



**Groundwater Sample Results,
Level 2 Laboratory Report, Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Report, SDG J26273-1**

*Naval Air Station Meridian
Meridian, Mississippi*

July 2019

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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TestAmerica Job ID: 320-26273-1

Client Project/Site: Meridian 10006-7-105420 JM01 Navy Clean
Revision: 1

For:
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Authorized for release by:
3/27/2017 5:17:29 PM

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LINKS

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

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

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

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Definitions/Glossary

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

TestAmerica Job ID: 320-26273-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

LCMS

Qualifier	Qualifier Description
M	Manual integrated compound.
E	Result exceeded calibration range.
D	The reported value is from a dilution.
U	Undetected at the Limit of Detection.

Glossary

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

Case Narrative

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

TestAmerica Job ID: 320-26273-1

Job ID: 320-26273-1

Laboratory: TestAmerica Sacramento

Narrative

CASE NARRATIVE

Client: CH2M Hill, Inc.

Project: Meridian 10006-7-105420 JM01 Navy Clean

Report Number: 320-26273-1

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 3/3/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 2.4° C.

Receipt Exceptions

One of two AGB for the following sample was received broken: MEAFF-4AMW03-0317 (320-26273-1). Sufficient sample remained to complete the analysis without a back up container.

1,4-DIOXANE

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

Case Narrative

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

TestAmerica Job ID: 320-26273-1

Job ID: 320-26273-1 (Continued)

Laboratory: TestAmerica Sacramento (Continued)

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 following sample was diluted to bring the concentration of target analytes within the calibration range: MEAFF-4AMW03-0317 (320-26273-1). Elevated reporting limits (RLs) are provided.

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: 320-26273-1

Client Sample ID: MEAFF-4AMW03-0317

Lab Sample ID: 320-26273-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	460	M E	2.3	0.68	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	93	M	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	75		2.3	0.84	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	500	D M	11	3.4	ng/L	5		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	90	D M	18	5.8	ng/L	5		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	64	D M	11	4.2	ng/L	5		537 (Modified)	Total/NA

Client Sample ID: MEAFF-MRD-0630-0317

Lab Sample ID: 320-26273-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.76	J M	0.97	0.19	ug/L	1		WS-MS-0011	Total/NA
Perfluorooctanoic acid (PFOA)	63	M	2.4	0.73	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	100	M	3.9	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	230		2.4	0.89	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MEAFF-4AMW01-0317

Lab Sample ID: 320-26273-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	17	M	2.3	0.69	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.8	M	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	30	M	2.3	0.84	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MEAFF-4CMW01-0317

Lab Sample ID: 320-26273-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	170	M	2.3	0.68	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	44	M	3.6	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	0.83	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MEAFF-4CMW03-0317

Lab Sample ID: 320-26273-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	44	M	2.3	0.69	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.2	M	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.6		2.3	0.85	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MEAFF-FD05-0317

Lab Sample ID: 320-26273-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	160	M	2.3	0.68	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	42	M	3.6	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	0.83	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-26273-1

Client Sample ID: MEAFF-4AMW03-0317

Lab Sample ID: 320-26273-1

Date Collected: 03/02/17 12:25

Matrix: Water

Date Received: 03/03/17 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.48	U	0.95	0.19	ug/L		03/08/17 08:41	03/14/17 21:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	66		42 - 91				03/08/17 08:41	03/14/17 21:50	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	460	M E	2.3	0.68	ng/L		03/06/17 16:19	03/10/17 23:22	1
Perfluorooctanesulfonic acid (PFOS)	93	M	3.7	1.2	ng/L		03/06/17 16:19	03/10/17 23:22	1
Perfluorobutanesulfonic acid (PFBS)	75		2.3	0.84	ng/L		03/06/17 16:19	03/10/17 23:22	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	64		25 - 150				03/06/17 16:19	03/10/17 23:22	1
13C4 PFOS	108		25 - 150				03/06/17 16:19	03/10/17 23:22	1
18O2 PFHxS	75		25 - 150				03/06/17 16:19	03/10/17 23:22	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	500	D M	11	3.4	ng/L		03/06/17 16:19	03/13/17 17:38	5
Perfluorooctanesulfonic acid (PFOS)	90	D M	18	5.8	ng/L		03/06/17 16:19	03/13/17 17:38	5
Perfluorobutanesulfonic acid (PFBS)	64	D M	11	4.2	ng/L		03/06/17 16:19	03/13/17 17:38	5
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	78		25 - 150				03/06/17 16:19	03/13/17 17:38	5
13C4 PFOS	111		25 - 150				03/06/17 16:19	03/13/17 17:38	5
18O2 PFHxS	112		25 - 150				03/06/17 16:19	03/13/17 17:38	5

Client Sample ID: MEAFF-MRD-0630-0317

Lab Sample ID: 320-26273-2

Date Collected: 03/02/17 10:40

Matrix: Water

Date Received: 03/03/17 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.76	J M	0.97	0.19	ug/L		03/08/17 08:41	03/14/17 22:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	72		42 - 91				03/08/17 08:41	03/14/17 22:13	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	63	M	2.4	0.73	ng/L		03/06/17 16:19	03/10/17 23:30	1
Perfluorooctanesulfonic acid (PFOS)	100	M	3.9	1.2	ng/L		03/06/17 16:19	03/10/17 23:30	1
Perfluorobutanesulfonic acid (PFBS)	230		2.4	0.89	ng/L		03/06/17 16:19	03/10/17 23:30	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	94		25 - 150				03/06/17 16:19	03/10/17 23:30	1
13C4 PFOS	115		25 - 150				03/06/17 16:19	03/10/17 23:30	1
18O2 PFHxS	101		25 - 150				03/06/17 16:19	03/10/17 23:30	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-26273-1

Client Sample ID: MEAFF-4AMW01-0317

Date Collected: 03/02/17 13:10

Date Received: 03/03/17 09:30

Lab Sample ID: 320-26273-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.48	U	0.96	0.19	ug/L		03/08/17 08:41	03/14/17 22:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	70		42 - 91				03/08/17 08:41	03/14/17 22:35	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	17	M	2.3	0.69	ng/L		03/06/17 16:19	03/13/17 17:46	1
Perfluorooctanesulfonic acid (PFOS)	6.8	M	3.7	1.2	ng/L		03/06/17 16:19	03/13/17 17:46	1
Perfluorobutanesulfonic acid (PFBS)	30	M	2.3	0.84	ng/L		03/06/17 16:19	03/13/17 17:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	26		25 - 150				03/06/17 16:19	03/13/17 17:46	1
13C4 PFOS	100		25 - 150				03/06/17 16:19	03/13/17 17:46	1
18O2 PFHxS	128		25 - 150				03/06/17 16:19	03/13/17 17:46	1

Client Sample ID: MEAFF-4CMW01-0317

Date Collected: 03/02/17 15:30

Date Received: 03/03/17 09:30

Lab Sample ID: 320-26273-4

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.48	U	0.95	0.19	ug/L		03/08/17 08:41	03/14/17 22:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	64		42 - 91				03/08/17 08:41	03/14/17 22:57	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	170	M	2.3	0.68	ng/L		03/06/17 16:19	03/10/17 23:52	1
Perfluorooctanesulfonic acid (PFOS)	44	M	3.6	1.2	ng/L		03/06/17 16:19	03/10/17 23:52	1
Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	0.83	ng/L		03/06/17 16:19	03/10/17 23:52	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	78		25 - 150				03/06/17 16:19	03/10/17 23:52	1
13C4 PFOS	129		25 - 150				03/06/17 16:19	03/10/17 23:52	1
18O2 PFHxS	126		25 - 150				03/06/17 16:19	03/10/17 23:52	1

Client Sample ID: MEAFF-4CMW03-0317

Date Collected: 03/02/17 15:50

Date Received: 03/03/17 09:30

Lab Sample ID: 320-26273-5

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.49	U	0.98	0.20	ug/L		03/08/17 08:41	03/14/17 23:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	73		42 - 91				03/08/17 08:41	03/14/17 23:20	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-26273-1

Client Sample ID: MEAFF-4CMW03-0317

Lab Sample ID: 320-26273-5

Date Collected: 03/02/17 15:50

Matrix: Water

Date Received: 03/03/17 09:30

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	44	M	2.3	0.69	ng/L		03/06/17 16:19	03/11/17 00:00	1
Perfluorooctanesulfonic acid (PFOS)	8.2	M	3.7	1.2	ng/L		03/06/17 16:19	03/11/17 00:00	1
Perfluorobutanesulfonic acid (PFBS)	2.6		2.3	0.85	ng/L		03/06/17 16:19	03/11/17 00:00	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	75		25 - 150				03/06/17 16:19	03/11/17 00:00	1
13C4 PFOS	118		25 - 150				03/06/17 16:19	03/11/17 00:00	1
18O2 PFHxS	116		25 - 150				03/06/17 16:19	03/11/17 00:00	1

Client Sample ID: MEAFF-FD05-0317

Lab Sample ID: 320-26273-6

Date Collected: 03/02/17 00:00

Matrix: Water

Date Received: 03/03/17 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.48	U	0.96	0.19	ug/L		03/08/17 08:41	03/14/17 23:42	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Nitrobenzene-d5	63		42 - 91				03/08/17 08:41	03/14/17 23:42	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	160	M	2.3	0.68	ng/L		03/06/17 16:19	03/11/17 00:07	1
Perfluorooctanesulfonic acid (PFOS)	42	M	3.6	1.2	ng/L		03/06/17 16:19	03/11/17 00:07	1
Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	0.83	ng/L		03/06/17 16:19	03/11/17 00:07	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	70		25 - 150				03/06/17 16:19	03/11/17 00:07	1
13C4 PFOS	116		25 - 150				03/06/17 16:19	03/11/17 00:07	1
18O2 PFHxS	114		25 - 150				03/06/17 16:19	03/11/17 00:07	1

Surrogate Summary

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

TestAmerica Job ID: 320-26273-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	NBZ (42-91)
320-26273-1	MEAFF-4AMW03-0317	66
320-26273-2	MEAFF-MRD-0630-0317	72
320-26273-3	MEAFF-4AMW01-0317	70
320-26273-4	MEAFF-4CMW01-0317	64
320-26273-5	MEAFF-4CMW03-0317	73
320-26273-6	MEAFF-FD05-0317	63
LCS 320-153806/2-A	Lab Control Sample	75
LCSD 320-153806/3-A	Lab Control Sample Dup	71
MB 320-153806/1-A	Method Blank	69

Surrogate Legend

NBZ = Nitrobenzene-d5

Isotope Dilution Summary

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

TestAmerica Job ID: 320-26273-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		3C4 PFO/ (25-150)	3C4 PFO: (25-150)	3O2 PFHx (25-150)
320-26273-1	MEAFF-4AMW03-0317	64	108	75
320-26273-1 - DL	MEAFF-4AMW03-0317	78	111	112
320-26273-2	MEAFF-MRD-0630-0317	94	115	101
320-26273-3	MEAFF-4AMW01-0317	26	100	128
320-26273-4	MEAFF-4CMW01-0317	78	129	126
320-26273-5	MEAFF-4CMW03-0317	75	118	116
320-26273-6	MEAFF-FD05-0317	70	116	114
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

QC Sample Results

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

TestAmerica Job ID: 320-26273-1

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

Lab Sample ID: MB 320-153806/1-A
Matrix: Water
Analysis Batch: 154875

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153806

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.50	U	1.0	0.20	ug/L		03/08/17 08:41	03/14/17 20:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	69		42 - 91	03/08/17 08:41	03/14/17 20:43	1

Lab Sample ID: LCS 320-153806/2-A
Matrix: Water
Analysis Batch: 154875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	10.0	3.17	M	ug/L		32	12 - 52

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Nitrobenzene-d5	75		42 - 91

Lab Sample ID: LCSD 320-153806/3-A
Matrix: Water
Analysis Batch: 154875

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 153806

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	10.0	3.12	M	ug/L		31	12 - 52	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Nitrobenzene-d5	71		42 - 91

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	Limits
Perfluorooctanoic acid (PFOA)	40.0	39.9		ng/L		100	60 - 140

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-26273-1

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

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
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
		LCS %Recovery	LCS Qualifier	Limits			
<i>13C4 PFOA</i>		148		25 - 150			
<i>13C4 PFOS</i>		132		25 - 150			
<i>18O2 PFHxS</i>		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
		LCSD %Recovery	LCSD Qualifier	Limits					
<i>13C4 PFOA</i>		140		25 - 150					
<i>13C4 PFOS</i>		123		25 - 150					
<i>18O2 PFHxS</i>		128		25 - 150					

QC Association Summary

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

TestAmerica Job ID: 320-26273-1

GC/MS Semi VOA

Prep Batch: 153806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26273-1	MEAFF-4AMW03-0317	Total/NA	Water	3510C	
320-26273-2	MEAFF-MRD-0630-0317	Total/NA	Water	3510C	
320-26273-3	MEAFF-4AMW01-0317	Total/NA	Water	3510C	
320-26273-4	MEAFF-4CMW01-0317	Total/NA	Water	3510C	
320-26273-5	MEAFF-4CMW03-0317	Total/NA	Water	3510C	
320-26273-6	MEAFF-FD05-0317	Total/NA	Water	3510C	
MB 320-153806/1-A	Method Blank	Total/NA	Water	3510C	
LCS 320-153806/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 320-153806/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 154875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26273-1	MEAFF-4AMW03-0317	Total/NA	Water	WS-MS-0011	153806
320-26273-2	MEAFF-MRD-0630-0317	Total/NA	Water	WS-MS-0011	153806
320-26273-3	MEAFF-4AMW01-0317	Total/NA	Water	WS-MS-0011	153806
320-26273-4	MEAFF-4CMW01-0317	Total/NA	Water	WS-MS-0011	153806
320-26273-5	MEAFF-4CMW03-0317	Total/NA	Water	WS-MS-0011	153806
320-26273-6	MEAFF-FD05-0317	Total/NA	Water	WS-MS-0011	153806
MB 320-153806/1-A	Method Blank	Total/NA	Water	WS-MS-0011	153806
LCS 320-153806/2-A	Lab Control Sample	Total/NA	Water	WS-MS-0011	153806
LCSD 320-153806/3-A	Lab Control Sample Dup	Total/NA	Water	WS-MS-0011	153806

LCMS

Prep Batch: 153501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26273-1 - DL	MEAFF-4AMW03-0317	Total/NA	Water	3535	
320-26273-1	MEAFF-4AMW03-0317	Total/NA	Water	3535	
320-26273-2	MEAFF-MRD-0630-0317	Total/NA	Water	3535	
320-26273-3	MEAFF-4AMW01-0317	Total/NA	Water	3535	
320-26273-4	MEAFF-4CMW01-0317	Total/NA	Water	3535	
320-26273-5	MEAFF-4CMW03-0317	Total/NA	Water	3535	
320-26273-6	MEAFF-FD05-0317	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
320-26273-1	MEAFF-4AMW03-0317	Total/NA	Water	537 (Modified)	153501
320-26273-2	MEAFF-MRD-0630-0317	Total/NA	Water	537 (Modified)	153501
320-26273-4	MEAFF-4CMW01-0317	Total/NA	Water	537 (Modified)	153501
320-26273-5	MEAFF-4CMW03-0317	Total/NA	Water	537 (Modified)	153501
320-26273-6	MEAFF-FD05-0317	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

TestAmerica Sacramento

QC Association Summary

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

TestAmerica Job ID: 320-26273-1

LCMS (Continued)

Analysis Batch: 154808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26273-1 - DL	MEAFF-4AMW03-0317	Total/NA	Water	537 (Modified)	153501
320-26273-3	MEAFF-4AMW01-0317	Total/NA	Water	537 (Modified)	153501

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Lab Chronicle

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

TestAmerica Job ID: 320-26273-1

Client Sample ID: MEAFF-4AMW03-0317

Lab Sample ID: 320-26273-1

Date Collected: 03/02/17 12:25

Matrix: Water

Date Received: 03/03/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1048.1 mL	1.0 mL	153806	03/08/17 08:41	SR1	TAL SAC
Total/NA	Analysis	WS-MS-0011		1			154875	03/14/17 21:50	A1C	TAL SAC
Total/NA	Prep	3535			273 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154459	03/10/17 23:22	TC1	TAL SAC
Total/NA	Prep	3535	DL		273 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	5			154808	03/13/17 17:38	CBW	TAL SAC

Client Sample ID: MEAFF-MRD-0630-0317

Lab Sample ID: 320-26273-2

Date Collected: 03/02/17 10:40

Matrix: Water

Date Received: 03/03/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1033.3 mL	1.0 mL	153806	03/08/17 08:41	SR1	TAL SAC
Total/NA	Analysis	WS-MS-0011		1			154875	03/14/17 22:13	A1C	TAL SAC
Total/NA	Prep	3535			257.5 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154459	03/10/17 23:30	TC1	TAL SAC

Client Sample ID: MEAFF-4AMW01-0317

Lab Sample ID: 320-26273-3

Date Collected: 03/02/17 13:10

Matrix: Water

Date Received: 03/03/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1038.7 mL	1.0 mL	153806	03/08/17 08:41	SR1	TAL SAC
Total/NA	Analysis	WS-MS-0011		1			154875	03/14/17 22:35	A1C	TAL SAC
Total/NA	Prep	3535			272.4 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154808	03/13/17 17:46	CBW	TAL SAC

Client Sample ID: MEAFF-4CMW01-0317

Lab Sample ID: 320-26273-4

Date Collected: 03/02/17 15:30

Matrix: Water

Date Received: 03/03/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1048 mL	1.0 mL	153806	03/08/17 08:41	SR1	TAL SAC
Total/NA	Analysis	WS-MS-0011		1			154875	03/14/17 22:57	A1C	TAL SAC
Total/NA	Prep	3535			275.1 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154459	03/10/17 23:52	TC1	TAL SAC

Client Sample ID: MEAFF-4CMW03-0317

Lab Sample ID: 320-26273-5

Date Collected: 03/02/17 15:50

Matrix: Water

Date Received: 03/03/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1023.9 mL	1.0 mL	153806	03/08/17 08:41	SR1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-26273-1

Client Sample ID: MEAFF-4CMW03-0317

Lab Sample ID: 320-26273-5

Date Collected: 03/02/17 15:50

Matrix: Water

Date Received: 03/03/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WS-MS-0011		1			154875	03/14/17 23:20	A1C	TAL SAC
Total/NA	Prep	3535			271.4 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154459	03/11/17 00:00	TC1	TAL SAC

Client Sample ID: MEAFF-FD05-0317

Lab Sample ID: 320-26273-6

Date Collected: 03/02/17 00:00

Matrix: Water

Date Received: 03/03/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1045.4 mL	1.0 mL	153806	03/08/17 08:41	SR1	TAL SAC
Total/NA	Analysis	WS-MS-0011		1			154875	03/14/17 23:42	A1C	TAL SAC
Total/NA	Prep	3535			275.8 mL	0.5 mL	153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1			154459	03/11/17 00:07	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: 320-26273-1

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: 320-26273-1

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

Protocol References:

- EPA = US Environmental Protection Agency
- TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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



Sample Summary

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

TestAmerica Job ID: 320-26273-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-26273-1	MEAFF-4AMW03-0317	Water	03/02/17 12:25	03/03/17 09:30
320-26273-2	MEAFF-MRD-0630-0317	Water	03/02/17 10:40	03/03/17 09:30
320-26273-3	MEAFF-4AMW01-0317	Water	03/02/17 13:10	03/03/17 09:30
320-26273-4	MEAFF-4CMW01-0317	Water	03/02/17 15:30	03/03/17 09:30
320-26273-5	MEAFF-4CMW03-0317	Water	03/02/17 15:50	03/03/17 09:30
320-26273-6	MEAFF-FD05-0317	Water	03/02/17 00:00	03/03/17 09:30

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West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

TestAmerica Laboratories, Inc.

Client Contact
CH2M Hill
6600 Peachtree Dunwoody Rd., 400 Embassy Row, Suite 600
Atlanta, GA 30328
(678) 530-4060 Phone
(770) 604-9183 FAX
Project Name: Meridian 10006-7-105420 JM01 Navy Clean
Site: NAS Meridian
P O #: 10006-7-105420

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

Site Contact: Ryan Brown
Lab Contact: Jill Kellmann
Date: 3/2/17
Carrier: FedEx
COC No: 1 of 1 COCs

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

Sample Identification

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Sample Specific Notes:
HEAFF-4AHW03-0317	3/2/17	1225	G	GW	4	N	X	
HEAFF-HRD-0630-0317	3/2/17	1040				N	X	
HEAFF-4AHW01-0317		1310				N	X	
HEAFF-4CHW01-0317		1530				N	X	
HEAFF-4CHW03-0317		1550				N	X	
HEAFF-FD05-0317						N	X	

Barcode: 320-26273 Chain of Custody

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other
Possible Hazard Identification: Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

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

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

Custody Seal No.: _____
Custody Seal No.: _____
Relinquished by: _____
Relinquished by: _____
Relinquished by: _____

Received by: _____
Received by: _____
Received in Laboratory by: _____

Company: CH2M Hill
Company: _____
Company: _____

Date/Time: 3/2/17 1700
Date/Time: 3/3/17 1700
Date/Time: 3/3/17

Therm ID No.: _____
Therm ID No.: _____

Cooler Temp. (°C): _____
Cooler Temp. (°C): 2.9

Corrd: 2.9

1.9 2.1 AK-1

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 320-26273-1

Login Number: 26273

List Number: 1

Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Not requested on COC.
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.	False	Container received broken. No volume could be salvaged for analysis.
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: 320-26273-1

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 5:17 PM

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

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Definitions/Glossary

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

TestAmerica Job ID: 320-26273-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

LCMS

Qualifier	Qualifier Description
M	Manual integrated compound.
E	Result exceeded calibration range.
D	The reported value is from a dilution.
U	Undetected at the Limit of Detection.

Glossary

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

CASE NARRATIVE

Client: CH2M Hill, Inc.

Project: Meridian 10006-7-105420 JM01 Navy Clean

Report Number: 320-26273-1

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 3/3/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 2.4° C.

Receipt Exceptions

One of two AGB for the following sample was received broken: MEAFF-4AMW03-0317 (320-26273-1). Sufficient sample remained to complete the analysis without a back up container.

1,4-DIOXANE

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

PFAS

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

The following sample was diluted to bring the concentration of target analytes within the calibration range: MEAFF-4AMW03-0317 (320-26273-1). Elevated reporting limits (RLs) are provided.

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: 320-26273-1

Client Sample ID: MEAFF-4AMW03-0317

Lab Sample ID: 320-26273-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	460	M E	2.3	0.68	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	93	M	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	75		2.3	0.84	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	500	D M	11	3.4	ng/L	5		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	90	D M	18	5.8	ng/L	5		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	64	D M	11	4.2	ng/L	5		537 (Modified)	Total/NA

Client Sample ID: MEAFF-MRD-0630-0317

Lab Sample ID: 320-26273-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.76	J M	0.97	0.19	ug/L	1		WS-MS-0011	Total/NA
Perfluorooctanoic acid (PFOA)	63	M	2.4	0.73	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	100	M	3.9	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	230		2.4	0.89	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MEAFF-4AMW01-0317

Lab Sample ID: 320-26273-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	17	M	2.3	0.69	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.8	M	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	30	M	2.3	0.84	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MEAFF-4CMW01-0317

Lab Sample ID: 320-26273-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	170	M	2.3	0.68	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	44	M	3.6	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	0.83	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MEAFF-4CMW03-0317

Lab Sample ID: 320-26273-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	44	M	2.3	0.69	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.2	M	3.7	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.6		2.3	0.85	ng/L	1		537 (Modified)	Total/NA

Client Sample ID: MEAFF-FD05-0317

Lab Sample ID: 320-26273-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	160	M	2.3	0.68	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	42	M	3.6	1.2	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	0.83	ng/L	1		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-26273-1

Client Sample ID: MEAFF-4AMW03-0317

Date Collected: 03/02/17 12:25

Date Received: 03/03/17 09:30

Lab Sample ID: 320-26273-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.48	U	0.95	0.19	ug/L		03/08/17 08:41	03/14/17 21:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	66		42 - 91				03/08/17 08:41	03/14/17 21:50	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	460	M E	2.3	0.68	ng/L		03/06/17 16:19	03/10/17 23:22	1
Perfluorooctanesulfonic acid (PFOS)	93	M	3.7	1.2	ng/L		03/06/17 16:19	03/10/17 23:22	1
Perfluorobutanesulfonic acid (PFBS)	75		2.3	0.84	ng/L		03/06/17 16:19	03/10/17 23:22	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	64		25 - 150				03/06/17 16:19	03/10/17 23:22	1
13C4 PFOS	108		25 - 150				03/06/17 16:19	03/10/17 23:22	1
18O2 PFHxS	75		25 - 150				03/06/17 16:19	03/10/17 23:22	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	500	D M	11	3.4	ng/L		03/06/17 16:19	03/13/17 17:38	5
Perfluorooctanesulfonic acid (PFOS)	90	D M	18	5.8	ng/L		03/06/17 16:19	03/13/17 17:38	5
Perfluorobutanesulfonic acid (PFBS)	64	D M	11	4.2	ng/L		03/06/17 16:19	03/13/17 17:38	5
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	78		25 - 150				03/06/17 16:19	03/13/17 17:38	5
13C4 PFOS	111		25 - 150				03/06/17 16:19	03/13/17 17:38	5
18O2 PFHxS	112		25 - 150				03/06/17 16:19	03/13/17 17:38	5

Client Sample ID: MEAFF-MRD-0630-0317

Date Collected: 03/02/17 10:40

Date Received: 03/03/17 09:30

Lab Sample ID: 320-26273-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.76	J M	0.97	0.19	ug/L		03/08/17 08:41	03/14/17 22:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	72		42 - 91				03/08/17 08:41	03/14/17 22:13	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	63	M	2.4	0.73	ng/L		03/06/17 16:19	03/10/17 23:30	1
Perfluorooctanesulfonic acid (PFOS)	100	M	3.9	1.2	ng/L		03/06/17 16:19	03/10/17 23:30	1
Perfluorobutanesulfonic acid (PFBS)	230		2.4	0.89	ng/L		03/06/17 16:19	03/10/17 23:30	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	94		25 - 150				03/06/17 16:19	03/10/17 23:30	1
13C4 PFOS	115		25 - 150				03/06/17 16:19	03/10/17 23:30	1
18O2 PFHxS	101		25 - 150				03/06/17 16:19	03/10/17 23:30	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-26273-1

Client Sample ID: MEAFF-4AMW01-0317

Lab Sample ID: 320-26273-3

Date Collected: 03/02/17 13:10

Matrix: Water

Date Received: 03/03/17 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.48	U	0.96	0.19	ug/L		03/08/17 08:41	03/14/17 22:35	1
Surrogate	%Recovery	Qualifier	Limits						
Nitrobenzene-d5	70		42 - 91						
							Prepared	Analyzed	Dil Fac
							03/08/17 08:41	03/14/17 22:35	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	17	M	2.3	0.69	ng/L		03/06/17 16:19	03/13/17 17:46	1
Perfluorooctanesulfonic acid (PFOS)	6.8	M	3.7	1.2	ng/L		03/06/17 16:19	03/13/17 17:46	1
Perfluorobutanesulfonic acid (PFBS)	30	M	2.3	0.84	ng/L		03/06/17 16:19	03/13/17 17:46	1
Isotope Dilution	%Recovery	Qualifier	Limits						
13C4 PFOA	26		25 - 150						
13C4 PFOS	100		25 - 150						
18O2 PFHxS	128		25 - 150						
							Prepared	Analyzed	Dil Fac
							03/06/17 16:19	03/13/17 17:46	1
							03/06/17 16:19	03/13/17 17:46	1
							03/06/17 16:19	03/13/17 17:46	1

Client Sample ID: MEAFF-4CMW01-0317

Lab Sample ID: 320-26273-4

Date Collected: 03/02/17 15:30

Matrix: Water

Date Received: 03/03/17 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.48	U	0.95	0.19	ug/L		03/08/17 08:41	03/14/17 22:57	1
Surrogate	%Recovery	Qualifier	Limits						
Nitrobenzene-d5	64		42 - 91						
							Prepared	Analyzed	Dil Fac
							03/08/17 08:41	03/14/17 22:57	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	170	M	2.3	0.68	ng/L		03/06/17 16:19	03/10/17 23:52	1
Perfluorooctanesulfonic acid (PFOS)	44	M	3.6	1.2	ng/L		03/06/17 16:19	03/10/17 23:52	1
Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	0.83	ng/L		03/06/17 16:19	03/10/17 23:52	1
Isotope Dilution	%Recovery	Qualifier	Limits						
13C4 PFOA	78		25 - 150						
13C4 PFOS	129		25 - 150						
18O2 PFHxS	126		25 - 150						
							Prepared	Analyzed	Dil Fac
							03/06/17 16:19	03/10/17 23:52	1
							03/06/17 16:19	03/10/17 23:52	1
							03/06/17 16:19	03/10/17 23:52	1

Client Sample ID: MEAFF-4CMW03-0317

Lab Sample ID: 320-26273-5

Date Collected: 03/02/17 15:50

Matrix: Water

Date Received: 03/03/17 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.49	U	0.98	0.20	ug/L		03/08/17 08:41	03/14/17 23:20	1
Surrogate	%Recovery	Qualifier	Limits						
Nitrobenzene-d5	73		42 - 91						
							Prepared	Analyzed	Dil Fac
							03/08/17 08:41	03/14/17 23:20	1

Client Sample Results

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

TestAmerica Job ID: 320-26273-1

Client Sample ID: MEAFF-4CMW03-0317

Lab Sample ID: 320-26273-5

Date Collected: 03/02/17 15:50

Matrix: Water

Date Received: 03/03/17 09:30

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	44	M	2.3	0.69	ng/L		03/06/17 16:19	03/11/17 00:00	1
Perfluorooctanesulfonic acid (PFOS)	8.2	M	3.7	1.2	ng/L		03/06/17 16:19	03/11/17 00:00	1
Perfluorobutanesulfonic acid (PFBS)	2.6		2.3	0.85	ng/L		03/06/17 16:19	03/11/17 00:00	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
¹³ C4 PFOA	75		25 - 150				03/06/17 16:19	03/11/17 00:00	1
¹³ C4 PFOS	118		25 - 150				03/06/17 16:19	03/11/17 00:00	1
¹⁸ O2 PFHxS	116		25 - 150				03/06/17 16:19	03/11/17 00:00	1

Client Sample ID: MEAFF-FD05-0317

Lab Sample ID: 320-26273-6

Date Collected: 03/02/17 00:00

Matrix: Water

Date Received: 03/03/17 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.48	U	0.96	0.19	ug/L		03/08/17 08:41	03/14/17 23:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	63		42 - 91				03/08/17 08:41	03/14/17 23:42	1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	160	M	2.3	0.68	ng/L		03/06/17 16:19	03/11/17 00:07	1
Perfluorooctanesulfonic acid (PFOS)	42	M	3.6	1.2	ng/L		03/06/17 16:19	03/11/17 00:07	1
Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	0.83	ng/L		03/06/17 16:19	03/11/17 00:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
¹³ C4 PFOA	70		25 - 150				03/06/17 16:19	03/11/17 00:07	1
¹³ C4 PFOS	116		25 - 150				03/06/17 16:19	03/11/17 00:07	1
¹⁸ O2 PFHxS	114		25 - 150				03/06/17 16:19	03/11/17 00:07	1

Default Detection Limits

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

TestAmerica Job ID: 320-26273-1

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

Prep: 3510C

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

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Prep: 3535

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

Surrogate Summary

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

TestAmerica Job ID: 320-26273-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	NBZ (42-91)
320-26273-1	MEAFF-4AMW03-0317	66
320-26273-2	MEAFF-MRD-0630-0317	72
320-26273-3	MEAFF-4AMW01-0317	70
320-26273-4	MEAFF-4CMW01-0317	64
320-26273-5	MEAFF-4CMW03-0317	73
320-26273-6	MEAFF-FD05-0317	63
LCS 320-153806/2-A	Lab Control Sample	75
LCSD 320-153806/3-A	Lab Control Sample Dup	71
MB 320-153806/1-A	Method Blank	69

Surrogate Legend

NBZ = Nitrobenzene-d5

Isotope Dilution Summary

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

TestAmerica Job ID: 320-26273-1

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		³ C4 PFO/ (25-150)	³ C4 PFO/ (25-150)	¹⁸ O2 PFHx (25-150)
320-26273-1	MEAFF-4AMW03-0317	64	108	75
320-26273-1 - DL	MEAFF-4AMW03-0317	78	111	112
320-26273-2	MEAFF-MRD-0630-0317	94	115	101
320-26273-3	MEAFF-4AMW01-0317	26	100	128
320-26273-4	MEAFF-4CMW01-0317	78	129	126
320-26273-5	MEAFF-4CMW03-0317	75	118	116
320-26273-6	MEAFF-FD05-0317	70	116	114
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

QC Sample Results

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

TestAmerica Job ID: 320-26273-1

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

Lab Sample ID: MB 320-153806/1-A
Matrix: Water
Analysis Batch: 154875

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153806

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.50	U	1.0	0.20	ug/L		03/08/17 08:41	03/14/17 20:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	69		42 - 91				03/08/17 08:41	03/14/17 20:43	1

Lab Sample ID: LCS 320-153806/2-A
Matrix: Water
Analysis Batch: 154875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	10.0	3.17	M	ug/L		32	12 - 52
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Nitrobenzene-d5	75		42 - 91				

Lab Sample ID: LCSD 320-153806/3-A
Matrix: Water
Analysis Batch: 154875

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 153806

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	10.0	3.12	M	ug/L		31	12 - 52	2	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
Nitrobenzene-d5	71		42 - 91						

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
¹³ C4 PFOA	130		25 - 150				03/06/17 16:19	03/10/17 22:30	1
¹³ C4 PFOS	116		25 - 150				03/06/17 16:19	03/10/17 22:30	1
¹⁸ O2 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	Limits
Perfluorooctanoic acid (PFOA)	40.0	39.9		ng/L		100	60 - 140

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-26273-1

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

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	Limits
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
<i>Isotope Dilution</i>		<i>LCS %Recovery</i>	<i>LCS Qualifier</i>				<i>Limits</i>
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	Limits	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
<i>Isotope Dilution</i>		<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>				<i>Limits</i>		
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: 320-26273-1

GC/MS Semi VOA

Prep Batch: 153806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26273-1	MEAFF-4AMW03-0317	Total/NA	Water	3510C	
320-26273-2	MEAFF-MRD-0630-0317	Total/NA	Water	3510C	
320-26273-3	MEAFF-4AMW01-0317	Total/NA	Water	3510C	
320-26273-4	MEAFF-4CMW01-0317	Total/NA	Water	3510C	
320-26273-5	MEAFF-4CMW03-0317	Total/NA	Water	3510C	
320-26273-6	MEAFF-FD05-0317	Total/NA	Water	3510C	
MB 320-153806/1-A	Method Blank	Total/NA	Water	3510C	
LCS 320-153806/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 320-153806/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 154875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26273-1	MEAFF-4AMW03-0317	Total/NA	Water	WS-MS-0011	153806
320-26273-2	MEAFF-MRD-0630-0317	Total/NA	Water	WS-MS-0011	153806
320-26273-3	MEAFF-4AMW01-0317	Total/NA	Water	WS-MS-0011	153806
320-26273-4	MEAFF-4CMW01-0317	Total/NA	Water	WS-MS-0011	153806
320-26273-5	MEAFF-4CMW03-0317	Total/NA	Water	WS-MS-0011	153806
320-26273-6	MEAFF-FD05-0317	Total/NA	Water	WS-MS-0011	153806
MB 320-153806/1-A	Method Blank	Total/NA	Water	WS-MS-0011	153806
LCS 320-153806/2-A	Lab Control Sample	Total/NA	Water	WS-MS-0011	153806
LCSD 320-153806/3-A	Lab Control Sample Dup	Total/NA	Water	WS-MS-0011	153806

LCMS

Prep Batch: 153501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26273-1 - DL	MEAFF-4AMW03-0317	Total/NA	Water	3535	
320-26273-1	MEAFF-4AMW03-0317	Total/NA	Water	3535	
320-26273-2	MEAFF-MRD-0630-0317	Total/NA	Water	3535	
320-26273-3	MEAFF-4AMW01-0317	Total/NA	Water	3535	
320-26273-4	MEAFF-4CMW01-0317	Total/NA	Water	3535	
320-26273-5	MEAFF-4CMW03-0317	Total/NA	Water	3535	
320-26273-6	MEAFF-FD05-0317	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
320-26273-1	MEAFF-4AMW03-0317	Total/NA	Water	537 (Modified)	153501
320-26273-2	MEAFF-MRD-0630-0317	Total/NA	Water	537 (Modified)	153501
320-26273-4	MEAFF-4CMW01-0317	Total/NA	Water	537 (Modified)	153501
320-26273-5	MEAFF-4CMW03-0317	Total/NA	Water	537 (Modified)	153501
320-26273-6	MEAFF-FD05-0317	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

QC Association Summary

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

TestAmerica Job ID: 320-26273-1

LCMS (Continued)

Analysis Batch: 154808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-26273-1 - DL	MEAFF-4AMW03-0317	Total/NA	Water	537 (Modified)	153501
320-26273-3	MEAFF-4AMW01-0317	Total/NA	Water	537 (Modified)	153501

Lab Chronicle

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

TestAmerica Job ID: 320-26273-1

Client Sample ID: MEAFF-4AMW03-0317

Date Collected: 03/02/17 12:25

Date Received: 03/03/17 09:30

Lab Sample ID: 320-26273-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			153806	03/08/17 08:41	SR1	TAL SAC
Total/NA	Analysis	WS-MS-0011		1	154875	03/14/17 21:50	A1C	TAL SAC
Total/NA	Prep	3535			153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154459	03/10/17 23:22	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 17:38	CBW	TAL SAC

Client Sample ID: MEAFF-MRD-0630-0317

Date Collected: 03/02/17 10:40

Date Received: 03/03/17 09:30

Lab Sample ID: 320-26273-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			153806	03/08/17 08:41	SR1	TAL SAC
Total/NA	Analysis	WS-MS-0011		1	154875	03/14/17 22:13	A1C	TAL SAC
Total/NA	Prep	3535			153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154459	03/10/17 23:30	TC1	TAL SAC

Client Sample ID: MEAFF-4AMW01-0317

Date Collected: 03/02/17 13:10

Date Received: 03/03/17 09:30

Lab Sample ID: 320-26273-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			153806	03/08/17 08:41	SR1	TAL SAC
Total/NA	Analysis	WS-MS-0011		1	154875	03/14/17 22:35	A1C	TAL SAC
Total/NA	Prep	3535			153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154808	03/13/17 17:46	CBW	TAL SAC

Client Sample ID: MEAFF-4CMW01-0317

Date Collected: 03/02/17 15:30

Date Received: 03/03/17 09:30

Lab Sample ID: 320-26273-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			153806	03/08/17 08:41	SR1	TAL SAC
Total/NA	Analysis	WS-MS-0011		1	154875	03/14/17 22:57	A1C	TAL SAC
Total/NA	Prep	3535			153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154459	03/10/17 23:52	TC1	TAL SAC

Client Sample ID: MEAFF-4CMW03-0317

Date Collected: 03/02/17 15:50

Date Received: 03/03/17 09:30

Lab Sample ID: 320-26273-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			153806	03/08/17 08:41	SR1	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-26273-1

Client Sample ID: MEAFF-4CMW03-0317

Lab Sample ID: 320-26273-5

Date Collected: 03/02/17 15:50

Matrix: Water

Date Received: 03/03/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WS-MS-0011		1	154875	03/14/17 23:20	A1C	TAL SAC
Total/NA	Prep	3535			153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154459	03/11/17 00:00	TC1	TAL SAC

Client Sample ID: MEAFF-FD05-0317

Lab Sample ID: 320-26273-6

Date Collected: 03/02/17 00:00

Matrix: Water

Date Received: 03/03/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			153806	03/08/17 08:41	SR1	TAL SAC
Total/NA	Analysis	WS-MS-0011		1	154875	03/14/17 23:42	A1C	TAL SAC
Total/NA	Prep	3535			153501	03/06/17 16:19	JER	TAL SAC
Total/NA	Analysis	537 (Modified)		1	154459	03/11/17 00:07	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: 320-26273-1

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: 320-26273-1

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

Protocol References:

- EPA = US Environmental Protection Agency
- TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

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

TestAmerica Job ID: 320-26273-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-26273-1	MEAFF-4AMW03-0317	Water	03/02/17 12:25	03/03/17 09:30
320-26273-2	MEAFF-MRD-0630-0317	Water	03/02/17 10:40	03/03/17 09:30
320-26273-3	MEAFF-4AMW01-0317	Water	03/02/17 13:10	03/03/17 09:30
320-26273-4	MEAFF-4CMW01-0317	Water	03/02/17 15:30	03/03/17 09:30
320-26273-5	MEAFF-4CMW03-0317	Water	03/02/17 15:50	03/03/17 09:30
320-26273-6	MEAFF-FD05-0317	Water	03/02/17 00:00	03/03/17 09:30

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

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

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

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

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

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

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

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

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

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

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

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

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

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

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

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

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

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

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

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

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

Lab Sample ID: LCS 320-153806/2-A Client Sample ID: _____Date Analyzed: 03/14/17 21:06 Lab File ID: S031417.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.32	Peak Tail	lardieo	03/15/17 14:30

Lab Sample ID: LCSD 320-153806/3-A Client Sample ID: _____Date Analyzed: 03/14/17 21:28 Lab File ID: S031418.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.32	Peak Tail	onishim	03/15/17 08:35

Lab Sample ID: 320-26273-2 Client Sample ID: MEAFF-MRD-0630-0317Date Analyzed: 03/14/17 22:13 Lab File ID: S031420.D GC Column: HP-5MS ID: 0.25 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	3.33	Peak Tail	onishim	03/15/17 08:36

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

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

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

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	chandrase nas	03/01/17 15:43
Perfluorooctanoic acid (PFOA)	2.86	Incomplete Integration	chandrase nas	03/01/17 15:43
Perfluorooctanesulfonic acid (PFOS)	3.23	Isomers	chandrase nas	03/01/17 15:43

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

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

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

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

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

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

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152681

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

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

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

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

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

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

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

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.: 320-26273-1

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

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154459

Lab Sample ID: 320-26273-1 Client Sample ID: MEAFF-4AMW03-0317

Date Analyzed: 03/10/17 23:22 Lab File ID: 2017.03.10B_048.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.83	Isomers	changnoit	03/27/17 12:08
Perfluorooctanesulfonic acid (PFOS)	3.20	Isomers	changnoit	03/27/17 12:08

Lab Sample ID: 320-26273-2 Client Sample ID: MEAFF-MRD-0630-0317

Date Analyzed: 03/10/17 23:30 Lab File ID: 2017.03.10B_049.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 12:10
Perfluorooctanesulfonic acid (PFOS)	3.17	Isomers	changnoit	03/27/17 12:10

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

Lab Sample ID: 320-26273-4 Client Sample ID: MEAFF-4CMW01-0317

Date Analyzed: 03/10/17 23:52 Lab File ID: 2017.03.10B_052.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.83	Isomers	changnoit	03/27/17 12:10
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	changnoit	03/27/17 12:10

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154459

Lab Sample ID: 320-26273-5 Client Sample ID: MEAFF-4CMW03-0317

Date Analyzed: 03/11/17 00:00 Lab File ID: 2017.03.10B_053.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.83	Isomers	changnoit	03/27/17 12:11
Perfluorooctanesulfonic acid (PFOS)	3.06	Isomers	chandrase nas	03/27/17 12:11

Lab Sample ID: 320-26273-6 Client Sample ID: MEAFF-FD05-0317

Date Analyzed: 03/11/17 00:07 Lab File ID: 2017.03.10B_054.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	2.81	Isomers	changnoit	03/27/17 12:11
Perfluorooctanesulfonic acid (PFOS)	3.17	Isomers	changnoit	03/27/17 12:11

Lab Sample ID: CCV 320-154459/34 Client Sample ID: _____

Date Analyzed: 03/11/17 00:15 Lab File ID: 2017.03.10B_055.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 11:35
Perfluorooctanesulfonic acid (PFOS)	3.17	Isomers	changnoit	03/13/17 11:35

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

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

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

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: 320-26273-1 DL Client Sample ID: MEAFF-4AMW03-0317 DL

Date Analyzed: 03/13/17 17:38 Lab File ID: 2017.03.13A_051.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.86	Baseline	chandrase nas	03/27/17 12:23
Perfluorooctanoic acid (PFOA)	2.83	Isomers	westendorfc	03/27/17 12:23
Perfluorooctanesulfonic acid (PFOS)	3.19	Isomers	westendorfc	03/27/17 12:23

Lab Sample ID: 320-26273-3 Client Sample ID: MEAFF-4AMW01-0317

Date Analyzed: 03/13/17 17:46 Lab File ID: 2017.03.13A_052.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.86	Baseline	chandrase nas	03/27/17 12:25
Perfluorooctanoic acid (PFOA)	2.82	Isomers	westendorfc	03/27/17 12:25
Perfluorooctanesulfonic acid (PFOS)	3.19	Baseline	westendorfc	03/27/17 12:25

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 154808

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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	1802 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL					
LCMPFudA_00009	1000 uL	13C2 PFUnA	1 ug/mL					
.LCM2PFHxDA_00008	01/07/21	Wellington Laboratories, Lot M2PFHxDA1112				(Purchased Reagent)	13C2-PFHxDA	50 ug/mL
.LCM2PFTeDA_00007	12/07/20	Wellington Laboratories, Lot M2PFTeDA1115				(Purchased Reagent)	13C2-PFTeDA	50 ug/mL
.LCM4PFHPA_00007	05/27/21	Wellington Laboratories, Lot M4PFHpa0516				(Purchased Reagent)	13C4-PFHpA	50 ug/mL
.LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515				(Purchased Reagent)	13C5-PFPeA	50 ug/mL
.LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I				(Purchased Reagent)	13C8 FOSA	50 ug/mL
.LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516				(Purchased Reagent)	13C4 PFBA	50 ug/mL
.LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815				(Purchased Reagent)	13C2 PFDA	50 ug/mL
.LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416				(Purchased Reagent)	13C2 PFDoA	50 ug/mL
.LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416				(Purchased Reagent)	13C2 PFHxA	50 ug/mL
.LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015				(Purchased Reagent)	1802 PFHxS	47.3 ug/mL
.LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414				(Purchased Reagent)	13C5 PFNA	50 ug/mL
.LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116				(Purchased Reagent)	13C4 PFOA	50 ug/mL
.LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816				(Purchased Reagent)	13C4 PFOS	47.8 ug/mL
.LCMPFudA_00009	02/12/21	Wellington Laboratories, Lot MPFudA0216				(Purchased Reagent)	13C2 PFUnA	50 ug/mL
LCPFCSU_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-NMeFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							1802 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

SDG No.: _____

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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 M4PFHpaA0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL	
..LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL	
..LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL	
..LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL	
..LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL	
..LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL	
..LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL	
..LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL	
..LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL	
..LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL	
..LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL	
..LCMPFUdA_00009	02/12/21	Wellington Laboratories, Lot MPFUdA0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL	
.LCPFC2SP_00025	06/28/17	01/30/17	Methanol, Lot 104453	10000 uL	LCPFC2SP_00020	2000 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.0958 ug/mL
							N-ethylperfluoro-1-octanesulfoamide	0.1 ug/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
....LCPFOSA 00008	09/02/17		Wellington Laboratories, Lot FOSA0815I		(Purchased Reagent)		Perfluorooctane Sulfonamide	50 ug/mL
...LCPFPeA 00005	01/30/20		Wellington Laboratories, Lot PFPeA0115		(Purchased Reagent)		Perfluoropentanoic acid	50 ug/mL
...LCPFTEdA 00005	12/09/20		Wellington Laboratories, Lot PFTEdA1215		(Purchased Reagent)		Perfluorotetradecanoic acid	50 ug/mL
...LCPFTrDA 00005	02/12/21		Wellington Laboratories, Lot PFTrDA0216		(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
...LCPFUDA 00005	08/19/20		Wellington Laboratories, Lot PFUDA0815		(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L2_00001	06/14/17	02/16/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTEdA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							18O2 PFHxS	47.3 ng/mL
							13C5 PFNA	50 ng/mL
							13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
					LCPFC2SP_00025	50 uL	Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	0.948 ng/mL
							Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (8:2)	0.958 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	1 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	1 ng/mL
							MeFOSA	1 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	1 ng/mL
							LCPFCSP_00078	50 uL
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							

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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	1802 PFHxS	0.946 ug/mL
					LCMPFNA 00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUda 00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21		Wellington Laboratories, Lot M4PFHPa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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_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-octanesulfo namide	0.1 ug/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							MeFOSA	0.1 ug/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
..LCPFC2SP_00020	06/28/17	12/28/16	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.474 ug/mL
					LC8:2FTS_00002	100 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.479 ug/mL
					LCN-EtFOSA-M_00003	100 uL	N-ethylperfluoro-1-octanesulfo namide	0.5 ug/mL
					LCN-EtFOSAA_00002	100 uL	N-ethyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
					LCN-MeFOSA-M_00002	100 uL	MeFOSA	0.5 ug/mL
					LCN-MeFOSAA_00003	100 uL	N-methyl perfluorooctane sulfonamidoacetic acid	0.5 ug/mL
...LC6:2FTS_00002	06/25/21		WELLINGTON, Lot 62FTS0616		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	47.4 ug/mL
...LC8:2FTS_00002	10/23/20		WELLINGTON, Lot 82FTS1015		(Purchased Reagent)		Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	47.9 ug/mL
...LCN-EtFOSA-M_00003	05/24/21		WELLINGTON, Lot NETFOSA0516M		(Purchased Reagent)		N-ethylperfluoro-1-octanesulfo namide	50 ug/mL
...LCN-EtFOSAA_00002	01/20/21		WELLINGTON, Lot NETFOSAA0116		(Purchased Reagent)		N-ethyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
...LCN-MeFOSA-M_00002	05/24/21		WELLINGTON, Lot NMeFOSA0714M		(Purchased Reagent)		MeFOSA	50 ug/mL
...LCN-MeFOSAA_00003	01/20/21		WELLINGTON, Lot NMeFOSAA0116		(Purchased Reagent)		N-methyl perfluorooctane sulfonamidoacetic acid	50 ug/mL
.LCPFCSP_00078	06/14/17	01/16/17	Methanol, Lot 090285	10000 uL	LCPFCSP_00075	2000 uL	Perfluorobutyric acid	0.1 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	0.0884 ug/mL
							Perfluorodecanoic acid	0.1 ug/mL
							Perfluorododecanoic acid	0.1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

SDG No.: _____

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
....LCPFDaA 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	LCPMFC2SU_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
					LCPMFC3SU_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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFC2SP_00025	250 uL	13C4 PFOA	50 ng/mL
							13C4 PFOS	47.8 ng/mL
							13C2 PFUnA	50 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	4.74 ng/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	4.79 ng/mL
							N-ethylperfluoro-1-octanesulfo namide	5 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	5 ng/mL
					LCPFCSP_00078	250 uL	MeFOSA	5 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	5 ng/mL
							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	

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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 M4PFHpaA0516			(Purchased Reagent)	13C4-PFHpa	50 ug/mL	
..LCM5PFPEA_00008	05/22/20	Wellington Laboratories, Lot M5PFPeA0515			(Purchased Reagent)	13C5-PFPeA	50 ug/mL	
..LCM8FOSA_00011	12/22/17	Wellington Laboratories, Lot M8FOSA1215I			(Purchased Reagent)	13C8 FOSA	50 ug/mL	
..LCMPFBA_00008	05/24/21	Wellington Laboratories, Lot MPFBA0516			(Purchased Reagent)	13C4 PFBA	50 ug/mL	
..LCMPFDA_00011	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)	13C2 PFDA	50 ug/mL	
..LCMPFDoA_00008	04/08/21	Wellington Laboratories, Lot MPFDoA0416			(Purchased Reagent)	13C2 PFDoA	50 ug/mL	
..LCMPFHxA_00012	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)	13C2 PFHxA	50 ug/mL	
..LCMPFHxS_00008	10/23/20	Wellington Laboratories, Lot MPFHxS1015			(Purchased Reagent)	18O2 PFHxS	47.3 ug/mL	
..LCMPFNA_00008	04/13/19	Wellington Laboratories, Lot MPFNA0414			(Purchased Reagent)	13C5 PFNA	50 ug/mL	
..LCMPFOA_00012	01/22/21	Wellington Laboratories, Lot MPFOA0116			(Purchased Reagent)	13C4 PFOA	50 ug/mL	
..LCMPFOS_00017	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)	13C4 PFOS	47.8 ug/mL	
..LCMPFUdA_00009	02/12/21	Wellington Laboratories, Lot MPFUdA0216			(Purchased Reagent)	13C2 PFUnA	50 ug/mL	
.LCPFC2SP_00025	06/28/17	01/30/17	Methanol, Lot 104453	10000 uL	LCPFC2SP_00020	2000 uL	Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	0.0948 ug/mL
							Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (8:2)	0.0958 ug/mL
							N-ethylperfluoro-1-octanesulfoamide	0.1 ug/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	0.1 ug/mL
							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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LCPFOS-br_00002	10/14/20		Wellington Laboratories, Lot brPFOSK1015		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	46.4 ug/mL
....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_FULLL-L4_00001	06/14/17	02/16/17	MeOH/H2O, Lot 090285	5 mL	LCMPFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NEtFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCMPFCSU_00047	250 uL	13C2-PFHxDA	50 ng/mL
							13C2-PFTeDA	50 ng/mL
							13C4-PFHpA	50 ng/mL
							13C5-PFPeA	50 ng/mL
							13C8 FOSA	50 ng/mL
							13C4 PFBA	50 ng/mL
							13C2 PFDA	50 ng/mL
							13C2 PFDoA	50 ng/mL
							13C2 PFHxA	50 ng/mL
							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-octanesulfo namide	20 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	20 ng/mL
							MeFOSA	20 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	20 ng/mL
					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.: 320-26273-1

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	1802 PFHxS	0.946 ug/mL
					LCMPFNA 00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUda 00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21		Wellington Laboratories, Lot M4PFHPa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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
					LCPFDa_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					

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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	LCPMFC2SU_00014	250 uL	d-N-EtFOSA-M	50 ng/mL
							d-N-MeFOSA-M	50 ng/mL
							d3-NMeFOSAA	50 ng/mL
							d5-NMeFOSAA	50 ng/mL
							M2-6:2FTS	47.5 ng/mL
							M2-8:2FTS	47.9 ng/mL
					LCPMFCSU_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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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
					LCPFCSP_00074	250 uL	N-methyl perfluorooctane sulfonamidoacetic acid	50 ng/mL
							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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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
..LC6:2FTS_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.: 320-26273-1

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 PFTTrDA0216			(Purchased Reagent)		Perfluorotridecanoic acid	50 ug/mL
..LCPFUdA_00005	08/19/20	Wellington Laboratories, Lot PFUdA0815			(Purchased Reagent)		Perfluoroundecanoic acid	50 ug/mL
LCPFC_FULL-L6_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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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	189.6 ng/mL
							1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	
							Sodium	191.6 ng/mL
							1H, 1H, 2H, 2H-perfluorooctane sulfonate (8:2)	
							N-ethylperfluoro-1-octanesulfoamide	200 ng/mL
							N-ethyl perfluorooctane sulfonamidoacetic acid	200 ng/mL
					LCPFCSP_00080	2000 uL	MeFOSA	200 ng/mL
							N-methyl perfluorooctane sulfonamidoacetic acid	200 ng/mL
							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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCd-NMeFOSA-M 00003	1000 uL	d-N-MeFOSA-M	1 ug/mL
					LCd3-NMeFOSAA 00003	1000 uL	d3-NMeFOSAA	1 ug/mL
					LCd5-NETFOSAA 00003	1000 uL	d5-NETFOSAA	1 ug/mL
					LCM2-6:FTS 00003	1000 uL	M2-6:2FTS	0.95 ug/mL
					LCM2-8:2FTS 00003	1000 uL	M2-8:2FTS	0.958 ug/mL
..LCd-NETfOSA-M 00004	06/10/21		WELLINGTON, Lot dNetFOSA0616M		(Purchased Reagent)		d-N-EtFOSA-M	50 ug/mL
..LCd-NMeFOSA-M 00003	06/10/21		WELLINGTON, Lot dNMeFOSA0616M		(Purchased Reagent)		d-N-MeFOSA-M	50 ug/mL
..LCd3-NMeFOSAA 00003	05/31/21		WELLINGTON, Lot d3NMeFOSAA0516		(Purchased Reagent)		d3-NMeFOSAA	50 ug/mL
..LCd5-NETFOSAA 00003	08/02/21		WELLINGTON, Lot d5NETFOSAA0716		(Purchased Reagent)		d5-NETFOSAA	50 ug/mL
..LCM2-6:FTS 00003	01/08/21		WELLINGTON, Lot M262FTS0116		(Purchased Reagent)		M2-6:2FTS	47.5 ug/mL
..LCM2-8:2FTS 00003	01/08/21		WELLINGTON, Lot M282FTS0116		(Purchased Reagent)		M2-8:2FTS	47.9 ug/mL
..LCMPFCSU_00047	06/14/17	12/14/16	Methanol, Lot Baker 144541	50000 uL	LCM2PFHxDA_00008	1000 uL	13C2-PFHxDA	1 ug/mL
					LCM2PFTeDA 00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHPA 00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA 00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA 00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA 00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA 00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA 00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA 00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS 00008	1000 uL	1802 PFHxS	0.946 ug/mL
					LCMPFNA 00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA 00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS 00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA 00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA 00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA 00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHPA 00007	05/27/21		Wellington Laboratories, Lot M4PFHPa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA 00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA 00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA 00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA 00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA 00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA 00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS 00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		1802 PFHxS	47.3 ug/mL
..LCMPFNA 00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA 00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS 00017	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA 00009	02/12/21		Wellington Laboratories, Lot MPFUdA0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..LCPFCSU_00027	08/24/17	02/24/17	Methanol, Lot 104453	10000 uL	LC6:2FTS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2)	0.948 ug/mL
					LC8:2FTS_00002	200 uL	Sodium 1H, 1H, 2H, 2H-perfluorooctane sulfonate (8:2)	0.958 ug/mL
					LCN-EtFOSA-M_00003	200 uL	N-ethylperfluoro-1-octanesulfo namide	1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

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 PFTTrDA0216		(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	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
LCPFACMXB_00007	125 uL	Perfluorooctanesulfonic acid (PFOS)	47.75 ng/mL					
		Perfluorooctanoic acid (PFOA)	50 ng/mL					
.LCMPFC2SU_00014	08/13/17	02/13/17	Methanol, Lot 104453	50000 uL	LCd-NEtFOSA-M 00004	1000 uL	d-N-EtFOSA-M	1 ug/mL
							LCd-NMeFOSA-M 00003	1 ug/mL
							LCd3-NMeFOSAA 00003	1 ug/mL
							LCd5-NEtFOSAA 00003	1 ug/mL
							LCM2-6:FTS 00003	0.95 ug/mL
							LCM2-8:2FTS 00003	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCM2PFTeDA_00007	1000 uL	13C2-PFTeDA	1 ug/mL
					LCM4PFHFA_00007	1000 uL	13C4-PFHpa	1 ug/mL
					LCM5PFPEA_00008	1000 uL	13C5-PFPeA	1 ug/mL
					LCM8FOSA_00011	1000 uL	13C8 FOSA	1 ug/mL
					LCMPFBA_00008	1000 uL	13C4 PFBA	1 ug/mL
					LCMPFDA_00011	1000 uL	13C2 PFDA	1 ug/mL
					LCMPFDoA_00008	1000 uL	13C2 PFDoA	1 ug/mL
					LCMPFHxA_00012	1000 uL	13C2 PFHxA	1 ug/mL
					LCMPFHxS_00008	1000 uL	18O2 PFHxS	0.946 ug/mL
					LCMPFNA_00008	1000 uL	13C5 PFNA	1 ug/mL
					LCMPFOA_00012	1000 uL	13C4 PFOA	1 ug/mL
					LCMPFOS_00017	1000 uL	13C4 PFOS	0.956 ug/mL
					LCMPFUdA_00009	1000 uL	13C2 PFUnA	1 ug/mL
..LCM2PFHxDA_00008	01/07/21		Wellington Laboratories, Lot M2PFHxDA1112		(Purchased Reagent)		13C2-PFHxDA	50 ug/mL
..LCM2PFTeDA_00007	12/07/20		Wellington Laboratories, Lot M2PFTeDA1115		(Purchased Reagent)		13C2-PFTeDA	50 ug/mL
..LCM4PFHFA_00007	05/27/21		Wellington Laboratories, Lot M4PFHpa0516		(Purchased Reagent)		13C4-PFHpa	50 ug/mL
..LCM5PFPEA_00008	05/22/20		Wellington Laboratories, Lot M5PFPeA0515		(Purchased Reagent)		13C5-PFPeA	50 ug/mL
..LCM8FOSA_00011	12/22/17		Wellington Laboratories, Lot M8FOSA1215I		(Purchased Reagent)		13C8 FOSA	50 ug/mL
..LCMPFBA_00008	05/24/21		Wellington Laboratories, Lot MPFBA0516		(Purchased Reagent)		13C4 PFBA	50 ug/mL
..LCMPFDA_00011	08/19/20		Wellington Laboratories, Lot MPFDA0815		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFDoA_00008	04/08/21		Wellington Laboratories, Lot MPFDoA0416		(Purchased Reagent)		13C2 PFDoA	50 ug/mL
..LCMPFHxA_00012	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
..LCMPFHxS_00008	10/23/20		Wellington Laboratories, Lot MPFHxS1015		(Purchased Reagent)		18O2 PFHxS	47.3 ug/mL
..LCMPFNA_00008	04/13/19		Wellington Laboratories, Lot MPFNA0414		(Purchased Reagent)		13C5 PFNA	50 ug/mL
..LCMPFOA_00012	01/22/21		Wellington Laboratories, Lot MPFOA0116		(Purchased Reagent)		13C4 PFOA	50 ug/mL
..LCMPFOS_00017	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFUdA_00009	02/12/21		Wellington Laboratories, Lot MPFUdA0216		(Purchased Reagent)		13C2 PFUnA	50 ug/mL
..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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LCPFOS-br_00002	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)		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
MS14DICV_00004	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS8270IS 00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS8270IS 00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DICV_00004	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DIC_00008	100 uL	1,4-Dioxane	10 ug/mL
							Nitrobenzene-d5	10 ug/mL
.MS14DIC_00008	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DIC 00007	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU 00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DIC 00007	02/21/18		Restek, Lot A0124653		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU 00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
MS14DL1_00011	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	5 uL	1,4-Dioxane	0.5 ug/mL
							Nitrobenzene-d5	0.5 ug/mL
					MS8270IS 00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA 00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU 00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA 00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU 00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL2_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	10 uL	1,4-Dioxane	1 ug/mL
							Nitrobenzene-d5	1 ug/mL
					MS8270IS_00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL3_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	20 uL	1,4-Dioxane	2 ug/mL
							Nitrobenzene-d5	2 ug/mL
					MS8270IS_00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL4_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	50 uL	1,4-Dioxane	5 ug/mL
							Nitrobenzene-d5	5 ug/mL
					MS8270IS_00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL5_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	100 uL	1,4-Dioxane	10 ug/mL
							Nitrobenzene-d5	10 ug/mL
					MS8270IS_00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL6_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	200 uL	1,4-Dioxane	20 ug/mL
							Nitrobenzene-d5	20 ug/mL
					MS8270IS_00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL7_00010	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	500 uL	1,4-Dioxane	50 ug/mL
							Nitrobenzene-d5	50 ug/mL
					MS8270IS_00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
					MS8270SU_00100	200 uL	Nitrobenzene-d5	100 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DL8_00005	01/12/18	02/21/17	MeCl2, Lot 0000152943	1 mL	MS14DTA_00024	1000 uL	1,4-Dioxane	100 ug/mL
							Nitrobenzene-d5	100 ug/mL
.MS14DTA_00024	02/21/18	02/21/17	MeCl2, Lot 0000152943	10 mL	MS8270IS_00016	5 uL	1,4-Dichlorobenzene-d4	10 ug/mL
					MS14DTA_00023	500 uL	1,4-Dioxane	100 ug/mL
..MS14DTA_00023	02/21/18		Restek, Lot A0121319		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
..MS8270SU_00100	02/21/18		Restek, Lot A0103960		(Purchased Reagent)		Nitrobenzene-d5	5000 ug/mL
.MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MS14DSP_00030	06/20/17	12/20/16	Methanol, Lot 0000152413	100 mL	MS14DTA_00022	1 mL	1,4-Dioxane	20 ug/mL
.MS14DTA_00022	09/30/18		SUPELCO, Lot LC16305V		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
MS14DSU_00003	03/21/17	10/31/16	Methanol, Lot 00000142776	200 mL	MS8270SU_00094	20 mL	2,4,6-Tribromophenol	10 ug/mL
							2-Fluorobiphenyl (Surr)	10 ug/mL
							2-Fluorophenol	10 ug/mL
							Nitrobenzene-d5	10 ug/mL
							Phenol-d5	10 ug/mL
.MS8270SU_00094	03/21/17		Restek, Lot A0117528		(Purchased Reagent)		2,4,6-Tribromophenol	100 ug/mL
							2-Fluorobiphenyl (Surr)	100 ug/mL
							2-Fluorophenol	100 ug/mL
							Nitrobenzene-d5	100 ug/mL
							Phenol-d5	100 ug/mL
Terphenyl-d14	100 ug/mL							
MS8270IS_00016	01/12/18		Restek, Lot A0120796		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL

Reagent

LC6:2FTS_00002

R: 8/23/16 SBC



715544

ID: LC6:2FTS_00002

Exp: 06/25/21 Prod: SBC

6:2FTS

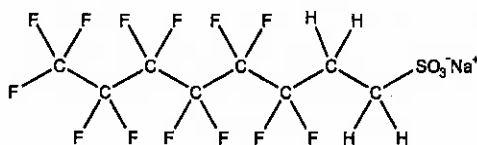


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 6:2FTS **LOT NUMBER:** 62FTS0616
COMPOUND: Sodium 1H,1H,2H,2H-perfluorooctane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₈H₄F₁₃SO₃Na **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:

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

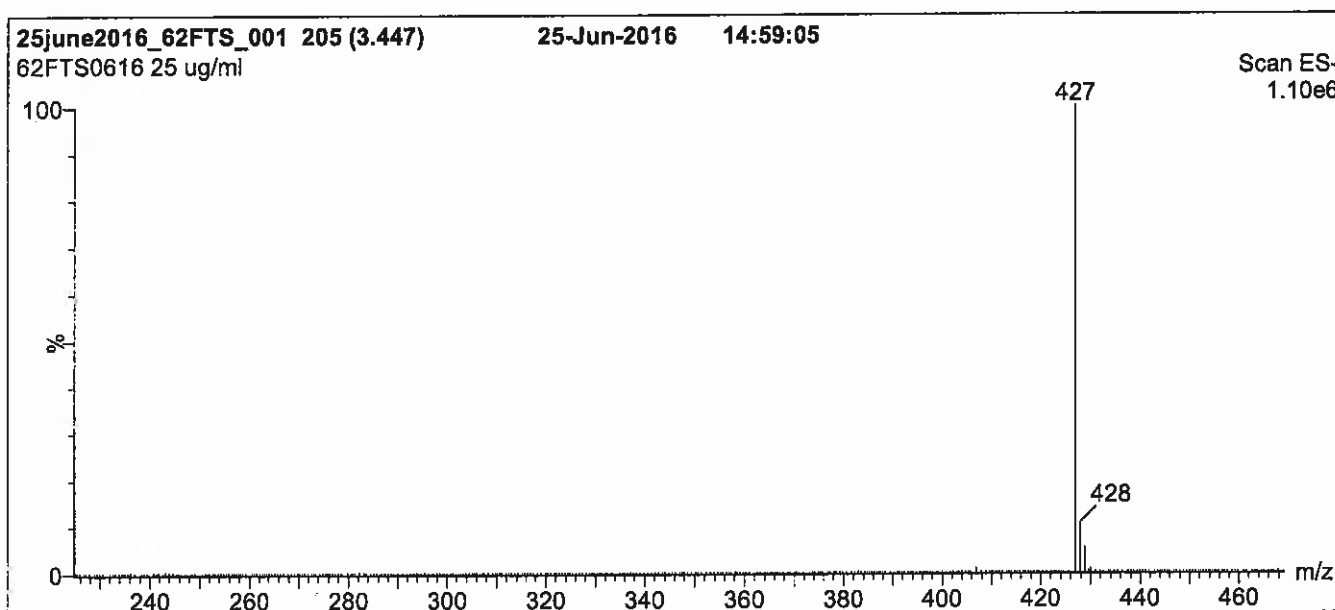
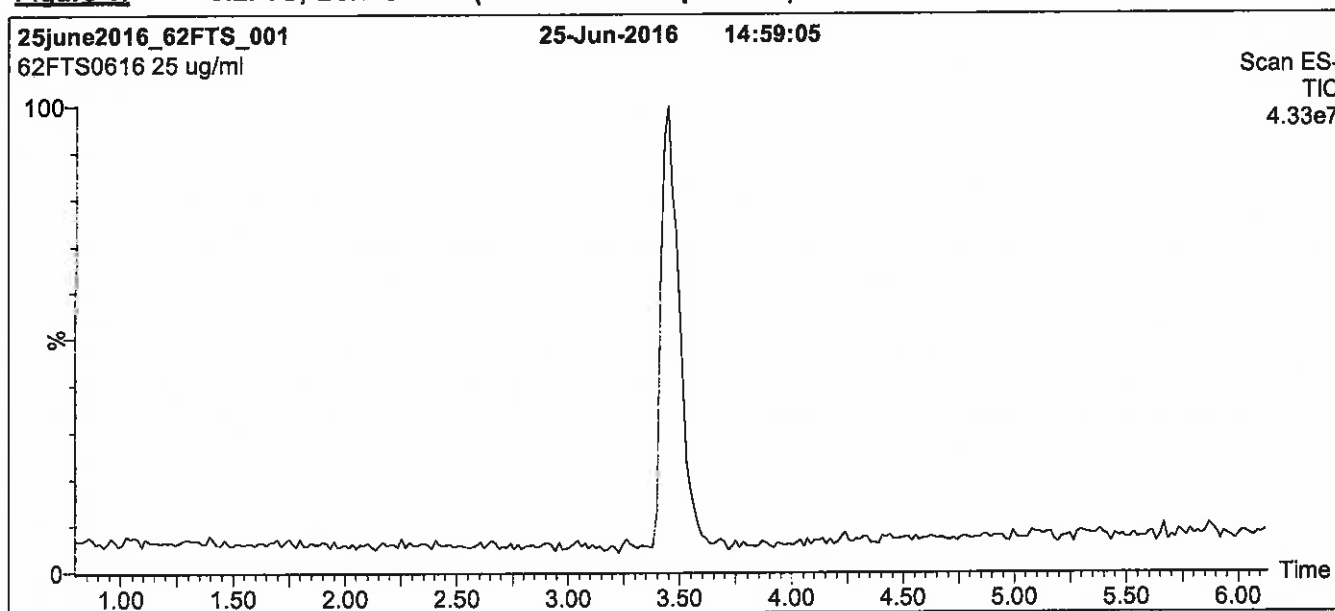
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

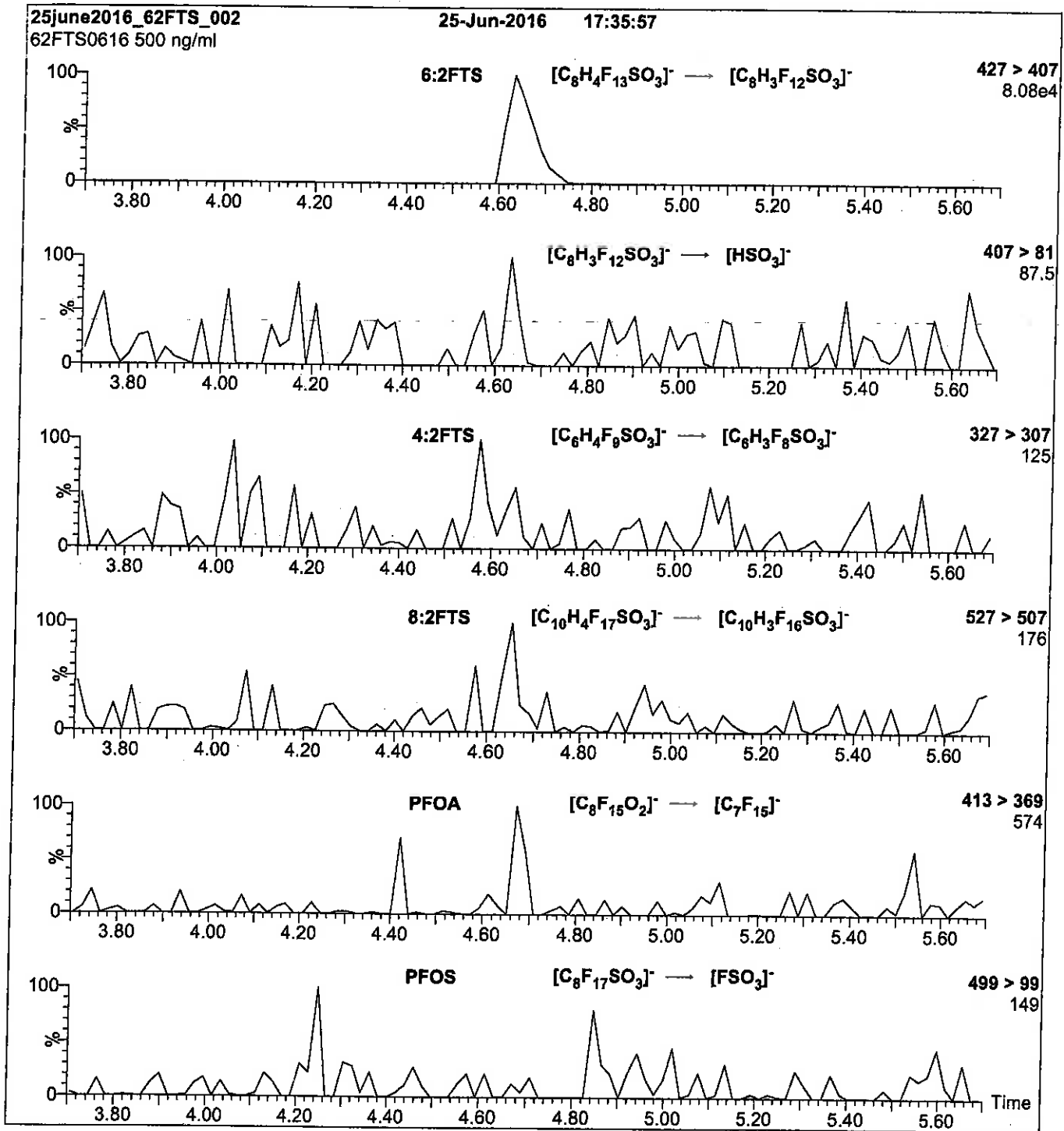
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LC8 : 2FTS _ 00002

R: 8/23/16 SBC

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

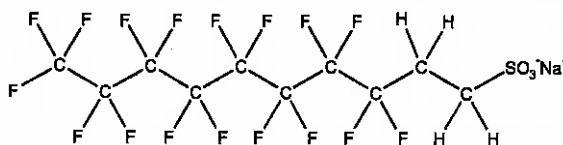


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	C ₁₀ H ₄ F ₁₇ SO ₃ Na	MOLECULAR WEIGHT:	550.16
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	SOLVENT(S):	Methanol
	47.9 ± 2.4 µg/ml (8:2FTS anion)		
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	10/23/2015		
EXPIRY DATE: (mm/dd/yyyy)	10/23/2020		
RECOMMENDED STORAGE:	Refrigerate ampoule		


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim

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

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

INTENDED USE:

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

HAZARDS:

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

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

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

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

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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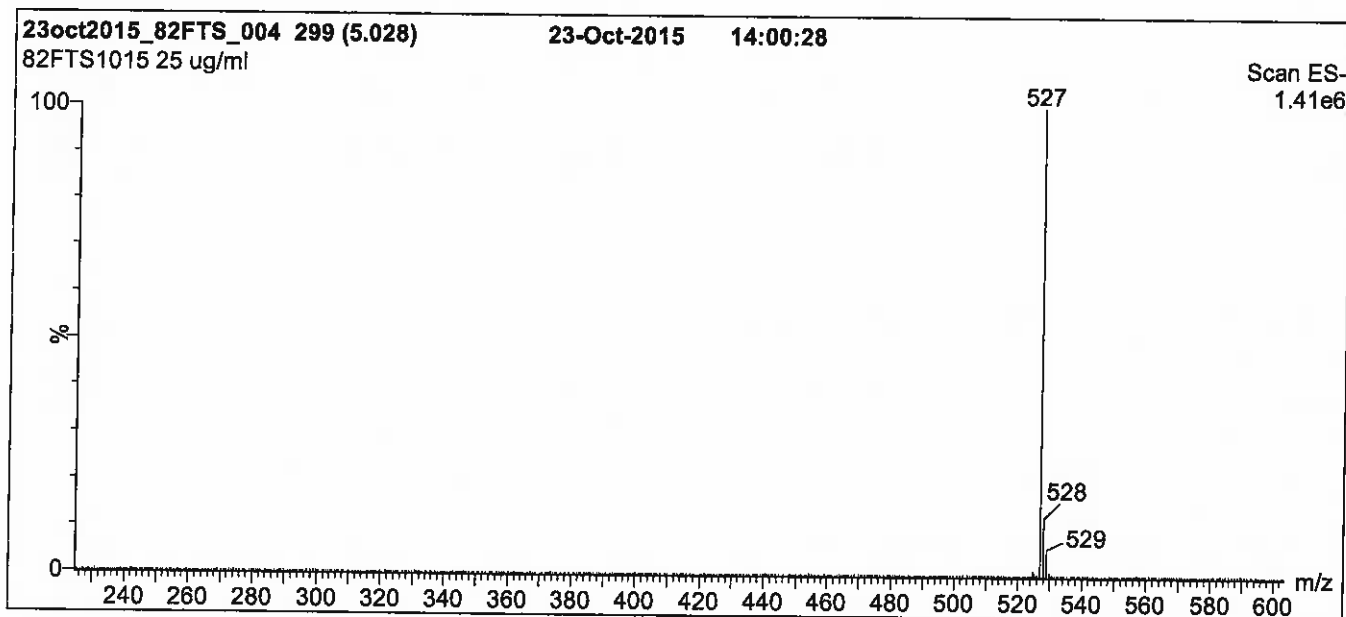
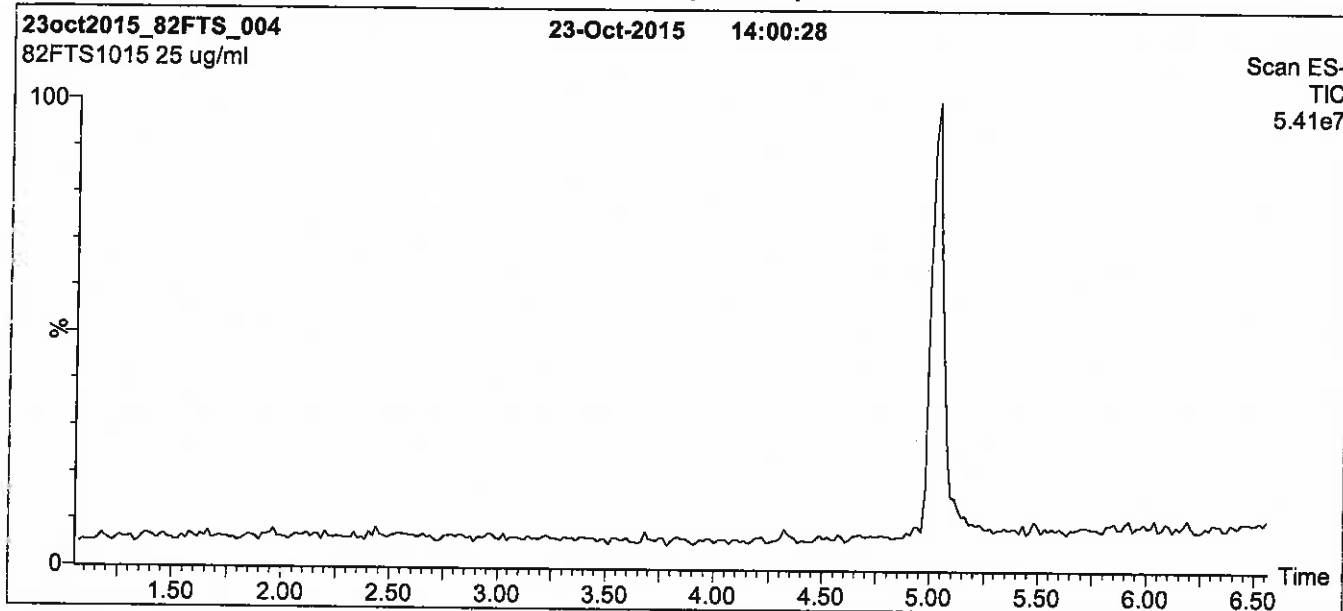
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

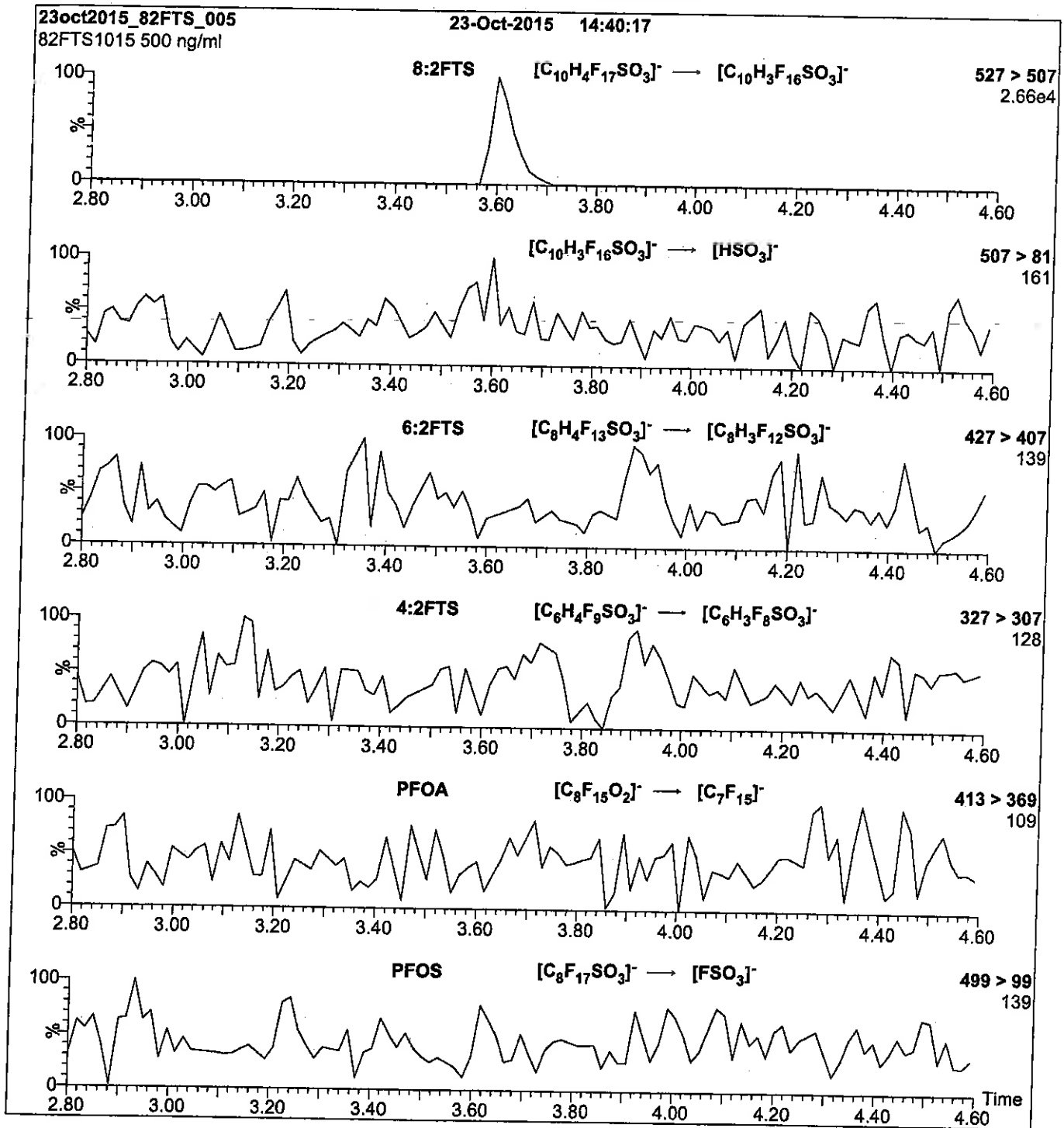
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCd-NMeFOSA-M_00003

R: 9/9/16 SBC



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

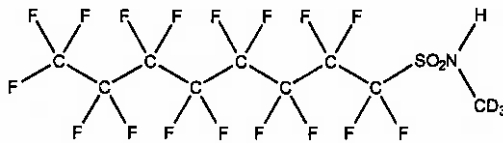


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d-N-MeFOSA-M **LOT NUMBER:** dNMeFOSA0616M
COMPOUND: N-methyl-d₃-perfluoro-1-octanesulfonamide

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₈D₃HF₁₇NO₂S **MOLECULAR WEIGHT:** 516.19
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥98% ²H₃
LAST TESTED: (mm/dd/yyyy) 06/10/2016
EXPIRY DATE: (mm/dd/yyyy) 06/10/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 06/16/2016
B.G. Chittim (mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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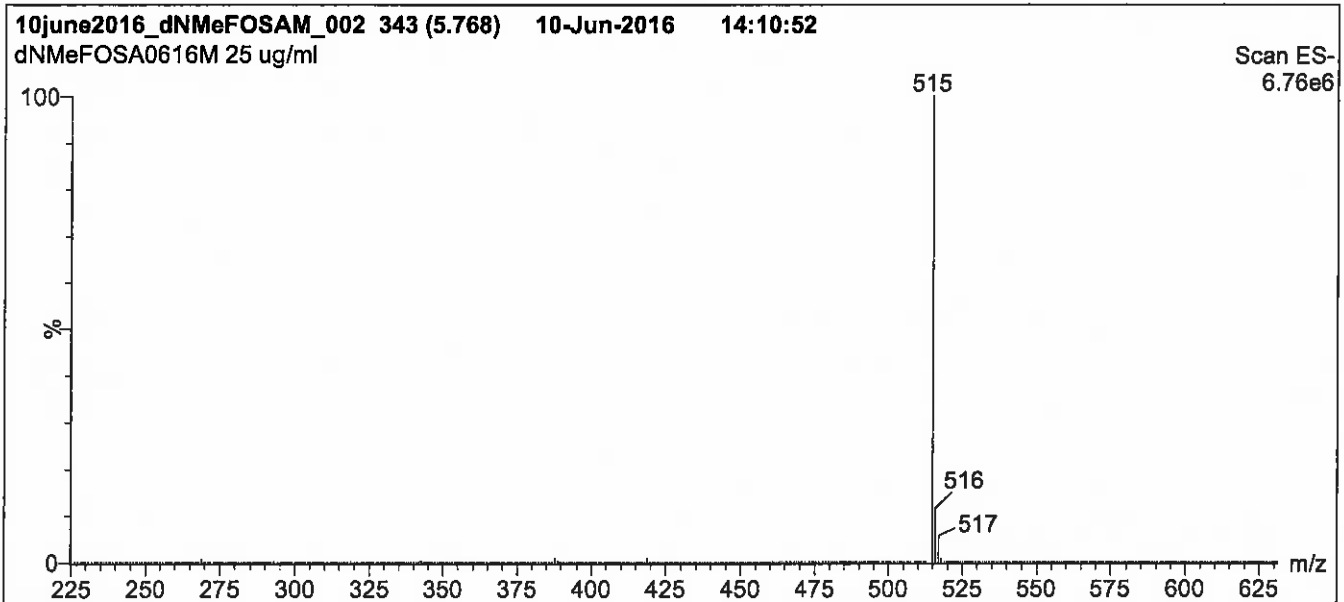
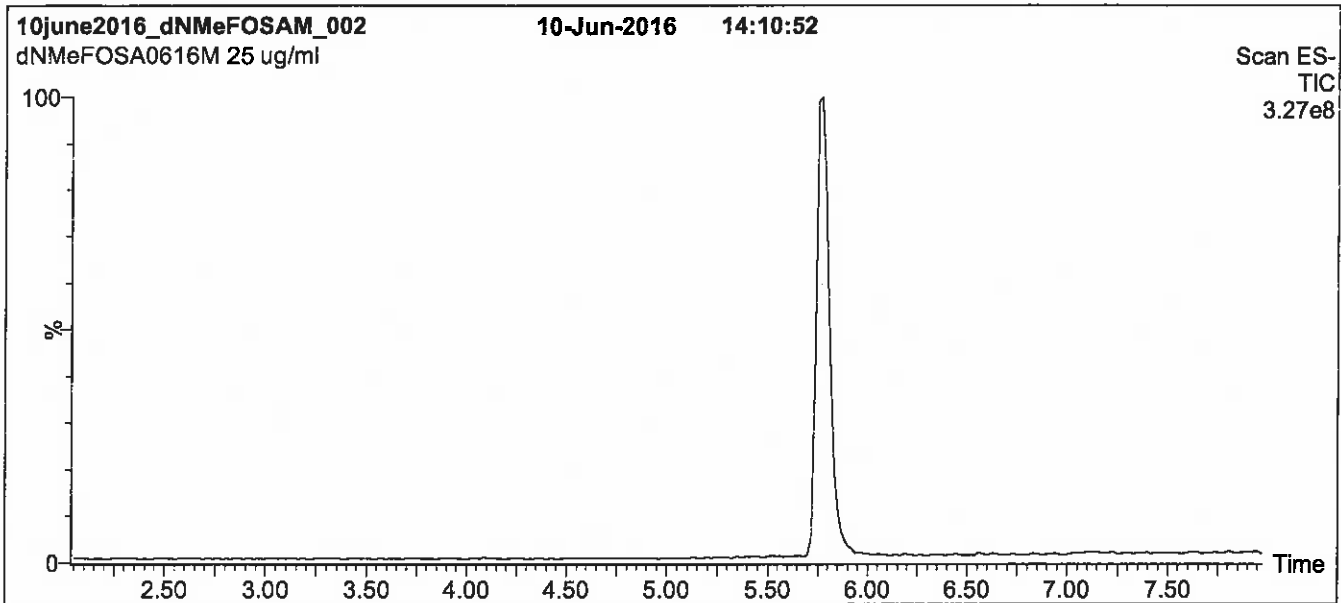
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP_{1a}
1.7 μ m, 2.1 x 100 mm

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

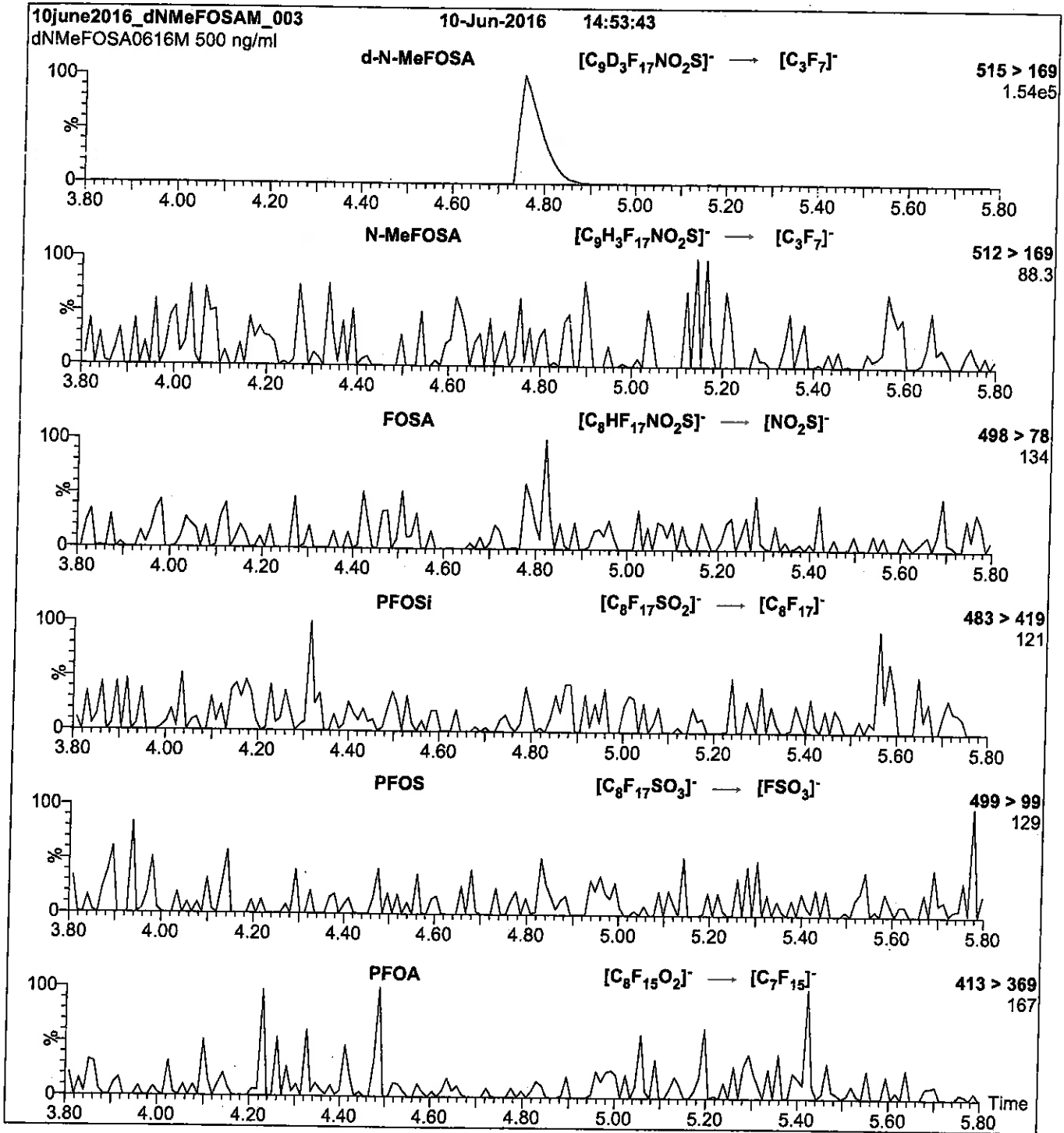
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCd3-NMeFOSAA_00003

R: 9/9/16
SBC



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

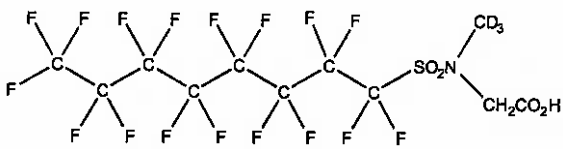


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₁₁D₃H₃F₁₇NO₄S **MOLECULAR WEIGHT:** 574.23
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥98% ²H₃
LAST TESTED: (mm/dd/yyyy) 05/31/2016
EXPIRY DATE: (mm/dd/yyyy) 05/31/2021
RECOMMENDED STORAGE: Refrigerate ampoule

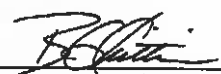
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

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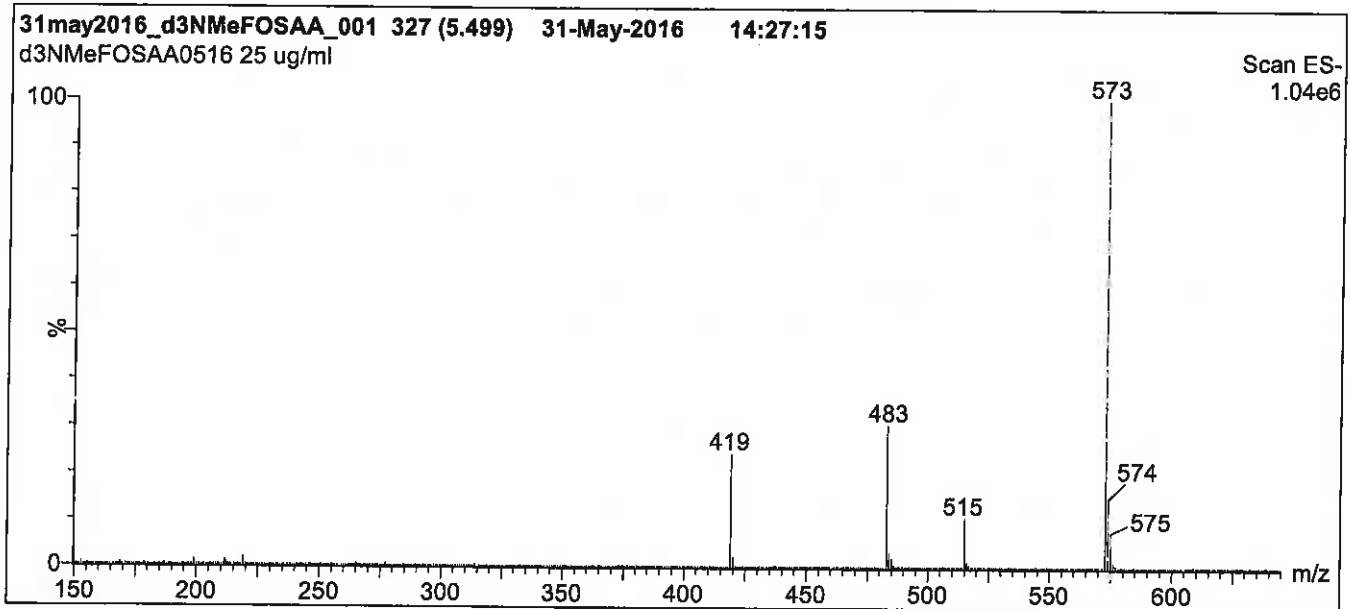
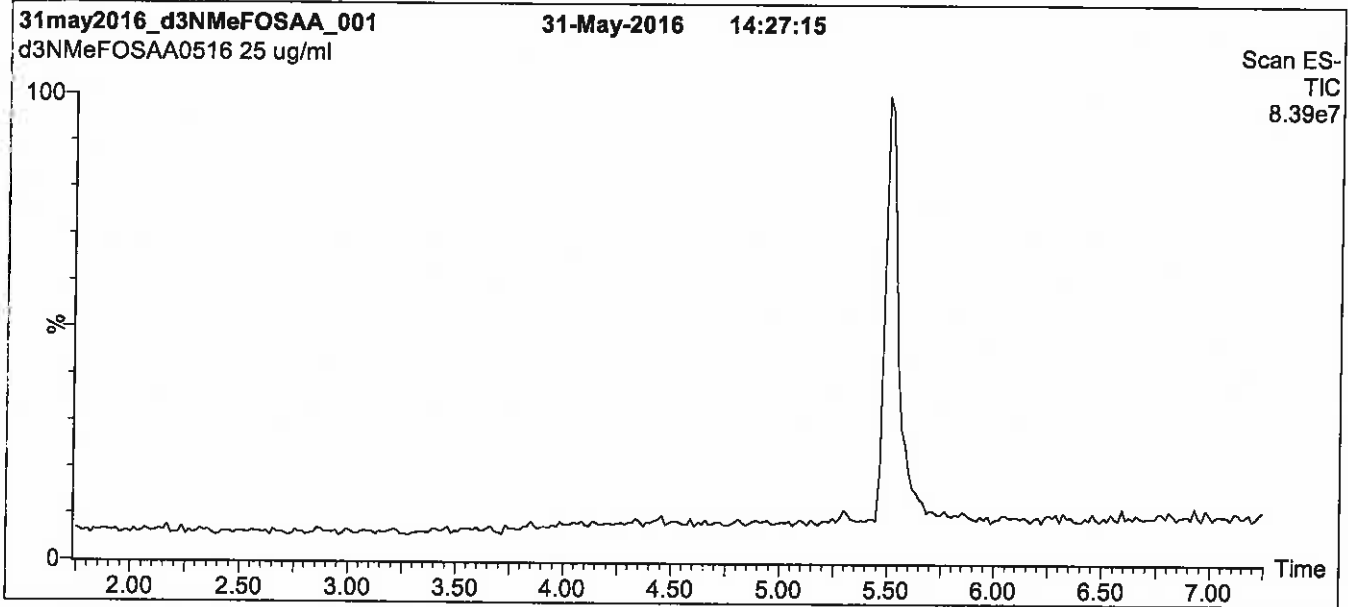
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

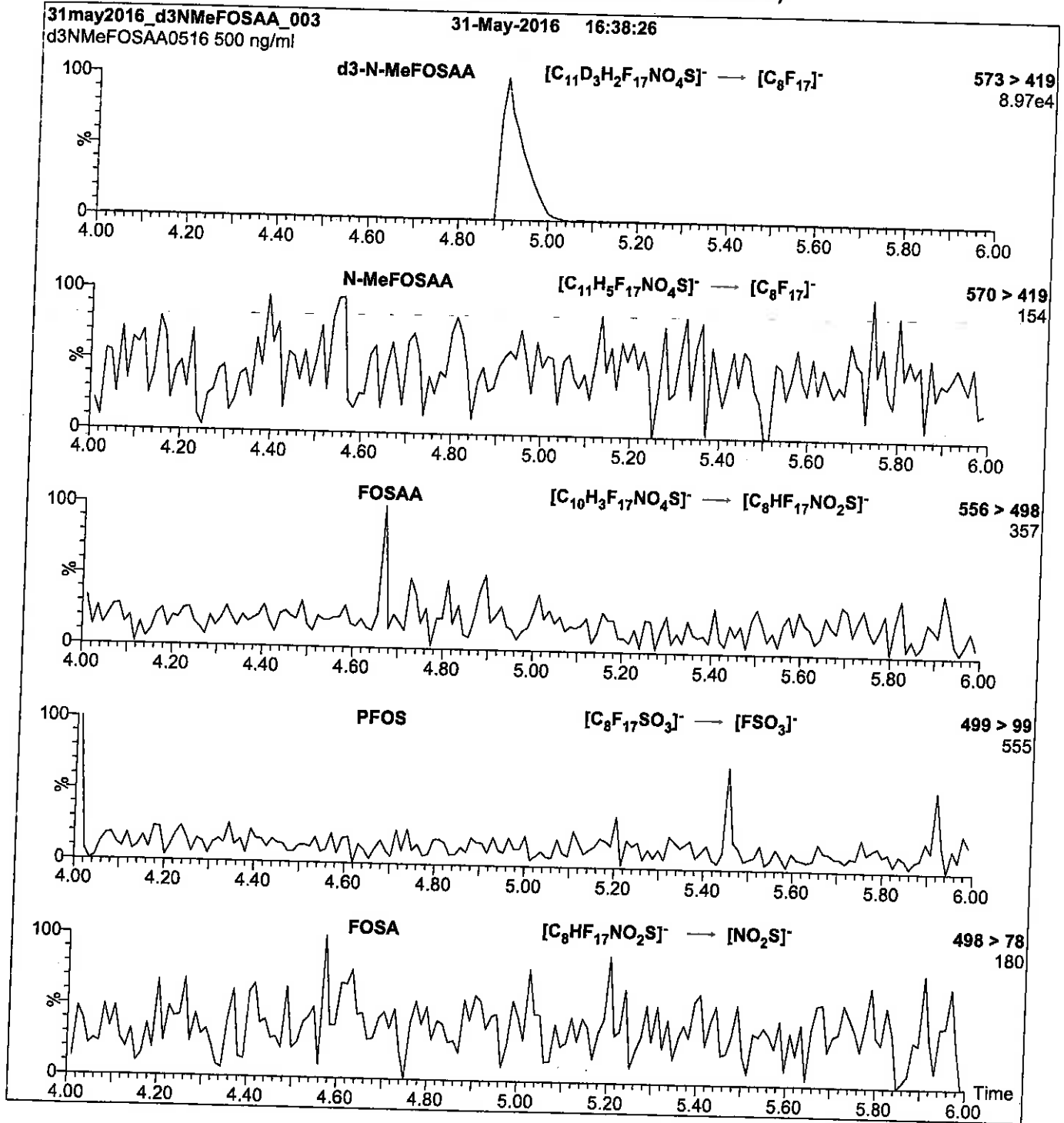
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCd5-NEtFOSAA_00003

R: 9/9/16 SBC



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

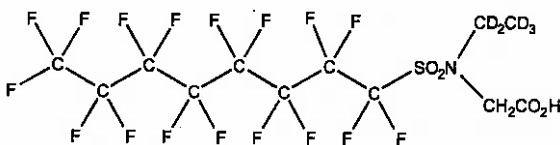


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA **LOT NUMBER:** d5NEtFOSAA0716
COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: C₁₂D₈H₃F₁₇NO₄S **MOLECULAR WEIGHT:** 590.26
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥98% ²H₅
LAST TESTED: (mm/dd/yyyy) 08/02/2016
EXPIRY DATE: (mm/dd/yyyy) 08/02/2021
RECOMMENDED STORAGE: Refrigerate ampoule

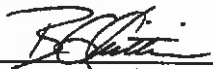
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ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 08/09/2016
B.G. Chittim (mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

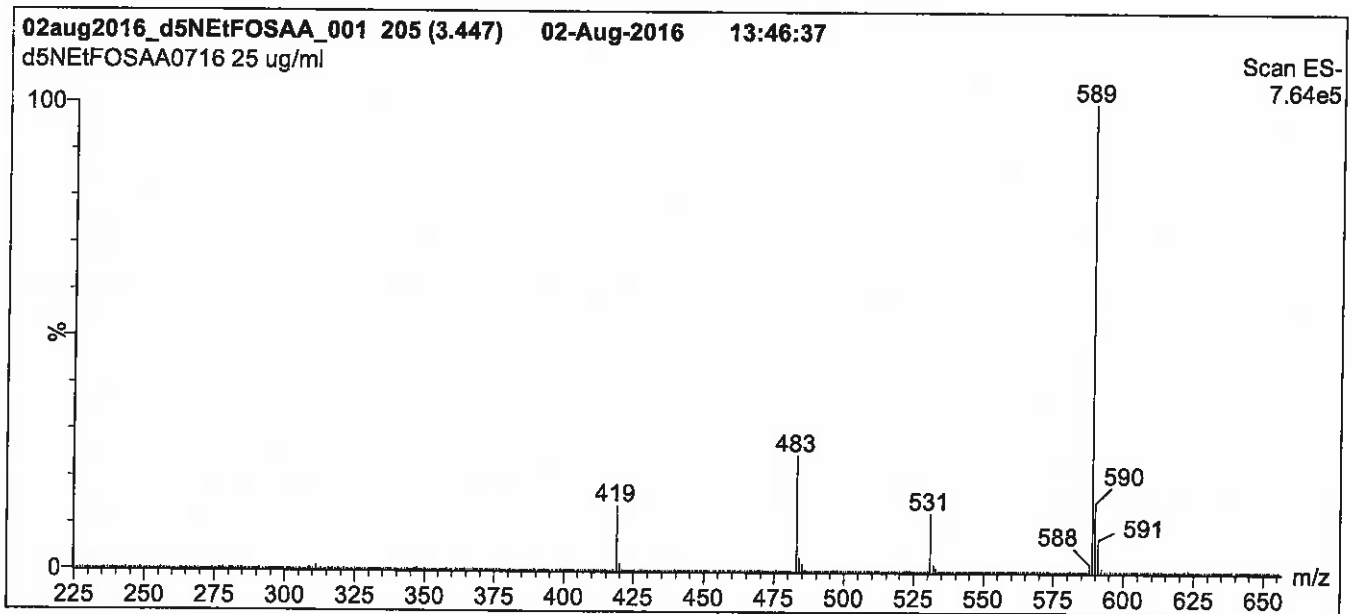
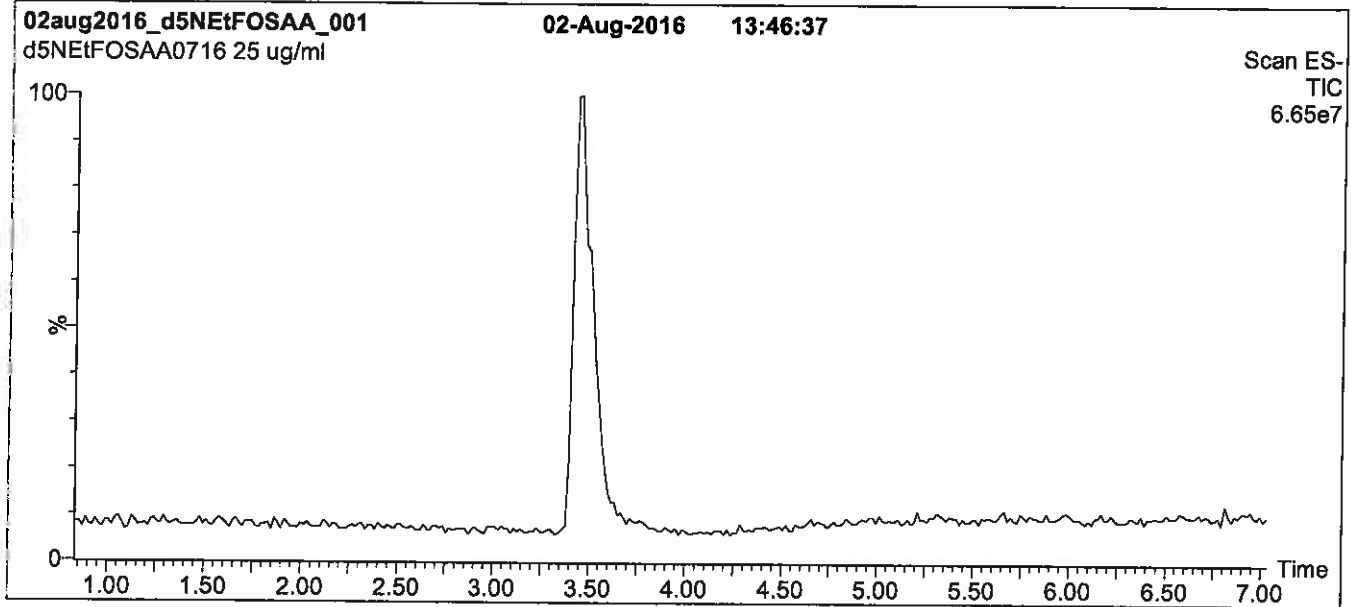
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

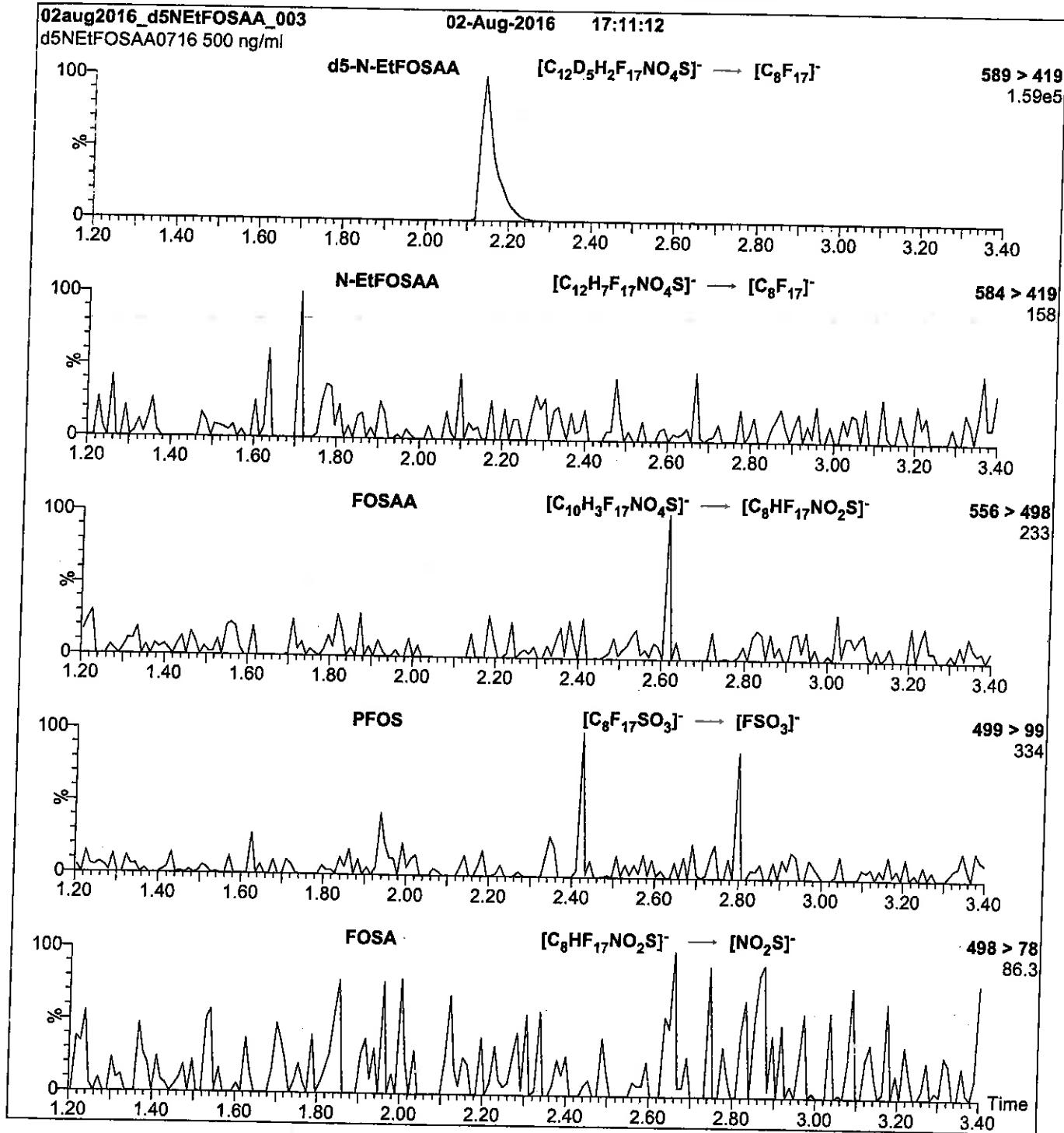
Flow: 350 μl/min

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 μ l (500 ng/ml d5-N-EtFOSAA)

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCM2-6: FTS_00003

R: 9/9/16 SBC



728304
ID: LCM2-6:FTS_00003
Exp: 01/08/21 Prpd: SBC
M2-6:2FTS

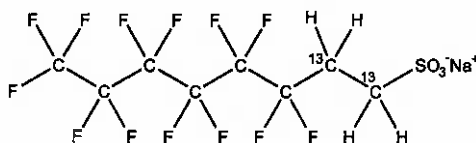


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-6:2FTS **LOT NUMBER:** M262FTS0116
COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-¹³C₂]octane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	¹³ C ₂ ¹² C ₆ H ₄ F ₁₃ SO ₃ Na	MOLECULAR WEIGHT:	452.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	SOLVENT(S):	Methanol
	47.5 ± 2.4 µg/ml (M2-6:2FTS anion)	ISOTOPIC PURITY:	≥99% ¹³ C (1,2- ¹³ C ₂)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	01/08/2016		
EXPIRY DATE: (mm/dd/yyyy)	01/08/2021		
RECOMMENDED STORAGE:	Refrigerate ampoule		


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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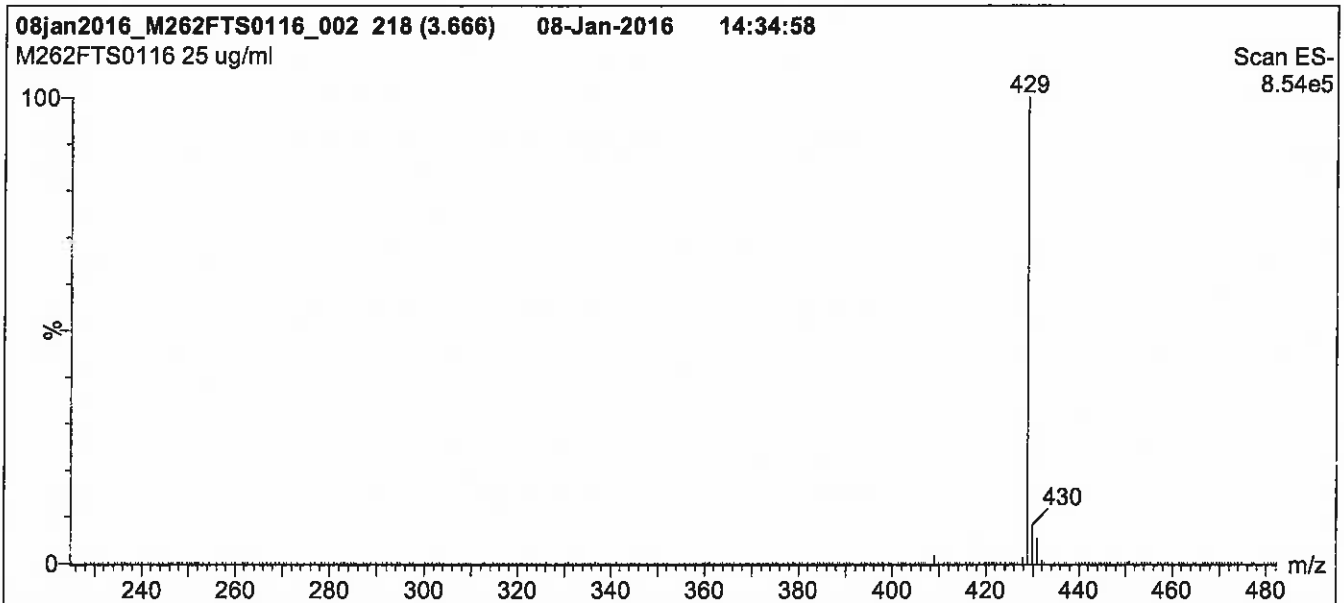
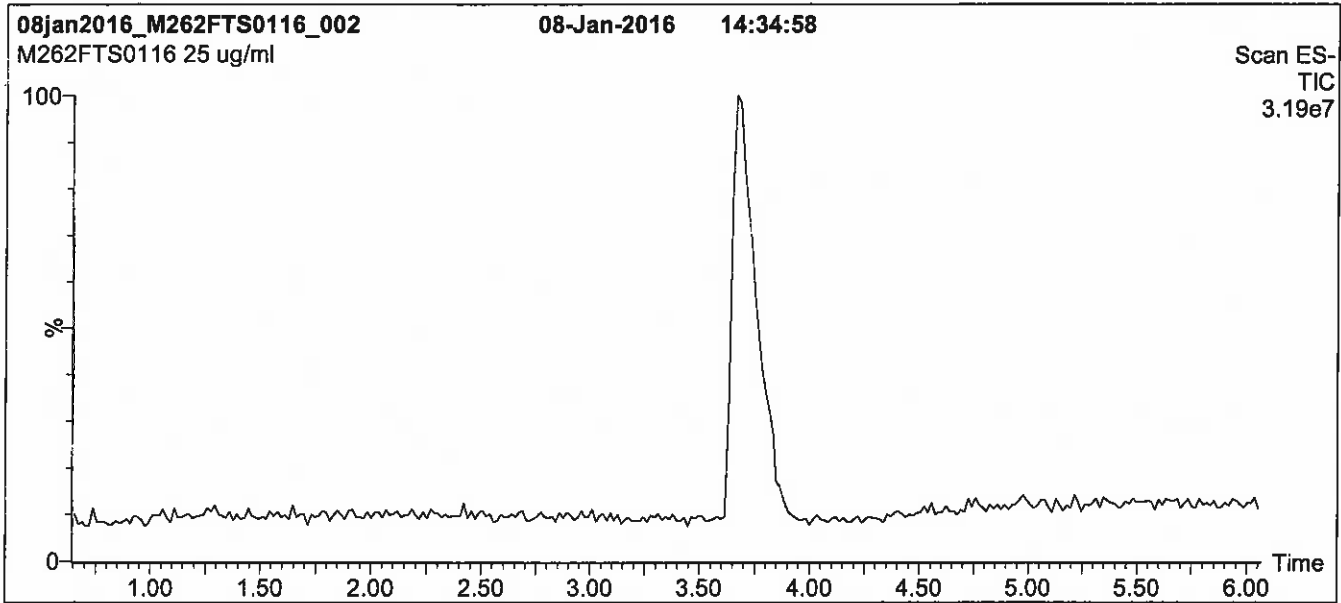
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

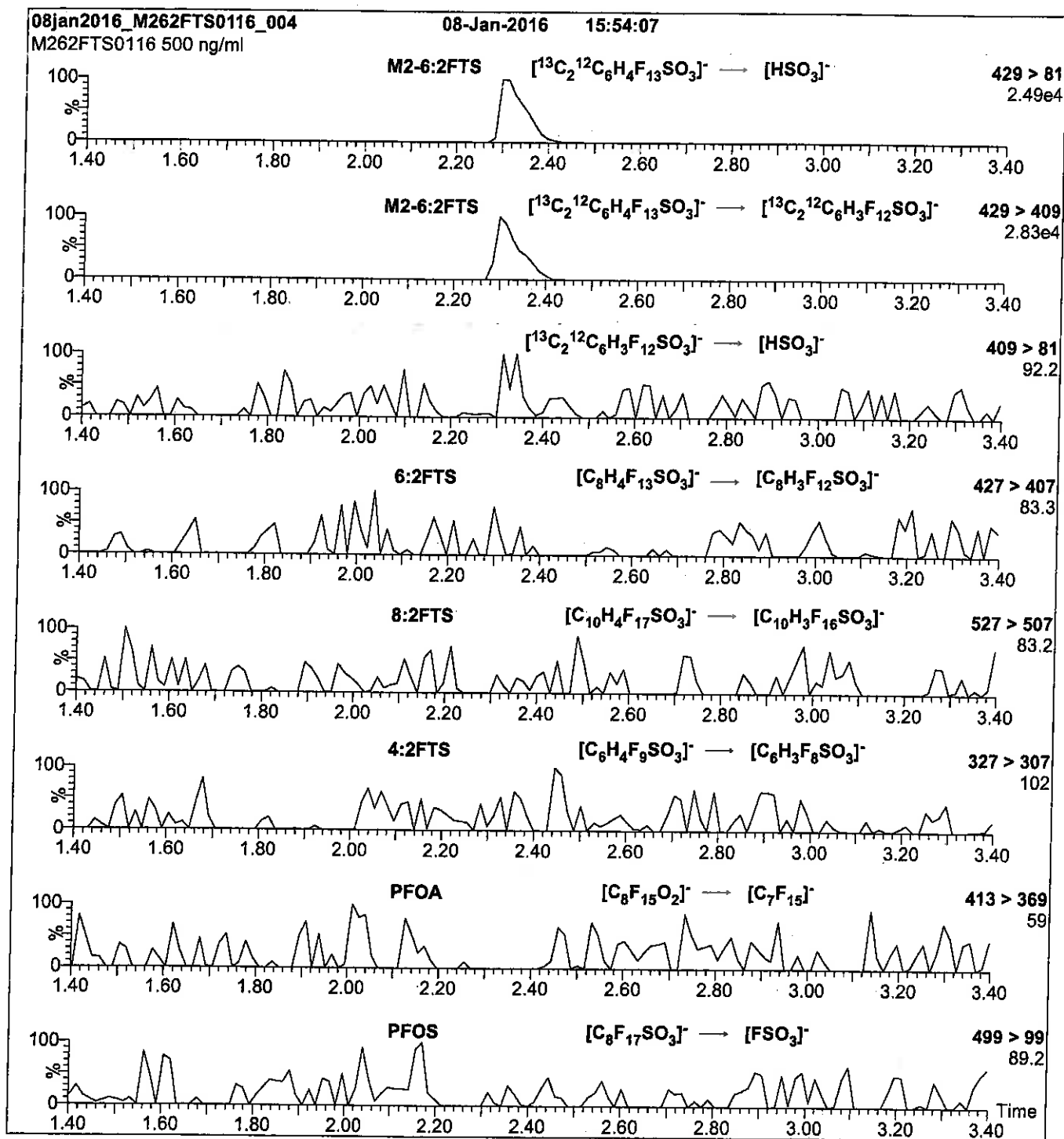
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCM2PFHxDA_00008

R: SBC 9/22/16

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

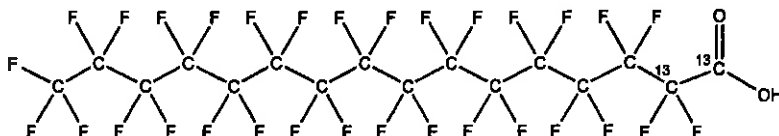


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2PFHxDA **LOT NUMBER:** M2PFHxDA1112
COMPOUND: Perfluoro-n-[1,2-¹³C₂]hexadecanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₁₄HF₃₁O₂ **MOLECULAR WEIGHT:** 816.11
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 01/07/2016 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 01/07/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

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LIMITED WARRANTY:

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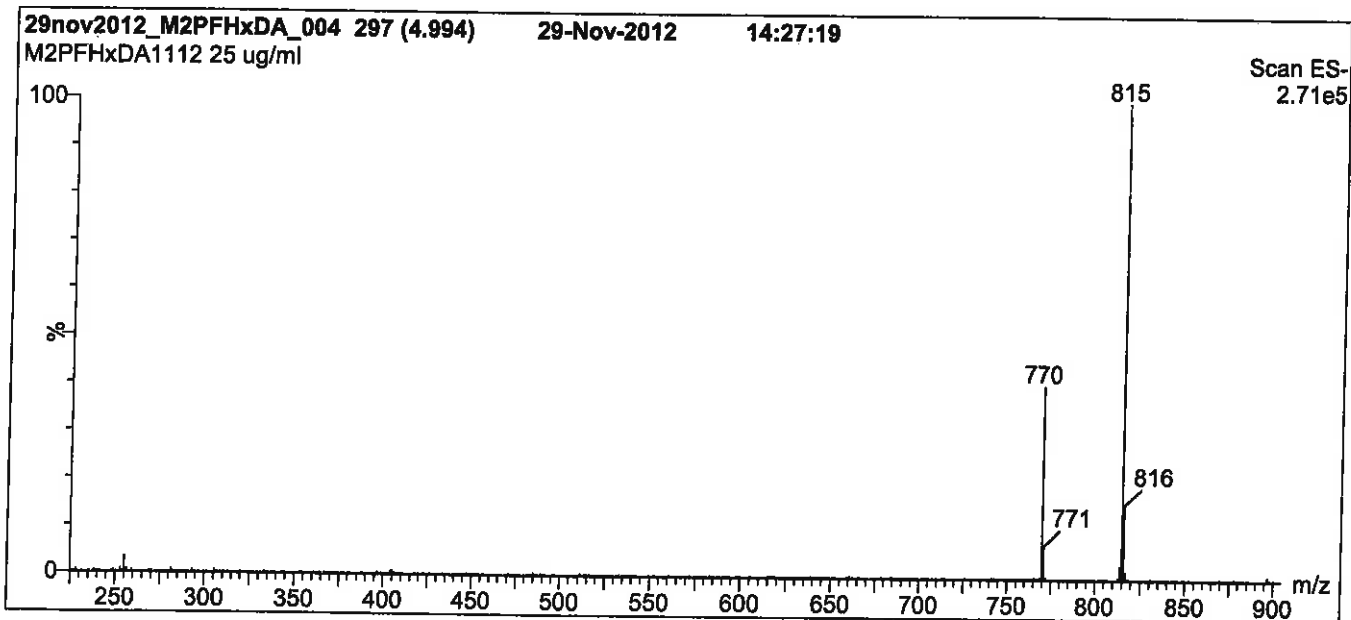
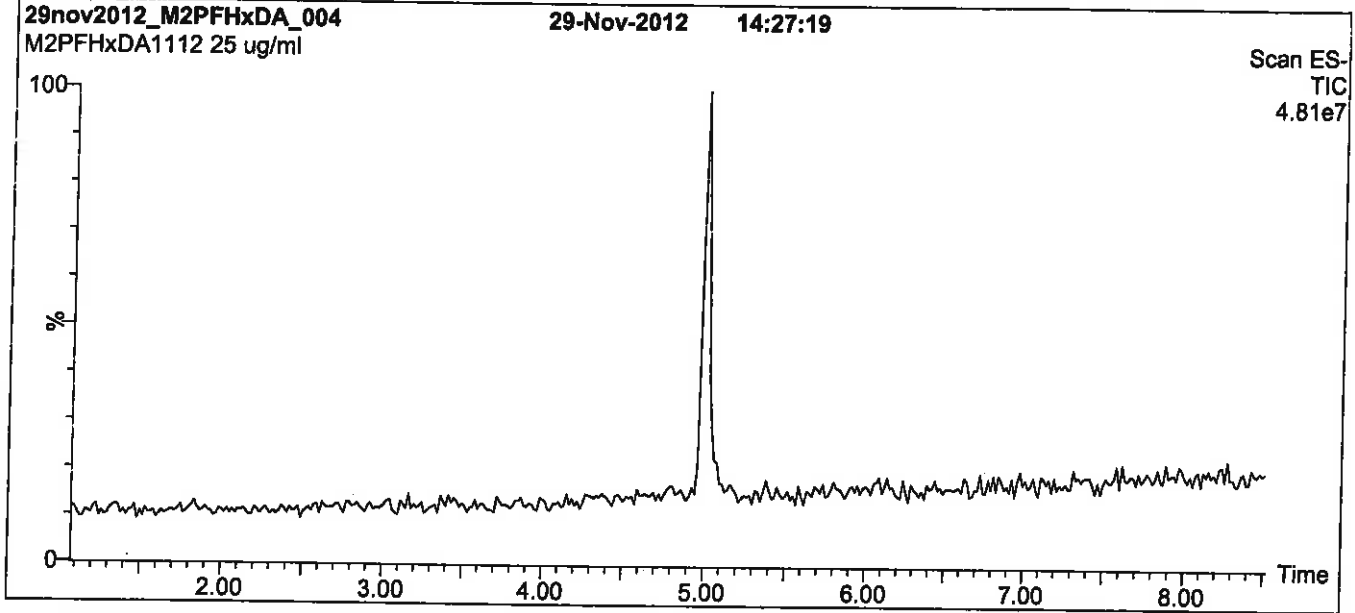
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

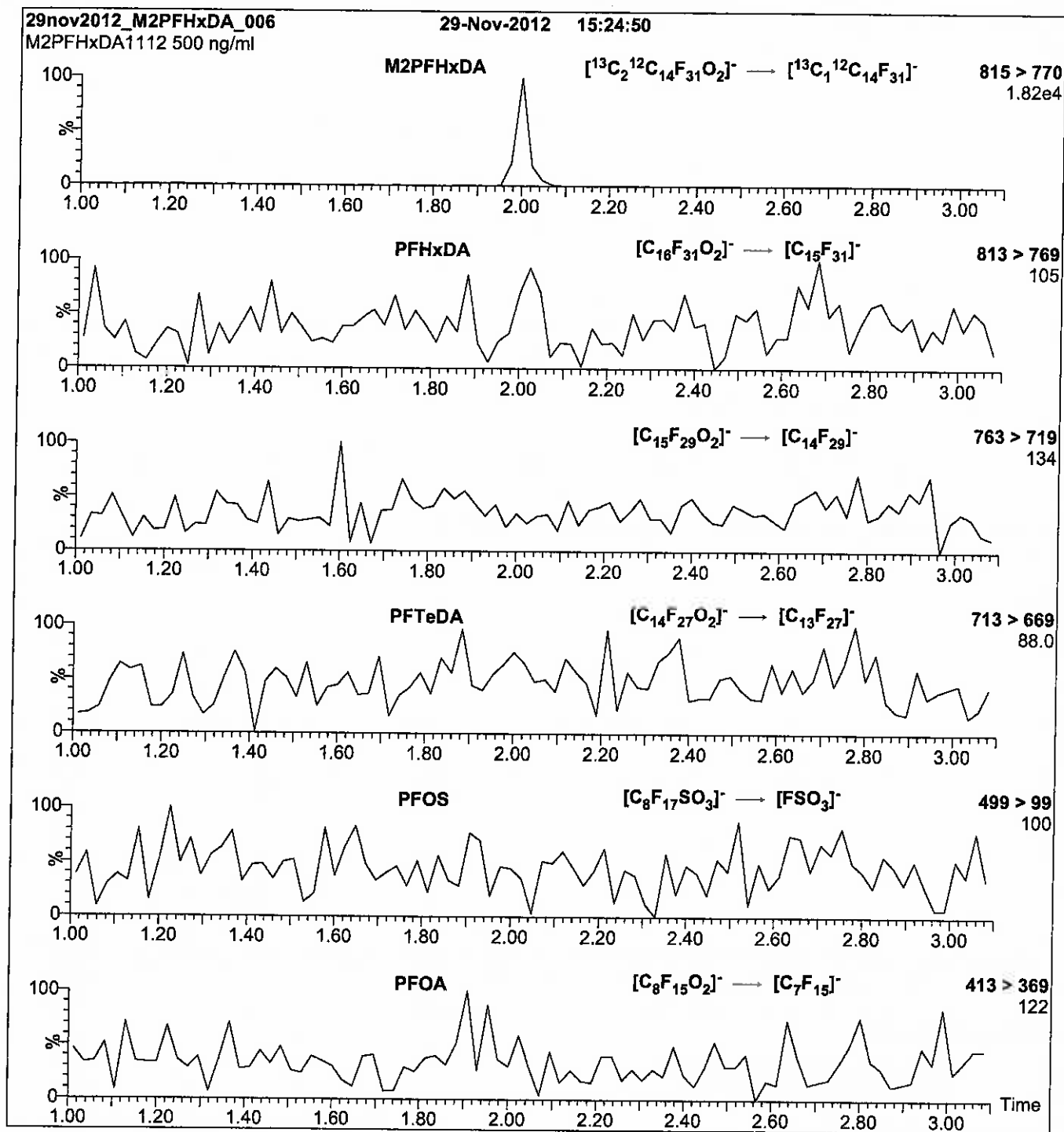
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 1200 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCM2PFTeDA_00007

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

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

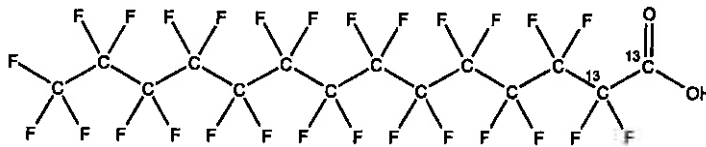


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₁₂HF₂₇O₂ **MOLECULAR WEIGHT:** 716.10
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 12/07/2015 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 12/07/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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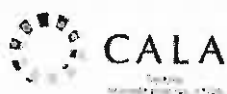
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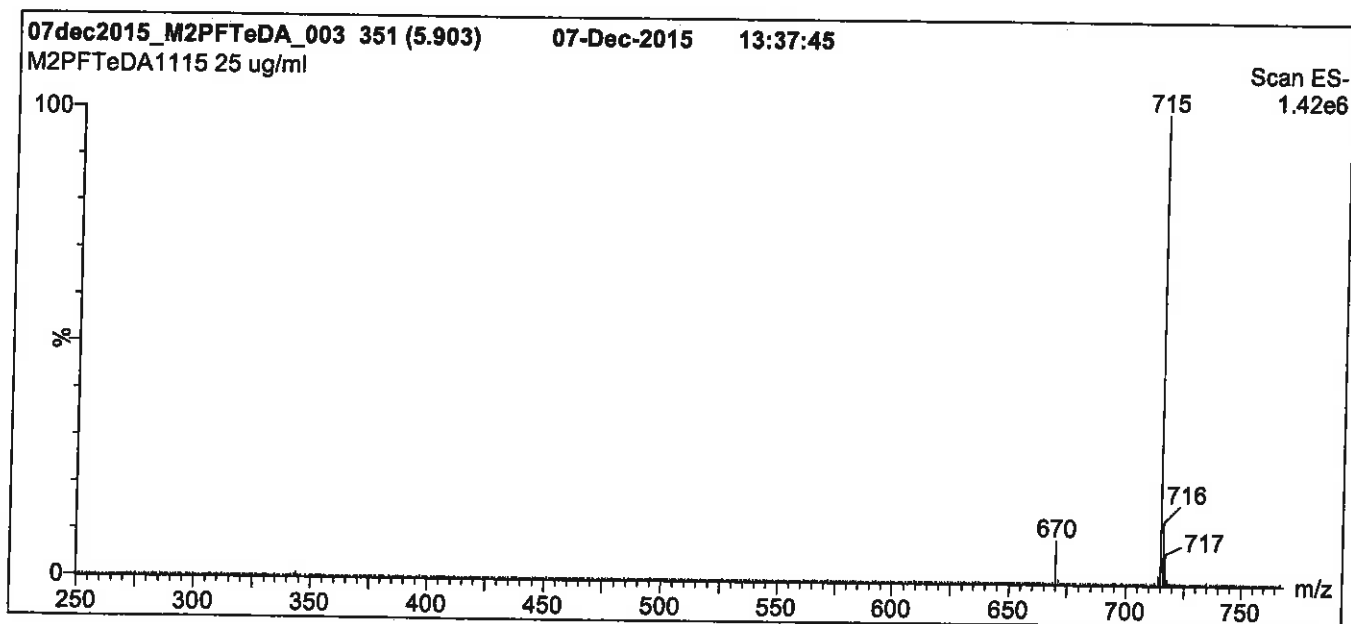
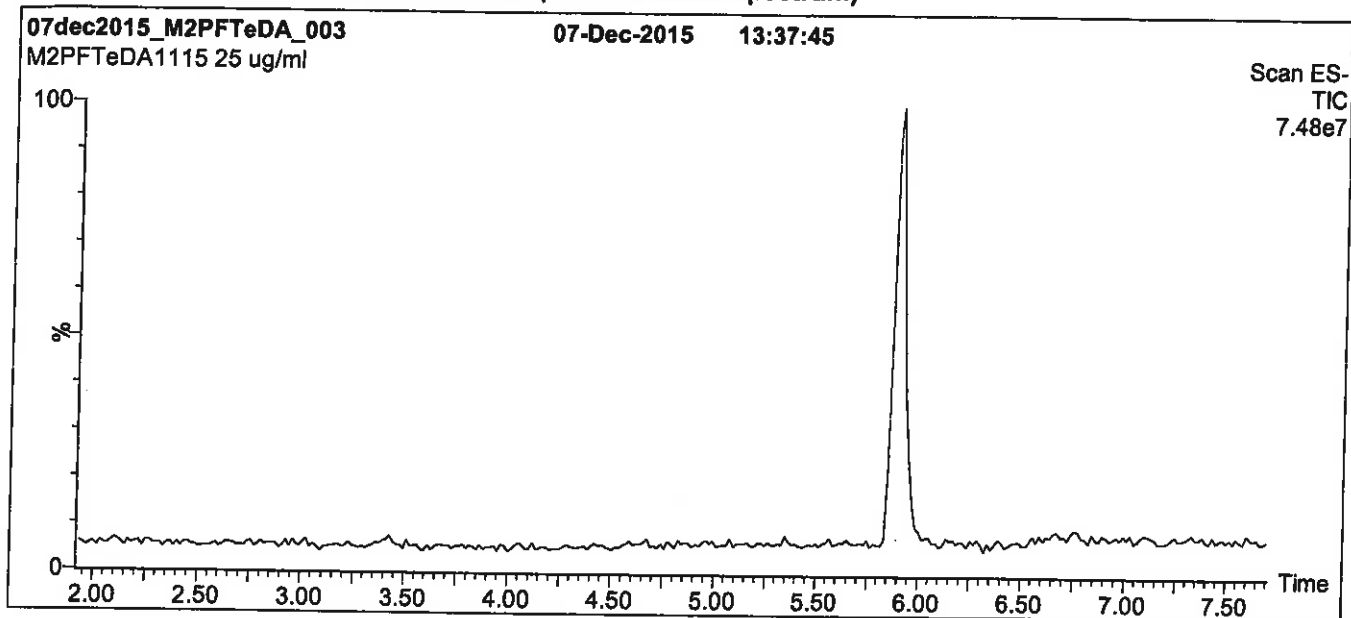
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

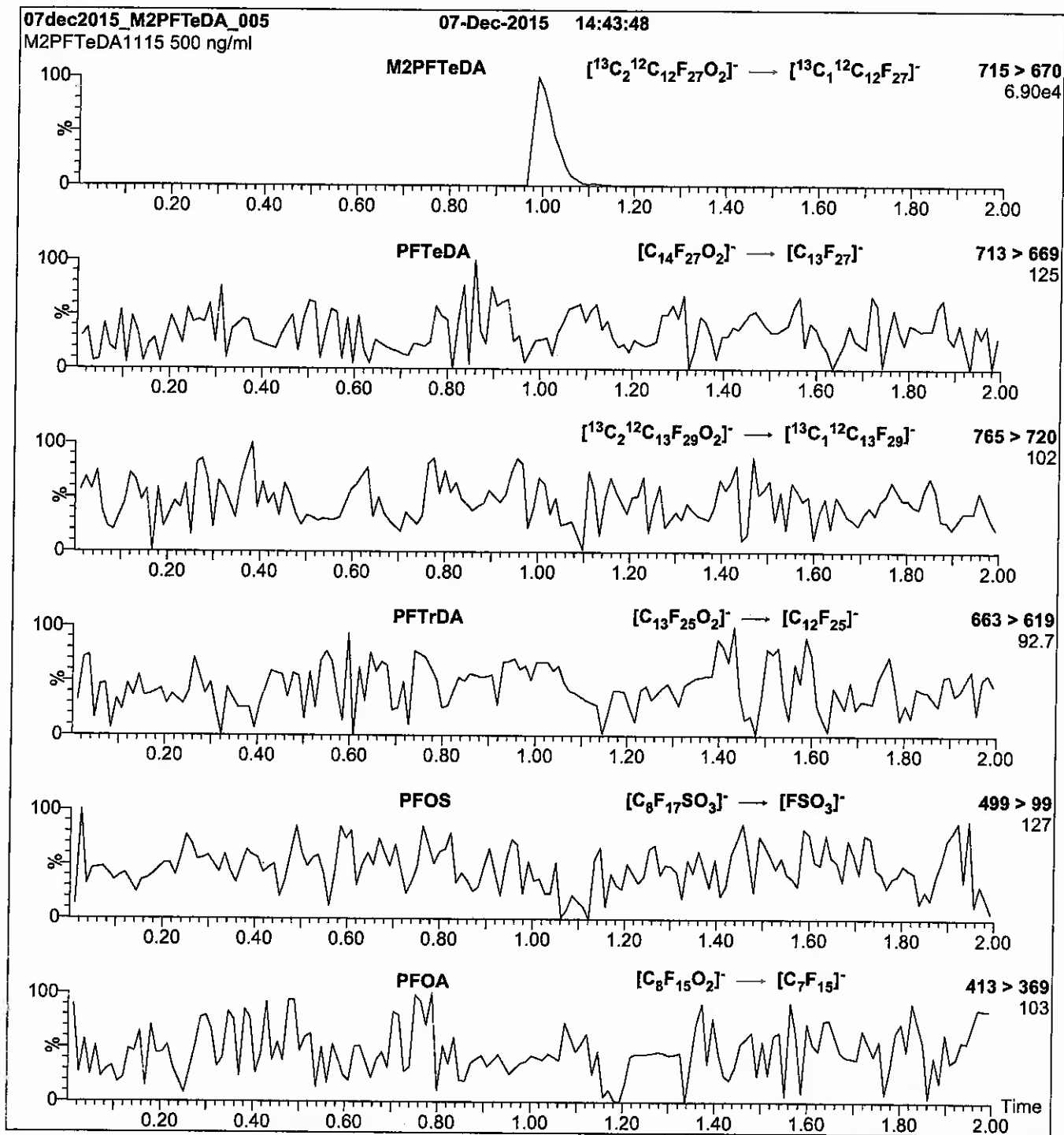
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCM4PFHPA_00007

f: SBC a/22/16

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



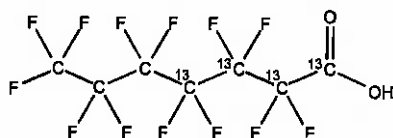
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SK

PRODUCT CODE: M4PFHpA **LOT NUMBER:** M4PFHpA0516
COMPOUND: Perfluoro-n-[1,2,3,4-¹³C₄]heptanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄¹²C₃HF₁₃O₂ **MOLECULAR WEIGHT:** 368.03
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99%¹³C
(1,2,3,4-¹³C₄)
LAST TESTED: (mm/dd/yyyy) 05/27/2016
EXPIRY DATE: (mm/dd/yyyy) 05/27/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

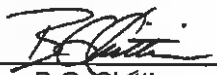
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 07/05/2016
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

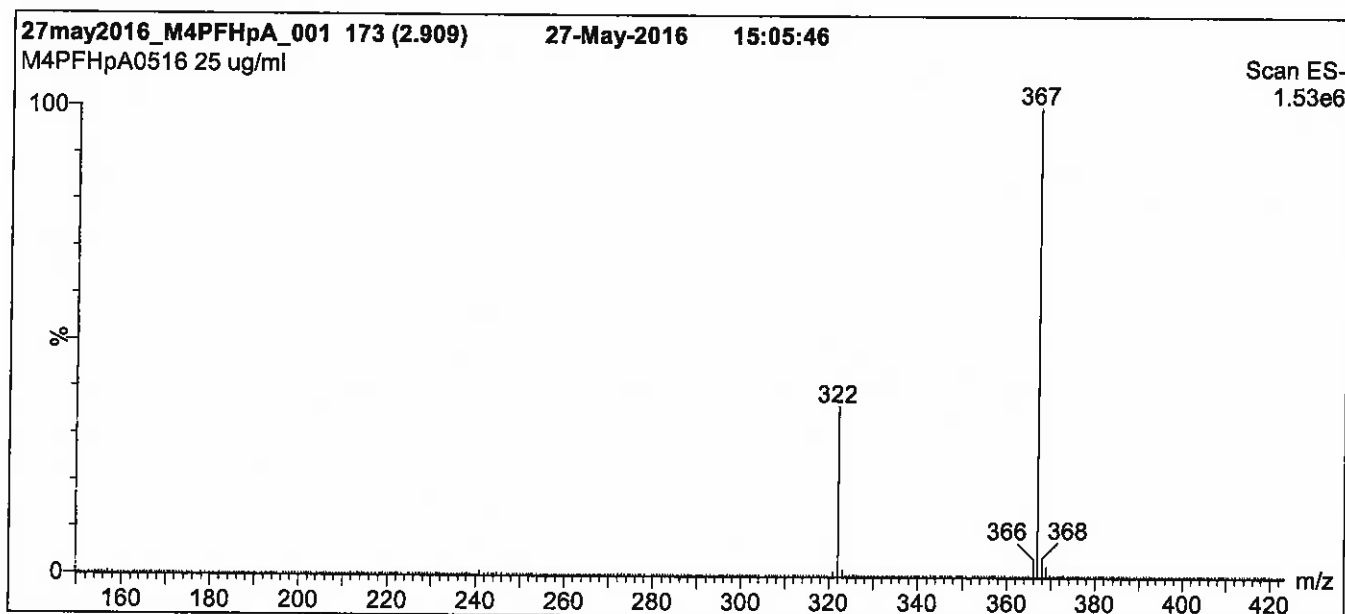
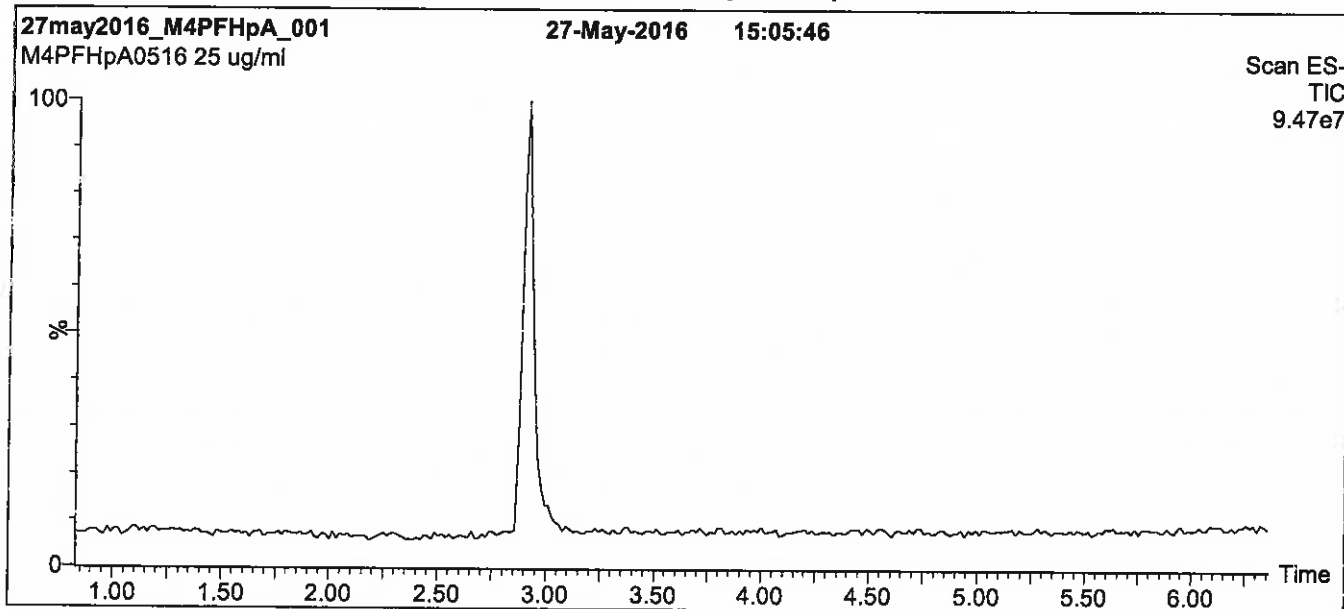
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

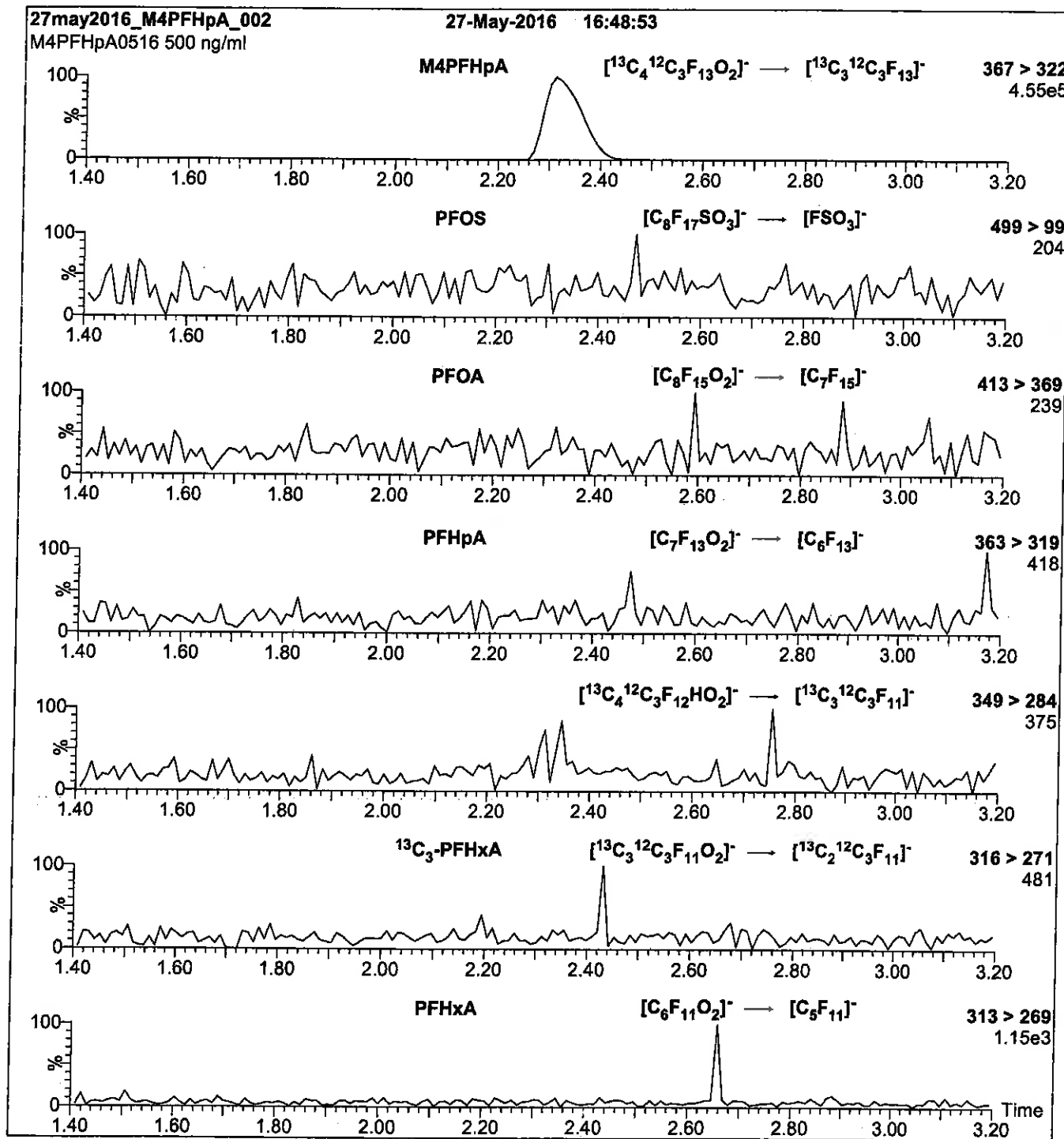
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCM5PFPEA_00008

R: SBC 9/22/16



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

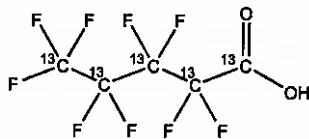


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CERTIFICATE OF ANALYSIS
DOCUMENTATION

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PRODUCT CODE: M5PFPeA **LOT NUMBER:** M5PFPeA0515
COMPOUND: Perfluoro-n-[¹³C₅]pentanoic acid
STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₅HF₉O₂ **MOLECULAR WEIGHT:** 269.01
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
(¹³C₅)
LAST TESTED: (mm/dd/yyyy) 05/22/2015
EXPIRY DATE: (mm/dd/yyyy) 05/22/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 05/25/2015
B.G. Chittim (mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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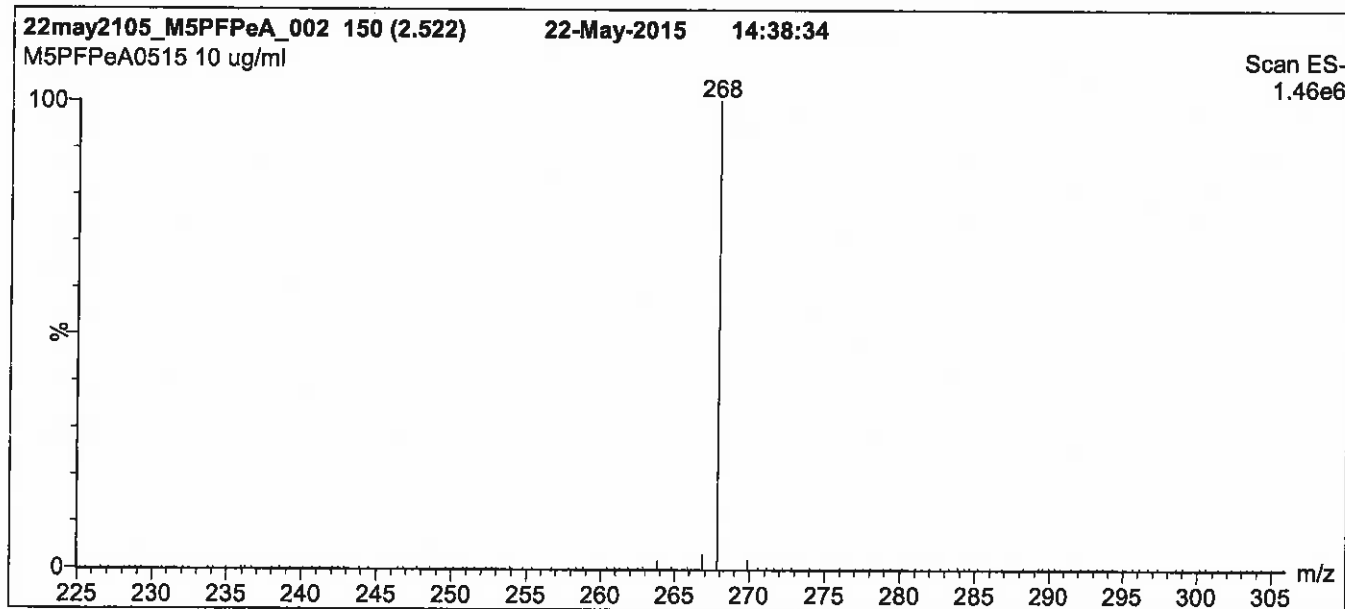
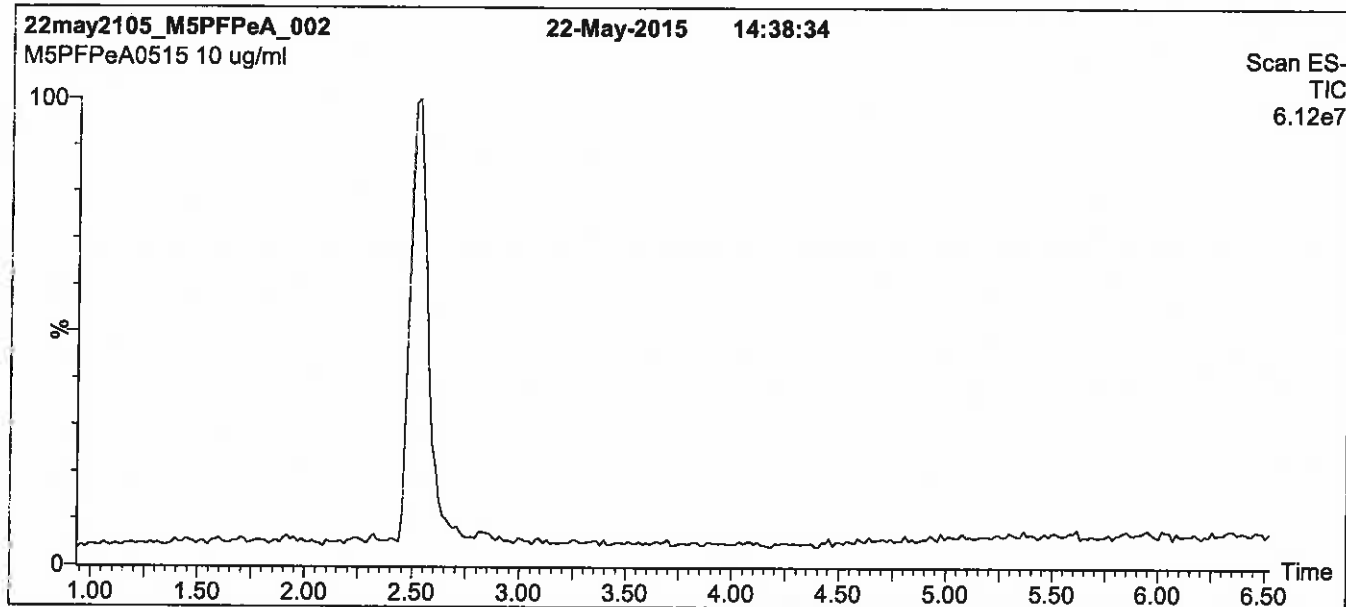
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

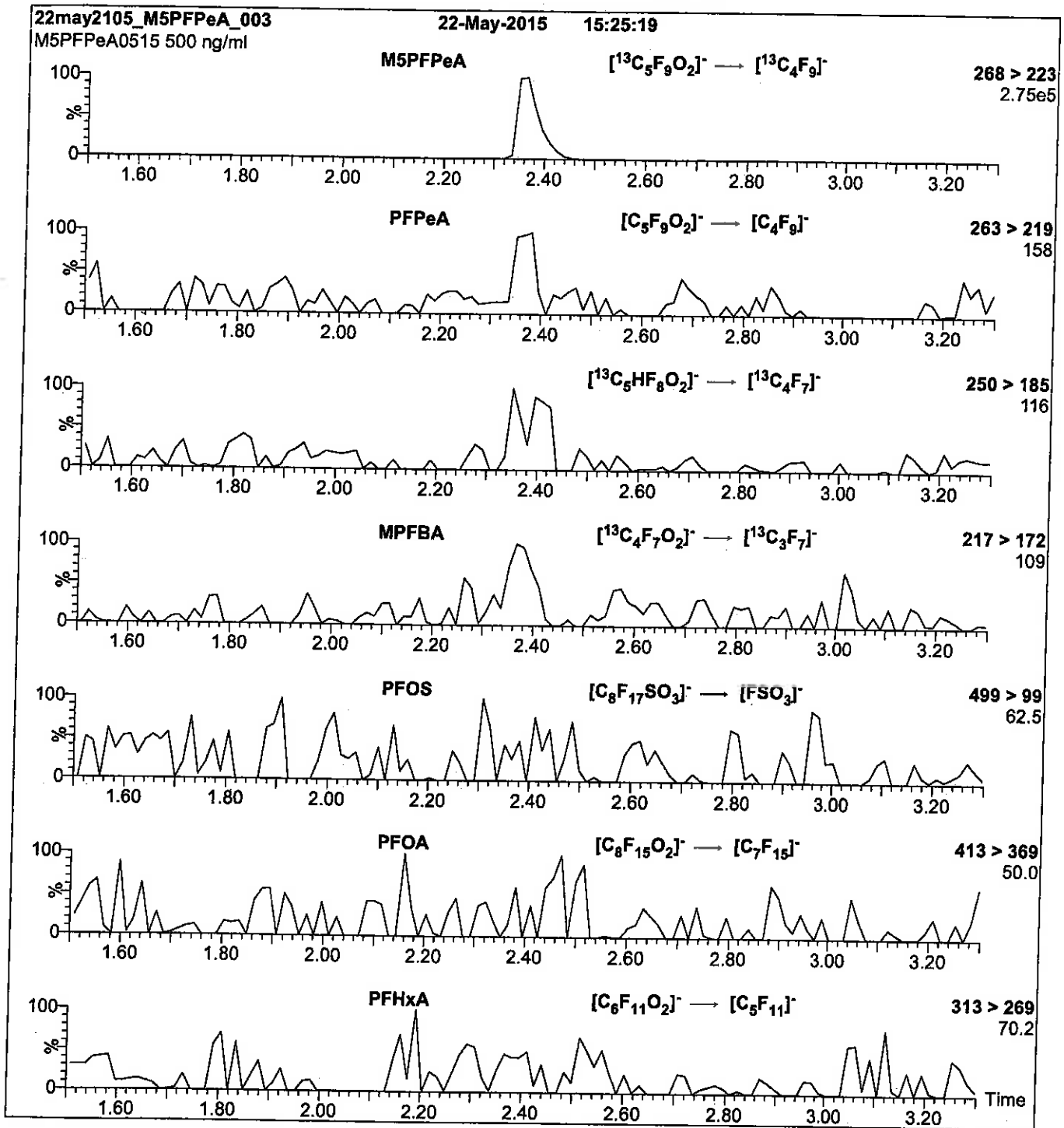
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCM8FOSA_00011

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

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

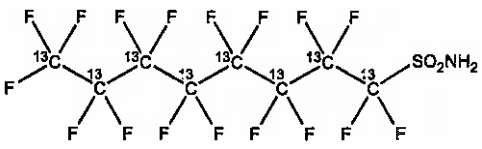


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M8FOSA-I **LOT NUMBER:** M8FOSA1215I
COMPOUND: Perfluoro-1-[¹³C₈]octanesulfonamide

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₈H₂F₁₇NO₂S **MOLECULAR WEIGHT:** 507.09
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Isopropanol
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 12/22/2015 **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, \dots, x_n on which it depends is:

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

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

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TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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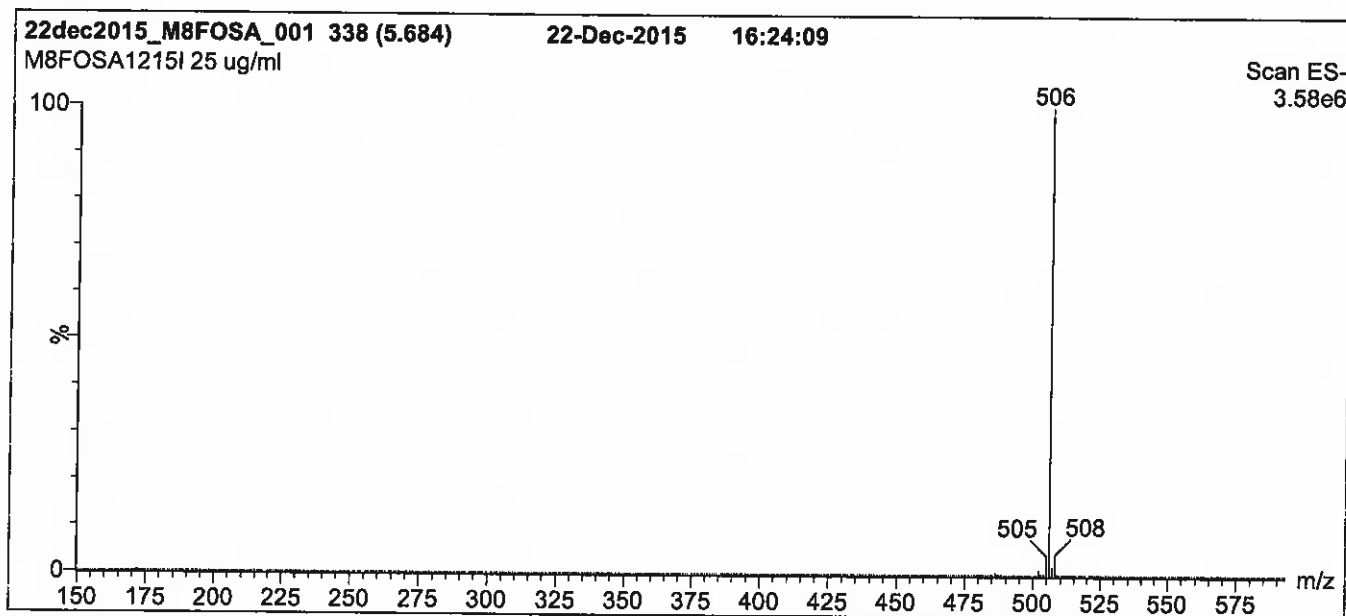
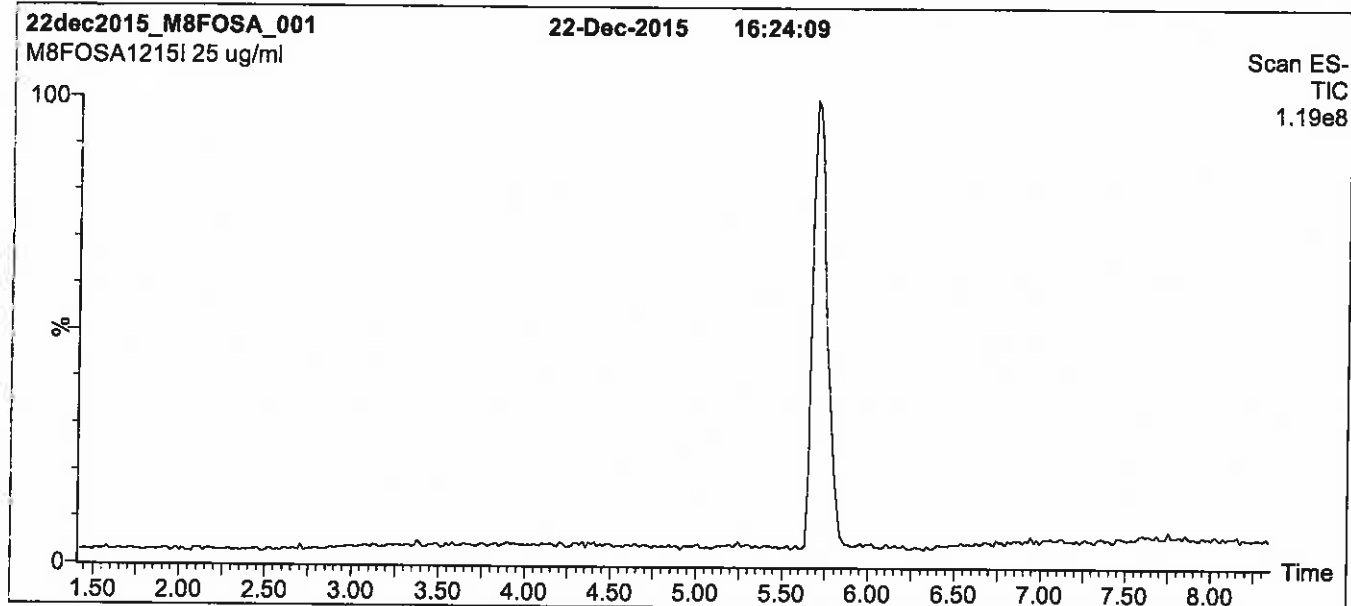
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

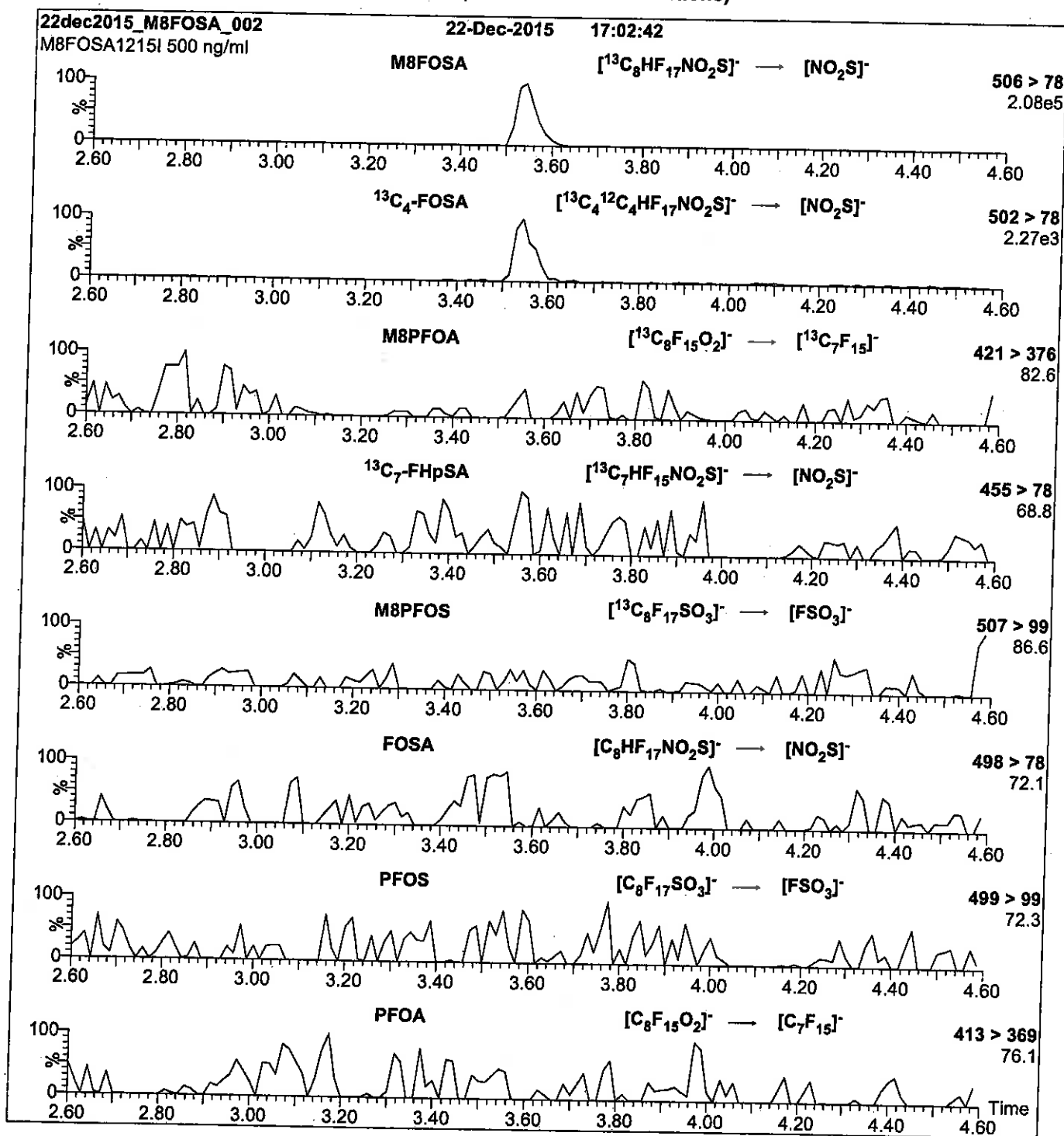
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFBA_00008

R: 8BC 9/22/16



739593
ID: LCMFBA_00008
Exp: 05/24/21 Prep: SEC
13C4-Perfluorobutanoic ac



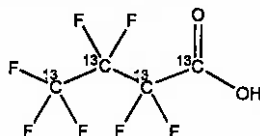
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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PRODUCT CODE: MPFBA **LOT NUMBER:** MPFBA0516
COMPOUND: Perfluoro-n-[1,2,3,4-¹³C₄]butanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄HF₇O₂ **MOLECULAR WEIGHT:** 218.01
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99%¹³C
(1,2,3,4-¹³C₄)
LAST TESTED: (mm/dd/yyyy) 05/24/2016
EXPIRY DATE: (mm/dd/yyyy) 05/24/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

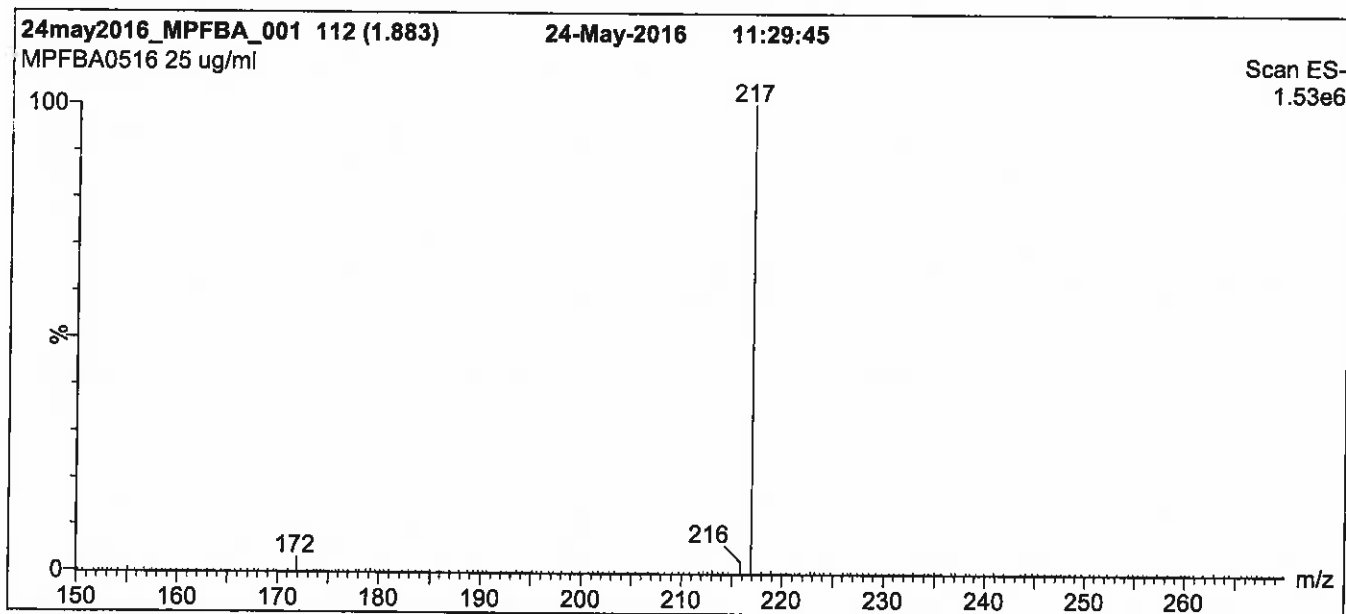
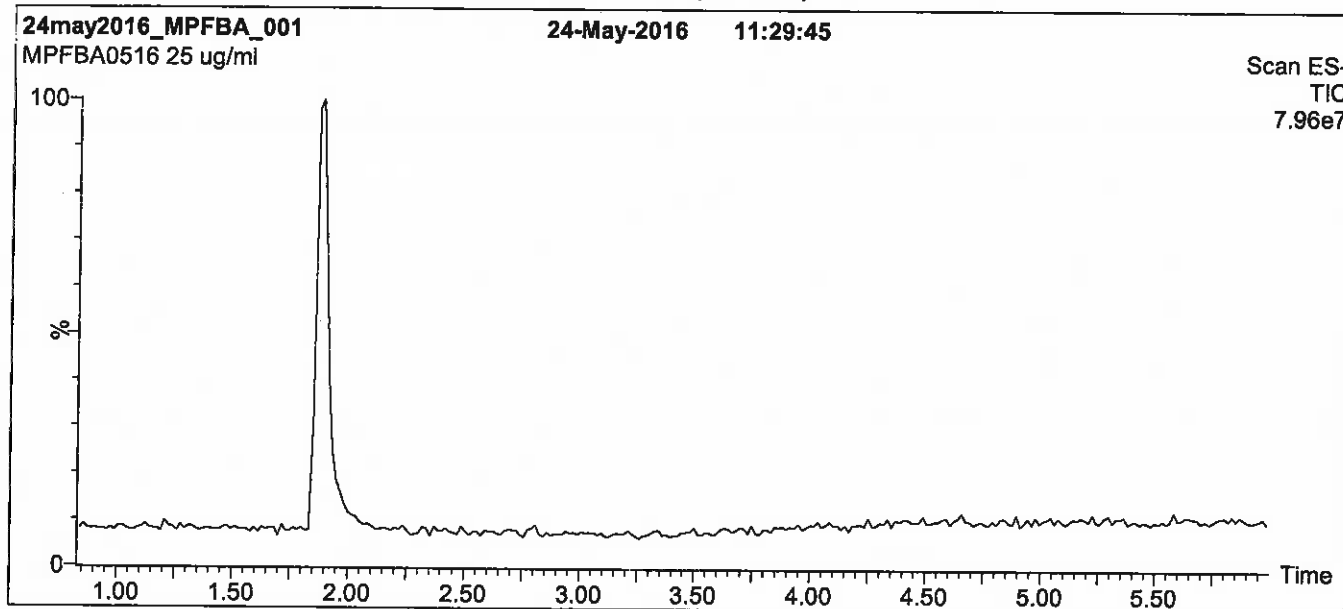
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

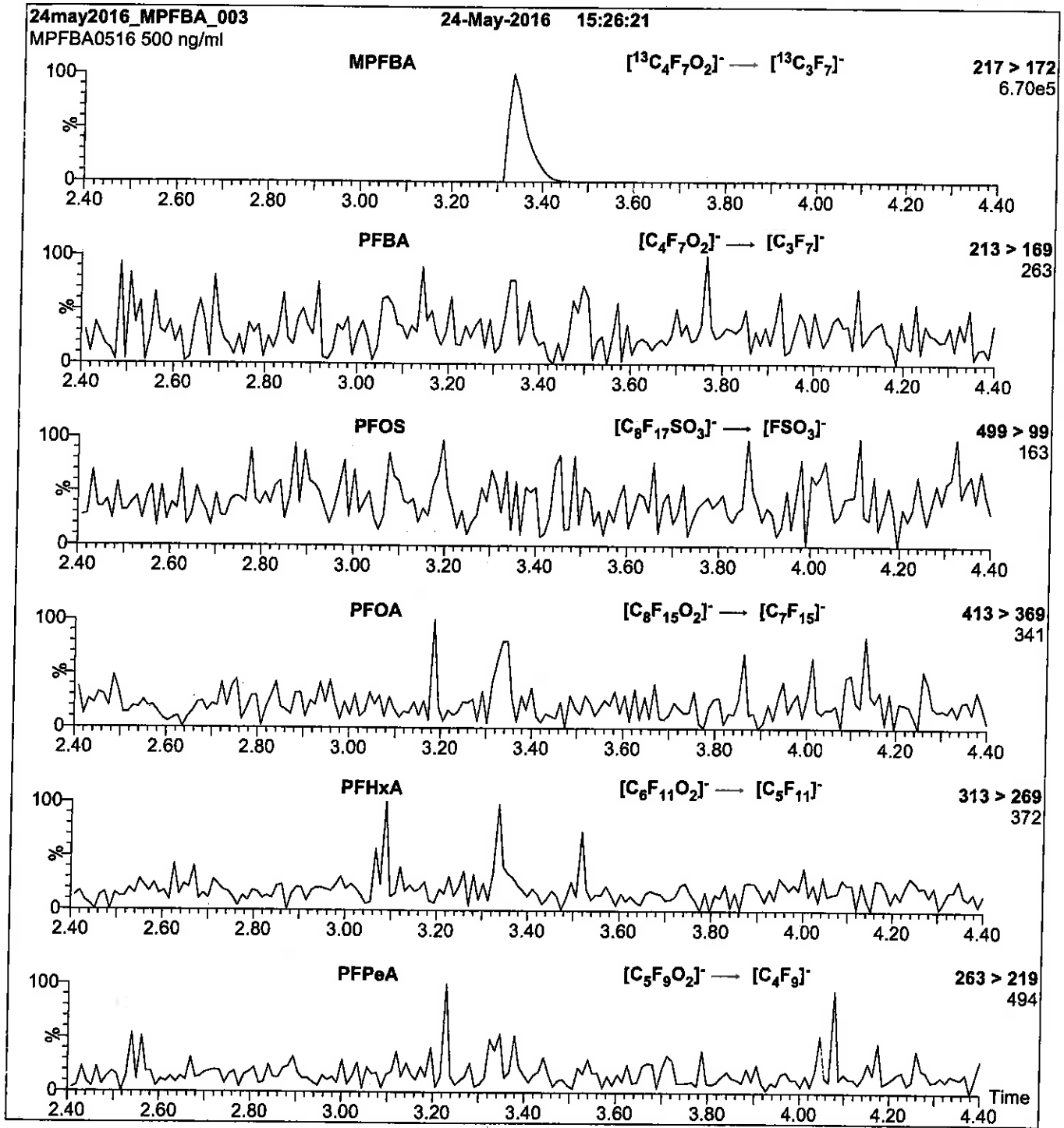
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFDA_00011

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

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

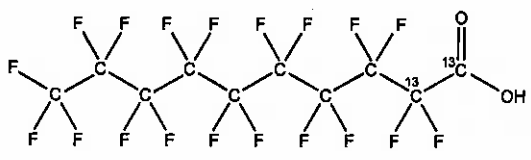


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFDA **LOT NUMBER:** MPFDA0815
COMPOUND: Perfluoro-n-[1,2-¹³C₂]decanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₈HF₁₈O₂ **MOLECULAR WEIGHT:** 516.07
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
(1,2-¹³C₂)
LAST TESTED: (mm/dd/yyyy) 08/19/2015
EXPIRY DATE: (mm/dd/yyyy) 08/19/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 08/21/2015
B.G. Chittim (mm/dd/yyyy)

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

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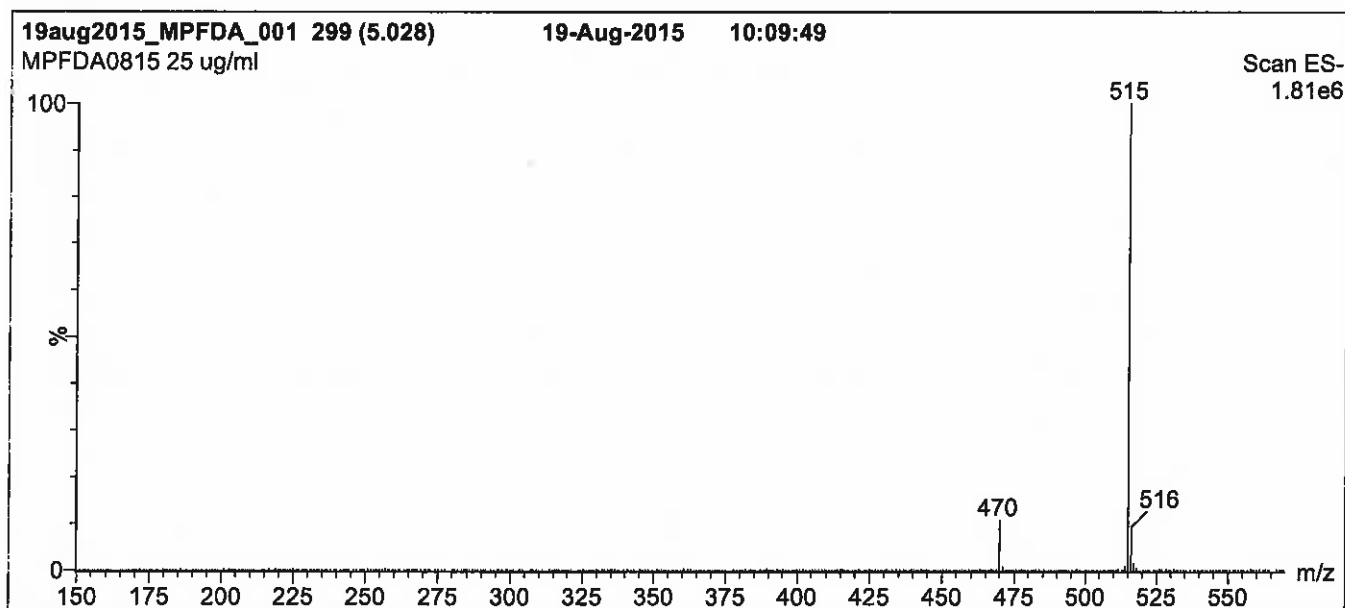
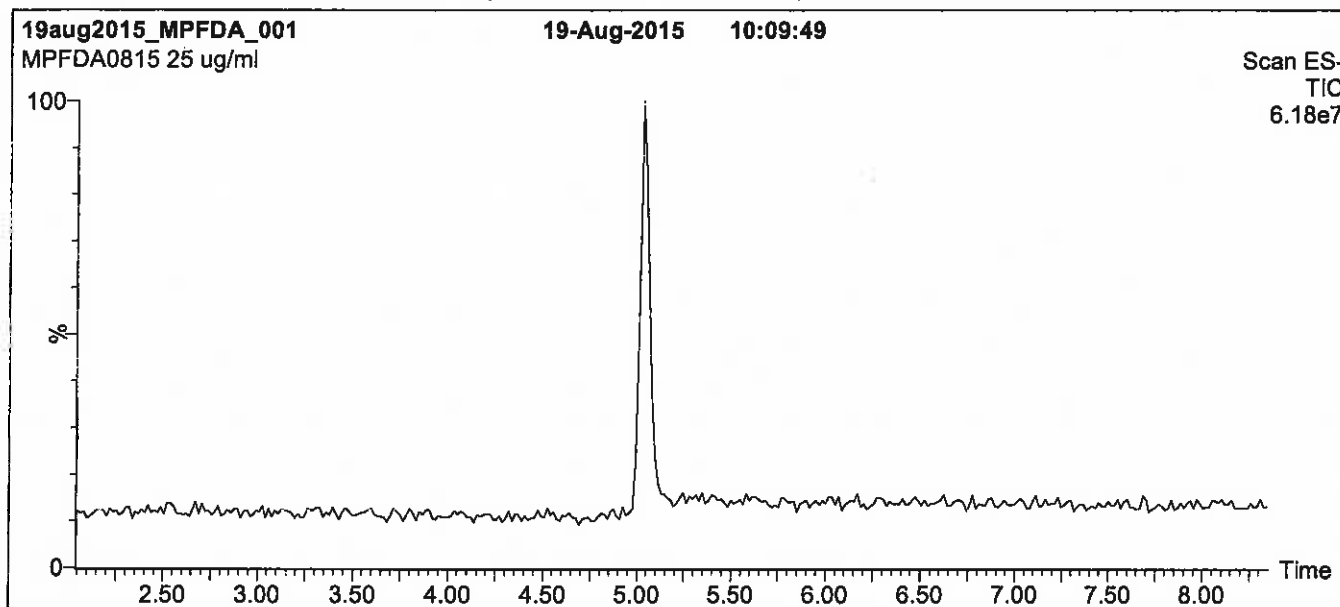
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

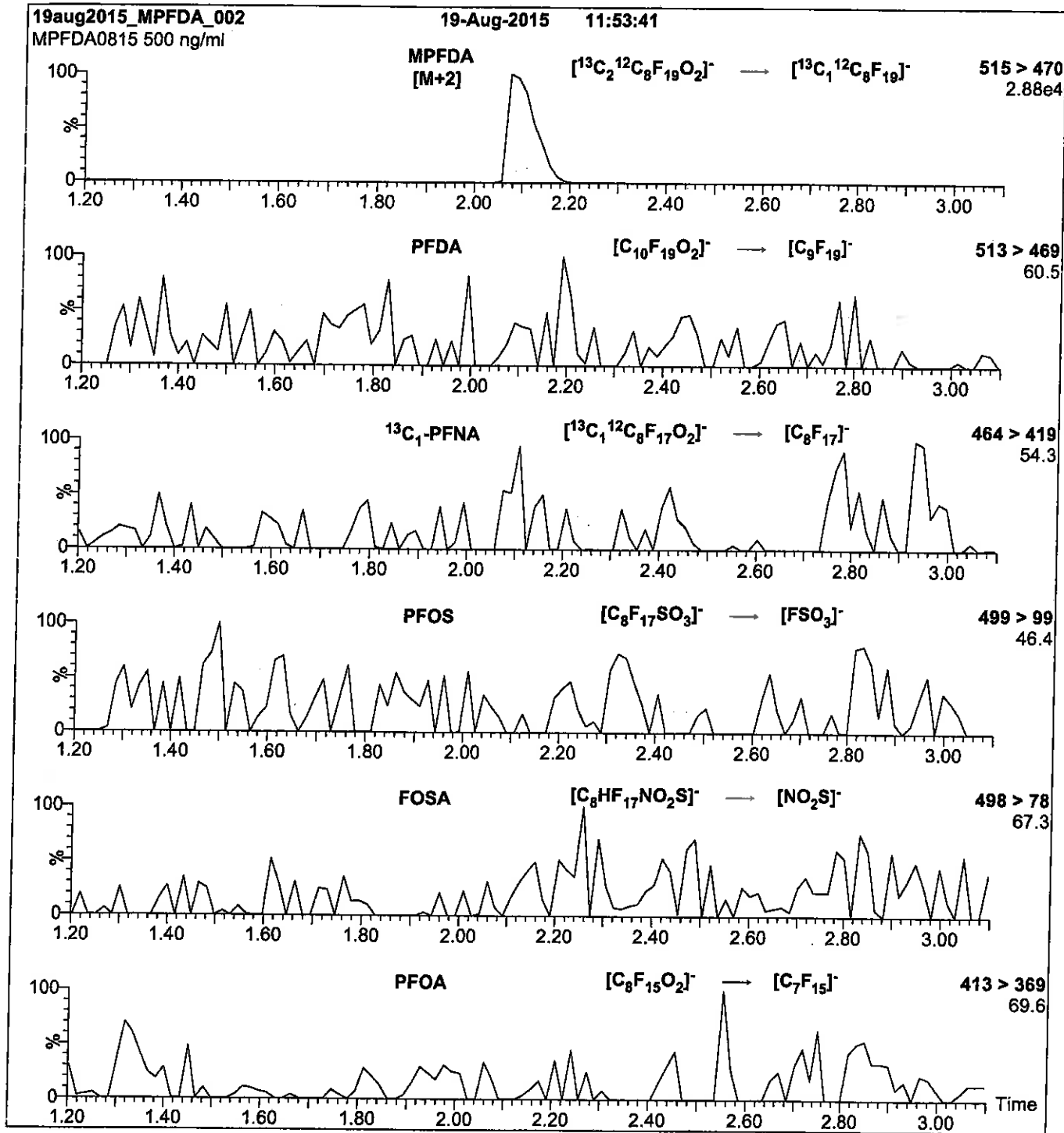
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCMPFD_oA_00008

R: 882 9/22/16

739598
ID: LCMFDoA_00008
Exp: 04/08/21 Prod: SBC
13C2-Perfluorododecanoic



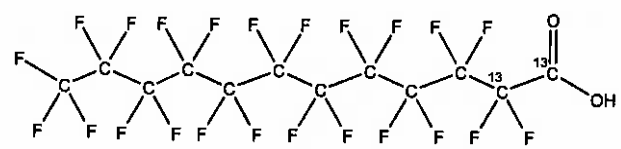
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SR

PRODUCT CODE: MPFDoA **LOT NUMBER:** MPFDoA0416
COMPOUND: Perfluoro-n-[1,2-¹³C₂]dodecanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₁₀HF₂₃O₂ **MOLECULAR WEIGHT:** 616.08
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 04/08/2016 (1,2-¹³C₂)
EXPIRY DATE: (mm/dd/yyyy) 04/08/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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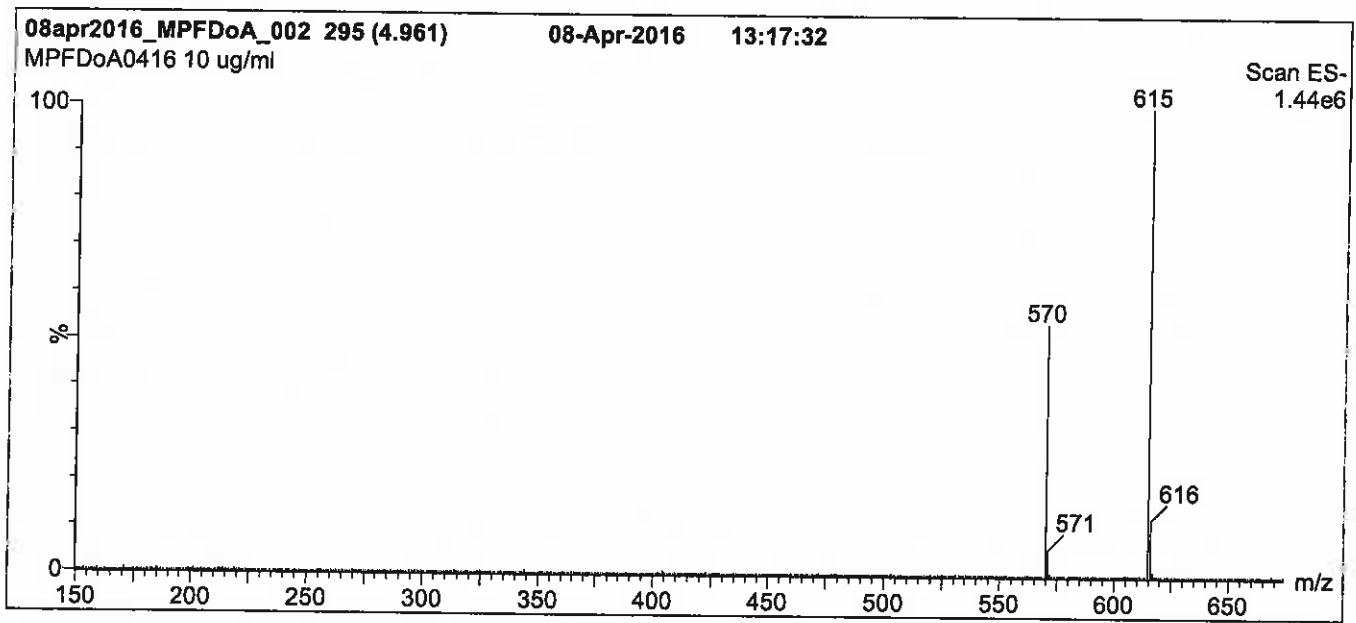
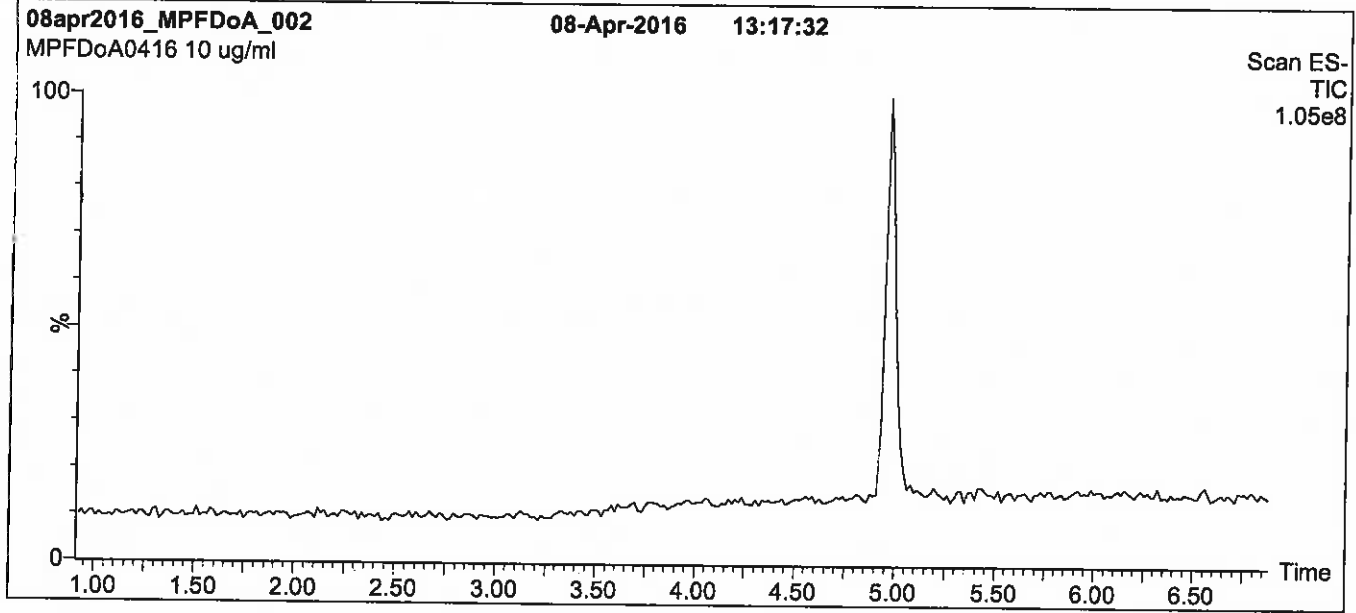
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

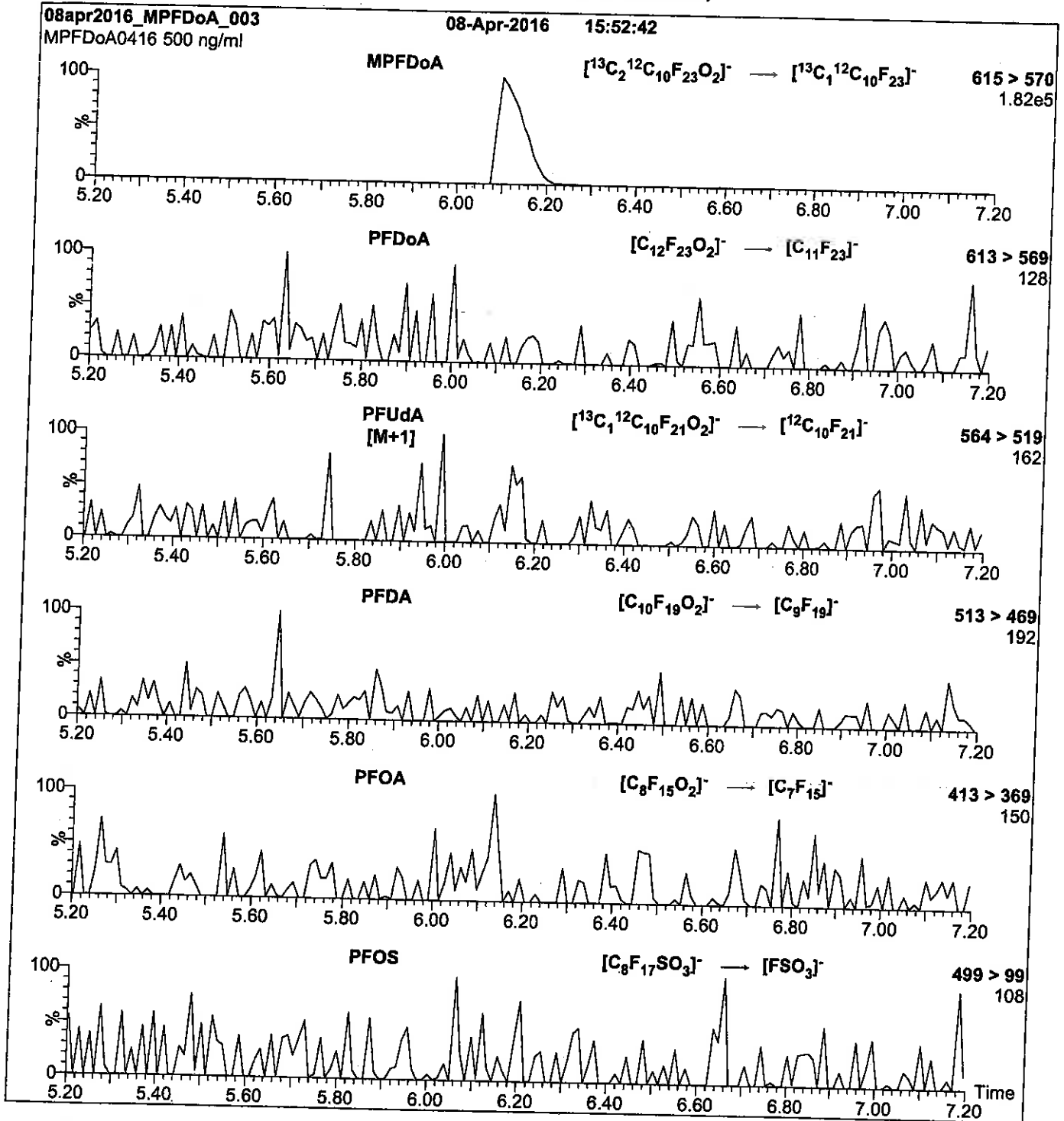
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFHxA_00012

Scanned 10/11/16 R: SBC 9/22/16

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



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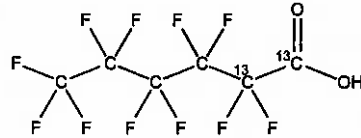
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: MPFHxA0416

STRUCTURE:

CAS #: Not available



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

MOLECULAR WEIGHT: 316.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 04/08/2016
EXPIRY DATE: (mm/dd/yyyy) 04/08/2021

ISOTOPIC PURITY: ≥99%¹³C
(1,2-¹³C₂)

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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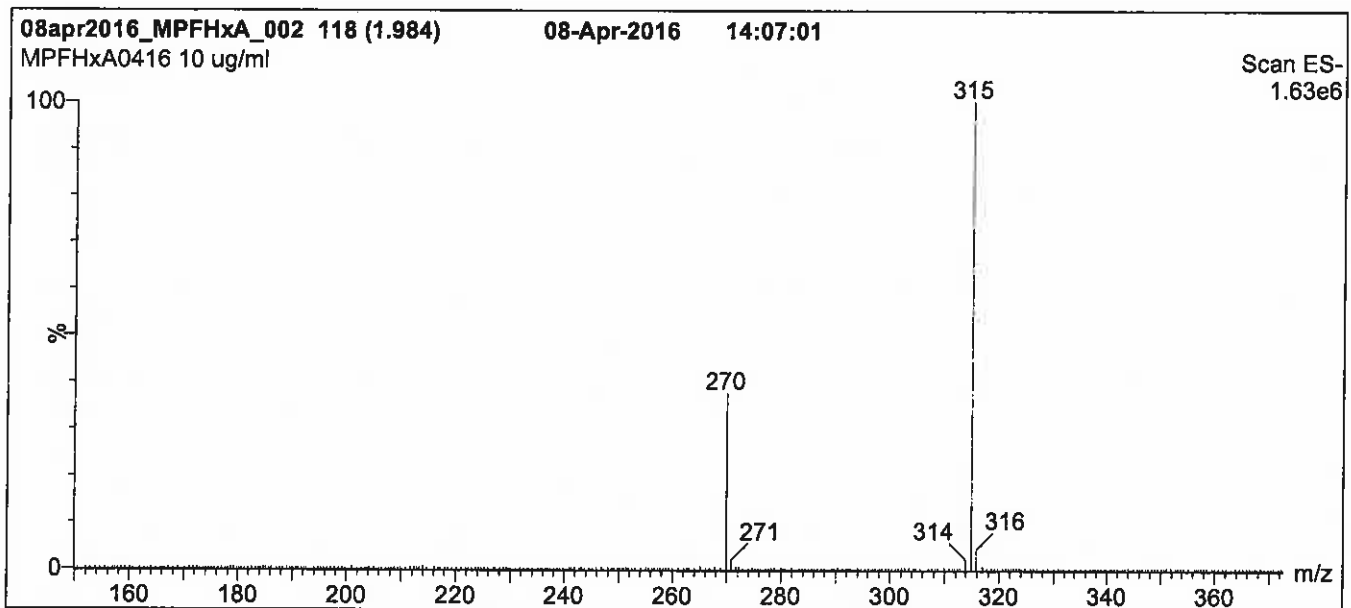
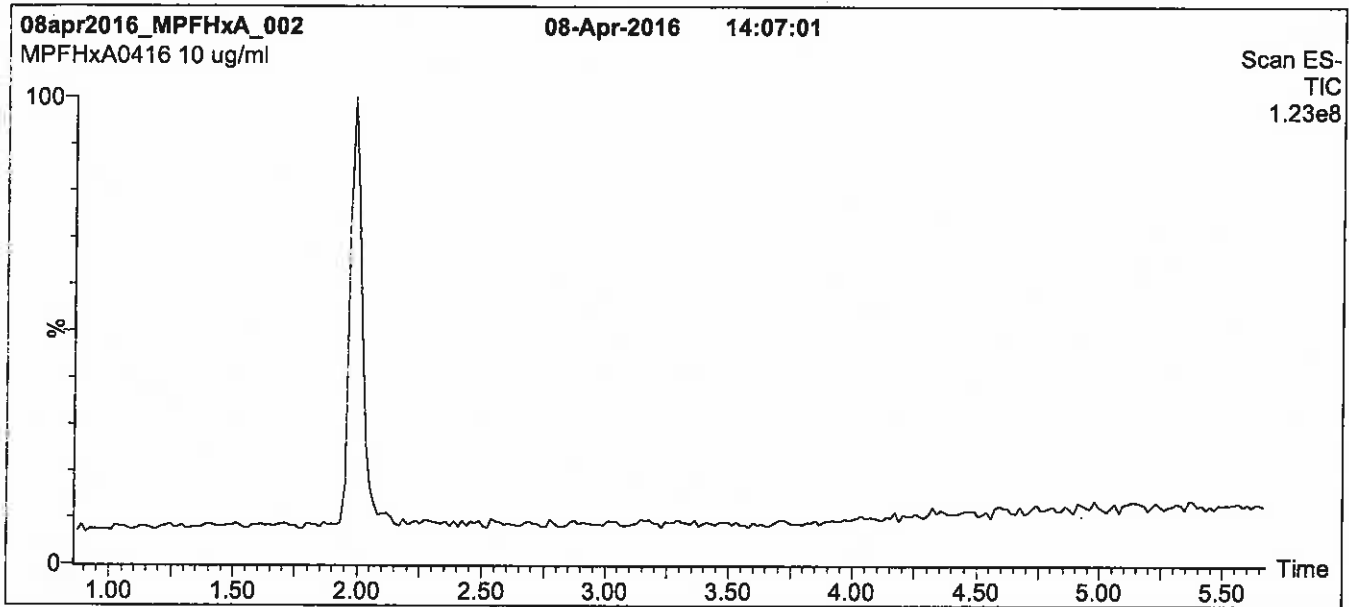
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Conditions for Figure 1:

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

Chromatographic Conditions

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

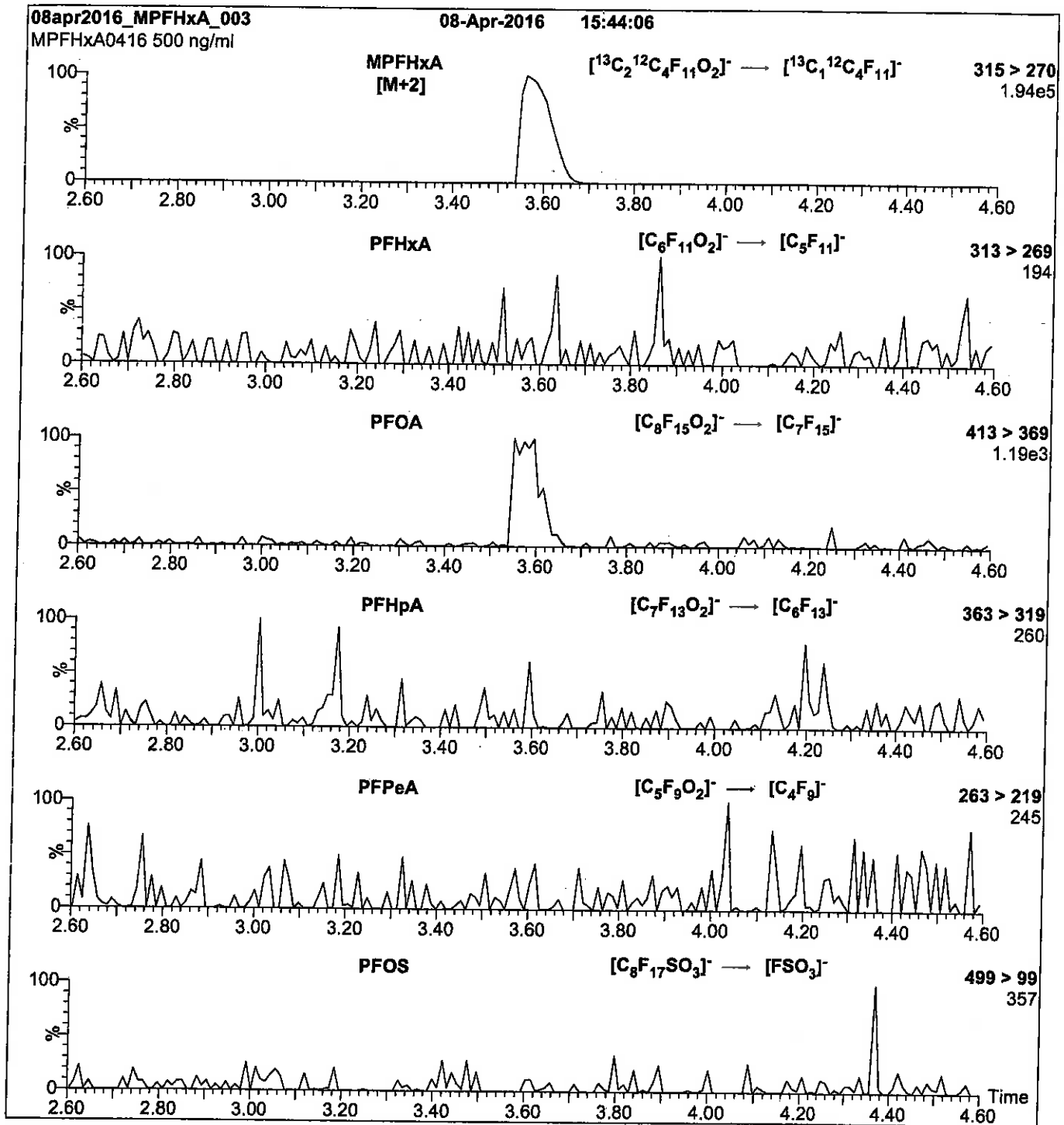
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions over 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFHXS_00008

R: 800 9/22/16



739601

ID: LCMPFHxS_00008

Exp: 10/23/20 Prod: SBC

18O2-Perfluorohexanesulfo



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CERTIFICATE OF ANALYSIS DOCUMENTATION

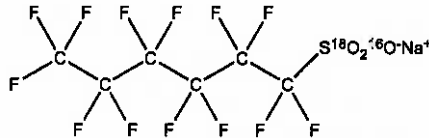
Scanned 10/14/16 SK

PRODUCT CODE: MPFHxS
COMPOUND: Sodium perfluoro-1-hexane[¹⁸O₂]sulfonate

LOT NUMBER: MPFHxS1015

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₆F₁₃S¹⁸O₂¹⁶ONa
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt)
47.3 ± 2.4 µg/ml (MPFHxS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/23/2015
EXPIRY DATE: (mm/dd/yyyy) 10/23/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 426.10
SOLVENT(S): Methanol
ISOTOPIC PURITY: >94% (¹⁸O₂)

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- The response factor for MPFHxS (C₆F₁₃S¹⁸O₂¹⁶O) has been observed to be up to 10% lower than for PFHxS (C₆F₁₃S¹⁶O₃) when both compounds are injected together. This difference may vary between instruments.
- Due to the isotopic purity of the starting material (¹⁸O₂ >94%), MPFHxS contains ~ 0.3% of PFHxS. This value agrees with the theoretical percent relative abundance that is expected based on the stated isotopic purity.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim
Date: 10/28/2015
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

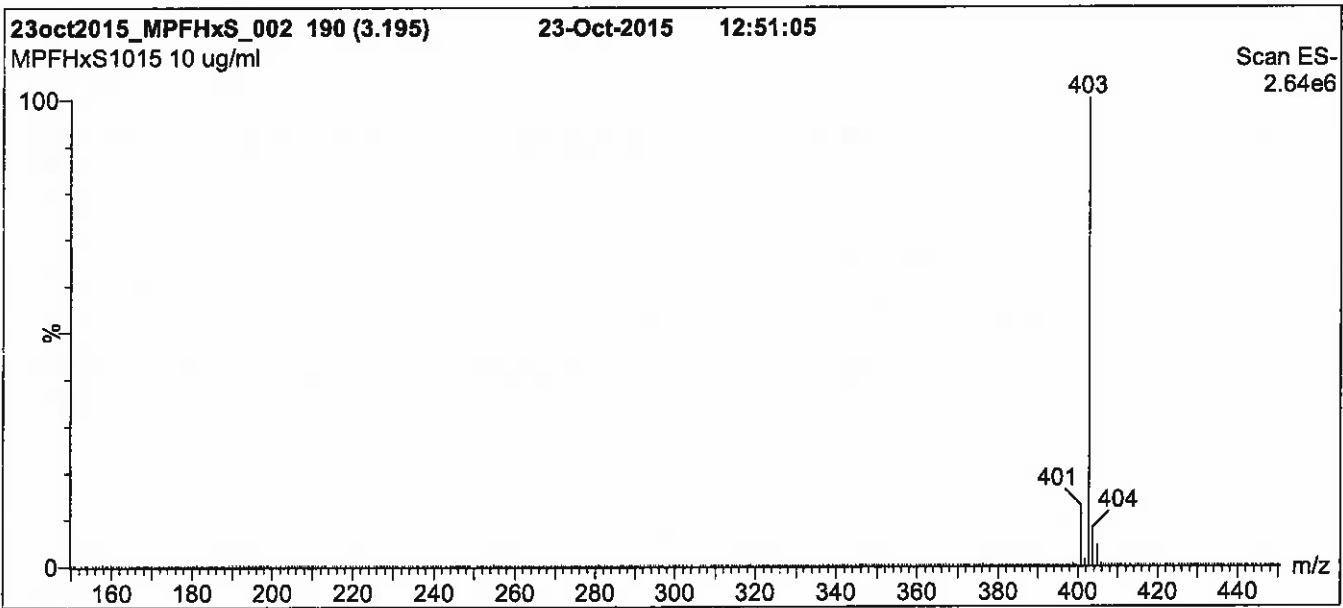
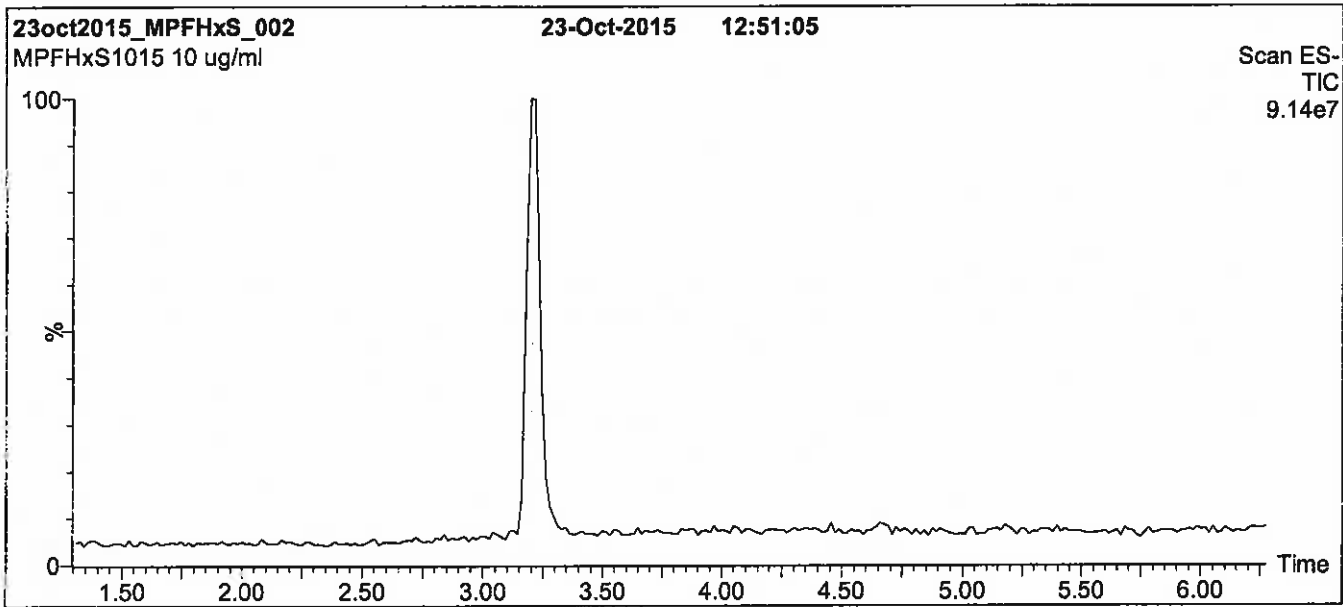
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

