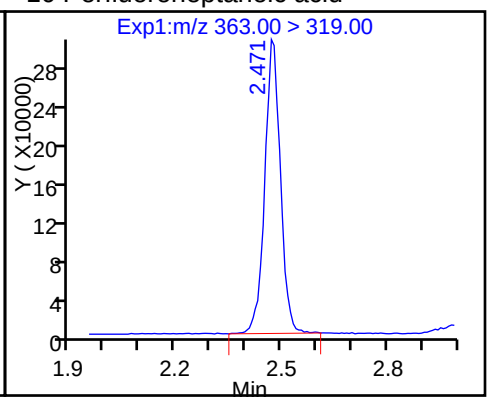
6 Perfluorohexanoic acid



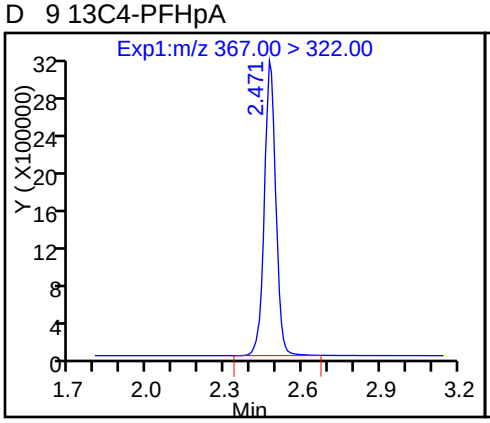
D 7 13C2 PFHxA



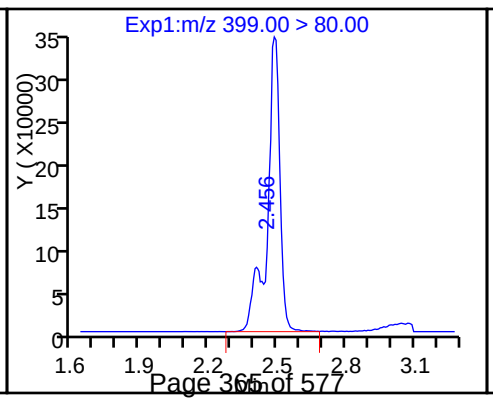
10 Perfluoroheptanoic acid



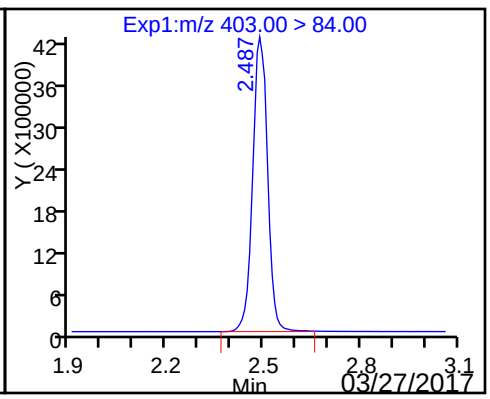
D 9 13C4-PFHpA



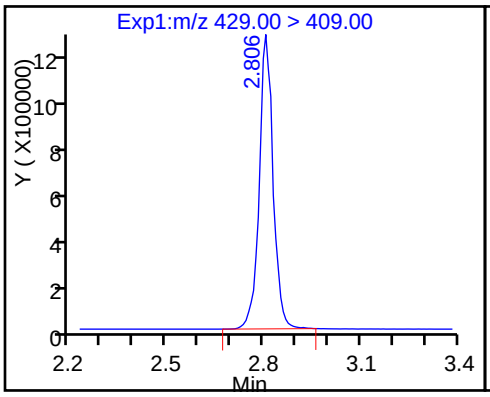
8 Perfluorohexanesulfonic acid



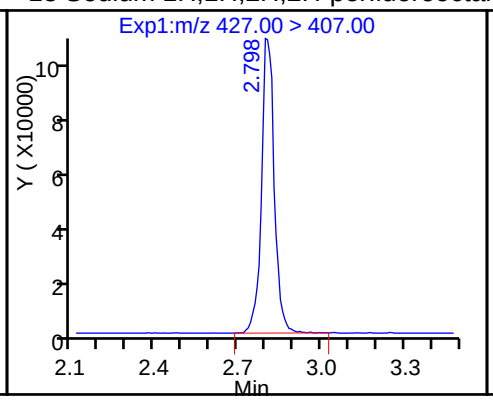
D 11 18O2 PFHxS



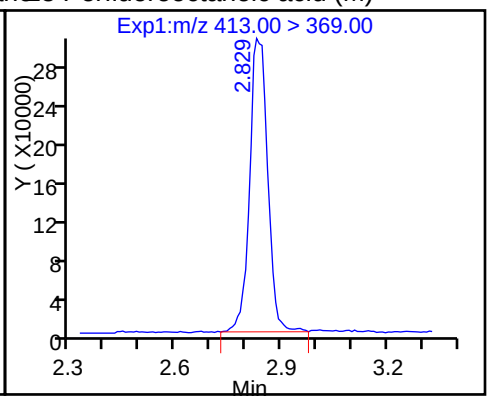
D 12 M2-6:2FTS



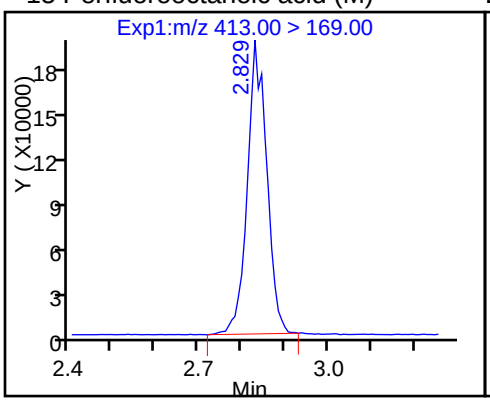
13 Sodium 1H,1H,2H,2H-perfluorooctane



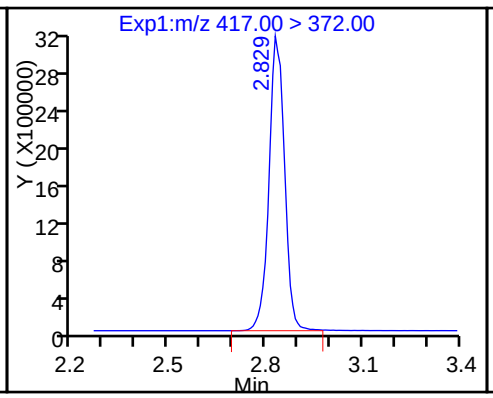
15 Perfluorooctanoic acid (M)



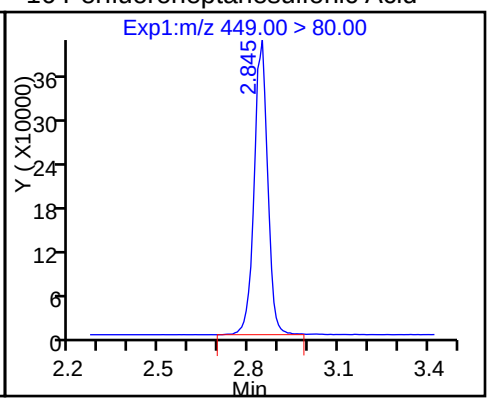
15 Perfluorooctanoic acid (M)



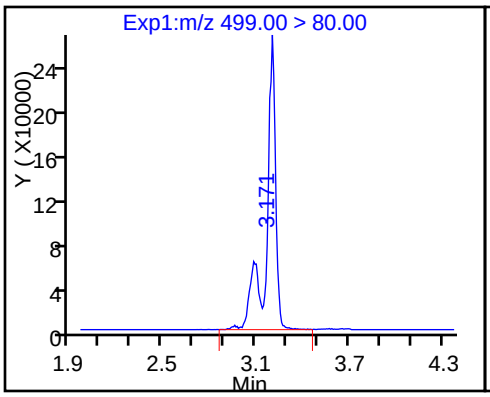
D 14 13C4 PFOA



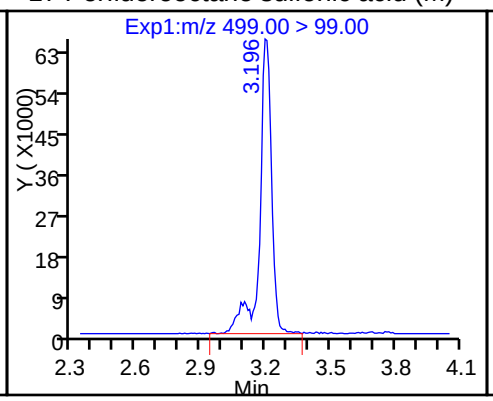
16 Perfluoroheptanesulfonic Acid



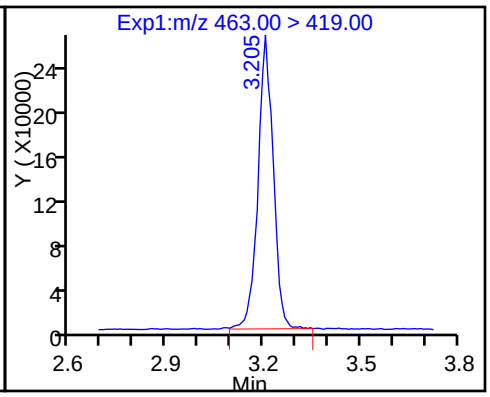
17 Perfluorooctane sulfonic acid



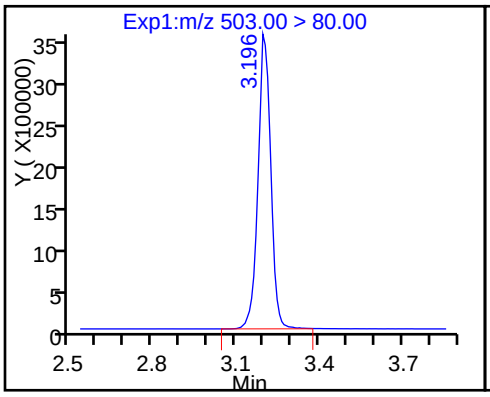
17 Perfluorooctane sulfonic acid (M)



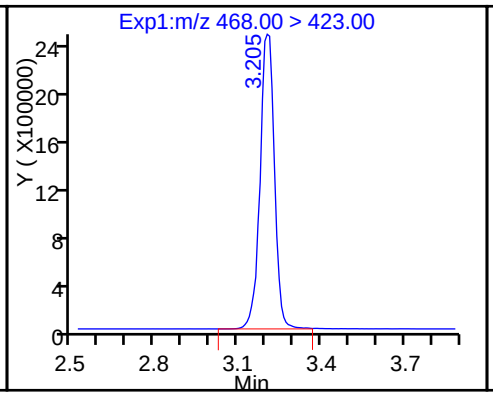
20 Perfluorononanoic acid



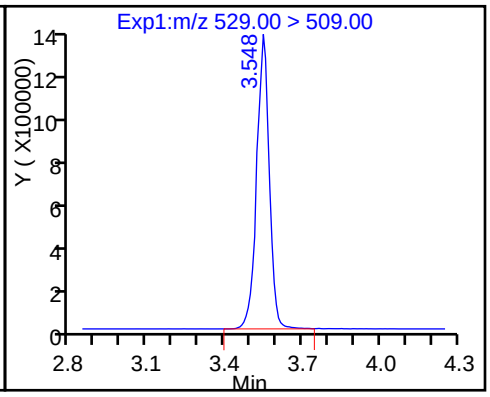
D 18 13C4 PFOS



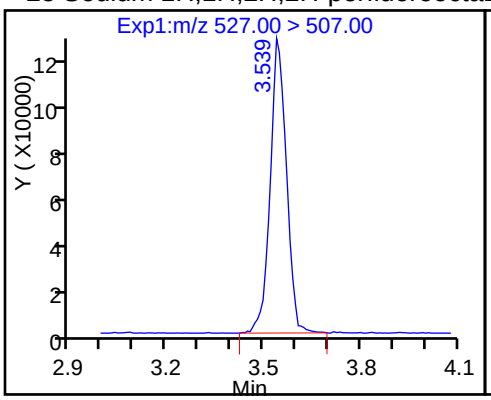
D 19 13C5 PFNA



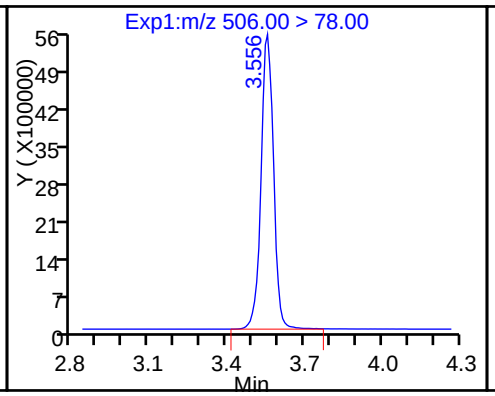
D 26 M2-8:2FTS



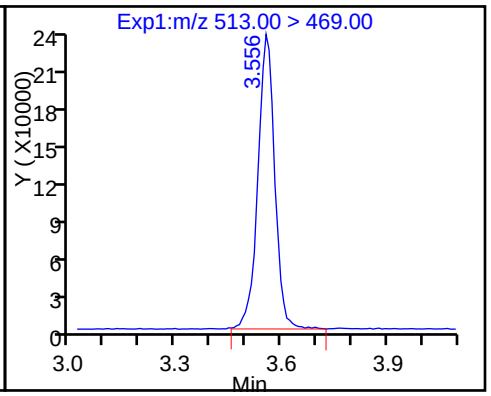
25 Sodium 1H,1H,2H,2H-perfluorooctane



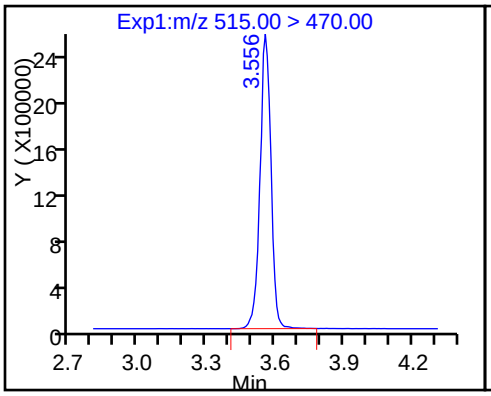
D 21 13C8 FOSA



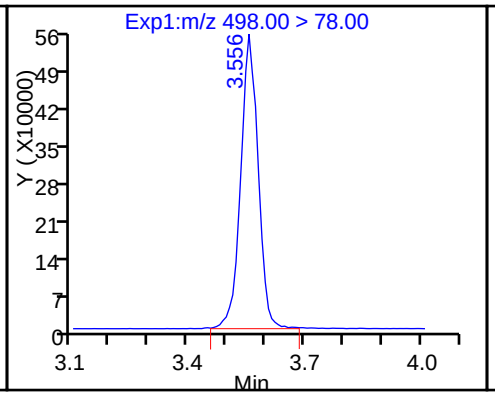
24 Perfluorodecanoic acid



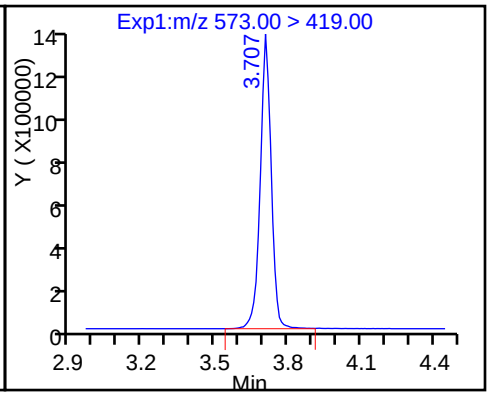
D 23 13C2 PFDA



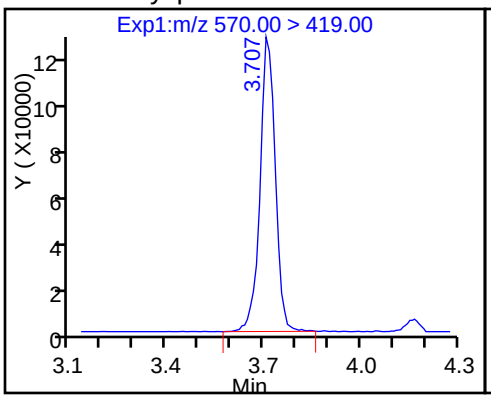
22 Perfluorooctane Sulfonamide



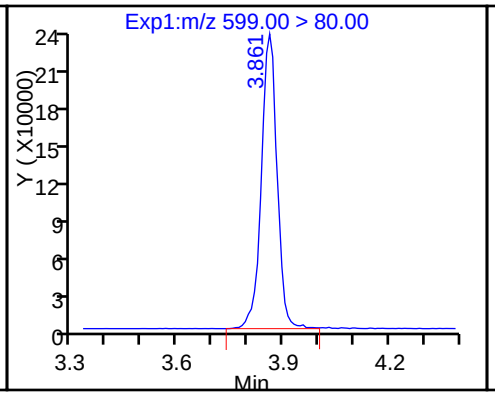
D 27 d3-NMeFOSAA



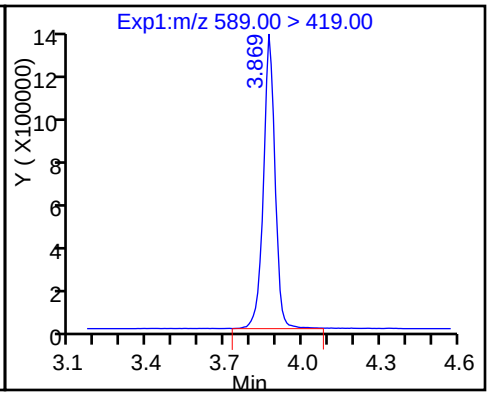
28 N-methyl perfluorooctane sulfonami



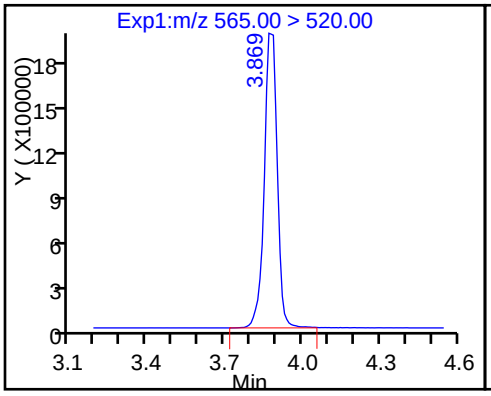
29 Perfluorodecane Sulfonic acid



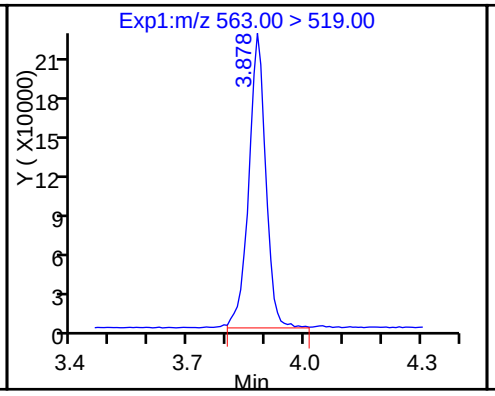
D 32 d5-NEtFOSAA



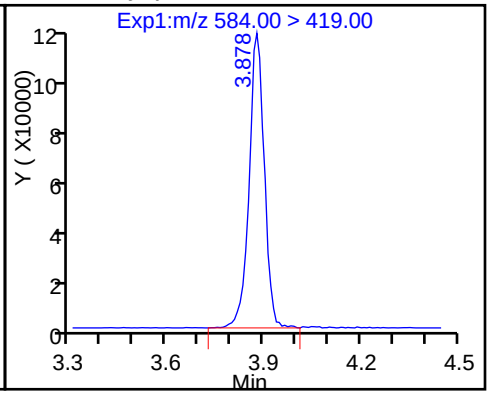
D 30 13C2 PFUnA



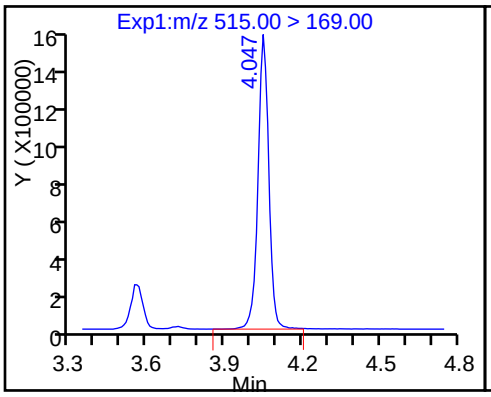
31 Perfluoroundecanoic acid



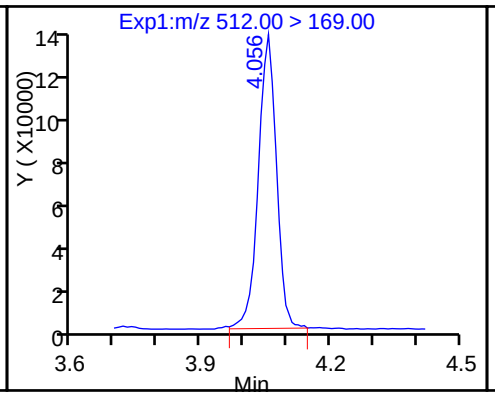
33 N-ethyl perfluorooctane sulfonamid



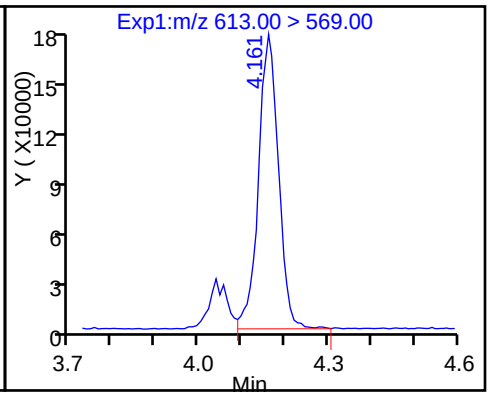
D 34 d-N-MeFOSA-M



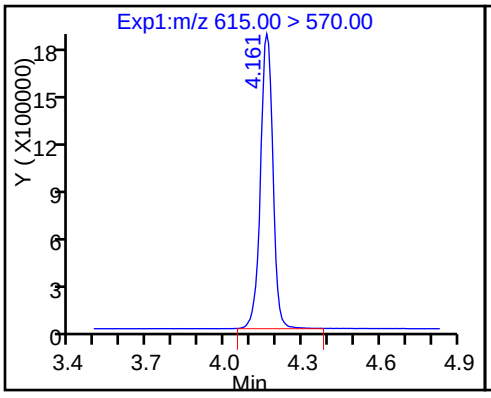
35 MeFOSA



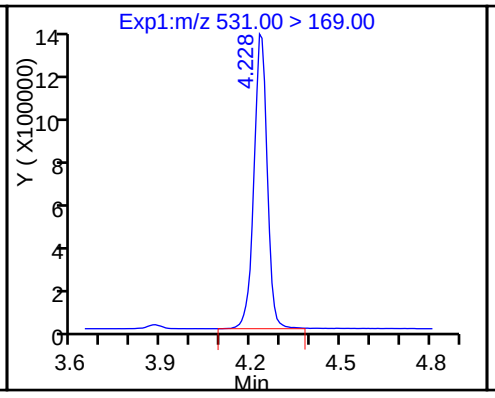
37 Perfluorododecanoic acid



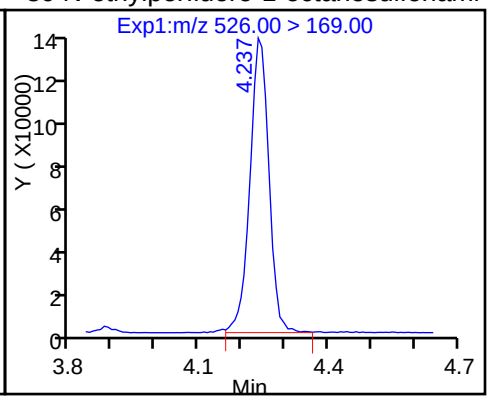
D 36 13C2 PFDoA



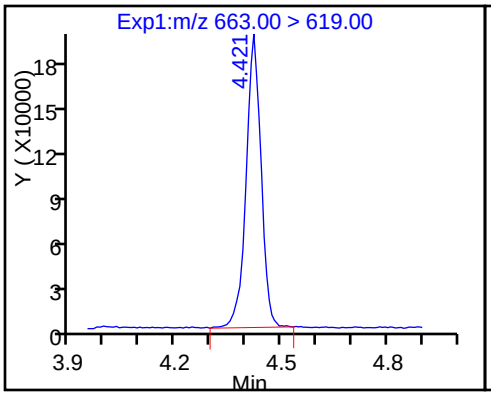
D 38 d-N-EtFOSA-M



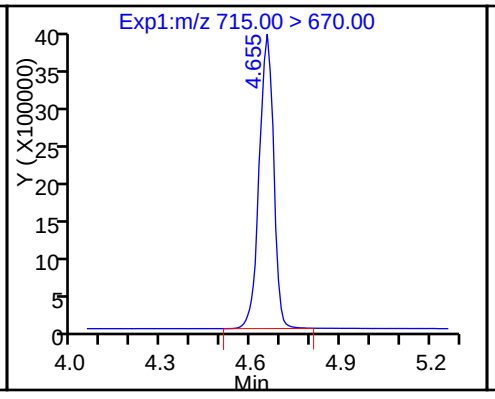
39 N-ethylperfluoro-1-octanesulfonami



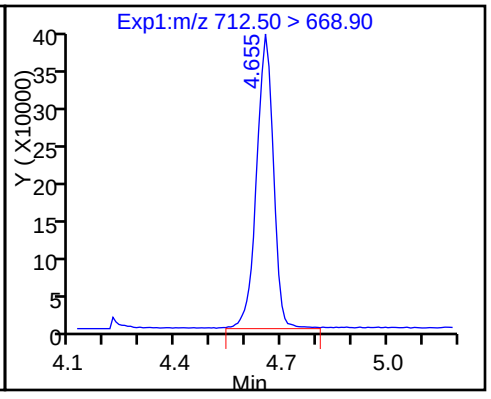
41 Perfluorotridecanoic acid



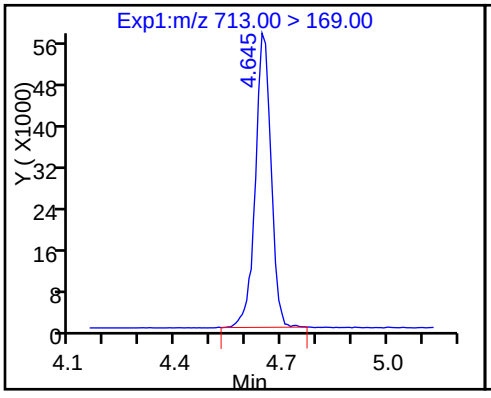
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid



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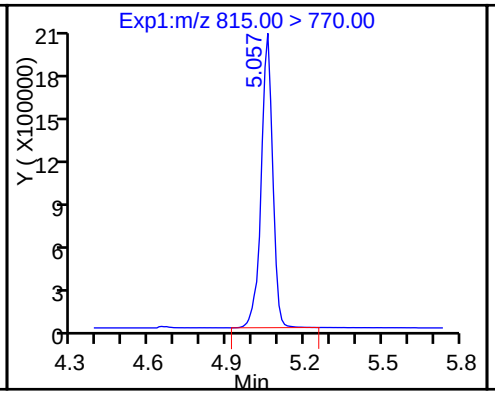
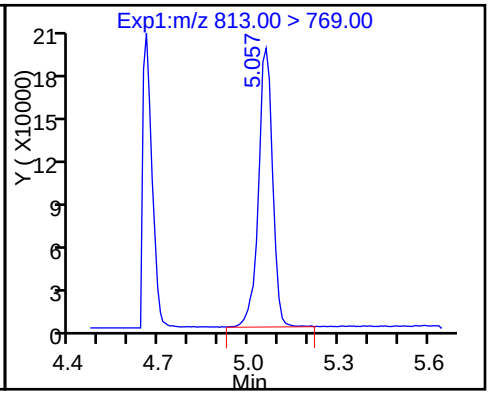
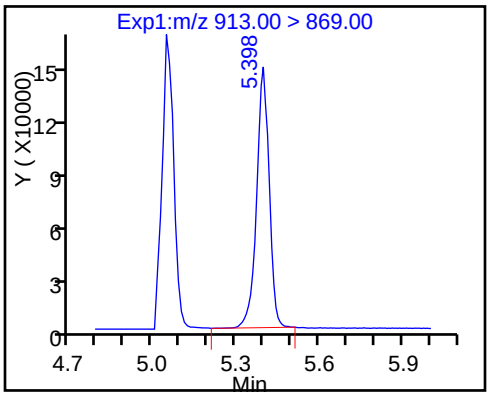


45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

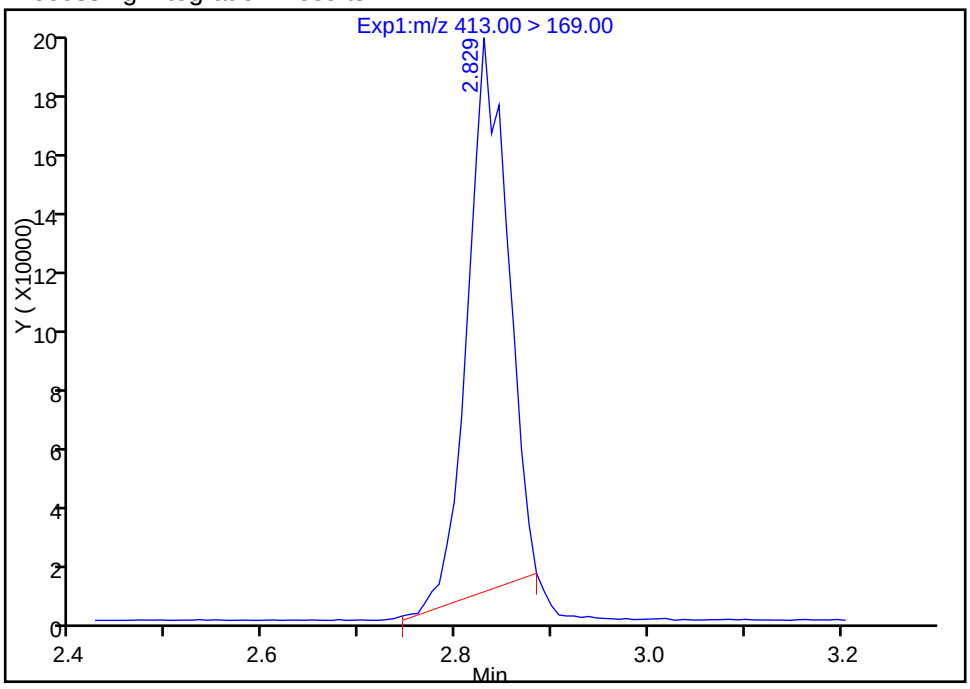
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d
Injection Date: 01-Mar-2017 11:23:51 Instrument ID: A8_N
Lims ID: IC L3 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

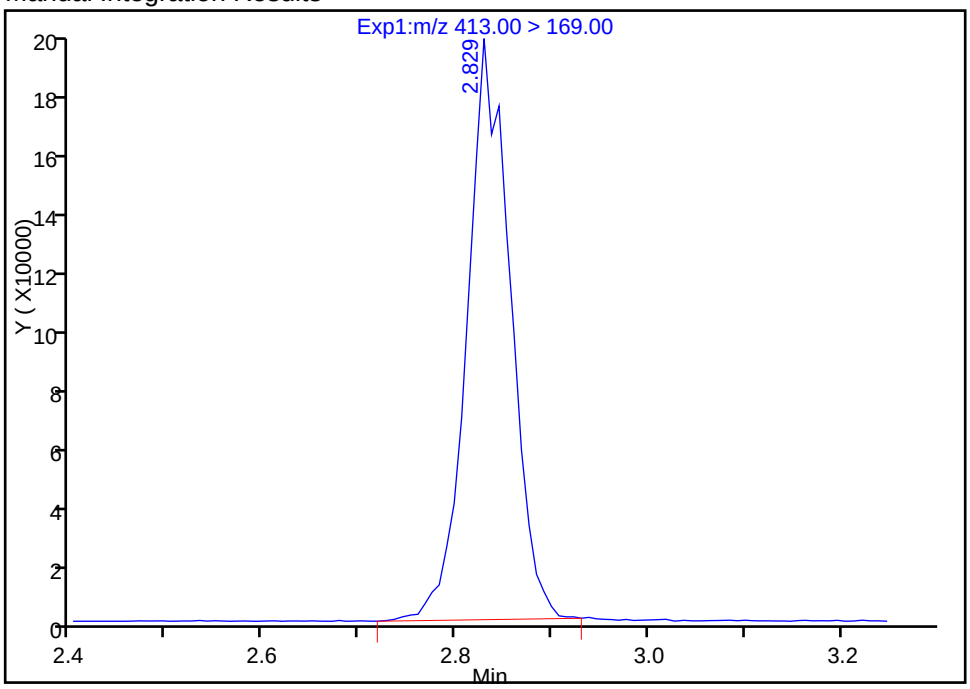
Processing Integration Results

RT: 2.83
Area: 545337
Amount: 5.278222
Amount Units: ng/ml



Manual Integration Results

RT: 2.83
Area: 620161
Amount: 5.152153
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:10
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

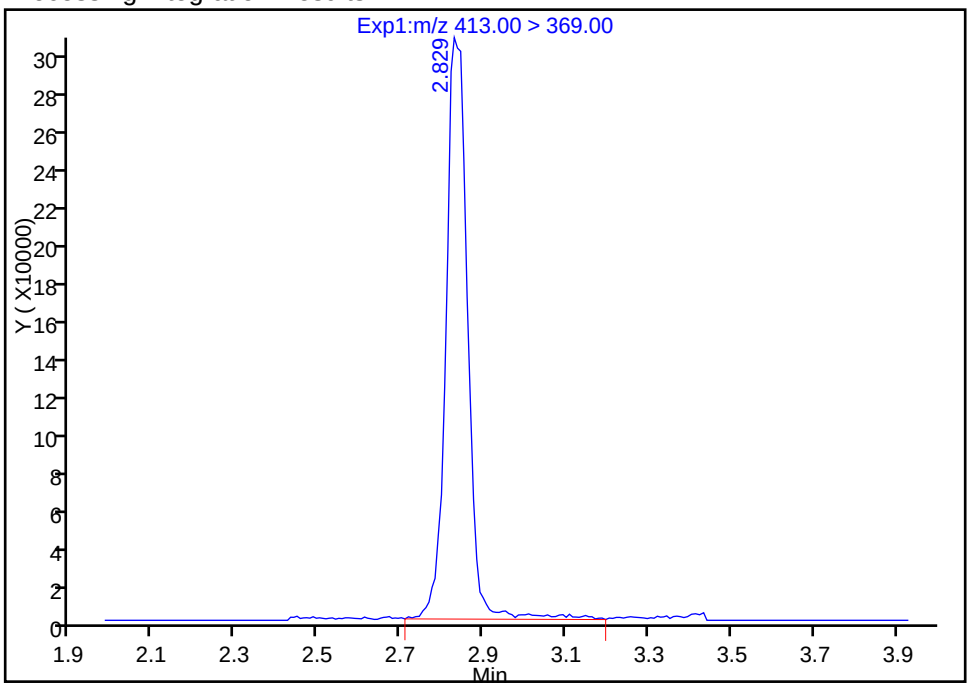
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d
Injection Date: 01-Mar-2017 11:23:51 Instrument ID: A8_N
Lims ID: IC L3 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

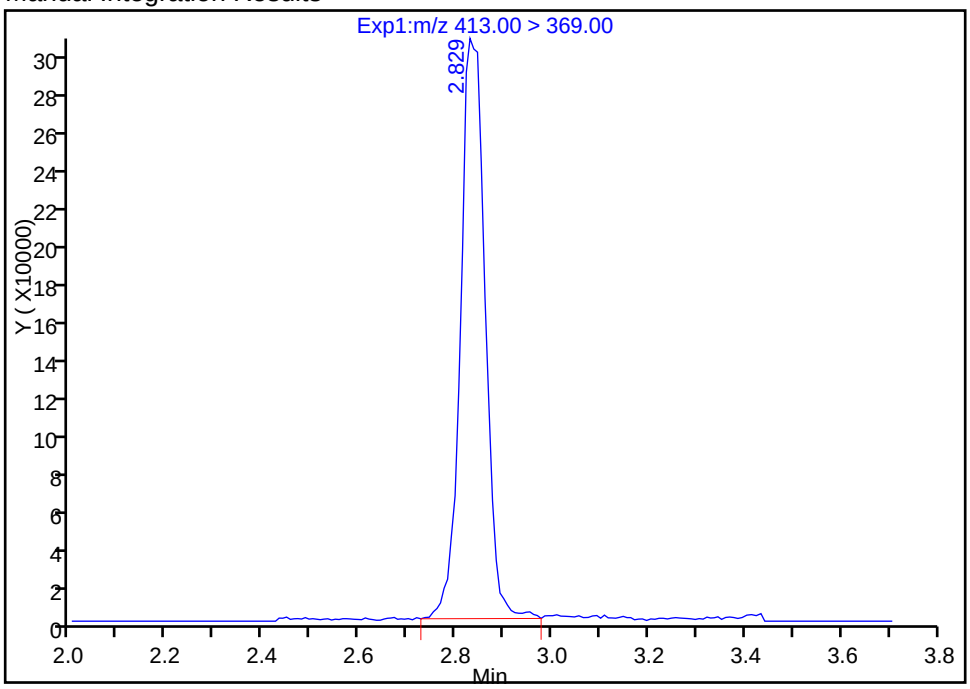
Processing Integration Results

RT: 2.83
Area: 1136820
Amount: 5.278222
Amount Units: ng/ml



Manual Integration Results

RT: 2.83
Area: 1102619
Amount: 5.152153
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:10
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

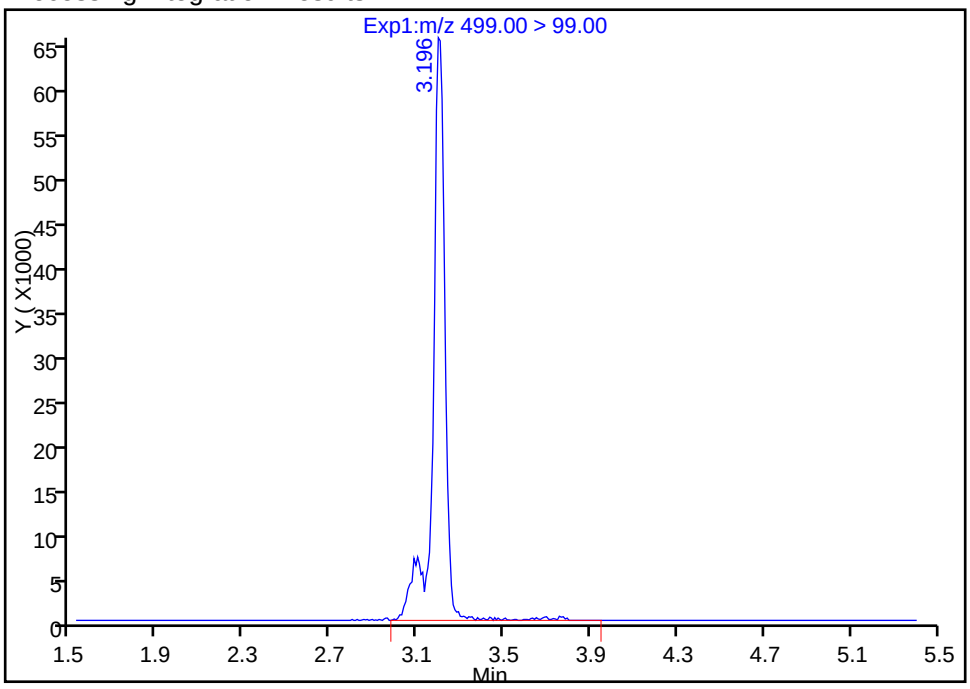
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d
Injection Date: 01-Mar-2017 11:23:51 Instrument ID: A8_N
Lims ID: IC L3 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

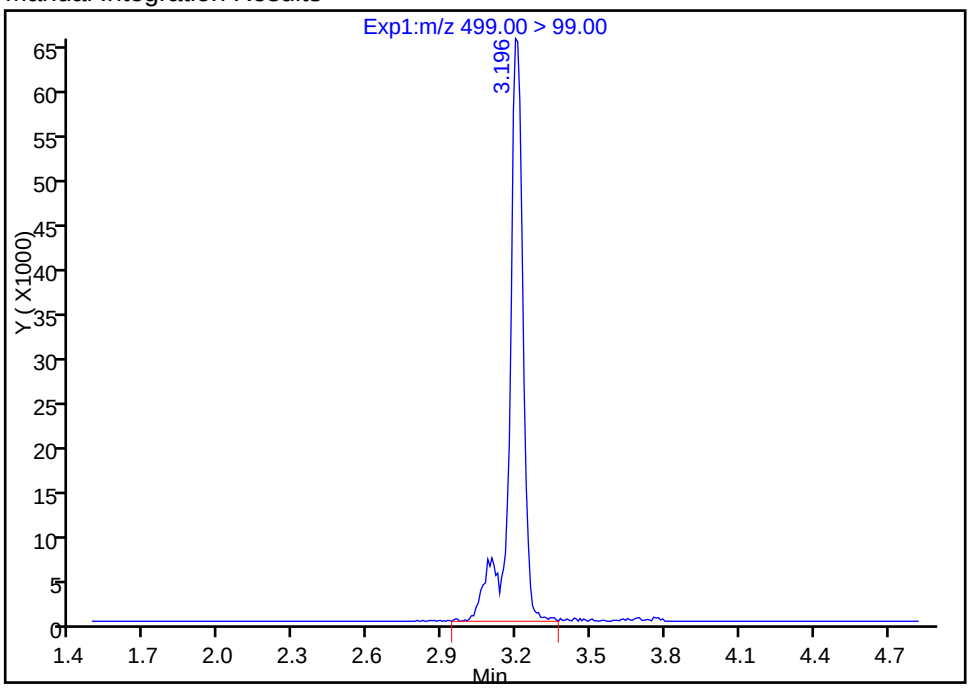
Processing Integration Results

RT: 3.20
Area: 258504
Amount: 4.907745
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 254615
Amount: 4.671293
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:10
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_006.d
Lims ID: IC L4 Full
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 01-Mar-2017 11:31:20 ALS Bottle#: 31 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L4-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub15

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 01-Mar-2017 15:43:13 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 11:58:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.554	1.553	0.001		17122661	58.6		117	1074272	
2 Perfluorobutyric acid										
212.90 > 169.00	1.562	1.558	0.004	1.000	5946494	20.5		102	65761	
D 3 13C5-PFPeA										
267.90 > 223.00	1.832	1.832	0.0		13641103	58.7		117	917353	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.841	1.835	0.006	1.000	5283919	19.8		99.0	51812	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.871	1.872	-0.001	1.000	9035699	18.8		106		
298.90 > 99.00	1.871	1.872	-0.001	1.000	3688779		2.45(0.00-0.00)	106		
6 Perfluorohexanoic acid										
313.00 > 269.00	2.134	2.133	0.001	1.000	4191655	19.2		96.2	152557	
D 7 13C2 PFHxA										
315.00 > 270.00	2.134	2.134	0.0		12244217	58.1		116	400533	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.471	2.474	-0.003	1.000	4154809	19.6		98.2	36084	
D 9 13C4-PFHpA										
367.00 > 322.00	2.479	2.475	0.004		10934944	56.7		113	304443	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.487	2.485	0.002	1.000	5958886	17.2		94.6		M
D 11 18O2 PFHxS										
403.00 > 84.00	2.487	2.489	-0.002		15910284	54.7		116	422002	
D 12 M2-6:2FTS										
429.00 > 409.00	2.814	2.805	0.009		4091935	53.0		112		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.806	2.807	-0.001	1.000	1476276	19.2		101		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.837	2.835	0.002		11808824	57.6		115	419758	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.837	2.835	0.002	1.000	4651144	19.3		96.4	85963	
413.00 > 169.00	2.837	2.835	0.002	1.000	2647754		1.76(0.90-1.10)	96.4	107757	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.837	2.842	-0.005	1.000	5669268	19.9		105		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.093	3.145	-0.052	1.000	4889351	18.0		97.1	37486	
499.00 > 99.00	3.163	3.145	0.018	1.023	1125132		4.35(0.90-1.10)	97.1	16340	
20 Perfluorononanoic acid										
463.00 > 419.00	3.205	3.202	0.003	1.000	3633207	19.7		98.5	58134	
D 18 13C4 PFOS										
503.00 > 80.00	3.205	3.204	0.001		13187105	54.6		114	308342	
D 19 13C5 PFNA										
468.00 > 423.00	3.214	3.208	0.006		10199601	57.3		115	340360	
D 26 M2-8:2FTS										
529.00 > 509.00	3.539	3.545	-0.006		4873285	52.6		110		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.539	3.546	-0.007	1.000	1931499	20.5		107		
D 21 13C8 FOSA										
506.00 > 78.00	3.565	3.559	0.006		19888389	54.2		108	344996	
D 23 13C2 PFDA										
515.00 > 470.00	3.565	3.560	0.005		9661817	58.0		116	234911	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.556	3.560	-0.004	1.000	3277760	18.7		93.6	124974	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.565	3.561	0.004	1.000	7187955	20.1		101	199090	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.707	3.710	-0.003		4769931	56.0		112		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.717	3.713	0.004	1.003	1695690	18.3		91.5		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.862	3.866	-0.004	1.000	3002868	18.3		94.8		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.870	3.875	-0.005		4515915	55.5		111		
D 30 13C2 PFUnA										
565.00 > 520.00	3.879	3.876	0.003		7346047	56.2		112	177174	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.879	3.878	0.001	1.000	2619295	17.6		87.9	88246	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.888	3.883	0.005	1.004	1606146	19.5		97.7		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.050	4.050	0.0		4579449	52.0		104		
35 MeFOSA										
512.00 > 169.00	4.059	4.057	0.002	1.000	1671133	19.5		97.5		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.165	4.162	0.003	1.000	2353395	19.5		97.4	29732	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA										
615.00 > 570.00	4.165	4.164	0.001		6606261	53.3		107	130372	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.240	4.235	0.005		4373613	51.3		103		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.249	4.242	0.007	1.000	1676481	19.5		97.4		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.418	4.424	-0.006	1.000	2207561	19.1		95.6	38950	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.652	4.655	-0.003		13623388	52.6		105	303779	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.652	4.657	-0.005	1.000	4960846	19.1		95.5	38169	
713.00 > 169.00	4.652	4.657	-0.005	1.000	658342		7.54(0.00-0.00)	95.5	69558	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.057	5.057	0.0		6330845	50.6		101	91907	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.057	5.059	-0.002	1.000	2071027	16.5		82.7	2327	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.398	5.399	-0.001	1.000	1687895	17.8		89.0	2245	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L4_00001 Amount Added: 1.00 Units: mL

Report Date: 01-Mar-2017 15:43:14 Chrom Revision: 2.2 03-Feb-2017 15:35:04

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_006.d

Injection Date: 01-Mar-2017 11:31:20 Instrument ID: A8_N

Lims ID: IC L4 Full

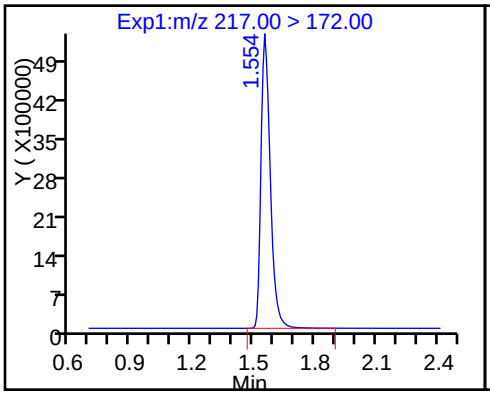
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 5

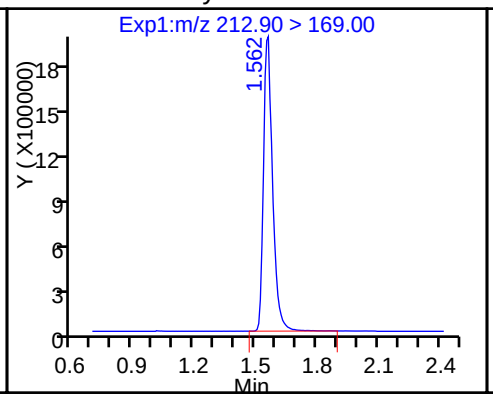
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

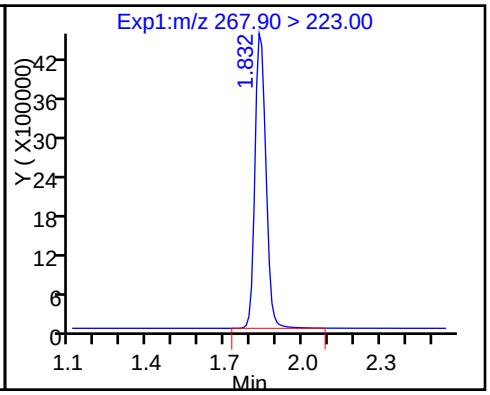
D 1 13C4 PFBA



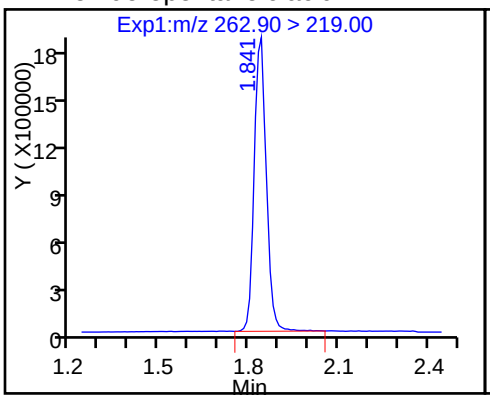
2 Perfluorobutyric acid



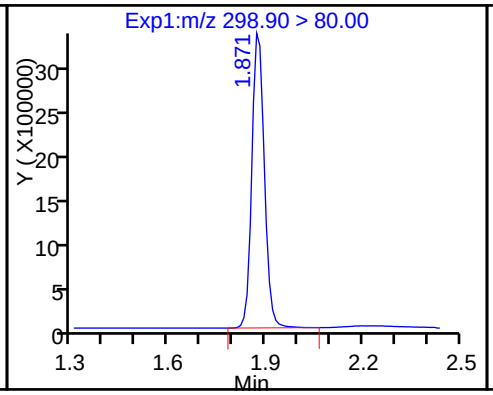
D 3 13C5-PFPeA



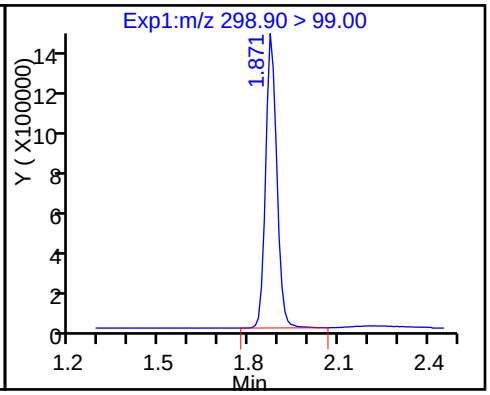
4 Perfluoropentanoic acid



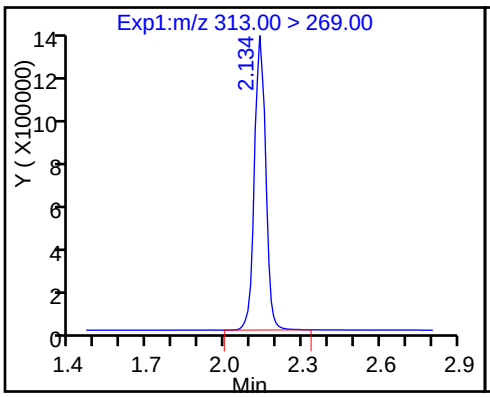
5 Perfluorobutanesulfonic acid



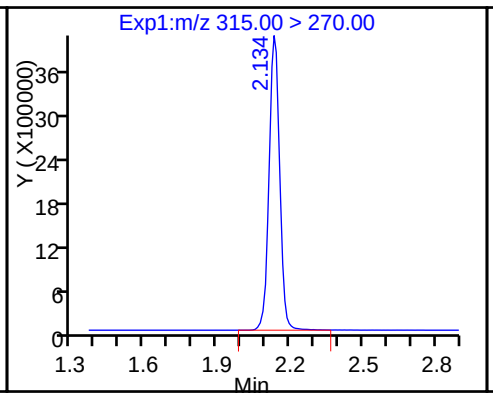
5 Perfluorobutanesulfonic acid



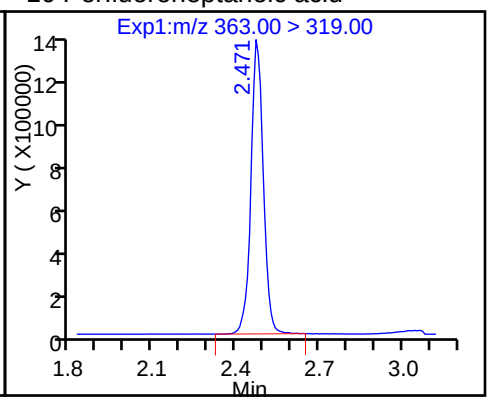
6 Perfluorohexanoic acid



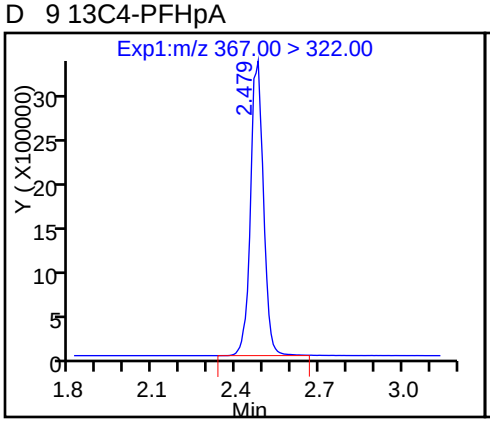
D 7 13C2 PFHxA



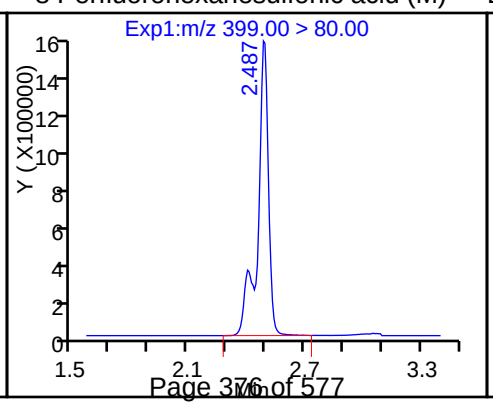
10 Perfluoroheptanoic acid



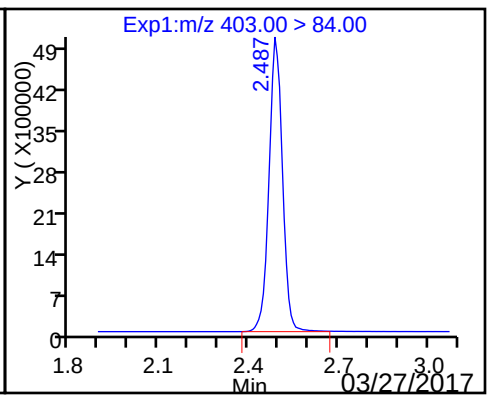
D 9 13C4-PFHpA



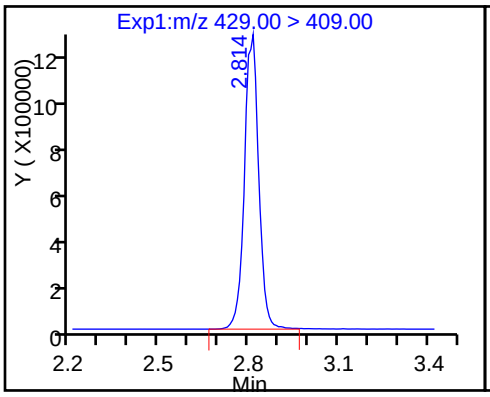
8 Perfluorohexanesulfonic acid (M)



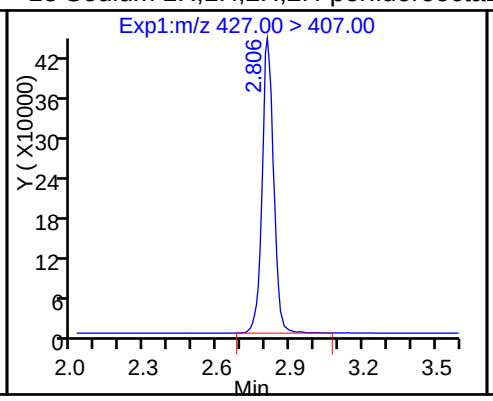
D 11 18O2 PFHxS



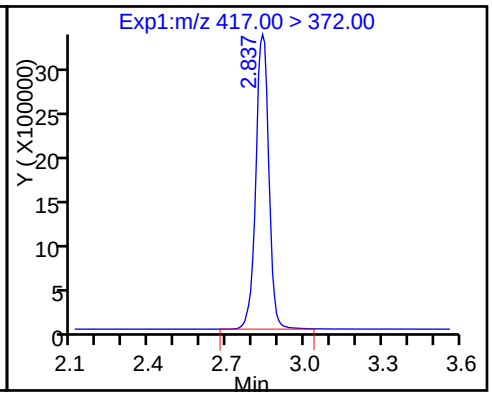
D 12 M2-6:2FTS



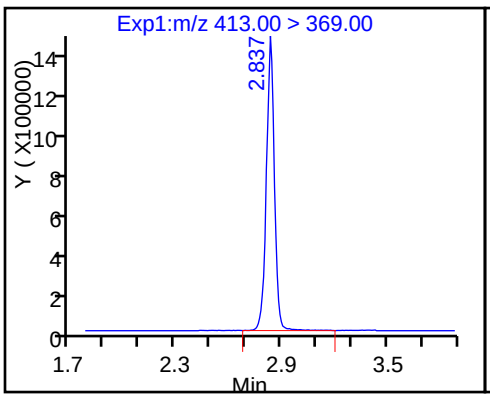
13 Sodium 1H,1H,2H,2H-perfluorooctane



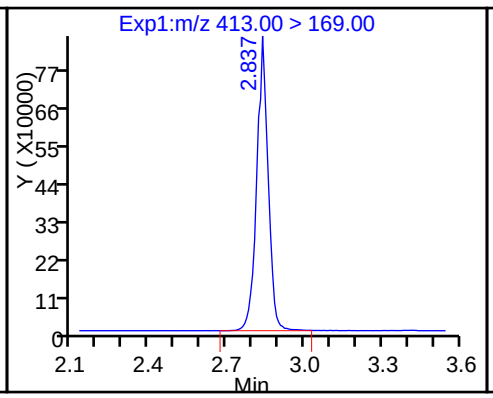
D 14 13C4 PFOA



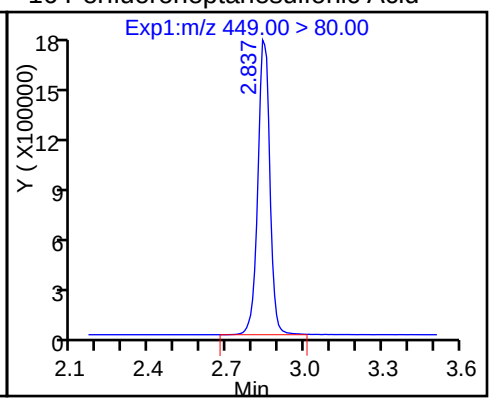
15 Perfluorooctanoic acid



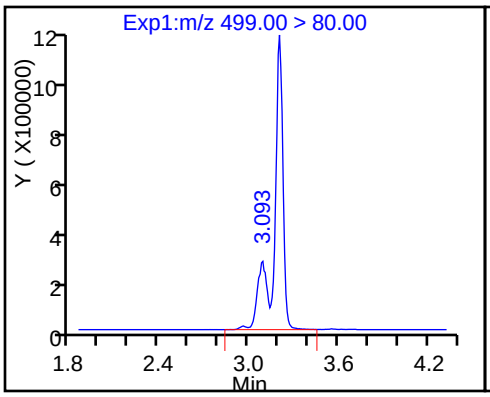
15 Perfluorooctanoic acid



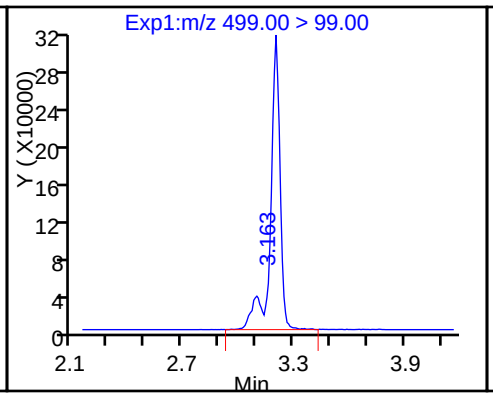
16 Perfluoroheptanesulfonic Acid



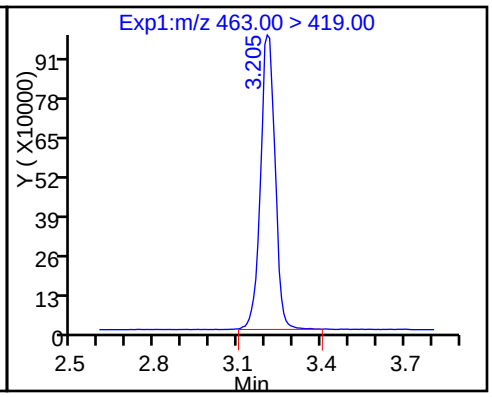
17 Perfluorooctane sulfonic acid



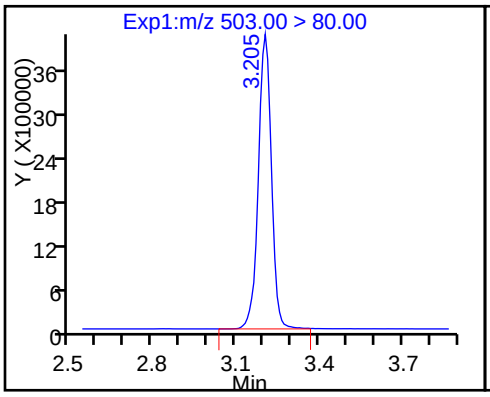
17 Perfluorooctane sulfonic acid



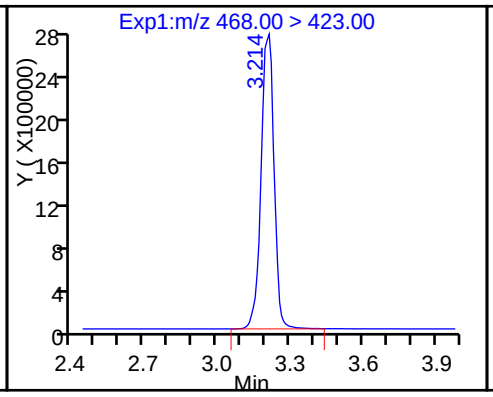
20 Perfluorononanoic acid



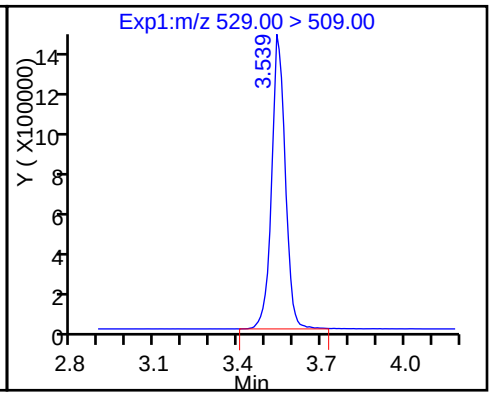
D 18 13C4 PFOS



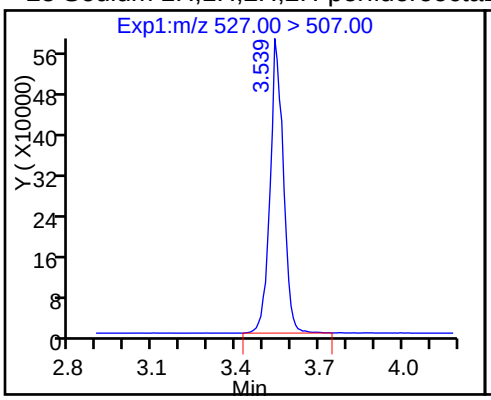
D 19 13C5 PFNA



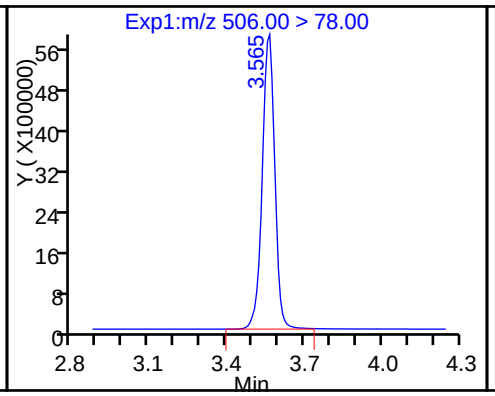
D 26 M2-8:2FTS



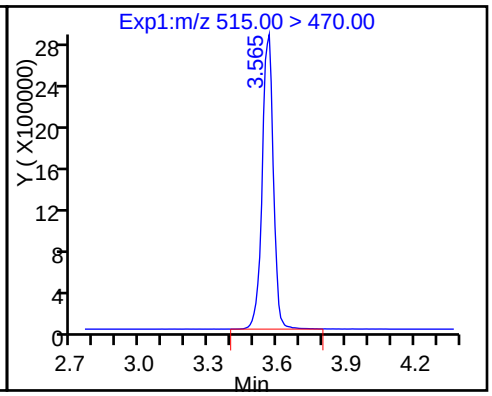
25 Sodium 1H,1H,2H,2H-perfluorooctane



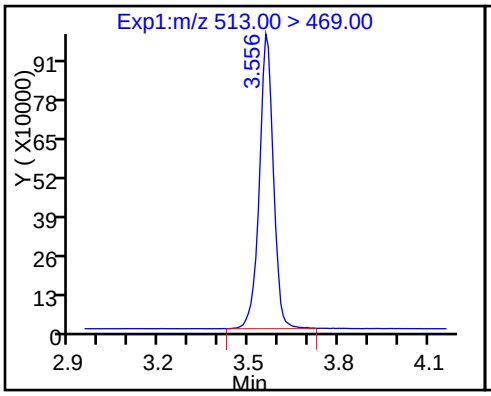
D 21 13C8 FOSA



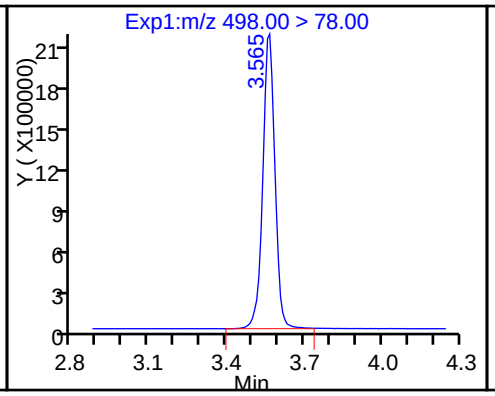
D 23 13C2 PFDA



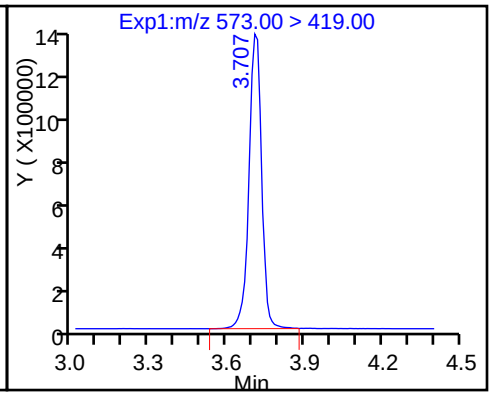
24 Perfluorodecanoic acid



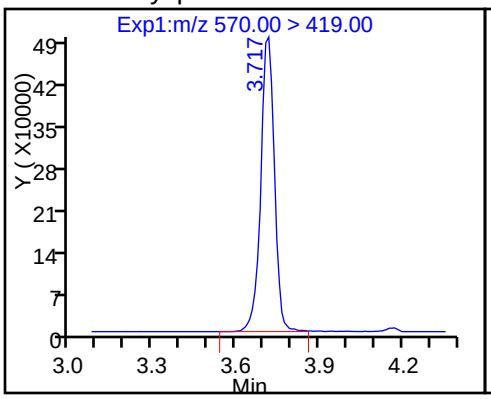
22 Perfluorooctane Sulfonamide



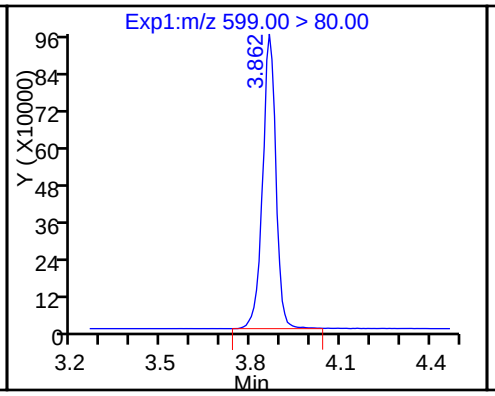
D 27 d3-NMeFOSAA



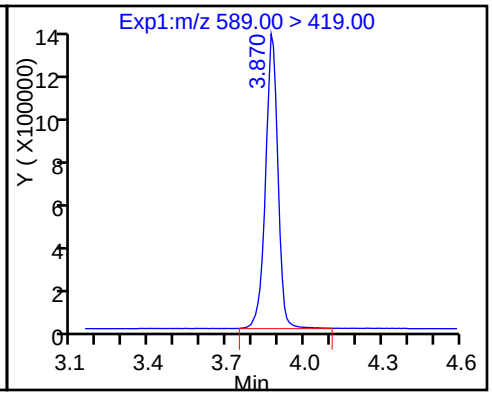
28 N-methyl perfluorooctane sulfonami



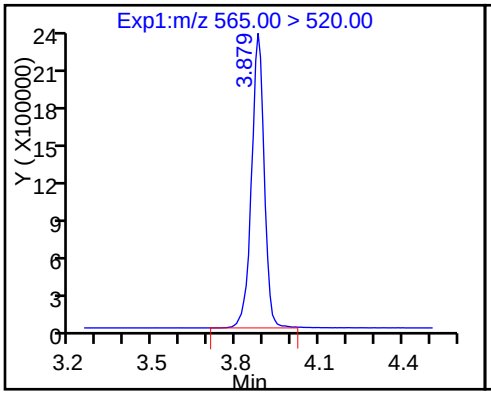
29 Perfluorodecane Sulfonic acid



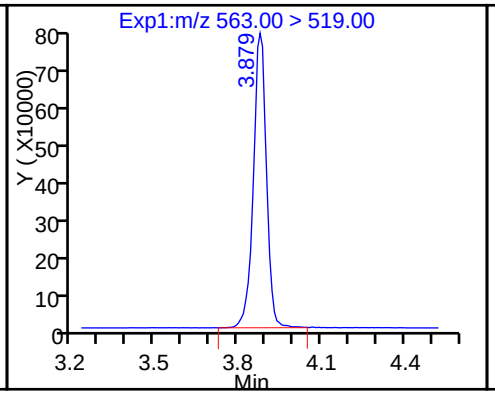
D 32 d5-NEtFOSAA



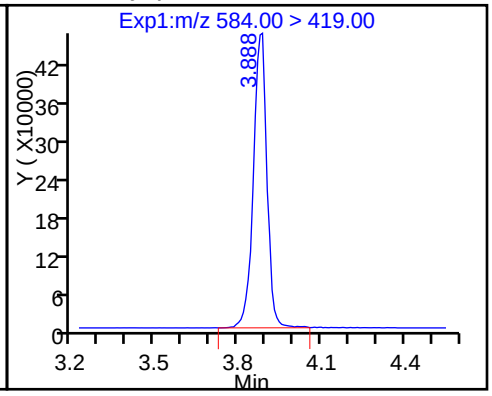
D 30 13C2 PFUnA



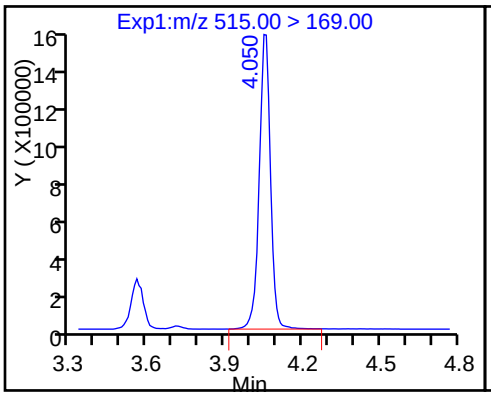
31 Perfluoroundecanoic acid



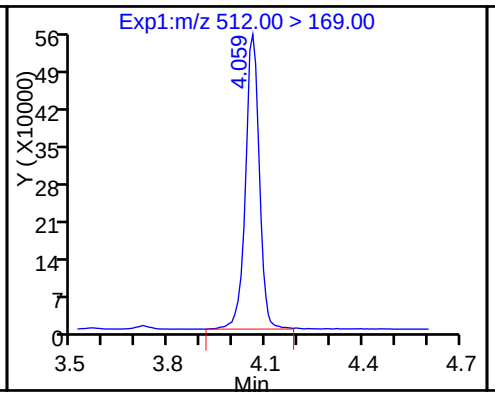
33 N-ethyl perfluorooctane sulfonamid



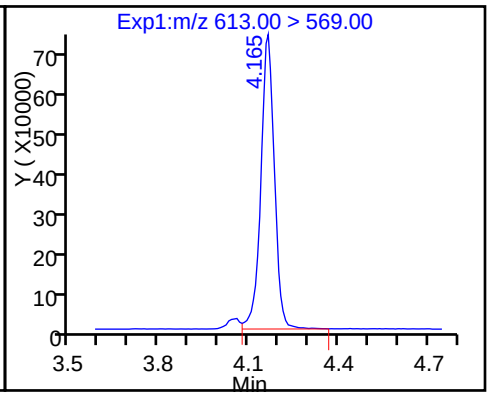
D 34 d-N-MeFOSA-M



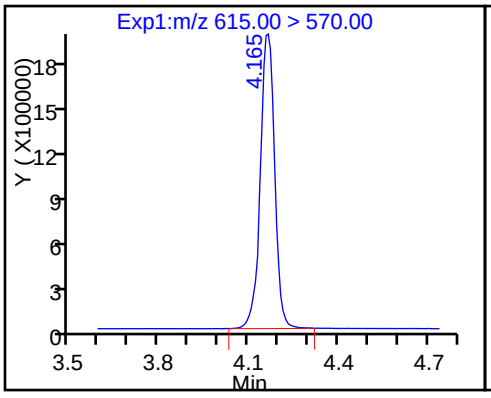
35 MeFOSA



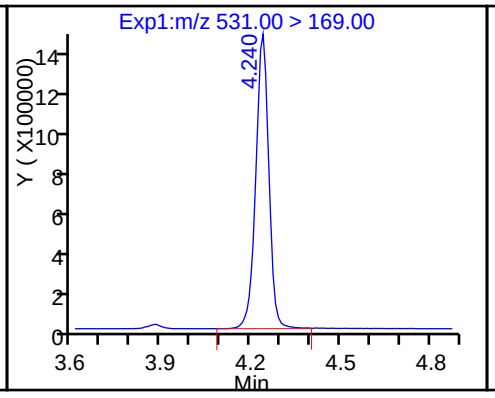
37 Perfluorododecanoic acid



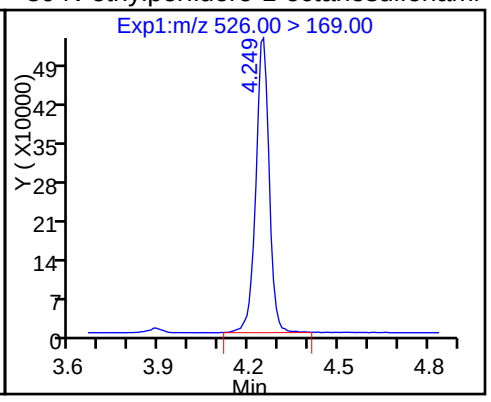
D 36 13C2 PFDoA



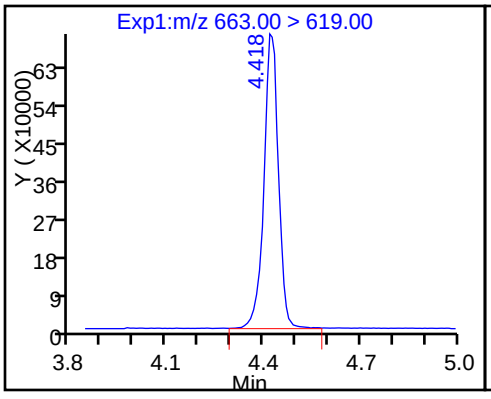
D 38 d-N-EtFOSA-M



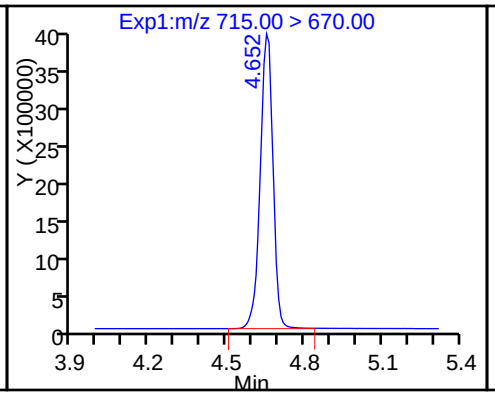
39 N-ethylperfluoro-1-octanesulfonami



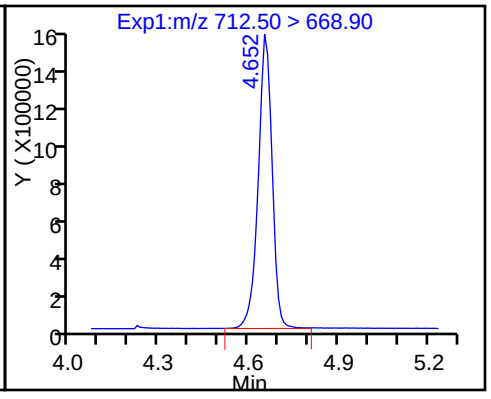
41 Perfluorotridecanoic acid



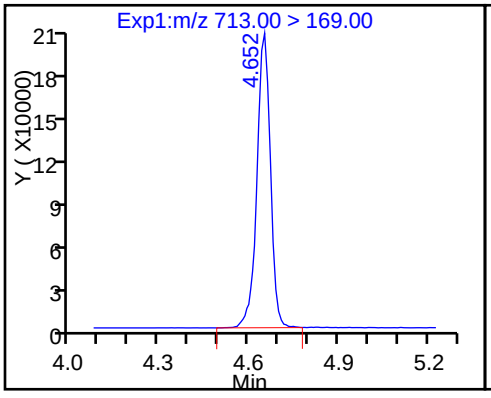
D 43 13C2-PFTeDA



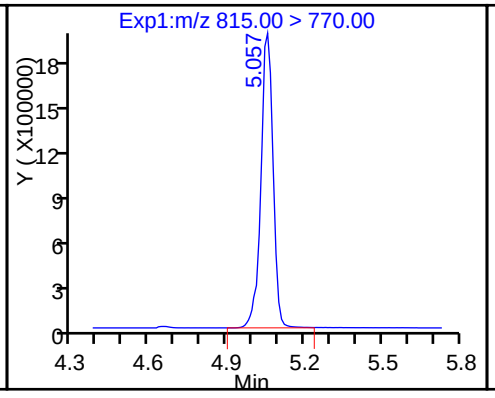
42 Perfluorotetradecanoic acid



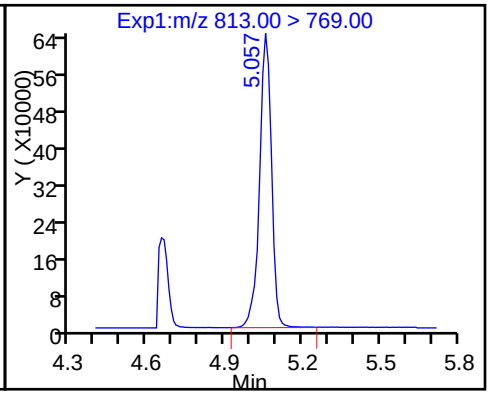
42 Perfluorotetradecanoic acid



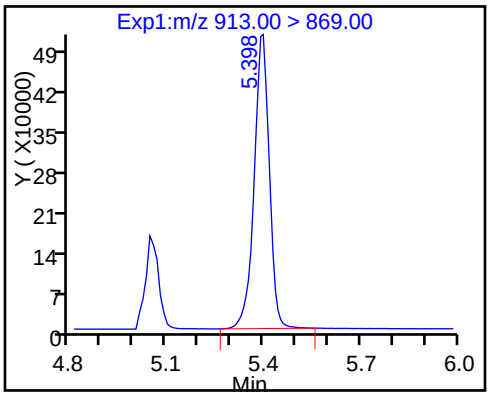
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

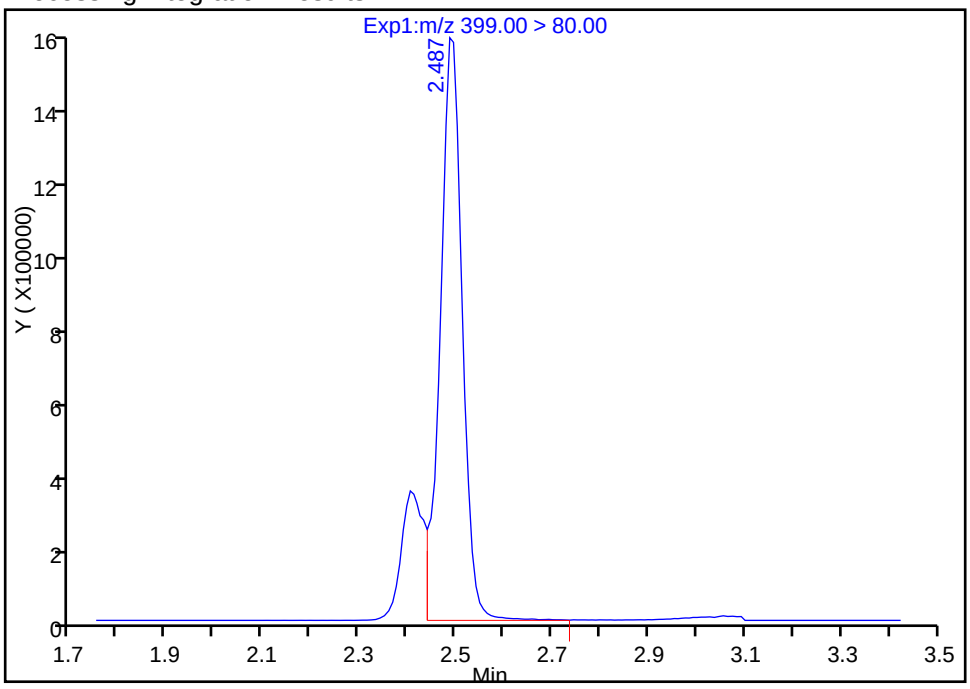
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_006.d
Injection Date: 01-Mar-2017 11:31:20 Instrument ID: A8_N
Lims ID: IC L4 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

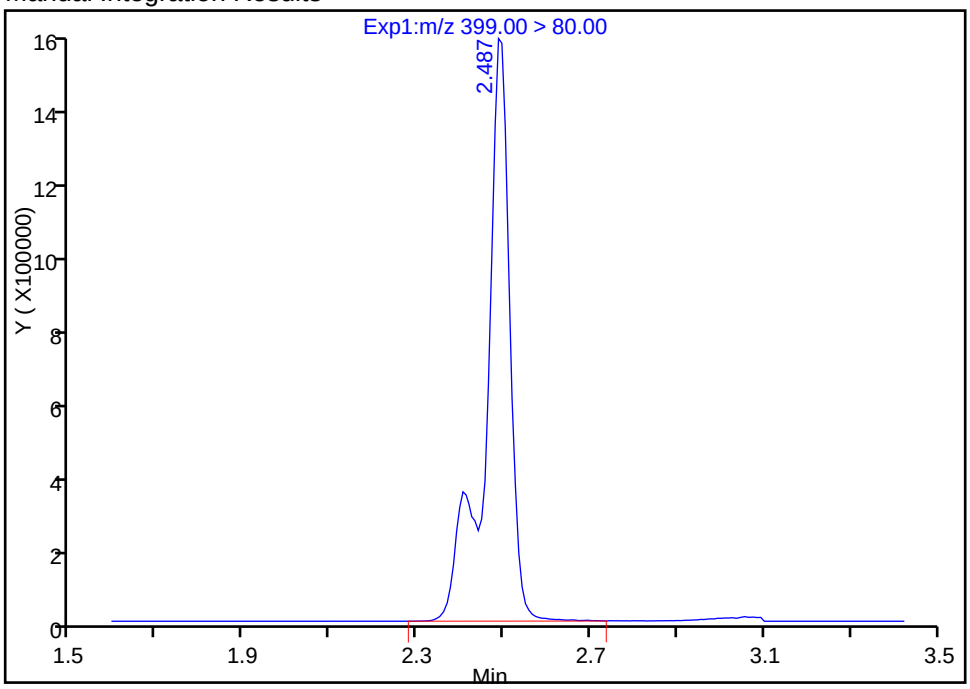
Processing Integration Results

RT: 2.49
Area: 4875110
Amount: 17.771425
Amount Units: ng/ml



Manual Integration Results

RT: 2.49
Area: 5958886
Amount: 17.225343
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:13
Audit Action: Manually Integrated Audit Reason: Isomers

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d
Lims ID: IC L5 Full
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 01-Mar-2017 11:38:49 ALS Bottle#: 32 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L5-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub15

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 01-Mar-2017 15:43:16 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 12:02:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.546	1.553	-0.007		14941160	51.1		102	667479	
2 Perfluorobutyric acid										
212.90 > 169.00	1.554	1.558	-0.004	1.000	13491384	53.3		107	127406	
D 3 13C5-PFPeA										
267.90 > 223.00	1.821	1.832	-0.011		11440005	49.3		98.5	626699	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.831	1.835	-0.004	1.000	11520213	51.5		103	120087	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.871	1.872	-0.001	1.000	19236596	45.5		103		
298.90 > 99.00	1.871	1.872	-0.001	1.000	8170789		2.35(0.00-0.00)	103		
6 Perfluorohexanoic acid										
313.00 > 269.00	2.127	2.133	-0.006	1.000	9710439	50.9		102	233505	
D 7 13C2 PFHxA										
315.00 > 270.00	2.127	2.134	-0.007		10719942	50.8		102	387004	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.466	2.474	-0.008	1.000	9559143	49.7		99.4	84389	
D 9 13C4-PFHpA										
367.00 > 322.00	2.466	2.475	-0.009		9944069	51.5		103	332028	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.481	2.485	-0.004	1.000	13776740	45.4		99.8		M
D 11 18O2 PFHxS										
403.00 > 84.00	2.481	2.489	-0.008		13953506	48.0		101	272613	
D 12 M2-6:2FTS										
429.00 > 409.00	2.793	2.805	-0.012		3650448	47.3		99.6		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.793	2.807	-0.014	1.000	3256270	47.7		101		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	2.824	2.835	-0.011	1.000	10343315	50.5		101	113108	
413.00 > 169.00	2.824	2.835	-0.011	1.000	6136507		1.69(0.90-1.10)	101	139975	
D 14 13C4 PFOA										
417.00 > 372.00	2.824	2.835	-0.011		10019820	48.9		97.8	414712	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.831	2.842	-0.011	1.000	12919018	50.5		106		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.087	3.145	-0.058	1.000	11786011	48.3		104	66281	
499.00 > 99.00	3.199	3.145	0.054	1.037	2666087		4.42(0.90-1.10)	104	7715	
20 Perfluorononanoic acid										
463.00 > 419.00	3.191	3.202	-0.011	1.000	8361339	51.7		103	164244	
D 18 13C4 PFOS										
503.00 > 80.00	3.199	3.204	-0.005		11866933	49.1		103	197438	
D 19 13C5 PFNA										
468.00 > 423.00	3.199	3.208	-0.009		8936977	50.2		100	263744	
D 26 M2-8:2FTS										
529.00 > 509.00	3.535	3.545	-0.010		4360731	47.1		98.3		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.543	3.546	-0.003	1.002	4074481	48.4		101		
D 21 13C8 FOSA										
506.00 > 78.00	3.560	3.559	0.001		18558718	50.6		101	247034	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.552	3.560	-0.008	1.000	7779706	53.2		106	168568	
D 23 13C2 PFDA										
515.00 > 470.00	3.552	3.560	-0.008		8074243	48.4		96.9	187283	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.560	3.561	-0.001	1.000	17500489	52.5		105	422956	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.702	3.710	-0.008		4409894	51.8		104		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.702	3.713	-0.011	1.000	4062831	47.4		94.9		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.859	3.866	-0.007	1.000	7386234	49.9		104		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.867	3.875	-0.008		4108227	50.5		101		
D 30 13C2 PFUnA										M
565.00 > 520.00	3.867	3.876	-0.009		6419845	49.1		98.2	215302	M
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.867	3.878	-0.011	1.000	6388091	49.1		98.2	145481	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.876	3.883	-0.007	1.002	3565748	47.7		95.3		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.048	4.050	-0.002		4549448	51.7		103		
35 MeFOSA										
512.00 > 169.00	4.058	4.057	0.001	1.000	4038740	47.4		94.9		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.157	4.162	-0.005	1.000	5939325	52.7		105	93610	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA										
615.00 > 570.00	4.157	4.164	-0.007		6158791	49.7		99.4	157158	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.241	4.235	0.006		4384481	51.4		103		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.241	4.242	-0.001	1.000	4076562	47.3		94.5		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.418	4.424	-0.006	1.000	5662375	52.6		105	111159	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.641	4.655	-0.014		13257413	51.2		102	430727	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.651	4.657	-0.006	1.000	12631200	52.1		104	118223	
713.00 > 169.00	4.651	4.657	-0.006	1.000	1664503		7.59(0.00-0.00)	104	123601	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.049	5.057	-0.008		6606731	52.8		106	93567	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.049	5.059	-0.010	1.000	5695645	49.5		99.0	5357	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.383	5.399	-0.016	1.000	4591929	52.0		104	6139	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L5_00001 Amount Added: 1.00 Units: mL

Report Date: 01-Mar-2017 15:43:16 Chrom Revision: 2.2 03-Feb-2017 15:35:04

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d

Injection Date: 01-Mar-2017 11:38:49 Instrument ID: A8_N

Lims ID: IC L5 Full

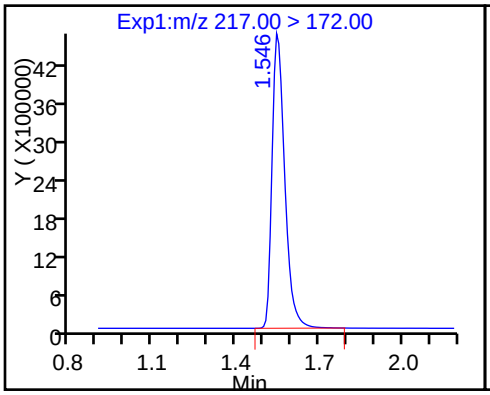
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 6

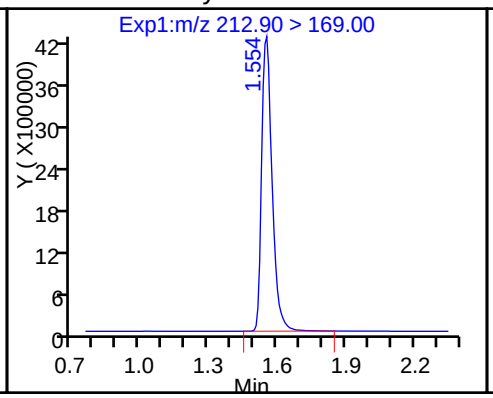
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

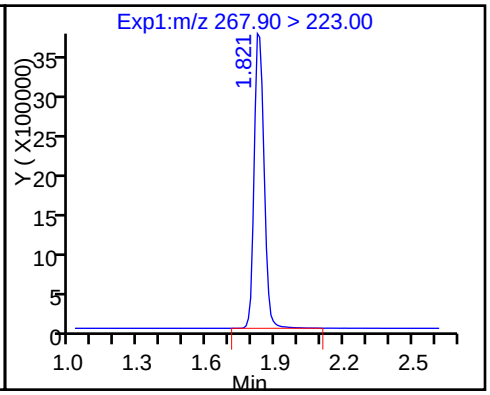
D 1 13C4 PFBA



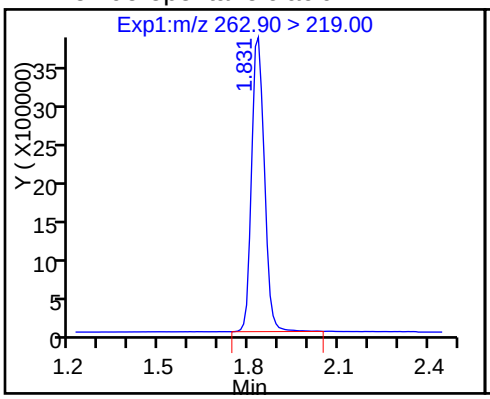
2 Perfluorobutyric acid



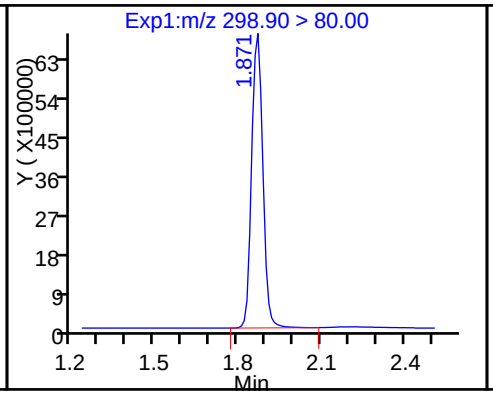
D 3 13C5-PFPeA



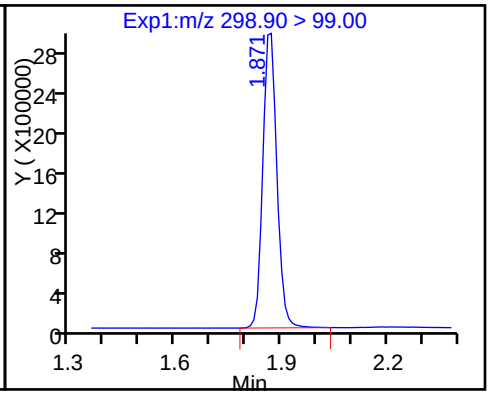
4 Perfluoropentanoic acid



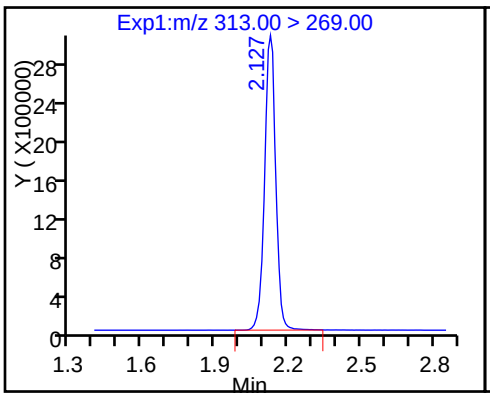
5 Perfluorobutanesulfonic acid



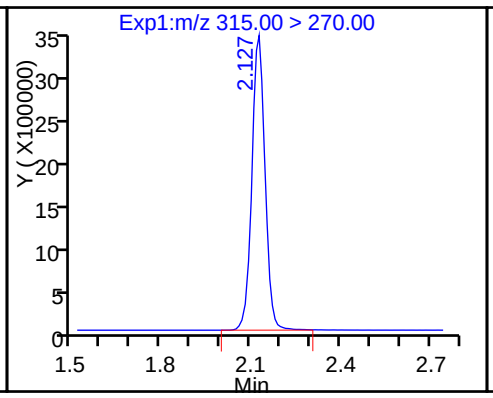
5 Perfluorobutanesulfonic acid



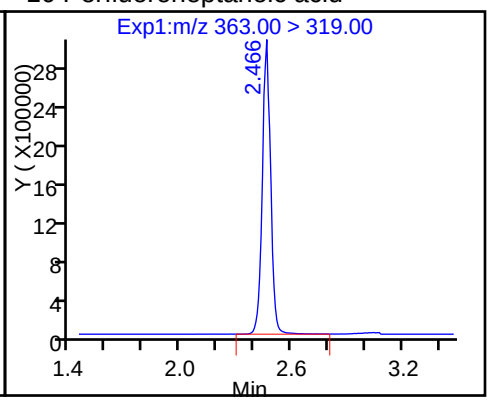
6 Perfluorohexanoic acid



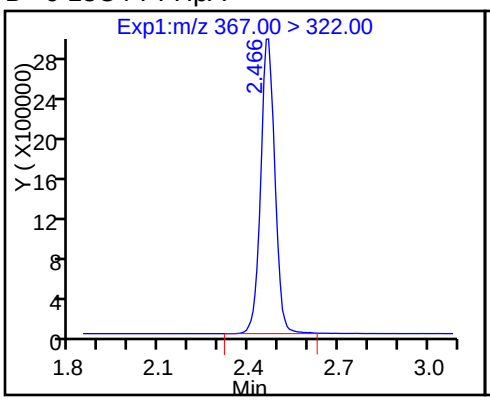
D 7 13C2 PFHxA



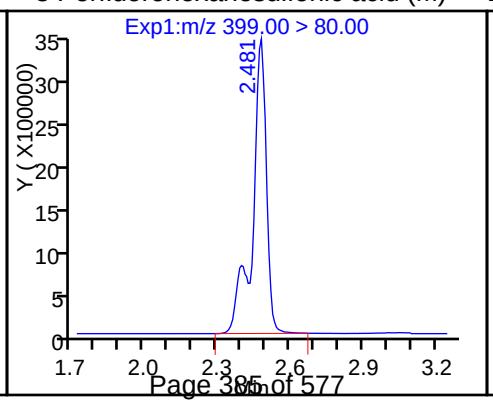
10 Perfluoroheptanoic acid



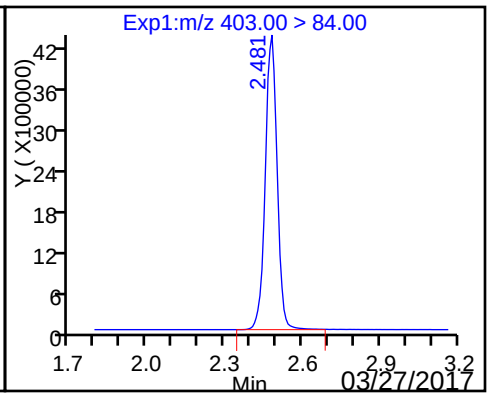
D 9 13C4-PFHpA



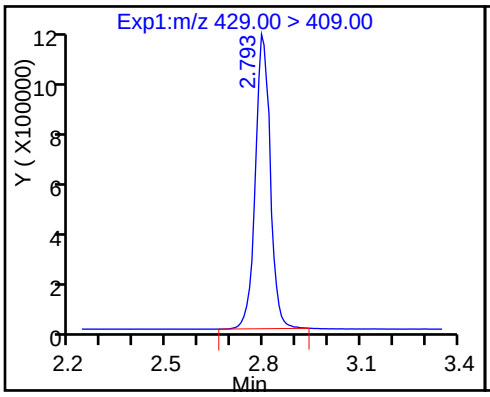
8 Perfluorohexanesulfonic acid (M)



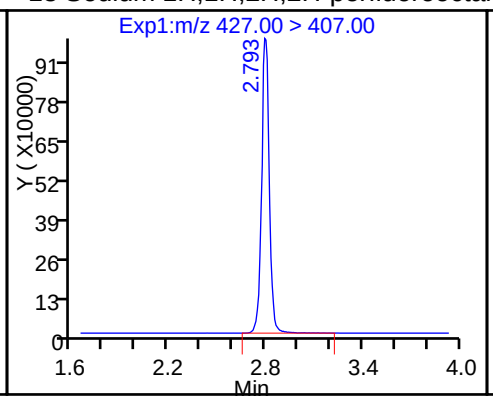
D 11 18O2 PFHxS



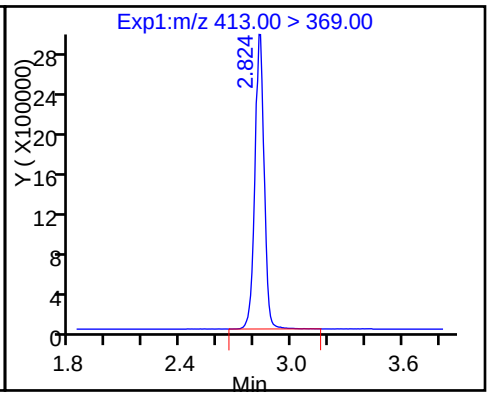
D 12 M2-6:2FTS



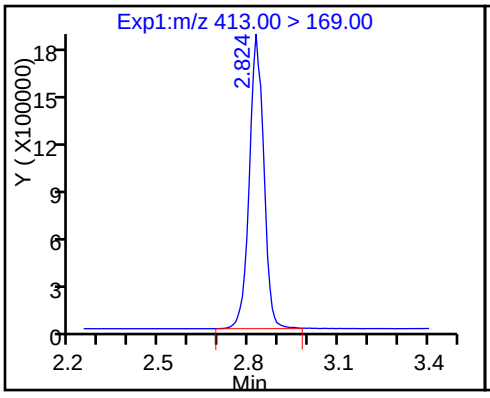
13 Sodium 1H,1H,2H,2H-perfluorooctane



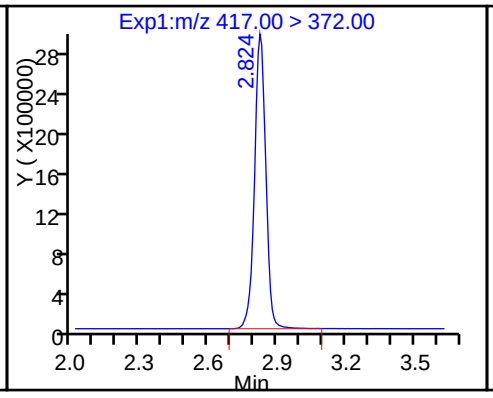
15 Perfluorooctanoic acid



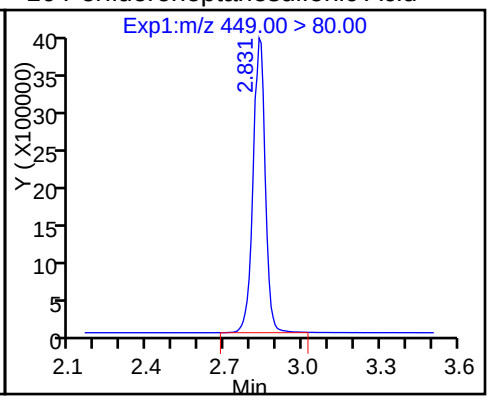
15 Perfluorooctanoic acid



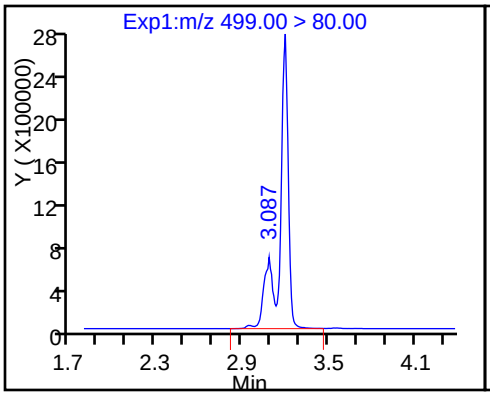
D 14 13C4 PFOA



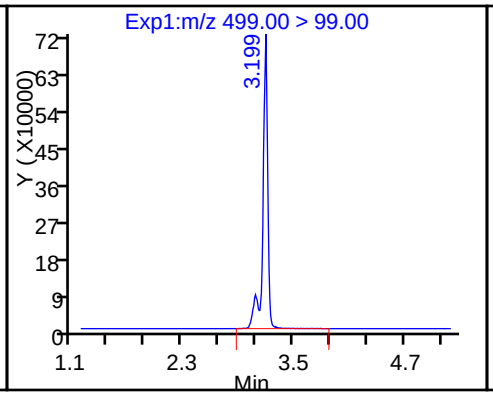
16 Perfluoroheptanesulfonic Acid



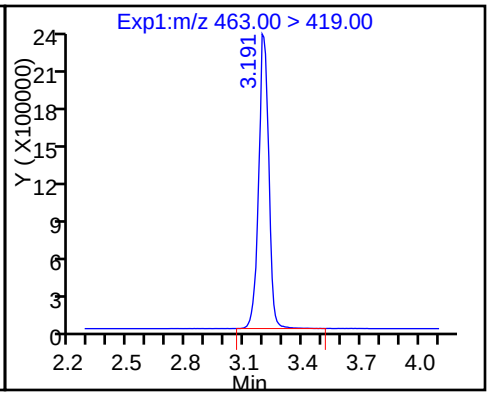
17 Perfluorooctane sulfonic acid



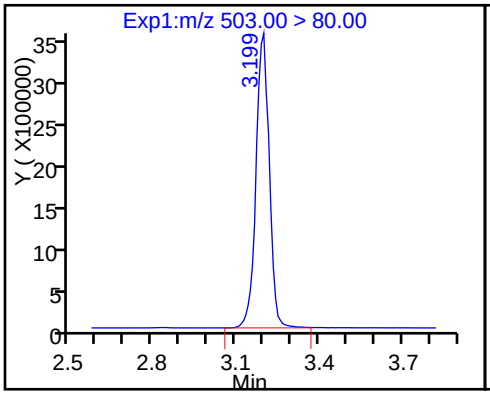
17 Perfluorooctane sulfonic acid



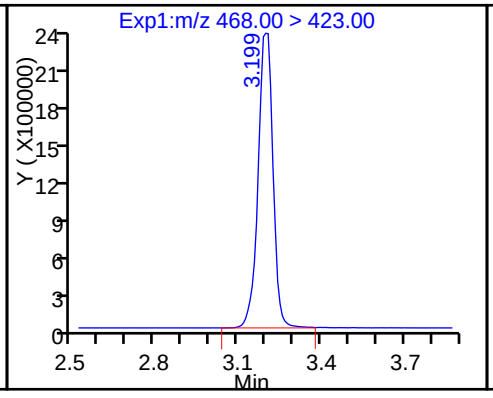
20 Perfluorononanoic acid



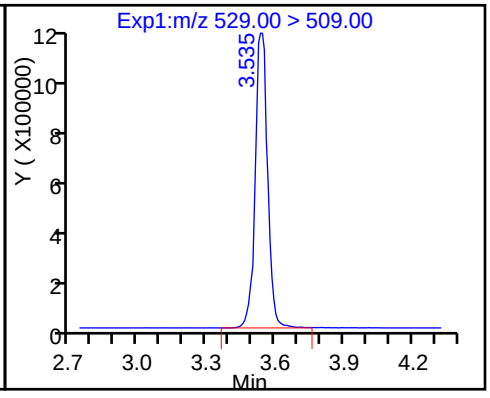
D 18 13C4 PFOS



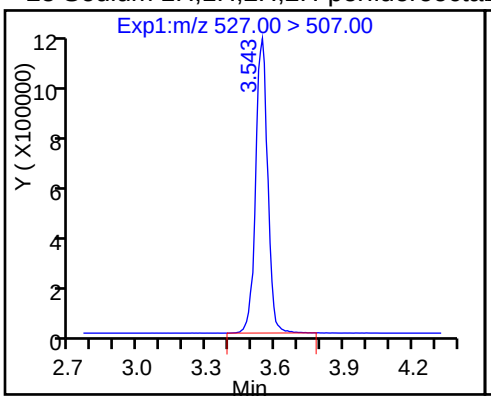
D 19 13C5 PFNA



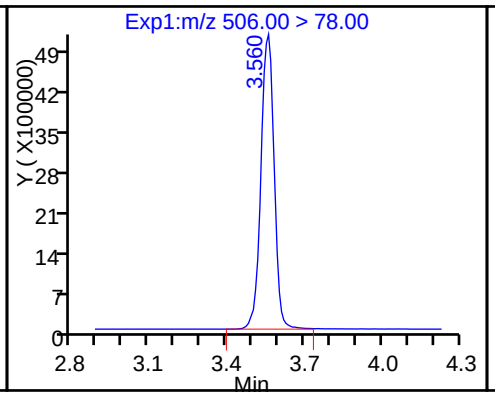
D 26 M2-8:2FTS



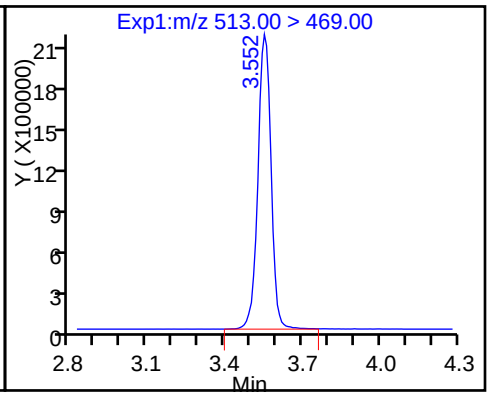
25 Sodium 1H,1H,2H,2H-perfluorooctane



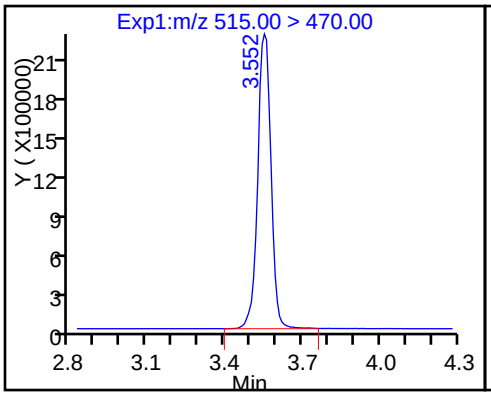
D 21 13C8 FOSA



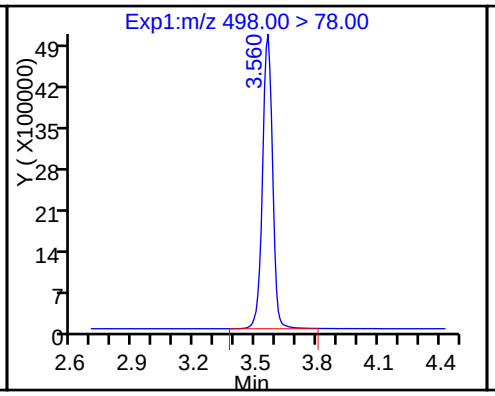
24 Perfluorodecanoic acid



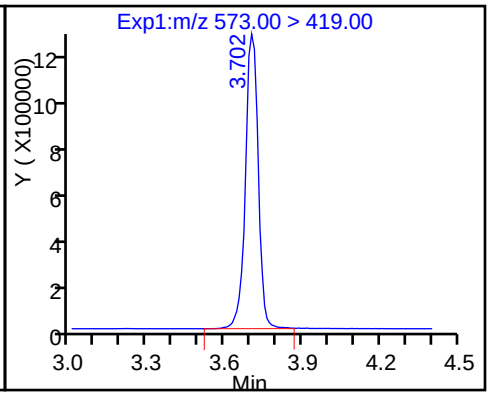
D 23 13C2 PFDA



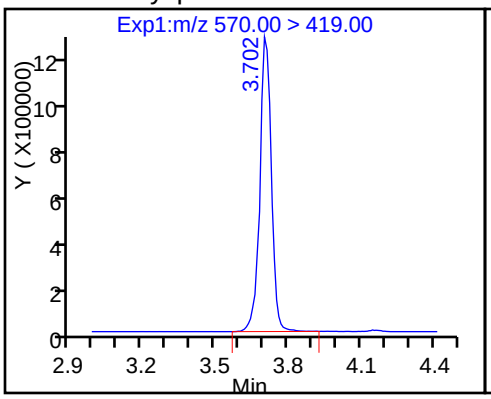
22 Perfluorooctane Sulfonamide



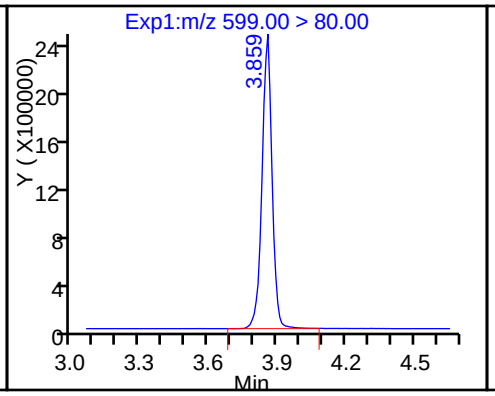
D 27 d3-NMeFOSAA



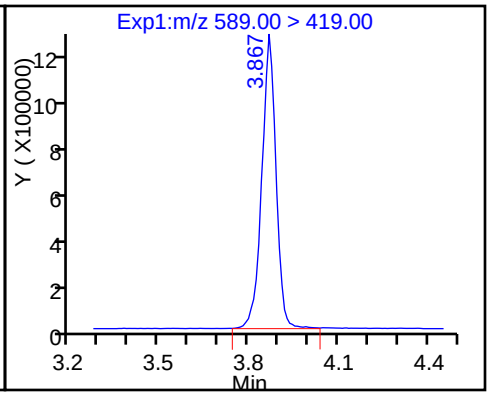
28 N-methyl perfluorooctane sulfonami



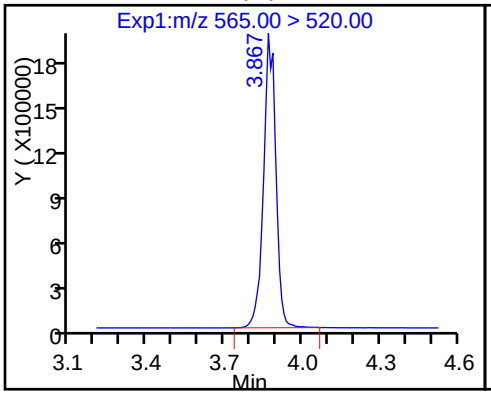
29 Perfluorodecane Sulfonic acid



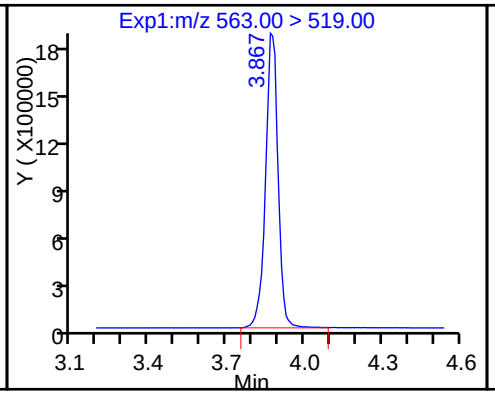
D 32 d5-NEtFOSAA



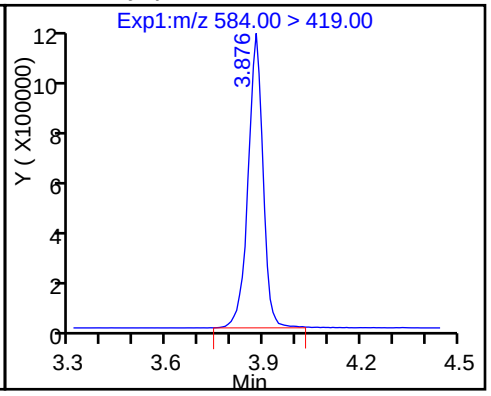
D 30 13C2 PFUnA (M)



