



**Certified
Environmental
Services, Inc.**

7280 Caswell Street
North Syracuse, NY 13212
Phone 315-478-2374
Fax 315-478-2107

REPORT OF ANALYSES

C & S Engineers, Inc.
499 Col. E. Collins Blvd.
North Syracuse, NY 13212-
Attn: Ms. Christen Craig

PROJECT NAME: Clay Landfill
DATE: 01/14/2019

SAMPLE NUMBER- 779077 SAMPLE ID- MW-2SR
DATE SAMPLED- 12/27/18
DATE RECEIVED- 12/27/18 SAMPLER- Jason Ruhs
TIME RECEIVED- 1705 DELIVERED BY- Jason Ruhs

SAMPLE MATRIX- WW
TIME SAMPLED- 1130
RECEIVED BY- SB
TYPE SAMPLE- Grab

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS DATE	TIME	BY	RESULT	UNITS
Sample Receipt Temperature		12/27/18		SB	4.8	Degrees C
Subcontracted Analysis		01/14/19		TES	*	

*See Attached Report

NYSDOH LAB ID NO. 11246

APPROVED BY:


(Terms and Conditions on Reverse Side)

**Barbara L. DuChene
Laboratory Manager**



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499 Col. E. Collins Blvd.
North Syracuse, NY 13212-
Attn: Ms. Christen Craig

PROJECT NAME: Clay Landfill
DATE: 01/14/2019

SAMPLE NUMBER- 779078 SAMPLE ID- MW-4SR
DATE SAMPLED- 12/27/18
DATE RECEIVED- 12/27/18 SAMPLER- Jason Ruhs
TIME RECEIVED- 1705 DELIVERED BY- Jason Ruhs

SAMPLE MATRIX- WW
TIME SAMPLED- 1510
RECEIVED BY- SB
TYPE SAMPLE- Grab

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS DATE	TIME	BY	RESULT UNITS
Sample Receipt Temperature		12/27/18		SB	4.8 Degrees C
Subcontracted Analysis		01/14/19		TES	*

*See Attached Report

NYSDOH LAB ID NO. 11246

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499 Col. E. Collins Blvd.
North Syracuse, NY 13212-
Attn: Ms. Christen Craig

PROJECT NAME: Clay Landfill
DATE: 01/14/2019

SAMPLE NUMBER- 779079 SAMPLE ID- DGC-3D
DATE SAMPLED- 12/27/18
DATE RECEIVED- 12/27/18 SAMPLER- Jason Ruhs
TIME RECEIVED- 1705 DELIVERED BY- Jason Ruhs

SAMPLE MATRIX- WW
TIME SAMPLED- 1056
RECEIVED BY- SB
TYPE SAMPLE- Grab

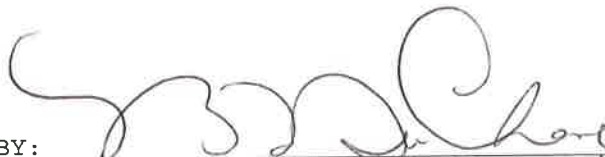
Page 1 of 1

ANALYSIS	METHOD	ANALYSIS DATE	TIME	BY	RESULT UNITS
Sample Receipt Temperature		12/27/18		SB	4.8 Degrees C
Subcontracted Analysis		01/14/19		TES	*

*See Attached Report

NYSDOH LAB ID NO. 11246

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C & S Engineers, Inc.
499 Col. E. Collins Blvd.
North Syracuse, NY 13212-
Attn: Ms. Christen Craig

PROJECT NAME: Clay Landfill
DATE: 01/14/2019

SAMPLE NUMBER- 779080 SAMPLE ID- MS/MSD (MW-45R)
DATE SAMPLED- 12/27/18
DATE RECEIVED- 12/27/18 SAMPLER- Jason Ruhs
TIME RECEIVED- 1705 DELIVERED BY- Jason Ruhs

SAMPLE MATRIX- WW
TIME SAMPLED- 1512
RECEIVED BY- SB
TYPE SAMPLE- Grab

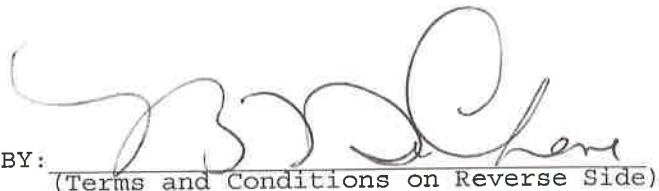
Page 1 of 1

ANALYSIS	METHOD	ANALYSIS DATE	TIME	BY	RESULT UNITS
Sample Receipt Temperature		12/27/18		SB	4.8 Degrees C
Subcontracted Analysis		01/14/19		TES	*

*See Attached Report

NYSDOH LAB ID NO. 11246

APPROVED BY:


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Barbara L. DuChene
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REPORT OF ANALYSES

C & S Engineers, Inc.
499 Col. E. Collins Blvd.
North Syracuse, NY 13212-
Attn: Ms. Christen Craig

PROJECT NAME: Clay Landfill
DATE: 01/14/2019

SAMPLE NUMBER- 779081 SAMPLE ID- Duplicate (MW-45R) SAMPLE MATRIX- WW
DATE SAMPLED- 12/27/18 TIME SAMPLED- 1514
DATE RECEIVED- 12/27/18 SAMPLER- Jason Ruhs RECEIVED BY- SB
TIME RECEIVED- 1705 DELIVERED BY- Jason Ruhs TYPE SAMPLE- Grab

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS DATE	TIME	BY	RESULT UNITS
Sample Receipt Temperature		12/27/18		SB	4.8 Degrees C
Subcontracted Analysis		01/14/19		TES	*

*See Attached Report

NYSDOH LAB ID NO. 11246

APPROVED BY:


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Barbara L. DuChene
Laboratory Manager



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Fax 315-478-2107

REPORT OF ANALYSES

C & S Engineers, Inc.
499 Col. E. Collins Blvd.
North Syracuse, NY 13212-
Attn: Ms. Christen Craig

DATE: 01/15/2019

PROJECT NAME: Clay Landfill

SAMPLE NUMBER- 779082 SAMPLE ID- Field Blank
DATE SAMPLED- 12/27/18
DATE RECEIVED- 12/27/18 SAMPLER- Jason Ruhs
TIME RECEIVED- 1705 DELIVERED BY- Jason Ruhs

SAMPLE MATRIX- WA
TIME SAMPLED- 1459
RECEIVED BY- SB
TYPE SAMPLE- Grab

Page 1 of 1

ANALYSIS	METHOD	ANALYSIS DATE	TIME	BY	RESULT UNITS
Sample Receipt Temperature		12/27/18		SB	4.8 Degrees C
Subcontracted Analysis		01/14/19		TES	*

*See Attached Report

NYSDOH LAB ID NO. 11246

APPROVED BY:


(Terms and Conditions on Reverse Side)

Barbara L. DuChene
Laboratory Manager



Certified
Environmental
Services, Inc.

7280 Caswell St. (Hancock Air Park)
North Syracuse, New York 13212
Phone 315-478-2374
Fax 315-478-2107

CLIENT NAME: C & S Engineers, Inc.

ADDRESS: 499 Col. E. Collins Blvd.

North Syracuse, NY 13212

CONTACT NAME: Ms. Christen Craig

CLIENT PHONE: 455-2000

Project Name: Clay Landfill/Emerging Contaminants

CES LOG NUMBERS

(INTERNAL USE/DO NOT WRITE)

CES LOG NUMBERS	Collected		Matrix	Grab or Comp.
	Date	Time		
779077	12-27-18	11:30	NPW	Grab
078		15:10	NPW	Grab
079		10:56	NPW	Grab
080		15:12	NPW	Grab
081		15:14	NPW	Grab
082		14:59	DI	Grab

SP 12/28/18 083

CLIENT ID/SAMPLE LOCATION

CLIENT ID/SAMPLE LOCATION	Number of Containers									
	1	2	3	4	5	6	7	8	9	10
MW-2SR	4	X	X							
MW-4SR	4	X	X							
DGC-3D	4	X	X							
MS/MSD (MW-452)	4	X	X							
Duplicate (MW-452)	4	X	X							
Field Blank	4	X	X							

Parameter and Method:

Sample bottle:

Type Size

Plastic 2-250 ml

Glass 2-1 L

Preservative Code:

A

A

Samples Collected By:

Name (Print):

Signature:

Company:

CES, Inc.

RELINQUISHED BY:

Name:

Signature:

Name:

Signature:

Date

Time

RECEIVED BY:

Name:

Signature:

Name:

Signature:

Samples Received in Good Condition:

Yes

No

Receipt Temperature: 41.8 °C



Certified
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7280 Caswell Street
North Syracuse, NY 13212
Phone 315-478-2374
Fax 315-478-2107

Sample Receiving Checklist

Client Name: C+S

Batch Number: H1553 Yes No If No Explain:

1. Proper Full and Complete Documentation:

☒☐

2. Appropriate Sample Containers:

☒☐

3. Adequate Sample Volume:

☒☐

4. Hold Time(OK):

☒☐

5. Proper Sample Labeling:

☒☐

6. Sample Temperature:

☒☐

7. Preservation OK:

☒☐

(If preservation required note Lot # associated with preservative if available.)

H₂SO₄ WC HNO₃ MP NaOH WCSP Ascorbic Acid WC

HCl WCSP Na₂S₂O₃ WC Other _____ Not Available ☐

Additional Comments/Client Correspondence _____

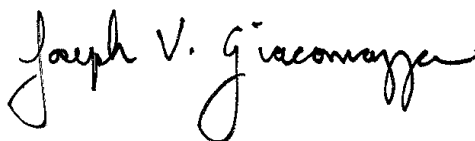
ANALYTICAL REPORT

Job Number: 480-147352-1

Job Description: PFAS & 1,4 Dioxane Analysis

For:

Certified Environmental Services
7280 Caswell Street
North Syracuse, NY 13121
Attention: Ms. Barbara Duchene



Approved for release.
Joe V Giacomazza
Project Management Assistant II
1/17/2019 9:44 AM

Designee for
Brian J Fischer, Manager of Project Management
10 Hazelwood Drive, Amherst, NY, 14228-2298
(716)504-9835
brian.fischer@testamericainc.com
01/17/2019

The test results in this report meet all NELAP requirements for analytes for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. All questions regarding this test report should be directed to the TestAmerica Project Manager who has signed this report.

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TestAmerica Laboratories, Inc.

TestAmerica Buffalo 10 Hazelwood Drive, Amherst, NY 14228-2298
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Job Narrative
480-147352-1

Comments

No additional comments.

Receipt

The samples were received on 12/29/2018 1:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.2° C and 1.4° C.

GC/MS Semi VOA

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for sample 779077 (480-147352-1) have an E flag qualifier indicating the results are over the calibration range on the raw data. The actual amounts are within the calibration range; however, the E flag is generated based upon the bias corrected concentration. The LIMS system calculates a bias correction based on the recovery of the 1,4-Dioxane-d8 isotope.

Method(s) 8270D SIM ID: The following samples were diluted to bring the concentration of target analytes within the calibration range: 779078 (480-147352-2), 779078 (480-147352-2[MS]), 779078 (480-147352-2[MSD]) and 779081 (480-147352-4). Elevated reporting limits (RLs) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for samples 779078 (480-147352-2), 779078 (480-147352-2[MS]), 779078 (480-147352-2[MSD]) and 779081 (480-147352-4) have an E flag qualifier indicating the results are over the calibration range on the raw data. The actual amounts are within the calibration range; however, the E flag is generated based upon the bias corrected concentration. The LIMS system calculates a bias correction based on the recovery of the 1,4-Dioxane-d8 isotope.

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

LCMS

Method(s) 537 (modified): Results for samples 779078 (480-147352-2), 779078 (480-147352-2[MS]), 779078 (480-147352-2[MSD]) and 779081 (480-147352-4) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Method(s) 537 (modified): M2-6:2 FTS Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: 779078 (480-147352-2), 779078 (480-147352-2[MS]), 779078 (480-147352-2[MSD]) and 779081 (480-147352-4). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): Due to the high concentration of Perfluorooctanoic acid (PFOA), the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 200-138891 and analytical batch 200-138989 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method(s) 537 (modified): The continuing calibration verification (CCV) associated with batch 200-138989 recovered above the upper control limit for M2-6:2 FTS. The analysis of the samples associated with this CCV have resulted in this IDA response increasing, likely due to presence of non-target interferences. The following samples are impacted: 779078 (480-147352-2), 779078 (480-147352-2[MS]), 779078 (480-147352-2[MSD]), 779081 (480-147352-4) and (CCV 200-138989/15).

Method(s) 537 (modified): Results for samples 779078 (480-147352-2), 779078 (480-147352-2[MS]) and 779081 (480-147352-4) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Method(s) 537 (modified): M2-6:2 FTS Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: 779077 (480-147352-1). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): 13C2 PFTeDA Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: 779077 (480-147352-1) and 779079 (480-147352-3). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s). All detection limits are below the lower calibration.

Method(s) 537 (modified): d3-NMeFOSAA Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: 779077 (480-147352-1) and 779079 (480-147352-3). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s). All detection limits are below the lower calibration.

Method(s) 537 (modified): d5-NEtFOSAA Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: 779079 (480-147352-3). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s). All detection limits are below the lower calibration.

Method(s) 537 (modified): 13C4 PFBA and/or 13C2 PFHxA Isotope Dilution Analyte (IDA) recovery associated with the following samples

is below the method recommended limit: 779077 (480-147352-1), 779078 (480-147352-2), 779078 (480-147352-2[MS]) and 779081 (480-147352-4). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s). All detection limits are below the lower calibration.

Method(s) 537 (modified): M2-8:2 FTS Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: 779078 (480-147352-2), 779078 (480-147352-2[MS]) and 779081 (480-147352-4). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): 13C2 PFDa Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: 779077 (480-147352-1) and 779079 (480-147352-3). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s). All detection limits are below the lower calibration.

Method(s) 537 (modified): The continuing calibration verification (CCV) associated with batch 200-138946 recovered above the upper control limit for 13C3 PFBS. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCV 200-138946/11), (LCS 200-138891/2-A) and (MB 200-138891/1-A).

Method(s) 537 (modified): The following samples exhibited elevated noise or matrix interferences for one or more analytes causing elevation of the detection limit (EDL): 779077 (480-147352-1), 779078 (480-147352-2), 779078 (480-147352-2[MS]), 779078 (480-147352-2[MSD]) and 779081 (480-147352-4). The reporting limit (RL) for the affected analytes has been raised to be equal to the EDL, and a "G" qualifier applied.

Method(s) 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 200-138891 and analytical batch 200-138946 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

Organic Prep

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

Definitions/Glossary

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F2	MS/MSD RPD exceeds control limits
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

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

Sample Summary

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-147352-1	779077	Water	12/27/18 11:30	12/29/18 01:00
480-147352-2	779078	Water	12/27/18 15:10	12/29/18 01:00
480-147352-3	779079	Water	12/27/18 10:56	12/29/18 01:00
480-147352-4	779081	Water	12/27/18 15:14	12/29/18 01:00
480-147352-5	779082 (Field Blank)	Water	12/27/18 14:59	12/29/18 01:00

Detection Summary

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Client Sample ID: 779077

Lab Sample ID: 480-147352-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	3.2	E	0.20	0.10	ug/L	1		8270D SIM ID	Total/NA
Perfluoropentanoic acid (PFPeA)	4.4		1.9	0.72	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	15		1.9	0.23	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.0		1.9	0.31	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	7.5		1.9	0.31	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.8		1.9	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.6	J	1.9	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.1		1.9	0.72	ng/L	1		537 (modified)	Total/NA

Client Sample ID: 779078

Lab Sample ID: 480-147352-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	52	E	5.0	2.5	ug/L	25		8270D SIM ID	Total/NA
Perfluoropentanoic acid (PFPeA)	20		9.5	3.6	ng/L	5		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	66		9.5	1.1	ng/L	5		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	36		9.5	1.5	ng/L	5		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	140	F1	38	6.1	ng/L	20		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	19		9.5	2.1	ng/L	5		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	44		9.5	1.2	ng/L	5		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	6.7	J	9.5	3.9	ng/L	5		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	270		9.5	3.6	ng/L	5		537 (modified)	Total/NA
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	14	J F2	95	3.3	ng/L	5		537 (modified)	Total/NA

Client Sample ID: 779079

Lab Sample ID: 480-147352-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.1	J	1.9	0.39	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.31	J	1.9	0.31	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	0.65	J	1.9	0.31	ng/L	1		537 (modified)	Total/NA

Client Sample ID: 779081

Lab Sample ID: 480-147352-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	53	E	5.0	2.5	ug/L	25		8270D SIM ID	Total/NA
Perfluoropentanoic acid (PFPeA)	19		9.7	3.6	ng/L	5		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	76		9.7	1.2	ng/L	5		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	41		9.7	1.5	ng/L	5		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	140		39	6.2	ng/L	20		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	19		9.7	2.1	ng/L	5		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	39		9.7	1.3	ng/L	5		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	5.2	J	9.7	4.0	ng/L	5		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	260		9.7	3.7	ng/L	5		537 (modified)	Total/NA
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	13	J	97	3.4	ng/L	5		537 (modified)	Total/NA

Client Sample ID: 779082 (Field Blank)

Lab Sample ID: 480-147352-5

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Client Sample ID: 779077

Date Collected: 12/27/18 11:30

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-1

Matrix: Water

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	3.2	E	0.20	0.10	ug/L		01/02/19 12:01	01/08/19 18:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	29		15 - 110				01/02/19 12:01	01/08/19 18:58	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	G	48	48	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluoropentanoic acid (PFPeA)	4.4		1.9	0.72	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorohexanoic acid (PFHxA)	15		1.9	0.23	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluoroheptanoic acid (PFHpA)	8.0		1.9	0.31	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorooctanoic acid (PFOA)	7.5		1.9	0.31	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.36	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.36	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.24	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.33	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.23	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.43	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorobutanesulfonic acid (PFBS)	3.8		1.9	0.42	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorohexanesulfonic acid (PFHxS)	1.6	J	1.9	0.25	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.78	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorooctanesulfonic acid (PFOS)	2.1		1.9	0.72	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.51	ng/L		01/08/19 11:00	01/09/19 23:18	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.53	ng/L		01/08/19 11:00	01/09/19 23:18	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	0.43	ng/L		01/08/19 11:00	01/09/19 23:18	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	0.67	ng/L		01/08/19 11:00	01/09/19 23:18	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		19	0.95	ng/L		01/08/19 11:00	01/09/19 23:18	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		19	0.53	ng/L		01/08/19 11:00	01/09/19 23:18	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	85		50 - 150				01/08/19 11:00	01/09/19 23:18	1
13C4 PFHpA	57		50 - 150				01/08/19 11:00	01/09/19 23:18	1
13C4 PFOA	65		50 - 150				01/08/19 11:00	01/09/19 23:18	1
13C4 PFOS	89		50 - 150				01/08/19 11:00	01/09/19 23:18	1
13C5 PFNA	66		50 - 150				01/08/19 11:00	01/09/19 23:18	1
13C4 PFBA	16	*	25 - 150				01/08/19 11:00	01/09/19 23:18	1
13C2 PFHxA	37	*	50 - 150				01/08/19 11:00	01/09/19 23:18	1
13C2 PFDA	70		50 - 150				01/08/19 11:00	01/09/19 23:18	1
13C2 PFUnA	64		50 - 150				01/08/19 11:00	01/09/19 23:18	1
13C2 PFDoA	49	*	50 - 150				01/08/19 11:00	01/09/19 23:18	1
13C8 FOSA	68		25 - 150				01/08/19 11:00	01/09/19 23:18	1
13C5 PFPeA	33		25 - 150				01/08/19 11:00	01/09/19 23:18	1
13C2 PFTeDA	45	*	50 - 150				01/08/19 11:00	01/09/19 23:18	1
d3-NMeFOSAA	42	*	50 - 150				01/08/19 11:00	01/09/19 23:18	1
d5-NEtFOSAA	55		50 - 150				01/08/19 11:00	01/09/19 23:18	1

TestAmerica Buffalo

Client Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Client Sample ID: 779077

Date Collected: 12/27/18 11:30

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-1

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	175	*	25 - 150	01/08/19 11:00	01/09/19 23:18	1
M2-8:2 FTS	92		25 - 150	01/08/19 11:00	01/09/19 23:18	1
13C3 PFBS	62		50 - 150	01/08/19 11:00	01/09/19 23:18	1

Client Sample ID: 779078

Date Collected: 12/27/18 15:10

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-2

Matrix: Water

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	52	E	5.0	2.5	ug/L		01/02/19 12:01	01/10/19 19:13	25
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	29		15 - 110				01/02/19 12:01	01/10/19 19:13	25

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	G	260	260	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluoropentanoic acid (PFPeA)	20		9.5	3.6	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluorohexanoic acid (PFHxA)	66		9.5	1.1	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluoroheptanoic acid (PFHpA)	36		9.5	1.5	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluorooctanoic acid (PFOA)	140	F1	38	6.1	ng/L		01/08/19 11:00	01/10/19 15:42	20
Perfluorononanoic acid (PFNA)	ND		9.5	1.8	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluorodecanoic acid (PFDA)	ND		9.5	1.8	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluoroundecanoic acid (PFUnA)	ND		9.5	1.2	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluorododecanoic acid (PFDoA)	ND		9.5	1.7	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluorotridecanoic acid (PFTriA)	ND		9.5	1.1	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluorotetradecanoic acid (PFTeA)	ND		9.5	2.1	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluorobutanesulfonic acid (PFBS)	19		9.5	2.1	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluorohexanesulfonic acid (PFHxS)	44		9.5	1.2	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluoroheptanesulfonic Acid (PFHpS)	6.7	J	9.5	3.9	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluorooctanesulfonic acid (PFOS)	270		9.5	3.6	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluorodecanesulfonic acid (PFDS)	ND		9.5	2.5	ng/L		01/08/19 11:00	01/09/19 23:34	5
Perfluorooctanesulfonamide (PFOSA)	ND		9.5	2.7	ng/L		01/08/19 11:00	01/09/19 23:34	5
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	F2	95	2.1	ng/L		01/08/19 11:00	01/09/19 23:34	5
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	14	J F2	95	3.3	ng/L		01/08/19 11:00	01/09/19 23:34	5
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		380	19	ng/L		01/08/19 11:00	01/10/19 15:42	20
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		95	2.7	ng/L		01/08/19 11:00	01/09/19 23:34	5
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	109		50 - 150				01/08/19 11:00	01/09/19 23:34	5
13C4 PFHpA	59		50 - 150				01/08/19 11:00	01/09/19 23:34	5
13C4 PFOA	85		50 - 150				01/08/19 11:00	01/10/19 15:42	20
13C4 PFOS	148		50 - 150				01/08/19 11:00	01/09/19 23:34	5
13C5 PFNA	105		50 - 150				01/08/19 11:00	01/09/19 23:34	5

TestAmerica Buffalo

Client Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Client Sample ID: 779078

Date Collected: 12/27/18 15:10

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-2

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	22	*	25 - 150	01/08/19 11:00	01/09/19 23:34	5
13C2 PFHxA	42	*	50 - 150	01/08/19 11:00	01/09/19 23:34	5
13C2 PFDA	117		50 - 150	01/08/19 11:00	01/09/19 23:34	5
13C2 PFUnA	112		50 - 150	01/08/19 11:00	01/09/19 23:34	5
13C2 PFDoA	79		50 - 150	01/08/19 11:00	01/09/19 23:34	5
13C8 FOSA	96		25 - 150	01/08/19 11:00	01/09/19 23:34	5
13C5 PFPeA	37		25 - 150	01/08/19 11:00	01/09/19 23:34	5
13C2 PFTeDA	50		50 - 150	01/08/19 11:00	01/09/19 23:34	5
d3-NMeFOSAA	69		50 - 150	01/08/19 11:00	01/09/19 23:34	5
d5-NEtFOSAA	102		50 - 150	01/08/19 11:00	01/09/19 23:34	5
M2-6:2 FTS	191	*	25 - 150	01/08/19 11:00	01/10/19 15:42	20
M2-8:2 FTS	231	*	25 - 150	01/08/19 11:00	01/09/19 23:34	5
13C3 PFBS	84		50 - 150	01/08/19 11:00	01/09/19 23:34	5

Client Sample ID: 779079

Date Collected: 12/27/18 10:56

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-3

Matrix: Water

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		01/02/19 12:01	01/08/19 19:23	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	30		15 - 110				01/02/19 12:01	01/08/19 19:23	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.1	J	1.9	0.39	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.72	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.23	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluoroheptanoic acid (PFHpA)	0.31	J	1.9	0.31	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorooctanoic acid (PFOA)	0.65	J	1.9	0.31	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.37	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.37	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.24	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.34	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.23	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.43	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.42	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.25	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.79	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.73	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.51	ng/L		01/08/19 11:00	01/10/19 00:22	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.54	ng/L		01/08/19 11:00	01/10/19 00:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	0.43	ng/L		01/08/19 11:00	01/10/19 00:22	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	0.67	ng/L		01/08/19 11:00	01/10/19 00:22	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		19	0.96	ng/L		01/08/19 11:00	01/10/19 00:22	1

TestAmerica Buffalo

Client Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Client Sample ID: 779079

Date Collected: 12/27/18 10:56

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-3

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		19	0.54	ng/L		01/08/19 11:00	01/10/19 00:22	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	84		50 - 150				01/08/19 11:00	01/10/19 00:22	1
13C4 PFHpA	60		50 - 150				01/08/19 11:00	01/10/19 00:22	1
13C4 PFOA	74		50 - 150				01/08/19 11:00	01/10/19 00:22	1
13C4 PFOS	77		50 - 150				01/08/19 11:00	01/10/19 00:22	1
13C5 PFNA	63		50 - 150				01/08/19 11:00	01/10/19 00:22	1
13C4 PFBA	86		25 - 150				01/08/19 11:00	01/10/19 00:22	1
13C2 PFHxA	66		50 - 150				01/08/19 11:00	01/10/19 00:22	1
13C2 PFDA	57		50 - 150				01/08/19 11:00	01/10/19 00:22	1
13C2 PFUnA	54		50 - 150				01/08/19 11:00	01/10/19 00:22	1
13C2 PFDaA	43 *		50 - 150				01/08/19 11:00	01/10/19 00:22	1
13C8 FOSA	57		25 - 150				01/08/19 11:00	01/10/19 00:22	1
13C5 PFPeA	77		25 - 150				01/08/19 11:00	01/10/19 00:22	1
13C2 PFTeDA	33 *		50 - 150				01/08/19 11:00	01/10/19 00:22	1
d3-NMeFOSAA	38 *		50 - 150				01/08/19 11:00	01/10/19 00:22	1
d5-NEtFOSAA	42 *		50 - 150				01/08/19 11:00	01/10/19 00:22	1
M2-6:2 FTS	145		25 - 150				01/08/19 11:00	01/10/19 00:22	1
M2-8:2 FTS	76		25 - 150				01/08/19 11:00	01/10/19 00:22	1
13C3 PFBS	86		50 - 150				01/08/19 11:00	01/10/19 00:22	1

Client Sample ID: 779081

Date Collected: 12/27/18 15:14

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-4

Matrix: Water

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	53	E	5.0	2.5	ug/L		01/02/19 12:01	01/10/19 19:37	25
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	29		15 - 110				01/02/19 12:01	01/10/19 19:37	25

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	G	340	340	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluoropentanoic acid (PFPeA)	19		9.7	3.6	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluorohexanoic acid (PFHxA)	76		9.7	1.2	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluoroheptanoic acid (PFHpA)	41		9.7	1.5	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluorooctanoic acid (PFOA)	140		39	6.2	ng/L		01/08/19 11:00	01/10/19 16:29	20
Perfluorononanoic acid (PFNA)	ND		9.7	1.8	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluorodecanoic acid (PFDA)	ND		9.7	1.8	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluoroundecanoic acid (PFUnA)	ND		9.7	1.2	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluorododecanoic acid (PFDaA)	ND		9.7	1.7	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluorotridecanoic acid (PFTriA)	ND		9.7	1.2	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluorotetradecanoic acid (PFTeA)	ND		9.7	2.2	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluorobutanesulfonic acid (PFBS)	19		9.7	2.1	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluorohexanesulfonic acid (PFHxS)	39		9.7	1.3	ng/L		01/08/19 11:00	01/10/19 00:38	5

TestAmerica Buffalo

Client Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Client Sample ID: 779081

Date Collected: 12/27/18 15:14

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-4

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic Acid (PFHpS)	5.2	J	9.7	4.0	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluorooctanesulfonic acid (PFOS)	260		9.7	3.7	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluorodecanesulfonic acid (PFDS)	ND		9.7	2.6	ng/L		01/08/19 11:00	01/10/19 00:38	5
Perfluorooctanesulfonamide (PFOSA)	ND		9.7	2.7	ng/L		01/08/19 11:00	01/10/19 00:38	5
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		97	2.2	ng/L		01/08/19 11:00	01/10/19 00:38	5
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	13	J	97	3.4	ng/L		01/08/19 11:00	01/10/19 00:38	5
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		390	19	ng/L		01/08/19 11:00	01/10/19 16:29	20
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		97	2.7	ng/L		01/08/19 11:00	01/10/19 00:38	5

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	106		50 - 150	01/08/19 11:00	01/10/19 00:38	5
13C4 PFHpA	56		50 - 150	01/08/19 11:00	01/10/19 00:38	5
13C4 PFOA	87		50 - 150	01/08/19 11:00	01/10/19 16:29	20
13C4 PFOS	120		50 - 150	01/08/19 11:00	01/10/19 00:38	5
13C5 PFNA	101		50 - 150	01/08/19 11:00	01/10/19 00:38	5
13C4 PFBA	22 *		25 - 150	01/08/19 11:00	01/10/19 00:38	5
13C2 PFHxA	36 *		50 - 150	01/08/19 11:00	01/10/19 00:38	5
13C2 PFDA	112		50 - 150	01/08/19 11:00	01/10/19 00:38	5
13C2 PFUnA	110		50 - 150	01/08/19 11:00	01/10/19 00:38	5
13C2 PFDoA	77		50 - 150	01/08/19 11:00	01/10/19 00:38	5
13C8 FOSA	102		25 - 150	01/08/19 11:00	01/10/19 00:38	5
13C5 PFPeA	37		25 - 150	01/08/19 11:00	01/10/19 00:38	5
13C2 PFTeDA	57		50 - 150	01/08/19 11:00	01/10/19 00:38	5
d3-NMeFOSAA	67		50 - 150	01/08/19 11:00	01/10/19 00:38	5
d5-NEtFOSAA	96		50 - 150	01/08/19 11:00	01/10/19 00:38	5
M2-6:2 FTS	359 *		25 - 150	01/08/19 11:00	01/10/19 16:29	20
M2-8:2 FTS	224 *		25 - 150	01/08/19 11:00	01/10/19 00:38	5
13C3 PFBS	74		50 - 150	01/08/19 11:00	01/10/19 00:38	5

Client Sample ID: 779082 (Field Blank)

Date Collected: 12/27/18 14:59

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-5

Matrix: Water

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		01/02/19 12:01	01/08/19 20:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	31		15 - 110				01/02/19 12:01	01/08/19 20:14	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.9	0.39	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.71	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.23	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.30	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.30	ng/L		01/08/19 11:00	01/10/19 00:54	1

TestAmerica Buffalo

Client Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Client Sample ID: 779082 (Field Blank)

Lab Sample ID: 480-147352-5

Date Collected: 12/27/18 14:59

Matrix: Water

Date Received: 12/29/18 01:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND		1.9	0.36	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.36	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.24	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.33	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.23	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.43	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.42	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.25	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.78	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.72	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.50	ng/L		01/08/19 11:00	01/10/19 00:54	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.53	ng/L		01/08/19 11:00	01/10/19 00:54	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	0.43	ng/L		01/08/19 11:00	01/10/19 00:54	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	0.67	ng/L		01/08/19 11:00	01/10/19 00:54	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		19	0.95	ng/L		01/08/19 11:00	01/10/19 00:54	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		19	0.53	ng/L		01/08/19 11:00	01/10/19 00:54	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	94		50 - 150				01/08/19 11:00	01/10/19 00:54	1
13C4 PFHpA	80		50 - 150				01/08/19 11:00	01/10/19 00:54	1
13C4 PFOA	79		50 - 150				01/08/19 11:00	01/10/19 00:54	1
13C4 PFOS	96		50 - 150				01/08/19 11:00	01/10/19 00:54	1
13C5 PFNA	77		50 - 150				01/08/19 11:00	01/10/19 00:54	1
13C4 PFBA	101		25 - 150				01/08/19 11:00	01/10/19 00:54	1
13C2 PFHxA	86		50 - 150				01/08/19 11:00	01/10/19 00:54	1
13C2 PFDA	76		50 - 150				01/08/19 11:00	01/10/19 00:54	1
13C2 PFUnA	76		50 - 150				01/08/19 11:00	01/10/19 00:54	1
13C2 PFDoA	61		50 - 150				01/08/19 11:00	01/10/19 00:54	1
13C8 FOSA	64		25 - 150				01/08/19 11:00	01/10/19 00:54	1
13C5 PFPeA	110		25 - 150				01/08/19 11:00	01/10/19 00:54	1
13C2 PFTeDA	50		50 - 150				01/08/19 11:00	01/10/19 00:54	1
d3-NMeFOSAA	55		50 - 150				01/08/19 11:00	01/10/19 00:54	1
d5-NEtFOSAA	66		50 - 150				01/08/19 11:00	01/10/19 00:54	1
M2-6:2 FTS	128		25 - 150				01/08/19 11:00	01/10/19 00:54	1
M2-8:2 FTS	83		25 - 150				01/08/19 11:00	01/10/19 00:54	1
13C3 PFBS	101		50 - 150				01/08/19 11:00	01/10/19 00:54	1

Isotope Dilution Summary

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DXE (15-110)
480-147352-1	779077	29
480-147352-2	779078	29
480-147352-2 MS	779078	30
480-147352-2 MSD	779078	28
480-147352-3	779079	30
480-147352-4	779081	29
480-147352-5	779082 (Field Blank)	31
LCS 480-453341/2-A	Lab Control Sample	29
MB 480-453341/1-A	Method Blank	28
Surrogate Legend		
DXE = 1,4-Dioxane-d8		

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	PFHxS (50-150)	PFHpA (50-150)	PFOA (50-150)	PFOS (50-150)	PFNA (50-150)	PFBA (25-150)	PFHxA (50-150)	PFDA (50-150)
480-147352-1	779077	85	57	65	89	66	16 *	37 *	70
480-147352-2	779078	109	59		148	105	22 *	42 *	117
480-147352-2	779078			85					
480-147352-2 MS	779078	103	59		141	109	20 *	40 *	124
480-147352-2 MS	779078			62					
480-147352-2 MSD	779078	90	49 *	71	115	90	22 *	32 *	102
480-147352-2 MSD	779078			61					
480-147352-3	779079	84	60	74	77	63	86	66	57
480-147352-4	779081	106	56		120	101	22 *	36 *	112
480-147352-4	779081			87					
480-147352-5	779082 (Field Blank)	94	80	79	96	77	101	86	76
MB 200-138891/1-A	Method Blank	99	70	80	101	74	78	80	78
Percent Isotope Dilution Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	PFUnA (50-150)	PFDaA (50-150)	PFOSA (25-150)	PFPeA (25-150)	PFTDA (50-150)	-NMeFOS (50-150)	-NEtFOS/ (50-150)	M262FTS (25-150)
480-147352-1	779077	64	49 *	68	33	45 *	42 *	55	175 *
480-147352-2	779078	112	79	96	37	50	69	102	
480-147352-2	779078								191 *
480-147352-2 MS	779078	102	73	94	49	51	81	86	
480-147352-2 MS	779078								196 *
480-147352-2 MSD	779078	104	74	85	35	45 *	75	88	215 *
480-147352-2 MSD	779078								181 *
480-147352-3	779079	54	43 *	57	77	33 *	38 *	42 *	145
480-147352-4	779081	110	77	102	37	57	67	96	
480-147352-4	779081								359 *
480-147352-5	779082 (Field Blank)	76	61	64	110	50	55	66	128
MB 200-138891/1-A	Method Blank	79	69	59	99	55	52	64	136

Isotope Dilution Summary

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)	
		M282FTS (25-150)	3C3-PFB: (50-150)
480-147352-1	779077	92	62
480-147352-2	779078	231 *	84
480-147352-2	779078		
480-147352-2 MS	779078	261 *	87
480-147352-2 MS	779078		
480-147352-2 MSD	779078	217 *	78
480-147352-2 MSD	779078		
480-147352-3	779079	76	86
480-147352-4	779081	224 *	74
480-147352-4	779081		
480-147352-5	779082 (Field Blank)	83	101
MB 200-138891/1-A	Method Blank	99	112

Surrogate Legend

PFHxS = 18O2 PFHxS
PFHpA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFNA = 13C5 PFNA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDaA = 13C2 PFDaA
PFOSA = 13C8 FOSA
PFPeA = 13C5 PFPeA
PFTDA = 13C2 PFTeDA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
13C3-PFBS = 13C3 PFBS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFHxS (25-150)	PFHpA (25-150)	PFOA (25-150)	PFOS (25-150)	PFNA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFDA (25-150)
LCS 200-138891/2-A	Lab Control Sample	109	79	78	109	75	87	79	81
Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFUnA (25-150)	PFDaA (25-150)	PFOSA (25-150)	PFPeA (25-150)	PFTDA (25-150)	-NMeFOS (25-150)	-NEtFOS/ (25-150)	M262FTS (25-150)
LCS 200-138891/2-A	Lab Control Sample	76	63	57	98	53	56	65	150
Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		M282FTS (25-150)	3C3-PFB: (25-150)						
LCS 200-138891/2-A	Lab Control Sample	102	114						

TestAmerica Buffalo

Isotope Dilution Summary

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Surrogate Legend

PFHxS = 18O2 PFHxS
PFHpA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFNA = 13C5 PFNA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFOSA = 13C8 FOSA
PFPeA = 13C5 PFPeA
PFTDA = 13C2 PFTeDA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
13C3-PFBS = 13C3 PFBS

QC Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 480-453341/1-A
Matrix: Water
Analysis Batch: 454189

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 453341

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		01/02/19 12:01	01/08/19 16:52	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	28		15 - 110				01/02/19 12:01	01/08/19 16:52	1

Lab Sample ID: LCS 480-453341/2-A
Matrix: Water
Analysis Batch: 454189

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 453341

Analyte	LCS Result	LCS Qualifier	Spike Added	LCS Result	Unit	D	%Rec	Limits
1,4-Dioxane			1.00	1.03	ug/L		103	40 - 140
Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits					
1,4-Dioxane-d8	29		15 - 110					

Lab Sample ID: 480-147352-2 MS
Matrix: Water
Analysis Batch: 454620

Client Sample ID: 779078
Prep Type: Total/NA
Prep Batch: 453341

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	52	E	1.00	51.0	E 4	ug/L		-70	40 - 140
Isotope Dilution	MS %Recovery	MS Qualifier	Limits						
1,4-Dioxane-d8	30		15 - 110						

Lab Sample ID: 480-147352-2 MSD
Matrix: Water
Analysis Batch: 454620

Client Sample ID: 779078
Prep Type: Total/NA
Prep Batch: 453341

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	52	E	1.00	53.0	E 4	ug/L		135	40 - 140	4	20
Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits								
1,4-Dioxane-d8	28		15 - 110								

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-138891/1-A
Matrix: Water
Analysis Batch: 138946

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 138891

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.41	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.75	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.24	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.32	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.32	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.38	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.38	ng/L		01/08/19 11:00	01/09/19 18:32	1

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QC Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 200-138891/1-A

Matrix: Water

Analysis Batch: 138946

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 138891

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.25	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.35	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.24	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.45	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.44	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.26	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.82	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.76	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.53	ng/L		01/08/19 11:00	01/09/19 18:32	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.56	ng/L		01/08/19 11:00	01/09/19 18:32	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	0.45	ng/L		01/08/19 11:00	01/09/19 18:32	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	0.70	ng/L		01/08/19 11:00	01/09/19 18:32	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		20	1.0	ng/L		01/08/19 11:00	01/09/19 18:32	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	0.56	ng/L		01/08/19 11:00	01/09/19 18:32	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	99		50 - 150	01/08/19 11:00	01/09/19 18:32	1
13C4 PFHpA	70		50 - 150	01/08/19 11:00	01/09/19 18:32	1
13C4 PFOA	80		50 - 150	01/08/19 11:00	01/09/19 18:32	1
13C4 PFOS	101		50 - 150	01/08/19 11:00	01/09/19 18:32	1
13C5 PFNA	74		50 - 150	01/08/19 11:00	01/09/19 18:32	1
13C4 PFBA	78		25 - 150	01/08/19 11:00	01/09/19 18:32	1
13C2 PFHxA	80		50 - 150	01/08/19 11:00	01/09/19 18:32	1
13C2 PFDA	78		50 - 150	01/08/19 11:00	01/09/19 18:32	1
13C2 PFUnA	79		50 - 150	01/08/19 11:00	01/09/19 18:32	1
13C2 PFDoA	69		50 - 150	01/08/19 11:00	01/09/19 18:32	1
13C8 FOSA	59		25 - 150	01/08/19 11:00	01/09/19 18:32	1
13C5 PFPeA	99		25 - 150	01/08/19 11:00	01/09/19 18:32	1
13C2 PFTeDA	55		50 - 150	01/08/19 11:00	01/09/19 18:32	1
d3-NMeFOSAA	52		50 - 150	01/08/19 11:00	01/09/19 18:32	1
d5-NEtFOSAA	64		50 - 150	01/08/19 11:00	01/09/19 18:32	1
M2-6:2 FTS	136		25 - 150	01/08/19 11:00	01/09/19 18:32	1
M2-8:2 FTS	99		25 - 150	01/08/19 11:00	01/09/19 18:32	1
13C3 PFBS	112		50 - 150	01/08/19 11:00	01/09/19 18:32	1

Lab Sample ID: LCS 200-138891/2-A

Matrix: Water

Analysis Batch: 138946

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 138891

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	38.5		ng/L		96	50 - 150
Perfluoropentanoic acid (PFPeA)	40.0	34.0		ng/L		85	50 - 150
Perfluorohexanoic acid (PFHxA)	40.0	36.8		ng/L		92	50 - 150
Perfluoroheptanoic acid (PFHpA)	40.0	40.7		ng/L		102	50 - 150
Perfluorooctanoic acid (PFOA)	40.0	41.9		ng/L		105	50 - 150

TestAmerica Buffalo

QC Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-138891/2-A

Matrix: Water

Analysis Batch: 138946

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 138891

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorononanoic acid (PFNA)	40.0	34.3		ng/L		86	50 - 150
Perfluorodecanoic acid (PFDA)	40.0	35.7		ng/L		89	50 - 150
Perfluoroundecanoic acid (PFUnA)	40.0	41.6		ng/L		104	50 - 150
Perfluorododecanoic acid (PFDoA)	40.0	40.8		ng/L		102	50 - 150
Perfluorotridecanoic acid (PFTriA)	40.0	43.6		ng/L		109	50 - 150
Perfluorotetradecanoic acid (PFTeA)	40.0	36.7		ng/L		92	50 - 150
Perfluorobutanesulfonic acid (PFBS)	35.4	30.9		ng/L		87	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	36.4	28.8		ng/L		79	50 - 150
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	34.4		ng/L		90	50 - 150
Perfluorooctanesulfonic acid (PFOS)	37.1	35.4		ng/L		95	50 - 150
Perfluorodecanesulfonic acid (PFDS)	38.6	30.5		ng/L		79	50 - 150
Perfluorooctanesulfonamide (PFOSA)	40.0	34.1		ng/L		85	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	30.1		ng/L		75	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	29.9		ng/L		75	50 - 150
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	37.9	35.2		ng/L		93	50 - 150
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	38.3	38.0		ng/L		99	50 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
18O2 PFHxS	109		25 - 150
13C4 PFHpA	79		25 - 150
13C4 PFOA	78		25 - 150
13C4 PFOS	109		25 - 150
13C5 PFNA	75		25 - 150
13C4 PFBA	87		25 - 150
13C2 PFHxA	79		25 - 150
13C2 PFDA	81		25 - 150
13C2 PFUnA	76		25 - 150
13C2 PFDoA	63		25 - 150
13C8 FOSA	57		25 - 150
13C5 PFPeA	98		25 - 150
13C2 PFTeDA	53		25 - 150
d3-NMeFOSAA	56		25 - 150
d5-NEtFOSAA	65		25 - 150
M2-6:2 FTS	150		25 - 150
M2-8:2 FTS	102		25 - 150
13C3 PFBS	114		25 - 150

TestAmerica Buffalo

QC Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-147352-2 MS

Matrix: Water

Analysis Batch: 138946

Client Sample ID: 779078

Prep Type: Total/NA

Prep Batch: 138891

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	ND	G	38.5	ND	G	ng/L		NC	40 - 160
Perfluoropentanoic acid (PFPeA)	20		38.5	40.7		ng/L		53	40 - 160
Perfluorohexanoic acid (PFHxA)	66		38.5	108		ng/L		109	40 - 160
Perfluoroheptanoic acid (PFHpA)	36		38.5	80.7		ng/L		115	40 - 160
Perfluorononanoic acid (PFNA)	ND		38.5	33.6		ng/L		87	40 - 160
Perfluorodecanoic acid (PFDA)	ND		38.5	35.8		ng/L		93	40 - 160
Perfluoroundecanoic acid (PFUnA)	ND		38.5	39.6		ng/L		103	40 - 160
Perfluorododecanoic acid (PFDoA)	ND		38.5	37.0		ng/L		96	40 - 160
Perfluorotridecanoic acid (PFTriA)	ND		38.5	38.2		ng/L		99	40 - 160
Perfluorotetradecanoic acid (PFTeA)	ND		38.5	30.2		ng/L		78	40 - 160
Perfluorobutanesulfonic acid (PFBS)	19		34.0	42.3		ng/L		69	40 - 160
Perfluorohexanesulfonic acid (PFHxS)	44		35.0	79.9		ng/L		102	40 - 160
Perfluoroheptanesulfonic Acid (PFHpS)	6.7	J	36.7	31.2		ng/L		67	40 - 160
Perfluorooctanesulfonic acid (PFOS)	270		35.7	331	4	ng/L		173	40 - 160
Perfluorodecanesulfonic acid (PFDS)	ND		37.1	22.2		ng/L		60	40 - 160
Perfluorooctanesulfonamide (PFOSA)	ND		38.5	44.1		ng/L		115	40 - 160
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	F2	38.5	26.6	J	ng/L		69	40 - 160
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	14	J F2	38.5	55.0	J	ng/L		106	40 - 160
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		36.9	36.1	J	ng/L		98	40 - 160

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
18O2 PFHxS	103		50 - 150
13C4 PFHpA	59		50 - 150
13C4 PFOS	141		50 - 150
13C5 PFNA	109		50 - 150
13C4 PFBA	20	*	25 - 150
13C2 PFHxA	40	*	50 - 150
13C2 PFDA	124		50 - 150
13C2 PFUnA	102		50 - 150
13C2 PFDoA	73		50 - 150
13C8 FOSA	94		25 - 150
13C5 PFPeA	49		25 - 150
13C2 PFTeDA	51		50 - 150
d3-NMeFOSAA	81		50 - 150
d5-NEtFOSAA	86		50 - 150
M2-8:2 FTS	261	*	25 - 150
13C3 PFBS	87		50 - 150

TestAmerica Buffalo

QC Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-147352-2 MS

Matrix: Water

Analysis Batch: 138989

Client Sample ID: 779078

Prep Type: Total/NA

Prep Batch: 138891

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanoic acid (PFOA)	140	F1	38.5	241	F1	ng/L		267	40 - 160
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		36.5	47.6	J	ng/L		130	40 - 160
Isotope Dilution	MS %Recovery	MS Qualifier	Limits						
¹³ C4 PFOA	62		50 - 150						
M2-6:2 FTS	196	*	25 - 150						

Lab Sample ID: 480-147352-2 MSD

Matrix: Water

Analysis Batch: 138946

Client Sample ID: 779078

Prep Type: Total/NA

Prep Batch: 138891

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
Perfluorobutanoic acid (PFBA)	ND	G	38.0	ND	G	ng/L		NC	40 - 160	NC	30
Perfluoropentanoic acid (PFPeA)	20		38.0	46.5		ng/L		69	40 - 160	13	30
Perfluorohexanoic acid (PFHxA)	66		38.0	127		ng/L		159	40 - 160	16	30
Perfluoroheptanoic acid (PFHpA)	36		38.0	81.1		ng/L		118	40 - 160	0	30
Perfluorononanoic acid (PFNA)	ND		38.0	32.2		ng/L		85	40 - 160	4	30
Perfluorodecanoic acid (PFDA)	ND		38.0	34.4		ng/L		91	40 - 160	4	30
Perfluoroundecanoic acid (PFUnA)	ND		38.0	34.2		ng/L		90	40 - 160	15	30
Perfluorododecanoic acid (PFDoA)	ND		38.0	31.3		ng/L		82	40 - 160	17	30
Perfluorotridecanoic acid (PFTriA)	ND		38.0	43.2		ng/L		114	40 - 160	12	30
Perfluorotetradecanoic acid (PFTeA)	ND		38.0	31.8		ng/L		84	40 - 160	5	30
Perfluorobutanesulfonic acid (PFBS)	19		33.6	37.6		ng/L		56	40 - 160	12	30
Perfluorohexanesulfonic acid (PFHxS)	44		34.6	67.7		ng/L		68	40 - 160	17	30
Perfluoroheptanesulfonic Acid (PFHpS)	6.7	J	36.2	32.9		ng/L		73	40 - 160	6	30
Perfluorooctanesulfonic acid (PFOS)	270		35.3	312	4	ng/L		121	40 - 160	6	30
Perfluorodecanesulfonic acid (PFDS)	ND		36.6	26.9		ng/L		73	40 - 160	19	30
Perfluorooctanesulfonamide (PFOSA)	ND		38.0	35.0		ng/L		92	40 - 160	23	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	F2	38.0	18.3	J F2	ng/L		48	40 - 160	37	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	14	J F2	38.0	38.8	J F2	ng/L		65	40 - 160	34	30
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		36.4	40.1	J	ng/L		110	40 - 160	10	30
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TestAmerica Buffalo

QC Sample Results

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-147352-2 MSD

Matrix: Water

Analysis Batch: 138946

Client Sample ID: 779078

Prep Type: Total/NA

Prep Batch: 138891

Isotope Dilution	MSD		Limits
	%Recovery	Qualifier	
¹³ C4 PFBA	22	*	25 - 150
¹³ C2 PFHxA	32	*	50 - 150
¹³ C2 PFDA	102		50 - 150
¹³ C2 PFUnA	104		50 - 150
¹³ C2 PFDoA	74		50 - 150
¹³ C8 FOSA	85		25 - 150
¹³ C5 PFPeA	35		25 - 150
¹³ C2 PFTeDA	45	*	50 - 150
d3-NMeFOSAA	75		50 - 150
d5-NEtFOSAA	88		50 - 150
M2-6:2 FTS	215	*	25 - 150
M2-8:2 FTS	217	*	25 - 150
¹³ C3 PFBS	78		50 - 150

Lab Sample ID: 480-147352-2 MSD

Matrix: Water

Analysis Batch: 138989

Client Sample ID: 779078

Prep Type: Total/NA

Prep Batch: 138891

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Perfluorooctanoic acid (PFOA)	140	F1	38.0	191		ng/L		141	40 - 160	23	30
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		36.0	38.3	J	ng/L		106	40 - 160	22	30
Isotope Dilution	MSD		Limits								
	%Recovery	Qualifier									
¹³ C4 PFOA	61		50 - 150								
M2-6:2 FTS	181	*	25 - 150								

QC Association Summary

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

GC/MS Semi VOA

Prep Batch: 453341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-147352-1	779077	Total/NA	Water	3510C	
480-147352-2	779078	Total/NA	Water	3510C	
480-147352-3	779079	Total/NA	Water	3510C	
480-147352-4	779081	Total/NA	Water	3510C	
480-147352-5	779082 (Field Blank)	Total/NA	Water	3510C	
MB 480-453341/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-453341/2-A	Lab Control Sample	Total/NA	Water	3510C	
480-147352-2 MS	779078	Total/NA	Water	3510C	
480-147352-2 MSD	779078	Total/NA	Water	3510C	

Analysis Batch: 454189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-147352-1	779077	Total/NA	Water	8270D SIM ID	453341
480-147352-3	779079	Total/NA	Water	8270D SIM ID	453341
480-147352-5	779082 (Field Blank)	Total/NA	Water	8270D SIM ID	453341
MB 480-453341/1-A	Method Blank	Total/NA	Water	8270D SIM ID	453341
LCS 480-453341/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	453341

Analysis Batch: 454620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-147352-2	779078	Total/NA	Water	8270D SIM ID	453341
480-147352-4	779081	Total/NA	Water	8270D SIM ID	453341
480-147352-2 MS	779078	Total/NA	Water	8270D SIM ID	453341
480-147352-2 MSD	779078	Total/NA	Water	8270D SIM ID	453341

LCMS

Prep Batch: 138891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-147352-1	779077	Total/NA	Water	3535	
480-147352-2	779078	Total/NA	Water	3535	
480-147352-3	779079	Total/NA	Water	3535	
480-147352-4	779081	Total/NA	Water	3535	
480-147352-5	779082 (Field Blank)	Total/NA	Water	3535	
MB 200-138891/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-138891/2-A	Lab Control Sample	Total/NA	Water	3535	
480-147352-2 MS	779078	Total/NA	Water	3535	
480-147352-2 MSD	779078	Total/NA	Water	3535	

Analysis Batch: 138946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-147352-1	779077	Total/NA	Water	537 (modified)	138891
480-147352-2	779078	Total/NA	Water	537 (modified)	138891
480-147352-3	779079	Total/NA	Water	537 (modified)	138891
480-147352-4	779081	Total/NA	Water	537 (modified)	138891
480-147352-5	779082 (Field Blank)	Total/NA	Water	537 (modified)	138891
MB 200-138891/1-A	Method Blank	Total/NA	Water	537 (modified)	138891
LCS 200-138891/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	138891
480-147352-2 MS	779078	Total/NA	Water	537 (modified)	138891
480-147352-2 MSD	779078	Total/NA	Water	537 (modified)	138891

TestAmerica Buffalo

QC Association Summary

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

LCMS (Continued)

Analysis Batch: 138989

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-147352-2	779078	Total/NA	Water	537 (modified)	138891
480-147352-4	779081	Total/NA	Water	537 (modified)	138891
480-147352-2 MS	779078	Total/NA	Water	537 (modified)	138891
480-147352-2 MSD	779078	Total/NA	Water	537 (modified)	138891

Lab Chronicle

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Client Sample ID: 779077

Date Collected: 12/27/18 11:30

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			453341	01/02/19 12:01	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	454189	01/08/19 18:58	DMR	TAL BUF
Total/NA	Prep	3535			138891	01/08/19 11:00	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	138946	01/09/19 23:18	JM1	TAL BUR

Client Sample ID: 779078

Date Collected: 12/27/18 15:10

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			453341	01/02/19 12:01	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		25	454620	01/10/19 19:13	DMR	TAL BUF
Total/NA	Prep	3535			138891	01/08/19 11:00	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		5	138946	01/09/19 23:34	JM1	TAL BUR
Total/NA	Prep	3535			138891	01/08/19 11:00	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		20	138989	01/10/19 15:42	BWC	TAL BUR

Client Sample ID: 779079

Date Collected: 12/27/18 10:56

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			453341	01/02/19 12:01	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	454189	01/08/19 19:23	DMR	TAL BUF
Total/NA	Prep	3535			138891	01/08/19 11:00	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	138946	01/10/19 00:22	JM1	TAL BUR

Client Sample ID: 779081

Date Collected: 12/27/18 15:14

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			453341	01/02/19 12:01	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		25	454620	01/10/19 19:37	DMR	TAL BUF
Total/NA	Prep	3535			138891	01/08/19 11:00	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		5	138946	01/10/19 00:38	JM1	TAL BUR
Total/NA	Prep	3535			138891	01/08/19 11:00	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		20	138989	01/10/19 16:29	BWC	TAL BUR

Lab Chronicle

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Client Sample ID: 779082 (Field Blank)

Date Collected: 12/27/18 14:59

Date Received: 12/29/18 01:00

Lab Sample ID: 480-147352-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			453341	01/02/19 12:01	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	454189	01/08/19 20:14	DMR	TAL BUF
Total/NA	Prep	3535			138891	01/08/19 11:00	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	138946	01/10/19 00:54	JM1	TAL BUR

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Method Summary

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Method	Method Description	Protocol	Laboratory
8270D SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	TAL BUF
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL BUR
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF
3535	Solid-Phase Extraction (SPE)	SW846	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: Certified Environmental Services
Project/Site: PFAS & 1,4 Dioxane Analysis

TestAmerica Job ID: 480-147352-1

Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD ELAP		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19 *
Florida	NELAP	4	E87467	06-30-19
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-19
New Hampshire	NELAP	1	2006	12-18-19
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19
Pennsylvania	NELAP	3	68-00489	04-30-19
Rhode Island	State Program	1	LAO00298	12-30-19
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-19
Virginia	NELAP	3	460209	12-14-19

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

TestAmerica Buffalo

Method 8270D

SIM-ID

Semivolatile Organic Compounds
(GC/MS SIM / Isotope Dilution) by
Method 8270D

FORM II
GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: TestAmerica Buffalo

Job No.: 480-147352-1

SDG No.: _____

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	DXE #
779077	480-147352-1	29
779078	480-147352-2	29
779079	480-147352-3	30
779081	480-147352-4	29
779082 (Field Blank)	480-147352-5	31
	MB 480-453341/1-A	28
	LCS 480-453341/2-A	29
779078 MS	480-147352-2 MS	30
779078 MSD	480-147352-2 MSD	28

DXE = 1,4-Dioxane-d8

QC LIMITS
15-110

Column to be used to flag recovery values

FORM II 8270D SIM ID

FORM III
GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
SDG No.: _____
Matrix: Water Level: Low Lab File ID: U3314661.D
Lab ID: LCS 480-453341/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,4-Dioxane	1.00	1.03	103	40-140	
1,4-Dioxane-d8	10.0	2.86	29	15-110	

Column to be used to flag recovery and RPD values

FORM III 8270D SIM ID

FORM III
GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
SDG No.: _____
Matrix: Water Level: Low Lab File ID: U3314703.D
Lab ID: 480-147352-2 MS Client ID: 779078 MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,4-Dioxane	1.00	52	51.0	-70	40-140	E 4
1,4-Dioxane-d8	10.0	2.9	3.03	30	15-110	

Column to be used to flag recovery and RPD values

FORM III 8270D SIM ID

FORM III
GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: U3314704.D
 Lab ID: 480-147352-2 MSD Client ID: 779078 MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,4-Dioxane	1.00	53.0	135	4	20	40-140	E 4
1,4-Dioxane-d8	10.0	2.79	28			15-110	

Column to be used to flag recovery and RPD values

FORM III 8270D SIM ID

FORM IV
GC/MS SEMI VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
 SDG No.: _____
 Lab File ID: U3314660.D Lab Sample ID: MB 480-453341/1-A
 Matrix: Water Date Extracted: 01/02/2019 12:01
 Instrument ID: HP5973U Date Analyzed: 01/08/2019 16:52
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 480-453341/2-A	U3314661.D	01/08/2019 17:17
779077	480-147352-1	U3314665.D	01/08/2019 18:58
779079	480-147352-3	U3314666.D	01/08/2019 19:23
779082 (Field Blank)	480-147352-5	U3314668.D	01/08/2019 20:14
779078 MS	480-147352-2 MS	U3314703.D	01/10/2019 18:25
779078 MSD	480-147352-2 MSD	U3314704.D	01/10/2019 18:49
779078	480-147352-2	U3314705.D	01/10/2019 19:13
779081	480-147352-4	U3314706.D	01/10/2019 19:37

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
SDG No.: _____
Lab File ID: U3314029.D DFTPP Injection Date: 12/07/2018
Instrument ID: HP5973U DFTPP Injection Time: 15:11
Analysis Batch No.: 449428

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10-80% of Base Peak	58.1
68	Less than 2% of mass 69	0.0 (0.0) 1
69	Mass 69 Relative abundance	55.1
70	Less than 2% of mass 69	0.2 (0.4) 1
127	10-80% of Base Peak	59.1
197	Less than 2% of mass 198	0.0
198	Base peak	100.0
199	5-9% of mass 198	6.8
275	10-60% of Base Peak	26.6
365	Greater than 1% of mass 198	3.6
441	present but less than 24% of mass 442	11.8 (15.9) 2
442	Greater than 50% of mass 198	74.5
443	15-24% of mass 442	13.7 (18.4) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	IC 480-449428/3	U3314030.D	12/07/2018	15:39
	IC 480-449428/4	U3314031.D	12/07/2018	16:04
	ICIS 480-449428/5	U3314032.D	12/07/2018	16:28
	IC 480-449428/6	U3314033.D	12/07/2018	16:52
	IC 480-449428/7	U3314034.D	12/07/2018	17:17
	IC 480-449428/8	U3314035.D	12/07/2018	17:41

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
SDG No.: _____
Lab File ID: U3314653.D DFTPP Injection Date: 01/08/2019
Instrument ID: HP5973U DFTPP Injection Time: 13:53
Analysis Batch No.: 454189

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10-80% of Base Peak	38.7
68	Less than 2% of mass 69	0.0 (0.0) 1
69	Mass 69 Relative abundance	41.2
70	Less than 2% of mass 69	0.2 (0.4) 1
127	10-80% of Base Peak	51.0
197	Less than 2% of mass 198	0.0
198	Base peak	100.0
199	5-9% of mass 198	7.1
275	10-60% of Base Peak	30.2
365	Greater than 1% of mass 198	4.1
441	present but less than 24% of mass 442	14.8 (17.5) 2
442	Greater than 50% of mass 198	84.2
443	15-24% of mass 442	16.1 (19.2) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 480-454189/3	U3314654.D	01/08/2019	14:23
	MB 480-453341/1-A	U3314660.D	01/08/2019	16:52
	LCS 480-453341/2-A	U3314661.D	01/08/2019	17:17
779077	480-147352-1	U3314665.D	01/08/2019	18:58
779079	480-147352-3	U3314666.D	01/08/2019	19:23
779082 (Field Blank)	480-147352-5	U3314668.D	01/08/2019	20:14

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
SDG No.: _____
Lab File ID: U3314701.D DFTPP Injection Date: 01/10/2019
Instrument ID: HP5973U DFTPP Injection Time: 17:32
Analysis Batch No.: 454620

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10-80% of Base Peak	36.7
68	Less than 2% of mass 69	0.1 (0.2) 1
69	Mass 69 Relative abundance	39.8
70	Less than 2% of mass 69	0.2 (0.6) 1
127	10-80% of Base Peak	48.9
197	Less than 2% of mass 198	0.0
198	Base peak	100.0
199	5-9% of mass 198	6.6
275	10-60% of Base Peak	30.8
365	Greater than 1% of mass 198	4.1
441	present but less than 24% of mass 442	15.4 (16.6) 2
442	Greater than 50% of mass 198	92.4
443	15-24% of mass 442	18.4 (19.9) 2

1-Value is % mass 69

2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 480-454620/3	U3314702.D	01/10/2019	18:01
779078 MS	480-147352-2 MS	U3314703.D	01/10/2019	18:25
779078 MSD	480-147352-2 MSD	U3314704.D	01/10/2019	18:49
779078	480-147352-2	U3314705.D	01/10/2019	19:13
779081	480-147352-4	U3314706.D	01/10/2019	19:37

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

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
 SDG No.: _____
 Sample No.: ICIS 480-449428/5 Date Analyzed: 12/07/2018 16:28
 Instrument ID: HP5973U GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm)
 Lab File ID (Standard): U3314032.D Heated Purge: (Y/N) N
 Calibration ID: 35518

	DCBd4					
	AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT	358908	5.95				
UPPER LIMIT	717816	6.45				
LOWER LIMIT	179454	5.45				
LAB SAMPLE ID	CLIENT SAMPLE ID					
CCVIS 480-454189/3		319549	5.79			
CCVIS 480-454620/3		301303	5.79			

DCBd4 = 1,4-Dichlorobenzene-d4

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

Column used to flag values outside QC limits

FORM VIII 8270D SIM ID

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

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
 SDG No.: _____
 Sample No.: CCVIS 480-454189/3 Date Analyzed: 01/08/2019 14:23
 Instrument ID: HP5973U GC Column: RXI-5Sil MS(0.5 ID: 0.25 (mm)
 Lab File ID (Standard): U3314654.D Heated Purge: (Y/N) N
 Calibration ID: 35518

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		319549	5.79				
UPPER LIMIT		639098	6.29				
LOWER LIMIT		159775	5.29				
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 480-453341/1-A		323436	5.80				
LCS 480-453341/2-A		327599	5.81				
480-147352-1	779077	316658	5.80				
480-147352-3	779079	310610	5.81				
480-147352-5	779082 (Field Blank)	323266	5.80				

DCBd4 = 1,4-Dichlorobenzene-d4
 DCBd4 = 1,4-Dichlorobenzene-d4

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

Column used to flag values outside QC limits

FORM VIII 8270D SIM ID

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

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
 SDG No.: _____
 Sample No.: CCVIS 480-454620/3 Date Analyzed: 01/10/2019 18:01
 Instrument ID: HP5973U GC Column: RXI-5Sil MS(0.5 ID: 0.25 (mm)
 Lab File ID (Standard): U3314702.D Heated Purge: (Y/N) N
 Calibration ID: 35518

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		301303	5.79				
UPPER LIMIT		602606	6.29				
LOWER LIMIT		150652	5.29				
LAB SAMPLE ID	CLIENT SAMPLE ID						
480-147352-2 MS	779078 MS	298591	5.79				
480-147352-2 MSD	779078 MSD	306498	5.79				
480-147352-2	779078	306022	5.79				
480-147352-4	779081	313117	5.79				

DCBd4 = 1,4-Dichlorobenzene-d4
 DCBd4 = 1,4-Dichlorobenzene-d4

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

Column used to flag values outside QC limits

FORM VIII 8270D SIM ID

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
 SDG No.: _____
 Client Sample ID: 779077 Lab Sample ID: 480-147352-1
 Matrix: Water Lab File ID: U3314665.D
 Analysis Method: 8270D SIM ID Date Collected: 12/27/2018 11:30
 Extract. Method: 3510C Date Extracted: 01/02/2019 12:01
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/08/2019 18:58
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 454189 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	3.2	E	0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	29		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314665.D
 Lims ID: 480-147352-D-1-A
 Client ID: 779077
 Sample Type: Client
 Inject. Date: 08-Jan-2019 18:58:30 ALS Bottle#: 14 Worklist Smp#: 14
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077828-014
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 09-Jan-2019 13:57:45 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICAL File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0307

First Level Reviewer: richardsd

Date: 09-Jan-2019 13:41:40

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
D 1 1,4-Dioxane-d8	96	2.587	2.501	0.086	87	110329	2.91	29.1	
3 1,4-Dioxane	88	2.619	2.542	0.077	87	37901	3.23		E
* 2 1,4-Dichlorobenzene-d4	152	5.802	5.794	0.008	99	316658	4.00		

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

MB_LLIS_WRK_00161

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314665.D

Injection Date: 08-Jan-2019 18:58:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-147352-D-1-A

Lab Sample ID: 480-147352-1

Worklist Smp#: 14

Client ID: 779077

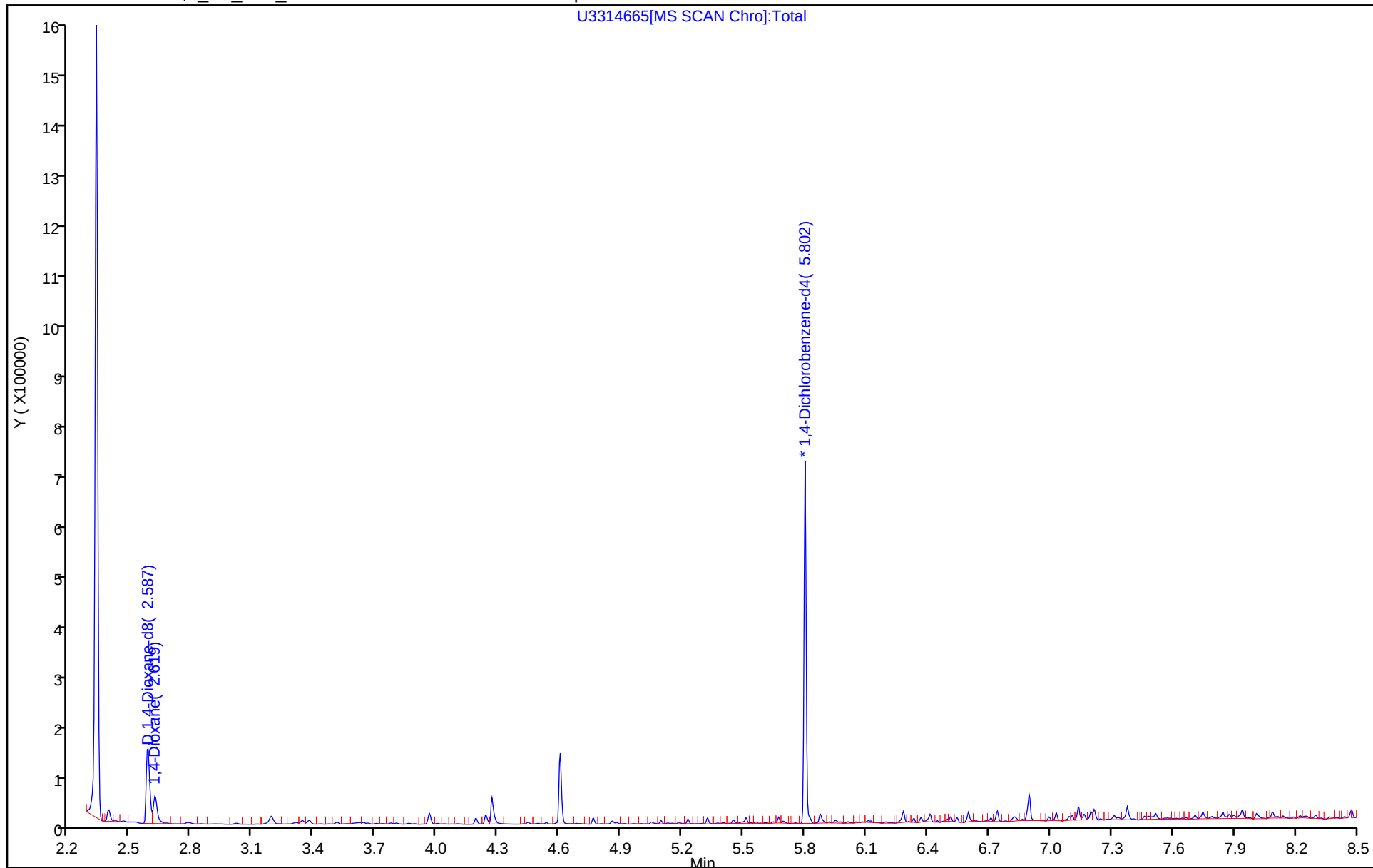
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 14

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314665.D

Injection Date: 08-Jan-2019 18:58:30

Instrument ID: HP5973U

Lims ID: 480-147352-D-1-A

Lab Sample ID: 480-147352-1

Client ID: 779077

Operator ID: DR

ALS Bottle#: 14

Worklist Smp#: 14

Injection Vol: 1.0 ul

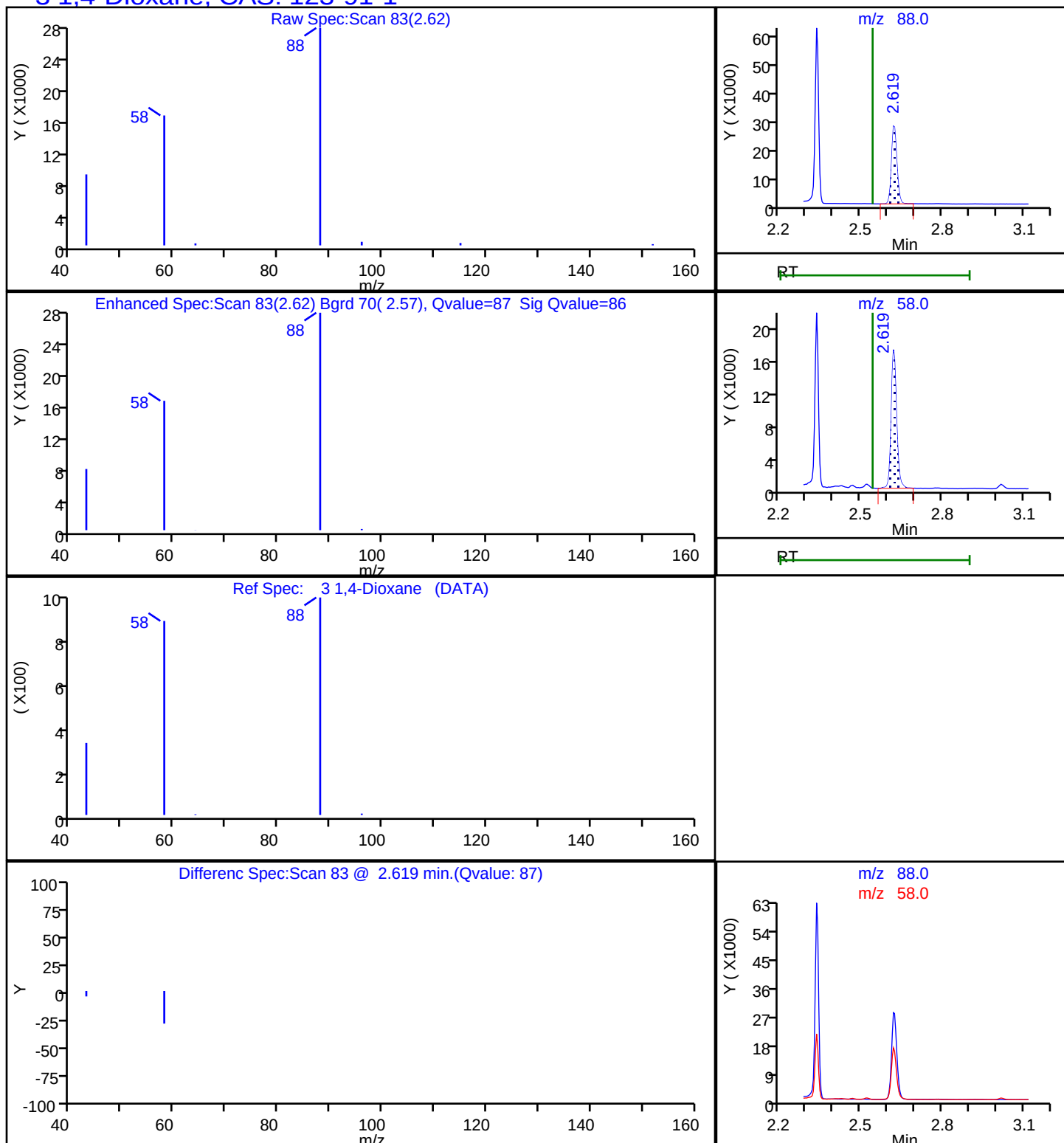
Dil. Factor: 1.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector MS SCAN

3 1,4-Dioxane, CAS: 123-91-1

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314665.D

Injection Date: 08-Jan-2019 18:58:30

Instrument ID: HP5973U

Lims ID: 480-147352-D-1-A

Lab Sample ID: 480-147352-1

Client ID: 779077

Operator ID: DR

ALS Bottle#: 14

Worklist Smp#: 14

Injection Vol: 1.0 ul

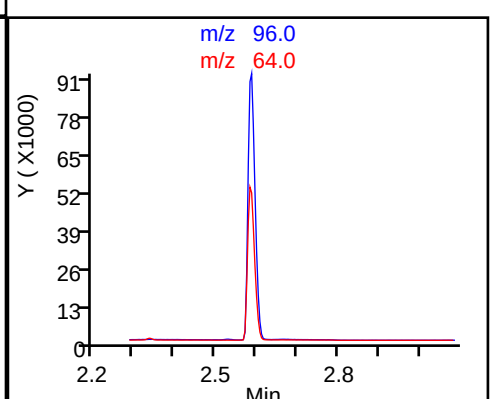
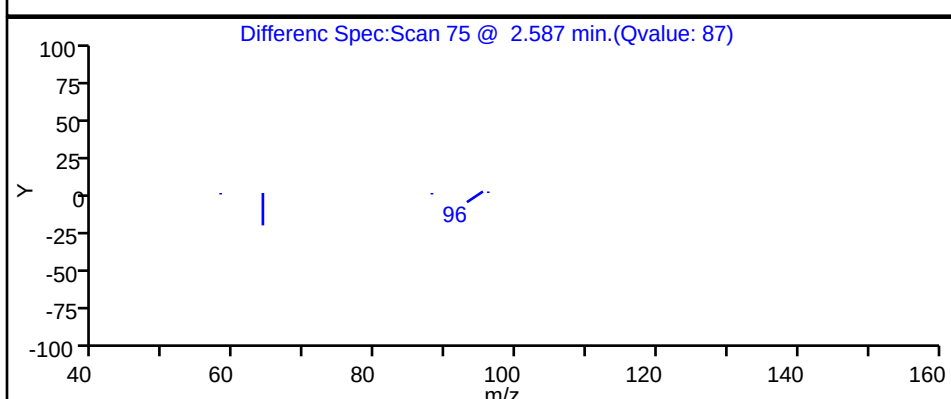
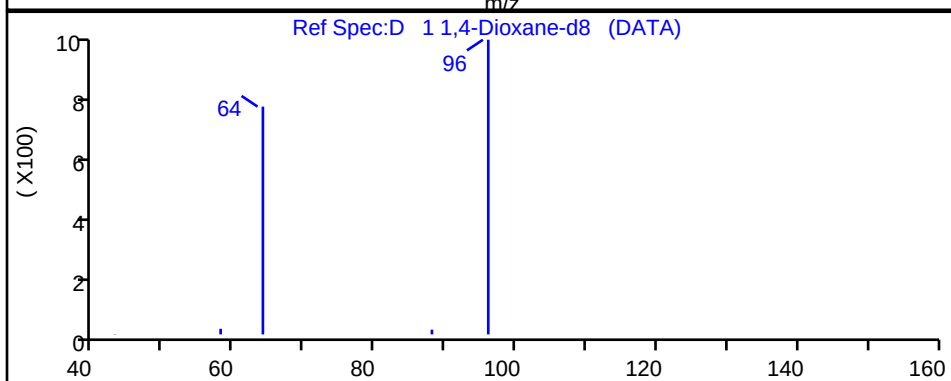
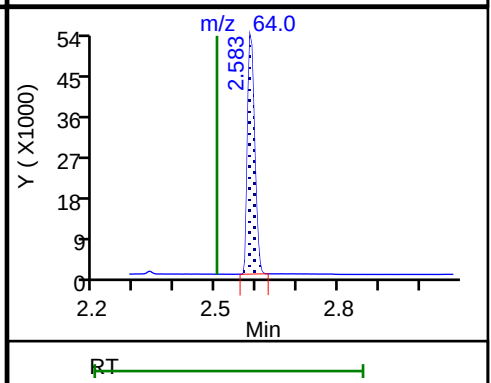
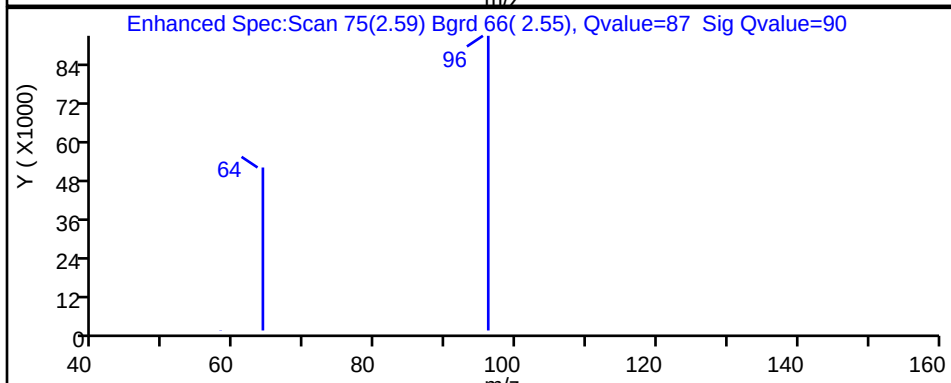
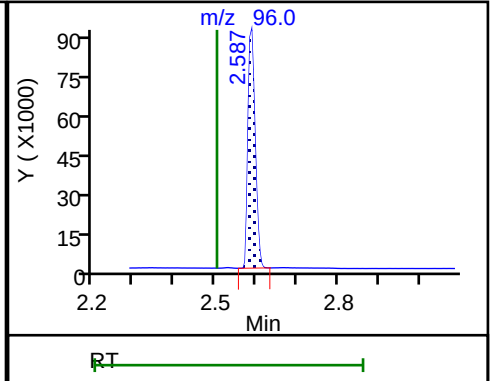
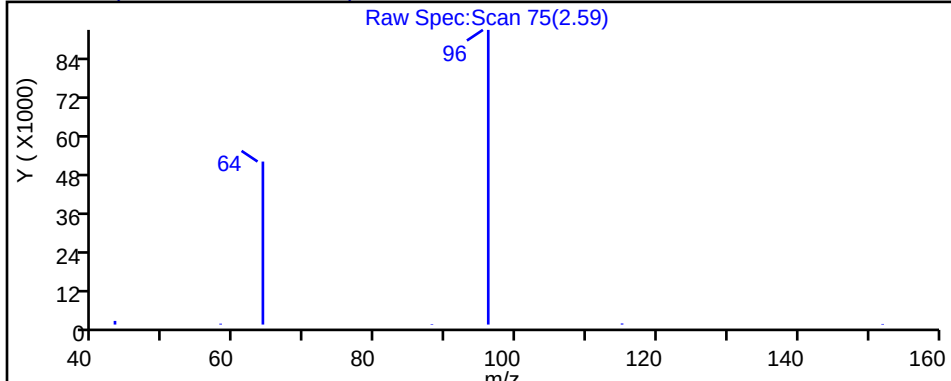
Dil. Factor: 1.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector MS SCAN

D 1 1,4-Dioxane-d8, CAS: 17647-74-4

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
 SDG No.: _____
 Client Sample ID: 779078 Lab Sample ID: 480-147352-2
 Matrix: Water Lab File ID: U3314705.D
 Analysis Method: 8270D SIM ID Date Collected: 12/27/2018 15:10
 Extract. Method: 3510C Date Extracted: 01/02/2019 12:01
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/10/2019 19:13
 Con. Extract Vol.: 1 (mL) Dilution Factor: 25
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 454620 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	52	E	5.0	2.5

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	29		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314705.D
 Lims ID: 480-147352-C-2-A
 Client ID: 779078
 Sample Type: Client
 Inject. Date: 10-Jan-2019 19:13:30 ALS Bottle#: 6 Worklist Smp#: 6
 Injection Vol: 1.0 ul Dil. Factor: 25.0000
 Sample Info: 480-0077909-006
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 14-Jan-2019 12:04:19 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0313

First Level Reviewer: richardsd

Date: 14-Jan-2019 11:56:56

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
D 1 1,4-Dioxane-d8	96	2.517	2.505	0.012	88	4226	0.1153	28.8	
3 1,4-Dioxane	88	2.546	2.538	0.008	85	23207	2.07		E
* 2 1,4-Dichlorobenzene-d4	152	5.793	5.793	0.000	99	306022	4.00		

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

MB_LLIS_WRK_00161

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314705.D

Injection Date: 10-Jan-2019 19:13:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-147352-C-2-A

Lab Sample ID: 480-147352-2

Worklist Smp#: 6

Client ID: 779078

Injection Vol: 1.0 ul

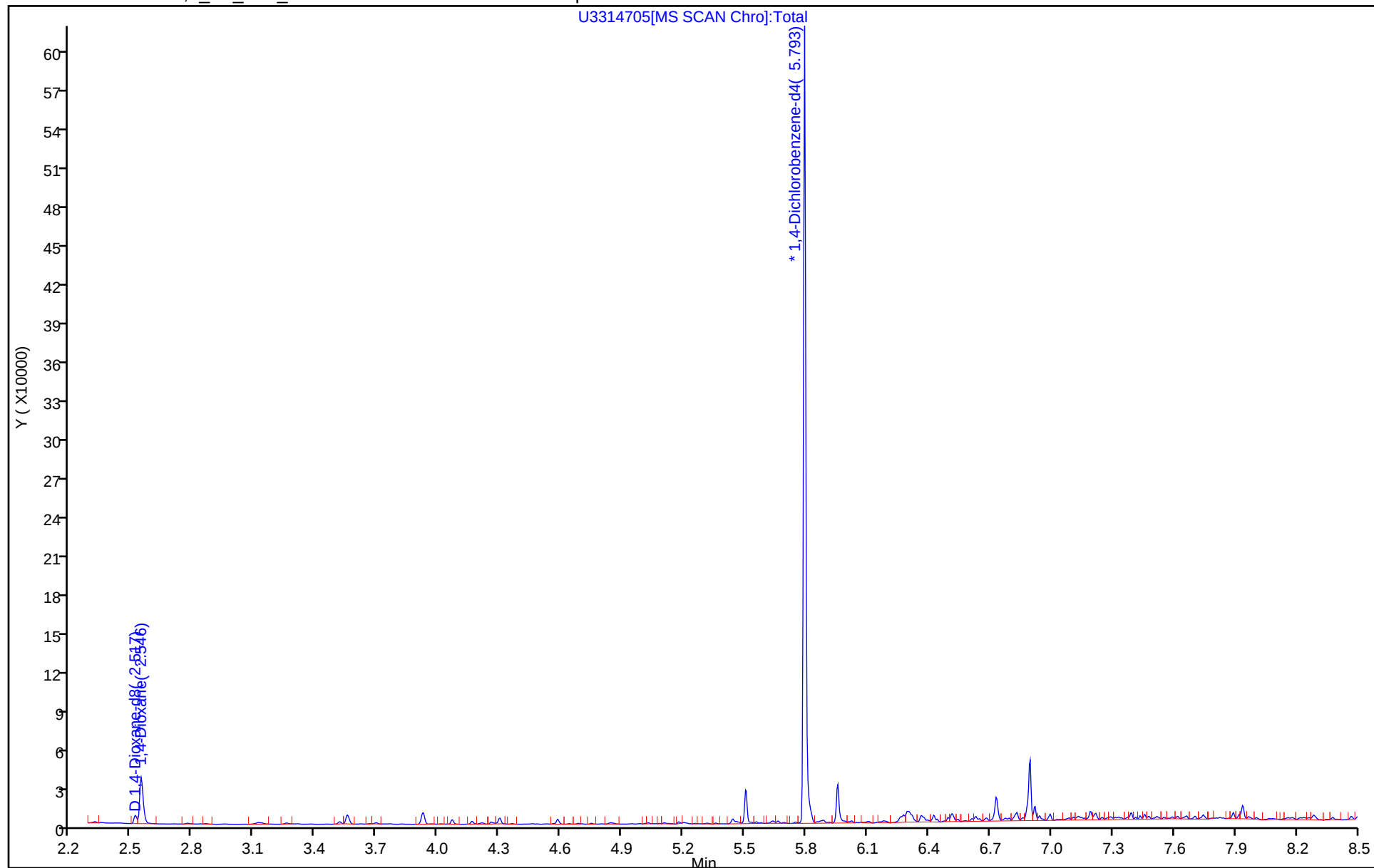
Dil. Factor: 25.0000

ALS Bottle#: 6

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

U3314705[MS SCAN Chro]:Total



TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314705.D

Injection Date: 10-Jan-2019 19:13:30

Instrument ID: HP5973U

Lims ID: 480-147352-C-2-A

Lab Sample ID: 480-147352-2

Client ID: 779078

Operator ID: DR

ALS Bottle#: 6

Worklist Smp#: 6

Injection Vol: 1.0 ul

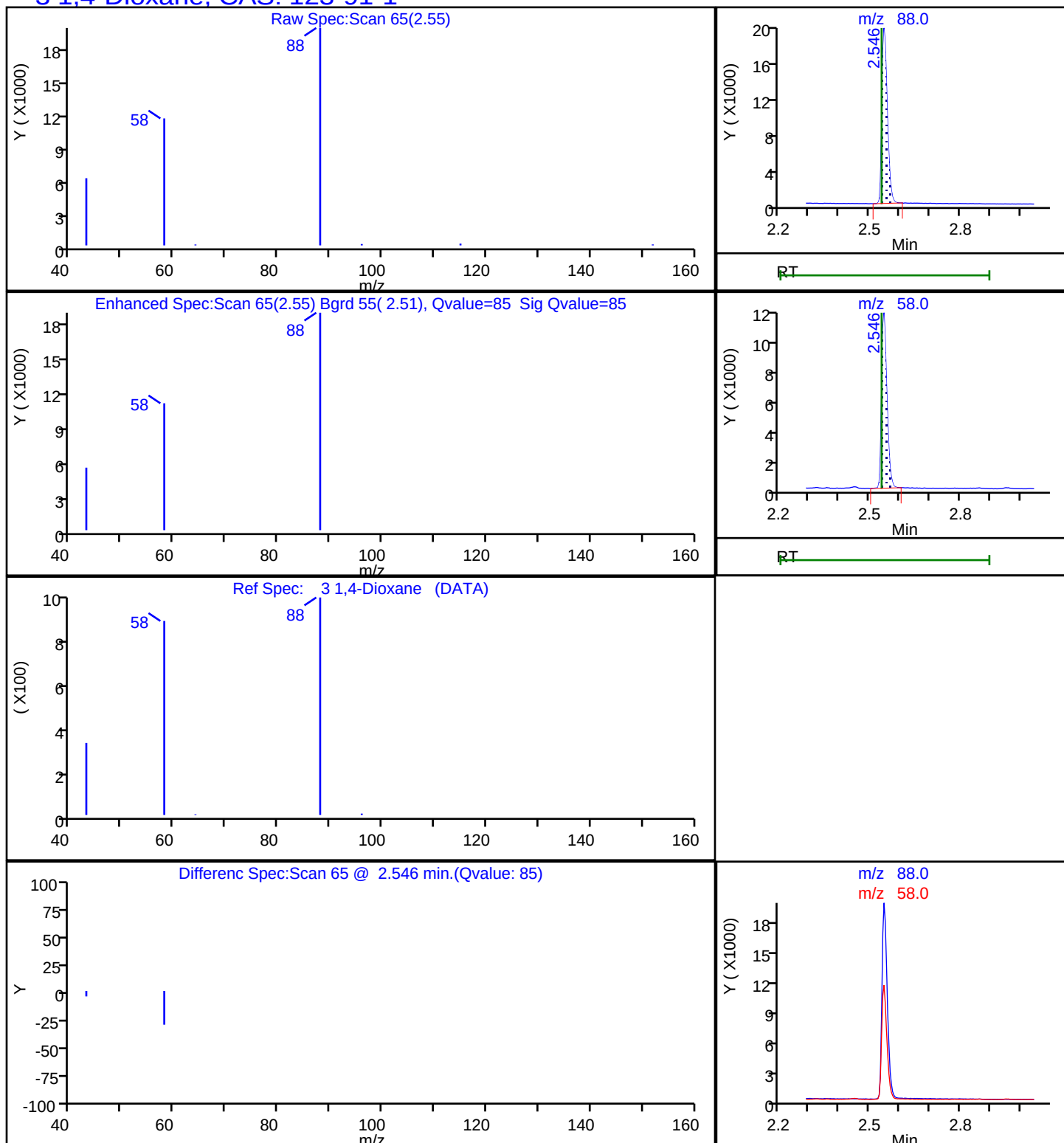
Dil. Factor: 25.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector MS SCAN

3 1,4-Dioxane, CAS: 123-91-1

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314705.D

Injection Date: 10-Jan-2019 19:13:30

Instrument ID: HP5973U

Lims ID: 480-147352-C-2-A

Lab Sample ID: 480-147352-2

Client ID: 779078

Operator ID: DR

ALS Bottle#: 6

Worklist Smp#: 6

Injection Vol: 1.0 ul

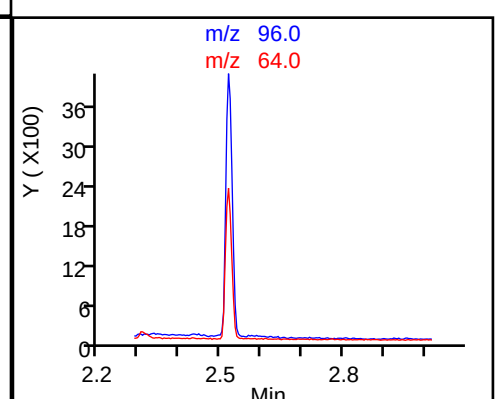
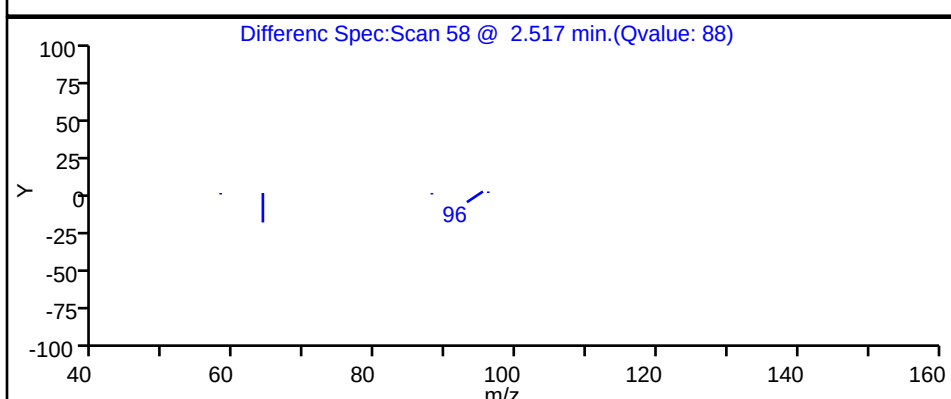
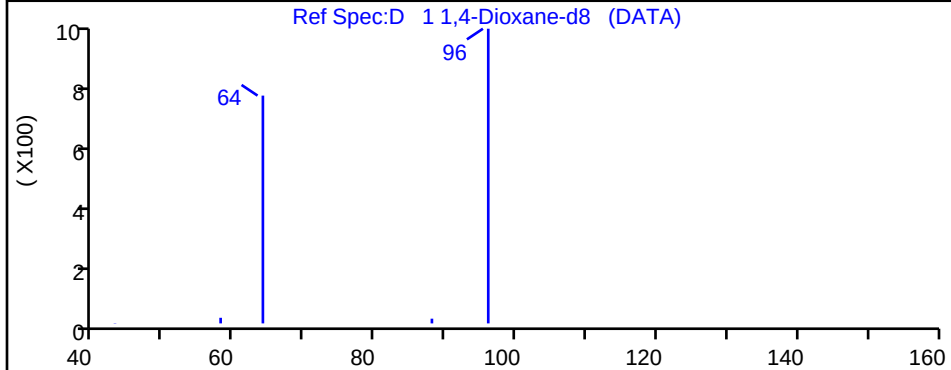
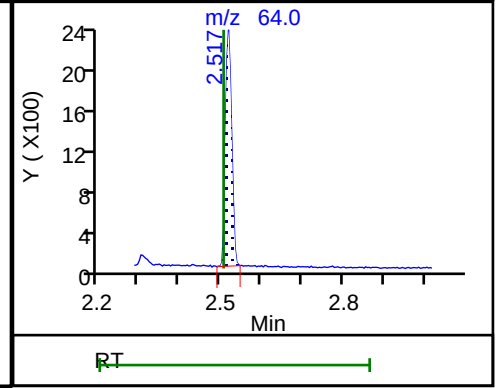
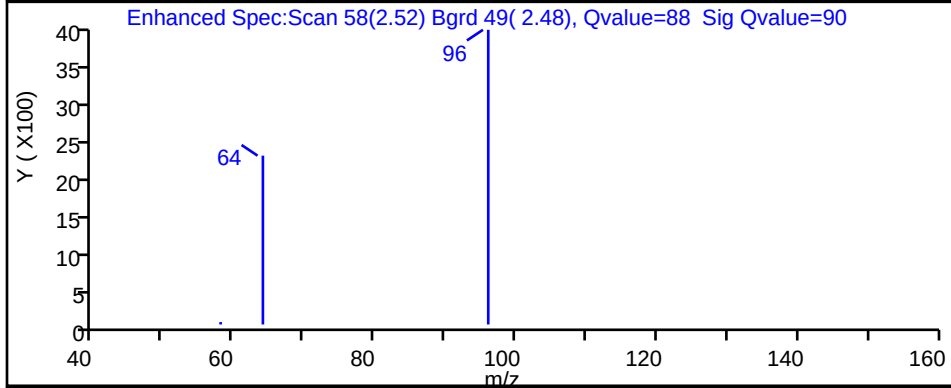
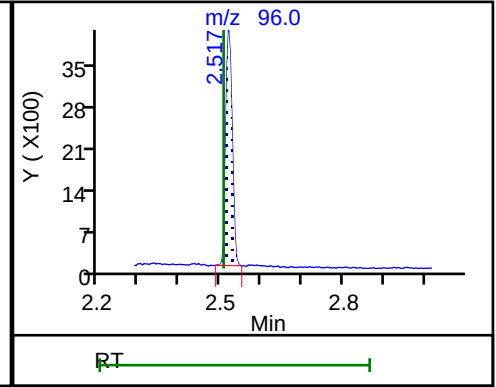
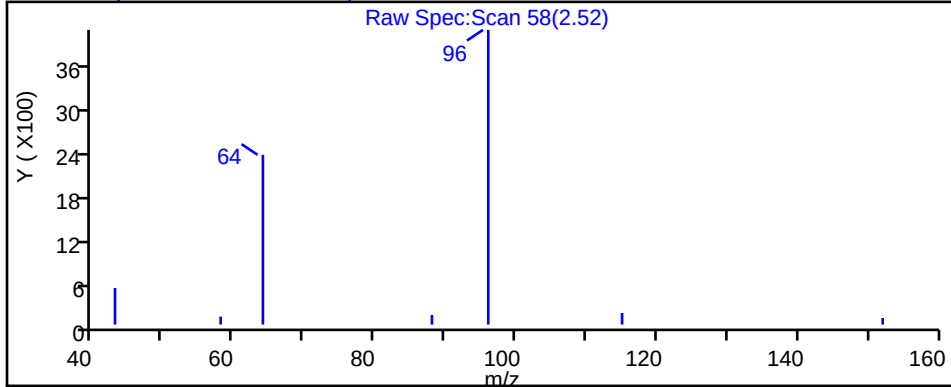
Dil. Factor: 25.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector MS SCAN

D 1 1,4-Dioxane-d8, CAS: 17647-74-4

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
SDG No.: _____
Client Sample ID: 779079 Lab Sample ID: 480-147352-3
Matrix: Water Lab File ID: U3314666.D
Analysis Method: 8270D SIM ID Date Collected: 12/27/2018 10:56
Extract. Method: 3510C Date Extracted: 01/02/2019 12:01
Sample wt/vol: 1000 (mL) Date Analyzed: 01/08/2019 19:23
Con. Extract Vol.: 1 (mL) Dilution Factor: 1
Injection Volume: 1 (uL) Level: (low/med) Low
% Moisture: _____ GPC Cleanup: (Y/N) N
Analysis Batch No.: 454189 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	ND		0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	30		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314666.D
 Lims ID: 480-147352-C-3-A
 Client ID: 779079
 Sample Type: Client
 Inject. Date: 08-Jan-2019 19:23:30 ALS Bottle#: 15 Worklist Smp#: 15
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077828-015
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 09-Jan-2019 13:57:45 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICAL File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0307

First Level Reviewer: richardsd

Date: 09-Jan-2019 13:41:46

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
D 1 1,4-Dioxane-d8	96	2.587	2.501	0.086	90	112161	3.01	30.1	
3 1,4-Dioxane	88		2.542				ND		U
* 2 1,4-Dichlorobenzene-d4	152	5.806	5.794	0.012	97	310610	4.00		

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

MB_LLIS_WRK_00161

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314666.D

Injection Date: 08-Jan-2019 19:23:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-147352-C-3-A

Lab Sample ID: 480-147352-3

Worklist Smp#: 15

Client ID: 779079

Injection Vol: 1.0 ul

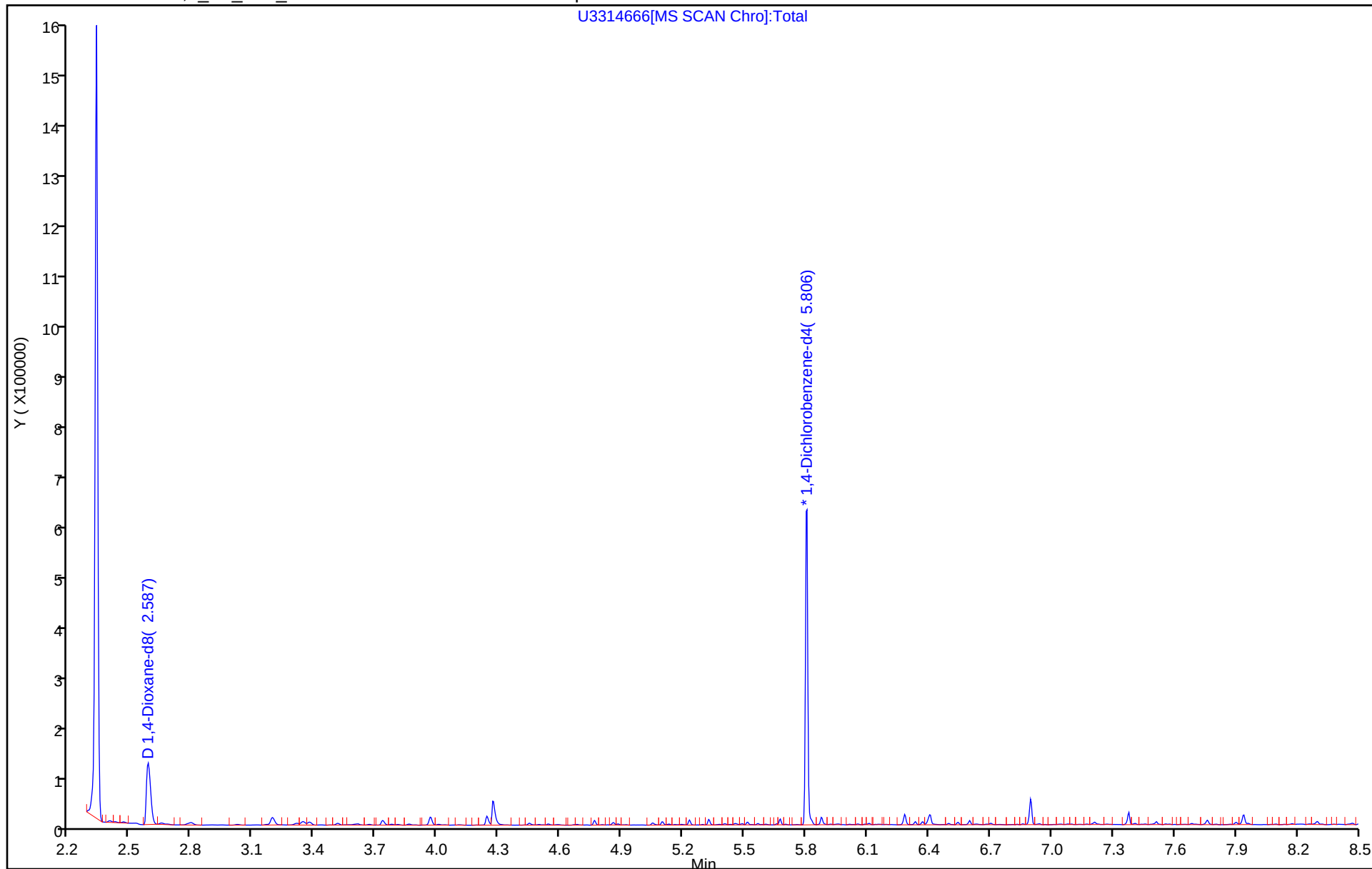
Dil. Factor: 1.0000

ALS Bottle#: 15

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

U3314666[MS SCAN Chro]:Total



TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314666.D

Injection Date: 08-Jan-2019 19:23:30

Instrument ID: HP5973U

Lims ID: 480-147352-C-3-A

Lab Sample ID: 480-147352-3

Client ID: 779079

Operator ID: DR

ALS Bottle#: 15

Worklist Smp#: 15

Injection Vol: 1.0 ul

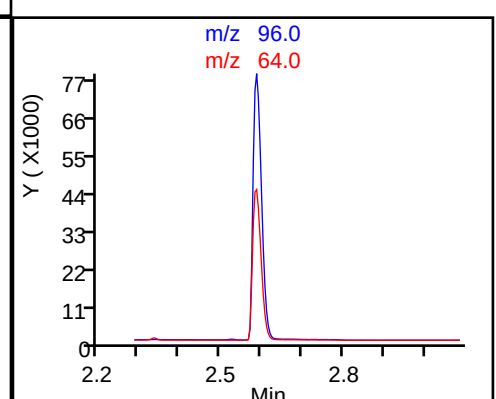
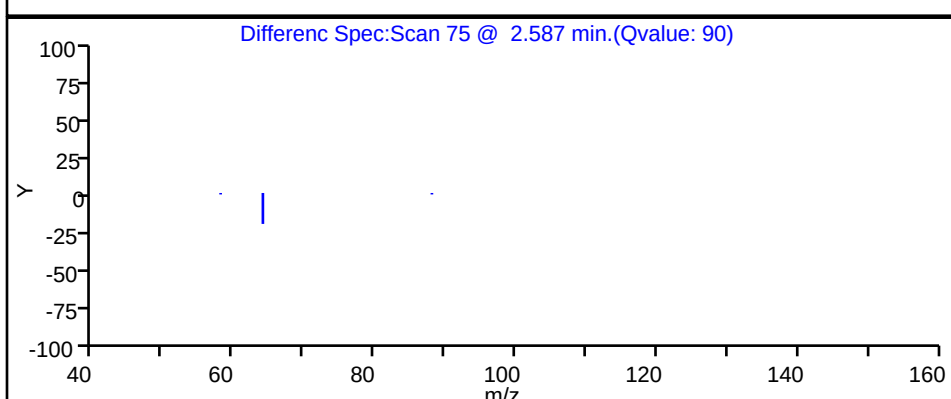
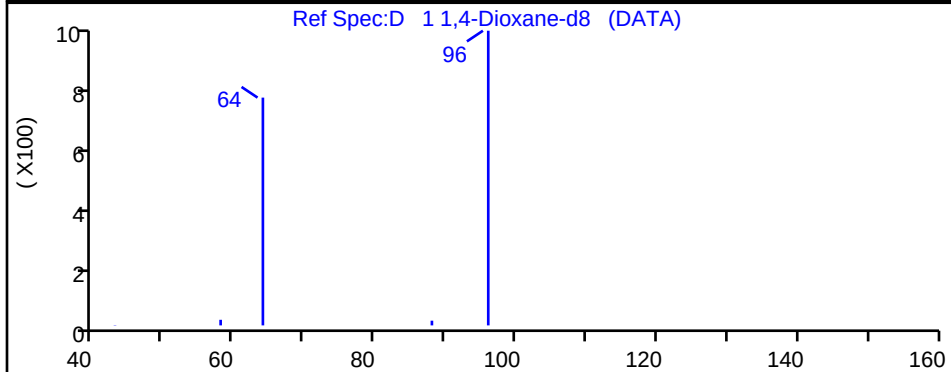
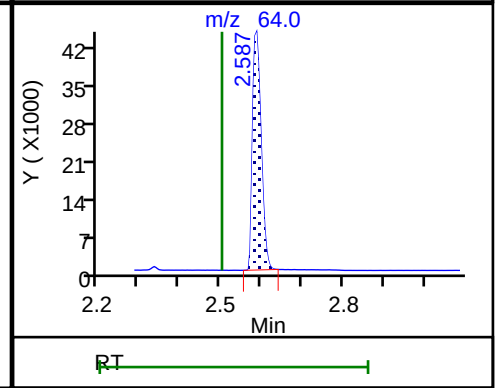
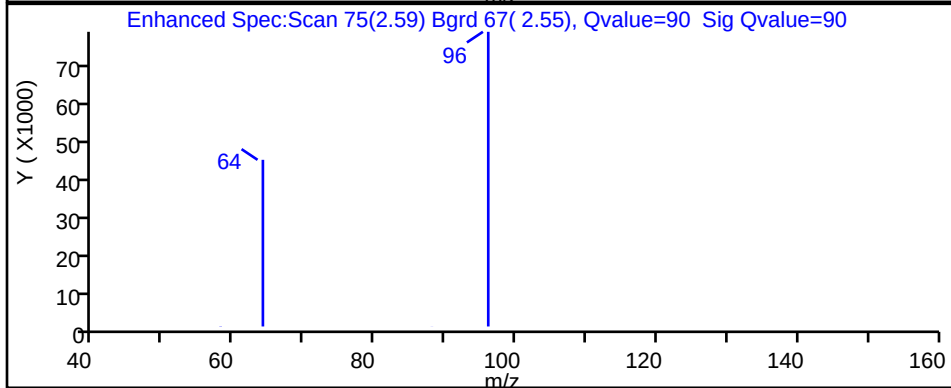
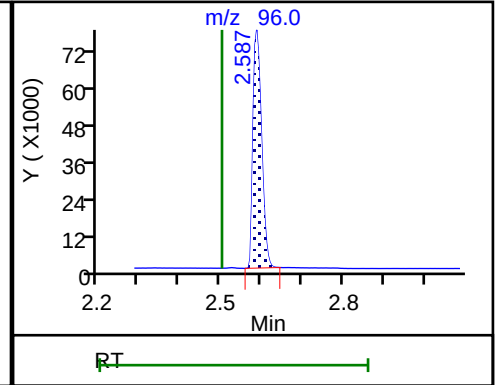
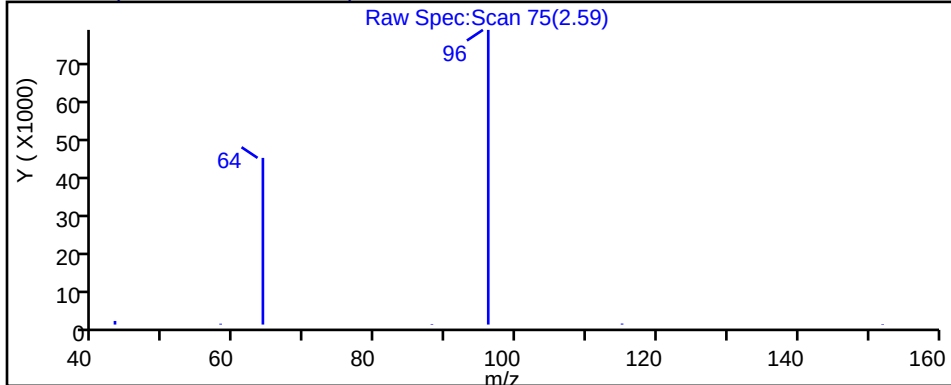
Dil. Factor: 1.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector MS SCAN