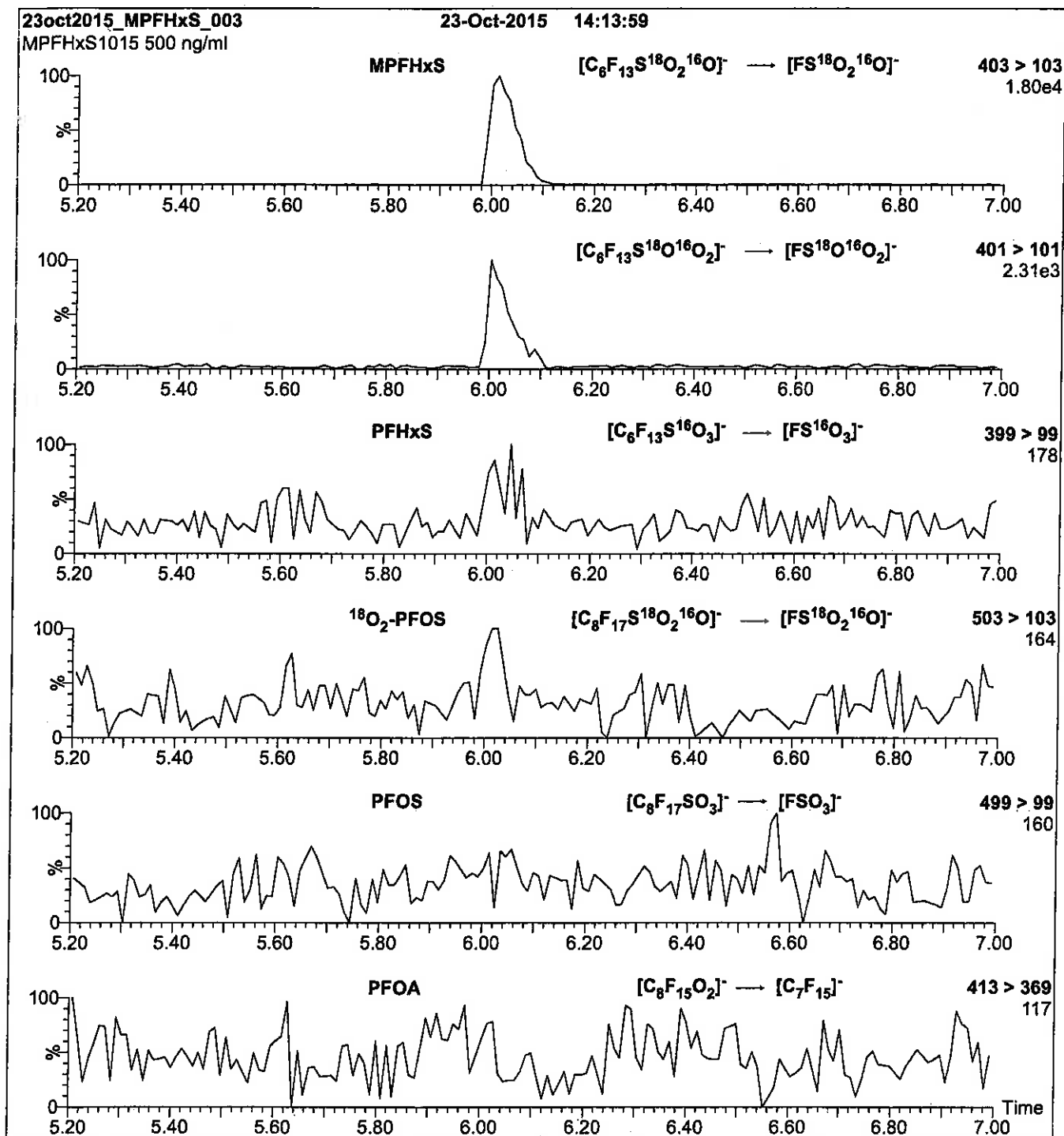
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCMPFNA_00008

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



739637
ID: LCM:PFNA_0008
Exp: 04/13/19 Pptd: SBC
13C5-Perfluoronoic aci



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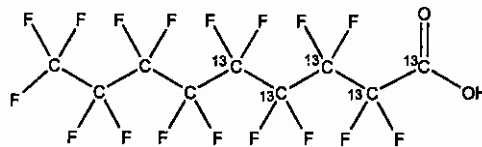
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFNA
COMPOUND: Perfluoro-n-[1,2,3,4,5-¹³C₅]nonanoic acid

LOT NUMBER: MPFNA0414

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: ¹³C₅¹²C₄HF₁₇O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 469.04
SOLVENT(S): Methanol
Water (<1%)
ISOTOPIC PURITY: ≥99%¹³C
(1,2,3,4,5-¹³C₅)

CHEMICAL PURITY: >98%

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, \dots, x_n on which it depends is:

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

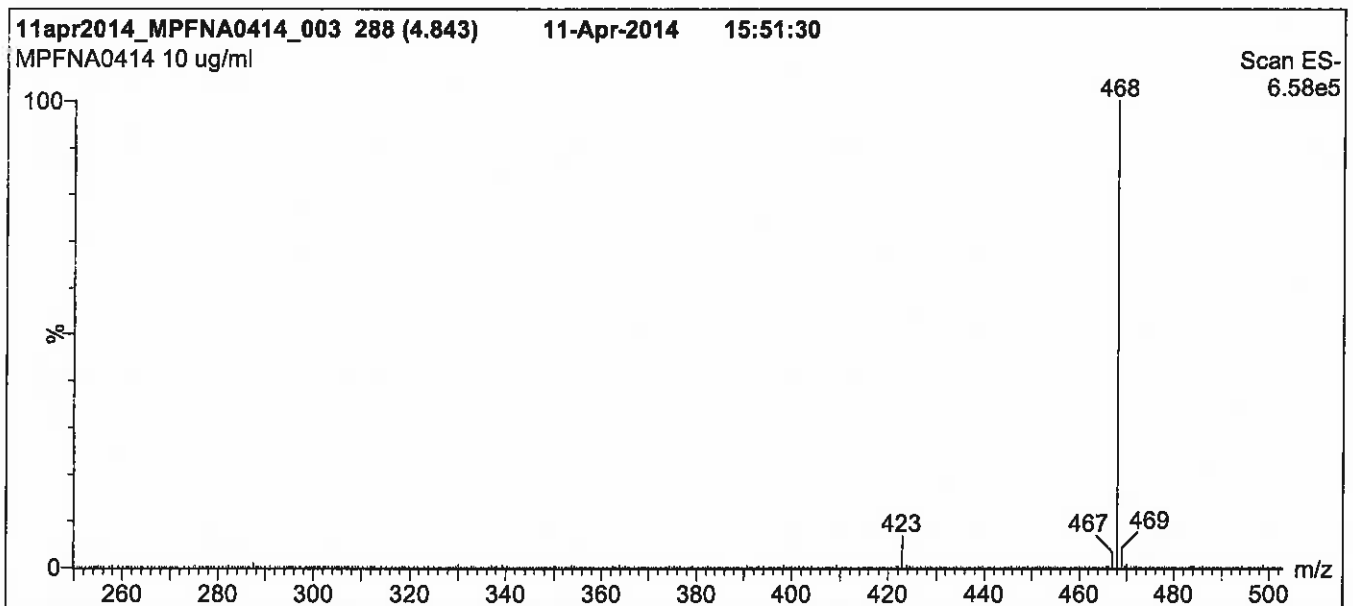
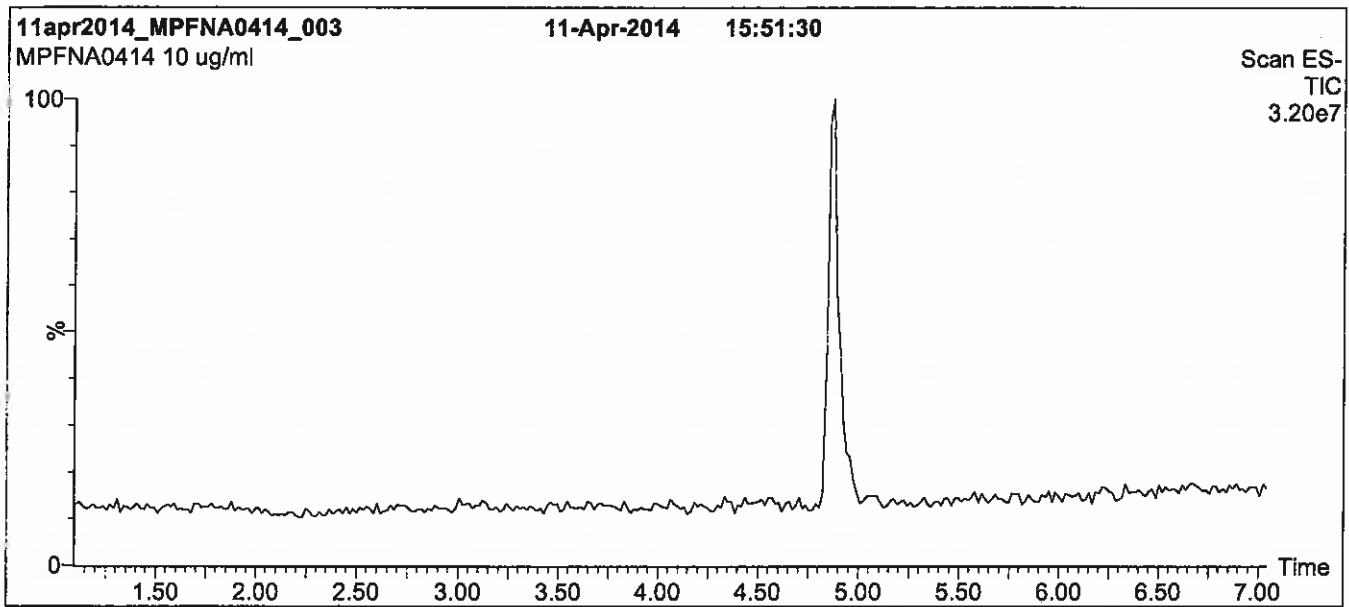
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

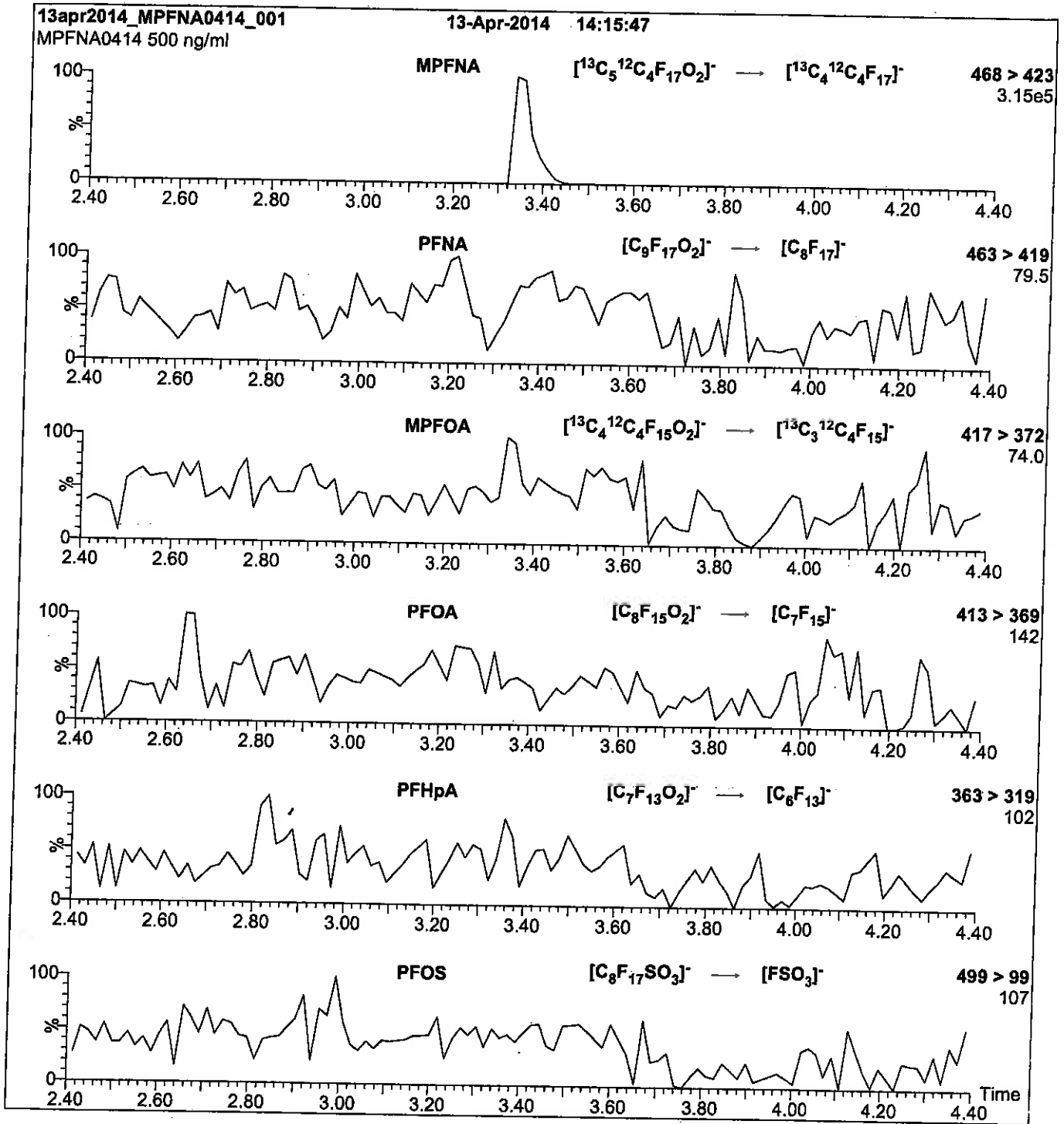
Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFOA_00012

R: SBC 9/22/16



738683
ID: LCMFOA_00012
Exp: 01/22/21 Prep: SBC
13C4-Perfluorooctanoic ac



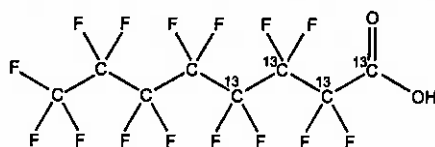
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOA
COMPOUND: Perfluoro-n-[1,2,3,4-¹³C₄]octanoic acid

LOT NUMBER: MPFOA0116

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄¹²C₄HF₁₅O₂
CONCENTRATION: 50 ± 2.5 µg/ml

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

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: ≥99% ¹³C
(1,2,3,4-¹³C₄)

LAST TESTED: (mm/dd/yyyy) 01/22/2016

EXPIRY DATE: (mm/dd/yyyy) 01/22/2021

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 02/01/2016
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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LIMITED WARRANTY:

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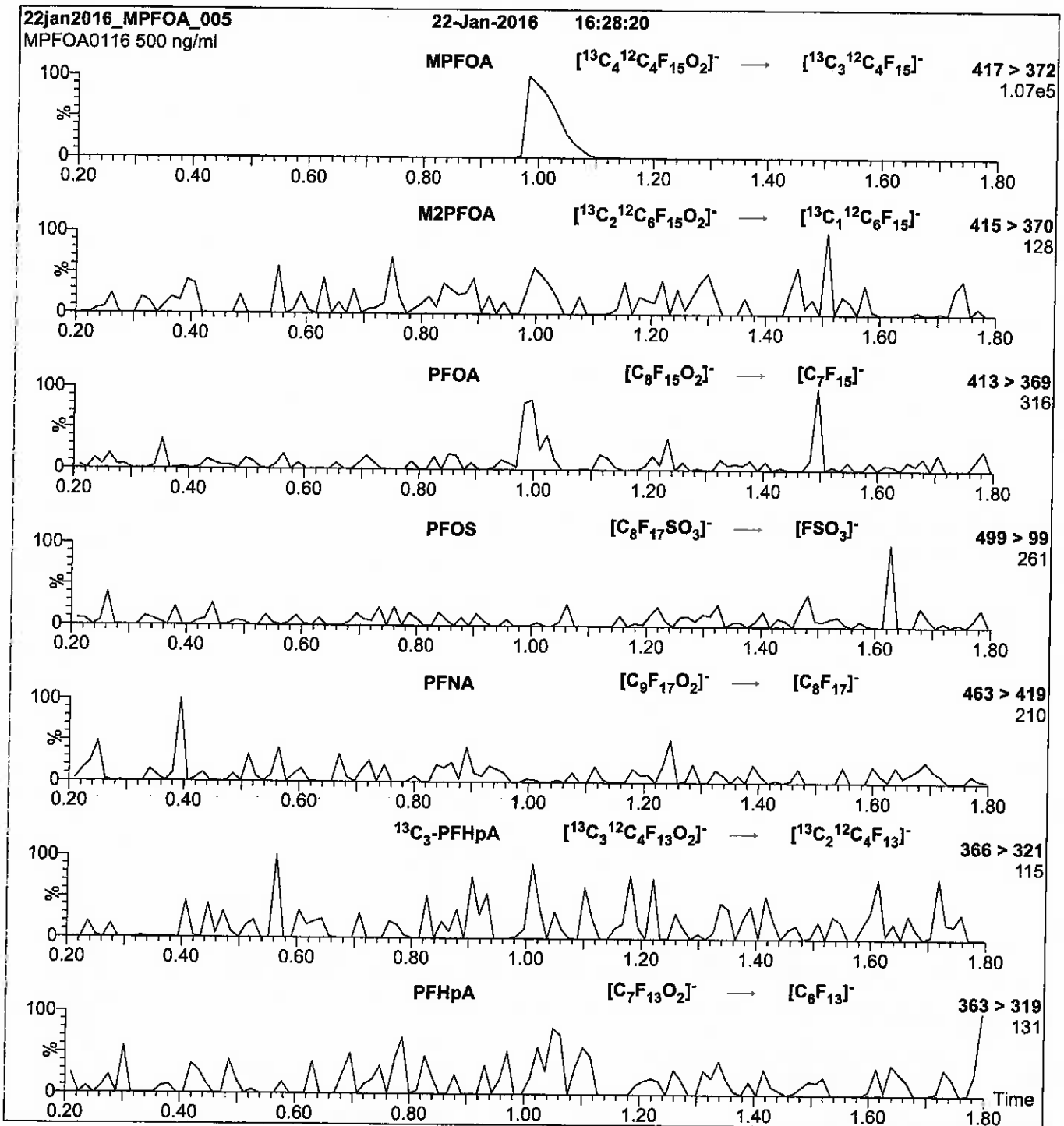
QUALITY MANAGEMENT:

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



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



Conditions for Figure 2:

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

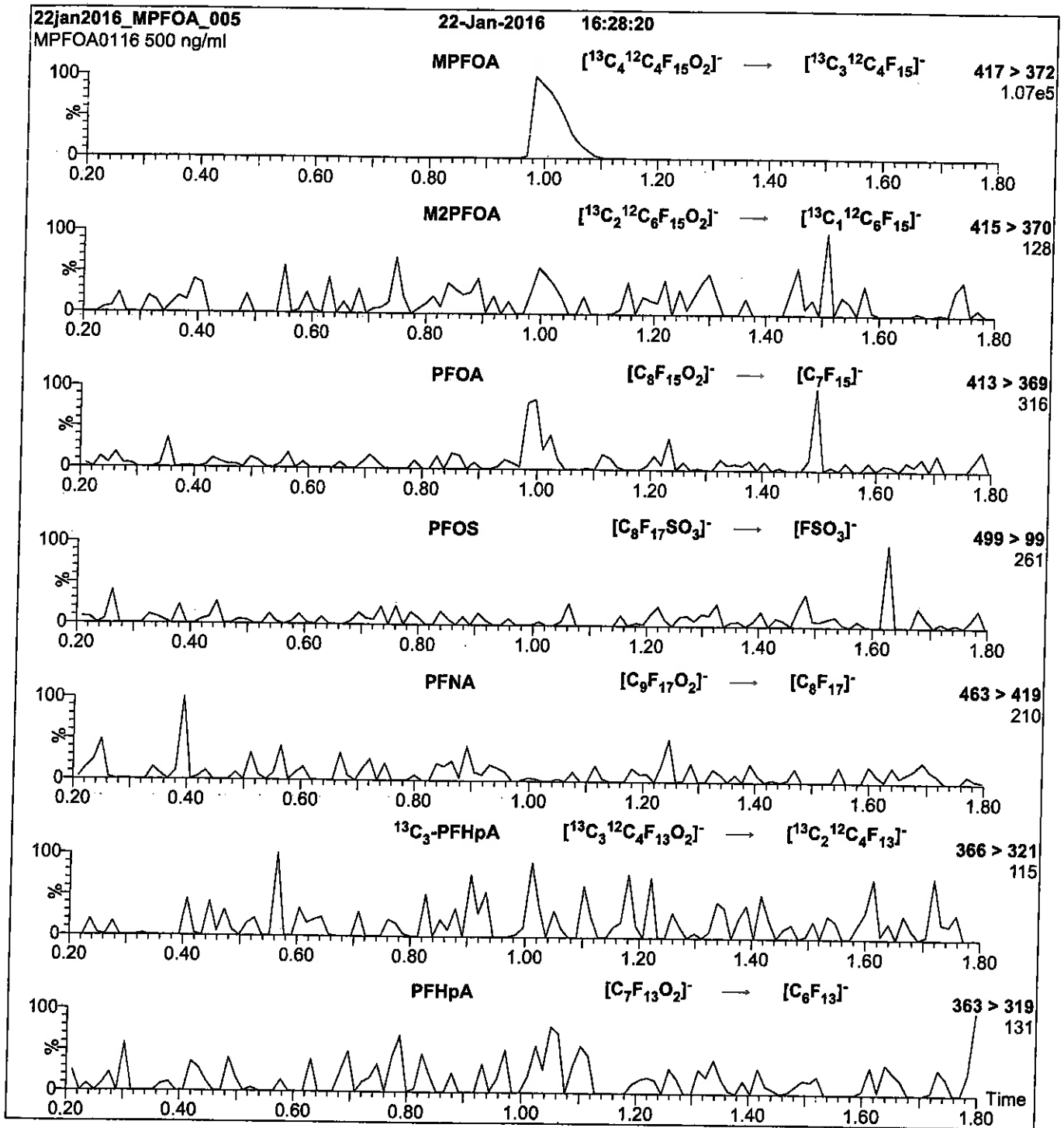
Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = $3.58\text{e-}3$
Collision Energy (eV) = 10

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFOS_00017

R: 9/9/16 802

728309
ID: LCMPPFS_00017
Exp: 08/03/21 Prpd: SBC
13C4-Perfluorooctanesulfo

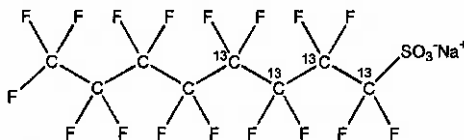


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS0816
COMPOUND: Sodium perfluoro-1-[1,2,3,4-¹³C₄]octanesulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄¹²C₄F₁₇SO₃Na **MOLECULAR WEIGHT:** 526.08
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
47.8 ± 2.4 µg/ml (MPFOS anion)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 08/03/2016 (1,2,3,4-¹³C₄)
EXPIRY DATE: (mm/dd/yyyy) 08/03/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-¹³C₃]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim Date: 08/05/2016
(mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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

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LIMITED WARRANTY:

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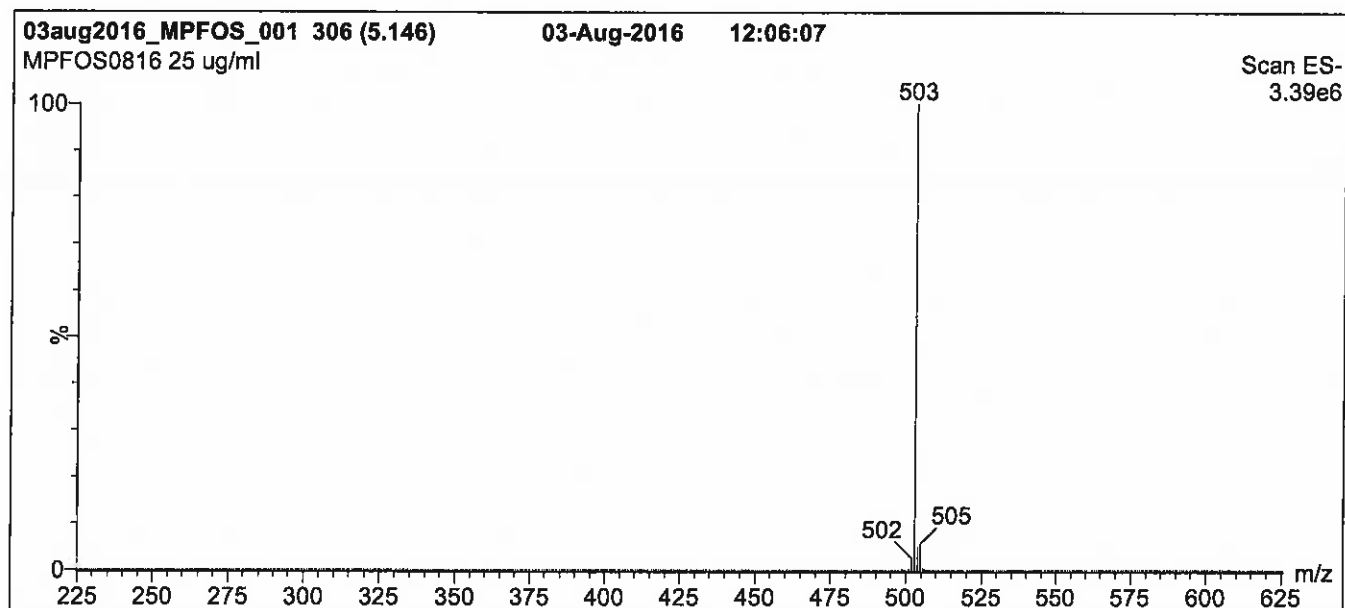
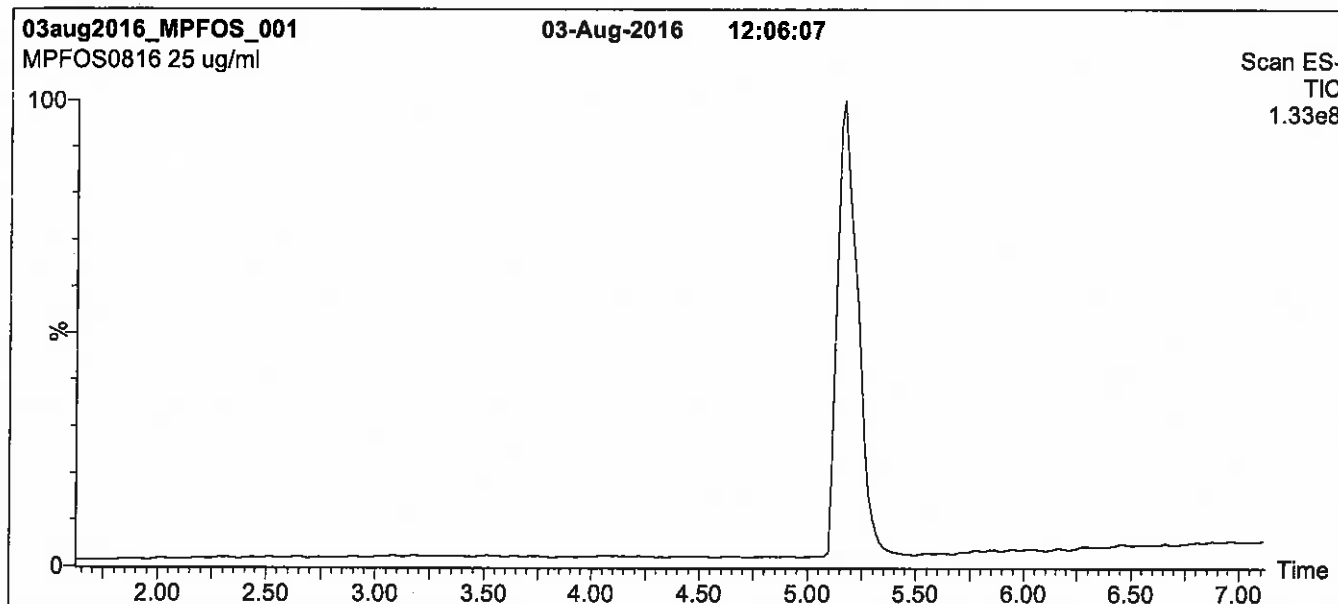
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 45% (80:20 MeOH:ACN) / 55% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

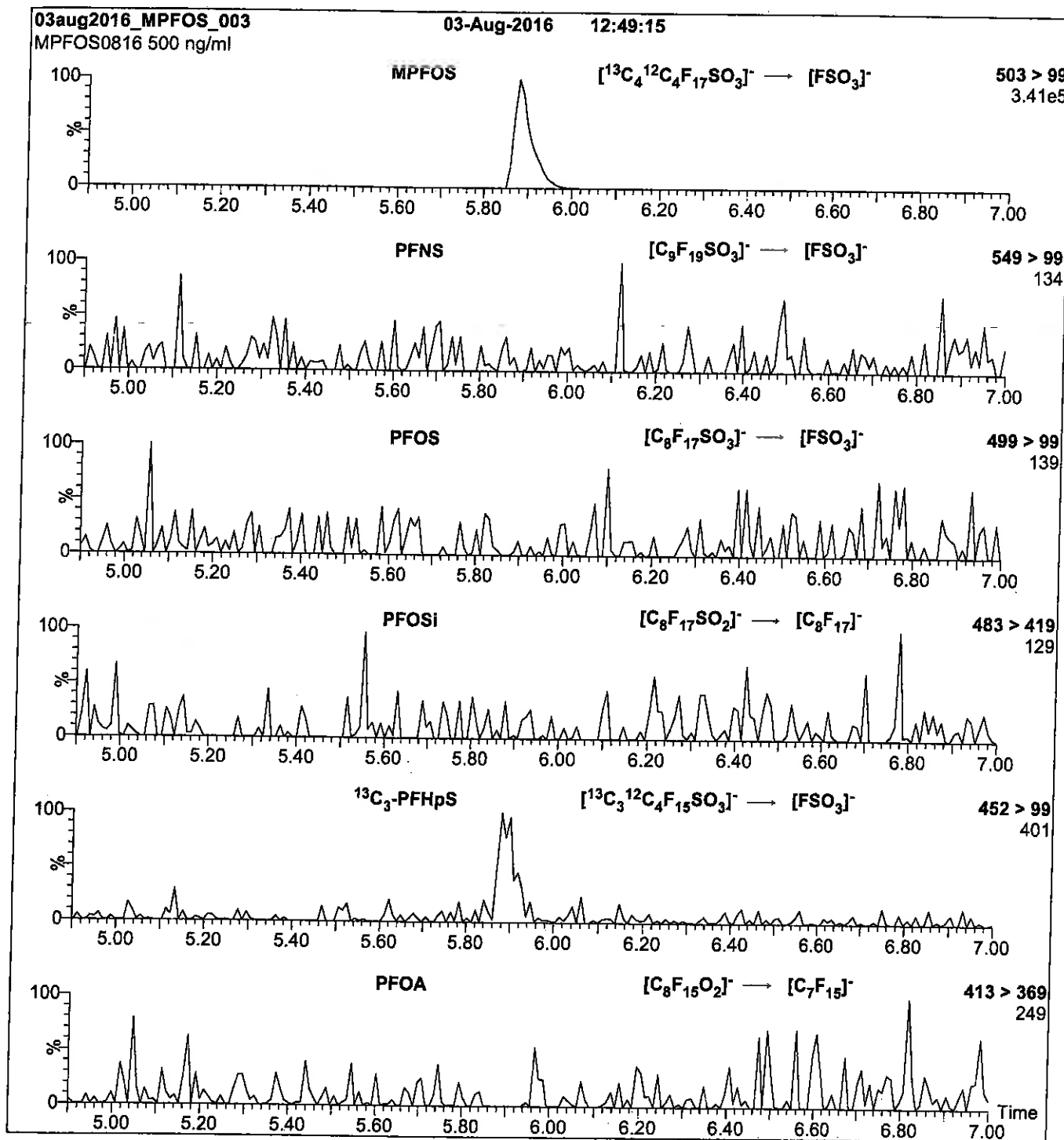
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFUdA_00009

R: SBC 9/22/16

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



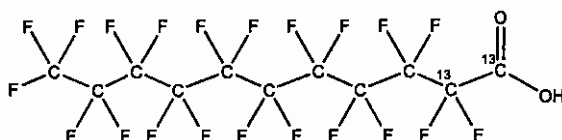
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

Scanned 10/14/16 SK

PRODUCT CODE: MPFUdA **LOT NUMBER:** MPFUdA0216
COMPOUND: Perfluoro-n-[1,2-¹³C₂]undecanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₉HF₂₁O₂ **MOLECULAR WEIGHT:** 566.08
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
(1,2-¹³C₂)
LAST TESTED: (mm/dd/yyyy) 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 1-¹³C₁-PFUdA (~1%; see Figure 2), 2-¹³C₁-PFUdA (~1%), and PFUdA (~0.2%; see Figure 2) are due to the isotopic purity of the ¹³C-precursor.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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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LIMITED WARRANTY:

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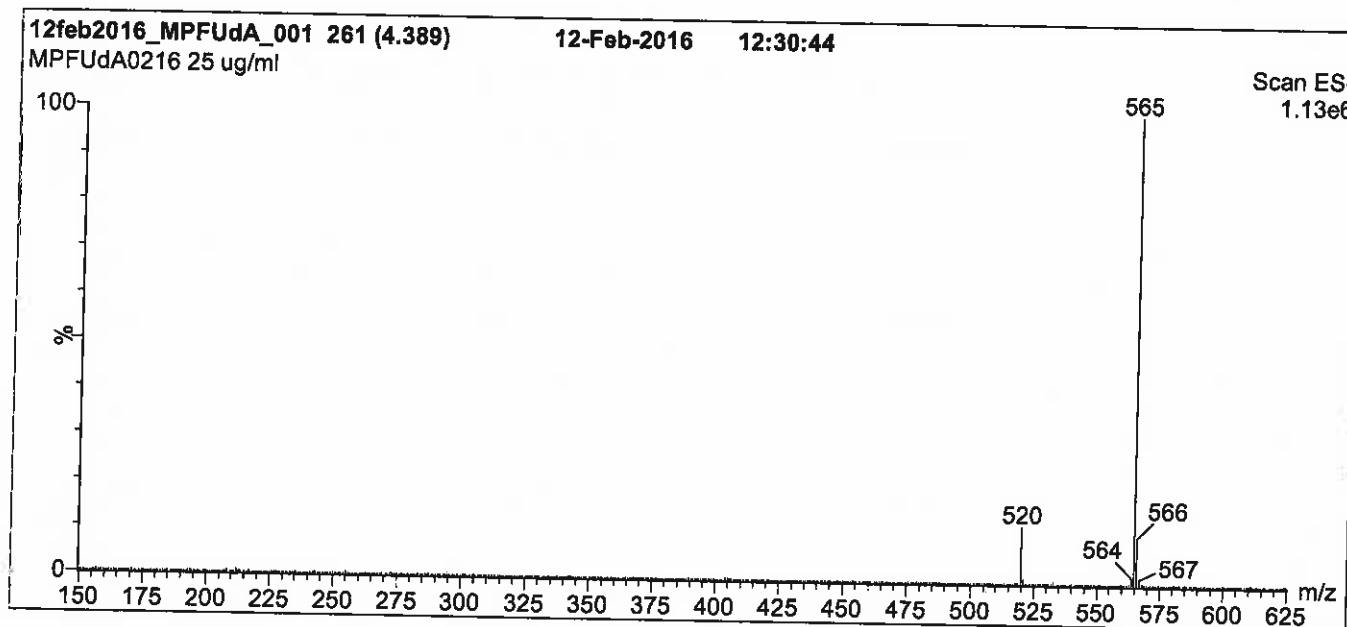
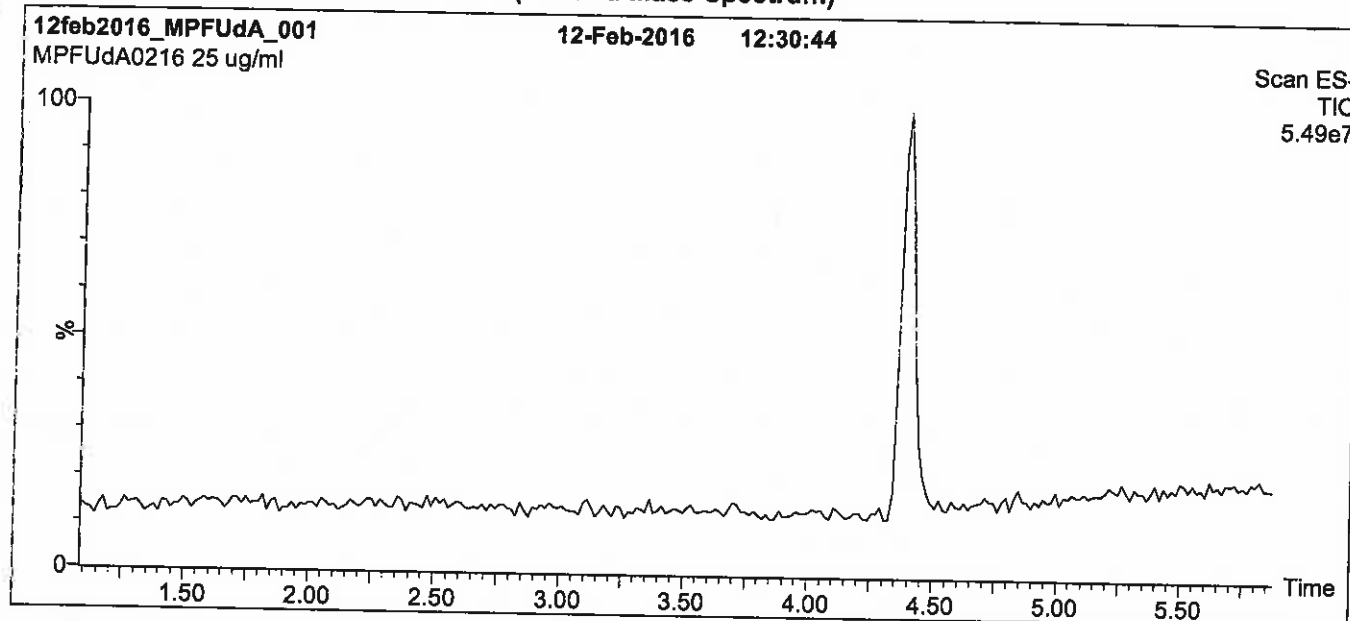
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

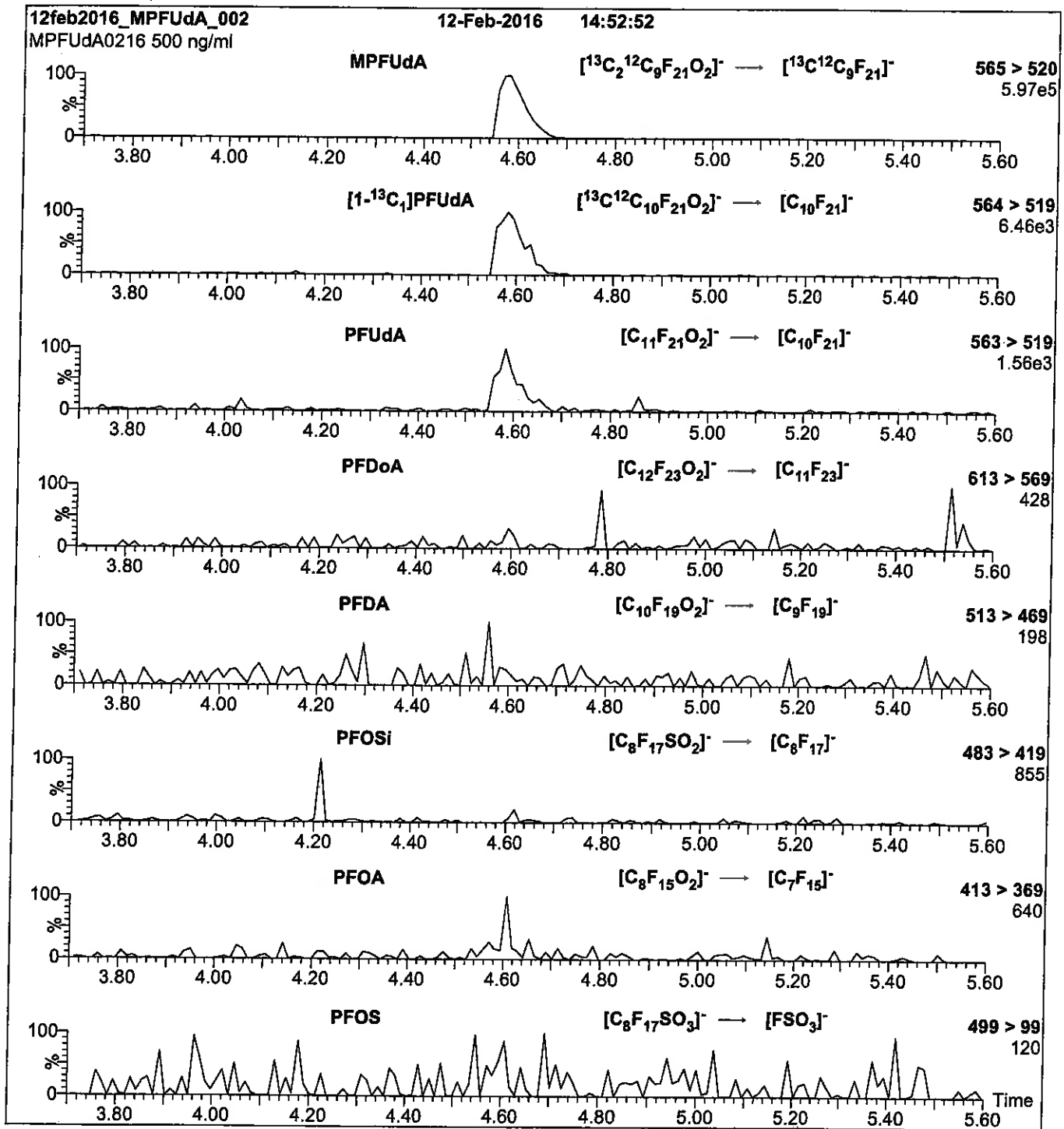
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

Mobile phase: Isocratic 80% MeOH / 20% H_2O

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

MS Parameters

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

Reagent

LCN-EtFOSA-M_00003

R: 8/23/16 SBC



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

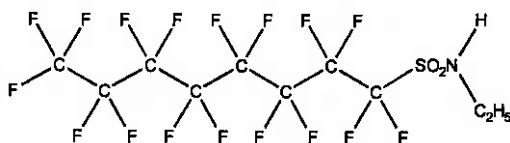


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M **LOT NUMBER:** NEtFOSA0516M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide

STRUCTURE: **CAS #:** 4151-50-2



MOLECULAR FORMULA: C₁₀H₈F₁₇NO₂S **MOLECULAR WEIGHT:** 527.20
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/24/2016
EXPIRY DATE: (mm/dd/yyyy) 05/24/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/27/2016

(mm/dd/yyyy)

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

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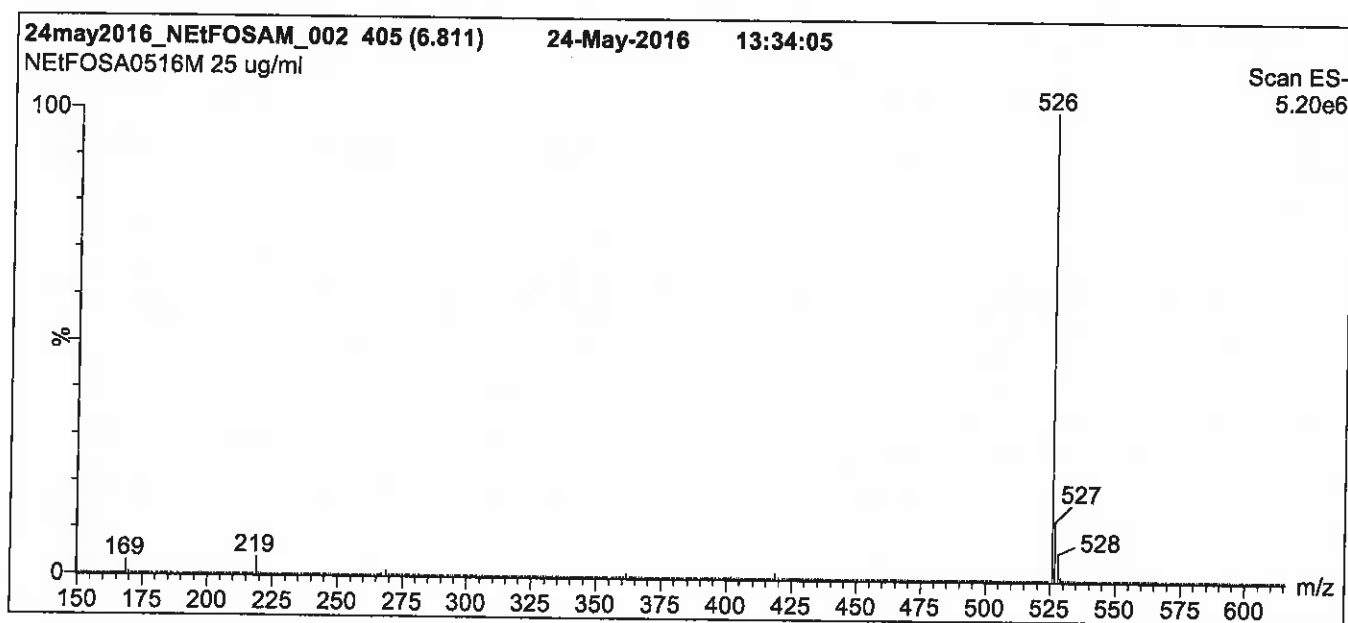
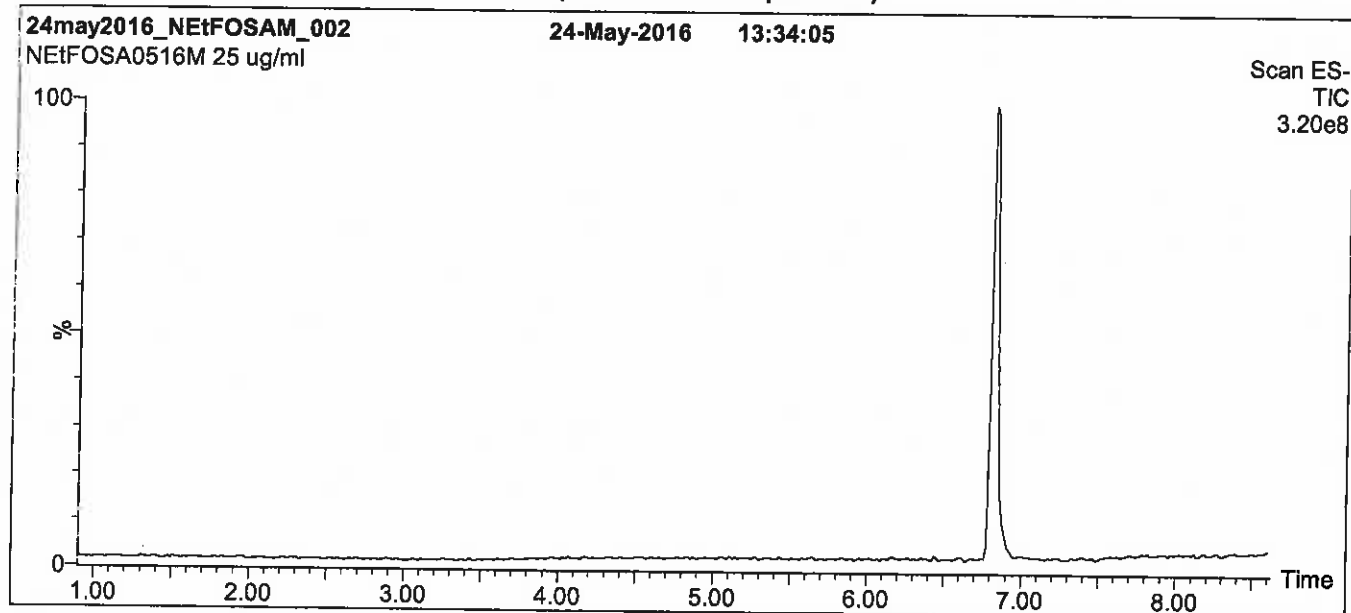
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Figure 1: N-EtFOSA-M; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

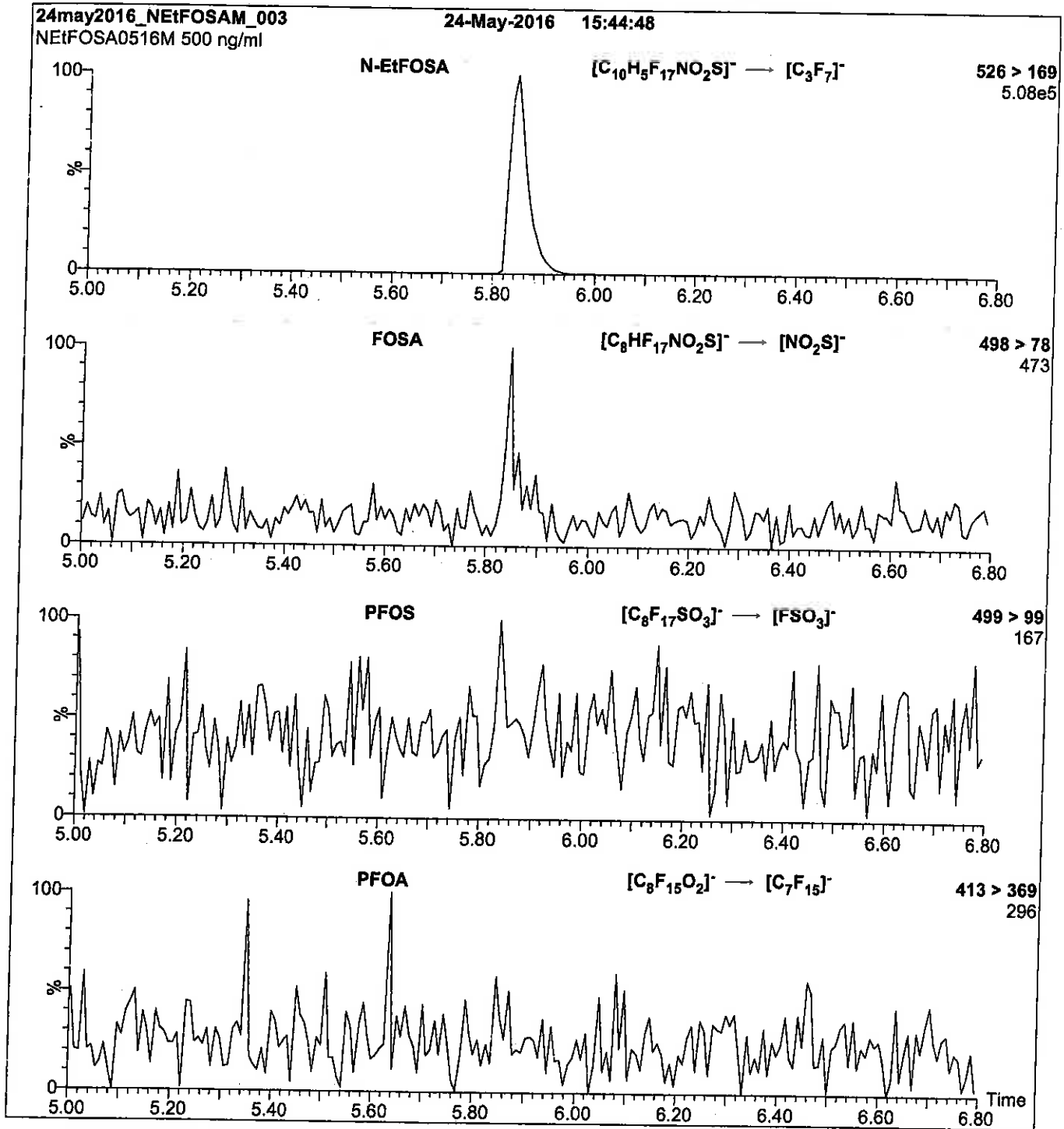
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

MS Parameters

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

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

Flow: 300 μ l/min

Reagent

LCN-ETFOSAA_00002

R: 8/23/16 SBC



715561
ID: LCN-EtFOSAA_00002
Exp: 01/2021 Pp# 98C
N-EtFOSAA

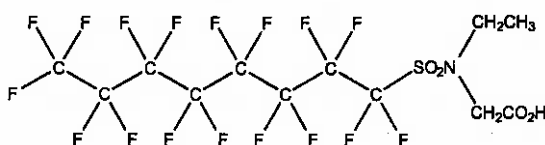


WELLINGTON LABORATORIES

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 ₈ F ₁₇ NO ₄ S	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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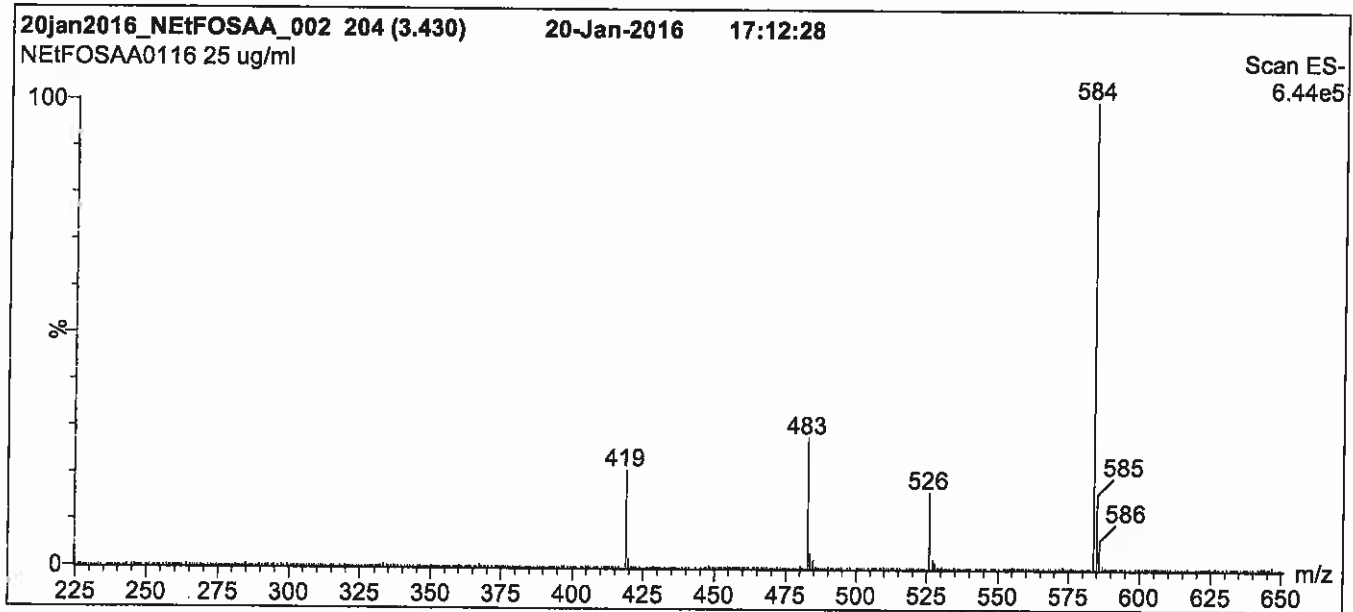
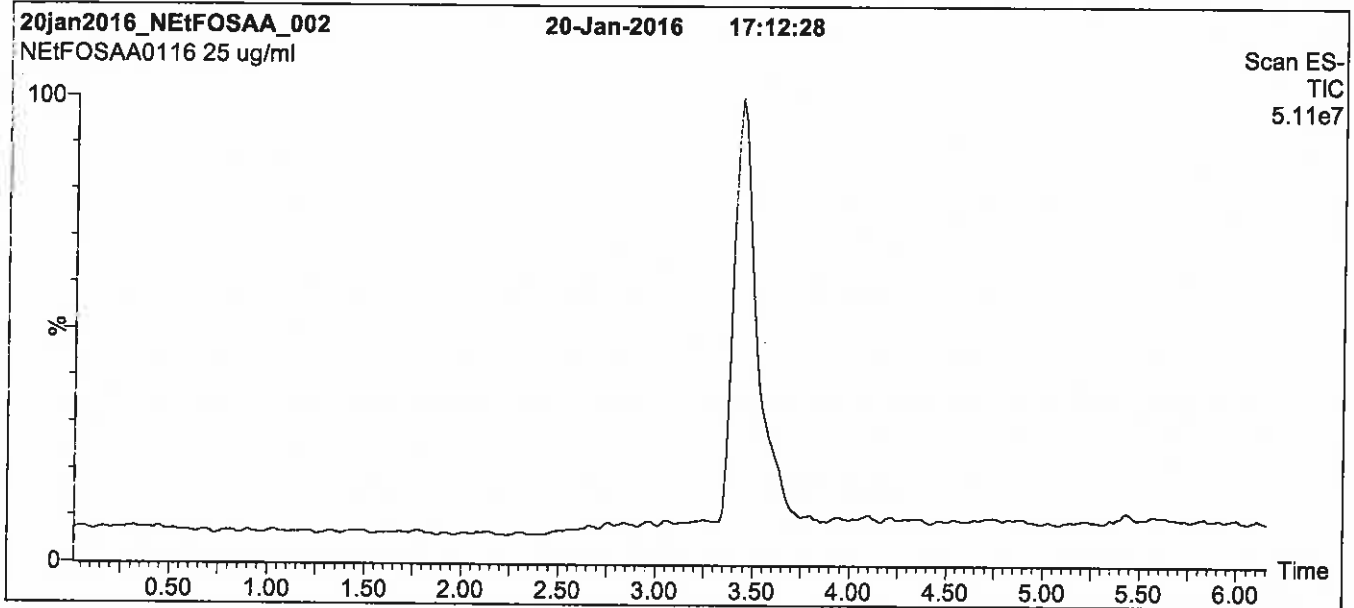
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

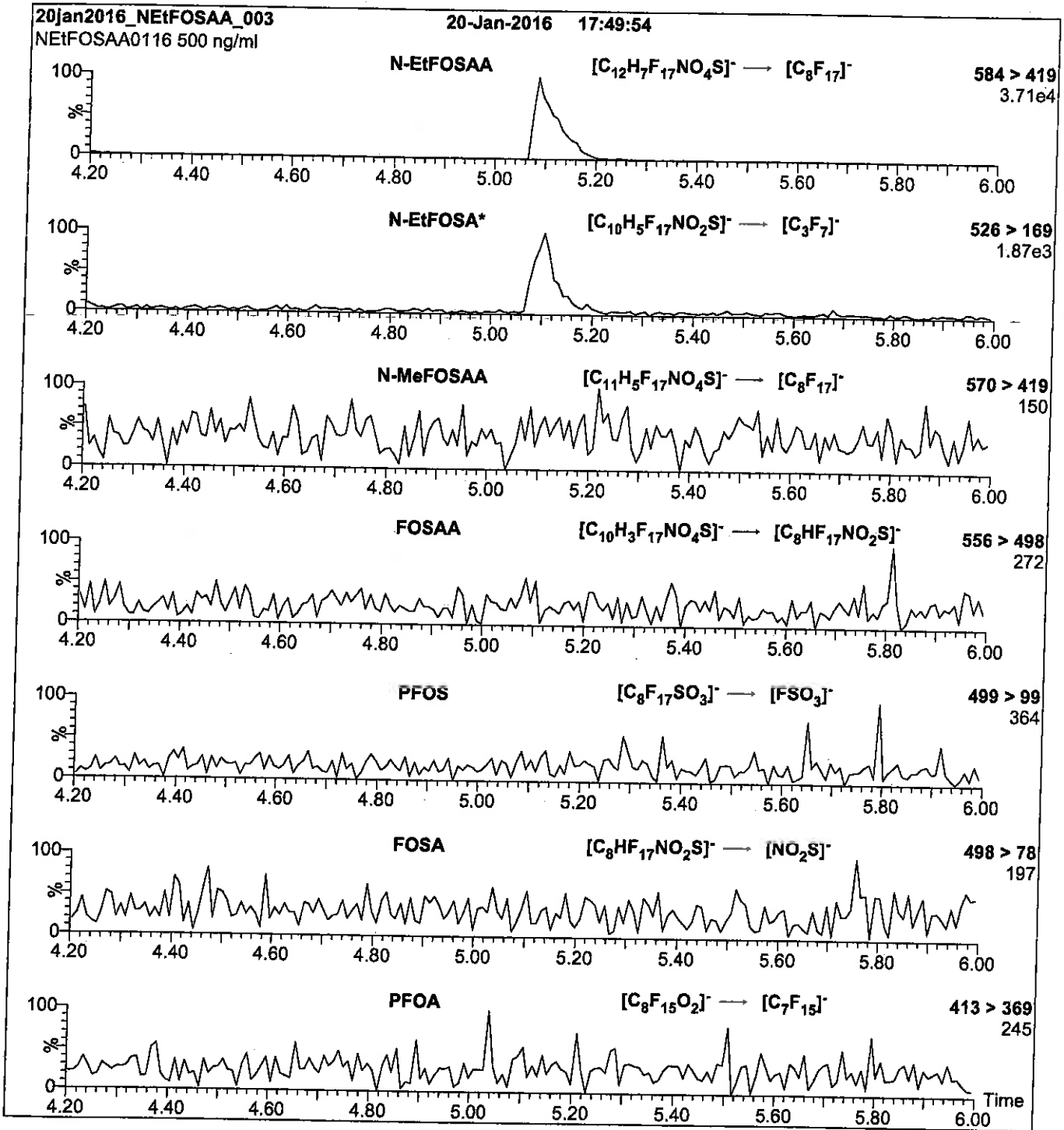
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Note: N-EtFOSA is formed by fragmentation of N-EtFOSAA.

Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCN-MeFOSA-M_00002

R: 8/23/16 SBC



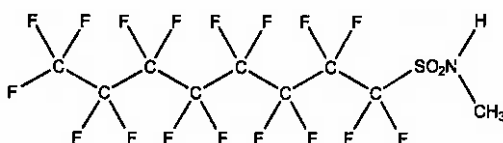
715564
ID: LCN-MeFOSA-M_00002
Exp: 05/24/21 Pppl: SBC
N-MeFOSA-M



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: C₉H₄F₁₇NO₂S **MOLECULAR WEIGHT:** 513.17
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/24/2016
EXPIRY DATE: (mm/dd/yyyy) 05/24/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/26/2016
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

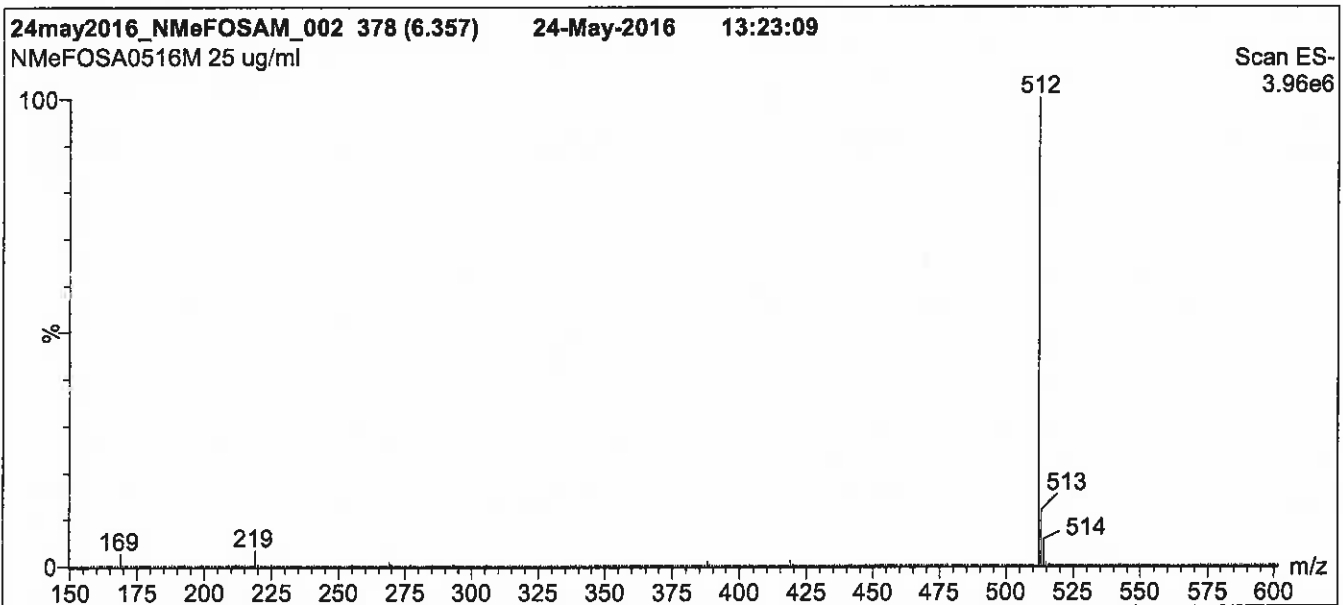
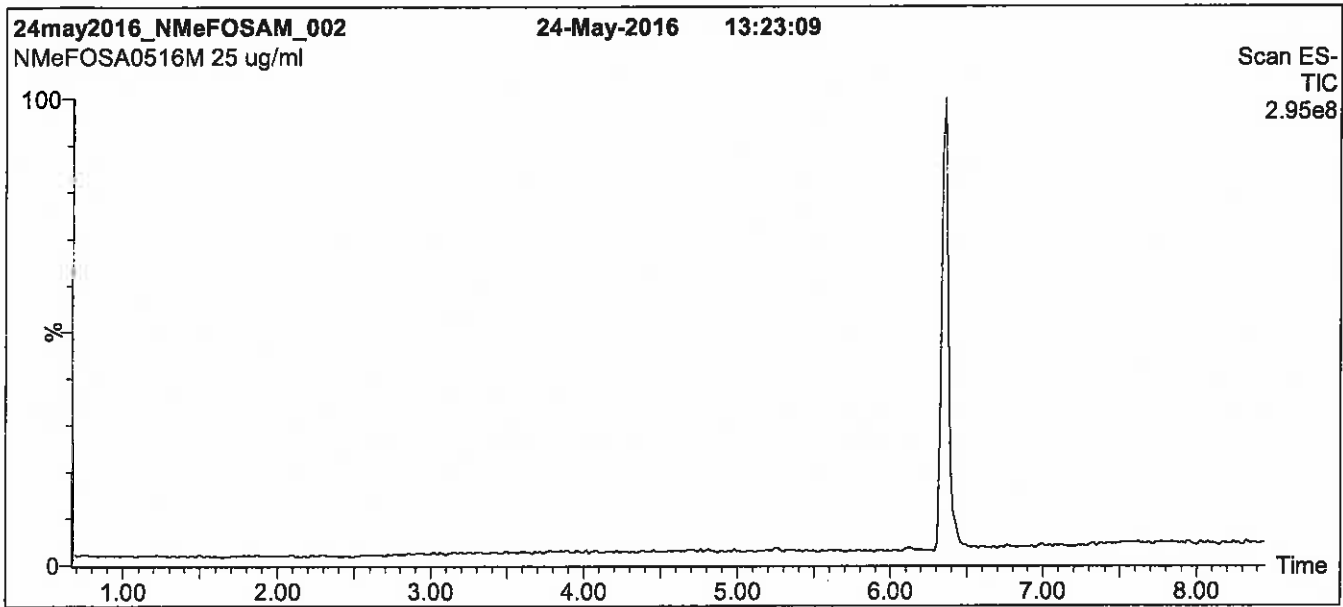
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
 Start: 45% H₂O / 55% (80:20 MeOH:ACN)
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7.5 min and hold for
 1.5 min before returning to initial conditions in 0.5 min.
 Time: 10 min

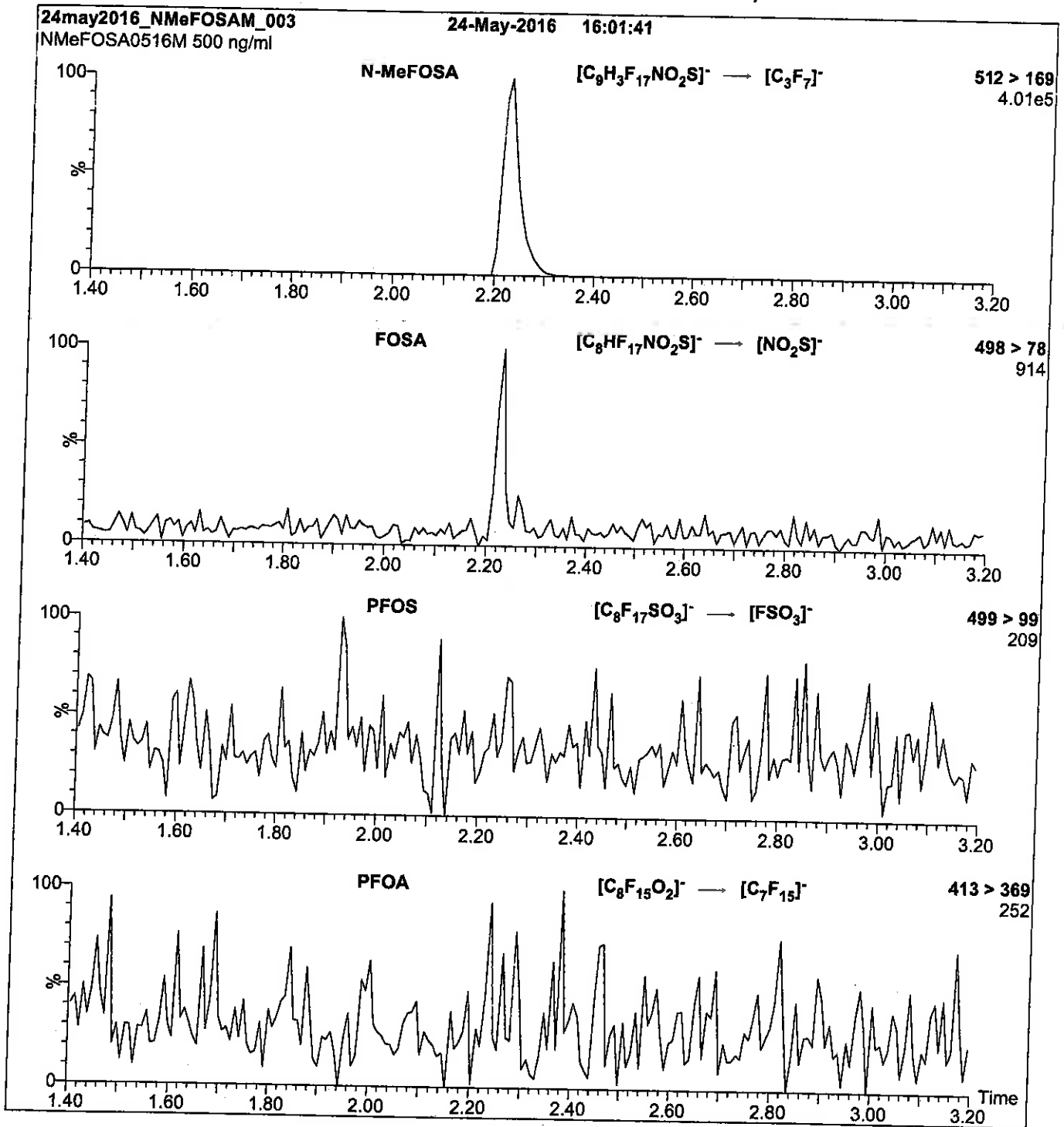
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

MS Parameters

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

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

Flow: 300 μ l/min

Reagent

LCN-MeFOSAA_00003

R: 8/23/16 JAE

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

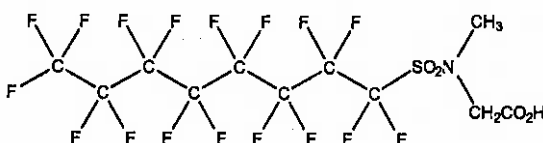


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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSAA **LOT NUMBER:** NMeFOSAA0116
COMPOUND: N-methylperfluoro-1-octanesulfonamidoacetic acid

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



MOLECULAR FORMULA: C₁₁H₈F₁₇NO₄S **MOLECULAR WEIGHT:** 571.21
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/20/2016
EXPIRY DATE: (mm/dd/yyyy) 01/20/2021
RECOMMENDED STORAGE: Refrigerate ampoule


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:  **Date:** 01/21/2016
B.G. Chittim (mm/dd/yyyy)

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

INTENDED USE:

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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UNCERTAINTY:

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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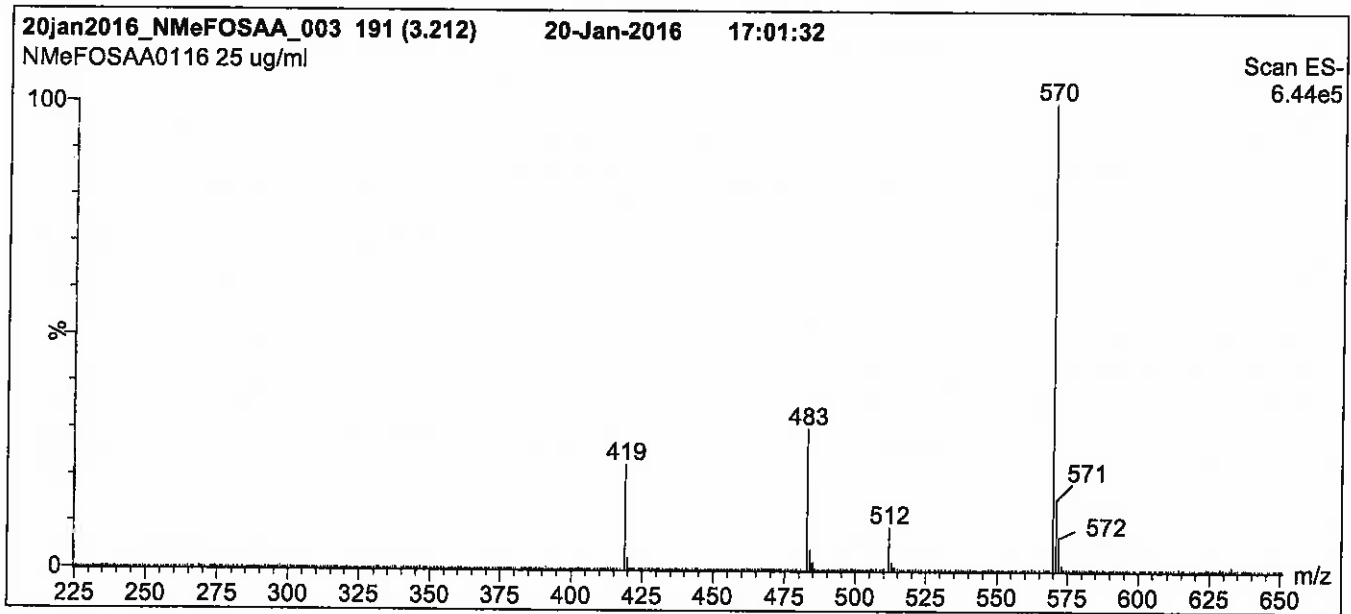
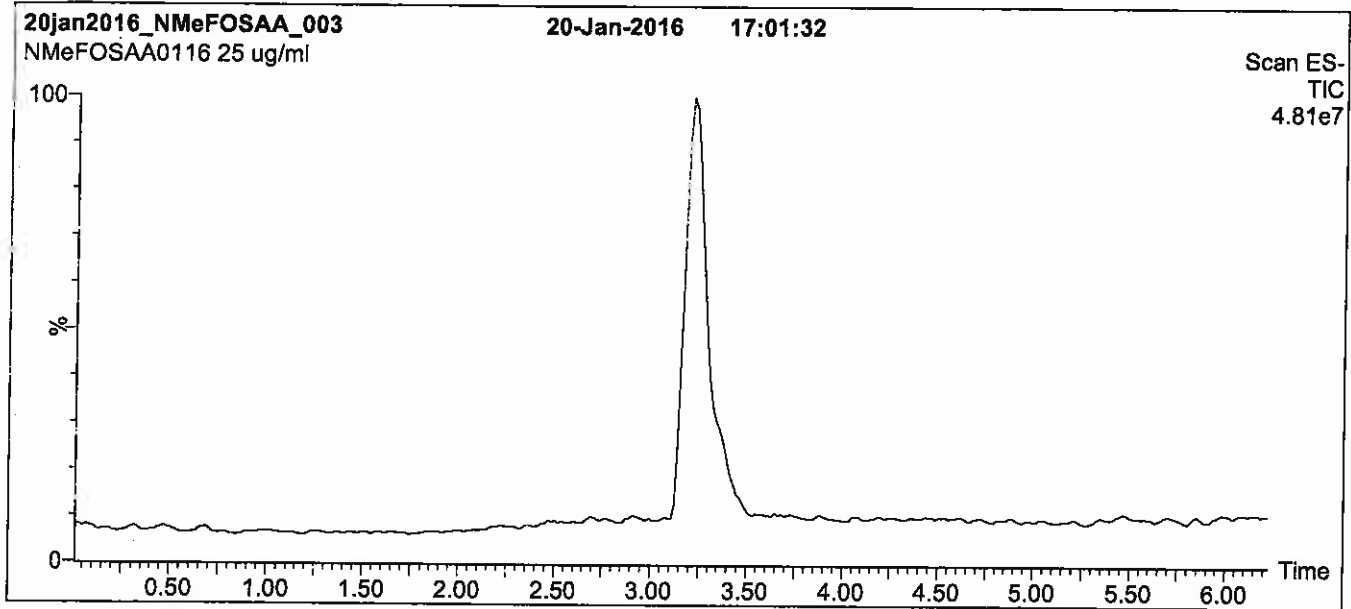
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

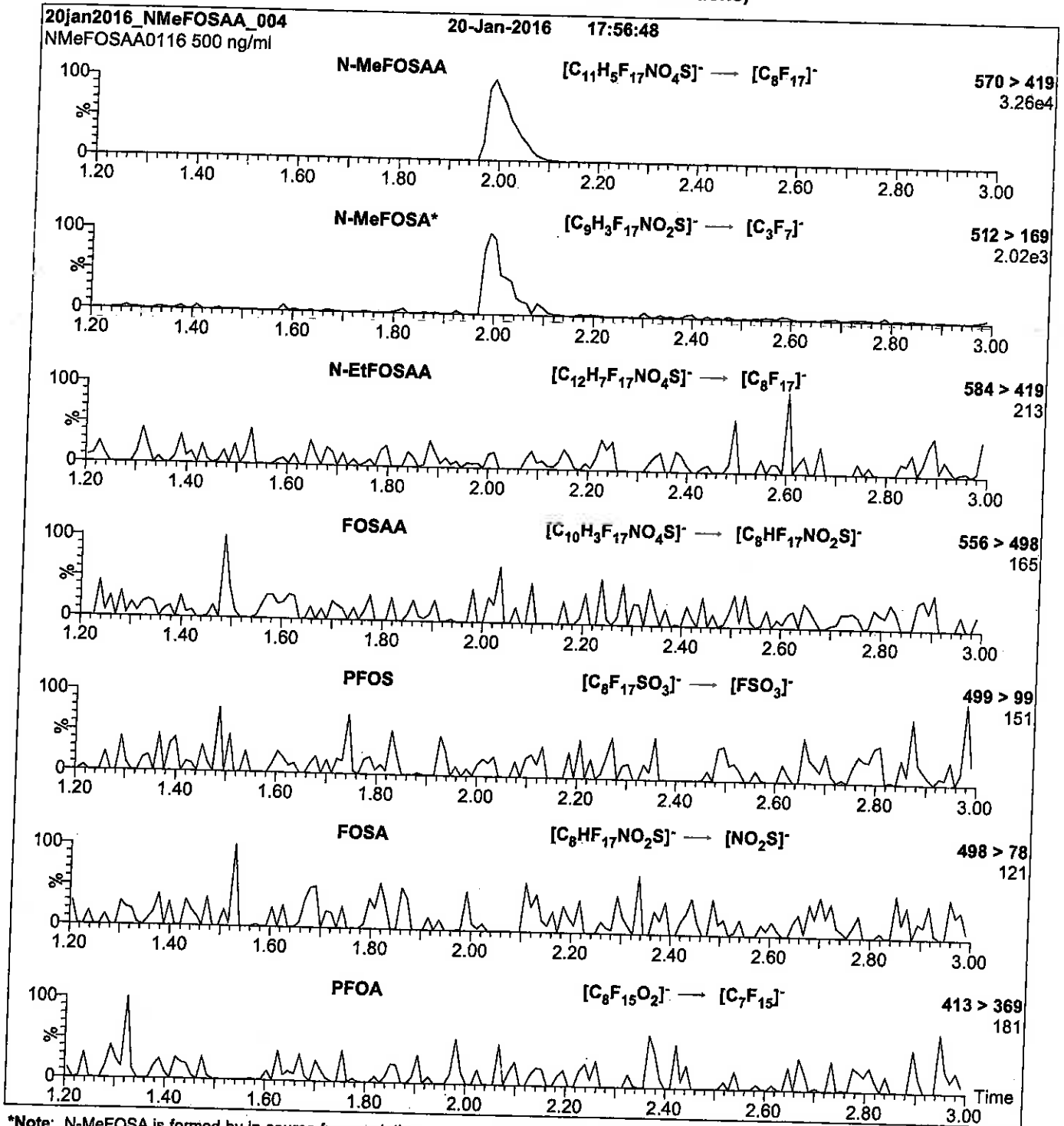
MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

Flow: 300 μ l/min

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



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

Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCPFACMXB_00007



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LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PFAC-MXB

**Solution/Mixture of Native
Perfluoroalkylcarboxylic Acids and
Native Perfluoroalkylsulfonates**

PRODUCT CODE: PFAC-MXB
LOT NUMBER: PFACMXB1115
SOLVENT(S): Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 11/04/2015
LAST TESTED: (mm/dd/yyyy) 11/06/2015
EXPIRY DATE: (mm/dd/yyyy) 11/06/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

PFAC-MXB is a solution/mixture of thirteen native perfluoroalkylcarboxylic acids (C₄-C₁₄, C₁₆, and C₁₈) and four native perfluoroalkylsulfonates (C₄, C₆, C₈ and C₁₀). The full name, abbreviation and concentration for each of the components are given in Table A.

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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INTENDED USE:

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:

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HOMOGENEITY:

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UNCERTAINTY:

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

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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QUALITY MANAGEMENT:


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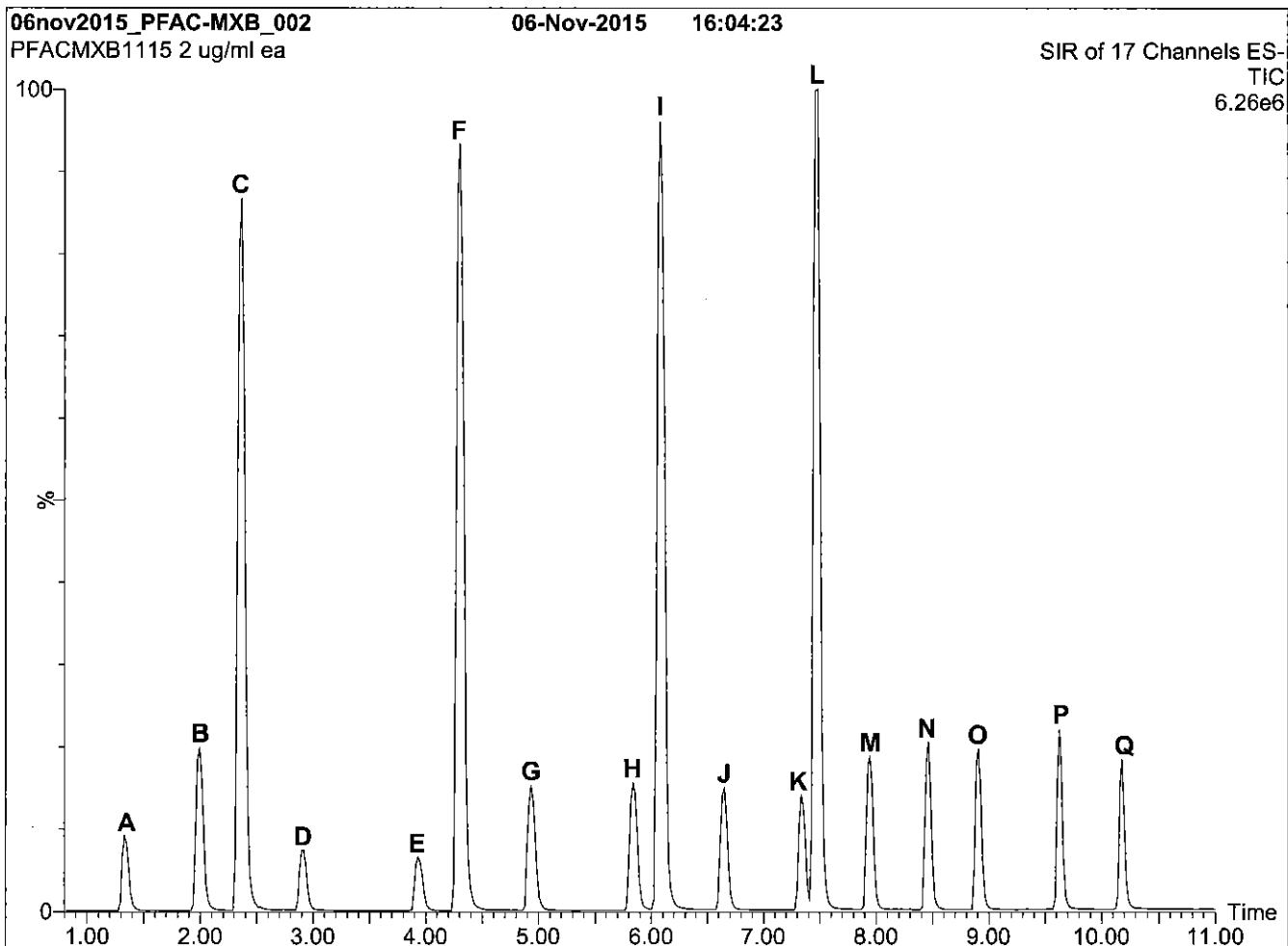
Table A: PFAC-MXB; Components and Concentrations (ng/ml, ± 5% in Methanol / Water (<1%))

Name	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Perfluoro-n-butanoic acid	PFBA	2000		A
Perfluoro-n-pentanoic acid	PFPeA	2000		B
Perfluoro-n-hexanoic acid	PFHxA	2000		D
Perfluoro-n-heptanoic acid	PFHpA	2000		E
Perfluoro-n-octanoic acid	PFOA	2000		G
Perfluoro-n-nonanoic acid	PFNA	2000		H
Perfluoro-n-decanoic acid	PFDA	2000		J
Perfluoro-n-undecanoic acid	PFUdA	2000		K
Perfluoro-n-dodecanoic acid	PFDoA	2000		M
Perfluoro-n-tridecanoic acid	PFTrDA	2000		N
Perfluoro-n-tetradecanoic acid	PFTeDA	2000		O
Perfluoro-n-hexadecanoic acid	PFHxDA	2000		P
Perfluoro-n-octadecanoic acid	PFODA	2000		Q
Name	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanesulfonate	L-PFBS	2000	1770	C
Sodium perfluoro-1-hexanesulfonate	L-PFHxS	2000	1890	F
Sodium perfluoro-1-octanesulfonate	L-PFOS	2000	1910	I
Sodium perfluoro-1-decanesulfonate	L-PFDS	2000	1930	L

Certified By: 
B.G. Chittim

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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

Time: 12 min

Flow: 300 μ l/min

MS Parameters

Experiment: SIR of 17 Channels

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

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

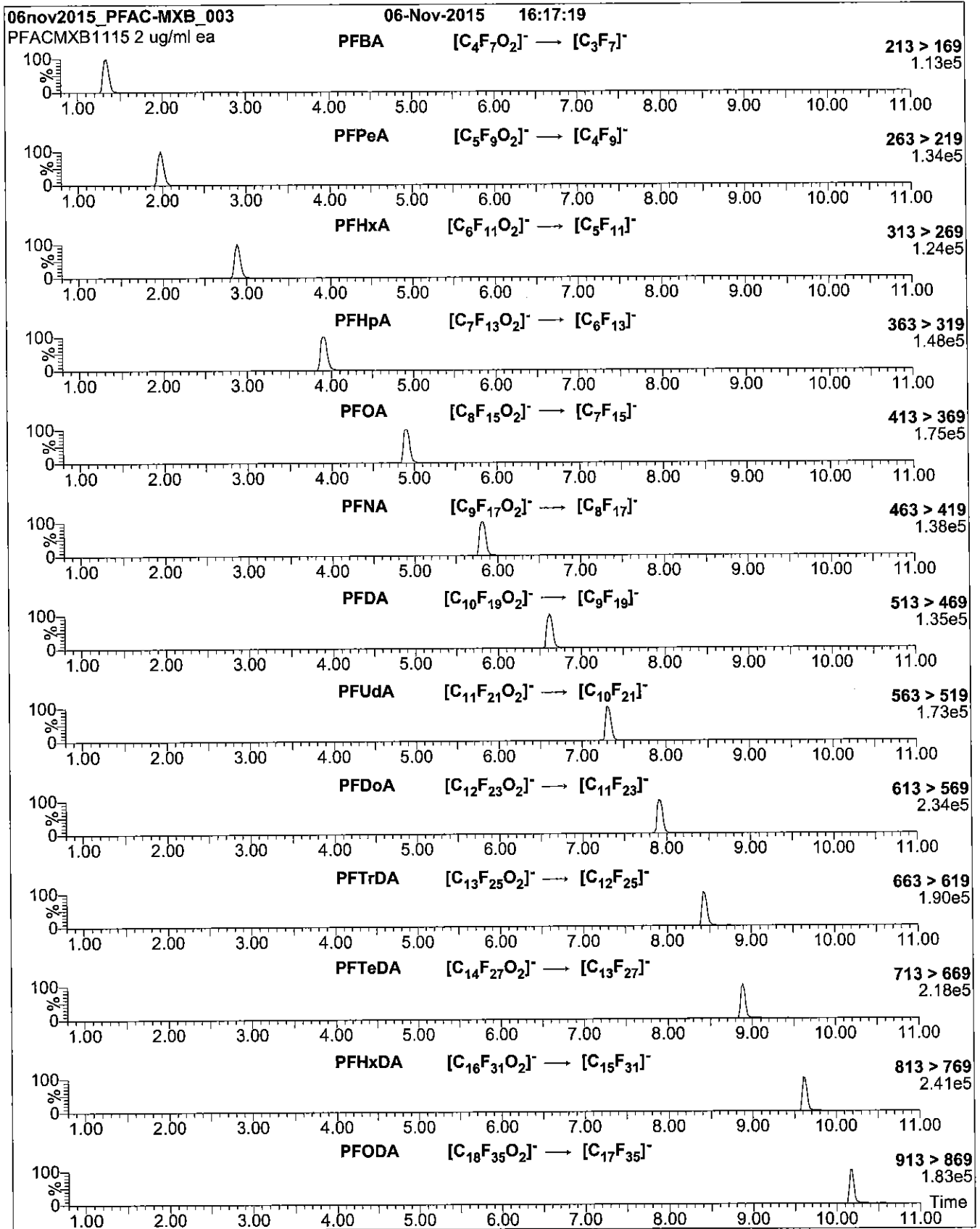
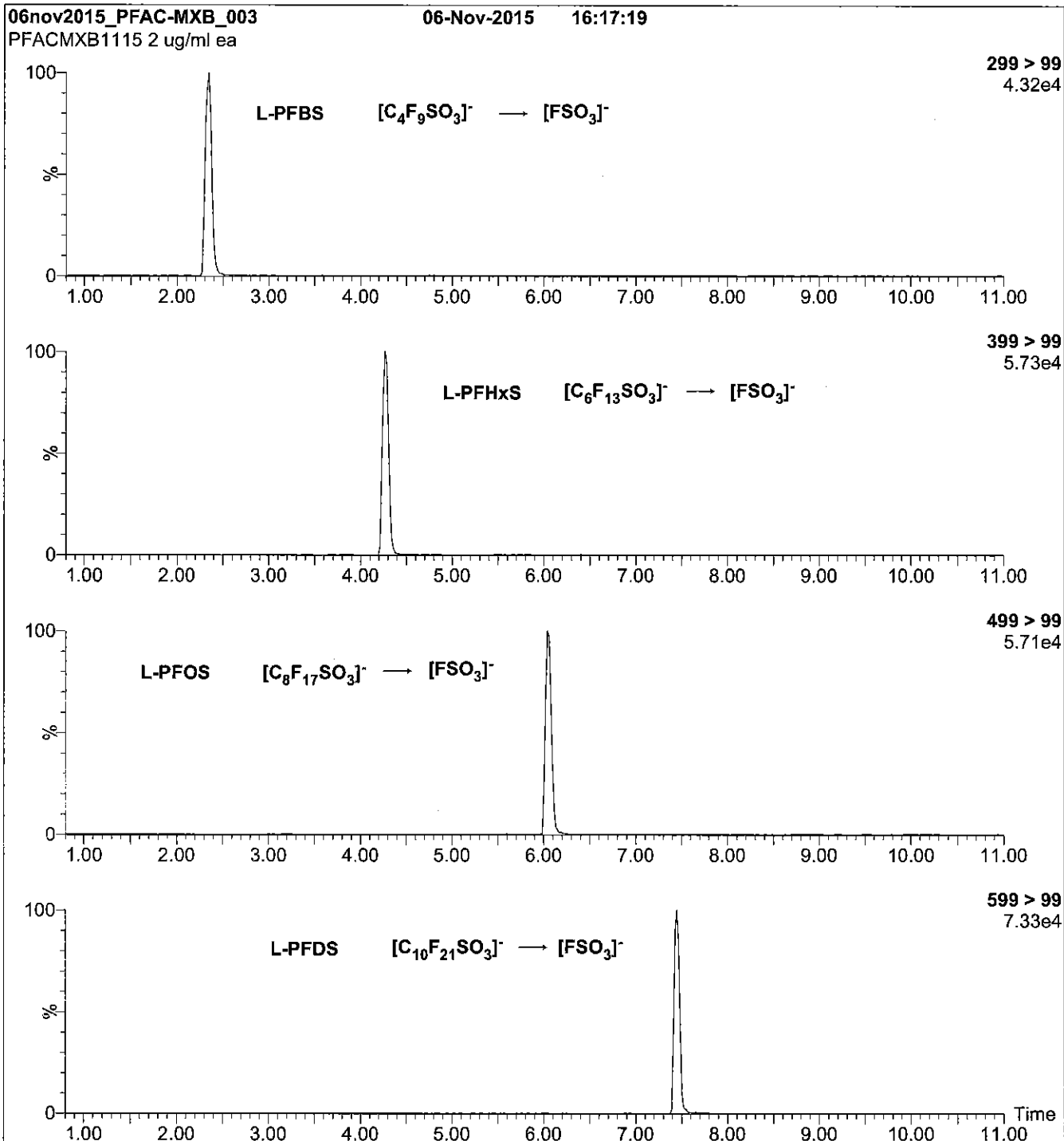


Figure 3: PFAC-MXB; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figures 2 and 3:

Injection: on-column (PFAC-MXB)
 Mobile phase: Same as Figure 1
 Flow: 300 μ /min

MS Parameters
 Collision Gas (mbar) = 3.24e-3
 Collision Energy (eV) = 8-50 (variable)

Reagent

LCPFBA_00005

Scanned
10/16/14

R: SBC 9/13/16



730531
ID: LCPFBA_00005
Exp: 05/27/21 Prpd: SBC
PF-n-butanolic acid



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



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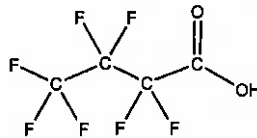
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: PFBA0516

STRUCTURE:

CAS #: 375-22-4



MOLECULAR FORMULA: C₄HF₇O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 214.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/27/2016
EXPIRY DATE: (mm/dd/yyyy) 05/27/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 05/31/2016
(mm/dd/yyyy)

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

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HOMOGENEITY:

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

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

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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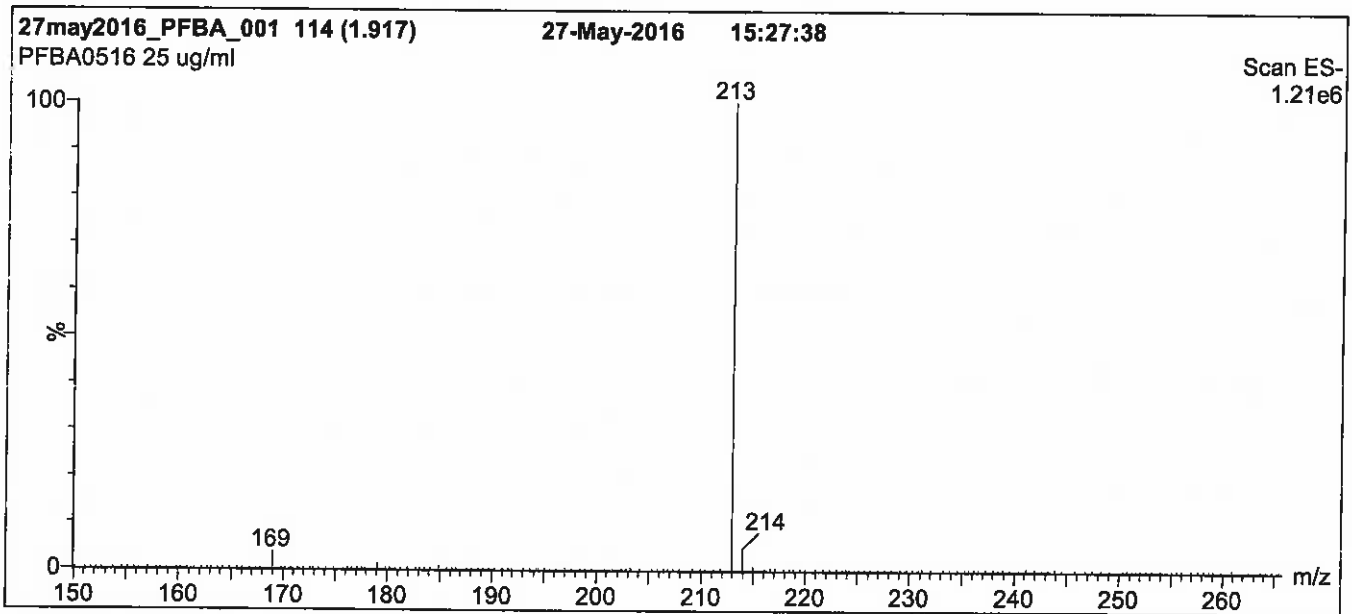
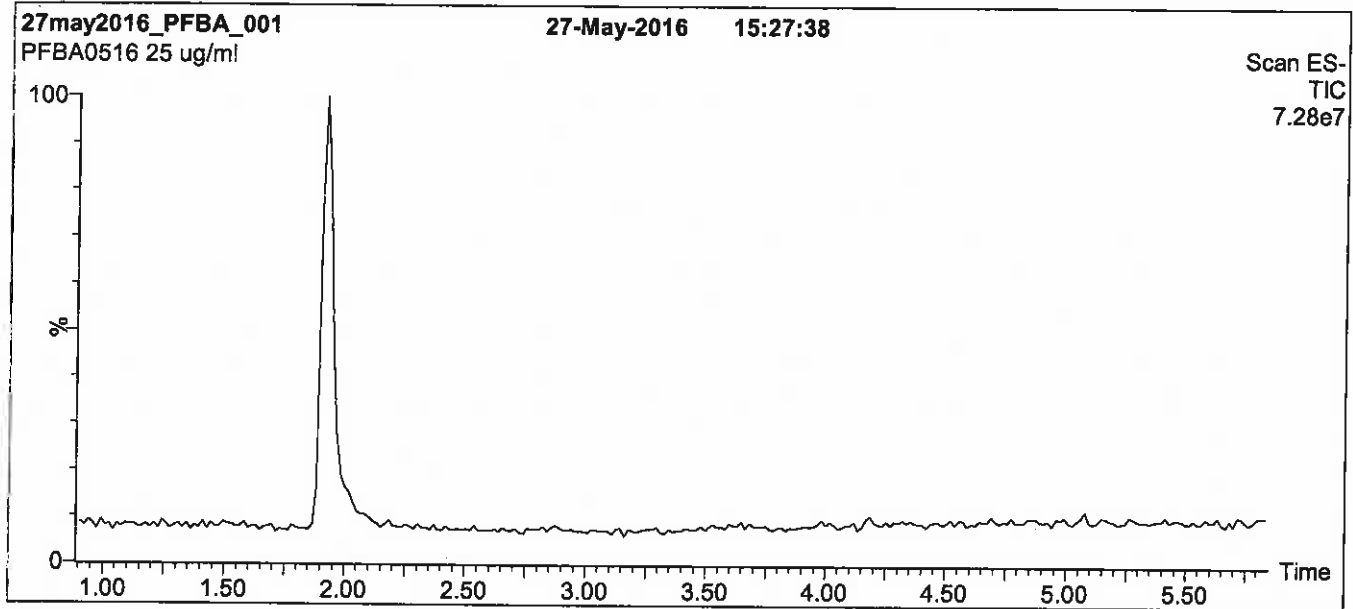
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

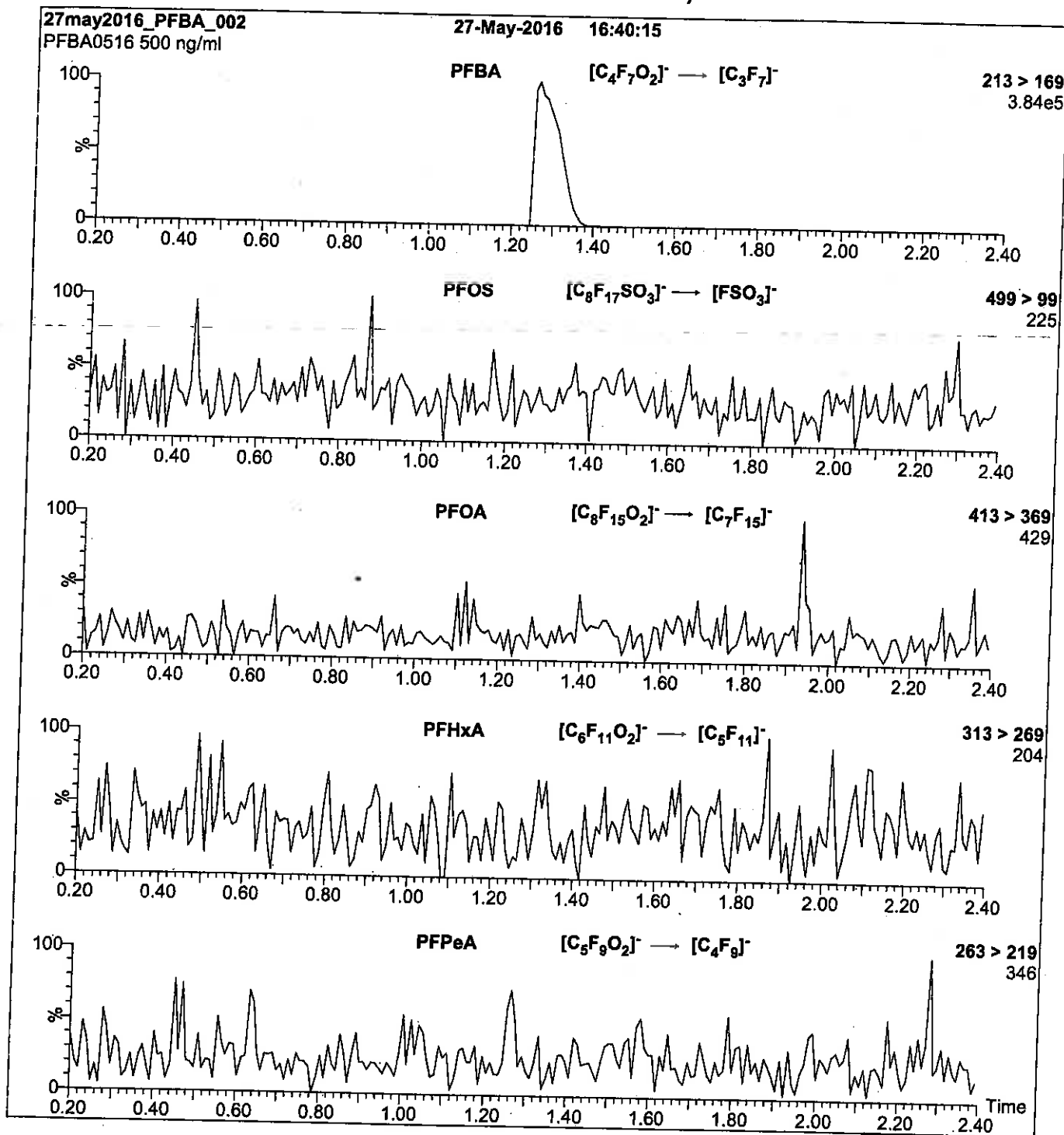
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCPFBS_00005

R: 9/9/16 gbe



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

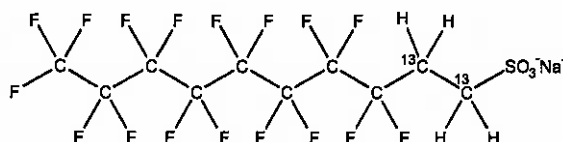


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0116
COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-¹³C₂]decane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	¹³ C ₂ ¹² C ₈ H ₄ F ₁₇ SO ₃ Na	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)	ISOTOPIC PURITY:	≥99% ¹³ C
CHEMICAL PURITY:	>98%		(1,2- 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 8:2FTS contains 4.22% of ³⁴S (due to natural isotopic abundance) therefore both native 8:2FTS and M2-8:2FTS will produce signals in the m/z 529 to m/z 509 channel during SRM analysis. We recommend using the m/z 529 to m/z 81 transition to monitor for M2-8:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim

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

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

INTENDED USE:

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HAZARDS:

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EXPIRY DATE / PERIOD OF VALIDITY:

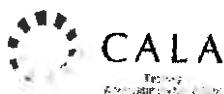
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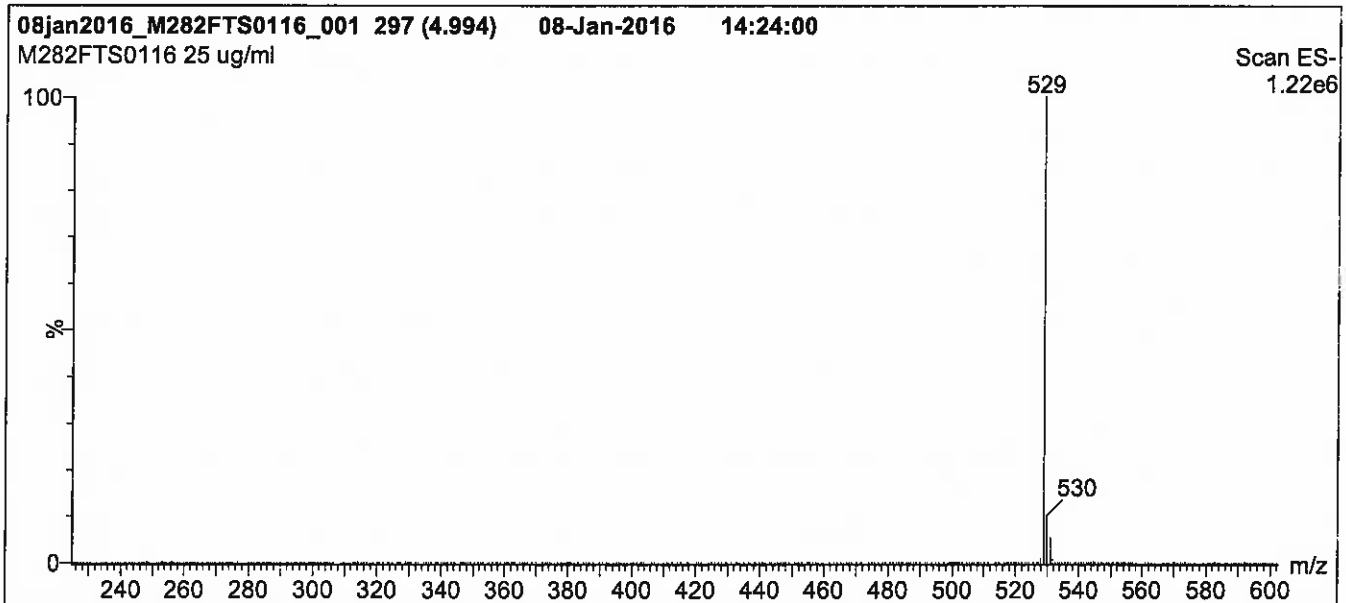
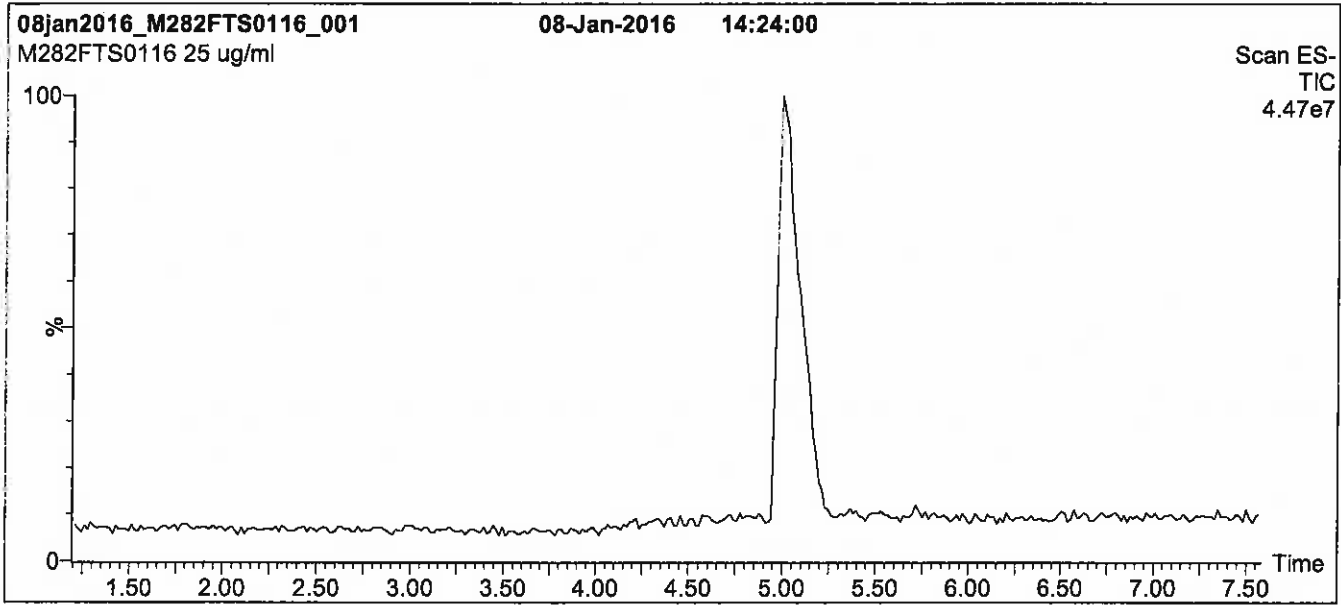
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

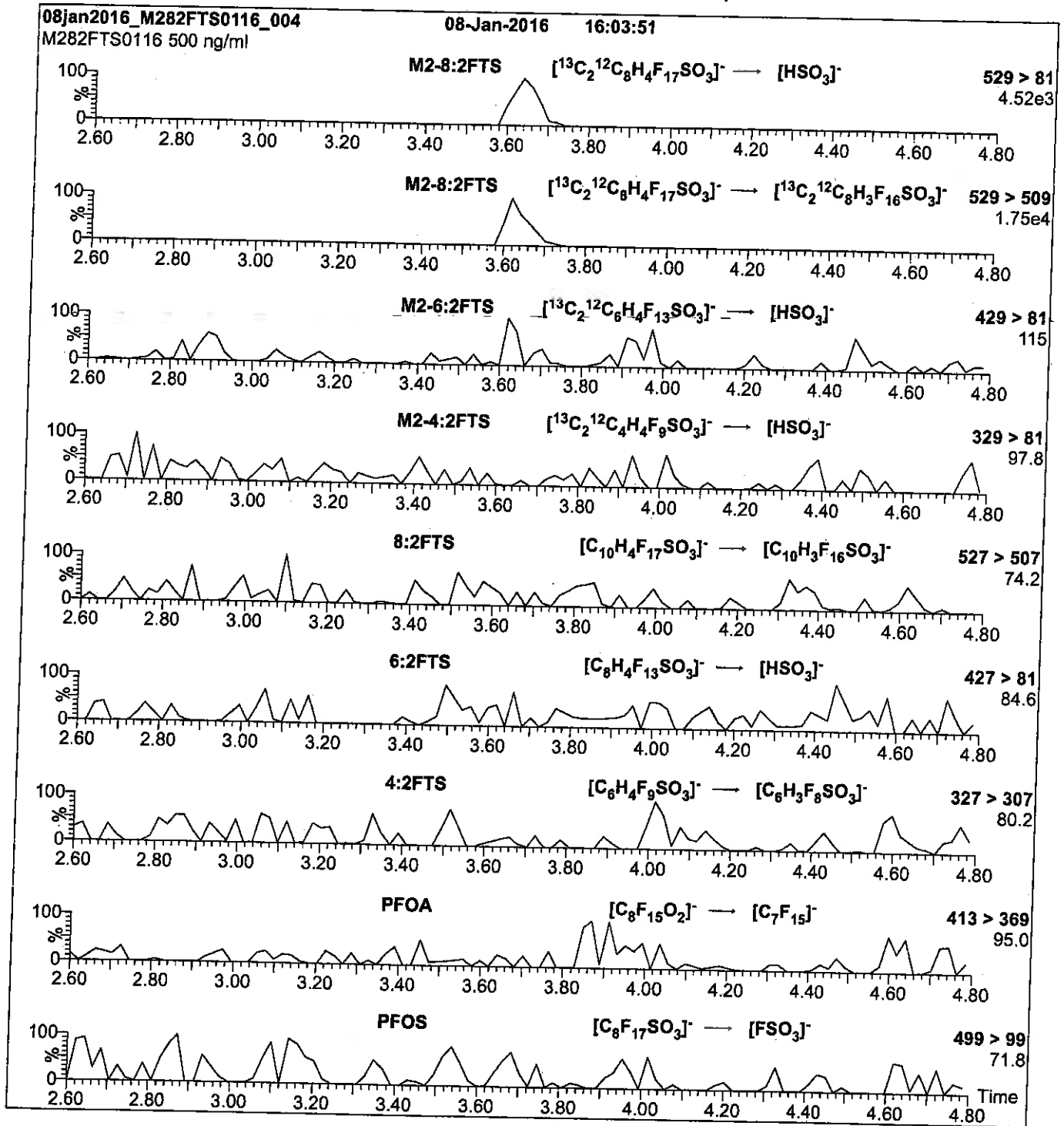
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

Figure 2: M2-8:2FTS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M2-8:2FTS)

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

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

MS Parameters

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

R: SBC 9/13/16



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



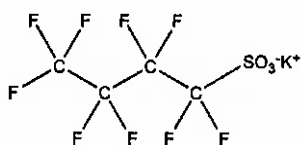
730512
ID: LCPFBS_00006
Exp: 03/15/21 Pripd: SBC
PF-1-butanesulfonate K sa



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: C₄F₉SO₃K **MOLECULAR WEIGHT:** 338.19
CONCENTRATION: 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol
44.2 ± 2.2 µg/ml (PFBS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 03/15/2016
EXPIRY DATE: (mm/dd/yyyy) 03/15/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

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

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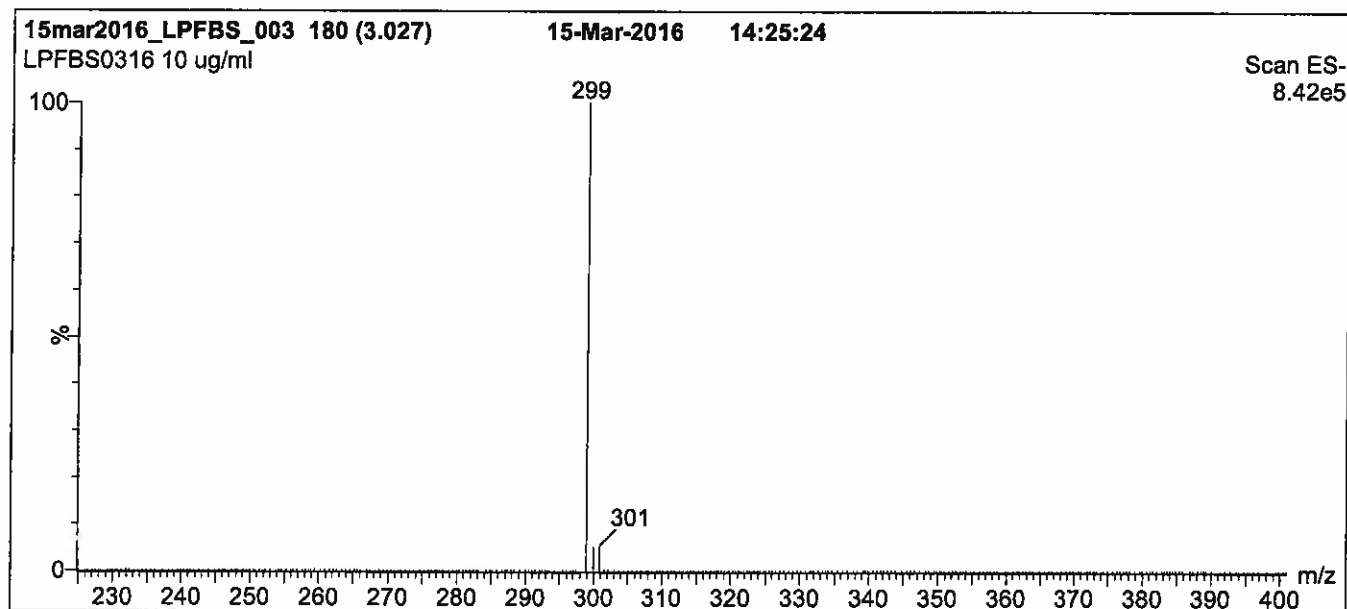
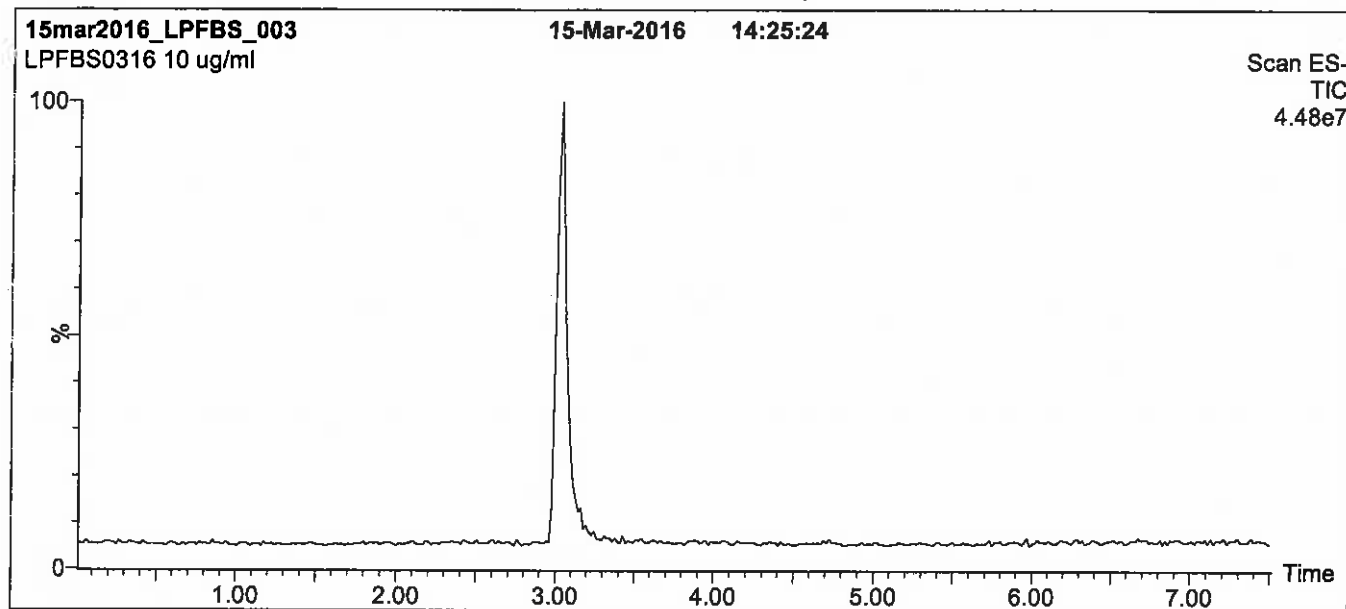
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Figure 1: L-PFBS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

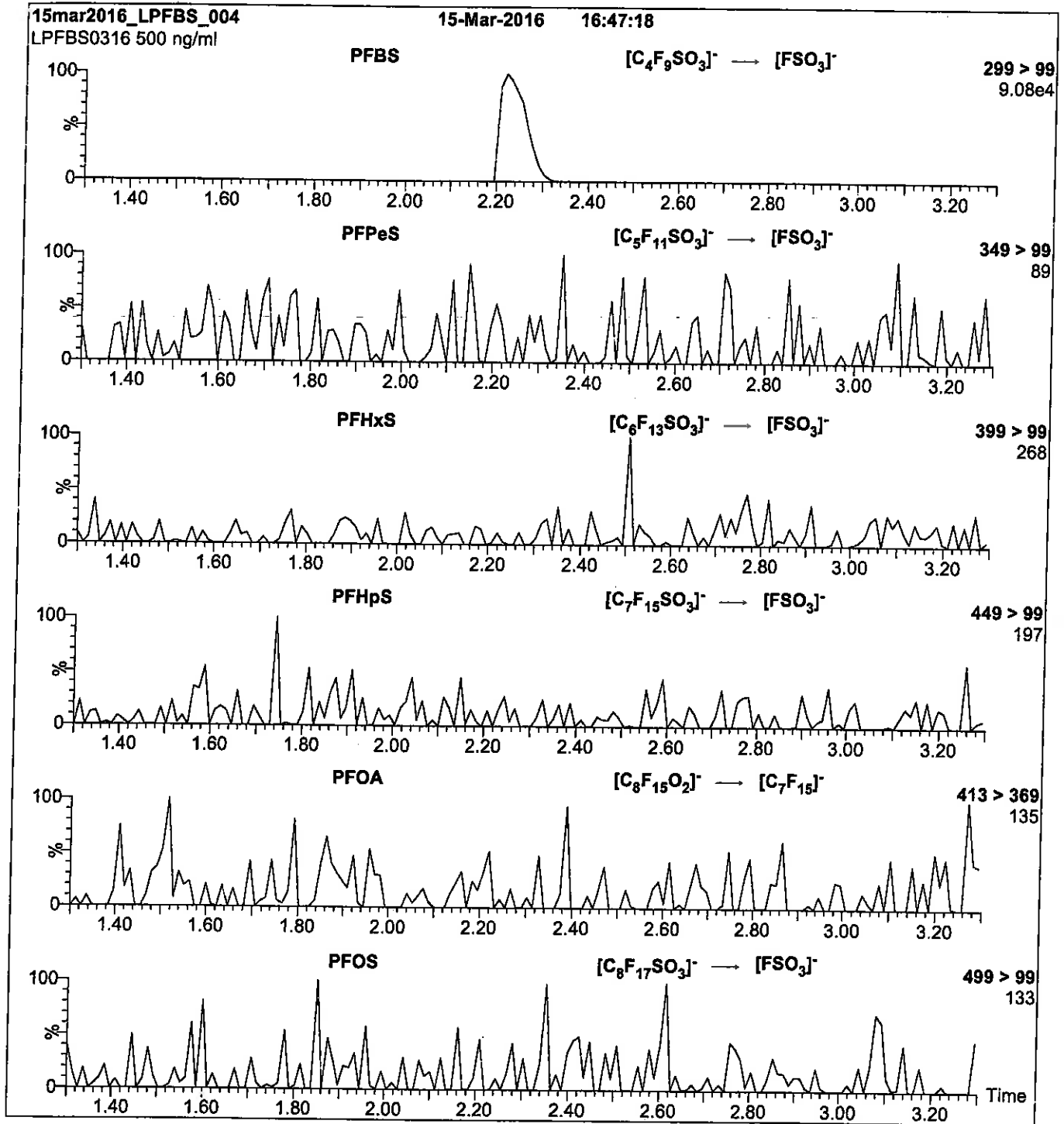
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCPFDA_00005

R: 7/16/16 CBW



671576
ID: LCPFDA_00305
Exp: 07/02/20 Pipd: CBW
PF-n-decanoic acid

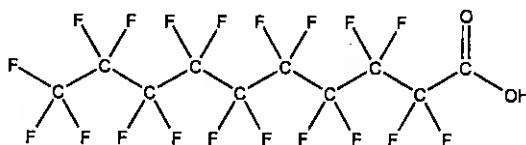


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFDA **LOT NUMBER:** PFDA0615
COMPOUND: Perfluoro-n-decanoic acid

STRUCTURE: **CAS #:** 335-76-2



MOLECULAR FORMULA: $C_{10}HF_{19}O_2$ **MOLECULAR WEIGHT:** 514.08
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/02/2015
EXPIRY DATE: (mm/dd/yyyy) 07/02/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

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

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

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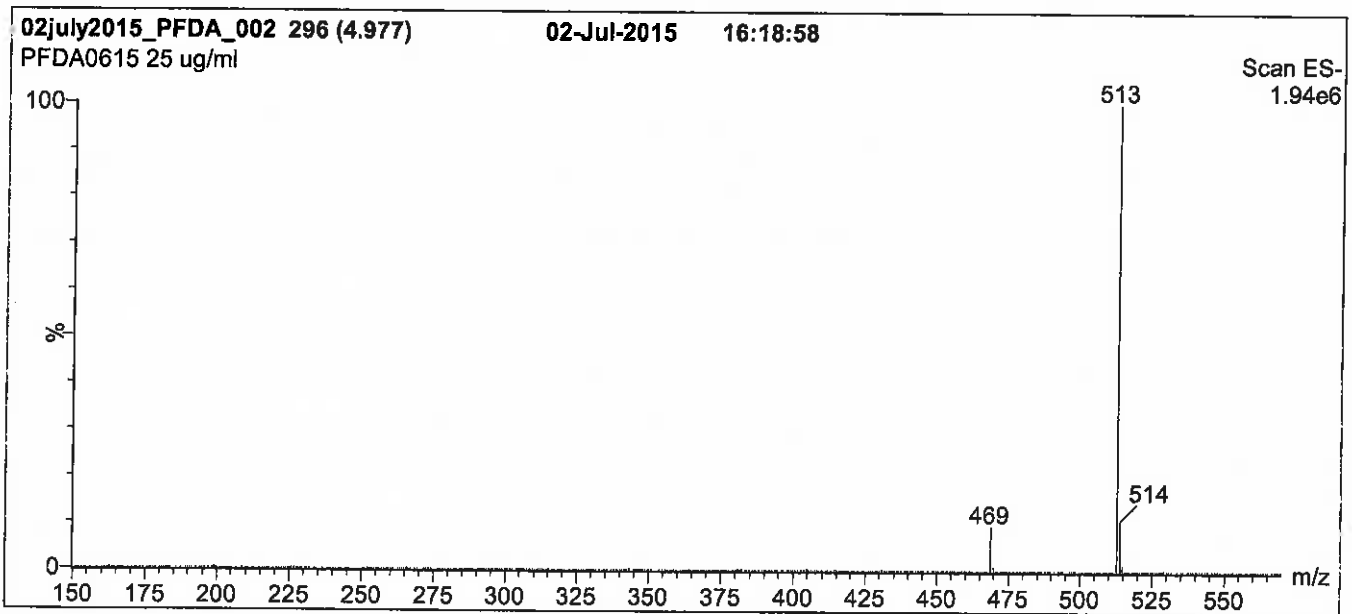
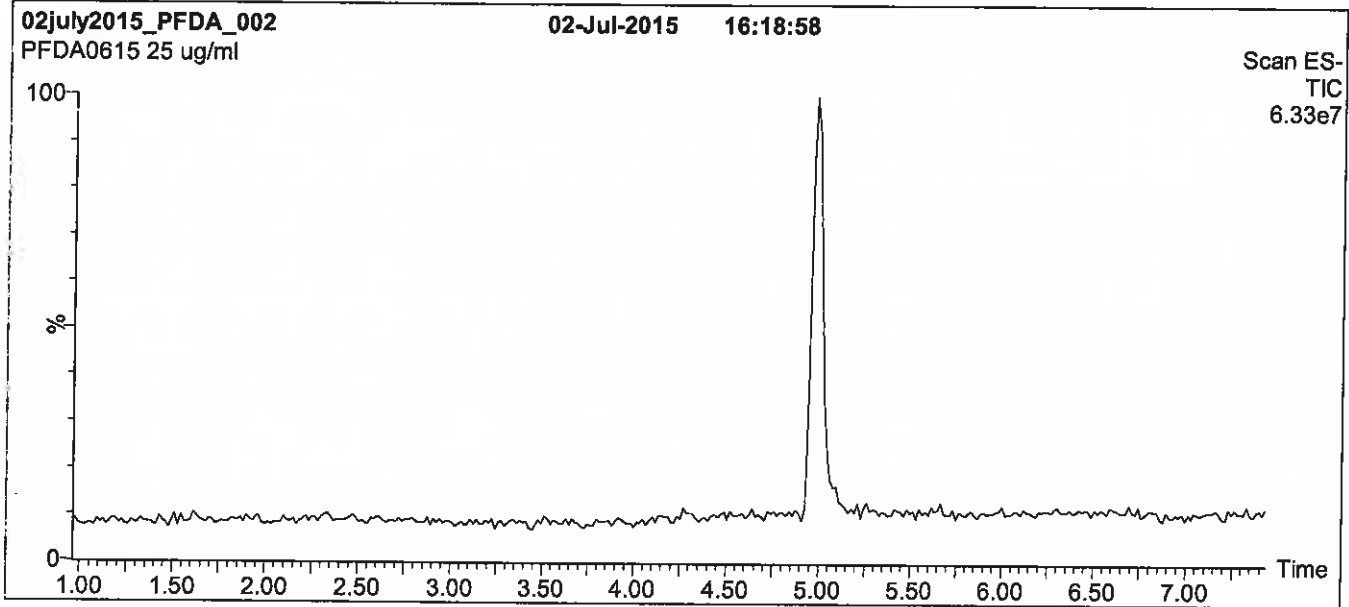
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MS: Micromass Quattro *micro* API MS

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1.7 μ m, 2.1 x 100 mm

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

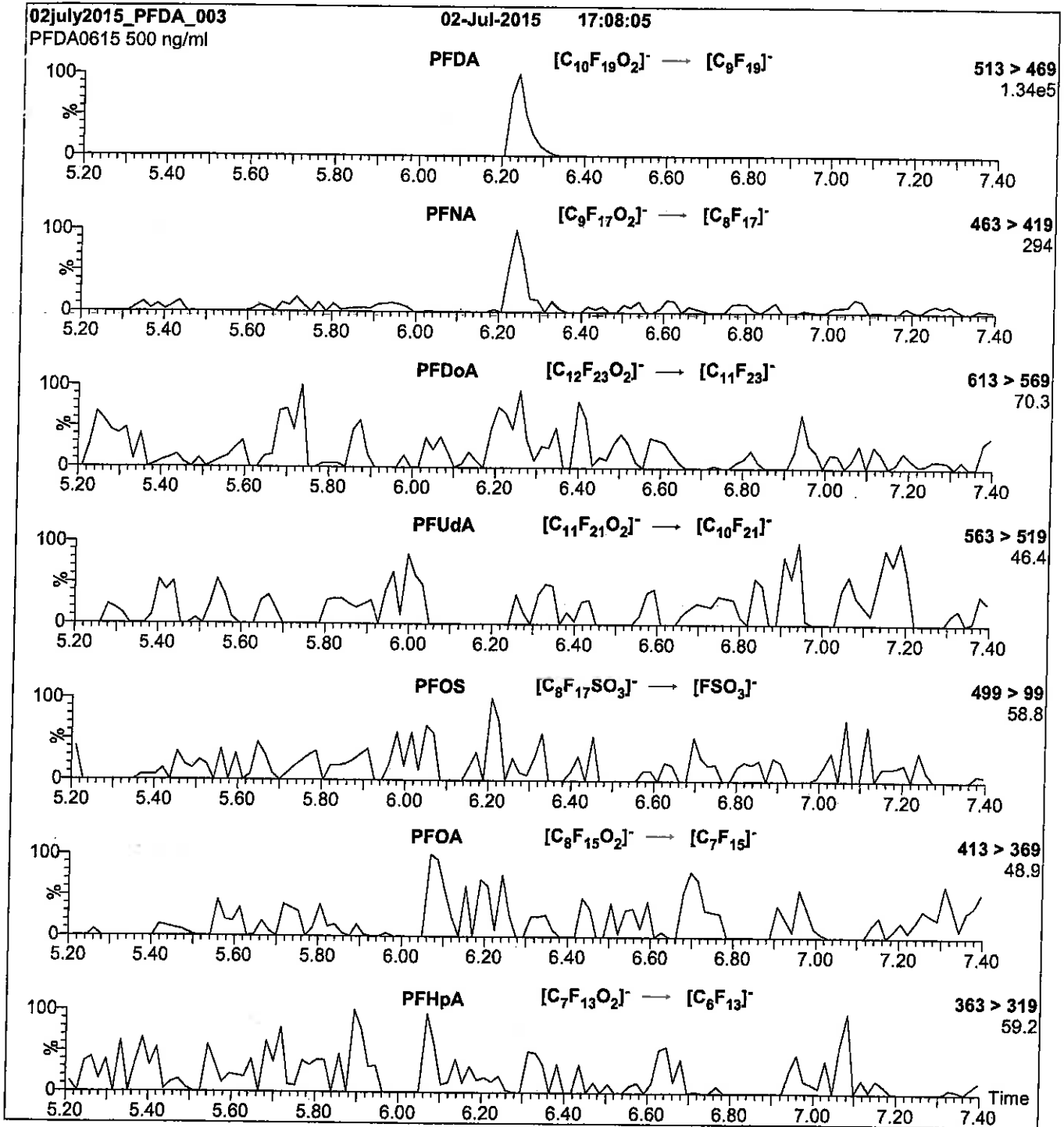
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCPFDoA_00005

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

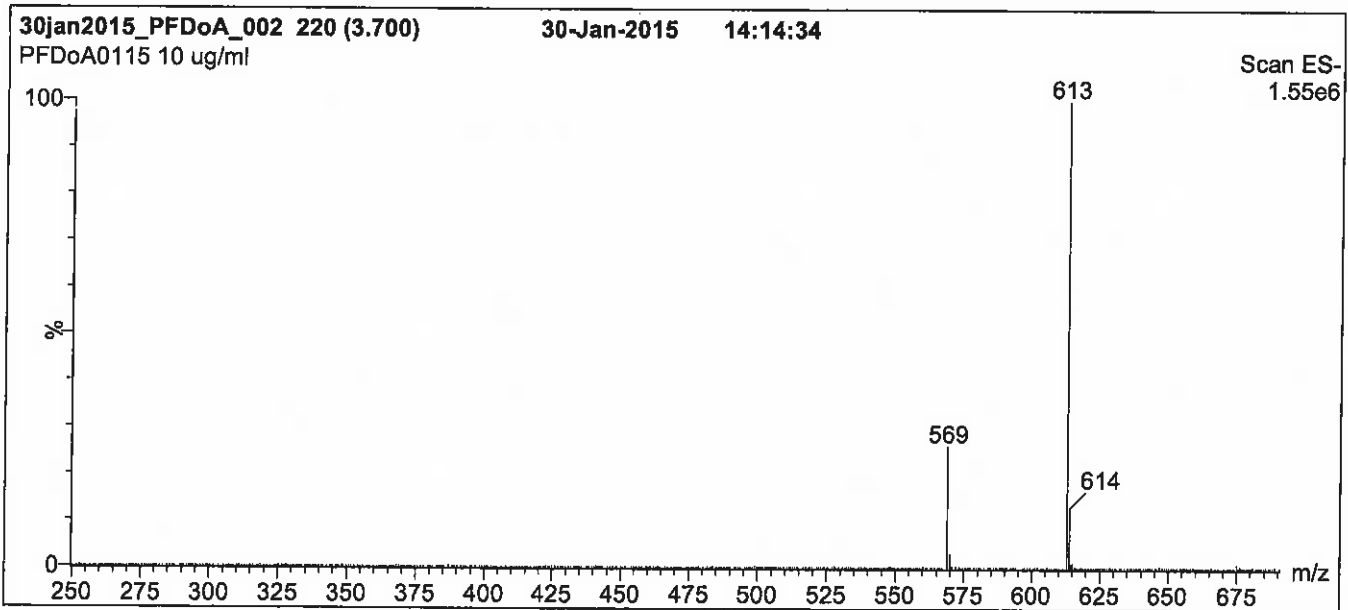
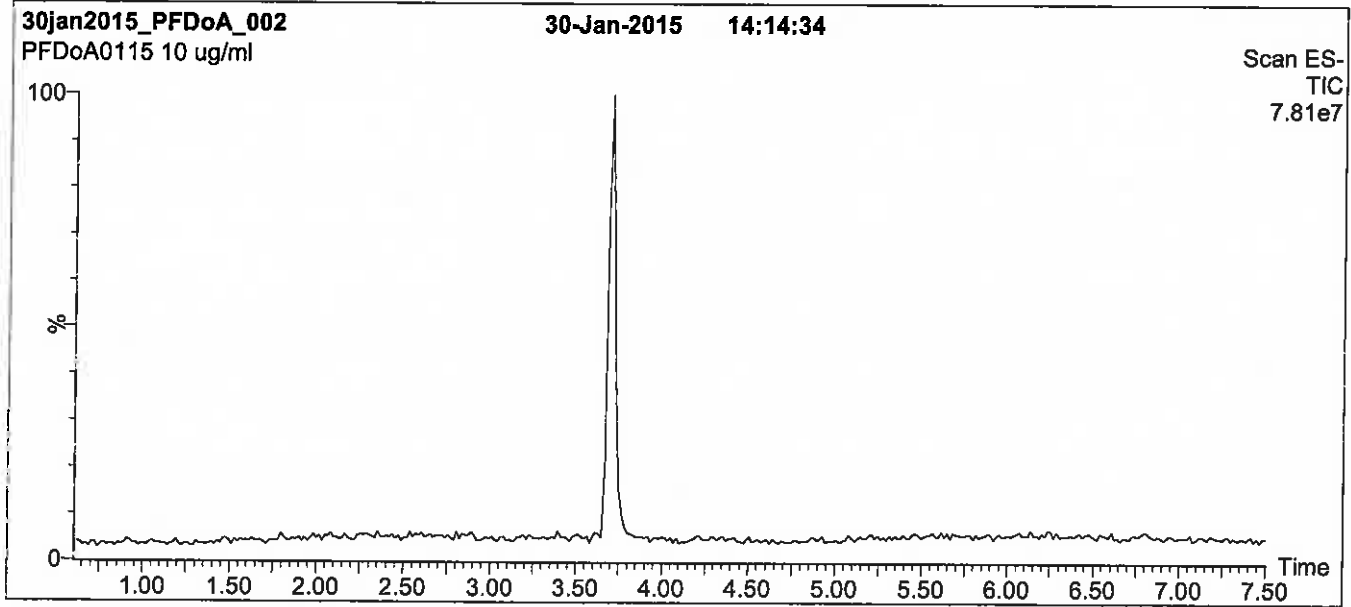
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

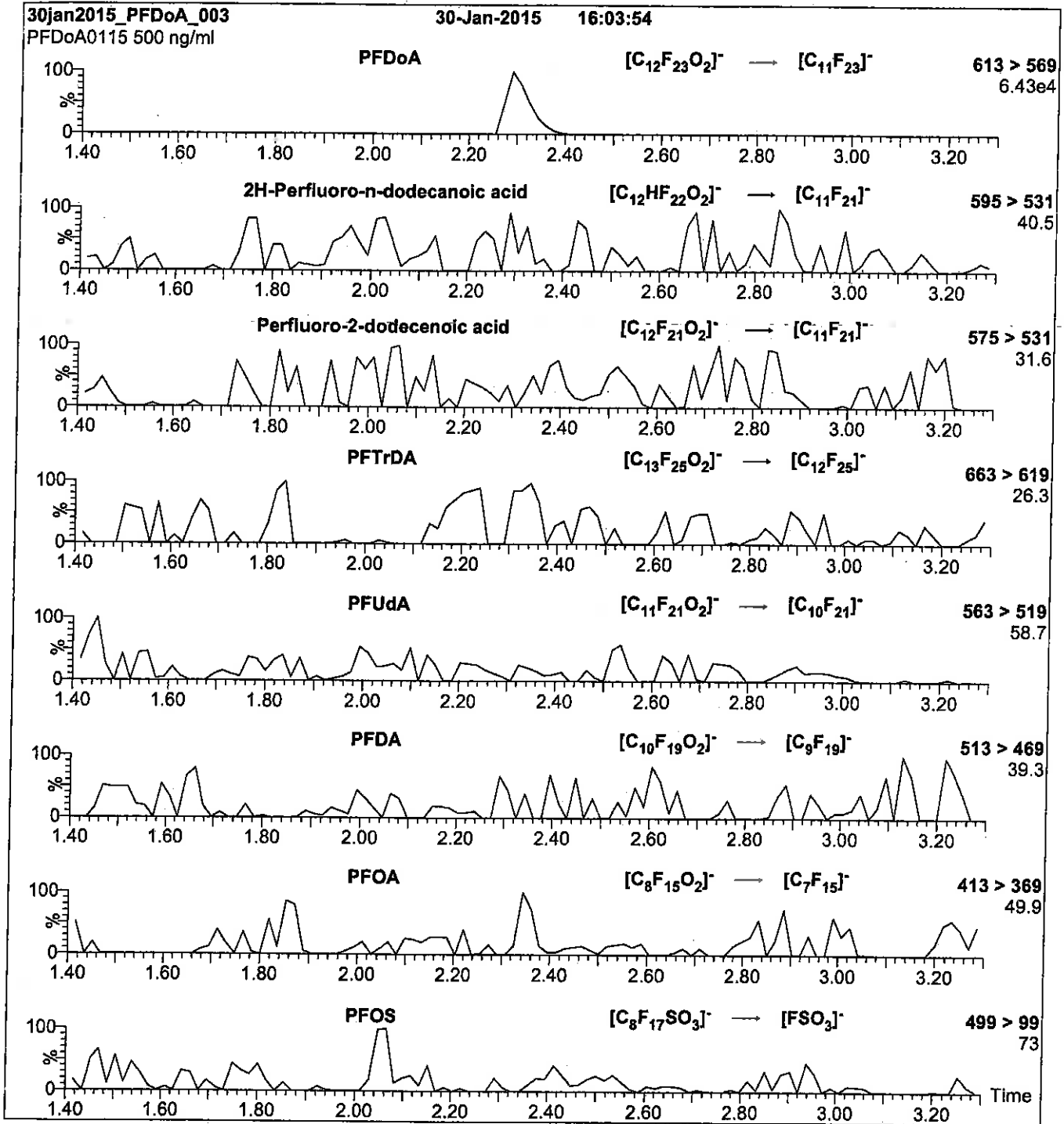
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1000 amu)

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

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



Conditions for Figure 2:

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

MS Parameters

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

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

Flow: 300 μ l/min

Reagent

LCPFHpA_00006

Scanned R: 8BC 9/13/16
10/14/16 JK



730517
ID: LCPFHpa_00006
Exp: 01/22/21 Prpd: SBC
PF-n-heptanoic acid



730518
ID: LCPFHpa_00007
Exp: 01/22/21 Prpd: SBC
PF-n-heptanoic acid



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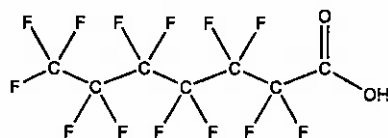
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: PFHpA0116

STRUCTURE:

CAS #: 375-85-9



MOLECULAR FORMULA: C₇HF₁₃O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 364.06
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/22/2016
EXPIRY DATE: (mm/dd/yyyy) 01/22/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim

Date: 02/02/2016
(mm/dd/yyyy)

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

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

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

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

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LIMITED WARRANTY:

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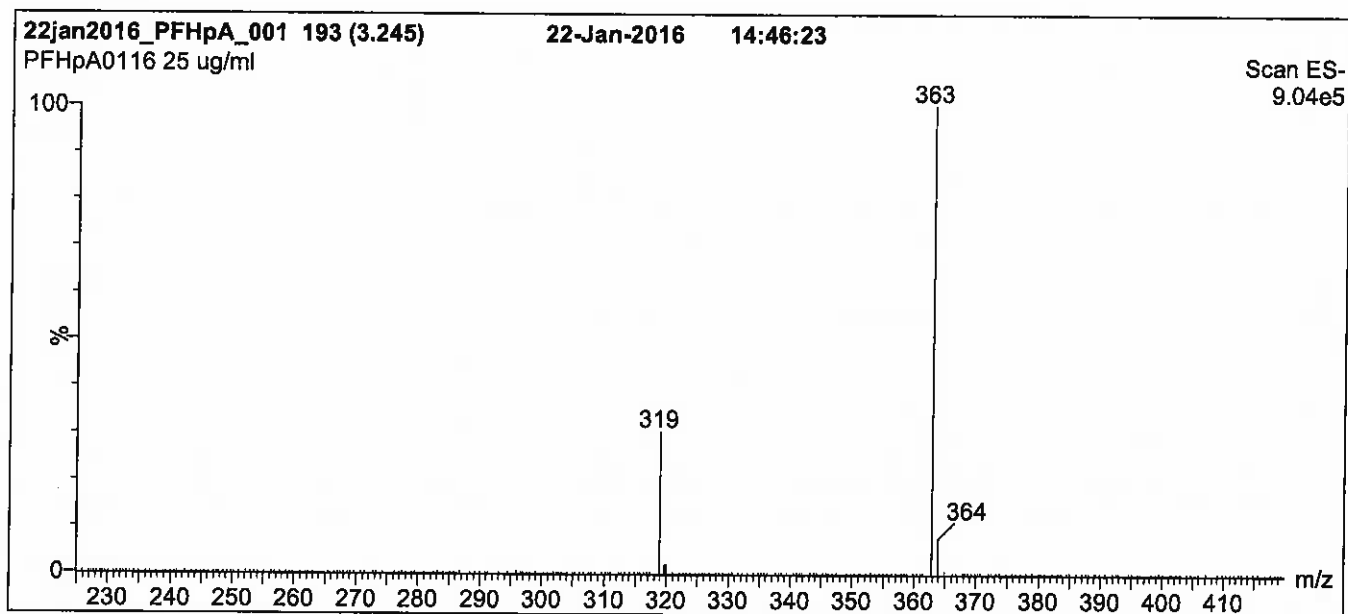
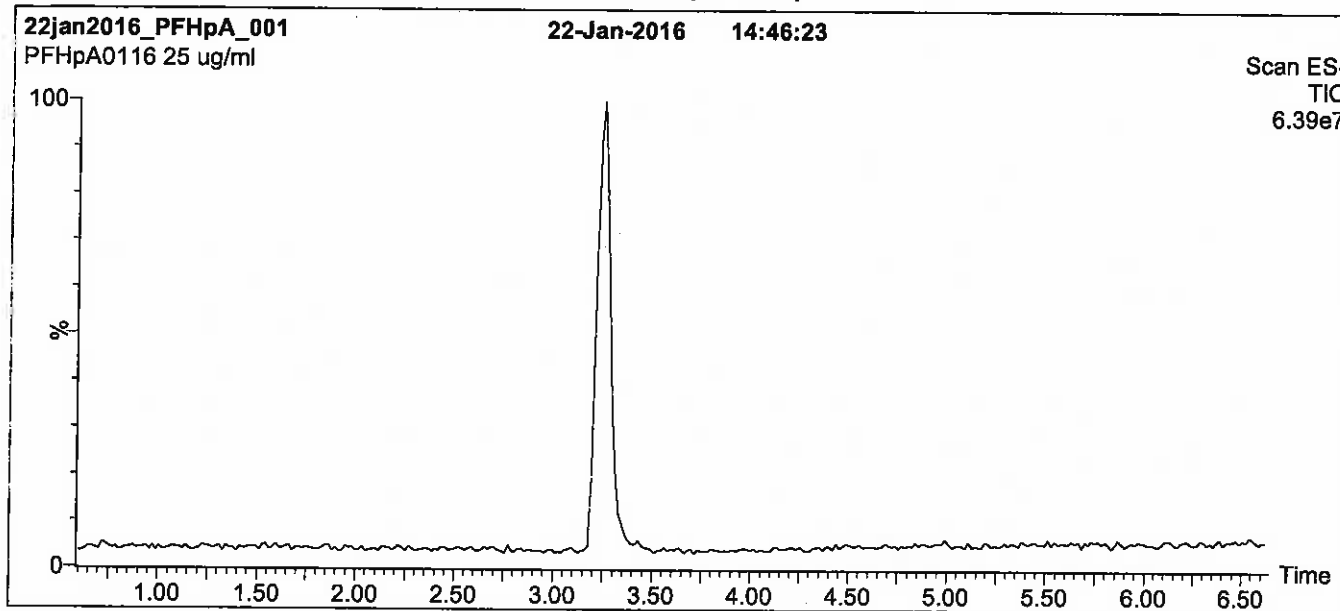
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

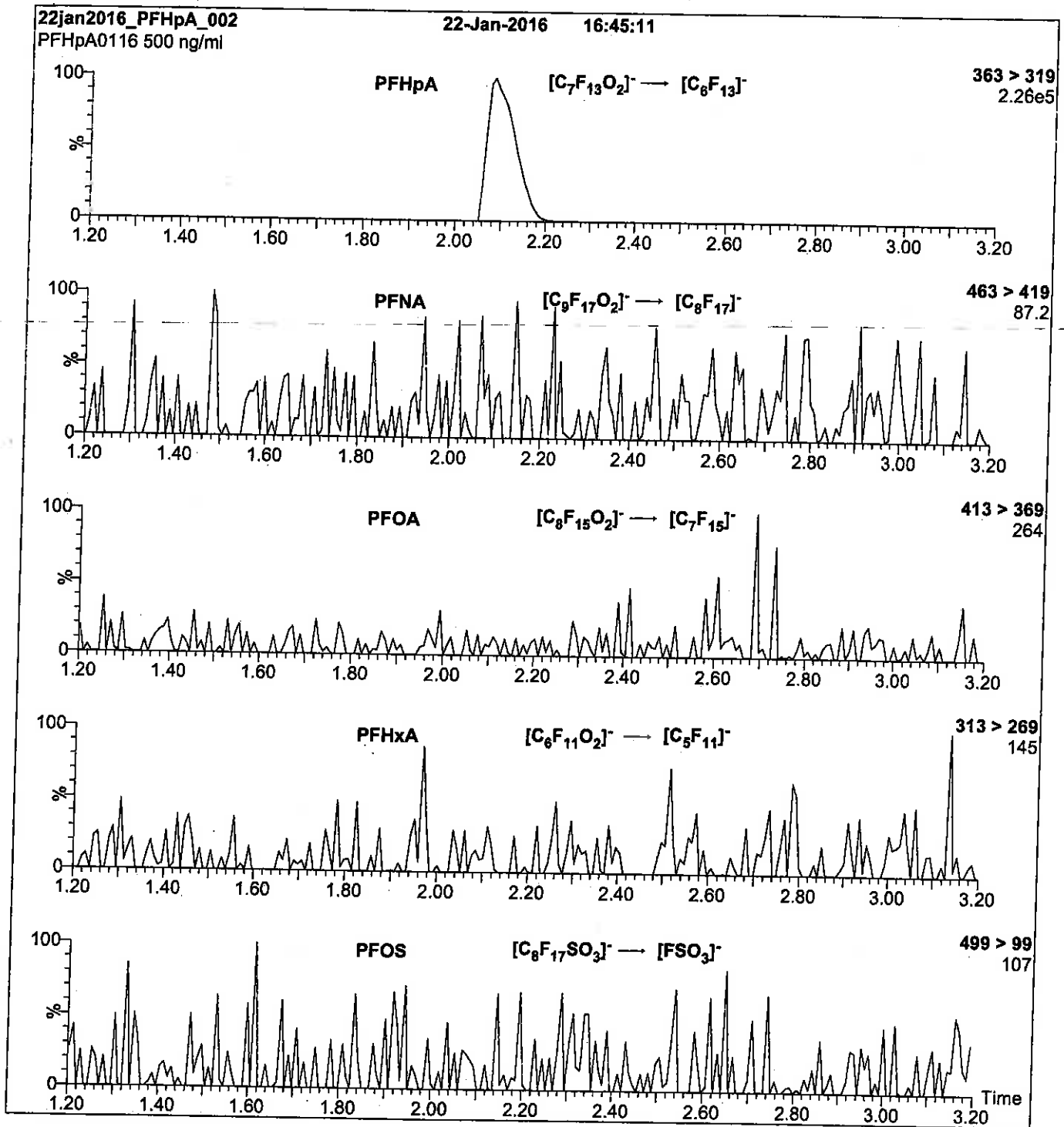
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCPFHpS_00009

Scanned
10/14/16 SP
R: 8BC 9/13/16



730635
ID: LCPFHpS_00009
Exp: 11/06/20 Prpd: SBC
PFHpS at 47.6ug/mL



730639
ID: LCPFHpS_00010
Exp: 11/06/20 Prpd: SBC
PFHpS at 47.6ug/mL



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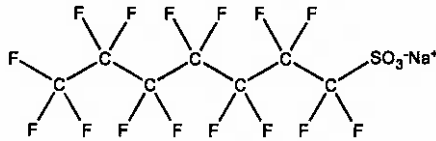
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: LPFHpS1115

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₇F₁₅SO₃Na
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt)
47.6 ± 2.4 µg/ml (PFHpS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/06/2015
EXPIRY DATE: (mm/dd/yyyy) 11/06/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 472.10
SOLVENT(S): Methanol

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.1% of L-PFHxS (C₆F₁₃SO₃Na) and ~ 0.2% of L-PFOS (C₈F₁₇SO₃Na).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 11/09/2015
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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

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TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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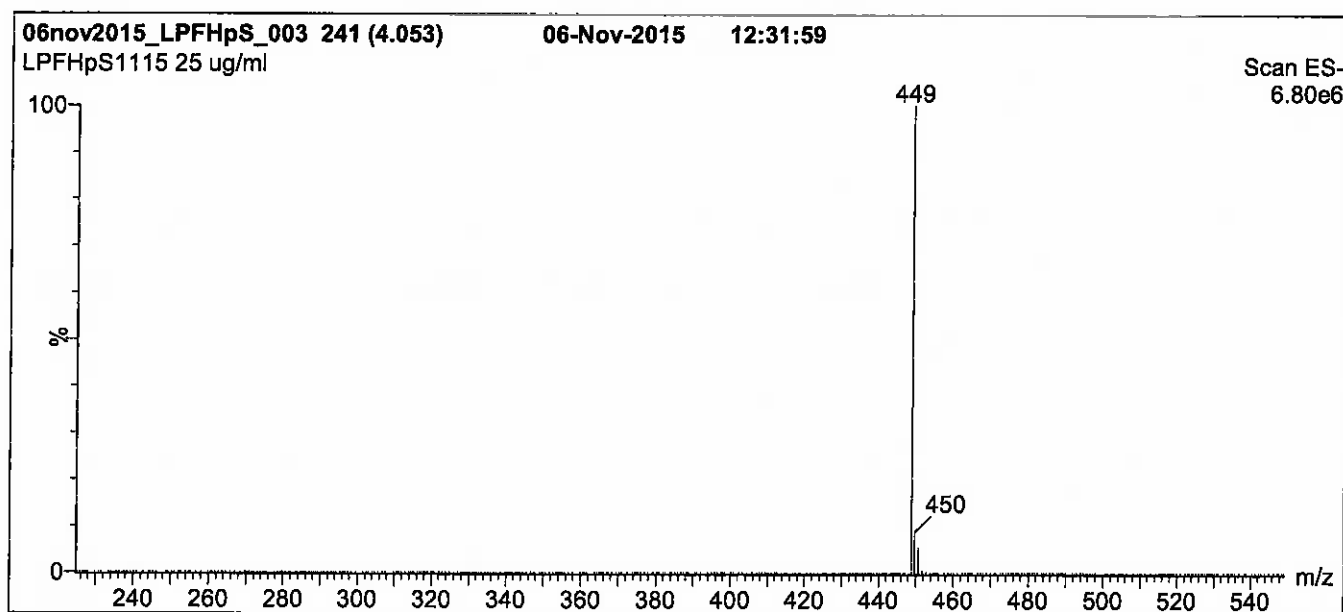
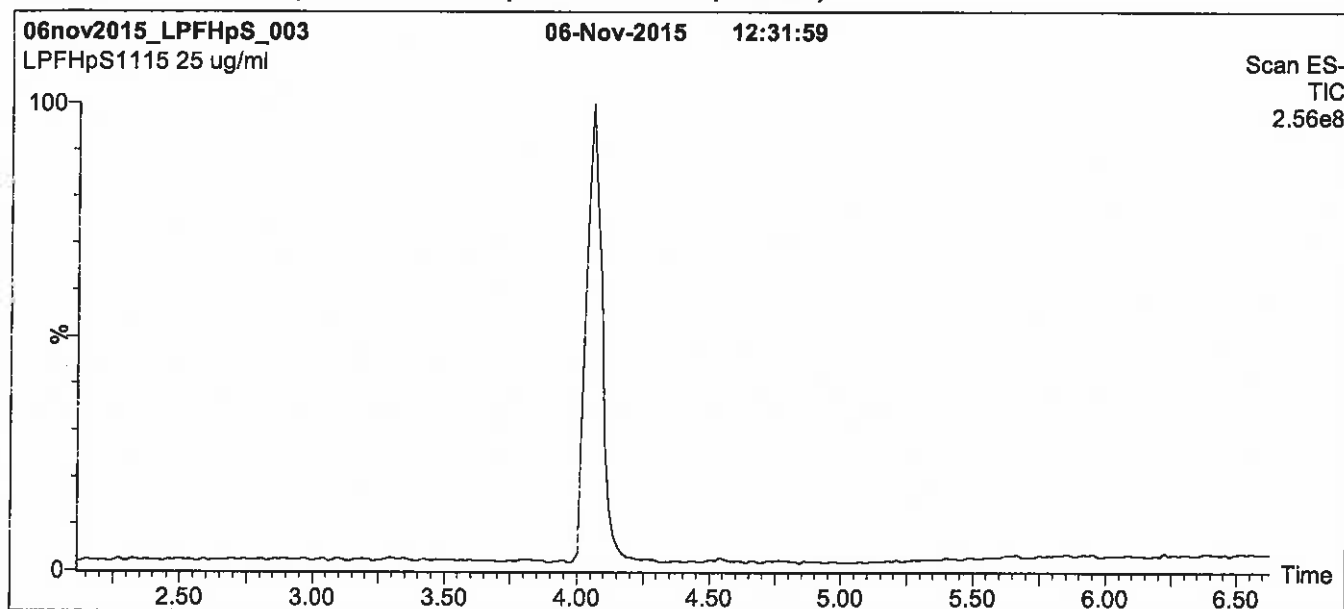
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

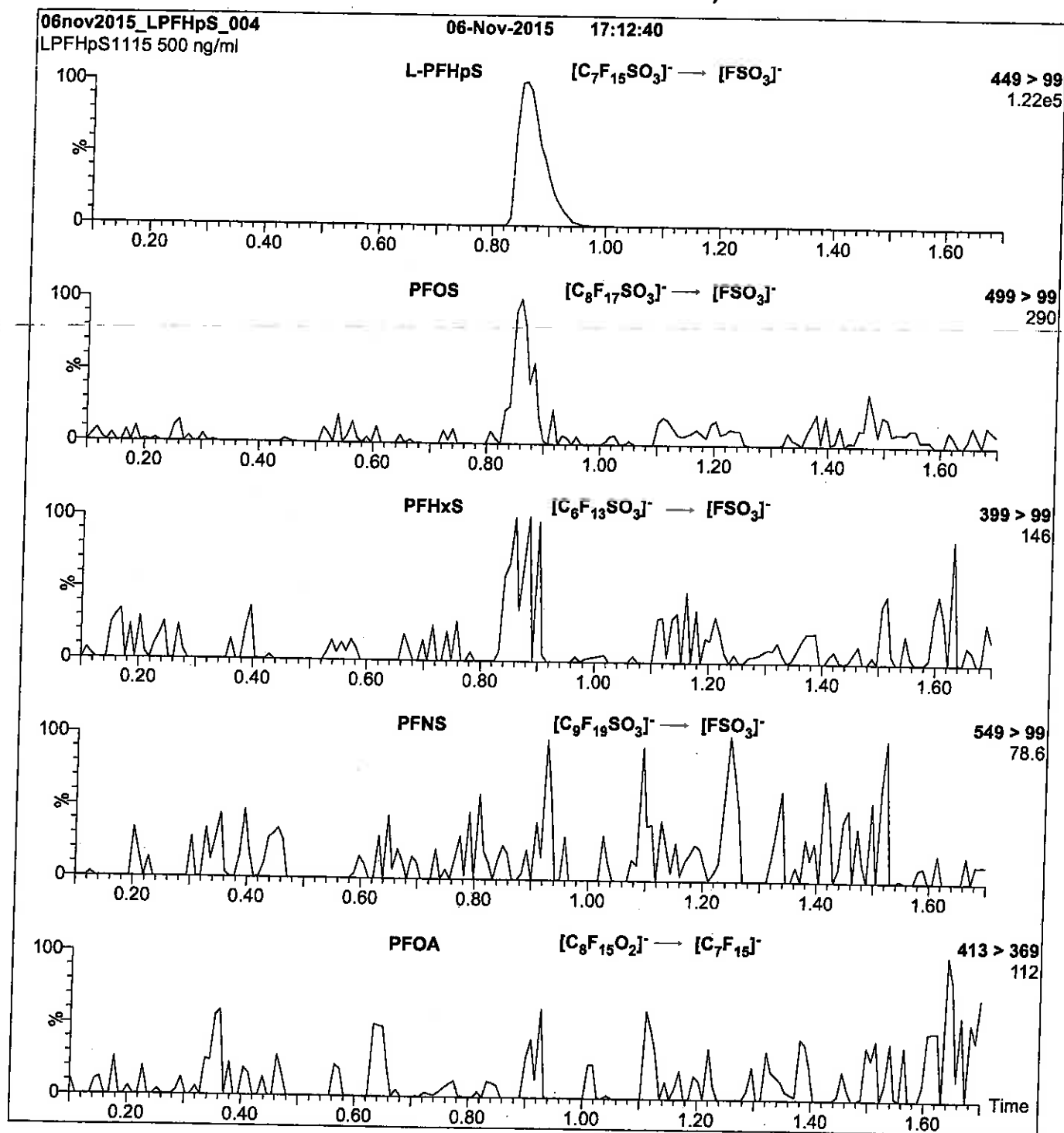
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCPFHxA_00005

R: 832 9/13/16



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



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

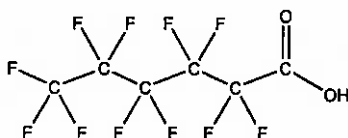


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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxA **LOT NUMBER:** PFHxA1215
COMPOUND: Perfluoro-n-hexanoic acid

STRUCTURE: **CAS #:** 307-24-4



MOLECULAR FORMULA: C₆H₁₁F₁₁O₂ **MOLECULAR WEIGHT:** 314.05
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/22/2015
EXPIRY DATE: (mm/dd/yyyy) 12/22/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of Perfluoro-n-pentanoic acid (PFPeA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 12/23/2015
(mm/dd/yyyy)

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

INTENDED USE:

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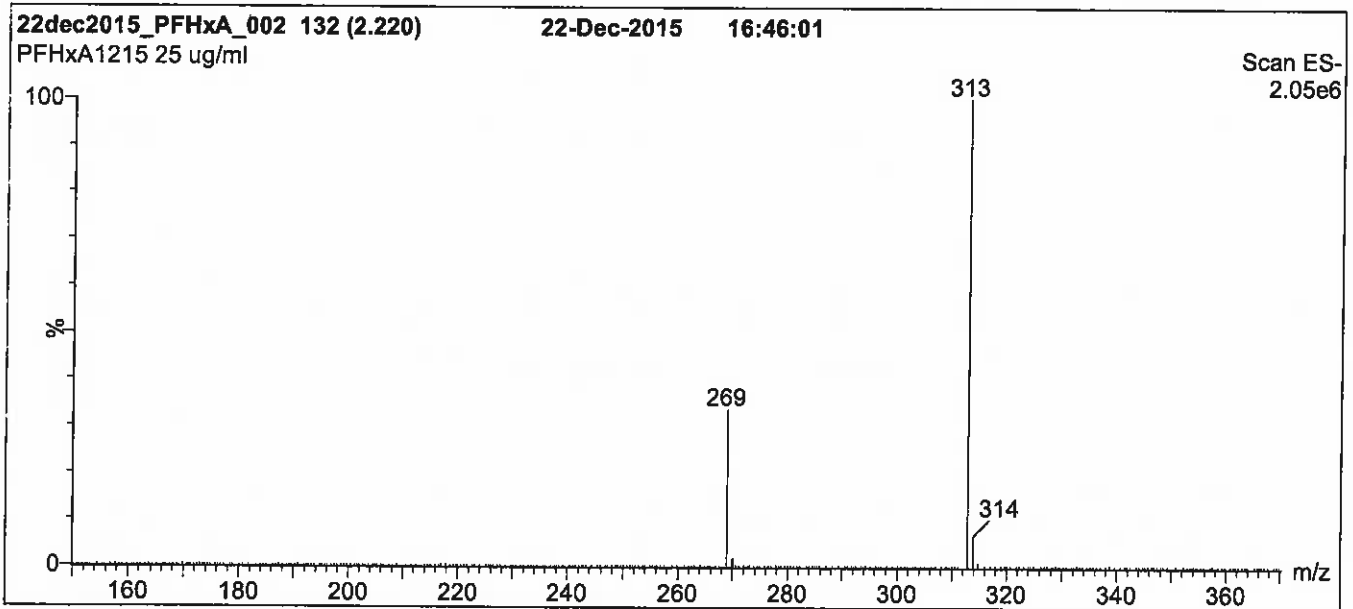
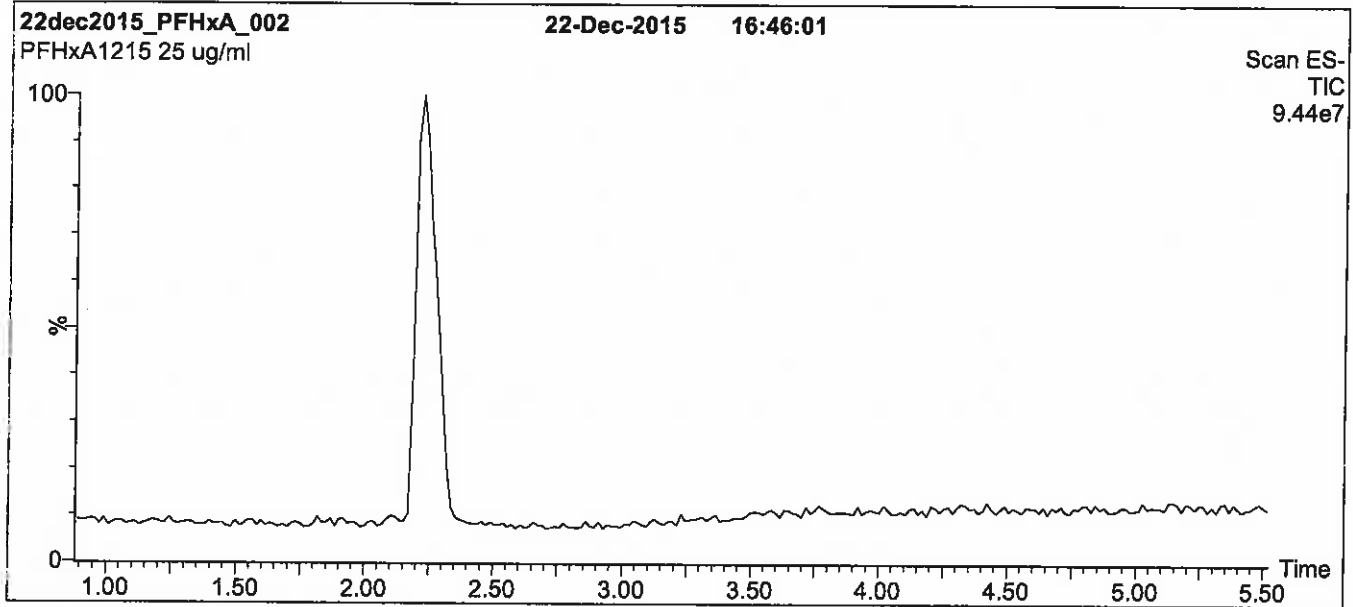
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

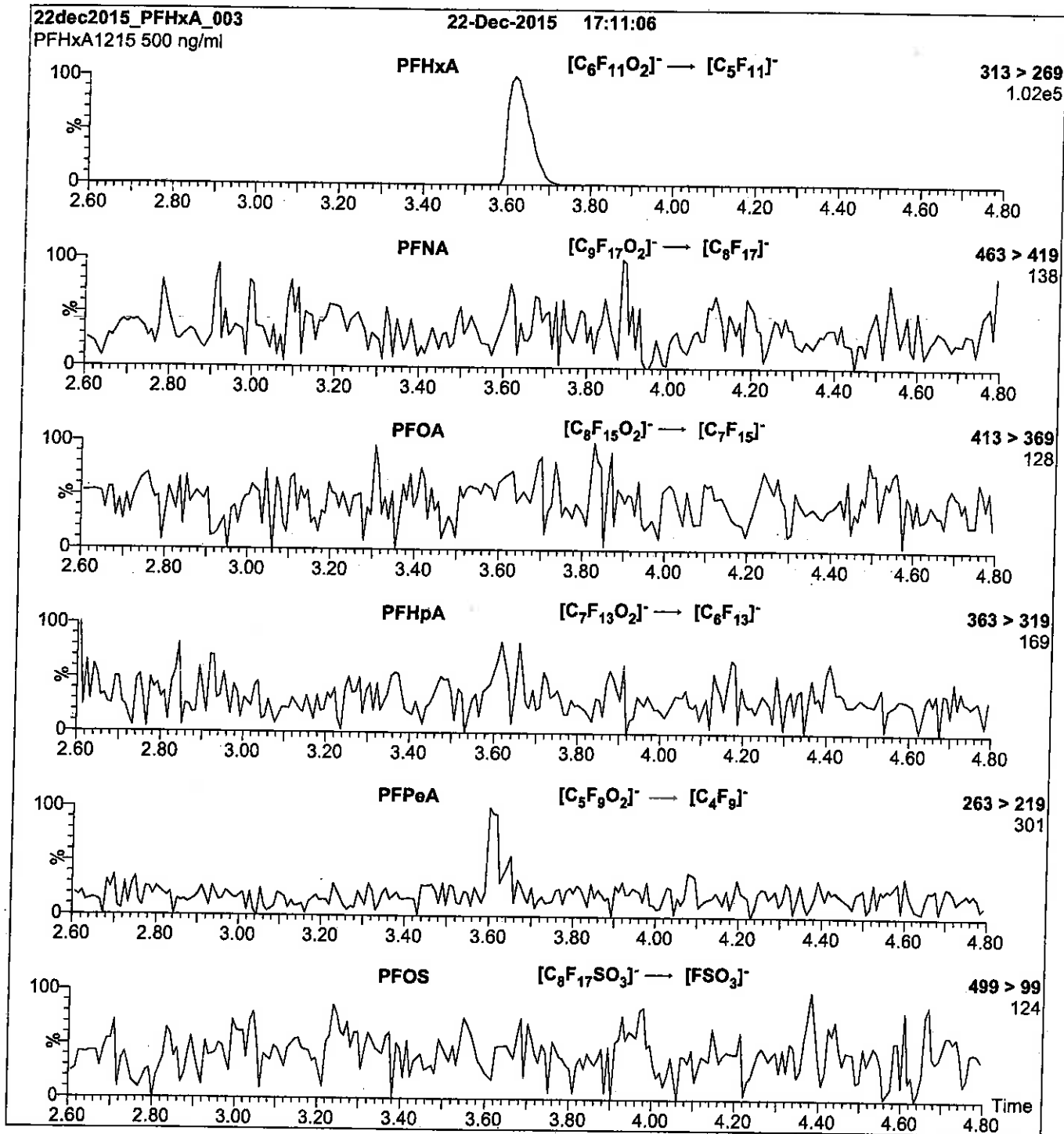
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 10

Reagent

LCPFHxDA_00006

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



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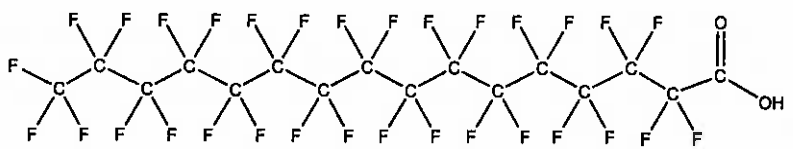
730630
ID: LCPFHxDA_00006
Exp: 05/25/21 Prpd: SBC
PFHxDA stock 50ug/mL

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

CERTIFICATE OF ANALYSIS DOCUMENTATION

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

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **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: **Date:** 05/27/2016
B.G. Chittim (mm/dd/yyyy)

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

Form#: 27, Issued 2004-11-10
Revision#: 3, Revised 2015-03-24

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

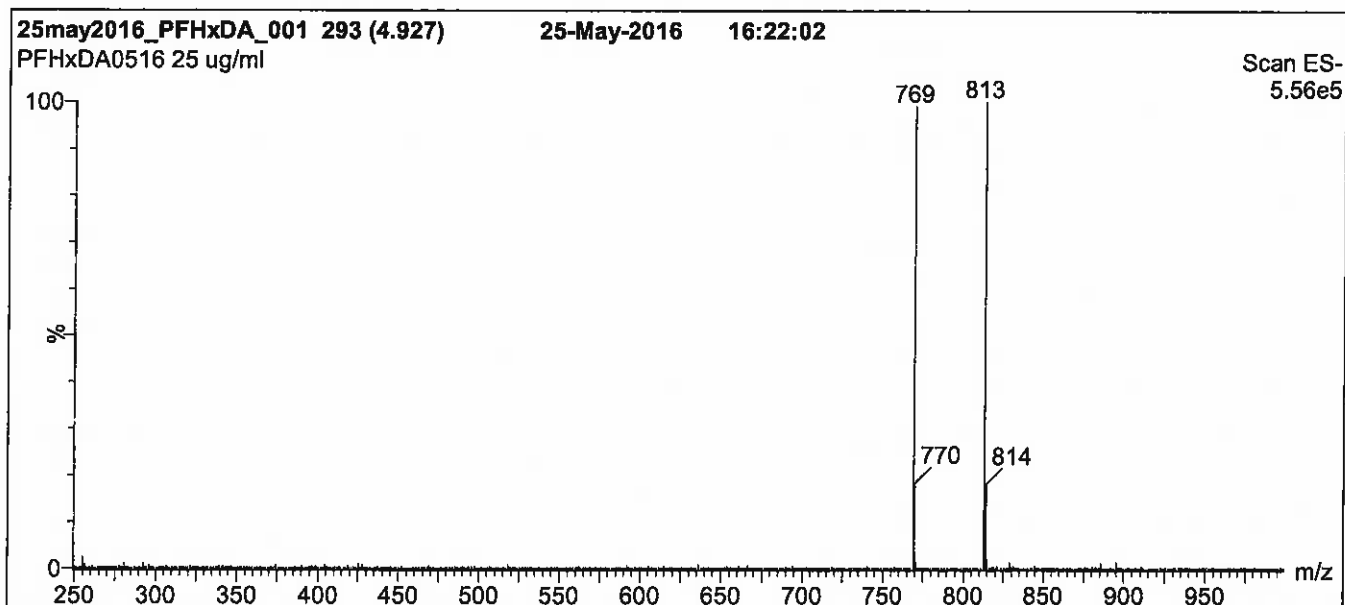
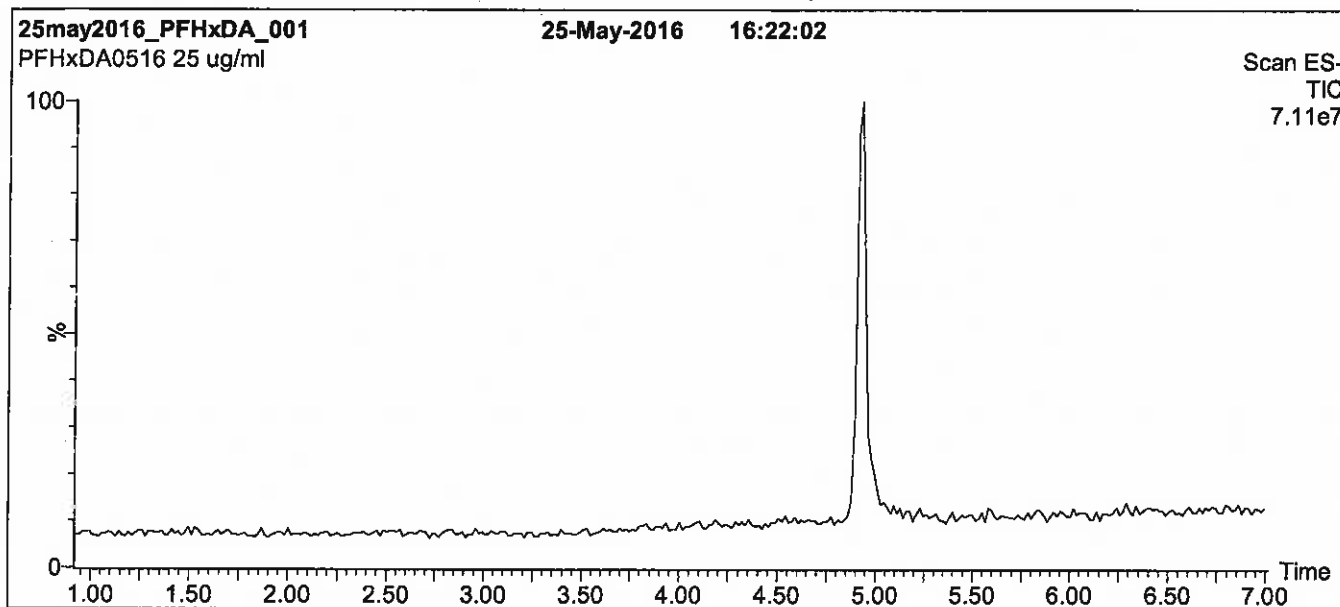
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 70% (80:20 MeOH:ACN) / 30% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 95% organic over 6 min and hold for 2.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

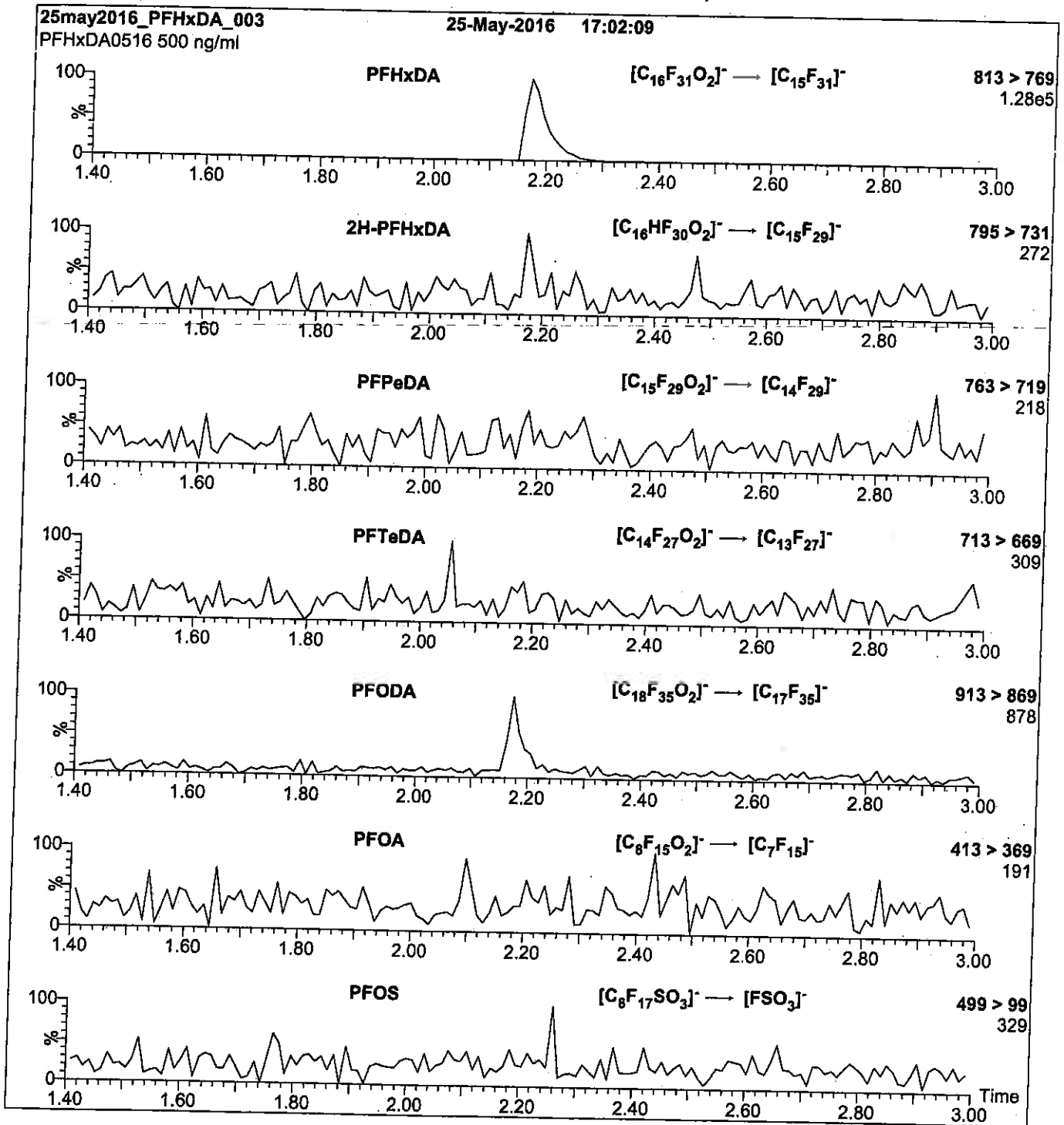
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
 Collision Energy (eV) = 15

Reagent

LCPFHxS-br_00002

SBC
R: 9/13/16



730513
ID: LCPFHxS-br_00002
Exp: 07/03/20 Ppfd: SBC
Potassium Perfluorohexane



730514
ID: LCPFHxS-br_00003
Exp: 07/03/20 Ppfd: SBC
Potassium Perfluorohexane



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFHxSK

**Potassium Perfluorohexanesulfonate
Solution/Mixture of Linear and
Branched Isomers**

PRODUCT CODE: br-PFHxSK
LOT NUMBER: brPFHxSK0615
CONCENTRATION: 50.0 ± 2.5 µg/ml (total potassium salt)
45.5 ± 2.3 µg/ml (total PFHxS anion)
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 06/29/2015
LAST TESTED: (mm/dd/yyyy) 07/03/2015
EXPIRY DATE: (mm/dd/yyyy) 07/03/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorohexanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.5% of perfluoro-1-pentanesulfonate and ~ 0.2% of perfluoro-1-octanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

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INTENDED USE:

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

HAZARDS:

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UNCERTAINTY:

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

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

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

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

TRACEABILITY:

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

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LIMITED WARRANTY:

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

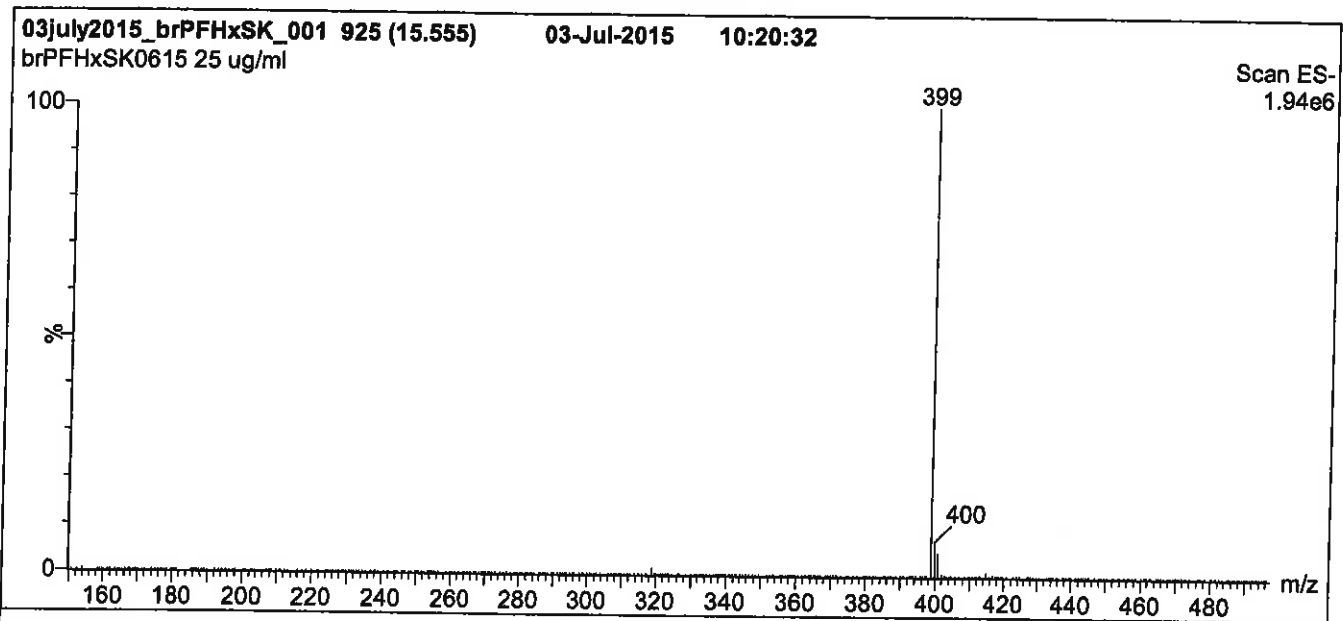
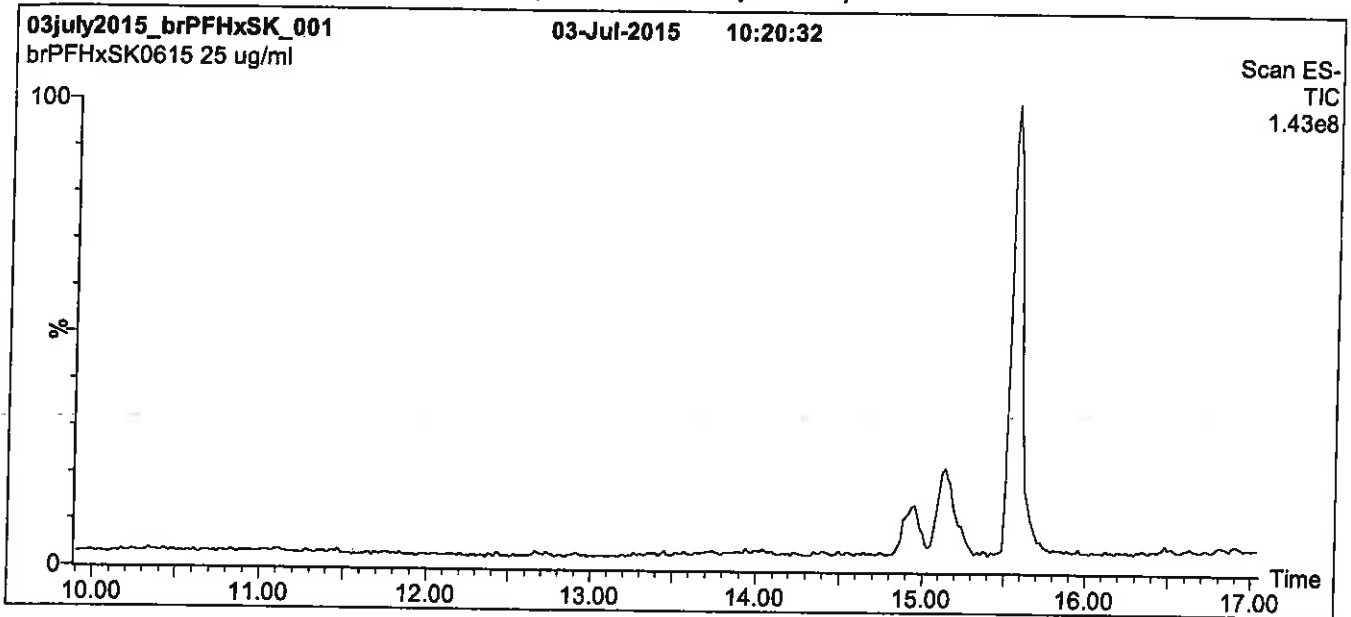
Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR
1	Potassium perfluoro-1-hexanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ ⁻ K ⁺	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	1.4
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	5.0
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	8.9
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CCF}_2\text{CF}_2\text{SO}_3^-\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.2
7	Other Unidentified Isomers		0.5

* Percent of total perfluorohexanesulfonate isomers only.
 ** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Certified By: 
 B.G. Chittim

Date: 07/15/2015
(mm/dd/yyyy)

Figure 1: br-PFHxSK; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 20% (80:20 MeOH:ACN) / 80% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 50% organic over 14 min. Ramp to
90% organic over 3 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 20 min

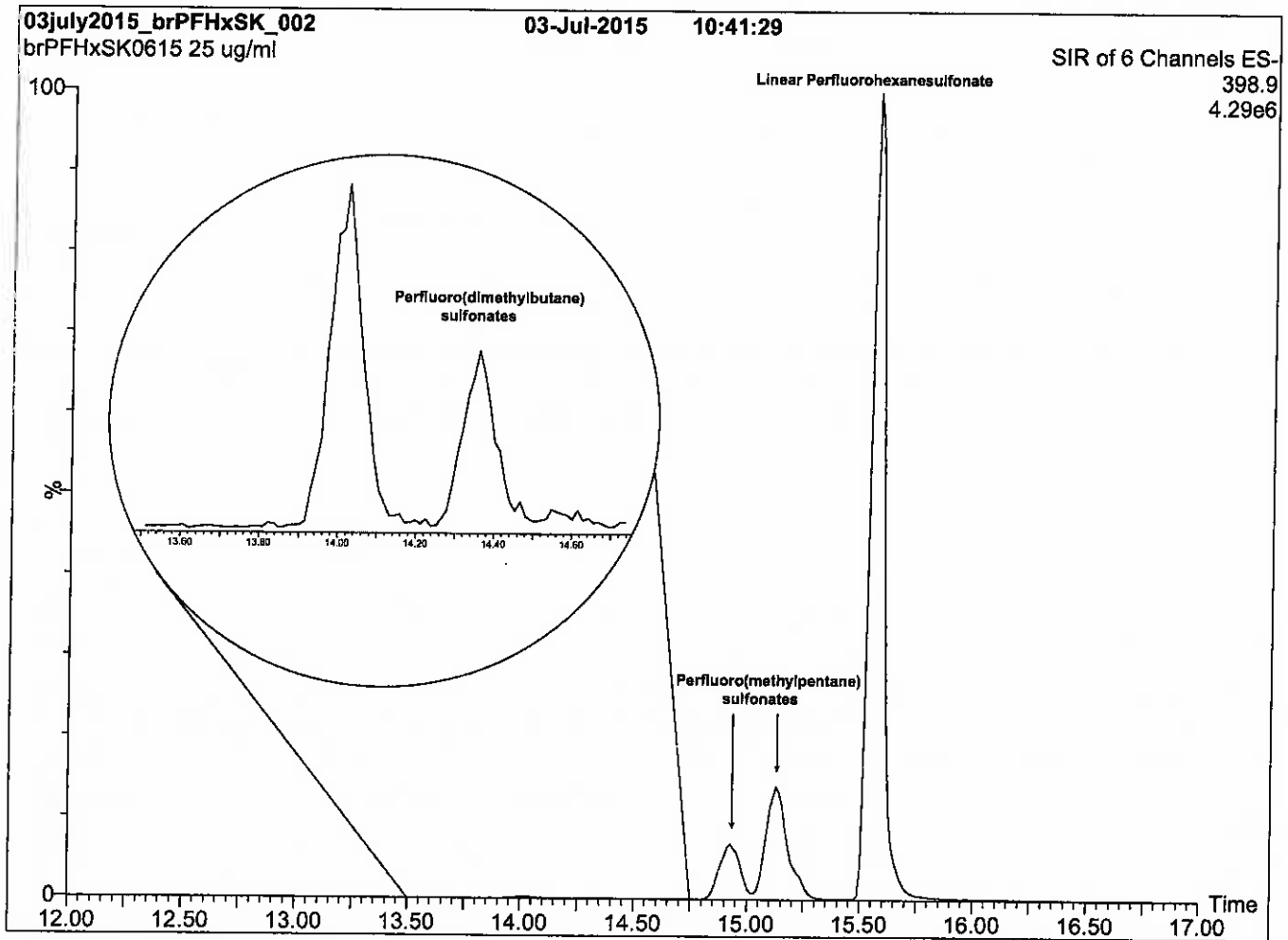
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

Figure 2: br-PFHxSK; LC/MS Data



Conditions for Figure 2:

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

Chromatographic Conditions

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

Mobile phase: Gradient
 Start: 20% (80:20 MeOH:ACN) / 80% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 50% organic over 14 min. Ramp to
 90% organic over 3 min and hold for 1.5 min
 before returning to initial conditions in 0.5 min.
 Time: 20 min

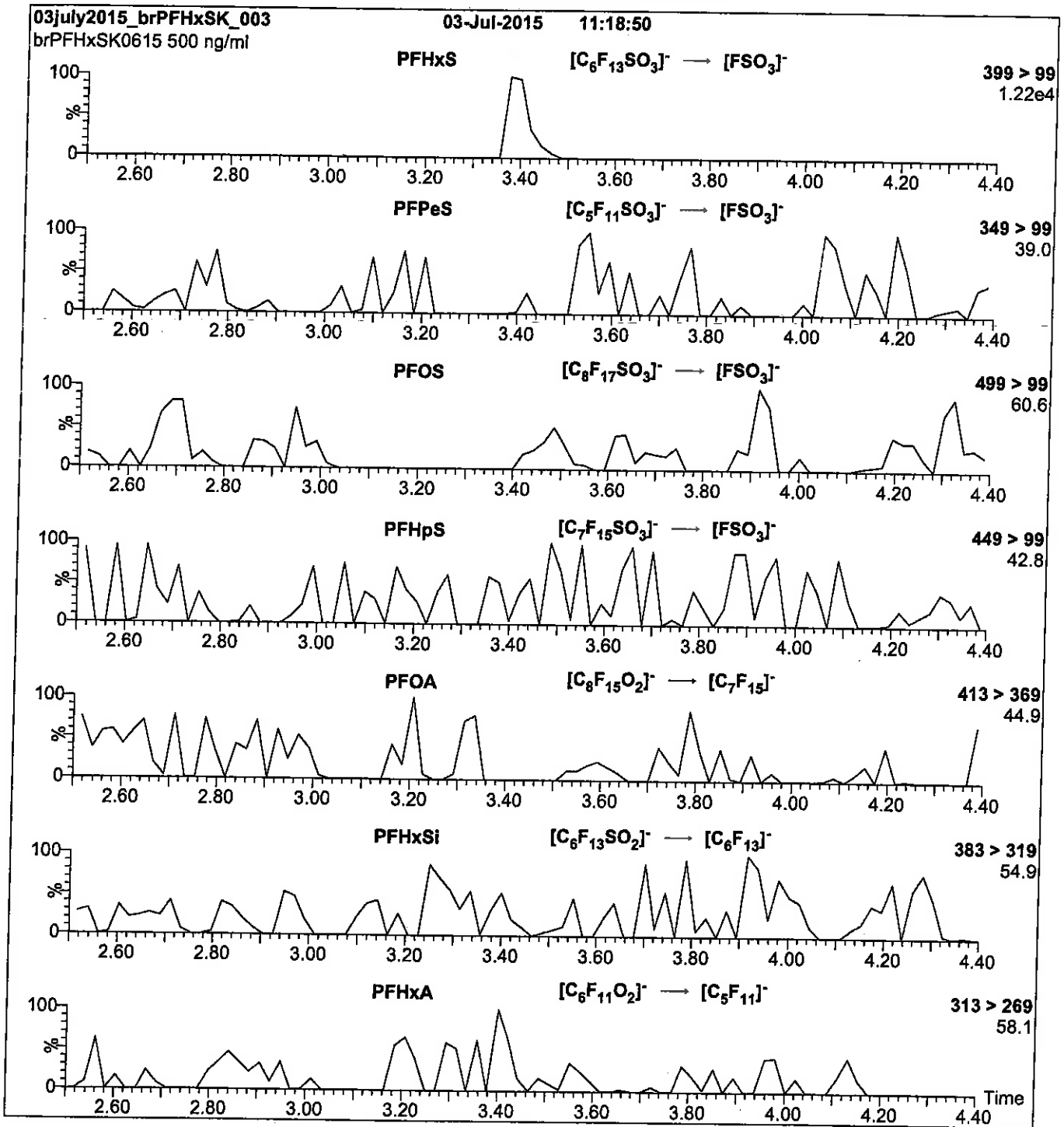
Flow: 300 μ l/min

MS Parameters

Experiment: SIR (6 channels)

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

Figure 3: br-PFHxSK; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 3:

Injection: Direct loop injection
10 μ l (500 ng/ml br-PFHxSK)

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCPFNA_00006

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



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



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



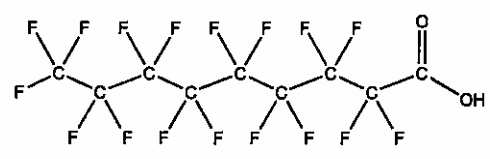
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFNA
COMPOUND: Perfluoro-n-nonanoic acid

LOT NUMBER: PFNA1015

STRUCTURE: **CAS #:** 375-95-1



MOLECULAR FORMULA: C₉HF₁₇O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 464.08
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

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

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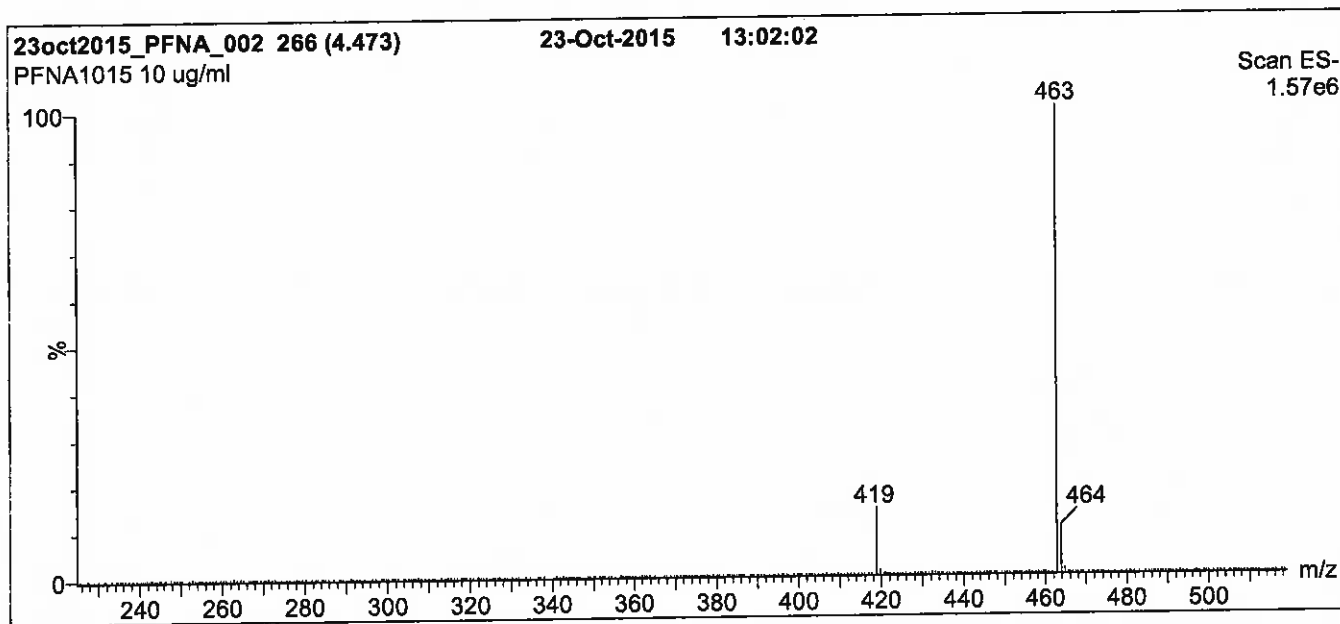
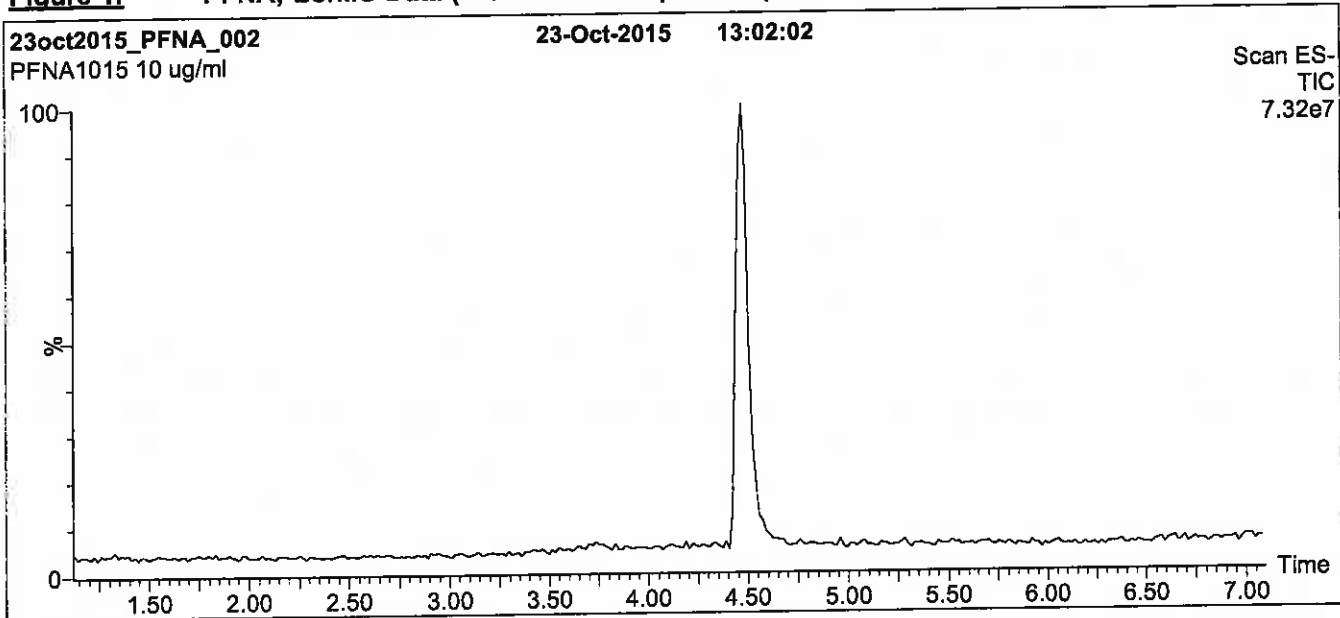
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Figure 1: PFNA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

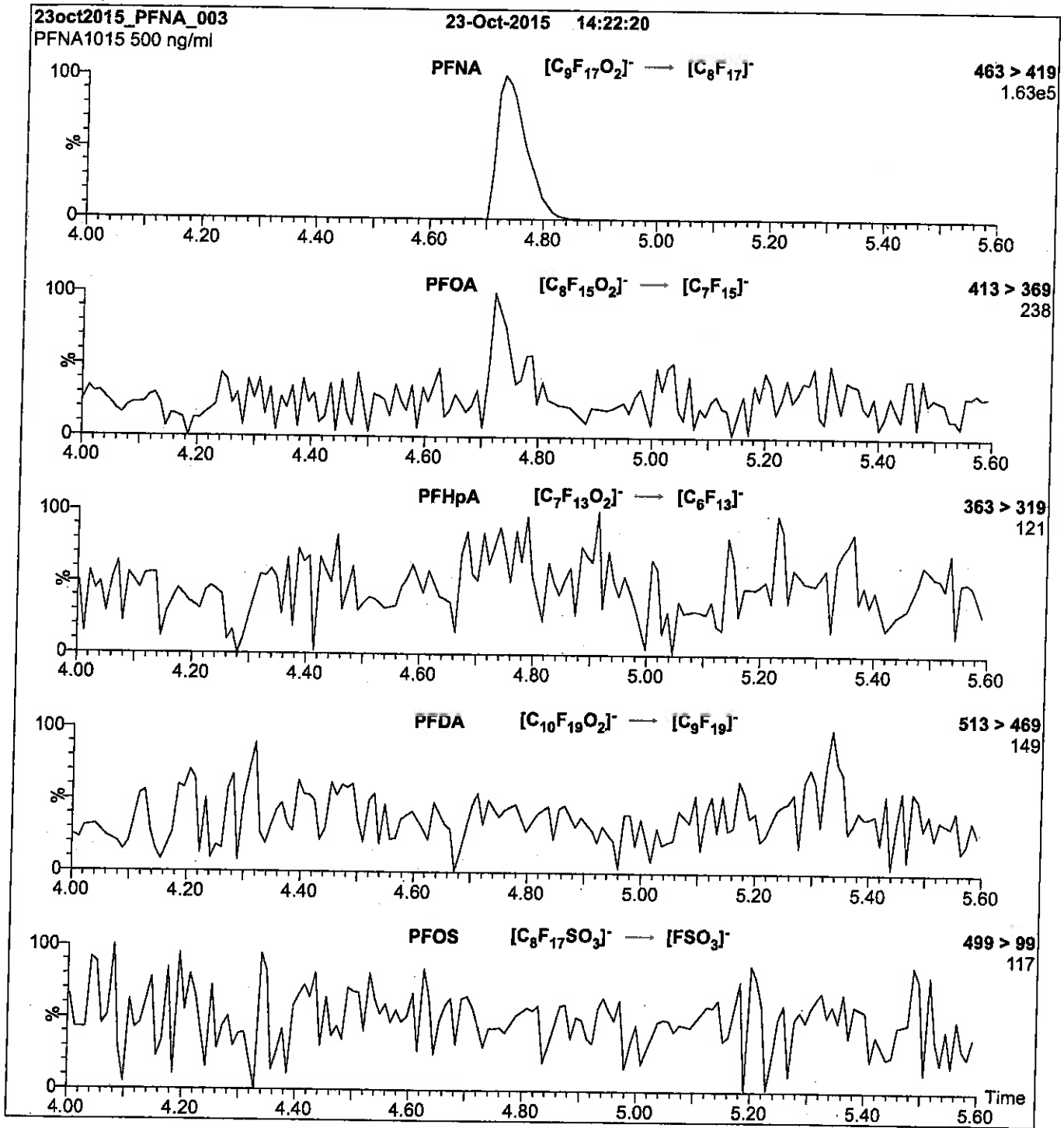
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCPFOA_00006

R=7/6/16 CBW

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

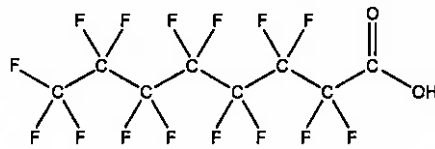


**WELLINGTON
LABORATORIES**

**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

PRODUCT CODE: PFOA **LOT NUMBER:** PFOA1115
COMPOUND: Perfluoro-n-octanoic acid

STRUCTURE: **CAS #:** 335-67-1



MOLECULAR FORMULA: C₈HF₁₅O₂ **MOLECULAR WEIGHT:** 414.07
CONCENTRATION: 50 ± 2.5 µg/ml **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/06/2015
EXPIRY DATE: (mm/dd/yyyy) 11/06/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

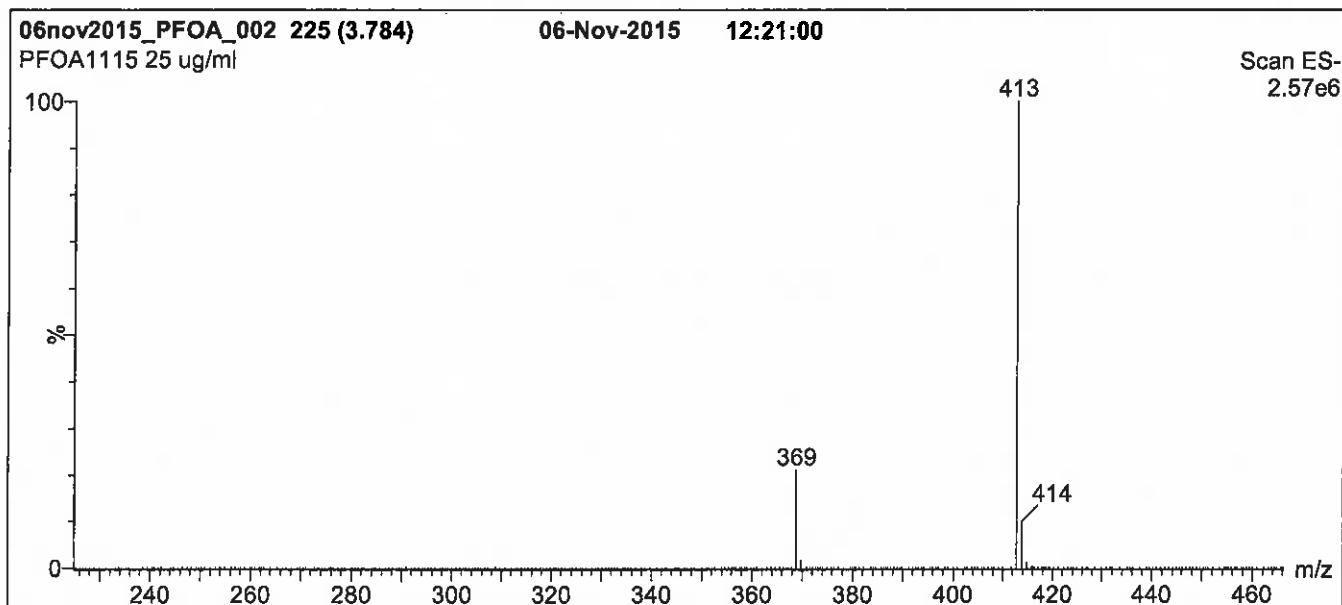
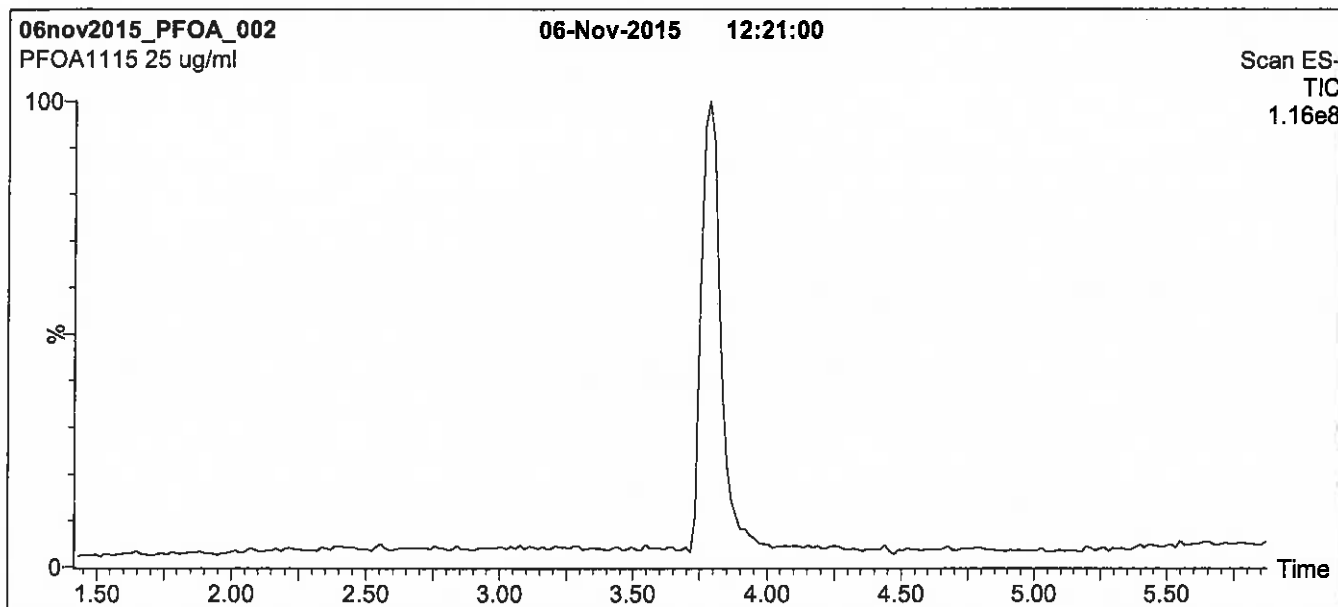
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

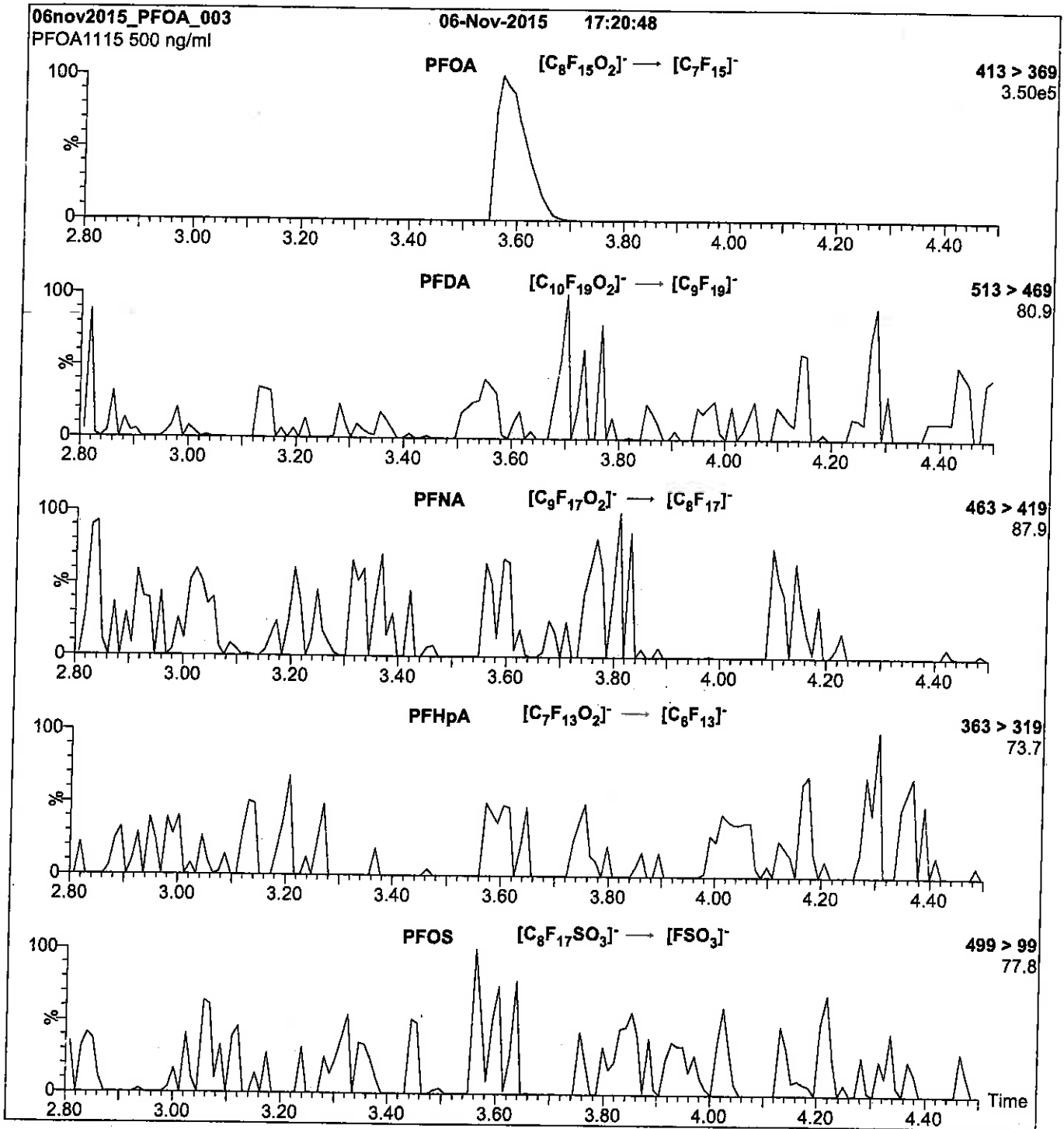
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 15.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCPFODA_00006

Scanned
07/14/16

R: SBC
9/13/16

730632
ID: LCPFOA_00006
Exp: 04/29/21 Prod: SBC
PFODA stock 50ug/mL

730633
ID: LCPFOA_00007
Exp: 04/29/21 Prod: SBC
PFODA stock 50ug/mL

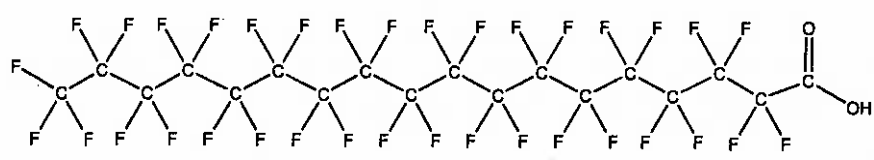


**WELLINGTON
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**CERTIFICATE OF ANALYSIS
DOCUMENTATION**

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: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 04/29/2016
EXPIRY DATE: (mm/dd/yyyy) 04/29/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

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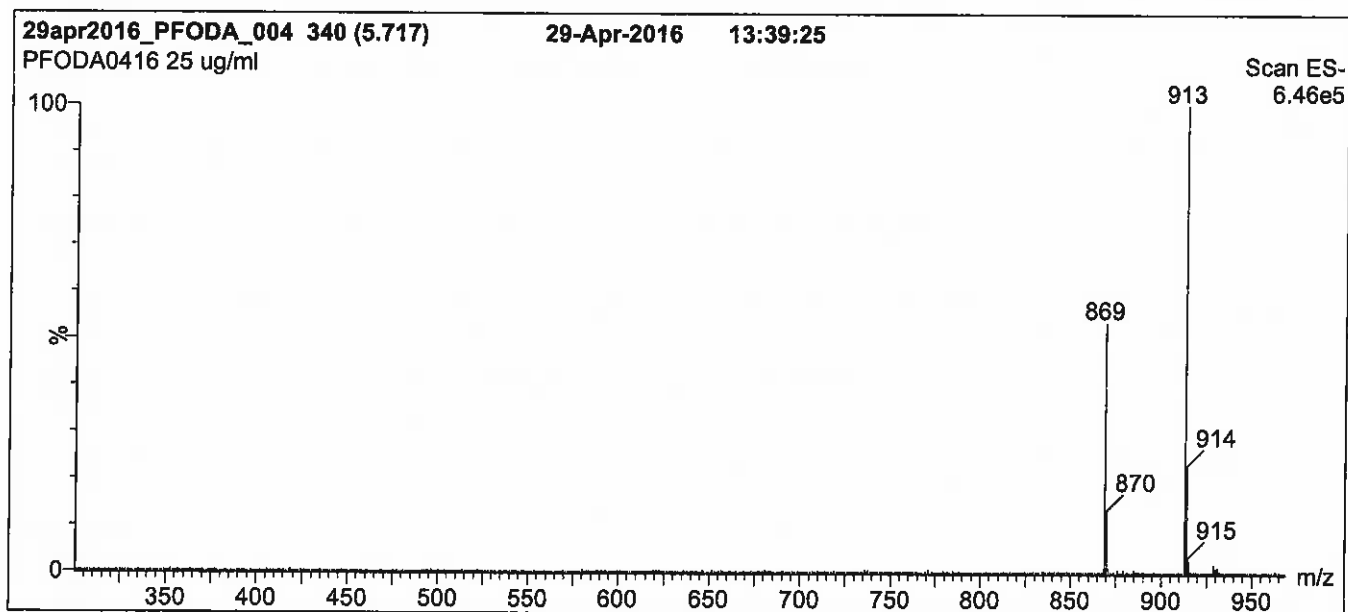
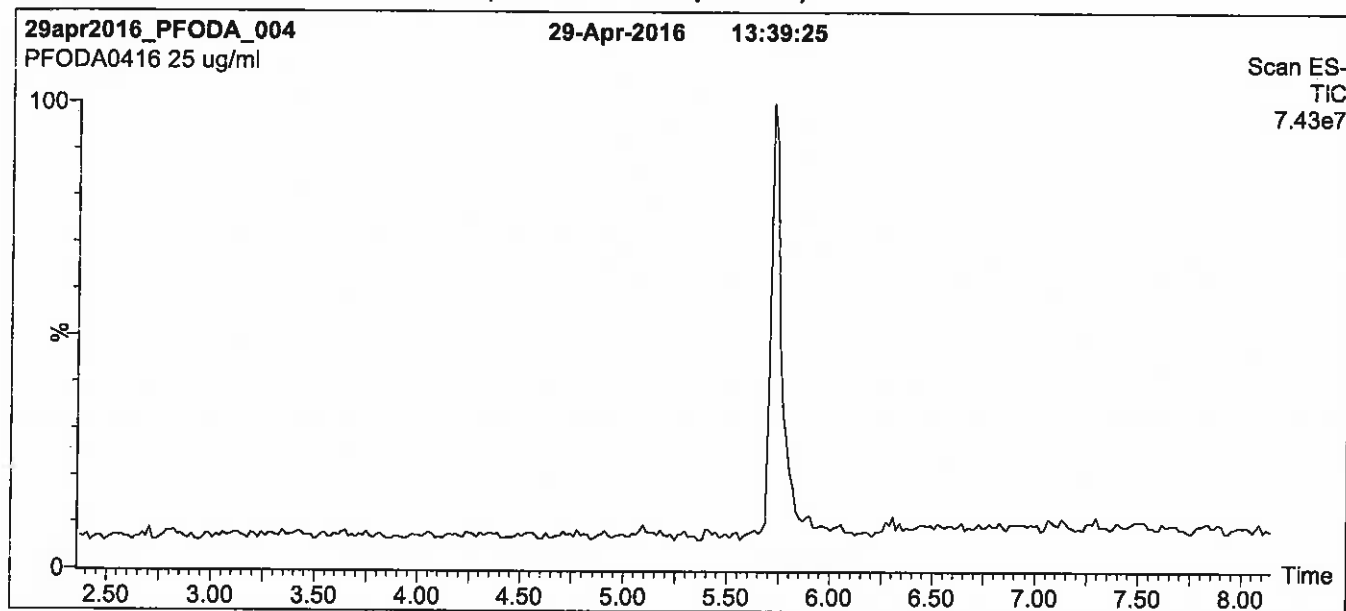
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 70% (80:20 MeOH:ACN) / 30% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 95% organic over 6 min and hold for
2.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

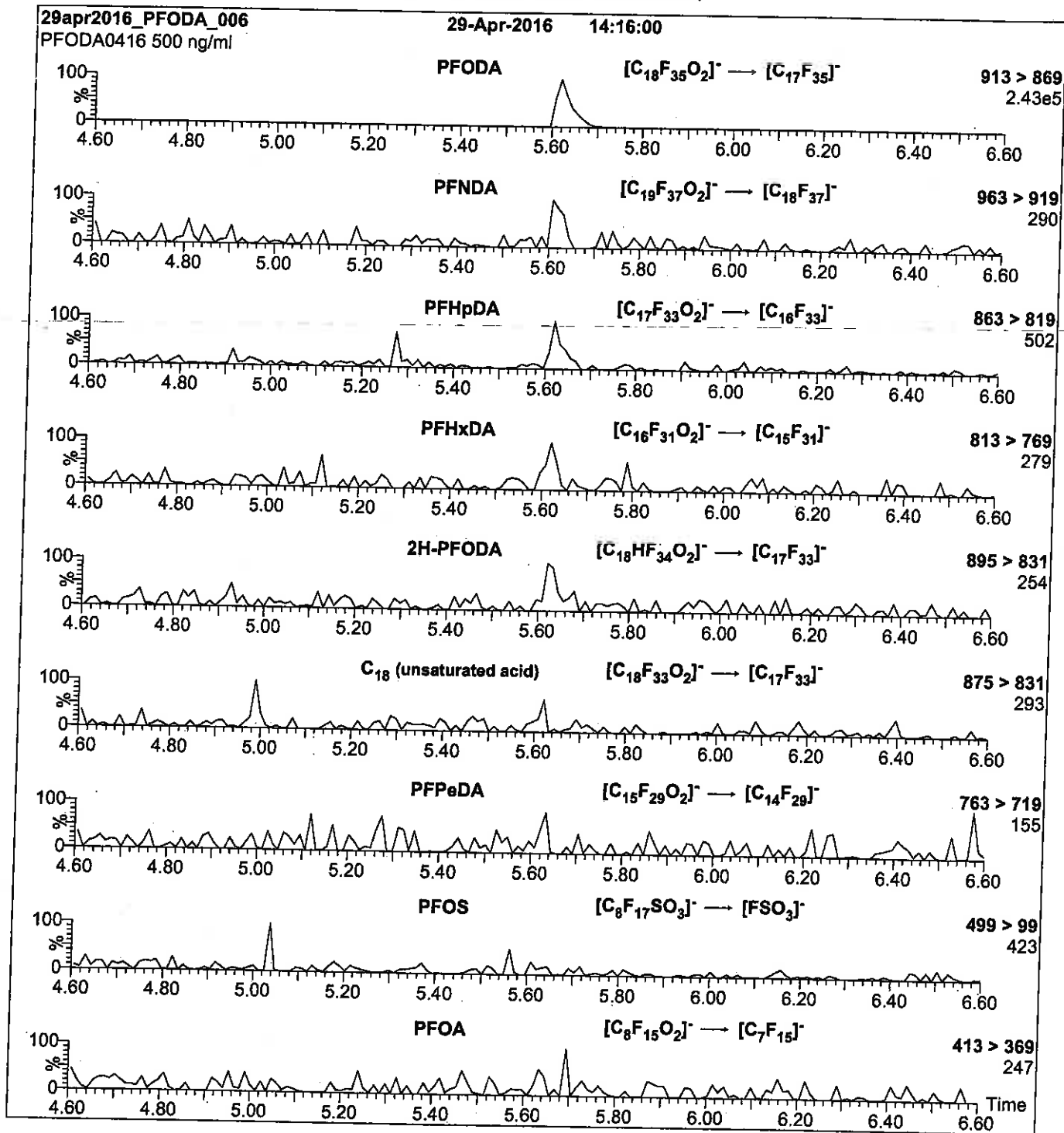
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1000 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

Mobile phase: Isocratic 90% (80:20 MeOH:ACN) / 10% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCPFOS-br_00002

Scanned
10/14/16 SR

R: SBC 9/13/16



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



730516
ID: LCPFOS-br_00003
Exp: 10/14/20 Prpt: SBC
Potassium Perfluorooctane



WELLINGTON
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CERTIFICATE OF ANALYSIS
DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate
Solution/Mixture of Linear and
Branched Isomers

PRODUCT CODE: br-PFOSK
LOT NUMBER: brPFOSK1015
CONCENTRATION: 50 ± 2.5 µg/ml (total potassium salt)
46.4 ± 2.3 µg/ml (total PFOS anion)
SOLVENT(S): Methanol
DATE PREPARED: (mm/dd/yyyy) 10/13/2015
LAST TESTED: (mm/dd/yyyy) 10/14/2015
EXPIRY DATE: (mm/dd/yyyy) 10/14/2020
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorooctanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ¹⁹F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- A 5-point calibration curve was generated using linear PFOS (potassium salt) and mass-labelled PFOS as an internal standard to enable quantitation of br-PFOSK using isotopic dilution.
- CAS#: 2795-39-3 (for linear isomer; potassium salt).