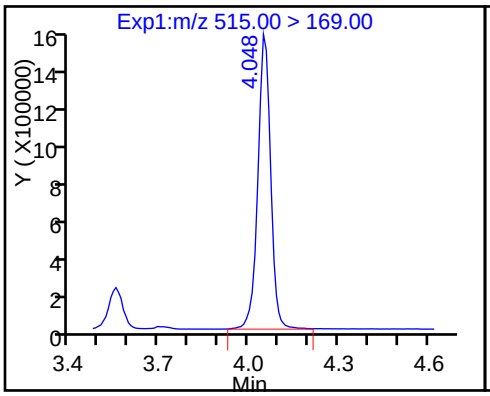
31 Perfluoroundecanoic acid



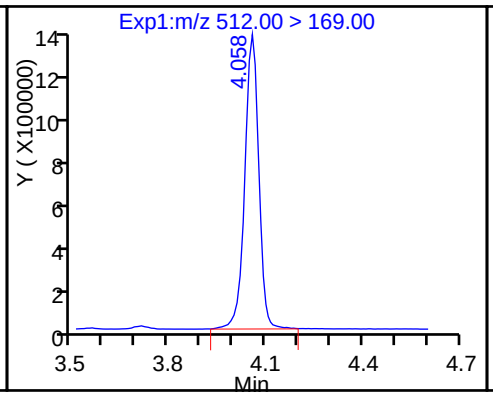
33 N-ethyl perfluorooctane sulfonamid



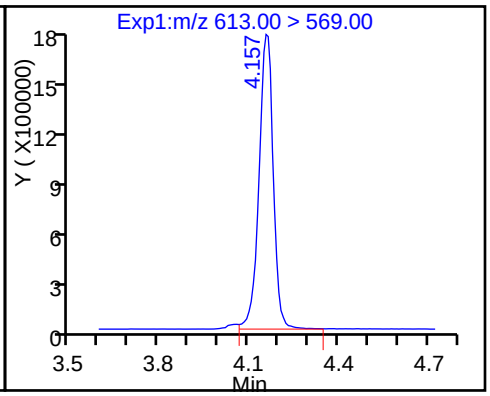
D 34 d-N-MeFOSA-M



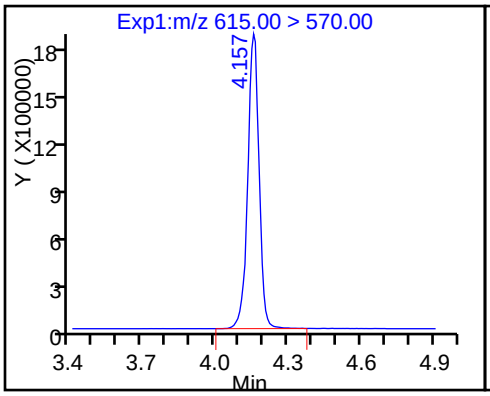
35 MeFOSA



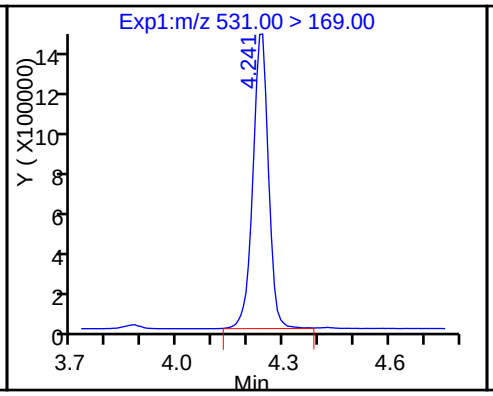
37 Perfluorododecanoic acid



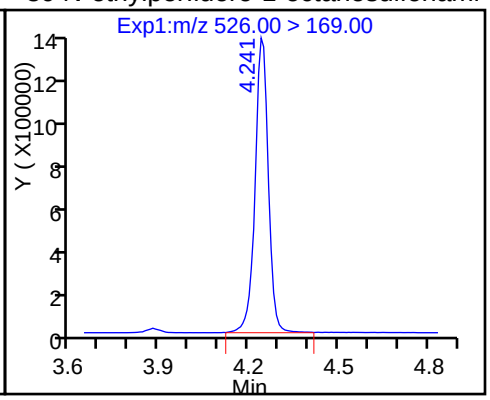
D 36 13C2 PFDoA



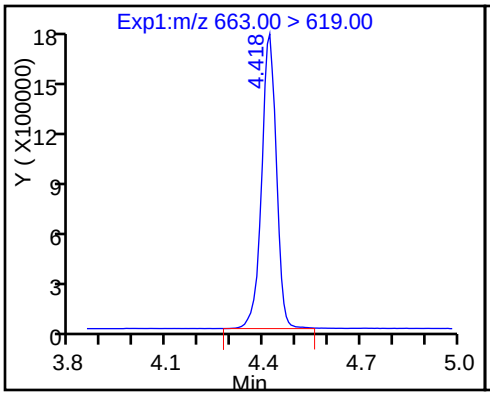
D 38 d-N-EtFOSA-M



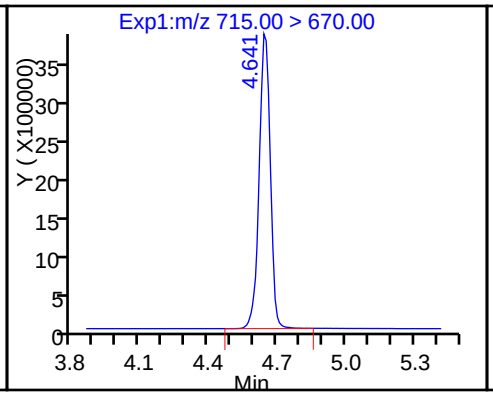
39 N-ethylperfluoro-1-octanesulfonami



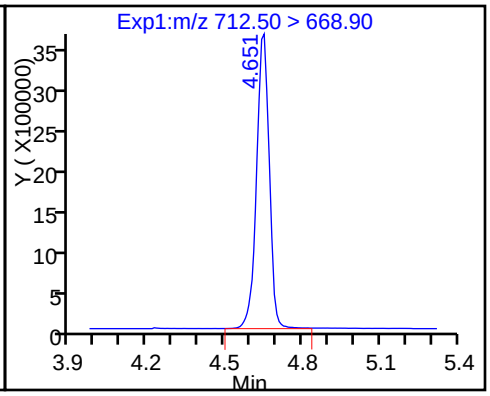
41 Perfluorotridecanoic acid



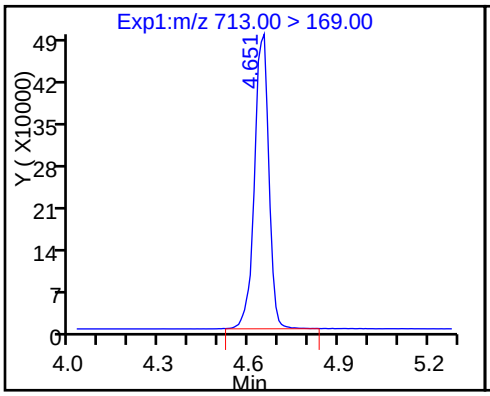
D 43 13C2-PFTeDA



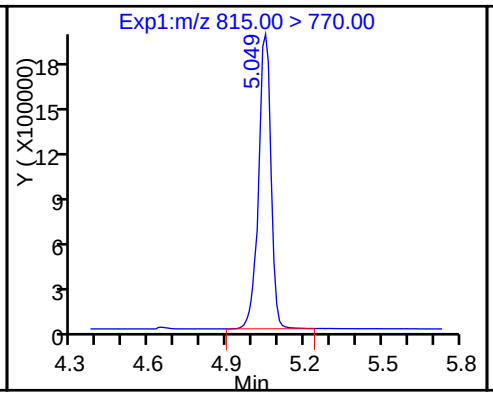
42 Perfluorotetradecanoic acid



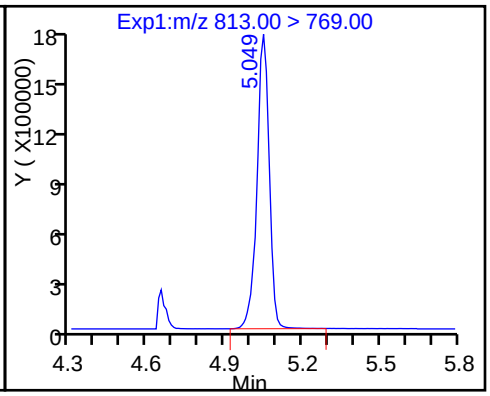
42 Perfluorotetradecanoic acid



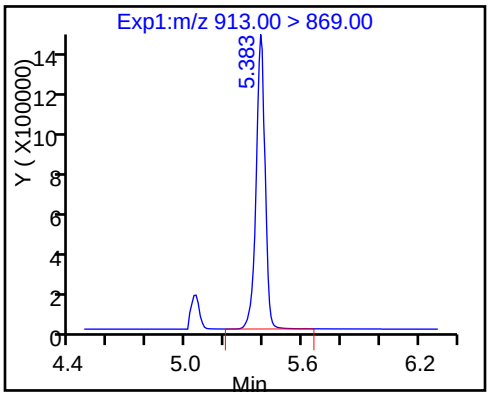
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

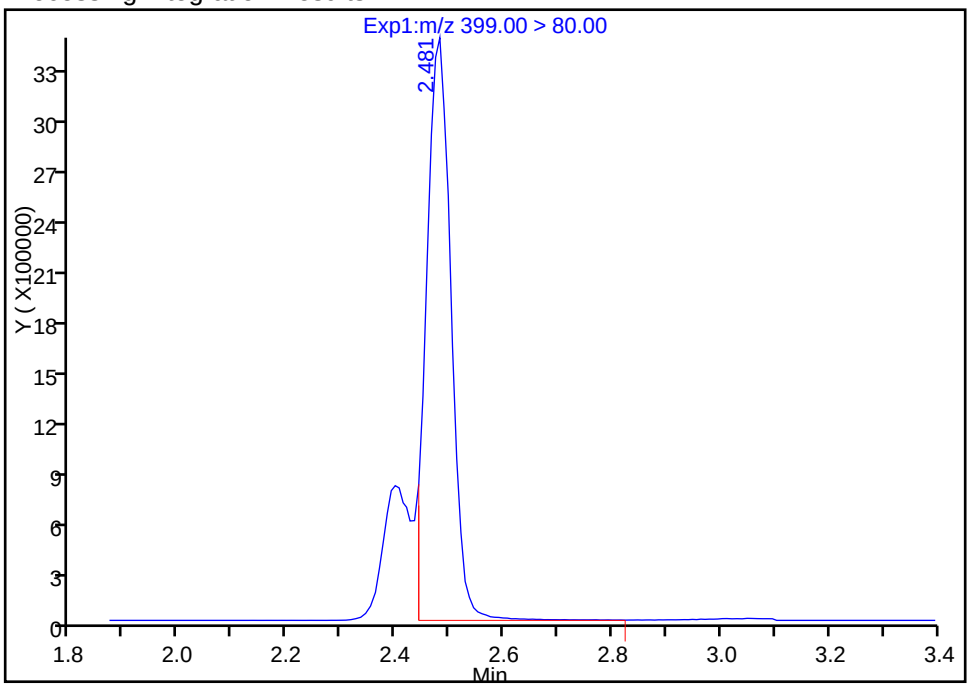
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d
Injection Date: 01-Mar-2017 11:38:49 Instrument ID: A8_N
Lims ID: IC L5 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

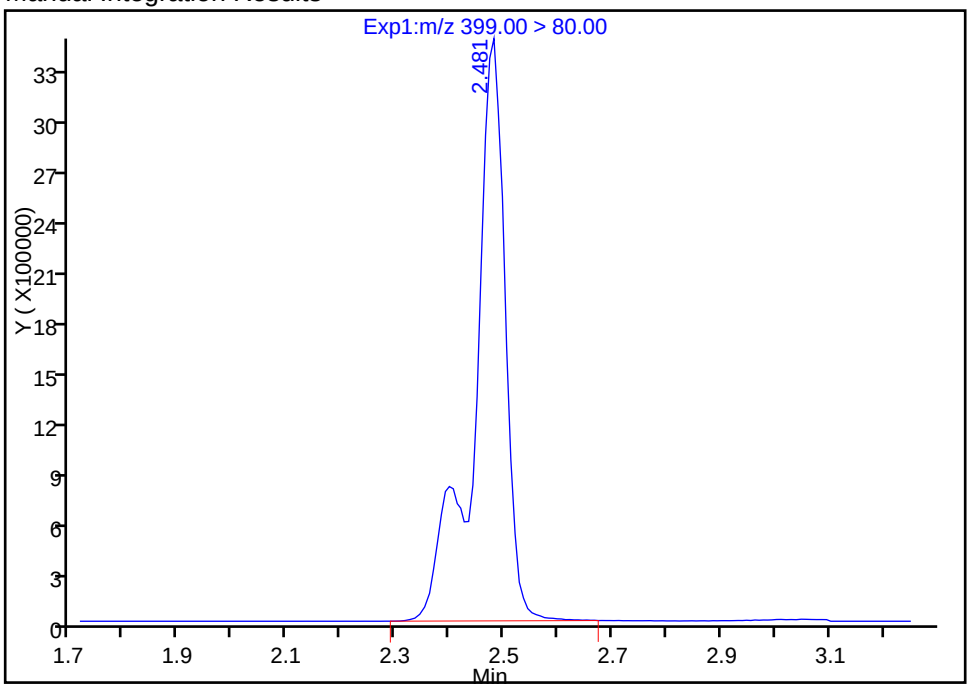
Processing Integration Results

RT: 2.48
Area: 10754320
Amount: 35.081839
Amount Units: ng/ml



Manual Integration Results

RT: 2.48
Area: 13776740
Amount: 45.409199
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:15
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

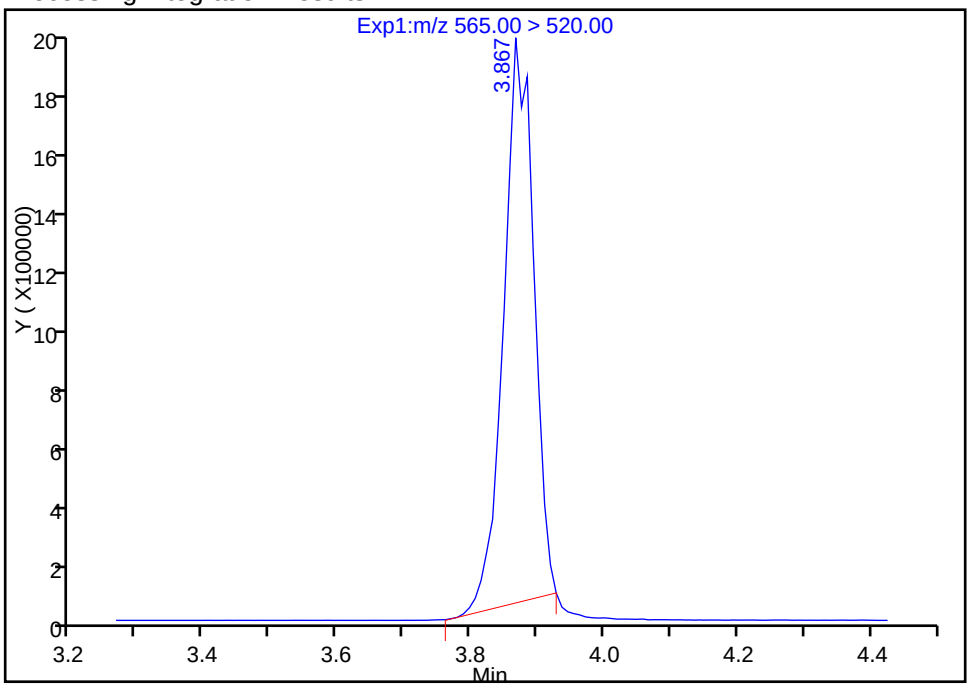
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d
Injection Date: 01-Mar-2017 11:38:49 Instrument ID: A8_N
Lims ID: IC L5 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 30 13C2 PFUnA, CAS: STL00997

Signal: 1

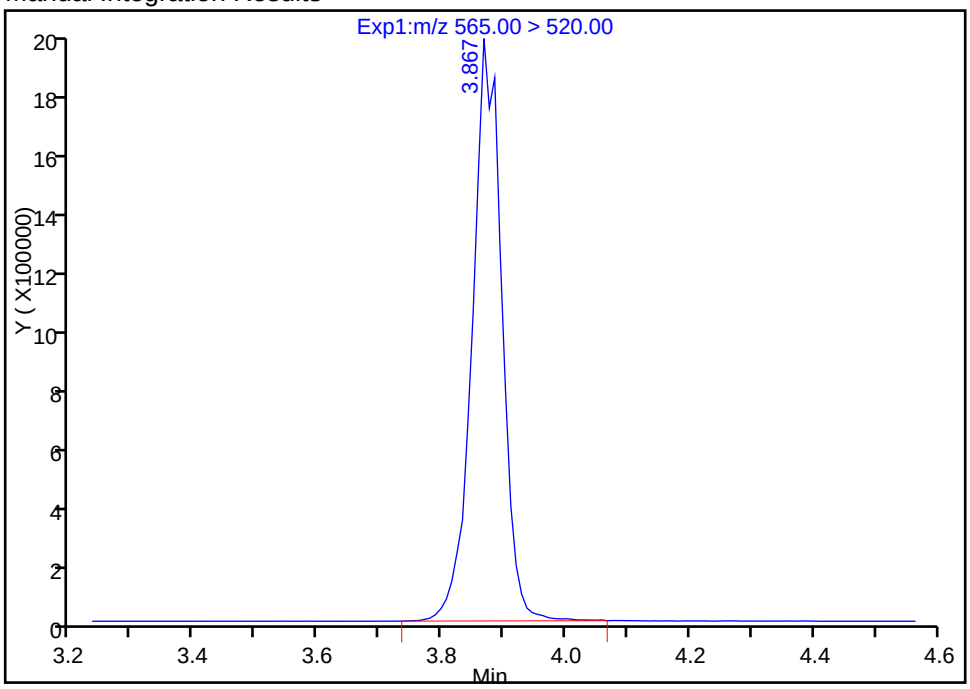
Processing Integration Results

RT: 3.87
Area: 5863845
Amount: 45.473087
Amount Units: ng/ml



Manual Integration Results

RT: 3.87
Area: 6419845
Amount: 49.079386
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:15
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Lims ID: IC L6 Full
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 01-Mar-2017 11:46:18 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L6-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub15

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 01-Mar-2017 15:43:18 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 12:04:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.546	1.553	-0.007		12268568	42.0		84.0	717990	
2 Perfluorobutyric acid										
212.90 > 169.00	1.554	1.558	-0.004	1.000	37767596	181.7		90.8	312656	
D 3 13C5-PFPeA										
267.90 > 223.00	1.822	1.832	-0.010		9320645	40.1		80.3	792870	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.835	-0.013	1.000	31900088	174.9		87.4	249960	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.872	-0.011	1.000	47824719	141.7		80.1		
298.90 > 99.00	1.861	1.872	-0.011	1.000	24392241		1.96(0.00-0.00)	80.1		
6 Perfluorohexanoic acid										
313.00 > 269.00	2.122	2.133	-0.011	1.000	30367858	188.7		94.4	703737	
D 7 13C2 PFHxA										
315.00 > 270.00	2.122	2.134	-0.012		9044966	42.9		85.8	272049	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.461	2.474	-0.013	1.000	28382869	191.6		95.8	225664	
D 9 13C4-PFHpA										
367.00 > 322.00	2.461	2.475	-0.014		7657909	39.7		79.4	207490	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.478	2.485	-0.007	1.000	42133990	173.8		95.5		
D 11 18O2 PFHxS										
403.00 > 84.00	2.478	2.489	-0.011		11147782	38.3		81.0	329095	
D 12 M2-6:2FTS										
429.00 > 409.00	2.789	2.805	-0.016		3409307	44.2		93.0		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.797	2.807	-0.010	1.000	11262289	177.0		93.3		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.820	2.835	-0.015		7688496	37.5		75.0	192123	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.820	2.835	-0.015	1.000	29743583	189.3		94.7	342015	
413.00 > 169.00	2.813	2.835	-0.022	0.997	18781119		1.58(0.90-1.10)	94.7	380819	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.828	2.842	-0.014	1.000	36282267	168.5		88.5		
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.186	3.145	0.041	1.000	39756569	193.5		104	230631	M
499.00 > 99.00	3.195	3.145	0.050	1.003	9596909		4.14(0.90-1.10)	104	294050	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.186	3.202	-0.016	1.000	26057481	206.4		103	338058	
D 18 13C4 PFOS										
503.00 > 80.00	3.186	3.204	-0.018		9985826	41.3		86.5	102426	
D 19 13C5 PFNA										
468.00 > 423.00	3.195	3.208	-0.013		6983620	39.3		78.5	207659	
D 26 M2-8:2FTS										M
529.00 > 509.00	3.523	3.545	-0.022		3659550	39.5		82.5		M
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.523	3.546	-0.023	1.000	12220206	173.0		90.3		
D 21 13C8 FOSA										
506.00 > 78.00	3.548	3.559	-0.011		15188110	41.4		82.8	281288	
D 23 13C2 PFDA										
515.00 > 470.00	3.548	3.560	-0.012		6226569	37.4		74.7	124238	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.548	3.560	-0.012	1.000	24265114	215.2		108	364832	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.557	3.561	-0.004	1.000	47690261	174.7		87.4	485165	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.696	3.710	-0.014		4115011	48.3		96.6		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.707	3.713	-0.006	1.003	16290792	203.8		102		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.853	3.866	-0.013	1.000	24675284	198.3		103		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.862	3.875	-0.013		3122900	38.4		76.8		
D 30 13C2 PFUnA										
565.00 > 520.00	3.862	3.876	-0.014		4771549	36.5		73.0	166160	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.862	3.878	-0.016	1.000	18672321	193.0		96.5	304259	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.871	3.883	-0.012	1.002	11906031	209.4		105		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.042	4.050	-0.008		4433562	50.4		101		
35 MeFOSA										
512.00 > 169.00	4.051	4.057	-0.006	1.000	17219029	207.6		104		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.138	4.162	-0.024	1.000	19408225	199.4		99.7	329427	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA										M
615.00 > 570.00	4.152	4.164	-0.012		5320903	42.9		85.9	133785	M
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.227	4.235	-0.008		4425922	51.9		104		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.236	4.242	-0.006	1.000	17404238	199.9		99.9		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.407	4.424	-0.017	1.000	18379771	197.7		98.9	284610	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.635	4.655	-0.020		11353892	43.8		87.6	278458	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.635	4.657	-0.022	1.000	39468467	188.6		94.3	283243	
713.00 > 169.00	4.635	4.657	-0.022	1.000	6001611		6.58(0.00-0.00)	94.3	215597	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.035	5.057	-0.022		5879424	47.0		94.0	81025	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.046	5.059	-0.013	1.000	20137749	203.8		102	23053	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.375	5.399	-0.024	1.000	17831844	233.5		117	22435	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L6_00002 Amount Added: 1.00 Units: mL

Report Date: 01-Mar-2017 15:43:19 Chrom Revision: 2.2 03-Feb-2017 15:35:04

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d

Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N

Lims ID: IC L6 Full

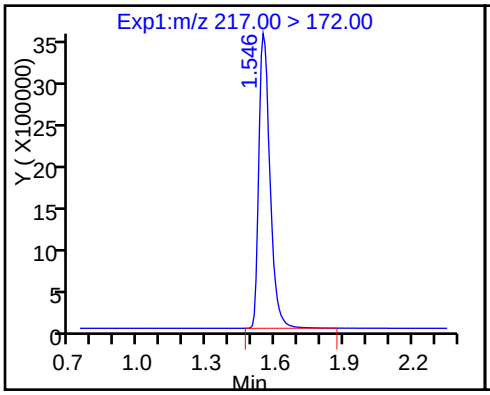
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7

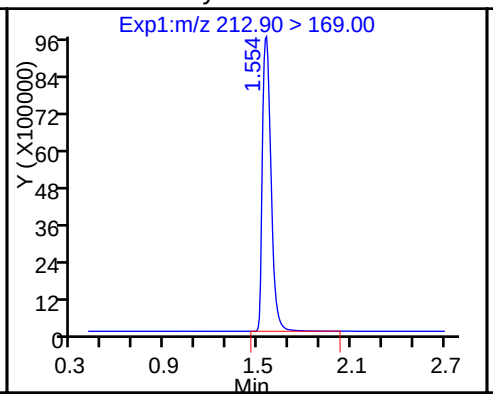
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

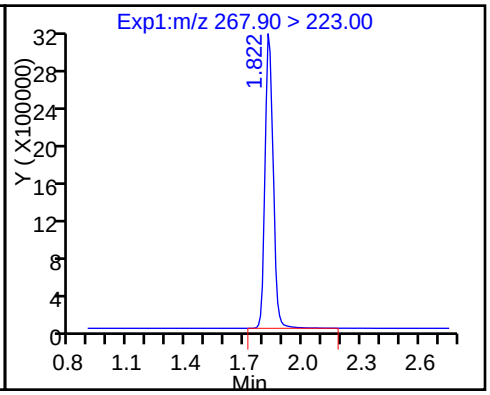
D 1 13C4 PFBA



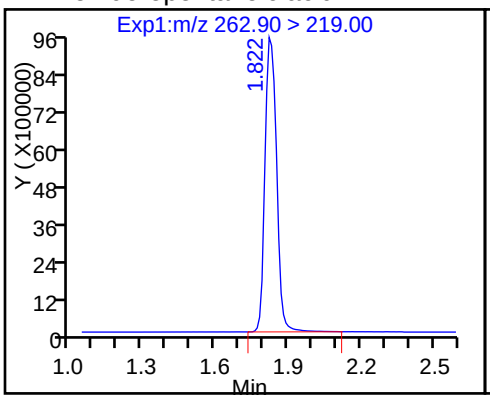
2 Perfluorobutyric acid



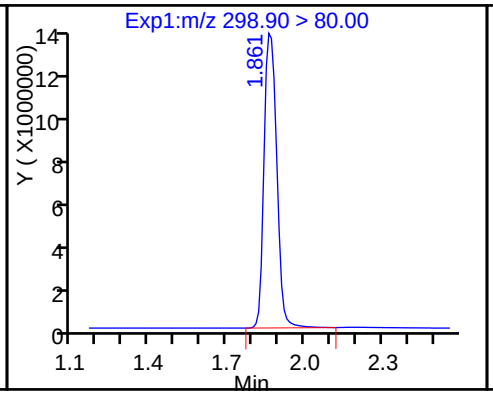
D 3 13C5-PFPeA



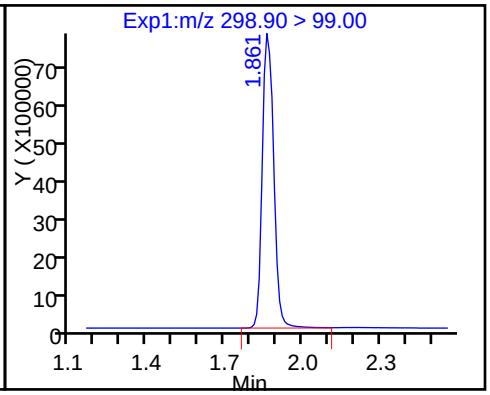
4 Perfluoropentanoic acid



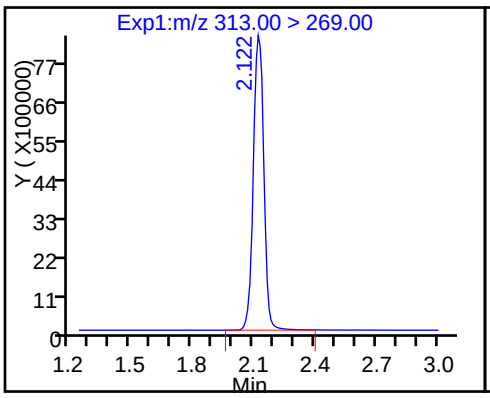
5 Perfluorobutanesulfonic acid



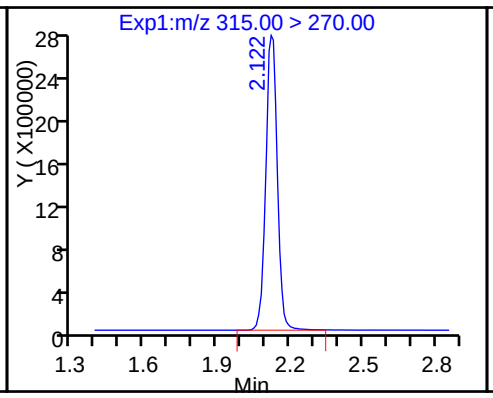
5 Perfluorobutanesulfonic acid



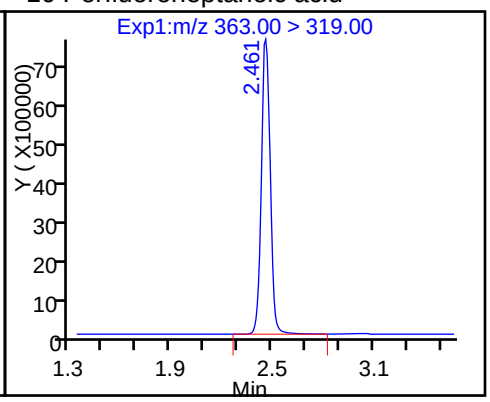
6 Perfluorohexanoic acid



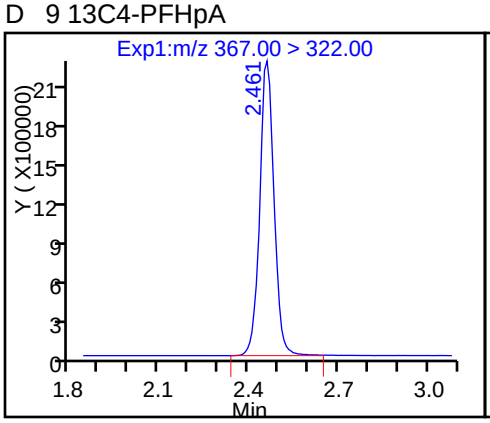
D 7 13C2 PFHxA



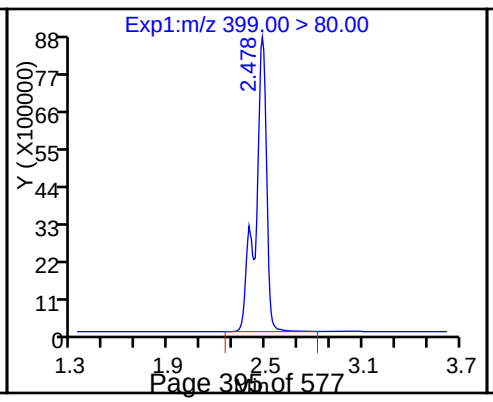
10 Perfluoroheptanoic acid



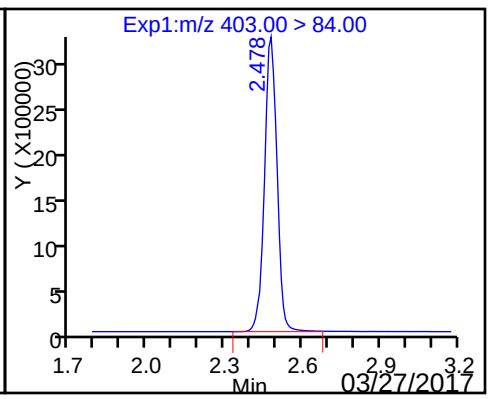
D 9 13C4-PFHpA



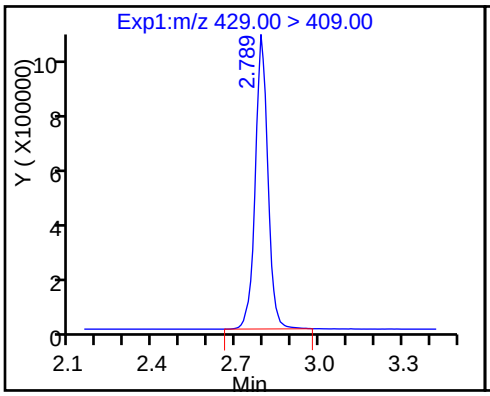
8 Perfluorohexanesulfonic acid



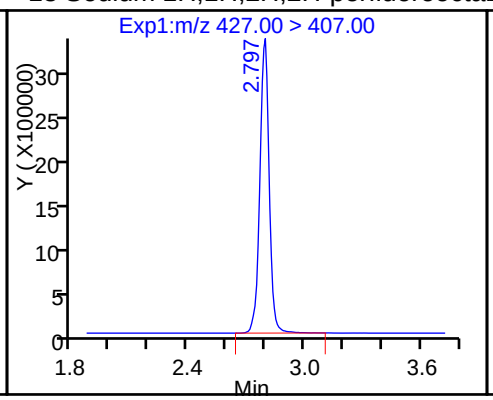
D 11 18O2 PFHxS



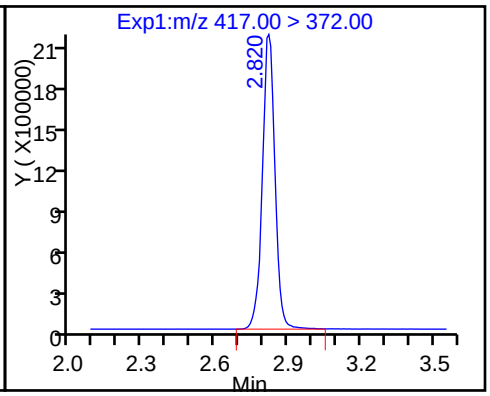
D 12 M2-6:2FTS



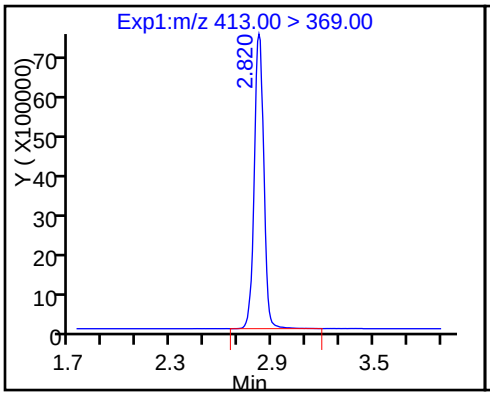
13 Sodium 1H,1H,2H,2H-perfluorooctane



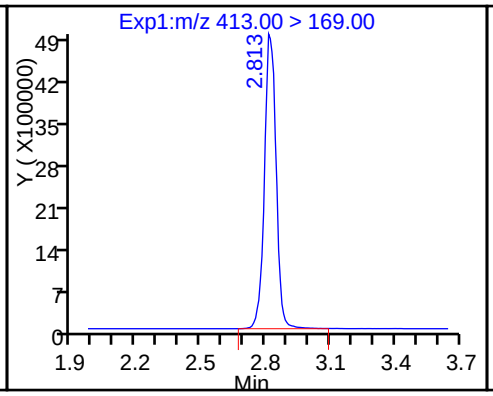
D 14 13C4 PFOA



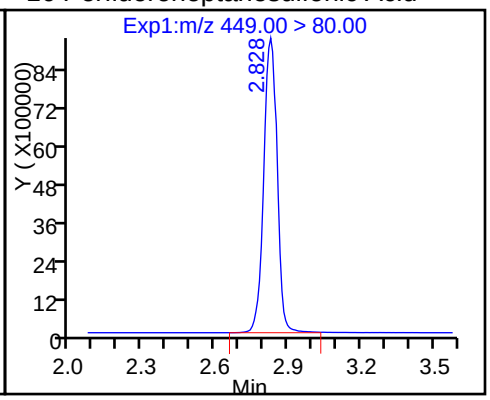
15 Perfluorooctanoic acid



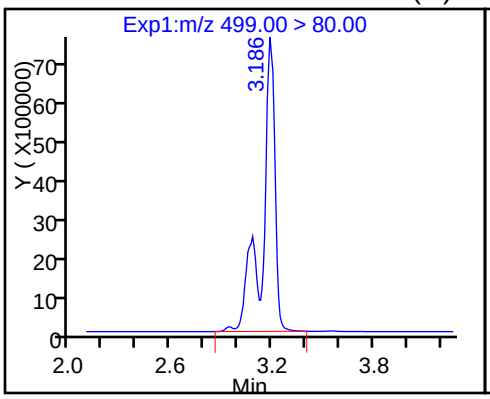
15 Perfluorooctanoic acid



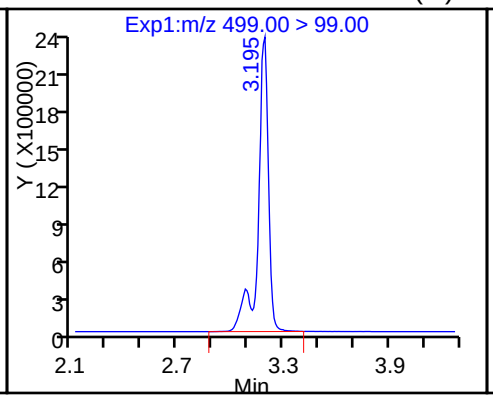
16 Perfluoroheptanesulfonic Acid



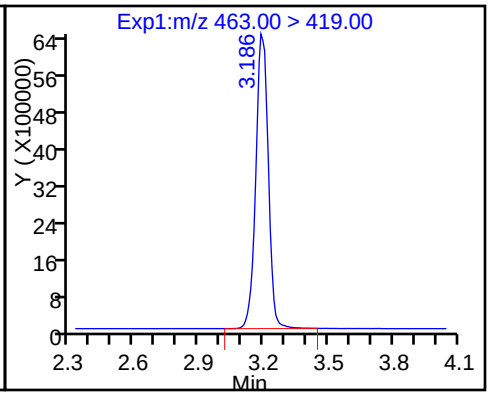
17 Perfluorooctane sulfonic acid (M)



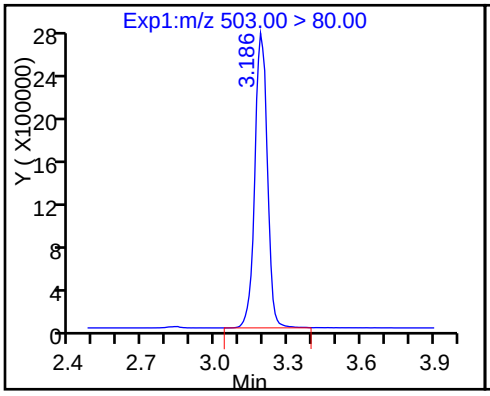
17 Perfluorooctane sulfonic acid (M)



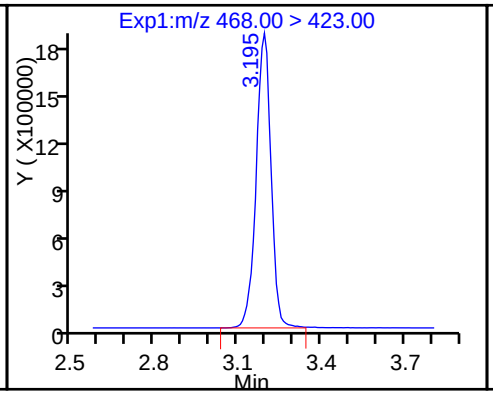
20 Perfluorononanoic acid



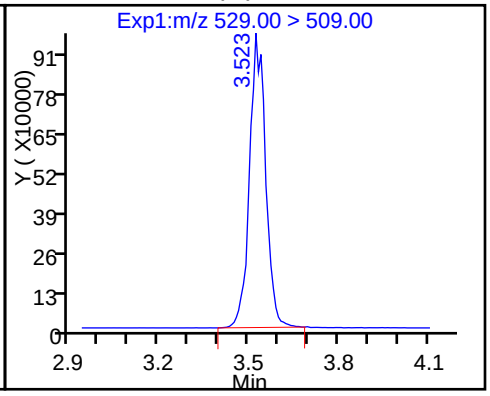
D 18 13C4 PFOS



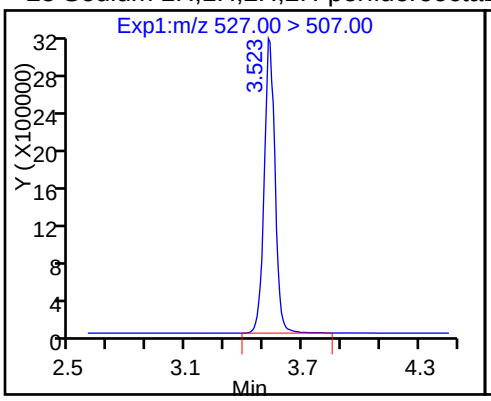
D 19 13C5 PFNA



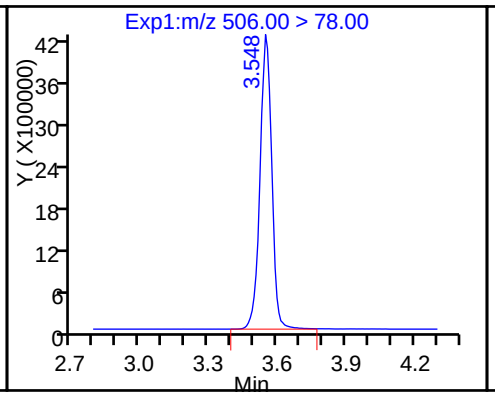
D 26 M2-8:2FTS (M)



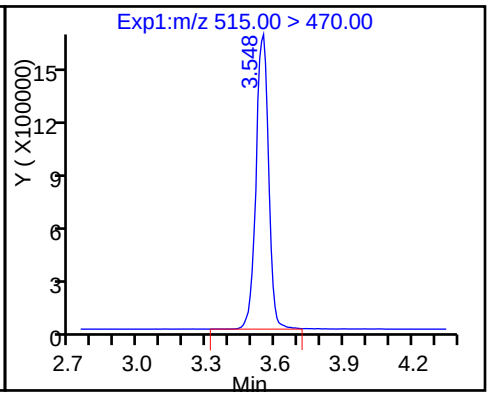
25 Sodium 1H,1H,2H,2H-perfluorooctane



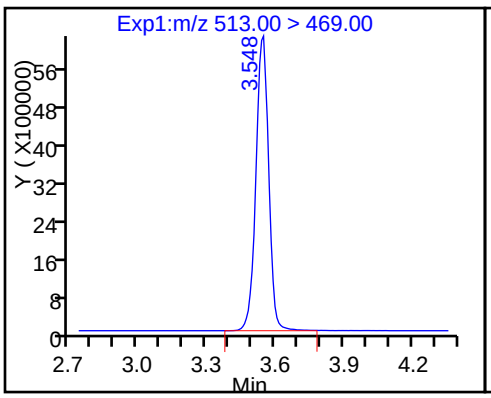
D 21 13C8 FOSA



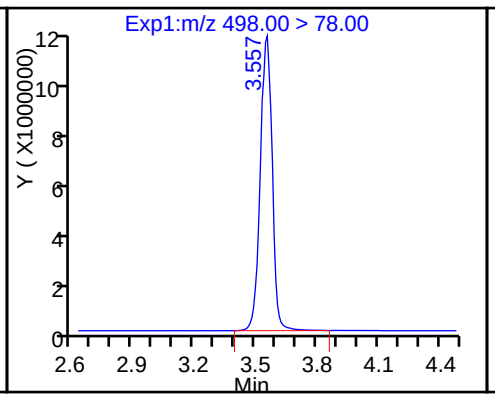
D 23 13C2 PFDA



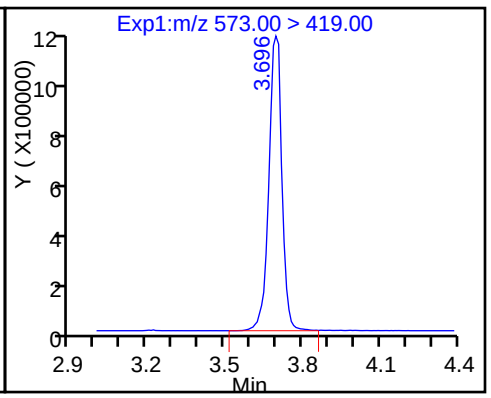
24 Perfluorodecanoic acid



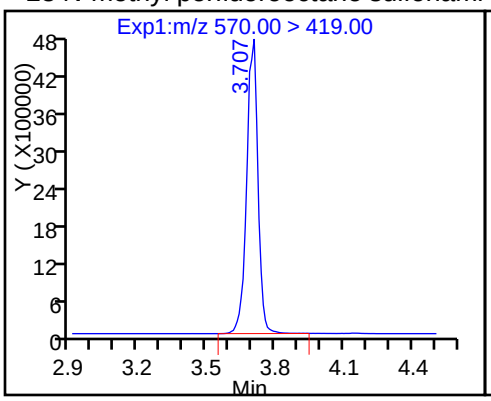
22 Perfluorooctane Sulfonamide



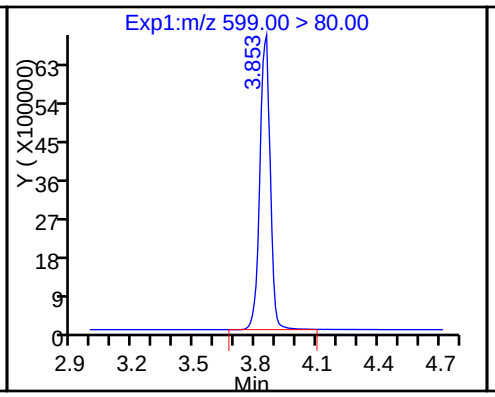
D 27 d3-NMeFOSAA



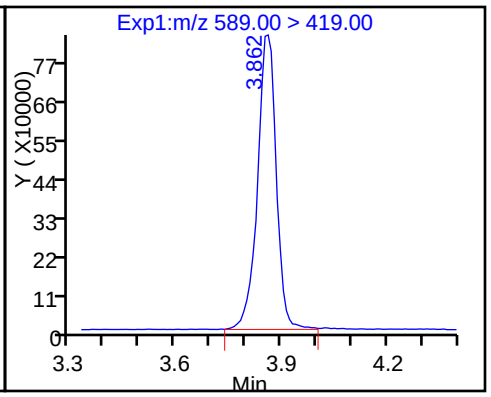
28 N-methyl perfluorooctane sulfonami



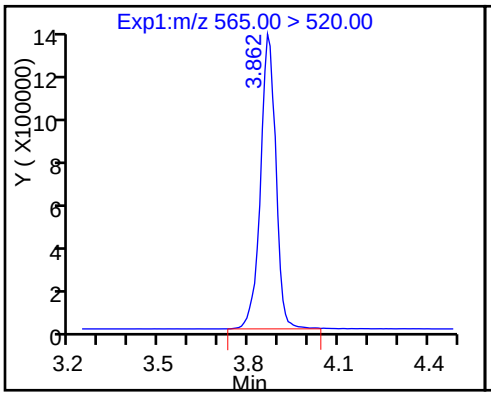
29 Perfluorodecane Sulfonic acid



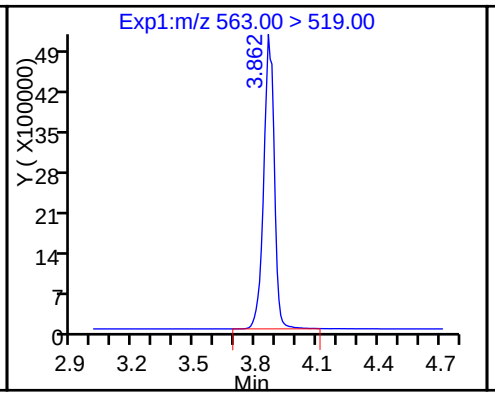
D 32 d5-NEtFOSAA



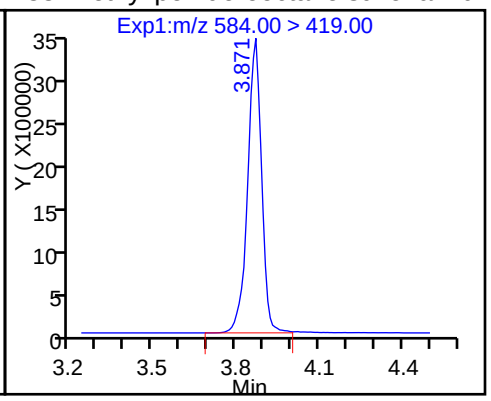
D 30 13C2 PFUnA



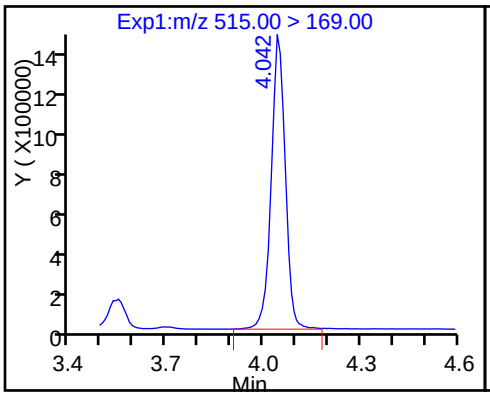
31 Perfluoroundecanoic acid



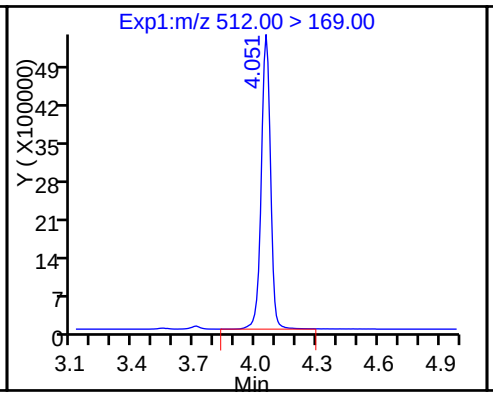
33 N-ethyl perfluorooctane sulfonamid



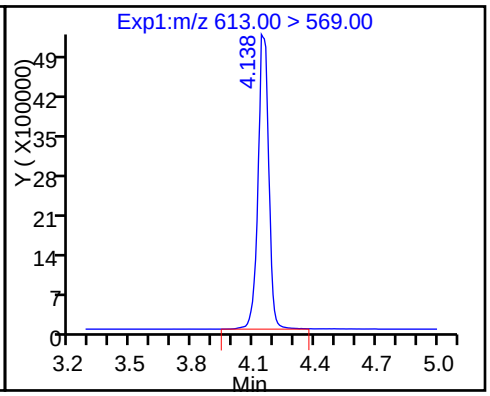
D 34 d-N-MeFOSA-M



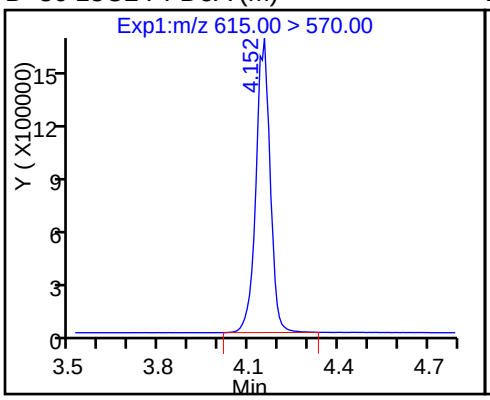
35 MeFOSA



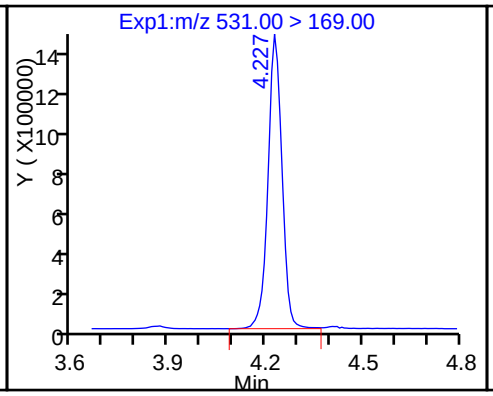
37 Perfluorododecanoic acid



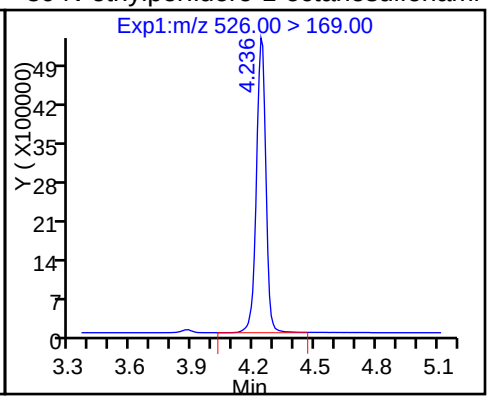
D 36 13C2 PFDoA (M)



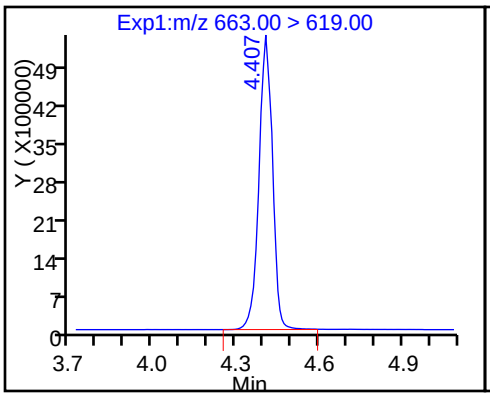
D 38 d-N-EtFOSA-M



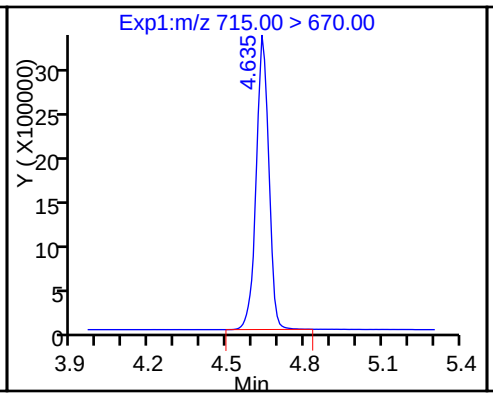
39 N-ethylperfluoro-1-octanesulfonami



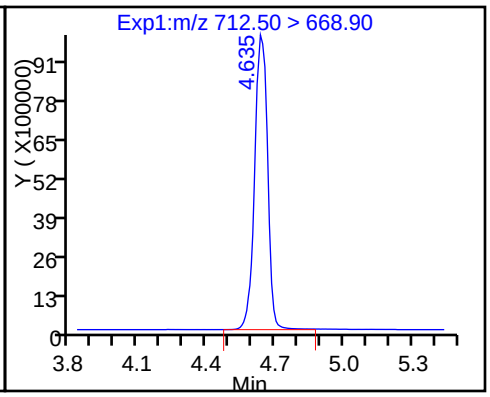
41 Perfluorotridecanoic acid



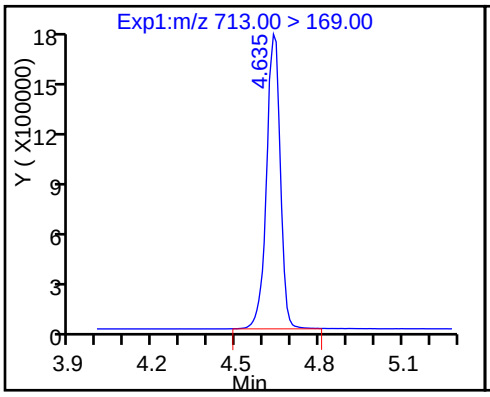
D 43 13C2-PFTeDA



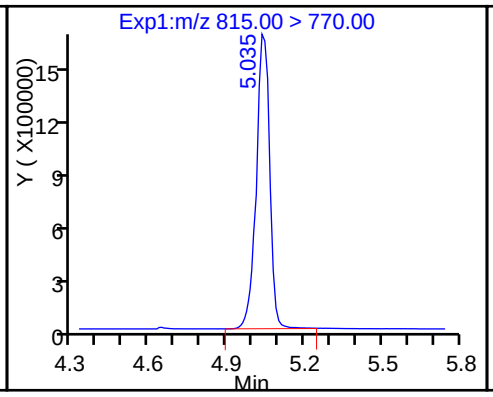
42 Perfluorotetradecanoic acid



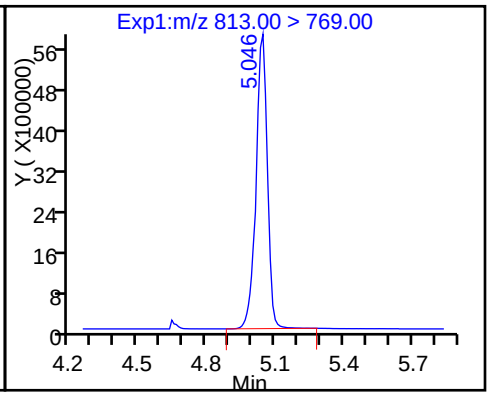
42 Perfluorotetradecanoic acid



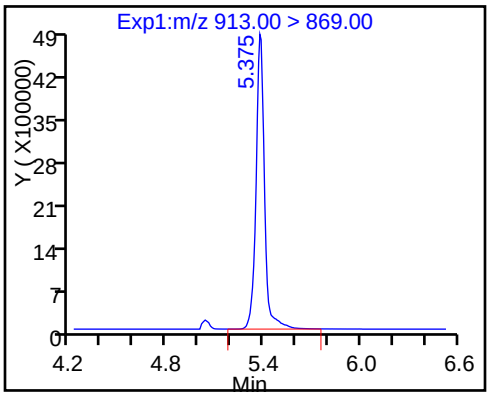
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

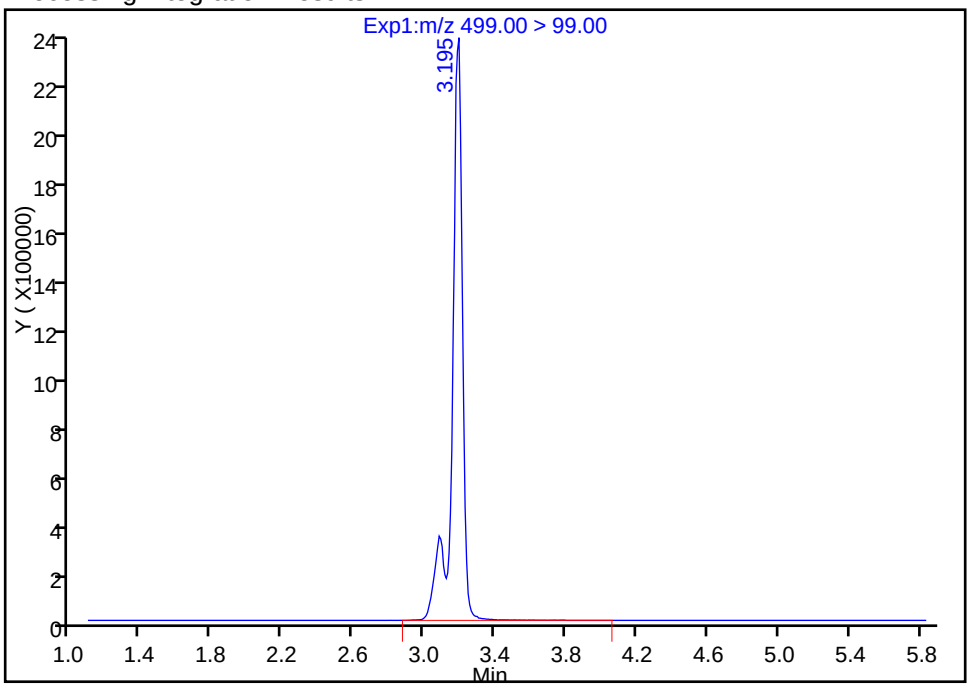
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

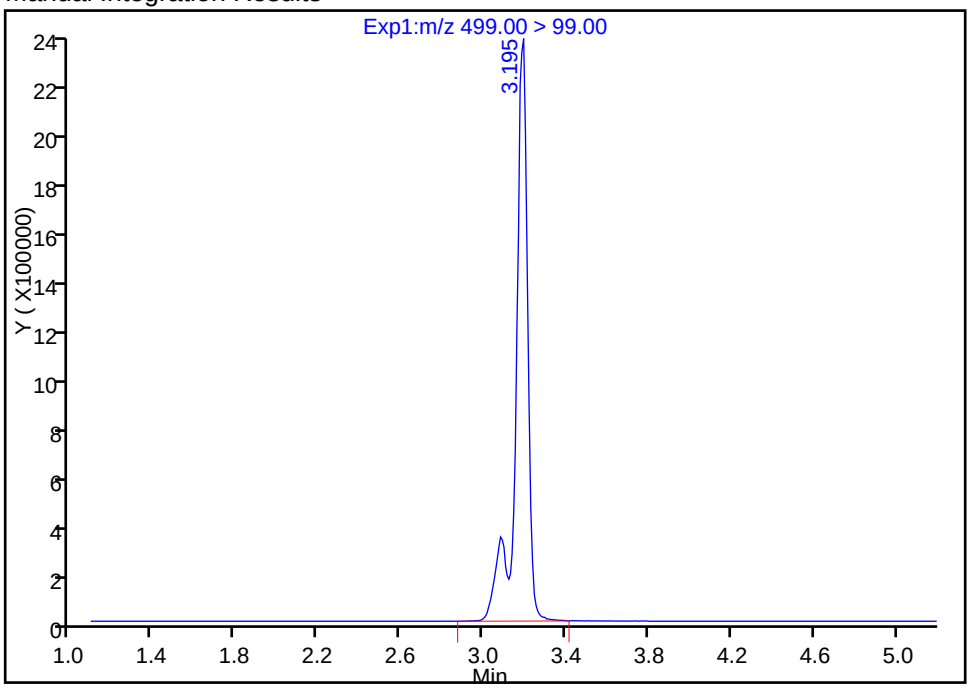
Processing Integration Results

RT: 3.19
Area: 9641533
Amount: 146.9287
Amount Units: ng/ml



Manual Integration Results

RT: 3.19
Area: 9596909
Amount: 193.5024
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:18
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

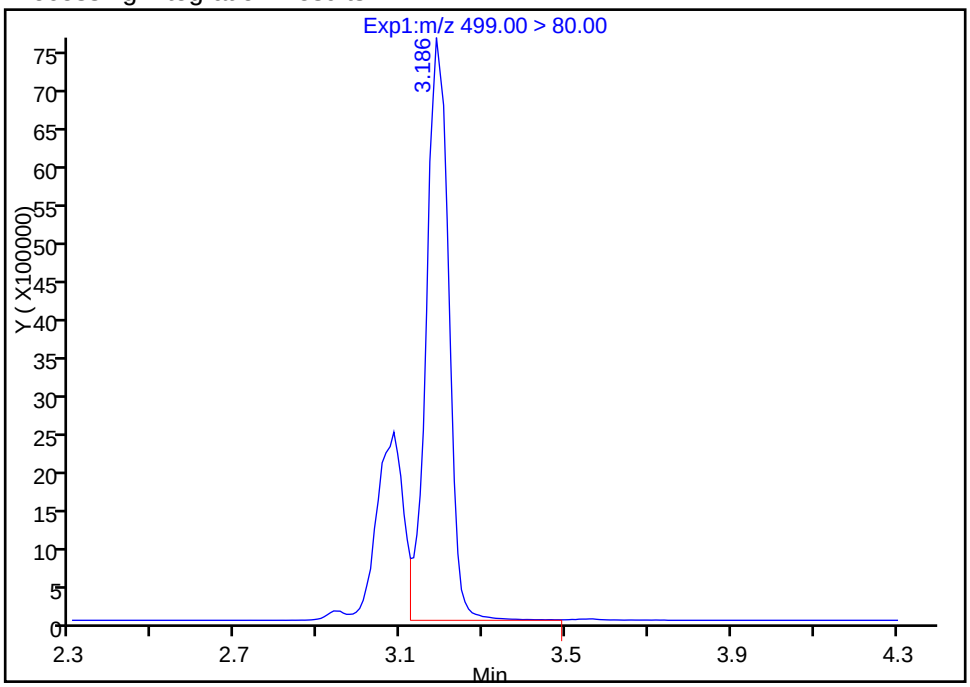
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

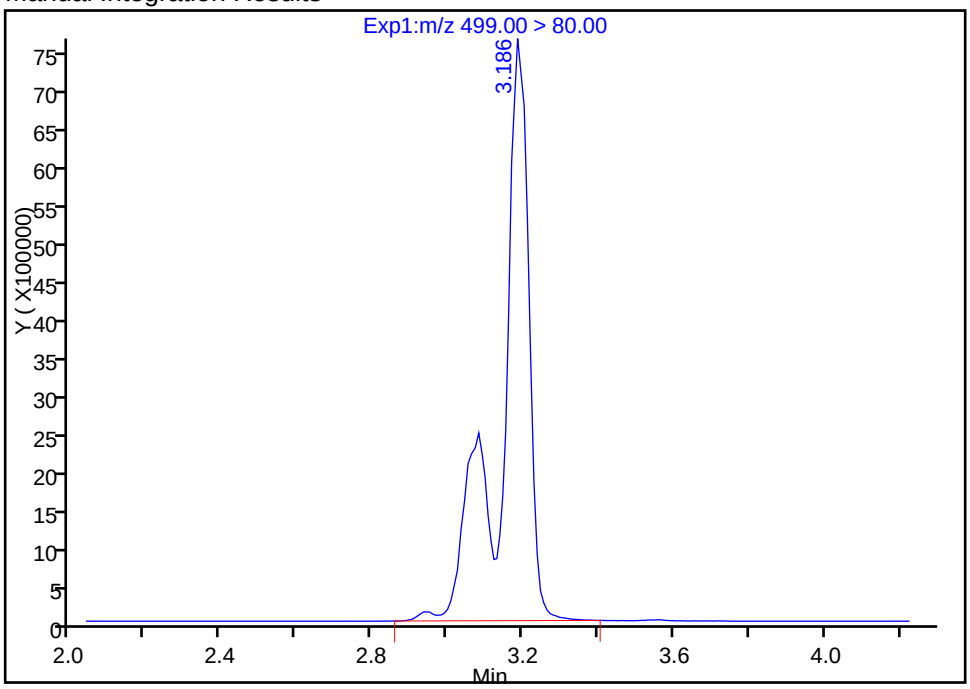
Processing Integration Results

RT: 3.19
Area: 28733218
Amount: 146.9287
Amount Units: ng/ml



Manual Integration Results

RT: 3.19
Area: 39756569
Amount: 193.5024
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:18
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

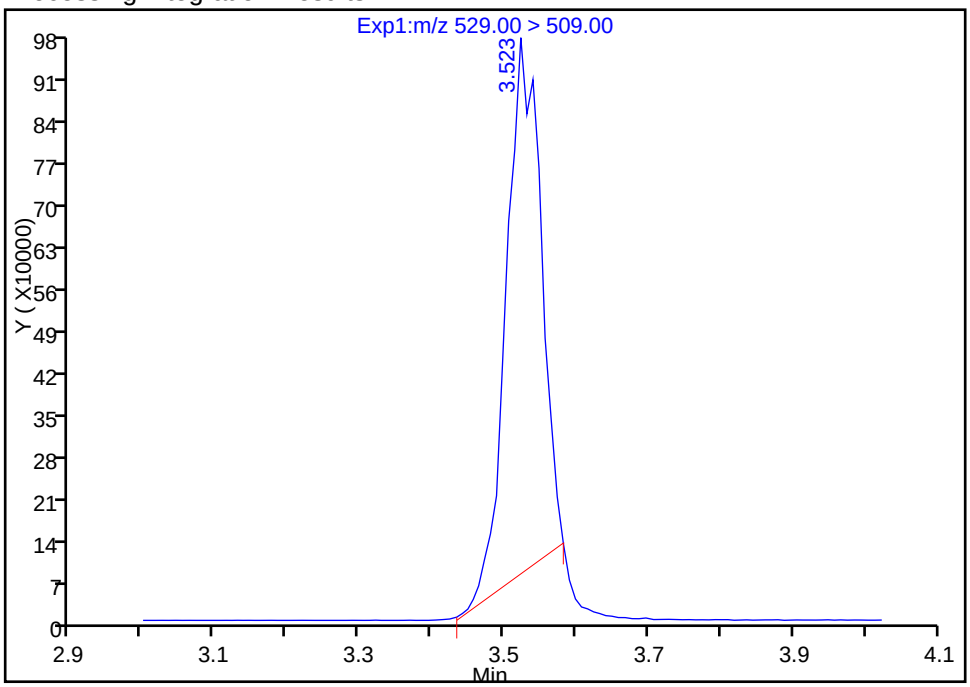
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 26 M2-8:2FTS, CAS: STL02280

Signal: 1

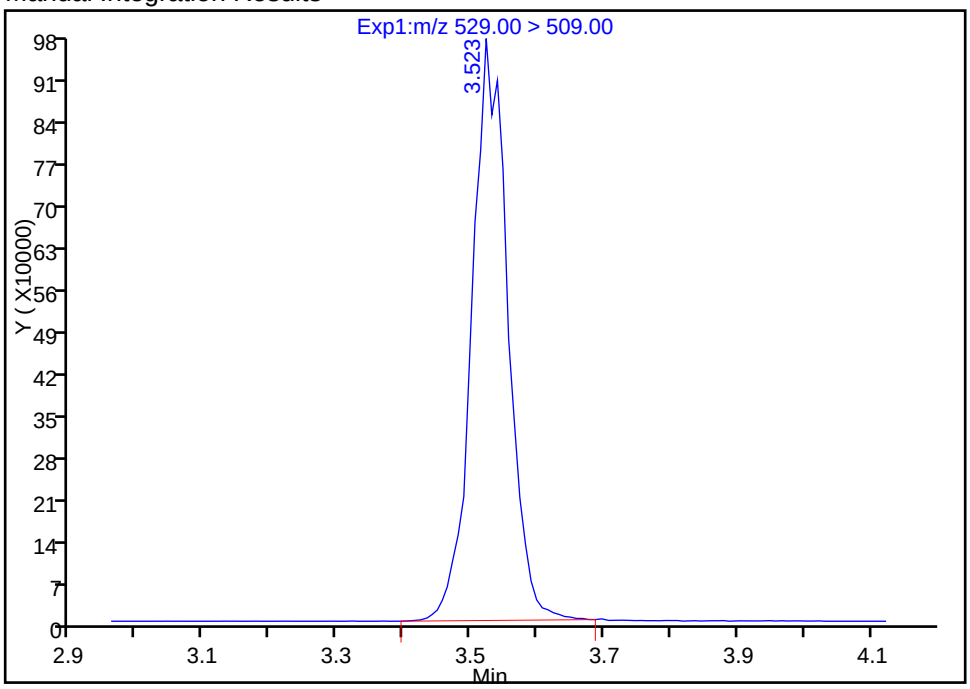
Processing Integration Results

RT: 3.52
Area: 2972144
Amount: 32.946881
Amount Units: ng/ml



Manual Integration Results

RT: 3.52
Area: 3659550
Amount: 39.519130
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:18
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

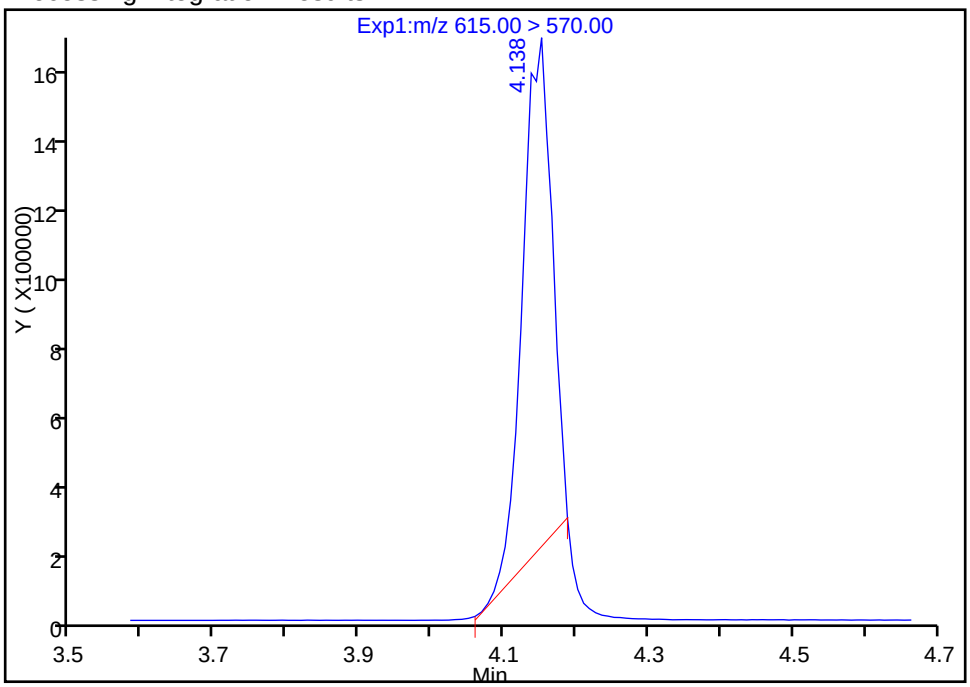
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 36 13C2 PFDoA, CAS: STL00998

Signal: 1

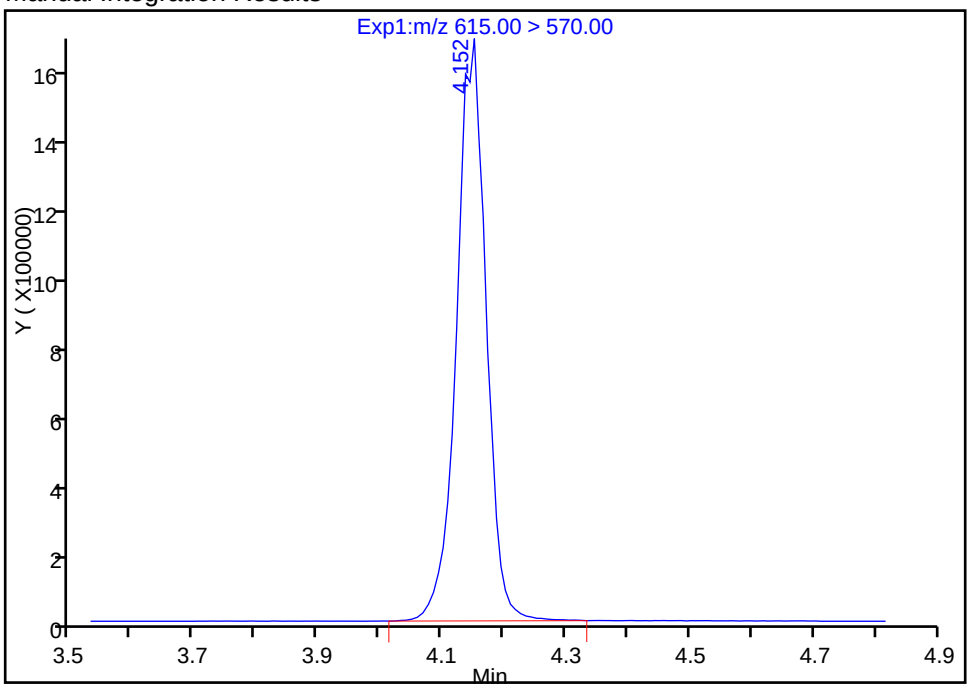
Processing Integration Results

RT: 4.14
Area: 3992056
Amount: 33.402250
Amount Units: ng/ml



Manual Integration Results

RT: 4.15
Area: 5320903
Amount: 42.929870
Amount Units: ng/ml



Reviewer: chandrasenas, 01-Mar-2017 15:43:18
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: ICV 320-152681/13 Calibration Date: 03/01/2017 12:31

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.01CURVE_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.9133		53.9	50.0	7.8	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	1.035		52.9	50.0	5.7	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.526		47.1	44.3	6.5	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9703		54.5	50.0	9.1	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	1.045		54.0	50.0	8.0	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.022		47.0	47.3	-0.6	25.0
6:2FTS	L2ID		0.9688		51.7	47.4	9.1	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.089		50.3	47.6	5.6	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.032		50.5	50.0	1.0	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	1.016		56.2	50.0	12.4	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9166		44.5	47.8	-6.8	25.0
8:2FTS	L2ID		0.9785		50.6	47.9	5.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9538		52.7	50.0	5.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9140		50.9	50.0	1.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	1.014		52.2	50.0	4.4	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6364		51.6	48.3	6.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9789		48.3	50.0	-3.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.998		54.8	50.0	9.7	25.0
MeFOSA	AveID	0.9355	0.9755		52.1	50.0	4.3	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9493		51.9	50.0	3.8	25.0
N-EtFOSA-M	AveID	0.9837	1.027		52.2	50.0	4.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.9439		54.0	50.0	8.1	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	2.200		55.9	50.0	11.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9762		52.3	50.0	4.6	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.8478		59.1	50.0	18.2	25.0
13C4 PFBA	Ave	292242	262151		44.9	50.0	-10.3	50.0
13C5-PFPeA	Ave	232192	201954		43.5	50.0	-13.0	50.0
13C2 PFHxA	Ave	210884	190101		45.1	50.0	-9.9	50.0
13C4-PFHpA	Ave	192959	172560		44.7	50.0	-10.6	50.0
18O2 PFHxS	Ave	290899	261134		42.5	47.3	-10.2	50.0
M2-6:2FTS	Ave	77178	67962		41.8	47.5	-11.9	50.0

FORM VII 537 (Modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: ICV 320-152681/13 Calibration Date: 03/01/2017 12:31

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.01CURVE_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	183068		44.7	50.0	-10.7	50.0
13C4 PFOS	Ave	241637	218953		43.3	47.8	-9.4	50.0
13C5 PFNA	Ave	177866	156812		44.1	50.0	-11.8	50.0
M2-8:2FTS	Ave	92602	84040		43.5	47.9	-9.2	50.0
13C2 PFDA	Ave	166704	144616		43.4	50.0	-13.3	50.0
13C8 FOSA	Ave	366918	337473		46.0	50.0	-8.0	50.0
d3-NMeFOSAA	Ave	85186	77141		45.3	50.0	-9.4	50.0
d5-NEtFOSAA	Ave	81371	71203		43.8	50.0	-12.5	50.0
13C2 PFUnA	Ave	130805	114237		43.7	50.0	-12.7	50.0
d-N-MeFOSA-M	Ave	87983	80006		45.5	50.0	-9.1	50.0
13C2 PFDoA	Ave	123944	108741		43.9	50.0	-12.3	50.0
d-N-EtFOSA-M	Ave	85249	76986		45.2	50.0	-9.7	50.0
13C2-PFTeDA	Ave	259165	236701		45.7	50.0	-8.7	50.0
13C2-PFHxDA	Ave	125061	112974		45.2	50.0	-9.7	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_014.d
Lims ID: ICV Full
Client ID:
Sample Type: ICV
Inject. Date: 01-Mar-2017 12:31:14 ALS Bottle#: 36 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: ICV
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 01-Mar-2017 15:43:02 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 14:14:09

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.555	1.553	0.002		13107554	44.9		89.7	571827	
2 Perfluorobutyric acid										
212.90 > 169.00	1.555	1.558	-0.003	1.000	11971584	53.9			121786	
D 3 13C5-PFPeA										
267.90 > 223.00	1.833	1.832	0.001		10097715	43.5		87.0	496223	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.833	1.835	-0.002	1.000	10448730	52.9			87028	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.873	1.872	0.001	1.000	17632155	47.1				
298.90 > 99.00	1.873	1.872	0.001	1.000	7534911		2.34(0.00-0.00)			
6 Perfluorohexanoic acid										
313.00 > 269.00	2.131	2.133	-0.002	1.000	9222580	54.5			268407	
D 7 13C2 PFHxA										
315.00 > 270.00	2.131	2.134	-0.003		9505049	45.1		90.1	530814	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.472	2.474	-0.002	1.000	9017371	54.0			66655	
D 9 13C4-PFHpA										
367.00 > 322.00	2.472	2.475	-0.003		8627993	44.7		89.4	271737	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.487	2.485	0.002	1.000	12611730	47.0				
D 11 18O2 PFHxS										
403.00 > 84.00	2.487	2.489	-0.002		12351647	42.5		89.8	385748	
D 12 M2-6:2FTS										
429.00 > 409.00	2.806	2.805	0.001		3228217	41.8		88.1		
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.814	2.807	0.007	1.000	3120919	51.7				

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	2.837	2.835	0.002	1.000	9449558	50.5			213564	
413.00 > 169.00	2.837	2.835	0.002	1.000	5623231		1.68(0.90-1.10)		140434	
D 14 13C4 PFOA										
417.00 > 372.00	2.837	2.835	0.002		9153420	44.7		89.3	333609	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.837	2.842	-0.005	1.000	11351727	50.3				
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.205	3.145	0.060	1.000	9582813	44.5			334324	
499.00 > 99.00	3.205	3.145	0.060	1.000	2425871		3.95(0.90-1.10)		705291	
20 Perfluorononanoic acid										
463.00 > 419.00	3.205	3.202	0.003	1.000	7968593	56.2			153203	
D 18 13C4 PFOS										
503.00 > 80.00	3.196	3.204	-0.008		10465937	43.3		90.6	197571	
D 19 13C5 PFNA										
468.00 > 423.00	3.205	3.208	-0.003		7840582	44.1		88.2	207818	
D 26 M2-8:2FTS										
529.00 > 509.00	3.539	3.545	-0.006		4025496	43.5		90.8		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.539	3.546	-0.007	1.000	3938788	50.6				
D 21 13C8 FOSA										
506.00 > 78.00	3.573	3.559	0.014		16873653	46.0		92.0	313140	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.556	3.560	-0.004	1.000	6896912	52.7			187300	
D 23 13C2 PFDA										
515.00 > 470.00	3.556	3.560	-0.004		7230800	43.4		86.8	175077	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.573	3.561	0.012	1.000	15422698	50.9			322048	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.706	3.710	-0.004		3857056	45.3		90.6		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.706	3.713	-0.007	1.000	3910569	52.2				
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.862	3.866	-0.004	1.000	6723491	51.6				
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.871	3.875	-0.004		3560139	43.8		87.5		
D 30 13C2 PFUnA										
565.00 > 520.00	3.880	3.876	0.004		5711825	43.7		87.3	216355	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.871	3.878	-0.007	1.000	5591035	48.3			127404	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.880	3.883	-0.003	1.002	3554390	54.8				
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.062	4.050	0.012		4000304	45.5		90.9		
35 MeFOSA										
512.00 > 169.00	4.070	4.057	0.013	1.000	3902092	52.1				
37 Perfluorododecanoic acid										
613.00 > 569.00	4.155	4.162	-0.007	1.000	5161221	51.9			95672	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA										
615.00 > 570.00	4.155	4.164	-0.009		5437061	43.9		87.7	128920	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.247	4.235	0.012		3849308	45.2		90.3		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.256	4.242	0.014	1.000	3953838	52.2				
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.417	4.424	-0.007	1.000	5131863	54.0			76799	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.651	4.655	-0.004		11835060	45.7		91.3	267097	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.651	4.657	-0.006	1.000	11961738	55.9			110355	
713.00 > 169.00	4.641	4.657	-0.016	0.998	1569975		7.62(0.00-0.00)		118035	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.049	5.057	-0.008		5648694	45.2		90.3	81356	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.049	5.059	-0.010	1.000	5307447	52.3			5849	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.384	5.399	-0.015	1.000	4609565	59.1			5082	

Reagents:

LCPFCIC_FULL_00001 Amount Added: 1.00 Units: mL

Report Date: 01-Mar-2017 15:43:03 Chrom Revision: 2.2 03-Feb-2017 15:35:04

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_014.d

Injection Date: 01-Mar-2017 12:31:14 Instrument ID: A8_N

Lims ID: ICV Full

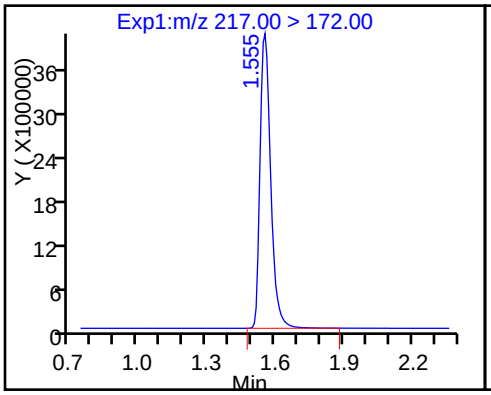
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 36 Worklist Smp#: 13

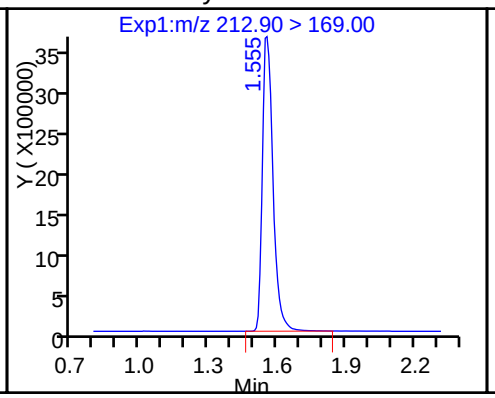
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

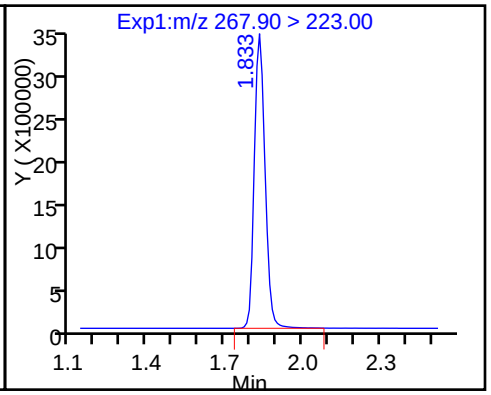
D 1 13C4 PFBA



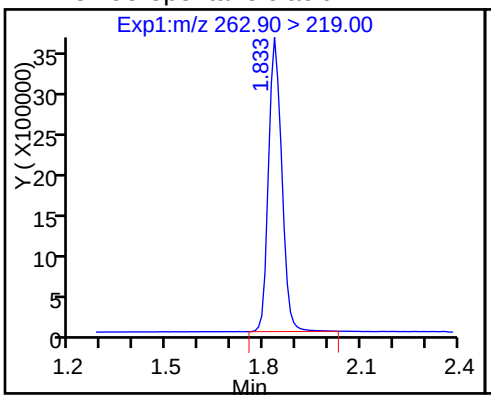
2 Perfluorobutyric acid



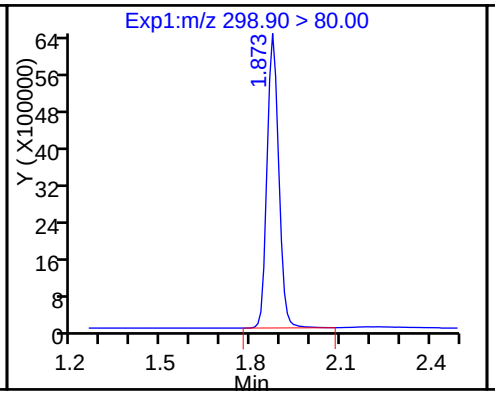
D 3 13C5-PFPeA



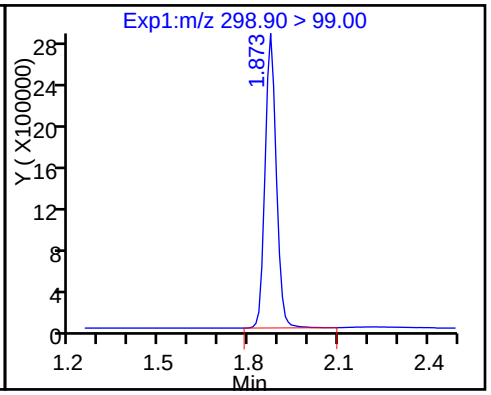
4 Perfluoropentanoic acid



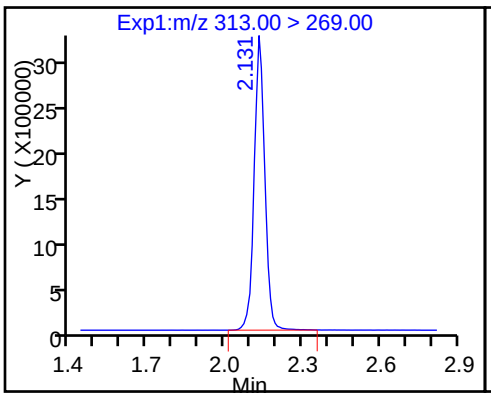
5 Perfluorobutanesulfonic acid



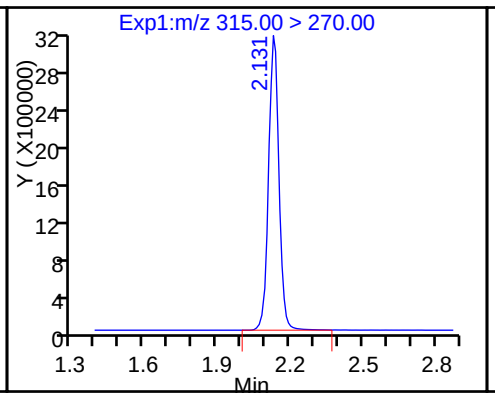
5 Perfluorobutanesulfonic acid



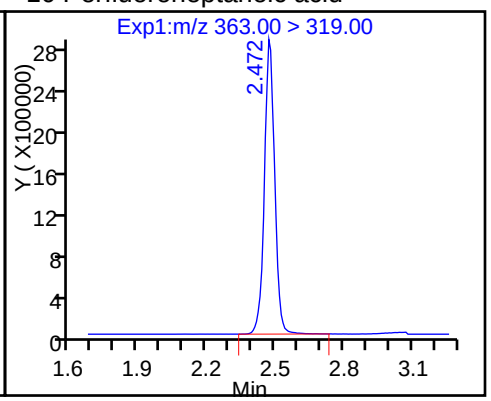
6 Perfluorohexanoic acid



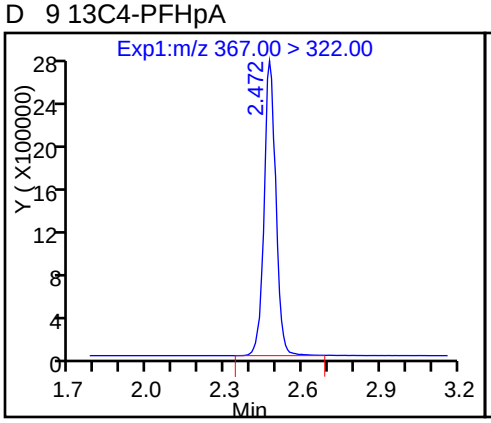
D 7 13C2 PFHxA



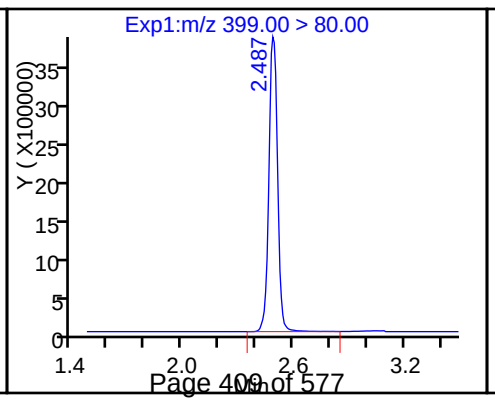
10 Perfluoroheptanoic acid



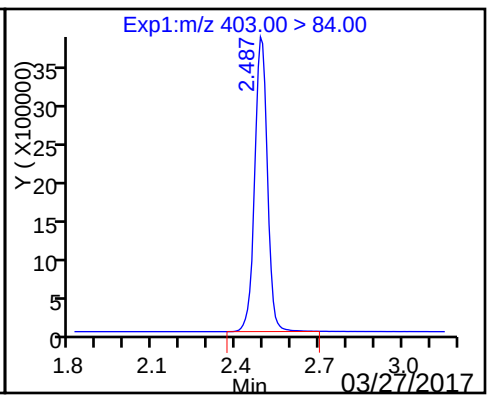
D 9 13C4-PFHpA



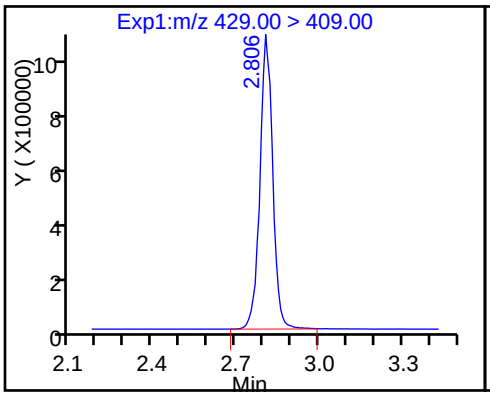
8 Perfluorohexanesulfonic acid



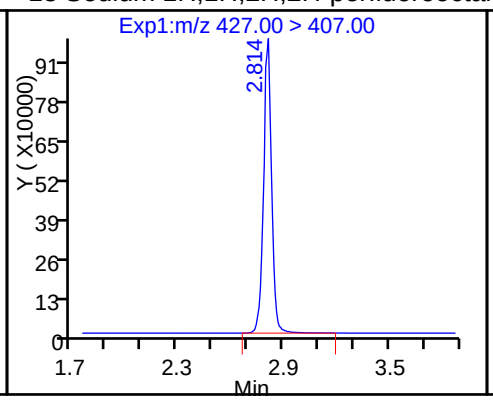
D 11 18O2 PFHxS



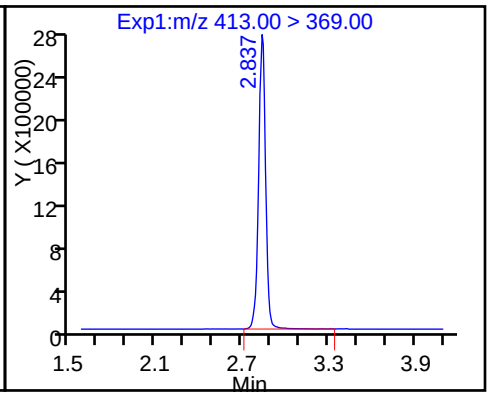
D 12 M2-6:2FTS



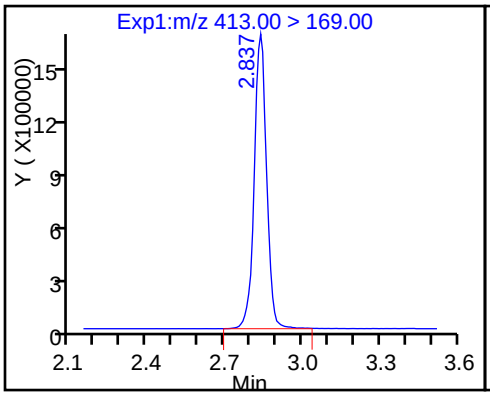
13 Sodium 1H,1H,2H,2H-perfluorooctane



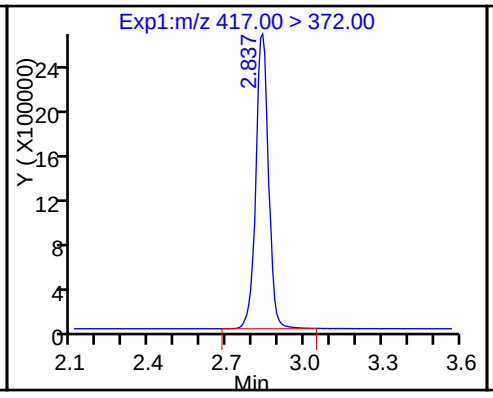
15 Perfluorooctanoic acid



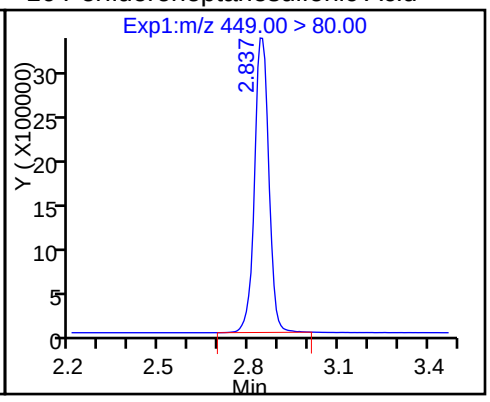
15 Perfluorooctanoic acid



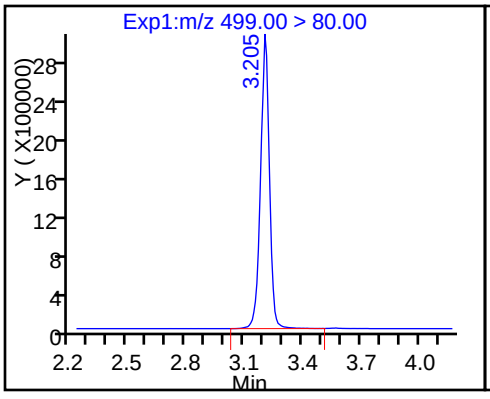
D 14 13C4 PFOA



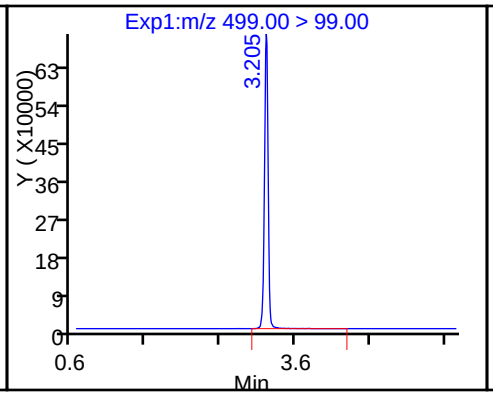
16 Perfluoroheptanesulfonic Acid



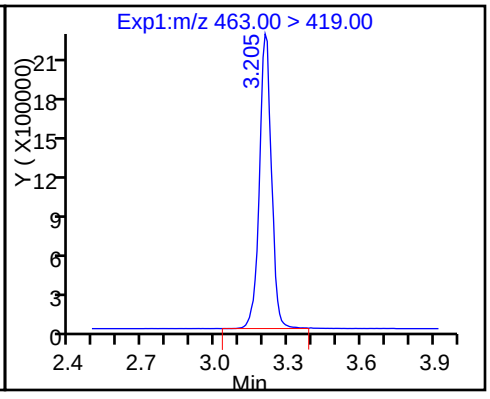
17 Perfluorooctane sulfonic acid



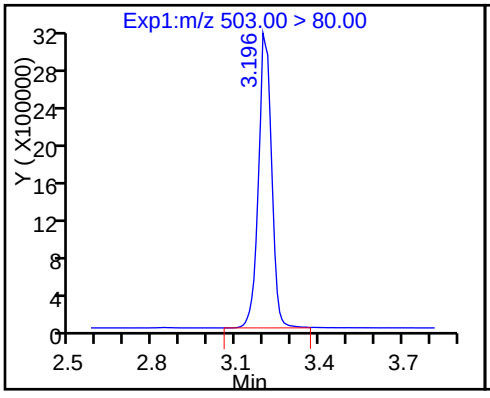
17 Perfluorooctane sulfonic acid



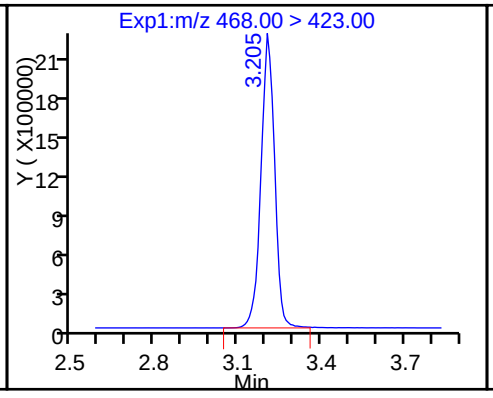
20 Perfluorononanoic acid



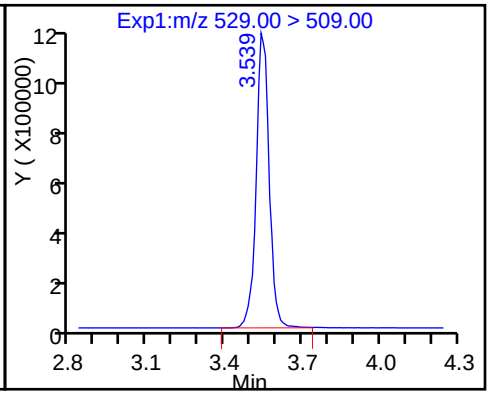
D 18 13C4 PFOS



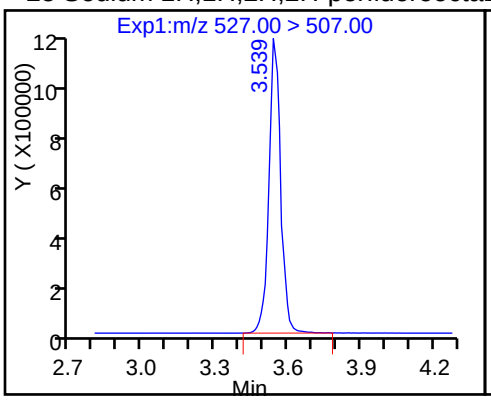
D 19 13C5 PFNA



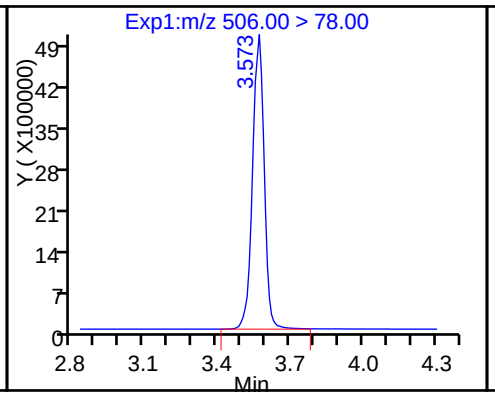
D 26 M2-8:2FTS



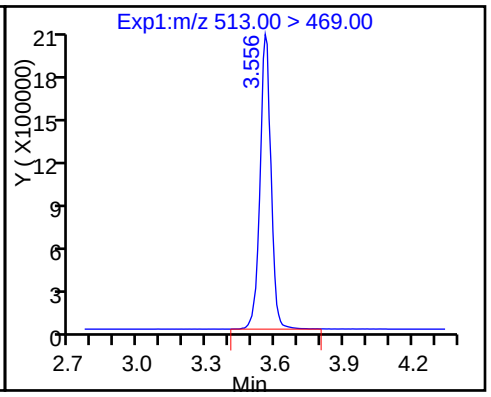
25 Sodium 1H,1H,2H,2H-perfluorooctane



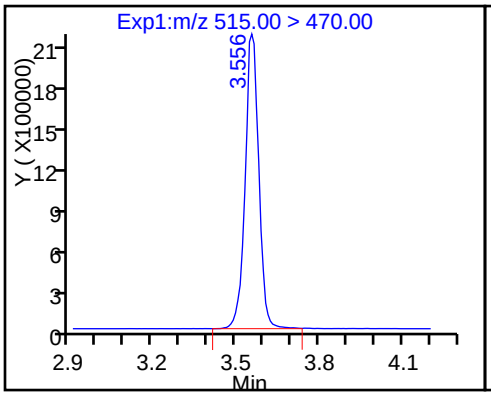
D 21 13C8 FOSA



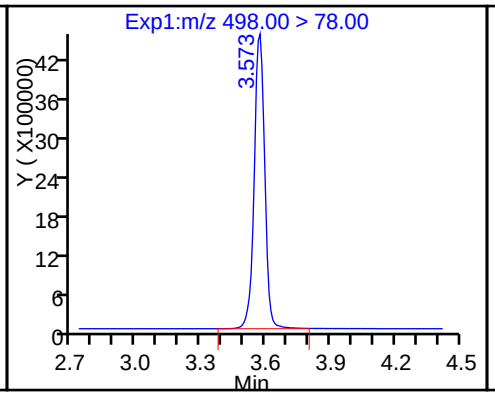
24 Perfluorodecanoic acid



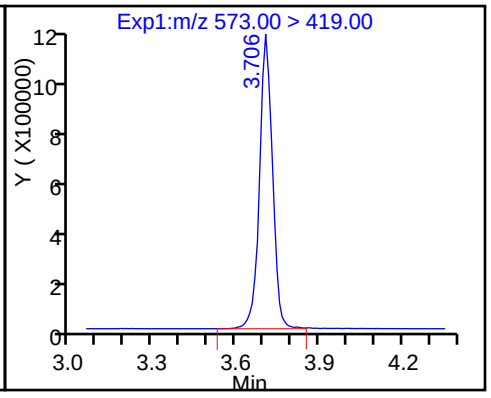
D 23 13C2 PFDA



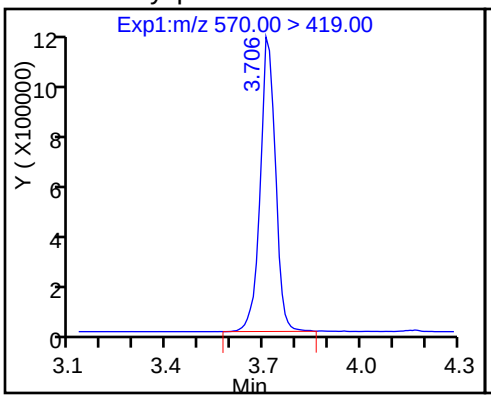
22 Perfluorooctane Sulfonamide



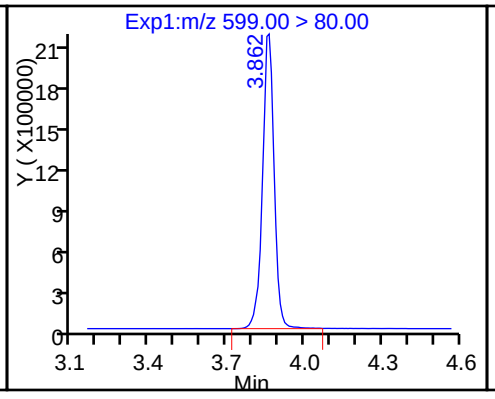
D 27 d3-NMeFOSAA



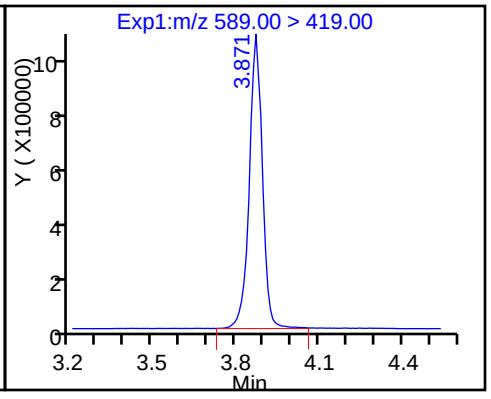
28 N-methyl perfluorooctane sulfonami



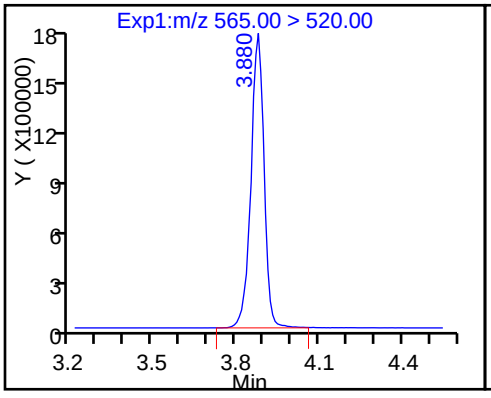
29 Perfluorodecane Sulfonic acid



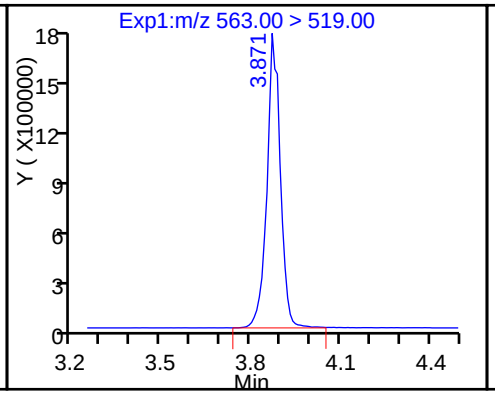
D 32 d5-NEtFOSAA



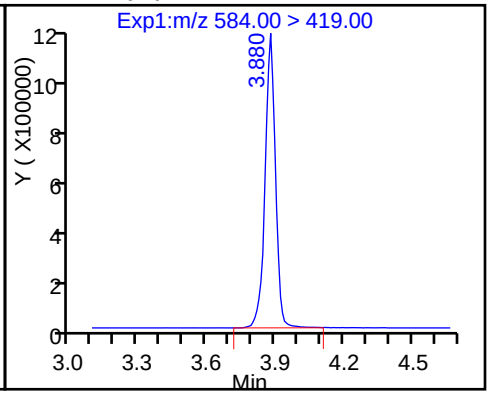
D 30 13C2 PFUnA



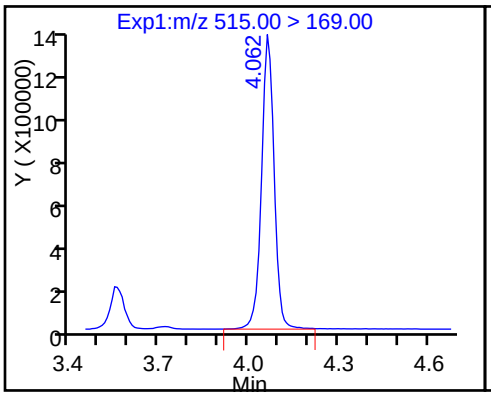
31 Perfluoroundecanoic acid



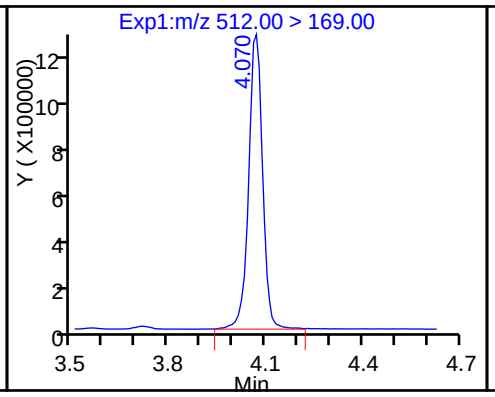
33 N-ethyl perfluorooctane sulfonamid



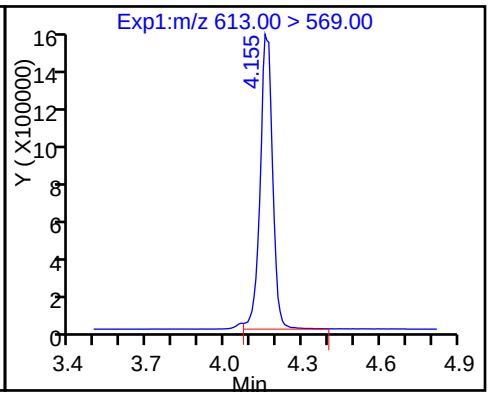
D 34 d-N-MeFOSA-M



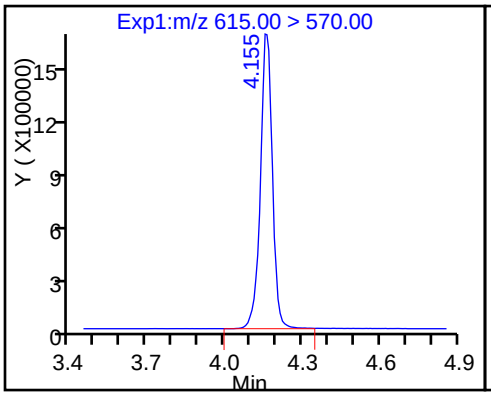
35 MeFOSA



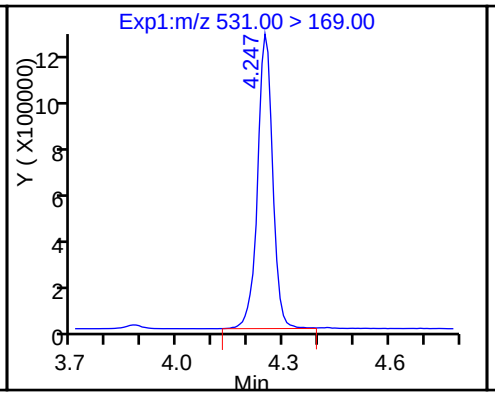
37 Perfluorododecanoic acid



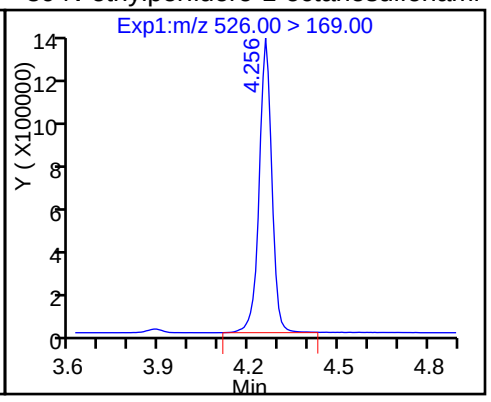
D 36 13C2 PFDoA



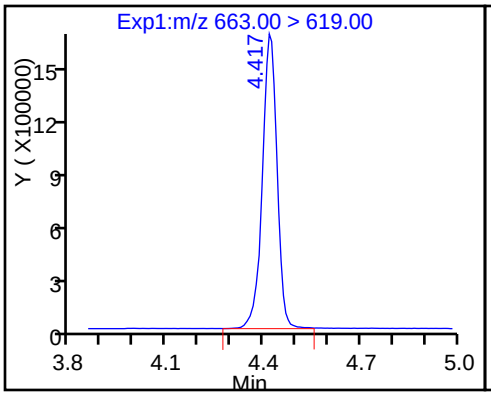
D 38 d-N-EtFOSA-M



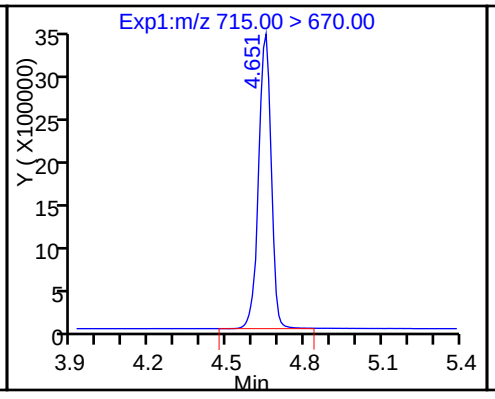
39 N-ethylperfluoro-1-octanesulfonami



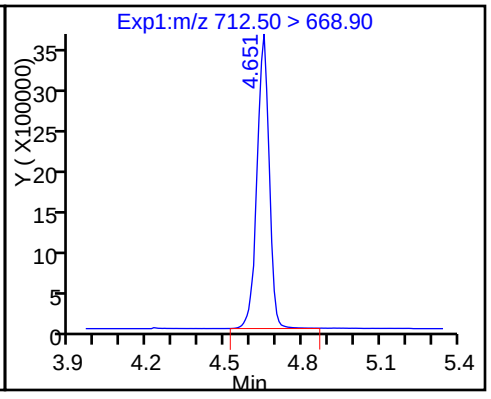
41 Perfluorotridecanoic acid



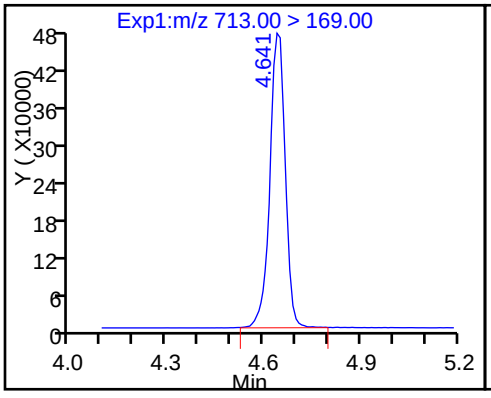
D 43 13C2-PFTeDA



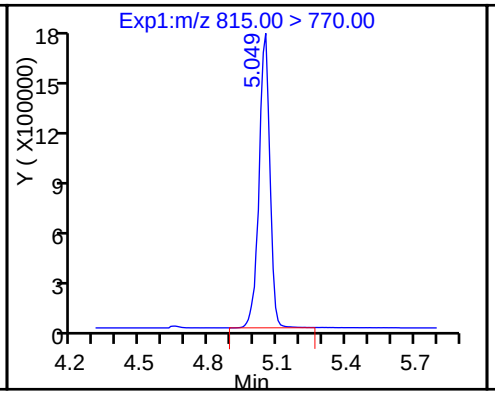
42 Perfluorotetradecanoic acid



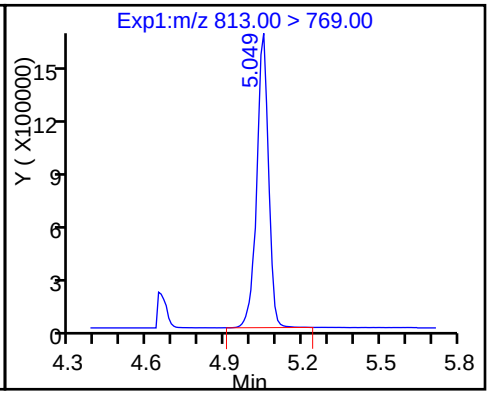
42 Perfluorotetradecanoic acid



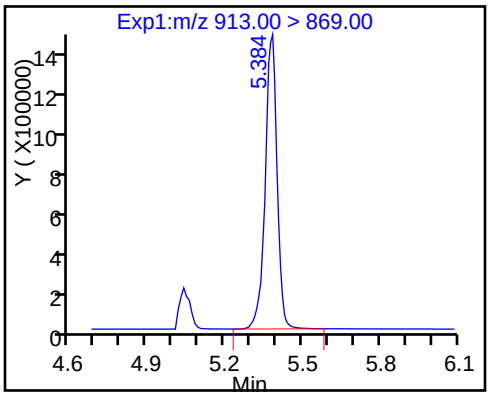
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154455/2 Calibration Date: 03/10/2017 17:37