D 1 1,4-Dioxane-d8, CAS: 17647-74-4

Detector MS SCAN

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
SDG No.: _____
Client Sample ID: 779081 Lab Sample ID: 480-147352-4
Matrix: Water Lab File ID: U3314706.D
Analysis Method: 8270D SIM ID Date Collected: 12/27/2018 15:14
Extract. Method: 3510C Date Extracted: 01/02/2019 12:01
Sample wt/vol: 1000 (mL) Date Analyzed: 01/10/2019 19:37
Con. Extract Vol.: 1 (mL) Dilution Factor: 25
Injection Volume: 1 (uL) Level: (low/med) Low
% Moisture: _____ GPC Cleanup: (Y/N) N
Analysis Batch No.: 454620 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	53	E	5.0	2.5

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	29		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314706.D
 Lims ID: 480-147352-C-4-A
 Client ID: 779081
 Sample Type: Client
 Inject. Date: 10-Jan-2019 19:37:30 ALS Bottle#: 7 Worklist Smp#: 7
 Injection Vol: 1.0 ul Dil. Factor: 25.0000
 Sample Info: 480-0077909-007
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 14-Jan-2019 12:04:19 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0313

First Level Reviewer: richardsd

Date: 14-Jan-2019 11:56:59

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
D 1 1,4-Dioxane-d8	96	2.517	2.505	0.012	88	4319	0.1152	28.8	
3 1,4-Dioxane	88	2.546	2.538	0.008	86	24154	2.10		E
* 2 1,4-Dichlorobenzene-d4	152	5.793	5.793	0.000	99	313117	4.00		

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

MB_LLIS_WRK_00161

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314706.D

Injection Date: 10-Jan-2019 19:37:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-147352-C-4-A

Lab Sample ID: 480-147352-4

Worklist Smp#: 7

Client ID: 779081

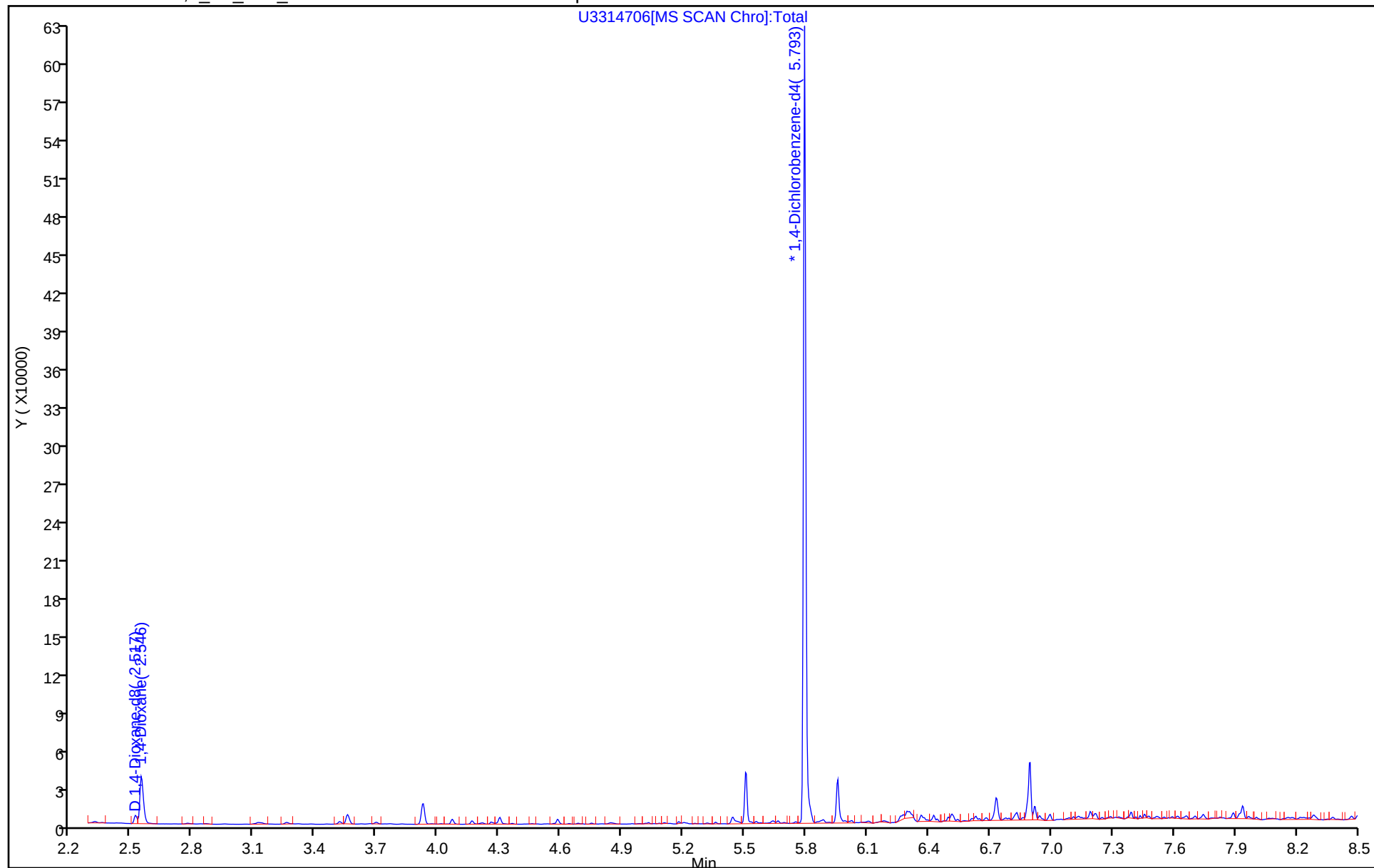
Injection Vol: 1.0 ul

Dil. Factor: 25.0000

ALS Bottle#: 7

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314706.D

Injection Date: 10-Jan-2019 19:37:30

Instrument ID: HP5973U

Lims ID: 480-147352-C-4-A

Lab Sample ID: 480-147352-4

Client ID: 779081

Operator ID: DR

ALS Bottle#: 7

Worklist Smp#: 7

Injection Vol: 1.0 ul

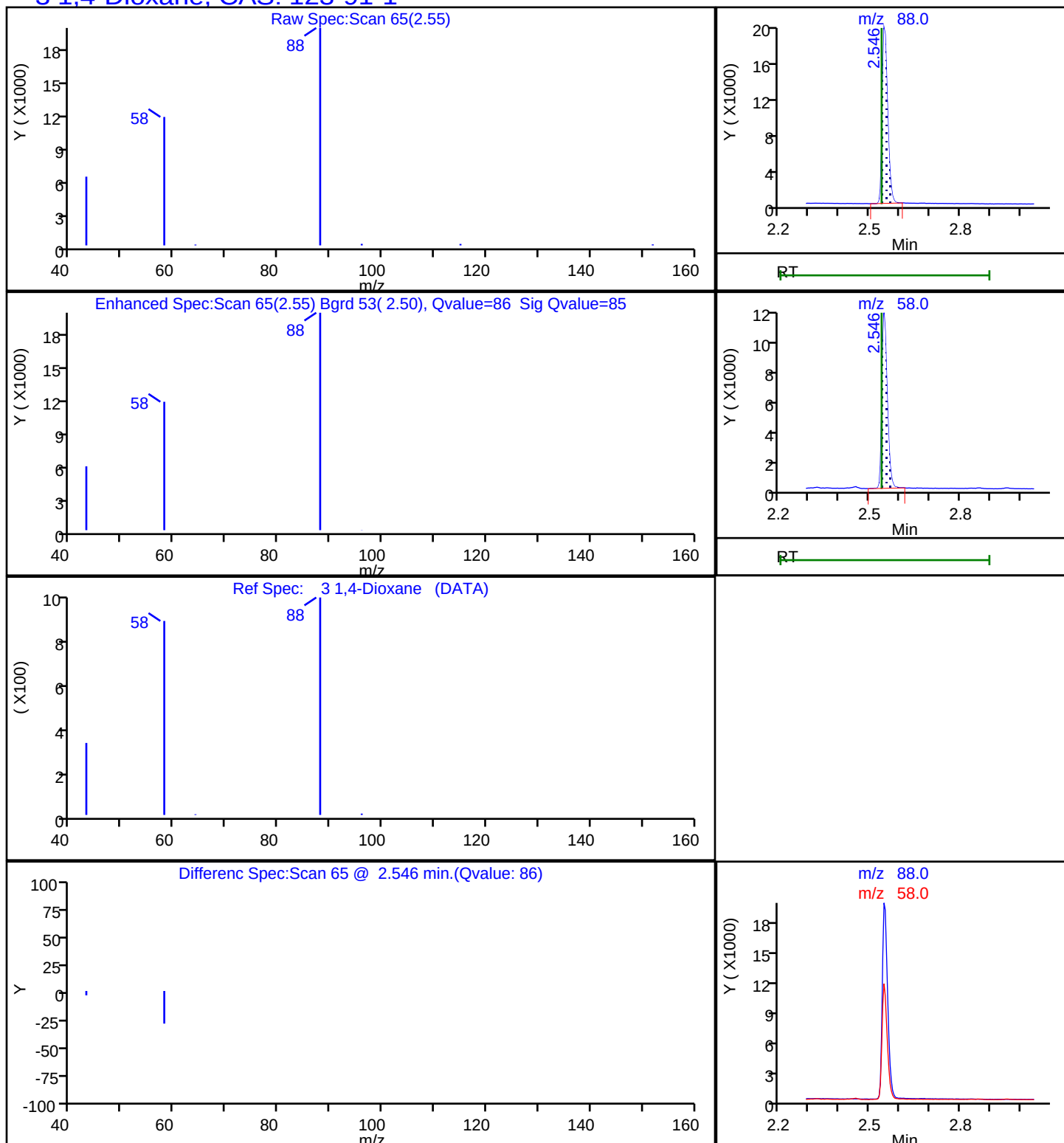
Dil. Factor: 25.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector MS SCAN

3 1,4-Dioxane, CAS: 123-91-1

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314706.D

Injection Date: 10-Jan-2019 19:37:30

Instrument ID: HP5973U

Lims ID: 480-147352-C-4-A

Lab Sample ID: 480-147352-4

Client ID: 779081

Operator ID: DR

ALS Bottle#: 7

Worklist Smp#: 7

Injection Vol: 1.0 ul

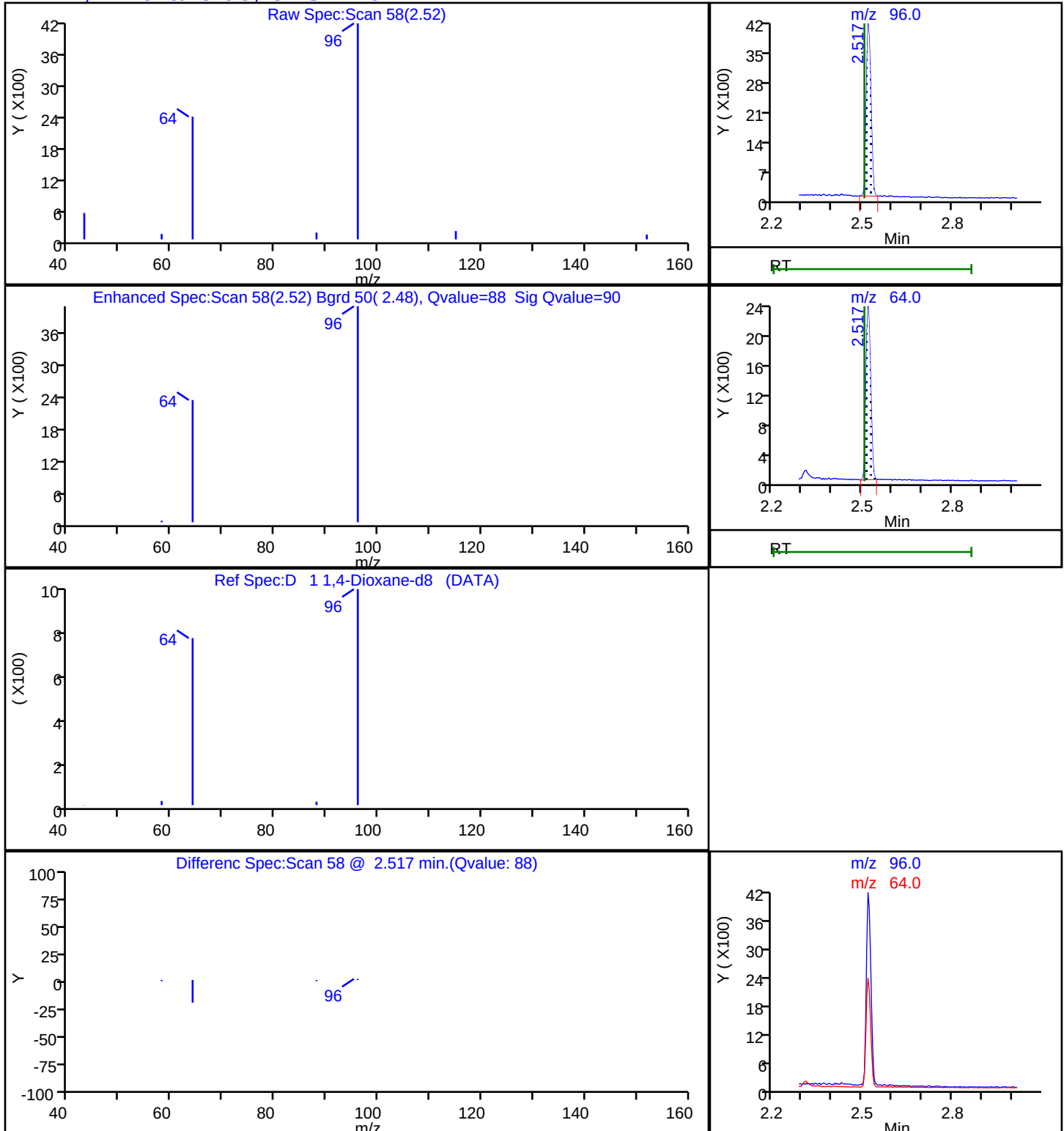
Dil. Factor: 25.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector MS SCAN

D 1 1,4-Dioxane-d8, CAS: 17647-74-4

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
 SDG No.: _____
 Client Sample ID: 779082 (Field Blank) Lab Sample ID: 480-147352-5
 Matrix: Water Lab File ID: U3314668.D
 Analysis Method: 8270D SIM ID Date Collected: 12/27/2018 14:59
 Extract. Method: 3510C Date Extracted: 01/02/2019 12:01
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/08/2019 20:14
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 454189 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	ND		0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	31		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314668.D
 Lims ID: 480-147352-D-5-A
 Client ID: 779082 (Field Blank)
 Sample Type: Client
 Inject. Date: 08-Jan-2019 20:14:30 ALS Bottle#: 17 Worklist Smp#: 17
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077828-017
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 09-Jan-2019 13:57:45 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICAL File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0307

First Level Reviewer: richardsd

Date: 09-Jan-2019 13:45:19

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
D 1 1,4-Dioxane-d8	96	2.591	2.501	0.090	88	120648	3.12	31.2	
3 1,4-Dioxane	88		2.542				ND		U
* 2 1,4-Dichlorobenzene-d4	152	5.802	5.794	0.008	99	323266	4.00		

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

MB_LLIS_WRK_00161

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314668.D

Injection Date: 08-Jan-2019 20:14:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-147352-D-5-A

Lab Sample ID: 480-147352-5

Worklist Smp#: 17

Client ID: 779082 (Field Blank)

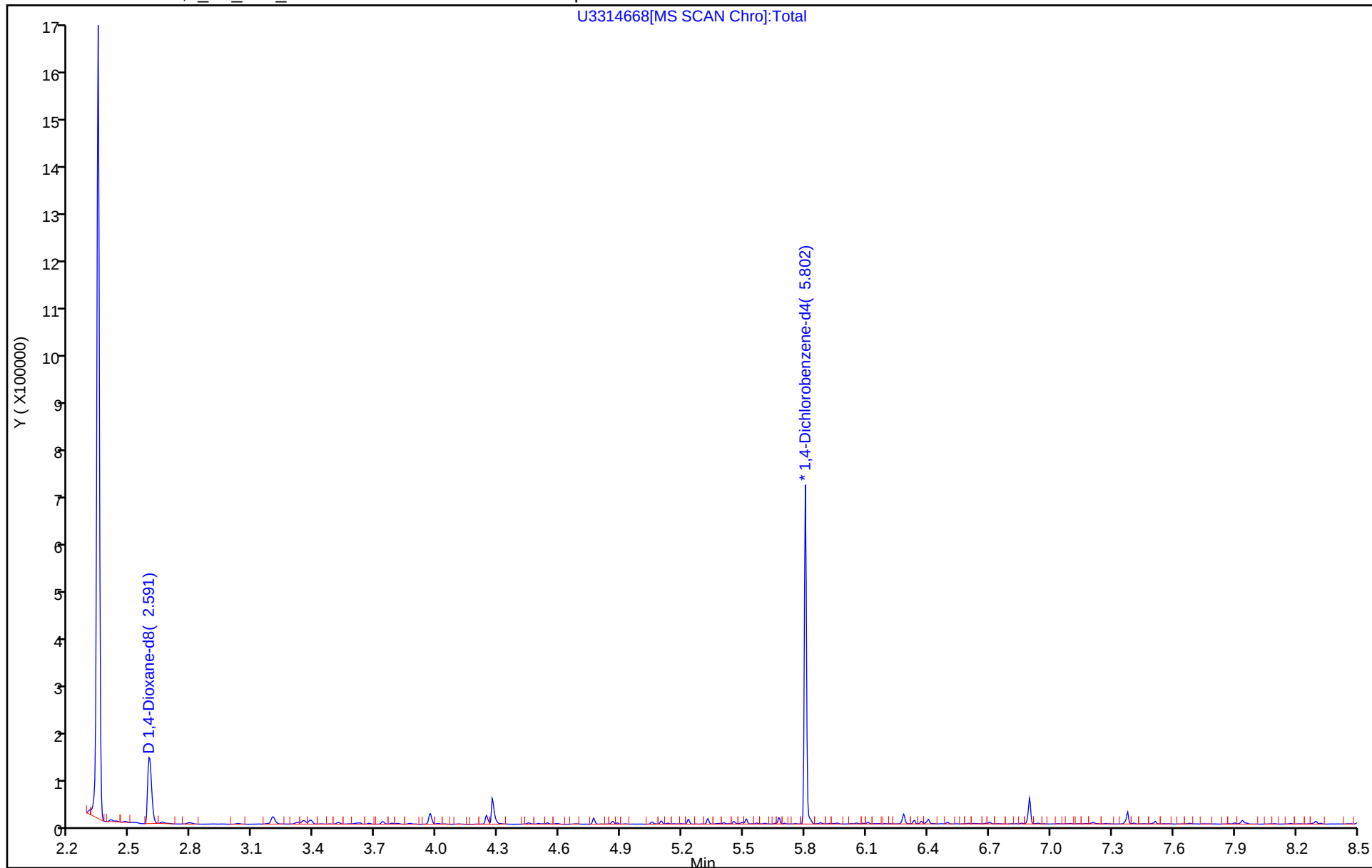
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 17

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314668.D

Injection Date: 08-Jan-2019 20:14:30

Instrument ID: HP5973U

Lims ID: 480-147352-D-5-A

Lab Sample ID: 480-147352-5

Client ID: 779082 (Field Blank)

Operator ID: DR

ALS Bottle#: 17

Worklist Smp#: 17

Injection Vol: 1.0 ul

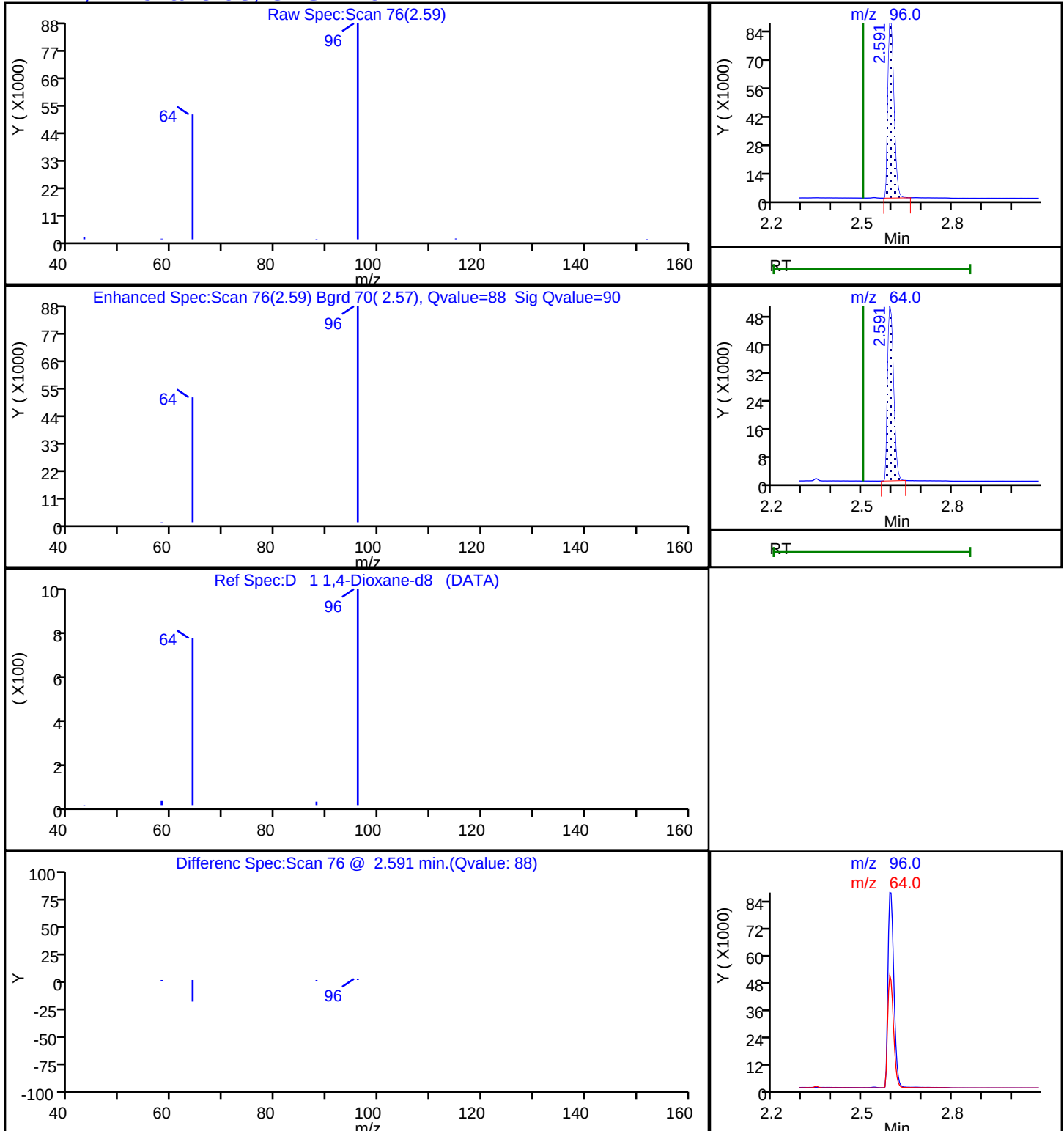
Dil. Factor: 1.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector MS SCAN

D 1 1,4-Dioxane-d8, CAS: 17647-74-4

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314668.D

Injection Date: 08-Jan-2019 20:14:30

Instrument ID: HP5973U

Lims ID: 480-147352-D-5-A

Lab Sample ID: 480-147352-5

Client ID: 779082 (Field Blank)

Operator ID: DR

ALS Bottle#: 17 Worklist Smp#: 17

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4_Dx_SIM_HP5973U

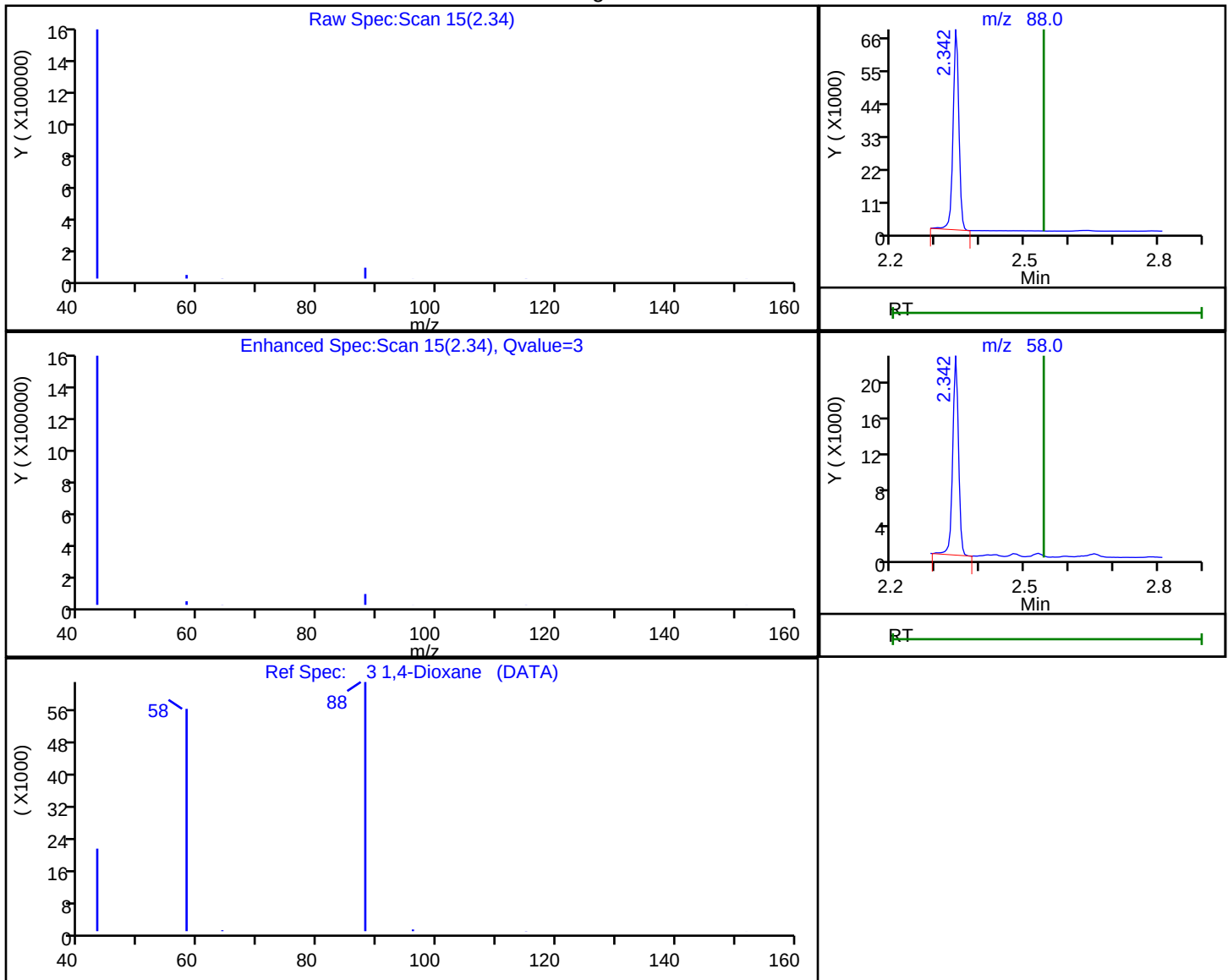
Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector MS SCAN

3 1,4-Dioxane, CAS: 123-91-1

Processing Results



RT	Mass	Response	Amount
2.34	88.00	62338	4.860649
2.34	58.00	20413	

Reviewer: richardsd, 09-Jan-2019 13:45:18

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1 Analy Batch No.: 449428

SDG No.: _____

Instrument ID: HP5973U GC Column: RXI-5Sil MS ID: 0.25 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/07/2018 15:39 Calibration End Date: 12/07/2018 17:41 Calibration ID: 35518

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 480-449428/3	U3314030.D
Level 2	IC 480-449428/4	U3314031.D
Level 3	ICIS 480-449428/5	U3314032.D
Level 4	IC 480-449428/6	U3314033.D
Level 5	IC 480-449428/7	U3314034.D
Level 6	IC 480-449428/8	U3314035.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
1,4-Dioxane	1.0572 1.0474	1.0842	1.0587	1.0635	1.0670	AveID		1.0630			0.0100	1.2		20.0			
1,4-Dioxane-d8	0.4473 0.4844	0.4701	0.4947	0.4843	0.4938	Ave		0.4791			0.0100	3.7		20.0			

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

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

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1 Analy Batch No.: 449428

SDG No.: _____

Instrument ID: HP5973U GC Column: RXI-5Sil MS ID: 0.25 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/07/2018 15:39 Calibration End Date: 12/07/2018 17:41 Calibration ID: 35518

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 480-449428/3	U3314030.D
Level 2	IC 480-449428/4	U3314031.D
Level 3	ICIS 480-449428/5	U3314032.D
Level 4	IC 480-449428/6	U3314033.D
Level 5	IC 480-449428/7	U3314034.D
Level 6	IC 480-449428/8	U3314035.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/UL)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
1,4-Dioxane		AveID	6632 47932	14705	28197	31329	39525	0.200 1.20	0.400	0.600	0.800	1.00
1,4-Dioxane-d8	DCBd 4	Ave	62732 457627	135626	266324	294594	370419	2.00 12.0	4.00	6.00	8.00	10.0

Curve Type Legend:

Ave = Average ISTD
AveID = Average isotope dilution

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314030.D
 Lims ID: IC - SIM 0.2
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 07-Dec-2018 15:39:30 ALS Bottle#: 3 Worklist Smp#: 3
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077050-003
 Operator ID: DR Instrument ID: HP5973U
 Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1
 Method: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 07-Dec-2018 17:57:47 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0318

First Level Reviewer: richardsd

Date: 07-Dec-2018 16:23:06

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.746	2.746	0.000	99	62732	2.00	1.87	
3 1,4-Dioxane	88	2.786	2.786	0.000	94	6632	0.2000	0.1989	
* 2 1,4-Dichlorobenzene-d4	152	5.948	5.948	0.000	98	280522	4.00	4.00	

Reagents:

MB_1,4SIM_WRK_00060

Amount Added: 1.00

Units: mL

MB_LLIS_WRK_00159

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314030.D

Injection Date: 07-Dec-2018 15:39:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: IC - SIM 0.2

Worklist Smp#: 3

Client ID:

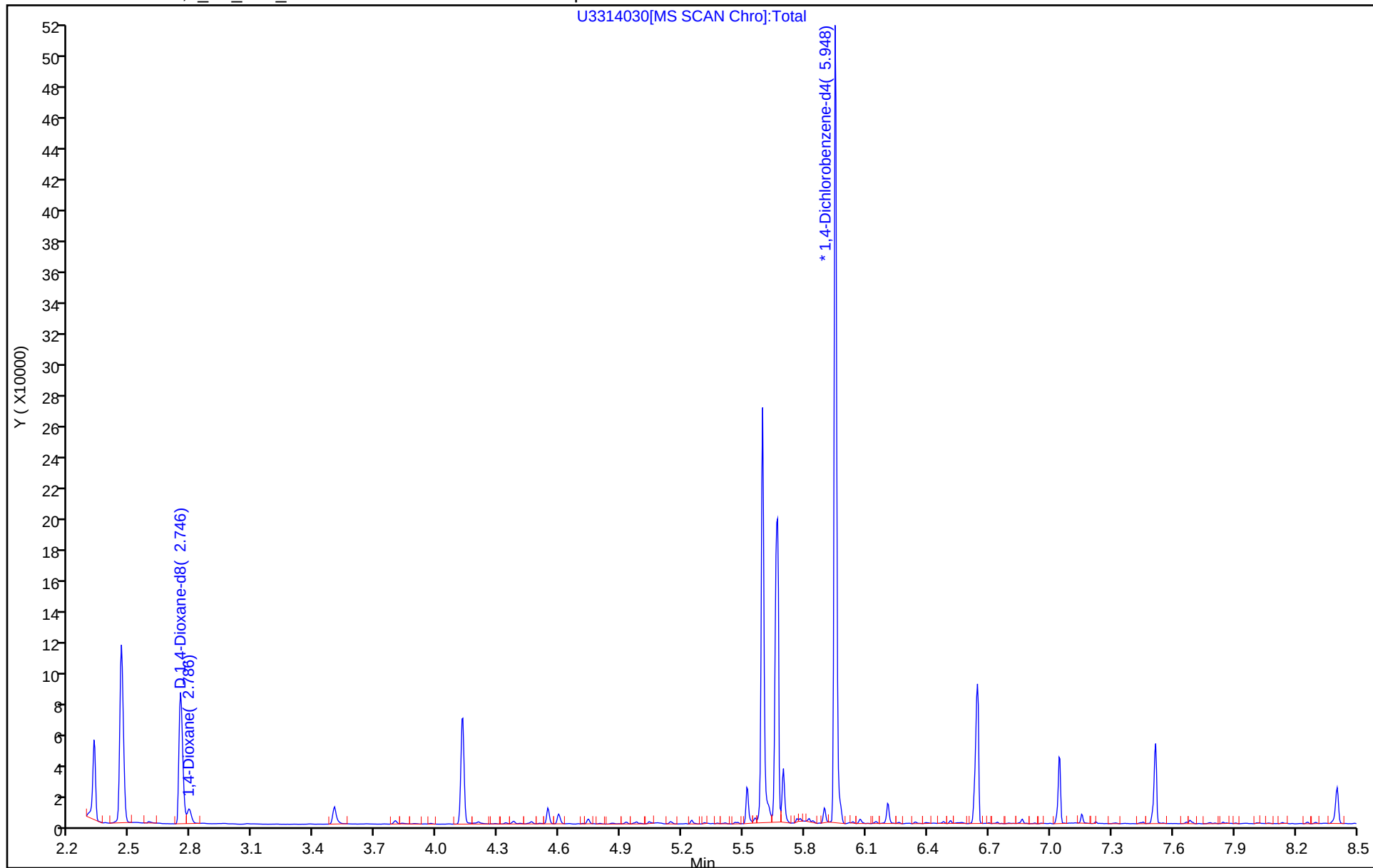
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314031.D
 Lims ID: IC - SIM 0.4
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 07-Dec-2018 16:04:30 ALS Bottle#: 4 Worklist Smp#: 4
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077050-004
 Operator ID: DR Instrument ID: HP5973U
 Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1
 Method: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 07-Dec-2018 17:57:48 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0318

First Level Reviewer: richardsd

Date: 07-Dec-2018 16:28:12

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.741	2.746	-0.005	99	135626	4.00	3.93	
3 1,4-Dioxane	88	2.786	2.786	0.000	92	14705	0.4000	0.4080	
* 2 1,4-Dichlorobenzene-d4	152	5.948	5.948	0.000	97	288480	4.00	4.00	

Reagents:

MB_1,4SIM_WRK_00061
 MB_LLIS_WRK_00159

Amount Added: 1.00
 Amount Added: 20.00

Units: mL
 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314031.D

Injection Date: 07-Dec-2018 16:04:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: IC - SIM 0.4

Worklist Smp#: 4

Client ID:

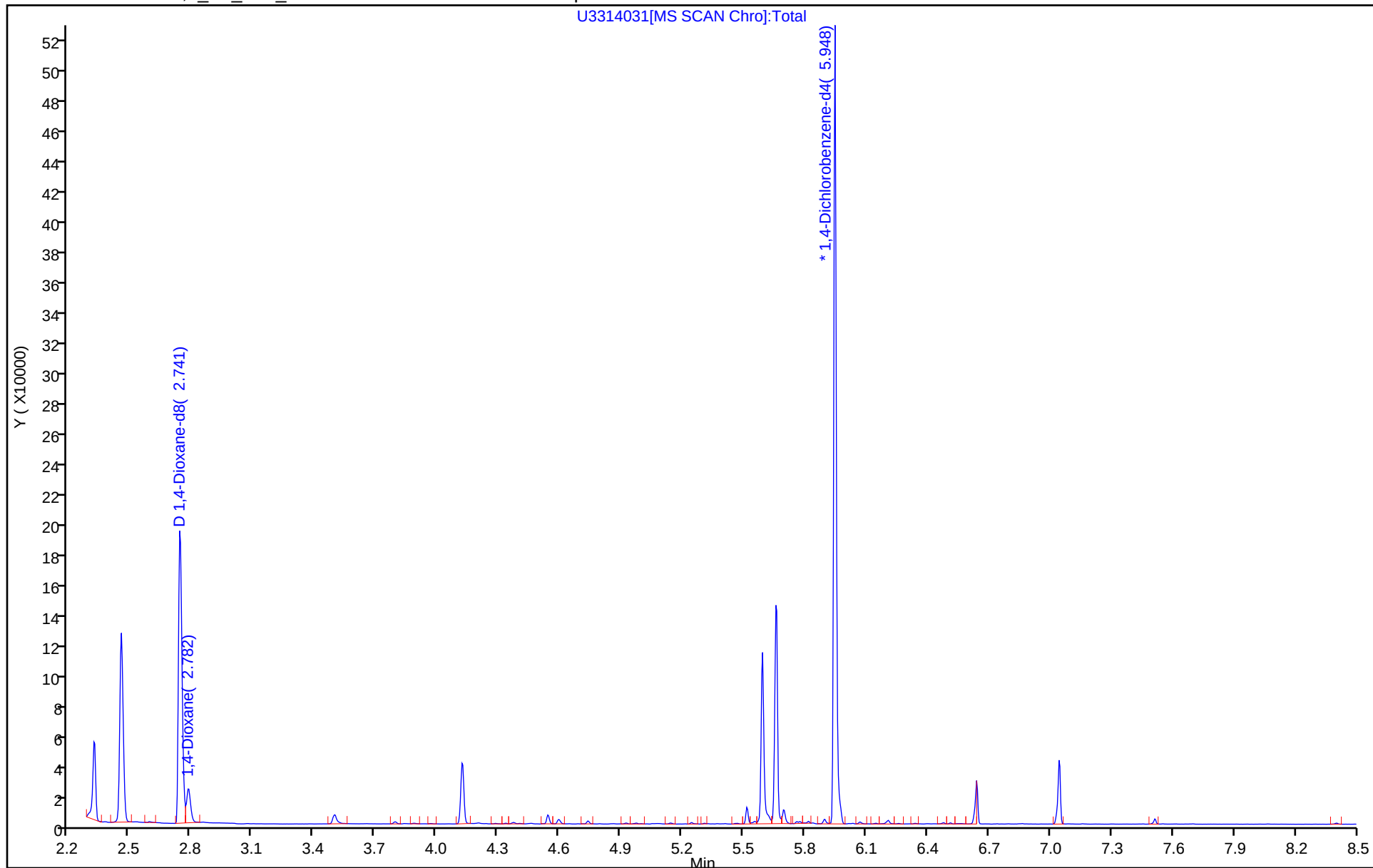
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 4

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314032.D
 Lims ID: ICIS - SIM 0.6
 Client ID:
 Sample Type: ICIS Calib Level: 3
 Inject. Date: 07-Dec-2018 16:28:30 ALS Bottle#: 5 Worklist Smp#: 5
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077050-005
 Operator ID: DR Instrument ID: HP5973U
 Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1
 Method: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 07-Dec-2018 17:57:48 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0318

First Level Reviewer: richardsd

Date: 07-Dec-2018 16:58:59

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.745	2.745	0.000	97	266324	6.00	6.20	
3 1,4-Dioxane	88	2.786	2.786	0.000	92	28197	0.6000	0.5976	
* 2 1,4-Dichlorobenzene-d4	152	5.948	5.948	0.000	97	358908	4.00	4.00	

Reagents:

MB_1,4SIM_WRK_00062

Amount Added: 1.00

Units: mL

MB_LLIS_WRK_00159

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314032.D

Injection Date: 07-Dec-2018 16:28:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: ICIS - SIM 0.6

Worklist Smp#: 5

Client ID:

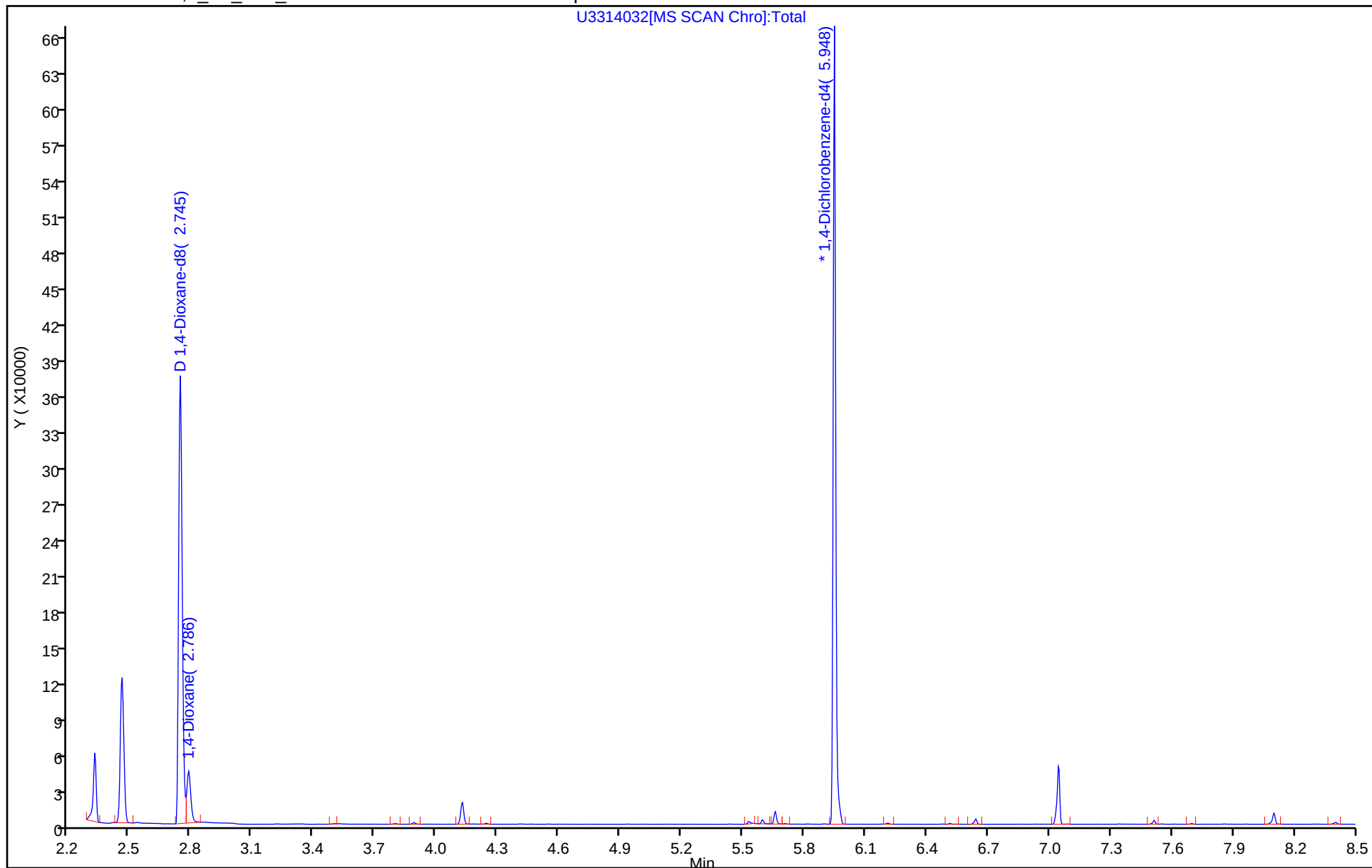
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 5

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314033.D
 Lims ID: IC - SIM 0.8
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 07-Dec-2018 16:52:30 ALS Bottle#: 6 Worklist Smp#: 6
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077050-006
 Operator ID: DR Instrument ID: HP5973U
 Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1
 Method: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 07-Dec-2018 17:57:49 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0318

First Level Reviewer: richardsd

Date: 07-Dec-2018 17:40:49

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.746	2.745	0.001	95	294594	8.00	8.09	
3 1,4-Dioxane	88	2.786	2.786	0.000	91	31329	0.8000	0.8003	
* 2 1,4-Dichlorobenzene-d4	152	5.948	5.948	0.000	98	304160	4.00	4.00	

Reagents:

MB_1,4SIM_WRK_00063

Amount Added: 1.00

Units: mL

MB_LLIS_WRK_00159

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314033.D

Injection Date: 07-Dec-2018 16:52:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: IC - SIM 0.8

Worklist Smp#: 6

Client ID:

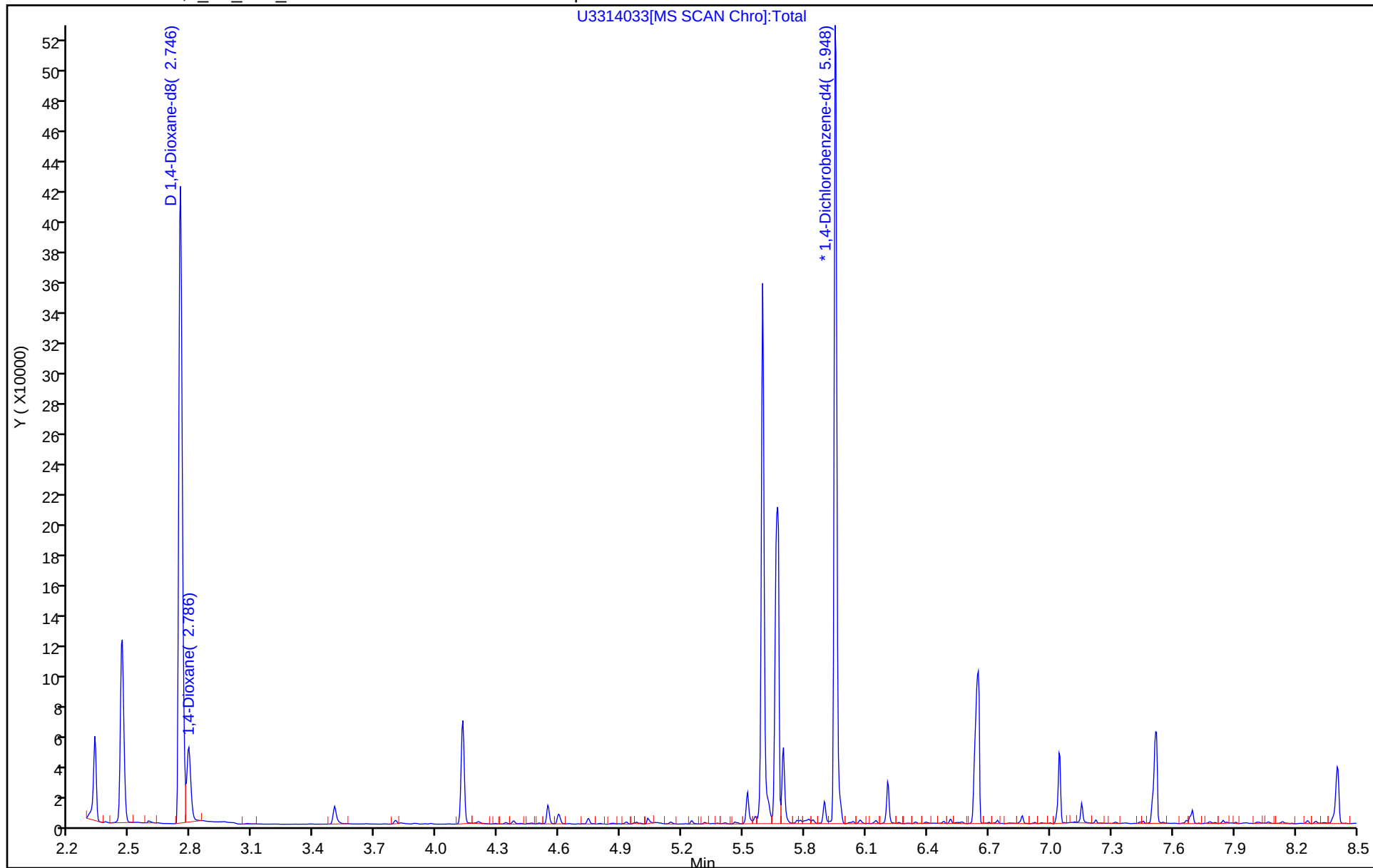
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 6

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314034.D
 Lims ID: IC - SIM 1.0
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 07-Dec-2018 17:17:30 ALS Bottle#: 7 Worklist Smp#: 7
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077050-007
 Operator ID: DR Instrument ID: HP5973U
 Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1
 Method: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 07-Dec-2018 17:57:51 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0318

First Level Reviewer: richardsd

Date: 07-Dec-2018 17:57:28

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.746	2.745	0.001	94	370419	10.0	10.3	
3 1,4-Dioxane	88	2.786	2.786	0.000	91	39525	1.00	1.00	
* 2 1,4-Dichlorobenzene-d4	152	5.948	5.948	0.000	98	300067	4.00	4.00	

Reagents:

MB_1,4SIM_WRK_00064

Amount Added: 1.00

Units: mL

MB_LLIS_WRK_00159

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314034.D

Injection Date: 07-Dec-2018 17:17:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: IC - SIM 1.0

Worklist Smp#: 7

Client ID:

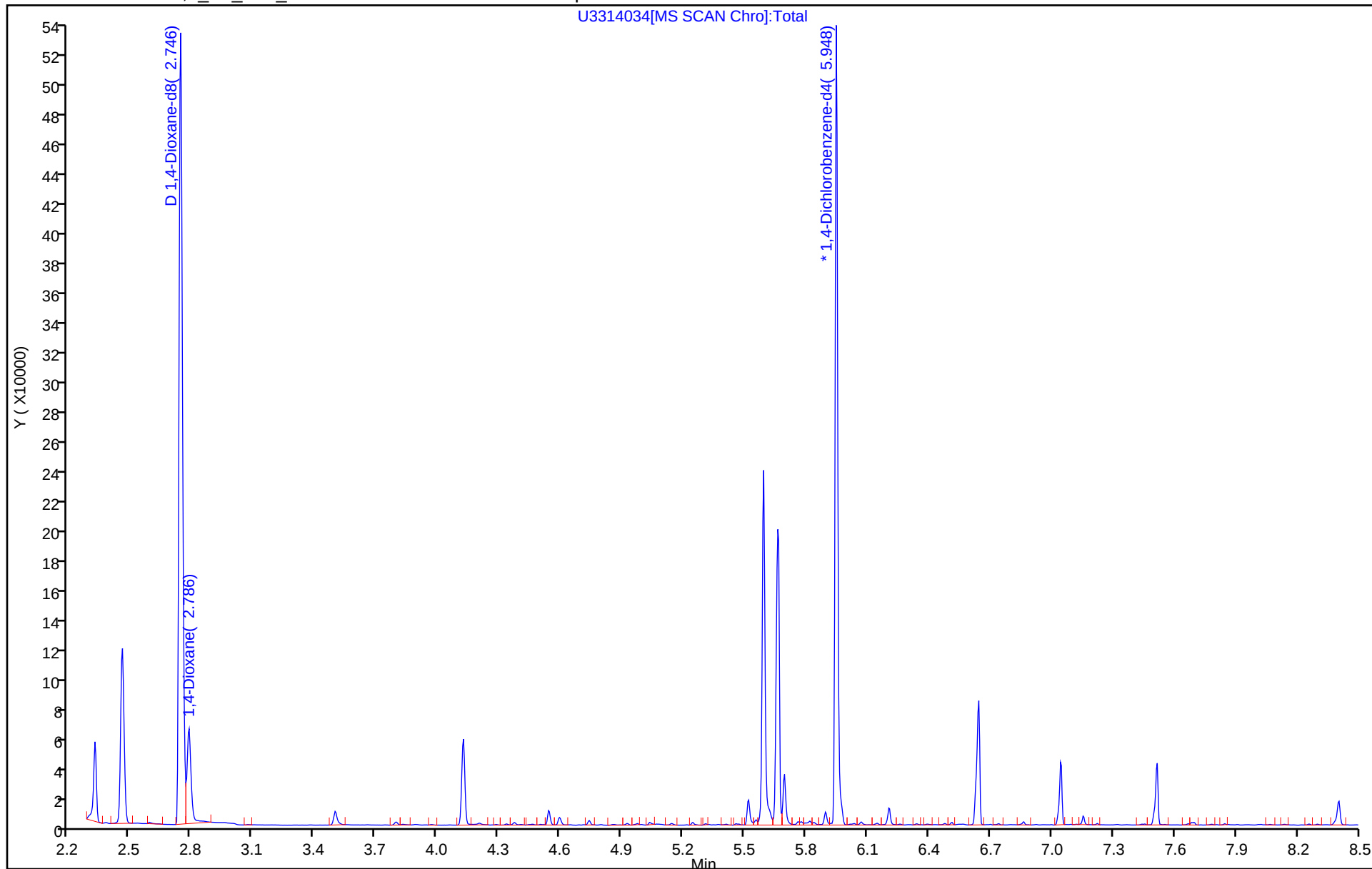
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 7

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Lims ID: IC - SIM 1.2
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 07-Dec-2018 17:41:30 ALS Bottle#: 8 Worklist Smp#: 8
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077050-008
 Operator ID: DR Instrument ID: HP5973U
 Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1
 Method: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 07-Dec-2018 17:57:52 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0318

First Level Reviewer: richardsd

Date: 07-Dec-2018 17:57:42

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.746	2.745	0.001	95	457627	12.0	12.1	
3 1,4-Dioxane	88	2.786	2.786	0.000	92	47932	1.20	1.18	
* 2 1,4-Dichlorobenzene-d4	152	5.948	5.948	0.000	97	314900	4.00	4.00	

Reagents:

MB_1,4SIM_WRK_00065

Amount Added: 1.00

Units: mL

MB_LLIS_WRK_00159

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D

Injection Date: 07-Dec-2018 17:41:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: IC - SIM 1.2

Worklist Smp#: 8

Client ID:

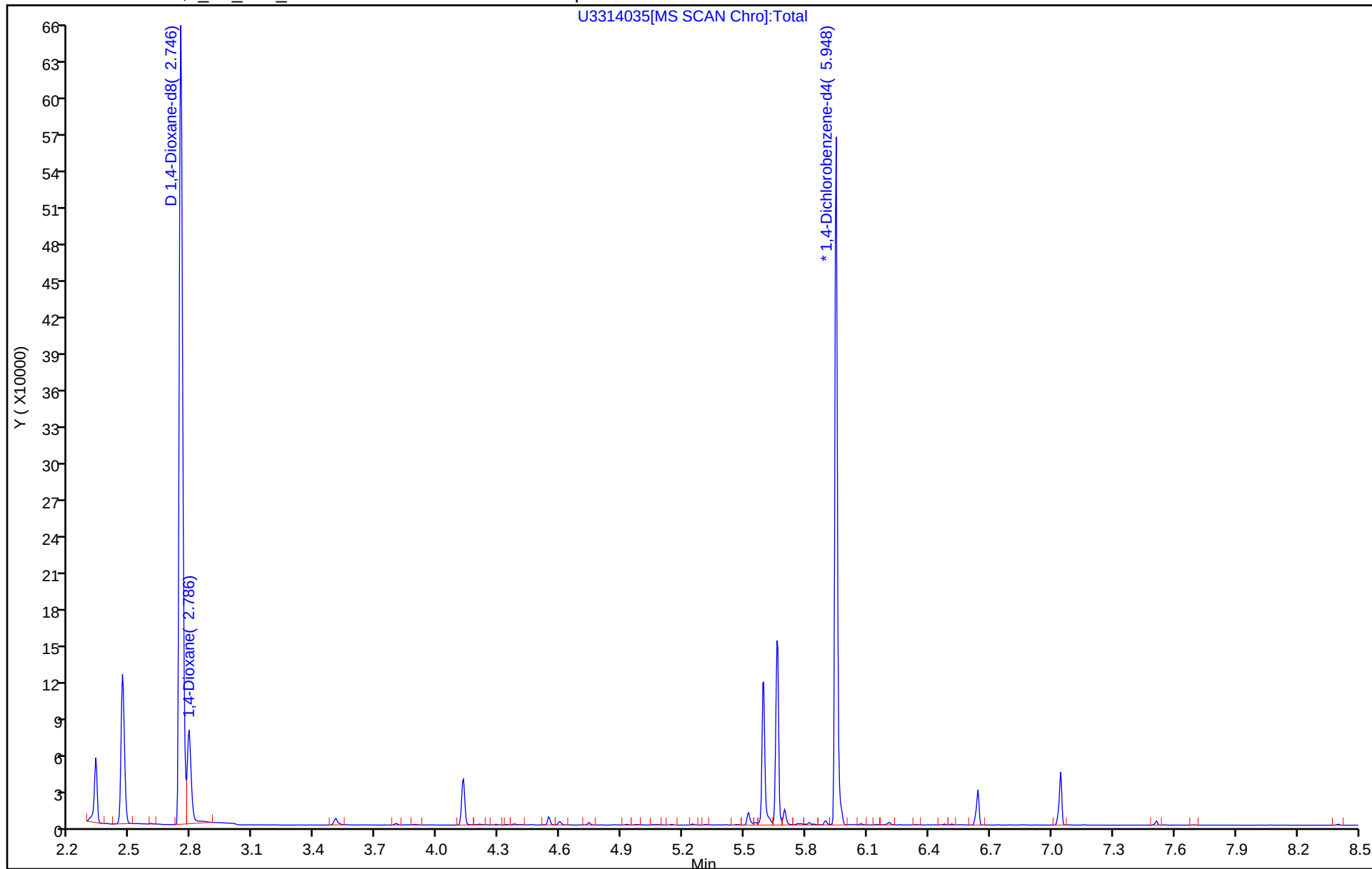
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 8

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
SDG No.: _____
Lab Sample ID: CCVIS 480-454189/3 Calibration Date: 01/08/2019 14:23
Instrument ID: HP5973U Calib Start Date: 12/07/2018 15:39
GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm) Calib End Date: 12/07/2018 17:41
Lab File ID: U3314654.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	AveID	1.063	0.9484	0.0100	535	600	-10.8	20.0
1,4-Dioxane-d8	Ave	0.4791	0.4599	0.0100	5760	6000	-4.0	20.0

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314654.D
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Jan-2019 14:23:30 ALS Bottle#: 3 Worklist Smp#: 3
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077828-003
 Operator ID: DR Instrument ID: HP5973U
 Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 09-Jan-2019 13:57:45 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0307

First Level Reviewer: richardsd

Date: 08-Jan-2019 16:15:37

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.501	2.501	0.000	90	220427	6.00	5.76	
3 1,4-Dioxane	88	2.542	2.542	0.000	83	20905	0.6000	0.5353	
* 2 1,4-Dichlorobenzene-d4	152	5.794	5.794	0.000	99	319549	4.00	4.00	a

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

MB_1,4SIM_WRK_00062

Amount Added: 1.00

Units: mL

MB_LLIS_WRK_00161

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314654.D

Injection Date: 08-Jan-2019 14:23:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: CCVIS

Worklist Smp#: 3

Client ID:

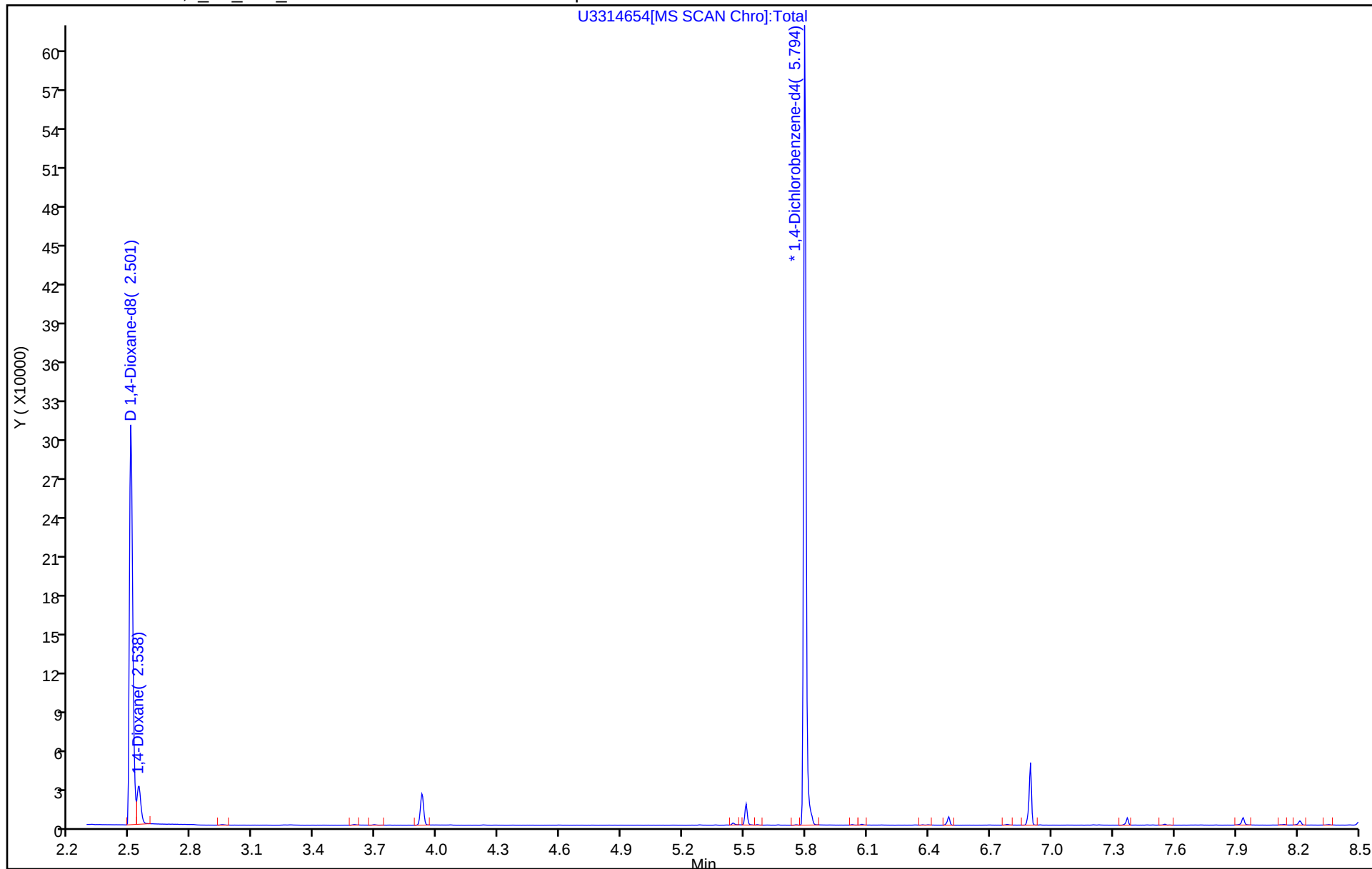
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo

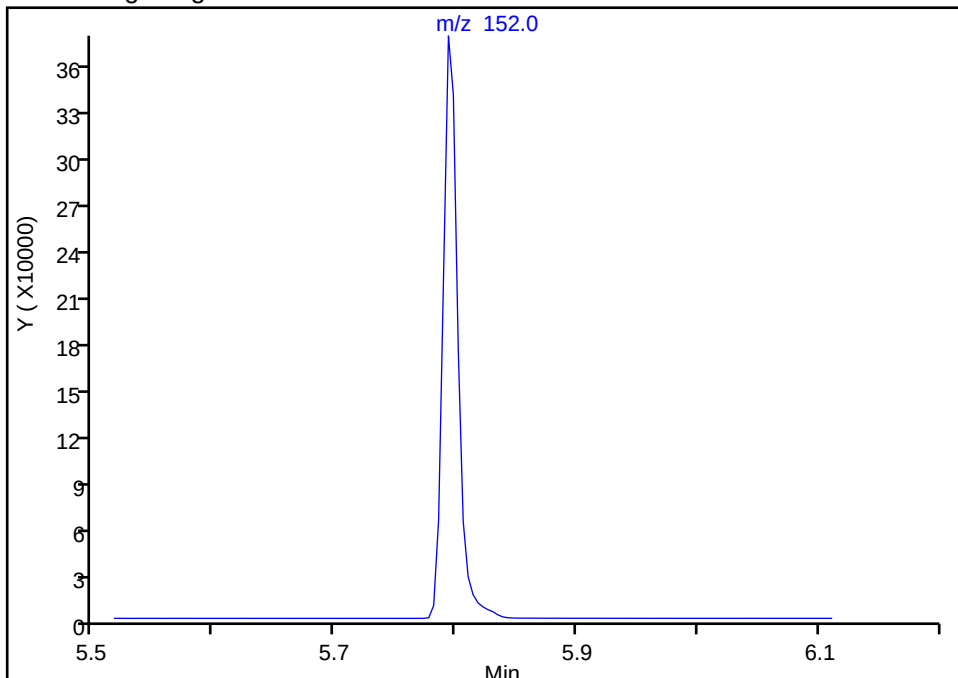
Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314654.D
Injection Date: 08-Jan-2019 14:23:30 Instrument ID: HP5973U
Lims ID: CCVIS
Client ID:
Operator ID: DR ALS Bottle#: 3 Worklist Smp#: 3
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4_Dx_SIM_HP5973U Limit Group: MB - 8270D SIM ID ICAL
Column: Detector MS SCAN

* 2 1,4-Dichlorobenzene-d4, CAS: 3855-82-1

Signal: 1

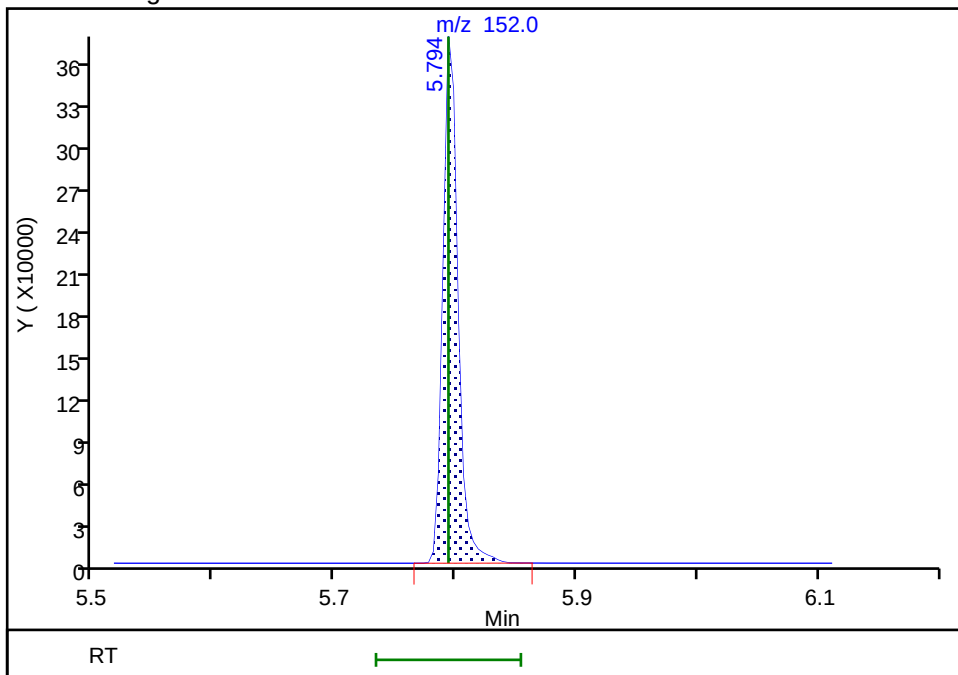
Not Detected
Expected RT: 5.79

Processing Integration Results



RT: 5.79
Area: 319549
Amount: 4.000000
Amount Units: ng/ul

Manual Integration Results



Reviewer: richardsd, 08-Jan-2019 16:15:28
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
SDG No.: _____
Lab Sample ID: CCVIS 480-454620/3 Calibration Date: 01/10/2019 18:01
Instrument ID: HP5973U Calib Start Date: 12/07/2018 15:39
GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm) Calib End Date: 12/07/2018 17:41
Lab File ID: U3314702.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	AveID	1.063	0.9389	0.0100	530	600	-11.7	20.0
1,4-Dioxane-d8	Ave	0.4791	0.4717	0.0100	5910	6000	-1.6	20.0

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314702.D
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 10-Jan-2019 18:01:30 ALS Bottle#: 3 Worklist Smp#: 3
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077909-003
 Operator ID: DR Instrument ID: HP5973U
 Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 14-Jan-2019 12:04:19 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0313

First Level Reviewer: richardsd

Date: 10-Jan-2019 18:17:55

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.501	2.505	-0.004	87	213170	6.00	5.91	
3 1,4-Dioxane	88	2.538	2.538	0.000	85	20015	0.6000	0.5300	
* 2 1,4-Dichlorobenzene-d4	152	5.793	5.793	0.000	98	301303	4.00	4.00	

Reagents:

MB_1,4SIM_WRK_00062

Amount Added: 1.00

Units: mL

MB_LLIS_WRK_00161

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314702.D

Injection Date: 10-Jan-2019 18:01:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: CCVIS

Worklist Smp#: 3

Client ID:

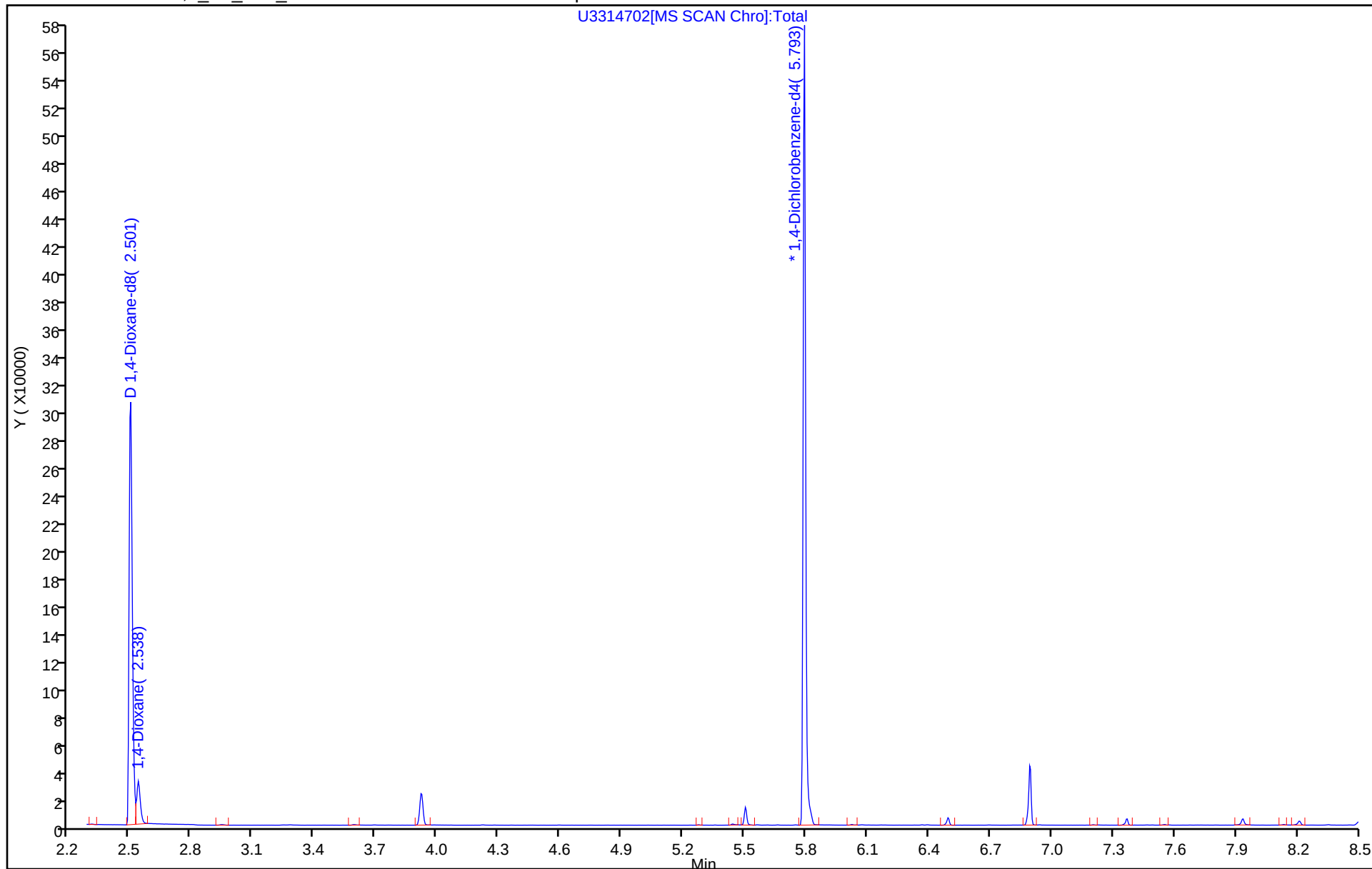
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 3

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314029.D
 Lims ID: DFTPP
 Client ID:
 Sample Type: DFTPP
 Inject. Date: 07-Dec-2018 15:11:30 ALS Bottle#: 2 Worklist Smp#: 2
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077050-002
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 07-Dec-2018 17:57:46 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: Deconvolution ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICAL File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0318

First Level Reviewer: richardsd

Date: 07-Dec-2018 15:35:28

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
4 DFTPP									
7 4,4'-DDE	246	11.026	11.026	0.000	0	832			NR
5 4,4'-DDD	235	11.325	11.325	0.000	92	3201			NR
6 4,4'-DDT	235	11.608	11.608	0.000	97	517196	NR		NR

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Reagents:

MB_DFTPP_WRK_00345

Amount Added: 1.00

Units: mL

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314029.D

Injection Date: 07-Dec-2018 15:11:30

Instrument ID: HP5973U

Lims ID: DFTPP

Client ID:

Operator ID: DR

ALS Bottle#: 2 Worklist Smp#: 2

Injection Vol: 1.0 ul

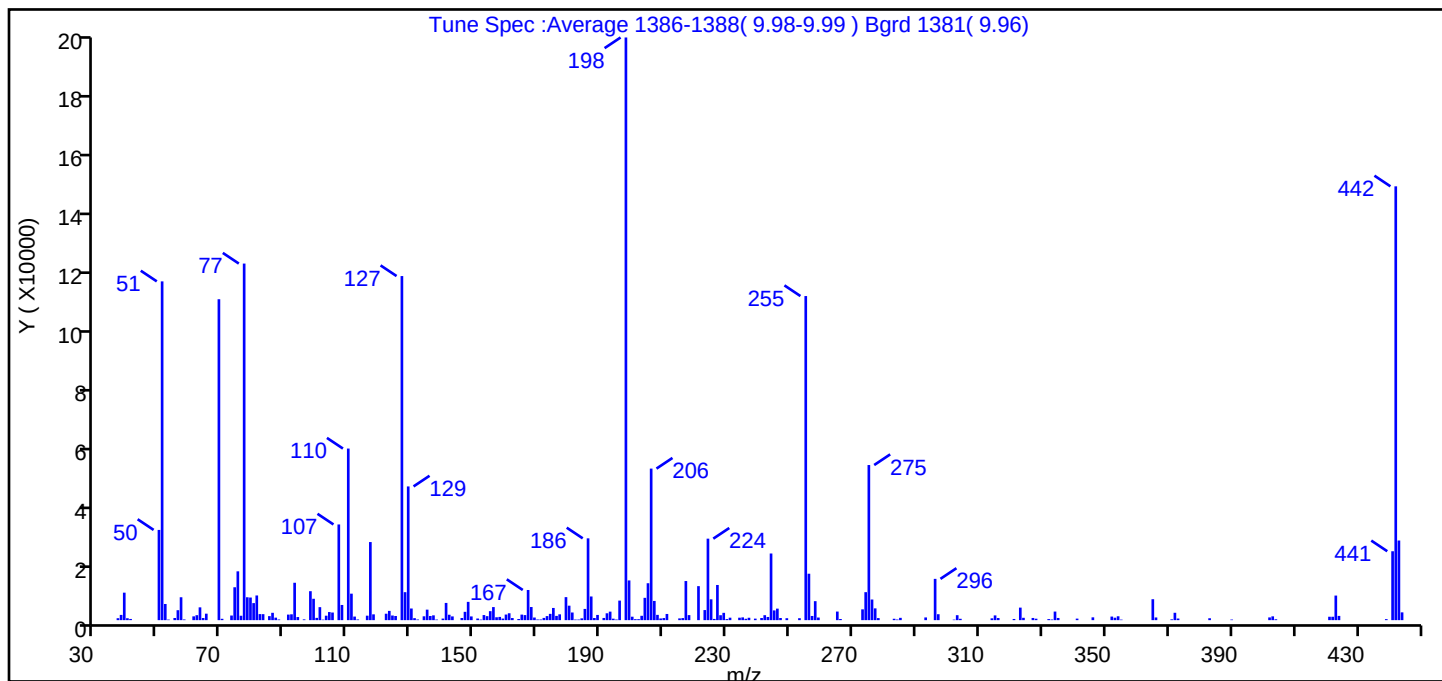
Dil. Factor: 1.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Tune Method: DFTPP Method 8270D, BP 198

4 DFTPP



m/z	Ion Abundance Criteria	% Relative Abundance
198	base peak, or >90% of 442	100.0 (134.3)
51	10-80% of the base peak	58.1
68	<2% of mass 69	0.0 (0.0)
69	Present	55.1
70	<2% of mass 69	0.2 (0.4)
127	10-80% of the base peak	59.1
197	<2% of mass 198	0.0
199	5-9% of mass 198	6.8
275	10-60% of the base peak	26.6
365	>1% of mass 198	3.6
441	present but <24% of mass 442	11.8 (15.9)
442	base peak, or >50% of 198	74.5
443	15-24% of mass 442	13.7 (18.4)

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314029.D\1,4_Dx_SIM_HP5973U.rslt\spec
Injection Date: 07-Dec-2018 15:11:30
Spectrum: Tune Spec :Average 1386-1388(9.98-9.99) Bgrd 1381(9.96)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 224

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	662	118.00	1979	185.00	3832	258.00	6478
38.00	1788	122.00	2192	186.00	27928	259.00	891
39.00	9381	123.00	3158	187.00	8078	265.00	2930
40.00	654	124.00	1582	188.00	726	266.00	392
41.00	407	125.00	1418	189.00	1780	273.00	3684
50.00	30800	127.00	117464	191.00	747	274.00	9552
51.00	115648	128.00	9549	192.00	2341	275.00	52952
52.00	5514	129.00	45648	193.00	2903	276.00	7040
53.00	193	130.00	3973	194.00	498	277.00	4018
55.00	739	131.00	676	195.00	214	278.00	700
56.00	3394	132.00	218	196.00	6670	283.00	470
57.00	7815	134.00	1312	198.00	198912	284.00	210
58.00	232	135.00	3584	199.00	13559	285.00	788
61.00	1297	136.00	1419	200.00	1174	293.00	922
62.00	1688	137.00	1636	201.00	335	296.00	14092
63.00	4369	138.00	200	202.00	337	297.00	2022
64.00	727	140.00	537	203.00	1483	302.00	177
65.00	2208	141.00	5877	204.00	7615	303.00	1691
69.00	109552	142.00	1846	205.00	12602	304.00	461
70.00	460	143.00	1276	206.00	51736	314.00	617
73.00	1575	146.00	736	207.00	6554	315.00	1620
74.00	11224	147.00	2839	208.00	1802	316.00	723
75.00	16664	148.00	6241	209.00	577	321.00	396
76.00	1498	149.00	1266	210.00	715	323.00	4276
77.00	121728	151.00	554	211.00	2109	324.00	799
78.00	7810	152.00	187	215.00	598	327.00	743
79.00	7717	153.00	1736	216.00	709	328.00	490
80.00	5816	154.00	1364	217.00	13349	332.00	361
81.00	8425	155.00	3064	218.00	1718	333.00	217
82.00	2064	156.00	4458	221.00	11608	334.00	2931
83.00	2042	157.00	982	223.00	3440	335.00	745
85.00	1372	158.00	1102	224.00	27816	341.00	520
86.00	2504	159.00	536	225.00	7108	346.00	957

Report Date: 07-Dec-2018 17:57:46

Chrom Revision: 2.3 21-Nov-2018 13:56:44

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314029.D\1,4_Dx_SIM_HP5973U.rslt\spec

Injection Date: 07-Dec-2018 15:11:30

Spectrum: Tune Spec :Average 1386-1388(9.98-9.99) Bgrd 1381(9.96)

Base Peak: 198.00

Minimum % Base Peak: 0

Number of Points: 224

m/z	Y	m/z	Y	m/z	Y	m/z	Y
87.00	850	160.00	1912	226.00	416	352.00	1223
88.00	228	161.00	2352	227.00	12003	353.00	831
91.00	1895	162.00	721	228.00	1683	354.00	1322
92.00	1994	164.00	386	229.00	2496	355.00	180
93.00	12761	165.00	1889	230.00	362	365.00	7144
94.00	1055	166.00	1726	231.00	839	366.00	916
96.00	262	167.00	10293	234.00	833	371.00	272
98.00	9884	168.00	4479	235.00	942	372.00	2515
99.00	7291	169.00	892	236.00	465	373.00	553
100.00	773	170.00	226	237.00	816	383.00	648
101.00	4433	171.00	221	239.00	516	390.00	201
102.00	172	172.00	761	241.00	726	402.00	931
103.00	1520	173.00	1379	242.00	1692	403.00	1295
104.00	2759	174.00	2145	243.00	1082	404.00	299
105.00	2599	175.00	4163	244.00	22752	421.00	1159
107.00	32664	176.00	1450	245.00	3321	422.00	1158
108.00	5179	177.00	1986	246.00	3929	423.00	8388
110.00	58576	179.00	7856	247.00	730	424.00	1448
111.00	9039	180.00	4937	249.00	658	439.00	345
112.00	1219	181.00	2609	253.00	663	441.00	23520
113.00	233	182.00	205	255.00	110640	442.00	148096
116.00	1524	183.00	208	256.00	15847	443.00	27184
117.00	26656	184.00	612	257.00	1427	444.00	2658

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314029.D

Injection Date: 07-Dec-2018 15:11:30

Instrument ID: HP5973U

Lims ID: DFTPP

Client ID:

Operator ID: DR

ALS Bottle#:

2

Worklist Smp#:

2

Injection Vol: 1.0 ul

Dil. Factor:

1.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group:

MB - 8270D SIM ID ICAL

6 4,4'-DDT, Detector: MS SCAN

SW-846 Method

%Breakdown =

$$\left(\frac{\text{Area Breakdown Cpnds}}{\text{Total Area Breakdown Cpnds}} \right) * 100$$

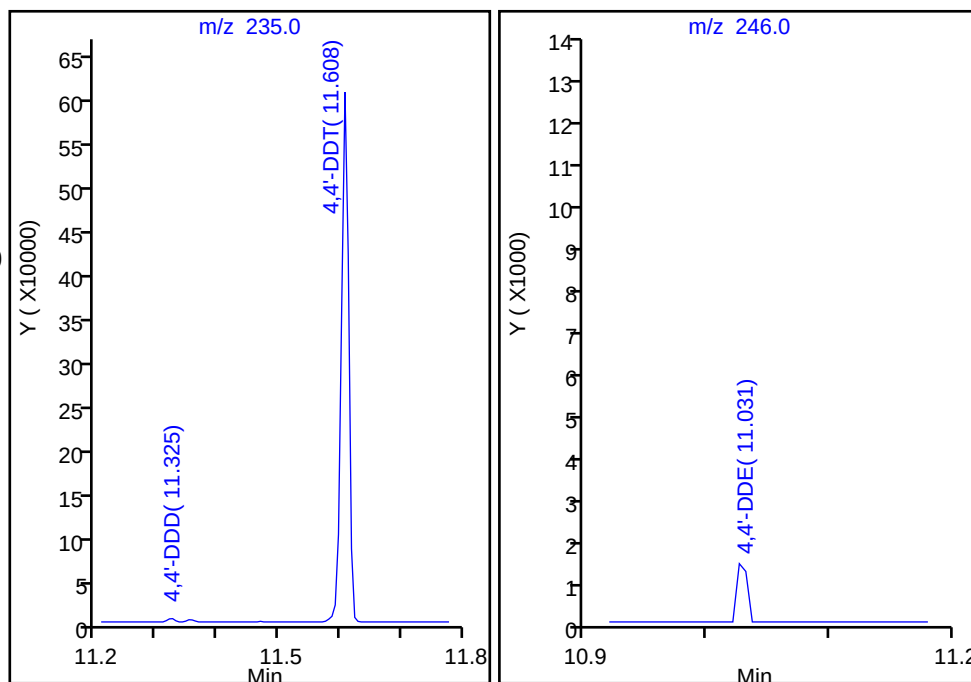
6 4,4'-DDT, Area = 517196

5 4,4'-DDD, Area = 3201

7 4,4'-DDE, Area = 832

%Breakdown: 0.77%, <= 20.00%

Passed



TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314653.D
 Lims ID: DFTPP
 Client ID:
 Sample Type: DFTPP
 Inject. Date: 08-Jan-2019 13:53:30 ALS Bottle#: 2 Worklist Smp#: 2
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077828-002
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 09-Jan-2019 13:57:44 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: Deconvolution ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0307

First Level Reviewer: richardsd

Date: 08-Jan-2019 16:15:23

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
4 DFTPP									
7 4,4'-DDE	246	10.871	10.871	0.000	0	758		NR	a
5 4,4'-DDD	235	11.159	11.159	0.000	90	3075		NR	a
6 4,4'-DDT	235	11.437	11.437	0.000	99	704593	NR	NR	a

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Review Flags

a - User Assigned ID

Reagents:

MB_DFTPP_WRK_00347

Amount Added: 1.00

Units: mL

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314653.D

Injection Date: 08-Jan-2019 13:53:30

Instrument ID: HP5973U

Lims ID: DFTPP

Client ID:

Operator ID: DR

ALS Bottle#: 2 Worklist Smp#: 2

Injection Vol: 1.0 ul

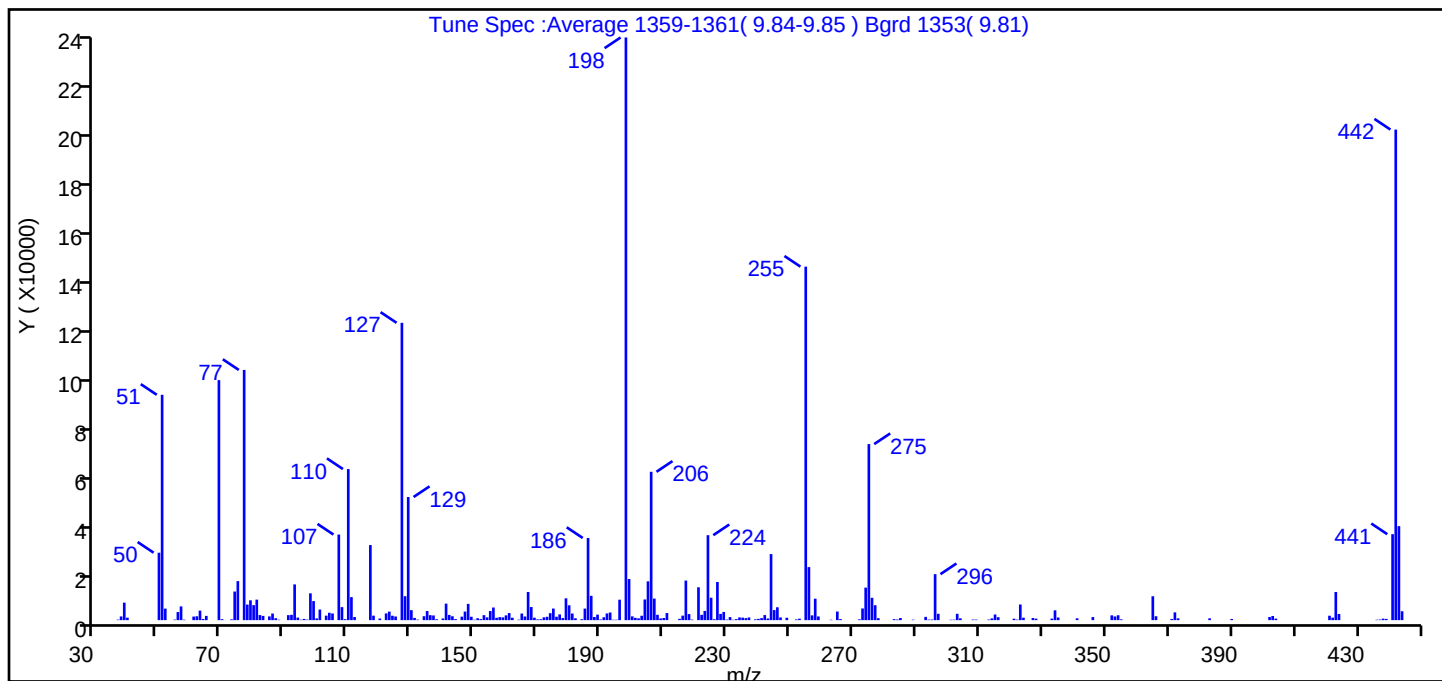
Dil. Factor: 1.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Tune Method: DFTPP Method 8270D, BP 198

4 DFTPP



m/z	Ion Abundance Criteria	% Relative Abundance
198	base peak, or >90% of 442	100.0 (118.8)
51	10-80% of the base peak	38.7
68	<2% of mass 69	0.0 (0.0)
69	Present	41.2
70	<2% of mass 69	0.2 (0.4)
127	10-80% of the base peak	51.0
197	<2% of mass 198	0.0
199	5-9% of mass 198	7.1
275	10-60% of the base peak	30.2
365	>1% of mass 198	4.1
441	present but <24% of mass 442	14.8 (17.5)
442	base peak, or >50% of 198	84.2
443	15-24% of mass 442	16.1 (19.2)

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314653.D\1,4_Dx_SIM_HP5973U.rslt\spec
 Injection Date: 08-Jan-2019 13:53:30
 Spectrum: Tune Spec :Average 1359-1361(9.84-9.85) Bgrd 1353(9.81)
 Base Peak: 198.00
 Minimum % Base Peak: 0
 Number of Points: 243

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	213	129.00	50648	195.00	173	275.00	72416
38.00	1522	130.00	4110	196.00	8413	276.00	9188
39.00	7204	131.00	926	198.00	239680	277.00	6132
40.00	1026	132.00	215	199.00	16904	278.00	804
50.00	27744	134.00	1626	200.00	1551	283.00	410
51.00	92696	135.00	3753	201.00	950	284.00	267
52.00	4744	136.00	2048	202.00	740	285.00	874
55.00	229	137.00	1927	203.00	1806	289.00	196
56.00	3331	138.00	368	204.00	8508	293.00	1351
57.00	5653	140.00	701	205.00	15970	294.00	217
58.00	195	141.00	6789	206.00	61032	295.00	262
61.00	1475	142.00	2149	207.00	8866	296.00	18920
62.00	1593	143.00	1593	208.00	2202	297.00	2614
63.00	3913	144.00	424	209.00	704	301.00	174
64.00	485	146.00	1435	210.00	876	302.00	202
65.00	1751	147.00	3534	211.00	2920	303.00	2602
69.00	98736	148.00	6686	215.00	553	304.00	751
70.00	401	149.00	1395	216.00	1849	308.00	243
73.00	335	150.00	173	217.00	16282	309.00	229
74.00	11767	151.00	775	218.00	2490	313.00	250
75.00	16056	152.00	437	219.00	225	314.00	721
77.00	102920	153.00	2048	221.00	13520	315.00	2321
78.00	6404	154.00	1144	222.00	2196	316.00	1214
79.00	8174	155.00	3737	223.00	3784	321.00	591
80.00	6167	156.00	5196	224.00	34952	322.00	223
81.00	8439	157.00	973	225.00	9215	323.00	6440
82.00	2085	158.00	1242	226.00	367	324.00	1007
83.00	1743	159.00	1147	227.00	15695	327.00	871
85.00	1543	160.00	1965	228.00	2568	328.00	611
86.00	2714	161.00	2920	229.00	3368	333.00	637
87.00	791	162.00	987	230.00	229	334.00	4045
88.00	179	164.00	196	231.00	1257	335.00	1091
91.00	2061	165.00	2718	232.00	168	341.00	759

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314653.D\1,4_Dx_SIM_HP5973U.rslt\spec

Injection Date: 08-Jan-2019 13:53:30

Spectrum: Tune Spec :Average 1359-1361(9.84-9.85) Bgrd 1353(9.81)

Base Peak: 198.00

Minimum % Base Peak: 0

Number of Points: 243

m/z	Y	m/z	Y	m/z	Y	m/z	Y
92.00	2190	166.00	1506	233.00	424	346.00	1275
93.00	14699	167.00	11576	234.00	1116	352.00	1983
94.00	1060	168.00	5391	235.00	1028	353.00	1520
95.00	183	169.00	1001	236.00	824	354.00	2022
96.00	502	170.00	317	237.00	1106	355.00	327
97.00	218	171.00	373	239.00	335	365.00	9827
98.00	11037	172.00	1154	240.00	530	366.00	1609
99.00	7846	173.00	1381	241.00	827	371.00	483
100.00	708	174.00	2866	242.00	2085	372.00	3198
101.00	4367	175.00	4778	243.00	685	373.00	733
103.00	1855	176.00	1405	244.00	27176	383.00	741
104.00	3030	177.00	2353	245.00	4141	390.00	493
105.00	2745	178.00	863	246.00	5293	402.00	1305
107.00	35200	179.00	8976	247.00	1111	403.00	1713
108.00	5355	180.00	6104	249.00	992	404.00	637
109.00	396	181.00	2716	252.00	302	421.00	1818
110.00	62152	182.00	769	253.00	609	422.00	1020
111.00	9464	184.00	386	255.00	145408	423.00	11588
112.00	1289	185.00	4743	256.00	21816	424.00	2522
117.00	30880	186.00	33800	257.00	1965	436.00	180
118.00	1839	187.00	10004	258.00	8825	437.00	252
120.00	672	188.00	1289	259.00	1529	438.00	623
122.00	2767	189.00	2274	263.00	176	439.00	510
123.00	3519	190.00	267	265.00	3542	441.00	35360
124.00	1800	191.00	1201	266.00	441	442.00	201792
125.00	1495	192.00	2768	272.00	331	443.00	38664
127.00	122304	193.00	3148	273.00	4803	444.00	3658
128.00	9844	194.00	177	274.00	13370		

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314653.D

Injection Date: 08-Jan-2019 13:53:30

Instrument ID: HP5973U

Lims ID: DFTPP

Client ID:

Operator ID: DR

ALS Bottle#:

2

Worklist Smp#: 2

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

6 4,4'-DDT, Detector: MS SCAN

SW-846 Method

%Breakdown =

$$\left(\frac{\text{Area Breakdown Cpnds}}{\text{Total Area Breakdown Cpnds}} \right) * 100$$

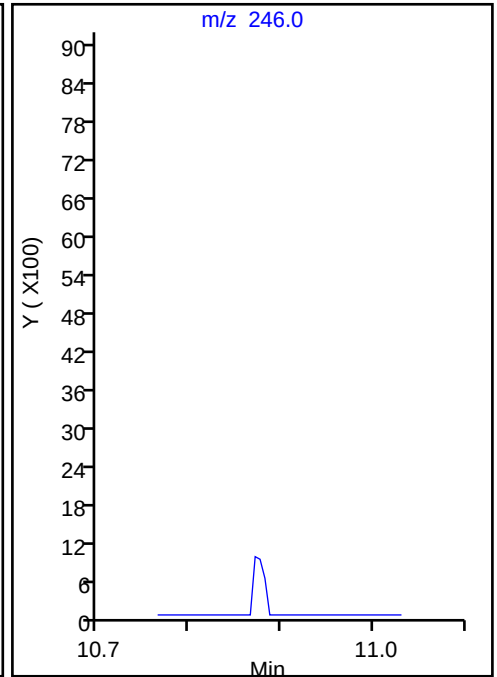
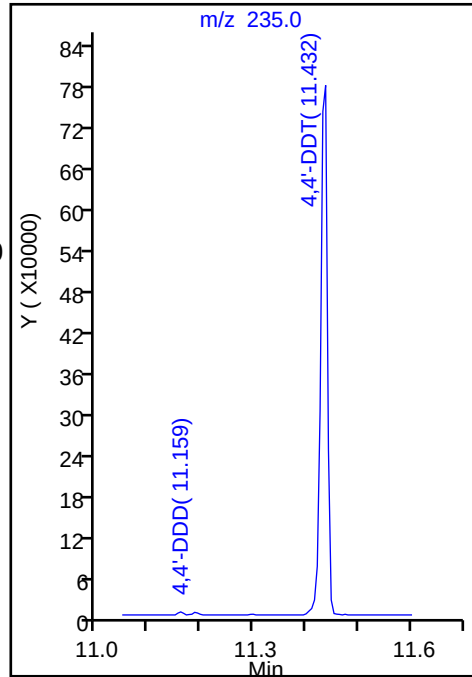
6 4,4'-DDT, Area = 704593

5 4,4'-DDD, Area = 3075

7 4,4'-DDE, Area = 758

%Breakdown: 0.54%, <= 20.00%

Passed



TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314701.D
 Lims ID: DFTPP
 Client ID:
 Sample Type: DFTPP
 Inject. Date: 10-Jan-2019 17:32:30 ALS Bottle#: 2 Worklist Smp#: 2
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077909-002
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 14-Jan-2019 12:04:17 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: Deconvolution ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0313

First Level Reviewer: richardsd

Date: 10-Jan-2019 18:07:45

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
4 DFTPP									
7 4,4'-DDE	246	10.876	10.876	0.000	0	2225			NR
5 4,4'-DDD	235	11.159	11.159	0.000	97	29394			NR
6 4,4'-DDT	235	11.432	11.432	0.000	98	663004	NR		NR

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

MB_DFTPP_WRK_00347

Amount Added: 1.00

Units: mL

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314701.D

Injection Date: 10-Jan-2019 17:32:30

Instrument ID: HP5973U

Lims ID: DFTPP

Client ID:

Operator ID: DR

ALS Bottle#: 2 Worklist Smp#: 2

Injection Vol: 1.0 ul

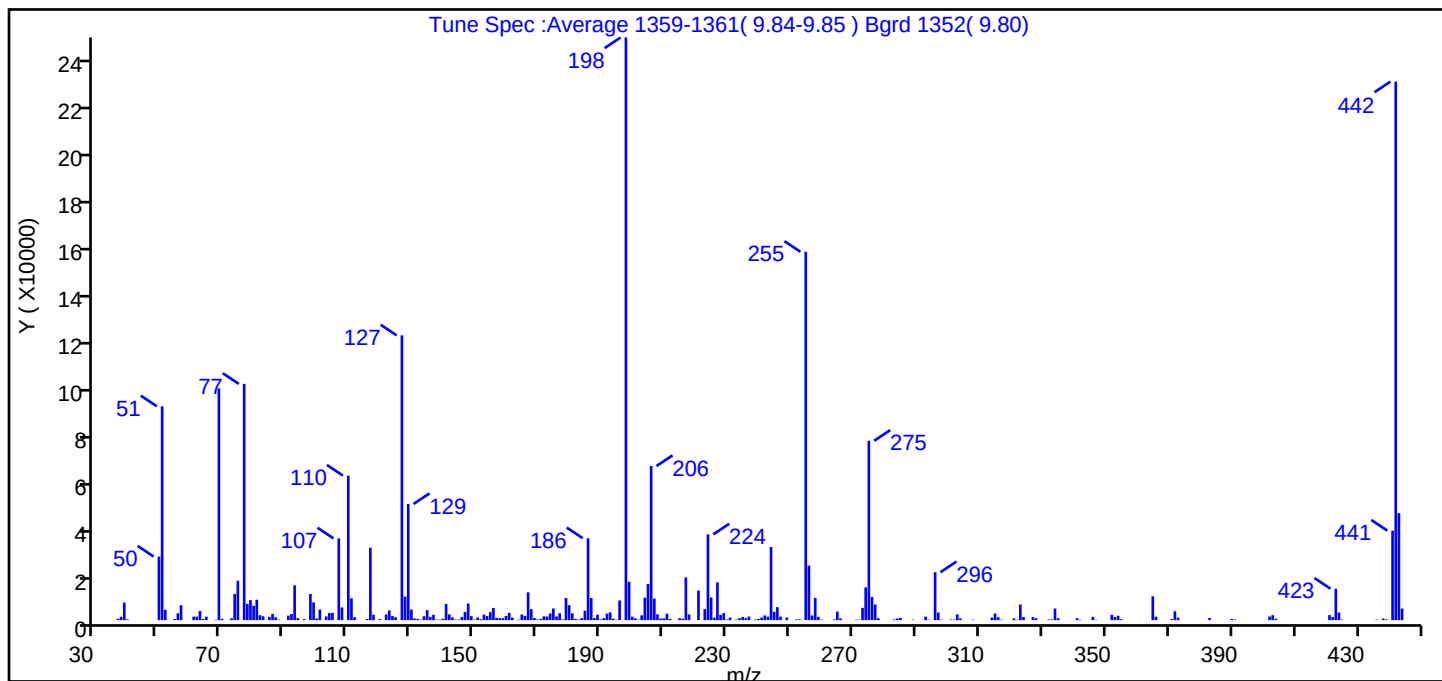
Dil. Factor: 1.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Tune Method: DFTPP Method 8270D, BP 198

4 DFTPP



m/z	Ion Abundance Criteria	% Relative Abundance
198	base peak, or >90% of 442	100.0 (108.2)
51	10-80% of the base peak	36.7
68	<2% of mass 69	0.1 (0.2)
69	Present	39.8
70	<2% of mass 69	0.2 (0.6)
127	10-80% of the base peak	48.9
197	<2% of mass 198	0.0
199	5-9% of mass 198	6.6
275	10-60% of the base peak	30.8
365	>1% of mass 198	4.1
441	present but <24% of mass 442	15.4 (16.6)
442	base peak, or >50% of 198	92.4
443	15-24% of mass 442	18.4 (19.9)

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314701.D\1,4_Dx_SIM_HP5973U.rslt\spec
Injection Date: 10-Jan-2019 17:32:30
Spectrum: Tune Spec :Average 1359-1361(9.84-9.85) Bgrd 1352(9.80)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 248

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	596	132.00	539	195.00	168	276.00	9743
38.00	1400	133.00	186	196.00	8291	277.00	6592
39.00	7403	134.00	1643	198.00	245824	278.00	807
40.00	329	135.00	4237	199.00	16189	283.00	313
50.00	26816	136.00	1387	200.00	1454	284.00	647
51.00	90216	137.00	2246	201.00	761	285.00	954
52.00	4394	138.00	215	202.00	192	289.00	212
55.00	513	139.00	189	203.00	2022	293.00	1483
56.00	2888	140.00	600	204.00	9500	294.00	181
57.00	6304	141.00	6835	205.00	15211	296.00	20216
61.00	1470	142.00	2444	206.00	65016	297.00	3219
62.00	1483	143.00	1172	207.00	9090	298.00	206
63.00	3842	144.00	226	208.00	2439	301.00	218
64.00	485	145.00	225	209.00	675	302.00	223
65.00	1471	146.00	1349	210.00	754	303.00	2426
68.00	173	147.00	3466	211.00	2718	304.00	728
69.00	97744	148.00	7029	212.00	498	308.00	205
70.00	556	149.00	1690	215.00	824	314.00	1081
73.00	767	150.00	195	216.00	579	315.00	2806
74.00	11052	151.00	1095	217.00	18024	316.00	1246
75.00	16624	152.00	403	218.00	2396	317.00	196
77.00	99672	153.00	2327	221.00	12483	321.00	708
78.00	6868	154.00	1691	223.00	4650	322.00	190
79.00	8467	155.00	3373	224.00	36176	323.00	6580
80.00	6056	156.00	5140	225.00	9555	324.00	1316
81.00	8608	157.00	953	226.00	1029	327.00	1327
82.00	2094	158.00	810	227.00	15934	328.00	808
83.00	1633	159.00	825	228.00	2197	332.00	287
85.00	1373	160.00	1753	229.00	2937	333.00	299
86.00	2634	161.00	3084	230.00	263	334.00	4887
87.00	1214	162.00	1067	231.00	1100	335.00	798
88.00	231	164.00	211	233.00	218	341.00	836
91.00	1897	165.00	2391	234.00	825	342.00	168

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314701.D\1,4_Dx_SIM_HP5973U.rslt\spec

Injection Date: 10-Jan-2019 17:32:30

Spectrum: Tune Spec :Average 1359-1361(9.84-9.85) Bgrd 1352(9.80)

Base Peak: 198.00

Minimum % Base Peak: 0

Number of Points: 248

m/z	Y	m/z	Y	m/z	Y	m/z	Y
92.00	2591	166.00	1774	235.00	1313	346.00	1371
93.00	14671	167.00	11732	236.00	846	347.00	167
94.00	867	168.00	4639	237.00	1525	352.00	2234
96.00	441	169.00	895	239.00	269	353.00	1334
98.00	11018	170.00	302	240.00	491	354.00	1841
99.00	7500	171.00	514	241.00	1074	355.00	379
100.00	713	172.00	1618	242.00	1998	365.00	10066
101.00	4453	173.00	1533	243.00	1487	366.00	1465
103.00	1588	174.00	2821	244.00	30848	371.00	457
104.00	3004	175.00	4917	245.00	3511	372.00	3767
105.00	3066	176.00	1550	246.00	5464	373.00	1042
107.00	34472	177.00	2907	247.00	1486	383.00	909
108.00	5377	178.00	286	249.00	1123	390.00	466
110.00	60968	179.00	9322	252.00	266	391.00	254
111.00	9238	180.00	6315	253.00	363	402.00	1523
112.00	1275	181.00	2853	255.00	155392	403.00	2098
116.00	460	182.00	522	256.00	23024	404.00	561
117.00	30568	183.00	228	257.00	1966	421.00	2136
118.00	2225	184.00	841	258.00	9375	422.00	1277
120.00	446	185.00	3978	259.00	1386	423.00	13252
122.00	2414	186.00	34560	260.00	179	424.00	3228
123.00	4121	187.00	9324	264.00	287	425.00	241
124.00	1728	188.00	877	265.00	3616	436.00	221
125.00	1226	189.00	2295	266.00	759	438.00	674
127.00	120152	190.00	261	271.00	173	439.00	313
128.00	9934	191.00	846	272.00	169	441.00	37768
129.00	49000	192.00	2758	273.00	5168	442.00	227200
130.00	4455	193.00	3275	274.00	13800	443.00	45160
131.00	724	194.00	610	275.00	75680	444.00	4896