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INTENDED USE:

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LIMITED WARRANTY:

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

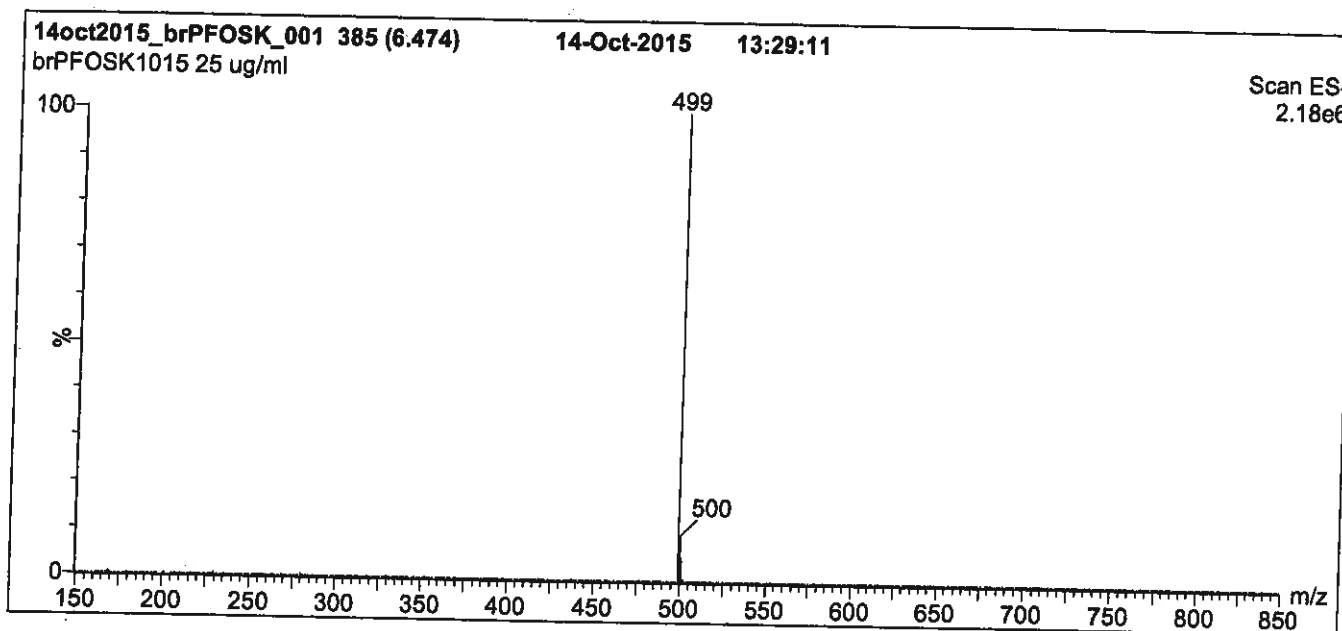
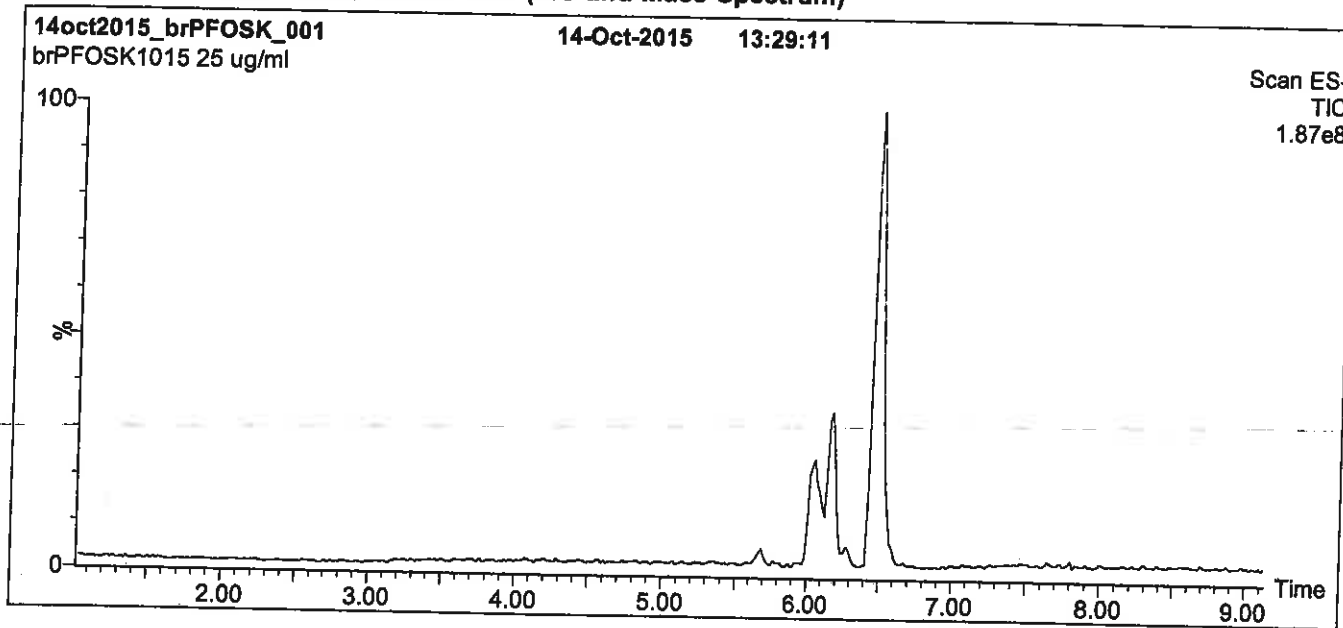
Isomer	Name	Structure	Percent Composition by ¹⁹ F-NMR
1	Potassium perfluoro-1-octanesulfonate	CF ₃ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ CF ₂ SO ₃ K ⁺	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}(\text{SO}_3\text{K}^+) \\ \\ \text{CF}_3 \end{array}$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}(\text{CF}_3)\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.6
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	1.9
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}_2\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	2.2
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}_2\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	4.5
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$\begin{array}{c} \text{CF}_3\text{CF}(\text{CF}_3)\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	10.0
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3-\text{C}-\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.2
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3 \\ \\ \text{CF}_3\text{CF}_2-\text{C}-\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \\ \\ \text{CF}_3 \end{array}$	0.03
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3-\text{CF}(\text{CF}_3)-\text{CF}(\text{CF}_3)-\text{CF}_2\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \end{array}$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$\begin{array}{c} \text{CF}_3-\text{CF}(\text{CF}_3)-\text{CF}_2-\text{CF}(\text{CF}_3)-\text{CF}_2\text{CF}_2\text{SO}_3\text{K}^+ \end{array}$	0.07

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

Certified By: 
 B.G. Chittim

Date: 10/15/2015
(mm/dd/yyyy)

Figure 1: br-PFOSK; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
 Start: 45% (80:20 MeOH:ACN) / 55% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 12 min and hold for 2 min.
 Return to initial conditions over 0.5 min.
 Time: 16 min

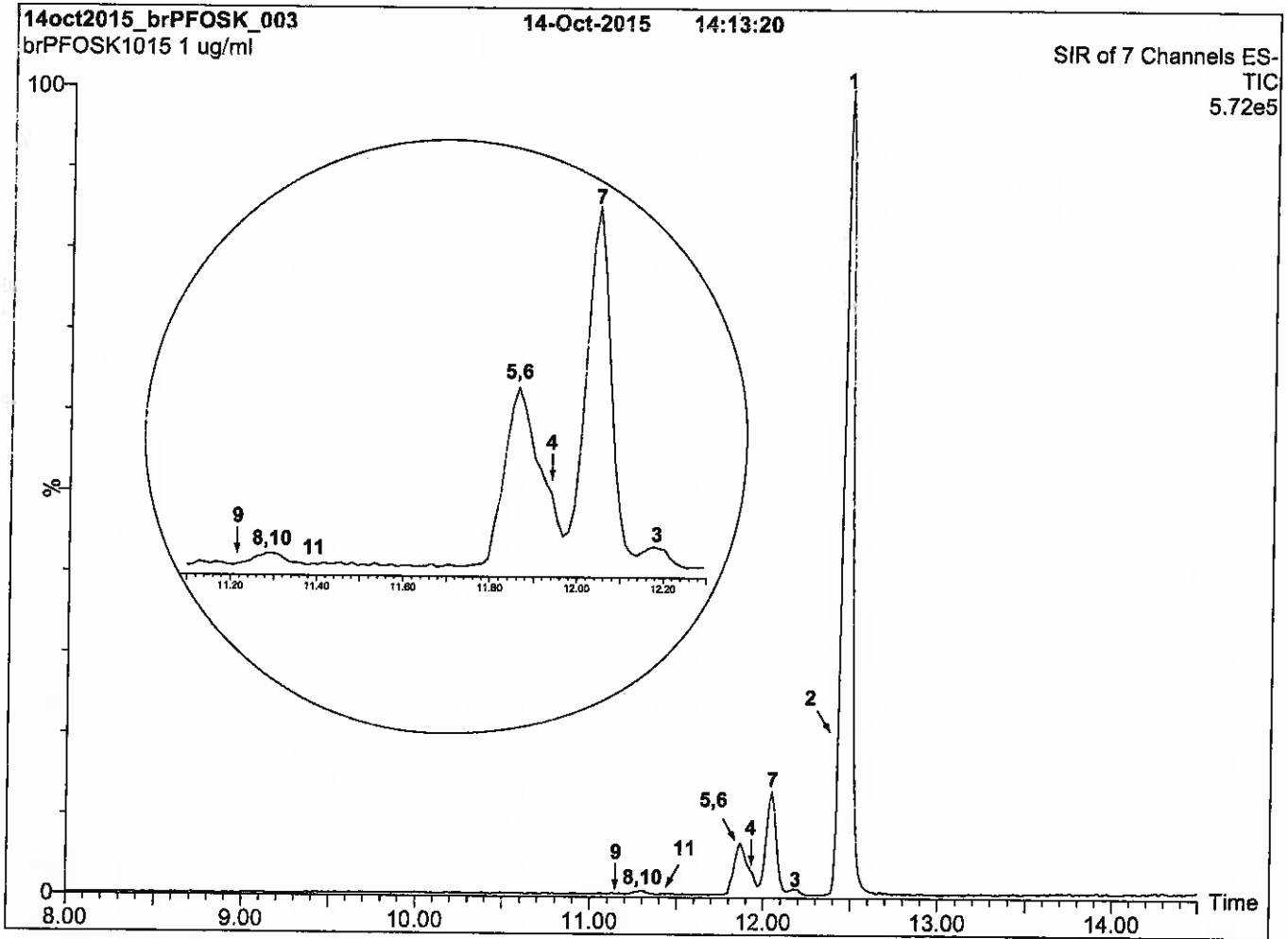
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.00
 Cone Voltage (V) = 60.00
 Cone Gas Flow (l/hr) = 50
 Desolvation Gas Flow (l/hr) = 750

Figure 2: br-PFOSK; LC/MS Data (SIR)



Conditions for Figure 2:

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

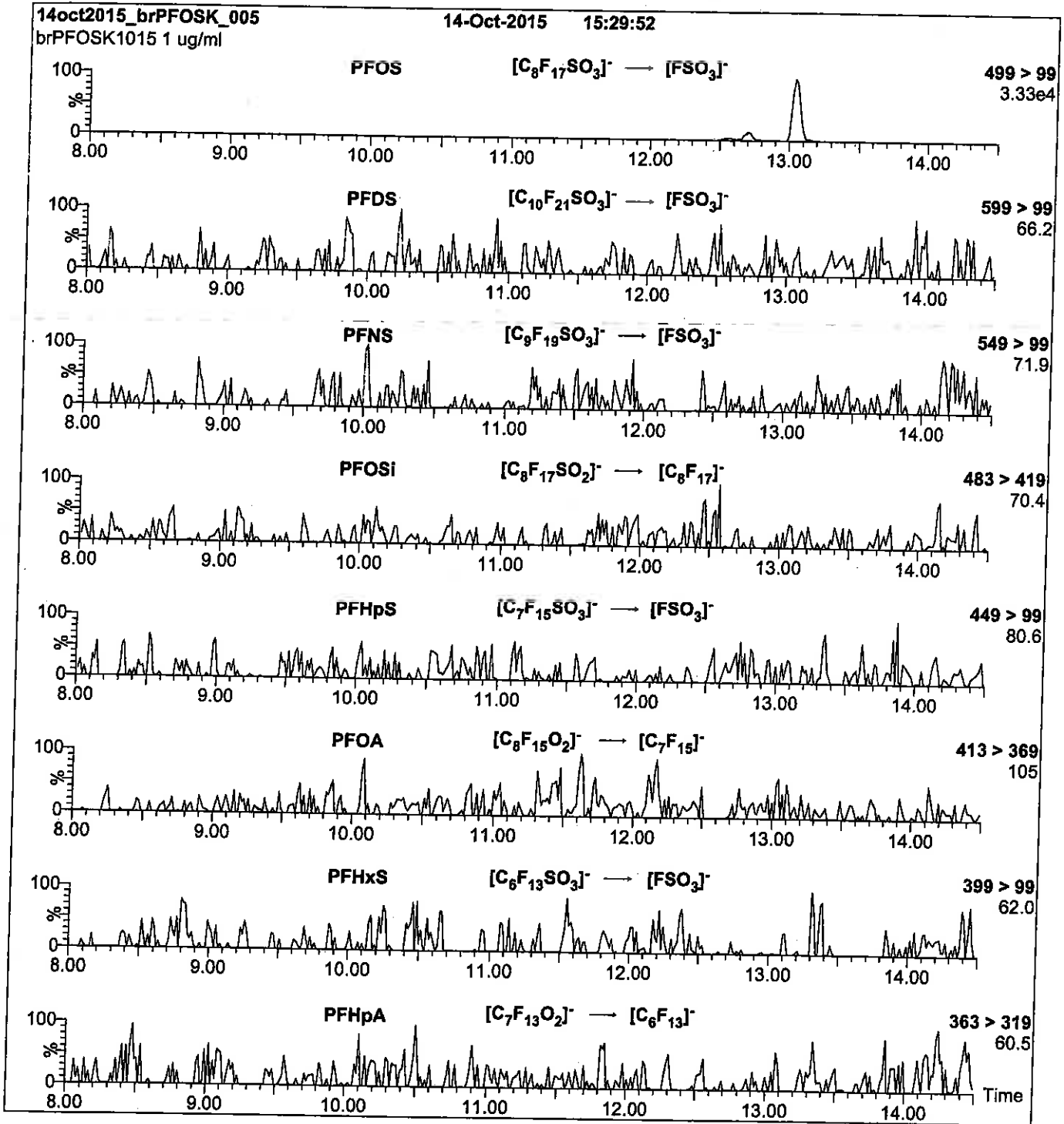
Chromatographic Conditions:

Column: Acquity UPLC BEH Shield RP₁₈ (1.7 μ m, 2.1 x 100 mm)
Injection: 1.0 μ g/ml of br-PFOSK
Mobile Phase: Gradient
45% (80:20 MeOH:ACN) / 55% H₂O (both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 15 min and hold for 3 min.
Return to initial conditions over 1 min.
Time: 20 min
Flow: 300 μ l/min

MS Conditions:

SIR (ES)
Source = 110 $^{\circ}$ C
Desolvation = 325 $^{\circ}$ C
Cone Voltage = 60V

Figure 3: br-PFOSK; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 3:

Injection: On-column

Mobile phase: Same as Figure 2

Flow: 300 μ /min

MS Parameters

Collision Gas (mbar) = 3.06e-3

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

Reagent

LCPFOSA_00008

Scanned
10/14/16

R: SBC 9/13/16



730534
ID: LCPFOA_00009
Exp: 09/02/17 Prod: SBC
PF-1-octanesulfonamide



730533
ID: LCPFOA_00008
Exp: 09/02/17 Prod: SBC
PF-1-octanesulfonamide



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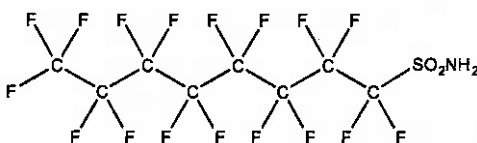
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: FOSA0815I

STRUCTURE:

CAS #: 754-91-6



MOLECULAR FORMULA: C₈H₂F₁₇NO₂S
CONCENTRATION: 50 ± 2.5 µg/ml
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/02/2015
EXPIRY DATE: (mm/dd/yyyy) 09/02/2017
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 499.14
SOLVENT(S): Isopropanol

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim

Date: 09/11/2015
(mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

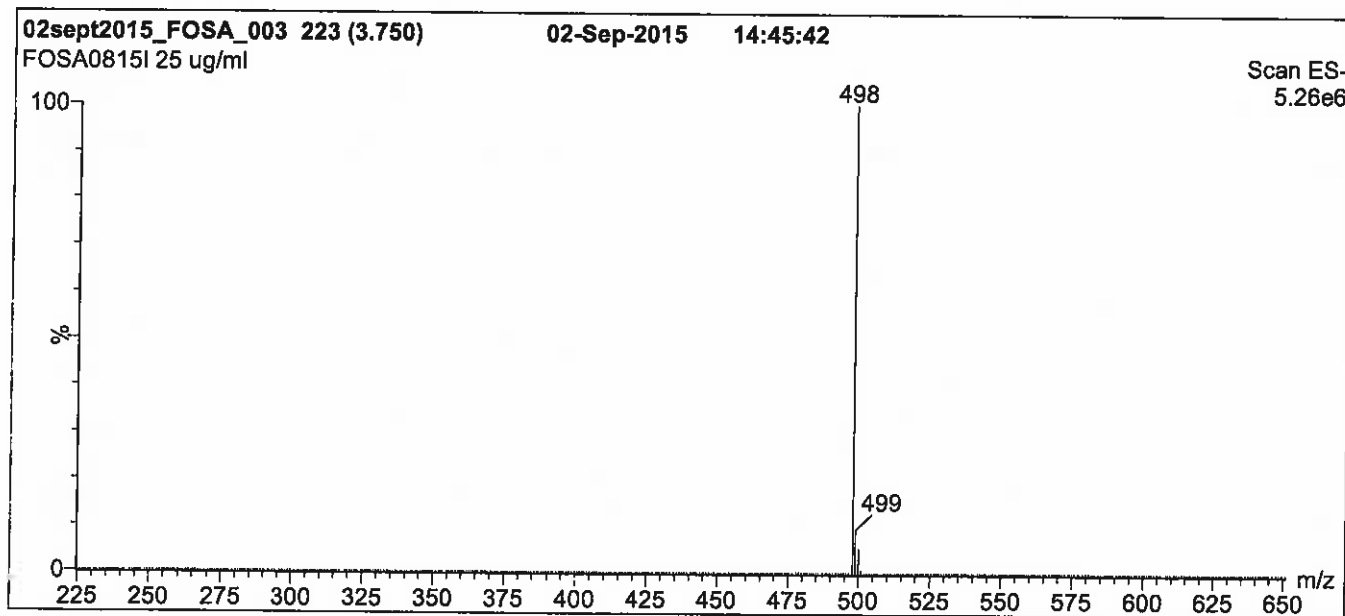
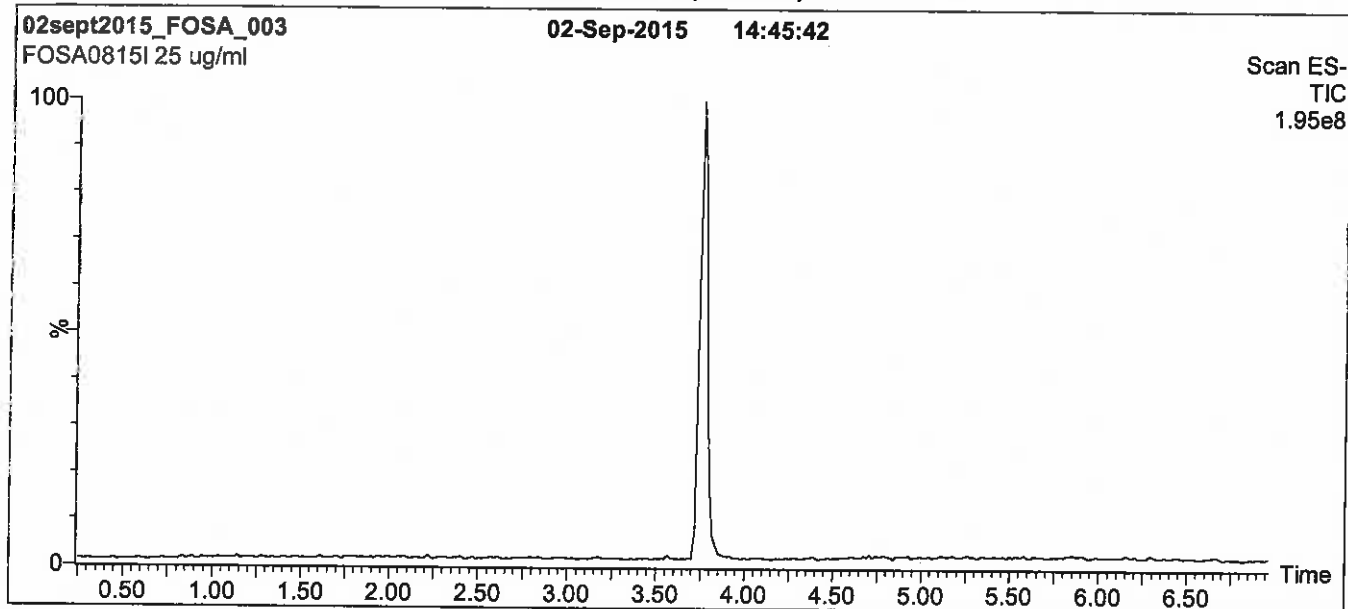
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

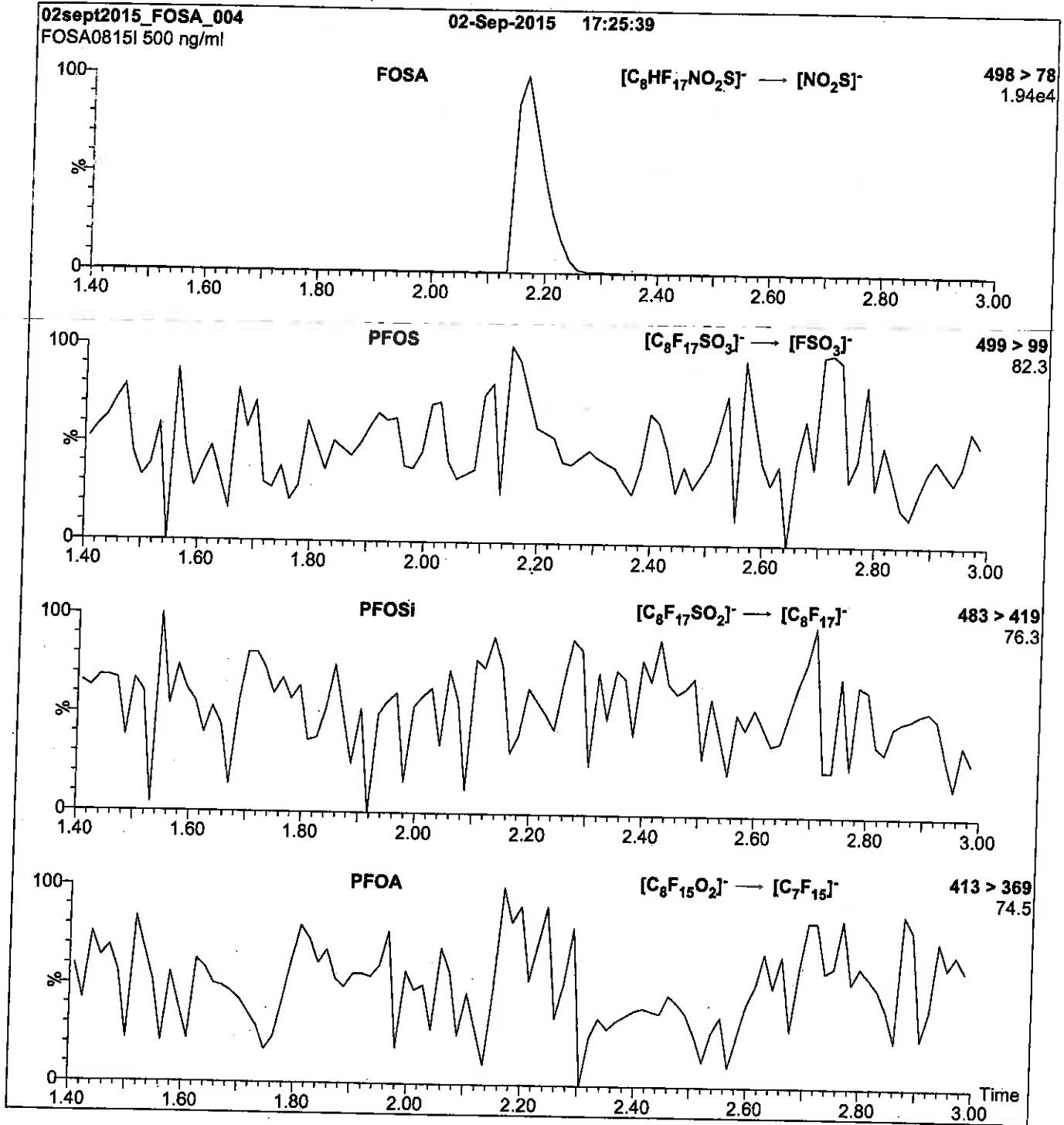
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCFPeA_00005

R: 7/6/16 CBW

671579
ID: LCPFeA_00005
Exp: 01/30/20 Prod: CBW
PF-n-pentanoic acid

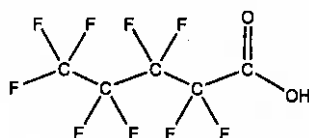


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFPeA **LOT NUMBER:** PFPeA0115
COMPOUND: Perfluoro-n-pentanoic acid

STRUCTURE: **CAS #:** 2706-90-3



<u>MOLECULAR FORMULA:</u>	C ₅ HF ₉ O ₂	<u>MOLECULAR WEIGHT:</u>	264.05
<u>CONCENTRATION:</u>	50 ± 2.5 µg/ml	<u>SOLVENT(S):</u>	Methanol Water (<1%)
<u>CHEMICAL PURITY:</u>	>98%		
<u>LAST TESTED:</u> (mm/dd/yyyy)	01/30/2015		
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	01/30/2020		
<u>RECOMMENDED STORAGE:</u>	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 C₅H₂F₈O₂ (hydrido - derivative) as measured by ¹⁹F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

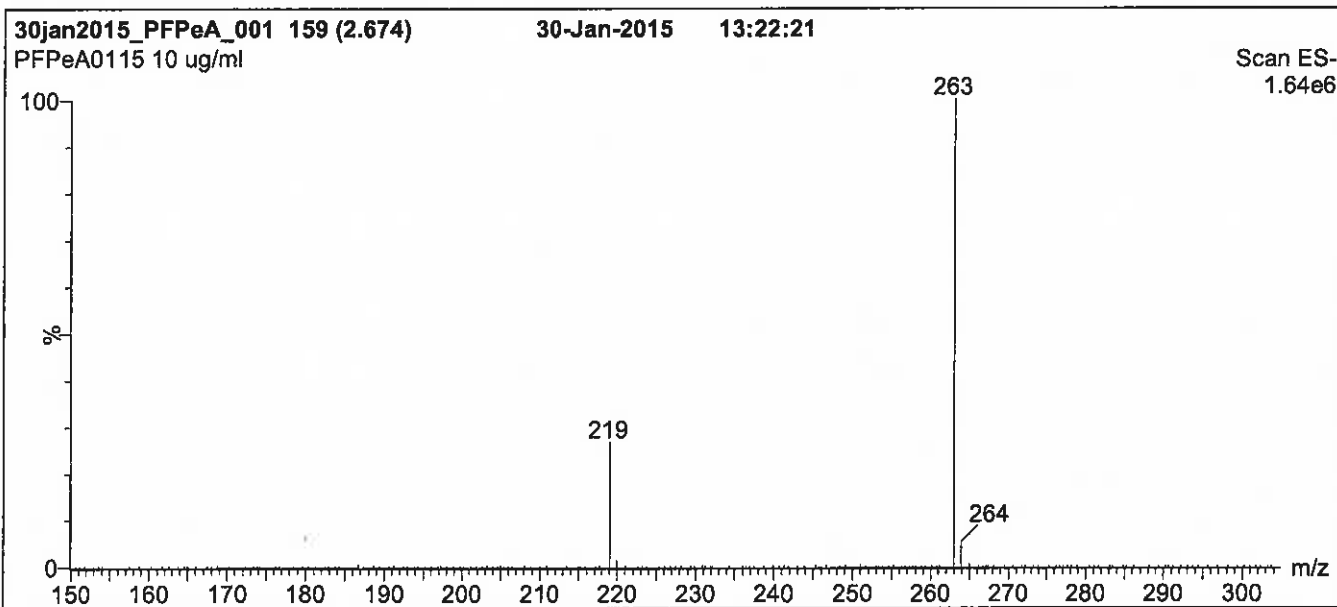
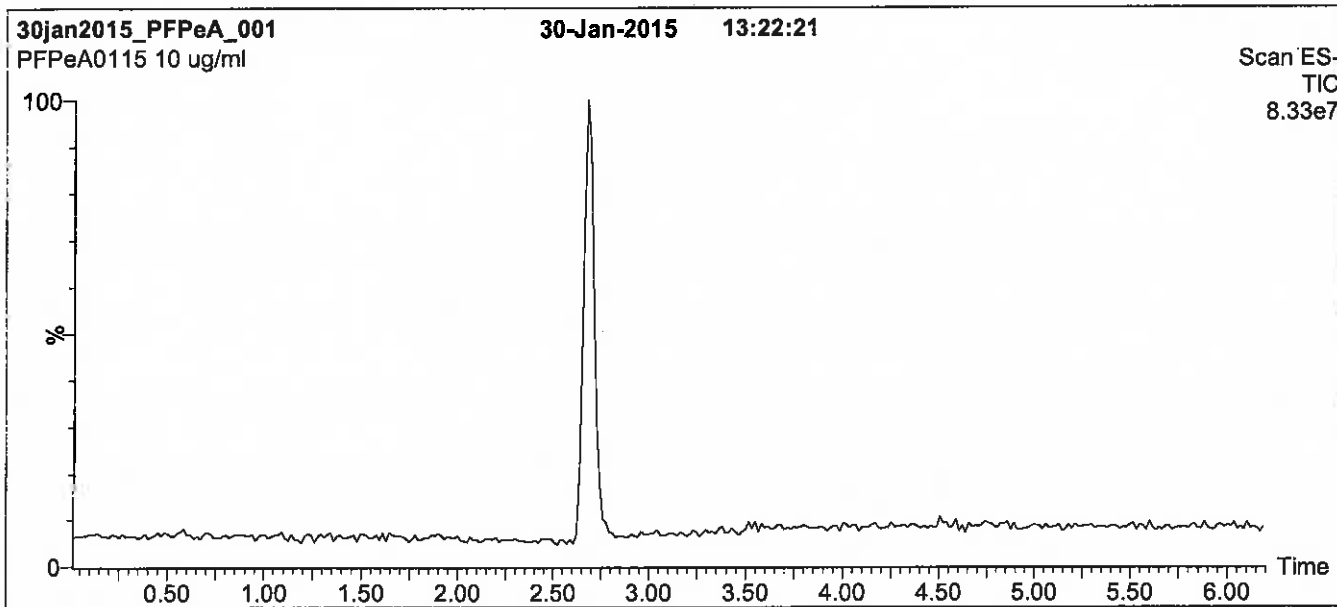
QUALITY MANAGEMENT:

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



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: PFPeA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro micro API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μm, 2.1 x 100 mm

Mobile phase: Gradient
 Start: 30% (80:20 MeOH:ACN) / 70% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7.5 min and hold for 1 min
 before returning to initial conditions in 0.5 min.
 Time: 10 min

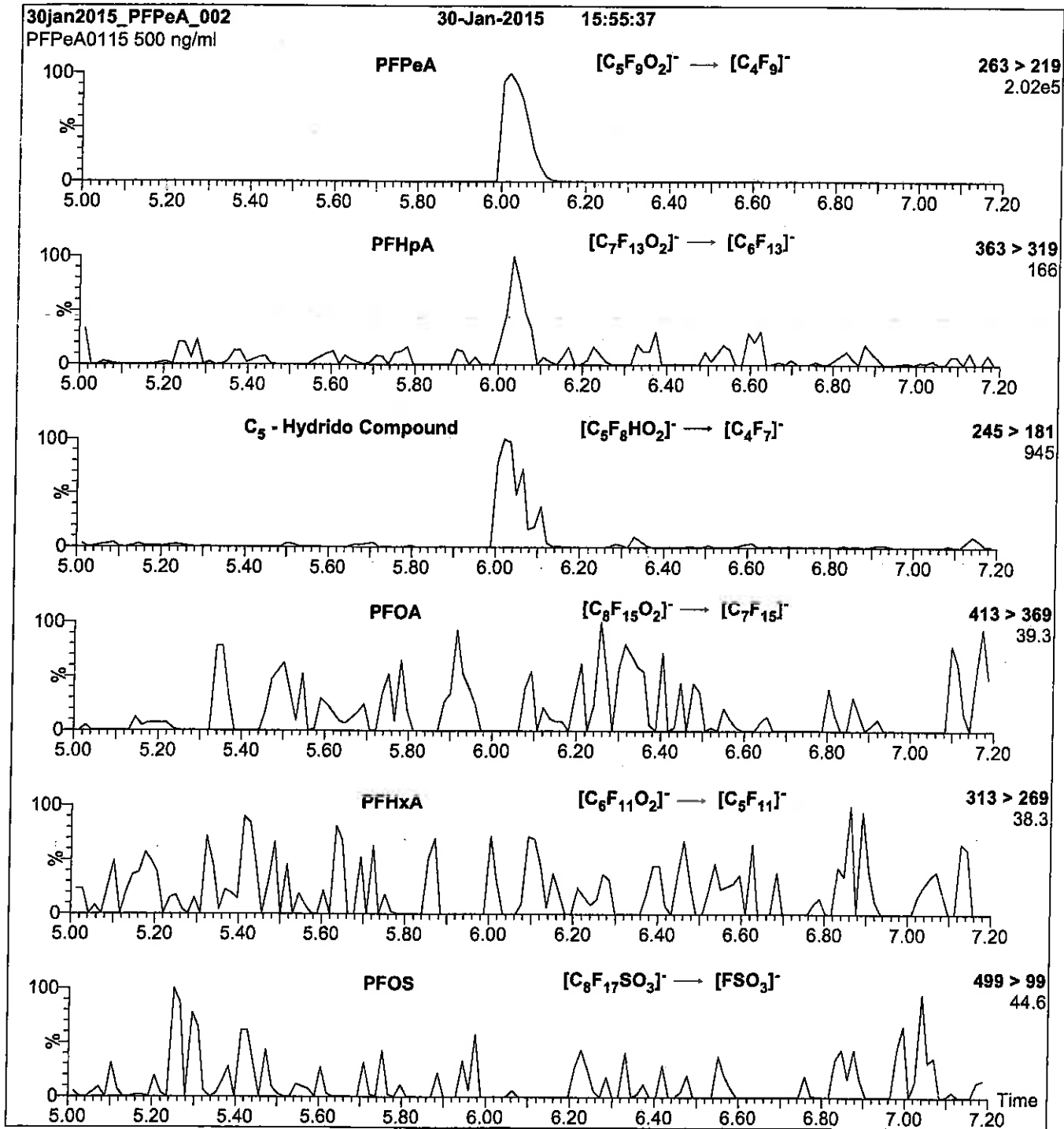
Flow: 300 μl/min

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 μ l (500 ng/ml PFPeA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
 (both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
 Collision Energy (eV) = 9

Reagent

LCPFTeDA_00005

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

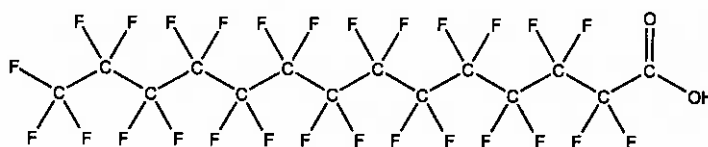


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTeDA **LOT NUMBER:** PFTeDA1215
COMPOUND: Perfluoro-n-tetradecanoic acid

STRUCTURE: **CAS #:** 376-06-7



MOLECULAR FORMULA: C₁₄H₂₇F₂₇O₂ **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 (C₁₂H₂₃F₂₃O₂) and ~ 0.2% of PFPeDA (C₁₆H₂₉F₂₉O₂).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 12/09/2015
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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where x is expressed as a relative standard uncertainty of the individual parameter.

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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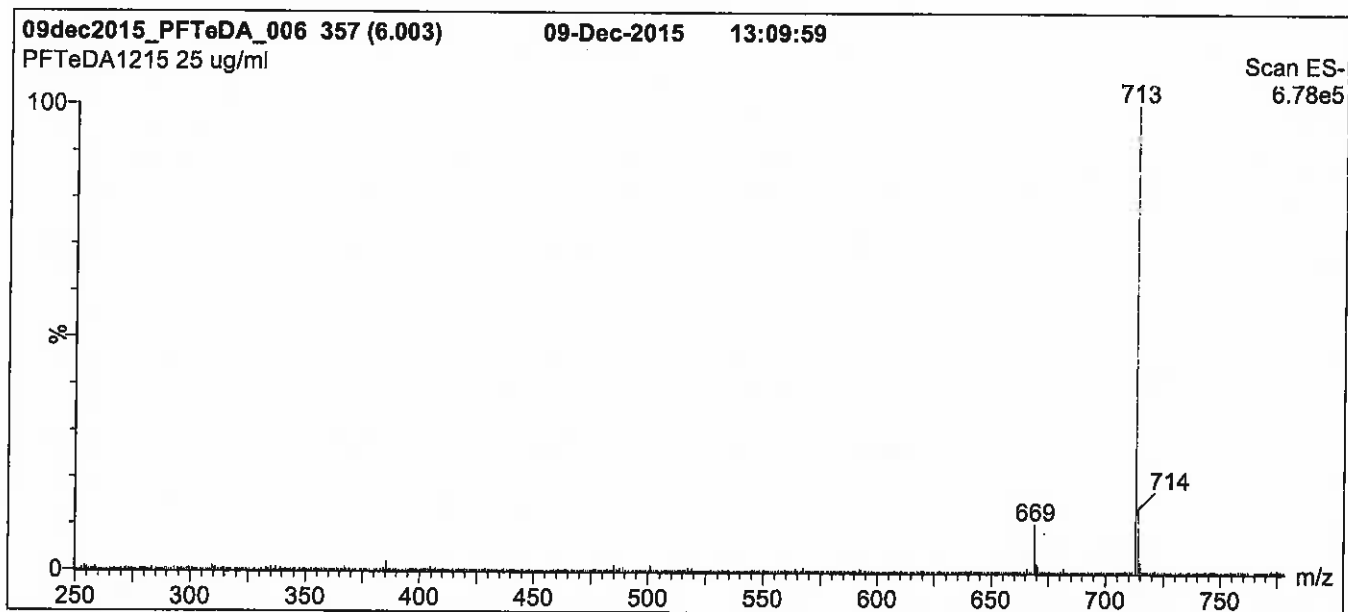
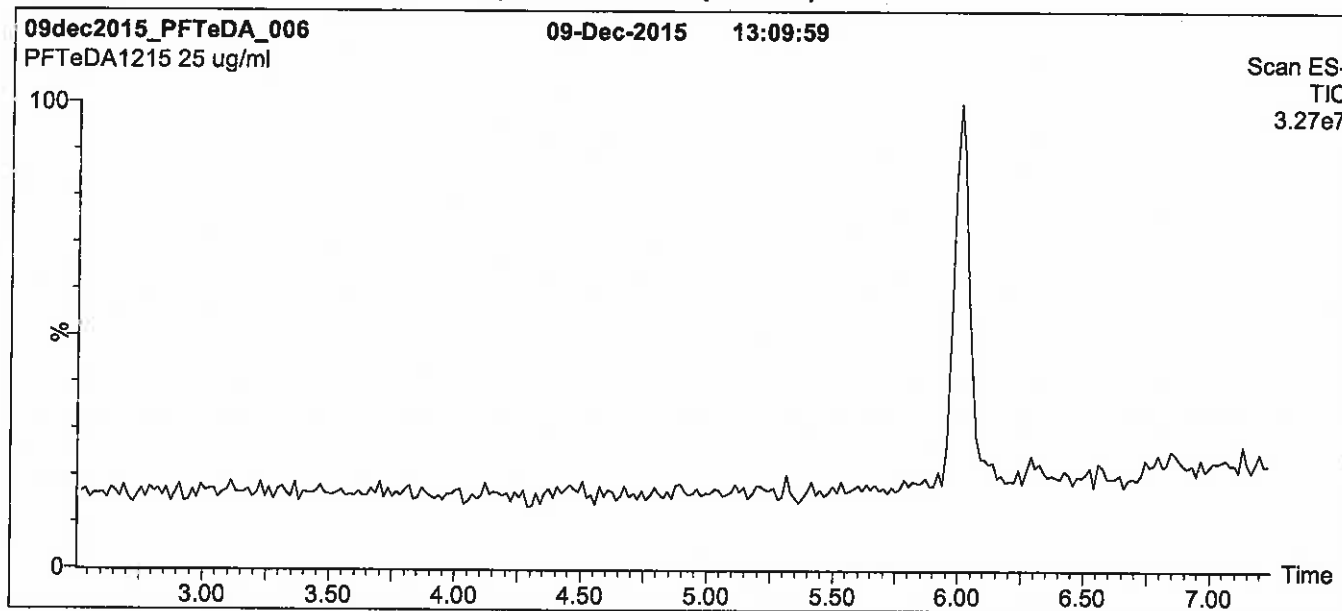
QUALITY MANAGEMENT:

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Figure 1: PFTeDA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

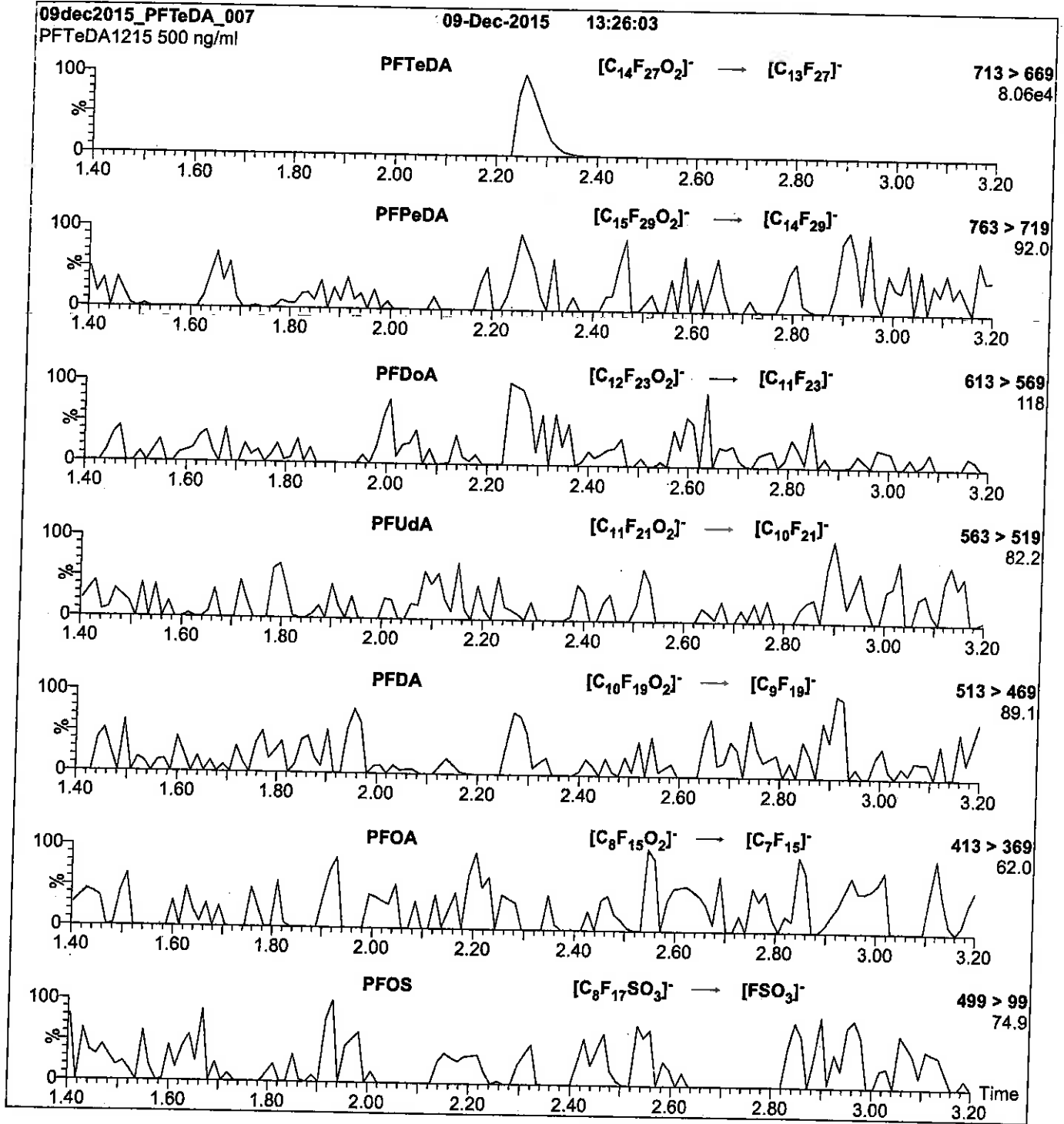
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: PFTeDA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFTeDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 14

Reagent

LCPFT_rDA_00005

R: SBC 9/13/16



730665
ID: LCPFTrDA_00005
Exp: 02/12/21 Prod: SBC
PF-n-tridecanoic acid



730666
ID: LCPFTrDA_00006
Exp: 02/12/21 Prod: SBC
PF-n-tridecanoic acid

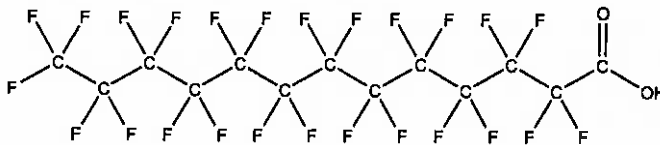


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LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFTrDA **LOT NUMBER:** PFTrDA0216
COMPOUND: Perfluoro-n-tridecanoic acid

STRUCTURE: **CAS #:** 72629-94-8



MOLECULAR FORMULA: $C_{13}HF_{25}O_2$ **MOLECULAR WEIGHT:** 664.11
CONCENTRATION: $50 \pm 2.5 \mu\text{g/ml}$ **SOLVENT(S):** Methanol
Water (<1%)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/12/2016
EXPIRY DATE: (mm/dd/yyyy) 02/12/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of PFUdA ($C_{11}HF_{21}O_2$), ~ 0.4% of PFDdA ($C_{12}HF_{23}O_2$), and ~ 0.1% of PFTeDA ($C_{14}HF_{27}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 02/16/2016
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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HAZARDS:

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Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

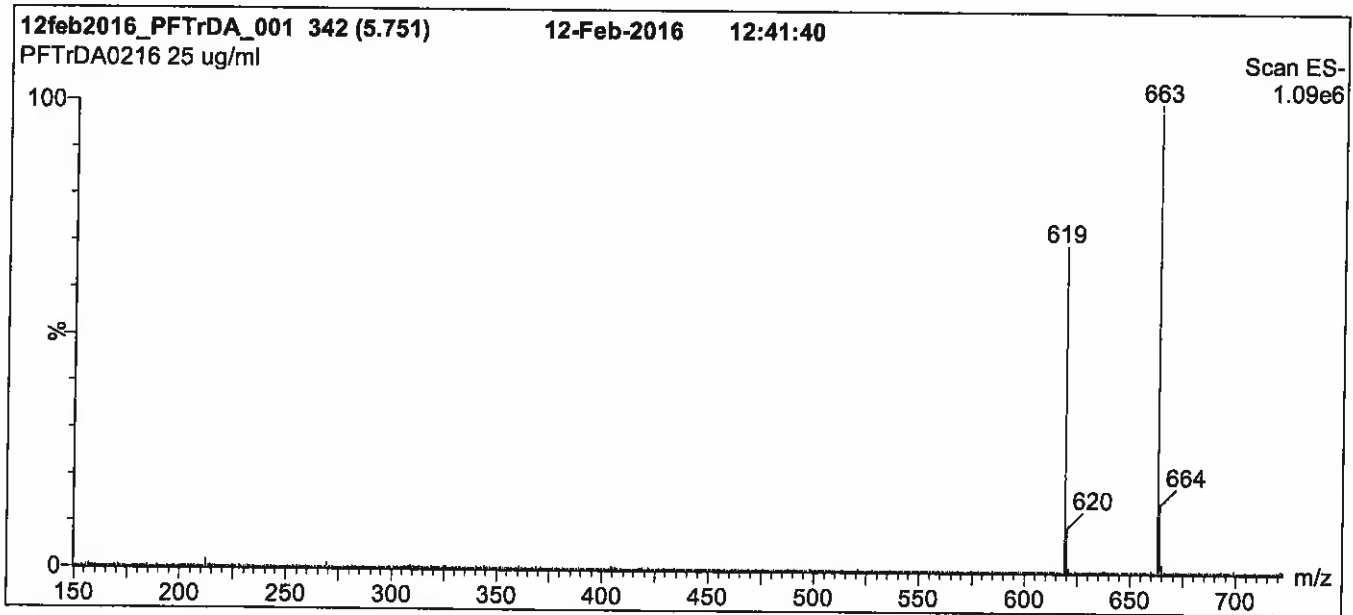
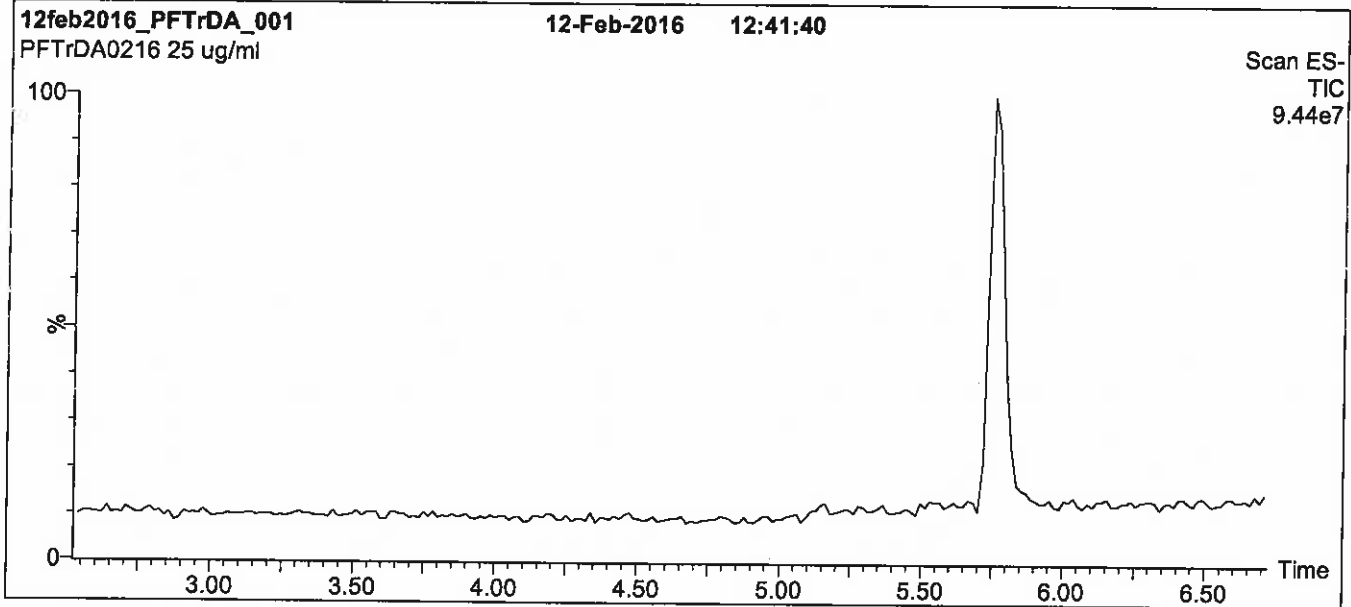
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: PFTTrDA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
 Start: 60% (80:20 MeOH:ACN) / 40% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min and hold for 1.5 min
 before returning to initial conditions in 0.5 min.
 Time: 10 min

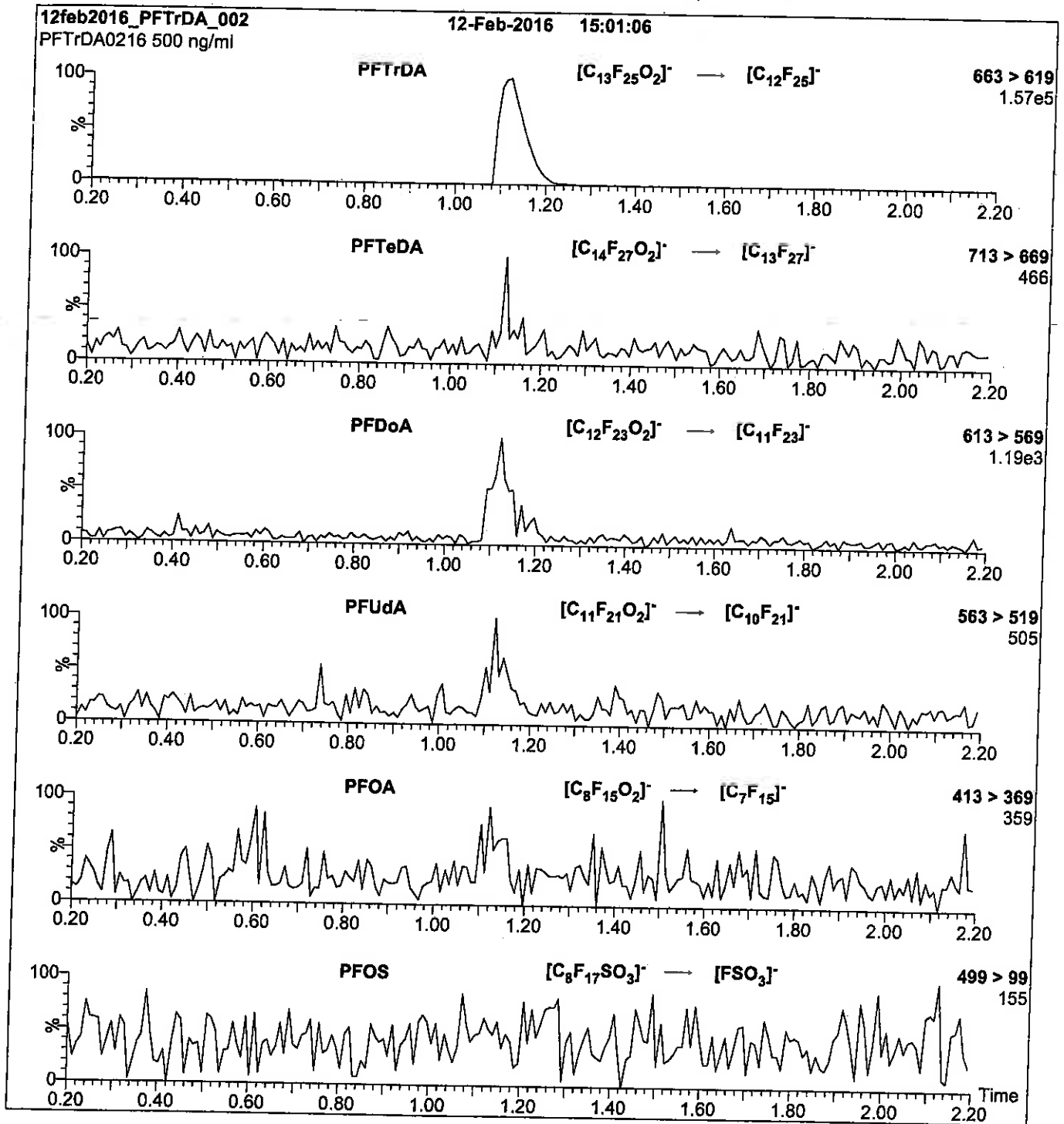
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.00
 Cone Voltage (V) = 22.00
 Cone Gas Flow (l/hr) = 60
 Desolvation Gas Flow (l/hr) = 650

Figure 2: PFTrDA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml PFTrDA)

Mobile phase: Isocratic 80% MeOH / 20% H₂O

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 15

Reagent

LCPFUdA_00005

Scanned
10/14/16 R: SBC 9/13/16



730535
ID: LCPFUdA_00005
Exp: 08/19/20 Prpd: SBC
PF-n-undecanoic acid



730536
ID: LCPFUdA_00006
Exp: 08/19/20 Prpd: SBC
PF-n-undecanoic acid

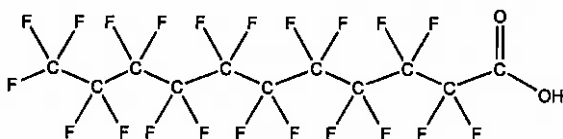


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFUdA **LOT NUMBER:** PFUdA0815
COMPOUND: Perfluoro-n-undecanoic acid

STRUCTURE: **CAS #:** 2058-94-8



MOLECULAR FORMULA: C₁₁H_{F₂₁}O₂
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)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

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The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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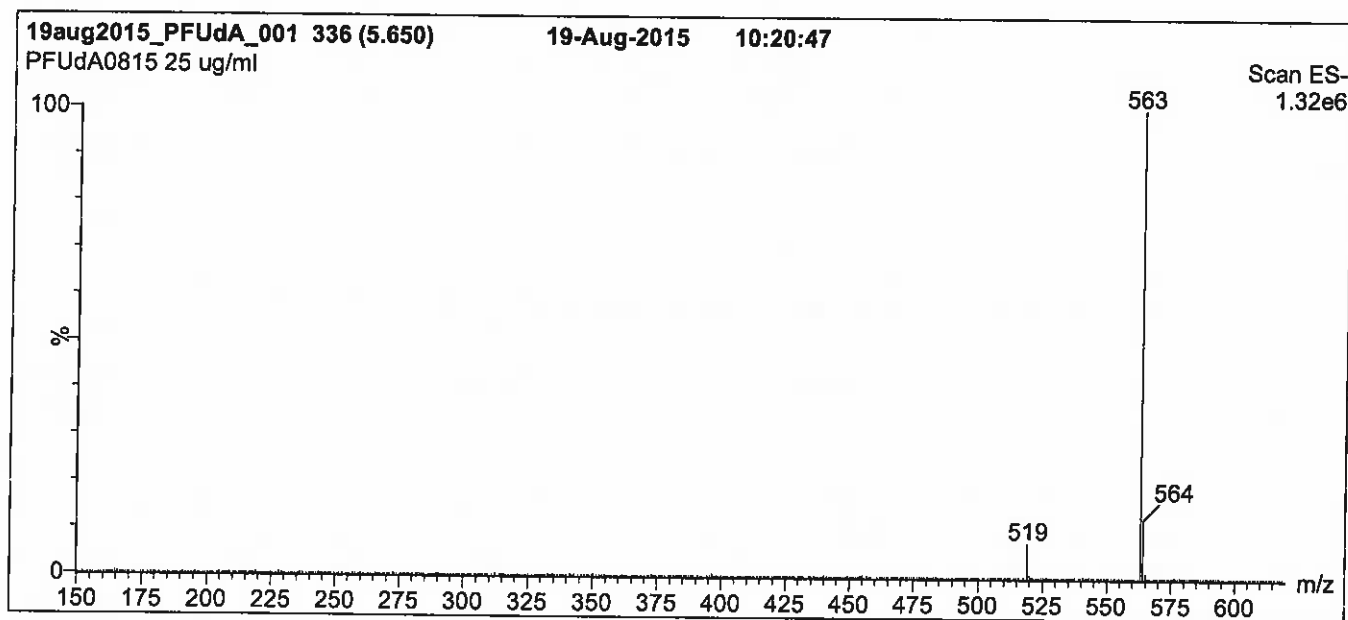
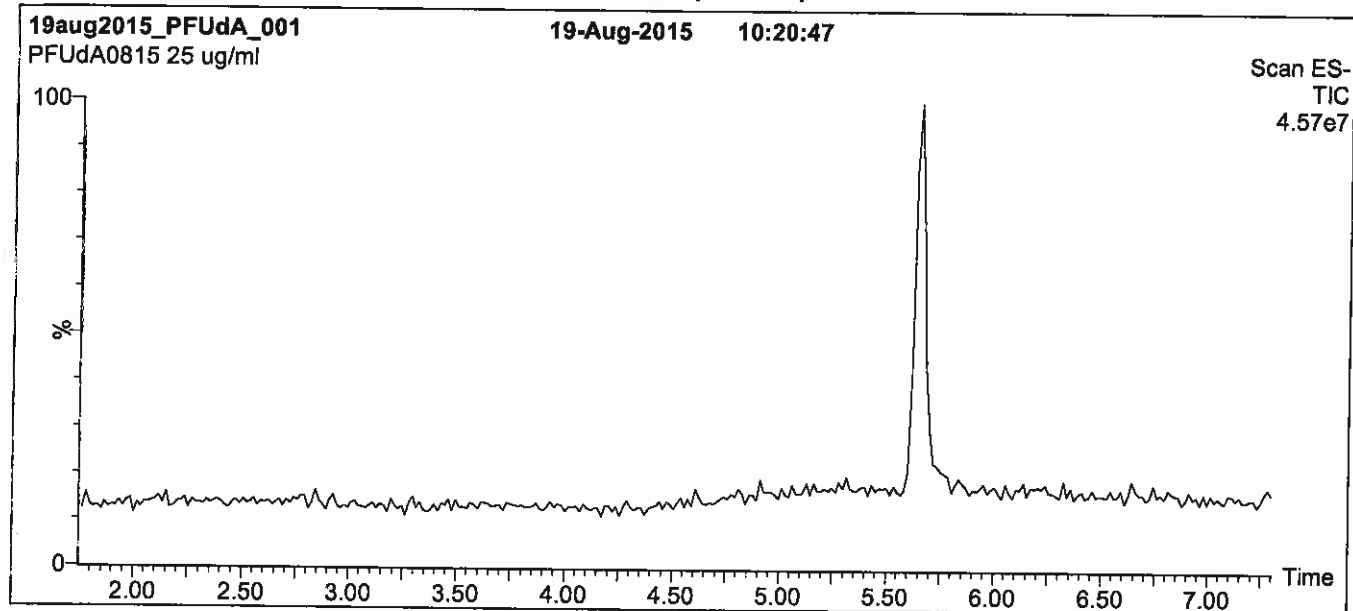
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: PFUdA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro micro API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

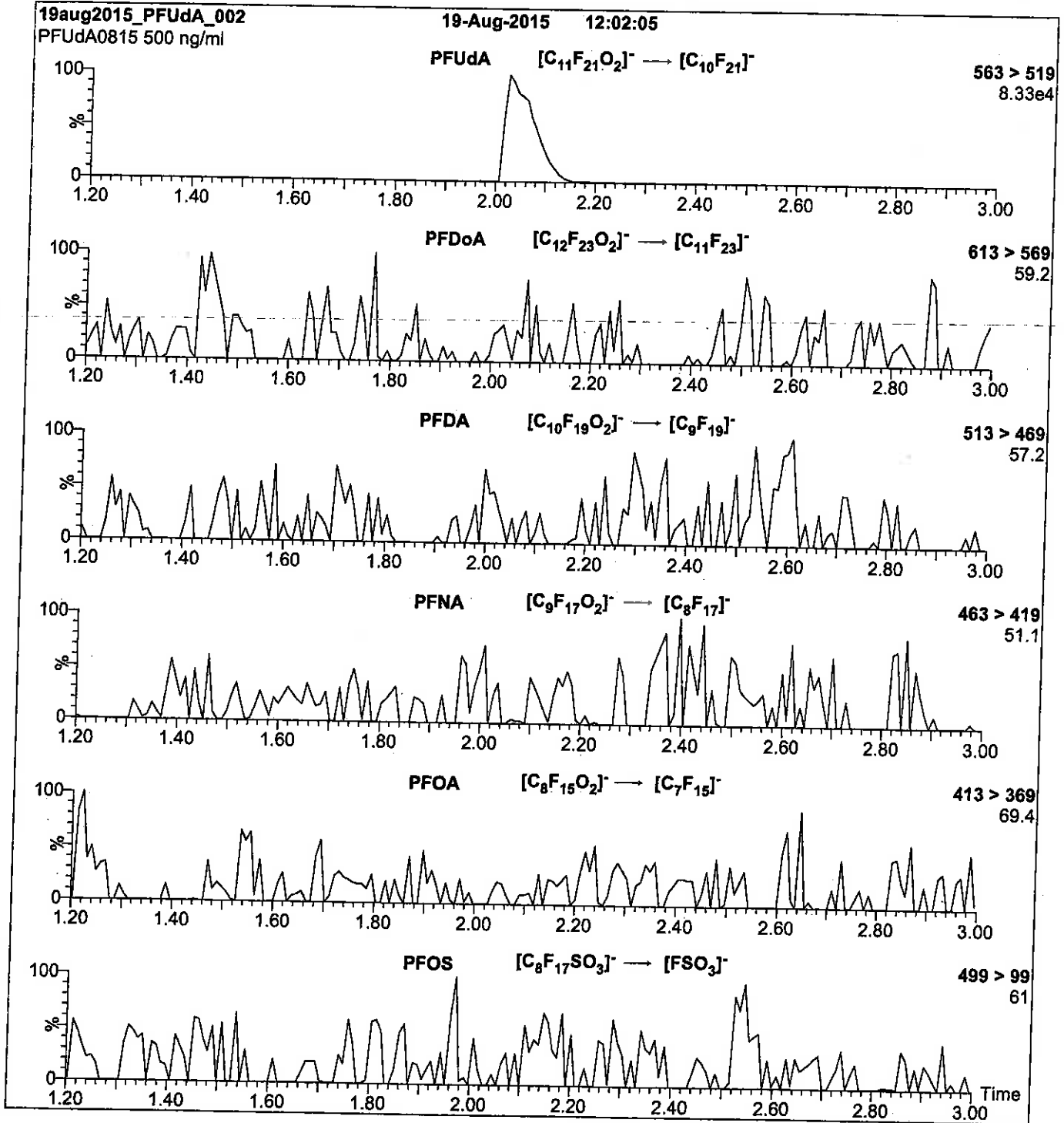
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

Figure 2: PFUdA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
 10 μ l (500 ng/ml PFUdA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
 (both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
 Collision Energy (eV) = 11

Reagent

MS14DIC_00007



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31853 Lot No.: A0124653

Description : 1,4-dioxane
1,4-Dioxane 2,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL Pkg Amt: > 1 mL

Expiration Date : February 28, 2022 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane CAS # 123-91-1 Purity 99% (Lot SHBG6312V)	1,984.0 µg/mL	+/- 11.7844	µg/mL	Gravimetric
			+/- 42.5460	µg/mL	Unstressed
			+/- 43.7790	µg/mL	Stressed

Solvent: Methylene Chloride (MEOH FREE)
CAS # 75-09-2
Purity 99%

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

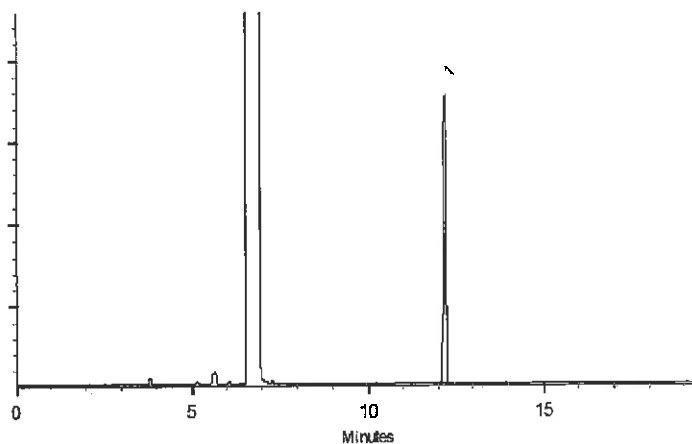
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.


Tom Suckal - Mix Technician

Date Mixed: 02-Feb-2017 **Balance:** 1128360905


Justine Albertson - Operations Tech-ARM GC

Date Passed: 06-Feb-2017

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Reagent

MS14DTA_00022

Certificate of Analysis

Description: 1,4-Dioxane, 1x1ml, methanol, 2000ug/ml

Catalog Number: CRM48367

Lot Number: LC16305V

Expiration: September 2018

Storage: Room Temperature

Instructions for Use:

This sample is ready to use.
No additional sample preparation
is necessary.

Analyte	CAS Number	Certified Conc. ug/mL	Uncertainty ug/mL	k
1,4-Dioxane	123-91-1	2000	+/- 58.2	2.00

Manufactured and certified by Sigma-Aldrich RTC, Inc.



Page 1 of 2

SIGMA-ALDRICH[®]

Notes:

- Certified value – based on a prepared to value and analytically verified by RTC with associated uncertainties from the preparation and analytical procedures.
- Expanded Uncertainty – Uncertainty values in this document are expressed as Expanded Uncertainty (Ucrm) corresponding to the 95% confidence interval. Ucrm is derived from the combined standard uncertainty multiplied by the coverage factor k, which is obtained from a t-distribution and degrees of freedom. The components of combined standard uncertainty include the uncertainties due to characterization, homogeneity, long term stability, and short term stability (transport). The components due to stability are generally considered to be negligible unless otherwise indicated by stability studies.
- k: Coverage factor derived from a t-distribution table, based on the degrees of freedom of the data set. Confidence interval = 95%
- Traceability: The standard was manufactured under an ISO/IEC certified quality system. The balance used to weight raw materials is accurate to +/- 0.0001g and calibrated regularly using mass standards traceable to NIST. All dilutions were performed gravimetrically. Additionally, individual analytes are traceable to NIST SMRs were available or other certified reference material as specified by each analyte.
- Homogeneity: Homogeneity was assessed in accordance with ISO Guide 35. Completed units were sampled using a random stratified sampling protocol. The results of chemical analysis were then compared using a one-way analysis of variance approach as described by TNI EL-V3-2009 Appendix A.2. See instructions for minimum sub-sample size.

Certification Date: 9/25/2015
Form: CRM48367

Duane Funk

Duane Funk
QC Manager

Manufactured and certified by Sigma-Aldrich RTC, Inc.



Page 2 of 2

SIGMA-ALDRICH®

Reagent

MS14DTA_00023



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Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31853 Lot No.: A0121319

Description : 1,4-dioxane
1,4-Dioxane 2,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL Pkg Amt: > 1 mL

Expiration Date : August 31, 2021 Storage: 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	1,4-Dioxane	2,001.0 µg/mL (Lot SHBG1461V)	+/-	11.7430	µg/mL	Gravimetric
	CAS # 123-91-1		+/-	42.8714	µg/mL	Unstressed
	Purity 99%		+/-	44.1160	µg/mL	Stressed

Solvent: Methylene Chloride (MEOH FREE)
CAS # 75-09-2
Purity 99%

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

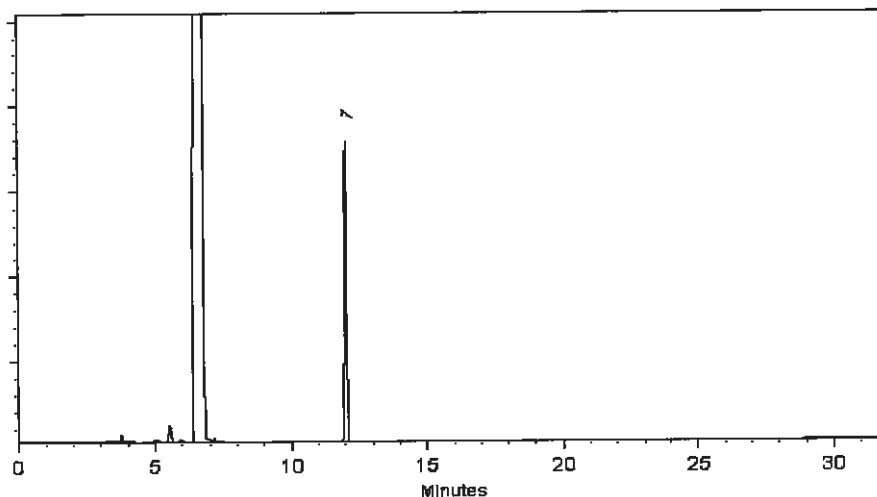
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Dawn Brownson
Dawn Brownson - Mix Technician

Date Mixed: 31-Aug-2016 **Balance:** 1128360905

Jennifer L. Pollino
Jennifer L. Pollino - QC Analyst

Date Passed: 02-Sep-2016

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Reagent

MS8270IS_00016



CERTIFIED REFERENCE MATERIAL

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Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

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Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 567684 **Lot No.:** A0120796

Description : 8270 Internal Standard
8270 Internal Standard 2,000µg/mL, Methylene Chloride, 5mL/ampul

Container Size : 5 mL **Pkg Amt:** > 5 mL

Expiration Date : August 31, 2021 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)			
1	1,4-Dichlorobenzene-d4 CAS # 3855-82-1 Purity 99% (Lot PR-18488)	2,008.2 µg/mL	+/-	11.6758	µg/mL	Gravimetric
			+/-	90.4505	µg/mL	Unstressed
			+/-	100.3660	µg/mL	Stressed
2	Naphthalene-d8 CAS # 1146-65-2 Purity 99% (Lot M-1452)	2,004.0 µg/mL	+/-	11.6514	µg/mL	Gravimetric
			+/-	90.2614	µg/mL	Unstressed
			+/-	100.1561	µg/mL	Stressed
3	Acenaphthene-d10 CAS # 15067-26-2 Purity 99% (Lot PR-25444)	2,007.7 µg/mL	+/-	11.6729	µg/mL	Gravimetric
			+/-	90.4280	µg/mL	Unstressed
			+/-	100.3410	µg/mL	Stressed
4	Phenanthrene-d10 CAS # 1517-22-2 Purity 99% (Lot PR-23065)	2,011.4 µg/mL	+/-	11.6945	µg/mL	Gravimetric
			+/-	90.5947	µg/mL	Unstressed
			+/-	100.5260	µg/mL	Stressed
5	Chrysene-d12 CAS # 1719-03-5 Purity 98% (Lot PR-26678)	2,018.8 µg/mL	+/-	11.7375	µg/mL	Gravimetric
			+/-	90.9280	µg/mL	Unstressed
			+/-	100.8958	µg/mL	Stressed
6	Perylene-d12 CAS # 1520-96-3 Purity 99% (Lot PR-24113)	2,002.6 µg/mL	+/-	11.6433	µg/mL	Gravimetric
			+/-	90.1983	µg/mL	Unstressed
			+/-	100.0862	µg/mL	Stressed

Solvent: Methylene Chloride
CAS # 75-09-2
Purity 99%

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

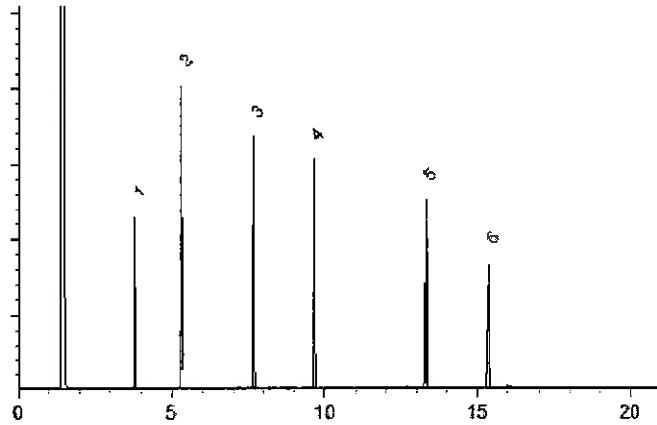
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Dawn Brownson
Dawn Brownson - Mix Technician

Date Mixed: 03-Aug-2016 **Balance:** 1128353505

[Signature]
Quality Assurance - QC Analyst

Date Passed: 05-Aug-2016

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Reagent

MS8270SU_00094



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 570814 **Lot No.:** A0117528

Description : 8270 Surrogate Standard RTS with Indicator
8270 Surrogate Standard RTS with Indicator 100 µg/ml,
Methanol/Methylene Chloride (95:5), 100 ml/bottle

Container Size : 100 mL **Pkg Amt:** > 100 mL

Expiration Date : February 28, 2019 **Storage:** 10°C or colder

Handling: Sonicate prior to use.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)			
1	2-Fluorophenol	100.5 µg/mL (Lot STBC5591V)	+/-	0.5843	µg/mL	Gravimetric
	CAS # 367-12-4		+/-	2.9326	µg/mL	Unstressed
	Purity 99%		+/-	3.5586	µg/mL	Stressed
2	Phenol-d5	100.2 µg/mL (Lot X479P8)	+/-	0.5827	µg/mL	Gravimetric
	CAS # 4165-62-2		+/-	2.9250	µg/mL	Unstressed
	Purity 99%		+/-	3.5494	µg/mL	Stressed
3	Nitrobenzene-d5	100.0 µg/mL (Lot PR-24042)	+/-	0.5814	µg/mL	Gravimetric
	CAS # 4165-60-0		+/-	2.9183	µg/mL	Unstressed
	Purity 99%		+/-	3.5413	µg/mL	Stressed
4	2-Fluorobiphenyl	100.0 µg/mL (Lot S26B003)	+/-	0.5815	µg/mL	Gravimetric
	CAS # 321-60-8		+/-	2.9186	µg/mL	Unstressed
	Purity 99%		+/-	3.5416	µg/mL	Stressed
5	2,4,6-Tribromophenol	100.6 µg/mL (Lot 29699MJV)	+/-	0.5846	µg/mL	Gravimetric
	CAS # 118-79-6		+/-	2.9344	µg/mL	Unstressed
	Purity 99%		+/-	3.5608	µg/mL	Stressed
6	p-Terphenyl-d14	100.0 µg/mL (Lot PR-21037)	+/-	0.5814	µg/mL	Gravimetric
	CAS # 1718-51-0		+/-	2.9183	µg/mL	Unstressed
	Purity 99%		+/-	3.5413	µg/mL	Stressed

Solvent: Methanol/Methylene Chloride (95:5)
CAS # 67-56-1/75-09-2
Purity 99%

Tech Tips:

Due to the limited solubility of p-terphenyl-d14 in methanol, we do not recommend that this mixture be diluted in methanol.

Column:
30m x 0.25mm x 0.25µm
Rtx-S (cat.#10223)

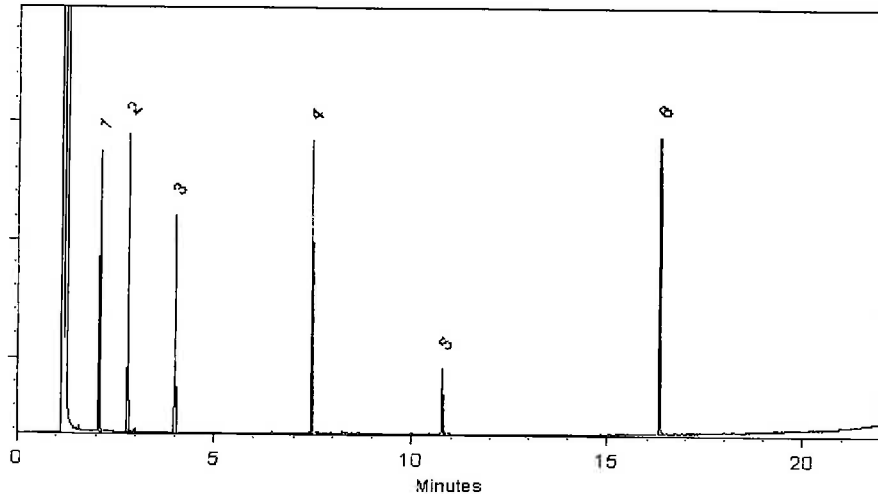
Carrier Gas:
hydrogen-constant flow 1.8 mL/min.

Temp. Program:
80°C (hold 0.1 min.) to 330°C
@ 9.6°C/min. (hold 0.86 min.)

Inj. Temp:
250°C

Det. Temp:
340°C

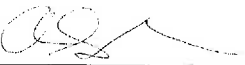
Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.


Brandon Cook - Mix Technician

Date Mixed: 23-Feb-2016 Balance: B442140311


Amanda Miller - QC Analyst

Date Passed: 26-Feb-2016

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO Guides 34 and 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k \sqrt{U_{gravimetric}^2 + U_{homogeneity}^2 + U_{storage\ stability}^2 + U_{shipping\ stability}^2}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Samples should be transferred into deactivated vials for handling and storage. Restek supplies deactivated vials along with most standards packed in 2 mL ampules. Due to space constraints, Restek does not supply vials for larger volume ampules. Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions. Restek will also deactivate larger volume vials from our inventory as a custom ordered item. Contact your Restek sales or customer service representative for details.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

MS8270SU_00100



CERTIFIED REFERENCE MATERIAL

110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

www.restek.com

Certificate of Analysis



FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 567685 Lot No.: A0103960

Description : 8270 Surrogate Standard
8270 Surrogate Standard 5,000 ug/ml, Methylene Chloride, 5 ml/ampul

Container Size : 5 mL Pkg Amt: > 5 mL

Expiration Date : June 30, 2019 Storage: 10°C or colder

Handling: Sonicate prior to use.

Rec'd 4/22/16

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L., K=2)	
1	2-Fluorophenol	5,006.1 µg/mL	+/- 29.1044 µg/mL	Gravimetric
	CAS # 367-12-4 (Lot STBC5591V)		+/- 124.7363 µg/mL	Unstressed
	Purity 99%		+/- 156.8636 µg/mL	Stressed
2	Phenol-d5	5,002.5 µg/mL	+/- 29.0834 µg/mL	Gravimetric
	CAS # 4165-62-2 (Lot X479P6)		+/- 124.6466 µg/mL	Unstressed
	Purity 99%		+/- 156.7508 µg/mL	Stressed
3	Nitrobenzene-d5	5,003.7 µg/mL	+/- 29.0901 µg/mL	Gravimetric
	CAS # 4165-60-0 (Lot PR-20474)		+/- 124.6753 µg/mL	Unstressed
	Purity 99%		+/- 156.7868 µg/mL	Stressed
4	2-Fluorobiphenyl	5,002.4 µg/mL	+/- 29.0826 µg/mL	Gravimetric
	CAS # 321-60-8 (Lot B19Z016)		+/- 124.6429 µg/mL	Unstressed
	Purity 99%		+/- 156.7461 µg/mL	Stressed
5	2,4,6-Tribromophenol	5,024.2 µg/mL	+/- 29.2093 µg/mL	Gravimetric
	CAS # 118-79-6 (Lot 29699MJV)		+/- 125.1861 µg/mL	Unstressed
	Purity 99%		+/- 157.4292 µg/mL	Stressed
6	p-Terphenyl-d14	5,010.4 µg/mL	+/- 29.1291 µg/mL	Gravimetric
	CAS # 1718-51-0 (Lot PR-20577)		+/- 124.8422 µg/mL	Unstressed
	Purity 99%		+/- 156.9968 µg/mL	Stressed

Solvent: Methylene Chloride
CAS # 75-09-2
Purity 99%

Tech Tips:

Due to the limited solubility of p-terphenyl-d14 in methanol, we do not recommend that this mixture be diluted in methanol.

Column:

30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

Carrier Gas:

hydrogen-constant pressure 10 psi.

Temp. Program:

40°C (hold 2 min.) to 330°C
@ 10°C/min. (hold 10 min.)

Inj. Temp:

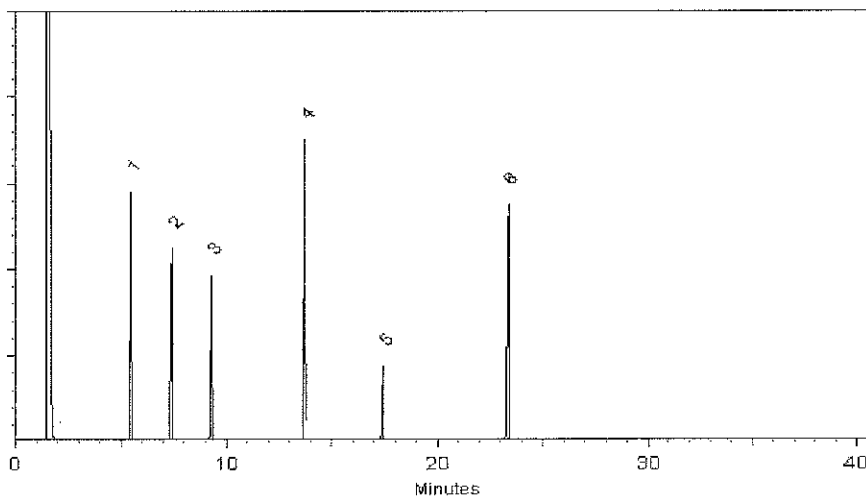
250°C

Det. Temp:

330°C

Det. Type:

FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Rebecca Hawer

Date Mixed: 11-Jun-2014 **Balance:** 1128360905

Jennifer L. Pollino
Jennifer L. Pollino - QC Analyst

Date Passed: 23-Jun-2014

Manufactured under Restek's ISO 9001:2008
Registered Quality System
Certificate #FM 80397

Method 8270C SIM

Semivolatile Organic Compounds
(GC/MS SIM) by Method 8270C (SIM)

FORM II
GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 320-26273-1

SDG No.: _____

Matrix: Water

Level: Low

GC Column (1): HP-5MS ID: 0.25 (mm)

Client Sample ID	Lab Sample ID	NBZ #
MEAFF-4AMW03-0317	320-26273-1	66
MEAFF-MRD-0630-0317	320-26273-2	72
MEAFF-4AMW01-0317	320-26273-3	70
MEAFF-4CMW01-0317	320-26273-4	64
MEAFF-4CMW03-0317	320-26273-5	73
MEAFF-FD05-0317	320-26273-6	63
	MB 320-153806/1-A	69
	LCS 320-153806/2-A	75
	LCSD 320-153806/3-A	71

NBZ = Nitrobenzene-d5

QC LIMITS
42-91

Column to be used to flag recovery values

FORM II WS-MS-0011

FORM III
GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: S031417.D

Lab ID: LCS 320-153806/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,4-Dioxane	10.0	3.17	32	12-52	M

Column to be used to flag recovery and RPD values

FORM III
GC/MS SEMI VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: S031418.D

Lab ID: LCSO 320-153806/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCSO CONCENTRATION (ug/L)	LCSO % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,4-Dioxane	10.0	3.12	31	2	20	12-52	M

Column to be used to flag recovery and RPD values

FORM IV
GC/MS SEMI VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Lab File ID: S031416.D Lab Sample ID: MB 320-153806/1-A
 Matrix: Water Date Extracted: 03/08/2017 08:41
 Instrument ID: SV1 Date Analyzed: 03/14/2017 20:43
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-153806/2-A	S031417.D	03/14/2017 21:06
	LCSD 320-153806/3-A	S031418.D	03/14/2017 21:28
MEAFF-4AMW03-0317	320-26273-1	S031419.D	03/14/2017 21:50
MEAFF-MRD-0630-0317	320-26273-2	S031420.D	03/14/2017 22:13
MEAFF-4AMW01-0317	320-26273-3	S031421.D	03/14/2017 22:35
MEAFF-4CMW01-0317	320-26273-4	S031422.D	03/14/2017 22:57
MEAFF-4CMW03-0317	320-26273-5	S031423.D	03/14/2017 23:20
MEAFF-FD05-0317	320-26273-6	S031424.D	03/14/2017 23:42

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Sample No.: ICIS 320-151686/5 Date Analyzed: 02/22/2017 11:03
 Instrument ID: SV1 GC Column: HP-5MS ID: 0.25 (mm)
 Lab File ID (Standard): 14D0222E.D Heated Purge: (Y/N) N
 Calibration ID: 28577

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		786305	7.20				
UPPER LIMIT		1572610	7.70				
LOWER LIMIT		393153	6.70				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 320-151686/9		879747	7.20				
CCV 320-154875/2		683060	7.17				
MB 320-153806/1-A		769575	7.17				
LCS 320-153806/2-A		633634	7.17				
LCSD 320-153806/3-A		692706	7.18				
320-26273-1	MEAFF-4AMW03-0317	700818	7.18				
320-26273-2	MEAFF-MRD-0630-0317	645825	7.17				
320-26273-3	MEAFF-4AMW01-0317	755231	7.18				
320-26273-4	MEAFF-4CMW01-0317	658587	7.17				
320-26273-5	MEAFF-4CMW03-0317	667575	7.17				
320-26273-6	MEAFF-FD05-0317	571994	7.17				
CCVC 320-154875/29		679174	7.17				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4AMW03-0317 Lab Sample ID: 320-26273-1
 Matrix: Water Lab File ID: S031419.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 12:25
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1048.1 (mL) Date Analyzed: 03/14/2017 21:50
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.48	U	0.95	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	66		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031419.D
 Lims ID: 320-26273-A-1-A
 Client ID: MEAFF-4AMW03-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 21:50:30 ALS Bottle#: 19 Worklist Smp#: 21
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-a-1-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: chajjita Date: 15-Mar-2017 14:30:54

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
-----	-----------	---------------	---------------	---	----------	-----------------	-------------	-------	-------

1 1,4-Dioxane									
58		3.320				ND			
88		3.320							
* 2 1,4-Dichlorobenzene-d4									
152	7.180	7.172	0.008	95	700818	10.0	80- 120	100	
150	7.172	7.172	0.000		1082617		135- 175	154	
115	7.172	7.172	0.000		389252		35.8- 75.8	55.5	
\$ 3 Nitrobenzene-d5									
82	8.034	8.035	-0.001	99	277491	3.28	80- 120	100	
128	8.043	8.035	0.008		147438		33.8- 73.8	53.1	
54	8.034	8.035	-0.001		160085		37.5- 77.5	57.7	

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031419.D

Injection Date: 14-Mar-2017 21:50:30

Instrument ID: SV1

Operator ID:

Lims ID: 320-26273-A-1-A

Lab Sample ID: 320-26273-1

Worklist Smp#: 21

Client ID: MEAFF-4AMW03-0317

Injection Vol: 1.0 ul

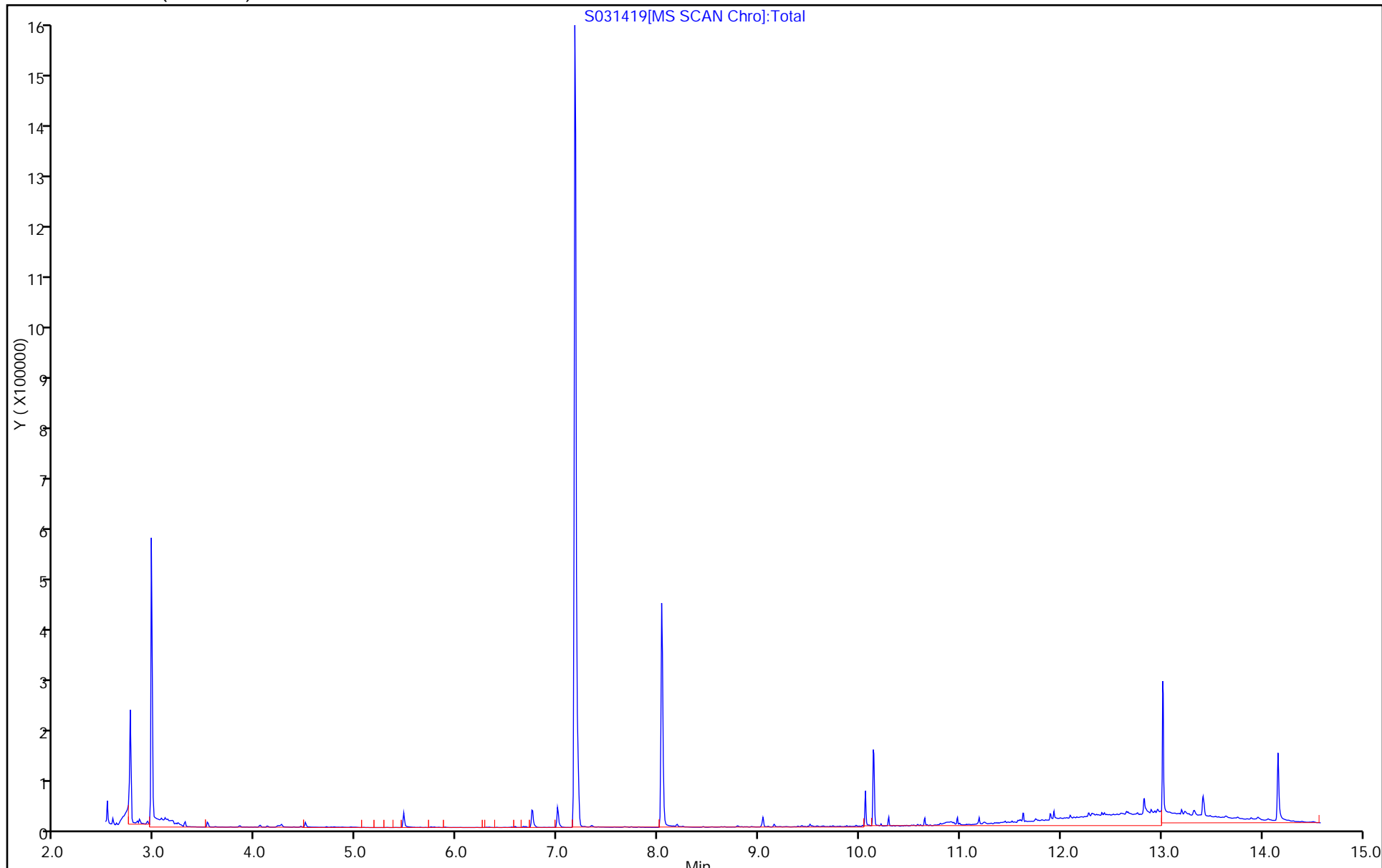
Dil. Factor: 1.0000

ALS Bottle#: 19

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031419.D
 Lims ID: 320-26273-A-1-A
 Client ID: MEAFF-4AMW03-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 21:50:30 ALS Bottle#: 19 Worklist Smp#: 21
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-a-1-a
 Operator ID: Instrument ID: SV1

Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: chajjita Date: 15-Mar-2017 14:30:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.28	65.57

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0630-0317 Lab Sample ID: 320-26273-2
 Matrix: Water Lab File ID: S031420.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 10:40
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1033.3 (mL) Date Analyzed: 03/14/2017 22:13
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.76	J M	0.97	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	72		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031420.D
 Lims ID: 320-26273-B-2-A
 Client ID: MEAFF-MRD-0630-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 22:13:30 ALS Bottle#: 20 Worklist Smp#: 22
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-b-2-a
 Operator ID: Instrument ID: SV1

Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 08:36:19 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK031

First Level Reviewer: chajjita Date: 15-Mar-2017 14:31:05

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane									
58	3.329	3.319	0.010	75	20415	0.7879	80- 120	100	M
88	3.329	3.319	0.010		21948		101- 141	108	
* 2 1,4-Dichlorobenzene-d4									
152	7.173	7.174	-0.001	100	645825	10.0	80- 120	100	
150	7.173	7.174	-0.001		997307		135- 175	154	
115	7.173	7.174	-0.001		359944		36.2- 76.2	55.7	
\$ 3 Nitrobenzene-d5									
82	8.035	8.036	-0.001	100	282532	3.62	80- 120	100	
128	8.035	8.036	-0.001		149877		33.9- 73.9	53.0	
54	8.035	8.036	-0.001		160924		36.9- 76.9	57.0	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031420.D

Injection Date: 14-Mar-2017 22:13:30

Instrument ID: SV1

Operator ID:

Lims ID: 320-26273-B-2-A

Lab Sample ID: 320-26273-2

Worklist Smp#: 22

Client ID: MEAFF-MRD-0630-0317

Injection Vol: 1.0 ul

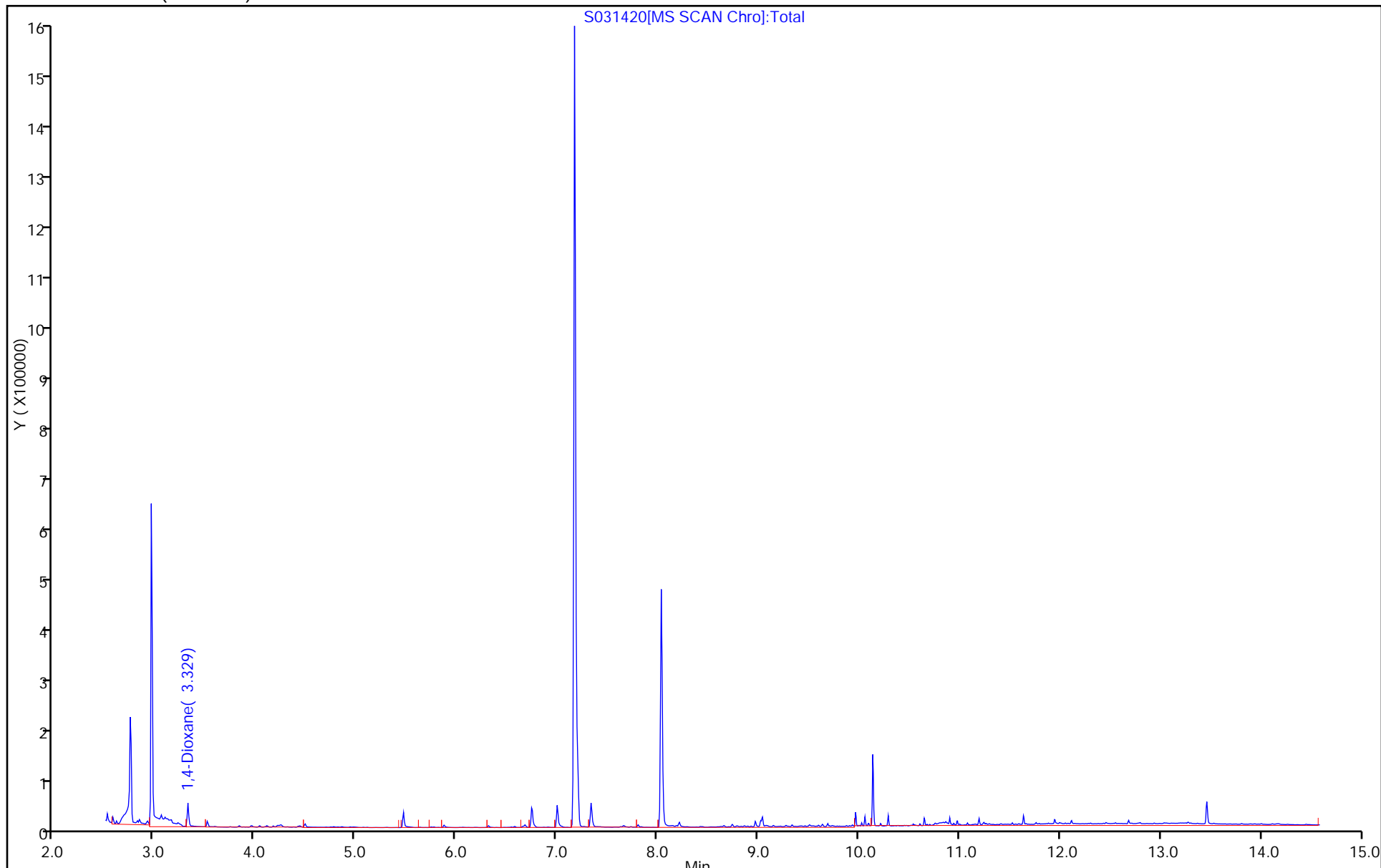
Dil. Factor: 1.0000

ALS Bottle#: 20

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031420.D
 Lims ID: 320-26273-B-2-A
 Client ID: MEAFF-MRD-0630-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 22:13:30 ALS Bottle#: 20 Worklist Smp#: 22
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-b-2-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 08:36:19 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK031

First Level Reviewer: chajjita

Date: 15-Mar-2017 14:31:05

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.62	72.45

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031420.D

Injection Date: 14-Mar-2017 22:13:30

Instrument ID: SV1

Lims ID: 320-26273-B-2-A

Lab Sample ID: 320-26273-2

Client ID: MEAFF-MRD-0630-0317

Operator ID:

ALS Bottle#: 20

Worklist Smp#: 22

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

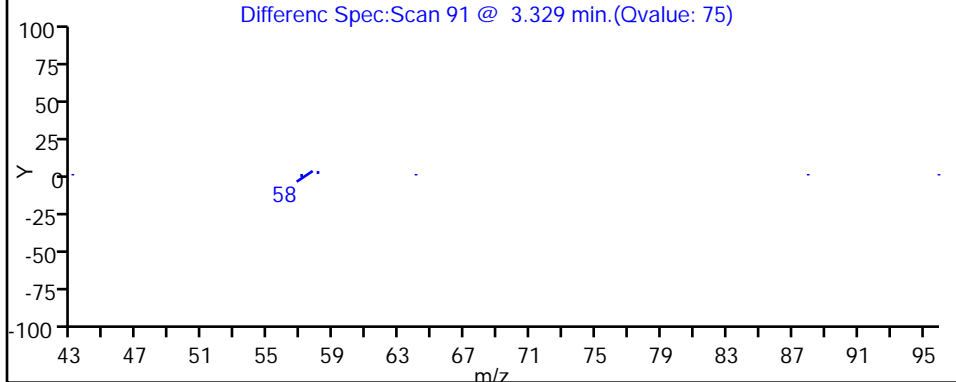
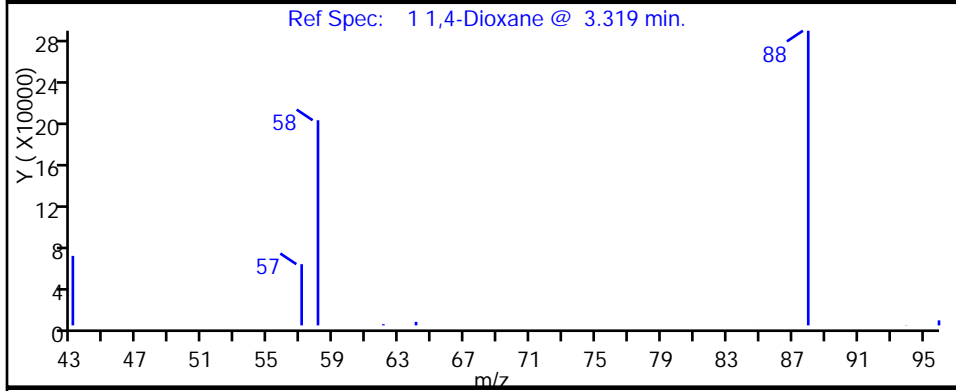
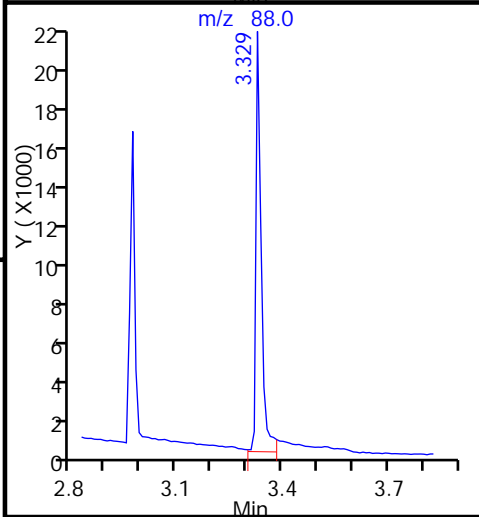
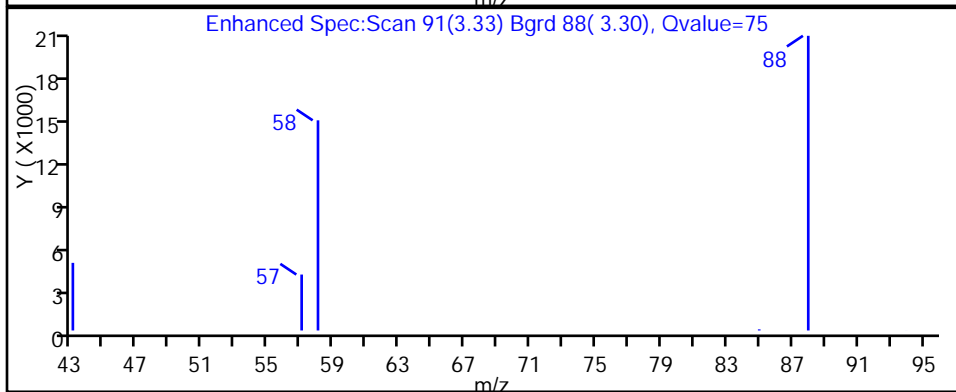
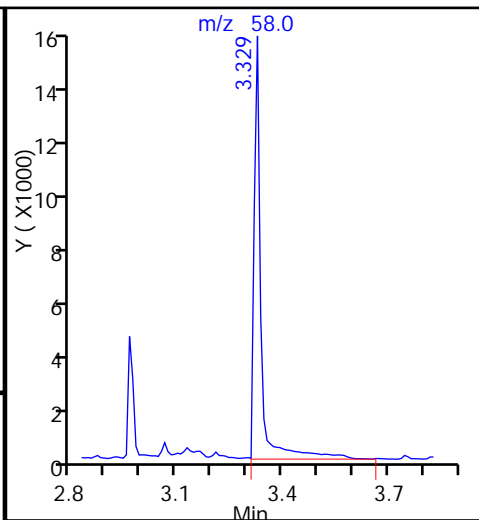
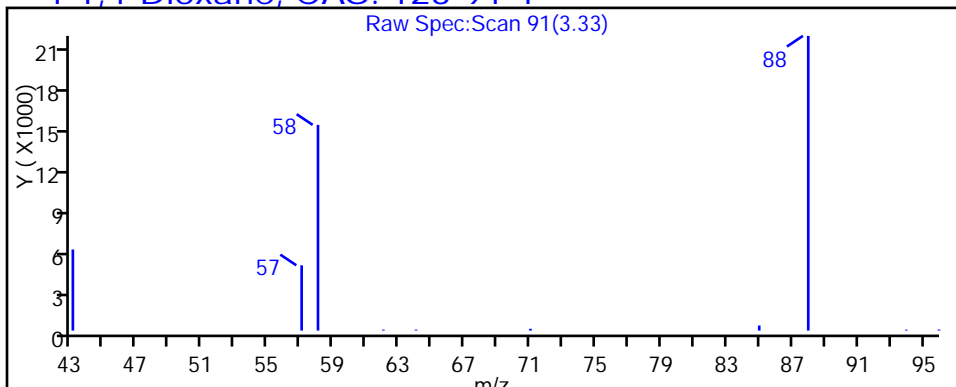
Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)

Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1



TestAmerica Sacramento

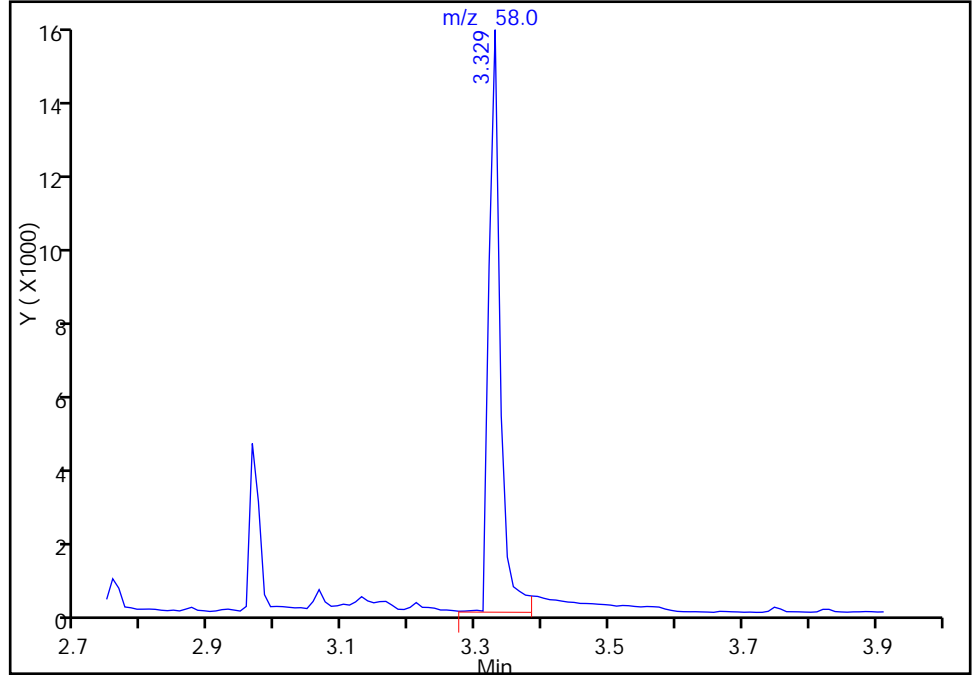
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031420.D
Injection Date: 14-Mar-2017 22:13:30 Instrument ID: SV1
Lims ID: 320-26273-B-2-A Lab Sample ID: 320-26273-2
Client ID: MEAFF-MRD-0630-0317
Operator ID: ALS Bottle#: 20 Worklist Smp#: 22
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

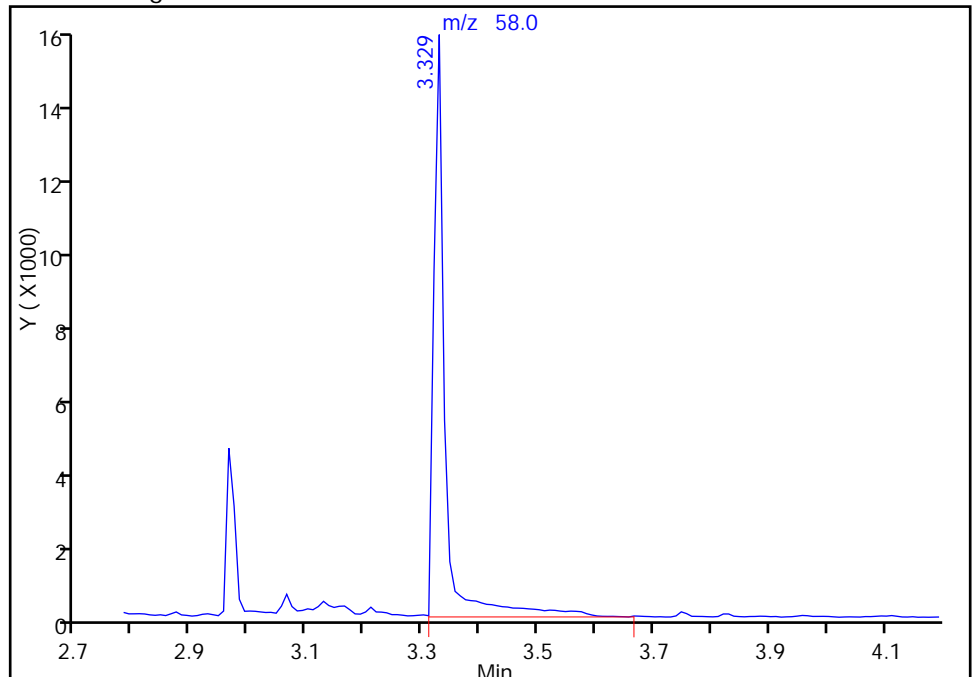
RT: 3.33
Area: 17779
Amount: 0.686143
Amount Units: ug/ml

Processing Integration Results



RT: 3.33
Area: 20415
Amount: 0.787874
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 15-Mar-2017 08:36:16
Audit Action: Manually Integrated

Audit Reason: Peak Tail

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4AMW01-0317 Lab Sample ID: 320-26273-3
 Matrix: Water Lab File ID: S031421.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 13:10
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1038.7 (mL) Date Analyzed: 03/14/2017 22:35
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.48	U	0.96	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	70		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031421.D
 Lims ID: 320-26273-B-3-A
 Client ID: MEAFF-4AMW01-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 22:35:30 ALS Bottle#: 21 Worklist Smp#: 23
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-b-3-a
 Operator ID: Instrument ID: SV1

Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: chajjita Date: 15-Mar-2017 14:31:21

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
-----	-----------	---------------	---------------	---	----------	-----------------	-------------	-------	-------

1 1,4-Dioxane									
58		3.320				ND			
88		3.320							
* 2 1,4-Dichlorobenzene-d4									
152	7.180	7.172	0.008	96	755231	10.0	80- 120	100	
150	7.172	7.172	0.000		1167550		135- 175	155	
115	7.172	7.172	0.000		420784		35.8- 75.8	55.7	
\$ 3 Nitrobenzene-d5									
82	8.034	8.035	-0.001	98	318605	3.49	80- 120	100	
128	8.043	8.035	0.008		171390		33.8- 73.8	53.8	
54	8.034	8.035	-0.001		183342		37.5- 77.5	57.5	

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031421.D

Injection Date: 14-Mar-2017 22:35:30

Instrument ID: SV1

Operator ID:

Lims ID: 320-26273-B-3-A

Lab Sample ID: 320-26273-3

Worklist Smp#: 23

Client ID: MEAFF-4AMW01-0317

Injection Vol: 1.0 ul

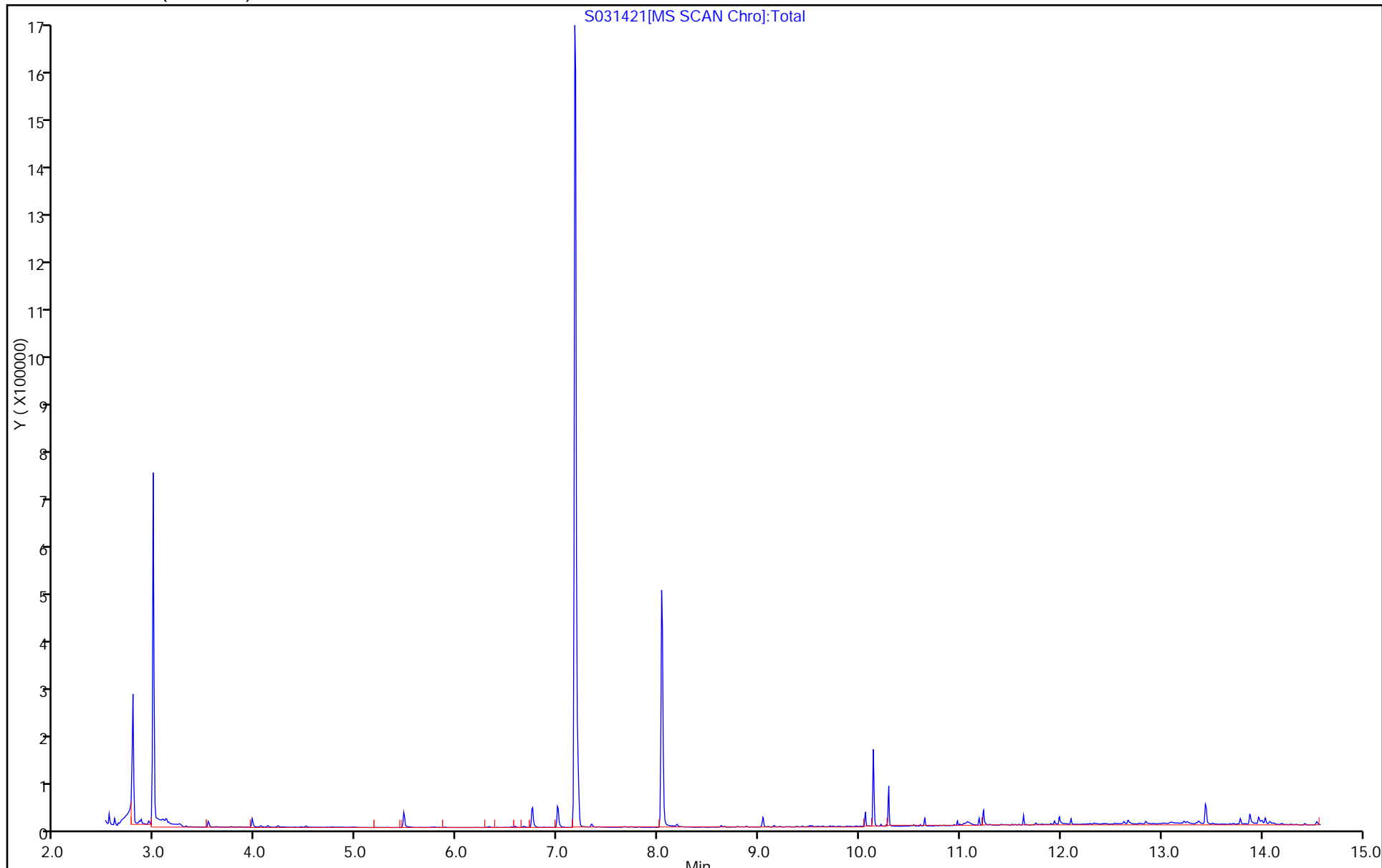
Dil. Factor: 1.0000

ALS Bottle#: 21

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031421.D
 Lims ID: 320-26273-B-3-A
 Client ID: MEAFF-4AMW01-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 22:35:30 ALS Bottle#: 21 Worklist Smp#: 23
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-b-3-a
 Operator ID: Instrument ID: SV1

Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: chajjita Date: 15-Mar-2017 14:31:21

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.49	69.86

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4CMW01-0317 Lab Sample ID: 320-26273-4
 Matrix: Water Lab File ID: S031422.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 15:30
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1048 (mL) Date Analyzed: 03/14/2017 22:57
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.48	U	0.95	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	64		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031422.D
 Lims ID: 320-26273-A-4-A
 Client ID: MEAFF-4CMW01-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 22:57:30 ALS Bottle#: 22 Worklist Smp#: 24
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-a-4-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: chajjita Date: 15-Mar-2017 14:31:30

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
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1 1,4-Dioxane									
58		3.320				ND			
88		3.320							
* 2 1,4-Dichlorobenzene-d4									
152	7.173	7.172	0.001	100	658587	10.0	80- 120	100	
150	7.173	7.172	0.001		1023319		135- 175	155	
115	7.173	7.172	0.001		370454		35.8- 75.8	56.2	
\$ 3 Nitrobenzene-d5									
82	8.036	8.035	0.001	100	252790	3.18	80- 120	100	
128	8.036	8.035	0.001		135547		33.8- 73.8	53.6	
54	8.036	8.035	0.001		145027		37.5- 77.5	57.4	

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031422.D

Injection Date: 14-Mar-2017 22:57:30

Instrument ID: SV1

Operator ID:

Lims ID: 320-26273-A-4-A

Lab Sample ID: 320-26273-4

Worklist Smp#: 24

Client ID: MEAFF-4CMW01-0317

Injection Vol: 1.0 ul

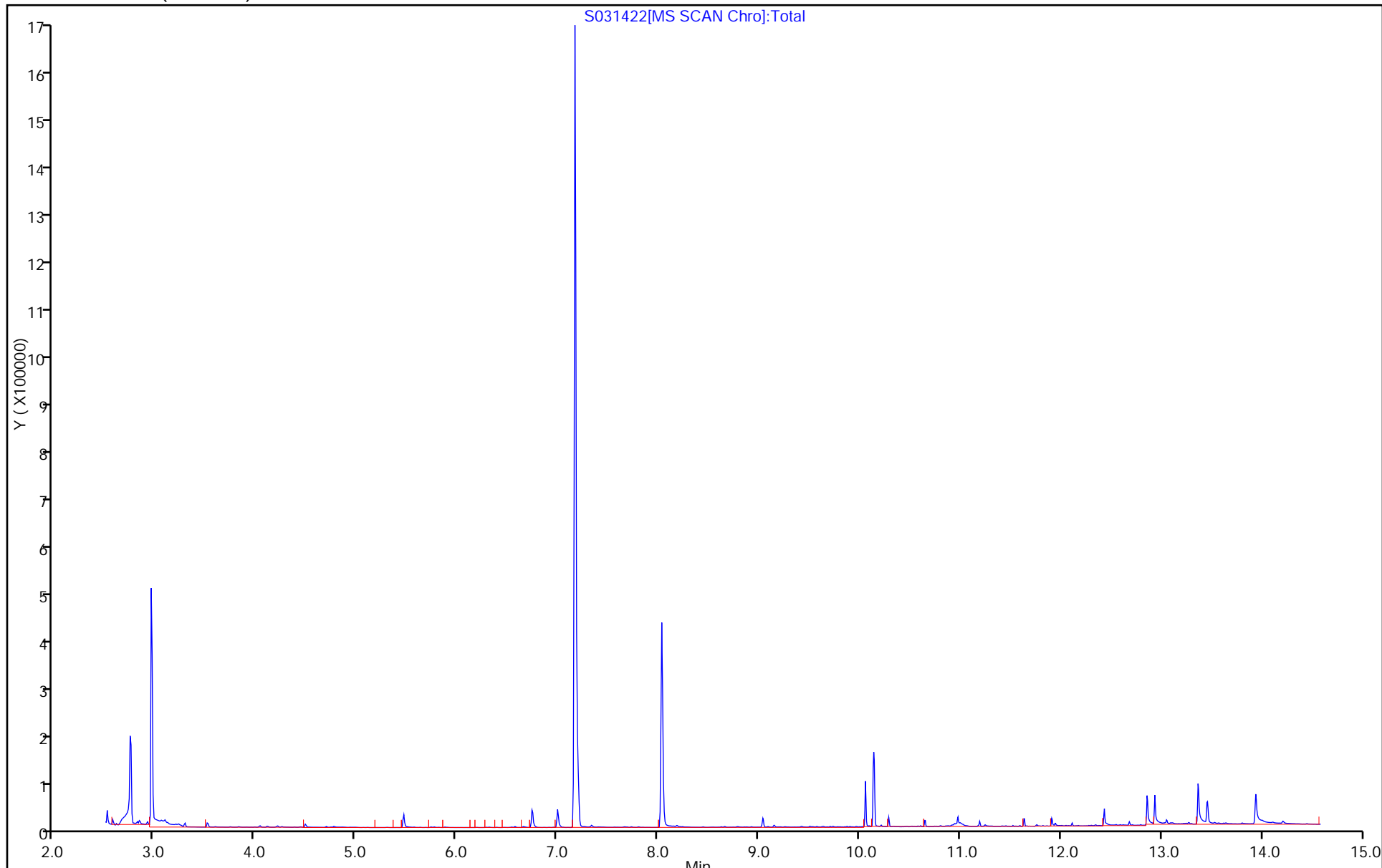
Dil. Factor: 1.0000

ALS Bottle#: 22

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031422.D
 Lims ID: 320-26273-A-4-A
 Client ID: MEAFF-4CMW01-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 22:57:30 ALS Bottle#: 22 Worklist Smp#: 24
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-a-4-a
 Operator ID: Instrument ID: SV1

Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: chajjita Date: 15-Mar-2017 14:31:30

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.18	63.57

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4CMW03-0317 Lab Sample ID: 320-26273-5
 Matrix: Water Lab File ID: S031423.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 15:50
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1023.9 (mL) Date Analyzed: 03/14/2017 23:20
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.49	U	0.98	0.49	0.20

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	73		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031423.D
 Lims ID: 320-26273-B-5-A
 Client ID: MEAFF-4CMW03-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 23:20:30 ALS Bottle#: 23 Worklist Smp#: 25
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-b-5-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: chajjita Date: 15-Mar-2017 14:31:48

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
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1 1,4-Dioxane									
58		3.320				ND			
88		3.320							
* 2 1,4-Dichlorobenzene-d4									
152	7.173	7.172	0.001	100	667575	10.0	80- 120	100	
150	7.173	7.172	0.001		1034426		135- 175	155	
115	7.173	7.172	0.001		373696		35.8- 75.8	56.0	
\$ 3 Nitrobenzene-d5									
82	8.035	8.035	0.000	100	293939	3.65	80- 120	100	
128	8.043	8.035	0.008		156944		33.8- 73.8	53.4	
54	8.035	8.035	0.000		167813		37.5- 77.5	57.1	

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031423.D

Injection Date: 14-Mar-2017 23:20:30

Instrument ID: SV1

Operator ID:

Lims ID: 320-26273-B-5-A

Lab Sample ID: 320-26273-5

Worklist Smp#: 25

Client ID: MEAFF-4CMW03-0317

Injection Vol: 1.0 ul

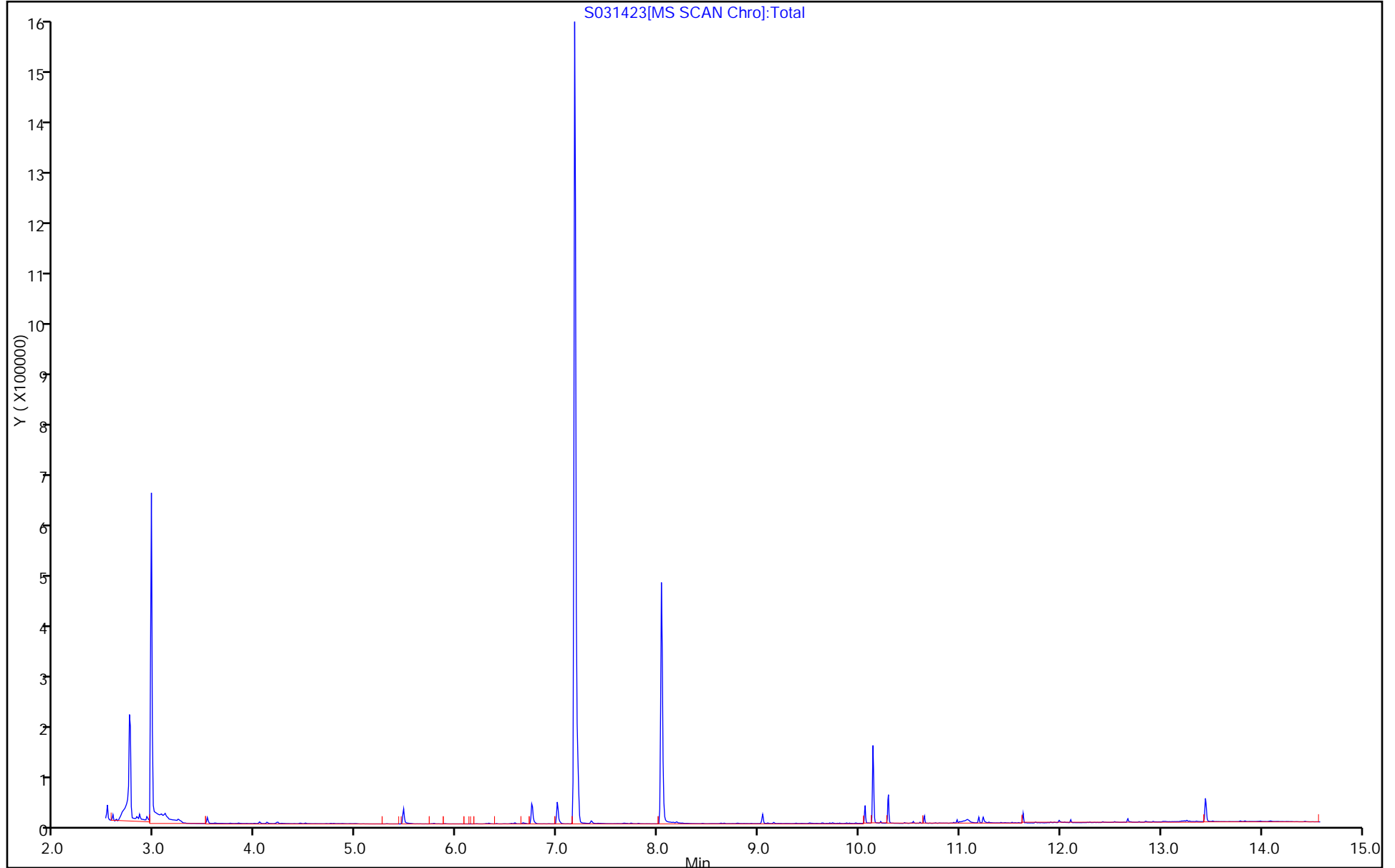
Dil. Factor: 1.0000

ALS Bottle#: 23

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031423.D
 Lims ID: 320-26273-B-5-A
 Client ID: MEAFF-4CMW03-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 23:20:30 ALS Bottle#: 23 Worklist Smp#: 25
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-b-5-a
 Operator ID: Instrument ID: SV1

Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: chajjita Date: 15-Mar-2017 14:31:48

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.65	72.92

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-FD05-0317 Lab Sample ID: 320-26273-6
 Matrix: Water Lab File ID: S031424.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 00:00
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1045.4 (mL) Date Analyzed: 03/14/2017 23:42
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.48	U	0.96	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	63		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031424.D
 Lims ID: 320-26273-B-6-A
 Client ID: MEAFF-FD05-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 23:42:30 ALS Bottle#: 24 Worklist Smp#: 26
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-b-6-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: chajjita Date: 15-Mar-2017 14:32:00

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
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1 1,4-Dioxane									
58		3.320				ND			
88		3.320							
* 2 1,4-Dichlorobenzene-d4									
152	7.174	7.172	0.002	99	571994	10.0	80- 120	100	
150	7.174	7.172	0.002		890928		135- 175	156	
115	7.174	7.172	0.002		320697		35.8- 75.8	56.1	
\$ 3 Nitrobenzene-d5									
82	8.036	8.035	0.001	100	217669	3.15	80- 120	100	
128	8.036	8.035	0.001		116120		33.8- 73.8	53.3	
54	8.036	8.035	0.001		125989		37.5- 77.5	57.9	

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031424.D

Injection Date: 14-Mar-2017 23:42:30

Instrument ID: SV1

Operator ID:

Lims ID: 320-26273-B-6-A

Lab Sample ID: 320-26273-6

Worklist Smp#: 26

Client ID: MEAFF-FD05-0317

Injection Vol: 1.0 ul

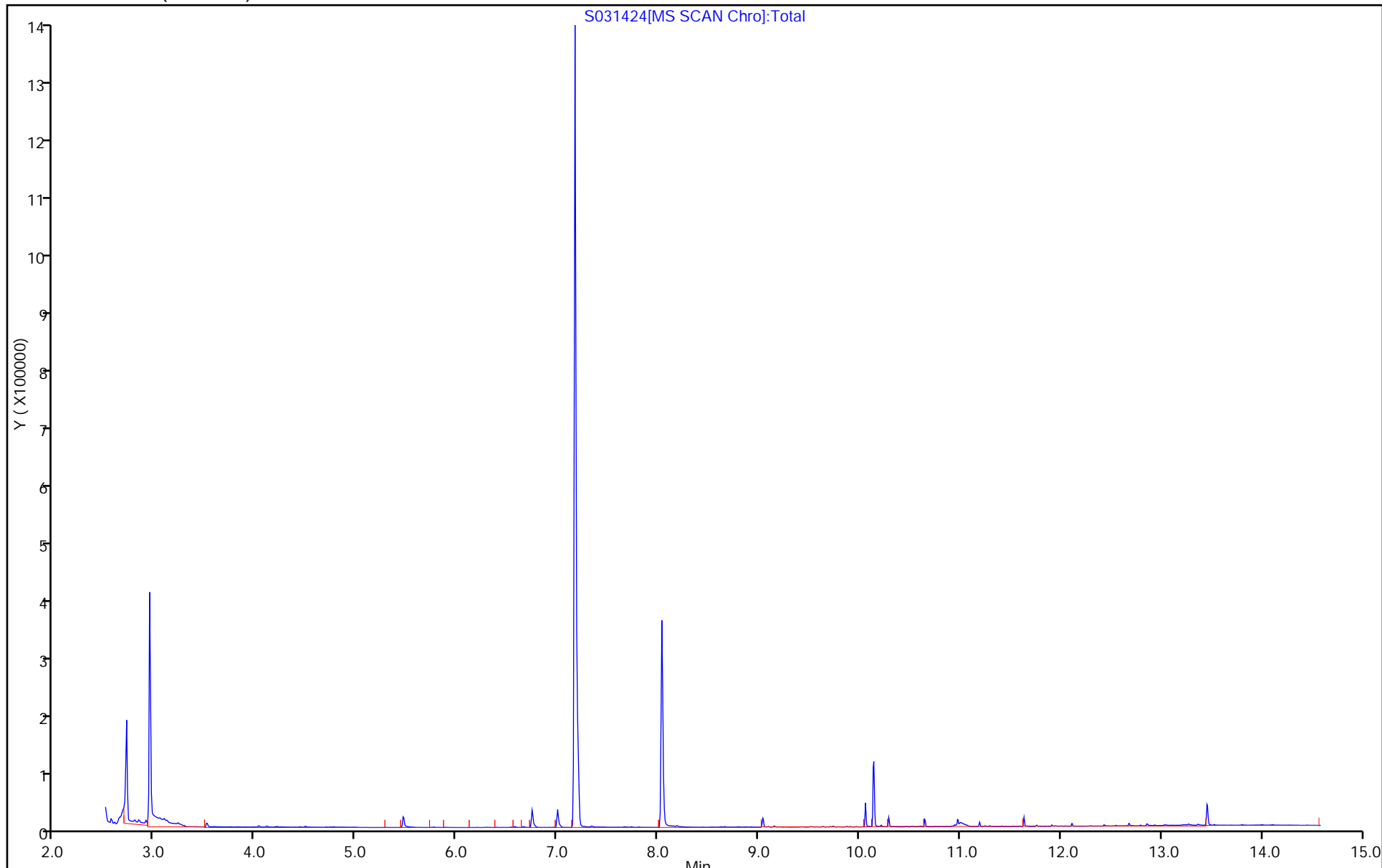
Dil. Factor: 1.0000

ALS Bottle#: 24

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031424.D
 Lims ID: 320-26273-B-6-A
 Client ID: MEAFF-FD05-0317
 Sample Type: Client
 Inject. Date: 14-Mar-2017 23:42:30 ALS Bottle#: 24 Worklist Smp#: 26
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-b-6-a
 Operator ID: Instrument ID: SV1

Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: chajjita Date: 15-Mar-2017 14:32:00

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.15	63.02

FORM VI
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1 Analy Batch No.: 151686

SDG No.: _____

Instrument ID: SV1 GC Column: HP-5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/22/2017 09:35 Calibration End Date: 02/22/2017 12:09 Calibration ID: 28577

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-151686/1	14D0222A.D
Level 2	IC 320-151686/2	14D0222B.D
Level 3	IC 320-151686/3	14D0222C.D
Level 4	IC 320-151686/4	14D0222D.D
Level 5	ICIS 320-151686/5	14D0222E.D
Level 6	IC 320-151686/6	14D0222F.D
Level 7	IC 320-151686/7	14D0222G.D
Level 8	IC 320-151686/8	14D0222H.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8														
1,4-Dioxane	0.4455	0.3950	0.3860	0.4401	0.3728	Ave		0.4012			8.4		15.0				
Nitrobenzene-d5	1.2661	1.1089	1.1243	1.3085	1.1565	Ave		1.2077			8.2		15.0				
	1.2121	1.3702	1.1151														

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1 Analy Batch No.: 151686

SDG No.: _____

Instrument ID: SV1 GC Column: HP-5MS ID: 0.25 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/22/2017 09:35 Calibration End Date: 02/22/2017 12:09 Calibration ID: 28577

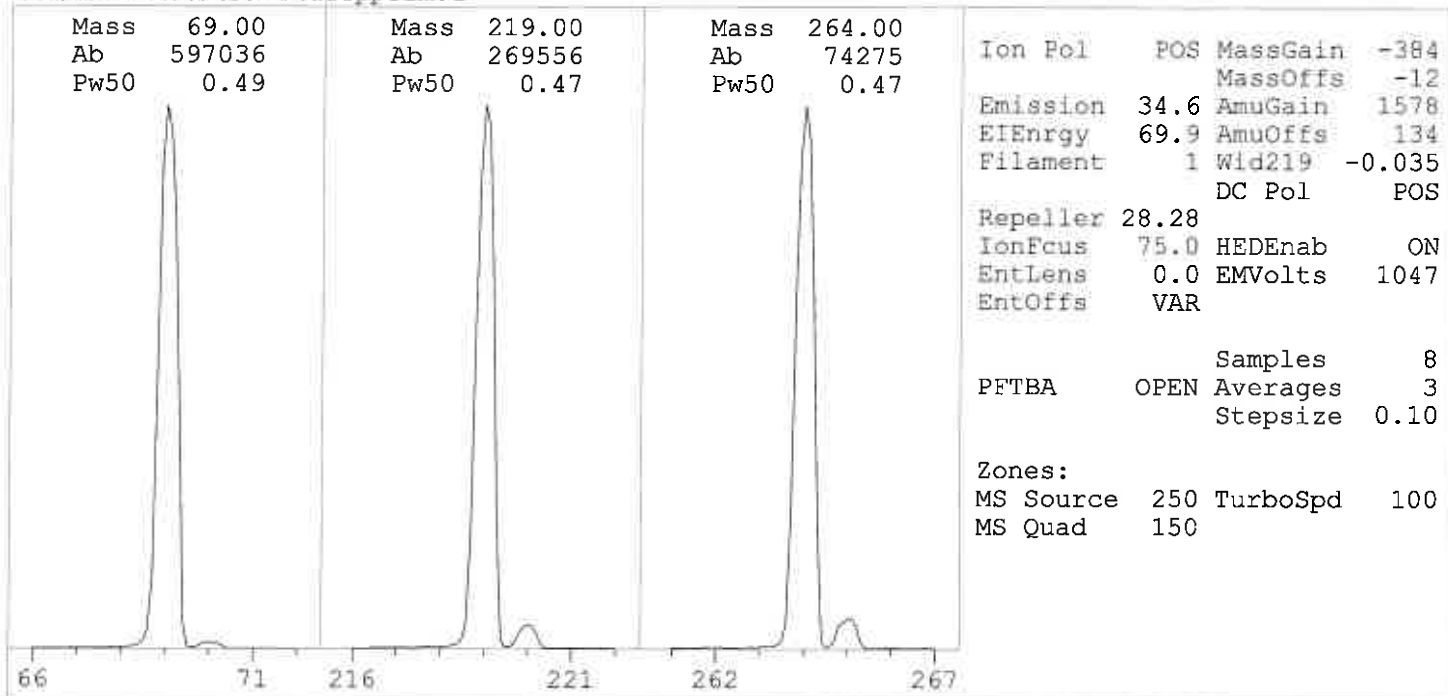
Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-151686/1	14D0222A.D
Level 2	IC 320-151686/2	14D0222B.D
Level 3	IC 320-151686/3	14D0222C.D
Level 4	IC 320-151686/4	14D0222D.D
Level 5	ICIS 320-151686/5	14D0222E.D
Level 6	IC 320-151686/6	14D0222F.D
Level 7	IC 320-151686/7	14D0222G.D
Level 8	IC 320-151686/8	14D0222H.D

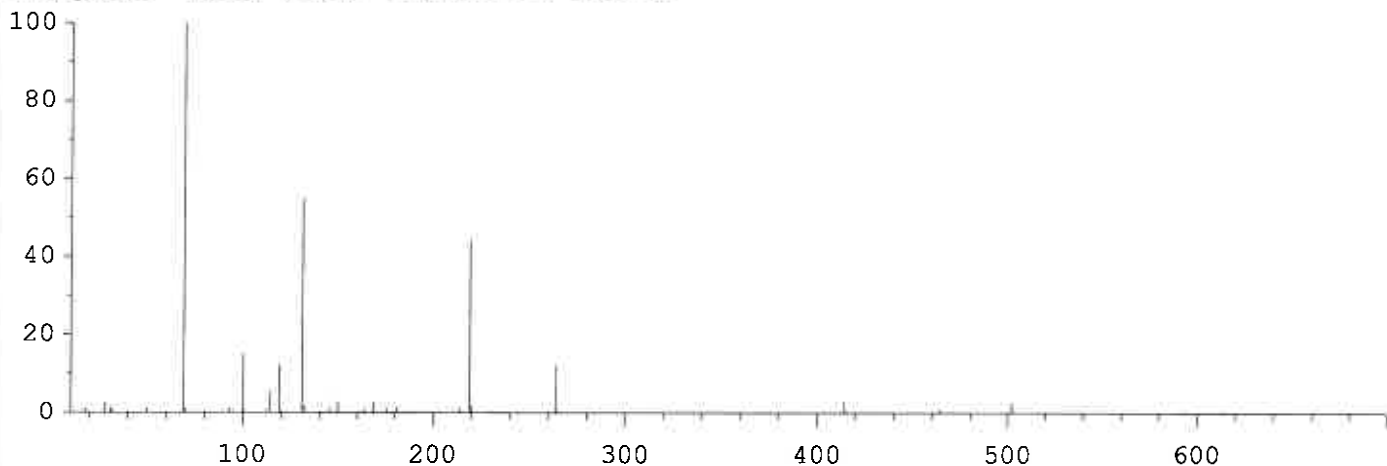
ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8			LVL 6	LVL 7	LVL 8		
1,4-Dioxane	DCBd 4	Ave	15367 570238	28517 1391248	59554 2749219	150814	293131	0.500 20.0	1.00 50.0	2.00 100	5.00	10.0
Nitrobenzene-d5	DCBd 4	Ave	43667 1769342	80062 4451578	173471 8721763	448379	909372	0.500 20.0	1.00 50.0	2.00 100	5.00	10.0

Curve Type Legend:

Ave = Average ISTD



Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
126 peaks Base: 69.00 Abundance: 484096



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	484096	100.00	70.10	5442	1.12
219.00	215424	44.50	220.00	9518	4.42
264.00	59680	12.33	265.00	3715	6.22

Air/Water Check: H2O~0.93% N2~2.53% O2~0.67% CO2~0.07% N2/H2O~272.84%

Column Flow: Front: 1.4 Back: 0 ml/min. Interface Temp: 250

Ramp Criteria:

Ion Focus Maximum 90 volts using ion 264; EM Gain 158740
Repeller Maximum 35 volts using ion 219;

MassGain Values @Samples: -384@3 -384@2 -384@1 -384@0 -384@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	134.0	134.0	134.0	134.0	134.0	134.0	134.0
Entrance Lens Offset:	14.6	12.0	13.3	12.5	13.8	12.8	12.8
Target Abund(%):	1.0	100.0	55.0	45.0	3.0	2.0	
Actual Tune Abund(%):	1.0	100.0	55.0	44.5	3.0	2.4	

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222A.D
 Lims ID: IC CS-1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 22-Feb-2017 09:35:30 ALS Bottle#: 1 Worklist Smp#: 1
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-1 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:26 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim Date: 22-Feb-2017 10:04:37

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	S/N	Flags	
	1,4-Dioxane											
	58	3.355	3.354	0.001	78	15367	0.5000	0.5552	80- 120	100	13377	M
	88	3.355	3.354	0.001		19805			92- 132	129		
	* 2,4-Dichlorobenzene-d4											
	152	7.197	7.197	0.000	99	689814	10.0	10.0	80- 120	100		
	150	7.197	7.197	0.000		1067566			136- 176	155		
	115	7.197	7.197	0.000		393942			37.1- 77.1	57.1		
	\$ 3 Nitrobenzene-d5											
	82	8.059	8.059	0.000	100	43667	0.5000	0.5242	80- 120	100		M
	128	8.059	8.059	0.000		20703			29.8- 69.8	47.4		M
	54	8.059	8.059	0.000		25267			38.3- 78.3	57.9		

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL1_00011 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222A.D

Injection Date: 22-Feb-2017 09:35:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-1

Worklist Smp#: 1

Client ID:

Injection Vol: 1.0 ul

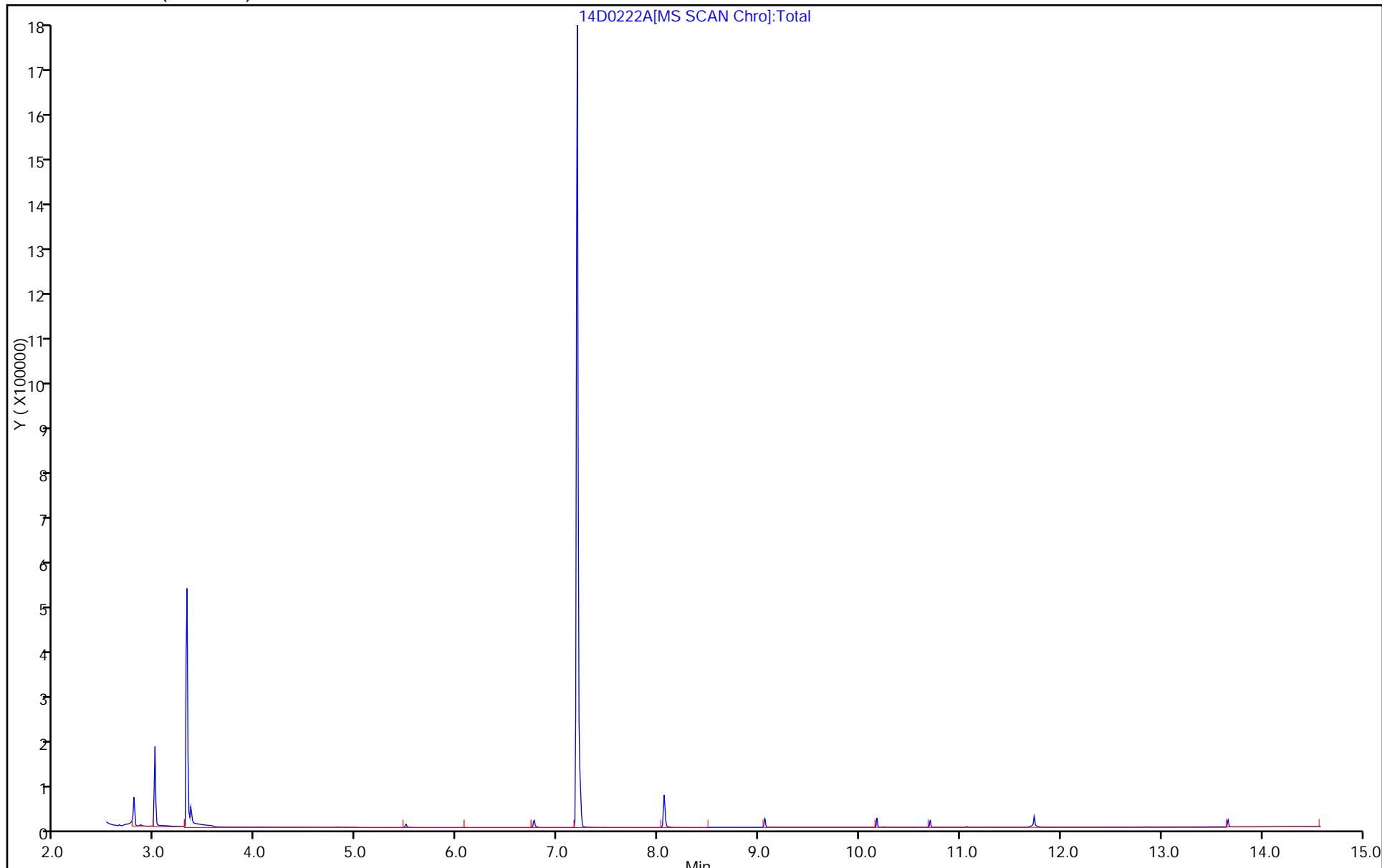
Dil. Factor: 1.0000

ALS Bottle#: 1

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

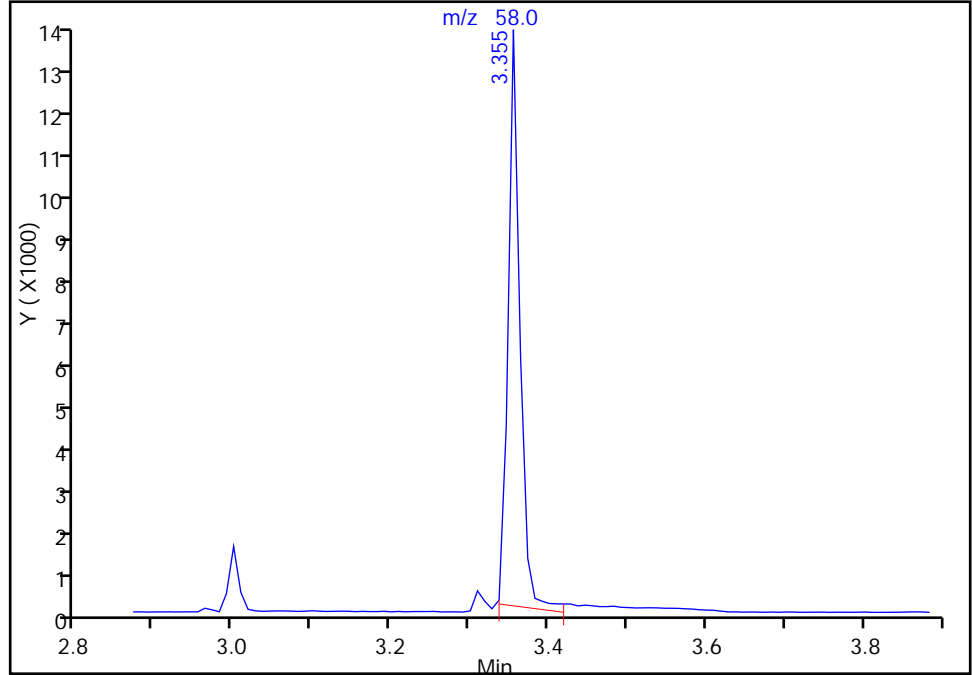
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222A.D
Injection Date: 22-Feb-2017 09:35:30 Instrument ID: SV1
Lims ID: IC CS-1
Client ID:
Operator ID: ALS Bottle#: 1 Worklist Smp#: 1
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

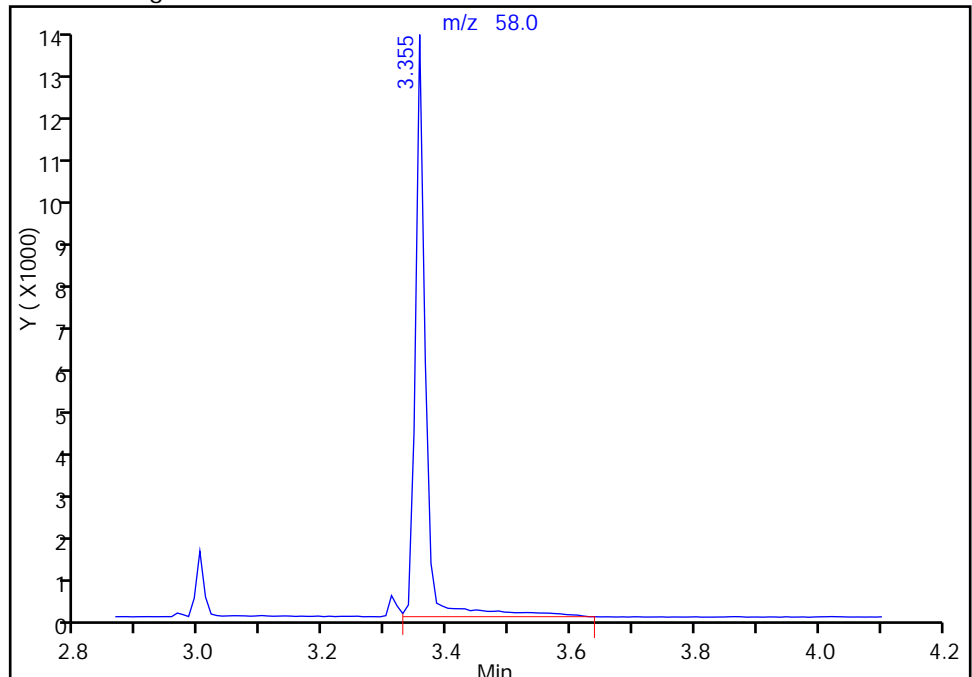
RT: 3.36
Area: 13722
Amount: 0.500000
Amount Units: ug/ml

Processing Integration Results



RT: 3.36
Area: 15367
Amount: 0.555238
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:26
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

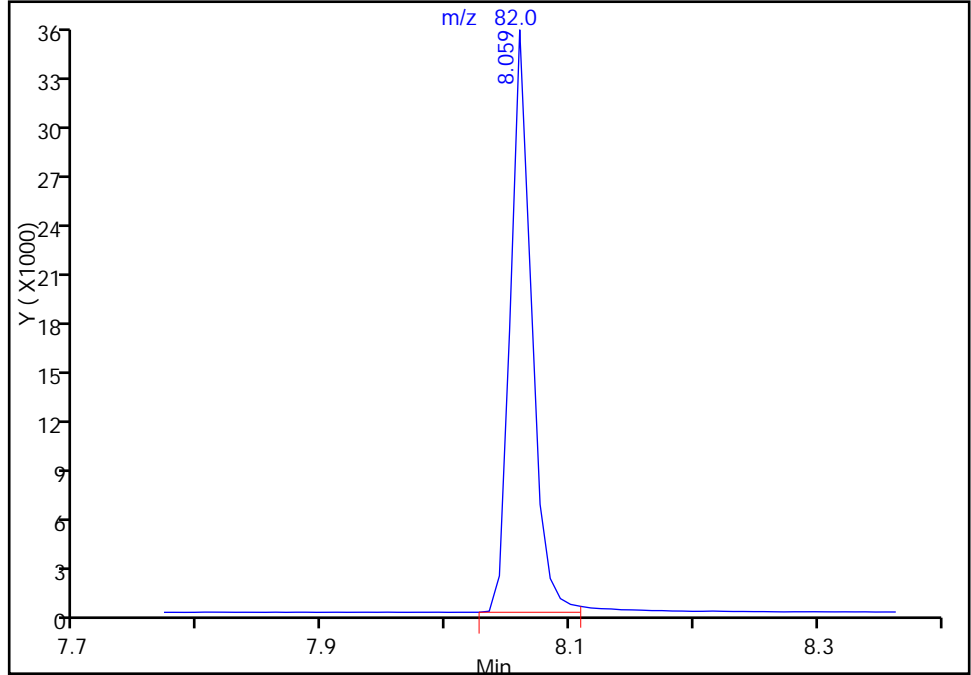
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222A.D
Injection Date: 22-Feb-2017 09:35:30 Instrument ID: SV1
Lims ID: IC CS-1
Client ID:
Operator ID: ALS Bottle#: 1 Worklist Smp#: 1
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

\$ 3 Nitrobenzene-d5, CAS: 4165-60-0

Signal: 1

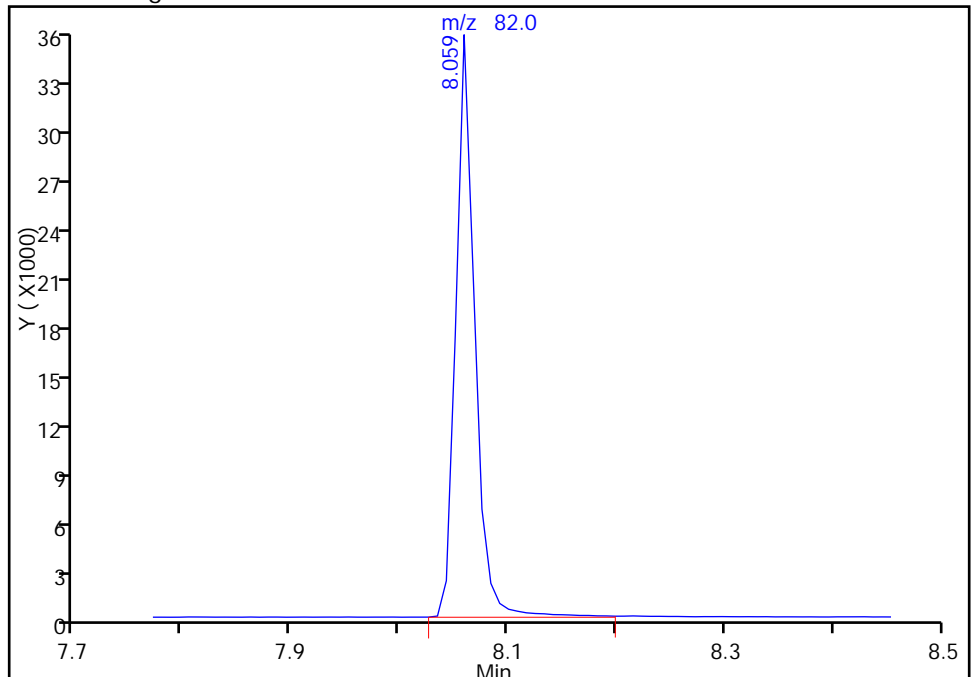
RT: 8.06
Area: 42828
Amount: 0.500000
Amount Units: ug/ml

Processing Integration Results



RT: 8.06
Area: 43667
Amount: 0.524163
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:26
Audit Action: Manually Integrated

Audit Reason: Peak Tail

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222B.D
 Lims ID: IC CS-2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 22-Feb-2017 09:56:30 ALS Bottle#: 2 Worklist Smp#: 2
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-2 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:27 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim Date: 22-Feb-2017 10:17:50

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
	1 1,4-Dioxane									
	58	3.355	3.354	0.001	97	28517	1.00	0.9844	80- 120	100 M
	88	3.364	3.354	0.010		33413			92- 132	117
	* 2 1,4-Dichlorobenzene-d4									
	152	7.197	7.197	0.000	100	721993	10.0	10.0	80- 120	100
	150	7.197	7.197	0.000		1123841			136- 176	156
	115	7.197	7.197	0.000		416847			37.1- 77.1	57.7
	\$ 3 Nitrobenzene-d5									
	82	8.060	8.059	0.001	99	80062	1.00	0.9182	80- 120	100 M
	128	8.060	8.059	0.001		38136			29.8- 69.8	47.6
	54	8.060	8.059	0.001		46077			38.3- 78.3	57.6

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL2_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222B.D

Injection Date: 22-Feb-2017 09:56:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-2

Worklist Smp#: 2

Client ID:

Injection Vol: 1.0 ul

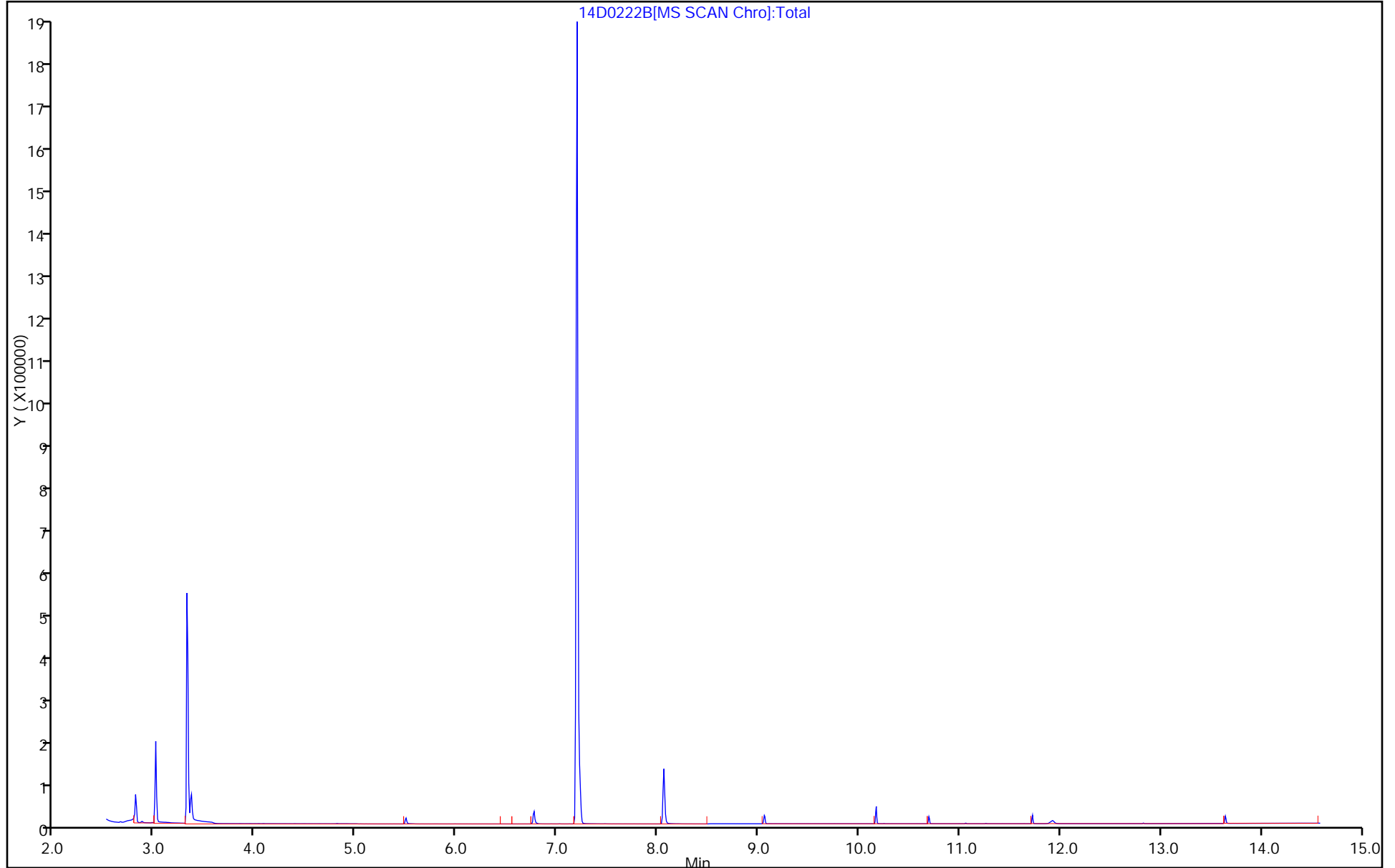
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

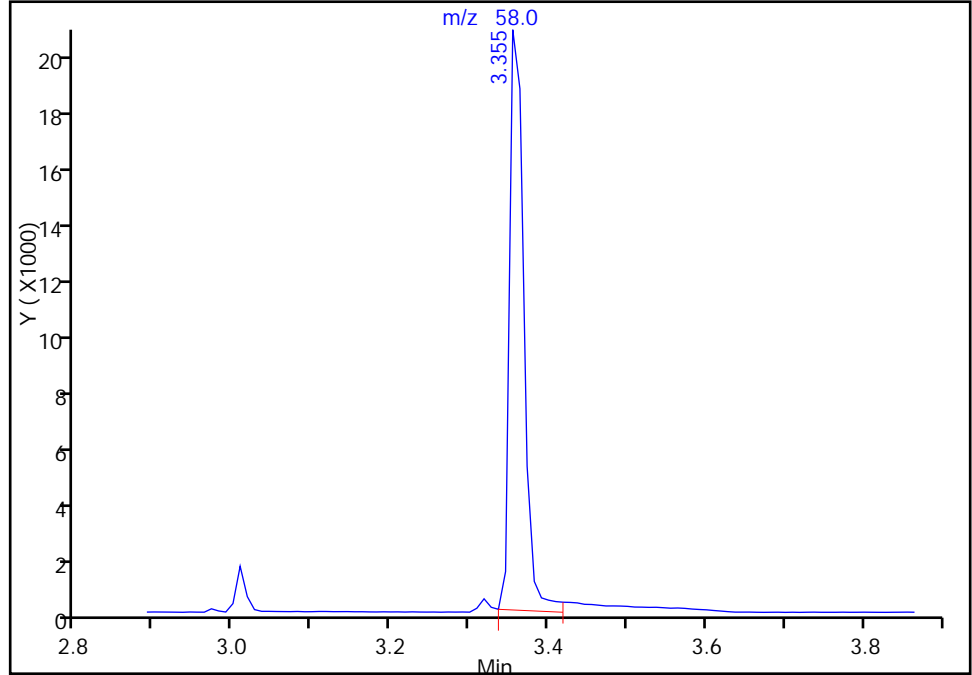
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222B.D
Injection Date: 22-Feb-2017 09:56:30 Instrument ID: SV1
Lims ID: IC CS-2
Client ID:
Operator ID: ALS Bottle#: 2 Worklist Smp#: 2
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

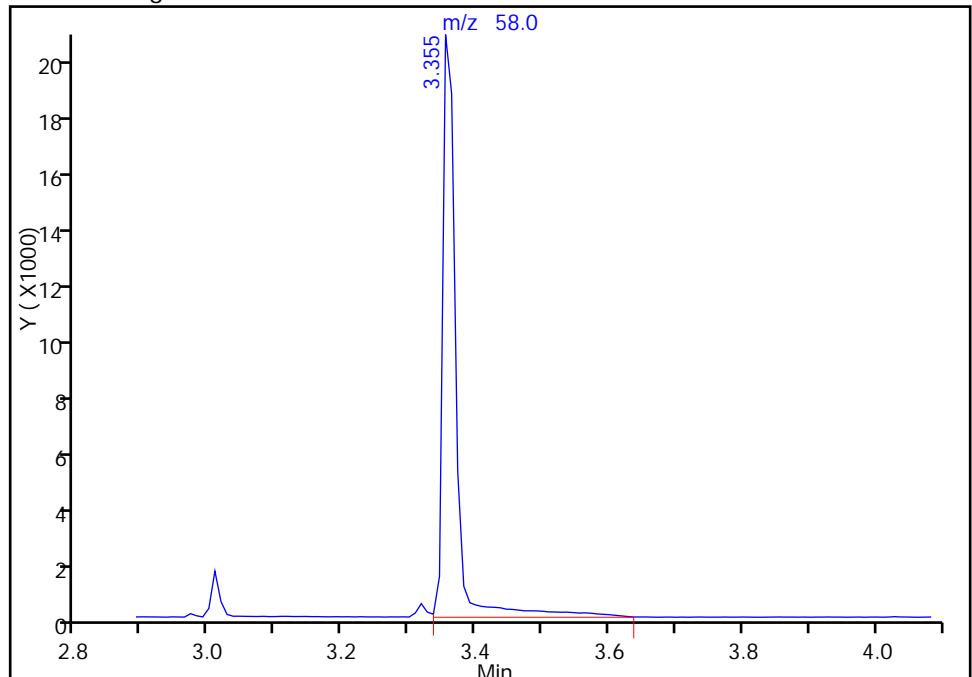
RT: 3.35
Area: 25950
Amount: 0.893015
Amount Units: ug/ml

Processing Integration Results



RT: 3.35
Area: 28517
Amount: 0.984448
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:27
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento

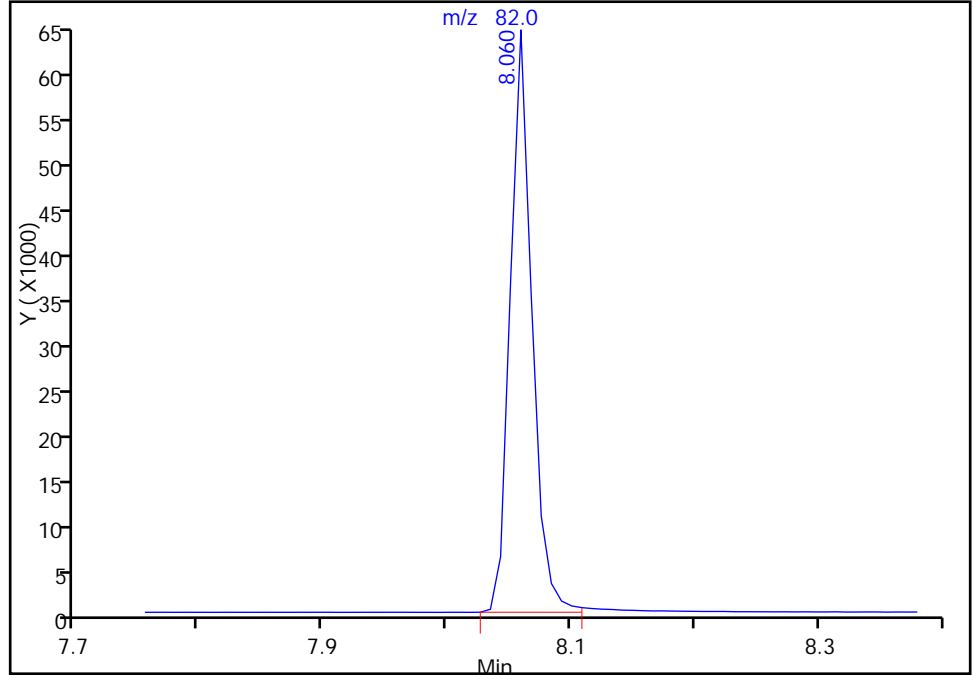
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222B.D
Injection Date: 22-Feb-2017 09:56:30 Instrument ID: SV1
Lims ID: IC CS-2
Client ID:
Operator ID: ALS Bottle#: 2 Worklist Smp#: 2
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

\$ 3 Nitrobenzene-d5, CAS: 4165-60-0

Signal: 1

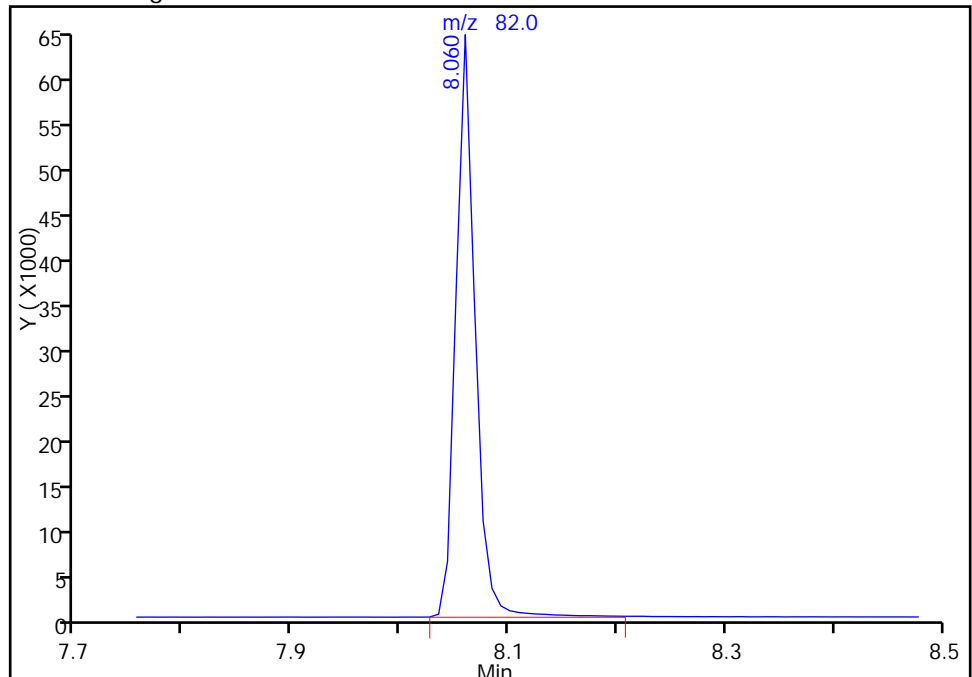
RT: 8.06
Area: 78635
Amount: 0.924884
Amount Units: ug/ml

Processing Integration Results



RT: 8.06
Area: 80062
Amount: 0.918203
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:27
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222C.D
 Lims ID: IC CS-3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 22-Feb-2017 10:19:30 ALS Bottle#: 3 Worklist Smp#: 3
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-3 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:28 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim Date: 22-Feb-2017 10:46:45

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
	1 1,4-Dioxane									
	58	3.357	3.354	0.003	97	59554	2.00	1.92	80- 120	100 M
	88	3.366	3.354	0.012		69299			92- 132	116
	* 2 1,4-Dichlorobenzene-d4									
	152	7.197	7.197	0.000	100	771483	10.0	10.0	80- 120	100
	150	7.197	7.197	0.000		1199044			136- 176	155
	115	7.197	7.197	0.000		444192			37.1- 77.1	57.6
	\$ 3 Nitrobenzene-d5									
	82	8.060	8.059	0.001	97	173471	2.00	1.86	80- 120	100 M
	128	8.060	8.059	0.001		83892			29.8- 69.8	48.4
	54	8.060	8.059	0.001		99669			38.3- 78.3	57.5

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL3_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222C.D

Injection Date: 22-Feb-2017 10:19:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-3

Worklist Smp#: 3

Client ID:

Injection Vol: 1.0 ul

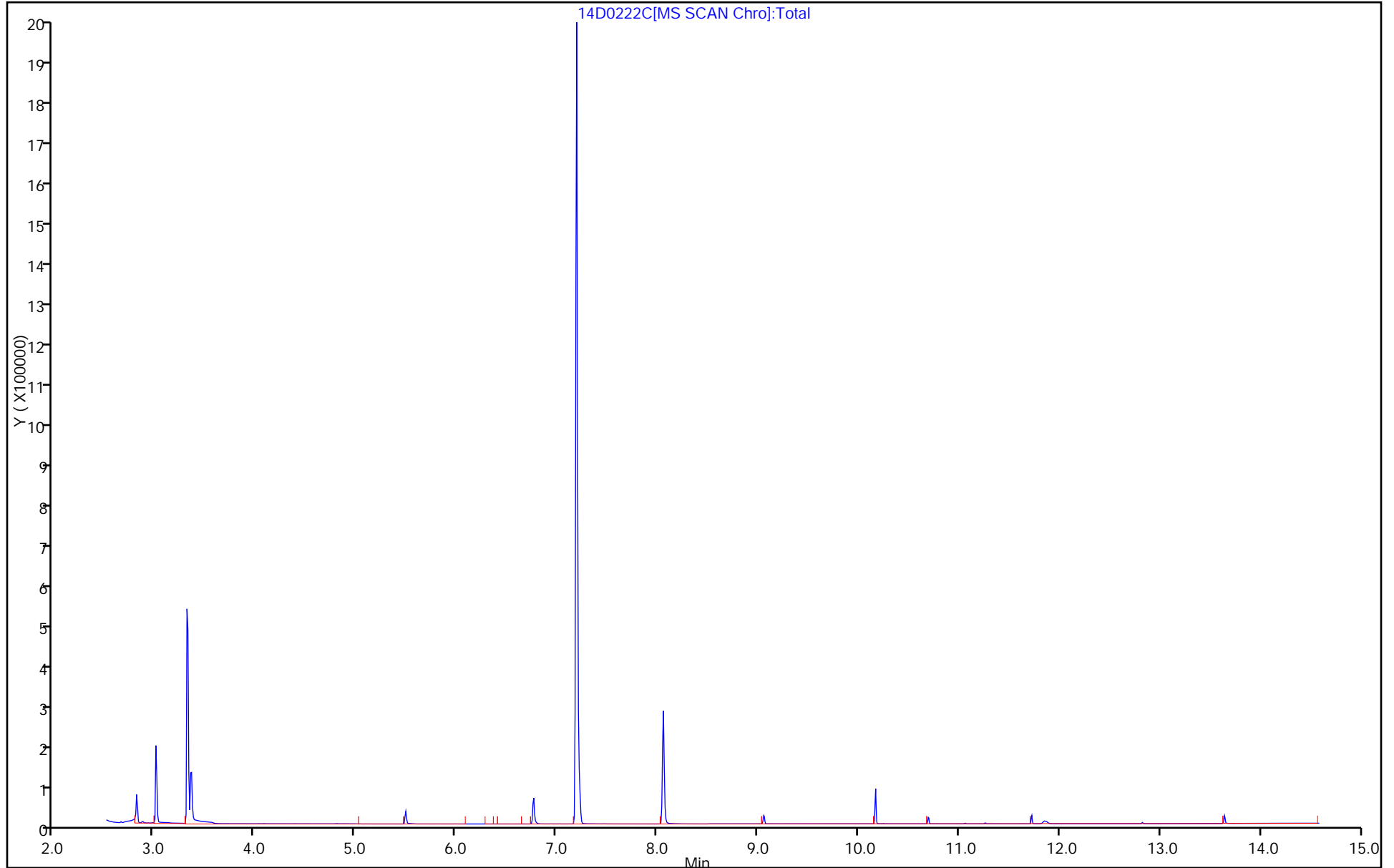
Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

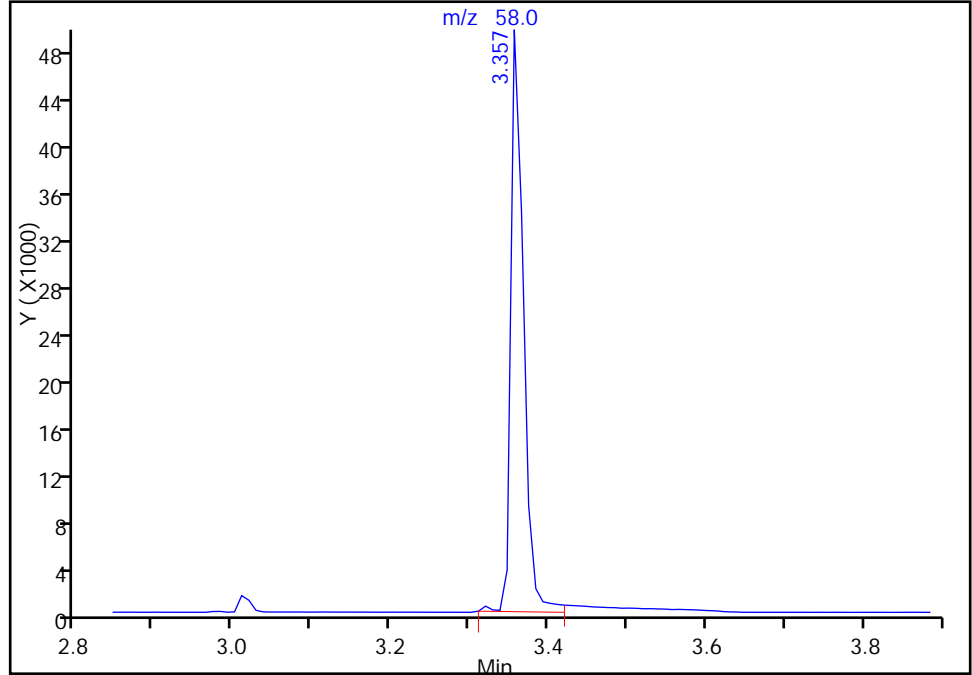
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222C.D
Injection Date: 22-Feb-2017 10:19:30 Instrument ID: SV1
Lims ID: IC CS-3
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

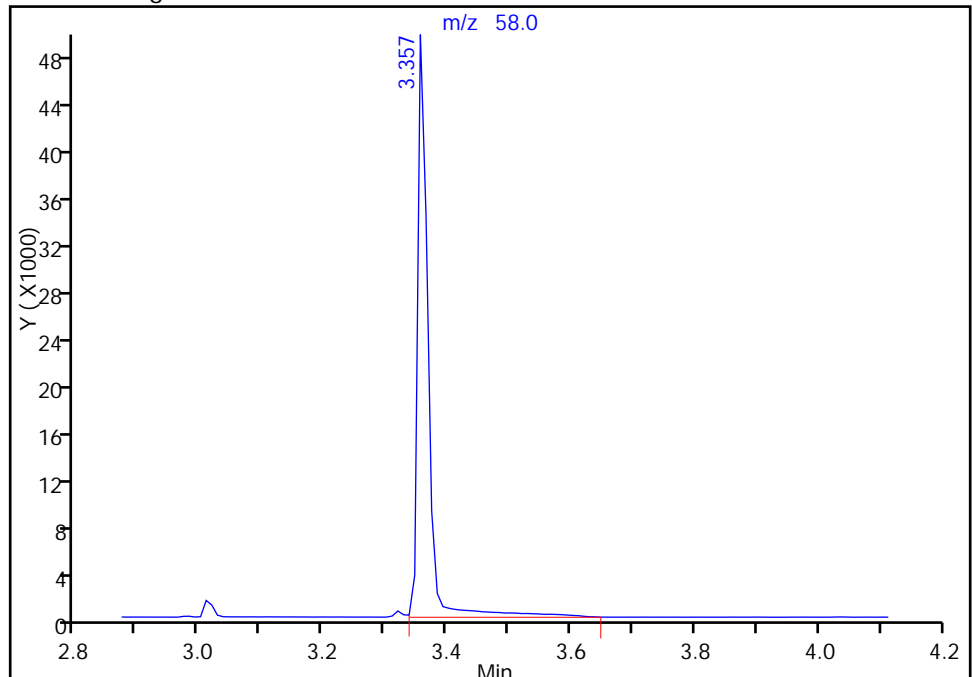
RT: 3.36
Area: 55647
Amount: 1.801497
Amount Units: ug/ml

Processing Integration Results



RT: 3.36
Area: 59554
Amount: 1.924007
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:28
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

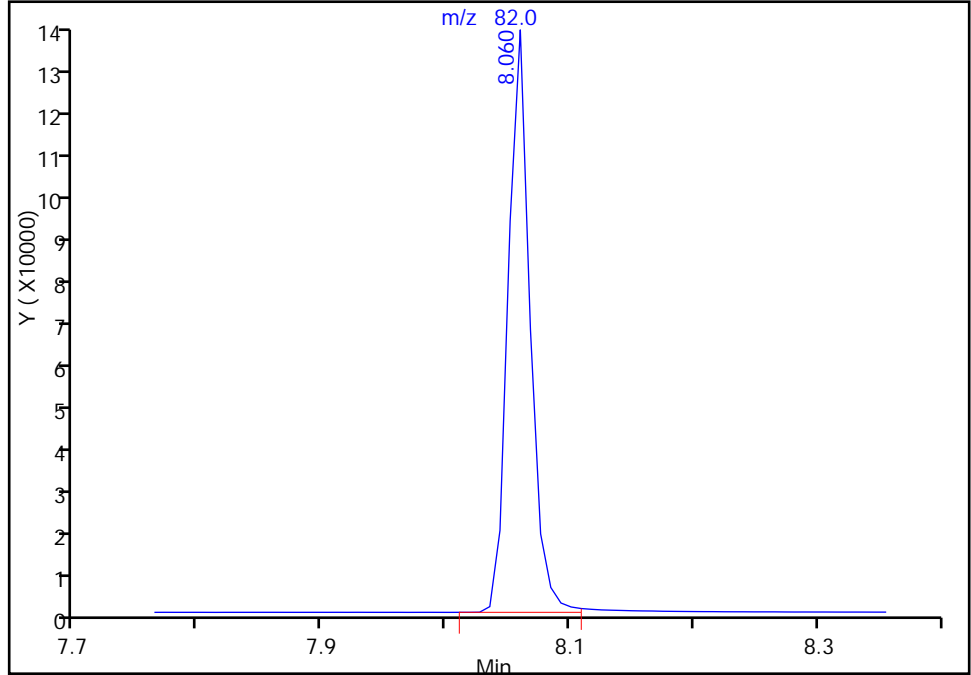
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222C.D
Injection Date: 22-Feb-2017 10:19:30 Instrument ID: SV1
Lims ID: IC CS-3
Client ID:
Operator ID: ALS Bottle#: 3 Worklist Smp#: 3
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

\$ 3 Nitrobenzene-d5, CAS: 4165-60-0

Signal: 1

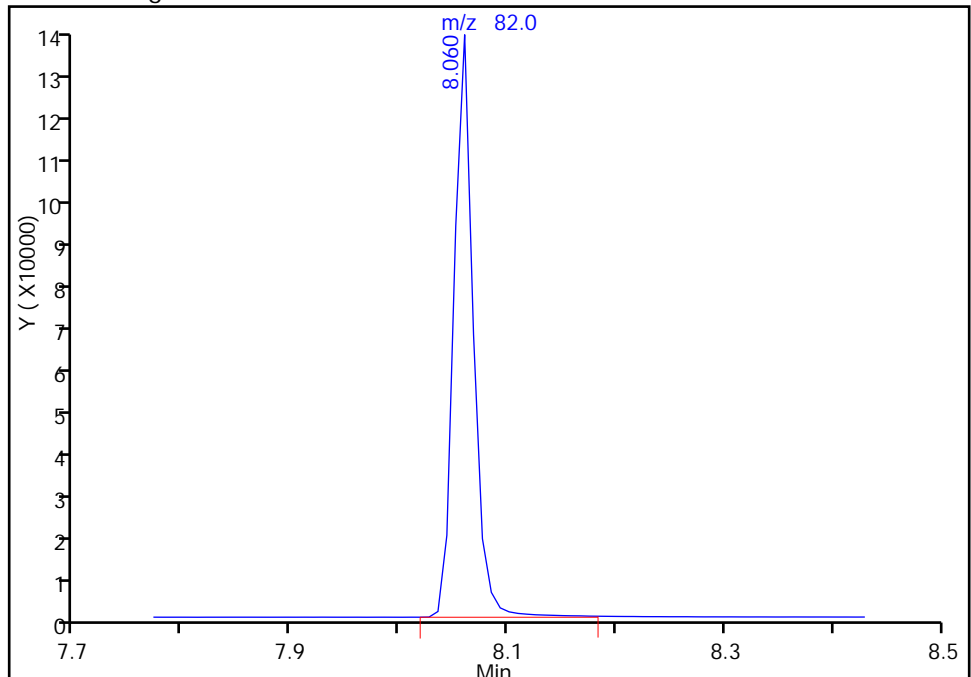
RT: 8.06
Area: 171502
Amount: 1.912842
Amount Units: ug/ml

Processing Integration Results



RT: 8.06
Area: 173471
Amount: 1.861855
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:28
Audit Action: Manually Integrated

Audit Reason: Peak Tail

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222D.D
 Lims ID: IC CS-4
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 22-Feb-2017 10:41:30 ALS Bottle#: 4 Worklist Smp#: 4
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-4 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:29 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim Date: 22-Feb-2017 11:21:20

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
	58	3.345	3.354	-0.009	96	150814	5.00	5.48	80- 120	100 M
	88	3.354	3.354	0.000		168162			92- 132	112
* 2 1,4-Dichlorobenzene-d4										
	152	7.197	7.197	0.000	100	685347	10.0	10.0	80- 120	100
	150	7.197	7.197	0.000		1065860			136- 176	156
	115	7.197	7.197	0.000		391582			37.1- 77.1	57.1
\$ 3 Nitrobenzene-d5										
	82	8.060	8.059	0.001	97	448379	5.00	5.42	80- 120	100
	128	8.060	8.059	0.001		223263			29.8- 69.8	49.8
	54	8.051	8.059	-0.008		261235			38.3- 78.3	58.3

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL4_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222D.D

Injection Date: 22-Feb-2017 10:41:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-4

Worklist Smp#: 4

Client ID:

Injection Vol: 1.0 ul

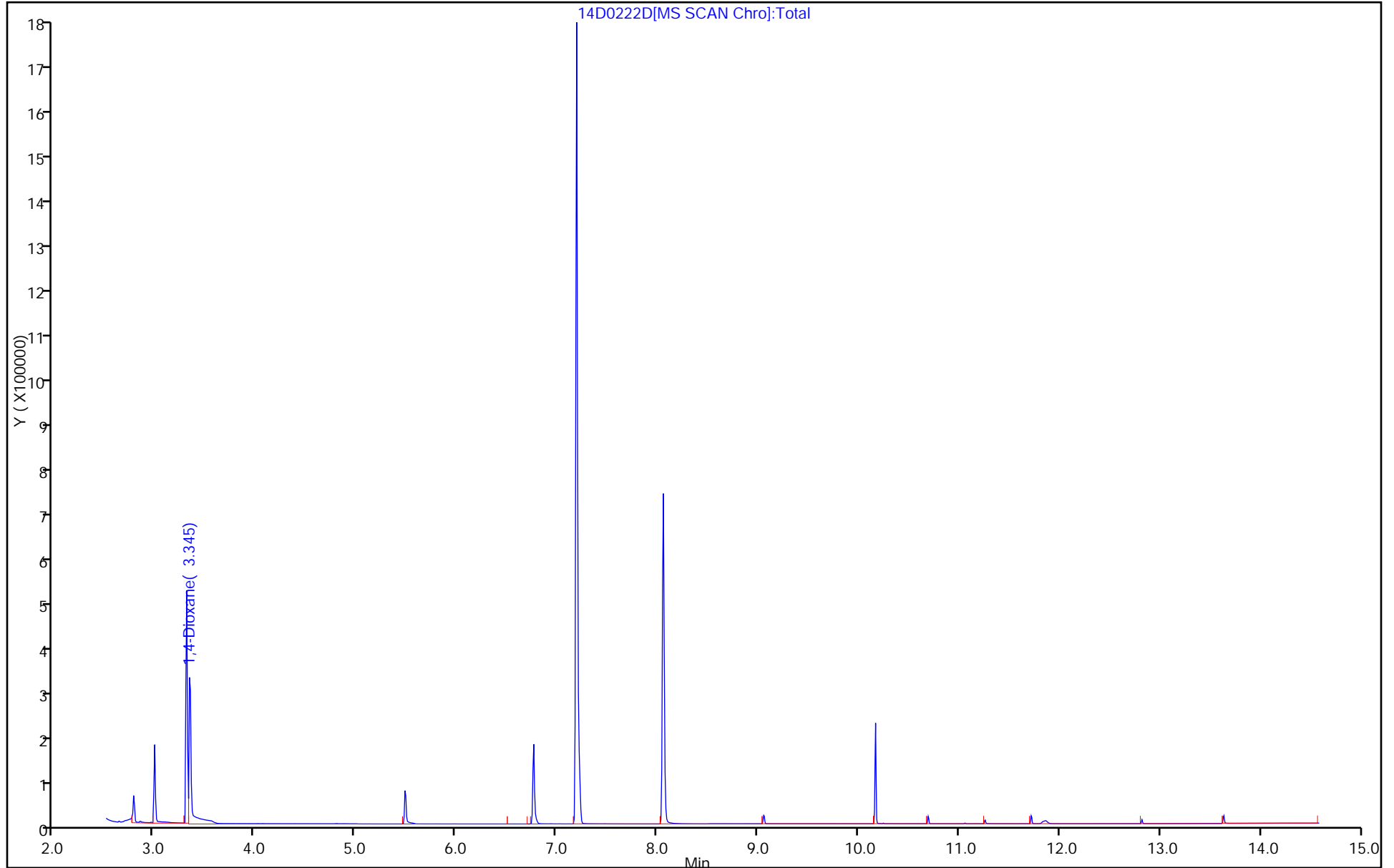
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

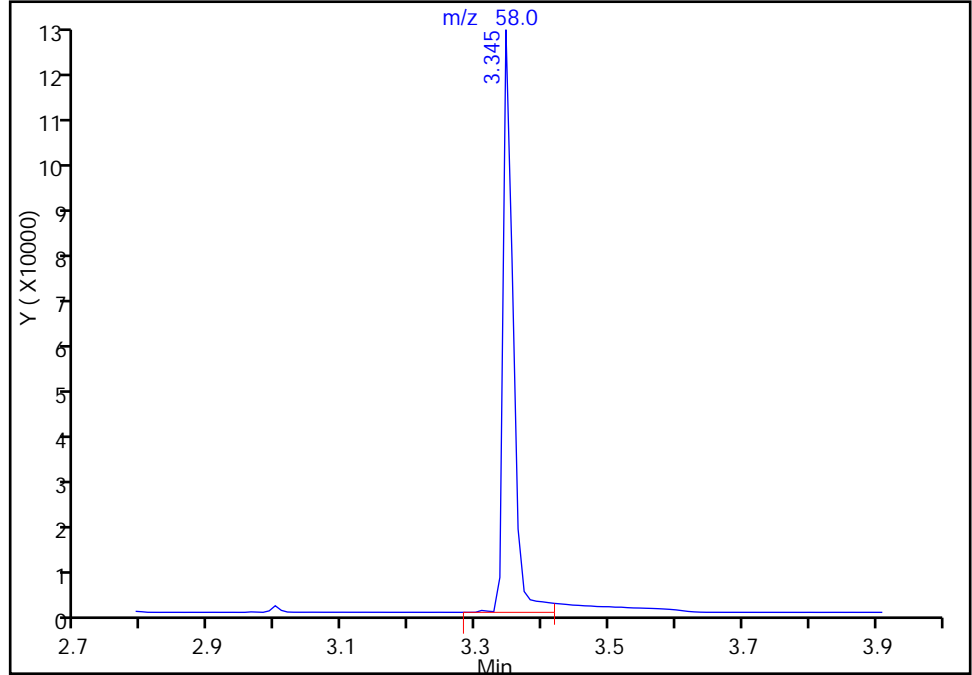
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222D.D
Injection Date: 22-Feb-2017 10:41:30 Instrument ID: SV1
Lims ID: IC CS-4
Client ID:
Operator ID: ALS Bottle#: 4 Worklist Smp#: 4
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

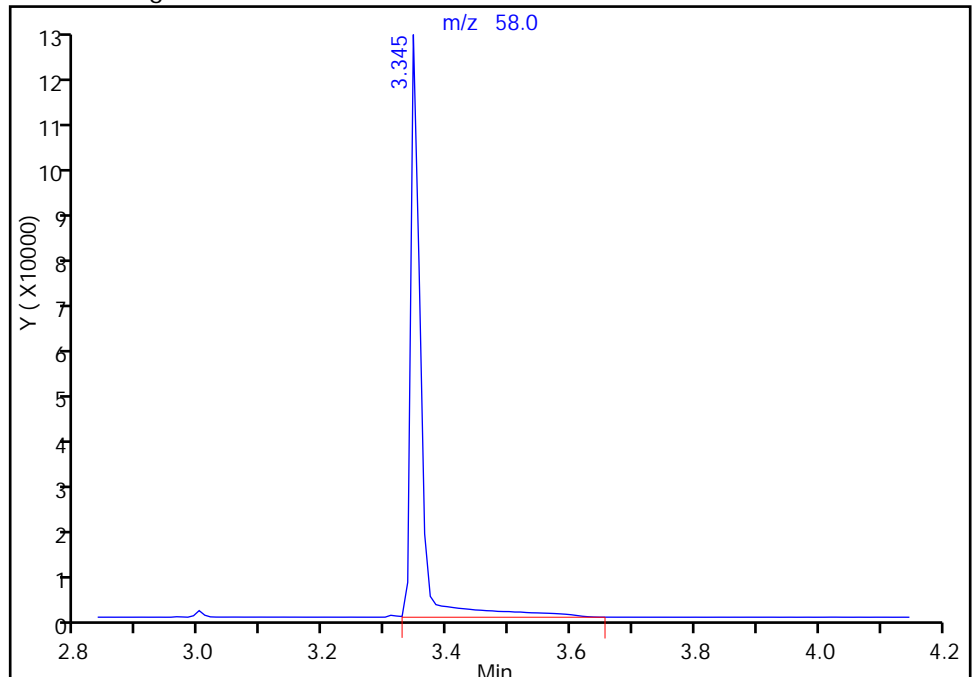
RT: 3.35
Area: 137931
Amount: 4.941853
Amount Units: ug/ml

Processing Integration Results



RT: 3.35
Area: 150814
Amount: 5.484704
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:29
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222E.D
 Lims ID: ICIS CS-5
 Client ID:
 Sample Type: ICIS Calib Level: 5
 Inject. Date: 22-Feb-2017 11:03:30 ALS Bottle#: 5 Worklist Smp#: 5
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: ICIS CS-5 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:30 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim Date: 22-Feb-2017 11:21:43

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	S/N	Flags
	1 1,4-Dioxane										M
58	3.354	3.354	0.000	81	293131	10.0	9.29	80- 120	100	145920	M
88	3.354	3.354	0.000		351365			92- 132	120		
	* 2 1,4-Dichlorobenzene-d4										
152	7.197	7.197	0.000	100	786305	10.0	10.0	80- 120	100		
150	7.197	7.197	0.000		1219926			136- 176	155		
115	7.197	7.197	0.000		448437			37.1- 77.1	57.0		
	\$ 3 Nitrobenzene-d5										
82	8.059	8.059	0.000	99	909372	10.0	9.58	80- 120	100		
128	8.059	8.059	0.000		466333			29.8- 69.8	51.3		
54	8.051	8.059	-0.008		534392			38.3- 78.3	58.8		

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL5_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222E.D

Injection Date: 22-Feb-2017 11:03:30

Instrument ID: SV1

Operator ID:

Lims ID: ICIS CS-5

Worklist Smp#: 5

Client ID:

Injection Vol: 1.0 ul

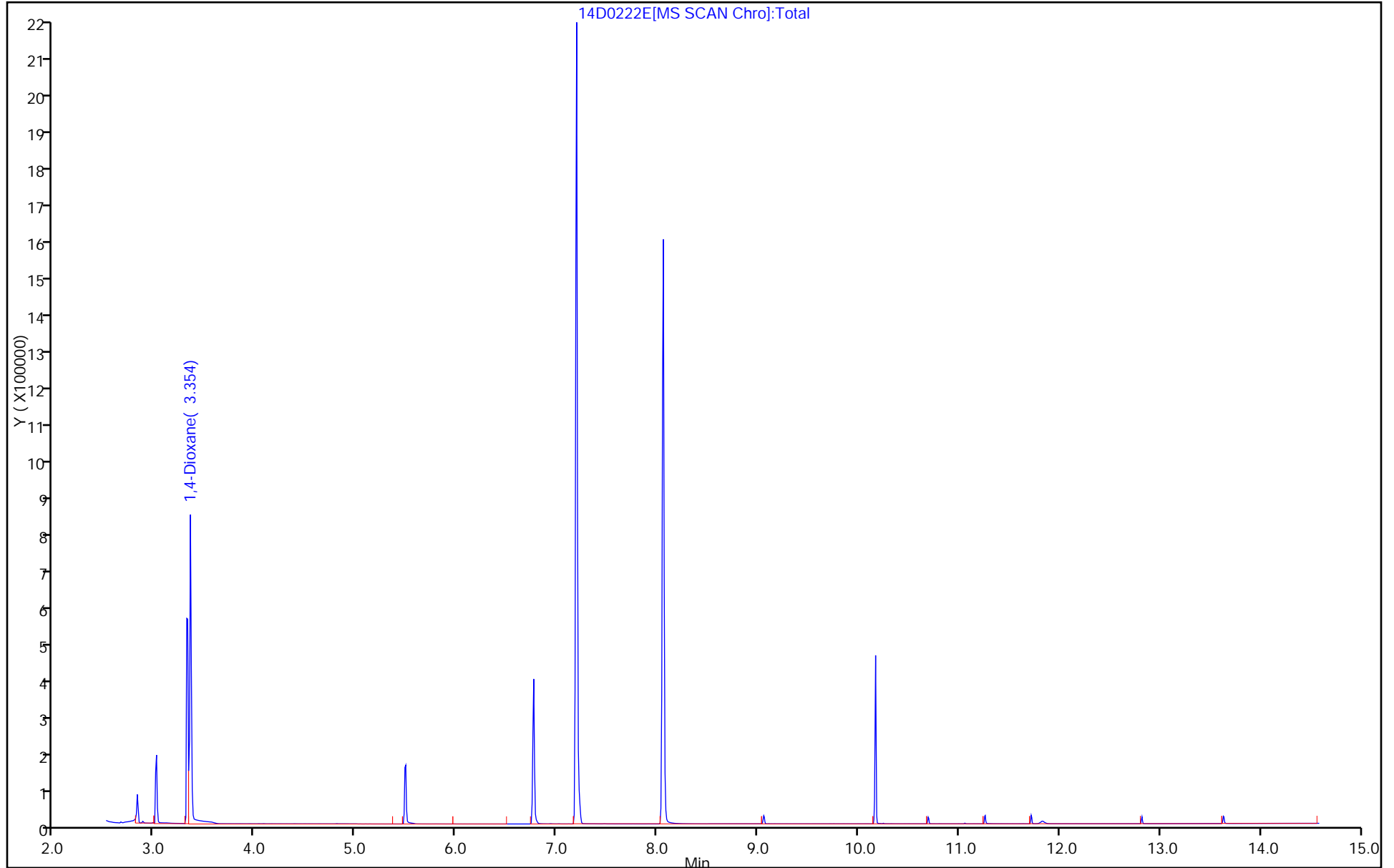
Dil. Factor: 1.0000

ALS Bottle#: 5

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

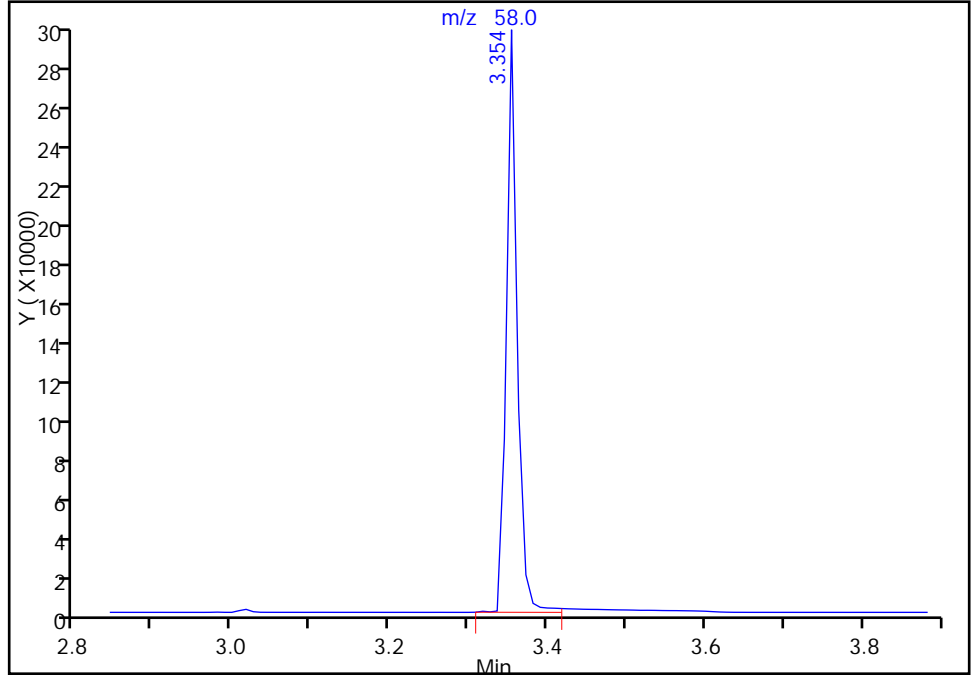
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222E.D
Injection Date: 22-Feb-2017 11:03:30 Instrument ID: SV1
Lims ID: ICIS CS-5
Client ID:
Operator ID: ALS Bottle#: 5 Worklist Smp#: 5
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