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.10B_002.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8584		1.01	1.00	1.3	50.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	1.018		1.04	1.00	4.1	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.536		0.948	0.884	7.2	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8985		1.01	1.00	1.0	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9495		0.982	1.00	-1.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.173		1.04	0.910	14.1	50.0
6:2FTS	L2ID		1.115		1.06	0.948	11.5	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.033		0.954	0.952	0.2	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.051		1.03	1.00	2.9	50.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9479		1.05	1.00	4.9	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9400		0.887	0.928	-4.4	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9300		1.04	1.00	3.5	50.0
8:2FTS	L2ID		0.9889		0.941	0.958	-1.8	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9023		0.996	1.00	-0.4	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	1.002		1.03	1.00	3.1	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5394		0.873	0.964	-9.5	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8996		0.988	1.00	-1.2	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	1.030		1.02	1.00	1.6	50.0
MeFOSA	AveID	0.9355	0.9407		1.01	1.00	0.6	50.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9091		0.994	1.00	-0.6	50.0
N-EtFOSA-M	AveID	0.9837	0.9906		1.01	1.00	0.7	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8382		0.960	1.00	-4.0	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.623		0.826	1.00	-17.4	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.275		0.999	1.00	-0.1	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.5946		0.829	1.00	-17.1	50.0
13C4 PFBA	Ave	292242	322304		55.1	50.0	10.3	50.0
13C5-PFPeA	Ave	232192	258163		55.6	50.0	11.2	50.0
13C2 PFHxA	Ave	210884	253153		60.0	50.0	20.0	50.0
13C4-PFHpA	Ave	192959	233174		60.4	50.0	20.8	50.0
18O2 PFHxS	Ave	290899	329023		53.5	47.3	13.1	50.0
M2-6:2FTS	Ave	77178	107645		66.3	47.5	39.5	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154455/2 Calibration Date: 03/10/2017 17:37

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.10B_002.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	237405		57.9	50.0	15.8	50.0
13C4 PFOS	Ave	241637	261643		51.8	47.8	8.3	50.0
13C5 PFNA	Ave	177866	188940		53.1	50.0	6.2	50.0
13C8 FOSA	Ave	366918	387830		52.8	50.0	5.7	50.0
M2-8:2FTS	Ave	92602	95000		49.1	47.9	2.6	50.0
13C2 PFDA	Ave	166704	164898		49.5	50.0	-1.1	50.0
d3-NMeFOSAA	Ave	85186	65589		38.5	50.0	-23.0	50.0
d5-NEtFOSAA	Ave	81371	66553		40.9	50.0	-18.2	50.0
13C2 PFUnA	Ave	130805	124265		47.5	50.0	-5.0	50.0
d-N-MeFOSA-M	Ave	87983	83139		47.2	50.0	-5.5	50.0
13C2 PFDoA	Ave	123944	114637		46.2	50.0	-7.5	50.0
d-N-EtFOSA-M	Ave	85249	79250		46.5	50.0	-7.0	50.0
13C2-PFTeDA	Ave	259165	211444		40.8	50.0	-18.4	50.0
13C2-PFHxDA	Ave	125061	90982		36.4	50.0	-27.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40719.b\2017.03.10B_002.d
Lims ID: CCV L2
Client ID:
Sample Type: CCVL
Inject. Date: 10-Mar-2017 17:37:24 ALS Bottle#: 29 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L2
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub14

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40719.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 13-Mar-2017 09:41:06 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK006

First Level Reviewer: changnoit Date: 13-Mar-2017 09:41:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid										M
212.90 > 169.00	1.538	1.538	0.0	1.000	276661	1.01		101	2936	M
D 1 13C4 PFBA										
217.00 > 172.00	1.538	1.538	0.0		16115223	55.1		110	752285	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.821	1.821	0.0	1.000	262883	1.04		104	2895	
D 3 13C5-PFPeA										
267.90 > 223.00	1.821	1.821	0.0		12908151	55.6		111	802409	
D 47 13C3-PFBS										
301.90 > 83.00	1.851	1.851	0.0		331764	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.861	0.0	1.000	446642	0.9476		107		
298.90 > 99.00	1.861	1.861	0.0	1.000	182371		2.45(0.00-0.00)			
6 Perfluorohexanoic acid										
313.00 > 269.00	2.117	2.117	0.0	1.000	227445	1.01		101	7307	
D 7 13C2 PFHxA										
315.00 > 270.00	2.117	2.117	0.0		12657658	60.0		120	449120	
D 9 13C4-PFHpA										
367.00 > 322.00	2.459	2.459	0.0		11658702	60.4		121	490256	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.459	2.459	0.0	1.000	221404	0.9816		98.2	2063	
D 11 18O2 PFHxS										
403.00 > 84.00	2.475	2.475	0.0		15562777	53.5		113	324144	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.475	2.475	0.0	1.000	351343	1.04		114		M
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.802	2.802	0.0	1.000	113790	1.06		112		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS										
429.00 > 409.00	2.802	2.802	0.0		5113160	66.3		139		
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.825	2.825	0.0	1.000	257241	0.9536		100		
15 Perfluorooctanoic acid										
413.00 > 369.00	2.825	2.825	0.0	1.000	249537	1.03		103	1914	
413.00 > 169.00	2.825	2.825	0.0	1.000	145668		1.71(0.90-1.10)		4404	
D 14 13C4 PFOA										
417.00 > 372.00	2.825	2.825	0.0		11870229	57.9		116	346626	
20 Perfluorononanoic acid										
463.00 > 419.00	3.201	3.201	0.0	1.000	179097	1.05		105	3545	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.201	3.201	0.0	1.000	228229	0.8869		95.6	14261	M
499.00 > 99.00	3.192	3.201	-0.009	0.997	55113		4.14(0.90-1.10)		3110	M
D 18 13C4 PFOS										
503.00 > 80.00	3.192	3.192	0.0		12506517	51.8		108	363341	
D 19 13C5 PFNA										
468.00 > 423.00	3.201	3.201	0.0		9446975	53.1		106	384248	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.527	3.527	0.0	1.000	360679	1.04		104	40978	
D 21 13C8 FOSA										
506.00 > 78.00	3.527	3.527	0.0		19391523	52.8		106	387688	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.544	3.544	0.0	1.002	90001	0.9407		98.2		
D 26 M2-8:2FTS										
529.00 > 509.00	3.536	3.536	0.0		4550513	49.1		103		
24 Perfluorodecanoic acid										
513.00 > 469.00	3.552	3.552	0.0	1.000	148780	1.00		99.6	5590	
D 23 13C2 PFDA										
515.00 > 470.00	3.552	3.552	0.0		8244903	49.5		98.9	228946	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.713	3.713	0.0	1.003	65694	1.03		103		
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.703	3.703	0.0		3279445	38.5		77.0		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.866	3.866	0.0	1.000	136038	0.8729		90.5		
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.875	3.875	0.0	1.000	59871	0.9883		98.8		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.875	3.875	0.0	1.000	128009	1.02		102	3414	
D 30 13C2 PFUnA										
565.00 > 520.00	3.883	3.883	0.0		6213249	47.5		95.0	252513	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.875	3.875	0.0		3327673	40.9		81.8		
35 MeFOSA										
512.00 > 169.00	4.027	4.027	0.0	1.000	78207	1.01		101		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.018	4.018	0.0		4156945	47.2		94.5		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
37 Perfluorododecanoic acid										
613.00 > 569.00	4.164	4.164	0.0	1.000	104220	0.99		99.4	767	
D 36 13C2 PFDoA										
615.00 > 570.00	4.171	4.171	0.0		5731830	46.2		92.5	155388	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.206	4.206	0.0		3962524	46.5		93.0		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.206	4.206	0.0	1.000	78509	1.01		101		
41 Perfluorotridecanoic acid										M
663.00 > 619.00	4.437	4.437	0.0	1.000	96093	0.9597		96.0	2222	M
D 43 13C2-PFTeDA										
715.00 > 670.00	4.663	4.663	0.0		10572183	40.8		81.6	389168	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.673	4.673	0.0	1.000	186110	0.8256		82.6	1370	
713.00 > 169.00	4.663	4.673	-0.010	0.998	29432		6.32(0.00-0.00)		10202	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.072	5.087	-0.015		4549080	36.4		72.7	79936	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.072	5.072	0.0	1.000	146161	1.00		99.9	128	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.431	5.431	0.0	1.000	68160	0.8286		82.9	101	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L2_00001 Amount Added: 1.00 Units: mL

Report Date: 13-Mar-2017 09:41:07 Chrom Revision: 2.2 05-Mar-2017 11:38:00

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40719.b\2017.03.10B_002.d

Injection Date: 10-Mar-2017 17:37:24 Instrument ID: A8_N

Lims ID: CCV L2

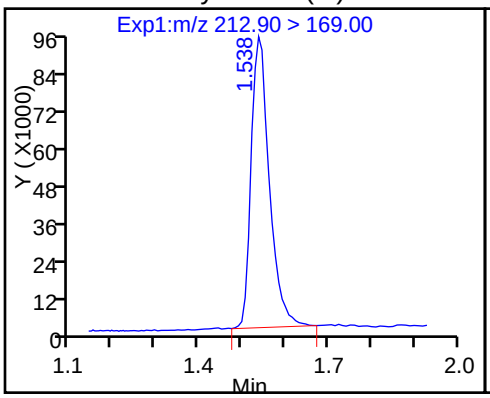
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 2

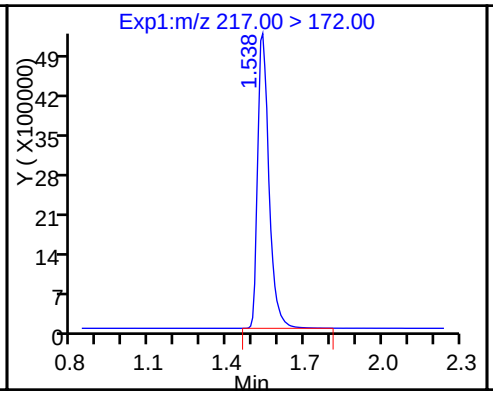
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

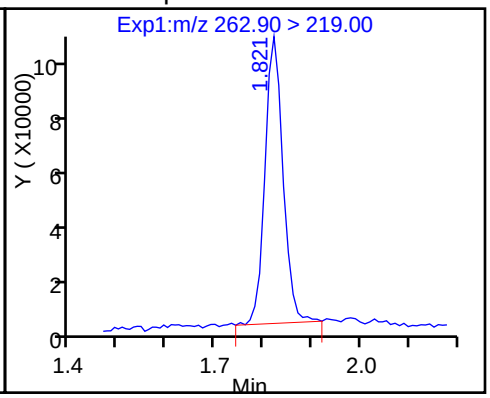
2 Perfluorobutyric acid (M)



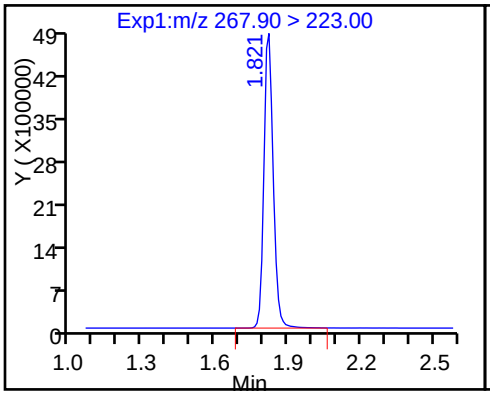
D 1 13C4 PFBA



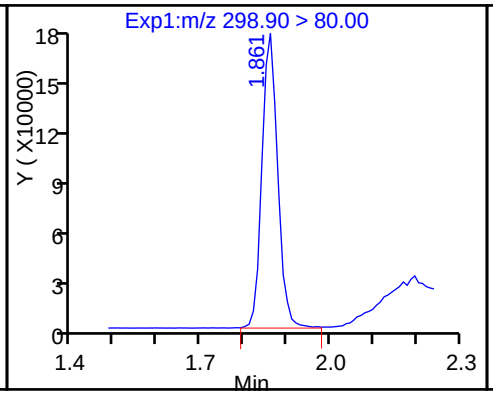
4 Perfluoropentanoic acid



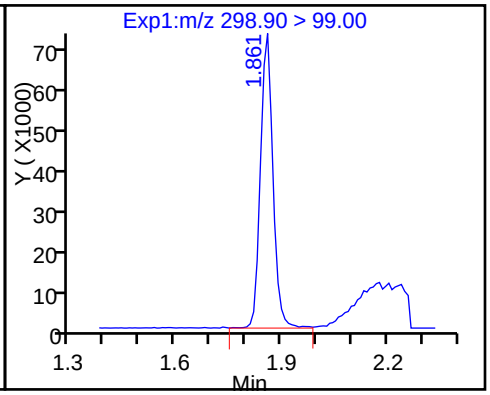
D 3 13C5-PFPeA



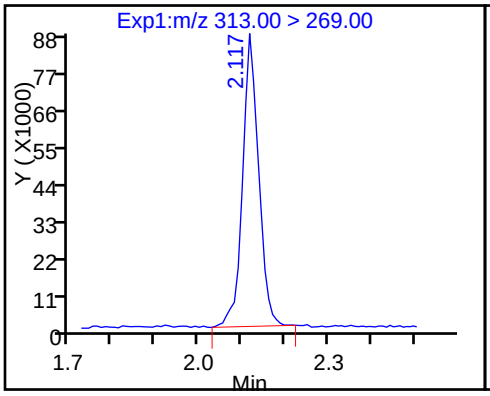
5 Perfluorobutanesulfonic acid



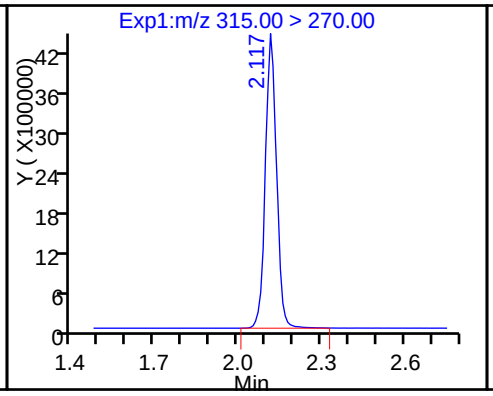
5 Perfluorobutanesulfonic acid



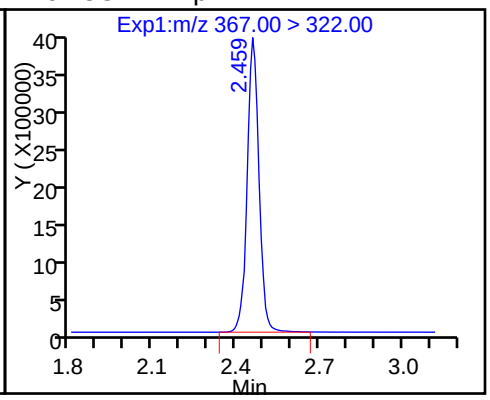
6 Perfluorohexanoic acid



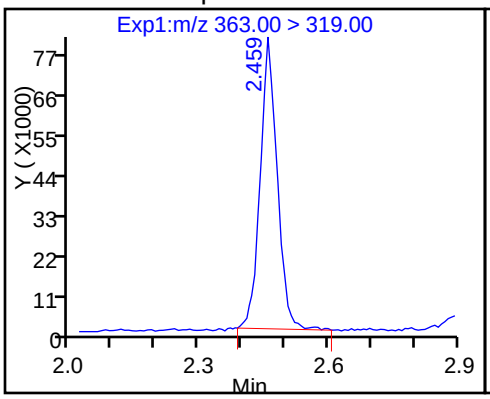
D 7 13C2 PFHxA



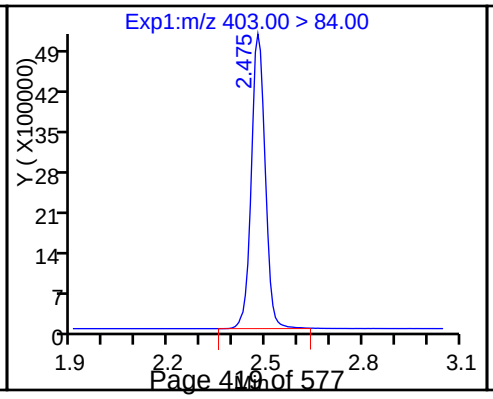
D 9 13C4-PFHpA



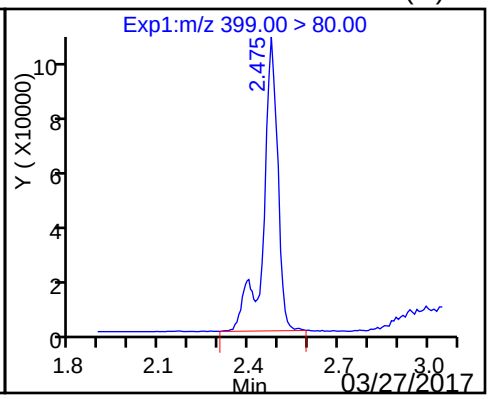
10 Perfluoroheptanoic acid



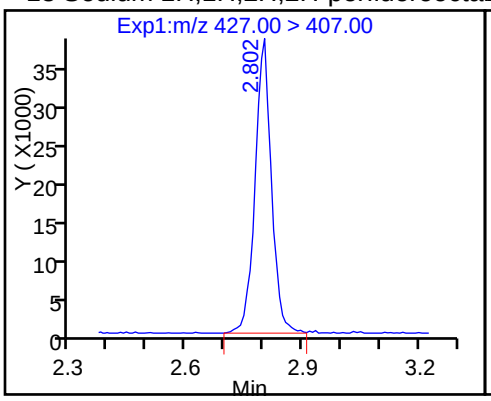
D 11 18O2 PFHxS



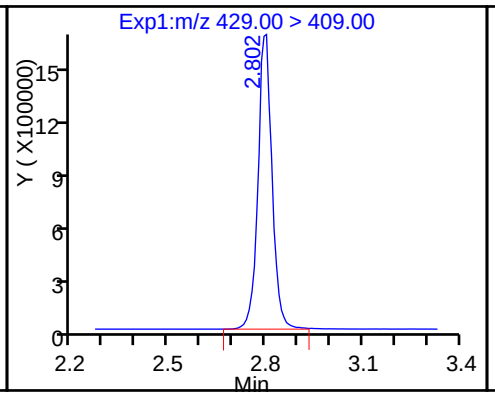
8 Perfluorohexanesulfonic acid (M)



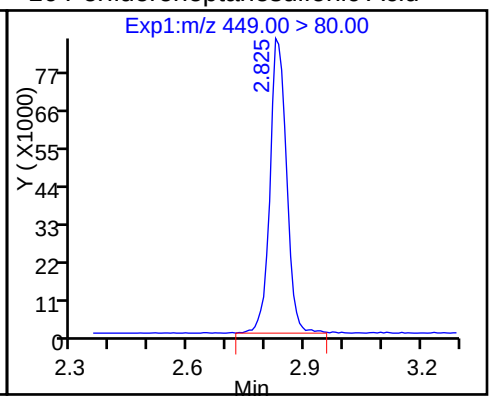
13 Sodium 1H,1H,2H,2H-perfluorooctane



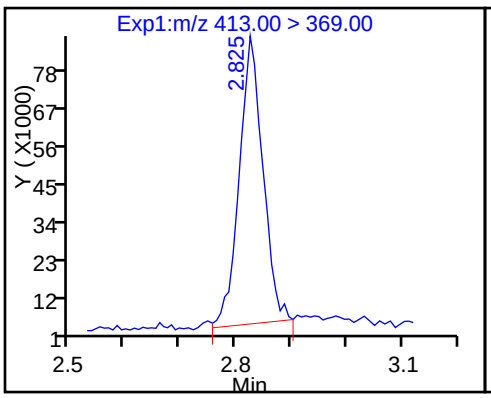
D 12 M2-6:2FTS



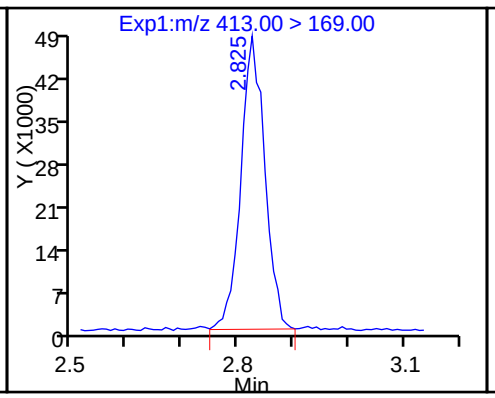
16 Perfluoroheptanesulfonic Acid



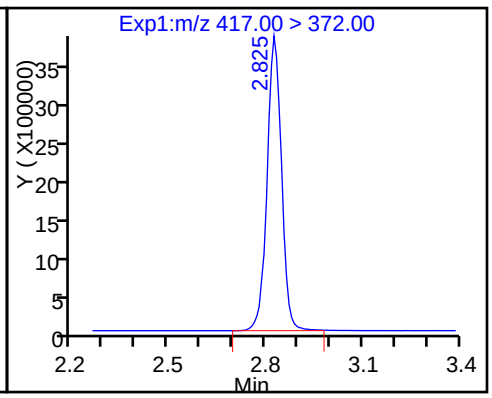
15 Perfluorooctanoic acid



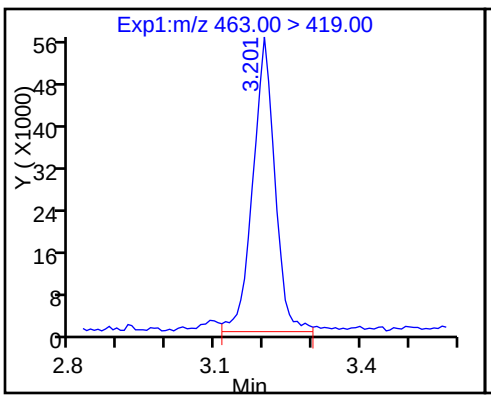
15 Perfluorooctanoic acid



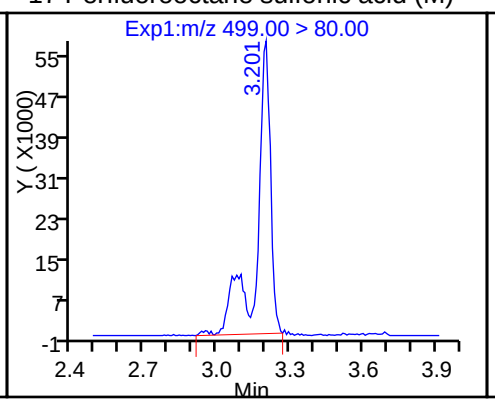
D 14 13C4 PFOA



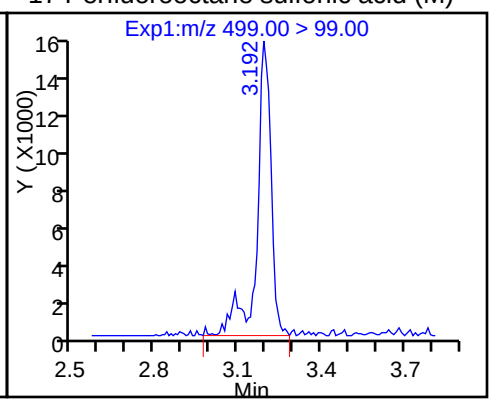
20 Perfluorononanoic acid



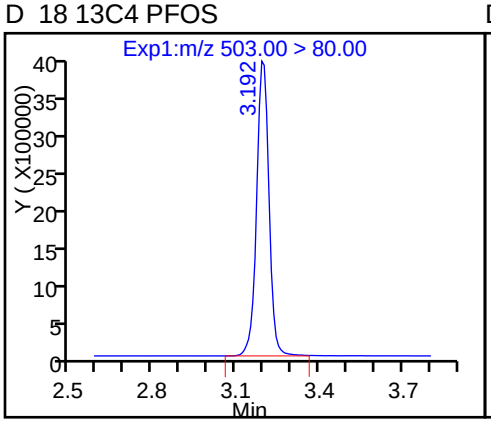
17 Perfluorooctane sulfonic acid (M)



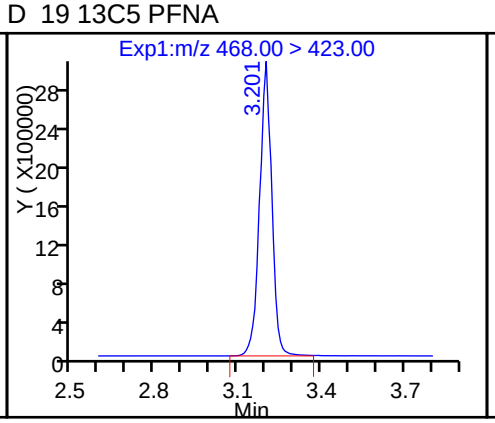
17 Perfluorooctane sulfonic acid (M)



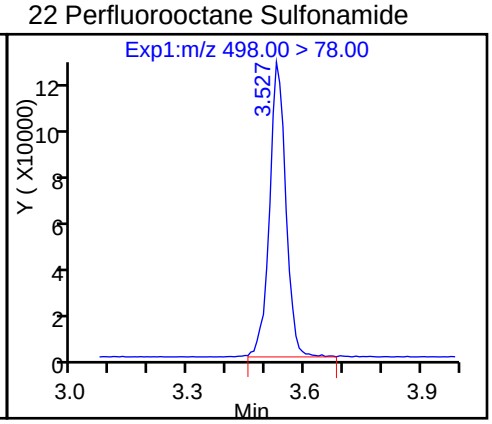
D 18 13C4 PFOS



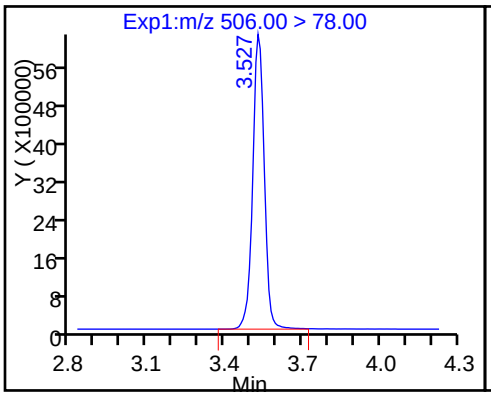
D 19 13C5 PFNA



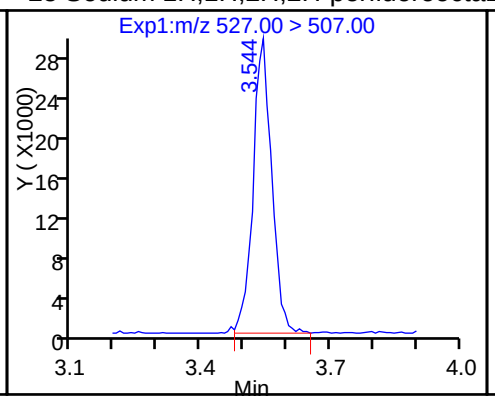
22 Perfluorooctane Sulfonamide



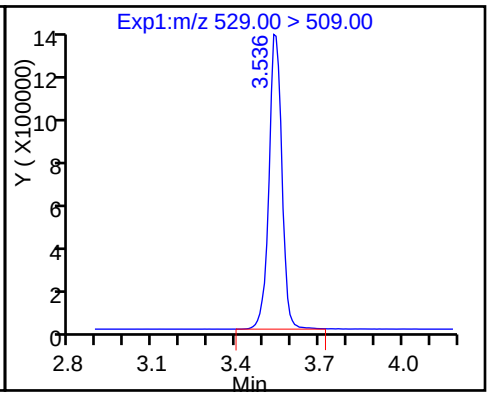
D 21 13C8 FOSA



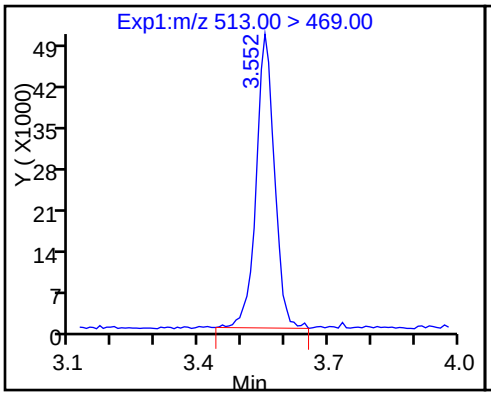
25 Sodium 1H,1H,2H,2H-perfluorooctane



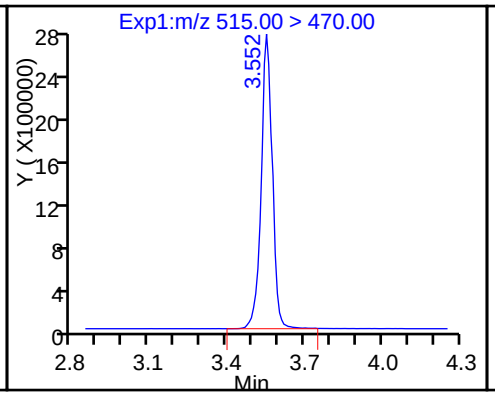
D 26 M2-8:2FTS



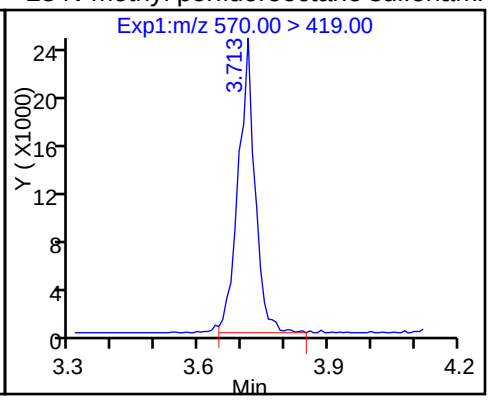
24 Perfluorodecanoic acid



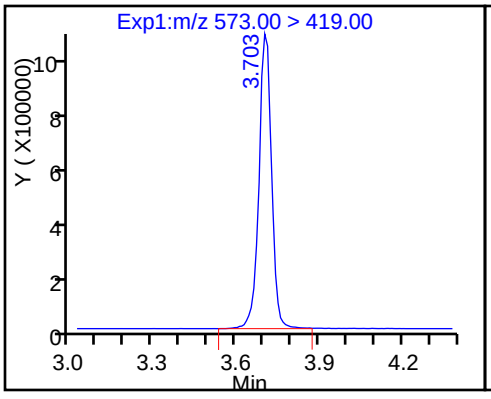
D 23 13C2 PFDA



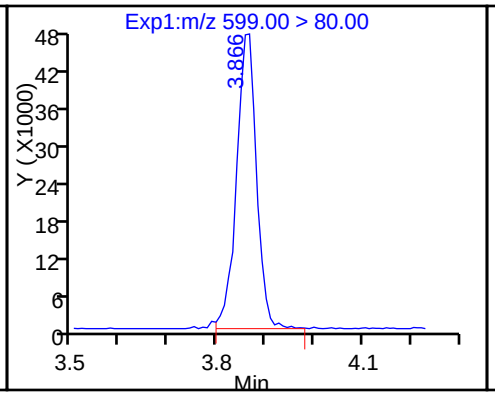
28 N-methyl perfluorooctane sulfonami



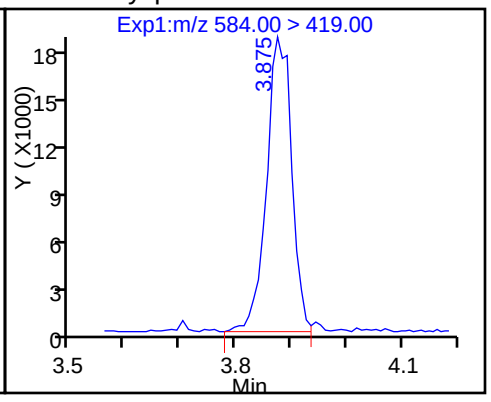
D 27 d3-NMeFOSAA



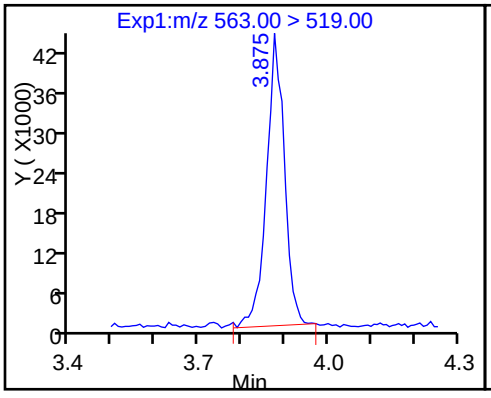
29 Perfluorodecane Sulfonic acid



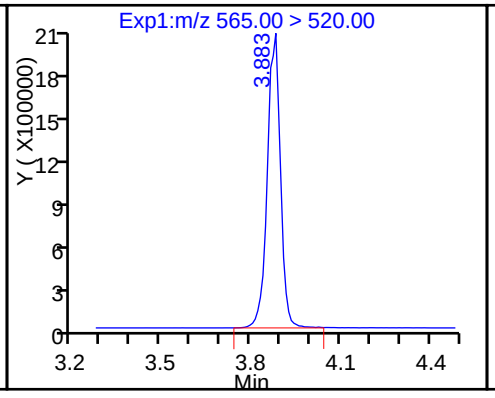
33 N-ethyl perfluorooctane sulfonamid



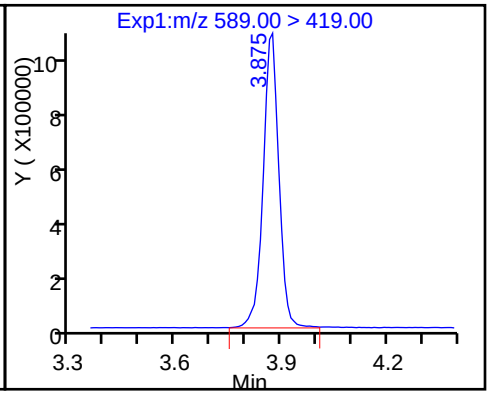
31 Perfluoroundecanoic acid



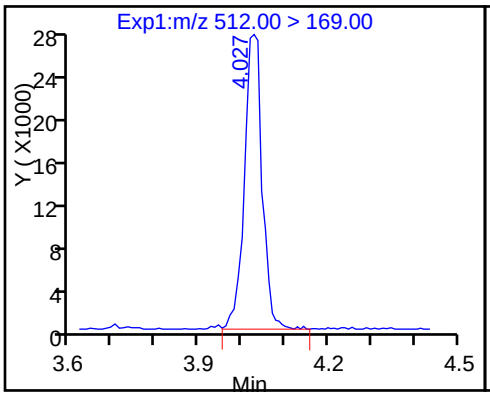
D 30 13C2 PFUnA



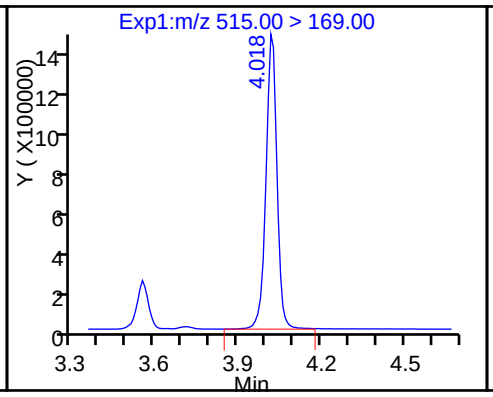
D 32 d5-NEtFOSAA



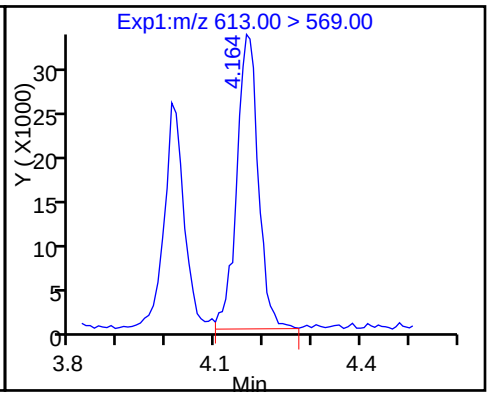
35 MeFOSA



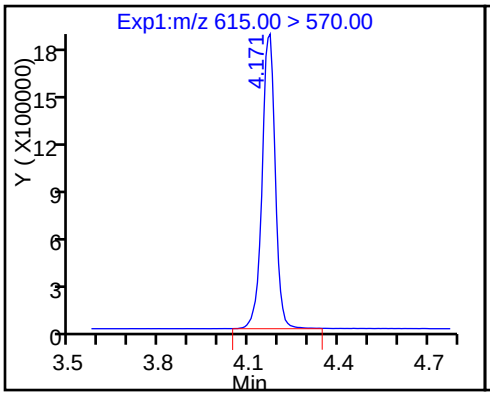
D 34 d-N-MeFOSA-M



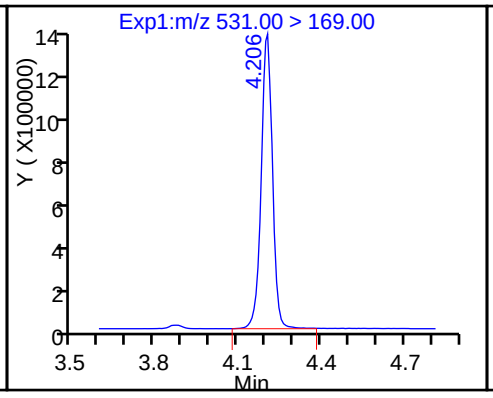
37 Perfluorododecanoic acid



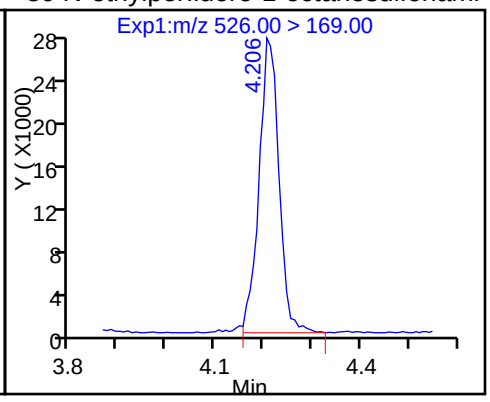
D 36 13C2 PFDoA



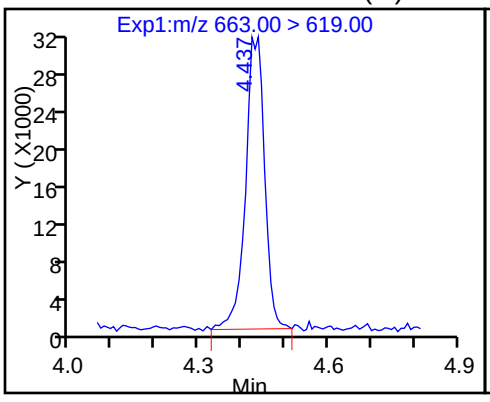
D 38 d-N-EtFOSA-M



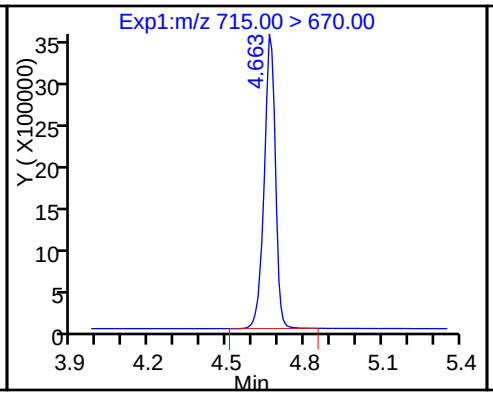
39 N-ethylperfluoro-1-octanesulfonami



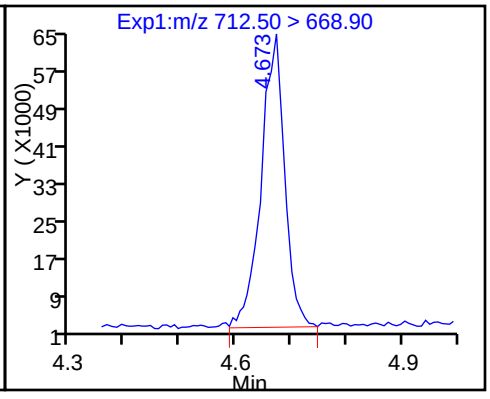
41 Perfluorotridecanoic acid (M)



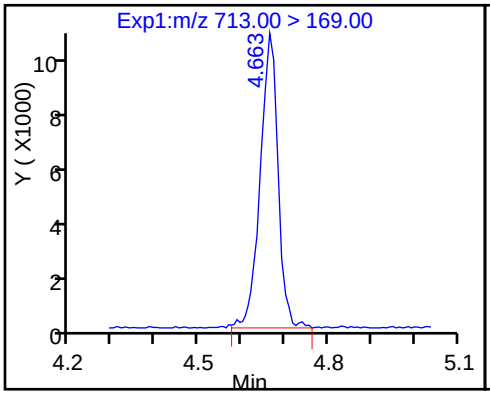
D 43 13C2-PFTeDA



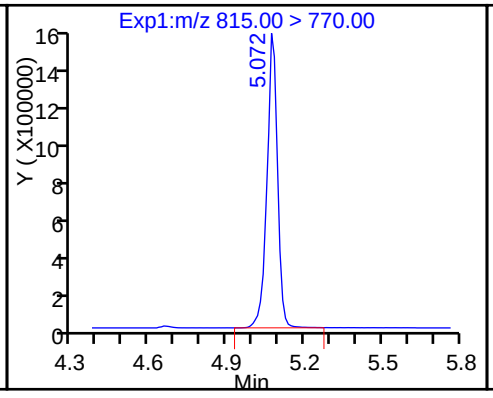
42 Perfluorotetradecanoic acid



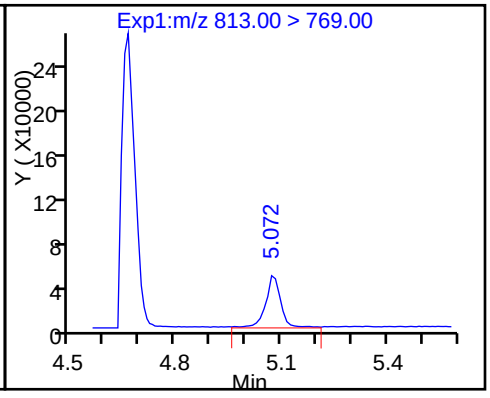
42 Perfluorotetradecanoic acid



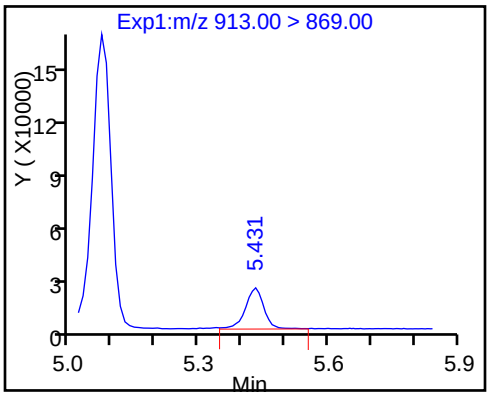
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

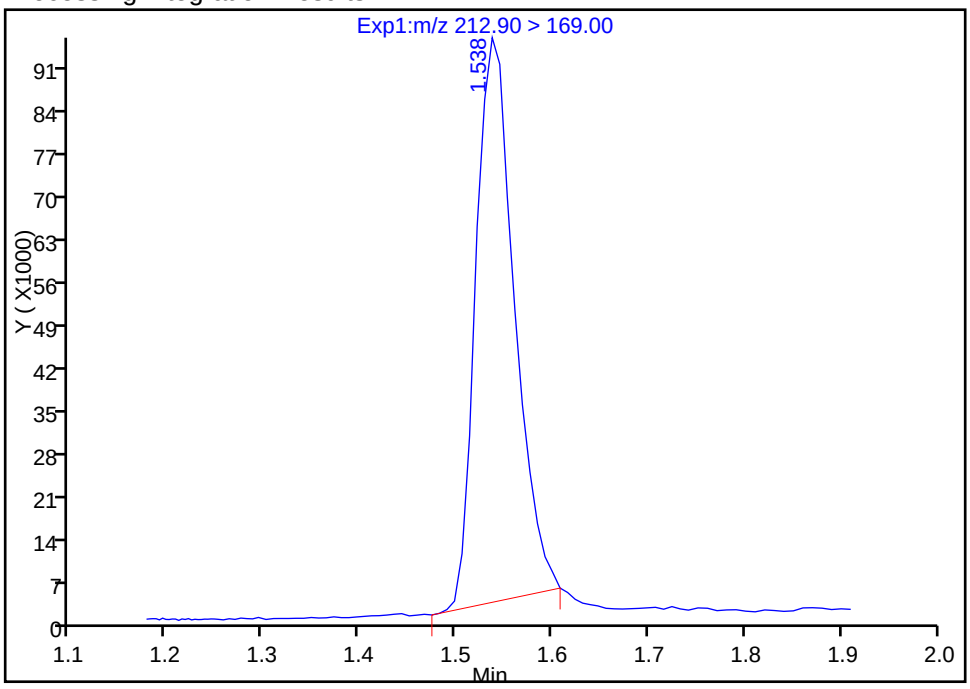
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40719.b\2017.03.10B_002.d
Injection Date: 10-Mar-2017 17:37:24 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

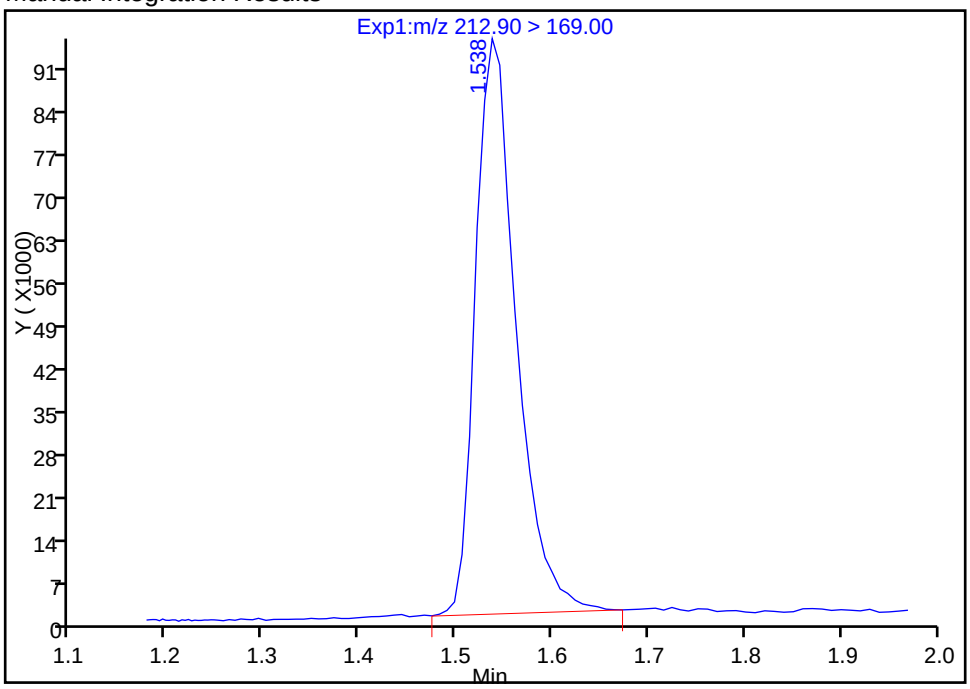
Processing Integration Results

RT: 1.54
Area: 256959
Amount: 0.940978
Amount Units: ng/ml



Manual Integration Results

RT: 1.54
Area: 276661
Amount: 1.013126
Amount Units: ng/ml



Reviewer: phomsophat, 13-Mar-2017 09:40:14
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

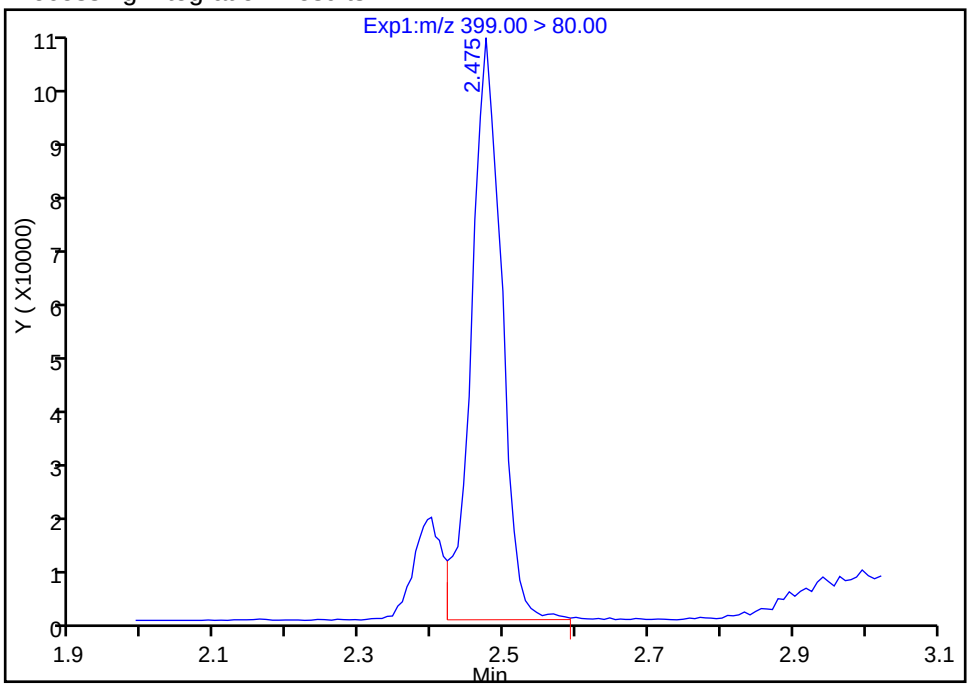
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40719.b\2017.03.10B_002.d
Injection Date: 10-Mar-2017 17:37:24 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

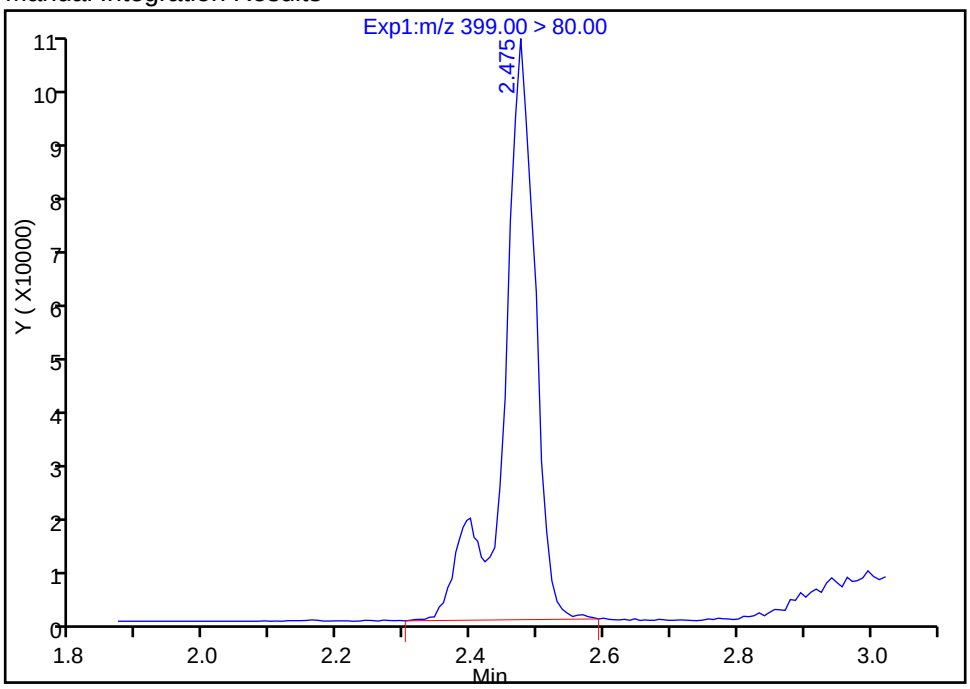
Processing Integration Results

RT: 2.47
Area: 303419
Amount: 0.896678
Amount Units: ng/ml



Manual Integration Results

RT: 2.47
Area: 351343
Amount: 1.038305
Amount Units: ng/ml



Reviewer: phomsophat, 13-Mar-2017 09:40:14
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

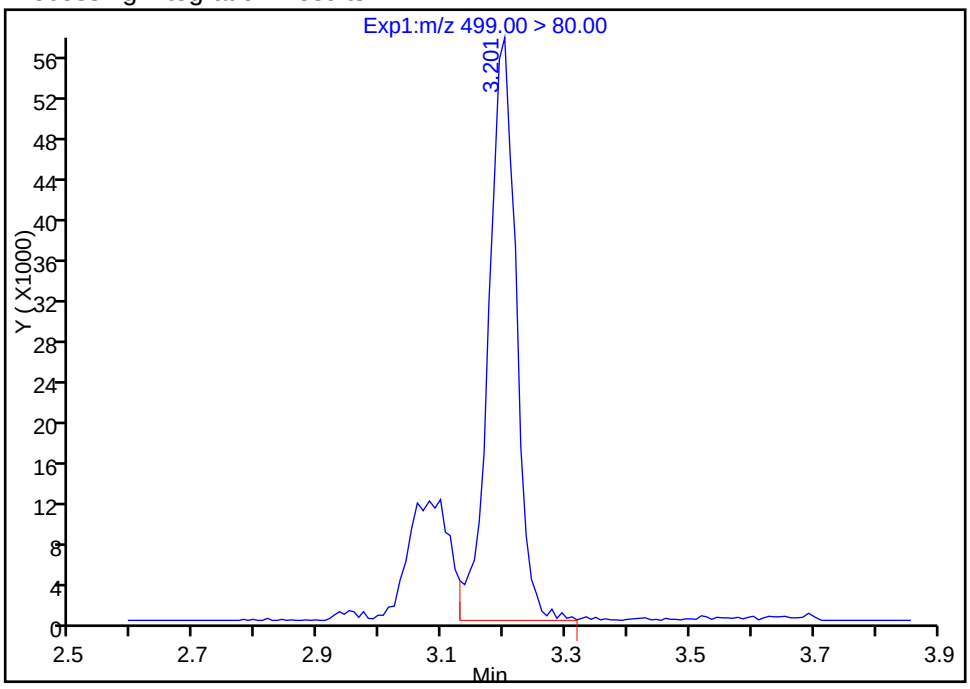
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40719.b\2017.03.10B_002.d				
Injection Date:	10-Mar-2017 17:37:24	Instrument ID:	A8_N		
Lims ID:	CCV L2				
Client ID:					
Operator ID:	A8-PC\A8	ALS Bottle#:	29	Worklist Smp#:	2
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 1

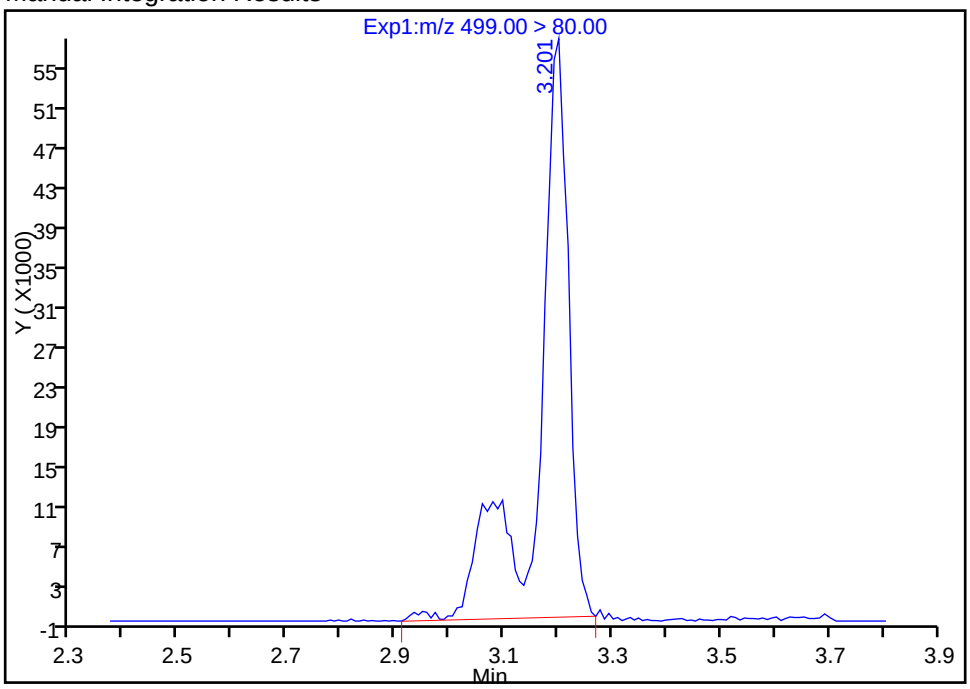
Processing Integration Results

RT: 3.20
Area: 176686
Amount: 0.686637
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 228229
Amount: 0.886943
Amount Units: ng/ml



Reviewer: phomsophat, 13-Mar-2017 09:40:14

Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

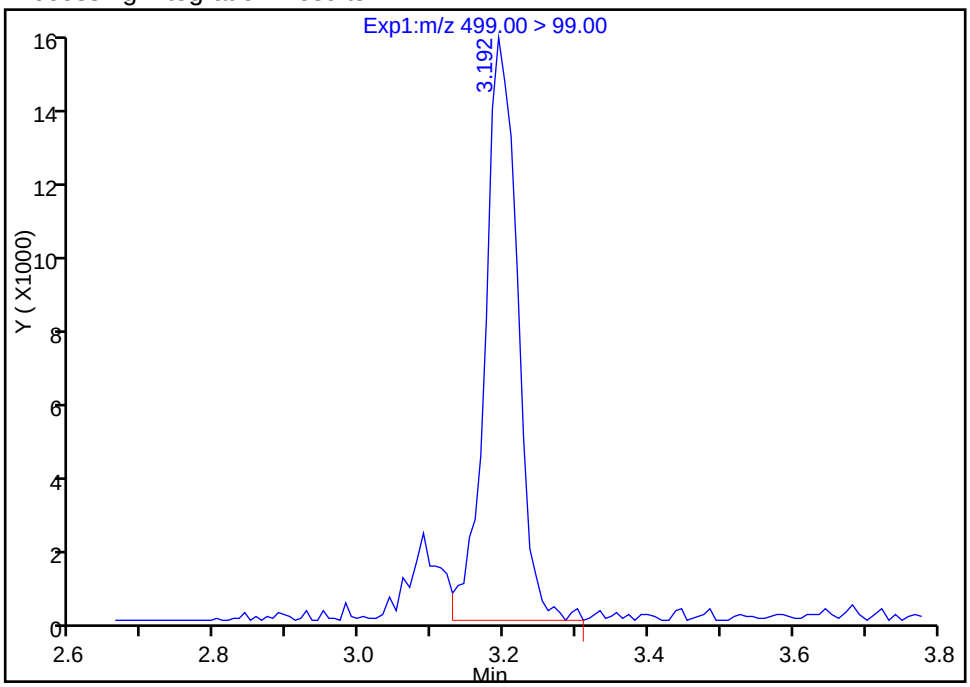
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40719.b\2017.03.10B_002.d
Injection Date: 10-Mar-2017 17:37:24 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

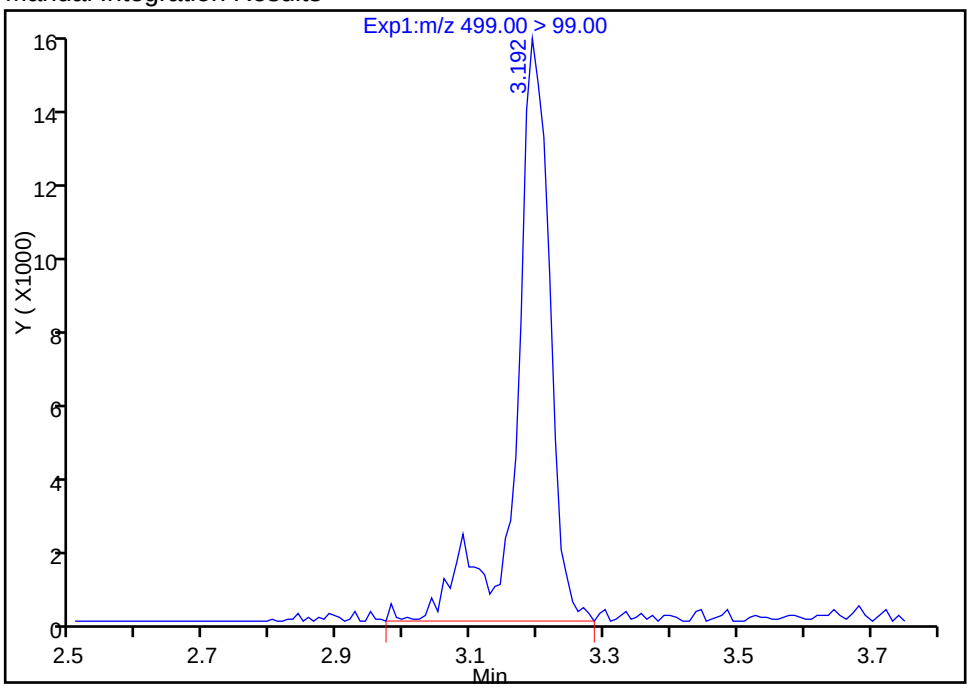
Processing Integration Results

RT: 3.19
Area: 48327
Amount: 0.686637
Amount Units: ng/ml



Manual Integration Results

RT: 3.19
Area: 55113
Amount: 0.886943
Amount Units: ng/ml



Reviewer: phomsophat, 13-Mar-2017 09:40:14
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

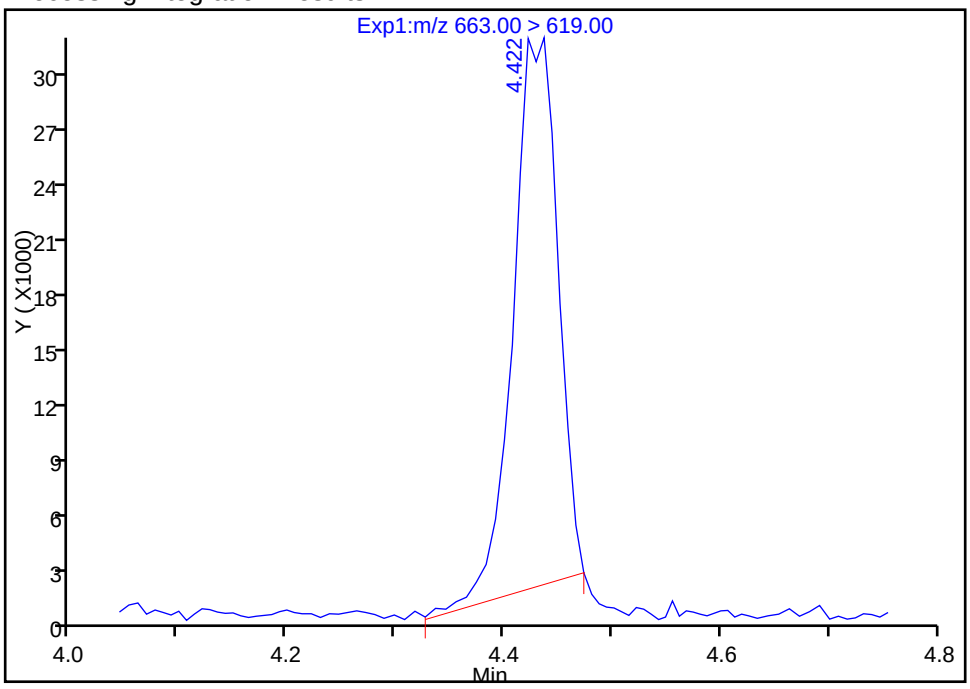
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40719.b\2017.03.10B_002.d				
Injection Date:	10-Mar-2017 17:37:24	Instrument ID:	A8_N		
Lims ID:	CCV L2				
Client ID:					
Operator ID:	A8-PC\A8	ALS Bottle#:	29	Worklist Smp#:	2
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

41 Perfluorotridecanoic acid, CAS: 72629-94-8

Signal: 1

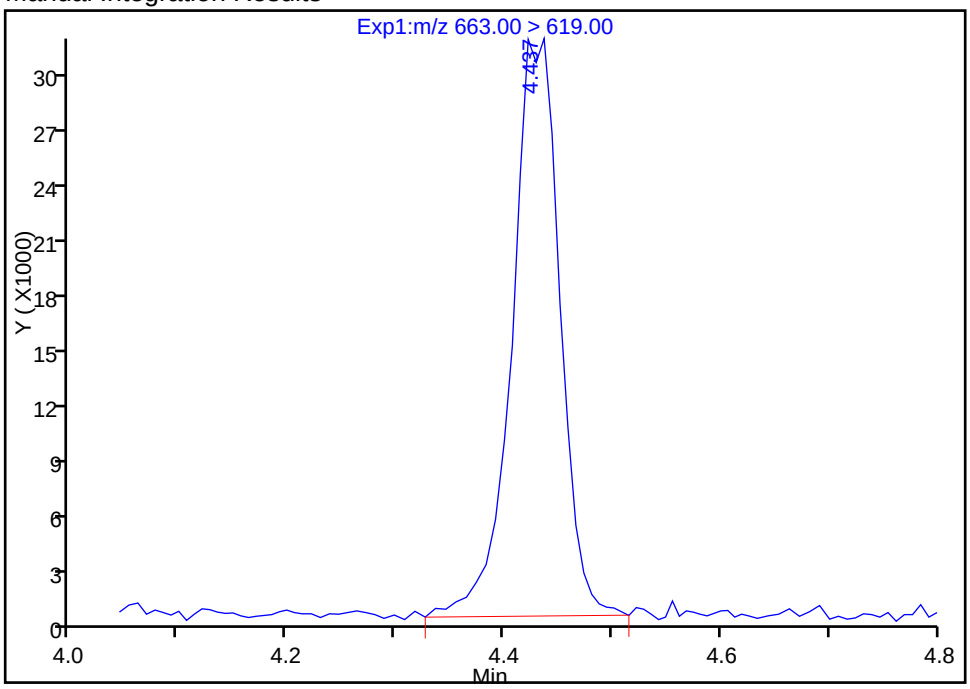
Processing Integration Results

RT: 4.42
Area: 84884
Amount: 0.847774
Amount Units: ng/ml



Manual Integration Results

RT: 4.44
Area: 96093
Amount: 0.959723
Amount Units: ng/ml



Reviewer: phomsophat, 13-Mar-2017 09:40:14

Audit Action: Manually Integrated Audit Reason: Incomplete Integration

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154459/19 Calibration Date: 03/10/2017 22:22

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.10B_040.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8983		53.0	50.0	6.0	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	1.010		51.6	50.0	3.2	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.472		45.4	44.2	2.7	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9178		51.6	50.0	3.2	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9760		50.5	50.0	0.9	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.074		47.5	45.5	4.4	25.0
6:2FTS	L2ID		0.9031		48.2	47.4	1.7	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.011		49.5	50.0	-1.0	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.121		51.7	47.6	8.7	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9596		53.1	50.0	6.2	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.102		52.0	46.4	12.1	25.0
8:2FTS	L2ID		0.9365		48.5	47.9	1.2	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9316		51.8	50.0	3.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9284		51.3	50.0	2.5	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9403		48.4	50.0	-3.2	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6335		51.3	48.2	6.3	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8739		48.0	50.0	-4.0	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9232		45.5	50.0	-8.9	25.0
MeFOSA	AveID	0.9355	0.9221		49.3	50.0	-1.4	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9005		49.2	50.0	-1.5	25.0
N-EtFOSA-M	AveID	0.9837	0.9439		48.0	50.0	-4.0	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.9638		55.2	50.0	10.3	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.753		44.6	50.0	-10.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9937		53.2	50.0	6.4	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.7244		50.5	50.0	1.0	25.0
13C4 PFBA	Ave	292242	348232		59.6	50.0	19.2	50.0
13C5-PFPeA	Ave	232192	267197		57.5	50.0	15.1	50.0
13C2 PFHxA	Ave	210884	264386		62.7	50.0	25.4	50.0
13C4-PFHpA	Ave	192959	234738		60.8	50.0	21.7	50.0
18O2 PFHxS	Ave	290899	350049		56.9	47.3	20.3	50.0
M2-6:2FTS	Ave	77178	112453		69.2	47.5	45.7	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154459/19 Calibration Date: 03/10/2017 22:22

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.10B_040.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	239135		58.3	50.0	16.7	50.0
13C4 PFOS	Ave	241637	283738		56.1	47.8	17.4	50.0
13C5 PFNA	Ave	177866	196310		55.2	50.0	10.4	50.0
13C8 FOSA	Ave	366918	409204		55.8	50.0	11.5	50.0
M2-8:2FTS	Ave	92602	99959		51.7	47.9	7.9	50.0
13C2 PFDA	Ave	166704	177495		53.2	50.0	6.5	50.0
d3-NMeFOSAA	Ave	85186	84423		49.6	50.0	-0.9	50.0
d5-NEtFOSAA	Ave	81371	78075		48.0	50.0	-4.1	50.0
13C2 PFUnA	Ave	130805	140376		53.7	50.0	7.3	50.0
d-N-MeFOSA-M	Ave	87983	96655		54.9	50.0	9.9	50.0
13C2 PFDoA	Ave	123944	134262		54.2	50.0	8.3	50.0
d-N-EtFOSA-M	Ave	85249	89222		52.3	50.0	4.7	50.0
13C2-PFTeDA	Ave	259165	273556		52.8	50.0	5.6	50.0
13C2-PFHxDA	Ave	125061	151434		60.5	50.0	21.1	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_040.d
Lims ID: CCV L5
Client ID:
Sample Type: CCV
Inject. Date: 10-Mar-2017 22:22:30 ALS Bottle#: 32 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub14

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 13-Mar-2017 12:29:55 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK007

First Level Reviewer: westendorfc Date: 13-Mar-2017 12:29:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.539	1.539	0.0		17411578	59.6		119	765732	
2 Perfluorobutyric acid										
212.90 > 169.00	1.546	1.546	0.0	1.000	15640249	53.0		106	101535	
D 3 13C5-PFPeA										
267.90 > 223.00	1.822	1.822	0.0		13359829	57.5		115	767265	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.822	1.822	0.0	1.000	13496186	51.6		103	145634	
D 47 13C3-PFBS										
301.90 > 83.00	1.852	1.852	0.0		353195	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.861	0.0	1.000	22770330	45.4		103		
298.90 > 99.00	1.852	1.861	-0.009	0.995	9846252		2.31(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.111	2.111	0.0		13219316	62.7		125	445768	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.111	2.111	0.0	1.000	12132105	51.6		103	207636	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.449	2.449	0.0	1.000	11454944	50.5		101	139427	
D 9 13C4-PFHpA										
367.00 > 322.00	2.457	2.457	0.0		11736877	60.8		122	452217	
D 11 18O2 PFHxS										
403.00 > 84.00	2.464	2.464	0.0		16557329	56.9		120	496756	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.472	2.472	0.0	1.000	17104614	47.5		104		M
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.783	2.783	0.0	1.000	4813936	48.2		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	2.791	2.791	0.0		5341509	69.2		146		
15 Perfluorooctanoic acid										
413.00 > 369.00	2.814	2.814	0.0	1.000	12088751	49.5		99.0	122974	
413.00 > 169.00	2.814	2.814	0.0	1.000	7097148		1.70(0.90-1.10)		159113	
D 14 13C4 PFOA										
417.00 > 372.00	2.814	2.814	0.0		11956733	58.3		117	390622	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.822	2.822	0.0	1.000	15137445	51.7		109		
D 18 13C4 PFOS										
503.00 > 80.00	3.188	3.188	0.0		13562688	56.1		117	244942	
20 Perfluorononanoic acid										
463.00 > 419.00	3.197	3.197	0.0	1.000	9418695	53.1		106	152305	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.197	3.197	0.0	1.000	14512518	52.0		112	221096	M
499.00 > 99.00	3.188	3.197	-0.009	0.997	3214272		4.52(0.90-1.10)		74177	M
D 19 13C5 PFNA										
468.00 > 423.00	3.197	3.197	0.0		9815495	55.2		110	323452	
D 21 13C8 FOSA										
506.00 > 78.00	3.533	3.533	0.0		20460190	55.8		112	339243	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.533	3.533	0.0	1.000	19060731	51.8		104	446920	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.533	3.533	0.0	0.998	4483816	48.5		101		
D 26 M2-8:2FTS										
529.00 > 509.00	3.542	3.542	0.0		4788041	51.7		108		
24 Perfluorodecanoic acid										
513.00 > 469.00	3.550	3.550	0.0	1.000	8238850	51.3		103	289036	
D 23 13C2 PFDA										
515.00 > 470.00	3.558	3.558	0.0		8874749	53.2		106	223630	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.699	3.699	0.0		4221161	49.6		99.1		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.710	3.710	0.0	1.003	3969121	48.4		96.8		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.856	3.856	0.0	1.000	8663770	51.3		106		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.865	3.865	0.0		3903733	48.0		95.9		
D 30 13C2 PFUnA										
565.00 > 520.00	3.873	3.873	0.0		7018797	53.7		107	367998	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.873	3.873	0.0	1.000	6479705	45.5		91.1	107826	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.873	3.873	0.0	1.002	3411483	48.0		96.0		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.026	4.026	0.0		4832725	54.9		110		
35 MeFOSA										
512.00 > 169.00	4.026	4.026	0.0	1.000	4456343	49.3		98.6		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA										
615.00 > 570.00	4.165	4.165	0.0		6713098	54.2		108	162003	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.165	4.165	0.0	1.000	6045307	49.2		98.5	59817	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.209	4.209	0.0		4461078	52.3		105		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.218	4.218	0.0	1.000	4210667	48.0		96.0		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.428	4.428	0.0	1.000	6469787	55.2		110	117902	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.668	4.668	0.0		13677786	52.8		106	307048	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.668	4.668	0.0	1.000	11766268	44.6		89.1	104976	
713.00 > 169.00	4.658	4.668	-0.010	0.998	1713899		6.87(0.00-0.00)		181585	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.077	5.077	0.0		7571700	60.5		121	109517	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.077	5.077	0.0	1.000	6670453	53.2		106	5718	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.428	5.428	0.0	1.000	4862725	50.5		101	5266	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L5_00001 Amount Added: 1.00 Units: mL

Report Date: 13-Mar-2017 12:29:57 Chrom Revision: 2.2 05-Mar-2017 11:38:00

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_040.d

Injection Date: 10-Mar-2017 22:22:30 Instrument ID: A8_N

Lims ID: CCV L5

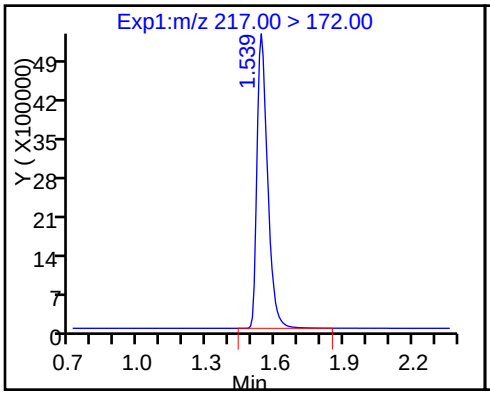
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 19

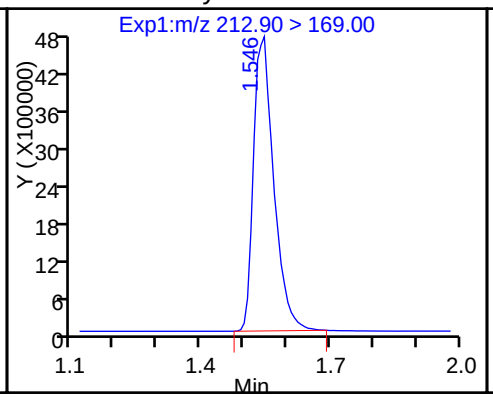
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

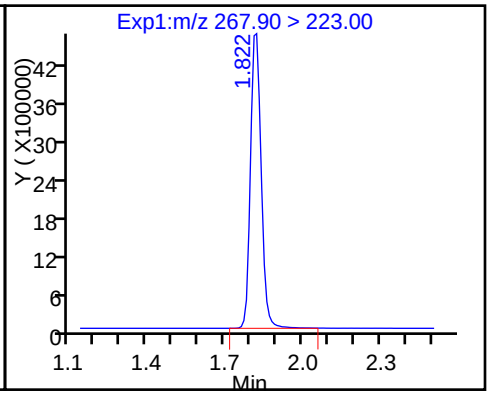
D 1 13C4 PFBA



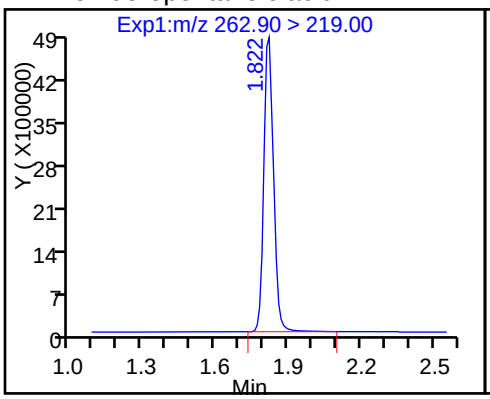
2 Perfluorobutyric acid



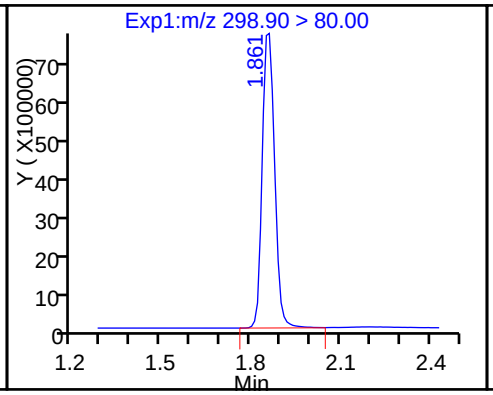
D 3 13C5-PFPeA



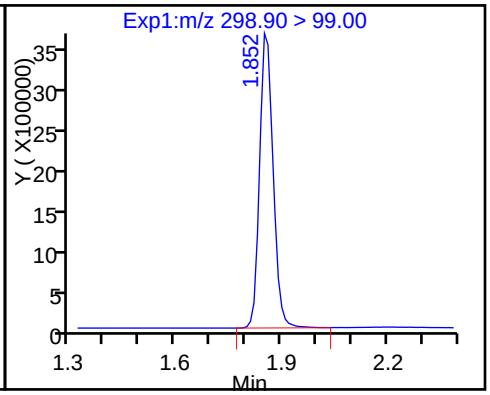
4 Perfluoropentanoic acid



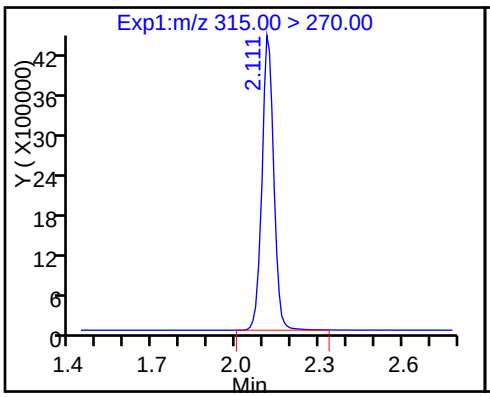
5 Perfluorobutanesulfonic acid



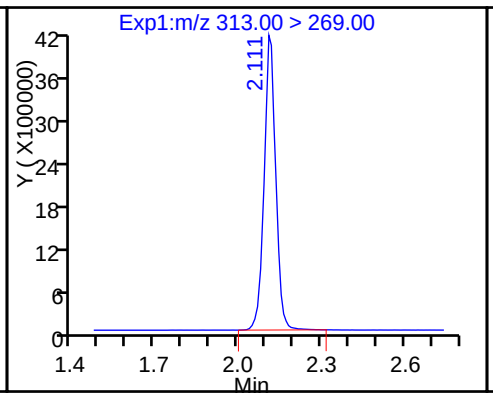
5 Perfluorobutanesulfonic acid



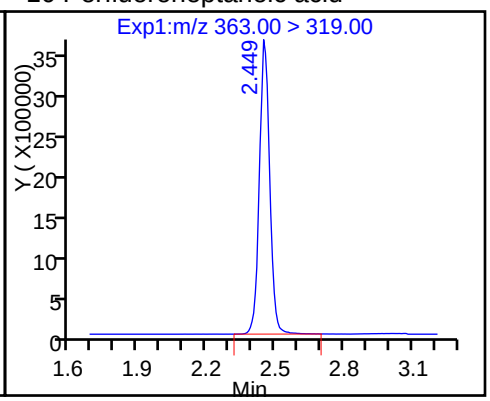
D 7 13C2 PFHxA



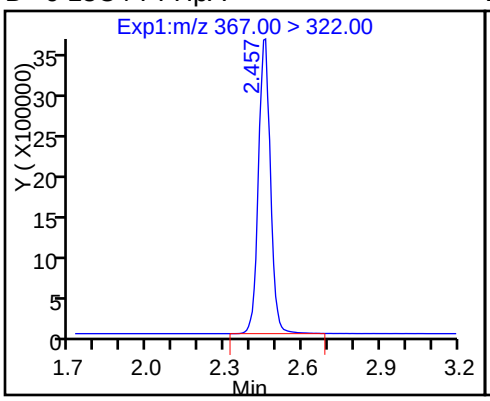
6 Perfluorohexanoic acid



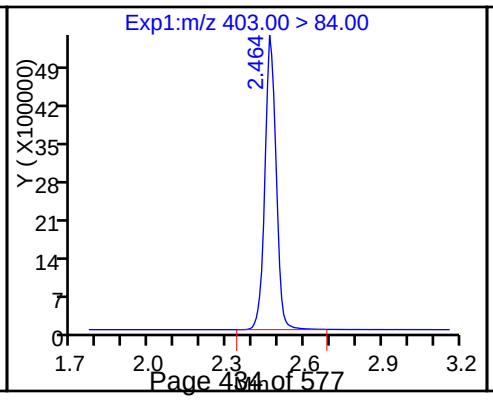
10 Perfluoroheptanoic acid



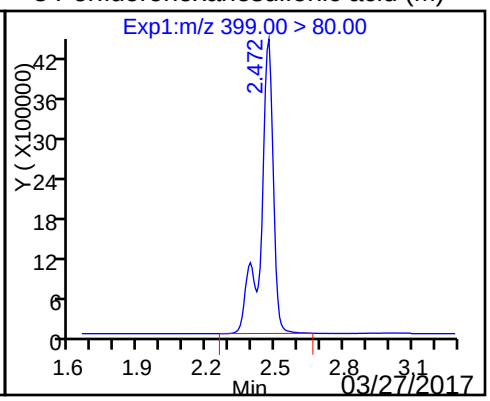
D 9 13C4-PFHpA



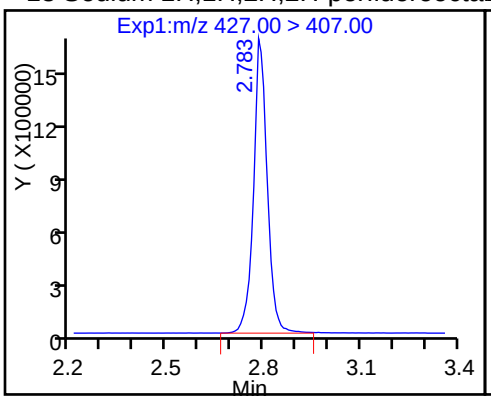
D 11 18O2 PFHxS



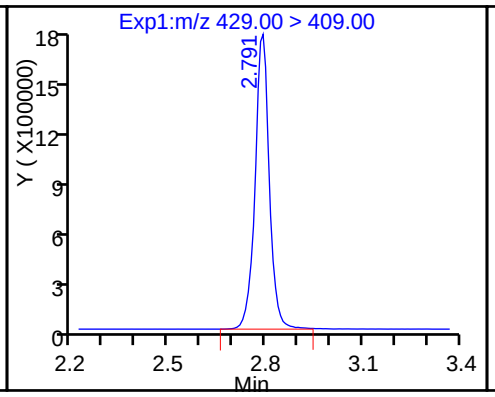
8 Perfluorohexanesulfonic acid (M)



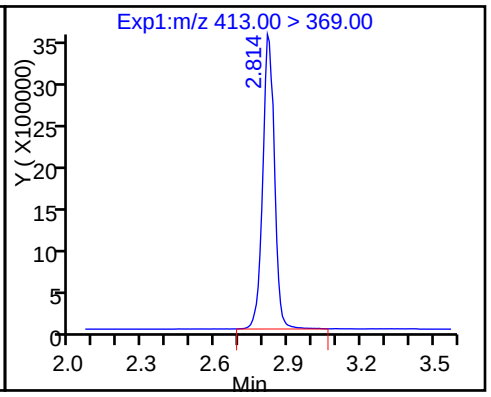
13 Sodium 1H,1H,2H,2H-perfluorooctane



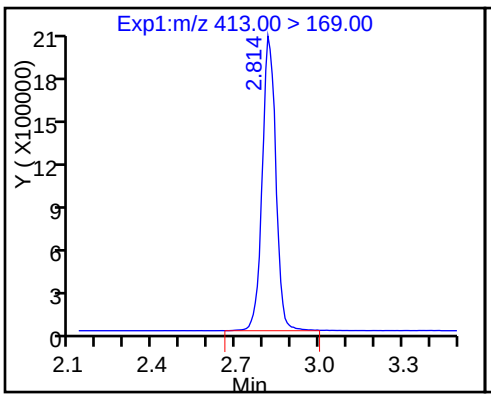
D 12 M2-6:2FTS



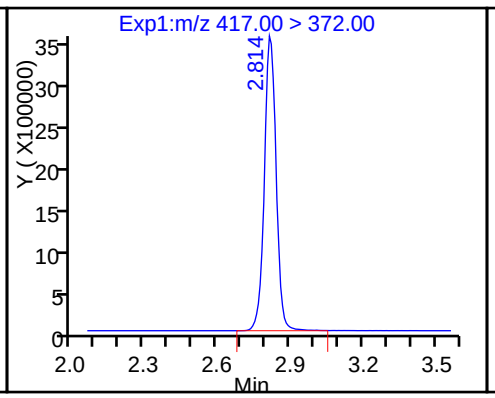
15 Perfluorooctanoic acid



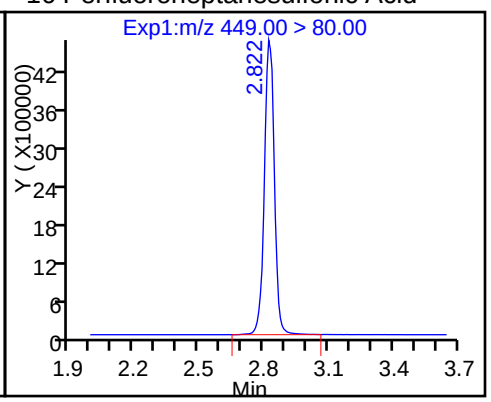
15 Perfluorooctanoic acid



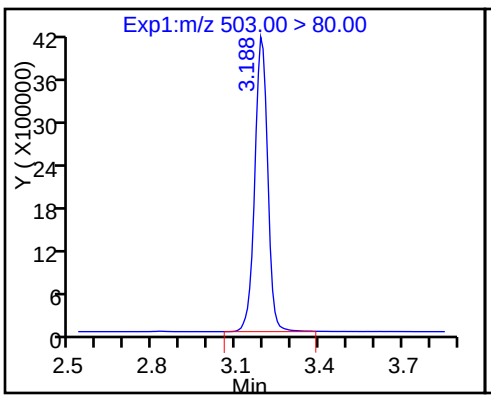
D 14 13C4 PFOA



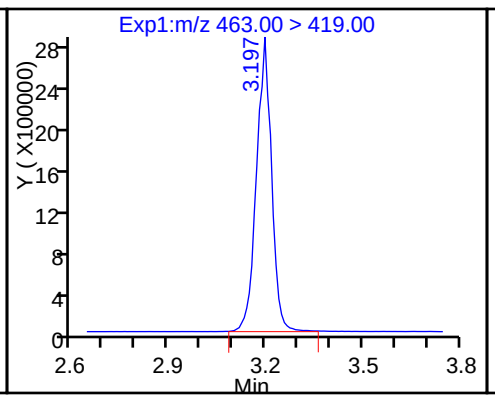
16 Perfluoroheptanesulfonic Acid



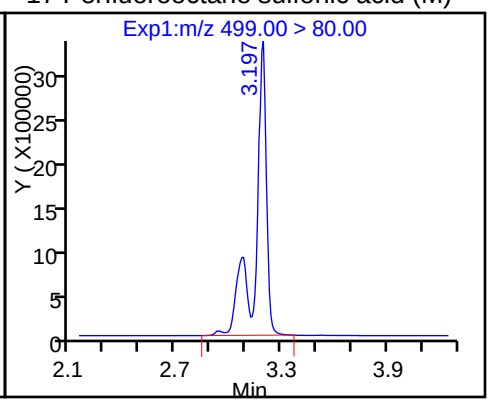
D 18 13C4 PFOS



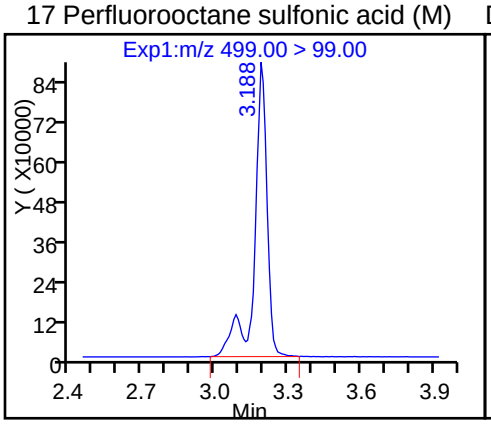
20 Perfluorononanoic acid



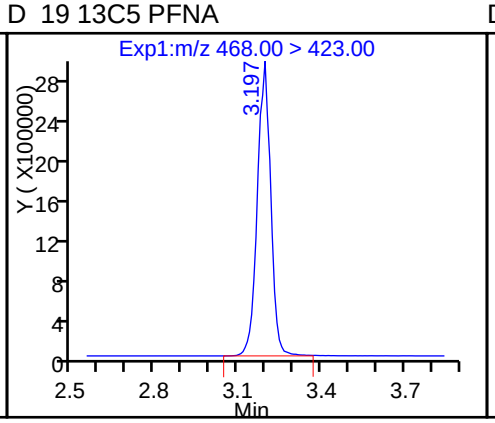
17 Perfluorooctane sulfonic acid (M)



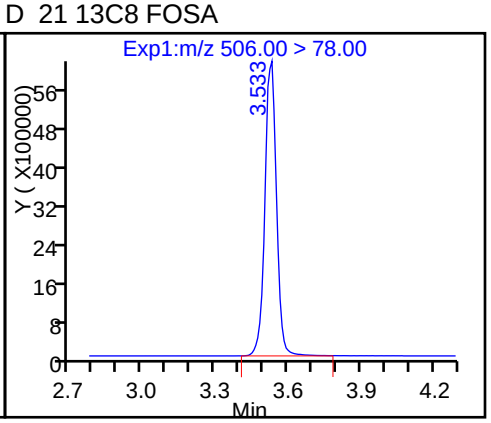
17 Perfluorooctane sulfonic acid (M)