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314701.D
Injection Date: 10-Jan-2019 17:32:30 Instrument ID: HP5973U
Lims ID: DFTPP
Client ID:
Operator ID: DR ALS Bottle#: 2 Worklist Smp#: 2
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4_Dx_SIM_HP5973U Limit Group: MB - 8270D SIM ID ICAL

6 4,4'-DDT, Detector: MS SCAN

SW-846 Method

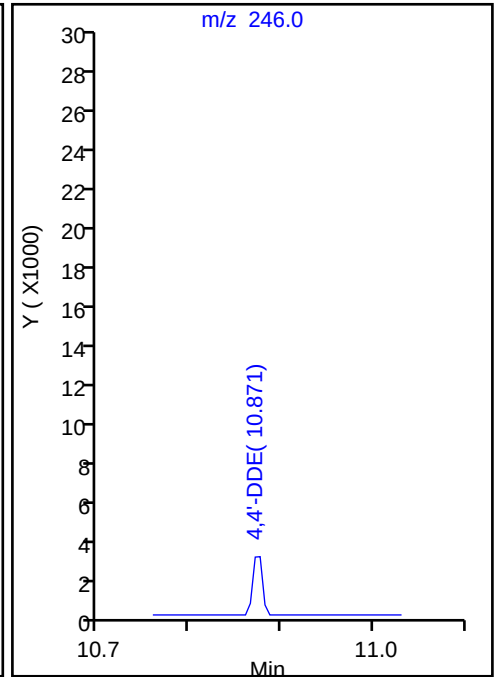
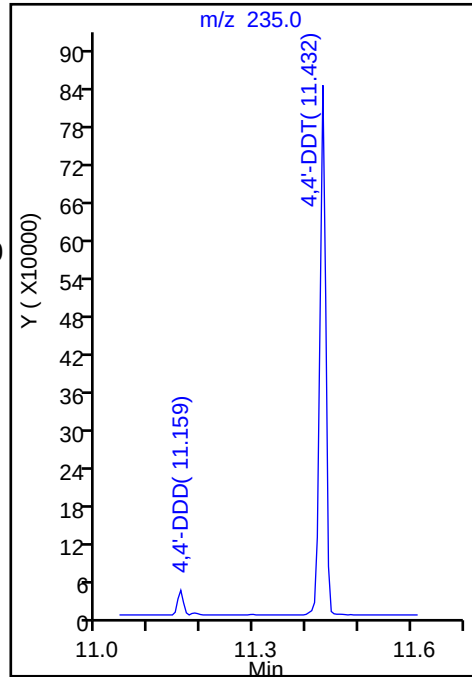
%Breakdown =
(Area Breakdown Cpnds/
Total Area Breakdown Cpnds) * 100

6 4,4'-DDT, Area = 663004

5 4,4'-DDD, Area = 29394

7 4,4'-DDE, Area = 2225

%Breakdown: 4.55%, <= 20.00%
Passed



FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 480-453341/1-A
 Matrix: Water Lab File ID: U3314660.D
 Analysis Method: 8270D SIM ID Date Collected: _____
 Extract. Method: 3510C Date Extracted: 01/02/2019 12:01
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/08/2019 16:52
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 454189 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	ND		0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	28		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314660.D
 Lims ID: MB 480-453341/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 08-Jan-2019 16:52:30 ALS Bottle#: 9 Worklist Smp#: 9
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077828-009
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 09-Jan-2019 13:57:45 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICAL File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0307

First Level Reviewer: richardsd

Date: 09-Jan-2019 13:40:28

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.582	2.501	0.081	87	108511	10.0	2.80	
3 1,4-Dioxane	88		2.542					ND	U
* 2 1,4-Dichlorobenzene-d4	152	5.801	5.794	0.007	99	323436	4.00	4.00	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

MB_LLIS_WRK_00161

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314660.D

Injection Date: 08-Jan-2019 16:52:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: MB 480-453341/1-A

Worklist Smp#: 9

Client ID:

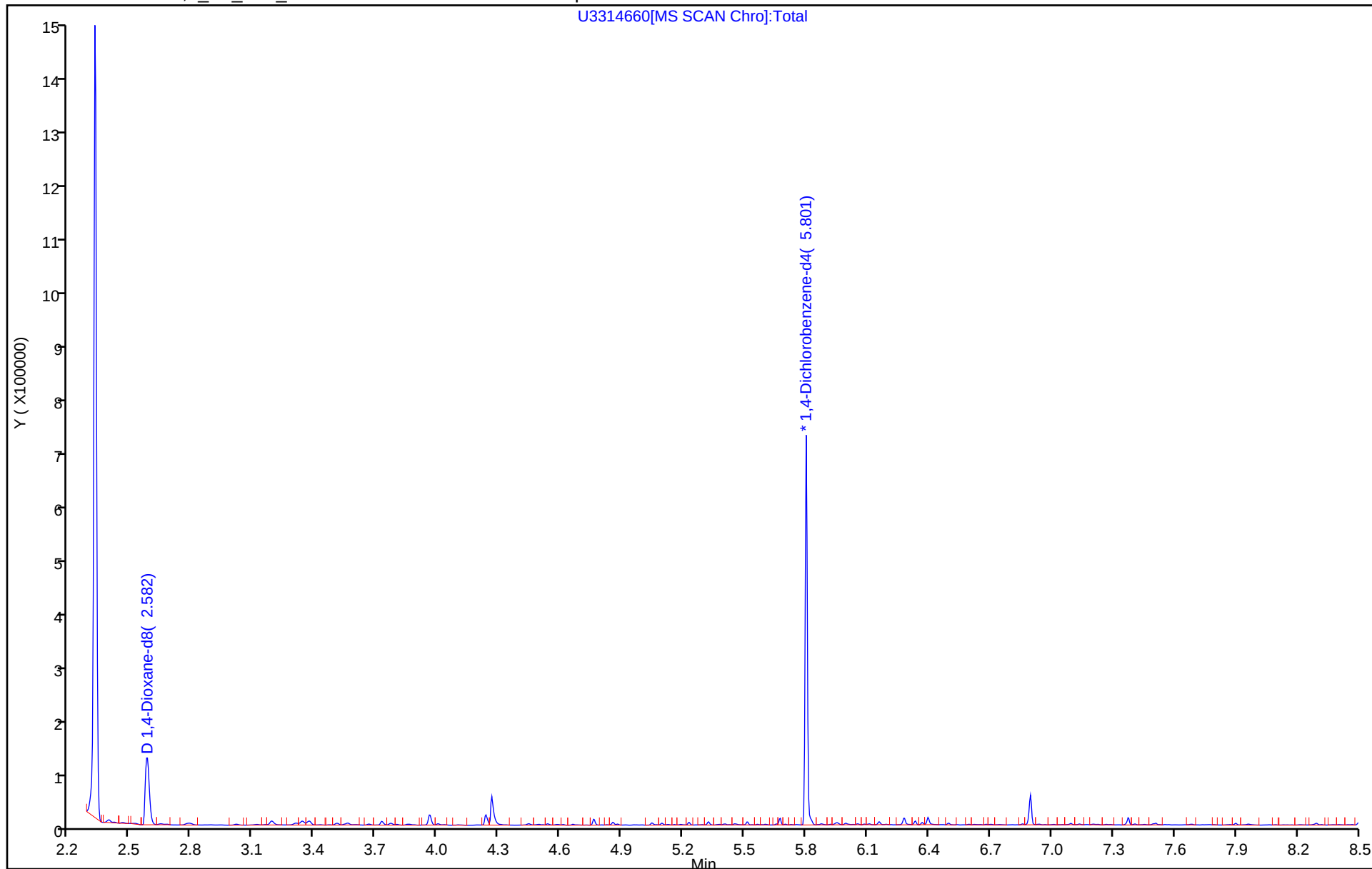
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 9

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314660.D

Injection Date: 08-Jan-2019 16:52:30

Instrument ID: HP5973U

Lims ID: MB 480-453341/1-A

Client ID:

Operator ID: DR

ALS Bottle#: 9

Worklist Smp#: 9

Injection Vol: 1.0 ul

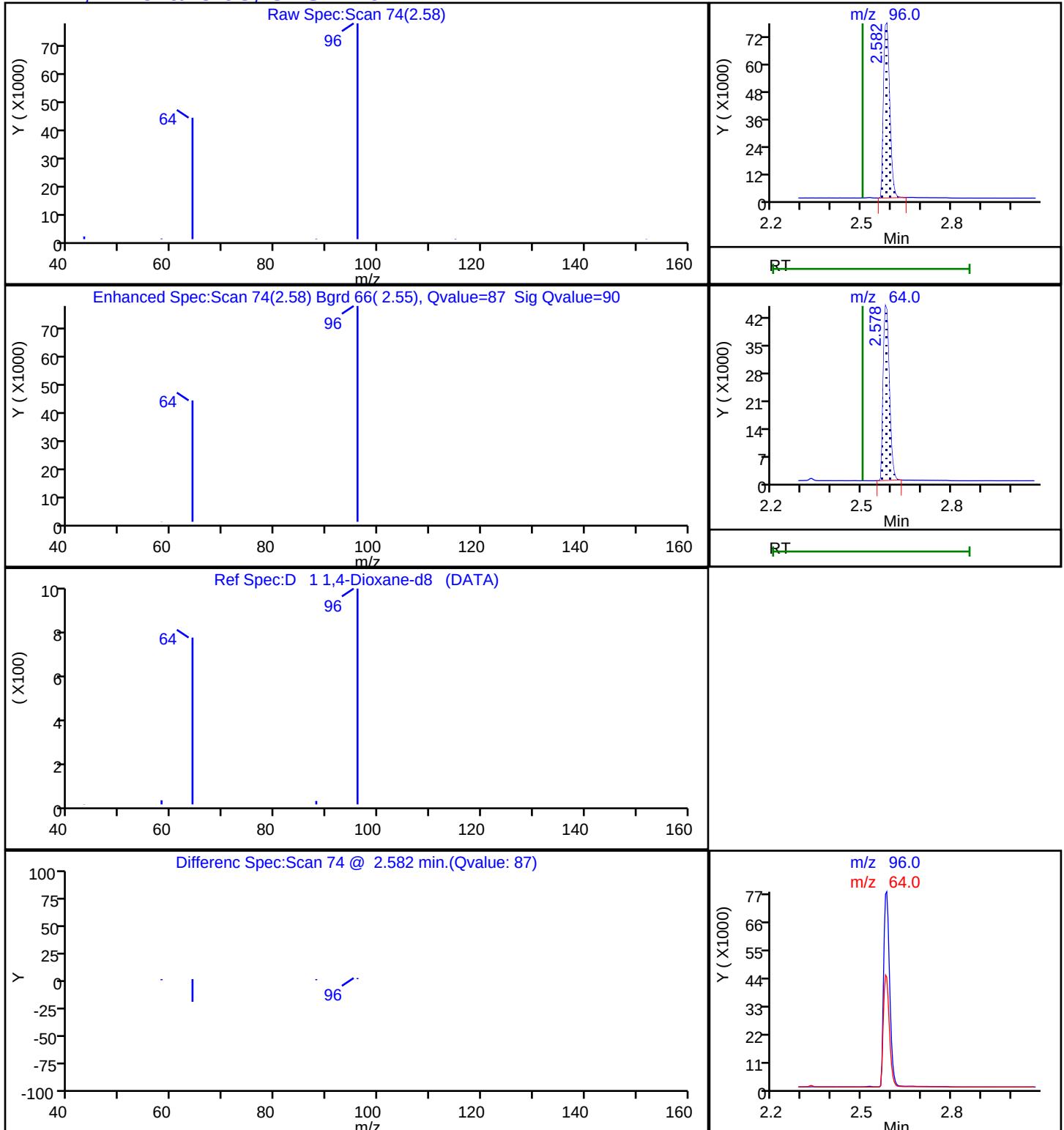
Dil. Factor: 1.0000

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector: MS SCAN

D 1 1,4-Dioxane-d8, CAS: 17647-74-4

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314660.D

Injection Date: 08-Jan-2019 16:52:30

Instrument ID: HP5973U

Lims ID: MB 480-453341/1-A

Client ID:

Operator ID: DR

ALS Bottle#:

9

Worklist Smp#: 9

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: 1,4_Dx_SIM_HP5973U

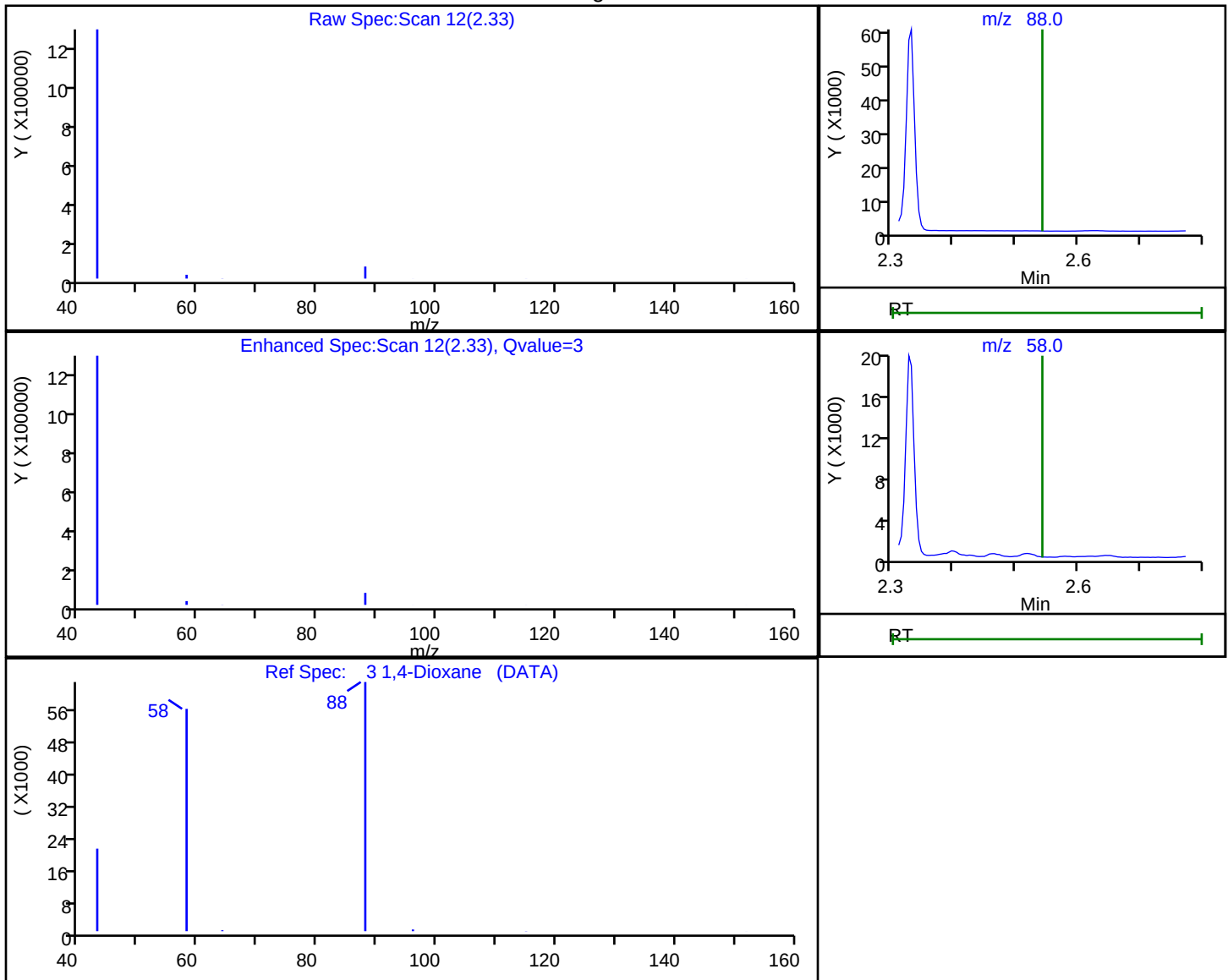
Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector MS SCAN

3 1,4-Dioxane, CAS: 123-91-1

Processing Results



RT	Mass	Response	Amount
2.33	88.00	56964	4.938422
2.33	58.00	18716	

Reviewer: richardsd, 09-Jan-2019 13:40:27

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 480-453341/2-A
 Matrix: Water Lab File ID: U3314661.D
 Analysis Method: 8270D SIM ID Date Collected: _____
 Extract. Method: 3510C Date Extracted: 01/02/2019 12:01
 Sample wt/vol: 1000 (mL) Date Analyzed: 01/08/2019 17:17
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 1 (uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 454189 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	1.03		0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	29		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314661.D
 Lims ID: LCS 480-453341/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 08-Jan-2019 17:17:30 ALS Bottle#: 10 Worklist Smp#: 10
 Injection Vol: 1.0 ul Dil. Factor: 1.0000
 Sample Info: 480-0077828-010
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 09-Jan-2019 13:57:45 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0307

First Level Reviewer: richardsd

Date: 09-Jan-2019 13:40:31

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.632	2.501	0.131	88	112344	10.0	2.86	
3 1,4-Dioxane	88	2.672	2.542	0.130	85	12328	1.00	1.03	
* 2 1,4-Dichlorobenzene-d4	152	5.806	5.794	0.012	98	327599	4.00	4.00	

Reagents:

MB_LLIS_WRK_00161 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190108-77828.b\U3314661.D

Injection Date: 08-Jan-2019 17:17:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: LCS 480-453341/2-A

Worklist Smp#: 10

Client ID:

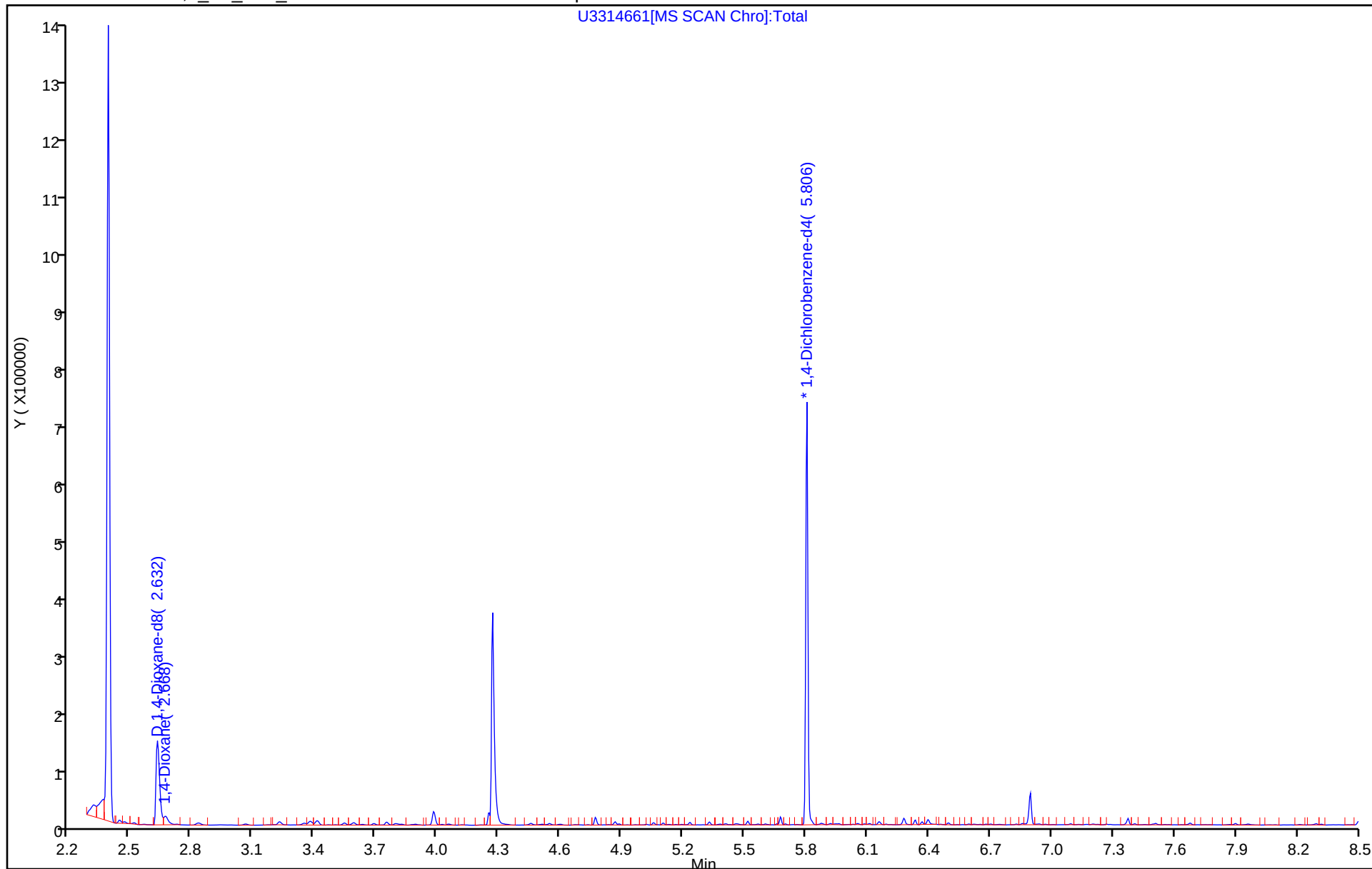
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 10

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
SDG No.: _____
Client Sample ID: 779078 MS Lab Sample ID: 480-147352-2 MS
Matrix: Water Lab File ID: U3314703.D
Analysis Method: 8270D SIM ID Date Collected: 12/27/2018 15:10
Extract. Method: 3510C Date Extracted: 01/02/2019 12:01
Sample wt/vol: 1000 (mL) Date Analyzed: 01/10/2019 18:25
Con. Extract Vol.: 1 (mL) Dilution Factor: 25
Injection Volume: 1 (uL) Level: (low/med) Low
% Moisture: _____ GPC Cleanup: (Y/N) N
Analysis Batch No.: 454620 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	51.0		5.0	2.5

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	30		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314703.D
 Lims ID: 480-147352-B-2-A MS
 Client ID: 779078
 Sample Type: MS
 Inject. Date: 10-Jan-2019 18:25:30 ALS Bottle#: 4 Worklist Smp#: 4
 Injection Vol: 1.0 ul Dil. Factor: 25.0000
 Sample Info: 480-0077909-004
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 14-Jan-2019 12:04:19 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICAL File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D

Column 1 : Det: MS SCAN
 Process Host: CTX0313

First Level Reviewer: richardsd

Date: 14-Jan-2019 11:56:51

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.521	2.505	0.016	89	4333	0.4000	0.1212	
3 1,4-Dioxane	88	2.550	2.538	0.012	84	23470	0.0400	2.04	E
* 2 1,4-Dichlorobenzene-d4	152	5.793	5.793	0.000	99	298591	0.1600	4.00	
7 4,4'-DDE	246		10.876					ND	
5 4,4'-DDD	235		11.159					ND	
6 4,4'-DDT	235		11.432					ND	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

MB_LLIS_WRK_00161

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314703.D

Injection Date: 10-Jan-2019 18:25:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-147352-B-2-A MS

Worklist Smp#: 4

Client ID: 779078

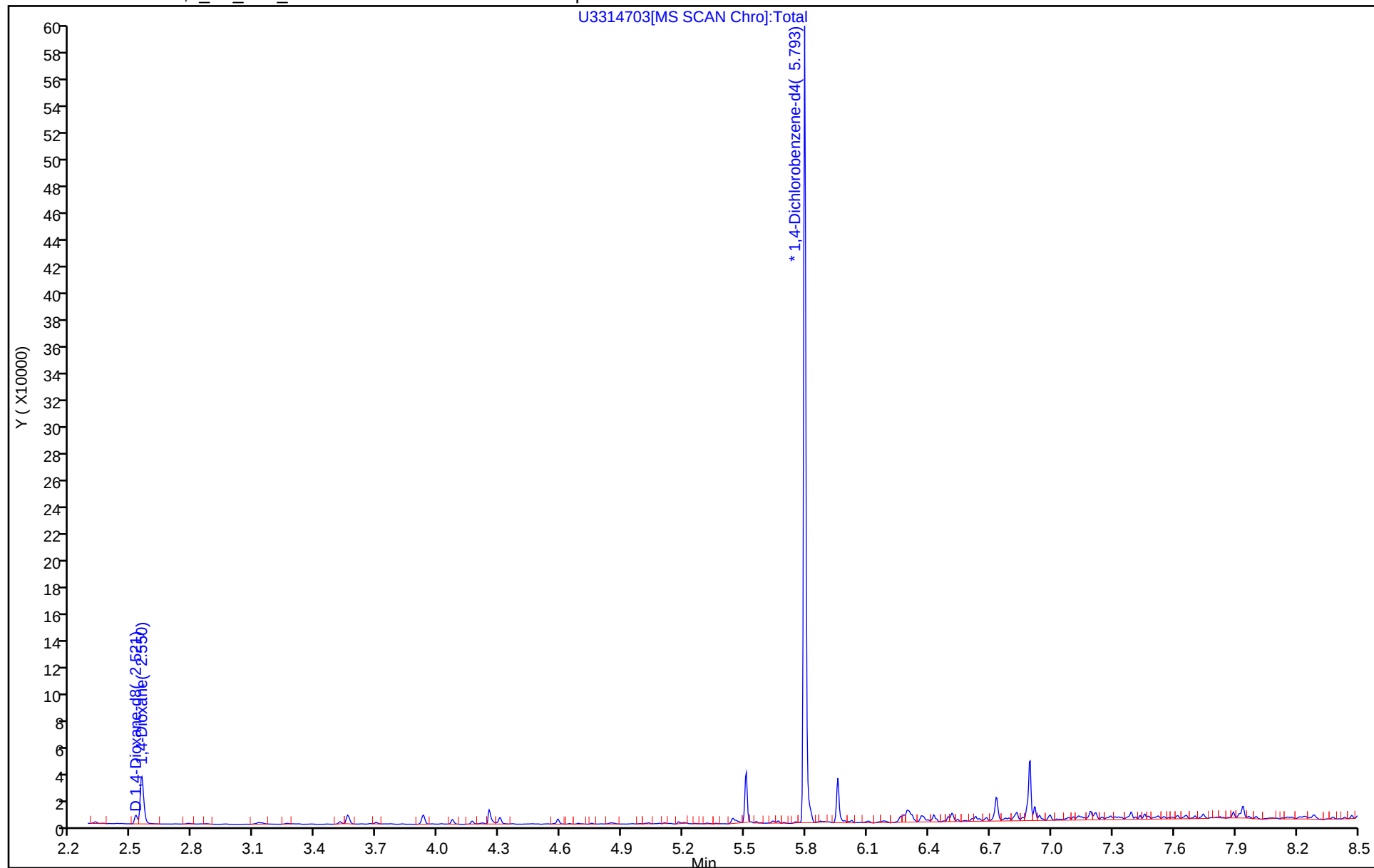
Injection Vol: 1.0 ul

Dil. Factor: 25.0000

ALS Bottle#: 4

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1
SDG No.: _____
Client Sample ID: 779078 MSD Lab Sample ID: 480-147352-2 MSD
Matrix: Water Lab File ID: U3314704.D
Analysis Method: 8270D SIM ID Date Collected: 12/27/2018 15:10
Extract. Method: 3510C Date Extracted: 01/02/2019 12:01
Sample wt/vol: 1000 (mL) Date Analyzed: 01/10/2019 18:49
Con. Extract Vol.: 1 (mL) Dilution Factor: 25
Injection Volume: 1 (uL) Level: (low/med) Low
% Moisture: _____ GPC Cleanup: (Y/N) N
Analysis Batch No.: 454620 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	53.0		5.0	2.5

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	28		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314704.D
 Lims ID: 480-147352-B-2-B MSD
 Client ID: 779078
 Sample Type: MSD
 Inject. Date: 10-Jan-2019 18:49:30 ALS Bottle#: 5 Worklist Smp#: 5
 Injection Vol: 1.0 ul Dil. Factor: 25.0000
 Sample Info: 480-0077909-005
 Operator ID: DR Instrument ID: HP5973U
 Method: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\1,4_Dx_SIM_HP5973U.m
 Limit Group: MB - 8270D SIM ID ICAL
 Last Update: 14-Jan-2019 12:04:19 Calib Date: 07-Dec-2018 17:41:30
 Integrator: Picker ID Type: RT Order ID
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICAL File: \\chromna\Buffalo\ChromData\HP5973U\20181206-77050.b\U3314035.D
 Column 1 : Det: MS SCAN
 Process Host: CTX0313

First Level Reviewer: richardsd

Date: 14-Jan-2019 11:56:54

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.521	2.505	0.016	86	4100	0.4000	0.1117	
3 1,4-Dioxane	88	2.550	2.538	0.012	84	23103	0.0400	2.12	E
* 2 1,4-Dichlorobenzene-d4	152	5.793	5.793	0.000	100	306498	0.1600	4.00	
7 4,4'-DDE	246		10.876					ND	
5 4,4'-DDD	235		11.159					ND	
6 4,4'-DDT	235		11.432					ND	

QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Reagents:

MB_LLIS_WRK_00161

Amount Added: 20.00

Units: uL

Run Reagent

TestAmerica Buffalo

Data File: \\chromna\Buffalo\ChromData\HP5973U\20190110-77909.b\U3314704.D

Injection Date: 10-Jan-2019 18:49:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-147352-B-2-B MSD

Worklist Smp#: 5

Client ID: 779078

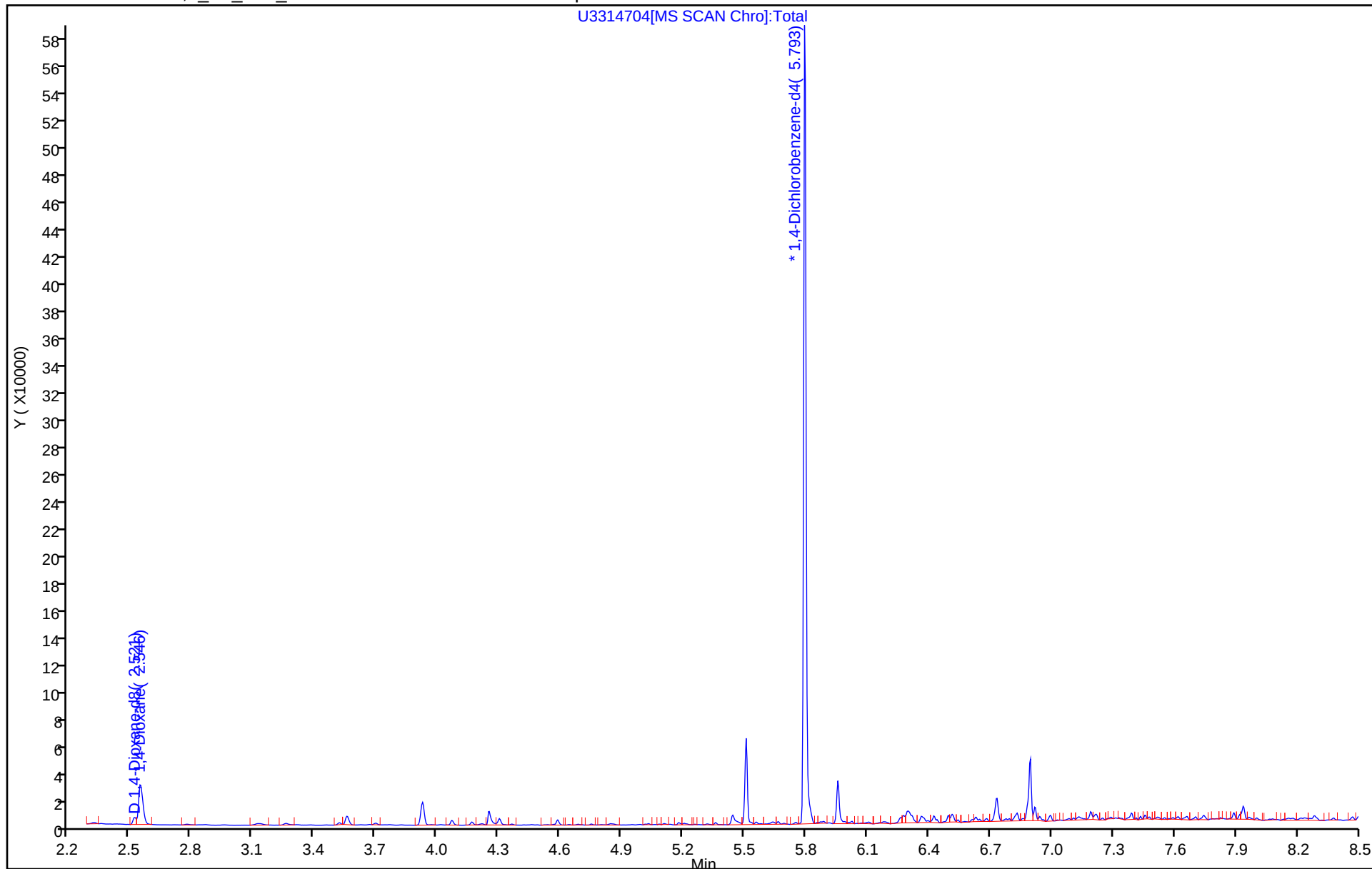
Injection Vol: 1.0 ul

Dil. Factor: 25.0000

ALS Bottle#: 5

Method: 1,4_Dx_SIM_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1

SDG No.: _____

Instrument ID: HP5973U Start Date: 12/07/2018 15:11Analysis Batch Number: 449428 End Date: 12/07/2018 18:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
DFTPP 480-449428/2		12/07/2018 15:11	1	U3314029.D	RXI-5Si1 MS(0.5 0.25 (mm))
IC 480-449428/3		12/07/2018 15:39	1	U3314030.D	RXI-5Si1 MS(0.5 0.25 (mm))
IC 480-449428/4		12/07/2018 16:04	1	U3314031.D	RXI-5Si1 MS(0.5 0.25 (mm))
ICIS 480-449428/5		12/07/2018 16:28	1	U3314032.D	RXI-5Si1 MS(0.5 0.25 (mm))
IC 480-449428/6		12/07/2018 16:52	1	U3314033.D	RXI-5Si1 MS(0.5 0.25 (mm))
IC 480-449428/7		12/07/2018 17:17	1	U3314034.D	RXI-5Si1 MS(0.5 0.25 (mm))
IC 480-449428/8		12/07/2018 17:41	1	U3314035.D	RXI-5Si1 MS(0.5 0.25 (mm))
ICV 480-449428/9		12/07/2018 18:05	1		RXI-5Si1 MS(0.5 0.25 (mm))

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica BuffaloJob No.: 480-147352-1

SDG No.: _____

Instrument ID: HP5973UStart Date: 01/08/2019 13:53Analysis Batch Number: 454189End Date: 01/09/2019 01:42

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
DFTPP 480-454189/2		01/08/2019 13:53	1	U3314653.D	RXI-5Sil MS(0.5 0.25 (mm))
CCVIS 480-454189/3		01/08/2019 14:23	1	U3314654.D	RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 14:48	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 15:13	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 15:38	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 16:03	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 16:27	1		RXI-5Sil MS(0.5 0.25 (mm))
MB 480-453341/1-A		01/08/2019 16:52	1	U3314660.D	RXI-5Sil MS(0.5 0.25 (mm))
LCS 480-453341/2-A		01/08/2019 17:17	1	U3314661.D	RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 17:42	5		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 18:07	5		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 18:33	5		RXI-5Sil MS(0.5 0.25 (mm))
480-147352-1		01/08/2019 18:58	1	U3314665.D	RXI-5Sil MS(0.5 0.25 (mm))
480-147352-3		01/08/2019 19:23	1	U3314666.D	RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 19:49	5		RXI-5Sil MS(0.5 0.25 (mm))
480-147352-5		01/08/2019 20:14	1	U3314668.D	RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 20:39	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 21:04	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 21:30	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 21:55	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 22:20	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 22:45	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 23:11	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/08/2019 23:36	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/09/2019 00:01	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/09/2019 00:26	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/09/2019 00:51	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/09/2019 01:17	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/09/2019 01:42	1		RXI-5Sil MS(0.5 0.25 (mm))

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica BuffaloJob No.: 480-147352-1

SDG No.: _____

Instrument ID: HP5973UStart Date: 01/10/2019 17:32Analysis Batch Number: 454620End Date: 01/11/2019 00:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
DFTPP 480-454620/2		01/10/2019 17:32	1	U3314701.D	RXI-5Sil MS(0.5 0.25 (mm))
CCVIS 480-454620/3		01/10/2019 18:01	1	U3314702.D	RXI-5Sil MS(0.5 0.25 (mm))
480-147352-2 MS		01/10/2019 18:25	25	U3314703.D	RXI-5Sil MS(0.5 0.25 (mm))
480-147352-2 MSD		01/10/2019 18:49	25	U3314704.D	RXI-5Sil MS(0.5 0.25 (mm))
480-147352-2		01/10/2019 19:13	25	U3314705.D	RXI-5Sil MS(0.5 0.25 (mm))
480-147352-4		01/10/2019 19:37	25	U3314706.D	RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/10/2019 20:01	40		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/10/2019 20:25	50		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/10/2019 20:50	500		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/10/2019 21:14	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/10/2019 21:39	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/10/2019 22:03	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/10/2019 22:27	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/10/2019 22:52	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/10/2019 23:16	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/10/2019 23:41	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		01/11/2019 00:05	1		RXI-5Sil MS(0.5 0.25 (mm))

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1

SDG No.: _____

Batch Number: 453341 Batch Start Date: 01/02/19 12:01 Batch Analyst: Pollock, Jacob MBatch Method: 3510C Batch End Date: _____

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ReceivedpH	FirstAdjustpH	OP_SIM LCS 00005	OP_SimSurr 00012
MB 480-453341/1		3510C, 8270D SIM ID		1000 mL	1 mL	7 SU	<2 SU		1 mL
LCS 480-453341/2		3510C, 8270D SIM ID		1000 mL	1 mL	7 SU	<2 SU	1 mL	1 mL
480-147352-B-2 MS	779078	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU	1 mL	1 mL
480-147352-B-2 MSD	779078	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU	1 mL	1 mL
480-147352-C-2	779078	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU		1 mL
480-147352-D-1	779077	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU		1 mL
480-147352-C-3	779079	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU		1 mL
480-147352-C-4	779081	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU		1 mL
480-147352-D-5	779082 (Field Blank)	3510C, 8270D SIM ID	T	1000 mL	1 mL	6 SU	<2 SU		1 mL

Lab Sample ID	Client Sample ID	Method Chain	Basis	AnalysisComment					
MB 480-453341/1		3510C, 8270D SIM ID							
LCS 480-453341/2		3510C, 8270D SIM ID							
480-147352-B-2 MS	779078	3510C, 8270D SIM ID	T	Contains a little sediment					
480-147352-B-2 MSD	779078	3510C, 8270D SIM ID	T	Contains a little sediment					
480-147352-C-2	779078	3510C, 8270D SIM ID	T	Contains a little sediment					
480-147352-D-1	779077	3510C, 8270D SIM ID	T	Contains a little sediment					
480-147352-C-3	779079	3510C, 8270D SIM ID	T	Contains a little sediment					
480-147352-C-4	779081	3510C, 8270D SIM ID	T	Contains some sediment					
480-147352-D-5	779082 (Field Blank)	3510C, 8270D SIM ID	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Buffalo Job No.: 480-147352-1

SDG No.: _____

Batch Number: 453341 Batch Start Date: 01/02/19 12:01 Batch Analyst: Pollock, Jacob MBatch Method: 3510C Batch End Date: _____

Batch Notes	
Acid Used for pH Adjustment ID	5019584
Analyst ID - Concentration	JP
Analyst ID - Extraction	JP
Method/Fraction	3510C/8270D_SIM_MS_ID
Na2SO4 ID	5051453
Prep Solvent ID	5081261
Prep Solvent Volume Used	180 mL
Analyst ID - Spike Analyst	JP
Analyst ID - Spike Witness Analyst	JP
Sufficient Volume for Batch QC	Yes
Vial Lot Number	1709111094

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.

PFC_IDA

Fluorinated Alkyl Substances

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): C-18 ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	M262FTS #	PFOA #
779078	480-147352-2	191 *	85
779081	480-147352-4	359 *	87
779078 MS	480-147352-2 MS	196 *	62
779078 MSD	480-147352-2 MSD	181 *	61

M262FTS = M2-6:2 FTS
PFOA = 13C4 PFOA

QC LIMITS
25-150
50-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low
 GC Column (1): C-18 ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	M262FTS #	PFOA #
	LCS 200-138891/2-A	87	98	114	79	79	109	150	78

	<u>QC LIMITS</u>
PFBA = 13C4 PFBA	25-150
PFPeA = 13C5 PFPeA	25-150
PFBS = 13C3 PFBS	25-150
PFHxA = 13C2 PFHxA	25-150
PFHpA = 13C4 PFHpA	25-150
PFHxS = 18O2 PFHxS	25-150
M262FTS = M2-6:2 FTS	25-150
PFOA = 13C4 PFOA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low
 GC Column (1): C-18 ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	PFNA #	PFOS #	M282FTS #	PFDA #	d3NMFOS #	d5NEFOS #	PFUnA #	PFOSA #
	LCS 200-138891/2-A	75	109	102	81	56	65	76	57

	<u>QC LIMITS</u>
PFNA = 13C5 PFNA	25-150
PFOS = 13C4 PFOS	25-150
M282FTS = M2-8:2 FTS	25-150
PFDA = 13C2 PFDA	25-150
d3NMFOS = d3-NMeFOSAA	25-150
d5NEFOS = d5-NEtFOSAA	25-150
PFUnA = 13C2 PFUnA	25-150
PFOSA = 13C8 FOSA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): C-18 ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	PFD _o A #	PFT _D A #
	LCS 200-138891/2-A	63	53

PFD_oA = 13C2 PFD_oA
PFT_DA = 13C2 PFT_oDA

QC LIMITS
25-150
25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low
 GC Column (1): C-18 ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	M262FTS #	PFOA #
779077	480-147352-1	16 *	33	62	37 *	57	85	175 *	65
779079	480-147352-3	86	77	86	66	60	84	145	74
779082 (Field Blank)	480-147352-5	101	110	101	86	80	94	128	79
	MB 200-138891/1-A	78	99	112	80	70	99	136	80
779078 MSD	480-147352-2 MSD	22 *	35	78	32 *	49 *	90	215 *	71

	<u>QC LIMITS</u>
PFBA = 13C4 PFBA	25-150
PFPeA = 13C5 PFPeA	25-150
PFBS = 13C3 PFBS	50-150
PFHxA = 13C2 PFHxA	50-150
PFHpA = 13C4 PFHpA	50-150
PFHxS = 18O2 PFHxS	50-150
M262FTS = M2-6:2 FTS	25-150
PFOA = 13C4 PFOA	50-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low
 GC Column (1): C-18 ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	PFNA #	PFOS #	M282FTS #	PFDA #	d3NMFOS #	d5NEFOS #	PFUnA #	PFOSA #
779077	480-147352-1	66	89	92	70	42 *	55	64	68
779079	480-147352-3	63	77	76	57	38 *	42 *	54	57
779082 (Field Blank)	480-147352-5	77	96	83	76	55	66	76	64
	MB 200-138891/1-A	74	101	99	78	52	64	79	59
779078 MSD	480-147352-2 MSD	90	115	217 *	102	75	88	104	85

	<u>QC LIMITS</u>
PFNA = 13C5 PFNA	50-150
PFOS = 13C4 PFOS	50-150
M282FTS = M2-8:2 FTS	25-150
PFDA = 13C2 PFDA	50-150
d3NMFOS = d3-NMeFOSAA	50-150
d5NEFOS = d5-NEtFOSAA	50-150
PFUnA = 13C2 PFUnA	50-150
PFOSA = 13C8 FOSA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): C-18 ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	PFD _o A #	PFTDA #
779077	480-147352-1	49 *	45 *
779079	480-147352-3	43 *	33 *
779082 (Field Blank)	480-147352-5	61	50
	MB 200-138891/1-A	69	55
779078 MSD	480-147352-2 MSD	74	45 *

PFD_oA = 13C2 PFD_oA
PFTDA = 13C2 PFTeDA

QC LIMITS
50-150
50-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low
 GC Column (1): C-18 ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	PFNA #	PFOS #
779078	480-147352-2	22 *	37	84	42 *	59	109	105	148
779081	480-147352-4	22 *	37	74	36 *	56	106	101	120
779078 MS	480-147352-2 MS	20 *	49	87	40 *	59	103	109	141

	<u>QC LIMITS</u>
PFBA = 13C4 PFBA	25-150
PFPeA = 13C5 PFPeA	25-150
PFBS = 13C3 PFBS	50-150
PFHxA = 13C2 PFHxA	50-150
PFHpA = 13C4 PFHpA	50-150
PFHxS = 18O2 PFHxS	50-150
PFNA = 13C5 PFNA	50-150
PFOS = 13C4 PFOS	50-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low
 GC Column (1): C-18 ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	M282FTS #	PFDA #	d3NMFOS #	d5NEFOS #	PFUnA #	PFOSA #	PFDoA #	PFTDA #
779078	480-147352-2	231 *	117	69	102	112	96	79	50
779081	480-147352-4	224 *	112	67	96	110	102	77	57
779078 MS	480-147352-2 MS	261 *	124	81	86	102	94	73	51

	<u>QC LIMITS</u>
M282FTS = M2-8:2 FTS	25-150
PFDA = 13C2 PFDA	50-150
d3NMFOS = d3-NMeFOSAA	50-150
d5NEFOS = d5-NEtFOSAA	50-150
PFUnA = 13C2 PFUnA	50-150
PFOSA = 13C8 FOSA	25-150
PFDoA = 13C2 PFDoA	50-150
PFTDA = 13C2 PFTeDA	50-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
SDG No.: _____
Matrix: Water Level: Low Lab File ID: PF010919A13.d
Lab ID: LCS 200-138891/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	38.5	96	50-150	
Perfluoropentanoic acid (PFPeA)	40.0	34.0	85	50-150	
Perfluorohexanoic acid (PFHxA)	40.0	36.8	92	50-150	
Perfluoroheptanoic acid (PFHpA)	40.0	40.7	102	50-150	
Perfluorooctanoic acid (PFOA)	40.0	41.9	105	50-150	
Perfluorononanoic acid (PFNA)	40.0	34.3	86	50-150	
Perfluorodecanoic acid (PFDA)	40.0	35.7	89	50-150	
Perfluoroundecanoic acid (PFUnA)	40.0	41.6	104	50-150	
Perfluorododecanoic acid (PFDoA)	40.0	40.8	102	50-150	
Perfluorotridecanoic acid (PFTriA)	40.0	43.6	109	50-150	
Perfluorotetradecanoic acid (PFTeA)	40.0	36.7	92	50-150	
Perfluorobutanesulfonic acid (PFBS)	35.4	30.9	87	50-150	
Perfluorohexanesulfonic acid (PFHxS)	36.4	28.8	79	50-150	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	34.4	90	50-150	
Perfluorooctanesulfonic acid (PFOS)	37.1	35.4	95	50-150	
Perfluorodecanesulfonic acid (PFDS)	38.6	30.5	79	50-150	
Perfluorooctanesulfonamide (PFOSA)	40.0	34.1	85	50-150	
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	40.0	30.1	75	50-150	
N-ethylperfluorooctanesulfonam idoacetic acid (NEtFOSAA)	40.0	29.9	75	50-150	
1H,1H,2H,2H-perfluorooctanesul fonic acid (6:2)	37.9	35.2	93	50-150	
1H,1H,2H,2H-perfluorodecanesul fonic acid (8:2)	38.3	38.0	99	50-150	
18O2 PFHxS	94.6	103	109	25-150	
13C4 PFHpA	100	79.1	79	25-150	
13C4 PFOA	100	78.2	78	25-150	
13C4 PFOS	95.6	104	109	25-150	
13C5 PFNA	100	74.8	75	25-150	
13C4 PFBA	100	86.8	87	25-150	
13C2 PFHxA	100	79.2	79	25-150	
13C2 PFDA	100	81.3	81	25-150	
13C2 PFUnA	100	75.8	76	25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: PF010919A13.d
 Lab ID: LCS 200-138891/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
13C2 PFDoA	100	63.4	63	25-150	
13C8 FOSA	100	57.2	57	25-150	
13C5 PFPeA	100	98.1	98	25-150	
13C2 PFTeDA	100	53.5	53	25-150	
d3-NMeFOSAA	100	55.7	56	25-150	
d5-NEtFOSAA	100	65.4	65	25-150	
M2-6:2 FTS	95.0	142	150	25-150	
M2-8:2 FTS	95.8	97.9	102	25-150	
13C3 PFBS	93.0	106	114	25-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Burlington

Job No.: 480-147352-1

SDG No.: _____

Matrix: Water Level: Low

Lab File ID: PF010919A32.d

Lab ID: 480-147352-2 MS

Client ID: 779078 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	38.5	ND	ND	NC	40-160	G
Perfluoropentanoic acid (PFPeA)	38.5	20	40.7	53	40-160	
Perfluorohexanoic acid (PFHxA)	38.5	66	108	109	40-160	
Perfluoroheptanoic acid (PFHpA)	38.5	36	80.7	115	40-160	
Perfluorononanoic acid (PFNA)	38.5	ND	33.6	87	40-160	
Perfluorodecanoic acid (PFDA)	38.5	ND	35.8	93	40-160	
Perfluoroundecanoic acid (PFUnA)	38.5	ND	39.6	103	40-160	
Perfluorododecanoic acid (PFDoA)	38.5	ND	37.0	96	40-160	
Perfluorotridecanoic acid (PFTriA)	38.5	ND	38.2	99	40-160	
Perfluorotetradecanoic acid (PFTeA)	38.5	ND	30.2	78	40-160	
Perfluorobutanesulfonic acid (PFBS)	34.0	19	42.3	69	40-160	
Perfluorohexanesulfonic acid (PFHxS)	35.0	44	79.9	102	40-160	
Perfluoroheptanesulfonic Acid (PFHpS)	36.7	6.7 J	31.2	67	40-160	
Perfluorooctanesulfonic acid (PFOS)	35.7	270	331	173	40-160	4
Perfluorodecanesulfonic acid (PFDS)	37.1	ND	22.2	60	40-160	
Perfluorooctanesulfonamide (PFOSA)	38.5	ND	44.1	115	40-160	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	38.5	ND	26.6 J	69	40-160	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	38.5	14 J	55.0 J	106	40-160	
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	36.9	ND	36.1 J	98	40-160	
18O2 PFHxS	91.1	98	93.7	103	50-150	
13C4 PFHpA	96.3	56	56.3	59	50-150	
13C4 PFOS	92.0	130	130	141	50-150	
13C5 PFNA	96.3	100	105	109	50-150	
13C4 PFBA	96.3	21	19.7	20	25-150	*
13C2 PFHxA	96.3	40	38.6	40	50-150	*
13C2 PFDA	96.3	110	119	124	50-150	
13C2 PFUnA	96.3	110	98.1	102	50-150	
13C2 PFDoA	96.3	75	70.3	73	50-150	
13C8 FOSA	96.3	91	90.4	94	25-150	
13C5 PFPeA	96.3	35	46.7	49	25-150	
13C2 PFTeDA	96.3	47	48.9	51	50-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: PF010919A32.d
 Lab ID: 480-147352-2 MS Client ID: 779078 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
d3-NMeFOSAA	96.3	66	77.8	81	50-150	
d5-NEtFOSAA	96.3	97	82.5	86	50-150	
M2-8:2 FTS	92.2	210	241	261	25-150	*
13C3 PFBS	89.5	74	78.3	87	50-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: PF011019A12.d
 Lab ID: 480-147352-2 MS Client ID: 779078 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanoic acid (PFOA)	38.5	140	241	267	40-160	F1
1H,1H,2H,2H-perfluorooctanesul fonic acid (6:2)	36.5	ND	47.6 J	130	40-160	
13C4 PFOA	96.3	80	60.0	62	50-150	
M2-6:2 FTS	91.5	170	179	196	25-150	*

Column to be used to flag recovery and RPD values
 FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Burlington

Job No.: 480-147352-1

SDG No.: _____

Matrix: Water Level: Low

Lab File ID: PF010919A33.d

Lab ID: 480-147352-2 MSD

Client ID: 779078 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorobutanoic acid (PFBA)	38.0	ND	NC	NC	30	40-160	G
Perfluoropentanoic acid (PFPeA)	38.0	46.5	69	13	30	40-160	
Perfluorohexanoic acid (PFHxA)	38.0	127	159	16	30	40-160	
Perfluoroheptanoic acid (PFHpA)	38.0	81.1	118	0	30	40-160	
Perfluorononanoic acid (PFNA)	38.0	32.2	85	4	30	40-160	
Perfluorodecanoic acid (PFDA)	38.0	34.4	91	4	30	40-160	
Perfluoroundecanoic acid (PFUnA)	38.0	34.2	90	15	30	40-160	
Perfluorododecanoic acid (PFDoA)	38.0	31.3	82	17	30	40-160	
Perfluorotridecanoic acid (PFTriA)	38.0	43.2	114	12	30	40-160	
Perfluorotetradecanoic acid (PFTeA)	38.0	31.8	84	5	30	40-160	
Perfluorobutanesulfonic acid (PFBS)	33.6	37.6	56	12	30	40-160	
Perfluorohexanesulfonic acid (PFHxS)	34.6	67.7	68	17	30	40-160	
Perfluoroheptanesulfonic Acid (PFHpS)	36.2	32.9	73	6	30	40-160	
Perfluorooctanesulfonic acid (PFOS)	35.3	312	121	6	30	40-160	4
Perfluorodecanesulfonic acid (PFDS)	36.6	26.9	73	19	30	40-160	
Perfluorooctanesulfonamide (PFOSA)	38.0	35.0	92	23	30	40-160	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	38.0	18.3 J	48	37	30	40-160	F2
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	38.0	38.8 J	65	34	30	40-160	F2
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	36.4	40.1 J	110	10	30	40-160	
18O2 PFHxS	89.9	81.3	90			50-150	
13C4 PFHpA	95.0	46.8	49			50-150	*
13C4 PFOA	95.0	67.5	71			50-150	
13C4 PFOS	90.8	104	115			50-150	
13C5 PFNA	95.0	85.7	90			50-150	
13C4 PFBA	95.0	20.6	22			25-150	*
13C2 PFHxA	95.0	30.4	32			50-150	*
13C2 PFDA	95.0	96.9	102			50-150	
13C2 PFUnA	95.0	99.1	104			50-150	
13C2 PFDoA	95.0	70.4	74			50-150	
13C8 FOSA	95.0	80.9	85			25-150	
13C5 PFPeA	95.0	32.9	35			25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: PF010919A33.d
 Lab ID: 480-147352-2 MSD Client ID: 779078 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
13C2 PFTeDA	95.0	42.9	45			50-150	*
d3-NMeFOSAA	95.0	71.2	75			50-150	
d5-NEtFOSAA	95.0	83.7	88			50-150	
M2-6:2 FTS	90.3	194	215			25-150	*
M2-8:2 FTS	91.0	197	217			25-150	*
13C3 PFBS	88.4	69.0	78			50-150	

Column to be used to flag recovery and RPD values
 FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: PF011019A13.d
 Lab ID: 480-147352-2 MSD Client ID: 779078 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanoic acid (PFOA)	38.0	191	141	23	30	40-160	
1H,1H,2H,2H-perfluorooctanesul fonic acid (6:2)	36.0	38.3 J	106	22	30	40-160	
13C4 PFOA	95.0	58.4	61			50-150	
M2-6:2 FTS	90.3	164	181			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 Burlington Job No.: 480-147352-1
 SDG No.: _____
 Lab File ID: PF010919A12.d Lab Sample ID: MB 200-138891/1-A
 Matrix: Water Date Extracted: 01/08/2019 11:00
 Instrument ID: LC410 Date Analyzed: 01/09/2019 18:32
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 200-138891/2-A	PF010919A13 .d	01/09/2019 18:48
779077	480-147352-1	PF010919A30 .d	01/09/2019 23:18
779078	480-147352-2	PF010919A31 .d	01/09/2019 23:34
779078 MS	480-147352-2 MS	PF010919A32 .d	01/09/2019 23:50
779078 MSD	480-147352-2 MSD	PF010919A33 .d	01/10/2019 00:06
779079	480-147352-3	PF010919A34 .d	01/10/2019 00:22
779081	480-147352-4	PF010919A35 .d	01/10/2019 00:38
779082 (Field Blank)	480-147352-5	PF010919A36 .d	01/10/2019 00:54
779078	480-147352-2	PF011019A11 .d	01/10/2019 15:42
779078 MS	480-147352-2 MS	PF011019A12 .d	01/10/2019 15:58
779078 MSD	480-147352-2 MSD	PF011019A13 .d	01/10/2019 16:13
779081	480-147352-4	PF011019A14 .d	01/10/2019 16:29

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Sample No.: ICIS 200-135376/10 Date Analyzed: 10/17/2018 14:23
 Instrument ID: LC410 GC Column: C-18 ID: 4.6 (mm)
 Lab File ID (Standard): PF101718A10.d Heated Purge: (Y/N) N
 Calibration ID: 40218

	13PFOA					
	AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT	1146400	4.37				
UPPER LIMIT	1719600	4.57				
LOWER LIMIT	573200	4.17				
LAB SAMPLE ID	CLIENT SAMPLE ID					
ICV 200-135376/16		1021250	4.37			

13PFOA = 13C2 PFOA

Area Limit = 50%-150% of internal standard area
 RT Limit = $\pm$ 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 (MODIFIED)

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Sample No.: CCVIS 200-138946/6 Date Analyzed: 01/09/2019 16:57
 Instrument ID: LC410 GC Column: C-18 ID: 4.6 (mm)
 Lab File ID (Standard): PF010919A06.d Heated Purge: (Y/N) N
 Calibration ID: 40218

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1034537	4.36				
UPPER LIMIT		1551806	4.56				
LOWER LIMIT		517269	4.16				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 200-138946/7		912919	4.36				
CCV 200-138946/11		778544	4.36				
MB 200-138891/1-A		1283510	4.34				
LCS 200-138891/2-A		1101097	4.34				
CCV 200-138946/24		1127859	4.34				
480-147352-1	779077	1055418	4.30				
480-147352-2	779078	131976*	4.20				
480-147352-2 MS	779078 MS	132938*	4.20				
480-147352-2 MSD	779078 MSD	136908*	4.21				
480-147352-3	779079	1347443	4.33				
480-147352-4	779081	160934*	4.20				
480-147352-5	779082 (Field Blank)	1208511	4.34				
CCV 200-138946/37		1111744	4.34				

13PFOA = 13C2 PFOA

Area Limit = 50%-150% of internal standard area
 RT Limit = $\pm$ 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Sample No.: CCVIS 200-138989/6 Date Analyzed: 01/10/2019 14:22
 Instrument ID: LC410 GC Column: C-18 ID: 4.6 (mm)
 Lab File ID (Standard): PF011019A06.d Heated Purge: (Y/N) N
 Calibration ID: 40218

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		897593	4.33				
UPPER LIMIT		1346390	4.53				
LOWER LIMIT		448797	4.13				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 200-138989/7		841637	4.33				
CCV 200-138989/8		1013447	4.33				
480-147352-2	779078	43275*	4.25				
480-147352-2 MS	779078 MS	48227*	4.24				
480-147352-2 MSD	779078 MSD	58860*	4.25				
480-147352-4	779081	46741*	4.24				
CCV 200-138989/15		783679	4.32				

13PFOA = 13C2 PFOA

Area Limit = 50%-150% of internal standard area
 RT Limit = $\pm$ 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779077</u>	Lab Sample ID: <u>480-147352-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A30.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 11:30</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>262.1 (mL)</u>	Date Analyzed: <u>01/09/2019 23:18</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND	G	48	48
2706-90-3	Perfluoropentanoic acid (PFPeA)	4.4		1.9	0.72
307-24-4	Perfluorohexanoic acid (PFHxA)	15		1.9	0.23
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.0		1.9	0.31
335-67-1	Perfluorooctanoic acid (PFOA)	7.5		1.9	0.31
375-95-1	Perfluorononanoic acid (PFNA)	ND		1.9	0.36
335-76-2	Perfluorodecanoic acid (PFDA)	ND		1.9	0.36
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.24
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		1.9	0.33
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.23
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.43
375-73-5	Perfluorobutanesulfonic acid (PFBS)	3.8		1.9	0.42
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.6	J	1.9	0.25
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.78
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.1		1.9	0.72
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.51
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.53
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	0.43
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	0.67
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		19	0.95
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		19	0.53

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779077</u>	Lab Sample ID: <u>480-147352-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A30.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 11:30</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>262.1 (mL)</u>	Date Analyzed: <u>01/09/2019 23:18</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	85		50-150
STL01892	13C4 PFHpA	57		50-150
STL00990	13C4 PFOA	65		50-150
STL00991	13C4 PFOS	89		50-150
STL00995	13C5 PFNA	66		50-150
STL00992	13C4 PFBA	16	*	25-150
STL00993	13C2 PFHxA	37	*	50-150
STL00996	13C2 PFDA	70		50-150
STL00997	13C2 PFUnA	64		50-150
STL00998	13C2 PFDoA	49	*	50-150
STL01056	13C8 FOSA	68		25-150
STL01893	13C5 PFPeA	33		25-150
STL02116	13C2 PFTeDA	45	*	50-150
STL02118	d3-NMeFOSAA	42	*	50-150
STL02117	d5-NEtFOSAA	55		50-150
STL02279	M2-6:2 FTS	175	*	25-150
STL02280	M2-8:2 FTS	92		25-150
STL02337	13C3 PFBS	62		50-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A30.d
 Lims ID: 480-147352-A-1-A
 Client ID: 779077
 Sample Type: Client
 Inject. Date: 09-Jan-2019 23:18:38 ALS Bottle#: 0 Worklist Smp#: 30
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034076-030 352-1
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:49 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: murrayjw

Date: 10-Jan-2019 10:22:44

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.322	2.382	-0.060	0.995	41741	24.2			2.6	M
D 1 13C4 PFBA										M
216.9 > 171.5	2.334	2.402	-0.068	1.000	101109	8.15		16.3	30.3	M
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.750	2.791	-0.041	0.996	17125	2.31			1.2	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.760	2.818	-0.058	1.000	130112	16.5		33.1	93.7	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.834	2.883	-0.049	1.006	13915	1.99			1.5	
D 6 13C3 PFBS										
302.0 > 79.8	2.818	2.900	-0.082	1.000	186430	28.7		61.8	260	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.152	3.201	-0.049	0.996	43733	8.10			44.2	
D 7 13C2 PFHxA										
314.8 > 269.6	3.164	3.250	-0.086	1.000	260221	18.4		36.7	363	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.681	3.715	-0.034	1.003	61040	4.22			18.7	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.692	3.748	-0.056	0.994	10523	0.8445			5.6	
D 9 13C4 PFHpA										
366.9 > 321.8	3.670	3.782	-0.112	1.000	740528	28.5		57.1	451	
D 11 18O2 PFHxS										
402.9 > 83.8	3.715	3.826	-0.111	1.000	302417	40.3		85.2	569	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.252	4.355	-0.103	0.985	49930	3.91			85.7	
* 15 13C2 PFOA										
414.9 > 369.8	4.304	4.355	-0.051		1055418	50.0			1882	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 13 M2-6:2 FTS										
428.6 > 408.6	4.265	4.411	-0.146	1.000	192574	83.2		175	983	
D 17 13C4 PFOA										
416.9 > 371.8	4.317	4.468	-0.151	1.000	644491	32.5		65.1	1873	
19 Perfluorononanoic acid										M
462.8 > 418.8	5.058	5.113	-0.055	0.995	1100	0.0564			2.3	M
21 Perfluorooctanesulfonic acid										M
498.8 > 79.8	5.113	5.140	-0.027	1.000	6782	1.11			58.1	M
D 20 13C5 PFNA										
467.8 > 422.8	5.085	5.222	-0.137	1.000	886569	33.2		66.4	619	
D 22 13C4 PFOS										
502.8 > 79.8	5.113	5.236	-0.123	1.000	281935	42.4		88.8	532	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.950	5.863	0.087	1.022	570	0.1223			1.8	
25 Perfluorodecanoic acid										M
512.9 > 468.5	5.843	5.882	-0.039	0.997	1603	0.0829			10.9	M
D 24 M2-8:2 FTS										
528.8 > 508.8	5.823	5.998	-0.175	1.000	276782	44.1		92.1	1217	
D 26 13C2 PFDA										
514.9 > 469.5	5.863	6.022	-0.159	1.000	958255	34.8		69.6	3569	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.205	6.367	-0.162	1.000	147033	20.9		41.8	896	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.598	6.652	-0.054	1.000	2101	0.1116			14.8	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.562	6.734	-0.172	1.000	163005	27.3		54.6	1329	
D 32 13C2 PFUnA										
564.8 > 519.8	6.598	6.777	-0.179	1.000	917819	32.0		64.0	2412	
D 35 13C8 FOSA										
505.8 > 77.8	6.931	6.945	-0.014	1.000	433975	33.9		67.8	3828	
36 Perfluorododecanoic acid										M
612.8 > 568.6	7.339	7.339	0.0	1.006	533	0.0347			4.8	M
D 37 13C2 PFDaA										
614.8 > 569.6	7.294	7.474	-0.180	1.000	894920	24.7		49.3	2370	
39 Perfluorotetradecanoic acid										M
712.8 > 668.6	8.499	8.514	-0.015	1.005	770	0.0528	Target=1.00		9.0	M
712.8 > 168.8	8.514	8.514	0.0	0.000	0		0.00(0.90-1.10)			
712.8 > 218.8	8.514	8.514	0.0	0.000	0		0.00(0.90-1.10)			
D 40 13C2 PFTeDA										
714.8 > 669.6	8.453	8.681	-0.228	1.000	748011	22.5		45.0	1500	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A30.d

Injection Date: 09-Jan-2019 23:18:38

Instrument ID: LC410

Lims ID: 480-147352-A-1-A

Lab Sample ID: 200-147352-1

Client ID: 779077

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 30

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

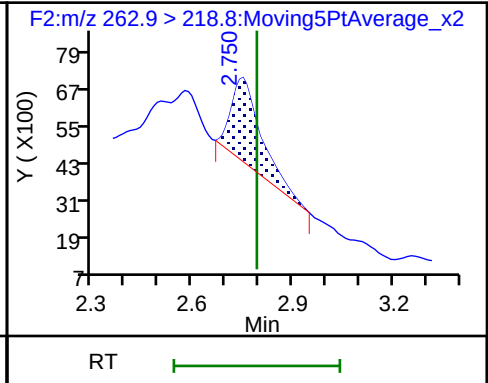
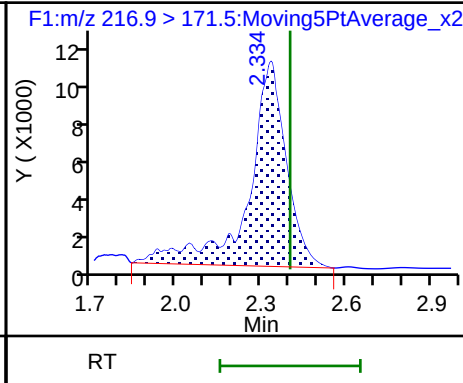
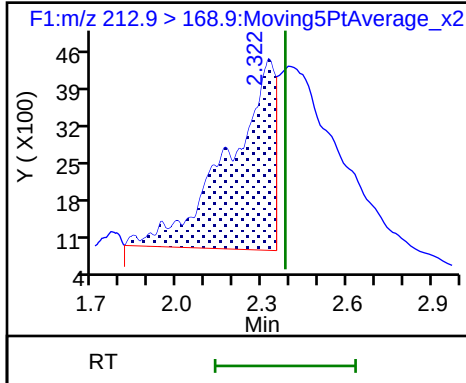
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA (M)

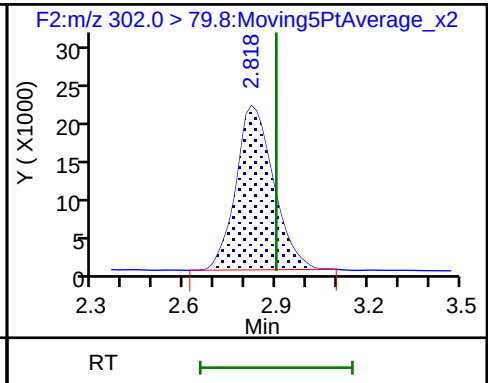
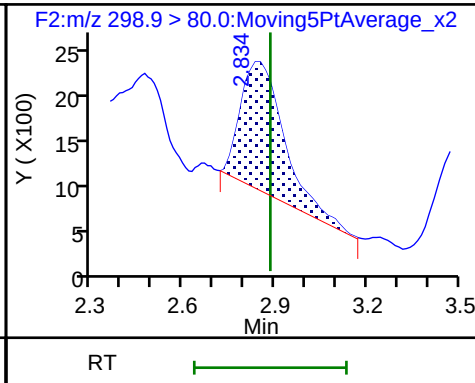
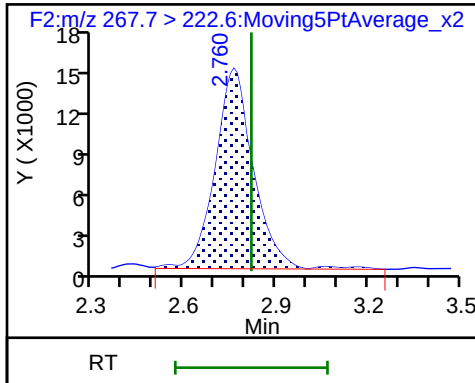
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid

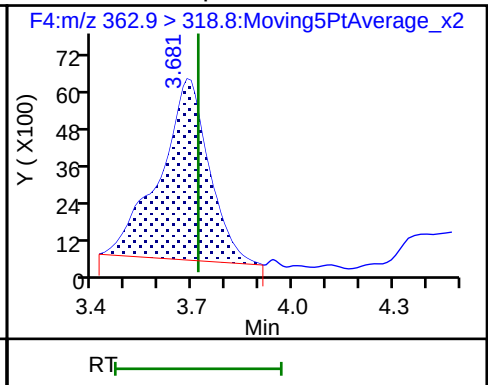
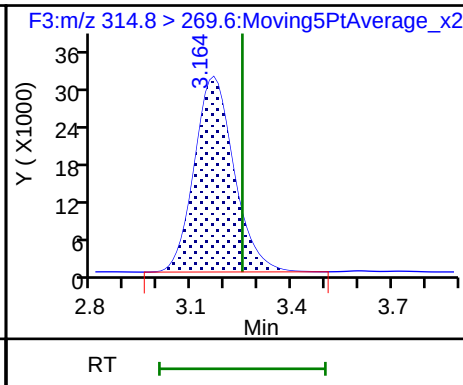
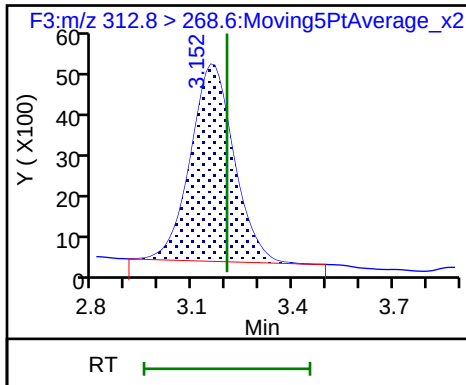
D 6 13C3 PFBS



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

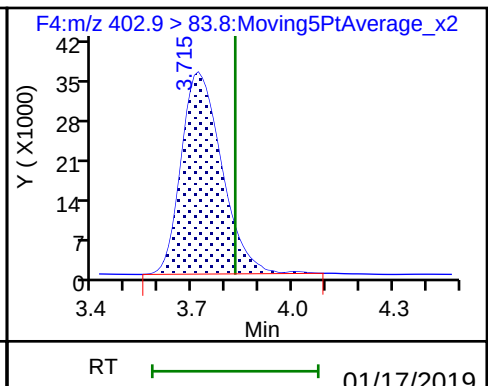
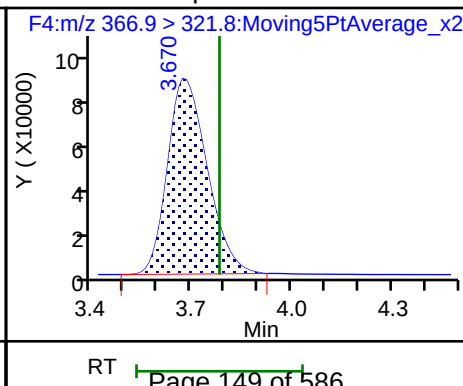
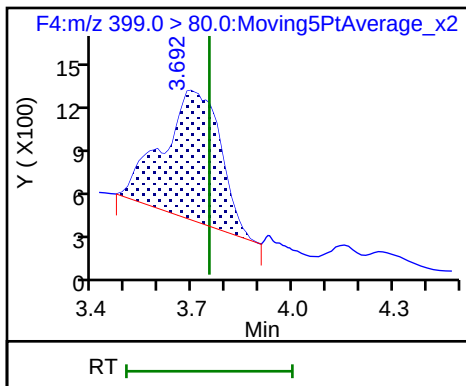
10 Perfluoroheptanoic acid



12 Perfluorohexanesulfonic acid

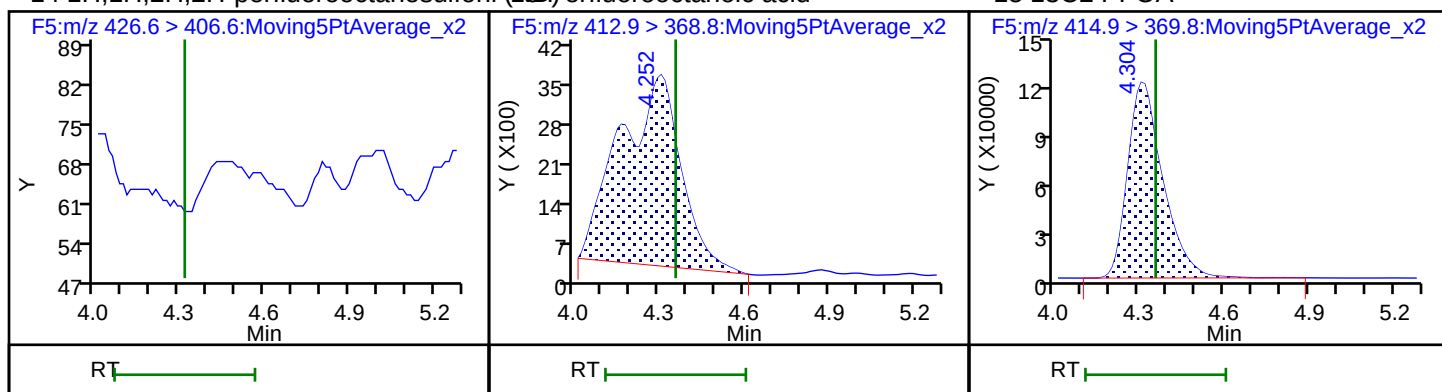
D 9 13C4 PFHpA

D 11 18O2 PFHxS



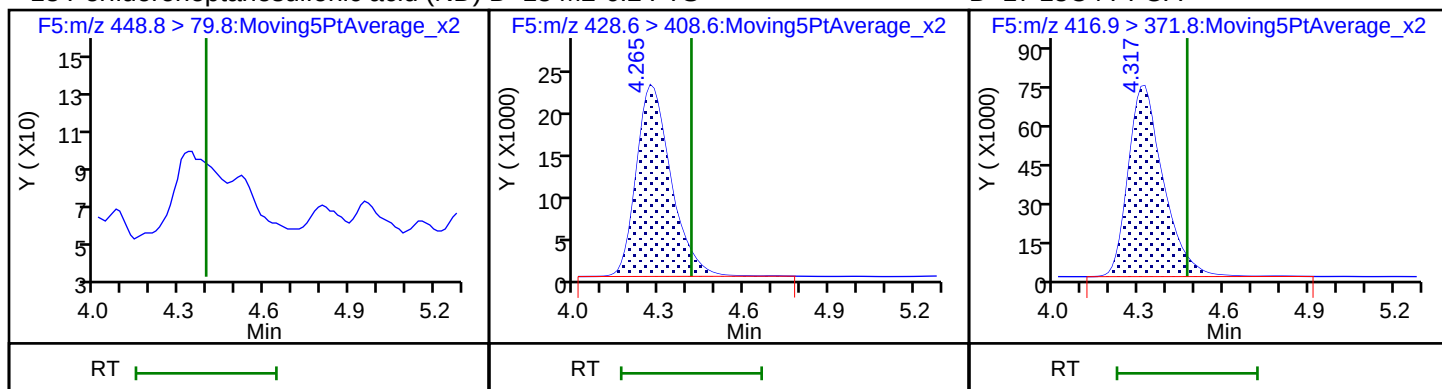
14 1H,1H,2H,2H-perfluorooctanesulfoni (ND) D 12 Perfluorooctanoic acid

* 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid (ND) D 13 M2-6:2 FTS

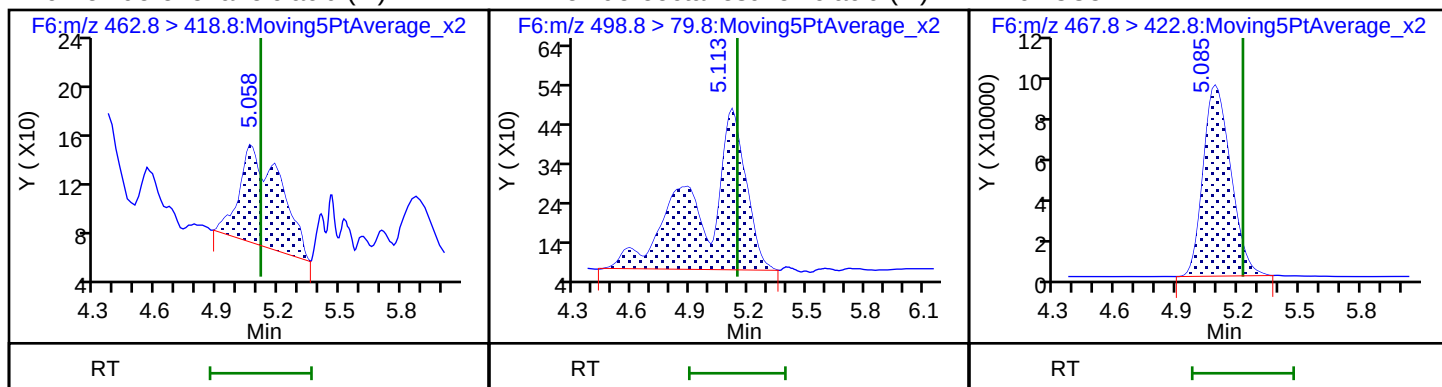
D 17 13C4 PFOA



19 Perfluorononanoic acid (M)

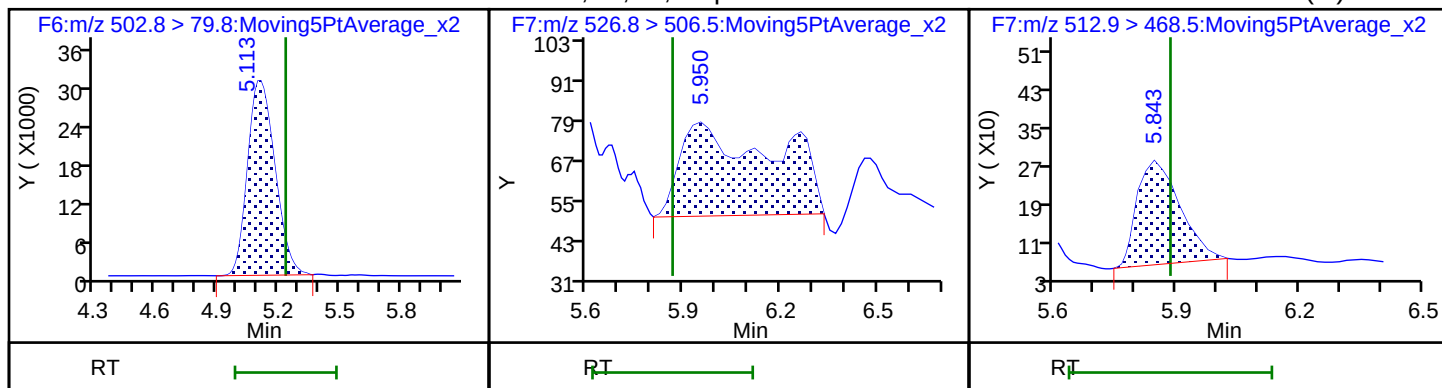
21 Perfluorooctanesulfonic acid (M)

D 20 13C5 PFNA



D 22 13C4 PFOS

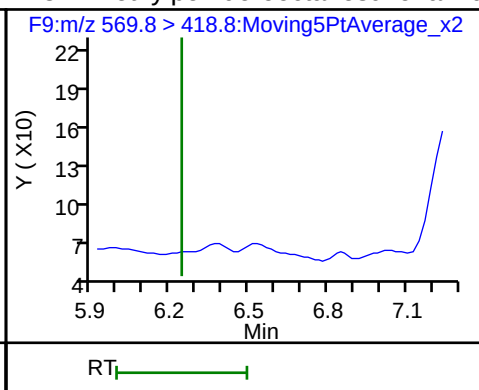
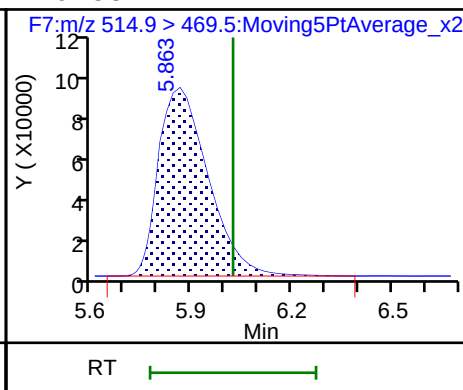
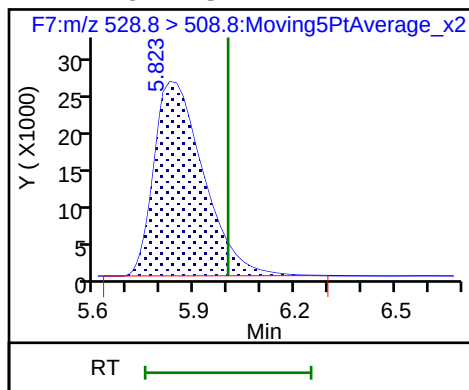
23 1H,1H,2H,2H-perfluorodecanesulfoni 25 Perfluorodecanoic acid (M)



D 24 M2-8:2 FTS

D 26 13C2 PFDA

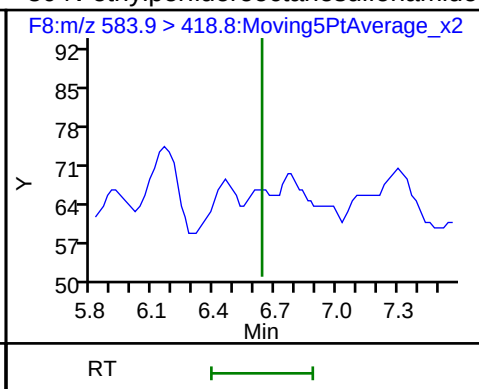
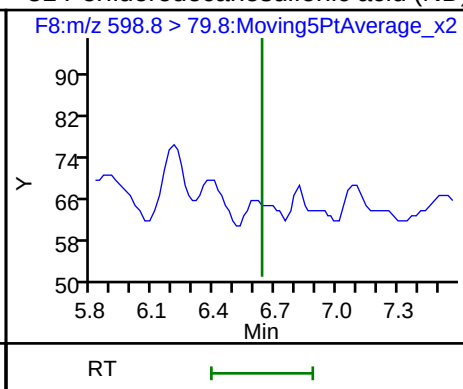
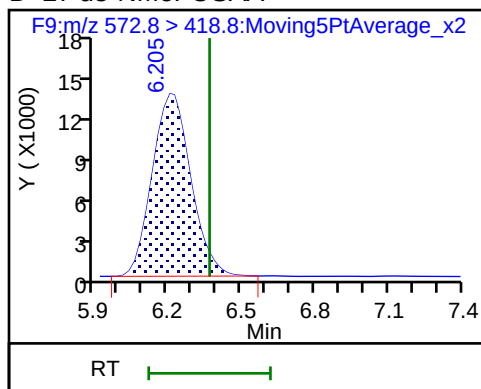
28 N-methylperfluorooctanesulfonamido (ND)



D 27 d3-NMeFOSAA

31 Perfluorodecanesulfonic acid (ND)

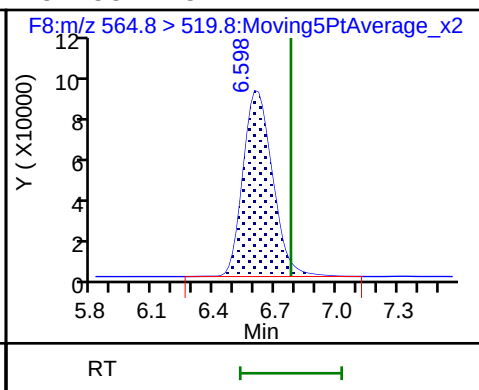
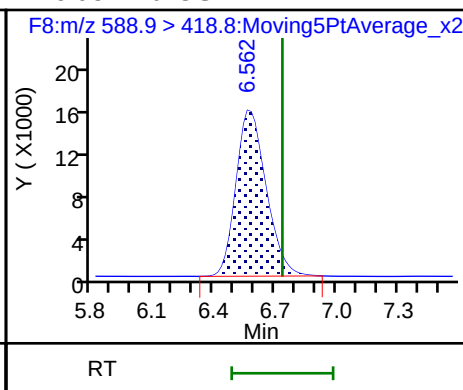
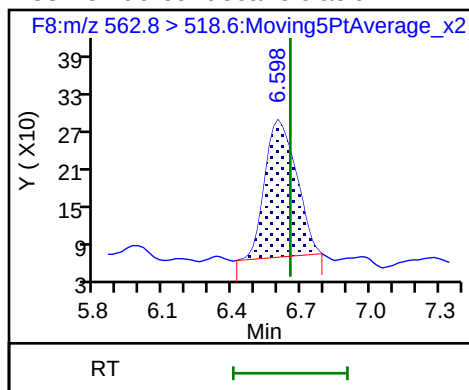
30 N-ethylperfluorooctanesulfonamidoa (ND)



33 Perfluoroundecanoic acid

D 29 d5-NEtFOSAA

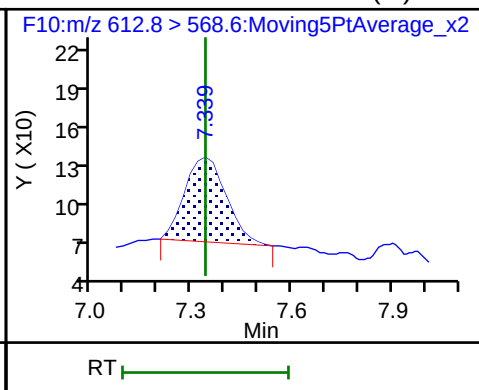
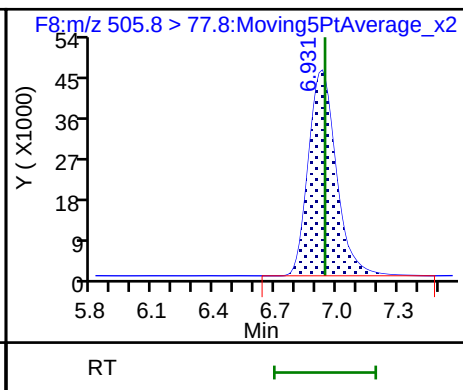
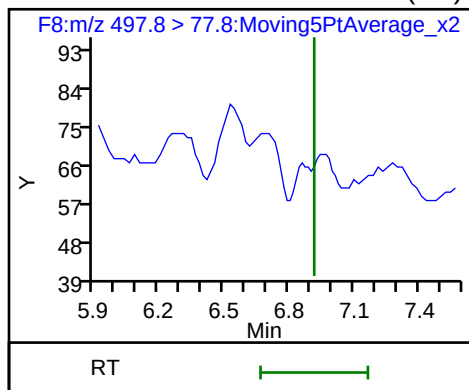
D 32 13C2 PFUnA



34 Perfluorooctanesulfonamide (ND)

D 35 13C8 FOSA

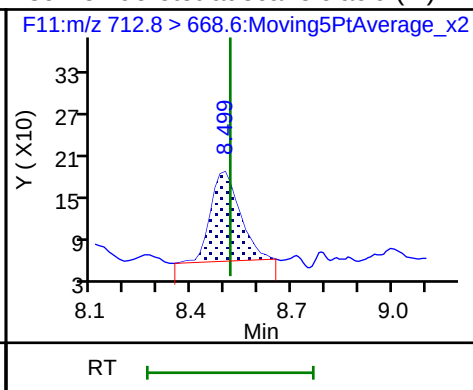
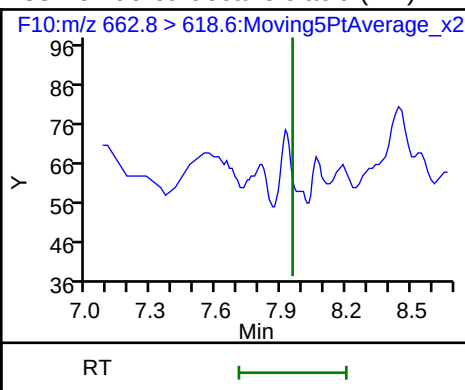
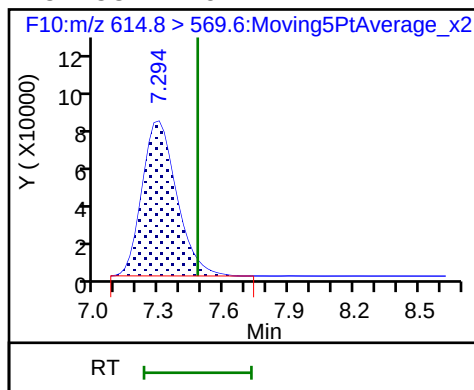
36 Perfluorododecanoic acid (M)



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (ND)

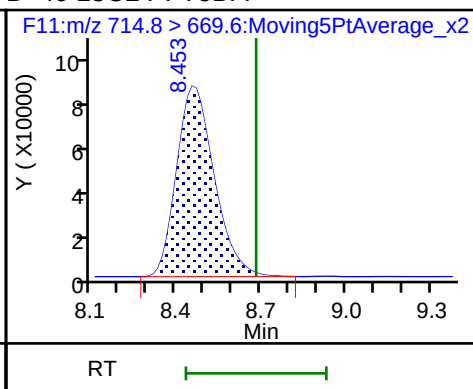
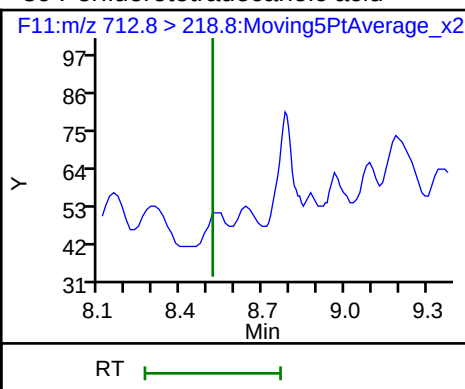
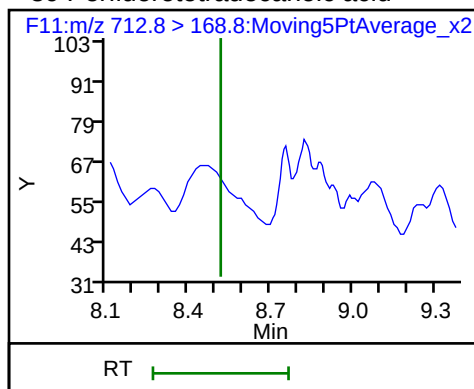
39 Perfluorotetradecanoic acid (M)



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A30.d

Injection Date: 09-Jan-2019 23:18:38

Instrument ID: LC410

Lims ID: 480-147352-A-1-A

Lab Sample ID: 200-147352-1

Client ID: 779077

Operator ID: BC

ALS Bottle#: 0 Worklist Smp#: 30

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

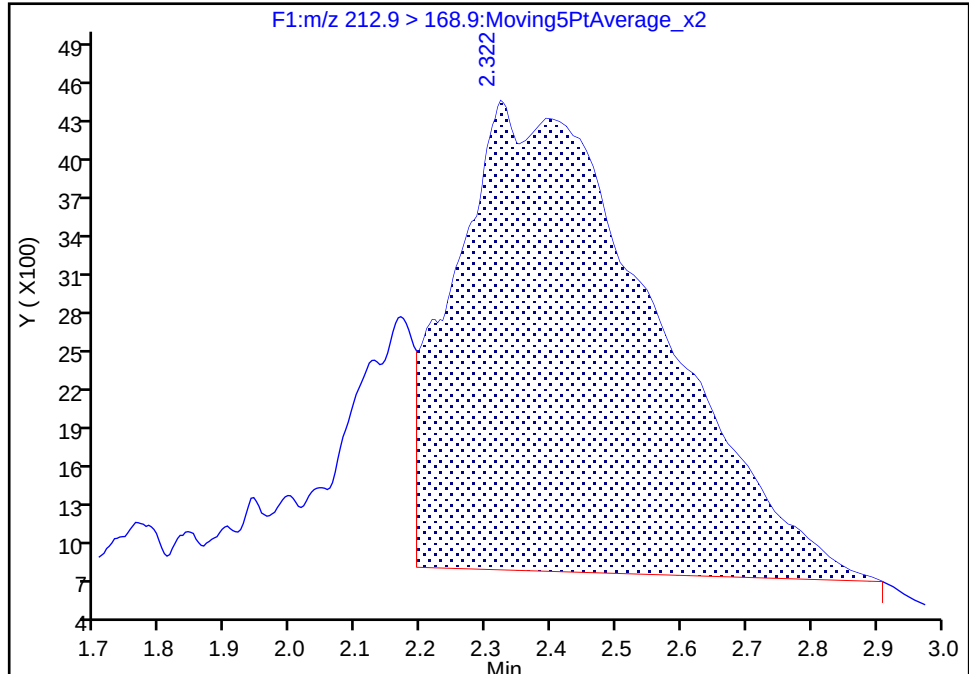
Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

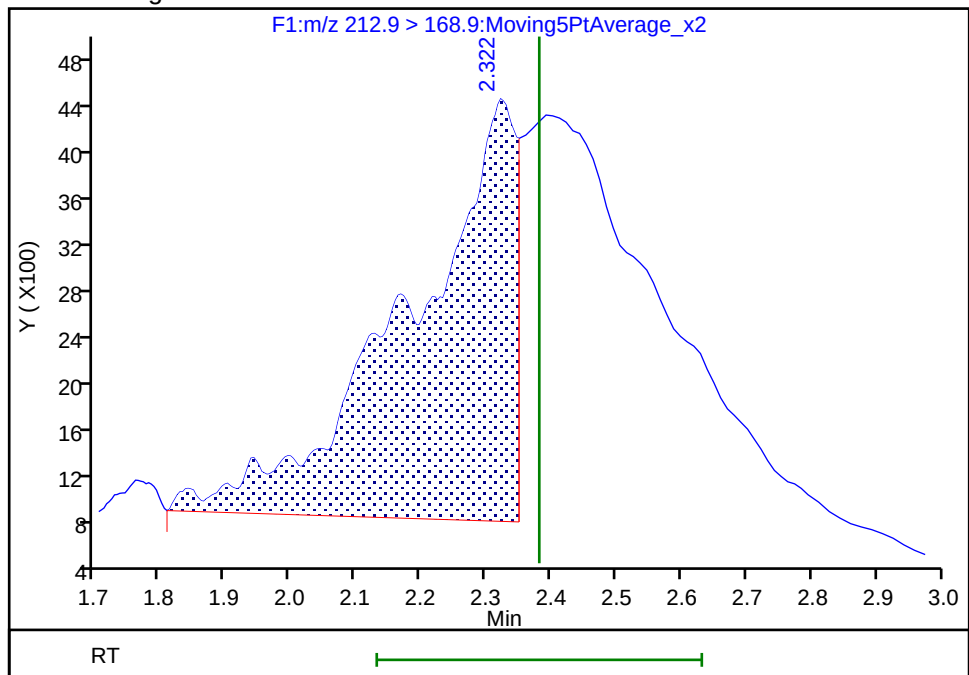
RT: 2.32
Area: 78898
Amount: 50.360449
Amount Units: ng/ml

Processing Integration Results



RT: 2.32
Area: 41741
Amount: 24.172173
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 10:20:16

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

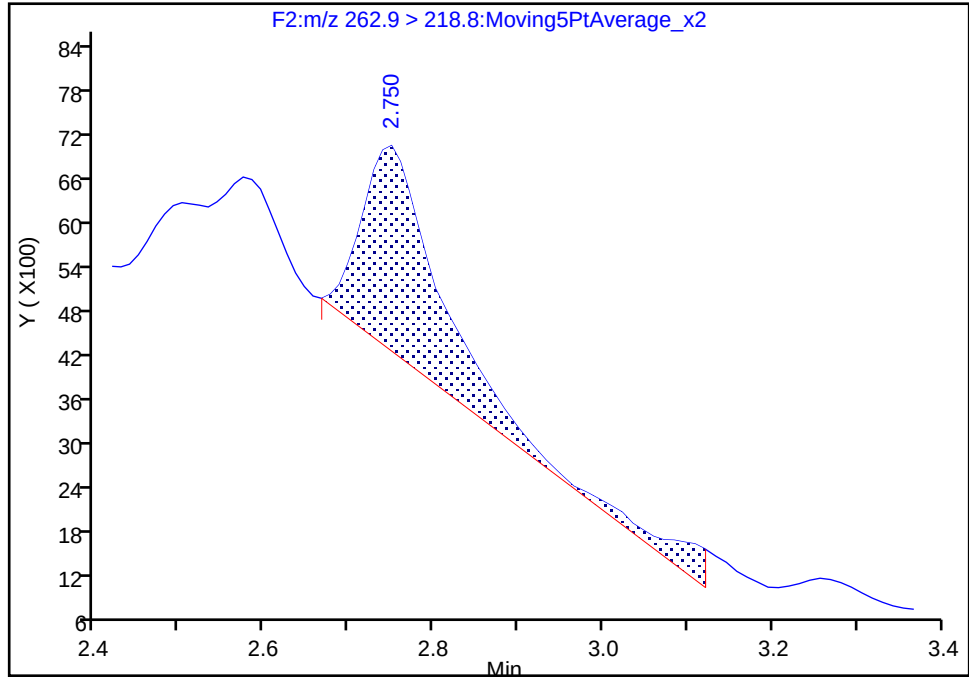
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A30.d				
Injection Date:	09-Jan-2019 23:18:38	Instrument ID:	LC410		
Lims ID:	480-147352-A-1-A	Lab Sample ID:	200-147352-1		
Client ID:	779077				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	30
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F2:MRM		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

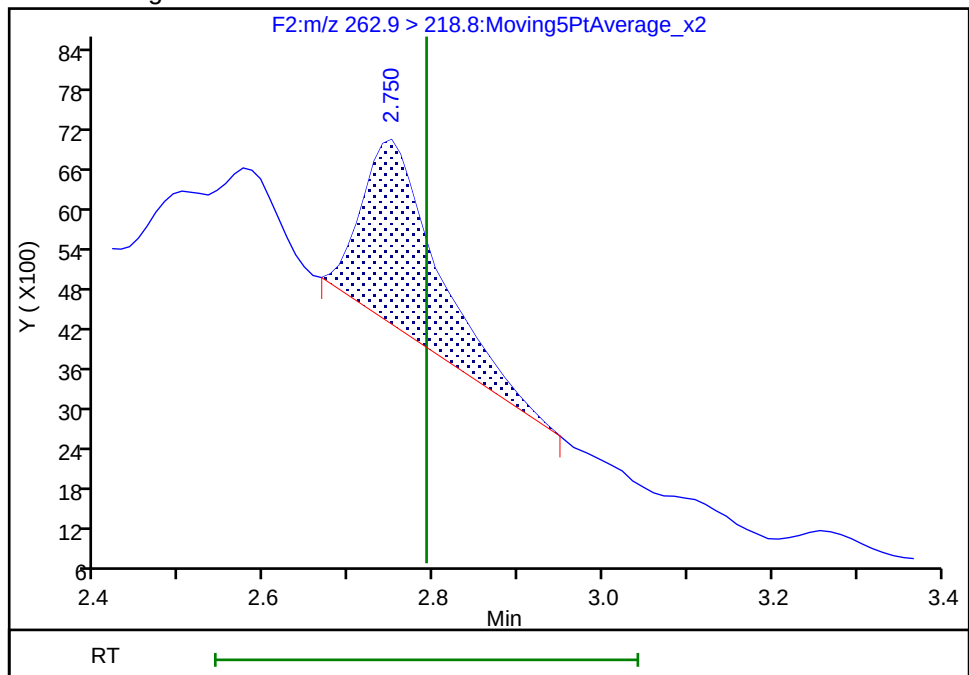
RT: 2.75
Area: 19651
Amount: 2.651605
Amount Units: ng/ml

Processing Integration Results



RT: 2.75
Area: 17125
Amount: 2.310759
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 10:20:39
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

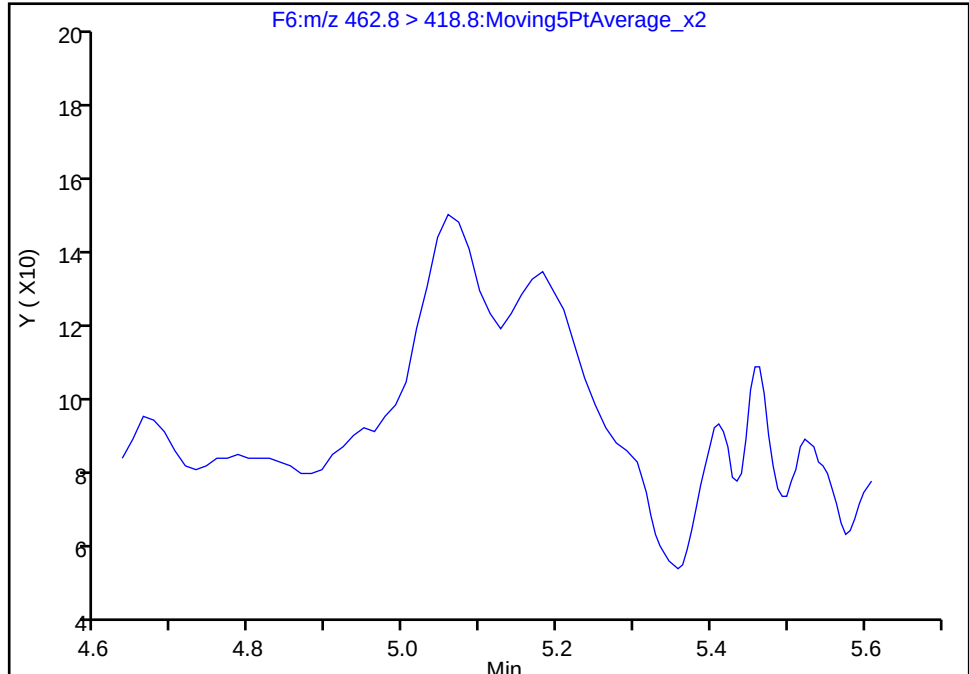
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A30.d				
Injection Date:	09-Jan-2019 23:18:38	Instrument ID:	LC410		
Lims ID:	480-147352-A-1-A	Lab Sample ID:	200-147352-1		
Client ID:	779077				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	30
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F6:MRM		

19 Perfluorononanoic acid, CAS: 375-95-1

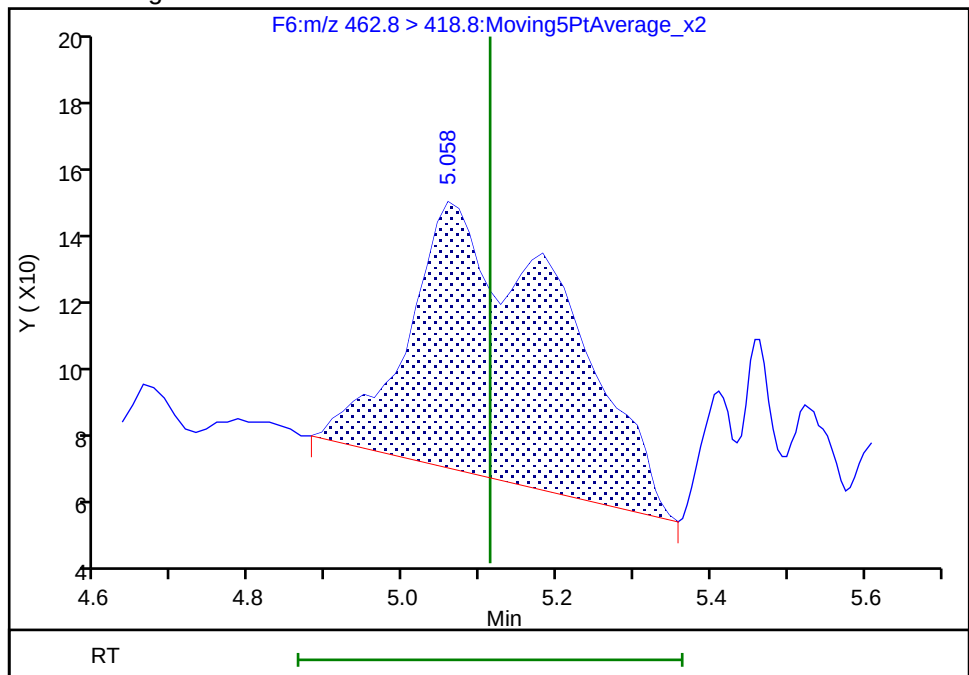
Signal: 1

Not Detected
Expected RT: 5.11

Processing Integration Results



Manual Integration Results

RT: 5.06
Area: 1100
Amount: 0.056434
Amount Units: ng/mlReviewer: murrayjw, 10-Jan-2019 10:22:05
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

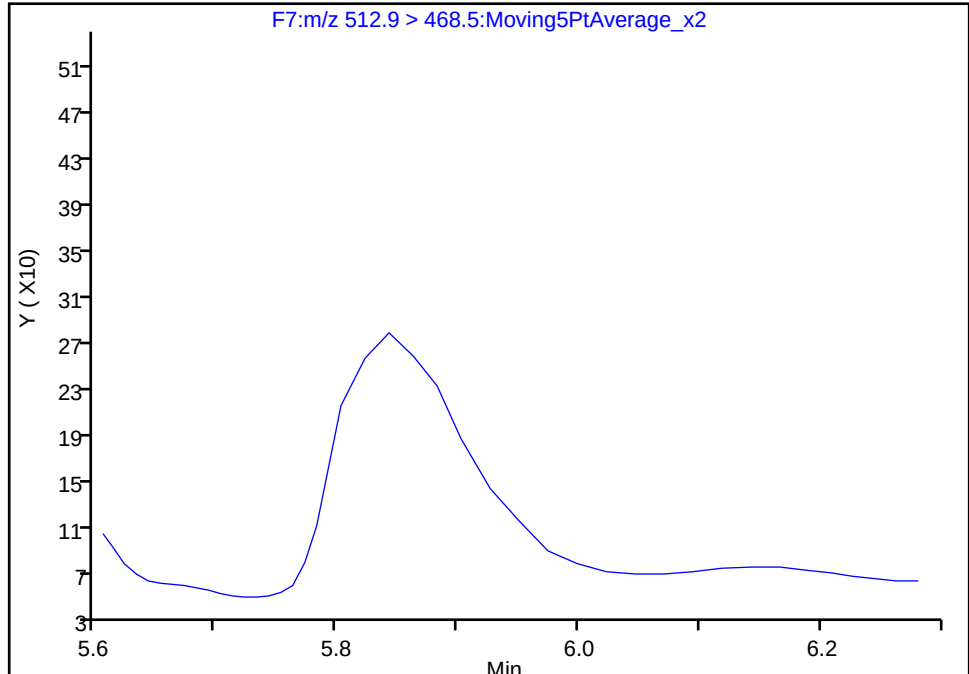
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A30.d				
Injection Date:	09-Jan-2019 23:18:38	Instrument ID:	LC410		
Lims ID:	480-147352-A-1-A	Lab Sample ID:	200-147352-1		
Client ID:	779077				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	30
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F7:MRM		