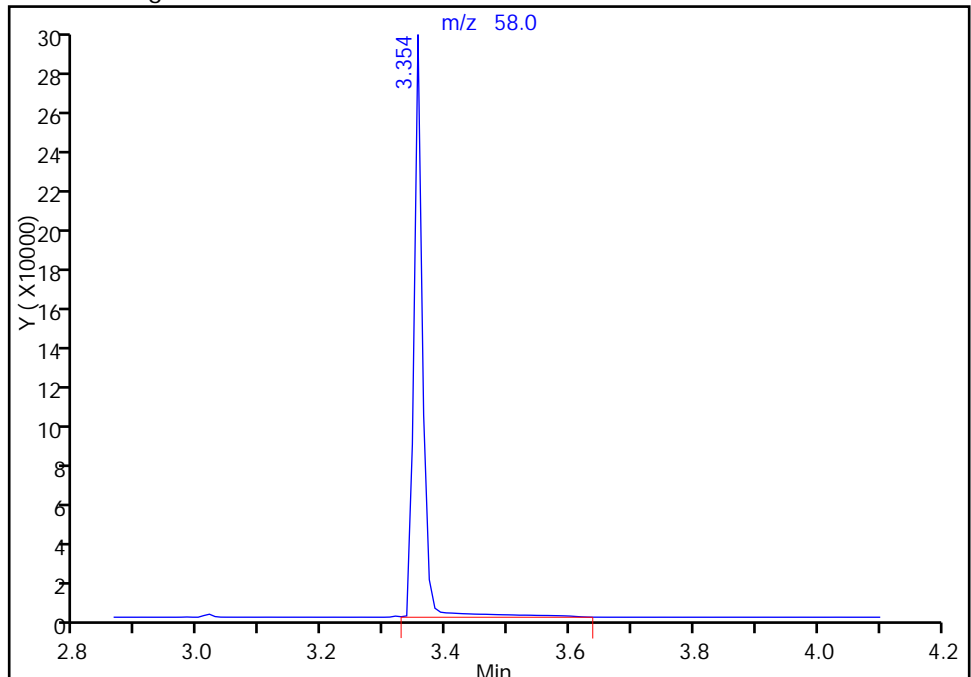
RT: 3.35
Area: 280244
Amount: 8.808838
Amount Units: ug/ml

Processing Integration Results



RT: 3.35
Area: 293131
Amount: 9.291648
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:30
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222F.D
 Lims ID: IC CS-6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 22-Feb-2017 11:25:30 ALS Bottle#: 6 Worklist Smp#: 6
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-6 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:31 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim Date: 22-Feb-2017 11:46:54

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.355	3.354	0.001	100	570238	20.0	19.5	80- 120	100	M
88	3.364	3.354	0.010		655548			92- 132	115	
* 2 1,4-Dichlorobenzene-d4										
152	7.197	7.197	0.000	100	729888	10.0	10.0	80- 120	100	
150	7.197	7.197	0.000		1138534			136- 176	156	
115	7.197	7.197	0.000		417127			37.1- 77.1	57.1	
\$ 3 Nitrobenzene-d5										
82	8.059	8.059	0.000	96	1769342	20.0	20.1	80- 120	100	
128	8.068	8.059	0.009		911496			29.8- 69.8	51.5	
54	8.059	8.059	0.000		1041598			38.3- 78.3	58.9	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL6_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222F.D

Injection Date: 22-Feb-2017 11:25:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-6

Worklist Smp#: 6

Client ID:

Injection Vol: 1.0 ul

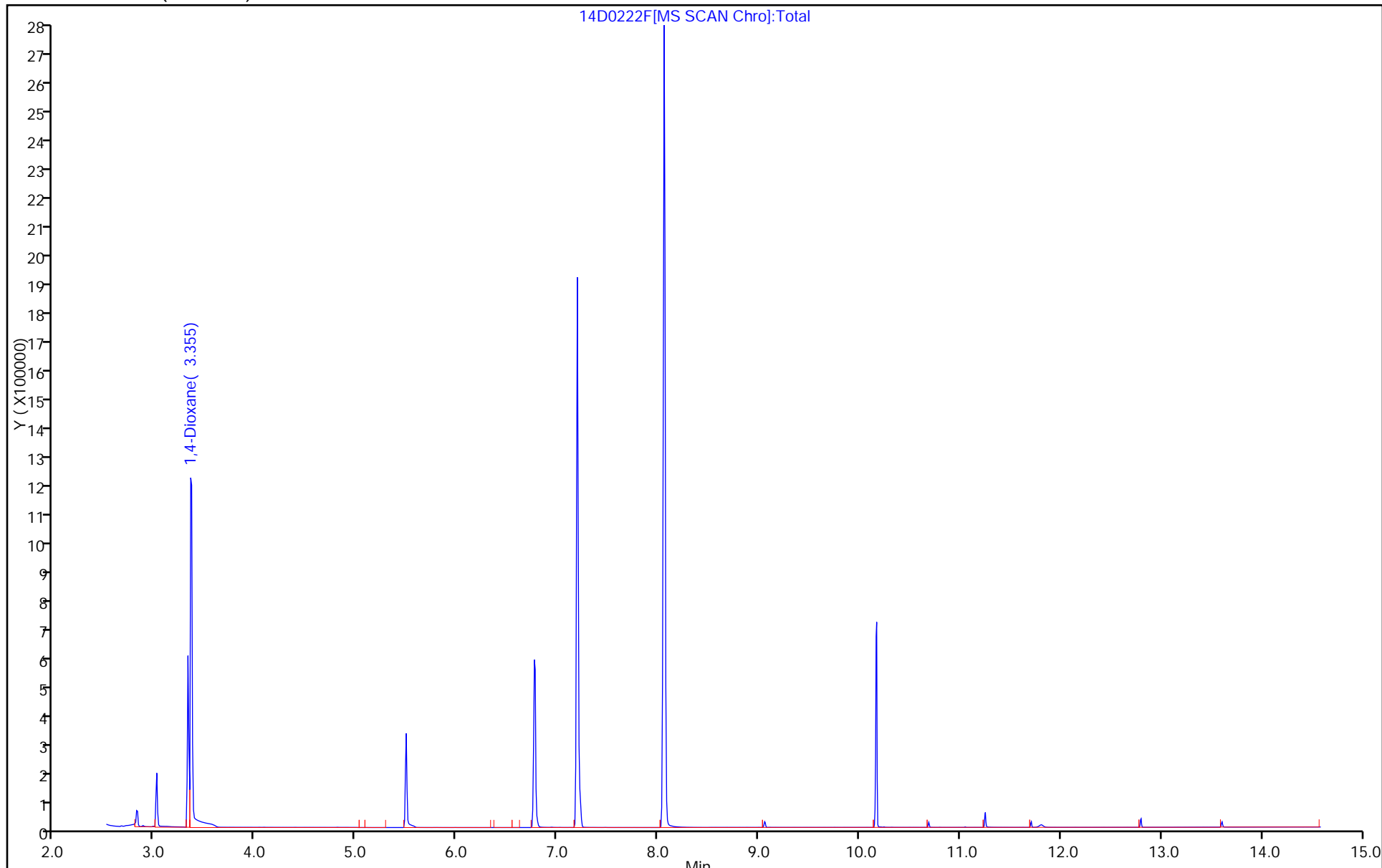
Dil. Factor: 1.0000

ALS Bottle#: 6

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

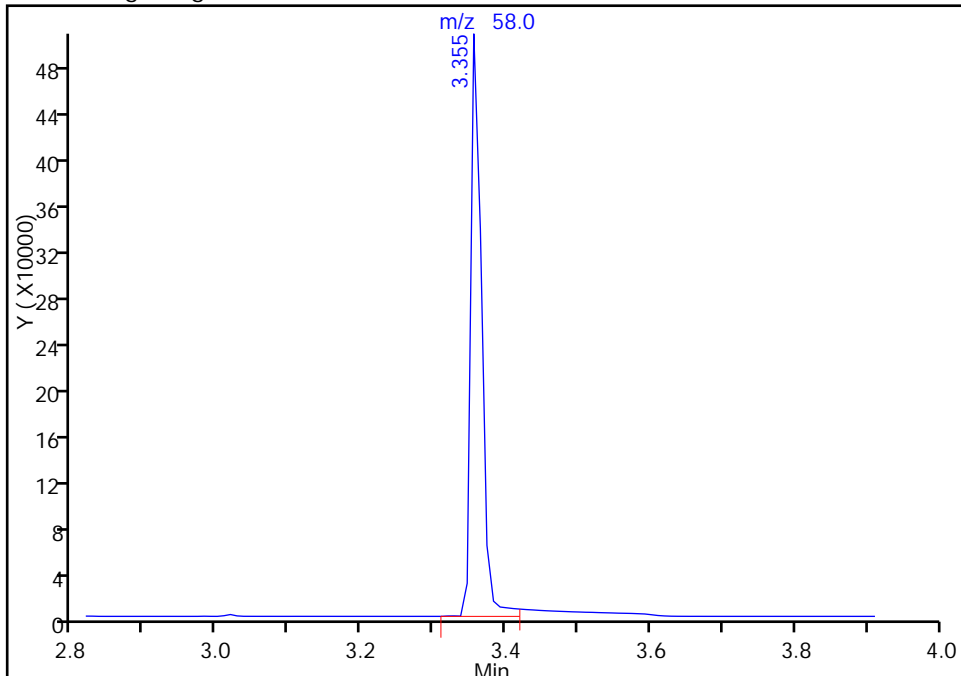
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222F.D
Injection Date: 22-Feb-2017 11:25:30 Instrument ID: SV1
Lims ID: IC CS-6
Client ID:
Operator ID: ALS Bottle#: 6 Worklist Smp#: 6
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

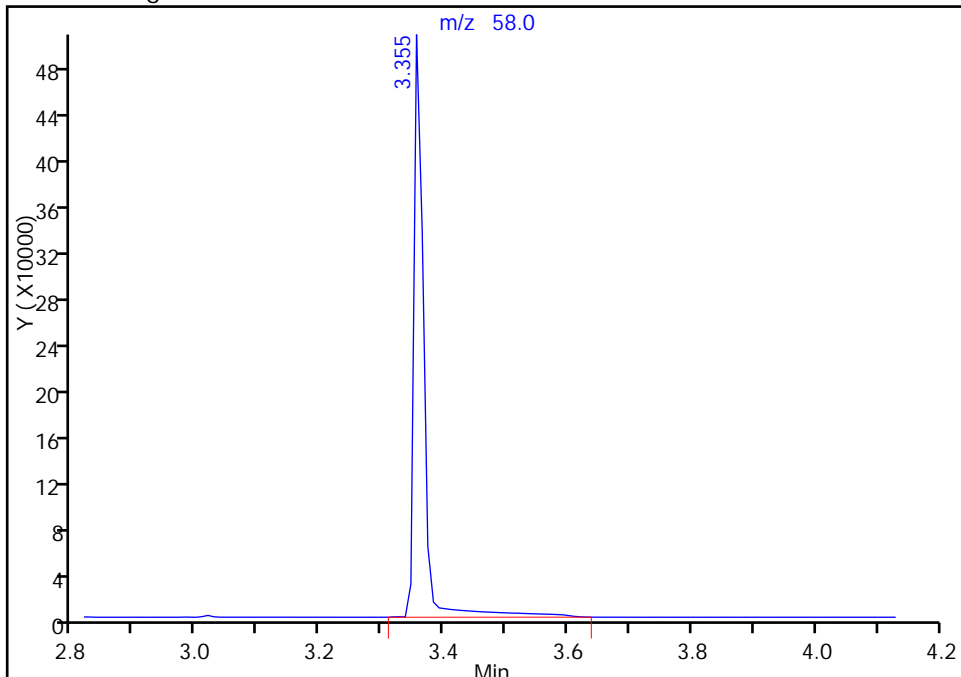
RT: 3.36
Area: 530709
Amount: 18.155454
Amount Units: ug/ml

Processing Integration Results



RT: 3.36
Area: 570238
Amount: 19.472510
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:30
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222G.D
 Lims ID: IC CS-7
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 22-Feb-2017 11:47:30 ALS Bottle#: 7 Worklist Smp#: 7
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-7 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:31 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim Date: 22-Feb-2017 12:18:18

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
	58	3.355	3.354	0.001	90	1391248	50.0	53.4	80- 120	100 M
	88	3.364	3.354	0.010		1577040			92- 132	113
* 2 1,4-Dichlorobenzene-d4										
	152	7.198	7.197	0.001	100	649782	10.0	10.0	80- 120	100
	150	7.198	7.197	0.001		1006292			136- 176	155
	115	7.198	7.197	0.001		370252			37.1- 77.1	57.0
\$ 3 Nitrobenzene-d5										
	82	8.068	8.059	0.009	97	4451578	50.0	56.7	80- 120	100
	128	8.068	8.059	0.009		2303805			29.8- 69.8	51.8
	54	8.068	8.059	0.009		2601883			38.3- 78.3	58.4

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL7_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222G.D

Injection Date: 22-Feb-2017 11:47:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-7

Worklist Smp#: 7

Client ID:

Injection Vol: 1.0 ul

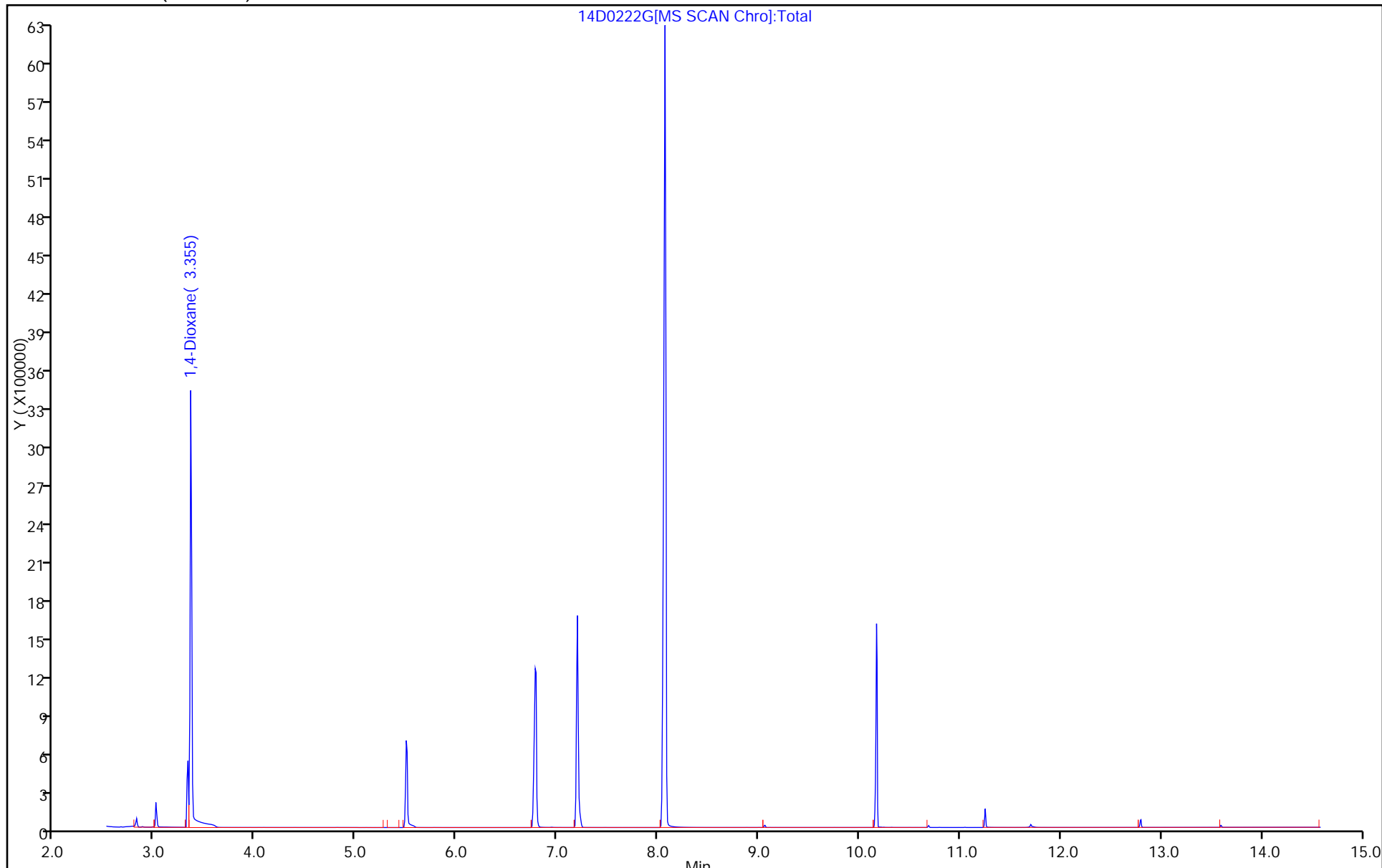
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

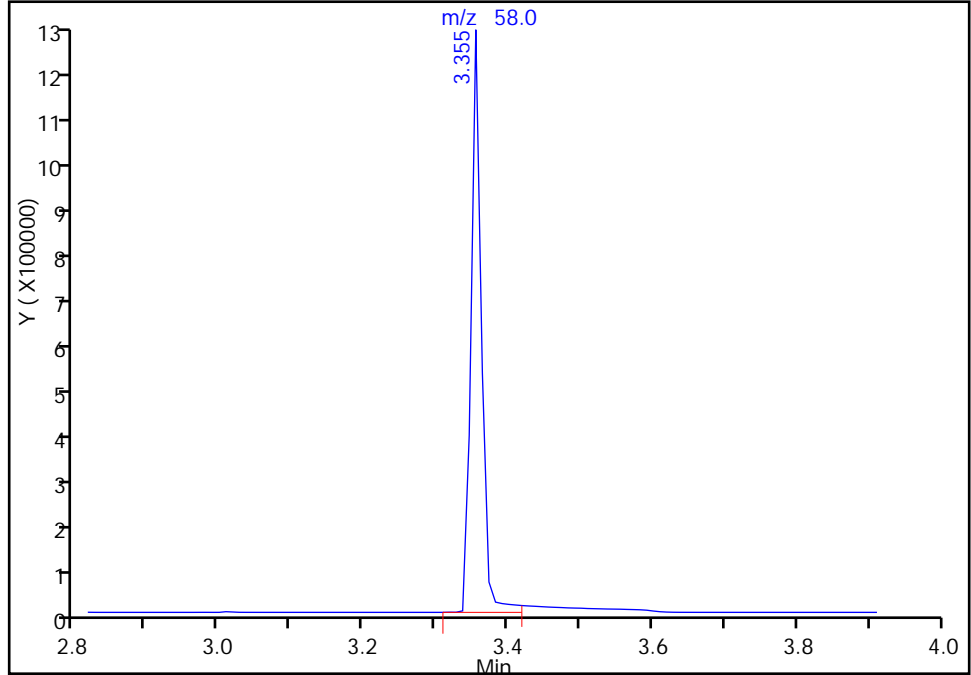
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222G.D
Injection Date: 22-Feb-2017 11:47:30 Instrument ID: SV1
Lims ID: IC CS-7
Client ID:
Operator ID: ALS Bottle#: 7 Worklist Smp#: 7
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

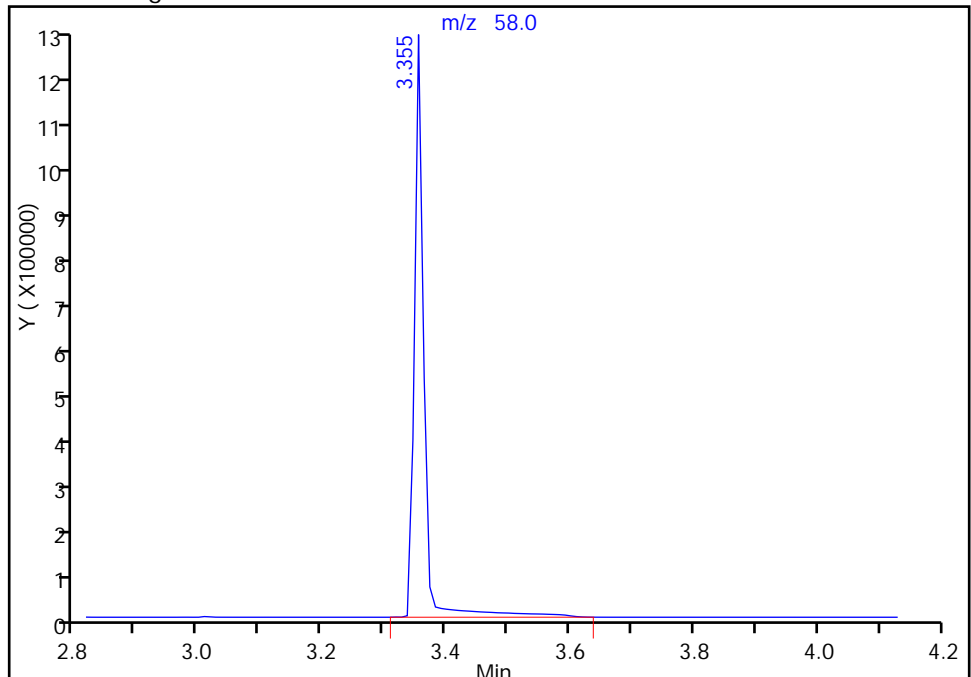
RT: 3.36
Area: 1295874
Amount: 49.348837
Amount Units: ug/ml

Processing Integration Results



RT: 3.36
Area: 1391248
Amount: 53.365292
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:31
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Lims ID: IC CS-8
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 22-Feb-2017 12:09:30 ALS Bottle#: 8 Worklist Smp#: 8
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: IC CS-8 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:32 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

First Level Reviewer: onishim Date: 22-Feb-2017 12:42:13

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.365	3.354	0.011	73	2749219	100.0	87.6	80- 120	100	M
88	3.365	3.354	0.011		3047664			92- 132	111	
* 2 1,4-Dichlorobenzene-d4										
152	7.198	7.197	0.001	99	782185	10.0	10.0	80- 120	100	
150	7.198	7.197	0.001		1219969			136- 176	156	
115	7.198	7.197	0.001		445630			37.1- 77.1	57.0	
\$ 3 Nitrobenzene-d5										
82	8.085	8.059	0.026	98	8721763	100.0	92.3	80- 120	100	
128	8.085	8.059	0.026		4541021			29.8- 69.8	52.1	
54	8.077	8.059	0.018		5217430			38.3- 78.3	59.8	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL8_00005

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D

Injection Date: 22-Feb-2017 12:09:30

Instrument ID: SV1

Operator ID:

Lims ID: IC CS-8

Worklist Smp#: 8

Client ID:

Injection Vol: 1.0 ul

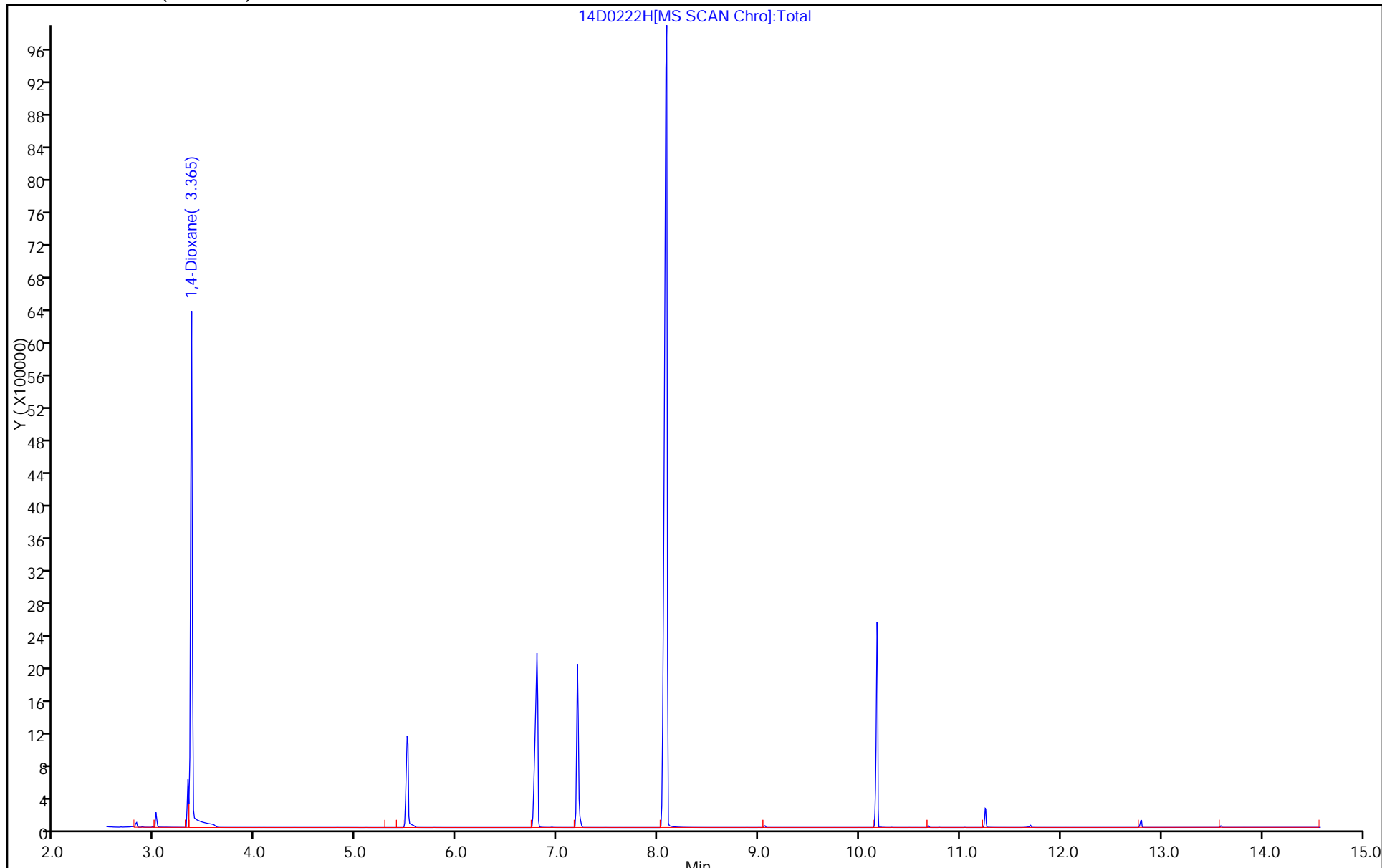
Dil. Factor: 1.0000

ALS Bottle#: 8

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

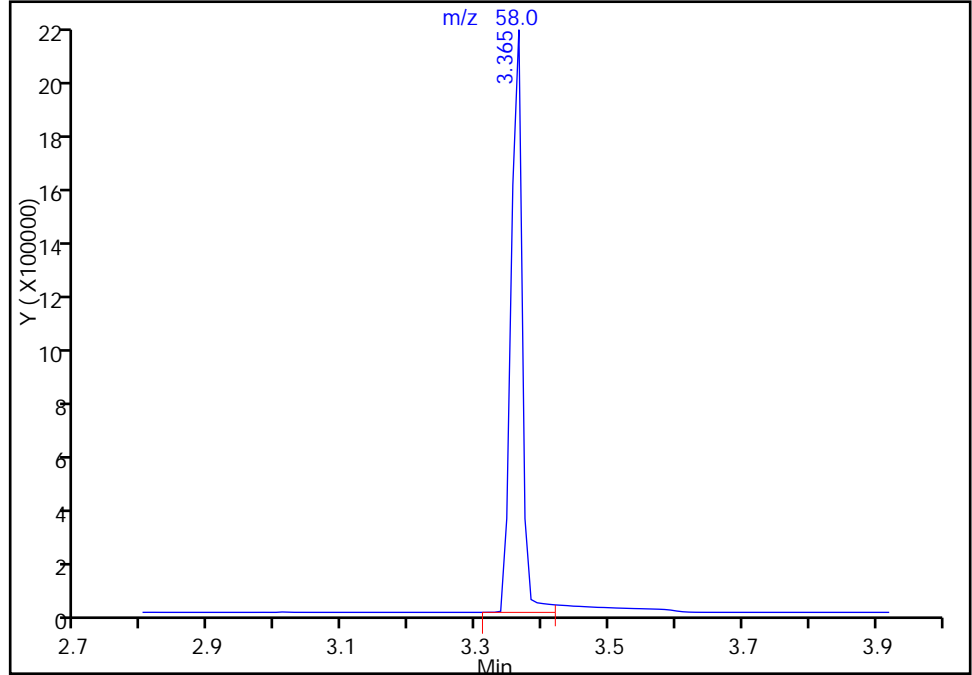
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
Injection Date: 22-Feb-2017 12:09:30 Instrument ID: SV1
Lims ID: IC CS-8
Client ID:
Operator ID: ALS Bottle#: 8 Worklist Smp#: 8
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

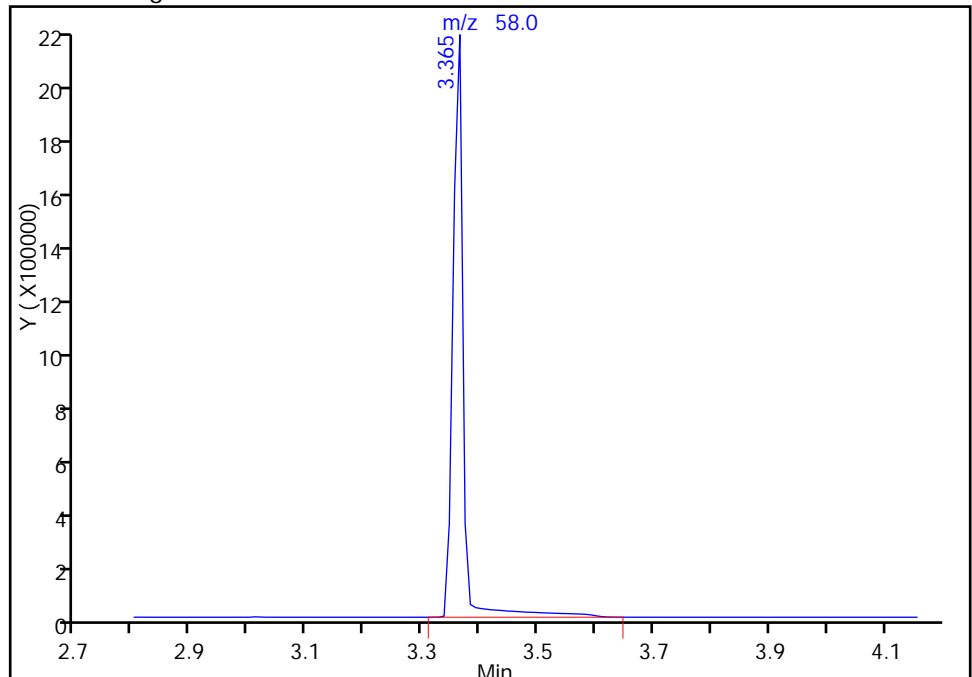
RT: 3.36
Area: 2566879
Amount: 82.391732
Amount Units: ug/ml

Processing Integration Results



RT: 3.36
Area: 2749219
Amount: 87.603583
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 22-Feb-2017 14:19:32
Audit Action: Manually Integrated

Audit Reason: Poor chromatography

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Lab Sample ID: ICV 320-151686/9 Calibration Date: 02/22/2017 12:31
 Instrument ID: SV1 Calib Start Date: 02/22/2017 09:35
 GC Column: HP-5MS ID: 0.25 (mm) Calib End Date: 02/22/2017 12:09
 Lab File ID: 14D0222.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.4012	0.3365		8.39	10.0	-16.1	30.0
Nitrobenzene-d5	Ave	1.208	1.092		9.04	10.0	-9.6	

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222.D
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 22-Feb-2017 12:31:30 ALS Bottle#: 9 Worklist Smp#: 9
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: ICV 14D
 Operator ID: Instrument ID: SV1
 Sublist:

Method: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 22-Feb-2017 14:19:32 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D

Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK015

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	S/N	Flags
1 1,4-Dioxane											
58	3.371	3.354	0.017	62	295999	10.0	8.39	80- 120	100	1939	
88	3.371	3.354	0.017		362512			92- 132	122		
* 2 1,4-Dichlorobenzene-d4											
152	7.198	7.197	0.001	100	879747	10.0	10.0	80- 120	100		
150	7.198	7.197	0.001		1372333			136- 176	156		
115	7.198	7.197	0.001		505357			37.1- 77.1	57.4		
\$ 3 Nitrobenzene-d5											
82	8.060	8.059	0.001	99	960674	10.0	9.04	80- 120	100		
128	8.060	8.059	0.001		494326			29.8- 69.8	51.5		
54	8.052	8.059	-0.007		562315			38.3- 78.3	58.5		

Reagents:

MS14DICV_00004 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222.D

Injection Date: 22-Feb-2017 12:31:30

Instrument ID: SV1

Operator ID:

Lims ID: ICV

Worklist Smp#: 9

Client ID:

Injection Vol: 1.0 ul

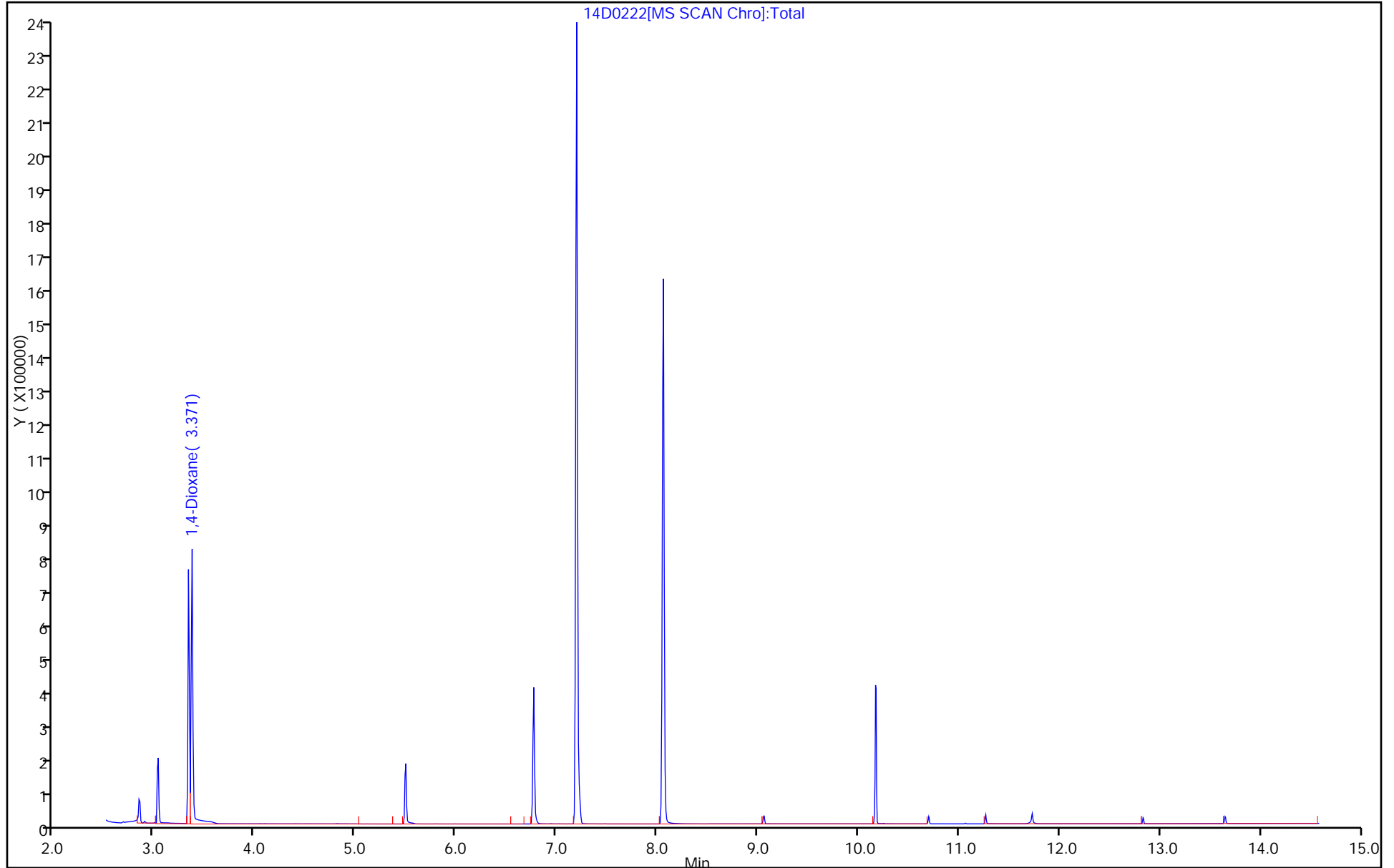
Dil. Factor: 1.0000

ALS Bottle#: 9

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

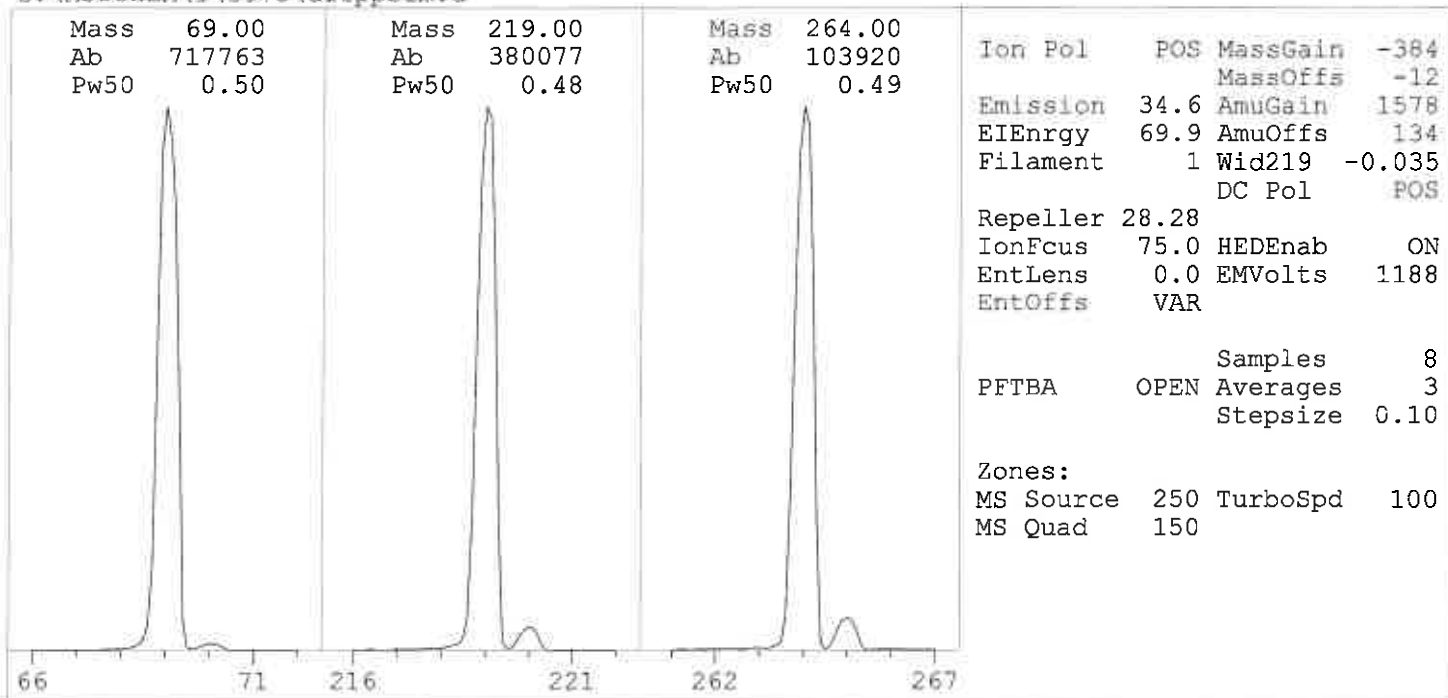
Column: HP-5MS (0.25 mm)



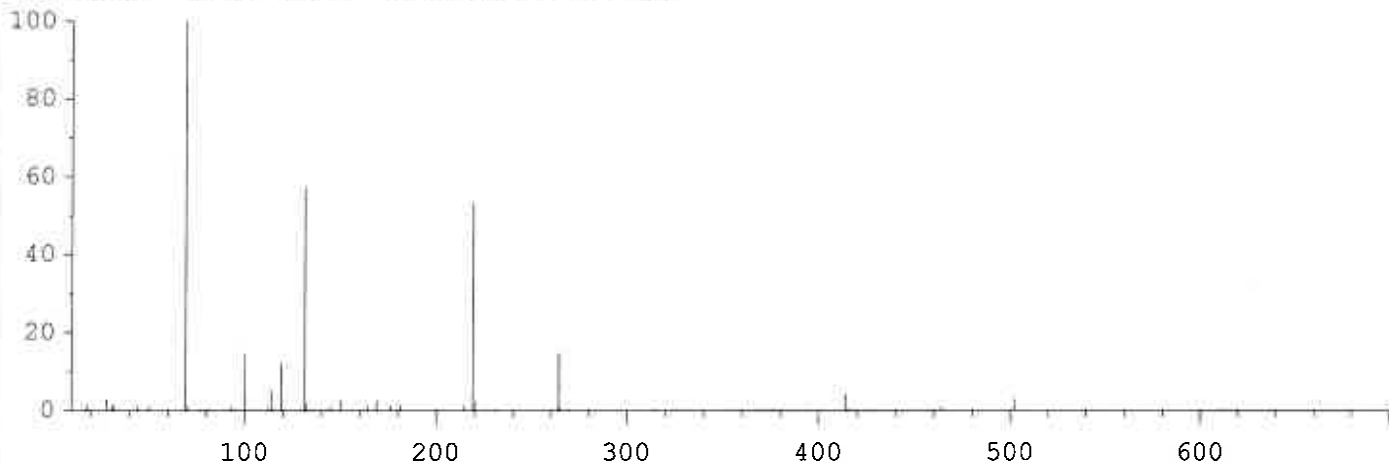
FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154875/2 Calibration Date: 03/14/2017 14:42
 Instrument ID: SV1 Calib Start Date: 02/22/2017 09:35
 GC Column: HP-5MS ID: 0.25 (mm) Calib End Date: 02/22/2017 12:09
 Lab File ID: 14D0314.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.4012	0.3923		9.78	10.0	-2.2	30.0
Nitrobenzene-d5	Ave	1.208	1.204		9.97	10.0	-0.3	30.0



Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
142 peaks Base: 69.00 Abundance: 585216



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	585216	100.00	70.10	6397	1.09
219.00	312000	53.31	220.00	13764	4.41
264.00	87064	14.88	265.00	4700	5.40

Air/Water Check: H2O~1.49% N2~2.83% O2~0.93% CO2~0.99% N2/H2O~190.25%

Column Flow: Front: 1.4 Back: 0 ml/min. Interface Temp: 250

Ramp Criteria:

Ion Focus Maximum 90 volts using ion 264; EM Gain 206251
Repeller Maximum 35 volts using ion 219;

MassGain Values @Samples: -384@3 -384@2 -384@1 -384@0 -384@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	134.0	134.0	134.0	134.0	134.0	134.0	134.0
Entrance Lens Offset:	14.6	12.0	13.3	12.5	13.8	12.8	12.8
Target Abund(%):	1.0	100.0	55.0	45.0	3.0	2.0	
Actual Tune Abund(%):	0.9	100.0	57.1	53.3	4.3	3.0	

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314.D
 Lims ID: CCV
 Client ID:
 Sample Type: CCV
 Inject. Date: 14-Mar-2017 14:42:30 ALS Bottle#: 96 Worklist Smp#: 2
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: CCV 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: onishim Date: 14-Mar-2017 15:23:26

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	S/N	Flags
1 1,4-Dioxane											M
58	3.320	3.320	0.000	91	267975	10.0	9.78	80- 120	100	118656	M
88	3.329	3.320	0.009		295886			90- 130	110		
* 2 1,4-Dichlorobenzene-d4											
152	7.172	7.172	0.000	97	683060	10.0	10.0	80- 120	100		
150	7.172	7.172	0.000		1056782			135- 175	155		
115	7.172	7.172	0.000		381437			35.8- 75.8	55.8		
\$ 3 Nitrobenzene-d5											
82	8.035	8.035	0.000	96	822559	10.0	9.97	80- 120	100		
128	8.035	8.035	0.000		442211			33.8- 73.8	53.8		
54	8.035	8.035	0.000		472906			37.5- 77.5	57.5		

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL5_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314.D

Injection Date: 14-Mar-2017 14:42:30

Instrument ID: SV1

Operator ID:

Lims ID: CCV

Worklist Smp#: 2

Client ID:

Injection Vol: 1.0 ul

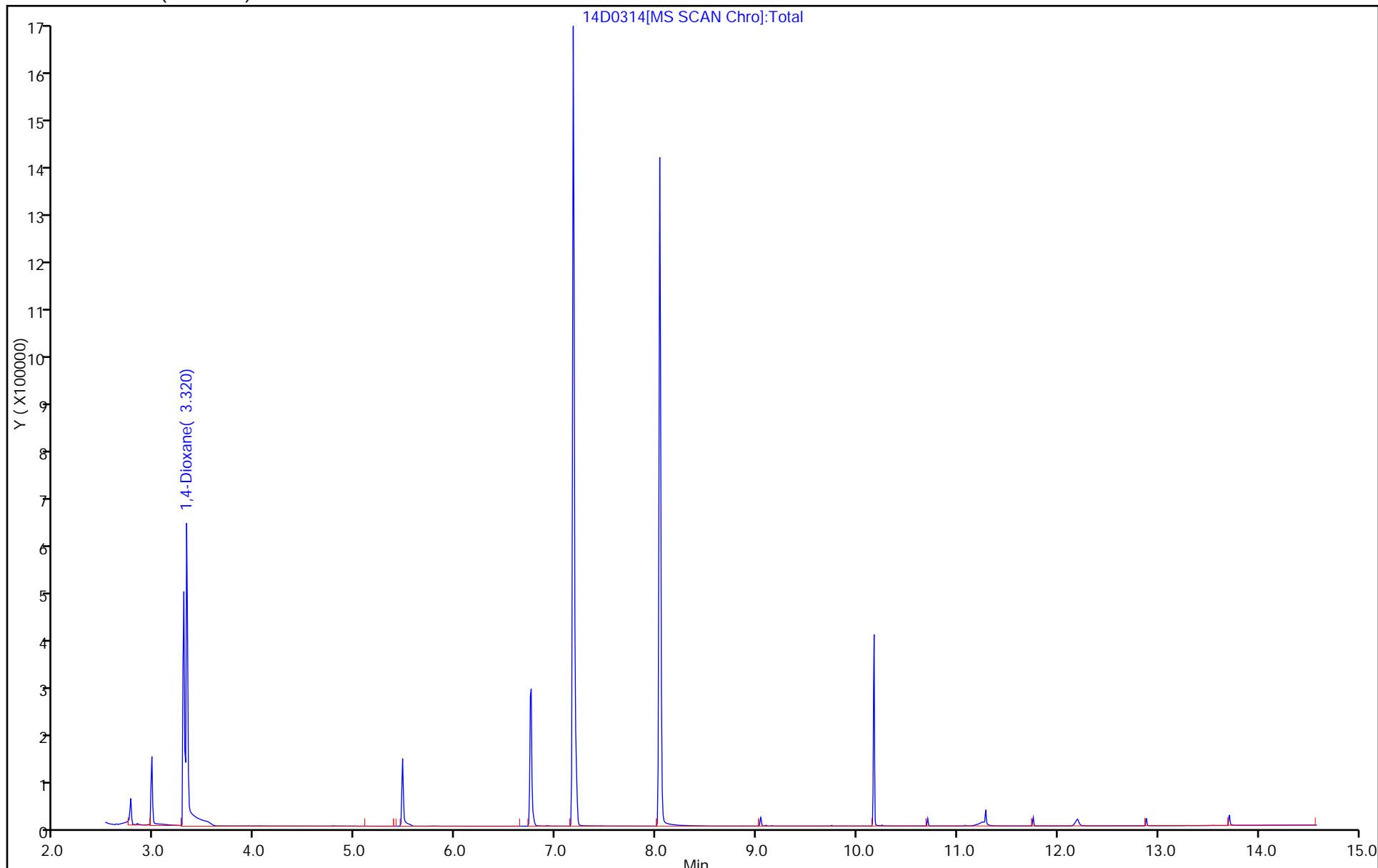
Dil. Factor: 1.0000

ALS Bottle#: 96

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

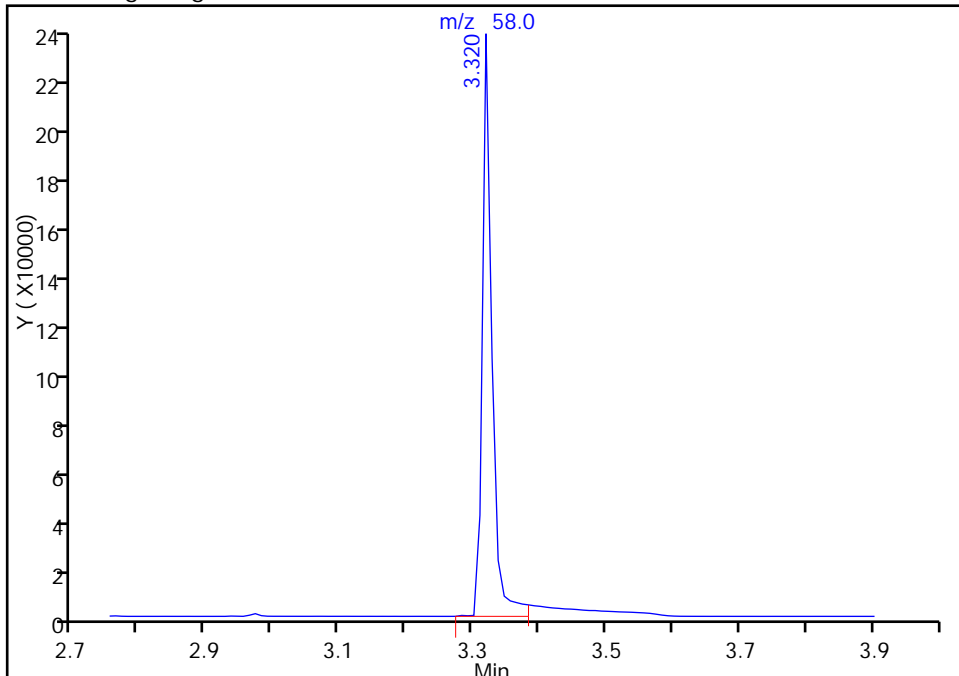
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314.D
Injection Date: 14-Mar-2017 14:42:30 Instrument ID: SV1
Lims ID: CCV
Client ID:
Operator ID: ALS Bottle#: 96 Worklist Smp#: 2
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

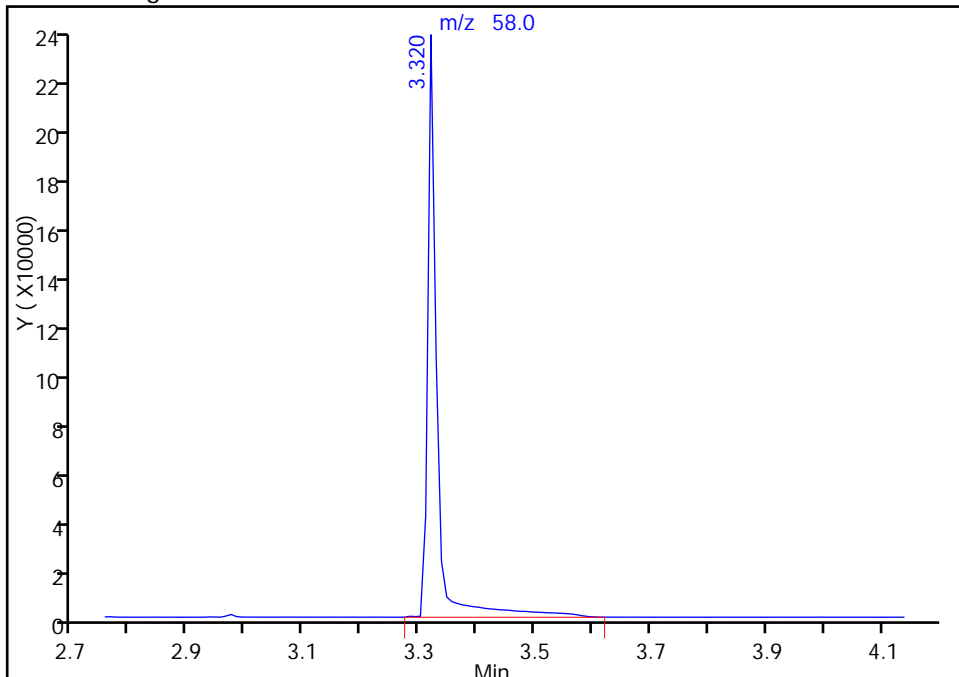
RT: 3.32
Area: 238941
Amount: 8.718742
Amount Units: ug/ml

Processing Integration Results



RT: 3.32
Area: 267975
Amount: 9.778167
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 15-Mar-2017 14:26:39
Audit Action: Manually Integrated

Audit Reason: Peak Tail

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Lab Sample ID: CCVC 320-154875/29 Calibration Date: 03/15/2017 00:49
 Instrument ID: SV1 Calib Start Date: 02/22/2017 09:35
 GC Column: HP-5MS ID: 0.25 (mm) Calib End Date: 02/22/2017 12:09
 Lab File ID: 14D0314A.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.4012	0.3975		9.91	10.0	-0.9	50.0
Nitrobenzene-d5	Ave	1.208	1.204		9.97	10.0	-0.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314A.D
 Lims ID: CCVC
 Client ID:
 Sample Type: CCVC
 Inject. Date: 15-Mar-2017 00:49:30 ALS Bottle#: 96 Worklist Smp#: 29
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: CCVC 14D
 Operator ID: Instrument ID: SV1
 Sublist: chrom-1,4-Dioxane*sub8
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 08:36:53 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK031

First Level Reviewer: chajjita Date: 15-Mar-2017 15:13:17

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	S/N	Flags
1 1,4-Dioxane											
58	3.319	3.319	0.000	78	269963	10.0	9.91	80- 120	100	66474	M
88	3.319	3.319	0.000		290765			88- 128	108		
* 2 1,4-Dichlorobenzene-d4											
152	7.174	7.174	0.000	100	679174	10.0	10.0	80- 120	100		
150	7.174	7.174	0.000		1055158			135- 175	155		
115	7.174	7.174	0.000		381694			36.2- 76.2	56.2		
\$ 3 Nitrobenzene-d5											
82	8.036	8.036	0.000	99	817415	10.0	9.97	80- 120	100		
128	8.036	8.036	0.000		440948			33.9- 73.9	53.9		
54	8.036	8.036	0.000		465051			36.9- 76.9	56.9		

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS14DL5_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314A.D

Injection Date: 15-Mar-2017 00:49:30

Instrument ID: SV1

Operator ID:

Lims ID: CCVC

Worklist Smp#: 29

Client ID:

Injection Vol: 1.0 ul

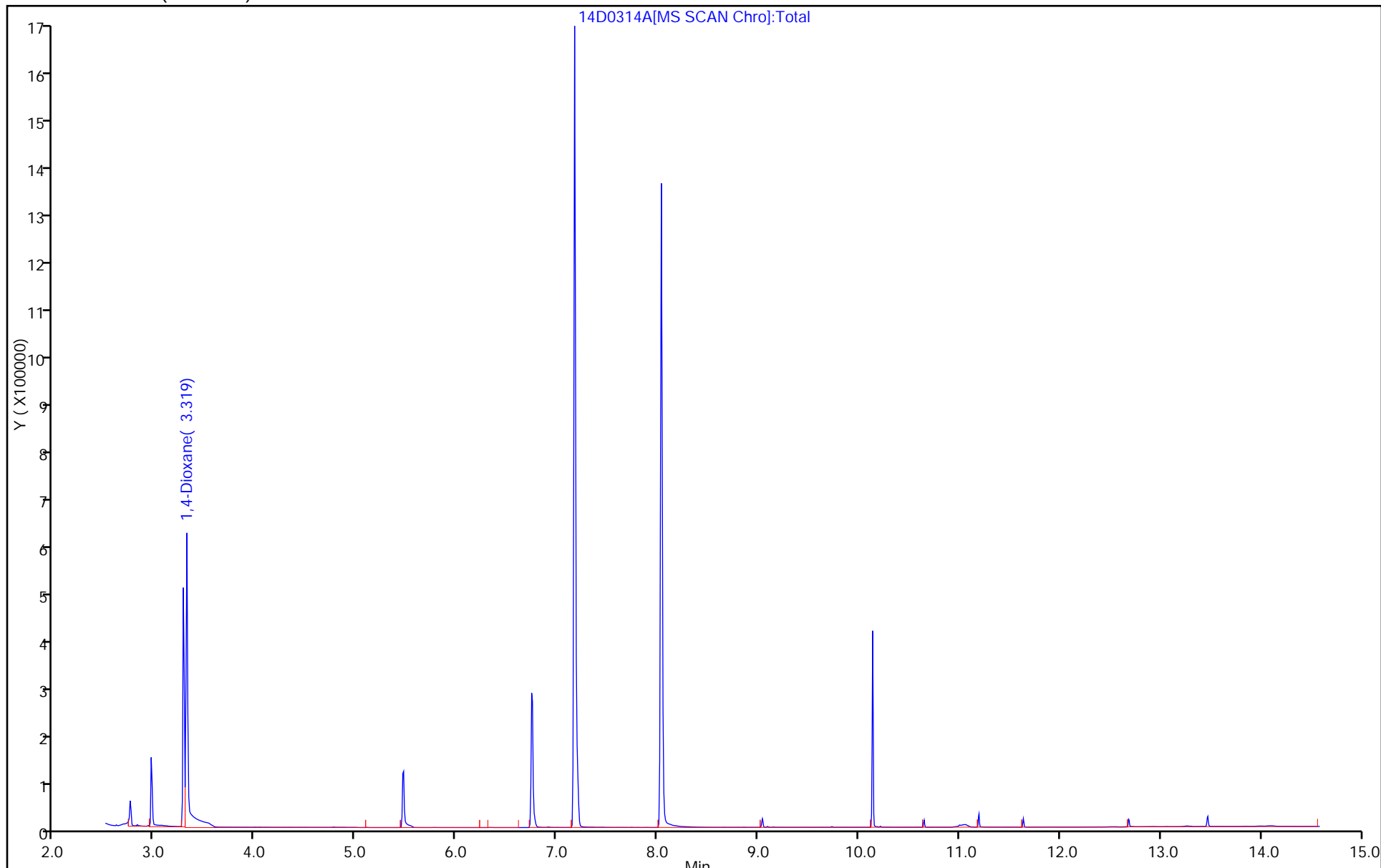
Dil. Factor: 1.0000

ALS Bottle#: 96

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento

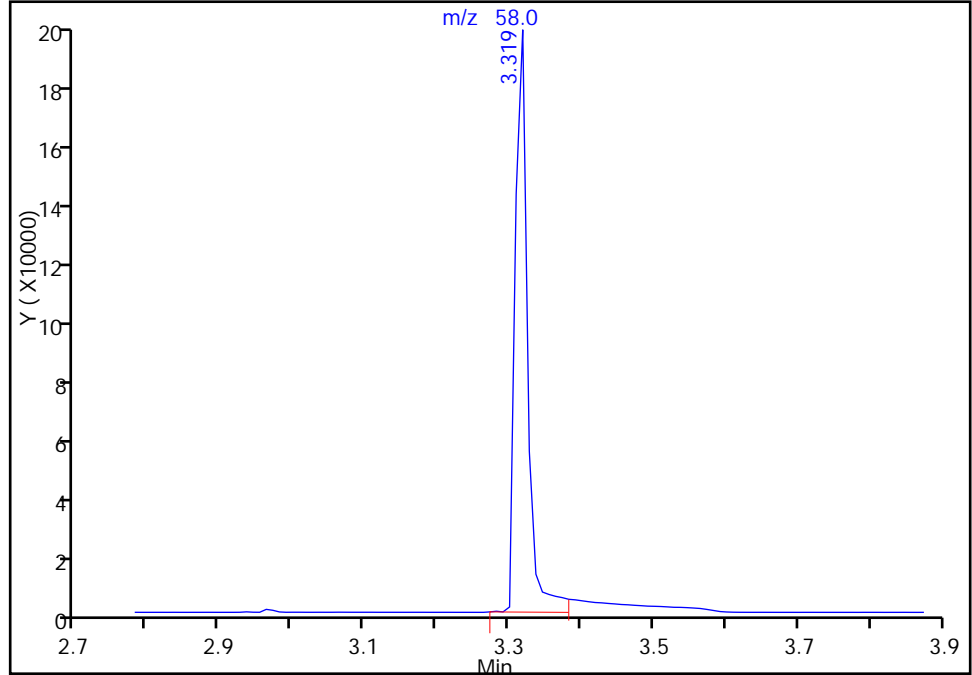
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\14D0314A.D
Injection Date: 15-Mar-2017 00:49:30 Instrument ID: SV1
Lims ID: CCVC
Client ID:
Operator ID: ALS Bottle#: 96 Worklist Smp#: 29
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

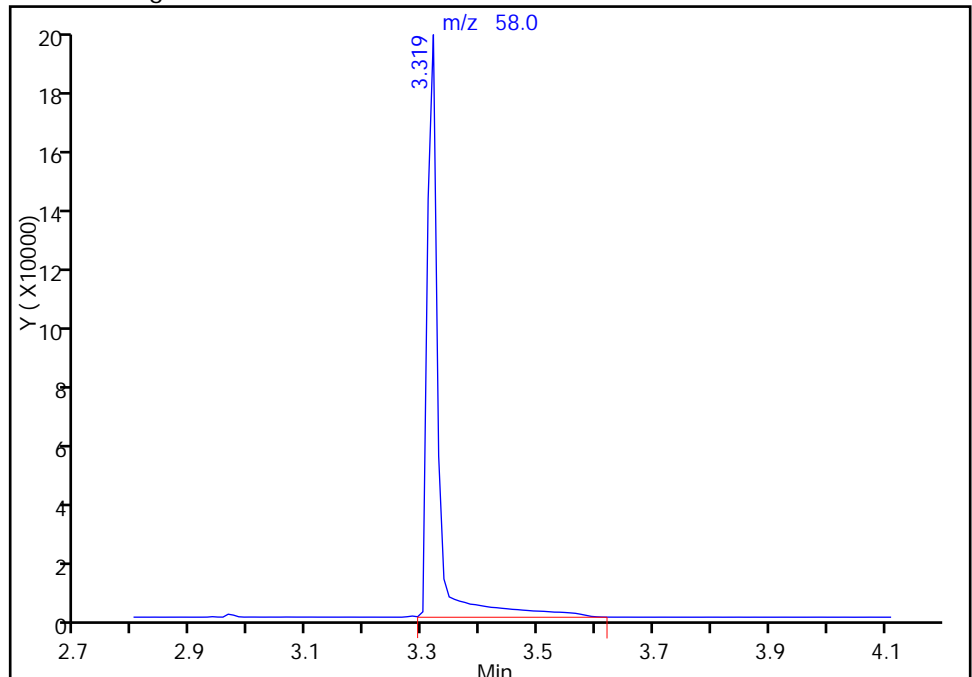
RT: 3.32
Area: 240662
Amount: 8.831785
Amount Units: ug/ml

Processing Integration Results



RT: 3.32
Area: 269963
Amount: 9.907069
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 15-Mar-2017 08:36:50
Audit Action: Manually Integrated

Audit Reason: Peak Tail

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-153806/1-A
 Matrix: Water Lab File ID: S031416.D
 Analysis Method: WS-MS-0011 Date Collected: _____
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1000 (mL) Date Analyzed: 03/14/2017 20:43
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.50	U	1.0	0.50	0.20

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	69		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031416.D
 Lims ID: MB 320-153806/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 14-Mar-2017 20:43:30 ALS Bottle#: 16 Worklist Smp#: 18
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-153806/1-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: lardieo Date: 14-Mar-2017 21:29:27

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
-----	-----------	---------------	---------------	---	----------	---------------	-----------------	-------------	-------	-------

1 1,4-Dioxane

58		3.320								ND
88		3.320								

* 2 1,4-Dichlorobenzene-d4

152	7.173	7.172	0.001	100	769575	10.0	10.0	80- 120	100	
150	7.173	7.172	0.001		1194046			135- 175	155	
115	7.173	7.172	0.001		432538			35.8- 75.8	56.2	

\$ 3 Nitrobenzene-d5

82	8.036	8.035	0.001	99	322104	5.00	3.47	80- 120	100	
128	8.036	8.035	0.001		171017			33.8- 73.8	53.1	
54	8.036	8.035	0.001		183902			37.5- 77.5	57.1	

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031416.D

Injection Date: 14-Mar-2017 20:43:30

Instrument ID: SV1

Operator ID:

Lims ID: MB 320-153806/1-A

Worklist Smp#: 18

Client ID:

Injection Vol: 1.0 ul

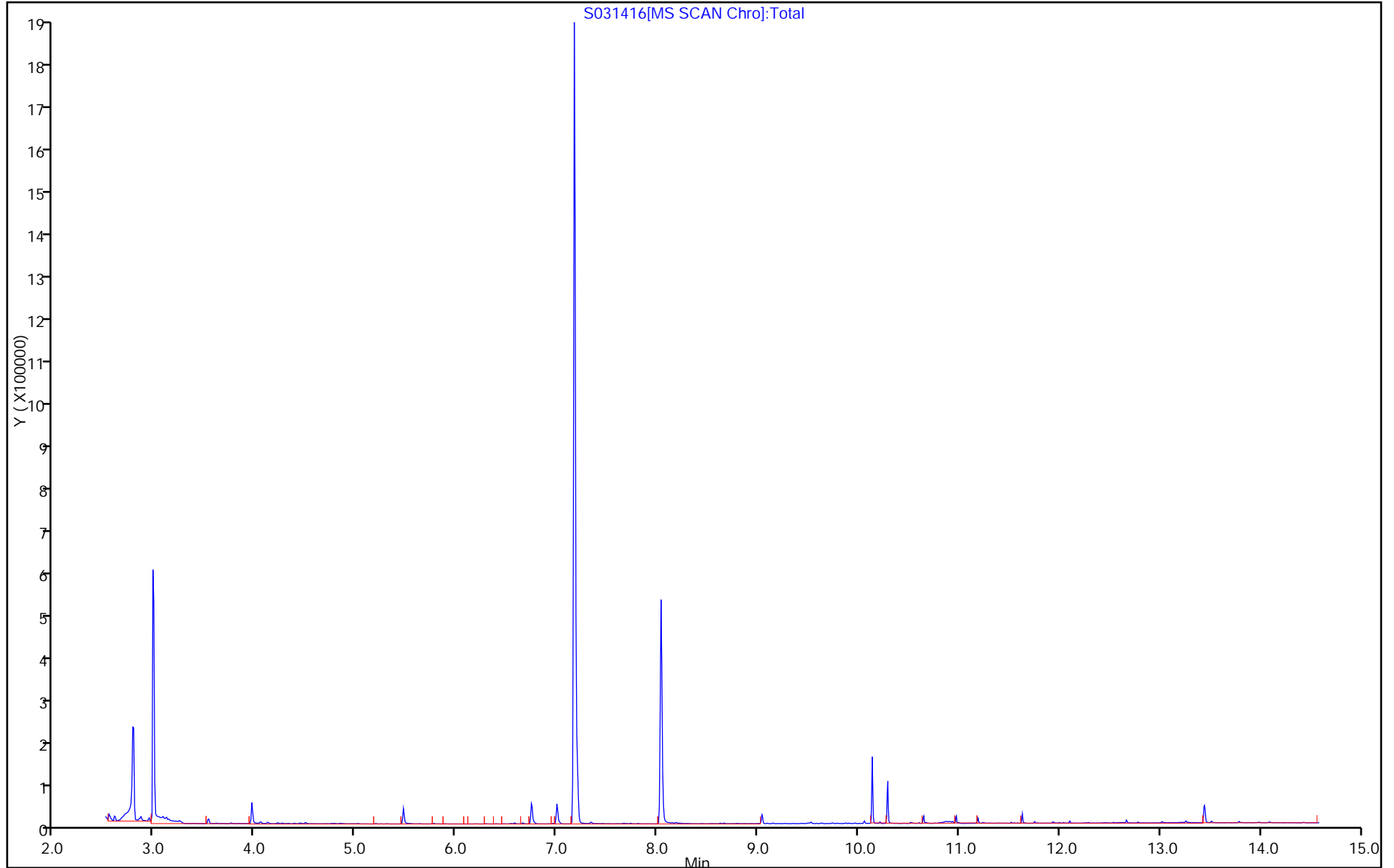
Dil. Factor: 1.0000

ALS Bottle#: 16

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031416.D
 Lims ID: MB 320-153806/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 14-Mar-2017 20:43:30 ALS Bottle#: 16 Worklist Smp#: 18
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-153806/1-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: lardieo Date: 14-Mar-2017 21:29:27

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.47	69.31

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 320-153806/2-A
 Matrix: Water Lab File ID: S031417.D
 Analysis Method: WS-MS-0011 Date Collected: _____
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1000 (mL) Date Analyzed: 03/14/2017 21:06
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	3.17	M	1.0	0.50	0.20

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	75		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031417.D
 Lims ID: LCS 320-153806/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 14-Mar-2017 21:06:30 ALS Bottle#: 17 Worklist Smp#: 19
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-153806/2-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: lardieo Date: 14-Mar-2017 21:29:48

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.320	3.320	0.000	76	80541	10.0	3.17	80- 120	100	M
88	3.320	3.320	0.000		86900			90- 130	108	
* 2 1,4-Dichlorobenzene-d4										
152	7.173	7.172	0.001	100	633634	10.0	10.0	80- 120	100	
150	7.173	7.172	0.001		980866			135- 175	155	
115	7.173	7.172	0.001		352385			35.8- 75.8	55.6	
\$ 3 Nitrobenzene-d5										
82	8.035	8.035	0.000	99	285154	5.00	3.73	80- 120	100	
128	8.043	8.035	0.008		150723			33.8- 73.8	52.9	
54	8.035	8.035	0.000		162990			37.5- 77.5	57.2	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031417.D

Injection Date: 14-Mar-2017 21:06:30

Instrument ID: SV1

Operator ID:

Lims ID: LCS 320-153806/2-A

Worklist Smp#: 19

Client ID:

Injection Vol: 1.0 ul

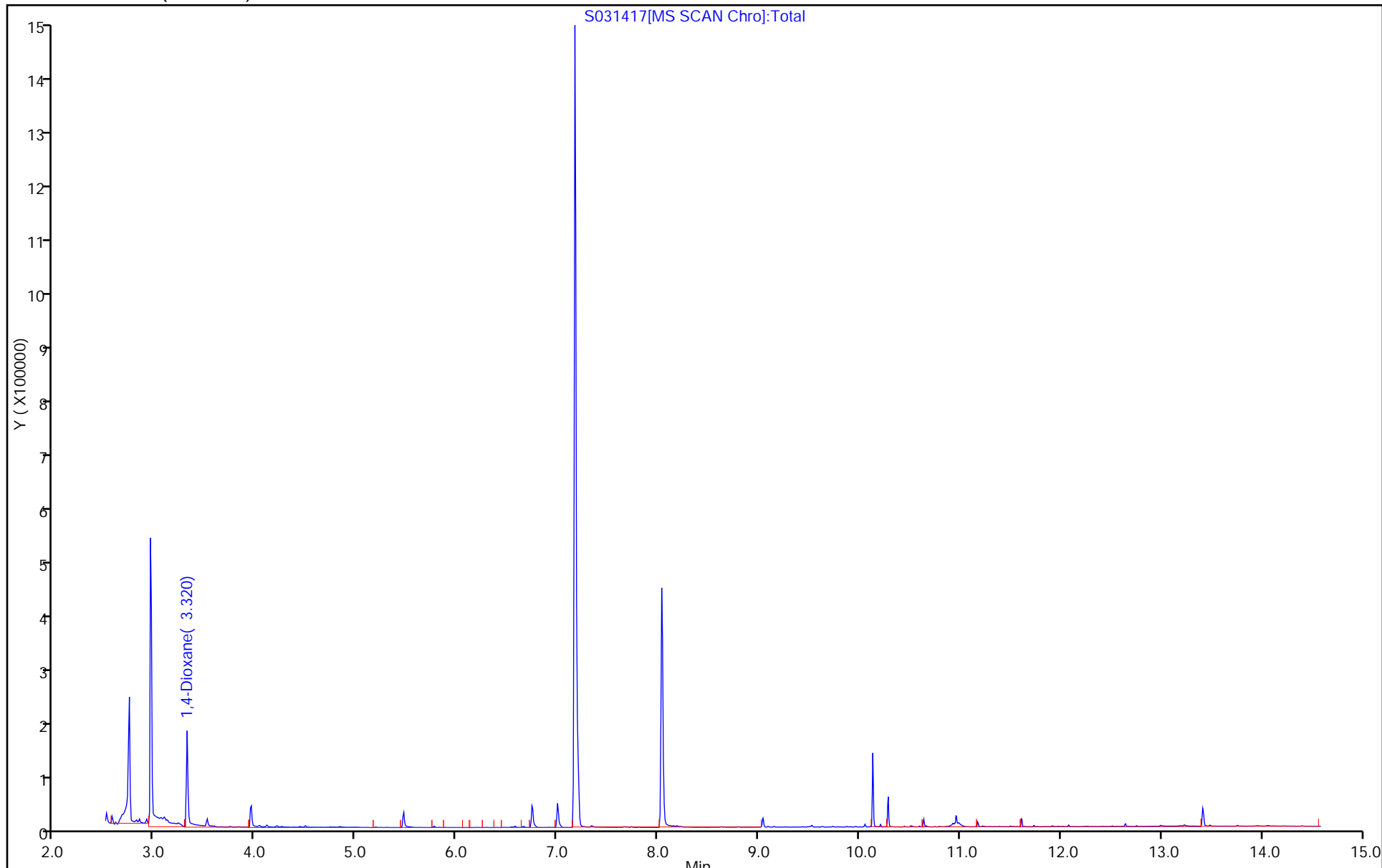
Dil. Factor: 1.0000

ALS Bottle#: 17

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031417.D
 Lims ID: LCS 320-153806/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 14-Mar-2017 21:06:30 ALS Bottle#: 17 Worklist Smp#: 19
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-153806/2-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 14:26:50 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK013

First Level Reviewer: lardieo Date: 14-Mar-2017 21:29:48

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.73	74.53

TestAmerica Sacramento

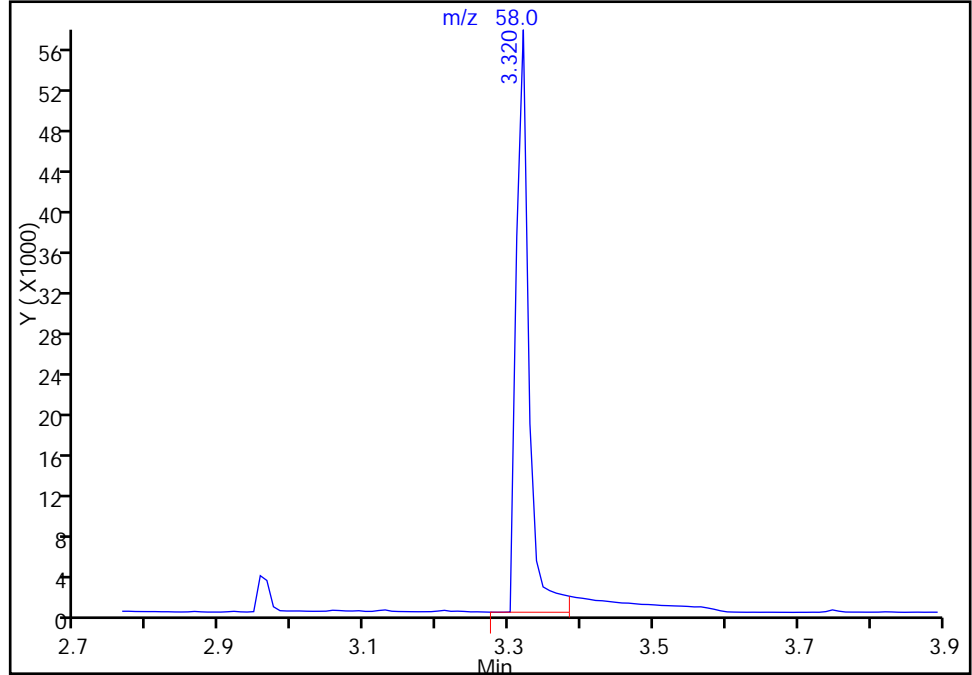
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031417.D
Injection Date: 14-Mar-2017 21:06:30 Instrument ID: SV1
Lims ID: LCS 320-153806/2-A
Client ID:
Operator ID: ALS Bottle#: 17 Worklist Smp#: 19
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

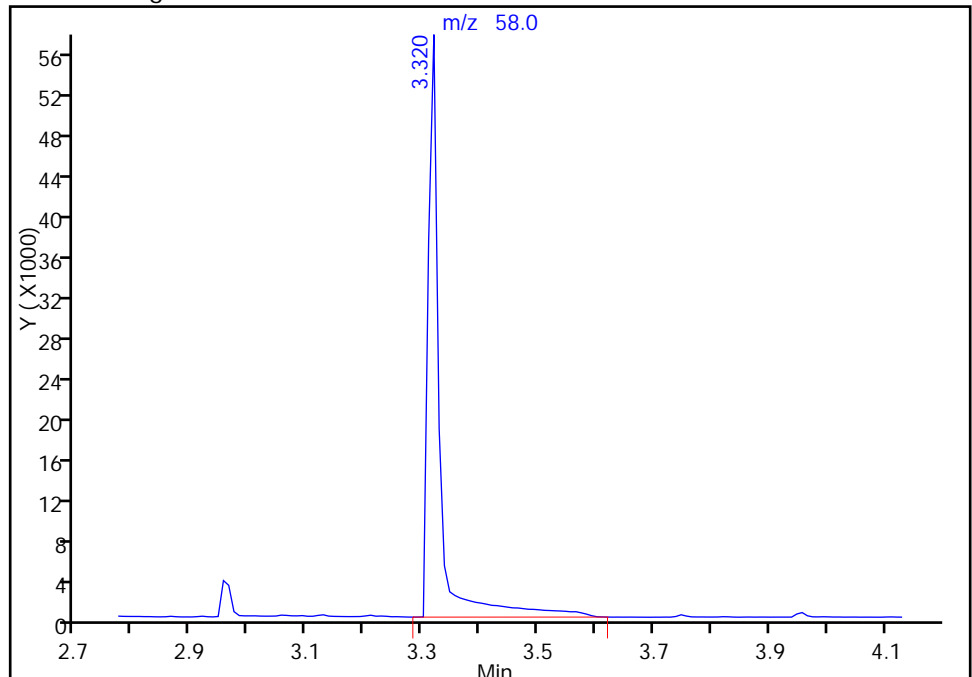
RT: 3.32
Area: 70442
Amount: 2.770864
Amount Units: ug/ml

Processing Integration Results



RT: 3.32
Area: 80541
Amount: 3.168112
Amount Units: ug/ml

Manual Integration Results



Reviewer: Iardieo, 15-Mar-2017 14:30:17
Audit Action: Manually Integrated

Audit Reason: Peak Tail

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCSD 320-153806/3-A
 Matrix: Water Lab File ID: S031418.D
 Analysis Method: WS-MS-0011 Date Collected: _____
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1000 (mL) Date Analyzed: 03/14/2017 21:28
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	3.12	M	1.0	0.50	0.20

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	71		42-91

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031418.D
 Lims ID: LCSD 320-153806/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 14-Mar-2017 21:28:30 ALS Bottle#: 18 Worklist Smp#: 20
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: lcsd 320-153806/3-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 08:35:54 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK031

First Level Reviewer: onishim Date: 15-Mar-2017 08:35:54

Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Ratio Range	Ratio	Flags
1 1,4-Dioxane										
58	3.321	3.319	0.002	78	86577	10.0	3.12	80- 120	100	M
88	3.330	3.319	0.011		89622			101- 141	104	
* 2 1,4-Dichlorobenzene-d4										
152	7.181	7.174	0.007	95	692706	10.0	10.0	80- 120	100	
150	7.172	7.174	-0.002		1074860			135- 175	155	
115	7.172	7.174	-0.002		386477			36.2- 76.2	55.8	
\$ 3 Nitrobenzene-d5										
82	8.035	8.036	-0.001	97	298808	5.00	3.57	80- 120	100	
128	8.043	8.036	0.007		159876			33.9- 73.9	53.5	
54	8.035	8.036	-0.001		171505			36.9- 76.9	57.4	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

MS8270IS_00016 Amount Added: 5.00 Units: uL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031418.D

Injection Date: 14-Mar-2017 21:28:30

Instrument ID: SV1

Operator ID:

Lims ID: LCSD 320-153806/3-A

Worklist Smp#: 20

Client ID:

Injection Vol: 1.0 ul

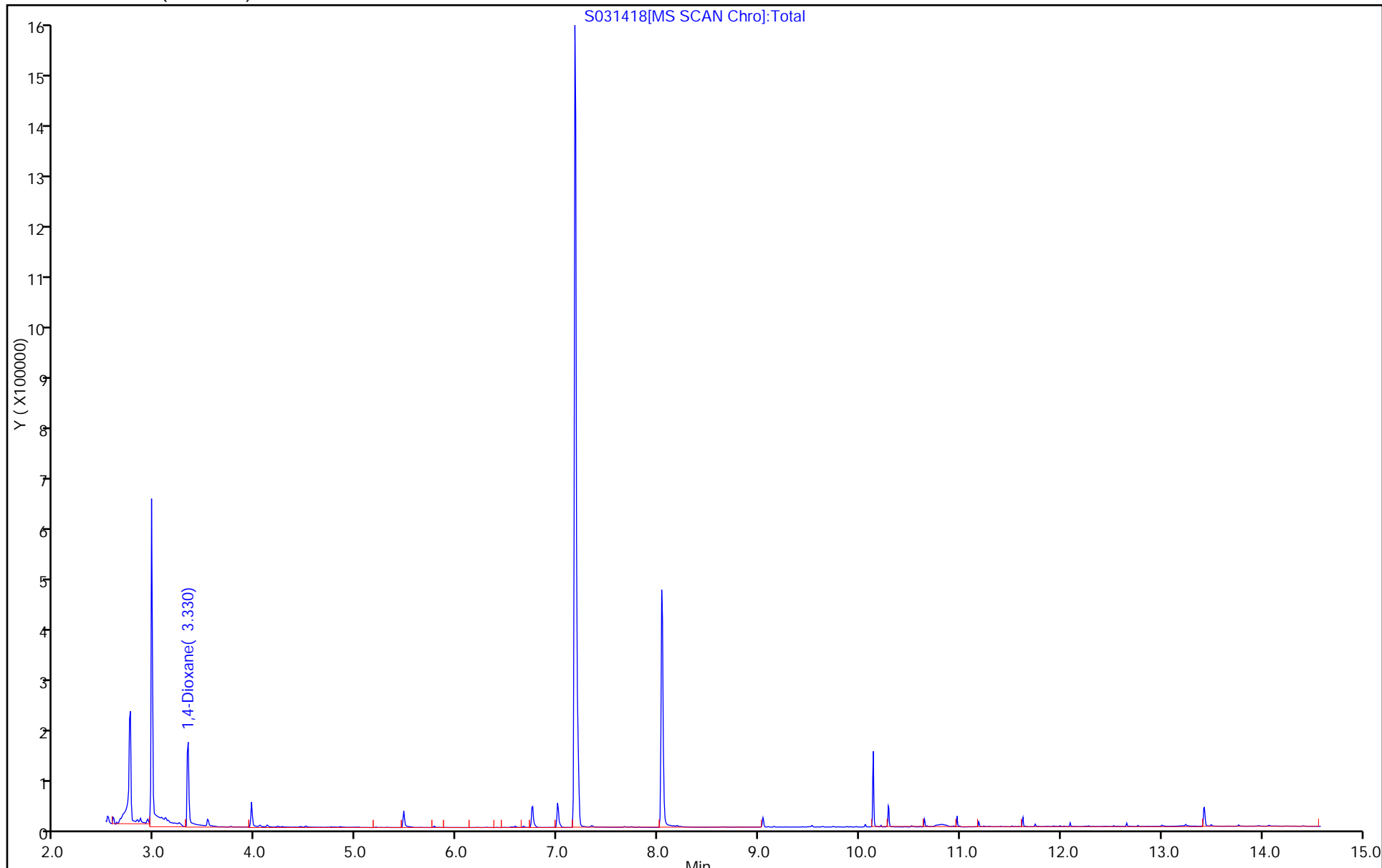
Dil. Factor: 1.0000

ALS Bottle#: 18

Method: 1,4-Dioxane

Limit Group: MSS - 8270SIM 14DX - ICAL

Column: HP-5MS (0.25 mm)



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031418.D
 Lims ID: LCSD 320-153806/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 14-Mar-2017 21:28:30 ALS Bottle#: 18 Worklist Smp#: 20
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: lcsd 320-153806/3-a
 Operator ID: Instrument ID: SV1
 Method: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\1,4-Dioxane.m
 Limit Group: MSS - 8270SIM 14DX - ICAL
 Last Update: 15-Mar-2017 08:35:54 Calib Date: 22-Feb-2017 12:09:30
 Integrator: RTE ID Type: RT Order ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\SV1\20170222-40122.b\14D0222H.D
 Column 1 : HP-5MS (0.25 mm) Det: MS SCAN
 Process Host: XAWRK031

First Level Reviewer: onishim Date: 15-Mar-2017 08:35:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 Nitrobenzene-d5	5.00	3.57	71.44

TestAmerica Sacramento

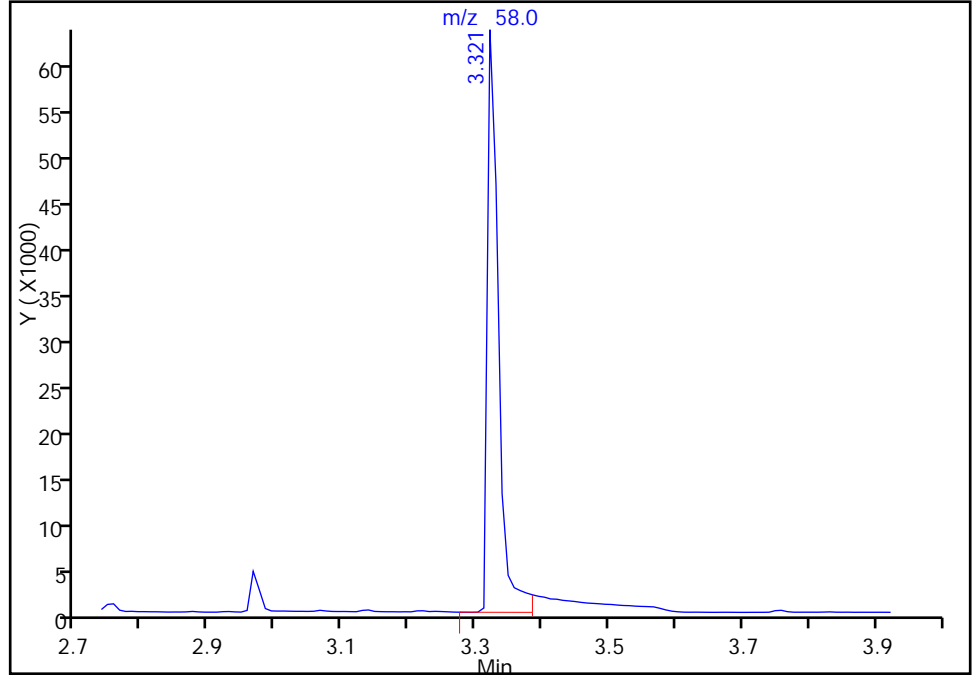
Data File: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b\S031418.D
Injection Date: 14-Mar-2017 21:28:30 Instrument ID: SV1
Lims ID: LCSD 320-153806/3-A
Client ID:
Operator ID: ALS Bottle#: 18 Worklist Smp#: 20
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4-Dioxane Limit Group: MSS - 8270SIM 14DX - ICAL
Column: HP-5MS (0.25 mm) Detector: MS SCAN

1 1,4-Dioxane, CAS: 123-91-1

Signal: 1

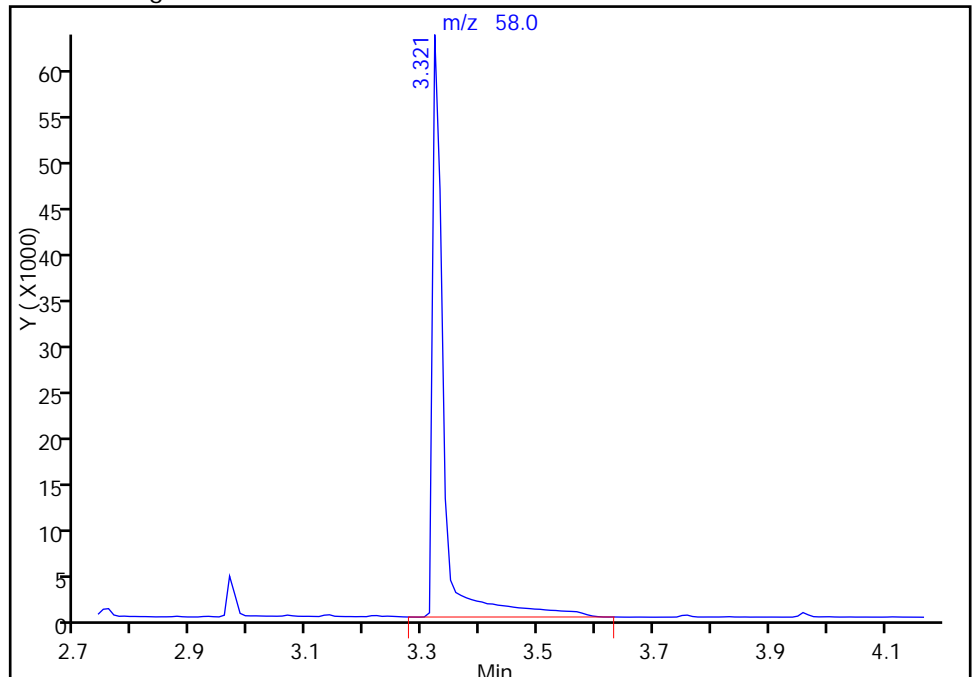
RT: 3.32
Area: 75095
Amount: 2.701992
Amount Units: ug/ml

Processing Integration Results



RT: 3.32
Area: 86577
Amount: 3.115126
Amount Units: ug/ml

Manual Integration Results



Reviewer: onishim, 15-Mar-2017 08:35:46
Audit Action: Manually Integrated

Audit Reason: Peak Tail

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Instrument ID: SV1 Start Date: 02/22/2017 09:35

Analysis Batch Number: 151686 End Date: 02/22/2017 12:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-151686/1		02/22/2017 09:35	1	14D0222A.D	HP-5MS 0.25 (mm)
IC 320-151686/2		02/22/2017 09:56	1	14D0222B.D	HP-5MS 0.25 (mm)
IC 320-151686/3		02/22/2017 10:19	1	14D0222C.D	HP-5MS 0.25 (mm)
IC 320-151686/4		02/22/2017 10:41	1	14D0222D.D	HP-5MS 0.25 (mm)
ICIS 320-151686/5		02/22/2017 11:03	1	14D0222E.D	HP-5MS 0.25 (mm)
IC 320-151686/6		02/22/2017 11:25	1	14D0222F.D	HP-5MS 0.25 (mm)
IC 320-151686/7		02/22/2017 11:47	1	14D0222G.D	HP-5MS 0.25 (mm)
IC 320-151686/8		02/22/2017 12:09	1	14D0222H.D	HP-5MS 0.25 (mm)
ICV 320-151686/9		02/22/2017 12:31	1	14D0222.D	HP-5MS 0.25 (mm)

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Instrument ID: SV1 Start Date: 03/14/2017 14:42

Analysis Batch Number: 154875 End Date: 03/15/2017 00:49

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-154875/2		03/14/2017 14:42	1	14D0314.D	HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 15:04	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 15:27	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 15:49	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 16:12	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 16:35	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 16:57	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 17:20	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 17:42	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 18:05	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 18:28	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 18:50	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 19:13	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 19:35	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 19:58	1		HP-5MS 0.25 (mm)
ZZZZZ		03/14/2017 20:21	1		HP-5MS 0.25 (mm)
MB 320-153806/1-A		03/14/2017 20:43	1	S031416.D	HP-5MS 0.25 (mm)
LCS 320-153806/2-A		03/14/2017 21:06	1	S031417.D	HP-5MS 0.25 (mm)
LCSD 320-153806/3-A		03/14/2017 21:28	1	S031418.D	HP-5MS 0.25 (mm)
320-26273-1		03/14/2017 21:50	1	S031419.D	HP-5MS 0.25 (mm)
320-26273-2		03/14/2017 22:13	1	S031420.D	HP-5MS 0.25 (mm)
320-26273-3		03/14/2017 22:35	1	S031421.D	HP-5MS 0.25 (mm)
320-26273-4		03/14/2017 22:57	1	S031422.D	HP-5MS 0.25 (mm)
320-26273-5		03/14/2017 23:20	1	S031423.D	HP-5MS 0.25 (mm)
320-26273-6		03/14/2017 23:42	1	S031424.D	HP-5MS 0.25 (mm)
ZZZZZ		03/15/2017 00:04	1		HP-5MS 0.25 (mm)
ZZZZZ		03/15/2017 00:27	1		HP-5MS 0.25 (mm)
CCVC 320-154875/29		03/15/2017 00:49	1	14D0314A.D	HP-5MS 0.25 (mm)

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Batch Number: 153806 Batch Start Date: 03/08/17 08:41 Batch Analyst: Rafieefar, SinaBatch Method: 3510C Batch End Date: 03/09/17 16:07

Lab Sample ID	Client Sample ID	Method Chain	Basis	ReceivedpH	GrossWeight	TareWeight	InitialAmount	FinalAmount	ResidualChloChe ck
MB 320-153806/1		3510C, WS-MS-0011		8 SU			1000 mL	1.0 mL	
LCS 320-153806/2		3510C, WS-MS-0011		8 SU			1000 mL	1.0 mL	
LCS 320-153806/3		3510C, WS-MS-0011		8 SU			1000 mL	1.0 mL	
320-26273-A-1	MEAFF-4AMW03-031 7	3510C, WS-MS-0011	T	6 SU	1556.1 g	508.02 g	1048.1 mL	1.0 mL	
320-26273-B-2	MEAFF-MRD-0630-0 317	3510C, WS-MS-0011	T	7 SU	1547.4 g	514.08 g	1033.3 mL	1.0 mL	
320-26273-B-3	MEAFF-4AMW01-031 7	3510C, WS-MS-0011	T	4 SU	1553.7 g	514.96 g	1038.7 mL	1.0 mL	7
320-26273-A-4	MEAFF-4CMW01-031 7	3510C, WS-MS-0011	T	8 SU	1557.1 g	509.09 g	1048 mL	1.0 mL	
320-26273-B-5	MEAFF-4CMW03-031 7	3510C, WS-MS-0011	T	8 SU	1546.5 g	522.63 g	1023.9 mL	1.0 mL	
320-26273-B-6	MEAFF-FD05-0317	3510C, WS-MS-0011	T	8 SU	1555.9 g	510.54 g	1045.4 mL	1.0 mL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	MS14DSP 00030	MS14DSU 00003	AnalysisComment			
MB 320-153806/1		3510C, WS-MS-0011			0.5 mL				
LCS 320-153806/2		3510C, WS-MS-0011		500 uL	0.5 mL				
LCS 320-153806/3		3510C, WS-MS-0011		500 uL	0.5 mL				
320-26273-A-1	MEAFF-4AMW03-031 7	3510C, WS-MS-0011	T		0.5 mL				
320-26273-B-2	MEAFF-MRD-0630-0 317	3510C, WS-MS-0011	T		0.5 mL				
320-26273-B-3	MEAFF-4AMW01-031 7	3510C, WS-MS-0011	T		0.5 mL	Color of the sample was yellow, and it was cloudy			
320-26273-A-4	MEAFF-4CMW01-031 7	3510C, WS-MS-0011	T		0.5 mL				
320-26273-B-5	MEAFF-4CMW03-031 7	3510C, WS-MS-0011	T		0.5 mL				
320-26273-B-6	MEAFF-FD05-0317	3510C, WS-MS-0011	T		0.5 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Batch Number: 153806 Batch Start Date: 03/08/17 08:41 Batch Analyst: Rafieefar, SinaBatch Method: 3510C Batch End Date: 03/09/17 16:07

Batch Notes	
Balance ID	QA-036
Base used for pH adjustment	10N NaOH
Base Used to Adjust pH ID	153803
Batch Comment	FV CRM 3/9/17 1mL
Analyst ID - Concentration	CRM 3/9/17
Na2SO4 ID	SS_00347 and SS_00348
Oven, Bath or Block Temperature 1	70-75
Pipette ID	K35057E
Prep Solvent ID	0000164143
Prep Solvent Name	DCM
Prep Solvent Volume Used	180 mL
Person's name who did the prep	SR/AAR 03/08/2017
Analyst ID - Reagent Drop Witness	AAR 03/08/2017
Analyst ID - Reagent Drop	SR 03/08/2017
Vial ID	16293128
Water Bath ID	BT:021

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.

Due 3/22
LH



Sacramento
GCMS Semivolatile CCV and Tune Data Review Checklist

LIMS Batch Number: 154975	Worklist #: 40922	Instrument ID: SV1
Analyst/1 st Reviewer: Aptimul 3/15/17	Method (circle): 625 8270C 8270D TO-13A NPE CWM (1,4-Dx) PAH PAH-IDA	Analysis Type (circle): Full Scan (SIM)
Matrix: (Non-potable Water) Solid Leachate Tissue Air Waste	QC Type (circle): Standard QAPP (DOD) Other- Explain QSM 5.0	
Job Nos: 320-26103, 320-26105, 320-26273, 320-26324	Prep Batch(es): 152910, 153906	ICAL Batch: 151696

Review Items	NA	Yes	No	2 nd Rev	If No, why is data reportable?
A. Tune/Calibration Verification					
1. Did DFTPP meet tune criteria? If SIM, did the PFTBA Tune check meet ion ratio criteria?		/		✓	
2. Are the Benzidine and PCP tailing ≤ 2? (8270D) Benzidine tailing ≤ 3 and PCP tailing ≤ 5? (8270C)	/			✓	If no, list details: _____
3. Is the DDT degradation ≤ 20%	/			✓	If no, list details: _____
4. Were all standards injected within 12 hr of DFTPP? (or 24 hrs for 625)?		/		✓	If no, list details: _____
5. Was the correct ICAL used for quantitation? Date and Instrument ID of ICAL verified? (Check in both Chrom/Target and TALS)		/		✓	
6. Do the RFs meet method minimum criteria? (8270D/625) Are the RFs for SPCCs ≥ 0.050? (8270C) SPCC: 2,4-Dinitrophenol, 4-Nitrophenol, Hexachlorocyclopentadiene & N-nitroso-di-n-propylamine		/		✓	If no, list details: _____
7. Is the %D (difference or drift) ≤ 20% for all CCCs? All other analytes within 15%, or lab limits (8270C); %D ≤ 20% for all analytes, at least 80% of compounds meet criteria? (8270D) %D ≤ 30% for all analytes (non-DOD SIM) %D ≤ 20% for all analytes (DOD SIM) CCC: Phenol, 1,4-DCB, 2-Nitrophenol, 2,4-Dichlorophenol, Hexachlorobutadiene, 4-Chloro-3-methylphenol, 2,4,6-Trichlorophenol, Acenaphthene, N-nitrosodiphenylamine, Pentachlorophenol, DI-n-octyl phthalate & Benzo(a)pyrene		/		✓	If no, list details: _____ (8270C: %D high, samples ND?) (8270D: <20% of cmpds fail criteria & for failed cmpds RL standard verifies sensitivity for NDs?)
8. For any compound > 20% D (low), was RL standard analyzed and detected? (8270D)	/			✓	
9. NOTE: For any compounds > 20% D (high or low), detects will be flagged as "EST" & narrated.	/			✓	<input type="checkbox"/> Must be done in consultation with client.
10. Are the internal standard responses within limits?	/			✓	If no, list details: _____

MSS-002 Rev 1 2016-07-20
Based on Corp Form No. CA-Q-WI-045, Rev. 0, dated 11 Nov 2014

LIMS Batch Number: 154975	Worklist #: 40922	Instrument ID: SV1
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(between -50% and +100% of the mid-level ICAL standard)					
11. Are the internal standard retention times within method limits? (± 30 sec of ICAL mid pt for 8270C/D)		/			✓ If no, list details: _____
12. Benzo(b & k)fluoranthene: height of the valley between must be less than 50% of the average of the two peak heights?	/				✓
13. Elution order checked Isomeric pairs and coeluters?					Chrom: View/Documents/Methods/Isomers)
• aniline / bis(2-chloroethyl)ether	/				
• n-nitrosodiphenylamine/diphenylamine * (conc)	/				
• 1,3-, 1,4-, 1,2-dichlorobenzene	/				
• benzyl alcohol / 2-methylphenol / 4-methylphenol	/				
• 2 & 1 - methylnaphthalene	/				
• 2,4,6- and 2,4,5-trichlorophenol	/				
• phenanthrene / anthracene	/				
• fluoranthene / pyrene	/				
• benzo(a)anthracene / chrysene	/				
• benzo(e)pyrene / benzo(a)pyrene / perylene	/				
• bis(2-ethylhexyl)/di-n-octyl phthalate	/				
• benzo(b)fluoranthene / benzo(k)fluoranthene	/				
• indeno(1,2,3-cd)pyrene / benzo(g,h,i)perylene	/				
• safrole/1-chloronaphthalene	/				
• 1-/2-naphthylamine	/				
• 2 and 1-chloronaphthalene	/				
• 2,4- and 2,6-dichlorophenol	/				
14. If any criteria from items above were not met, was a NCM generated & approved by supervisor?		/			✓
15. Were manual integrations performed correctly and properly documented? (dated, initialed and reason given; 2nd review of all MIs required)		/			✓
16. Is the ICV properly linked?		/			✓
17. Is the FC43 Tune Documentation attached in TALS (SIM Methods: NPE, CWM, 1,4-Dx, PAH, PAH-IDA)		/			✓
18. Isotope Dilution: S/N for all IDA > 10:1, S/N for targets > 2.5:1	/				
19. 1,4-Dx: S/N > 10:1 (client criteria > 20:1)?		/			✓

2nd Reviewer:

Review Date:

3/17/17

Comments:

LIMS Batch Number: 154875	Worklist #: 40922	Instrument ID: SV1
Analyst/1 st Reviewer: APINWAL 3/15/17	Method (circle): 625 8270C 8270D TO-13A NPE CWM (1,4-Dx) PAH PAH-IDA	Analysis Type (circle): Full Scan (SIM)
Matrix: (Non-potable Water) Solid Leachate Tissue Air Waste	QC Type (circle): Standard QAPP (DOD) Other- Explain: (SM 5.0)	
Job Nos: 320 - 26103, 320-26105, 320 - 26273, 320-26324	Prep Batch(es): 152910, 153806	

Review Items	NA	Yes	No	2 nd Rev	If No, why is data reportable?
B. Client Sample and QC Sample Results					
1. All samples & QC injected within method time criteria? (8270C, 8270D 12 hr; 625=24 hr)		/		/	Time of last Injection: 00:49
2. LCS (LFB) %recovery within limits? (625=cmpd specific-Table 5 'P' value (All other methods =lab statistical limits)		/		/	
3. MS/MSD (LFM/LFMD) %recoveries within limits? (625=cmpd specific-Table 5 'P' value) (All other methods =lab statistical limits)		/		/	
4. MS/MSD RPD within limits? (625=cmpd specific-limits) (All other methods =lab statistical limits)		/		/	
5. Do all spiked samples (LCS, MS, MSD) yield positive detections? Concentrations of ND require evaluation, correction or explanation.		/		/	
6. Are all duplicate or spiked duplicate sample RPDs <75%? Excessive RPDs (>75%) require evaluation, correction or explanation.		/		/	
7. Target cmpds in Method Blank are below required concentration.		/		/	
8. Surrogates within %Recovery acceptance limits for all samples and QC? <i>If no, list details:</i>		/		/	<input type="checkbox"/> Samples submitted for re-extraction <input type="checkbox"/> Confirmed by re-extraction <input type="checkbox"/> Insufficient sample for re-extraction <input type="checkbox"/> Surrogates high, samples ND <input type="checkbox"/> Visual Matrix Interference-Client notified- Explain _____ _____ _____
9. Internal standard (IS) response between -50% and +100% of (circle one) CCV standard? Mid-point ICAL? <i>If no, list details:</i>		/		/	<input type="checkbox"/> High IS response. Sample(s) rerun to confirm, or at dilution. <input type="checkbox"/> Low IS response. Sample(s) reanalyzed.

MSS-002 Rev 1 2016-07-20

Based on Corp Form No. CA-Q-WI-045, Rev. 0, dated 11 Nov 2014

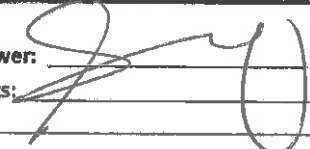
Page 3 of 5

LIMS Batch Number: 154875	Worklist #: 40822	Instrument ID: SV1
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Review Items	NA	Yes	No	2 nd Rev	If No, why is data reportable?
B. Client Sample and QC Sample Results (continued)					
10. Are internal standards <0.5 min of IS in last CCV?		/		/	
11. Samples with target analyte concentrations > calibration range diluted and reanalyzed? <i>If no, list details:</i>		/		/	<input type="checkbox"/> Results E flagged
11. Are peaks evaluated to assure there are no saturated peaks?		/		/	
12. Were preparation & analysis Holding Times met for all samples in the batch? Were analytical holding times met for all samples in the batch? <i>If no, list details:</i>		/		/	<input type="checkbox"/> H flag for samples past hold <input type="checkbox"/> NCM filed for samples past hold
13. Were prep and dilution factors verified between Chrom and TALS and final report?		/		/	Comments:
14. Were spectra for all detections evaluated for correct identification?		/		/	
15. Was a review performed of all chromatographic peaks that were deleted to verify removal was appropriate?		/		/	
16. Were unidentified peaks reviewed for missed target compounds?		/		/	
17. Were manual integrations performed correctly and properly documented? (dated, initialed and reason given; 2nd review of all MIs required)		/		/	
18. Were isomeric pairs checked for correct assignment? (verify against ICAL & CCV)		/		/	
19. Were results from diluted & undiluted runs compared?	/			/	
20. Dilution: Is highest target analyte >20% of calibration range?	/			/	<input type="checkbox"/> Is there matrix preventing? <input type="checkbox"/> Are clean ups required?
C. Other -- Final Report Data Review					
21. Were all project requirements met?		/		/	
22. Samples checked to ensure all requested targets uploaded and reported correctly?		/		/	
23. Results for Samples/LCS/MS/MSD calculated/reported correctly in TALS and in final report? <i>Are recovery & RPD limits present in final report?</i>		/		/	(Reagents associated correctly?) (Limits in reference data?)
24. NCMs reviewed for applicability, correct references to batches/analytes, grammatical/typographical errors?		/		/	
25. Raw Data					
a. Unused data is clearly identified		/		/	
b. All crossed out data is initialed and dated		/		/	
c. Out of control QC is clearly identified		/		/	
d. Any data that has a qualifier tick is commented on with appropriate action taken		/		/	

LIMS Batch Number: 154875	Worklist #: 40822	Instrument ID: SV1
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Review Items	NA	Yes	No	2 nd Rev	If No, why is data reportable?
C. Other -- Final Report Data Review (continued)					
e. The first page of the run includes the filename, instrument, and analyst initials/signature		/		/	
26. Run Log					If Chrom worklist is used for runlog, all runs upload to Worklist
a. Unused data is clearly identified		/		/	
b. All crossed out data is initialed and dated, not obliterated		/		/	
c. Analyst initials/signature provided		/		/	
27. TALS Samples Tab				/	
a. LIMS Sample IDs / Containers are correct		/		/	
b. Method and matrix are correct		/		/	
c. Date and time match raw data		/		/	
• Dilutions are correct		/		/	
• Correct suffix designated (where applicable)		/		/	
28. TALS Worksheet Tab is complete and correct		/		/	
29. TALS Reagent Tab is complete and correct		/		/	
30. TALS QC Links Tab is correct		/		/	Missing QC? <input type="checkbox"/> Check QC links, to samples and duplicates <input type="checkbox"/> Check cross batch links <input type="checkbox"/> QC at second level review? Missing limits? <input type="checkbox"/> Check QC links <input checked="" type="checkbox"/> Check spike (reagents) associated with appropriate analytes <input type="checkbox"/> check limits in ref. data-QA
31. TALS Sample Results Tab					
a. All unused data are marked Rejected or Accepted		/		/	
b. All reported analytes are marked Primary or Secondary		/		/	
c. Flags are correctly applied (no flags missing)		/		/	<input type="checkbox"/> Apply manually <input type="checkbox"/> Failing condition not propagated to samples- Re-calc
32. TALS Batch Information Screen documentation is complete		/		/	
32. TALS Status set to appropriate review level		/		/	<input type="checkbox"/> Check for "yellow calculator"

2nd Reviewer:  Review Date: 3/17/17

Comments: _____

GCMS Semivolatile ICAL Data Review Checklist

Internal Standard

LIMS Batch Number: 151686	Worklist #: 40122	Instrument ID: SV1 (2/22/17)
Analyst/1 st Reviewer: ONL	Method (circle): 625 8270C 8270D TO-13A NPE CWM (1,4-Dx) PAH PAH-IDA	Analysis Type (circle): Full Scan (SIM)
QC Type (circle): Standard QAPP DOD Other-Explain _____		

Review Items	NA	Yes	No	2 nd Rev	If No, why is data reportable?
A: Tune/Calibration Verification					
1. Did DFTPP meet tune criteria? If SIM, did the PFTBA Tune check meet ion ratio criteria?		✓		✓	
2. Are the Benzidine and PCP tailing ≤ 2? (8270D) Benzidine tailing ≤ 3 and PCP tailing ≤ 5? (8270C)	✓				If no, list details: _____
3. Is the DDT degradation ≤ 20%	✓				If no, list details: _____
4. Were all standards injected within 12 hr of DFTPP? (or 24 hrs for 625)?		✓		✓	If no, list details: _____
5. Were ≥ 5 levels of each compound analyzed? (≥ 3 levels for 625) (≥ 5 levels of surrogate analyzed for DoD)?		✓		✓	
6. Was low level standard at or below RL?		✓		✓	
7. If calibration points removed, were reasons for removal documented? Did sufficient calibration points remain? (removal from middle of curve not allowed)		✓		✓	(e.g.; some points <RL removed)
8. Does the low level standard have enough sensitivity to produce at least 5-10 scans across the peak, and all secondary ions are present?		✓		✓	
9. Do the average RFs meet minimum RF requirements? (625 – not method defined) (8270C-SPCCs = ≥0.05) (8270D- all cmpds have min RFs defined in method/SOP)		✓		✓	SPCC: 2,4-Dinitrophenol, 4-Nitrophenol, Hexachlorocyclopentadiene & N-nitroso-di-n-propylamine
10. Did the calibration %RSD meet method requirements? (625: ≤ 35% all cmpds) (8270C: ≤ 30% for CCCs & ≤ 15% for all other cmpds/surrogates) (8270D: ≤ 20% for all cmpds/surrogates) (SIM Methods: ≤ 30% for all cmpds/surrogates (Std) or : ≤ 15% for all cmpds/surrogates (DOD))		✓		✓	CCC: Phenol, 1,4-DCB, 2-Nitrophenol, 2,4-Dichlorophenol, Hexachlorobutadiene, 4-Chloro-3-methylphenol, 2,4,6-Trichlorophenol, Acenaphthene, N-nitrosodiphenylamine, Pentachlorophenol, Di-n-octyl phthalate & Benzo(a)pyrene
11. Was a linear or quadratic regression fit used for analytes that exceeded the %RSD requirements?	✓				
12. If regression fit used, is correlation coefficient ≥ 0.990?	✓				
13. Does the low point of a linear regression fit meet	✓				

LIMS Batch Number: 151686	Worklist #: 4022	Instrument ID: SVI
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the ±30% read-back criteria? (8270D)					
14. At least 6 consecutive points used for quadratic curves?	/				
15. For quadratic – examine plot: Is a tangent’s slope to the curve entirely positive or negative and continuous? (does not flatten or recurve within the range of calibration)	/				
16. For quadratic – evaluate curve fitting errors: Does each point fall within criteria when ‘read-back’ against the curve? (TA requirement – CA-Q-S-005; recommended limits ±30% low point & ±20% all other points) (Chrom Report = Details of Calibration per Analyte)	/				
17. Is the concentration intercept < RL for each cmpd? (“X” intercept in Chrom; “Y” intercept in Target)		/		/	
18. Were manual integrations performed correctly and properly documented? (dated, initialed and reason given; 2 nd review of all MIs required)		/		/	Reasons: 1)Split Peak; 2)Undetected peak; 3)Tailing; 4)RT shift; 5)Wrong peak selected; 6)Baseline Correction; 7)Other-explain
19. Was the high point checked for detector saturation?		/		/	
20. Do the relative retention times for each analyte in each standard agree within ± 0.006 units?		/		/	
21. Benzo(b & k)fluoranthene: height of the valley between must be less than 50% of the average of the two peak heights?	/				
22. Elution order checked Isomeric pairs and coeluters?					Chrom: View/Documents/Methods/Isomers)
• aniline / bis(2-chloroethyl)ether	/				
• n-nitrosodiphenylamine/diphenylamine * (conc)	/				
• 1,3- , 1,4- , 1,2-dichlorobenzene	/				
• benzyl alcohol / 2-methylphenol / 4-methylphenol	/				
• 2 & 1 - methylnaphthalene	/				
• 2,4,6- and 2,4,5-trichlorophenol	/				
• phenanthrene / anthracene	/				
• fluoranthene / pyrene	/				
• benzo(a)anthracene / chrysene	/				
• benzo(e)pyrene / benzo(a)pyrene / perylene	/				
• bis(2-ethylhexyl)/di-n-octyl phthalate	/				
• benzo(b)fluoranthene / benzo(k)fluoranthene	/				
• indeno(1,2,3-cd)pyrene / benzo(g,h,i)perylene	/				
• safrole/1-chloronaphthalene	/				
• 1-/2-naphthylamine	/				
• 2 and 1-chloronaphthalene	/				
• 2,4- and 2,6-dichlorophenol	/				
• 2,4,6 and 2,4,5-tribromophenol	/				







TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 40822_031417_14D Worklist Num: 40822
 Instrument: SV1 Method: 1,4-Dioxane
 Batch Directory: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b
 Analysis Type: SemiVOA Creator: Onishi, Marc
 Inj Volume: 1.00 Inj Vol Units: ul
 Run Reagents:
 MS8270IS_00016, Amount Added: 5.00 , Units: uL

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
primer	320-0040822-001	Client	14-Mar-2017 14:16:30	QC031401.D	96	1.0		sv
CCV	320-0040822-002	CCV	14-Mar-2017 14:42:30	14D0314.D	96	1.0		sv
MB 320-152910/1-A	320-0040822-003	MB	14-Mar-2017 15:04:30	S031401.D	1	1.0		sv
LCS 320-152910/2-A	320-0040822-004	LCS	14-Mar-2017 15:27:30	S031402.D	2	1.0		sv
LCSD 320-152910/3-A	320-0040822-005	LCSD	14-Mar-2017 15:49:30	S031403.D	3	1.0		sv
320-26103-A-6-A	320-0040822-006	Client	14-Mar-2017 16:12:30	S031404.D	4	1.0	MEAFF-MRD-0504-0217	sv
320-26103-C-7-A	320-0040822-007	Client	14-Mar-2017 16:35:30	S031405.D	5	1.0	MEAFF-MRD-0621-0217	sv
320-26103-A-11-A	320-0040822-008	Client	14-Mar-2017 16:57:30	S031406.D	6	1.0	MEAFF-MRD-0503-0217	sv
320-26103-D-12-A	320-0040822-009	Client	14-Mar-2017 17:20:30	S031407.D	7	1.0	MEAFF-MRD-0615-0217	sv
320-26105-B-1-A	320-0040822-010	Client	14-Mar-2017 17:42:30	S031408.D	8	1.0	MEAFF-08MW01D-0217	sv
320-26105-A-2-A	320-0040822-011	Client	14-Mar-2017 18:05:30	S031409.D	9	1.0	MEAFF-08MW01-0217	sv
320-26105-A-3-A	320-0040822-012	Client	14-Mar-2017 18:28:30	S031410.D	10	1.0	MEAFF-MRD-1A14-0217	sv
320-26105-A-3-B MS	320-0040822-013	MS	14-Mar-2017 18:50:30	S031411.D	11	1.0	MEAFF-MRD-1A14-0217	sv
320-26105-A-3-C MSD	320-0040822-014	MSD	14-Mar-2017 19:13:30	S031412.D	12	1.0	MEAFF-MRD-1A14-0217	sv
320-26105-B-12-A	320-0040822-015	Client	14-Mar-2017 19:35:30	S031413.D	13	1.0	MEAFF-08MW03-0217	sv
320-26105-B-13-A	320-0040822-016	Client	14-Mar-2017 19:58:30	S031414.D	14	1.0	MEAFF-08MW06-0217	sv
320-26105-A-14-A	320-0040822-017	Client	14-Mar-2017 20:21:30	S031415.D	15	1.0	MEAFF-FD02-0217	sv
MB 320-153806/1-A	320-0040822-018	MB	14-Mar-2017 20:43:30	S031416.D	16	1.0		sv
LCS 320-153806/2-A	320-0040822-019	LCS	14-Mar-2017 21:06:30	S031417.D	17	1.0		sv
LCSD 320-153806/3-A	320-0040822-020	LCSD	14-Mar-2017 21:28:30	S031418.D	18	1.0		sv
320-26273-A-1-A	320-0040822-021	Client	14-Mar-2017 21:50:30	S031419.D	19	1.0	MEAFF-4AMW03-0317	sv
320-26273-B-2-A	320-0040822-022	Client	14-Mar-2017 22:13:30	S031420.D	20	1.0	MEAFF-MRD-0630-0317	sv
320-26273-B-3-A	320-0040822-023	Client	14-Mar-2017 22:35:30	S031421.D	21	1.0	MEAFF-4AMW01-0317	sv
320-26273-A-4-A	320-0040822-024	Client	14-Mar-2017 22:57:30	S031422.D	22	1.0	MEAFF-4CMW01-0317	sv
320-26273-B-5-A	320-0040822-025	Client	14-Mar-2017 23:20:30	S031423.D	23	1.0	MEAFF-4CMW03-0317	sv
320-26273-B-6-A	320-0040822-026	Client	14-Mar-2017 23:42:30	S031424.D	24	1.0	MEAFF-FD05-0317	sv
320-26324-D-5-A	320-0040822-027	Client	15-Mar-2017 00:04:30	S031425.D	25	1.0	MEAFF-EB03-GW-0317	sv
320-26324-C-6-A	320-0040822-028	Client	15-Mar-2017 00:27:30	S031426.D	26	1.0	MEAFF-EB04-GW-0317	sv
CCVC	320-0040822-029	CCVC	15-Mar-2017 00:49:30	14D0314A.D	96	1.0		sv

TestAmerica Laboratories
Worklist Report

Worklist Name: 40822_031417_14D
 Instrument Name: SV1
 Injection Volume: 1.000000
 Analysis Type: Semi VOA
 Batch Directory: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b
 Upload Directory: \\CORPTALSAPP12\320-WS-RawData\Organics\MS\SV1
 Run Reagent: MS8270IS_00016
 Amount Added: 5.000000, Units: uL
 Worklist Number: 40822
 Chrom Method: 1,4-Dioxane
 Units: ul

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Initial Vol/Wt	Vol/Wt Units	Dil Fact
320-0040822-001	# 1 primer 	MS14DL5_00010	Client	sv	1.000000	mL	1.000000
320-0040822-002	# 2 CCV 	MS14DL5_00010	CCV	sv	1.000000	mL	1.000000
320-0040822-003	# 3 MB 320-152910/1-A 		MB	sv	1.000000	mL	1.000000
320-0040822-004	# 4 LCS 320-152910/2-A 		LCS	sv	1.000000	mL	1.000000
320-0040822-005	# 5 LCSD 320-152910/3-A 		LCSD	sv	1.000000	mL	1.000000
320-0040822-006	# 6 320-26103-A-6-A 		Client	sv	1.000000	mL	1.000000
320-0040822-007	# 7 320-26103-C-7-A 		Client	sv	1.000000	mL	1.000000
320-0040822-008	# 8 320-26103-A-11-A 		Client	sv	1.000000	mL	1.000000
320-0040822-009	# 9 320-26103-D-12-A 		Client	sv	1.000000	mL	1.000000
320-0040822-010	# 10 320-26105-B-1-A 		Client	sv	1.000000	mL	1.000000
320-0040822-011	# 11 320-26105-A-2-A 		Client	sv	1.000000	mL	1.000000
320-0040822-012	# 12 320-26105-A-3-A 		Client	sv	1.000000	mL	1.000000
320-0040822-013	# 13 320-26105-A-3-B MS 		MS	sv	1.000000	mL	1.000000

Worklist ID	Lims ID	Sample Reagents	Smp Type	Fract	Initial Vol/Wt	Vol/Wt Units	Dil Fact
320-0040822-014	#14 320-26105-A-3-C MSD 		MSD	sv	1.000000	mL	1.000000
320-0040822-015	#15 320-26105-B-12-A 		Client	sv	1.000000	mL	1.000000
320-0040822-016	#16 320-26105-B-13-A 		Client	sv	1.000000	mL	1.000000
320-0040822-017	#17 320-26105-A-14-A 		Client	sv	1.000000	mL	1.000000
320-0040822-018	#18 MB 320-153806/1-A 		MB	sv	1.000000	mL	1.000000
320-0040822-019	#19 LCS 320-153806/2-A 		LCS	sv	1.000000	mL	1.000000
320-0040822-020	#20 LCSD 320-153806/3-A 		LCSD	sv	1.000000	mL	1.000000
320-0040822-021	#21 320-26273-A-1-A 		Client	sv	1.000000	mL	1.000000
320-0040822-022	#22 320-26273-B-2-A 		Client	sv	1.000000	mL	1.000000
320-0040822-023	#23 320-26273-B-3-A 		Client	sv	1.000000	mL	1.000000
320-0040822-024	#24 320-26273-A-4-A 		Client	sv	1.000000	mL	1.000000
320-0040822-025	#25 320-26273-B-5-A 		Client	sv	1.000000	mL	1.000000
320-0040822-026	#26 320-26273-B-6-A 		Client	sv	1.000000	mL	1.000000
320-0040822-027	#27 320-26324-D-5-A 		Client	sv	1.000000	mL	1.000000
320-0040822-028	#28 320-26324-C-6-A 		Client	sv	1.000000	mL	1.000000
320-0040822-029	#29 CCVC 	MS14DL5_00010	CCVC	sv	1.000000	mL	1.000000

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 40822_031417_14D
Instrument Name: SV1
Data Directory: \\ChromNA\Sacramento\ChromData\SV1\20170314-40822.b
QC Batching: Disabled

Worklist Number: 40822
Chrom Method: 1,4-Dioxane
Limit Group Batching: Enabled

QC Batch: 1	MSS - 8270SIM 14DX - ICAL Raw Batch: 154875
# 1 primer	# 1 primer
# 2 CCV	# 2 CCV
# 3 MB 320-152910/1-A	# 3 MB 320-152910/1-A
# 4 LCS 320-152910/2-A	# 4 LCS 320-152910/2-A
# 5 LCSD 320-152910/3-A	# 5 LCSD 320-152910/3-A
# 6 320-26103-A-6-A	# 6 320-26103-A-6-A
# 7 320-26103-C-7-A	# 7 320-26103-C-7-A
# 8 320-26103-A-11-A	# 8 320-26103-A-11-A
# 9 320-26103-D-12-A	# 9 320-26103-D-12-A
#10 320-26105-B-1-A	#10 320-26105-B-1-A
#11 320-26105-A-2-A	#11 320-26105-A-2-A
#12 320-26105-A-3-A	#12 320-26105-A-3-A
#13 320-26105-A-3-B MS	#13 320-26105-A-3-B MS
#14 320-26105-A-3-C MSD	#14 320-26105-A-3-C MSD
#15 320-26105-B-12-A	#15 320-26105-B-12-A
#16 320-26105-B-13-A	#16 320-26105-B-13-A
#17 320-26105-A-14-A	#17 320-26105-A-14-A
#18 MB 320-153806/1-A	#18 MB 320-153806/1-A
#19 LCS 320-153806/2-A	#19 LCS 320-153806/2-A
#20 LCSD 320-153806/3-A	#20 LCSD 320-153806/3-A
#21 320-26273-A-1-A	#21 320-26273-A-1-A
#22 320-26273-B-2-A	#22 320-26273-B-2-A
#23 320-26273-B-3-A	#23 320-26273-B-3-A
#24 320-26273-A-4-A	#24 320-26273-A-4-A
#25 320-26273-B-5-A	#25 320-26273-B-5-A
#26 320-26273-B-6-A	#26 320-26273-B-6-A
#27 320-26324-D-5-A	#27 320-26324-D-5-A
#28 320-26324-C-6-A	#28 320-26324-C-6-A
#29 CCVC	#29 CCVC

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Analyst: Rafieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Method Code: 320-3510C_IVWT-320

Batch End:

Box # 0317 E

Liquid-Liquid Extraction (Separatory Funnel)

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Adj1 Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-152910/1 N/A	N/A		1000 mL 1.0 mL		N/A	N/A	N/A		MB 320-152910/1-A
2 LCS-320-152910/2 N/A	N/A		1000 mL 1.0 mL		N/A	N/A	N/A		LCS 320-152910/2-A
3 LCS-D-320-152910/3 N/A	N/A		1000 mL 1.0 mL		N/A	N/A	N/A		LCS-D 320-152910/3-A
4 320-26103-A-6 (8270_SIM_14DX)	N/A (320-26103-1)	578.6 g	1.0 mL		2/27/17	23_Days	4		320-26103-A-6-A
5 320-26103-C-7 (8270_SIM_14DX)	N/A (320-26103-1)	578.9 g	1.0 mL		2/27/17	23_Days	4		320-26103-C-7-A
6 320-26103-A-11 (8270_SIM_14DX)	N/A (320-26103-1)	549.9 g	1.0 mL		2/27/17	23_Days	4		320-26103-A-11-A
7 320-26103-D-12 (8270_SIM_14DX)	N/A (320-26103-1)	547.5 g	1.0 mL		2/27/17	23_Days	4		320-26103-D-12-A
8 320-26105-A-14 (8270_SIM_14DX)	N/A (320-26105-1)	555.1 g	1.0 mL		3/2/17	23_Days	4		320-26105-A-14-A
9 320-26079-D-4 (8270_SIM_14DX)	N/A (320-26078-1)	1470.4 g	1.0 mL		3/2/17	8_Days	2		320-26079-D-4-A
10 320-26079-E-6 (8270_SIM_14DX)	N/A (320-26078-1)	1530.4 g	1.0 mL		3/2/17	8_Days	2		320-26079-E-6-A

Handwritten notes: 8, 8, 8, 7, 5, 7, 5, 7, 8, 8, SR 03/04/17

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Analyst: Rafeefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Method Code: 320-3510C_IVWT-320

Batch End:

Line	Sample ID	Weight	Volume	SR	Instrument	Date	Days	Barcode
11	320-26079-E-7 (8270_SIM_14DX)	1501.3 g	1.0 mL	8	N/A (320-26078-1)	3/2/17	2	[Barcode]
12	320-26079-E-8 (8270_SIM_14DX)	1528.4 g	1.0 mL	8	N/A (320-26078-1)	3/2/17	2	[Barcode]
13	320-26095-G-1 (8270_SIM_14DX)	1473.6 g	1.0 mL	8	GWIM 2/17 Surface (320-26095-1)	3/3/17	2	[Barcode]
14	320-26105-B-1 (8270_SIM_14DX)	1561.7 g	1.0 mL	7	N/A (320-26105-1)	3/2/17	4	[Barcode]
15	320-26105-A-2 (8270_SIM_14DX)	1136.1 g	1.0 mL	7	N/A (320-26105-1)	3/2/17	4	dark brown water + particulates date 3/2/17 [Barcode]
16	320-26105-A-3 (8270_SIM_14DX)	1560.1 g	1.0 mL	7	N/A (320-26105-1)	3/2/17	4	[Barcode]
17	320-26105-A-3-MS (8270_SIM_14DX)	1566.4 g	1.0 mL	7	N/A (320-26105-1)	3/2/17	4	[Barcode]
18	320-26105-A-3-MSD (8270_SIM_14DX)	1568.6 g	1.0 mL	7	N/A (320-26105-1)	3/2/17	4	[Barcode]
19	320-26105-B-12 (8270_SIM_14DX)	1548.0 g	1.0 mL	7	N/A (320-26105-1)	3/2/17	4	[Barcode]
20	320-26105-B-13 (8270_SIM_14DX)	1559.4 g	1.0 mL	7	N/A (320-26105-1)	3/2/17	4	[Barcode]

SR
03/02/17

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Analyst: Rafieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Method Code: 320-3510C_IVWT-320

Batch End:

	Batch Notes
Person's name who did the prep	SR/AAR 03/02/2017
Prep Solvent Name	DCM
Prep Solvent ID	0000164143
Prep Solvent Volume Used	180
Analyst ID - Reagent Drop	SR 03/02/17
Analyst ID - Reagent Drop Witness	QAR 3/2/17
Analyst ID - SU Reagent Drop	
Analyst ID - SU Reagent Drop Witness	
Acid used for pH adjustment	
Acid Used for pH Adjustment ID	
Base used for pH adjustment	
Base Used to Adjust pH ID	
Silica Gel ID	
Analyst ID - Concentration	
Exchange Solvent Name	
Exchange Solvent ID	
Concentration Start Time	
Concentration End Time	
Na2SO4 ID	
Water Bath ID	
Uncorrected Temperature	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Analyst: Raffieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Method Code: 320-3510C_IVWT-320

Batch End:

Oven, Bath or Block Temperature 1	
Sufficient volume for MS/MSD?	
Analyst ID - Clean Up	
Florissil ID	
Acid used for Clean Up ID	
Sulfuric Acid ID	
TBA ID	
HPLC H2O ID	
NaCl ID	
Balance ID	QA-036
Florissil Solution Reagent ID	
Mercury ID	
Filter Paper ID	
Pipette ID	K35057E
Syringe ID	
N-evap ID	
N-evap Temperature	
Uncorrected N-evap Temperature	
pH Paper ID	
Thermometer ID	
Analyst ID - Spike Analyst	
Analyst ID - Spike Witness Analyst	
Vial ID	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Analyst: Rafieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Method Code: 320-3510C_IVWT-320

Batch End:

Batch Comment

Comments

320-26079-D-4	Method Comments:	SEE QAS
320-26079-E-6	Method Comments:	SEE QAS
320-26079-E-7	Method Comments:	SEE QAS
320-26079-E-8	Method Comments:	SEE QAS
320-26095-G-1	Method Comments:	No BKK_ Must have LCSD and MS/MSD per Batch, NCM if not enough to do MS/MSD; historicals
320-26105-A-2	Method Comments:	limited volume

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Analyst: Rafieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Method Code: 320-3510C_IVWT-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-152910/1	MS14DSU_00003	0.5 mL	1.0 mL		
LCS 320-152910/2	MS14DSP_00030	500 uL	1.0 mL		
LCS 320-152910/2	MS14DSU_00003	0.5 mL	1.0 mL		
LCSD 320-152910/3	MS14DSP_00030	500 uL	1.0 mL		
LCSD 320-152910/3	MS14DSU_00003	0.5 mL	1.0 mL		
320-26103-A-6	MS14DSU_00003	0.5 mL	1.0 mL		
320-26103-C-7	MS14DSU_00003	0.5 mL	1.0 mL		
320-26103-A-11	MS14DSU_00003	0.5 mL	1.0 mL		
320-26103-D-12	MS14DSU_00003	0.5 mL	1.0 mL		
320-26105-A-14	MS14DSU_00003	0.5 mL	1.0 mL		
320-26079-D-4	MS14DSU_00003	0.5 mL	1.0 mL		
320-26079-E-6	MS14DSU_00003	0.5 mL	1.0 mL		
320-26079-E-7	MS14DSU_00003	0.5 mL	1.0 mL		
320-26079-E-8	MS14DSU_00003	0.5 mL	1.0 mL		
320-26095-G-1	MS14DSU_00003	0.5 mL	1.0 mL		
320-26105-B-1	MS14DSU_00003	0.5 mL	1.0 mL		
320-26105-A-2	MS14DSU_00003	0.5 mL	1.0 mL		
320-26105-A-3	MS14DSU_00003	0.5 mL	1.0 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152910

Analyst: Rafieefar, Sina

Batch Open: 3/2/2017 1:45:00PM

Method Code: 320-3510C_IVWT-320

Batch End:

320-26105-A-3 MS	MS14DSP_00030	500 uL	1.0 mL	
320-26105-A-3 MS	MS14DSU_00003	0.5 mL	1.0 mL	
320-26105-A-3 MSD	MS14DSP_00030	500 uL	1.0 mL	
320-26105-A-3 MSD	MS14DSU_00003	0.5 mL	1.0 mL	
320-26105-B-12	MS14DSU_00003	0.5 mL	1.0 mL	
320-26105-B-13	MS14DSU_00003	0.5 mL	1.0 mL	

Reagent	Other Reagents:	Amount/Units	Lot#:

Preparation Batch Number(s): 152910

Test: 8270-14DX

Earliest Holding Time: 3/2/17

Sample List Tab		1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method		/	/
All necessary NCMs filed (including holding time)		/	/
Method/sample/login/QAS checked and correct		/	/
Worksheet Tab		1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved		/	/
Weights in anticipated range and not targeted		/	/
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)		/	/
The pH is transcribed correctly in TALS		/	/
All additional information transcribed into TALS is correct and raw data is attached		/	/
Comments are transcribed correctly in TALS		/	/
Reagents Tab		1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS		/	/
All spike amounts correct and added to necessary samples and QC		/	/
Batch Information		1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly		/	/
All necessary 'batch information' complete and entered into TALS correctly		/	/

1st Level Reviewer: _____ *NAU*

Date: 3/06/17

2nd Level Reviewer: J. Williams

Date: 3/10/17

Comments: _____

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Box 0317 H

Batch Number: 320-153806

Analyst: Rafieefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Method Code: 320-3510C_IVWT-320

Batch End:

Liquid-Liquid Extraction (Separatory Funnel)

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmt FinAmt	Rcvd	PHs		Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
					Adj1	Adj2					
1 MB-320-153806/1 N/A	N/A		1000 mL 1.0 mL	8			N/A	N/A	N/A		MB 320-153806/1-A
2 LCS-320-153806/2 N/A	N/A		1000 mL 1.0 mL	8			N/A	N/A	N/A		LCS 320-153806/2-A
3 LCS-320-153806/3 N/A	N/A		1000 mL 1.0 mL	8			N/A	N/A	N/A		LCS 320-153806/3-A
4 320-26273-A-1 (8270_SIM_14DX)	N/A (320-26273-1)	1556.1 g	1.0 mL	6			3/6/17	23_Days	4		320-26273-A-1-A
5 320-26273-B-2 (8270_SIM_14DX)	N/A (320-26273-1)	1547.4 g	1.0 mL	7			3/6/17	23_Days	4		320-26273-B-2-A
6 320-26273-B-3 (8270_SIM_14DX)	N/A (320-26273-1)	1553.7 g	1.0 mL	4		7	3/6/17	23_Days	4		320-26273-B-3-A
7 320-26273-A-4 (8270_SIM_14DX)	N/A (320-26273-1)	1557.1 g	1.0 mL	8			3/6/17	23_Days	4		320-26273-A-4-A
8 320-26273-B-5 (8270_SIM_14DX)	N/A (320-26273-1)	1546.5 g	1.0 mL	8			3/6/17	23_Days	4		320-26273-B-5-A
9 320-26273-B-6 (8270_SIM_14DX)	N/A (320-26273-1)	1555.9 g	1.0 mL	8			3/6/17	23_Days	4		320-26273-B-6-A
10 320-26324-D-5 (8270_SIM_14DX)	N/A (320-26324-1)	1393.4 g	1.0 mL	8			3/9/17	23_Days	4		320-26324-D-5-A

SR

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

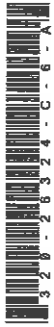
Batch Number: 320-153806

Analyst: Rafieefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Method Code: 320-3510C_IVWT-320

Batch End:

320-26324-C-6 (8270_SIM_14DX)	N/A (320-26324-1)	445.1 g	1.0 mL	8	3/9/17	23_Days	4	 320-26324-C-6-A
----------------------------------	----------------------	---------	--------	---	--------	---------	---	--

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153806

Analyst: Rafieefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Method Code: 320-3510C_IVWT-320

Batch End:

	Batch Notes
Person's name who did the prep	SR/AAR 03/08/2017
Prep Solvent Name	DCM
Prep Solvent ID	0000164143
Prep Solvent Volume Used	180
Analyst ID - Reagent Drop	
Analyst ID - Reagent Drop Witness	
Analyst ID - SU Reagent Drop	
Analyst ID - SU Reagent Drop Witness	
Acid used for pH adjustment	
Acid Used for pH Adjustment ID	
Base used for pH adjustment	10N NaOH
Base Used to Adjust pH ID	153803
Silica Gel ID	
Analyst ID - Concentration	CVM 3/9/17
Exchange Solvent Name	
Exchange Solvent ID	
Concentration Start Time	
Concentration End Time	
Na2SO4 ID	SS_00347 and SS_00348
Water Bath ID	BT021
Uncorrected Temperature	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153806

Analyst: Rafieefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Method Code: 320-3510C_IVWT-320

Batch End:

Oven, Bath or Block Temperature 1	70-75°C
Sufficient volume for MS/MSD?	
Analyst ID - Clean Up	
Florissil ID	
Acid used for Clean Up ID	
Sulfuric Acid ID	
TBA ID	
HPLC H2O ID	
NaCl ID	
Balance ID	QA-036
Florissil Solution Reagent ID	
Mercury ID	
Filter Paper ID	
Pipette ID	K35057E
Syringe ID	
N-evap ID	
N-evap Temperature	
Uncorrected N-evap Temperature	
pH Paper ID	
Thermometer ID	
Analyst ID - Spike Analyst	SR 03/08/17
Analyst ID - Spike Witness Analyst	ACR 3/8/17
Vial ID	16293128

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153806

Analyst: Raifeefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Method Code: 320-3510C_IVWT-320

Batch End:

Batch Comment

FU CRM 3/9/17

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153806

Analyst: Raffeefer, Sina

Batch Open: 3/8/2017 8:41:00AM

Method Code: 320-3510C_IWWT-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-153806/1	MS14DSU_00003	0.5 mL	1.0 mL		
LCS 320-153806/2	MS14DSP_00030	500 uL	1.0 mL		
LCS 320-153806/2	MS14DSU_00003	0.5 mL	1.0 mL		
LCSD 320-153806/3	MS14DSP_00030	500 uL	1.0 mL		
LCSD 320-153806/3	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-A-1	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-B-2	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-B-3	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-A-4	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-B-5	MS14DSU_00003	0.5 mL	1.0 mL		
320-26273-B-6	MS14DSU_00003	0.5 mL	1.0 mL		
320-26324-D-5	MS14DSU_00003	0.5 mL	1.0 mL		
320-26324-C-6	MS14DSU_00003	0.5 mL	1.0 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-153806

Analyst: Rafieefar, Sina

Batch Open: 3/8/2017 8:41:00AM

Method Code: 320-3510C_IWWT-320

Batch End:

Reagent	Other Reagents:	Amount/Units	Lot#:

Preparation Batch Number(s): 153806 Test: 14DX

Earliest Holding Time: 3/8/17

Sample List Tab		1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method		✓	✓
All necessary NCMs filed (including holding time)		✓	✓
Method/sample/login/QAS checked and correct		✓	✓
Worksheet Tab		1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved		✓	✓
Weights in anticipated range and not targeted		✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)		✓	✓
The pH is transcribed correctly in TALS		✓	✓
All additional information transcribed into TALS is correct and raw data is attached		✓	✓
Comments are transcribed correctly in TALS		✓	✓
Reagents Tab		1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS		✓	✓
All spike amounts correct and added to necessary samples and QC		✓	✓
Batch Information		1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly		✓	✓
All necessary 'batch information' complete and entered into TALS correctly		✓	✓

1st Level Reviewer: CRM

Date: 3/9/17

2nd Level Reviewer: J. N. Hunt

Date: 3/9/17

Comments: _____

Method PFC DOD

Perfluronated Hydrocarbons (LC/MS)
by Method PFC_DOD

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFHxS #	PFOA #	PFOS #
MEAFF-4AMW03-0317	320-26273-1	75	64	108
MEAFF-4AMW03-0317 DL	320-26273-1 DL	112	78	111
MEAFF-MRD-0630-031 7	320-26273-2	101	94	115
MEAFF-4AMW01-0317	320-26273-3	128	26	100
MEAFF-4CMW01-0317	320-26273-4	126	78	129
MEAFF-4CMW03-0317	320-26273-5	116	75	118
MEAFF-FD05-0317	320-26273-6	114	70	116
	MB 320-153501/1-A	124	130	116
	LCS 320-153501/2-A	137	148	132
	LCSD 320-153501/3-A	128	140	123

PFHxS = 1802 PFHxS
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS

QC LIMITS
25-150
25-150
25-150

Column to be used to flag recovery values

FORM II 537 (Modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 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.: 320-26273-1

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	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.: 320-26273-1
 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-4AMW03-0317	320-26273-1	2017.03.10B 048.d	03/10/2017 23:22
MEAFF-MRD-0630-0317	320-26273-2	2017.03.10B 049.d	03/10/2017 23:30
MEAFF-4CMW01-0317	320-26273-4	2017.03.10B 052.d	03/10/2017 23:52
MEAFF-4CMW03-0317	320-26273-5	2017.03.10B 053.d	03/11/2017 00:00
MEAFF-FD05-0317	320-26273-6	2017.03.10B 054.d	03/11/2017 00:07
MEAFF-4AMW03-0317 DL	320-26273-1 DL	2017.03.13A 051.d	03/13/2017 17:38
MEAFF-4AMW01-0317	320-26273-3	2017.03.13A 052.d	03/13/2017 17:46

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4AMW03-0317 Lab Sample ID: 320-26273-1
 Matrix: Water Lab File ID: 2017.03.10B_048.d
 Analysis Method: 537 (Modified) Date Collected: 03/02/2017 12:25
 Extraction Method: 3535 Date Extracted: 03/06/2017 16:19
 Sample wt/vol: 273 (mL) Date Analyzed: 03/10/2017 23:22
 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)	460	M E	2.3	1.8	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	93	M	3.7	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	75		2.3	1.8	0.84

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	64		25-150
STL00991	13C4 PFOS	108		25-150
STL00994	18O2 PFHxS	75		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_048.d
 Lims ID: 320-26273-C-1-A
 Client ID: MEAFF-4AMW03-0317
 Sample Type: Client
 Inject. Date: 10-Mar-2017 23:22:31 ALS Bottle#: 38 Worklist Smp#: 27
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-c-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 12:09:05 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: XAWRK006

First Level Reviewer: changnoit Date: 13-Mar-2017 11:30:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.863	1.861	0.002	1.000	12812073	40.8				
298.90 > 99.00	1.863	1.861	0.002	1.000	4645599		2.76(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.478	2.464	0.014		10364122	35.6		75.3	282463	
D 14 13C4 PFOA										
417.00 > 372.00	2.821	2.814	0.007		6544727	31.9		63.9	293417	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.829	2.814	0.015	1.000	33634165	251.5				EM
413.00 > 169.00	2.829	2.814	0.015	1.000	22319538		1.51(0.90-1.10)		179148	EM
									261720	M
D 18 13C4 PFOS										
503.00 > 80.00	3.196	3.188	0.008		12485479	51.7		108	136633	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.196	3.197	-0.001	1.000	13078044	50.9				M
499.00 > 99.00	3.196	3.197	-0.001	1.000	2304618		5.67(0.90-1.10)		94860	M
									28819	M

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_048.d

Injection Date: 10-Mar-2017 23:22:31

Instrument ID: A8_N

Lims ID: 320-26273-C-1-A

Lab Sample ID: 320-26273-1

Client ID: MEAFF-4AMW03-0317

Operator ID: A8-PC\A8

ALS Bottle#: 38

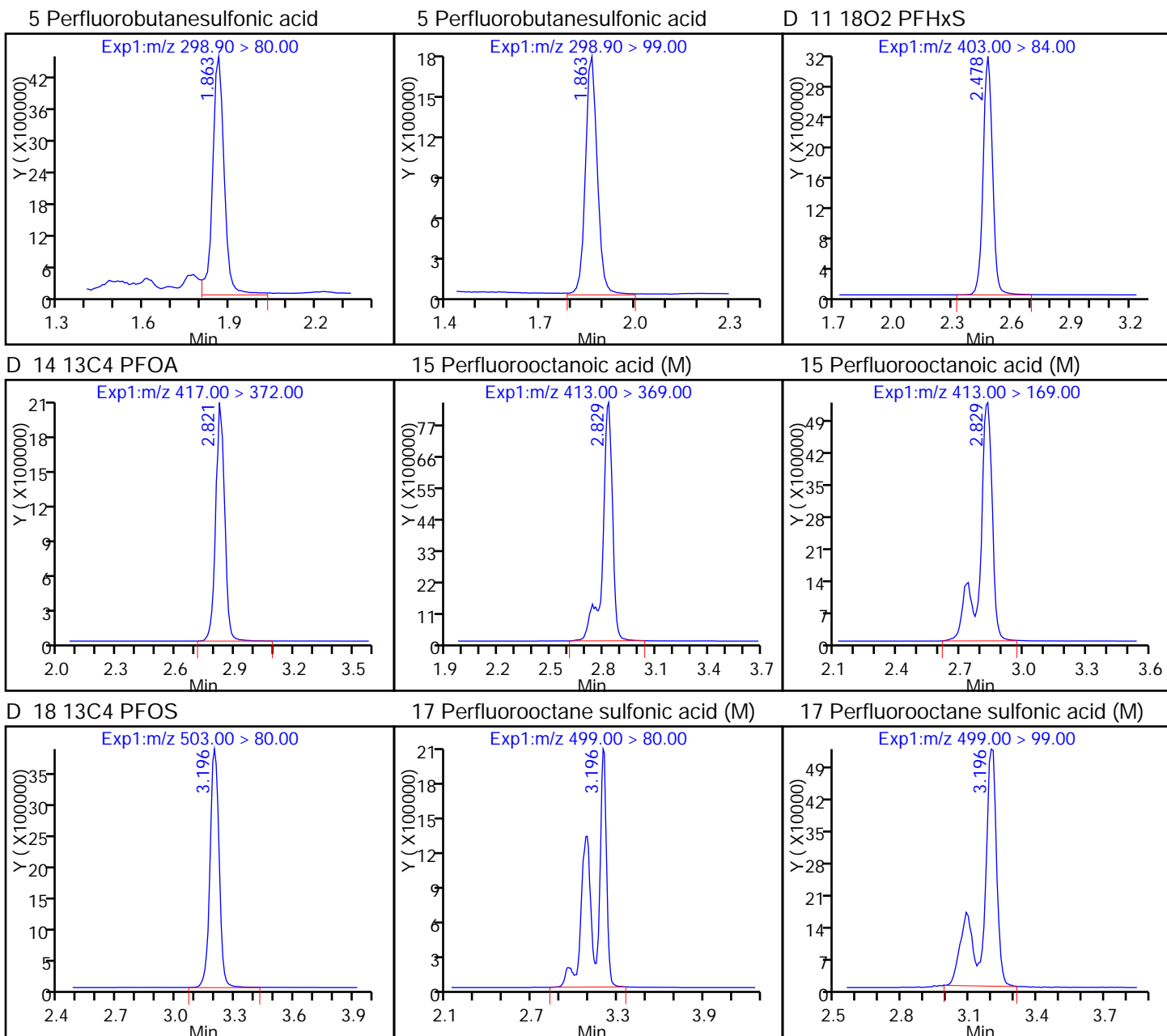
Worklist Smp#: 27

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL



TestAmerica Sacramento

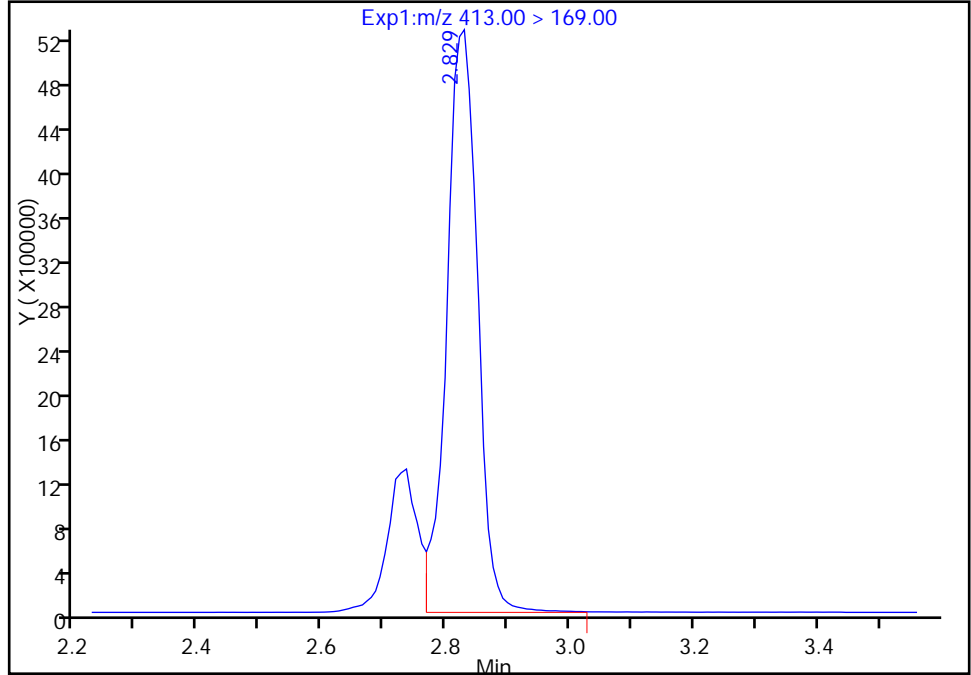
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Injection Date: 10-Mar-2017 23:22:31 Instrument ID: A8_N
Lims ID: 320-26273-C-1-A Lab Sample ID: 320-26273-1
Client ID: MEAFF-4AMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 38 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

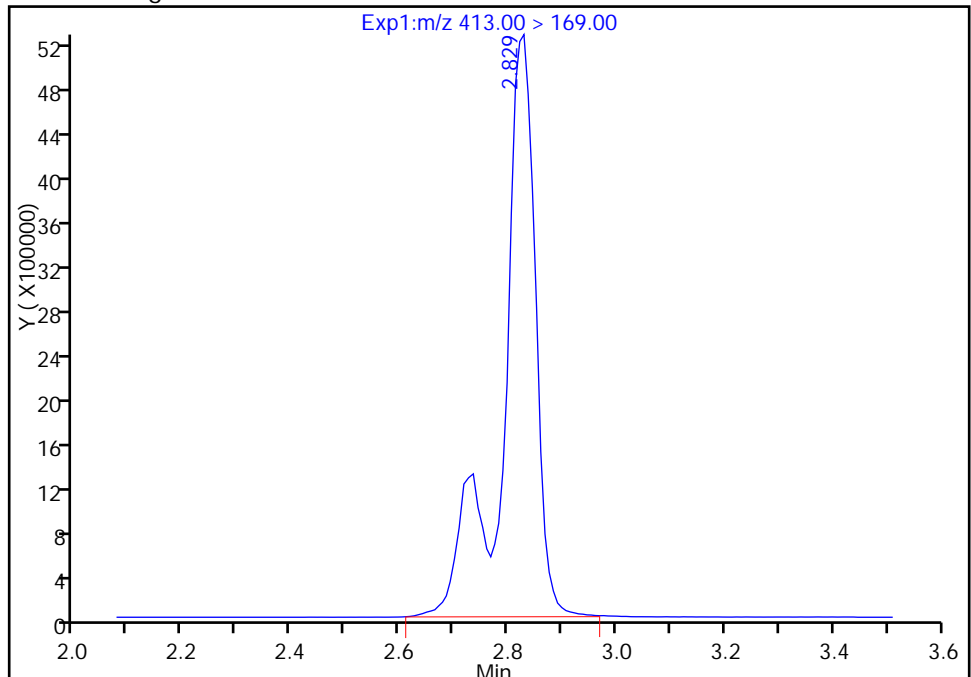
RT: 2.83
Area: 18065739
Amount: 218.4859
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 22319538
Amount: 251.5089
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:08:41
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

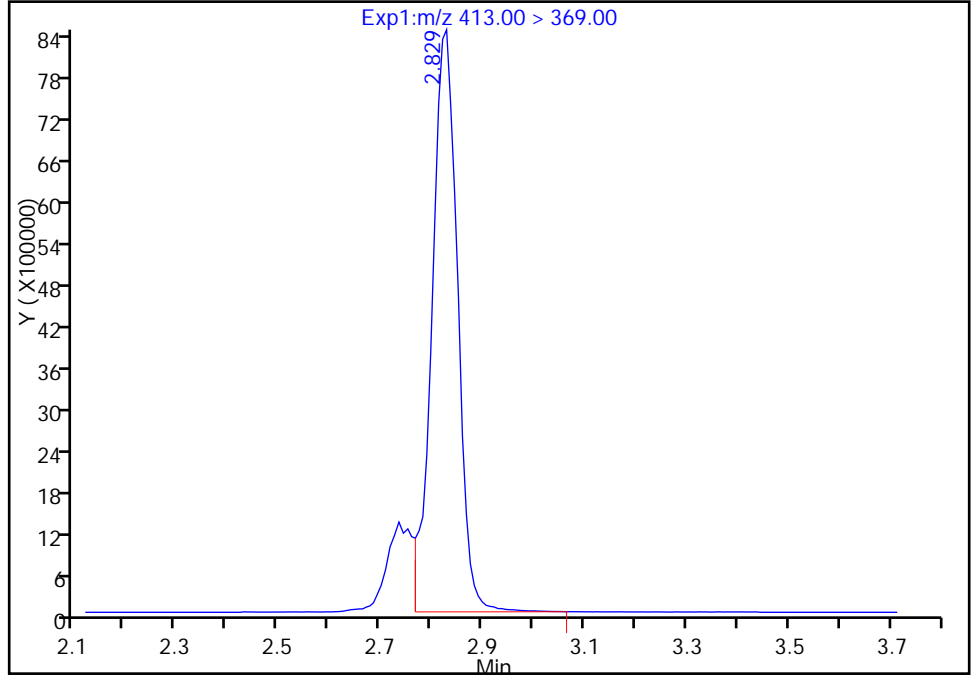
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Injection Date: 10-Mar-2017 23:22:31 Instrument ID: A8_N
Lims ID: 320-26273-C-1-A Lab Sample ID: 320-26273-1
Client ID: MEAFF-4AMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 38 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

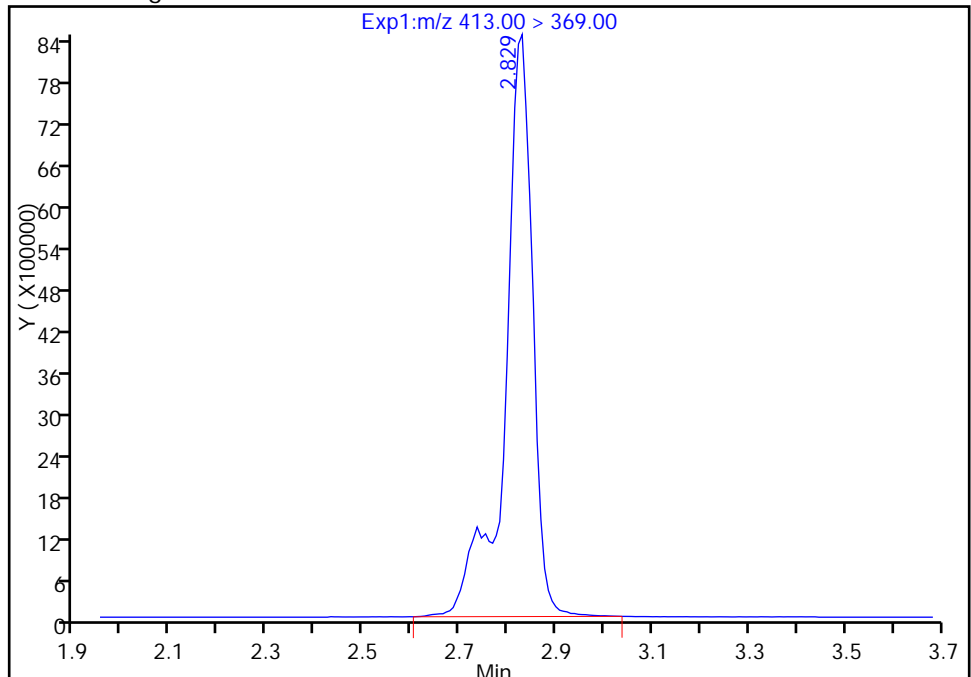
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Area: 29218018
Amount: 218.4859
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 33634165
Amount: 251.5089
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:08:41

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

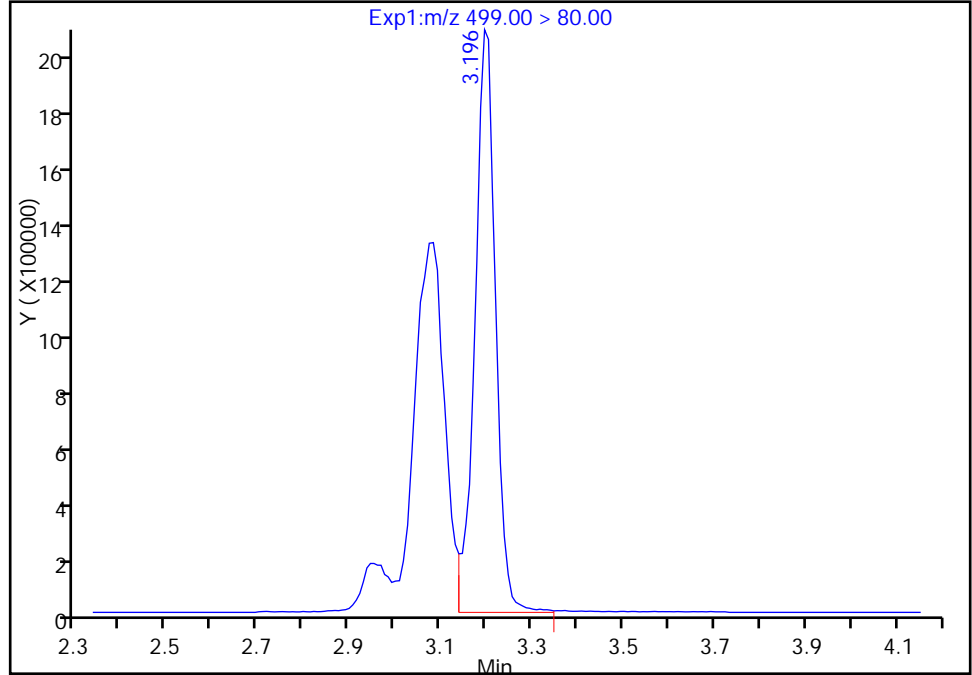
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Injection Date: 10-Mar-2017 23:22:31 Instrument ID: A8_N
Lims ID: 320-26273-C-1-A Lab Sample ID: 320-26273-1
Client ID: MEAFF-4AMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 38 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

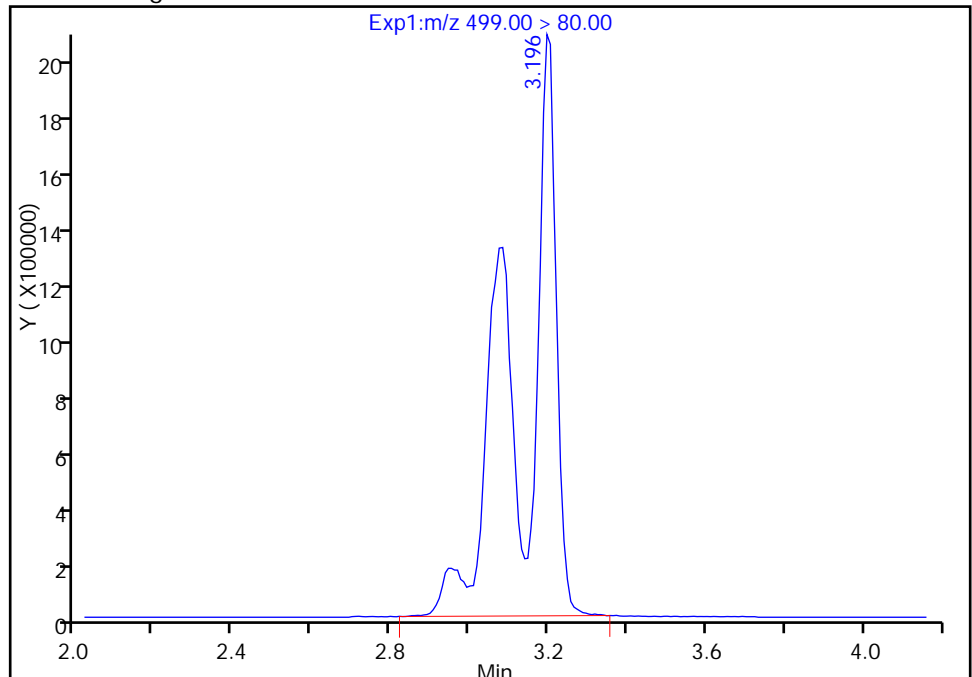
RT: 3.20
Area: 6526224
Amount: 25.404937
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 13078044
Amount: 50.909512
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:08:41
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

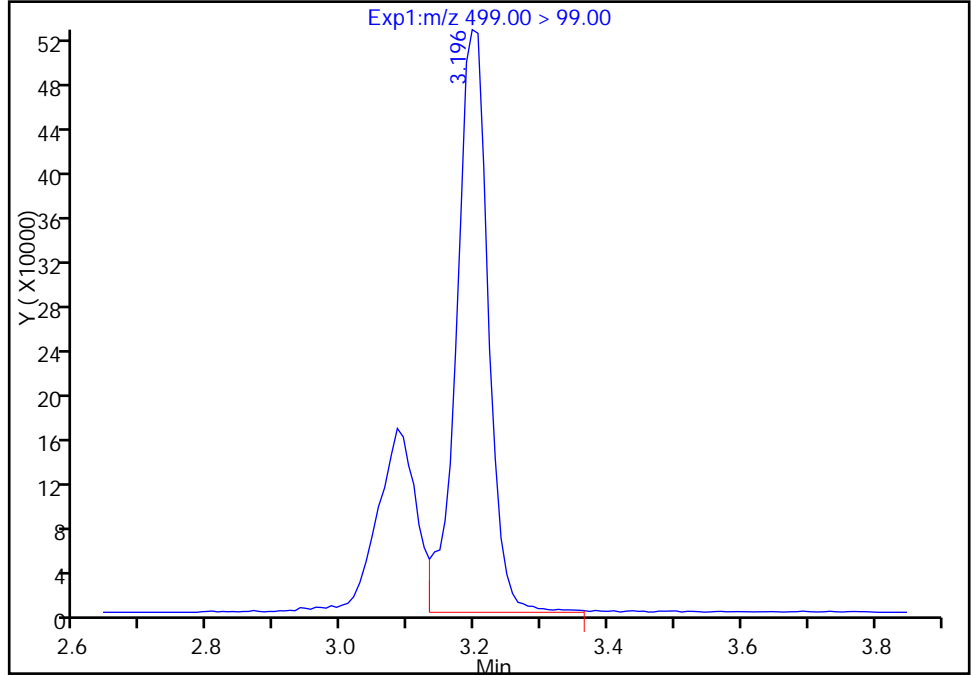
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_048.d
Injection Date: 10-Mar-2017 23:22:31 Instrument ID: A8_N
Lims ID: 320-26273-C-1-A Lab Sample ID: 320-26273-1
Client ID: MEAFF-4AMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 38 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

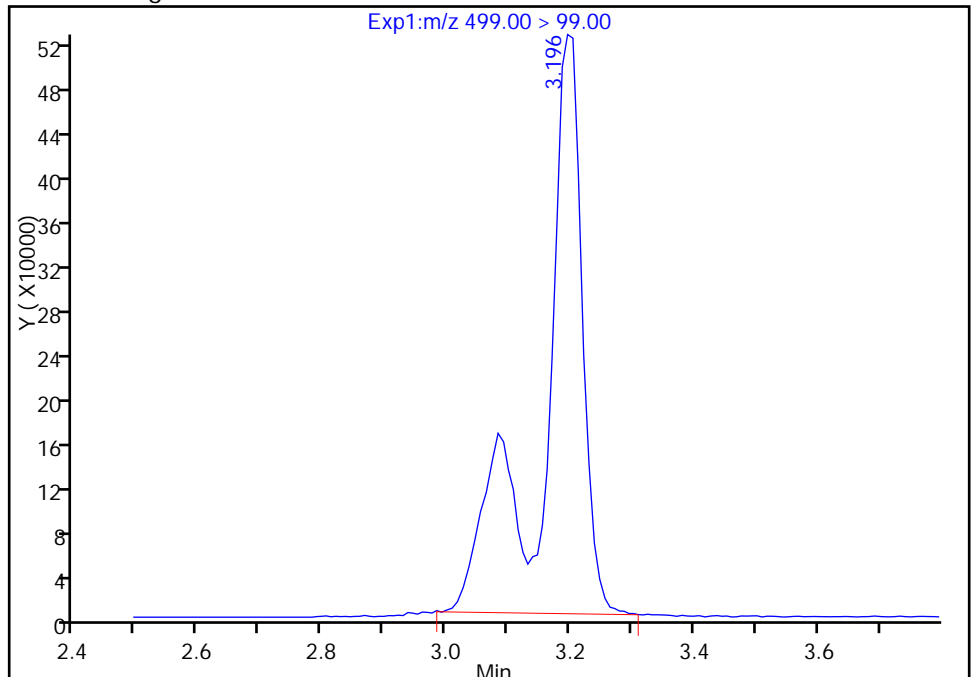
RT: 3.20
Area: 1725939
Amount: 25.404937
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 2304618
Amount: 50.909512
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:08:41

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4AMW03-0317 DL Lab Sample ID: 320-26273-1 DL
 Matrix: Water Lab File ID: 2017.03.13A_051.d
 Analysis Method: 537 (Modified) Date Collected: 03/02/2017 12:25
 Extraction Method: 3535 Date Extracted: 03/06/2017 16:19
 Sample wt/vol: 273 (mL) Date Analyzed: 03/13/2017 17:38
 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)	500	D M	11	9.2	3.4
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	90	D M	18	14	5.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	64	D M	11	9.2	4.2

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	78		25-150
STL00991	13C4 PFOS	111		25-150
STL00994	18O2 PFHxS	112		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_051.d
 Lims ID: 320-26273-C-1-A
 Client ID: MEAFF-4AMW03-0317
 Sample Type: Client
 Inject. Date: 13-Mar-2017 17:38:36 ALS Bottle#: 34 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 5.0000
 Sample Info: 320-26273-c-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 12:23:50 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 13:27:59

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	1.862	1.863	-0.001	1.000	3251152	6.98				M
298.90 > 99.00	1.862	1.863	-0.001	1.000	1172119		2.77(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.476	2.480	-0.004		3077694	10.6		22.4	129969	
D 14 13C4 PFOA										
417.00 > 372.00	2.826	2.822	0.004		1597178	7.79		15.6	106782	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.826	2.822	0.004	1.000	8969117	55.0			131176	M
413.00 > 169.00	2.826	2.822	0.004	1.000	5634121		1.59(0.90-1.10)		2077	M
D 18 13C4 PFOS										
503.00 > 80.00	3.193	3.188	0.005		2567380	10.6		22.2	47961	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.193	3.197	-0.004	1.000	2605406	9.86			552	M
499.00 > 99.00	3.193	3.197	-0.004	1.000	496093		5.25(0.90-1.10)		60175	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_051.d

Injection Date: 13-Mar-2017 17:38:36

Instrument ID: A8_N

Lims ID: 320-26273-C-1-A

Lab Sample ID: 320-26273-1

Client ID: MEAFF-4AMW03-0317

Operator ID: A8-PC\A8

ALS Bottle#: 34

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 5.0000

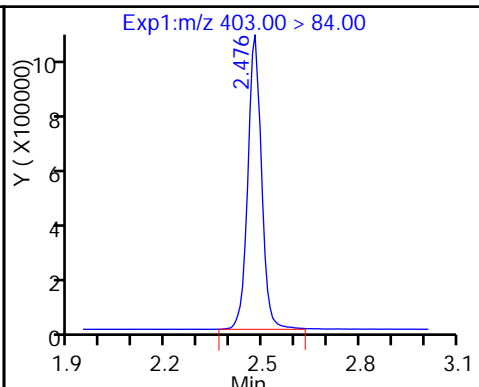
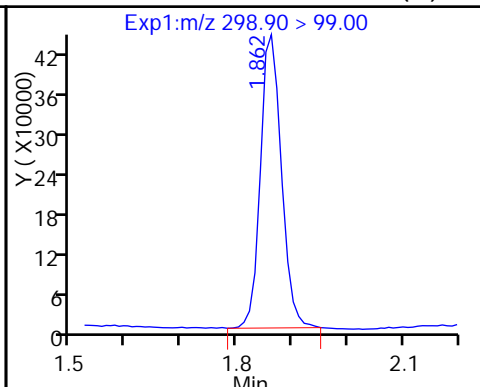
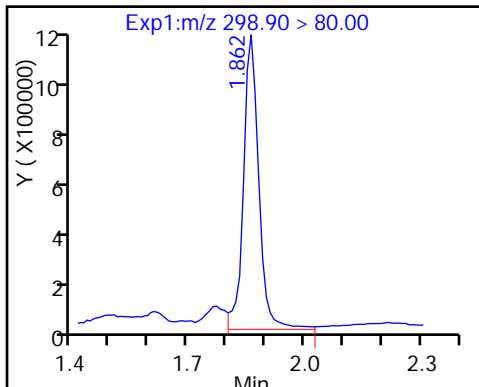
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid (M)

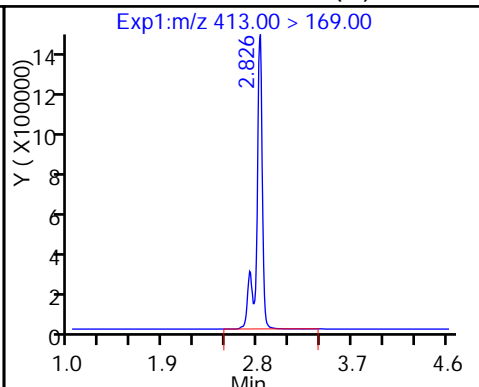
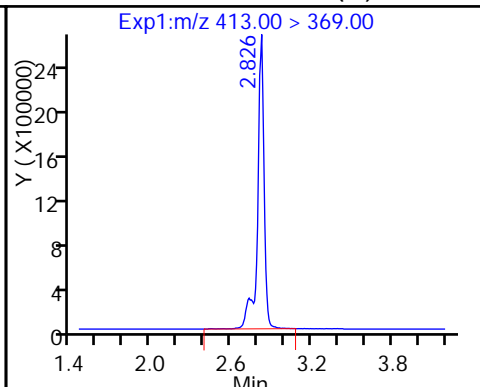
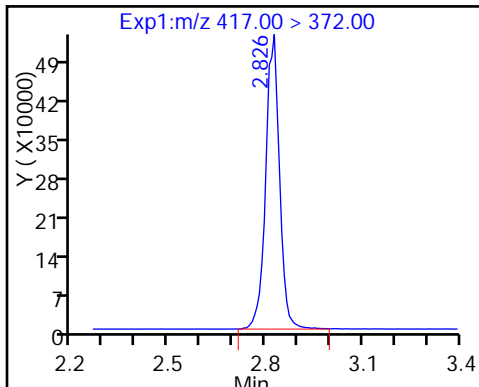
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid (M)

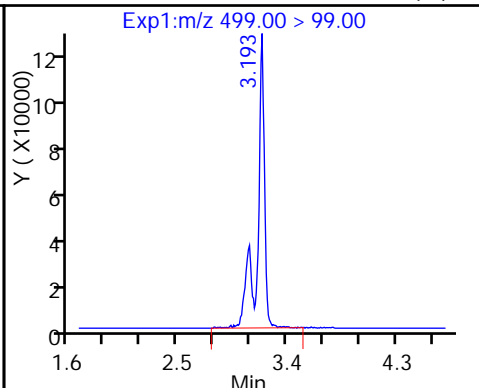
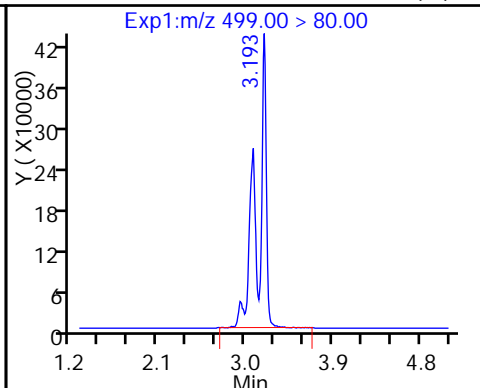
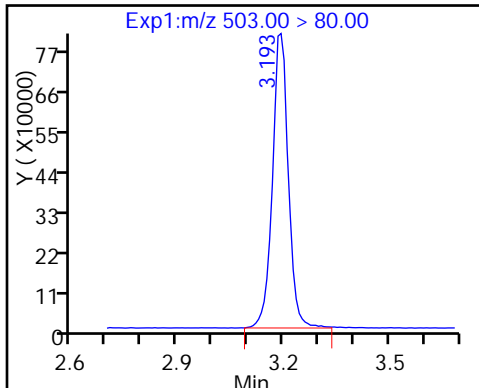
15 Perfluorooctanoic acid (M)



D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

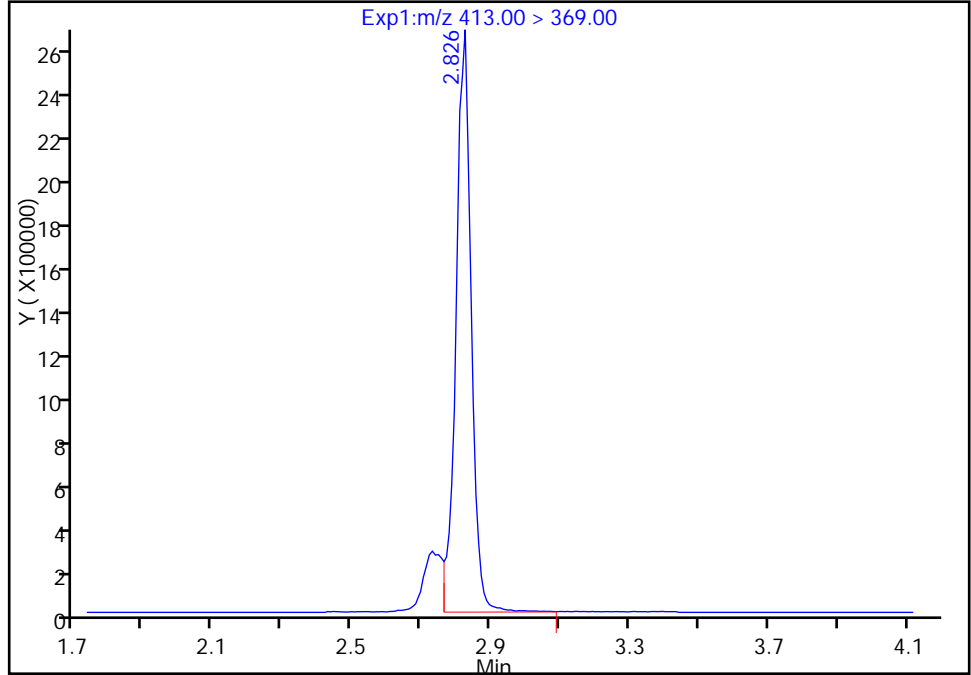
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_051.d
Injection Date: 13-Mar-2017 17:38:36 Instrument ID: A8_N
Lims ID: 320-26273-C-1-A Lab Sample ID: 320-26273-1
Client ID: MEAFF-4AMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 34 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 5.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

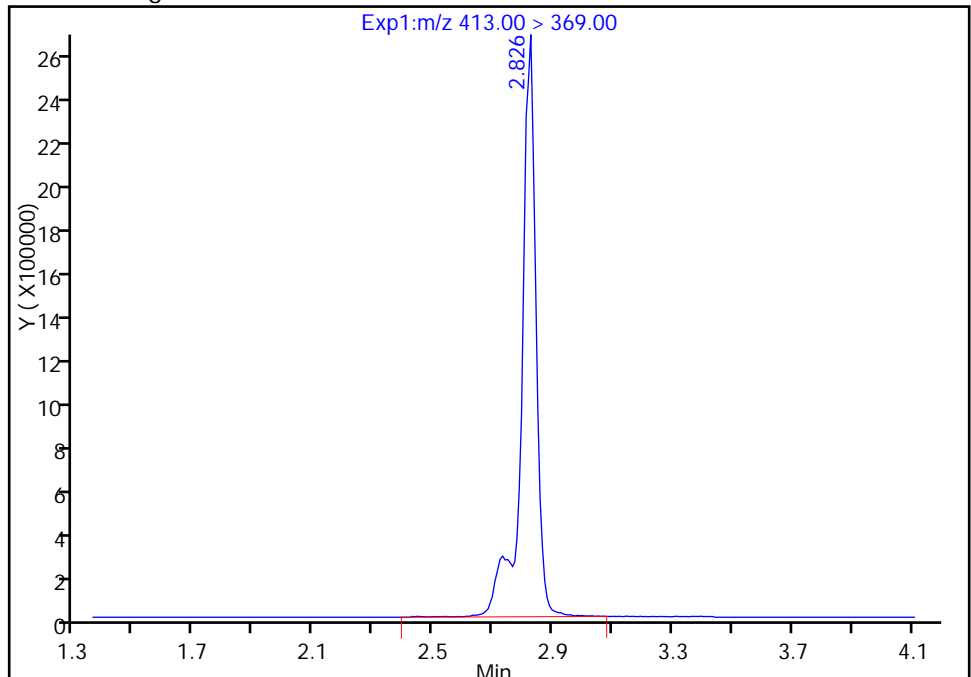
RT: 2.83
Area: 7942594
Amount: 48.674704
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 8969117
Amount: 54.965559
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 12:23:33
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

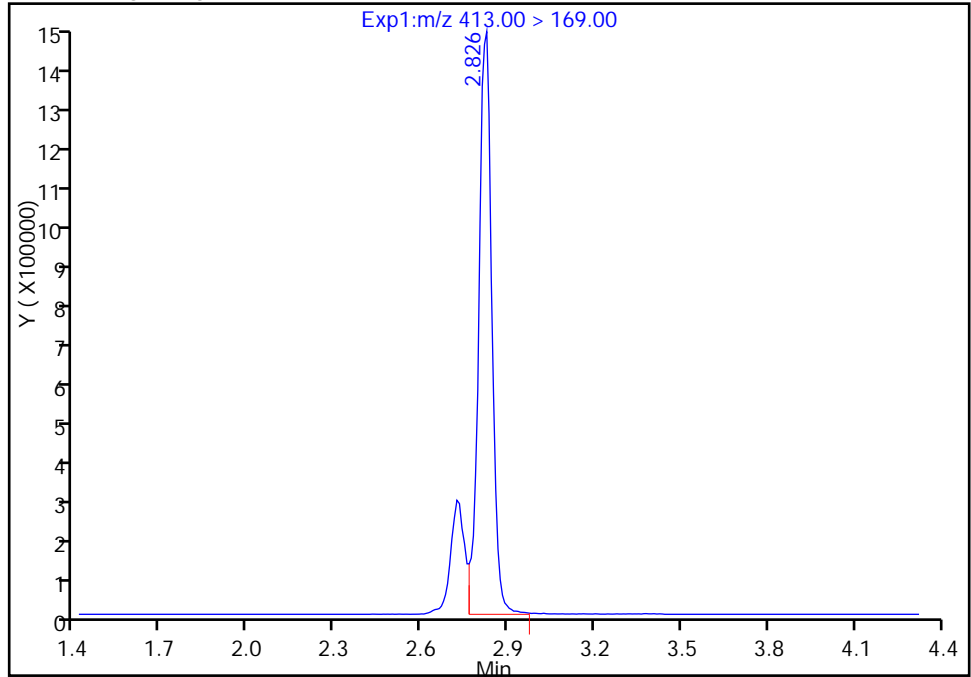
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_051.d
Injection Date: 13-Mar-2017 17:38:36 Instrument ID: A8_N
Lims ID: 320-26273-C-1-A Lab Sample ID: 320-26273-1
Client ID: MEAFF-4AMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 34 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 5.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

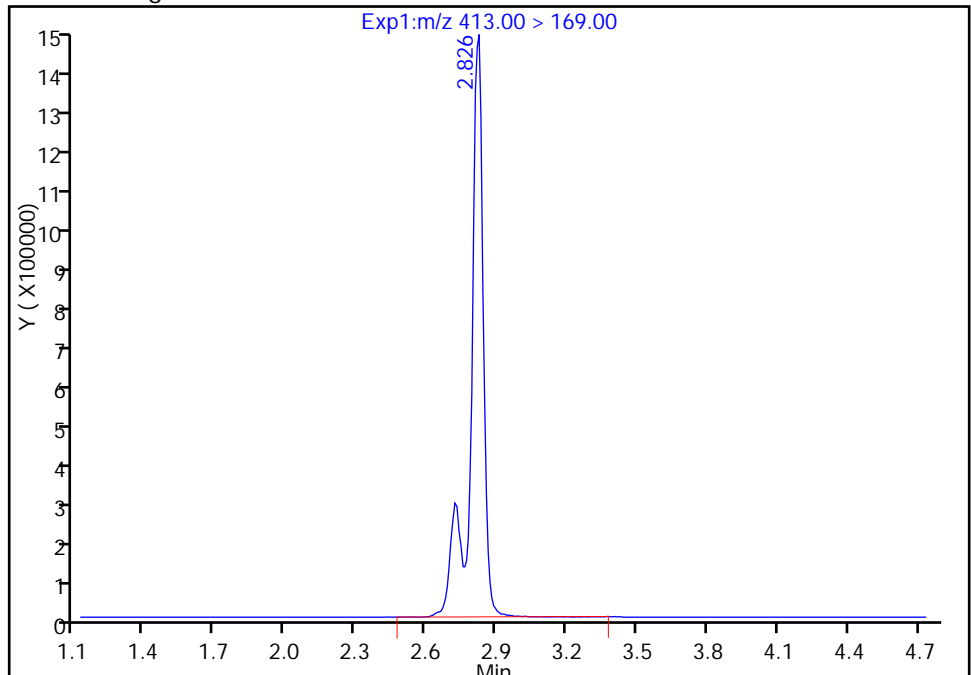
RT: 2.83
Area: 4671761
Amount: 48.674704
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 5634121
Amount: 54.965559
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 12:23:33

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

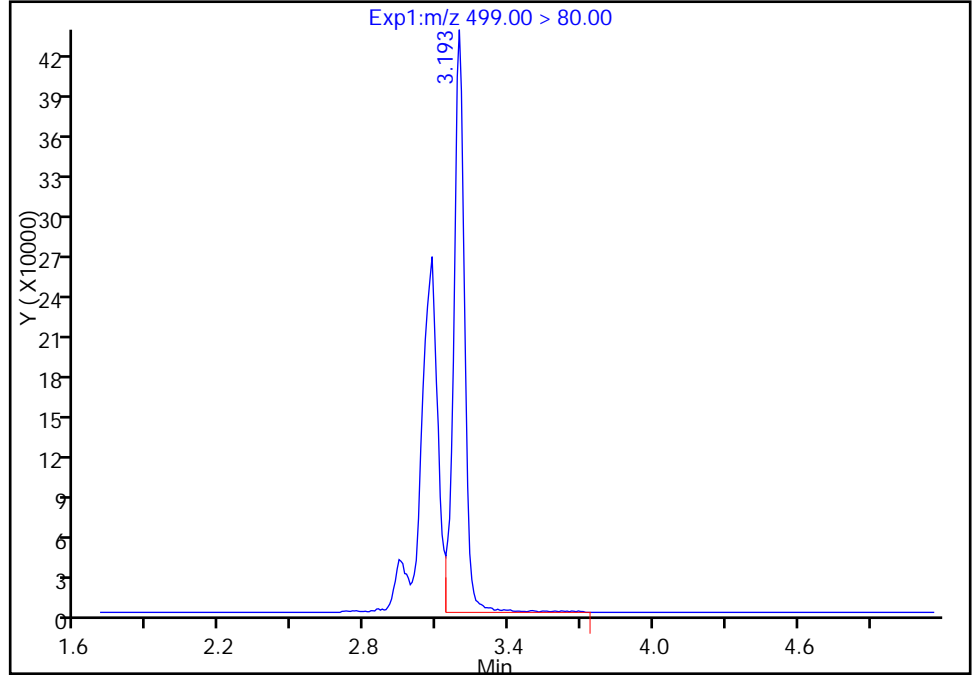
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_051.d
Injection Date: 13-Mar-2017 17:38:36 Instrument ID: A8_N
Lims ID: 320-26273-C-1-A Lab Sample ID: 320-26273-1
Client ID: MEAFF-4AMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 34 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. 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

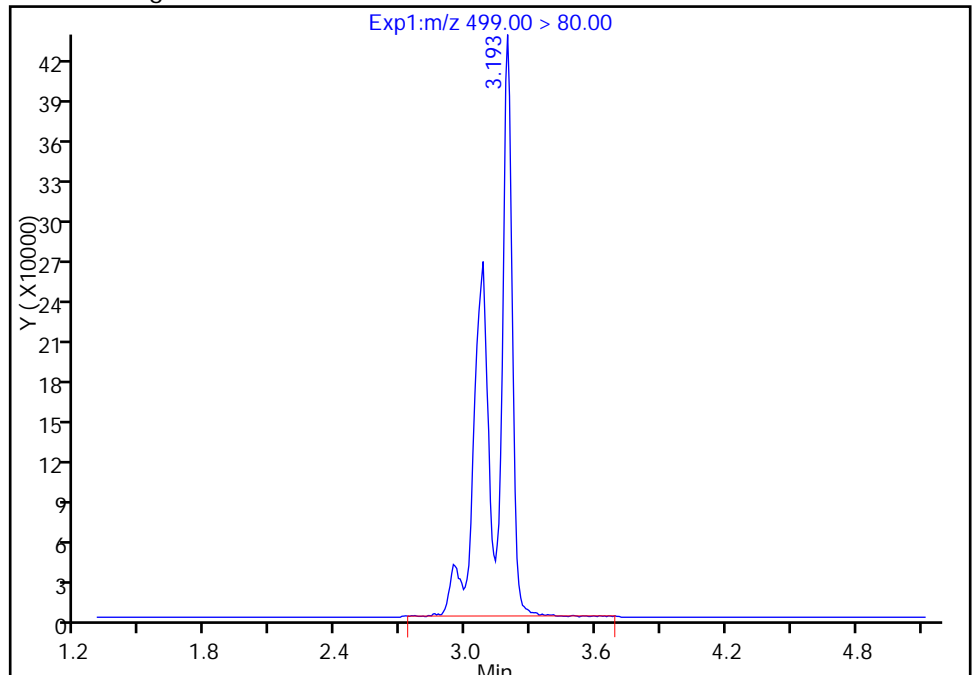
RT: 3.19
Area: 1356716
Amount: 5.136770
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 2605406
Amount: 9.864535
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 12:23:33
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

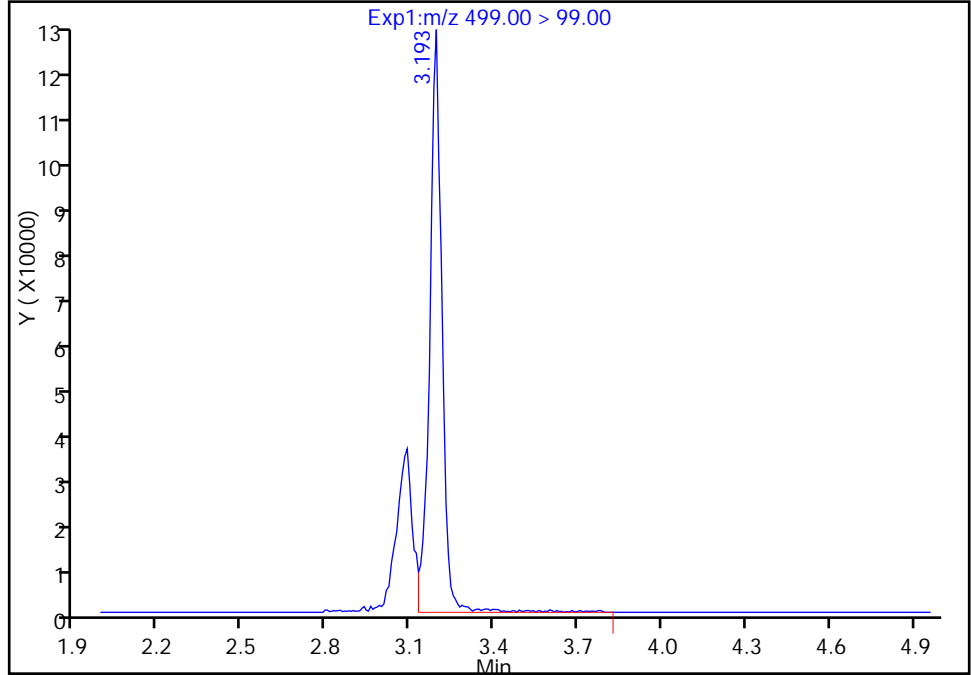
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_051.d
Injection Date: 13-Mar-2017 17:38:36 Instrument ID: A8_N
Lims ID: 320-26273-C-1-A Lab Sample ID: 320-26273-1
Client ID: MEAFF-4AMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 34 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. 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

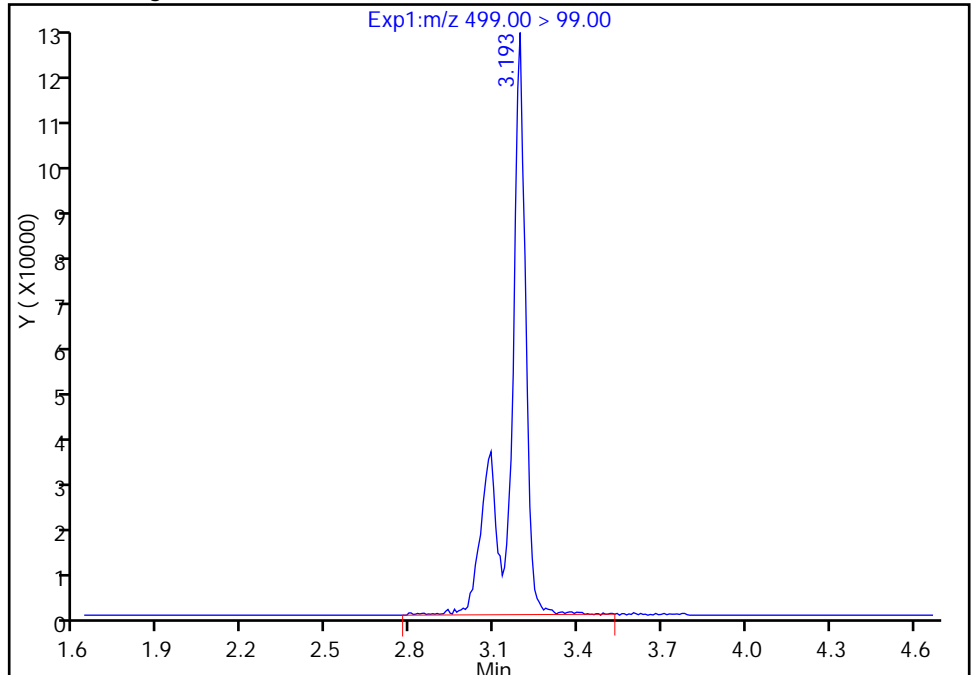
RT: 3.19
Area: 367267
Amount: 5.136770
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 496093
Amount: 9.864535
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 12:23:33

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

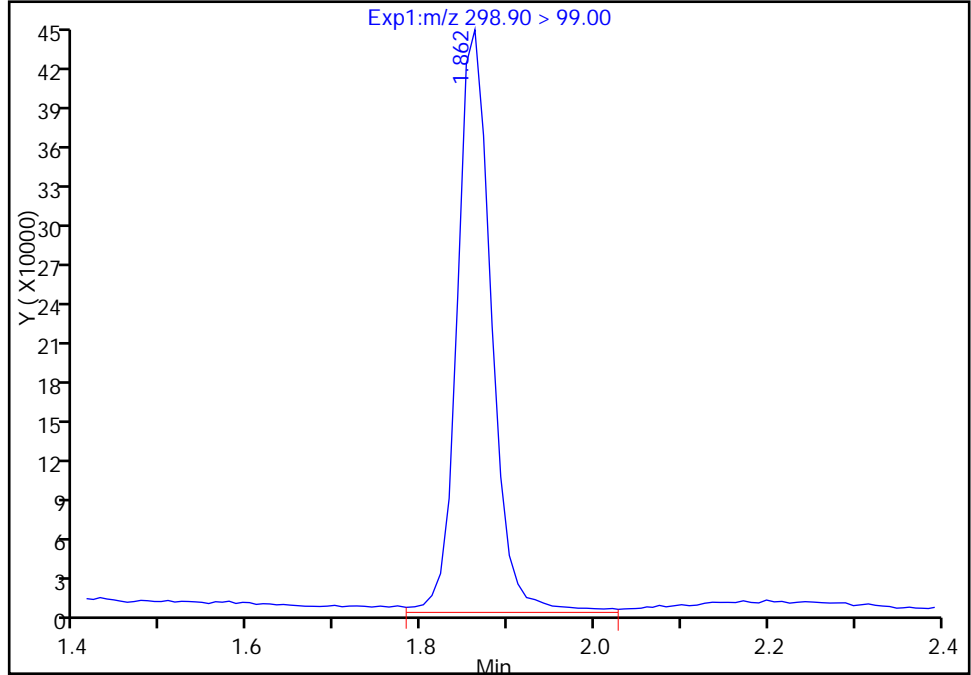
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_051.d
Injection Date: 13-Mar-2017 17:38:36 Instrument ID: A8_N
Lims ID: 320-26273-C-1-A Lab Sample ID: 320-26273-1
Client ID: MEAFF-4AMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 34 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 5.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

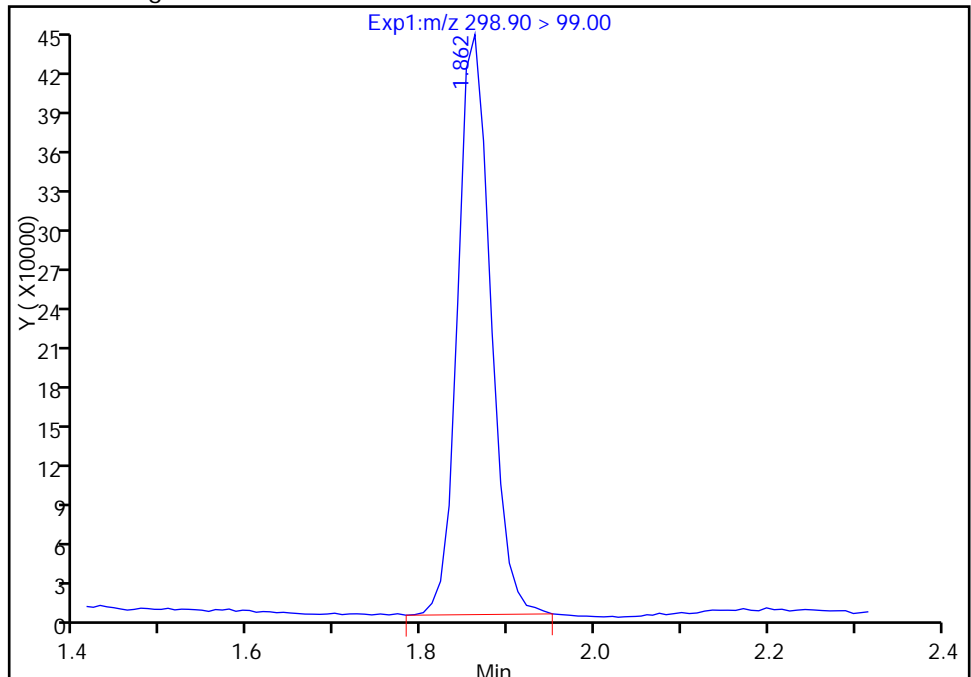
RT: 1.86
Area: 1231628
Amount: 6.976000
Amount Units: ng/ml

Processing Integration Results



RT: 1.86
Area: 1172119
Amount: 6.976000
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 12:23:46

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0630-0317 Lab Sample ID: 320-26273-2
 Matrix: Water Lab File ID: 2017.03.10B_049.d
 Analysis Method: 537 (Modified) Date Collected: 03/02/2017 10:40
 Extraction Method: 3535 Date Extracted: 03/06/2017 16:19
 Sample wt/vol: 257.5 (mL) Date Analyzed: 03/10/2017 23:30
 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)	63	M	2.4	1.9	0.73
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	100	M	3.9	2.9	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	230		2.4	1.9	0.89

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	94		25-150
STL00991	13C4 PFOS	115		25-150
STL00994	18O2 PFHxS	101		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_049.d
 Lims ID: 320-26273-C-2-A
 Client ID: MEAFF-MRD-0630-0317
 Sample Type: Client
 Inject. Date: 10-Mar-2017 23:30:02 ALS Bottle#: 39 Worklist Smp#: 28
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-c-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 12:09:05 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: XAWRK006

First Level Reviewer: changnoit Date: 13-Mar-2017 11:30:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.881	1.861	0.020	1.000	50782991	120.4				
298.90 > 99.00	1.851	1.861	-0.010	0.984	70041456		0.73(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.459	2.464	-0.006		13928199	47.9		101	443488	
D 14 13C4 PFOA										
417.00 > 372.00	2.804	2.814	-0.010		9620660	46.9		93.9	343816	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.796	2.814	-0.018	1.000	6328906	32.2			30175	M
413.00 > 169.00	2.796	2.814	-0.018	1.000	4491779		1.41(0.90-1.10)		71409	M
D 18 13C4 PFOS										
503.00 > 80.00	3.168	3.188	-0.020		13305961	55.1		115	212061	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.168	3.197	-0.029	1.000	14402894	52.6			71923	M
499.00 > 99.00	3.176	3.197	-0.021	1.002	3401033		4.23(0.90-1.10)		64959	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_049.d

Injection Date: 10-Mar-2017 23:30:02

Instrument ID: A8_N

Lims ID: 320-26273-C-2-A

Lab Sample ID: 320-26273-2

Client ID: MEAFF-MRD-0630-0317

Operator ID: A8-PC\A8

ALS Bottle#: 39

Worklist Smp#: 28

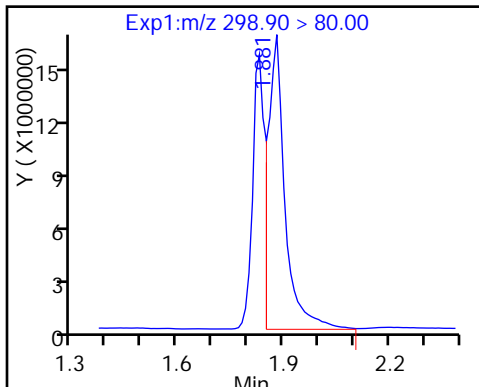
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

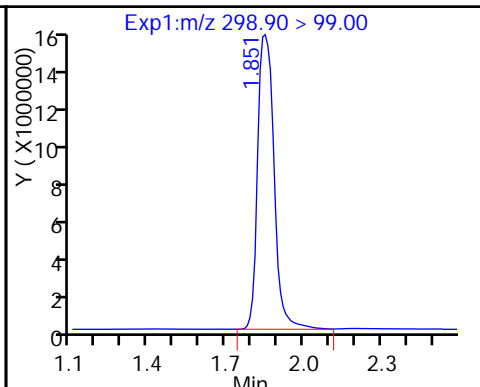
Method: A8_N

Limit Group: LC PFC_DOD ICAL

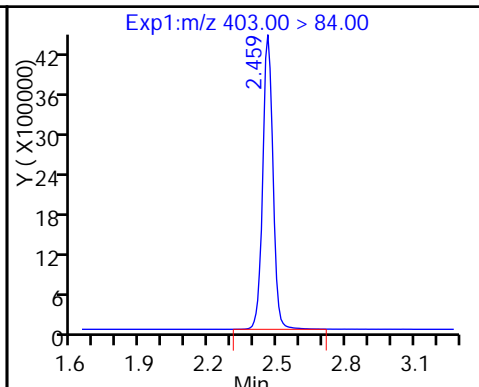
5 Perfluorobutanesulfonic acid



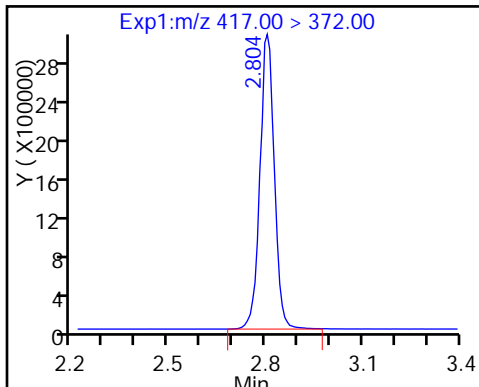
5 Perfluorobutanesulfonic acid



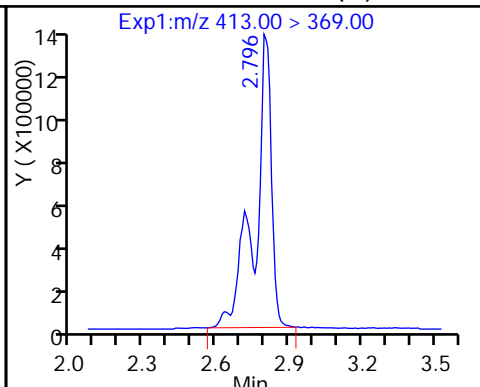
D 11 18O2 PFHxS



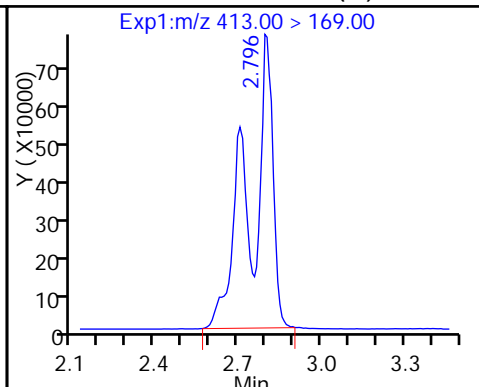
D 14 13C4 PFOA



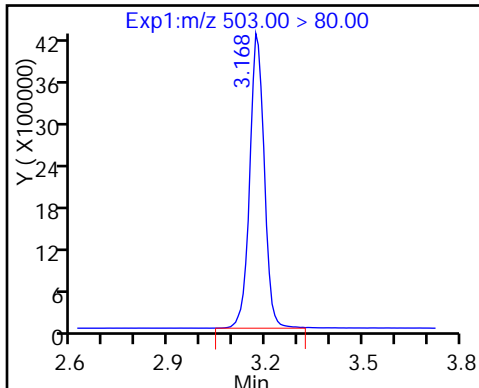
15 Perfluorooctanoic acid (M)



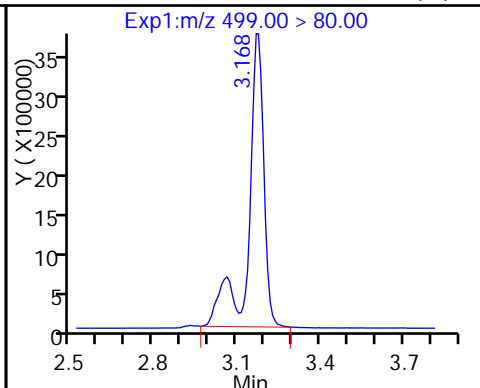
15 Perfluorooctanoic acid (M)



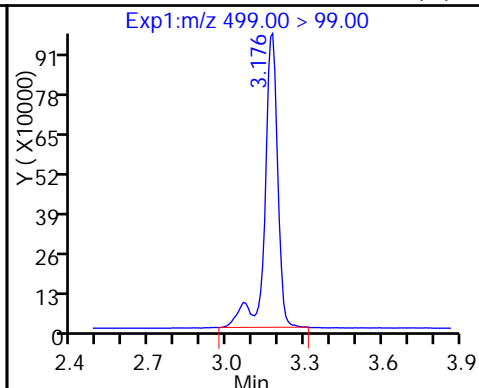
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

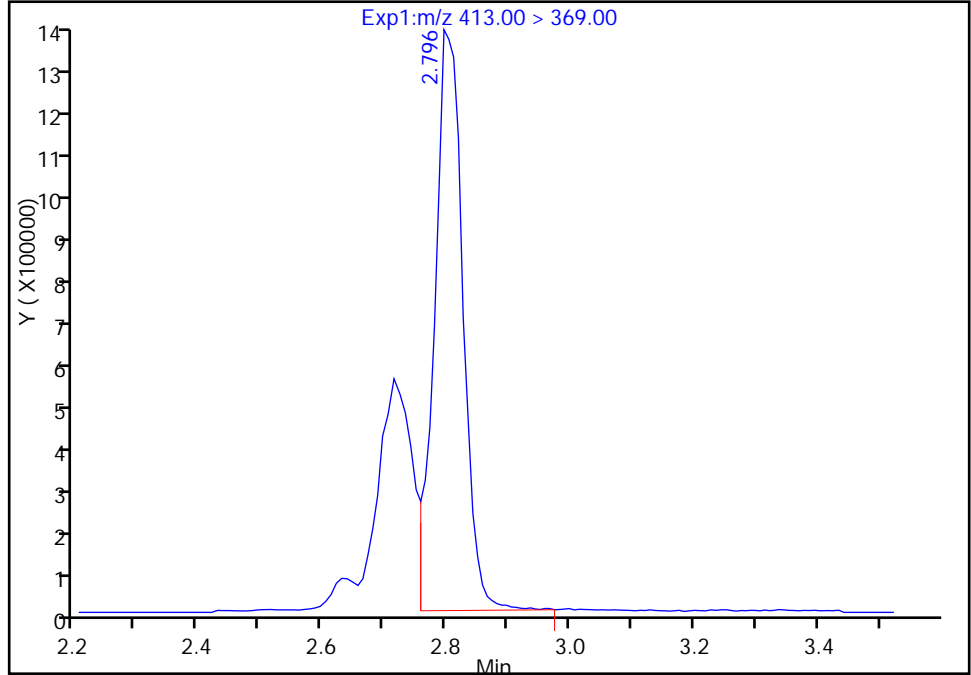
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_049.d
Injection Date: 10-Mar-2017 23:30:02 Instrument ID: A8_N
Lims ID: 320-26273-C-2-A Lab Sample ID: 320-26273-2
Client ID: MEAFF-MRD-0630-0317
Operator ID: A8-PC\A8 ALS Bottle#: 39 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

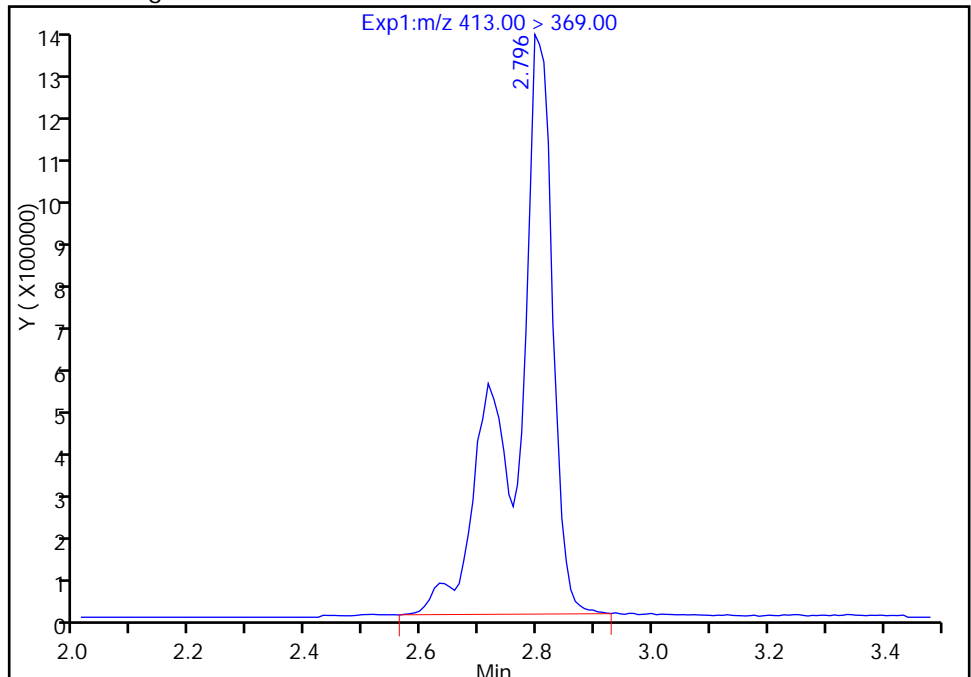
RT: 2.80
Area: 4214110
Amount: 21.437063
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 6328906
Amount: 32.194973
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:10:24
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

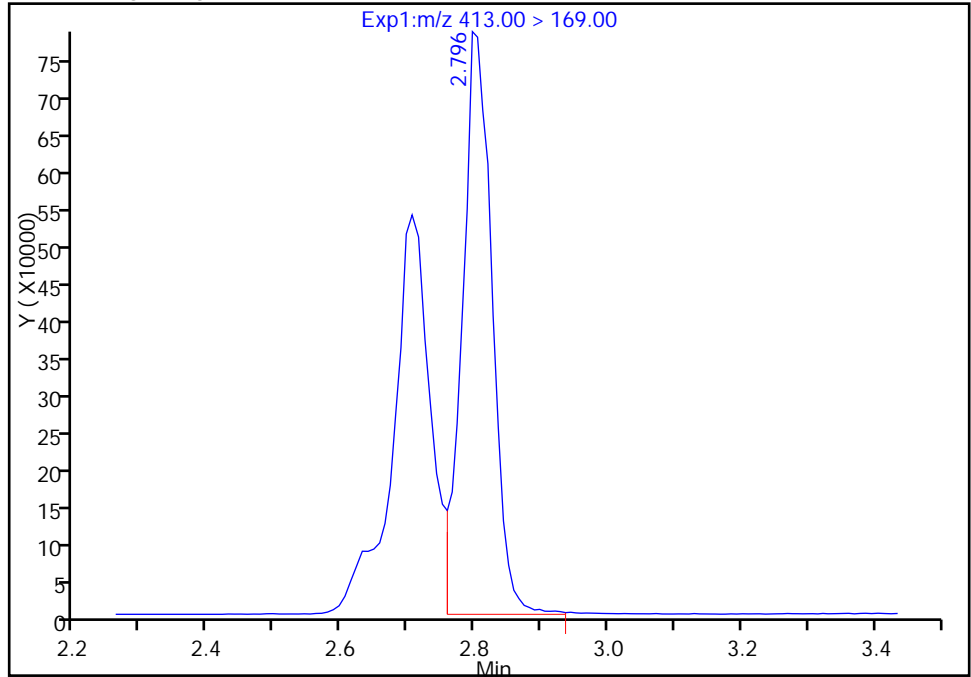
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_049.d
Injection Date: 10-Mar-2017 23:30:02 Instrument ID: A8_N
Lims ID: 320-26273-C-2-A Lab Sample ID: 320-26273-2
Client ID: MEAFF-MRD-0630-0317
Operator ID: A8-PC\A8 ALS Bottle#: 39 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

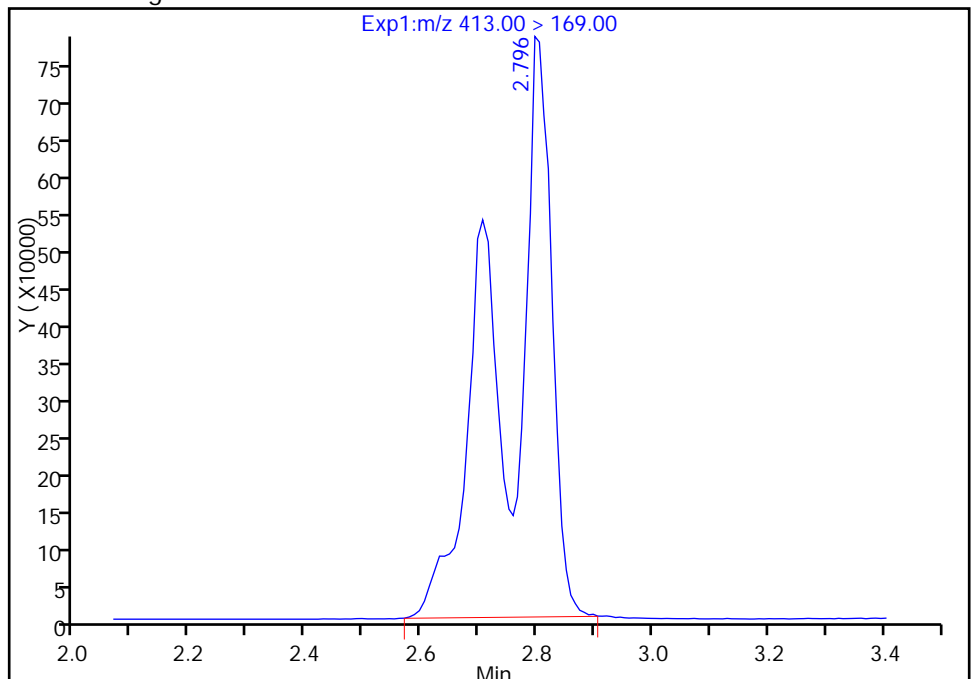
RT: 2.80
Area: 2434222
Amount: 21.437063
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 4491779
Amount: 32.194973
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:10:24