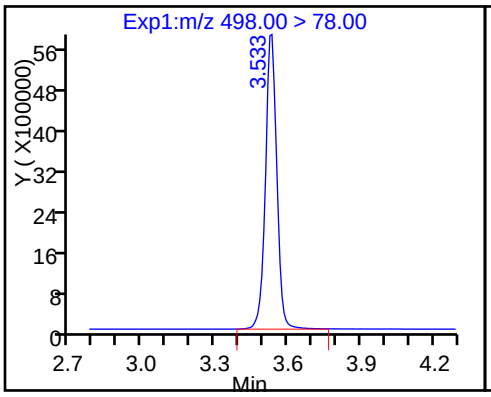
D 19 13C5 PFNA



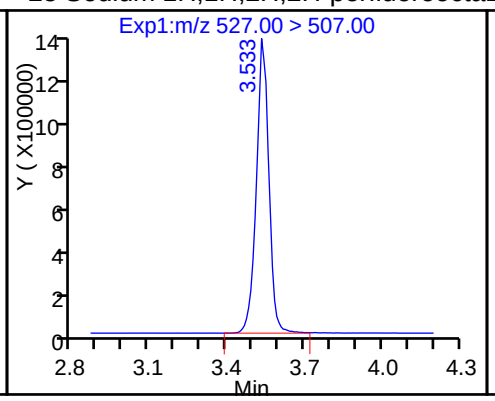
D 21 13C8 FOSA



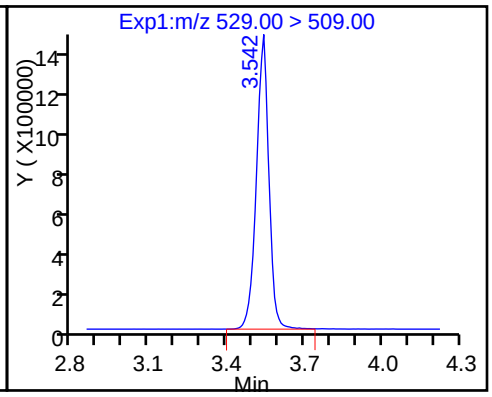
22 Perfluorooctane Sulfonamide



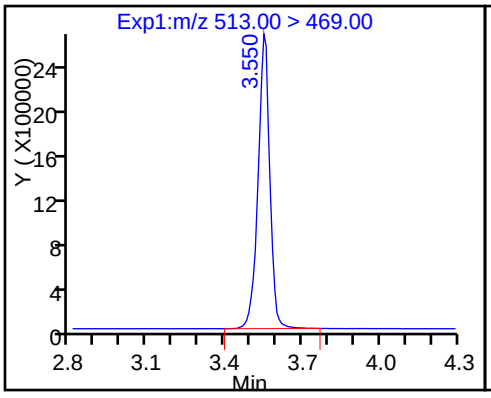
25 Sodium 1H,1H,2H,2H-perfluorooctane



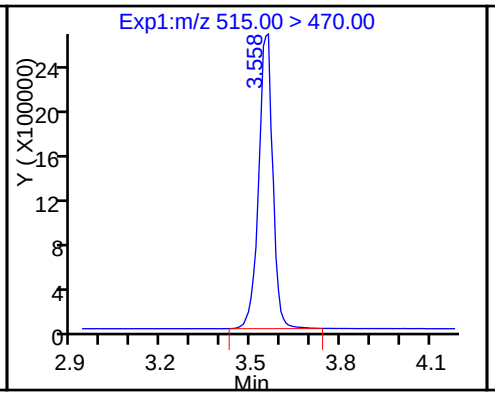
D 26 M2-8:2FTS



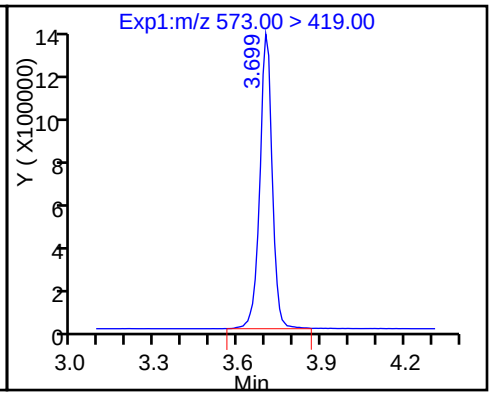
24 Perfluorodecanoic acid



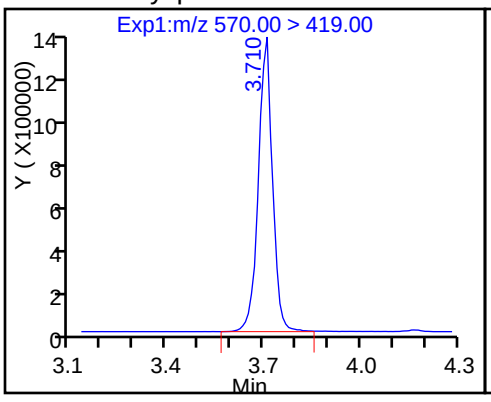
D 23 13C2 PFDA



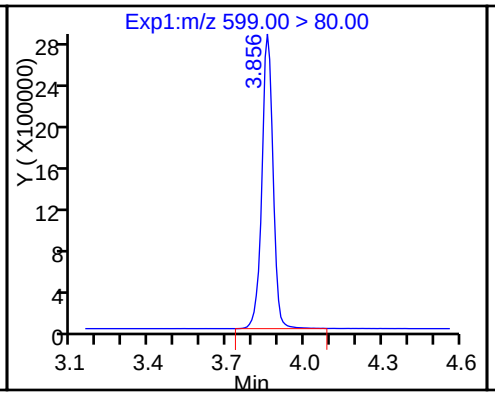
D 27 d3-NMeFOSAA



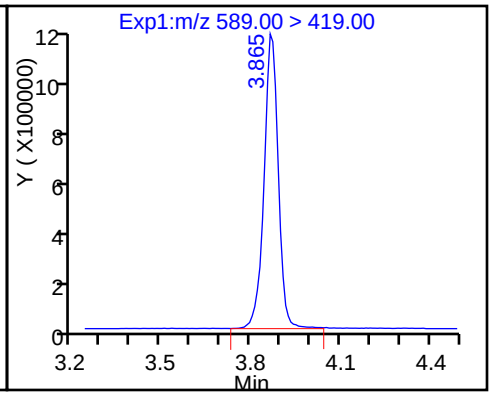
28 N-methyl perfluorooctane sulfonami



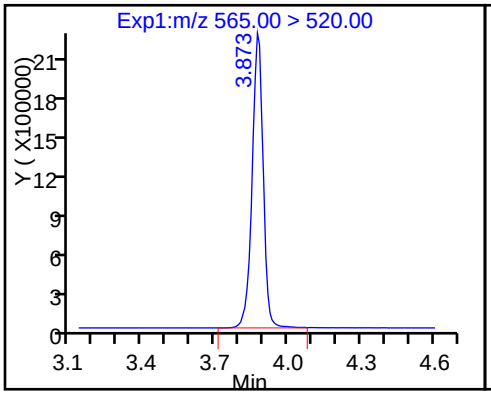
29 Perfluorodecane Sulfonic acid



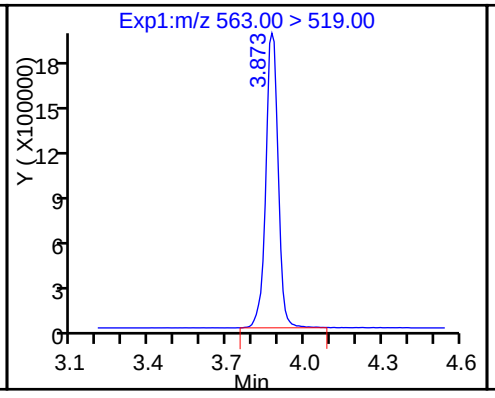
D 32 d5-NEtFOSAA



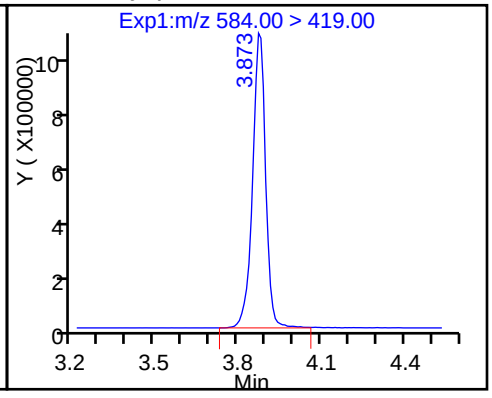
D 30 13C2 PFUnA



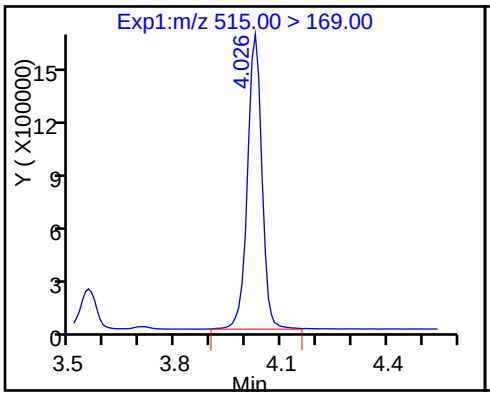
31 Perfluoroundecanoic acid



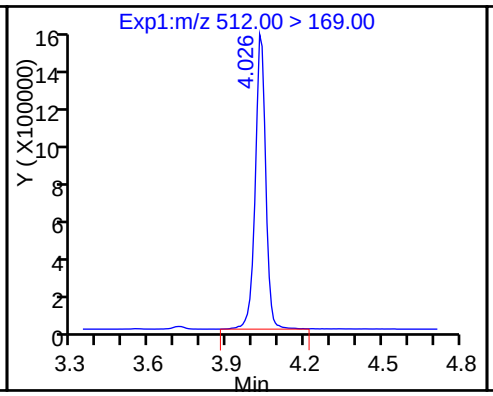
33 N-ethyl perfluorooctane sulfonamid



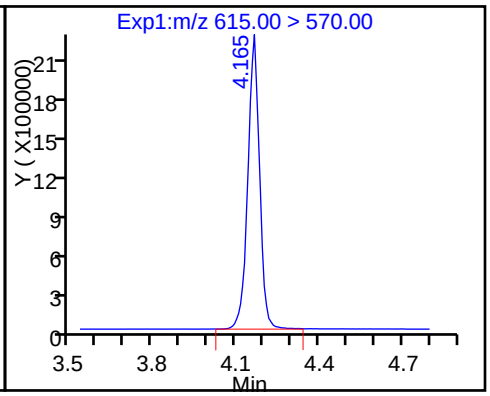
D 34 d-N-MeFOSA-M



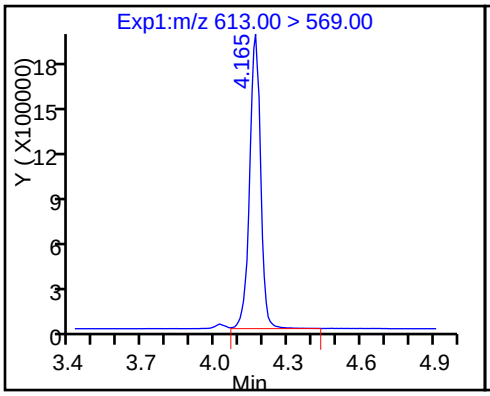
35 MeFOSA



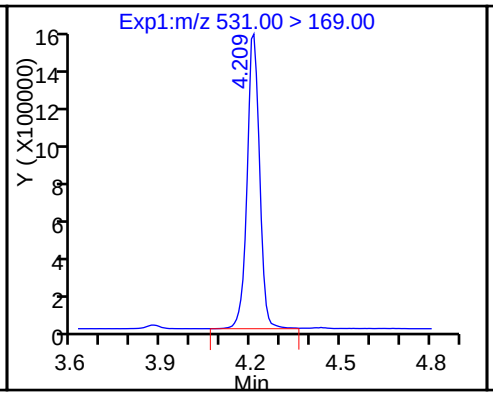
D 36 13C2 PFDoA



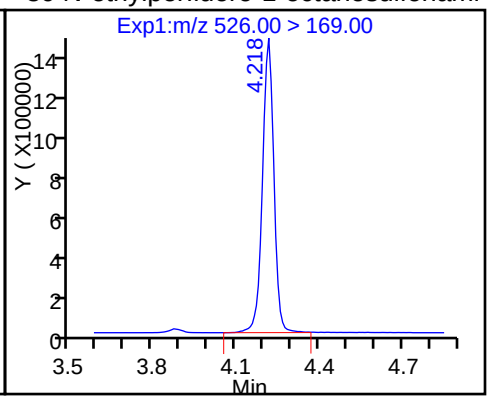
37 Perfluorododecanoic acid



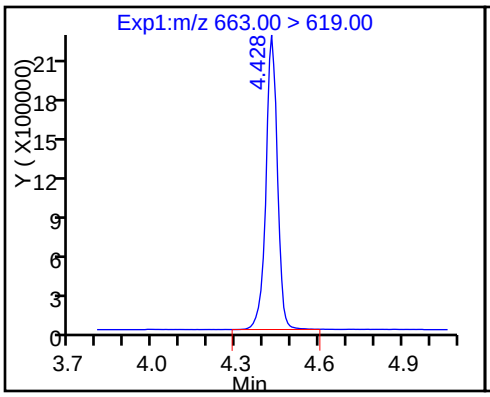
D 38 d-N-EtFOSA-M



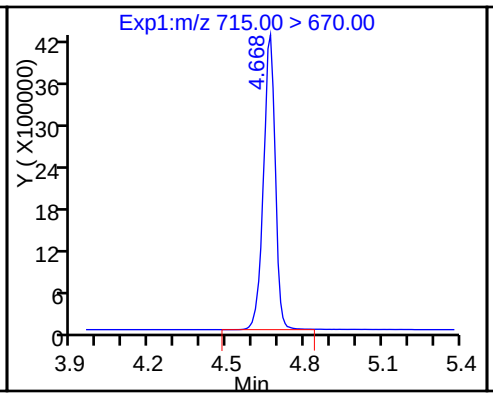
39 N-ethylperfluoro-1-octanesulfonami



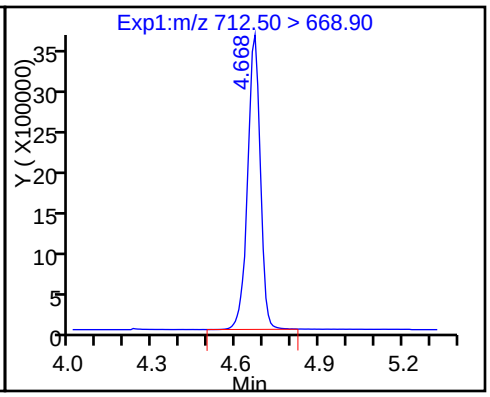
41 Perfluorotridecanoic acid



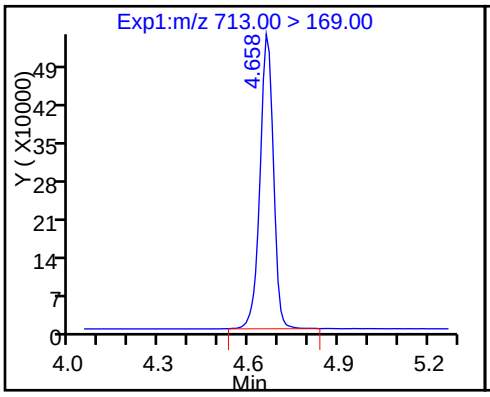
D 43 13C2-PFTeDA



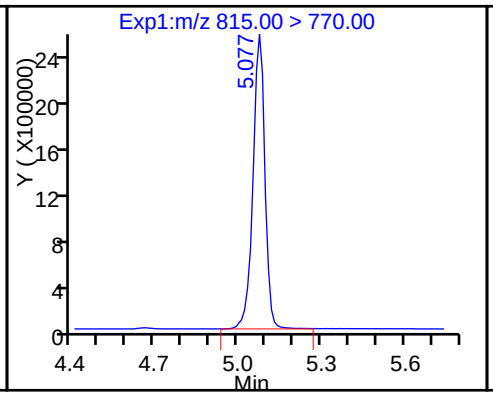
42 Perfluorotetradecanoic acid



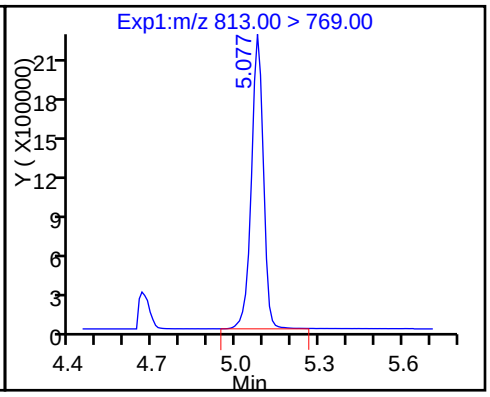
42 Perfluorotetradecanoic acid



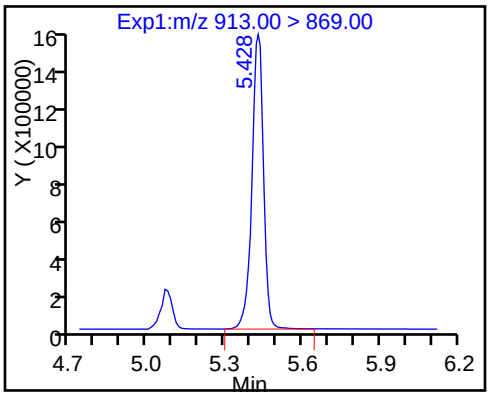
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

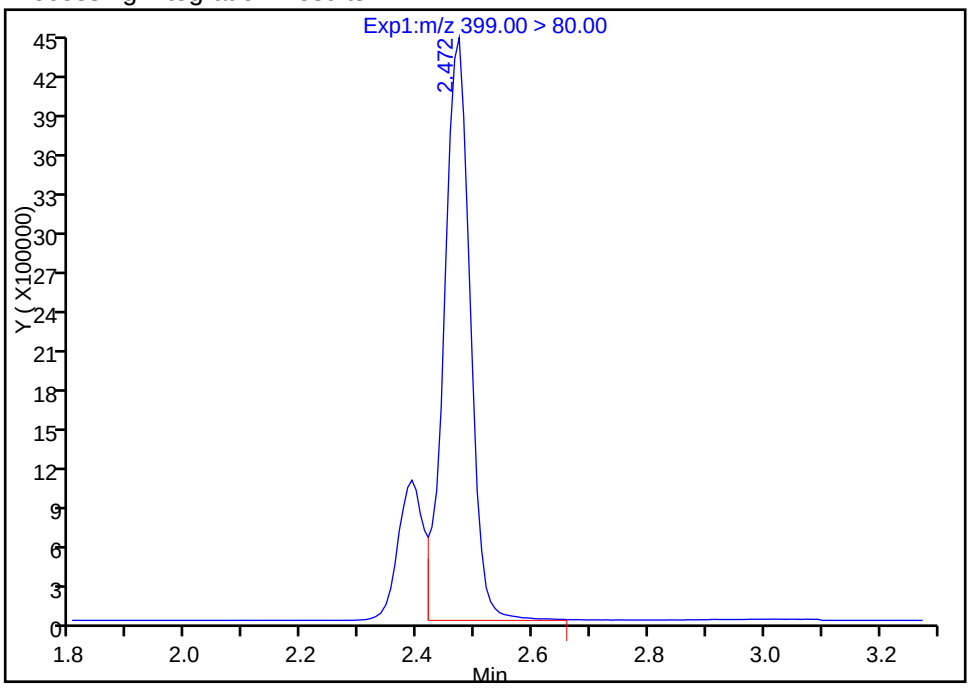
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_040.d
Injection Date: 10-Mar-2017 22:22:30 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

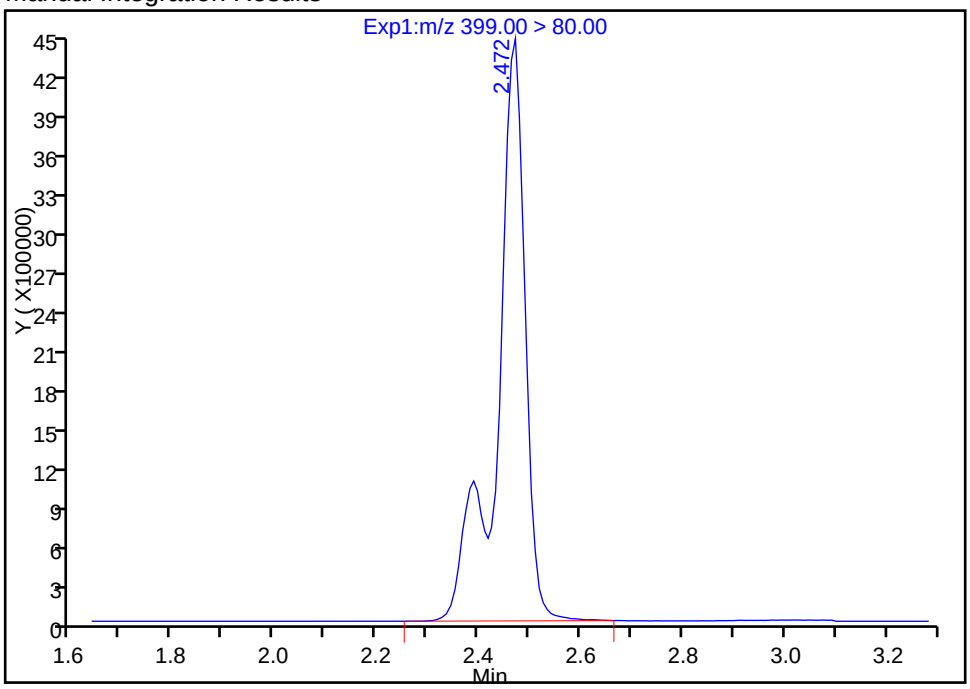
Processing Integration Results

RT: 2.47
Area: 13940391
Amount: 38.722680
Amount Units: ng/ml



Manual Integration Results

RT: 2.47
Area: 17104614
Amount: 47.512045
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:33:48
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

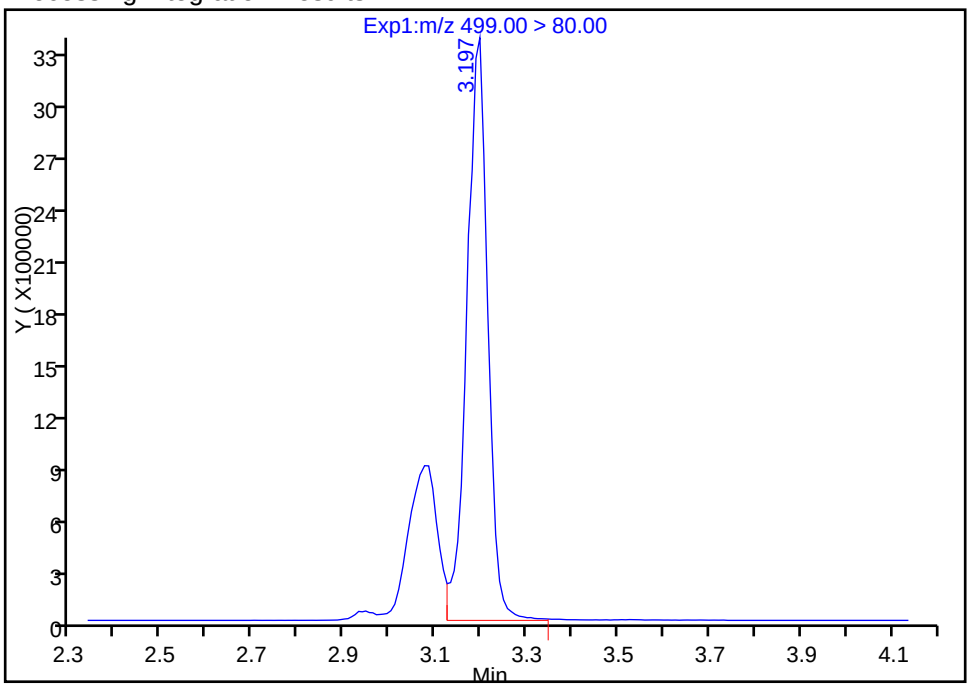
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_040.d				
Injection Date:	10-Mar-2017 22:22:30	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	A8-PC\A8	ALS Bottle#:	32	Worklist Smp#:	19
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 1

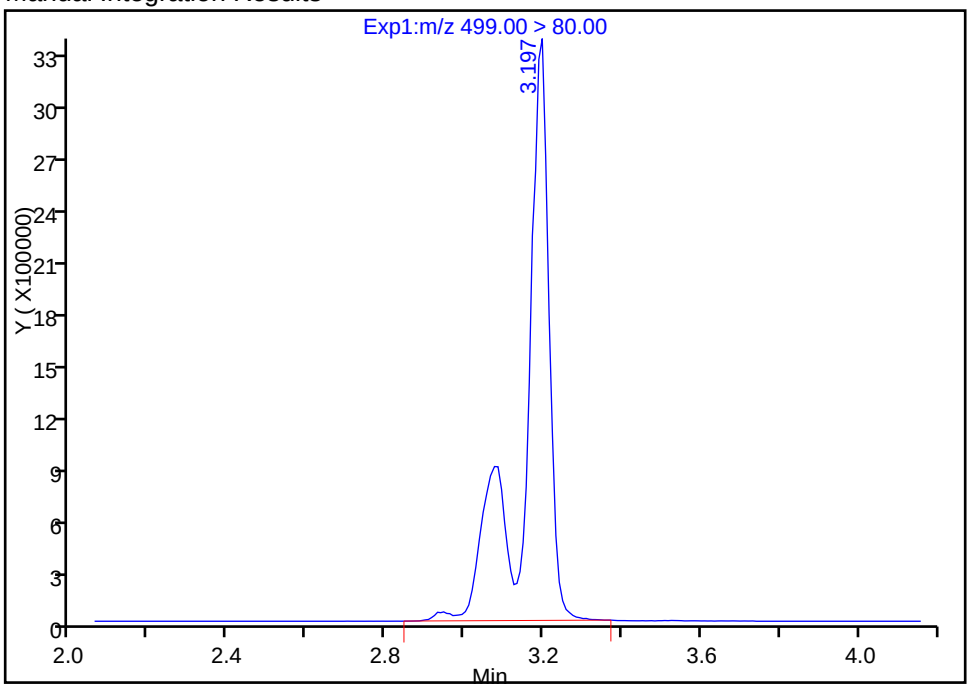
Processing Integration Results

RT: 3.20
Area: 10564713
Amount: 37.859361
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 14512518
Amount: 52.006587
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:33:48

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

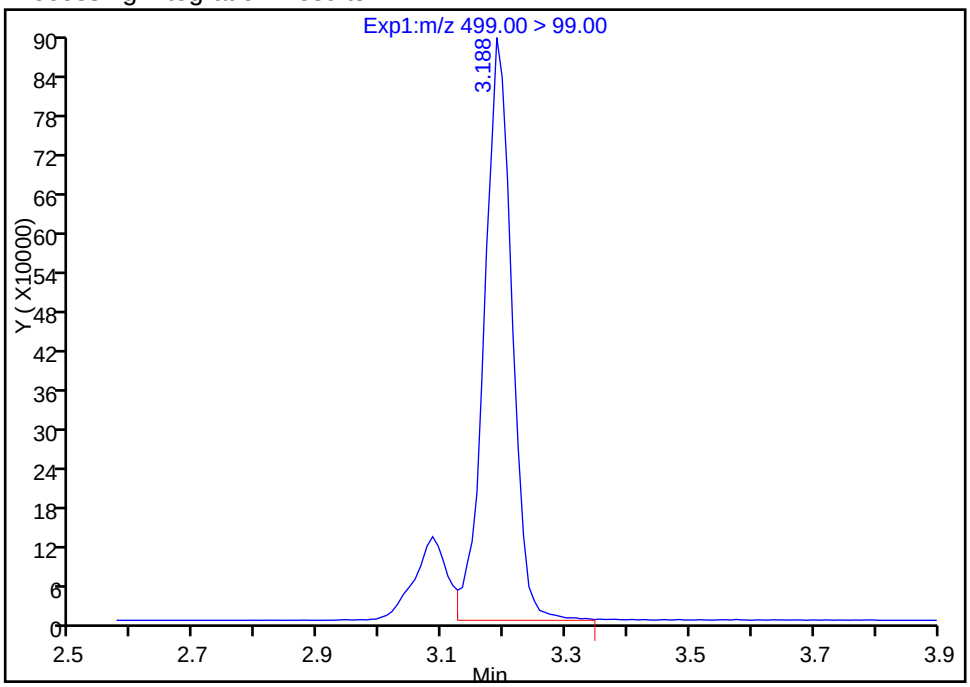
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_040.d
Injection Date: 10-Mar-2017 22:22:30 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

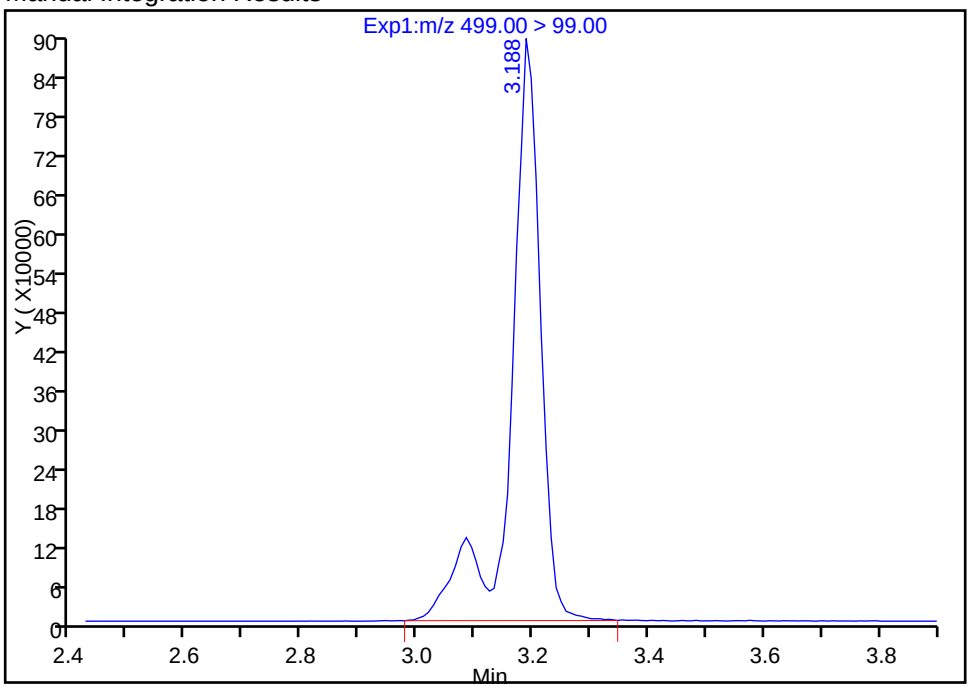
Processing Integration Results

RT: 3.19
Area: 2767992
Amount: 37.859361
Amount Units: ng/ml



Manual Integration Results

RT: 3.19
Area: 3214272
Amount: 52.006587
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:33:48
Audit Action: Manually Integrated Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154459/30 Calibration Date: 03/10/2017 23:45

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.10B_051.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8553		20.2	20.0	0.9	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9588		19.6	20.0	-2.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.459		18.0	17.7	1.8	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8826		19.8	20.0	-0.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9203		19.0	20.0	-4.9	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	0.9564		16.9	18.2	-7.0	25.0
6:2FTS	L2ID		0.9254		19.7	19.0	3.7	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.047		19.3	19.0	1.5	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.9894		19.4	20.0	-3.2	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.8971		19.8	20.0	-0.8	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9634		18.2	18.6	-2.0	25.0
8:2FTS	L2ID		0.995		20.6	19.2	7.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.8818		19.6	20.0	-1.9	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8808		19.5	20.0	-2.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9563		19.7	20.0	-1.5	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5741		18.6	19.3	-3.6	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8927		19.6	20.0	-1.9	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9037		17.8	20.0	-10.8	25.0
MeFOSA	AveID	0.9355	0.9154		19.6	20.0	-2.2	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8574		18.8	20.0	-6.2	25.0
N-EtFOSA-M	AveID	0.9837	0.9682		19.7	20.0	-1.6	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8579		19.6	20.0	-1.8	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.648		16.8	20.0	-16.2	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.7748		16.3	20.0	-18.3	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.6003		16.7	20.0	-16.3	25.0
13C4 PFBA	Ave	292242	327531		56.0	50.0	12.1	50.0
13C5-PFPeA	Ave	232192	260905		56.2	50.0	12.4	50.0
13C2 PFHxA	Ave	210884	242739		57.6	50.0	15.1	50.0
13C4-PFHpA	Ave	192959	229229		59.4	50.0	18.8	50.0
18O2 PFHxS	Ave	290899	340395		55.3	47.3	17.0	50.0
M2-6:2FTS	Ave	77178	100756		62.0	47.5	30.6	50.0

FORM VII 537 (Modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154459/30 Calibration Date: 03/10/2017 23:45

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.10B_051.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	229741		56.0	50.0	12.1	50.0
13C4 PFOS	Ave	241637	268326		53.1	47.8	11.0	50.0
13C5 PFNA	Ave	177866	193601		54.4	50.0	8.8	50.0
13C8 FOSA	Ave	366918	386340		52.6	50.0	5.3	50.0
M2-8:2FTS	Ave	92602	102511		53.0	47.9	10.7	50.0
13C2 PFDA	Ave	166704	172111		51.6	50.0	3.2	50.0
d3-NMeFOSAA	Ave	85186	80696		47.4	50.0	-5.3	50.0
d5-NEtFOSAA	Ave	81371	80694		49.6	50.0	-0.8	50.0
13C2 PFUnA	Ave	130805	136799		52.3	50.0	4.6	50.0
d-N-MeFOSA-M	Ave	87983	86800		49.3	50.0	-1.3	50.0
13C2 PFDoA	Ave	123944	126008		50.8	50.0	1.7	50.0
d-N-EtFOSA-M	Ave	85249	79997		46.9	50.0	-6.2	50.0
13C2-PFTeDA	Ave	259165	248838		48.0	50.0	-4.0	50.0
13C2-PFHxDA	Ave	125061	115977		46.4	50.0	-7.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_051.d
Lims ID: CCV L4
Client ID:
Sample Type: CCV
Inject. Date: 10-Mar-2017 23:45:03 ALS Bottle#: 31 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub14

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 13-Mar-2017 11:32:37 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK033

First Level Reviewer: changnoit Date: 13-Mar-2017 11:32:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.539	1.539	0.0		16376543	56.0		112	1043154	
2 Perfluorobutyric acid										
212.90 > 169.00	1.539	1.539	0.0	1.000	5602569	20.2		101	41611	
D 3 13C5-PFPeA										
267.90 > 223.00	1.812	1.812	0.0		13045257	56.2		112	798367	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.812	1.812	0.0	1.000	5002896	19.6		98.0	72674	
D 47 13C3-PFBS										
301.90 > 83.00	1.852	1.852	0.0		332066	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.852	1.852	0.0	1.000	8778573	18.0		102		
298.90 > 99.00	1.852	1.852	0.0	1.000	3498191		2.51(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.105	2.105	0.0		12136959	57.6		115	385440	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.105	2.105	0.0	1.000	4284891	19.8		99.2	89364	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.443	2.443	0.0	1.000	4218992	19.0		95.1	44865	
D 9 13C4-PFHpA										
367.00 > 322.00	2.443	2.443	0.0		11461461	59.4		119	283134	
D 11 18O2 PFHxS										
403.00 > 84.00	2.459	2.459	0.0		16100702	55.3		117	456460	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.459	2.459	0.0	1.000	5925062	16.9		93.0		M
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.779	2.779	0.0	1.000	1767842	19.7		104		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 12 M2-6:2FTS										
429.00 > 409.00	2.779	2.779	0.0		4785923	62.0		131		
15 Perfluorooctanoic acid										
413.00 > 369.00	2.809	2.809	0.0	1.000	4546254	19.4		96.8	32115	
413.00 > 169.00	2.809	2.809	0.0	1.000	2541180		1.79(0.90-1.10)		82273	
D 14 13C4 PFOA										
417.00 > 372.00	2.801	2.801	0.0		11487032	56.0		112	317923	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.809	2.809	0.0	1.000	5348582	19.3		102		
D 18 13C4 PFOS										
503.00 > 80.00	3.167	3.167	0.0		12826003	53.1		111	225403	
20 Perfluorononanoic acid										
463.00 > 419.00	3.175	3.175	0.0	1.000	3473609	19.8		99.2	61794	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.175	3.175	0.0	1.000	4797996	18.2		98.0	115748	M
499.00 > 99.00	3.175	3.175	0.0	1.000	1055752		4.54(0.90-1.10)		37983	M
D 19 13C5 PFNA										
468.00 > 423.00	3.175	3.175	0.0		9680049	54.4		109	373159	
D 21 13C8 FOSA										
506.00 > 78.00	3.516	3.516	0.0		19316999	52.6		105	393957	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.516	3.516	0.0	1.000	6813734	19.6		98.1	172557	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.516	3.516	0.0	1.000	1954517	20.6		107		
D 26 M2-8:2FTS										
529.00 > 509.00	3.516	3.516	0.0		4910267	53.0		111		
24 Perfluorodecanoic acid										
513.00 > 469.00	3.533	3.533	0.0	1.000	3032007	19.5		97.3	109502	
D 23 13C2 PFDA										
515.00 > 470.00	3.533	3.533	0.0		8605545	51.6		103	211615	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.689	3.689	0.0		4034791	47.4		94.7		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.689	3.689	0.0	1.000	1543407	19.7		98.5		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.844	3.844	0.0	1.000	2969804	18.6		96.4		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.853	3.853	0.0		4034720	49.6		99.2		
D 30 13C2 PFUnA										
565.00 > 520.00	3.862	3.862	0.0		6839948	52.3		105	219742	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.862	3.862	0.0	1.000	2472447	17.8		89.2	52678	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.862	3.862	0.0	1.002	1440686	19.6		98.1		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.013	4.013	0.0		4339978	49.3		98.7		
35 MeFOSA										
512.00 > 169.00	4.013	4.013	0.0	1.000	1589081	19.6		97.8		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA										
615.00 > 570.00	4.145	4.145	0.0		6300402	50.8		102	176421	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.145	4.145	0.0	1.000	2160668	18.8		93.8	22534	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.195	4.195	0.0		3999857	46.9		93.8		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.202	4.202	0.0	1.000	1549094	19.7		98.4		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.418	4.418	0.0	1.000	2162023	19.6		98.2	74283	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.657	4.657	0.0		12441917	48.0		96.0	410608	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.657	4.657	0.0	1.000	4153701	16.8		83.8	54424	
713.00 > 169.00	4.647	4.657	-0.010	0.998	591652		7.02(0.00-0.00)		94578	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.068	5.068	0.0		5798873	46.4		92.7	110005	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.068	5.068	0.0	1.000	1952700	16.3		81.7	2033	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.421	5.421	0.0	1.000	1512729	16.7		83.7	2595	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L4_00001 Amount Added: 1.00 Units: mL

Report Date: 13-Mar-2017 11:32:39 Chrom Revision: 2.2 05-Mar-2017 11:38:00

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_051.d

Injection Date: 10-Mar-2017 23:45:03 Instrument ID: A8_N

Lims ID: CCV L4

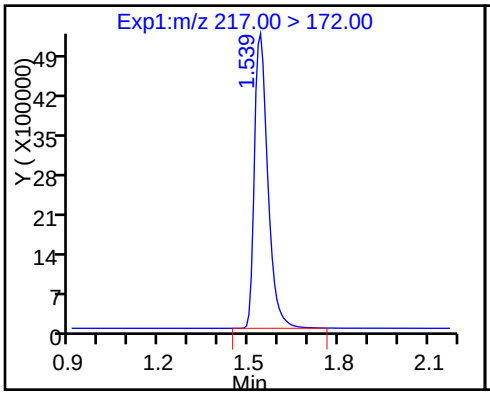
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 30

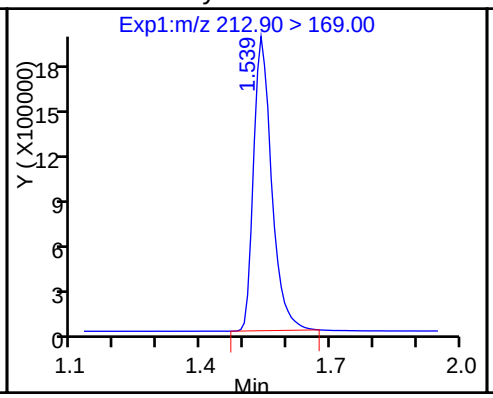
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

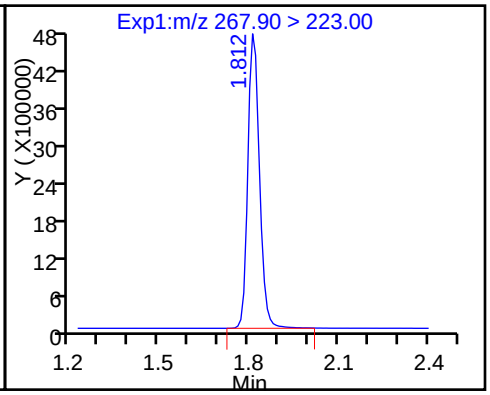
D 1 13C4 PFBA



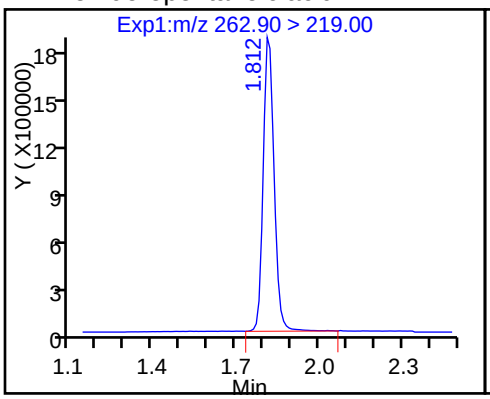
2 Perfluorobutyric acid



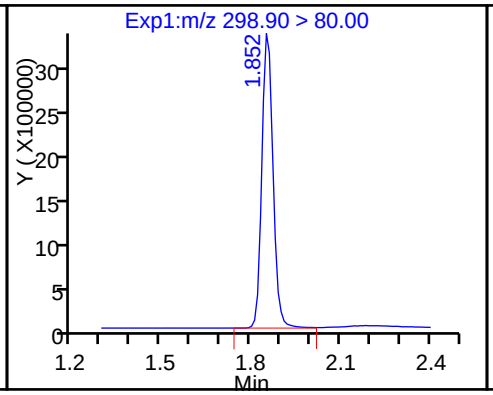
D 3 13C5-PFPeA



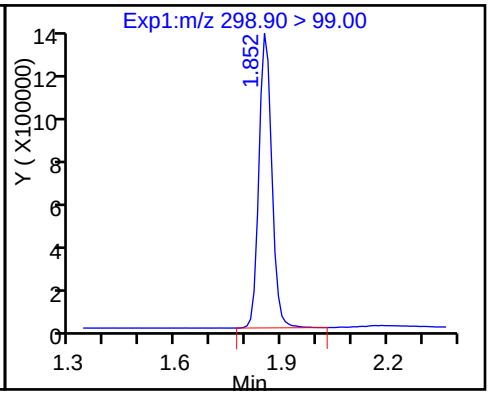
4 Perfluoropentanoic acid



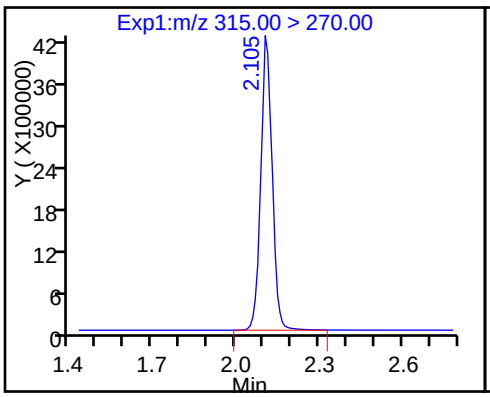
5 Perfluorobutanesulfonic acid



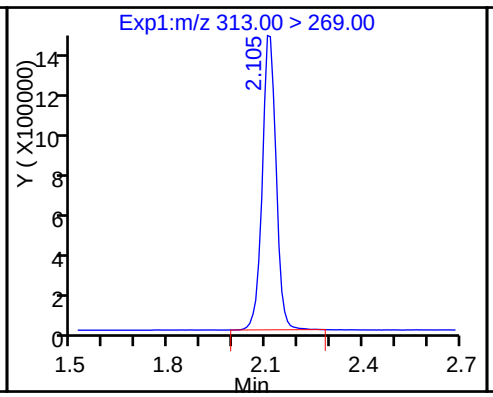
5 Perfluorobutanesulfonic acid



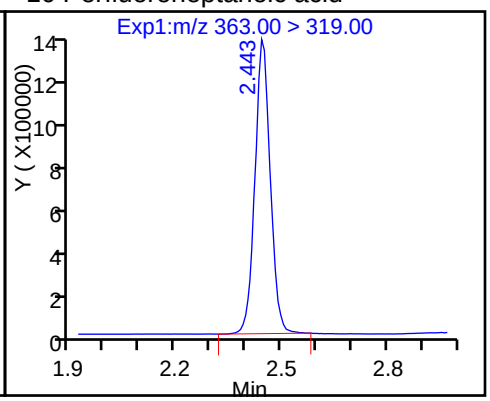
D 7 13C2 PFHxA



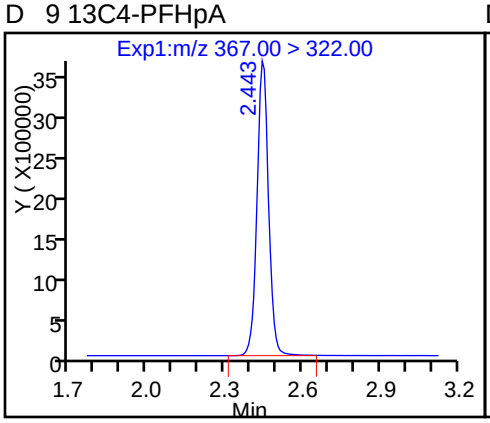
6 Perfluorohexanoic acid



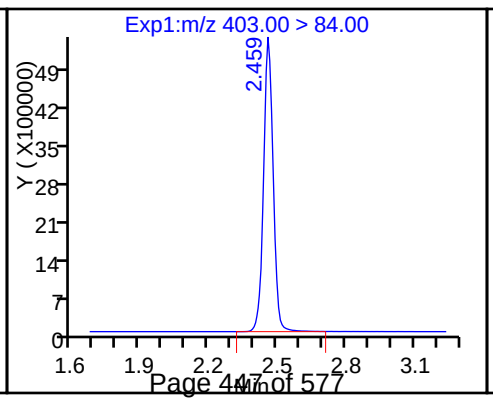
10 Perfluoroheptanoic acid



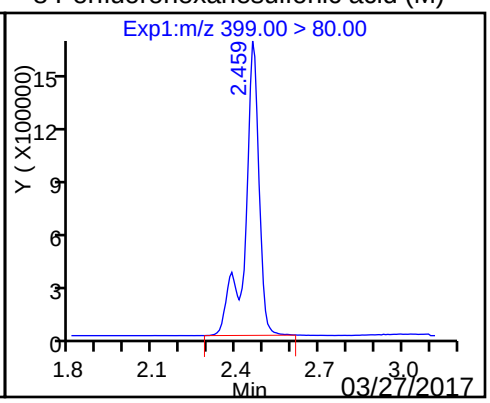
D 9 13C4-PFHpA



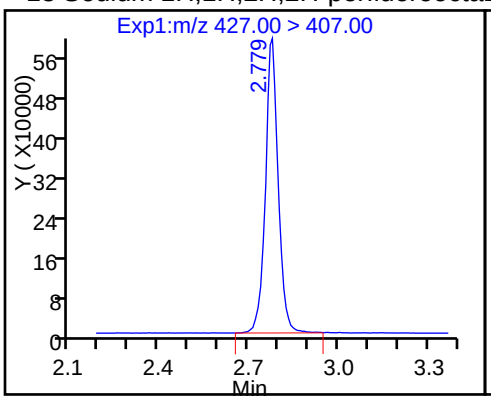
D 11 18O2 PFHxS



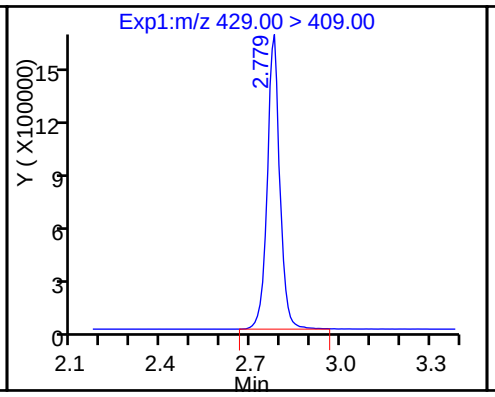
8 Perfluorohexanesulfonic acid (M)



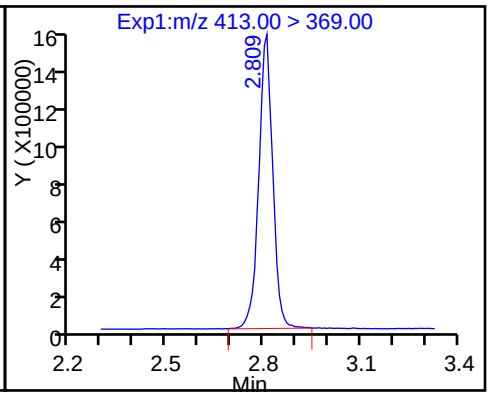
13 Sodium 1H,1H,2H,2H-perfluorooctane



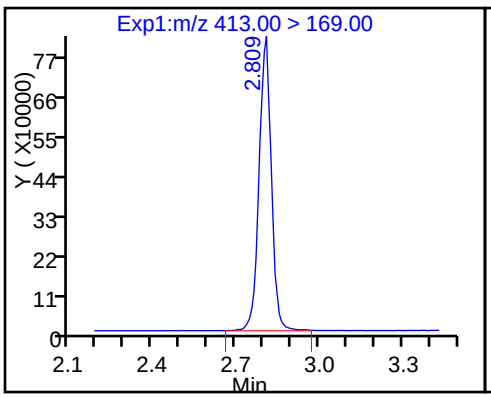
D 12 M2-6:2FTS



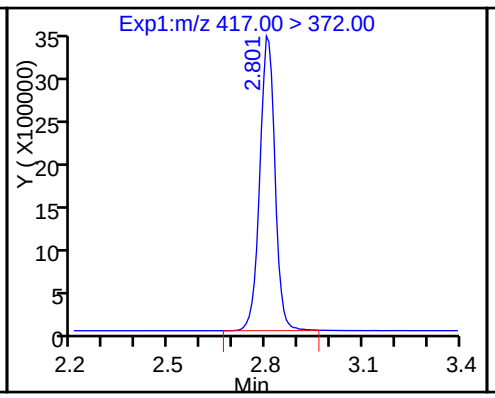
15 Perfluorooctanoic acid



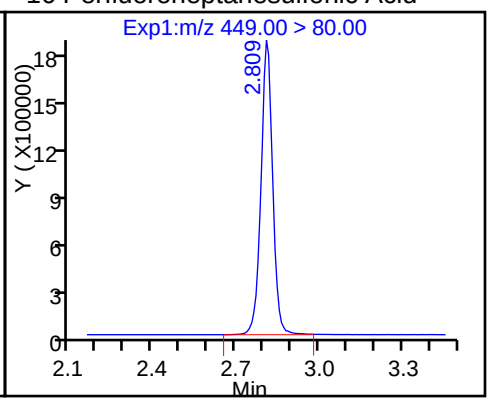
15 Perfluorooctanoic acid



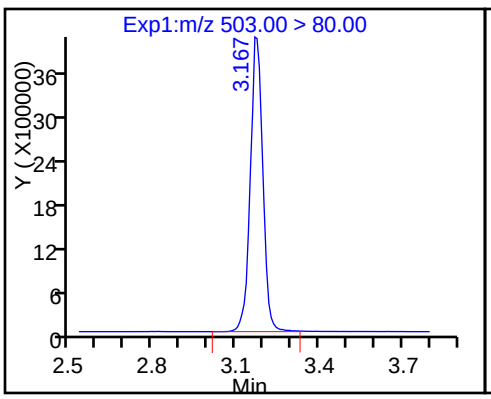
D 14 13C4 PFOA



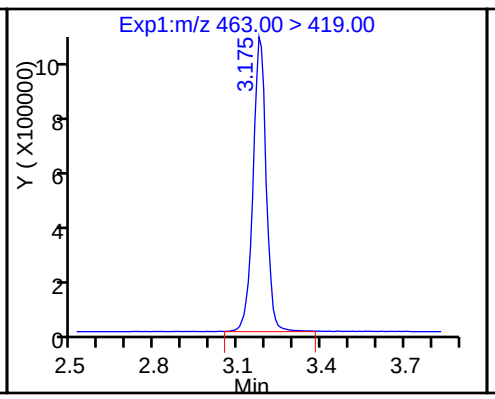
16 Perfluoroheptanesulfonic Acid



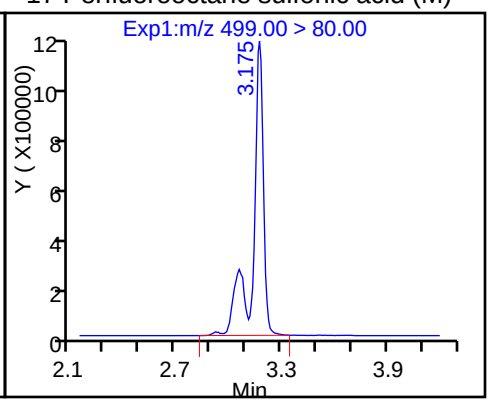
D 18 13C4 PFOS



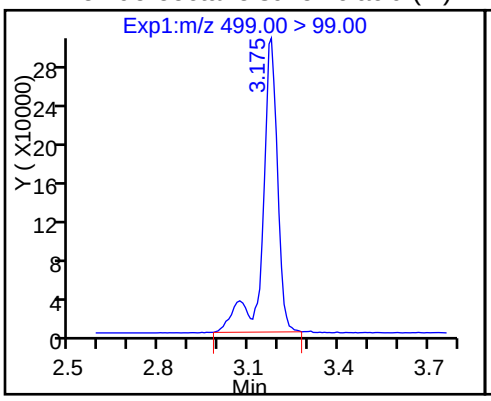
20 Perfluorononanoic acid



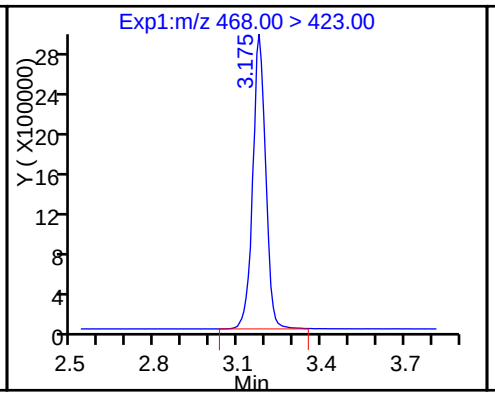
17 Perfluorooctane sulfonic acid (M)



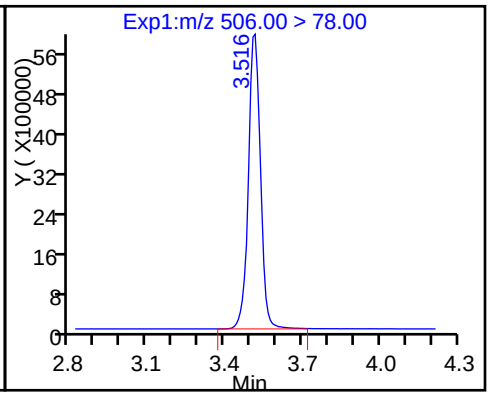
17 Perfluorooctane sulfonic acid (M)



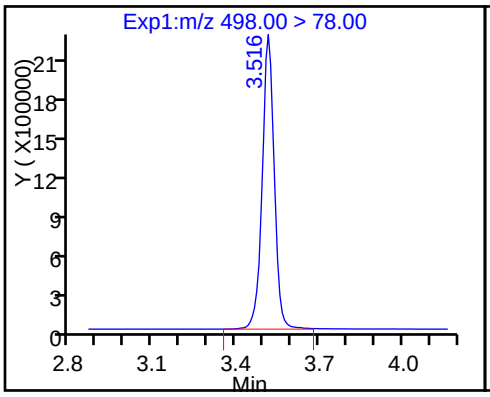
D 19 13C5 PFNA



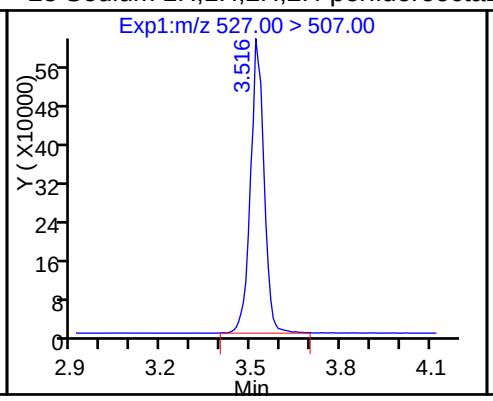
D 21 13C8 FOSA



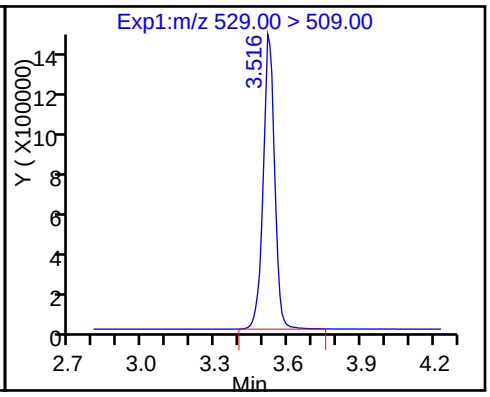
22 Perfluorooctane Sulfonamide



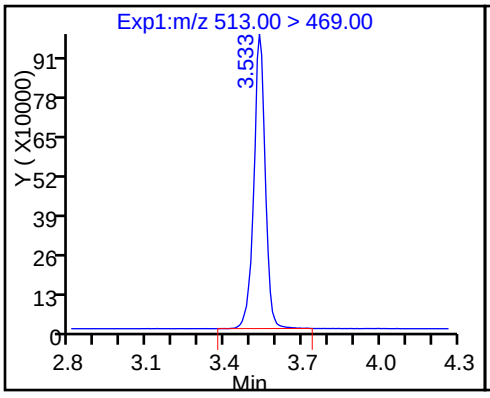
25 Sodium 1H,1H,2H,2H-perfluorooctane



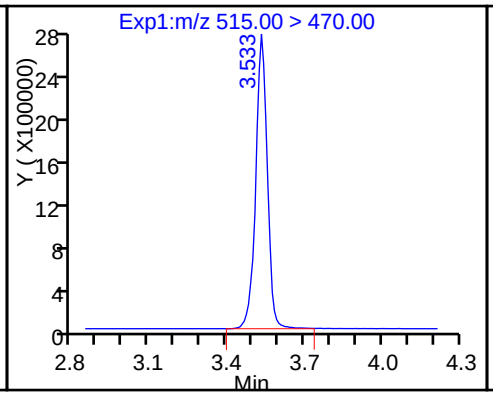
D 26 M2-8:2FTS



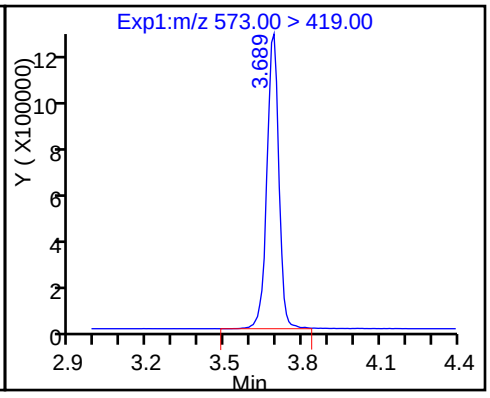
24 Perfluorodecanoic acid



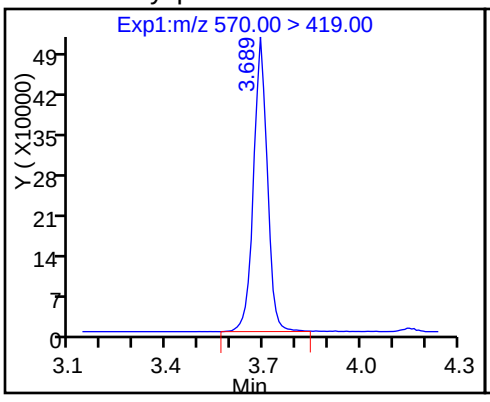
D 23 13C2 PFDA



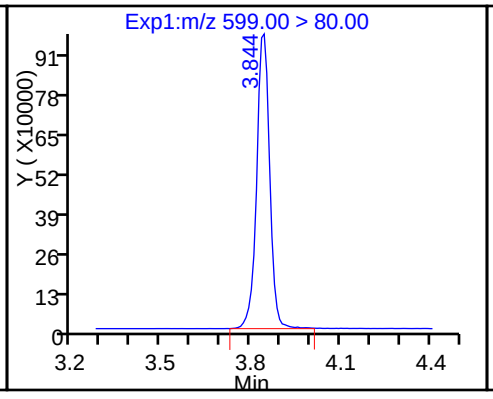
D 27 d3-NMeFOSAA



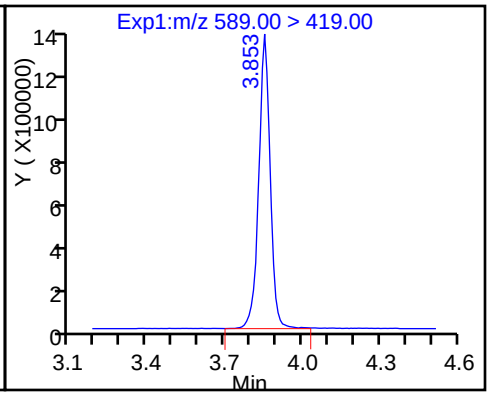
28 N-methyl perfluorooctane sulfonami



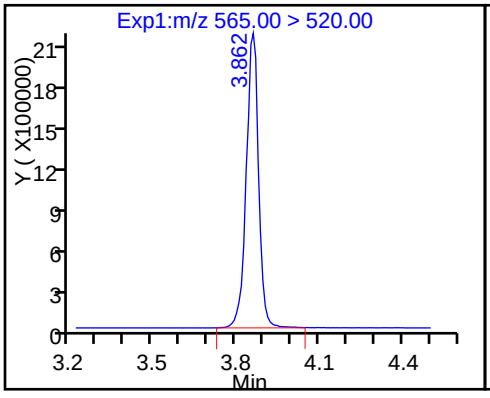
29 Perfluorodecane Sulfonic acid



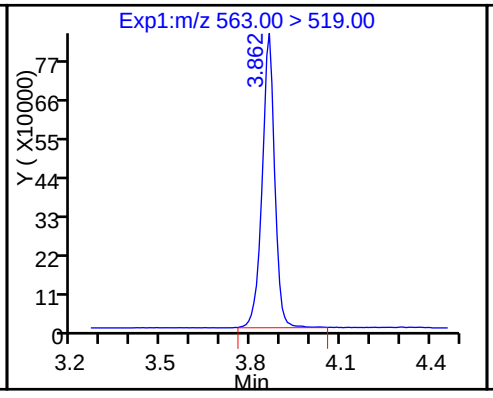
D 32 d5-NEtFOSAA



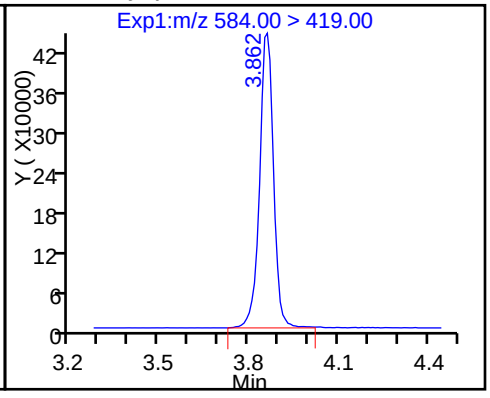
D 30 13C2 PFUnA



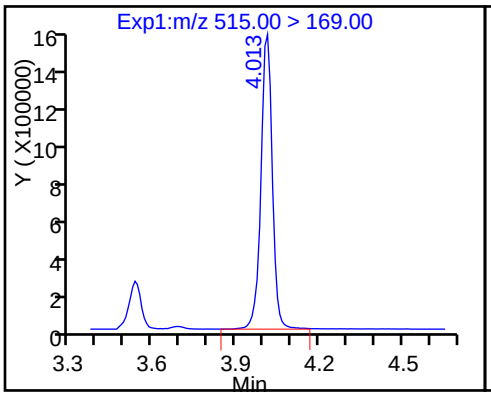
31 Perfluoroundecanoic acid



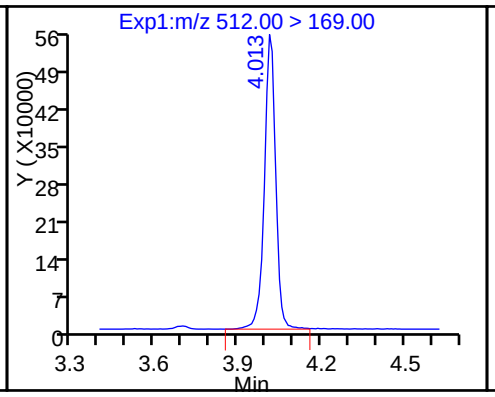
33 N-ethyl perfluorooctane sulfonamid



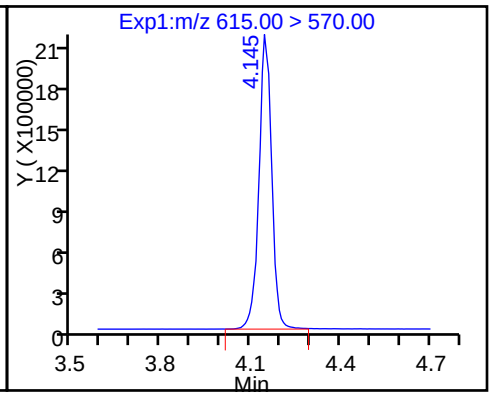
D 34 d-N-MeFOSA-M



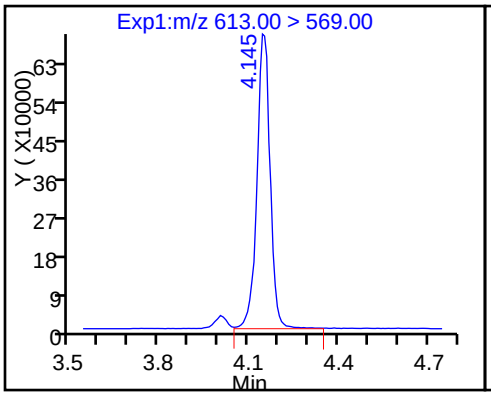
35 MeFOSA



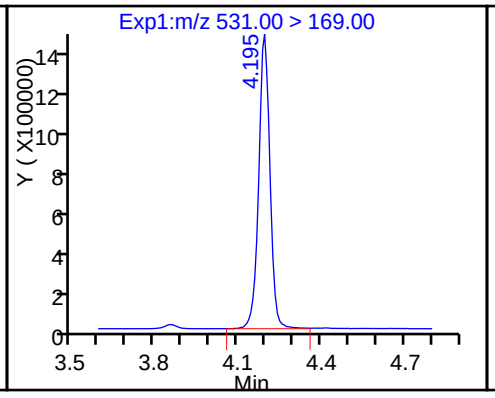
D 36 13C2 PFDoA



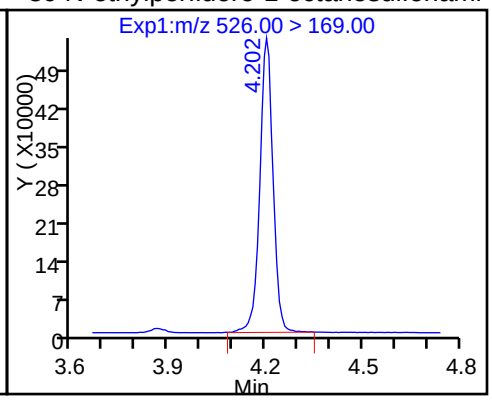
37 Perfluorododecanoic acid



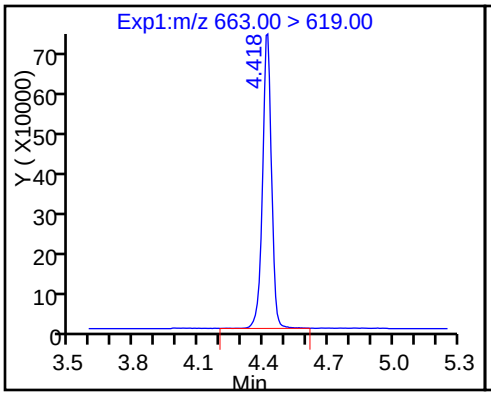
D 38 d-N-EtFOSA-M



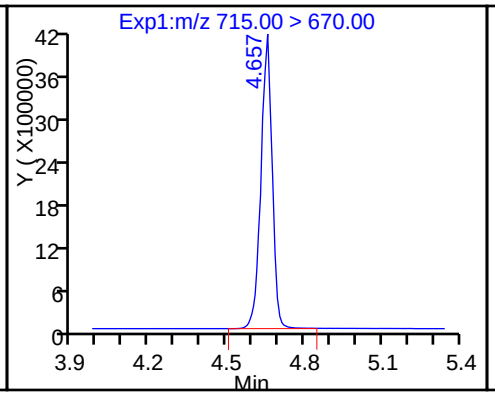
39 N-ethylperfluoro-1-octanesulfonami



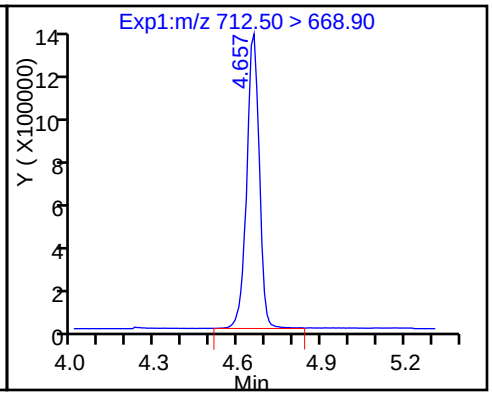
41 Perfluorotridecanoic acid



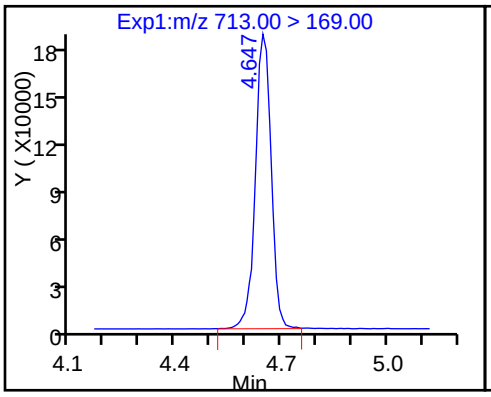
D 43 13C2-PFTeDA



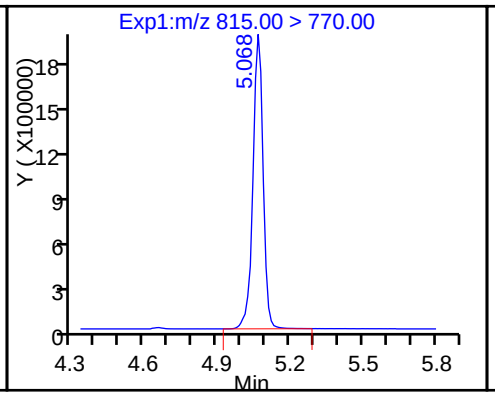
42 Perfluorotetradecanoic acid



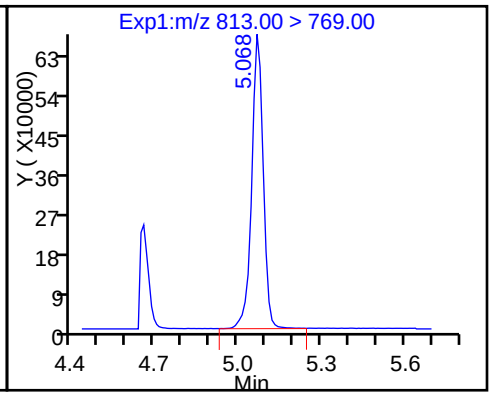
42 Perfluorotetradecanoic acid



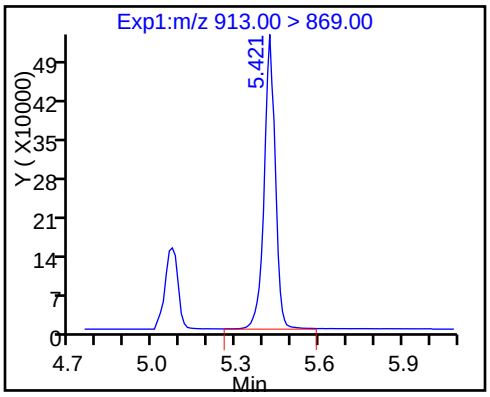
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

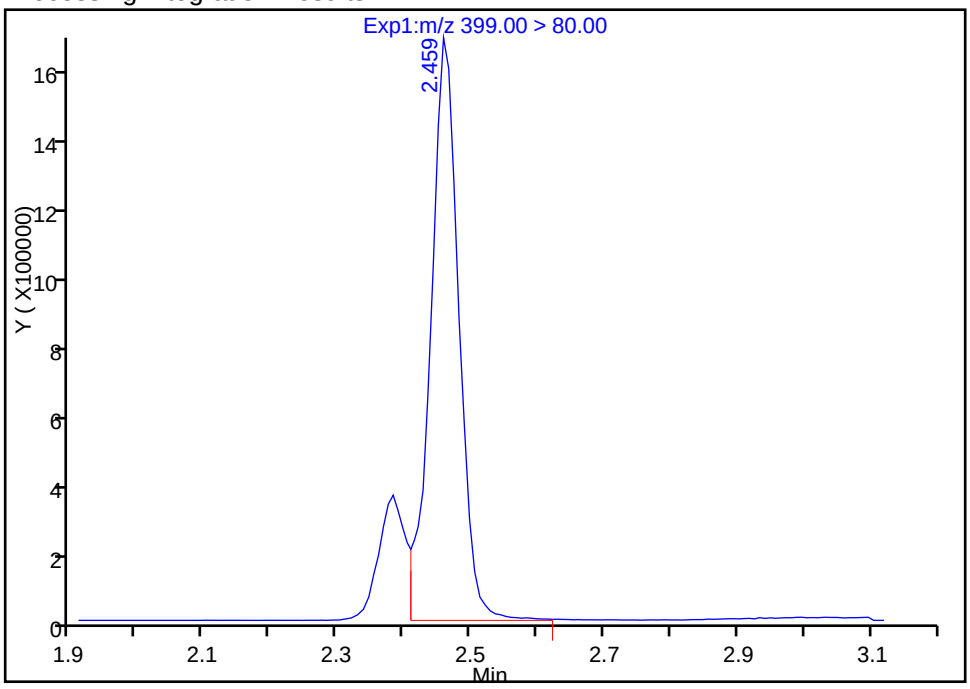
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_051.d
Injection Date: 10-Mar-2017 23:45:03 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

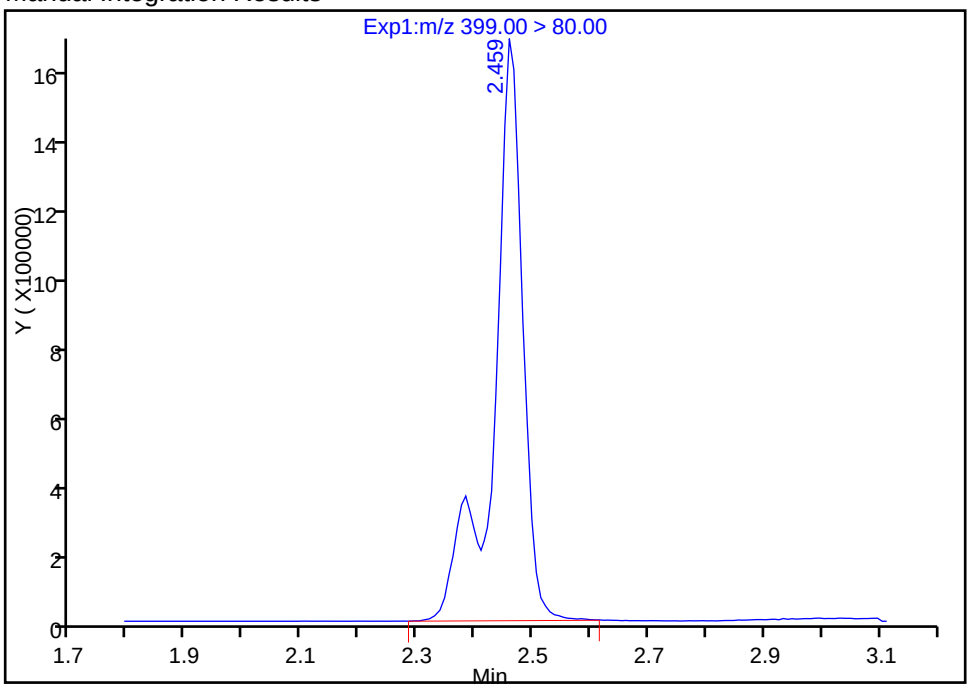
Processing Integration Results

RT: 2.46
Area: 4958916
Amount: 14.165199
Amount Units: ng/ml



Manual Integration Results

RT: 2.46
Area: 5925062
Amount: 16.925005
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:31:45
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

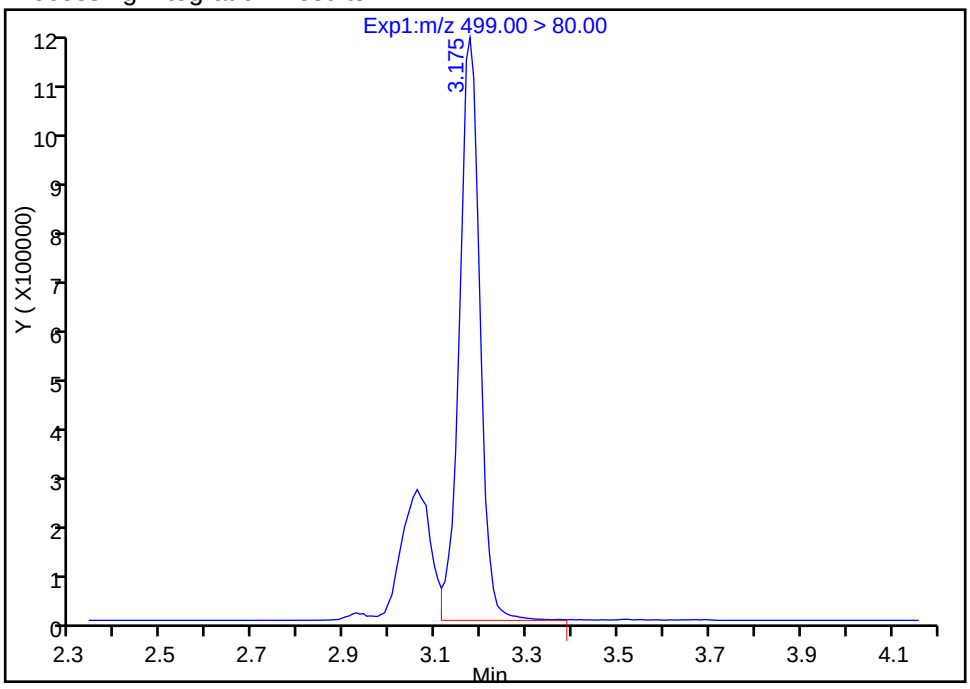
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_051.d
Injection Date: 10-Mar-2017 23:45:03 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

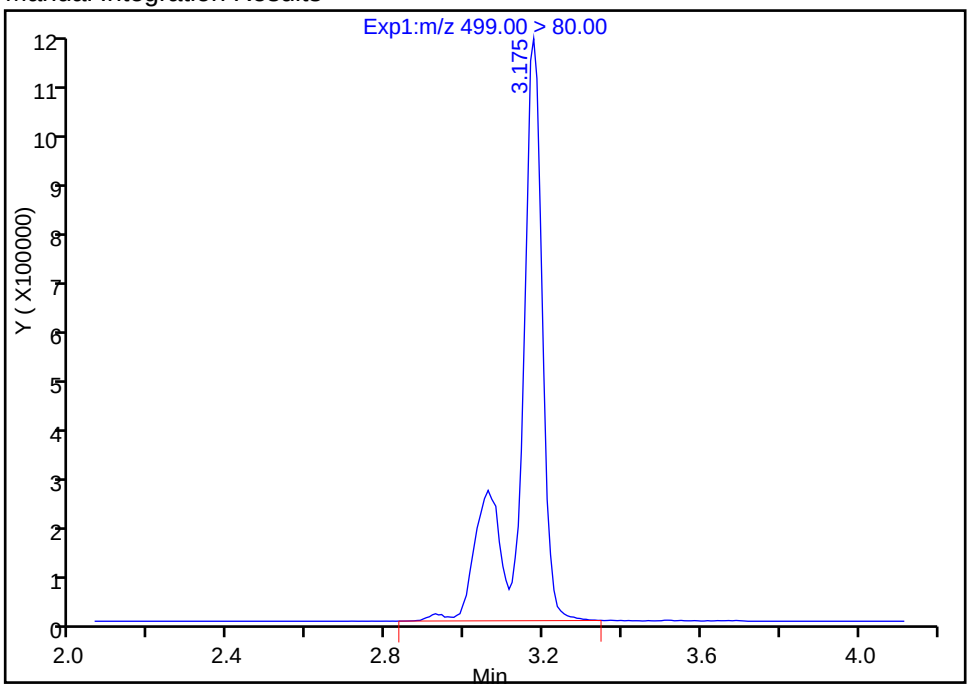
Processing Integration Results

RT: 3.18
Area: 3618993
Amount: 13.713798
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 4797996
Amount: 18.181508
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:31:57
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

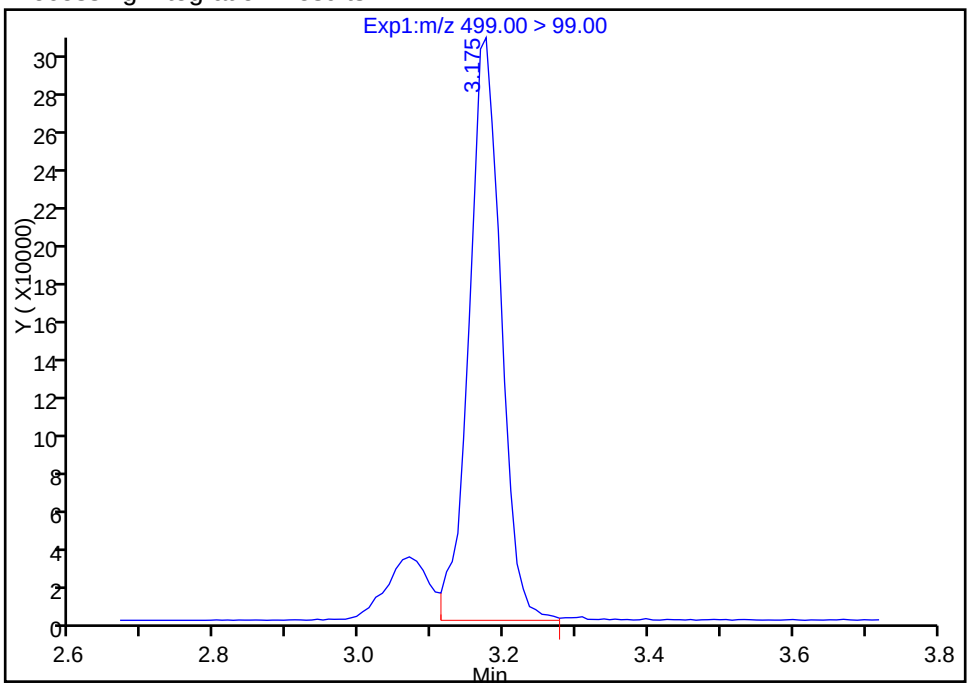
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_051.d
Injection Date: 10-Mar-2017 23:45:03 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

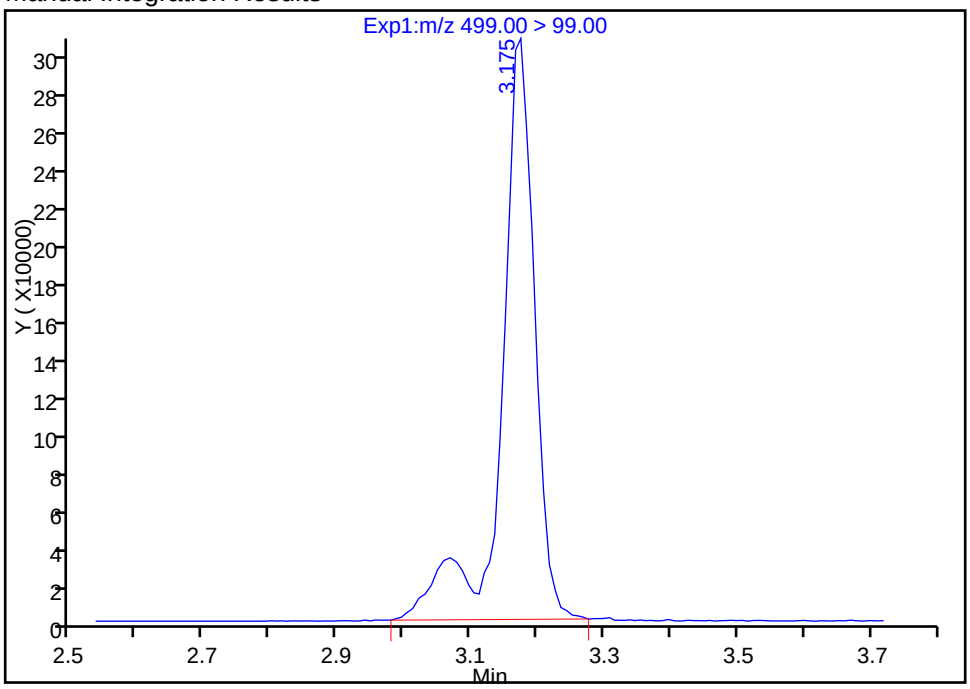
Processing Integration Results

RT: 3.18
Area: 934141
Amount: 13.713798
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 1055752
Amount: 18.181508
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:32:03
Audit Action: Manually Integrated Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154721/1 Calibration Date: 03/13/2017 11:39

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.13A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8548		1.01	1.00	0.9	50.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9878		1.01	1.00	0.9	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.428		0.881	0.884	-0.3	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8835		0.993	1.00	-0.7	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.139		1.01	0.910	10.8	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9326		0.964	1.00	-3.6	50.0
6:2FTS	L2ID		1.110		1.05	0.948	10.9	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.080		0.997	0.952	4.7	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.060		1.04	1.00	3.8	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9680		0.913	0.928	-1.6	50.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9701		1.07	1.00	7.3	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9296		1.03	1.00	3.5	50.0
8:2FTS	L2ID		0.995		0.947	0.958	-1.1	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8631		0.953	1.00	-4.7	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9686		0.997	1.00	-0.3	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5616		0.909	0.964	-5.7	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8721		0.958	1.00	-4.2	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	1.013		0.999	1.00	-0.0	50.0
MeFOSA	AveID	0.9355	0.9062		0.969	1.00	-3.1	50.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9118		0.997	1.00	-0.3	50.0
N-EtFOSA-M	AveID	0.9837	1.007		1.02	1.00	2.4	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8365		0.958	1.00	-4.2	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.570		0.799	1.00	-20.1	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.210		0.929	1.00	-7.1	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.5659		0.789	1.00	-21.1	50.0
13C4 PFBA	Ave	292242	326619		55.9	50.0	11.8	50.0
13C5-PFPeA	Ave	232192	251482		54.2	50.0	8.3	50.0
13C2 PFHxA	Ave	210884	231453		54.9	50.0	9.8	50.0
13C4-PFHpA	Ave	192959	218978		56.7	50.0	13.5	50.0
18O2 PFHxS	Ave	290899	323162		52.5	47.3	11.1	50.0
M2-6:2FTS	Ave	77178	81021		49.9	47.5	5.0	50.0

FORM VII 537 (Modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154721/1 Calibration Date: 03/13/2017 11:39

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.13A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	226607		55.3	50.0	10.6	50.0
13C4 PFOS	Ave	241637	255512		50.5	47.8	5.7	50.0
13C5 PFNA	Ave	177866	189926		53.4	50.0	6.8	50.0
13C8 FOSA	Ave	366918	394670		53.8	50.0	7.6	50.0
M2-8:2FTS	Ave	92602	98350		50.9	47.9	6.2	50.0
13C2 PFDA	Ave	166704	181034		54.3	50.0	8.6	50.0
d3-NMeFOSAA	Ave	85186	83564		49.0	50.0	-1.9	50.0
13C2 PFUnA	Ave	130805	135858		51.9	50.0	3.9	50.0
d5-NEtFOSAA	Ave	81371	89142		54.8	50.0	9.5	50.0
d-N-MeFOSA-M	Ave	87983	80229		45.6	50.0	-8.8	50.0
13C2 PFDoA	Ave	123944	123129		49.7	50.0	-0.7	50.0
d-N-EtFOSA-M	Ave	85249	77508		45.5	50.0	-9.1	50.0
13C2-PFTeDA	Ave	259165	218064		42.1	50.0	-15.9	50.0
13C2-PFHxDA	Ave	125061	99184		39.7	50.0	-20.7	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170313-40786.b\2017.03.13A_004.d
Lims ID: CCV L2
Client ID:
Sample Type: CCVL
Inject. Date: 13-Mar-2017 11:39:35 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L2
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub14

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170313-40786.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 14-Mar-2017 11:32:00 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: changnoit Date: 14-Mar-2017 11:31:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutyric acid										M
212.90 > 169.00	1.547	1.547	0.0	1.000	279192	1.01		101	2099	M
D 1 13C4 PFBA										
217.00 > 172.00	1.547	1.547	0.0		16330941	55.9		112	1082790	
D 3 13C5-PFPeA										
267.90 > 223.00	1.832	1.832	0.0		12574084	54.2		108	657450	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.832	1.832	0.0	1.000	248420	1.01		101	2075	
D 47 13C3-PFBS										
301.90 > 83.00	1.862	1.862	0.0		305623	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.872	1.872	0.0	1.000	407930	0.8812		99.7		
298.90 > 99.00	1.872	1.872	0.0	1.000	162983		2.50(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.130	2.130	0.0		11572666	54.9		110	425565	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.130	2.130	0.0	1.000	204483	0.99		99.3	6524	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.459	2.459	0.0	1.000	335008	1.01		111		
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.475	2.475	0.0	1.000	204210	0.9641		96.4	2318	
D 9 13C4-PFHpA										
367.00 > 322.00	2.475	2.475	0.0		10948919	56.7		113	415467	
D 11 18O2 PFHxS										
403.00 > 84.00	2.491	2.491	0.0		15285545	52.5		111	389699	
D 12 M2-6:2FTS										
429.00 > 409.00	2.809	2.809	0.0		3848509	49.9		105		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.817	2.817	0.0	1.000	85220	1.05		111		
D 14 13C4 PFOA										
417.00 > 372.00	2.833	2.833	0.0		11330340	55.3		111	357830	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.848	2.848	0.0	1.000	240252	1.04		104	2533	
413.00 > 169.00	2.841	2.848	-0.007	0.997	137909		1.74(0.90-1.10)		5302	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.848	2.848	0.0	1.000	262614	1.00		105		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.097	3.097	0.0	1.000	229521	0.9134		98.4	4073	
499.00 > 99.00	3.175	3.097	0.078	1.025	52265		4.39(0.90-1.10)		724	
D 18 13C4 PFOS										
503.00 > 80.00	3.218	3.218	0.0		12213466	50.5		106	552911	
20 Perfluorononanoic acid										
463.00 > 419.00	3.218	3.218	0.0	1.000	184245	1.07		107	3213	
D 19 13C5 PFNA										
468.00 > 423.00	3.218	3.218	0.0		9496306	53.4		107	314093	
D 21 13C8 FOSA										
506.00 > 78.00	3.536	3.536	0.0		19733497	53.8		108	495915	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.536	3.536	0.0	1.000	366901	1.03		103	32339	
D 26 M2-8:2FTS										
529.00 > 509.00	3.570	3.570	0.0		4710980	50.9		106		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.561	3.561	0.0	0.998	93765	0.9472		98.9		
D 23 13C2 PFDA										
515.00 > 470.00	3.578	3.578	0.0		9051703	54.3		109	178590	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.570	3.570	0.0	1.000	156257	0.9531		95.3	4666	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.734	3.734	0.0		4178185	49.0		98.1		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.734	3.734	0.0	1.000	80943	1.00		99.7		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.886	3.886	0.0	1.000	138317	0.9088		94.3		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.903	3.903	0.0		4457105	54.8		110		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.903	3.903	0.0	1.000	137580	1.00		99.9	4518	
D 30 13C2 PFUnA										
565.00 > 520.00	3.903	3.903	0.0		6792880	51.9		104	173802	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.020	4.020	0.0		4011460	45.6		91.2		
35 MeFOSA										
512.00 > 169.00	4.029	4.029	0.0	1.000	72701	0.9686		96.9		
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.903	3.903	0.0	1.000	77738	0.9580		95.8		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA										
615.00 > 570.00	4.197	4.197	0.0		6156425	49.7		99.3	149202	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.197	4.197	0.0	1.000	112273	1.00		99.7	679	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.203	4.203	0.0		3875386	45.5		90.9		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.211	4.211	0.0	1.000	78075	1.02		102		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.469	4.469	0.0	1.000	103001	0.9578		95.8	1595	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.713	4.713	0.0		10903199	42.1		84.1	268289	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.713	4.713	0.0	1.000	193351	0.7985		79.9	134	
713.00 > 169.00	4.705	4.713	-0.008	0.998	31882		6.06(0.00-0.00)		10983	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.134	5.134	0.0		4959213	39.7		79.3	83565	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.134	5.134	0.0	1.000	149004	0.9289		92.9	152	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.500	5.500	0.0	1.000	69680	0.7887		78.9	80.0	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L2_00001 Amount Added: 1.00 Units: mL

Report Date: 14-Mar-2017 11:32:01 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170313-40786.b\2017.03.13A_004.d

Injection Date: 13-Mar-2017 11:39:35 Instrument ID: A8_N

Lims ID: CCV L2

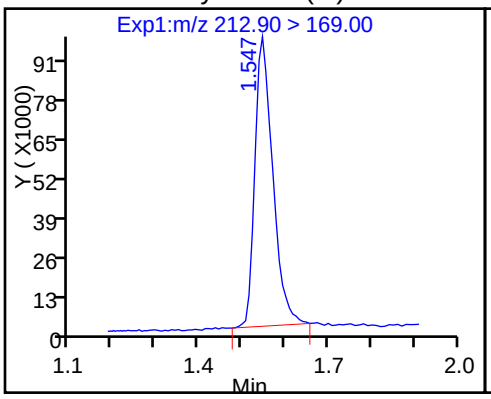
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 1

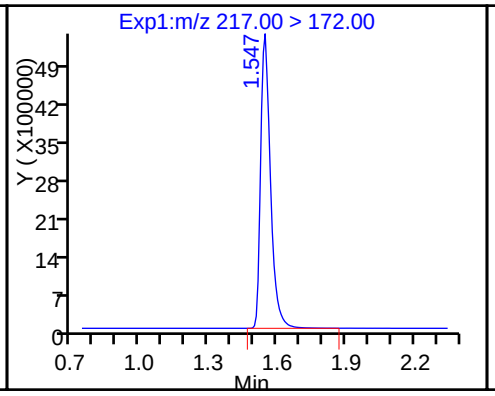
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

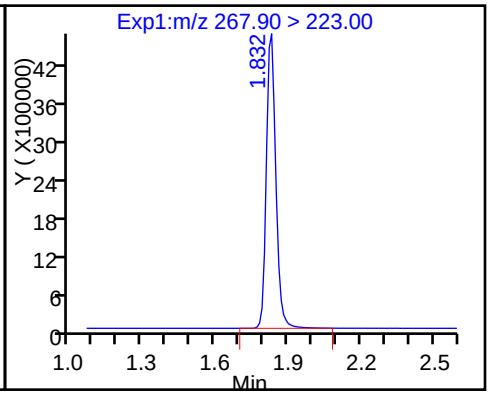
2 Perfluorobutyric acid (M)



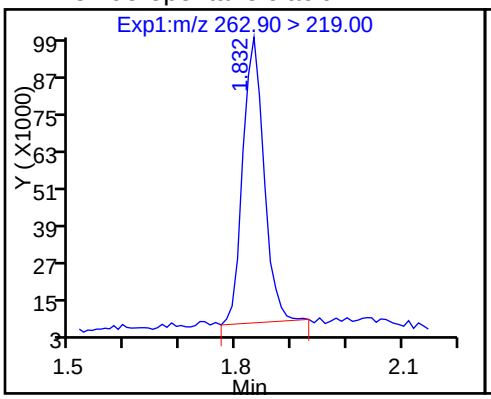
D 1 13C4 PFBA



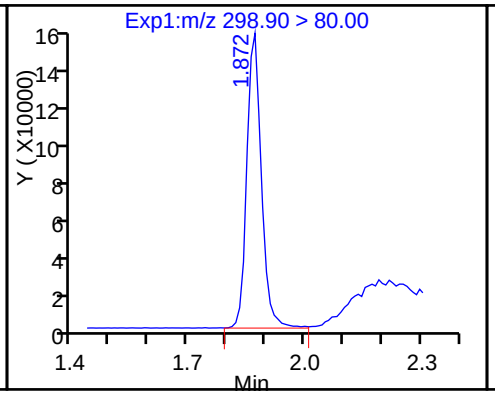
D 3 13C5-PFPeA



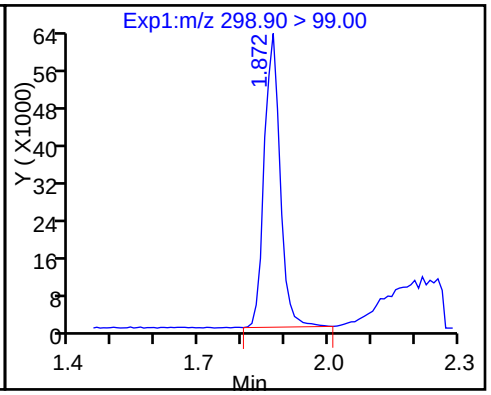
4 Perfluoropentanoic acid



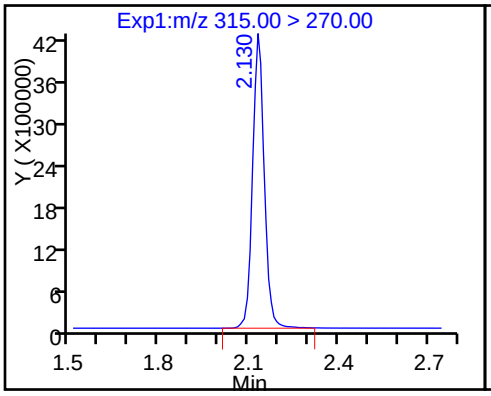
5 Perfluorobutanesulfonic acid



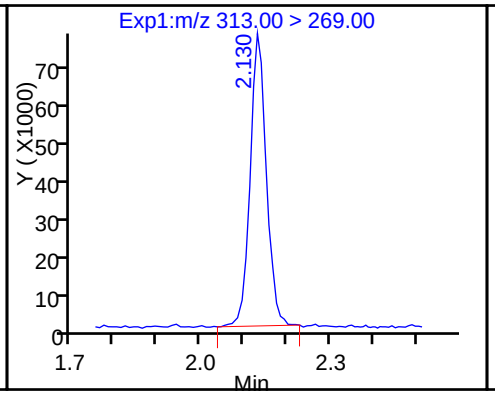
5 Perfluorobutanesulfonic acid



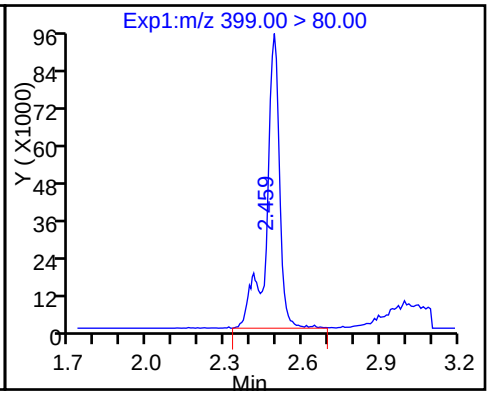
D 7 13C2 PFHxA



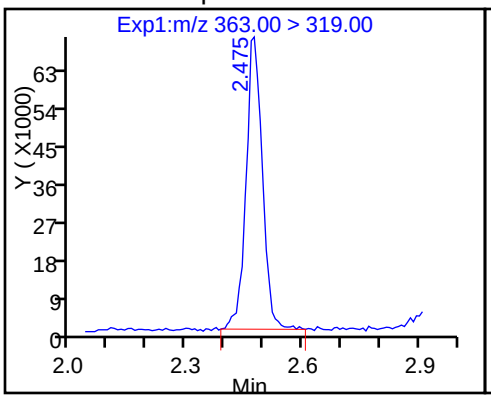
6 Perfluorohexanoic acid



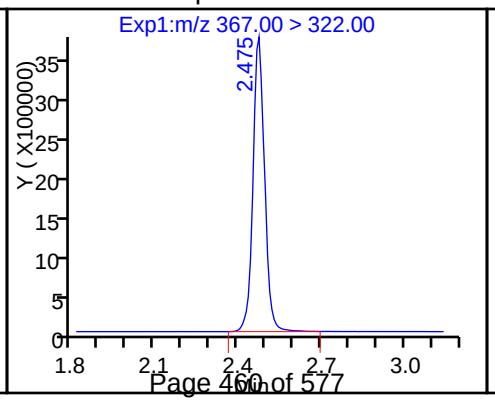
8 Perfluorohexanesulfonic acid



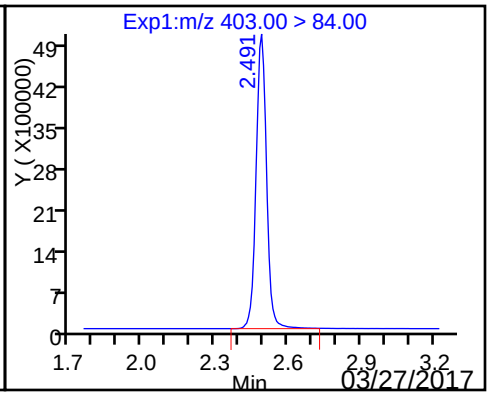
10 Perfluoroheptanoic acid



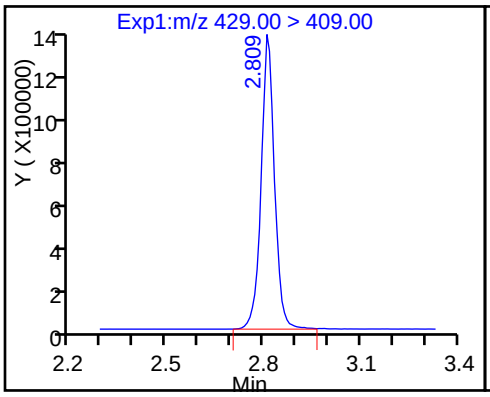
D 9 13C4-PFHpA



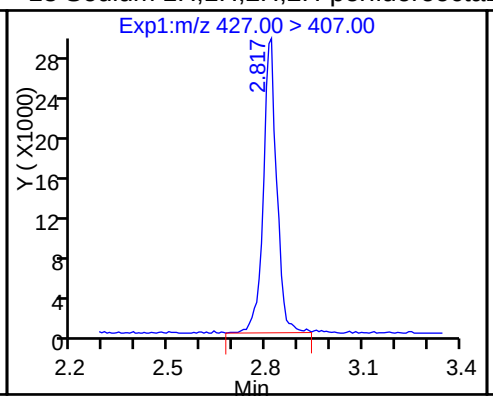
D 11 18O2 PFHxS



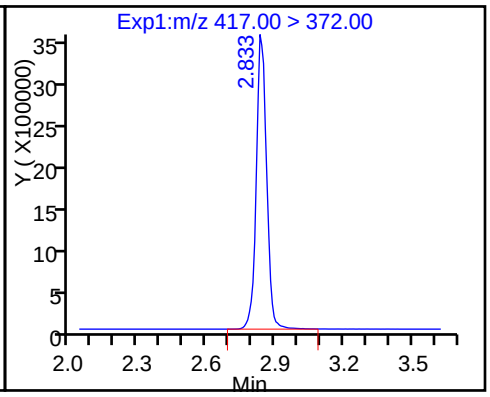
D 12 M2-6:2FTS



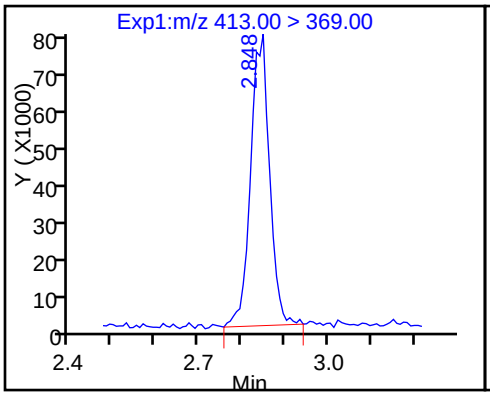
13 Sodium 1H,1H,2H,2H-perfluorooctane



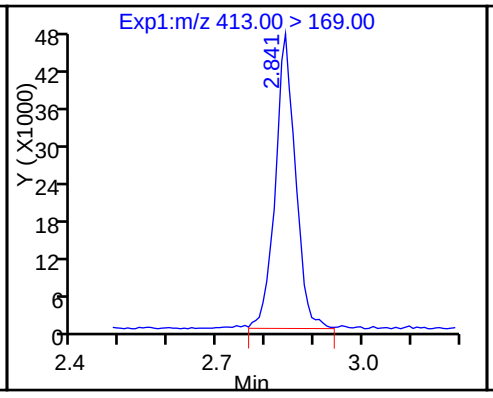
D 14 13C4 PFOA



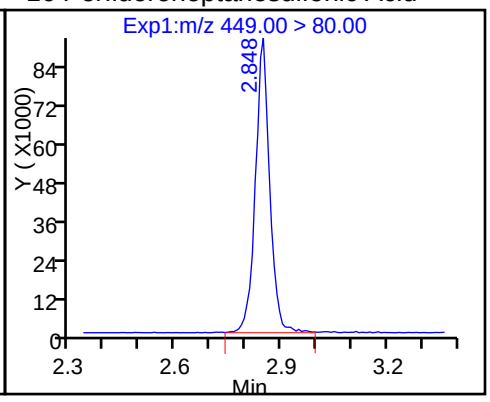
15 Perfluorooctanoic acid



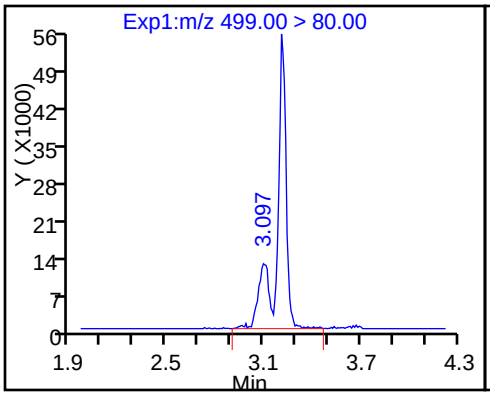
15 Perfluorooctanoic acid



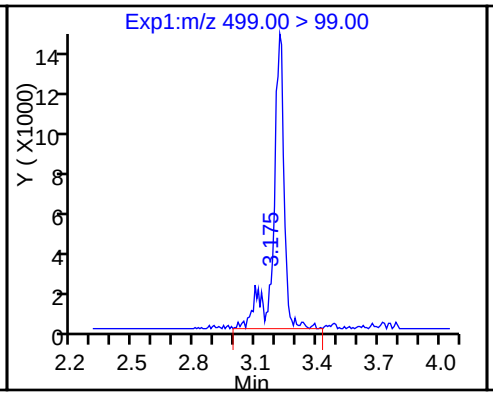
16 Perfluoroheptanesulfonic Acid



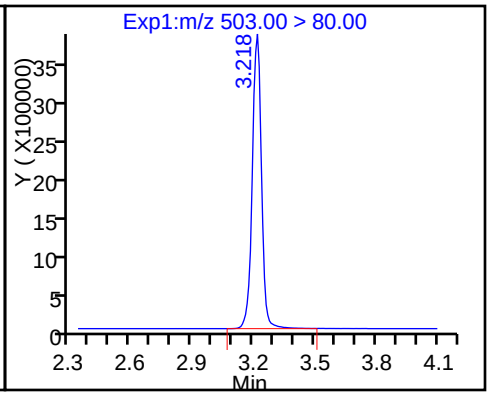
17 Perfluorooctane sulfonic acid



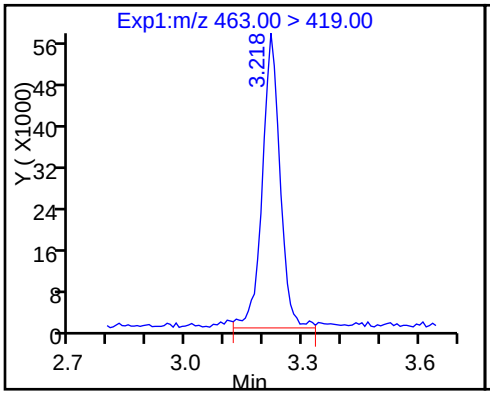
17 Perfluorooctane sulfonic acid



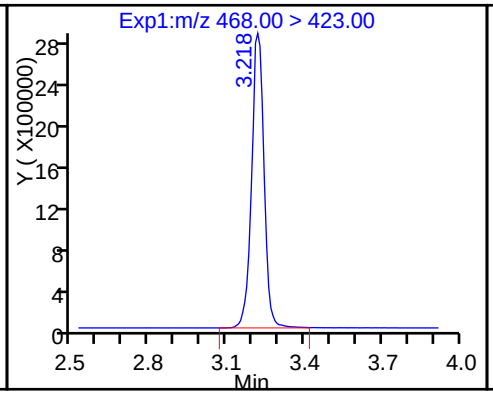
D 18 13C4 PFOS



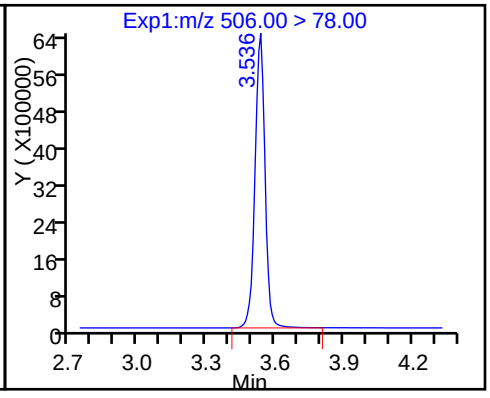
20 Perfluorononanoic acid



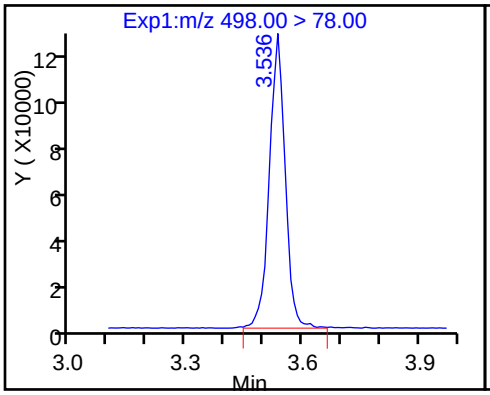
D 19 13C5 PFNA



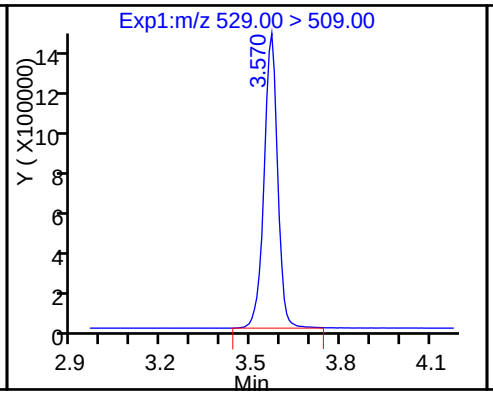
D 21 13C8 FOSA



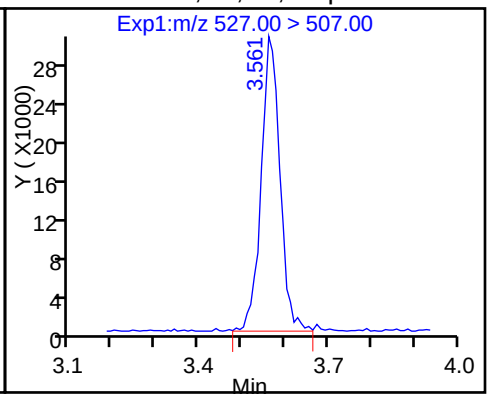
22 Perfluorooctane Sulfonamide



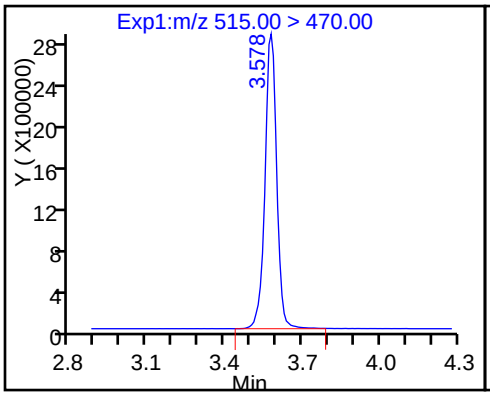
D 26 M2-8:2FTS



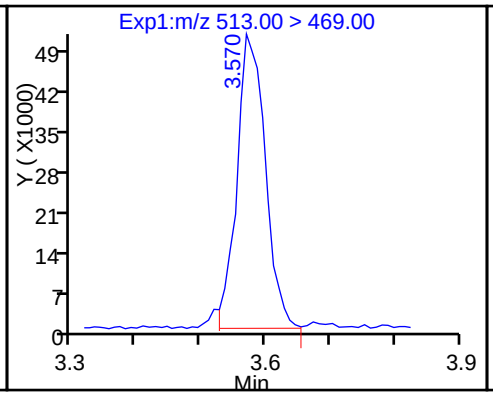
25 Sodium 1H,1H,2H,2H-perfluorooctane



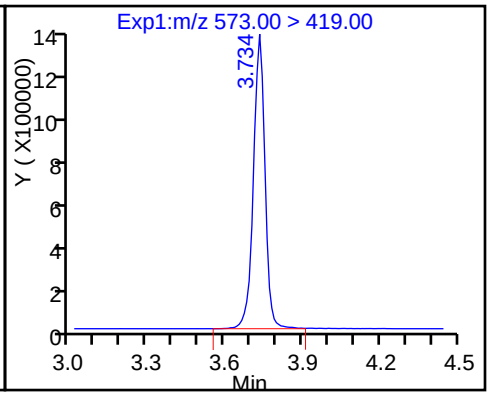
D 23 13C2 PFDA



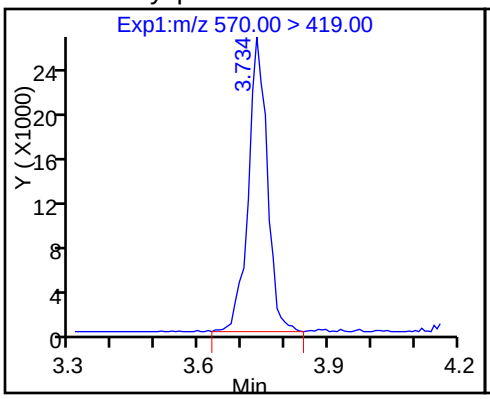
24 Perfluorodecanoic acid



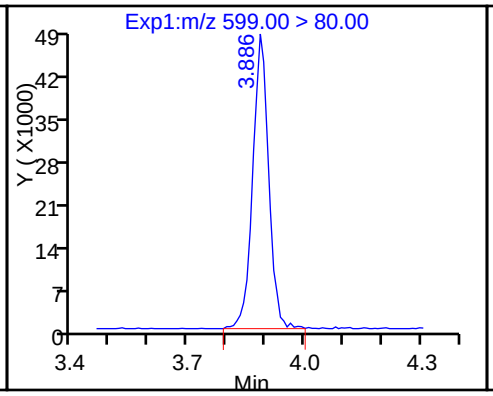
D 27 d3-NMeFOSAA



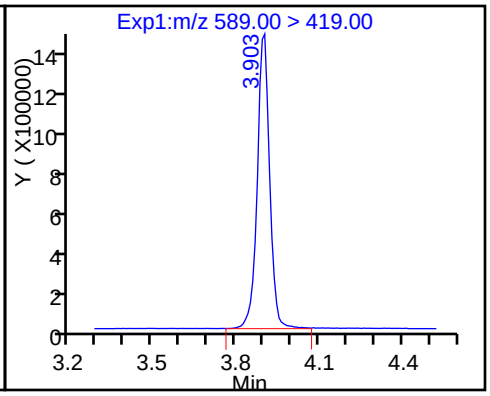
28 N-methyl perfluorooctane sulfonami



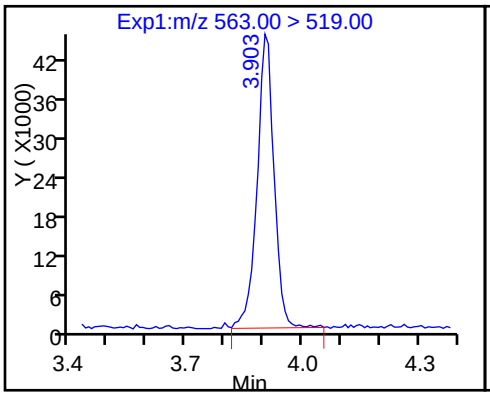
29 Perfluorodecane Sulfonic acid



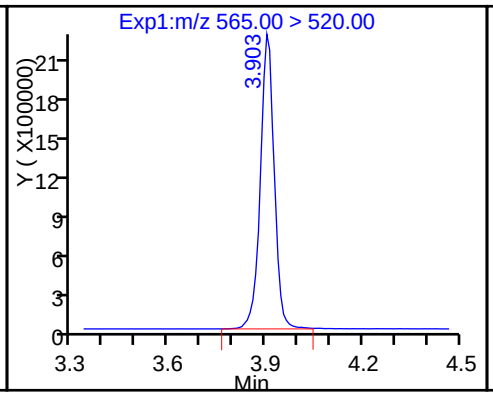
D 32 d5-NEtFOSAA



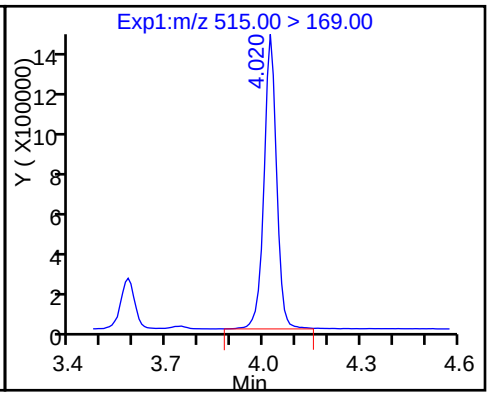
31 Perfluoroundecanoic acid



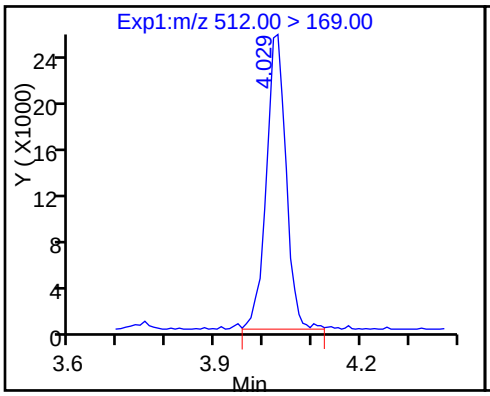
D 30 13C2 PFUnA



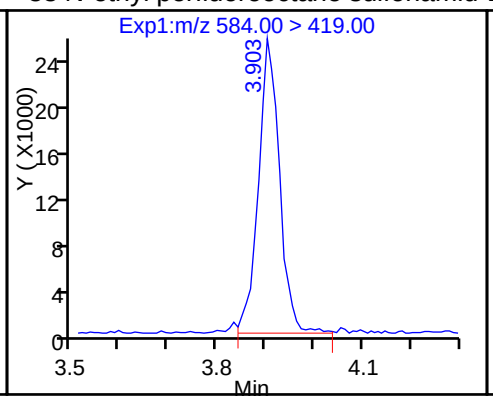
D 34 d-N-MeFOSA-M



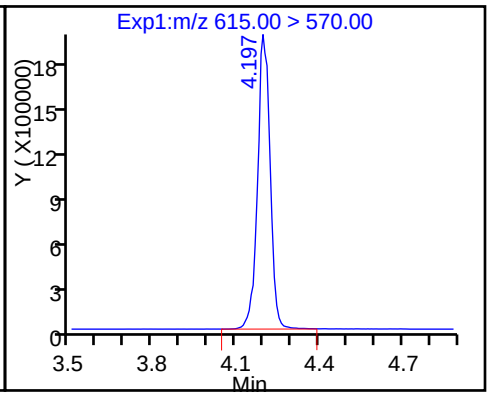
35 MeFOSA



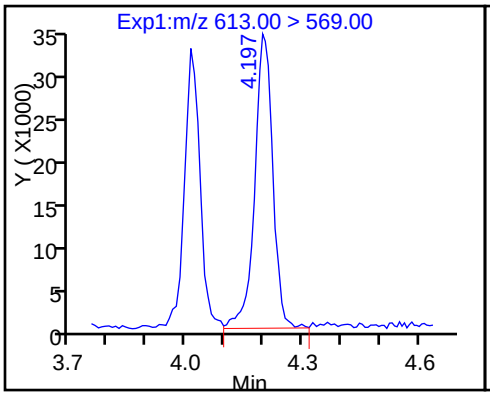
33 N-ethyl perfluorooctane sulfonamid



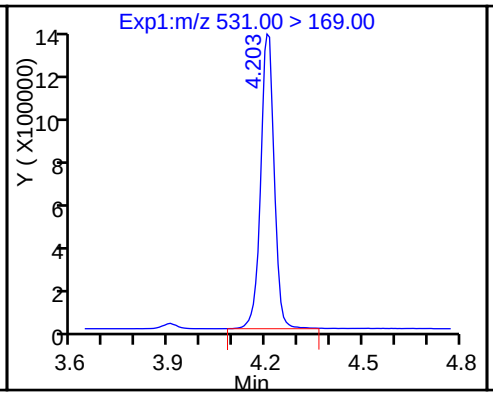
D 36 13C2 PFDoA



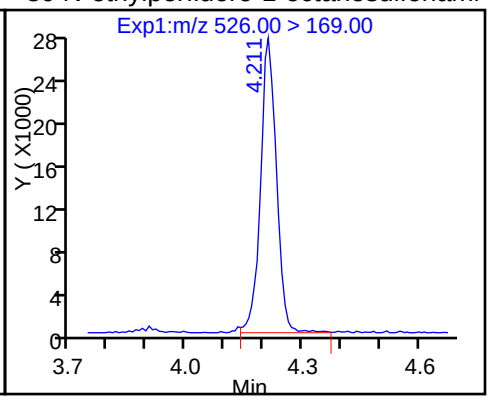
37 Perfluorododecanoic acid



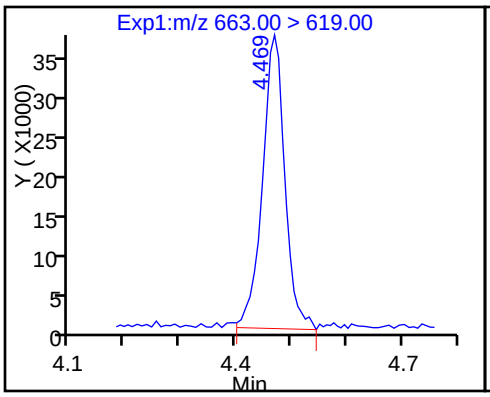
D 38 d-N-EtFOSA-M



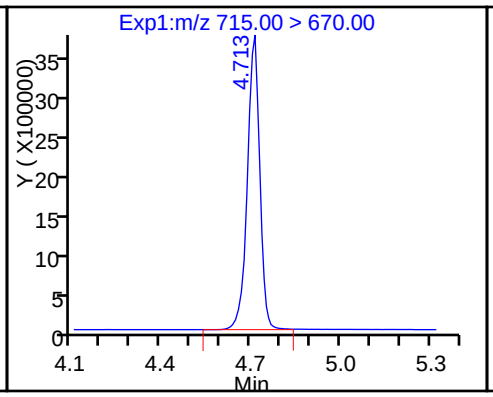
39 N-ethylperfluoro-1-octanesulfonami



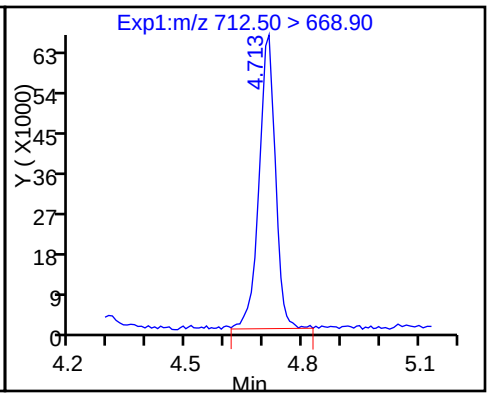
41 Perfluorotridecanoic acid



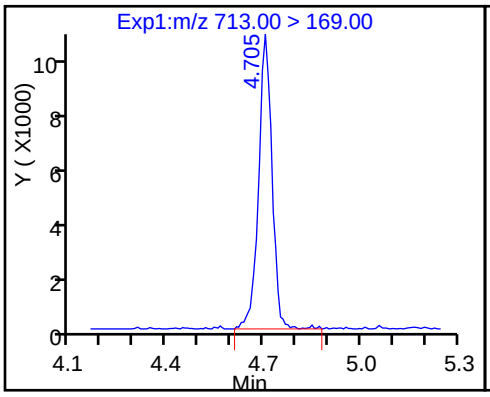
D 43 13C2-PFTeDA



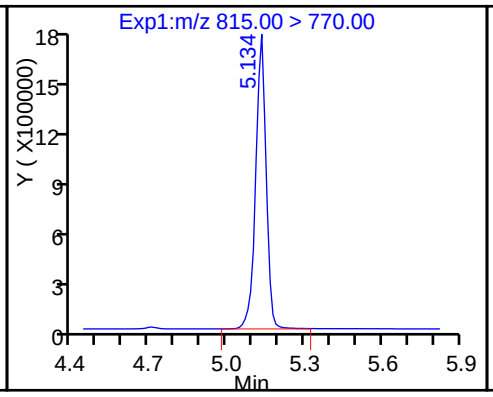
42 Perfluorotetradecanoic acid



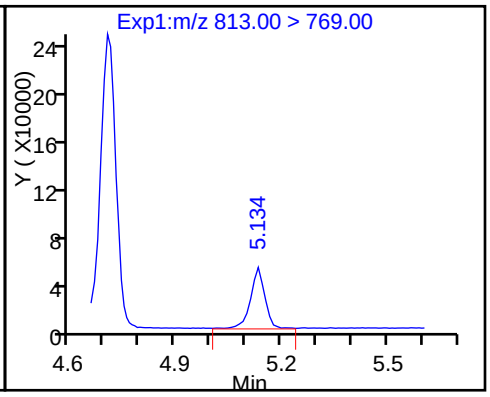
42 Perfluorotetradecanoic acid



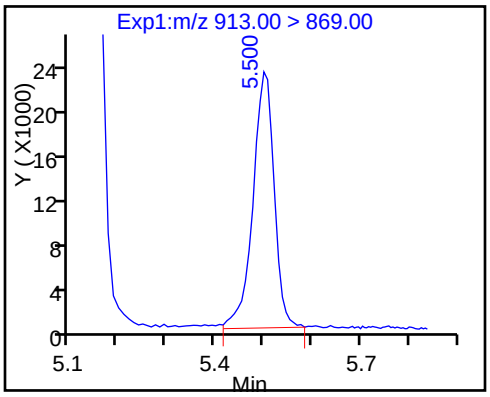
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