25 Perfluorodecanoic acid, CAS: 335-76-2

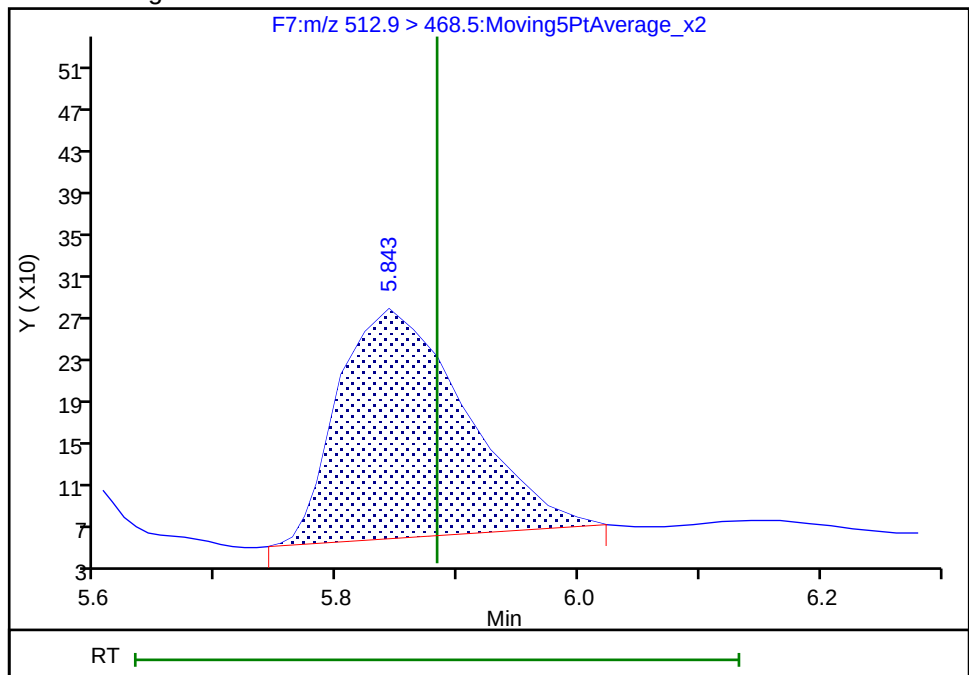
Signal: 1

Not Detected
Expected RT: 5.88

Processing Integration Results

RT: 5.84
Area: 1603
Amount: 0.082856
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 10:22:18
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

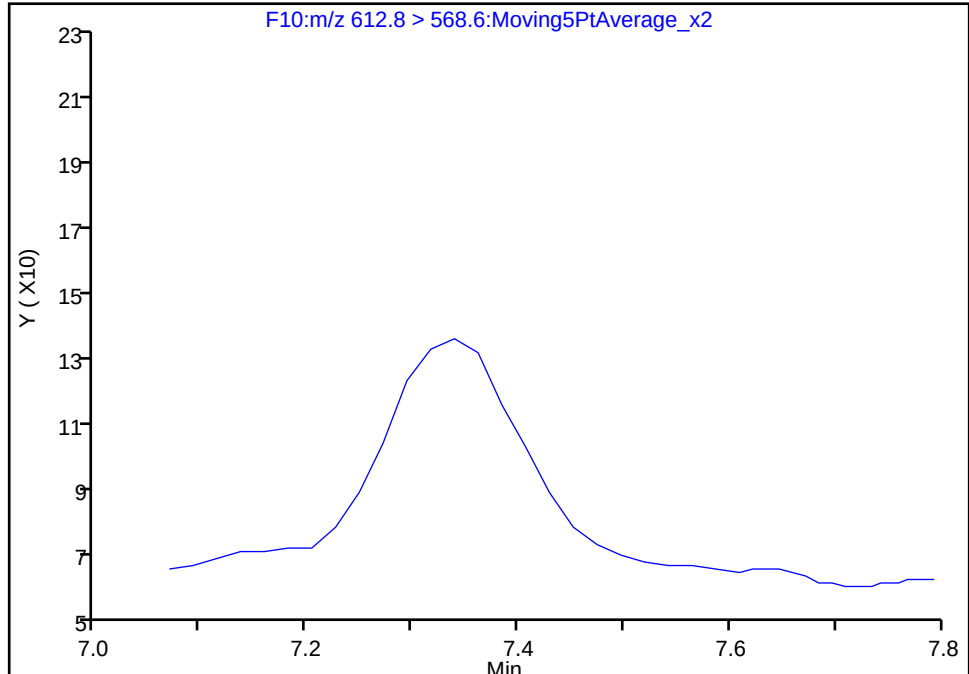
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A30.d				
Injection Date:	09-Jan-2019 23:18:38	Instrument ID:	LC410		
Lims ID:	480-147352-A-1-A	Lab Sample ID:	200-147352-1		
Client ID:	779077				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	30
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F10:MRM		

36 Perfluorododecanoic acid, CAS: 307-55-1

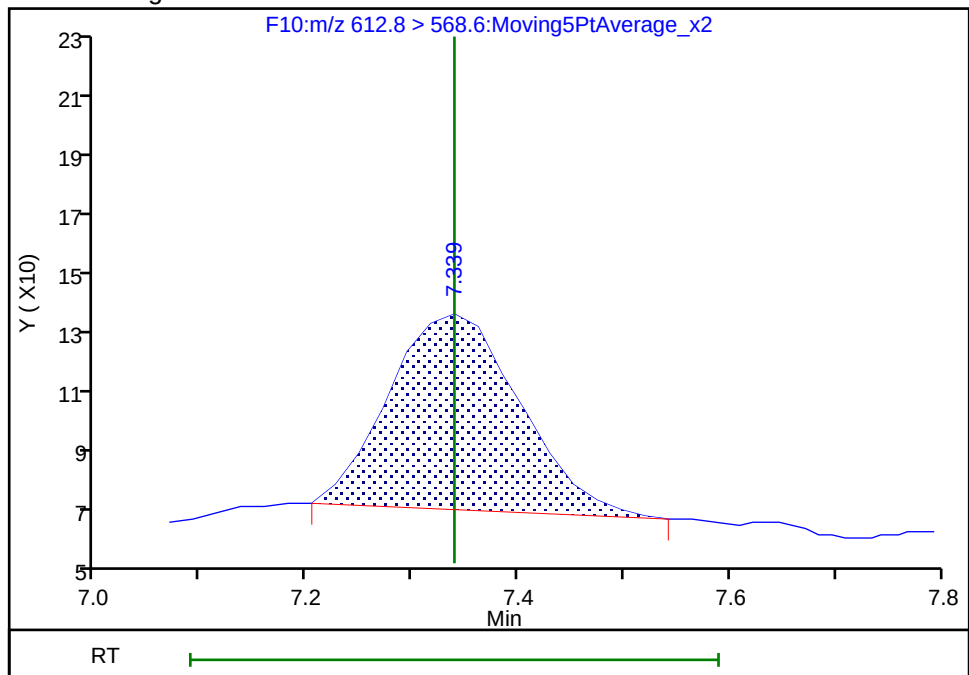
Signal: 1

Not Detected
Expected RT: 7.34

Processing Integration Results



Manual Integration Results

RT: 7.34
Area: 533
Amount: 0.034690
Amount Units: ng/mlReviewer: murrayjw, 10-Jan-2019 10:22:31
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Burlington

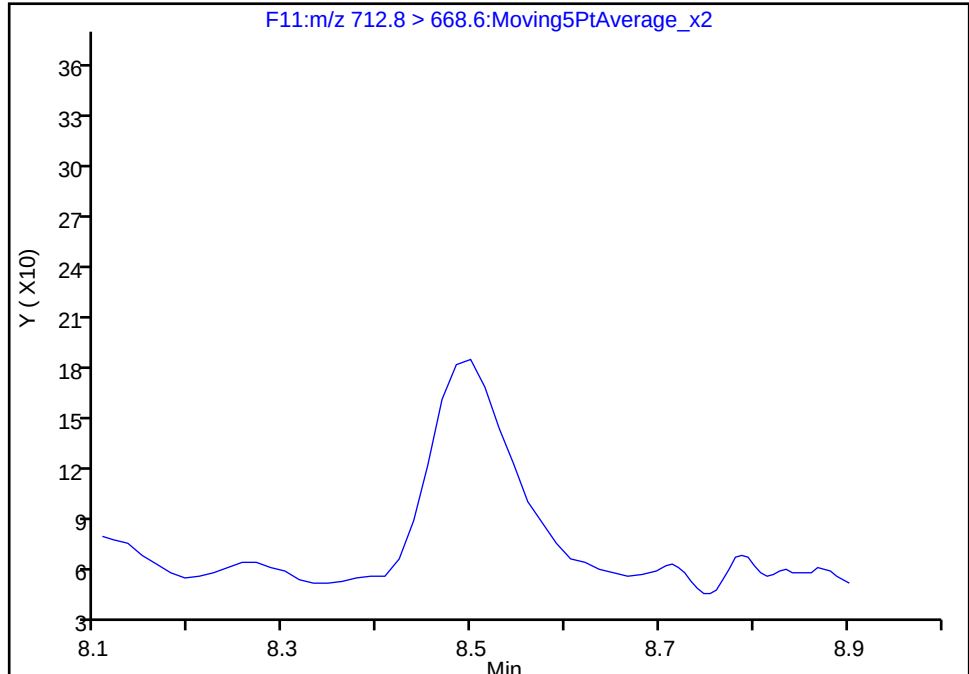
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A30.d				
Injection Date:	09-Jan-2019 23:18:38	Instrument ID:	LC410		
Lims ID:	480-147352-A-1-A	Lab Sample ID:	200-147352-1		
Client ID:	779077				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	30
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F11:MRM		

39 Perfluorotetradecanoic acid, CAS: 376-06-7

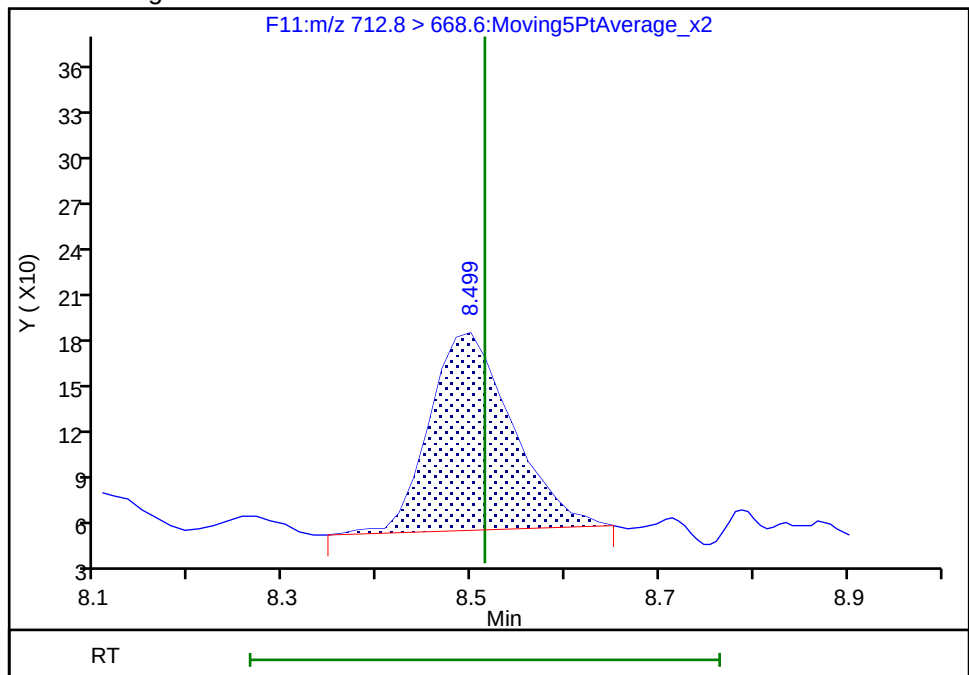
Signal: 1

Not Detected
Expected RT: 8.51

Processing Integration Results

RT: 8.50
Area: 770
Amount: 0.052801
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 10:22:37
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

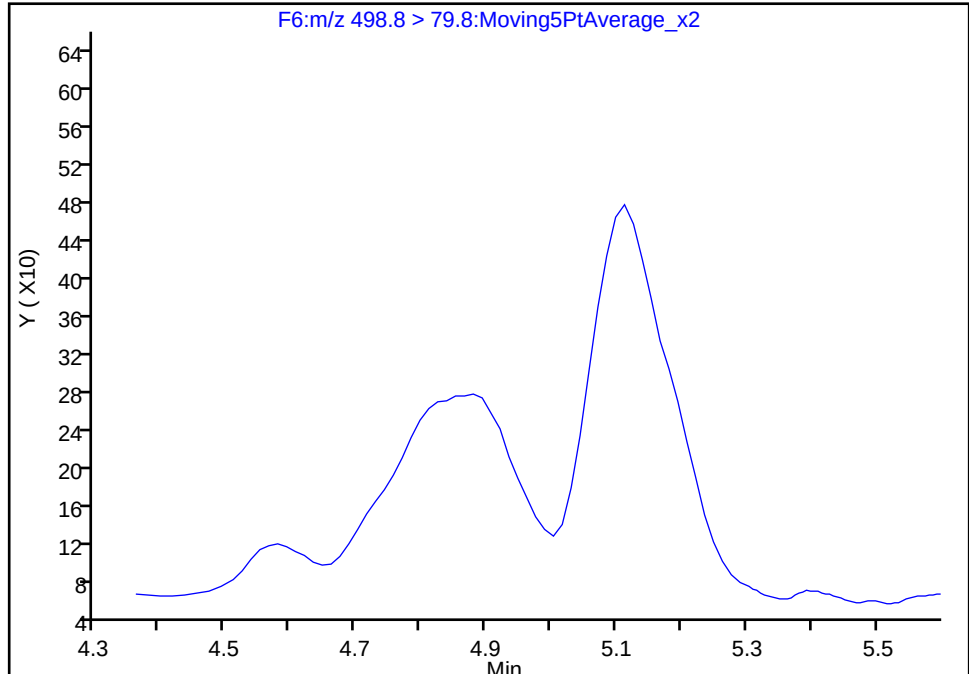
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A30.d				
Injection Date:	09-Jan-2019 23:18:38	Instrument ID:	LC410		
Lims ID:	480-147352-A-1-A	Lab Sample ID:	200-147352-1		
Client ID:	779077				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	30
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F6:MRM		

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

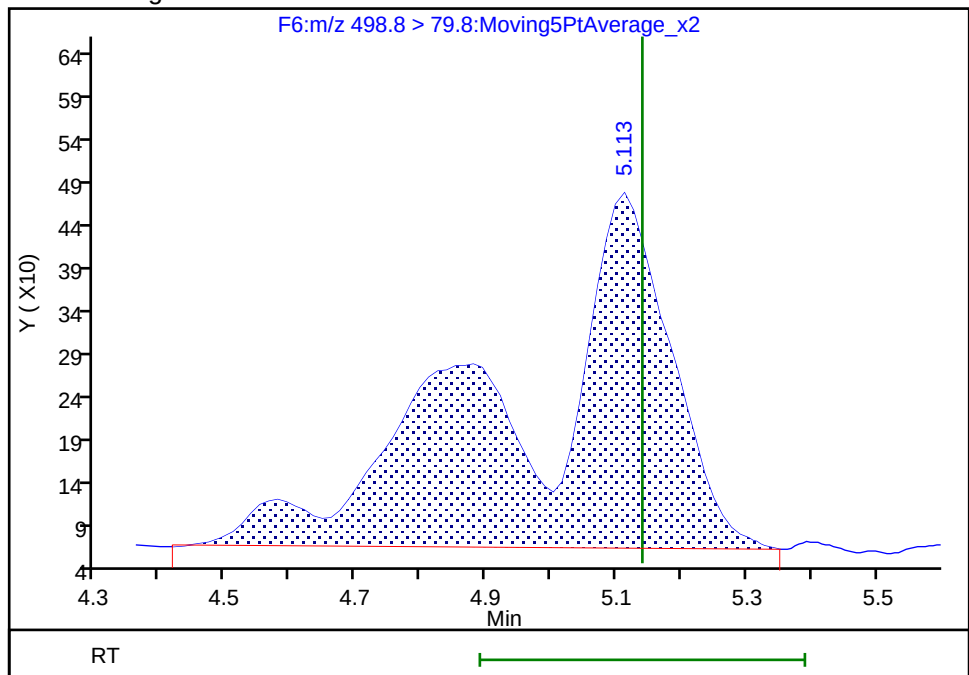
Signal: 1

Not Detected
Expected RT: 5.14

Processing Integration Results



Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 10:22:10
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

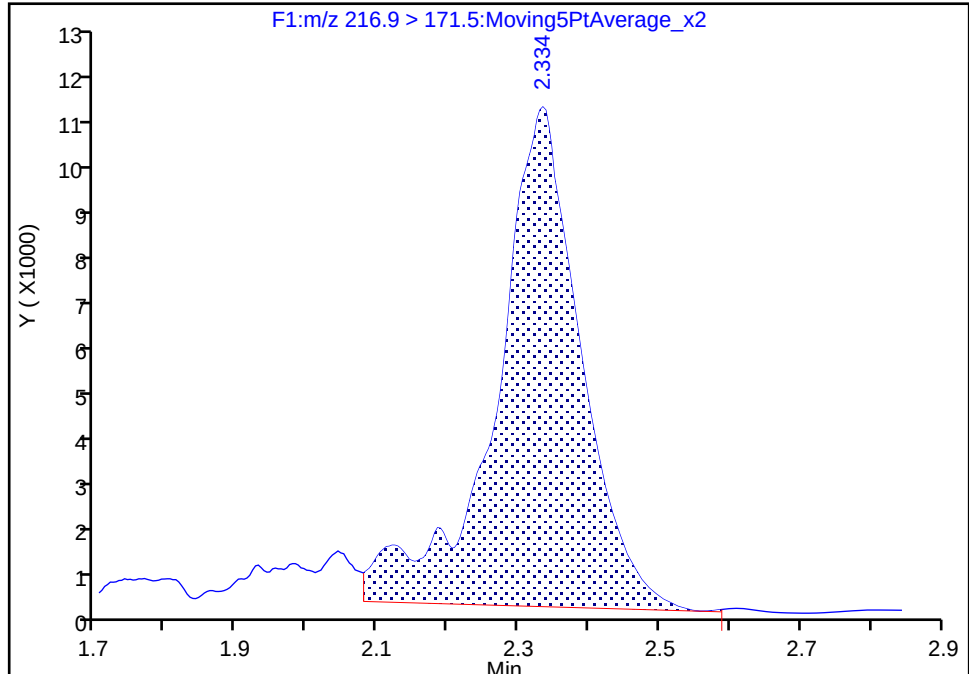
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A30.d				
Injection Date:	09-Jan-2019 23:18:38	Instrument ID:	LC410		
Lims ID:	480-147352-A-1-A	Lab Sample ID:	200-147352-1		
Client ID:	779077				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	30
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector:	F1:MRM		

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

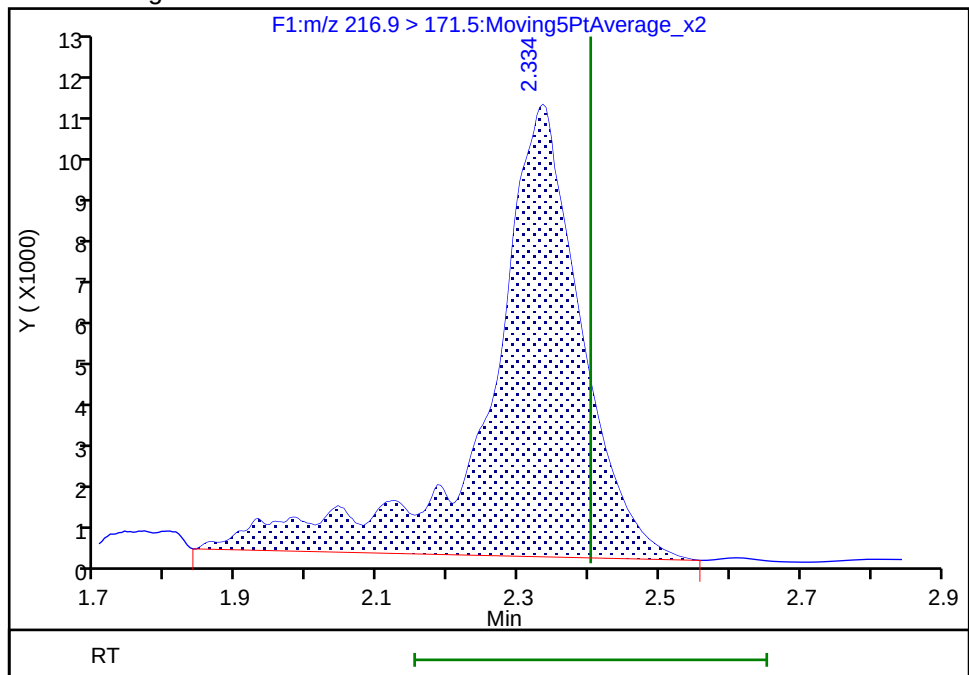
RT: 2.33
Area: 92106
Amount: 7.427041
Amount Units: ng/ml

Processing Integration Results



RT: 2.33
Area: 101109
Amount: 8.153005
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 10:20:28
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779078</u>	Lab Sample ID: <u>480-147352-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A31.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>263.4 (mL)</u>	Date Analyzed: <u>01/09/2019 23:34</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>5</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND	G	260	260
2706-90-3	Perfluoropentanoic acid (PFPeA)	20		9.5	3.6
307-24-4	Perfluorohexanoic acid (PFHxA)	66		9.5	1.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	36		9.5	1.5
375-95-1	Perfluorononanoic acid (PFNA)	ND		9.5	1.8
335-76-2	Perfluorodecanoic acid (PFDA)	ND		9.5	1.8
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		9.5	1.2
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		9.5	1.7
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		9.5	1.1
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		9.5	2.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	19		9.5	2.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	44		9.5	1.2
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	6.7	J	9.5	3.9
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	270		9.5	3.6
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		9.5	2.5
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND		9.5	2.7
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	F2	95	2.1
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	14	J F2	95	3.3
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		95	2.7

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779078</u>	Lab Sample ID: <u>480-147352-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A31.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>263.4 (mL)</u>	Date Analyzed: <u>01/09/2019 23:34</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>5</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	109		50-150
STL01892	13C4 PFHpA	59		50-150
STL00991	13C4 PFOS	148		50-150
STL00995	13C5 PFNA	105		50-150
STL00992	13C4 PFBA	22	*	25-150
STL00993	13C2 PFHxA	42	*	50-150
STL00996	13C2 PFDA	117		50-150
STL00997	13C2 PFUnA	112		50-150
STL00998	13C2 PFDoA	79		50-150
STL01056	13C8 FOSA	96		25-150
STL01893	13C5 PFPeA	37		25-150
STL02116	13C2 PFTeDA	50		50-150
STL02118	d3-NMeFOSAA	69		50-150
STL02117	d5-NEtFOSAA	102		50-150
STL02280	M2-8:2 FTS	231	*	25-150
STL02337	13C3 PFBS	84		50-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A31.d
 Lims ID: 480-147352-B-2-C
 Client ID: 779078
 Sample Type: Client
 Inject. Date: 09-Jan-2019 23:34:29 ALS Bottle#: 0 Worklist Smp#: 31
 Injection Vol: 20.0 ul Dil. Factor: 5.0000
 Sample Info: 200-0034076-031 2
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:49 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: murrayjw

Date: 10-Jan-2019 09:10:19

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.347	2.382	-0.035	1.025	37113	25.9			2.7	M
D 1 13C4 PFBA										M
216.9 > 171.5	2.290	2.402	-0.112	1.000	16795	2.17		21.7	36.2	M
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.719	2.791	-0.072	0.996	11049	2.15			0.8	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.729	2.818	-0.089	1.000	18053	3.67		36.7	8.6	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.801	2.883	-0.082	1.007	11789	1.99			1.2	
D 6 13C3 PFBS										
302.0 > 79.8	2.781	2.900	-0.119	1.000	31573	7.78		83.7	59.3	
8 Perfluorohexanoic acid										M
312.8 > 268.6	3.103	3.201	-0.098	1.000	27016	6.97			8.8	M
D 7 13C2 PFHxA										
314.8 > 269.6	3.103	3.250	-0.147	1.000	37365	4.22		42.2	177	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.592	3.715	-0.123	0.997	35564	3.83			14.1	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.637	3.748	-0.111	1.000	37871	4.65			3.7	
D 9 13C4 PFHpA										
366.9 > 321.8	3.603	3.782	-0.179	1.000	95029	5.86		58.6	1127	
D 11 18O2 PFHxS										
402.9 > 83.8	3.637	3.826	-0.189	1.000	48225	10.3		109	451	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.214	4.355	-0.141	1.000	111937	11.7			34.5	
* 15 13C2 PFOA										
414.9 > 369.8	4.201	4.355	-0.154		121976	10.0			544	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.214	4.393	-0.179	0.833	4136	0.7037			19.4	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.175	4.411	-0.236	1.000	39936	27.6		290	306	
D 17 13C4 PFOA										
416.9 > 371.8	4.214	4.468	-0.254	0.000	96997	7.83		78.3	351	a
19 Perfluorononanoic acid										
462.8 > 418.8	5.044	5.113	-0.069	1.000	1259	0.0653			2.1	M
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.058	5.140	-0.082	1.000	180191	28.3			339	M
D 20 13C5 PFNA										
467.8 > 422.8	5.044	5.222	-0.178	1.000	175377	10.5		105	615	
D 22 13C4 PFOS										
502.8 > 79.8	5.058	5.236	-0.178	1.000	58853	14.2		148	395	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.783	5.998	-0.215	1.000	86817	22.1		231	2487	
D 26 13C2 PFDA										
514.9 > 469.5	5.823	6.022	-0.199	1.000	202021	11.7		117	1441	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.181	6.241	-0.060	0.996	527	0.1592			6.2	M
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.205	6.367	-0.162	1.000	30492	6.93		69.3	201	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.562	6.634	-0.072	1.003	5508	1.51			10.3	M
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.544	6.734	-0.190	1.000	37966	10.2		102	431	
D 32 13C2 PFUnA										
564.8 > 519.8	6.580	6.777	-0.197	1.000	200761	11.2		112	955	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.945	-0.028	1.000	76797	9.60		96.0	705	
D 37 13C2 PFDaA										
614.8 > 569.6	7.294	7.474	-0.180	1.000	180209	7.95		79.5	635	
D 40 13C2 PFTeDA										
714.8 > 669.6	8.453	8.681	-0.228	1.000	104092	5.00		50.0	907	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A31.d

Injection Date: 09-Jan-2019 23:34:29

Instrument ID: LC410

Lims ID: 480-147352-B-2-C

Lab Sample ID: 200-147352-2

Client ID: 779078

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 31

Injection Vol: 20.0 ul

Dil. Factor: 5.0000

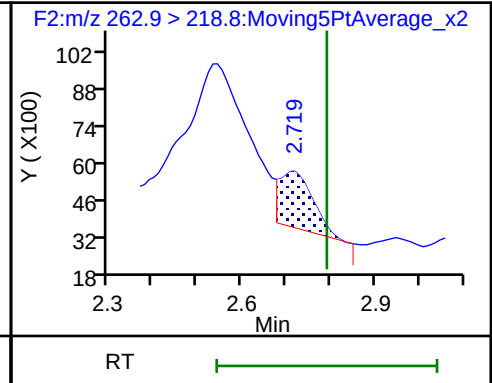
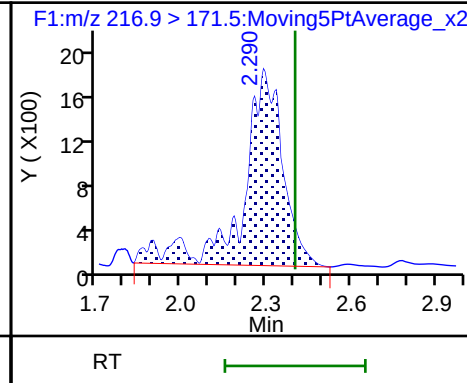
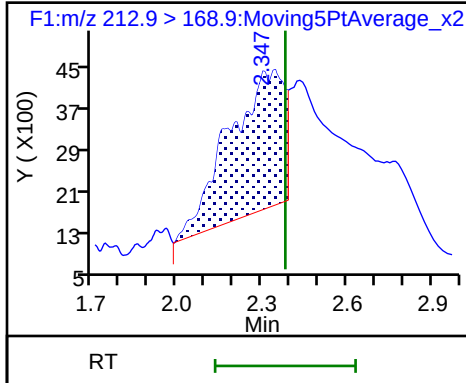
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA (M)

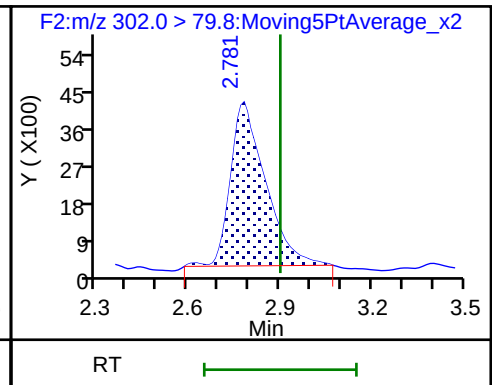
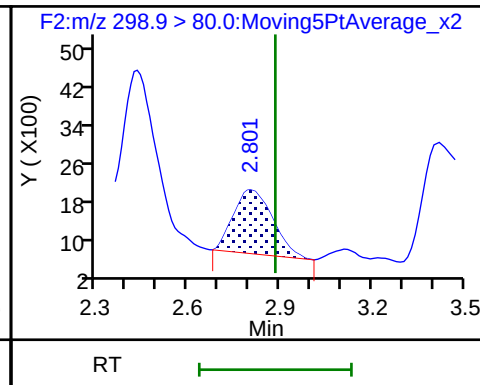
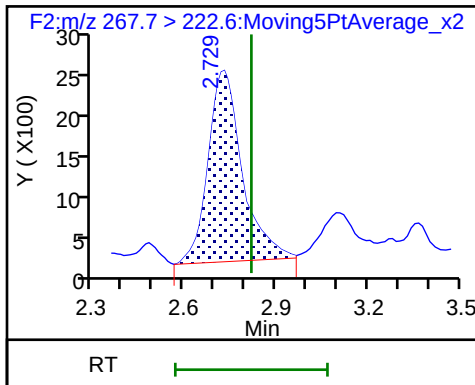
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid

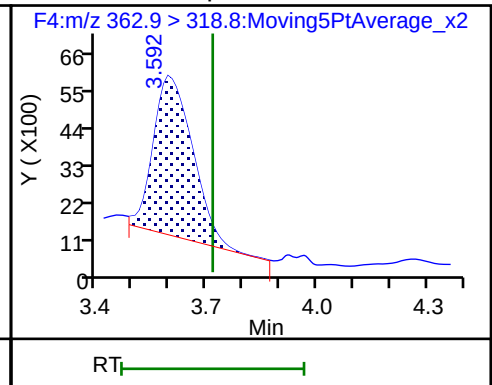
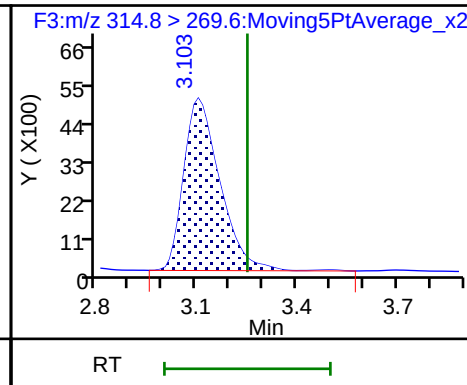
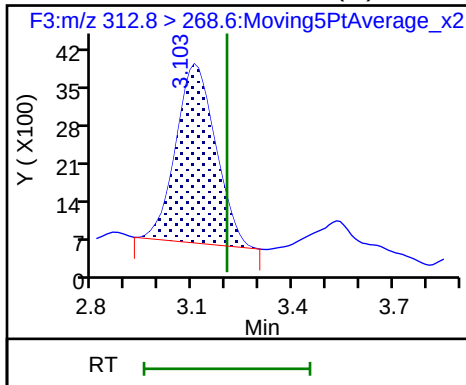
D 6 13C3 PFBS



8 Perfluorohexanoic acid (M)

D 7 13C2 PFHxA

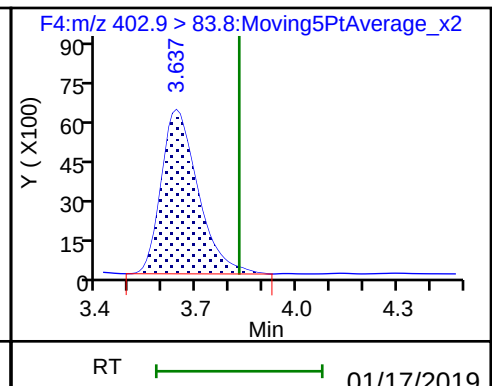
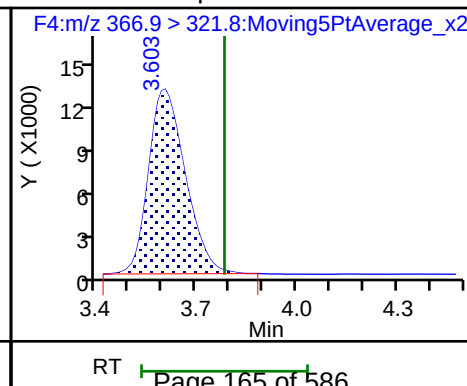
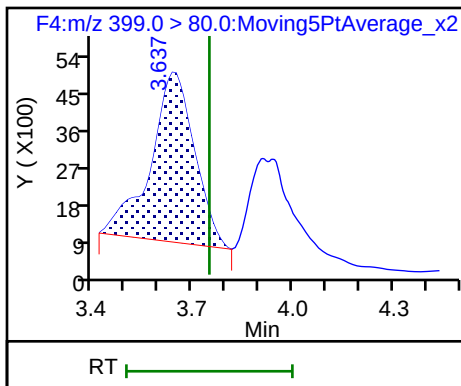
10 Perfluoroheptanoic acid



12 Perfluorohexanesulfonic acid

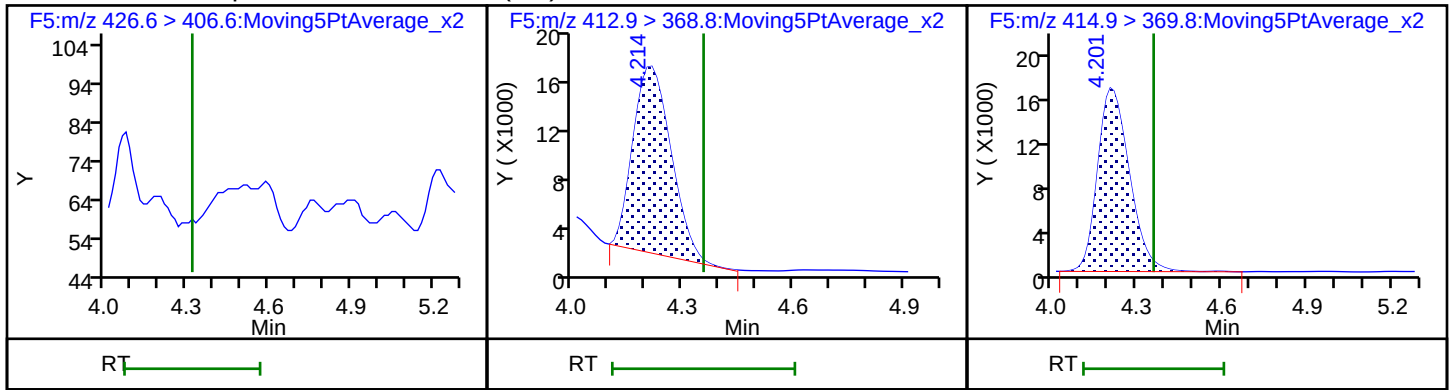
D 9 13C4 PFHpA

D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfoni (ND)

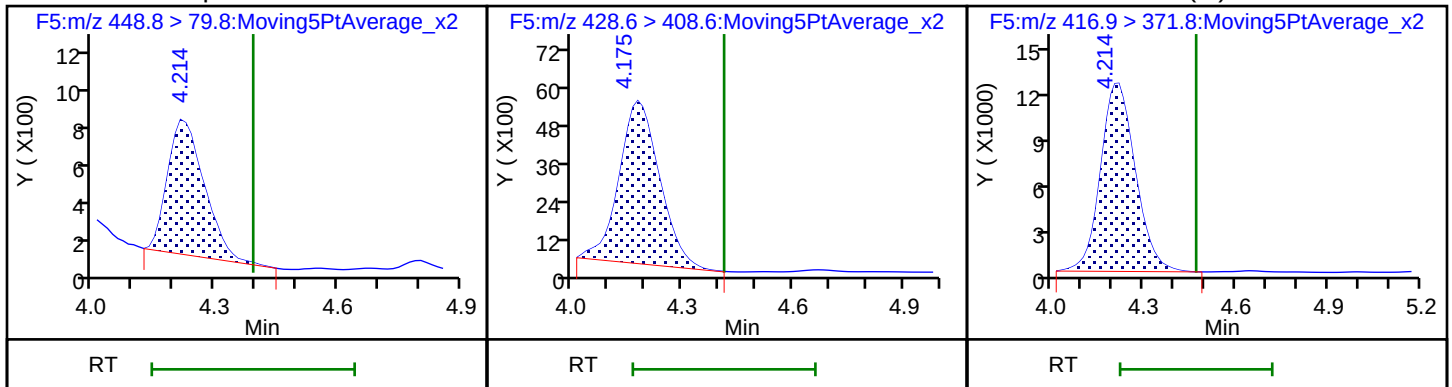
* 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid

D 13 M2-6:2 FTS

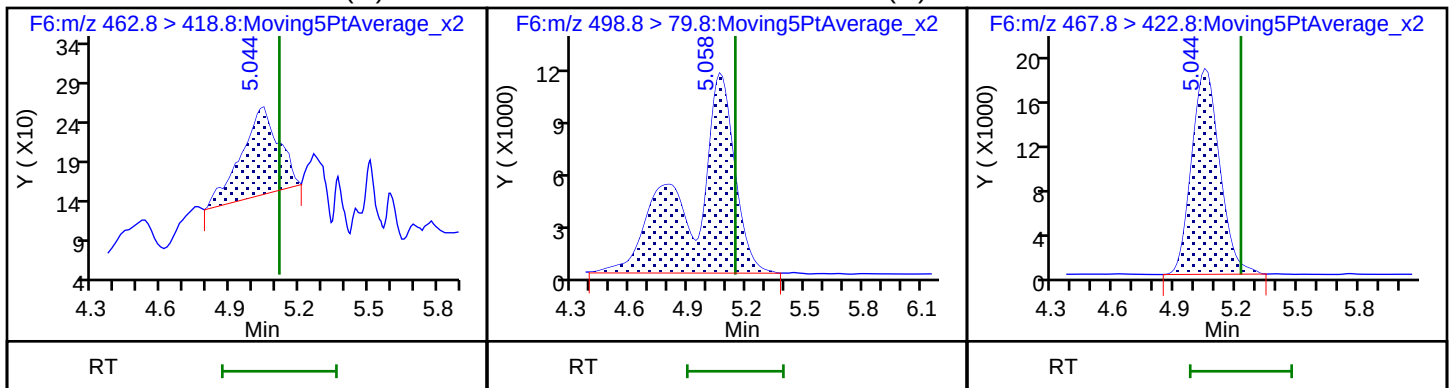
D 17 13C4 PFOA (M)



19 Perfluorononanoic acid (M)

21 Perfluorooctanesulfonic acid (M)

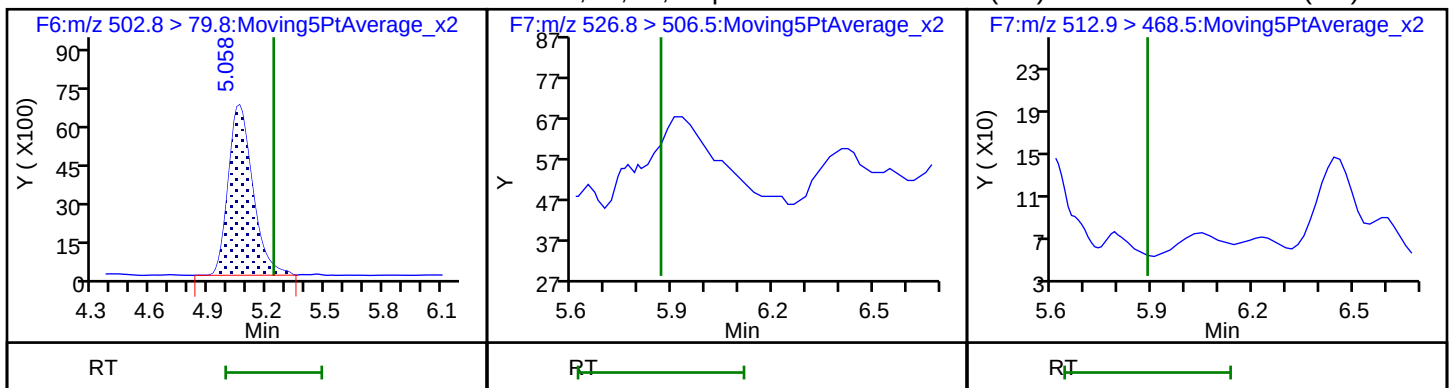
D 20 13C5 PFNA



D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfoni (ND)

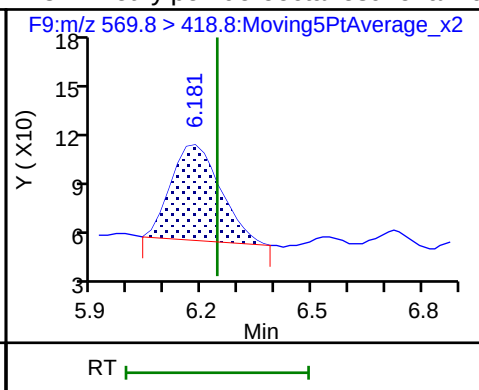
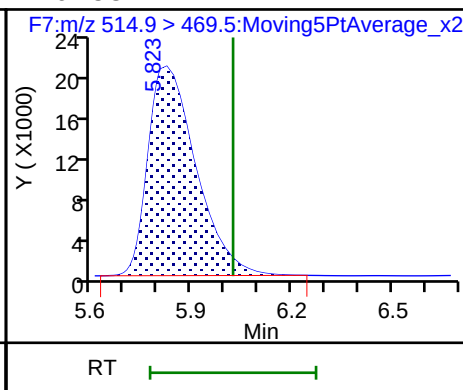
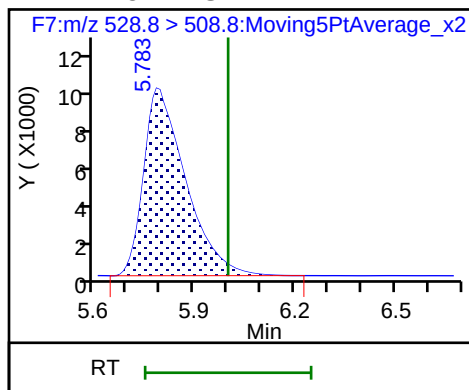
25 D 23 Perfluorodecanoic acid (ND)



D 24 M2-8:2 FTS

D 26 13C2 PFDA

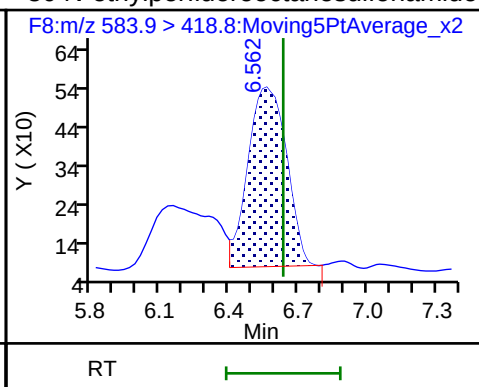
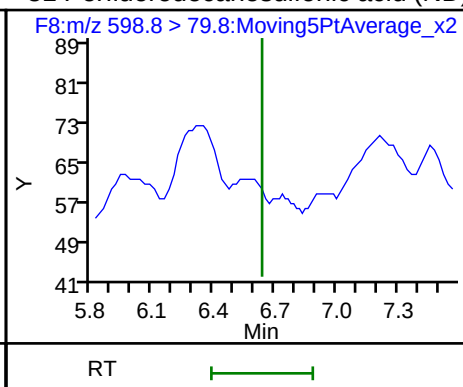
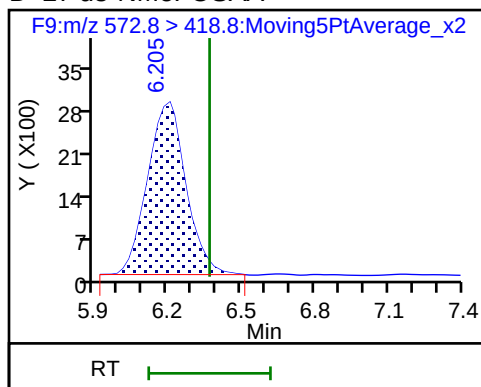
28 N-methylperfluorooctanesulfonamido (M)



D 27 d3-NMeFOSAA

31 Perfluorodecanesulfonic acid (ND)

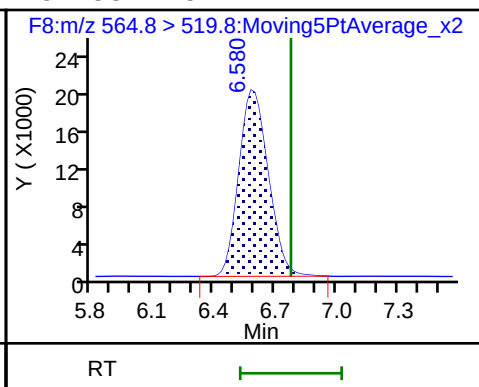
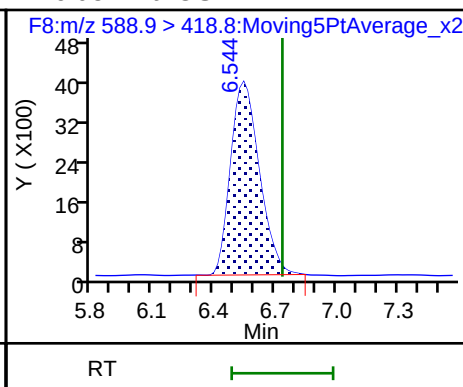
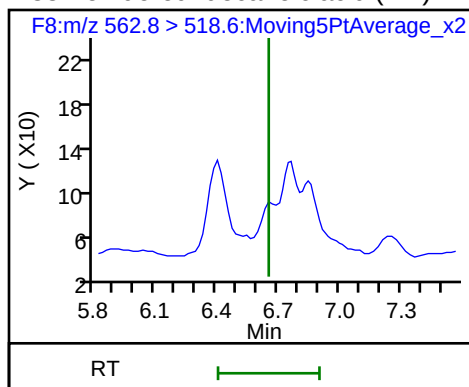
30 N-ethylperfluorooctanesulfonamidoa (M)



33 Perfluoroundecanoic acid (ND)

D 29 d5-NEtFOSAA

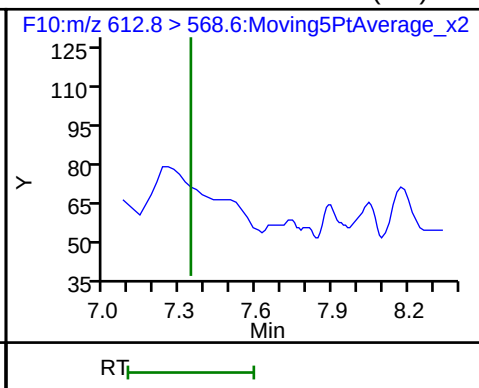
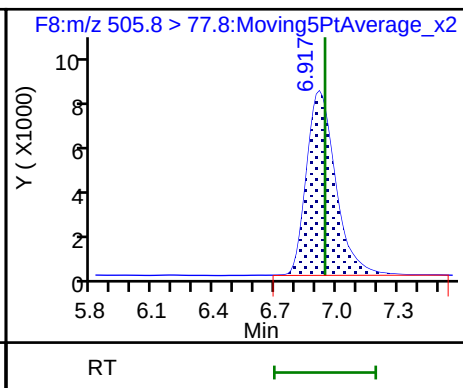
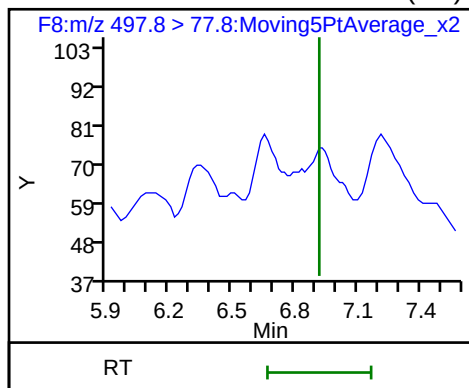
D 32 13C2 PFUnA



34 Perfluorooctanesulfonamide (ND)

D 35 13C8 FOSA

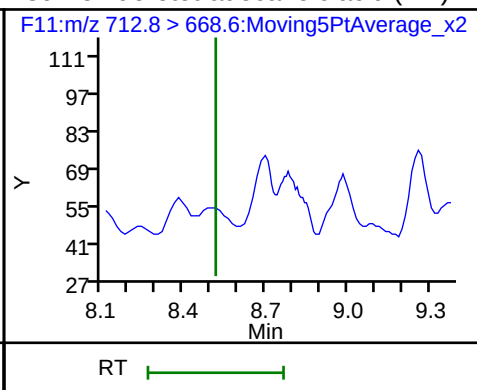
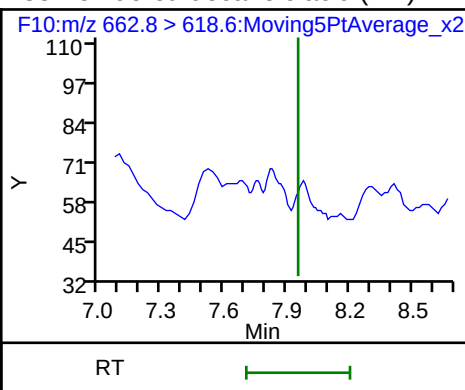
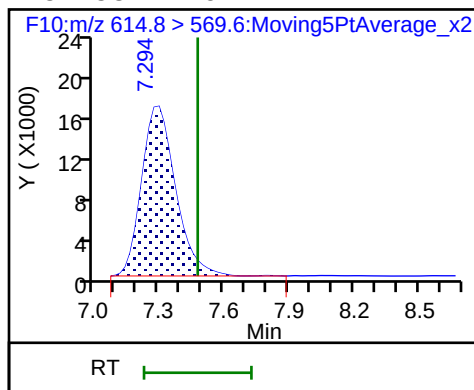
36 Perfluorododecanoic acid (ND)



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (ND)

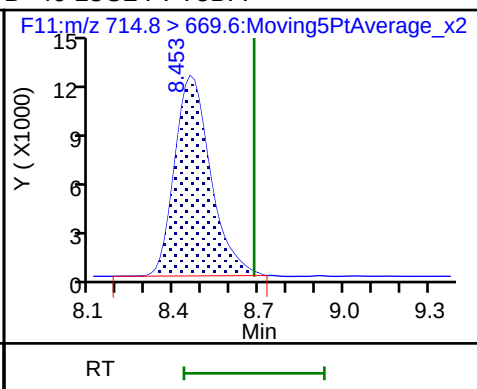
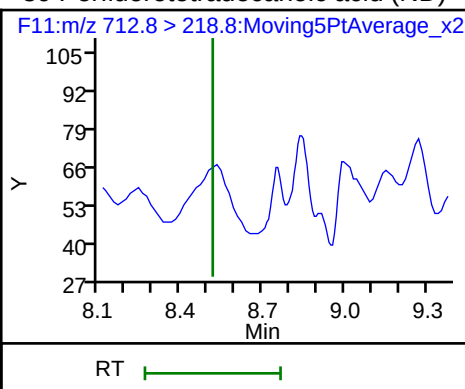
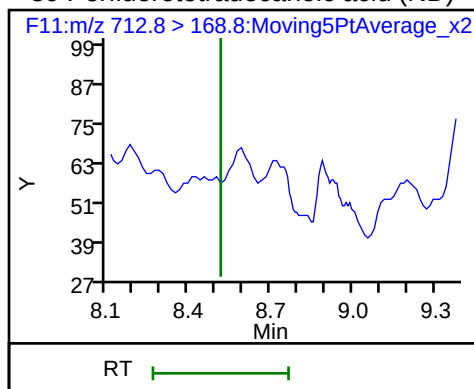
39 Perfluorotetradecanoic acid (ND)



39 Perfluorotetradecanoic acid (ND)

39 Perfluorotetradecanoic acid (ND)

D 40 13C2 PFTeDA



TestAmerica Burlington

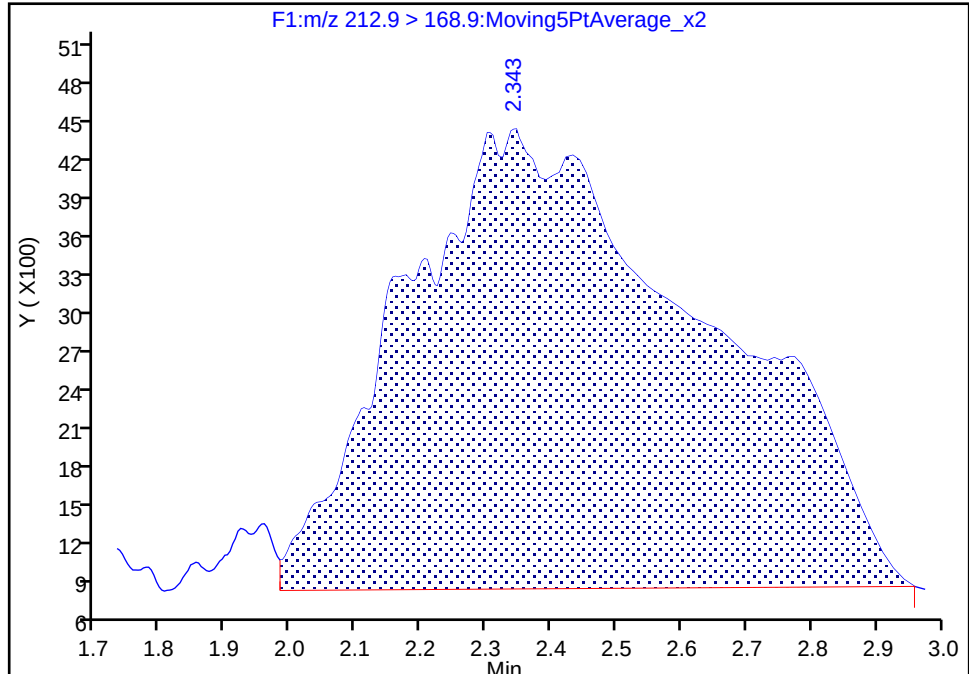
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Injection Date:	09-Jan-2019 23:34:29	Instrument ID:	LC410		
Lims ID:	480-147352-B-2-C	Lab Sample ID:	200-147352-2		
Client ID:	779078				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	31
Injection Vol:	20.0 ul	Dil. Factor:	5.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector:	F1:MRM		

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

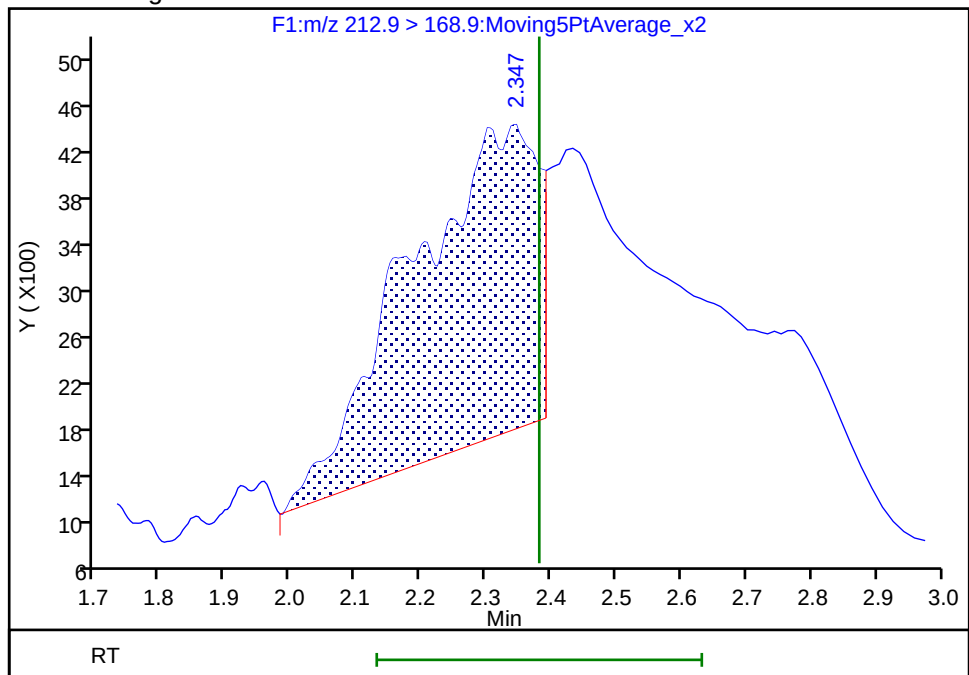
RT: 2.34
Area: 117122
Amount: 91.611501
Amount Units: ng/ml

Processing Integration Results



RT: 2.35
Area: 37113
Amount: 25.890718
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 10:23:32
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

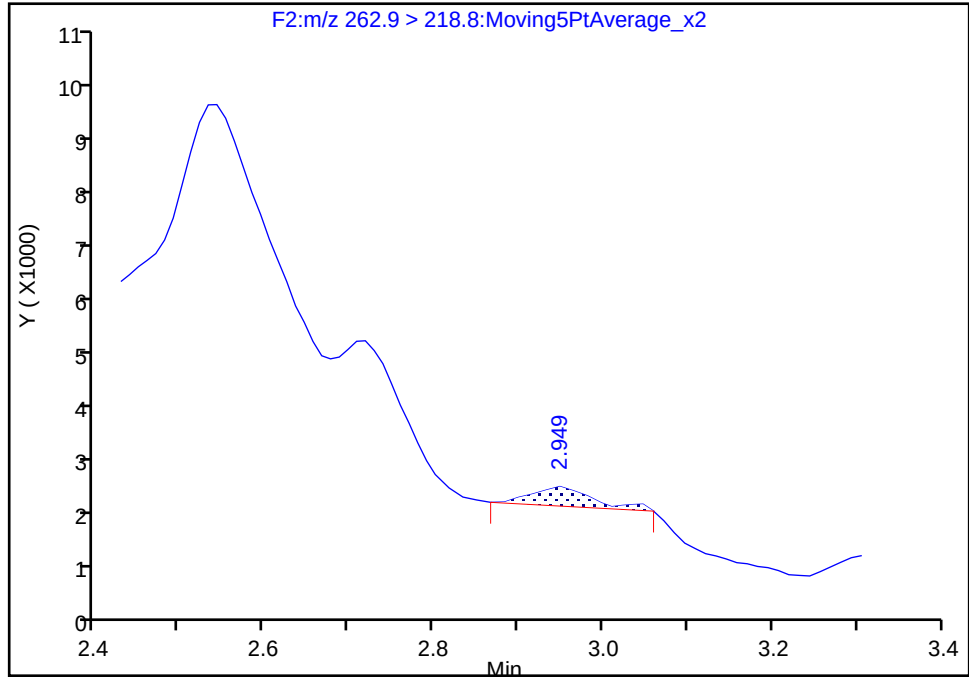
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Lims ID:	480-147352-B-2-C	Lab Sample ID:	200-147352-2		
Client ID:	779078				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	31
Injection Vol:	20.0 ul	Dil. Factor:	5.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F2:MRM		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

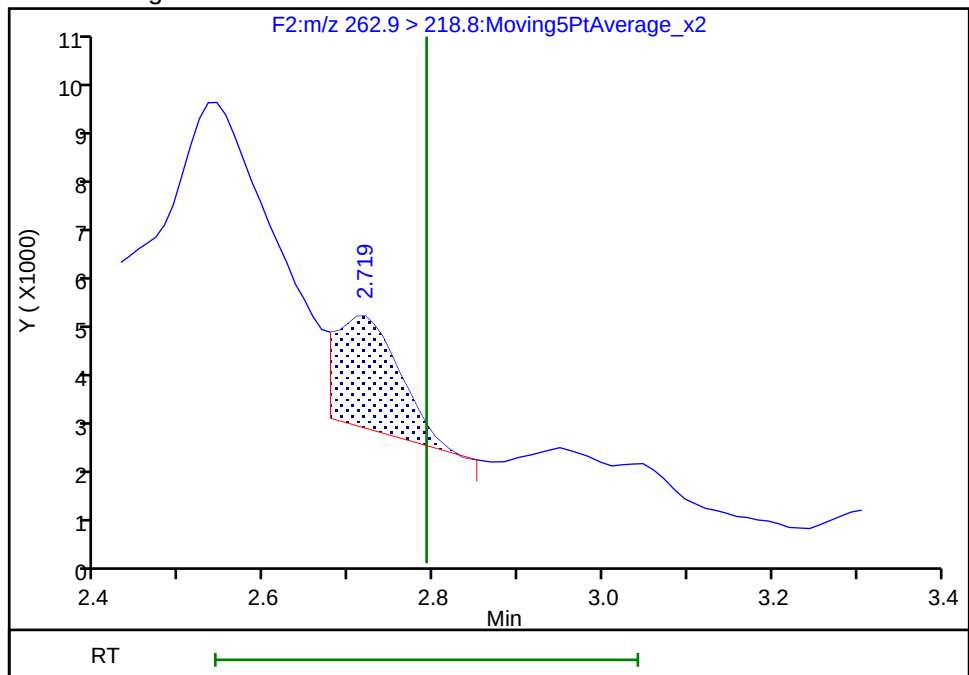
RT: 2.95
Area: 1685
Amount: 0.327734
Amount Units: ng/ml

Processing Integration Results



RT: 2.72
Area: 11049
Amount: 2.149043
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 10:24:07
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

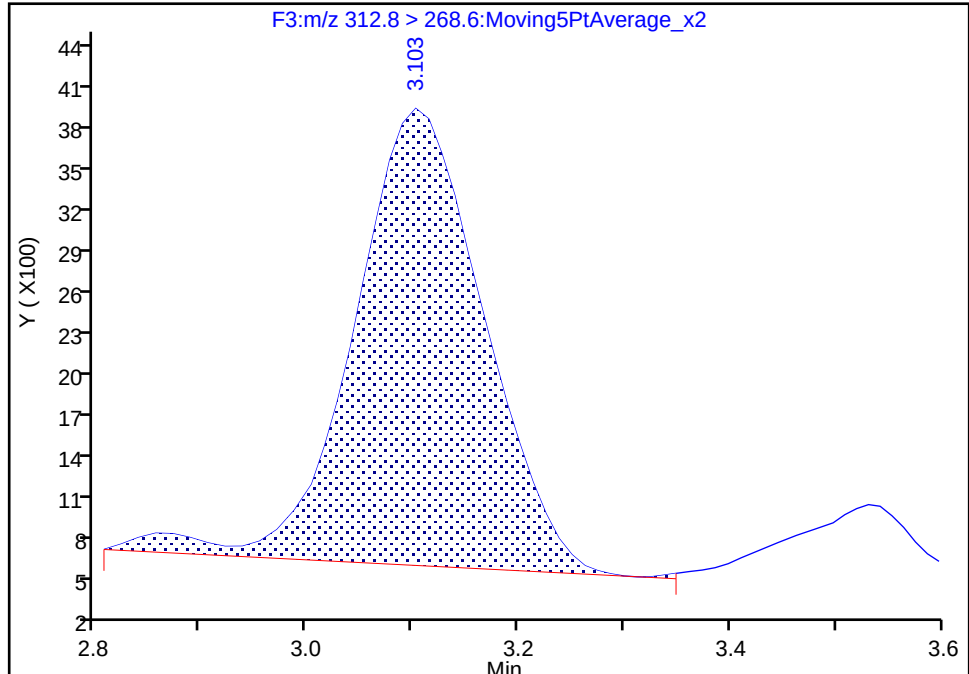
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Lims ID:	480-147352-B-2-C	Lab Sample ID:	200-147352-2		
Client ID:	779078				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	31
Injection Vol:	20.0 ul	Dil. Factor:	5.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F3:MRM		

8 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

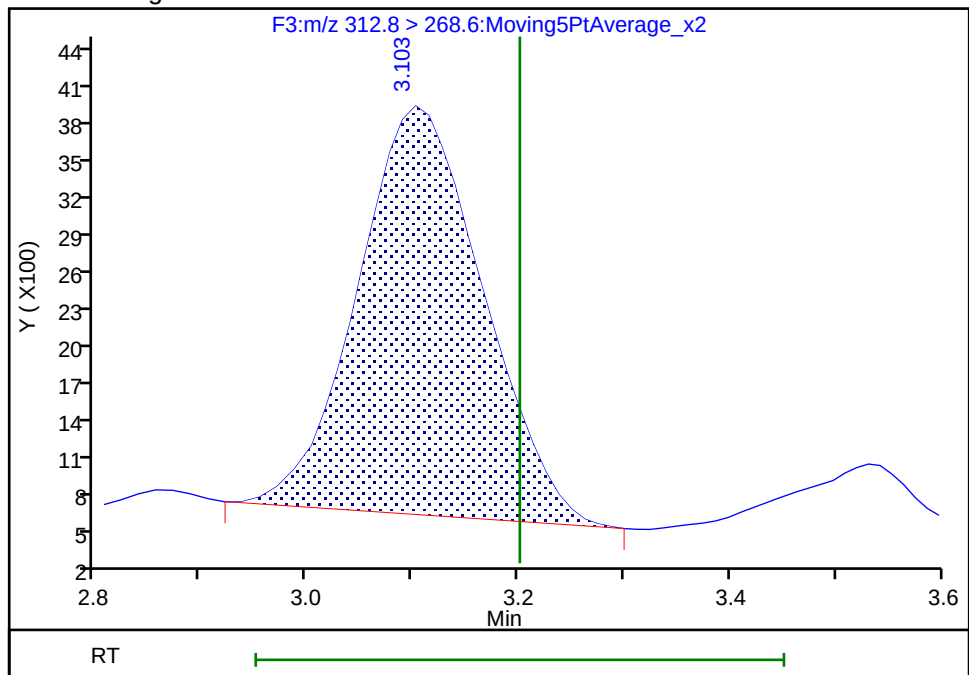
RT: 3.10
Area: 28480
Amount: 7.346255
Amount Units: ng/ml

Processing Integration Results



RT: 3.10
Area: 27016
Amount: 6.968625
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 10:24:25
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

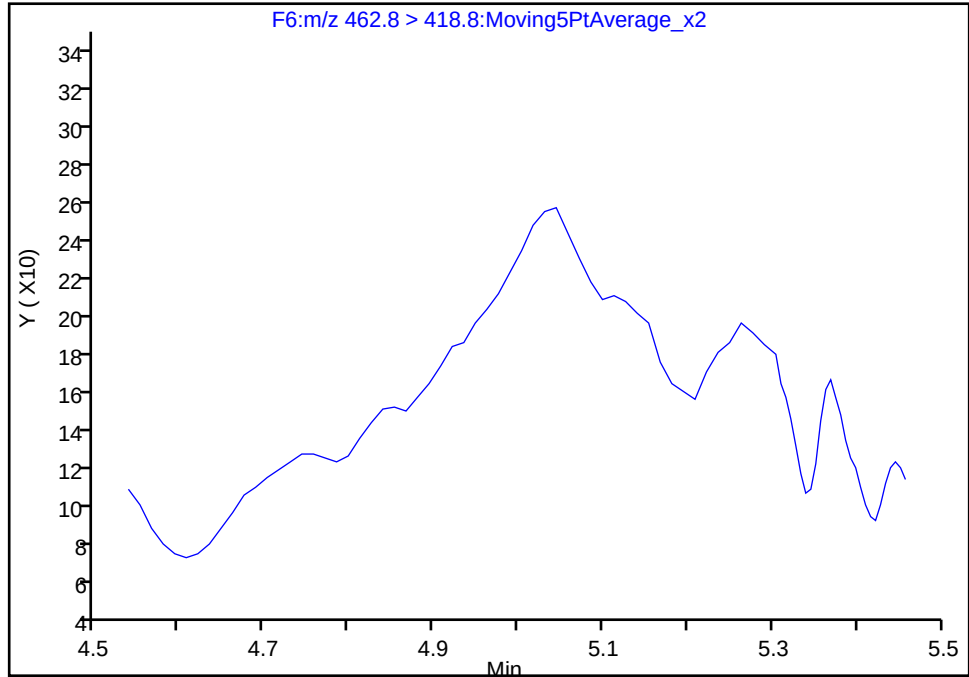
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Lims ID:	480-147352-B-2-C	Lab Sample ID:	200-147352-2
Client ID:	779078		
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	5.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector:	F6:MRM
		Worklist Smp#:	31

19 Perfluorononanoic acid, CAS: 375-95-1

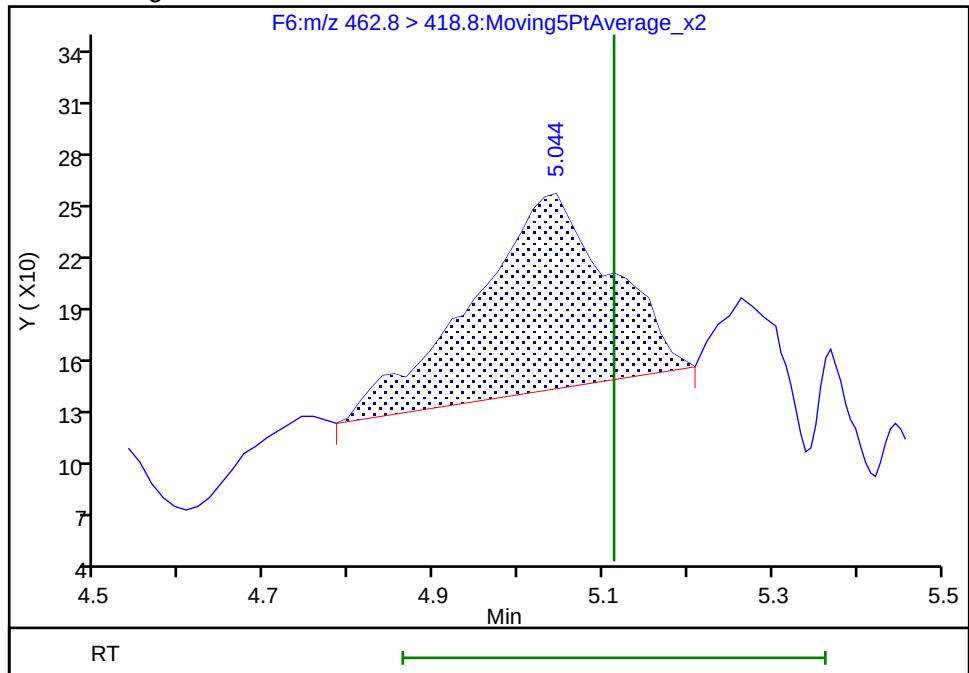
Signal: 1

Not Detected
Expected RT: 5.11

Processing Integration Results

RT: 5.04
Area: 1259
Amount: 0.065305
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 10:25:41
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

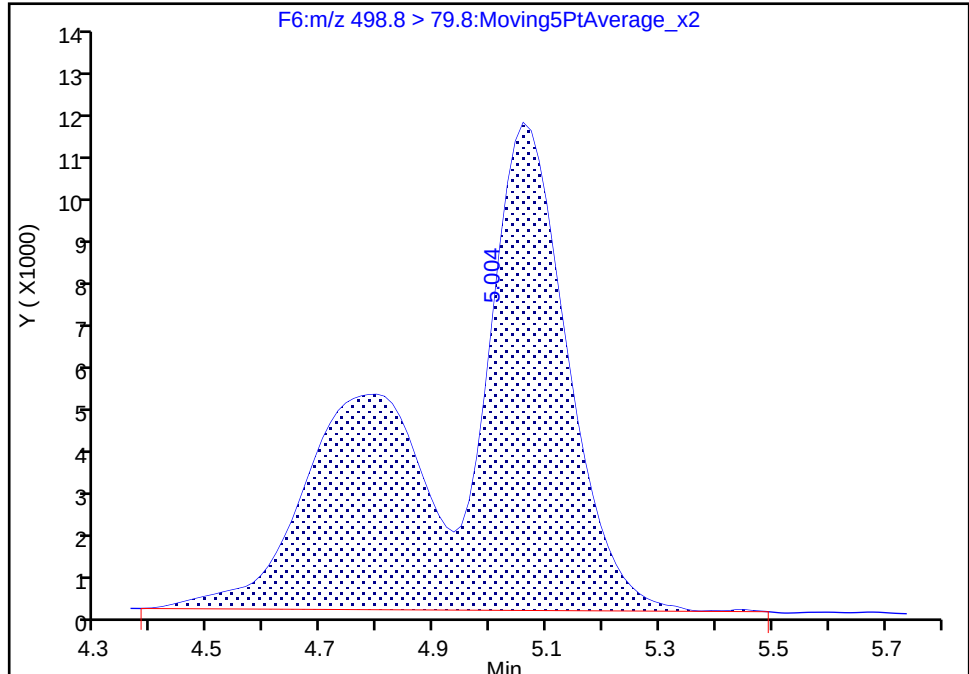
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Lims ID:	480-147352-B-2-C	Lab Sample ID:	200-147352-2		
Client ID:	779078				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	31
Injection Vol:	20.0 ul	Dil. Factor:	5.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F6:MRM		

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

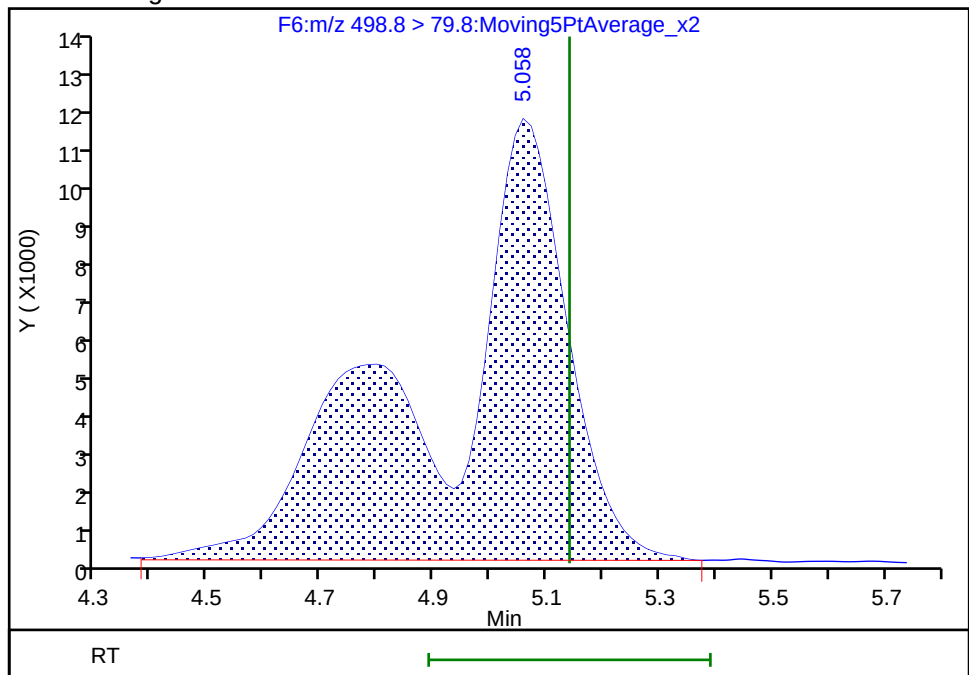
RT: 5.00
Area: 179085
Amount: 28.142118
Amount Units: ng/ml

Processing Integration Results



RT: 5.06
Area: 180191
Amount: 28.315919
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 10:25:50
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

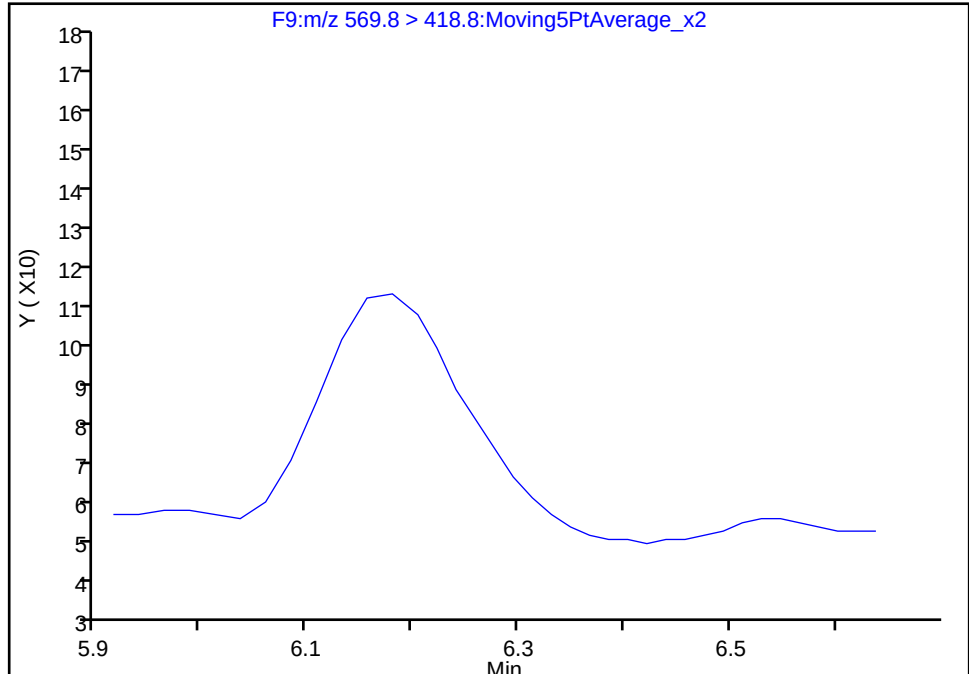
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Lims ID:	480-147352-B-2-C	Lab Sample ID:	200-147352-2		
Client ID:	779078				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	31
Injection Vol:	20.0 ul	Dil. Factor:	5.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F9:MRM		

28 N-methylperfluorooctanesulfonamidoacetic aci, CAS: 2355-31-9

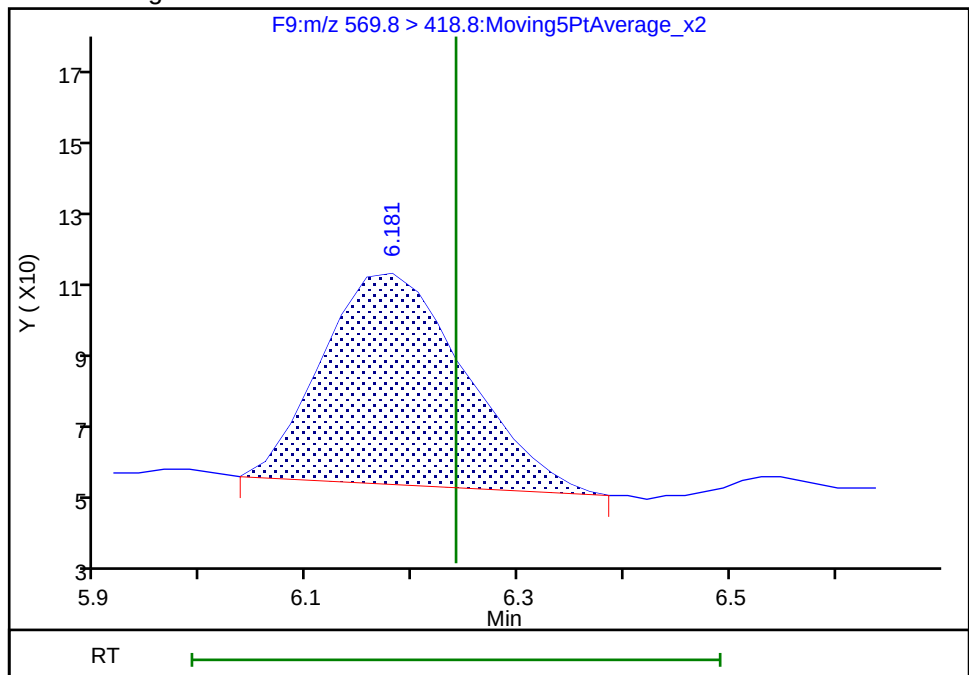
Signal: 1

Not Detected
Expected RT: 6.24

Processing Integration Results

RT: 6.18
Area: 527
Amount: 0.159160
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 10:26:09
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

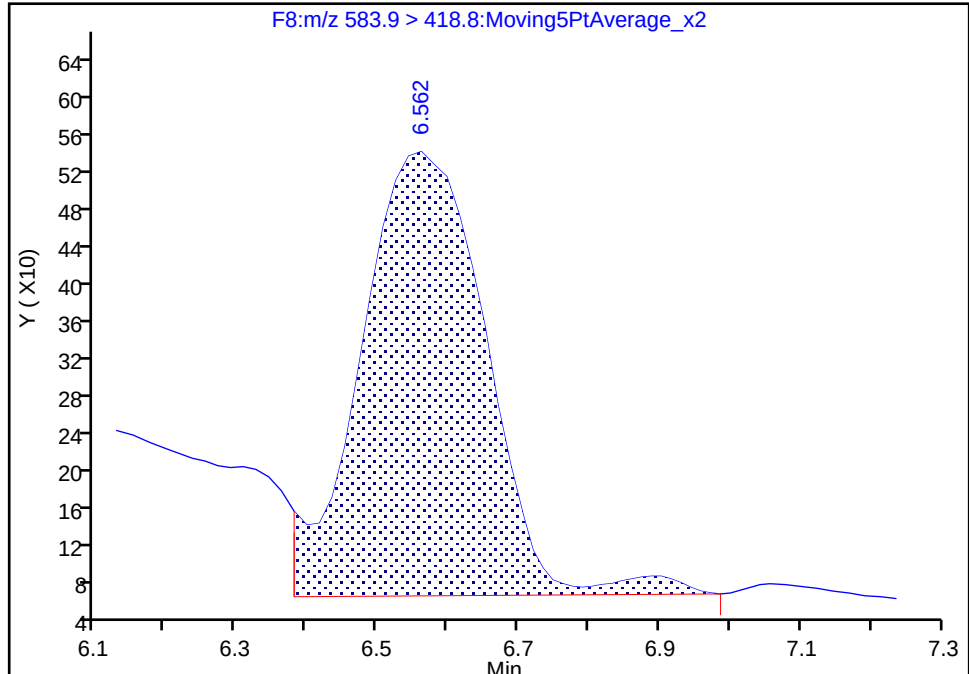
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Lims ID:	480-147352-B-2-C	Lab Sample ID:	200-147352-2		
Client ID:	779078				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	31
Injection Vol:	20.0 ul	Dil. Factor:	5.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F8:MRM		

30 N-ethylperfluorooctanesulfonamidoacetic acid, CAS: 2991-50-6

Signal: 1

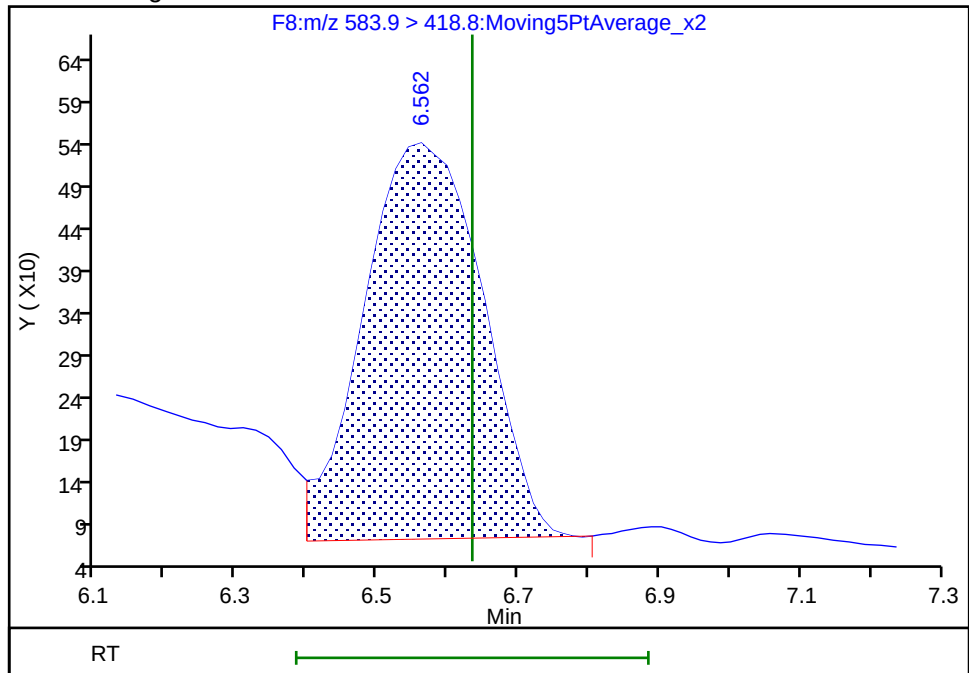
RT: 6.56
Area: 5898
Amount: 1.613677
Amount Units: ng/ml

Processing Integration Results



RT: 6.56
Area: 5508
Amount: 1.506974
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 10:26:40
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

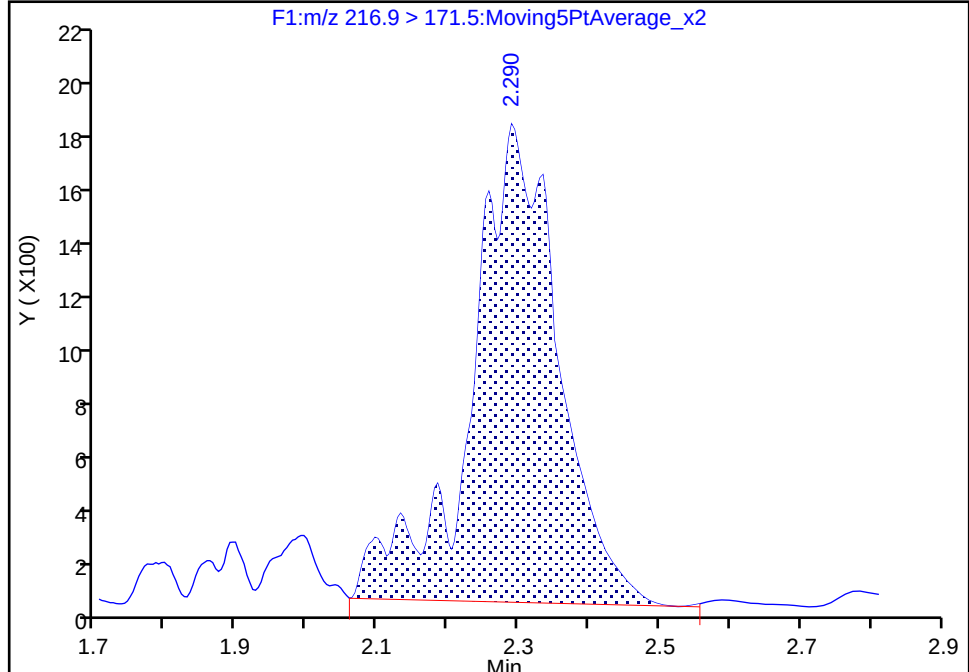
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A31.d		
Injection Date:	09-Jan-2019 23:34:29	Instrument ID:	LC410
Lims ID:	480-147352-B-2-C	Lab Sample ID:	200-147352-2
Client ID:	779078		
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	5.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector:	F1:MRM
		Worklist Smp#:	31

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

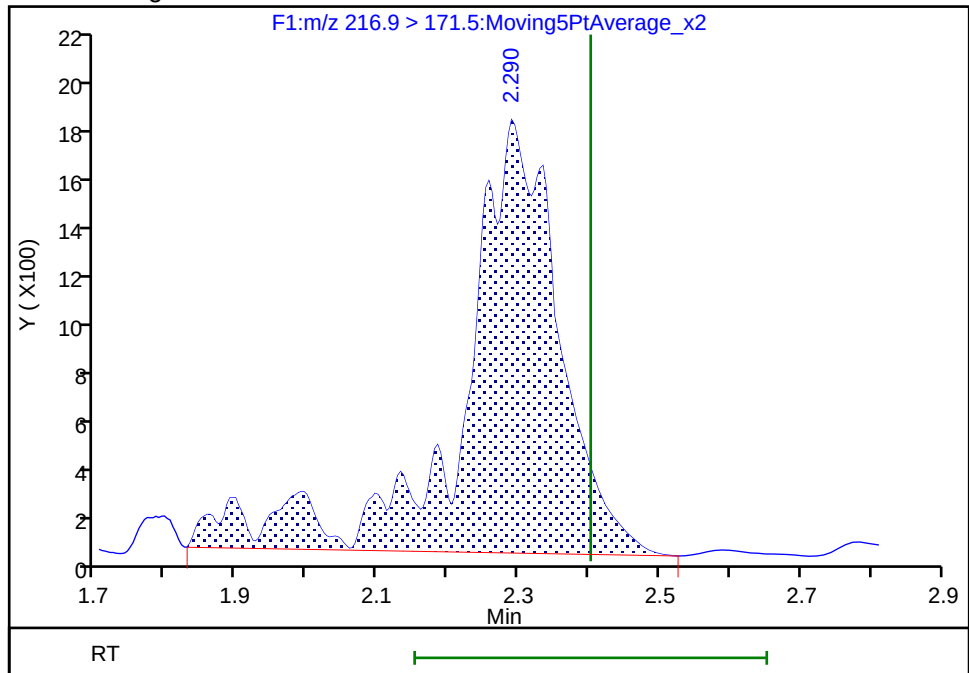
RT: 2.29
Area: 15058
Amount: 1.942025
Amount Units: ng/ml

Processing Integration Results



RT: 2.29
Area: 16795
Amount: 2.166045
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 10:23:51
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779078</u>	Lab Sample ID: <u>480-147352-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF011019A11.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>263.4 (mL)</u>	Date Analyzed: <u>01/10/2019 15:42</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>20</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138989</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
335-67-1	Perfluorooctanoic acid (PFOA)	140	F1	38	6.1
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		380	19

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	85		50-150
STL02279	M2-6:2 FTS	191	*	25-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A11.d
 Lims ID: 480-147352-B-2-C
 Client ID: 779078
 Sample Type: Client
 Inject. Date: 10-Jan-2019 15:42:12 ALS Bottle#: 0 Worklist Smp#: 11
 Injection Vol: 20.0 ul Dil. Factor: 20.0000
 Sample Info: 200-0034093-011 2 20X
 Misc. Info.: PFAS21 011019A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 17:18:54 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0308

First Level Reviewer: chirgwinb

Date: 10-Jan-2019 17:04:16

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.9 > 168.9	2.423	2.392	0.031	1.036	26881	8.28			5.0	
D 1 13C4 PFBA										
216.9 > 171.5	2.338	2.392	-0.054	1.000	9362	0.9206		36.8	19.9	
D 3 13C5 PFPeA										
267.7 > 222.6	2.781	2.801	-0.020	1.000	10573	1.64		65.6	11.0	
D 6 13C3 PFBS										
302.0 > 79.8	2.850	2.867	-0.017	1.000	10052	1.89		81.2	21.0	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.152	3.189	-0.037	0.996	14187	2.02			8.8	
D 7 13C2 PFHxA										
314.8 > 269.6	3.164	3.201	-0.037	1.000	16917	1.46		58.3	39.5	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.670	3.692	-0.022	1.006	17228	1.24			16.8	
D 9 13C4 PFHpA										
366.9 > 321.8	3.648	3.715	-0.067	1.000	35475	1.67		66.7	134	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.703	3.737	-0.034	1.003	10663	0.9838			3.7	
D 11 18O2 PFHxS										
402.9 > 83.8	3.692	3.759	-0.067	1.000	13574	2.21		93.3	84.9	
14 1H,1H,2H,2H-perfluorooctanesulfoni										M
426.6 > 406.6	4.201	4.291	-0.090	0.994	99	0.0277			2.1	M
D 13 M2-6:2 FTS										
428.6 > 408.6	4.227	4.330	-0.103	1.000	8611	4.54		191	67.8	
* 15 13C2 PFOA										
414.9 > 369.8	4.252	4.330	-0.078		43275	2.50			637	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.252	4.342	-0.090	0.997	49347	3.62			144	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.265	4.355	-0.090	1.000	34391	2.12		84.7	135	
21 Perfluorooctanesulfonic acid										M
498.8 > 79.8	5.085	5.099	-0.014	0.997	52109	10.6			361	M
D 20 13C5 PFNA										
467.8 > 422.8	5.058	5.113	-0.055	1.000	49816	2.27		91.0	244	
D 22 13C4 PFOS										
502.8 > 79.8	5.099	5.140	-0.041	1.000	11317	2.08		86.9	49.0	M
D 24 M2-8:2 FTS										
528.8 > 508.8	5.843	5.863	-0.020	1.000	16867	3.28		137	92.1	
D 26 13C2 PFDA										
514.9 > 469.5	5.823	5.882	-0.059	1.000	44295	1.96		78.5	228	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.205	6.241	-0.036	1.000	9006	1.56		62.4	44.1	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.598	6.580	0.018	1.008	1302	0.4231			7.2	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.544	6.598	-0.054	1.000	7992	1.63		65.3	60.3	
D 32 13C2 PFUnA										
564.8 > 519.8	6.598	6.652	-0.054	1.000	39755	1.69		67.6	163	
D 35 13C8 FOSA										
505.8 > 77.8	6.903	6.917	-0.014	1.000	21402	2.04		81.6	78.1	
D 37 13C2 PFDaA										
614.8 > 569.6	7.294	7.339	-0.045	1.000	41749	1.40		56.1	235	
D 40 13C2 PFTeDA										
714.8 > 669.6	8.453	8.514	-0.061	1.000	19806	0.7257		29.0	110	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A11.d

Injection Date: 10-Jan-2019 15:42:12

Instrument ID: LC410

Lims ID: 480-147352-B-2-C

Lab Sample ID: 200-147352-2

Client ID: 779078

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 11

Injection Vol: 20.0 ul

Dil. Factor: 20.0000

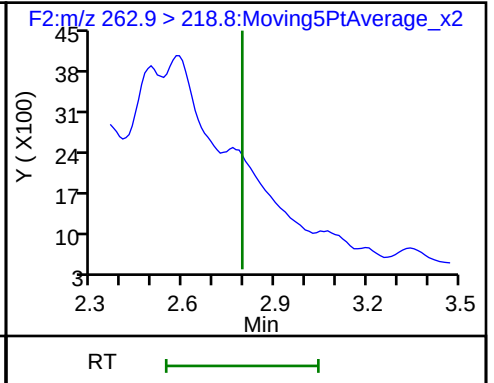
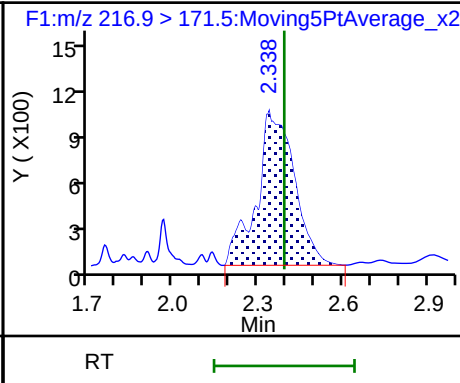
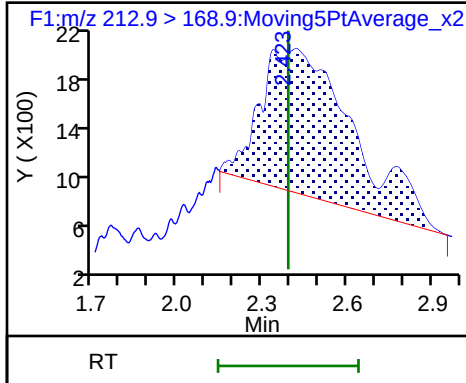
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid

D 1 13C4 PFBA

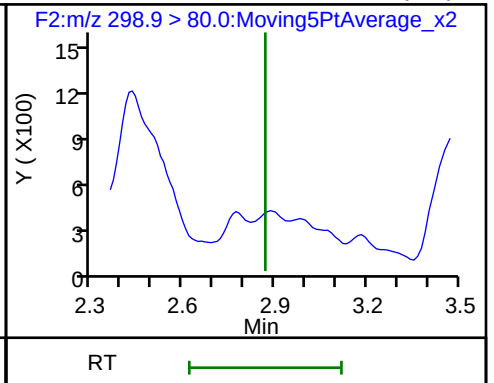
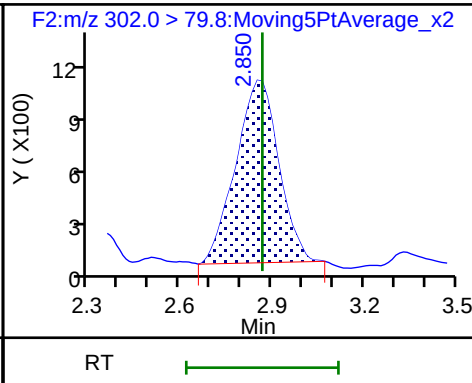
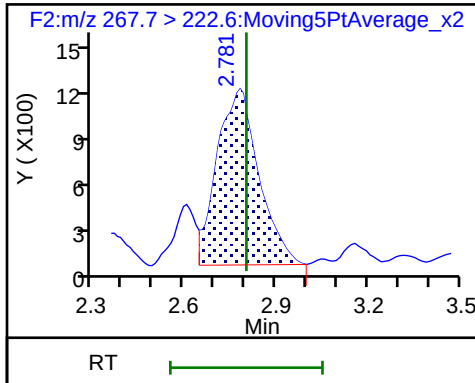
4 Perfluoropentanoic acid (ND)



D 3 13C5 PFPeA

D 6 13C3 PFBS

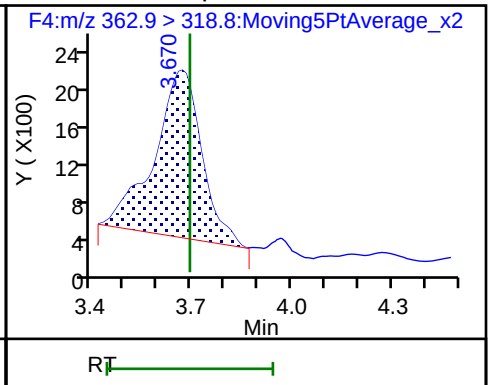
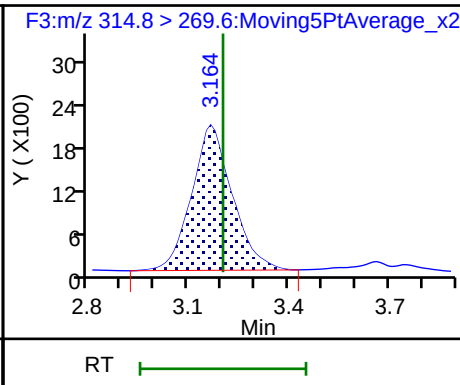
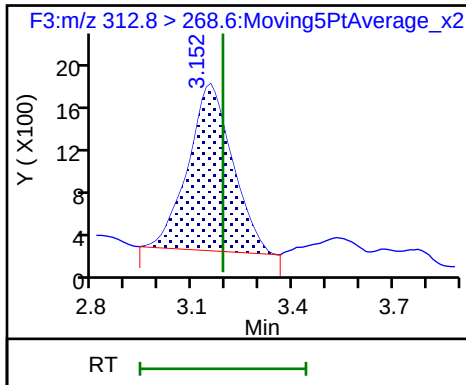
5 Perfluorobutanesulfonic acid (ND)



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

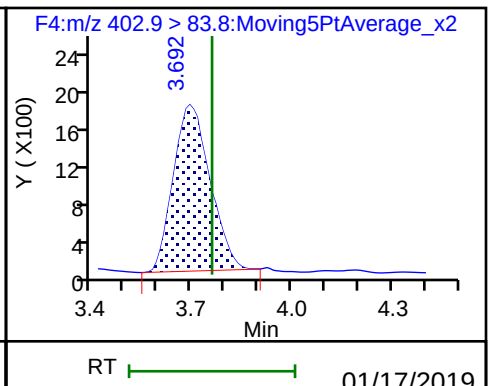
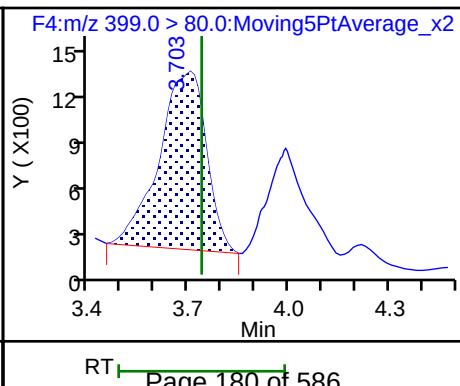
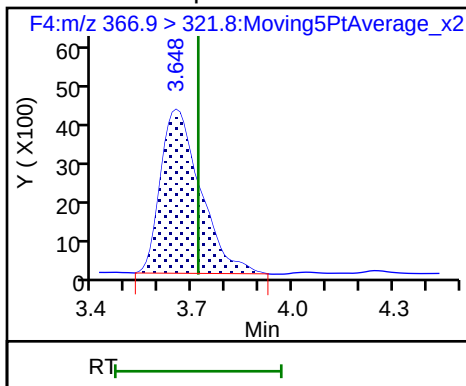
10 Perfluoroheptanoic acid



D 9 13C4 PFHpA

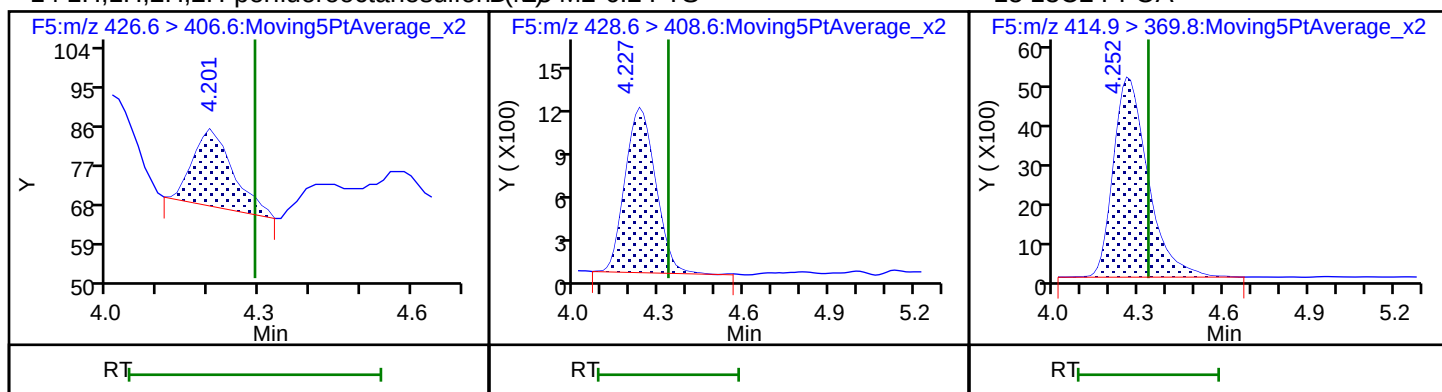
12 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfonate (M) M2-6:2 FTS

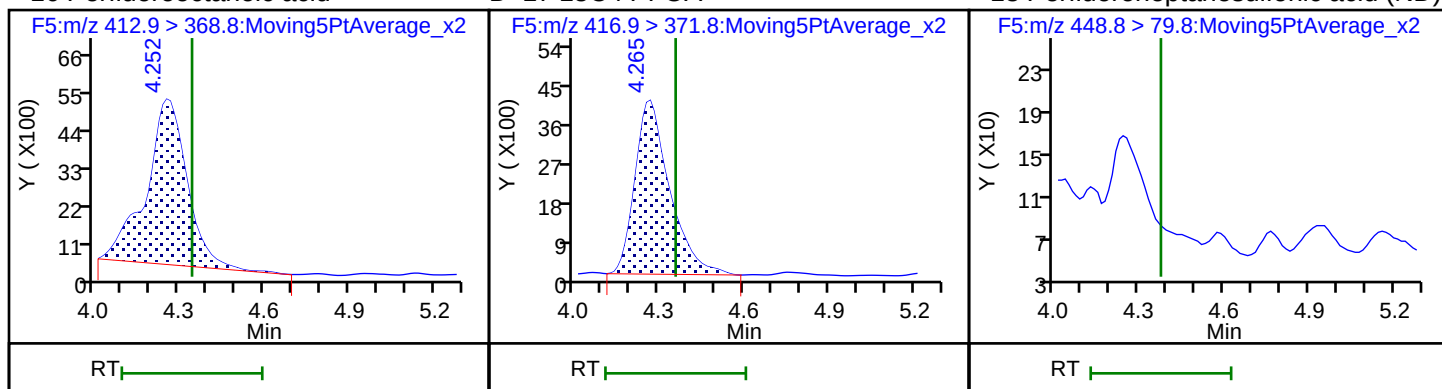
* 15 13C2 PFOA



16 Perfluorooctanoic acid

D 17 13C4 PFOA

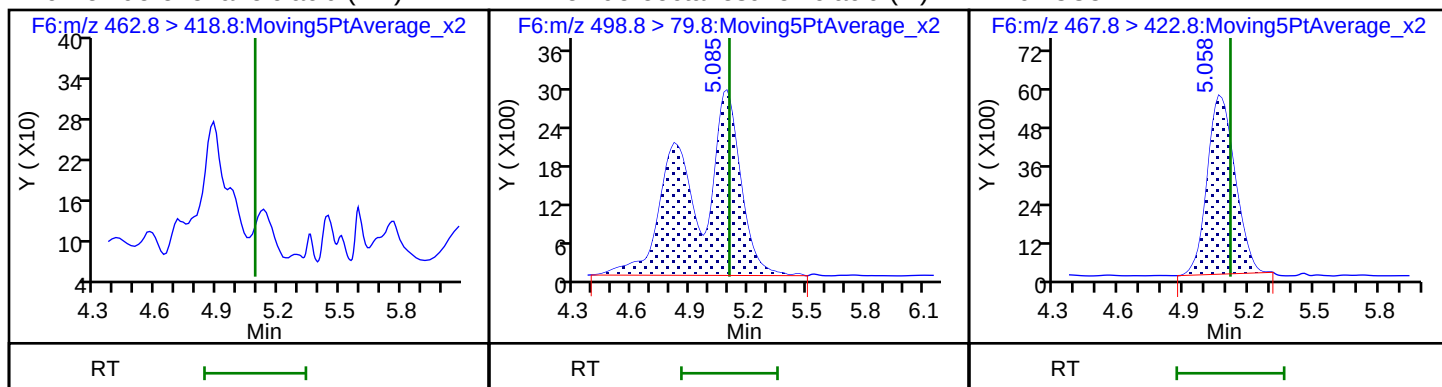
18 Perfluoroheptanesulfonic acid (ND)