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

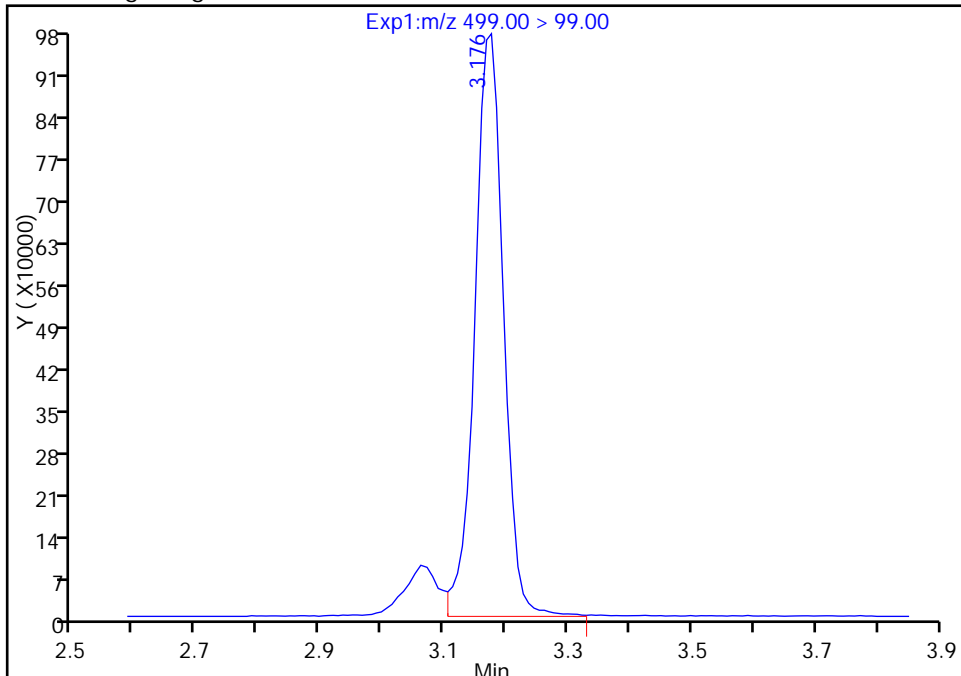
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_049.d
Injection Date: 10-Mar-2017 23:30:02 Instrument ID: A8_N
Lims ID: 320-26273-C-2-A Lab Sample ID: 320-26273-2
Client ID: MEAFF-MRD-0630-0317
Operator ID: A8-PC\A8 ALS Bottle#: 39 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

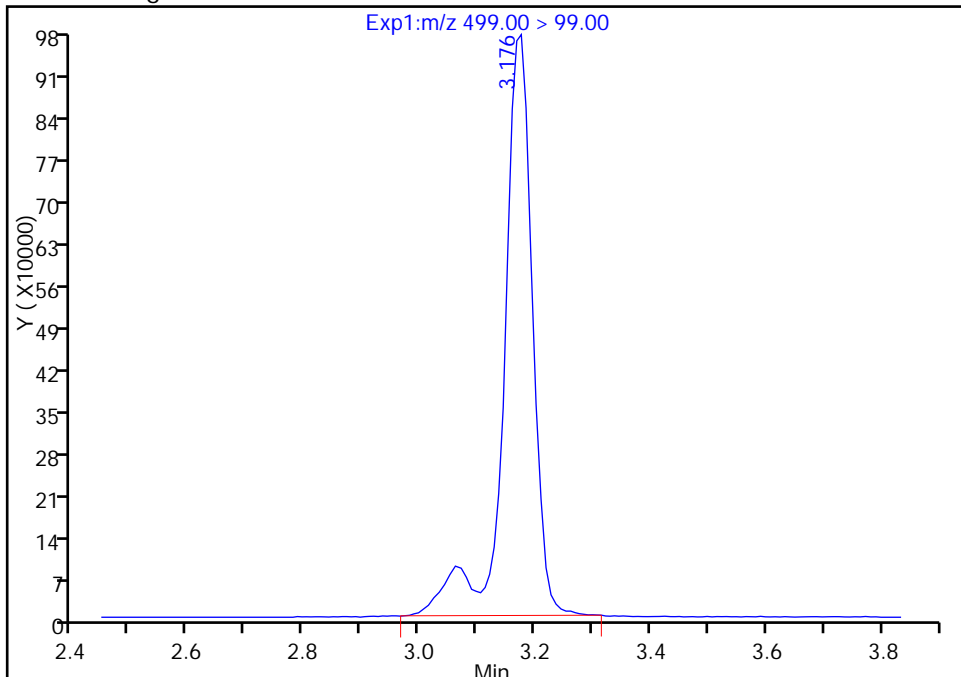
RT: 3.18
Area: 3137141
Amount: 43.764914
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 3401033
Amount: 52.609584
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

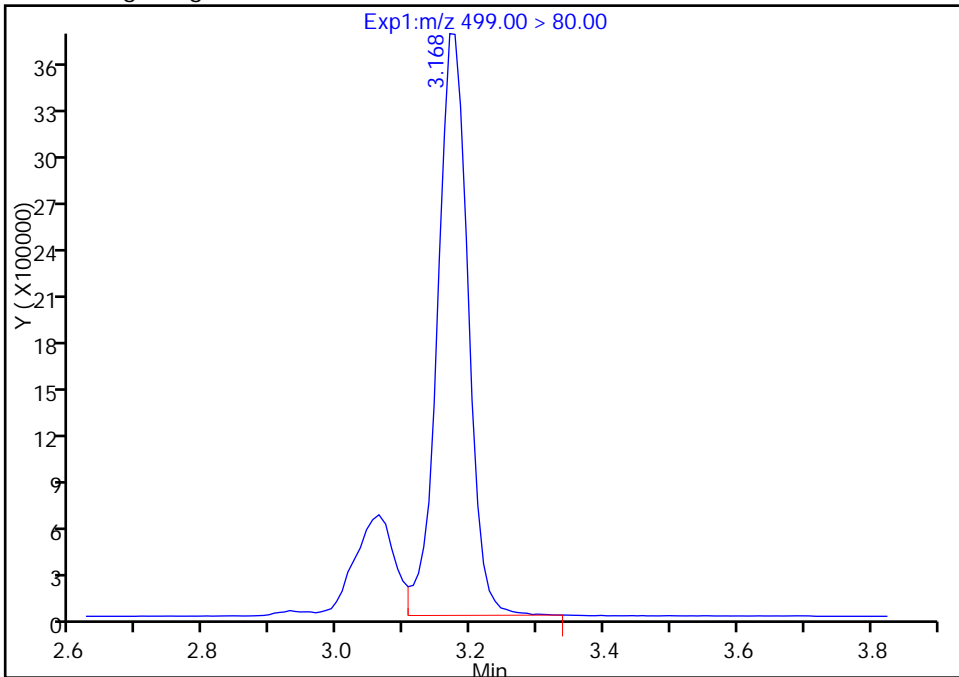
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_049.d
Injection Date: 10-Mar-2017 23:30:02 Instrument ID: A8_N
Lims ID: 320-26273-C-2-A Lab Sample ID: 320-26273-2
Client ID: MEAFF-MRD-0630-0317
Operator ID: A8-PC\A8 ALS Bottle#: 39 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

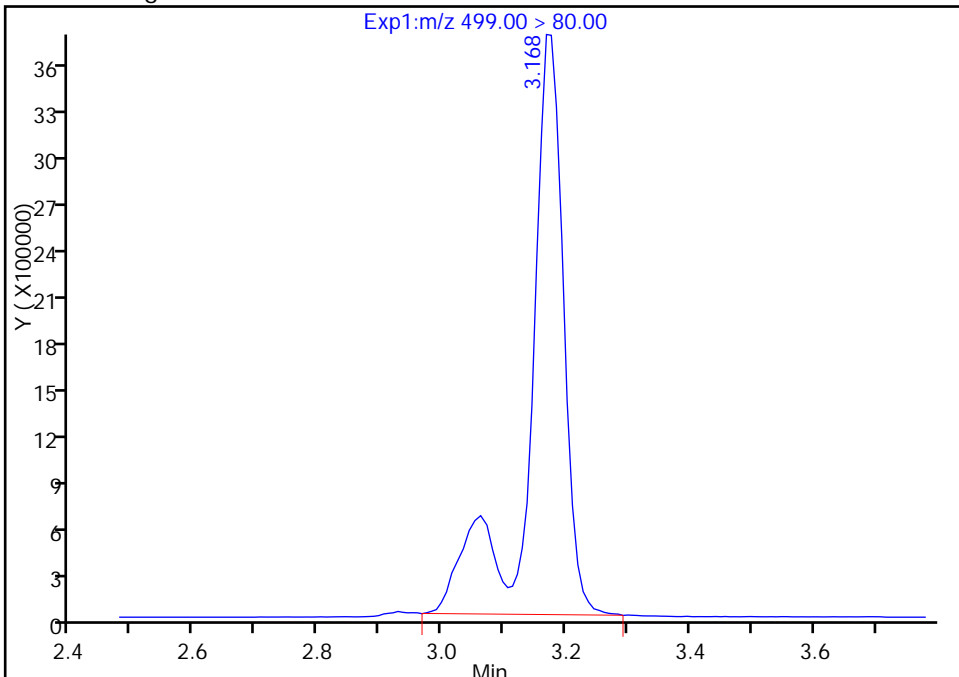
RT: 3.17
Area: 11981494
Amount: 43.764914
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 14402894
Amount: 52.609584
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4AMW01-0317 Lab Sample ID: 320-26273-3
 Matrix: Water Lab File ID: 2017.03.13A_052.d
 Analysis Method: 537 (Modified) Date Collected: 03/02/2017 13:10
 Extraction Method: 3535 Date Extracted: 03/06/2017 16:19
 Sample wt/vol: 272.4 (mL) Date Analyzed: 03/13/2017 17:46
 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.: 154808 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	17	M	2.3	1.8	0.69
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.8	M	3.7	2.8	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	30	M	2.3	1.8	0.84

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	26		25-150
STL00991	13C4 PFOS	100		25-150
STL00994	18O2 PFHxS	128		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_052.d
 Lims ID: 320-26273-C-3-A
 Client ID: MEAFF-4AMW01-0317
 Sample Type: Client
 Inject. Date: 13-Mar-2017 17:46:05 ALS Bottle#: 35 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-c-3-a
 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: 14-Mar-2017 13:28:50

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.861	1.863	-0.002	1.000	8639529	16.2				M
298.90 > 99.00	1.861	1.863	-0.002	1.000	3479073		2.48(0.00-0.00)			M
D 11 18O2 PFHxS										
403.00 > 84.00	2.472	2.480	-0.008		17611396	60.5		128	477955	
D 14 13C4 PFOA										
417.00 > 372.00	2.823	2.822	0.001		2632794	12.8		25.7	149636	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.823	2.822	0.001	1.000	489533	9.10			4281	M
413.00 > 169.00	2.815	2.822	-0.007	0.997	328936		1.49(0.90-1.10)		9554	M
D 18 13C4 PFOS										
503.00 > 80.00	3.189	3.188	0.001		11577056	47.9		100	131683	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.189	3.197	-0.008	1.000	888192	3.73			7777	M
499.00 > 99.00	3.066	3.197	-0.131	0.961	156362		5.68(0.90-1.10)		2129	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_052.d

Injection Date: 13-Mar-2017 17:46:05

Instrument ID: A8_N

Lims ID: 320-26273-C-3-A

Lab Sample ID: 320-26273-3

Client ID: MEAFF-4AMW01-0317

Operator ID: A8-PC\A8

ALS Bottle#: 35

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

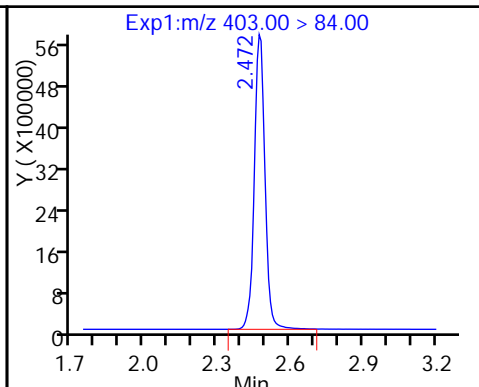
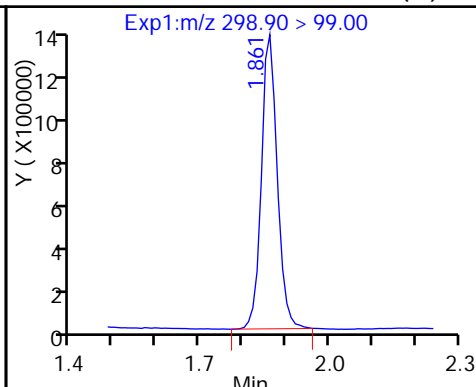
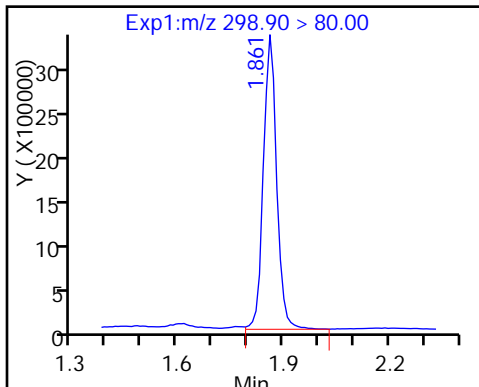
Method: A8_N

Limit Group: LC PFC_DOD ICAL

5 Perfluorobutanesulfonic acid

5 Perfluorobutanesulfonic acid (M)

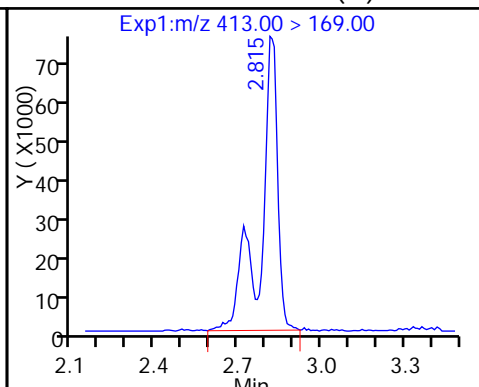
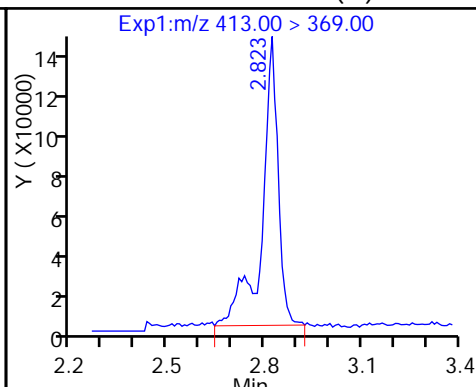
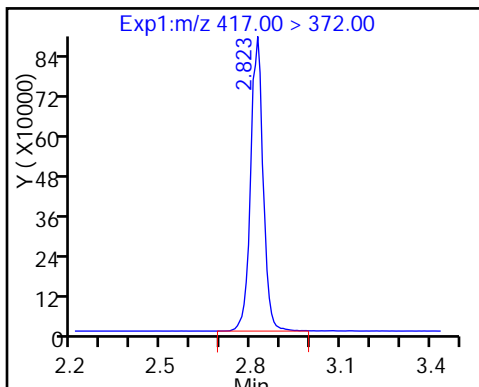
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid (M)

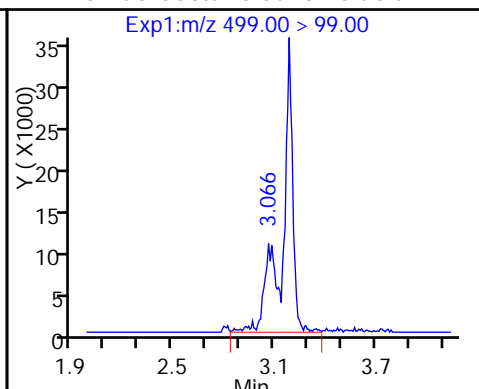
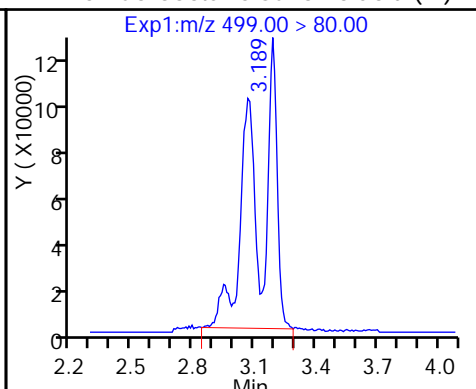
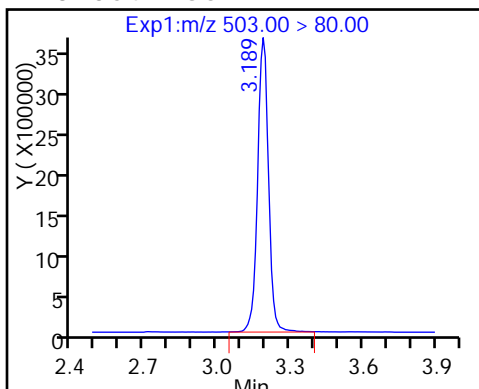
15 Perfluorooctanoic acid (M)



D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid



TestAmerica Sacramento

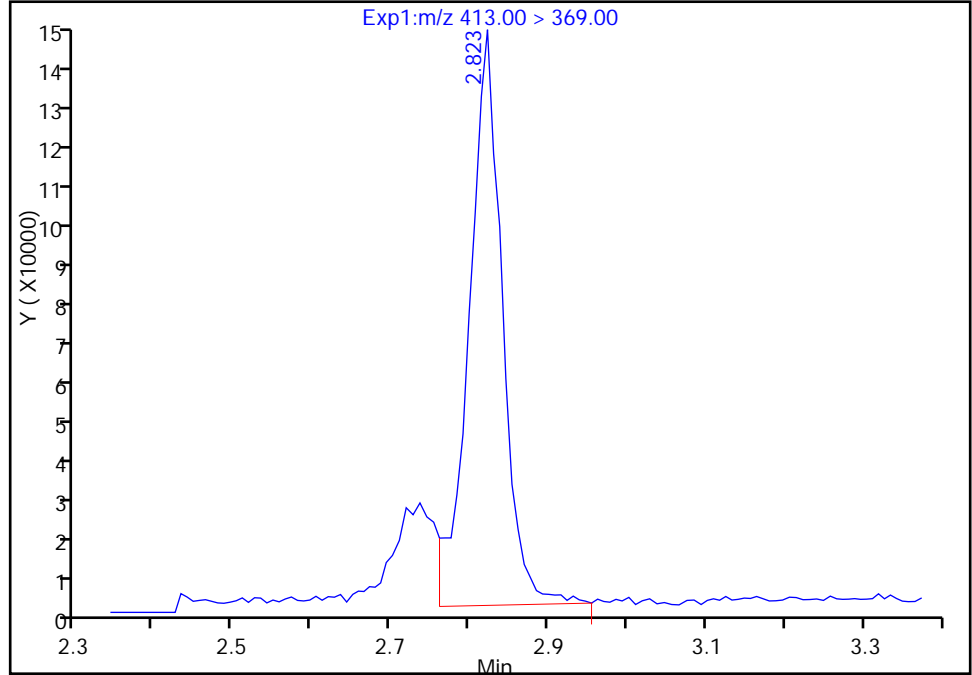
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_052.d
Injection Date: 13-Mar-2017 17:46:05 Instrument ID: A8_N
Lims ID: 320-26273-C-3-A Lab Sample ID: 320-26273-3
Client ID: MEAFF-4AMW01-0317
Operator ID: A8-PC\A8 ALS Bottle#: 35 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

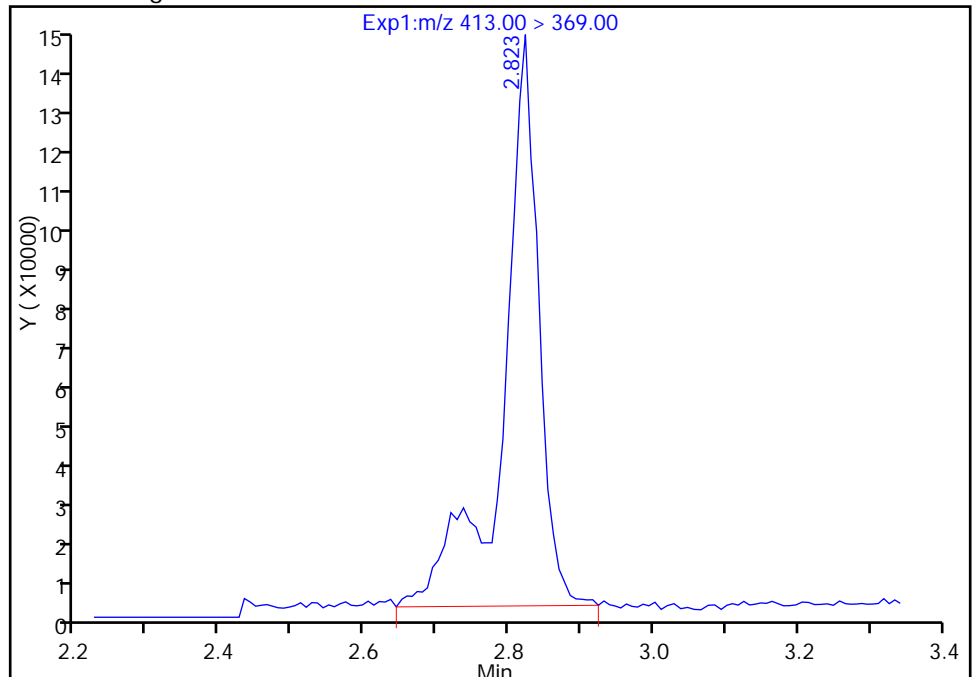
RT: 2.82
Area: 415028
Amount: 7.714802
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 489533
Amount: 9.099748
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 12:25:32
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

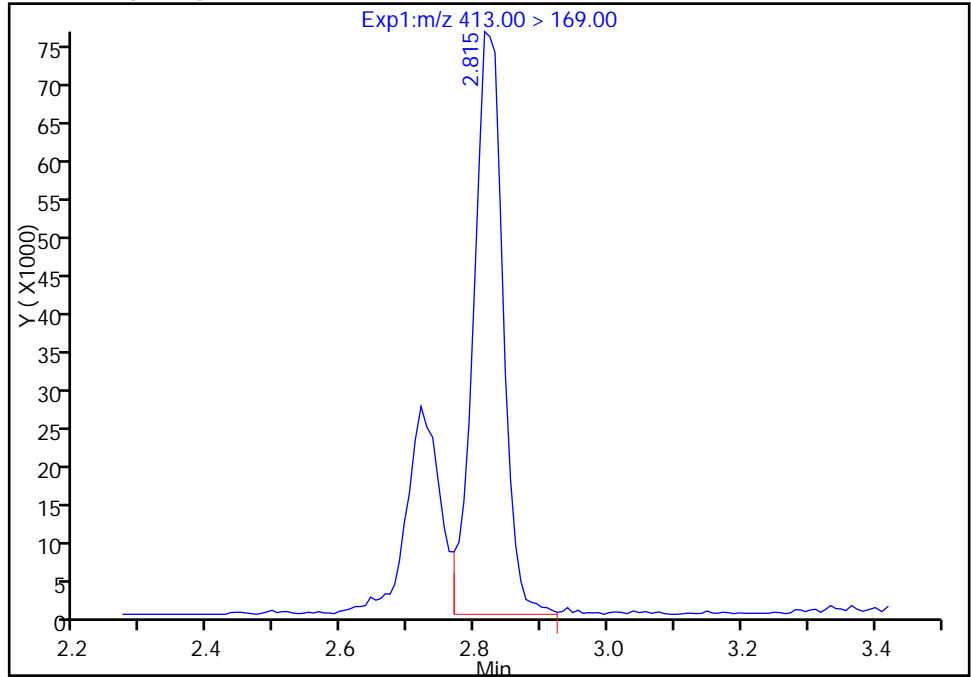
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_052.d
Injection Date: 13-Mar-2017 17:46:05 Instrument ID: A8_N
Lims ID: 320-26273-C-3-A Lab Sample ID: 320-26273-3
Client ID: MEAFF-4AMW01-0317
Operator ID: A8-PC\A8 ALS Bottle#: 35 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

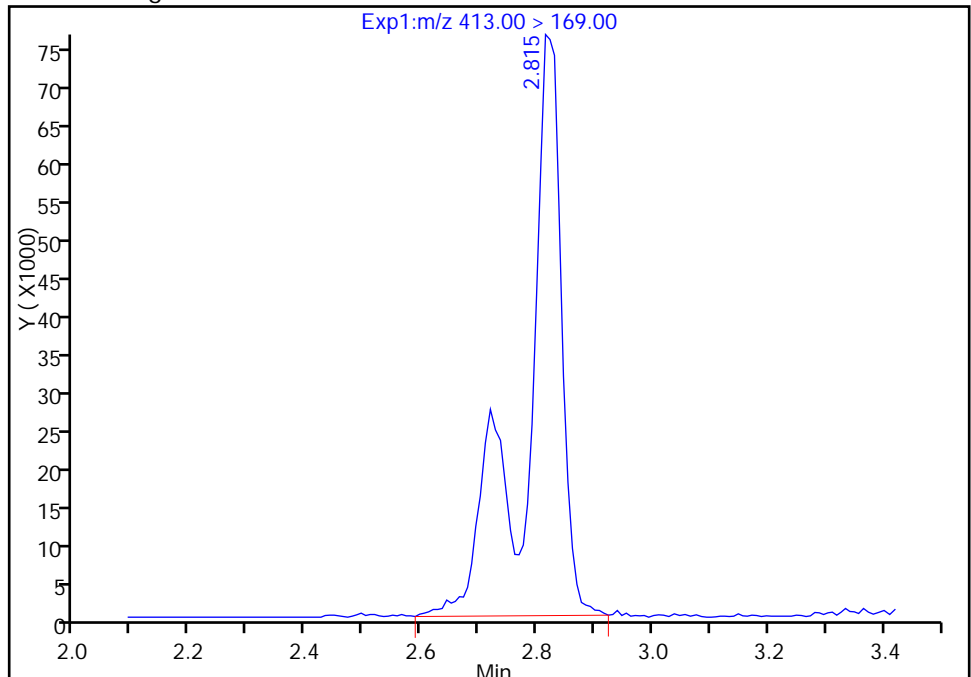
RT: 2.81
Area: 235826
Amount: 7.714802
Amount Units: ng/ml

Processing Integration Results



RT: 2.81
Area: 328936
Amount: 9.099748
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 12:25:32

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

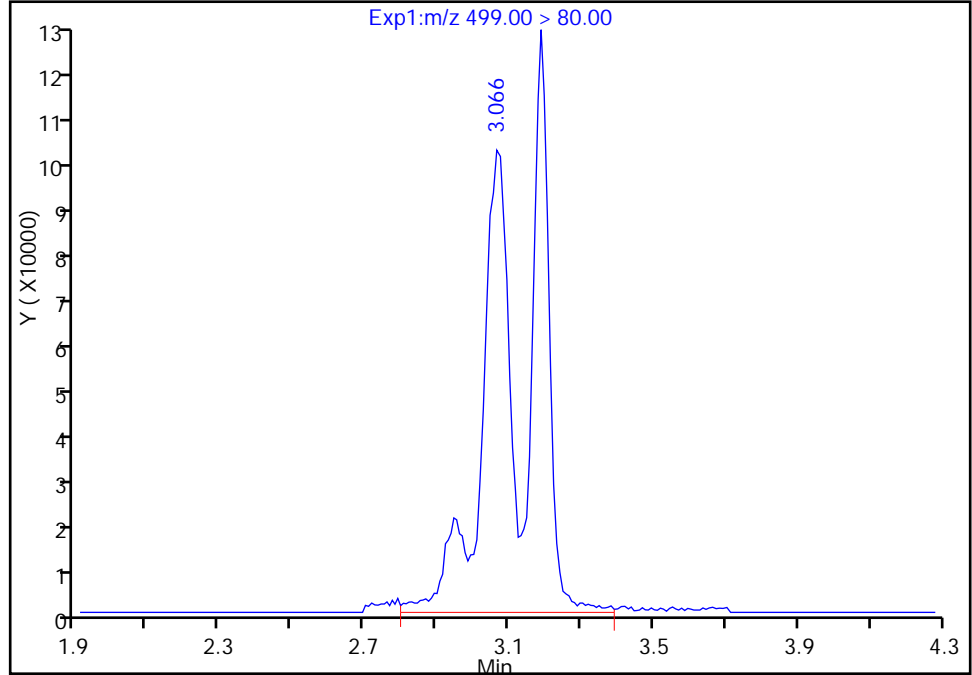
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_052.d
Injection Date: 13-Mar-2017 17:46:05 Instrument ID: A8_N
Lims ID: 320-26273-C-3-A Lab Sample ID: 320-26273-3
Client ID: MEAFF-4AMW01-0317
Operator ID: A8-PC\A8 ALS Bottle#: 35 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

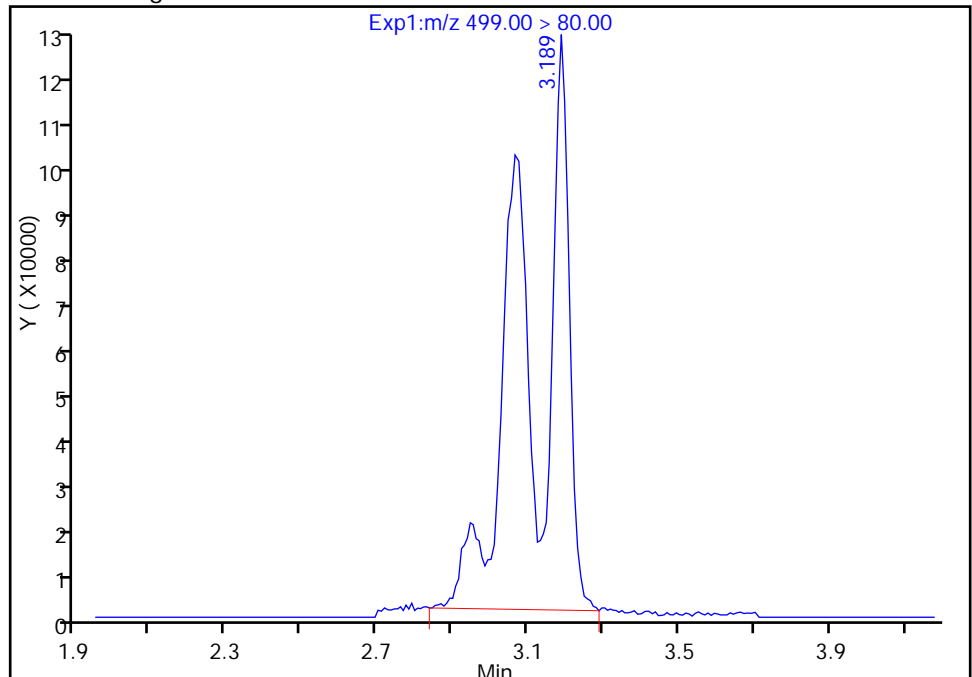
RT: 3.07
Area: 947669
Amount: 3.978505
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 888192
Amount: 3.728808
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 27-Mar-2017 12:25:32
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

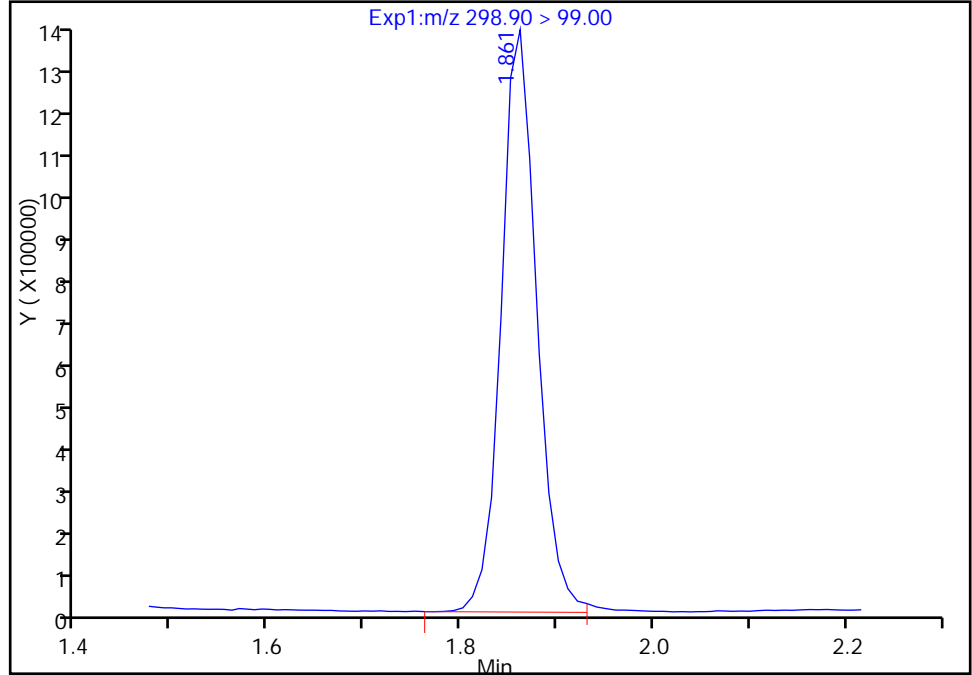
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_052.d
Injection Date: 13-Mar-2017 17:46:05 Instrument ID: A8_N
Lims ID: 320-26273-C-3-A Lab Sample ID: 320-26273-3
Client ID: MEAFF-4AMW01-0317
Operator ID: A8-PC\A8 ALS Bottle#: 35 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

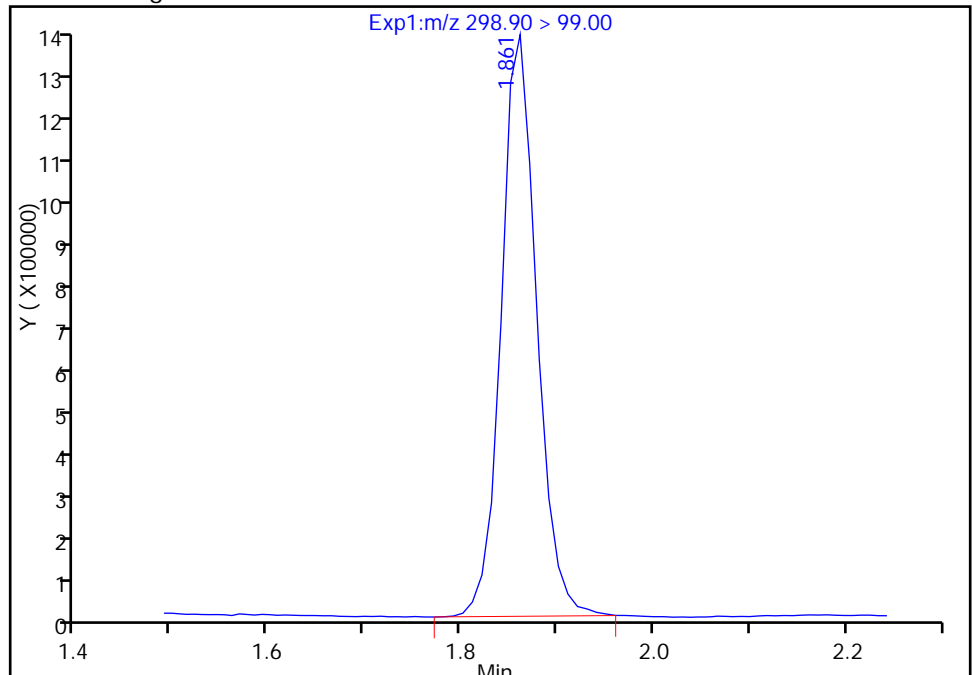
RT: 1.86
Area: 3489913
Amount: 16.197983
Amount Units: ng/ml

Processing Integration Results



RT: 1.86
Area: 3479073
Amount: 16.197983
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 12:25:32
Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4CMW01-0317 Lab Sample ID: 320-26273-4
 Matrix: Water Lab File ID: 2017.03.10B_052.d
 Analysis Method: 537 (Modified) Date Collected: 03/02/2017 15:30
 Extraction Method: 3535 Date Extracted: 03/06/2017 16:19
 Sample wt/vol: 275.1(mL) Date Analyzed: 03/10/2017 23:52
 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)	170	M	2.3	1.8	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	44	M	3.6	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	1.8	0.83

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	78		25-150
STL00991	13C4 PFOS	129		25-150
STL00994	18O2 PFHxS	126		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_052.d
 Lims ID: 320-26273-C-4-A
 Client ID: MEAFF-4CMW01-0317
 Sample Type: Client
 Inject. Date: 10-Mar-2017 23:52:32 ALS Bottle#: 41 Worklist Smp#: 31
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-c-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 12:09:05 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: XAWRK006

First Level Reviewer: changnoit Date: 13-Mar-2017 11:34:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.862	1.852	0.010	1.000	1018928	1.95				
298.90 > 99.00	1.852	1.852	0.0	0.995	419611		2.43(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.469	2.459	0.010		17283949	59.4		126	412255	
D 14 13C4 PFOA										
417.00 > 372.00	2.819	2.801	0.018		7985609	39.0		77.9	243684	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.826	2.809	0.017	1.000	14872283	91.1			113681	M
413.00 > 169.00	2.819	2.809	0.010	0.997	9504444		1.56(0.90-1.10)		225652	M
D 18 13C4 PFOS										
503.00 > 80.00	3.193	3.167	0.026		14908824	61.7		129	259591	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.193	3.175	0.018	1.000	7414331	24.2			90496	M
499.00 > 99.00	3.193	3.175	0.018	1.000	1335921		5.55(0.90-1.10)		20280	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_052.d

Injection Date: 10-Mar-2017 23:52:32

Instrument ID: A8_N

Lims ID: 320-26273-C-4-A

Lab Sample ID: 320-26273-4

Client ID: MEAFF-4CMW01-0317

Operator ID: A8-PC\A8

ALS Bottle#: 41

Worklist Smp#: 31

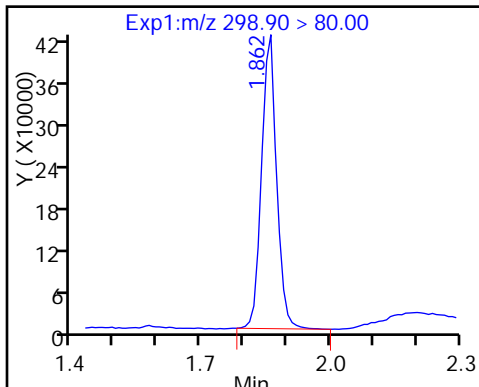
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

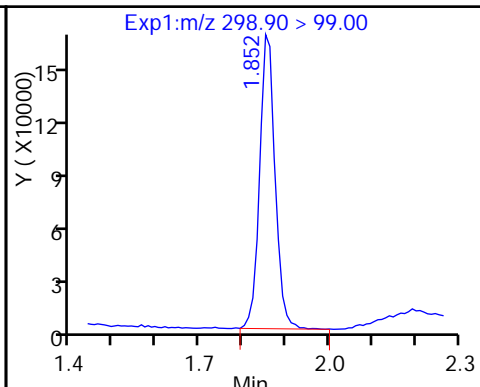
Method: A8_N

Limit Group: LC PFC_DOD ICAL

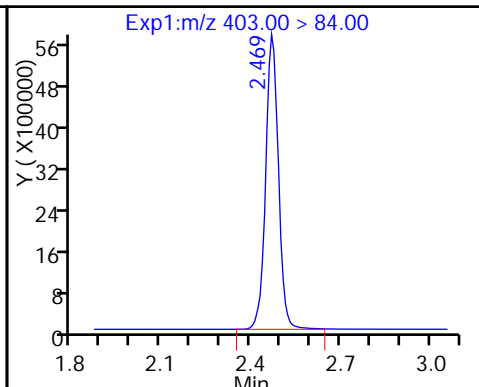
5 Perfluorobutanesulfonic acid



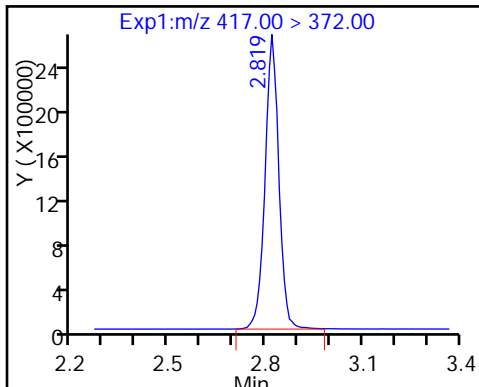
5 Perfluorobutanesulfonic acid



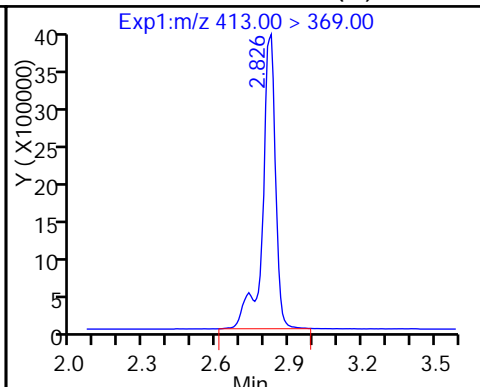
D 11 18O2 PFHxS



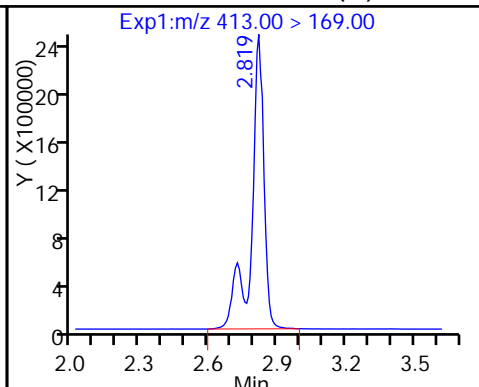
D 14 13C4 PFOA



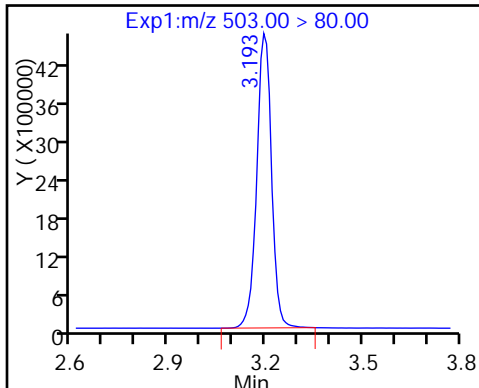
15 Perfluorooctanoic acid (M)



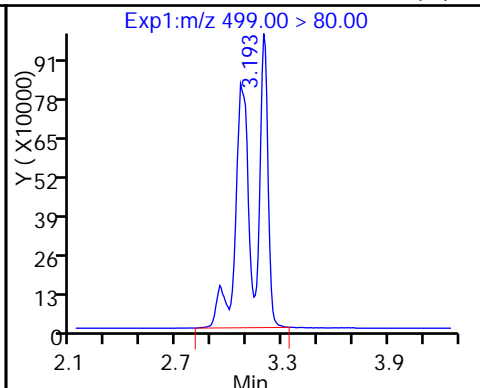
15 Perfluorooctanoic acid (M)



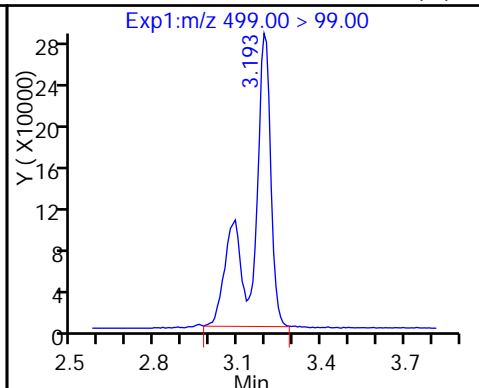
D 18 13C4 PFOS



17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)



TestAmerica Sacramento

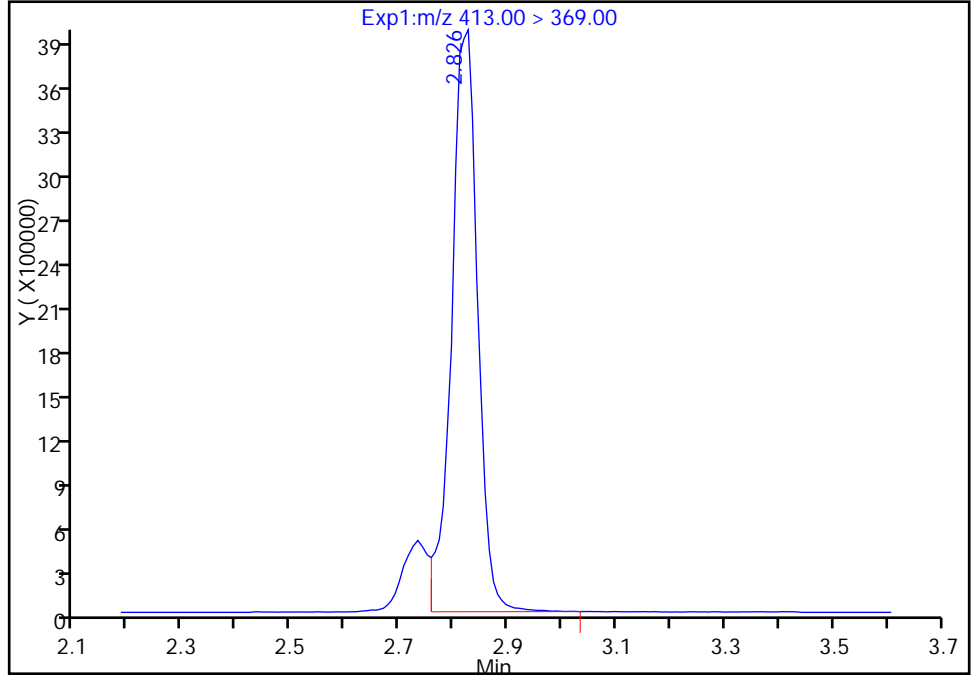
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_052.d
Injection Date: 10-Mar-2017 23:52:32 Instrument ID: A8_N
Lims ID: 320-26273-C-4-A Lab Sample ID: 320-26273-4
Client ID: MEAFF-4CMW01-0317
Operator ID: A8-PC\A8 ALS Bottle#: 41 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

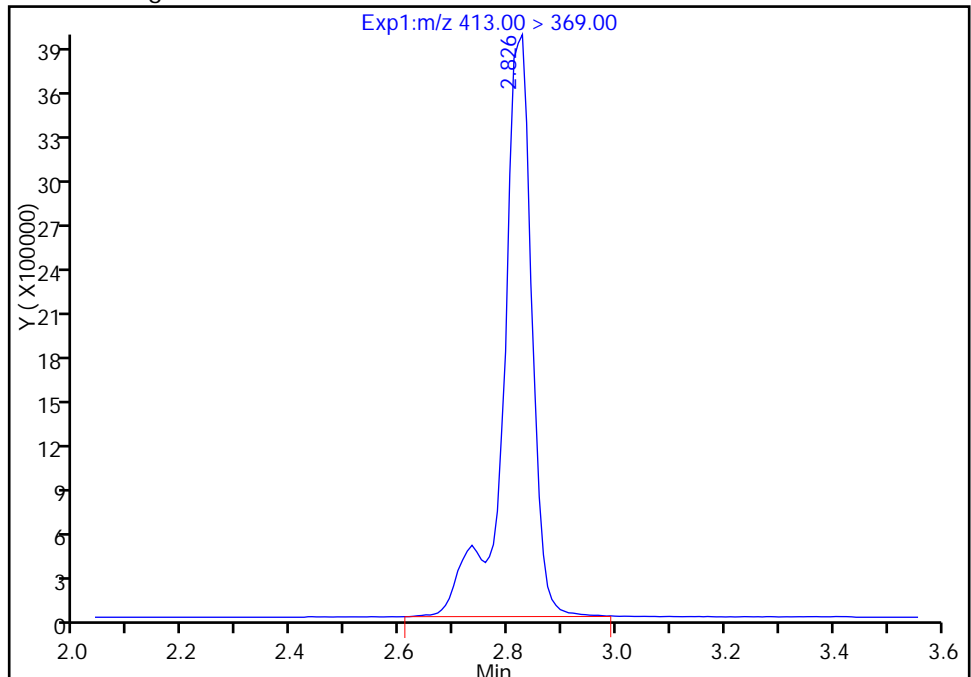
RT: 2.83
Area: 13288108
Amount: 81.436554
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 14872283
Amount: 91.145217
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:10:32
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

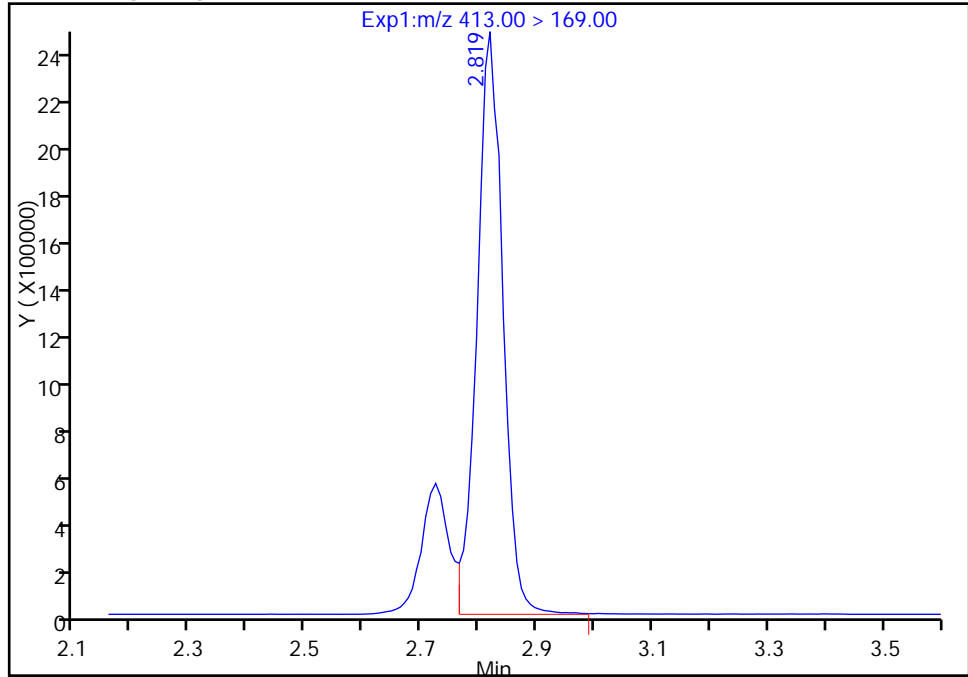
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_052.d
Injection Date: 10-Mar-2017 23:52:32 Instrument ID: A8_N
Lims ID: 320-26273-C-4-A Lab Sample ID: 320-26273-4
Client ID: MEAFF-4CMW01-0317
Operator ID: A8-PC\A8 ALS Bottle#: 41 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

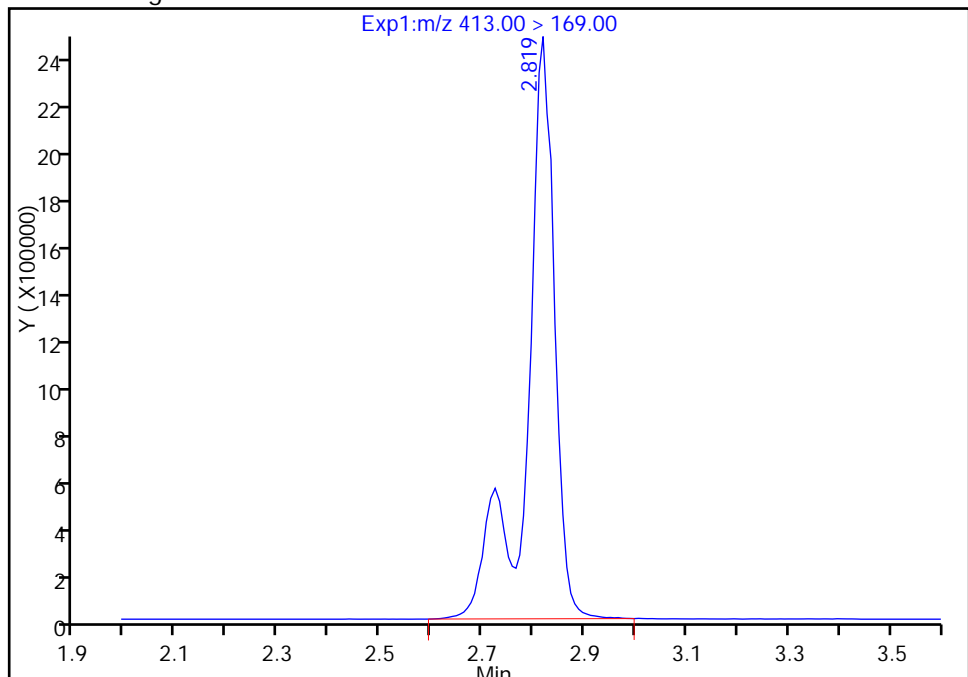
RT: 2.82
Area: 7688070
Amount: 81.436554
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 9504444
Amount: 91.145217
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:10:32

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

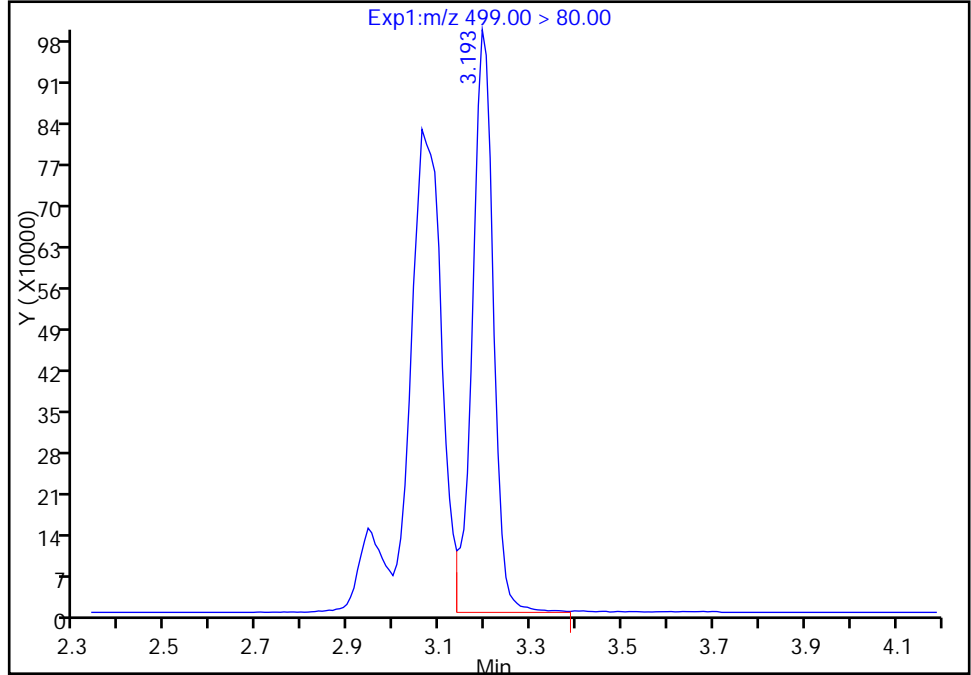
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_052.d
Injection Date: 10-Mar-2017 23:52:32 Instrument ID: A8_N
Lims ID: 320-26273-C-4-A Lab Sample ID: 320-26273-4
Client ID: MEAFF-4CMW01-0317
Operator ID: A8-PC\A8 ALS Bottle#: 41 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

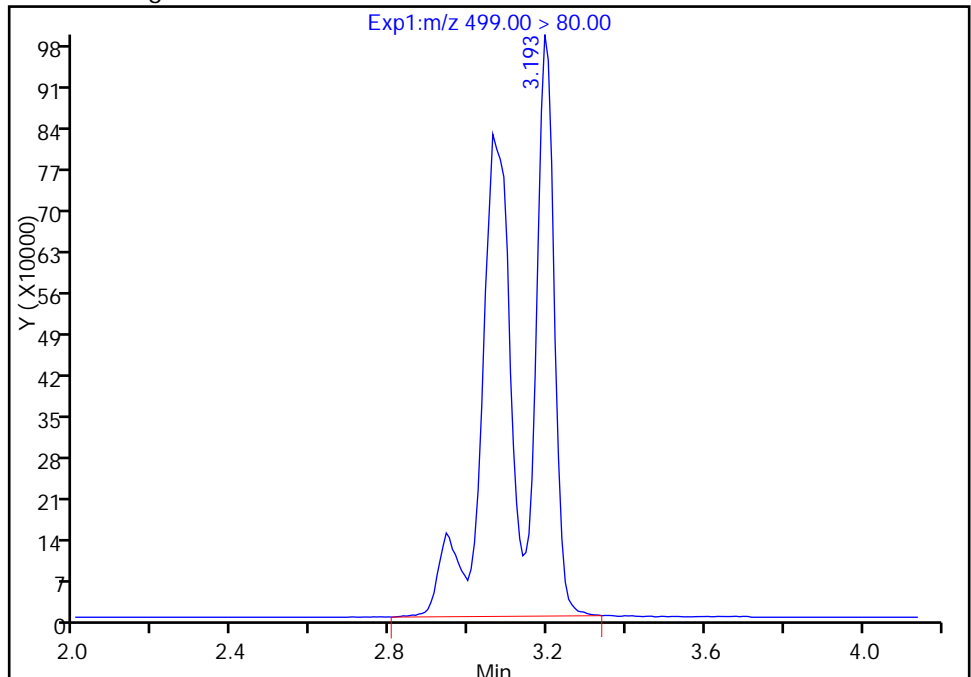
RT: 3.19
Area: 3167639
Amount: 10.326512
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 7414331
Amount: 24.170739
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:10:32
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

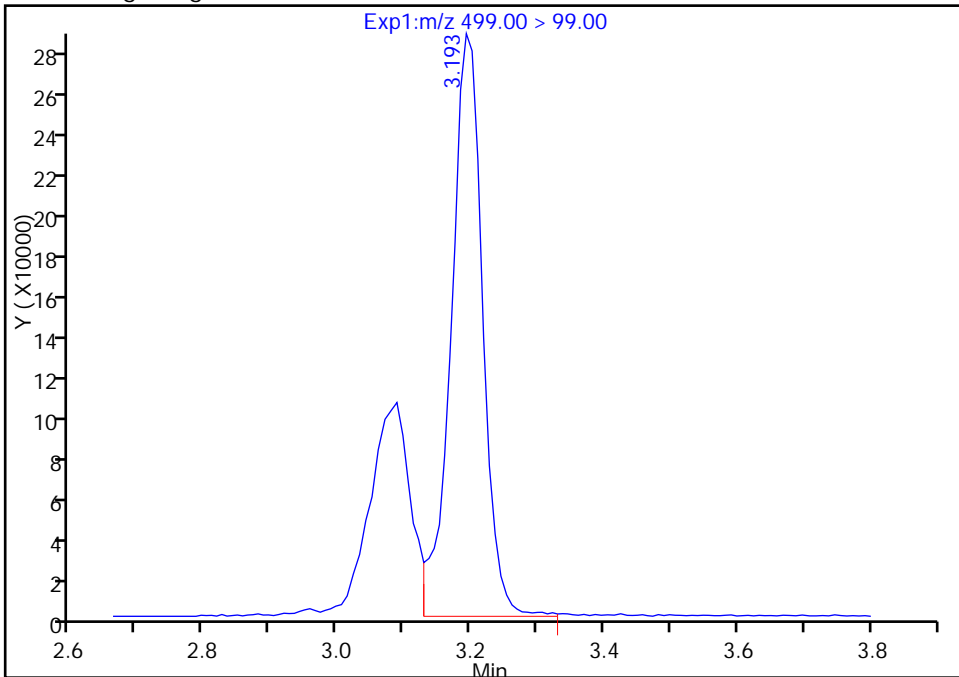
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_052.d
Injection Date: 10-Mar-2017 23:52:32 Instrument ID: A8_N
Lims ID: 320-26273-C-4-A Lab Sample ID: 320-26273-4
Client ID: MEAFF-4CMW01-0317
Operator ID: A8-PC\A8 ALS Bottle#: 41 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

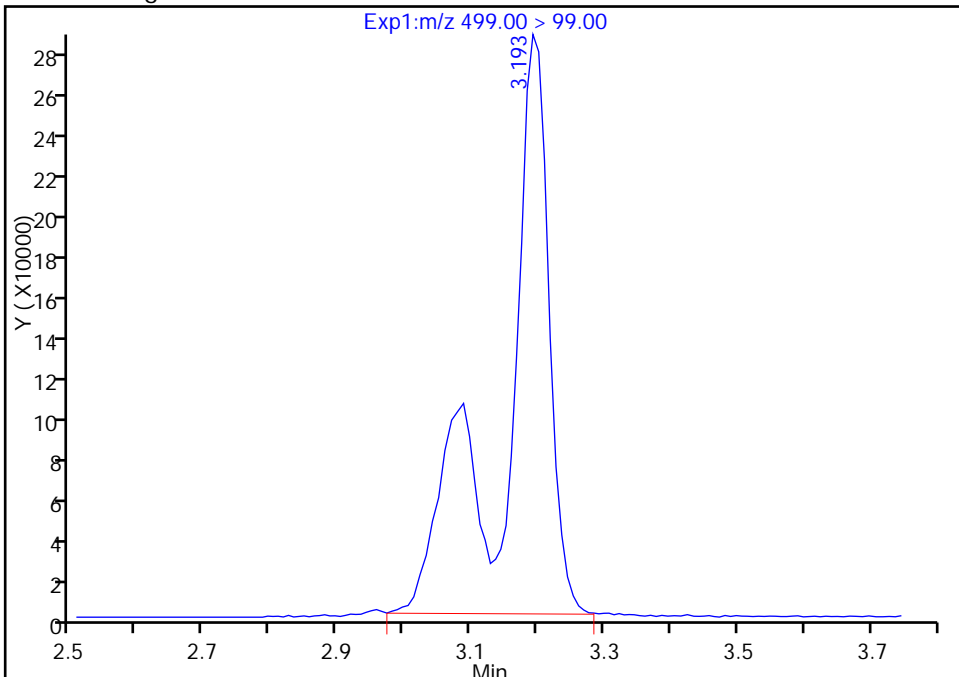
RT: 3.19
Area: 935923
Amount: 10.326512
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 1335921
Amount: 24.170739
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4CMW03-0317 Lab Sample ID: 320-26273-5
 Matrix: Water Lab File ID: 2017.03.10B_053.d
 Analysis Method: 537 (Modified) Date Collected: 03/02/2017 15:50
 Extraction Method: 3535 Date Extracted: 03/06/2017 16:19
 Sample wt/vol: 271.4 (mL) Date Analyzed: 03/11/2017 00:00
 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)	44	M	2.3	1.8	0.69
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.2	M	3.7	2.8	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.6		2.3	1.8	0.85

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	75		25-150
STL00991	13C4 PFOS	118		25-150
STL00994	18O2 PFHxS	116		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_053.d
 Lims ID: 320-26273-C-5-A
 Client ID: MEAFF-4CMW03-0317
 Sample Type: Client
 Inject. Date: 11-Mar-2017 00:00:02 ALS Bottle#: 42 Worklist Smp#: 32
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-c-5-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 12:09:05 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: XAWRK006

First Level Reviewer: changnoit Date: 13-Mar-2017 11:34:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.853	1.852	0.001	1.000	686613	1.42				
298.90 > 99.00	1.853	1.852	0.001	1.000	273481		2.51(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.467	2.459	0.008		15997336	55.0		116	427489	
D 14 13C4 PFOA										
417.00 > 372.00	2.817	2.801	0.016		7697087	37.6		75.1	275286	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.825	2.809	0.016	1.000	3738623	23.8			30939	M
413.00 > 169.00	2.817	2.809	0.008	0.997	2374986		1.57(0.90-1.10)		45875	M
D 18 13C4 PFOS										
503.00 > 80.00	3.192	3.167	0.025		13619204	56.4		118	300109	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.059	3.175	-0.116	1.000	1246294	4.45			22240	M
499.00 > 99.00	3.183	3.175	0.008	1.041	187348		6.65(0.90-1.10)		5693	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_053.d

Injection Date: 11-Mar-2017 00:00:02

Instrument ID: A8_N

Lims ID: 320-26273-C-5-A

Lab Sample ID: 320-26273-5

Client ID: MEAFF-4CMW03-0317

Operator ID: A8-PC\A8

ALS Bottle#: 42

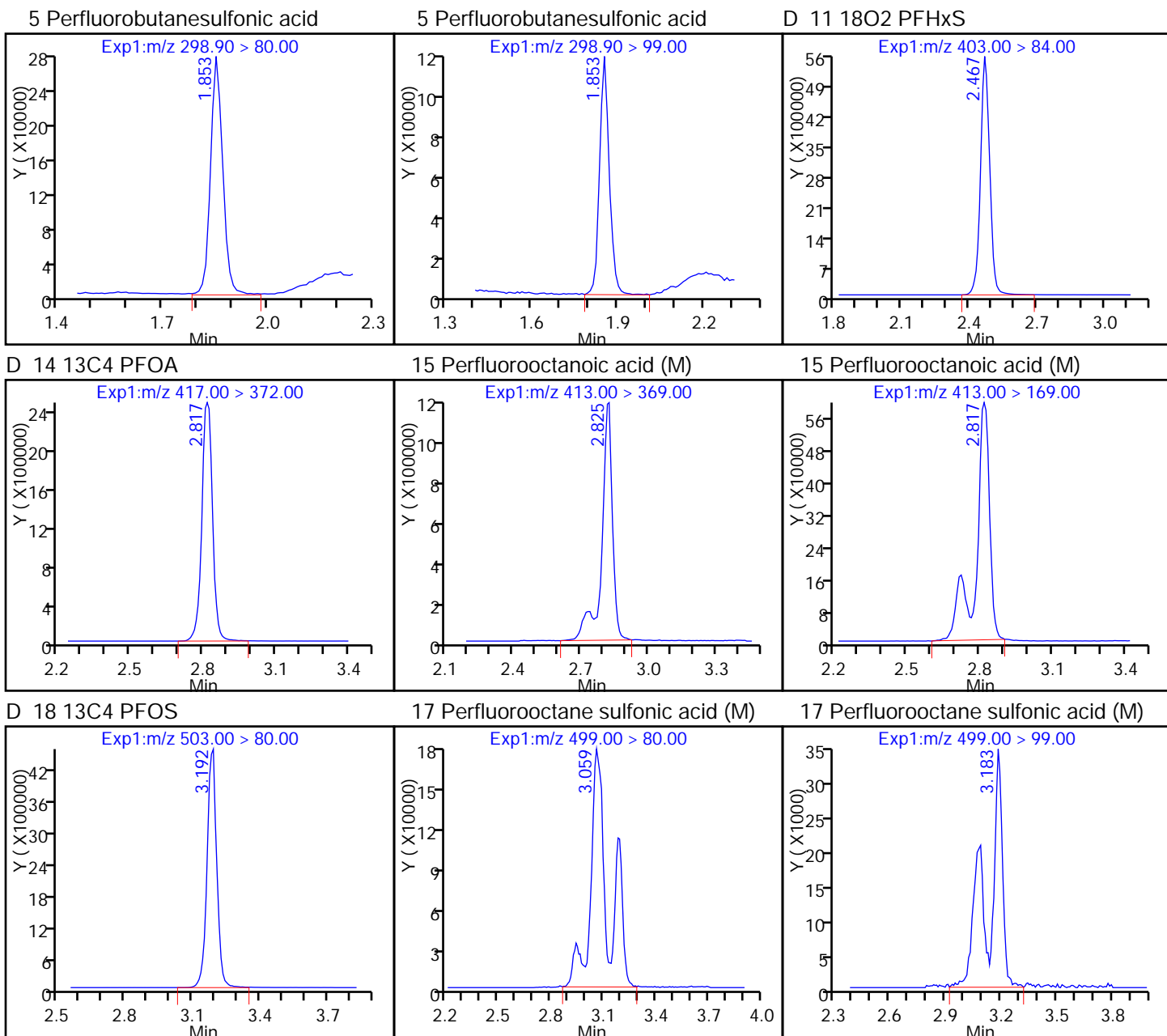
Worklist Smp#: 32

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL



TestAmerica Sacramento

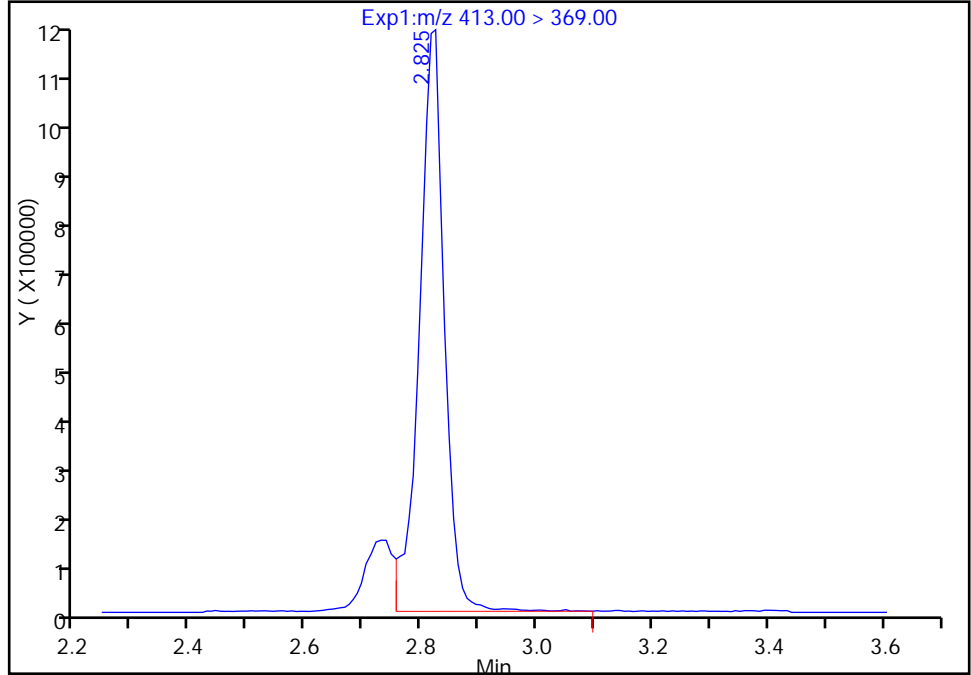
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_053.d
Injection Date: 11-Mar-2017 00:00:02 Instrument ID: A8_N
Lims ID: 320-26273-C-5-A Lab Sample ID: 320-26273-5
Client ID: MEAFF-4CMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 42 Worklist Smp#: 32
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

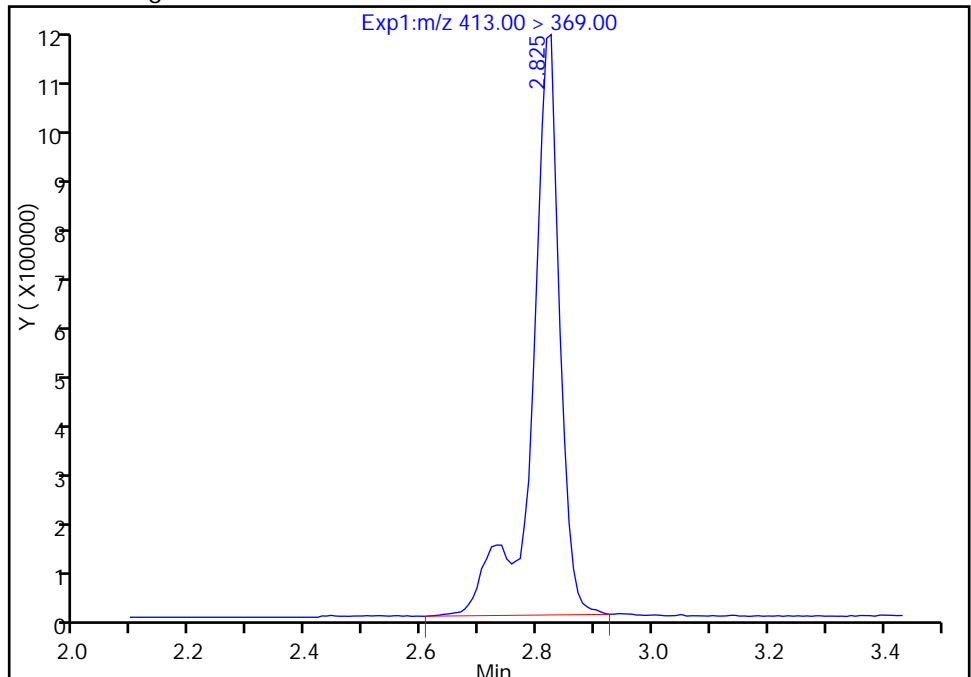
RT: 2.82
Area: 3326985
Amount: 21.153816
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 3738623
Amount: 23.771115
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:11:11
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

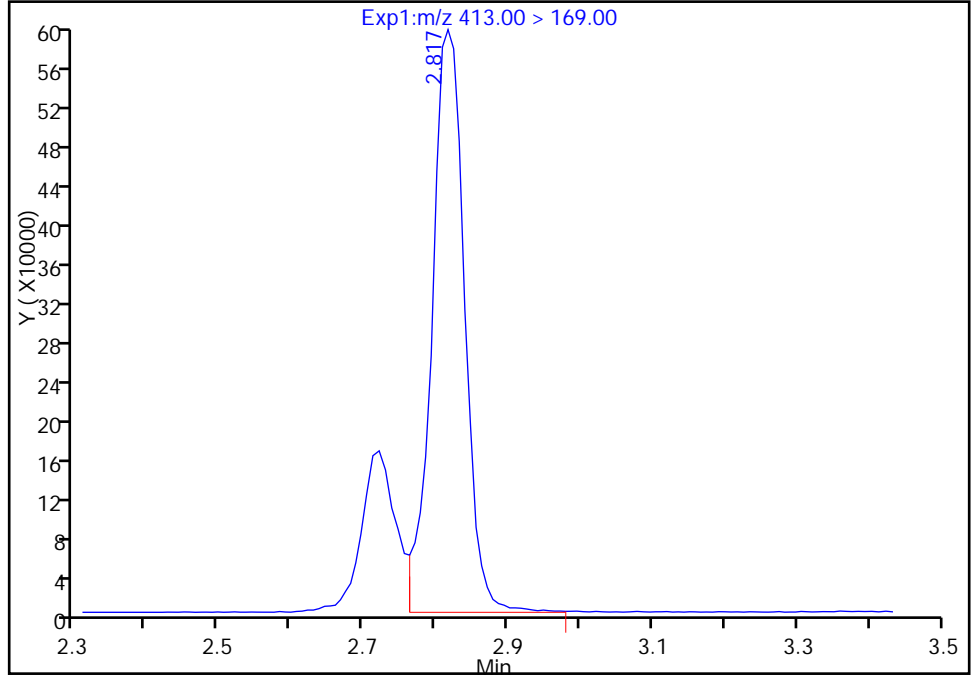
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_053.d
Injection Date: 11-Mar-2017 00:00:02 Instrument ID: A8_N
Lims ID: 320-26273-C-5-A Lab Sample ID: 320-26273-5
Client ID: MEAFF-4CMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 42 Worklist Smp#: 32
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

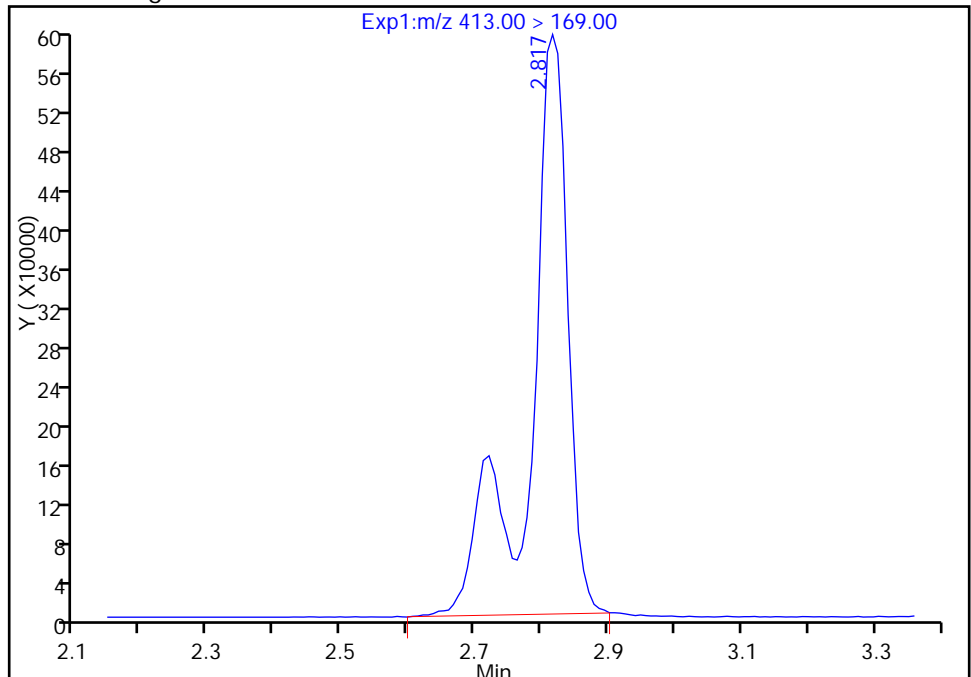
RT: 2.82
Area: 1880563
Amount: 21.153816
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 2374986
Amount: 23.771115
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:11:11

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

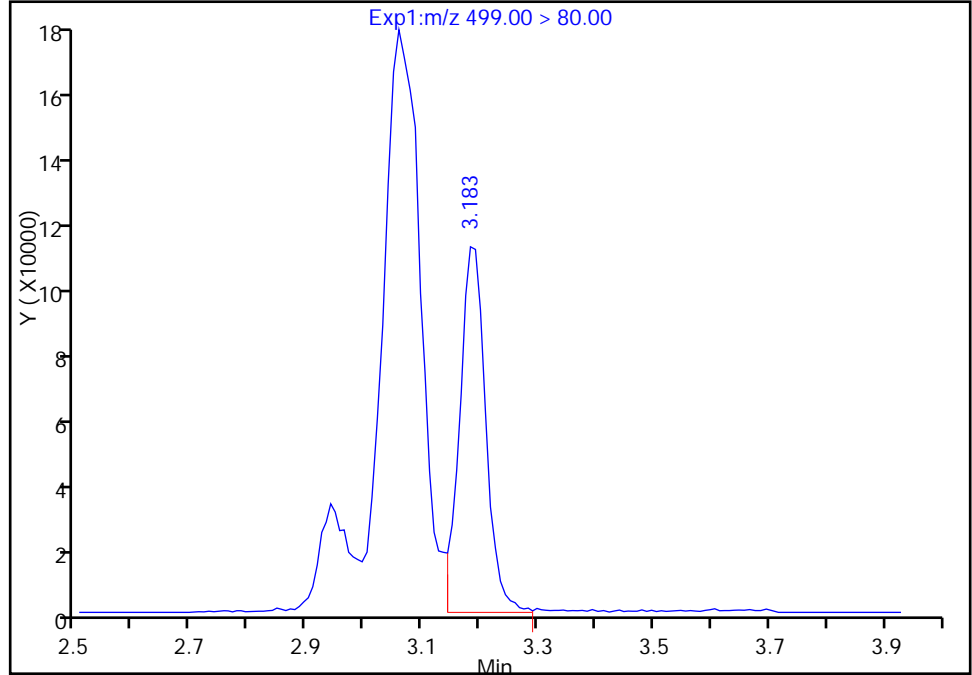
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_053.d
Injection Date: 11-Mar-2017 00:00:02 Instrument ID: A8_N
Lims ID: 320-26273-C-5-A Lab Sample ID: 320-26273-5
Client ID: MEAFF-4CMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 42 Worklist Smp#: 32
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

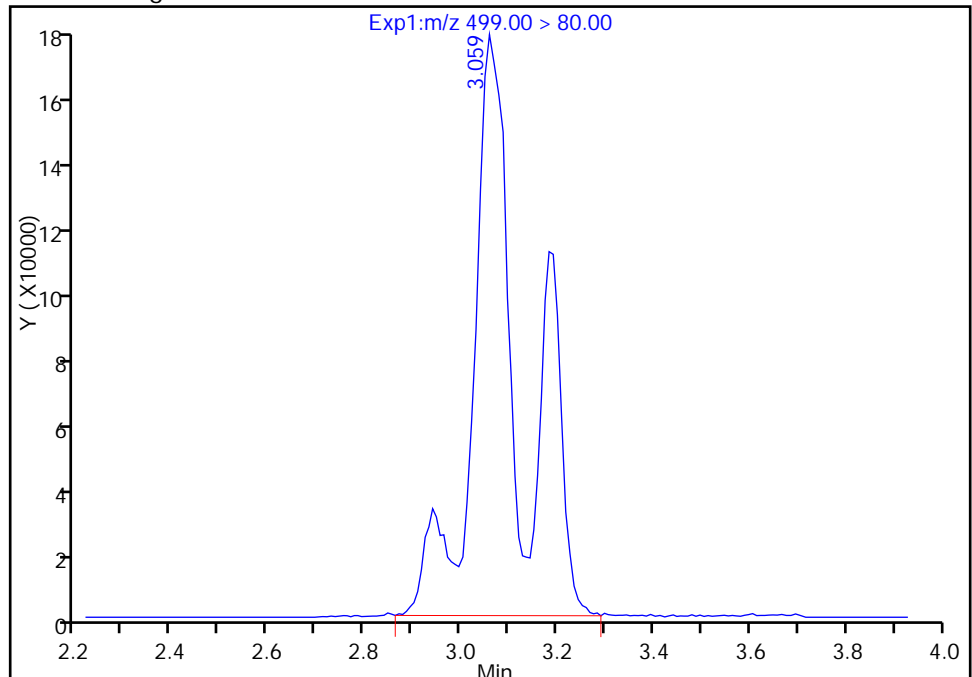
RT: 3.18
Area: 349418
Amount: 1.246967
Amount Units: ng/ml

Processing Integration Results



RT: 3.06
Area: 1246294
Amount: 4.447645
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 12:11:11
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

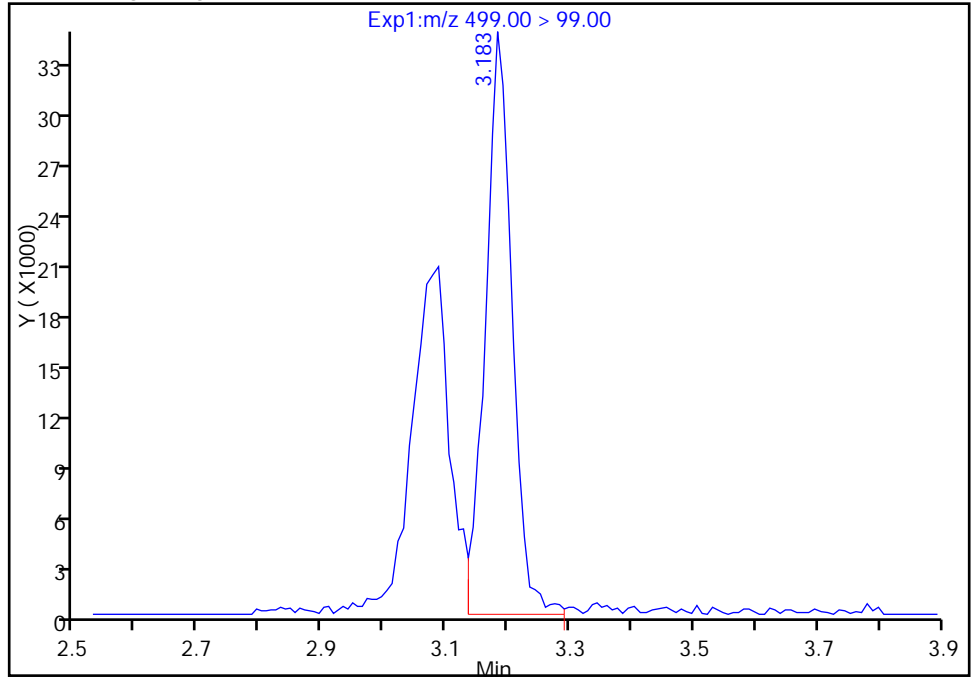
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_053.d
Injection Date: 11-Mar-2017 00:00:02 Instrument ID: A8_N
Lims ID: 320-26273-C-5-A Lab Sample ID: 320-26273-5
Client ID: MEAFF-4CMW03-0317
Operator ID: A8-PC\A8 ALS Bottle#: 42 Worklist Smp#: 32
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

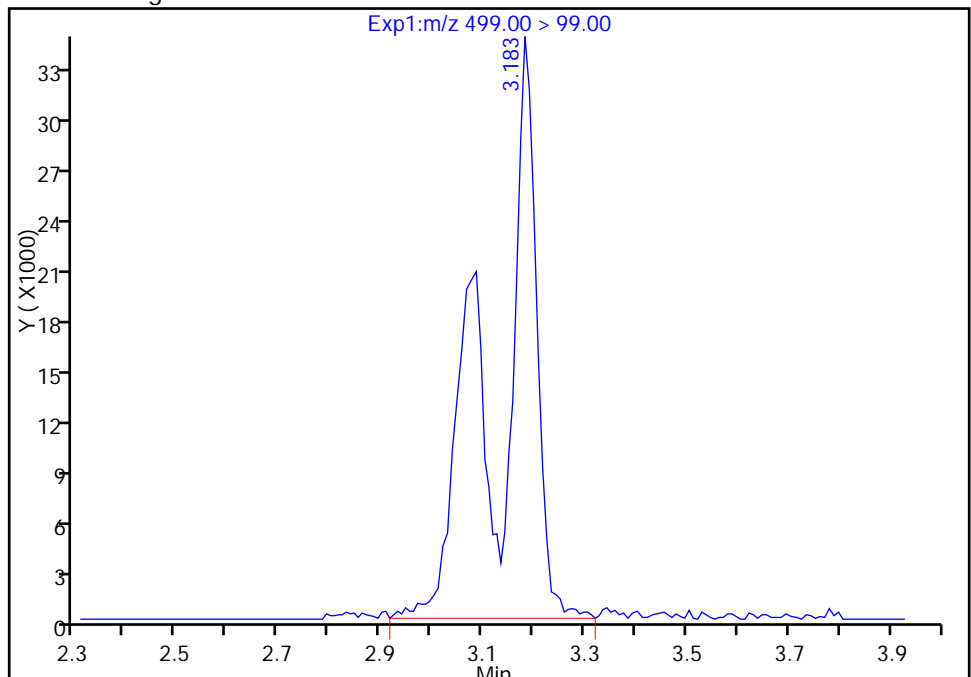
RT: 3.18
Area: 101202
Amount: 1.246967
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 187348
Amount: 4.447645
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 27-Mar-2017 12:11:11

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-FD05-0317 Lab Sample ID: 320-26273-6
 Matrix: Water Lab File ID: 2017.03.10B_054.d
 Analysis Method: 537 (Modified) Date Collected: 03/02/2017 00:00
 Extraction Method: 3535 Date Extracted: 03/06/2017 16:19
 Sample wt/vol: 275.8 (mL) Date Analyzed: 03/11/2017 00:07
 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)	160	M	2.3	1.8	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	42	M	3.6	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	1.8	0.83

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	70		25-150
STL00991	13C4 PFOS	116		25-150
STL00994	18O2 PFHxS	114		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_054.d
 Lims ID: 320-26273-C-6-A
 Client ID: MEAFF-FD05-0317
 Sample Type: Client
 Inject. Date: 11-Mar-2017 00:07:31 ALS Bottle#: 43 Worklist Smp#: 33
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26273-c-6-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 12:09:05 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: XAWRK006

First Level Reviewer: changnoit Date: 13-Mar-2017 11:35:17

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	1.842	1.852	-0.010	1.000	912855	1.92				
298.90 > 99.00	1.842	1.852	-0.010	1.000	366925		2.49(0.00-0.00)			
D 11 18O2 PFHxS										
403.00 > 84.00	2.455	2.459	-0.004		15672258	53.9		114	364246	
D 14 13C4 PFOA										
417.00 > 372.00	2.797	2.801	-0.004		7150176	34.9		69.8	235623	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.805	2.809	-0.004	1.000	13184175	90.2			89987	M
413.00 > 169.00	2.797	2.809	-0.012	0.997	8445967		1.56(0.90-1.10)		159546	M
D 18 13C4 PFOS										
503.00 > 80.00	3.162	3.167	-0.005		13343076	55.2		116	305161	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.170	3.175	-0.005	1.000	6312401	23.0			55750	M
499.00 > 99.00	3.162	3.175	-0.013	0.998	1181723		5.34(0.90-1.10)		82065	M

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_054.d

Injection Date: 11-Mar-2017 00:07:31

Instrument ID: A8_N

Lims ID: 320-26273-C-6-A

Lab Sample ID: 320-26273-6

Client ID: MEAFF-FD05-0317

Operator ID: A8-PC\A8

ALS Bottle#: 43

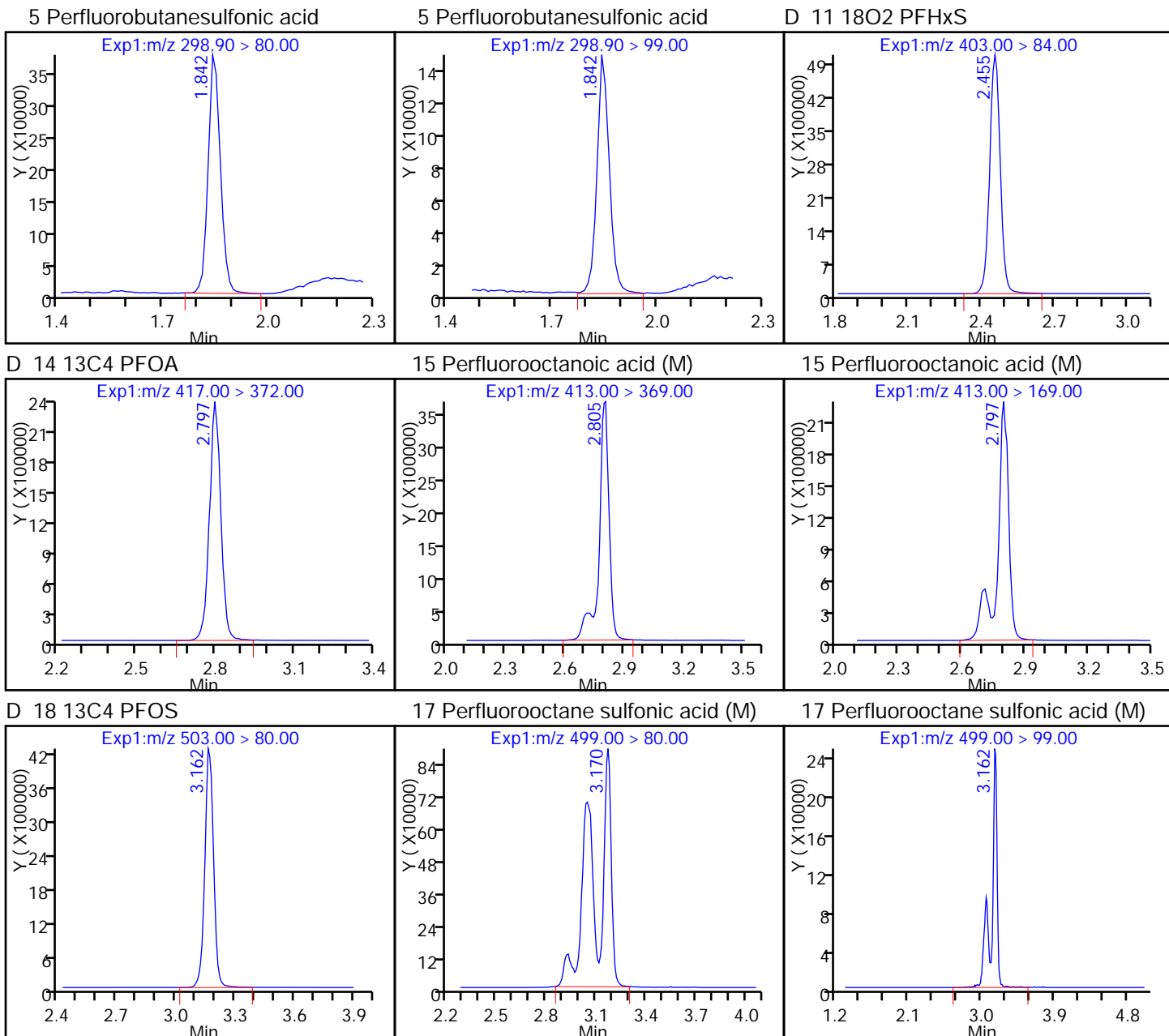
Worklist Smp#: 33

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8_N

Limit Group: LC PFC_DOD ICAL



TestAmerica Sacramento

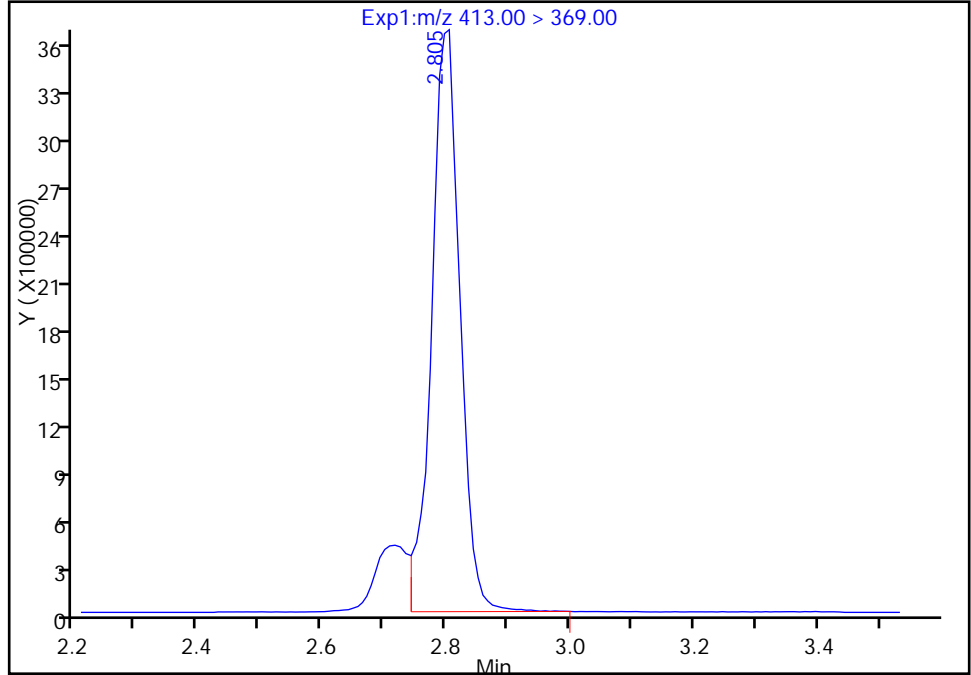
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_054.d
Injection Date: 11-Mar-2017 00:07:31 Instrument ID: A8_N
Lims ID: 320-26273-C-6-A Lab Sample ID: 320-26273-6
Client ID: MEAFF-FD05-0317
Operator ID: A8-PC\A8 ALS Bottle#: 43 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

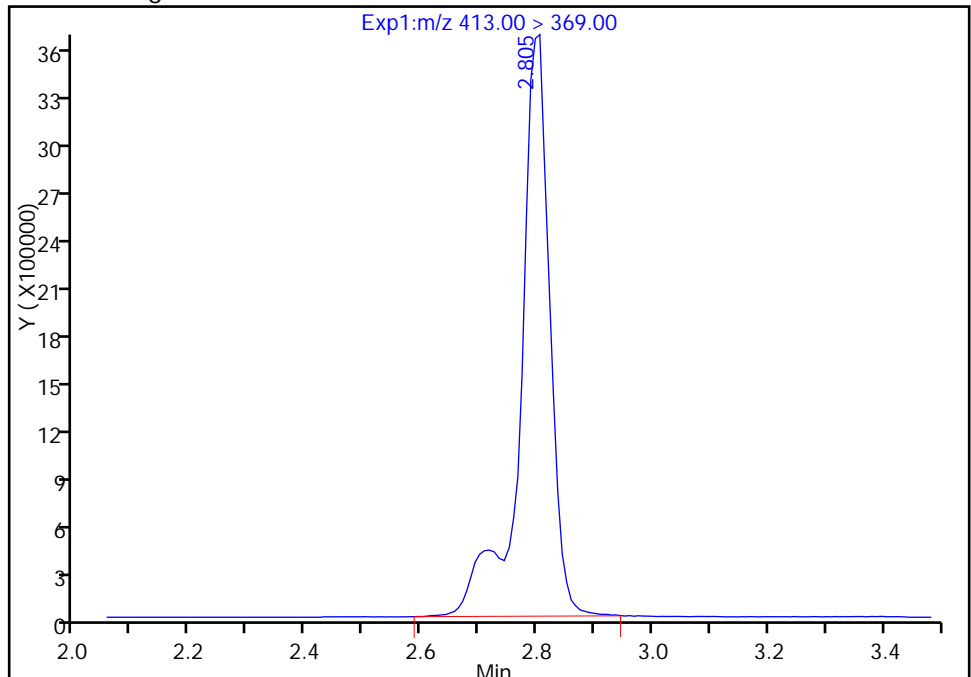
RT: 2.80
Area: 11671589
Amount: 79.887262
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 13184175
Amount: 90.240296
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:11:20
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

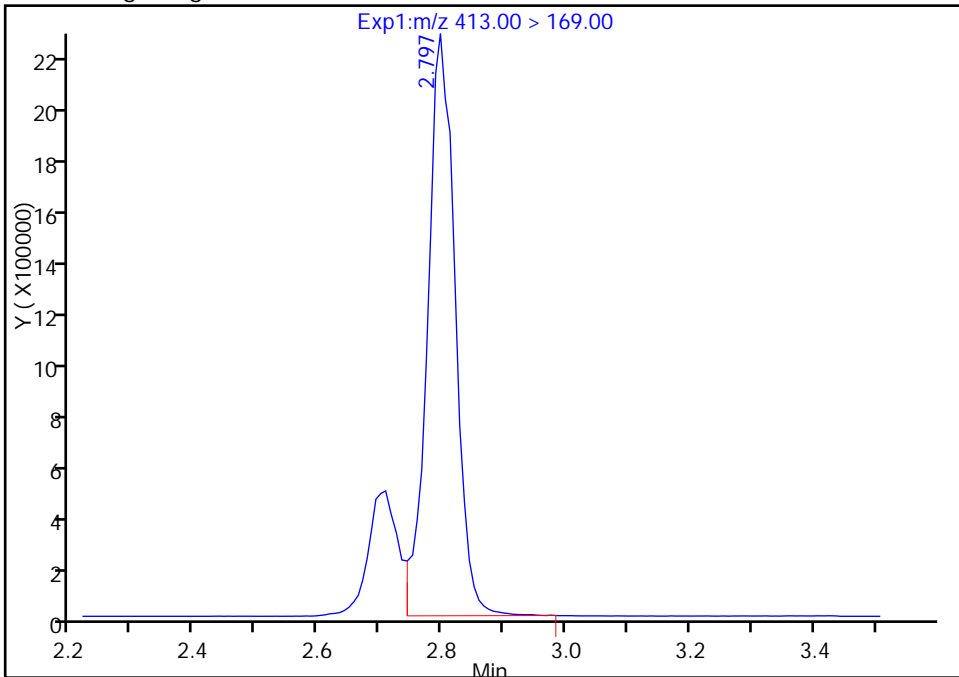
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_054.d
Injection Date: 11-Mar-2017 00:07:31 Instrument ID: A8_N
Lims ID: 320-26273-C-6-A Lab Sample ID: 320-26273-6
Client ID: MEAFF-FD05-0317
Operator ID: A8-PC\A8 ALS Bottle#: 43 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

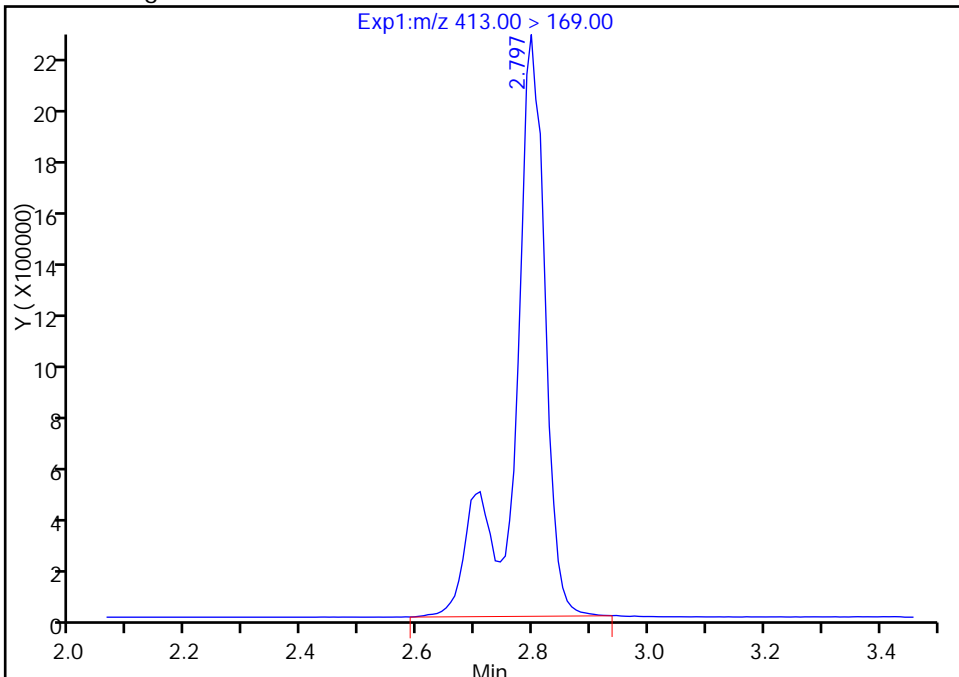
RT: 2.80
Area: 6876575
Amount: 79.887262
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 8445967
Amount: 90.240296
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:11:20

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

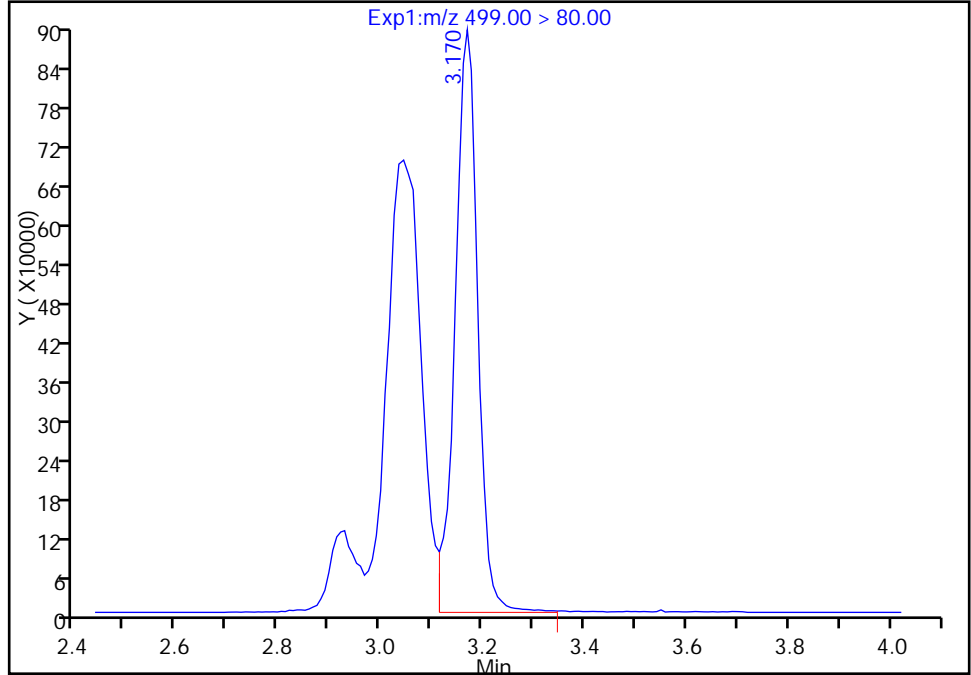
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_054.d
Injection Date: 11-Mar-2017 00:07:31 Instrument ID: A8_N
Lims ID: 320-26273-C-6-A Lab Sample ID: 320-26273-6
Client ID: MEAFF-FD05-0317
Operator ID: A8-PC\A8 ALS Bottle#: 43 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

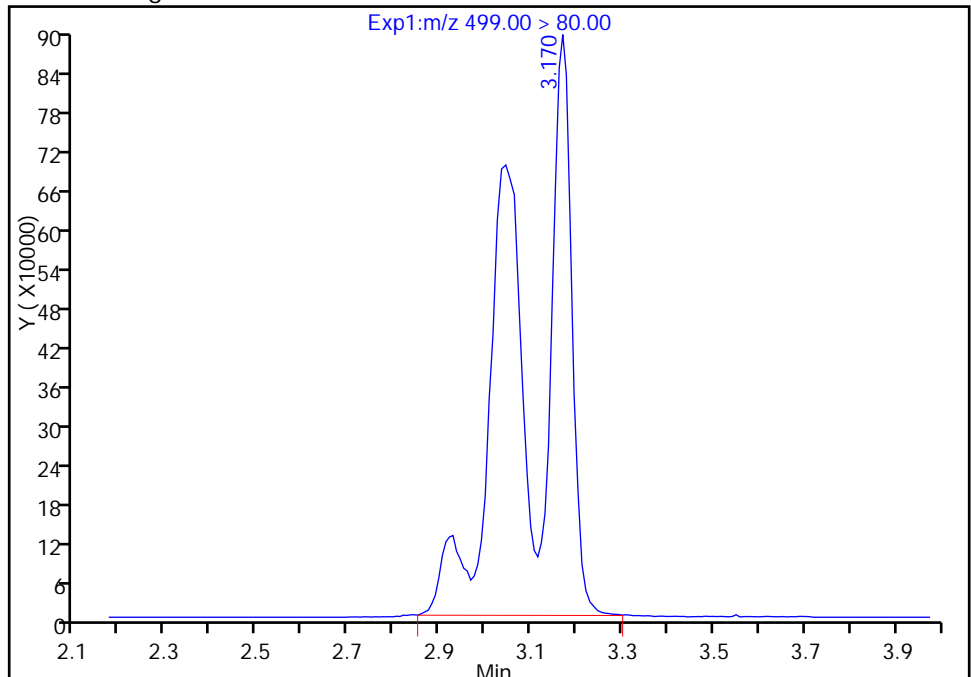
RT: 3.17
Area: 2732202
Amount: 9.952179
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 6312401
Amount: 22.993229
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 27-Mar-2017 12:11:20
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

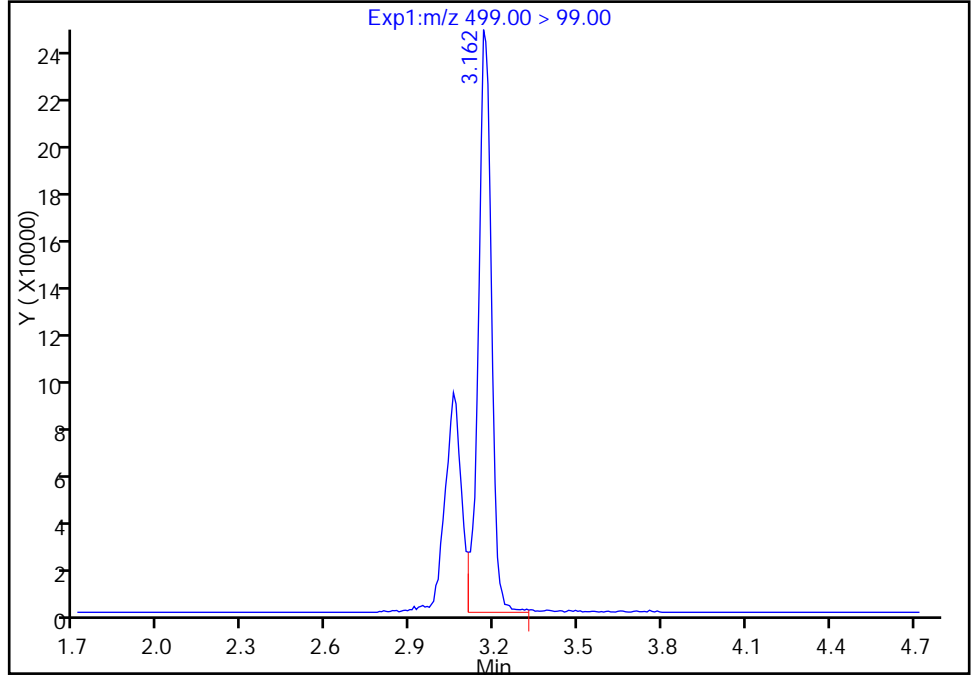
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_054.d
Injection Date: 11-Mar-2017 00:07:31 Instrument ID: A8_N
Lims ID: 320-26273-C-6-A Lab Sample ID: 320-26273-6
Client ID: MEAFF-FD05-0317
Operator ID: A8-PC\A8 ALS Bottle#: 43 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

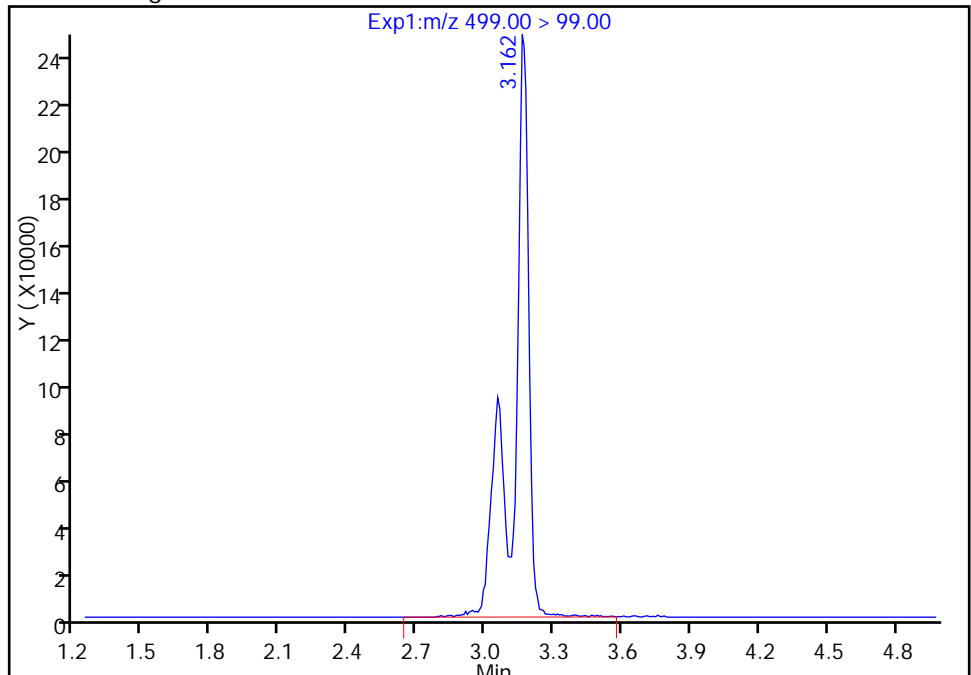
RT: 3.16
Area: 794684
Amount: 9.952179
Amount Units: ng/ml

Processing Integration Results



RT: 3.16
Area: 1181723
Amount: 22.993229
Amount Units: ng/ml

Manual Integration Results



FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1 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
Perfluorohehexanesulfonic 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.: 320-26273-1 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.: 320-26273-1 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.: 320-26273-1 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.: 320-26273-1 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.: 320-26273-1 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 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6																
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.: 320-26273-1 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.: 320-26273-1 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.: 320-26273-1 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
Perfluoroheptanoic 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
Perfluoroheptanesulfonic 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.: 320-26273-1 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
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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	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	123967	0.5195		104	1065	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.883	1.872	0.011	194922	0.4478		101		
	298.90 > 99.00	1.883	1.872	0.011	77860		2.50(0.00-0.00)	101		
6 Perfluorohexanoic acid	313.00 > 269.00	2.139	2.133	0.006	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	103569	0.5446		109	891	
D 9 13C4-PFHpA	367.00 > 322.00	2.491	2.475	0.016	9831264	50.9		102	345749	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.506	2.485	0.021	182218	0.5830		128		M
										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	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

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

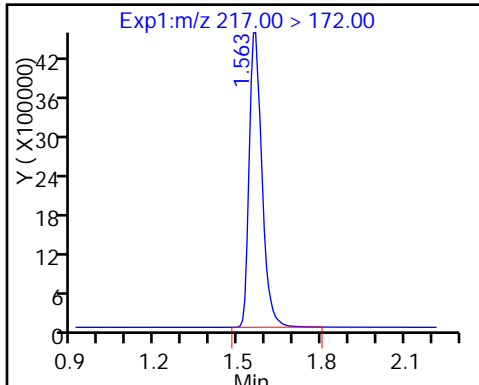
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

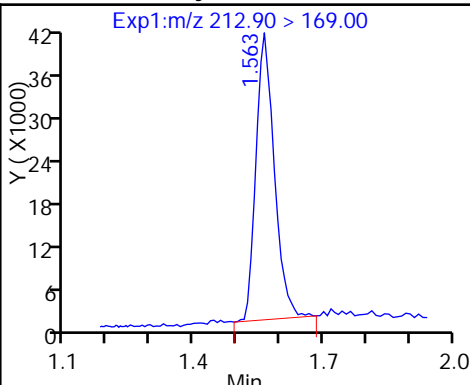
Method: A8_N

Limit Group: LC PFC_DOD ICAL

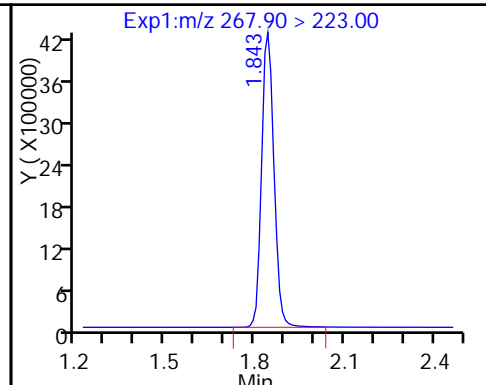
D 1 13C4 PFBA



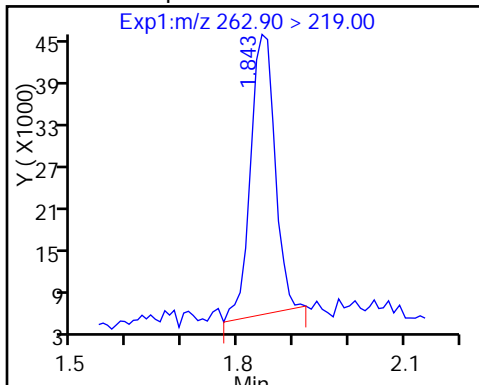
2 Perfluorobutyric acid



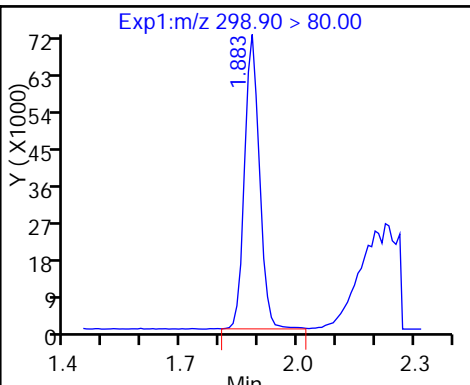
D 3 13C5-PFPeA



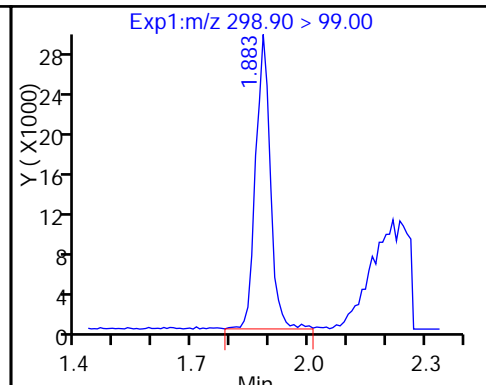
4 Perfluoropentanoic acid



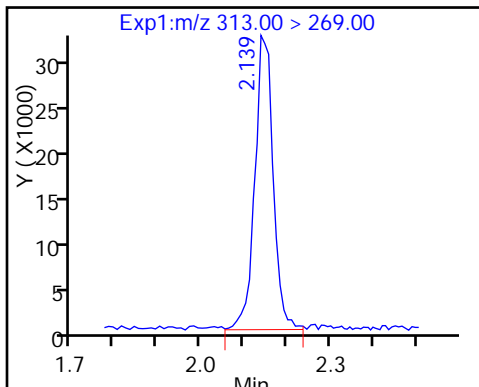
5 Perfluorobutanesulfonic acid



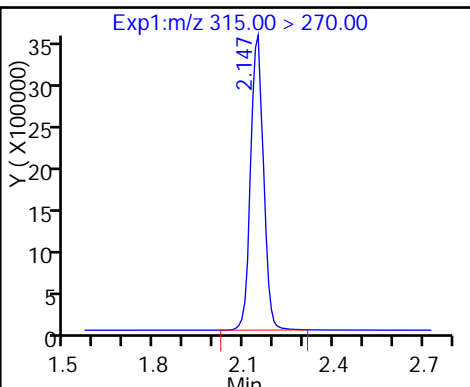
5 Perfluorobutanesulfonic acid



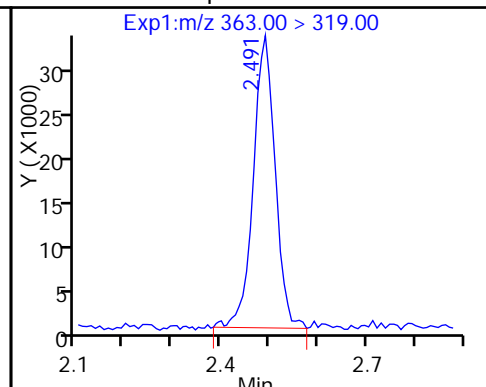
6 Perfluorohexanoic acid



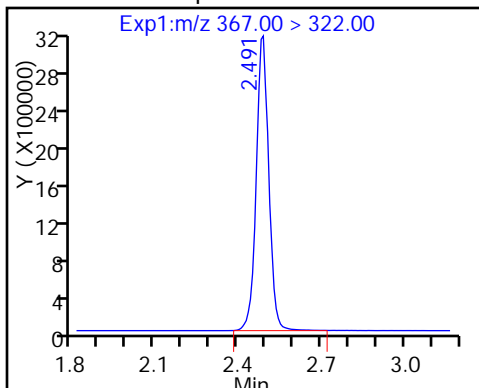
D 7 13C2 PFHxA



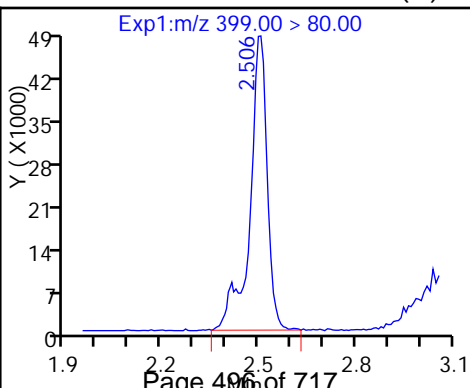
10 Perfluoroheptanoic acid



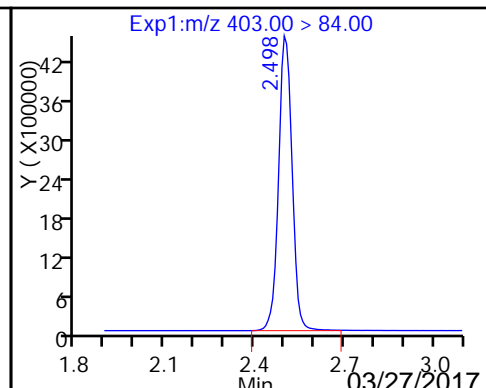
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid (M)

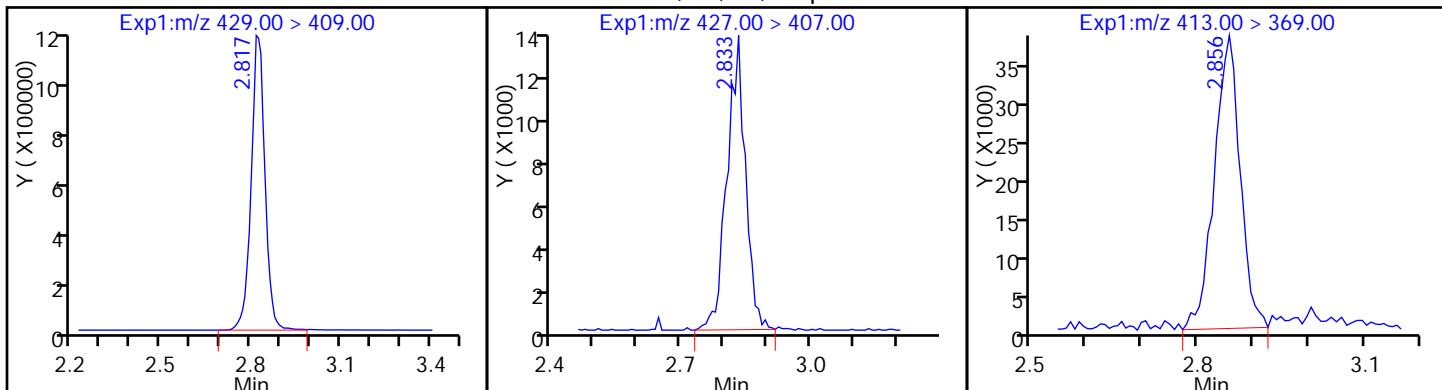


D 11 18O2 PFHxS



D 12 M2-6:2FTS

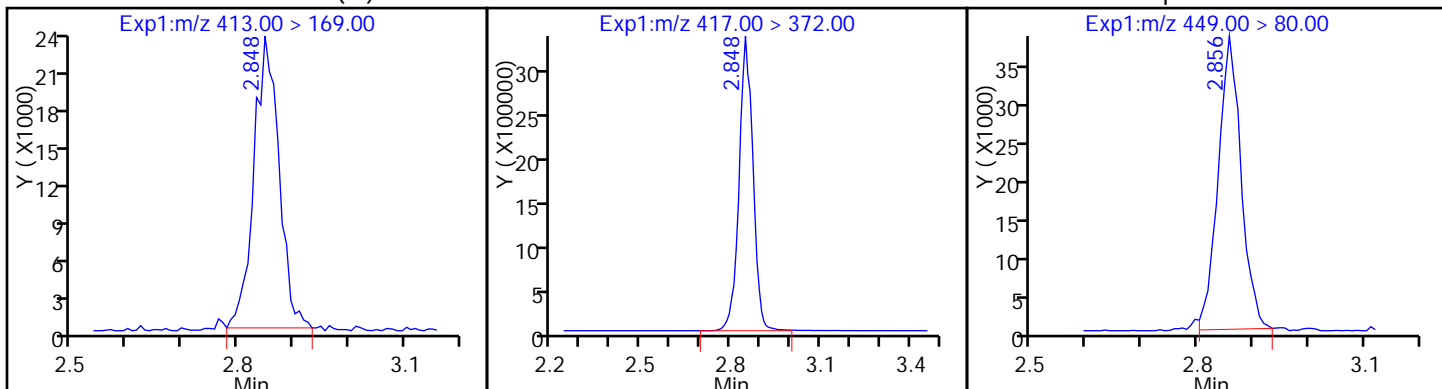
13 Sodium 1H,1H,2H,2H-perfluorooctane15 Perfluorooctanoic acid



15 Perfluorooctanoic acid (M)

D 14 13C4 PFOA

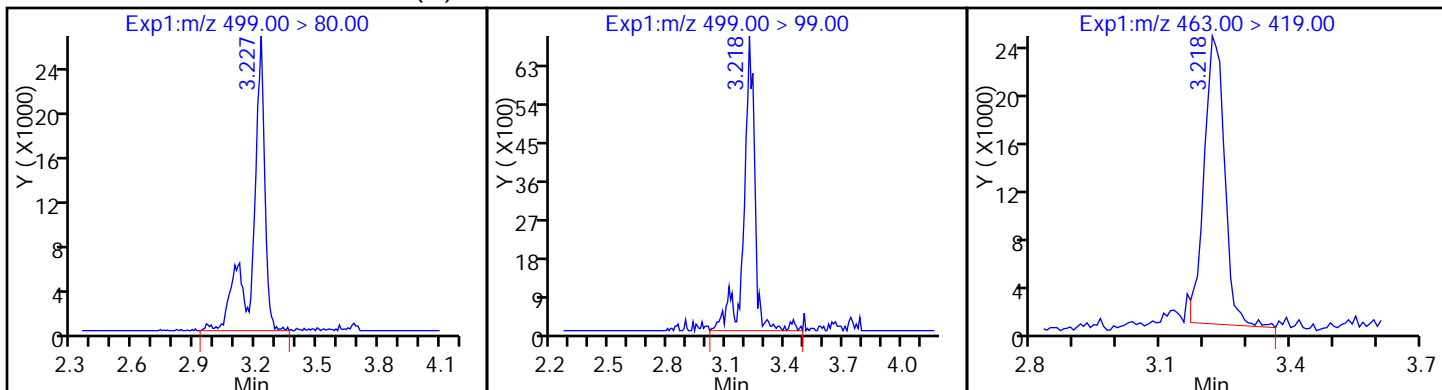
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid

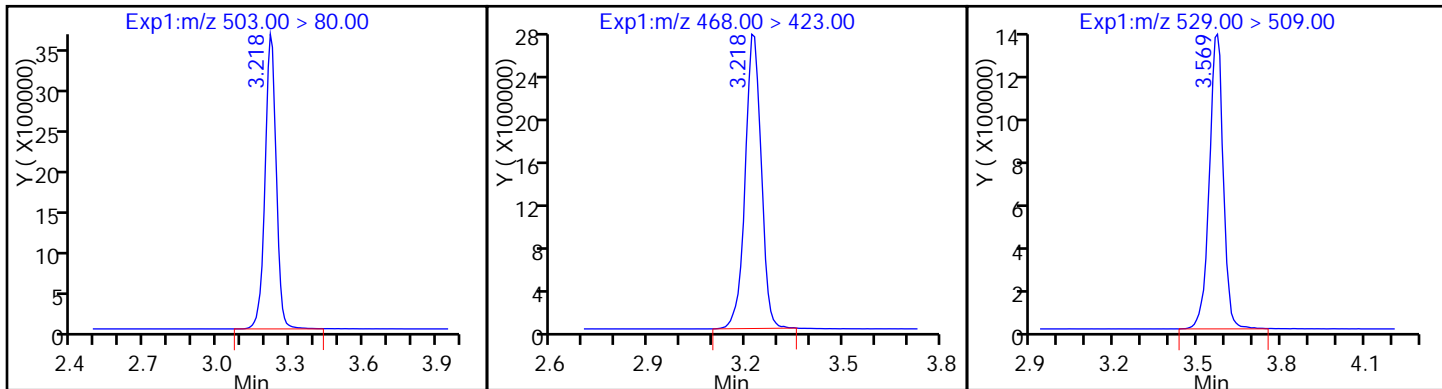
20 Perfluorononanoic acid



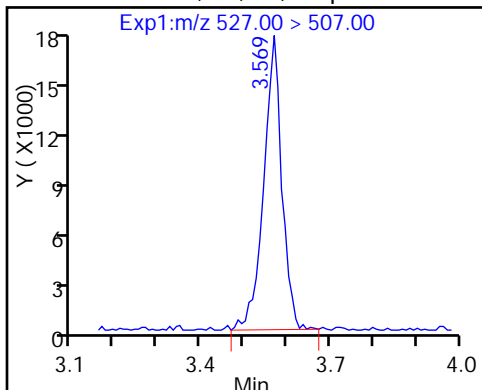
D 18 13C4 PFOS

D 19 13C5 PFNA

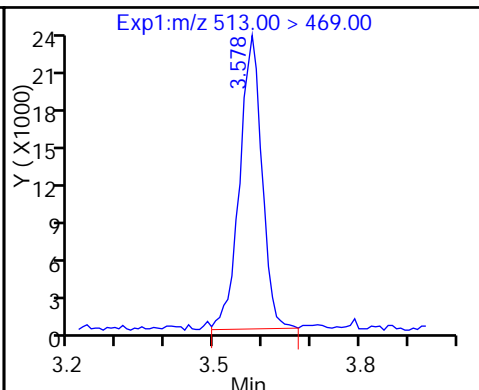
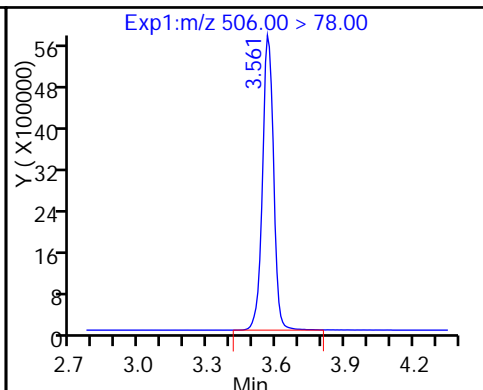
D 26 M2-8:2FTS



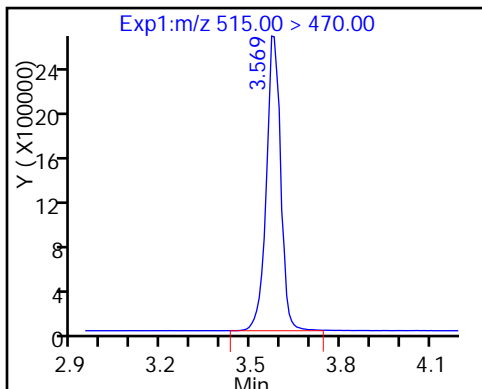
25 Sodium 1H,1H,2H,2H-perfluorooctanoate



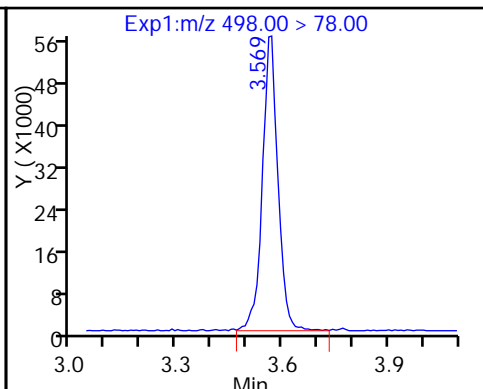
24 Perfluorodecanoic acid



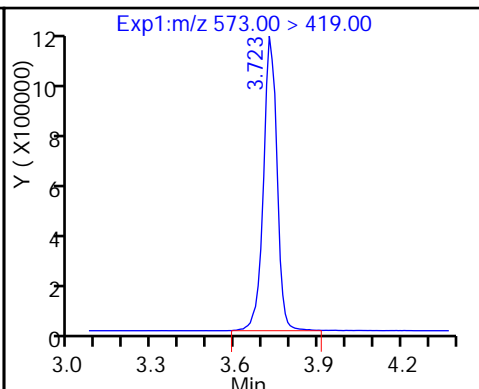
D 23 13C2 PFDA



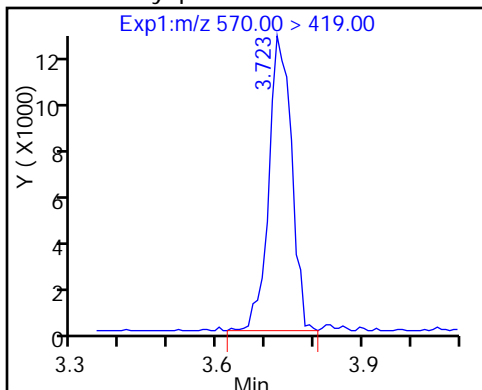
22 Perfluorooctane Sulfonamide



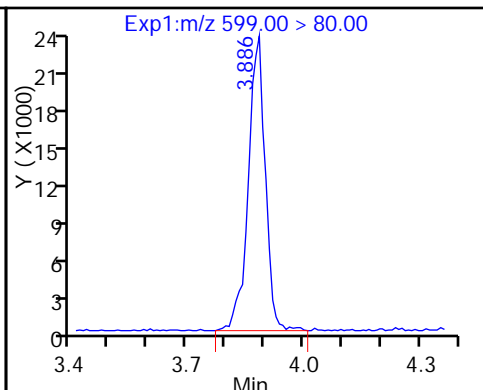
D 27 d3-NMeFOSAA



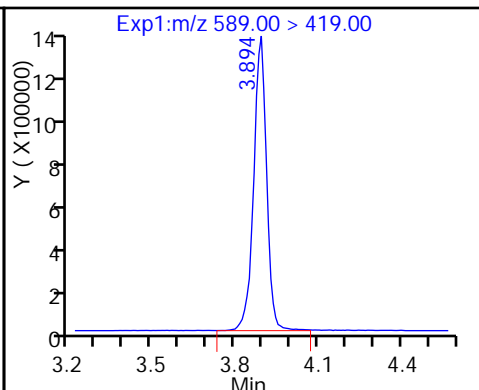
28 N-methyl perfluorooctane sulfonami



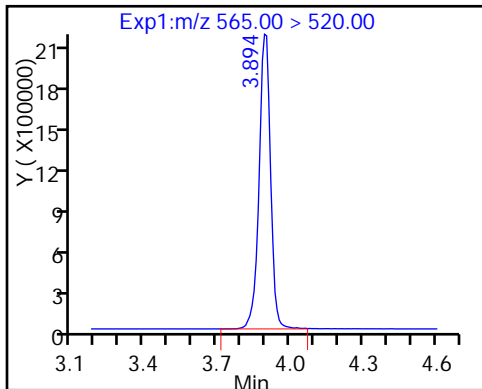
29 Perfluorodecane Sulfonic acid



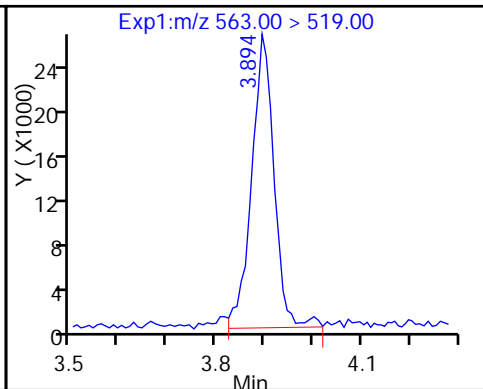
D 32 d5-NEtFOSAA



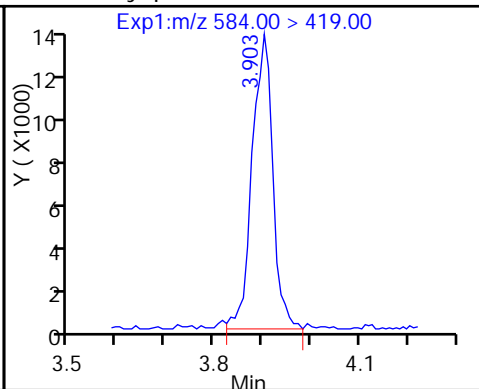
D 30 13C2 PFUnA



31 Perfluoroundecanoic acid



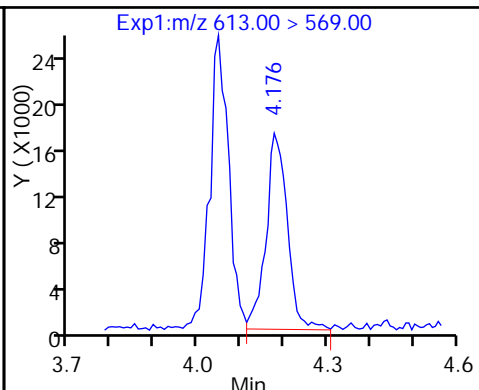
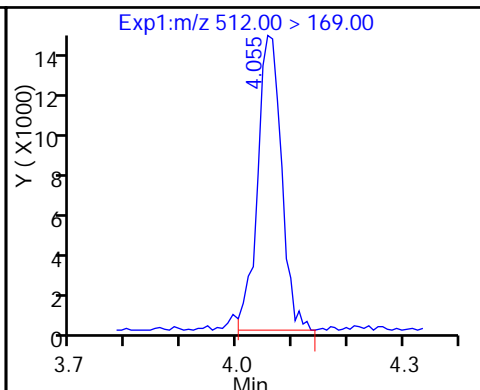
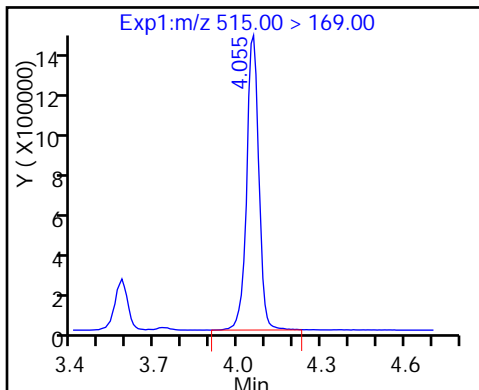
33 N-ethyl perfluorooctane sulfonamid



D 34 d-N-MeFOSA-M

35 MeFOSA

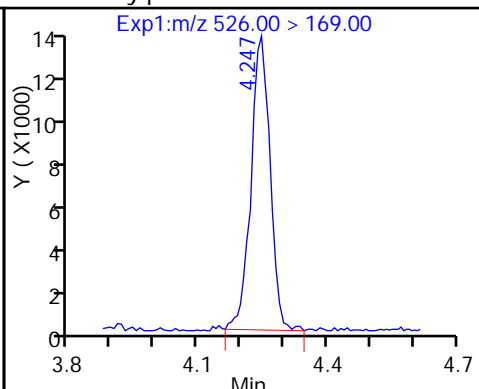
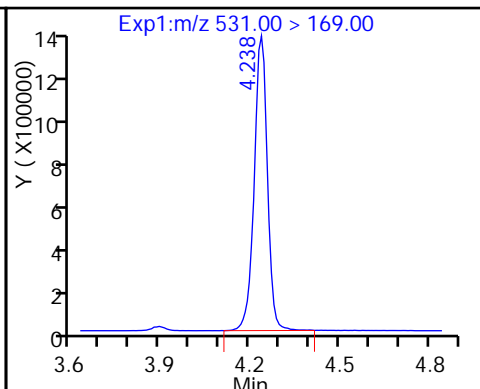
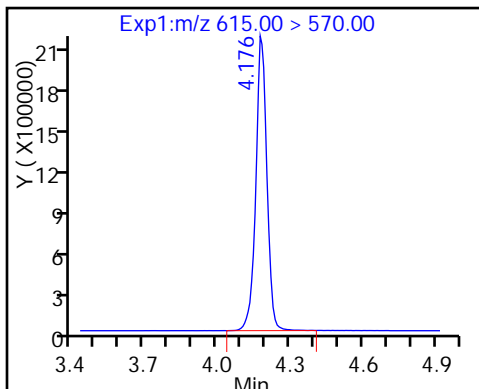
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

D 38 d-N-EtFOSA-M

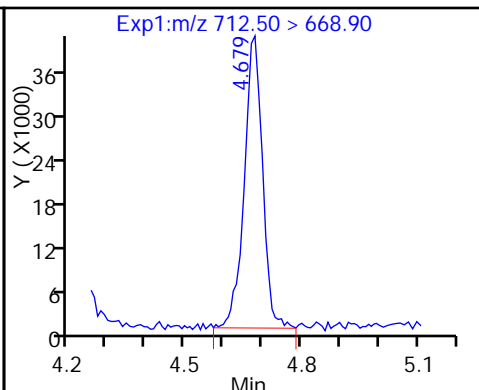
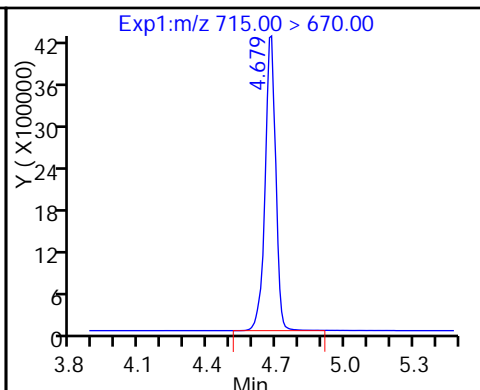
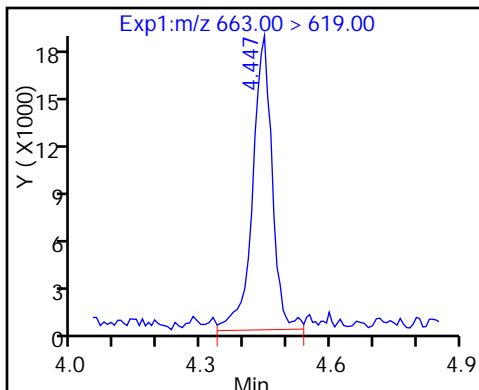
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

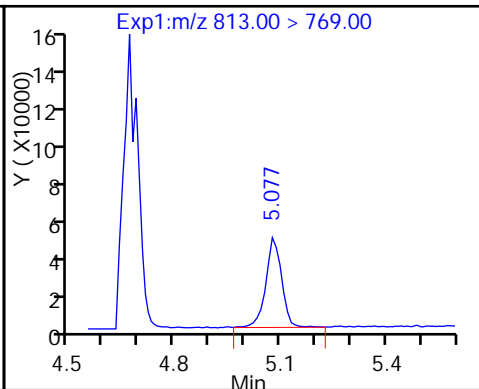
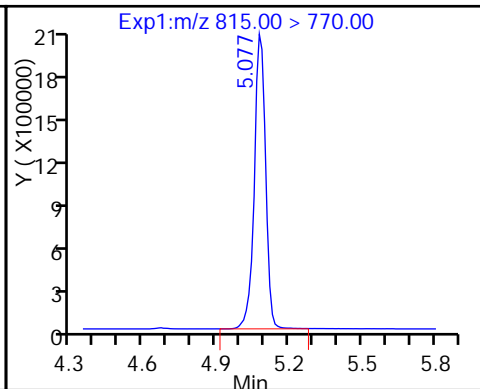
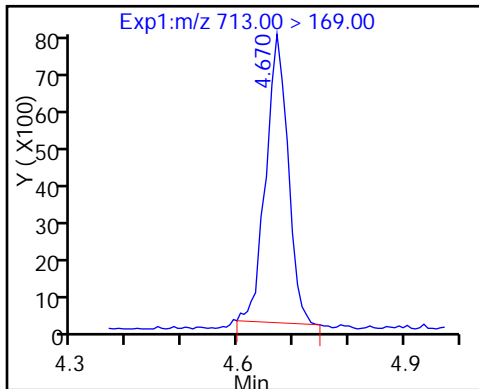
42 Perfluorotetradecanoic acid



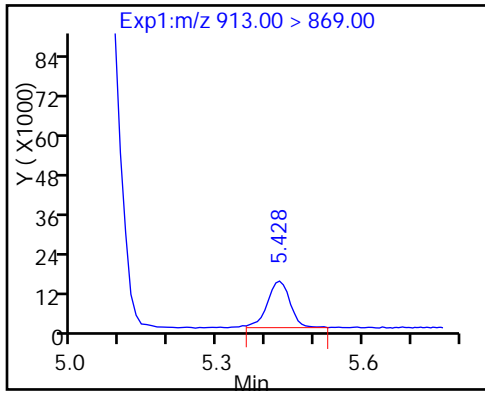
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



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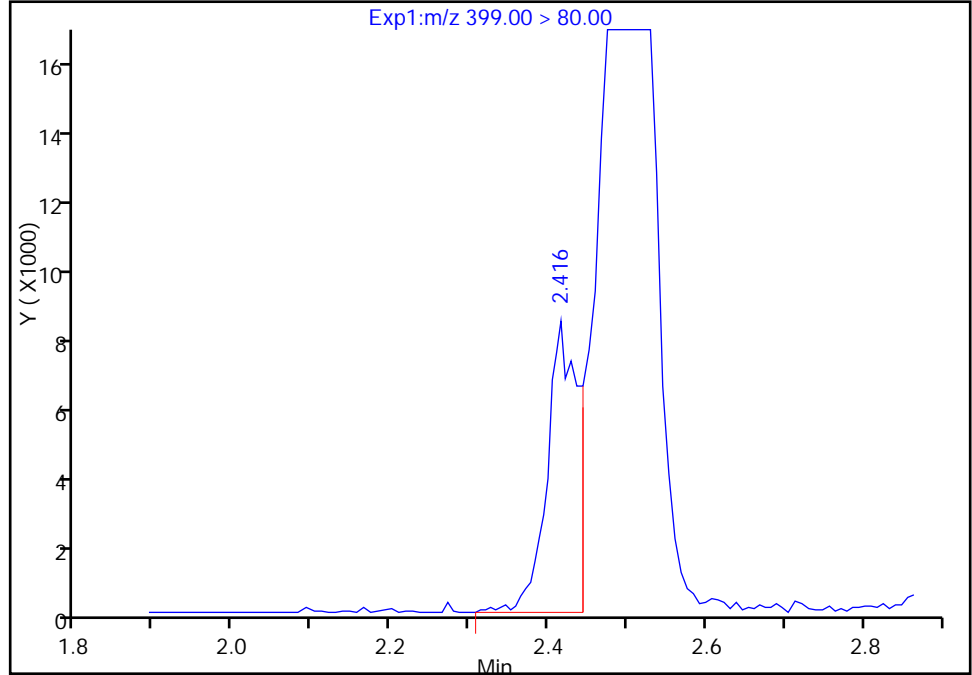
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_003.d
Injection Date: 01-Mar-2017 11:08:52 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

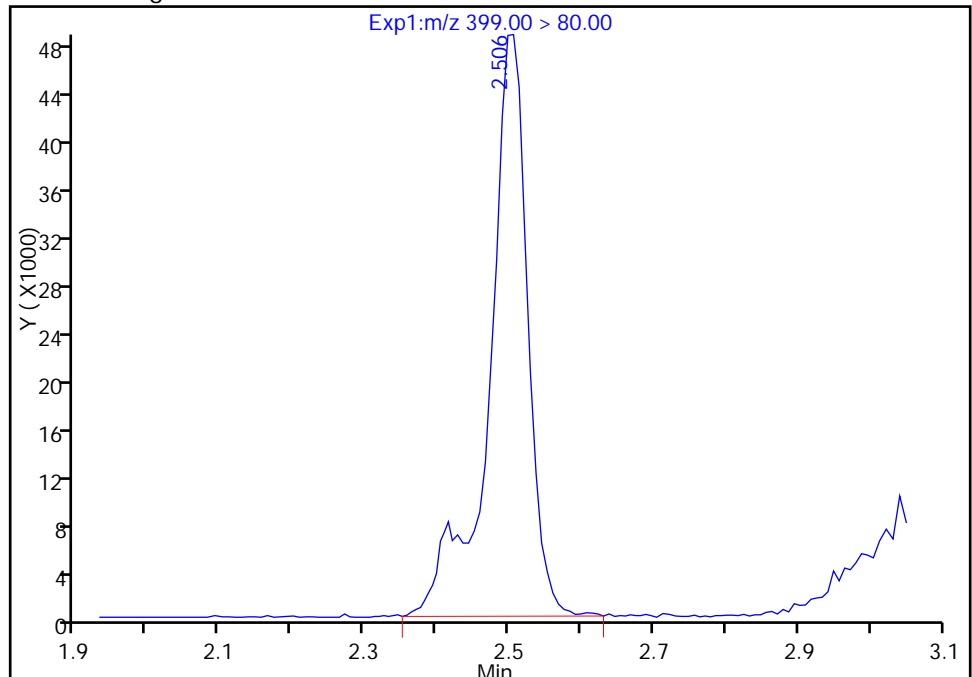
RT: 2.42
Area: 21187
Amount: 0.082505
Amount Units: ng/ml

Processing Integration Results



RT: 2.51
Area: 182218
Amount: 0.583043
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:05
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

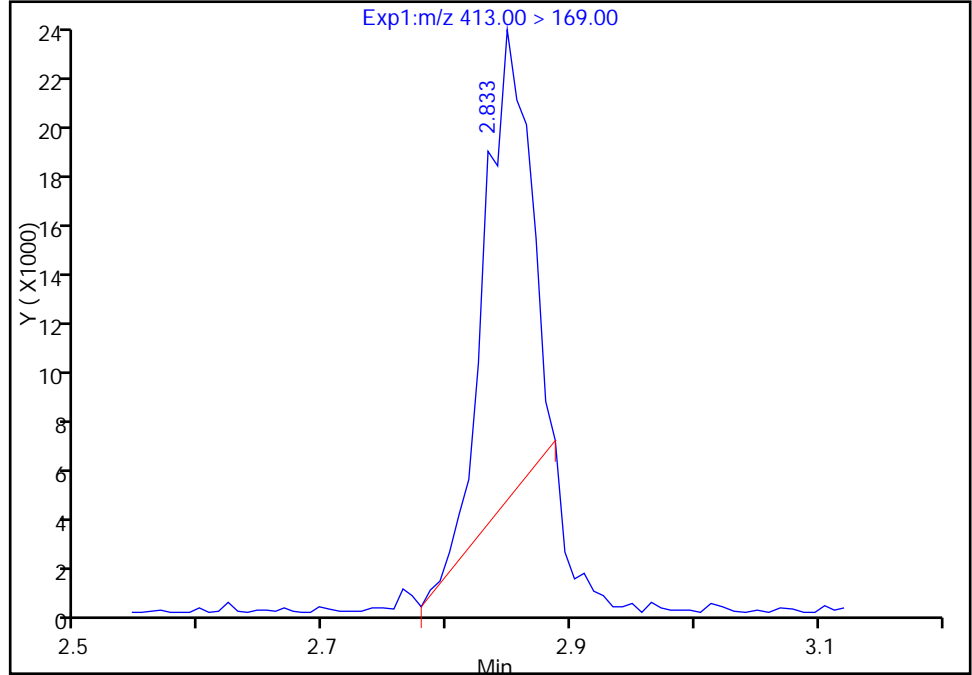
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Injection Date: 01-Mar-2017 11:08:52 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

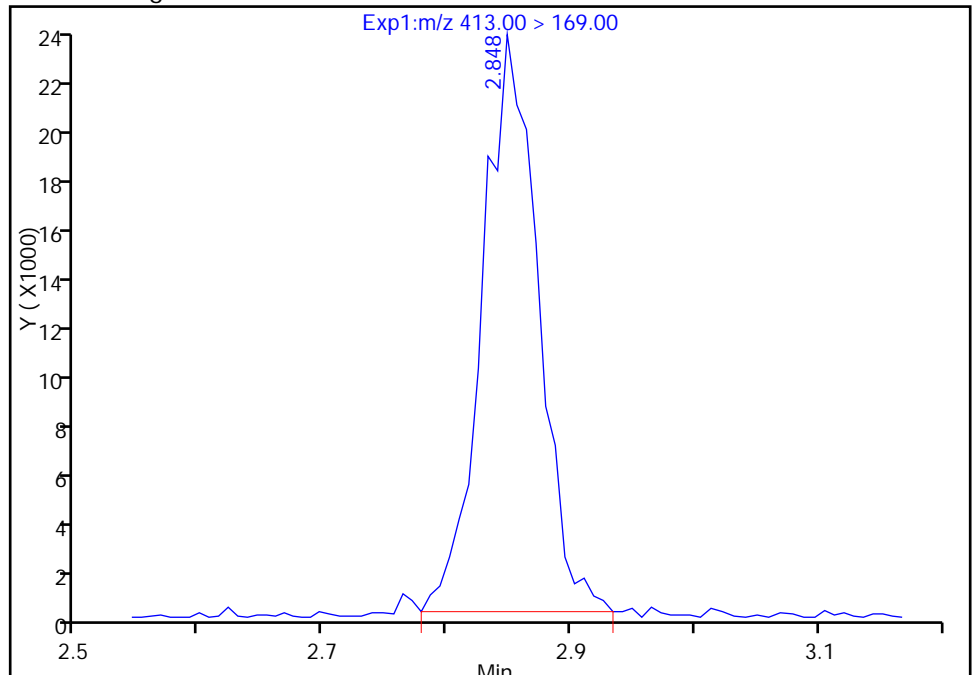
RT: 2.83
Area: 46440
Amount: 0.535520
Amount Units: ng/ml

Processing Integration Results



RT: 2.85
Area: 71985
Amount: 0.538943
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:05

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

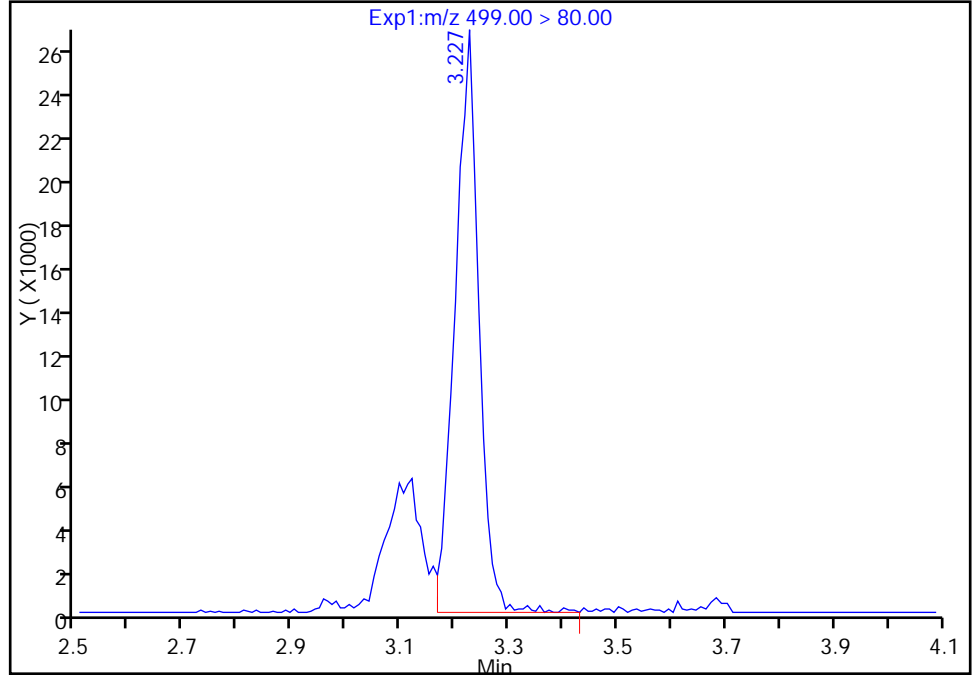
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Injection Date: 01-Mar-2017 11:08:52 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 28 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

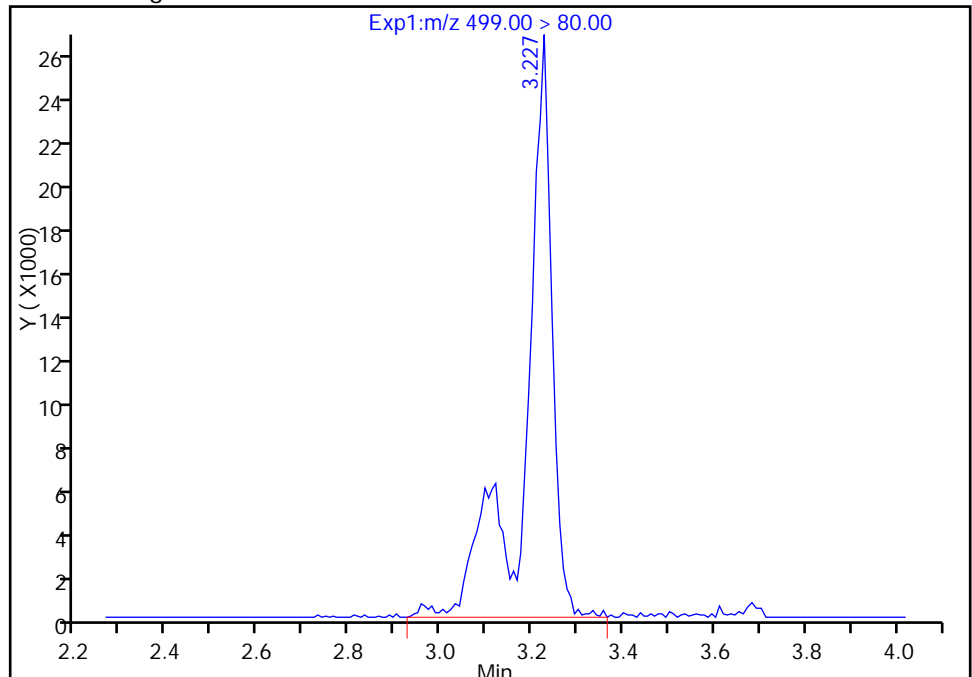
RT: 3.23
Area: 79141
Amount: 0.356104
Amount Units: ng/ml

Processing Integration Results



RT: 3.23
Area: 108156
Amount: 0.442463
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:05
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_004.d
 Lims ID: IC L2 Full
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 01-Mar-2017 11:16:22 ALS Bottle#: 29 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L2-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub15
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 01-Mar-2017 15:43:08 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 12:00:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.554	1.553	0.001	14105138	48.3		96.5	750485	
2 Perfluorobutyric acid	212.90 > 169.00	1.562	1.558	0.004	1.000	236552	0.9897	99.0	2199	
D 3 13C5-PFPeA	267.90 > 223.00	1.842	1.832	0.010	11526786	49.6		99.3	662915	
4 Perfluoropentanoic acid	262.90 > 219.00	1.842	1.835	0.007	1.000	233761	1.04	104	2126	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.872	1.872	0.0	1.000	364249	0.8869	100		
	298.90 > 99.00	1.881	1.872	0.009	1.005	152095	2.39(0.00-0.00)	100		
6 Perfluorohexanoic acid	313.00 > 269.00	2.145	2.133	0.012	1.000	183108	1.01	101	6537	
D 7 13C2 PFHxA	315.00 > 270.00	2.136	2.134	0.002	10169363	48.2		96.4	286031	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.484	2.474	0.010	1.000	185040	0.9858	98.6	1690	
D 9 13C4-PFHpA	367.00 > 322.00	2.484	2.475	0.009	9702633	50.3		101	436206	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.500	2.485	0.015	1.000	294799	1.00	110		
D 11 18O2 PFHxS	403.00 > 84.00	2.500	2.489	0.011	13561303	46.6		98.6	442791	
D 12 M2-6:2FTS	429.00 > 409.00	2.810	2.805	0.005	3521088	45.6		96.0		
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	2.818	2.807	0.011	1.000	71833	0.9579	101		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.849	2.835	0.014		10562914	51.5		103	412762	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.841	2.835	0.006	1.000	226350	1.05		105	2696	
413.00 > 169.00	2.849	2.835	0.014	1.003	125043		1.81(0.90-1.10)	105	5452	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.857	2.842	0.015	1.000	228885	0.9637		101		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.105	3.145	-0.040	1.000	207277	0.9149		98.6	3256	
499.00 > 99.00	3.105	3.145	-0.040	1.000	49944		4.15(0.90-1.10)	98.6	444	
20 Perfluorononanoic acid										
463.00 > 419.00	3.209	3.202	0.007	1.000	152789	0.9337		93.4	2607	
D 18 13C4 PFOS										
503.00 > 80.00	3.218	3.204	0.014		11011810	45.6		95.3	389996	
D 19 13C5 PFNA										
468.00 > 423.00	3.218	3.208	0.010		9051156	50.9		102	347551	
D 26 M2-8:2FTS										
529.00 > 509.00	3.553	3.545	0.008		4549526	49.1		103		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.561	3.546	0.015	1.002	89032	0.9299		97.1		
D 21 13C8 FOSA										
506.00 > 78.00	3.561	3.559	0.002		18089578	49.3		98.6	237400	
D 23 13C2 PFDA										
515.00 > 470.00	3.569	3.560	0.009		8593124	51.5		103	177955	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.569	3.560	0.009	1.000	152408	0.9792		97.9	5902	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.561	3.561	0.0	1.000	339522	1.04		104	20364	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.723	3.710	0.013		3998931	46.9		93.9		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.723	3.713	0.010	1.000	78506	1.01		101		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.876	3.866	0.010	1.000	125403	0.9138		94.8		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.885	3.875	0.010		4097675	50.4		101		
D 30 13C2 PFUnA										
565.00 > 520.00	3.885	3.876	0.009		6740958	51.5		103	252062	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.885	3.878	0.007	1.000	137967	1.01		101	3114	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.885	3.883	0.002	1.000	77078	1.03		103		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.055	4.050	0.005		4054503	46.1		92.2		
35 MeFOSA										
512.00 > 169.00	4.064	4.057	0.007	1.000	75129	0.99		99.0		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.175	4.162	0.013	1.000	113238	1.03		103	1051	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA	615.00 > 570.00	4.175	4.164	0.011	6032319	48.7		97.3	172379	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.237	4.235	0.002	3920378	46.0		92.0		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.246	4.242	0.004	1.000	79073	1.03	103		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.430	4.424	0.006	1.000	103052	0.9780	97.8	2577	
D 43 13C2-PFTeDA	715.00 > 670.00	4.667	4.655	0.012	12309406	47.5		95.0	383508	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.667	4.657	0.010	1.000	238596	1.01	101	1077	
713.00 > 169.00	4.667	4.657	0.010	1.000	36141		6.60(0.00-0.00)	101	11217	
D 44 13C2-PFHxDA	815.00 > 770.00	5.070	5.057	0.013	5742128	45.9		91.8	84169	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.070	5.059	0.011	1.000	171523	1.16	116	217	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.414	5.399	0.015	1.000	81601	0.9426	94.3	179	

Reagents:

LCPFC_FULL-L2_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_004.d

Injection Date: 01-Mar-2017 11:16:22

Instrument ID: A8_N

Lims ID: IC L2 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 29

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

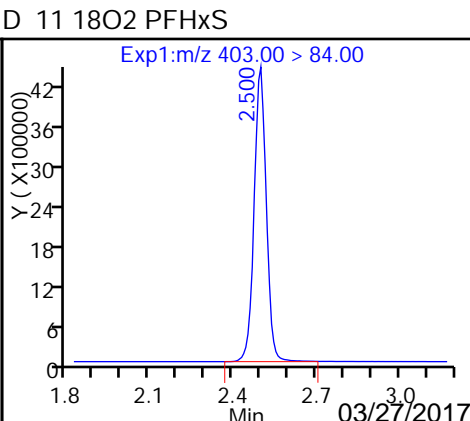
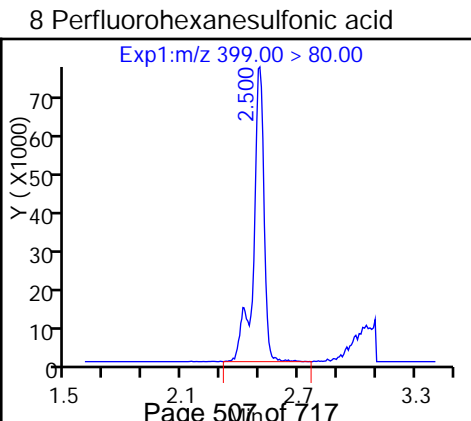
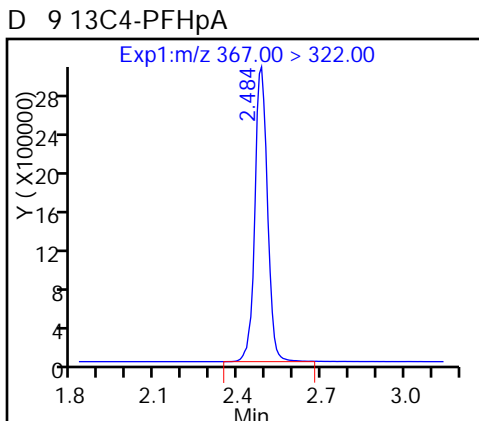
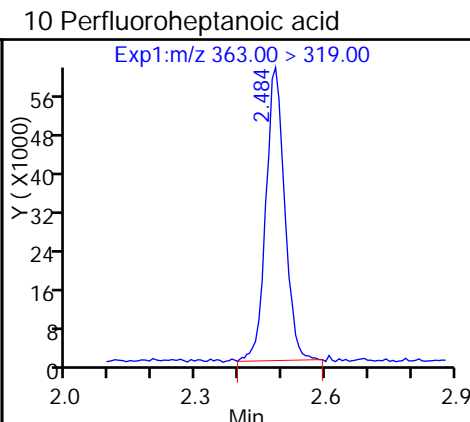
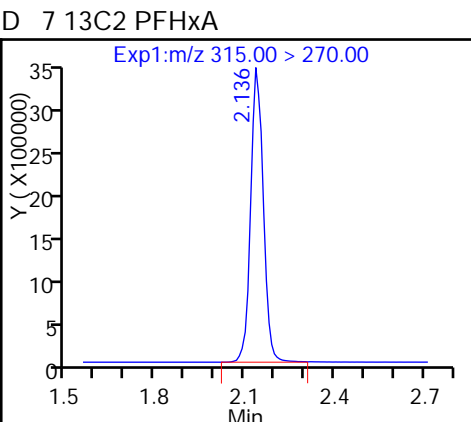
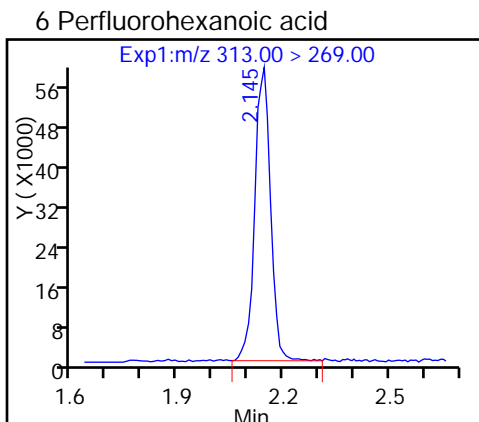
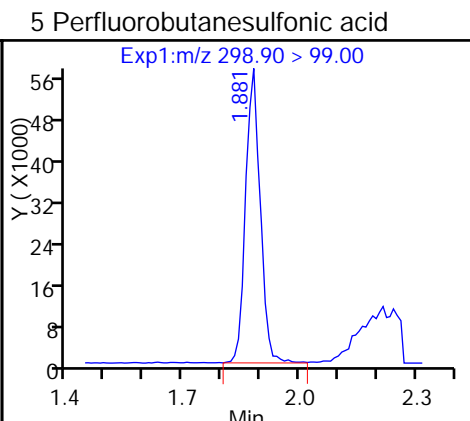
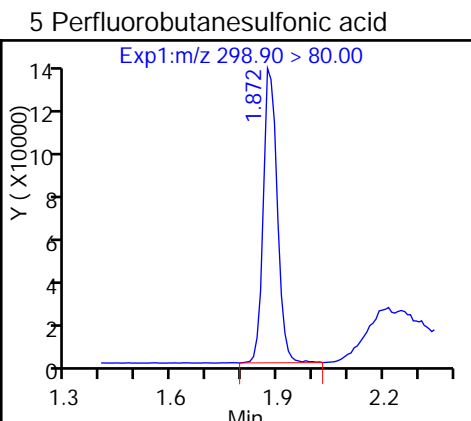
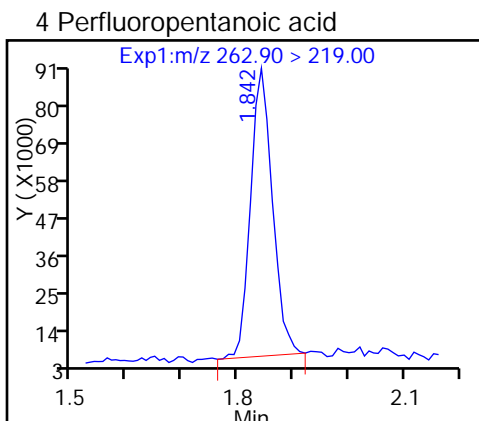
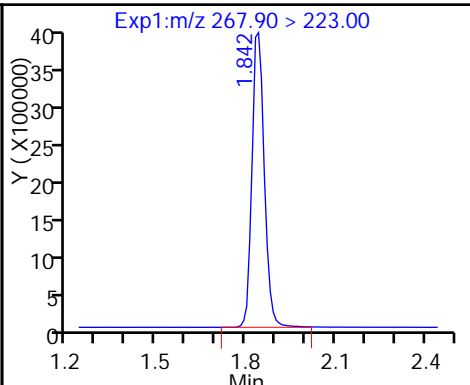
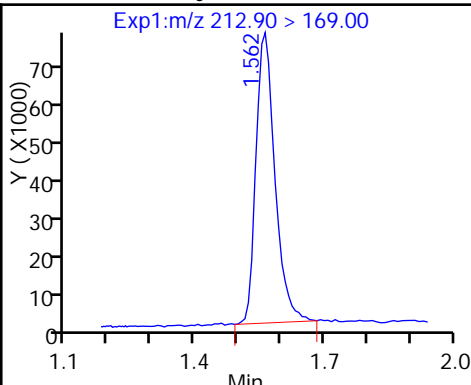
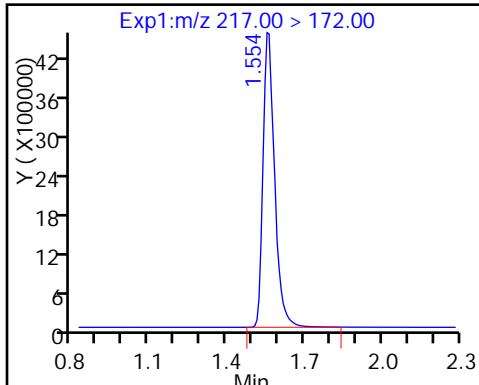
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

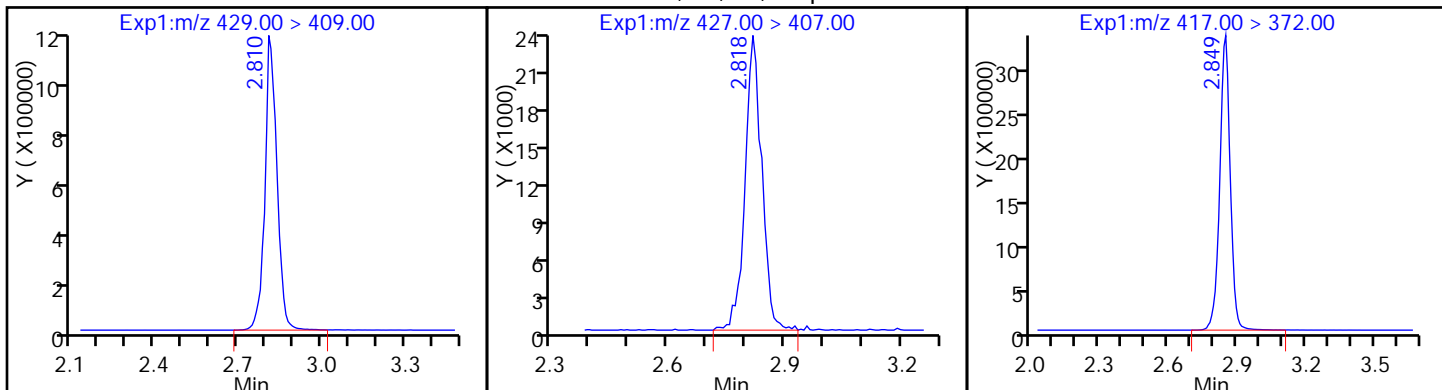
D 3 13C5-PFPeA



D 12 M2-6:2FTS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

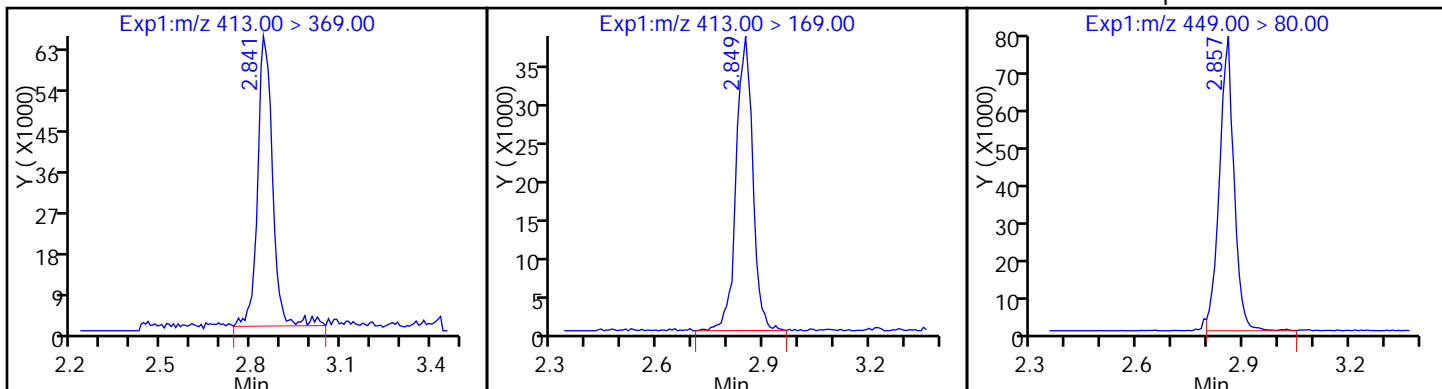
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

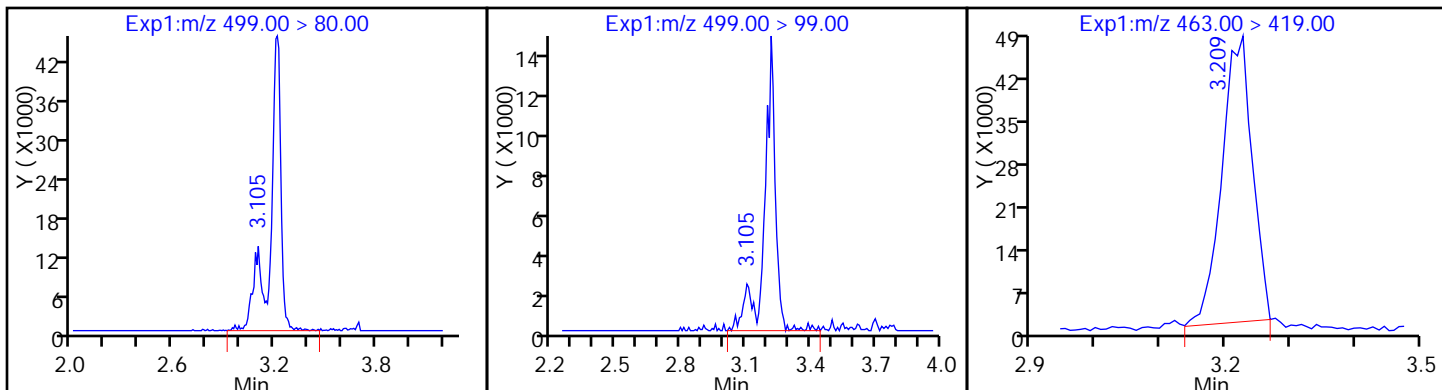
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

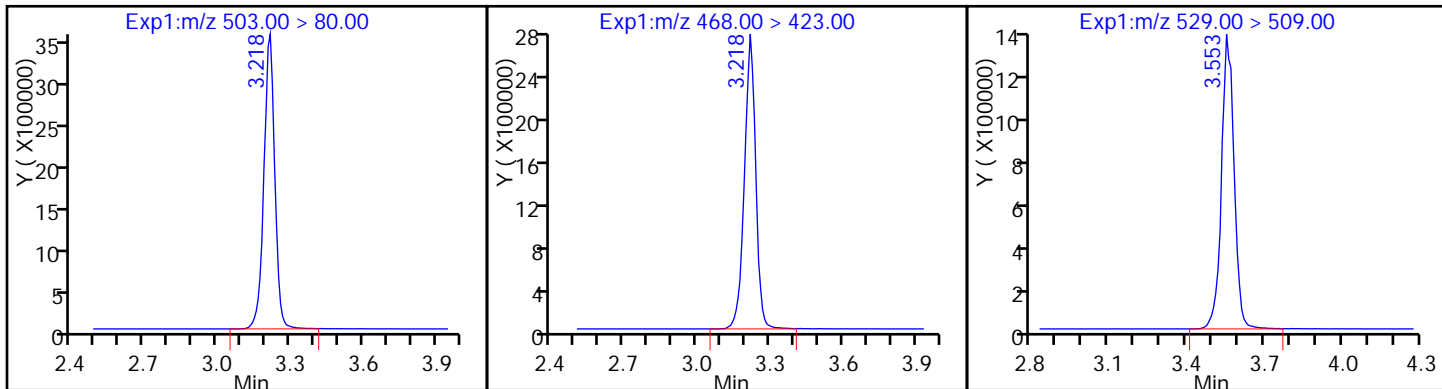
20 Perfluorononanoic acid



D 18 13C4 PFOS

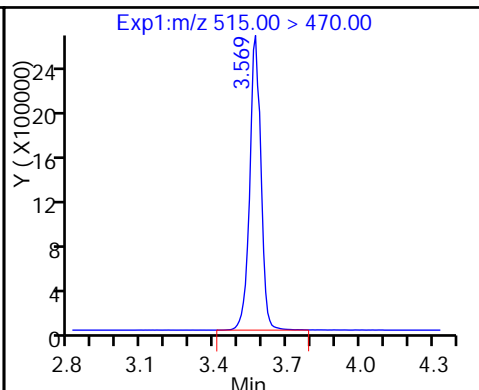
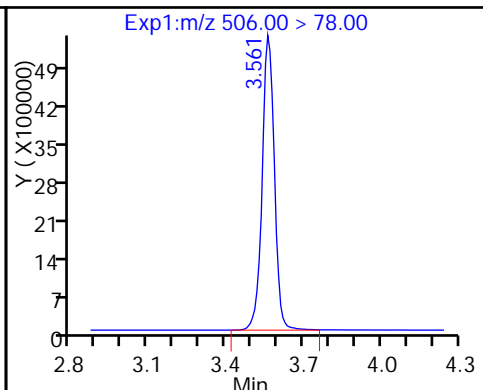
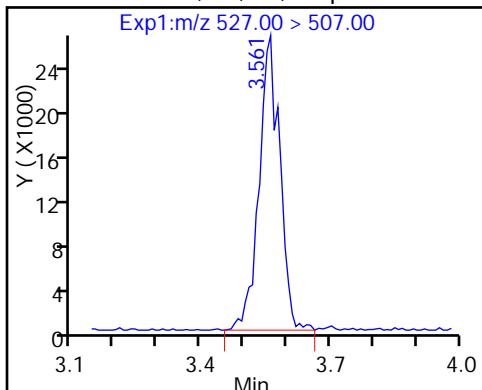
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctanoate

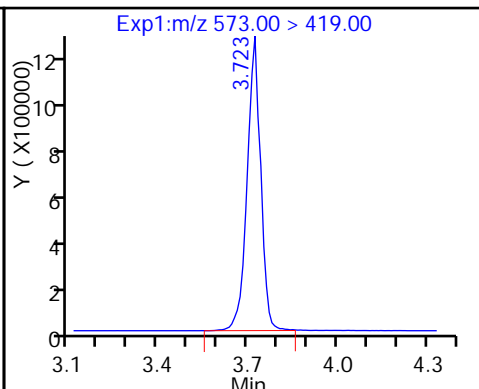
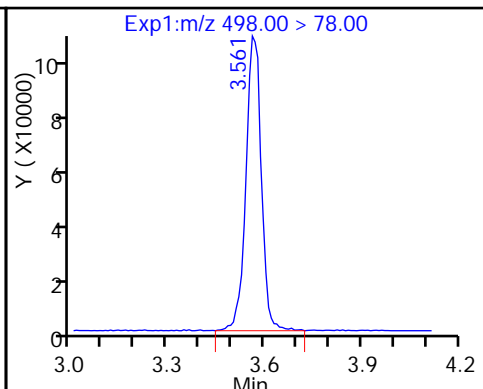
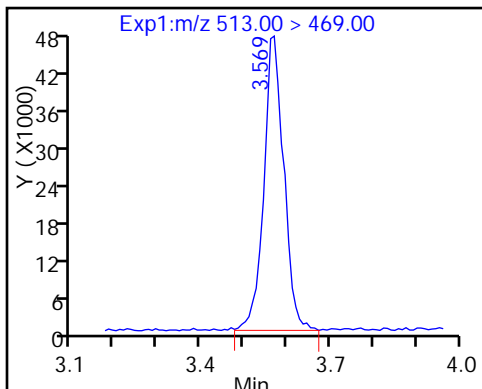
D 23 13C2 PFDA



24 Perfluorodecanoic acid

22 Perfluorooctane Sulfonamide

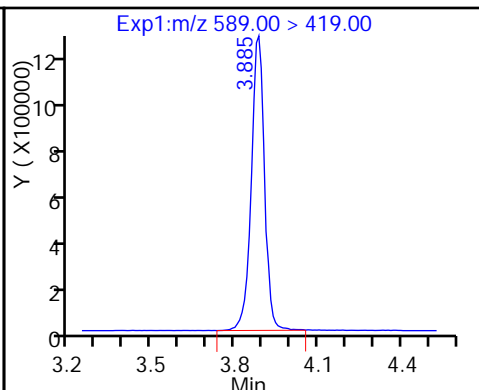
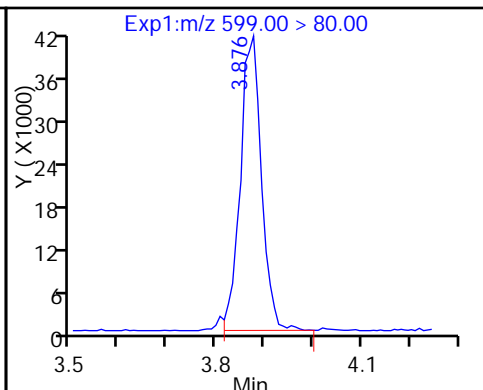
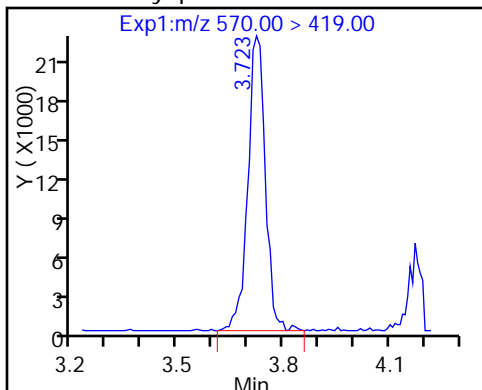
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

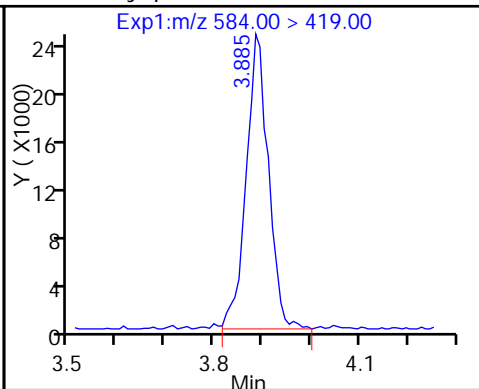
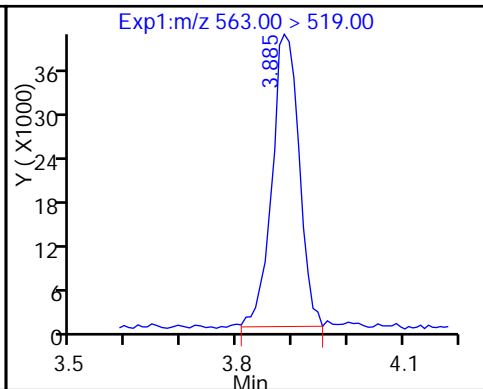
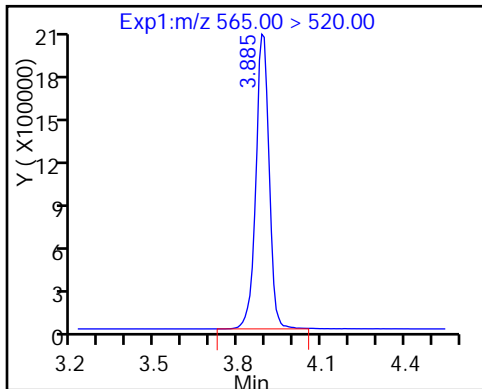
D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

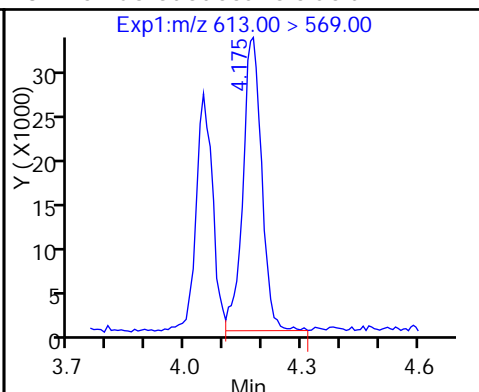
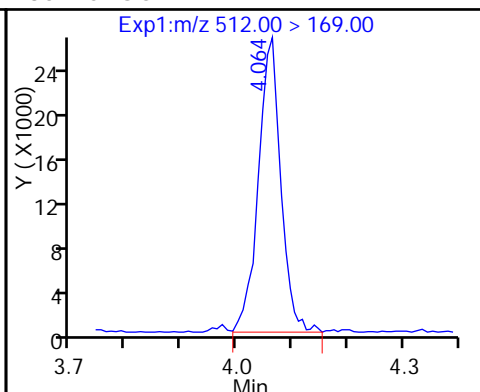
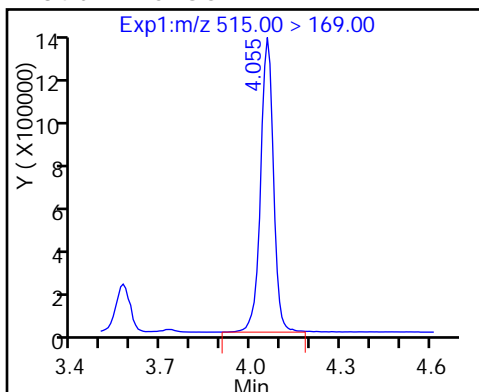
33 N-ethyl perfluorooctane sulfonamid



D 34 d-N-MeFOSA-M

35 MeFOSA

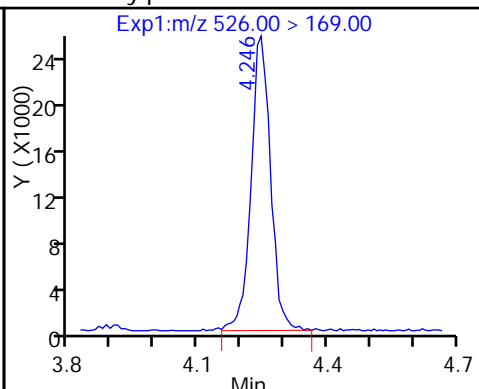
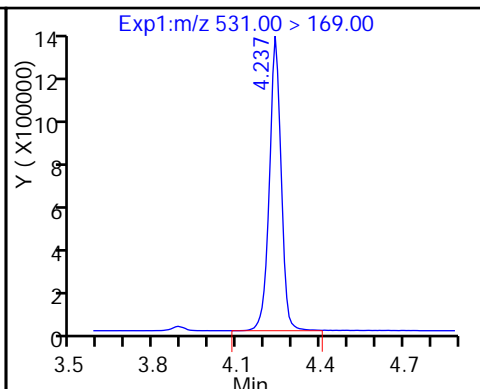
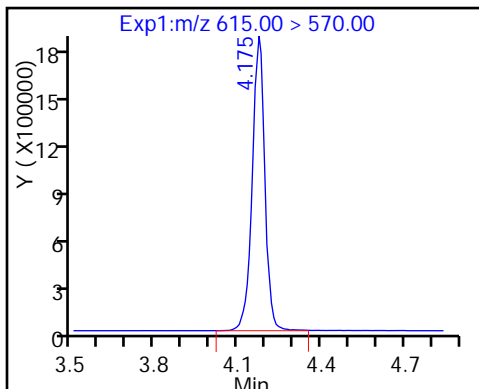
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

D 38 d-N-EtFOSA-M

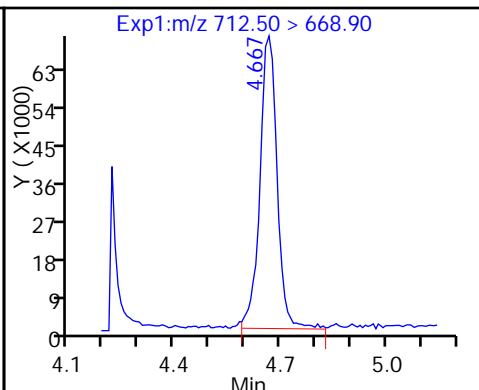
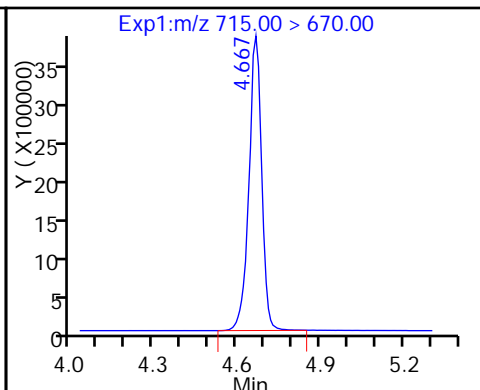
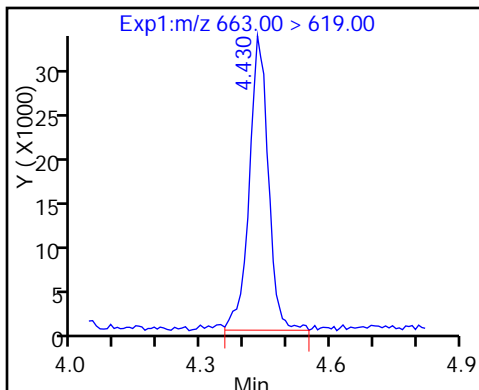
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

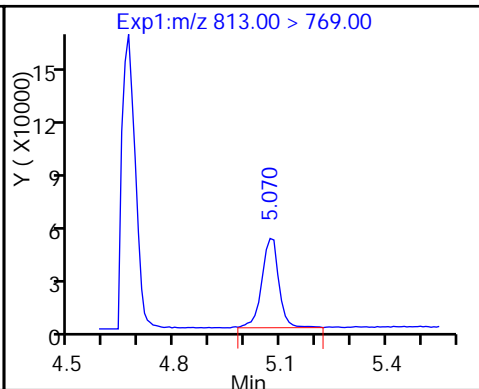
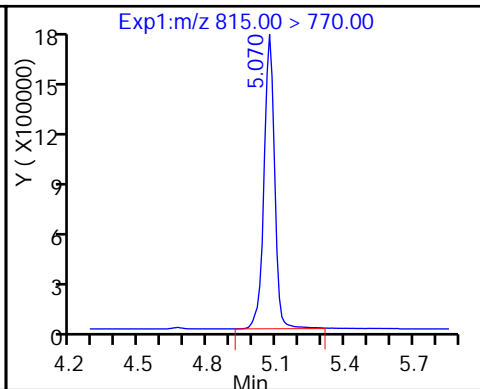
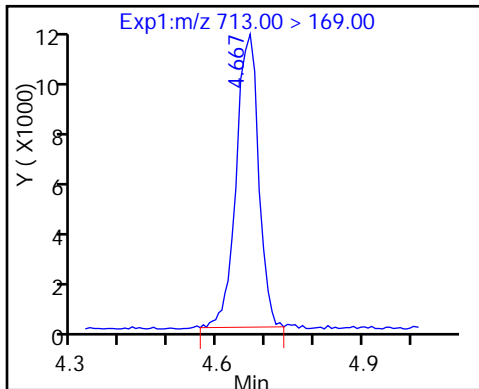
42 Perfluorotetradecanoic acid



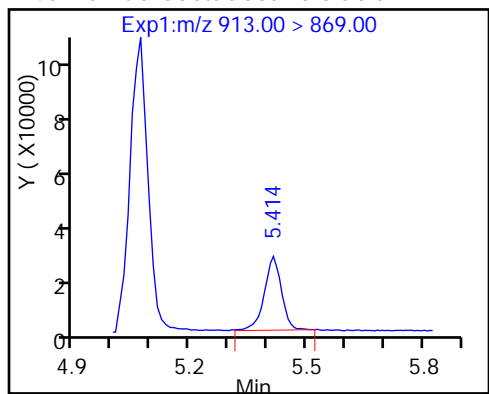
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d
 Lims ID: IC L3 Full
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 01-Mar-2017 11:23:51 ALS Bottle#: 30 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L3-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub15
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 01-Mar-2017 15:43:10 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 12:01:48

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.555	1.553	0.002	14456536	49.5		98.9	922551	
2 Perfluorobutyric acid	212.90 > 169.00	1.555	1.558	-0.003	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	1164625	5.16		103	11285	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.873	1.872	0.001	1989498	4.83		109		
	298.90 > 99.00	1.873	1.872	0.001	781702		2.55(0.00-0.00)	109		
6 Perfluorohexanoic acid	313.00 > 269.00	2.129	2.133	-0.004	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	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	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	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

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d

Injection Date: 01-Mar-2017 11:23:51

Instrument ID: A8_N

Lims ID: IC L3 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 30

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

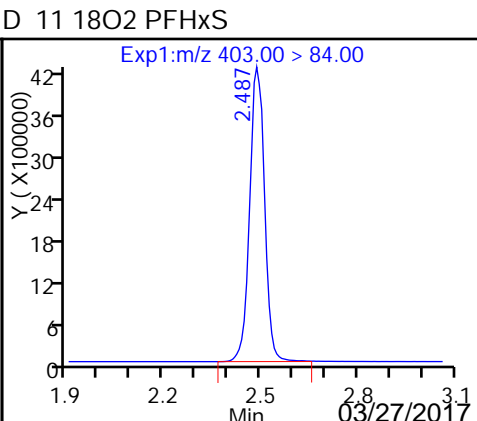
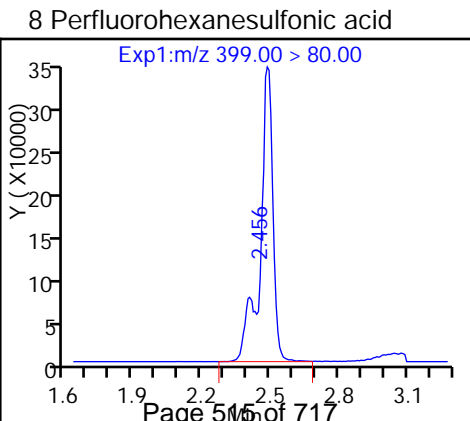
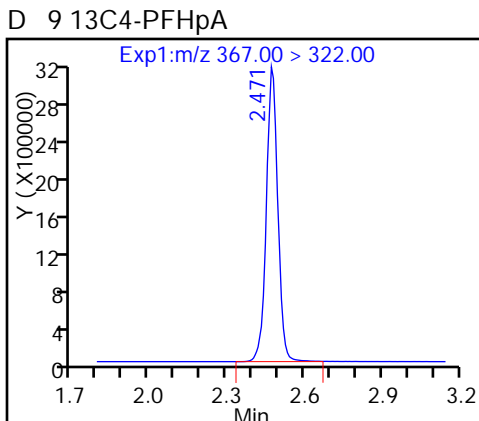
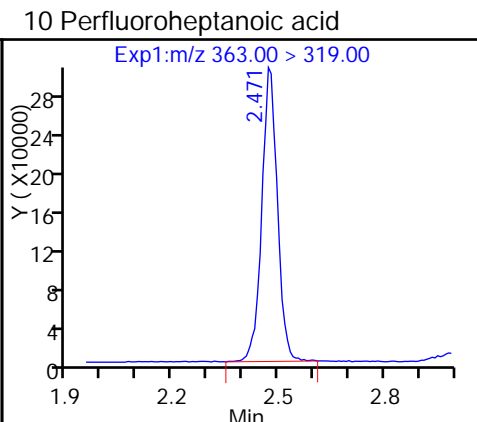
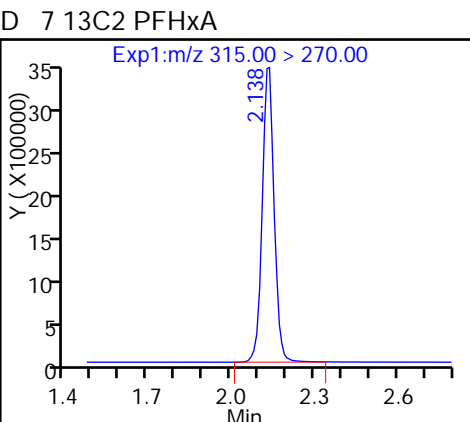
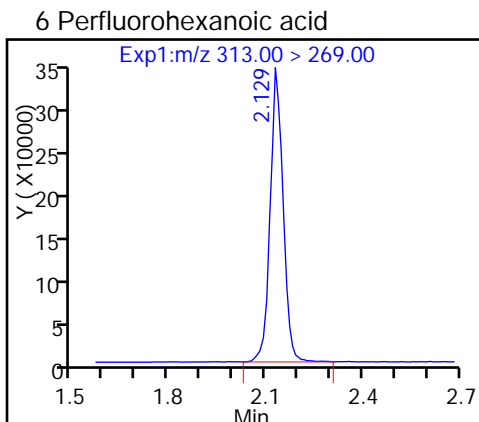
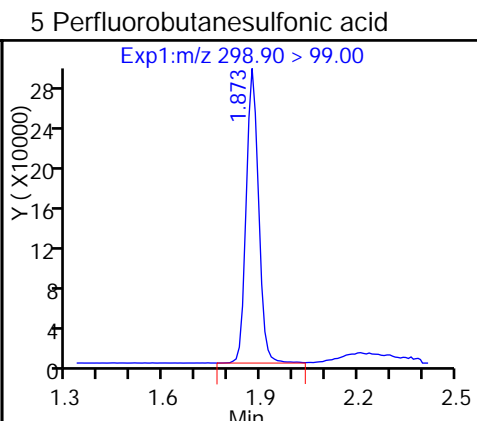
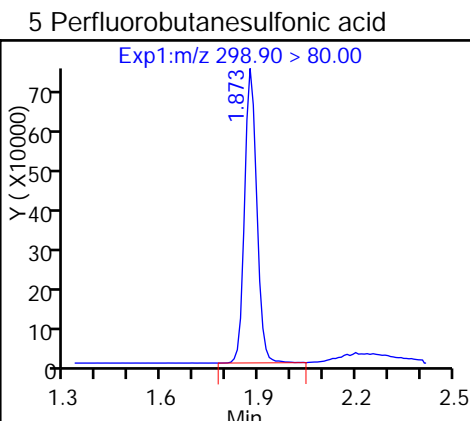
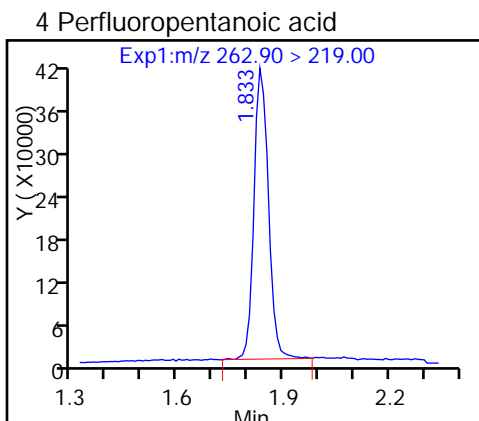
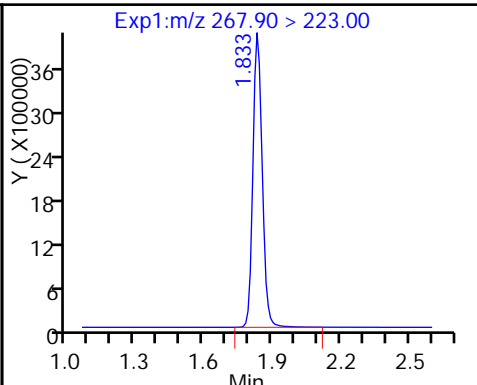
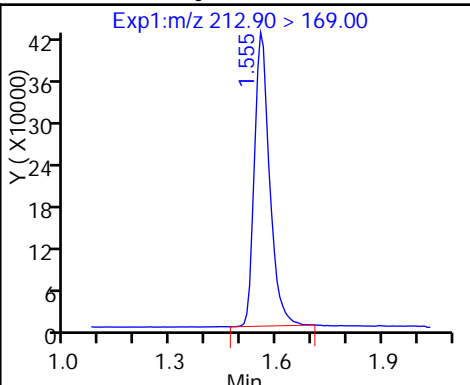
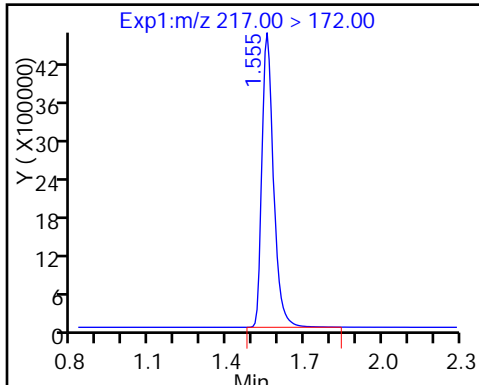
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

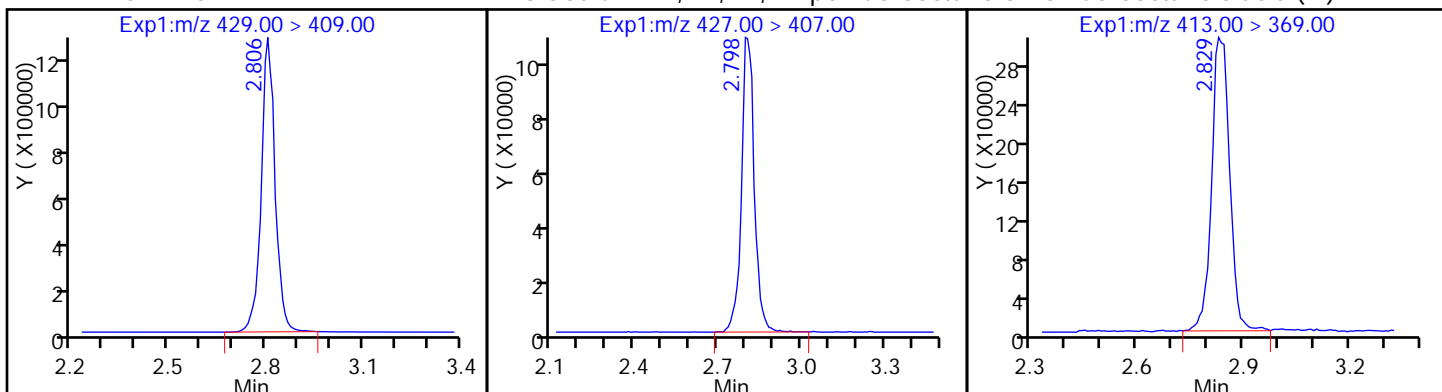
2 Perfluorobutyric acid

D 3 13C5-PFPeA



D 12 M2-6:2FTS

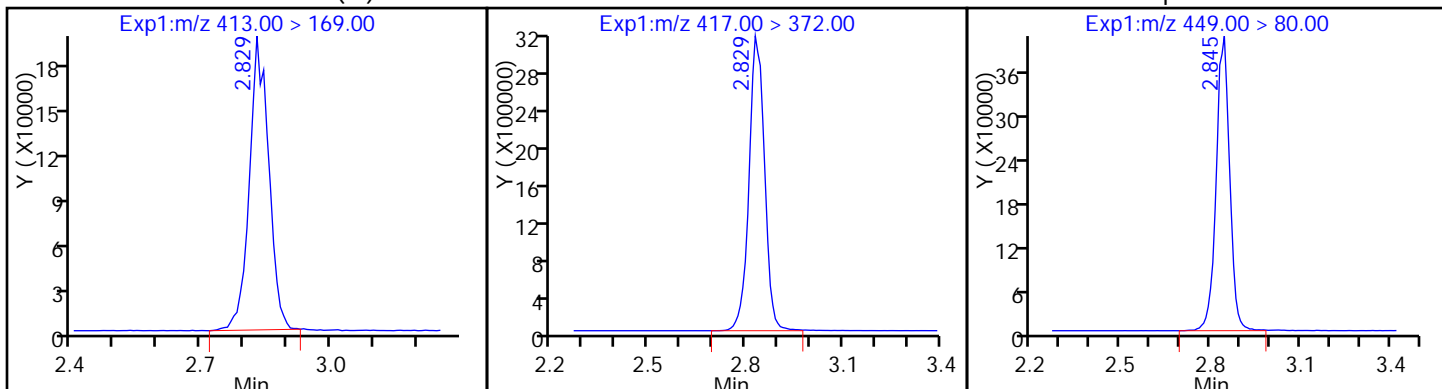
13 Sodium 1H,1H,2H,2H-perfluorooctane15 Perfluorooctanoic acid (M)



15 Perfluorooctanoic acid (M)

D 14 13C4 PFOA

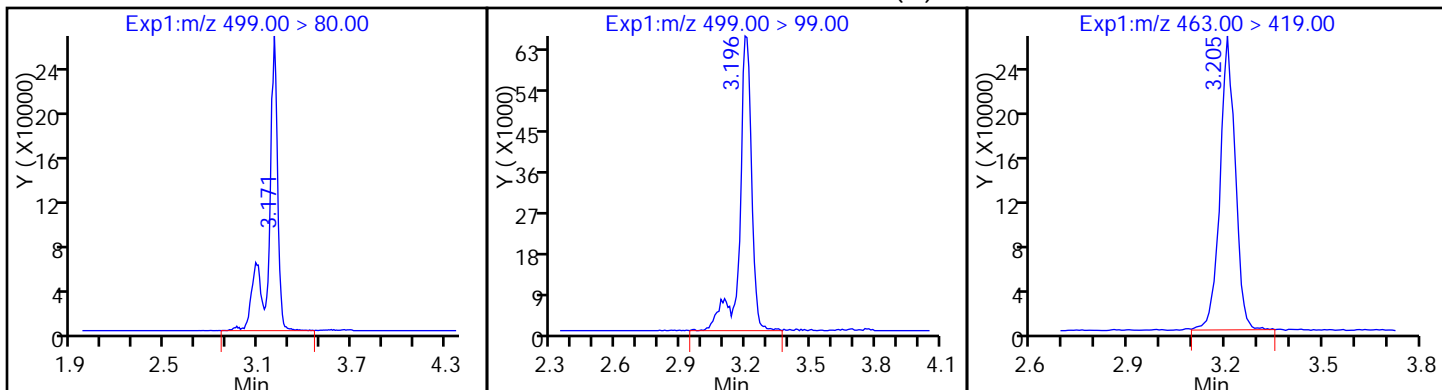
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid (M)

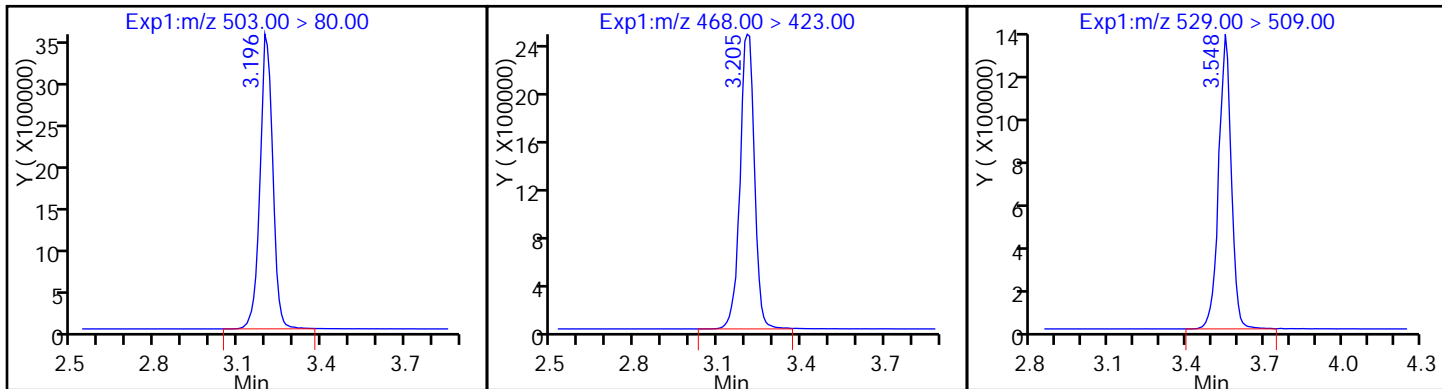
20 Perfluorononanoic acid



D 18 13C4 PFOS

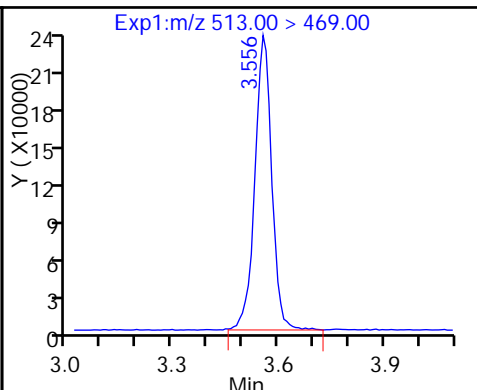
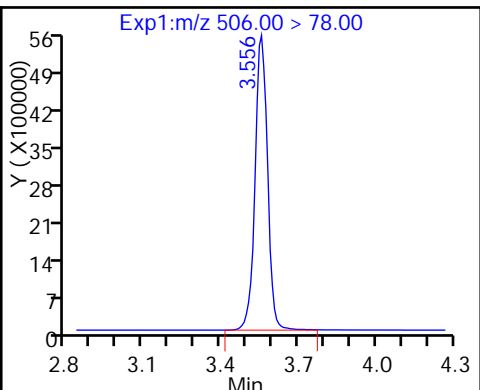
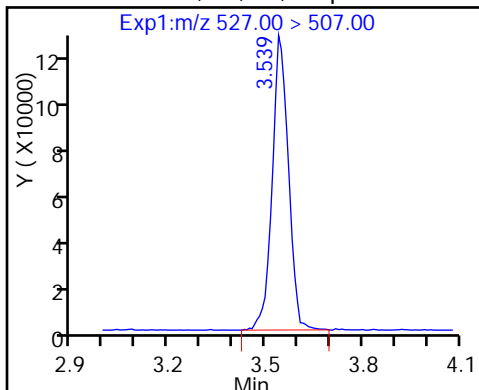
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctanoate

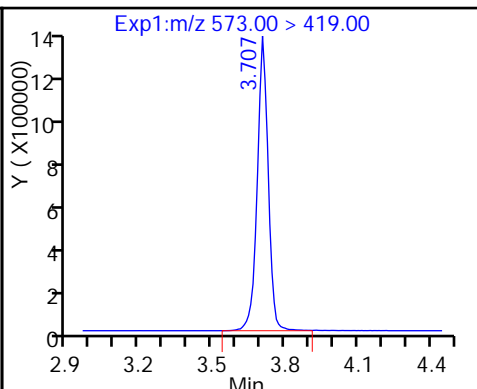
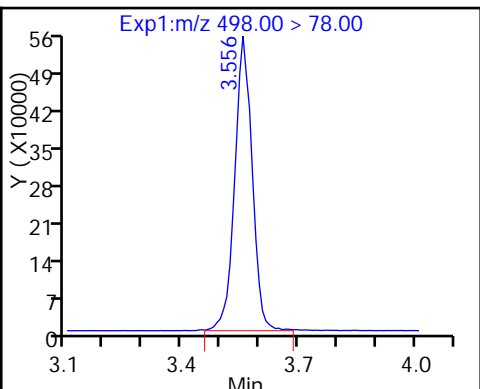
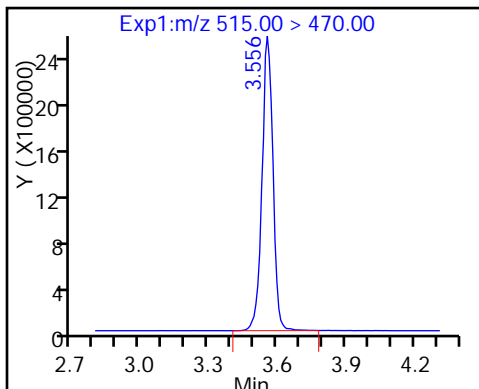
24 Perfluorodecanoic acid



D 23 13C2 PFDA

22 Perfluorooctane Sulfonamide

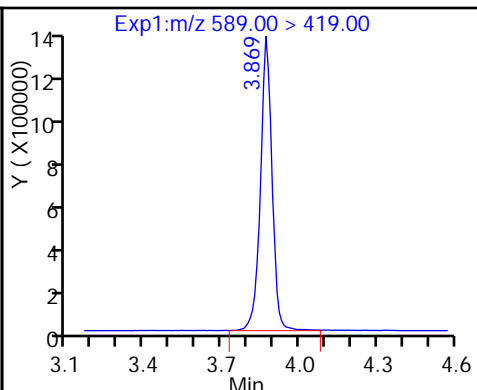
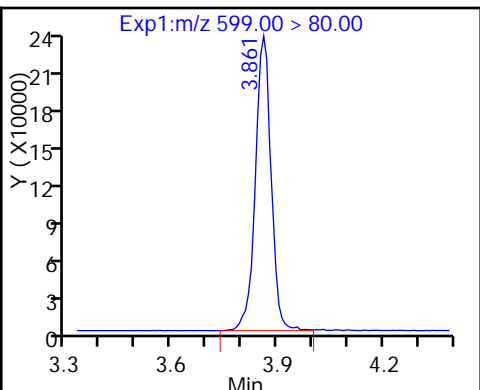
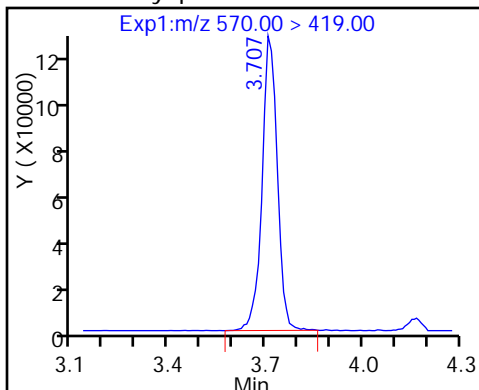
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

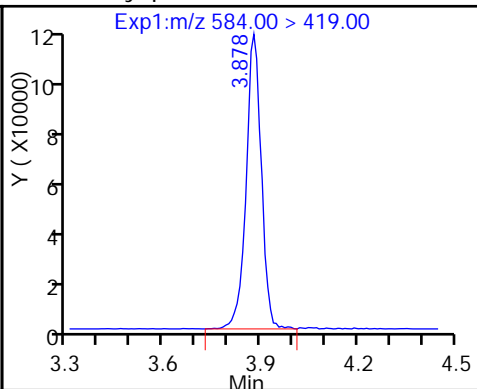
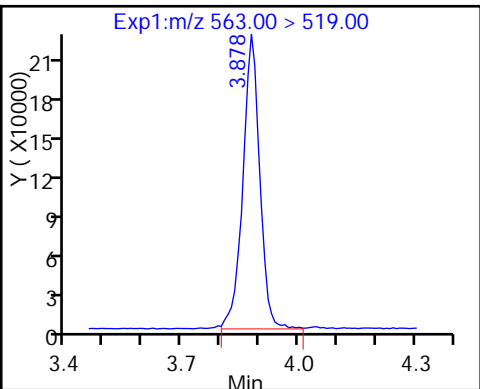
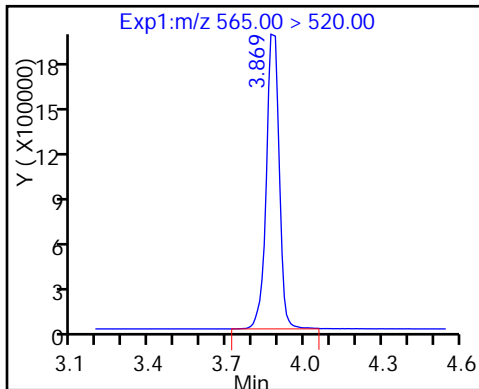
D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