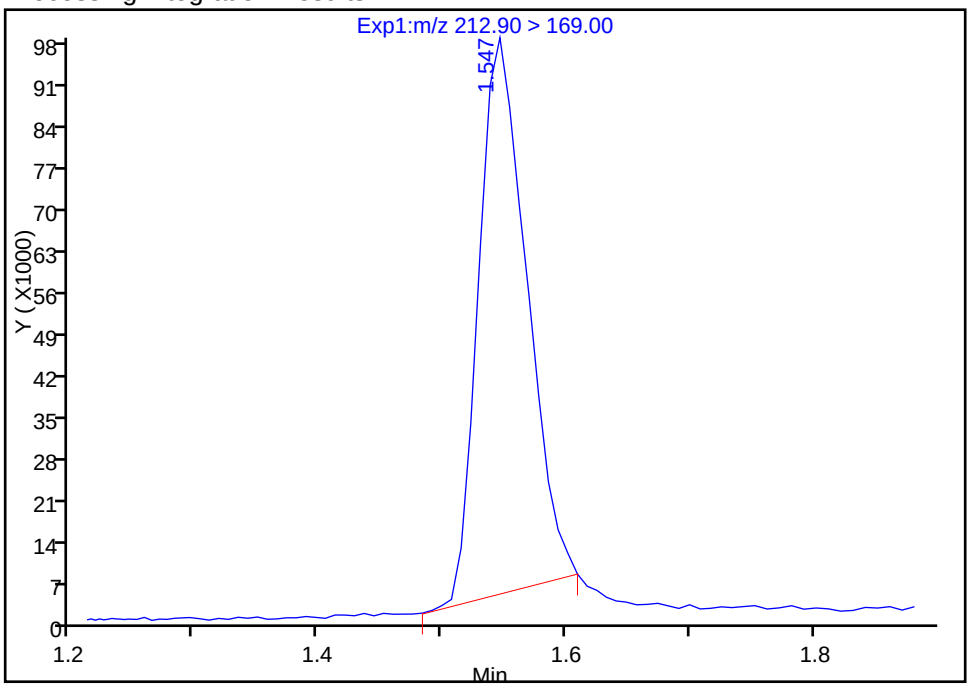
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170313-40786.b\2017.03.13A_004.d
Injection Date: 13-Mar-2017 11:39:35 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

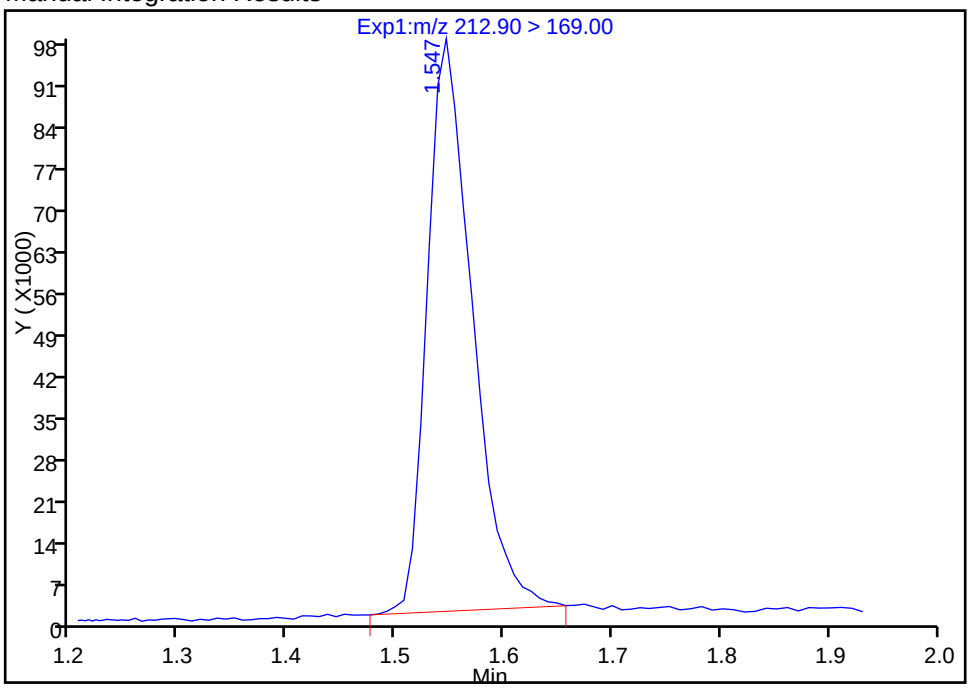
Processing Integration Results

RT: 1.55
Area: 252857
Amount: 0.913725
Amount Units: ng/ml



Manual Integration Results

RT: 1.55
Area: 279192
Amount: 1.008889
Amount Units: ng/ml



Reviewer: changnoit, 14-Mar-2017 11:30:33
Audit Action: Manually Integrated Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154808/11 Calibration Date: 03/13/2017 17:08

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.13A_047.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8967		52.9	50.0	5.8	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.998		51.0	50.0	2.0	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.489		45.9	44.2	3.9	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9279		52.2	50.0	4.3	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9870		51.0	50.0	2.0	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.028		45.5	45.5	-0.0	25.0
6:2FTS	L2ID		0.8949		47.7	47.4	0.7	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.029		50.4	50.0	0.7	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.115		51.5	47.6	8.1	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9486		52.5	50.0	4.9	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.027		48.4	46.4	4.4	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9415		52.4	50.0	4.8	25.0
8:2FTS	L2ID		0.9577		49.6	47.9	3.5	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9479		52.3	50.0	4.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9228		47.5	50.0	-5.0	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6391		51.7	48.2	7.3	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8738		48.0	50.0	-4.0	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9661		47.7	50.0	-4.7	25.0
MeFOSA	AveID	0.9355	0.8926		47.7	50.0	-4.6	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9321		51.0	50.0	1.9	25.0
N-EtFOSA-M	AveID	0.9837	0.9417		47.9	50.0	-4.3	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.9371		53.6	50.0	7.3	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.723		43.8	50.0	-12.4	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9678		51.8	50.0	3.7	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.7574		52.8	50.0	5.6	25.0
13C4 PFBA	Ave	292242	309050		52.9	50.0	5.8	50.0
13C5-PFPeA	Ave	232192	242148		52.1	50.0	4.3	50.0
13C2 PFHxA	Ave	210884	228784		54.2	50.0	8.5	50.0
13C4-PFHpA	Ave	192959	203194		52.7	50.0	5.3	50.0
18O2 PFHxS	Ave	290899	314947		51.2	47.3	8.3	50.0
M2-6:2FTS	Ave	77178	104880		64.5	47.5	35.9	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154808/11 Calibration Date: 03/13/2017 17:08

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.13A_047.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	202929		49.5	50.0	-1.0	50.0
13C4 PFOS	Ave	241637	246892		48.8	47.8	2.2	50.0
13C5 PFNA	Ave	177866	169387		47.6	50.0	-4.8	50.0
13C8 FOSA	Ave	366918	366578		50.0	50.0	-0.0	50.0
M2-8:2FTS	Ave	92602	91736		47.5	47.9	-0.9	50.0
13C2 PFDA	Ave	166704	150691		45.2	50.0	-9.6	50.0
d3-NMeFOSAA	Ave	85186	69595		40.8	50.0	-18.3	50.0
13C2 PFUnA	Ave	130805	113904		43.5	50.0	-12.9	50.0
d5-NEtFOSAA	Ave	81371	63787		39.2	50.0	-21.6	50.0
d-N-MeFOSA-M	Ave	87983	88104		50.1	50.0	0.1	50.0
13C2 PFDoA	Ave	123944	108874		43.9	50.0	-12.2	50.0
d-N-EtFOSA-M	Ave	85249	79850		46.8	50.0	-6.3	50.0
13C2-PFTeDA	Ave	259165	218344		42.1	50.0	-15.8	50.0
13C2-PFHxDA	Ave	125061	122229		48.9	50.0	-2.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_047.d
Lims ID: CCV L5
Client ID:
Sample Type: CCV
Inject. Date: 13-Mar-2017 17:08:37 ALS Bottle#: 32 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub14

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 14-Mar-2017 13:30:27 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK019

First Level Reviewer: westendorfc Date: 14-Mar-2017 13:25:50

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.540	1.540	0.0		15452482	52.9		106	997450	
2 Perfluorobutyric acid										
212.90 > 169.00	1.548	1.548	0.0	1.000	13856752	52.9		106	97933	
D 3 13C5-PFPeA										
267.90 > 223.00	1.824	1.824	0.0		12107401	52.1		104	726281	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.824	1.824	0.0	1.000	12083263	51.0		102	116539	
D 47 13C3-PFBS										
301.90 > 83.00	1.853	1.853	0.0		318338	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.863	1.863	0.0	1.000	20722636	45.9		104		
298.90 > 99.00	1.863	1.863	0.0	1.000	8992401		2.30(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.114	2.114	0.0		11439211	54.2		108	542139	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.123	2.123	0.0	1.000	10614390	52.2		104	271358	
D 9 13C4-PFHpA										
367.00 > 322.00	2.464	2.464	0.0		10159685	52.7		105	395765	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.456	2.456	0.0	1.000	10027949	51.0		102	98011	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.480	2.480	0.0	1.000	14735744	45.5		100.0		
D 11 18O2 PFHxS										
403.00 > 84.00	2.480	2.480	0.0		14896982	51.2		108	480567	
D 12 M2-6:2FTS										
429.00 > 409.00	2.799	2.799	0.0		4981801	64.5		136		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.799	2.799	0.0	1.000	4449007	47.7		101		
D 14 13C4 PFOA										
417.00 > 372.00	2.822	2.822	0.0		10146464	49.5		99.0	304384	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.822	2.822	0.0	1.000	10443097	50.4		101	153416	
413.00 > 169.00	2.822	2.822	0.0	1.000	6214376		1.68(0.90-1.10)		147333	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.830	2.830	0.0	1.000	13102121	51.5		108		
D 18 13C4 PFOS										
503.00 > 80.00	3.188	3.188	0.0		11801442	48.8		102	188222	
20 Perfluorononanoic acid										
463.00 > 419.00	3.197	3.197	0.0	1.000	8034156	52.5		105	129920	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.197	3.197	0.0	1.000	11759508	48.4		104	2766869	M
499.00 > 99.00	3.197	3.197	0.0	1.000	2575871		4.57(0.90-1.10)		234407	M
D 19 13C5 PFNA										
468.00 > 423.00	3.197	3.197	0.0		8469352	47.6		95.2	359482	
D 21 13C8 FOSA										
506.00 > 78.00	3.534	3.534	0.0		18328903	50.0		99.9	366408	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.534	3.534	0.0	1.000	17256464	52.4		105	386932	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.551	3.551	0.0	1.000	4208415	49.6		103		
D 26 M2-8:2FTS										
529.00 > 509.00	3.551	3.551	0.0		4394164	47.5		99.1		
24 Perfluorodecanoic acid										
513.00 > 469.00	3.559	3.559	0.0	1.000	7141579	52.3		105	258645	
D 23 13C2 PFDA										
515.00 > 470.00	3.559	3.559	0.0		7534536	45.2		90.4	190131	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.711	3.711	0.0		3479759	40.8		81.7		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.711	3.711	0.0	1.000	3211030	47.5		95.0		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.865	3.865	0.0	1.000	7605801	51.7		107		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.883	3.883	0.0		3189343	39.2		78.4		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.883	3.883	0.0	1.000	5502307	47.7		95.3	97815	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.883	3.883	0.0	1.000	2786799	48.0		96.0		
D 30 13C2 PFUnA										
565.00 > 520.00	3.883	3.883	0.0		5695179	43.5		87.1	205085	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.027	4.027	0.0		4405207	50.1		100		
35 MeFOSA										
512.00 > 169.00	4.037	4.037	0.0	1.000	3932183	47.7		95.4		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
37 Perfluorododecanoic acid										
613.00 > 569.00	4.175	4.175	0.0	1.000	5074326	51.0		102	54573	
D 36 13C2 PFDoA										
615.00 > 570.00	4.175	4.175	0.0		5443717	43.9		87.8	136300	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.212	4.212	0.0		3992480	46.8		93.7		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.220	4.220	0.0	1.000	3759742	47.9		95.7		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.443	4.443	0.0	1.000	5101140	53.6		107	114258	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.670	4.670	0.0	1.000	9381591	43.8		87.6	41395	
713.00 > 169.00	4.670	4.670	0.0	1.000	1483069		6.33(0.00-0.00)		163624	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.670	4.670	0.0		10917206	42.1		84.2	354469	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.079	5.079	0.0		6111460	48.9		97.7	107800	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.090	5.090	0.0	1.000	5268497	51.8		104	5197	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.444	5.444	0.0	1.000	4123073	52.8		106	5520	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L5_00001 Amount Added: 1.00 Units: mL

Report Date: 14-Mar-2017 13:30:28 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_047.d

Injection Date: 13-Mar-2017 17:08:37 Instrument ID: A8_N

Lims ID: CCV L5

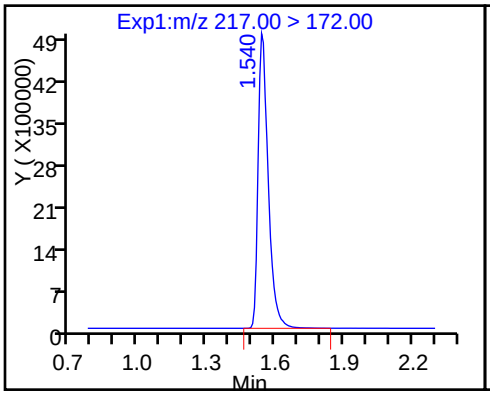
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 11

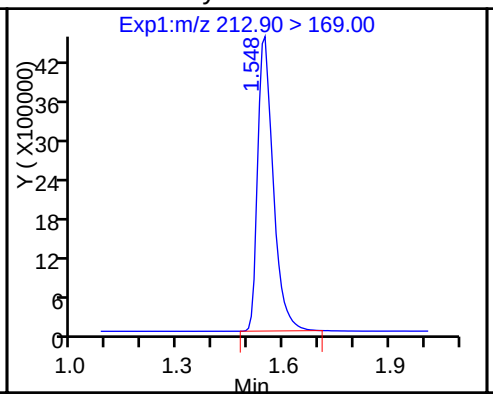
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

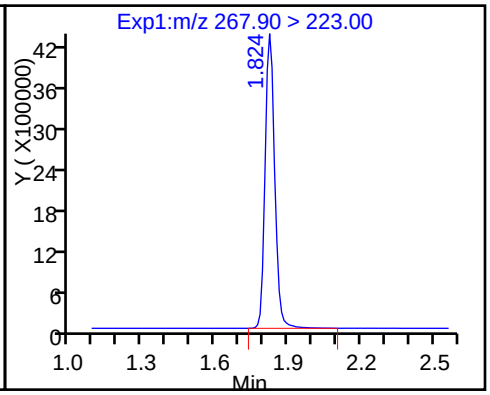
D 1 13C4 PFBA



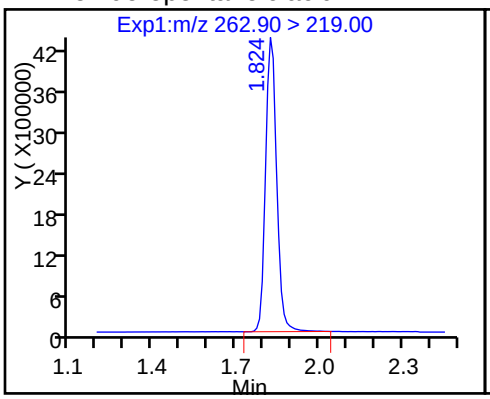
2 Perfluorobutyric acid



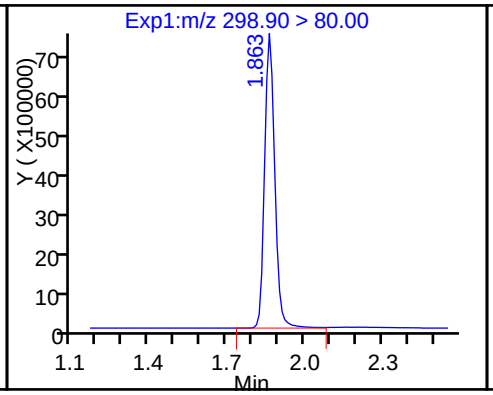
D 3 13C5-PFPeA



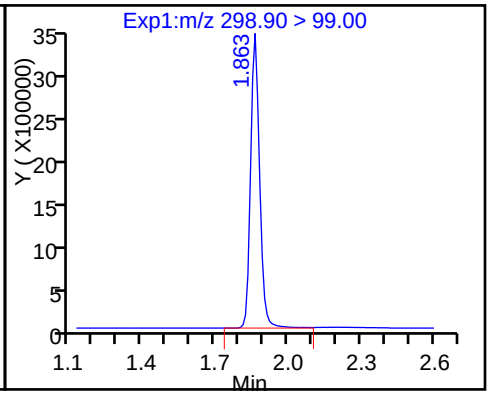
4 Perfluoropentanoic acid



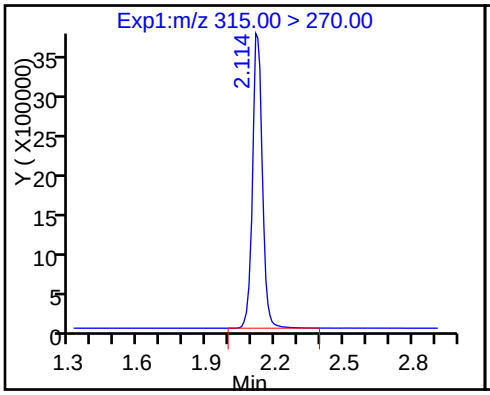
5 Perfluorobutanesulfonic acid



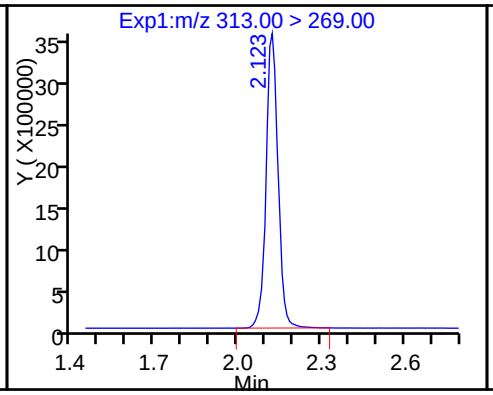
5 Perfluorobutanesulfonic acid



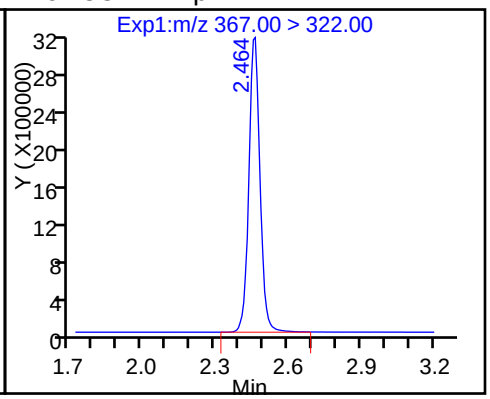
D 7 13C2 PFHxA



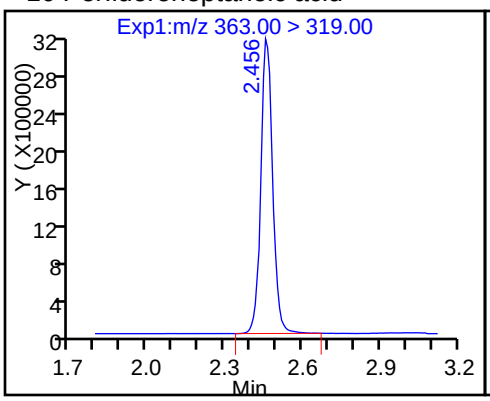
6 Perfluorohexanoic acid



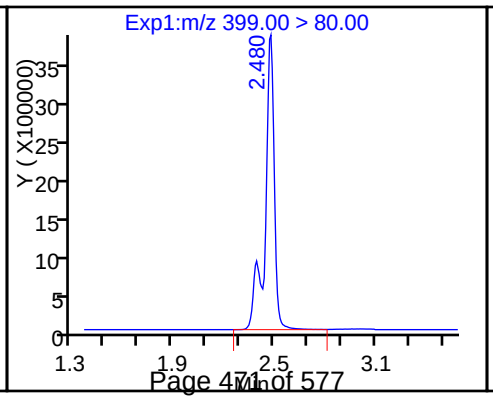
D 9 13C4-PFHpA



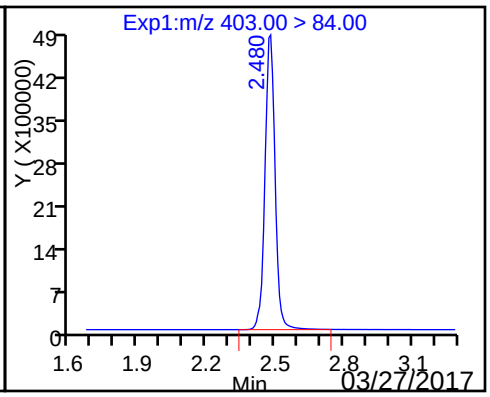
10 Perfluoroheptanoic acid



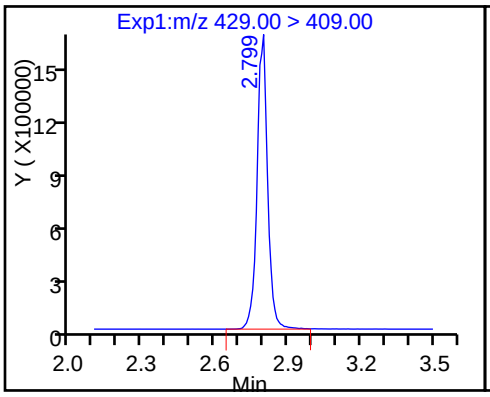
8 Perfluorohexanesulfonic acid



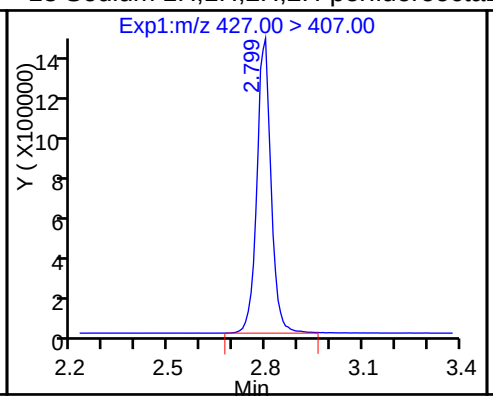
D 11 18O2 PFHxS



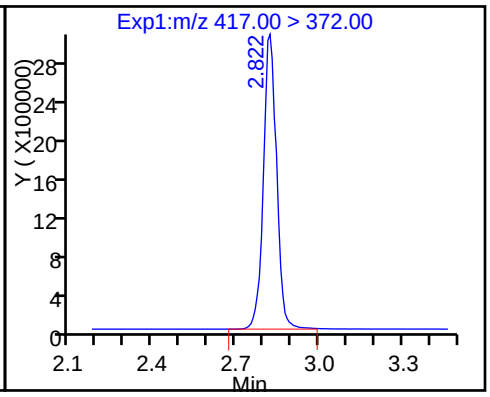
D 12 M2-6:2FTS



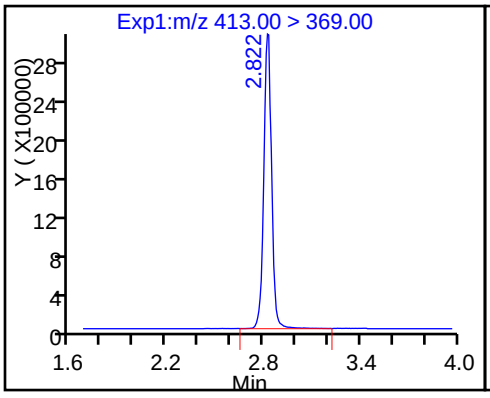
13 Sodium 1H,1H,2H,2H-perfluorooctane



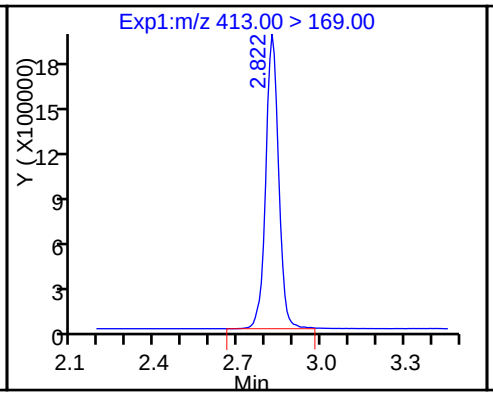
D 14 13C4 PFOA



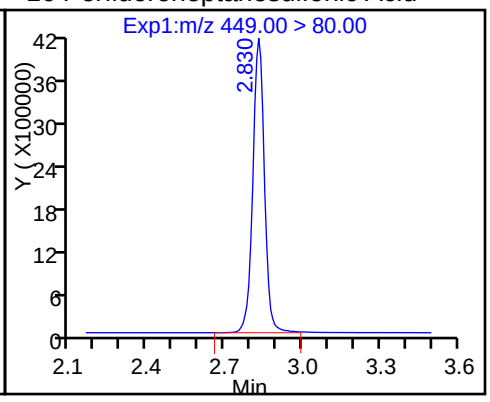
15 Perfluorooctanoic acid



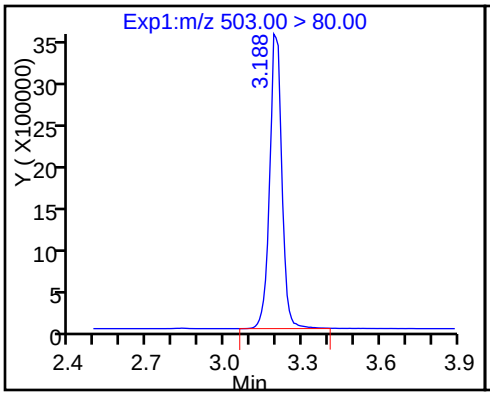
15 Perfluorooctanoic acid



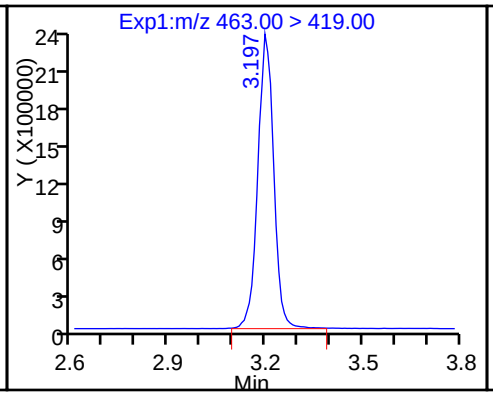
16 Perfluoroheptanesulfonic Acid



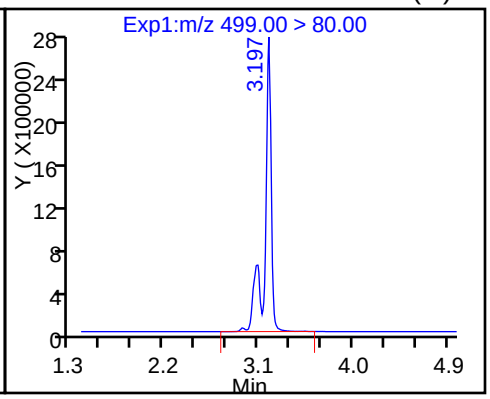
D 18 13C4 PFOS



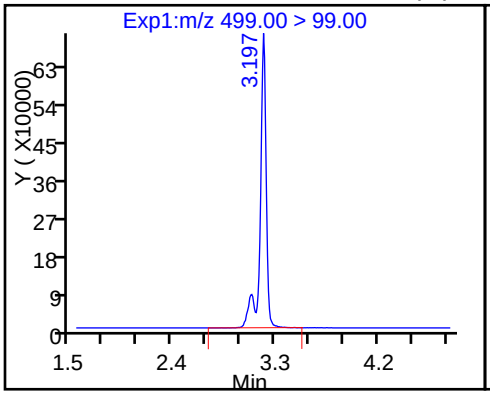
20 Perfluorononanoic acid



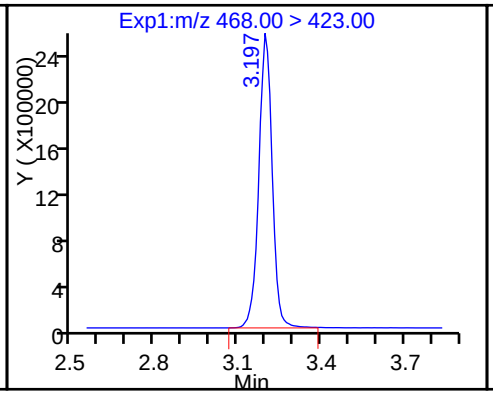
17 Perfluorooctane sulfonic acid (M)



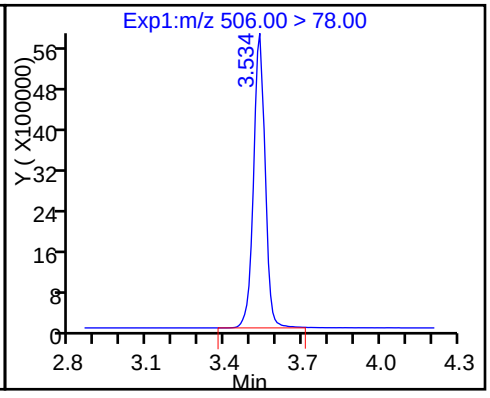
17 Perfluorooctane sulfonic acid (M)



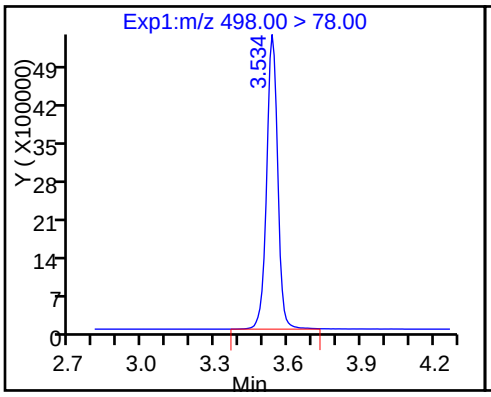
D 19 13C5 PFNA



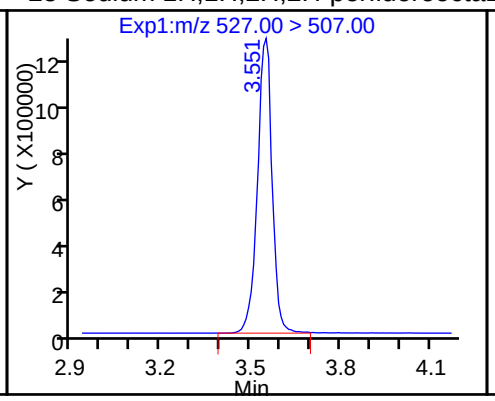
D 21 13C8 FOSA



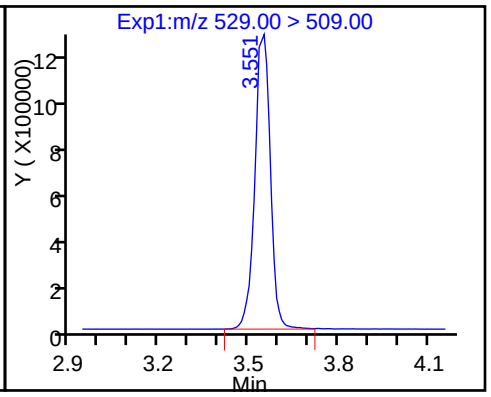
22 Perfluorooctane Sulfonamide



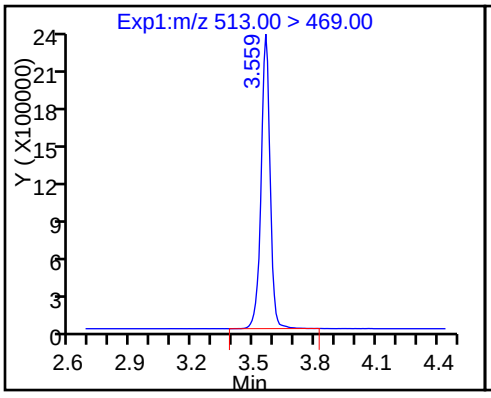
25 Sodium 1H,1H,2H,2H-perfluorooctane



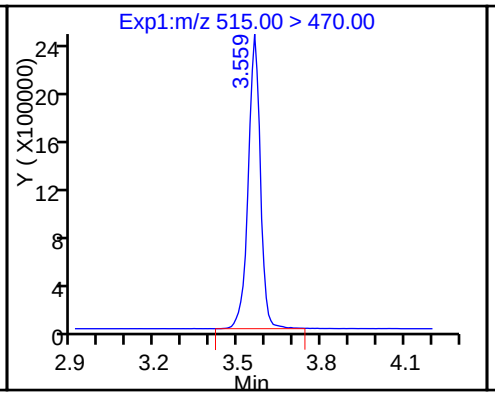
D 26 M2-8:2FTS



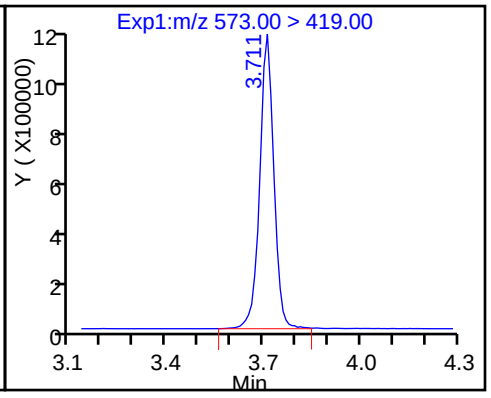
24 Perfluorodecanoic acid



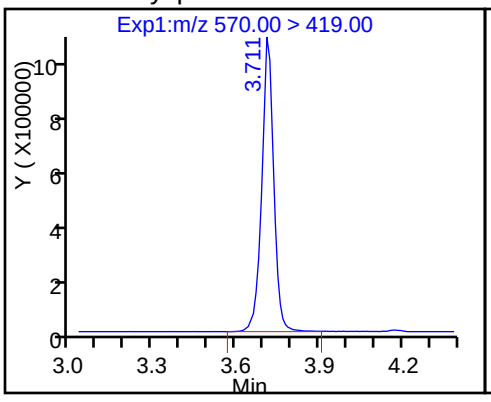
D 23 13C2 PFDA



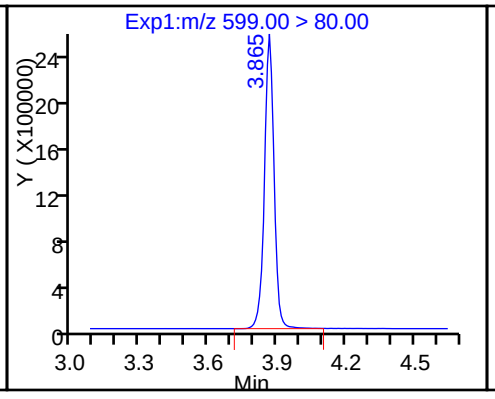
D 27 d3-NMeFOSAA



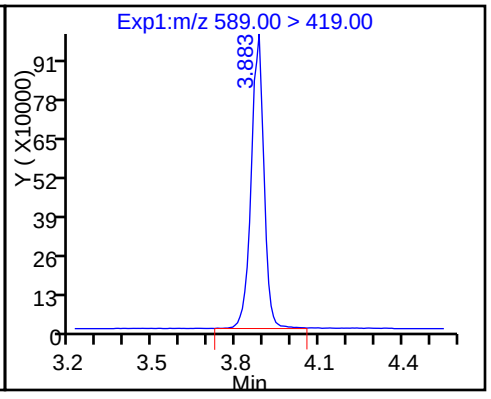
28 N-methyl perfluorooctane sulfonami



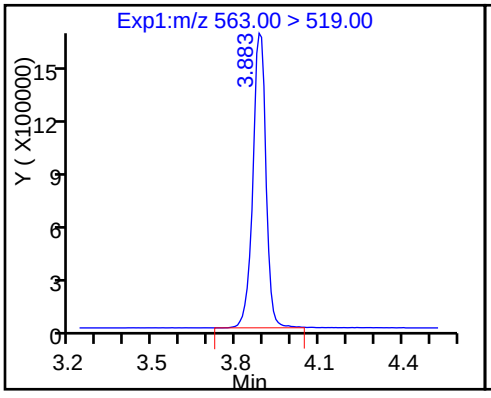
29 Perfluorodecane Sulfonic acid



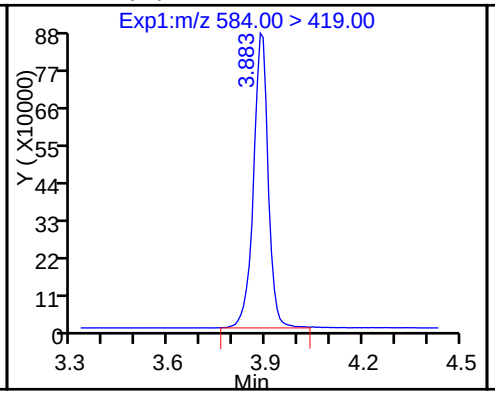
D 32 d5-NEtFOSAA



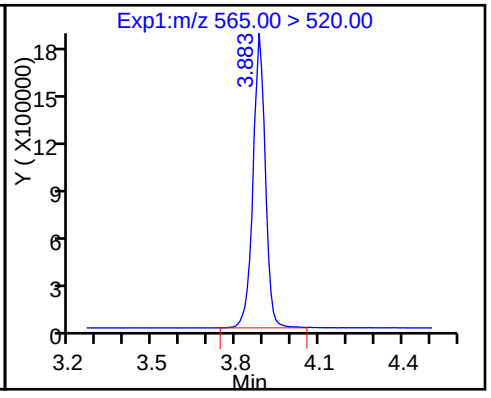
31 Perfluoroundecanoic acid



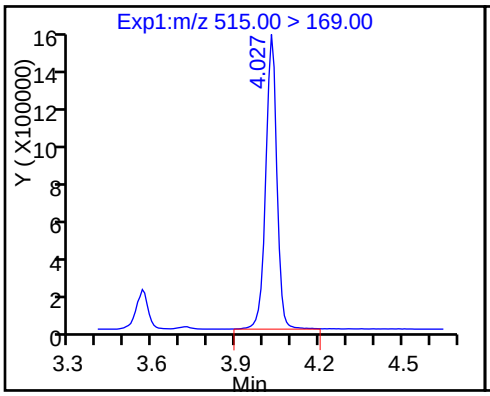
33 N-ethyl perfluorooctane sulfonamid



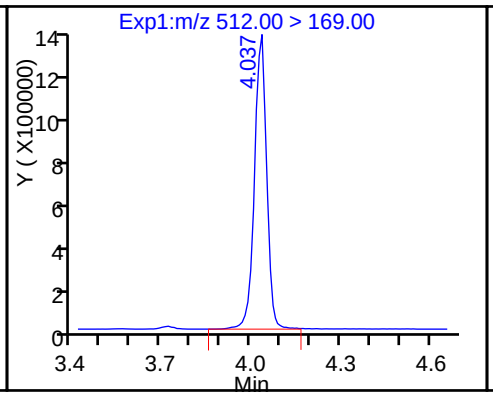
D 30 13C2 PFUnA



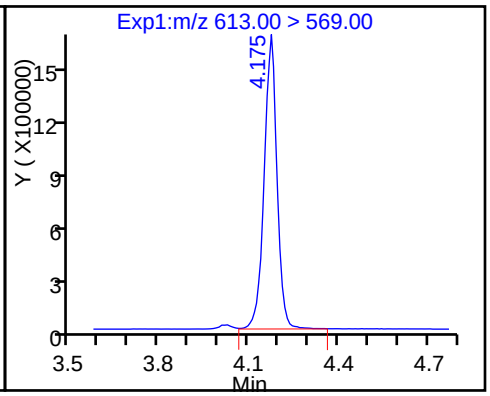
D 34 d-N-MeFOSA-M



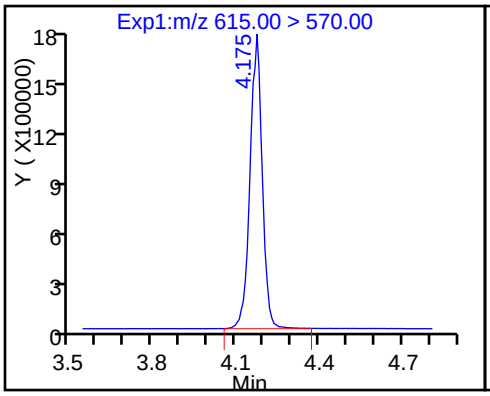
35 MeFOSA



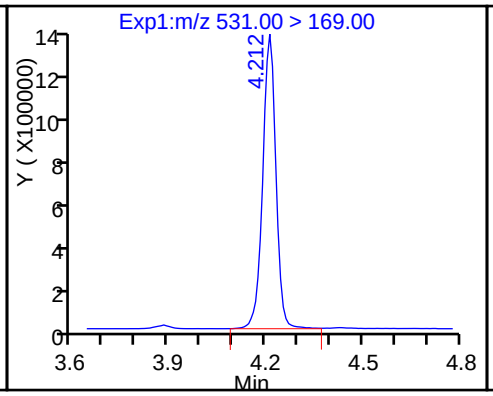
37 Perfluorododecanoic acid



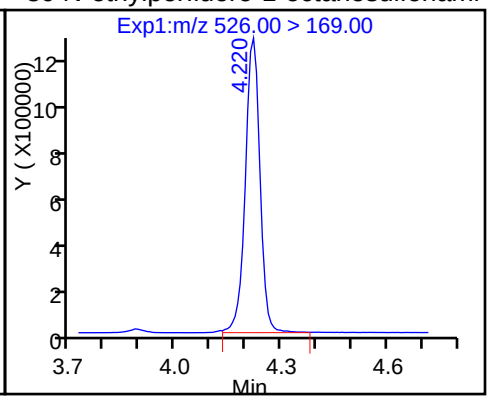
D 36 13C2 PFDoA



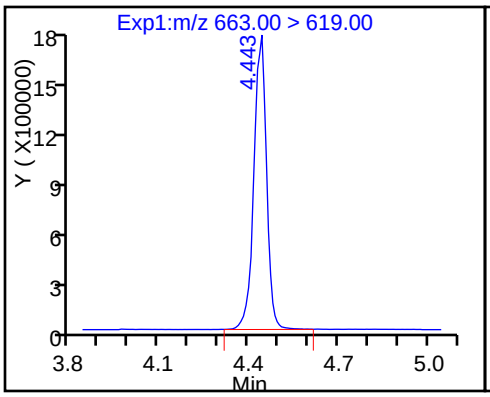
D 38 d-N-EtFOSA-M



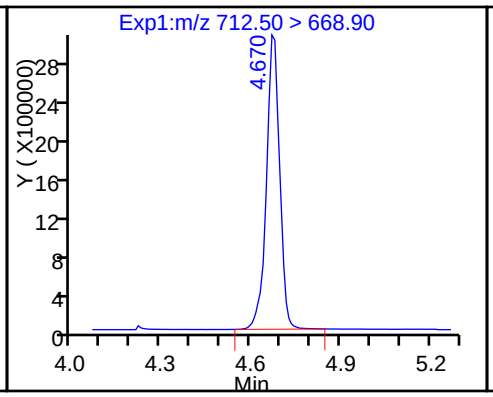
39 N-ethylperfluoro-1-octanesulfonami



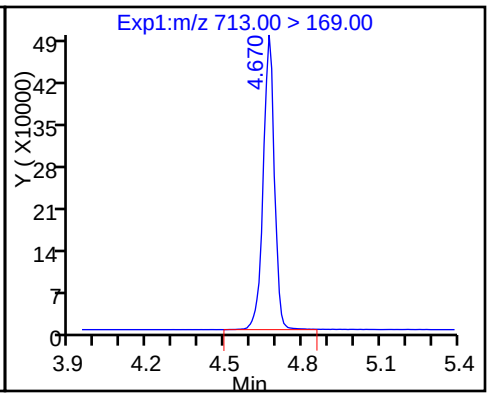
41 Perfluorotridecanoic acid



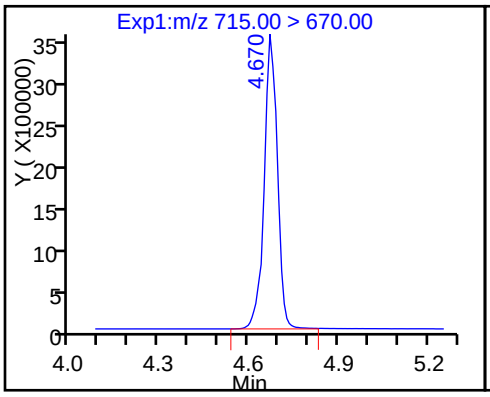
42 Perfluorotetradecanoic acid



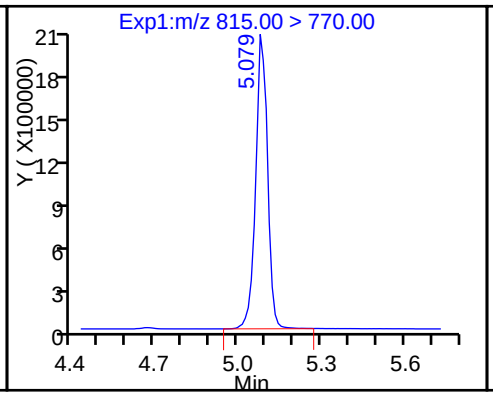
42 Perfluorotetradecanoic acid



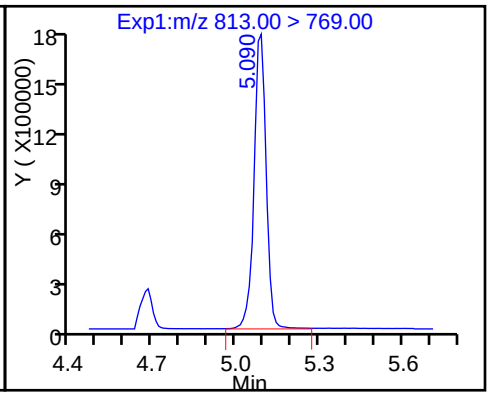
D 43 13C2-PFTeDA



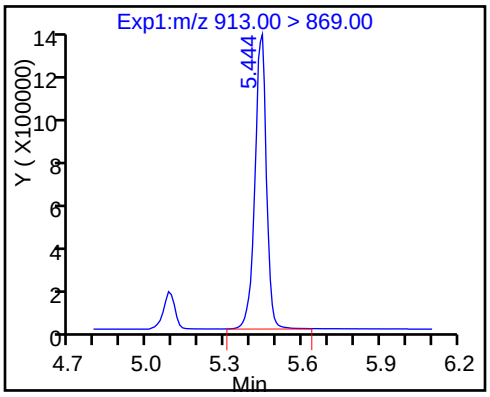
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

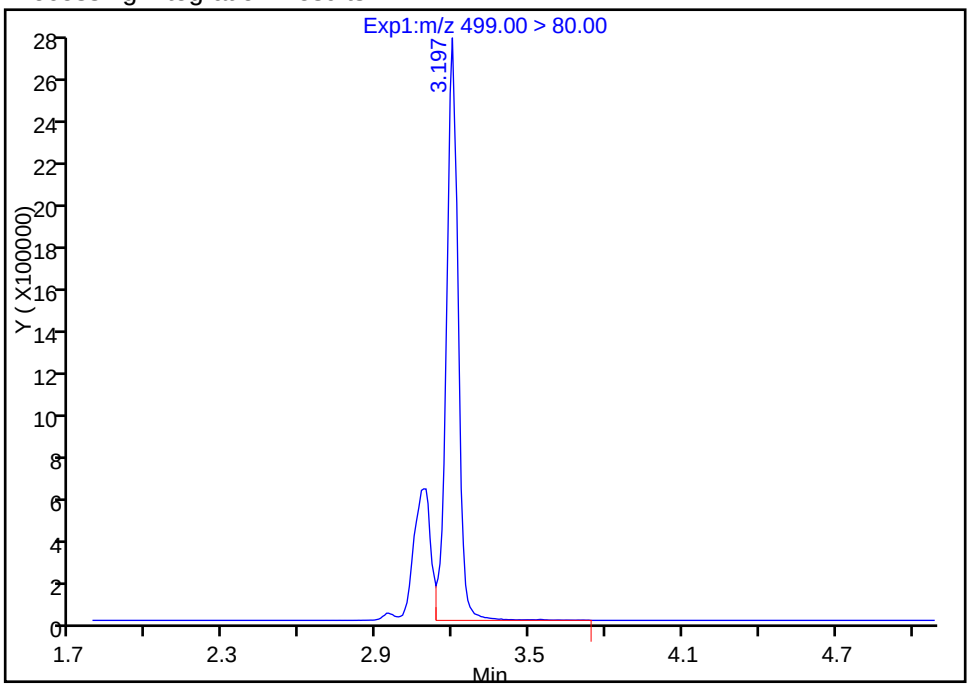
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_047.d
Injection Date: 13-Mar-2017 17:08:37 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

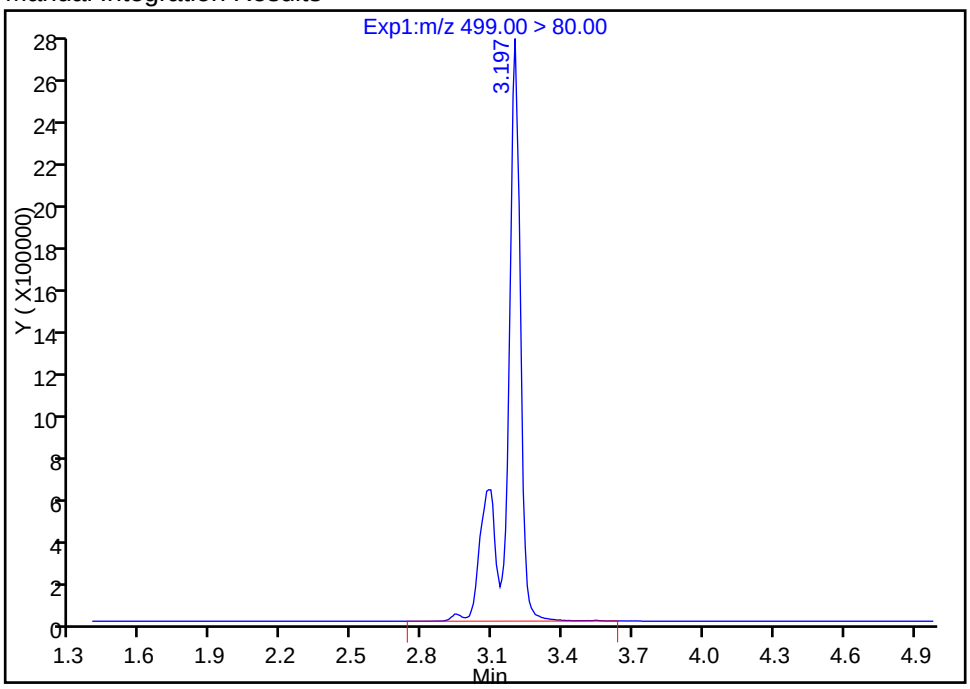
Processing Integration Results

RT: 3.20
Area: 8825465
Amount: 36.346607
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 11759508
Amount: 48.430107
Amount Units: ng/ml



Reviewer: westendorfc, 14-Mar-2017 13:30:26
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

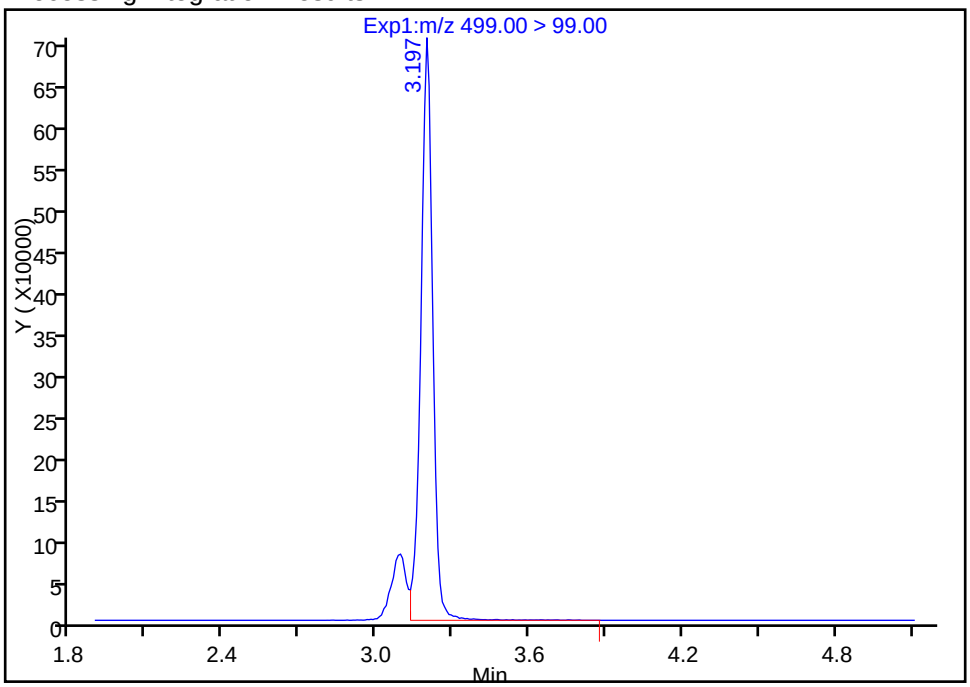
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_047.d
Injection Date: 13-Mar-2017 17:08:37 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

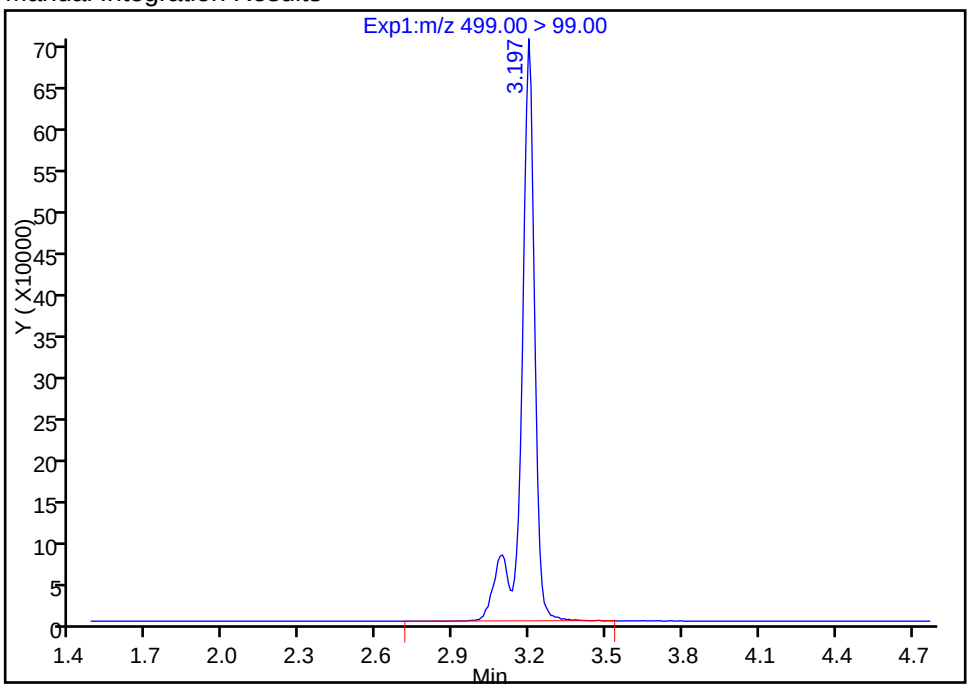
Processing Integration Results

RT: 3.20
Area: 2266426
Amount: 36.346607
Amount Units: ng/ml



Manual Integration Results

RT: 3.20
Area: 2575871
Amount: 48.430107
Amount Units: ng/ml



Reviewer: westendorfc, 14-Mar-2017 13:30:26
Audit Action: Manually Integrated Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154808/17 Calibration Date: 03/13/2017 17:53

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.13A_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	0.8473	0.8364		19.7	20.0	-1.3	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9596		19.6	20.0	-1.9	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.521		18.8	17.7	6.2	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8755		19.7	20.0	-1.6	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9179		19.0	20.0	-5.1	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	0.9790		17.3	18.2	-4.8	25.0
6:2FTS	L2ID		0.9455		20.1	19.0	6.0	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.043		19.3	19.0	1.2	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.9739		19.1	20.0	-4.7	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9032		20.0	20.0	-0.0	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9486		17.9	18.6	-3.6	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.8972		20.0	20.0	-0.1	25.0
8:2FTS	L2ID		0.9836		20.3	19.2	6.0	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8571		18.9	20.0	-5.4	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9282		19.1	20.0	-4.4	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5775		18.7	19.3	-3.0	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8984		19.7	20.0	-1.3	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.8862		17.5	20.0	-12.6	25.0
MeFOSA	AveID	0.9355	0.9328		19.9	20.0	-0.3	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8588		18.8	20.0	-6.1	25.0
N-EtFOSA-M	AveID	0.9837	0.9610		19.5	20.0	-2.3	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8455		19.4	20.0	-3.2	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.510		15.4	20.0	-23.2	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.8200		17.3	20.0	-13.4	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.7185		20.0	20.0	0.1	25.0
13C4 PFBA	Ave	292242	308072		52.7	50.0	5.4	50.0
13C5-PFPeA	Ave	232192	245036		52.8	50.0	5.5	50.0
13C2 PFHxA	Ave	210884	232177		55.0	50.0	10.1	50.0
13C4-PFHpA	Ave	192959	215930		56.0	50.0	11.9	50.0
18O2 PFHxS	Ave	290899	313365		51.0	47.3	7.7	50.0
M2-6:2FTS	Ave	77178	99752		61.4	47.5	29.2	50.0

FORM VII 537 (Modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-154808/17 Calibration Date: 03/13/2017 17:53

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.13A_053.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	213771		52.2	50.0	4.3	50.0
13C4 PFOS	Ave	241637	248332		49.1	47.8	2.8	50.0
13C5 PFNA	Ave	177866	171427		48.2	50.0	-3.6	50.0
13C8 FOSA	Ave	366918	369067		50.3	50.0	0.6	50.0
M2-8:2FTS	Ave	92602	93945		48.6	47.9	1.5	50.0
13C2 PFDA	Ave	166704	155661		46.7	50.0	-6.6	50.0
d3-NMeFOSAA	Ave	85186	67053		39.4	50.0	-21.3	50.0
d5-NEtFOSAA	Ave	81371	66868		41.1	50.0	-17.8	50.0
13C2 PFUnA	Ave	130805	119160		45.5	50.0	-8.9	50.0
d-N-MeFOSA-M	Ave	87983	85065		48.3	50.0	-3.3	50.0
13C2 PFDoA	Ave	123944	108311		43.7	50.0	-12.6	50.0
d-N-EtFOSA-M	Ave	85249	82170		48.2	50.0	-3.6	50.0
13C2-PFTeDA	Ave	259165	207091		40.0	50.0	-20.1	50.0
13C2-PFHxDA	Ave	125061	107416		42.9	50.0	-14.1	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_053.d
Lims ID: CCV L4
Client ID:
Sample Type: CCV
Inject. Date: 13-Mar-2017 17:53:36 ALS Bottle#: 31 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub14

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 14-Mar-2017 13:30:56 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK019

First Level Reviewer: westendorfc Date: 14-Mar-2017 13:29:15

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	1.538	1.538	0.0		15403599	52.7		105	1252371	
2 Perfluorobutyric acid										
212.90 > 169.00	1.538	1.538	0.0	1.000	5153489	19.7		98.7	37196	
D 3 13C5-PFPeA										
267.90 > 223.00	1.811	1.811	0.0		12251776	52.8		106	856339	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.821	1.821	0.0	1.000	4702585	19.6		98.1	35966	
D 47 13C3-PFBS										
301.90 > 83.00	1.851	1.851	0.0		314349	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.851	1.851	0.0	1.000	8427837	18.8		106		
298.90 > 99.00	1.851	1.851	0.0	1.000	3330357		2.53(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.112	2.112	0.0		11608842	55.0		110	422584	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.112	2.112	0.0	1.000	4065186	19.7		98.4	131162	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.452	2.452	0.0	1.000	3963985	19.0		94.9	50462	
D 9 13C4-PFHpA										
367.00 > 322.00	2.452	2.452	0.0		10796501	56.0		112	275400	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.467	2.467	0.0	1.000	5583520	17.3		95.2		
D 11 18O2 PFHxS										
403.00 > 84.00	2.467	2.467	0.0		14822182	51.0		108	372166	
D 12 M2-6:2FTS										
429.00 > 409.00	2.786	2.786	0.0		4738218	61.4		129		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.786	2.786	0.0	1.000	1788297	20.1		106		
D 14 13C4 PFOA										
417.00 > 372.00	2.810	2.810	0.0		10688574	52.2		104	293479	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.825	2.825	0.0	1.000	4163632	19.1		95.3	43315	
413.00 > 169.00	2.817	2.825	-0.008	0.997	2359593		1.76(0.90-1.10)		80900	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.817	2.817	0.0	1.000	4933896	19.3		101		
D 18 13C4 PFOS										
503.00 > 80.00	3.193	3.193	0.0		11870290	49.1		103	249349	
20 Perfluorononanoic acid										
463.00 > 419.00	3.193	3.193	0.0	1.000	3096576	20.0		99.9	59553	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.193	3.193	0.0	1.000	4371980	17.9		96.4	1649	M
499.00 > 99.00	3.193	3.193	0.0	1.000	978888		4.47(0.90-1.10)		130770	M
D 19 13C5 PFNA										
468.00 > 423.00	3.201	3.201	0.0		8571334	48.2		96.4	320558	
D 21 13C8 FOSA										
506.00 > 78.00	3.527	3.527	0.0		18453339	50.3		101	364578	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.535	3.535	0.0	1.000	6622850	20.0		99.9	223232	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.544	3.544	0.0	1.000	1770407	20.3		106		
D 26 M2-8:2FTS										
529.00 > 509.00	3.544	3.544	0.0		4499967	48.6		101		
24 Perfluorodecanoic acid										
513.00 > 469.00	3.552	3.552	0.0	1.000	2668327	18.9		94.6	79320	
D 23 13C2 PFDA										
515.00 > 470.00	3.552	3.552	0.0		7783067	46.7		93.4	181496	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.703	3.703	0.0		3352645	39.4		78.7		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.713	3.713	0.0	1.003	1244804	19.1		95.6		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.865	3.865	0.0	1.000	2765141	18.7		97.0		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.874	3.874	0.0		3343407	41.1		82.2		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.882	3.882	0.0	1.000	2111916	17.5		87.4	40173	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.882	3.882	0.0	1.002	1201435	19.7		98.7		
D 30 13C2 PFUnA										
565.00 > 520.00	3.882	3.882	0.0		5958017	45.5		91.1	242966	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.027	4.027	0.0		4253271	48.3		96.7		
35 MeFOSA										
512.00 > 169.00	4.036	4.036	0.0	1.000	1586890	19.9		99.7		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
37 Perfluorododecanoic acid										
613.00 > 569.00	4.172	4.172	0.0	1.000	1860378	18.8		93.9	23205	
D 36 13C2 PFDoA										
615.00 > 570.00	4.172	4.172	0.0		5415554	43.7		87.4	166680	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.215	4.215	0.0		4108486	48.2		96.4		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.223	4.223	0.0	1.000	1579328	19.5		97.7		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.439	4.439	0.0	1.000	1831626	19.4		96.8	37429	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.676	4.676	0.0	1.000	3270294	15.4		76.8	21508	
713.00 > 169.00	4.667	4.676	-0.009	0.998	521264		6.27(0.00-0.00)		59346	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.676	4.676	0.0		10354560	40.0		79.9	408602	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.079	5.079	0.0		5370781	42.9		85.9	88003	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.079	5.079	0.0	1.000	1776320	17.3		86.6	1864	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.437	5.437	0.0	1.000	1556326	20.0		100	2050	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L4_00001 Amount Added: 1.00 Units: mL

Report Date: 14-Mar-2017 13:30:57 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_053.d

Injection Date: 13-Mar-2017 17:53:36 Instrument ID: A8_N

Lims ID: CCV L4

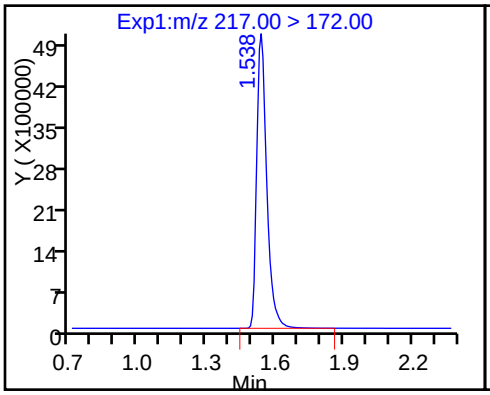
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 17

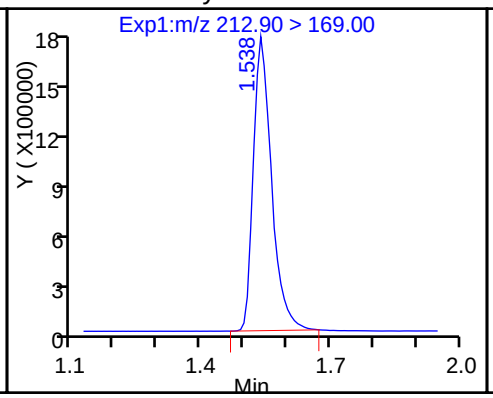
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

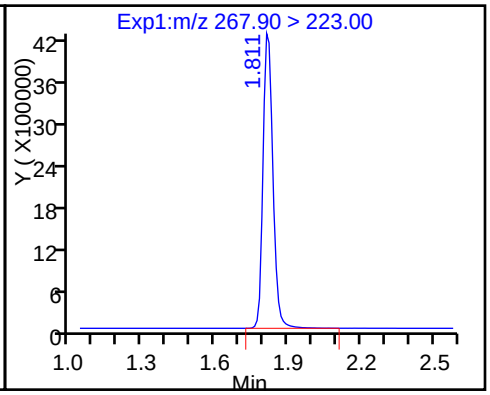
D 1 13C4 PFBA



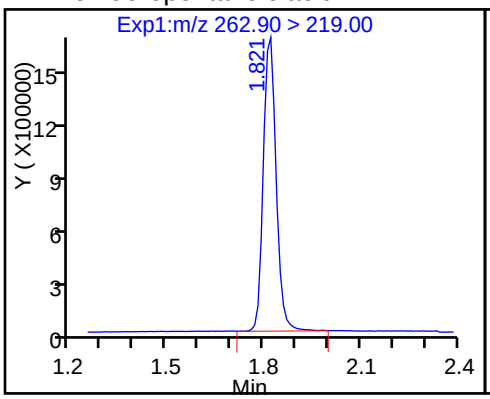
2 Perfluorobutyric acid



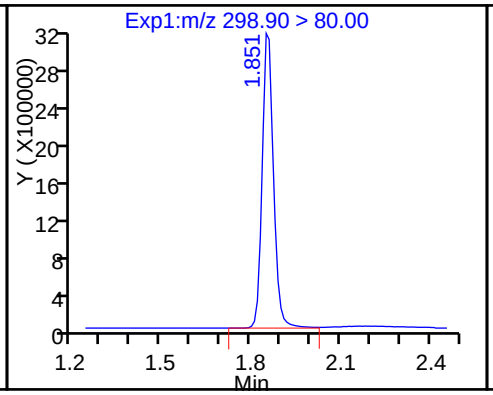
D 3 13C5-PFPeA



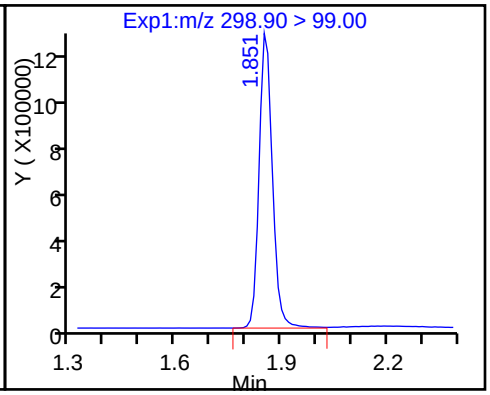
4 Perfluoropentanoic acid



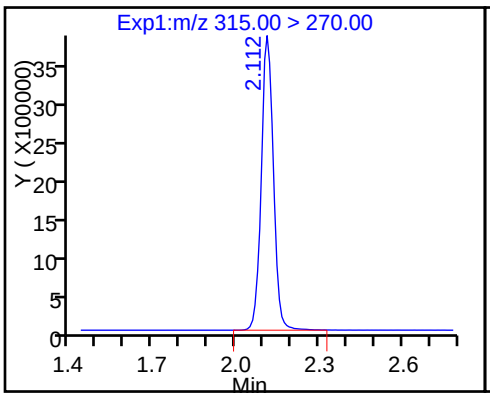
5 Perfluorobutanesulfonic acid



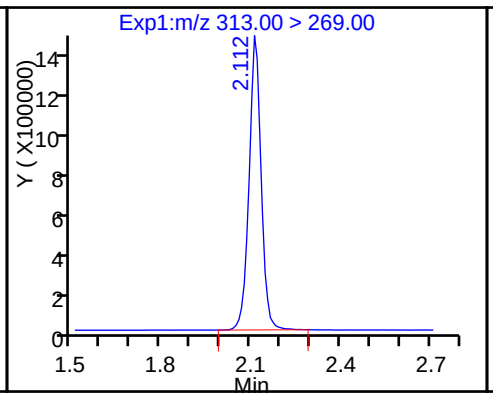
5 Perfluorobutanesulfonic acid



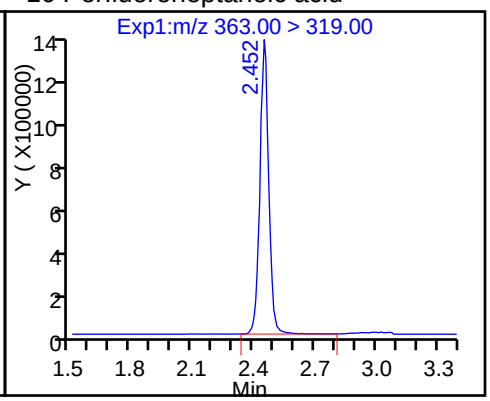
D 7 13C2 PFHxA



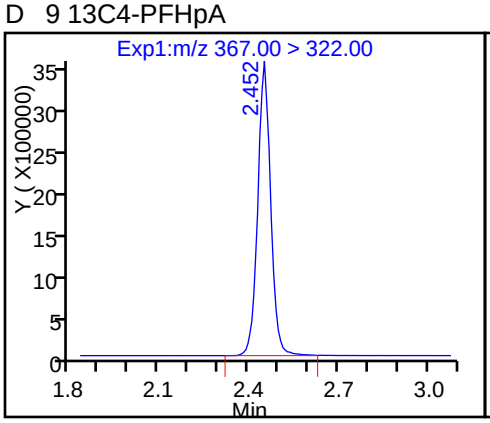
6 Perfluorohexanoic acid



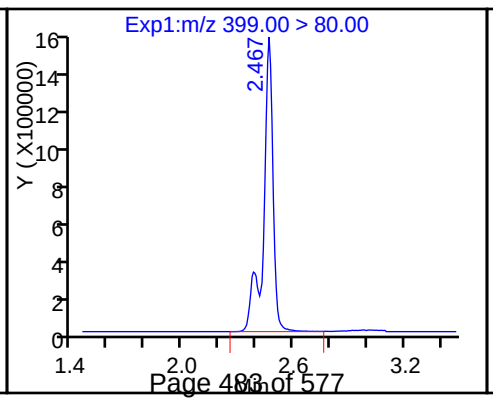
10 Perfluoroheptanoic acid



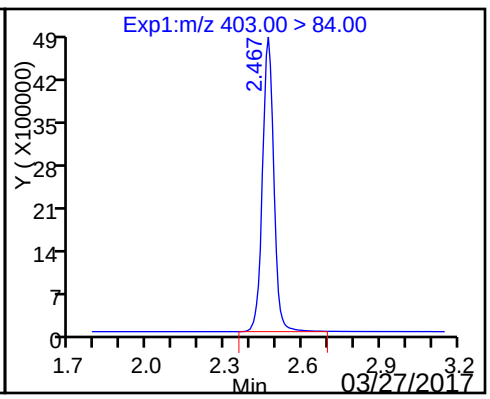
D 9 13C4-PFHpA



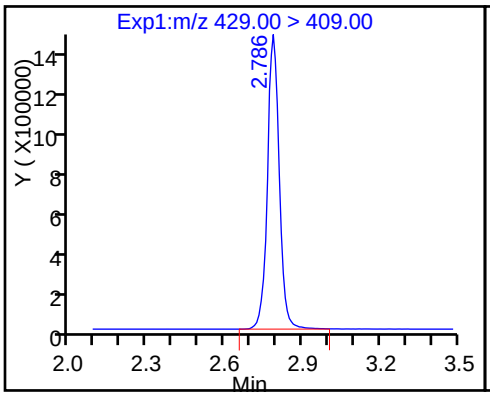
8 Perfluorohexanesulfonic acid



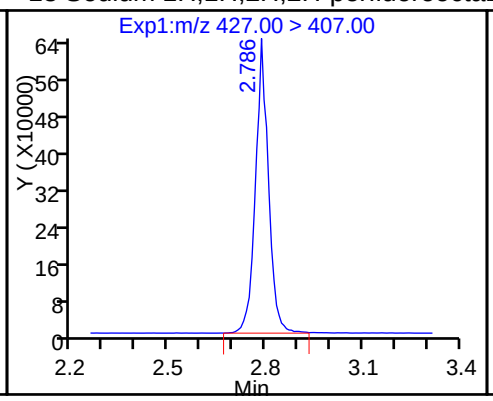
D 11 18O2 PFHxS



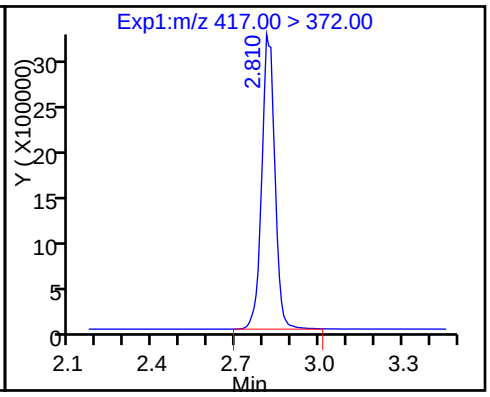
D 12 M2-6:2FTS



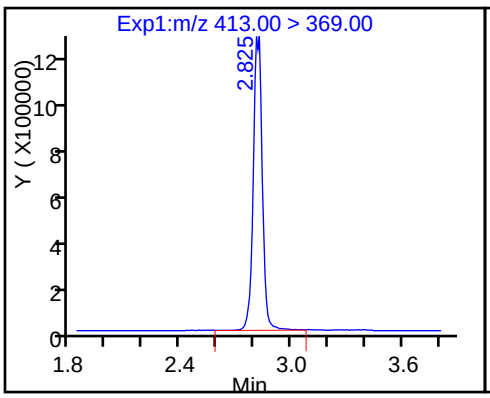
13 Sodium 1H,1H,2H,2H-perfluorooctane



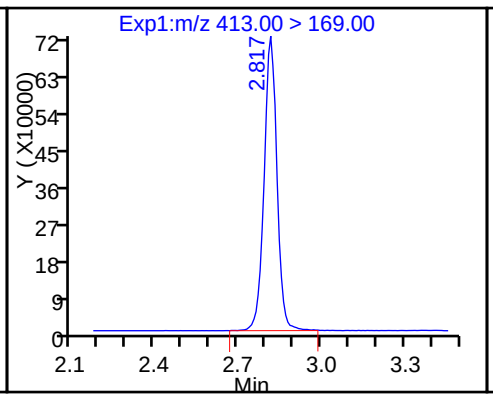
D 14 13C4 PFOA



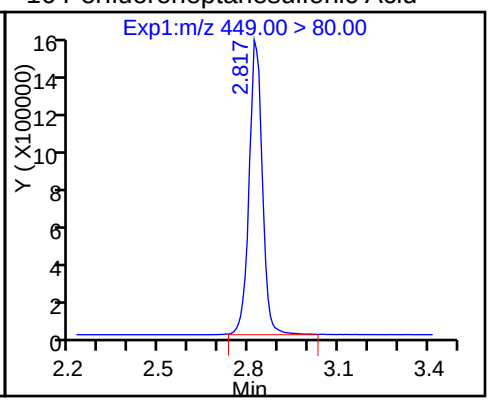
15 Perfluorooctanoic acid



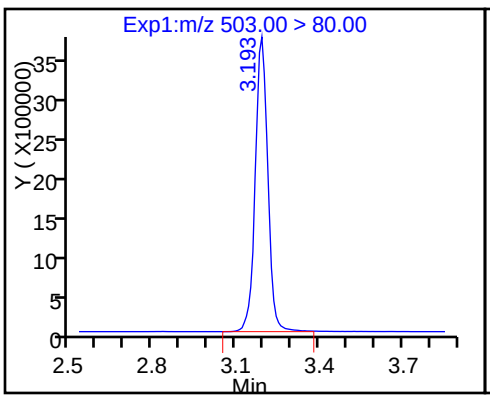
15 Perfluorooctanoic acid



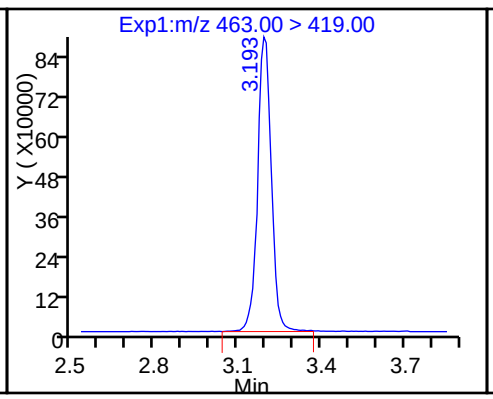
16 Perfluoroheptanesulfonic Acid



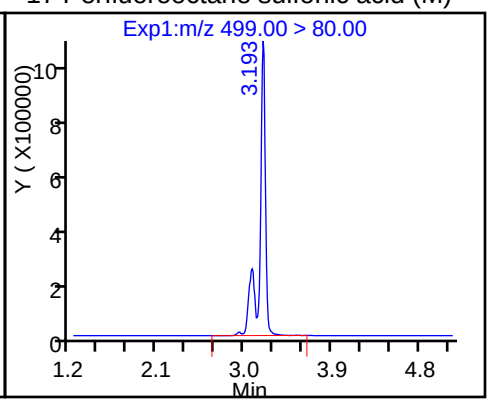
D 18 13C4 PFOS



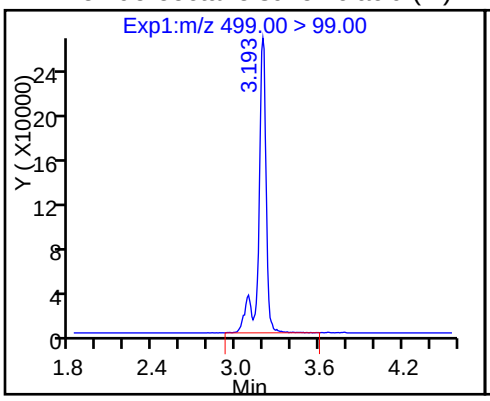
20 Perfluorononanoic acid



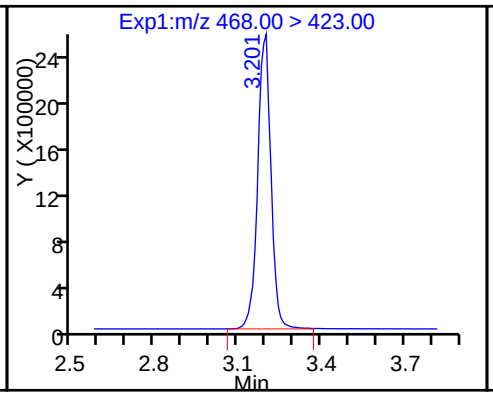
17 Perfluorooctane sulfonic acid (M)



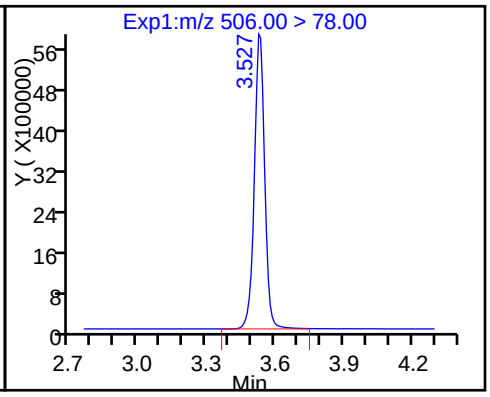
17 Perfluorooctane sulfonic acid (M)



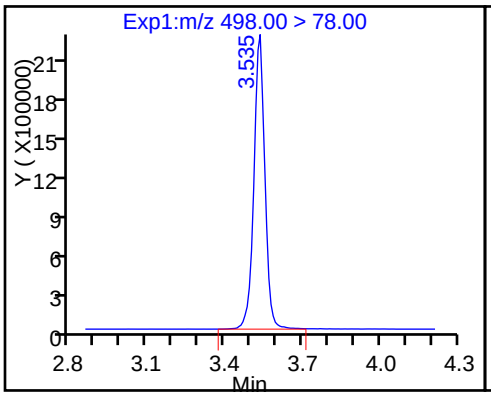
D 19 13C5 PFNA



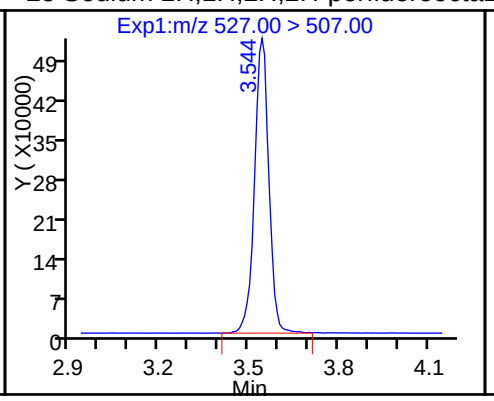
D 21 13C8 FOSA



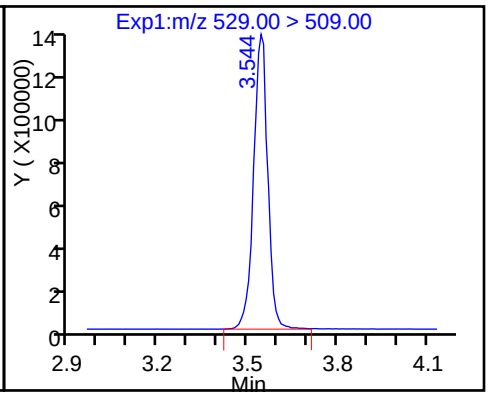
22 Perfluorooctane Sulfonamide



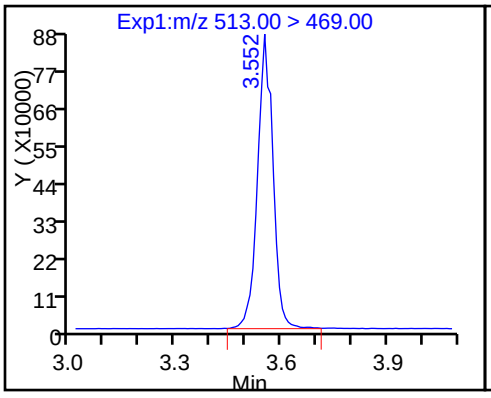
25 Sodium 1H,1H,2H,2H-perfluorooctane



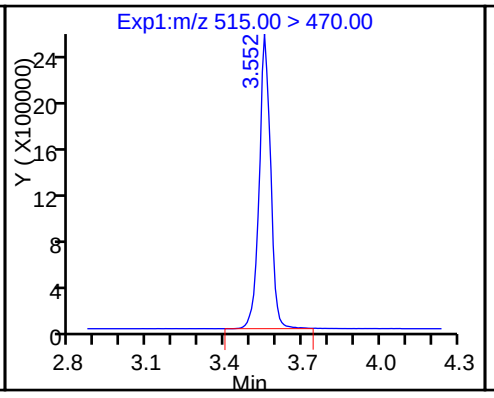
D 26 M2-8:2FTS



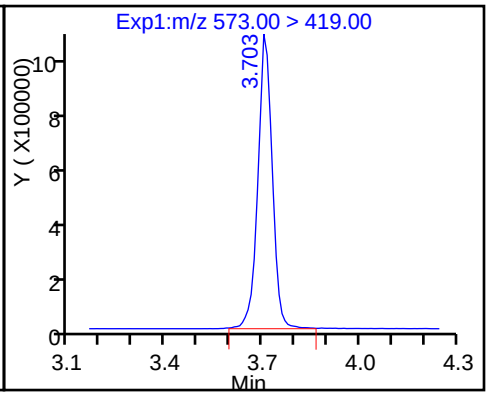
24 Perfluorodecanoic acid



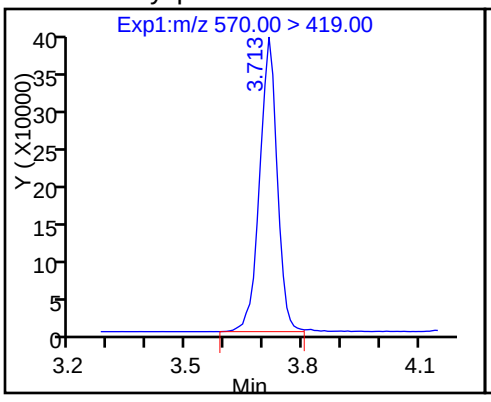
D 23 13C2 PFDA



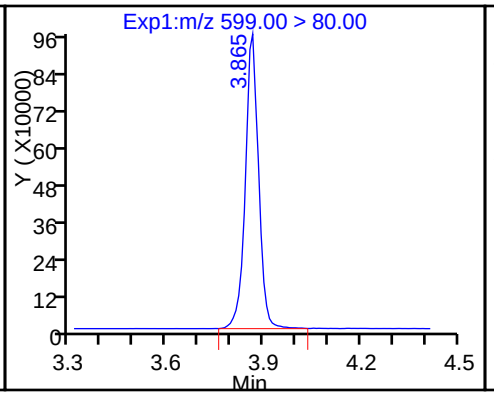
D 27 d3-NMeFOSAA



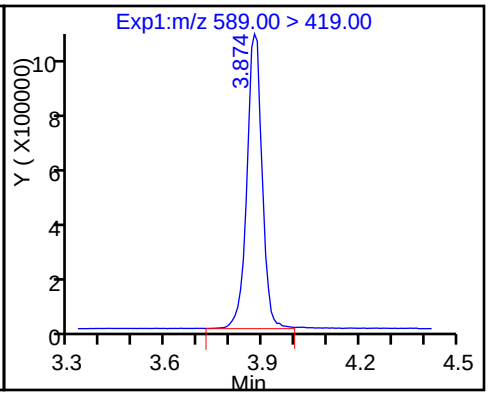
28 N-methyl perfluorooctane sulfonami



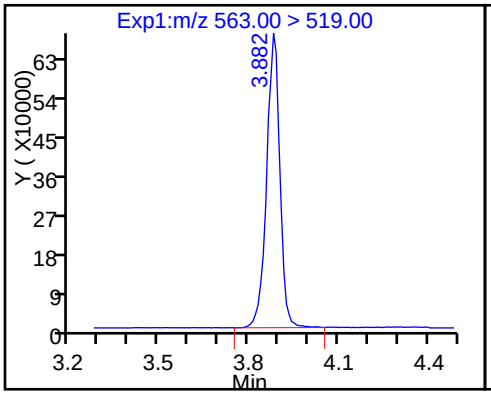
29 Perfluorodecane Sulfonic acid



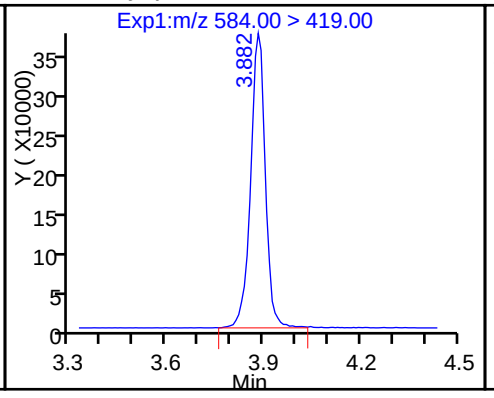
D 32 d5-NEtFOSAA



31 Perfluoroundecanoic acid



33 N-ethyl perfluorooctane sulfonamid



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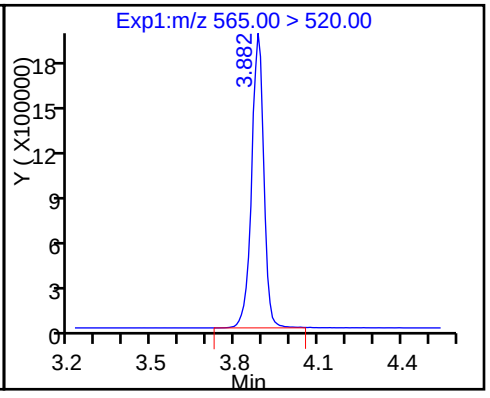
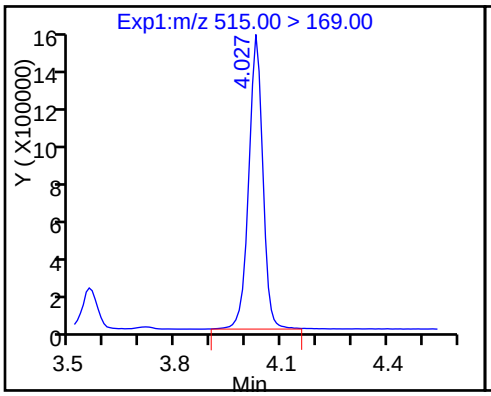
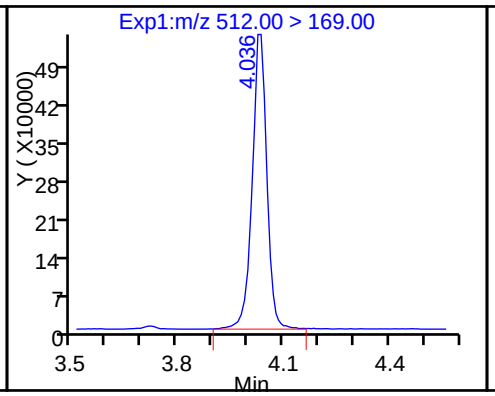


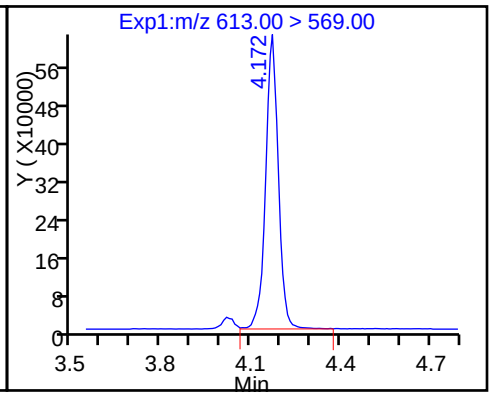
D 34 d-N-MeFOSA-M



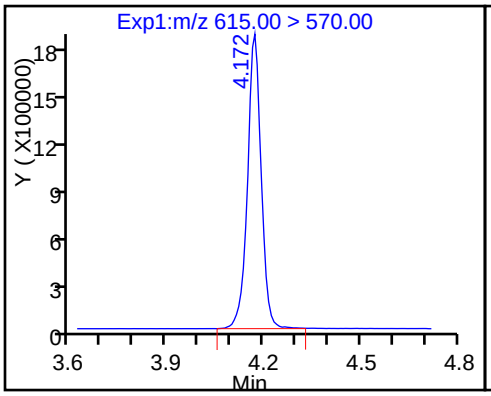
35 MeFOSA



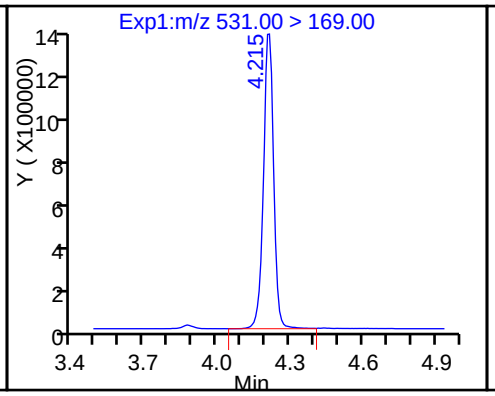
37 Perfluorododecanoic acid



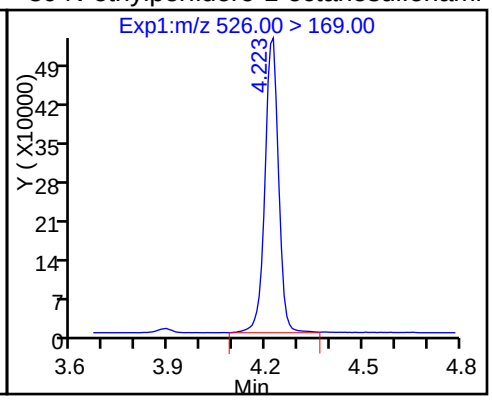
D 36 13C2 PFDoA



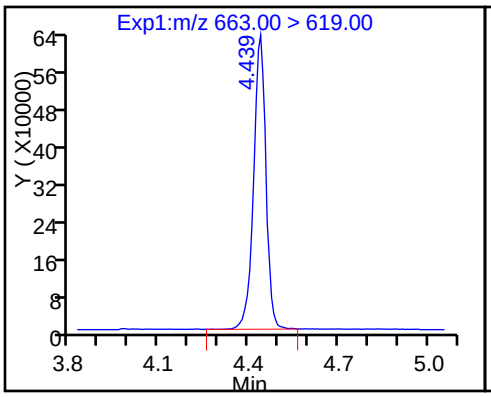
D 38 d-N-EtFOSA-M



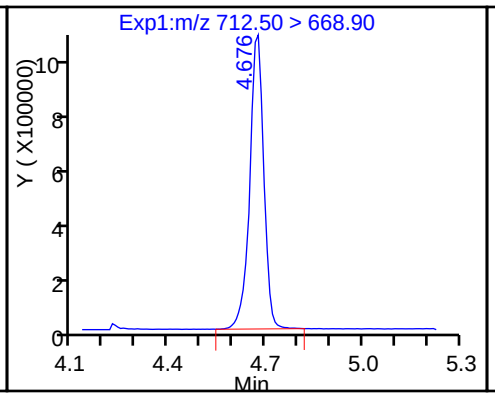
39 N-ethylperfluoro-1-octanesulfonami



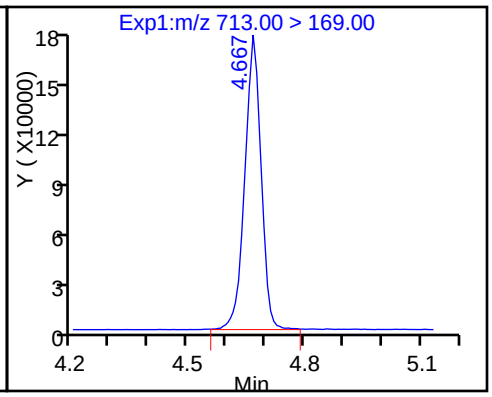
41 Perfluorotridecanoic acid



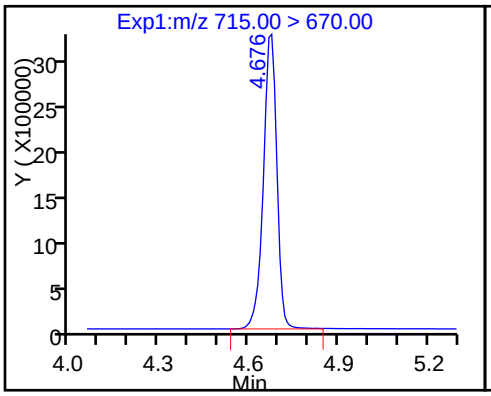
42 Perfluorotetradecanoic acid



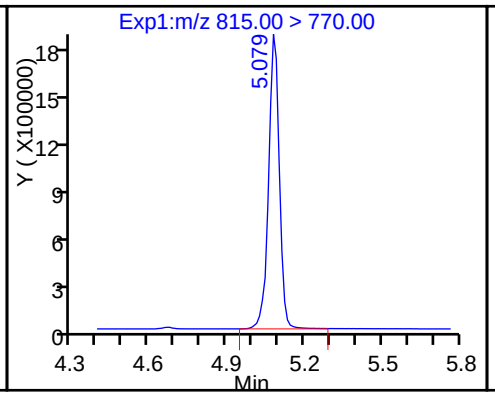
42 Perfluorotetradecanoic acid



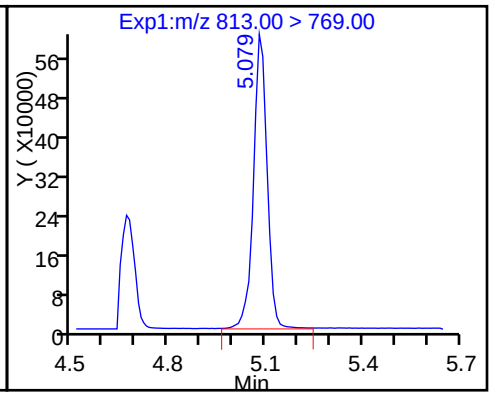
D 43 13C2-PFTeDA



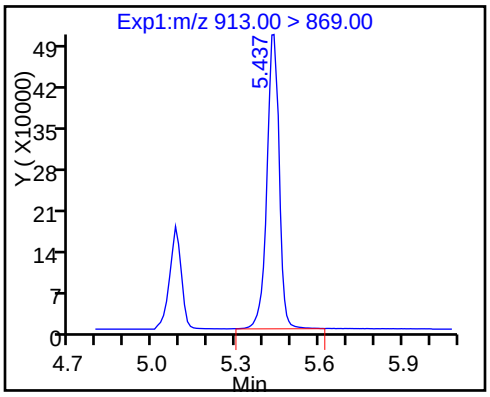
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