19 Perfluorononanoic acid (ND)

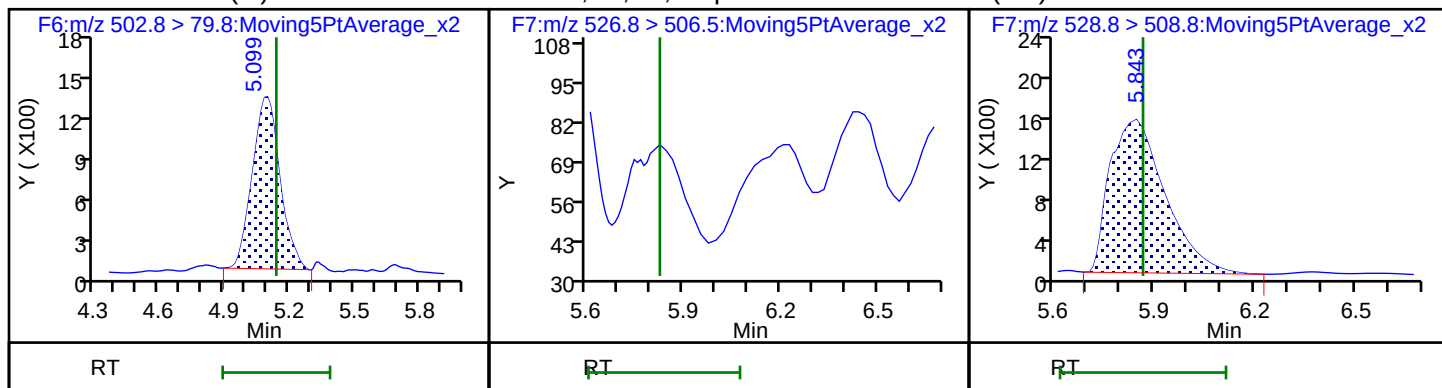
21 Perfluorooctanesulfonic acid (M)

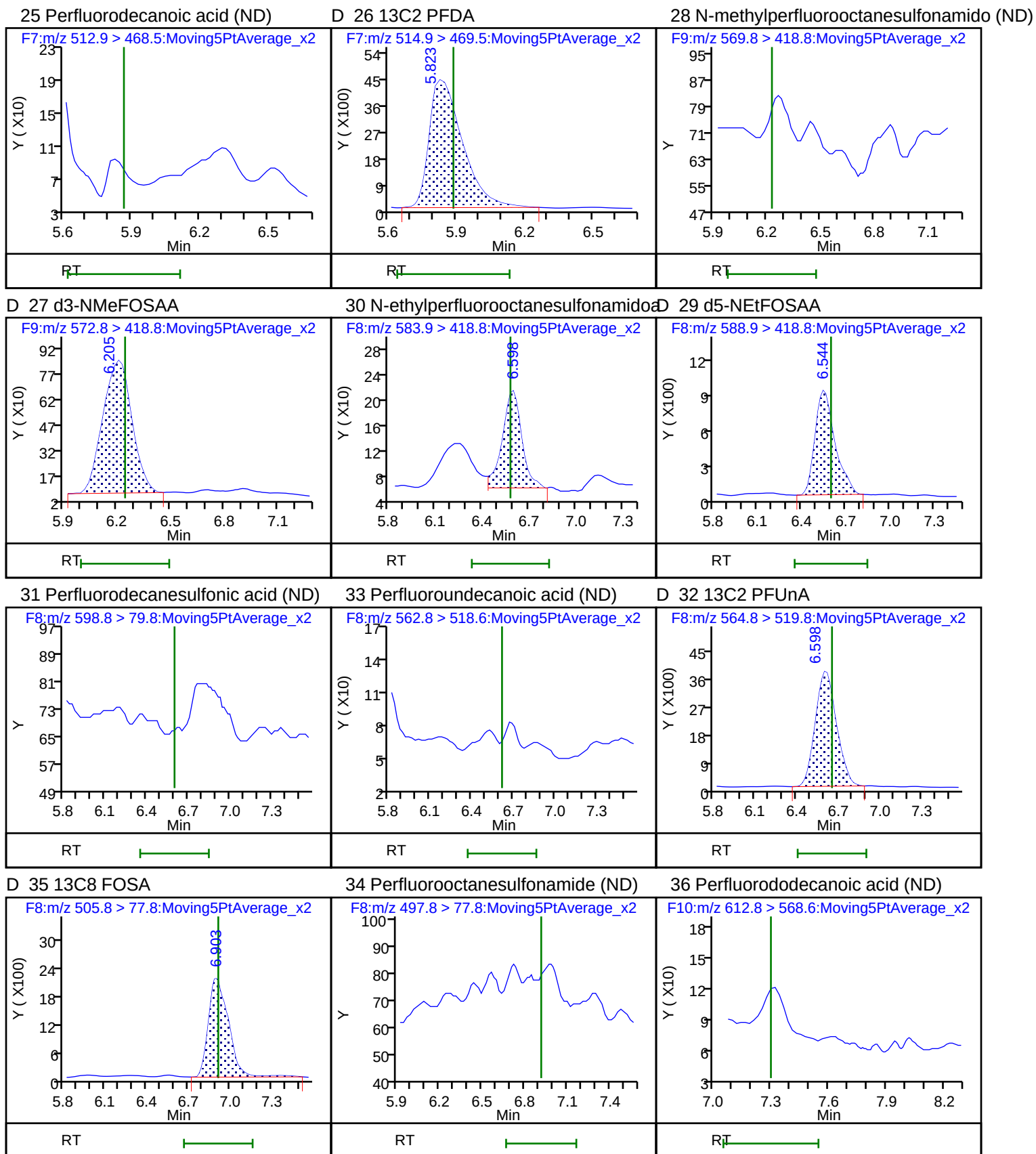
D 20 13C5 PFNA



D 22 13C4 PFOS (M)

23 1H,1H,2H,2H-perfluorodecanesulfonate (M) M2-8:2 FTS

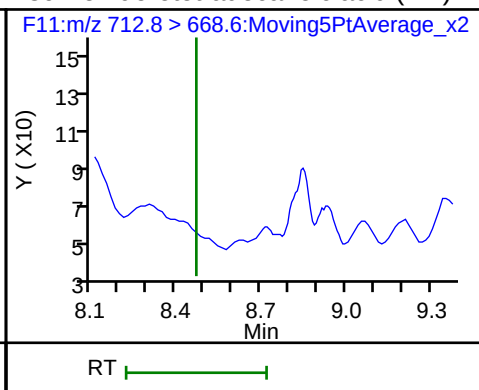
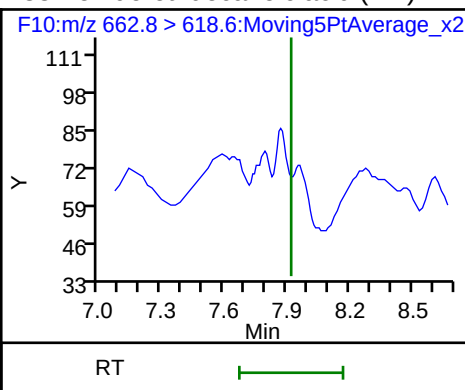
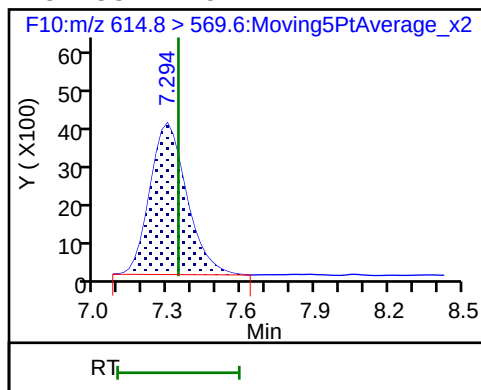




D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (ND)

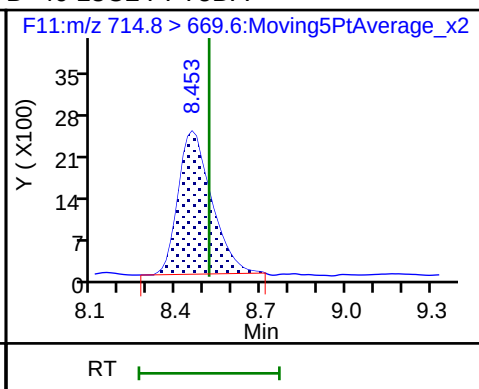
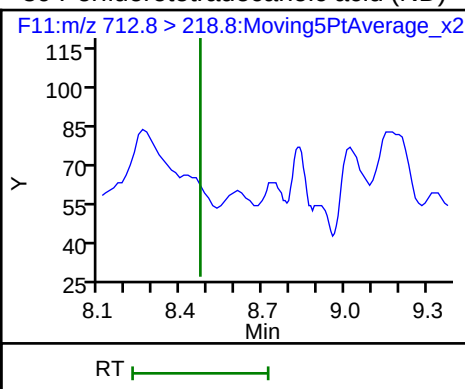
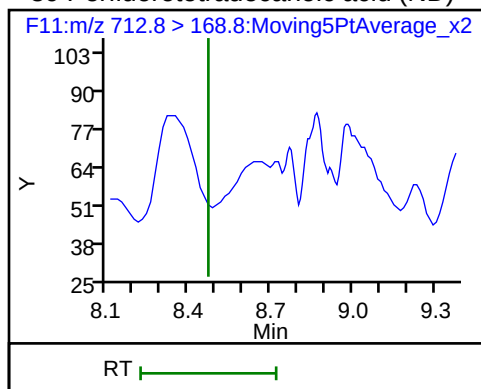
39 Perfluorotetradecanoic acid (ND)



39 Perfluorotetradecanoic acid (ND)

39 Perfluorotetradecanoic acid (ND)

D 40 13C2 PFTeDA



TestAmerica Burlington

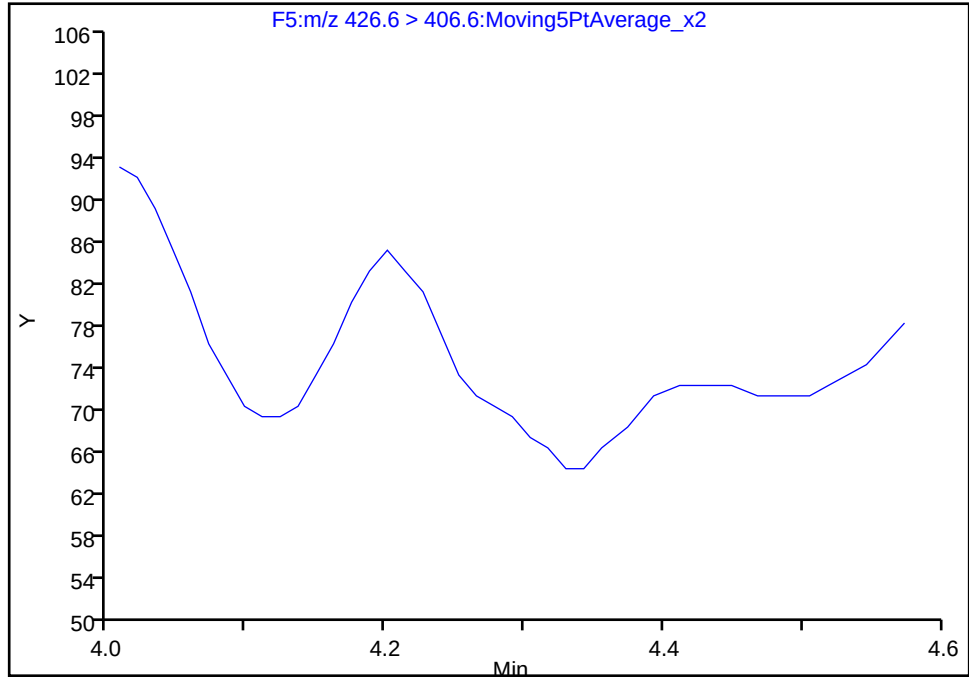
Data File:	\\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A11.d				
Injection Date:	10-Jan-2019 15:42:12	Instrument ID:	LC410		
Lims ID:	480-147352-B-2-C	Lab Sample ID:	200-147352-2		
Client ID:	779078				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	11
Injection Vol:	20.0 ul	Dil. Factor:	20.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F5:MRM		

14 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:, CAS: 27619-97-2

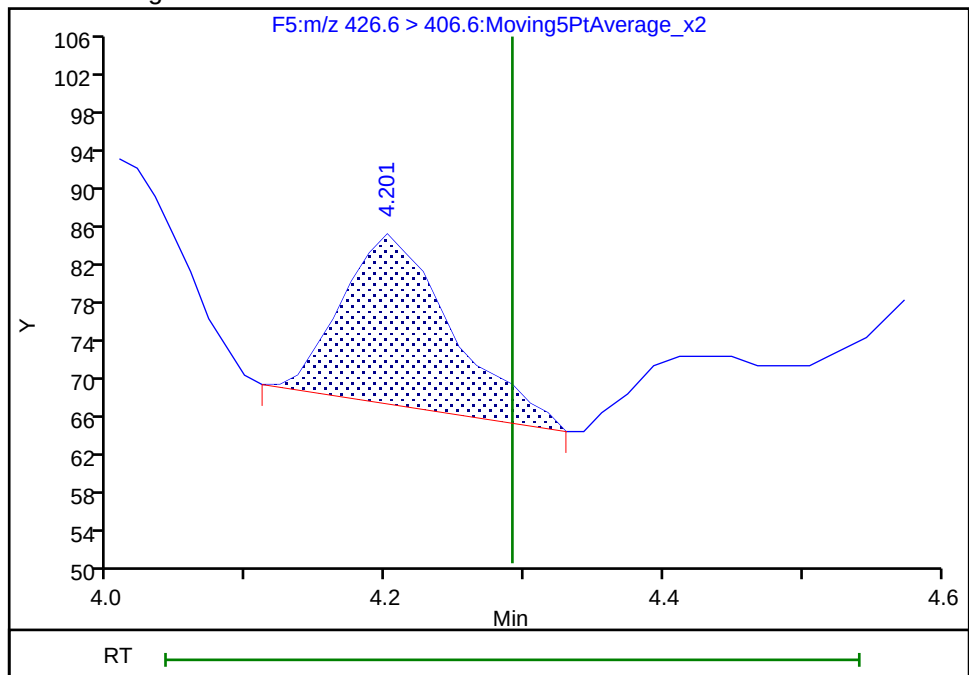
Signal: 1

Not Detected
Expected RT: 4.29

Processing Integration Results



Manual Integration Results

RT: 4.20
Area: 99
Amount: 0.027734
Amount Units: ng/ml

Reviewer: chirgwinb, 10-Jan-2019 17:15:39

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779079</u>	Lab Sample ID: <u>480-147352-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A34.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 10:56</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>260.1 (mL)</u>	Date Analyzed: <u>01/10/2019 00:22</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	1.1	J	1.9	0.39
2706-90-3	Perfluoropentanoic acid (PFPeA)	ND		1.9	0.72
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		1.9	0.23
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.31	J	1.9	0.31
335-67-1	Perfluorooctanoic acid (PFOA)	0.65	J	1.9	0.31
375-95-1	Perfluorononanoic acid (PFNA)	ND		1.9	0.37
335-76-2	Perfluorodecanoic acid (PFDA)	ND		1.9	0.37
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.24
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		1.9	0.34
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.23
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.43
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.42
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.25
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.79
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.73
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.51
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.54
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	0.43
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	0.67
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		19	0.96
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		19	0.54

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779079</u>	Lab Sample ID: <u>480-147352-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A34.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 10:56</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>260.1 (mL)</u>	Date Analyzed: <u>01/10/2019 00:22</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	84		50-150
STL01892	13C4 PFHpA	60		50-150
STL00990	13C4 PFOA	74		50-150
STL00991	13C4 PFOS	77		50-150
STL00995	13C5 PFNA	63		50-150
STL00992	13C4 PFBA	86		25-150
STL00993	13C2 PFHxA	66		50-150
STL00996	13C2 PFDA	57		50-150
STL00997	13C2 PFUnA	54		50-150
STL00998	13C2 PFDoA	43	*	50-150
STL01056	13C8 FOSA	57		25-150
STL01893	13C5 PFPeA	77		25-150
STL02116	13C2 PFTeDA	33	*	50-150
STL02118	d3-NMeFOSAA	38	*	50-150
STL02117	d5-NEtFOSAA	42	*	50-150
STL02279	M2-6:2 FTS	145		25-150
STL02280	M2-8:2 FTS	76		25-150
STL02337	13C3 PFBS	86		50-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A34.d
 Lims ID: 480-147352-B-3-A
 Client ID: 779079
 Sample Type: Client
 Inject. Date: 10-Jan-2019 00:22:18 ALS Bottle#: 0 Worklist Smp#: 34
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034076-034 3
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:49 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: murrayjw

Date: 10-Jan-2019 11:19:19

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.382	2.382	0.0	1.004	8776	0.5728			6.6	M
D 1 13C4 PFBA										
216.9 > 171.5	2.371	2.402	-0.031	1.000	678569	42.9		85.7	161	
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.791	2.791	0.0	1.004	4470	0.2031			2.0	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.781	2.818	-0.037	1.000	386385	38.5		77.0	1596	
D 6 13C3 PFBS										
302.0 > 79.8	2.850	2.900	-0.050	1.000	331899	40.1		86.1	1749	
8 Perfluorohexanoic acid										M
312.8 > 268.6	3.164	3.201	-0.037	0.992	839	0.0679			4.8	M
D 7 13C2 PFHxA										
314.8 > 269.6	3.189	3.250	-0.061	1.000	595399	32.9		65.8	1089	
10 Perfluoroheptanoic acid										M
362.9 > 318.8	3.715	3.715	0.0	1.006	3142	0.1617			6.4	M
12 Perfluorohexanesulfonic acid										M
399.0 > 80.0	3.703	3.748	-0.045	0.994	1471	-0.1175			3.3	M
D 9 13C4 PFHpA										
366.9 > 321.8	3.692	3.782	-0.090	1.000	994015	30.0		60.0	548	
D 11 18O2 PFHxS										
402.9 > 83.8	3.726	3.826	-0.100	1.000	382080	39.9		84.3	654	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.317	4.355	-0.038	0.997	6300	0.3395			18.2	
* 15 13C2 PFOA										
414.9 > 369.8	4.330	4.355	-0.025		1347443	50.0			3439	
18 Perfluoroheptanesulfonic acid										M
448.8 > 79.8	4.355	4.393	-0.038	0.854	289	0.0627			2.0	M

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 13 M2-6:2 FTS										
428.6 > 408.6	4.291	4.411	-0.120	1.000	203877	69.0		145	2067	
D 17 13C4 PFOA										
416.9 > 371.8	4.330	4.468	-0.138	1.000	937179	37.1		74.1	2830	
19 Perfluorononanoic acid										M
462.8 > 418.8	5.099	5.113	-0.014	1.005	348	0.0148			2.3	M
21 Perfluorooctanesulfonic acid										M
498.8 > 79.8	5.099	5.140	-0.041	1.000	567	0.0844			7.8	M
D 20 13C5 PFNA										
467.8 > 422.8	5.072	5.222	-0.150	1.000	1067861	31.3		62.6	637	
D 22 13C4 PFOS										
502.8 > 79.8	5.099	5.236	-0.137	1.000	310729	36.6		76.6	559	
23 1H,1H,2H,2H-perfluorodecanesulfoni										M
526.8 > 506.5	5.793	5.863	-0.070	0.998	88	0.0179			1.3	M
25 Perfluorodecanoic acid										M
512.9 > 468.5	5.843	5.882	-0.039	1.000	1504	0.0745			5.4	M
D 24 M2-8:2 FTS										
528.8 > 508.8	5.803	5.998	-0.195	1.000	291398	36.4		76.0	1169	
D 26 13C2 PFDA										
514.9 > 469.5	5.843	6.022	-0.179	1.000	999688	28.4		56.9	3569	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.181	6.367	-0.186	1.000	171048	19.0		38.1	1159	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.580	6.652	-0.072	0.997	1756	0.0860			15.5	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.562	6.734	-0.172	1.000	158641	20.8		41.6	1408	
D 32 13C2 PFUnA										
564.8 > 519.8	6.598	6.777	-0.179	1.000	994733	27.2		54.4	2181	
D 35 13C8 FOSA										
505.8 > 77.8	6.903	6.945	-0.042	1.000	466946	28.6		57.2	1455	
36 Perfluorododecanoic acid										M
612.8 > 568.6	7.294	7.339	-0.045	1.003	752	0.0437			3.1	M
D 37 13C2 PFDaA										
614.8 > 569.6	7.272	7.474	-0.202	1.000	1001646	21.6		43.3	4470	
38 Perfluorotridecanoic acid										M
662.8 > 618.6	7.928	7.953	-0.025	0.946	299	0.0217			4.0	M
39 Perfluorotetradecanoic acid										a
712.8 > 668.6	8.423	8.514	-0.091	1.005	591	0.0430	Target=1.00		5.2	
712.8 > 168.8	8.514	8.514	0.0	0.000	0		0.00(0.90-1.10)			
712.8 > 218.8	8.514	8.514	0.0	0.000	0		0.00(0.90-1.10)			
D 40 13C2 PFTeDA										
714.8 > 669.6	8.377	8.681	-0.304	0.000	705391	16.6		33.2	1256	a

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A34.d

Injection Date: 10-Jan-2019 00:22:18

Instrument ID: LC410

Lims ID: 480-147352-B-3-A

Lab Sample ID: 200-147352-3

Client ID: 779079

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 34

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

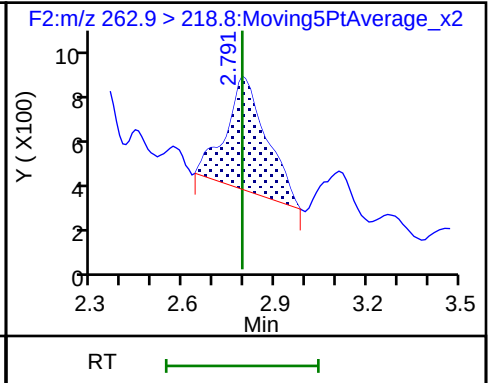
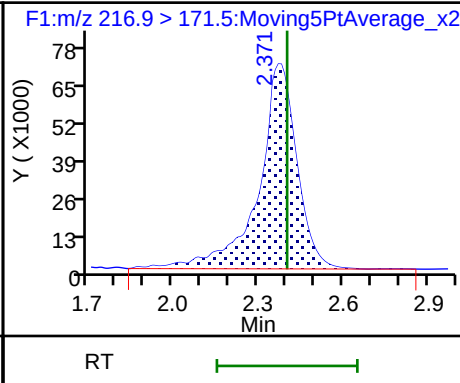
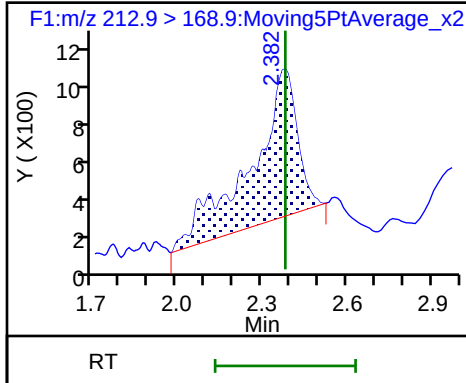
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA

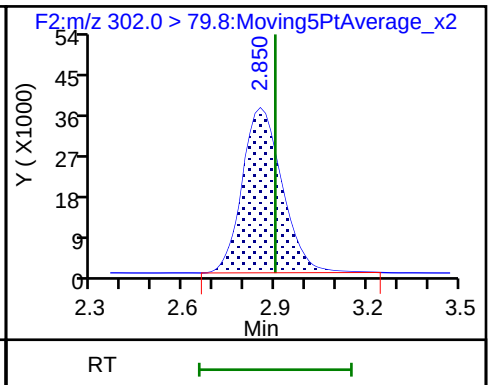
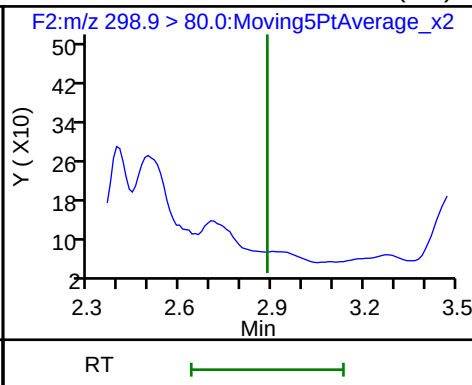
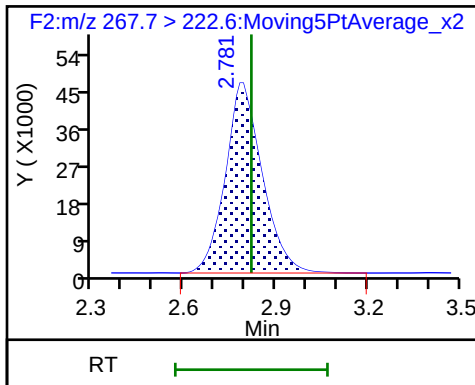
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid (ND)

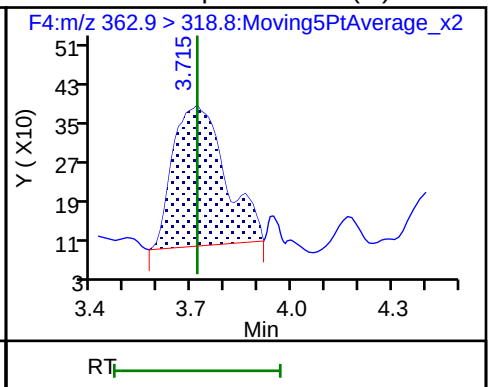
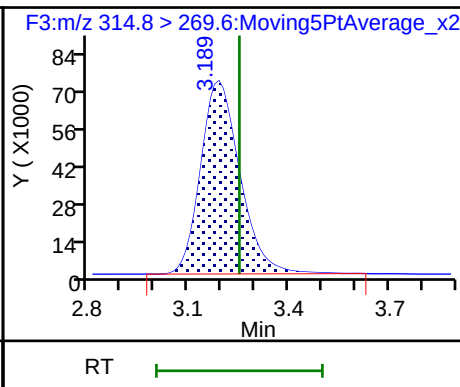
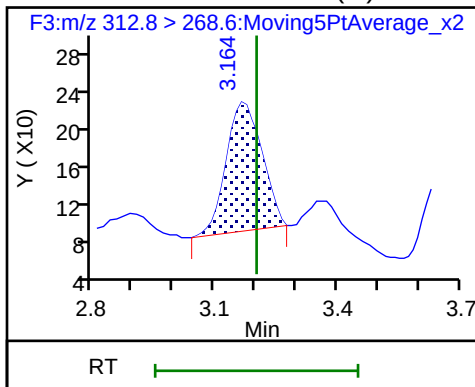
D 6 13C3 PFBS



8 Perfluorohexanoic acid (M)

D 7 13C2 PFHxA

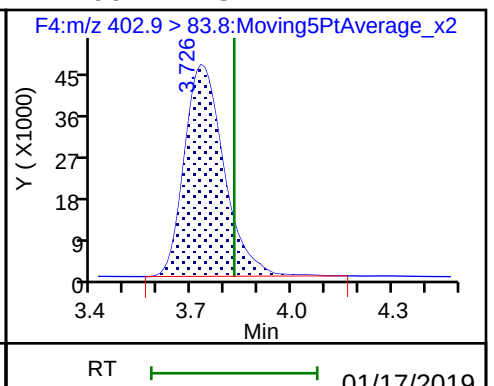
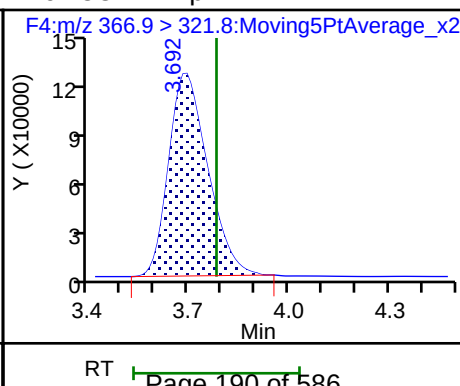
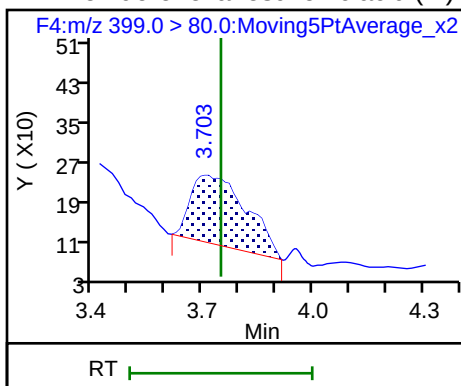
10 Perfluoroheptanoic acid (M)



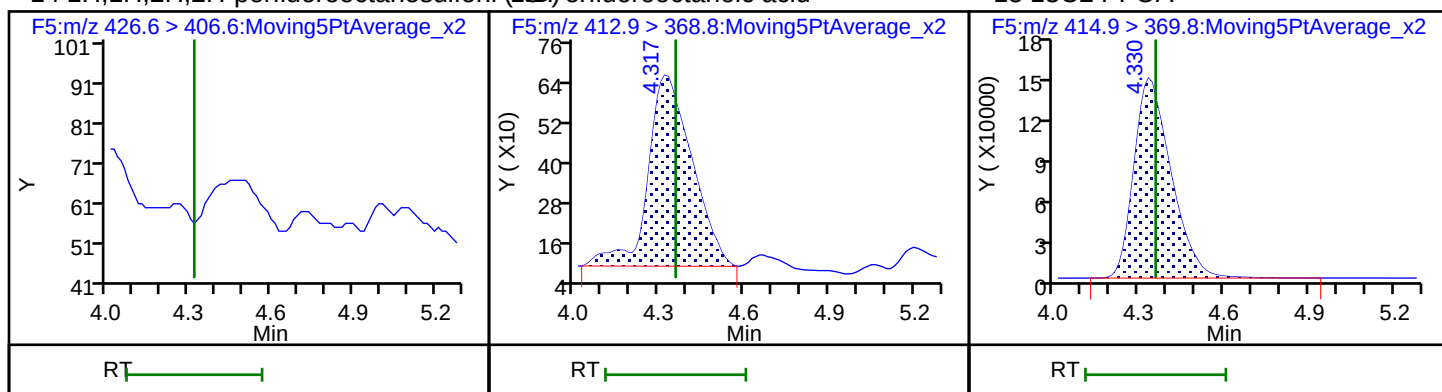
12 Perfluorohexanesulfonic acid (M)

D 9 13C4 PFHpA

D 11 18O2 PFHxS



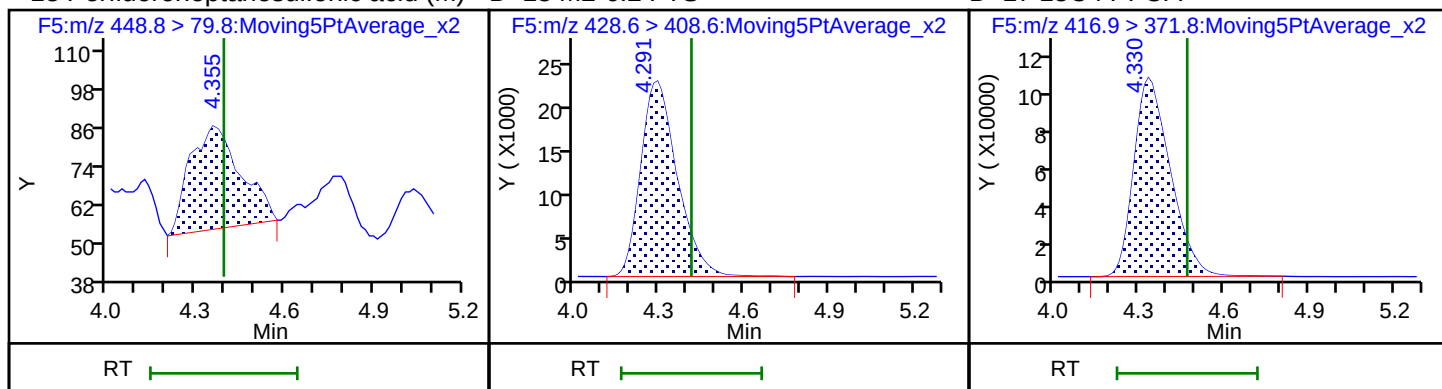
14 1H,1H,2H,2H-perfluorooctanesulfoni (M) 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid (M)

D 13 M2-6:2 FTS

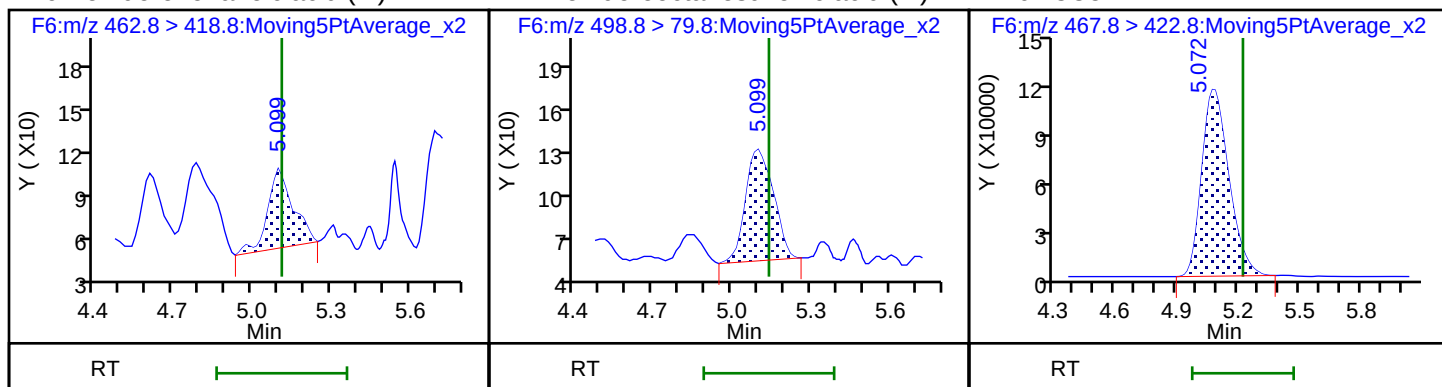
D 17 13C4 PFOA



19 Perfluorononanoic acid (M)

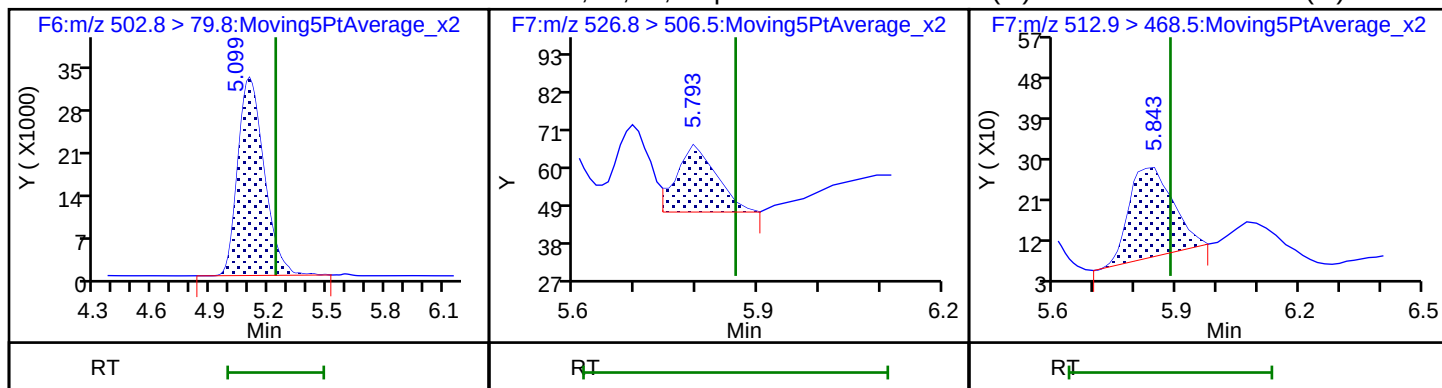
21 Perfluorooctanesulfonic acid (M)

D 20 13C5 PFNA



D 22 13C4 PFOS

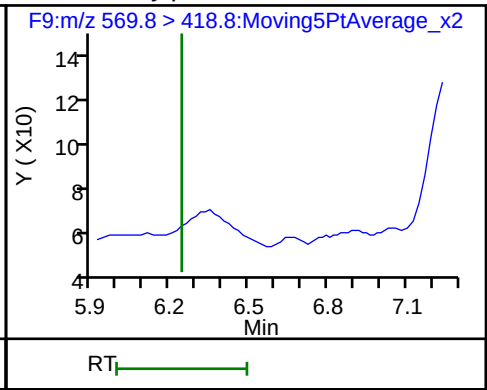
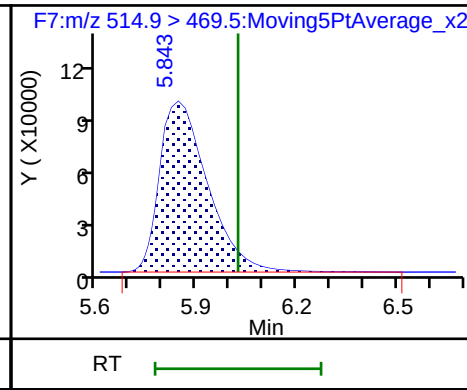
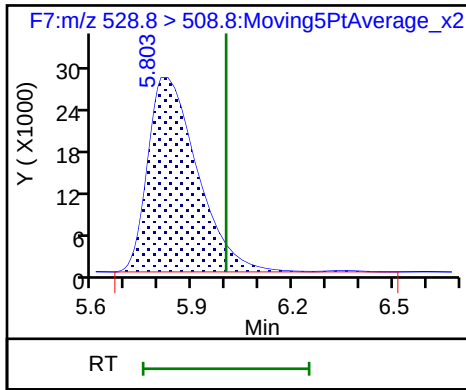
23 1H,1H,2H,2H-perfluorodecanesulfoni (M) 24 Perfluorodecanoic acid (M)



D 24 M2-8:2 FTS

D 26 13C2 PFDA

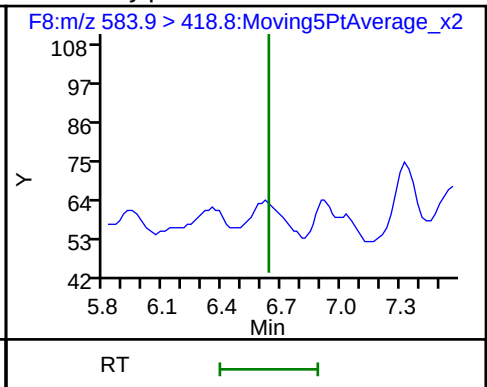
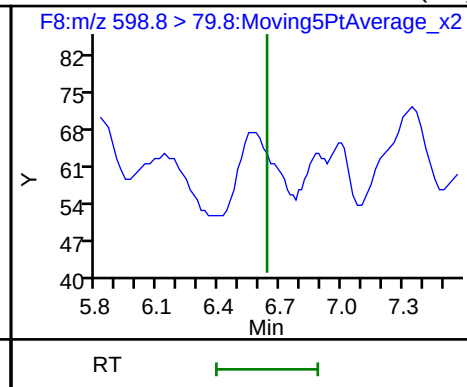
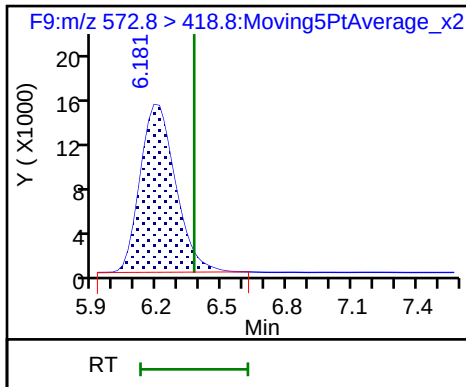
28 N-methylperfluorooctanesulfonamido (ND)



D 27 d3-NMeFOSAA

31 Perfluorodecanesulfonic acid (ND)

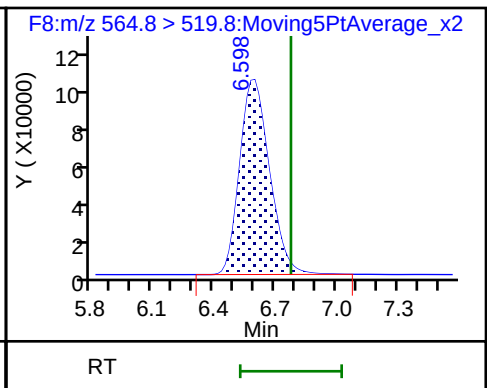
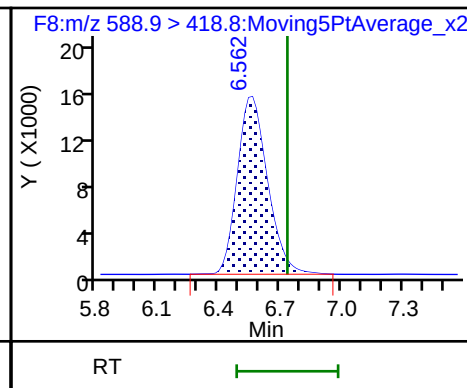
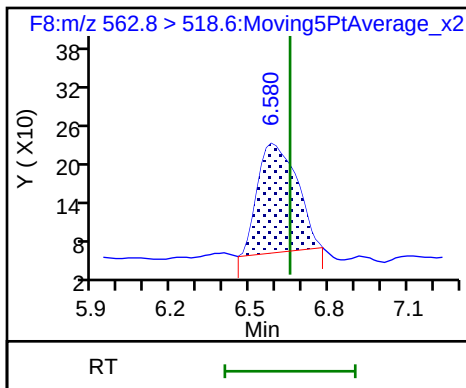
30 N-ethylperfluorooctanesulfonamidoa (ND)



33 Perfluoroundecanoic acid

D 29 d5-NEtFOSAA

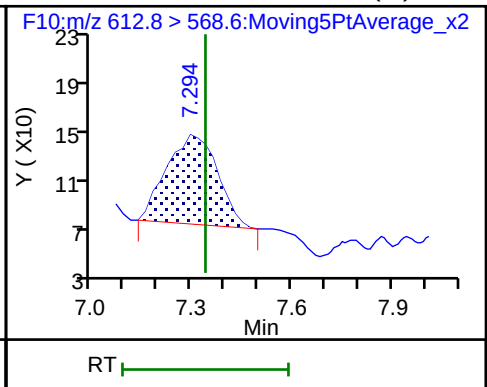
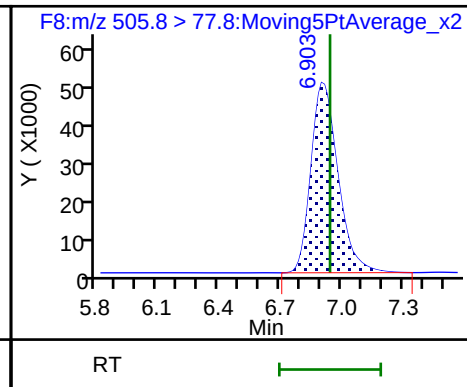
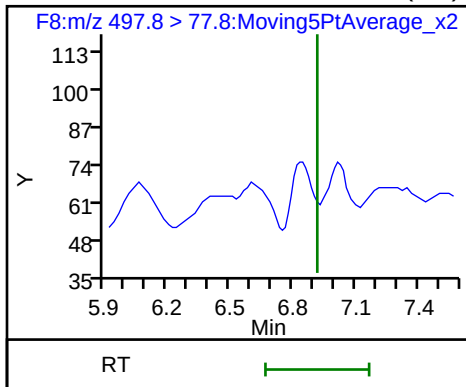
D 32 13C2 PFUnA



34 Perfluorooctanesulfonamide (ND)

D 35 13C8 FOSA

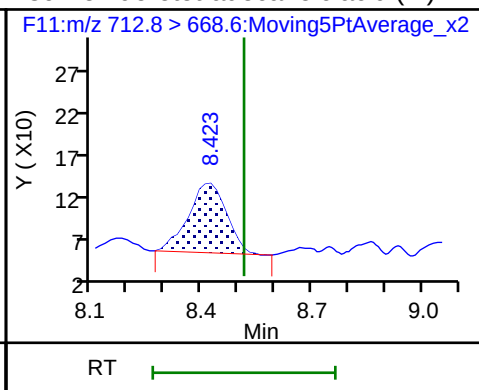
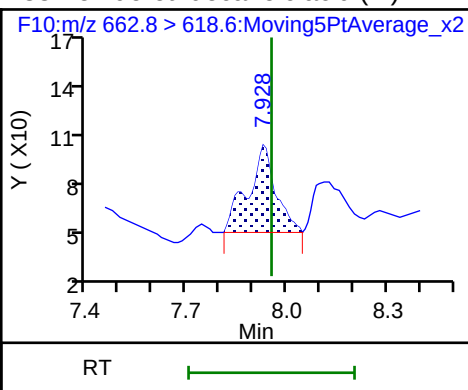
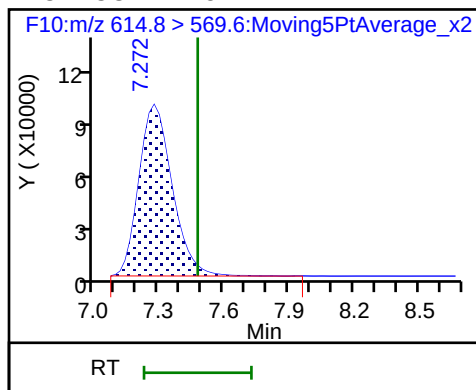
36 Perfluorododecanoic acid (M)



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (M)

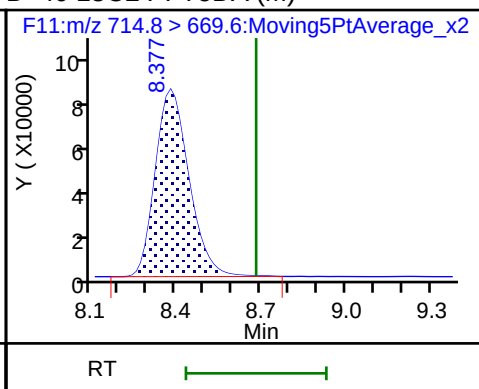
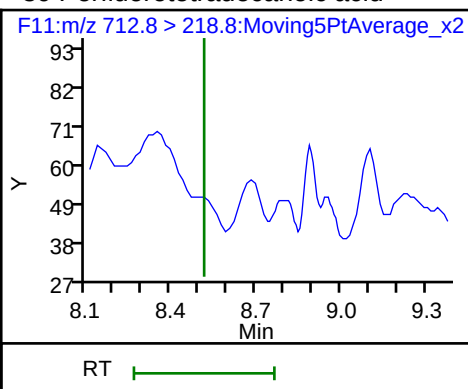
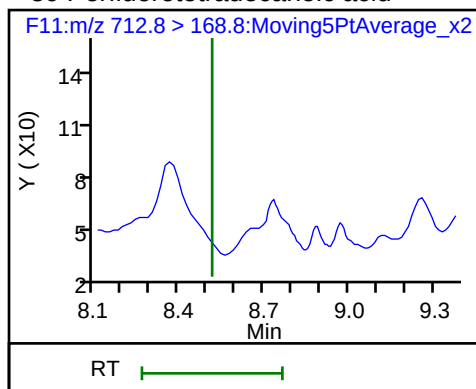
39 Perfluorotetradecanoic acid (M)



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA (M)



TestAmerica Burlington

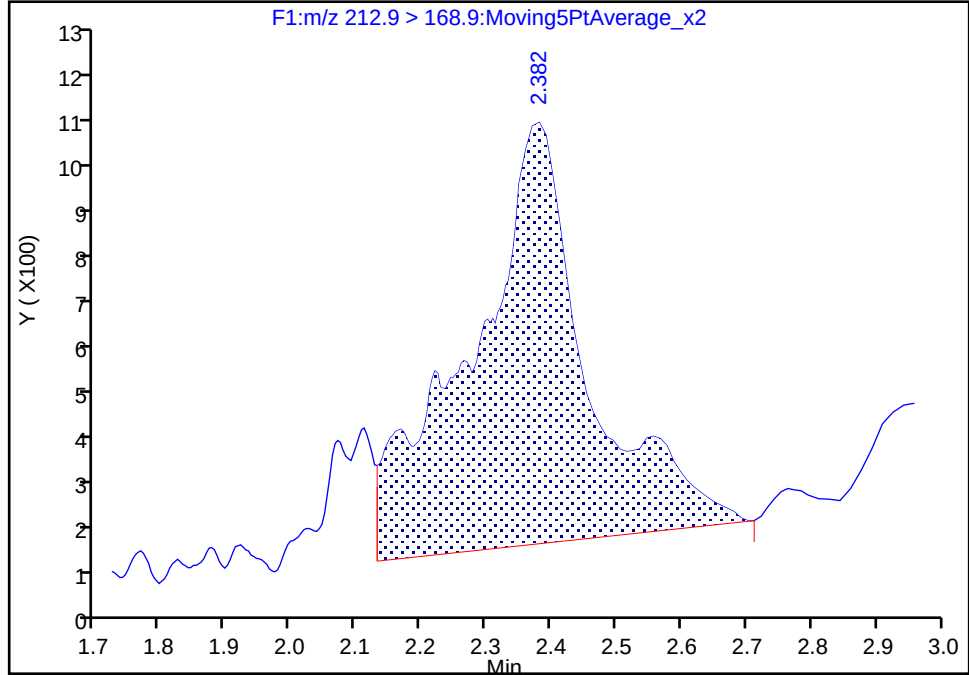
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Injection Date:	10-Jan-2019 00:22:18	Instrument ID:	LC410		
Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector:	F1:MRM		

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

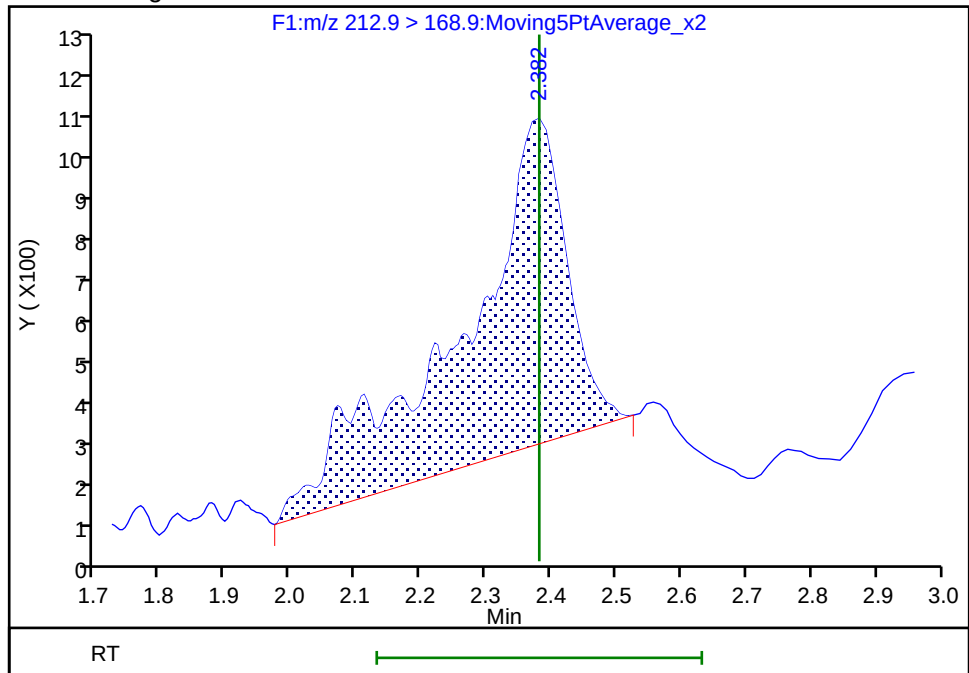
RT: 2.38
Area: 11394
Amount: 0.800478
Amount Units: ng/ml

Processing Integration Results



RT: 2.38
Area: 8776
Amount: 0.572797
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:17:02
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

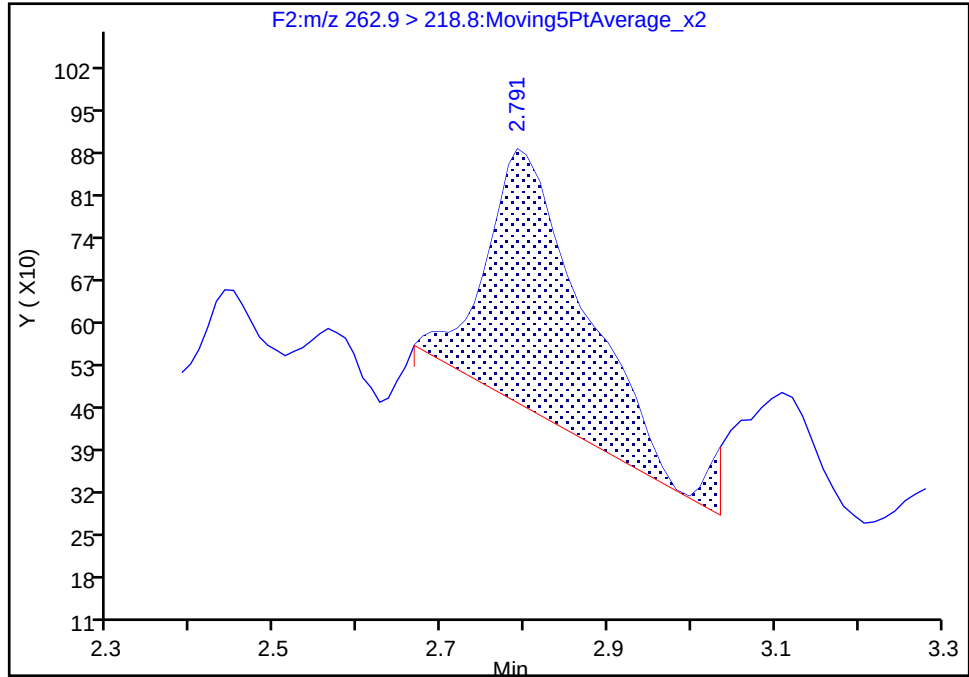
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Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F2:MRM		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

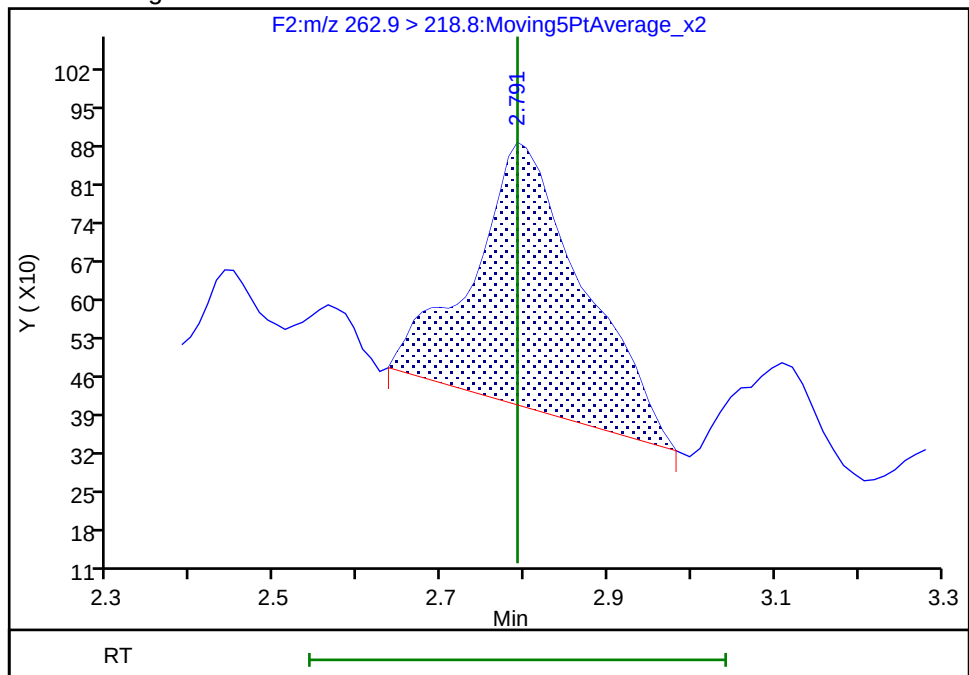
RT: 2.79
Area: 3562
Amount: 0.161851
Amount Units: ng/ml

Processing Integration Results



RT: 2.79
Area: 4470
Amount: 0.203109
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:17:14
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

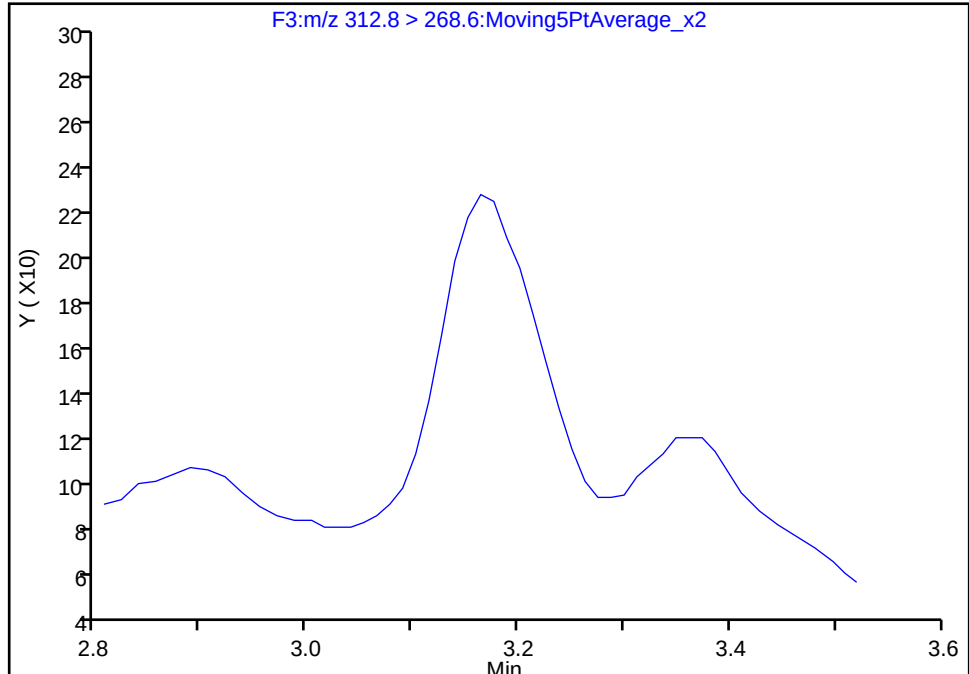
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Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F3:MRM		

8 Perfluorohexanoic acid, CAS: 307-24-4

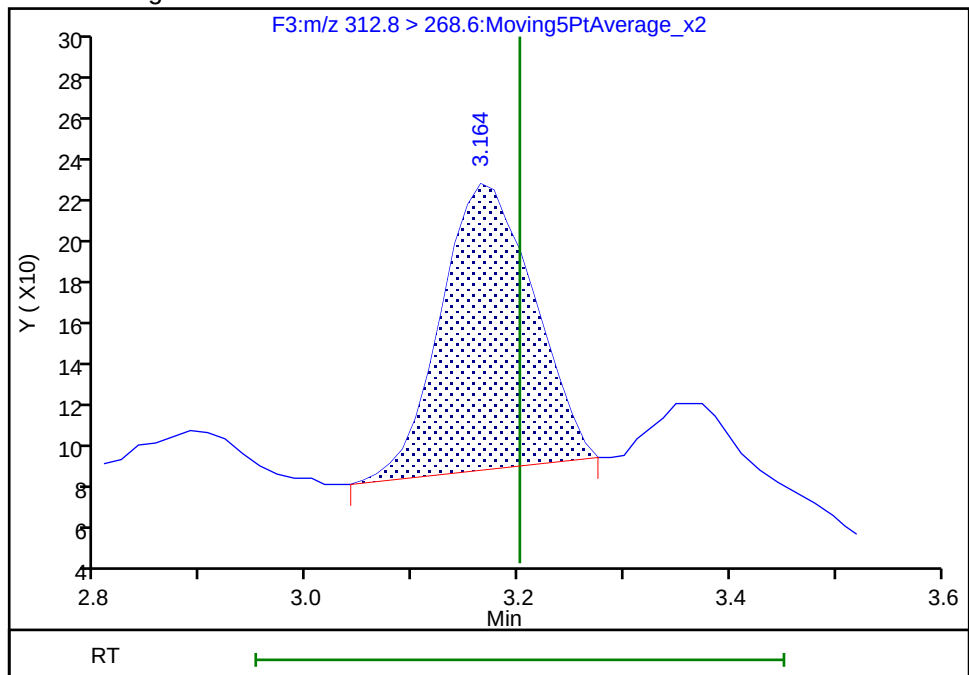
Signal: 1

Not Detected
Expected RT: 3.20

Processing Integration Results



Manual Integration Results

RT: 3.16
Area: 839
Amount: 0.067907
Amount Units: ng/ml

Reviewer: murrayjw, 10-Jan-2019 11:17:27

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Burlington

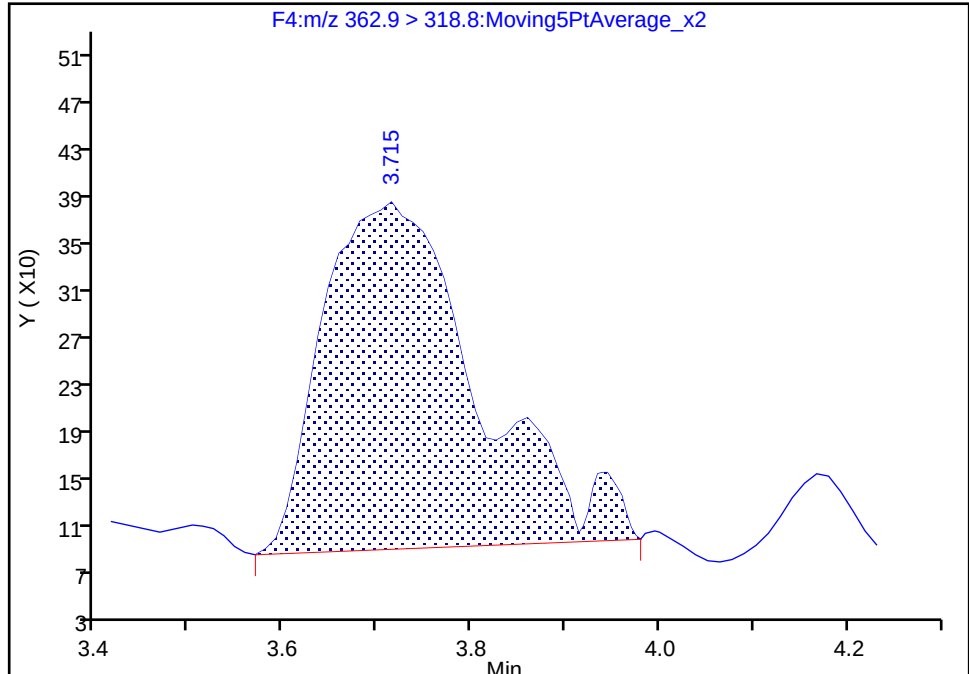
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Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F4:MRM		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

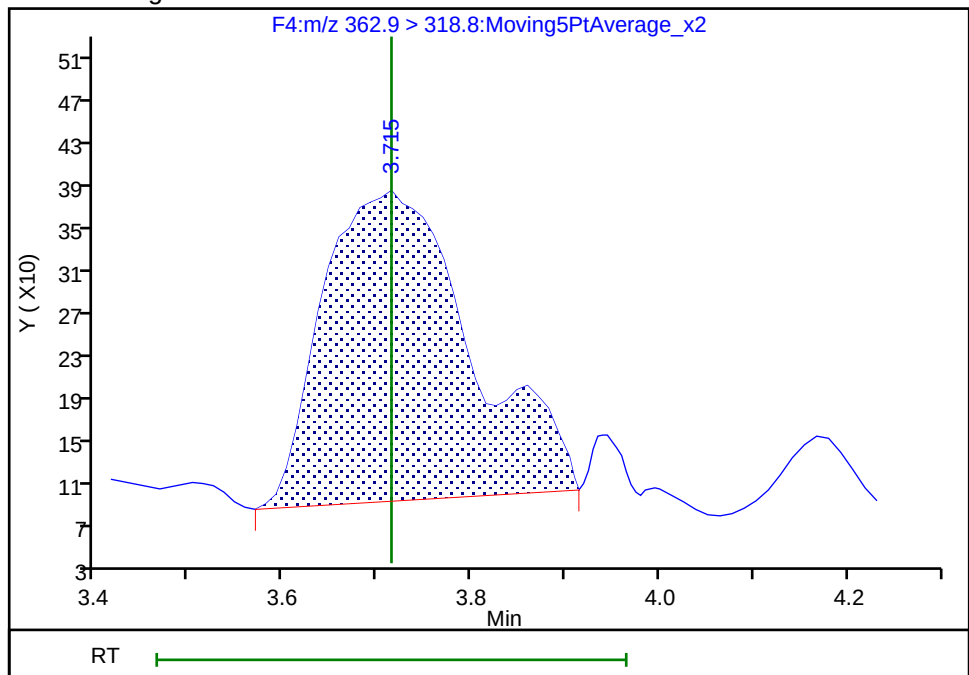
RT: 3.71
Area: 3345
Amount: 0.172138
Amount Units: ng/ml

Processing Integration Results



RT: 3.71
Area: 3142
Amount: 0.161691
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:17:39
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

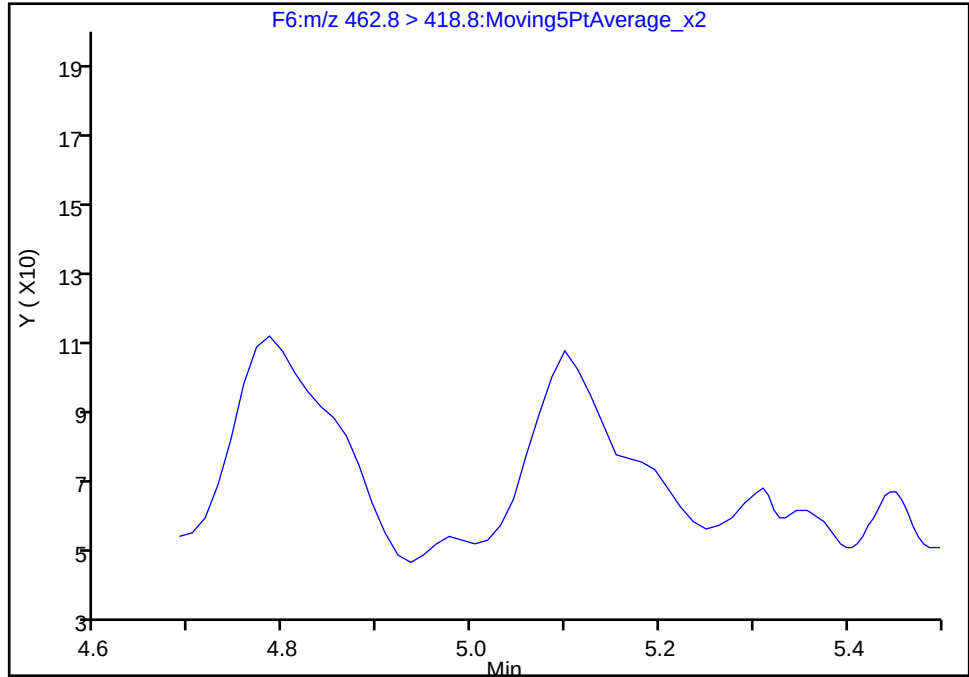
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Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector:	F6:MRM		

19 Perfluorononanoic acid, CAS: 375-95-1

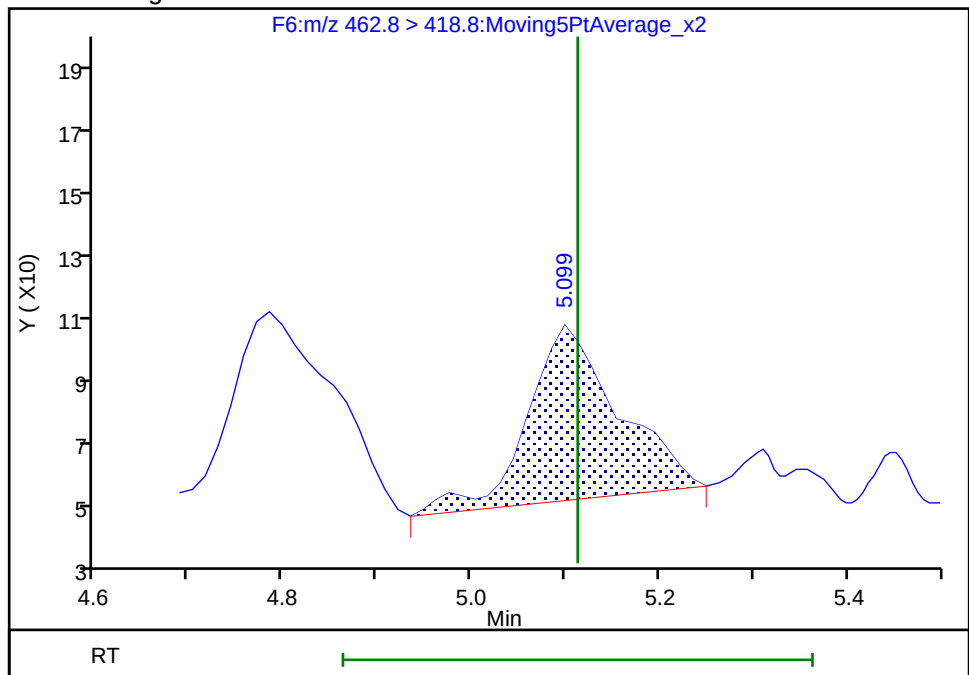
Signal: 1

Not Detected
Expected RT: 5.11

Processing Integration Results



Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 11:18:19
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Burlington

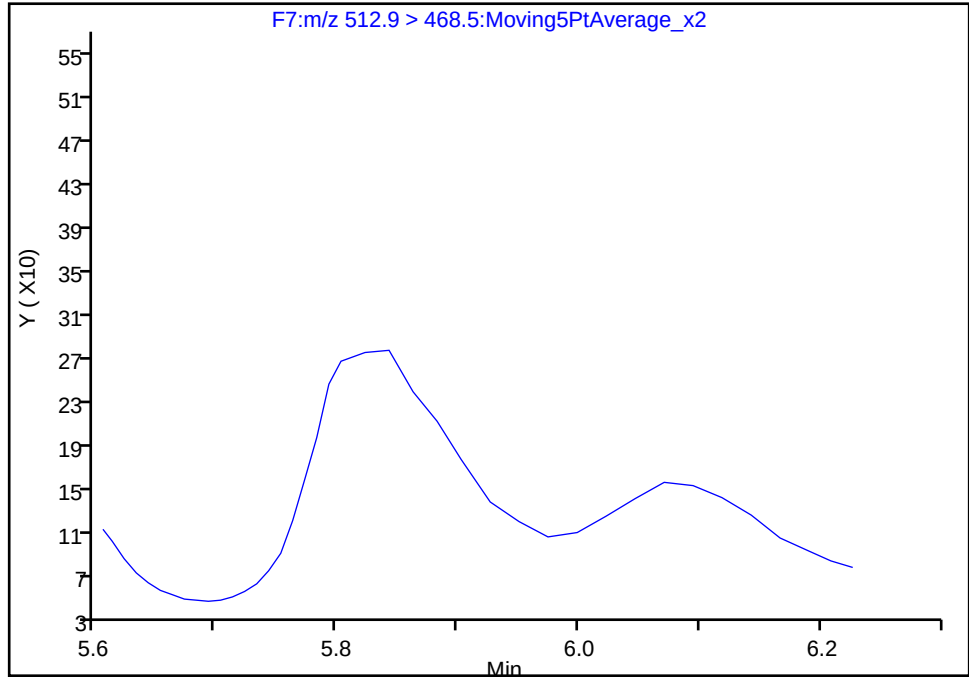
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A34.d				
Injection Date:	10-Jan-2019 00:22:18	Instrument ID:	LC410		
Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F7:MRM		

25 Perfluorodecanoic acid, CAS: 335-76-2

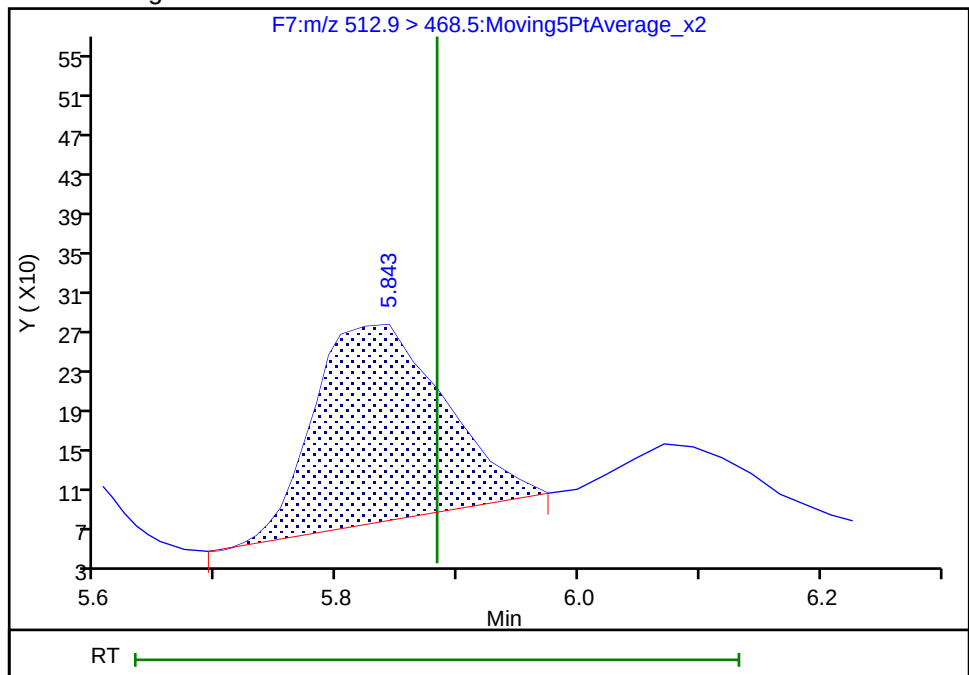
Signal: 1

Not Detected
Expected RT: 5.88

Processing Integration Results

RT: 5.84
Area: 1504
Amount: 0.074516
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 11:18:43
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

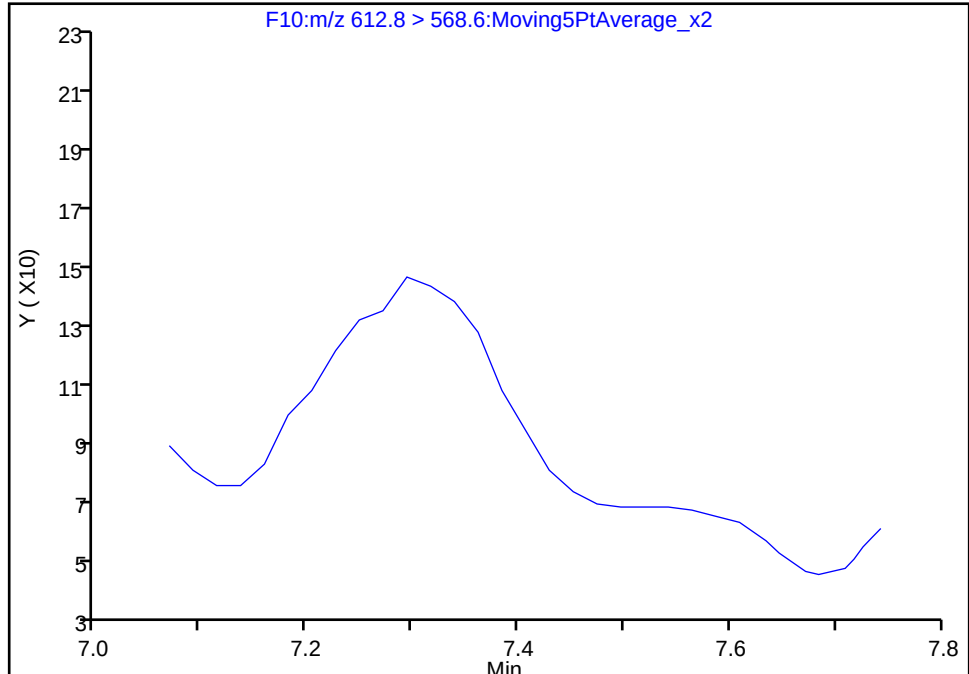
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A34.d				
Injection Date:	10-Jan-2019 00:22:18	Instrument ID:	LC410		
Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F10:MRM		

36 Perfluorododecanoic acid, CAS: 307-55-1

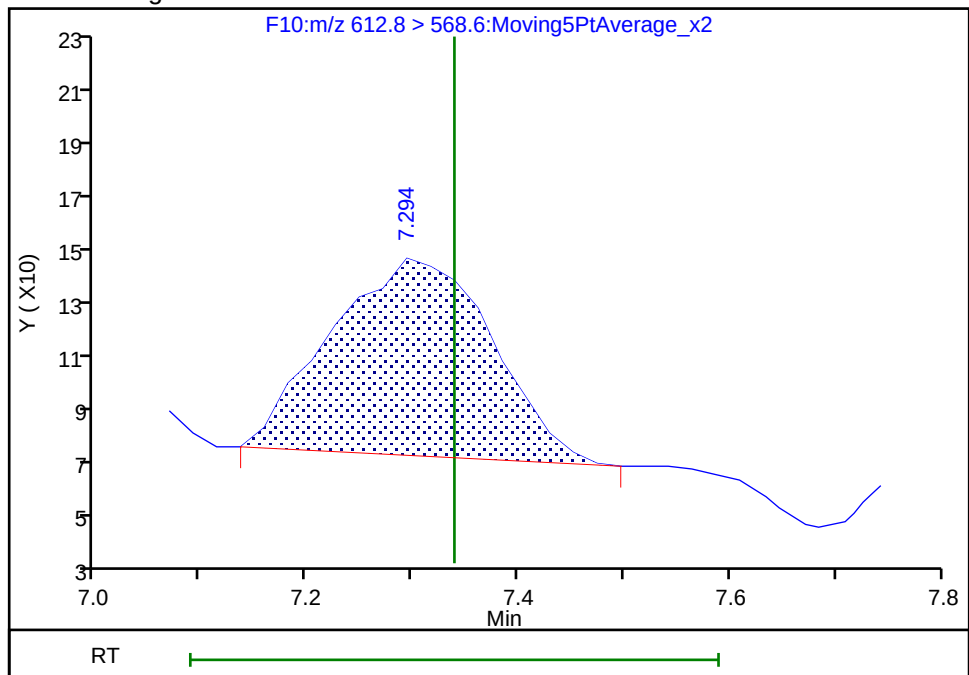
Signal: 1

Not Detected
Expected RT: 7.34

Processing Integration Results

RT: 7.29
Area: 752
Amount: 0.043729
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 11:18:58
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

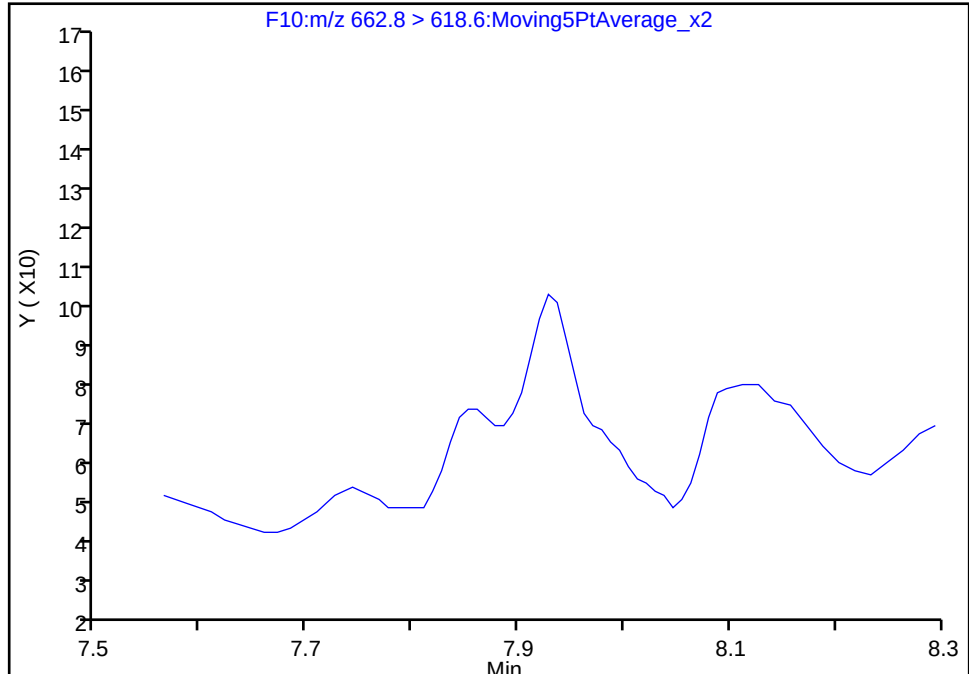
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A34.d				
Injection Date:	10-Jan-2019 00:22:18	Instrument ID:	LC410		
Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F10:MRM		

38 Perfluorotridecanoic acid, CAS: 72629-94-8

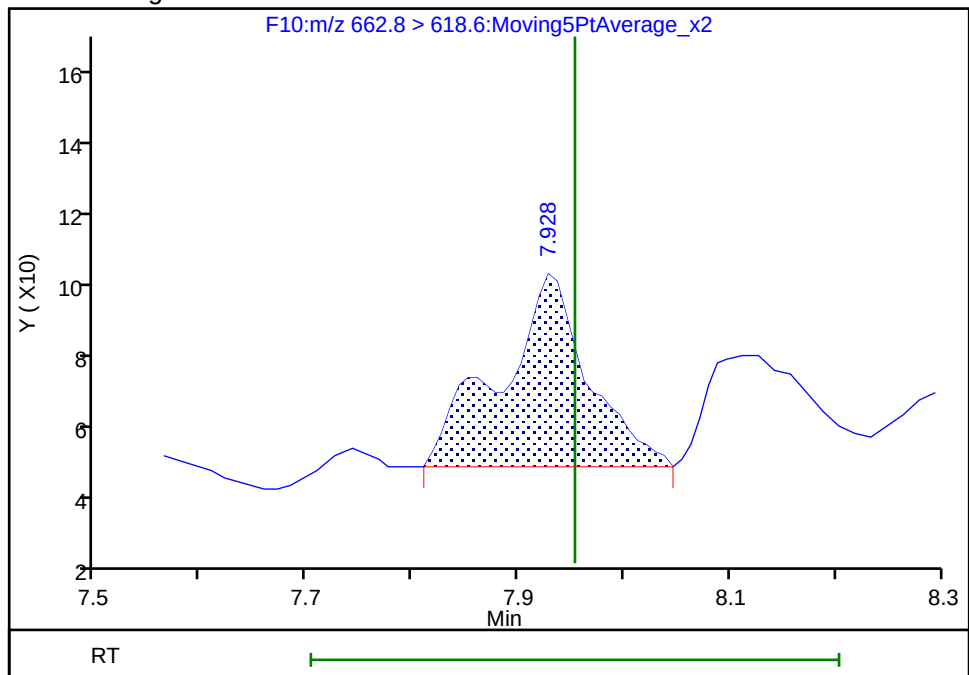
Signal: 1

Not Detected
Expected RT: 7.95

Processing Integration Results



Manual Integration Results

RT: 7.93
Area: 299
Amount: 0.021682
Amount Units: ng/mlReviewer: murrayjw, 10-Jan-2019 11:19:04
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

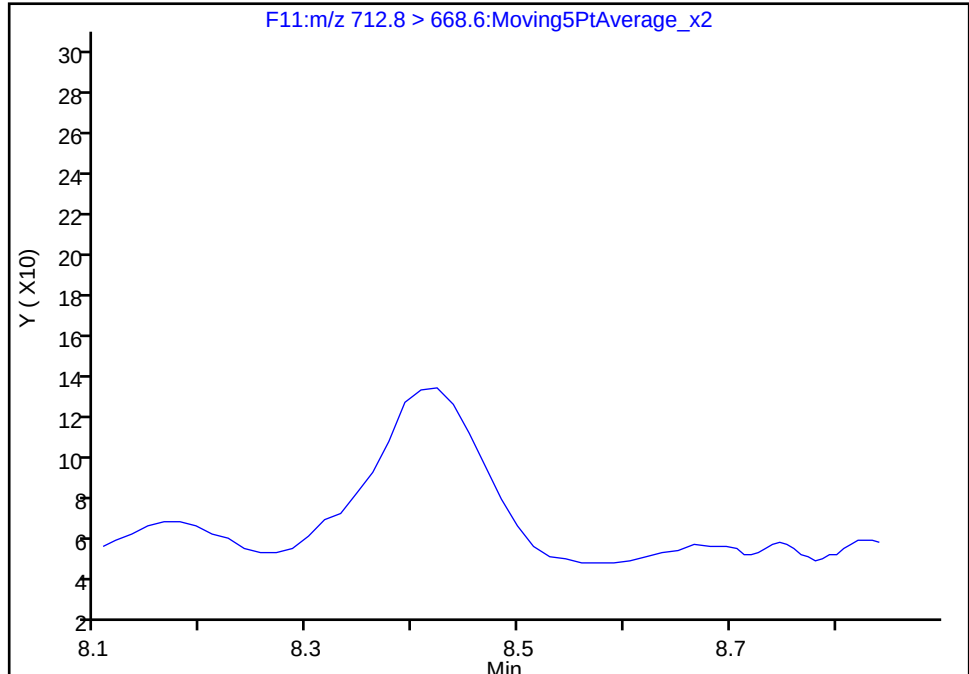
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A34.d				
Injection Date:	10-Jan-2019 00:22:18	Instrument ID:	LC410		
Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F11:MRM		

39 Perfluorotetradecanoic acid, CAS: 376-06-7

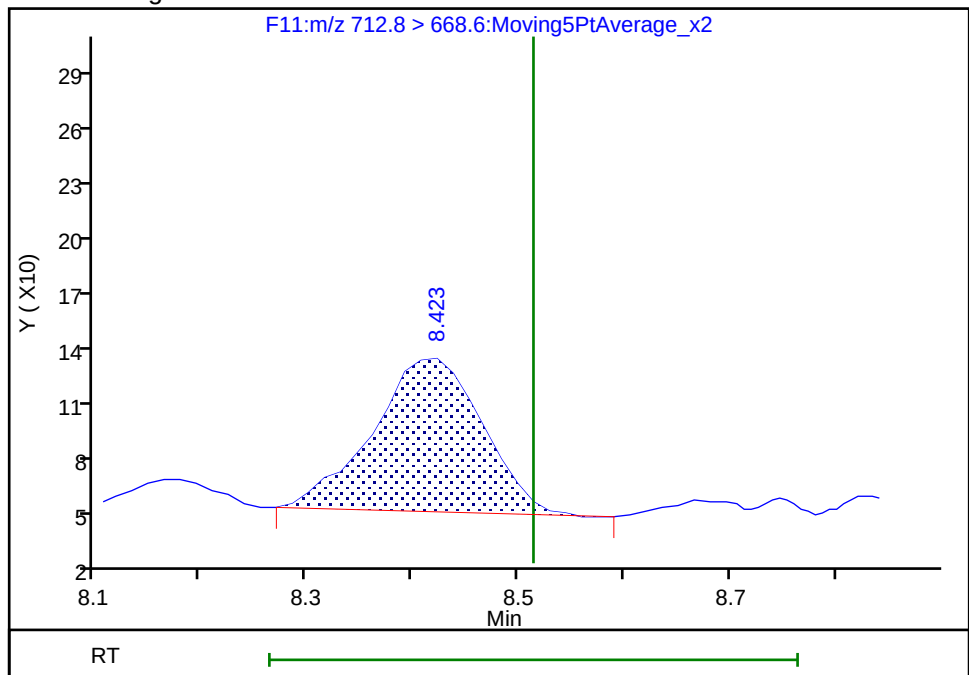
Signal: 1

Not Detected
Expected RT: 8.51

Processing Integration Results

RT: 8.42
Area: 591
Amount: 0.042975
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 11:19:15
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Burlington

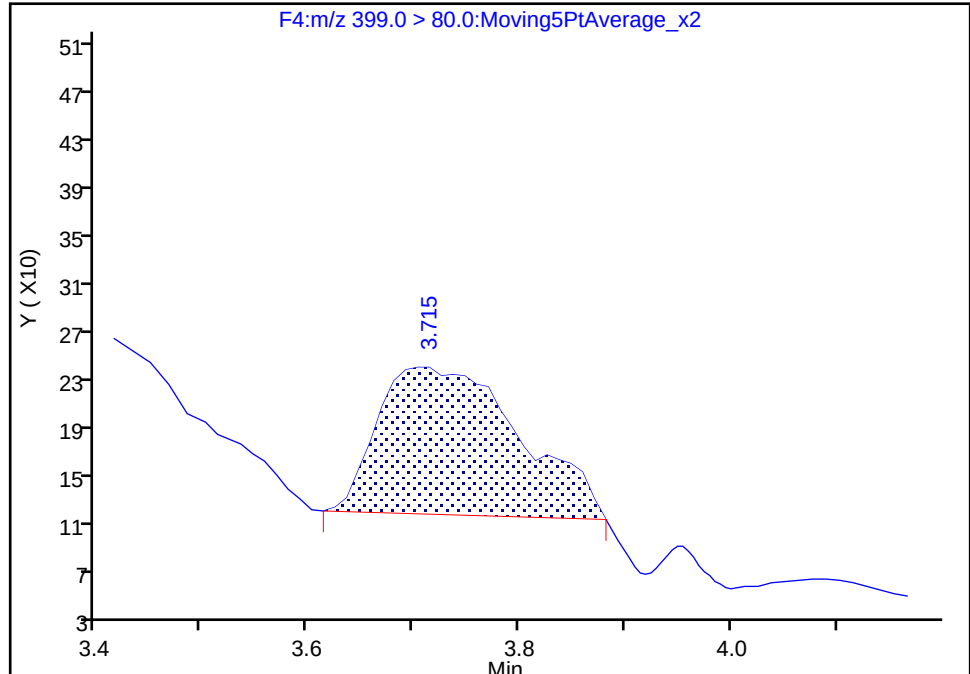
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A34.d				
Injection Date:	10-Jan-2019 00:22:18	Instrument ID:	LC410		
Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F4:MRM		

12 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

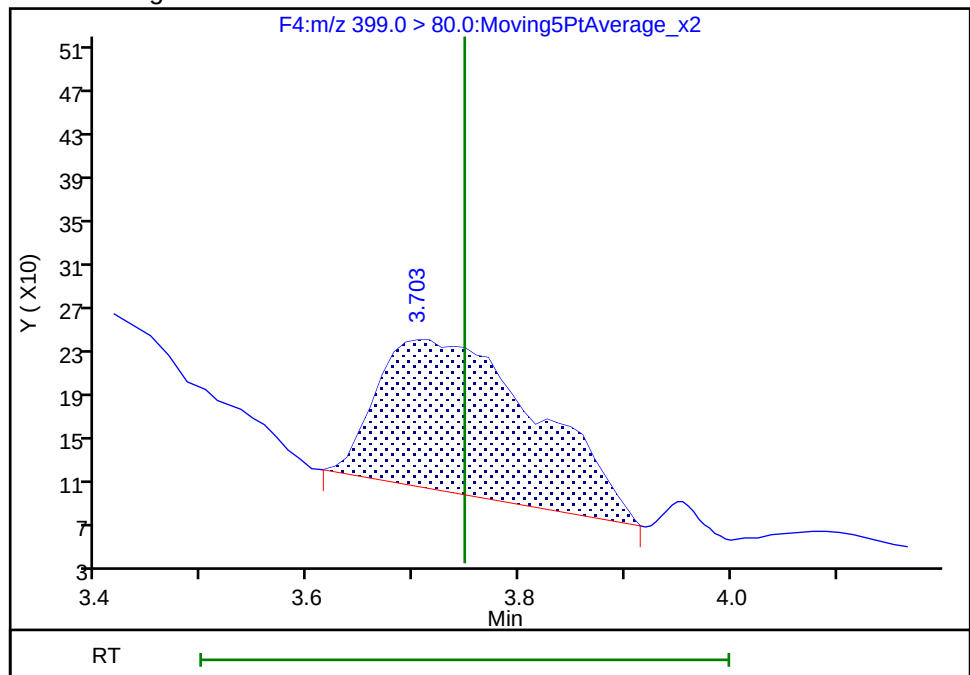
RT: 3.71
Area: 1127
Amount: -0.145495
Amount Units: ng/ml

Processing Integration Results



RT: 3.70
Area: 1471
Amount: -0.117508
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:17:47

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

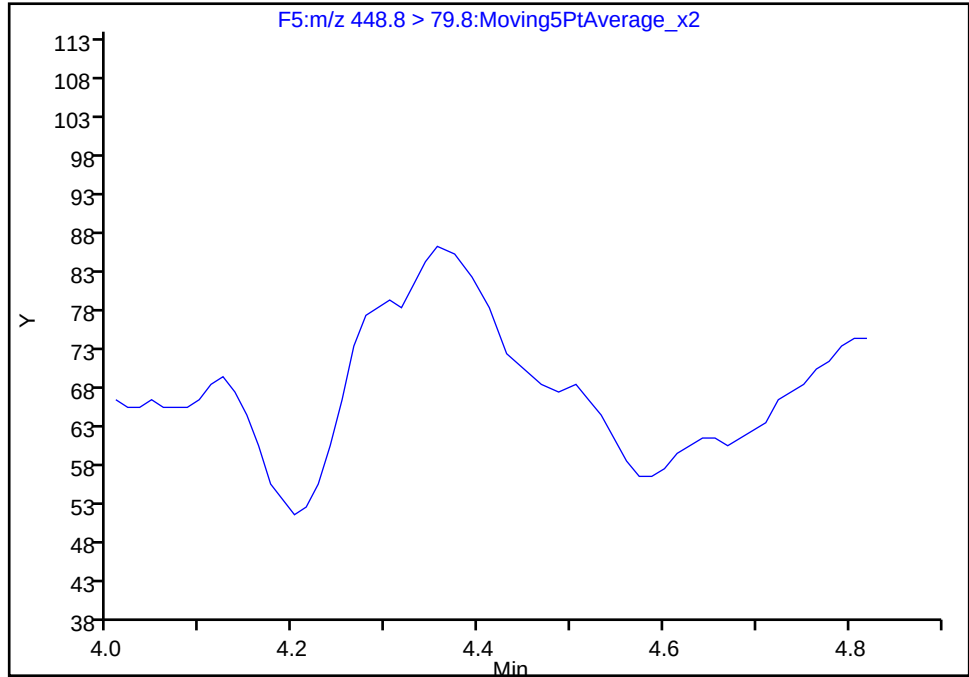
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A34.d				
Injection Date:	10-Jan-2019 00:22:18	Instrument ID:	LC410		
Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F5:MRM		

18 Perfluoroheptanesulfonic acid, CAS: 375-92-8

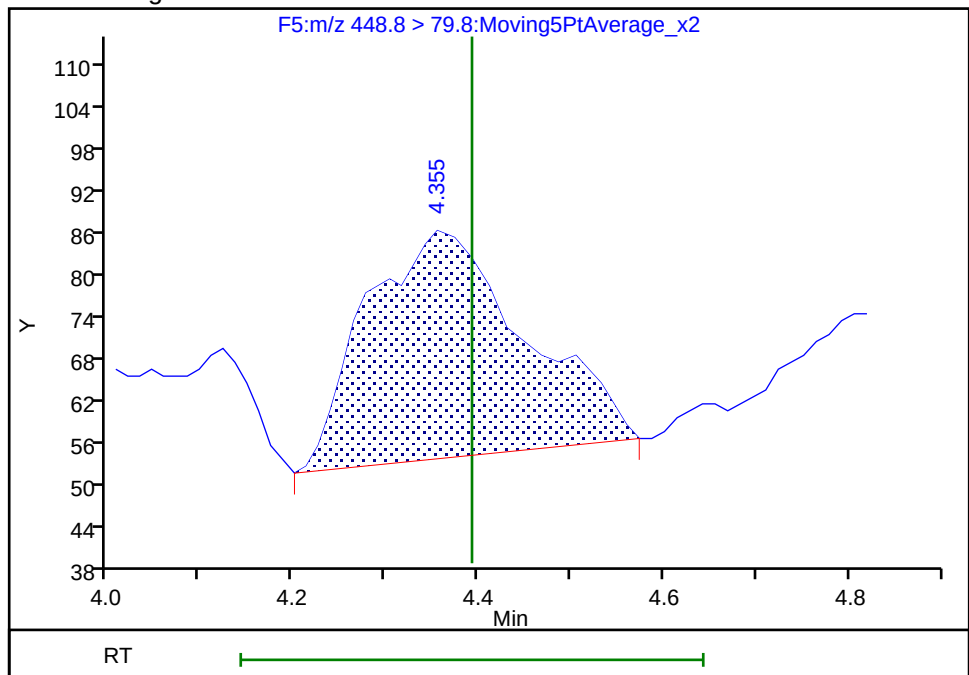
Signal: 1

Not Detected
Expected RT: 4.39

Processing Integration Results



Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 11:18:05
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Burlington

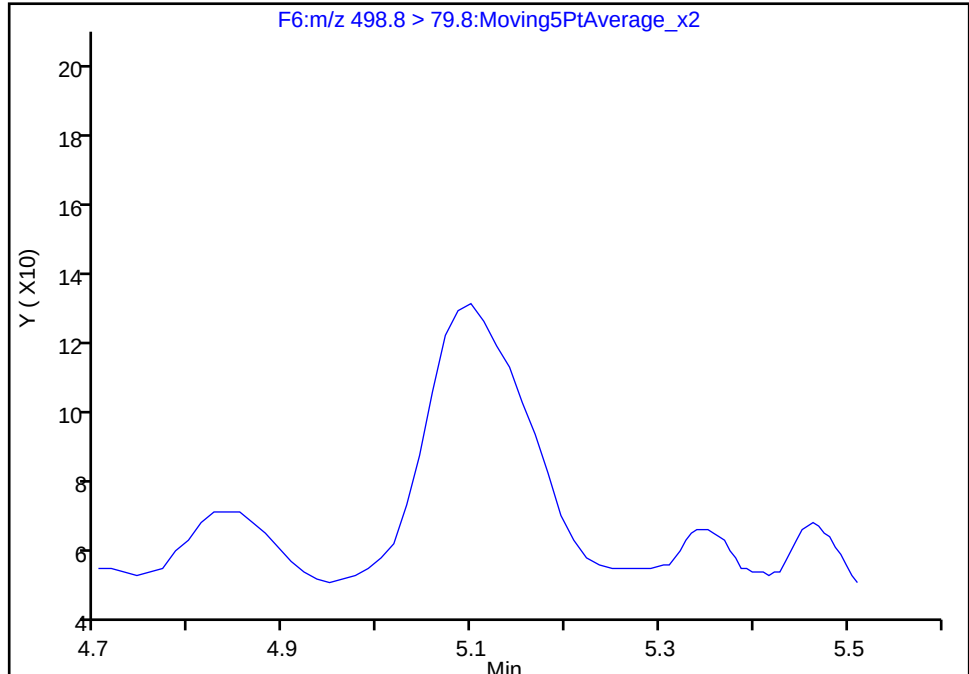
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A34.d				
Injection Date:	10-Jan-2019 00:22:18	Instrument ID:	LC410		
Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F6:MRM		

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

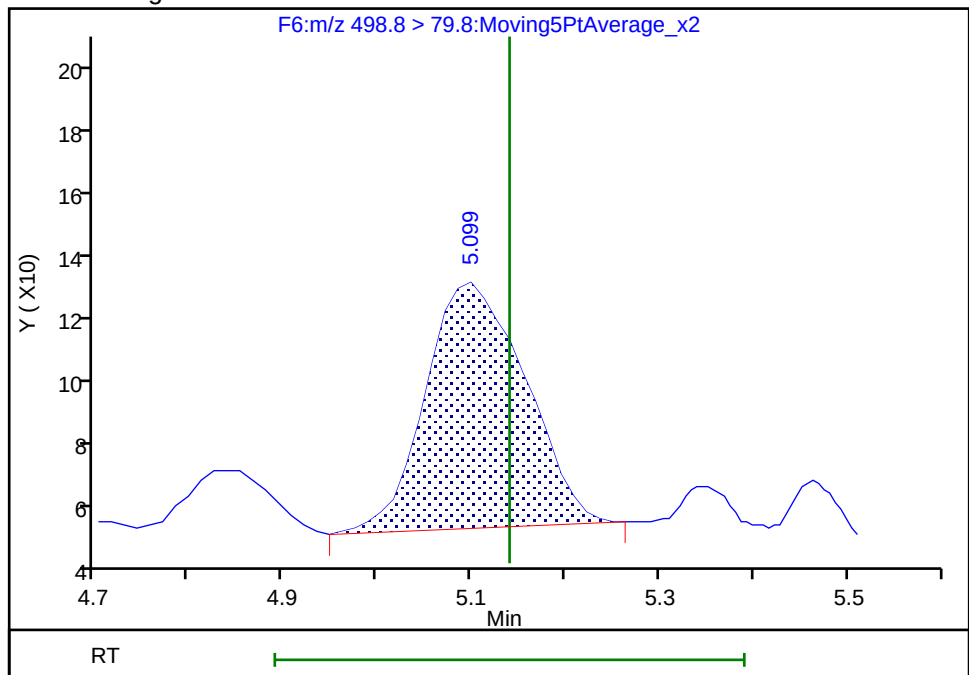
Signal: 1

Not Detected
Expected RT: 5.14

Processing Integration Results



Manual Integration Results

RT: 5.10
Area: 567
Amount: 0.084380
Amount Units: ng/mlReviewer: murrayjw, 10-Jan-2019 11:18:15
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

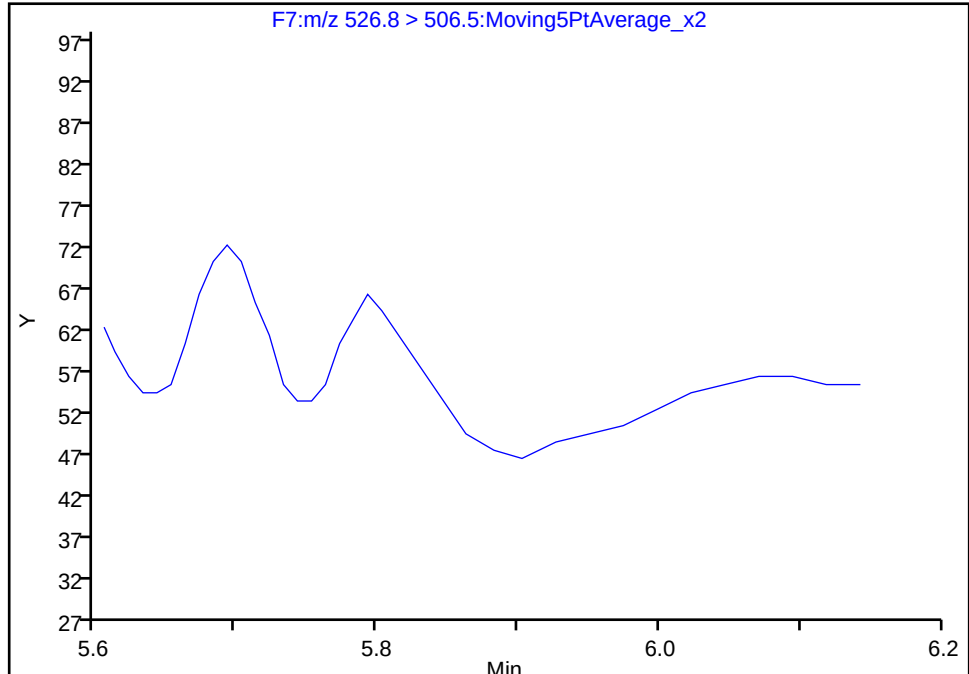
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A34.d				
Injection Date:	10-Jan-2019 00:22:18	Instrument ID:	LC410		
Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3		
Client ID:	779079				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F7:MRM		

23 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:, CAS: 39108-34-4

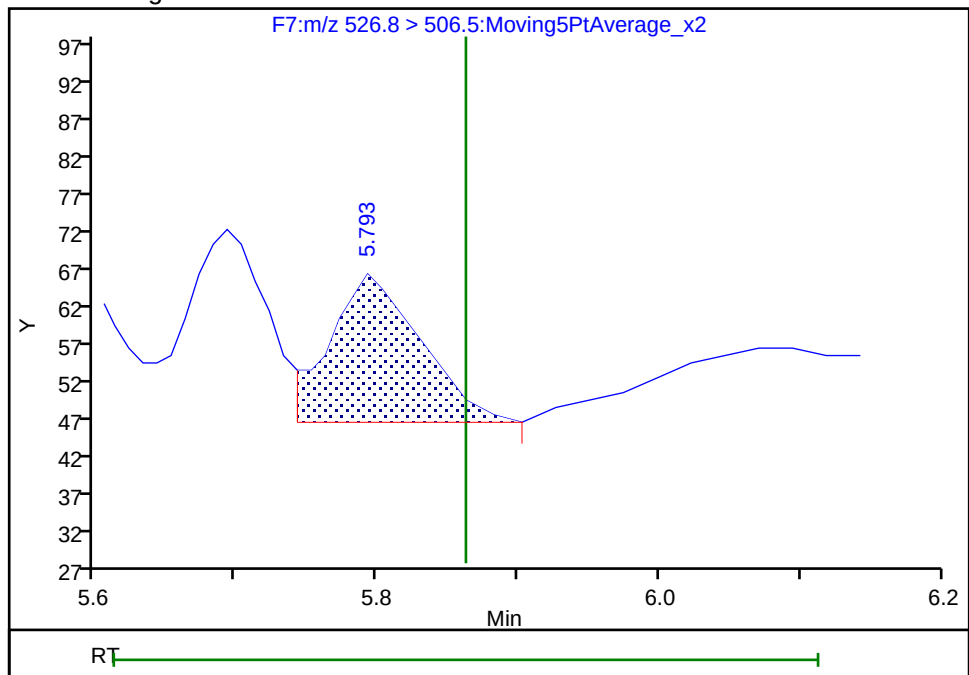
Signal: 1

Not Detected
Expected RT: 5.86

Processing Integration Results

RT: 5.79
Area: 88
Amount: 0.017930
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 11:18:35
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

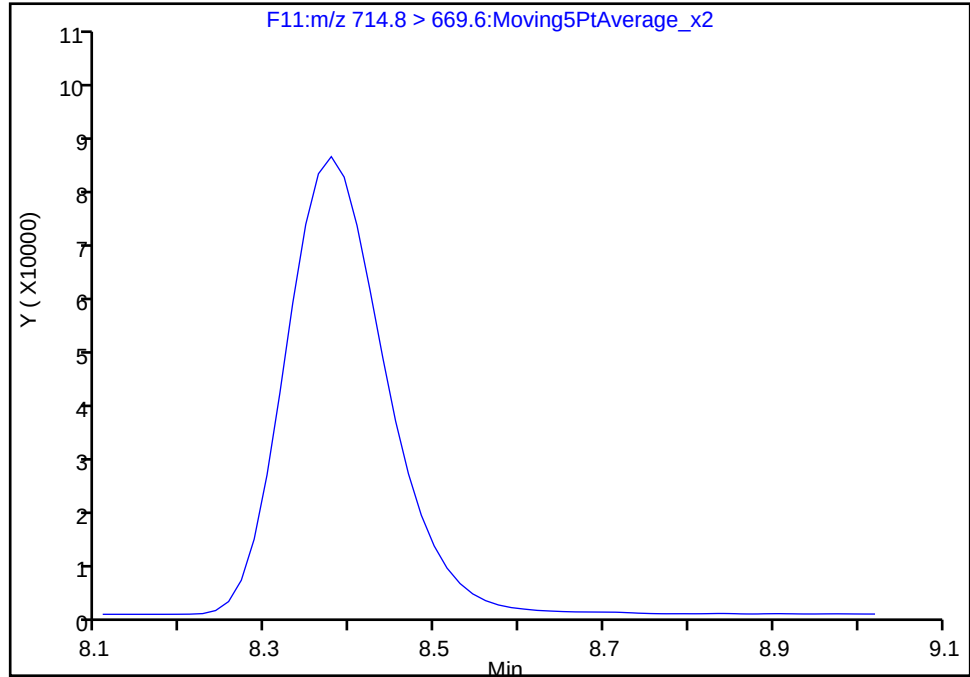
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A34.d		
Injection Date:	10-Jan-2019 00:22:18	Instrument ID:	LC410
Lims ID:	480-147352-B-3-A	Lab Sample ID:	200-147352-3
Client ID:	779079		
Operator ID:	BC	ALS Bottle#:	0 Worklist Smp#: 34
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector	F11:MRM