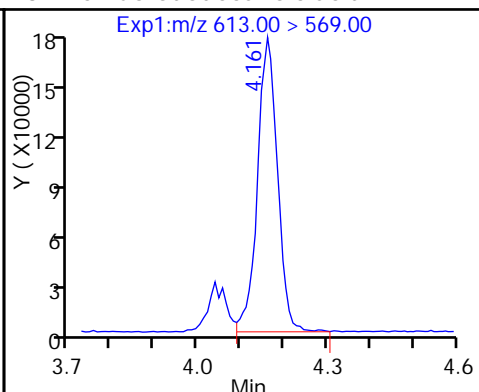
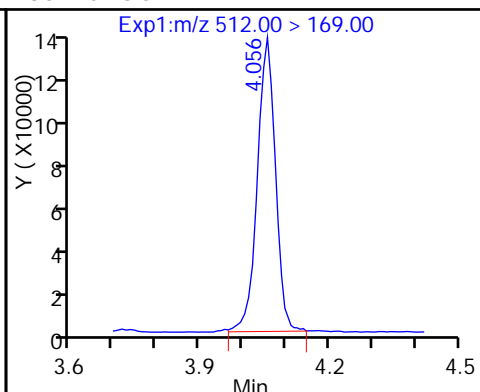
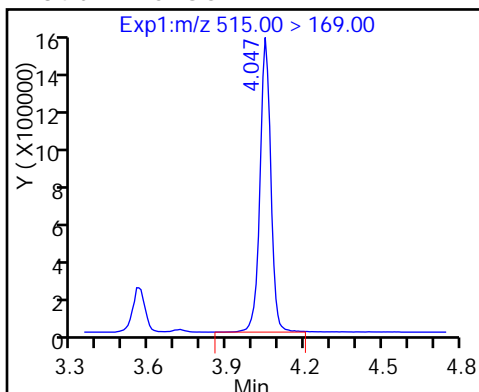
33 N-ethyl perfluorooctane sulfonamid



D 34 d-N-MeFOSA-M

35 MeFOSA

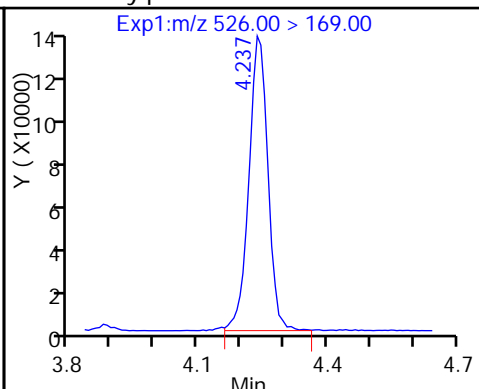
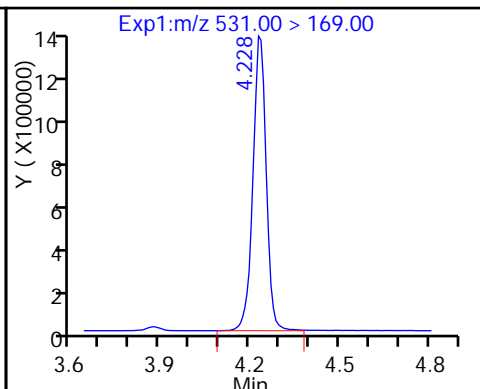
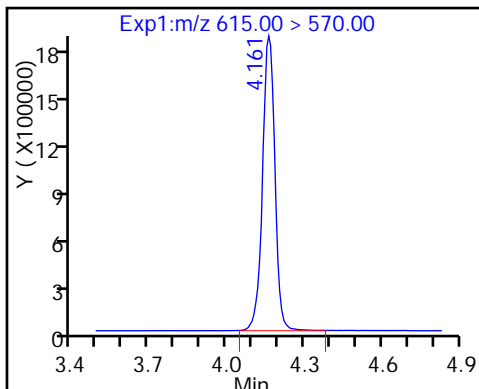
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

D 38 d-N-EtFOSA-M

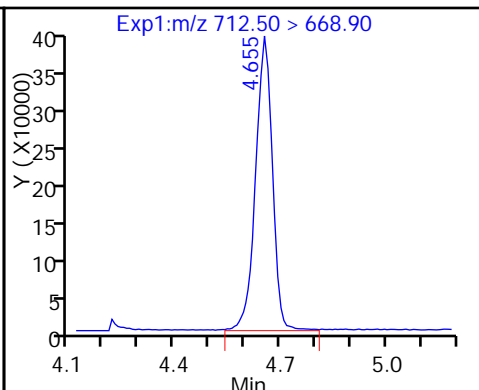
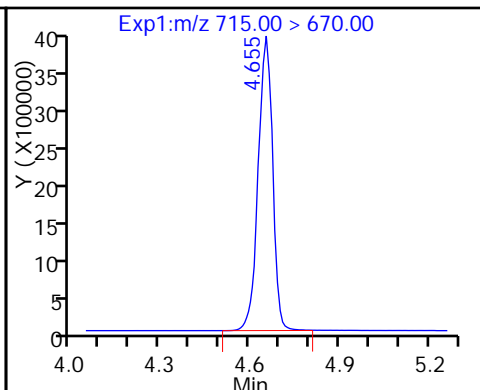
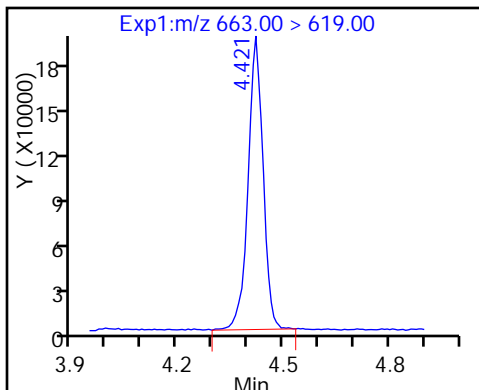
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

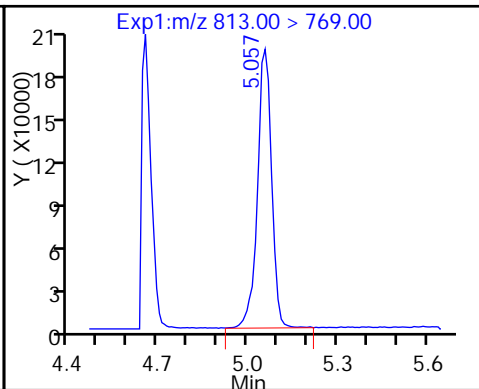
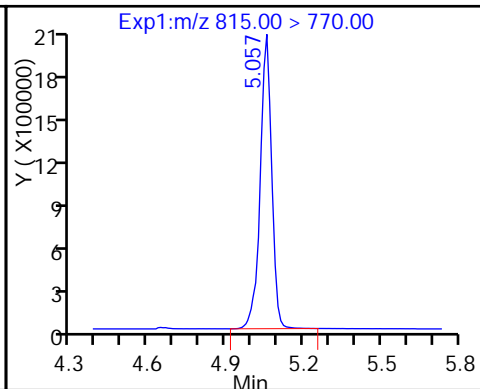
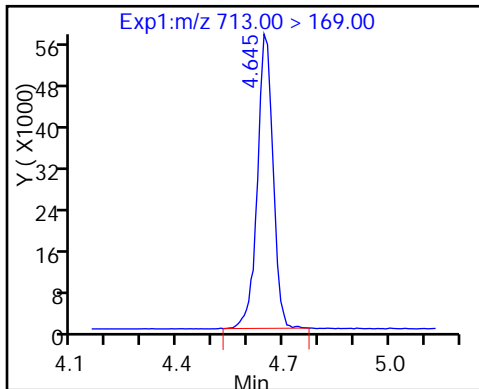
42 Perfluorotetradecanoic acid



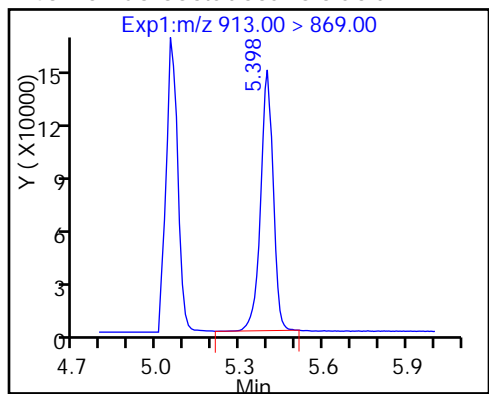
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



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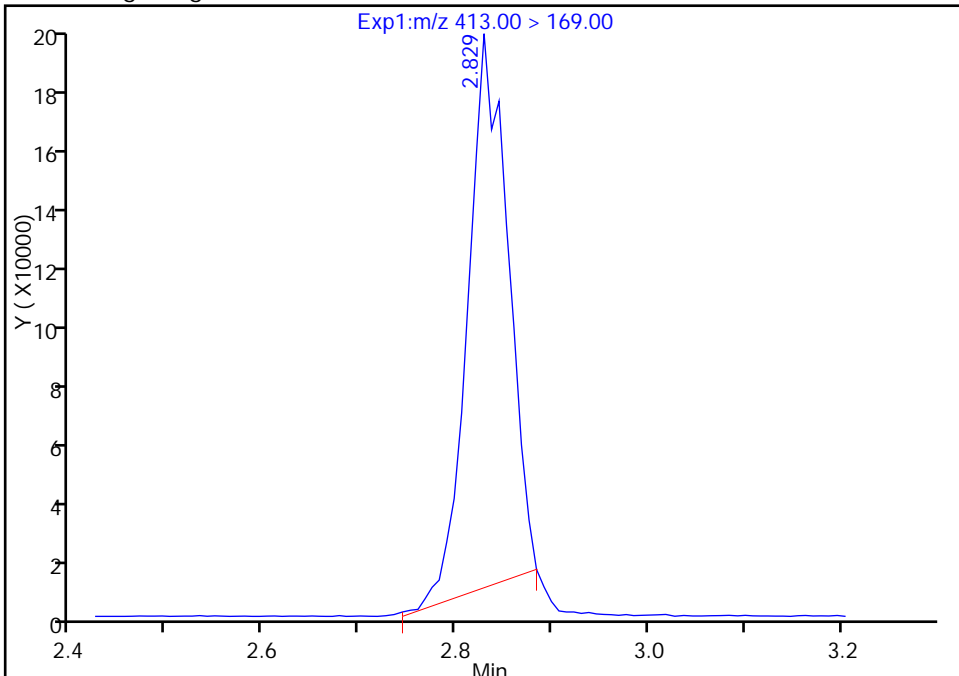
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_005.d
Injection Date: 01-Mar-2017 11:23:51 Instrument ID: A8_N
Lims ID: IC L3 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

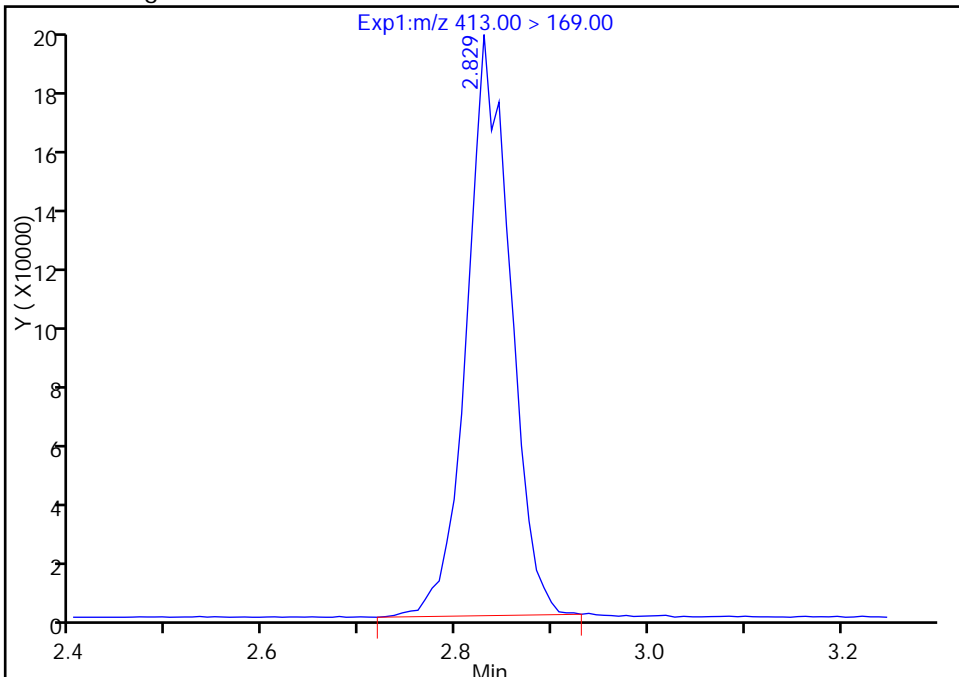
RT: 2.83
Area: 545337
Amount: 5.278222
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 620161
Amount: 5.152153
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:10
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

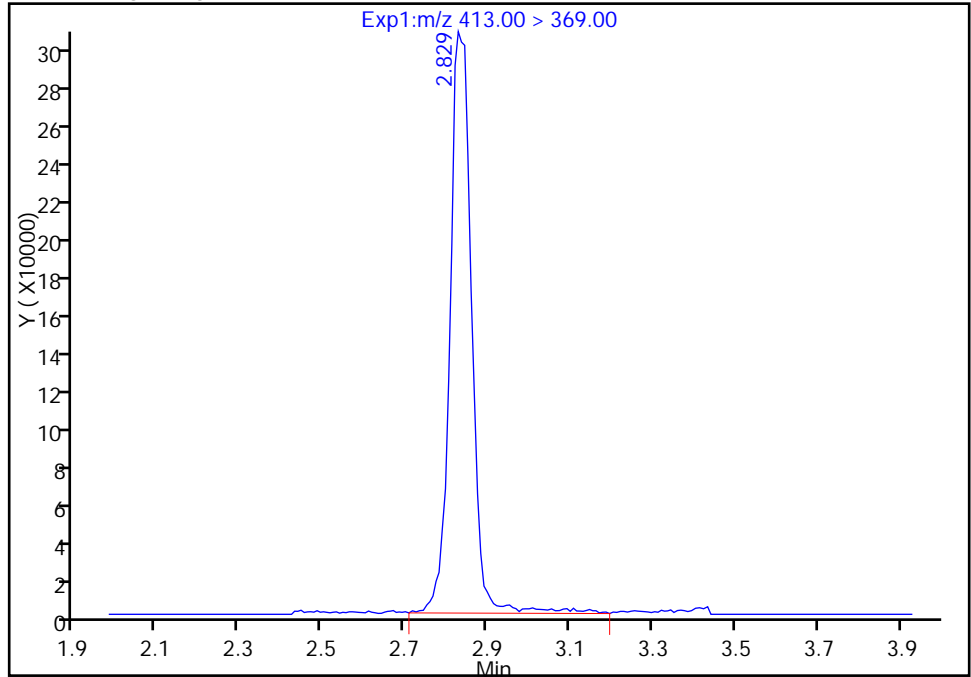
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Injection Date: 01-Mar-2017 11:23:51 Instrument ID: A8_N
Lims ID: IC L3 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

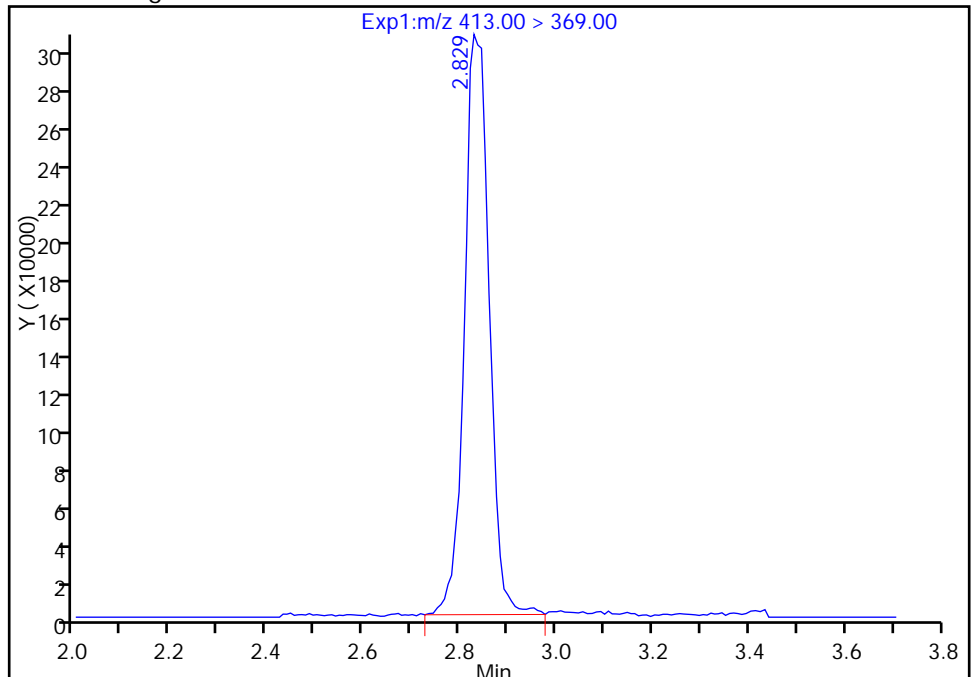
RT: 2.83
Area: 1136820
Amount: 5.278222
Amount Units: ng/ml

Processing Integration Results



RT: 2.83
Area: 1102619
Amount: 5.152153
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:10

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

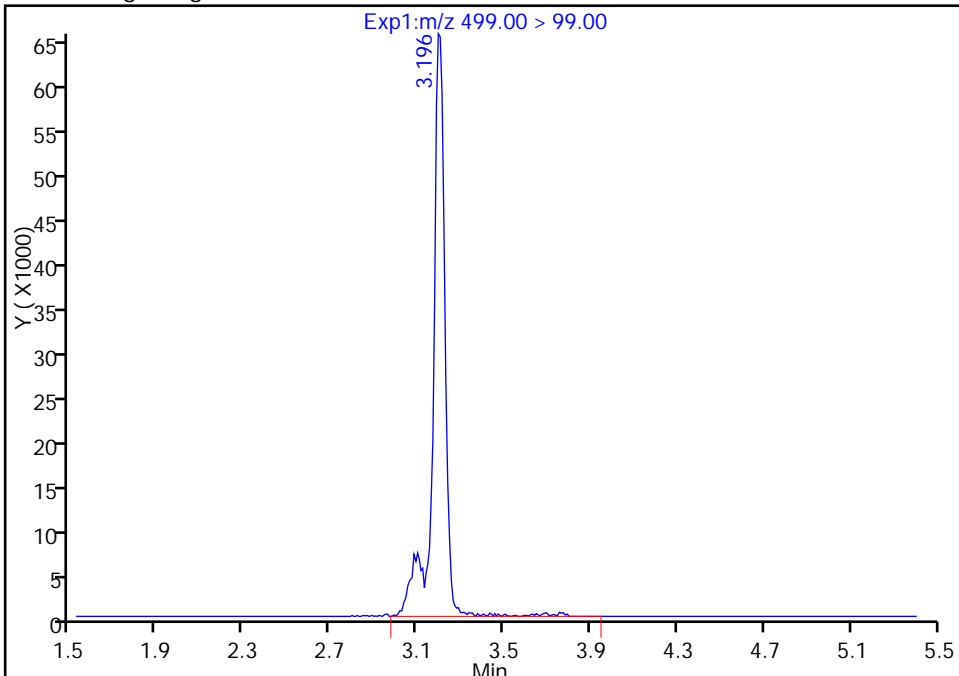
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Injection Date: 01-Mar-2017 11:23:51 Instrument ID: A8_N
Lims ID: IC L3 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

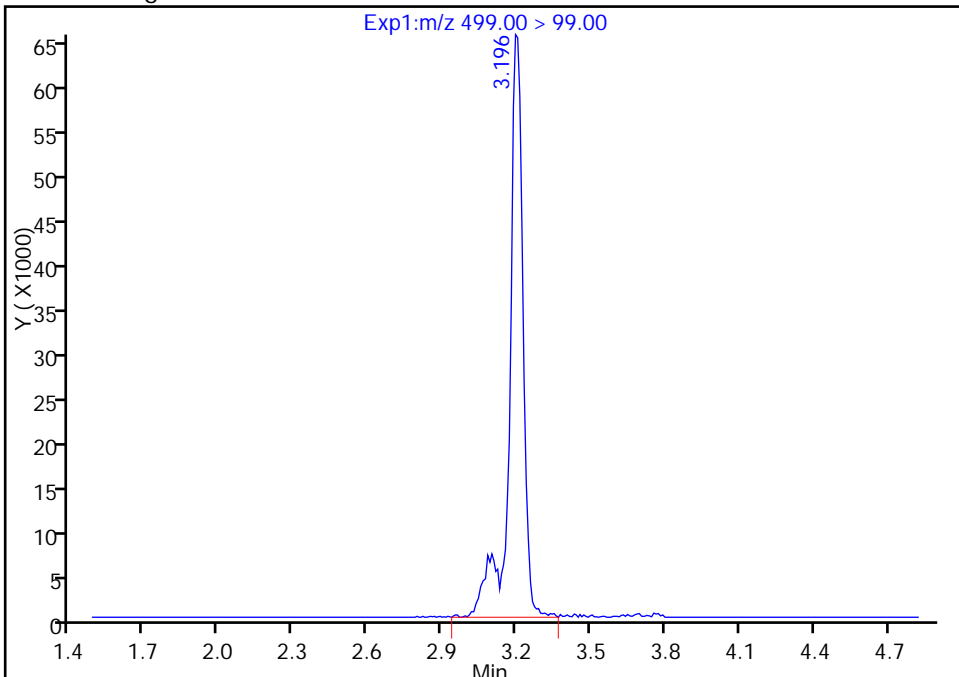
RT: 3.20
Area: 258504
Amount: 4.907745
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 254615
Amount: 4.671293
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:10
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_006.d
 Lims ID: IC L4 Full
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 01-Mar-2017 11:31:20 ALS Bottle#: 31 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L4-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub15
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 01-Mar-2017 15:43:13 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 11:58:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.554	1.553	0.001	17122661	58.6		117	1074272	
2 Perfluorobutyric acid	212.90 > 169.00	1.562	1.558	0.004	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	5283919	19.8		99.0	51812	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.871	1.872	-0.001	9035699	18.8		106		
	298.90 > 99.00	1.871	1.872	-0.001	3688779		2.45(0.00-0.00)	106		
6 Perfluorohexanoic acid	313.00 > 269.00	2.134	2.133	0.001	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	4154809	19.6		98.2	36084	
D 9 13C4-PFHpA	367.00 > 322.00	2.479	2.475	0.004	10934944	56.7		113	304443	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.487	2.485	0.002	5958886	17.2		94.6		M
										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	1476276	19.2		101		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.837	2.835	0.002		11808824	57.6		115	419758	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.837	2.835	0.002	1.000	4651144	19.3		96.4	85963	
413.00 > 169.00	2.837	2.835	0.002	1.000	2647754		1.76(0.90-1.10)	96.4	107757	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.837	2.842	-0.005	1.000	5669268	19.9		105		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.093	3.145	-0.052	1.000	4889351	18.0		97.1	37486	
499.00 > 99.00	3.163	3.145	0.018	1.023	1125132		4.35(0.90-1.10)	97.1	16340	
20 Perfluorononanoic acid										
463.00 > 419.00	3.205	3.202	0.003	1.000	3633207	19.7		98.5	58134	
D 18 13C4 PFOS										
503.00 > 80.00	3.205	3.204	0.001		13187105	54.6		114	308342	
D 19 13C5 PFNA										
468.00 > 423.00	3.214	3.208	0.006		10199601	57.3		115	340360	
D 26 M2-8:2FTS										
529.00 > 509.00	3.539	3.545	-0.006		4873285	52.6		110		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.539	3.546	-0.007	1.000	1931499	20.5		107		
D 21 13C8 FOSA										
506.00 > 78.00	3.565	3.559	0.006		19888389	54.2		108	344996	
D 23 13C2 PFDA										
515.00 > 470.00	3.565	3.560	0.005		9661817	58.0		116	234911	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.556	3.560	-0.004	1.000	3277760	18.7		93.6	124974	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.565	3.561	0.004	1.000	7187955	20.1		101	199090	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.707	3.710	-0.003		4769931	56.0		112		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.717	3.713	0.004	1.003	1695690	18.3		91.5		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.862	3.866	-0.004	1.000	3002868	18.3		94.8		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.870	3.875	-0.005		4515915	55.5		111		
D 30 13C2 PFUnA										
565.00 > 520.00	3.879	3.876	0.003		7346047	56.2		112	177174	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.879	3.878	0.001	1.000	2619295	17.6		87.9	88246	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.888	3.883	0.005	1.004	1606146	19.5		97.7		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.050	4.050	0.0		4579449	52.0		104		
35 MeFOSA										
512.00 > 169.00	4.059	4.057	0.002	1.000	1671133	19.5		97.5		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.165	4.162	0.003	1.000	2353395	19.5		97.4	29732	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA	615.00 > 570.00	4.165	4.164	0.001	6606261	53.3		107	130372	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.240	4.235	0.005	4373613	51.3		103		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.249	4.242	0.007	1.000	1676481		19.5	97.4	
41 Perfluorotridecanoic acid	663.00 > 619.00	4.418	4.424	-0.006	1.000	2207561		19.1	95.6	38950
D 43 13C2-PFTeDA	715.00 > 670.00	4.652	4.655	-0.003		13623388		52.6	105	303779
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.652	4.657	-0.005	1.000	4960846		19.1	95.5	38169
	713.00 > 169.00	4.652	4.657	-0.005	1.000	658342	7.54(0.00-0.00)	95.5	69558	
D 44 13C2-PFHxDA	815.00 > 770.00	5.057	5.057	0.0		6330845		50.6	101	91907
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.057	5.059	-0.002	1.000	2071027		16.5	82.7	2327
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.398	5.399	-0.001	1.000	1687895		17.8	89.0	2245

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L4_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_006.d

Injection Date: 01-Mar-2017 11:31:20

Instrument ID: A8_N

Lims ID: IC L4 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 31

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

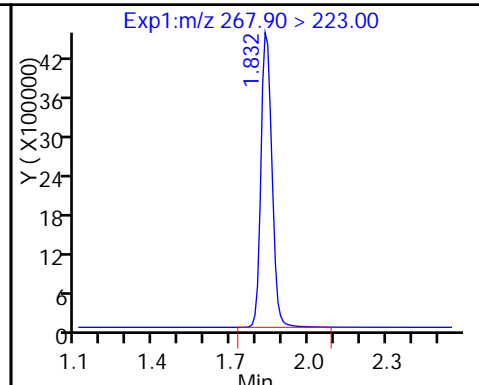
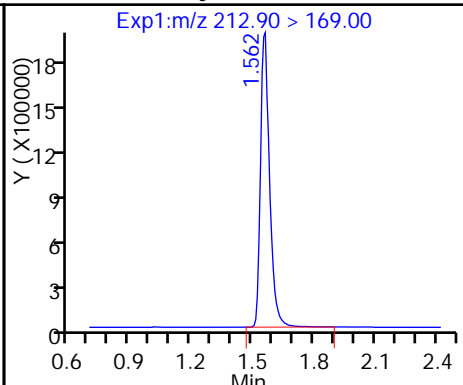
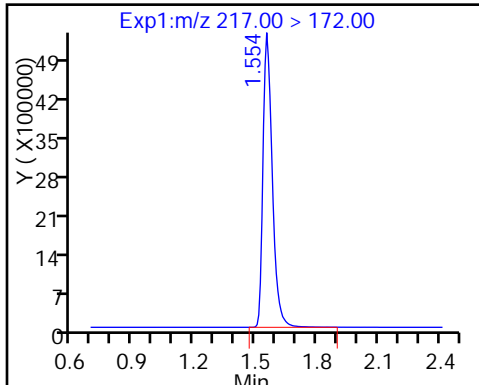
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

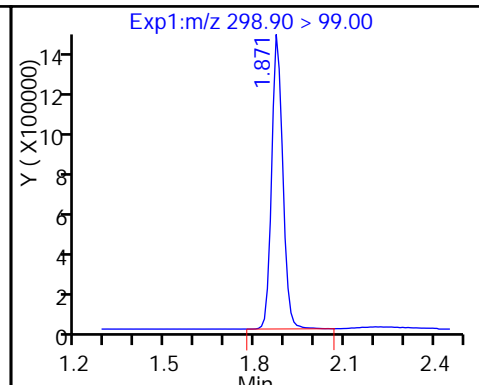
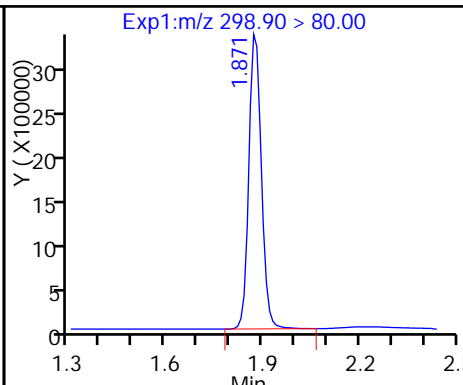
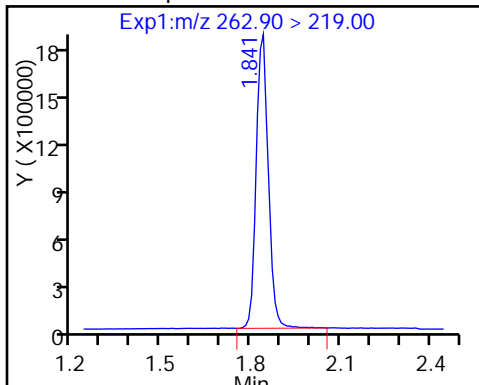
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

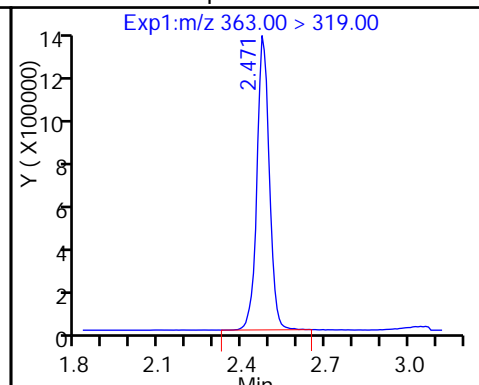
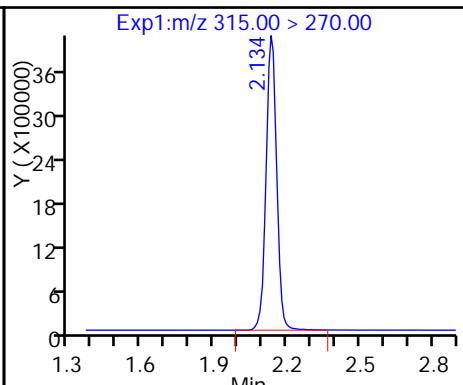
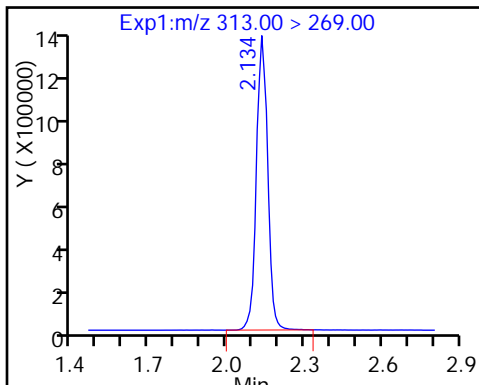
5 Perfluorobutanesulfonic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

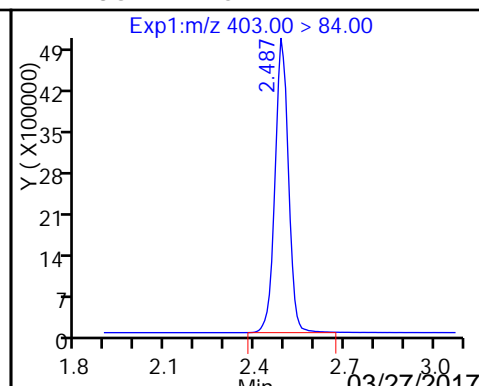
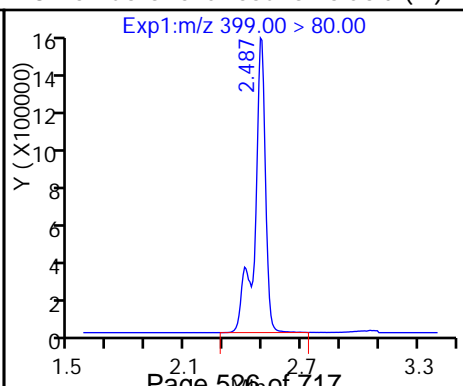
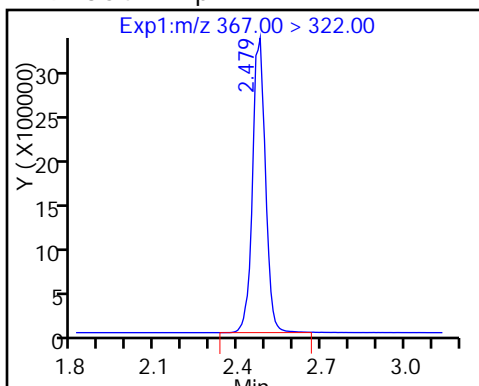
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

8 Perfluorohexanesulfonic acid (M)

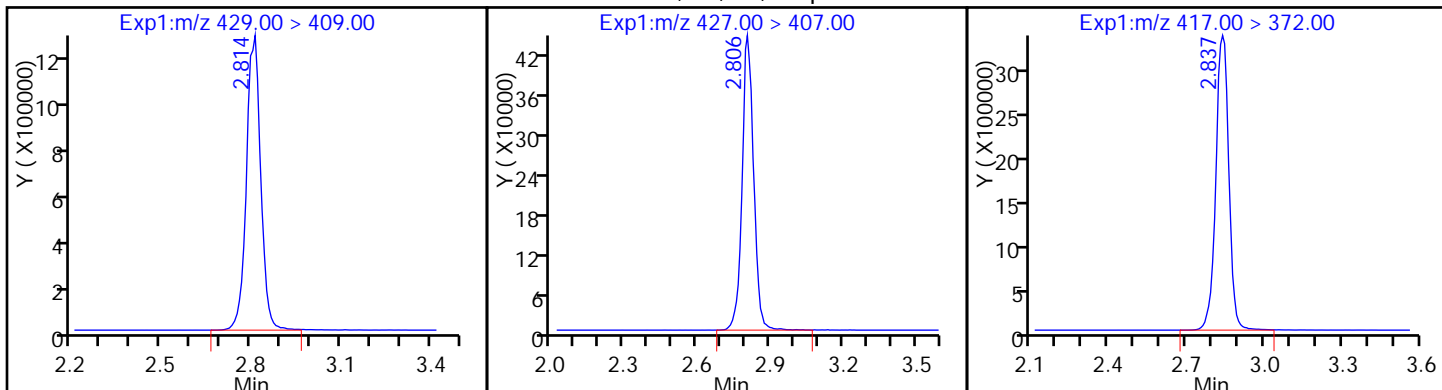
D 11 18O2 PFHxS



D 12 M2-6:2FTS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

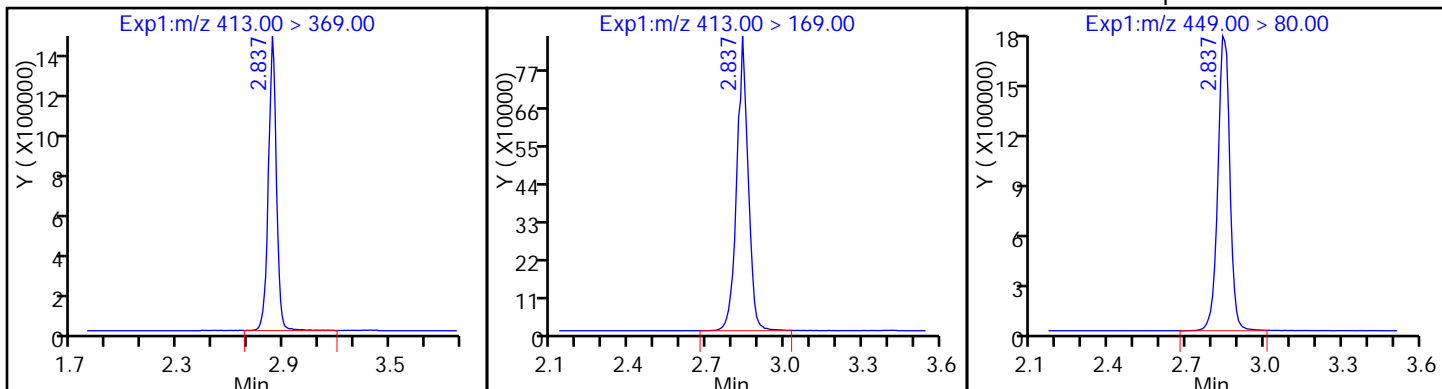
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

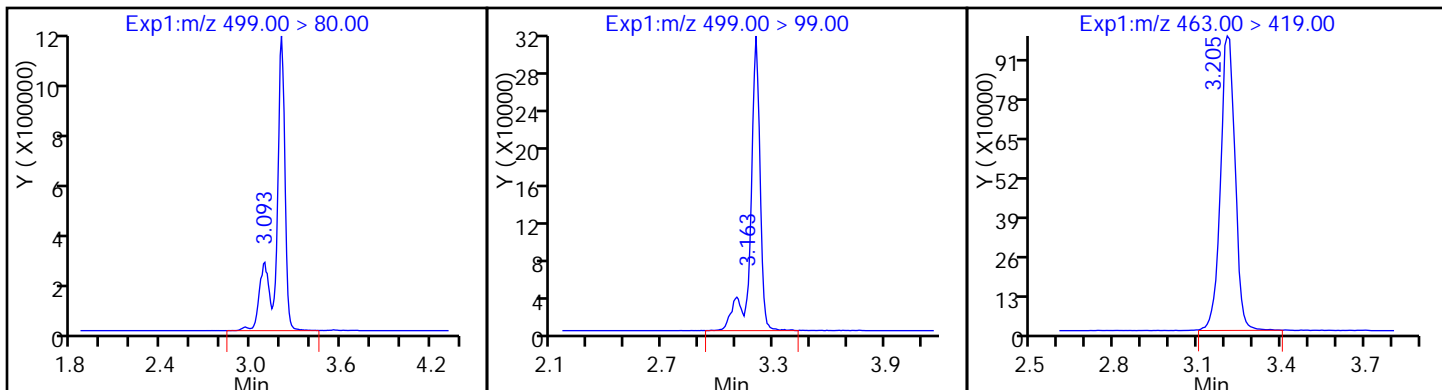
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

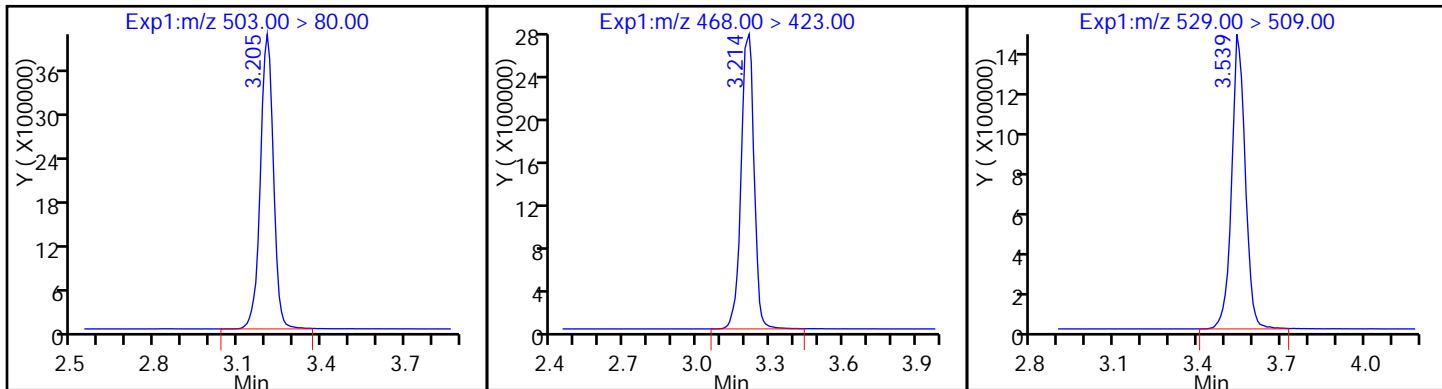
20 Perfluorononanoic acid



D 18 13C4 PFOS

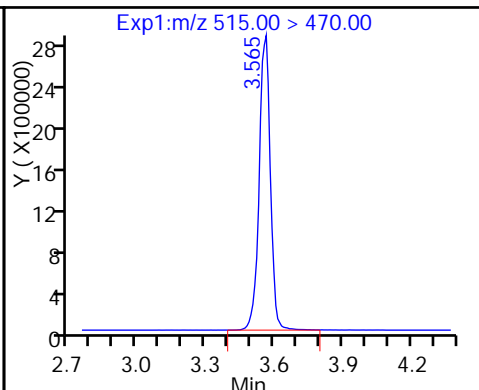
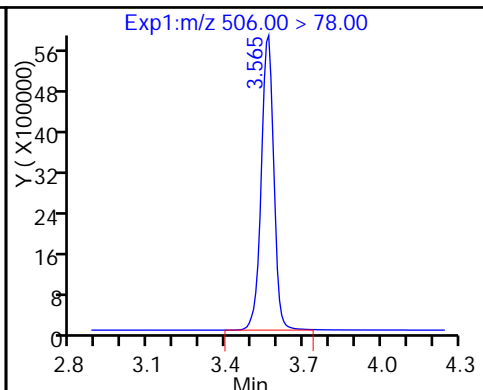
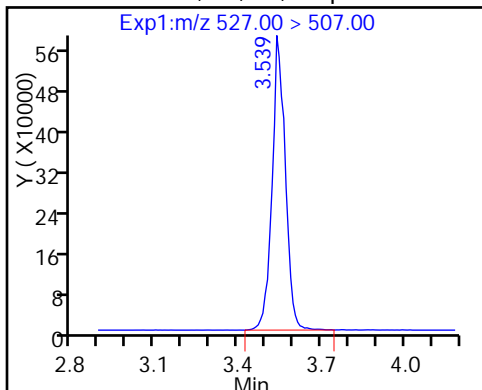
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctanoate

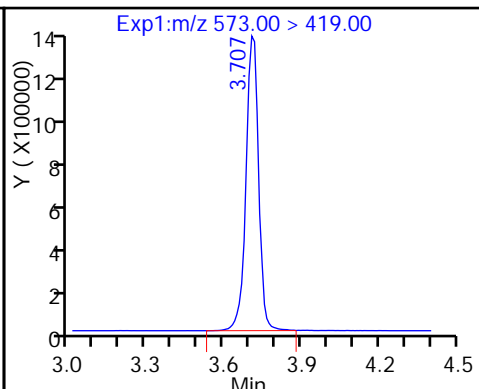
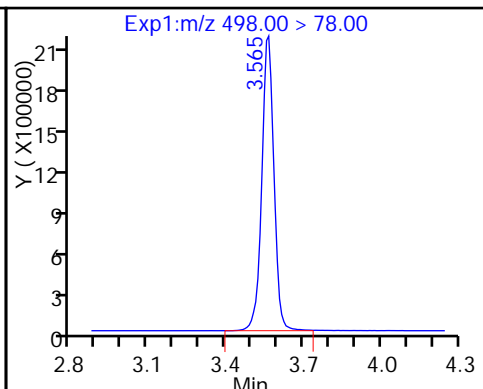
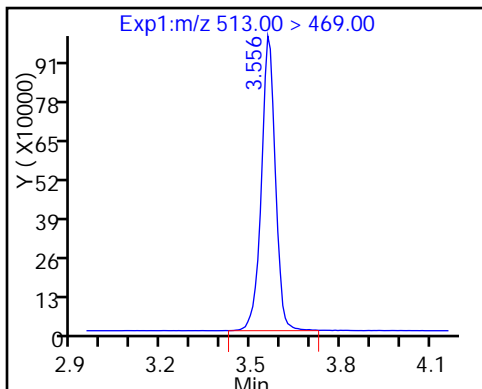
D 23 13C2 PFDA



24 Perfluorodecanoic acid

22 Perfluorooctane Sulfonamide

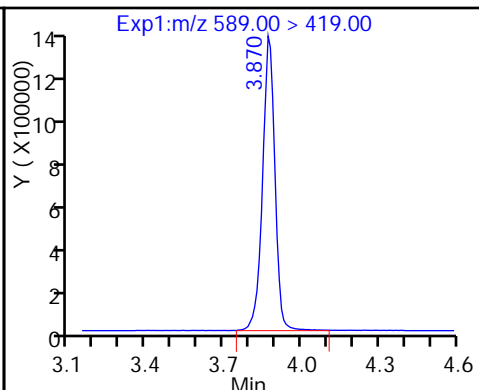
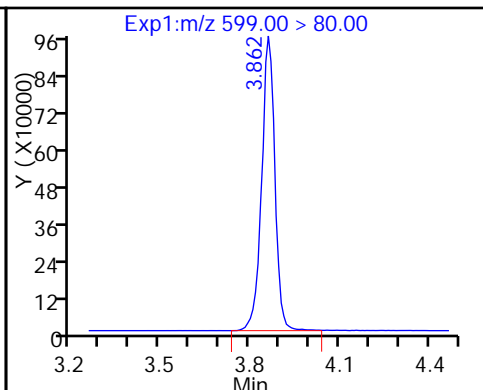
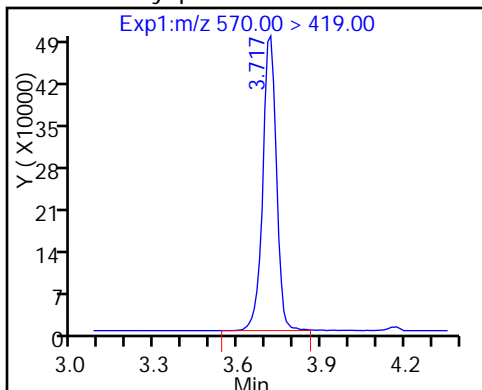
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonamide

29 Perfluorodecane Sulfonic acid

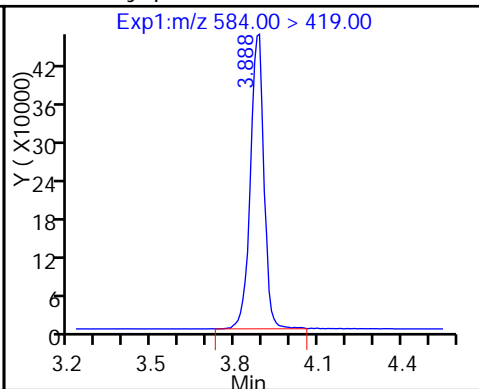
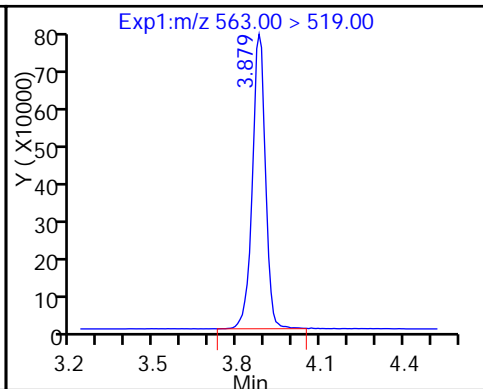
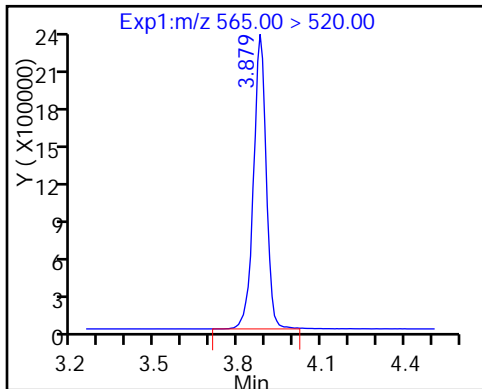
D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

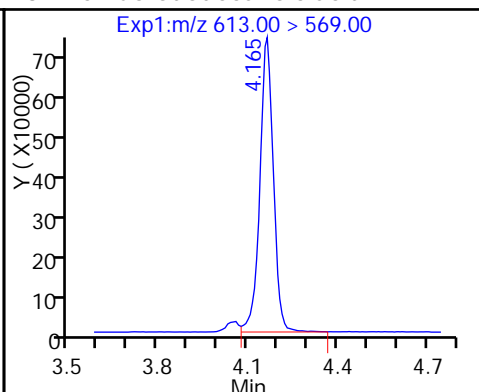
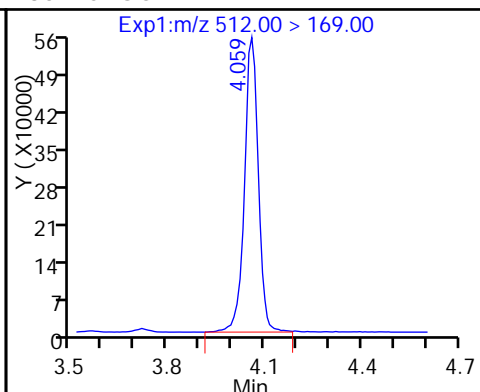
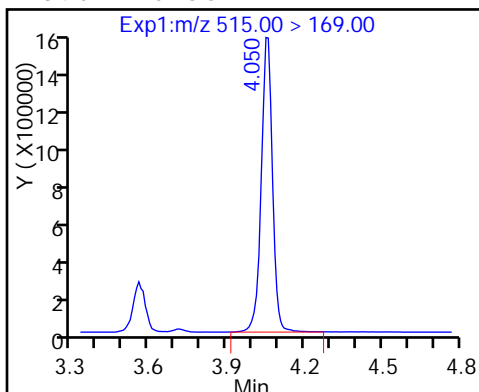
33 N-ethyl perfluorooctane sulfonamide



D 34 d-N-MeFOSA-M

35 MeFOSA

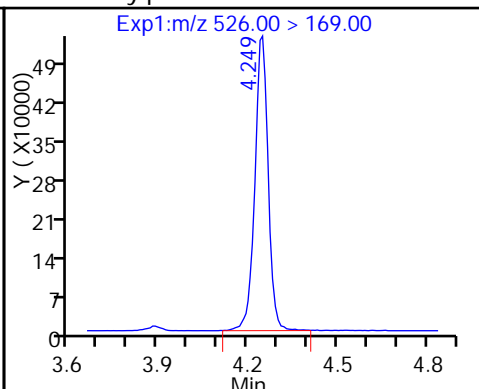
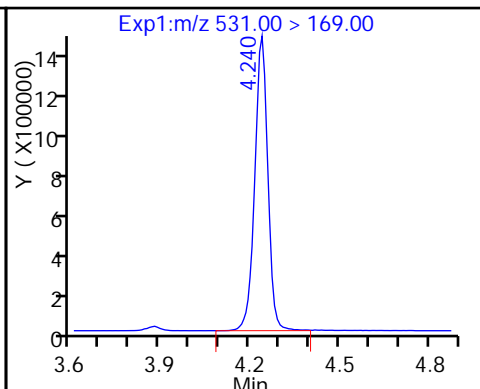
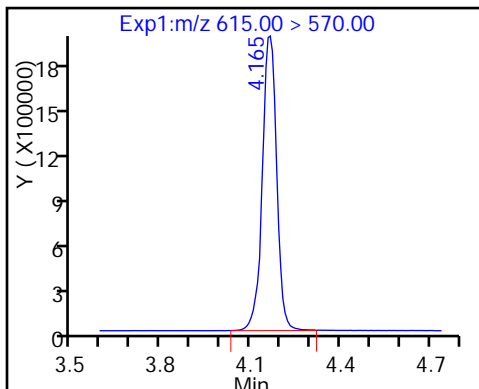
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

D 38 d-N-EtFOSA-M

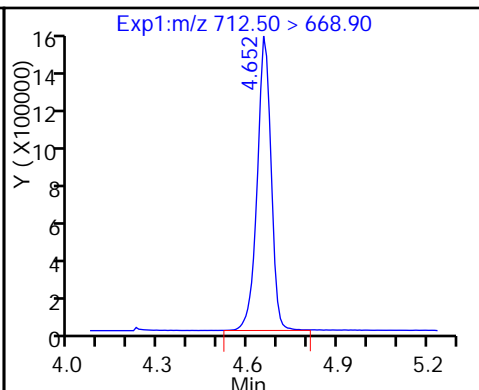
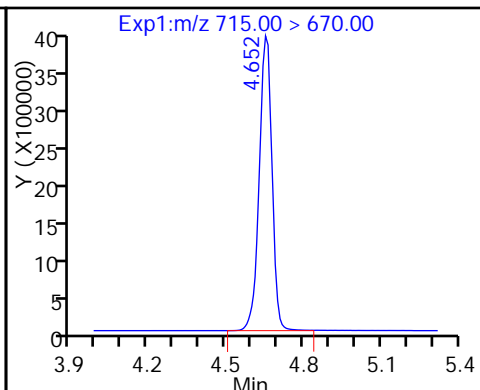
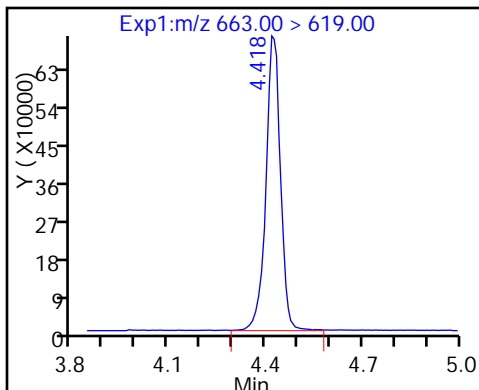
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

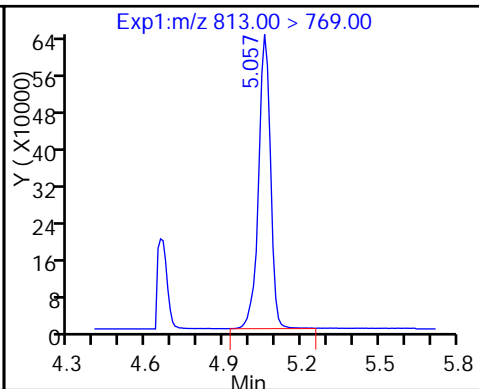
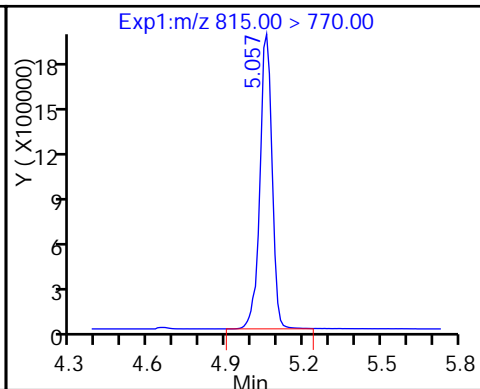
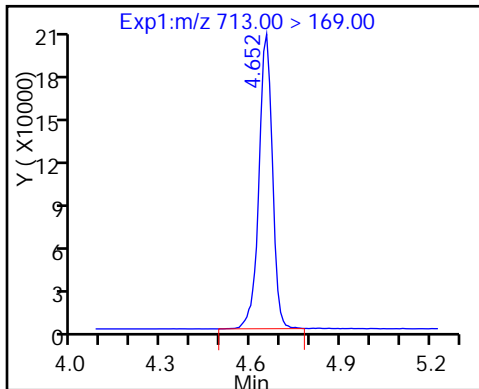
42 Perfluorotetradecanoic acid



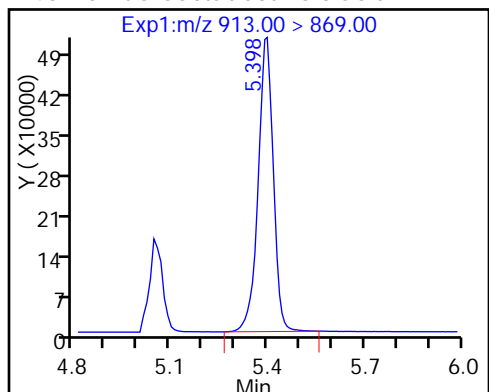
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

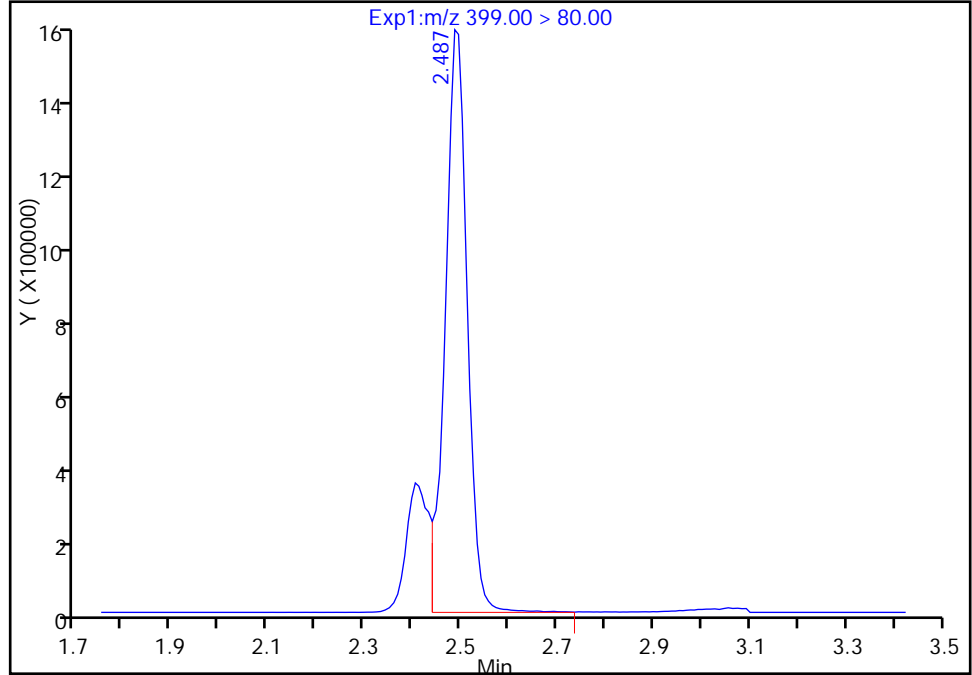
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_006.d
Injection Date: 01-Mar-2017 11:31:20 Instrument ID: A8_N
Lims ID: IC L4 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

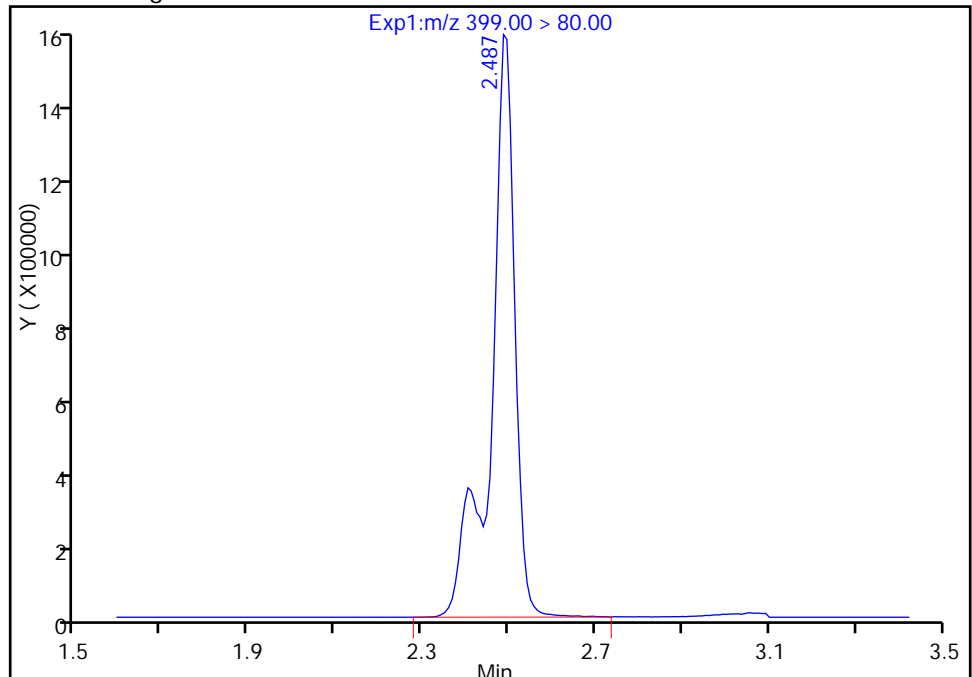
RT: 2.49
Area: 4875110
Amount: 17.771425
Amount Units: ng/ml

Processing Integration Results



RT: 2.49
Area: 5958886
Amount: 17.225343
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:13
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d

Lims ID: IC L5 Full

Client ID:

Sample Type: IC Calib Level: 5

Inject. Date: 01-Mar-2017 11:38:49 ALS Bottle#: 32 Worklist Smp#: 6

Injection Vol: 2.0 ul Dil. Factor: 1.0000

Sample Info: L5-FULL

Misc. Info.: Plate: 1 Rack: 1

Operator ID: A8-PC\A8 Instrument ID: A8_N

Sublist: chrom-A8_N*sub15

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m

Limit Group: LC PFC_DOD ICAL

Last Update: 01-Mar-2017 15:43:16 Calib Date: 01-Mar-2017 11:53:47

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 12:02:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 1 13C4 PFBA

217.00 > 172.00 1.546 1.553 -0.007 14941160 51.1 102 667479

2 Perfluorobutyric acid

212.90 > 169.00 1.554 1.558 -0.004 1.000 13491384 53.3 107 127406

D 3 13C5-PFPeA

267.90 > 223.00 1.821 1.832 -0.011 11440005 49.3 98.5 626699

4 Perfluoropentanoic acid

262.90 > 219.00 1.831 1.835 -0.004 1.000 11520213 51.5 103 120087

5 Perfluorobutanesulfonic acid

298.90 > 80.00 1.871 1.872 -0.001 1.000 19236596 45.5 103

298.90 > 99.00 1.871 1.872 -0.001 1.000 8170789 2.35(0.00-0.00) 103

6 Perfluorohexanoic acid

313.00 > 269.00 2.127 2.133 -0.006 1.000 9710439 50.9 102 233505

D 7 13C2 PFHxA

315.00 > 270.00 2.127 2.134 -0.007 10719942 50.8 102 387004

10 Perfluoroheptanoic acid

363.00 > 319.00 2.466 2.474 -0.008 1.000 9559143 49.7 99.4 84389

D 9 13C4-PFHpA

367.00 > 322.00 2.466 2.475 -0.009 9944069 51.5 103 332028

8 Perfluorohexanesulfonic acid

399.00 > 80.00 2.481 2.485 -0.004 1.000 13776740 45.4 99.8 M

D 11 18O2 PFHxS

403.00 > 84.00 2.481 2.489 -0.008 13953506 48.0 101 272613

D 12 M2-6:2FTS

429.00 > 409.00 2.793 2.805 -0.012 3650448 47.3 99.6

13 Sodium 1H,1H,2H,2H-perfluorooctane

427.00 > 407.00 2.793 2.807 -0.014 1.000 3256270 47.7 101

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	2.824	2.835	-0.011	1.000	10343315	50.5		101	113108	
413.00 > 169.00	2.824	2.835	-0.011	1.000	6136507		1.69(0.90-1.10)	101	139975	
D 14 13C4 PFOA										
417.00 > 372.00	2.824	2.835	-0.011		10019820	48.9		97.8	414712	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.831	2.842	-0.011	1.000	12919018	50.5		106		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.087	3.145	-0.058	1.000	11786011	48.3		104	66281	
499.00 > 99.00	3.199	3.145	0.054	1.037	2666087		4.42(0.90-1.10)	104	7715	
20 Perfluorononanoic acid										
463.00 > 419.00	3.191	3.202	-0.011	1.000	8361339	51.7		103	164244	
D 18 13C4 PFOS										
503.00 > 80.00	3.199	3.204	-0.005		11866933	49.1		103	197438	
D 19 13C5 PFNA										
468.00 > 423.00	3.199	3.208	-0.009		8936977	50.2		100	263744	
D 26 M2-8:2FTS										
529.00 > 509.00	3.535	3.545	-0.010		4360731	47.1		98.3		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.543	3.546	-0.003	1.002	4074481	48.4		101		
D 21 13C8 FOSA										
506.00 > 78.00	3.560	3.559	0.001		18558718	50.6		101	247034	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.552	3.560	-0.008	1.000	7779706	53.2		106	168568	
D 23 13C2 PFDA										
515.00 > 470.00	3.552	3.560	-0.008		8074243	48.4		96.9	187283	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.560	3.561	-0.001	1.000	17500489	52.5		105	422956	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.702	3.710	-0.008		4409894	51.8		104		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.702	3.713	-0.011	1.000	4062831	47.4		94.9		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.859	3.866	-0.007	1.000	7386234	49.9		104		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.867	3.875	-0.008		4108227	50.5		101		
D 30 13C2 PFUnA										
565.00 > 520.00	3.867	3.876	-0.009		6419845	49.1		98.2	215302	M
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.867	3.878	-0.011	1.000	6388091	49.1		98.2	145481	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.876	3.883	-0.007	1.002	3565748	47.7		95.3		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.048	4.050	-0.002		4549448	51.7		103		
35 MeFOSA										
512.00 > 169.00	4.058	4.057	0.001	1.000	4038740	47.4		94.9		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.157	4.162	-0.005	1.000	5939325	52.7		105	93610	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFD0A	615.00 > 570.00	4.157	4.164	-0.007		6158791	49.7	99.4	157158	
D 38 d-N-EtFOSA-M	531.00 > 169.00	4.241	4.235	0.006		4384481	51.4	103		
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	4.241	4.242	-0.001	1.000	4076562	47.3	94.5		
41 Perfluorotridecanoic acid	663.00 > 619.00	4.418	4.424	-0.006	1.000	5662375	52.6	105	111159	
D 43 13C2-PFTeDA	715.00 > 670.00	4.641	4.655	-0.014		13257413	51.2	102	430727	
42 Perfluorotetradecanoic acid	712.50 > 668.90	4.651	4.657	-0.006	1.000	12631200	52.1	104	118223	
	713.00 > 169.00	4.651	4.657	-0.006	1.000	1664503	7.59(0.00-0.00)	104	123601	
D 44 13C2-PFHxDA	815.00 > 770.00	5.049	5.057	-0.008		6606731	52.8	106	93567	
45 Perfluorohexadecanoic acid	813.00 > 769.00	5.049	5.059	-0.010	1.000	5695645	49.5	99.0	5357	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.383	5.399	-0.016	1.000	4591929	52.0	104	6139	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L5_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d

Injection Date: 01-Mar-2017 11:38:49

Instrument ID: A8_N

Lims ID: IC L5 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 32

Worklist Smp#: 6

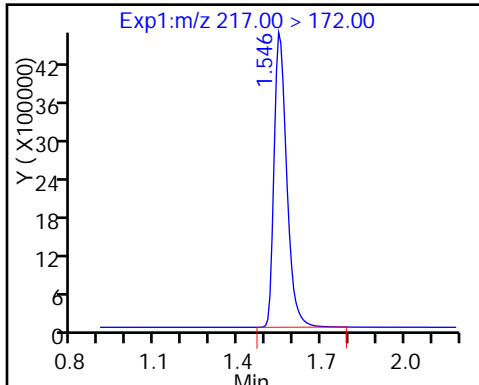
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

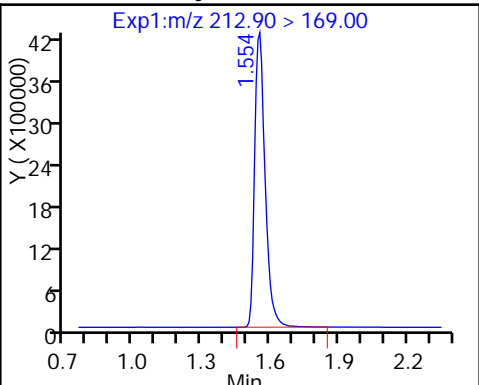
Method: A8_N

Limit Group: LC PFC_DOD ICAL

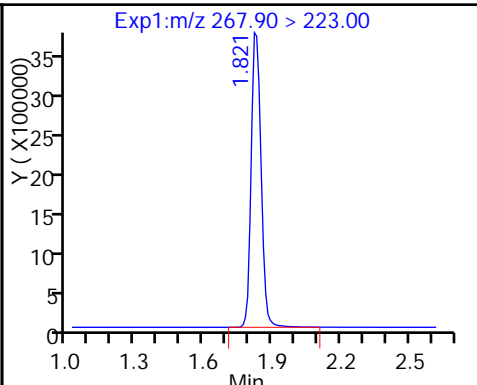
D 1 13C4 PFBA



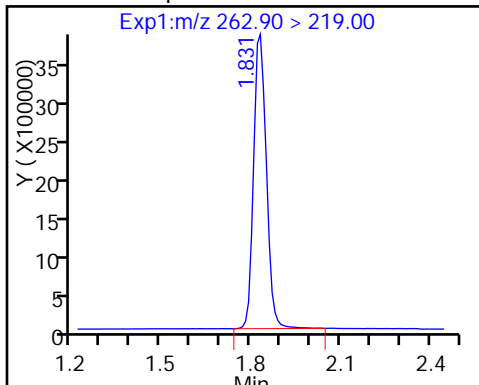
2 Perfluorobutyric acid



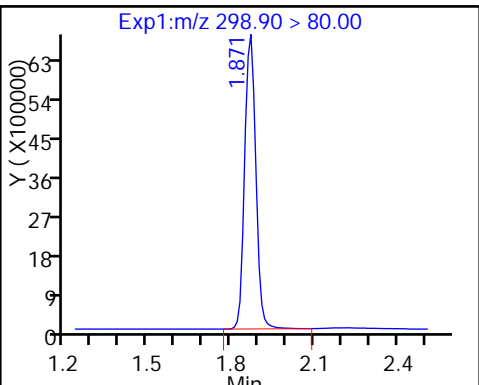
D 3 13C5-PFPeA



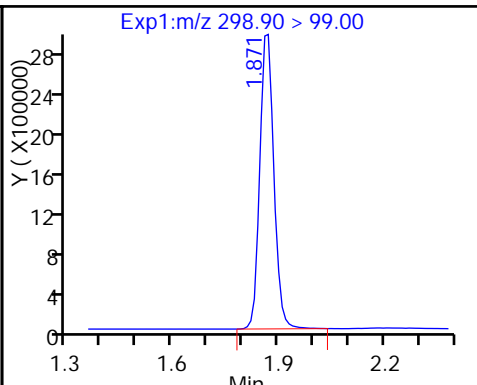
4 Perfluoropentanoic acid



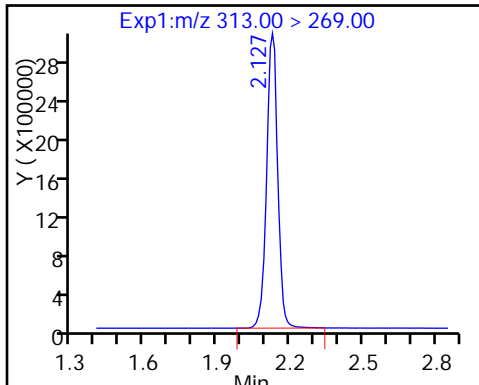
5 Perfluorobutanesulfonic acid



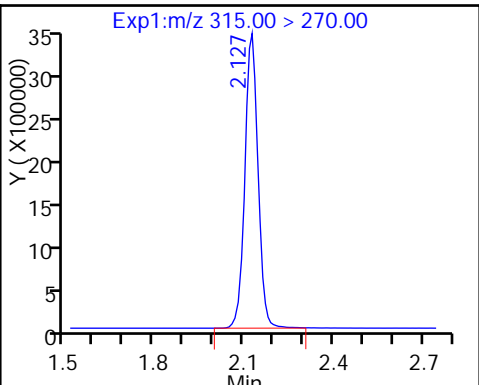
5 Perfluorobutanesulfonic acid



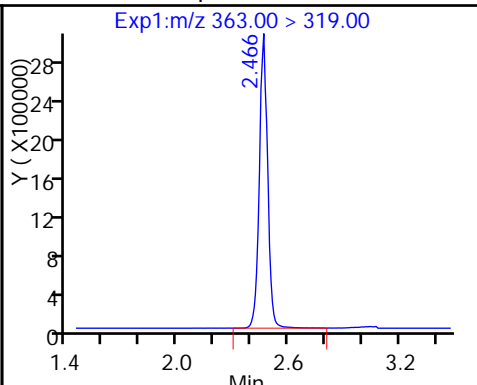
6 Perfluorohexanoic acid



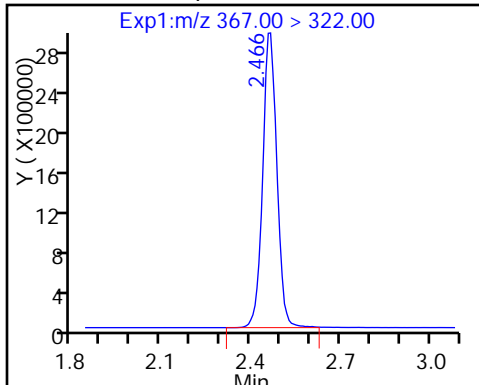
D 7 13C2 PFHxA



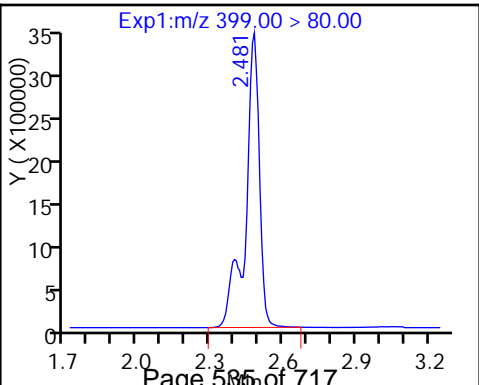
10 Perfluoroheptanoic acid



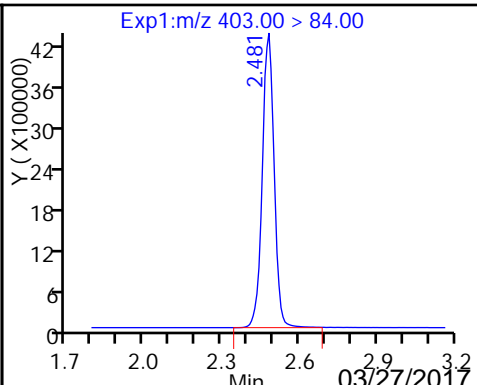
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid (M)

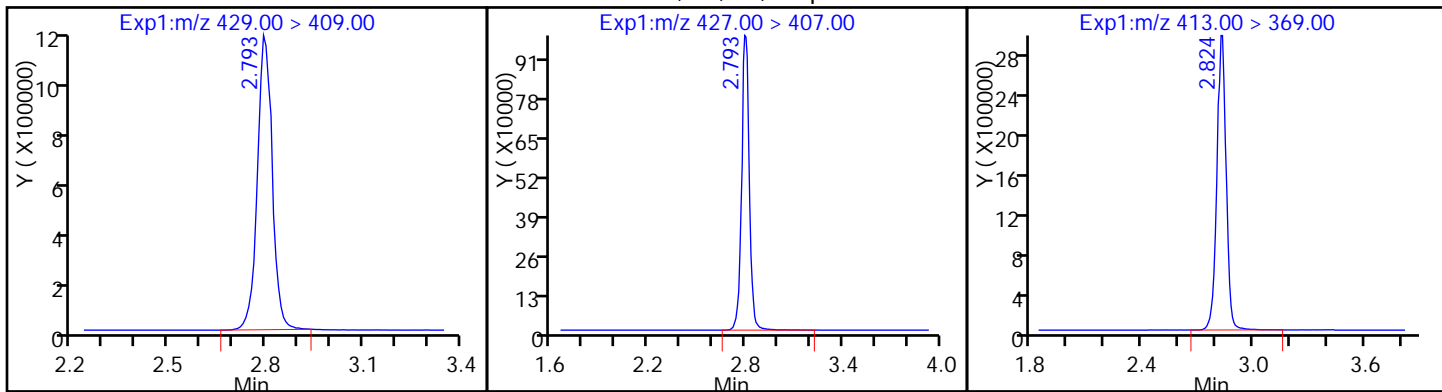


D 11 18O2 PFHxS



D 12 M2-6:2FTS

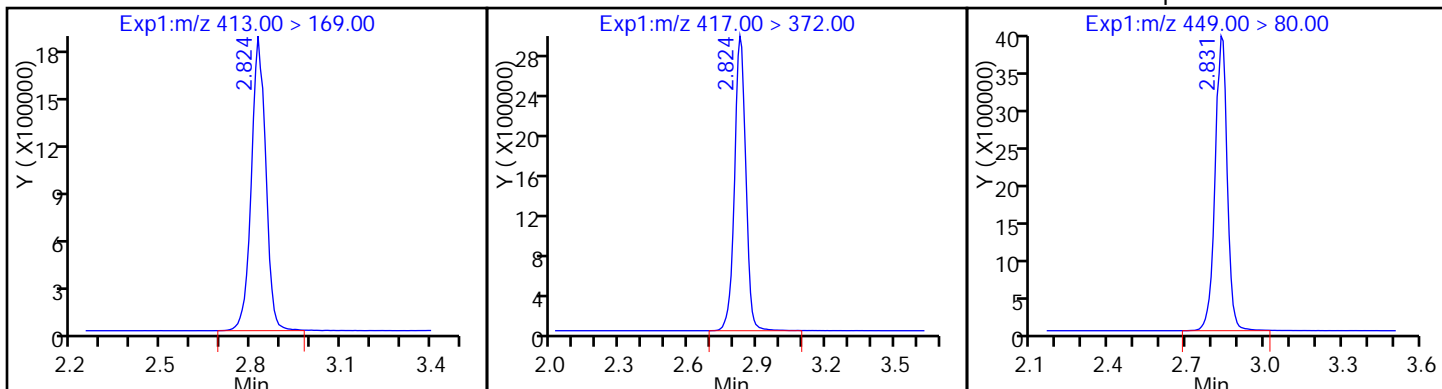
13 Sodium 1H,1H,2H,2H-perfluorooctane15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

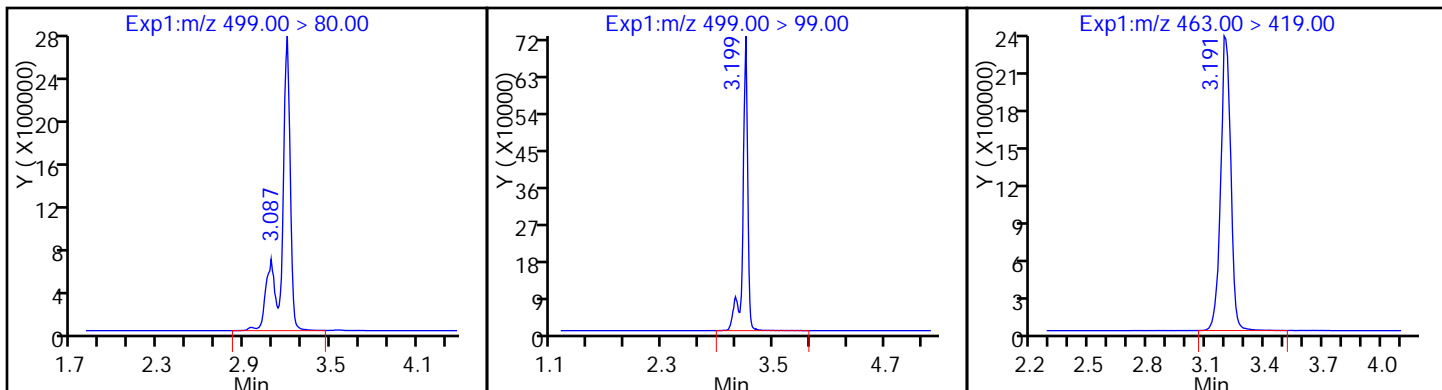
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

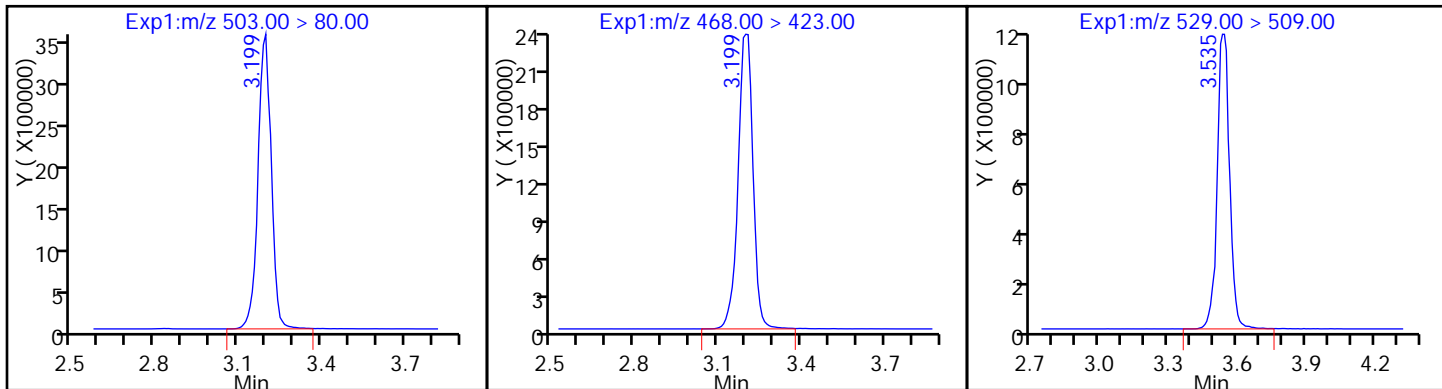
20 Perfluorononanoic acid



D 18 13C4 PFOS

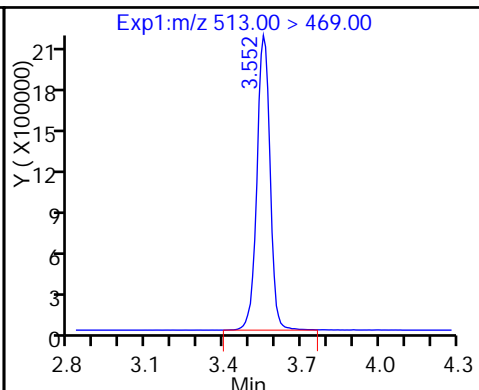
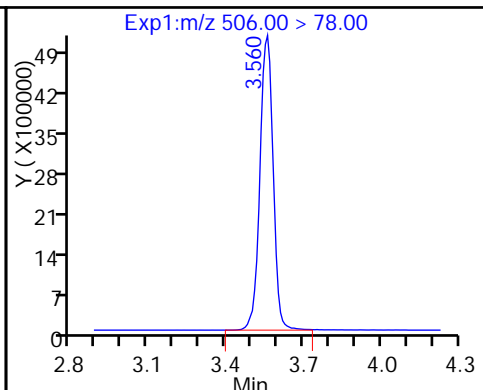
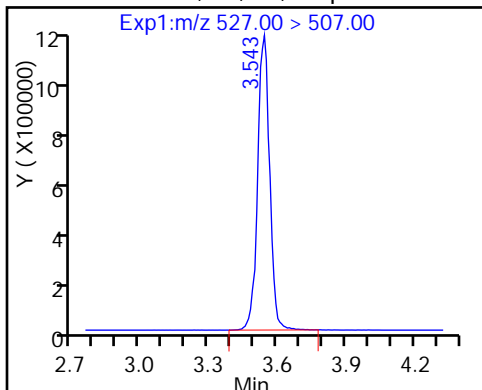
D 19 13C5 PFNA

D 26 M2-8:2FTS



25 Sodium 1H,1H,2H,2H-perfluorooctanoate

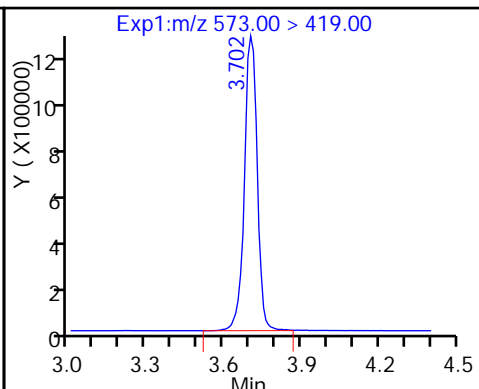
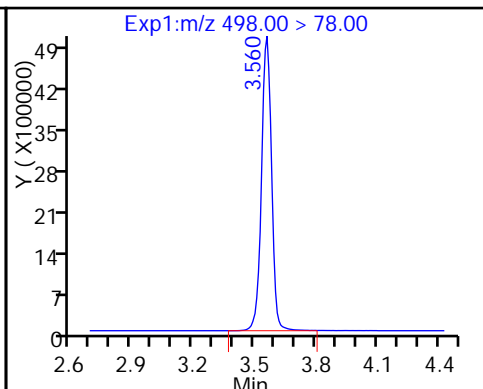
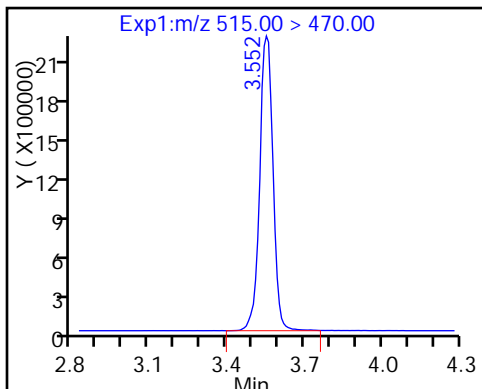
24 Perfluorodecanoic acid



D 23 13C2 PFDA

22 Perfluorooctane Sulfonamide

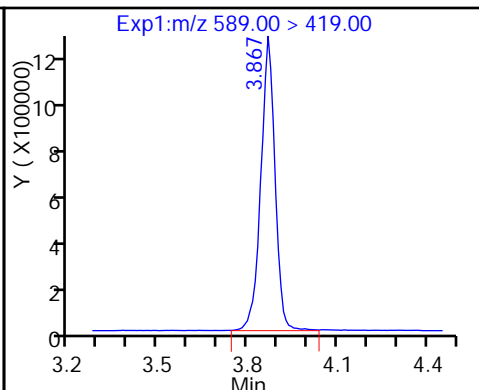
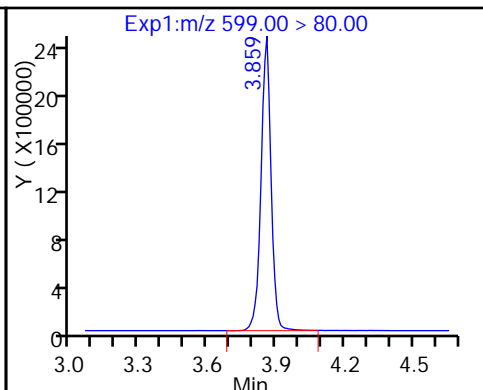
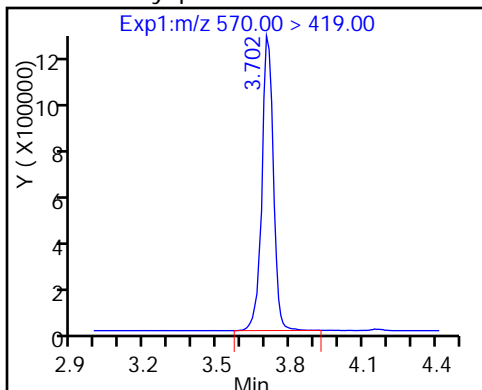
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

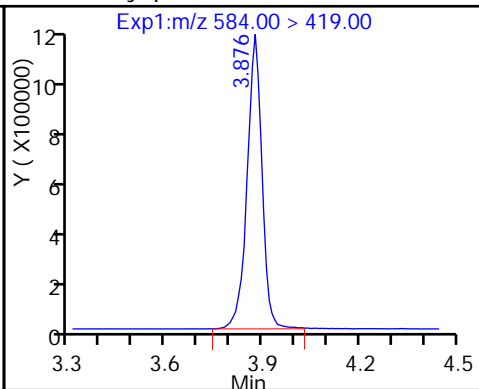
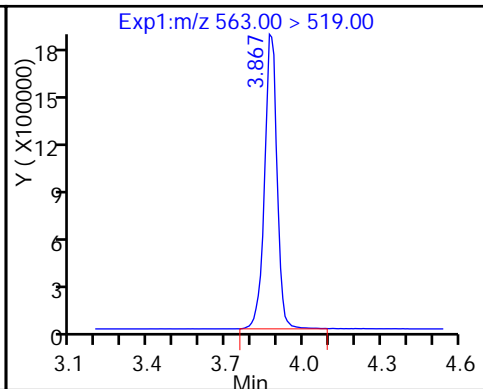
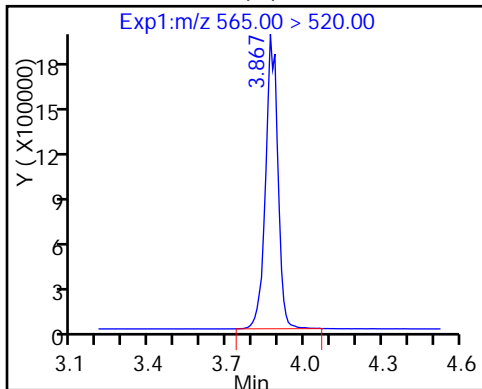
D 32 d5-NEtFOSAA



D 30 13C2 PFUnA (M)

31 Perfluoroundecanoic acid

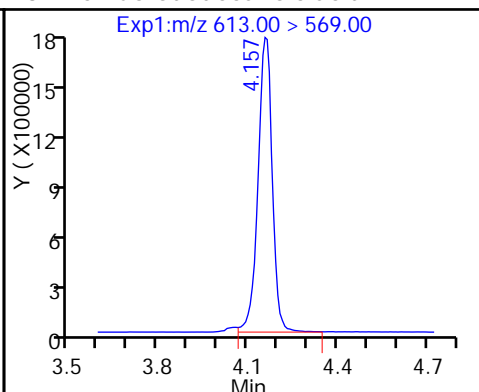
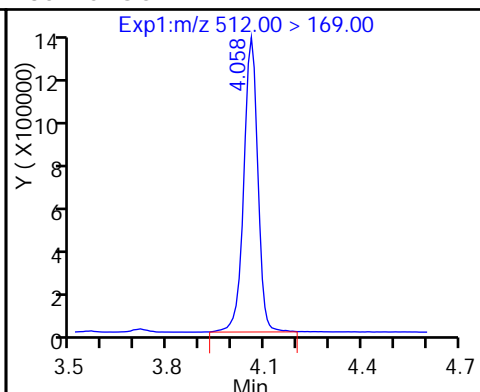
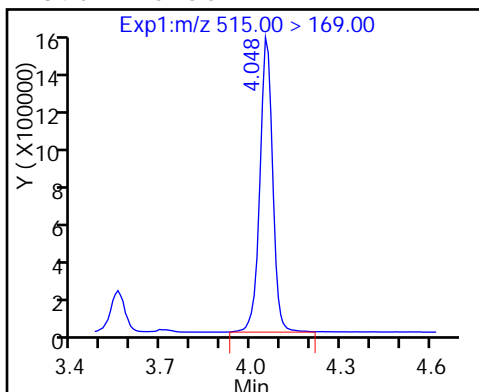
33 N-ethyl perfluorooctane sulfonamid



D 34 d-N-MeFOSA-M

35 MeFOSA

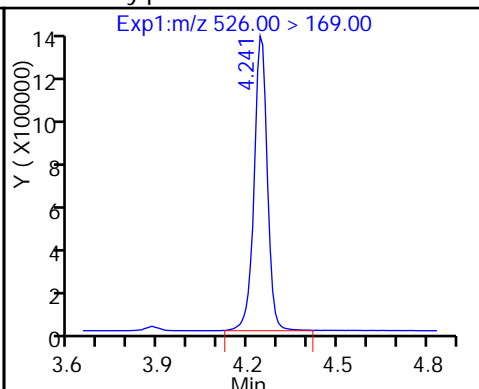
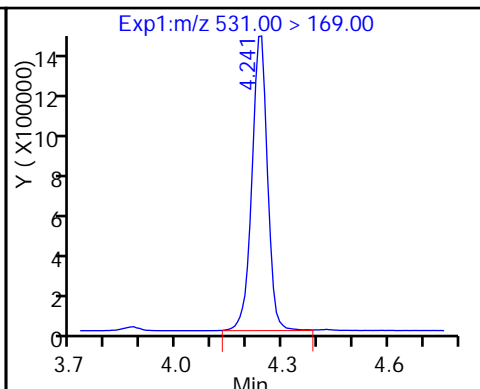
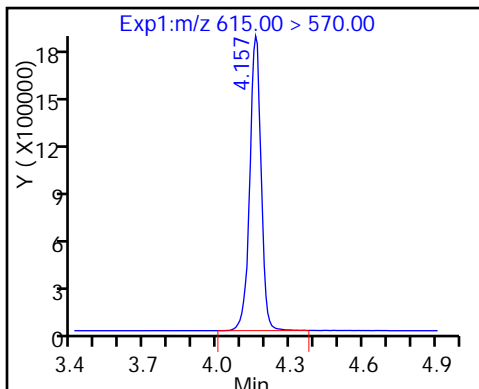
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

D 38 d-N-EtFOSA-M

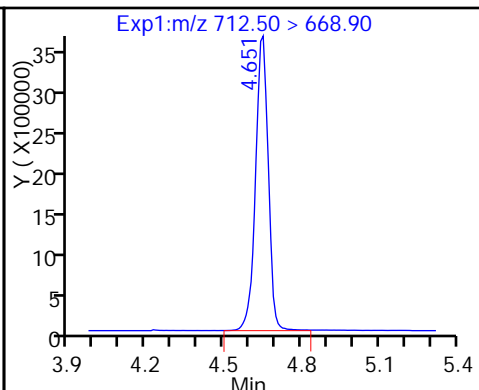
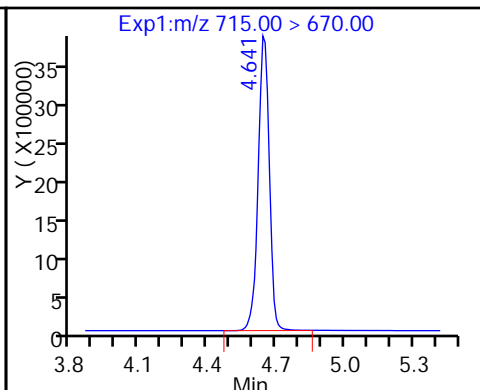
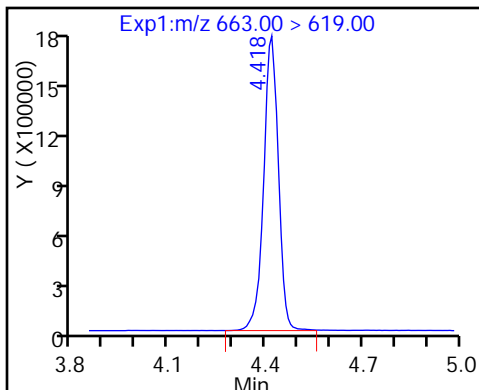
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

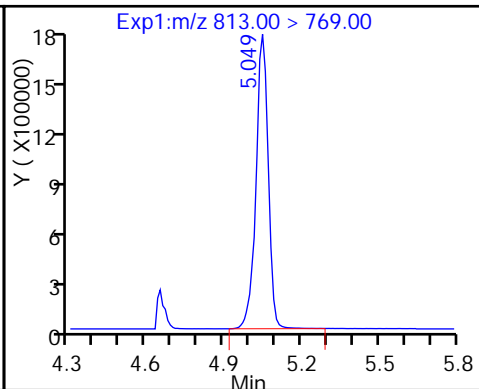
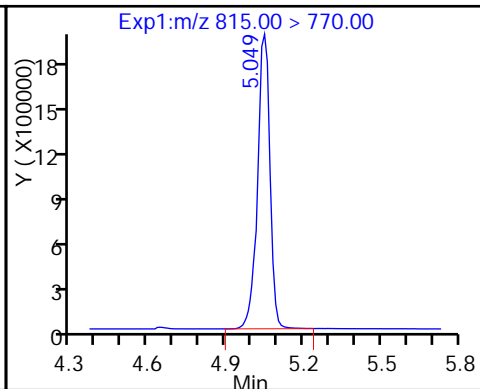
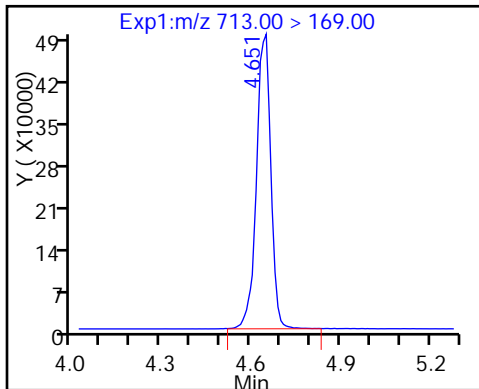
42 Perfluorotetradecanoic acid



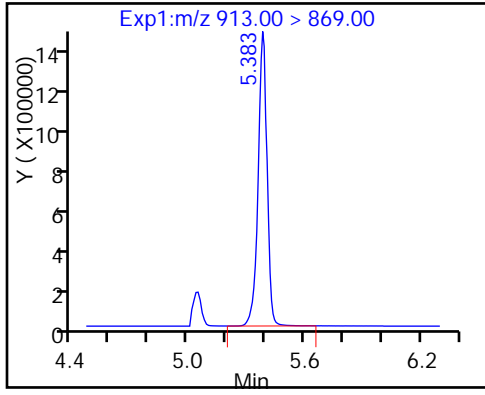
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

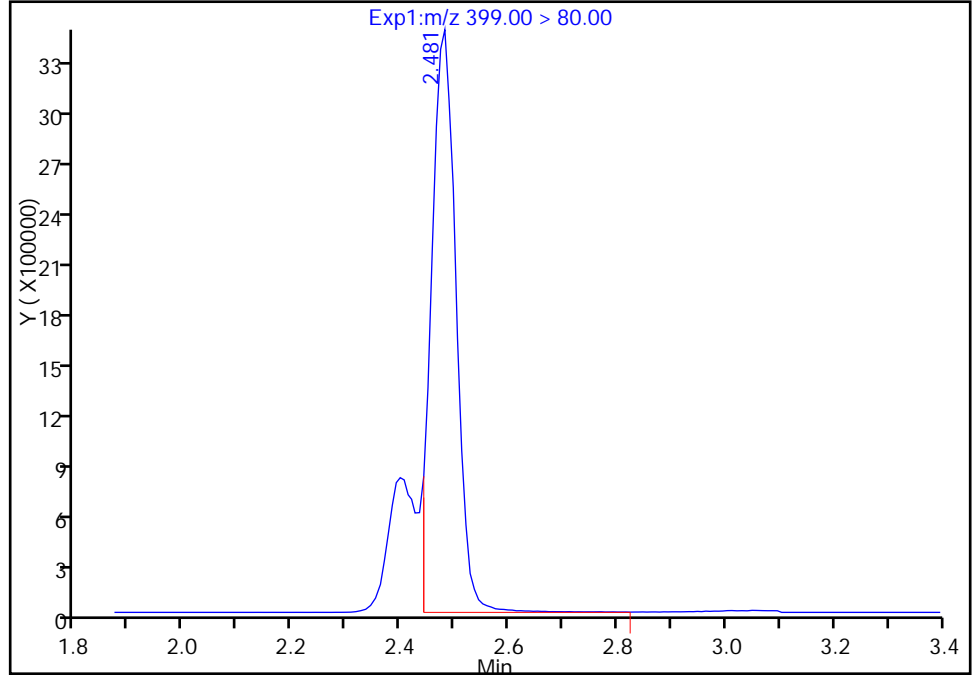
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Injection Date: 01-Mar-2017 11:38:49 Instrument ID: A8_N
Lims ID: IC L5 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

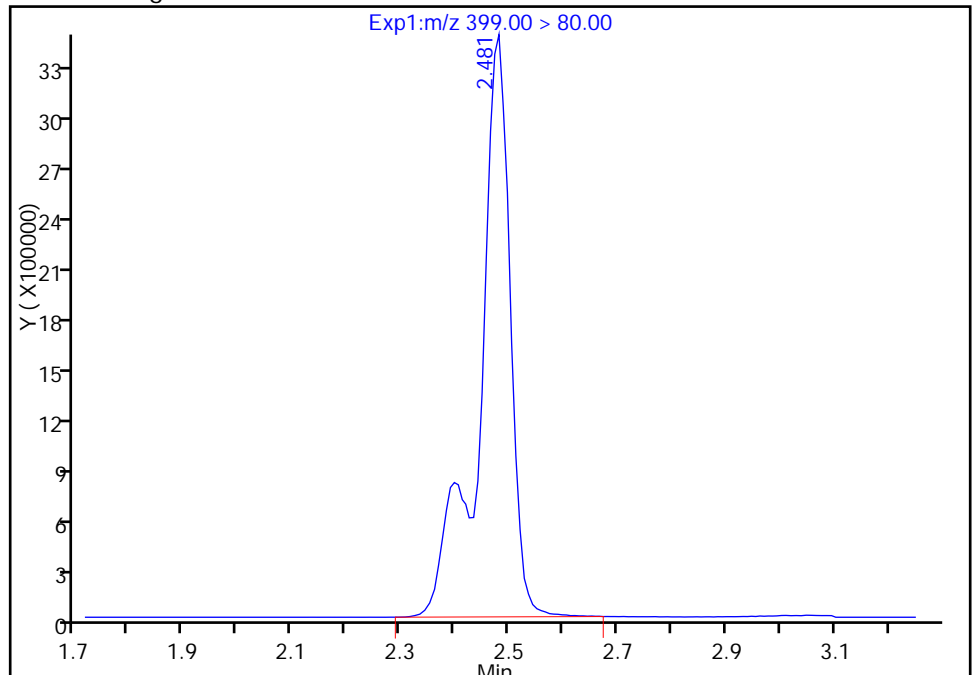
RT: 2.48
Area: 10754320
Amount: 35.081839
Amount Units: ng/ml

Processing Integration Results



RT: 2.48
Area: 13776740
Amount: 45.409199
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:15
Audit Action: Manually Integrated

Audit Reason: Isomers

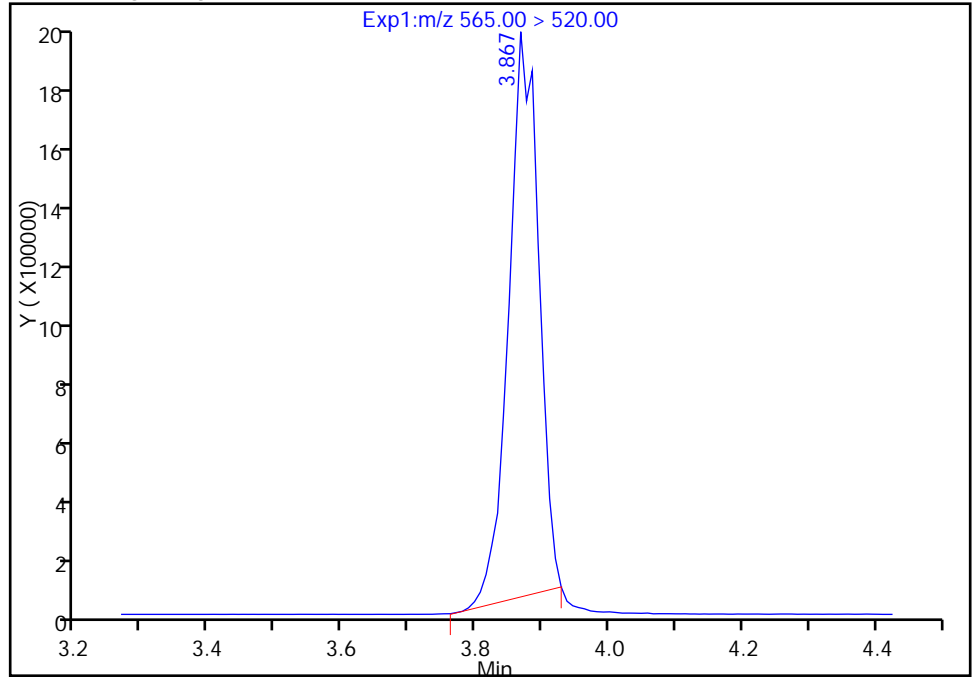
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_007.d
Injection Date: 01-Mar-2017 11:38:49 Instrument ID: A8_N
Lims ID: IC L5 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 30 13C2 PFUnA, CAS: STL00997
Signal: 1

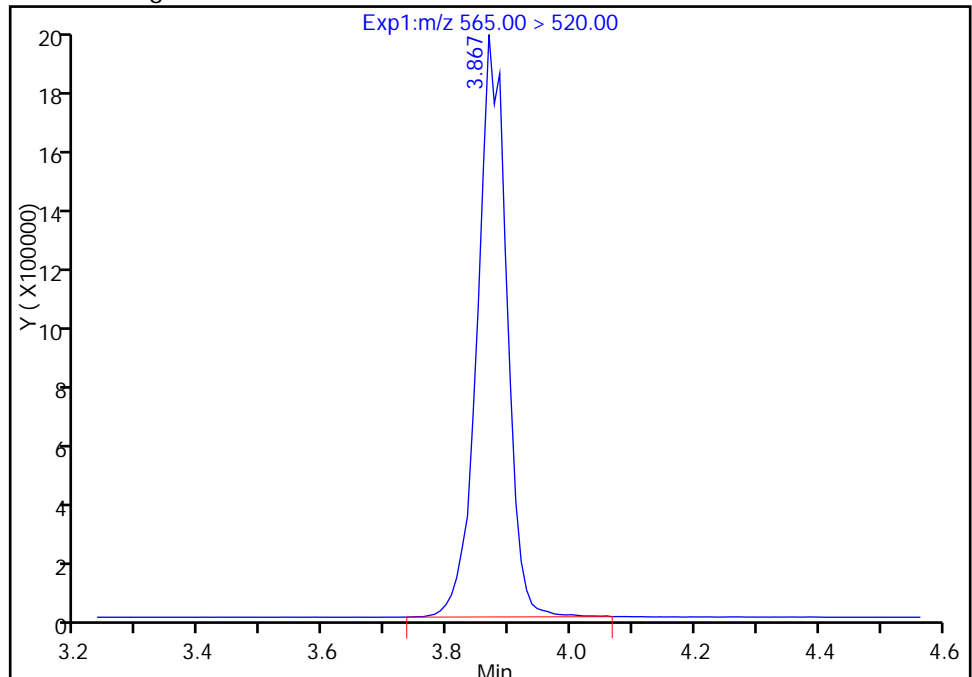
RT: 3.87
Area: 5863845
Amount: 45.473087
Amount Units: ng/ml

Processing Integration Results



RT: 3.87
Area: 6419845
Amount: 49.079386
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:15
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
 Lims ID: IC L6 Full
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 01-Mar-2017 11:46:18 ALS Bottle#: 33 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L6-FULL
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-A8_N*sub15
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\A8_N.m
 Limit Group: LC PFC_DOD ICAL
 Last Update: 01-Mar-2017 15:43:18 Calib Date: 01-Mar-2017 11:53:47
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK012

First Level Reviewer: chandrasenas Date: 01-Mar-2017 12:04:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.546	1.553	-0.007	12268568	42.0		84.0	717990	
2 Perfluorobutyric acid	212.90 > 169.00	1.554	1.558	-0.004	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	31900088	174.9		87.4	249960	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.861	1.872	-0.011	47824719	141.7		80.1		
	298.90 > 99.00	1.861	1.872	-0.011	24392241		1.96(0.00-0.00)	80.1		
6 Perfluorohexanoic acid	313.00 > 269.00	2.122	2.133	-0.011	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	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	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	11262289	177.0		93.3		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.820	2.835	-0.015		7688496	37.5		75.0	192123	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.820	2.835	-0.015	1.000	29743583	189.3		94.7	342015	
413.00 > 169.00	2.813	2.835	-0.022	0.997	18781119		1.58(0.90-1.10)	94.7	380819	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.828	2.842	-0.014	1.000	36282267	168.5		88.5		
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.186	3.145	0.041	1.000	39756569	193.5		104	230631	M
499.00 > 99.00	3.195	3.145	0.050	1.003	9596909		4.14(0.90-1.10)	104	294050	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.186	3.202	-0.016	1.000	26057481	206.4		103	338058	
D 18 13C4 PFOS										
503.00 > 80.00	3.186	3.204	-0.018		9985826	41.3		86.5	102426	
D 19 13C5 PFNA										
468.00 > 423.00	3.195	3.208	-0.013		6983620	39.3		78.5	207659	
D 26 M2-8:2FTS										
529.00 > 509.00	3.523	3.545	-0.022		3659550	39.5		82.5		M
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.523	3.546	-0.023	1.000	12220206	173.0		90.3		
D 21 13C8 FOSA										
506.00 > 78.00	3.548	3.559	-0.011		15188110	41.4		82.8	281288	
D 23 13C2 PFDA										
515.00 > 470.00	3.548	3.560	-0.012		6226569	37.4		74.7	124238	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.548	3.560	-0.012	1.000	24265114	215.2		108	364832	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.557	3.561	-0.004	1.000	47690261	174.7		87.4	485165	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.696	3.710	-0.014		4115011	48.3		96.6		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.707	3.713	-0.006	1.003	16290792	203.8		102		
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.853	3.866	-0.013	1.000	24675284	198.3		103		
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.862	3.875	-0.013		3122900	38.4		76.8		
D 30 13C2 PFUnA										
565.00 > 520.00	3.862	3.876	-0.014		4771549	36.5		73.0	166160	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.862	3.878	-0.016	1.000	18672321	193.0		96.5	304259	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.871	3.883	-0.012	1.002	11906031	209.4		105		
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.042	4.050	-0.008		4433562	50.4		101		
35 MeFOSA										
512.00 > 169.00	4.051	4.057	-0.006	1.000	17219029	207.6		104		
37 Perfluorododecanoic acid										
613.00 > 569.00	4.138	4.162	-0.024	1.000	19408225	199.4		99.7	328427	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA	615.00	> 570.00	4.152	4.164	-0.012	5320903	42.9	85.9	133785	M
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.227	4.235	-0.008	4425922	51.9	104		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.236	4.242	-0.006	1.000	17404238	199.9	99.9	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.407	4.424	-0.017	1.000	18379771	197.7	98.9	284610
D 43 13C2-PFTeDA	715.00	> 670.00	4.635	4.655	-0.020		11353892	43.8	87.6	278458
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.635	4.657	-0.022	1.000	39468467	188.6	94.3	283243
	713.00	> 169.00	4.635	4.657	-0.022	1.000	6001611	6.58(0.00-0.00)	94.3	215597
D 44 13C2-PFHxDA	815.00	> 770.00	5.035	5.057	-0.022		5879424	47.0	94.0	81025
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.046	5.059	-0.013	1.000	20137749	203.8	102	23053
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.375	5.399	-0.024	1.000	17831844	233.5	117	22435

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L6_00002

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d

Injection Date: 01-Mar-2017 11:46:18

Instrument ID: A8_N

Lims ID: IC L6 Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 33

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

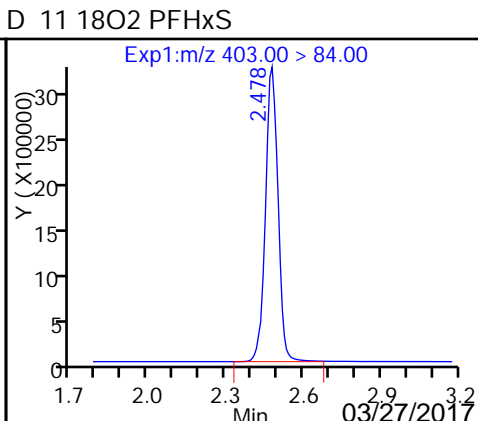
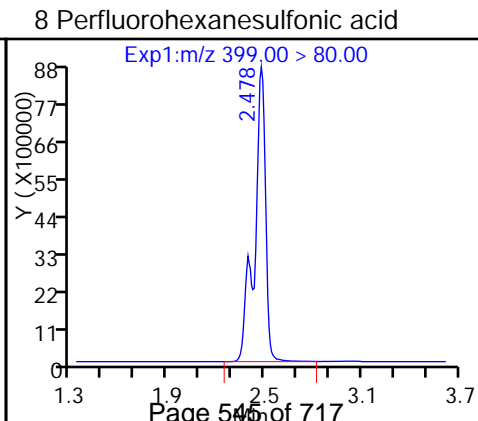
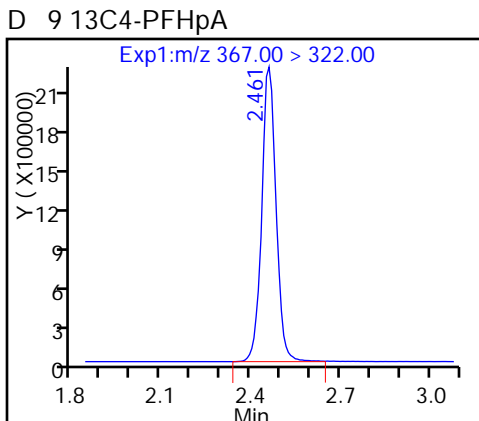
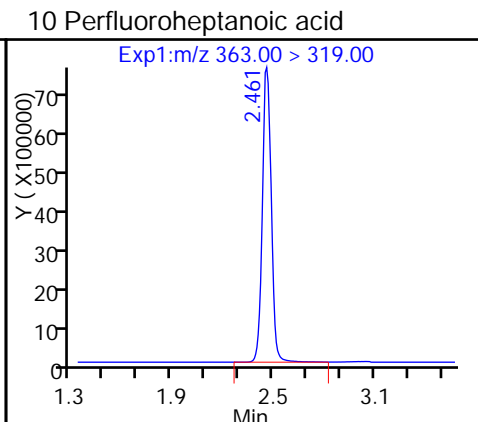
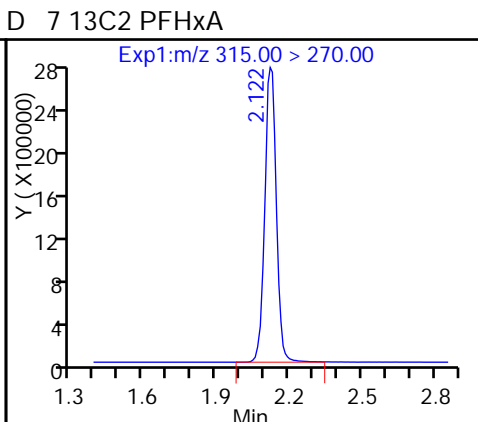
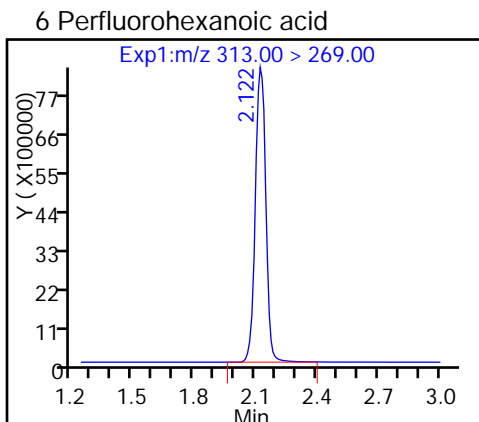
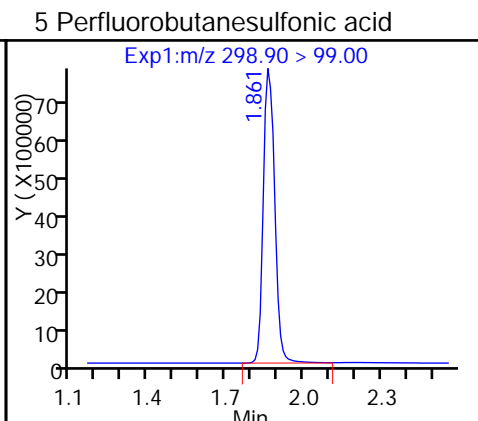
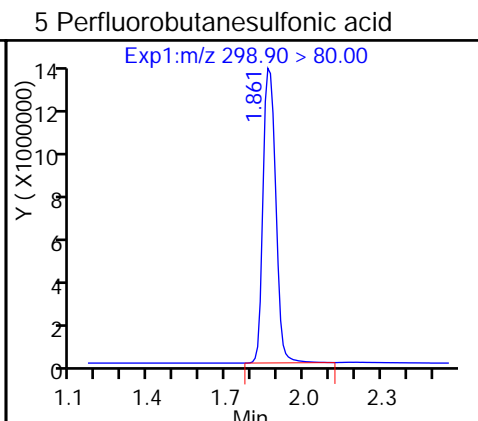
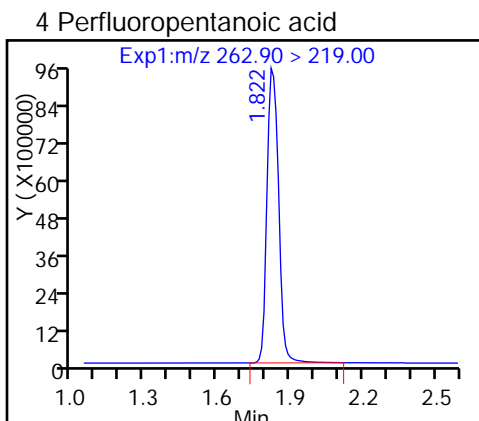
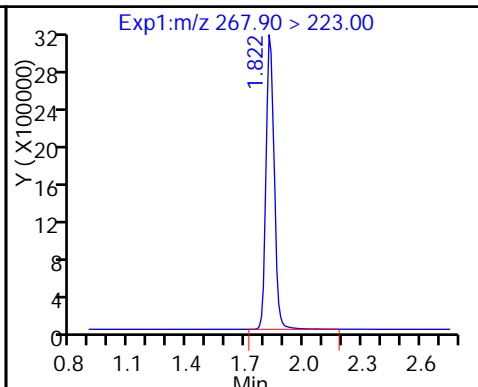
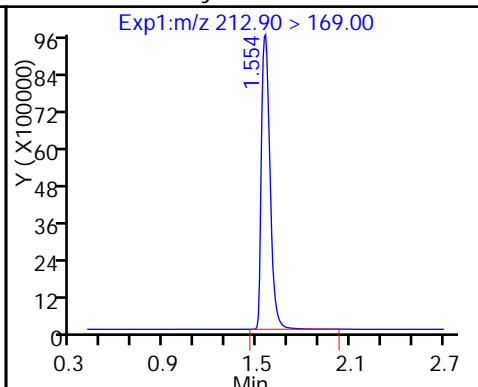
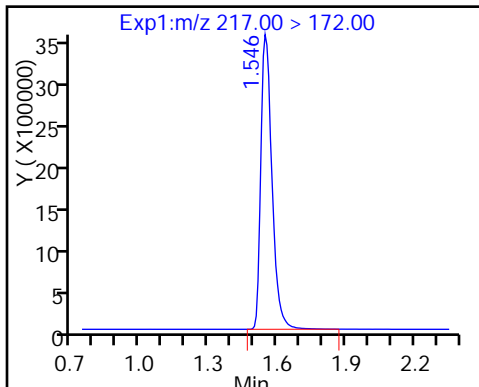
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

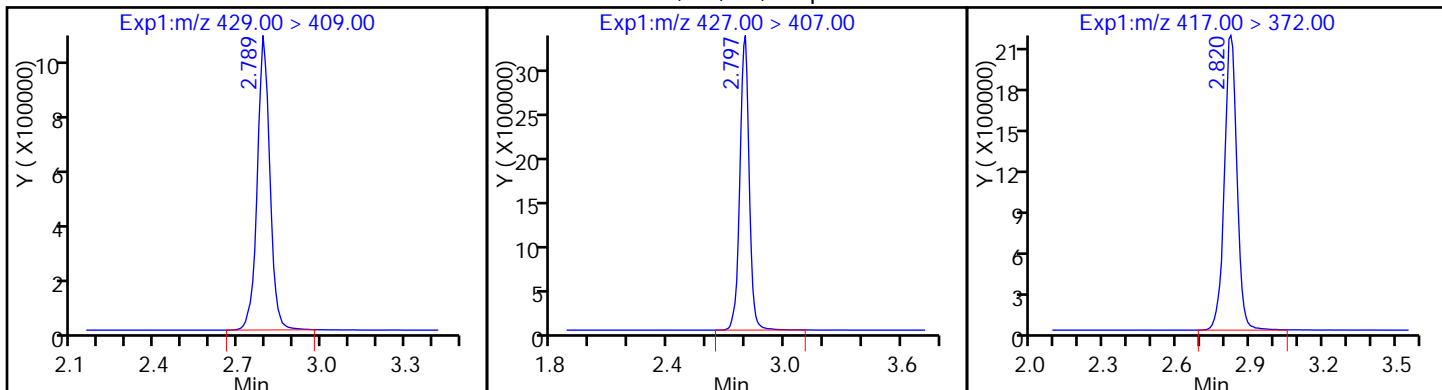
D 3 13C5-PFPeA



D 12 M2-6:2FTS

13 Sodium 1H,1H,2H,2H-perfluorooctanoate

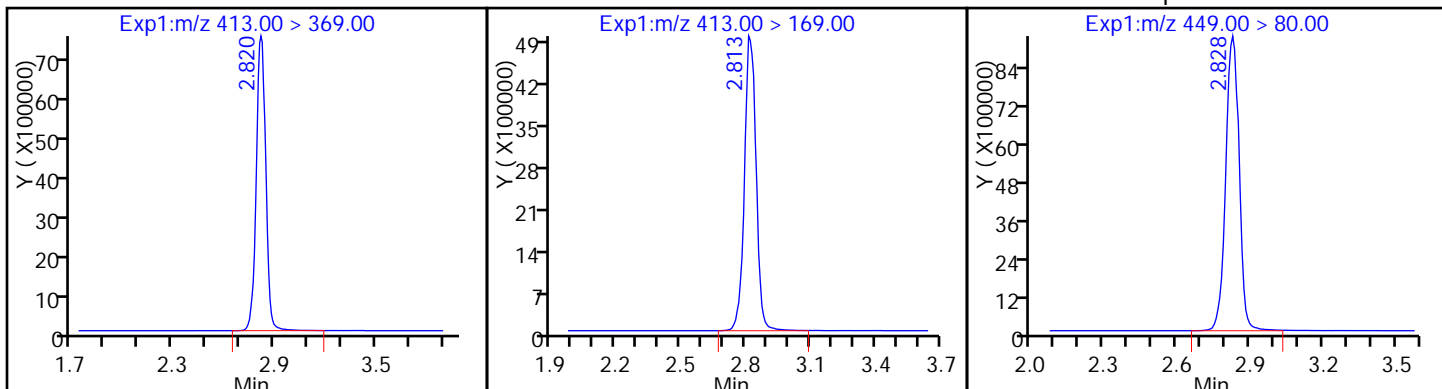
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

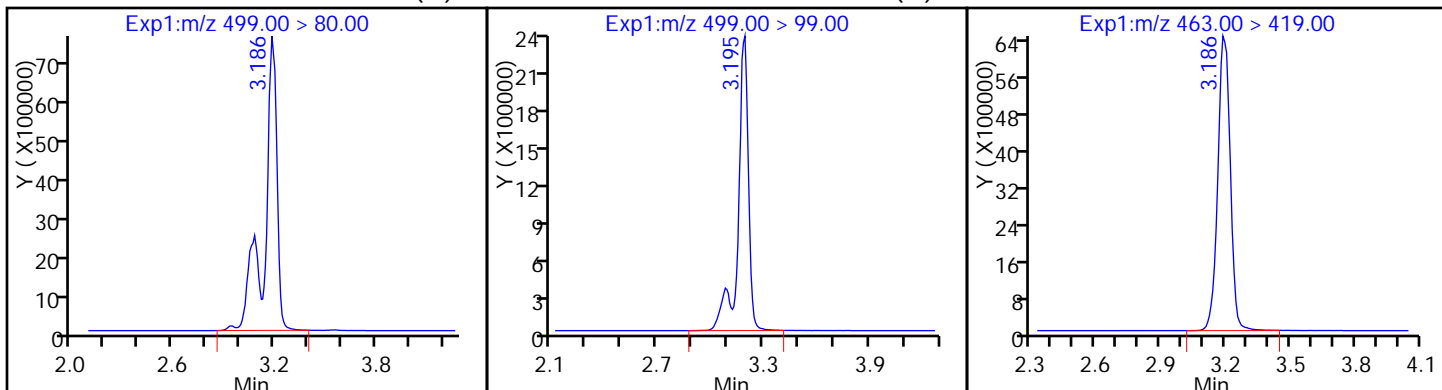
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

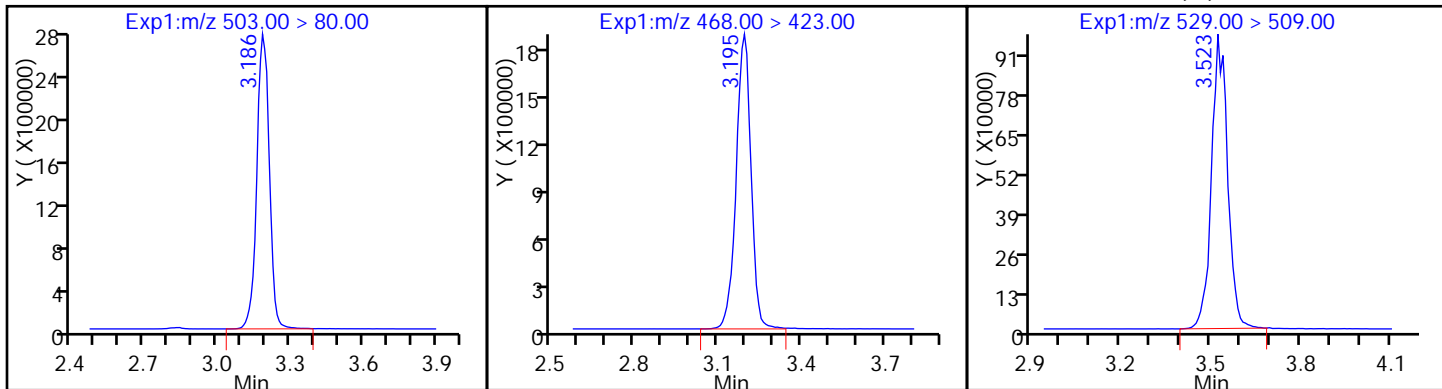
20 Perfluorononanoic acid



D 18 13C4 PFOS

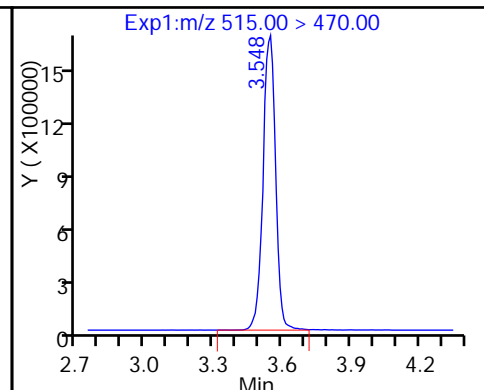
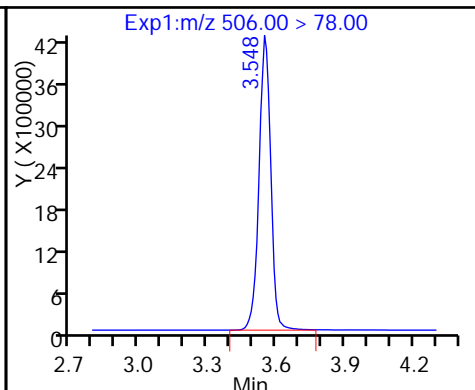
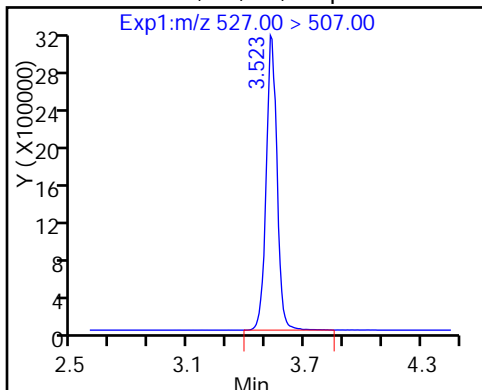
D 19 13C5 PFNA

D 26 M2-8:2FTS (M)



25 Sodium 1H,1H,2H,2H-perfluorooctanoate

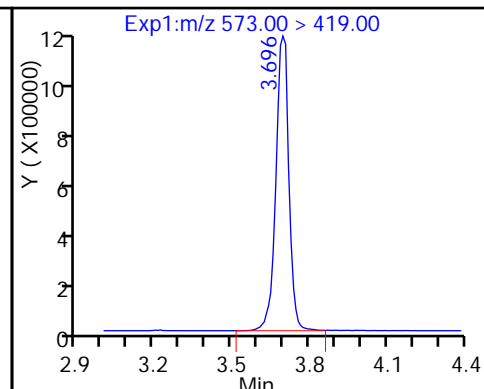
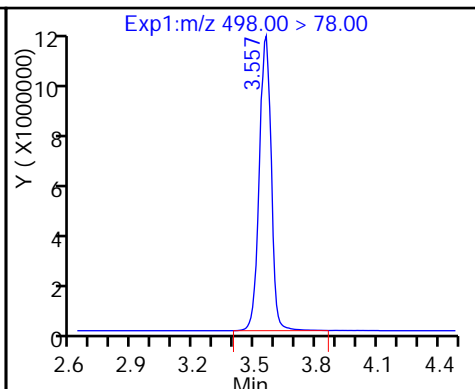
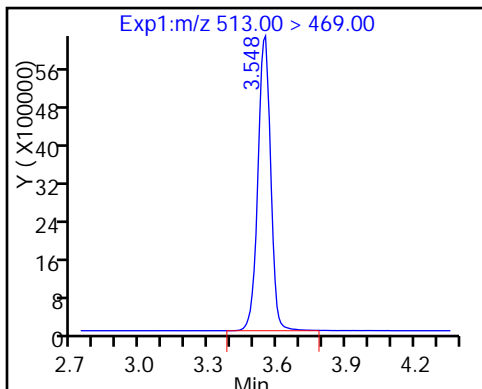
D 23 13C2 PFDA



24 Perfluorodecanoic acid

22 Perfluorooctane Sulfonamide

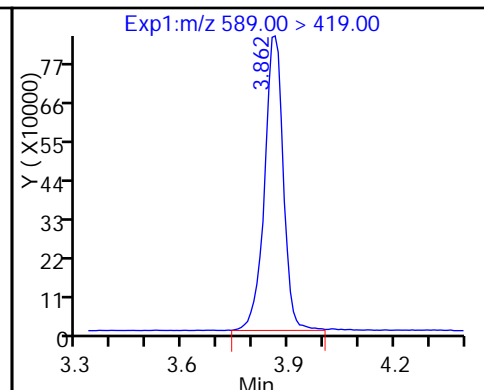
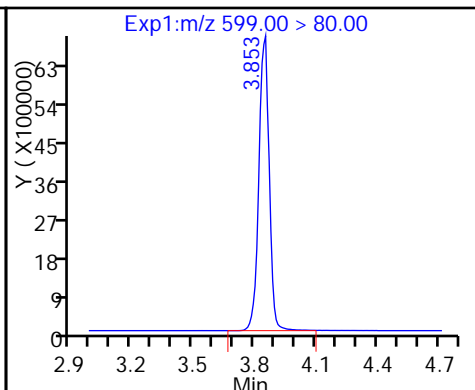
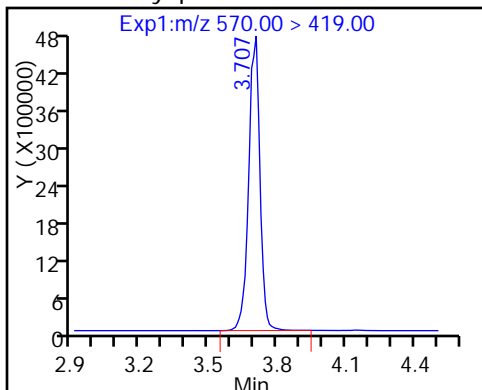
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

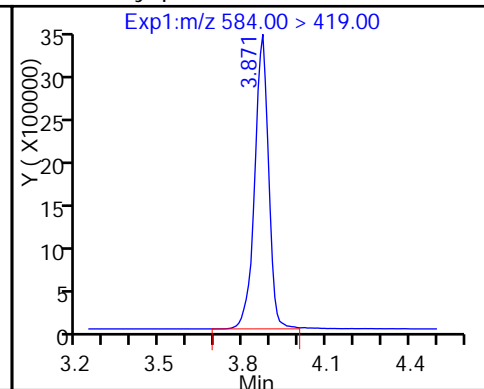
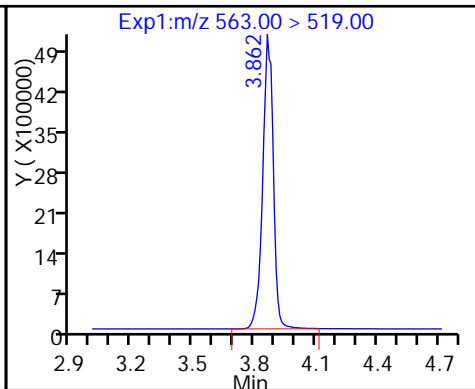
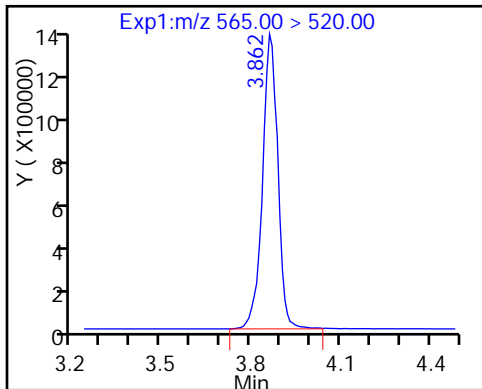
D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

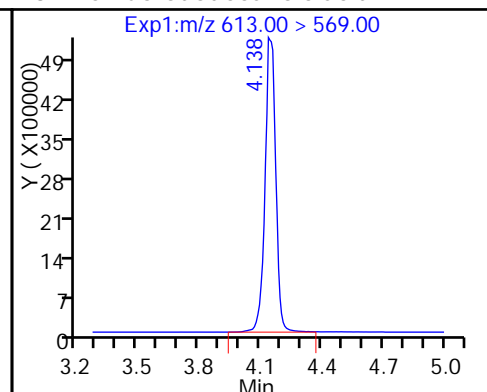
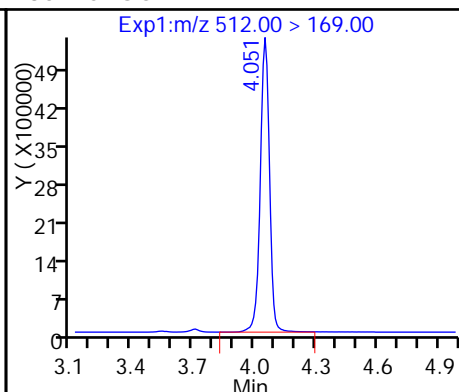
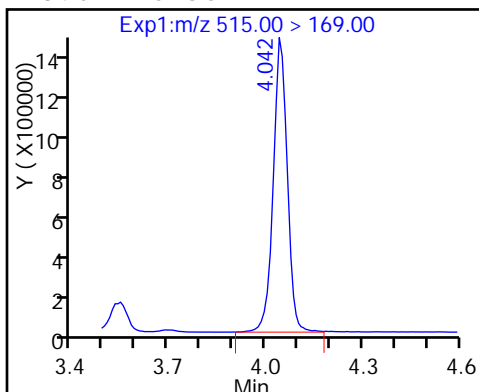
33 N-ethyl perfluorooctane sulfonamid



D 34 d-N-MeFOSA-M

35 MeFOSA

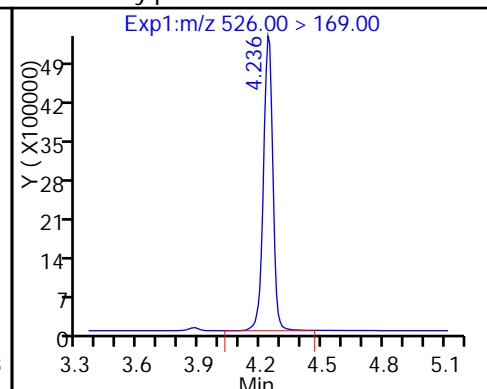
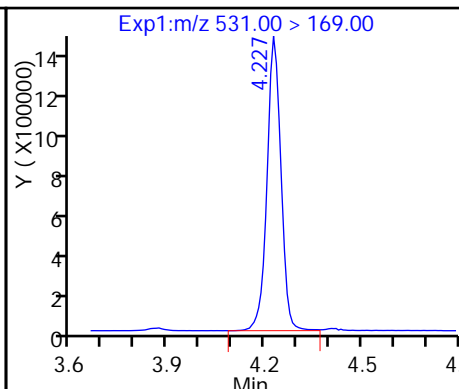
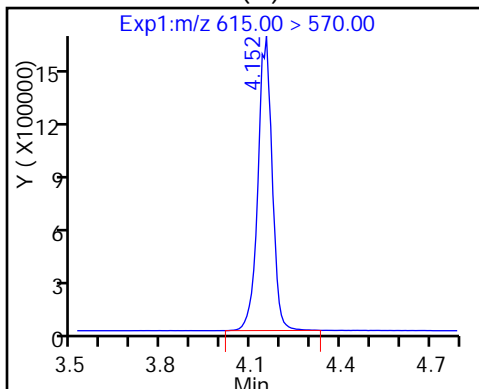
37 Perfluorododecanoic acid



D 36 13C2 PFDa (M)

D 38 d-N-EtFOSA-M

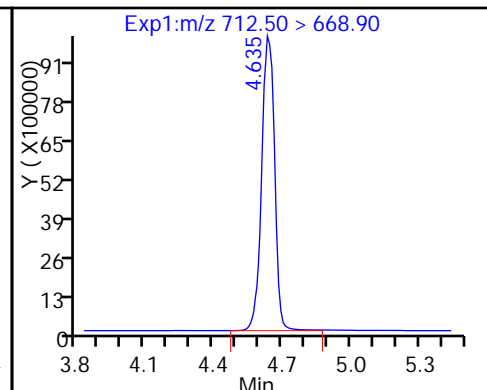
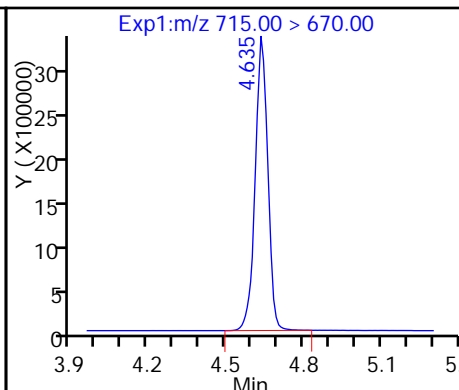
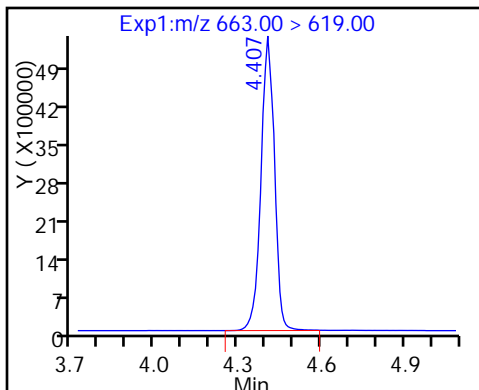
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

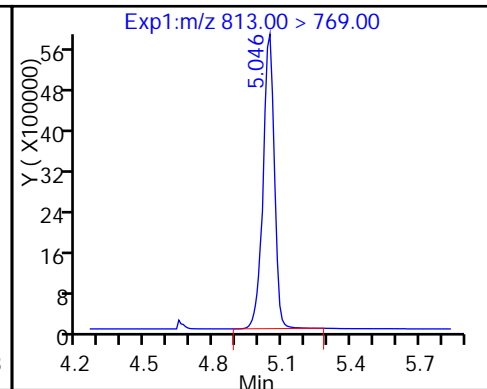
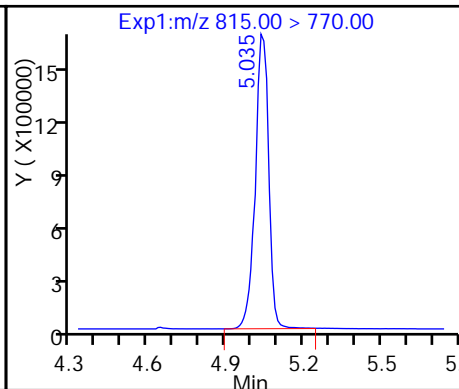
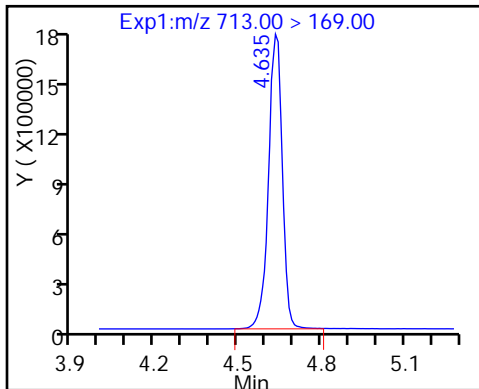
42 Perfluorotetradecanoic acid



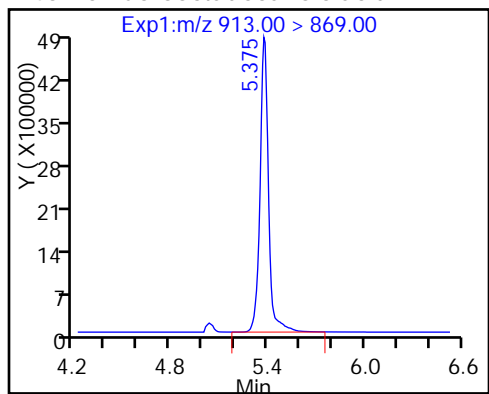
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

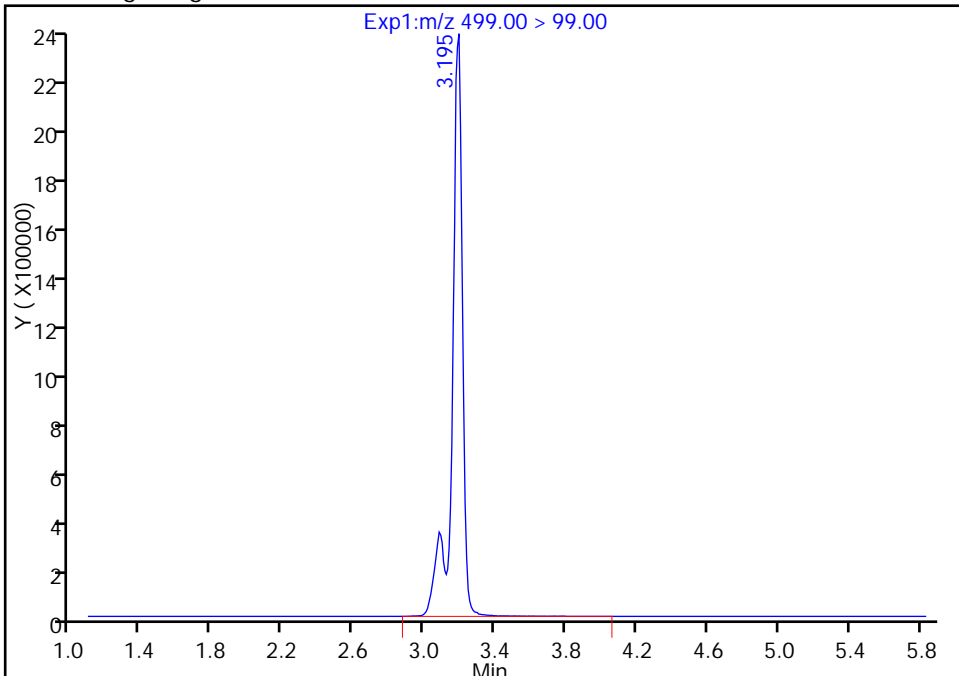
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

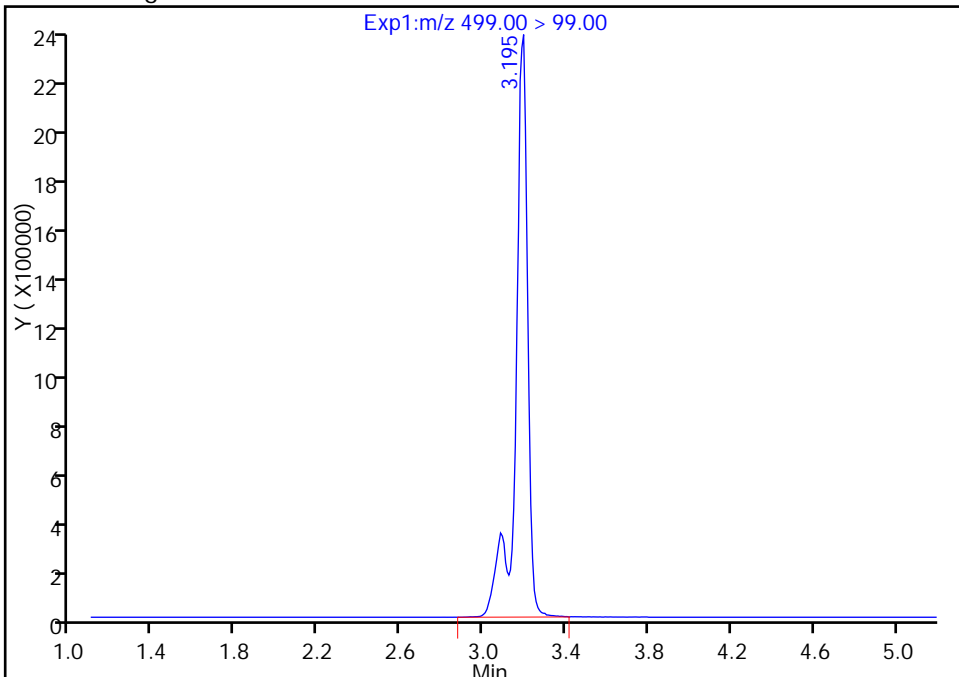
RT: 3.19
Area: 9641533
Amount: 146.9287
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 9596909
Amount: 193.5024
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:18
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

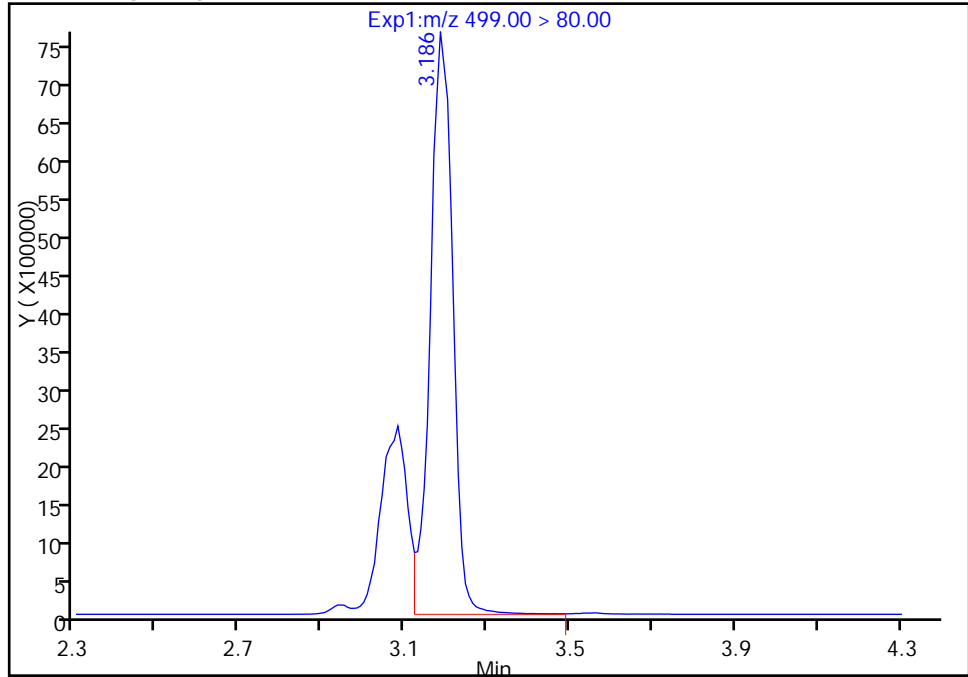
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

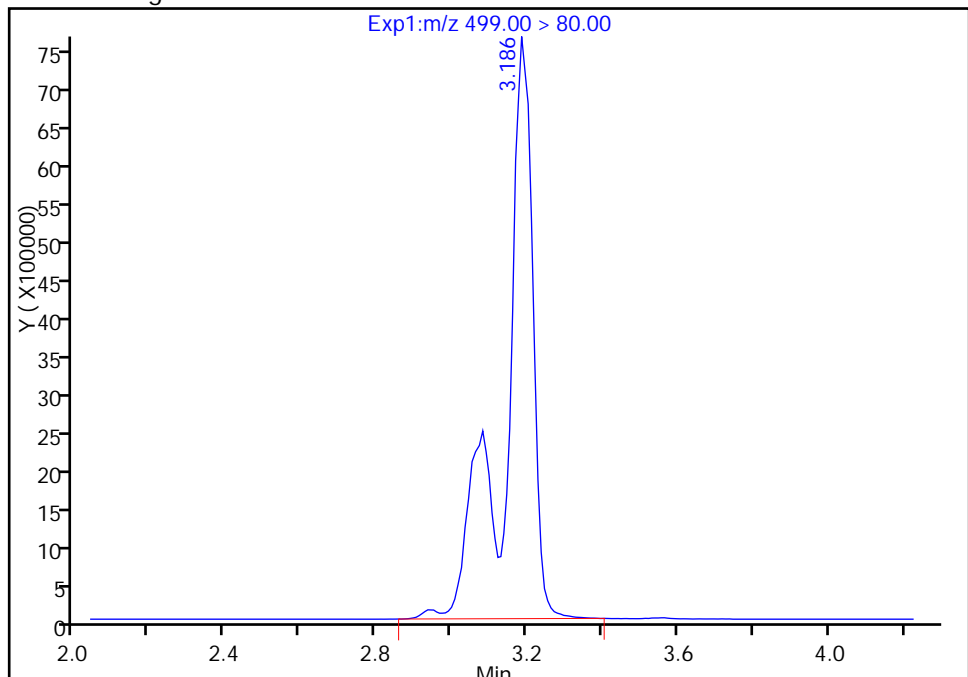
RT: 3.19
Area: 28733218
Amount: 146.9287
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 39756569
Amount: 193.5024
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:18

Audit Action: Manually Integrated

Audit Reason: Baseline

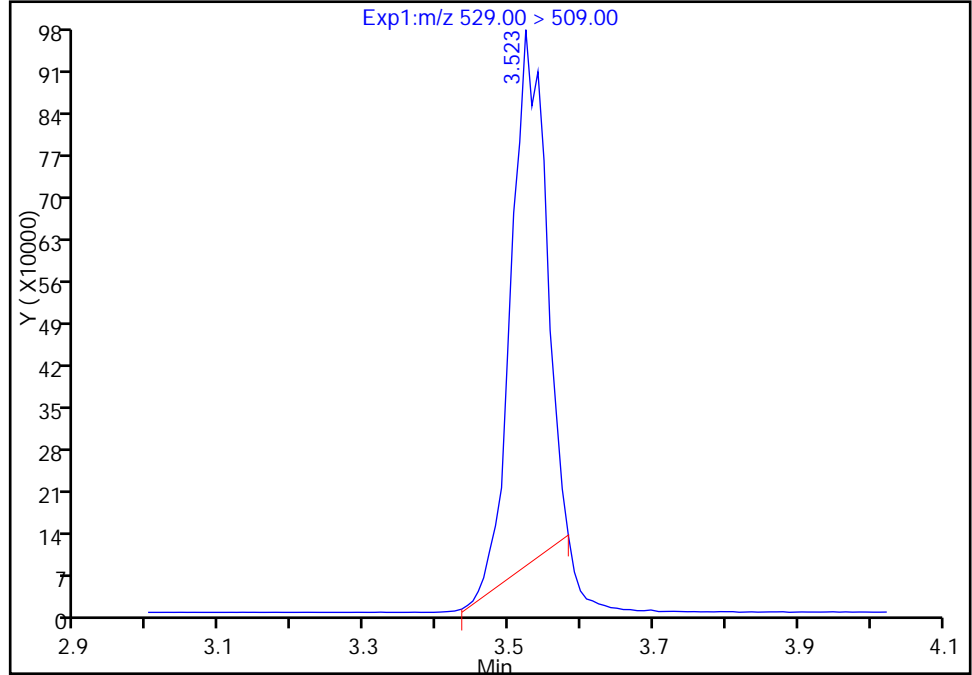
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 26 M2-8:2FTS, CAS: STL02280
Signal: 1

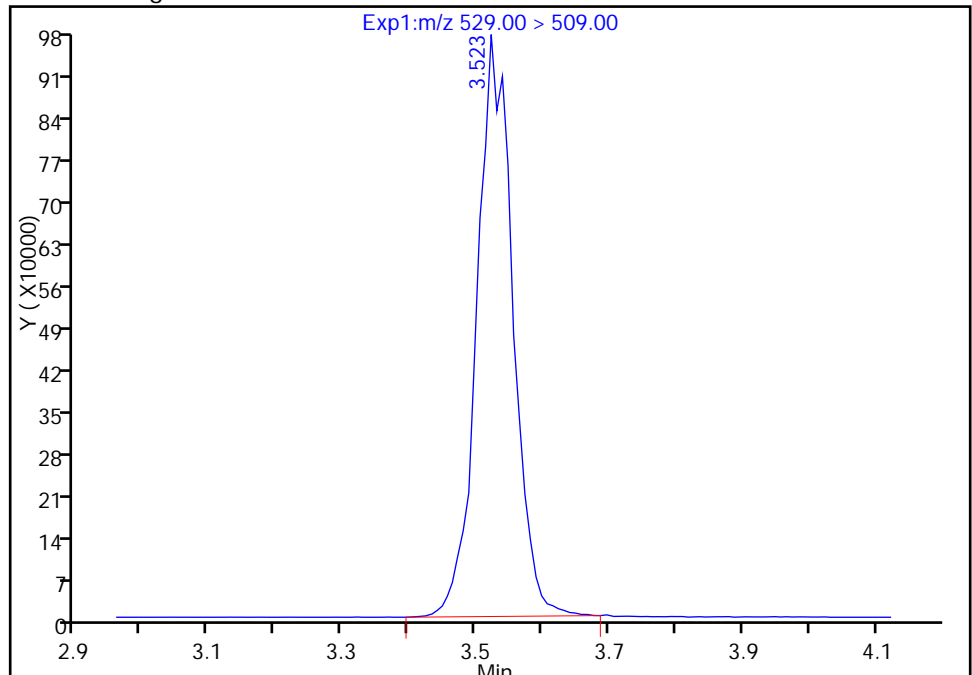
RT: 3.52
Area: 2972144
Amount: 32.946881
Amount Units: ng/ml

Processing Integration Results



RT: 3.52
Area: 3659550
Amount: 39.519130
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:18
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

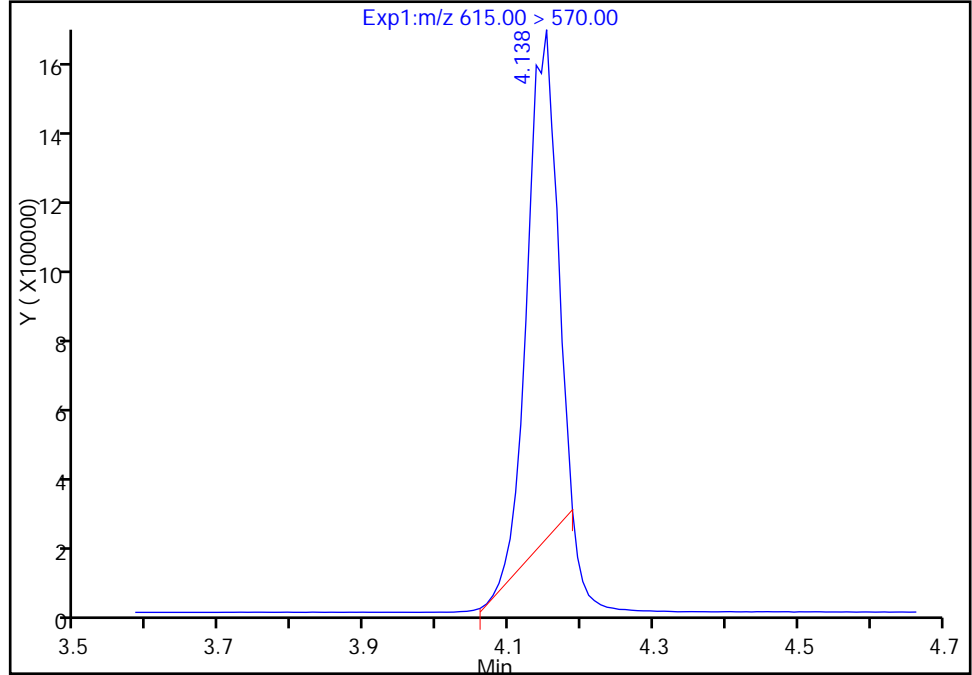
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_008.d
Injection Date: 01-Mar-2017 11:46:18 Instrument ID: A8_N
Lims ID: IC L6 Full
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

D 36 13C2 PFD_oA, CAS: STL00998
Signal: 1

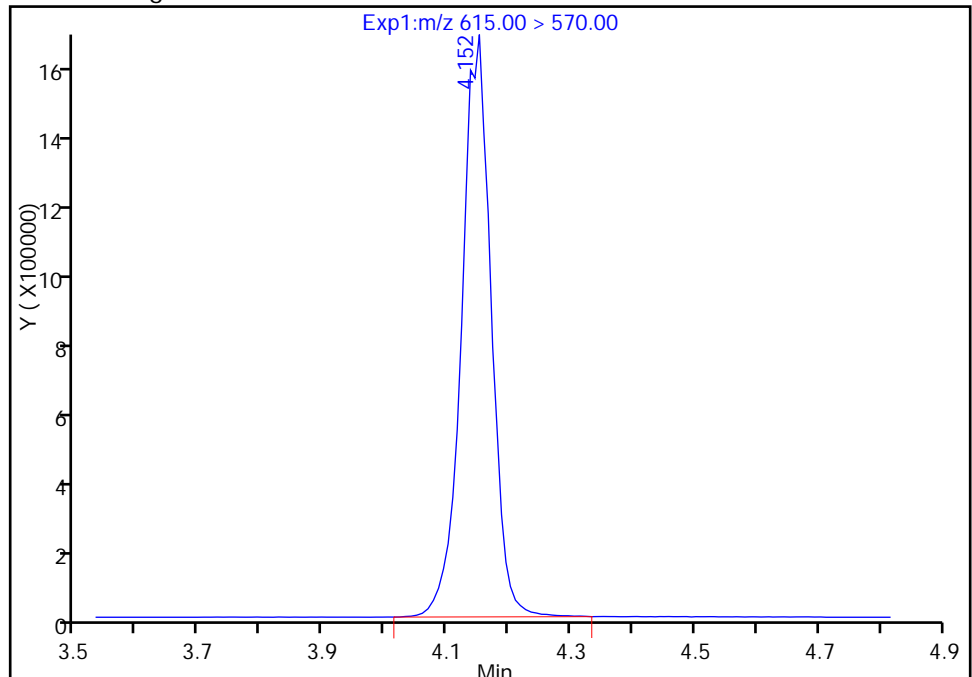
RT: 4.14
Area: 3992056
Amount: 33.402250
Amount Units: ng/ml

Processing Integration Results



RT: 4.15
Area: 5320903
Amount: 42.929870
Amount Units: ng/ml

Manual Integration Results



Reviewer: chandrasenas, 01-Mar-2017 15:43:18
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 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 (FOA)	AveID	1.022	1.032		50.5	50.0	1.0	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	1.016		56.2	50.0	12.4	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9166		44.5	47.8	-6.8	25.0
8:2FTS	L2ID		0.9785		50.6	47.9	5.7	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9538		52.7	50.0	5.3	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9140		50.9	50.0	1.7	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	1.014		52.2	50.0	4.4	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6364		51.6	48.3	6.8	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9789		48.3	50.0	-3.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.998		54.8	50.0	9.7	25.0
MeFOSA	AveID	0.9355	0.9755		52.1	50.0	4.3	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9493		51.9	50.0	3.8	25.0
N-EtFOSA-M	AveID	0.9837	1.027		52.2	50.0	4.4	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.9439		54.0	50.0	8.1	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	2.200		55.9	50.0	11.9	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9762		52.3	50.0	4.6	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.8478		59.1	50.0	18.2	25.0
13C4 PFBA	Ave	292242	262151		44.9	50.0	-10.3	50.0
13C5-PFPeA	Ave	232192	201954		43.5	50.0	-13.0	50.0
13C2 PFHxA	Ave	210884	190101		45.1	50.0	-9.9	50.0
13C4-PFHpA	Ave	192959	172560		44.7	50.0	-10.6	50.0
18O2 PFHxS	Ave	290899	261134		42.5	47.3	-10.2	50.0
M2-6:2FTS	Ave	77178	67962		41.8	47.5	-11.9	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 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	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	10448730	52.9			87028	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.873	1.872	0.001	17632155	47.1				
	298.90 > 99.00	1.873	1.872	0.001	7534911		2.34(0.00-0.00)			
6 Perfluorohexanoic acid	313.00 > 269.00	2.131	2.133	-0.002	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	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	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	3120919	51.7				

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										
413.00 > 369.00	2.837	2.835	0.002	1.000	9449558	50.5			213564	
413.00 > 169.00	2.837	2.835	0.002	1.000	5623231		1.68(0.90-1.10)		140434	
D 14 13C4 PFOA										
417.00 > 372.00	2.837	2.835	0.002		9153420	44.7		89.3	333609	
16 Perfluoroheptanesulfonic Acid										
449.00 > 80.00	2.837	2.842	-0.005	1.000	11351727	50.3				
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.205	3.145	0.060	1.000	9582813	44.5			334324	
499.00 > 99.00	3.205	3.145	0.060	1.000	2425871		3.95(0.90-1.10)		705291	
20 Perfluorononanoic acid										
463.00 > 419.00	3.205	3.202	0.003	1.000	7968593	56.2			153203	
D 18 13C4 PFOS										
503.00 > 80.00	3.196	3.204	-0.008		10465937	43.3		90.6	197571	
D 19 13C5 PFNA										
468.00 > 423.00	3.205	3.208	-0.003		7840582	44.1		88.2	207818	
D 26 M2-8:2FTS										
529.00 > 509.00	3.539	3.545	-0.006		4025496	43.5		90.8		
25 Sodium 1H,1H,2H,2H-perfluorooctane										
527.00 > 507.00	3.539	3.546	-0.007	1.000	3938788	50.6				
D 21 13C8 FOSA										
506.00 > 78.00	3.573	3.559	0.014		16873653	46.0		92.0	313140	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.556	3.560	-0.004	1.000	6896912	52.7			187300	
D 23 13C2 PFDA										
515.00 > 470.00	3.556	3.560	-0.004		7230800	43.4		86.8	175077	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.573	3.561	0.012	1.000	15422698	50.9			322048	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.706	3.710	-0.004		3857056	45.3		90.6		
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.706	3.713	-0.007	1.000	3910569	52.2				
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.862	3.866	-0.004	1.000	6723491	51.6				
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.871	3.875	-0.004		3560139	43.8		87.5		
D 30 13C2 PFUnA										
565.00 > 520.00	3.880	3.876	0.004		5711825	43.7		87.3	216355	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.871	3.878	-0.007	1.000	5591035	48.3			127404	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.880	3.883	-0.003	1.002	3554390	54.8				
D 34 d-N-MeFOSA-M										
515.00 > 169.00	4.062	4.050	0.012		4000304	45.5		90.9		
35 MeFOSA										
512.00 > 169.00	4.070	4.057	0.013	1.000	3902092	52.1				
37 Perfluorododecanoic acid										
613.00 > 569.00	4.155	4.162	-0.007	1.000	5161221	51.9			95672	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA										
615.00 > 570.00	4.155	4.164	-0.009		5437061	43.9		87.7	128920	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.247	4.235	0.012		3849308	45.2		90.3		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.256	4.242	0.014	1.000	3953838	52.2				
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.417	4.424	-0.007	1.000	5131863	54.0			76799	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.651	4.655	-0.004		11835060	45.7		91.3	267097	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.651	4.657	-0.006	1.000	11961738	55.9			110355	
713.00 > 169.00	4.641	4.657	-0.016	0.998	1569975		7.62(0.00-0.00)		118035	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.049	5.057	-0.008		5648694	45.2		90.3	81356	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.049	5.059	-0.010	1.000	5307447	52.3			5849	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.384	5.399	-0.015	1.000	4609565	59.1			5082	

Reagents:

LCPFCIC_FULL_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40358.b\2017.03.01CURVE_014.d

Injection Date: 01-Mar-2017 12:31:14

Instrument ID: A8_N

Lims ID: ICV Full

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 36

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

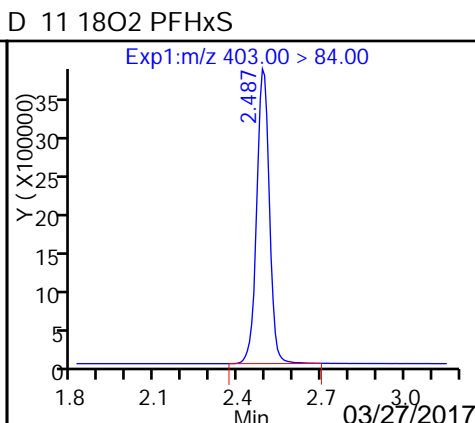
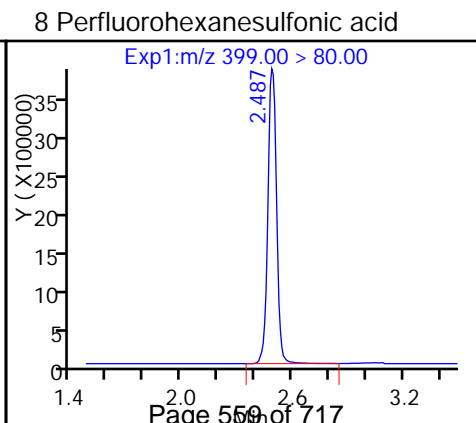
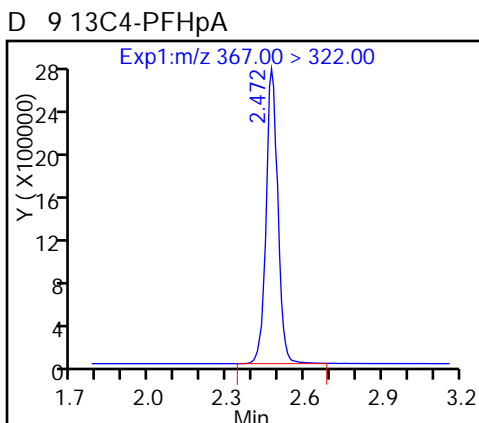
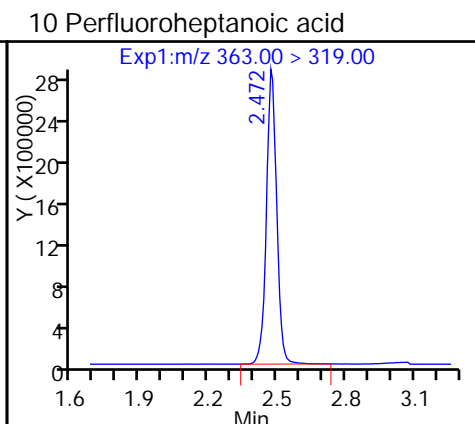
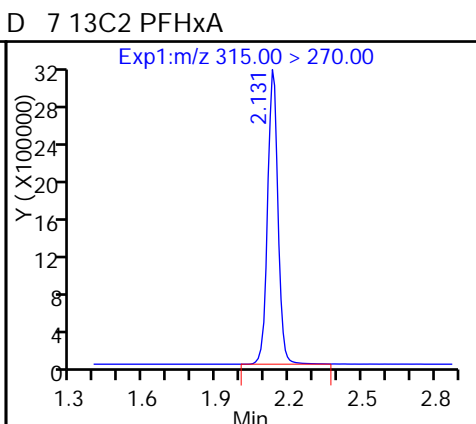
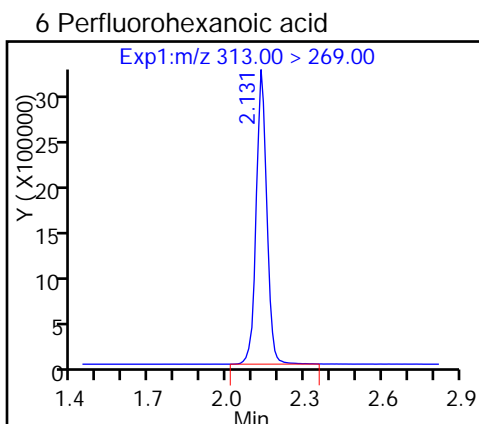
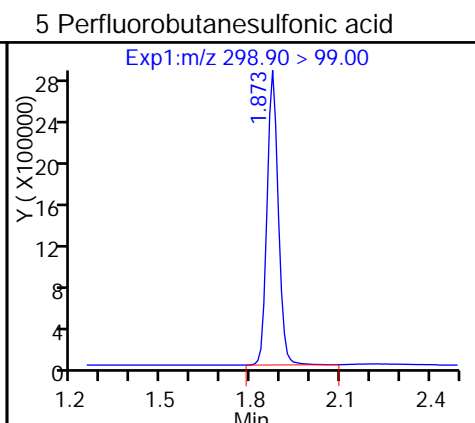
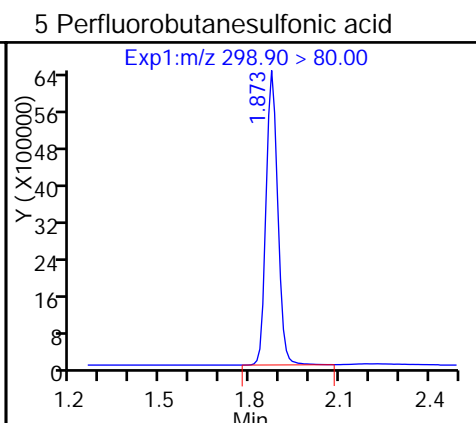
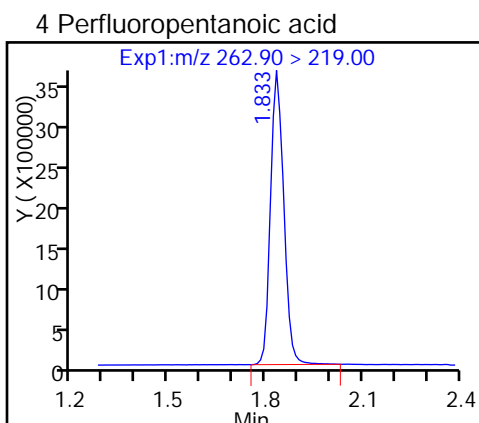
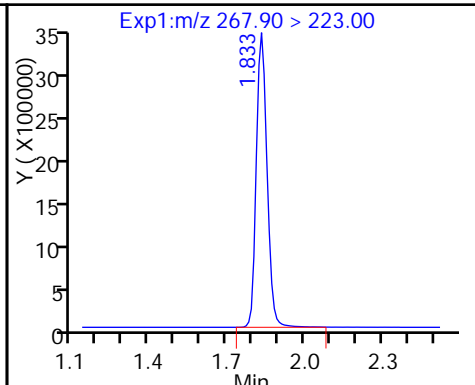
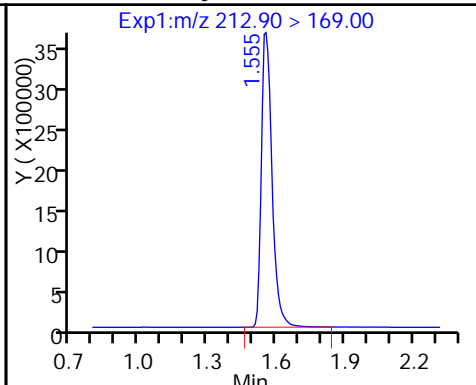
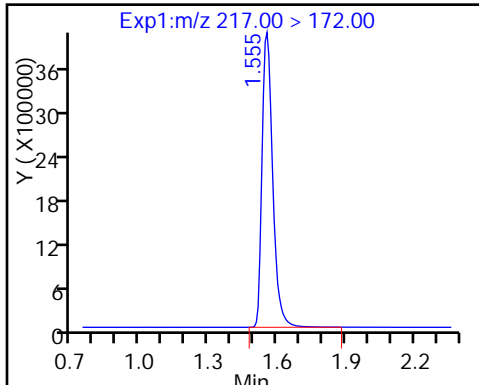
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

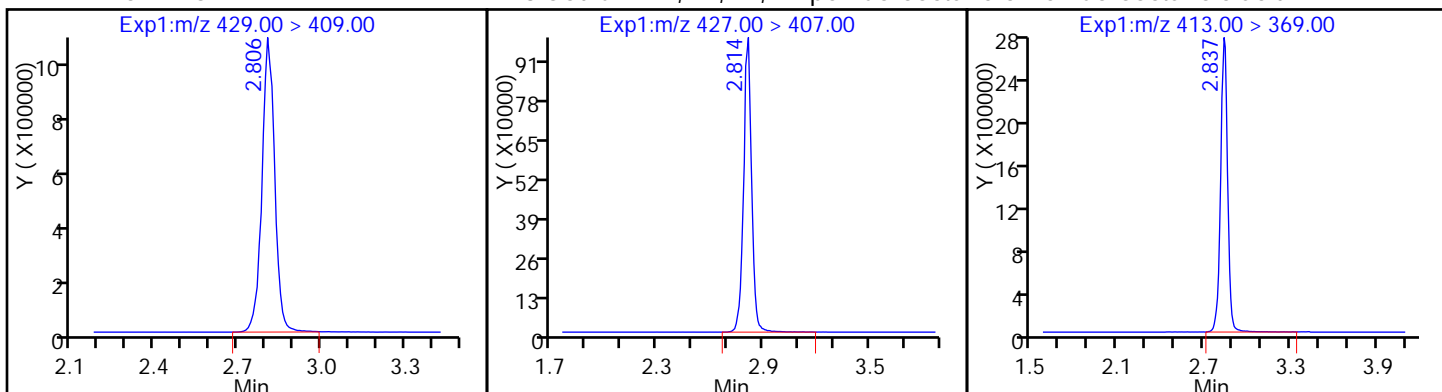
2 Perfluorobutyric acid

D 3 13C5-PFPeA



D 12 M2-6:2FTS

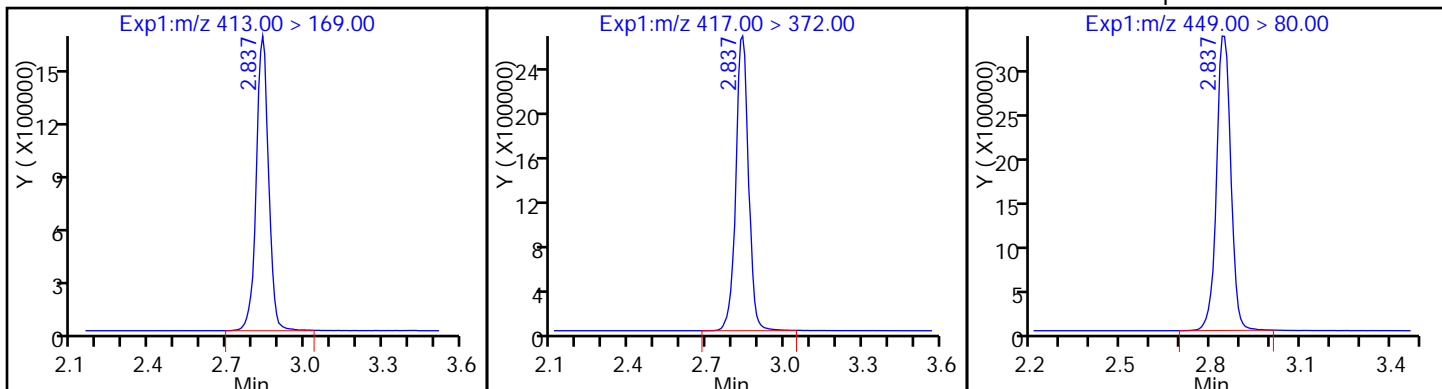
13 Sodium 1H,1H,2H,2H-perfluorooctane15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

D 14 13C4 PFOA

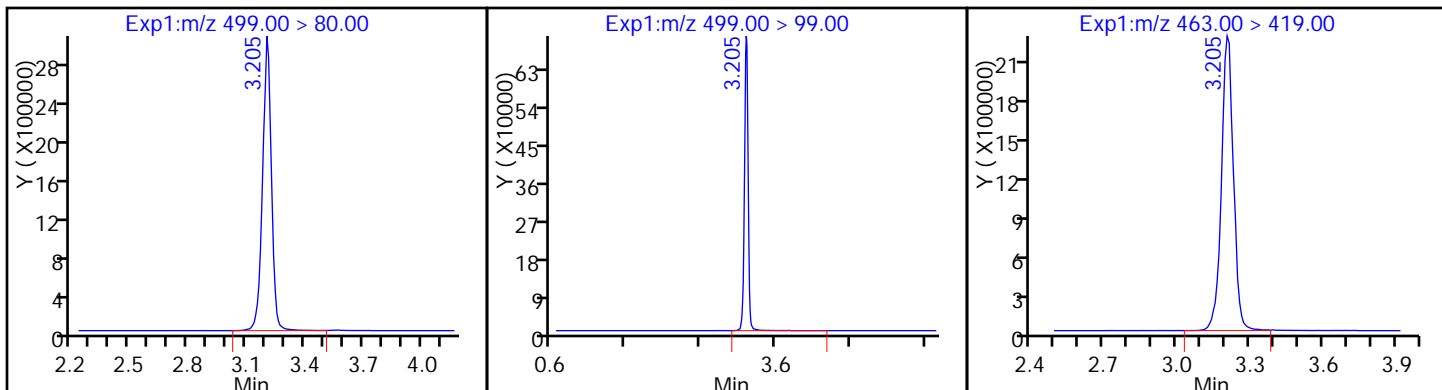
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

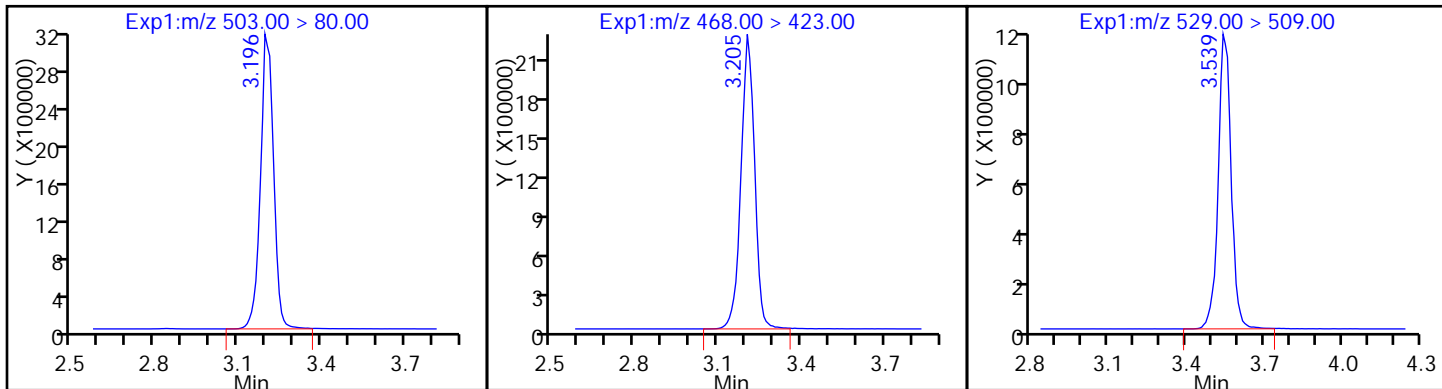
20 Perfluorononanoic acid



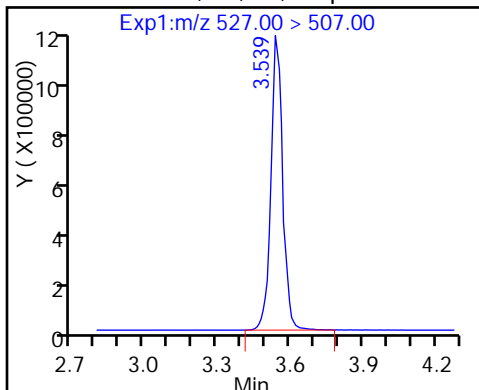
D 18 13C4 PFOS

D 19 13C5 PFNA

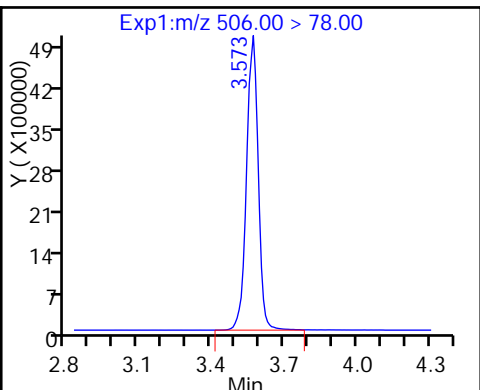
D 26 M2-8:2FTS



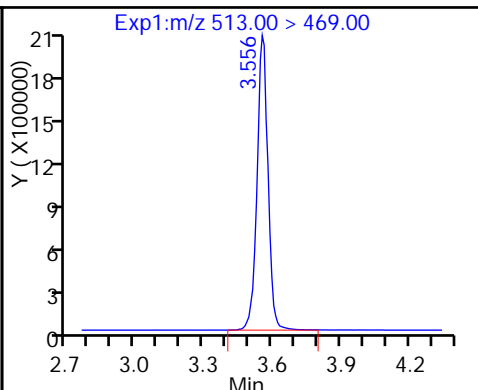
25 Sodium 1H,1H,2H,2H-perfluorooctanoate



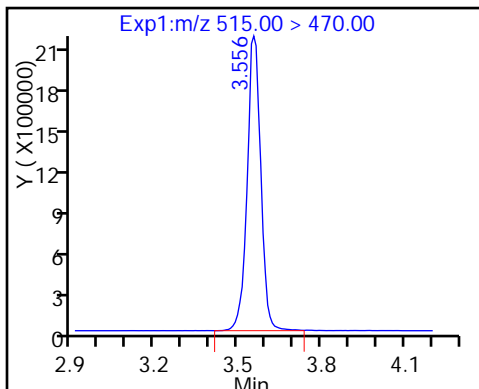
21 13C8 FOSA



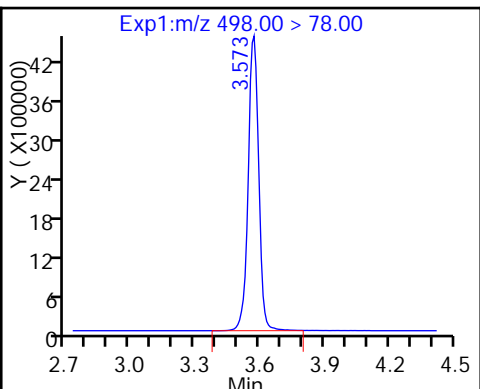
24 Perfluorodecanoic acid



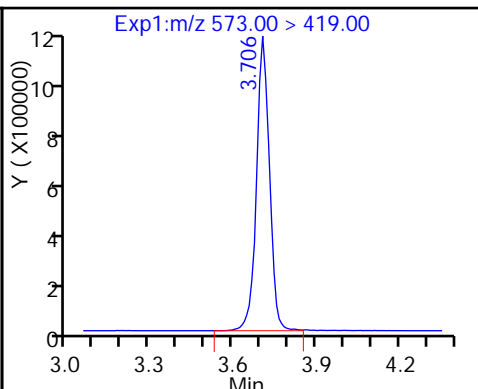
D 23 13C2 PFDA



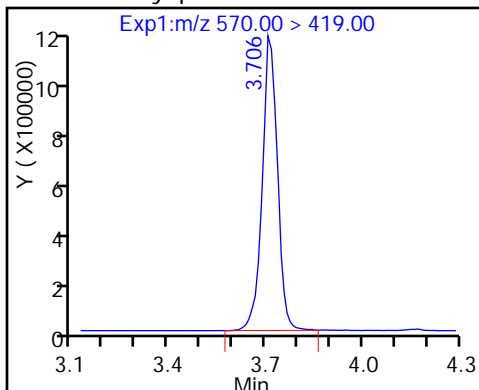
22 Perfluorooctane Sulfonamide



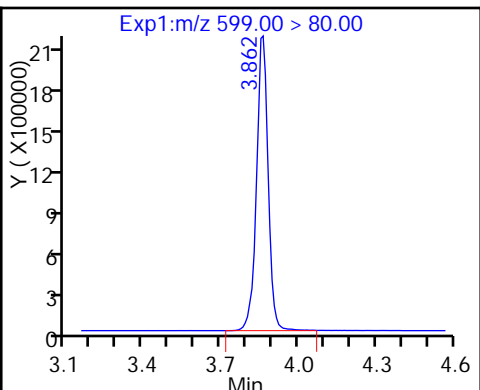
D 27 d3-NMeFOSAA



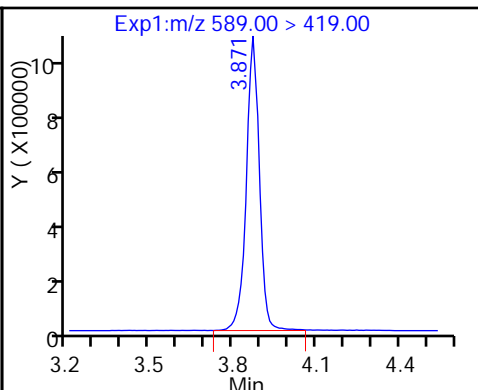
28 N-methyl perfluorooctane sulfonami



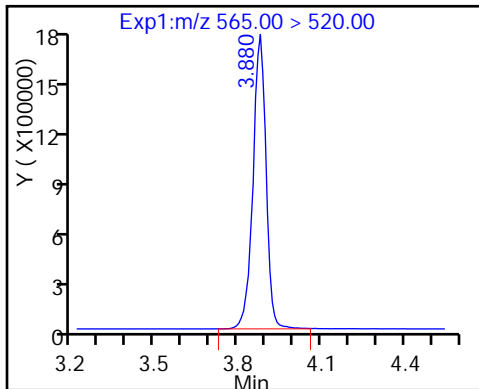
29 Perfluorodecane Sulfonic acid



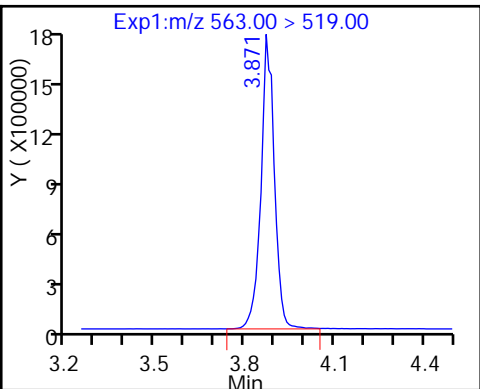
D 32 d5-NEtFOSAA



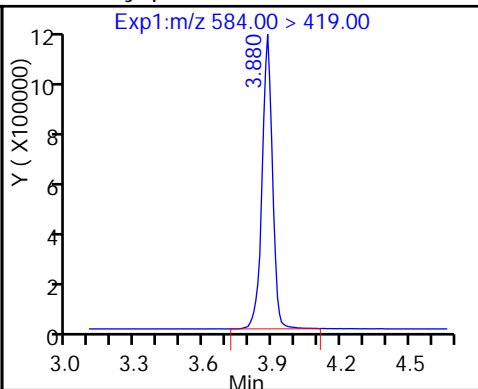
D 30 13C2 PFUnA



31 Perfluoroundecanoic acid



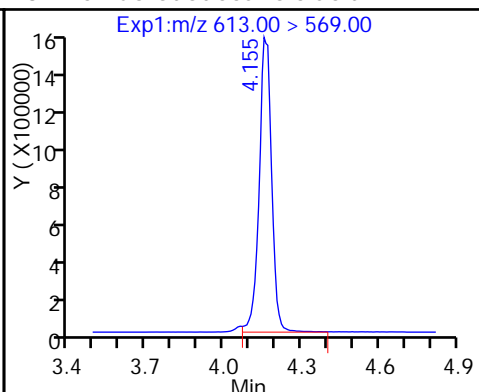
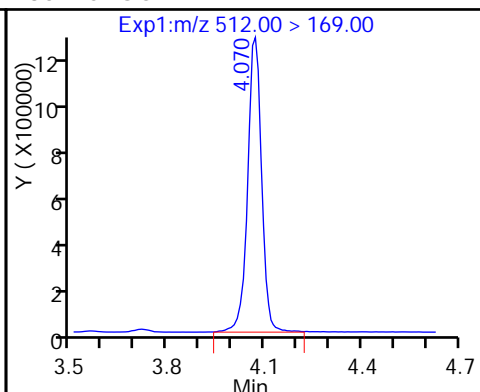
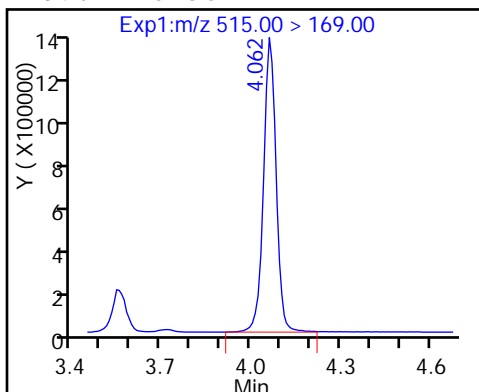
33 N-ethyl perfluorooctane sulfonamid



D 34 d-N-MeFOSA-M

35 MeFOSA

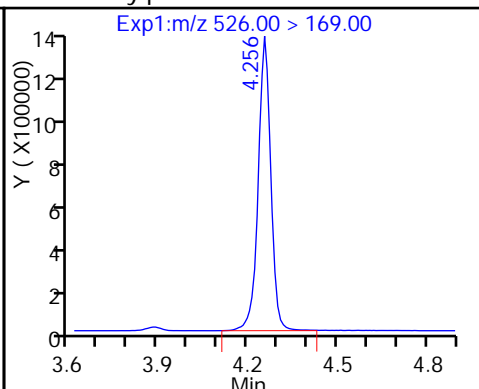
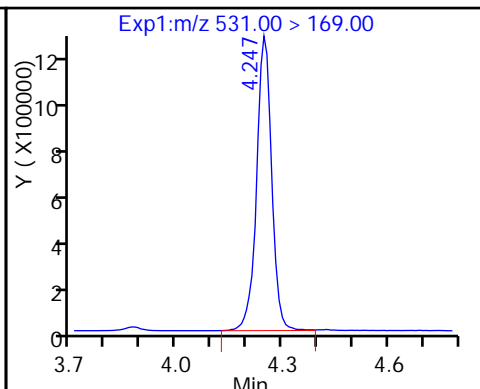
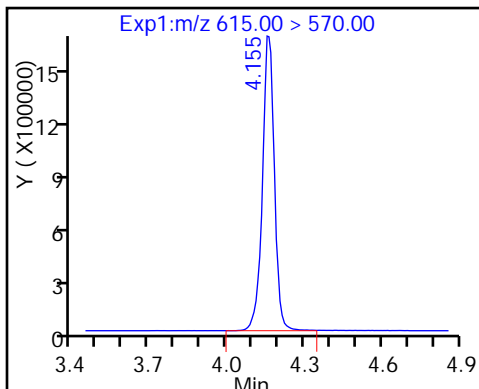
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

D 38 d-N-EtFOSA-M

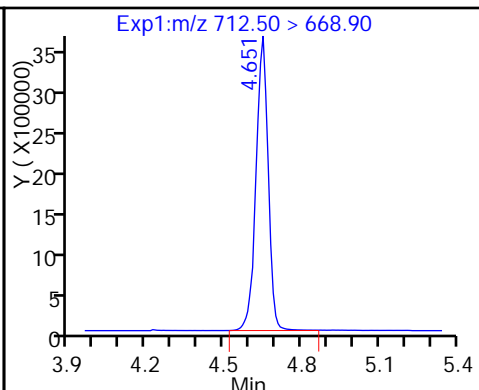
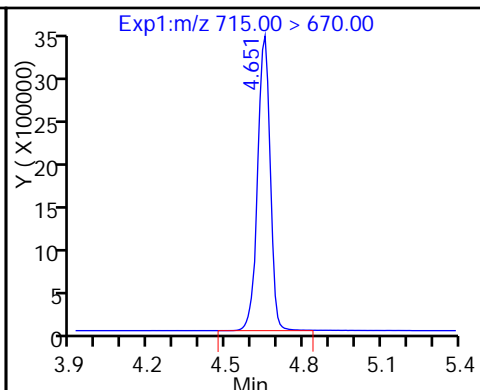
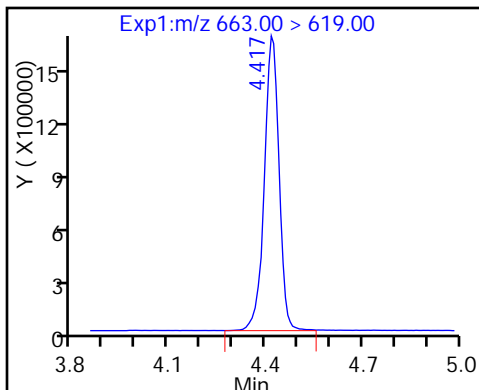
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

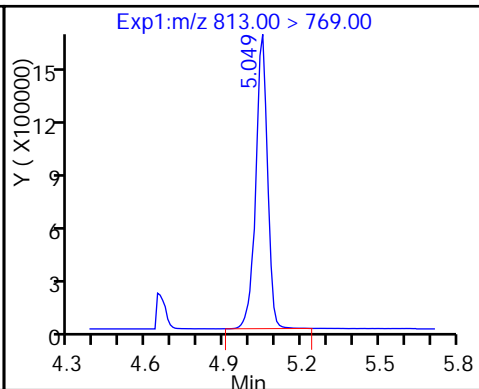
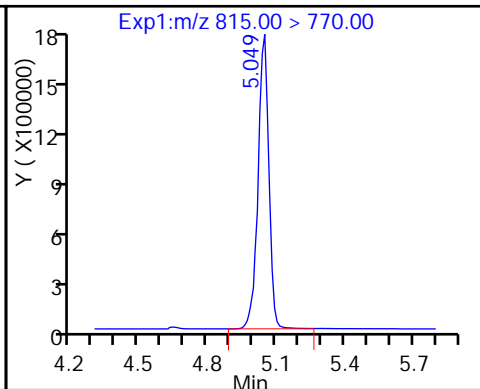
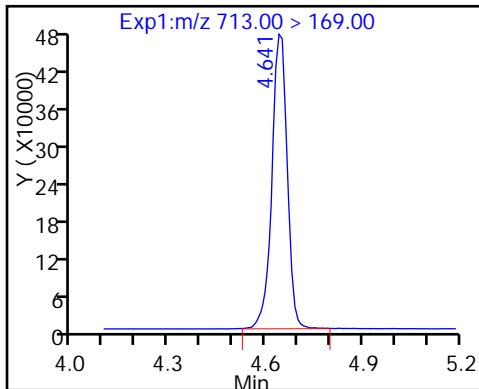
42 Perfluorotetradecanoic acid



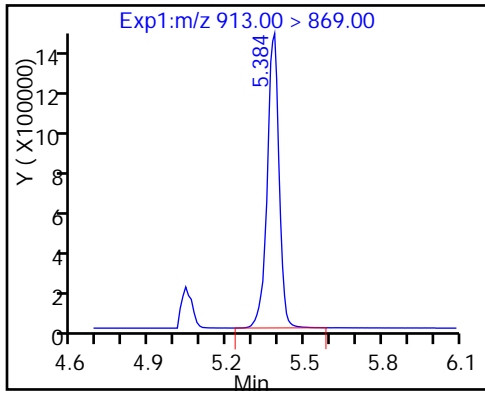
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 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 (FOA)	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.: 320-26273-1
 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	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	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		M

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 PFDaA	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	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

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

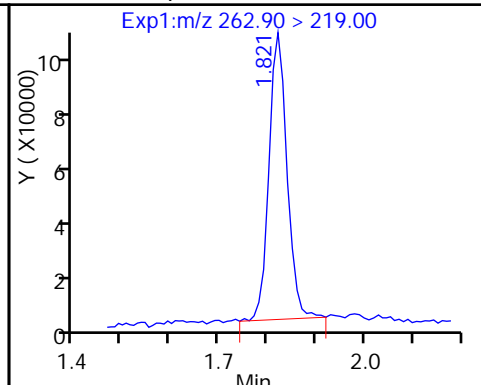
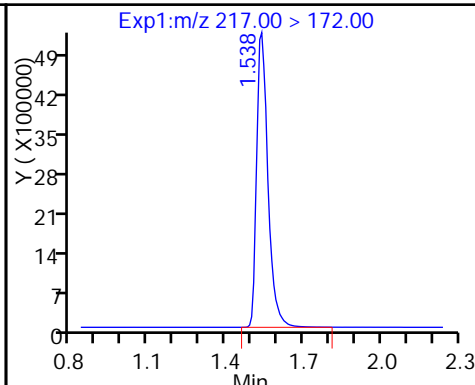
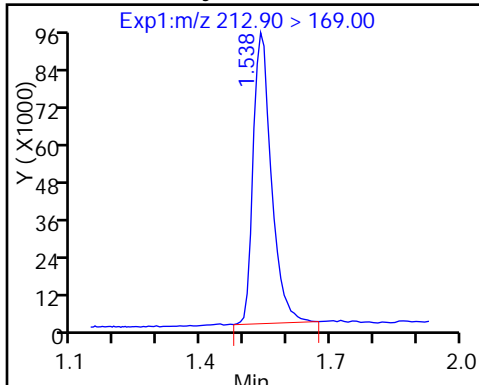
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid (M)

D 1 13C4 PFBA

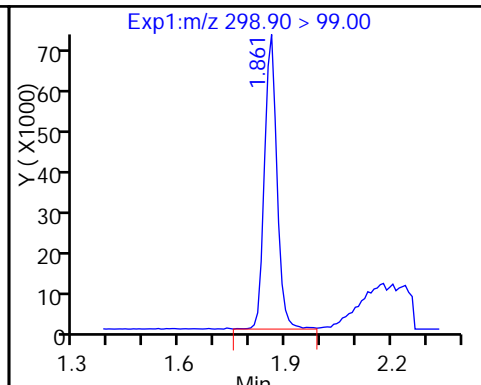
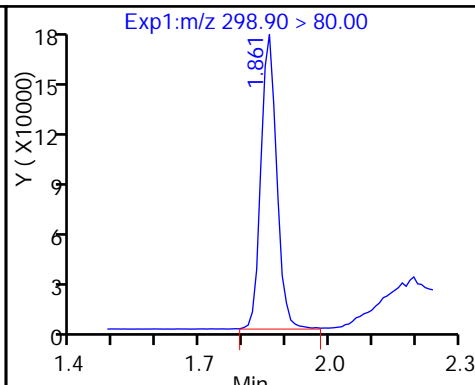
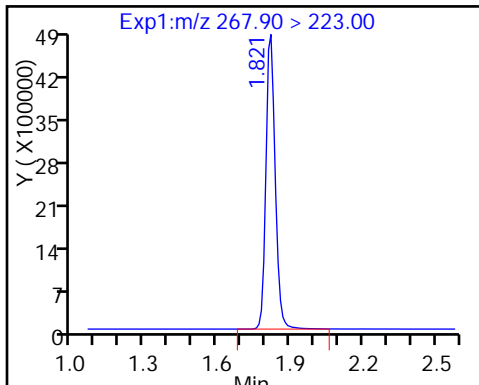
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

5 Perfluorobutanesulfonic acid

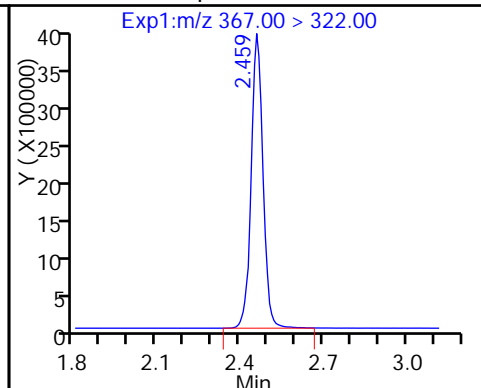
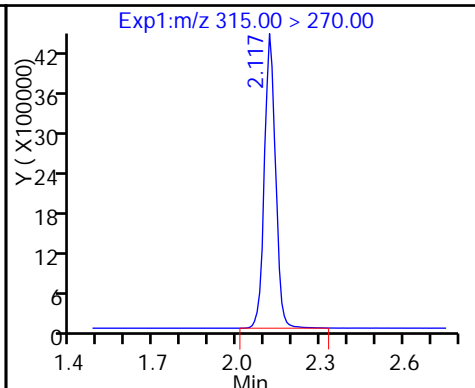
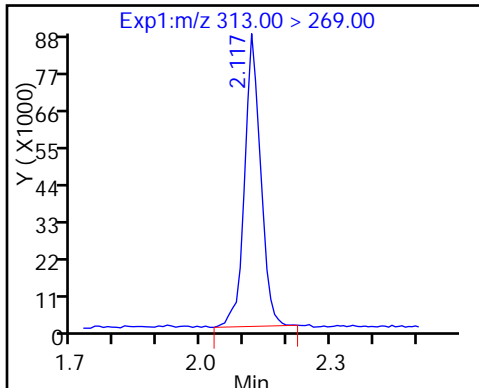
5 Perfluorobutanesulfonic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

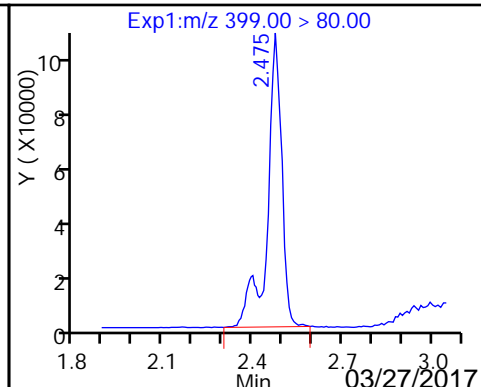
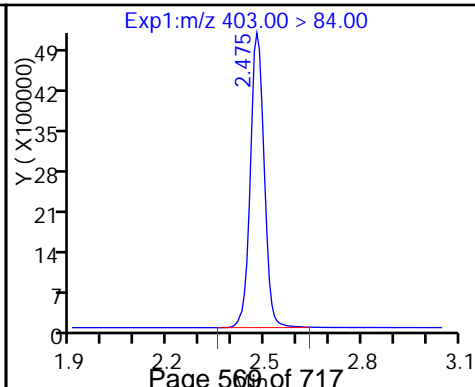
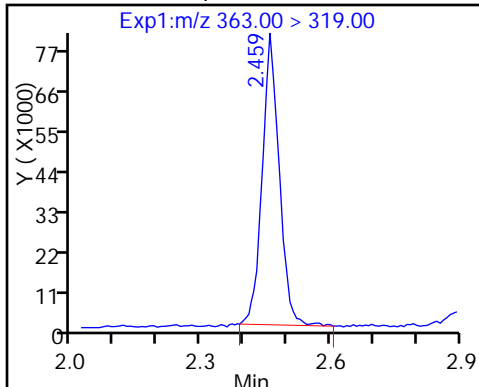
D 9 13C4-PFHpA



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

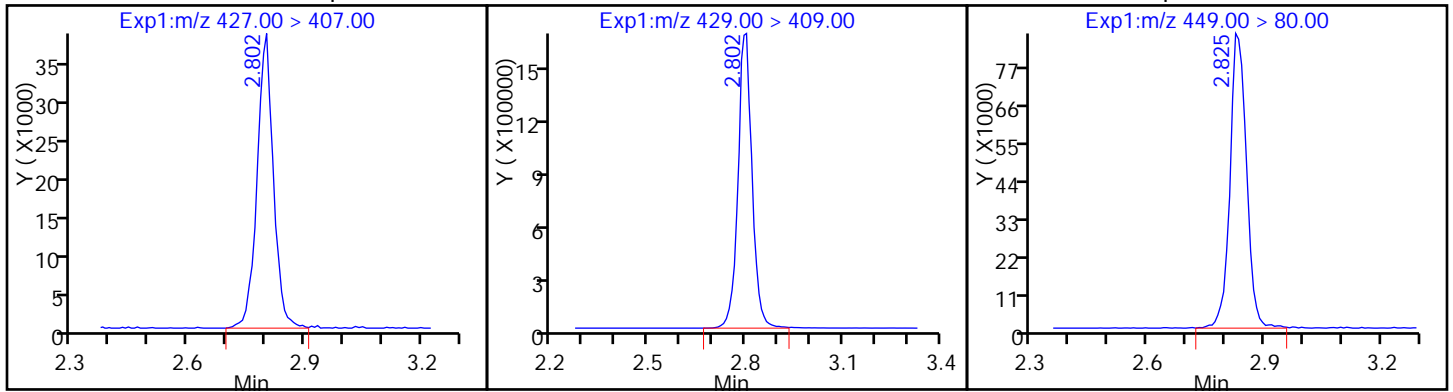
8 Perfluorohexanesulfonic acid (M)



13 Sodium 1H,1H,2H,2H-perfluorooctadecane

D 12 M2-6:2FTS

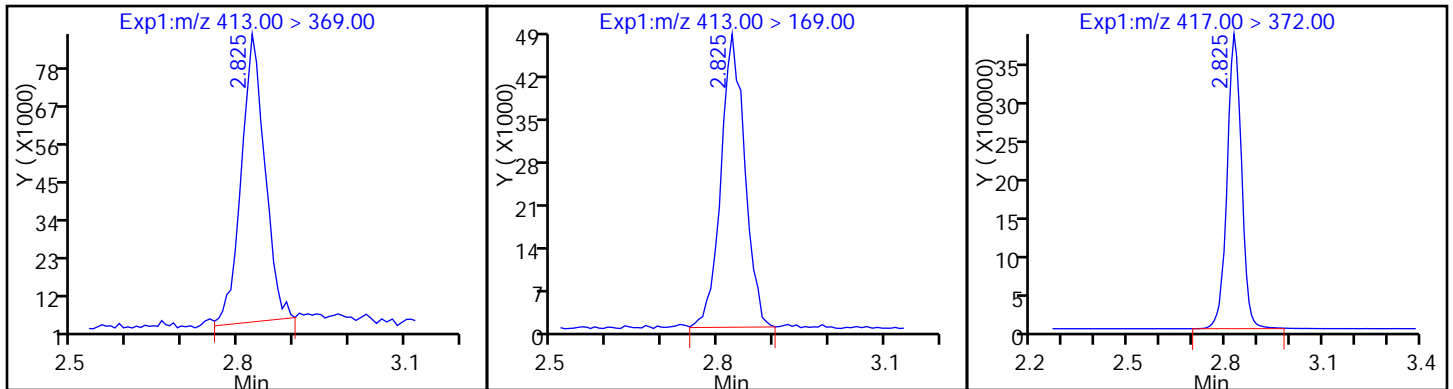
16 Perfluoroheptanesulfonic Acid



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

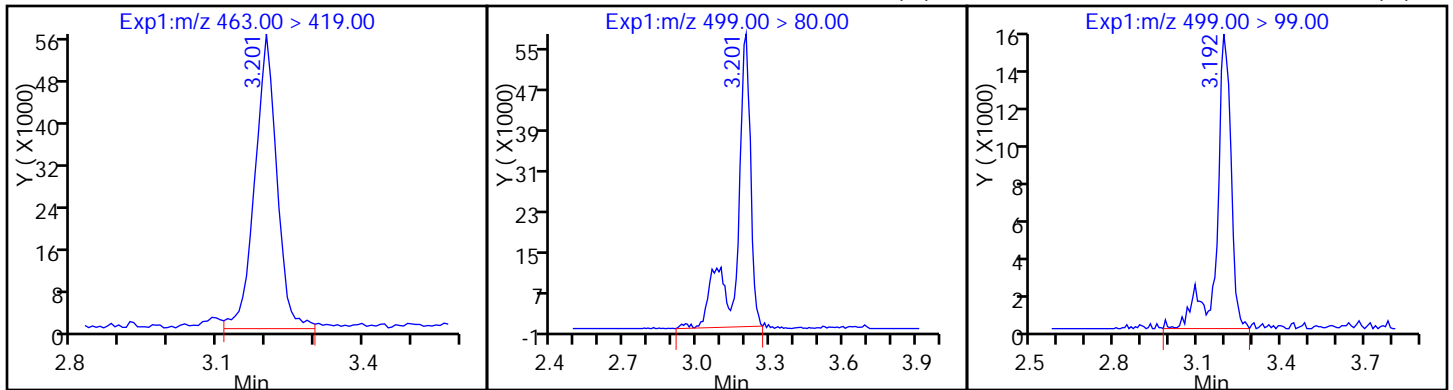
D 14 13C4 PFOA



20 Perfluorononanoic acid

17 Perfluorooctane sulfonic acid (M)

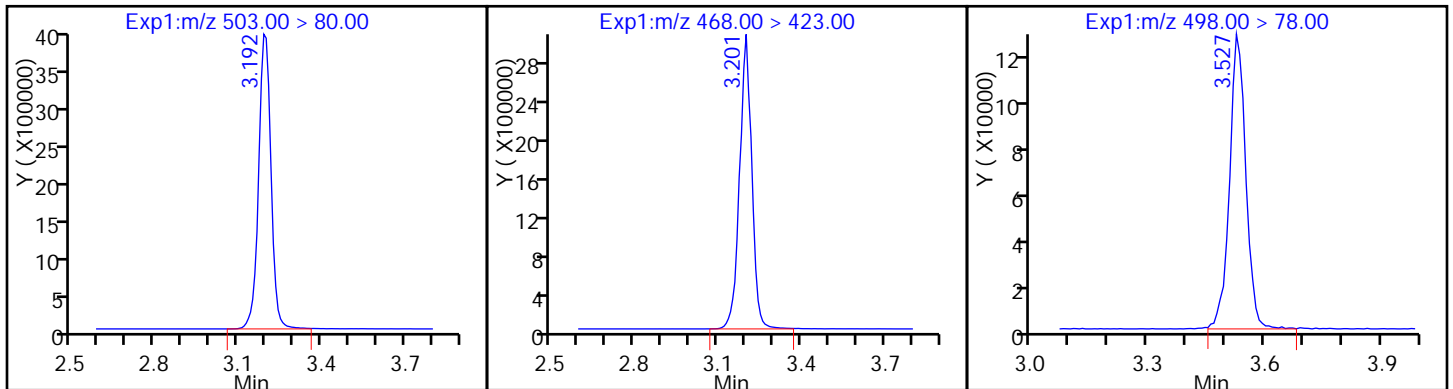
17 Perfluorooctane sulfonic acid (M)