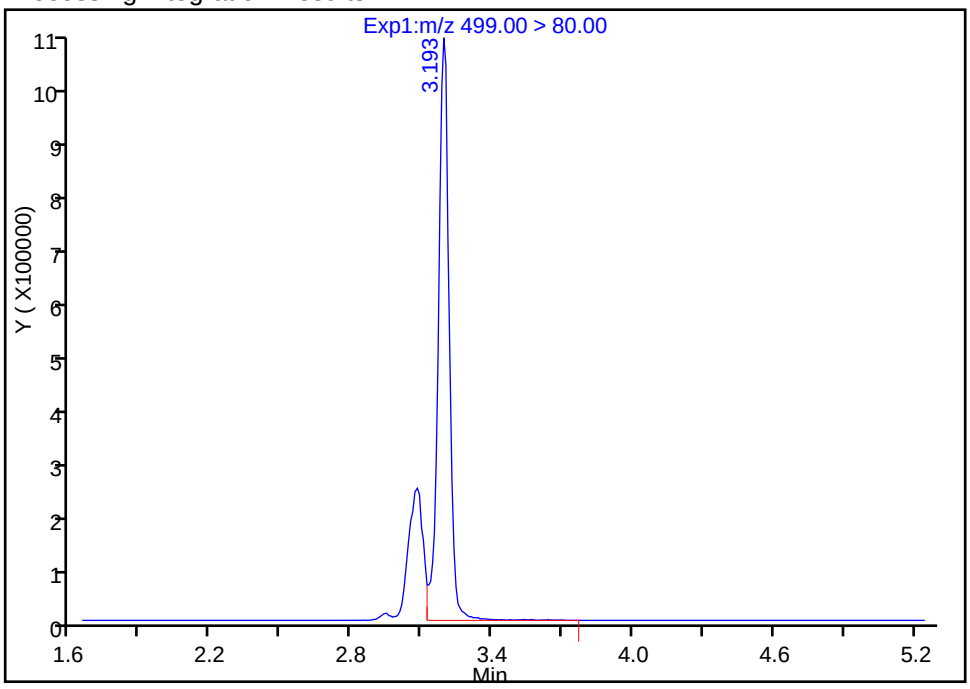
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_053.d
Injection Date: 13-Mar-2017 17:53:36 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

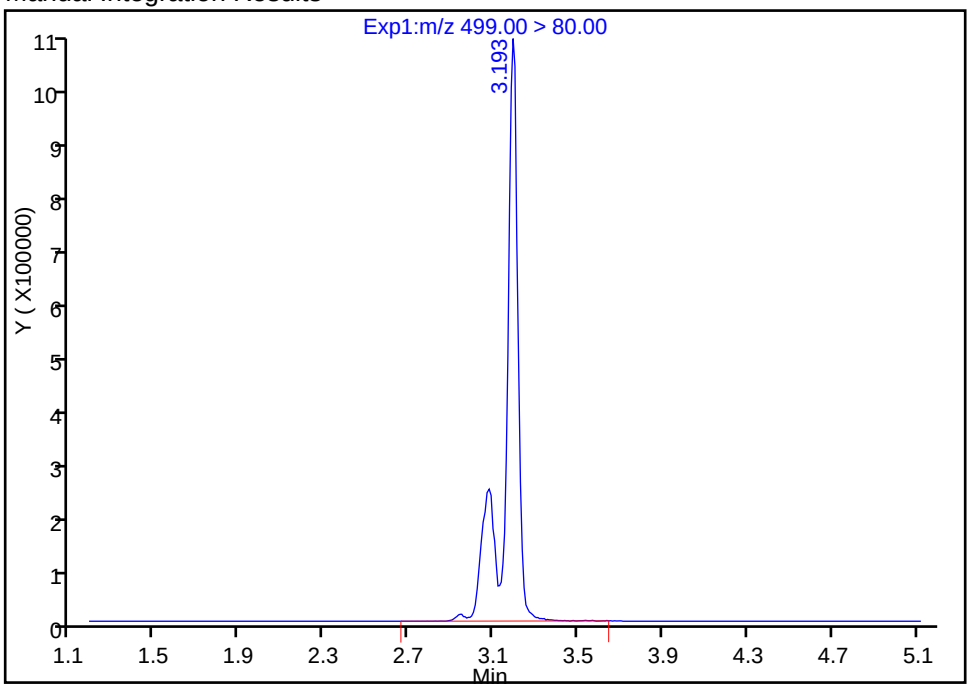
Processing Integration Results

RT: 3.19
Area: 3347821
Amount: 13.707626
Amount Units: ng/ml



Manual Integration Results

RT: 3.19
Area: 4371980
Amount: 17.901037
Amount Units: ng/ml



Reviewer: westendorfc, 14-Mar-2017 13:30:55
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

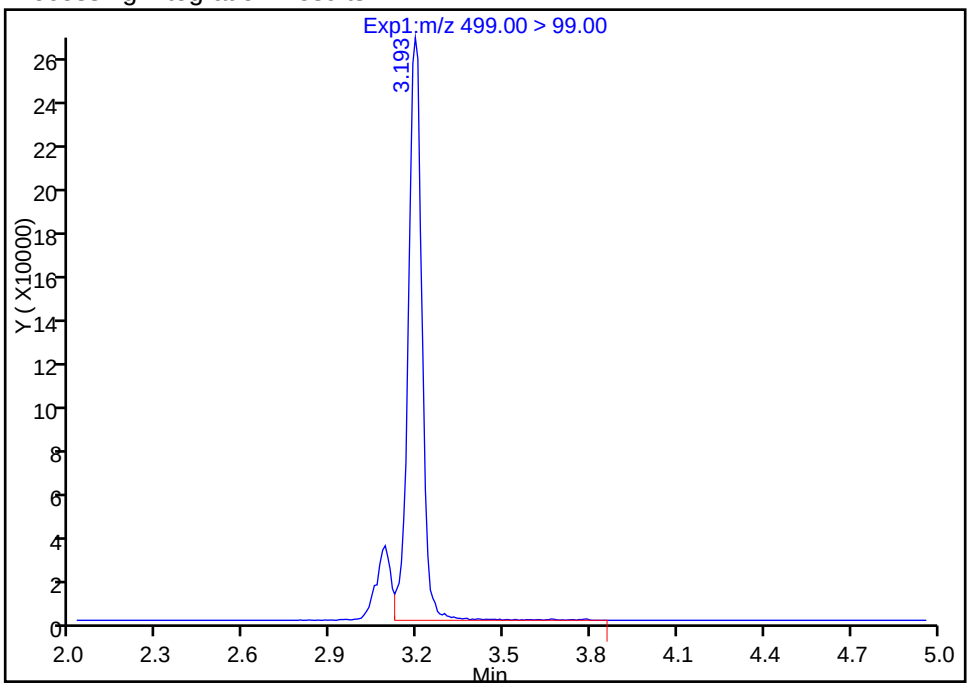
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_053.d
Injection Date: 13-Mar-2017 17:53:36 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

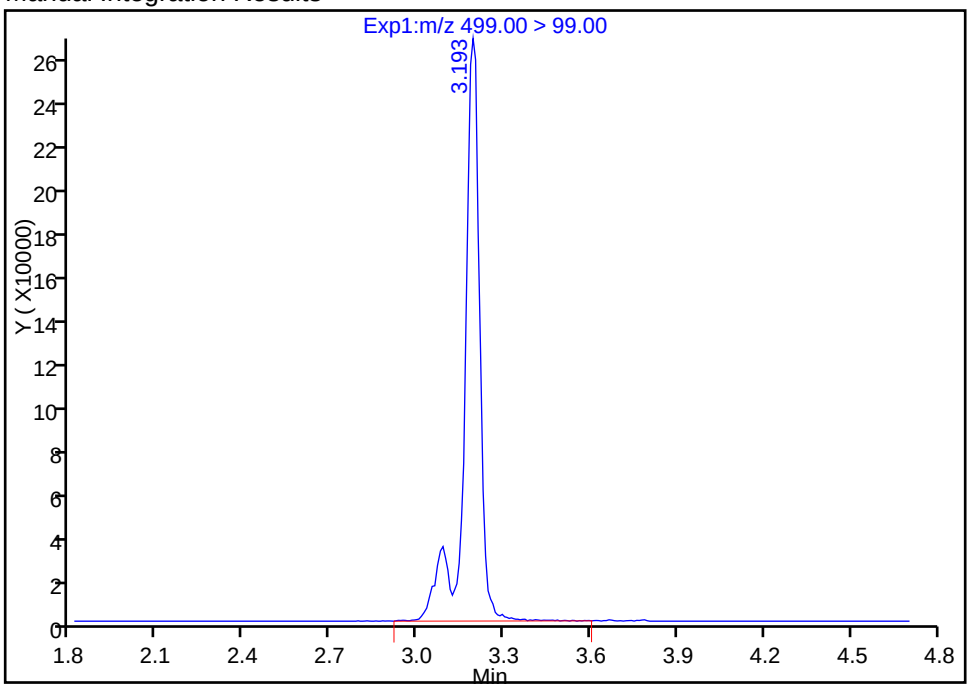
Processing Integration Results

RT: 3.19
Area: 867581
Amount: 13.707626
Amount Units: ng/ml



Manual Integration Results

RT: 3.19
Area: 978888
Amount: 17.901037
Amount Units: ng/ml



Reviewer: westendorfc, 14-Mar-2017 13:30:55
Audit Action: Manually Integrated Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-155009/3 Calibration Date: 03/14/2017 14:51

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.14A_017.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8741		51.6	50.0	3.2	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9901		50.6	50.0	1.2	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.487		45.9	44.2	3.8	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8965		50.4	50.0	0.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9902		51.2	50.0	2.4	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.021		45.2	45.5	-0.7	25.0
6:2FTS	L2ID		0.8792		46.9	47.4	-1.0	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.107		51.1	47.6	7.3	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.031		50.5	50.0	1.0	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.005		47.4	46.4	2.2	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9210		50.9	50.0	1.9	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9316		51.8	50.0	3.7	25.0
8:2FTS	L2ID		0.9156		47.4	47.9	-1.1	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9268		51.2	50.0	2.3	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9491		48.9	50.0	-2.3	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6295		50.9	48.2	5.7	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8432		46.3	50.0	-7.4	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9532		47.0	50.0	-6.0	25.0
MeFOSA	AveID	0.9355	0.9022		48.2	50.0	-3.6	25.0
N-EtFOSA-M	AveID	0.9837	0.9407		47.8	50.0	-4.4	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9110		49.8	50.0	-0.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8685		49.7	50.0	-0.6	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.684		42.8	50.0	-14.4	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9377		50.2	50.0	0.4	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.7441		51.9	50.0	3.7	25.0
13C4 PFBA	Ave	292242	308461		52.8	50.0	5.5	50.0
13C5-PFPeA	Ave	232192	236510		50.9	50.0	1.9	50.0
13C2 PFHxA	Ave	210884	220220		52.2	50.0	4.4	50.0
13C4-PFHpA	Ave	192959	195528		50.7	50.0	1.3	50.0
18O2 PFHxS	Ave	290899	299743		48.7	47.3	3.0	50.0
M2-6:2FTS	Ave	77178	84240		51.8	47.5	9.2	50.0

FORM VII 537 (Modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-155009/3 Calibration Date: 03/14/2017 14:51

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.14A_017.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	205057		50.0	50.0	0.0	50.0
13C4 PFOS	Ave	241637	241198		47.7	47.8	-0.2	50.0
13C5 PFNA	Ave	177866	179466		50.4	50.0	0.9	50.0
13C8 FOSA	Ave	366918	384001		52.3	50.0	4.7	50.0
M2-8:2FTS	Ave	92602	103092		53.3	47.9	11.3	50.0
13C2 PFDA	Ave	166704	173398		52.0	50.0	4.0	50.0
d3-NMeFOSAA	Ave	85186	77971		45.8	50.0	-8.5	50.0
d5-NEtFOSAA	Ave	81371	80885		49.7	50.0	-0.6	50.0
13C2 PFUnA	Ave	130805	125857		48.1	50.0	-3.8	50.0
d-N-MeFOSA-M	Ave	87983	84821		48.2	50.0	-3.6	50.0
d-N-EtFOSA-M	Ave	85249	79656		46.7	50.0	-6.6	50.0
13C2 PFDoA	Ave	123944	122973		49.6	50.0	-0.8	50.0
13C2-PFTeDA	Ave	259165	239374		46.2	50.0	-7.6	50.0
13C2-PFHxDA	Ave	125061	136288		54.5	50.0	9.0	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\2017.03.14A_017.d
Lims ID: CCV L5
Client ID:
Sample Type: CCV
Inject. Date: 14-Mar-2017 14:51:03 ALS Bottle#: 32 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub14

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 15-Mar-2017 11:36:28 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: phomsophat Date: 15-Mar-2017 10:35:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.547	1.547	0.0		15423036	52.8		106	806077	
2 Perfluorobutyric acid										
212.90 > 169.00	1.555	1.555	0.0	1.000	13480610	51.6		103	70844	
D 3 13C5-PFPeA										
267.90 > 223.00	1.833	1.833	0.0		11825520	50.9		102	578695	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.843	1.843	0.0	1.000	11708735	50.6		101	113245	
D 47 13C3-PFBS										
301.90 > 83.00	1.873	1.873	0.0		303802	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.883	1.883	0.0	1.000	19697042	45.9		104		
298.90 > 99.00	1.883	1.883	0.0	1.000	8447608		2.33(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.149	2.149	0.0		11011019	52.2		104	626535	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.149	2.149	0.0	1.000	9871777	50.4		101	295294	
D 9 13C4-PFHpA										
367.00 > 322.00	2.494	2.494	0.0		9776411	50.7		101	274093	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.494	2.494	0.0	1.000	9680217	51.2		102	130738	
D 11 18O2 PFHxS										
403.00 > 84.00	2.517	2.517	0.0		14177833	48.7		103	373343	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.517	2.517	0.0	1.000	13921547	45.2		99.3		
D 12 M2-6:2FTS										
429.00 > 409.00	2.845	2.845	0.0		4001398	51.8		109		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.845	2.845	0.0	1.000	3510795	46.9		99.0		
D 14 13C4 PFOA										
417.00 > 372.00	2.868	2.868	0.0		10252866	50.0		100	304067	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.876	2.876	0.0	1.000	10575726	50.5		101	167546	
413.00 > 169.00	2.876	2.876	0.0	1.000	6185949		1.71(0.90-1.10)		203541	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.876	2.876	0.0	1.000	12703692	51.1		107		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.222	3.222	0.0	1.000	11252285	47.4		102	192103	
499.00 > 99.00	3.248	3.222	0.026	1.008	2449929		4.59(0.90-1.10)		6476	
D 18 13C4 PFOS										
503.00 > 80.00	3.248	3.248	0.0		11529258	47.7		99.8	211875	
D 19 13C5 PFNA										
468.00 > 423.00	3.257	3.257	0.0		8973297	50.4		101	296277	
20 Perfluorononanoic acid										
463.00 > 419.00	3.257	3.257	0.0	1.000	8264507	50.9		102	132404	
D 21 13C8 FOSA										
506.00 > 78.00	3.548	3.548	0.0		19200070	52.3		105	465184	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.548	3.548	0.0	1.000	17885927	51.8		104	354996	
D 26 M2-8:2FTS										
529.00 > 509.00	3.598	3.598	0.0		4938112	53.3		111		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.598	3.598	0.0	1.000	4521245	47.4		98.9		
D 23 13C2 PFDA										
515.00 > 470.00	3.615	3.615	0.0		8669922	52.0		104	160233	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.615	3.615	0.0	1.000	8034891	51.2		102	203614	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.771	3.771	0.0		3898554	45.8		91.5		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.782	3.782	0.0	1.003	3700028	48.9		97.7		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.931	3.931	0.0	1.000	7318557	50.9		106		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.939	3.939	0.0		4044260	49.7		99.4		
D 30 13C2 PFUnA										
565.00 > 520.00	3.948	3.948	0.0		6292871	48.1		96.2	224590	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.948	3.948	0.0	1.002	3409979	46.3		92.6		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.948	3.948	0.0	1.000	5998451	47.0		94.0	111564	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.022	4.022	0.0		4241048	48.2		96.4		
35 MeFOSA										
512.00 > 169.00	4.022	4.022	0.0	1.000	3826368	48.2		96.4		

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	4.205	4.205	0.0		3982808	46.7		93.4		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.213	4.213	0.0	1.000	3746797	47.8		95.6		
D 36 13C2 PFDoA										
615.00 > 570.00	4.241	4.241	0.0		6148628	49.6		99.2	166491	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.241	4.241	0.0	1.000	5601365	49.8		99.6	33290	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.514	4.514	0.0	1.000	5340193	49.7		99.4	20362	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.757	4.757	0.0		11968681	46.2		92.4	389085	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.757	4.757	0.0	1.000	10352634	42.8		85.6	4828	
713.00 > 169.00	4.749	4.757	-0.008	0.998	1554213		6.66(0.00-0.00)		168419	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.183	5.183	0.0		6814386	54.5		109	126458	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.183	5.183	0.0	1.000	5765236	50.2		100	5146	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.567	5.567	0.0	1.000	4575218	51.9		104	4172	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_FULL-L5_00001 Amount Added: 1.00 Units: mL

Report Date: 15-Mar-2017 11:36:29 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\2017.03.14A_017.d

Injection Date: 14-Mar-2017 14:51:03 Instrument ID: A8_N

Lims ID: CCV L5

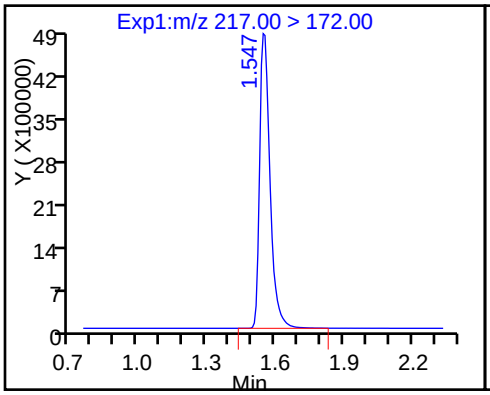
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 3

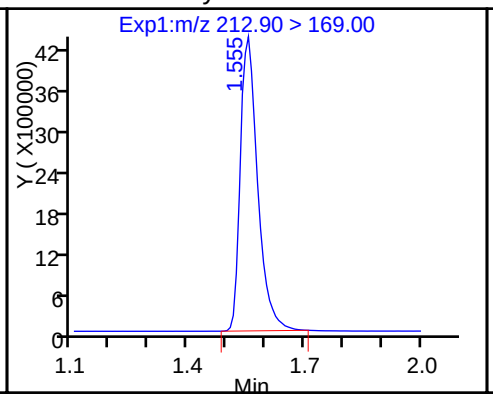
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

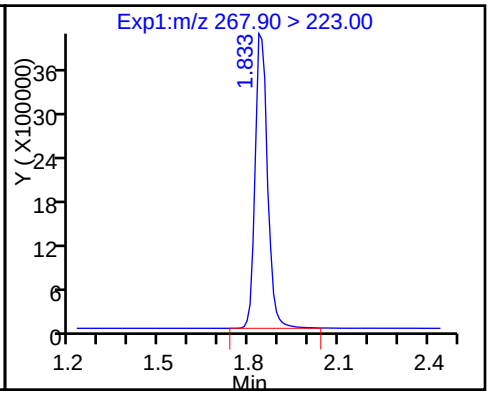
D 1 13C4 PFBA



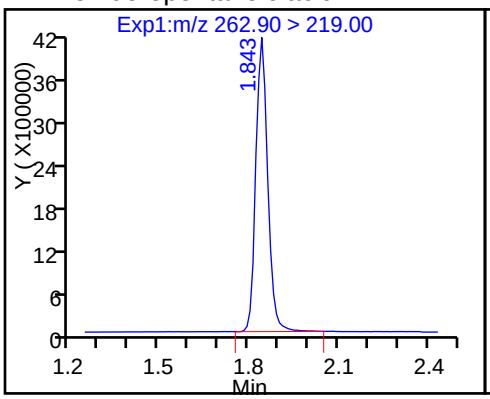
2 Perfluorobutyric acid



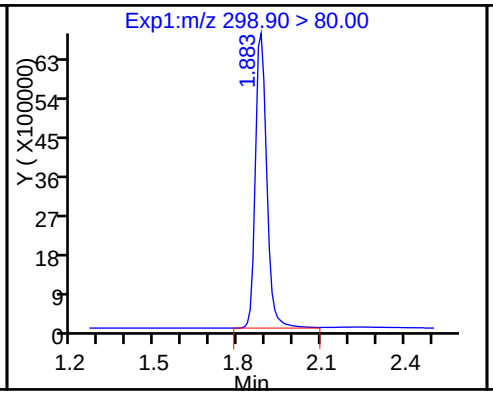
D 3 13C5-PFPeA



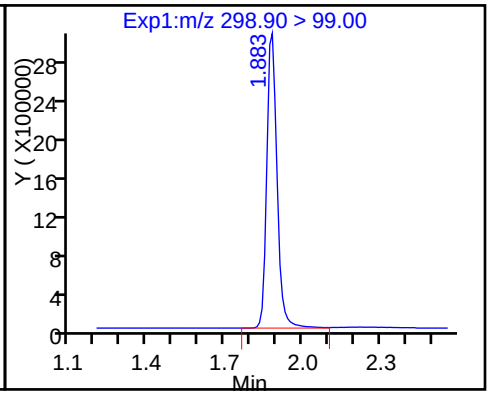
4 Perfluoropentanoic acid



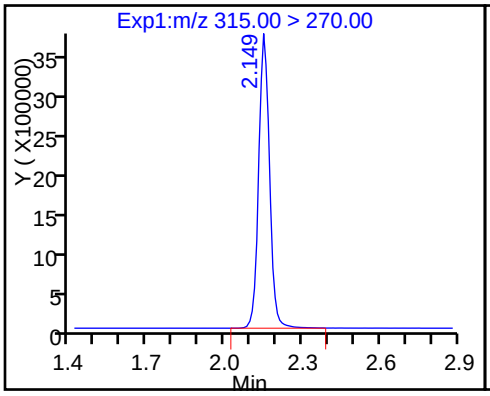
5 Perfluorobutanesulfonic acid



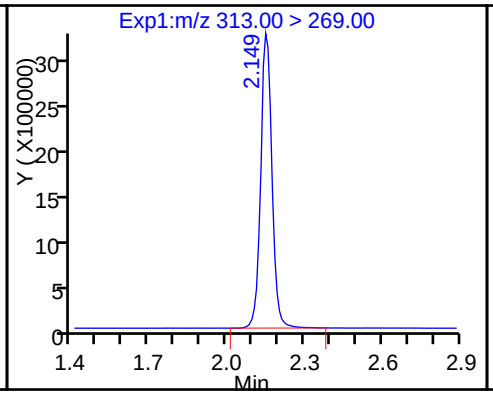
5 Perfluorobutanesulfonic acid



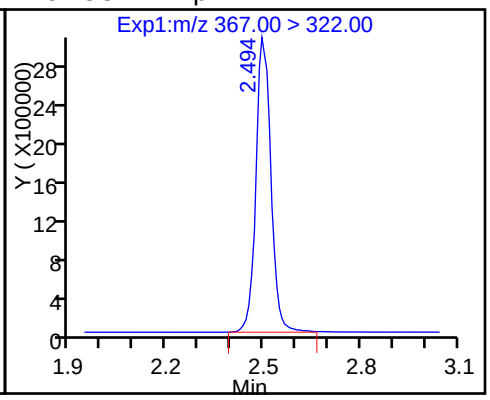
D 7 13C2 PFHxA



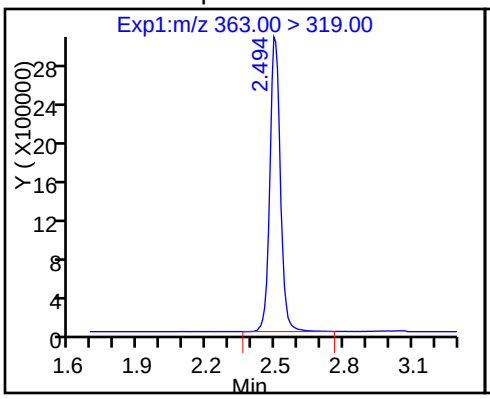
6 Perfluorohexanoic acid



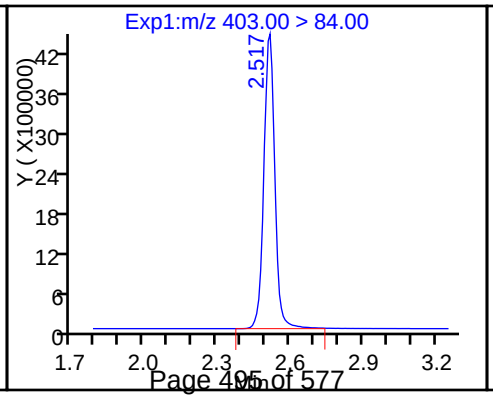
D 9 13C4-PFHpA



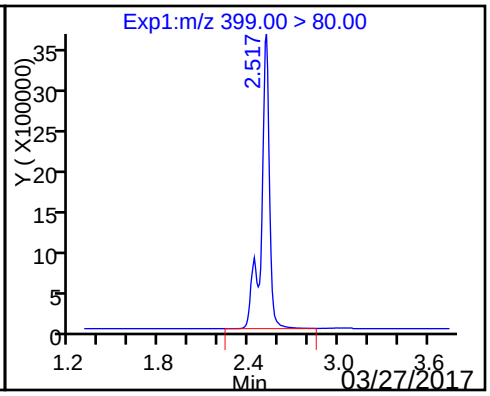
10 Perfluoroheptanoic acid



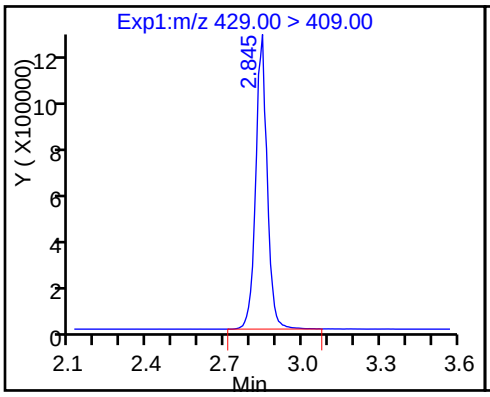
D 11 18O2 PFHxS



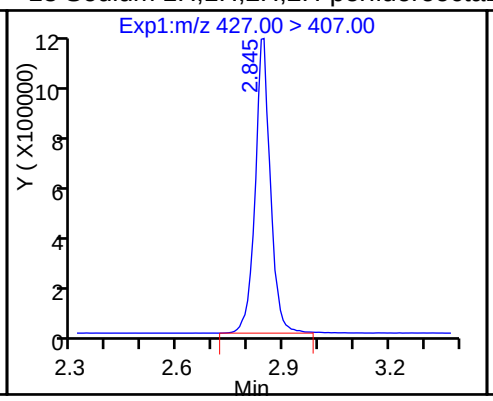
8 Perfluorohexanesulfonic acid



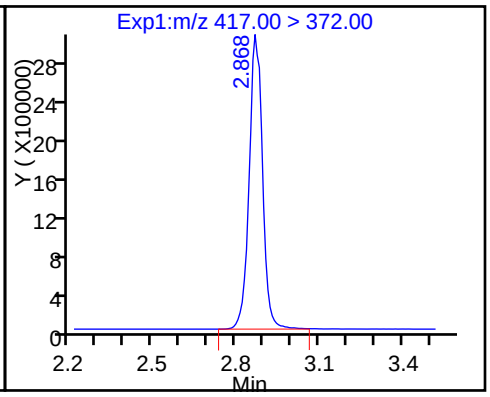
D 12 M2-6:2FTS



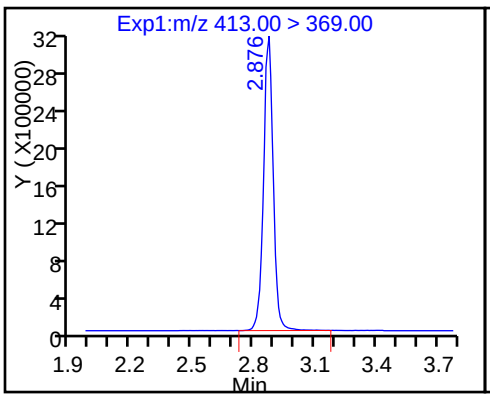
13 Sodium 1H,1H,2H,2H-perfluorooctane



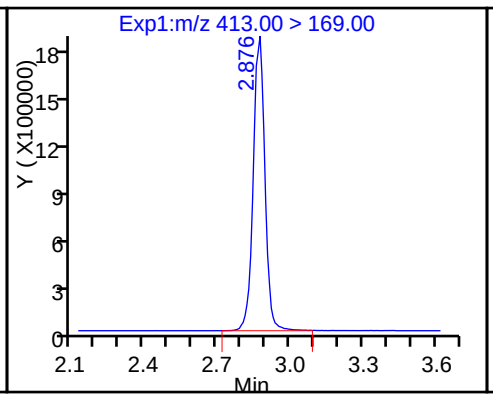
D 14 13C4 PFOA



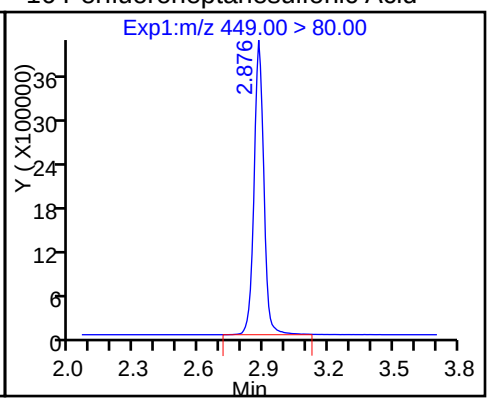
15 Perfluorooctanoic acid



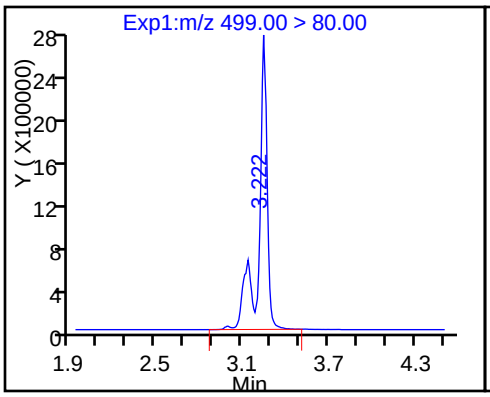
15 Perfluorooctanoic acid



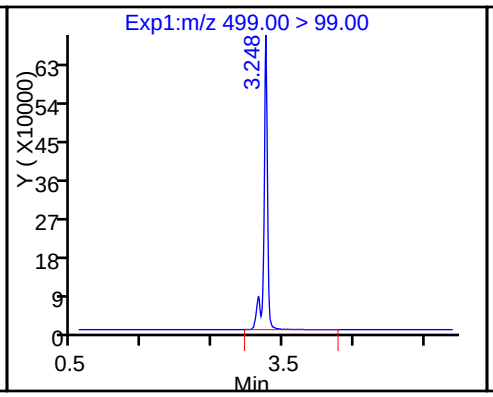
16 Perfluoroheptanesulfonic Acid



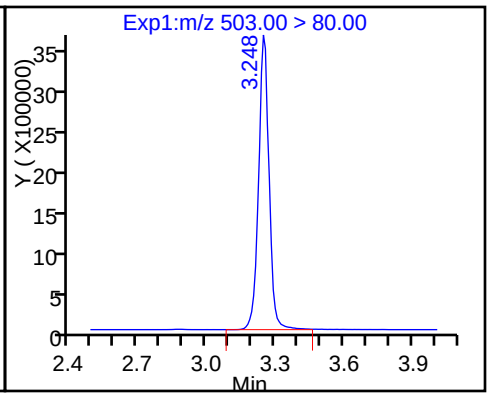
17 Perfluorooctane sulfonic acid



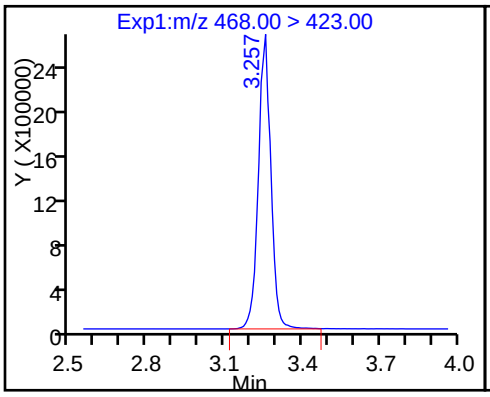
17 Perfluorooctane sulfonic acid



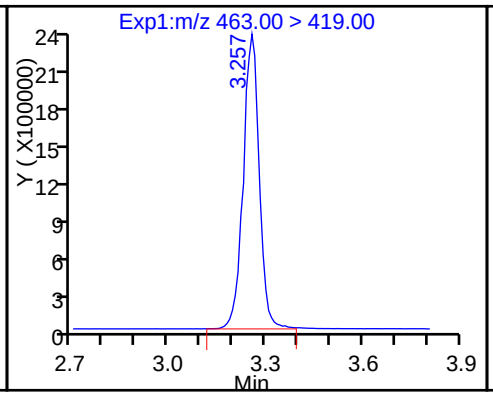
D 18 13C4 PFOS



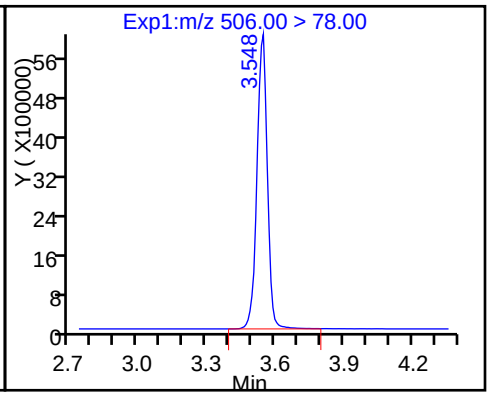
D 19 13C5 PFNA



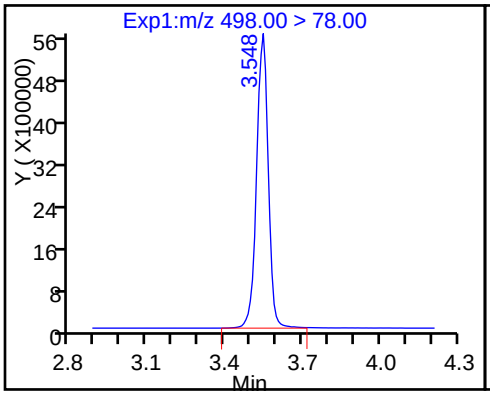
20 Perfluorononanoic acid



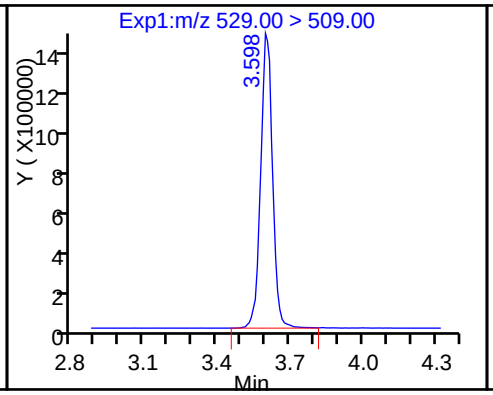
D 21 13C8 FOSA



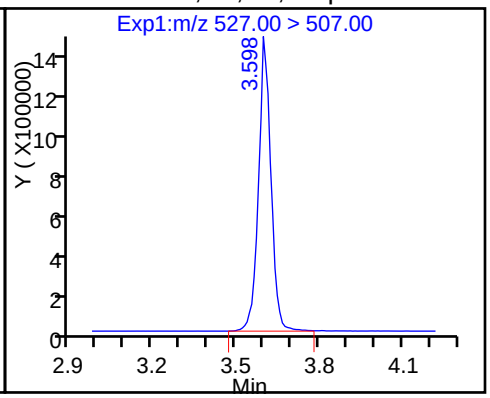
22 Perfluorooctane Sulfonamide



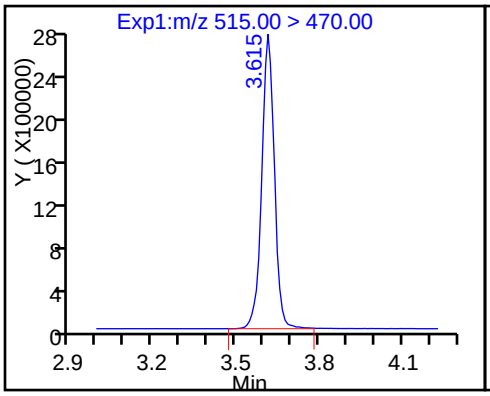
D 26 M2-8:2FTS



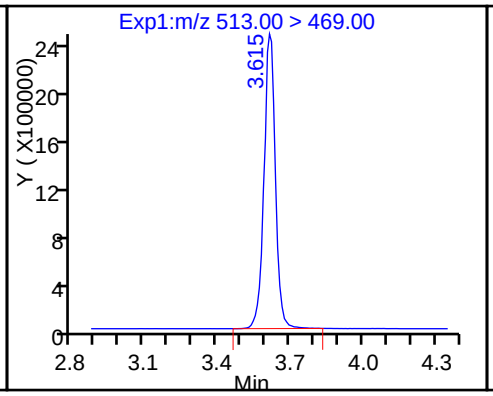
25 Sodium 1H,1H,2H,2H-perfluorooctane



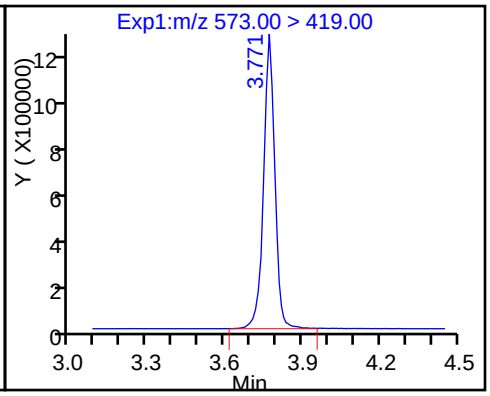
D 23 13C2 PFDA



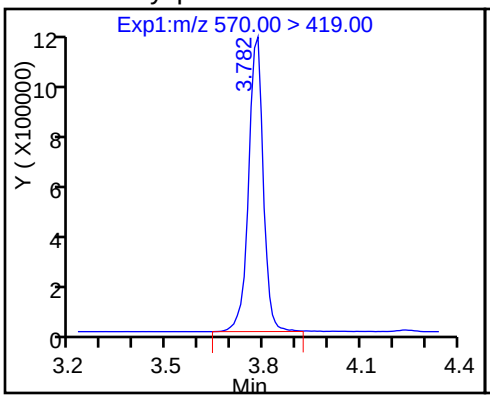
24 Perfluorodecanoic acid



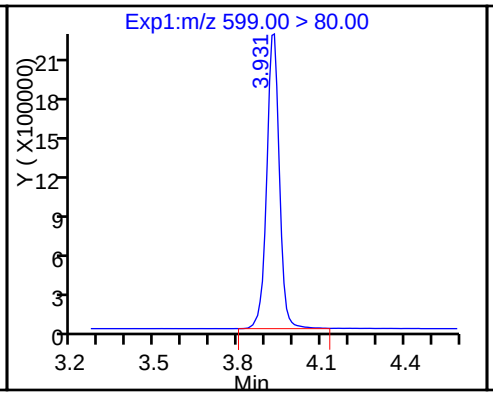
D 27 d3-NMeFOSAA



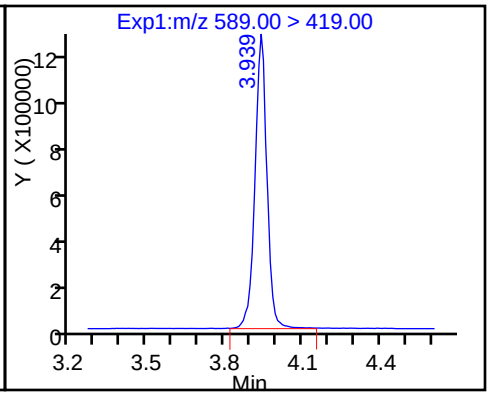
28 N-methyl perfluorooctane sulfonami



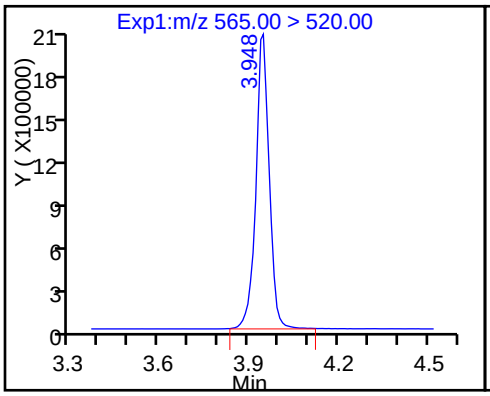
29 Perfluorodecane Sulfonic acid



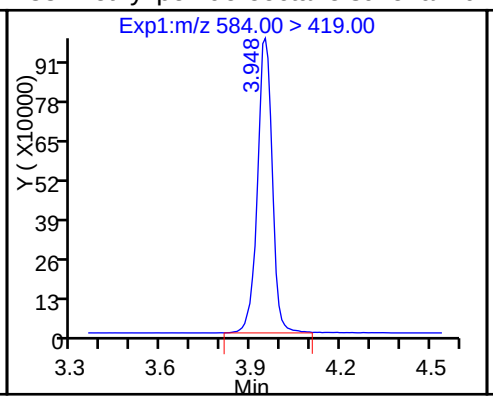
D 32 d5-NEtFOSAA



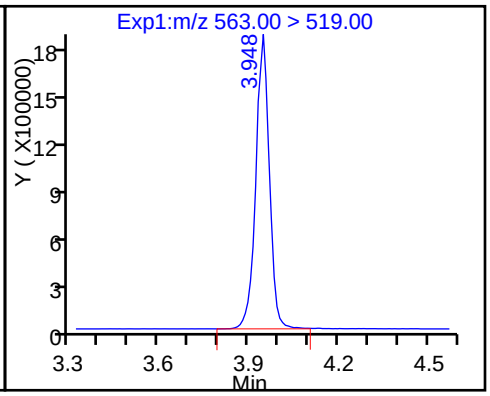
D 30 13C2 PFUnA



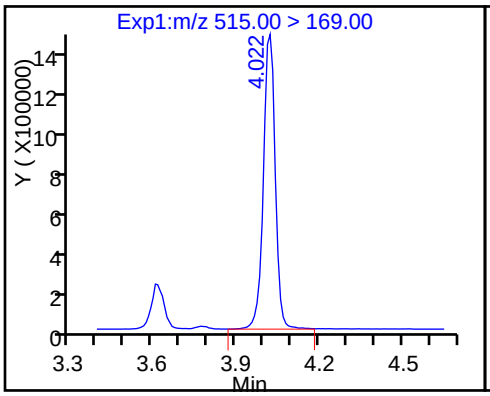
33 N-ethyl perfluorooctane sulfonamid



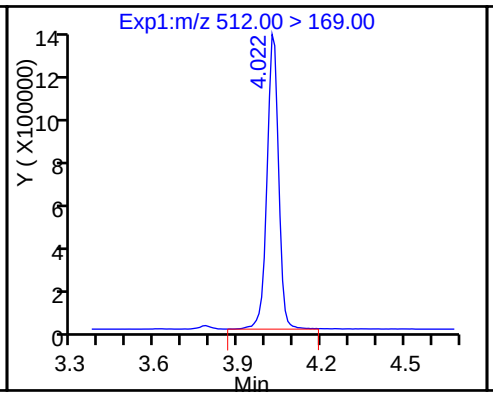
31 Perfluoroundecanoic acid



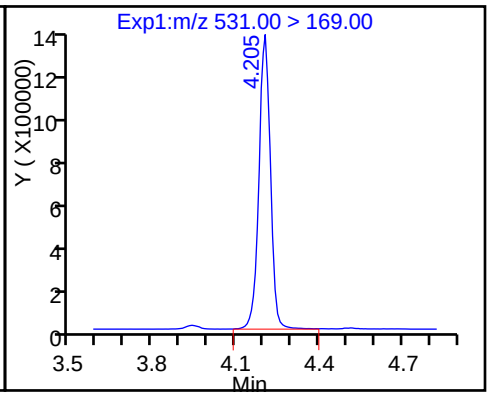
D 34 d-N-MeFOSA-M



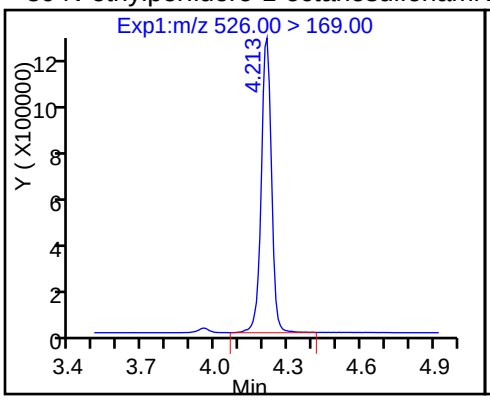
35 MeFOSA



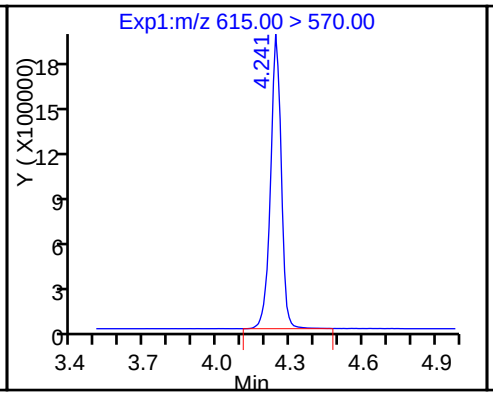
D 38 d-N-EtFOSA-M



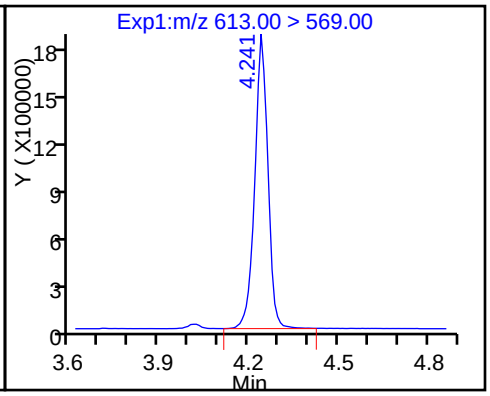
39 N-ethylperfluoro-1-octanesulfonami



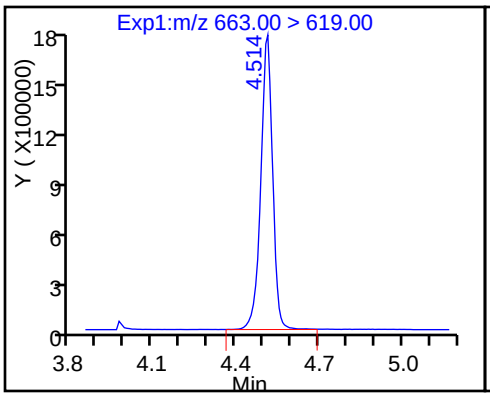
D 36 13C2 PFDoA



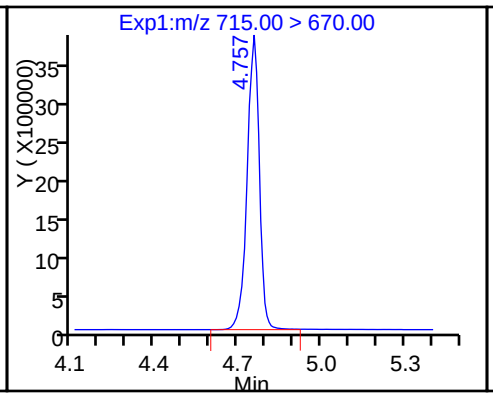
37 Perfluorododecanoic acid



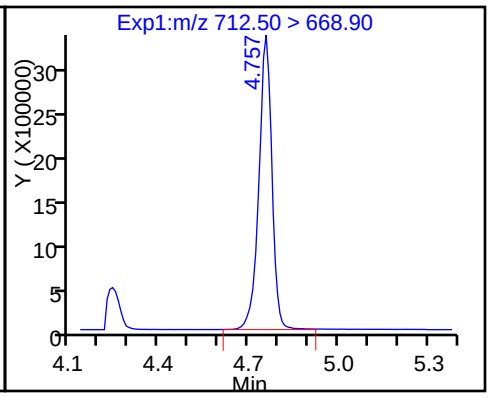
41 Perfluorotridecanoic acid



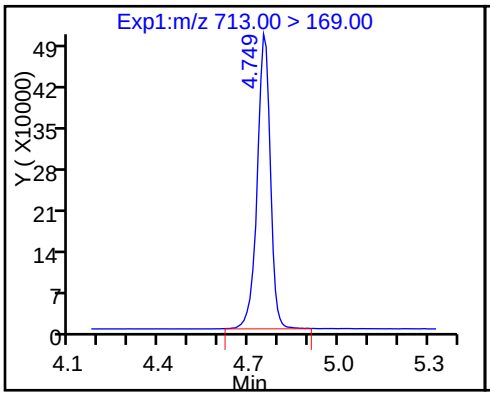
D 43 13C2-PFTeDA



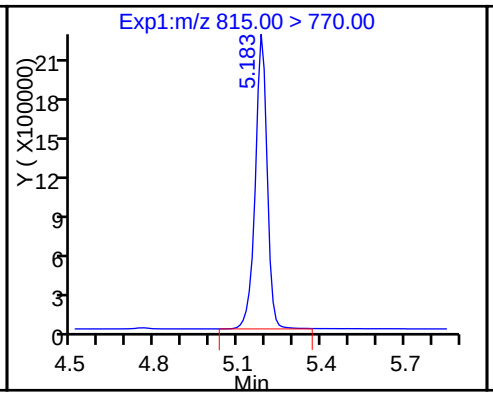
42 Perfluorotetradecanoic acid



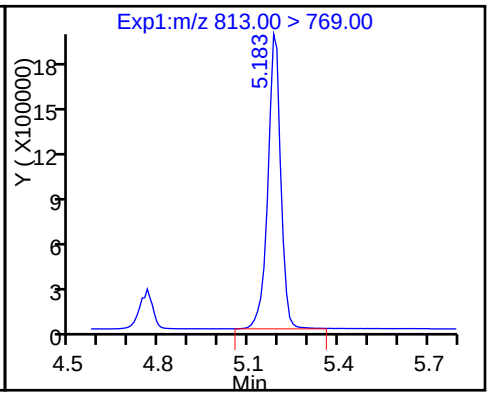
42 Perfluorotetradecanoic acid



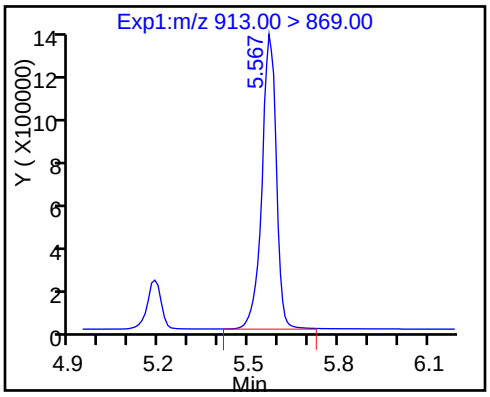
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-155009/7 Calibration Date: 03/14/2017 15:21

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.14A_021.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8548		20.2	20.0	0.9	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9469		19.4	20.0	-3.2	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.414		17.4	17.7	-1.3	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8555		19.2	20.0	-3.8	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9186		19.0	20.0	-5.0	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	0.9731		17.2	18.2	-5.4	25.0
6:2FTS	L2ID		0.9174		19.5	19.0	2.8	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	0.9779		19.1	20.0	-4.3	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.051		19.4	19.0	2.0	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9280		17.5	18.6	-5.6	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9016		19.9	20.0	-0.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9074		20.2	20.0	1.0	25.0
8:2FTS	L2ID		0.9944		20.5	19.2	7.2	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8701		19.2	20.0	-3.9	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9535		19.6	20.0	-1.8	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5900		19.1	19.3	-1.0	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8730		19.2	20.0	-4.1	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.8668		17.1	20.0	-14.5	25.0
MeFOSA	AveID	0.9355	0.9142		19.5	20.0	-2.3	25.0
N-EtFOSA-M	AveID	0.9837	0.9731		19.8	20.0	-1.1	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.8823		19.3	20.0	-3.5	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8239		18.9	20.0	-5.7	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.631		16.6	20.0	-17.1	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.8681		18.4	20.0	-8.2	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.7167		20.0	20.0	-0.1	25.0
13C4 PFBA	Ave	292242	320977		54.9	50.0	9.8	50.0
13C5-PFPeA	Ave	232192	243609		52.5	50.0	4.9	50.0
13C2 PFHxA	Ave	210884	229980		54.5	50.0	9.1	50.0
13C4-PFHpA	Ave	192959	206974		53.6	50.0	7.3	50.0
18O2 PFHxS	Ave	290899	317681		51.7	47.3	9.2	50.0
M2-6:2FTS	Ave	77178	91083		56.1	47.5	18.0	50.0

FORM VII 537 (Modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Lab Sample ID: CCV 320-155009/7 Calibration Date: 03/14/2017 15:21

Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 03/01/2017 11:46

Lab File ID: 2017.03.14A_021.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	217798		53.1	50.0	6.3	50.0
13C4 PFOS	Ave	241637	255728		50.6	47.8	5.8	50.0
13C5 PFNA	Ave	177866	184562		51.9	50.0	3.8	50.0
13C8 FOSA	Ave	366918	399428		54.4	50.0	8.9	50.0
M2-8:2FTS	Ave	92602	102822		53.2	47.9	11.0	50.0
13C2 PFDA	Ave	166704	175771		52.7	50.0	5.4	50.0
d3-NMeFOSAA	Ave	85186	80071		47.0	50.0	-6.0	50.0
d5-NEtFOSAA	Ave	81371	84383		51.9	50.0	3.7	50.0
13C2 PFUnA	Ave	130805	132483		50.6	50.0	1.3	50.0
d-N-MeFOSA-M	Ave	87983	87617		49.8	50.0	-0.4	50.0
d-N-EtFOSA-M	Ave	85249	81147		47.6	50.0	-4.8	50.0
13C2 PFDoA	Ave	123944	123061		49.6	50.0	-0.7	50.0
13C2-PFTeDA	Ave	259165	240315		46.4	50.0	-7.3	50.0
13C2-PFHxDA	Ave	125061	127747		51.1	50.0	2.1	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\2017.03.14A_021.d
Lims ID: CCV L4
Client ID:
Sample Type: CCV
Inject. Date: 14-Mar-2017 15:21:04 ALS Bottle#: 31 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: A8-PC\A8 Instrument ID: A8_N
Sublist: chrom-A8_N*sub14

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 15-Mar-2017 11:36:37 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: westendorfc Date: 15-Mar-2017 11:36:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.539	1.539	0.0		16048865	54.9		110	839739	
2 Perfluorobutyric acid										
212.90 > 169.00	1.547	1.547	0.0	1.000	5487328	20.2		101	26697	
D 3 13C5-PFPeA										
267.90 > 223.00	1.832	1.832	0.0		12180432	52.5		105	613977	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.832	1.832	0.0	1.000	4613498	19.4		96.8	47510	
D 47 13C3-PFBS										
301.90 > 83.00	1.872	1.872	0.0		299619	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.872	1.872	0.0	1.000	7939419	17.4		98.7		
298.90 > 99.00	1.872	1.872	0.0	1.000	3208239		2.47(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.133	2.133	0.0		11498984	54.5		109	444900	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.133	2.133	0.0	1.000	3935053	19.2		96.2	95252	
D 9 13C4-PFHpA										
367.00 > 322.00	2.479	2.479	0.0		10348698	53.6		107	557443	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.479	2.479	0.0	1.000	3802303	19.0		95.0	47769	
D 11 18O2 PFHxS										
403.00 > 84.00	2.494	2.494	0.0		15026329	51.7		109	321272	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.494	2.494	0.0	1.000	5626066	17.2		94.6		
D 12 M2-6:2FTS										
429.00 > 409.00	2.814	2.814	0.0		4326450	56.1		118		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.814	2.814	0.0	1.000	1584339	19.5		103		
D 14 13C4 PFOA										
417.00 > 372.00	2.845	2.845	0.0		10889913	53.1		106	251974	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.845	2.845	0.0	1.000	4259682	19.1		95.7	51042	
413.00 > 169.00	2.853	2.845	0.008	1.003	2463034		1.73(0.90-1.10)		68319	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.853	2.853	0.0	1.000	5118512	19.4		102		
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.222	3.222	0.0	1.000	4404572	17.5		94.4	519300	M
499.00 > 99.00	3.222	3.222	0.0	1.000	969207		4.54(0.90-1.10)		132338	
D 18 13C4 PFOS										
503.00 > 80.00	3.222	3.222	0.0		12223820	50.6		106	254385	
D 19 13C5 PFNA										
468.00 > 423.00	3.222	3.222	0.0		9228078	51.9		104	276695	
20 Perfluorononanoic acid										
463.00 > 419.00	3.231	3.231	0.0	1.000	3328047	19.9		99.7	62651	
D 21 13C8 FOSA										
506.00 > 78.00	3.532	3.532	0.0		19971415	54.4		109	391525	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.532	3.532	0.0	1.000	7248737	20.2		101	316487	
D 26 M2-8:2FTS										
529.00 > 509.00	3.574	3.574	0.0		4925178	53.2		111		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.574	3.574	0.0	1.000	1958997	20.5		107		
D 23 13C2 PFDA										
515.00 > 470.00	3.590	3.590	0.0		8788556	52.7		105	170145	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.590	3.590	0.0	1.000	3058630	19.2		96.1	111475	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.740	3.740	0.0		4003573	47.0		94.0		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.750	3.750	0.0	1.003	1526968	19.6		98.2		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.891	3.891	0.0	1.000	2908954	19.1		99.0		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.908	3.908	0.0		4219127	51.9		104		
D 30 13C2 PFUnA										
565.00 > 520.00	3.917	3.917	0.0		6624140	50.6		101	274587	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.917	3.917	0.0	1.002	1473362	19.2		95.9		
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.917	3.917	0.0	1.000	2296653	17.1		85.5	80252	
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.016	4.016	0.0		4380830	49.8		99.6		
35 MeFOSA										
512.00 > 169.00	4.026	4.026	0.0	1.000	1601945	19.5		97.7		

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	4.197	4.197	0.0		4057352	47.6		95.2		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.204	4.204	0.0	1.000	1579278	19.8		98.9		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.212	4.212	0.0	1.000	2171410	19.3		96.5	14722	
D 36 13C2 PFDoA										
615.00 > 570.00	4.212	4.212	0.0		6153055	49.6		99.3	149656	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.479	4.479	0.0	1.000	2027711	18.9		94.3	28395	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.716	4.716	0.0		12015743	46.4		92.7	413066	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.724	4.724	0.0	1.000	4013199	16.6		82.9	2008	
713.00 > 169.00	4.716	4.724	-0.008	0.998	604611		6.64(0.00-0.00)		102681	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.137	5.137	0.0		6387350	51.1		102	113899	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.137	5.137	0.0	1.000	2136611	18.4		91.8	1910	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.520	5.520	0.0	1.000	1764056	20.0		99.9	1653	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L4_00001 Amount Added: 1.00 Units: mL

Report Date: 15-Mar-2017 11:36:37 Chrom Revision: 2.2 13-Mar-2017 15:50:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\2017.03.14A_021.d

Injection Date: 14-Mar-2017 15:21:04 Instrument ID: A8_N

Lims ID: CCV L4

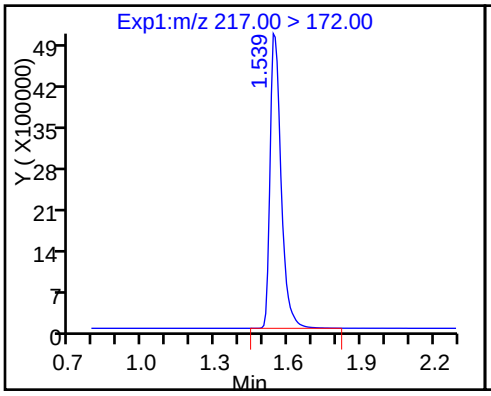
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 7

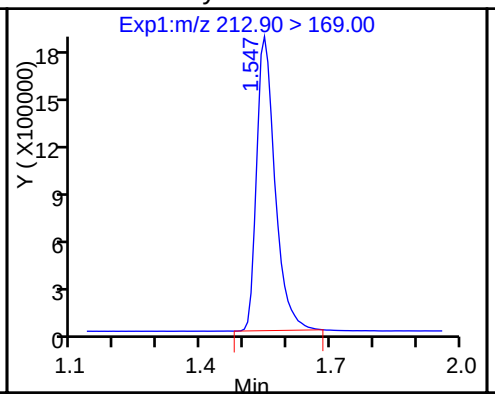
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

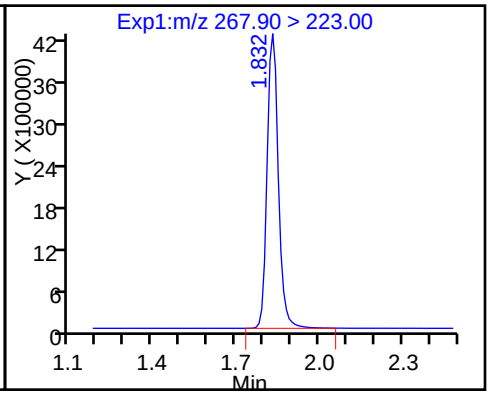
D 1 13C4 PFBA



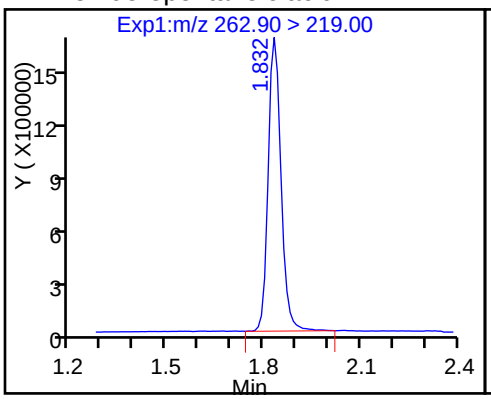
2 Perfluorobutyric acid



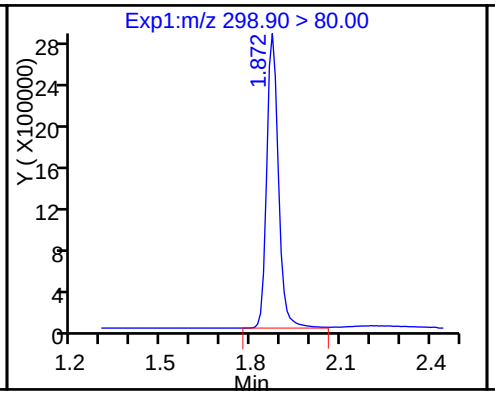
D 3 13C5-PFPeA



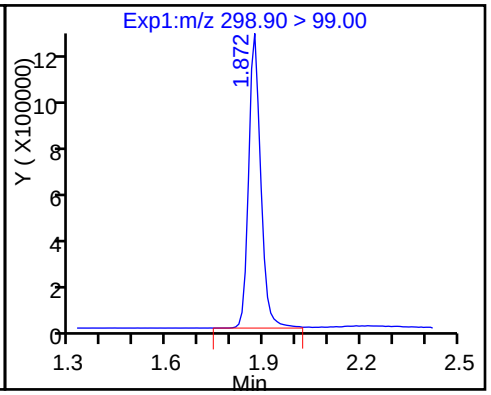
4 Perfluoropentanoic acid



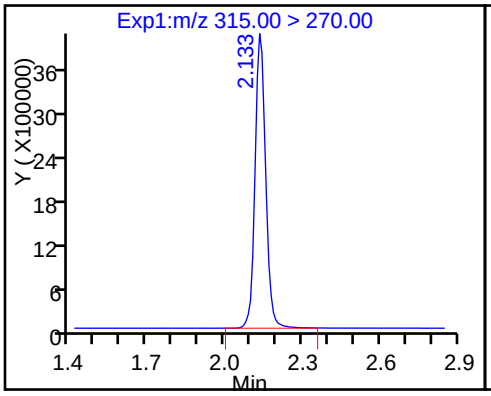
5 Perfluorobutanesulfonic acid



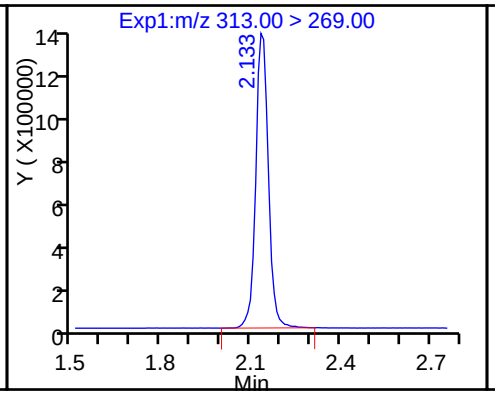
5 Perfluorobutanesulfonic acid



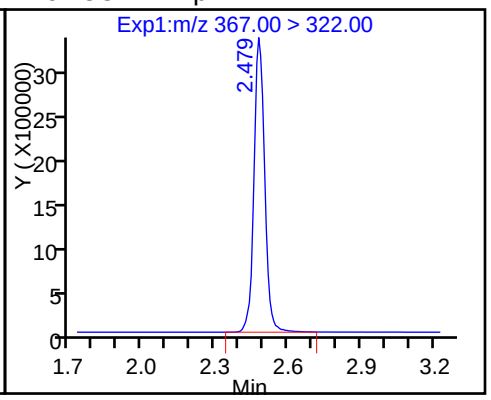
D 7 13C2 PFHxA



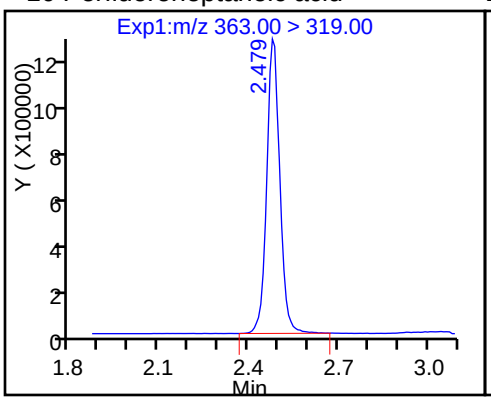
6 Perfluorohexanoic acid



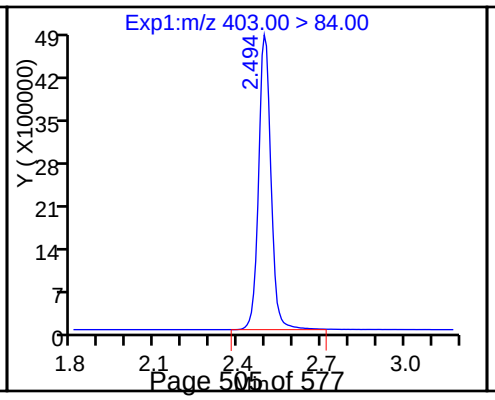
D 9 13C4-PFHpA



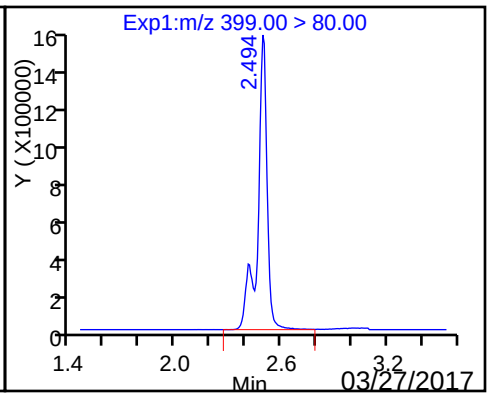
10 Perfluoroheptanoic acid



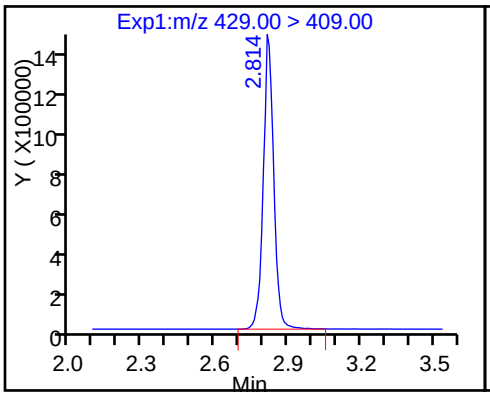
D 11 18O2 PFHxS



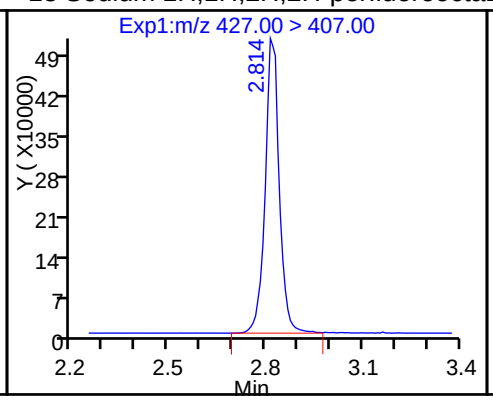
8 Perfluorohexanesulfonic acid



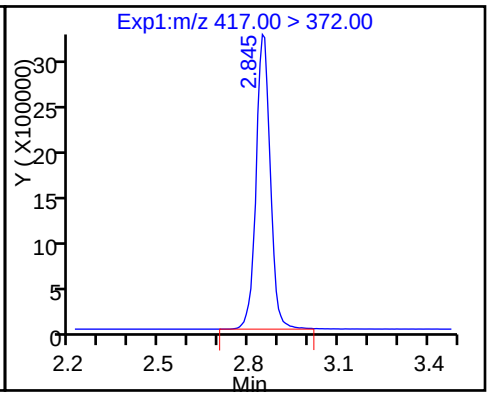
D 12 M2-6:2FTS



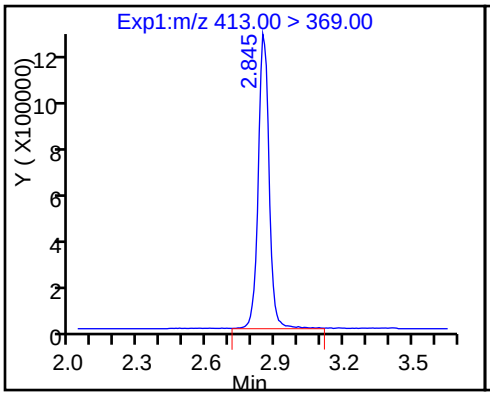
13 Sodium 1H,1H,2H,2H-perfluorooctane



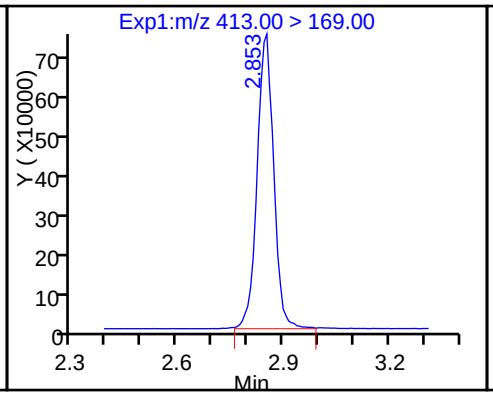
D 14 13C4 PFOA



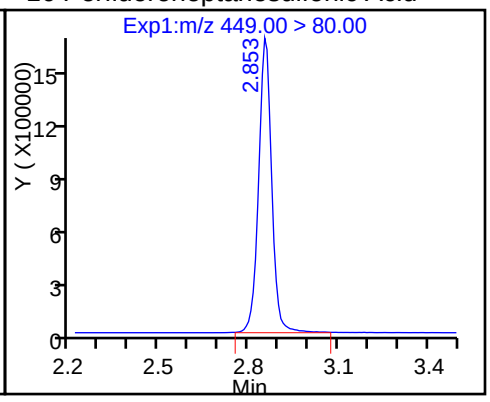
15 Perfluorooctanoic acid



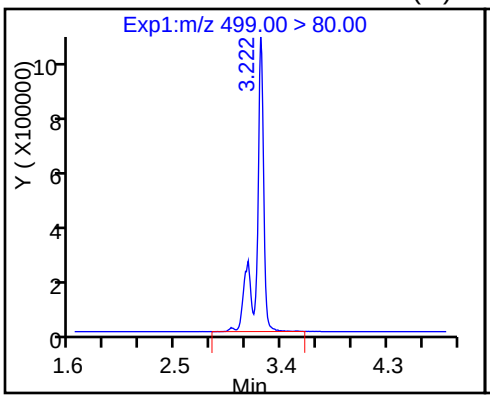
15 Perfluorooctanoic acid



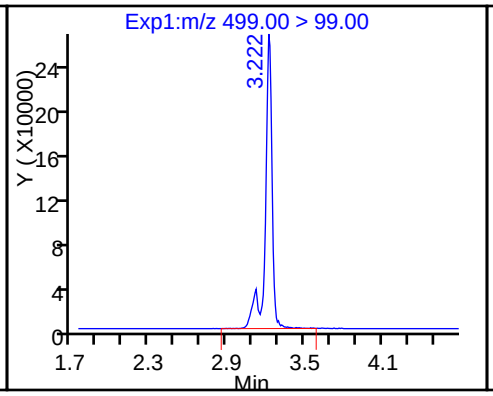
16 Perfluoroheptanesulfonic Acid



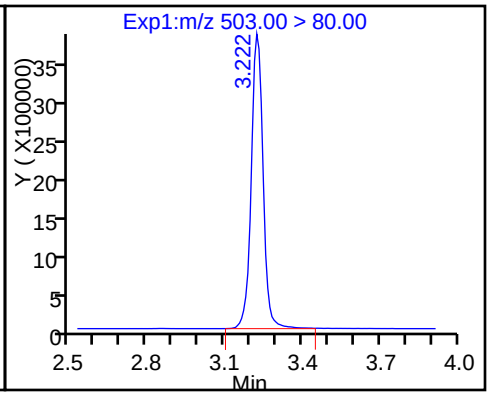
17 Perfluorooctane sulfonic acid (M)



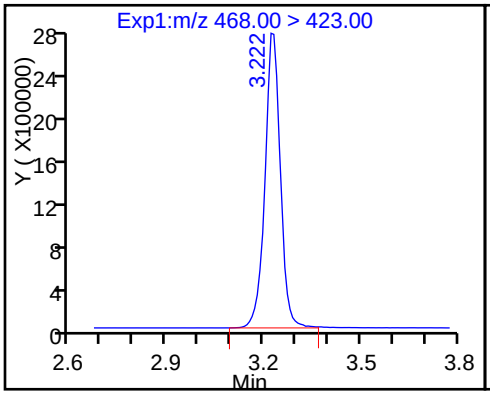
17 Perfluorooctane sulfonic acid



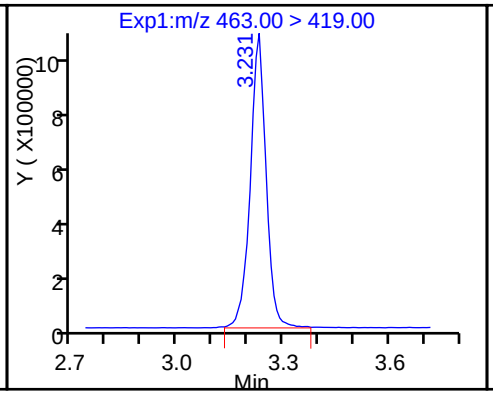
D 18 13C4 PFOS



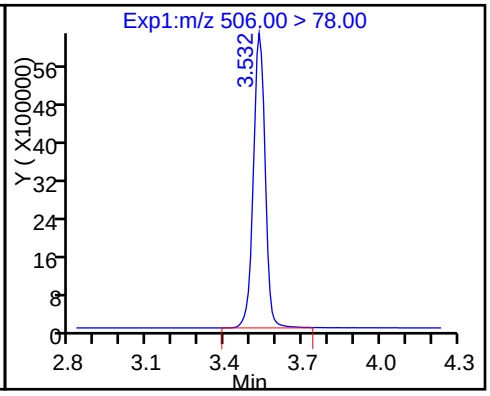
D 19 13C5 PFNA



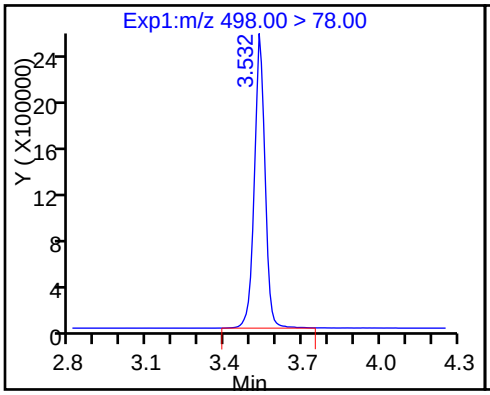
20 Perfluorononanoic acid



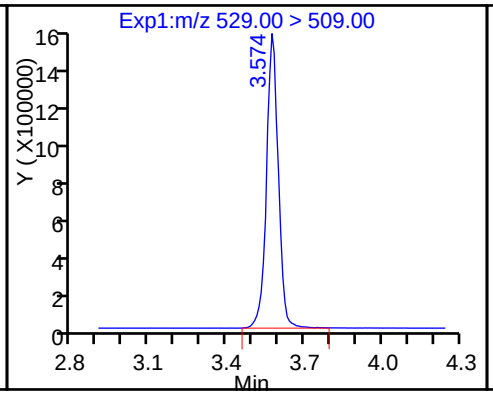
D 21 13C8 FOSA



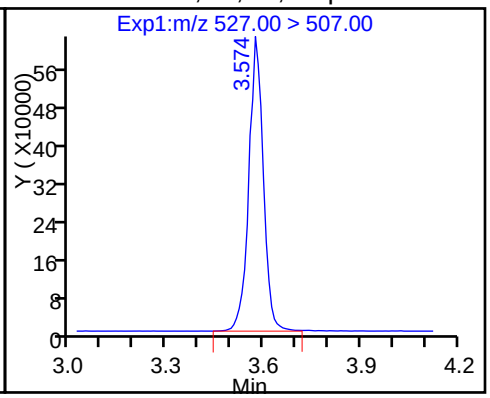
22 Perfluorooctane Sulfonamide



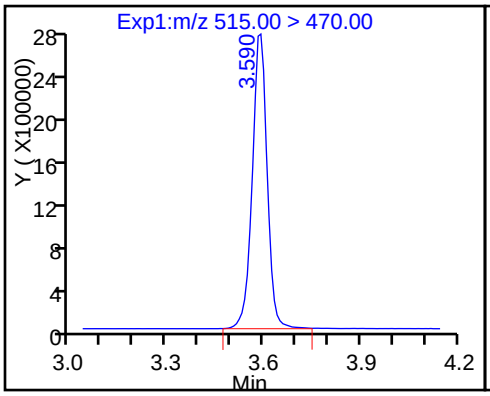
D 26 M2-8:2FTS



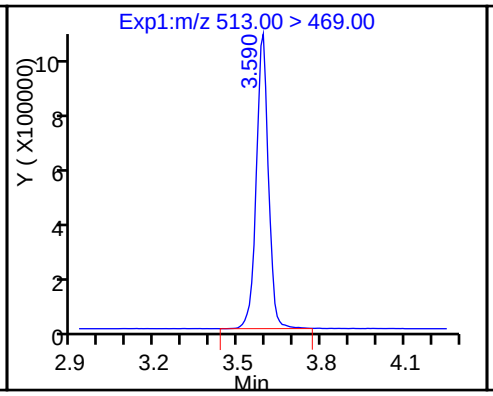
25 Sodium 1H,1H,2H,2H-perfluorooctane



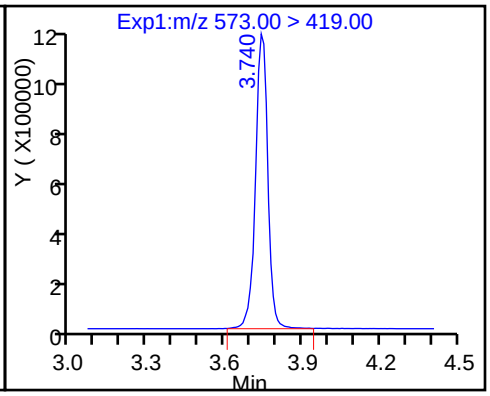
D 23 13C2 PFDA



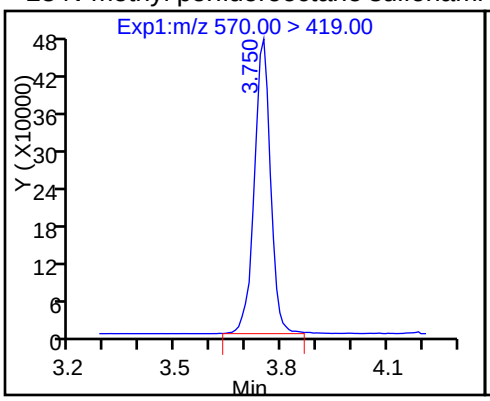
24 Perfluorodecanoic acid



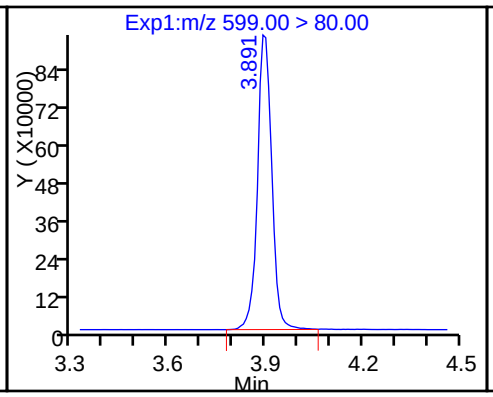
D 27 d3-NMeFOSAA



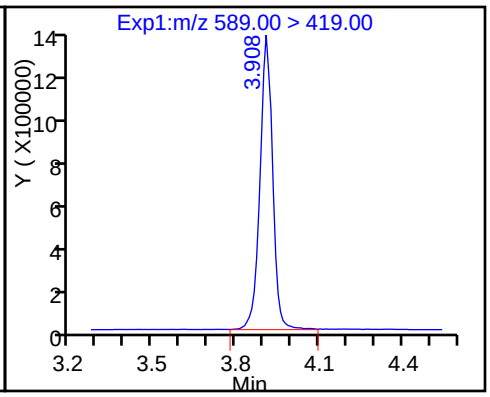
28 N-methyl perfluorooctane sulfonami



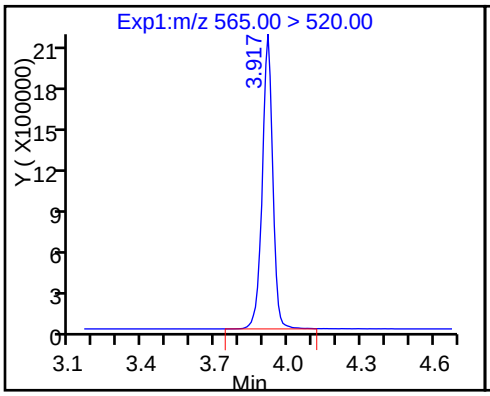
29 Perfluorodecane Sulfonic acid



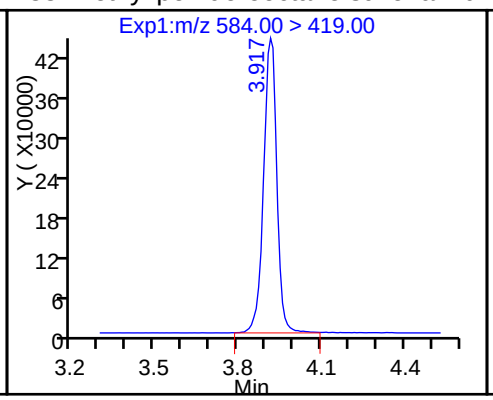
D 32 d5-NEtFOSAA



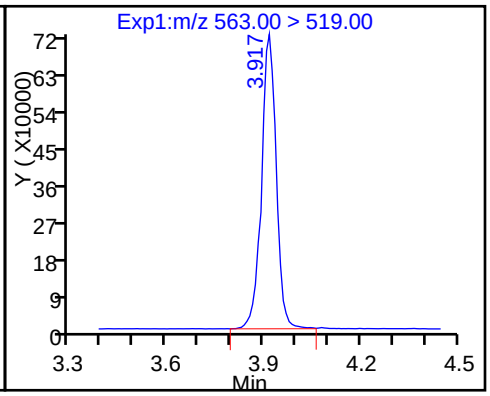
D 30 13C2 PFUnA



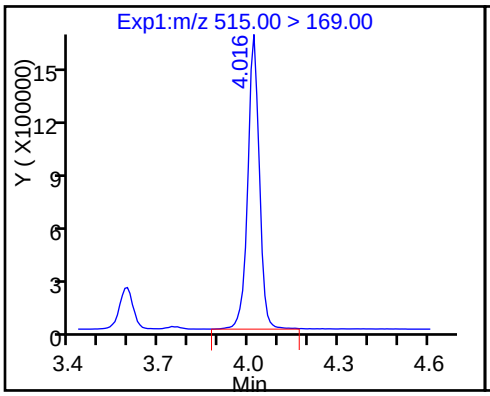
33 N-ethyl perfluorooctane sulfonamid



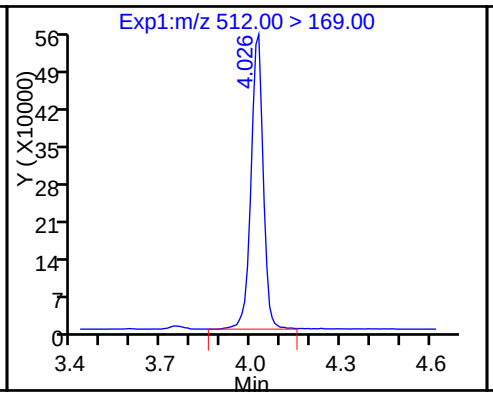
31 Perfluoroundecanoic acid



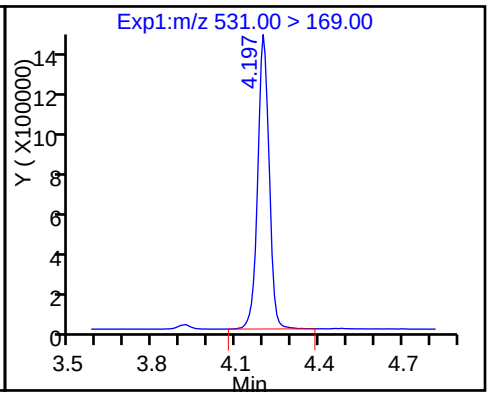
D 34 d-N-MeFOSA-M



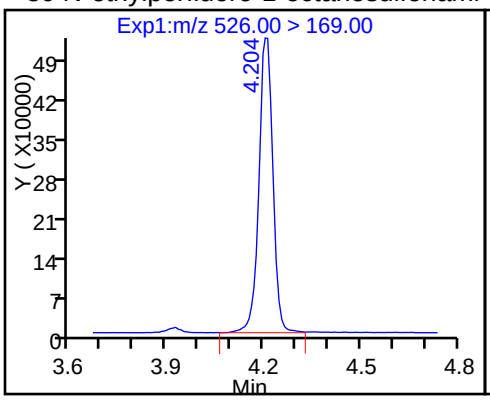
35 MeFOSA



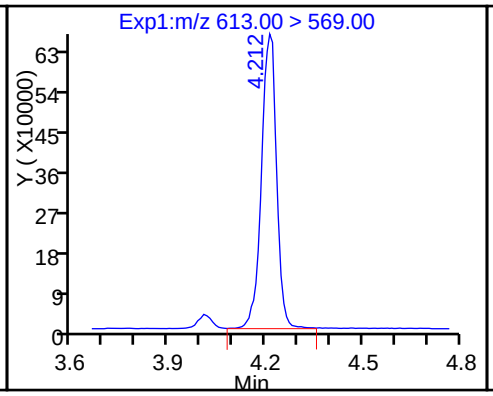
D 38 d-N-EtFOSA-M



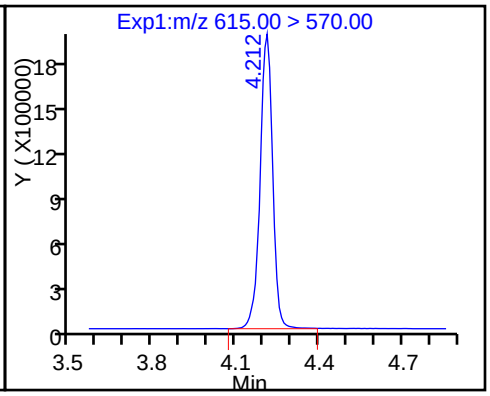
39 N-ethylperfluoro-1-octanesulfonami



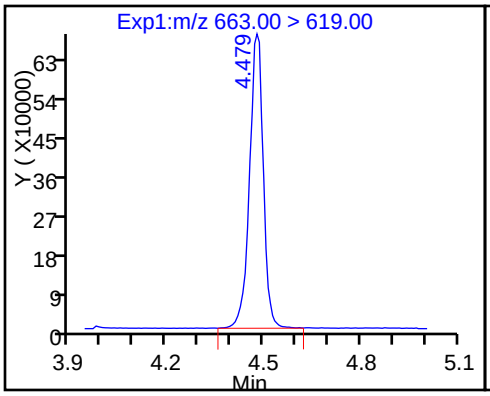
37 Perfluorododecanoic acid



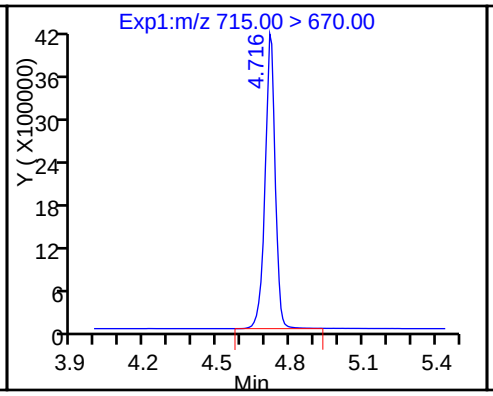
D 36 13C2 PFDoA



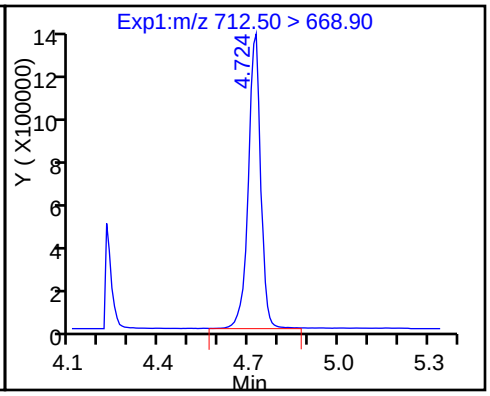
41 Perfluorotridecanoic acid



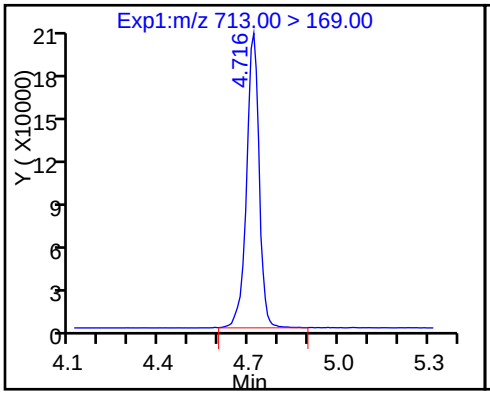
D 43 13C2-PFTeDA



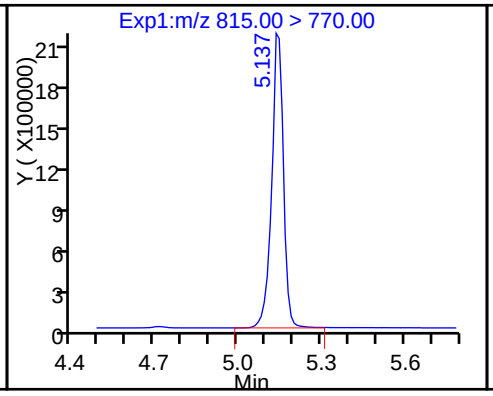
42 Perfluorotetradecanoic acid



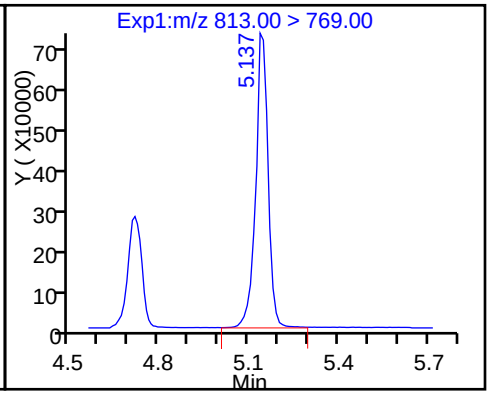
42 Perfluorotetradecanoic acid



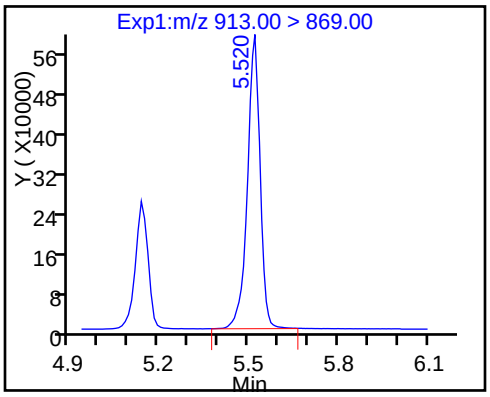
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

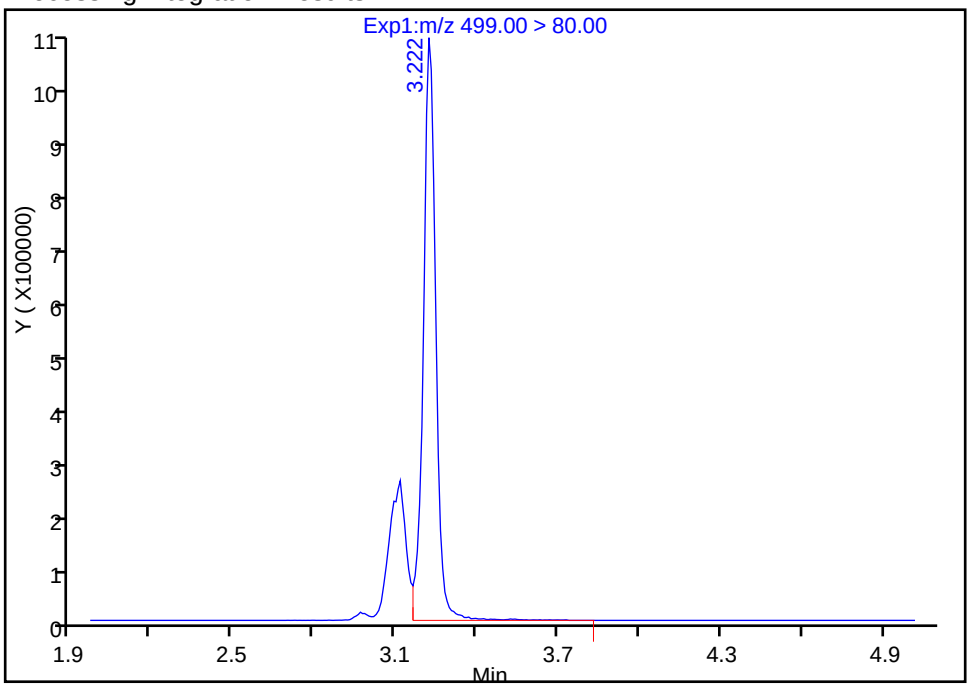
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40852.b\2017.03.14A_021.d
Injection Date: 14-Mar-2017 15:21:04 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

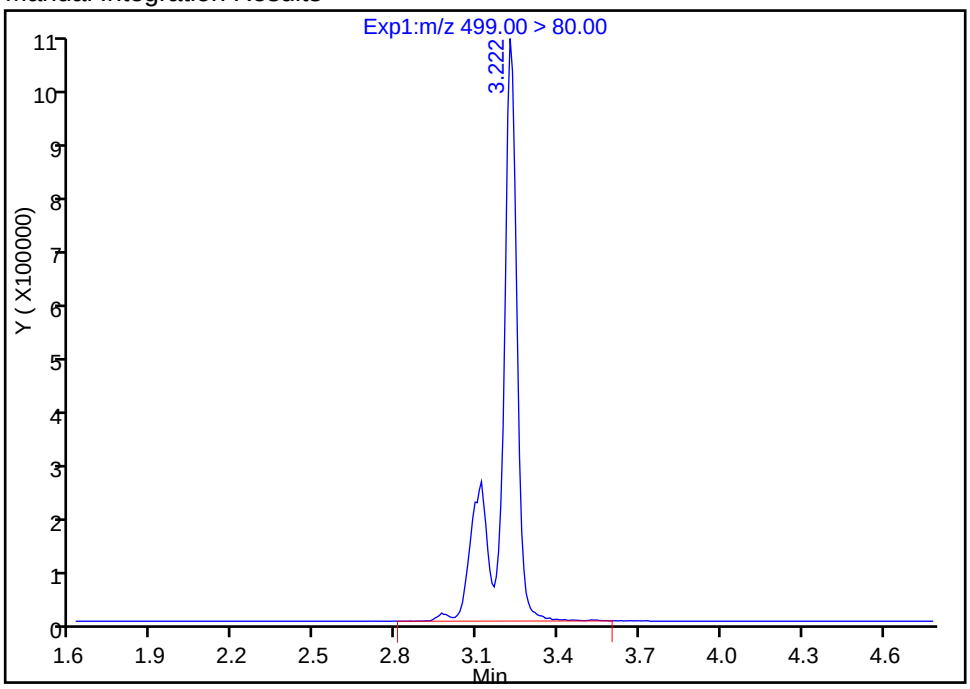
Processing Integration Results

RT: 3.22
Area: 3307929
Amount: 13.152569
Amount Units: ng/ml



Manual Integration Results

RT: 3.22
Area: 4404572
Amount: 17.512902
Amount Units: ng/ml



Reviewer: westendorfc, 15-Mar-2017 11:36:37
Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 320-153501/1-A

Matrix: Water Lab File ID: 2017.03.10B_041.d

Analysis Method: 537 (Modified) Date Collected:

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 250.00(mL) Date Analyzed: 03/10/2017 22:30

Con. Extract Vol.: 0.5(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 154459 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U M	2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.0	U M	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	130		25-150
STL00991	13C4 PFOS	116		25-150
STL00994	18O2 PFHxS	124		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_041.d
Lims ID: MB 320-153501/1-A
Client ID:
Sample Type: MB
Inject. Date: 10-Mar-2017 22:30:01 ALS Bottle#: 31 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-153501/1-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: A8-PC\A8 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 13-Mar-2017 11:24:24 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK033

First Level Reviewer: changnoit Date: 13-Mar-2017 11:24:24

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	1.531	1.539	-0.007		16574285	56.7		113	901409	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.531	1.546	-0.015	1.000	41418	0.1475			215	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.812	1.822	-0.010		13748553	59.2		118	700810	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.812	1.822	-0.010	1.000	30258	0.1125			196	
D 47 13C3-PFBS										
301.90 > 83.00	1.852	1.852	0.0		477	NC				
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.852	1.861	-0.009	1.000	35354	0.0684				
298.90 > 99.00	1.852	1.861	-0.009	1.000	15744		2.25(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.106	2.111	-0.005		12449264	59.0		118	355508	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.106	2.111	-0.005	1.000	32858	0.1484			501	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.440	2.449	-0.009	1.000	11778	0.0462			135	
D 9 13C4-PFHpA										
367.00 > 322.00	2.440	2.457	-0.017		13178007	68.3		137	283960	
D 11 18O2 PFHxS										
403.00 > 84.00	2.456	2.464	-0.008		17057825	58.6		124	367907	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.456	2.472	-0.016	1.000	162666	0.4386				M
13 Sodium 1H,1H,2H,2H-perfluorooctane										
427.00 > 407.00	2.774	2.783	-0.009	1.000	72439	NR				
D 12 M2-6:2FTS										
429.00 > 409.00	2.774	2.791	-0.017		5419	0.0702		0.0		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.805	2.814	-0.009	1.000	44142	0.1621			307	
413.00 > 169.00	2.789	2.814	-0.025	0.994	25696		1.72(0.90-1.10)		630	M
D 14 13C4 PFOA										
417.00 > 372.00	2.797	2.814	-0.017		13323767	65.0		130	265301	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.789	2.822	-0.033	1.000	7825	0.0270				
D 18 13C4 PFOS										
503.00 > 80.00	3.170	3.188	-0.018		13444059	55.6		116	329785	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.170	3.197	-0.027	1.000	172878	0.6250			3576	M
499.00 > 99.00	3.170	3.197	-0.027	1.000	43055		4.02(0.90-1.10)		1338	M
D 19 13C5 PFNA										
468.00 > 423.00	3.170	3.197	-0.027		10766667	60.5		121	276787	
D 21 13C8 FOSA										
506.00 > 78.00	3.508	3.533	-0.025		630643	1.72		3.4	29869	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.500	3.533	-0.033	1.000	7358	0.6493			283	
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.500	3.533	-0.033	0.998	2775	NR				
D 26 M2-8:2FTS										
529.00 > 509.00	3.508	3.542	-0.034		1428	0.0154		0.0		
D 23 13C2 PFDA										
515.00 > 470.00	3.525	3.558	-0.033		10062575	60.4		121	277273	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.680	3.699	-0.019		8811	0.1034		0.0		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.690	3.710	-0.020	1.003	4937	NR				
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.853	3.865	-0.012		14342	0.1763		0.0		
D 30 13C2 PFUnA										
565.00 > 520.00	3.853	3.873	-0.020		7820941	59.8		120	362056	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.853	3.873	-0.020	1.000	23135	0.1459			667	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.862	3.873	-0.011	1.002	7693	NR				
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.004	4.026	-0.022		1191	0.0135		0.0		
35 MeFOSA										
512.00 > 169.00	4.054	4.026	0.028	1.000	337	NR				
D 36 13C2 PFDoA										
615.00 > 570.00	4.149	4.165	-0.016		7003801	56.5		113	168254	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.185	4.209	-0.024		3206	0.0376		0.0		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.192	4.218	-0.026	1.000	2354	NR				
D 43 13C2-PFTeDA										
715.00 > 670.00	4.654	4.668	-0.014		17714156	68.4		137	505950	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										M
712.50 > 668.90	4.672	4.668	0.004	1.000	95536	0.3468			832	M
713.00 > 169.00	4.644	4.668	-0.024	0.994	9484		10.07(0.00-0.00)		3539	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.059	5.077	-0.018		7368790	58.9		118	164263	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.059	5.077	-0.018	1.000	103679	0.4219			156	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.413	5.428	-0.015	1.000	18645	0.1855			23.3	

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

NC - Not Calibrated

Review Flags

M - Manually Integrated

Report Date: 13-Mar-2017 11:24:25 Chrom Revision: 2.2 05-Mar-2017 11:38:00

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_041.d

Injection Date: 10-Mar-2017 22:30:01 Instrument ID: A8_N

Lims ID: MB 320-153501/1-A

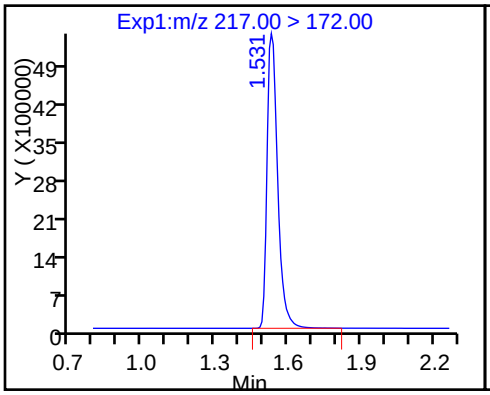
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 20

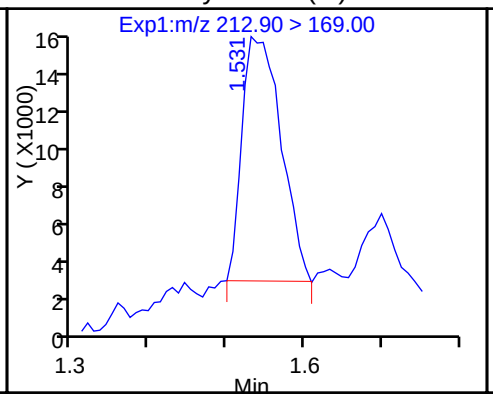
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

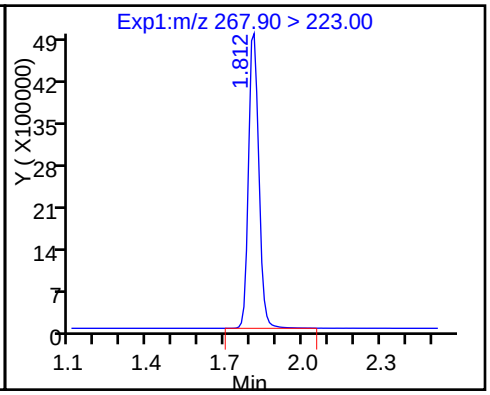
D 1 13C4 PFBA



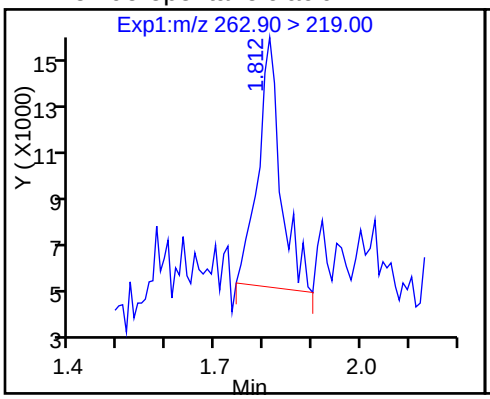
2 Perfluorobutyric acid (M)