D 40 13C2 PFTeDA, CAS: STL02116

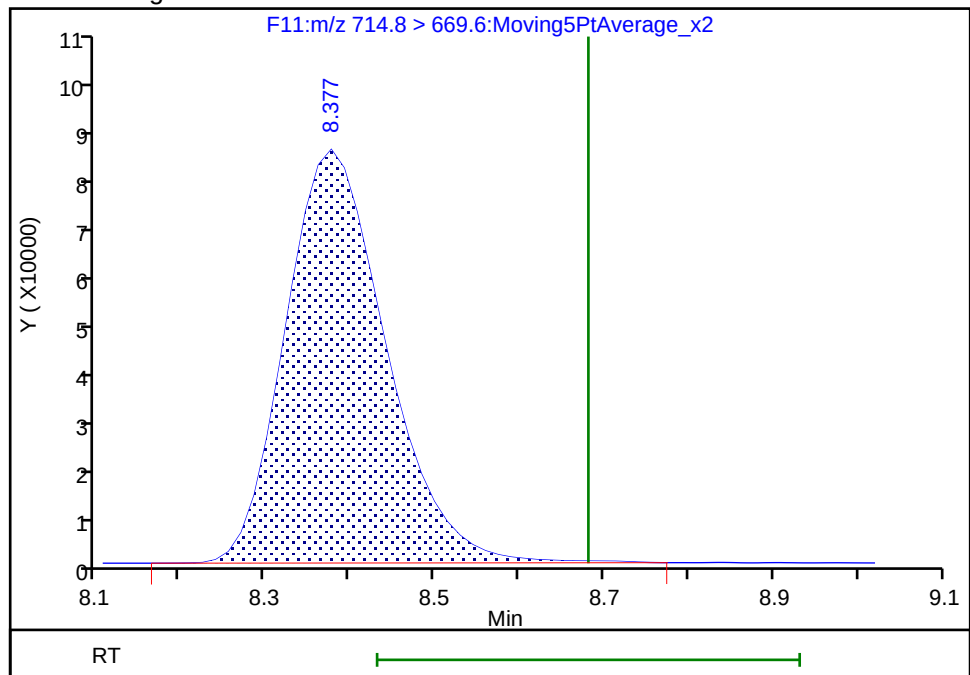
Signal: 1

Not Detected
Expected RT: 8.68

Processing Integration Results

RT: 8.38
Area: 705391
Amount: 16.601093
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 11:19:11
Audit Action: Assigned Compound IDAudit Reason: Missed Peak
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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779081</u>	Lab Sample ID: <u>480-147352-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A35.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:14</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>258.1 (mL)</u>	Date Analyzed: <u>01/10/2019 00:38</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>5</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND	G	340	340
2706-90-3	Perfluoropentanoic acid (PFPeA)	19		9.7	3.6
307-24-4	Perfluorohexanoic acid (PFHxA)	76		9.7	1.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	41		9.7	1.5
375-95-1	Perfluorononanoic acid (PFNA)	ND		9.7	1.8
335-76-2	Perfluorodecanoic acid (PFDA)	ND		9.7	1.8
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		9.7	1.2
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		9.7	1.7
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		9.7	1.2
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		9.7	2.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	19		9.7	2.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	39		9.7	1.3
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	5.2	J	9.7	4.0
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	260		9.7	3.7
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		9.7	2.6
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND		9.7	2.7
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		97	2.2
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	13	J	97	3.4
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		97	2.7

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779081</u>	Lab Sample ID: <u>480-147352-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A35.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:14</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>258.1 (mL)</u>	Date Analyzed: <u>01/10/2019 00:38</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>5</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	106		50-150
STL01892	13C4 PFHpA	56		50-150
STL00991	13C4 PFOS	120		50-150
STL00995	13C5 PFNA	101		50-150
STL00992	13C4 PFBA	22	*	25-150
STL00993	13C2 PFHxA	36	*	50-150
STL00996	13C2 PFDA	112		50-150
STL00997	13C2 PFUnA	110		50-150
STL00998	13C2 PFDoA	77		50-150
STL01056	13C8 FOSA	102		25-150
STL01893	13C5 PFPeA	37		25-150
STL02116	13C2 PFTeDA	57		50-150
STL02118	d3-NMeFOSAA	67		50-150
STL02117	d5-NEtFOSAA	96		50-150
STL02280	M2-8:2 FTS	224	*	25-150
STL02337	13C3 PFBS	74		50-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A35.d
 Lims ID: 480-147352-A-4-A
 Client ID: 779081
 Sample Type: Client
 Inject. Date: 10-Jan-2019 00:38:09 ALS Bottle#: 0 Worklist Smp#: 35
 Injection Vol: 20.0 ul Dil. Factor: 5.0000
 Sample Info: 200-0034076-035 4
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:49 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: murrayjw

Date: 10-Jan-2019 11:22:24

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.347	2.382	-0.035	1.030	60527	34.3			3.9	M
D 1 13C4 PFBA										M
216.9 > 171.5	2.278	2.402	-0.124	1.000	20738	2.19		21.9	36.3	M
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.698	2.791	-0.093	0.992	12456	1.99			0.6	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.719	2.818	-0.099	1.000	22009	3.67		36.7	12.1	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.781	2.883	-0.102	1.000	12347	1.94			1.3	
D 6 13C3 PFBS										
302.0 > 79.8	2.781	2.900	-0.119	1.000	33993	6.87		73.9	95.4	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.090	3.201	-0.111	0.996	31834	7.86			11.8	
D 7 13C2 PFHxA										
314.8 > 269.6	3.103	3.250	-0.147	1.000	39059	3.62		36.2	91.6	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.592	3.715	-0.123	1.000	46373	4.25			40.0	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.625	3.748	-0.123	1.000	39604	4.05			4.1	
D 9 13C4 PFHpA										
366.9 > 321.8	3.592	3.782	-0.190	1.000	111614	5.64		56.4	400	
D 11 18O2 PFHxS										
402.9 > 83.8	3.625	3.826	-0.201	1.000	57416	10.0		106	577	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.201	4.355	-0.154	1.000	121344	11.6			38.7	
* 15 13C2 PFOA										
414.9 > 369.8	4.201	4.355	-0.154		160934	10.0			1451	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.201	4.393	-0.192	0.831	3118	0.5359			14.3	
D 17 13C4 PFOA										a
416.9 > 371.8	4.201	4.468	-0.267	0.000	105733	7.00		70.0	491	a
21 Perfluorooctanesulfonic acid										M
498.8 > 79.8	5.058	5.140	-0.082	1.000	170067	27.0			235	M
D 20 13C5 PFNA										
467.8 > 422.8	5.031	5.222	-0.191	1.000	204963	10.1		101	452	
D 22 13C4 PFOS										
502.8 > 79.8	5.058	5.236	-0.178	1.000	58263	11.5		120	254	
25 Perfluorodecanoic acid										M
512.9 > 468.5	5.803	5.882	-0.079	1.000	1037	0.0436			5.0	M
D 24 M2-8:2 FTS										
528.8 > 508.8	5.793	5.998	-0.205	1.000	102401	21.4		224	589	
D 26 13C2 PFDA										
514.9 > 469.5	5.803	6.022	-0.219	1.000	235384	11.2		112	2155	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.181	6.367	-0.186	1.000	36148	6.74		67.4	261	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.562	6.634	-0.072	1.003	5818	1.38			10.9	
33 Perfluoroundecanoic acid										M
562.8 > 518.6	6.616	6.652	-0.036	1.005	972	0.0395			6.2	M
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.544	6.734	-0.190	1.000	43777	9.62		96.2	417	
D 32 13C2 PFUnA										
564.8 > 519.8	6.580	6.777	-0.197	1.000	239888	11.0		110	982	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.945	-0.028	1.000	99487	10.2		102	734	
D 37 13C2 PFDoA										
614.8 > 569.6	7.272	7.474	-0.202	1.000	212778	7.69		76.9	639	
D 40 13C2 PFTeDA										
714.8 > 669.6	8.453	8.681	-0.228	1.000	144038	5.68		56.8	415	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A35.d

Injection Date: 10-Jan-2019 00:38:09

Instrument ID: LC410

Lims ID: 480-147352-A-4-A

Lab Sample ID: 200-147352-4

Client ID: 779081

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 35

Injection Vol: 20.0 ul

Dil. Factor: 5.0000

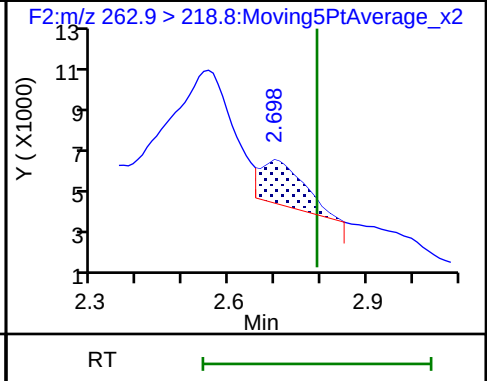
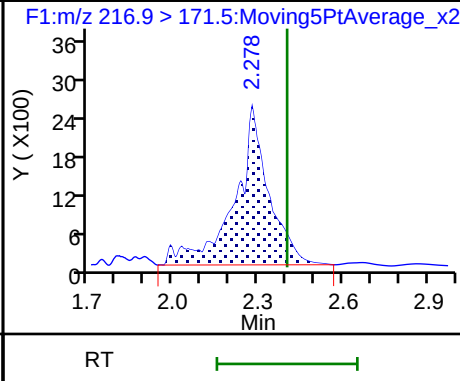
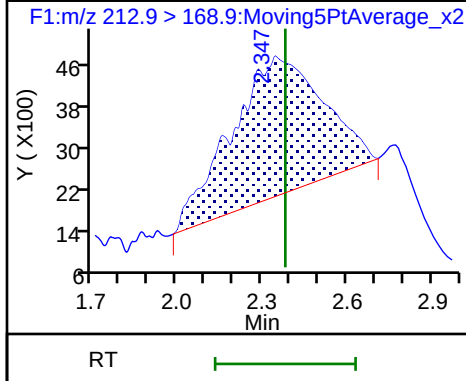
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA (M)

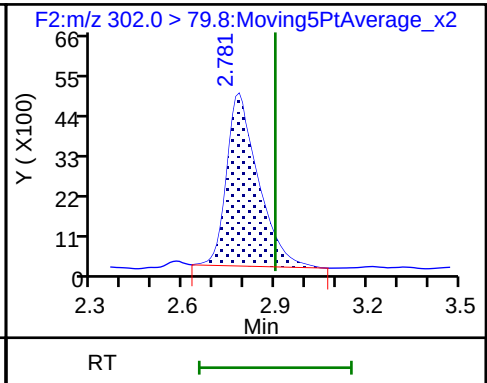
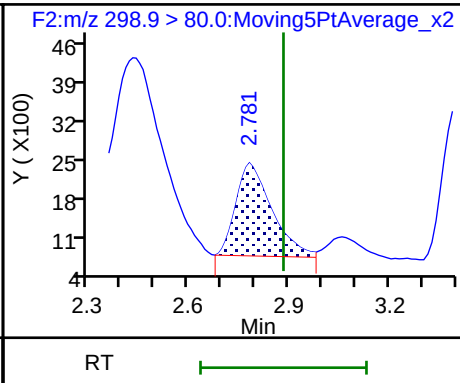
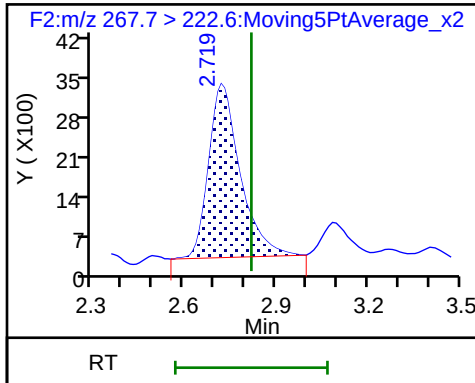
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid

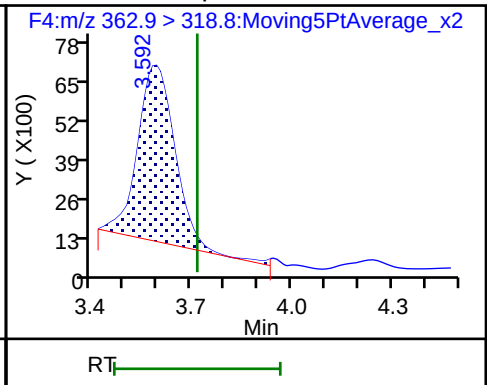
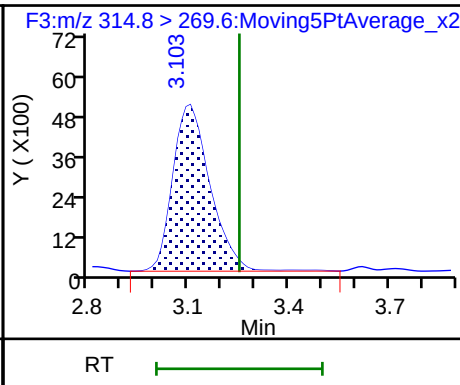
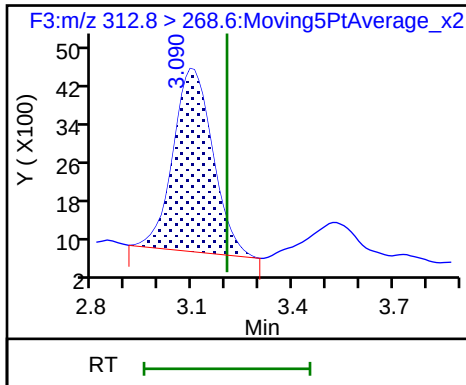
D 6 13C3 PFBS



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

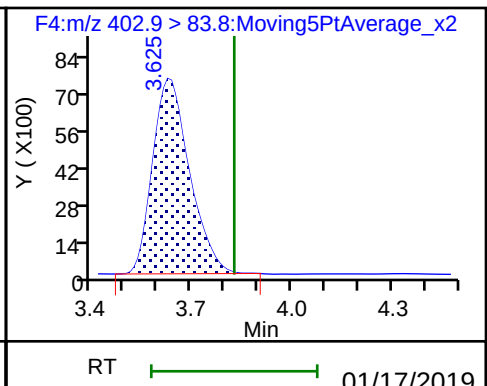
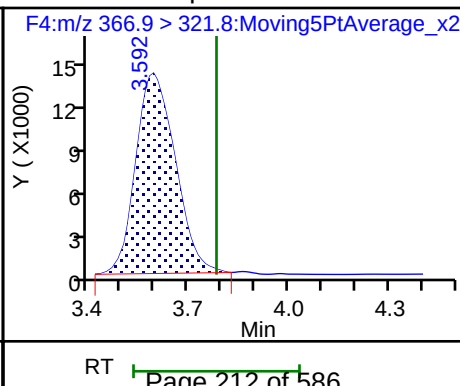
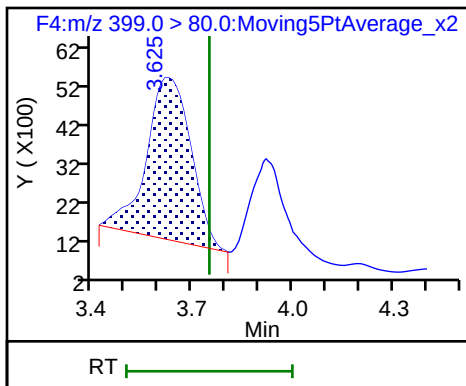
10 Perfluoroheptanoic acid



12 Perfluorohexanesulfonic acid

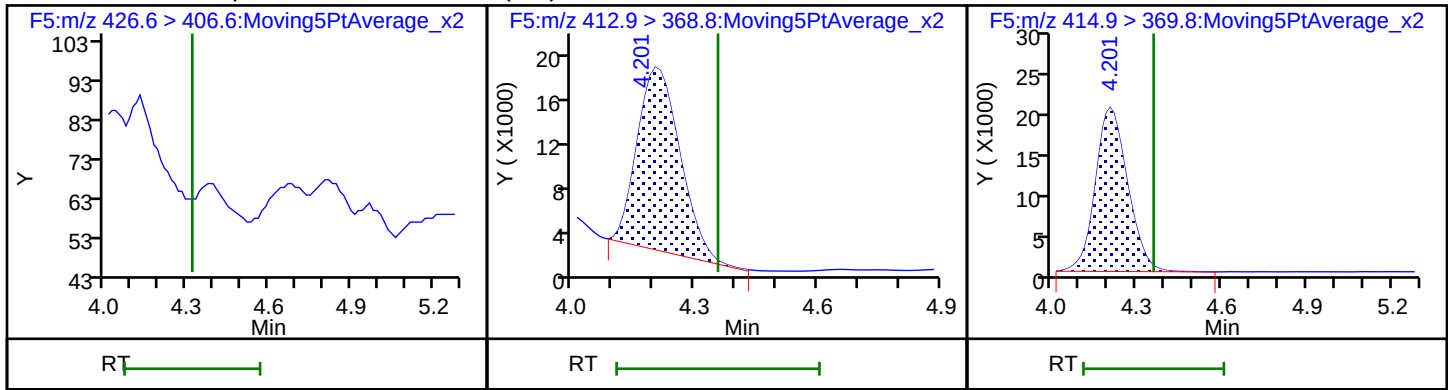
D 9 13C4 PFHpA

D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfoni (ND) Perfluorooctanoic acid

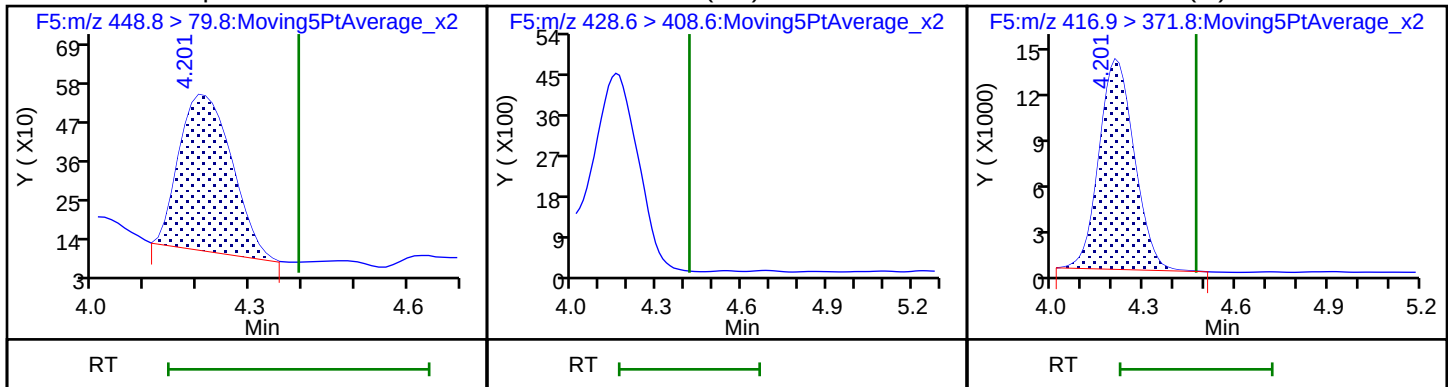
* 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid

D 13 M2-6:2 FTS (ND)

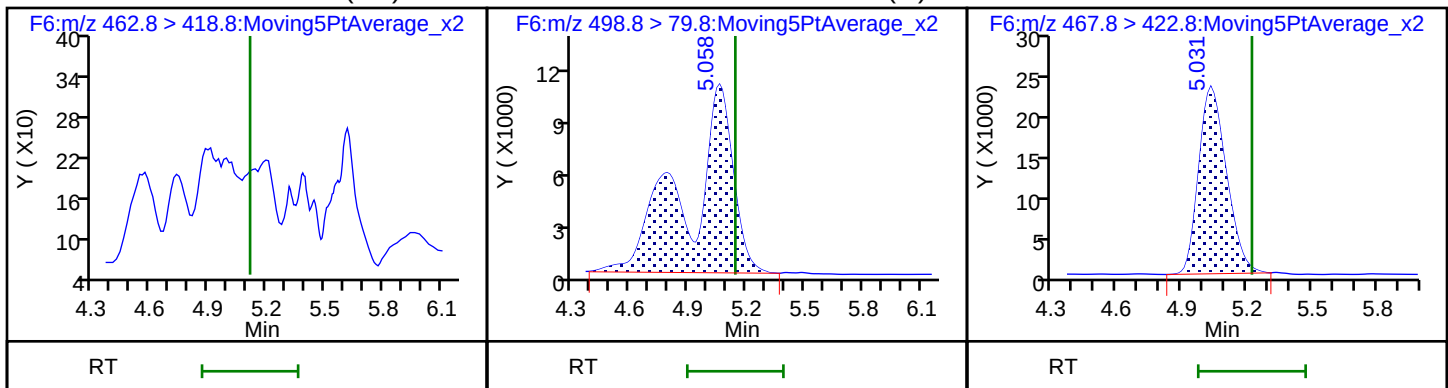
D 17 13C4 PFOA (M)



19 Perfluorononanoic acid (ND)

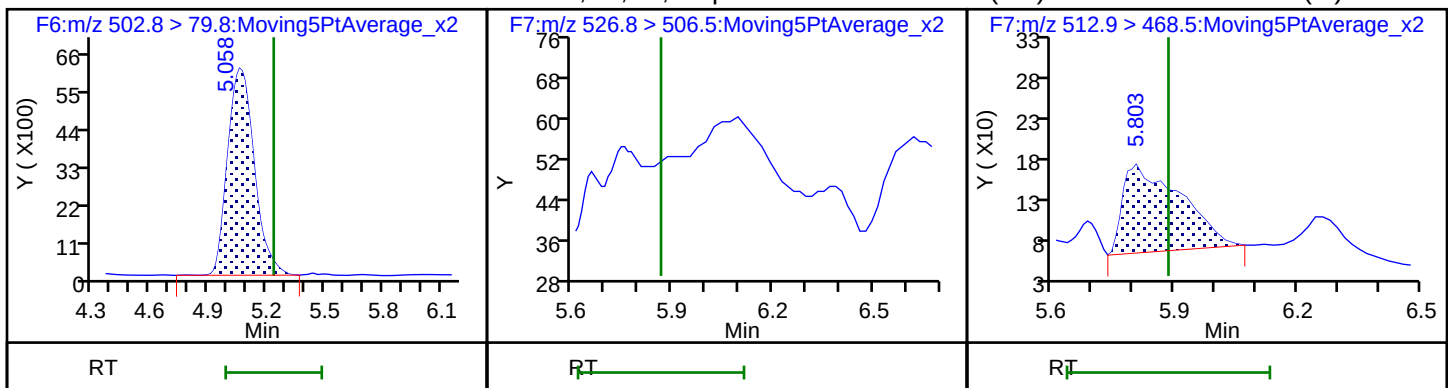
21 Perfluorooctanesulfonic acid (M)

D 20 13C5 PFNA

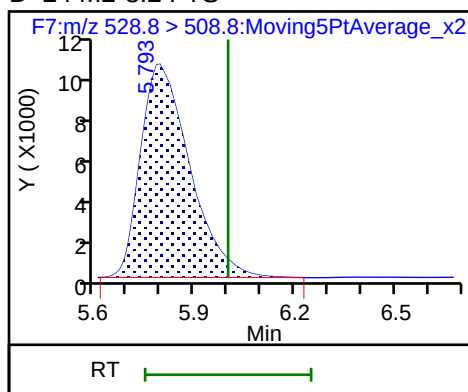


D 22 13C4 PFOS

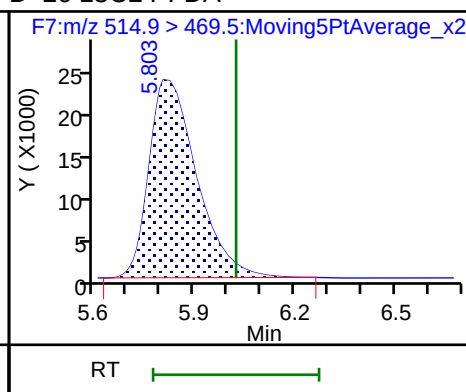
23 1H,1H,2H,2H-perfluorodecanesulfoni (ND) Perfluorodecanoic acid (M)



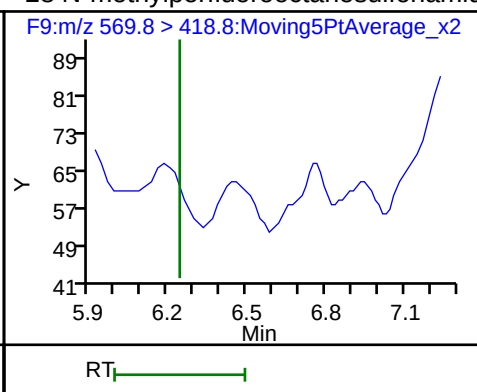
D 24 M2-8:2 FTS



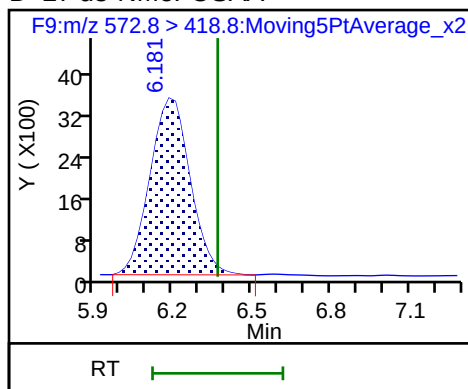
D 26 13C2 PFDA



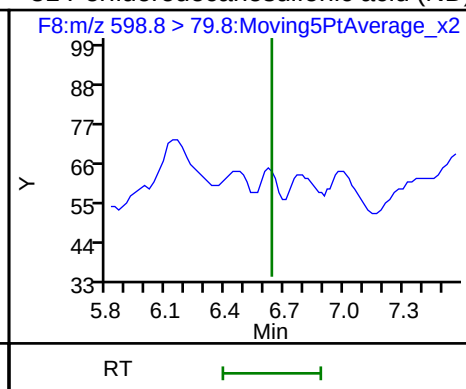
28 N-methylperfluorooctanesulfonamido (ND)



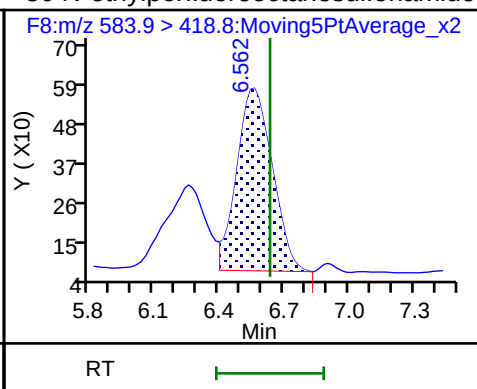
D 27 d3-NMeFOSAA



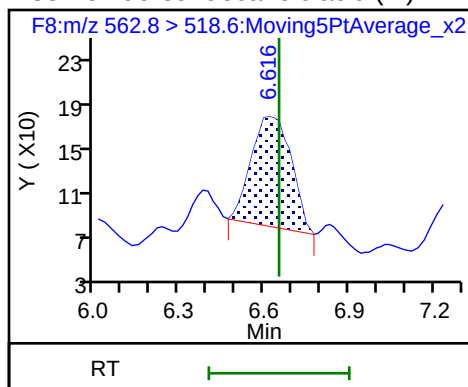
31 Perfluorodecanesulfonic acid (ND)



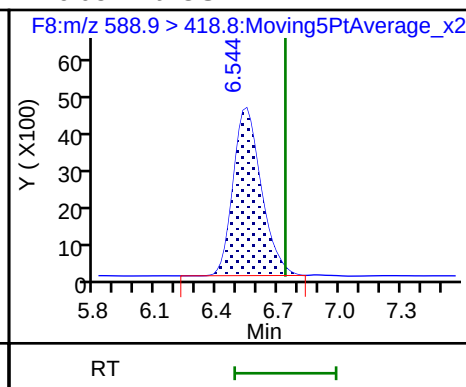
30 N-ethylperfluorooctanesulfonamidoa



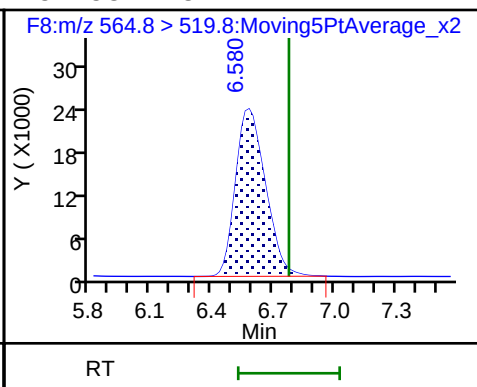
33 Perfluoroundecanoic acid (M)



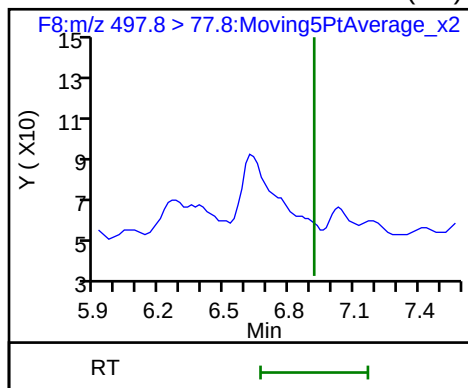
D 29 d5-NEtFOSAA



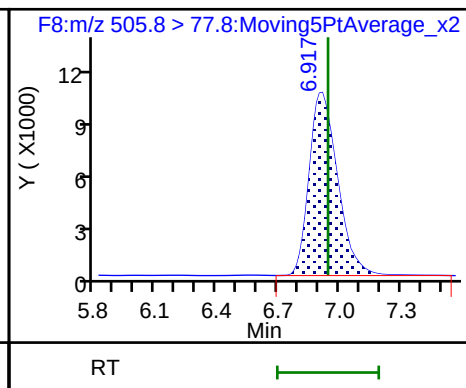
D 32 13C2 PFUnA



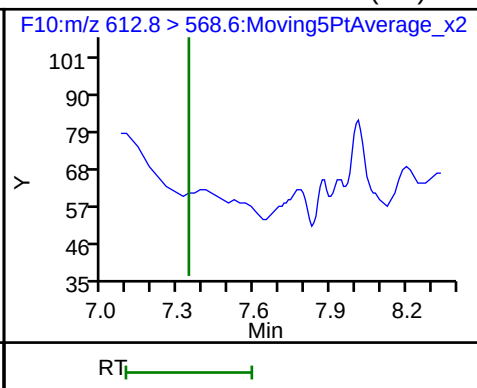
34 Perfluorooctanesulfonamide (ND)



D 35 13C8 FOSA



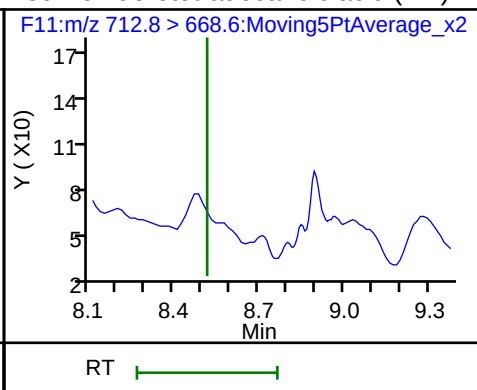
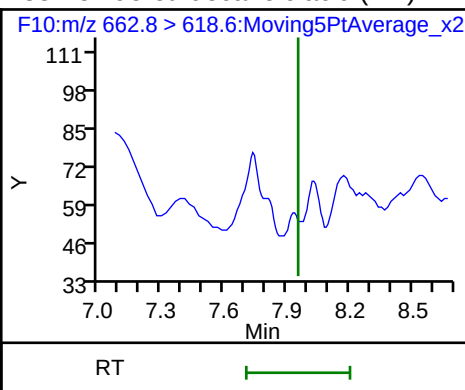
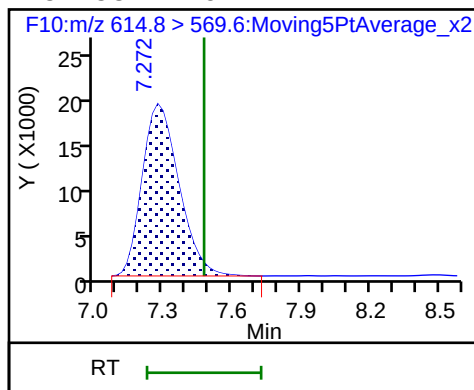
36 Perfluorododecanoic acid (ND)



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (ND)

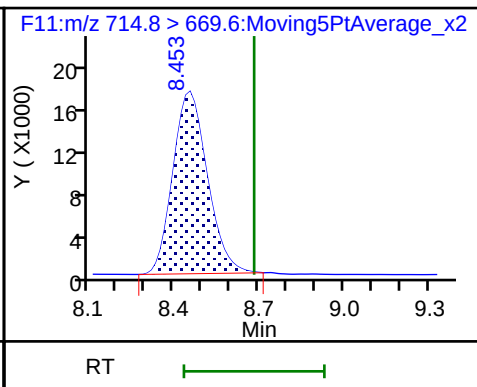
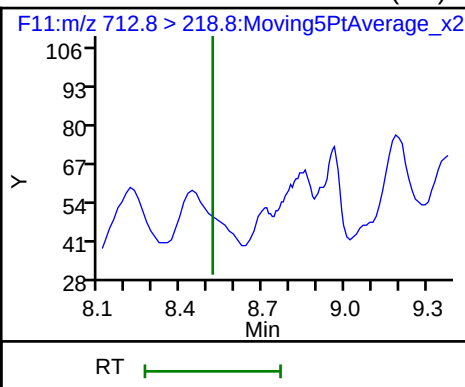
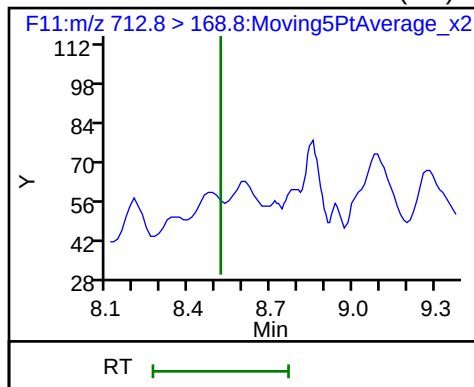
39 Perfluorotetradecanoic acid (ND)



39 Perfluorotetradecanoic acid (ND)

39 Perfluorotetradecanoic acid (ND)

D 40 13C2 PFTeDA



TestAmerica Burlington

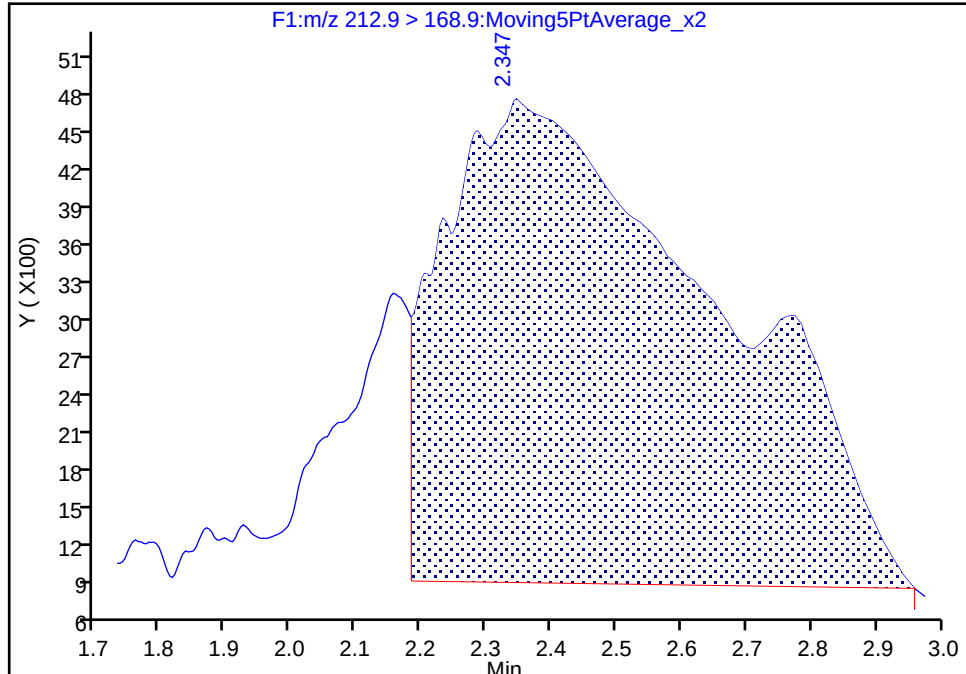
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A35.d				
Injection Date:	10-Jan-2019 00:38:09	Instrument ID:	LC410		
Lims ID:	480-147352-A-4-A	Lab Sample ID:	200-147352-4		
Client ID:	779081				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	35
Injection Vol:	20.0 ul	Dil. Factor:	5.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F1:MRM		

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

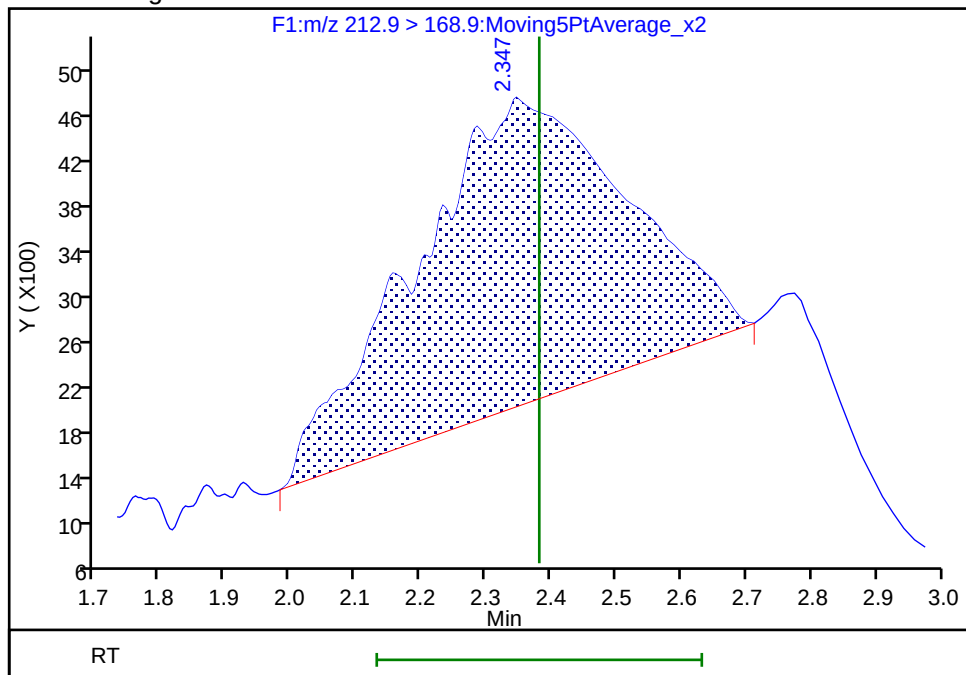
RT: 2.35
Area: 110714
Amount: 128.3860
Amount Units: ng/ml

Processing Integration Results



RT: 2.35
Area: 60527
Amount: 34.257483
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:20:32
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

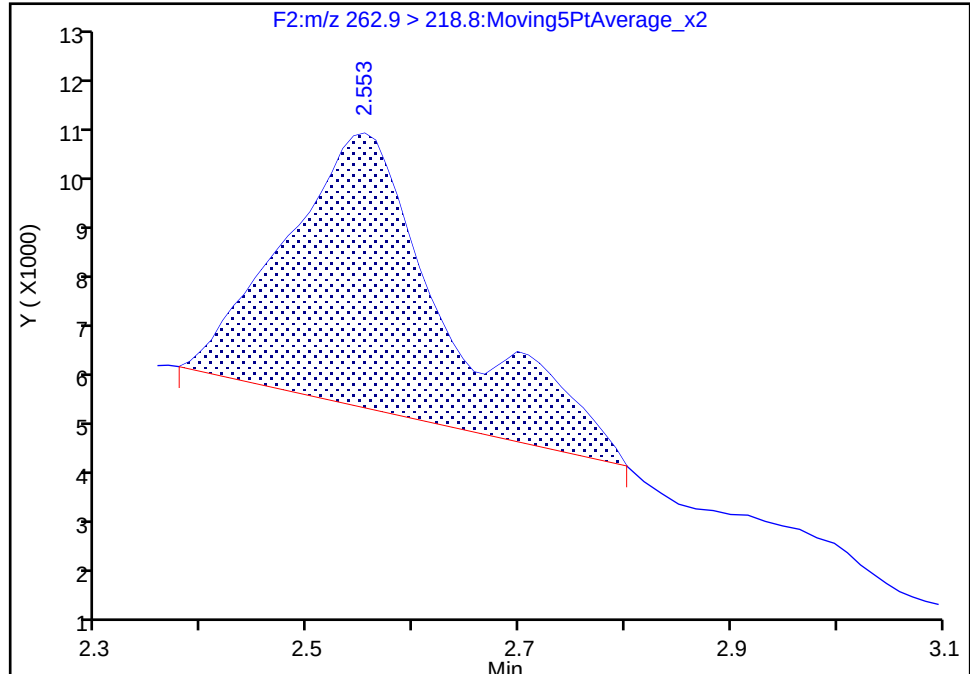
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A35.d				
Injection Date:	10-Jan-2019 00:38:09	Instrument ID:	LC410		
Lims ID:	480-147352-A-4-A	Lab Sample ID:	200-147352-4		
Client ID:	779081				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	35
Injection Vol:	20.0 ul	Dil. Factor:	5.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F2:MRM		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

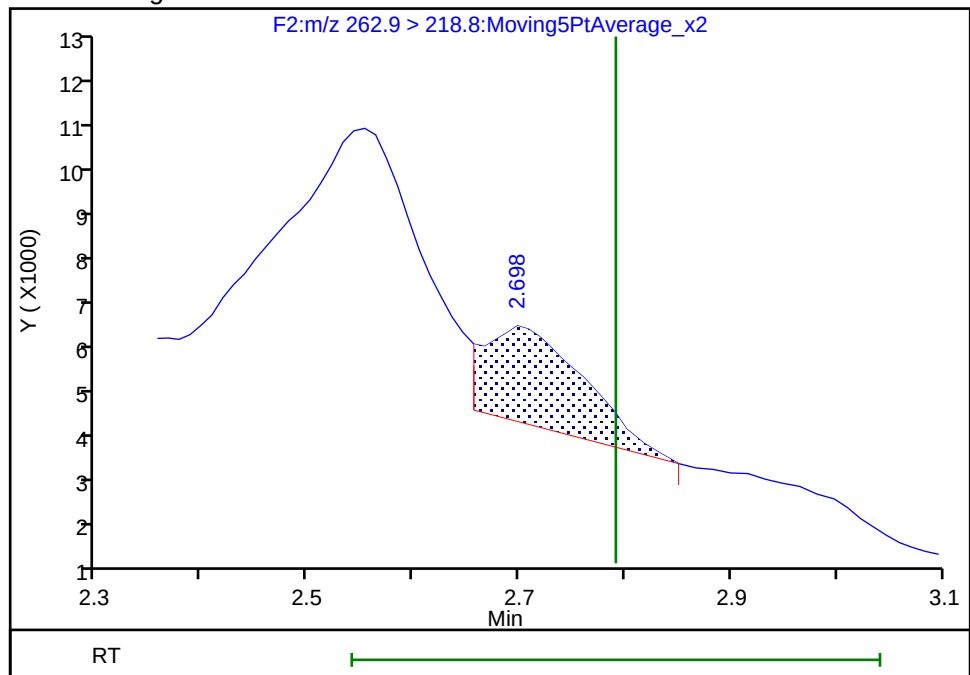
RT: 2.55
Area: 52038
Amount: 8.302173
Amount Units: ng/ml

Processing Integration Results



RT: 2.70
Area: 12456
Amount: 1.987238
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:20:59
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

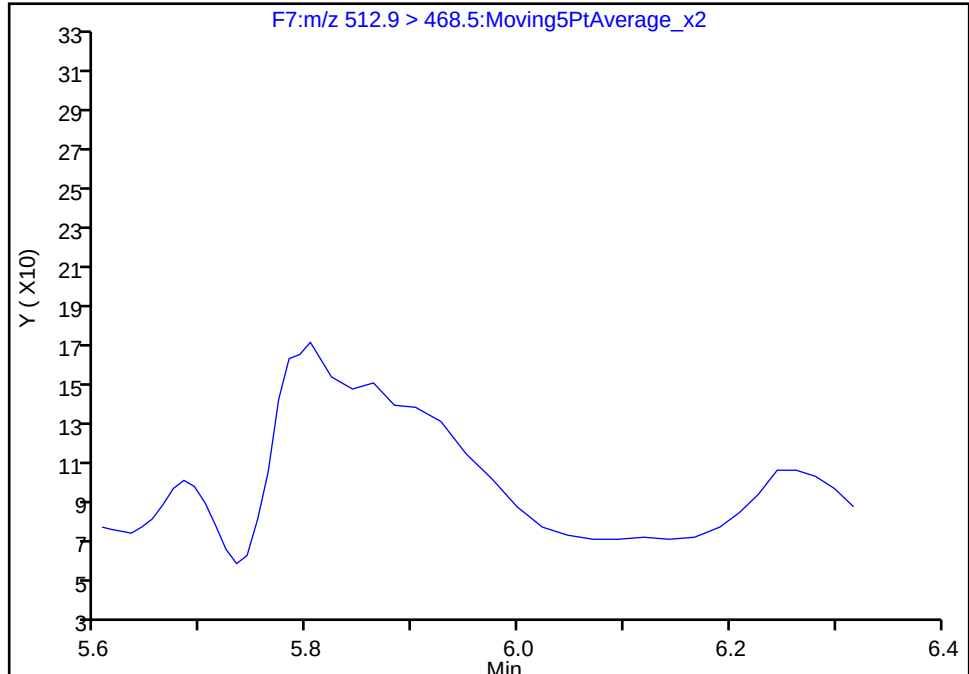
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A35.d				
Injection Date:	10-Jan-2019 00:38:09	Instrument ID:	LC410		
Lims ID:	480-147352-A-4-A	Lab Sample ID:	200-147352-4		
Client ID:	779081				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	35
Injection Vol:	20.0 ul	Dil. Factor:	5.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F7:MRM		

25 Perfluorodecanoic acid, CAS: 335-76-2

Signal: 1

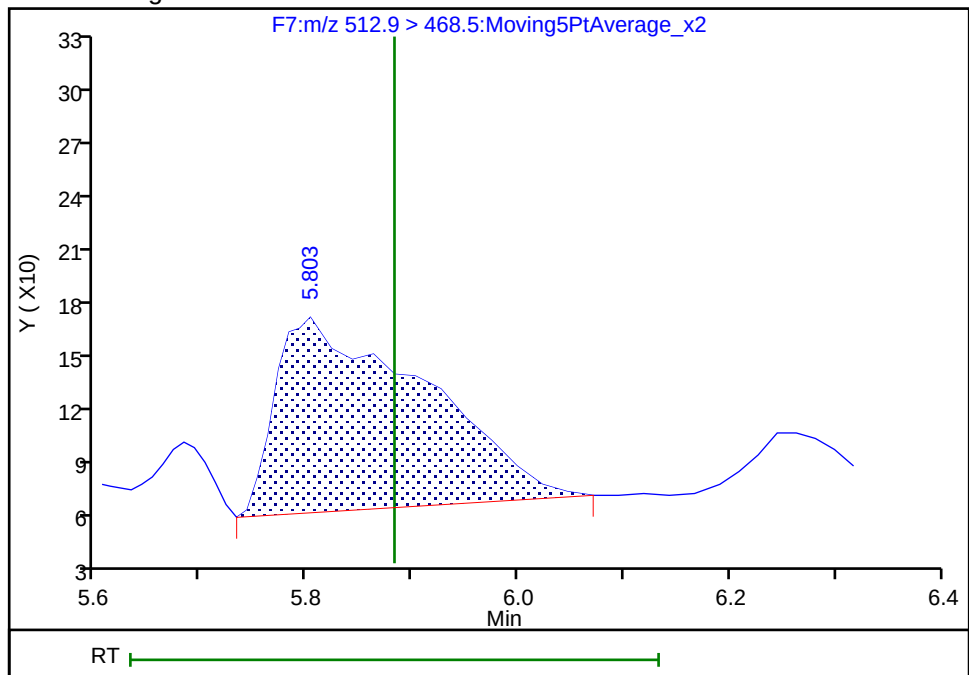
Not Detected
Expected RT: 5.88

Processing Integration Results



Manual Integration Results

RT: 5.80
Area: 1037
Amount: 0.043642
Amount Units: ng/ml



Reviewer: murrayjw, 10-Jan-2019 11:21:59
Audit Action: Manually Integrated

Audit Reason: Missed Peak
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TestAmerica Burlington

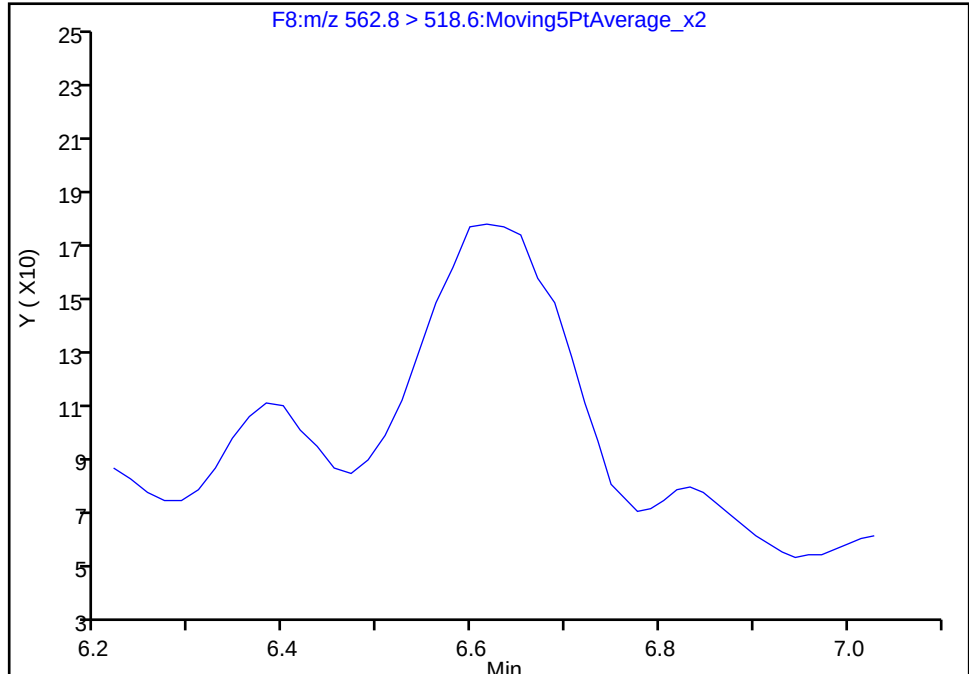
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A35.d				
Injection Date:	10-Jan-2019 00:38:09	Instrument ID:	LC410		
Lims ID:	480-147352-A-4-A	Lab Sample ID:	200-147352-4		
Client ID:	779081				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	35
Injection Vol:	20.0 ul	Dil. Factor:	5.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F8:MRM		

33 Perfluoroundecanoic acid, CAS: 2058-94-8

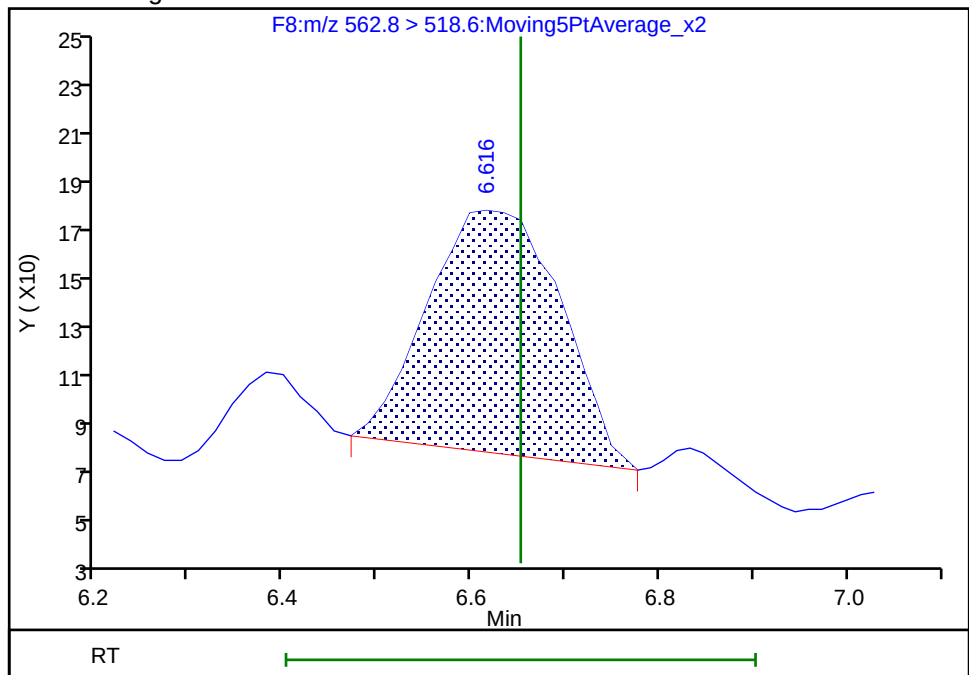
Signal: 1

Not Detected
Expected RT: 6.65

Processing Integration Results



Manual Integration Results

RT: 6.62
Area: 972
Amount: 0.039496
Amount Units: ng/ml

Reviewer: murrayjw, 10-Jan-2019 11:22:12

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Burlington

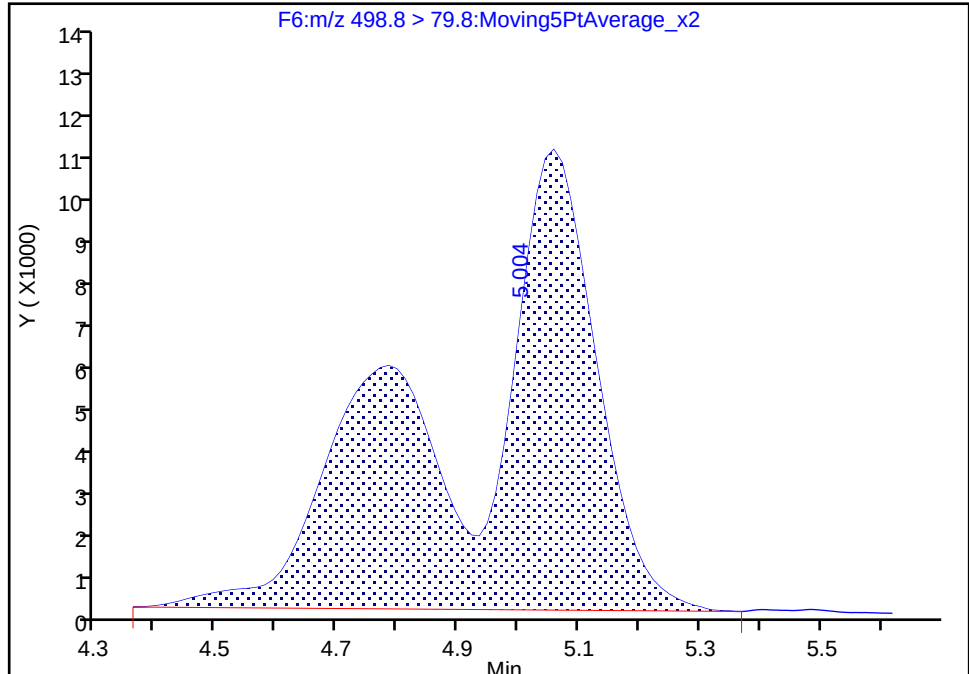
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A35.d				
Injection Date:	10-Jan-2019 00:38:09	Instrument ID:	LC410		
Lims ID:	480-147352-A-4-A	Lab Sample ID:	200-147352-4		
Client ID:	779081				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	35
Injection Vol:	20.0 ul	Dil. Factor:	5.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F6:MRM		

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

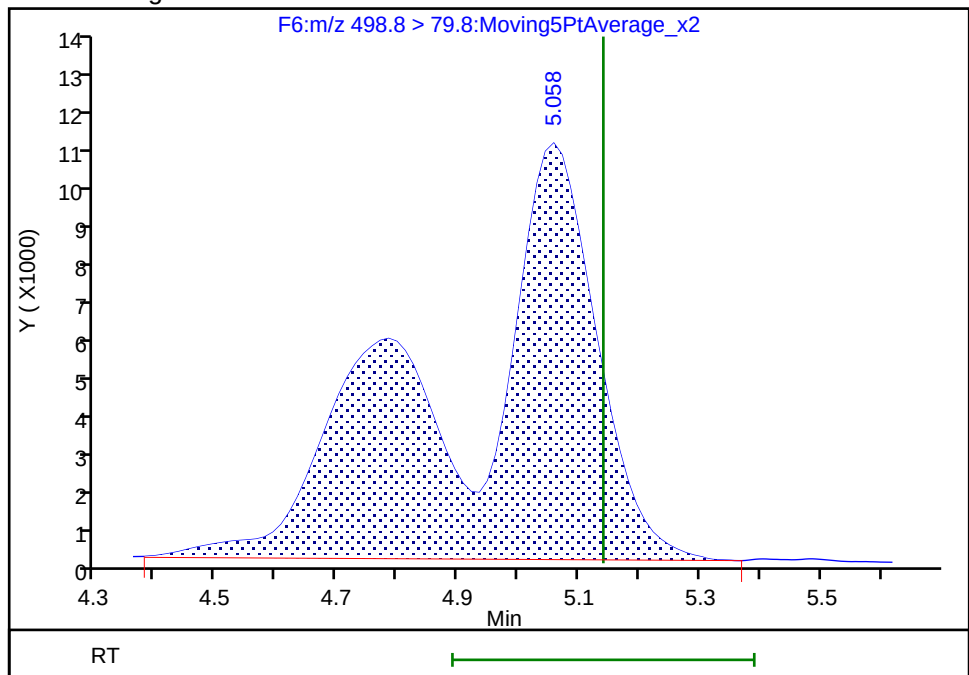
RT: 5.00
Area: 169615
Amount: 26.923876
Amount Units: ng/ml

Processing Integration Results



RT: 5.06
Area: 170067
Amount: 26.995624
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:21:44
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

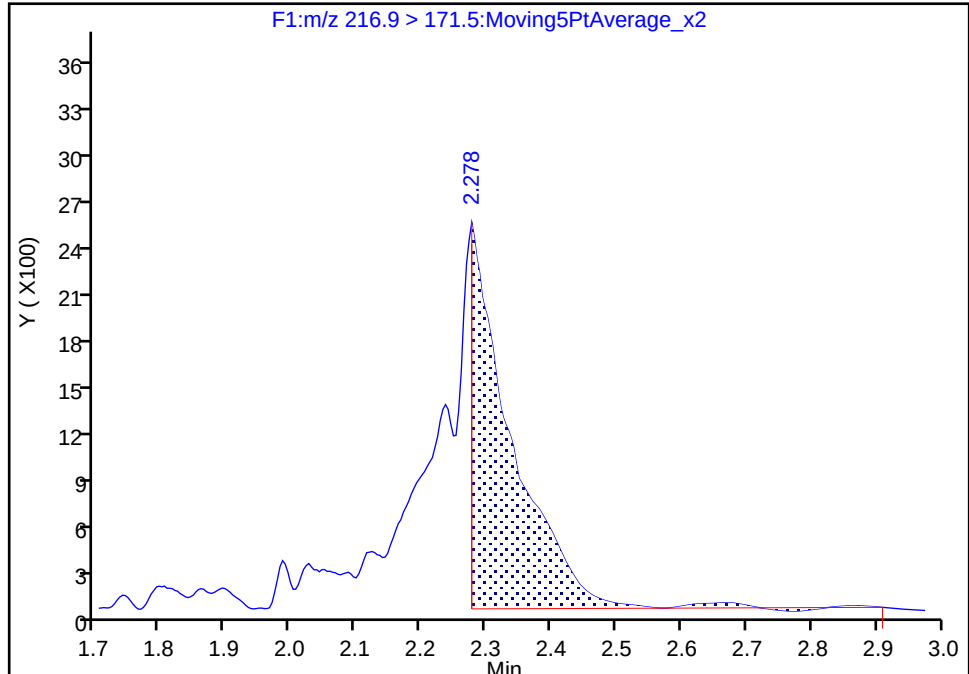
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A35.d		
Injection Date:	10-Jan-2019 00:38:09	Instrument ID:	LC410
Lims ID:	480-147352-A-4-A	Lab Sample ID:	200-147352-4
Client ID:	779081		
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	5.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector:	F1:MRM
		Worklist Smp#:	35

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

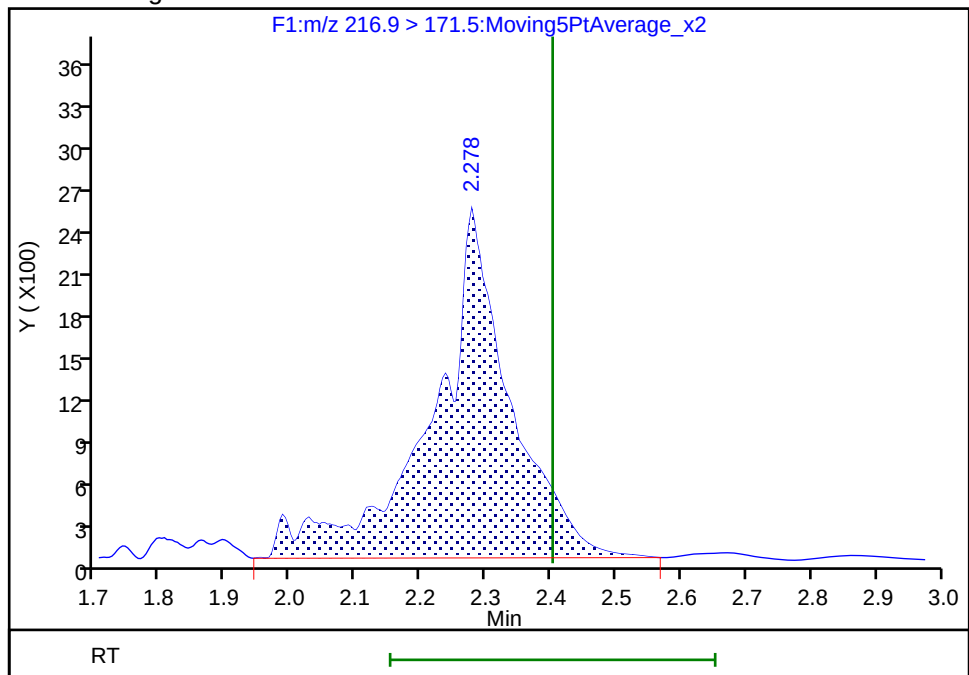
RT: 2.28
Area: 10163
Amount: 1.074871
Amount Units: ng/ml

Processing Integration Results



RT: 2.28
Area: 20738
Amount: 2.193317
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:20:43
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779081</u>	Lab Sample ID: <u>480-147352-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF011019A14.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:14</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>258.1 (mL)</u>	Date Analyzed: <u>01/10/2019 16:29</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>20</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138989</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
335-67-1	Perfluorooctanoic acid (PFOA)	140		39	6.2
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		390	19

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	87		50-150
STL02279	M2-6:2 FTS	359	*	25-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A14.d
 Lims ID: 480-147352-A-4-A
 Client ID: 779081
 Sample Type: Client
 Inject. Date: 10-Jan-2019 16:29:45 ALS Bottle#: 0 Worklist Smp#: 14
 Injection Vol: 20.0 ul Dil. Factor: 20.0000
 Sample Info: 200-0034093-014 4 20X
 Misc. Info.: PFAS21 011019A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 17:18:54 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0308

First Level Reviewer: chirgwinb

Date: 10-Jan-2019 17:15:06

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.371	2.392	-0.021	1.019	27317	7.36			5.7	M
D 1 13C4 PFBA										M
216.9 > 171.5	2.326	2.392	-0.066	1.000	10679	0.9722		38.9	67.1	M
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.677	2.791	-0.114	0.974	5967	0.5823			0.5	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.750	2.801	-0.051	1.000	8996	1.29		51.7	5.8	
D 6 13C3 PFBS										
302.0 > 79.8	2.834	2.867	-0.033	1.000	11762	2.05		88.0	66.6	
5 Perfluorobutanesulfonic acid										M
298.9 > 80.0	2.834	2.867	-0.033	1.000	4023	0.4557			1.2	M
8 Perfluorohexanoic acid										M
312.8 > 268.6	3.127	3.189	-0.062	0.996	15907	2.10			11.0	M
D 7 13C2 PFHxA										
314.8 > 269.6	3.140	3.201	-0.061	1.000	18233	1.45		58.1	91.5	
10 Perfluoroheptanoic acid										M
362.9 > 318.8	3.637	3.692	-0.055	1.000	18940	1.17			18.1	M
D 9 13C4 PFHpA										
366.9 > 321.8	3.637	3.715	-0.078	1.000	41252	1.80		71.8	357	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.681	3.737	-0.056	1.000	12385	0.8883			4.1	
D 11 18O2 PFHxS										
402.9 > 83.8	3.681	3.759	-0.078	1.000	17103	2.57		109	110	
14 1H,1H,2H,2H-perfluorooctanesulfoni										M
426.6 > 406.6	4.252	4.291	-0.039	1.015	96	0.0132			2.3	M
D 13 M2-6:2 FTS										
428.6 > 408.6	4.188	4.330	-0.142	1.000	17487	8.53		359	302	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
* 15 13C2 PFOA										
414.9 > 369.8	4.239	4.330	-0.091		46741	2.50			250	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.239	4.342	-0.103	1.000	53802	3.57			74.2	
D 17 13C4 PFOA										
416.9 > 371.8	4.239	4.355	-0.116	1.000	38089	2.17		86.8	178	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.072	5.099	-0.027	1.000	52967	6.50			479	M
D 20 13C5 PFNA										
467.8 > 422.8	5.058	5.113	-0.055	1.000	60735	2.57		103	295	
D 22 13C4 PFOS										
502.8 > 79.8	5.072	5.140	-0.068	1.000	18840	3.20		134	105	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.793	5.863	-0.070	1.000	21688	3.90		163	366	
D 26 13C2 PFDA										
514.9 > 469.5	5.823	5.882	-0.059	1.000	67586	2.77		111	644	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.181	6.241	-0.060	1.000	9222	1.48		59.2	53.6	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.544	6.598	-0.054	1.000	10418	1.97		78.8	107	
D 32 13C2 PFUnA										
564.8 > 519.8	6.598	6.652	-0.054	1.000	57837	2.28		91.1	345	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.917	0.0	1.000	26214	2.31		92.5	150	
D 37 13C2 PFDoA										
614.8 > 569.6	7.272	7.339	-0.067	1.000	62026	1.93		77.2	455	
D 40 13C2 PFTeDA										
714.8 > 669.6	8.453	8.514	-0.061	1.000	42390	1.44		57.5	477	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A14.d

Injection Date: 10-Jan-2019 16:29:45

Instrument ID: LC410

Lims ID: 480-147352-A-4-A

Lab Sample ID: 200-147352-4

Client ID: 779081

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 14

Injection Vol: 20.0 ul

Dil. Factor: 20.0000

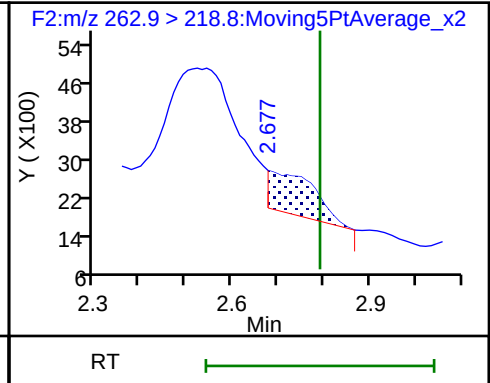
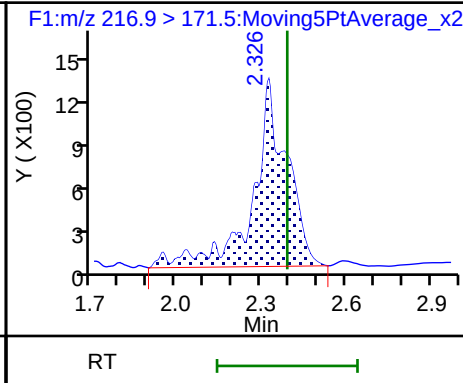
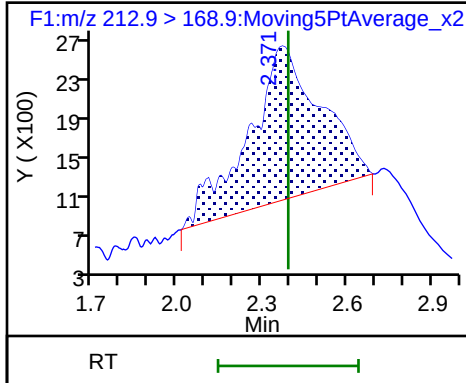
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA (M)

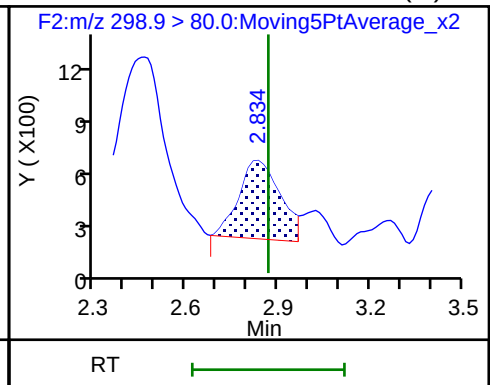
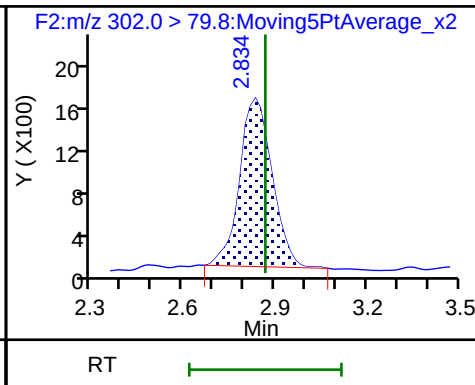
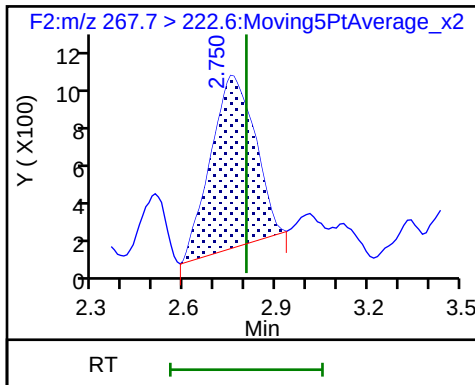
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

D 6 13C3 PFBS

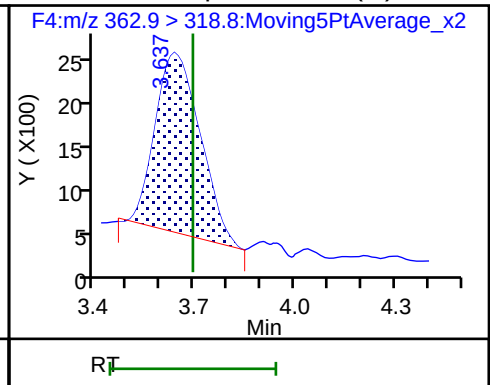
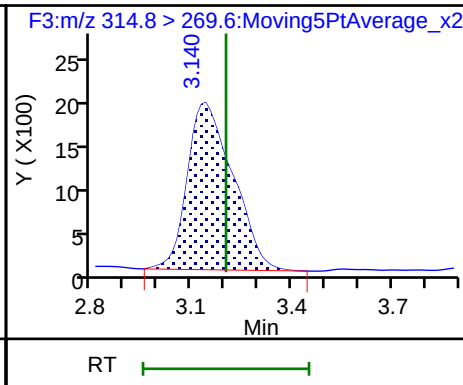
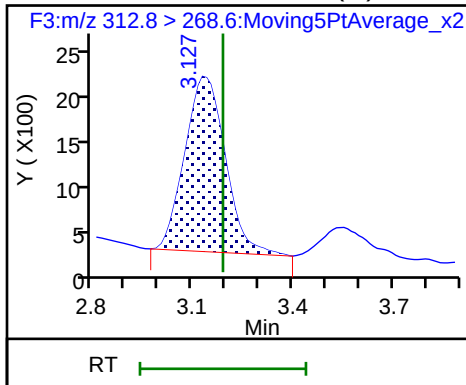
5 Perfluorobutanesulfonic acid (M)



8 Perfluorohexanoic acid (M)

D 7 13C2 PFHxA

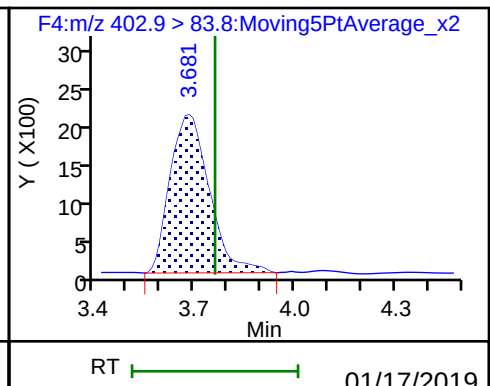
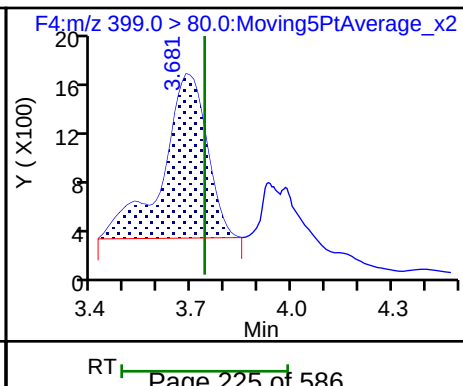
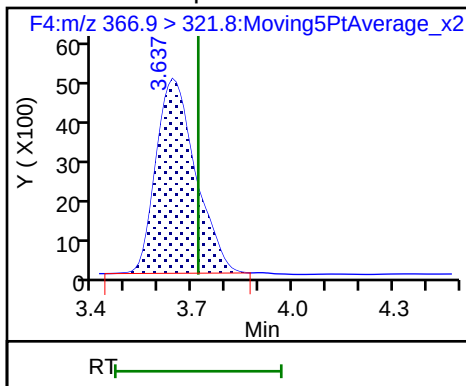
10 Perfluoroheptanoic acid (M)



D 9 13C4 PFHpA

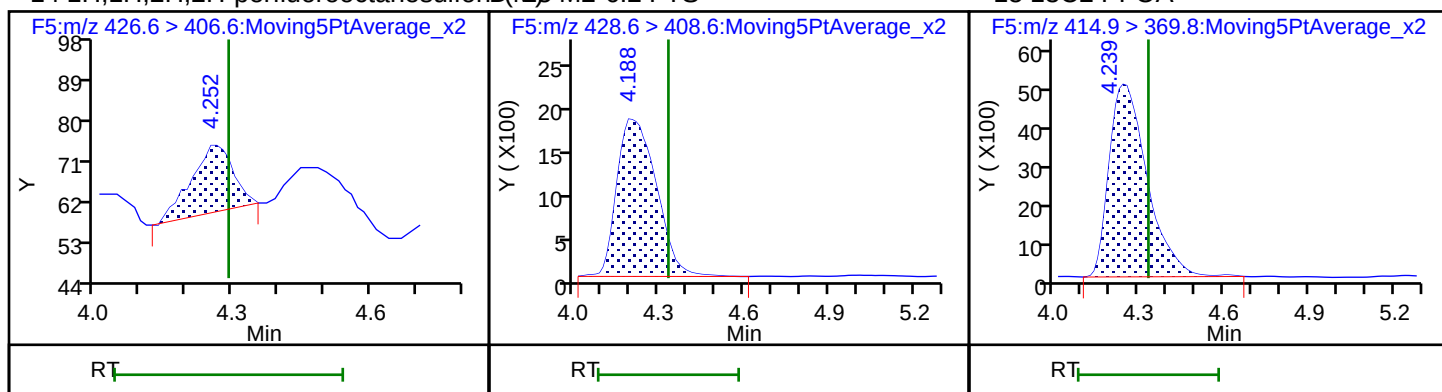
12 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfonate (M) M2-6:2 FTS

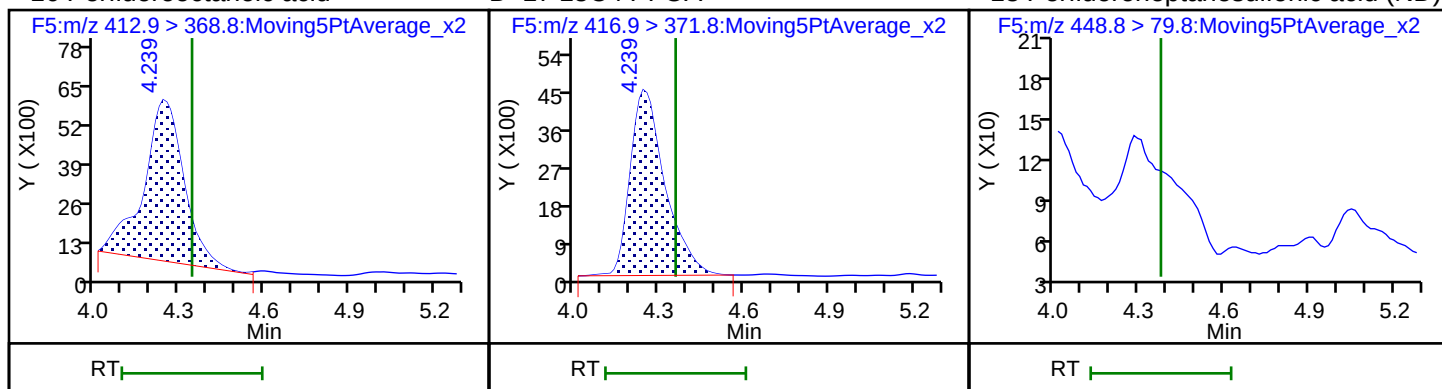
* 15 13C2 PFOA



16 Perfluorooctanoic acid

D 17 13C4 PFOA

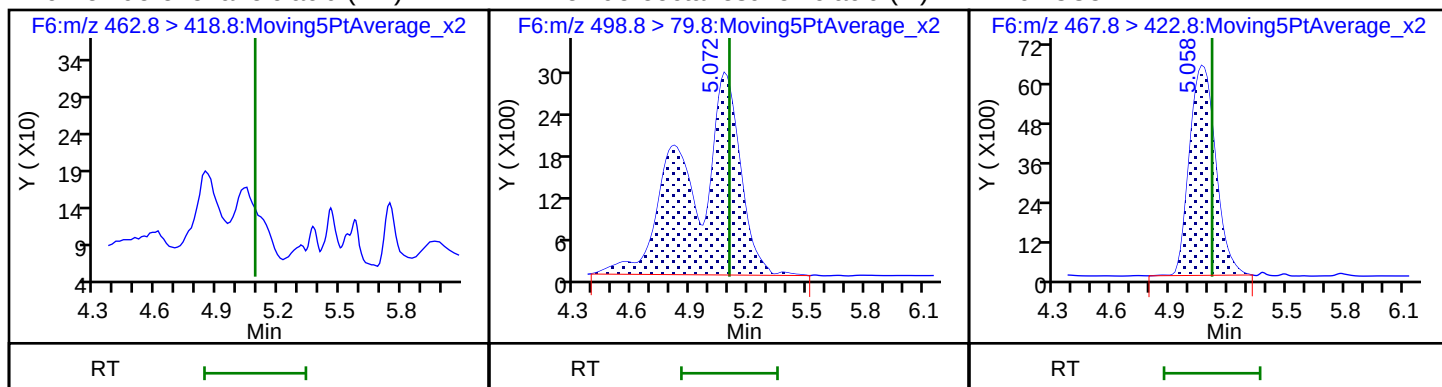
18 Perfluoroheptanesulfonic acid (ND)



19 Perfluorononanoic acid (ND)

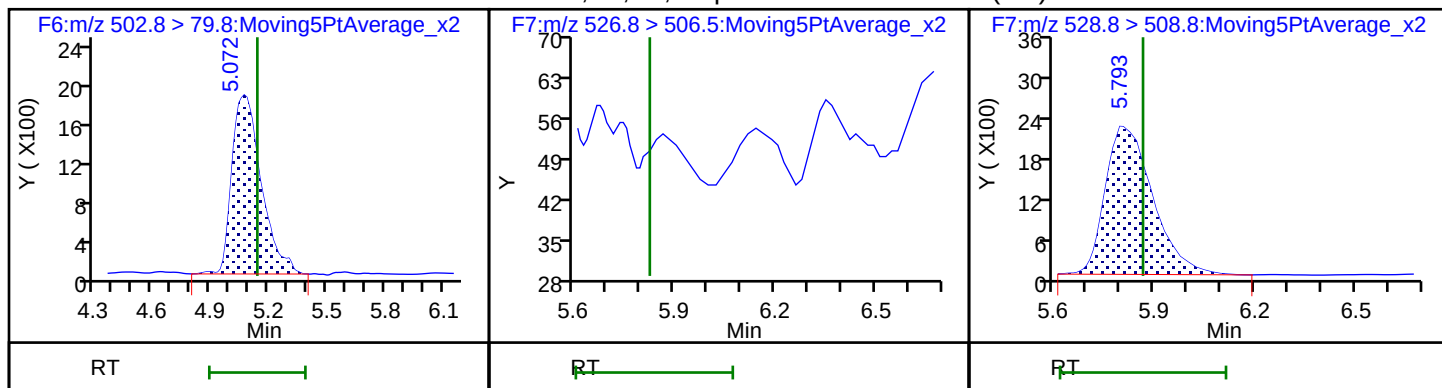
21 Perfluorooctanesulfonic acid (M)

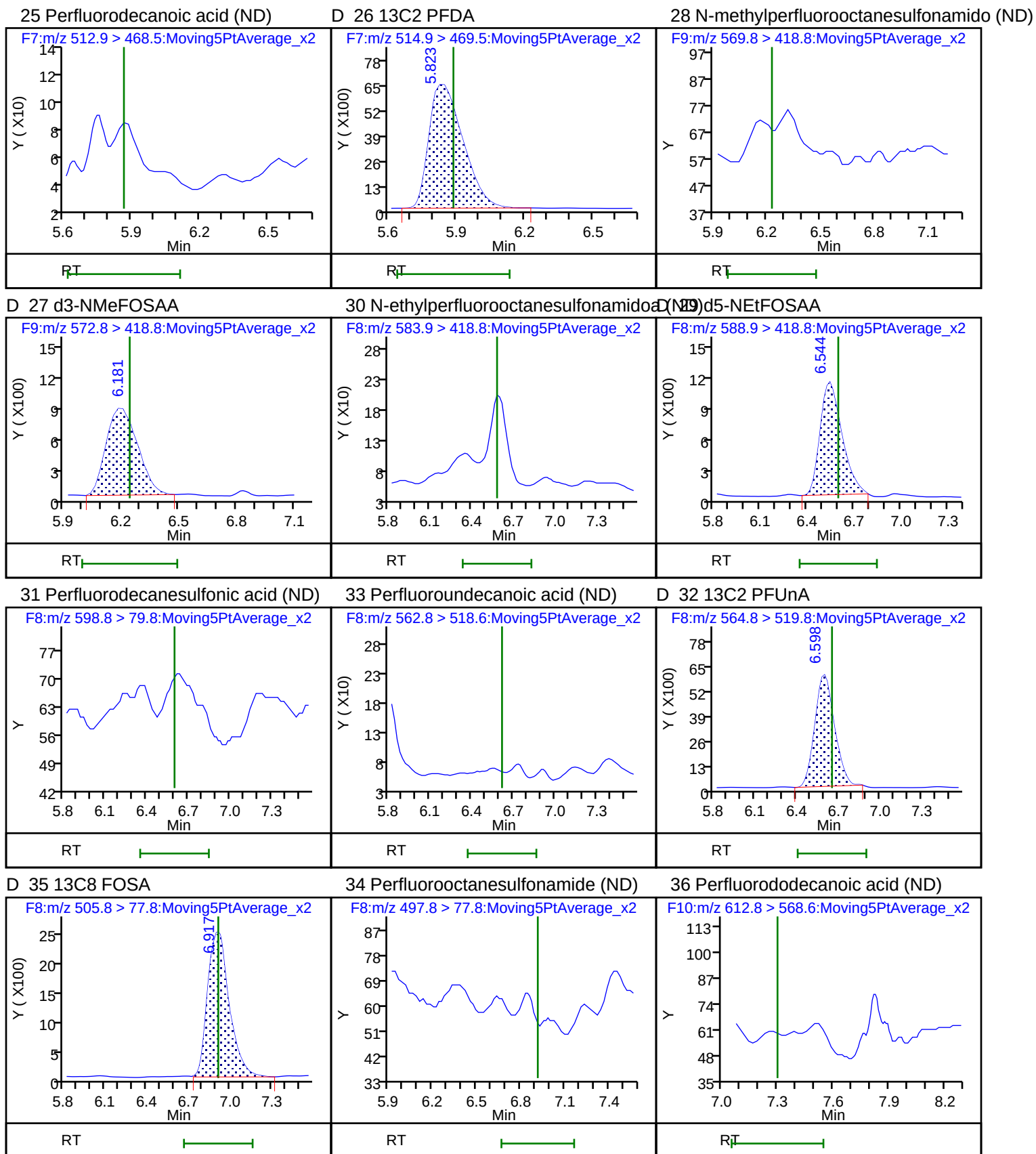
D 20 13C5 PFNA



D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfonate (M) M2-8:2 FTS

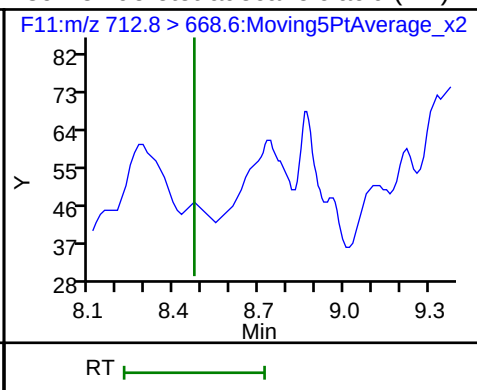
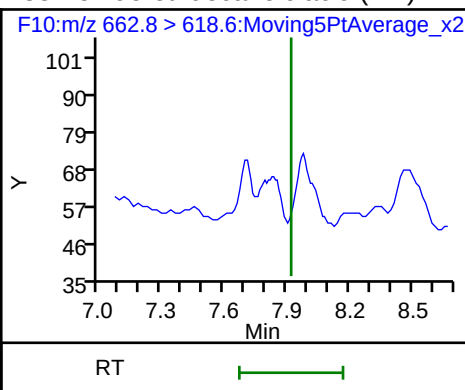
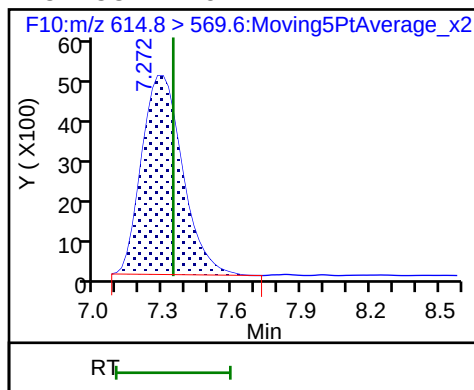




D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (ND)

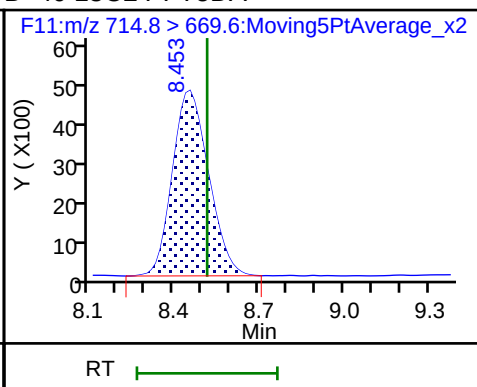
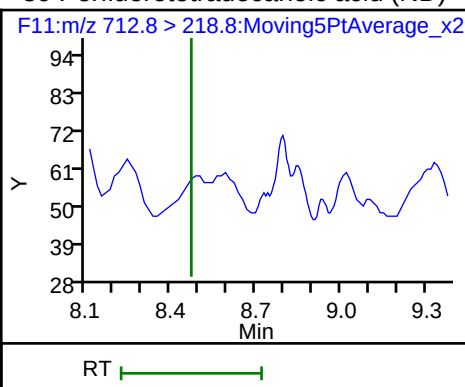
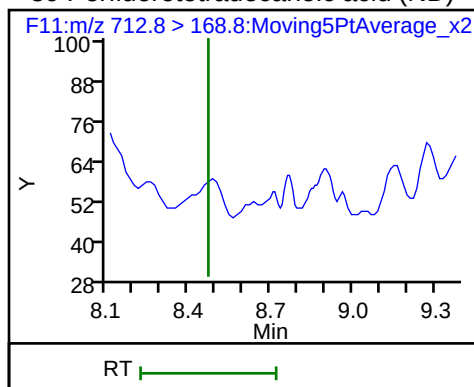
39 Perfluorotetradecanoic acid (ND)



39 Perfluorotetradecanoic acid (ND)

39 Perfluorotetradecanoic acid (ND)

D 40 13C2 PFTeDA



TestAmerica Burlington

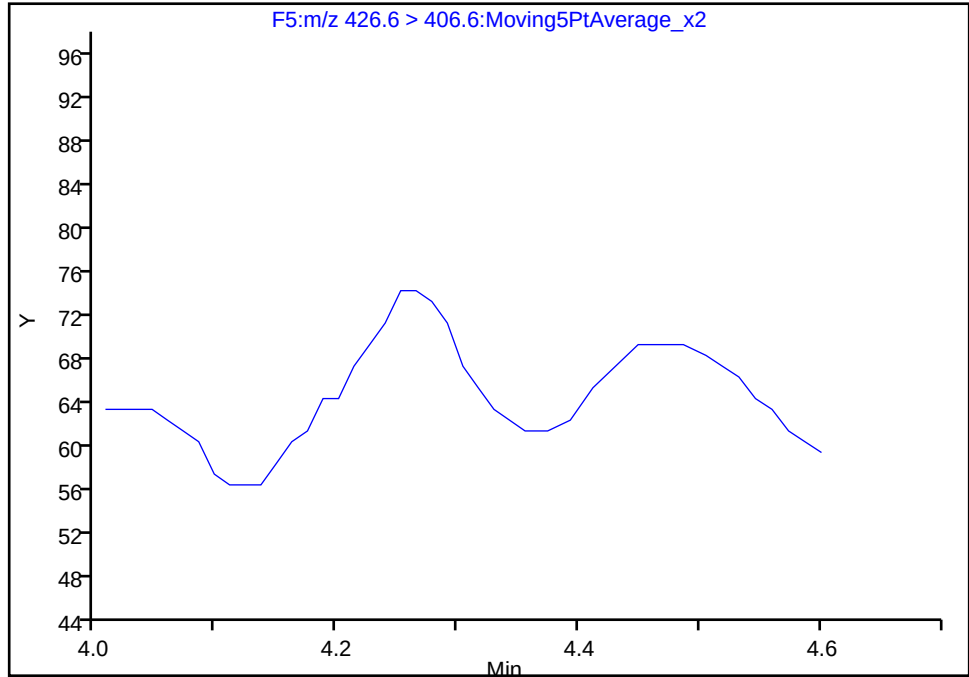
Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A14.d
Injection Date: 10-Jan-2019 16:29:45 Instrument ID: LC410
Lims ID: 480-147352-A-4-A Lab Sample ID: 200-147352-4
Client ID: 779081
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 20.0 ul Dil. Factor: 20.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F5:MRM

14 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:, CAS: 27619-97-2

Signal: 1

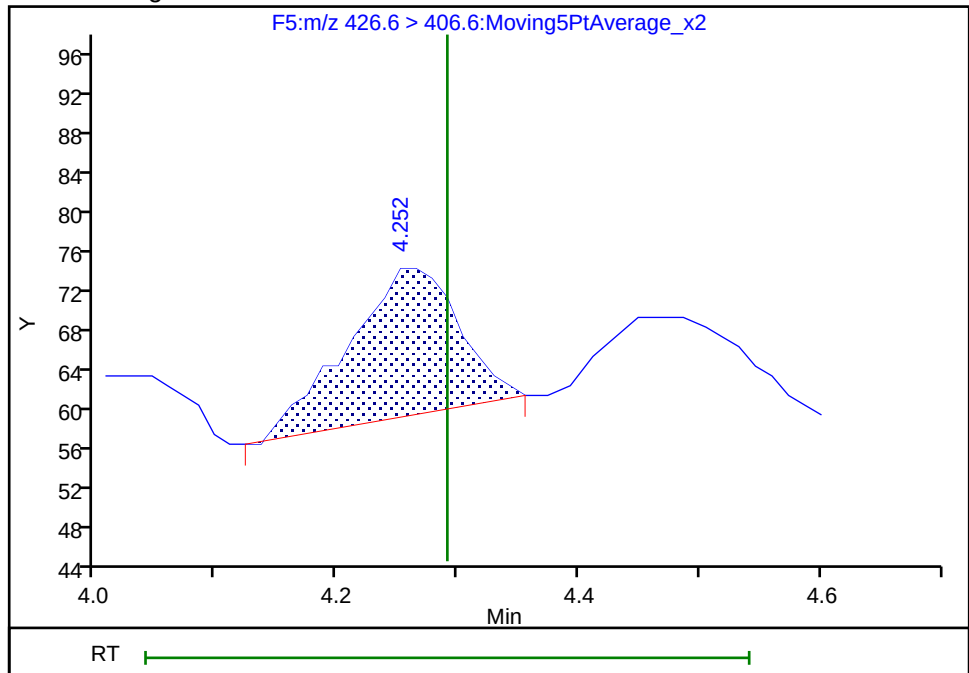
Not Detected
Expected RT: 4.29

Processing Integration Results



RT: 4.25
Area: 96
Amount: 0.013243
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 17:13:15
Audit Action: Manually Integrated

Audit Reason: Missed Peak
Page 229 of 586

01/17/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779082 (Field Blank)</u>	Lab Sample ID: <u>480-147352-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A36.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 14:59</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>262.6(mL)</u>	Date Analyzed: <u>01/10/2019 00:54</u>
Con. Extract Vol.: <u>0.5(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20(uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		1.9	0.39
2706-90-3	Perfluoropentanoic acid (PFPeA)	ND		1.9	0.71
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		1.9	0.23
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.30
335-67-1	Perfluorooctanoic acid (PFOA)	ND		1.9	0.30
375-95-1	Perfluorononanoic acid (PFNA)	ND		1.9	0.36
335-76-2	Perfluorodecanoic acid (PFDA)	ND		1.9	0.36
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.24
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		1.9	0.33
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.23
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.43
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.42
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.25
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.78
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.72
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.50
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.53
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	0.43
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	0.67
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		19	0.95
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		19	0.53

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779082 (Field Blank)</u>	Lab Sample ID: <u>480-147352-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A36.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 14:59</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>262.6(mL)</u>	Date Analyzed: <u>01/10/2019 00:54</u>
Con. Extract Vol.: <u>0.5(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20(uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	94		50-150
STL01892	13C4 PFHpA	80		50-150
STL00990	13C4 PFOA	79		50-150
STL00991	13C4 PFOS	96		50-150
STL00995	13C5 PFNA	77		50-150
STL00992	13C4 PFBA	101		25-150
STL00993	13C2 PFHxA	86		50-150
STL00996	13C2 PFDA	76		50-150
STL00997	13C2 PFUnA	76		50-150
STL00998	13C2 PFDoA	61		50-150
STL01056	13C8 FOSA	64		25-150
STL01893	13C5 PFPeA	110		25-150
STL02116	13C2 PFTeDA	50		50-150
STL02118	d3-NMeFOSAA	55		50-150
STL02117	d5-NEtFOSAA	66		50-150
STL02279	M2-6:2 FTS	128		25-150
STL02280	M2-8:2 FTS	83		25-150
STL02337	13C3 PFBS	101		50-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A36.d
 Lims ID: 480-147352-B-5-A
 Client ID: 779082 (Field Blank)
 Sample Type: Client
 Inject. Date: 10-Jan-2019 00:54:00 ALS Bottle#: 0 Worklist Smp#: 36
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034076-036 5
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:49 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: murrayjw

Date: 10-Jan-2019 11:24:46

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
216.9 > 171.5	2.382	2.402	-0.020	1.000	720308	50.7		101	188	
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.801	2.791	0.010	1.004	1823	0.0646			1.8	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.791	2.818	-0.027	1.000	495800	55.1		110	1328	
5 Perfluorobutanesulfonic acid										M
298.9 > 80.0	2.883	2.883	0.0	1.012	411	0.0314			3.8	M
D 6 13C3 PFBS										
302.0 > 79.8	2.850	2.900	-0.050	1.000	348577	46.9		101	696	
8 Perfluorohexanoic acid										M
312.8 > 268.6	3.275	3.201	0.074	1.027	369	0.0255			1.8	M
D 7 13C2 PFHxA										
314.8 > 269.6	3.189	3.250	-0.061	1.000	697645	43.0		86.0	3456	
10 Perfluoroheptanoic acid										M
362.9 > 318.8	3.826	3.715	0.111	1.036	519	0.0222			3.7	M
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.726	3.748	-0.022	0.997	1935	-0.0792			17.6	
D 9 13C4 PFHpA										
366.9 > 321.8	3.692	3.782	-0.090	1.000	1194013	40.2		80.4	679	
D 11 18O2 PFHxS										
402.9 > 83.8	3.737	3.826	-0.089	1.000	380844	44.3		93.7	524	
16 Perfluorooctanoic acid										M
412.9 > 368.8	4.330	4.355	-0.025	0.997	1741	0.0986			5.9	M
* 15 13C2 PFOA										
414.9 > 369.8	4.342	4.355	-0.013		1208511	50.0			5715	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.291	4.411	-0.120	1.000	160827	60.7		128	560	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.342	4.468	-0.126	1.000	892194	39.3		78.7	864	
19 Perfluorononanoic acid										M
462.8 > 418.8	5.072	5.113	-0.041	0.997	696	0.0269			2.9	M
21 Perfluorooctanesulfonic acid										M
498.8 > 79.8	5.127	5.140	-0.013	1.005	325	0.0432			4.6	M
D 20 13C5 PFNA										
467.8 > 422.8	5.085	5.222	-0.137	1.000	1178540	38.5		77.1	514	
D 22 13C4 PFOS										
502.8 > 79.8	5.099	5.236	-0.137	1.000	348116	45.8		95.7	1896	
25 Perfluorodecanoic acid										M
512.9 > 468.5	5.926	5.882	0.044	1.011	104	0.004304			0.8	M
D 24 M2-8:2 FTS										
528.8 > 508.8	5.823	5.998	-0.175	1.000	286204	39.9		83.2	1133	
D 26 13C2 PFDA										
514.9 > 469.5	5.863	6.022	-0.159	1.000	1196874	38.0		75.9	790	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.205	6.367	-0.162	1.000	221489	27.5		55.0	487	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.598	6.652	-0.054	0.997	3144	0.1230			31.9	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.580	6.734	-0.154	1.000	224891	32.9		65.8	1545	
D 32 13C2 PFUnA										
564.8 > 519.8	6.616	6.777	-0.161	1.000	1245716	38.0		75.9	4810	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.945	-0.028	1.000	471219	32.2		64.3	3340	
36 Perfluorododecanoic acid										M
612.8 > 568.6	7.317	7.339	-0.022	1.003	557	0.0257			3.4	M
D 37 13C2 PFDaA										
614.8 > 569.6	7.294	7.474	-0.180	1.000	1261914	30.4		60.8	2841	
D 40 13C2 PFTeDA										
714.8 > 669.6	8.453	8.681	-0.228	1.000	953313	25.0		50.0	911	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A36.d

Injection Date: 10-Jan-2019 00:54:00

Instrument ID: LC410

Lims ID: 480-147352-B-5-A

Lab Sample ID: 200-147352-5

Client ID: 779082 (Field Blank)

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 36

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

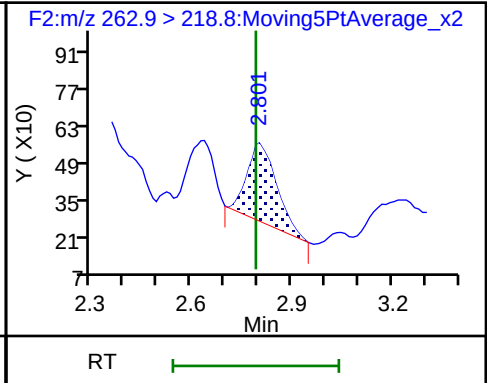
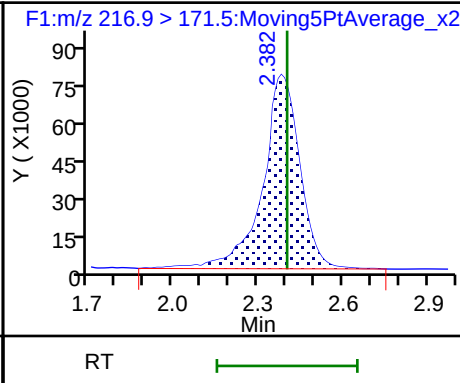
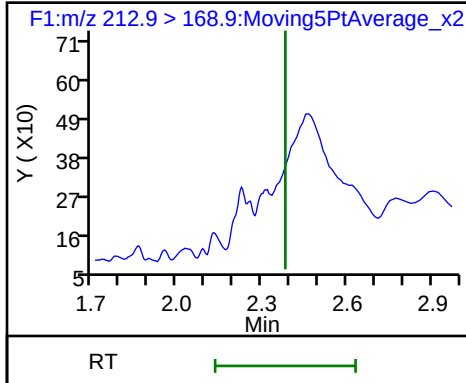
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (ND)

D 1 13C4 PFBA

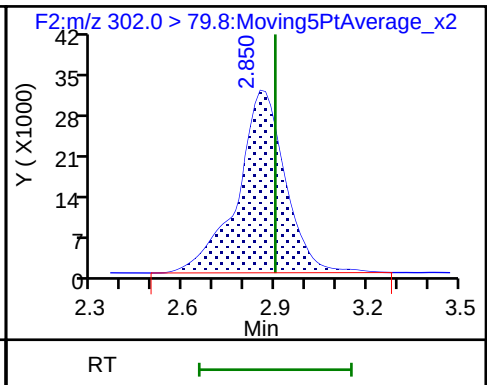
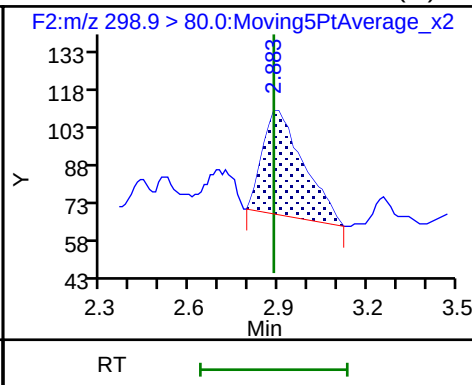
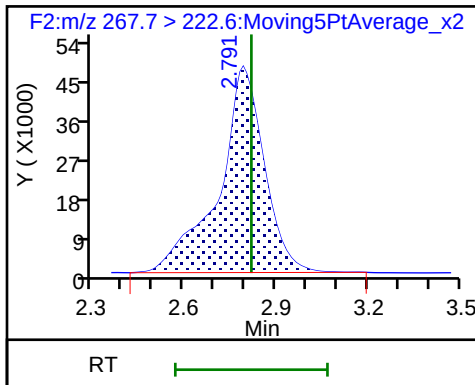
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid (M)

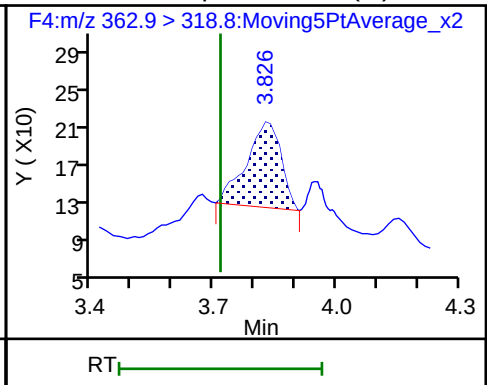
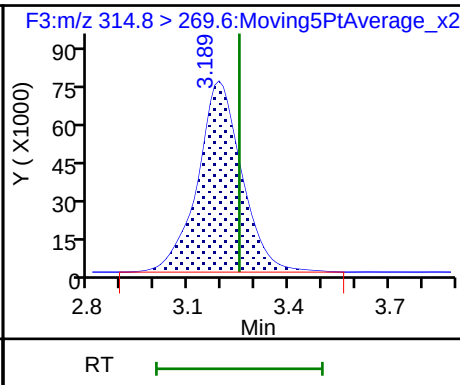
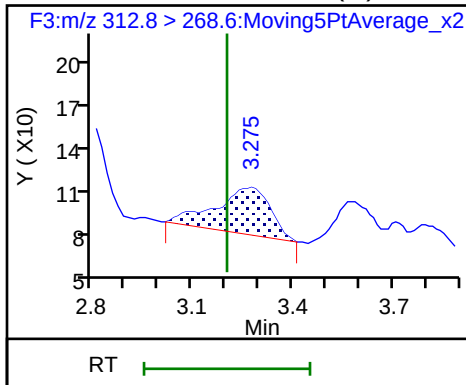
D 6 13C3 PFBS



8 Perfluorohexanoic acid (M)

D 7 13C2 PFHxA

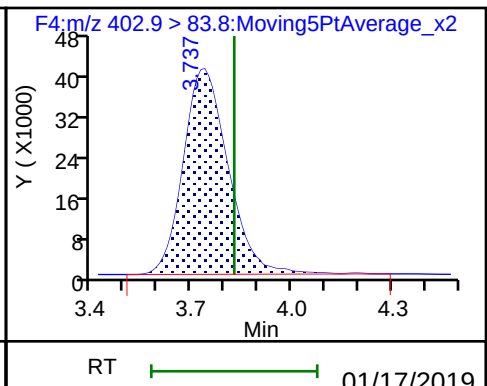
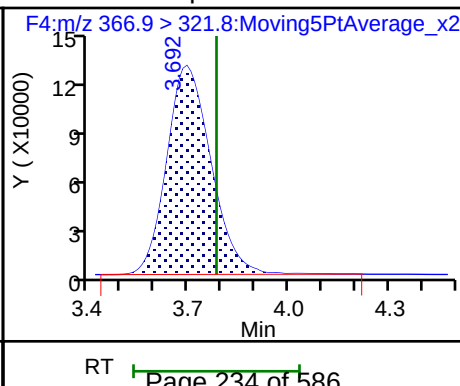
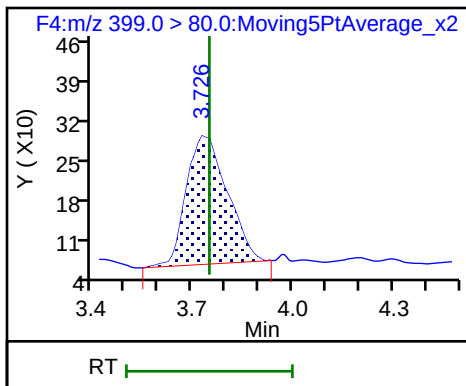
10 Perfluoroheptanoic acid (M)