D 18 13C4 PFOS

D 19 13C5 PFNA

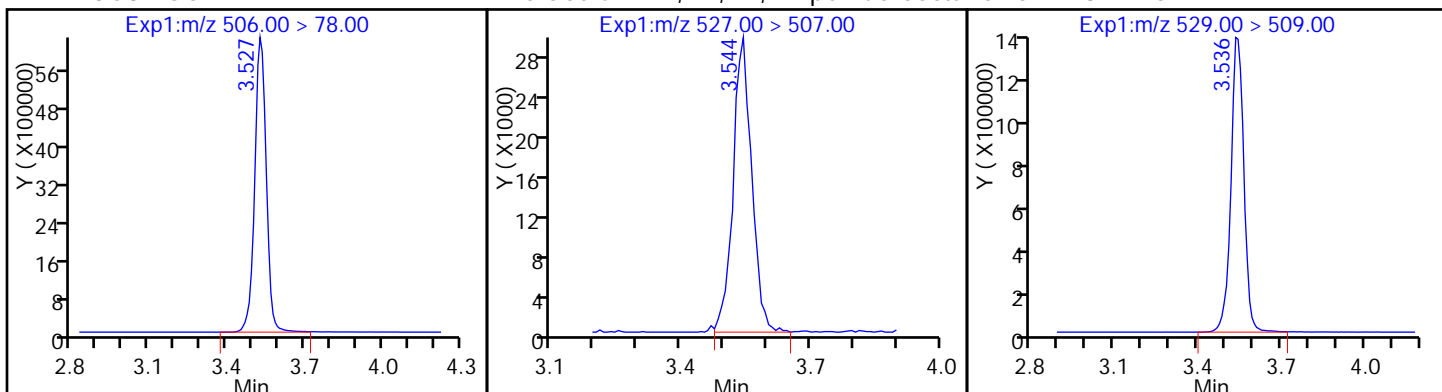
22 Perfluorooctane Sulfonamide



D 21 13C8 FOSA

25 Sodium 1H,1H,2H,2H-perfluorooctane sulfonate

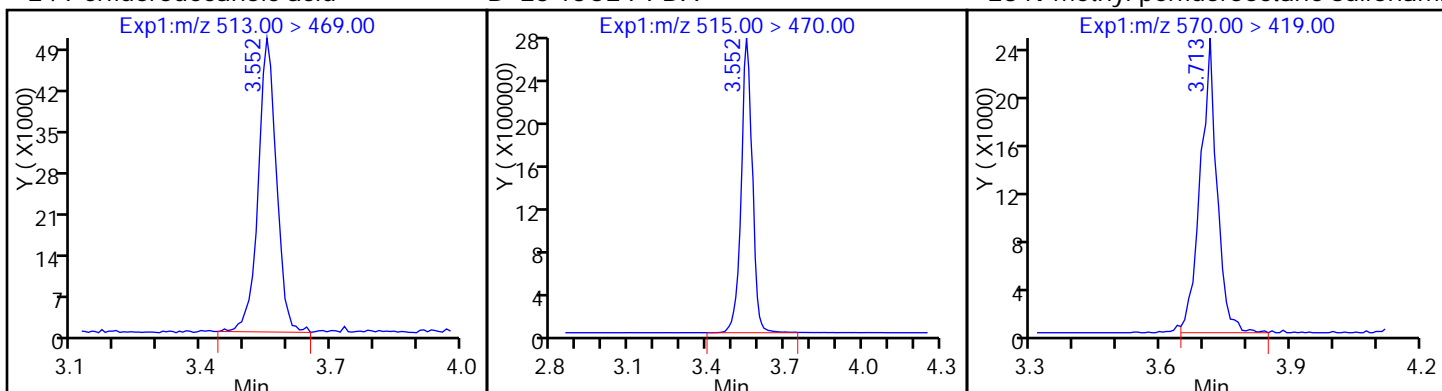
D 26 M2-8:2FTS



24 Perfluorodecanoic acid

D 23 13C2 PFDA

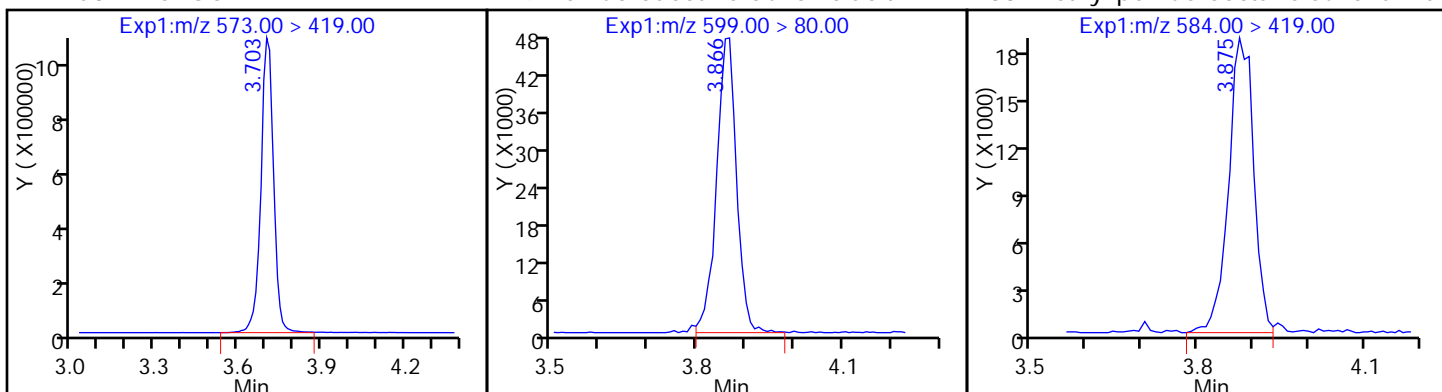
28 N-methyl perfluorooctane sulfonami



D 27 d3-NMeFOSAA

29 Perfluorodecane Sulfonic acid

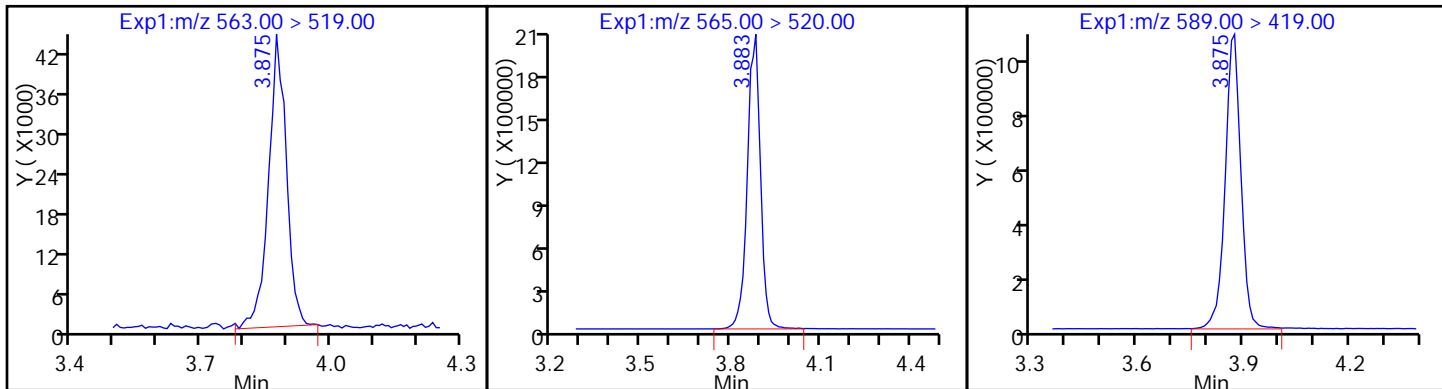
33 N-ethyl perfluorooctane sulfonamid

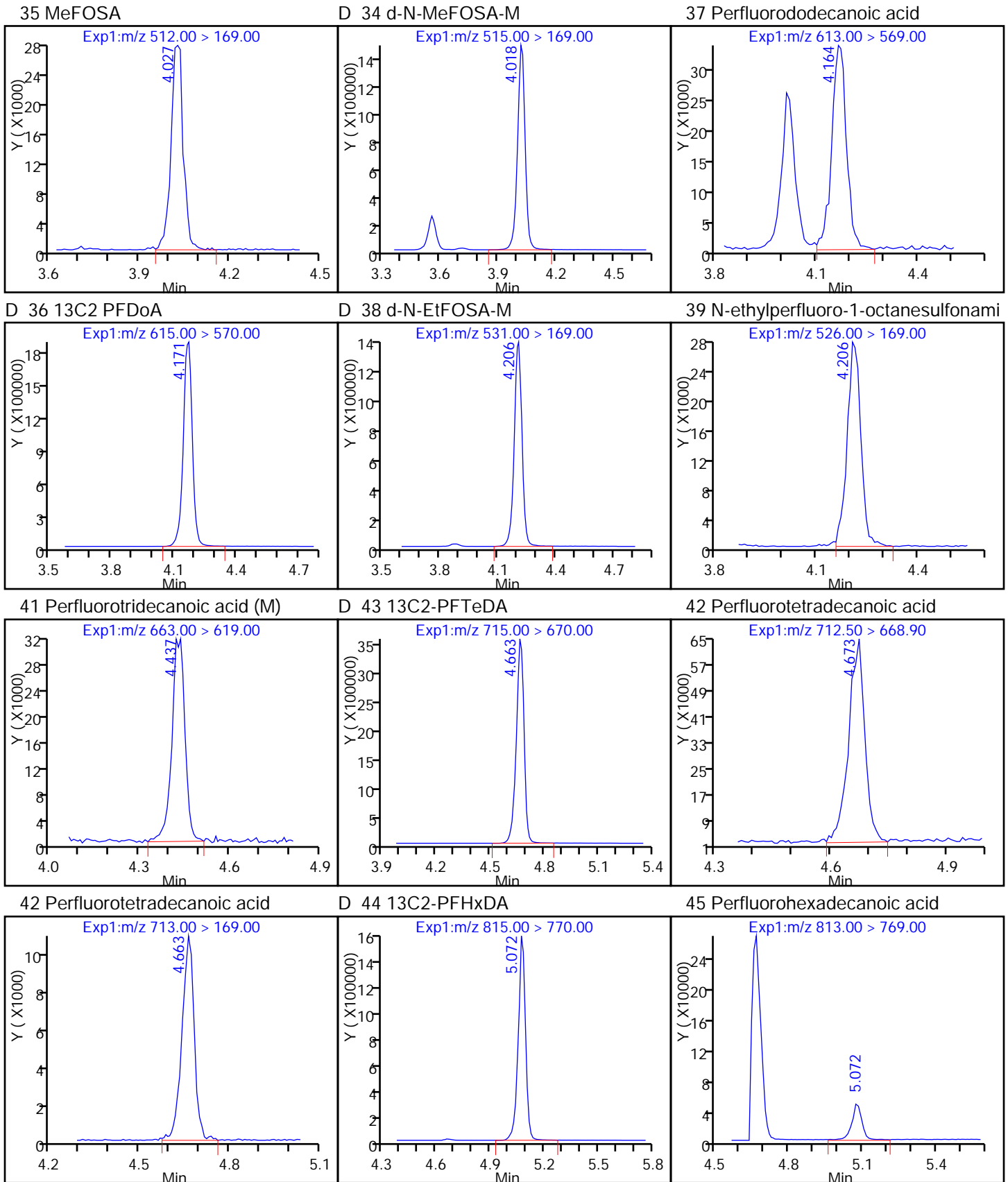


31 Perfluoroundecanoic acid

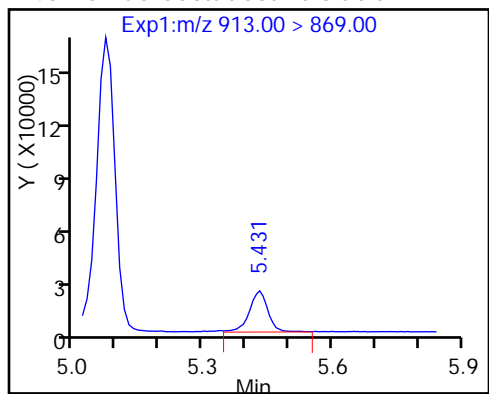
D 30 13C2 PFUnA

D 32 d5-NEtFOSAA





46 Perfluorooctadecanoic acid



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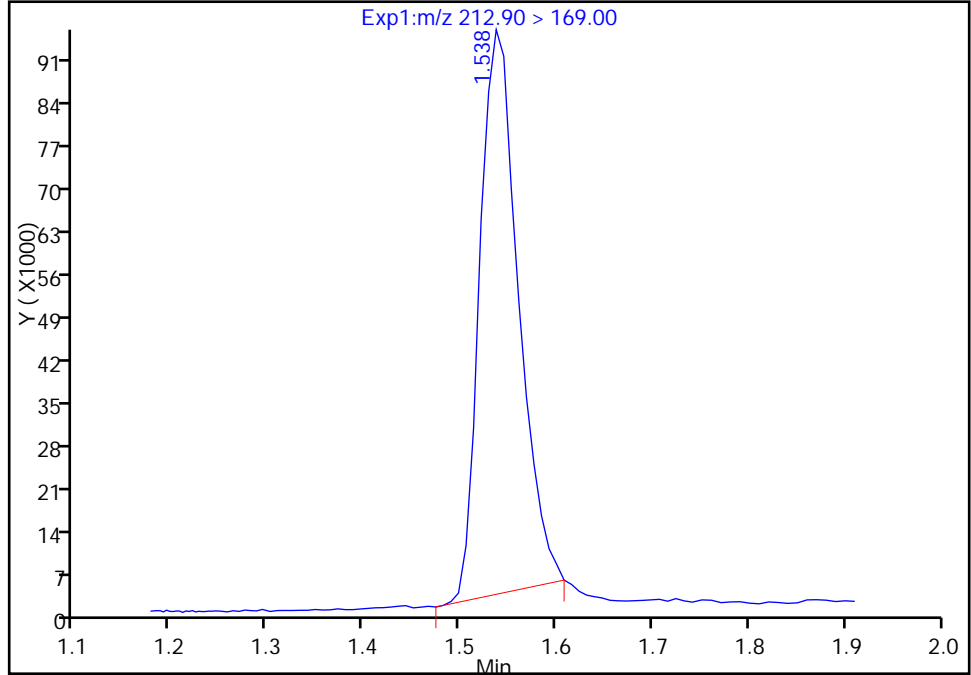
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Injection Date: 10-Mar-2017 17:37:24 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

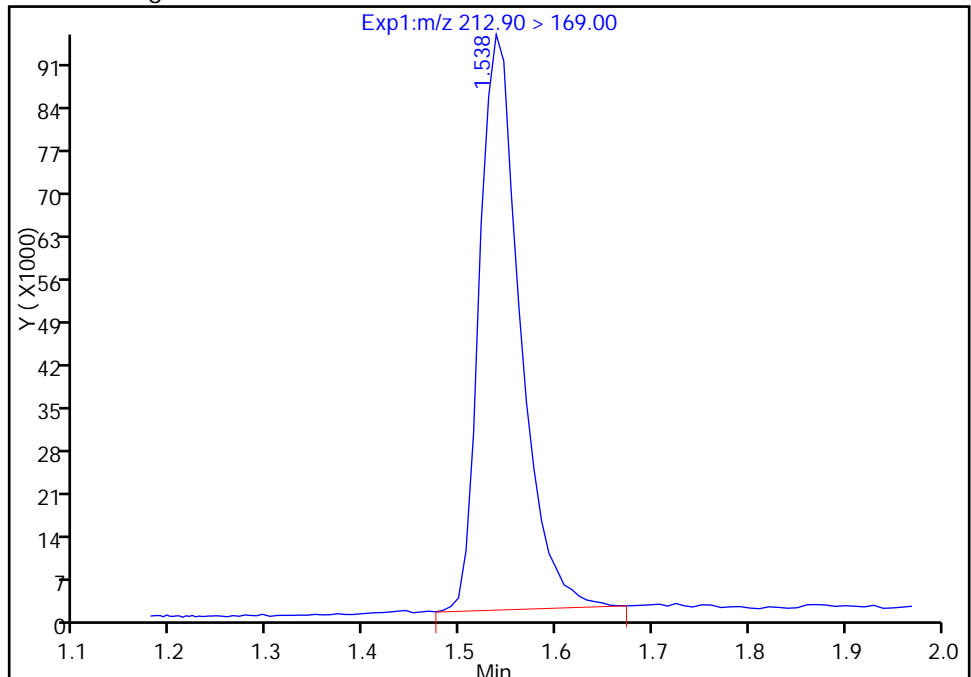
RT: 1.54
Area: 256959
Amount: 0.940978
Amount Units: ng/ml

Processing Integration Results



RT: 1.54
Area: 276661
Amount: 1.013126
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 13-Mar-2017 09:40:14

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

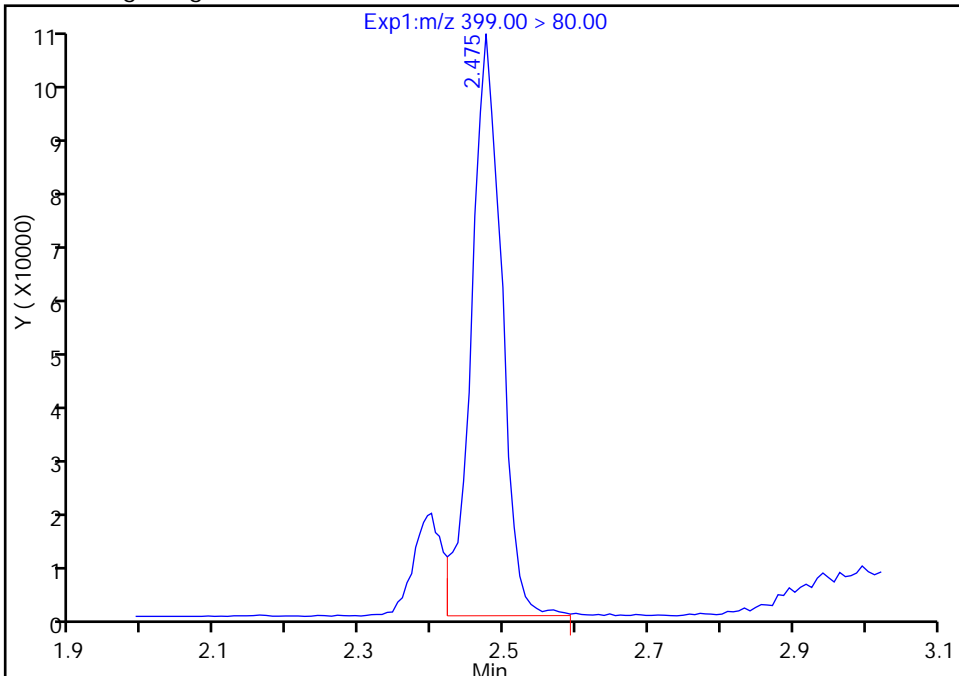
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Injection Date: 10-Mar-2017 17:37:24 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

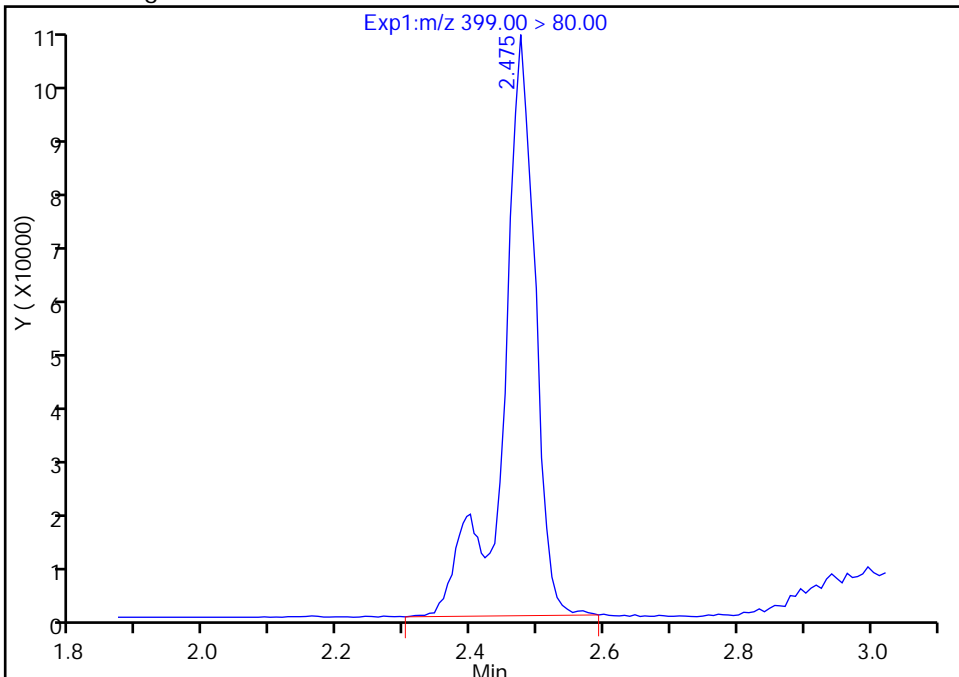
RT: 2.47
Area: 303419
Amount: 0.896678
Amount Units: ng/ml

Processing Integration Results



RT: 2.47
Area: 351343
Amount: 1.038305
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 13-Mar-2017 09:40:14
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

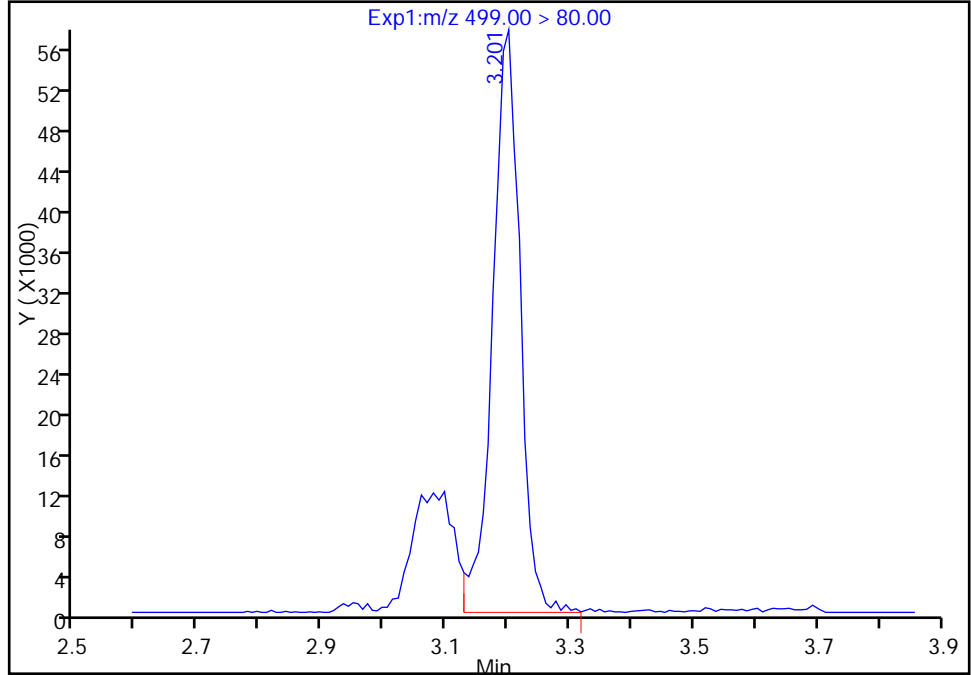
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Injection Date: 10-Mar-2017 17:37:24 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

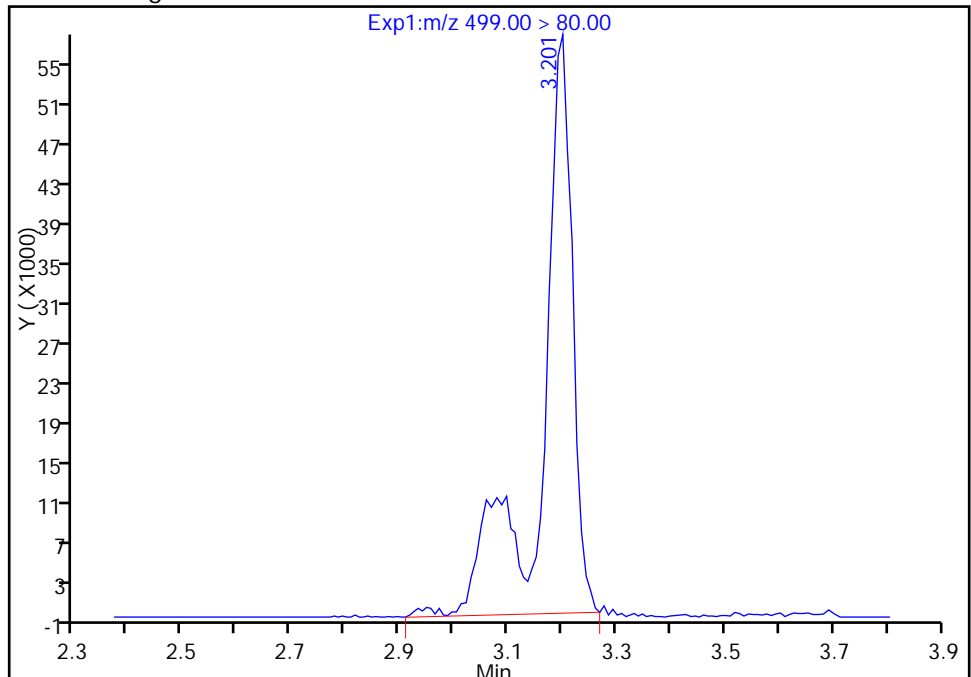
RT: 3.20
Area: 176686
Amount: 0.686637
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 228229
Amount: 0.886943
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 13-Mar-2017 09:40:14
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

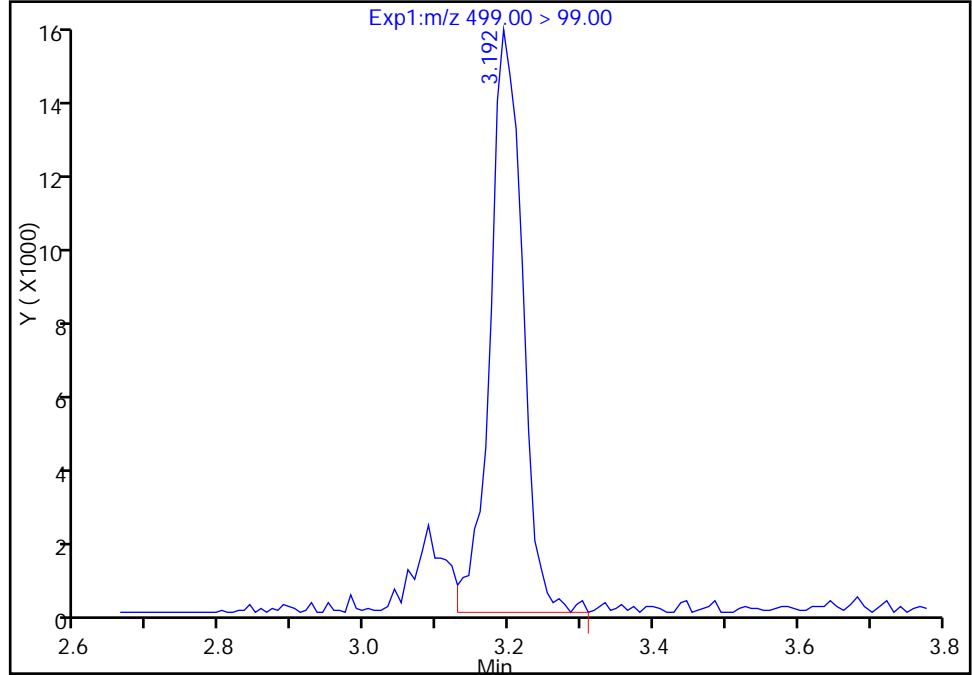
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Injection Date: 10-Mar-2017 17:37:24 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

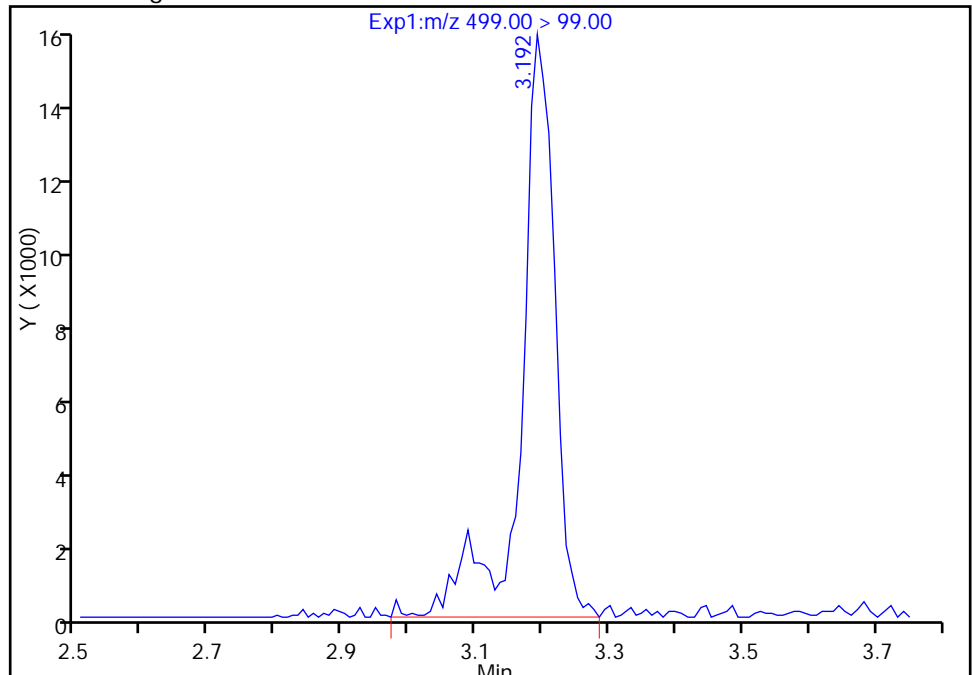
RT: 3.19
Area: 48327
Amount: 0.686637
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 55113
Amount: 0.886943
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 13-Mar-2017 09:40:14

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

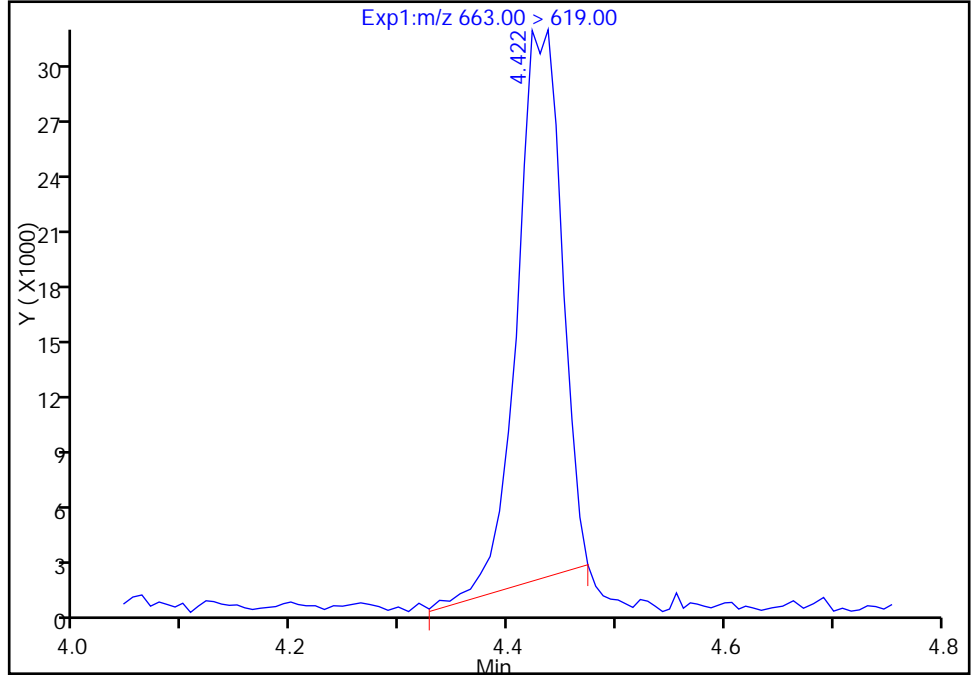
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Injection Date: 10-Mar-2017 17:37:24 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

41 Perfluorotridecanoic acid, CAS: 72629-94-8

Signal: 1

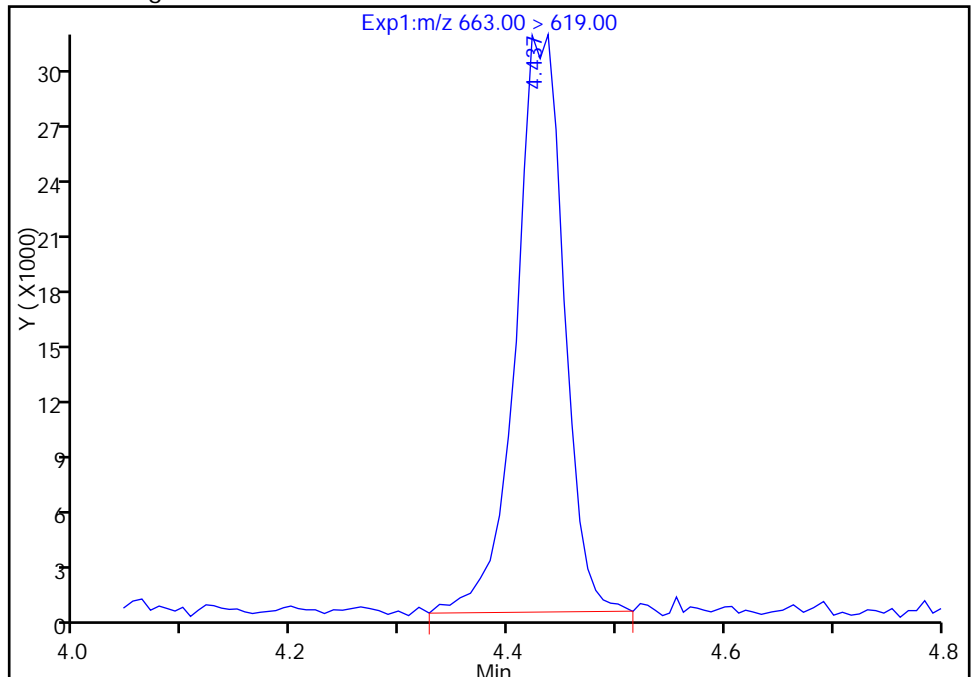
RT: 4.42
Area: 84884
Amount: 0.847774
Amount Units: ng/ml

Processing Integration Results



RT: 4.44
Area: 96093
Amount: 0.959723
Amount Units: ng/ml

Manual Integration Results



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.: 320-26273-1
 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.: 320-26273-1
 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	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	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	22770330	45.4		103		
	298.90 > 99.00	1.852	1.861	-0.009	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	12132105	51.6		103	207636	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.449	2.449	0.0	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	399.00 > 80.00	2.472	2.472	0.0	17104614	47.5		104		M
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	2.783	2.783	0.0	4813936	48.2		102		M

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										
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 PFD0A										
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

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

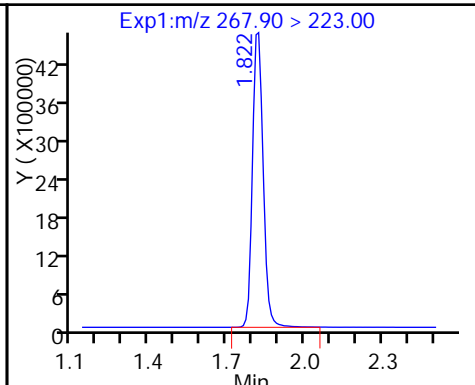
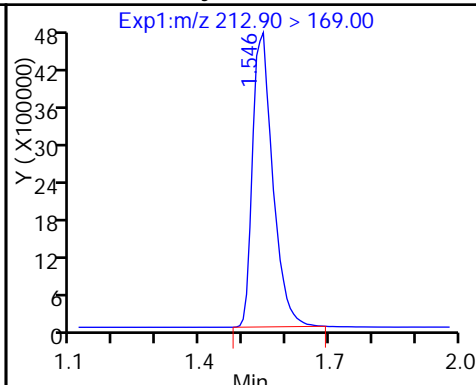
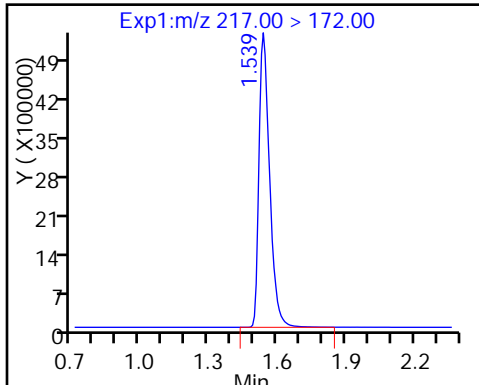
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

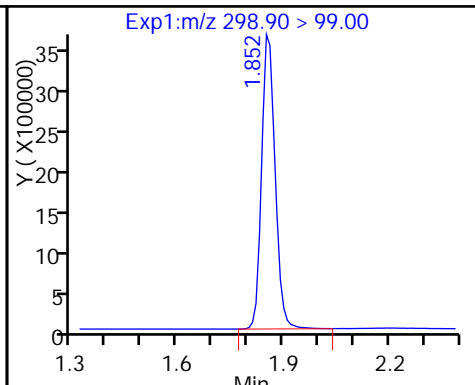
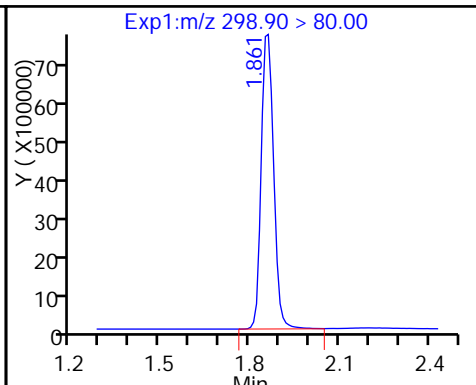
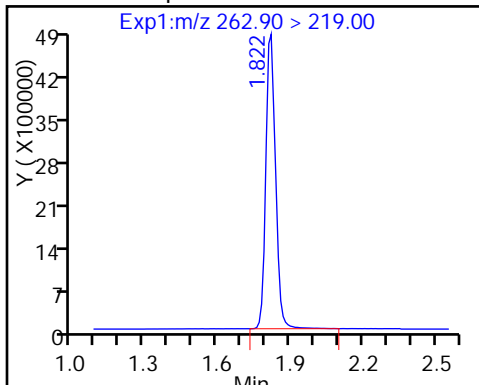
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

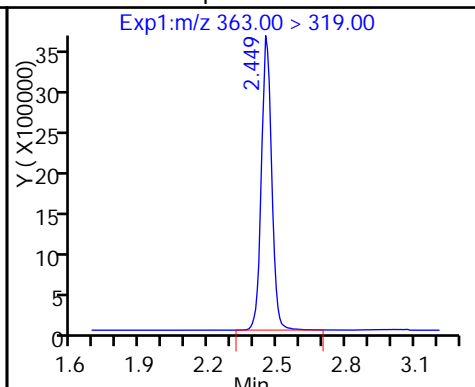
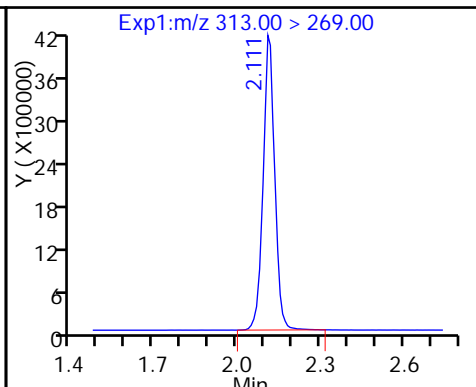
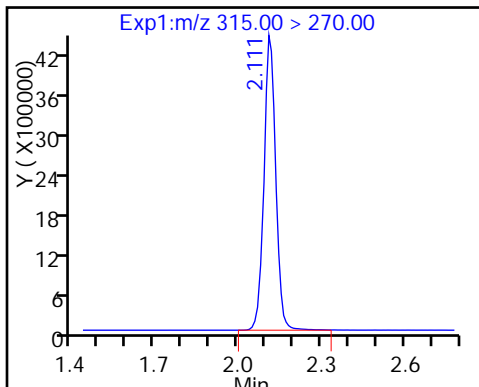
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

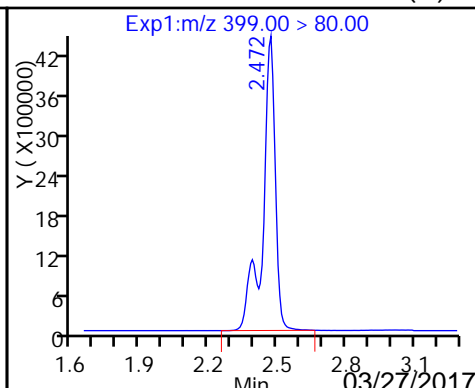
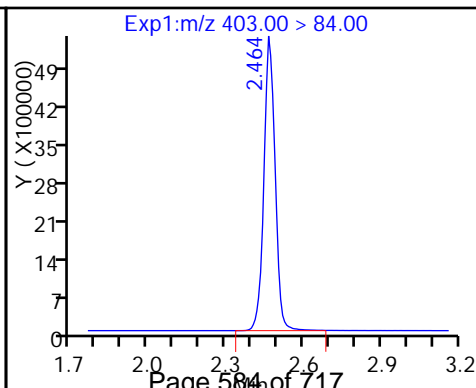
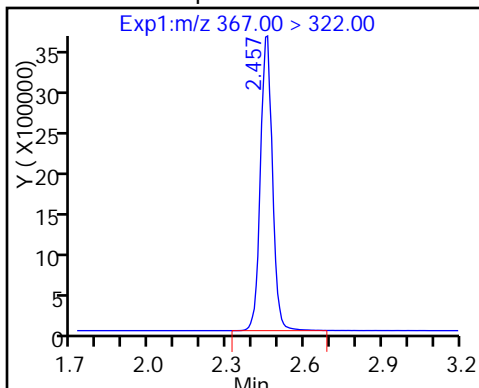
10 Perfluoroheptanoic acid



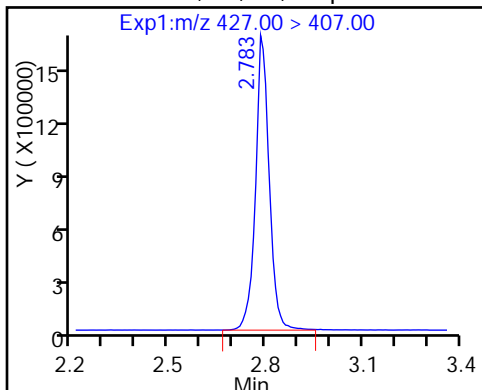
D 9 13C4-PFHpA

D 11 18O2 PFHxS

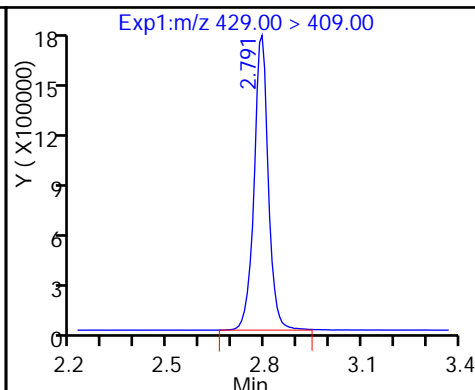
8 Perfluorohexanesulfonic acid (M)



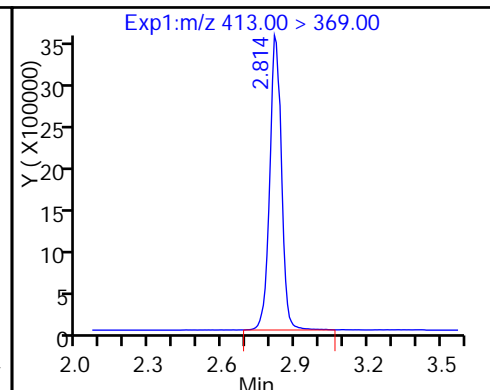
13 Sodium 1H,1H,2H,2H-perfluorooctanoate



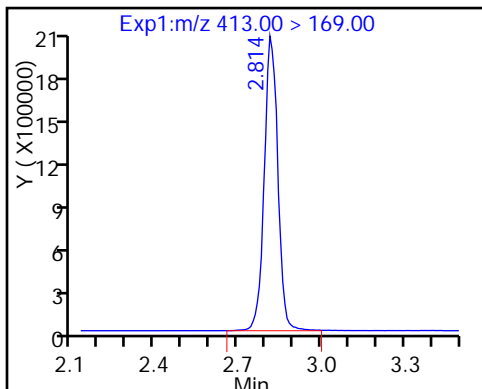
D 12 M2-6:2FTS



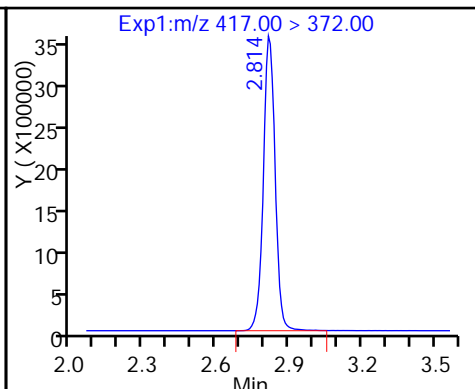
15 Perfluorooctanoic acid



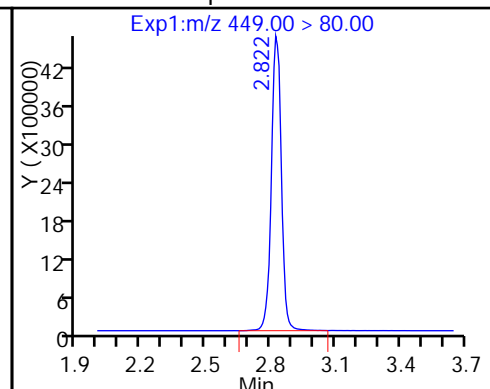
15 Perfluorooctanoic acid



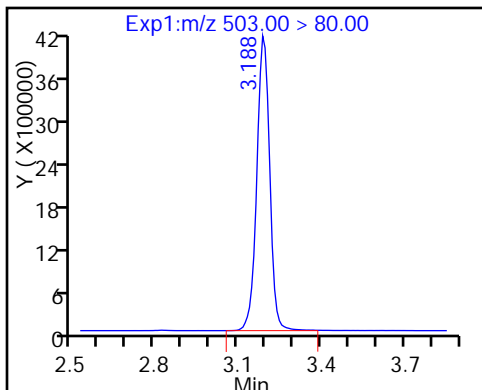
D 14 13C4 PFOA



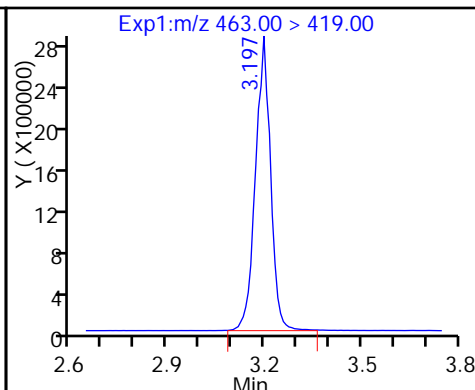
16 Perfluoroheptanesulfonic Acid



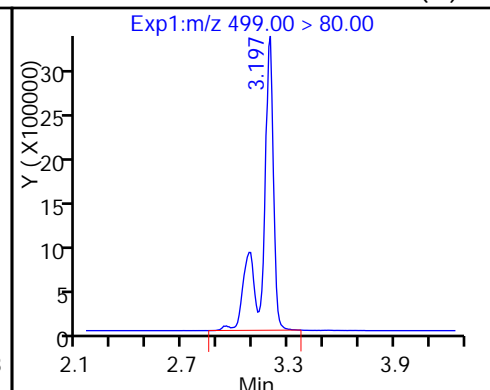
D 18 13C4 PFOS



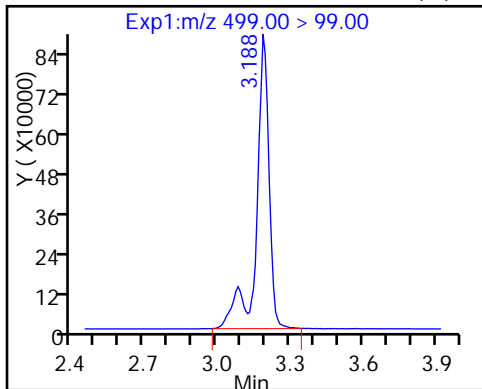
20 Perfluorononanoic acid



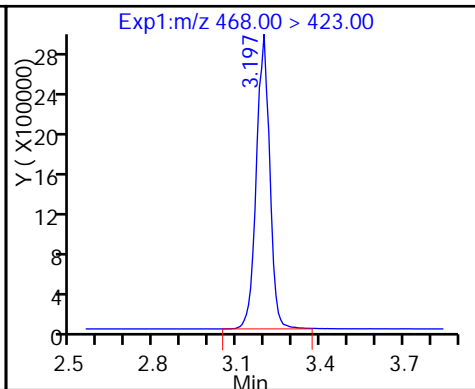
17 Perfluorooctane sulfonic acid (M)



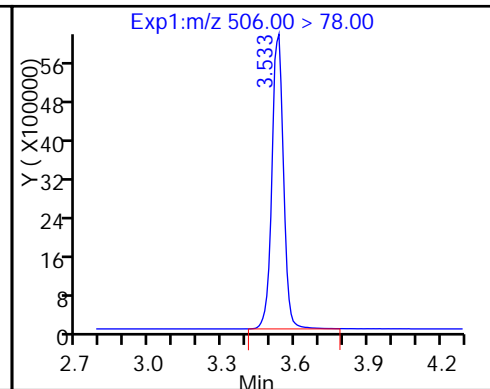
17 Perfluorooctane sulfonic acid (M)



D 19 13C5 PFNA



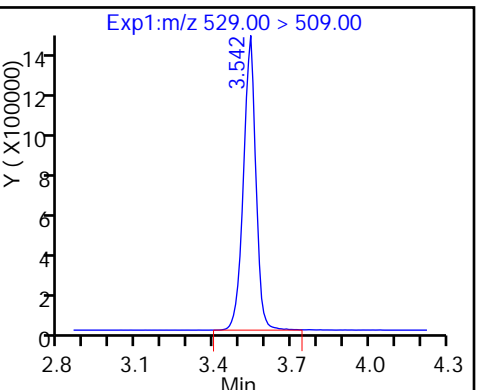
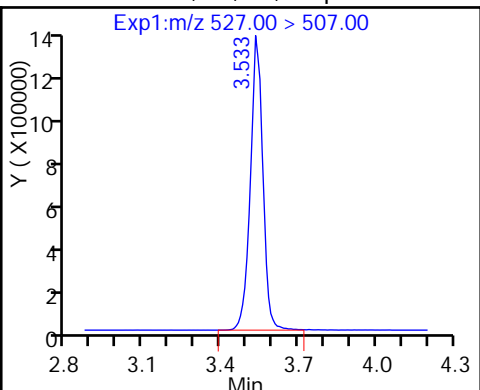
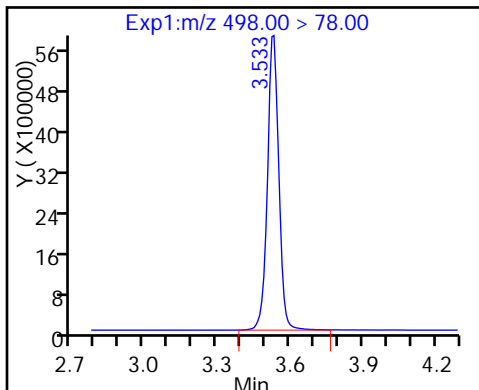
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide

25 Sodium 1H,1H,2H,2H-perfluorooctane

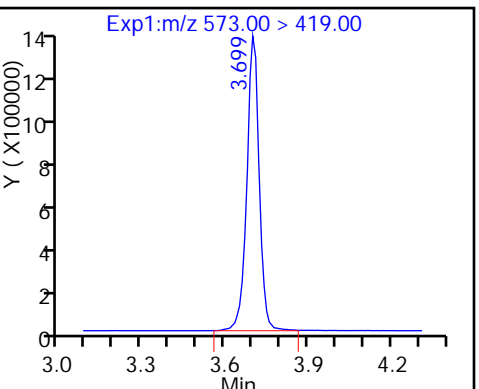
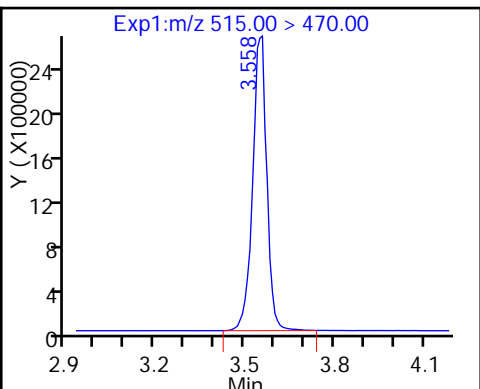
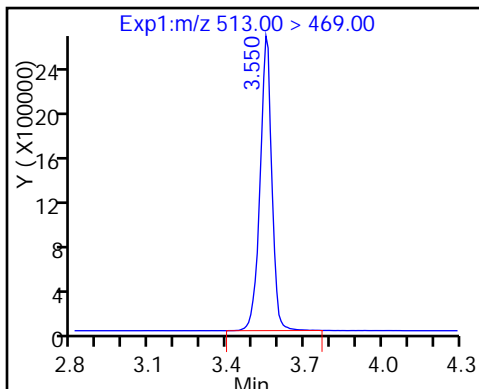
D 26 M2-8:2FTS



24 Perfluorodecanoic acid

D 23 13C2 PFDA

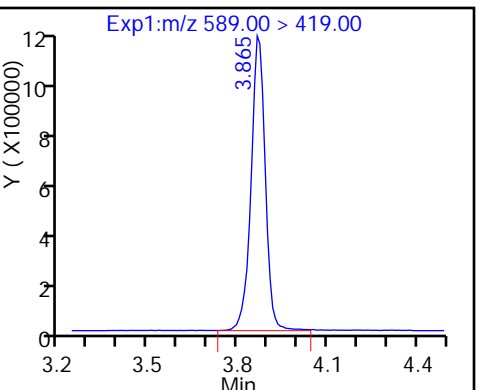
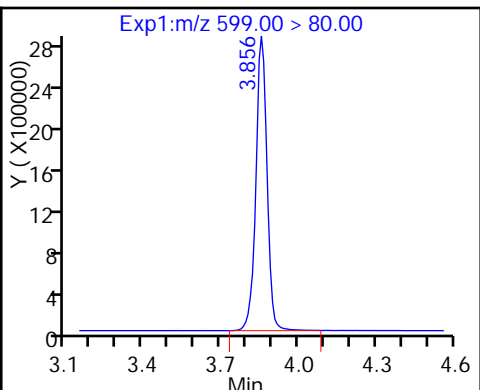
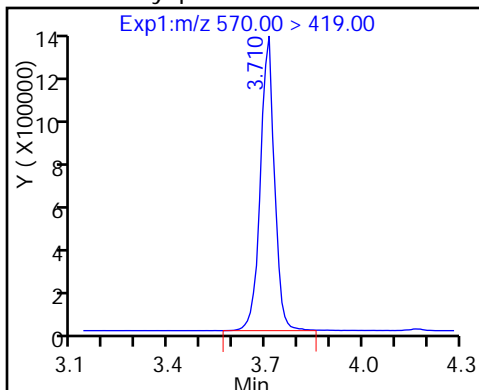
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

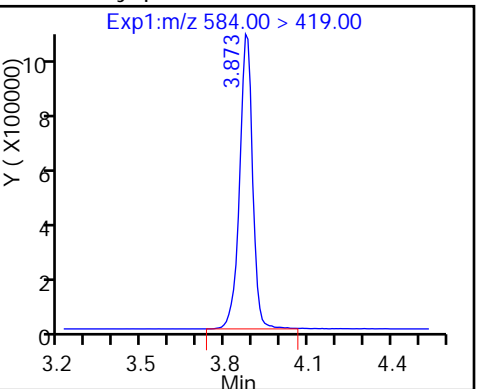
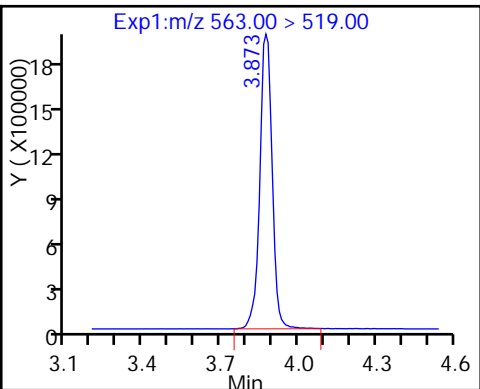
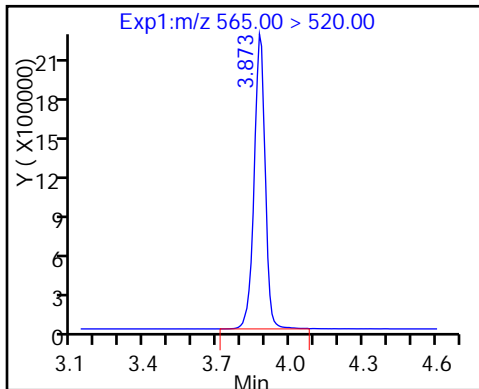
D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

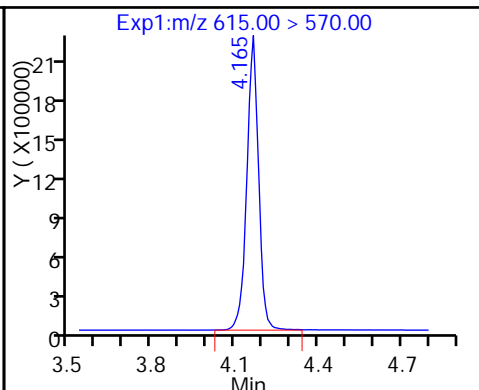
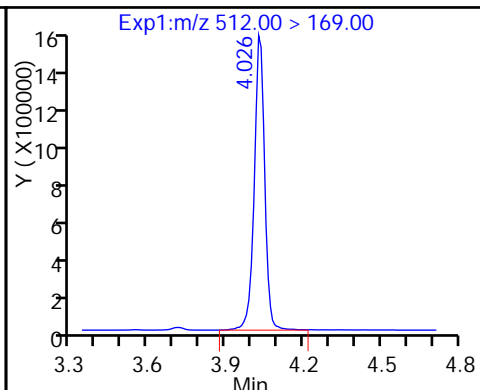
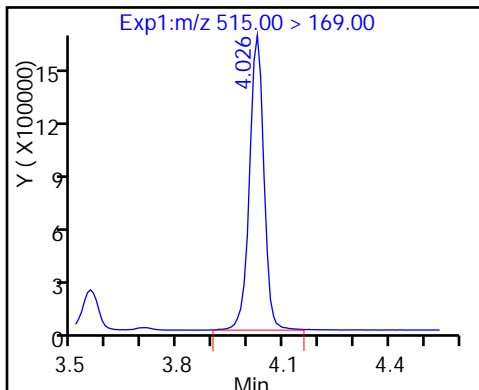
33 N-ethyl perfluorooctane sulfonamid



D 34 d-N-MeFOSA-M

35 MeFOSA

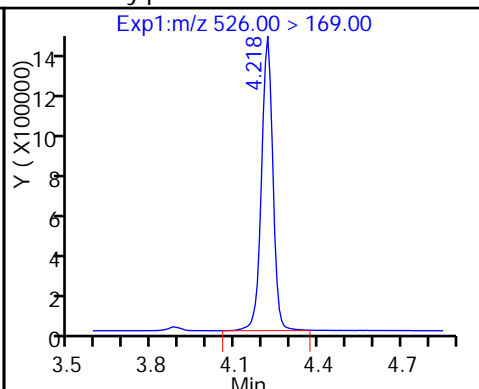
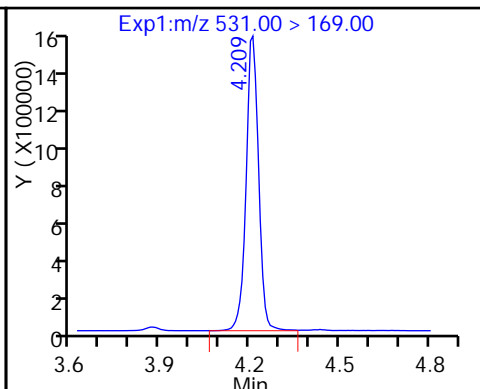
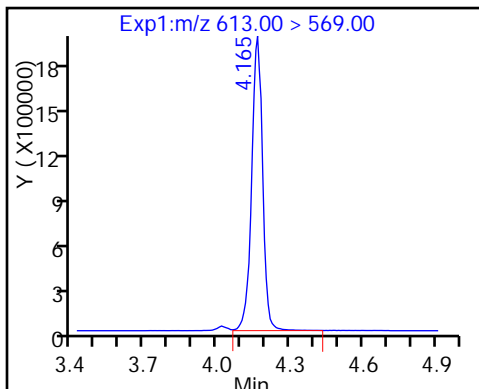
D 36 13C2 PFDoA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

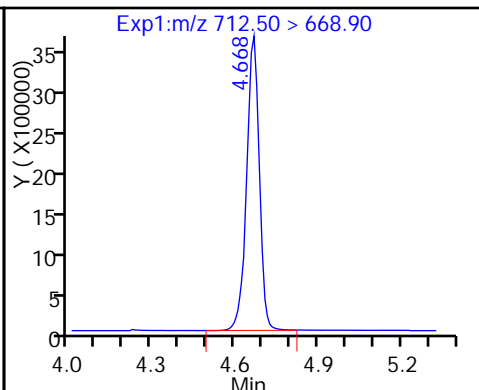
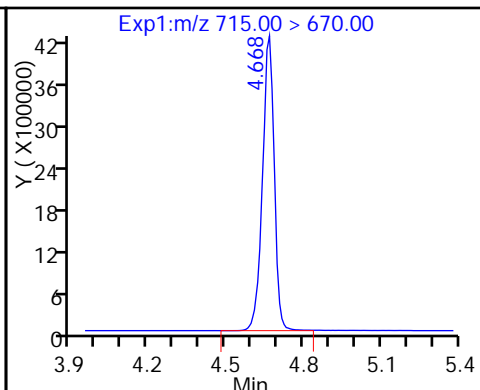
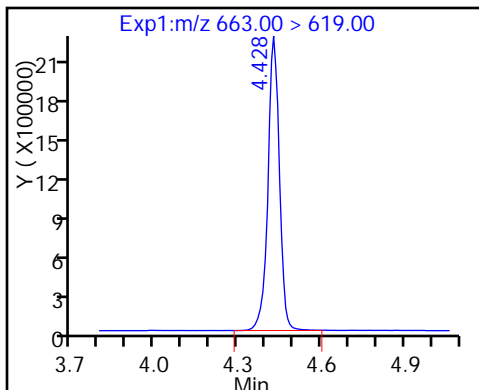
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

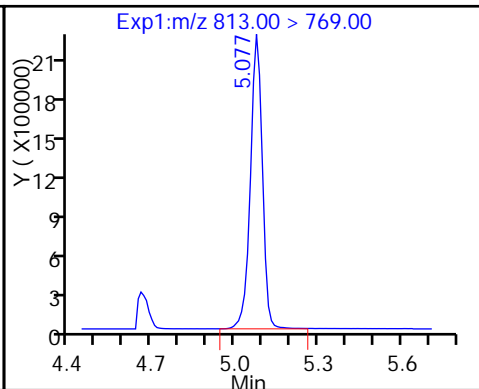
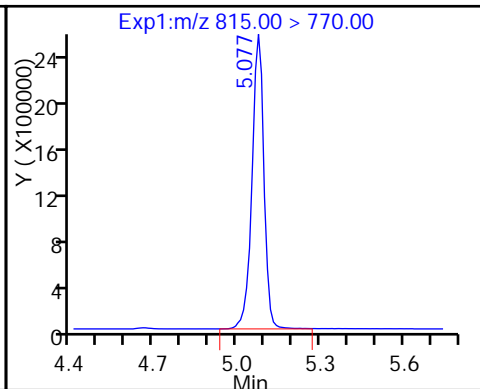
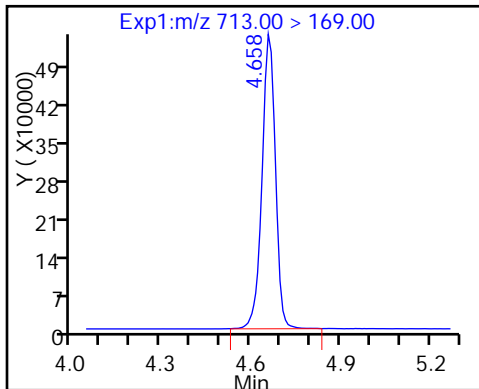
42 Perfluorotetradecanoic acid



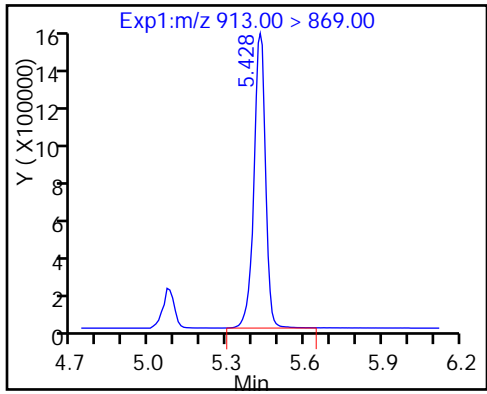
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

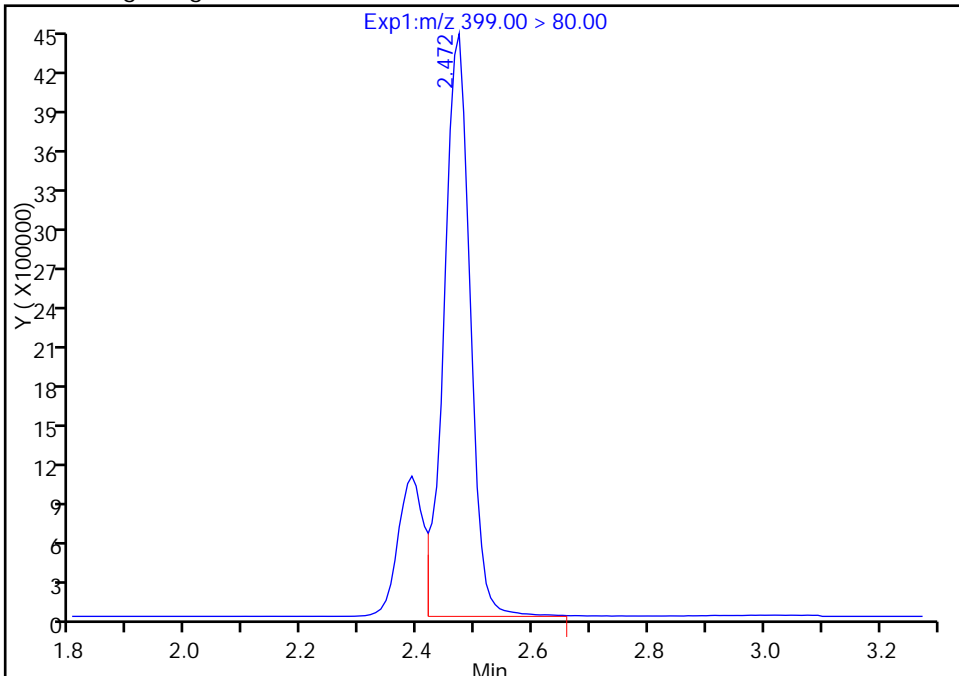
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Injection Date: 10-Mar-2017 22:22:30 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

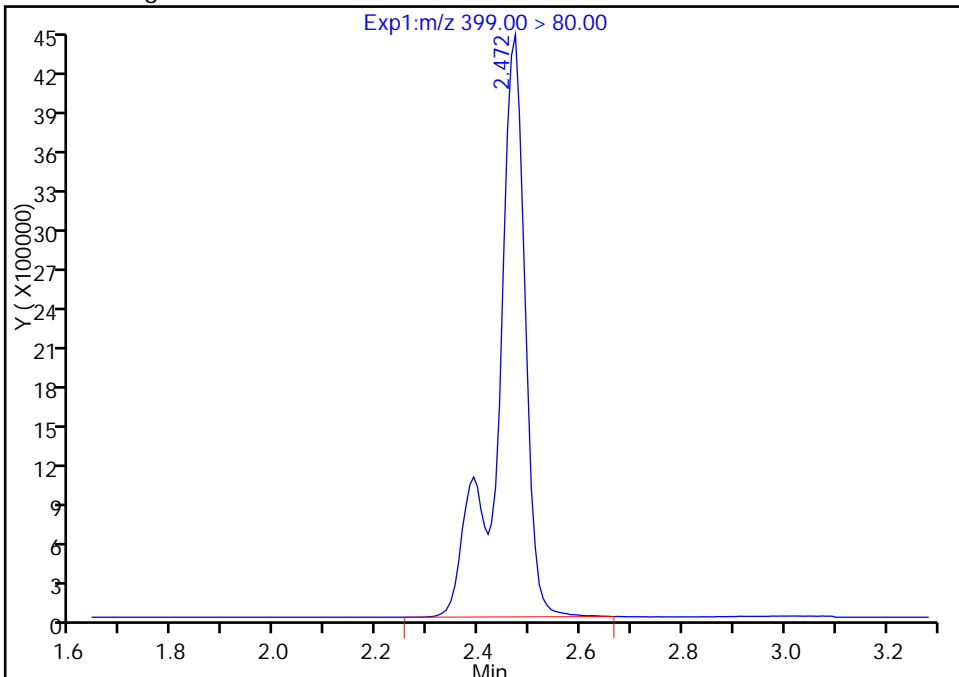
RT: 2.47
Area: 13940391
Amount: 38.722680
Amount Units: ng/ml

Processing Integration Results



RT: 2.47
Area: 17104614
Amount: 47.512045
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:33:48
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

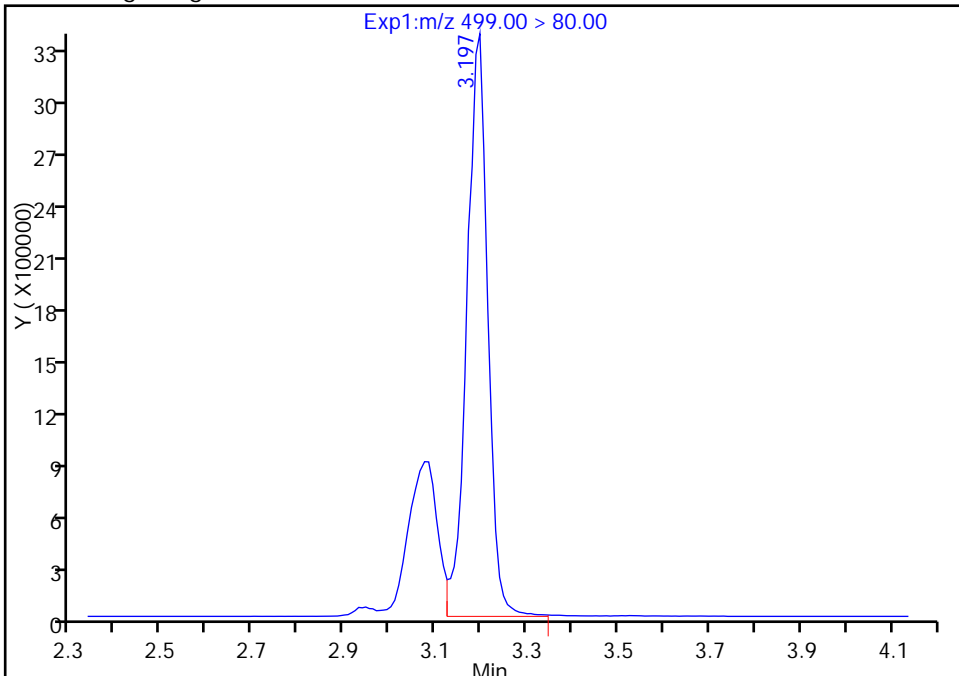
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_040.d
Injection Date: 10-Mar-2017 22:22:30 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

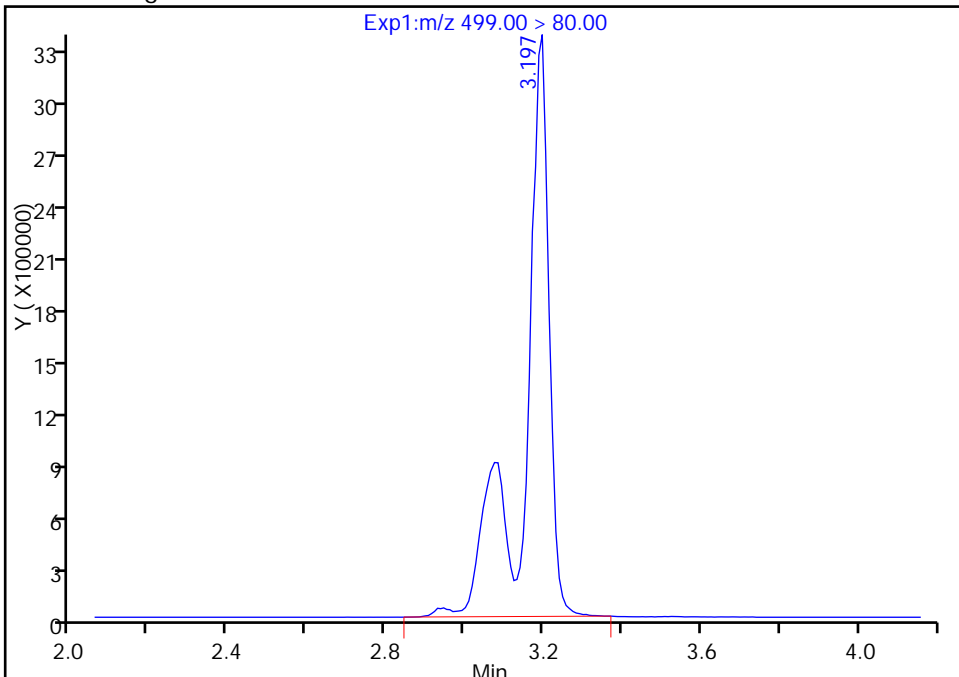
RT: 3.20
Area: 10564713
Amount: 37.859361
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 14512518
Amount: 52.006587
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:33:48
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

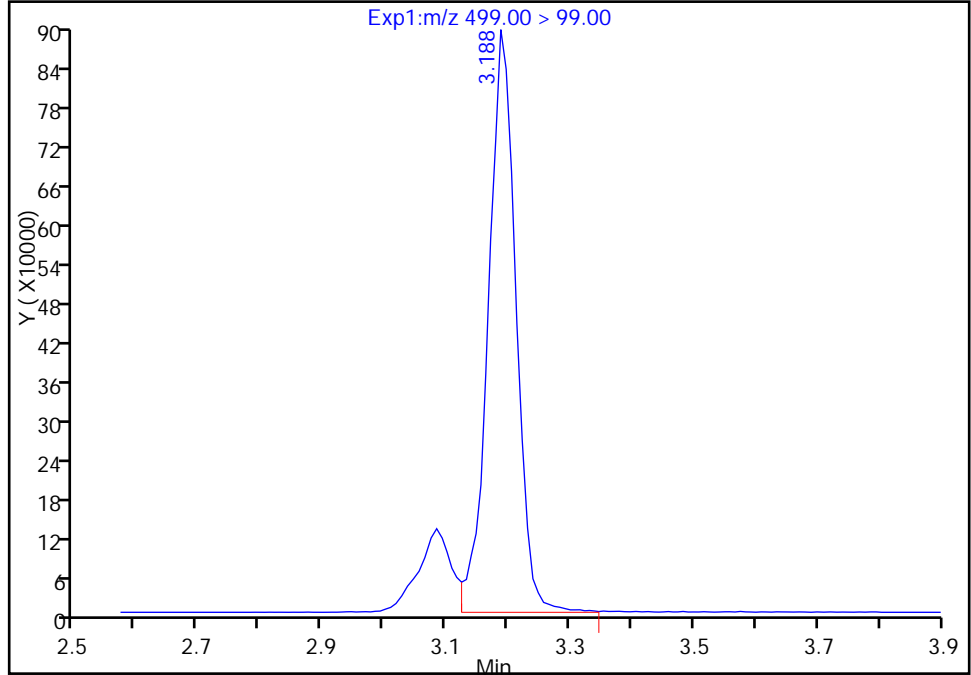
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Injection Date: 10-Mar-2017 22:22:30 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

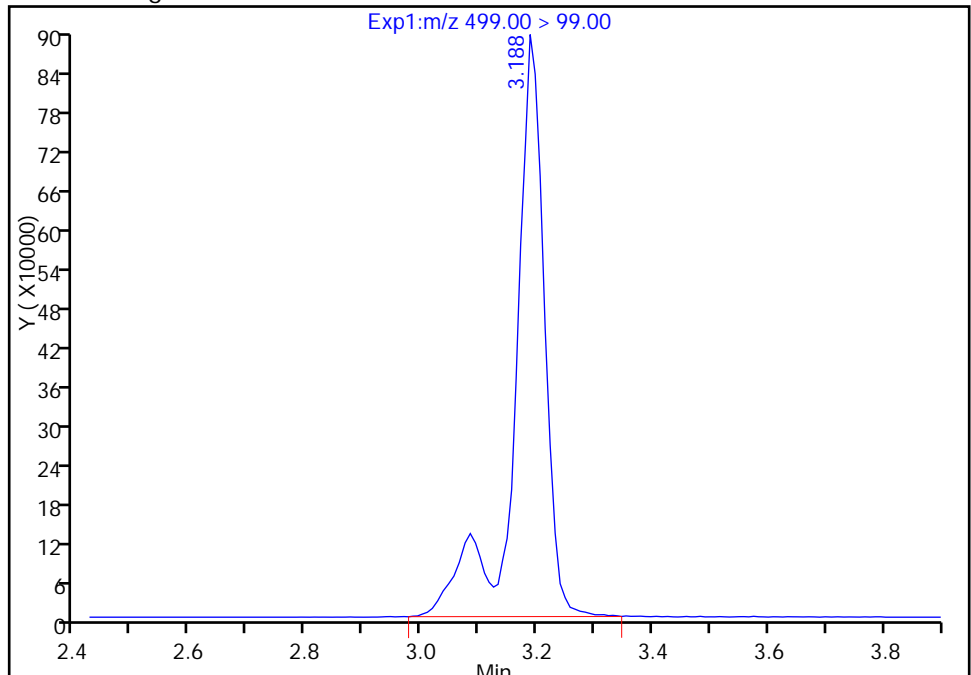
RT: 3.19
Area: 2767992
Amount: 37.859361
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 3214272
Amount: 52.006587
Amount Units: ng/ml

Manual Integration Results



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 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 (FOA)	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
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 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-PFTEtDA	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	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		M

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										
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 PFD0A										
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

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

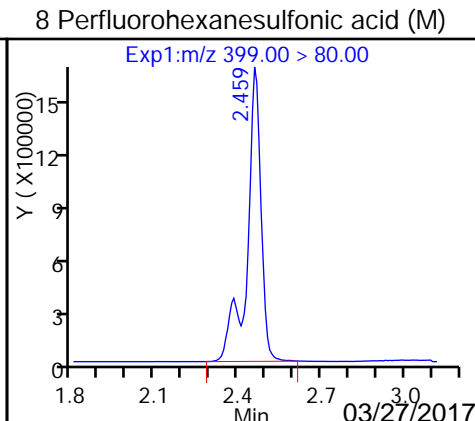
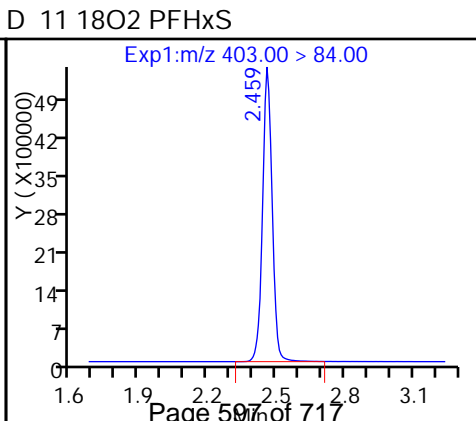
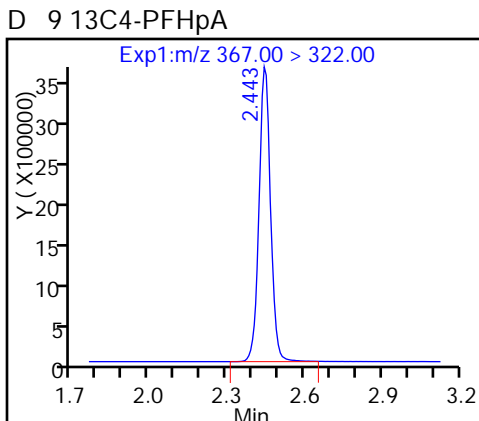
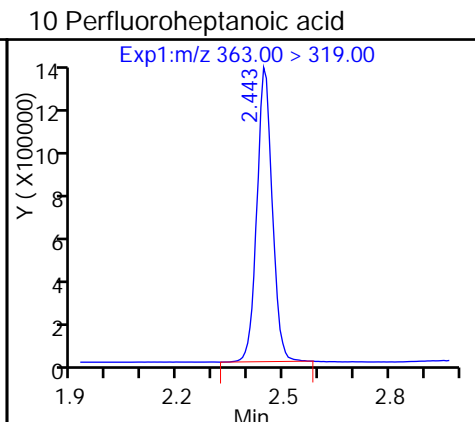
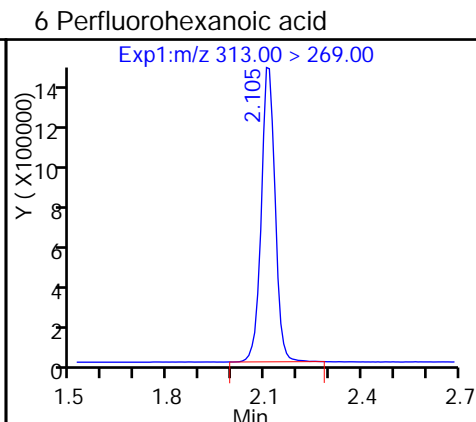
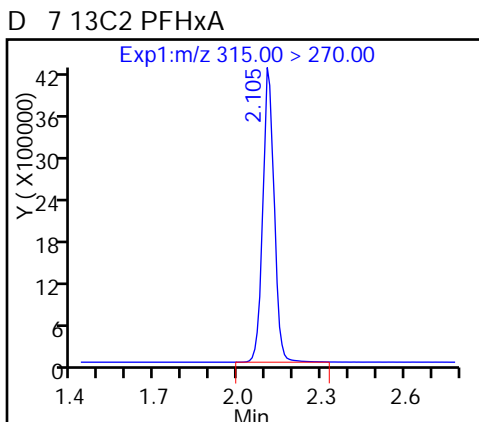
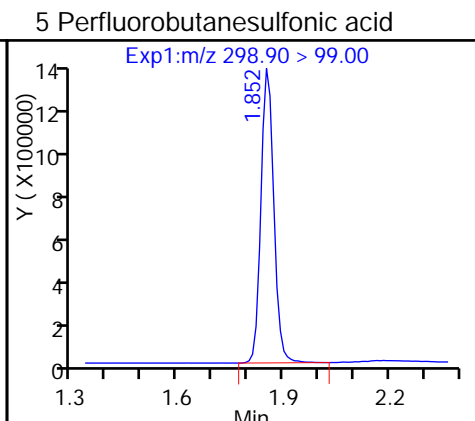
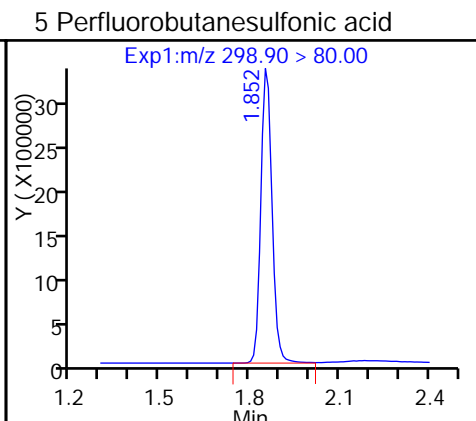
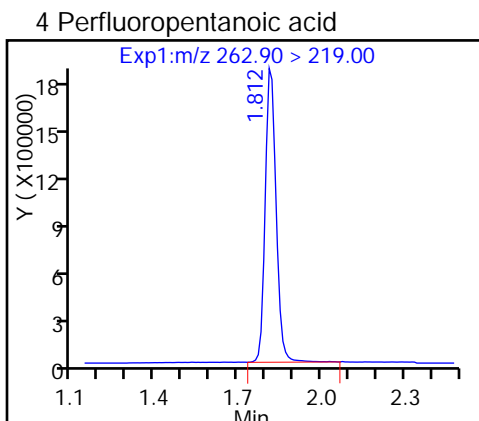
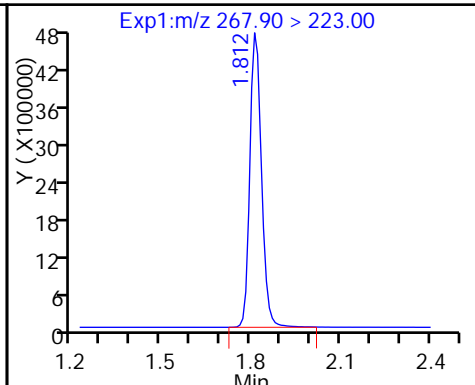
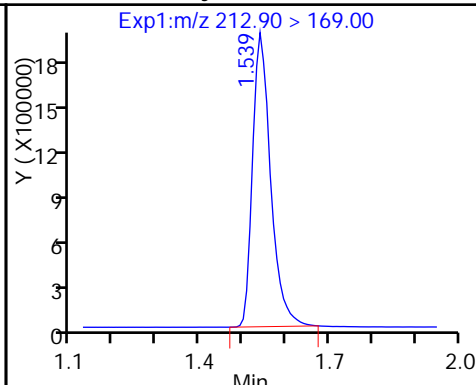
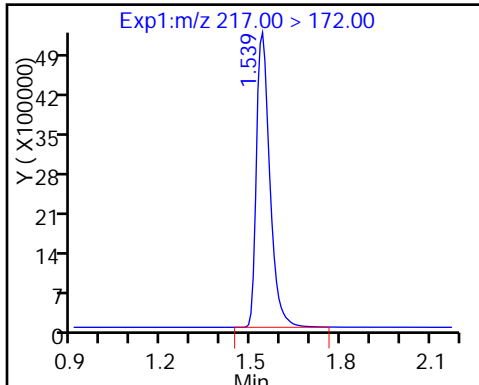
Method: A8_N

Limit Group: LC PFC_DOD ICAL

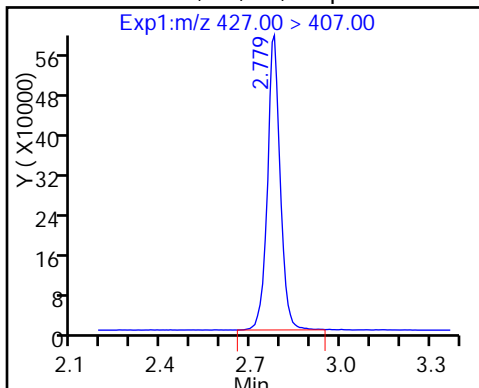
D 1 13C4 PFBA

2 Perfluorobutyric acid

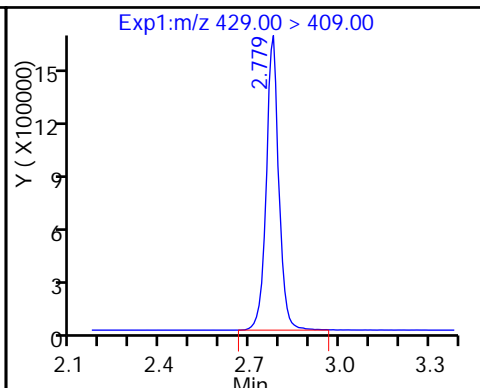
D 3 13C5-PFPeA



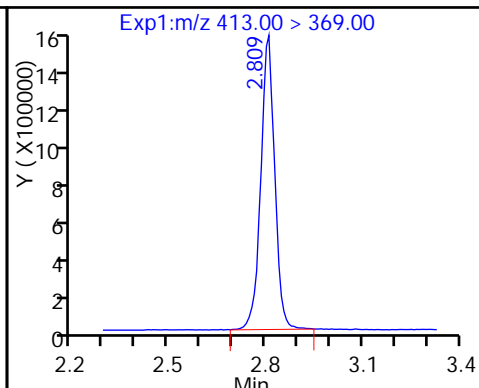
13 Sodium 1H,1H,2H,2H-perfluorooctanoate



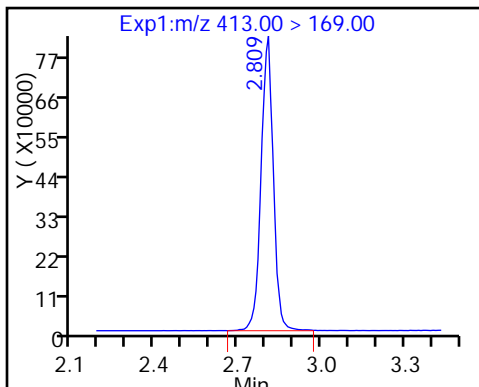
D 12 M2-6:2FTS



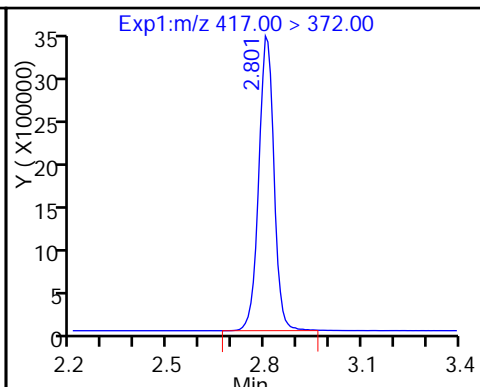
15 Perfluorooctanoic acid



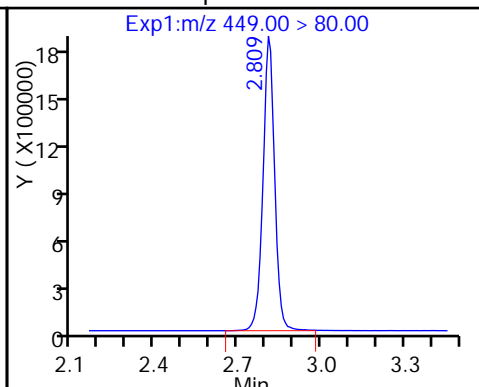
15 Perfluorooctanoic acid



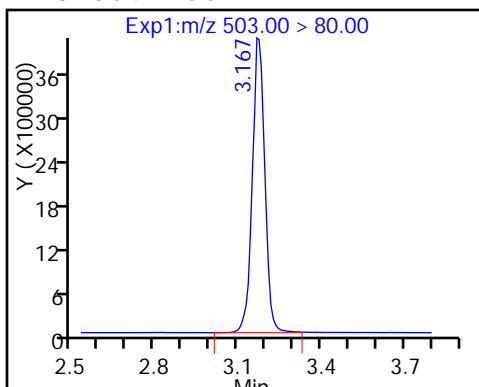
D 14 13C4 PFOA



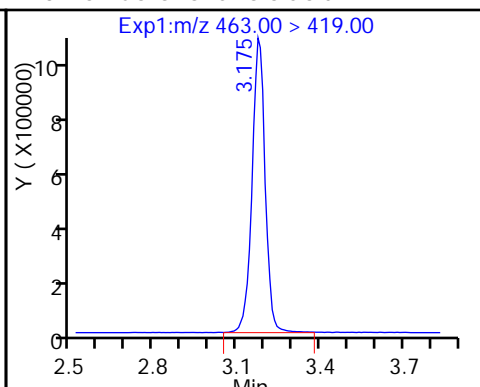
16 Perfluoroheptanesulfonic Acid



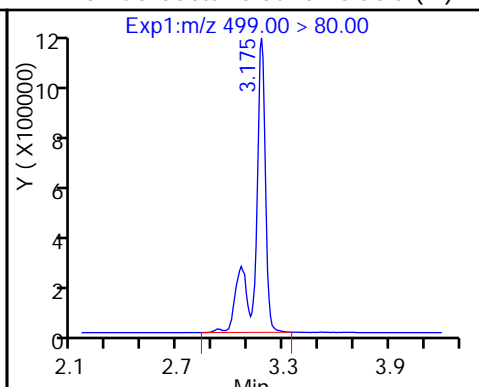
D 18 13C4 PFOS



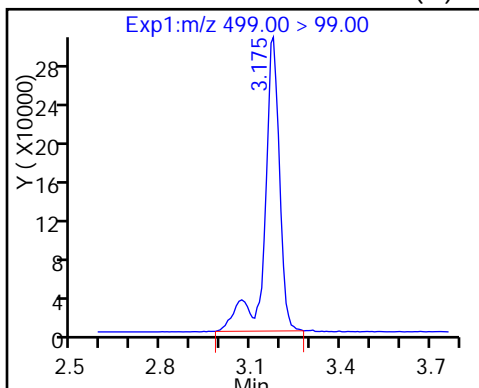
20 Perfluorononanoic acid



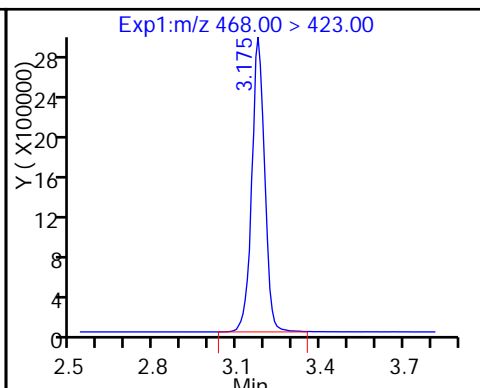
17 Perfluorooctane sulfonic acid (M)



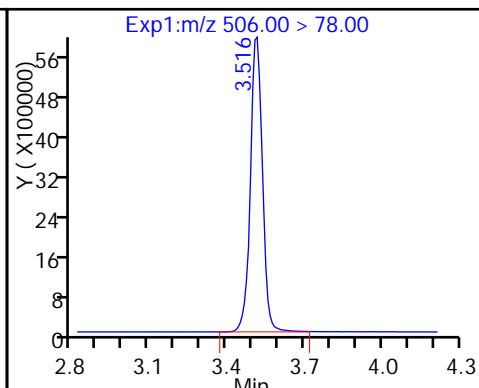
17 Perfluorooctane sulfonic acid (M)



D 19 13C5 PFNA



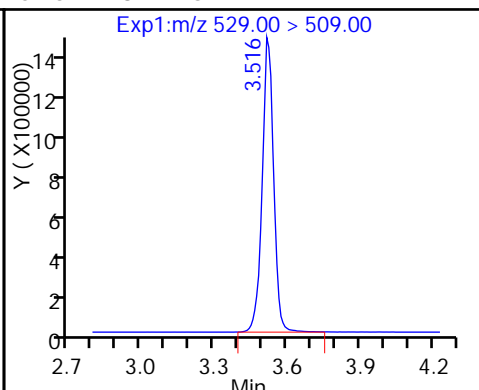
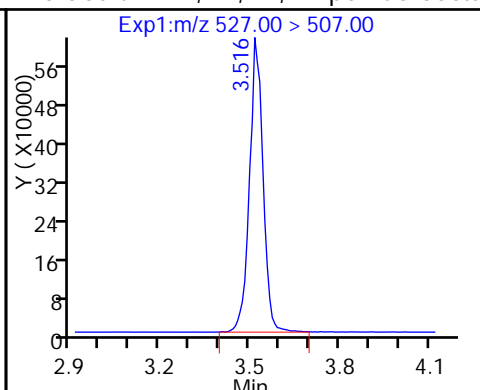
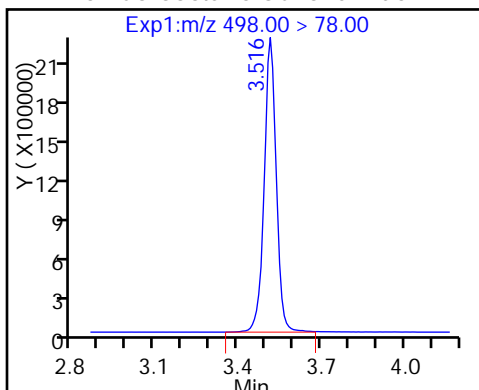
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide

25 Sodium 1H,1H,2H,2H-perfluorooctane

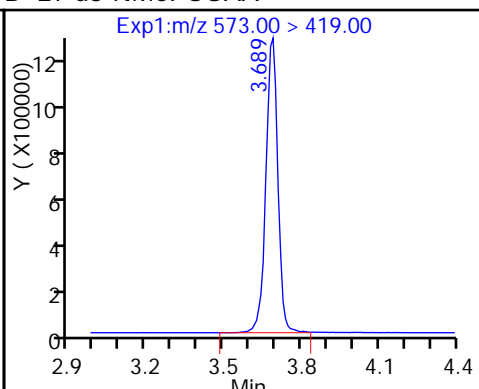
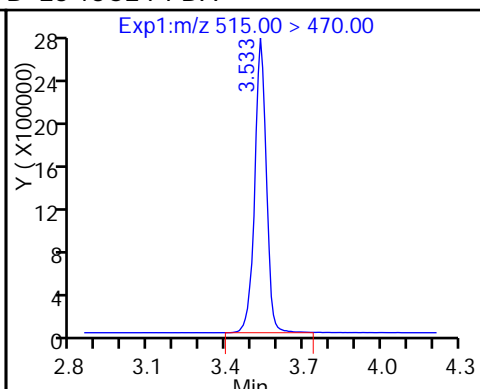
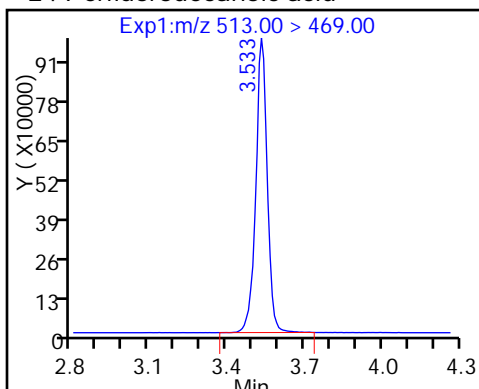
D 26 M2-8:2FTS



24 Perfluorodecanoic acid

D 23 13C2 PFDA

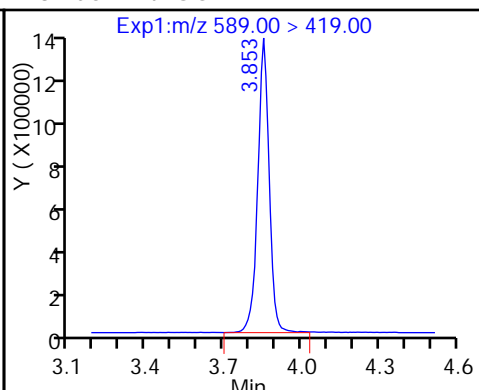
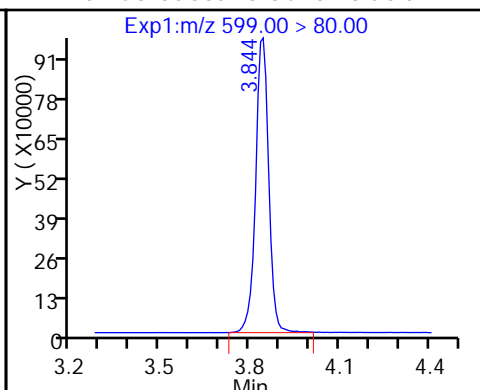
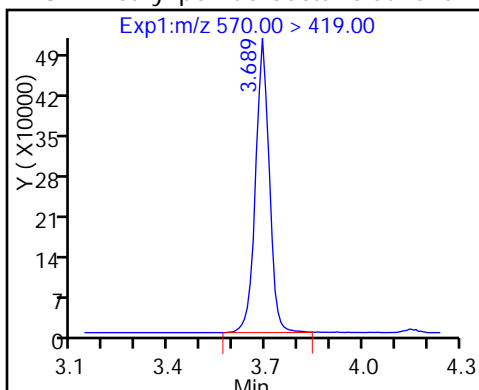
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

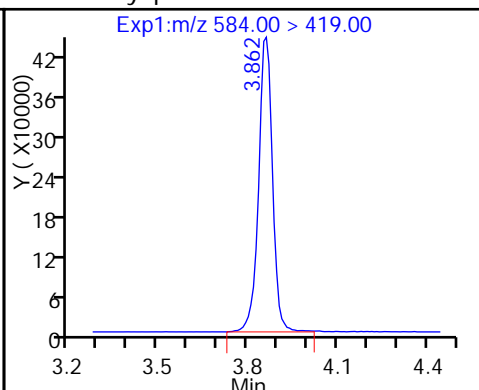
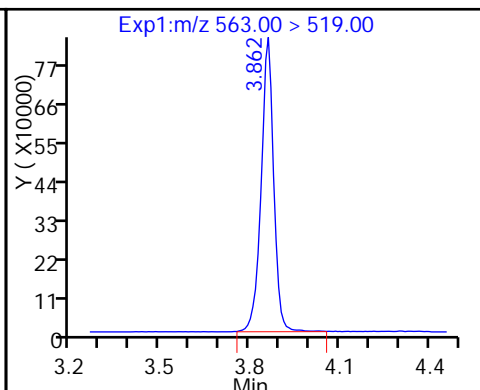
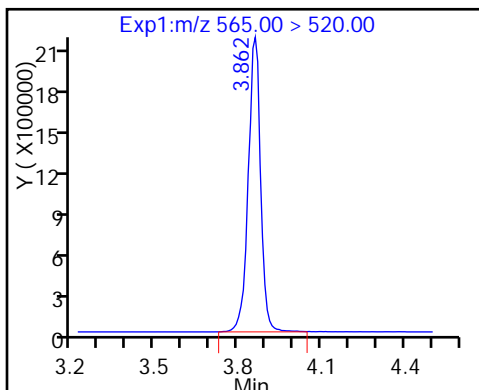
D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

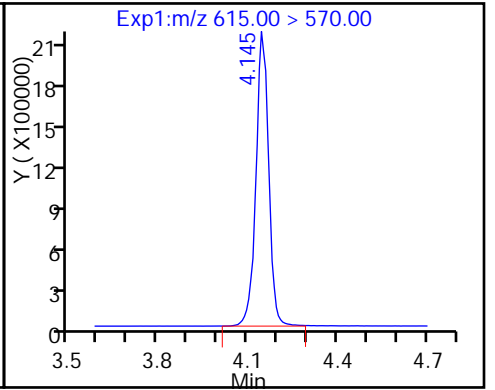
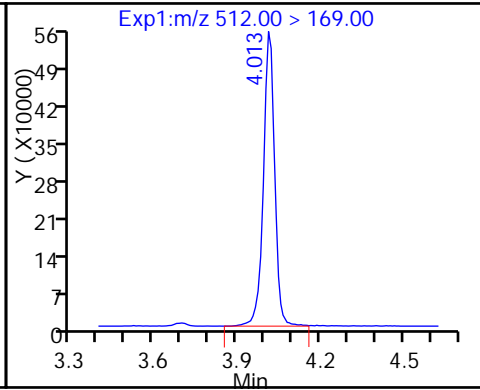
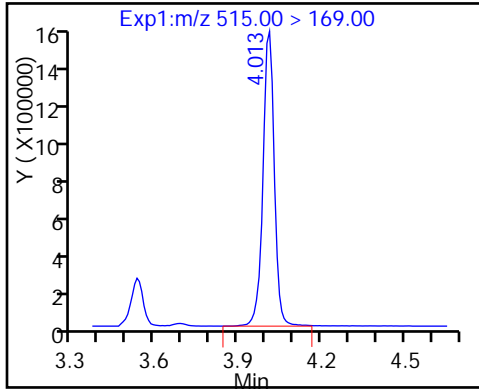
33 N-ethyl perfluorooctane sulfonamid



D 34 d-N-MeFOSA-M

35 MeFOSA

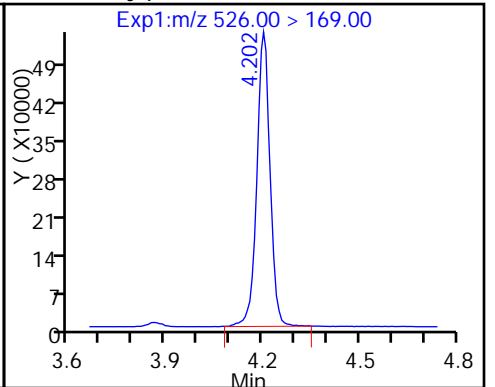
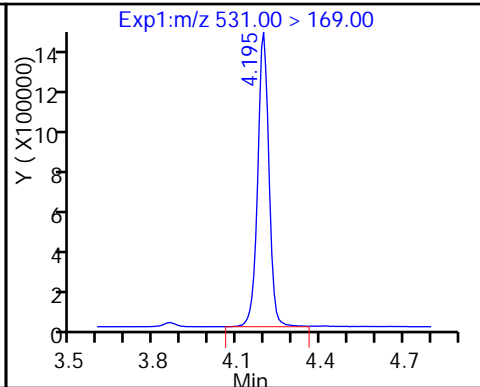
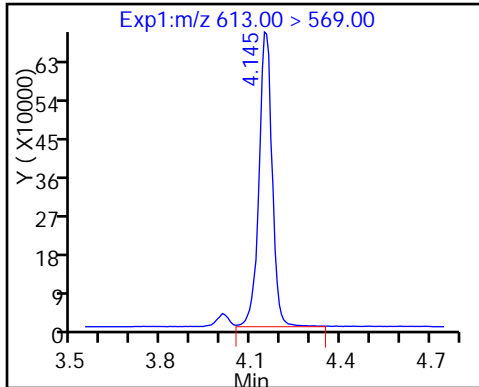
D 36 13C2 PFDoA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

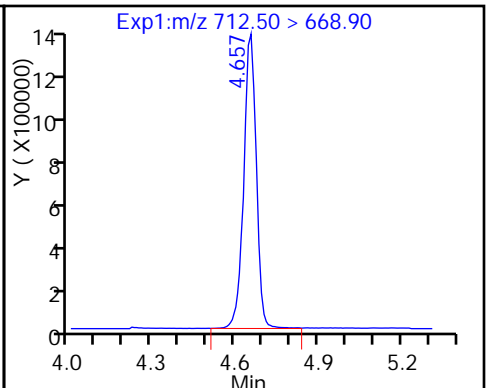
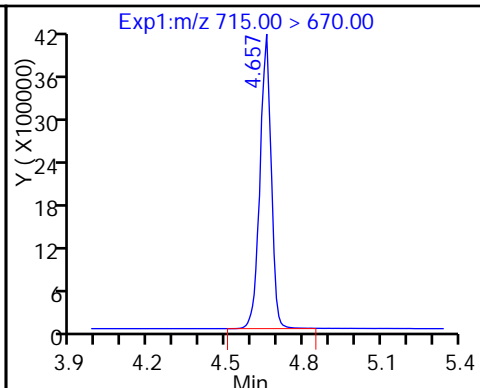
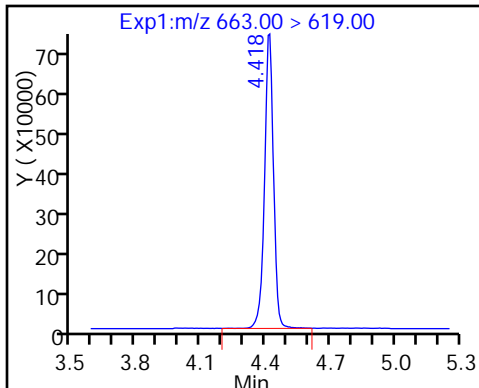
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

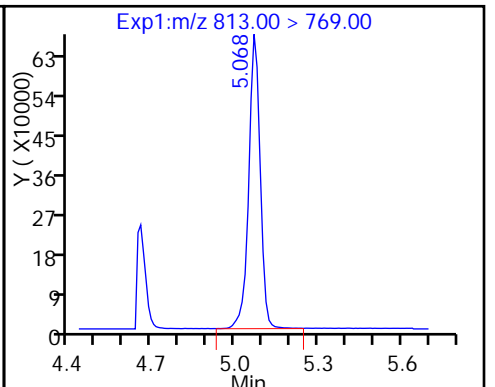
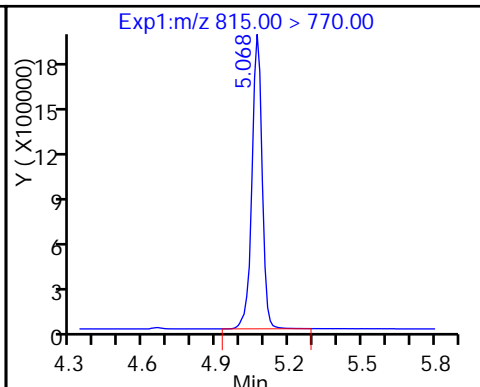
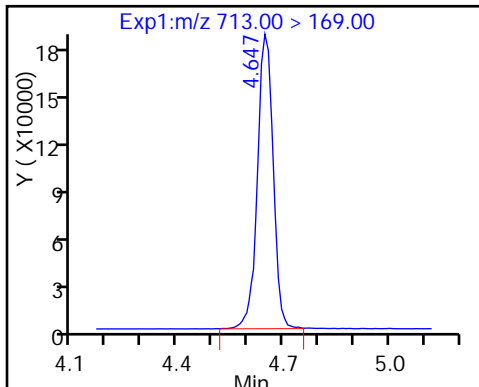
42 Perfluorotetradecanoic acid



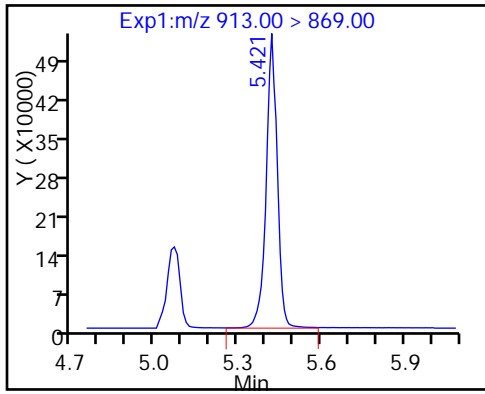
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

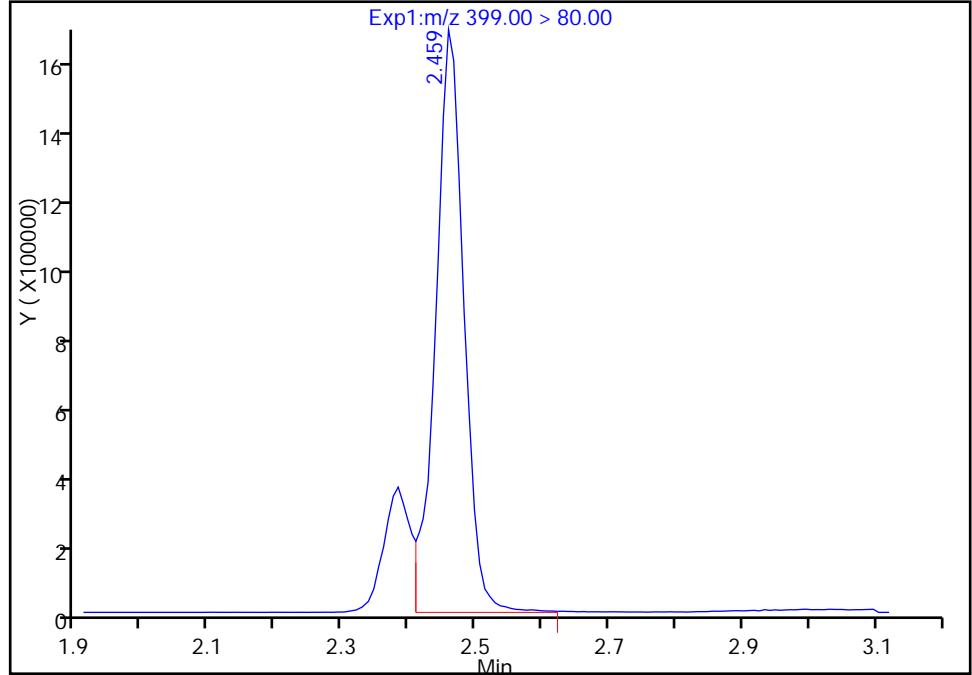
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_051.d
Injection Date: 10-Mar-2017 23:45:03 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

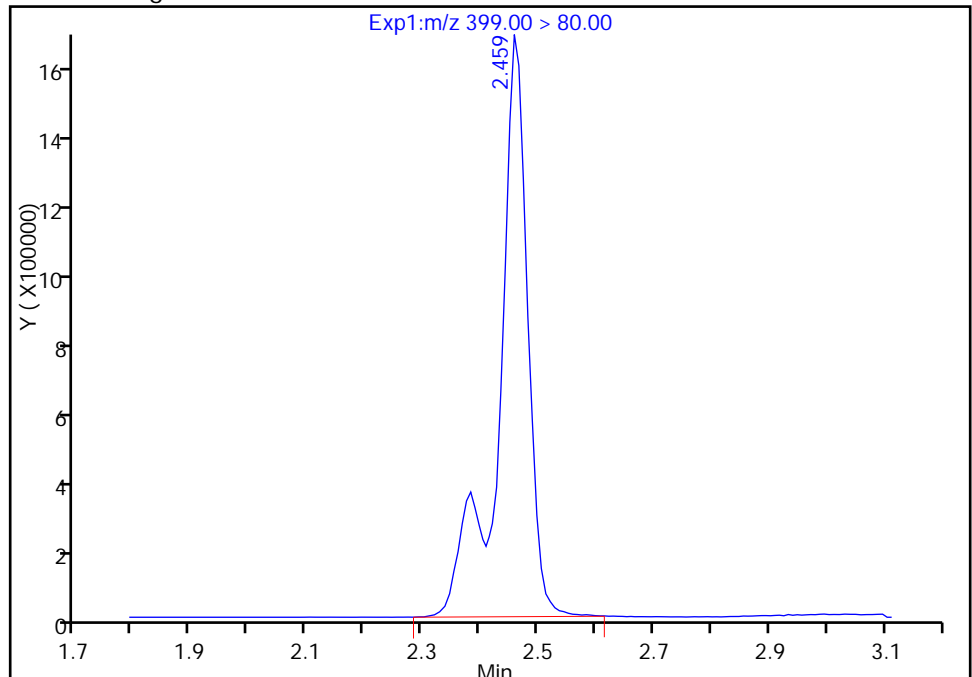
RT: 2.46
Area: 4958916
Amount: 14.165199
Amount Units: ng/ml

Processing Integration Results



RT: 2.46
Area: 5925062
Amount: 16.925005
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:31:45
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

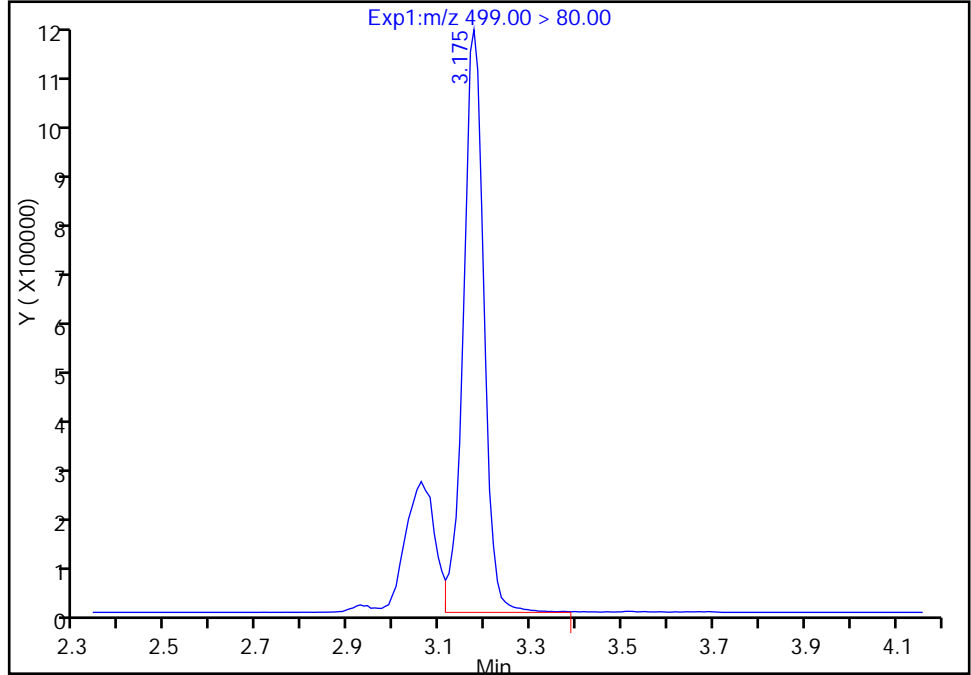
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_051.d
Injection Date: 10-Mar-2017 23:45:03 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

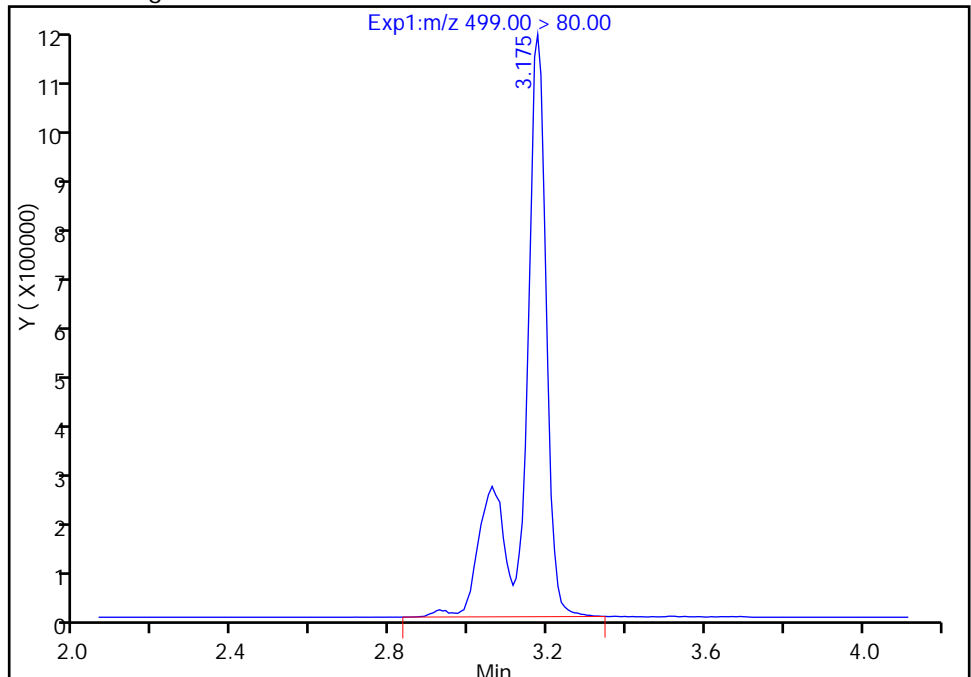
RT: 3.18
Area: 3618993
Amount: 13.713798
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 4797996
Amount: 18.181508
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:31:57
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

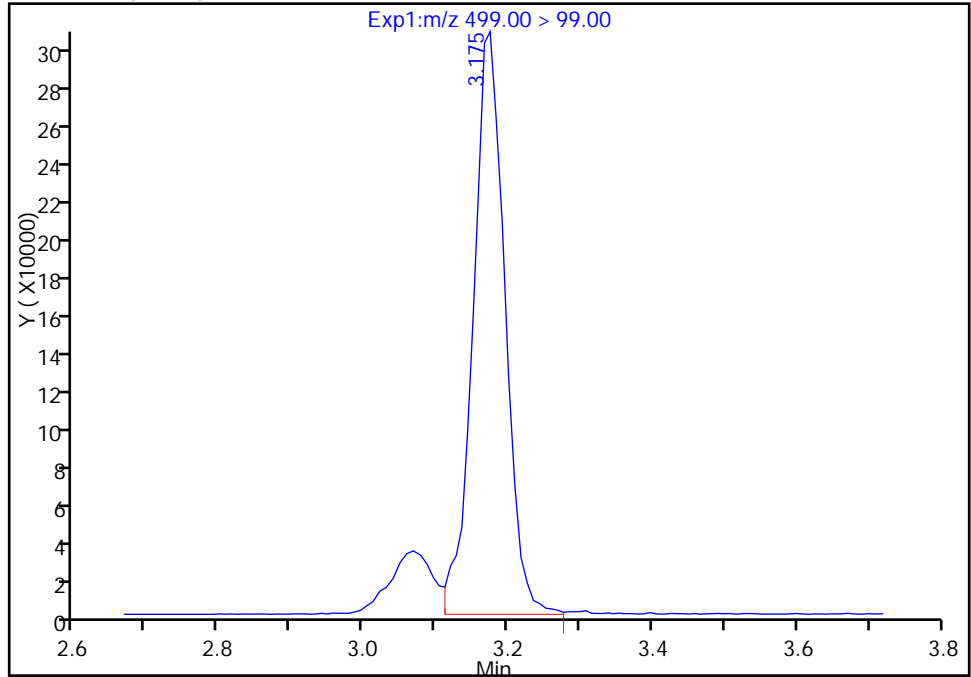
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_051.d
Injection Date: 10-Mar-2017 23:45:03 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

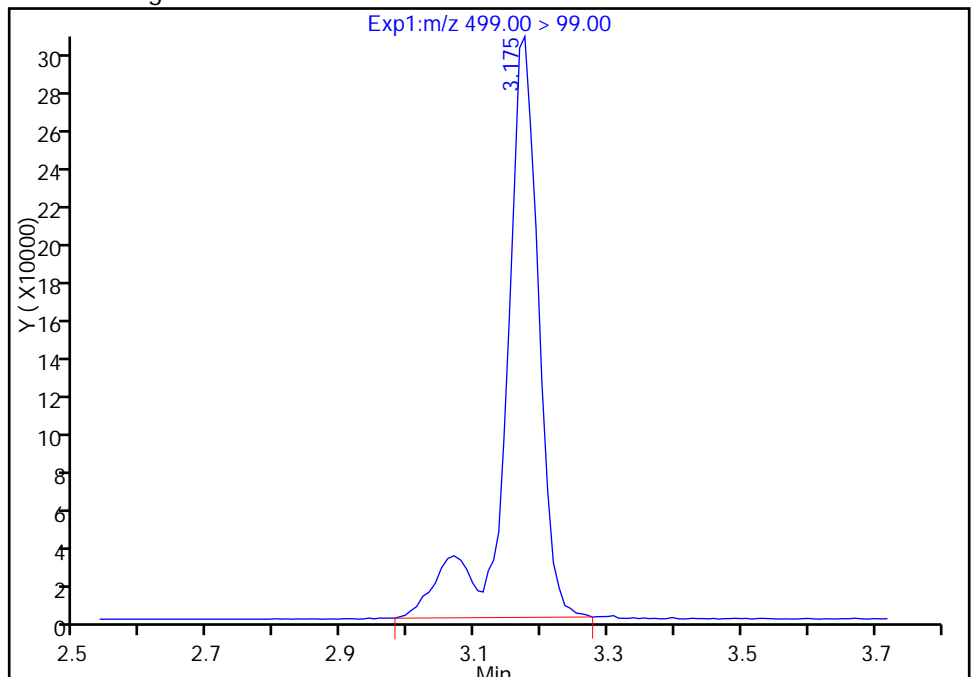
RT: 3.18
Area: 934141
Amount: 13.713798
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 1055752
Amount: 18.181508
Amount Units: ng/ml

Manual Integration Results



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.: 320-26273-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154459/34 Calibration Date: 03/11/2017 00:15
 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_055.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	0.8835		52.1	50.0	4.3	25.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.999		51.0	50.0	2.1	25.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.435		44.3	44.2	0.1	25.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.9259		52.0	50.0	4.1	25.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9586		49.5	50.0	-0.9	25.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.032		45.7	45.5	0.4	25.0
6:2FTS	L2ID		0.8874		47.3	47.4	-0.1	25.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.097		50.7	47.6	6.4	25.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.021		50.0	50.0	-0.0	25.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	1.009		47.6	46.4	2.6	25.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9600		53.1	50.0	6.2	25.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9377		52.2	50.0	4.4	25.0
8:2FTS	L2ID		0.9266		48.0	47.9	0.1	25.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.9282		51.2	50.0	2.5	25.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9251		47.6	50.0	-4.7	25.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.6100		49.4	48.2	2.4	25.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8501		46.7	50.0	-6.6	25.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	0.9490		46.8	50.0	-6.4	25.0
MeFOSA	AveID	0.9355	0.8619		46.1	50.0	-7.9	25.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9224		50.4	50.0	0.9	25.0
N-EtFOSA-M	AveID	0.9837	0.9646		49.0	50.0	-1.9	25.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8998		51.5	50.0	3.0	25.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.804		45.9	50.0	-8.2	25.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9197		49.2	50.0	-1.5	25.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.6736		46.9	50.0	-6.1	25.0
13C4 PFBA	Ave	292242	321733		55.0	50.0	10.1	50.0
13C5-PFPeA	Ave	232192	243069		52.3	50.0	4.7	50.0
13C2 PFHxA	Ave	210884	240057		56.9	50.0	13.8	50.0
13C4-PFHpA	Ave	192959	220287		57.1	50.0	14.2	50.0
18O2 PFHxS	Ave	290899	323443		52.6	47.3	11.2	50.0
M2-6:2FTS	Ave	77178	95980		59.1	47.5	24.4	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154459/34 Calibration Date: 03/11/2017 00:15
 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_055.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C4 PFOA	Ave	204953	215859		52.7	50.0	5.3	50.0
13C4 PFOS	Ave	241637	262474		51.9	47.8	8.6	50.0
13C5 PFNA	Ave	177866	188525		53.0	50.0	6.0	50.0
13C8 FOSA	Ave	366918	377014		51.4	50.0	2.8	50.0
M2-8:2FTS	Ave	92602	96788		50.1	47.9	4.5	50.0
13C2 PFDA	Ave	166704	167671		50.3	50.0	0.6	50.0
d3-NMeFOSAA	Ave	85186	82961		48.7	50.0	-2.6	50.0
13C2 PFUnA	Ave	130805	126202		48.2	50.0	-3.5	50.0
d5-NEtFOSAA	Ave	81371	77095		47.4	50.0	-5.3	50.0
d-N-MeFOSA-M	Ave	87983	90426		51.4	50.0	2.8	50.0
13C2 PFDoA	Ave	123944	121463		49.0	50.0	-2.0	50.0
d-N-EtFOSA-M	Ave	85249	78195		45.9	50.0	-8.3	50.0
13C2-PFTeDA	Ave	259165	242733		46.8	50.0	-6.3	50.0
13C2-PFHxDA	Ave	125061	130759		52.3	50.0	4.6	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_055.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 11-Mar-2017 00:15:01 ALS Bottle#: 32 Worklist Smp#: 34
 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 11:36:58 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 11:36:58

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.531	1.531	0.0	16086645	55.0		110	1005089	
2 Perfluorobutyric acid	212.90 > 169.00	1.531	1.531	0.0	14212136	52.1		104	103243	
D 3 13C5-PFPeA	267.90 > 223.00	1.812	1.812	0.0	12153433	52.3		105	752088	
4 Perfluoropentanoic acid	262.90 > 219.00	1.812	1.812	0.0	12136673	51.0		102	119179	
D 47 13C3-PFBS	301.90 > 83.00	1.842	1.842	0.0	320284	NC				
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.852	1.852	0.0	20509304	44.3		100		
	298.90 > 99.00	1.852	1.852	0.0	8928853		2.30(0.00-0.00)			
D 7 13C2 PFHxA	315.00 > 270.00	2.108	2.108	0.0	12002835	56.9		114	519678	
6 Perfluorohexanoic acid	313.00 > 269.00	2.108	2.108	0.0	11112951	52.0		104	246418	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.444	2.444	0.0	10557992	49.5		99.1	137663	
D 9 13C4-PFHpA	367.00 > 322.00	2.444	2.444	0.0	11014373	57.1		114	292376	
D 11 18O2 PFHxS	403.00 > 84.00	2.460	2.460	0.0	15298831	52.6		111	496816	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.460	2.460	0.0	15189845	45.7		100		M
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00 > 407.00	2.765	2.765	0.0	4037146	47.3		99.9		M

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	2.772	2.772	0.0	4559062	59.1	124		
D 14 13C4 PFOA	417.00	> 372.00	2.795	2.795	0.0	10792951	52.7	105	294000	
15 Perfluorooctanoic acid	413.00	> 369.00	2.810	2.810	0.0	11022025	50.0	100.0	74362	
	413.00	> 169.00	2.802	2.810	-0.008	6379009		1.73(0.90-1.10)	138674	
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	2.810	2.810	0.0	13710905	50.7	106		
D 18 13C4 PFOS	503.00	> 80.00	3.176	3.176	0.0	12546234	51.9	109	200283	
20 Perfluorononanoic acid	463.00	> 419.00	3.176	3.176	0.0	9048805	53.1	106	203703	
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.168	3.168	0.0	12284188	47.6	103	209886	M
	499.00	> 99.00	3.176	3.168	0.008	2766459		4.44(0.90-1.10)	111990	M
D 19 13C5 PFNA	468.00	> 423.00	3.176	3.176	0.0	9426274	53.0	106	221312	
D 21 13C8 FOSA	506.00	> 78.00	3.511	3.511	0.0	18850722	51.4	103	552064	
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.511	3.511	0.0	17675816	52.2	104	299231	
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	3.528	3.528	0.0	4295665	48.0	100		
D 26 M2-8:2FTS	529.00	> 509.00	3.519	3.519	0.0	4636142	50.1	105		
24 Perfluorodecanoic acid	513.00	> 469.00	3.536	3.536	0.0	7781976	51.2	102	221495	
D 23 13C2 PFDA	515.00	> 470.00	3.536	3.536	0.0	8383554	50.3	101	222807	
D 27 d3-NMeFOSAA	573.00	> 419.00	3.683	3.683	0.0	4148027	48.7	97.4		
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	3.683	3.683	0.0	3837526	47.6	95.3		
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	3.839	3.839	0.0	7717364	49.4	102		
D 32 d5-NEtFOSAA	589.00	> 419.00	3.856	3.856	0.0	3854740	47.4	94.7		
D 30 13C2 PFUnA	565.00	> 520.00	3.856	3.856	0.0	6310103	48.2	96.5	251742	
31 Perfluoroundecanoic acid	563.00	> 519.00	3.856	3.856	0.0	5988373	46.8	93.6	183409	
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	3.856	3.856	0.0	3276978	46.7	93.4		
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.007	4.007	0.0	4521324	51.4	103		
35 MeFOSA	512.00	> 169.00	4.016	4.016	0.0	3896700	46.1	92.1		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFD0A										
615.00 > 570.00	4.141	4.141	0.0		6073172	49.0		98.0	168035	
37 Perfluorododecanoic acid										
613.00 > 569.00	4.141	4.141	0.0	1.000	5601571	50.4		101	53559	
D 38 d-N-EtFOSA-M										
531.00 > 169.00	4.191	4.191	0.0		3909746	45.9		91.7		
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.199	4.199	0.0	1.000	3771229	49.0		98.1		
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.414	4.414	0.0	1.000	5464716	51.5		103	106213	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.644	4.644	0.0		12136647	46.8		93.7	349047	
42 Perfluorotetradecanoic acid										
712.50 > 668.90	4.644	4.644	0.0	1.000	10958508	45.9		91.8	124117	
713.00 > 169.00	4.644	4.644	0.0	1.000	1577394		6.95(0.00-0.00)		174279	
D 44 13C2-PFHxDA										
815.00 > 770.00	5.057	5.057	0.0		6537926	52.3		105	110210	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	5.057	5.057	0.0	1.000	5585491	49.2		98.5	4952	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.405	5.405	0.0	1.000	4090830	46.9		93.9	4532	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L5_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_055.d

Injection Date: 11-Mar-2017 00:15:01

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 32

Worklist Smp#: 34

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

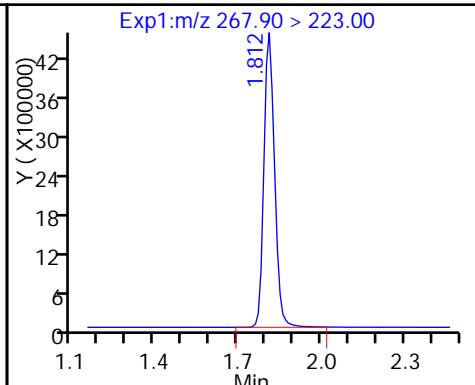
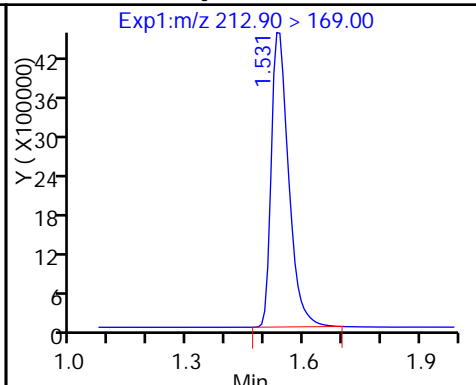
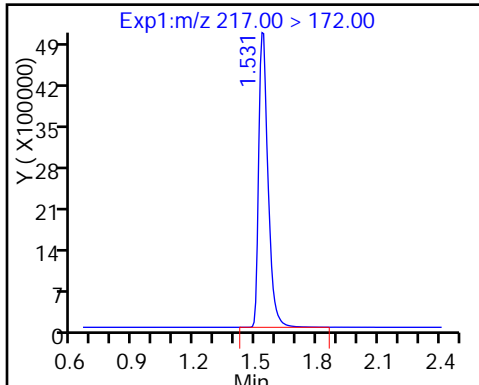
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

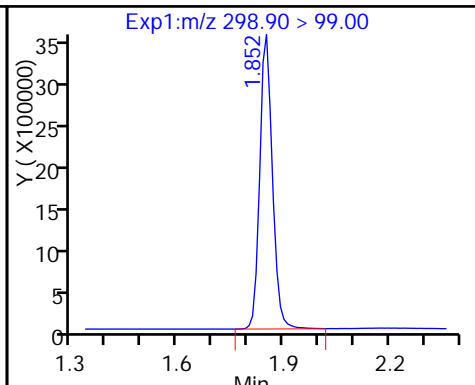
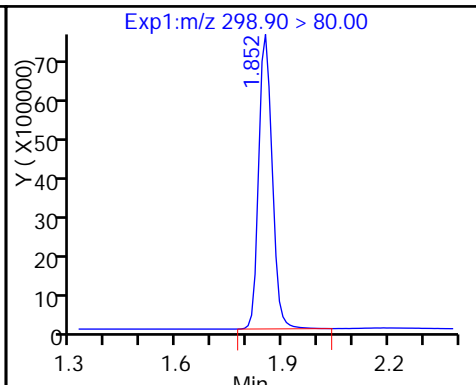
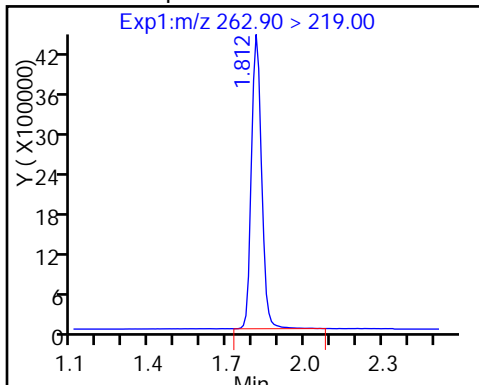
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

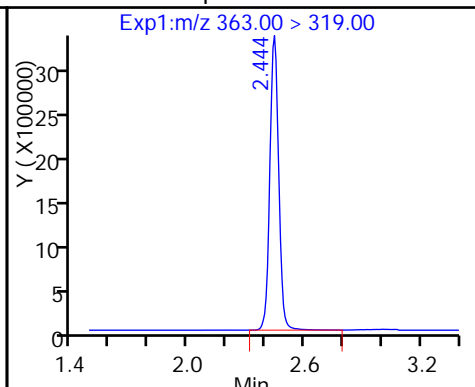
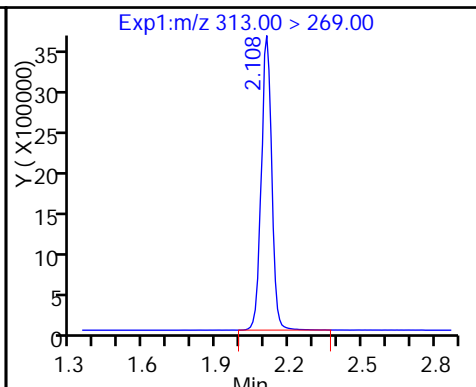
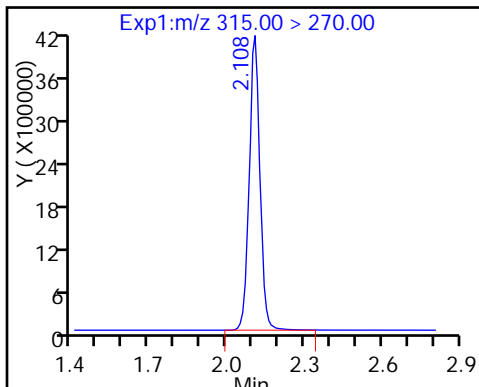
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

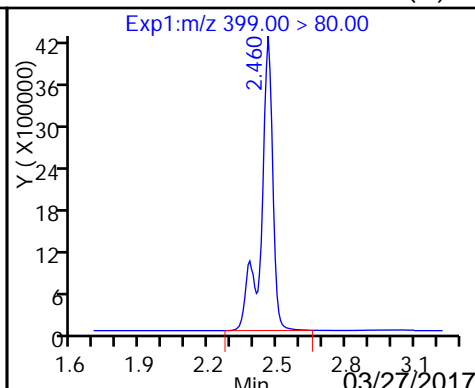
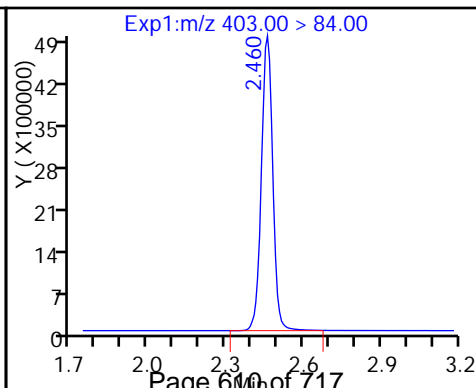
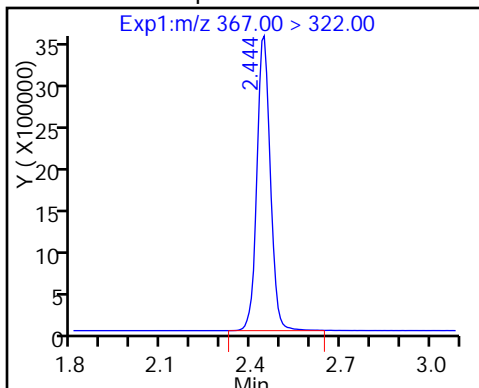
10 Perfluoroheptanoic acid



D 9 13C4-PFHpA

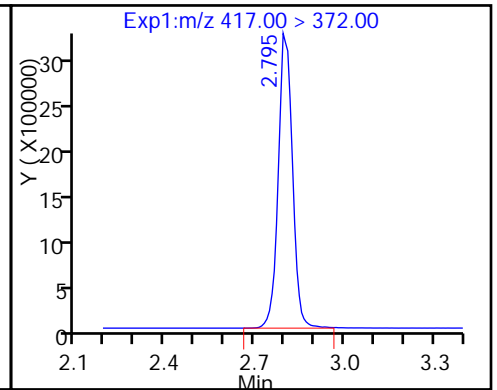
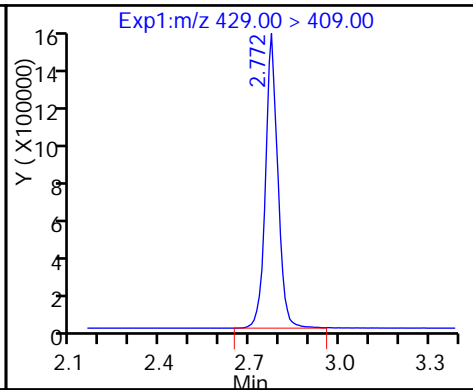
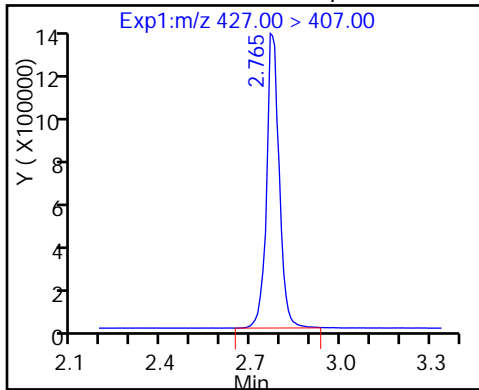
D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid (M)



13 Sodium 1H,1H,2H,2H-perfluorooctanoate

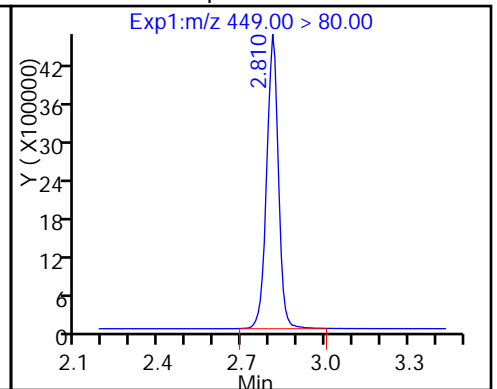
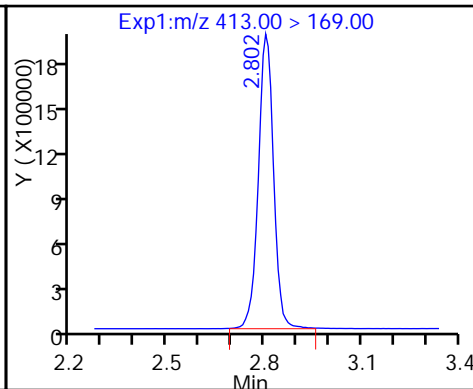
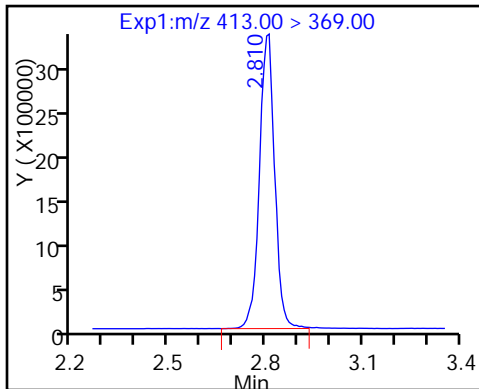
D 12 M2-6:2FTS



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

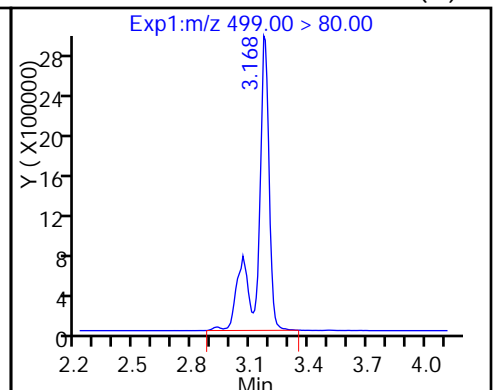
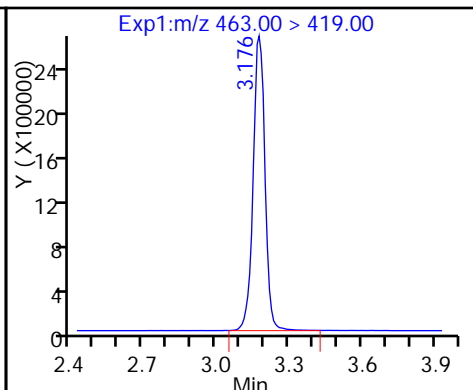
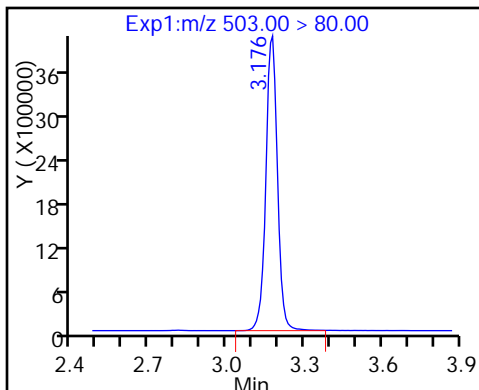
16 Perfluoroheptanesulfonic Acid



D 18 13C4 PFOS

20 Perfluorononanoic acid

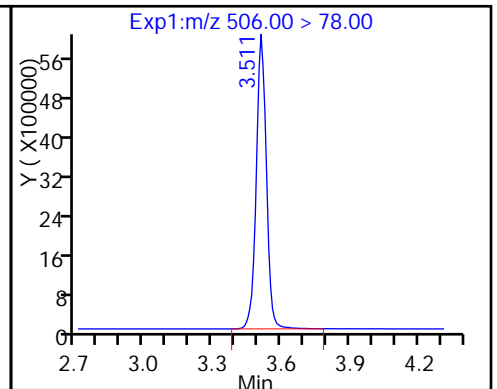
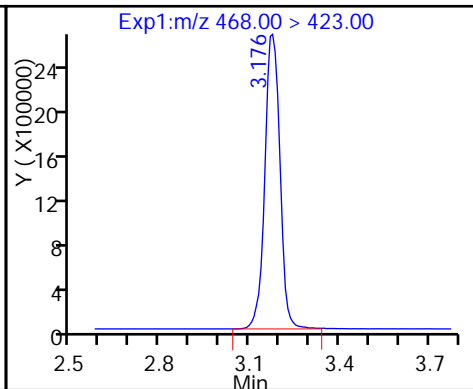
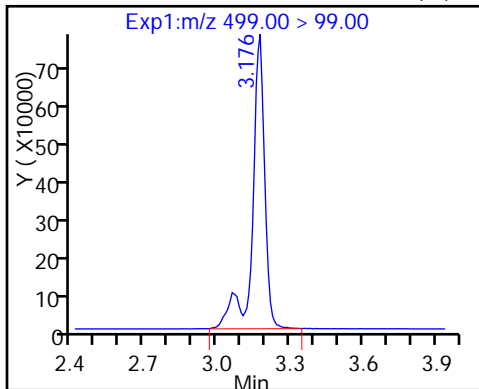
17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)

D 19 13C5 PFNA

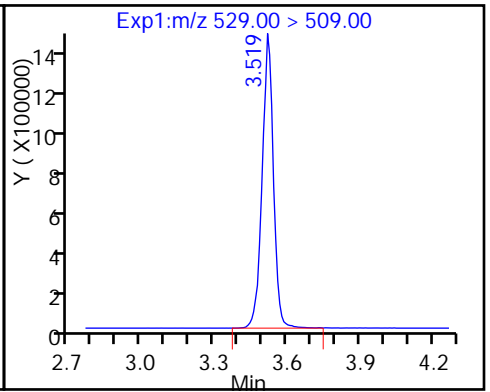
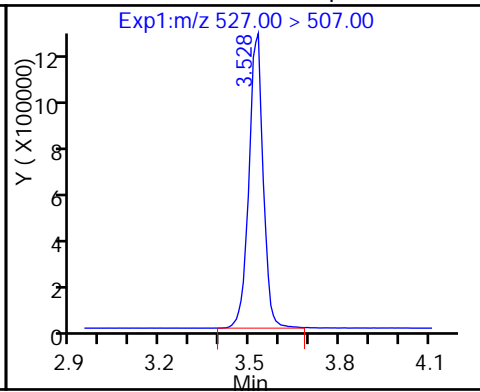
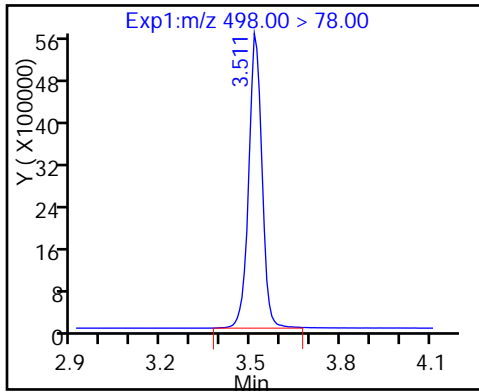
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide

25 Sodium 1H,1H,2H,2H-perfluorooctane

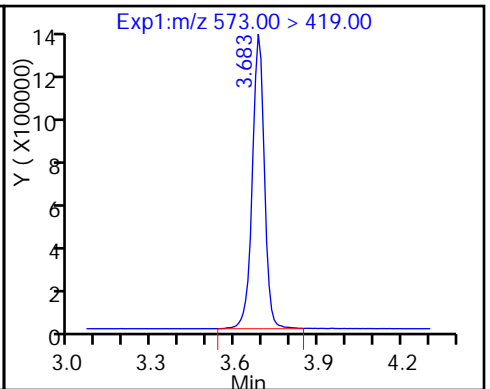
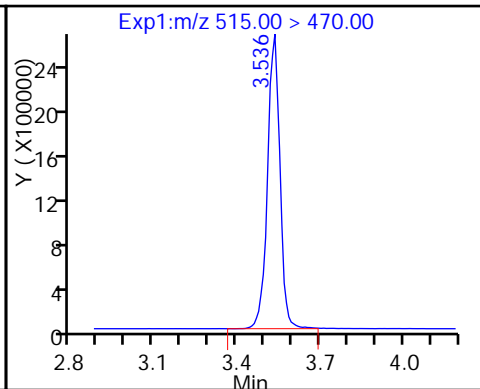
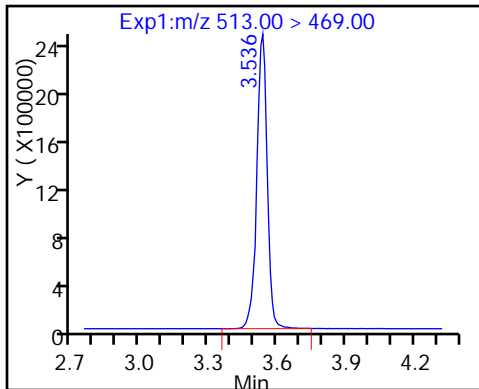
D 26 M2-8:2FTS



24 Perfluorodecanoic acid

D 23 13C2 PFDA

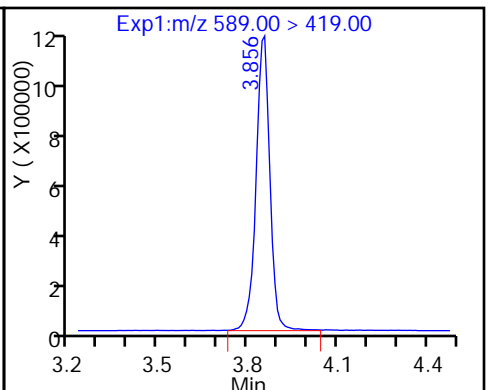
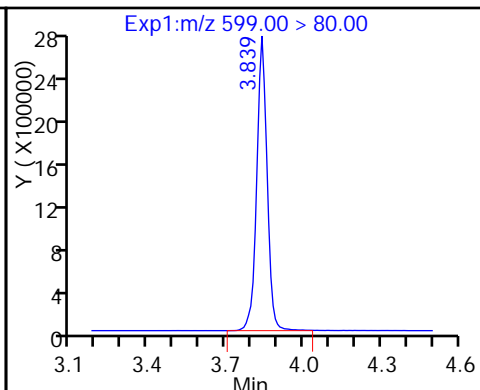
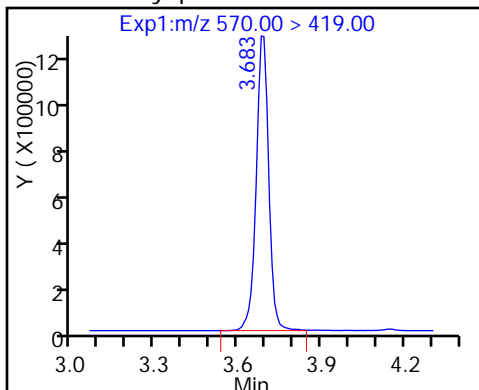
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

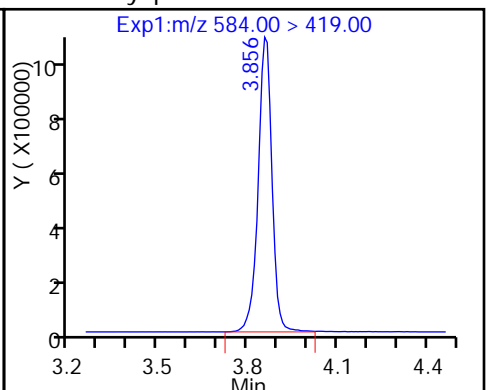
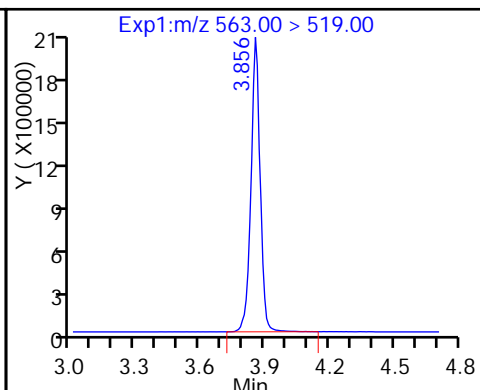
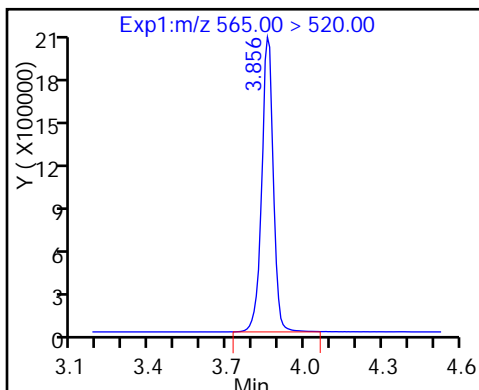
D 32 d5-NEtFOSAA



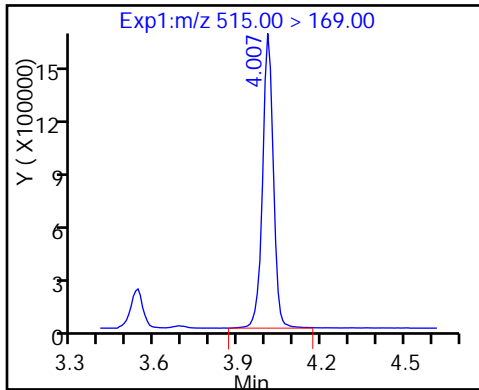
D 30 13C2 PFUnA

31 Perfluoroundecanoic acid

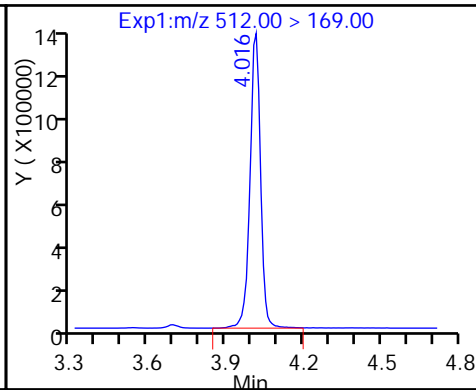
33 N-ethyl perfluorooctane sulfonamid



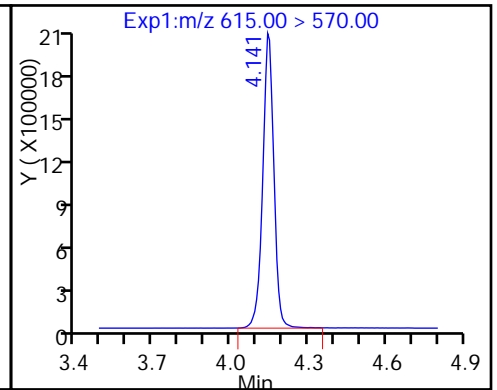
D 34 d-N-MeFOSA-M



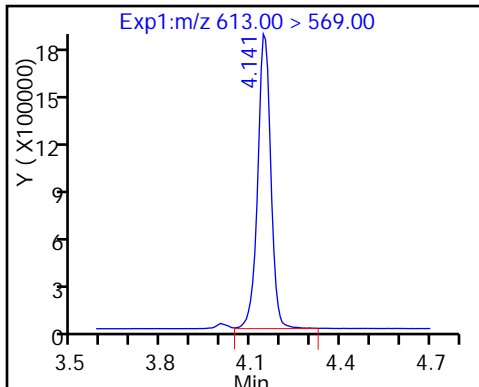
35 MeFOSA



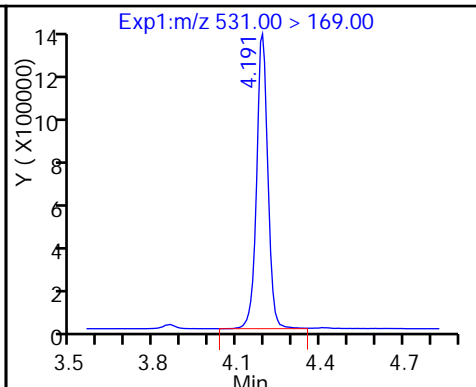
D 36 13C2 PFDaA



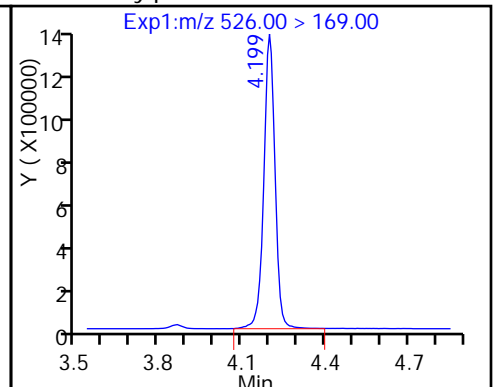
37 Perfluorododecanoic acid



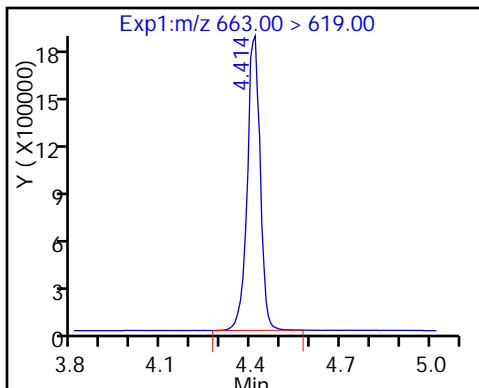
D 38 d-N-EtFOSA-M



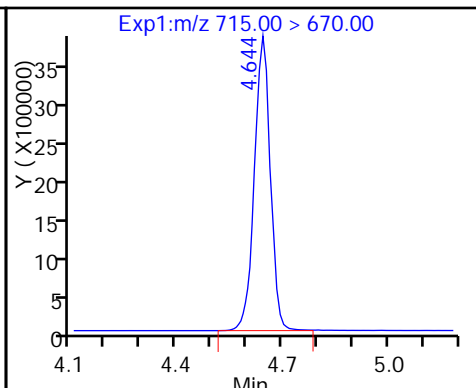
39 N-ethylperfluoro-1-octanesulfonami



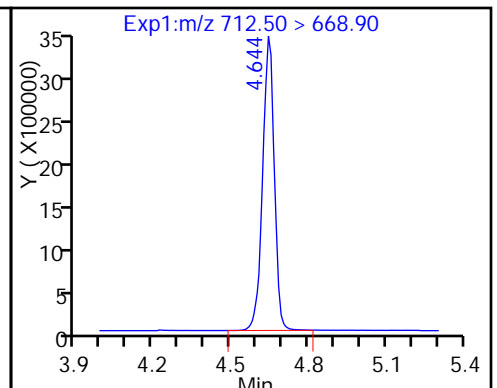
41 Perfluorotridecanoic acid



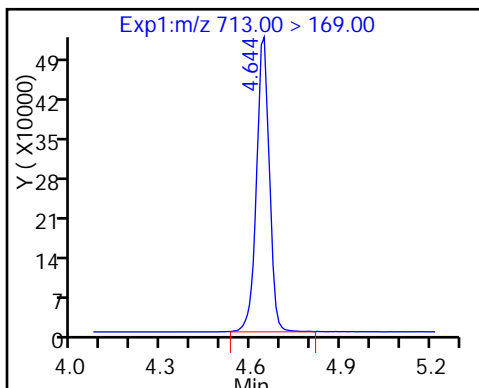
D 43 13C2-PFTeDA



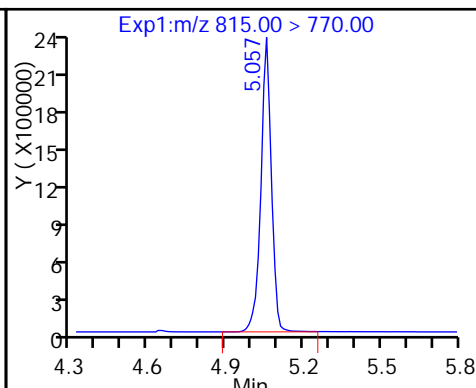
42 Perfluorotetradecanoic acid



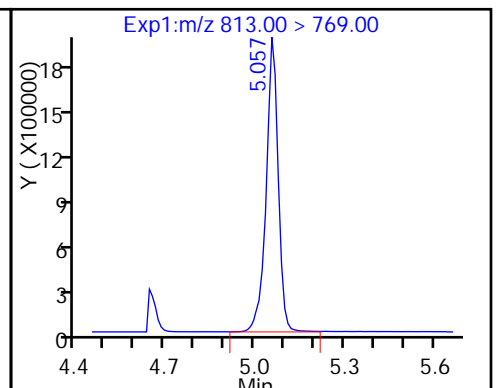
42 Perfluorotetradecanoic acid



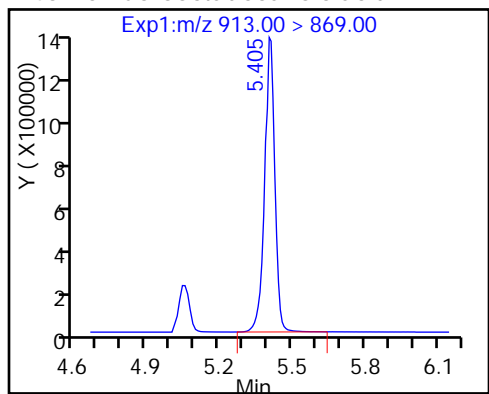
D 44 13C2-PFHxDa



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

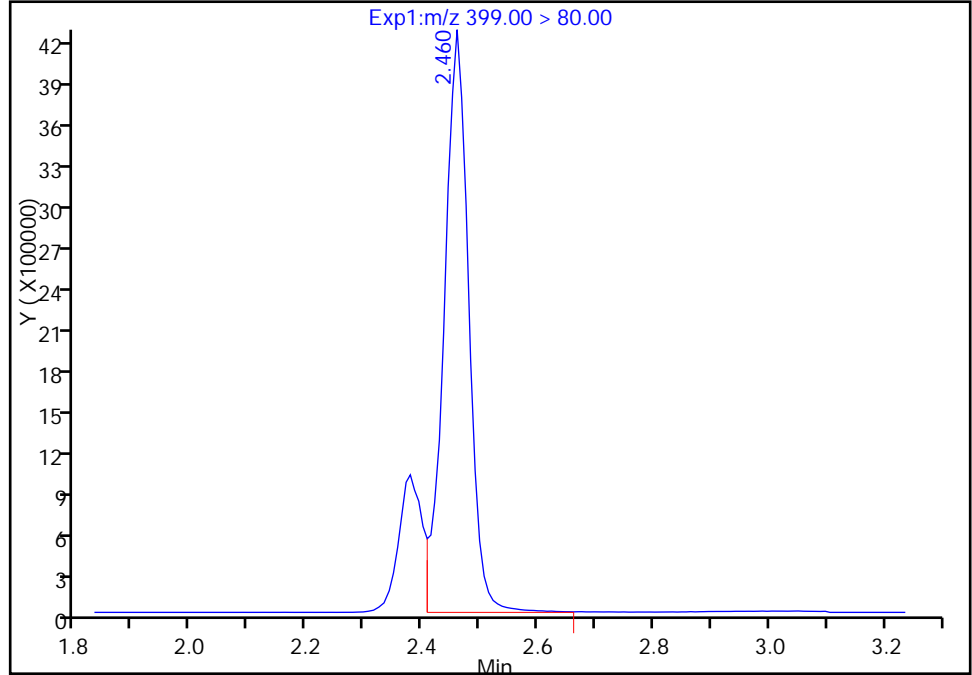
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Injection Date: 11-Mar-2017 00:15:01 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

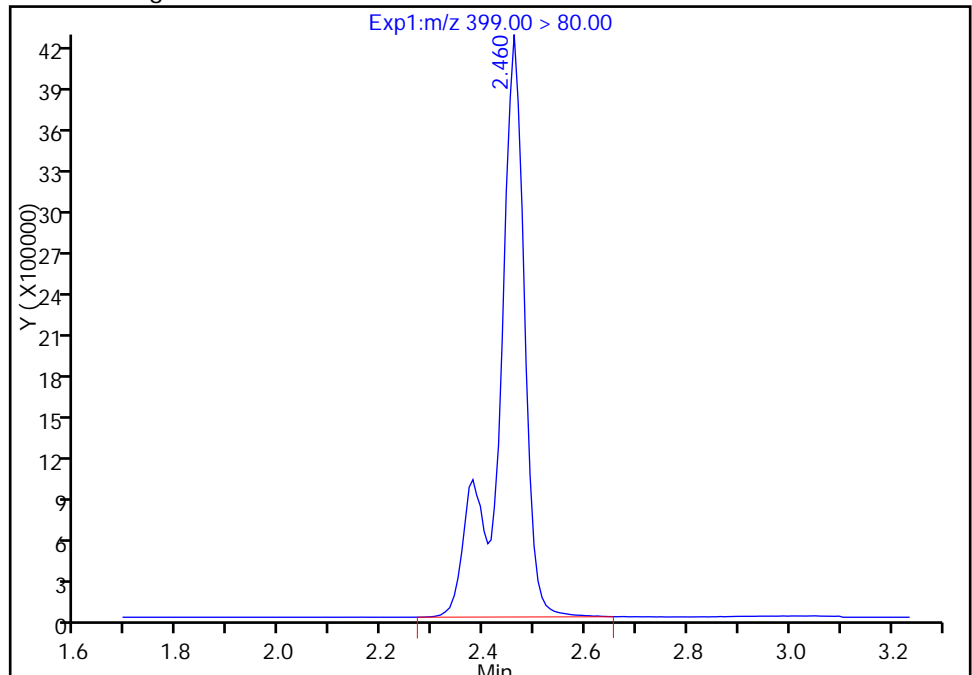
RT: 2.46
Area: 12459965
Amount: 37.457544
Amount Units: ng/ml

Processing Integration Results



RT: 2.46
Area: 15189845
Amount: 45.664196
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:35:36
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

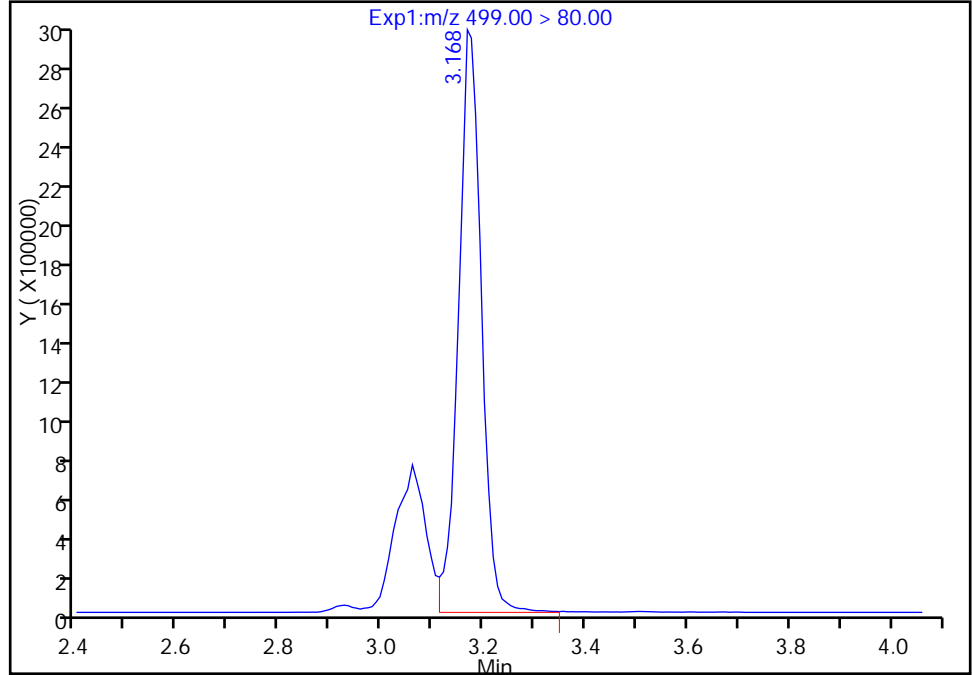
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Injection Date: 11-Mar-2017 00:15:01 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

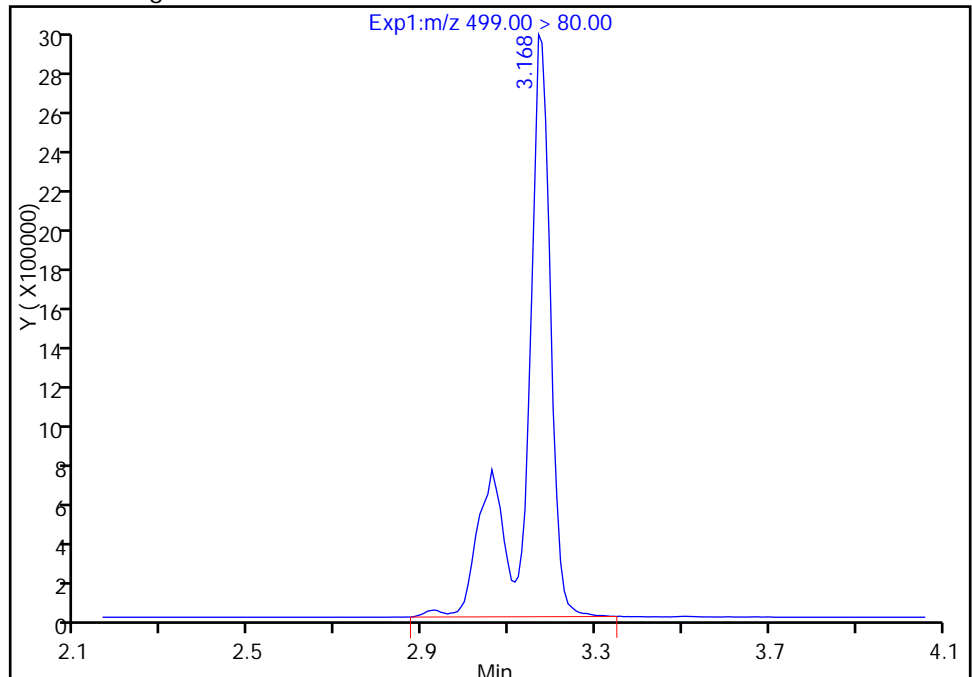
RT: 3.17
Area: 9138653
Amount: 35.402192
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 12284188
Amount: 47.587668
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

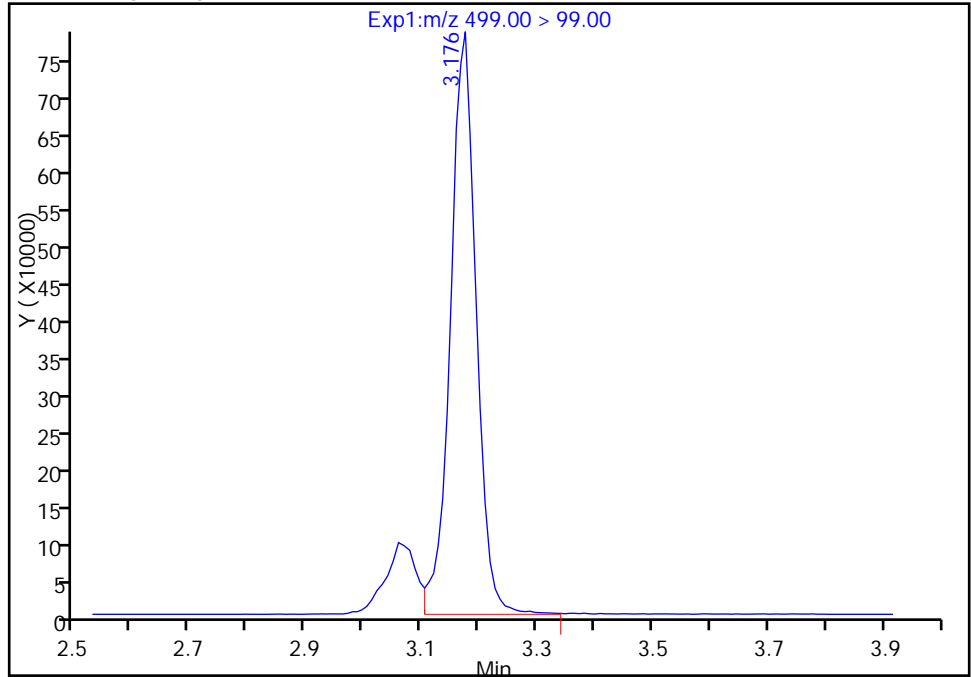
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Injection Date: 11-Mar-2017 00:15:01 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

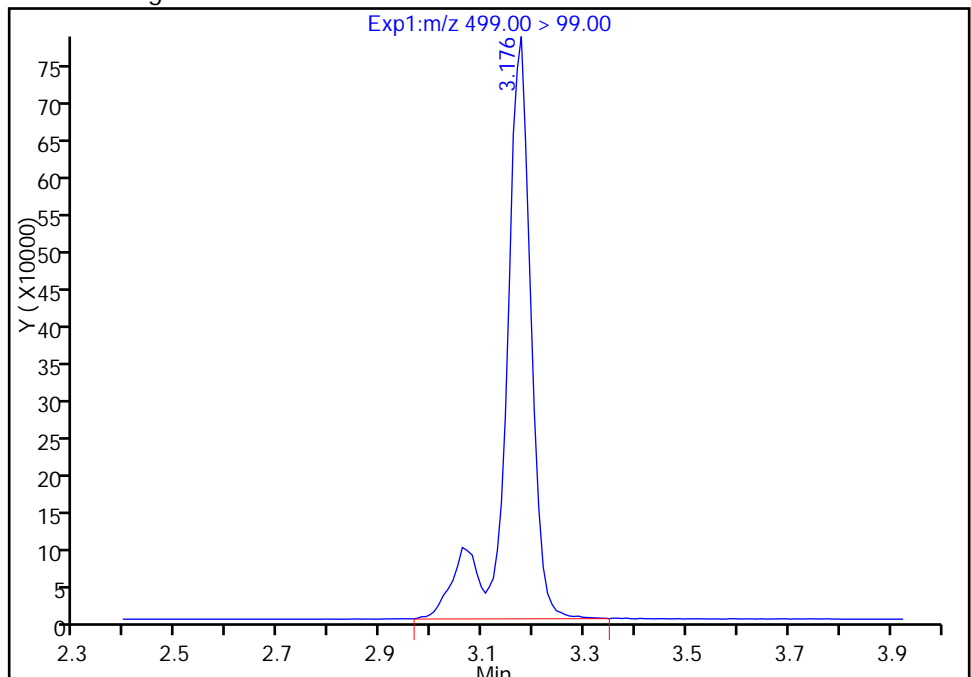
RT: 3.18
Area: 2423793
Amount: 35.402192
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 2766459
Amount: 47.587668
Amount Units: ng/ml

Manual Integration Results



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Lab Sample ID: CCV 320-154721/1 Calibration Date: 03/13/2017 11:39
 Instrument ID: A8_N Calib Start Date: 03/01/2017 11:08
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 11:46
 Lab File ID: 2017.03.13A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8473	0.8548		1.01	1.00	0.9	50.0
Perfluoropentanoic acid (PFPeA)	AveID	0.9785	0.9878		1.01	1.00	0.9	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.433	1.428		0.881	0.884	-0.3	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8895	0.8835		0.993	1.00	-0.7	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.028	1.139		1.01	0.910	10.8	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9673	0.9326		0.964	1.00	-3.6	50.0
6:2FTS	L2ID		1.110		1.05	0.948	10.9	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.031	1.080		0.997	0.952	4.7	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.022	1.060		1.04	1.00	3.8	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	0.9835	0.9680		0.913	0.928	-1.6	50.0
Perfluorononanoic acid (PFNA)	AveID	0.9040	0.9701		1.07	1.00	7.3	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.8985	0.9296		1.03	1.00	3.5	50.0
8:2FTS	L2ID		0.995		0.947	0.958	-1.1	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9057	0.8631		0.953	1.00	-4.7	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9711	0.9686		0.997	1.00	-0.3	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.5957	0.5616		0.909	0.964	-5.7	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.9103	0.8721		0.958	1.00	-4.2	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.014	1.013		0.999	1.00	-0.0	50.0
MeFOSA	AveID	0.9355	0.9062		0.969	1.00	-3.1	50.0
Perfluorododecanoic acid (PFDoA)	AveID	0.9145	0.9118		0.997	1.00	-0.3	50.0
N-EtFOSA-M	AveID	0.9837	1.007		1.02	1.00	2.4	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	0.8734	0.8365		0.958	1.00	-4.2	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	1.966	1.570		0.799	1.00	-20.1	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.210		0.929	1.00	-7.1	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.7175	0.5659		0.789	1.00	-21.1	50.0
13C4 PFBA	Ave	292242	326619		55.9	50.0	11.8	50.0
13C5-PFPeA	Ave	232192	251482		54.2	50.0	8.3	50.0
13C2 PFHxA	Ave	210884	231453		54.9	50.0	9.8	50.0
13C4-PFHpA	Ave	192959	218978		56.7	50.0	13.5	50.0
18O2 PFHxS	Ave	290899	323162		52.5	47.3	11.1	50.0
M2-6:2FTS	Ave	77178	81021		49.9	47.5	5.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 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	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

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

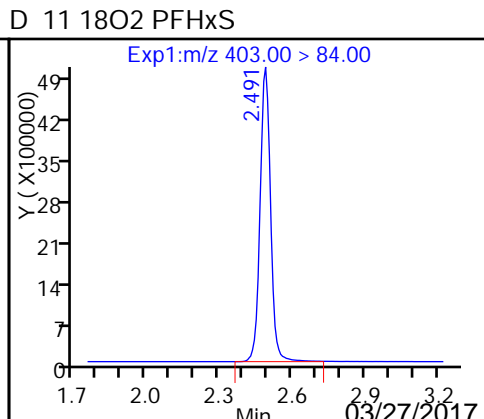
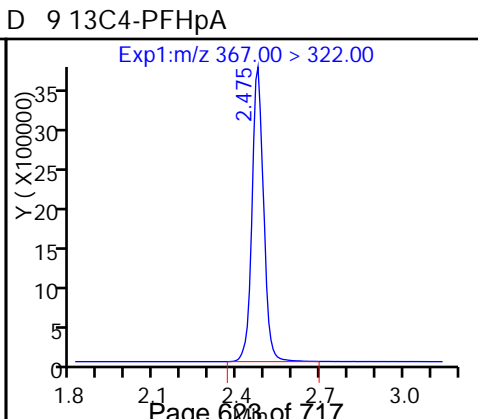
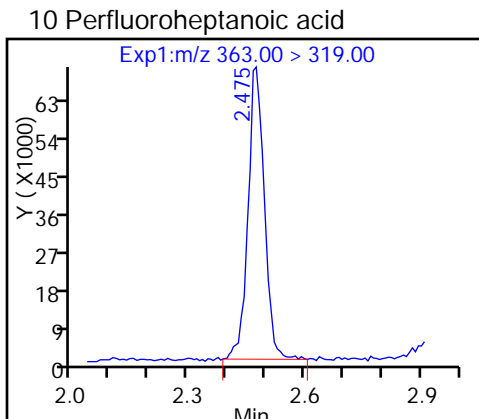
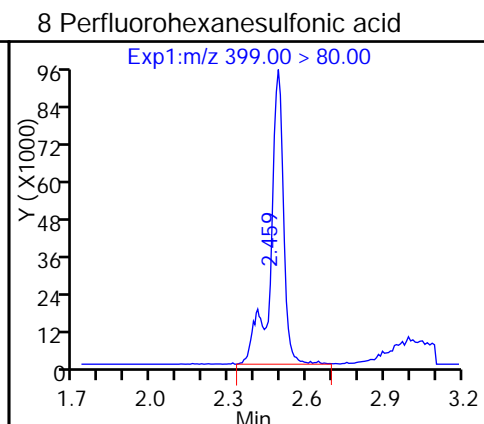
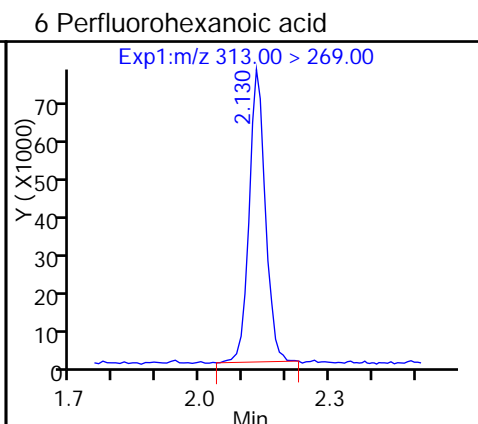
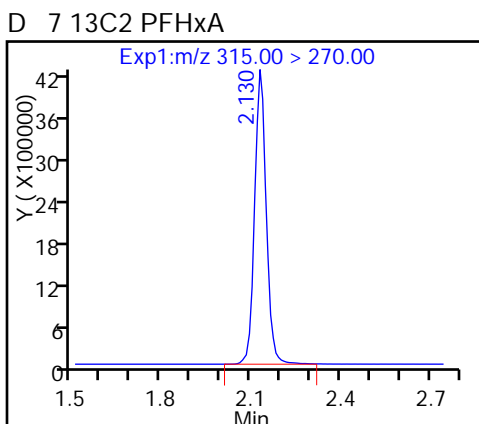
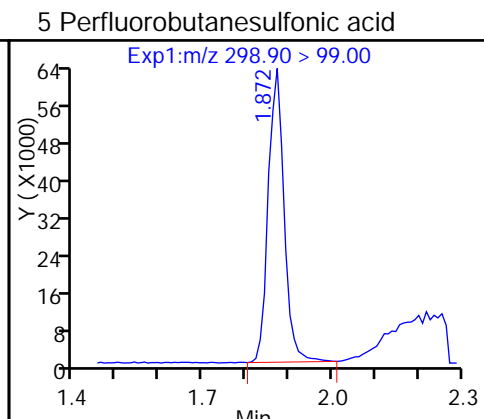
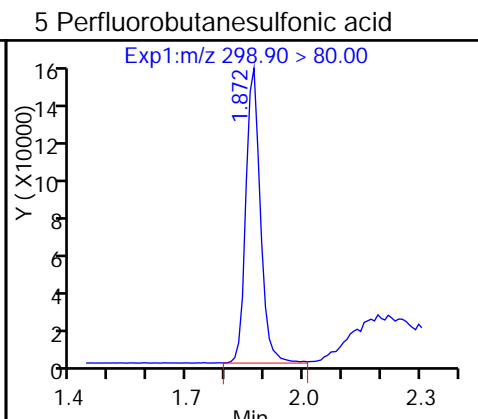
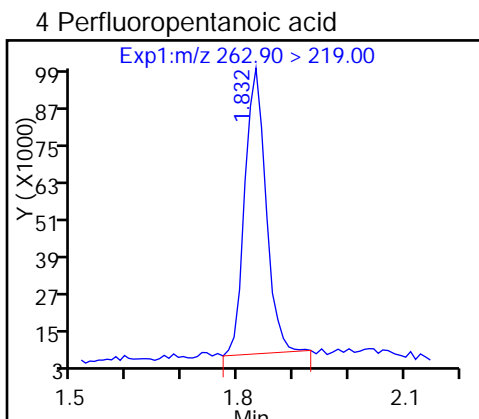
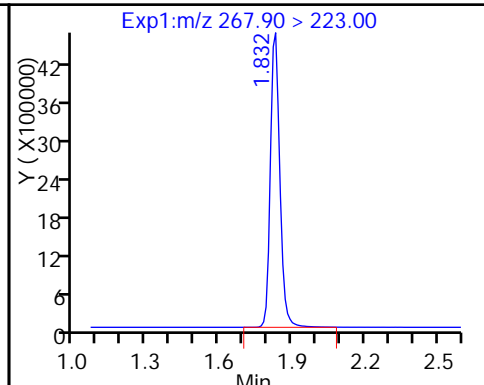
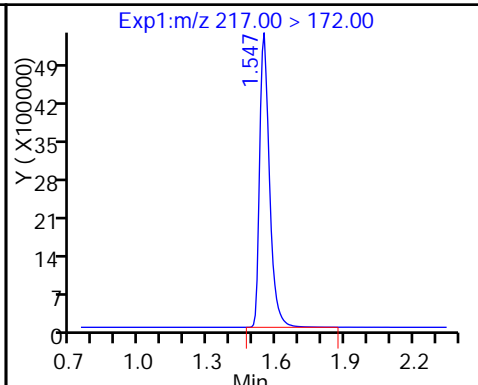
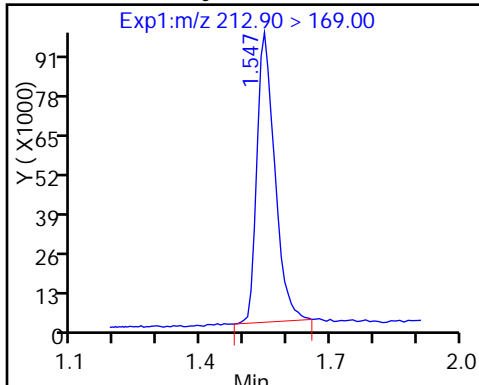
Method: A8_N

Limit Group: LC PFC_DOD ICAL

2 Perfluorobutyric acid (M)

D 1 13C4 PFBA

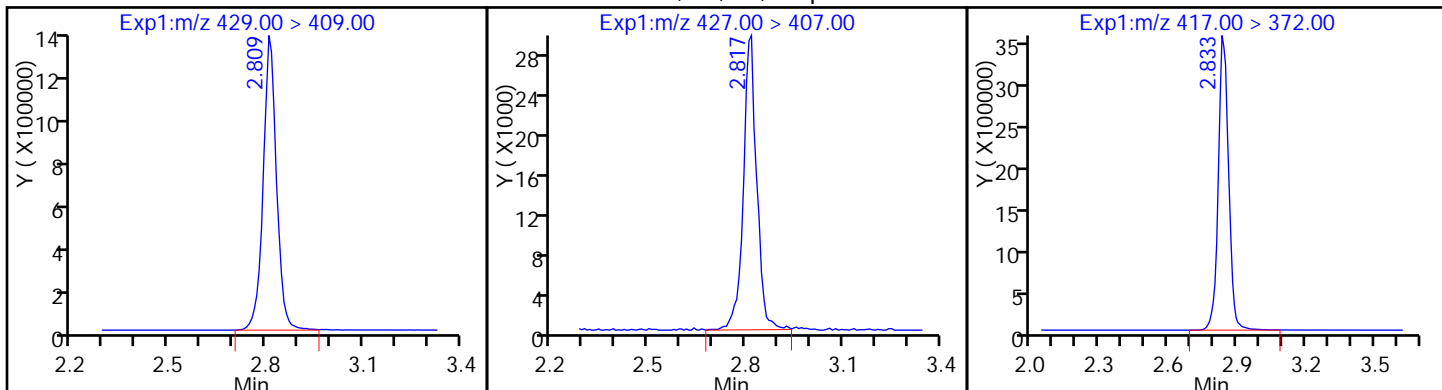
D 3 13C5-PFPeA



D 12 M2-6:2FTS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

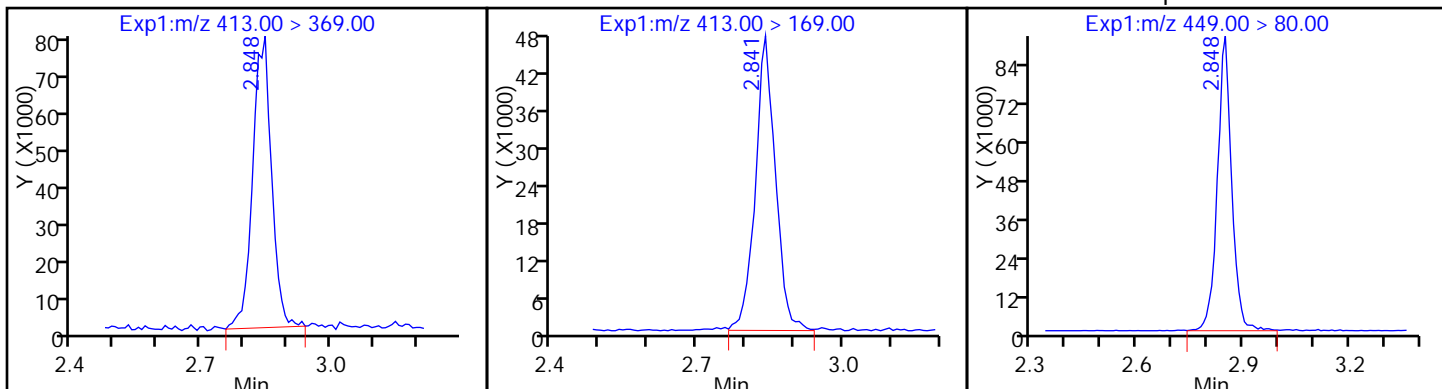
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

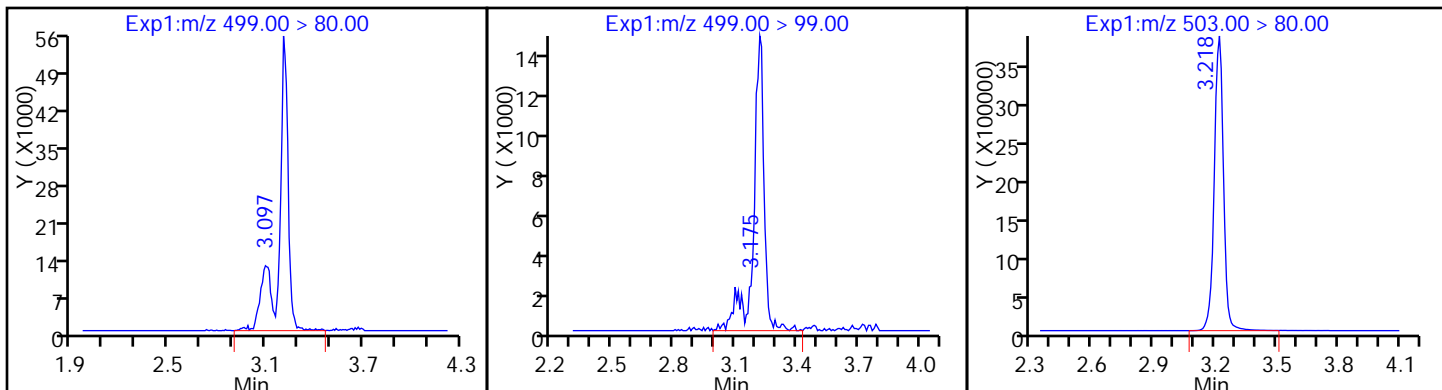
16 Perfluoroheptanesulfonic Acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

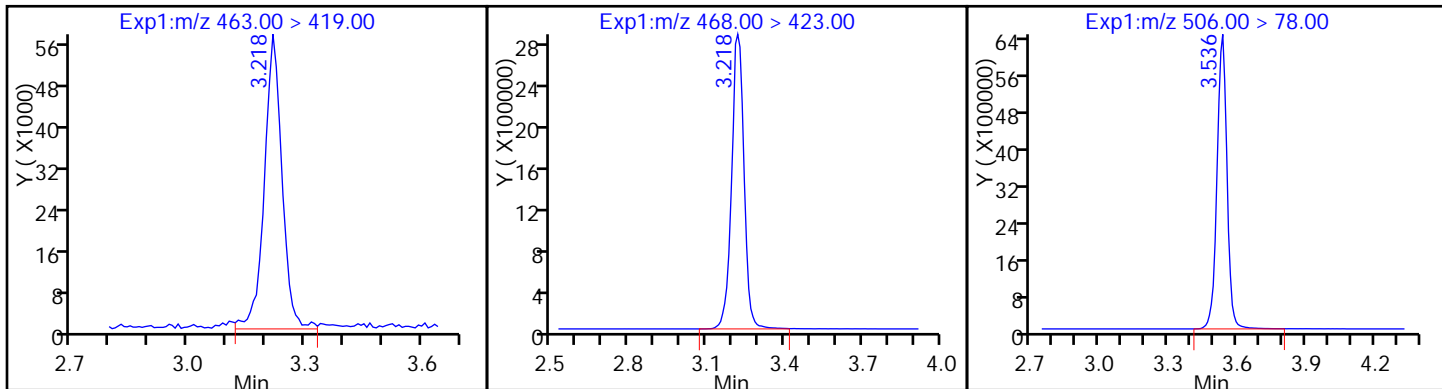
D 18 13C4 PFOS



20 Perfluorononanoic acid

D 19 13C5 PFNA

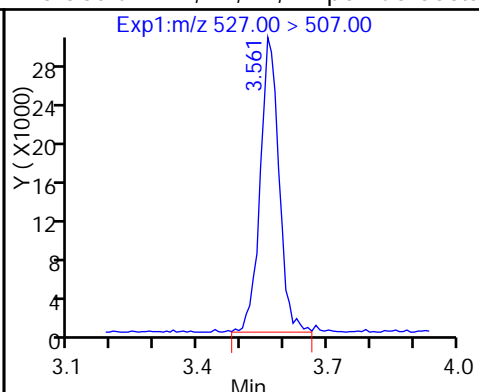
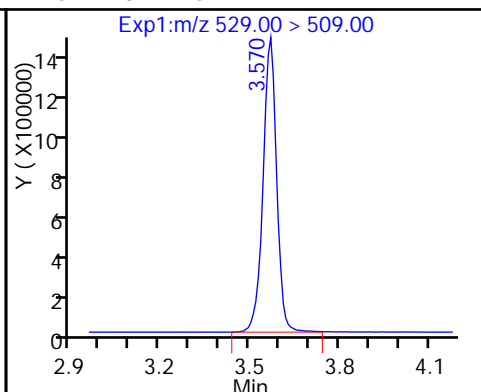
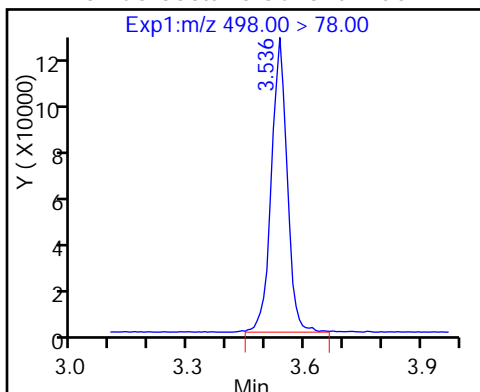
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide

D 26 M2-8:2FTS

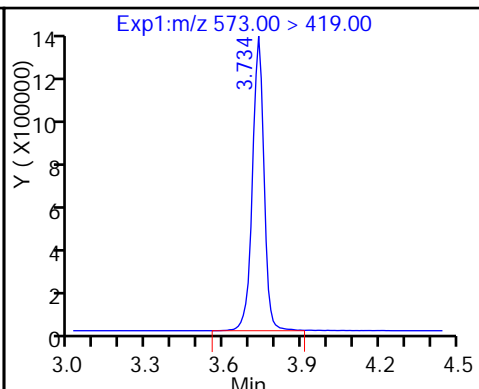
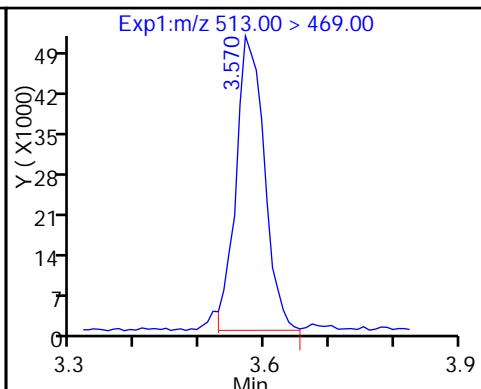
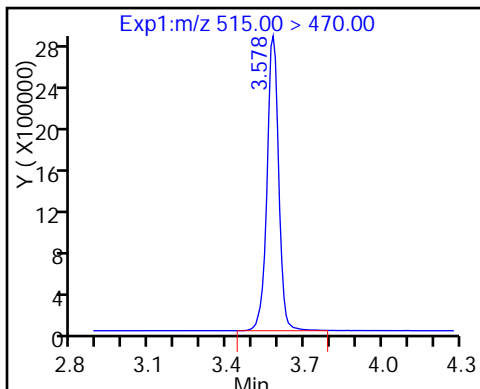
25 Sodium 1H,1H,2H,2H-perfluorooctane



D 23 13C2 PFDA

24 Perfluorodecanoic acid

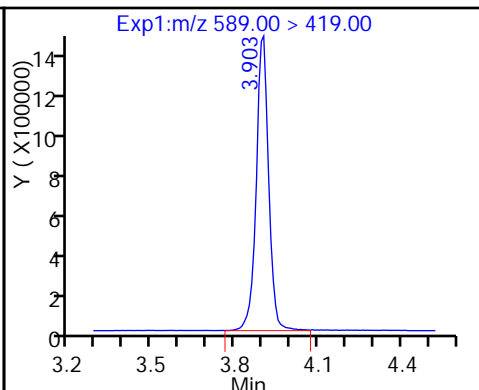
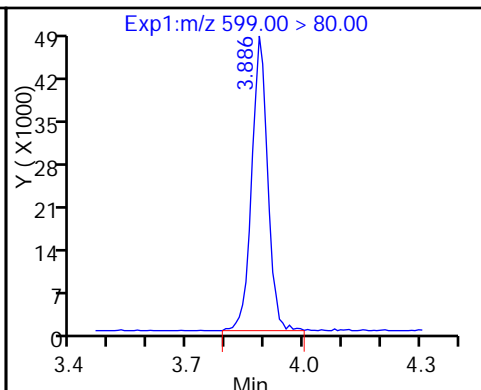
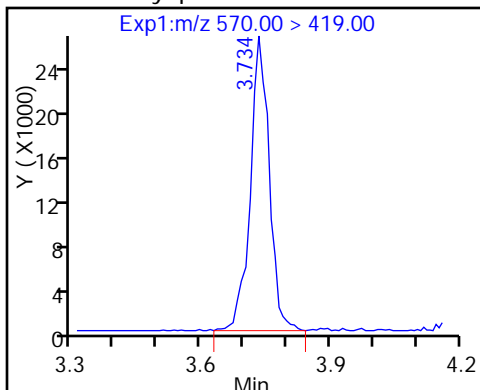
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonamide

29 Perfluorodecane Sulfonic acid

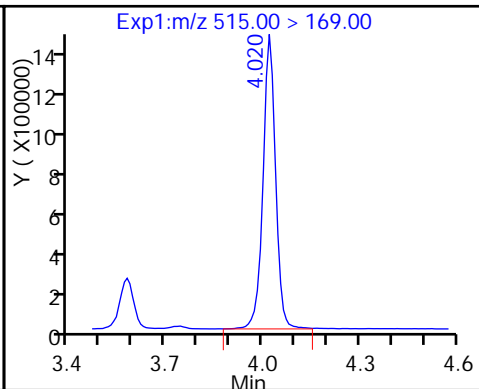
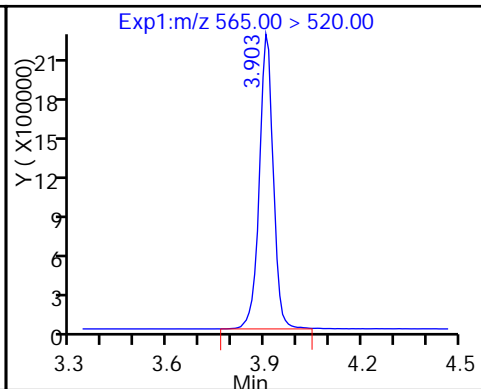
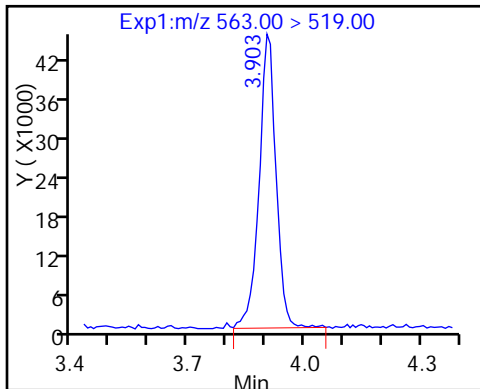
D 32 d5-NEtFOSAA



31 Perfluoroundecanoic acid

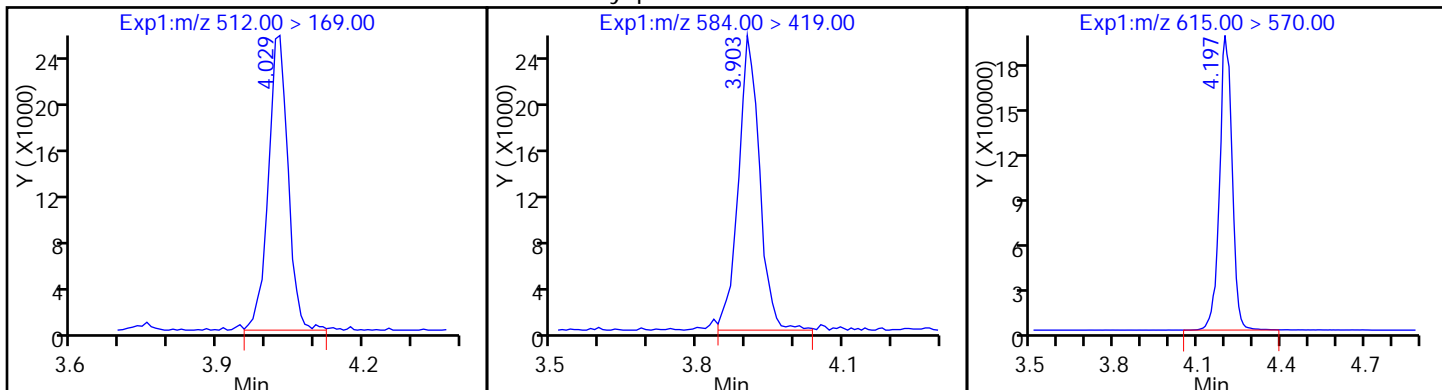
D 30 13C2 PFUnA

D 34 d-N-MeFOSA-M



35 MeFOSA

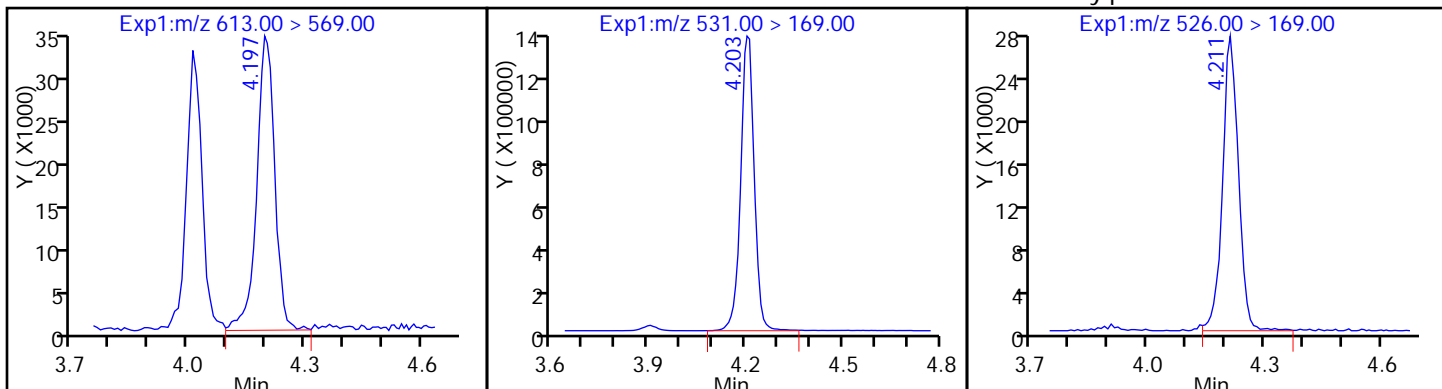
33 N-ethyl perfluorooctane sulfonamid D 36 13C2 PFDaA



37 Perfluorododecanoic acid

D 38 d-N-EtFOSA-M

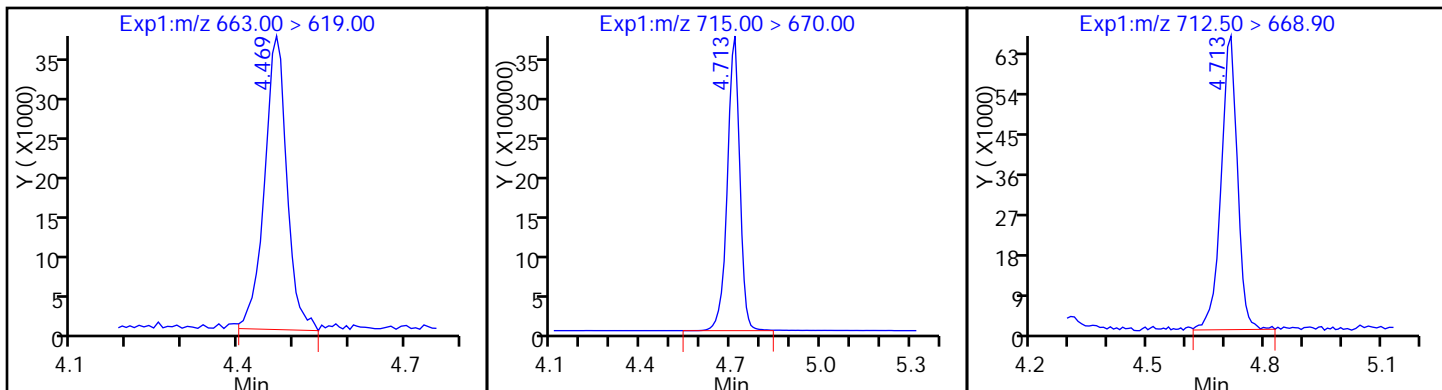
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

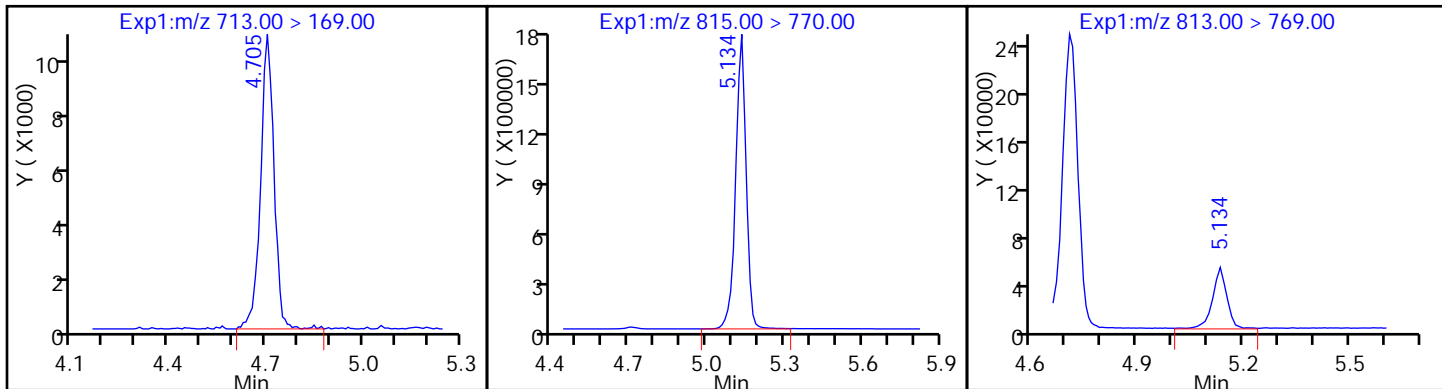
42 Perfluorotetradecanoic acid



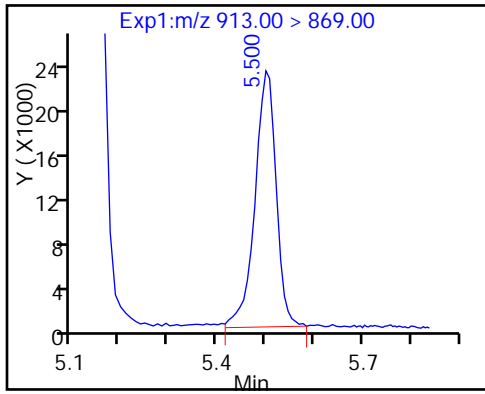
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

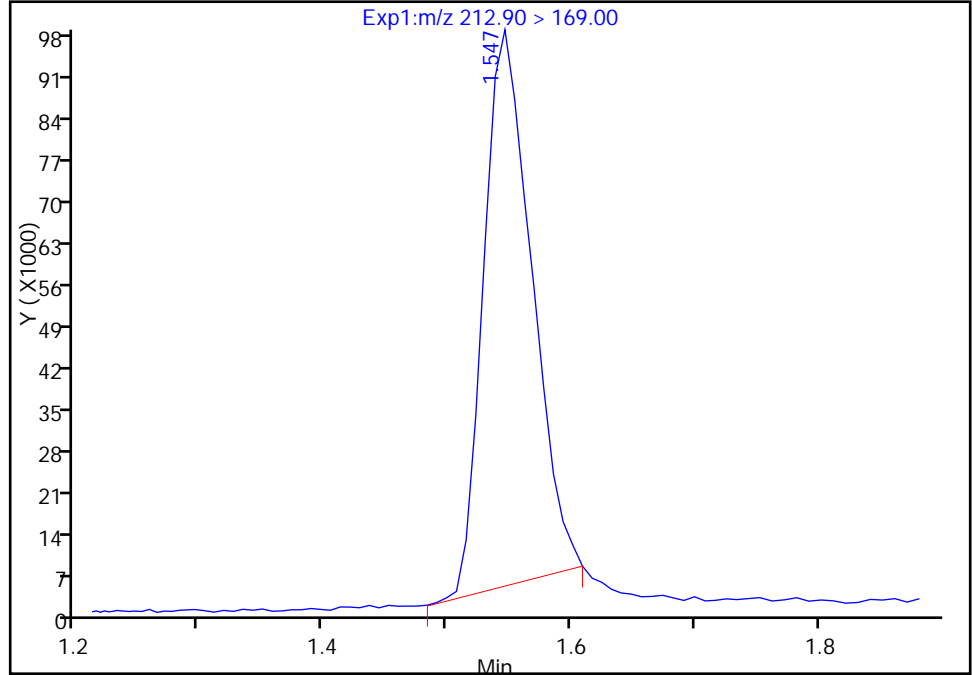
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170313-40786.b\2017.03.13A_004.d
Injection Date: 13-Mar-2017 11:39:35 Instrument ID: A8_N
Lims ID: CCV L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

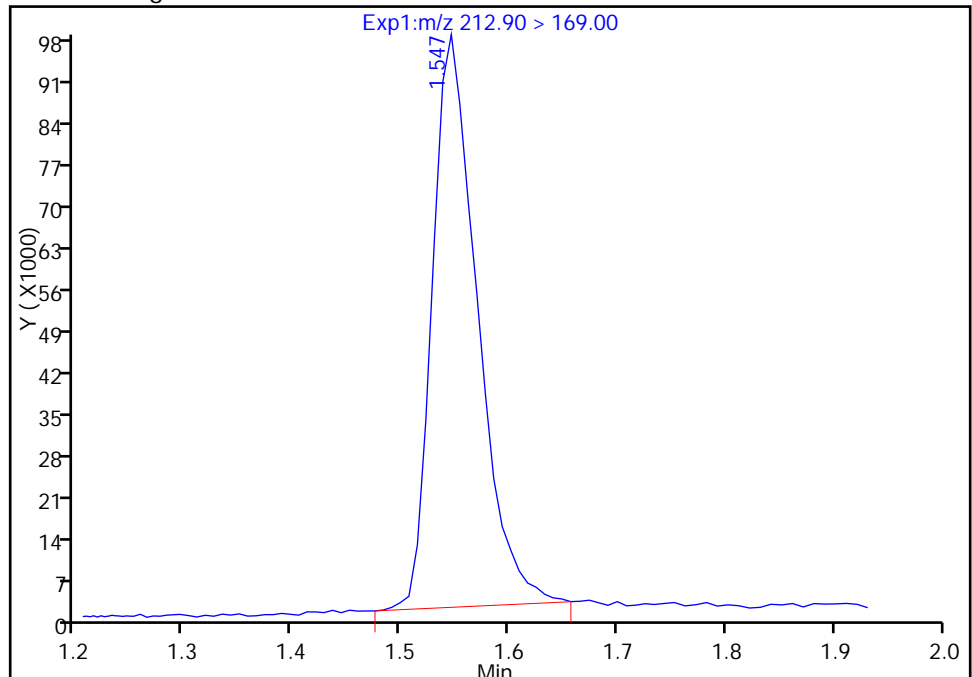
RT: 1.55
Area: 252857
Amount: 0.913725
Amount Units: ng/ml

Processing Integration Results



RT: 1.55
Area: 279192
Amount: 1.008889
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 14-Mar-2017 11:30:33

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 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.: 320-26273-1
 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	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	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	20722636	45.9		104		
	298.90 > 99.00	1.863	1.863	0.0	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	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	10027949	51.0		102	98011	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.480	2.480	0.0	14735744	45.5		100.0		
D 11 18O2 PFHxS	403.00 > 84.00	2.480	2.480	0.0	14896982	51.2		108	480567	
D 12 M2-6:2FTS	429.00 > 409.00	2.799	2.799	0.0	4981801	64.5		136		

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 Sodium 1H,1H,2H,2H-perfluorooctane	427.00	> 407.00	2.799	2.799	0.0	1.000	4449007	47.7	101	
D 14 13C4 PFOA	417.00	> 372.00	2.822	2.822	0.0		10146464	49.5	99.0	304384
15 Perfluorooctanoic acid	413.00	> 369.00	2.822	2.822	0.0	1.000	10443097	50.4	101	153416
	413.00	> 169.00	2.822	2.822	0.0	1.000	6214376		1.68(0.90-1.10)	147333
16 Perfluoroheptanesulfonic Acid	449.00	> 80.00	2.830	2.830	0.0	1.000	13102121	51.5	108	
D 18 13C4 PFOS	503.00	> 80.00	3.188	3.188	0.0		11801442	48.8	102	188222
20 Perfluorononanoic acid	463.00	> 419.00	3.197	3.197	0.0	1.000	8034156	52.5	105	129920
17 Perfluorooctane sulfonic acid	499.00	> 80.00	3.197	3.197	0.0	1.000	11759508	48.4	104	2766869 M
	499.00	> 99.00	3.197	3.197	0.0	1.000	2575871		4.57(0.90-1.10)	234407 M
D 19 13C5 PFNA	468.00	> 423.00	3.197	3.197	0.0		8469352	47.6	95.2	359482
D 21 13C8 FOSA	506.00	> 78.00	3.534	3.534	0.0		18328903	50.0	99.9	366408
22 Perfluorooctane Sulfonamide	498.00	> 78.00	3.534	3.534	0.0	1.000	17256464	52.4	105	386932
25 Sodium 1H,1H,2H,2H-perfluorooctane	527.00	> 507.00	3.551	3.551	0.0	1.000	4208415	49.6	103	
D 26 M2-8:2FTS	529.00	> 509.00	3.551	3.551	0.0		4394164	47.5	99.1	
24 Perfluorodecanoic acid	513.00	> 469.00	3.559	3.559	0.0	1.000	7141579	52.3	105	258645
D 23 13C2 PFDA	515.00	> 470.00	3.559	3.559	0.0		7534536	45.2	90.4	190131
D 27 d3-NMeFOSAA	573.00	> 419.00	3.711	3.711	0.0		3479759	40.8	81.7	
28 N-methyl perfluorooctane sulfonami	570.00	> 419.00	3.711	3.711	0.0	1.000	3211030	47.5	95.0	
29 Perfluorodecane Sulfonic acid	599.00	> 80.00	3.865	3.865	0.0	1.000	7605801	51.7	107	
D 32 d5-NEtFOSAA	589.00	> 419.00	3.883	3.883	0.0		3189343	39.2	78.4	
31 Perfluoroundecanoic acid	563.00	> 519.00	3.883	3.883	0.0	1.000	5502307	47.7	95.3	97815
33 N-ethyl perfluorooctane sulfonamid	584.00	> 419.00	3.883	3.883	0.0	1.000	2786799	48.0	96.0	
D 30 13C2 PFUnA	565.00	> 520.00	3.883	3.883	0.0		5695179	43.5	87.1	205085
D 34 d-N-MeFOSA-M	515.00	> 169.00	4.027	4.027	0.0		4405207	50.1	100	
35 MeFOSA	512.00	> 169.00	4.037	4.037	0.0	1.000	3932183	47.7	95.4	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
37 Perfluorododecanoic acid	613.00	> 569.00	4.175	4.175	0.0	1.000	5074326	51.0	102	54573
D 36 13C2 PFDaA	615.00	> 570.00	4.175	4.175	0.0		5443717	43.9	87.8	136300
D 38 d-N-EtFOSA-M	531.00	> 169.00	4.212	4.212	0.0		3992480	46.8	93.7	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	4.220	4.220	0.0	1.000	3759742	47.9	95.7	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.443	4.443	0.0	1.000	5101140	53.6	107	114258
42 Perfluorotetradecanoic acid	712.50	> 668.90	4.670	4.670	0.0	1.000	9381591	43.8	87.6	41395
	713.00	> 169.00	4.670	4.670	0.0	1.000	1483069		6.33(0.00-0.00)	163624
D 43 13C2-PFTeDA	715.00	> 670.00	4.670	4.670	0.0		10917206	42.1	84.2	354469
D 44 13C2-PFHxDA	815.00	> 770.00	5.079	5.079	0.0		6111460	48.9	97.7	107800
45 Perfluorohexadecanoic acid	813.00	> 769.00	5.090	5.090	0.0	1.000	5268497	51.8	104	5197
46 Perfluorooctadecanoic acid	913.00	> 869.00	5.444	5.444	0.0	1.000	4123073	52.8	106	5520

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_FULL-L5_00001

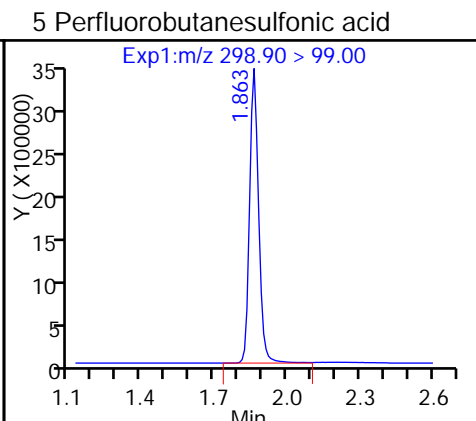
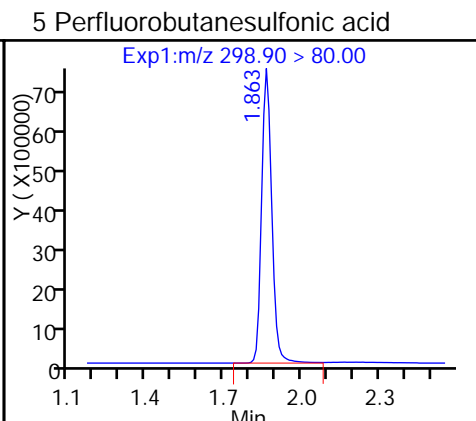
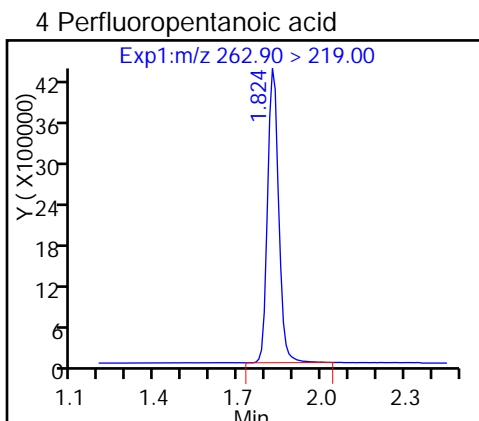
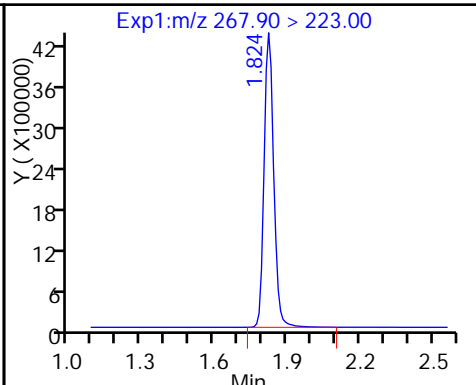
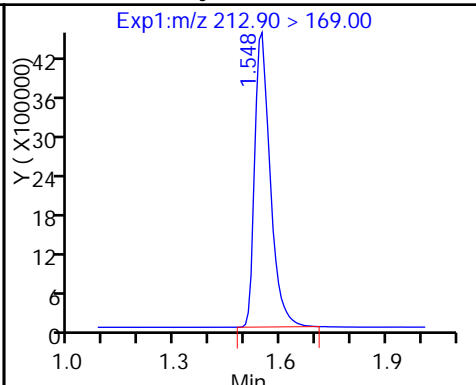
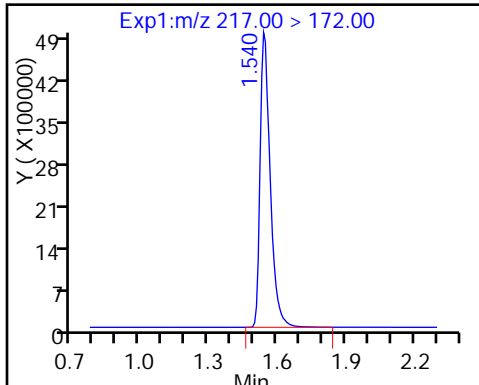
Amount Added: 1.00