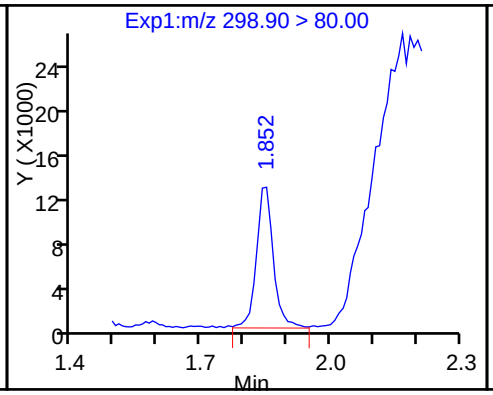
D 3 13C5-PFPeA



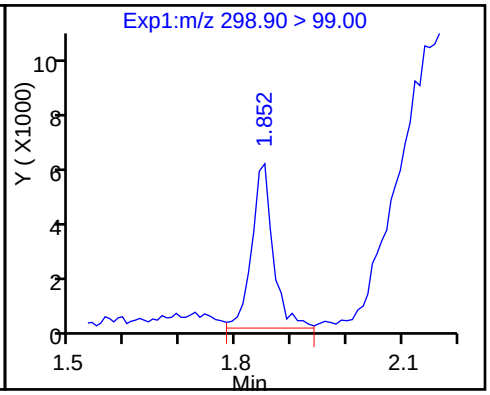
4 Perfluoropentanoic acid



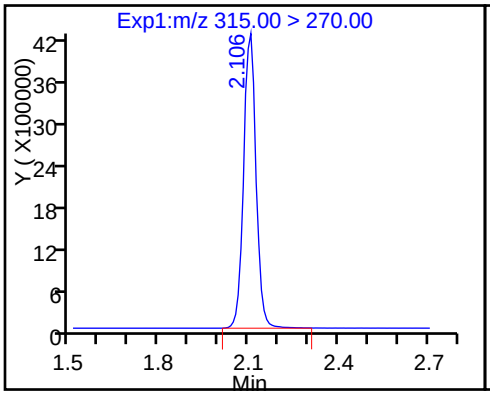
5 Perfluorobutanesulfonic acid



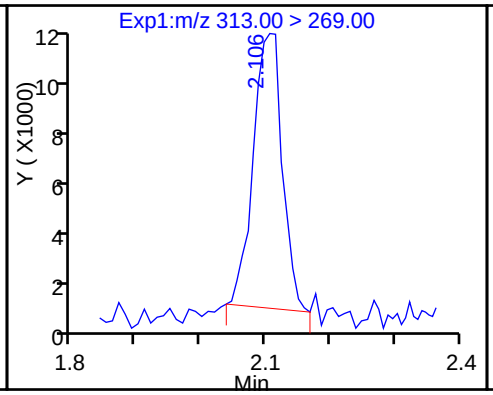
5 Perfluorobutanesulfonic acid



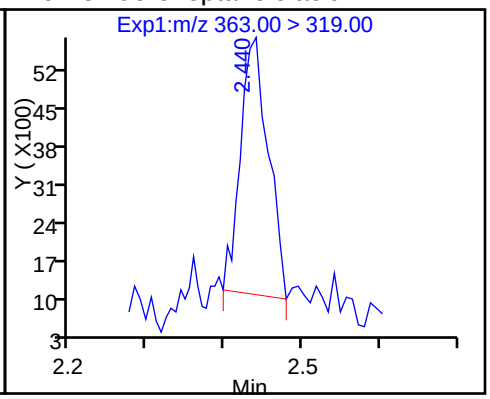
D 7 13C2 PFHxA



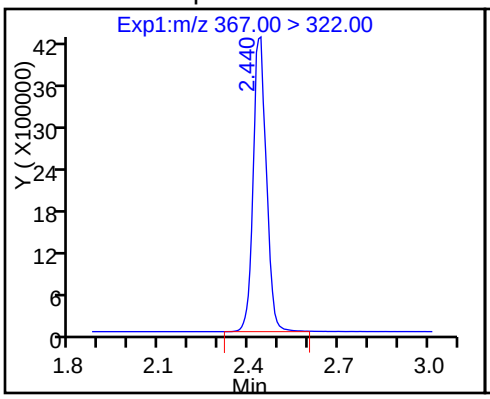
6 Perfluorohexanoic acid



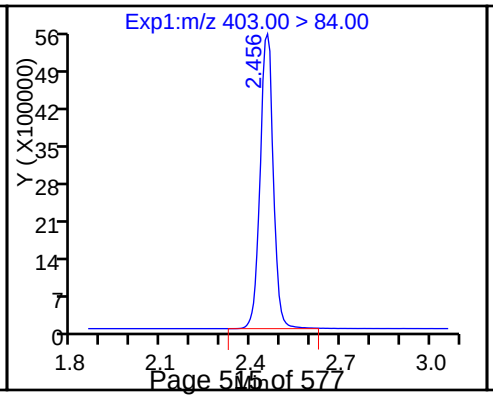
10 Perfluoroheptanoic acid



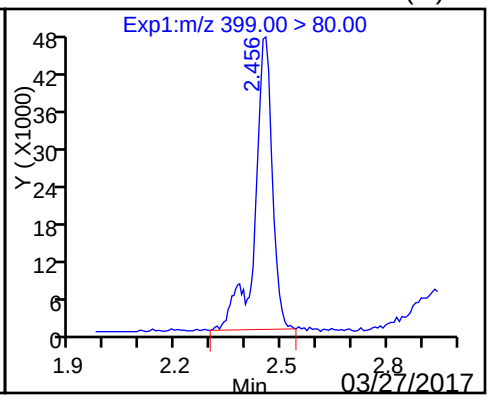
D 9 13C4-PFHpA



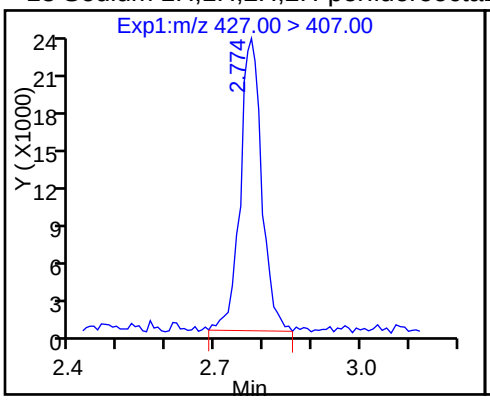
D 11 18O2 PFHxS



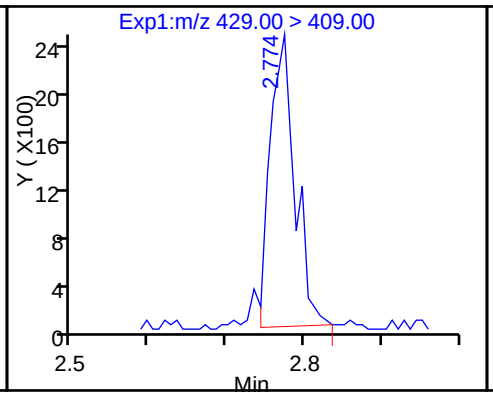
8 Perfluorohexanesulfonic acid (M)



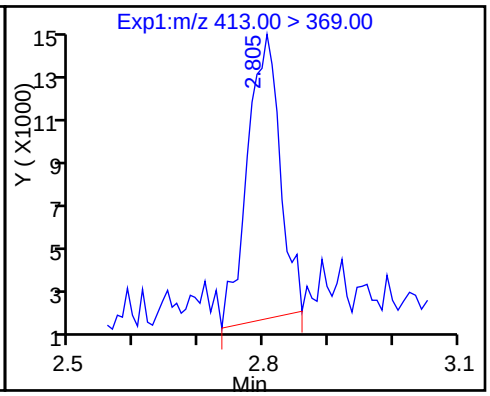
13 Sodium 1H,1H,2H,2H-perfluorooctane



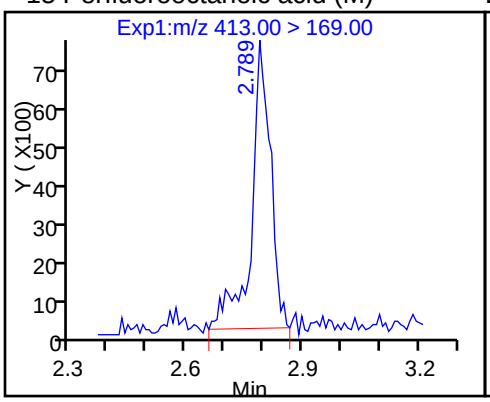
D 12 M2-6:2FTS



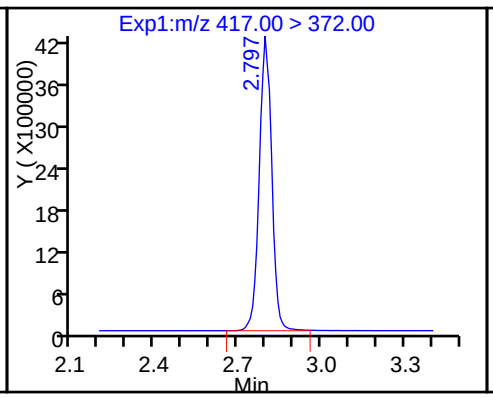
15 Perfluorooctanoic acid



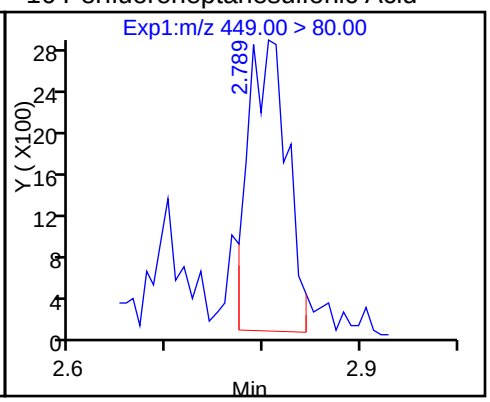
15 Perfluorooctanoic acid (M)



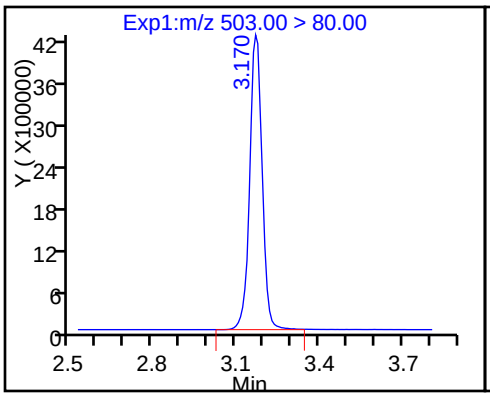
D 14 13C4 PFOA



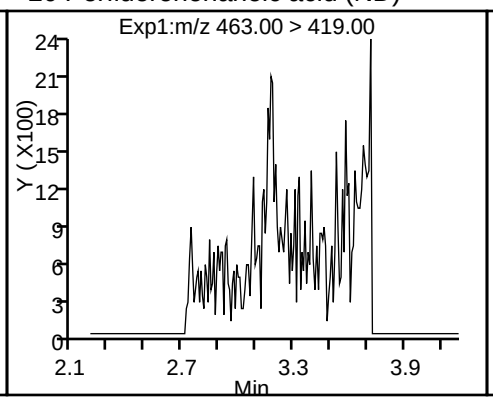
16 Perfluoroheptanesulfonic Acid



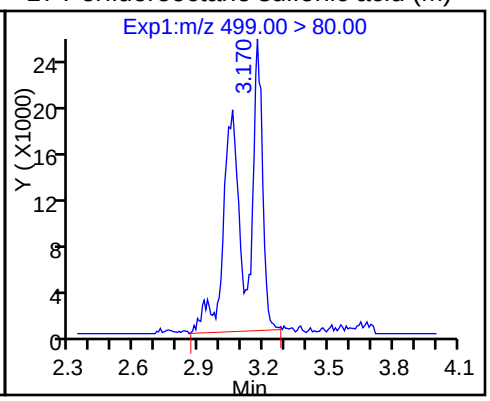
D 18 13C4 PFOS



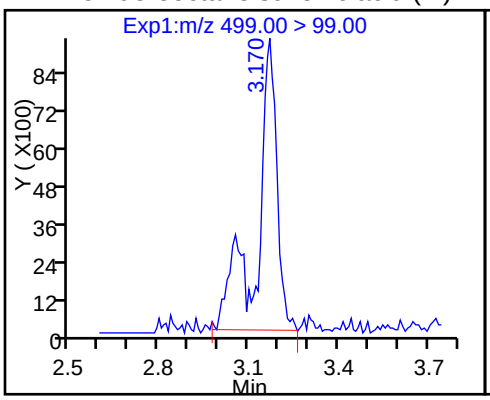
20 Perfluorononanoic acid (ND)



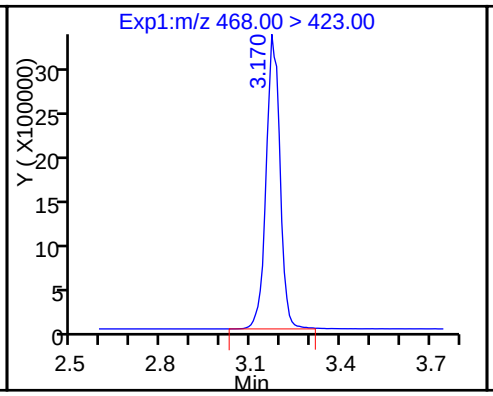
17 Perfluorooctane sulfonic acid (M)



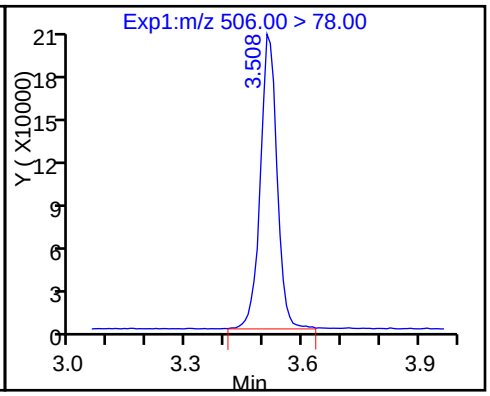
17 Perfluorooctane sulfonic acid (M)



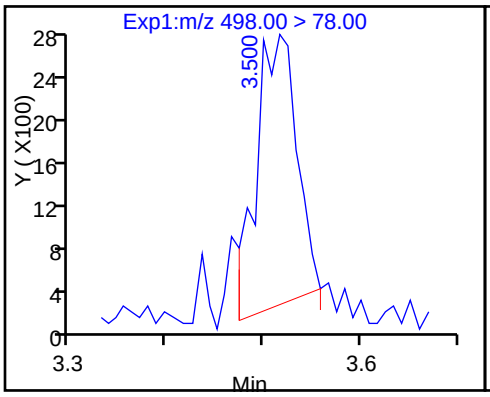
D 19 13C5 PFNA



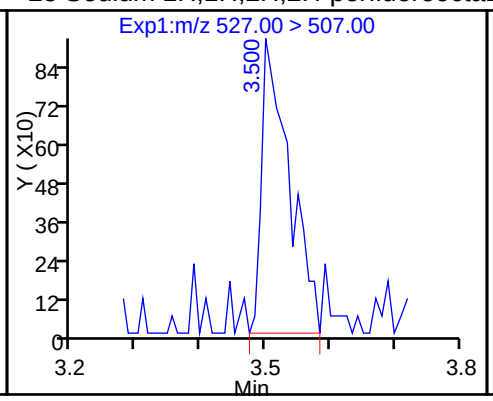
D 21 13C8 FOSA



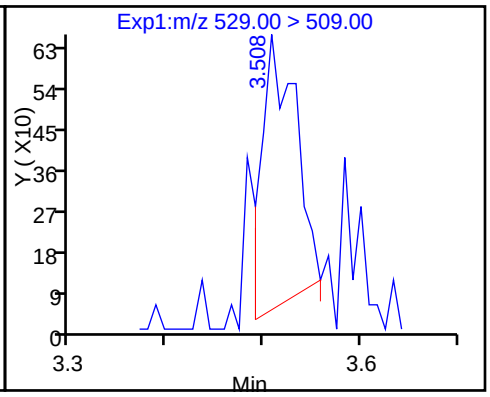
22 Perfluorooctane Sulfonamide



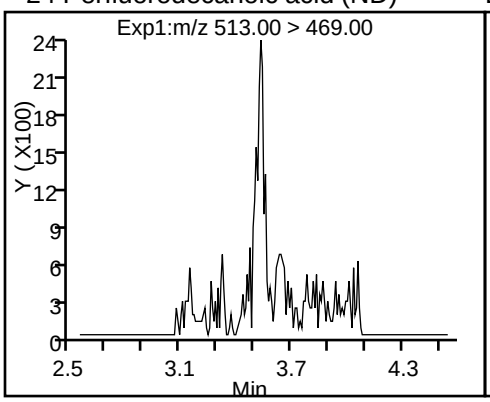
25 Sodium 1H,1H,2H,2H-perfluorooctane



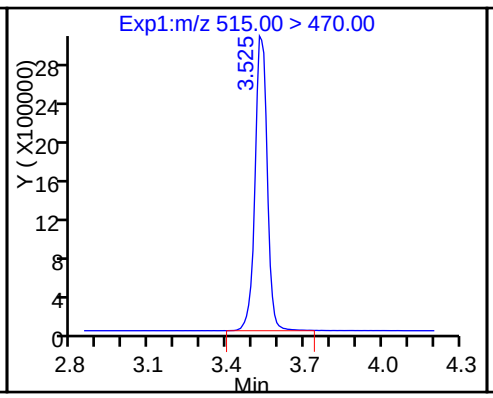
D 26 M2-8:2FTS



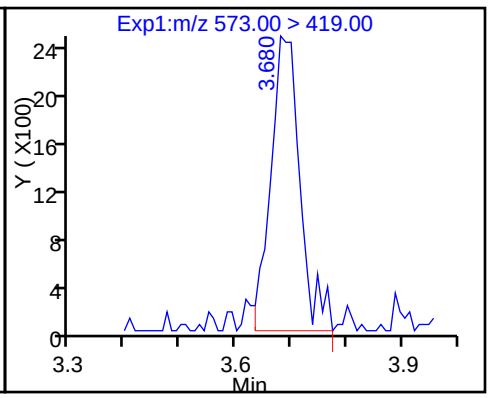
24 Perfluorodecanoic acid (ND)



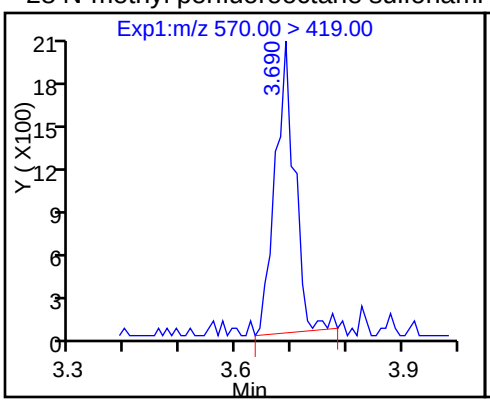
D 23 13C2 PFDA



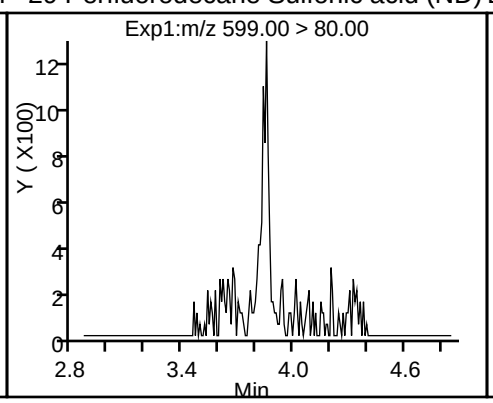
D 27 d3-NMeFOSAA



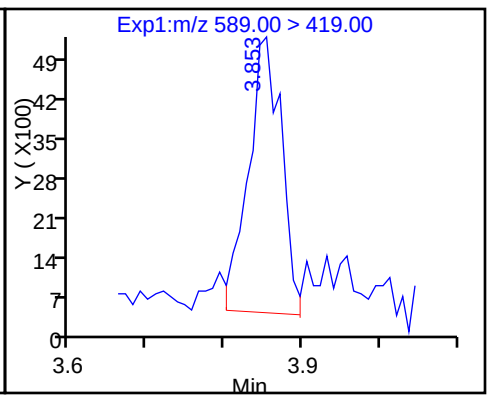
28 N-methyl perfluorooctane sulfonami



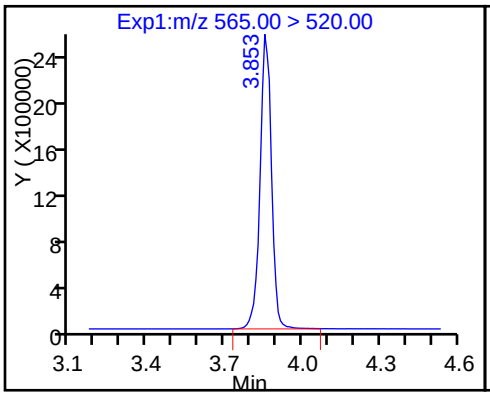
29 Perfluorodecane Sulfonic acid (ND)



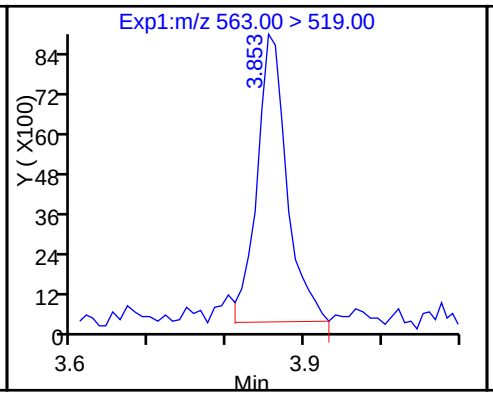
D 32 d5-NEtFOSAA



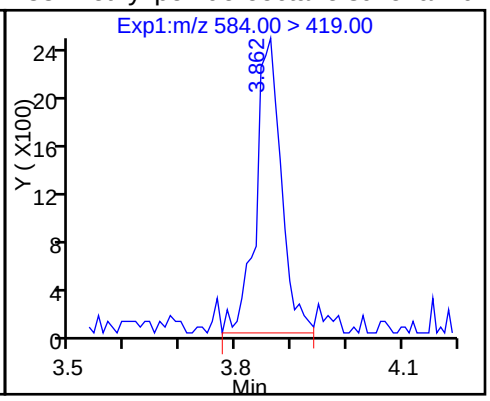
D 30 13C2 PFUnA



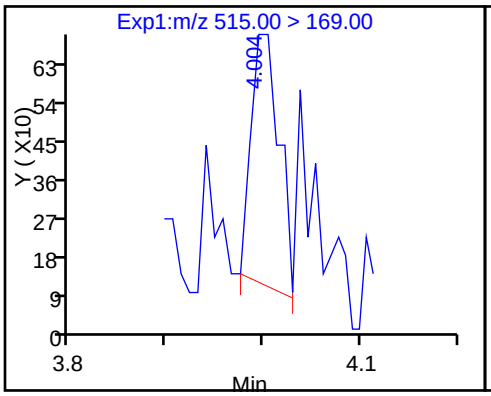
31 Perfluoroundecanoic acid



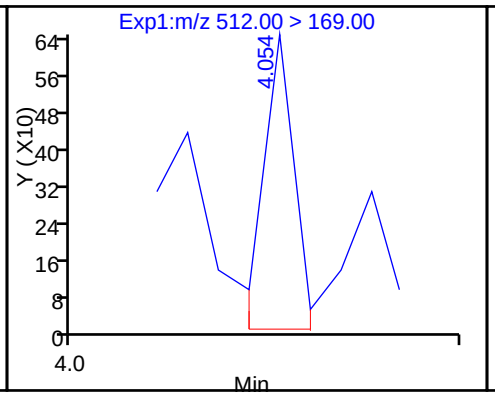
33 N-ethyl perfluorooctane sulfonamid



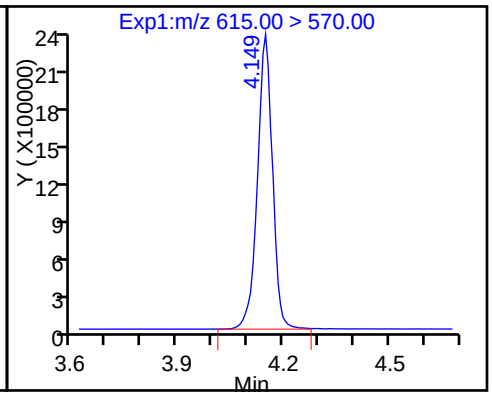
D 34 d-N-MeFOSA-M



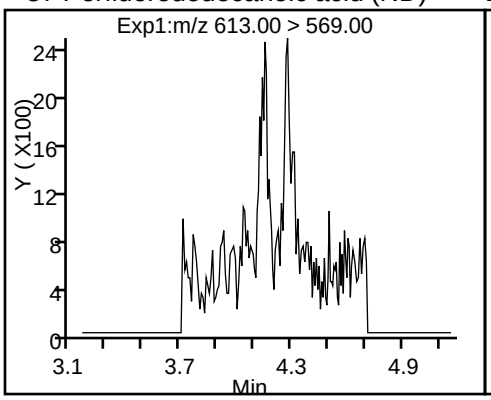
35 MeFOSA



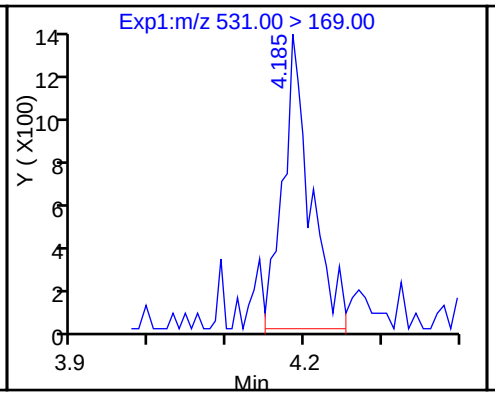
D 36 13C2 PFDoA



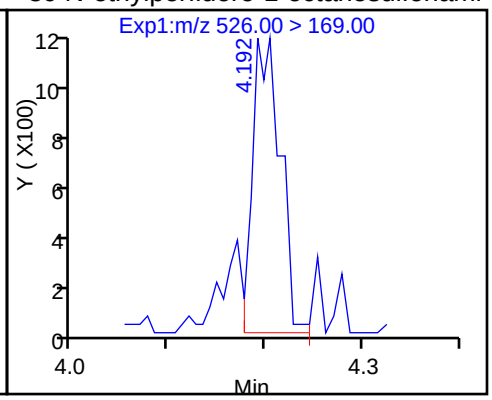
37 Perfluorododecanoic acid (ND)



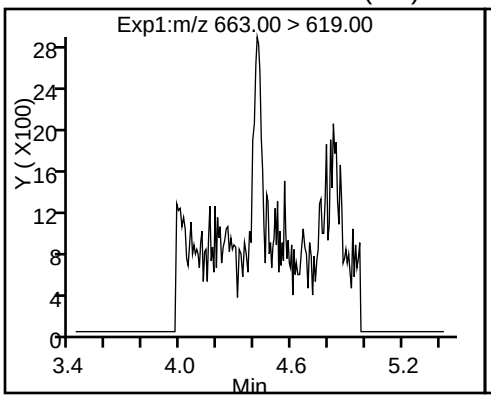
D 38 d-N-EtFOSA-M



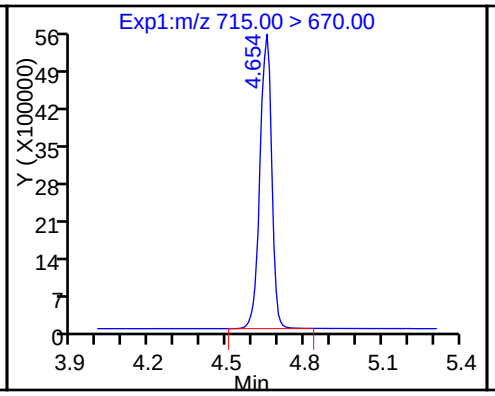
39 N-ethylperfluoro-1-octanesulfonami



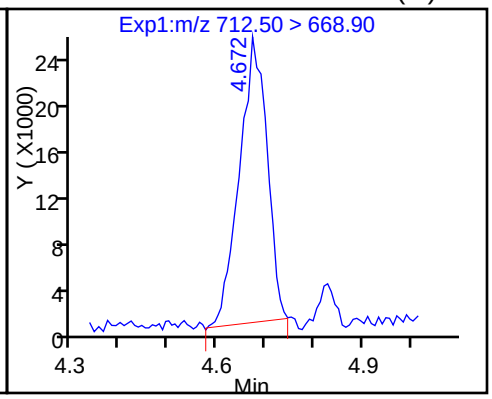
41 Perfluorotridecanoic acid (ND)



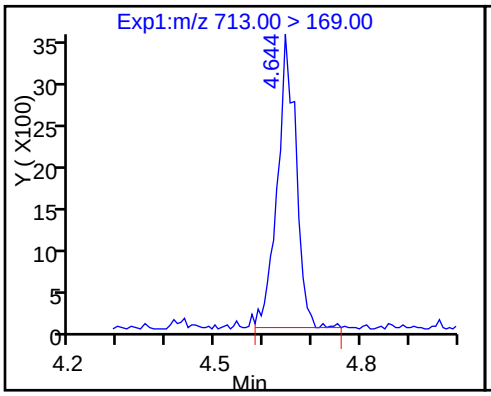
D 43 13C2-PFTeDA



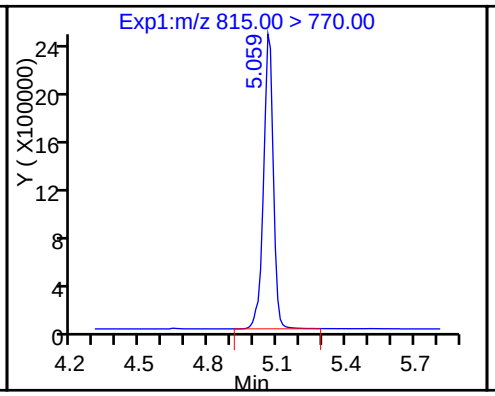
42 Perfluorotetradecanoic acid (M)



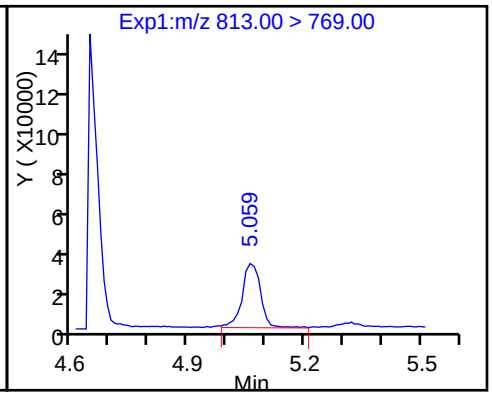
42 Perfluorotetradecanoic acid



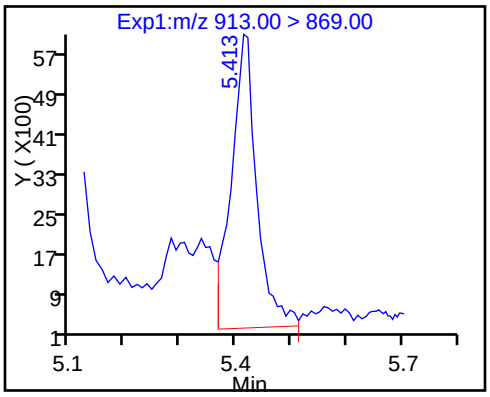
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

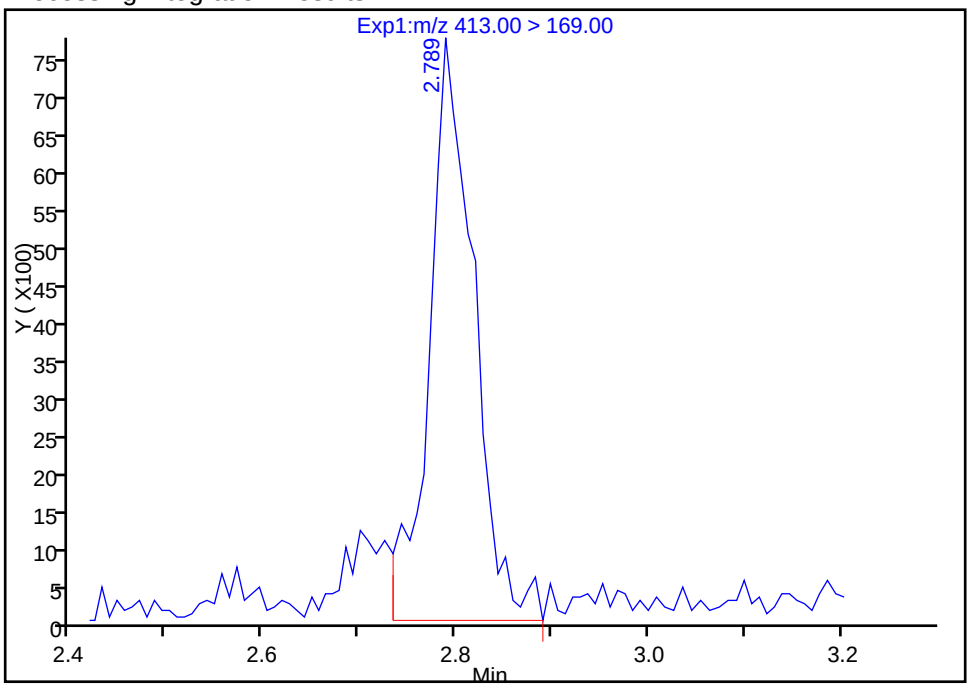
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_041.d
Injection Date: 10-Mar-2017 22:30:01 Instrument ID: A8_N
Lims ID: MB 320-153501/1-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

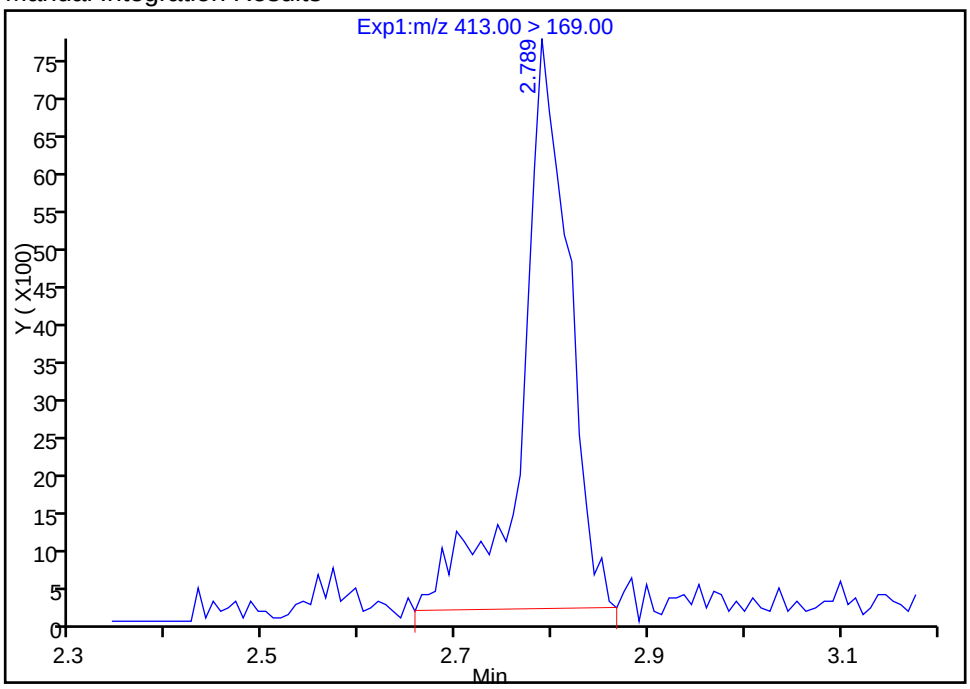
Processing Integration Results

RT: 2.79
Area: 24715
Amount: 0.162140
Amount Units: ng/ml



Manual Integration Results

RT: 2.79
Area: 25696
Amount: 0.162140
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:21:52
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

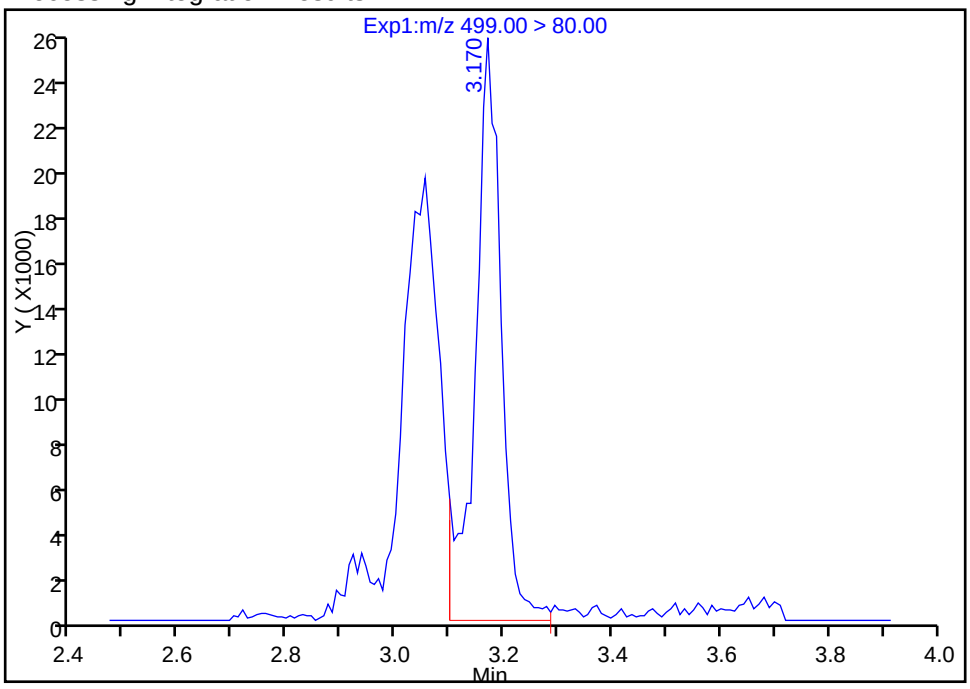
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_041.d
Injection Date: 10-Mar-2017 22:30:01 Instrument ID: A8_N
Lims ID: MB 320-153501/1-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

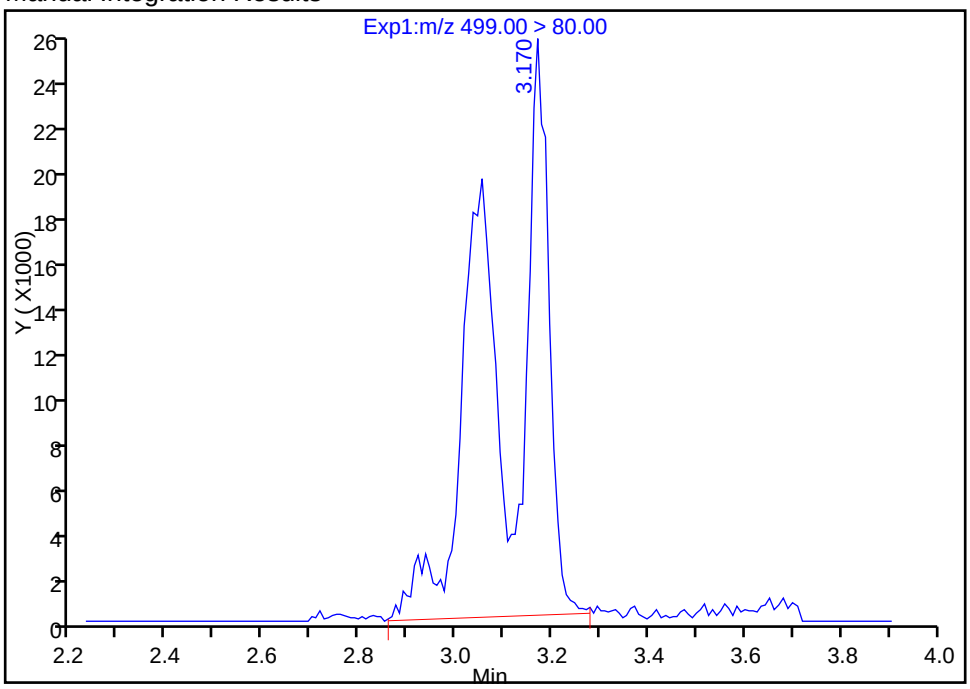
Processing Integration Results

RT: 3.17
Area: 83243
Amount: 0.300939
Amount Units: ng/ml



Manual Integration Results

RT: 3.17
Area: 172878
Amount: 0.624987
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:22:00
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

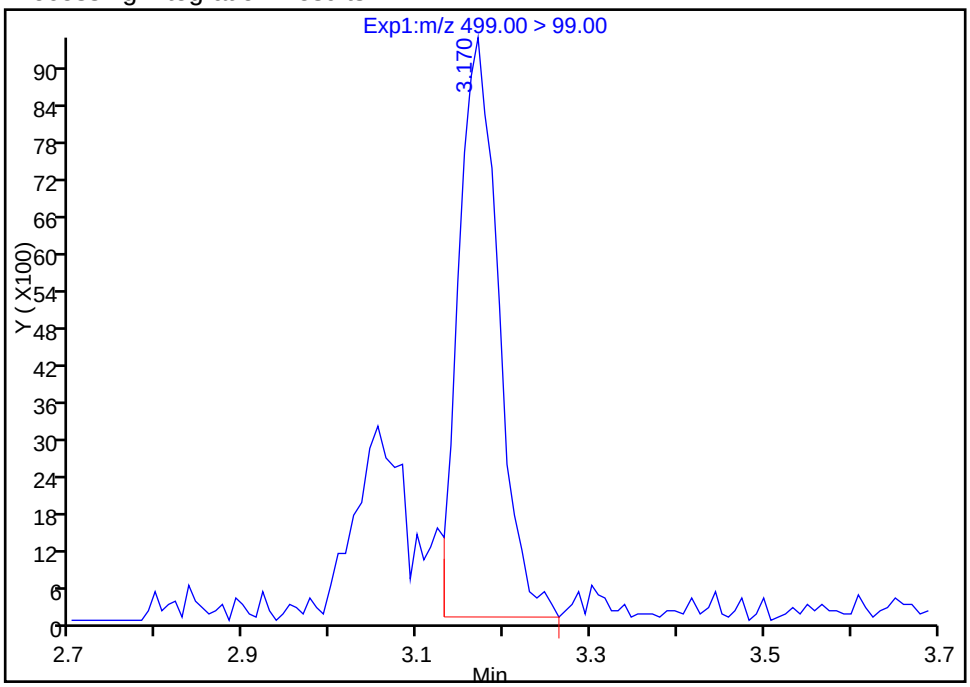
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_041.d
Injection Date: 10-Mar-2017 22:30:01 Instrument ID: A8_N
Lims ID: MB 320-153501/1-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

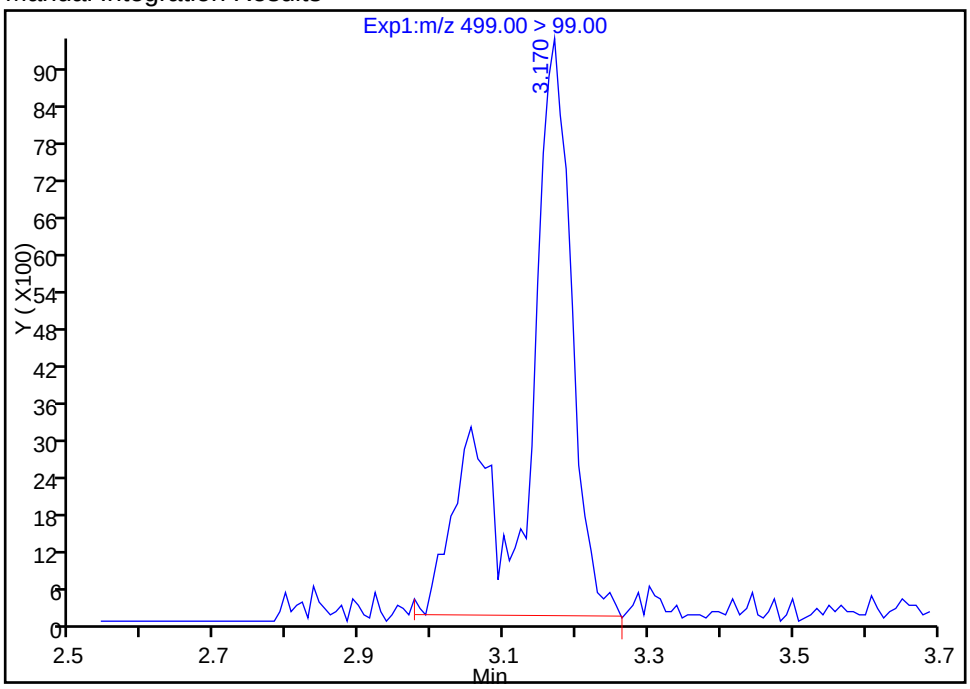
Processing Integration Results

RT: 3.17
Area: 29888
Amount: 0.300939
Amount Units: ng/ml



Manual Integration Results

RT: 3.17
Area: 43055
Amount: 0.624987
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:22:03
Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Client Sample ID: Lab Sample ID: LCS 320-153501/2-A

Matrix: Water Lab File ID: 2017.03.10B_042.d

Analysis Method: 537 (Modified) Date Collected:

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 250.00(mL) Date Analyzed: 03/10/2017 22:37

Con. Extract Vol.: 0.5(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 154459 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	39.9		2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	37.8	M	4.0	3.0	1.3
375-73-5	Perfluorobutanesulfonic acid (PFBS)	40.0		2.5	2.0	0.92

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	148		25-150
STL00991	13C4 PFOS	132		25-150
STL00994	18O2 PFHxS	137		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_042.d
Lims ID: LCS 320-153501/2-A
Client ID:
Sample Type: LCS
Inject. Date: 10-Mar-2017 22:37:31 ALS Bottle#: 32 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-153501/2-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: A8-PC\A8 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 13-Mar-2017 11:25:29 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK033

First Level Reviewer: changnoit Date: 13-Mar-2017 11:25:28

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	1.531	1.539	-0.007		19900437	68.1		136	905635	
2 Perfluorobutyric acid										
212.90 > 169.00	1.539	1.546	-0.007	1.000	7131917	21.1		106	54330	
D 3 13C5-PFPeA										
267.90 > 223.00	1.813	1.822	-0.009		15985096	68.8		138	1132334	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.813	1.822	-0.009	1.000	6491152	20.7		104	54682	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.853	1.861	-0.008	1.000	11393446	20.0		113		
298.90 > 99.00	1.853	1.861	-0.008	1.000	4622739		2.46(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.108	2.111	-0.003		14745059	69.9		140	451023	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.108	2.111	-0.003	1.000	5345202	20.4		102	93946	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.438	2.449	-0.011	1.000	5770625	19.7		98.6	64077	
D 9 13C4-PFHpA										
367.00 > 322.00	2.438	2.457	-0.019		15122540	78.4		157	372670	
D 11 18O2 PFHxS										
403.00 > 84.00	2.461	2.464	-0.003		18828844	64.7		137	542147	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.461	2.472	-0.011	1.000	7446538	18.2		99.9		M
15 Perfluorooctanoic acid										
413.00 > 369.00	2.811	2.814	-0.003	1.000	6180714	20.0		99.8	54042	
413.00 > 169.00	2.803	2.814	-0.011	0.997	3585595		1.72(0.90-1.10)		98810	
D 14 13C4 PFOA										
417.00 > 372.00	2.803	2.814	-0.011		15161275	74.0		148	423452	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.811	2.822	-0.011	1.000	6677079	20.3		107		
D 18 13C4 PFOS										
503.00 > 80.00	3.176	3.188	-0.012		15232551	63.0		132	295152	
20 Perfluorononanoic acid										
463.00 > 419.00	3.176	3.197	-0.021	1.000	4415250	20.9		105	62480	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.176	3.197	-0.021	1.000	5926572	18.9		102	110283	M
499.00 > 99.00	3.176	3.197	-0.021	1.000	1331810		4.45(0.90-1.10)		43298	M
D 19 13C5 PFNA										
468.00 > 423.00	3.176	3.197	-0.021		11661837	65.6		131	240576	
D 21 13C8 FOSA										
506.00 > 78.00	3.507	3.533	-0.026		4825669	13.2		26.3	177975	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.515	3.533	-0.018	1.000	1705753	19.7		98.4	66267	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.532	3.550	-0.018	1.000	4364264	21.3		106	137919	
D 23 13C2 PFDA										
515.00 > 470.00	3.532	3.558	-0.026		11326740	67.9		136	253263	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.843	3.856	-0.013	1.000	3424279	18.0		93.6		
D 30 13C2 PFUnA										
565.00 > 520.00	3.852	3.873	-0.021		8372101	64.0		128	293634	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.852	3.873	-0.021	1.000	3057929	18.0		90.1	89309	
D 36 13C2 PFDoA										
615.00 > 570.00	4.141	4.165	-0.024		7348211	59.3		119	178242	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.141	4.165	-0.024	1.000	2606587	19.4		97.0	84308	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.404	4.428	-0.024	1.000	2592197	20.2		101	51266	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.643	4.668	-0.025		17967131	69.3		139	396561	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.643	4.668	-0.025	1.000	6103127	21.1		106	56157	
713.00 > 169.00	4.643	4.668	-0.025	1.000	862352		7.08(0.00-0.00)		99560	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.058	5.077	-0.019		7452179	59.6		119	128595	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.058	5.077	-0.019	1.000	2536556	18.2		91.2	4150	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.413	5.428	-0.015	1.000	2389872	22.7		113	2681	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 13-Mar-2017 11:25:29 Chrom Revision: 2.2 05-Mar-2017 11:38:00

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_042.d

Injection Date: 10-Mar-2017 22:37:31 Instrument ID: A8_N

Lims ID: LCS 320-153501/2-A

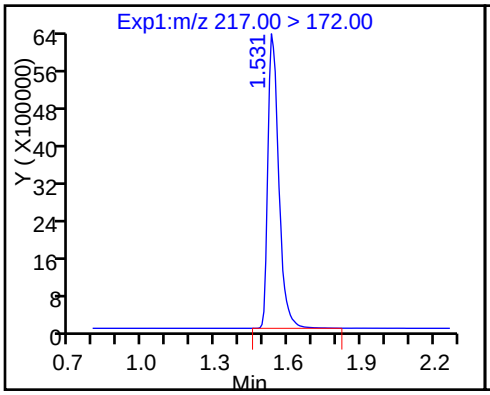
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 21

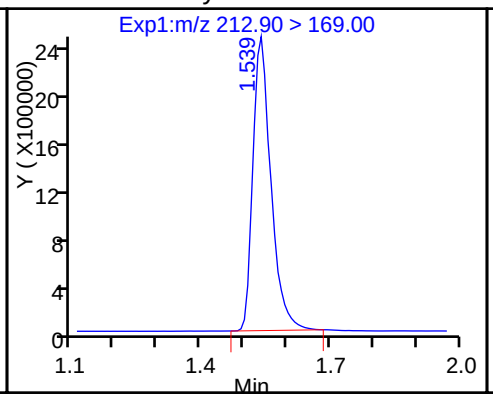
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

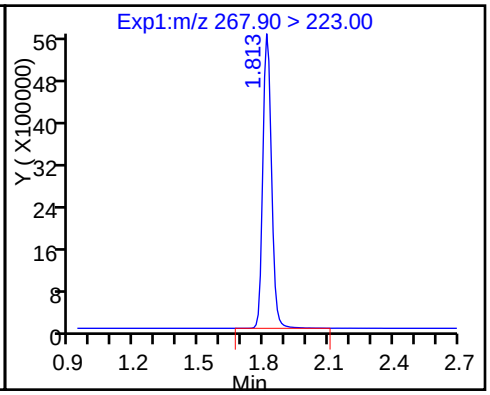
D 1 13C4 PFBA



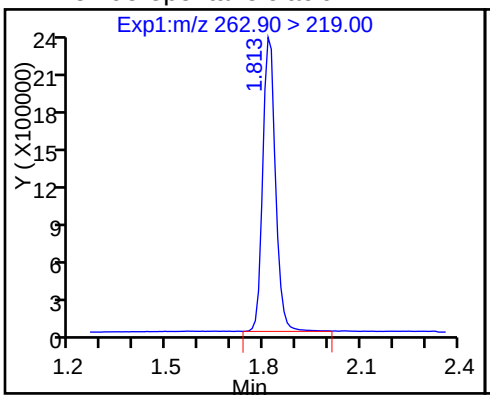
2 Perfluorobutyric acid



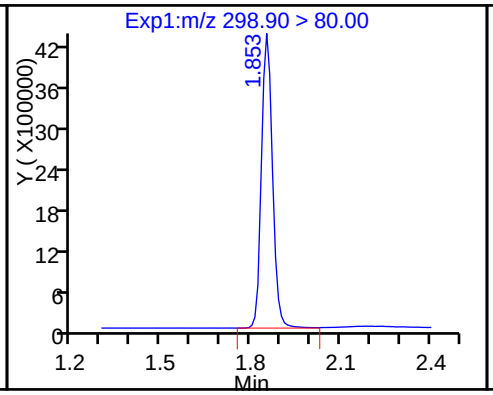
D 3 13C5-PFPeA



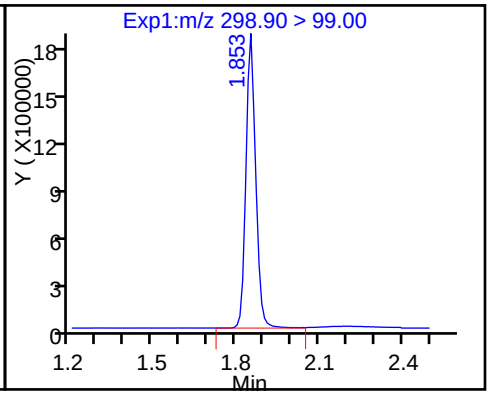
4 Perfluoropentanoic acid



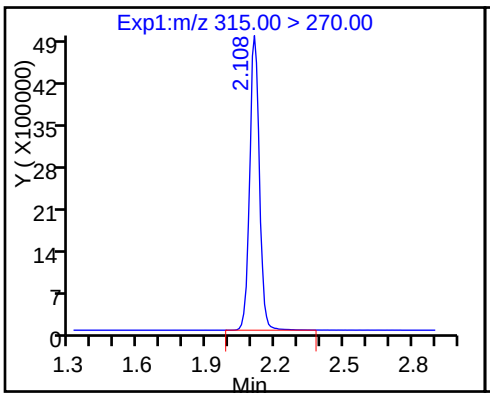
5 Perfluorobutanesulfonic acid



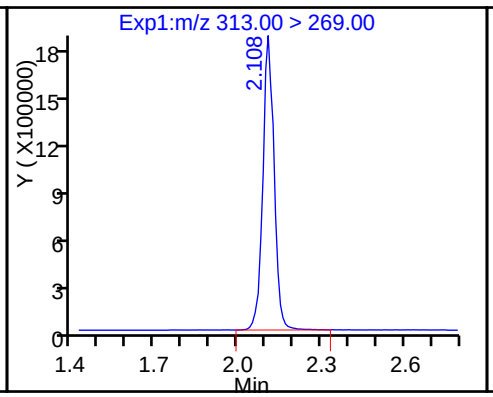
5 Perfluorobutanesulfonic acid



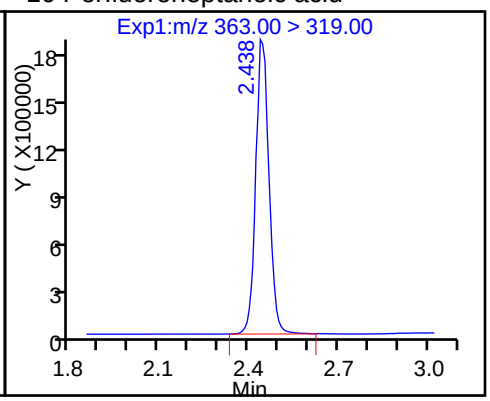
D 7 13C2 PFHxA



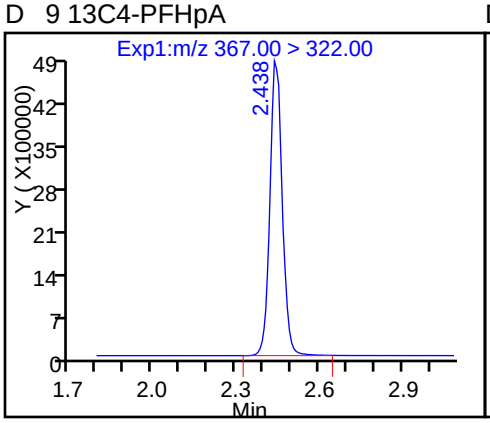
6 Perfluorohexanoic acid



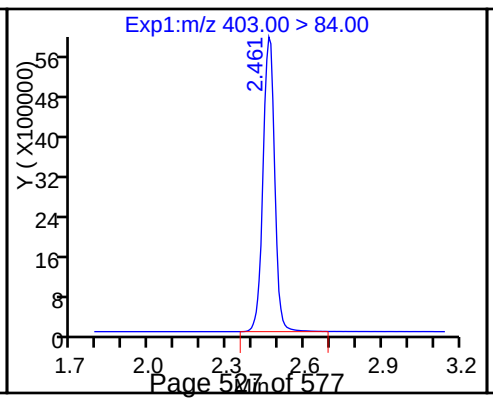
10 Perfluoroheptanoic acid



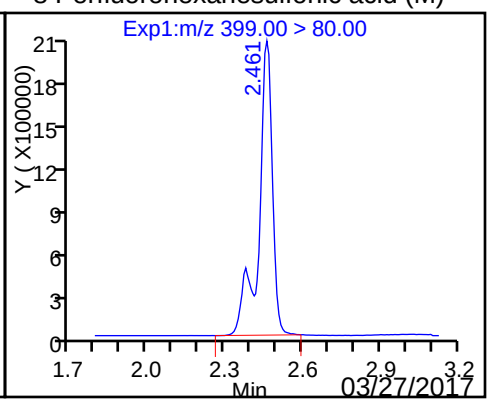
D 9 13C4-PFHpA



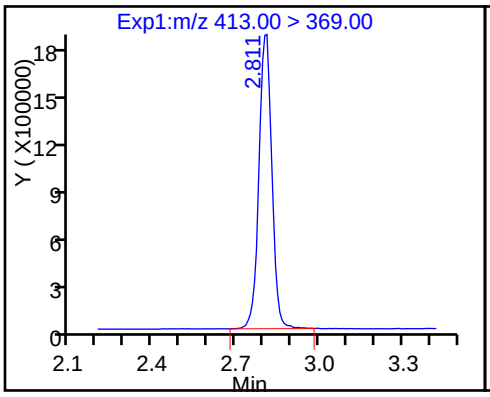
D 11 18O2 PFHxS



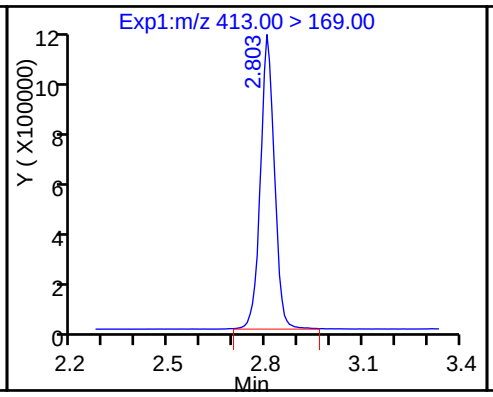
8 Perfluorohexanesulfonic acid (M)



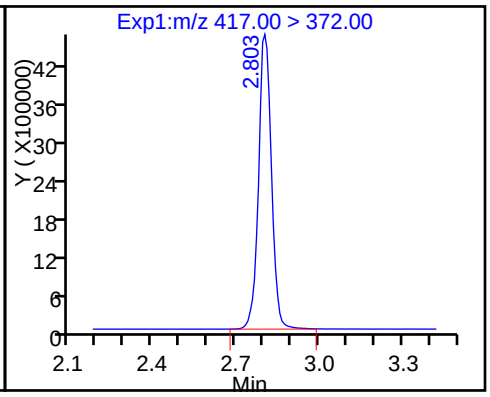
15 Perfluorooctanoic acid



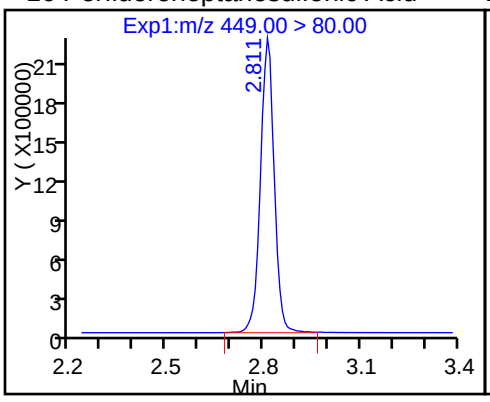
15 Perfluorooctanoic acid



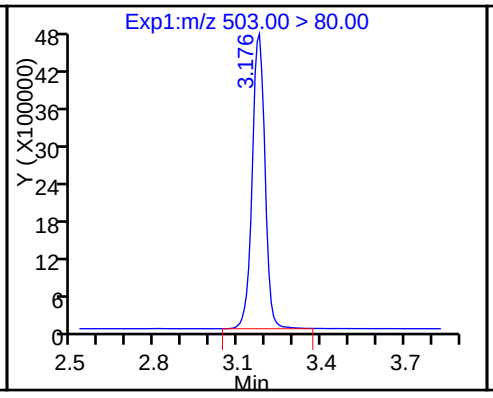
D 14 13C4 PFOA



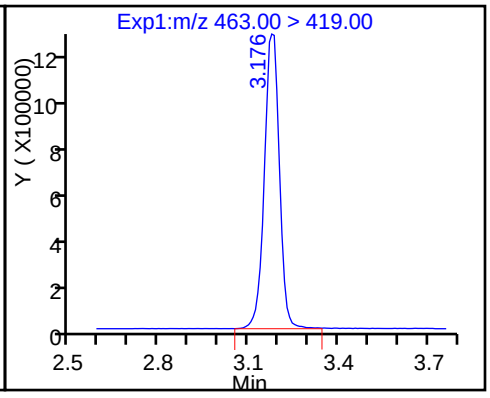
16 Perfluoroheptanesulfonic Acid



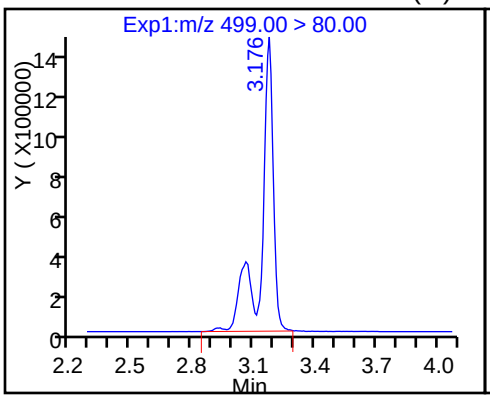
D 18 13C4 PFOS



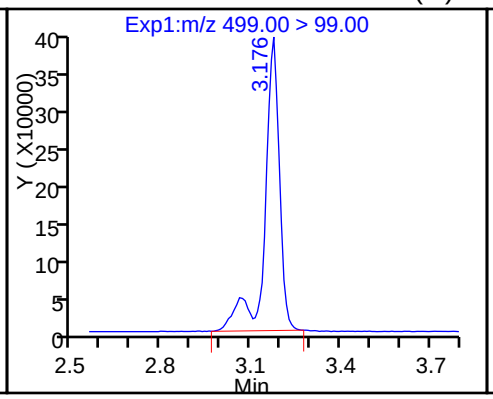
20 Perfluorononanoic acid



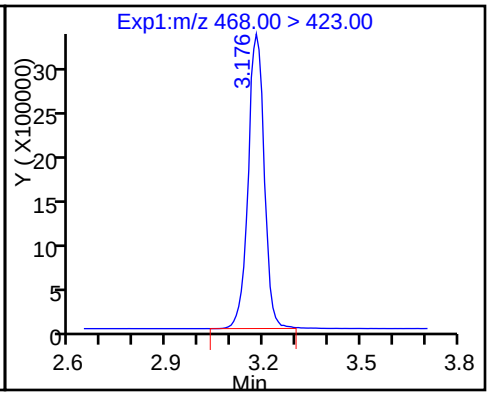
17 Perfluorooctane sulfonic acid (M)



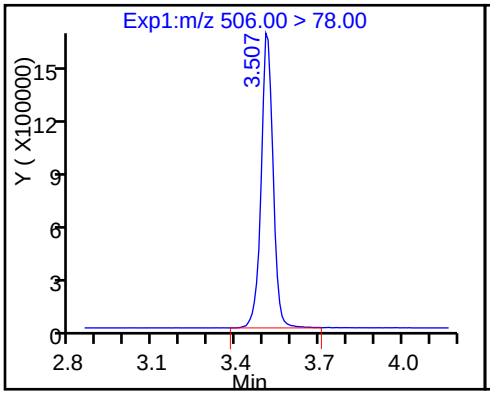
17 Perfluorooctane sulfonic acid (M)



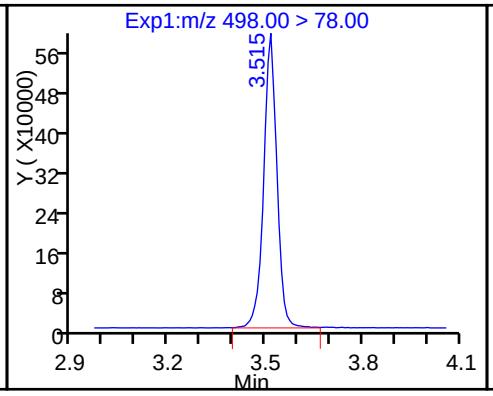
D 19 13C5 PFNA



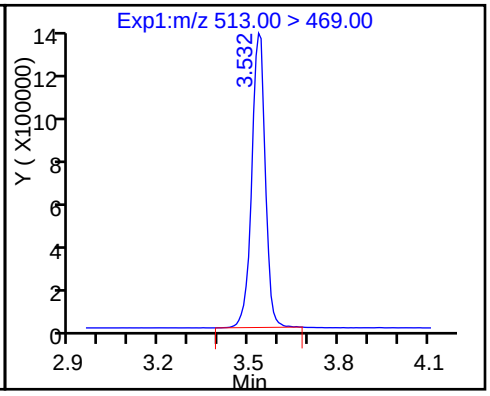
D 21 13C8 FOSA



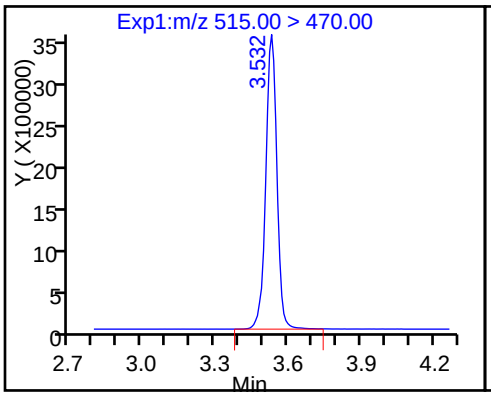
22 Perfluorooctane Sulfonamide



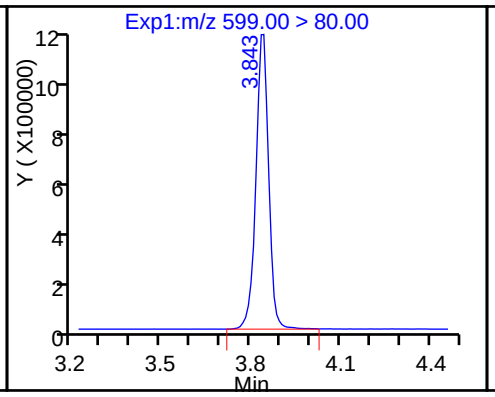
24 Perfluorodecanoic acid



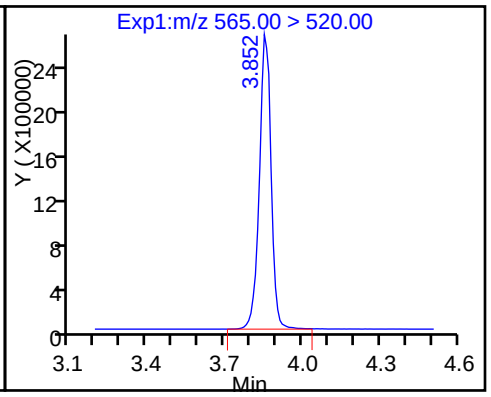
D 23 13C2 PFDA



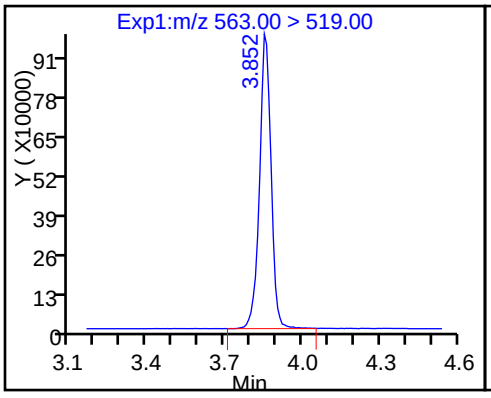
29 Perfluorodecane Sulfonic acid



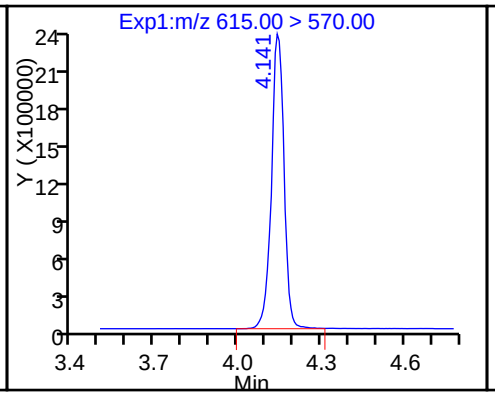
D 30 13C2 PFUnA



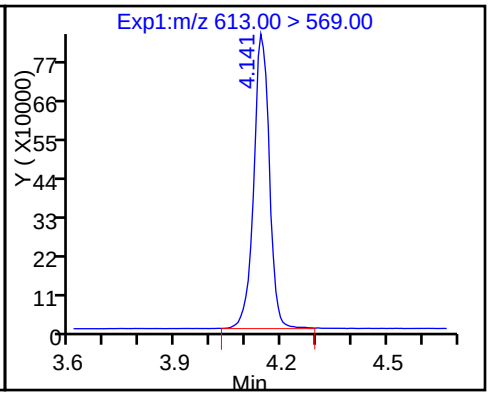
31 Perfluoroundecanoic acid



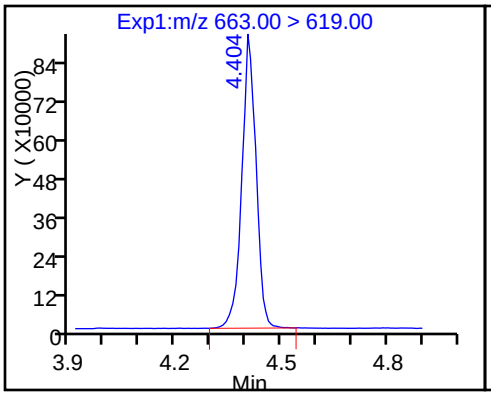
D 36 13C2 PFDoA



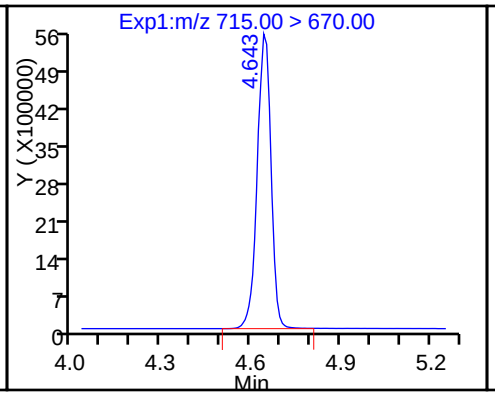
37 Perfluorododecanoic acid



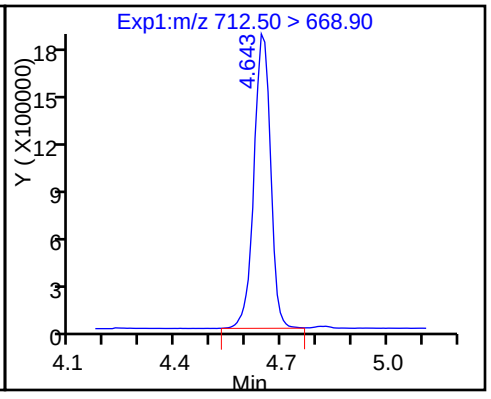
41 Perfluorotridecanoic acid



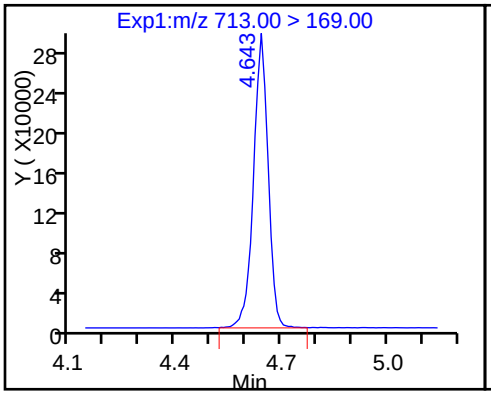
D 43 13C2-PFTeDA



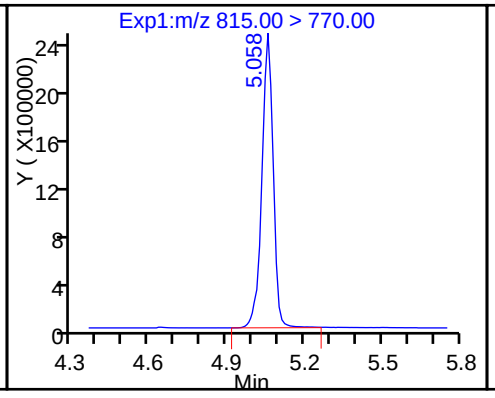
42 Perfluorotetradecanoic acid



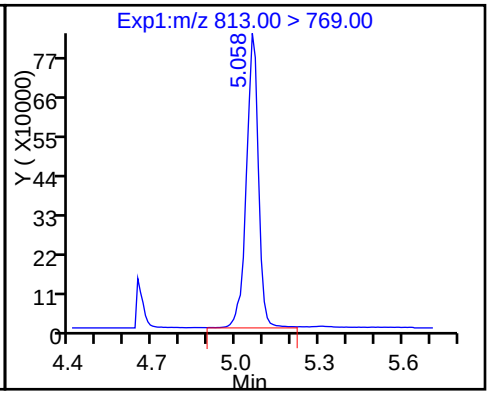
42 Perfluorotetradecanoic acid



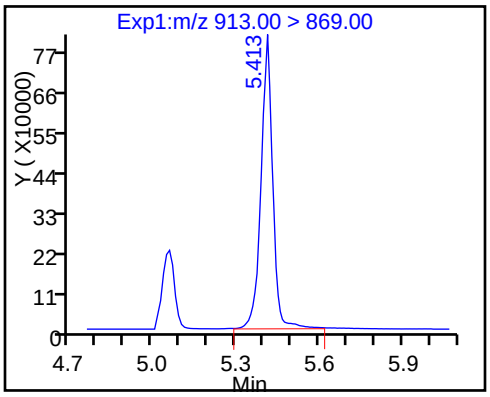
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

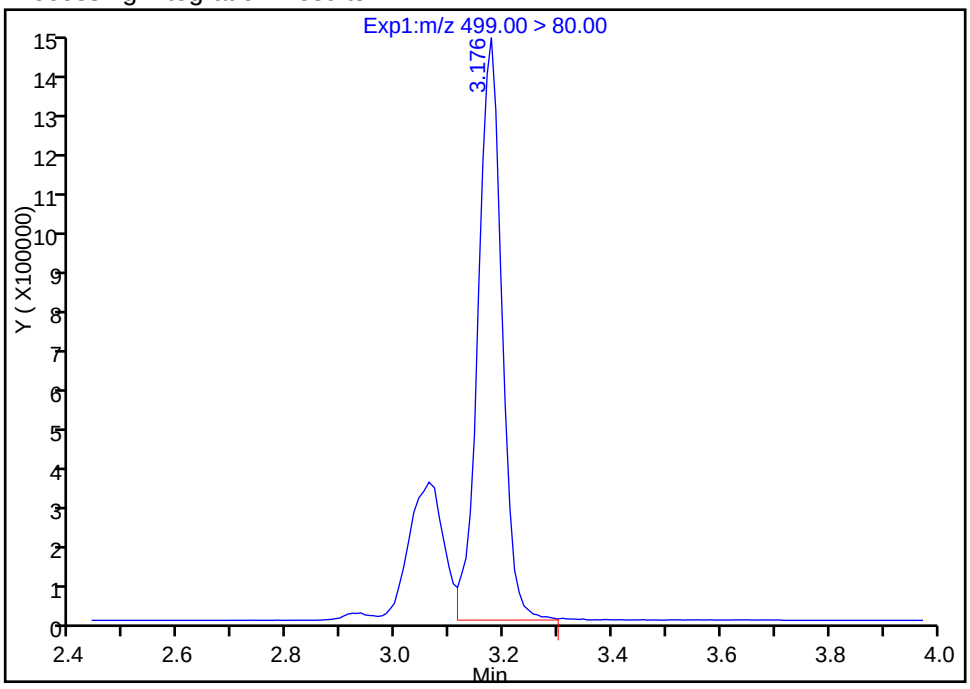
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_042.d				
Injection Date:	10-Mar-2017 22:37:31	Instrument ID:	A8_N		
Lims ID:	LCS 320-153501/2-A				
Client ID:					
Operator ID:	A8-PC\A8	ALS Bottle#:	32	Worklist Smp#:	21
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC_DOD ICAL		
Column:		Detector	EXP1		

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

Signal: 1

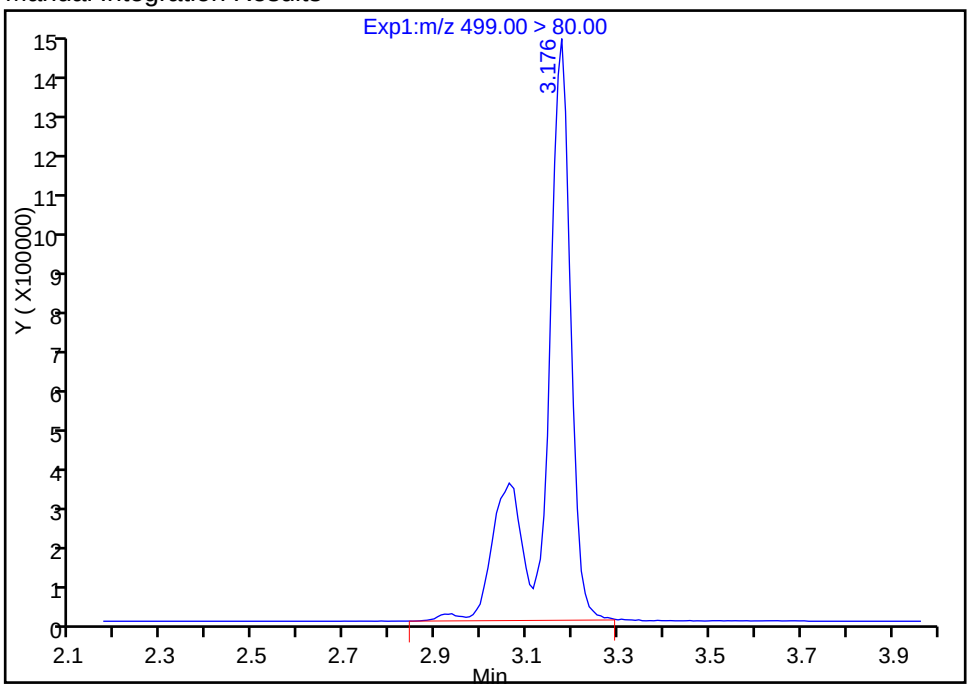
Processing Integration Results

RT: 3.18
Area: 4379310
Amount: 13.973152
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 5926572
Amount: 18.910032
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:25:16

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

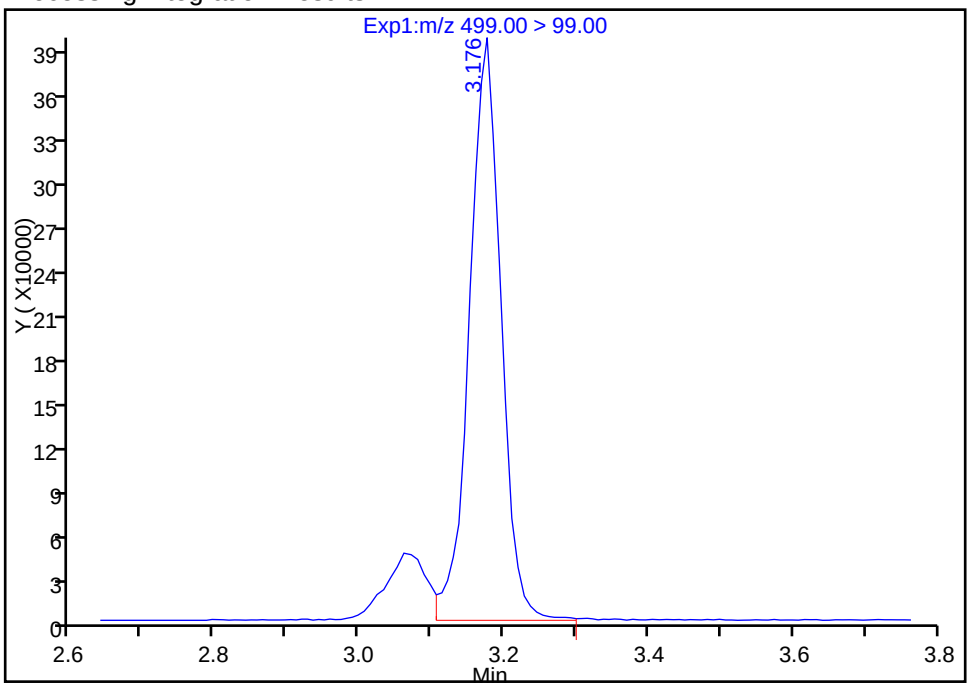
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_042.d
Injection Date: 10-Mar-2017 22:37:31 Instrument ID: A8_N
Lims ID: LCS 320-153501/2-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

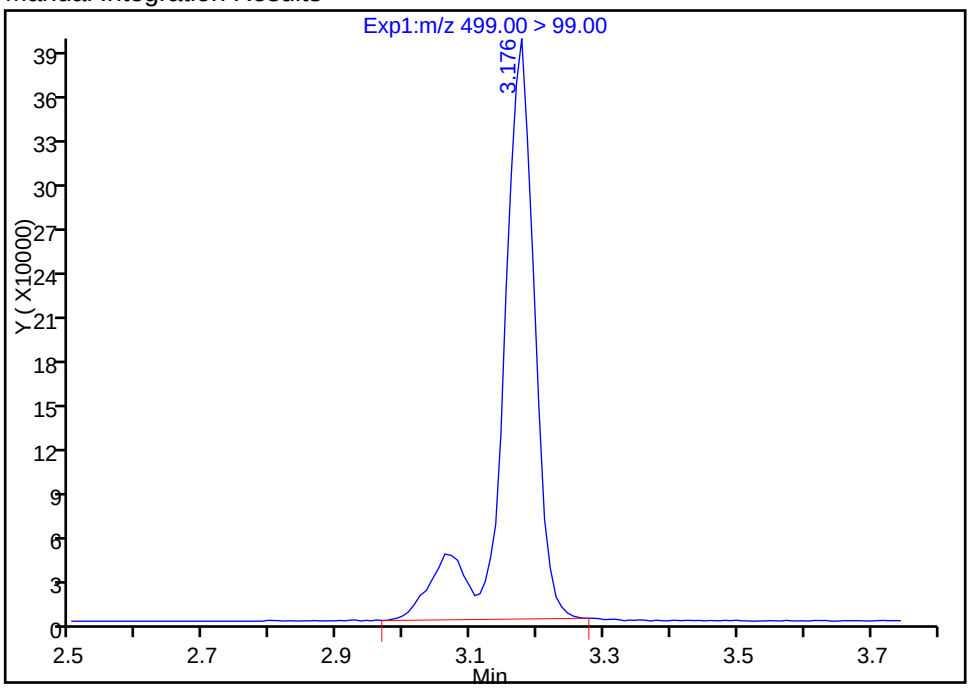
Processing Integration Results

RT: 3.18
Area: 1180996
Amount: 13.973152
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 1331810
Amount: 18.910032
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:25:23
Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Client Sample ID: Lab Sample ID: LCSD 320-153501/3-A

Matrix: Water Lab File ID: 2017.03.10B_043.d

Analysis Method: 537 (Modified) Date Collected:

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 250.00(mL) Date Analyzed: 03/10/2017 22:45

Con. Extract Vol.: 0.5(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 154459 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	39.6		2.5	2.0	0.75
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	39.4	M	4.0	3.0	1.3
375-73-5	Perfluorobutanesulfonic acid (PFBS)	41.6		2.5	2.0	0.92

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	140		25-150
STL00991	13C4 PFOS	123		25-150
STL00994	18O2 PFHxS	128		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_043.d
Lims ID: LCSD 320-153501/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 10-Mar-2017 22:45:01 ALS Bottle#: 33 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-153501/3-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: A8-PC\A8 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\A8_N.m
Limit Group: LC PFC_DOD ICAL
Last Update: 13-Mar-2017 11:26:26 Calib Date: 01-Mar-2017 11:53:47
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK033

First Level Reviewer: changnoit Date: 13-Mar-2017 11:26:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.531	1.539	-0.007		17598766	60.2		120	820576	
2 Perfluorobutyric acid										
212.90 > 169.00	1.531	1.546	-0.015	1.000	6323957	21.2		106	44822	
D 3 13C5-PFPeA										
267.90 > 223.00	1.812	1.822	-0.010		15903393	68.5		137	818558	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.812	1.822	-0.010	1.000	6332019	20.3		102	55984	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.852	1.861	-0.009	1.000	11124260	20.8		118		
298.90 > 99.00	1.842	1.861	-0.019	0.995	4584738		2.43(0.00-0.00)			
D 7 13C2 PFHxA										
315.00 > 270.00	2.105	2.111	-0.006		14311779	67.9		136	525619	
6 Perfluorohexanoic acid										
313.00 > 269.00	2.105	2.111	-0.006	1.000	5238543	20.6		103	105505	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.444	2.449	-0.005	1.000	5444478	20.7		103	56080	
D 9 13C4-PFHpA										
367.00 > 322.00	2.444	2.457	-0.013		13614218	70.6		141	359537	
D 11 18O2 PFHxS										
403.00 > 84.00	2.460	2.464	-0.004		17666899	60.7		128	521292	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.460	2.472	-0.012	1.000	6983927	18.2		99.9		M
15 Perfluorooctanoic acid										
413.00 > 369.00	2.802	2.814	-0.012	1.000	5787873	19.8		98.9	48875	
413.00 > 169.00	2.802	2.814	-0.012	1.000	3428634		1.69(0.90-1.10)		93447	
D 14 13C4 PFOA										
417.00 > 372.00	2.802	2.814	-0.012		14318893	69.9		140	453460	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.810	2.822	-0.012	1.000	6458337	21.1		111		
D 18 13C4 PFOS										
503.00 > 80.00	3.176	3.188	-0.012		14190126	58.7		123	299110	
20 Perfluorononanoic acid										
463.00 > 419.00	3.184	3.197	-0.013	1.000	4372238	20.9		105	65659	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.176	3.197	-0.021	1.000	5758713	19.7		106	138439	M
499.00 > 99.00	3.184	3.197	-0.013	1.003	1264244		4.56(0.90-1.10)		44500	M
D 19 13C5 PFNA										
468.00 > 423.00	3.176	3.197	-0.021		11568439	65.0		130	378616	
D 21 13C8 FOSA										
506.00 > 78.00	3.523	3.533	-0.010		18243306	49.7		99.4	343399	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.523	3.533	-0.010	1.000	6895430	21.0		105	193663	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.540	3.550	-0.010	1.000	4033151	21.5		107	129002	
D 23 13C2 PFDA										
515.00 > 470.00	3.540	3.558	-0.018		10379472	62.3		125	249723	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.842	3.856	-0.014	1.000	3368274	19.0		98.8		
D 30 13C2 PFUnA										
565.00 > 520.00	3.868	3.873	-0.005		8124775	62.1		124	327081	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.868	3.873	-0.005	1.000	2974567	18.1		90.3	61427	
D 36 13C2 PFDoA										
615.00 > 570.00	4.157	4.165	-0.008		7120319	57.4		115	181475	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.157	4.165	-0.008	1.000	2649197	20.3		102	80422	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.422	4.428	-0.006	1.000	2679135	21.5		108	48237	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.657	4.668	-0.011		15590451	60.2		120	553042	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.657	4.668	-0.011	1.000	5357942	19.1		95.7	36580	
713.00 > 169.00	4.647	4.668	-0.021	0.998	787797		6.80(0.00-0.00)		90764	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.060	5.077	-0.017		6468150	51.7		103	105988	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.060	5.077	-0.017	1.000	2221099	16.4		82.2	2385	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.423	5.428	-0.005	1.000	1897179	18.6		92.8	1793	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 13-Mar-2017 11:26:26 Chrom Revision: 2.2 05-Mar-2017 11:38:00

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_043.d

Injection Date: 10-Mar-2017 22:45:01 Instrument ID: A8_N

Lims ID: LCSD 320-153501/3-A

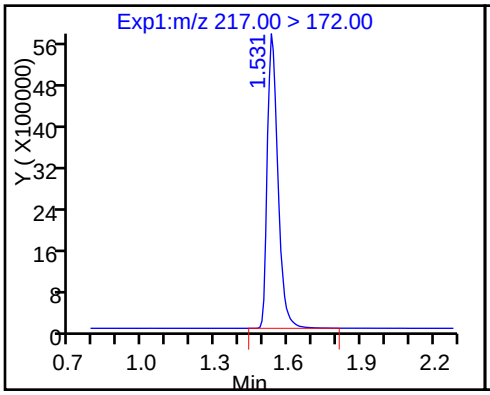
Client ID:

Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 22

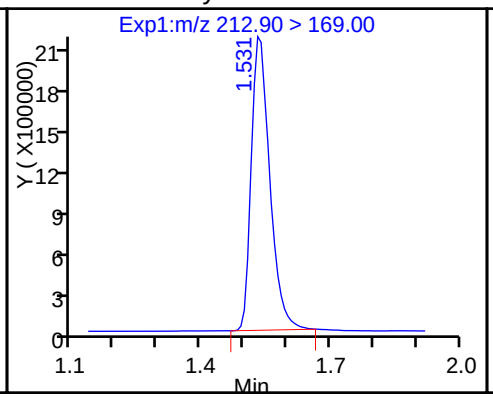
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC_DOD ICAL

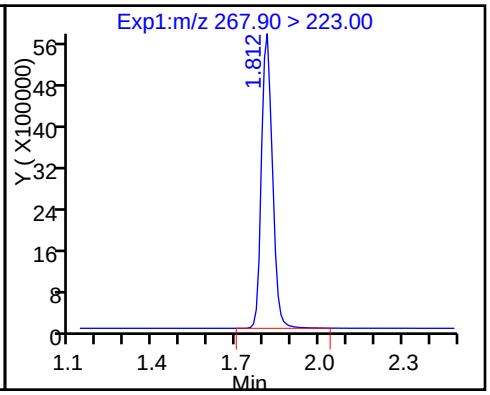
D 1 13C4 PFBA



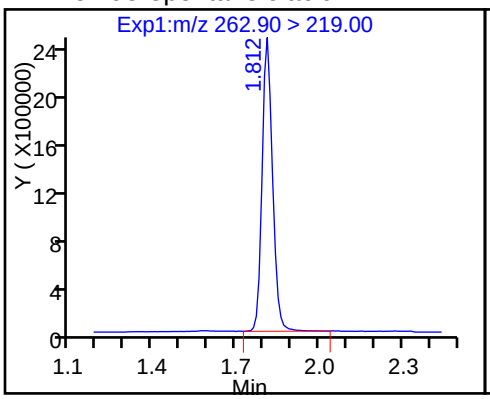
2 Perfluorobutyric acid



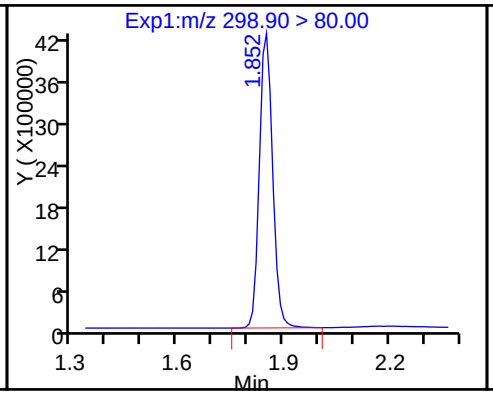
D 3 13C5-PFPeA



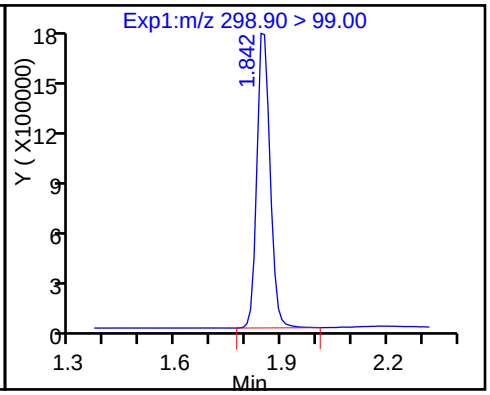
4 Perfluoropentanoic acid



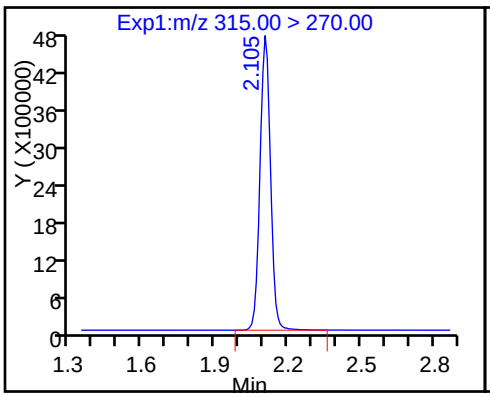
5 Perfluorobutanesulfonic acid



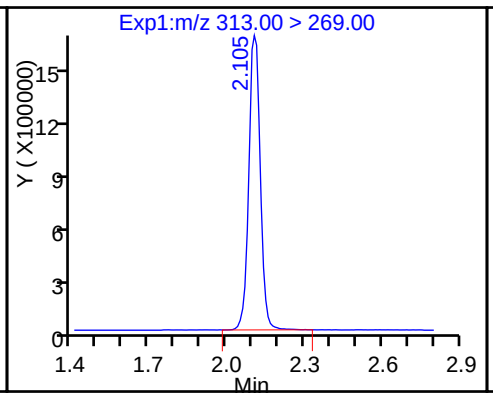
5 Perfluorobutanesulfonic acid



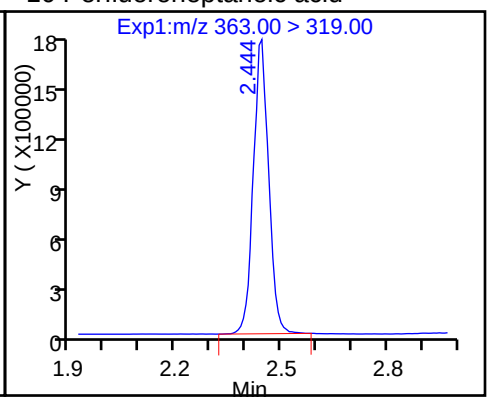
D 7 13C2 PFHxA



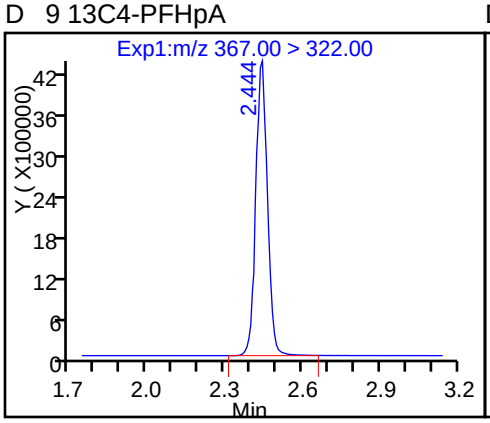
6 Perfluorohexanoic acid



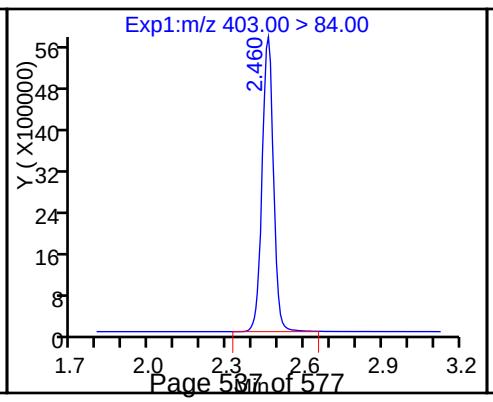
10 Perfluoroheptanoic acid



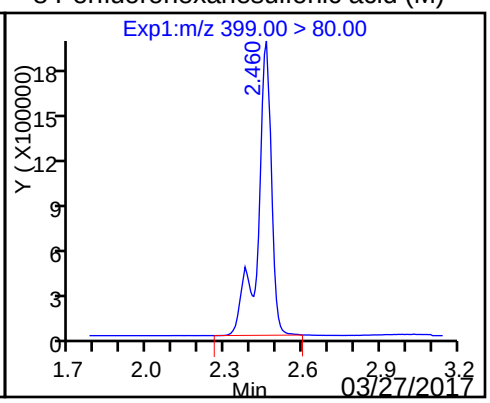
D 9 13C4-PFHpA



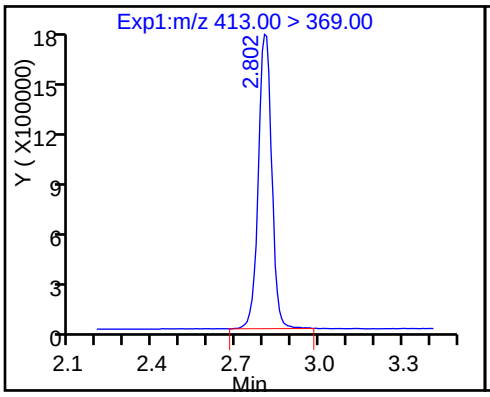
D 11 18O2 PFHxS



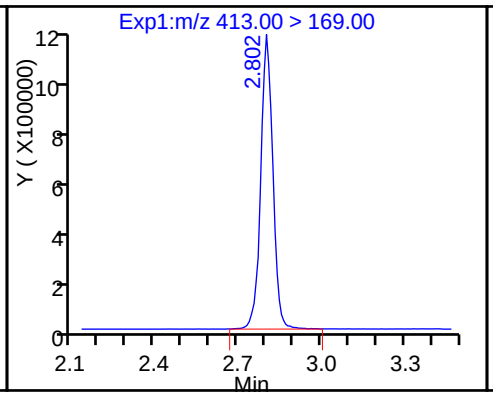
8 Perfluorohexanesulfonic acid (M)



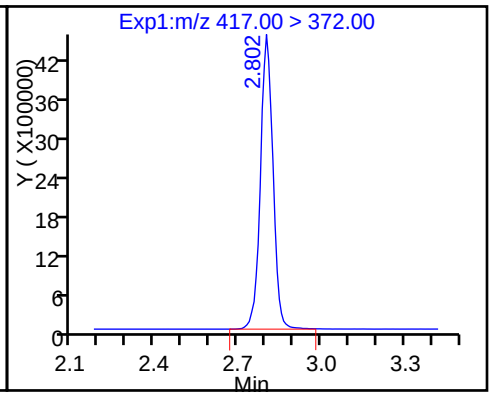
15 Perfluorooctanoic acid



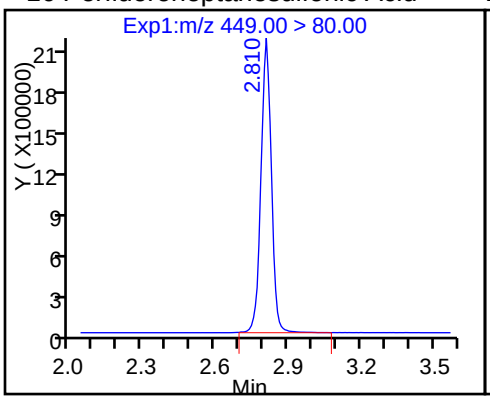
15 Perfluorooctanoic acid



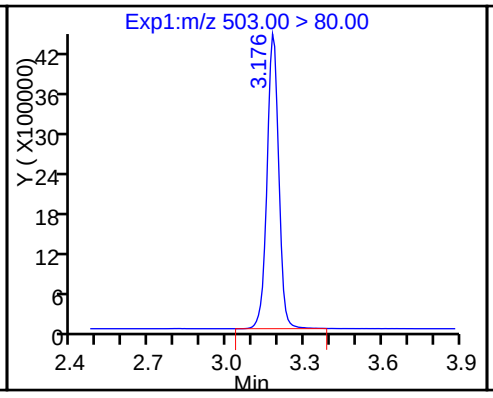
D 14 13C4 PFOA



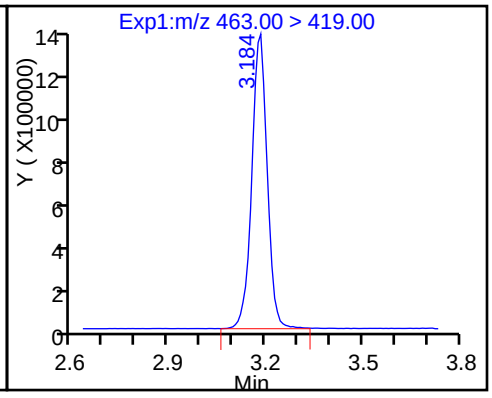
16 Perfluoroheptanesulfonic Acid



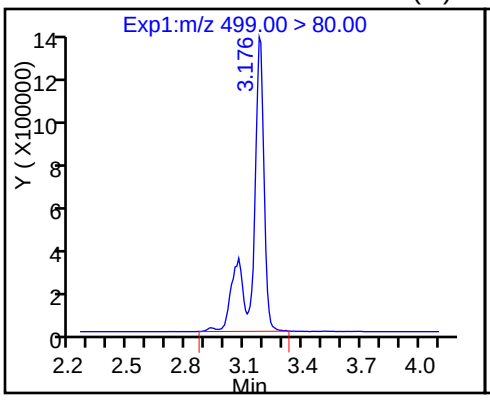
D 18 13C4 PFOS



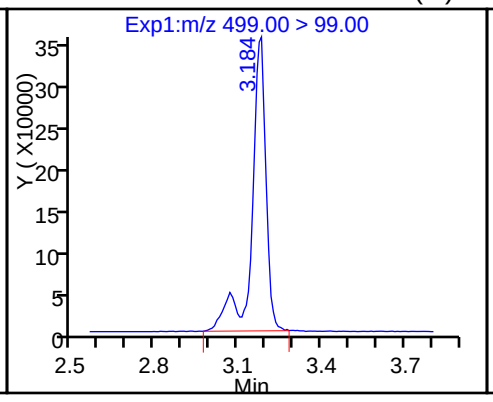
20 Perfluorononanoic acid



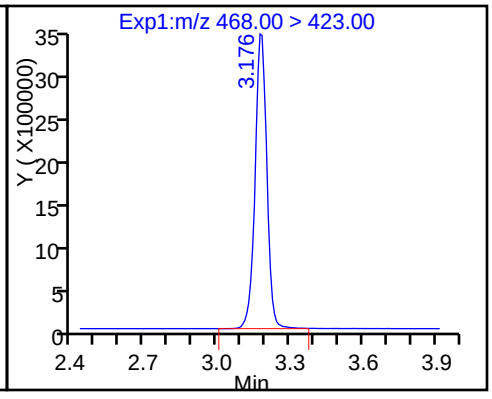
17 Perfluorooctane sulfonic acid (M)



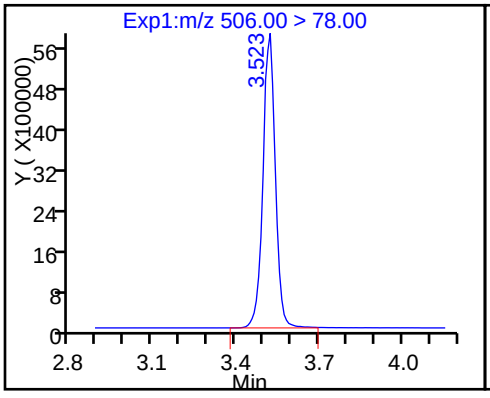
17 Perfluorooctane sulfonic acid (M)



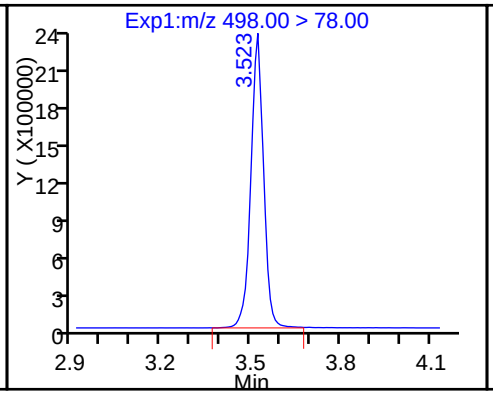
D 19 13C5 PFNA



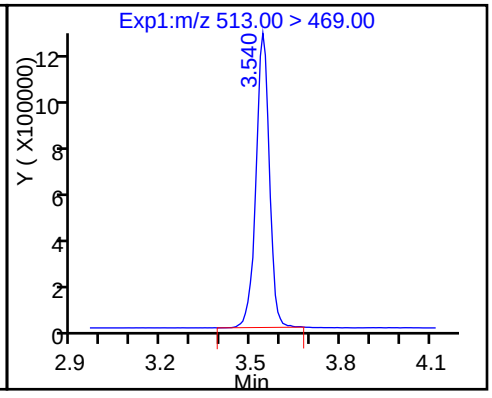
D 21 13C8 FOSA



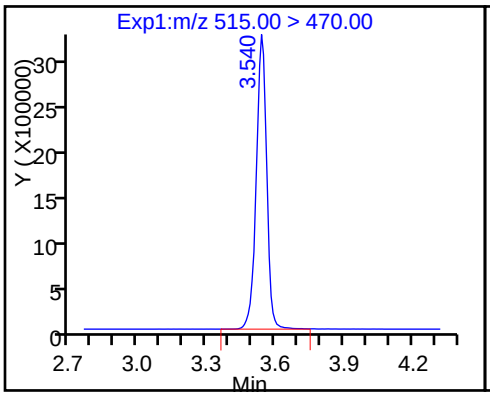
22 Perfluorooctane Sulfonamide



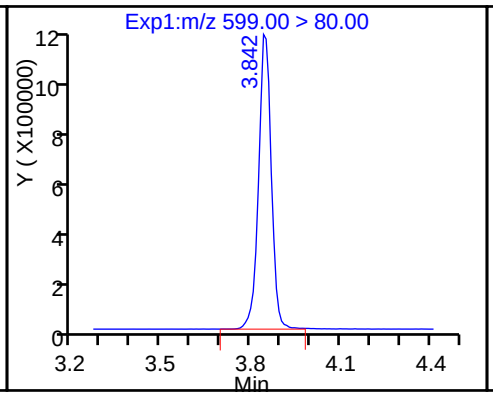
24 Perfluorodecanoic acid



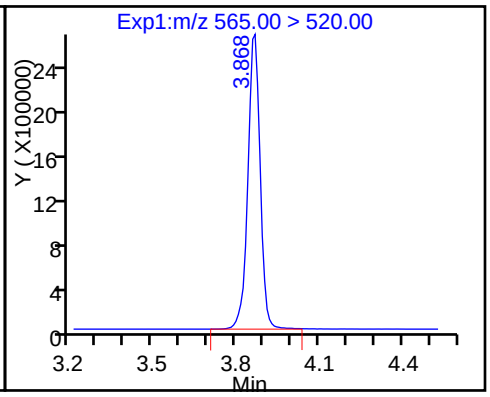
D 23 13C2 PFDA



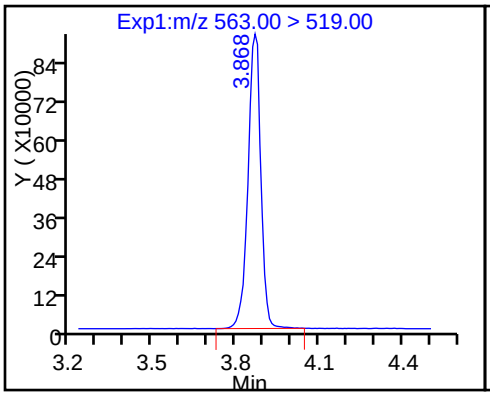
29 Perfluorodecane Sulfonic acid



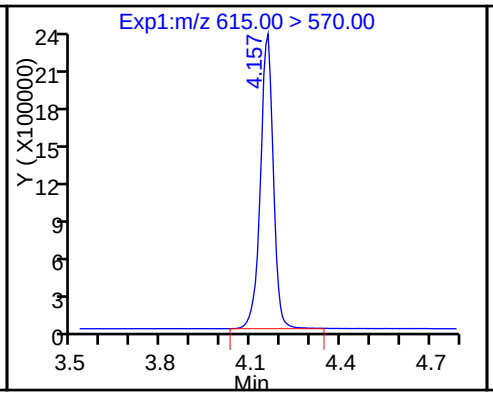
D 30 13C2 PFUnA



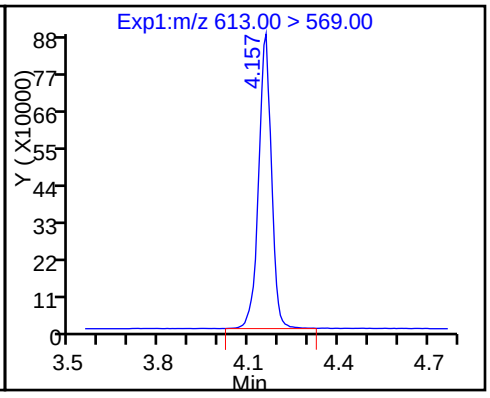
31 Perfluoroundecanoic acid



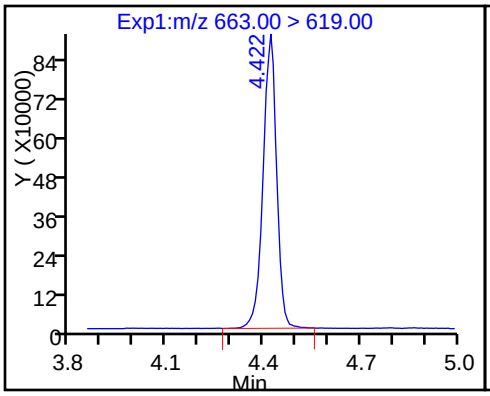
D 36 13C2 PFDoA



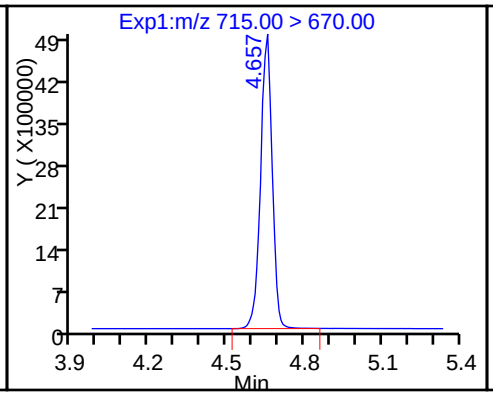
37 Perfluorododecanoic acid



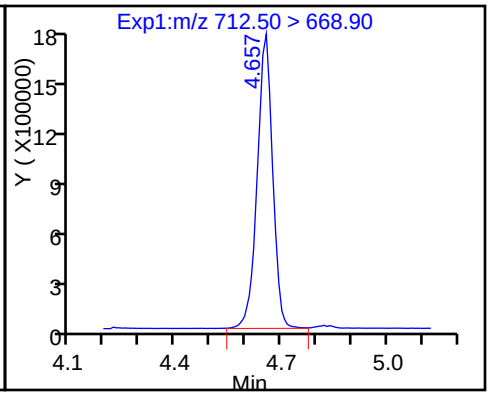
41 Perfluorotridecanoic acid



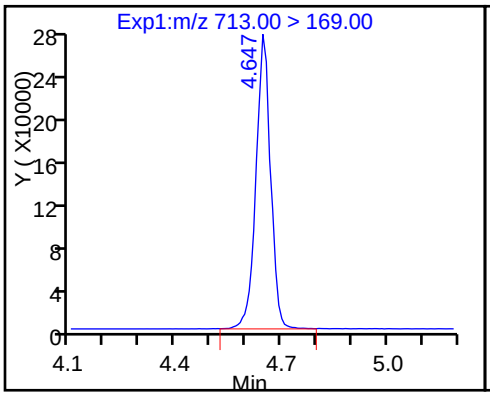
D 43 13C2-PFTeDA



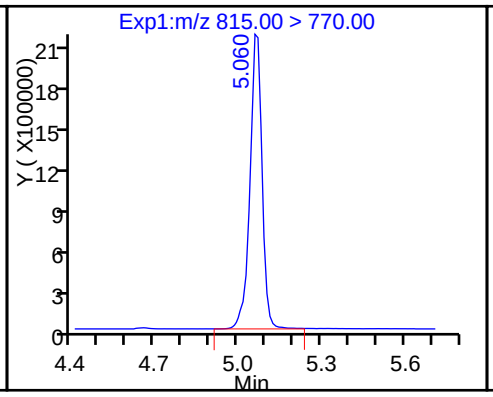
42 Perfluorotetradecanoic acid



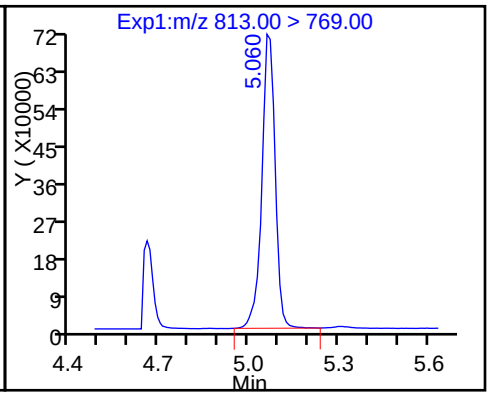
42 Perfluorotetradecanoic acid



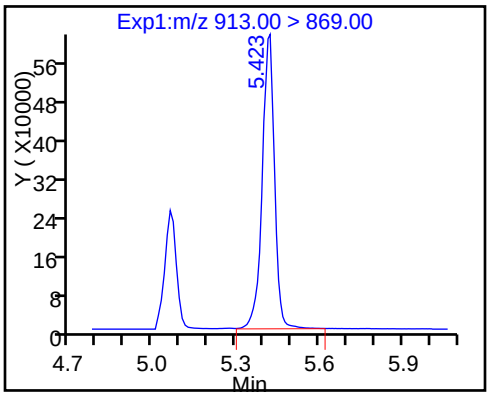
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