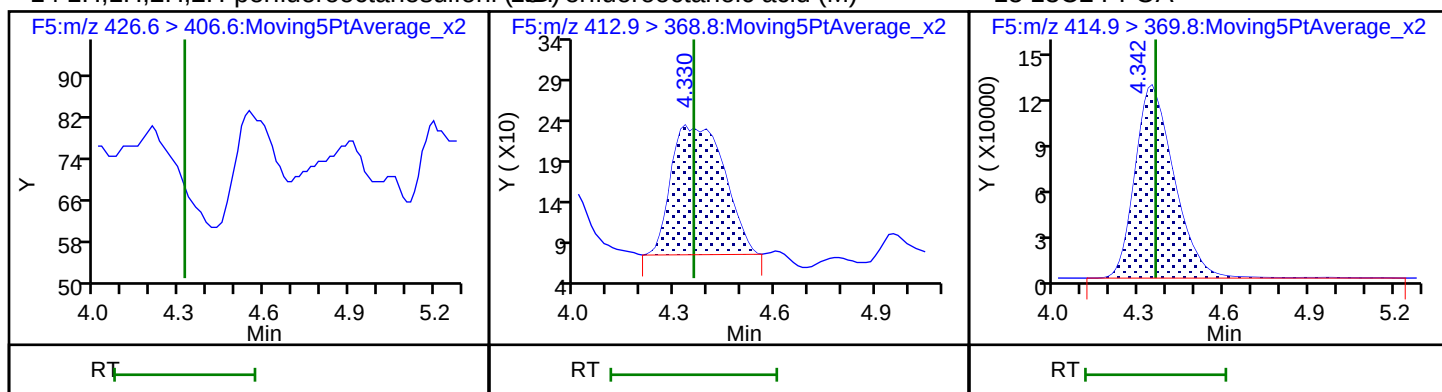
12 Perfluorohexanesulfonic acid

D 9 13C4 PFHpA

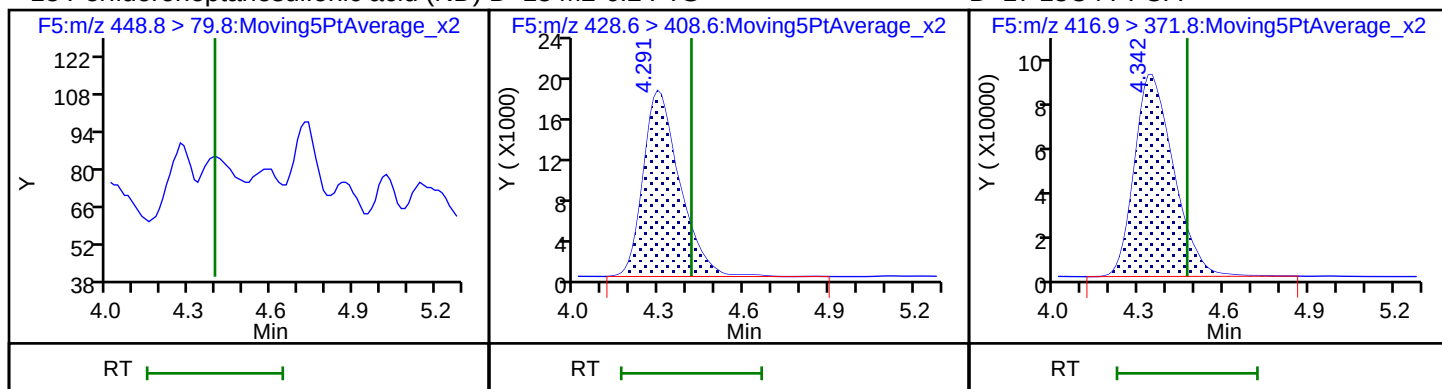
D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfoni (ND) 15 13C2 PFOA



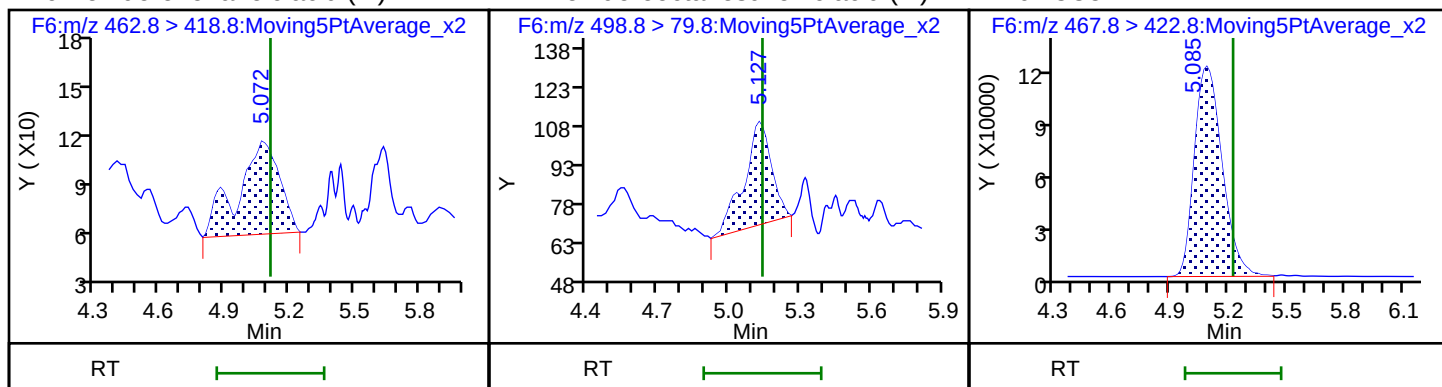
18 Perfluoroheptanesulfonic acid (ND) D 13 M2-6:2 FTS



19 Perfluorononanoic acid (M)

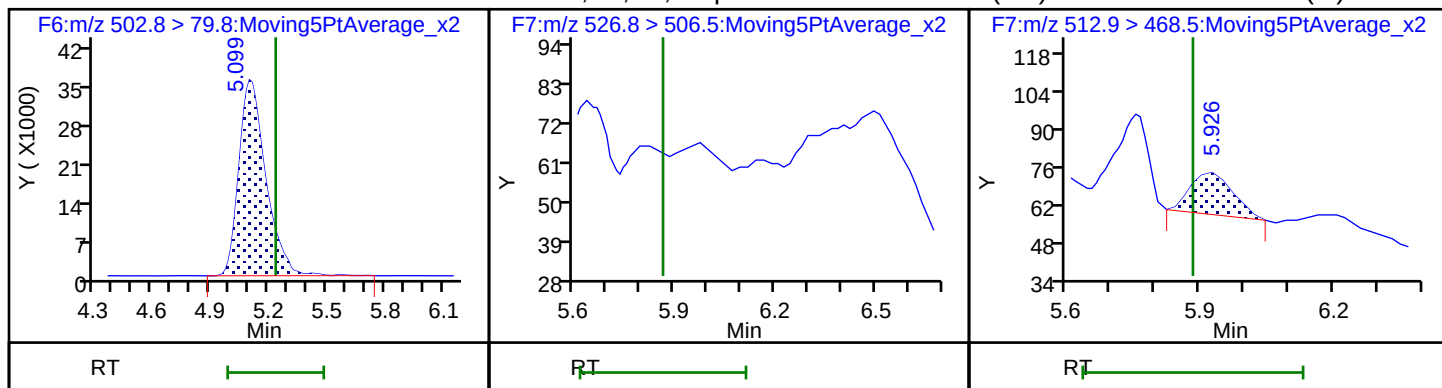
21 Perfluorooctanesulfonic acid (M)

D 20 13C5 PFNA

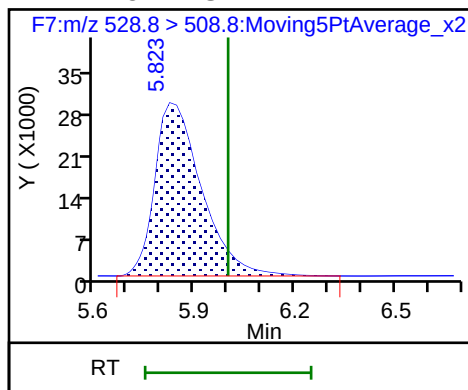


D 22 13C4 PFOS

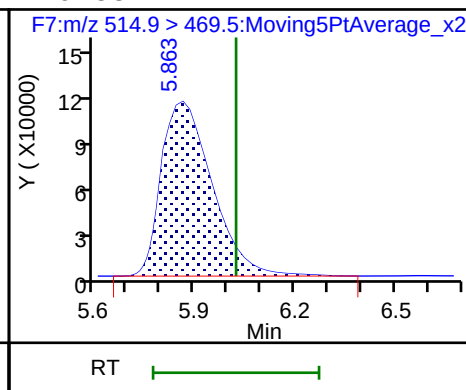
23 1H,1H,2H,2H-perfluorodecanesulfoni (ND) 24 13C4 PFDA



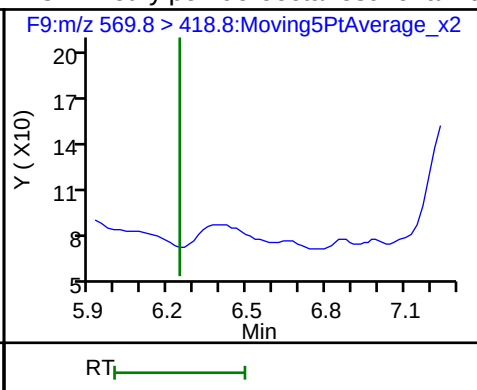
D 24 M2-8:2 FTS



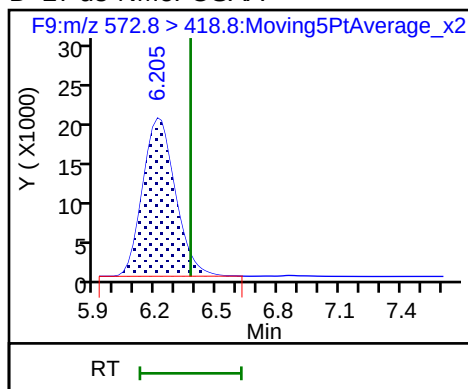
D 26 13C2 PFDA



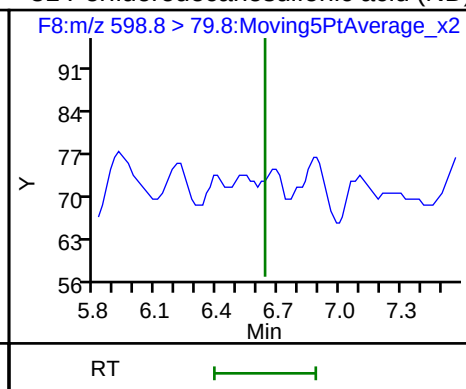
28 N-methylperfluorooctanesulfonamido (ND)



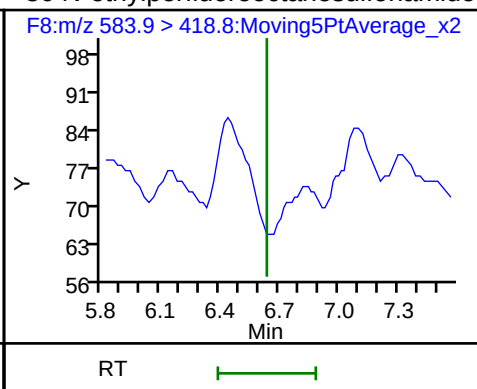
D 27 d3-NMeFOSAA



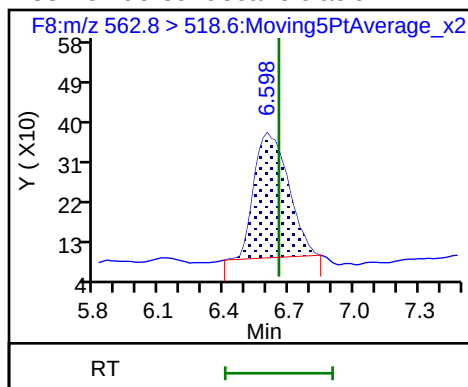
31 Perfluorodecanesulfonic acid (ND)



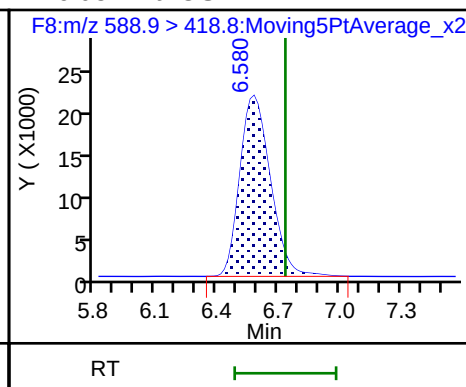
30 N-ethylperfluorooctanesulfonamido (ND)



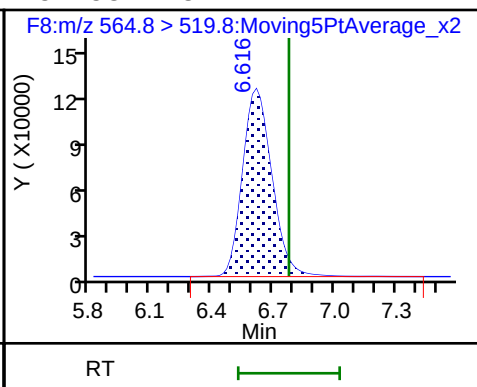
33 Perfluoroundecanoic acid



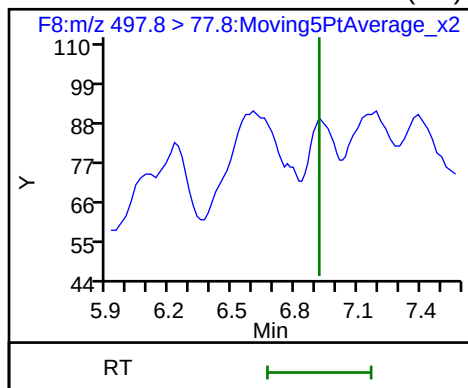
D 29 d5-NEtFOSAA



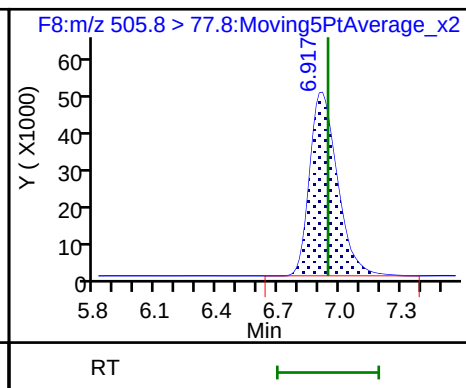
D 32 13C2 PFUnA



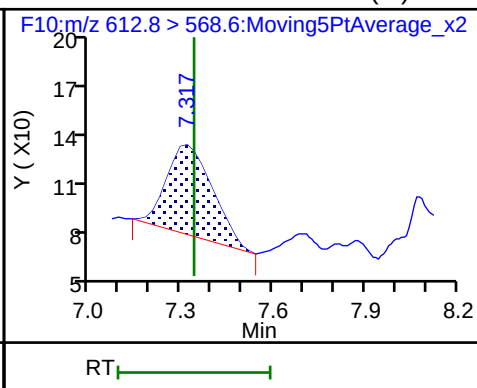
34 Perfluorooctanesulfonamide (ND)



D 35 13C8 FOSA



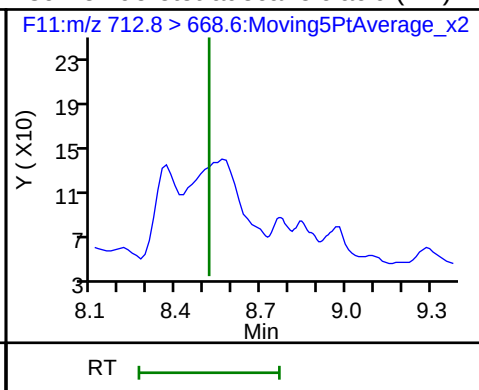
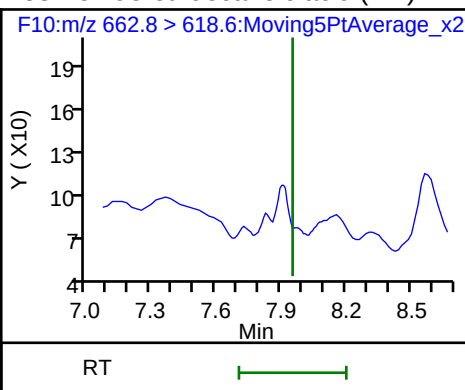
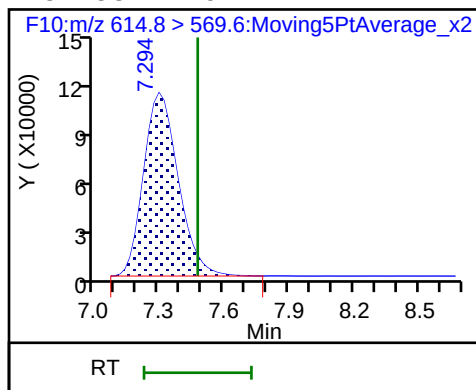
36 Perfluorododecanoic acid (M)



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (ND)

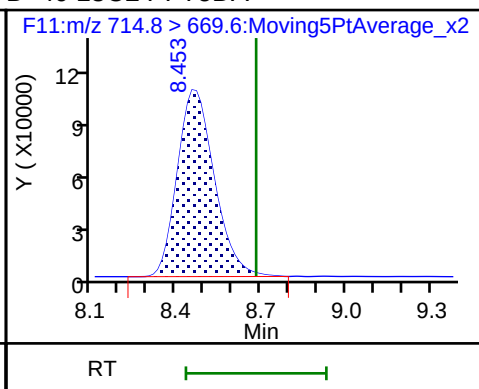
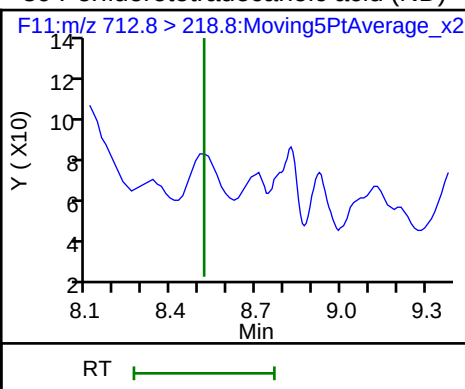
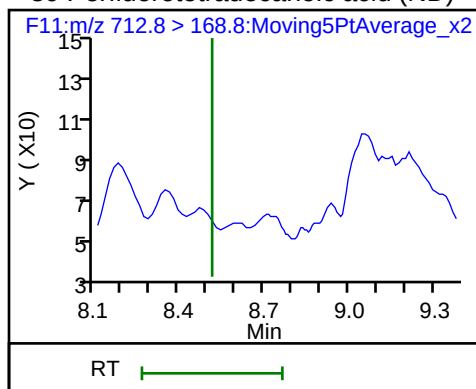
39 Perfluorotetradecanoic acid (ND)



39 Perfluorotetradecanoic acid (ND)

39 Perfluorotetradecanoic acid (ND)

D 40 13C2 PFTeDA



TestAmerica Burlington

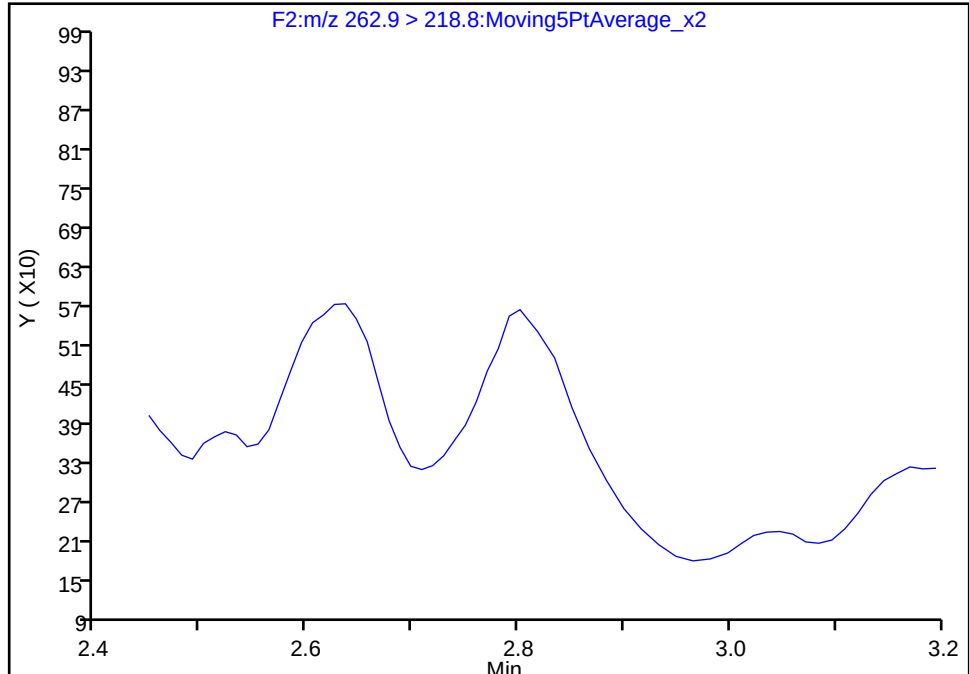
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A36.d				
Injection Date:	10-Jan-2019 00:54:00	Instrument ID:	LC410		
Lims ID:	480-147352-B-5-A	Lab Sample ID:	200-147352-5		
Client ID:	779082 (Field Blank)				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	36
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F2:MRM		

4 Perfluoropentanoic acid, CAS: 2706-90-3

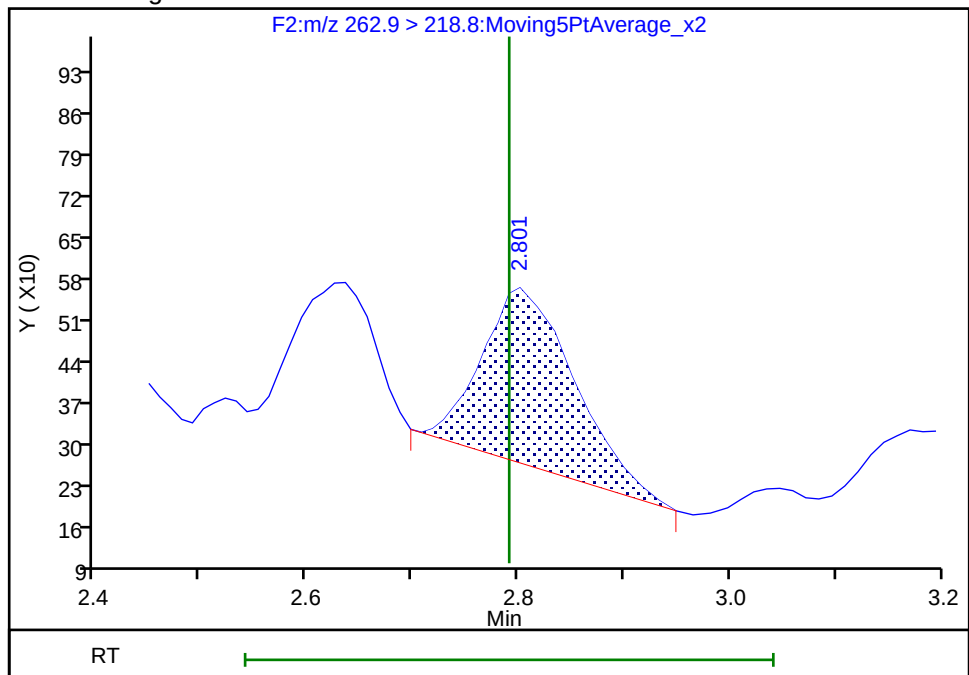
Signal: 1

Not Detected
Expected RT: 2.79

Processing Integration Results



Manual Integration Results

RT: 2.80
Area: 1823
Amount: 0.064554
Amount Units: ng/mlReviewer: murrayjw, 10-Jan-2019 11:23:22
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

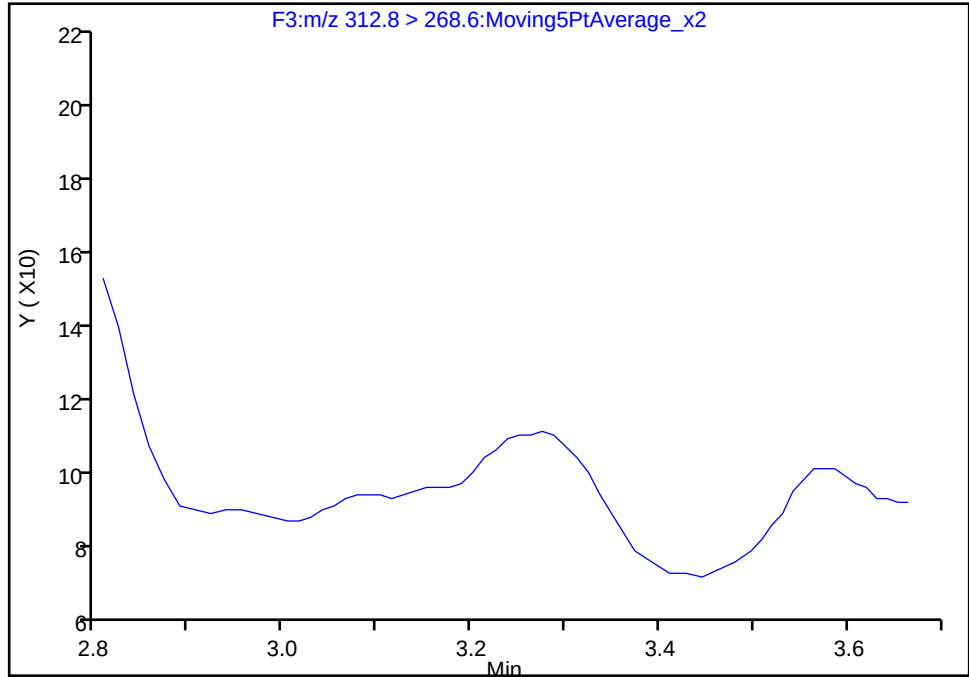
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A36.d				
Injection Date:	10-Jan-2019 00:54:00	Instrument ID:	LC410		
Lims ID:	480-147352-B-5-A	Lab Sample ID:	200-147352-5		
Client ID:	779082 (Field Blank)				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	36
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F3:MRM		

8 Perfluorohexanoic acid, CAS: 307-24-4

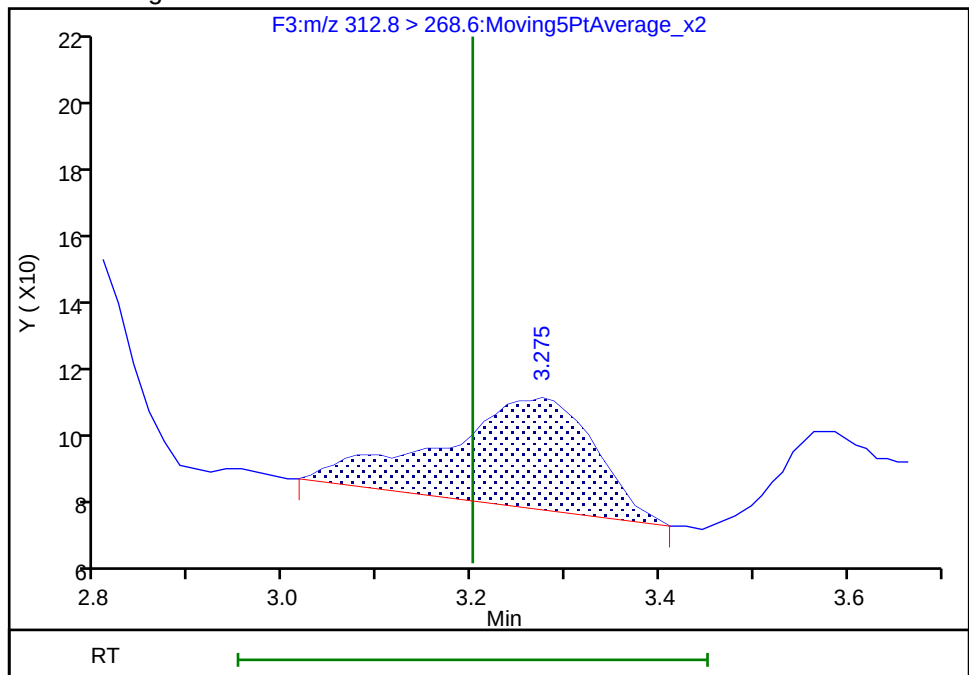
Signal: 1

Not Detected
Expected RT: 3.20

Processing Integration Results

RT: 3.28
Area: 369
Amount: 0.025489
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 11:23:36
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

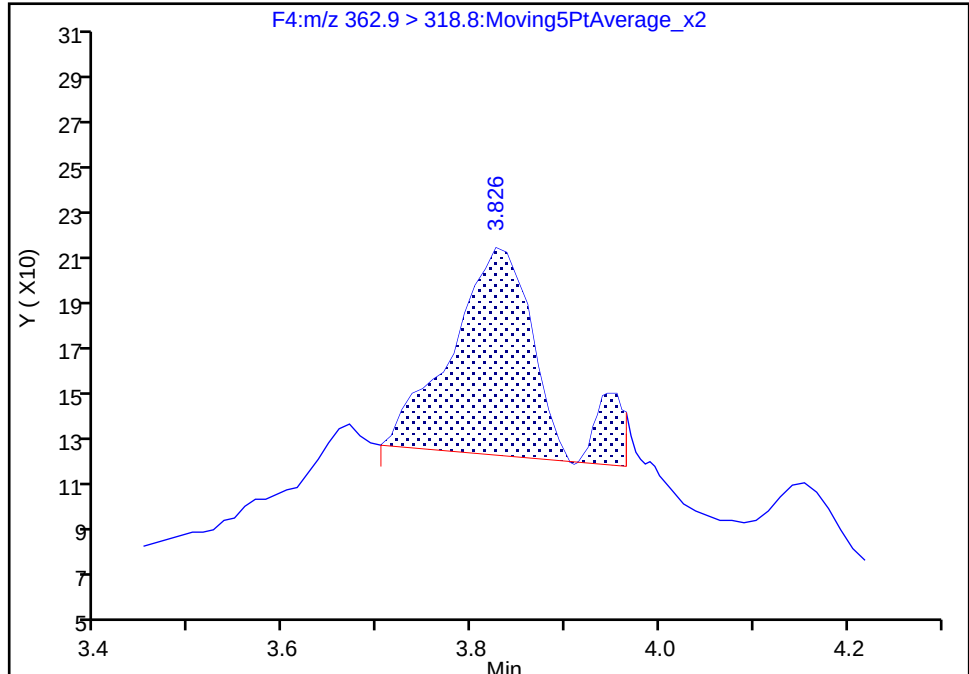
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Injection Date:	10-Jan-2019 00:54:00	Instrument ID:	LC410		
Lims ID:	480-147352-B-5-A	Lab Sample ID:	200-147352-5		
Client ID:	779082 (Field Blank)				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	36
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector:	F4:MRM		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

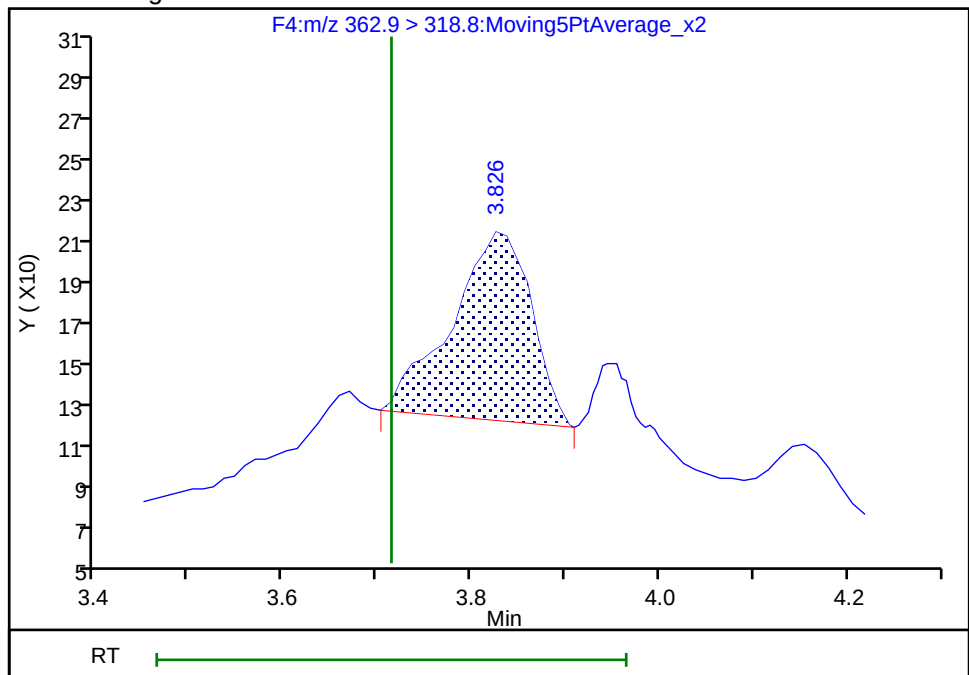
RT: 3.83
Area: 575
Amount: 0.024634
Amount Units: ng/ml

Processing Integration Results



RT: 3.83
Area: 519
Amount: 0.022235
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:23:46
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

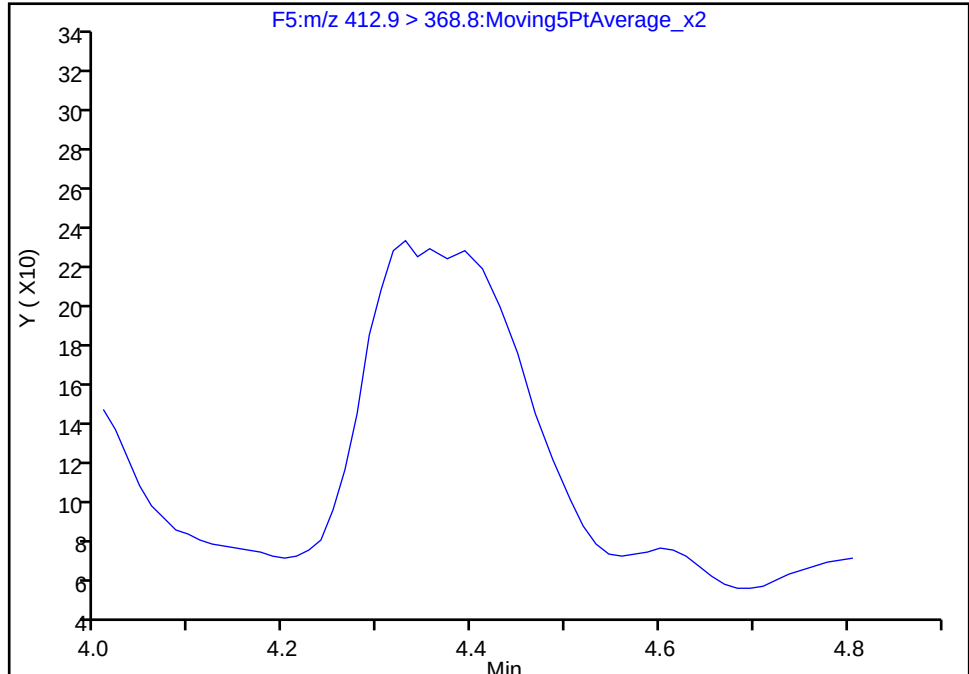
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A36.d				
Injection Date:	10-Jan-2019 00:54:00	Instrument ID:	LC410		
Lims ID:	480-147352-B-5-A	Lab Sample ID:	200-147352-5		
Client ID:	779082 (Field Blank)				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	36
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F5:MRM		

16 Perfluorooctanoic acid, CAS: 335-67-1

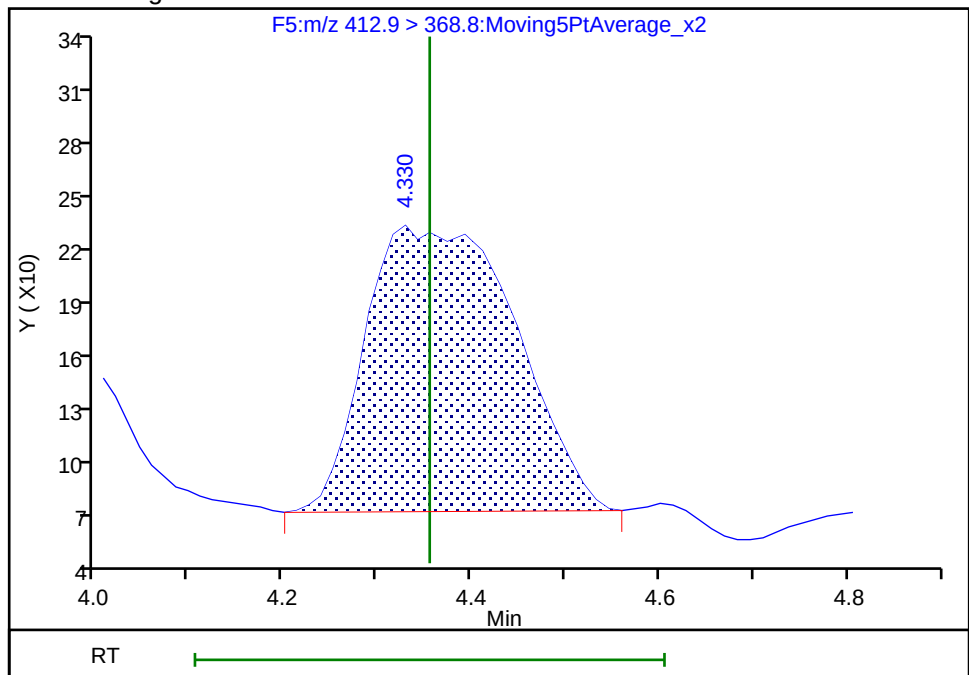
Signal: 1

Not Detected
Expected RT: 4.36

Processing Integration Results



Manual Integration Results



RT: 4.33
Area: 1741
Amount: 0.098563
Amount Units: ng/ml

Reviewer: murrayjw, 10-Jan-2019 11:23:58
Audit Action: Manually Integrated

Audit Reason: Missed Peak
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TestAmerica Burlington

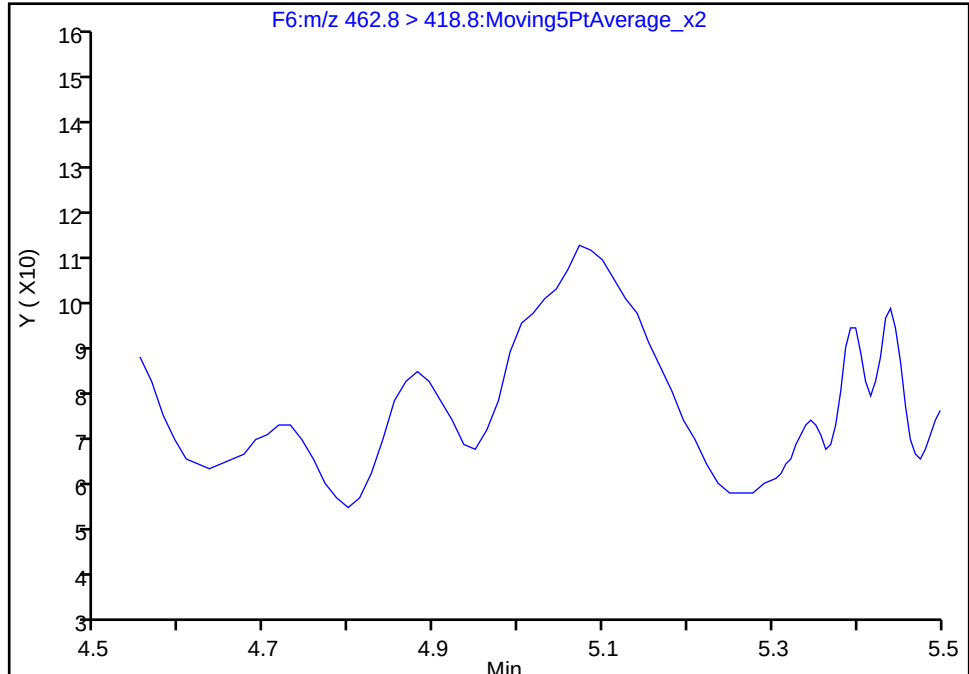
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A36.d				
Injection Date:	10-Jan-2019 00:54:00	Instrument ID:	LC410		
Lims ID:	480-147352-B-5-A	Lab Sample ID:	200-147352-5		
Client ID:	779082 (Field Blank)				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	36
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F6:MRM		

19 Perfluorononanoic acid, CAS: 375-95-1

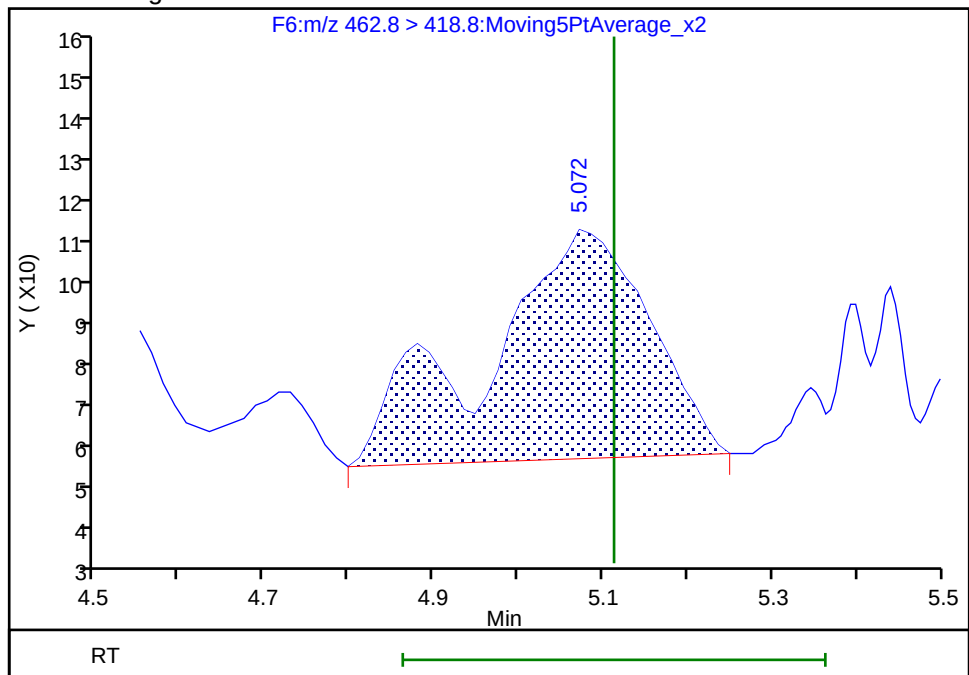
Signal: 1

Not Detected
Expected RT: 5.11

Processing Integration Results

RT: 5.07
Area: 696
Amount: 0.026861
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 11:24:09
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

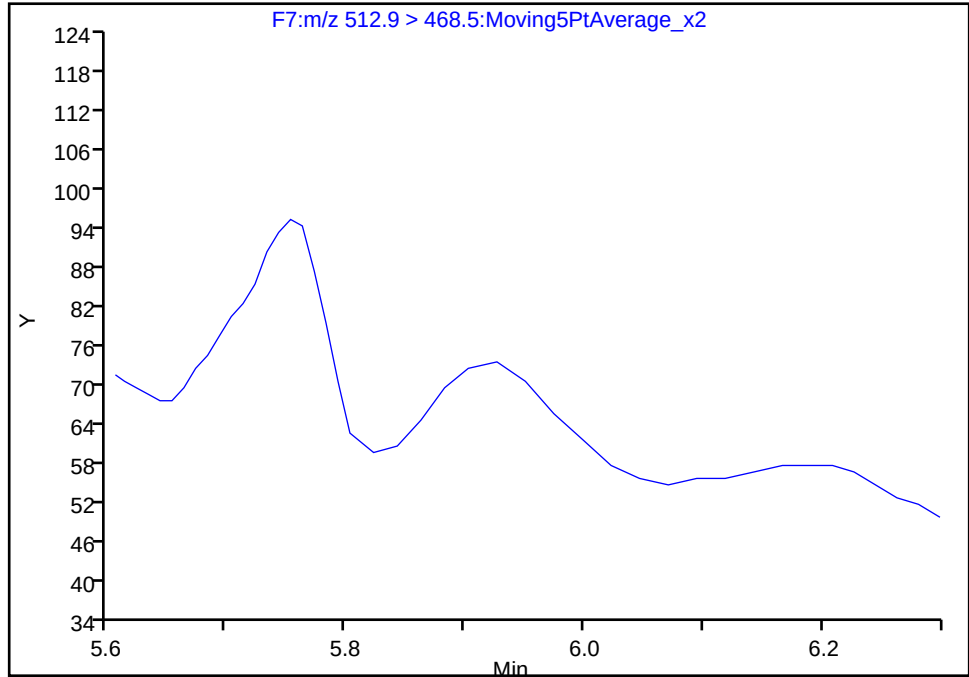
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A36.d				
Injection Date:	10-Jan-2019 00:54:00	Instrument ID:	LC410		
Lims ID:	480-147352-B-5-A	Lab Sample ID:	200-147352-5		
Client ID:	779082 (Field Blank)				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	36
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F7:MRM		

25 Perfluorodecanoic acid, CAS: 335-76-2

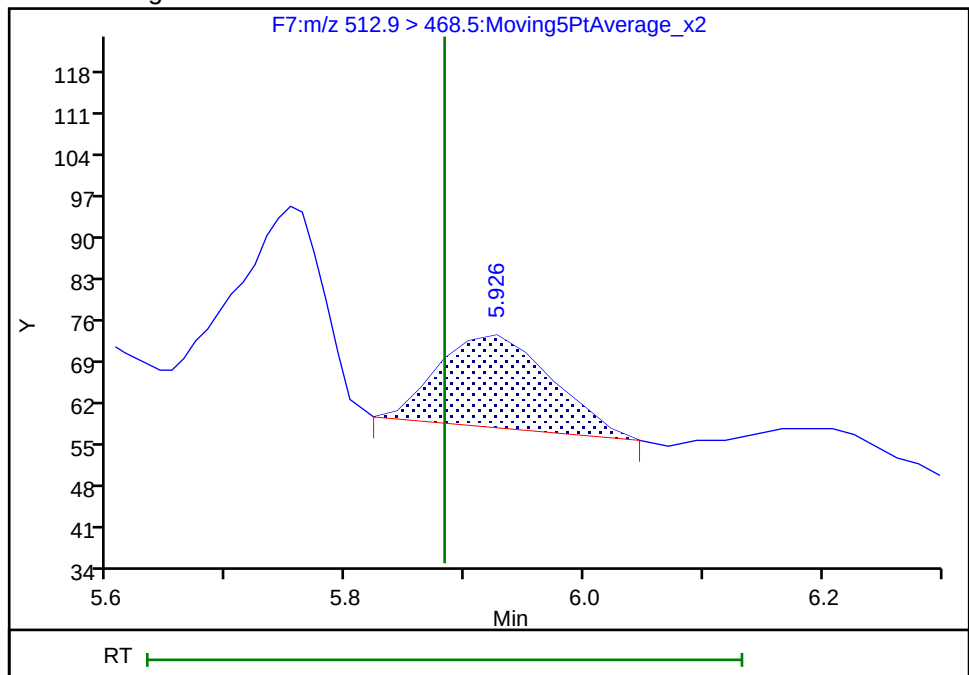
Signal: 1

Not Detected
Expected RT: 5.88

Processing Integration Results



Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 11:24:24
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

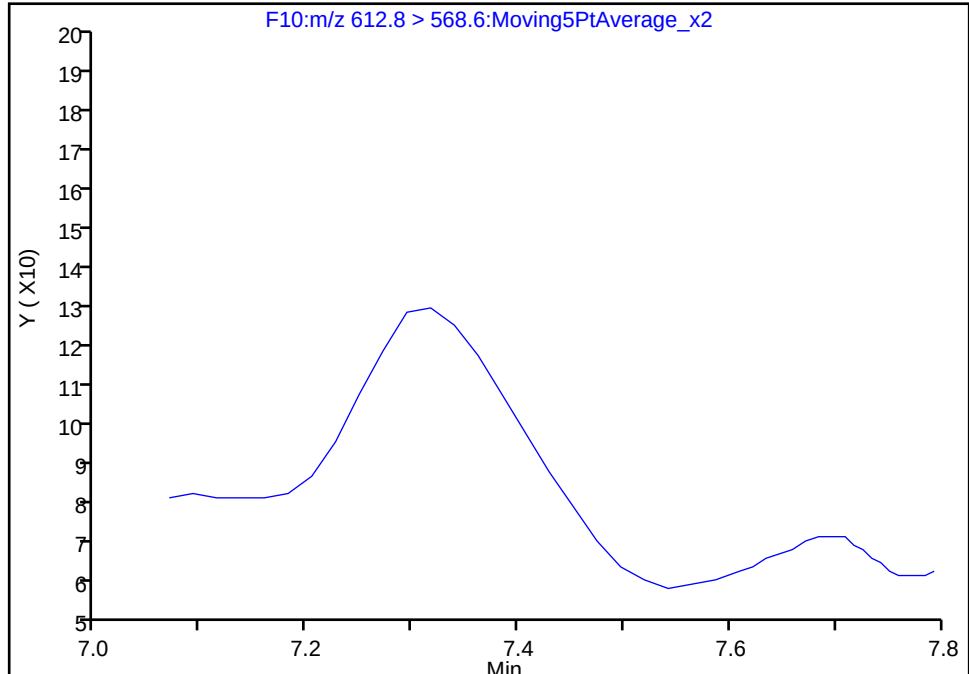
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Injection Date:	10-Jan-2019 00:54:00	Instrument ID:	LC410		
Lims ID:	480-147352-B-5-A	Lab Sample ID:	200-147352-5		
Client ID:	779082 (Field Blank)				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	36
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F10:MRM		

36 Perfluorododecanoic acid, CAS: 307-55-1

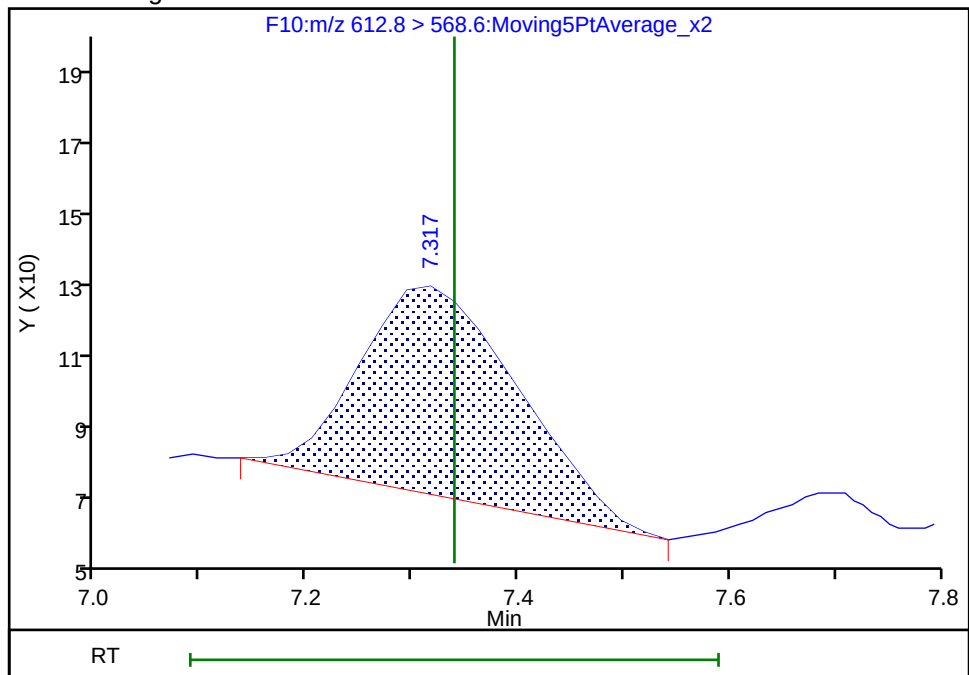
Signal: 1

Not Detected
Expected RT: 7.34

Processing Integration Results



Manual Integration Results

RT: 7.32
Area: 557
Amount: 0.025709
Amount Units: ng/mlReviewer: murrayjw, 10-Jan-2019 11:24:40
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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TestAmerica Burlington

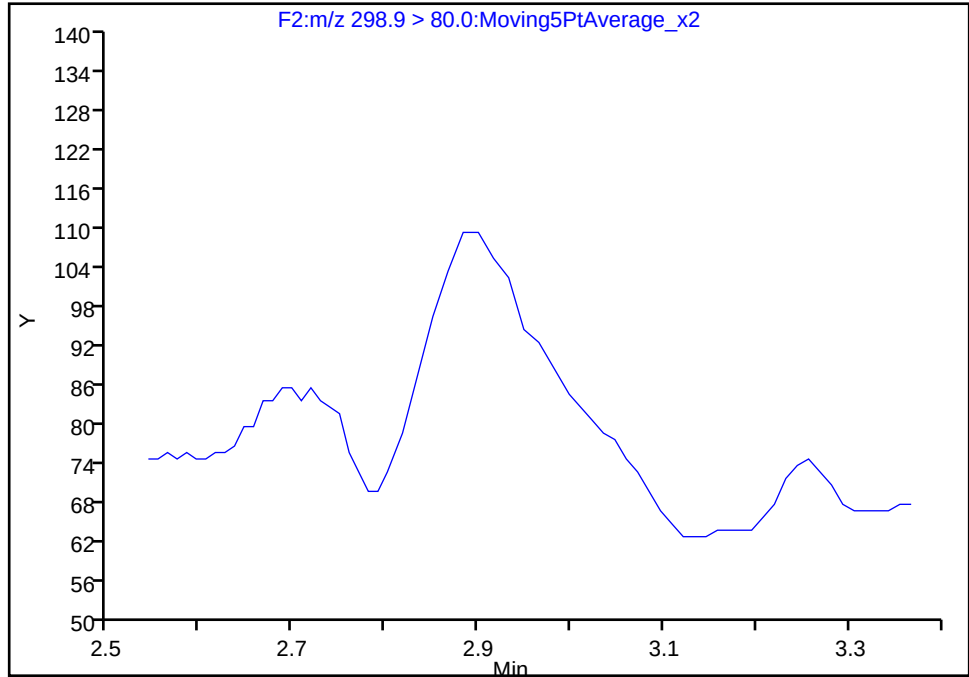
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A36.d				
Injection Date:	10-Jan-2019 00:54:00	Instrument ID:	LC410		
Lims ID:	480-147352-B-5-A	Lab Sample ID:	200-147352-5		
Client ID:	779082 (Field Blank)				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	36
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F2:MRM		

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

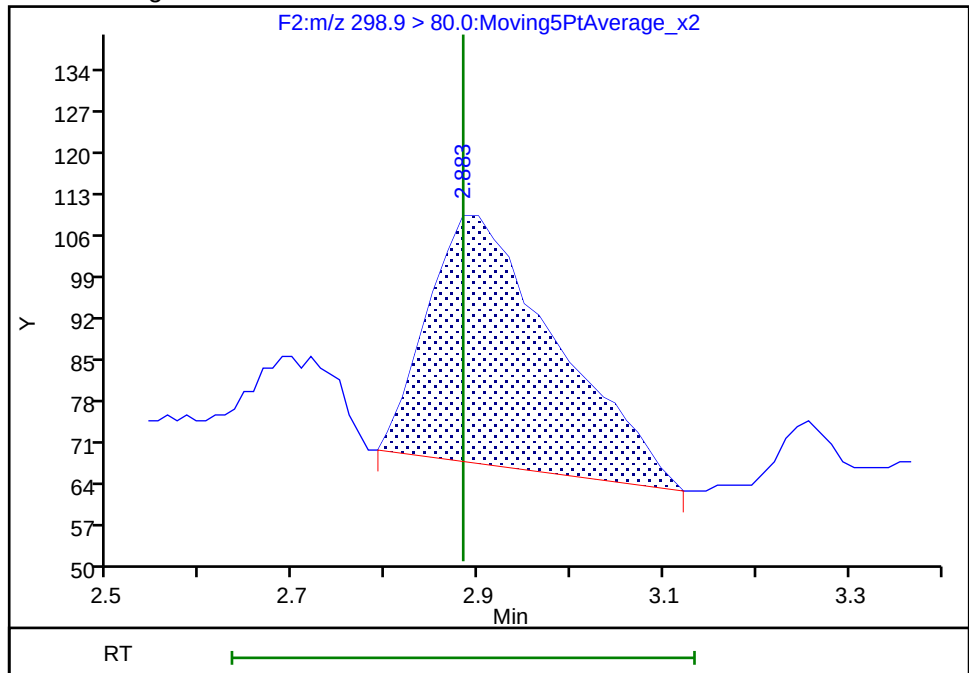
Signal: 1

Not Detected
Expected RT: 2.88

Processing Integration Results



Manual Integration Results

RT: 2.88
Area: 411
Amount: 0.031419
Amount Units: ng/mlReviewer: murrayjw, 10-Jan-2019 11:23:29
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Burlington

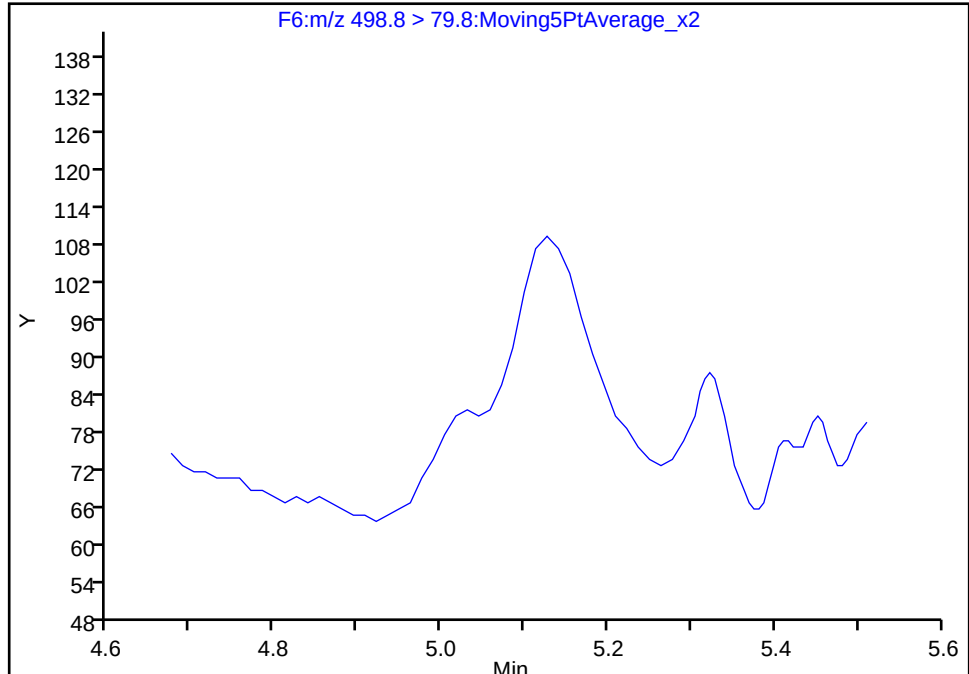
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A36.d				
Injection Date:	10-Jan-2019 00:54:00	Instrument ID:	LC410		
Lims ID:	480-147352-B-5-A	Lab Sample ID:	200-147352-5		
Client ID:	779082 (Field Blank)				
Operator ID:	BC	ALS Bottle#:	0	Worklist Smp#:	36
Injection Vol:	20.0 ul	Dil. Factor:	1.0000		
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL		
Column:		Detector	F6:MRM		

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

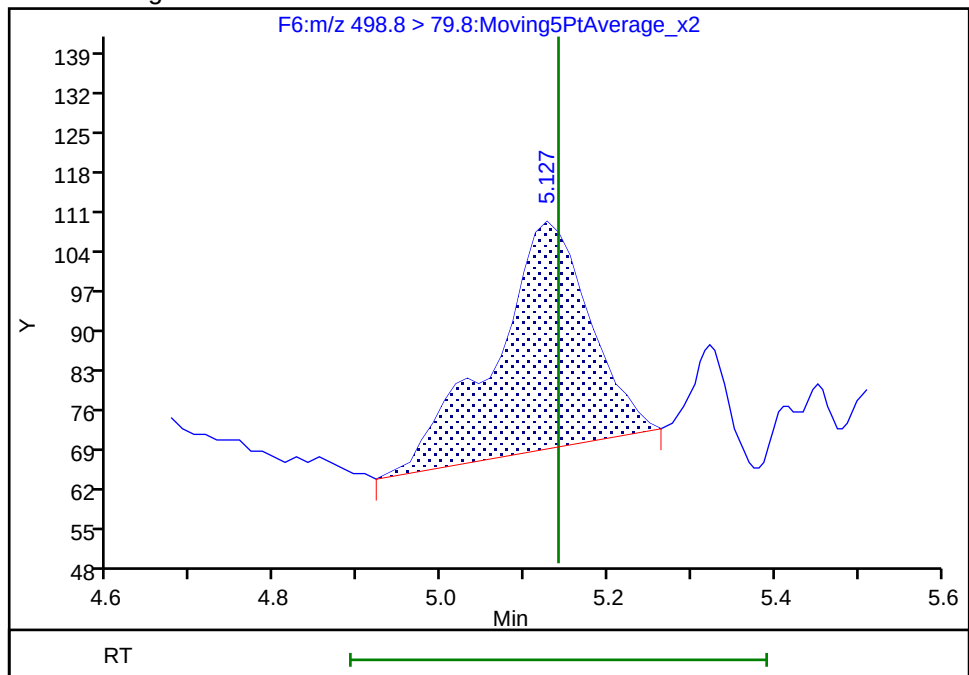
Signal: 1

Not Detected
Expected RT: 5.14

Processing Integration Results



Manual Integration Results

RT: 5.13
Area: 325
Amount: 0.043171
Amount Units: ng/mlReviewer: murrayjw, 10-Jan-2019 11:24:14
Audit Action: Manually IntegratedAudit Reason: Missed Peak
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FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Burlington Job No.: 480-147352-1 Analy Batch No.: 135376

SDG No.: _____

Instrument ID: LC410 GC Column: C-18 ID: 4.6 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/17/2018 13:20 Calibration End Date: 10/17/2018 15:27 Calibration ID: 40218

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 200-135376/6	PF101718A06.d
Level 2	IC 200-135376/7	PF101718A07.d
Level 3	IC 200-135376/8	PF101718A08.d
Level 4	IC 200-135376/9	PF101718A09.d
Level 5	ICIS 200-135376/10	PF101718A10.d
Level 6	IC 200-135376/11	PF101718A11.d
Level 7	IC 200-135376/12	PF101718A12.d
Level 8	IC 200-135376/13	PF101718A13.d
Level 9	IC 200-135376/14	PF101718A14.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	1.0429 0.8301	0.8545 0.8468	0.9302 0.8535	0.8729 0.8489	0.8551	L1ID	0.1613	0.8473							1.0000		0.9900
Perfluoropentanoic acid (PFPeA)	2.9647 2.6935	2.9741 2.7266	2.9358 2.6809	2.9571 2.8601	2.8385	AveID		2.8479				4.2		35.0			
Perfluorobutanesulfonic acid (PFBS)	1.6200 1.7337	1.7728 1.7024	1.9127 1.7343	1.7625 1.8359	1.6308	AveID		1.7450				5.3		35.0			
Perfluorohexanoic acid (PFHxA)	1.0153 1.0163	1.0167 1.0323	1.0124 1.0376	1.0572 1.1034	1.0466	AveID		1.0375				2.8		35.0			
Perfluoroheptanoic acid (PFHpA)	0.9018 0.9452	0.9661 1.0015	0.9853 0.9927	0.9924 1.0481	0.9641	AveID		0.9775				4.1		35.0			
Perfluorohexanesulfonic acid (PFHxS)	2.0008 1.5678	1.7094 1.4866	1.5826 1.5036	1.4513 1.5446	1.5404	L1ID	0.3609	1.5216							1.0000		0.9900
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	++++ 0.9381	++++ 0.9781	1.1801 0.9224	1.0613 0.8061	1.0056	AveID		0.9845				11.9		35.0			
Perfluorooctanoic acid (PFOA)	1.0546 0.9621	0.9402 0.9791	1.0459 1.0225	0.9427 0.9869	0.9751	AveID		0.9899				4.3		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	0.9904 0.9433	0.8892 1.0019	0.9979 0.9461	0.9478 0.9942	0.8814	AveID		0.9547				4.8		50.0			
Perfluorononanoic acid (PFNA)	1.4623 0.9593	1.2373 1.0066	1.1625 0.9916	1.0038 1.0659	1.0043	AveID		1.0993				14.9		35.0			
Perfluorooctanesulfonic acid (PFOS)	0.9240 1.0186	0.9354 1.0894	0.9906 1.0666	1.0346 1.2057	1.0385	AveID		1.0337				8.2		35.0			
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	++++ 0.8729	++++ 0.8432	0.7851 0.7713	0.9406 0.7090	0.7254	AveID		0.8068				10.3		35.0			
Perfluorodecanoic acid (PFDA)	1.1486 1.0256	0.9379 1.0352	0.9864 1.0009	0.9770 1.0331	0.9406	AveID		1.0095				6.3		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 Burlington Job No.: 480-147352-1 Analy Batch No.: 135376

SDG No.: _____

Instrument ID: LC410 GC Column: C-18 ID: 4.6 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/17/2018 13:20 Calibration End Date: 10/17/2018 15:27 Calibration ID: 40218

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5		B	M1	M2								
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	1.1476 1.1287	1.0854 1.0380	1.1040 1.0406	1.0911 1.0595	1.0781	AveID		1.0859				3.4		35.0			
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	++++ 0.9720	++++ 0.9661	0.9878 0.9628	0.9121 0.9490	0.9890	AveID		0.9627				2.7		35.0			
Perfluorodecanesulfonic acid (PFDS)	0.9421 1.0555	1.0323 1.1291	1.0696 1.0405	1.0540 1.0841	1.0075	AveID		1.0461				5.0		50.0			
Perfluoroundecanoic acid (PFUnA)	0.9580 1.0136	1.1095 1.0380	1.0477 1.0064	1.0305 1.0381	0.9913	AveID		1.0259				4.1		35.0			
Perfluorooctanesulfonamide (PFOSA)	0.7971 0.8160	0.7904 0.8750	0.8477 0.8759	0.8769 0.8757	0.8607	AveID		0.8462				4.2		35.0			
Perfluorododecanoic acid (PFDoA)	0.8785 0.8507	0.8352 0.8571	0.8703 0.8731	0.8845 0.8384	0.8380	AveID		0.8584				2.2		35.0			
Perfluorotridecanoic acid (PFTriA)	0.9557 0.9817	0.9997 0.9611	1.0086 0.9875	0.9722 0.9498	0.9809	AveID		0.9775				2.0		50.0			
Perfluorotetradecanoic acid (PFTeA)	0.9721 0.9537	1.0046 0.9573	1.0316 0.9847	0.9692 0.9654	0.9344	AveID		0.9748				3.0		35.0			
13C4 PFBA	0.5621 0.6189	0.6056 0.5893	0.5395 0.6306	0.5100 0.6682	0.5634	Ave		0.5875				8.3		30.0			
13C5 PFPeA	0.3691 0.3977	0.3760 0.3762	0.3463 0.4093	0.3262 0.3921	0.3592	Ave		0.3725				7.0		30.0			
13C3 PFBS	0.2794 0.3190	0.3162 0.3112	0.2738 0.3433	0.2731 0.3285	0.3227	Ave		0.3075				8.4		30.0			
13C2 PFHxA	0.6503 0.7271	0.6933 0.6713	0.6731 0.6821	0.6248 0.6579	0.6594	Ave		0.6710				4.3		30.0			
13C4 PFHpA	1.2431 1.2753	1.2564 1.2196	1.2628 1.2278	1.1256 1.1892	1.2617	Ave		1.2291				3.8		30.0			
18O2 PFHxS	0.3376 0.3535	0.3486 0.3506	0.3512 0.3938	0.3201 0.3909	0.3535	Ave		0.3555				6.6		30.0			
M2-6:2 FTS	0.0986 0.1138	0.0996 0.1080	0.0923 0.1222	0.0887 0.1579	0.1059	Ave		0.1097				19.0		30.0			
13C4 PFOA	0.9386 0.9675	0.9852 0.9206	0.9450 0.9060	0.8758 0.9534	0.9531	Ave		0.9383				3.5		30.0			
13C5 PFNA	1.2642 1.3311	1.3067 1.2767	1.2326 1.2803	1.1559 1.2609	1.2807	Ave		1.2654				3.9		30.0			
13C4 PFOS	0.2865 0.3327	0.3168 0.3083	0.3132 0.3401	0.2809 0.3311	0.3235	Ave		0.3148				6.5		30.0			
M2-8:2 FTS	0.2656 0.2867	0.3093 0.2754	0.2821 0.3227	0.2786 0.3545	0.2991	Ave		0.2971				9.4		30.0			
13C2 PFDA	1.2707 1.3065	1.4107 1.2653	1.3839 1.2627	1.2518 1.2301	1.3603	Ave		1.3047				5.0		30.0			

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 Burlington Job No.: 480-147352-1 Analy Batch No.: 135376

SDG No.: _____

Instrument ID: LC410 GC Column: C-18 ID: 4.6 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/17/2018 13:20 Calibration End Date: 10/17/2018 15:27 Calibration ID: 40218

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	LVL 9													
d3-NMeFOSAA	0.2903 0.3201	0.3268 0.3443	0.3113 0.3753	0.2858 0.4242	0.3216	Ave		0.3333				13.0		30.0			
d5-NEtFOSAA	0.2780 0.2867	0.2795 0.2725	0.2835 0.2888	0.2746 0.2994	0.2823	Ave		0.2828				2.9		30.0			
13C2 PFUnA	1.3895 1.4184	1.4344 1.2859	1.4028 1.3238	1.3013 1.2810	1.3849	Ave		1.3580				4.4		30.0			
13C8 FOSA	0.5512 0.6415	0.5875 0.6072	0.5908 0.6487	0.5296 0.6874	0.6130	Ave		0.6063				8.1		30.0			
13C2 PFDoA	1.6087 1.7211	1.6988 1.7363	1.6948 1.7951	1.5240 1.9681	1.7179	Ave		1.7183				7.1		30.0			
13C2 PFTeDA	1.5081 1.5829	1.5979 1.5857	1.5343 1.6386	1.4033 1.7972	1.5425	Ave		1.5767				6.8		30.0			

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

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Burlington Job No.: 480-147352-1 Analy Batch No.: 135376

SDG No.: _____

Instrument ID: LC410 GC Column: C-18 ID: 4.6 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/17/2018 13:20 Calibration End Date: 10/17/2018 15:27 Calibration ID: 40218

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 200-135376/6	PF101718A06.d
Level 2	IC 200-135376/7	PF101718A07.d
Level 3	IC 200-135376/8	PF101718A08.d
Level 4	IC 200-135376/9	PF101718A09.d
Level 5	ICIS 200-135376/10	PF101718A10.d
Level 6	IC 200-135376/11	PF101718A11.d
Level 7	IC 200-135376/12	PF101718A12.d
Level 8	IC 200-135376/13	PF101718A13.d
Level 9	IC 200-135376/14	PF101718A14.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
Perfluorobutanoic acid (PFBA)		L1ID	12324 317597	22870 527859	62168 1047755	118688 1927671	220914	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluoropentanoic acid (PFPeA)		AveID	23003 662266	49422 1085160	125927 2135896	257221 3810569	467563	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluorobutanesulfonic acid (PFBS)		AveID	9516 341905	24774 560395	64865 1158992	128344 2049258	241309	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluorohexanoic acid (PFHxA)		AveID	13880 456836	31150 733096	84410 1377885	176119 2467003	316464	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluoroheptanoic acid (PFHpA)		AveID	23568 745215	53644 1292036	154111 2372623	297831 4235283	557789	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluorohexanesulfonic acid (PFHxS)		L1ID	14202 342568	26334 551375	68847 1152538	123878 2051663	249693	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)		AveID	++++ 66022	++++ 111701	13494 219475	25088 432543	48850	++++ 30.0	++++ 50.0	5.00 100	10.0 200	20.0
Perfluorooctanoic acid (PFOA)		AveID	20809 575433	40936 953489	122430 1803420	220137 3197469	426187	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	5966 194023	12449 326805	38707 626455	70999 1118747	130750	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluorononanoic acid (PFNA)		AveID	38864 789377	71450 1359420	177481 2471507	309354 4567285	589760	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluorooctanesulfonic acid (PFOS)		AveID	5566 209502	13096 355328	38423 706214	77495 1356719	154040	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)		AveID	++++ 154728	++++ 245658	27432 484542	69878 854174	99493	++++ 30.0	++++ 50.0	5.00 100	10.0 200	20.0
Perfluorodecanoic acid (PFDA)		AveID	30684 828327	58471 1385659	169098 2460309	326087 4318588	586742	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)		AveID	7003 223351	15677 378059	42564 760209	83136 1527415	158990	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Burlington Job No.: 480-147352-1 Analy Batch No.: 135376

SDG No.: _____

Instrument ID: LC410 GC Column: C-18 ID: 4.6 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/17/2018 13:20 Calibration End Date: 10/17/2018 15:27 Calibration ID: 40218

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)		AveID	+++++ 172294	+++++ 278513	34693 541296	66780 965610	128045	+++++ 30.0	+++++ 50.0	5.00 100	10.0 200	20.0
Perfluorodecanesulfonic acid (PFDS)		AveID	5675 217089	14452 368285	41490 688953	78955 1219877	149455	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluoroundecanoic acid (PFUnA)		AveID	27985 888797	70336 1412068	182039 2593532	357513 4519201	629524	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluorooctanesulfonamide (PFOSA)		AveID	9236 323592	20523 562051	62033 1106058	123818 2045786	241945	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluorododecanoic acid (PFDoA)		AveID	29712 905170	62706 1574332	182703 3051169	359390 5607453	660163	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluorotridecanoic acid (PFTriA)		AveID	30302 960634	70598 1612219	191672 3150003	363751 5800696	693824	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
Perfluorotetradecanoic acid (PFTeA)		AveID	30821 933224	70942 1605926	196056 3140954	362652 5895673	660889	1.00 30.0	2.00 50.0	5.00 100	10.0 200	20.0
13C4 PFBA	13PF OA	Ave	590841 637703	669118 623368	668312 613765	679847 567698	645885	50.0 50.0	50.0 50.0	50.0 50.0	50.0 50.0	50.0
13C5 PFPeA	13PF OA	Ave	387945 409798	415435 397986	428936 398357	434921 333076	411808	50.0 50.0	50.0 50.0	50.0 50.0	50.0 50.0	50.0
13C3 PFBS	13PF OA	Ave	273141 305671	324907 306130	315382 310742	338617 259525	344027	46.5 46.5	46.5 46.5	46.5 46.5	46.5 46.5	46.5
13C2 PFHxA	13PF OA	Ave	683551 749159	765970 710134	833740 663953	832949 558939	755922	50.0 50.0	50.0 50.0	50.0 50.0	50.0 50.0	50.0
13C4 PFHpA	13PF OA	Ave	1306729 1314020	1388164 1290126	1564164 1195044	1500566 1010258	1446406	50.0 50.0	50.0 50.0	50.0 50.0	50.0 50.0	50.0
18O2 PFHxS	13PF OA	Ave	335749 344516	364345 350859	411523 362565	403737 314147	383361	47.3 47.3	47.3 47.3	47.3 47.3	47.3 47.3	47.3
M2-6:2 FTS	13PF OA	Ave	98459 111438	104496 108495	108629 113019	112280 127432	115369	47.5 47.5	47.5 47.5	47.5 47.5	47.5 47.5	47.5
13C4 PFOA	13PF OA	Ave	986590 996848	1088528 973826	1170517 881871	1167546 809948	1092624	50.0 50.0	50.0 50.0	50.0 50.0	50.0 50.0	50.0
13C5 PFNA	13PF OA	Ave	1328865 1371470	1443703 1350557	1526778 1246159	1540942 1071206	1468139	50.0 50.0	50.0 50.0	50.0 50.0	50.0 50.0	50.0
13C4 PFOS	13PF OA	Ave	287930 327712	334603 311818	370825 316504	358054 268942	354522	47.8 47.8	47.8 47.8	47.8 47.8	47.8 47.8	47.8
M2-8:2 FTS	13PF OA	Ave	267461 283037	327367 279105	334752 300907	355854 288539	328510	47.9 47.9	47.9 47.9	47.9 47.9	47.9 47.9	47.9
13C2 PFDA	13PF OA	Ave	1335712 1346103	1558634 1338483	1714210 1229016	1668807 1045034	1559492	50.0 50.0	50.0 50.0	50.0 50.0	50.0 50.0	50.0
d3-NMeFOSAA	13PF OA	Ave	305107 329801	361095 364220	385533 365274	380957 360409	368677	50.0 50.0	50.0 50.0	50.0 50.0	50.0 50.0	50.0
d5-NEtFOSAA	13PF OA	Ave	292275 295427	308760 288272	351207 281091	366081 254374	323668	50.0 50.0	50.0 50.0	50.0 50.0	50.0 50.0	50.0

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Burlington Job No.: 480-147352-1 Analy Batch No.: 135376

SDG No.: _____

Instrument ID: LC410 GC Column: C-18 ID: 4.6 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/17/2018 13:20 Calibration End Date: 10/17/2018 15:27 Calibration ID: 40218

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
13C2 PFUnA	13PF OA	Ave	1460634	1584814	1737587	1734742	1587674	50.0	50.0	50.0	50.0	50.0
			1461436	1360311	1288532	1088312		50.0	50.0	50.0	50.0	
13C8 FOA	13PF OA	Ave	579385	649104	731745	706019	702765	50.0	50.0	50.0	50.0	50.0
			660912	642325	631359	584014		50.0	50.0	50.0	50.0	
13C2 PFDoA	13PF OA	Ave	1691013	1876986	2099298	2031630	1969434	50.0	50.0	50.0	50.0	50.0
			1773342	1836762	1747263	1671991		50.0	50.0	50.0	50.0	
13C2 PFTeDA	13PF OA	Ave	1585329	1765426	1900412	1870811	1768278	50.0	50.0	50.0	50.0	50.0
			1630900	1677487	1594870	1526788		50.0	50.0	50.0	50.0	

Curve Type Legend:

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

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A06.d
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 17-Oct-2018 13:20:08 ALS Bottle#: 0 Worklist Smp#: 6
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0032684-006 IC 1
 Misc. Info.: PFAS21 101718A ICAL
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 17-Oct-2018 16:38:11 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: XAWRK002

First Level Reviewer: chirgwinb

Date: 17-Oct-2018 14:44:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										M
216.9 > 171.5	2.343	2.339	0.004	1.000	590841	47.8		95.7	1045	M
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.338	2.340	-0.002	0.998	12324	1.04		104	19.4	M
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.760	2.756	0.004	1.000	23003	1.04		104	28.1	M
D 3 13C5 PFPeA										M
267.7 > 222.6	2.760	2.754	0.006	1.000	387945	49.5		99.1	1526	M
D 6 13C3 PFBS										M
302.0 > 79.8	2.818	2.818	0.0	1.000	273141	42.3		90.9	245	M
5 Perfluorobutanesulfonic acid										M
298.9 > 80.0	2.818	2.820	-0.002	1.000	9516	0.9284		92.8	108	M
D 7 13C2 PFHxA										
314.8 > 269.6	3.177	3.172	0.005	1.000	683551	48.5		96.9	2927	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.177	3.174	0.003	1.000	13880	0.9785		97.9	220	
D 9 13C4 PFHpA										
366.9 > 321.8	3.703	3.702	0.001	1.000	1306729	50.6		101	2229	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.715	3.705	0.010	1.003	23568	0.9226		92.3	151	
D 11 18O2 PFHxS										
402.9 > 83.8	3.748	3.747	0.001	1.000	335749	44.9		95.0	247	
12 Perfluorohexanesulfonic acid										M
399.0 > 80.0	3.748	3.749	-0.001	1.000	14202	1.08		108	123	M
D 13 M2-6:2 FTS										
428.6 > 408.6	4.330	4.325	0.005	1.000	98459	42.7		89.9	625	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.355	4.331	0.024	1.006	2229	1.09		109	248	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.374	4.370	0.004	1.000	986590	50.0		100	2701	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.374	4.374	0.0	1.000	20809	1.07		107	146	
* 15 13C2 PFOA										
414.9 > 369.8	4.374	4.374	0.0		1051180	50.0			2319	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.411	4.412	-0.001	0.854	5966	1.04		104	78.4	M
D 20 13C5 PFNA										
467.8 > 422.8	5.154	5.140	0.014	1.000	1328865	49.9		99.9	1207	
19 Perfluorononanoic acid										
462.8 > 418.8	5.154	5.142	0.012	1.000	38864	1.33		133	153	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.168	5.162	0.006	1.000	5566	0.8939		89.4	57.5	M
D 22 13C4 PFOS										
502.8 > 79.8	5.168	5.161	0.007	1.000	287930	43.5		91.0	1356	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.902	5.891	0.011	1.000	267461	42.8		89.4	1339	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.902	5.896	0.006	1.000	6667	1.48		148	51.4	
D 26 13C2 PFDA										
514.9 > 469.5	5.926	5.918	0.008	1.000	1335712	48.7		97.4	5874	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.926	5.926	0.0	1.000	30684	1.14		114	183	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.277	6.275	0.002	1.000	305107	43.5		87.1	1208	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.295	6.283	0.012	1.003	7003	1.06		106	20.0	M
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.652	6.638	0.014	1.000	292275	49.2		98.3	1087	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.634	6.654	-0.020	0.997	4446	0.7900		79.0	43.0	M
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.688	6.676	0.012	1.294	5675	0.9006		90.1	91.8	
D 32 13C2 PFUnA										
564.8 > 519.8	6.688	6.682	0.006	1.000	1460634	51.2		102	3004	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.688	6.688	0.0	1.000	27985	0.9338		93.4	185	
D 35 13C8 FOSA										
505.8 > 77.8	6.959	6.955	0.004	1.000	579385	45.5		90.9	2859	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.959	6.959	0.0	1.000	9236	0.9420		94.2	86.8	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.362	7.359	0.003	1.000	29712	1.02		102	214	
D 37 13C2 PFDoA										
614.8 > 569.6	7.362	7.362	0.0	1.000	1691013	46.8		93.6	1808	
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.979	7.979	0.0	0.935	36302	0.9777		97.8	201	M

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A06.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
39 Perfluorotetradecanoic acid										
712.8 > 668.6	8.544	8.520	0.024	1.002	30821	1.00		99.7	229	
712.8 > 168.8	8.529	8.520	0.009	1.000	6457		4.77(0.00-0.00)	99.7	30.7	
712.8 > 218.8	8.514	8.520	-0.006	0.998	2213		13.93(0.00-0.00)	99.7	15.0	
D 40 13C2 PFTeDA										
714.8 > 669.6	8.529	8.516	0.013	1.000	1585329	47.8		95.7	842	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L1_00003

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\ChromNA\\Burlington\\ChromData\\LC410\\20181017-32684.b\\PF101718A06.d

Injection Date: 17-Oct-2018 13:20:08

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

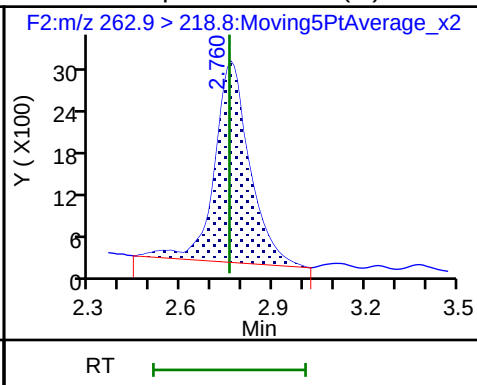
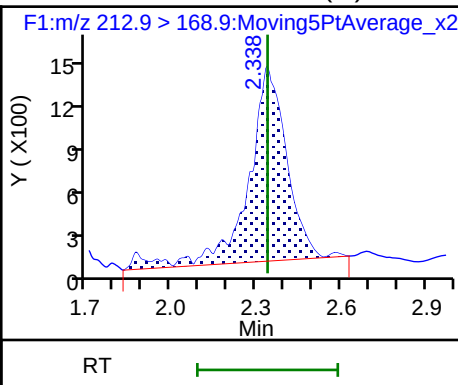
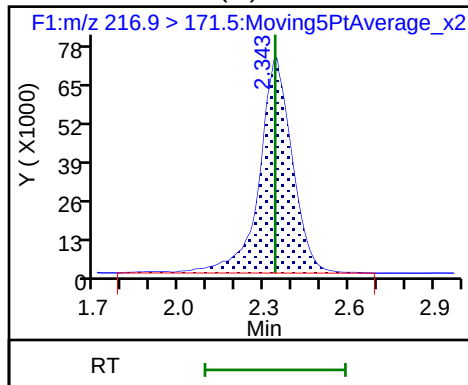
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

D 1 13C4 PFBA (M)

2 Perfluorobutanoic acid (M)

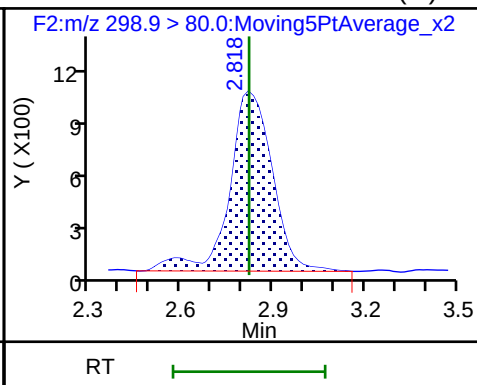
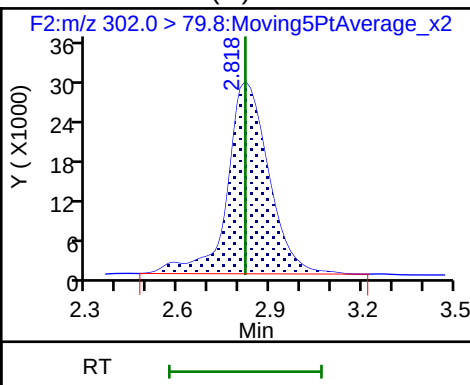
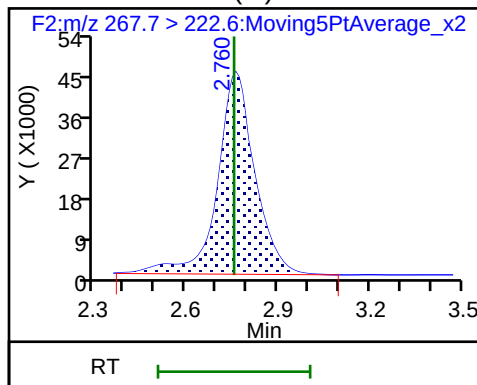
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA (M)

D 6 13C3 PFBS (M)

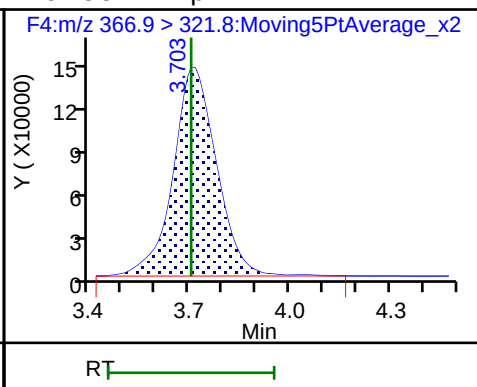
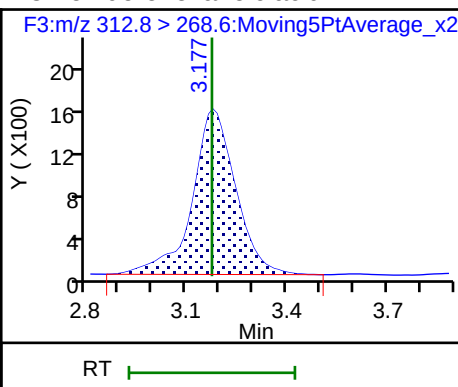
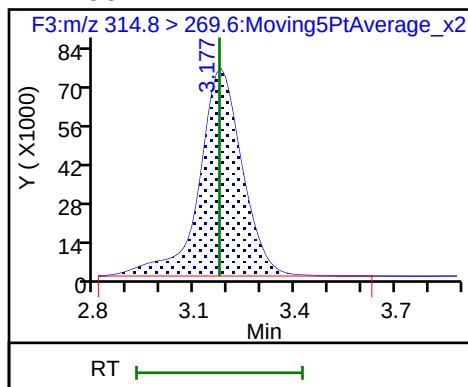
5 Perfluorobutanesulfonic acid (M)



D 7 13C2 PFHxA

8 Perfluorohexanoic acid

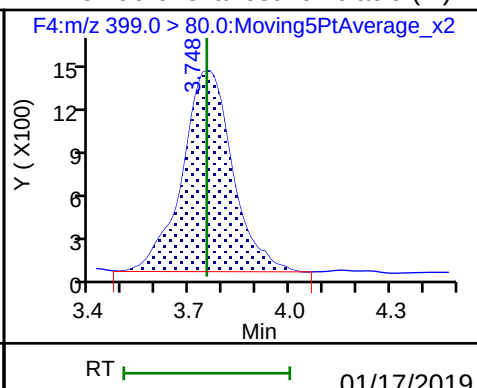
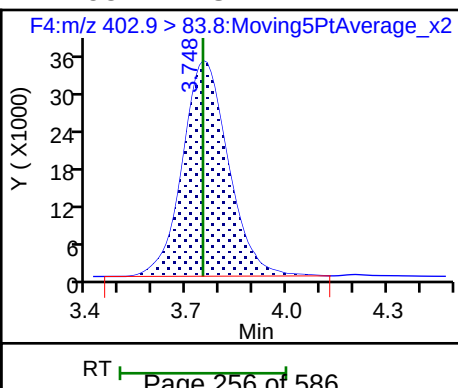
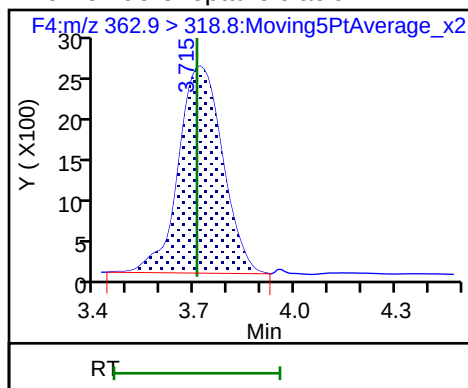
D 9 13C4 PFHpA



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

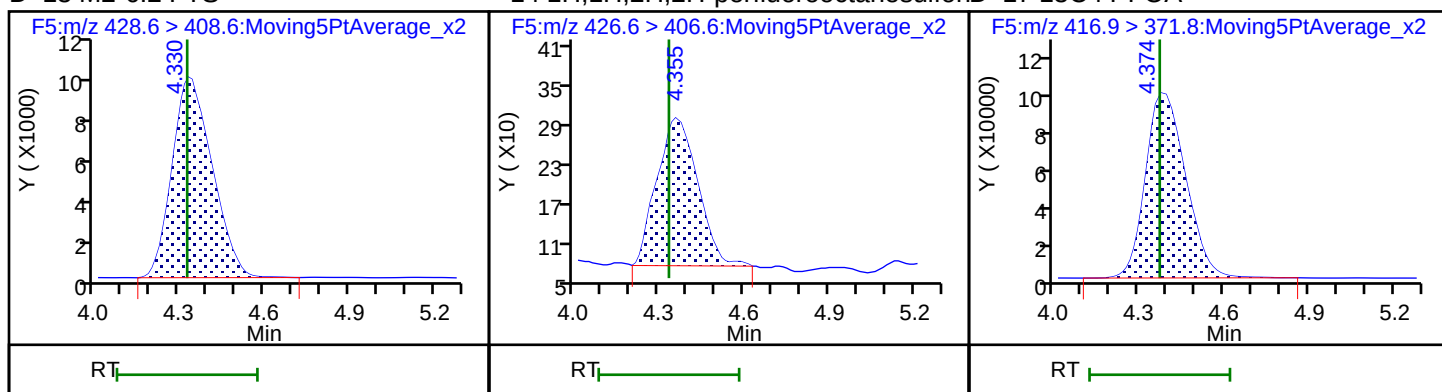
12 Perfluorohexanesulfonic acid (M)



D 13 M2-6:2 FTS

14 1H,1H,2H,2H-perfluorooctanesulfonD

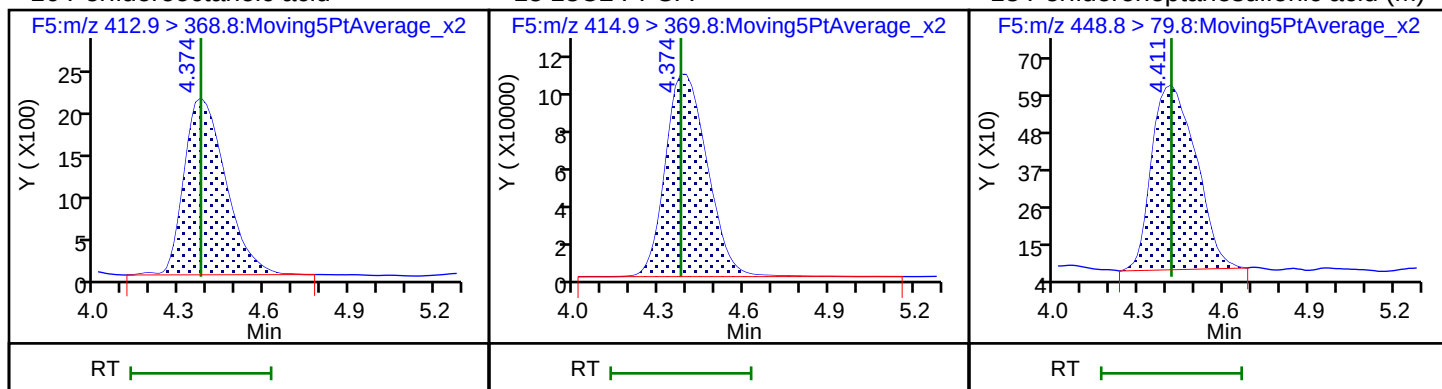
17 13C4 PFOA



16 Perfluorooctanoic acid

* 15 13C2 PFOA

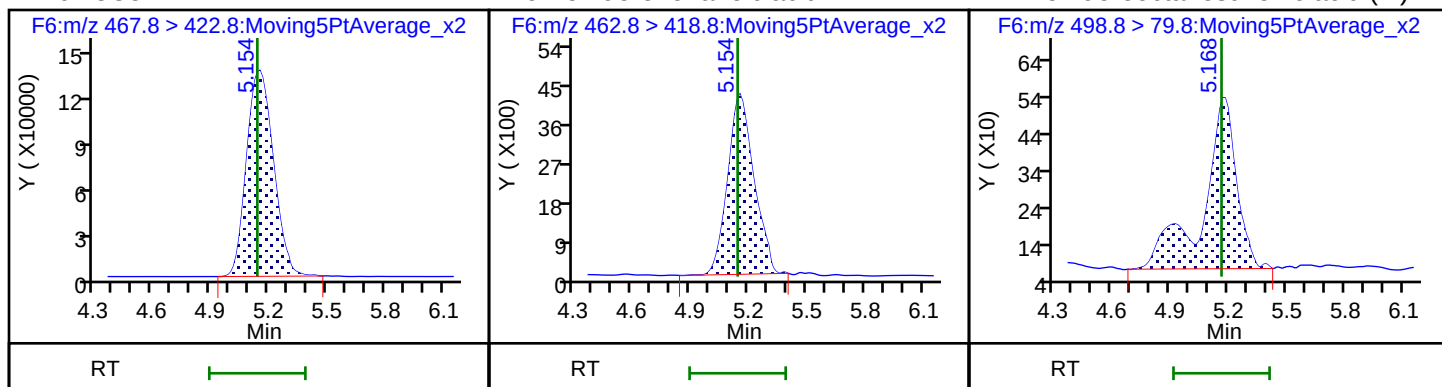
18 Perfluoroheptanesulfonic acid (M)



D 20 13C5 PFNA

19 Perfluorononanoic acid

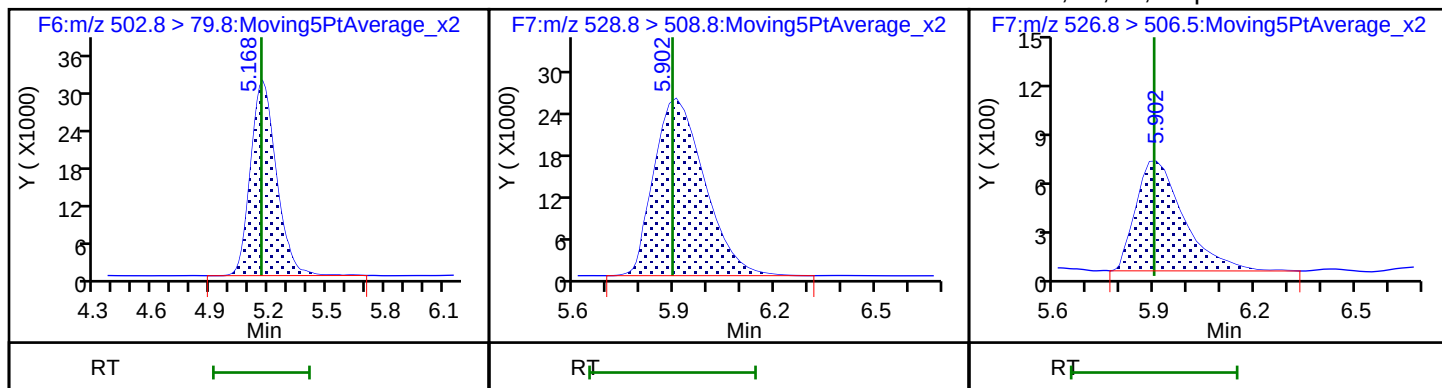
21 Perfluorooctanesulfonic acid (M)



D 22 13C4 PFOS

D 24 M2-8:2 FTS

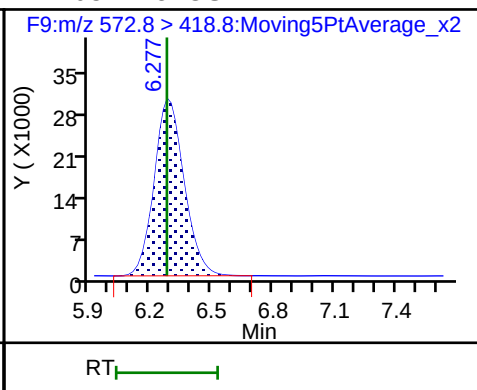
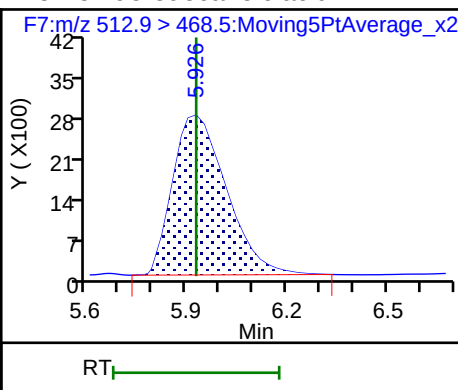
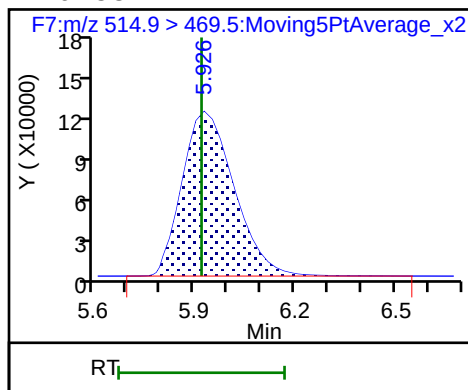
23 1H,1H,2H,2H-perfluorodecanesulfoni



D 26 13C2 PFDA

25 Perfluorodecanoic acid

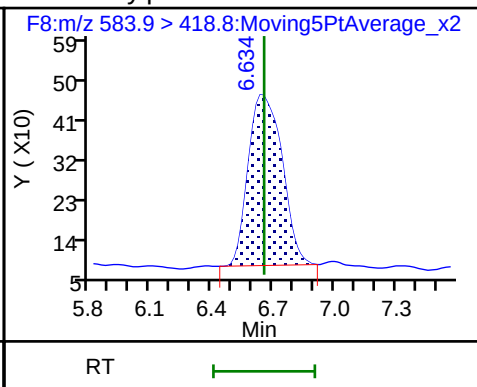
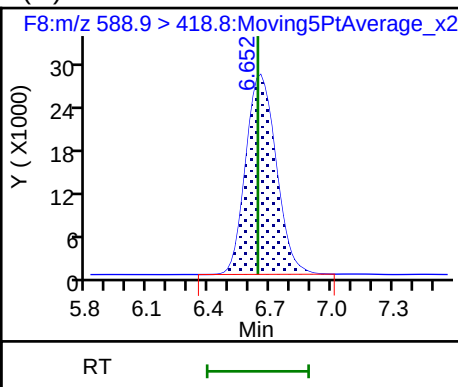
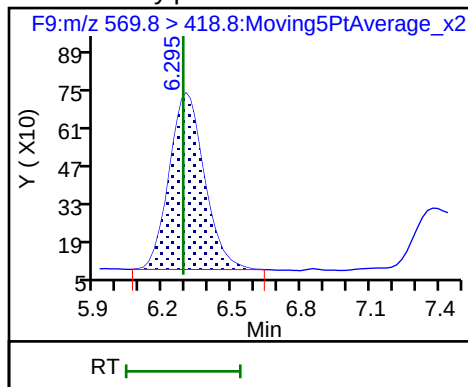
D 27 d3-NMeFOSAA



28 N-methylperfluorooctanesulfonamide (M)

D 29 d5-NEtFOSAA

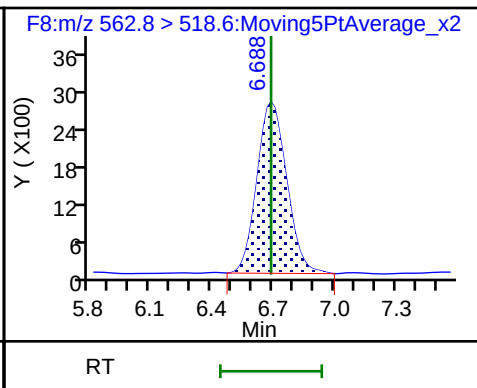
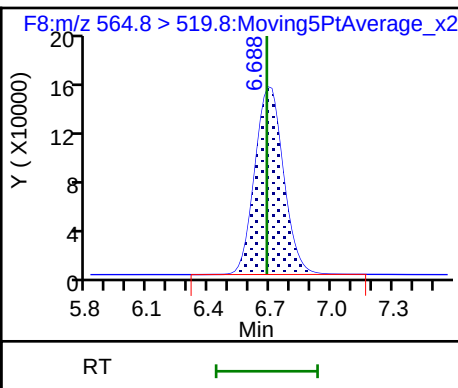
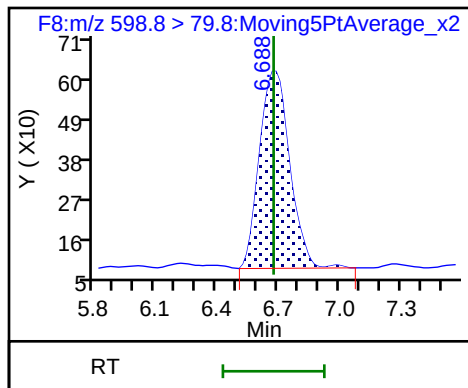
30 N-ethylperfluorooctanesulfonamide (M)



31 Perfluorodecanesulfonic acid

D 32 13C2 PFUnA

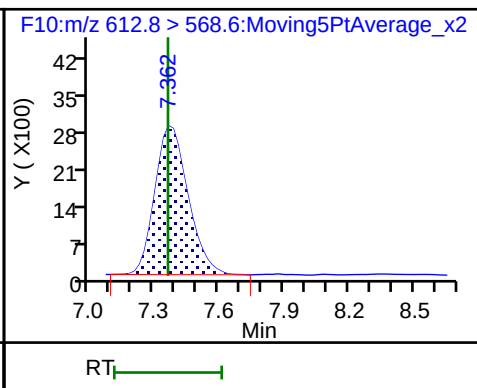
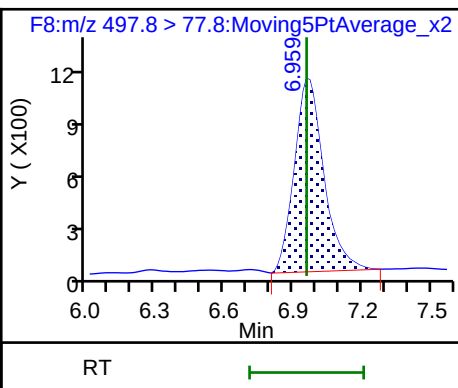
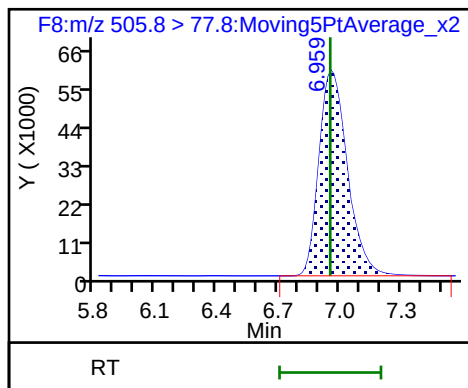
33 Perfluoroundecanoic acid



D 35 13C8 FOSA

34 Perfluorooctanesulfonamide

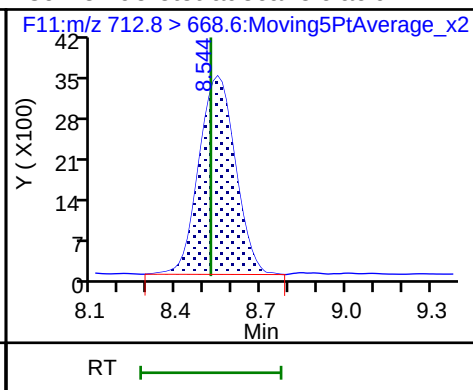
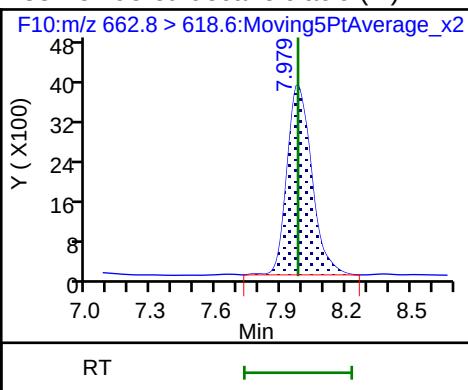
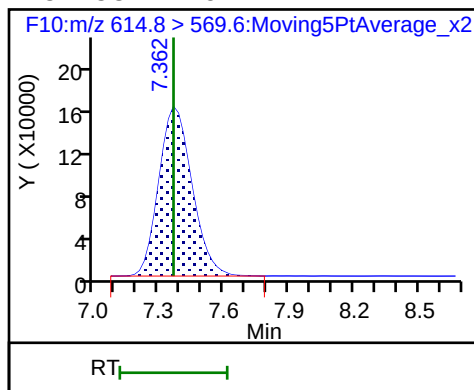
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (M)

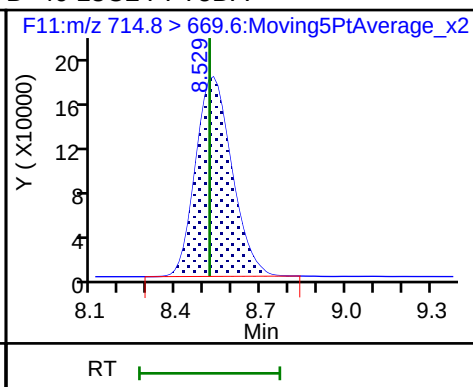
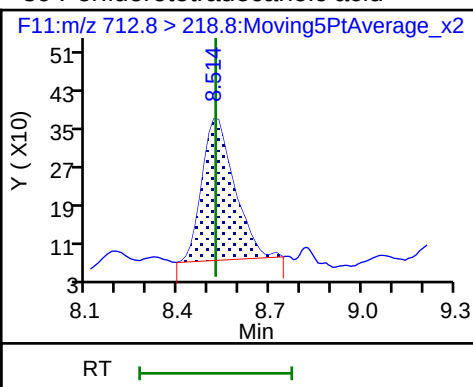
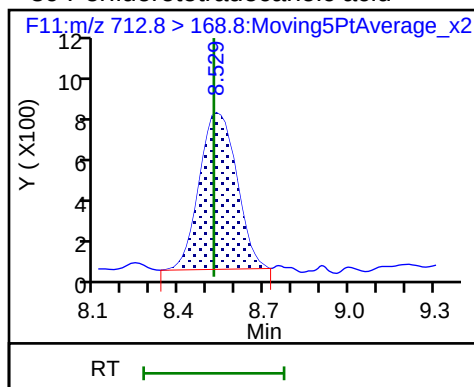
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