Units: mL

D 1 13C4 PFBA

2 Perfluorobutyric acid

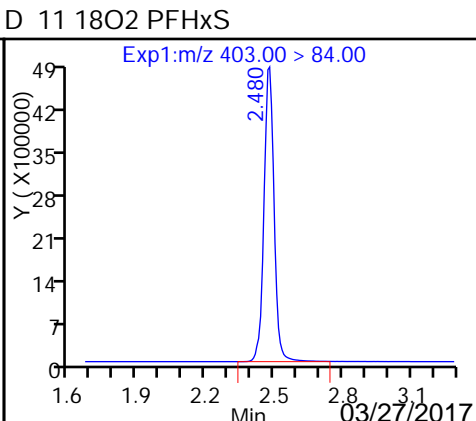
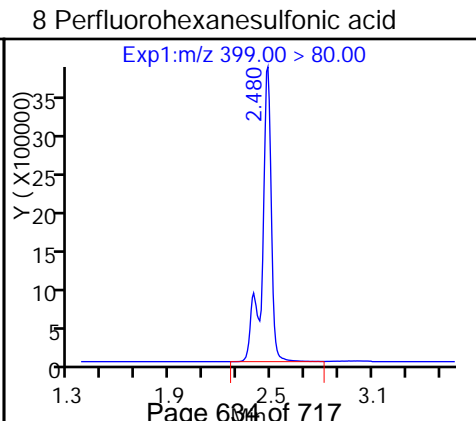
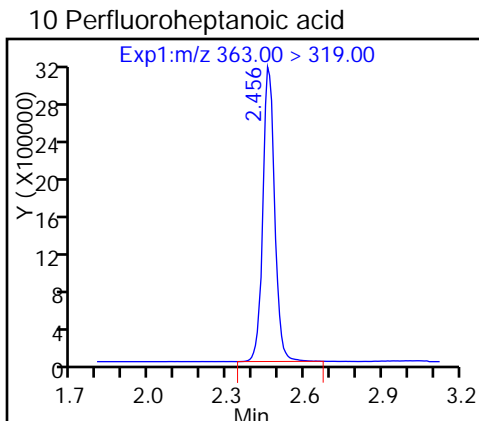
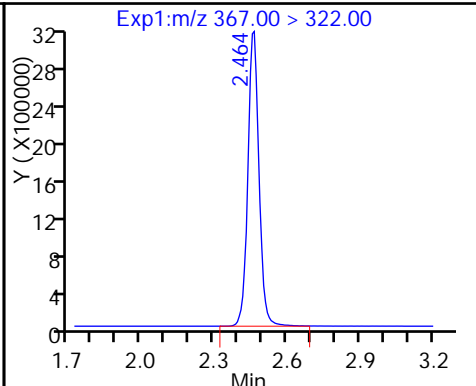
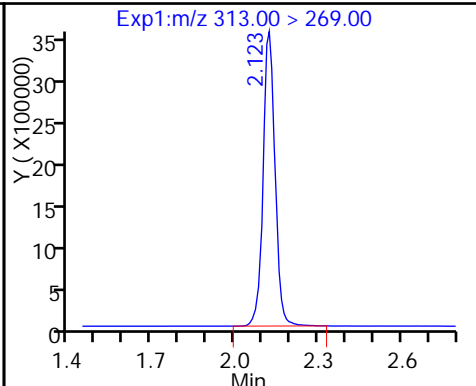
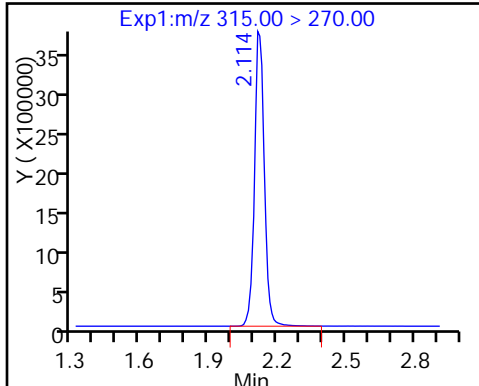
D 3 13C5-PFPeA



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

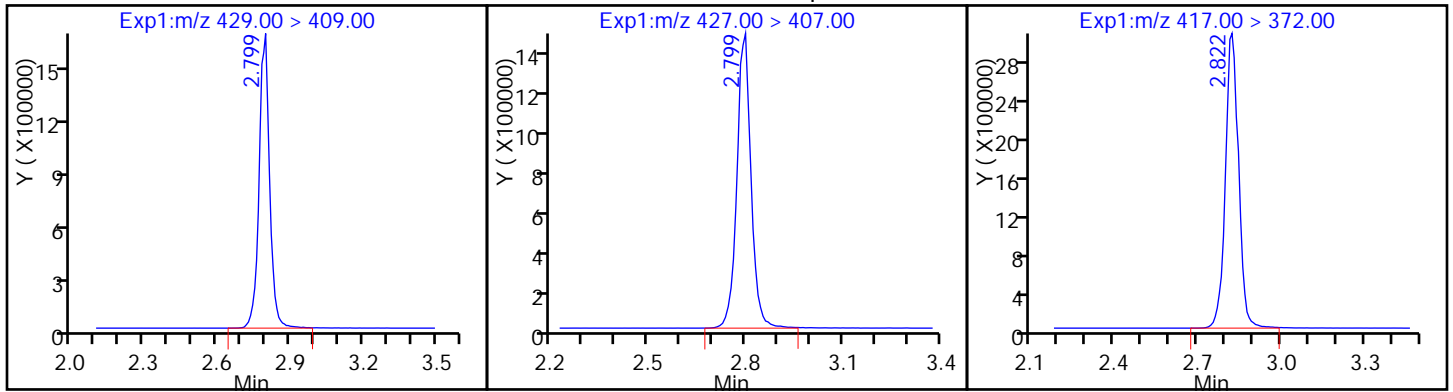
D 9 13C4-PFHpA



D 12 M2-6:2FTS

13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

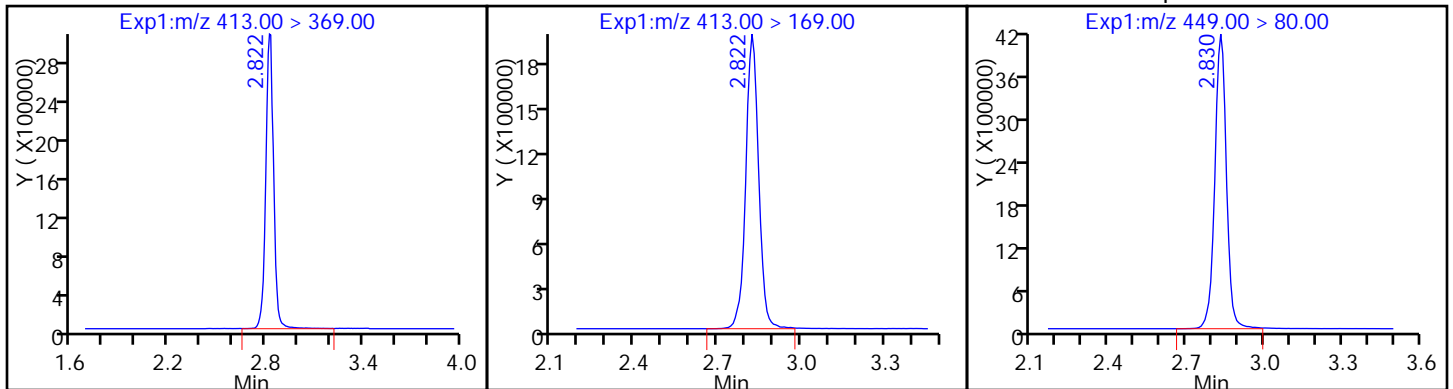
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

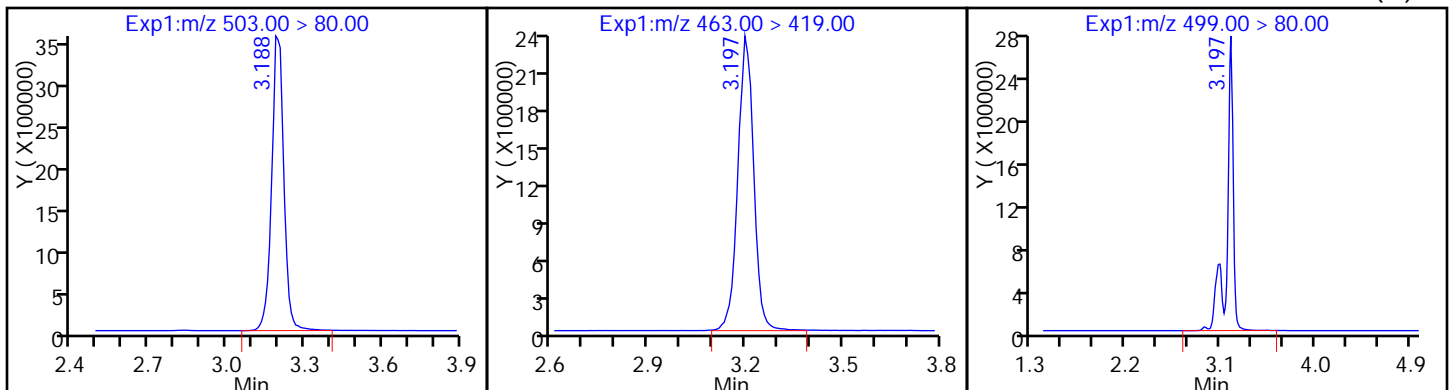
16 Perfluoroheptanesulfonic Acid



D 18 13C4 PFOS

20 Perfluorononanoic acid

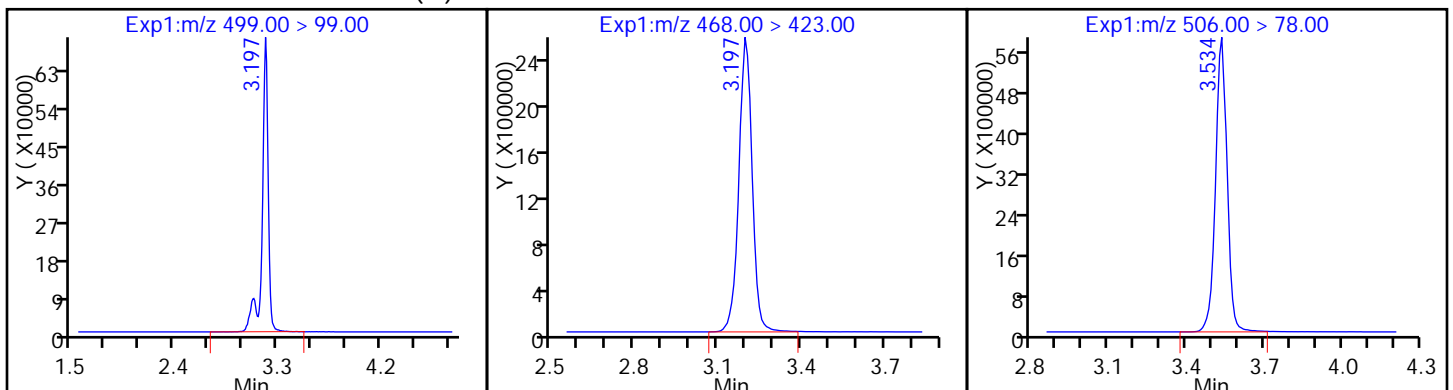
17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)

D 19 13C5 PFNA

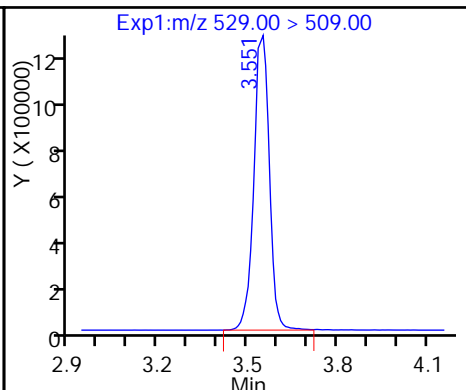
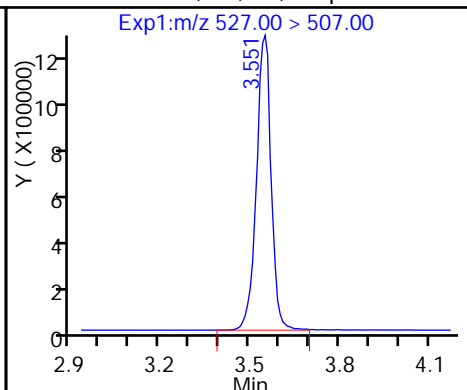
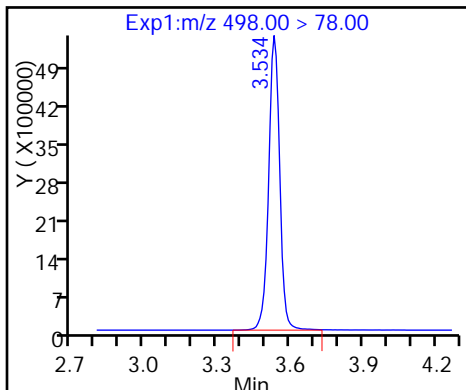
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide

25 Sodium 1H,1H,2H,2H-perfluorooctane Sulfonate

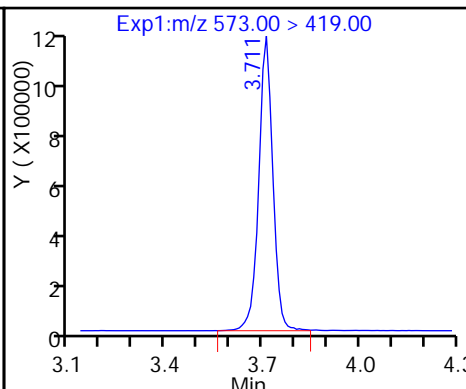
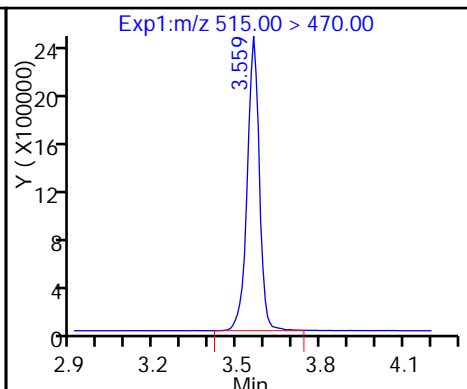
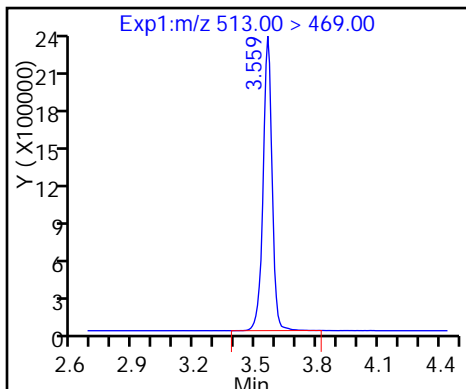
D 26 M2-8:2FTS



24 Perfluorodecanoic acid

D 23 13C2 PFDA

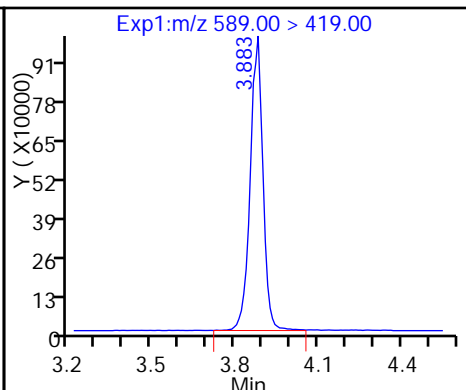
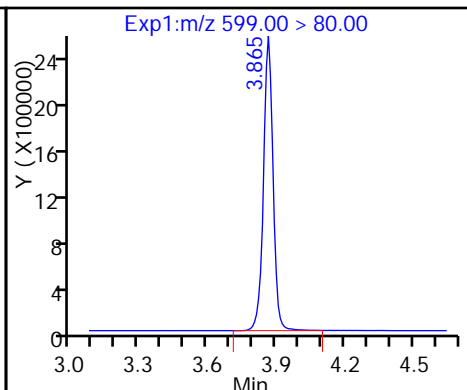
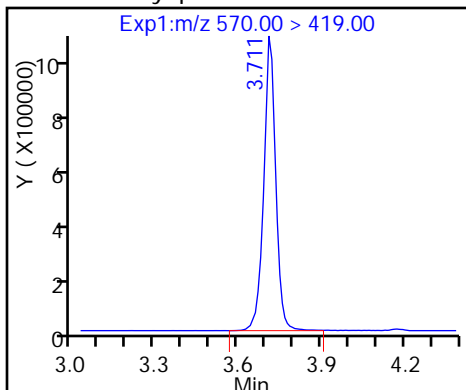
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonamide

29 Perfluorodecane Sulfonic acid

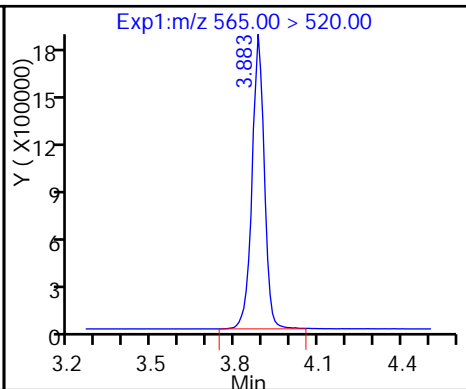
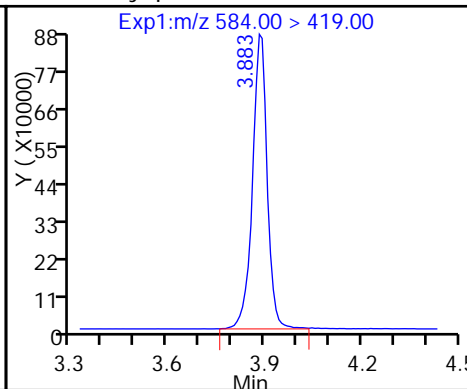
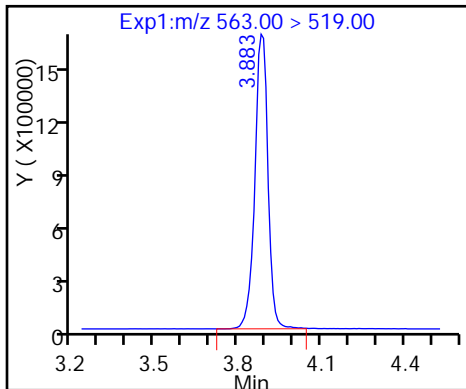
D 32 d5-NEtFOSAA



31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamide

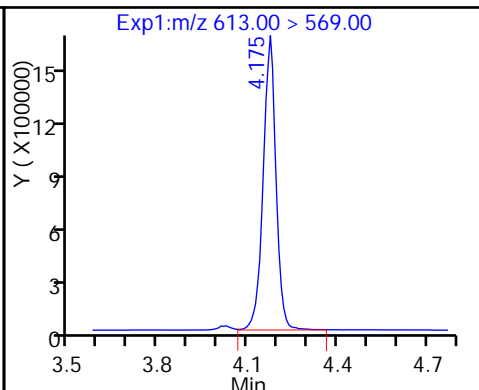
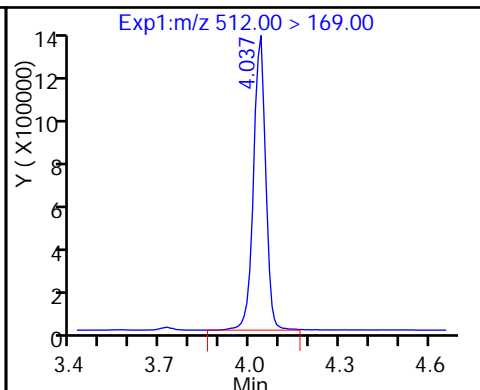
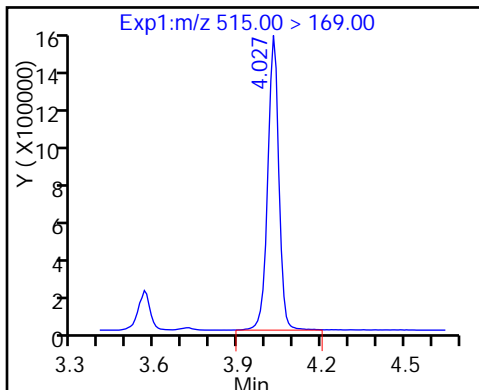
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA

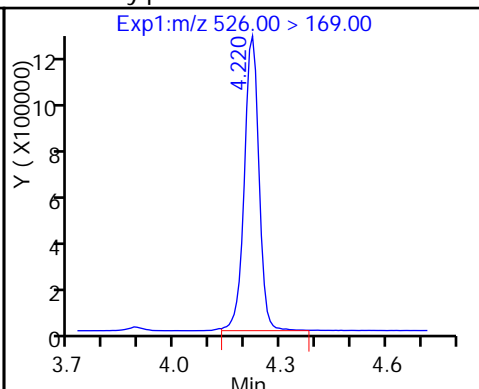
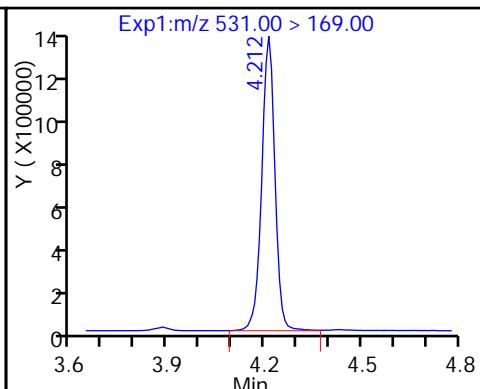
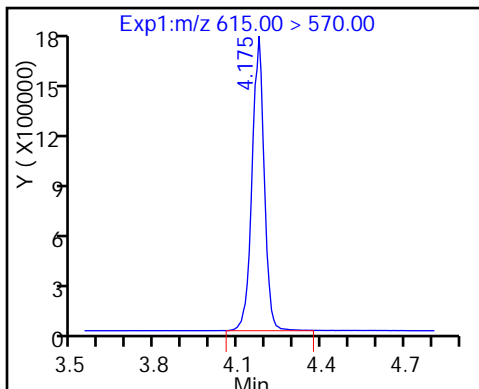
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

D 38 d-N-EtFOSA-M

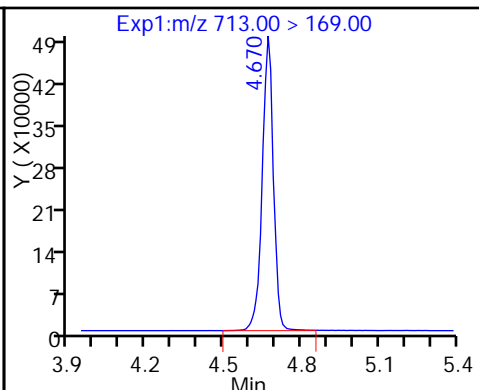
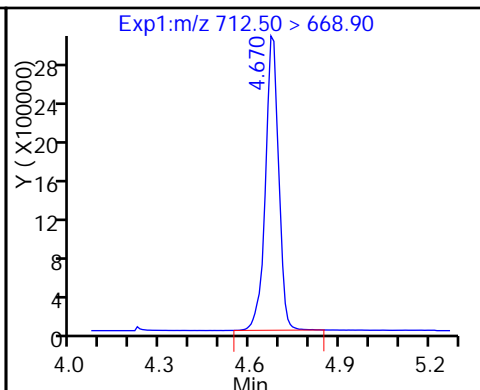
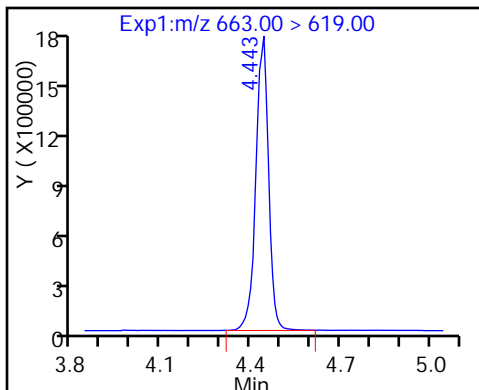
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

42 Perfluorotetradecanoic acid

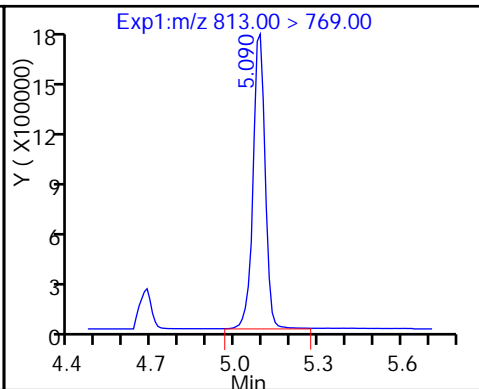
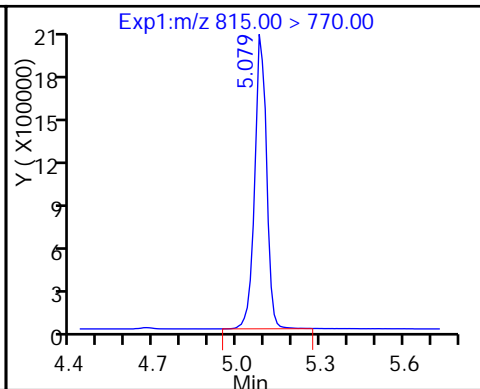
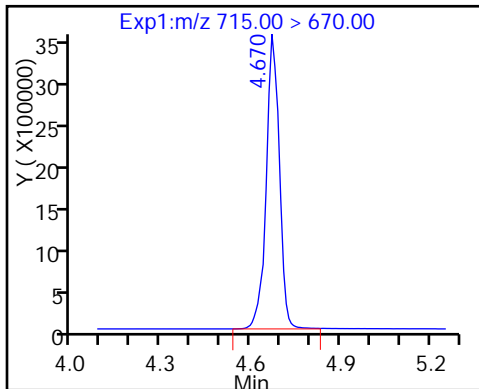
42 Perfluorotetradecanoic acid



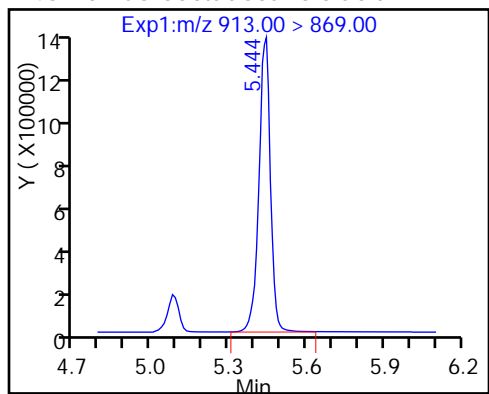
D 43 13C2-PFTeDA

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

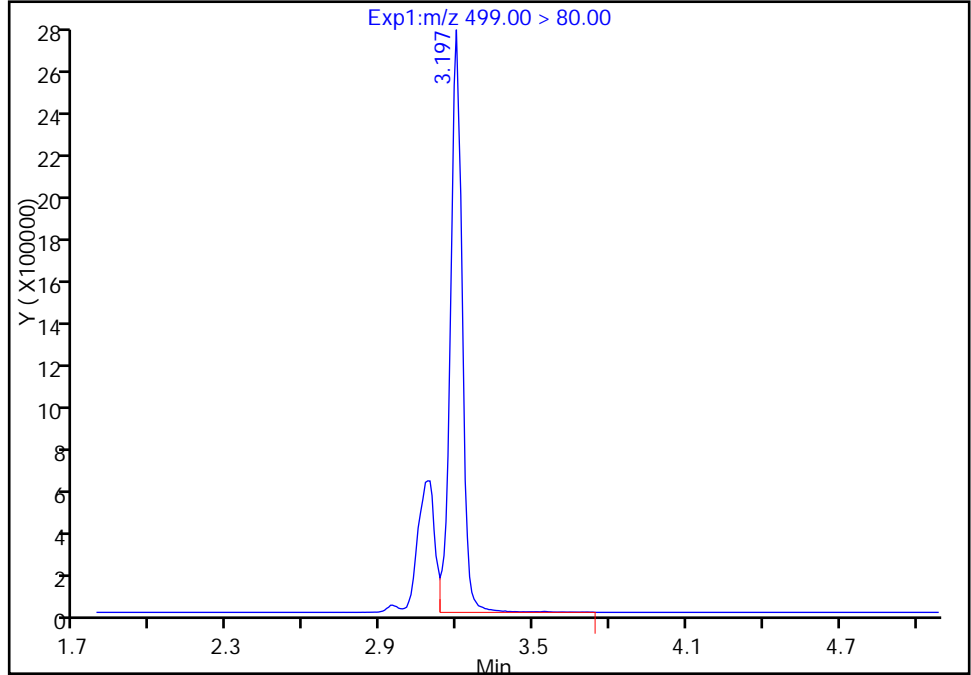
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_047.d
Injection Date: 13-Mar-2017 17:08:37 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

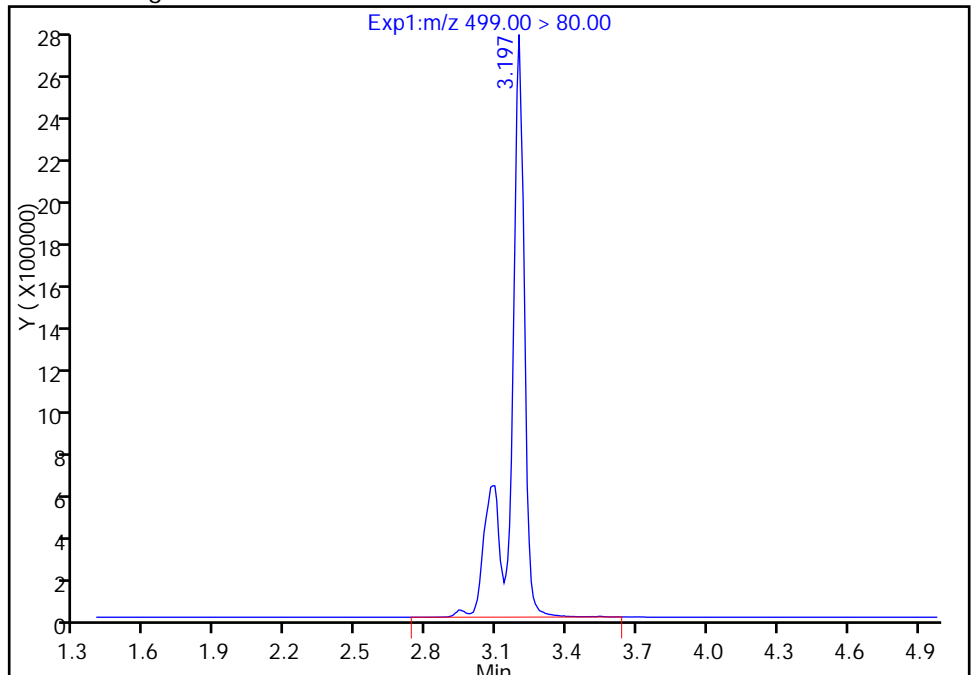
RT: 3.20
Area: 8825465
Amount: 36.346607
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 11759508
Amount: 48.430107
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 14-Mar-2017 13:30:26
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

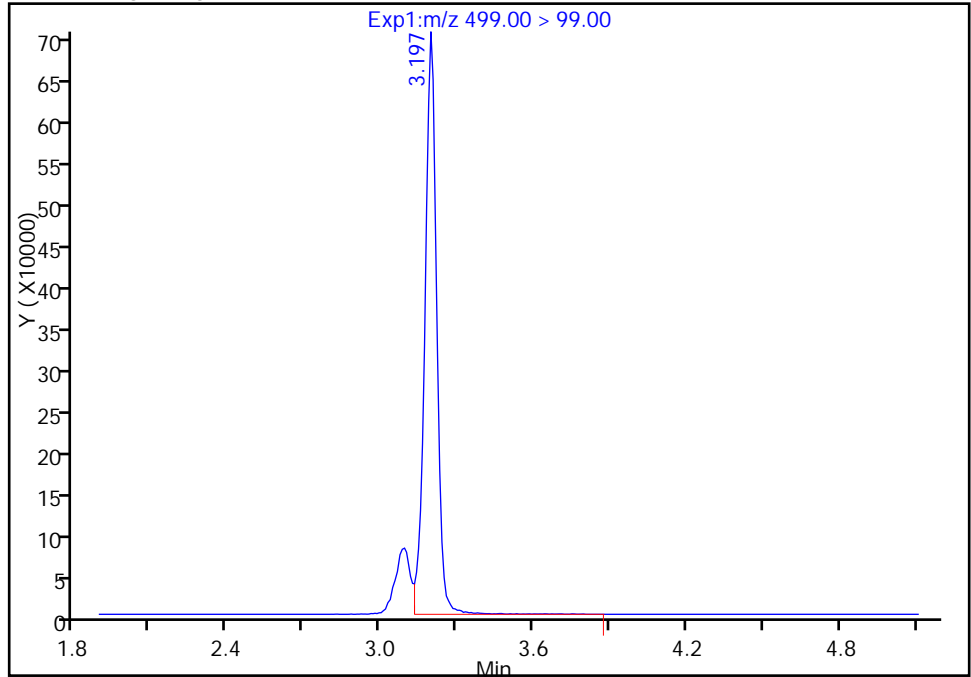
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_047.d
Injection Date: 13-Mar-2017 17:08:37 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

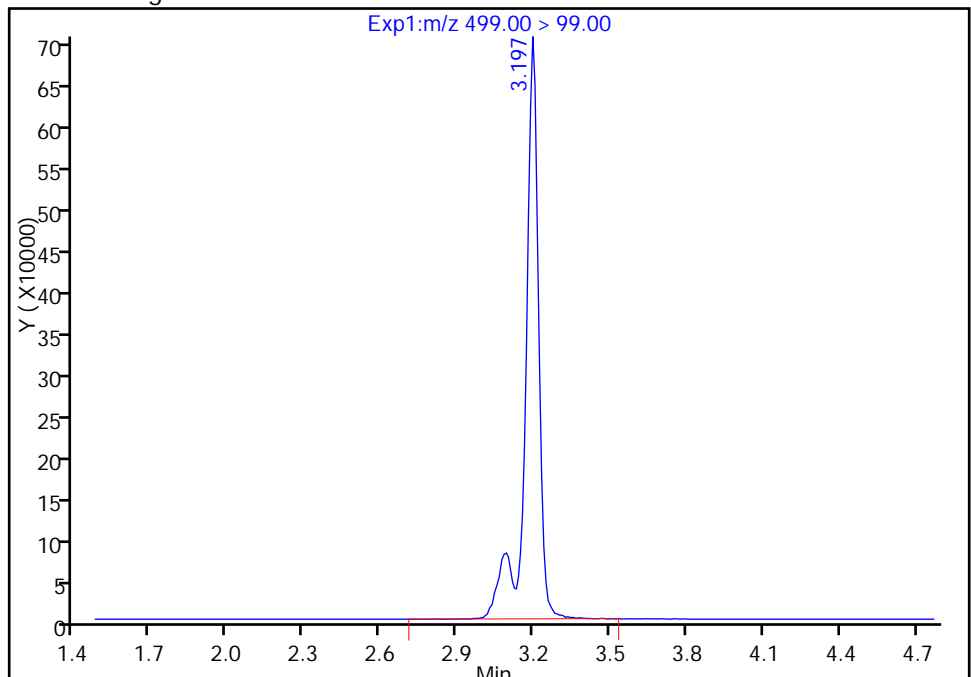
RT: 3.20
Area: 2266426
Amount: 36.346607
Amount Units: ng/ml

Processing Integration Results



RT: 3.20
Area: 2575871
Amount: 48.430107
Amount Units: ng/ml

Manual Integration Results



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 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 (FOA)	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
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 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	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 PFDaA	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

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

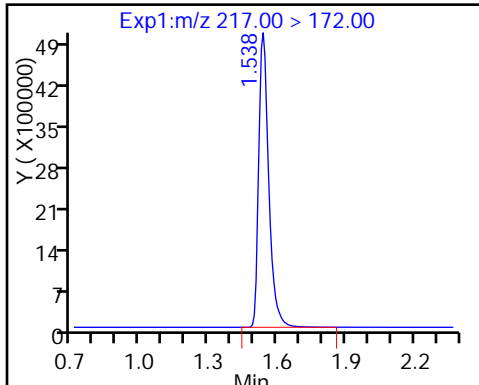
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

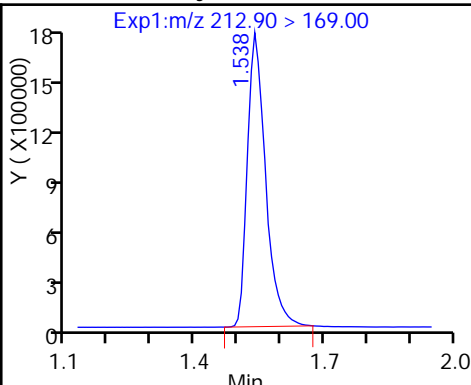
Method: A8_N

Limit Group: LC PFC_DOD ICAL

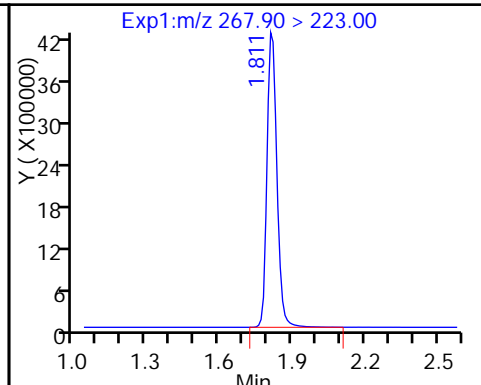
D 1 13C4 PFBA



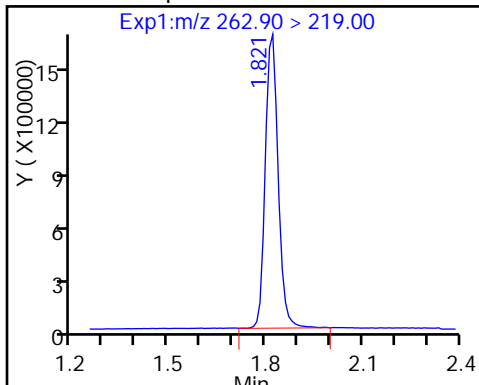
2 Perfluorobutyric acid



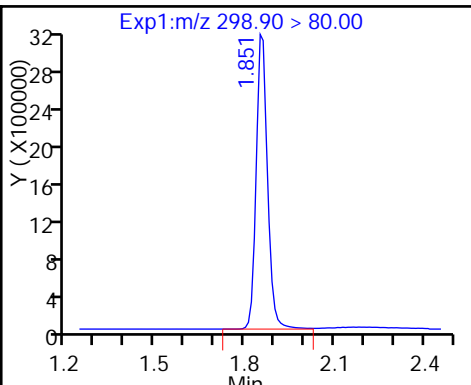
D 3 13C5-PFPeA



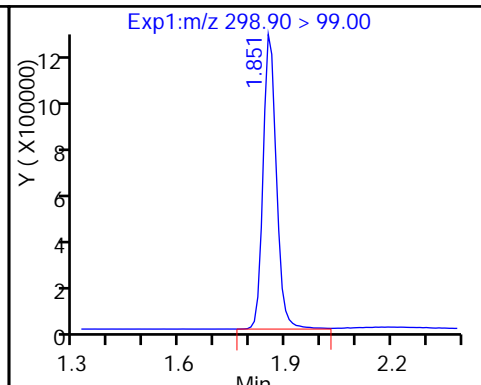
4 Perfluoropentanoic acid



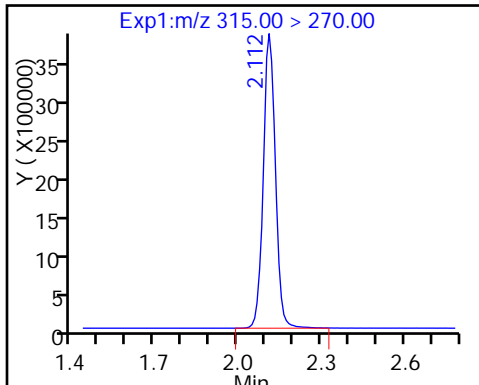
5 Perfluorobutanesulfonic acid



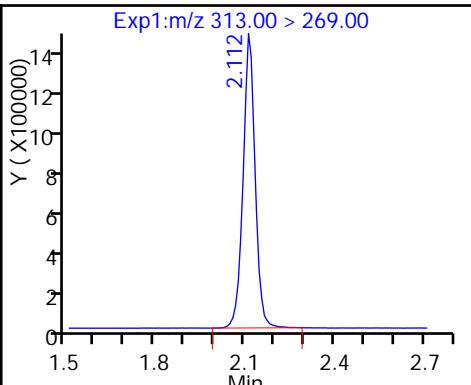
5 Perfluorobutanesulfonic acid



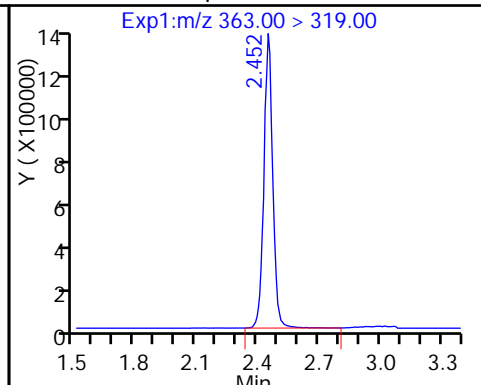
D 7 13C2 PFHxA



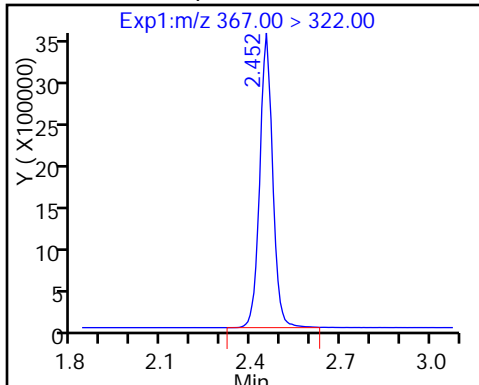
6 Perfluorohexanoic acid



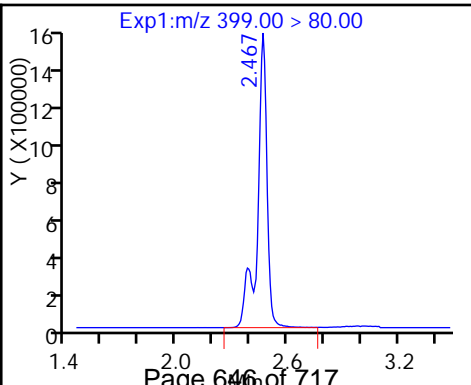
10 Perfluoroheptanoic acid



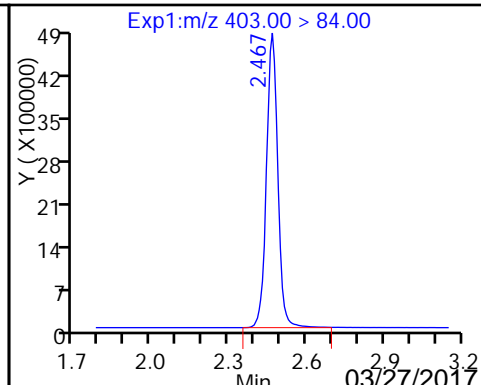
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid



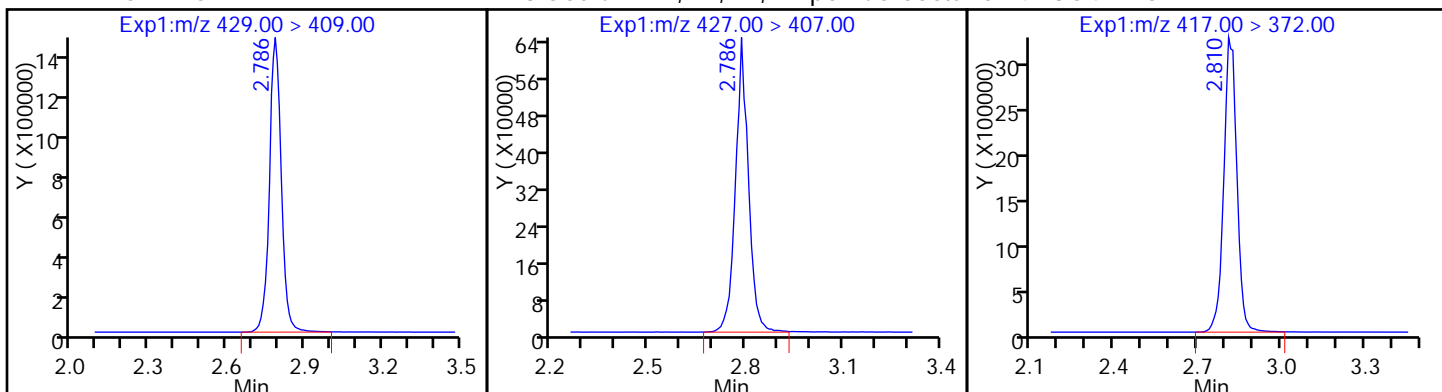
D 11 18O2 PFHxS



D 12 M2-6:2FTS

13 Sodium 1H,1H,2H,2H-perfluorooctane

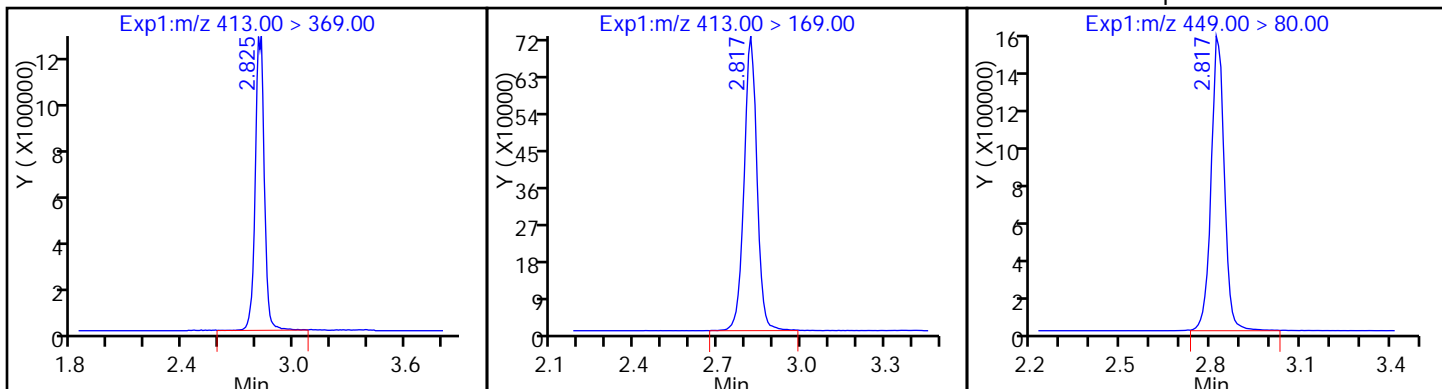
D 14 13C4 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

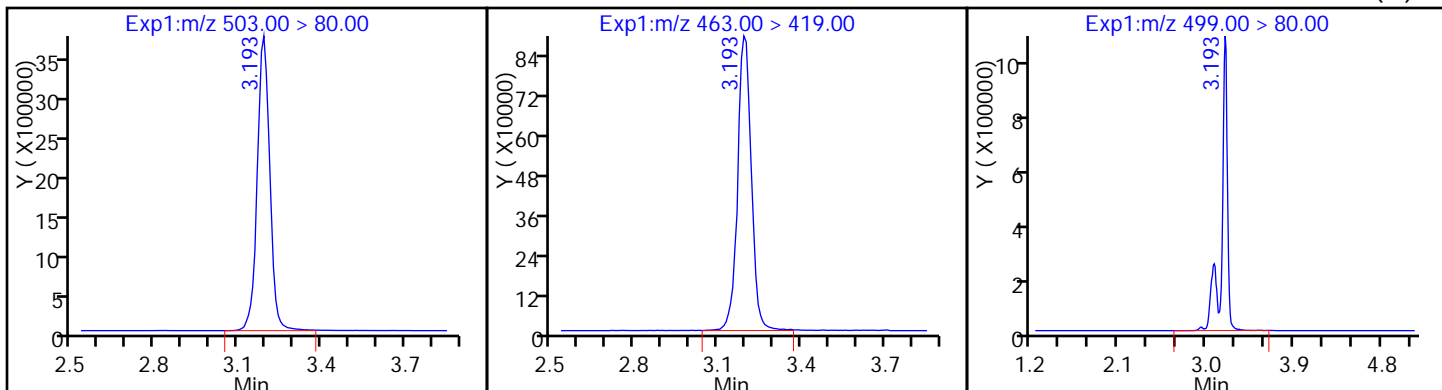
16 Perfluoroheptanesulfonic Acid



D 18 13C4 PFOS

20 Perfluorononanoic acid

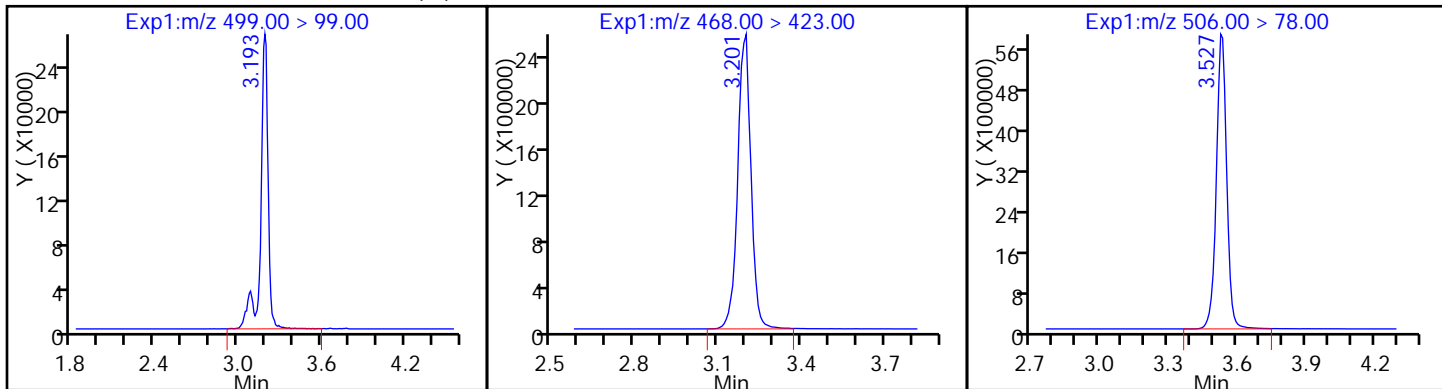
17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid (M)

D 19 13C5 PFNA

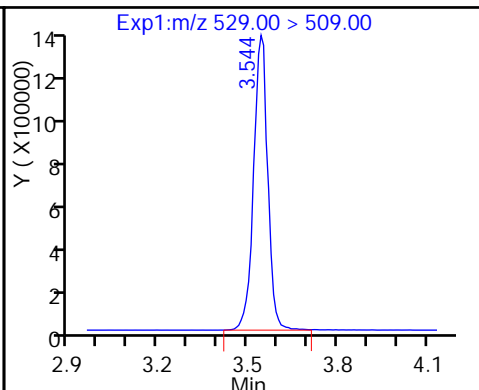
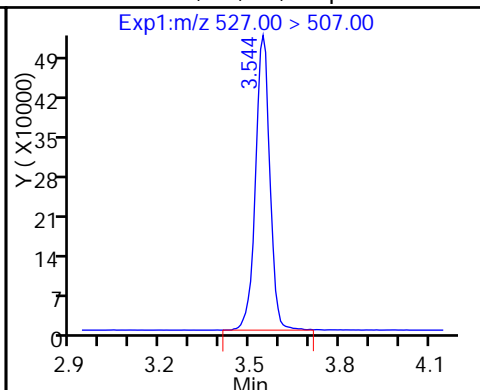
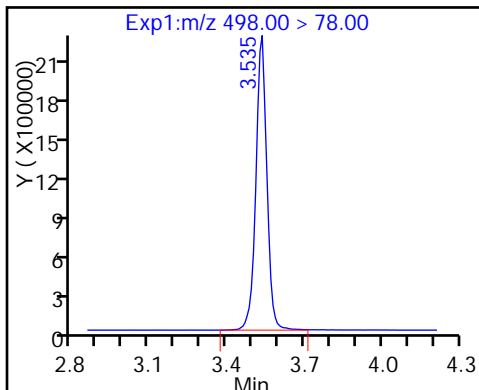
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide

25 Sodium 1H,1H,2H,2H-perfluorooctane

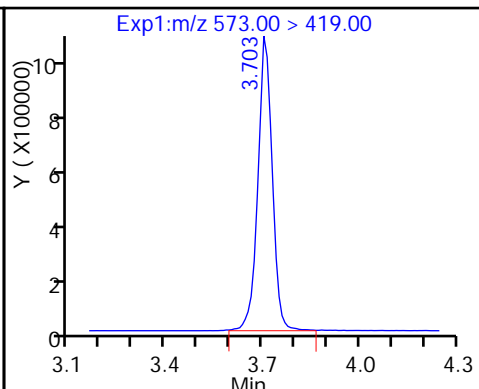
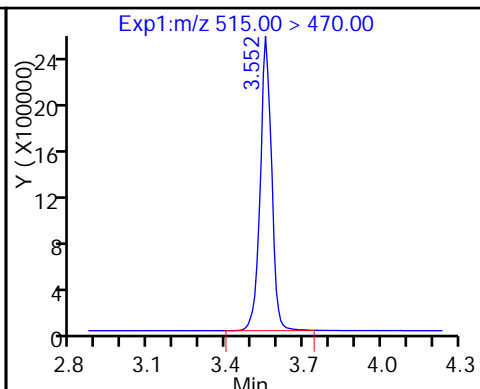
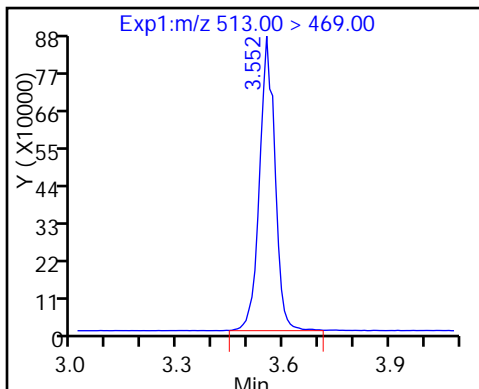
D 26 M2-8:2FTS



24 Perfluorodecanoic acid

D 23 13C2 PFDA

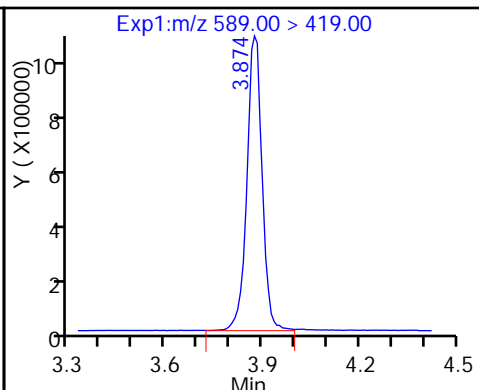
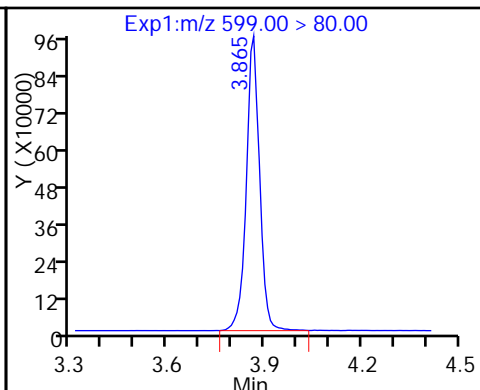
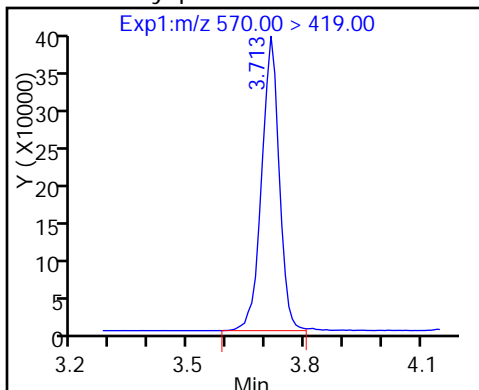
D 27 d3-NMeFOSAA



28 N-methyl perfluorooctane sulfonamid

29 Perfluorodecane Sulfonic acid

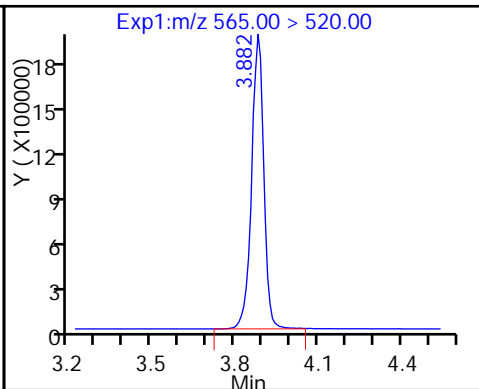
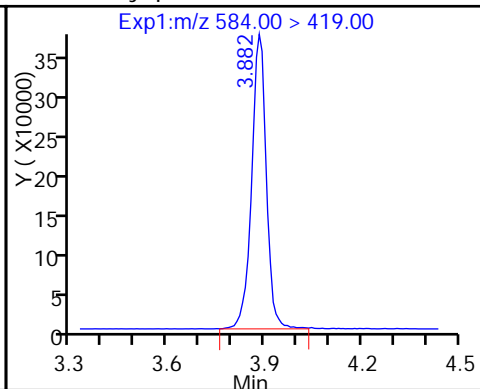
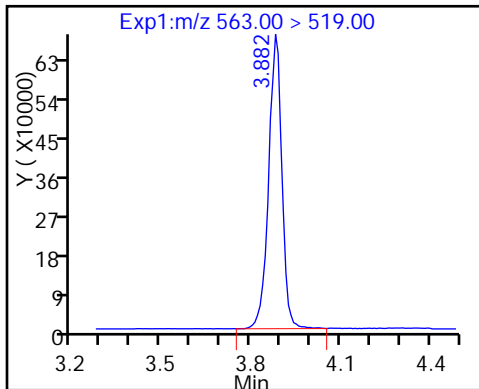
D 32 d5-NEtFOSAA



31 Perfluoroundecanoic acid

33 N-ethyl perfluorooctane sulfonamid

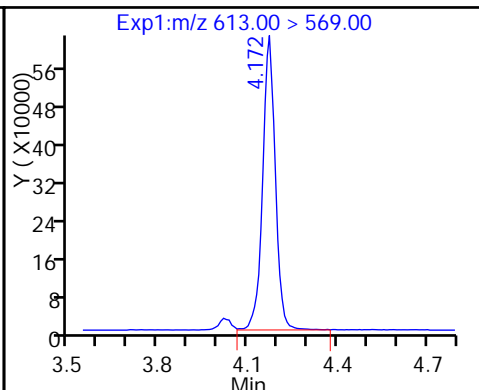
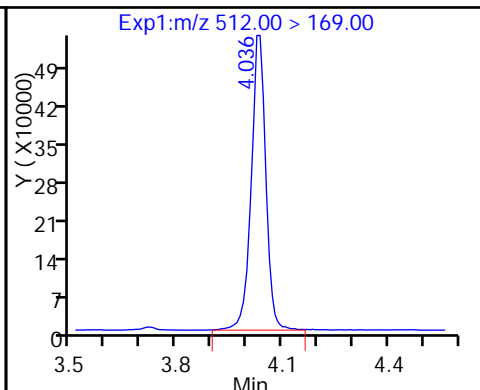
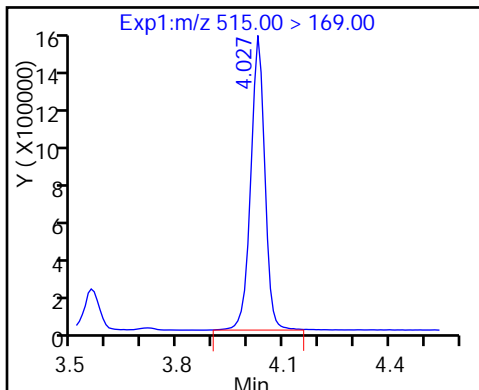
D 30 13C2 PFUnA



D 34 d-N-MeFOSA-M

35 MeFOSA

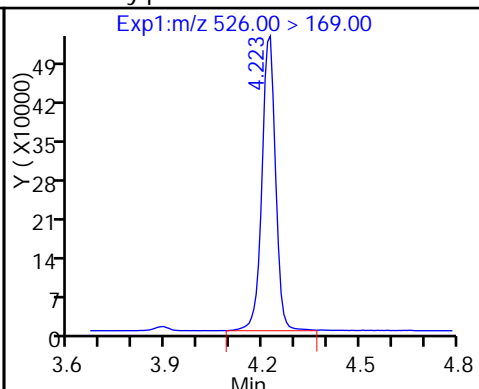
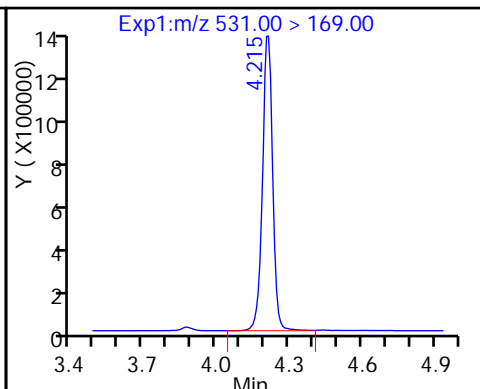
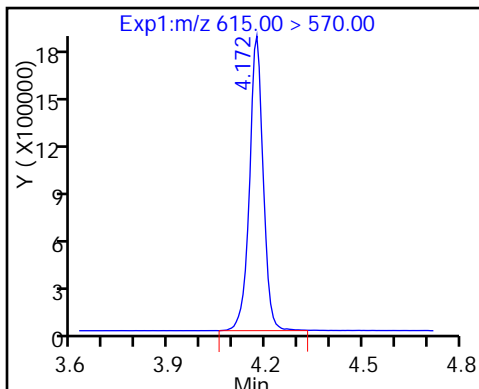
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

D 38 d-N-EtFOSA-M

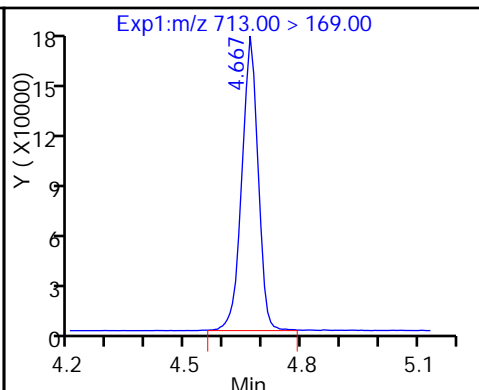
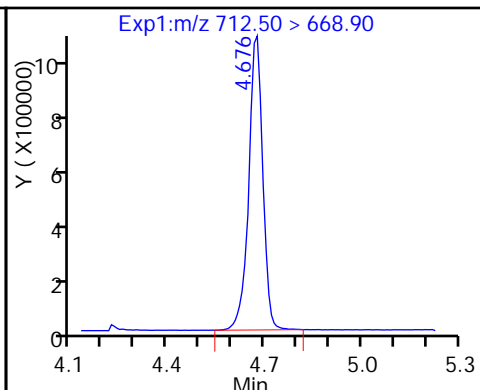
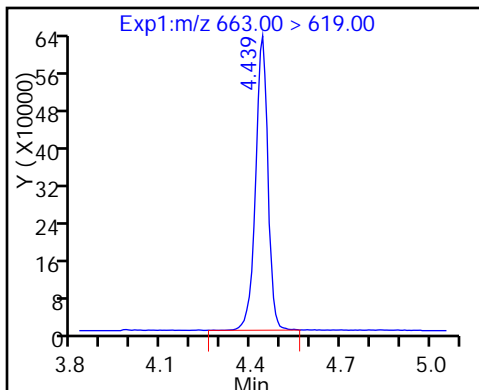
39 N-ethylperfluoro-1-octanesulfonami



41 Perfluorotridecanoic acid

42 Perfluorotetradecanoic acid

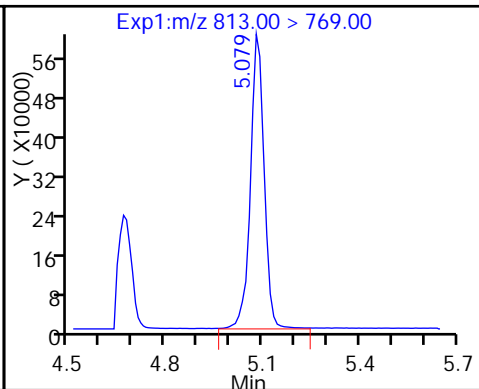
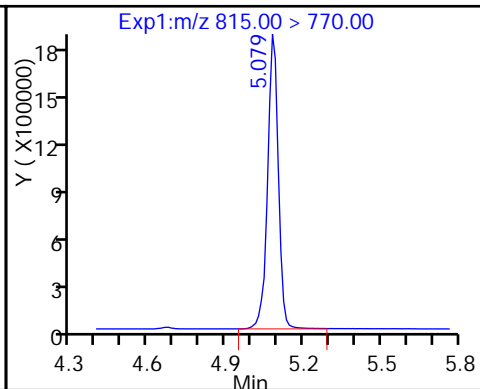
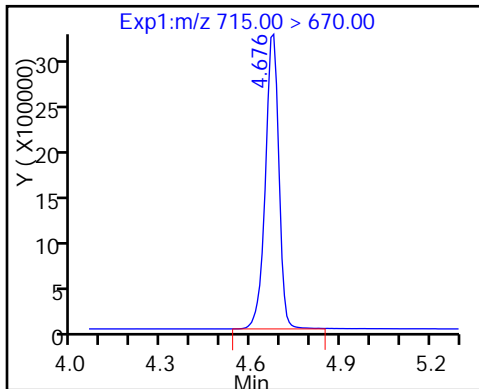
42 Perfluorotetradecanoic acid



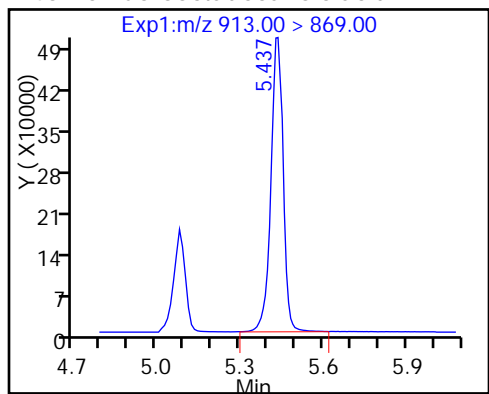
D 43 13C2-PFTeDA

D 44 13C2-PFHxDa

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



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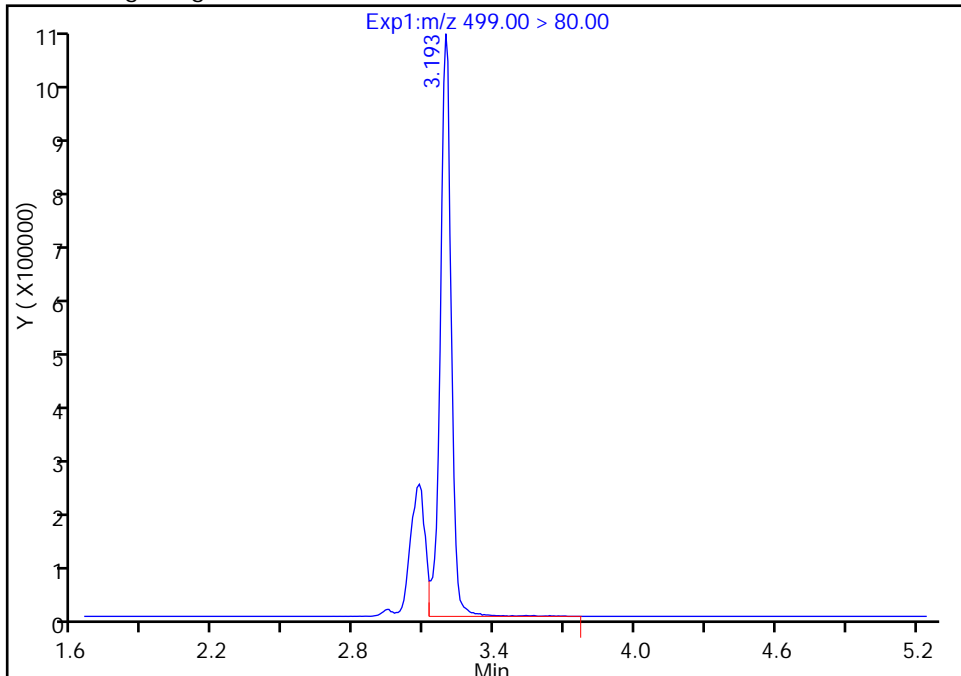
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170314-40808.b\2017.03.13A_053.d
Injection Date: 13-Mar-2017 17:53:36 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

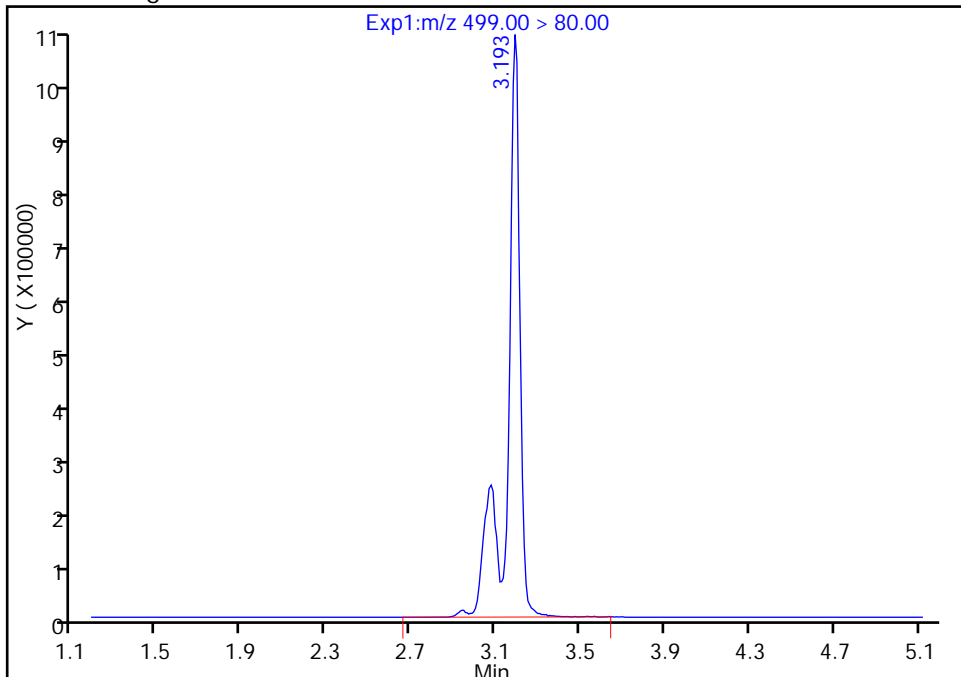
RT: 3.19
Area: 3347821
Amount: 13.707626
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 4371980
Amount: 17.901037
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 14-Mar-2017 13:30:55
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

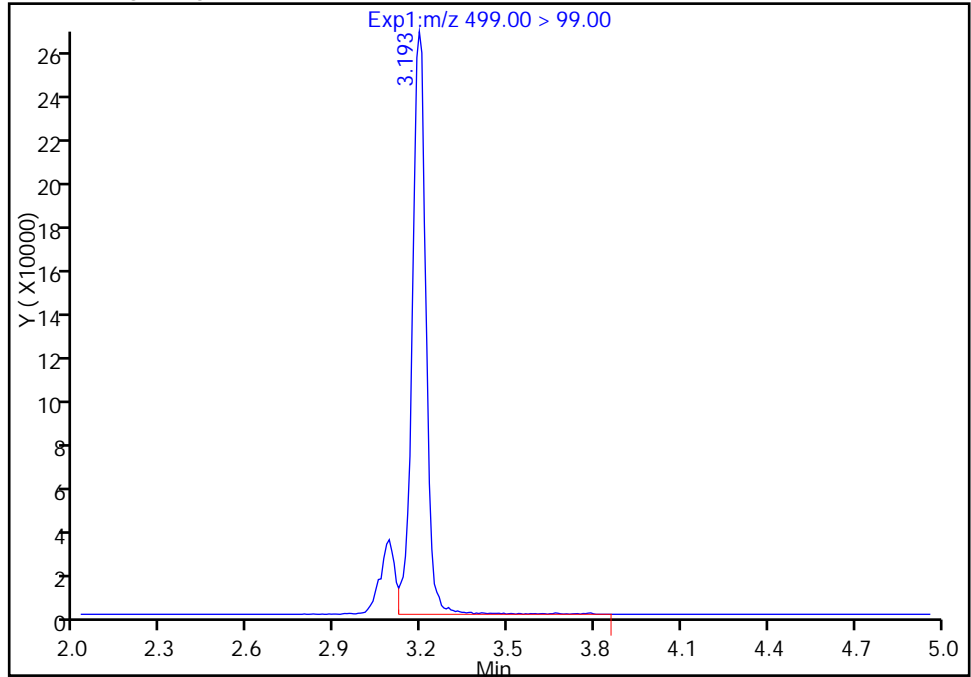
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Injection Date: 13-Mar-2017 17:53:36 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

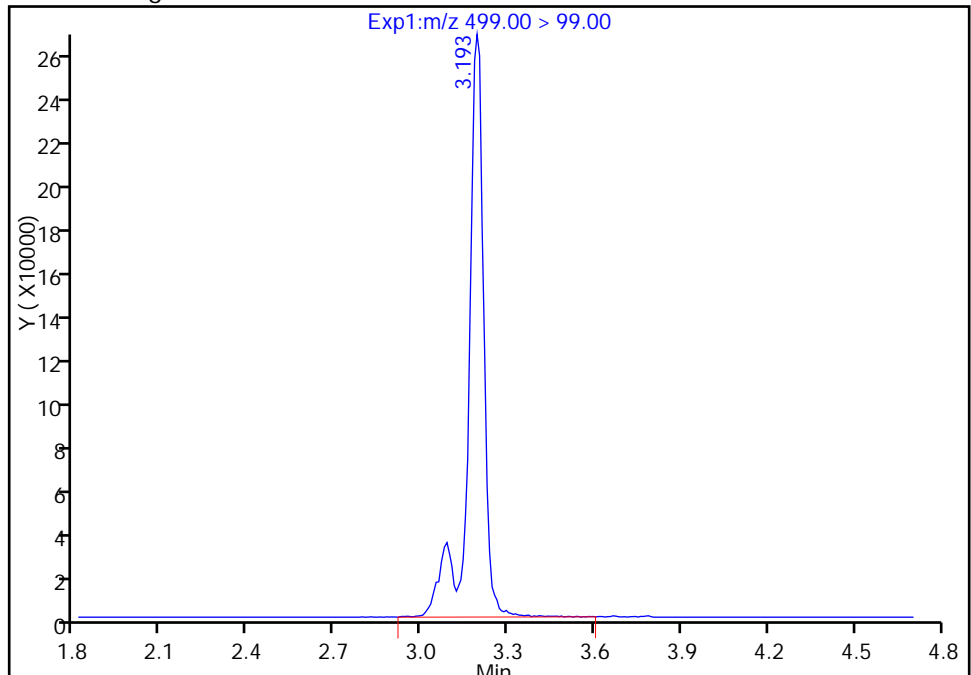
RT: 3.19
Area: 867581
Amount: 13.707626
Amount Units: ng/ml

Processing Integration Results



RT: 3.19
Area: 978888
Amount: 17.901037
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 14-Mar-2017 13:30:55

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 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 PFDaA										
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

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

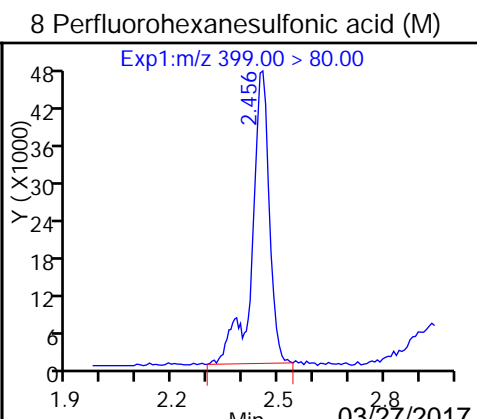
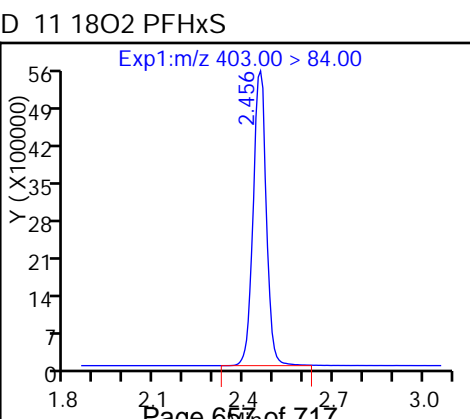
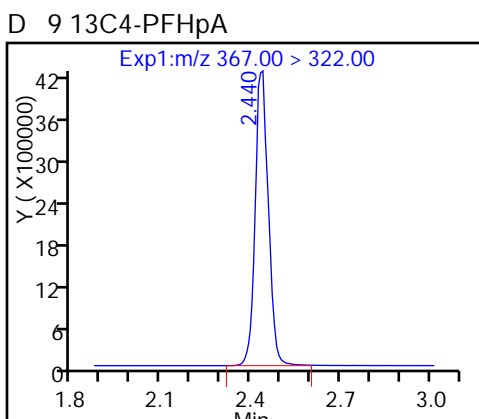
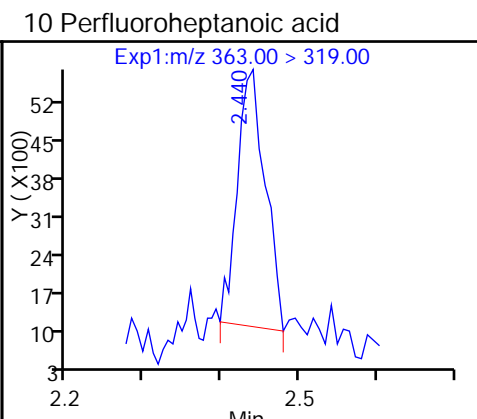
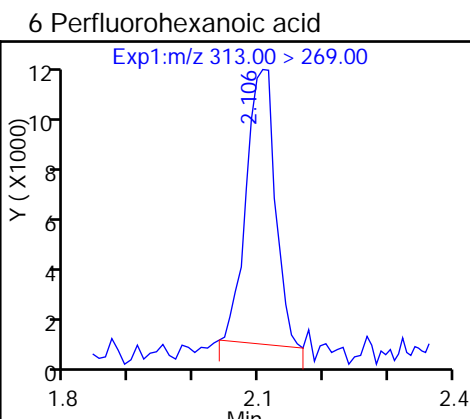
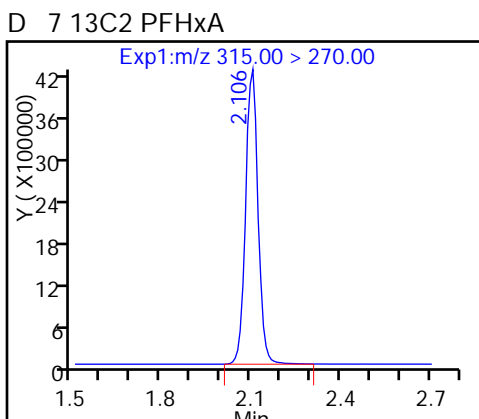
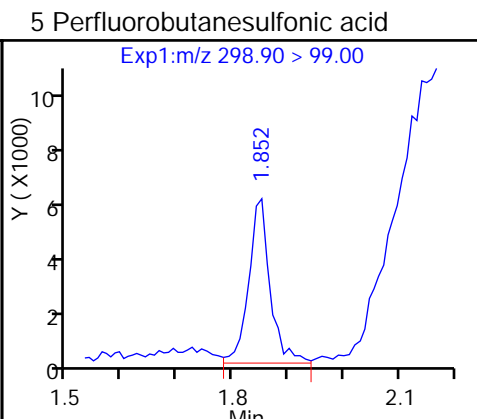
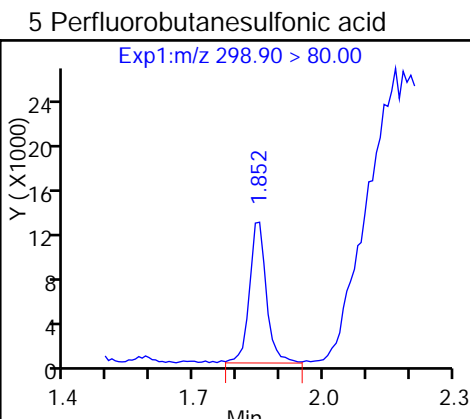
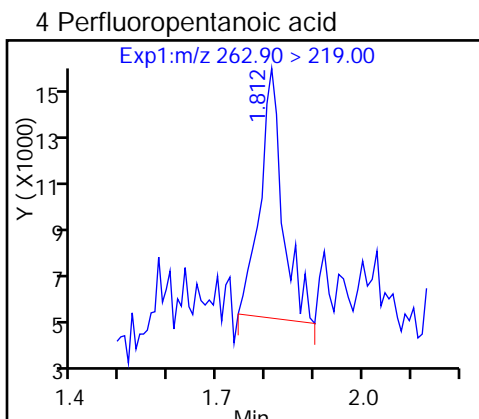
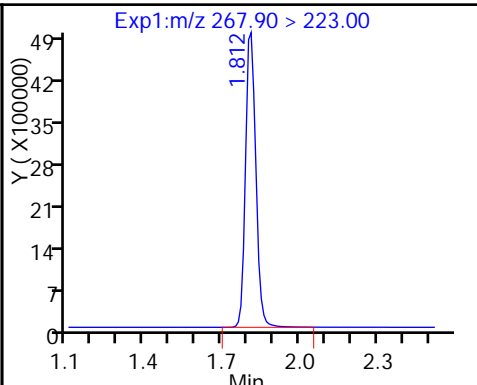
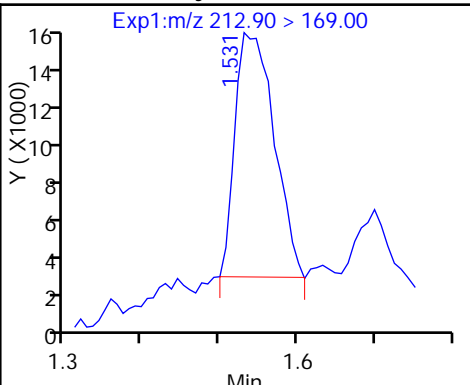
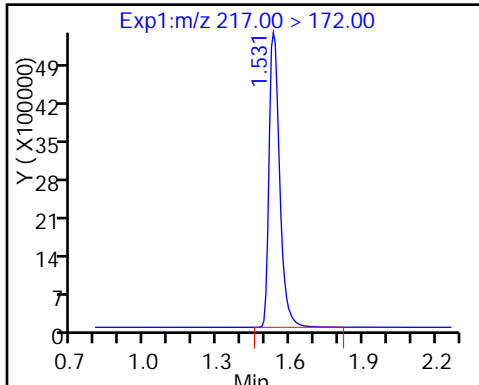
Method: A8_N

Limit Group: LC PFC_DOD ICAL

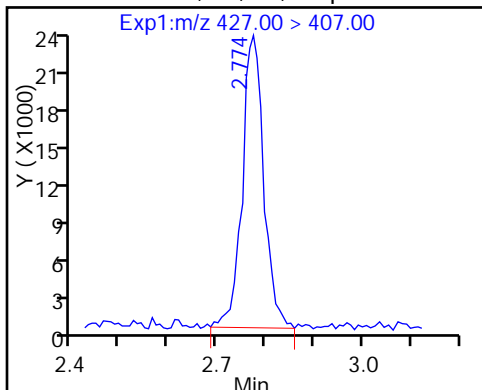
D 1 13C4 PFBA

2 Perfluorobutyric acid (M)

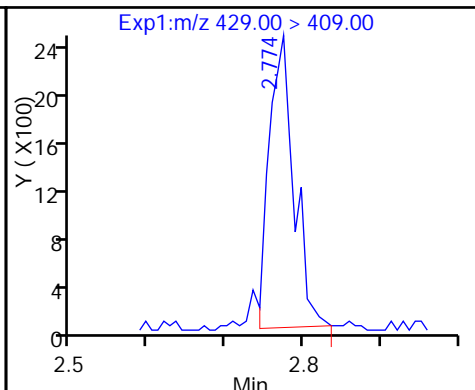
D 3 13C5-PFPeA



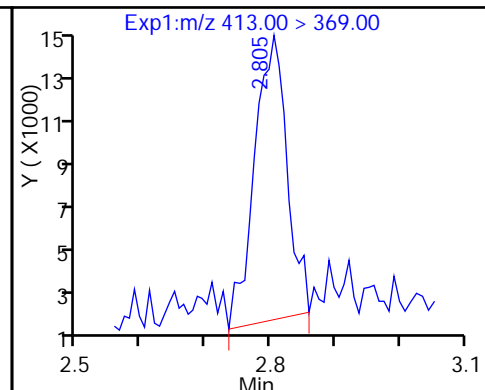
13 Sodium 1H,1H,2H,2H-perfluorooctanoate



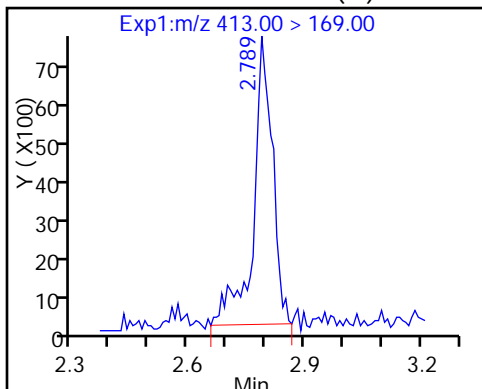
D 12 M2-6:2FTS



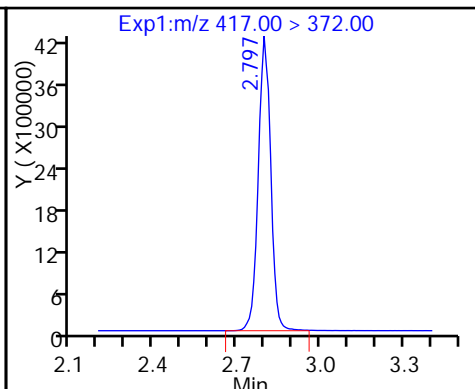
15 Perfluorooctanoic acid



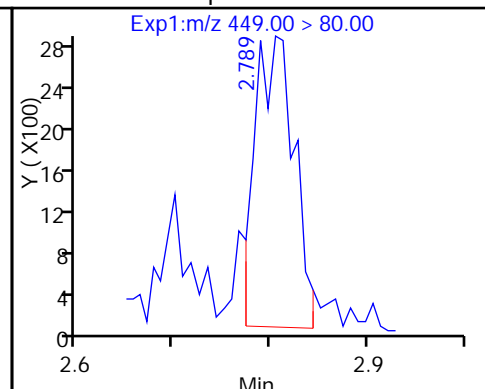
15 Perfluorooctanoic acid (M)



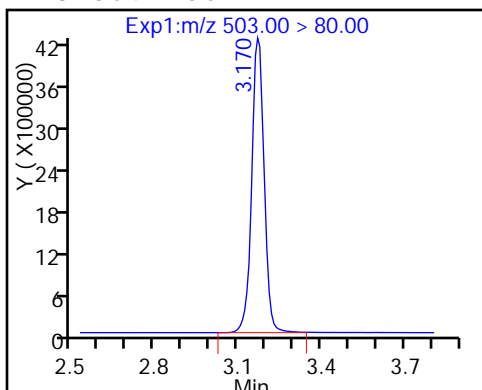
D 14 13C4 PFOA



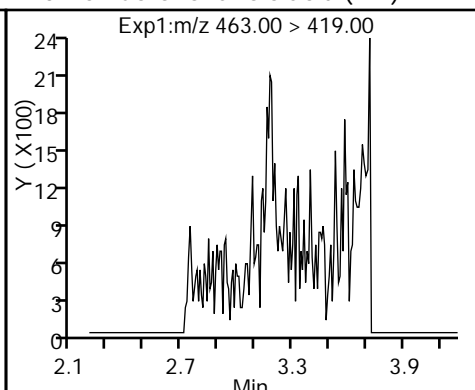
16 Perfluoroheptanesulfonic Acid



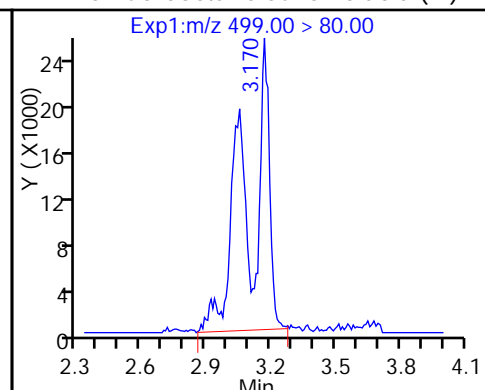
D 18 13C4 PFOS



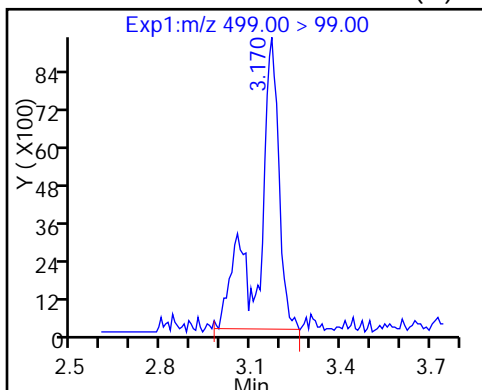
20 Perfluorononanoic acid (ND)



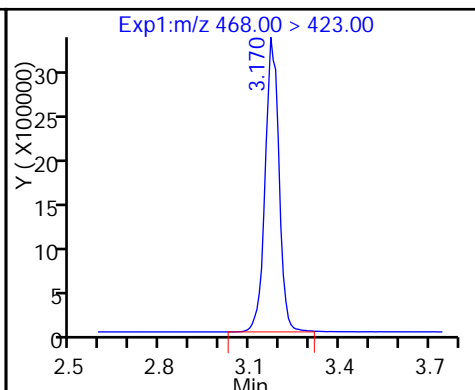
17 Perfluorooctane sulfonic acid (M)



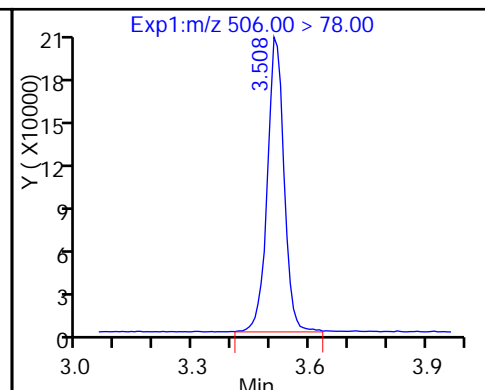
17 Perfluorooctane sulfonic acid (M)

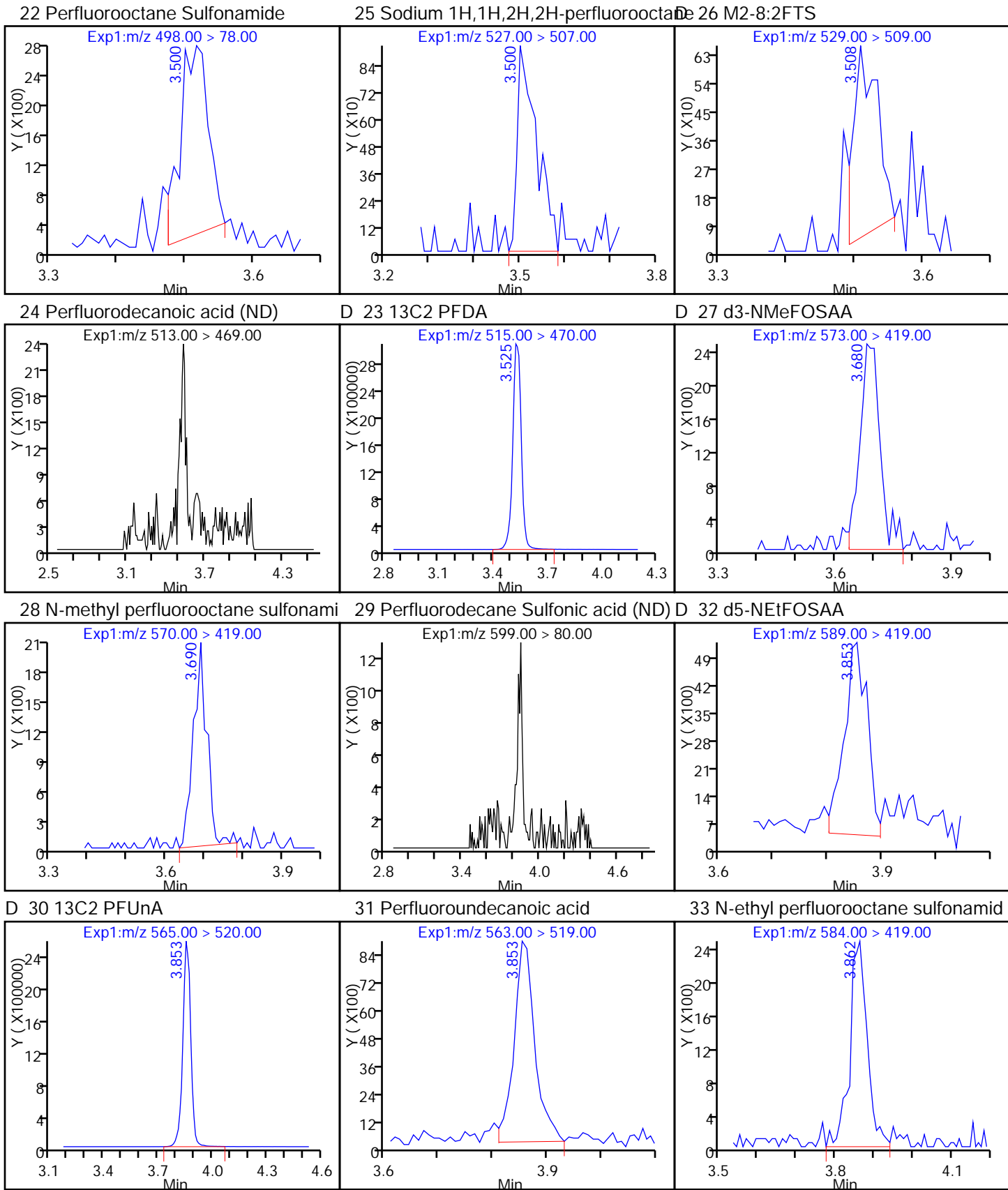


D 19 13C5 PFNA

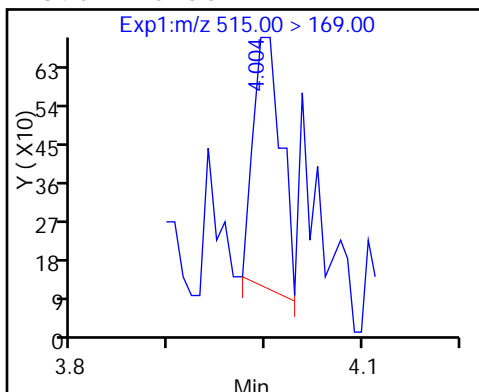


D 21 13C8 FOSA

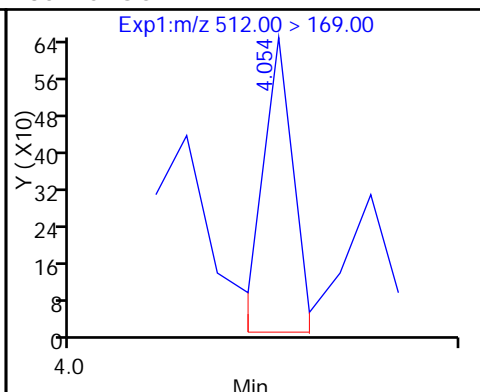




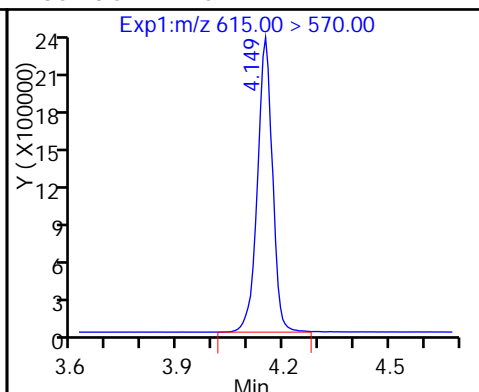
D 34 d-N-MeFOSA-M



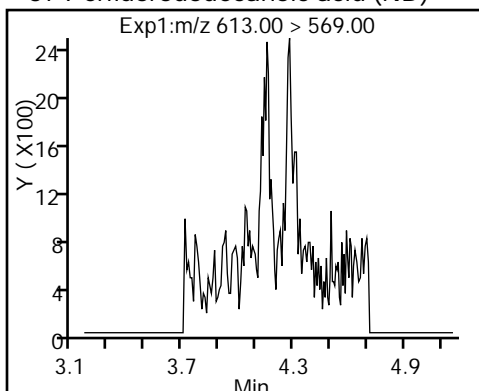
35 MeFOSA



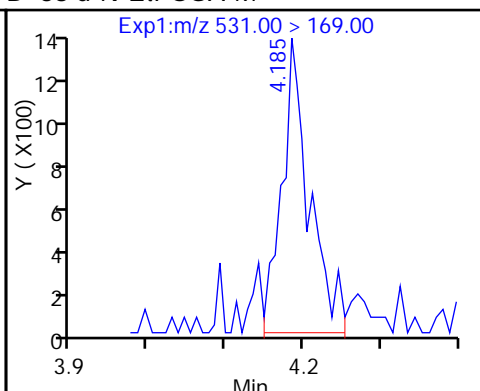
D 36 13C2 PFDaA



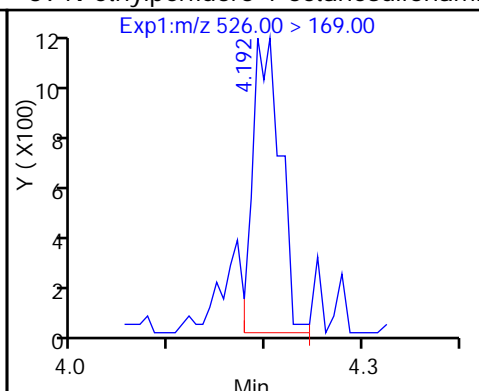
37 Perfluorododecanoic acid (ND)



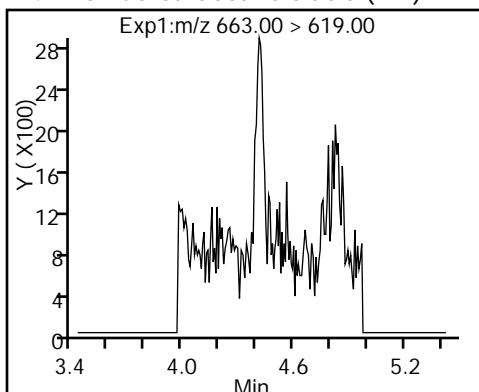
D 38 d-N-EtFOSA-M



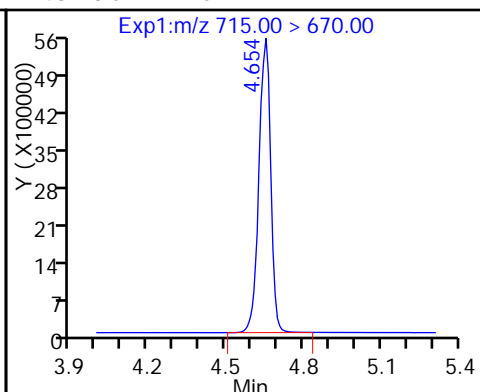
39 N-ethylperfluoro-1-octanesulfonami



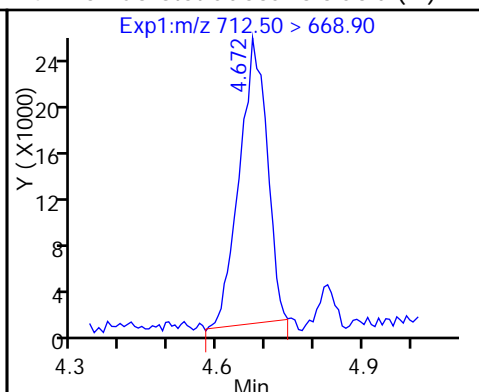
41 Perfluorotridecanoic acid (ND)



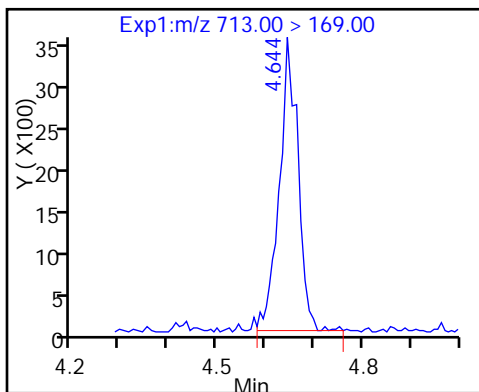
D 43 13C2-PFTeDA



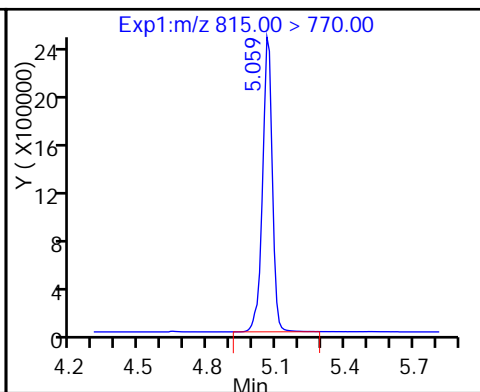
42 Perfluorotetradecanoic acid (M)



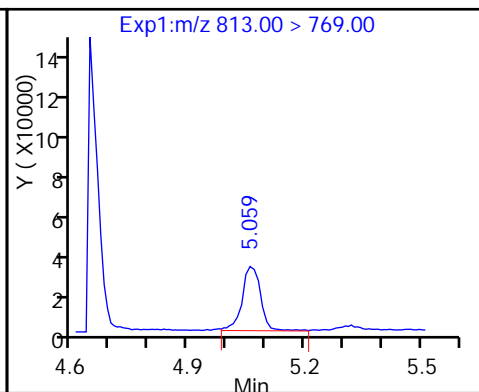
42 Perfluorotetradecanoic acid



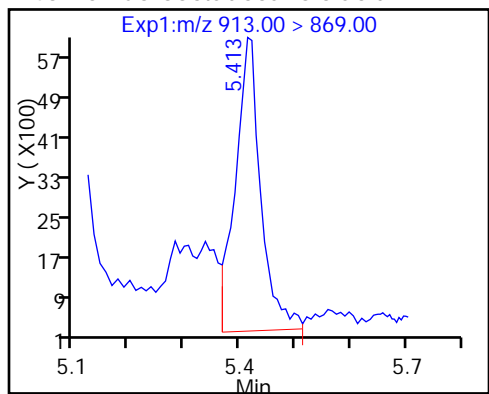
D 44 13C2-PFHxDA



45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

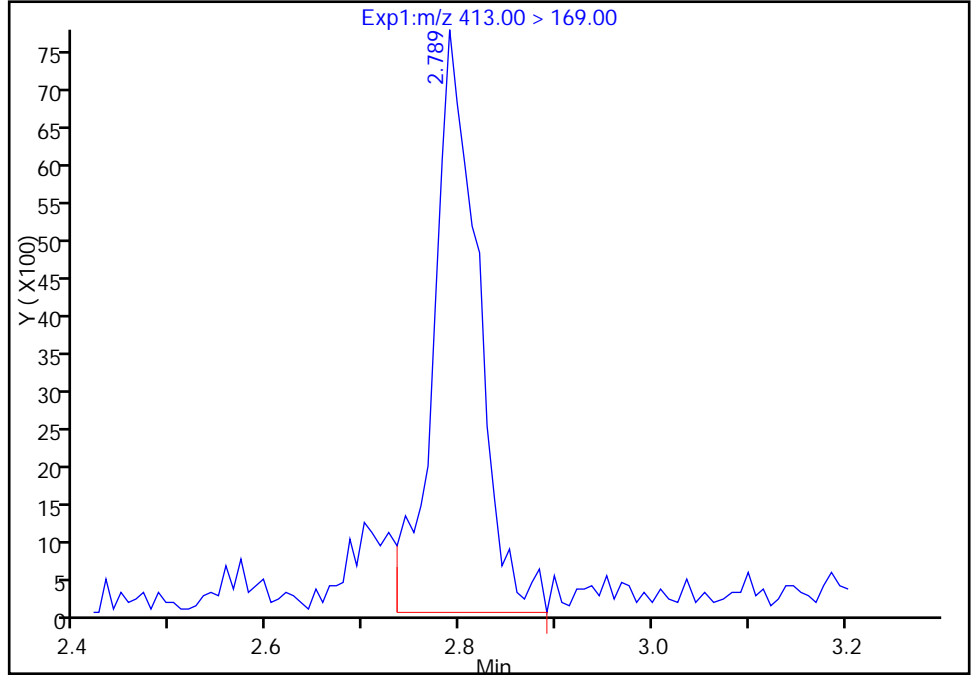
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_041.d
Injection Date: 10-Mar-2017 22:30:01 Instrument ID: A8_N
Lims ID: MB 320-153501/1-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

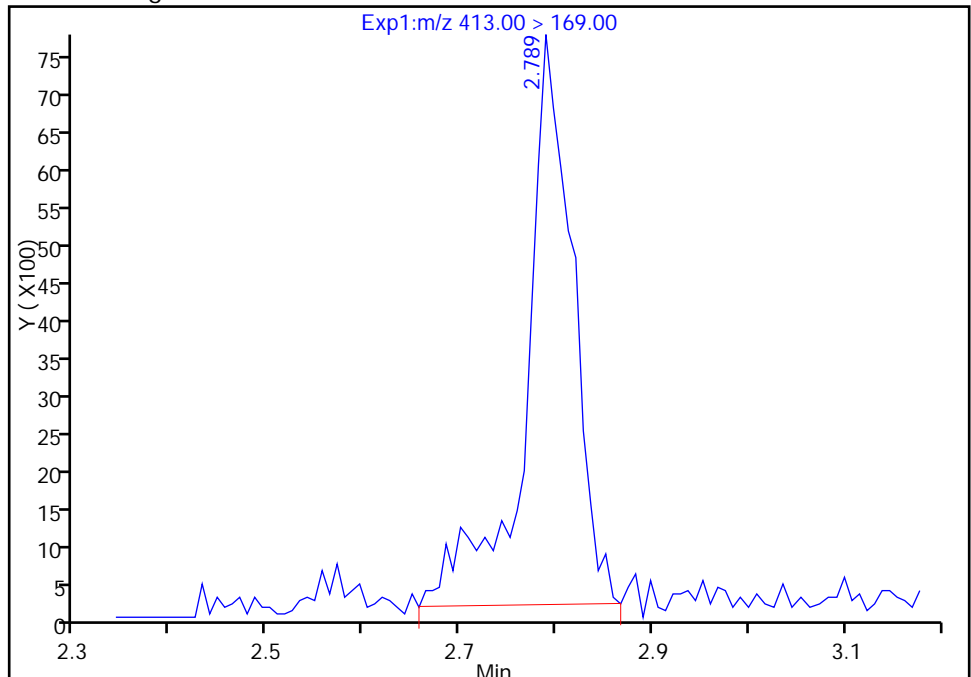
RT: 2.79
Area: 24715
Amount: 0.162140
Amount Units: ng/ml

Processing Integration Results



RT: 2.79
Area: 25696
Amount: 0.162140
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:21:52
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

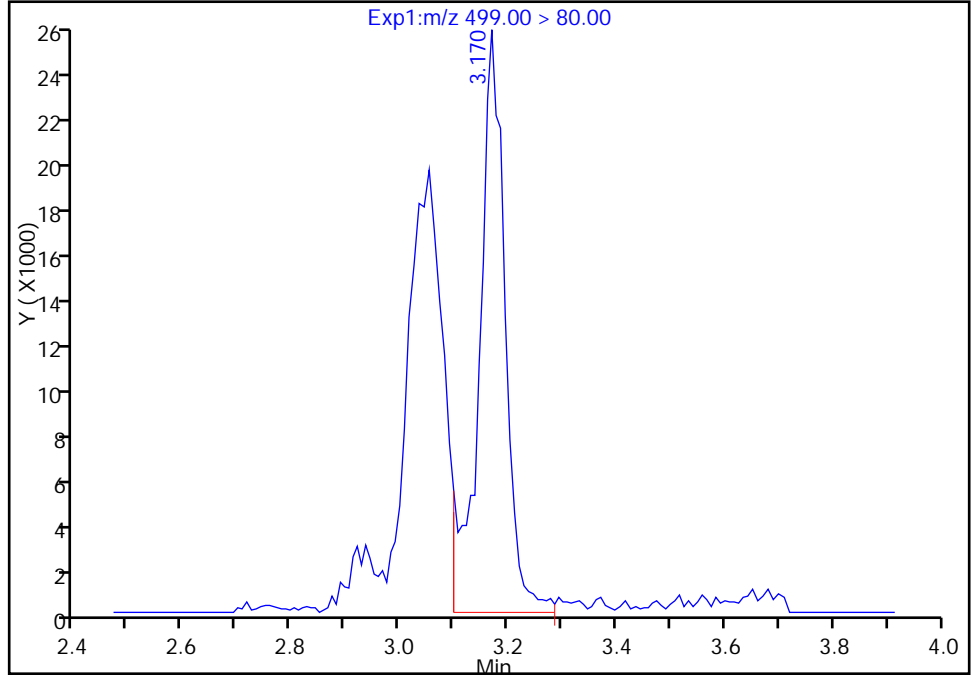
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Injection Date: 10-Mar-2017 22:30:01 Instrument ID: A8_N
Lims ID: MB 320-153501/1-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

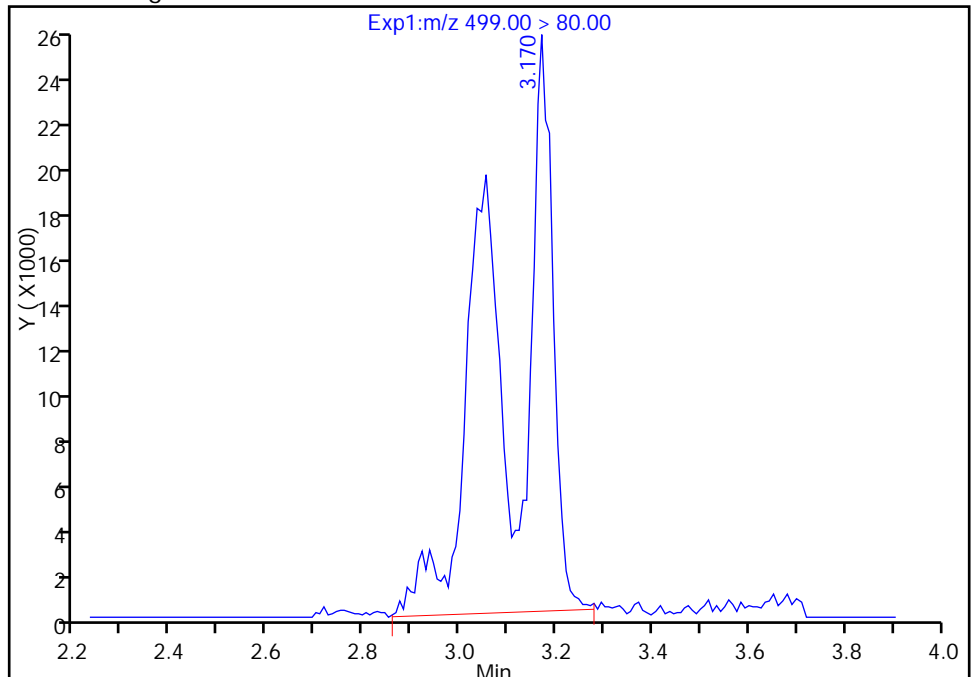
RT: 3.17
Area: 83243
Amount: 0.300939
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 172878
Amount: 0.624987
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:22:00
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

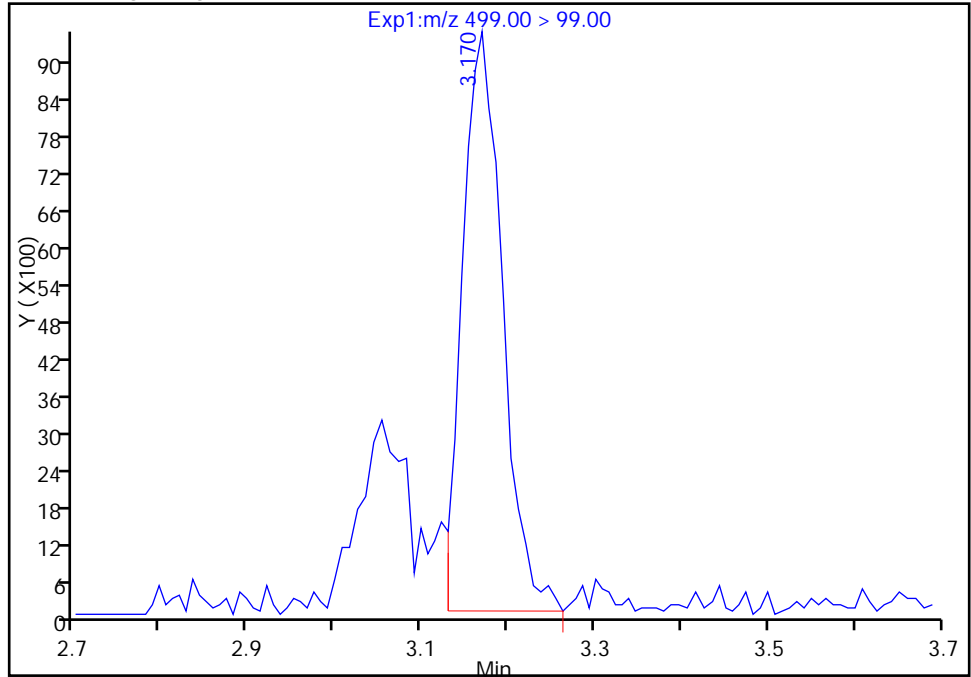
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_041.d
Injection Date: 10-Mar-2017 22:30:01 Instrument ID: A8_N
Lims ID: MB 320-153501/1-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 31 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

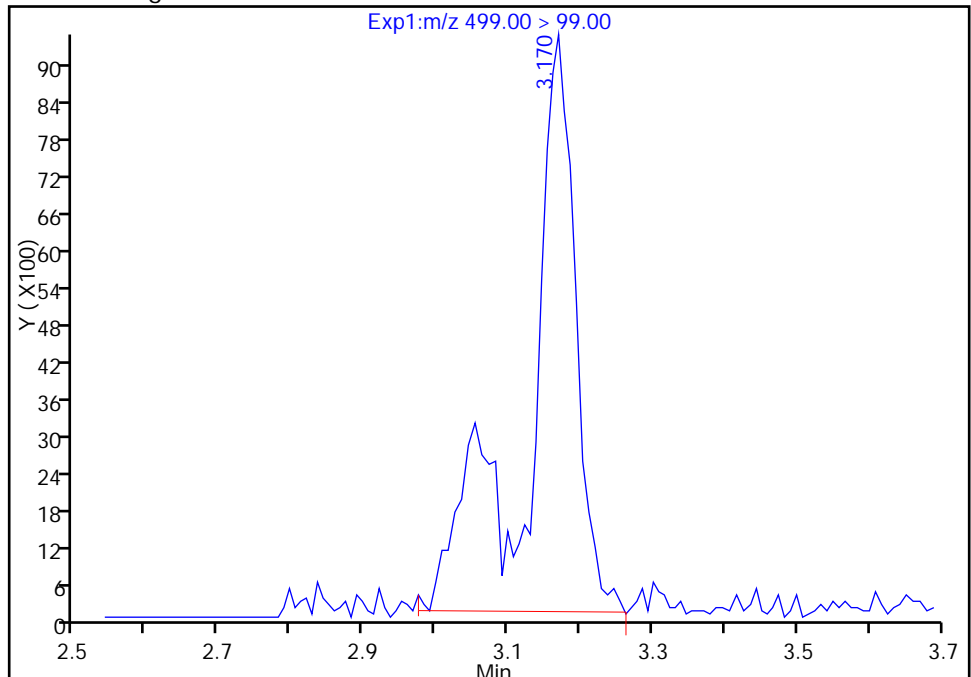
RT: 3.17
Area: 29888
Amount: 0.300939
Amount Units: ng/ml

Processing Integration Results



RT: 3.17
Area: 43055
Amount: 0.624987
Amount Units: ng/ml

Manual Integration Results



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.: 320-26273-1
 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	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	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

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

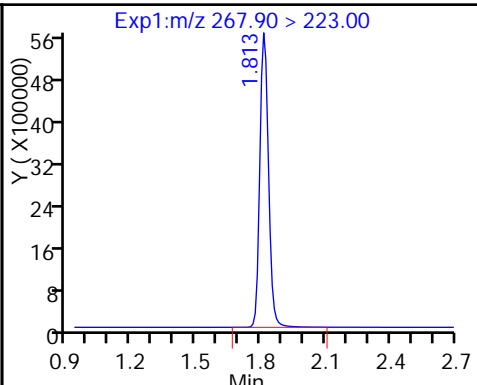
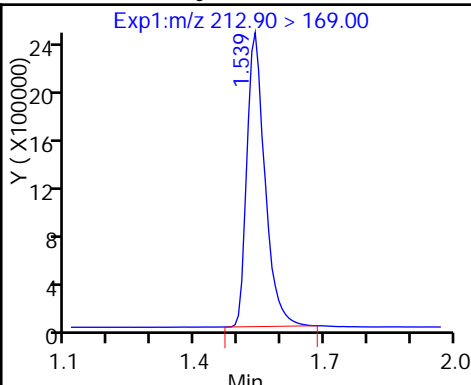
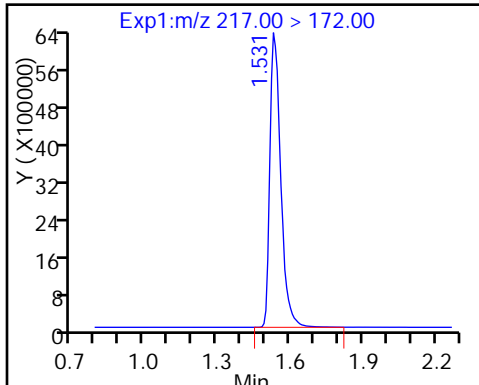
Method: A8_N

Limit Group: LC PFC_DOD ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

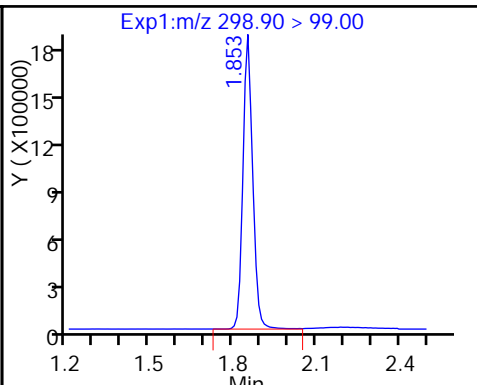
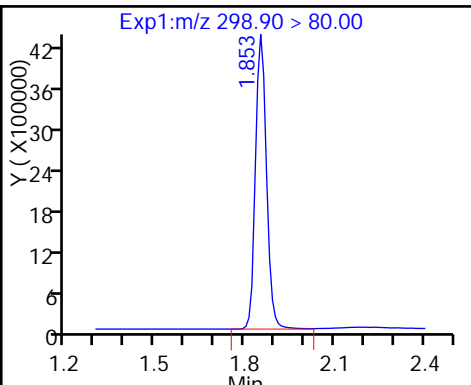
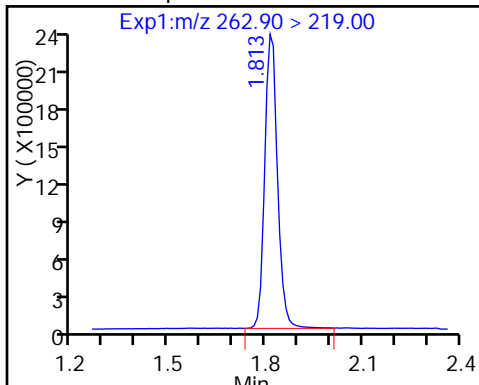
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

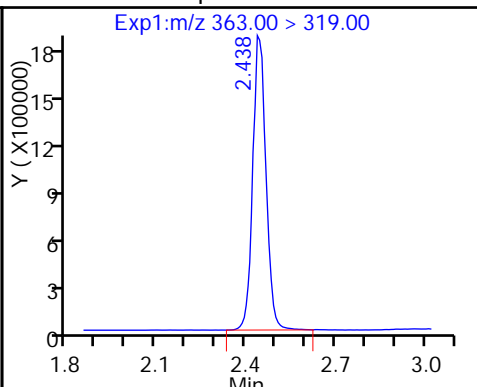
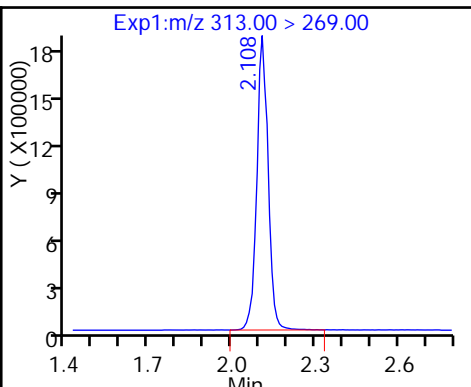
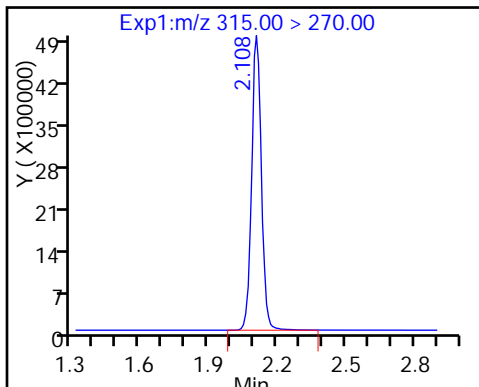
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

6 Perfluorohexanoic acid

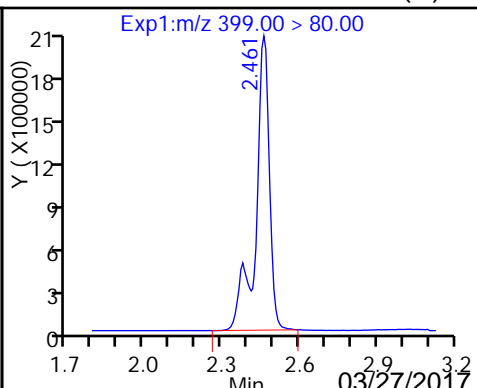
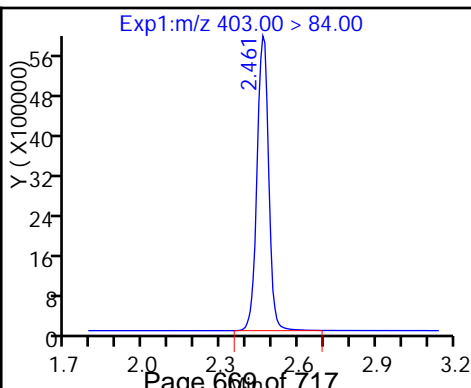
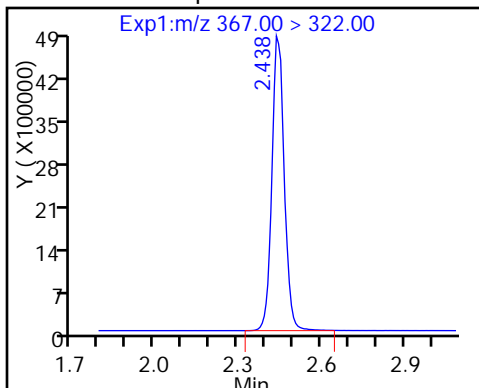
10 Perfluoroheptanoic acid

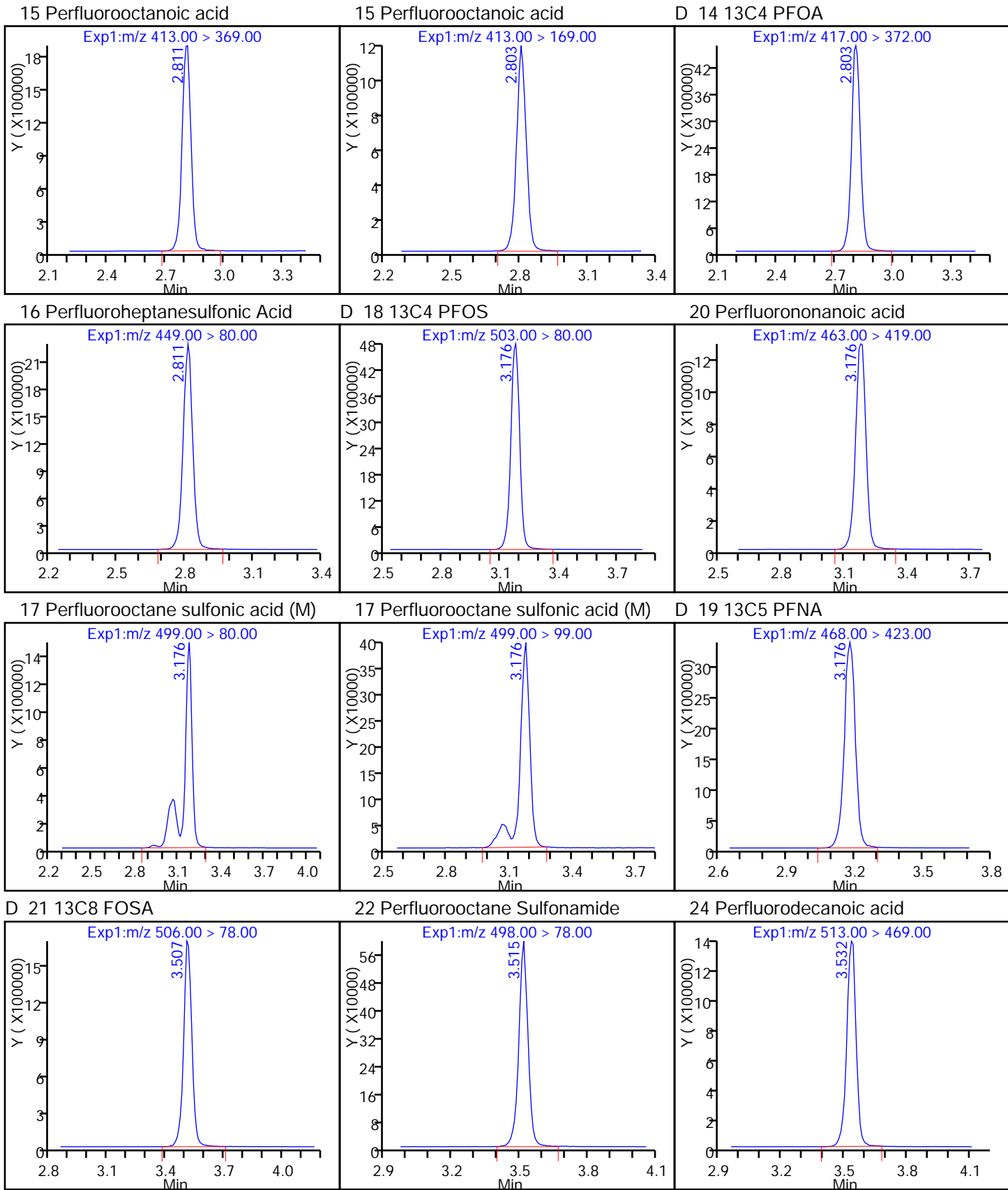


D 9 13C4-PFHpA

D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid (M)

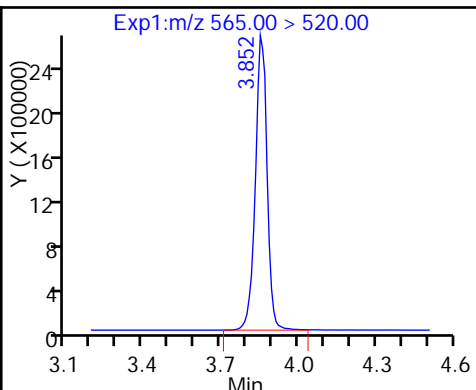
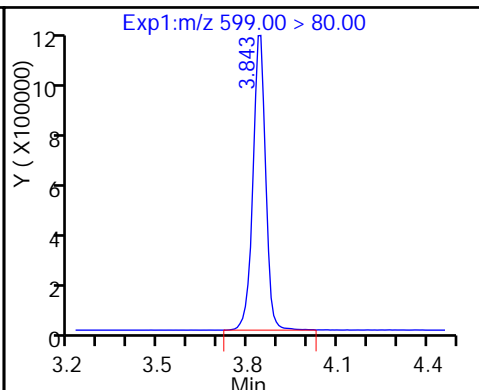
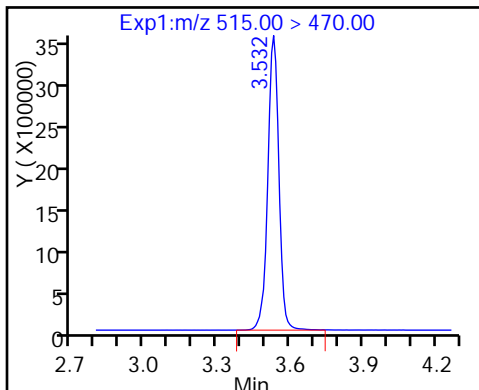




D 23 13C2 PFDA

29 Perfluorodecane Sulfonic acid

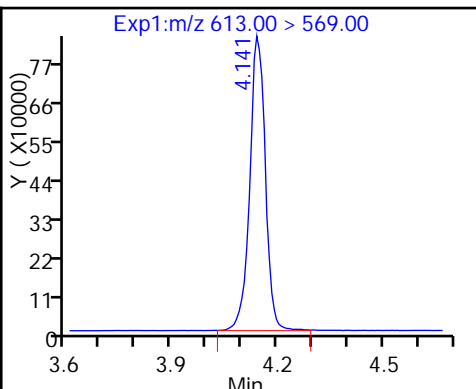
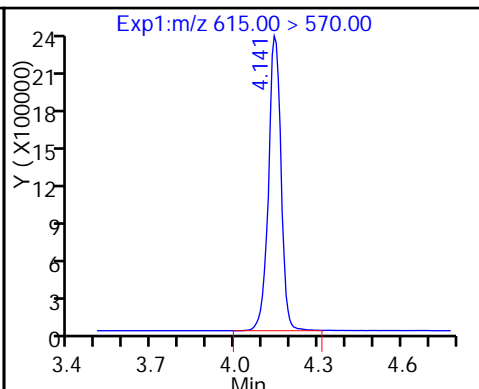
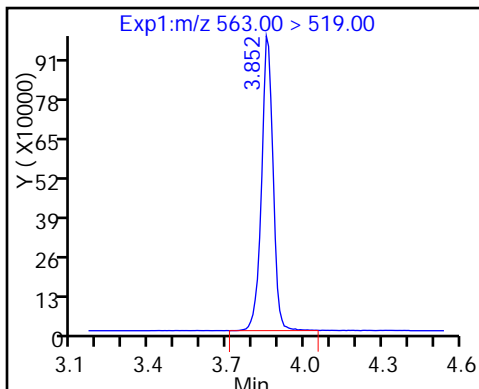
D 30 13C2 PFUnA



31 Perfluoroundecanoic acid

D 36 13C2 PFDaA

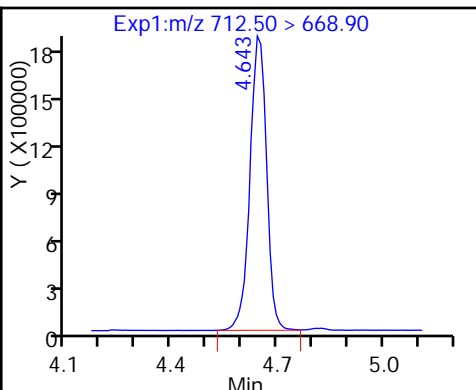
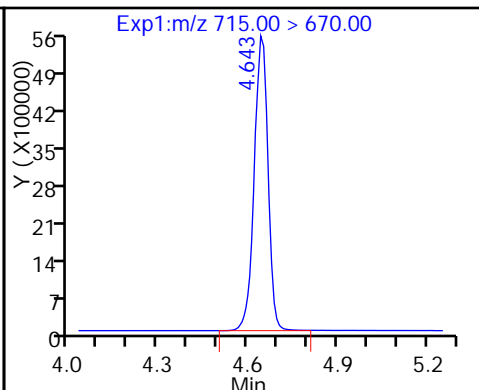
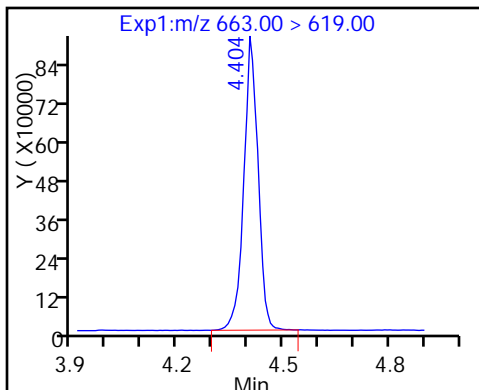
37 Perfluorododecanoic acid



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDA

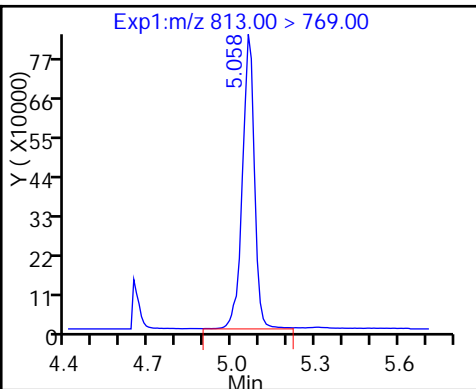
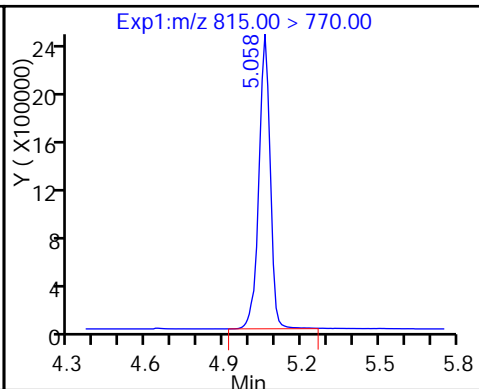
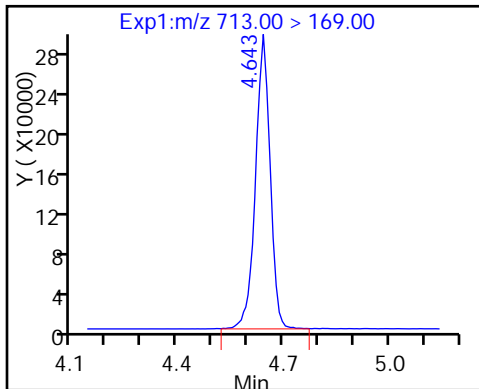
42 Perfluorotetradecanoic acid



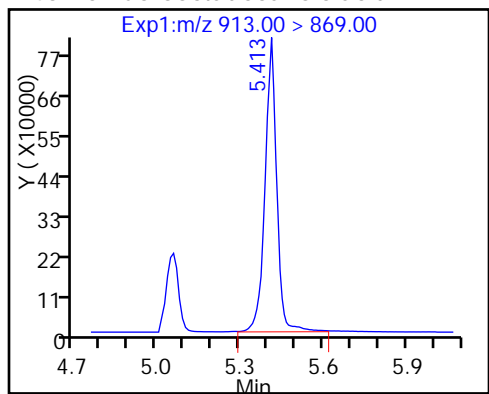
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

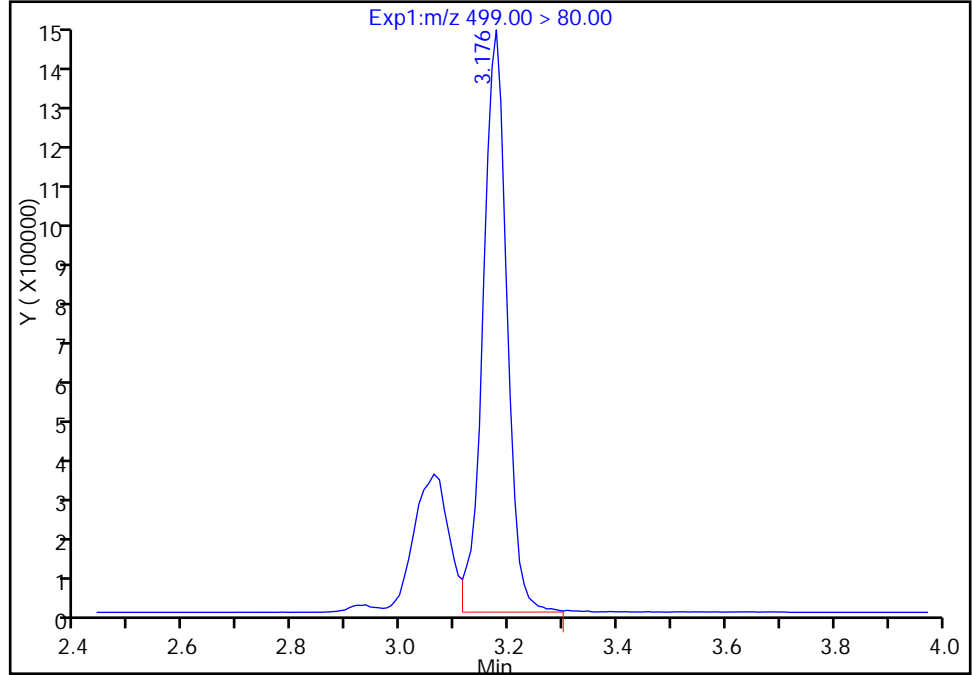
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Injection Date: 10-Mar-2017 22:37:31 Instrument ID: A8_N
Lims ID: LCS 320-153501/2-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

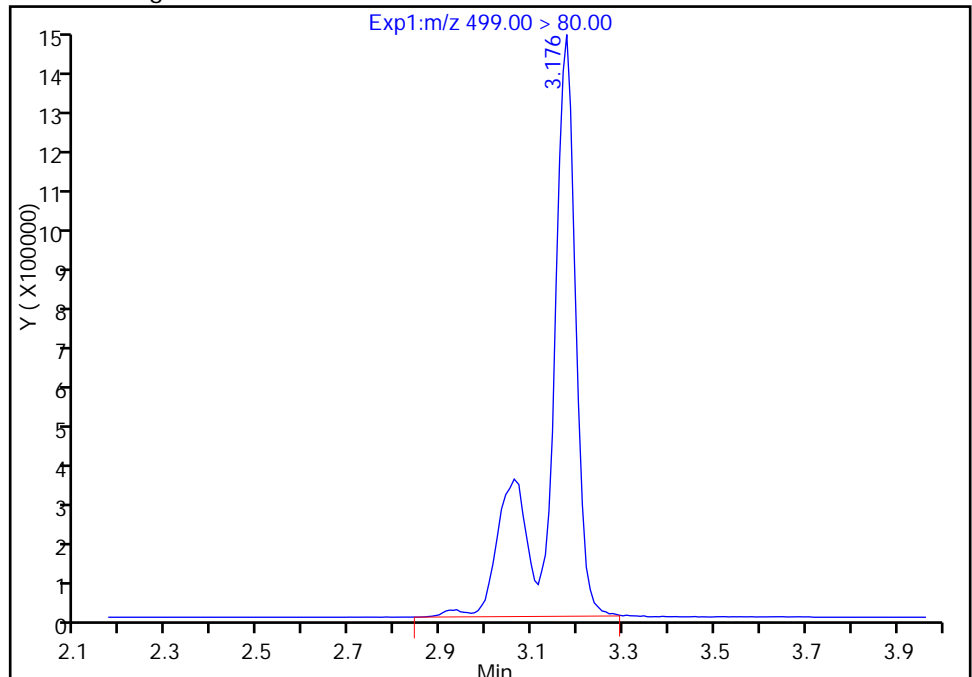
RT: 3.18
Area: 4379310
Amount: 13.973152
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 5926572
Amount: 18.910032
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:25:16
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

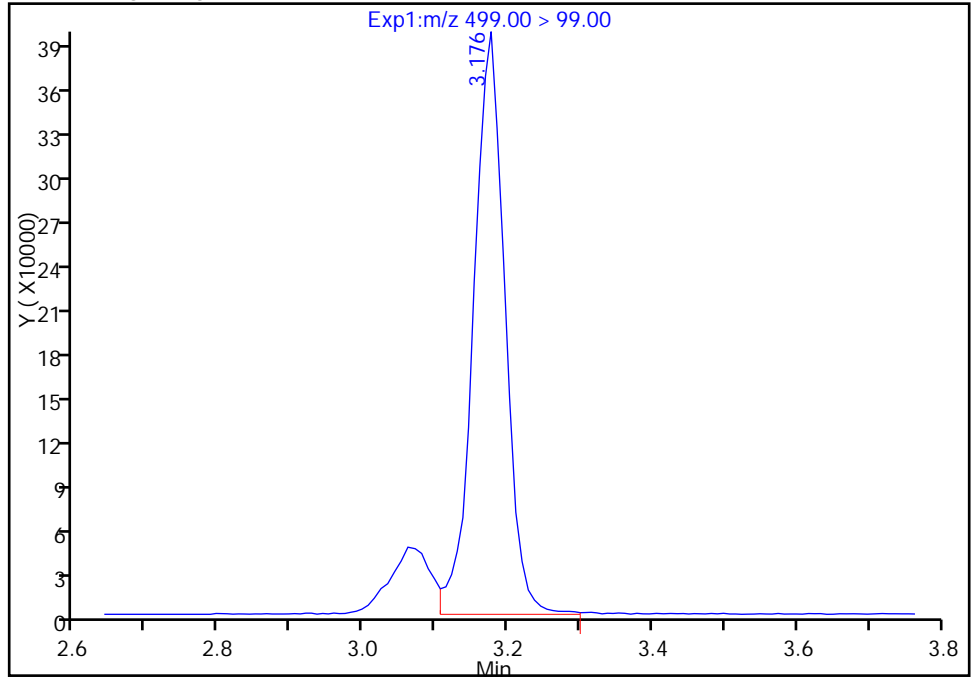
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Lims ID: LCS 320-153501/2-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 32 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

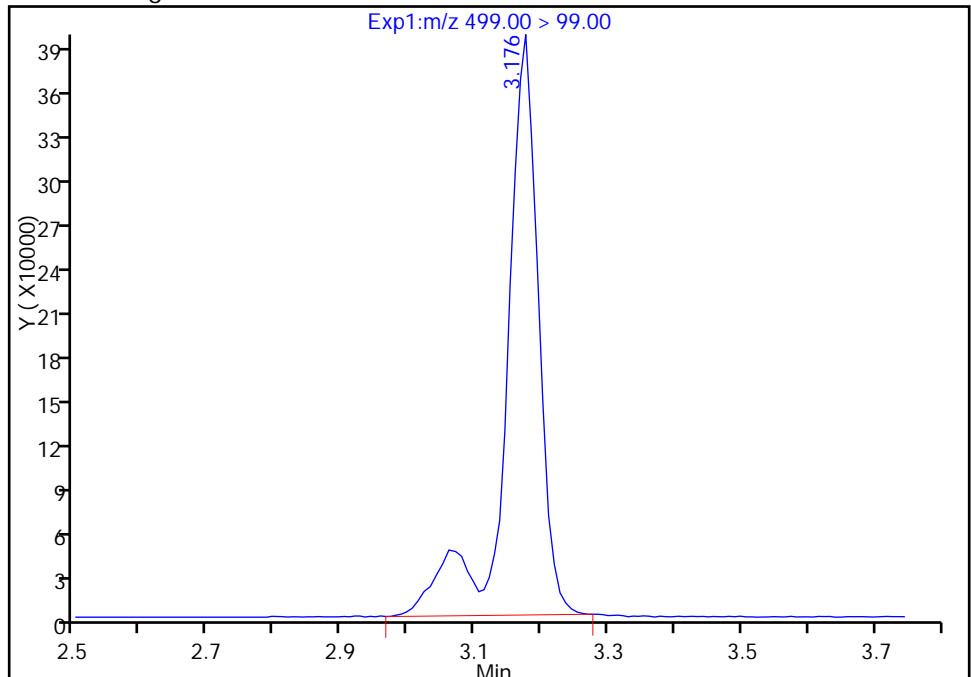
RT: 3.18
Area: 1180996
Amount: 13.973152
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 1331810
Amount: 18.910032
Amount Units: ng/ml

Manual Integration Results



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.: 320-26273-1
 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	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	6332019	20.3		102	55984	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.852	1.861	-0.009	11124260	20.8		118		
	298.90 > 99.00	1.842	1.861	-0.019	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	5238543	20.6		103	105505	
10 Perfluoroheptanoic acid	363.00 > 319.00	2.444	2.449	-0.005	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	399.00 > 80.00	2.460	2.472	-0.012	6983927	18.2		99.9		M
15 Perfluorooctanoic acid	413.00 > 369.00	2.802	2.814	-0.012	5787873	19.8		98.9	48875	M
	413.00 > 169.00	2.802	2.814	-0.012	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	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

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

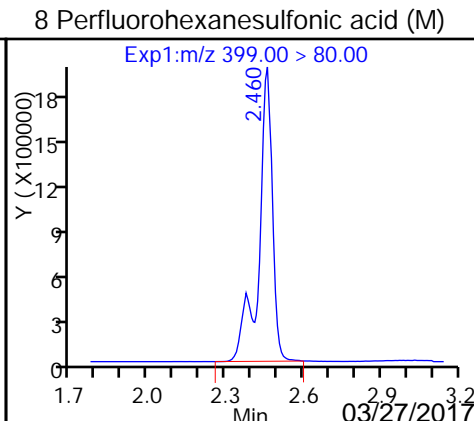
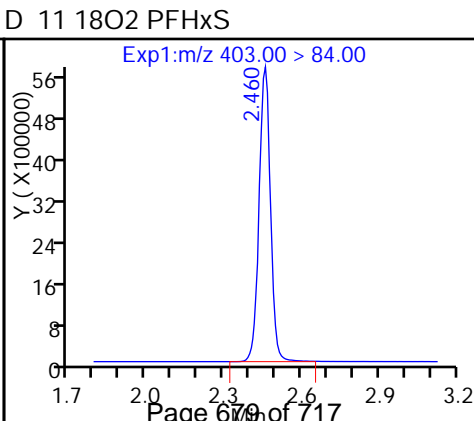
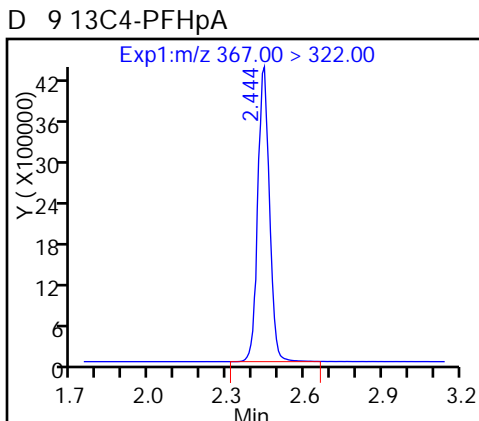
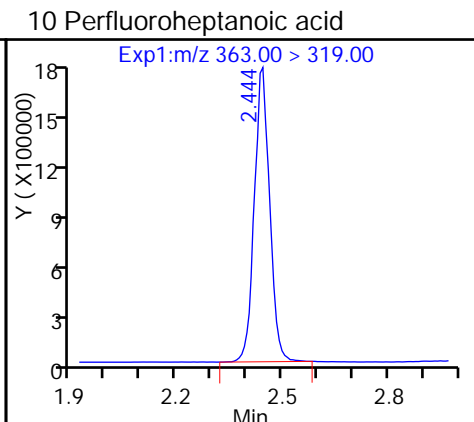
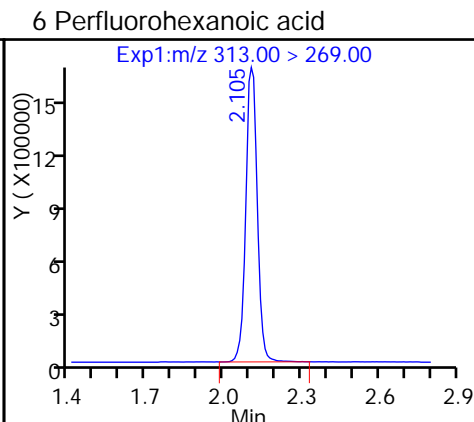
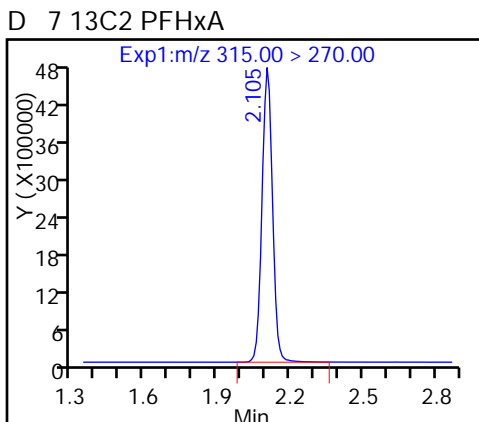
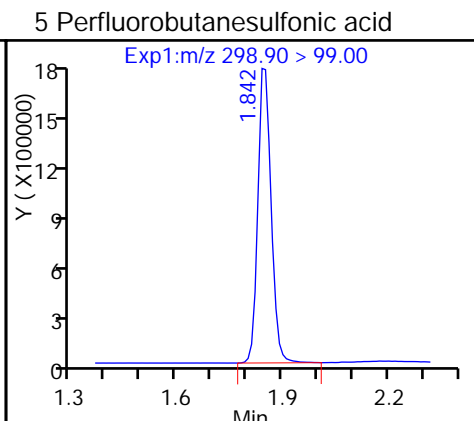
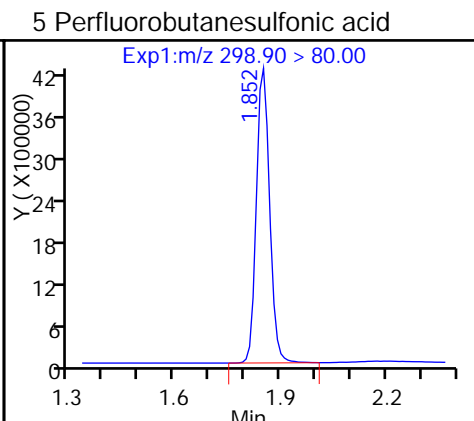
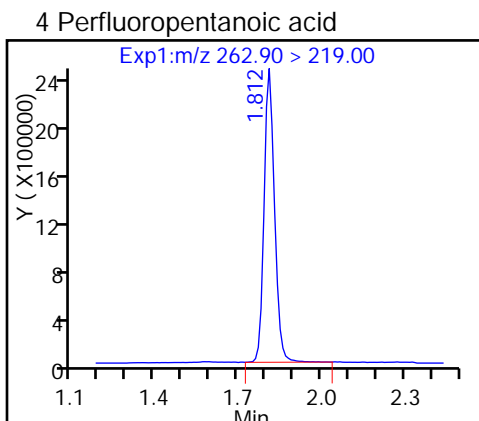
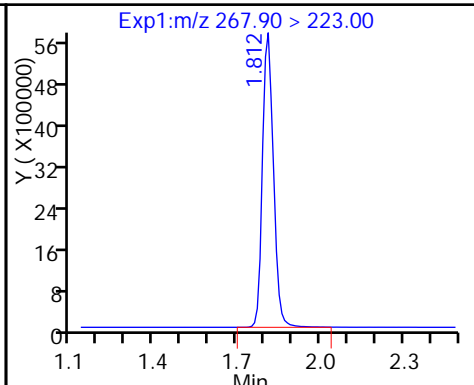
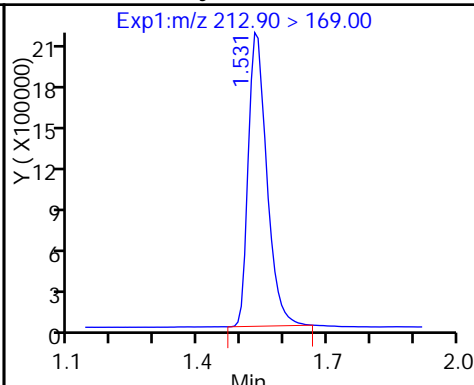
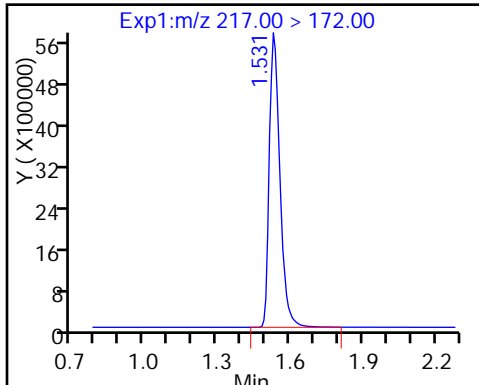
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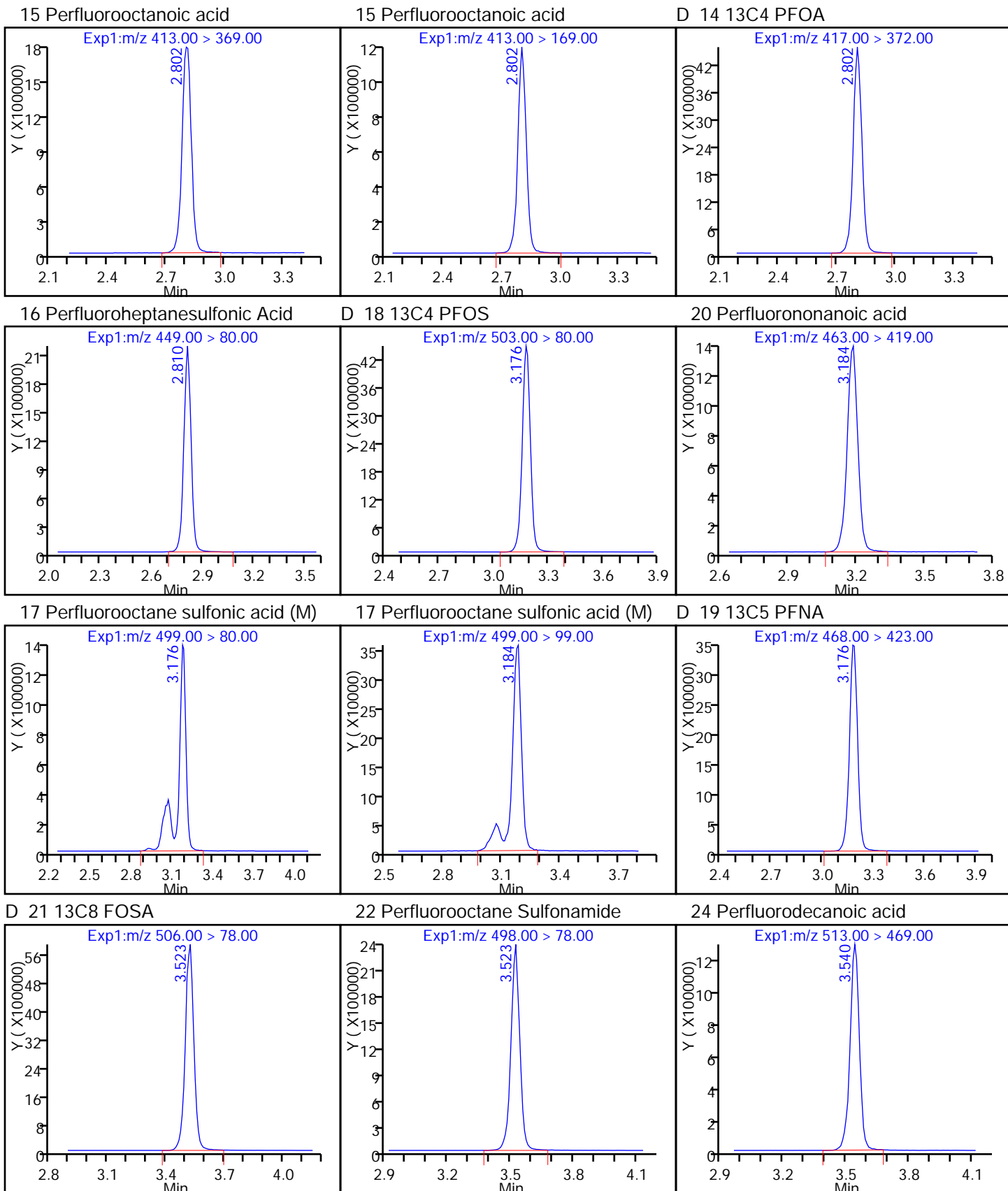
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D 1 13C4 PFBA

2 Perfluorobutyric acid

D 3 13C5-PFPeA

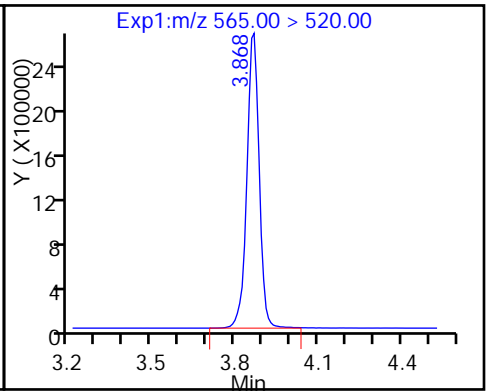
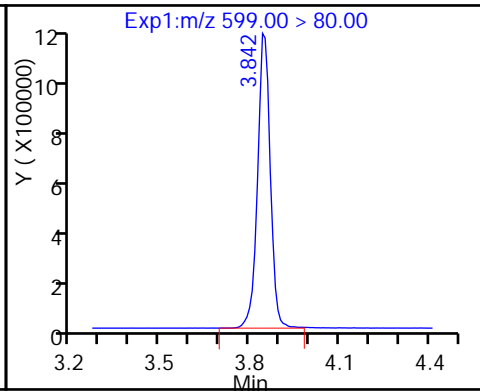
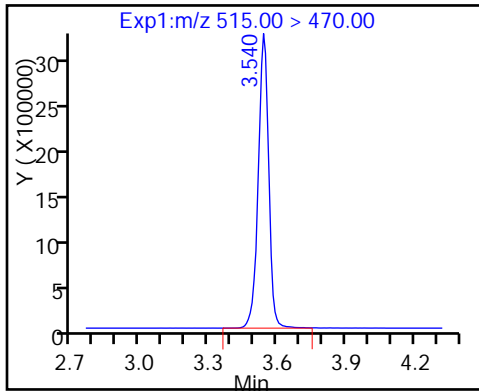




D 23 13C2 PFDA

29 Perfluorodecane Sulfonic acid

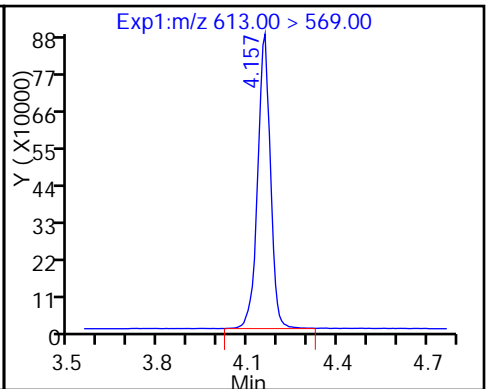
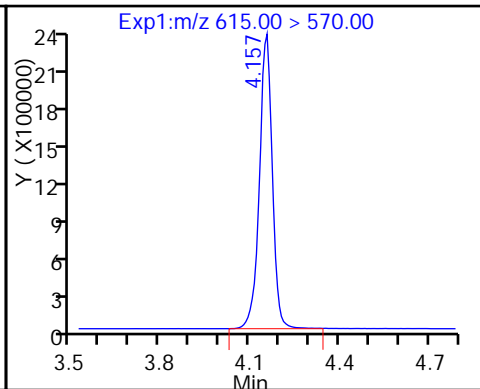
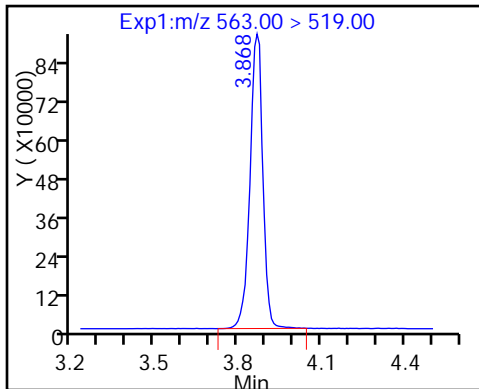
D 30 13C2 PFUa



31 Perfluoroundecanoic acid

D 36 13C2 PFDa

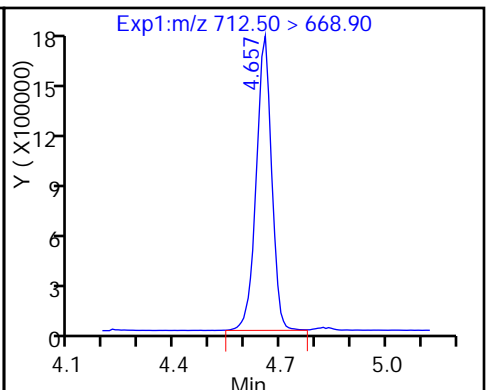
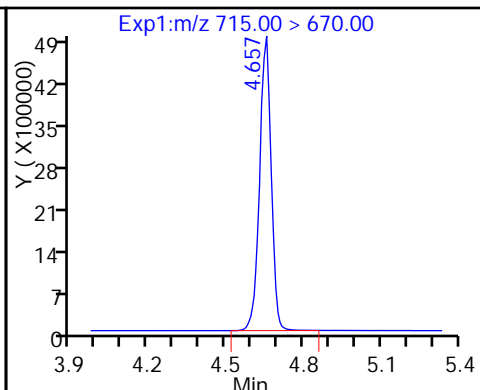
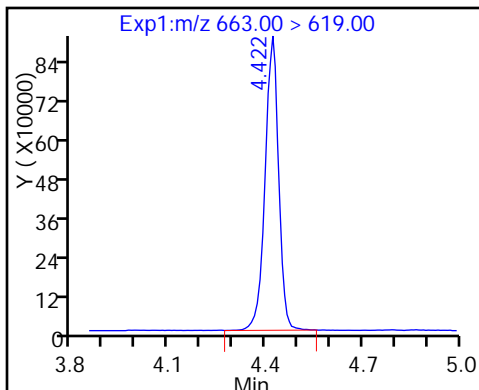
37 Perfluorododecanoic acid



41 Perfluorotridecanoic acid

D 43 13C2-PFTeDa

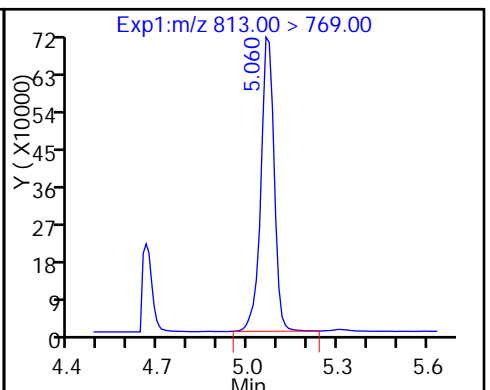
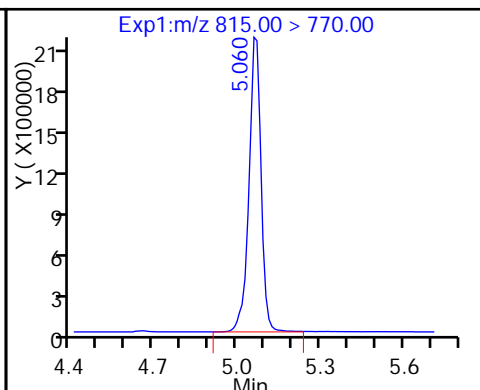
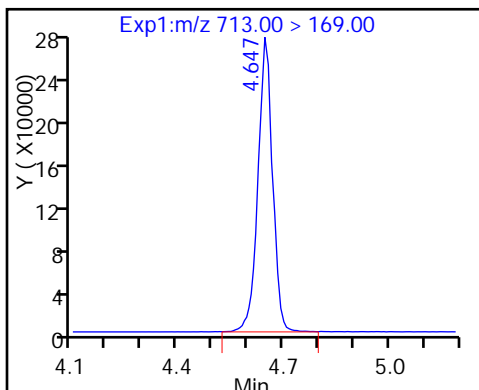
42 Perfluorotetradecanoic acid



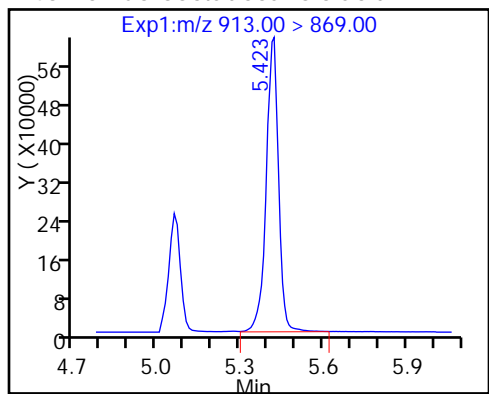
42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDa

45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



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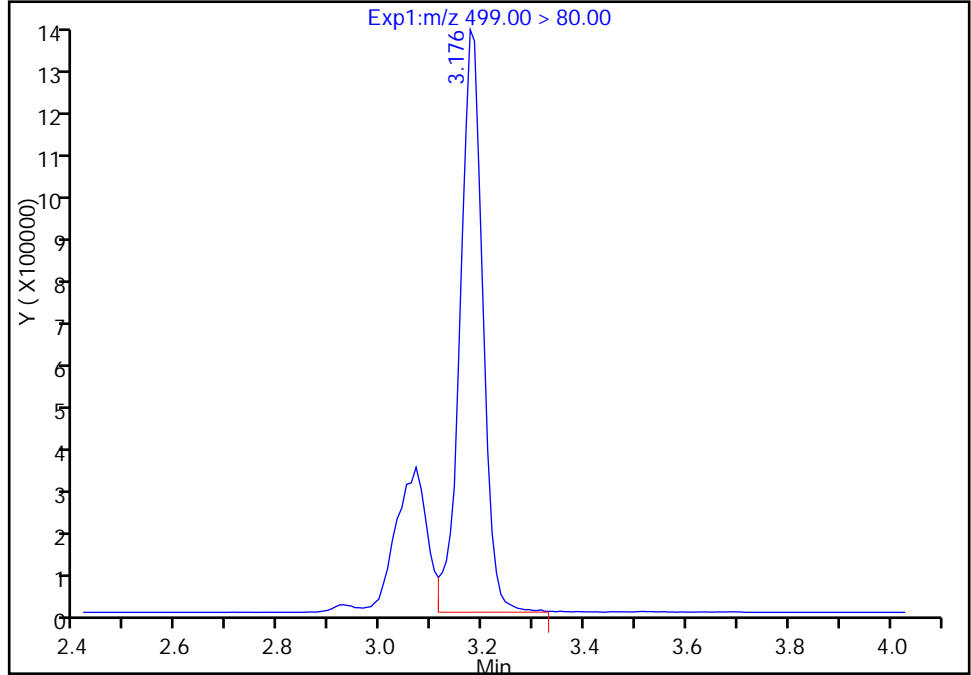
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_043.d
Injection Date: 10-Mar-2017 22:45:01 Instrument ID: A8_N
Lims ID: LCSD 320-153501/3-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

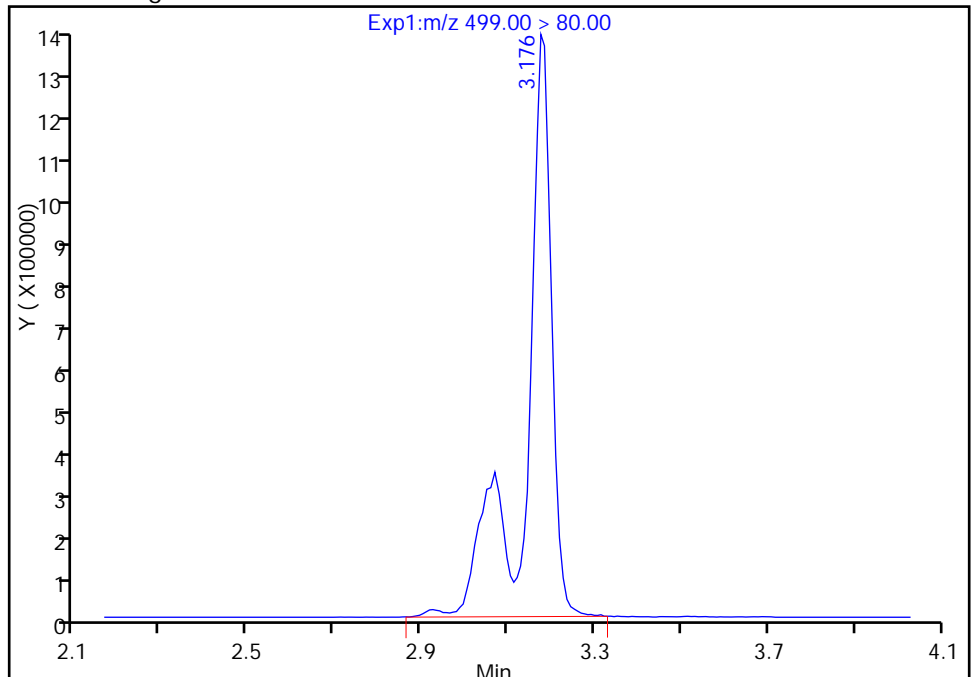
RT: 3.18
Area: 4272631
Amount: 14.634251
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 5758713
Amount: 19.724252
Amount Units: ng/ml

Manual Integration Results



Reviewer: changnoit, 13-Mar-2017 11:26:02
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

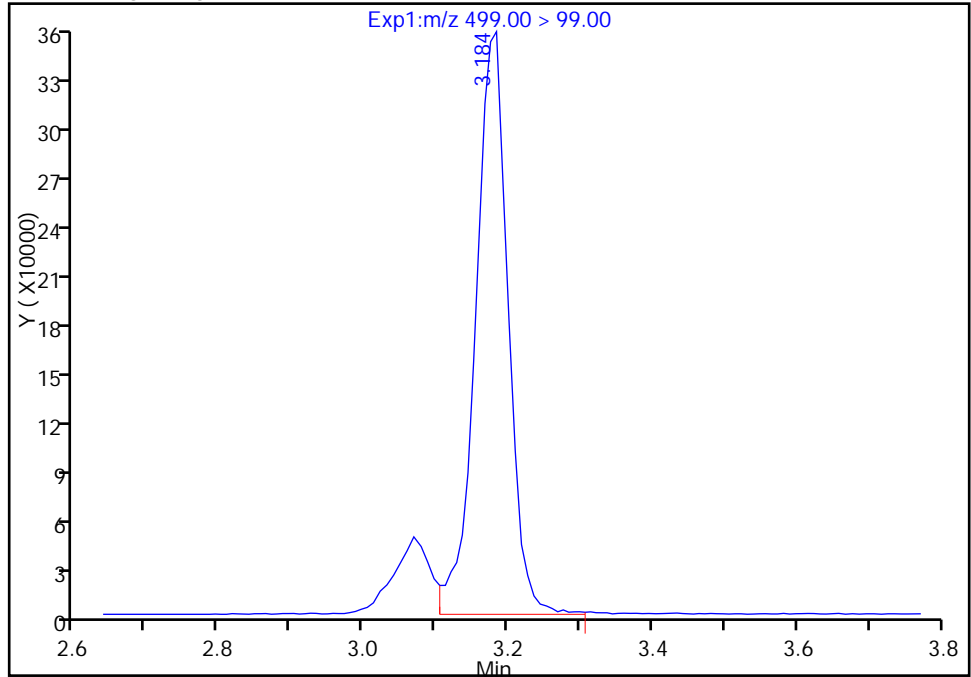
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b\2017.03.10B_043.d
Injection Date: 10-Mar-2017 22:45:01 Instrument ID: A8_N
Lims ID: LCSD 320-153501/3-A
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 33 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC_DOD ICAL
Column: Detector EXP1

17 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

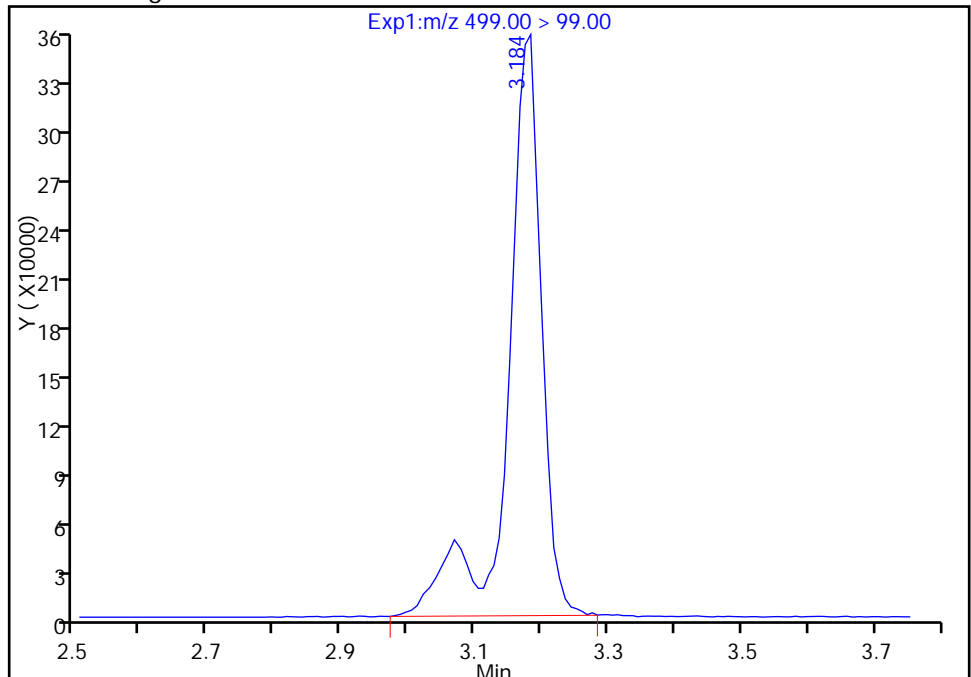
RT: 3.18
Area: 1118078
Amount: 14.634251
Amount Units: ng/ml

Processing Integration Results



RT: 3.18
Area: 1264244
Amount: 19.724252
Amount Units: ng/ml

Manual Integration Results



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.: 320-26273-1

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.: 320-26273-1

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)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

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)
ZZZZZ		03/10/2017 22:52	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 23:00	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 23:07	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/10/2017 23:15	1		GeminiC18 3x100 3(mm)
320-26273-1		03/10/2017 23:22	1	2017.03.10B_048.d	GeminiC18 3x100 3(mm)
320-26273-2		03/10/2017 23:30	1	2017.03.10B_049.d	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)
320-26273-4		03/10/2017 23:52	1	2017.03.10B_052.d	GeminiC18 3x100 3(mm)
320-26273-5		03/11/2017 00:00	1	2017.03.10B_053.d	GeminiC18 3x100 3(mm)
320-26273-6		03/11/2017 00:07	1	2017.03.10B_054.d	GeminiC18 3x100 3(mm)
CCV 320-154459/34		03/11/2017 00:15	1	2017.03.10B_055.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

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)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

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)
ZZZZZ		03/13/2017 17:16	5		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:23	10		GeminiC18 3x100 3(mm)
ZZZZZ		03/13/2017 17:31	1		GeminiC18 3x100 3(mm)
320-26273-1 DL		03/13/2017 17:38	5	2017.03.13A_051.d	GeminiC18 3x100 3(mm)
320-26273-3		03/13/2017 17:46	1	2017.03.13A_052.d	GeminiC18 3x100 3(mm)
CCV 320-154808/17		03/13/2017 17:53	1	2017.03.13A_053.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

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	LCPFCSU 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
320-26273-C-1	MEAFF-4AMW03-0317	3535, 537 (Modified)	T	300.49 g	27.49 g	273 mL	0.5 mL	25 uL	
320-26273-C-2	MEAFF-MRD-0630-0317	3535, 537 (Modified)	T	286.29 g	28.76 g	257.5 mL	0.5 mL	25 uL	
320-26273-C-3	MEAFF-4AMW01-0317	3535, 537 (Modified)	T	300.59 g	28.17 g	272.4 mL	0.5 mL	25 uL	
320-26273-C-4	MEAFF-4CMW01-0317	3535, 537 (Modified)	T	301.57 g	26.44 g	275.1 mL	0.5 mL	25 uL	
320-26273-C-5	MEAFF-4CMW03-0317	3535, 537 (Modified)	T	298.17 g	26.73 g	271.4 mL	0.5 mL	25 uL	
320-26273-C-6	MEAFF-FD05-0317	3535, 537 (Modified)	T	302.03 g	26.22 g	275.8 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

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

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

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

HPLC/LCMS Data Review Checklist

Job Number(s): 320-26269, 320-26279

Work List ID(s): 10721

Extraction Batch: 100501

Analysis Batch(es): 104409

Delivery Rank: 4

Due Date: 3/6/17, 3/7/17

A. Calibration/Instrument Run QC	1 st Level	2 nd Level	N/A
1. ICAL locked in Chrom and TALS? ICAL Batch# <u>102681</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2. ICAL, CCV Frequency & Criteria met.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
• RF _{average} criteria appropriate for the method.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
• Linear Regression criteria appropriate if required ($r \geq 0.995$).	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
• Quadratic fit criteria appropriate if required ($r^2 \geq 0.990$).		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• For Linear Regression and Quadratic fit – Does the y-intercept support ½ the reporting limit as described in CA-Q-S-005?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
• All curve points show calculated concentrations.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Peaks correctly ID'd by data system.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5. Tune check frequency & criteria met and Tune check report attached.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
B. QA/QC			
1. Are all QC samples properly linked in TALS?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Method blank, LCS/LCSD and MS/SD frequencies met.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3. LCS/LCSD and MB data are within control limits. If not, NCM is present.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4. Are MS/MSD recoveries and RPD within control limits?			<input checked="" type="checkbox"/>
5. Holding Times were met for prep and analytical.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6. IS/Surrogate recoveries meet criteria or properly noted.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
C. Sample Analysis			
1. Was correct analysis performed and were project instructions followed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2. If required, are compounds within RT windows?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3. If required, are positive hits confirmed and >40% RPD flagged?			<input checked="" type="checkbox"/>
4. Manual Integrations reviewed and appropriate.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5. All analytes correctly reported. (Primary, secondary, acceptable status)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6. Correct reporting limits used. (based on client request, prep factors, and dilutions)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
D. Documentation			
1. Are all non-conformances documented/attached? NCM#	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Do results make sense (e.g. dilutions, etc.)?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Have all flags been reviewed for appropriateness?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4. For level 3 and 4 reports, have forms and raw data been reviewed?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5. Was QC Checker run for this job?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

*Upon completion of this checklist, the reviewer must scan and attach the checklist to the TALS job.

1st Level (Analyst): Time. GDC

Date: 3/13/17, 3/14/17

2nd Level Reviewer: Murray

Date: 3/16/2017

mem # 80604, 79642.

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 10MAR2017C_PFC
Instrument Name: A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170310-40721.b
QC Batching: Disabled

Worklist Number: 40721
Chrom Method: A8_N
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 320-154209/3-A		# 4 LCSD 320-154209/3-A	# 4 LCSD 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 320-153962/2-A		#12 LCS 320-153962/2-A	#12 LCS 320-153962/2-A	
#13 LCSD 320-153962/3-A		#13 LCSD 320-153962/3-A	#13 LCSD 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 320-153501/2-A	#18 320-26041-A-5-A	#18 320-26041-A-5-A	
#19 CCV L5	#22 LCSD 320-153501/3-A	#19 CCV L5	#19 CCV L5	
#20 MB 320-153501/1-A	#23 320-26263-A-1-A			
#21 LCS	#24 320-26263-A-2-A			
320-153501/2-A	#25 320-26263-A-3-A			
#22 LCSD	#26 320-26263-A-4-A			
320-153501/3-A	#27 320-26273-C-1-A			
#23 320-26263-A-1-A	#28 320-26273-C-2-A			#30 CCV L4
#24 320-26263-A-2-A	#29 320-26273-C-3-A			
#25 320-26263-A-3-A	#30 CCV L4			
#26 320-26263-A-4-A	#31 320-26273-C-4-A	#30 CCV L4	#30 CCV L4	
#27 320-26273-C-1-A	#32 320-26273-C-5-A			#34 CCV L5
#28 320-26273-C-2-A	#33 320-26273-C-6-A			
#29 320-26273-C-3-A	#34 CCV L5			
#30 CCV L4		#34 CCV L5	#34 CCV L5	
#31 320-26273-C-4-A				
#32 320-26273-C-5-A				
#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

Batch Number: 320-153501

Method Code: 320-3535_IVWT-320

AB 3/10/17

AB DL 3/13/17

Batch Open: 3/6/2017 4:19:00PM

Batch End: 3/7/17 14:10

due 3/20

Solid-Phase Extraction (SPE)

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmt FinAmt	Rcvd	PHS		Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
					Adj1	Adj2					
1 MB-320-153501/1 N/A	N/A		250.00 mL 0.5 mL				N/A	N/A	N/A		MB-320-153501-1-A
2 LCS-320-153501/2 N/A	N/A		250.00 mL 0.5 mL				N/A	N/A	N/A		LCS-320-153501-2-A
3 LCS-320-153501/3 N/A	N/A		250.00 mL 0.5 mL				N/A	N/A	N/A		LCS-320-153501-3-A
4 320-26263-A-1 (PFC_IDA_DOD5)	N/A (320-26263-1)	289.50 g 28.35 g	261.2 mL 0.5 mL				3/6/17	23_Days	4	5X	320-26263-A-1-A
5 320-26263-A-2 (PFC_IDA_DOD5)	N/A (320-26263-1)	298.71 g 26.55 g	272.2 mL 0.5 mL				3/6/17	23_Days	4	10X	320-26263-A-2-A
6 320-26263-A-3 (PFC_IDA_DOD5)	N/A (320-26263-1)	296.09 g 27.04 g	269.1 mL 0.5 mL				3/6/17	23_Days	4	RJ	320-26263-A-3-A
7 320-26263-A-4 (PFC_IDA_DOD5)	N/A (320-26263-1)	297.95 g 27.10 g	270.9 mL 0.5 mL				3/6/17	23_Days	4		320-26263-A-4-A
8 320-26273-C-1 (PFC_IDA_DOD5)	N/A (320-26273-1)	300.49 g 27.49 g	273 mL 0.5 mL				3/7/17	23_Days	4	5X	320-26273-C-1-A
9 320-26273-C-2 (PFC_IDA_DOD5)	N/A (320-26273-1)	286.29 g 28.76 g	257.5 mL 0.5 mL				3/7/17	23_Days	4		320-26273-C-2-A
10 320-26273-C-3 (PFC_IDA_DOD5)	N/A (320-26273-1)	300.59 g 28.17 g	272.4 mL 0.5 mL				3/7/17	23_Days	4	RJ	320-26273-C-3-A

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_IWWT-320

Batch End:

Sample ID	PFC_IDA_DOD5	N/A (320-26273-1)	301.57 g		275.1 mL		3/7/17	23_Days	4	Barcode
			26.44 g	0.5 mL	271.4 mL	0.5 mL				
11	320-26273-C-4	N/A (320-26273-1)	298.17 g	0.5 mL	271.4 mL	0.5 mL	3/7/17	23_Days	4	Barcode
12	320-26273-C-5	N/A (320-26273-1)	302.03 g	0.5 mL	275.8 mL	0.5 mL	3/7/17	23_Days	4	Barcode
13	320-26273-C-6	N/A (320-26273-1)	26.22 g							Barcode

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Open: 3/6/2017 4:19:00PM

Batch End:

Batch Number: 320-153501

Method Code: 320-3535_IWWT-320

	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
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPW
Acid Name	NA
Acid ID	NA
Reagent ID	NA
Reagent Lot Number	NA
NaCl ID	NA

(5/5) SUPR Reg.

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Open: 3/6/2017 4:19:00PM

Batch End:

Batch Number: 320-153501

Method Code: 320-3535_IVWT-320

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)

Analyst: Reed, Jonathan E

Batch Number: 320-153501

Method Code: 320-3535_IVWT-320

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	JRM 23/06/17	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)

Analyst: Reed, Jonathan E

Batch Number: 320-153501

Method Code: 320-3535_IVWT-320

Batch Open: 3/6/2017 4:19:00PM

Batch End:

Reagent	Other Reagents:	Amount/Units	Lot#:

Preparation Batch Number(s): 320-15350 Test: ⁰⁸ ~~PPA~~ 3535-ATC
 Earliest Holding Time: 3/08/17

Sample List Tab		1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method		/	✓
All necessary NCMs filed (including holding time)		/	✓
Method/sample/login/QAS checked and correct		/	✓
Worksheet Tab		1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved		NA	NA
Weights in anticipated range and not targeted		/	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)		/	✓
The pH is transcribed correctly in TALS		NA	U
All additional information transcribed into TALS is correct and raw data is attached		/	NA
Comments are transcribed correctly in TALS		/	U
Reagents Tab		1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS		/	✓
All spike amounts correct and added to necessary samples and QC		/	U
Batch Information		1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly		/	U
All necessary 'batch information' complete and entered into TALS correctly		/	✓

1st Level Reviewer: CS

Date: 3-7-17

2nd Level Reviewer: [Signature]

Date: 3/07/16

Comments: _____

26319, 26320, A8
 Job No: 26321 Instrument ID & Date: 3-14-17 ICAL Batch: 153408
 Extraction Batch: 154682 Worklist #: 40849, 40851 TALS Batch: 155003, 155025, 155026, 155057

Review Items	-- Level 1 --			Level 2
	Yes	No	N/A	
Initial Calibration				
1. Is ICAL verified and locked in Chrom & TALS?	✓			✓
2. Is ICV properly linked in TALS?	✓			✓
Continuing Calibration				
1. Low-range CCV injected at start of analytical run? CCV injected after every 10 samples and at the end of the analytical run and alternated between Low-range, Mid-range and High-range?	✓			✓
2. If sequence was not after an ICAL was a low and mid range CCV injected at the start of the analytical run?	✓			✓
3. Native compounds and surrogates in control? Low-range within ±50% of true value Mid and High-range within ±30% of true value	✓			✓
4. Internal Standard areas in control? Areas ≥ 50% of average area of the ICAL and 70-140% of the most recent CCV.	✓			✓
Client Samples & QC Sample Results				
1. Were preparation and analysis done within holding times?	✓			✓
2. Are Chromatograms reviewed and spectra verified?	✓			✓
3. Are positive results within calibration range?	✓			✓
4. Dilutions due to target cpds? _____ Dilutions due to non-targets? _____			✓	✓
5. All target compounds in MB < 1/3 RL? (Requires NCM if "no.")	✓			✓
6. Are target constituents in LCS/LCSD within method control limits?	✓			✓
7. Internal Standard areas in control for all samples and QC reported? ±50% from the average area of the ICAL and 70-140% of the most recent CCV	✓			✓
8. Do results (e.g., dilutions/trip blanks) make sense?	✓			✓
9. Are MS/MSD recoveries and RPDs within method control limits?	✓			✓
10. Are all QC samples properly linked in TALS?	✓			✓
11. All manual integrations appropriate and completely documented?	✓			✓
12. Are nonconformances documented as NCMs?	✓			✓
13. Are all Chrom graphics uploaded?	✓			✓

1st Level Reviewer / Date: JRB 3-15-17

2nd Level Reviewer / Date: AWW 3/16/2017

NCM # and Comments: 81004

A8

Instrument ID & Date: 3-6-17 Worklist#: 40511

ICAL Batch: 153407, 153408 Calibration ID number: 28784, 28785

Review Items	-- Level 1 --			Level 2
	Yes	No	N/A	
Initial Calibration				
1. Mass calibration, as needed, verified by full scan of PFC stock standard. All PFC ions used for quantitation are within 0.3 m/z of true mass?	✓			✓
2. Responses increase with increasing concentration?	✓			✓
3. Fit used (circle): <u>Average</u> Linear (1/x ²)Linear <u>Quadratic</u> (6 points minimum)				
4. Meets fit criteria? Intercept ≤ 1/2 RL RSD ≤ 30% for Average R ² ≥ 0.990 for Linear R ² ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".	✓			✓
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be ≤ 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks? (0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2 nd source) ± 30% of true value?	✓			✓
11. Is ICV (2 nd source) internal standards ±50% of average area of the ICAL?	✓			✓
12. ICAL locked in Chrom and uploaded to TALS?	✓			
13. ICAL locked in TALS and scanned?				✓

1st Level Reviewer / Date: JRB 3-6-17

2nd Level Reviewer / Date: MWJ 3/27/17

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	# 3 CCVL
# 2 RINSE	# 2 RINSE	
# 3 CCVL	# 3 CCVL	
# 4 CCV L5	# 4 CCV L5	
# 5 RB	# 5 RB	
# 6 MB 320-154682/1-A	# 6 MB 320-154682/1-A	
# 7 LCS 320-154682/2-A	# 7 LCS 320-154682/2-A	
# 8 320-26319-A-1-A	# 8 320-26319-A-1-A	
# 9 320-26319-A-2-A	# 9 320-26319-A-2-A	
#10 320-26319-A-3-A	#10 320-26319-A-3-A	
#11 320-26319-A-4-A	#11 320-26319-A-4-A	
#12 320-26319-A-5-A	#12 320-26319-A-5-A	
#13 320-26319-A-6-A	#13 320-26319-A-6-A	
#14 320-26319-A-7-A	#14 320-26319-A-7-A	
#15 320-26319-A-8-A	#15 320-26319-A-8-A	
#16 CCV L3	#16 CCV L3	

QC Batch: 2	LC 537 CS ICAL Raw Batch: 155025
#16 CCV L3	#16 CCV L3
#17 RB	#17 RB
#18 320-26319-A-9-A	#18 320-26319-A-9-A
#19 320-26319-A-10-A	#19 320-26319-A-10-A
#20 320-26319-A-11-A	#20 320-26319-A-11-A
#21 320-26319-A-12-A	#21 320-26319-A-12-A
#22 320-26319-A-12-D LMS	#22 320-26319-A-12-D LMS
#23 320-26319-A-12-E LMSD	#23 320-26319-A-12-E LMSD
#24 320-26320-A-1-A	#24 320-26320-A-1-A
#25 320-26320-A-1-D LMS	#25 320-26320-A-1-D LMS
#26 320-26320-A-1-E LMSD	#26 320-26320-A-1-E LMSD
#27 320-26320-A-2-A	#27 320-26320-A-2-A
#28 CCV L5	#28 CCV L5

QC Batch: 3	LC 537 CS ICAL Raw Batch: 155026
#28 CCV L5	#28 CCV L5
#29 RB	#29 RB
#30 320-26320-A-3-A	#30 320-26320-A-3-A
#31 320-26320-A-4-A	#31 320-26320-A-4-A
#32 320-26321-A-1-A	#32 320-26321-A-1-A
#33 320-26321-A-1-D LMS	#33 320-26321-A-1-D LMS
#34 320-26321-A-1-E LMSD	#34 320-26321-A-1-E LMSD
#35 320-26321-A-2-A	#35 320-26321-A-2-A
#36 320-26321-A-3-A	#36 320-26321-A-3-A
#37 320-26321-A-4-A	#37 320-26321-A-4-A
#38 CCV L3	#38 CCV L3
#39 RB	#39 RB

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 15MAR2017A_537

Worklist Number: 40851

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170315-40851.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 155007	LC 537 ICAL Raw Batch: 155008
# 1 RINSE	# 1 RINSE	# 3 CCVL
# 2 RINSE	# 2 RINSE	
# 3 CCVL	# 3 CCVL	
# 4 CCV L5	# 4 CCV L5	
# 5 RB	# 5 RB	
# 6 QC LC537-SU_00033	# 6 QC LC537-SU_00033	
# 7 CCV L3	# 7 CCV L3	

QC Batch: 2	LC 537 CS ICAL Raw Batch: 155057
# 7 CCV L3	# 7 CCV L3
# 8 RB	# 8 RB
# 9 RINSE	# 9 RINSE
#10 CCV L5	#10 CCV L5
#11 320-26319-A-1-A	#11 320-26319-A-1-A
#12 320-26320-A-3-A	#12 320-26320-A-3-A
#13 CCV L3	#13 CCV L3
#14 RB	#14 RB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kolstad, Kate M

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Batch Open: 3/13/2017 2:41:00PM

Batch End: 3/14/17 13:50

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmt FinAmt	PHS Rcvd	Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-154682/1 N/A	N/A		250 mL 1.0 mL				N/A	N/A	N/A	chlorine=ND	MB-320-154682/1-A
2 LCS-320-154682/2 N/A	N/A		250 mL 1.0 mL				N/A	N/A	N/A	chlorine=ND	LCS-320-154682/2-A
3 320-26319-A-1 (537_DuPont)	N/A (320-26319-1)	278.68 g 27.21 g	251.5 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-1-A
4 320-26319-A-2 (537_DuPont)	N/A (320-26319-1)	277.30 g 27.05 g	250.3 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-2-A
5 320-26319-A-3 (537_DuPont)	N/A (320-26319-1)	281.82 g 27.14 g	254.7 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-3-A
6 320-26319-A-4 (537_DuPont)	N/A (320-26319-1)	278.40 g 26.92 g	251.5 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-4-A
7 320-26319-A-5 (537_DuPont)	N/A (320-26319-1)	281.07 g 27.51 g	253.6 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-5-A
8 320-26319-A-6 (537_DuPont)	N/A (320-26319-1)	283.56 g 27.08 g	256.5 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-6-A
9 320-26319-A-7 (537_DuPont)	N/A (320-26319-1)	281.17 g 27.50 g	253.7 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-7-A
10 320-26319-A-8 (537_DuPont)	N/A (320-26319-1)	278.72 g 26.99 g	251.7 mL 1.0 mL	7			3/10/17	8_Days	4	chlorine=ND	320-26319-A-8-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)













Batch Number: 320-154682

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Method Code: 320-537_Prep-320

Batch End:

11	320-26319-A-9 (537_DuPont)	N/A (320-26319-1)	277.96 g	250.3 mL	7			3/10/17	8_Days	4	chlorine=ND	
			27.63 g	1.0 mL								
12	320-26319-A-10 (537_DuPont)	N/A (320-26319-1)	278.68 g	251.6 mL	7			3/10/17	8_Days	4	chlorine=ND	
			27.06 g	1.0 mL								
13	320-26319-A-11 (537_DuPont)	N/A (320-26319-1)	280.12 g	252.6 mL	7			3/10/17	8_Days	4	chlorine=ND	
			27.53 g	1.0 mL								
14	320-26319-A-12 (537_DuPont)	N/A (320-26319-1)	280.60 g	253.7 mL	7			3/10/17	8_Days	4	chlorine=ND	
			26.87 g	1.0 mL								
15	320-26319-A-12-LMS (537_DuPont)	N/A (320-26319-1)	281.42 g	254.4 mL	7			3/10/17	8_Days	4	chlorine=ND	
			27.04 g	1.0 mL								
16	320-26319-A-12-LMSD (537_DuPont)	N/A (320-26319-1)	284.71 g	257.9 mL	7			3/10/17	8_Days	4	chlorine=ND	
			26.77 g	1.0 mL								
17	320-26320-A-1 (537_DuPont)	N/A (320-26320-1)	277.04 g	250.1 mL	7			3/10/17	8_Days	4	chlorine=ND	
			26.98 g	1.0 mL								
18	320-26320-A-1-LMS (537_DuPont)	N/A (320-26320-1)	281.00 g	254.2 mL	7			3/10/17	8_Days	4	chlorine=ND	
			26.81 g	1.0 mL								
19	320-26320-A-1-LMSD (537_DuPont)	N/A (320-26320-1)	281.66 g	254.5 mL	7			3/10/17	8_Days	4	chlorine=ND	
			27.15 g	1.0 mL								
20	320-26320-A-2 (537_DuPont)	N/A (320-26320-1)	276.29 g	249.2 mL	7			3/10/17	8_Days	4	chlorine=ND	
			27.12 g	1.0 mL								
21	320-26320-A-3 (537_DuPont)	N/A (320-26320-1)	274.01 g	246.9 mL	7			3/10/17	8_Days	4	chlorine=ND	
			27.15 g	1.0 mL								
22	320-26320-A-4 (537_DuPont)	N/A (320-26320-1)	279.79 g	252.4 mL	7			3/10/17	8_Days	4	chlorine=ND	
			27.36 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:

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	CCB
Witness	
Analyst ID - SU Reagent Drop	KMK
Analyst ID - SU Reagent Drop	CCB
Witness	
Analyst ID - IS Reagent Drop	<i>HFA</i>
Analyst ID - IS Reagent Drop	<i>CCB</i>
Witness	
Batch Comment	<i>861760 1/2</i>

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Batch End:

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Comments

320-26319-A-1	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-2	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-3	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-4	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-5	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-6	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-7	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-8	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-9	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-10	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-11	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-12	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-12-MS	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26319-A-12-MSD	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-1	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-1-MS	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-1-MSD	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-2	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26320-A-3	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Batch End:

Batch Number: 320-154682

Method Code: 320-537_Prep-320

320-26320-A-4	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-1	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-1~MS	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-1~MSD	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-2	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-3	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB
320-26321-A-4	Method Comments: DuPont QAS_LCSD req if No MS/MSD per JOB

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	CJS 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	008 3-13-17
320-26320-A-1	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-1 LMS	LC537-LSP_00017	50 uL	1.0 mL		
320-26320-A-1 LMS	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-1 LMSD	LC537-LSP_00017	50 uL	1.0 mL		
320-26320-A-1 LMSD	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-2	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-3	LC537-SU_00032	50 uL	1.0 mL		
320-26320-A-4	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-1	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-1 LMS	LC537-LSP_00017	50 uL	1.0 mL		
320-26321-A-1 LMS	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-1 LMSD	LC537-LSP_00017	50 uL	1.0 mL		
320-26321-A-1 LMSD	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-2	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-3	LC537-SU_00032	50 uL	1.0 mL		
320-26321-A-4	LC537-SU_00032	50 uL	1.0 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-154682

Method Code: 320-537_Prep-320

Analyst: Kolstad, Kate M

Batch Open: 3/13/2017 2:41:00PM

Batch End:

Reagent	Other Reagents:	Amount/Units	Lot#:

Preparation Batch Number(s): 154682 Test: 537_Prep
 Earliest Holding Time: 3-14-17

Sample List Tab		1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method		/	/
All necessary NCMs filed (including holding time)		/	/
Method/sample/login/QAS checked and correct		/	/
Worksheet Tab		1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved		/	/
Weights in anticipated range and not targeted		/	/
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)		/	/
The pH is transcribed correctly in TALS		/	/
All additional information transcribed into TALS is correct and raw data is attached		/	/
Comments are transcribed correctly in TALS		/	/
Reagents Tab		1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS		/	/
All spike amounts correct and added to necessary samples and QC		/	/
Batch Information		1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly		/	/
All necessary 'batch information' complete and entered into TALS correctly		/	/

1st Level Reviewer: CEB

Date: 3-14-17

2nd Level Reviewer: VPM

Date: 3-14-17


Comments: _____

Shipping and Receiving Documents

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bryan Burkingstock		Site Contact: Ryan Brown		Date: 3/2/17		COC No.: 4	
CH2M Hill		Tel/Fax:		Lab Contact: Jill Kellmann		Carrier: FedEx		1 of 1 COCs	
6600 Peachtree Dunwoody Rd., 400 Embassy Row, Suite 600		<input checked="" type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		 320-26273 Chain of Custody		For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:		Sample Specific Notes: 	
Atlanta, GA 30328		Analysis Turnaround Time							
(678) 530-4060 Phone		TAT if different from Below <u>28</u>							
(770) 604-9183 FAX		<input type="checkbox"/> 2 weeks							
Project Name: Meridian 10006-7-105420 JM01 Navy Clean		<input type="checkbox"/> 1 week							
Site: NAS Meridian		<input type="checkbox"/> 2 days							
P O #: 10006-7-105420		<input type="checkbox"/> 1 day							
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)		
HEAFF-4AHW03-0317	3/2/17	1225	G	GW	4	N	X		
HEAFF-HRD-0630-0317	3/2/17	1040					X		
HEAFF-4AHW01-0317		1310							
HEAFF-4CHW01-0317		1530							
HEAFF-4CHW03-0317		1550							
HEAFF-FD05-0317									
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.									
Special Instructions/QC Requirements & Comments: 1) Rec'd 1/2 Ags broken @ 3/3/17 Send report to Mike Zamboni -> address on file									
Disposal by Lab: <input type="checkbox"/> Archive for _____ Months Return to Client: <input type="checkbox"/>									
Custody Seal No.:			Cooler Temp. (°C): Obs'd: 1.1			Corr'd: 2.4		Therm ID No.:	
Company: CH2M Hill			Company: Dreyer			Company: DAW		Date/Time: 3/3/17	
Company: Ryan Brown			Company: Dreyer			Company: DAW		Date/Time: 3/3/17	
Company: Ryan Brown			Company: Dreyer			Company: DAW		Date/Time: 3/3/17	

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 320-26273-1

Login Number: 26273
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Not requested on COC.
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.	False	Container received broken. No volume could be salvaged for analysis.
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	

Genus	Species	Accession No.	Accession ID	Accession Type	Accession Method	Accession Date	Accession Status	Accession Location	Accession Description	Accession Size	Accession Weight	Accession Volume	Accession Temperature	Accession Humidity	Accession Light	Accession Air	Accession Noise	Accession Vibration	Accession Shock	Accession Electromagnetic Interference	Accession Chemical Contamination	Accession Biological Contamination	Accession Physical Contamination	Accession Total Contamination	Accession Quality	Accession Quantity	Accession Date	Accession Time	Accession User	Accession Project	Accession Organization	Accession Country	Accession City	Accession State	Accession Zip	Accession Phone	Accession Email	Accession Website	Accession Logo	Accession Icon	Accession Avatar	Accession Profile	Accession Bio	Accession Links	Accession Tags	Accession Keywords	Accession Synonyms	Accession Aliases	Accession Nicknames	Accession Epithets	Accession Surnames	Accession Initials	Accession Middle Names	Accession Full Names	Accession Complete Names	Accession Full Names	Accession Full Names
Genus	Species	Accession No.	Accession ID	Accession Type	Accession Method	Accession Date	Accession Status	Accession Location	Accession Description	Accession Size	Accession Weight	Accession Volume	Accession Temperature	Accession Humidity	Accession Light	Accession Air	Accession Noise	Accession Vibration	Accession Shock	Accession Electromagnetic Interference	Accession Chemical Contamination	Accession Biological Contamination	Accession Physical Contamination	Accession Total Contamination	Accession Quality	Accession Quantity	Accession Date	Accession Time	Accession User	Accession Project	Accession Organization	Accession Country	Accession City	Accession State	Accession Zip	Accession Phone	Accession Email	Accession Website	Accession Logo	Accession Icon	Accession Avatar	Accession Profile	Accession Bio	Accession Links	Accession Tags	Accession Keywords	Accession Synonyms	Accession Aliases	Accession Nicknames	Accession Epithets	Accession Surnames	Accession Initials	Accession Middle Names	Accession Full Names	Accession Complete Names	Accession Full Names	

**DATA VALIDATION SUMMARY REPORT
NAVAL AIR STATION MERIDIAN, MISSISSIPPI**

Client: CH2M HILL, Inc., Virginia Beach, Virginia
 SDG: 320-26273-1
 Laboratory: Test America Laboratories, West Sacramento, California
 Site: Naval Air Station Meridian, JM01, Meridian, Mississippi
 Date: October 28, 2017

EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	MEAFF-4AMW03-0317	320-26273-1	Water
1DL*	MEAFF-4AMW03-0317DL	320-26273-1DL	Water
2	MEAFF-MRD-0630-0317	320-26273-2	Water
3	MEAFF-4AMW01-0317	320-26273-3	Water
4	MEAFF-4CMW01-0317	320-26273-4	Water
5	MEAFF-4CMW03-0317	320-26273-5	Water
6	MEAFF-FD05-0317	320-26273-6	Water

* - PFCs only

A full data validation was performed on the analytical data for six water samples collected on March 2, 2017 by CH2M HILL at the NAS Meridian site in Mississippi. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)” and the Test America Laboratories (TAL) Standard Operating Procedure for the analysis of 1,4-dioxane by GC/MS-SIM.

Specific method references are as follows:

Analysis

PFCs
 SVOC-SIM (1,4-Dioxane)

Method References

USEPA Method 537 Modified
 TAL SOP WS-MS-0011

The data have been validated according to the protocols and quality control (QC) requirements of the analytical methods, the Draft Sampling and Analysis Plan, Perfluorinated Compounds Site Inspection, Naval Air Station Meridian, Task Order JM01, August 2016, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA “Contract Laboratories Program National Functional Guidelines for Superfund Organic Methods Data Review,” January 2017;
- USEPA Region 4 “Data Validation Standard Operating Procedures for CLP Organic Data using GC/MS and GC/ECD”, Rev. 0.0, February 2016;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Holding times and sample preservation
- Liquid/Gas Chromatography/Mass Spectrometry (LC/GC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is acceptable for the intended purposes. There were no qualifications.

Perfluorinated Compounds (PFCs)

Holding Times

- All samples were extracted within 14 days for water 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-GW-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 Duplicate (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 PFOA exceeding the linear range of the instrument. The sample was diluted and reanalyzed and the dilution result for PFOA should be used for reporting purposes.

Field Duplicate Sample Precision

- Field duplicate results are summarized below. The precision is acceptable.

Compound	MEAFF-4CMW01-0317 ng/L	MEAFF-FD05-0317 ng/L	RPD	Qualifier
PFOA	170	160	6%	None
PFOS	44	42	5%	
PFBS	3.5	3.5	0%	

Semivolatile Organic Compounds (1,4-Dioxane)

Holding Times

- All samples were extracted within 7 days for water samples and analyzed within 40 days.

GC/MS Tuning

- All criteria were met.

Initial Calibration

- The initial calibrations exhibited acceptable %RSD and/or correlation coefficients and mean RRF criteria.

Continuing Calibration

- The continuing calibrations exhibited acceptable %D and RRF criteria.

Method Blank

- The method blanks were free of contamination.

Field Blank

- The field QC sample was free of contamination.

Blank ID	Compound	Conc. ug/L	Qualifier	Affected Samples
MEAFF-EB04-GW-0317	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate recoveries.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- MS/MSD samples were not analyzed.

Laboratory Control Samples

- The LCS samples exhibited acceptable percent recoveries (%R) and RPD values.

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- Several samples results were flagged (M) by the laboratory indicating manual integration. These flags were removed by the reviewer.

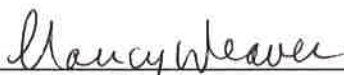
Field Duplicate Sample Precision

- Field duplicate results are summarized below. The precision is acceptable.

Compound	MEAFF-4CMW01-0317 ug/L	MEAFF-FD05-0317 ug/L	RPD	Qualifier
1,4-Dioxane	ND	ND	-	-

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:


Nancy Weaver
Senior Chemist

Dated: 11/2/17

Data Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples.



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Client Sample ID: MEAFF-4AMW03-0317 Lab Sample ID: 320-26273-1

Matrix: Water Lab File ID: 2017.03.10B_048.d

Analysis Method: 537 (Modified) Date Collected: 03/02/2017 12:25

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 273 (mL) Date Analyzed: 03/10/2017 23:22

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)	500 460 M E		11 2.3	9.2 1.8	3.4 0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	93 M		3.7	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	75		2.3	1.8	0.84

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	64		25-150
STL00991	13C4 PFOS	108		25-150
STL00994	18O2 PFHxS	75		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

IDL

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4AMW03-0317 DL Lab Sample ID: 320-26273-1 DL
 Matrix: Water Lab File ID: 2017.03.13A_051.d
 Analysis Method: 537 (Modified) Date Collected: 03/02/2017 12:25
 Extraction Method: 3535 Date Extracted: 03/06/2017 16:19
 Sample wt/vol: 273(mL) Date Analyzed: 03/13/2017 17:38
 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

use original results

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	500	DM	11	9.2	3.4
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	90	DM	18	14	5.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	64	DM	11	9.2	4.2

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	78		25-150
STL00991	13C4 PFOS	111		25-150
STL00994	18O2 PFHxS	112		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

2

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0630-0317 Lab Sample ID: 320-26273-2
 Matrix: Water Lab File ID: 2017.03.10B_049.d
 Analysis Method: 537 (Modified) Date Collected: 03/02/2017 10:40
 Extraction Method: 3535 Date Extracted: 03/06/2017 16:19
 Sample wt/vol: 257.5 (mL) Date Analyzed: 03/10/2017 23:30
 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)	63	✓	2.4	1.9	0.73
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	100	✓	3.9	2.9	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	230		2.4	1.9	0.89

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	94		25-150
STL00991	13C4 PFOS	115		25-150
STL00994	18O2 PFHxS	101		25-150

MW 10/28/17

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

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Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4AMW01-0317 Lab Sample ID: 320-26273-3
 Matrix: Water Lab File ID: 2017.03.13A_052.d
 Analysis Method: 537 (Modified) Date Collected: 03/02/2017 13:10
 Extraction Method: 3535 Date Extracted: 03/06/2017 16:19
 Sample wt/vol: 272.4(mL) Date Analyzed: 03/13/2017 17:46
 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.: 154808 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
335-67-1	Perfluorooctanoic acid (PFOA)	17	M	2.3	1.8	0.69
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	6.8	M	3.7	2.8	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	30	M	2.3	1.8	0.84

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	26		25-150
STL00991	13C4 PFOS	100		25-150
STL00994	18O2 PFHxS	128		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-26273-1 4

SDG No.: _____

Client Sample ID: MEAFF-4CMW01-0317 Lab Sample ID: 320-26273-4

Matrix: Water Lab File ID: 2017.03.10B_052.d

Analysis Method: 537 (Modified) Date Collected: 03/02/2017 15:30

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 275.1(mL) Date Analyzed: 03/10/2017 23:52

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)	170	M	2.3	1.8	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	44	M	3.6	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	1.8	0.83

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	78		25-150
STL00991	13C4 PFOS	129		25-150
STL00994	18O2 PFHxS	126		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Client Sample ID: MEAFF-4CMW03-0317 Lab Sample ID: 320-26273-5

Matrix: Water Lab File ID: 2017.03.10B_053.d

Analysis Method: 537 (Modified) Date Collected: 03/02/2017 15:50

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 271.4 (mL) Date Analyzed: 03/11/2017 00:00

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)	44	M	2.3	1.8	0.69
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.2	M	3.7	2.8	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.6		2.3	1.8	0.85

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	75		25-150
STL00991	13C4 PFOS	118		25-150
STL00994	18O2 PFHxS	116		25-150

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Lab Name: TestAmerica Sacramento Job No.: 320-26273-1

SDG No.: _____

Client Sample ID: MEAFF-FD05-0317 Lab Sample ID: 320-26273-6

Matrix: Water Lab File ID: 2017.03.10B_054.d

Analysis Method: 537 (Modified) Date Collected: 03/02/2017 00:00

Extraction Method: 3535 Date Extracted: 03/06/2017 16:19

Sample wt/vol: 275.8 (mL) Date Analyzed: 03/11/2017 00:07

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)	160	✓	2.3	1.8	0.68
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	42	✓	3.6	2.7	1.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.5		2.3	1.8	0.83

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	70		25-150
STL00991	13C4 PFOS	116		25-150
STL00994	18O2 PFHxS	114		25-150



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1

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4AMW03-0317 Lab Sample ID: 320-26273-1
 Matrix: Water Lab File ID: S031419.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 12:25
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1048.1(mL) Date Analyzed: 03/14/2017 21:50
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 1(uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.48	U	0.95	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	66		42-91

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Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-MRD-0630-0317 Lab Sample ID: 320-26273-2
 Matrix: Water Lab File ID: S031420.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 10:40
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1033.3(mL) Date Analyzed: 03/14/2017 22:13
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 1(uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.76	J M	0.97	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	72		42-91

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3

Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4AMW01-0317 Lab Sample ID: 320-26273-3
 Matrix: Water Lab File ID: S031421.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 13:10
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1038.7(mL) Date Analyzed: 03/14/2017 22:35
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 1(uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.48	U	0.96	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	NitroBenzene-d5	70		42-91

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Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4CMW01-0317 Lab Sample ID: 320-26273-4
 Matrix: Water Lab File ID: S031422.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 15:30
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1048(mL) Date Analyzed: 03/14/2017 22:57
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 1(uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.48	U	0.95	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	64		42-91

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Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-4CMW03-0317 Lab Sample ID: 320-26273-5
 Matrix: Water Lab File ID: S031423.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 15:50
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1023.9(mL) Date Analyzed: 03/14/2017 23:20
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 1(uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.49	U	0.98	0.49	0.20

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	73		42-91

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Lab Name: TestAmerica Sacramento Job No.: 320-26273-1
 SDG No.: _____
 Client Sample ID: MEAFF-FD05-0317 Lab Sample ID: 320-26273-6
 Matrix: Water Lab File ID: S031424.D
 Analysis Method: WS-MS-0011 Date Collected: 03/02/2017 00:00
 Extract. Method: 3510C Date Extracted: 03/08/2017 08:41
 Sample wt/vol: 1045.4(mL) Date Analyzed: 03/14/2017 23:42
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 1(uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 154875 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
123-91-1	1,4-Dioxane	0.48	U	0.96	0.48	0.19

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5	63		42-91

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