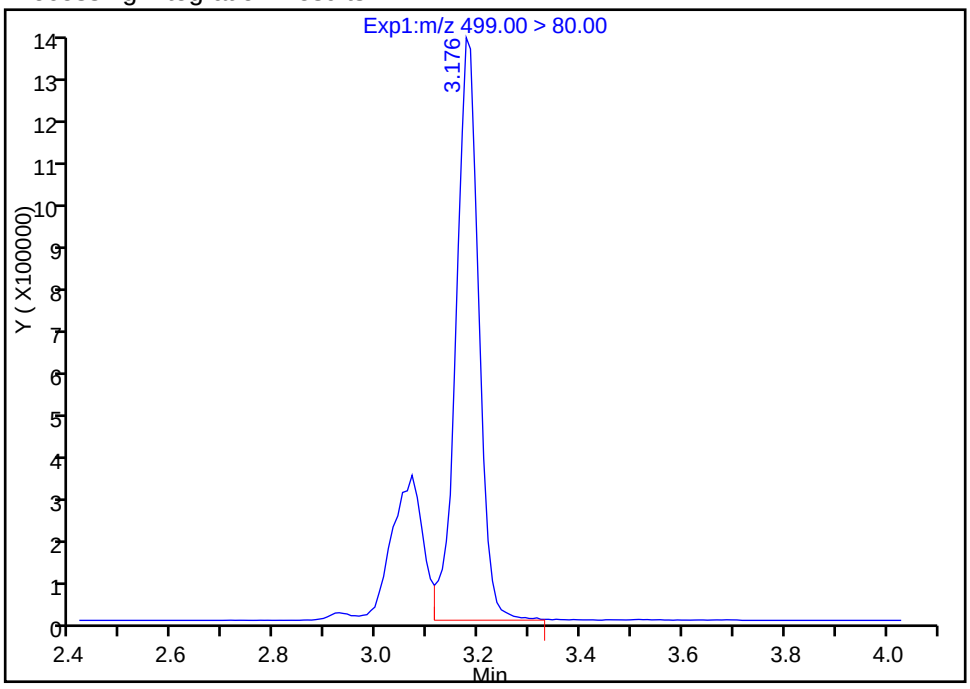
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_043.d
Injection Date: 10-Mar-2017 22:45:01 Instrument ID: A8_N
Lims ID: LCSD 320-153501/3-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 1

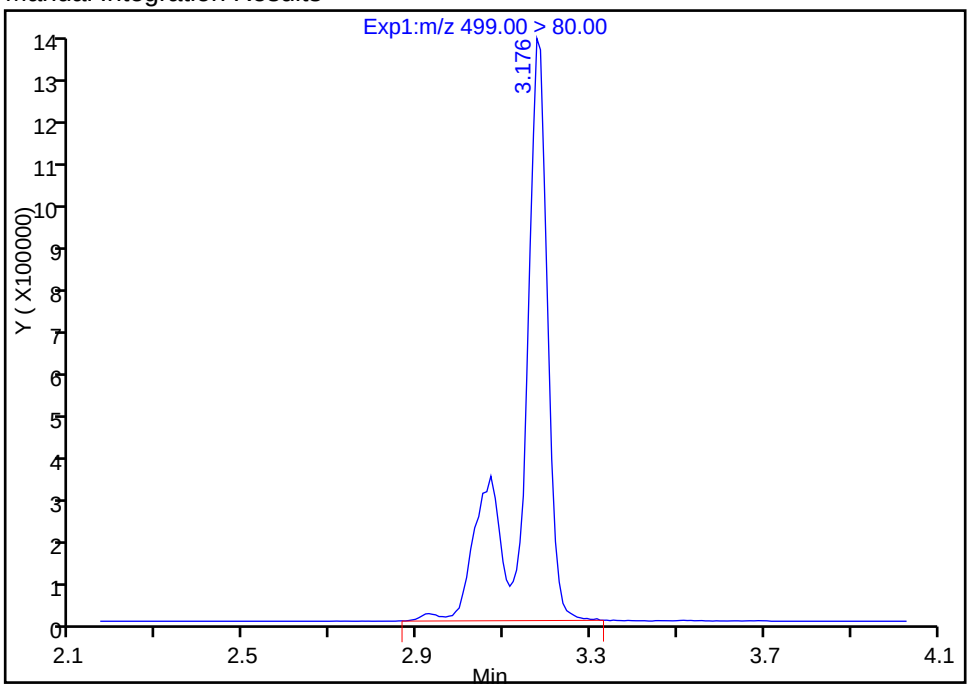
Processing Integration Results

RT: 3.18
Area: 4272631
Amount: 14.634251
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 5758713
Amount: 19.724252
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:26:02
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

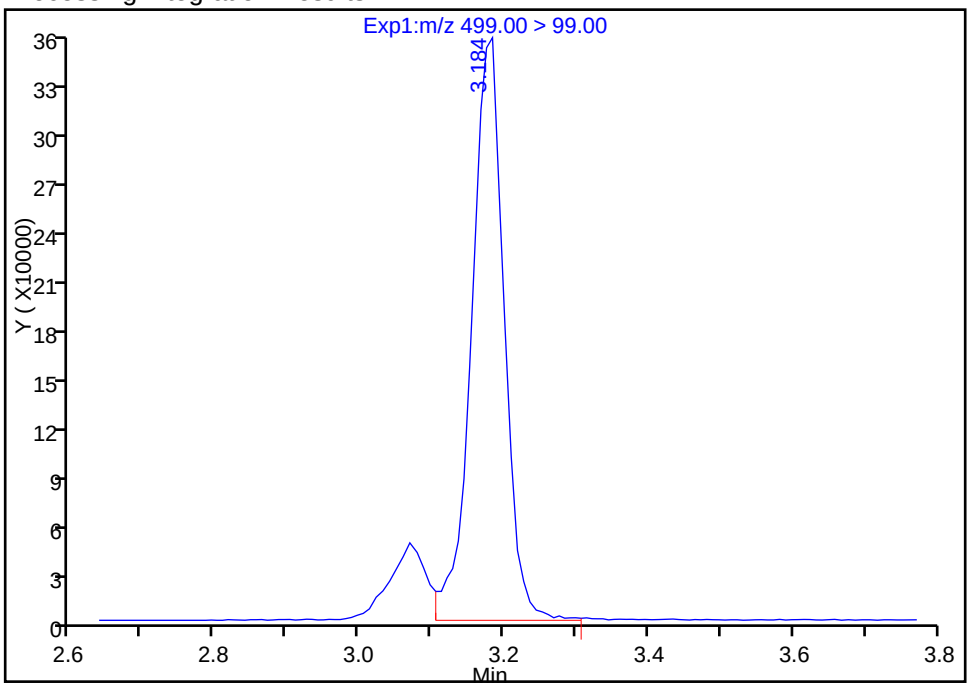
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_043.d
Injection Date: 10-Mar-2017 22:45:01 Instrument ID: A8_N
Lims ID: LCSD 320-153501/3-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

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

Signal: 2

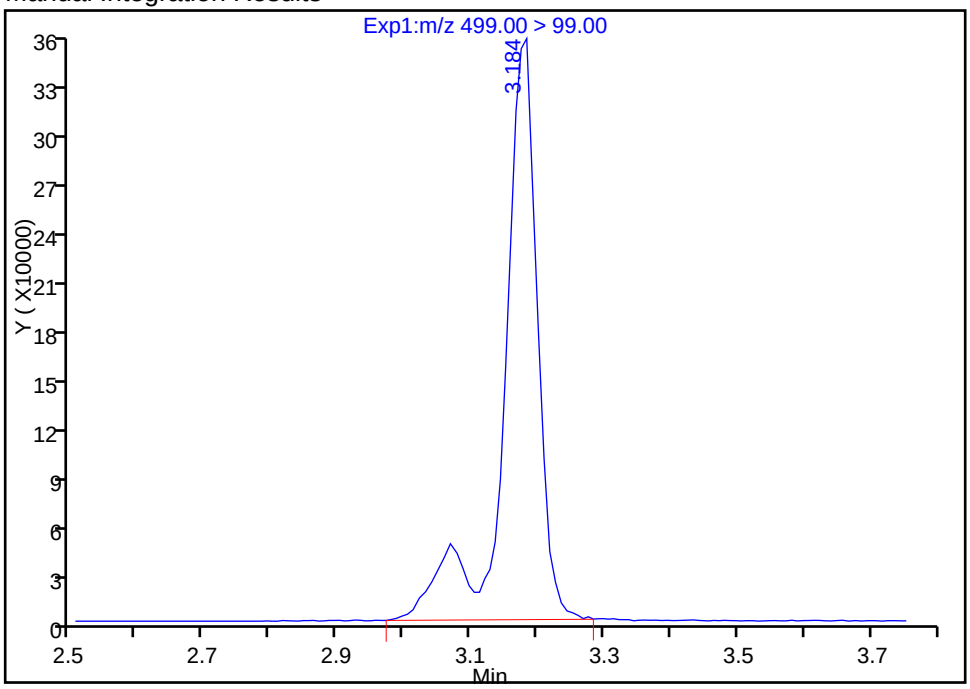
Processing Integration Results

RT: 3.18
Area: 1118078
Amount: 14.634251
Amount Units: ng/ml



Manual Integration Results

RT: 3.18
Area: 1264244
Amount: 19.724252
Amount Units: ng/ml



Reviewer: changnoit, 13-Mar-2017 11:26:07
Audit Action: Manually Integrated Audit Reason: Isomers

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Start Date: 03/01/2017 11:08

Analysis Batch Number: 152681 End Date: 03/01/2017 12:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-152681/2		03/01/2017 11:08	1	2017.03.01CURVE 003.d	GeminiC18 3x100 3(mm)
IC 320-152681/3		03/01/2017 11:16	1	2017.03.01CURVE 004.d	GeminiC18 3x100 3(mm)
IC 320-152681/4		03/01/2017 11:23	1	2017.03.01CURVE 005.d	GeminiC18 3x100 3(mm)
IC 320-152681/5		03/01/2017 11:31	1	2017.03.01CURVE 006.d	GeminiC18 3x100 3(mm)
IC 320-152681/6		03/01/2017 11:38	1	2017.03.01CURVE 007.d	GeminiC18 3x100 3(mm)
IC 320-152681/7		03/01/2017 11:46	1	2017.03.01CURVE 008.d	GeminiC18 3x100 3(mm)
ICB 320-152681/12		03/01/2017 12:23	1		GeminiC18 3x100 3(mm)
ICV 320-152681/13		03/01/2017 12:31	1	2017.03.01CURVE 014.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Start Date: 03/10/2017 17:29

Analysis Batch Number: 154455 End Date: 03/10/2017 20:00

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		03/10/2017 17:29	1		GeminiC18 3x100 3(mm)
CCV 320-154455/2 CCVL		03/10/2017 17:37	1	2017.03.10B_002 .d	GeminiC18 3x100 3(mm)
CCV 320-154455/3		03/10/2017 17:44	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 17:52	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 17:59	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 18:07	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 18:14	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 18:22	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 18:29	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 18:37	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 18:44	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 18:52	1		GeminiC18 3x100 3(mm)
CCV 320-154455/13		03/10/2017 18:59	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 19:07	100		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 19:14	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 19:22	50		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 19:29	50		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 19:37	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 19:45	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 19:52	1		GeminiC18 3x100 3(mm)
CCV 320-154455/21		03/10/2017 20:00	1		GeminiC18 3x100 3(mm)

537 (Modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Start Date: 03/10/2017 20:07

Analysis Batch Number: 154459 End Date: 03/11/2017 00:15

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-154459/1		03/10/2017 20:07	1		GeminiC18 3x100 3(mm)
CCV 320-154459/10		03/10/2017 21:14	1		GeminiC18 3x100 3(mm)
CCV 320-154459/19		03/10/2017 22:22	1	2017.03.10B_040.d	GeminiC18 3x100 3(mm)
MB 320-153501/1-A		03/10/2017 22:30	1	2017.03.10B_041.d	GeminiC18 3x100 3(mm)
LCS 320-153501/2-A		03/10/2017 22:37	1	2017.03.10B_042.d	GeminiC18 3x100 3(mm)
LCSD 320-153501/3-A		03/10/2017 22:45	1	2017.03.10B_043.d	GeminiC18 3x100 3(mm)
320-26263-1		03/10/2017 22:52	1	2017.03.10B_044.d	GeminiC18 3x100 3(mm)
320-26263-2		03/10/2017 23:00	1	2017.03.10B_045.d	GeminiC18 3x100 3(mm)
320-26263-3		03/10/2017 23:07	1	2017.03.10B_046.d	GeminiC18 3x100 3(mm)
320-26263-4		03/10/2017 23:15	1	2017.03.10B_047.d	GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 23:22	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 23:30	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 23:37	1		GeminiC18 3x100 3(mm)
CCV 320-154459/30		03/10/2017 23:45	1	2017.03.10B_051.d	GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 23:52	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 00:00	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/11/2017 00:07	1		GeminiC18 3x100 3(mm)
CCV 320-154459/34		03/11/2017 00:15	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Start Date: 03/13/2017 11:39

Analysis Batch Number: 154721 End Date: 03/13/2017 13:47

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-154721/1 CCVL		03/13/2017 11:39	1	2017.03.13A_004 .d	GeminiC18 3x100 3(mm)
CCV 320-154721/2		03/13/2017 11:47	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:02	100		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:09	100		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:17	20		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:24	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:32	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:39	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:47	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 12:54	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 13:02	10		GeminiC18 3x100 3(mm)
CCV 320-154721/12		03/13/2017 13:09	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 13:17	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 13:24	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 13:32	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 13:39	10		GeminiC18 3x100 3(mm)
CCV 320-154721/17		03/13/2017 13:47	1		GeminiC18 3x100 3(mm)

537 (Modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Start Date: 03/13/2017 15:52

Analysis Batch Number: 154808 End Date: 03/13/2017 17:53

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-154808/1		03/13/2017 15:52	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:01	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:08	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:16	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:23	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:31	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:38	20		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:46	100		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 16:53	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:01	10		GeminiC18 3x100 3(mm)
CCV 320-154808/11		03/13/2017 17:08	1	2017.03.13A_047 .d	GeminiC18 3x100 3(mm)
320-26263-1 DL		03/13/2017 17:16	5	2017.03.13A_048 .d	GeminiC18 3x100 3(mm)
320-26263-2 DL		03/13/2017 17:23	10	2017.03.13A_049 .d	GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:31	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:38	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:46	1		GeminiC18 3x100 3(mm)
CCV 320-154808/17		03/13/2017 17:53	1	2017.03.13A_053 .d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Instrument ID: A8_N Start Date: 03/14/2017 14:51

Analysis Batch Number: 155009 End Date: 03/14/2017 15:21

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-155009/3		03/14/2017 14:51	1	2017.03.14A_017.d	GeminiC18 3x100 3(mm)
ZZZZZ		03/14/2017 14:58	1		GeminiC18 3x100 3(mm)
320-26263-2 DL2		03/14/2017 15:13	25	2017.03.14A_020.d	GeminiC18 3x100 3(mm)
CCV 320-155009/7		03/14/2017 15:21	1	2017.03.14A_021.d	GeminiC18 3x100 3(mm)

537 (Modified)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Batch Number: 153501 Batch Start Date: 03/06/17 16:19 Batch Analyst: Reed, Jonathan E

Batch Method: 3535 Batch End Date: 03/07/17 14:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFCSU 00047	LCPFCSP 00080
MB 320-153501/1		3535, 537 (Modified)				250.00 mL	0.5 mL	25 uL	
LCS 320-153501/2		3535, 537 (Modified)				250.00 mL	0.5 mL	25 uL	20 uL
LCSD 320-153501/3		3535, 537 (Modified)				250.00 mL	0.5 mL	25 uL	20 uL
320-26263-A-1	MEAFF-WWTP-MW01-0317	3535, 537 (Modified)	T	289.50 g	28.35 g	261.2 mL	0.5 mL	25 uL	
320-26263-A-2	MEAFF-PWMA-MW01-0317	3535, 537 (Modified)	T	298.71 g	26.55 g	272.2 mL	0.5 mL	25 uL	
320-26263-A-3	MEAFF-Unknown22-MW01-0317	3535, 537 (Modified)	T	296.09 g	27.04 g	269.1 mL	0.5 mL	25 uL	
320-26263-A-4	MEAFF-FD04-030117	3535, 537 (Modified)	T	297.95 g	27.10 g	270.9 mL	0.5 mL	25 uL	

Batch Notes	
Balance ID	QA-070
Batch Comment	0.1N NaOH/H2O: 858158
H2O ID	3/06/17
Hexane ID	863965
Manifold ID	10, 2
Methanol ID	865700
Pipette ID	MD05306
Analyst ID - Reagent Drop	JER 5/5 SURR Reg
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPM
Solvent Lot #	864283
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.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

West Sacramento

HPLC/LCMS Data Review Checklist

Job Number(s): 320-26263, 320-26273 Work List ID(s): 40721

Extraction Batch: 160501 Analysis Batch(es): 160469

Delivery Rank 4. Due Date: 3/6/17, 3/7/17

A. Calibration/Instrument Run QC	1st Level	2nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# 160681.	✓	✓	
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): Rmc. GDC Date: 3/13/17. 3/14/17

2nd Level Reviewer: Mway Date: 3/16/2017

ncm# 80604, 79642.

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 10MAR2017C_PFC Worklist Number: 40721
Instrument Name: A8_N Chrom Method: A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b
QC Batching: Disabled Limit Group Batching: Enabled

QC Batch: 1	LC PFC_DOD ICAL Raw Batch: 154459	LC PFC ICAL Raw Batch: 154460	LC PFAS ICAL Raw Batch: 154461	LC PFC_PREC ICAL Raw Batch: 154462
# 1 CCV L5	# 1 CCV L5	# 1 CCV L5	# 1 CCV L5	# 1 CCV L5
# 2 MB 320-154209/1-A		# 2 MB 320-154209/1-A	# 2 MB 320-154209/1-A	
# 3 LCS 320-154209/2-A		# 3 LCS 320-154209/2-A	# 3 LCS 320-154209/2-A	
# 4 LCSD		# 4 LCSD	# 4 LCSD	
320-154209/3-A		320-154209/3-A	320-154209/3-A	
# 5 320-26418-A-1-A		# 5 320-26418-A-1-A	# 5 320-26418-A-1-A	
# 6 320-26418-A-2-A		# 6 320-26418-A-2-A	# 6 320-26418-A-2-A	
# 7 320-26418-A-3-A		# 7 320-26418-A-3-A	# 7 320-26418-A-3-A	
# 8 320-26418-A-4-A		# 8 320-26418-A-4-A	# 8 320-26418-A-4-A	
# 9 320-26418-A-13-A	#10 CCV L4	# 9 320-26418-A-13-A	# 9 320-26418-A-13-A	#10 CCV L4
#10 CCV L4		#10 CCV L4	#10 CCV L4	
#11 MB 320-153962/1-A		#11 MB 320-153962/1-A	#11 MB 320-153962/1-A	
#12 LCS		#12 LCS	#12 LCS	
320-153962/2-A		320-153962/2-A	320-153962/2-A	
#13 LCSD		#13 LCSD	#13 LCSD	
320-153962/3-A		320-153962/3-A	320-153962/3-A	
#14 320-26041-A-1-B		#14 320-26041-A-1-B	#14 320-26041-A-1-B	
#15 320-26041-A-2-B		#15 320-26041-A-2-B	#15 320-26041-A-2-B	
#16 320-26041-A-3-B	#19 CCV L5	#16 320-26041-A-3-B	#16 320-26041-A-3-B	#19 CCV L5
#17 320-26041-A-4-B	#20 MB 320-153501/1-A	#17 320-26041-A-4-B	#17 320-26041-A-4-B	
#18 320-26041-A-5-A	#21 LCS	#18 320-26041-A-5-A	#18 320-26041-A-5-A	
#19 CCV L5	320-153501/2-A	#19 CCV L5	#19 CCV L5	
#20 MB 320-153501/1-A	#22 LCSD			
#21 LCS	320-153501/3-A			
320-153501/2-A	#23 320-26263-A-1-A			
#22 LCSD	#24 320-26263-A-2-A			
320-153501/3-A	#25 320-26263-A-3-A			
#23 320-26263-A-1-A	#26 320-26263-A-4-A			
#24 320-26263-A-2-A	#27 320-26273-C-1-A			
#25 320-26263-A-3-A	#28 320-26273-C-2-A			#30 CCV L4
#26 320-26263-A-4-A	#29 320-26273-C-3-A			
#27 320-26273-C-1-A	#30 CCV L4			
#28 320-26273-C-2-A	#31 320-26273-C-4-A	#30 CCV L4	#30 CCV L4	
#29 320-26273-C-3-A	#32 320-26273-C-5-A			#34 CCV L5
#30 CCV L4	#33 320-26273-C-6-A			
#31 320-26273-C-4-A	#34 CCV L5			
#32 320-26273-C-5-A		#34 CCV L5	#34 CCV L5	
#33 320-26273-C-6-A				
#34 CCV L5				

CCV L2 154455

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

AB 3/10/17
AB DL 3/13/17

Batch Number: 320-153501

Method Code: 320-3535_IVWT-320

Batch Open: 3/6/2017 4:19:00PM

Batch End: 3/7/17 14:10

Solid-Phase Extraction (SPE)

Due 3/20

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB~320-153501/1 N/A	N/A		250.00 mL				N/A	N/A	N/A		MB 320-153501/1-A
				0.5 mL								
2	LCS~320-153501/2 N/A	N/A		250.00 mL				N/A	N/A	N/A		LCS 320-153501/2-A
				0.5 mL								
3	LCSD~320-153501/3 N/A	N/A		250.00 mL				N/A	N/A	N/A		LCSD 320-153501/3-A
				0.5 mL								
4	320-26263-A-1 (PFC_IDA_DOD5)	N/A (320-26263-1)	289.50 g	261.2 mL				3/6/17	23_Days	4	5X	320-26263-A-1-A
			28.35 g	0.5 mL								
5	320-26263-A-2 (PFC_IDA_DOD5)	N/A (320-26263-1)	298.71 g	272.2 mL				3/6/17	23_Days	4	10X	320-26263-A-2-A
			26.55 g	0.5 mL								
6	320-26263-A-3 (PFC_IDA_DOD5)	N/A (320-26263-1)	296.09 g	269.1 mL				3/6/17	23_Days	4	RI	320-26263-A-3-A
			27.04 g	0.5 mL								
7	320-26263-A-4 (PFC_IDA_DOD5)	N/A (320-26263-1)	297.95 g	270.9 mL				3/6/17	23_Days	4		320-26263-A-4-A
			27.10 g	0.5 mL								
8	320-26273-C-1 (PFC_IDA_DOD5)	N/A (320-26273-1)	300.49 g	273 mL				3/7/17	23_Days	4	5X	320-26273-C-1-A
			27.49 g	0.5 mL								
9	320-26273-C-2 (PFC_IDA_DOD5)	N/A (320-26273-1)	286.29 g	257.5 mL				3/7/17	23_Days	4		320-26273-C-2-A
			28.76 g	0.5 mL								
10	320-26273-C-3 (PFC_IDA_DOD5)	N/A (320-26273-1)	300.59 g	272.4 mL				3/7/17	23_Days	4	RI	320-26273-C-3-A
			28.17 g	0.5 mL								

03/27/2017

Printed : 3/6/2017

TestAmerica Sacramento

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153501

Analyst: Reed, Jonathan E

Batch Open: 3/6/2017 4:19:00PM

Method Code: 320-3535_IVWT-320

Batch End:

11	320-26273-C-4 (PFC_IDA_DOD5)	N/A (320-26273-1)	301.57 g 26.44 g	275.1 mL 0.5 mL				3/7/17	23_Days	4	320-26273-C-4-A
12	320-26273-C-5 (PFC_IDA_DOD5)	N/A (320-26273-1)	298.17 g 26.73 g	271.4 mL 0.5 mL				3/7/17	23_Days	4	320-26273-C-5-A
13	320-26273-C-6 (PFC_IDA_DOD5)	N/A (320-26273-1)	302.03 g 26.22 g	275.8 mL 0.5 mL				3/7/17	23_Days	4	320-26273-C-6-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153501

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 3/6/2017 4:19:00PM

Batch End:

Batch Notes

Manifold ID	10, 2
Methanol ID	865700
Hexane ID	863965
Sodium Hypochlorite ID	NA
First Start time	NA
First End time	NA
Balance ID	QA-070
SPE Cartridge Type	WAX 500mg
Solid Phase Extraction Disk ID	002836112A
H2O ID	3/06/17
Pipette ID	MD05306
Solvent Name	0.3% NH4OH/MeOH
Solvent Lot #	864283
Analyst ID - Reagent Drop	JER (5/5) SURR Reg.
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPM
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
NaCl ID	NA

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153501

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 3/6/2017 4:19:00PM

Batch End:

SOP Number WS-LC-0025

Batch Comment 0.1N NaOH/H2O: 858158

Comments

320-26263-A-1	Method Comments:	DOD site, Screen-caution
320-26263-A-2	Method Comments:	DOD site, Screen-caution
320-26263-A-3	Method Comments:	DOD site, Screen-caution
320-26263-A-4	Method Comments:	DOD site, Screen-caution
320-26273-C-1	Method Comments:	DOD site, Screen-caution
320-26273-C-2	Method Comments:	DOD site, Screen-caution
320-26273-C-3	Method Comments:	DOD site, Screen-caution
320-26273-C-4	Method Comments:	DOD site, Screen-caution
320-26273-C-5	Method Comments:	DOD site, Screen-caution
320-26273-C-6	Method Comments:	DOD site, Screen-caution

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153501

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 3/6/2017 4:19:00PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-153501/1	LCMPFCSU_00047	25 uL	0.5 mL	3/06/17	VPM 3/6/17
LCS 320-153501/2	LCMPFCSU_00047	25 uL	0.5 mL		
LCS 320-153501/2	LCPFCSP_00080	20 uL	0.5 mL		
LCSD 320-153501/3	LCMPFCSU_00047	25 uL	0.5 mL		
LCSD 320-153501/3	LCPFCSP_00080	20 uL	0.5 mL		
320-26263-A-1	LCMPFCSU_00047	25 uL	0.5 mL		
320-26263-A-2	LCMPFCSU_00047	25 uL	0.5 mL		
320-26263-A-3	LCMPFCSU_00047	25 uL	0.5 mL		
320-26263-A-4	LCMPFCSU_00047	25 uL	0.5 mL		
320-26273-C-1	LCMPFCSU_00047	25 uL	0.5 mL		
320-26273-C-2	LCMPFCSU_00047	25 uL	0.5 mL		
320-26273-C-3	LCMPFCSU_00047	25 uL	0.5 mL		
320-26273-C-4	LCMPFCSU_00047	25 uL	0.5 mL		
320-26273-C-5	LCMPFCSU_00047	25 uL	0.5 mL		
320-26273-C-6	LCMPFCSU_00047	25 uL	0.5 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153501

Method Code: 320-3535_IVWT-320

Analyst: Reed, Jonathan E

Batch Open: 3/6/2017 4:19:00PM

Batch End:

Other Reagents:

Reagent	Amount/Units	Lot#:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s): 320-152501 Test: ~~PFA~~ 3535_PFC (3-7-17)

Earliest Holding Time: 3/08/17

Sample List Tab	1st Level Reviewer	2nd Level Reviewer
Samples identified to the correct method	✓	✓
All necessary NCMs filed (including holding time)	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Worksheet Tab	**1st Level Reviewer**	**2nd 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 Cl 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	**1st Level Reviewer**	**2nd Level Reviewer**
All necessary reagents not expired and entered into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Batch Information	**1st Level Reviewer**	**2nd Level Reviewer**
Date and time accurate and entered into TALS correctly	✓	✓
All necessary 'batch information' complete and entered into TALS correctly	✓	✓

1st Level Reviewer: [signature] Date: 3-7-17

2nd Level Reviewer: [signature] Date: 3/07/16

Comments:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Method 537 CCV/Data Review Checklist

Job No: 26319,26320, 26321 Instrument ID & Date: A8 3-14-17 ICAL Batch: 153408

Extraction Batch: 154682 Worklist #: 40849, 40851 TALS Batch: 155003, 155025, 155026, 155057

Review Items	--- Level 1 --- Yes	No	N/A	Level 2
Initial Calibration				
1. Is ICAL verified and locked in Chrom & TALS?	✓			✓
2. Is ICV properly linked in TALS?	✓			✓
Continuing Calibration				
1. **Low-range CCV injected at start of analytical run?** CCV injected after every 10 samples and at the end of the analytical run and alternated between Low-range, Mid-range and High-range?	✓			✓
2. If sequence was not after an ICAL was a low and mid range CCV injected at the start of the analytical run?	✓			✓
3. Native compounds and surrogates in control? Low-range within ±50% of true value Mid and High-range within ±30% of true value	✓			✓
4. Internal Standard areas in control? Areas ≥ 50% of average area of the ICal and 70-140% of the most recent CCV.	✓			✓
Client Samples & QC Sample Results				
1. Were preparation and analysis done within holding times?	✓			✓
2. Are Chromatograms reviewed and spectra verified?	✓			✓
3. Are positive results within calibration range?	✓			✓
4. Dilutions due to target cpds? ____ Dilutions due to non-targets? ____			✓	
5. All target compounds in MB < 1/3 RL ? **(Requires NCM if "no.")**	✓			✓
6. Are target constituents in LCS/LCSD within method control limits?	✓			✓
7. Internal Standard areas in control for all samples and QC reported? ±50% from the average area of the ICAL and 70-140% of the most recent CCV	✓			✓
8. Do results (e.g., dilutions/trip blanks) make sense?	✓			✓
9. Are MS/MSD recoveries and RPDs within method control limits?	✓			✓
10. Are all QC samples properly linked in TALS?	✓			✓
11. All manual integrations appropriate and completely documented?	✓			✓
12. Are nonconformances documented as NCMs?	✓			✓
13. Are all Chrom graphics uploaded?	✓			✓

1st Level Reviewer / Date: JRB 3-15-17 2nd Level Reviewer / Date: [signature] 3/16/2017

NCM # and Comments: 81004

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Method 537 ICAL Checklist

A8

Instrument ID & Date: 3-6-17 Worklist#: 40511

ICAL Batch: 153407, 153408 Calibration ID number: 28784, 28785

Review Items	--- Level 1 --- Yes	No	N/A	Level 2
Initial Calibration				
1. Mass calibration, as needed, verified by full scan of PFC stock standard. All PFC ions used for quantitation are within 0.3 m/z of true mass?	✓			✓
2. Responses increase with increasing concentration?	✓			✓
3. Fit used (circle): (Average) Linear (1/x²)Linear (Quadratic) (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average $R^2 \geq 0.990$ for Linear $R^2 \geq 0.990$ for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".	✓			✓
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be < 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks?.(0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2nd source) ± 30% of true value?	✓			✓
11. Is ICV (2nd source) internal standards ±50% of average area of the ICAL?	✓			✓
12. ICal locked in Chrom and uploaded to TALS?	✓			
13. ICal locked in TALS and scanned?				✓

1st Level Reviewer / Date: JRB 3-6-17 2nd Level Reviewer / Date: MWJ 3/7/17

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 14MAR2017A_537 Worklist Number: 40849
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40849.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 155003	LC 537 ICAL Raw Batch: 155004
# 1 RINSE	# 1 RINSE	
# 2 RINSE	# 2 RINSE	
# 3 CCVL	# 3 CCVL	# 3 CCVL
# 4 CCV L5	# 4 CCV L5	
# 5 RB	# 5 RB	
# 6 MB 320-154682/1-A	# 6 MB 320-154682/1-A	
# 7 LCS 320-154682/2-A	# 7 LCS 320-154682/2-A	
# 8 320-26319-A-1-A	# 8 320-26319-A-1-A	
# 9 320-26319-A-2-A	# 9 320-26319-A-2-A	
#10 320-26319-A-3-A	#10 320-26319-A-3-A	
#11 320-26319-A-4-A	#11 320-26319-A-4-A	
#12 320-26319-A-5-A	#12 320-26319-A-5-A	
#13 320-26319-A-6-A	#13 320-26319-A-6-A	
#14 320-26319-A-7-A	#14 320-26319-A-7-A	
#15 320-26319-A-8-A	#15 320-26319-A-8-A	
#16 CCV L3	#16 CCV L3	

QC Batch: 2	LC 537 CS ICAL Raw Batch: 155025
#16 CCV L3	#16 CCV L3
#17 RB	#17 RB
#18 320-26319-A-9-A	#18 320-26319-A-9-A
#19 320-26319-A-10-A	#19 320-26319-A-10-A
#20 320-26319-A-11-A	#20 320-26319-A-11-A
#21 320-26319-A-12-A	#21 320-26319-A-12-A
#22 320-26319-A-12-D LMS	#22 320-26319-A-12-D LMS
#23 320-26319-A-12-E LMSD	#23 320-26319-A-12-E LMSD
#24 320-26320-A-1-A	#24 320-26320-A-1-A
#25 320-26320-A-1-D LMS	#25 320-26320-A-1-D LMS
#26 320-26320-A-1-E LMSD	#26 320-26320-A-1-E LMSD
#27 320-26320-A-2-A	#27 320-26320-A-2-A
#28 CCV L5	#28 CCV L5

QC Batch: 3	LC 537 CS ICAL Raw Batch: 155026
#28 CCV L5	#28 CCV L5
#29 RB	#29 RB
#30 320-26320-A-3-A	#30 320-26320-A-3-A
#31 320-26320-A-4-A	#31 320-26320-A-4-A
#32 320-26321-A-1-A	#32 320-26321-A-1-A
#33 320-26321-A-1-D LMS	#33 320-26321-A-1-D LMS
#34 320-26321-A-1-E LMSD	#34 320-26321-A-1-E LMSD
#35 320-26321-A-2-A	#35 320-26321-A-2-A
#36 320-26321-A-3-A	#36 320-26321-A-3-A
#37 320-26321-A-4-A	#37 320-26321-A-4-A
#38 CCV L3	#38 CCV L3
#39 RB	#39 RB

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 15MAR2017A_537 Worklist Number: 40851
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40851.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 155007	LC 537 ICAL Raw Batch: 155008
# 1 RINSE # 2 RINSE # 3 CCVL # 4 CCV L5 # 5 RB # 6 QC LC537-SU_00033 # 7 CCV L3	# 1 RINSE # 2 RINSE # 3 CCVL # 4 CCV L5 # 5 RB # 6 QC LC537-SU_00033 # 7 CCV L3	# 3 CCVL

QC Batch: 2	LC 537 CS ICAL Raw Batch: 155057
# 7 CCV L3 # 8 RB # 9 RINSE #10 CCV L5 #11 320-26319-A-1-A #12 320-26320-A-3-A #13 CCV L3 #14 RB	# 7 CCV L3 # 8 RB # 9 RINSE #10 CCV L5 #11 320-26319-A-1-A #12 320-26320-A-3-A #13 CCV L3 #14 RB

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Aqueous Extraction Analysis Sheet

AD 3/14/17

(To Accompany Samples to Instruments)

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Batch End: 3/14/17 13:50

Extraction of Perfluorinated Alkyl Acids

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB-320-154682/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	chlorine=ND	MB 320-154682/1-A
				1.0 mL								
2	LCS-320-154682/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	chlorine=ND	LCS 320-154682/2-A
				1.0 mL								
3	320-26319-A-1 (537_DuPont)	N/A (320-26319-1)	278.68 g	251.5 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-1-A
			27.21 g	1.0 mL								
4	320-26319-A-2 (537_DuPont)	N/A (320-26319-1)	277.30 g	250.3 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-2-A
			27.05 g	1.0 mL								
5	320-26319-A-3 (537_DuPont)	N/A (320-26319-1)	281.82 g	254.7 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-3-A
			27.14 g	1.0 mL								
6	320-26319-A-4 (537_DuPont)	N/A (320-26319-1)	278.40 g	251.5 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-4-A
			26.92 g	1.0 mL								
7	320-26319-A-5 (537_DuPont)	N/A (320-26319-1)	281.07 g	253.6 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-5-A
			27.51 g	1.0 mL								
8	320-26319-A-6 (537_DuPont)	N/A (320-26319-1)	283.56 g	256.5 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-6-A
			27.08 g	1.0 mL								
9	320-26319-A-7 (537_DuPont)	N/A (320-26319-1)	281.17 g	253.7 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-7-A
			27.50 g	1.0 mL								
10	320-26319-A-8 (537_DuPont)	N/A (320-26319-1)	278.72 g	251.7 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-8-A
			26.99 g	1.0 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-154682 Analyst: Kolstad, Kate M Batch Open: 3/13/2017 2:41:00PM

Method Code: 320-537_Prep-320 Batch End:

11	320-26319-A-9 (537_DuPont)	N/A (320-26319-1)	277.96 g / 27.63 g	250.3 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
12	320-26319-A-10 (537_DuPont)	N/A (320-26319-1)	278.68 g / 27.06 g	251.6 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
13	320-26319-A-11 (537_DuPont)	N/A (320-26319-1)	280.12 g / 27.53 g	252.6 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
14	320-26319-A-12 (537_DuPont)	N/A (320-26319-1)	280.60 g / 26.87 g	253.7 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
15	320-26319-A-12~LMS (537_DuPont)	N/A (320-26319-1)	281.42 g / 27.04 g	254.4 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
16	320-26319-A-12~LMSD (537_DuPont)	N/A (320-26319-1)	284.71 g / 26.77 g	257.9 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
17	320-26320-A-1 (537_DuPont)	N/A (320-26320-1)	277.04 g / 26.98 g	250.1 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
18	320-26320-A-1~LMS (537_DuPont)	N/A (320-26320-1)	281.00 g / 26.81 g	254.2 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
19	320-26320-A-1~LMSD (537_DuPont)	N/A (320-26320-1)	281.66 g / 27.15 g	254.5 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
20	320-26320-A-2 (537_DuPont)	N/A (320-26320-1)	276.29 g / 27.12 g	249.2 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
21	320-26320-A-3 (537_DuPont)	N/A (320-26320-1)	274.01 g / 27.15 g	246.9 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
22	320-26320-A-4 (537_DuPont)	N/A (320-26320-1)	279.79 g / 27.36 g	252.4 mL / 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-154682

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Method Code: 320-537_Prep-320

Batch End:

23	320-26321-A-1 (537_DuPont)	N/A (320-26321-1)	275.25 g 27.14 g	248.1 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
24	320-26321-A-1~LMS (537_DuPont)	N/A (320-26321-1)	273.50 g 27.45 g	246.1 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
25	320-26321-A-1~LMSD (537_DuPont)	N/A (320-26321-1)	276.37 g 26.86 g	249.5 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
26	320-26321-A-2 (537_DuPont)	N/A (320-26321-1)	282.88 g 27.52 g	255.4 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
27	320-26321-A-3 (537_DuPont)	N/A (320-26321-1)	278.34 g 26.80 g	251.5 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	
28	320-26321-A-4 (537_DuPont)	N/A (320-26321-1)	282.99 g 27.33 g	255.7 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Batch End:

Batch Notes

Manifold ID	1, 3, 4
Trizma ID	SLBR4303V
SPE Cartridge ID	6341059-06
Methanol ID	865699
Reagent Water ID	3/13/17
Pipette ID	MD05306
Analyst ID - TA Reagent Drop	KMK
Analyst ID - TA Reagent Drop Witness	CCB
Analyst ID - SU Reagent Drop	KMK
Analyst ID - SU Reagent Drop Witness	CCB
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	CCB
Batch Comment	861760 1/2

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-154682

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Method Code: 320-537_Prep-320

Batch End:

Comments

320-26319-A-1	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-2	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-3	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-4	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-5	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-6	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-7	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-8	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-9	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-10	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-11	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-12	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-12~MS	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-12~MSD	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-1	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-1~MS	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-1~MSD	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-2	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-3	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-154682

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Method Code: 320-537_Prep-320

Batch End:

320-26320-A-4	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-1	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-1~MS	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-1~MSD	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-2	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-3	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-4	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB
	Method Comments:	DuPont QAS_LCSD req if No MS/MSD per JOB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-154682/1	LC537-SU_00032	50 uL	1.0 mL	KMK 3-13-17	CAS 3-13-17
LCS 320-154682/2	LC537-HSP_00014	50 uL	1.0 mL		
LCS 320-154682/2	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-1	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-2	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-3	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-4	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-5	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-6	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-7	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-8	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-9	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-10	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-11	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-12	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-12 LMS	LC537-LSP_00017	50 uL	1.0 mL		
320-26319-A-12 LMS	LC537-SU_00032	50 uL	1.0 mL		
320-26319-A-12 LMSD	LC537-LSP_00017	50 uL	1.0 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-154682

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Method Code: 320-537_Prep-320

Batch End:

320-26319-A-12 LMSD	LC537-SU_00032	50 uL	1.0 mL	KMK 3-13-17	CAS 3-13-17
320-26320-A-1	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-1 LMS	LC537-LSP_00017	50 uL	1.0 mL		
320-26320-A-1 LMS	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-1 LMSD	LC537-LSP_00017	50 uL	1.0 mL		
320-26320-A-1 LMSD	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-2	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-3	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-4	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-1	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-1 LMS	LC537-LSP_00017	50 uL	1.0 mL		
320-26321-A-1 LMS	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-1 LMSD	LC537-LSP_00017	50 uL	1.0 mL		
320-26321-A-1 LMSD	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-2	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-3	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-4	LC537-SU_00032	50 uL	1.0 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-154682

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Method Code: 320-537_Prep-320

Batch End:

Other Reagents:

Reagent	Amount/Units	Lot#:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s): 154682 Test: 537_Prep

Earliest Holding Time: 3-14-17

Sample List Tab	1st Level Reviewer	2nd Level Reviewer
Samples identified to the correct method	✓	✓
All necessary NCMs filed (including holding time)	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Worksheet Tab	**1st Level Reviewer**	**2nd 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 Cl Check)	✓	✓
The pH is transcribed correctly in TALS	✓	✓
All additional information transcribed into TALS is correct and raw data is attached	✓	✓
Comments are transcribed correctly in TALS	✓	✓
Reagents Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All necessary reagents not expired and entered into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Batch Information	**1st Level Reviewer**	**2nd Level Reviewer**
Date and time accurate and entered into TALS correctly	✓	✓
All necessary 'batch information' complete and entered into TALS correctly	✓	✓

1st Level Reviewer: CeB Date: 3-14-17

2nd Level Reviewer: VDM Date: 3-14-17

Comments:

Shipping and Receiving Documents

Kellmann, Jill

From: Michael.Zamboni@CH2M.com
Sent: Wednesday, March 08, 2017 11:34 AM
To: Kellmann, Jill
Cc: Michael.Zamboni@CH2M.com
Subject: RE: TestAmerica sample confirmation files from 320-26263-1 Meridian 10006-7-105420 JM01 Navy Clean

Hey Jill,

Would you please update sample ID “FD-04” (320-26263-4) to “MEAFF-FD04-030117”? The sample ID on the CoC is not acceptable.

Thanks,
Mike Z.

Upcoming OOO:
3/13-3/24: PTO

From: Kellmann, Jill [mailto:jill.kellmann@testamericainc.com]
Sent: Monday, March 06, 2017 3:31 PM
To: Zamboni, Michael/WDC <Michael.Zamboni@CH2M.com>
Subject: TestAmerica sample confirmation files from 320-26263-1 Meridian 10006-7-105420 JM01 Navy Clean [EXTERNAL]

Hello,

Attached please find the sample confirmation files for job 320-26263-1; Meridian 10006-7-105420 JM01 Navy Clean.

Receipt
The samples were received on 3/2/2017 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7º C.

Please feel free to contact me if you have any questions.

Thank you.

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

JILL KELLMANN
Manager of Project Management

TestAmerica Sacramento
THE LEADER IN ENVIRONMENTAL TESTING

Tel: 916.374.4402
www.testamericainc.com

Reference: [086917]
Attachments: 3

Chain of Custody Record

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Bryan Burkingstock	Site Contact: Ryan Brown	Date: 3/1/17	COC No: 5
Company Name CH2M	Tel/Fax: 603-736-4111	Lab Contact: Jill Kellmann	Carrier: FedEx	1 of 1 COCs
6600 Peachtree Dunwoody Road. 400 Embassy Row. Suite 600	Analysis Turnaround Time			Sampler: J. McCann
Atlanta GA 30328	☑ CALENDAR DAYS JA ☐ WORKING DAYS			For Lab Use Only:
(678) 530-4060 Phone	TAT if different from Below 21 Days			Walk-in Client:
(770) 604-9153 Fax	☐ 2 weeks			Lab Sampling:
Project Name: Meridian 10006-7-105420 JM01 Navy CLEAN	☐ 1 week			
Site: NAS Meridian	☐ 2 days			Job / SDG No.:
P O # 10006-7-105420	☐ 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)	PFC	Sample Specific Notes:
MEAFF-WWTP-MW01-0317	3/1/2017	1240	G	GW	2	N	N	X	
MEAFF-PWMA-MW01-0317	3/1/2017	1400	G	GW	2	N	N	X	
MEAFF-Unknown22-MW01-0317	3/1/2017	1505	G	GW	2	N	N	X	
FD-04	3/1/2017	--	G	GW	2	N	N	X	Field Duplicate

320-26263 Chain of Custody

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

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown

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

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

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 2.4 Corr'd: 2.7 | Therm ID No.: AK-1

Relinquished by: Justine McCann	Company: CH2M HILL	Date/Time: 3/1/17 1300	Received by:	Company: FedEx	Date/Time: 3-2-17 1015
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.8, dated 11/04/2015

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 320-26263-1

Login Number: 26263
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?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Comment_ID	OCO_XTO_Number	Phase	Installation_ID	Sample_Name	CHEM_Code	Analysis_Group	Analytical_Method	PRC_Code	Lab_Code	Lab_Name	Leachate_Method	Sample_Basis	Contraction_Method	Result_Type	Lab_QC_Type	Sample_Medium	QC_Level	Date/Time_Collected	Date_Received	Leachate_Date	Leachate_Time	Extraction_Date	Extraction_Time	Analysis_Date	Analysis_Time	Lab_Sample_ID	Dilution	Run_Number	Percent_Moisture	Percent_Lipid	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	QC_Column_Type	Analysis_Result_Type	Result_Narrative	SQC_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QSM_Version	EDL	LOD	LOQ	Analyte_Batch	Validator_Name	Val_Date
92147010009000	AWO		MERIDIAN_NAS	WEAPT-WMD-1A01-0217	NONG	SVOA	SIM_ADVANCED	ORG	TANKER	Test America	NONE	NA	SW3510C	RES	NF	A	01/31/2017 15:55	02/02/2017			20170224	15:44:00	20170306	16:12:00	320-21962-1	1				9-Chlorofluorene-D9	91460-68-0	84	84	PCT_REC			IN	SURR	N/A	N/A	84	30000000						0.0			320-219962-1	320-151938	
92147010009000	AWO		MERIDIAN_NAS	WEAPT-WMD-1A01-0217	NONG	SVOA	SIM_ADVANCED	ORG	TANKER	Test America	NONE	NA	SW3510C	RES	NF	A	01/31/2017 15:55	02/02/2017			20170224	15:44:00	20170306	16:12:00	320-21962-1	1				9-Chlorofluorene-D9	91460-68-0	93	93	PCT_REC			IN	SURR	N/A	N/A	93	30000000						0.0			320-219962-1	320-151938	
92147010009000	AWO		MERIDIAN_NAS	WEAPT-WMD-1A01-0217	NONG	SVOA	SIM_ADVANCED	ORG	TANKER	Test America	NONE	NA	SW3510C	RES	NF	A	01/31/2017 15:55	02/02/2017			20170224	15:44:00	20170306	16:12:00	320-21962-1	1				Perfluorooctane sulfonate (PFOS)	1763-23-1	0.0053	0.0053	ug/L	M	M	IN	TRG		N/A	0.0053	30000000					0.0053	0.0106	0.0053	320-219962-1	320-151938	
92147010009000	AWO		MERIDIAN_NAS	WEAPT-WMD-1A01-0217	NONG	SVOA	SIM_ADVANCED	ORG	TANKER	Test America	NONE	NA	SW3510C	RES	NF	A	01/31/2017 15:55	02/02/2017			20170224	15:44:00	20170306	16:12:00	320-21962-1	1				Perfluorooctanesulfonamide (FOSA)	754-91-6	0.0053	0.0053	ug/L	UJ	UJ	IN	TRG		N/A	0.0053	30000000					0.0053	0.0106	0.0053	320-219962-1	320-151938	
92147010009000	AWO		MERIDIAN_NAS	WEAPT-WMD-1A01-0217	NONG	SVOA	SIM_ADVANCED	ORG	TANKER	Test America	NONE	NA	SW3510C	RES	NF	A	01/31/2017 15:55	02/02/2017			20170224	15:44:00	20170306	16:12:00	320-21962-1	1				Perfluorooctanesulfonic acid (PFOS)	1763-23-1	0.0053	0.0053	ug/L			IN	TRG		N/A	0.0053	30000000					0.0053	0.0106	0.0053	320-219962-1	320-151938	
92147010009000	AWO		MERIDIAN_NAS	WEAPT-WMD-1A01-0217	NONG	SVOA	SIM_ADVANCED	ORG	TANKER	Test America	NONE	NA	SW3510C	RES	NF	A	01/31/2017 15:55	02/02/2017			20170224	15:44:00	20170306	16:12:00	320-21962-1	1				Perfluorooctanesulfonic acid (PFOA)	335-67-1	0.0053	0.0053	ug/L	M	M	IN	TRG		N/A	0.0053	30000000					0.0053	0.0106	0.0053	320-219962-1	320-151938	
92147010009000	AWO		MERIDIAN_NAS	WEAPT-WMD-1A01-0217	NONG	SVOA	SIM_ADVANCED	ORG	TANKER	Test America	NONE	NA	SW3510C	RES	NF	A	01/31/2017 15:55	02/02/2017			20170224	15:44:00	20170306	16:12:00	320-21962-1	1				Perfluorooctanesulfonic acid (PFOS)	1763-23

Comment_ID	OCS_CTO_Number	Phase	Installation_ID	Sample_Name	CTONE_Code	Analysis_Group	Analytical_Method	MIC_Code	Lab_Code	Lab_Name	Leachate_Method	Sample_Basis	Extraction_Method	Result_Type	Lab_QC_Type	Sample_Medium	QC_Level	Date/Time_Collected	Date_Received	Leachate_Date	Leachate_Time	Extraction_Date	Extraction_Time	Analysis_Date	Analysis_Time	Dilution	Run_Number	Percent_Moisture	Percent_Lipid	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	QC_Column_Type	Analysis_Result_Type	Result_Narrative	SQC_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QSM_Version	DL	LOD	LOQ	DOQ	Analyte_Batch	Validator_Name	Val_Date
9224701000900	AMIS		MERIDIAN_NAS	MEART-SDAKC-SB02-0001	NONS	SVOA	537_MOD	ORG	TANKR	Test America	NONE	WH	METHOD	990	RES	L	4	02/23/2017 09:00	02/24/2017			03/17/2017	17:04:00	03/17/2017	21:57:00	1	5	14.8		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.35	0.35	ug/L	UG		PR	TRG		Partial_Result_Type		

Comment_ID	CCG_VTO_Number	Phase	Installation_ID	Sample_Name	CV294_Code	Analysis_Group	Analytical_Method	PAC_Code	Lab_Code	Lab_Name	Leachate_Method	Sample_Basis	Extraction_Method	Result_Type	Sub_QC_Type	Sample_Medium	QC_Level	Date/Time_Collected	Date_Received	Leachate_Date	Leachate_Time	Extraction_Date	Extraction_Time	Analysis_Date	Analysis_Time	Lab_Sample_ID	Dilution	Run_Number	Percent_Moisture	Percent_Lipid	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	QC_Column_Type	Analysis_Result_Type	Result_Narrative	QC_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QDM_Version	DL	LOQ	DOC	Analyte_Batch	Validator_Name	Val_Date
9124701009000	AMIS		MERIDIAN_NAS	1,2,3,10-15250/12-A	NONS	SVOA	537_MOD	ORG	TANKR	Test America	NONE	WA	SWI3535	RES	SW	S	02/26/2017 11:40	02/25/2017			03/06/2017	16:09:00	03/17/2017	12:27:00	1,2,3,10-15250/12-A	1	L	11.6		Perfluorooctanesulfonic acid (PFOA)	335-67-1	0.31	0.31	ng/L			PC	TRG																									
9124701009000	AMIS		MERIDIAN_NAS	1,2,3,10-15250/12-A	NONS	SVOA	537_MOD	ORG	TANKR	Test America	NONE	WA	SWI3535	RES	SW	S	02/26/2017 11:40	02/25/2017			03/06/2017	16:09:00	03/17/2017	12:27:00	1,2,3,10-15250/12-A	1	L	11.6		Perfluorooctanesulfonic acid (PFOS)	1763-23-1	0.31	0.31	ng/L			PC	TRG																									
9124701009000	AMIS		MERIDIAN_NAS	1,2,3,10-15250/12-A	NONS	SVOA	537_MOD	ORG	TANKR	Test America	NONE	WA	SWI3535	RES	SW	S	02/26/2017 11:40	02/25/2017			03/06/2017	16:09:00	03/17/2017	12:27:00	1,2,3,10-15250/12-A	1	L	11.6		1,4-Dioxane	123-91-1	0.31	0.31	ng/L			PC	TRG																									
9124701009000	AMIS		MERIDIAN_NAS	1,2,3,10-15250/12-A	NONS	SVOA	537_MOD	ORG	TANKR	Test America	NONE	WA	SWI3535	RES	SW	S	02/26/2017 11:40	02/25/2017			03/06/2017	16:09:00	03/17/2017	12:27:00	1,2,3,10-15250/12-A	1	L	11.6		1-Octanesulfonic acid (PFOS)	1763-23-1	0.31	0.31	ng/L			PC	TRG																									
9124701009000	AMIS		MERIDIAN_NAS	1,2,3,10-15250/12-A	NONS	SVOA	537_MOD	ORG	TANKR	Test America	NONE	WA	SWI3535	RES	SW	S	02/26/2017 11:40	02/25/2017			03/06/2017	16:09:00	03/17/2017	12:27:00	1,2,3,10-15250/12-A	1	L	11.6		Perfluorooct

Comment_ID	OCS_CTO_Number	Phase	Installation_ID	Sample_Name	CTONE_Code	Analysis_Group	Analytical_Method	PAC_Code	Lab_Code	Lab_Name	Leachate_Method	Sample_Basis	Extraction_Method	Result_Type	Lab_QC_Type	Sample_Medium	QC_Level	Date/Time_Collected	Date_Received	Leachate_Date	Leachate_Time	Extraction_Date	Extraction_Time	Analysis_Date	Analysis_Time	Analyte_ID	Analyte_Name	Dilution	Run_Number	Percent_Moisture	Percent_Lipid	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	QC_Column_Type	Analysis_Result_Type	Result_Narrative	SQL_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QSM_Version	EIL	UCL	LOQ	RDG	Analyte_Batch	Validator_Name	Val_Date
9124701010900	AWD		MERIDIAN_NAS	34ST-08AWQ2-0317-MS	NONG	SVOA	GC_MSD	ORG	TAMER	Test America	NONE	NA	SW3535	MS	N	W	4	03/03/2017 13:05	03/06/2017			20170309	10:55:00	20170312	04:05:00	320-24324-1		5				1UC4 PFOS	355	71		PCT_WET																													
9124701010900	AWD		MERIDIAN_NAS	34ST-08AWQ2-0317-MS	NONG	SVOA	GC_MSD	ORG	TAMER	Test America	NONE	NA	SW3535	MS	N	W	4	03/03/2017 13:05	03/06/2017			20170309	10:55:00	20170312	04:05:00	320-24324-1		5				1UC4 PFOS	355	71		PCT_WET																													
9124701010900	AWD		MERIDIAN_NAS	34ST-08AWQ2-0317-MS	NONG	SVOA	GC_MSD	ORG	TAMER	Test America	NONE	NA	SW3535	MS	N	W	4	03/03/2017 13:05	03/06/2017			20170309	10:55:00	20170312	04:05:00	320-24324-1		5				Perfluorooctanesulfonic acid (PFOS)	1UC4 PFOS	1100	1100		PCT_WET																													
9124701010900	AWD		MERIDIAN_NAS	34ST-08AWQ2-0317-MS	NONG	SVOA	GC_MSD	ORG	TAMER	Test America	NONE	NA	SW3535	MS	N	W	4	03/03/2017 13:05	03/06/2017			20170309	10:55:00	20170312	04:05:00	320-24324-1		5				Perfluorooctanoic acid (PFOA)	1UC4 PFOA	1100	1100		PCT_WET																													
9124701010900	AWD		MERIDIAN_NAS	34ST-08AWQ2-0317-SD	NONG	SVOA	GC_MSD	ORG	TAMER	Test America	NONE	NA	SW3535	MSD	N	W	4	03/03/2017 13:05	03/06/2017			20170309	10:55:00	20170312	04:13:00	320-24324-2		5				1UC4 PFOS	355	71		PCT_WET																													
9124701010900	AWD		MERIDIAN_NAS	34ST-08AWQ2-0317-SD	NONG	SVOA	GC_MSD	ORG	TAMER	Test America	NONE	NA	SW3535	MSD	N	W	4	03/03/2017 13:05	03/06/2017			20170309	10:55:00	20170312	04:13:00	320-24324-2		5				Perfluorooctanesulfonic acid (PFOS)	1UC4 PFOS	1100	1100		PCT_WET																													
9124701010900	AWD		MERIDIAN_NAS	34ST-08AWQ2-0317-SD	NONG	SVOA	GC_MSD	ORG	TAMER	Test America	NONE	NA	SW3535	MSD	N	W	4	03/03/2017 13:05	03/06/2017			20170309	10:55:00	20170312	04:13:00	320-24324-2		5				Perfluorooctanoic acid (PFOA)	1UC4 PFOA	1100	1100		PCT_WET																													
9124701010900	AWD		MERIDIAN_NAS	34ST-08AWQ2-0317-SD	NONG	SVOA	GC_MSD	ORG	TAMER	Test America	NONE	NA	SW3535	MSD	N	W	4	03/03/2017 13:05	03/06/2017			20170309	10:55:00	20170312	04:13:00	320-24324-2		5				Perfluorooctane Sulfonate

Comment_ID	CCG_XTU_Number	Phase	Installation_ID	Sample_Name	CNDM_Code	Analysis_Group	Analytical_Method	PNC_Code	Lab_Code	Lab_Name	Leachate_Method	Sample_Basis	Connection_Method	Result_Type	Lab_QC_Type	Sample_Medium	QC_Level	Date_Received	Leachate_Date	Leachate_Time	Extraction_Date	Extraction_Time	Analysis_Date	Analysis_Time	Lab_Sample_ID	Dilution	Run_Number	Percent_Moisture	Percent_Lipid	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	QC_Column_Type	Analysis_Result_Type	Result_Narrative	SQC_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QSM_Version	DL	LOD	LOQ	SDG	Analyte_Batch	Validator_Name	Val_Date
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Methylene chloride	75-09-2	0.91	0.91	ug/kg	U			TRG										4.2	0.91	3.5	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Toluene	108-88-3	0.68	0.68	ug/kg	U			TRG										4.2	0.68	2.6	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Styrene	100-42-5	0.68	0.68	ug/kg	U			TRG										4.2	0.68	2.6	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Tetrachloroethene	127-18-4	0.8	0.8	ug/kg	U			TRG										4.2	0.8	3.1	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		1,1,1-Trichloroethane	71-55-6	0.8	0.8	ug/kg	U			TRG										4.2	0.8	3.1	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Trichloroethene	79-01-6	0.8	0.8	ug/kg	U			TRG										4.2	0.8	3.1	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Vinyl chloride	75-01-4	0.91	0.91	ug/kg	U			TRG										4.2	0.91	3.5	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		m- and p-Xylene	1330-20-7	1.4	1.4	ug/kg	U			TRG										4.2	1.4	5.2	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Methyl tert-butyl ether (MTBE)	1634-04-4	0.8	0.8	ug/kg	U			TRG										4.2	0.8	3.1	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Ethylbenzene	100-41-4	0.68	0.68	ug/kg	U			TRG										4.2	0.68	2.6	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Toluene	108-88-3	0.68	0.68	ug/kg	U			TRG										4.2	0.68	2.6	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Styrene	100-42-5	0.68	0.68	ug/kg	U			TRG										4.2	0.68	2.6	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Tetrachloroethene	127-18-4	0.8	0.8	ug/kg	U			TRG										4.2	0.8	3.1	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		1,1,1-Trichloroethane	71-55-6	0.8	0.8	ug/kg	U			TRG										4.2	0.8	3.1	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Trichloroethene	79-01-6	0.8	0.8	ug/kg	U			TRG										4.2	0.8	3.1	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Vinyl chloride	75-01-4	0.91	0.91	ug/kg	U			TRG										4.2	0.91	3.5	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		m- and p-Xylene	1330-20-7	1.4	1.4	ug/kg	U			TRG										4.2	1.4	5.2	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Methyl tert-butyl ether (MTBE)	1634-04-4	0.8	0.8	ug/kg	U			TRG										4.2	0.8	3.1	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		o-Xylene	95-47-6	0.68	0.68	ug/kg	U			TRG										4.2	0.68	2.6	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Styrene	100-42-5	0.68	0.68	ug/kg	U			TRG										4.2	0.68	2.6	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Tetrachloroethene	127-18-4	0.8	0.8	ug/kg	U			TRG										4.2	0.8	3.1	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		1,1,1-Trichloroethane	71-55-6	0.8	0.8	ug/kg	U			TRG										4.2	0.8	3.1	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Trichloroethene	79-01-6	0.8	0.8	ug/kg	U			TRG										4.2	0.8	3.1	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		Vinyl chloride	75-01-4	0.91	0.91	ug/kg	U			TRG										4.2	0.91	3.5	SI01680	WILSON133		
9224701010900	AWDI		MERIDIAN_NAS	345108-SB20-0708A	NONE	VOA	8260C	VOA	EAS	BATHAGEN ANALYTICAL		BRY	SWS005	BKG	REG	S	4	03/03/2017 09:25	03/06/2017		03/06/2017		20170317	14:09:00	20170317	14:09:00	SI168D-1	1		84.373		m- and p-Xylene	1330-20-7	1.4	1.4	ug/kg	U			TRG										4.2	1.4	5.2

Comment_ID	SDG_XTU_Number	Phase	Installation_ID	Sample_Name	ICTSM_Code	Analysis_Group	Analytical_Method	PAC_Code	Lab_Code	Lab_Name	Leachate_Method	Sample_Basis	Connection_Method	Result_Type	Lab_QC_Type	Sample_Medium	QC_Level	Date/Time_Collected	Date_Received	Leachate_Date	Leachate_Time	Extraction_Date	Extraction_Time	Analysis_Date	Analysis_Time	Lab_Sample_ID	Dilution	Run_Number	Percent_Moisture	Percent_Lipid	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	QC_Column_Type	Analysis_Result_Type	Result_Narrative	SQC_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QAW_Version	DL	LOD	LOQ	SDG	Analyte_Batch	Validator_Name	Val_Date
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,2,3-Trichloropropane	77-65-1	0.4	0.4	ug/L	AQ	U		TRG										4.2	0.4	1	5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Dibromochloromethane	124-48-1	0.8	0.8	ug/L	AQ	U		TRG										4.2	0.1	1.6	7.5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,2-Dibromoethane	106-93-4	0.5	0.5	ug/L	AQ	U		TRG										4.2	0.2	1	5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	2-Hexanone	591-78-6	10	10	ug/L	AQ	U		TRG										4.2	2	10	50	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Chlorodibromomethane	124-48-1	0.8	0.8	ug/L	AQ	U		TRG										4.2	0.1	1.6	7.5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Ethylbenzene	100-41-4	0.4	0.4	ug/L	AQ	UM	UM	TRG										4.2	0.2	1	5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Xylene, total	1330-20-7	1	1	ug/L	AQ	UM	UM	TRG										4.2	0.6	3	15	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	m- and p-Xylene	179601-23-1	0.5	0.5	ug/L	AQ	UM	UM	TRG										4.2	0.3	1.5	7.5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	o-Xylene	95-47-6	0.4	0.4	ug/L	AQ	UM	UM	TRG										4.2	0.2	1	5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Styrene	100-42-5	0.4	0.4	ug/L	AQ	UM	UM	TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Bromoform	75-25-2	0.8	0.8	ug/L	AQ	UM	UM	TRG										4.2	0.3	1.6	7.5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Isopropylbenzene	98-82-8	0.4	0.4	ug/L	AQ	UM	UM	TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,1,2,2-Tetrachloroethane	79-34-5	0.5	0.5	ug/L	AQ	UM	UM	TRG										4.2	0.2	1	5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,2,3-Trichloropropane	96-18-4	0.5	0.5	ug/L	AQ	UM	UM	TRG										4.2	0.3	1.5	7.5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	n-Propylbenzene	103-65-1	0.4	0.4	ug/L	AQ	UM	UM	TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Bromobenzene	108-86-1	0.4	0.4	ug/L	AQ	UM	UM	TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,3,5-Trimethylbenzene	108-67-8	0.4	0.4	ug/L	AQ	UM	UM	TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,2-Dichlorobenzene-d4	17060-07-0	121	121	RLT				TRG										4.2	0	0	0	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	4-Bromofluorobenzene	460-00-4	92.6	92.6	RLT				TRG										4.2	0	0	0	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Toluene-D8	2037-26-5	94.5	94.5	RLT				TRG										4.2	0	0	0	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,2-Dichloroethane-d4	17060-07-0	121	121	RLT				SURR			SLSA	134	58	30093101				4.2	0	0	0	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Dibromofluoromethane	1868-53-7	106	106	RLT				SURR			SLSA	130	84	30093101				4.2	0	0	0	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	4-Bromofluorobenzene	460-00-4	92.6	92.6	RLT				SURR			SLSA	130	84	30093101				4.2	0	0	0	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Toluene-D8	2037-26-5	94.5	94.5	RLT				SURR			SLSA	134	58	30093101				4.2	0	0	0	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,2-Dichloroethane-d4	17060-07-0	121	121	RLT				SURR			SLSA	130	84	30093101				4.2	0	0	0	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Dibromofluoromethane	1868-53-7	106	106	RLT				SURR			SLSA	130	84	30093101				4.2	0	0	0	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Dibromofluoromethane	1868-53-7	106	106	RLT				SURR			SLSA	130	84	30093101				4.2	0	0	0	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Dichlorodifluoromethane (Freon-12)	75-71-8	0.8	0.8	ug/L	AQ	U		TRG										4.2	0.42	1.6	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Chloromethane	74-87-3	0.8	0.8	ug/L	AQ	U		TRG										4.2	0.42	1.6	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Vinyl chloride	75-01-4	0.8	0.8	ug/L	AQ	UM	UM	TRG										4.2	0.55	1.6	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Bromomethane	74-83-9	0.8	0.8	ug/L	AQ	UM	UM	TRG										4.2	0.42	1.6	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Chloroethane	75-00-3	0.8	0.8	ug/L	AQ	UM	UM	TRG										4.2	0.42	1.6	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Trichlorofluoromethane (Freon-11)	75-69-4	0.8	0.8	ug/L	AQ	U		TRG										4.2	0.42	1.6	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,1-Dichloroethene	75-35-4	0.8	0.8	ug/L	AQ	U		TRG										4.2	0.42	1.6	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Methylene chloride	75-09-2	12	12	ug/L	AQ	U		TRG										4.2	7.9	12	25	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	trans-1,2-Dichloroethene	156-60-5	0.5	0.5	ug/L	AQ	U		TRG										4.2	0.15	1.5	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Methyl tert-butyl ether (MTBE)	1634-04-4	0.5	0.5	ug/L	AQ	U		TRG										4.2	0.24	1.5	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,1-Dichloroethane	75-34-3	0.5	0.5	ug/L	AQ	U		TRG										4.2	0.21	1.5	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	2,2-Dichloropropane	594-20-7	0.5	0.5	ug/L	AQ	U		TRG										4.2	0.21	1.5	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	cis-1,2-Dichloroethene	156-59-2	0.5	0.5	ug/L	AQ	U		TRG										4.2	0.15	1.5	10	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Chlorobenzene	108-90-7	0.4	0.4	ug/L	AQ	U		TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,1,1,2-Tetrachloroethane	630-20-6	0.5	0.5	ug/L	AQ	U		TRG										4.2	0.2	1	5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Ethylbenzene	100-41-4	0.4	0.4	ug/L	AQ	U		TRG										4.2	0.2	1	5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Xylene, total	1330-20-7	1	1	ug/L	AQ	U		TRG										4.2	0.6	3	15	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	m- and p-Xylene	179601-23-1	0.5	0.5	ug/L	AQ	U		TRG										4.2	0.3	1.5	7.5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	o-Xylene	95-47-6	0.4	0.4	ug/L	AQ	U		TRG										4.2	0.2	1	5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Styrene	100-42-5	0.4	0.4	ug/L	AQ	U		TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Bromoform	75-25-2	0.8	0.8	ug/L	AQ	U		TRG										4.2	0.3	1.6	7.5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Isopropylbenzene	98-82-8	0.4	0.4	ug/L	AQ	U		TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,1,2,2-Tetrachloroethane	79-34-5	0.5	0.5	ug/L	AQ	U		TRG										4.2	0.2	1	5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,2,3-Trichloropropane	96-18-4	0.5	0.5	ug/L	AQ	U		TRG										4.2	0.3	1.5	7.5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	n-Propylbenzene	103-65-1	0.4	0.4	ug/L	AQ	U		TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Bromobenzene	108-86-1	0.4	0.4	ug/L	AQ	U		TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	1,3,5-Trimethylbenzene	108-67-8	0.4	0.4	ug/L	AQ	U		TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 11:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	Toluene	108-88-3	0.4	0.4	ug/L	AQ	U		TRG										4.2	0.2	0.8	4	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB21-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4	03/03/2017 10:45	03/06/2017			03/07010	16:22:00	03/07010	16:22:00	W16B0-3	1	N			14-344	4-Methyl-2-pentanone	108-10-1	2.5	2.5	ug/L	AQ	U		TRG										4.2	0.3	2.5	5	SW16B0	AMIS20121		
9224701010900	AMIS		MERIDIAN_NAS	WS-SW-SB19-07084	NONE	HOA	8260C	HOA	EAS	BATHAGEN ANALYTICAL		SW	SWS005	SMS	REG	S	4

Contract_ID	DO_CTO_Number	Phase	Installation_ID	Sample_Name	CH2M_Code	Analysis_Group	Analytical_Method	PRC_Code	Lab_Code	Lab_Name	Leachate_Method	Sample_Basis	Extraction_Method	Result_Type	Lab_QC_Type	Sample_Medium	QC_Level	DateTime_Collected	Date_Received	Leachate_Date	Leachate_Time	Extraction_Date	Extraction_Time	Analysis_Date	Analysis_Time	Lab_Sample_ID	Dilution	Run_Number	Percent_Moisture	Percent_Lipid	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	GC_Column_Type	Analysis_Result_Type	Result_Narrative	QC_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QSM_Version	DL	LOD	LOQ	SDG	Analysis_Batch	Validator_Name	Val_Date
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			1,2-Dichlorobenzene	95-50-1	0.50	0.50	UG_L	U	U		TRG									4.2	0.15	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			1,2-Dibromo-3-chloropropane	96-12-8	1.0	1.0	UG_L	U	U		TRG									4.2	0.50	1.0	2.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			1,2,4-Trichlorobenzene	120-82-1	0.50	0.50	UG_L	U	U		TRG									4.2	0.37	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			Methyl acetate	79-20-9	0.75	0.75	UG_L	U	U		TRG									4.2	0.53	0.75	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			Methylcyclohexane	108-87-2	0.50	0.50	UG_L	U	U		TRG									4.2	0.30	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			Bromochloromethane	74-97-5	0.50	0.50	UG_L	U	U		TRG									4.2	0.21	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			o-Xylene	95-47-6	0.50	0.50	UG_L	U	U		TRG									4.2	0.25	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			m- and p-Xylene	m&pXYLENE	1.0	1.0	UG_L	U	U		TRG									4.2	0.59	1.0	2.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			1,2,3-Trichlorobenzene	87-61-6	0.50	0.50	UG_L	U	U		TRG									4.2	0.27	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			Xylene, total	1330-20-7	1.5	1.5	UG_L	U	U		TRG									4.2	0.25	1.5	3.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			4-Bromofluorobenzene	460-00-4	93.5	93.5	PCT				SURR		SLSA	120	75	20091101				4.2	0	0	0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			Toluene-D8	2037-26-5	102.	102.	PCT				SURR		SLSA	120	85	20091101				4.2	0	0	0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			1,2-Dichloroethane-d4	17060-07-0	115.	115.	PCT				SURR		SLSA	120	70	20091101				4.2	0	0	0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BLK	W	4	03/14/2017 10:37	03/14/2017			20170314	10:37:00	20170314	10:37:00	WG201342-2	1	1			Dibromofluoromethane	1868-53-7	107.	107.	PCT				SURR		SLSA	115	85	20091101				4.2	0	0	0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Dichlorodifluoromethane (Freon-12)	75-71-8	32.8	32.8	UG_L				TRG		LSA	155	30	20091101				4.2	0.24	1.0	2.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Chloromethane	74-87-3	38.8	38.8	UG_L				TRG		LSA	125	40	20091101				4.2	0.36	1.0	2.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Vinyl chloride	75-01-4	40.8	40.8	UG_L				TRG		LSA	145	50	20091101				4.2	0.25	1.0	2.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Bromomethane	74-83-9	46.6	46.6	UG_L				TRG		LSA	145	30	20091101				4.2	0.49	1.0	2.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Chloroethane	75-00-3	51.1	51.1	UG_L				TRG		LSA	135	60	20091101				4.2	0.55	1.0	2.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Trichlorofluoromethane (Freon-11)	75-69-4	40.6	40.6	UG_L				TRG		LSA	145	60	20091101				4.2	0.24	1.0	2.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,1-Dichloroethene	75-35-4	40.8	40.8	UG_L				TRG		LSA	130	70	20091101				4.2	0.35	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Carbon disulfide	75-15-0	48.4	48.4	UG_L				TRG		LSA	160	35	20091101				4.2	0.25	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	76-13-1	39.9	39.9	UG_L				TRG		LSA	126	73	20091101				4.2	0.31	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Methylene chloride	75-09-2	43.1	43.1	UG_L				TRG		LSA	140	55	20091101				4.2	1.1	2.5	5.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Acetone	67-64-1	50.7	50.7	UG_L				TRG		LSA	140	40	20091101				4.2	2.2	2.5	5.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			trans-1,2-Dichloroethene	156-60-5	43.3	43.3	UG_L				TRG		LSA	140	60	20091101				4.2	0.25	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Methyl-tert-butyl ether (MTBE)	1634-04-4	89.8	89.8	UG_L				TRG		LSA	125	65	20091101				4.2	0.36	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,1-Dichloroethane	75-34-3	43.4	43.4	UG_L				TRG		LSA	135	70	20091101				4.2	0.21	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			cis-1,2-Dichloroethene	156-59-2	40.0	40.0	UG_L				TRG		LSA	125	70	20091101				4.2	0.21	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Chloroform	67-66-3	41.8	41.8	UG_L				TRG		LSA	135	65	20091101				4.2	0.32	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,1,1-Trichloroethane	71-55-6	43.4	43.4	UG_L				TRG		LSA	130	65	20091101				4.2	0.20	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			2-Butanone	78-93-3	37.9	37.9	UG_L				TRG		LSA	150	30	20091101				4.2	1.3	2.5	5.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Cyclohexane	110-82-7	44.0	44.0	UG_L				TRG		LSA	133	71	20091101				4.2	0.31	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Carbon tetrachloride	56-23-5	46.8	46.8	UG_L				TRG		LSA	140	65	20091101				4.2	0.22	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Benzene	71-43-2	41.2	41.2	UG_L				TRG		LSA	120	80	20091101				4.2	0.26	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,2-Dichloroethane	107-06-2	42.3	42.3	UG_L				TRG		LSA	130	70	20091101				4.2	0.20	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Trichloroethene	79-01-6	44.7	44.7	UG_L				TRG		LSA	125	70	20091101				4.2	0.28	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,2-Dichloropropane	78-87-5	43.7	43.7	UG_L				TRG		LSA	125	75	20091101				4.2	0.25	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Bromodichloromethane	75-27-4	44.9	44.9	UG_L				TRG		LSA	120	75	20091101				4.2	0.33	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			cis-1,3-Dichloropropene	10061-01-5	48.0	48.0	UG_L				TRG		LSA	130	70	20091101				4.2	0.19	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Toluene	108-88-3	41.8	41.8	UG_L				TRG		LSA	120	75	20091101				4.2	0.27	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			4-Methyl-2-pentanone	108-10-1	41.9	41.9	UG_L				TRG		LSA	135	60	20091101				4.2	1.3	2.5	5.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			trans-1,3-Dichloropropene	10061-02-6	45.2	45.2	UG_L				TRG		LSA	140	55	20091101				4.2	0.20	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,1,2-Trichloroethane	79-00-5	42.5	42.5	UG_L				TRG		LSA	125	75	20091101				4.2	0.33	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Tetrachloroethene	127-18-4	42.6	42.6	UG_L				TRG		LSA	150	45	20091101				4.2	0.40	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Dibromochloromethane	124-48-1	48.2	48.2	UG_L				TRG		LSA	135	60	20091101				4.2	0.30	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,2-Dibromoethane	106-93-4	37.5	37.5	UG_L	*	*		TRG		LSA	120	80	20091101				4.2	0.22	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			2-Hexanone	591-78-6	36.0	36.0	UG_L				TRG		LSA	130	55	20091101				4.2	1.7	2.5	5.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Chlorobenzene	108-90-7	43.2	43.2	UG_L				TRG		LSA	120	80	20091101				4.2	0.22	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Ethylbenzene	100-41-4	44.0	44.0	UG_L				TRG		LSA	125	75	20091101				4.2	0.21	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Styrene	100-42-5	46.2	46.2	UG_L				TRG		LSA	135	65	20091101				4.2	0.23	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Bromoform	75-25-2	47.1	47.1	UG_L				TRG		LSA	130	70	20091101				4.2	0.23	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Isopropylbenzene	98-82-8	46.9	46.9	UG_L				TRG		LSA	125	75	20091101				4.2	0.23	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,1,2,2-Tetrachloroethane	79-34-5	41.9	41.9	UG_L				TRG		LSA	130	65	20091101				4.2	0.38	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,3-Dichlorobenzene	541-73-1	44.5	44.5	UG_L				TRG		LSA	125	75	20091101				4.2	0.26	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,4-Dichlorobenzene	106-46-7	42.8	42.8	UG_L				TRG		LSA	125	75	20091101				4.2	0.24	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,2-Dichlorobenzene	95-50-1	45.0	45.0	UG_L				TRG		LSA	120	70	20091101				4.2	0.15	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,2-Dibromo-3-chloropropane	96-12-8	35.1	35.1	UG_L				TRG		LSA	130	50	20091101				4.2	0.50	1.0	2.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,2,4-Trichlorobenzene	120-82-1	45.4	45.4	UG_L				TRG		LSA	135	65	20091101				4.2	0.37	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Methyl acetate	79-20-9	36.8	36.8	UG_L				TRG		LSA	132	70	20091101				4.2	0.53	0.75	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Methylcyclohexane	108-87-2	41.1	41.1	UG_L				TRG		LSA	125	73	20091101				4.2	0.30	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Bromochloromethane	74-97-5	42.5	42.5	UG_L				TRG		LSA	130	65	20091101				4.2	0.21	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			o-Xylene	95-47-6	44.6	44.6	UG_L				TRG		LSA	120	80	20091101				4.2	0.25	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			m- and p-Xylene	m&pXYLENE	88.8	88.8	UG_L				TRG		LSA	130	75	20091101				4.2	0.59	1.0	2.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,2,3-Trichlorobenzene	87-61-6	43.3	43.3	UG_L				TRG		LSA	140	55	20091101				4.2	0.27	0.50	1.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Xylene, total	1330-20-7	133.	133.	UG_L	*	*		TRG		LSA	116	89	20091101				4.2	0.25	1.5	3.0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			4-Bromofluorobenzene	460-00-4	95.9	95.9	PCT				SURR		SLSA	120	75	20091101				4.2	0	0	0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Toluene-D8	2037-26-5	101.	101.	PCT				SURR		SLSA	120	85	20091101				4.2	0	0	0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			1,2-Dichloroethane-d4	17060-07-0	102.	102.	PCT				SURR		SLSA	120	70	20091101				4.2	0	0	0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201342-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		WET	SW5030	000	BS	W	4	03/14/2017 09:21	03/14/2017			20170314	09:21:00	20170314	09:21:00	WG201342-1	1	1			Dibromofluoromethane	1868-53-7	99.3	99.3	PCT				SURR		SLSA	115	85	20091101				4.2	0	0	0	SK1680	WG201342		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Dichlorodifluoromethane (Freon-12)	75-71-8	5.0	5.0	UG_KG	U	U		TRG									4.2	0.92	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Chloromethane	74-87-3	5.0	5.0	UG_KG	U	U		TRG									4.2	1.4	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Vinyl chloride	75-01-4	5.0	5.0	UG_KG	U	U		TRG									4.2	0.87	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Bromomethane	74-83-9	5.0	5.0	UG_KG	U	U		TRG									4.2	1.1	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Chloroethane	75-00-3	5.0	5.0	UG_KG	U	U		TRG									4.2	1.3	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Trichlorofluoromethane (Freon-11)	75-69-4	5.0	5.0	UG_KG	U	U		TRG									4.2	0.91	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,1-Dichloroethene	75-35-4	2.5	2.5	UG_KG	U	U		TRG									4.2	0.93	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Carbon disulfide	75-15-0	2.5	2.5	UG_KG	U	U		TRG									4.2	0.78	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	76-13-1	2.5	2.5	UG_KG	U	U		TRG									4.2	0.90	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Methylene chloride	75-09-2	12	12	UG_KG	U	U		TRG									4.2	7.9	12.	25.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Acetone	67-64-1	12	12	UG_KG	U	U		TRG									4.2	5.1	12.	25.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			trans-1,2-Dichloroethene	156-60-5	2.5	2.5	UG_KG	U	U		TRG									4.2	0.71	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Methyl-tert-butyl ether (MTBE)	1634-04-4	2.5	2.5	UG_KG	U	U		TRG									4.2	1.1	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,1-Dichloroethane	75-34-3	2.5	2.5	UG_KG	U	U		TRG									4.2	1.7	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			cis-1,2-Dichloroethene	156-59-2	2.5	2.5	UG_KG	U	U		TRG									4.2	0.91	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Chloroform	67-66-3	2.5	2.5	UG_KG	U	U		TRG									4.2	0.35	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Carbon tetrachloride	56-23-5	2.5	2.5	UG_KG	U	U		TRG									4.2	1.3	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,1,1-Trichloroethane	71-55-6	2.5	2.5	UG_KG	U	U		TRG									4.2	0.42	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			2-Butanone	78-93-3	12	12	UG_KG	U	U		TRG									4.2	5.9	12.	25.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Benzene	71-43-2	2.5	2.5	UG_KG	U	U		TRG									4.2	0.92	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Cyclohexane	110-82-7	2.5	2.5	UG_KG	U	U		TRG									4.2	1.4	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,2-Dichloroethane	107-06-2	2.5	2.5	UG_KG	U	U		TRG									4.2	1.0	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Trichloroethene	79-01-6	2.5	2.5	UG_KG	U	U		TRG									4.2	0.59	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,2-Dichloropropane	78-87-5	2.5	2.5	UG_KG	U	U		TRG									4.2	1.4	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Bromodichloromethane	75-27-4	2.5	2.5	UG_KG	U	U		TRG									4.2	0.60	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			cis-1,3-Dichloropropene	10061-01-5	2.5	2.5	UG_KG	U	U		TRG									4.2	0.72	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Toluene	108-88-3	2.5	2.5	UG_KG	U	U		TRG									4.2	1.4	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			4-Methyl-2-pentanone	108-10-1	12	12	UG_KG	U	U		TRG									4.2	5.9	12.	25.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Tetrachloroethene	127-18-4	2.5	2.5	UG_KG	U	U		TRG									4.2	1.2	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			trans-1,3-Dichloropropene	10061-02-6	2.5	2.5	UG_KG	U	U		TRG									4.2	0.86	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,1,2-Trichloroethane	79-00-5	2.5	2.5	UG_KG	U	U		TRG									4.2	0.97	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Dibromochloromethane	124-48-1	2.5	2.5	UG_KG	U	U		TRG									4.2	1.0	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,2-Dibromoethane	106-93-4	2.5	2.5	UG_KG	U	U		TRG									4.2	1.2	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			2-Hexanone	591-78-6	12	12	UG_KG	U	U		TRG									4.2	4.8	12.	25.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Chlorobenzene	108-90-7	2.5	2.5	UG_KG	U	U		TRG									4.2	0.51	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Ethylbenzene	100-41-4	2.5	2.5	UG_KG	U	U		TRG									4.2	0.65	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Xylene, total	1330-20-7	7.5	7.5	UG_KG	U	U		TRG									4.2	1.3	7.5	15.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			m- and p-Xylene	m&pXYLENE	5.0	5.0	UG_KG	U	U		TRG									4.2	1.7	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			o-Xylene	95-47-6	2.5	2.5	UG_KG	U	U		TRG									4.2	1.3	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Styrene	100-42-5	2.5	2.5	UG_KG	U	U		TRG									4.2	0.51	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Bromoform	75-25-2	2.5	2.5	UG_KG	U	U		TRG									4.2	0.70	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Isopropylbenzene	98-82-8	2.5	2.5	UG_KG	U	U		TRG									4.2	0.92	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,1,2,2-Tetrachloroethane	79-34-5	2.5	2.5	UG_KG	U	U		TRG									4.2	0.84	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,3-Dichlorobenzene	541-73-1	2.5	2.5	UG_KG	U	U		TRG									4.2	0.62	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,4-Dichlorobenzene	106-46-7	2.5	2.5	UG_KG	U	U		TRG									4.2	0.44	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,2-Dichlorobenzene	95-50-1	2.5	2.5	UG_KG	U	U		TRG									4.2	0.78	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,2-Dibromo-3-chloropropane	96-12-8	2.5	2.5	UG_KG	U	U		TRG									4.2	1.5	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,2,4-Trichlorobenzene	120-82-1	2.5	2.5	UG_KG	U	U		TRG									4.2	0.79	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,2,3-Trichlorobenzene	87-61-6	2.5	2.5	UG_KG	U	U		TRG									4.2	0.76	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Bromochloromethane	74-97-5	2.5	2.5	UG_KG	U	U		TRG									4.2	0.91	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Methyl acetate	79-20-9	3.0	3.0	UG_KG	U	U		TRG									4.2	2.7	3.0	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Methylcyclohexane	108-87-2	2.5	2.5	UG_KG	U	U		TRG									4.2	0.96	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			4-Bromofluorobenzene	460-00-4	101.	101.	PCT				SURR		SLSA	120	85	20091101				4.2	0	0	0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Toluene-D8	2037-26-5	103.	103.	PCT				SURR		SLSA	115	85	20091101				4.2	0	0	0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			1,2-Dichloroethane-d4	17060-07-0	112.	112.	PCT				SURR		SLSA	134	58	20091101				4.2	0	0	0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-BLANK	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BLK	S	4	03/17/2017 11:45	03/17/2017			20170317	11:45:00	20170317	11:45:00	WG201539-2	1	1			Dibromofluoromethane	1868-53-7	106.	106.	PCT				SURR		SLSA	130	64	20091101				4.2	0	0	0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Dichlorodifluoromethane (Freon-12)	75-71-8	42.6	42.6	UG_KG				TRG		LSA	135	35	20091101				4.2	0.92	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Chloromethane	74-87-3	46.6	46.6	UG_KG				TRG		LSA	130	50	20091101				4.2	1.4	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Vinyl chloride	75-01-4	51.0	51.0	UG_KG				TRG		LSA	125	60	20091101				4.2	0.87	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Bromomethane	74-83-9	53.7	53.7	UG_KG				TRG		LSA	160	30	20091101				4.2	1.1	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Chloroethane	75-00-3	55.8	55.8	UG_KG				TRG		LSA	155	40	20091101				4.2	1.3	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Trichlorofluoromethane (Freon-11)	75-69-4	60.8	60.8	UG_KG				TRG		LSA	185	25	20091101				4.2	0.91	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,1-Dichloroethene	75-35-4	54.6	54.6	UG_KG				TRG		LSA	135	65	20091101				4.2	0.93	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Carbon disulfide	75-15-0	63.2	63.2	UG_KG				TRG		LSA	160	45	20091101				4.2	0.78	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	76-13-1	54.9	54.9	UG_KG				TRG		LSA	135	67	20091101				4.2	0.90	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Methylene chloride	75-09-2	49.5	49.5	UG_KG				TRG		LSA	140	55	20091101				4.2	7.9	12.	25.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Acetone	67-64-1	59.4	59.4	UG_KG				TRG		LSA	160	20	20091101				4.2	5.1	12.	25.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			trans-1,2-Dichloroethene	156-60-5	58.7	58.7	UG_KG				TRG		LSA	135	65	20091101				4.2	0.71	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Methyl-tert-butyl ether (MTBE)	1634-04-4	119.	119.	UG_KG				TRG		LSA	125	81	20091101				4.2	1.1	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,1-Dichloroethane	75-34-3	57.4	57.4	UG_KG				TRG		LSA	125	75	20091101				4.2	1.7	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			cis-1,2-Dichloroethene	156-59-2	52.0	52.0	UG_KG				TRG		LSA	125	65	20091101				4.2	0.91	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Chloroform	67-66-3	56.1	56.1	UG_KG				TRG		LSA	125	70	20091101				4.2	0.35	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Carbon tetrachloride	56-23-5	58.9	58.9	UG_KG				TRG		LSA	135	65	20091101				4.2	1.3	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,1,1-Trichloroethane	71-55-6	57.8	57.8	UG_KG				TRG		LSA	135	70	20091101				4.2	0.42	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			2-Butanone	78-93-3	54.7	54.7	UG_KG				TRG		LSA	160	30	20091101				4.2	5.9	12.	25.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Benzene	71-43-2	54.5	54.5	UG_KG				TRG		LSA	125	75	20091101				4.2	0.92	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Cyclohexane	110-82-7	57.9	57.9	UG_KG				TRG		LSA	128	75	20091101				4.2	1.4	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,2-Dichloroethane	107-06-2	57.2	57.2	UG_KG				TRG		LSA	135	70	20091101				4.2	1.0	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Trichloroethene	79-01-6	58.8	58.8	UG_KG				TRG		LSA	125	75	20091101				4.2	0.59	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,2-Dichloropropane	78-87-5	55.7	55.7	UG_KG				TRG		LSA	120	70	20091101				4.2	1.4	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Bromodichloromethane	75-27-4	58.4	58.4	UG_KG				TRG		LSA	130	70	20091101				4.2	0.60	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			cis-1,3-Dichloropropene	10061-01-5	58.7	58.7	UG_KG				TRG		LSA	125	70	20091101				4.2	0.72	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Toluene	108-88-3	53.7	53.7	UG_KG				TRG		LSA	125	70	20091101				4.2	1.4	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			4-Methyl-2-pentanone	108-10-1	56.5	56.5	UG_KG				TRG		LSA	145	45	20091101				4.2	5.9	12.	25.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Tetrachloroethene	127-18-4	55.1	55.1	UG_KG				TRG		LSA	140	65	20091101				4.2	1.2	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			trans-1,3-Dichloropropene	10061-02-6	63.2	63.2	UG_KG	*	*		TRG		LSA	125	65	20091101				4.2	0.86	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,1,2-Trichloroethane	79-00-5	56.5	56.5	UG_KG				TRG		LSA	125	60	20091101				4.2	0.97	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Dibromochloromethane	124-48-1	57.8	57.8	UG_KG				TRG		LSA	130	65	20091101				4.2	1.0	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,2-Dibromoethane	106-93-4	55.7	55.7	UG_KG				TRG		LSA	125	70	20091101				4.2	1.2	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			2-Hexanone	591-78-6	54.6	54.6	UG_KG				TRG		LSA	145	45	20091101				4.2	4.8	12.	25.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Chlorobenzene	108-90-7	54.8	54.8	UG_KG				TRG		LSA	125	75	20091101				4.2	0.51	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Ethylbenzene	100-41-4	53.4	53.4	UG_KG				TRG		LSA	125	75	20091101				4.2	0.65	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Xylene, total	1330-20-7	163.	163.	UG_KG				TRG		LSA	114	81	20091101				4.2	1.3	7.5	15.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			m- and p-Xylene	m&pXYLENE	110.	110.	UG_KG				TRG		LSA	125	80	20091101				4.2	1.7	5.0	10.	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			o-Xylene	95-47-6	53.9	53.9	UG_KG				TRG		LSA	125	75	20091101				4.2	1.3	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Styrene	100-42-5	55.4	55.4	UG_KG				TRG		LSA	125	75	20091101				4.2	0.51	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Bromoform	75-25-2	59.4	59.4	UG_KG				TRG		LSA	135	55	20091101				4.2	0.70	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Isopropylbenzene	98-82-8	55.2	55.2	UG_KG				TRG		LSA	130	75	20091101				4.2	0.92	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,1,2,2-Tetrachloroethane	79-34-5	53.9	53.9	UG_KG				TRG		LSA	130	55	20091101				4.2	0.84	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,3-Dichlorobenzene	541-73-1	57.3	57.3	UG_KG				TRG		LSA	125	70	20091101				4.2	0.62	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,4-Dichlorobenzene	106-46-7	57.5	57.5	UG_KG				TRG		LSA	125	70	20091101				4.2	0.44	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,2-Dichlorobenzene	95-50-1	55.4	55.4	UG_KG				TRG		LSA	120	75	20091101				4.2	0.78	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,2-Dibromo-3-chloropropane	96-12-8	59.8	59.8	UG_KG				TRG		LSA	135	40	20091101				4.2	1.5	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,2,4-Trichlorobenzene	120-82-1	65.6	65.6	UG_KG	*	*		TRG		LSA	130	65	20091101				4.2	0.79	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,2,3-Trichlorobenzene	87-61-6	60.3	60.3	UG_KG				TRG		LSA	135	60	20091101				4.2	0.76	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Bromochloromethane	74-97-5	54.8	54.8	UG_KG				TRG		LSA	125	70	20091101				4.2	0.91	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Methyl acetate	79-20-9	51.9	51.9	UG_KG				TRG		LSA	133	72	20091101				4.2	2.7	3.0	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Methylcyclohexane	108-87-2	62.3	62.3	UG_KG				TRG		LSA	127	71	20091101				4.2	0.96	2.5	5.0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			4-Bromofluorobenzene	460-00-4	104.	104.	PCT				SURR		SLSA	120	85	20091101				4.2	0	0	0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Toluene-D8	2037-26-5	102.	102.	PCT				SURR		SLSA	115	85	20091101				4.2	0	0	0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			1,2-Dichloroethane-d4	17060-07-0	110.	110.	PCT				SURR		SLSA	134	58	20091101				4.2	0	0	0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	WG201539-LCS	NONE	VOA	8260C	VOA	KAS	KATAHDIN ANALYTICAL		DRY	SW5035	000	BS	S	4	03/17/2017 09:38	03/17/2017			20170317	09:38:00	20170317	09:38:00	WG201539-1	1	1			Dibromofluoromethane	1868-53-7	106.	106.	PCT				SURR		SLSA	130	64	20091101				4.2	0	0	0	SK1680	WG201539		
N6247016D9000	JM01		MERIDIAN_NAS	MES08-FD04-0217A	NONE	WCHEM	2540G	PCHAR	KAS	KATAHDIN ANALYTICAL		DRY	METHOD	000	REG	S	4	03/03/2017 00:00	03/06/2017			20170322	15:02:00	20170323	16:57:00	SK1680-2	1	1	34.445		% Solids	%SOLIDS	66.	66.	PCT				TRG									4.2	1	1	1	SK1680	WG201818		
N6247016D9000	JM01		MERIDIAN_NAS	MES08-SB20-0708A	NONE	WCHEM	2540G	PCHAR	KAS	KATAHDIN ANALYTICAL		DRY	METHOD	000	REG	S	4	03/03/2017 09:25	03/06/2017			20170322	15:01:00	20170323	16:57:00	SK1680-1	1	1	34.371		% Solids	%SOLIDS	66.	66.	PCT				TRG									4.2	1	1	1	SK1680	WG201818		
N6247016D9000	JM01		MERIDIAN_NAS	MES08-SB21-0708A-LR	NONE	WCHEM	2540G	PCHAR	KAS	KATAHDIN ANALYTICAL		DRY	METHOD	000	LR	S	4	03/03/2017 10:45	03/06/2017			20170322	15:06:00	20170323	17:00:00	WG201818-3	1	1	24.344		% Solids	%SOLIDS	75.	75.	PCT				TRG									4.2	1	1	1	SK1680	WG201818		
N6247016D9000	JM01		MERIDIAN_NAS	MES08-SB21-0708A	NONE	WCHEM	2540G	PCHAR	KAS	KATAHDIN ANALYTICAL		DRY	METHOD	000	REG	S	4	03/03/2017 10:45	03/06/2017			20170322	15:03:00	20170323	16:58:00	SK1680-3	1	1	24.344		% Solids	%SOLIDS	76.	76.	PCT				TRG									4.2	1	1	1	SK1680	WG201818		
N6247016D9000	JM01		MERIDIAN_NAS	MES08-TB02-0317	NONE	WCHEM	2540G	PCHAR	KAS	KATAHDIN ANALYTICAL		DRY	METHOD	000	REG	S	4	03/03/2017 08:00	03/06/2017			20170321	12:01:00	20170321	13:14:00	SK1680-5	1	1			% Solids	%SOLIDS	100	100	PCT				TRG									4.2	1	1	1	SK1680	WG201745		
N6247016D9000	JM01		MERIDIAN_NAS	WG201818-BLANK	NONE	WCHEM	2540G	PCHAR	KAS	KATAHDIN ANALYTICAL		DRY	METHOD	000	BLK	S	4	03/22/2017 15:04	03/22/2017			20170322	15:04:00	20170323	17:00:00	WG201818-1	1	1			% Solids	%SOLIDS	100	100	PCT				TRG									4.2	1	1	1	SK1680	WG201818		
N6247016D9000	JM01		MERIDIAN_NAS	WG201818-LCS	NONE	WCHEM	2540G	PCHAR	KAS	KATAHDIN ANALYTICAL		DRY	METHOD	000	BS	S	4	03/22/2017 15:05	03/22/2017			20170322	15:05:00	20170323	17:00:00	WG201818-2	1	1			% Solids	%SOLIDS	89.	89.	PCT				TRG		LSA	110	90	20091101				4.2	1	1	1	SK1680	WG201818		

ENVIRONMENTAL
Data Services, Inc.

DATA VALIDATION SUMMARY REPORT
NAVAL AIR STATION MERIDIAN, MISSISSIPPI

Client: CH2M HILL, Inc., Virginia Beach, Virginia
SDG: 320-26263-1
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-WWTP-MW01-0317	320-26263-1	Water
1DL	MEAFF-WWTP-MW01-0317DL	320-26263-1DL	Water
2	MEAFF-PWMA-MW01-0317	320-26263-2	Water
2DL1	MEAFF-PWMA-MW01-0317DL1	320-26263-2DL1	Water
2DL2	MEAFF-PWMA-MW01-0317DL2	320-26263-2DL2	Water
3	MEAFF-UNKNOWN22-MW01-0317	320-26263-3	Water
4	MEAFF-FD04-030117	320-26263-4	Water

A full data validation was performed on the analytical data for four water samples collected on March 1, 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	*Method References*
PFCs	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 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 QC sample was free of contamination.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
MEAFF-EB04-0317	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples were not analyzed.

Laboratory Control Sample/Laboratory Control Sample (LCS/LCSD)

- The LCS/LCSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- Several samples results were flagged (M) by the laboratory indicating manual integration. These flags were removed by the reviewer.
- EDS Sample ID 1 was flagged (E) by the laboratory for PFOS exceeding the linear range of the instrument. The sample was diluted and reanalyzed and the dilution result for PFOS should be used for reporting purposes.
- EDS Sample ID 2 was flagged (E) by the laboratory for all PFCs exceeding the linear range of the instrument. The sample was diluted and reanalyzed and the dilution results should be used for reporting purposes.

Field Duplicate Sample Precision

- Field duplicate results are summarized below.

Compound	MEAFF-UNKNOWN22-MW01-0317 ng/L	MEAFF-FD04-030117 ng/L	RPD	Qualifier
PFOA	9.0	8.1	11%	None
PFOS	2.0	1.2	50%	None - <5X LOQ
PFBS	3.7	3.6	3%	None

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed: Nancy Weaver Dated: 11/3/17

Nancy Weaver
Senior Chemist

Data Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples.

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

1

Lab Name: TestAmerica Sacramento | Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-WWTP-MW01-0317 | Lab Sample ID: 320-26263-1

Matrix: Water | Lab File ID: 2017.03.10B_044.d

Analysis Method: 537 (Modified) | Date Collected: 03/01/2017 12:40

Extraction Method: 3535 | Date Extracted: 03/06/2017 16:19

Sample wt/vol: 261.2(mL) | Date Analyzed: 03/10/2017 22:52

Con. Extract Vol.: 0.5(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 154459 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	260	~~M~~	2.4	1.9	0.72
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	380 ~~370~~	~~M E~~	19 ~~3.8~~	14 ~~2.9~~	6.1 ~~1.2~~
375-73-5	Perfluorobutanesulfonic acid (PFBS)	25	~~M~~	2.4	1.9	0.88

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	85		25-150
STL00991	13C4 PFOS	107		25-150
STL00994	18O2 PFHxS	110		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

LDL

Lab Name: TestAmerica Sacramento | Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-WWTP-MW01-0317 DL | Lab Sample ID: 320-26263-1 DL

Matrix: Water | Lab File ID: 2017.03.13A_048.d

Analysis Method: 537 (Modified) | Date Collected: 03/01/2017 12:40

Extraction Method: 3535 | Date Extracted: 03/06/2017 16:19

Sample wt/vol: 261.2(mL) | Date Analyzed: 03/13/2017 17:16

use original results

Con. Extract Vol.: 0.5(mL) | Dilution Factor: 5

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 154808 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	270	~~D M~~	12	9.6	3.6
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	380	~~D M~~	19	14	6.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	18	~~D M~~	12	9.6	4.4

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	81		25-150
STL00991	13C4 PFOS	98		25-150
STL00994	18O2 PFHxS	116		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

2

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-PWMA-MW01-0317 Lab Sample ID: 320-26263-2

Matrix: Water Lab File ID: 2017.03.10B_045.d

Analysis Method: 537 (Modified) Date Collected: 03/01/2017 14:00

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 272.2(mL) Date Analyzed: 03/10/2017 23:00

Con. Extract Vol.: 0.5(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 154459 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	*Perfluorooctanoic acid (PFOA)*	4500 ~~2500~~	~~M E~~	57 ~~2.3~~	46 ~~1.8~~	17 ~~0.69~~
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	1600 ~~1300~~	~~M E~~	37 ~~3.7~~	28 ~~2.8~~	12 ~~1.2~~
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	830 ~~650~~	~~M E~~	23 ~~2.3~~	18 ~~1.8~~	8.4 ~~0.84~~

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	48		25-150
STL00991	13C4 PFOS	99		25-150
STL00994	18O2 PFHxS	46		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

2DL1

Lab Name: TestAmerica Sacramento | Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-PWMA-MW01-0317 DL | Lab Sample ID: 320-26263-2 DL

Matrix: Water | Lab File ID: 2017.03.13A_049.d

Analysis Method: 537 (Modified) | Date Collected: 03/01/2017 14:00

Extraction Method: 3535 | Date Extracted: 03/06/2017 16:19

Sample wt/vol: 272.2(mL) | Date Analyzed: 03/13/2017 17:23

Con. Extract Vol.: 0.5(mL) | Dilution Factor: 10

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 154808 | Units: ng/L

USE ORIGINAL RESULTS

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	*Perfluorooctanoic acid (PFOA)*	4500 ~~4400~~	~~D M E~~	57 ~~23~~	46 ~~18~~	17 ~~6.9~~
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1600	~~D M~~	37	28	12
375-73-5	Perfluorobutanesulfonic acid (PFBS)	830	~~D~~	23	18	8.4

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	83		25-150
STL00991	13C4 PFOS	112		25-150
STL00994	18O2 PFHxS	97		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

2DL2

Lab Name: TestAmerica Sacramento | Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-PWMA-MW01-0317 DL2 | Lab Sample ID: 320-26263-2 DL2

Matrix: Water | Lab File ID: 2017.03.14A_020.d

Analysis Method: 537 (Modified) | Date Collected: 03/01/2017 14:00

Extraction Method: 3535 | Date Extracted: 03/06/2017 16:19

Sample wt/vol: 272.2(mL) | Date Analyzed: 03/14/2017 15:13

Con. Extract Vol.: 0.5(mL) | Dilution Factor: 25

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 155009 | Units: ng/L

use original results

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	4500	~~D M~~	57	46	17
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*1500*	~~*D M*~~	*92*	69	*29*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*730*	~~*D*~~	*57*	46	*21*

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	108		25-150
STL00991	13C4 PFOS	112		25-150
STL00994	18O2 PFHxS	108		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

3

Lab Name: TestAmerica Sacramento Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-Unknown22-MW01-0317 Lab Sample ID: 320-26263-3

Matrix: Water Lab File ID: 2017.03.10B_046.d

Analysis Method: 537 (Modified) Date Collected: 03/01/2017 15:05

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 269.1(mL) Date Analyzed: 03/10/2017 23:07

Con. Extract Vol.: 0.5(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 154459 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	9.0	M	2.3	1.9	0.69
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.0	J M	3.7	2.8	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.7		2.3	1.9	0.85

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	87		25-150
STL00991	13C4 PFOS	118		25-150
STL00994	18O2 PFHxS	125		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

4

Lab Name: TestAmerica Sacramento | Job No.: 320-26263-1

SDG No.:

Client Sample ID: MEAFF-FD04-030117 | Lab Sample ID: 320-26263-4

Matrix: Water | Lab File ID: 2017.03.10B_047.d

Analysis Method: 537 (Modified) | Date Collected: 03/01/2017 00:00

Extraction Method: 3535 | Date Extracted: 03/06/2017 16:19

Sample wt/vol: 270.9(mL) | Date Analyzed: 03/10/2017 23:15

Con. Extract Vol.: 0.5(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 154459 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	M	2.3	1.8	0.69
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.2	J M	3.7	2.8	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.6		2.3	1.8	0.85

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	83		25-150
STL00991	13C4 PFOS	134		25-150
STL00994	18O2 PFHxS	137		25-150