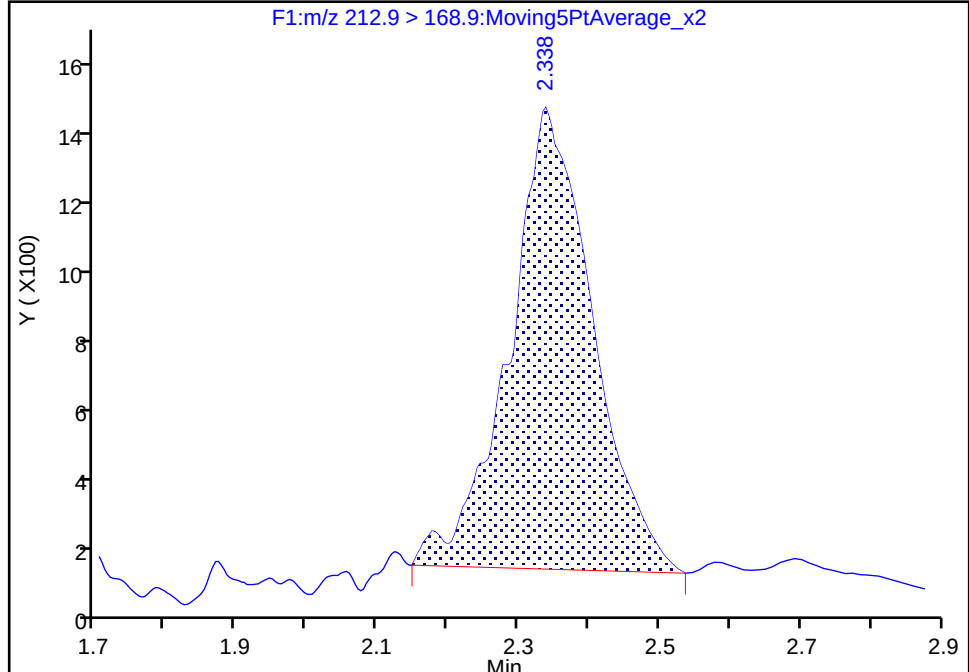
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Injection Date:	17-Oct-2018 13:20:08	Instrument ID:	LC410
Lims ID:	IC		
Client ID:			
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector:	F1:MRM
		Worklist Smp#:	6

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

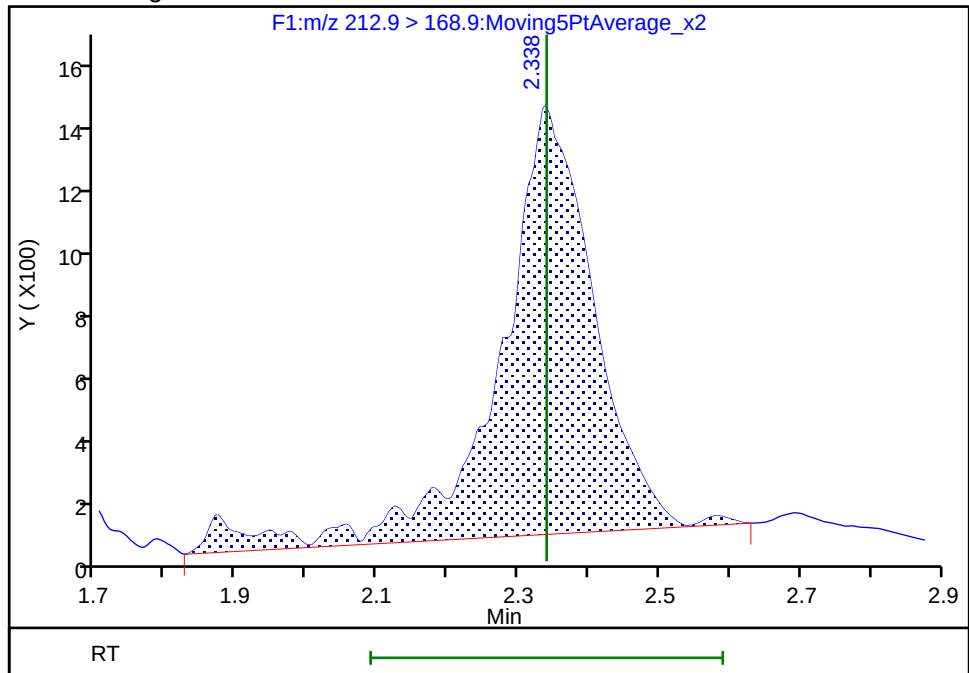
RT: 2.34
Area: 10405
Amount: 0.941374
Amount Units: ng/ml

Processing Integration Results



RT: 2.34
Area: 12324
Amount: 1.040496
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:38:19
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A06.d

Injection Date: 17-Oct-2018 13:20:08

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

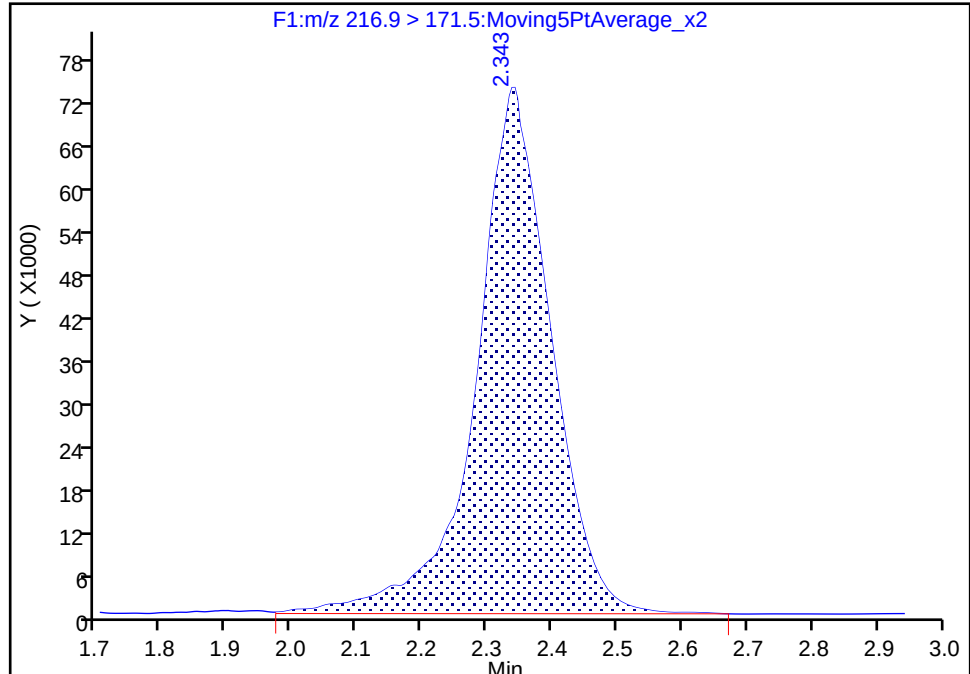
Detector F1:MRM

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

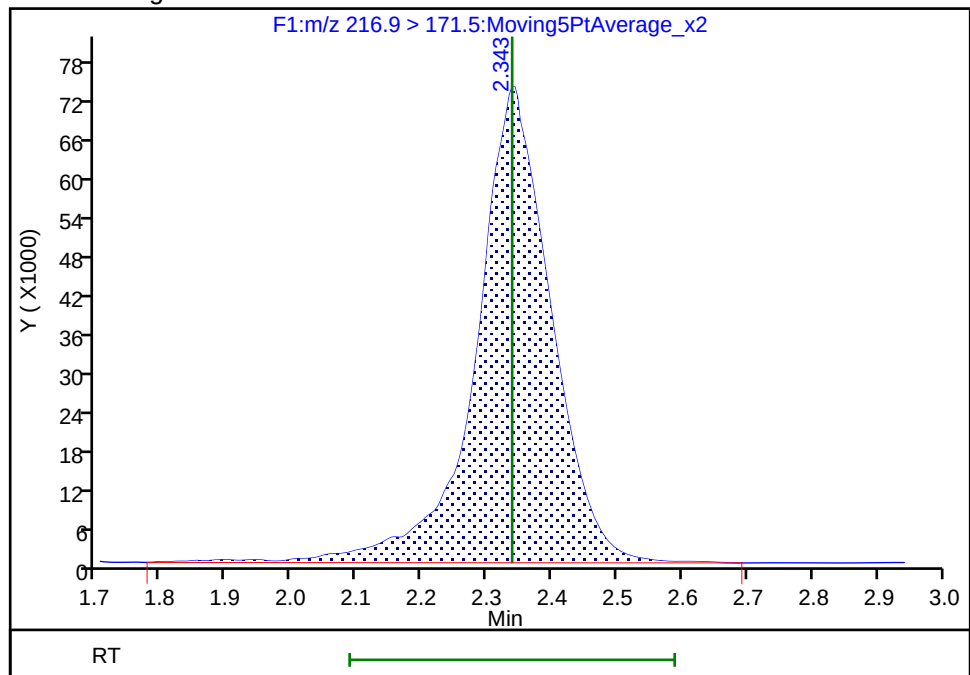
RT: 2.34
Area: 587010
Amount: 50.433435
Amount Units: ng/ml

Processing Integration Results



RT: 2.34
Area: 590841
Amount: 47.835015
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:38:25

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

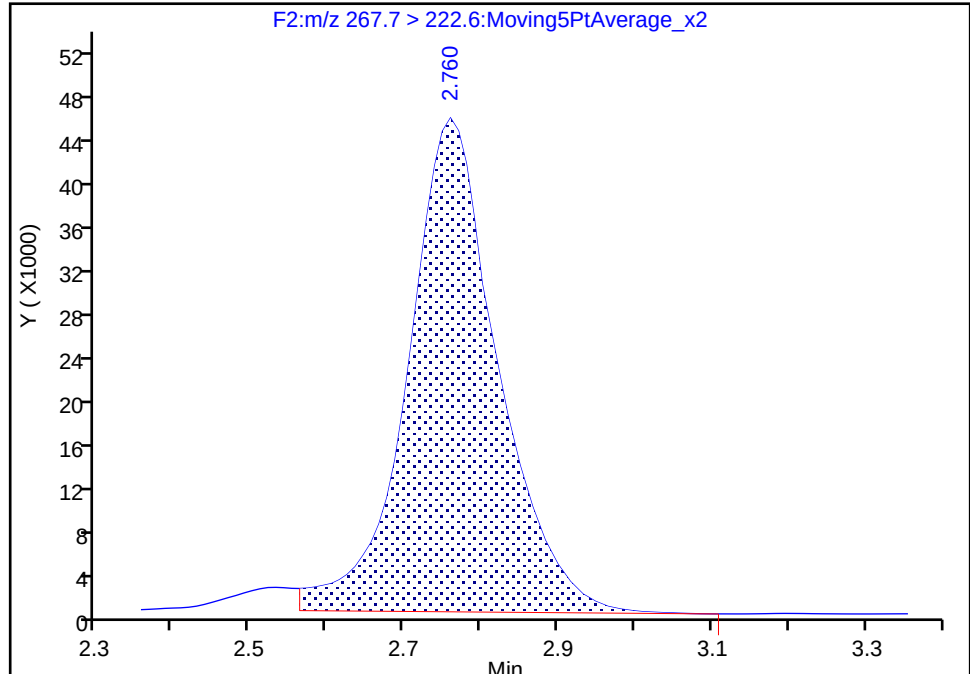
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Injection Date: 17-Oct-2018 13:20:08 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

D 3 13C5 PFPeA, CAS: STL01893

Signal: 1

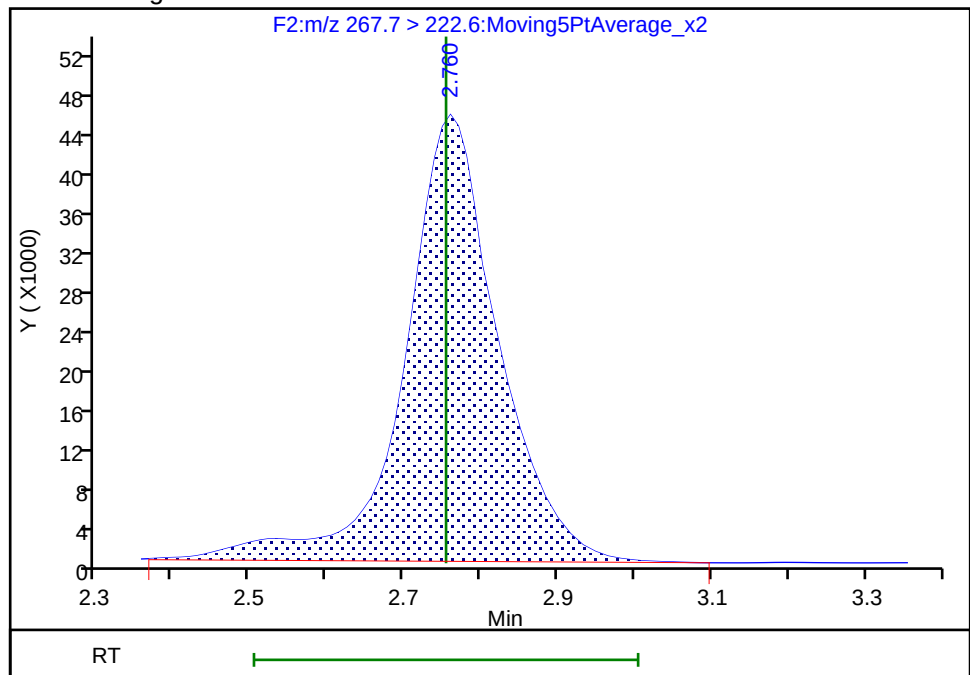
RT: 2.76
Area: 373369
Amount: 50.606502
Amount Units: ng/ml

Processing Integration Results



RT: 2.76
Area: 387945
Amount: 49.543718
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:38:34
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A06.d

Injection Date: 17-Oct-2018 13:20:08

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

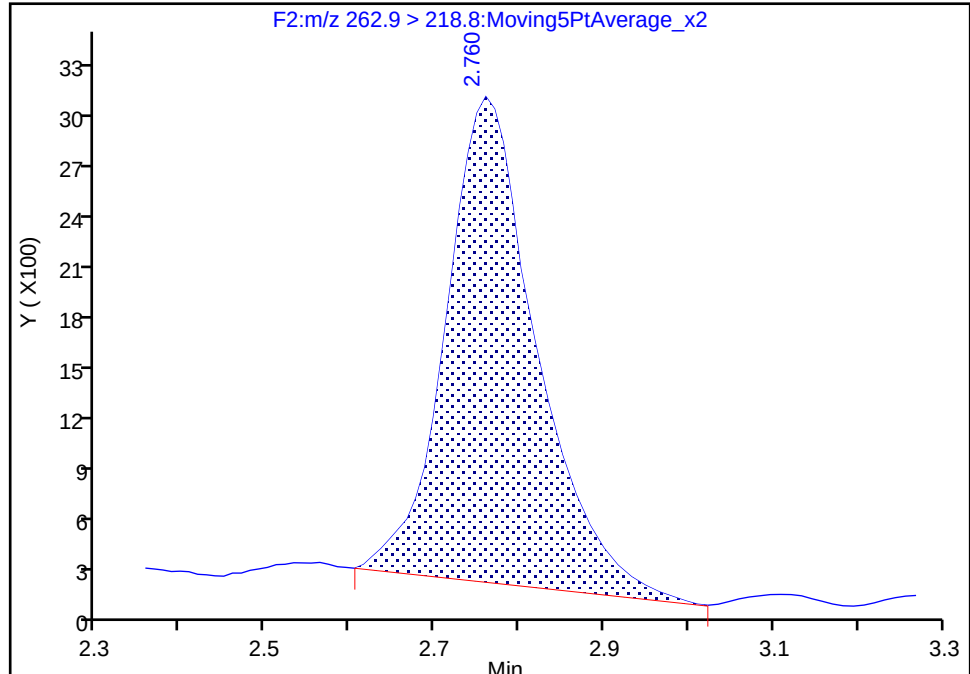
Detector F2:MRM

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

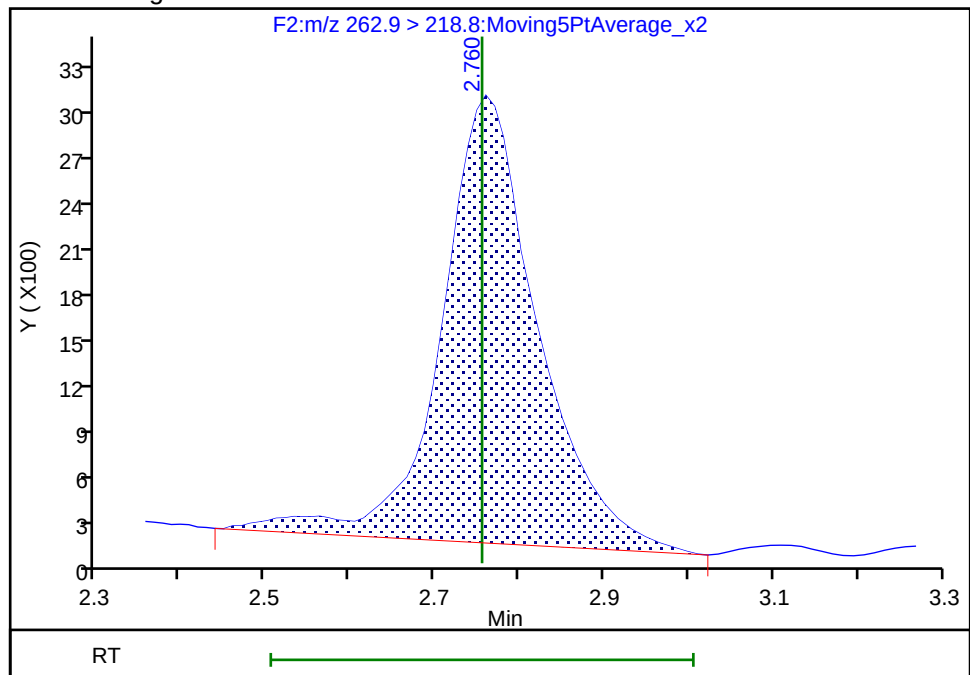
RT: 2.76
Area: 21184
Amount: 1.031237
Amount Units: ng/ml

Processing Integration Results



RT: 2.76
Area: 23003
Amount: 1.041012
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:38:29

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

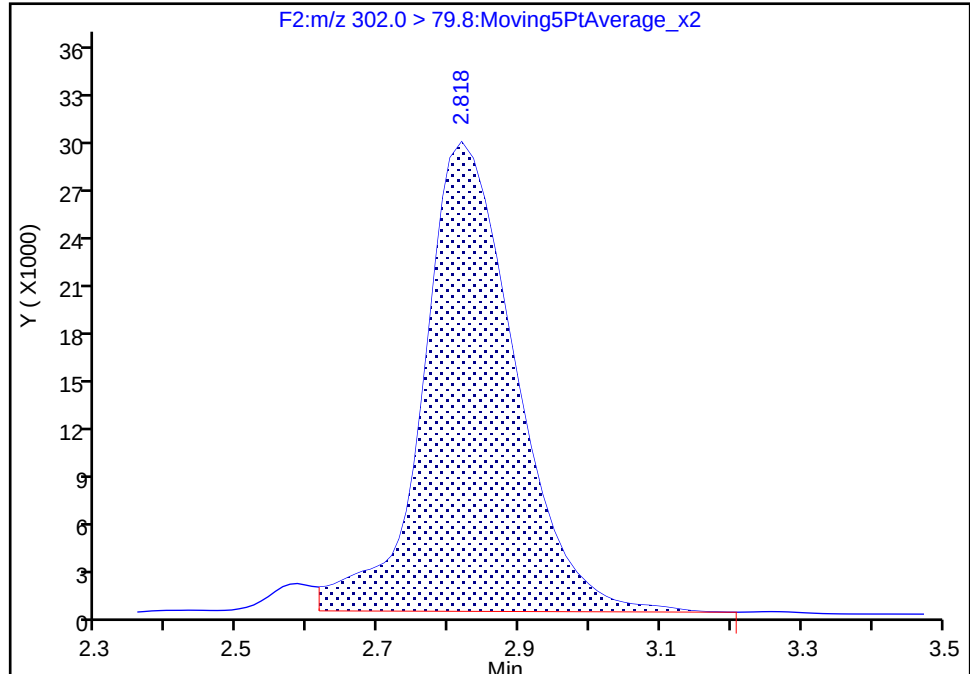
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A06.d
Injection Date: 17-Oct-2018 13:20:08 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

D 6 13C3 PFBS, CAS: STL02337

Signal: 1

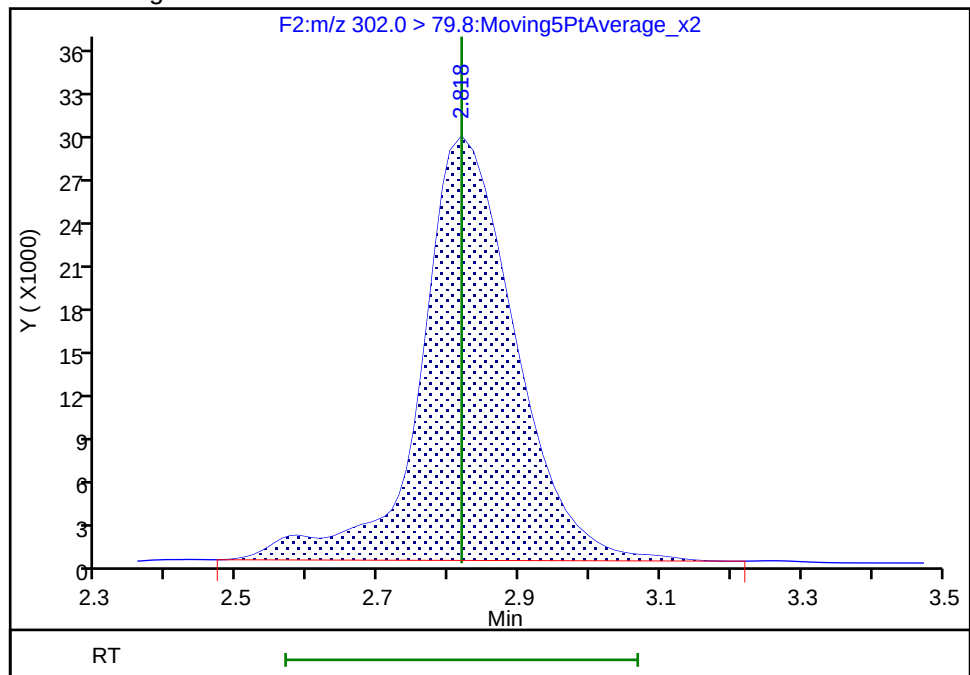
RT: 2.82
Area: 265894
Amount: 45.094957
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 273141
Amount: 42.256528
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:38:38
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

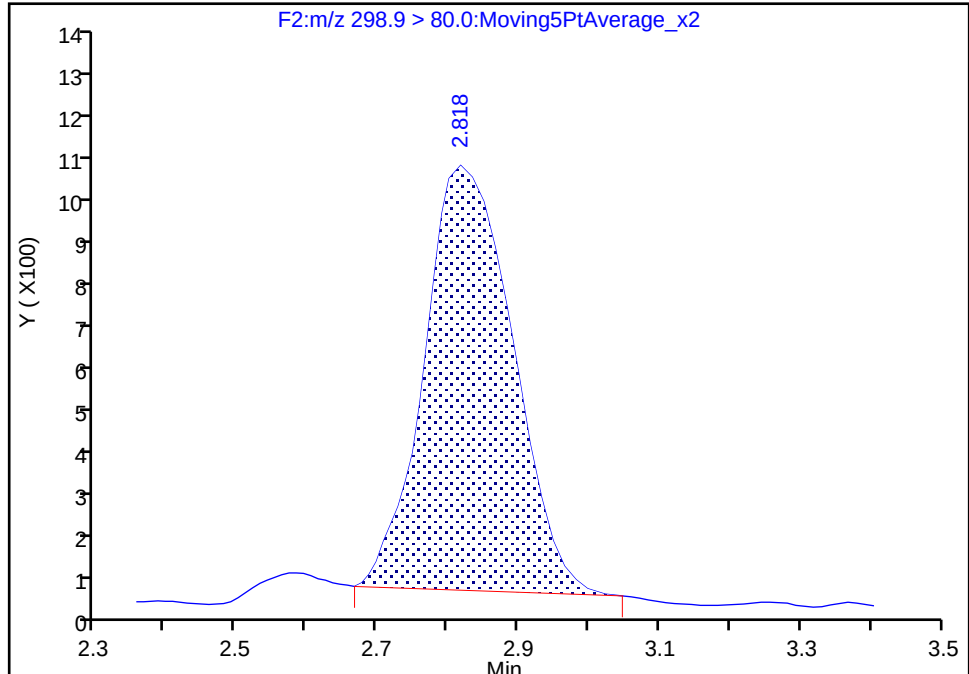
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A06.d
Injection Date: 17-Oct-2018 13:20:08 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

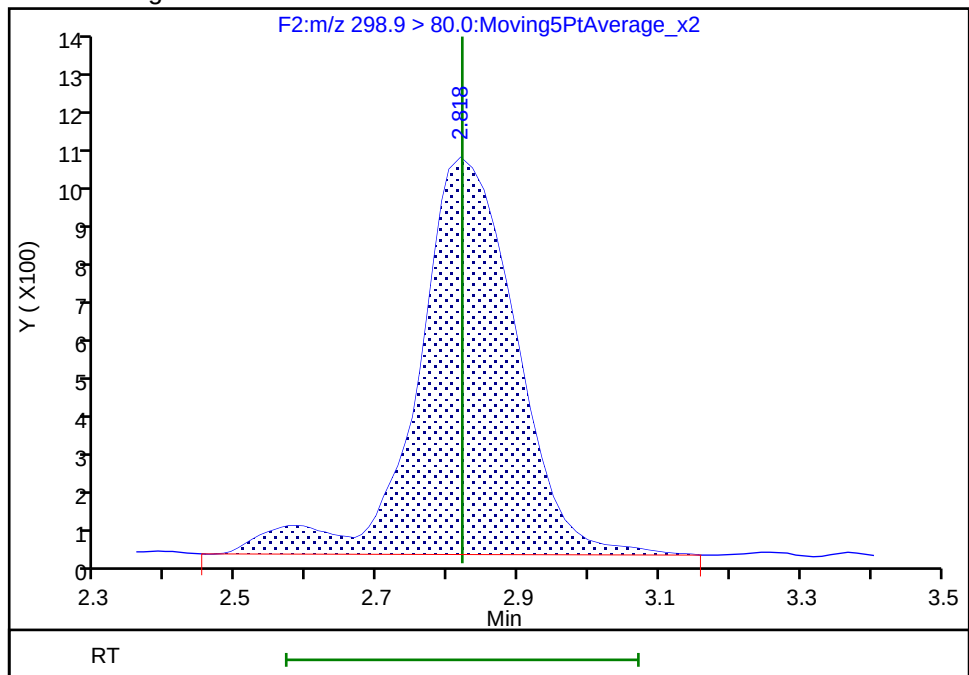
RT: 2.82
Area: 8245
Amount: 1.034192
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 9516
Amount: 0.928366
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:38:41
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

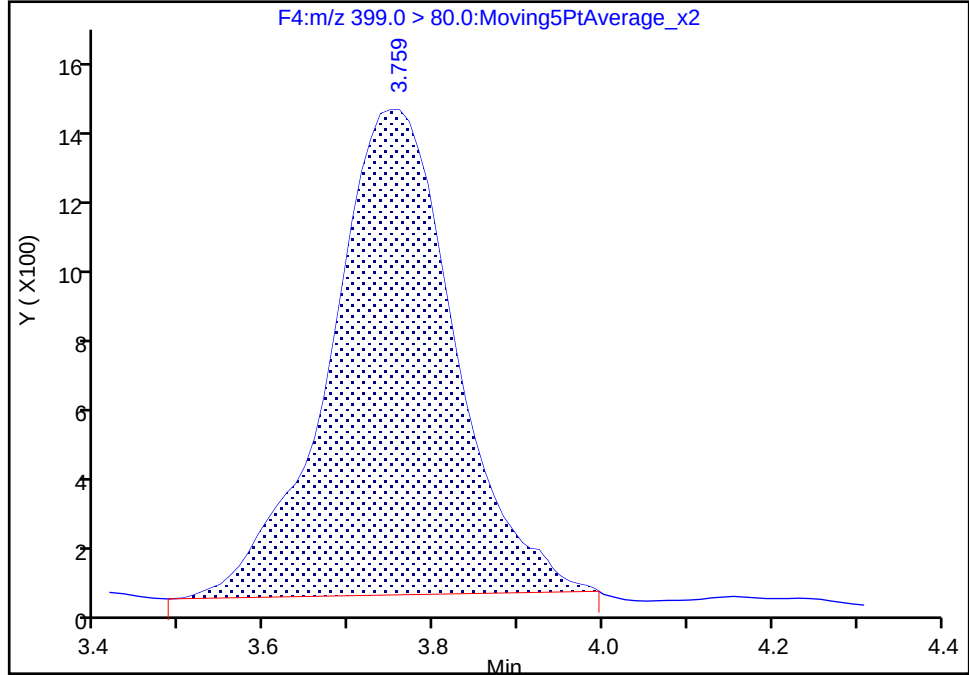
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Injection Date:	17-Oct-2018 13:20:08	Instrument ID:	LC410
Lims ID:	IC		
Client ID:			
Operator ID:	BC	ALS Bottle#:	0 Worklist Smp#: 6
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector	F4:MRM

12 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

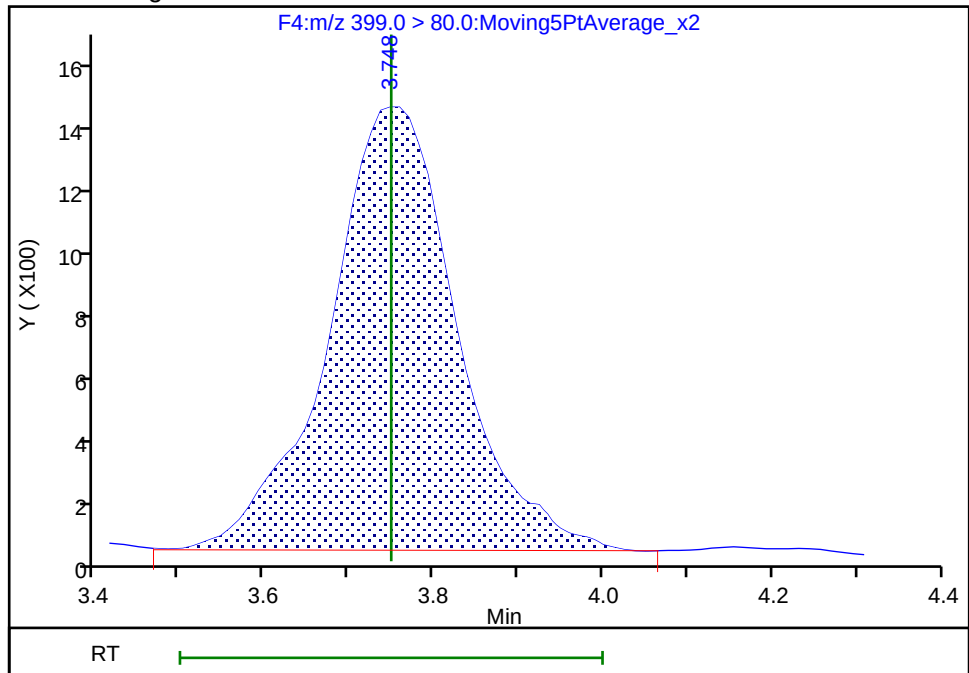
RT: 3.76
Area: 13761
Amount: 0.992838
Amount Units: ng/ml

Processing Integration Results



RT: 3.75
Area: 14202
Amount: 1.077699
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:42:46
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A06.d

Injection Date: 17-Oct-2018 13:20:08

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

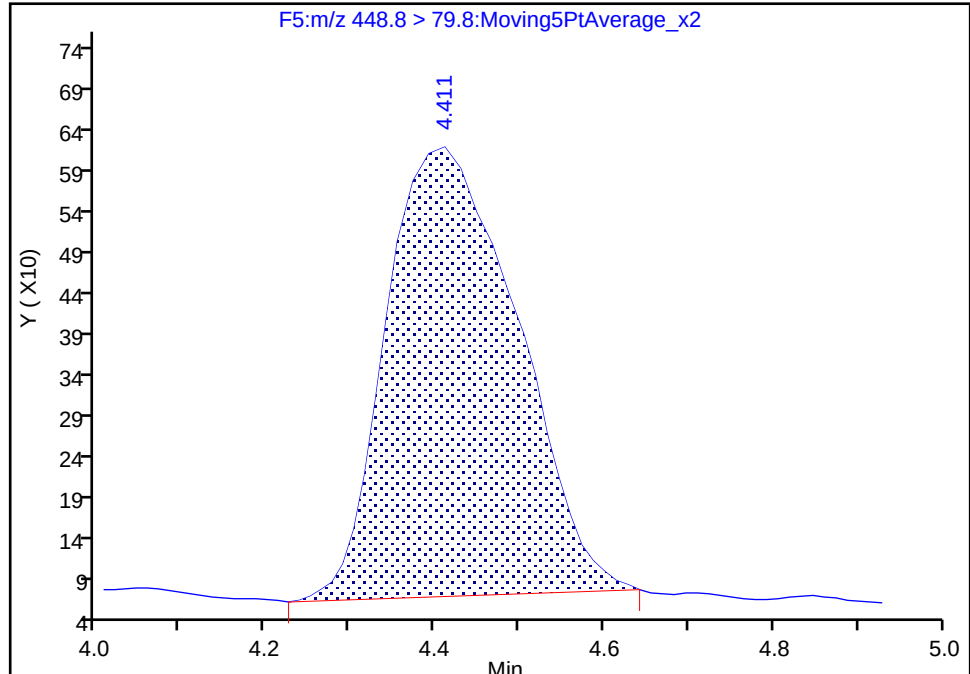
Detector F5:MRM

18 Perfluoroheptanesulfonic acid, CAS: 375-92-8

Signal: 1

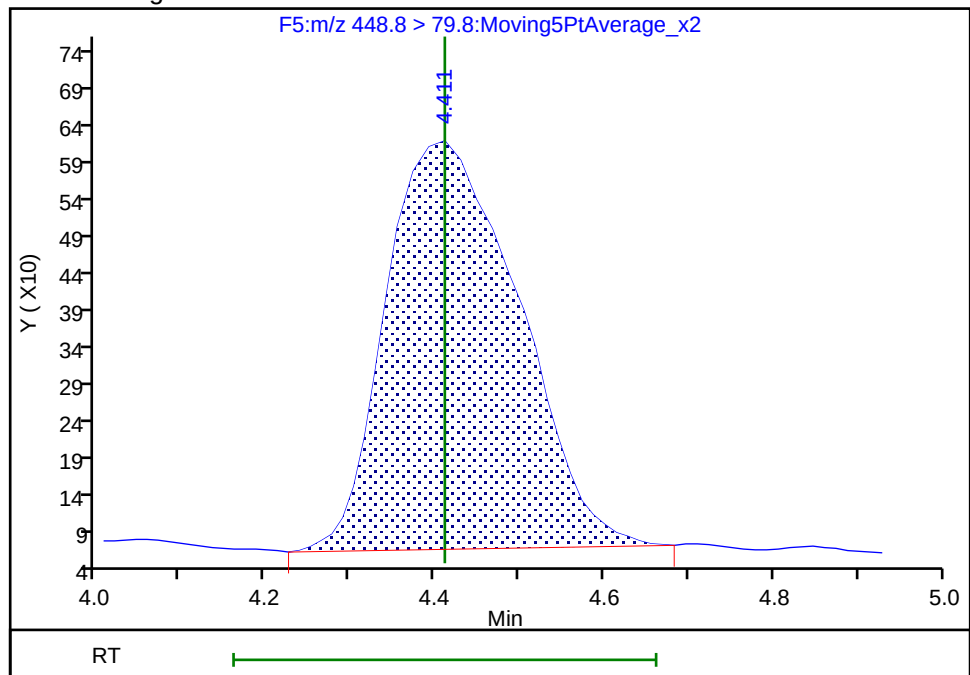
RT: 4.41
Area: 5875
Amount: 1.031299
Amount Units: ng/ml

Processing Integration Results



RT: 4.41
Area: 5966
Amount: 1.037417
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:42:56

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

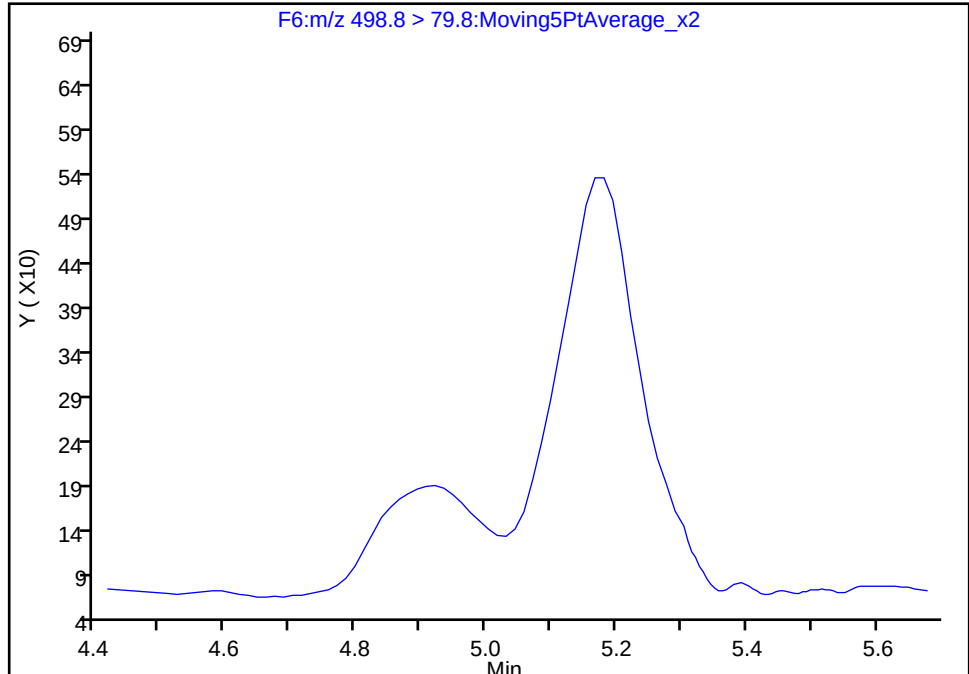
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A06.d
Injection Date: 17-Oct-2018 13:20:08 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F6:MRM

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

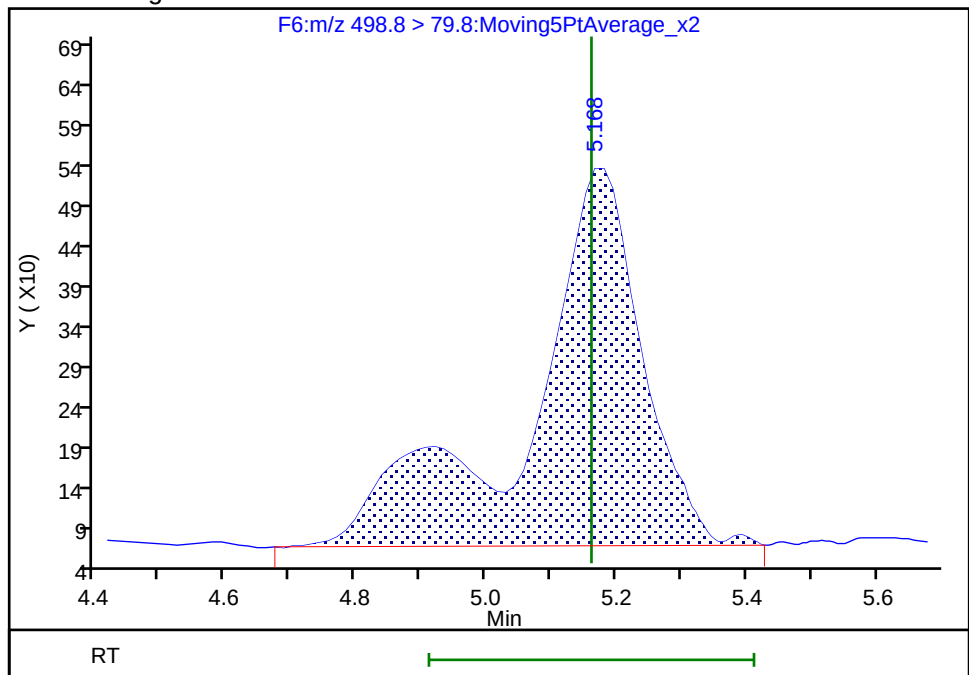
Not Detected
Expected RT: 5.16

Processing Integration Results



RT: 5.17
Area: 5566
Amount: 0.893907
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:38:03
Audit Action: Manually Integrated

Audit Reason: Missed Peak
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TestAmerica Burlington

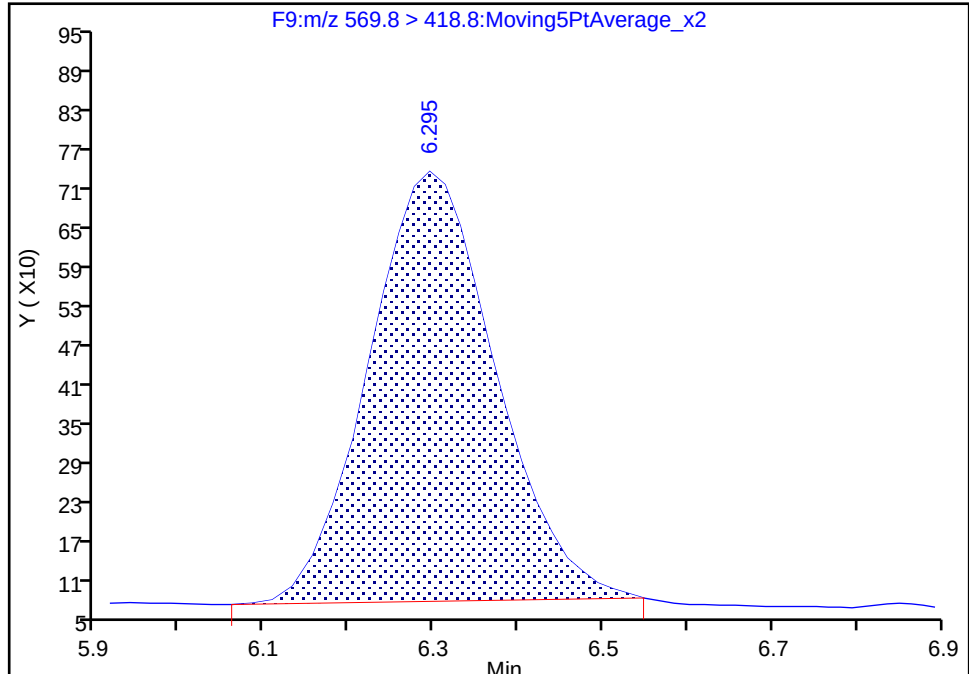
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A06.d
Injection Date: 17-Oct-2018 13:20:08 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F9:MRM

28 N-methylperfluorooctanesulfonamidoacetic aci, CAS: 2355-31-9

Signal: 1

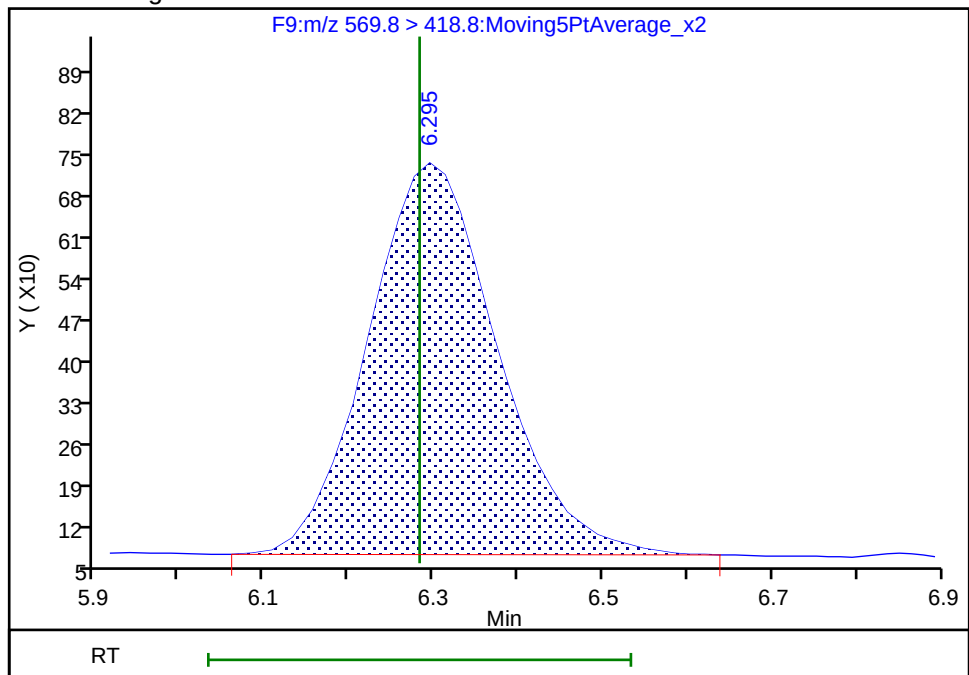
RT: 6.29
Area: 6825
Amount: 1.005310
Amount Units: ng/ml

Processing Integration Results



RT: 6.29
Area: 7003
Amount: 1.056846
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:43:08
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A06.d

Injection Date: 17-Oct-2018 13:20:08

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

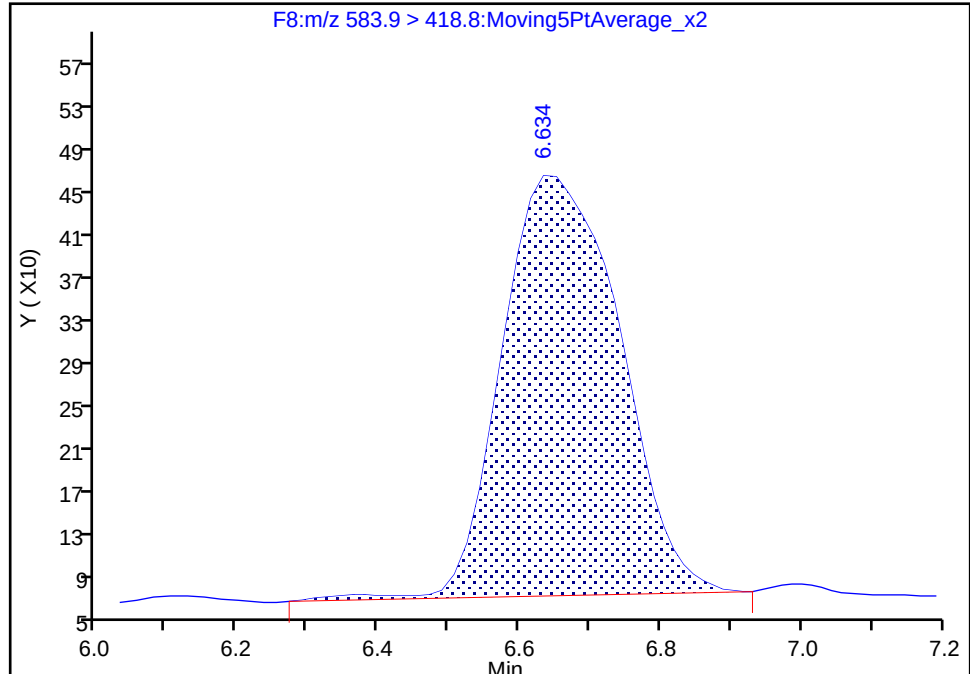
Detector F8:MRM

30 N-ethylperfluorooctanesulfonamidoacetic acid, CAS: 2991-50-6

Signal: 1

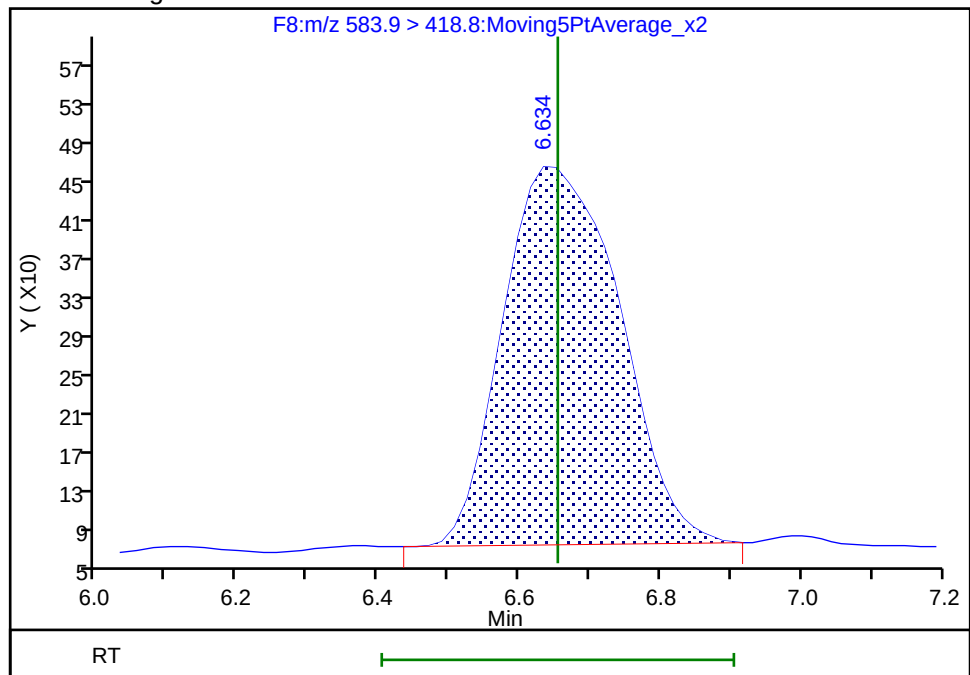
RT: 6.63
Area: 4518
Amount: 0.942756
Amount Units: ng/ml

Processing Integration Results



RT: 6.63
Area: 4446
Amount: 0.790050
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:43:53

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

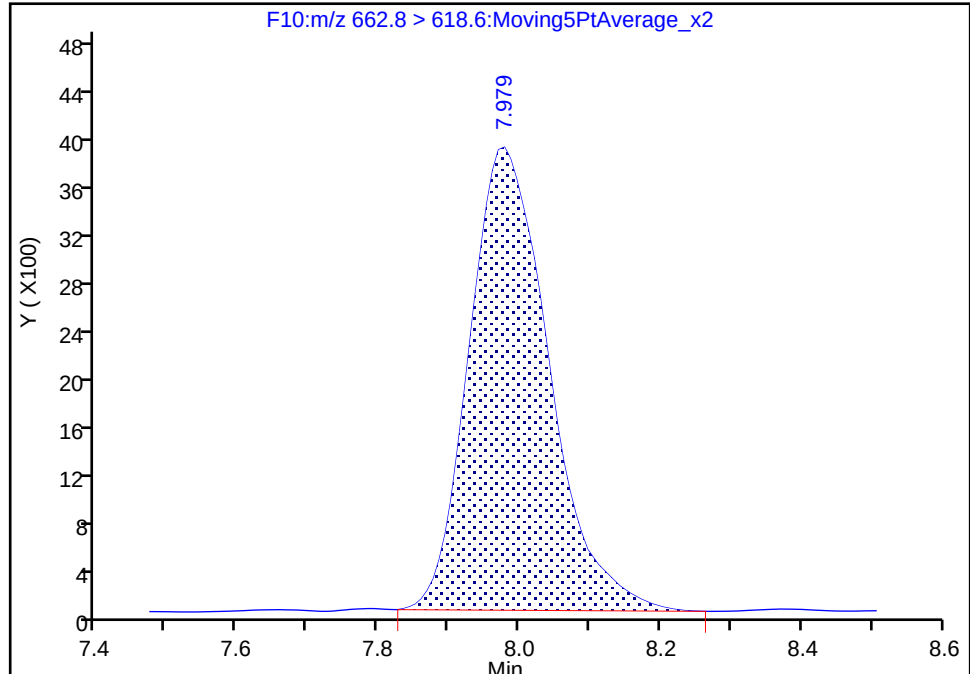
Data File:	\\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A06.d		
Injection Date:	17-Oct-2018 13:20:08	Instrument ID:	LC410
Lims ID:	IC		
Client ID:			
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector:	F10:MRM
		Worklist Smp#:	6

38 Perfluorotridecanoic acid, CAS: 72629-94-8

Signal: 1

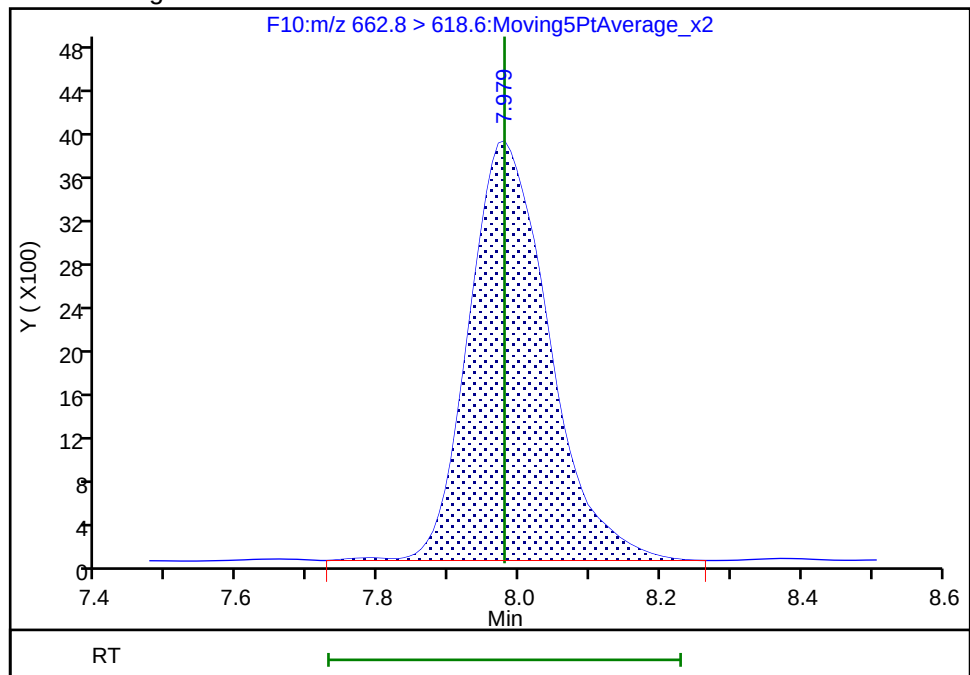
RT: 7.98
Area: 30027
Amount: 0.985914
Amount Units: ng/ml

Processing Integration Results



RT: 7.98
Area: 30302
Amount: 0.977724
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:44:07
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A07.d
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 17-Oct-2018 13:35:57 ALS Bottle#: 0 Worklist Smp#: 7
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0032684-007 IC 2
 Misc. Info.: PFAS21 101718A ICAL
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 17-Oct-2018 16:38:16 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: XAWRK002

First Level Reviewer: chirgwinb

Date: 17-Oct-2018 14:45:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
216.9 > 171.5	2.334	2.337	-0.003	1.000	669118	51.5		103	440	
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.326	2.336	-0.010	0.997	22870	1.83		91.3	48.9	M
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.750	2.755	-0.005	0.996	49422	2.09		104	64.8	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.760	2.754	0.006	1.000	415435	50.5		101	244	
D 6 13C3 PFBS										
302.0 > 79.8	2.818	2.818	0.0	1.000	324907	47.8		103	996	
5 Perfluorobutanesulfonic acid										M
298.9 > 80.0	2.818	2.820	-0.002	1.000	24774	2.03		102	152	M
D 7 13C2 PFHxA										
314.8 > 269.6	3.177	3.172	0.005	1.000	765970	51.7		103	2953	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.177	3.174	0.003	1.000	31150	1.96		98.0	550	
D 9 13C4 PFHpA										
366.9 > 321.8	3.703	3.702	0.001	1.000	1388164	51.1		102	1547	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.703	3.705	-0.002	1.000	53644	1.98		98.8	282	
D 11 18O2 PFHxS										
402.9 > 83.8	3.748	3.747	0.001	1.000	364345	46.4		98.0	585	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.759	3.749	0.010	1.003	26334	2.01		100	90.0	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.317	4.325	-0.008	1.000	104496	43.1		90.8	883	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.317	4.330	-0.013	1.000	4122	1.90		95.2	886	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.374	4.370	0.004	1.000	1088528	52.5		105	1926	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.374	4.374	0.0	1.000	40936	1.90		95.0	554	
* 15 13C2 PFOA										
414.9 > 369.8	4.374	4.374	0.0		1104861	50.0			807	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.412	4.412	0.0	0.856	12449	1.86		93.1	88.9	M
D 20 13C5 PFNA										
467.8 > 422.8	5.140	5.140	0.0	1.000	1443703	51.6		103	1490	
19 Perfluorononanoic acid										
462.8 > 418.8	5.140	5.142	-0.002	1.000	71450	2.25		113	321	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.154	5.161	-0.007	1.000	13096	1.81		90.5	145	
D 22 13C4 PFOS										
502.8 > 79.8	5.154	5.161	-0.007	1.000	334603	48.1		101	914	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.902	5.891	0.011	1.000	327367	49.9		104	1910	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.926	5.896	0.030	1.004	9630	1.75		87.3	61.7	
D 26 13C2 PFDA										
514.9 > 469.5	5.926	5.918	0.008	1.000	1558634	54.1		108	1027	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.926	5.926	0.0	1.000	58471	1.86		92.9	384	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.277	6.275	0.002	1.000	361095	49.0		98.1	2465	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.277	6.283	-0.006	1.000	15677	2.00		100.0	38.1	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.634	6.638	-0.004	1.000	308760	49.4		98.8	943	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.670	6.654	0.016	1.005	12950	2.18		109	246	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.670	6.675	-0.005	1.294	14452	1.97		98.7	189	
D 32 13C2 PFUnA										
564.8 > 519.8	6.688	6.682	0.006	1.000	1584814	52.8		106	2448	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.670	6.684	-0.014	0.997	70336	2.16		108	459	
D 35 13C8 FOSA										
505.8 > 77.8	6.959	6.955	0.004	1.000	649104	48.4		96.9	11829	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.973	6.966	0.007	1.002	20523	1.87		93.4	268	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.362	7.359	0.003	1.000	62706	1.95		97.3	708	
D 37 13C2 PFDoA										
614.8 > 569.6	7.362	7.362	0.0	1.000	1876986	49.4		98.9	2527	
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.979	7.979	0.0	0.937	70598	2.05		102	655	

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A07.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
39 Perfluorotetradecanoic acid										
712.8 > 668.6	8.529	8.522	0.007	1.002	70942	2.06		103	342	
712.8 > 168.8	8.499	8.522	-0.023	0.998	11322		6.27(0.00-0.00)	103	103	
712.8 > 218.8	8.529	8.522	0.007	1.002	6875		10.32(0.00-0.00)	103	33.5	
D 40 13C2 PFTeDA										
714.8 > 669.6	8.514	8.516	-0.002	1.000	1765426	50.7		101	913	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L2_00003

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\ChromNA\\Burlington\\ChromData\\LC410\\20181017-32684.b\\PF101718A07.d

Injection Date: 17-Oct-2018 13:35:57

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

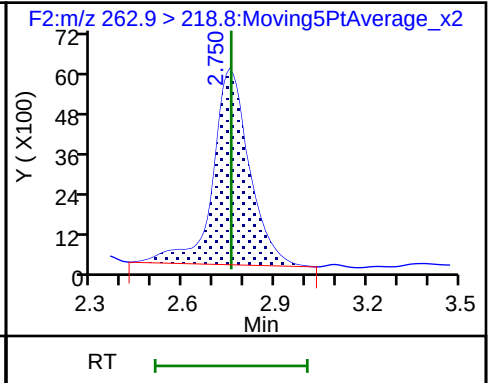
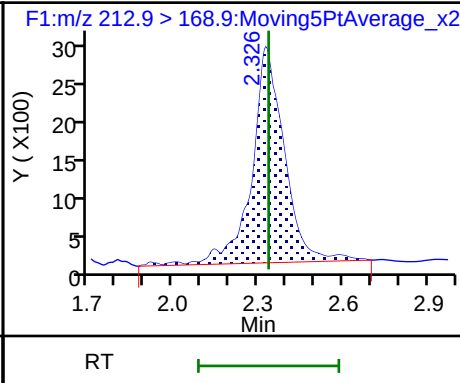
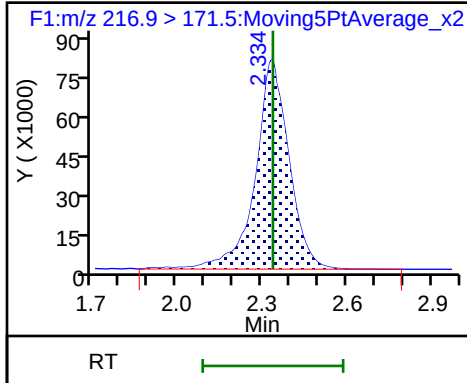
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid (M)

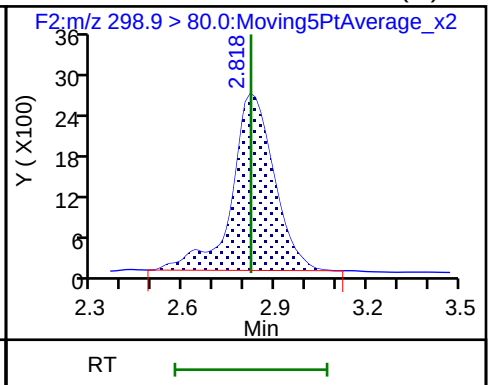
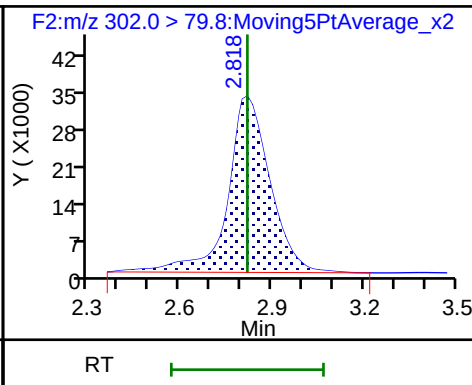
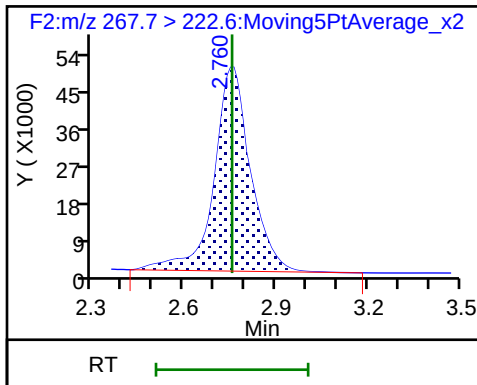
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

D 6 13C3 PFBS

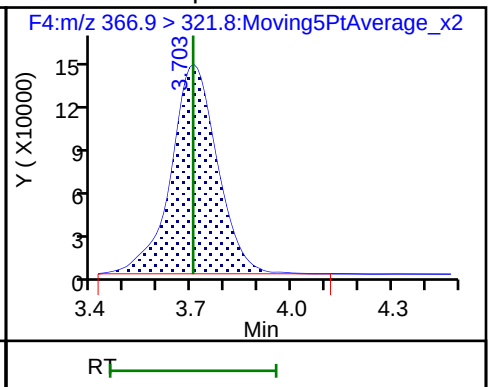
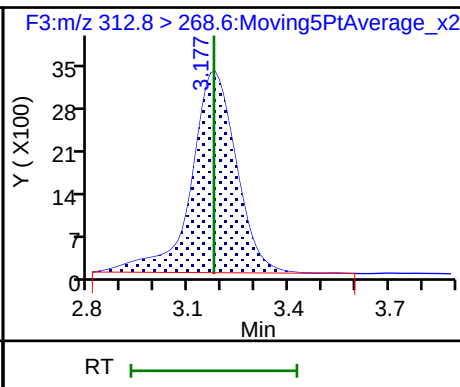
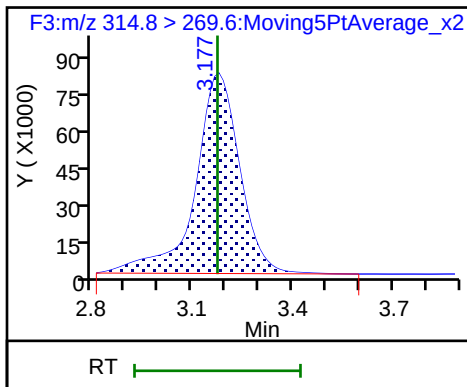
5 Perfluorobutanesulfonic acid (M)



D 7 13C2 PFHxA

8 Perfluorohexanoic acid

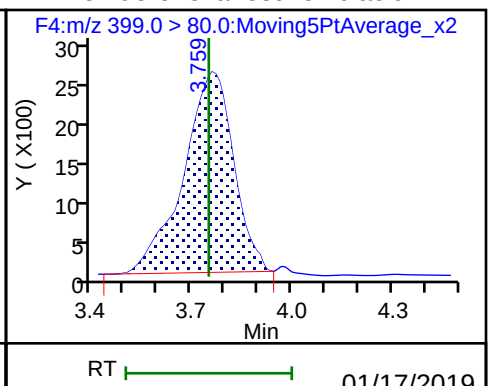
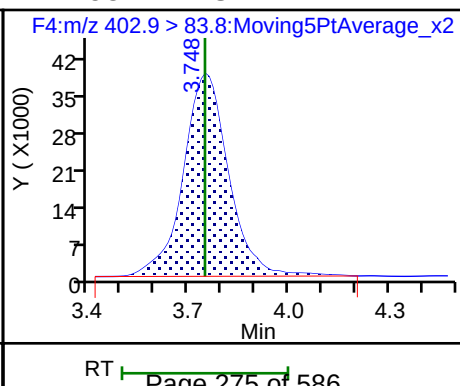
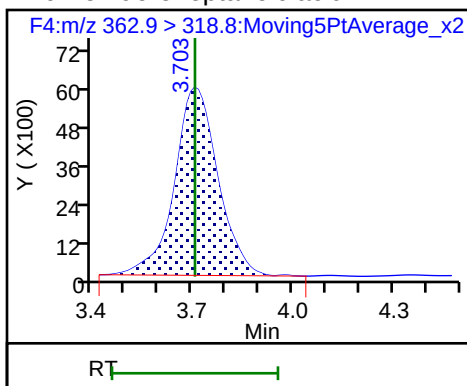
D 9 13C4 PFHpA



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

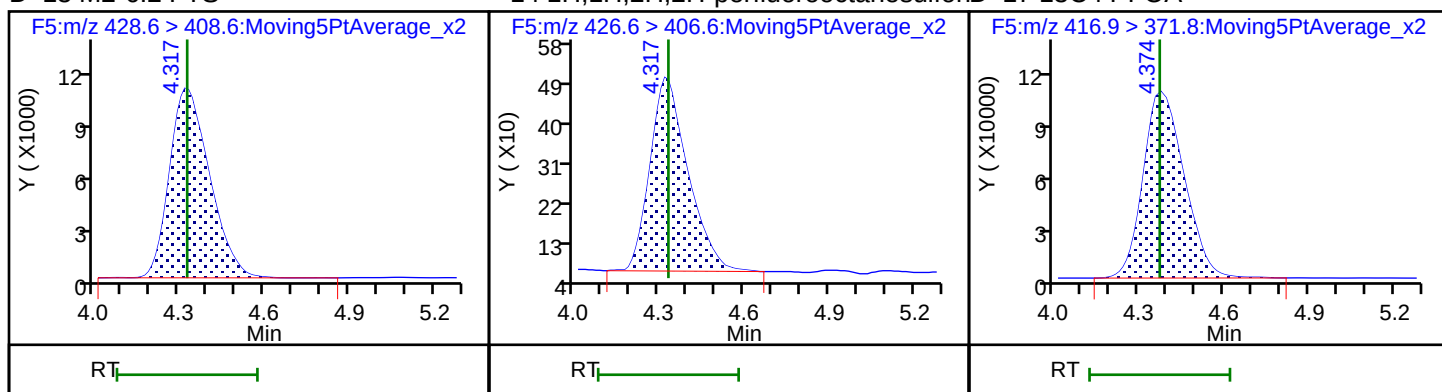
12 Perfluorohexanesulfonic acid



D 13 M2-6:2 FTS

14 1H,1H,2H,2H-perfluorooctanesulfonD

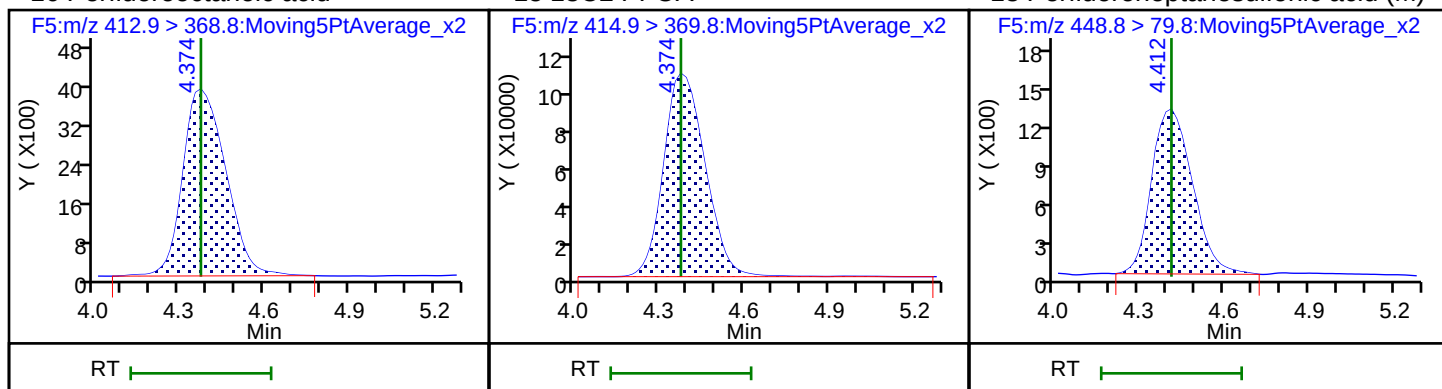
17 13C4 PFOA



16 Perfluorooctanoic acid

* 15 13C2 PFOA

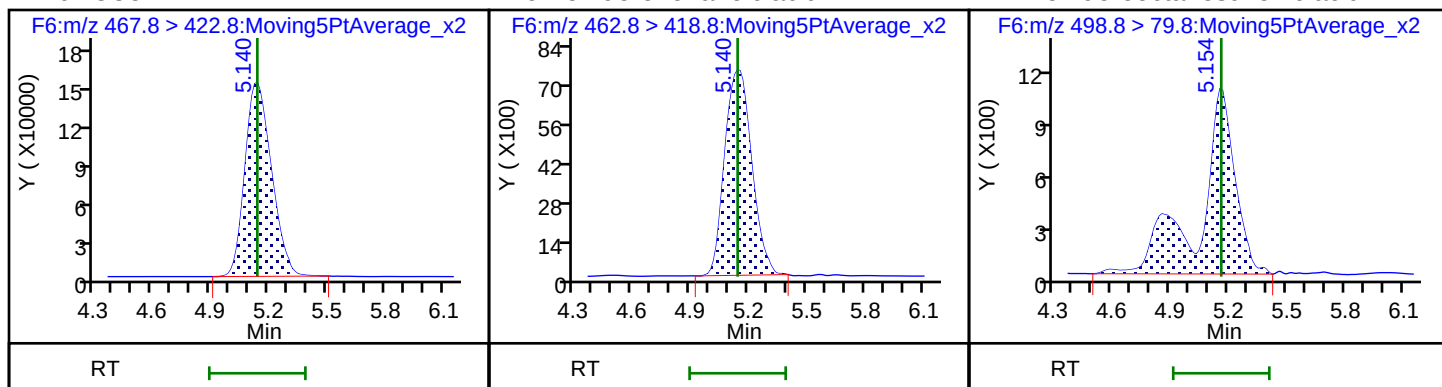
18 Perfluoroheptanesulfonic acid (M)



D 20 13C5 PFNA

19 Perfluorononanoic acid

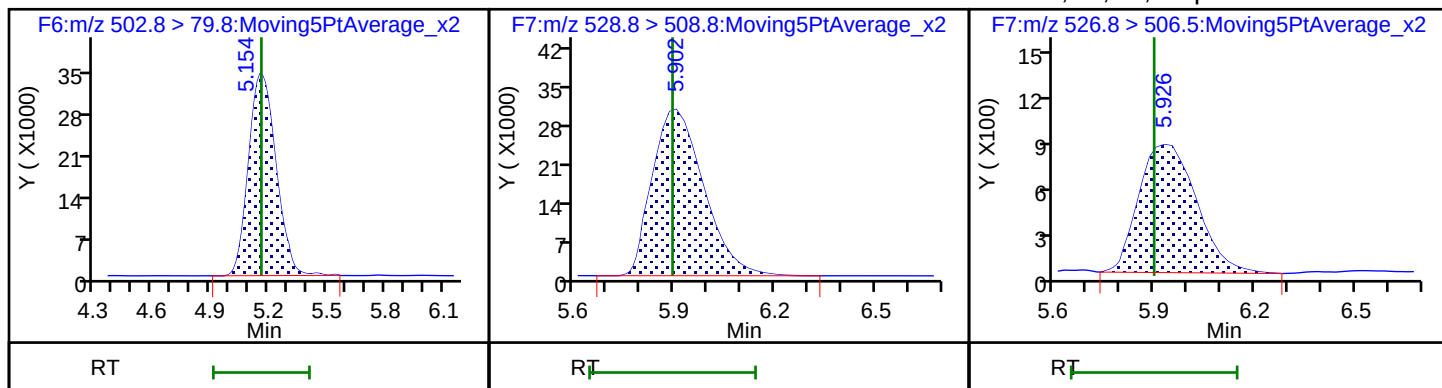
21 Perfluorooctanesulfonic acid



D 22 13C4 PFOS

D 24 M2-8:2 FTS

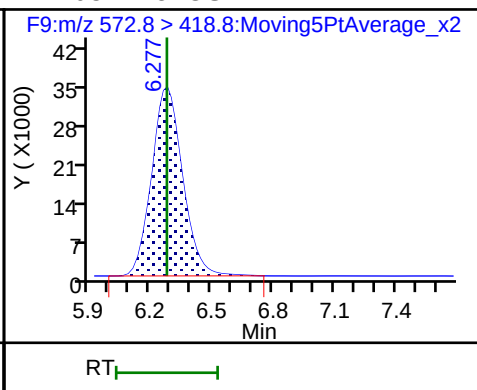
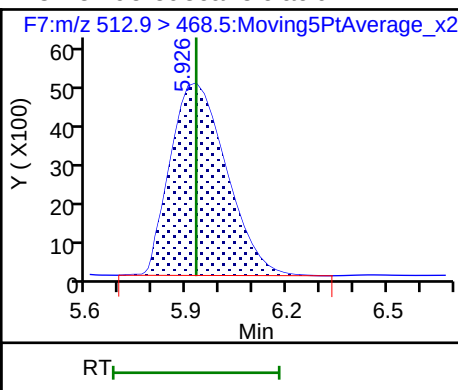
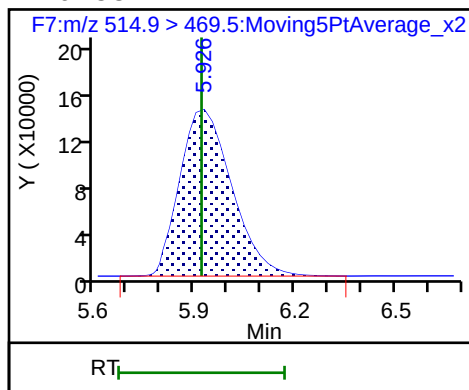
23 1H,1H,2H,2H-perfluorodecanesulfoni



D 26 13C2 PFDA

25 Perfluorodecanoic acid

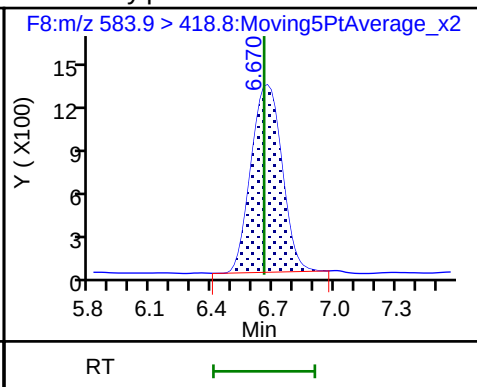
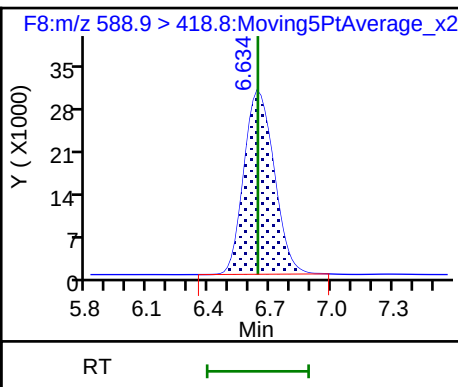
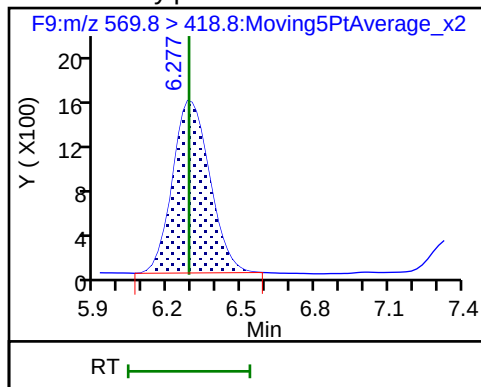
D 27 d3-NMeFOSAA



28 N-methylperfluorooctanesulfonamid

D 29 d5-NEtFOSAA

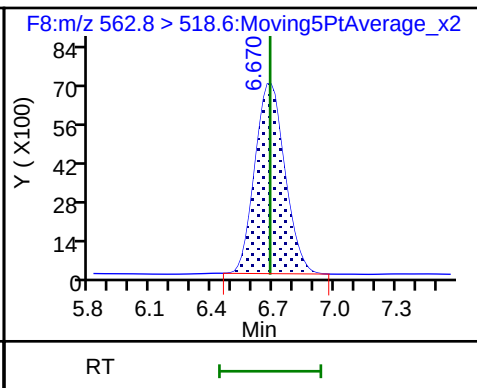
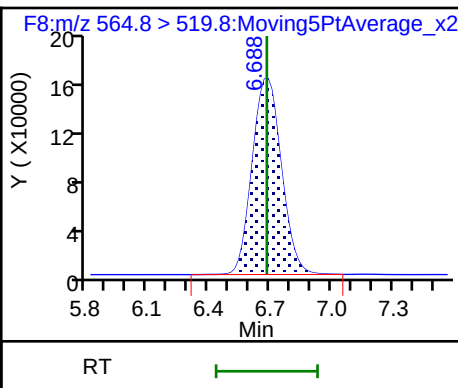
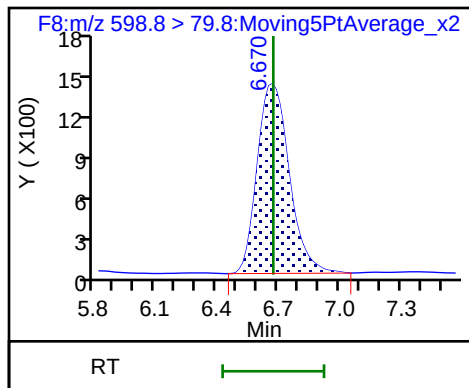
30 N-ethylperfluorooctanesulfonamidoa



31 Perfluorodecanesulfonic acid

D 32 13C2 PFUnA

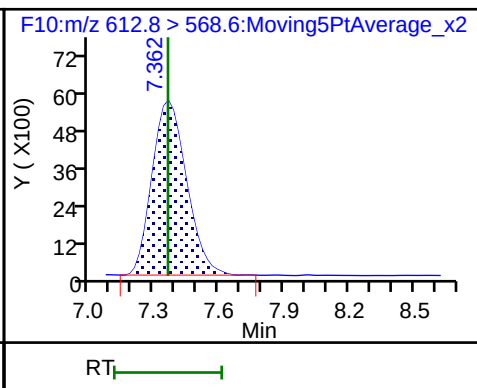
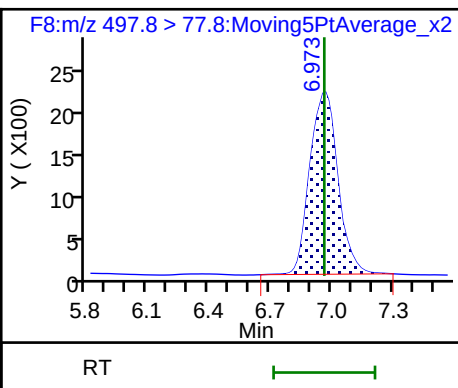
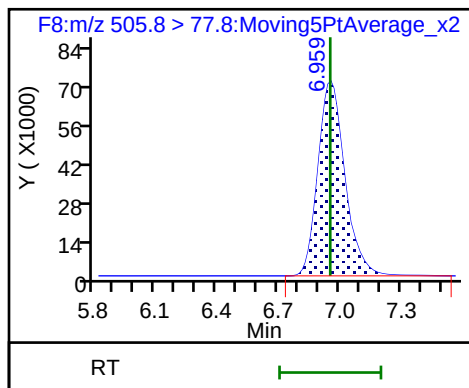
33 Perfluoroundecanoic acid



D 35 13C8 FOSA

34 Perfluorooctanesulfonamide

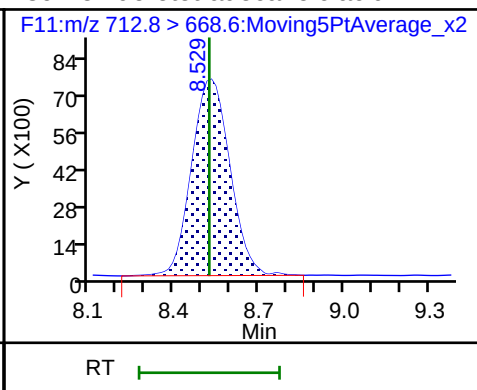
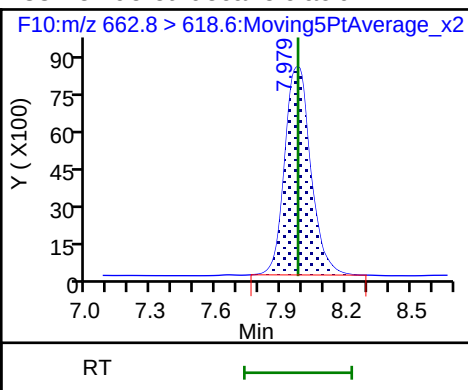
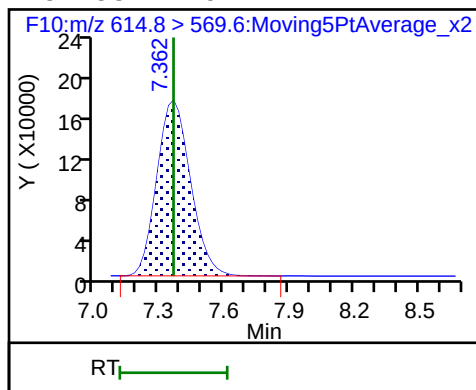
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

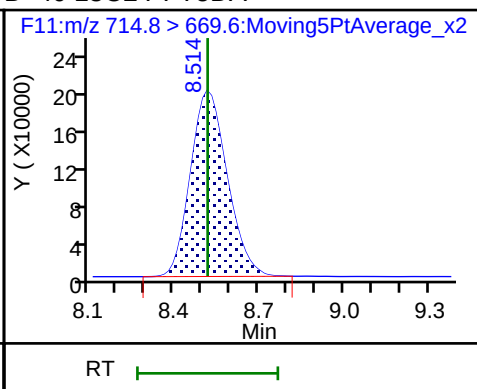
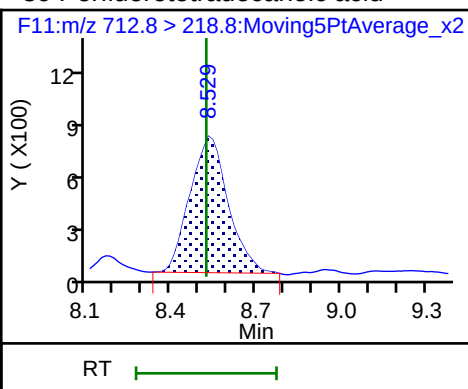
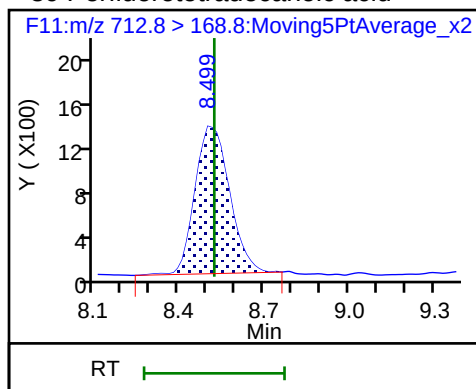
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

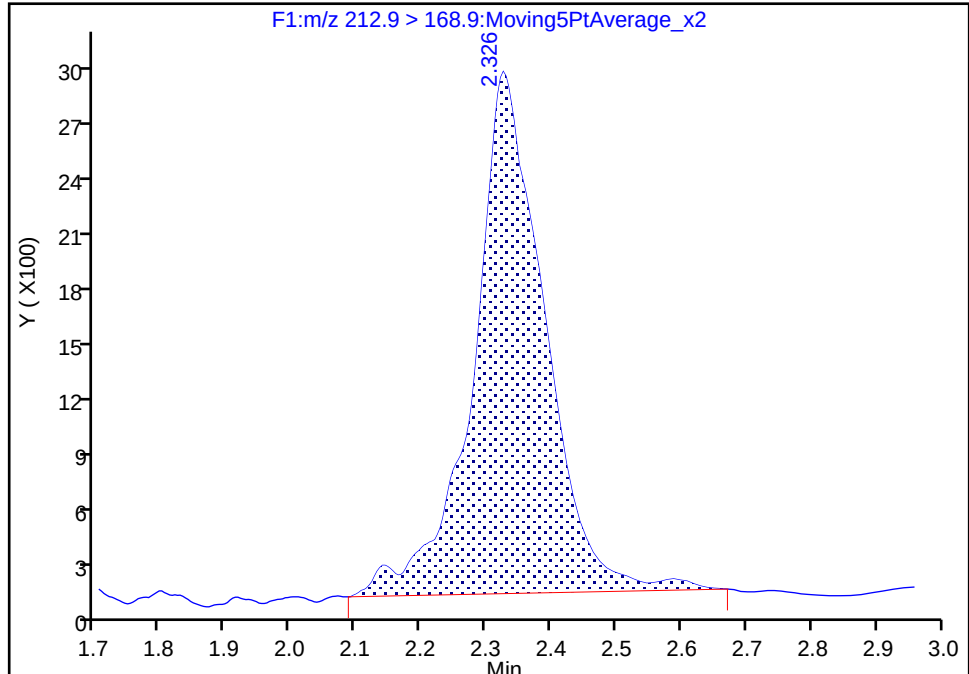
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A07.d
Injection Date: 17-Oct-2018 13:35:57 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

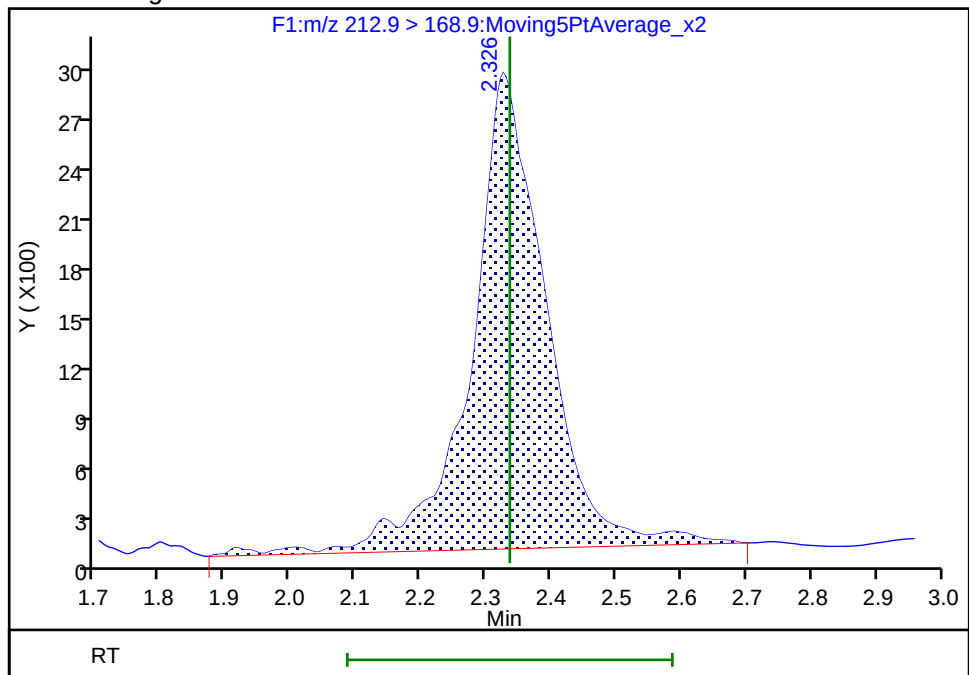
RT: 2.33
Area: 21612
Amount: 1.947491
Amount Units: ng/ml

Processing Integration Results



RT: 2.33
Area: 22870
Amount: 1.826609
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:45:09
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A07.d

Injection Date: 17-Oct-2018 13:35:57

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

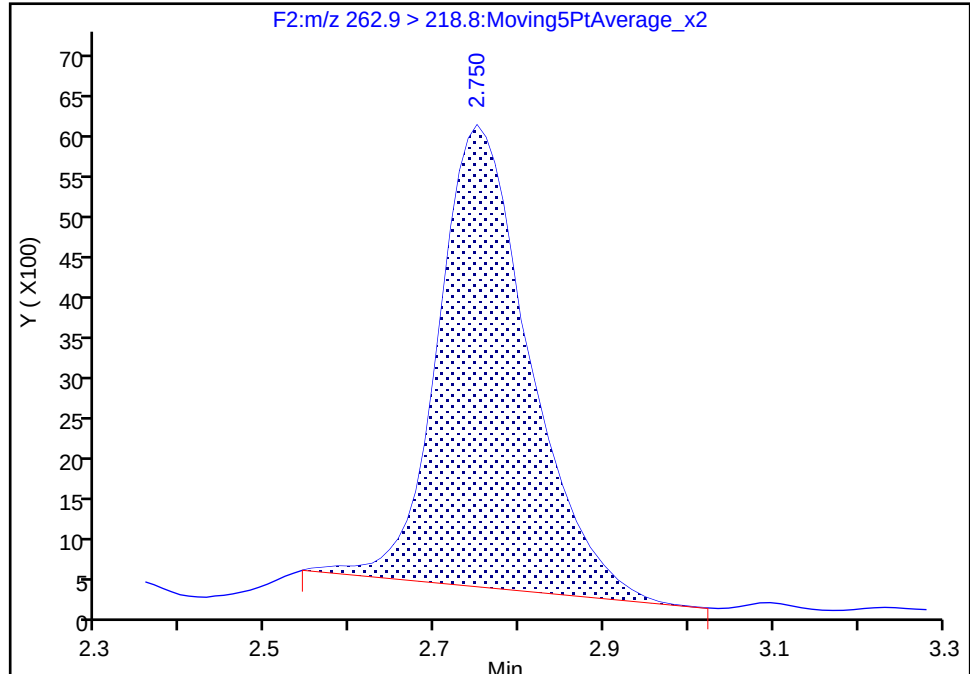
Detector F2:MRM

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

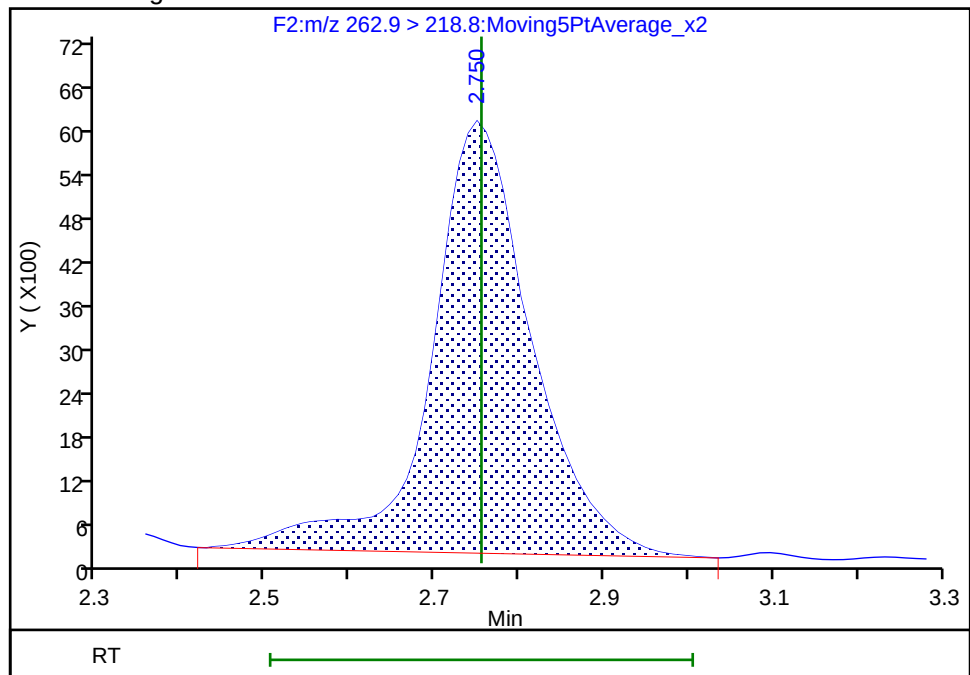
RT: 2.75
Area: 43265
Amount: 1.825367
Amount Units: ng/ml

Processing Integration Results



RT: 2.75
Area: 49422
Amount: 2.088617
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:45:17

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

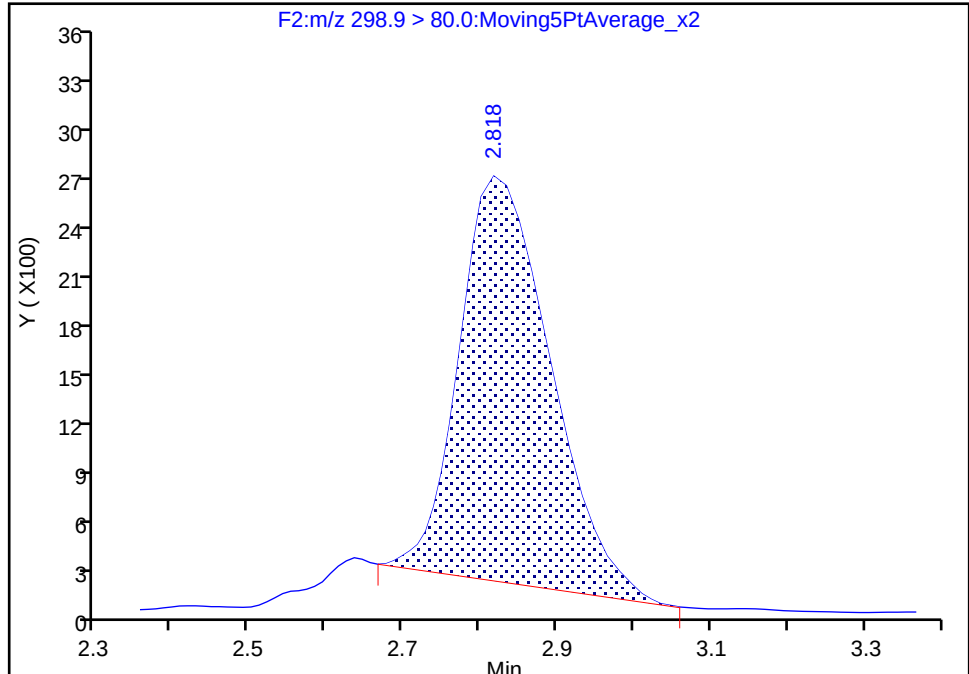
Data File:	\\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A07.d		
Injection Date:	17-Oct-2018 13:35:57	Instrument ID:	LC410
Lims ID:	IC		
Client ID:			
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector:	F2:MRM
		Worklist Smp#:	7

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

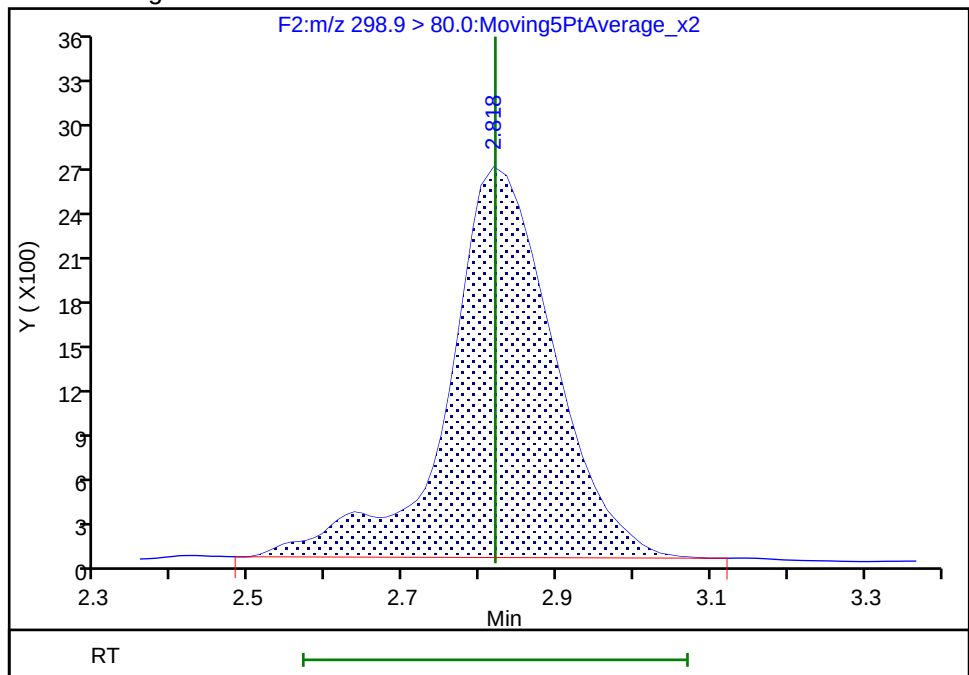
RT: 2.82
Area: 20106
Amount: 1.776415
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 24774
Amount: 2.031836
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:45:22
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A07.d

Injection Date: 17-Oct-2018 13:35:57

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

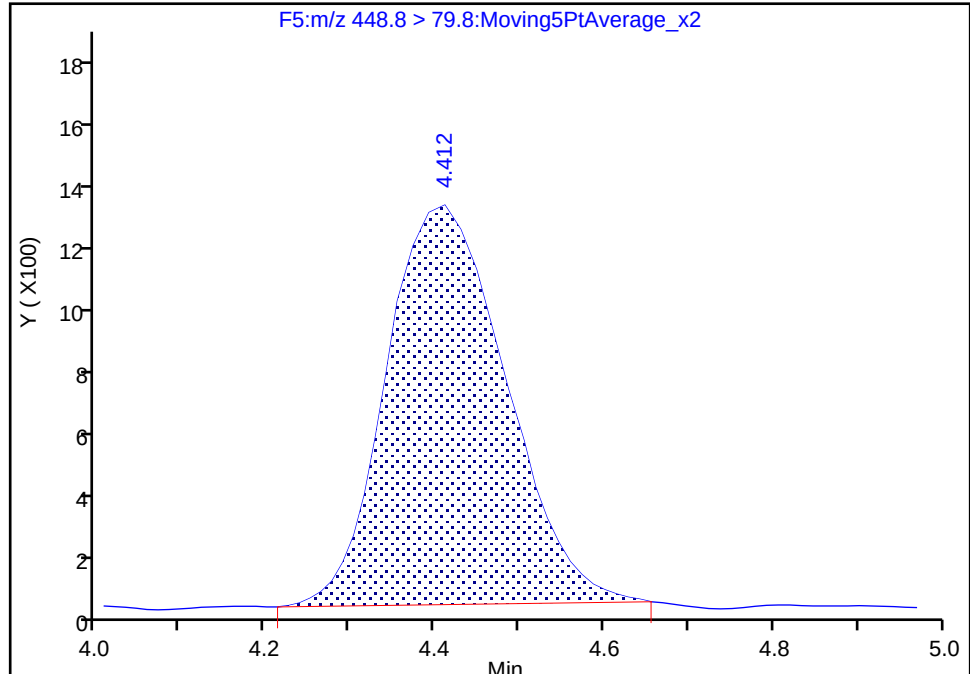
Detector F5:MRM

18 Perfluoroheptanesulfonic acid, CAS: 375-92-8

Signal: 1

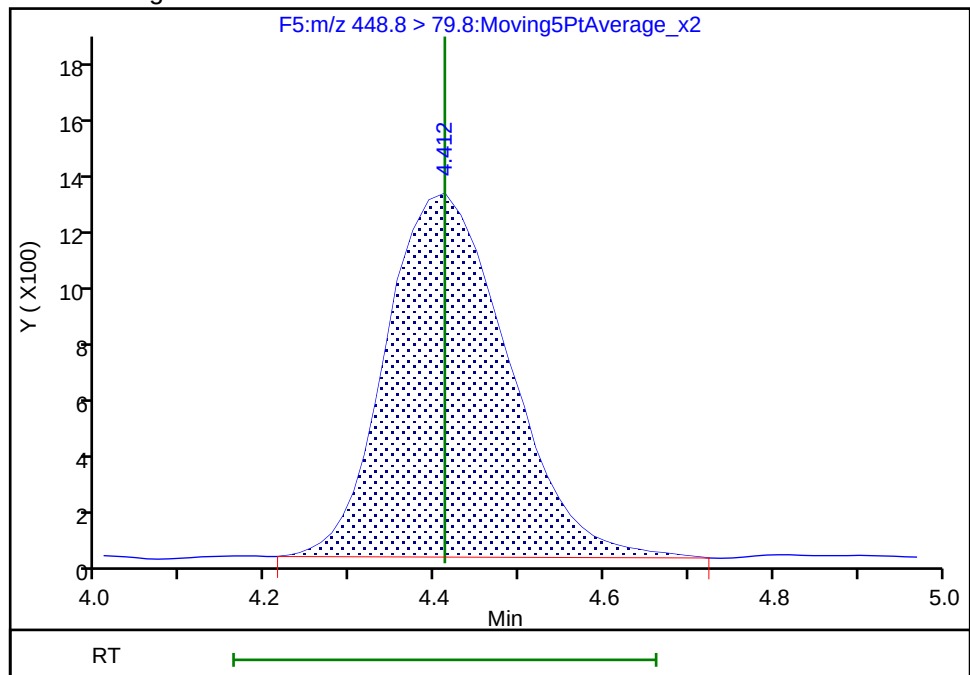
RT: 4.41
Area: 12137
Amount: 1.827602
Amount Units: ng/ml

Processing Integration Results



RT: 4.41
Area: 12449
Amount: 1.862780
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:45:36

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A08.d
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 17-Oct-2018 13:51:56 ALS Bottle#: 0 Worklist Smp#: 8
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0032684-008 IC 3
 Misc. Info.: PFAS21 101718A ICAL
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 17-Oct-2018 16:38:19 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: XAWRK002

First Level Reviewer: chirgwinb

Date: 17-Oct-2018 14:47:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
216.9 > 171.5	2.343	2.339	0.004	1.000	668312	45.9		91.8	428	
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.347	2.339	0.008	1.002	62168	5.30		106	167	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.760	2.754	0.006	1.000	428936	46.5		93.0	2305	
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.760	2.754	0.006	1.000	125927	5.15		103	283	M
D 6 13C3 PFBS										
302.0 > 79.8	2.818	2.818	0.0	1.000	315382	41.4		89.0	321	
5 Perfluorobutanesulfonic acid										M
298.9 > 80.0	2.818	2.820	-0.002	1.000	64865	5.48		110	547	M
D 7 13C2 PFHxA										
314.8 > 269.6	3.177	3.172	0.005	1.000	833740	50.2		100	1148	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.177	3.174	0.003	1.000	84410	4.88		97.6	1517	
D 9 13C4 PFHpA										
366.9 > 321.8	3.703	3.702	0.001	1.000	1564164	51.4		103	3108	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.703	3.705	-0.002	1.000	154111	5.04		101	404	
D 11 18O2 PFHxS										
402.9 > 83.8	3.748	3.747	0.001	1.000	411523	46.7		98.8	144	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.748	3.749	-0.001	1.000	68847	4.96		99.3	234	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.342	4.325	0.017	1.000	108629	40.0		84.2	573	
14 1H,1H,2H,2H-perfluorooctanesulfoni										M
426.6 > 406.6	4.330	4.330	0.0	0.997	12494	5.99		120	203	M

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.374	4.370	0.004	1.000	1170517	50.4		101	1326	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.374	4.374	0.0	1.000	122430	5.28		106	696	
* 15 13C2 PFOA										
414.9 > 369.8	4.374	4.374	0.0		1238655	50.0			763	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.412	4.412	0.0	0.856	38707	5.23		105	322	M
D 20 13C5 PFNA										
467.8 > 422.8	5.140	5.140	0.0	1.000	1526778	48.7		97.4	856	
19 Perfluorononanoic acid										
462.8 > 418.8	5.140	5.142	-0.002	1.000	177481	5.29		106	537	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.168	5.162	0.006	1.003	38423	4.79		95.8	276	
D 22 13C4 PFOS										
502.8 > 79.8	5.154	5.161	-0.007	1.000	370825	47.6		99.5	484	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.902	5.891	0.011	1.000	334752	45.5		94.9	3496	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.902	5.896	0.006	1.000	27432	4.87		97.3	282	
D 26 13C2 PFDA										
514.9 > 469.5	5.926	5.918	0.008	1.000	1714210	53.0		106	22419	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.926	5.926	0.0	1.000	169098	4.89		97.7	785	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.277	6.275	0.002	1.000	385533	46.7		93.4	1090	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.295	6.283	0.012	1.003	42564	5.08		102	66.3	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.652	6.638	0.014	1.000	351207	50.1		100	2459	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.670	6.654	0.016	1.003	34693	5.13		103	493	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.670	6.674	-0.004	1.294	41490	5.11		102	536	
D 32 13C2 PFUnA										
564.8 > 519.8	6.688	6.682	0.006	1.000	1737587	51.6		103	3291	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.688	6.685	0.003	1.000	182039	5.11		102	781	
D 35 13C8 FOSA										
505.8 > 77.8	6.959	6.955	0.004	1.000	731745	48.7		97.4	5883	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.959	6.963	-0.004	1.000	62033	5.01		100	745	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.362	7.359	0.003	1.000	182703	5.07		101	1557	
D 37 13C2 PFDoA										
614.8 > 569.6	7.362	7.362	0.0	1.000	2099298	49.3		98.6	8891	
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.979	7.979	0.0	0.937	101072	5.16		103	709	M

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A08.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 40 13C2 PFTeDA										
714.8 > 669.6	8.514	8.516	-0.002	1.000	1900412	48.7		97.3	685	
39 Perfluorotetradecanoic acid										M
712.8 > 668.6	8.530	8.523	0.007	1.002	196056	5.29		106	1330	
712.8 > 168.8	8.514	8.523	-0.009	1.000	39736		4.93(0.00-0.00)	106	288	
712.8 > 218.8	8.530	8.523	0.007	1.002	26023		7.53(0.00-0.00)	106	88.6	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L3_00003

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A08.d

Injection Date: 17-Oct-2018 13:51:56

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 8

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

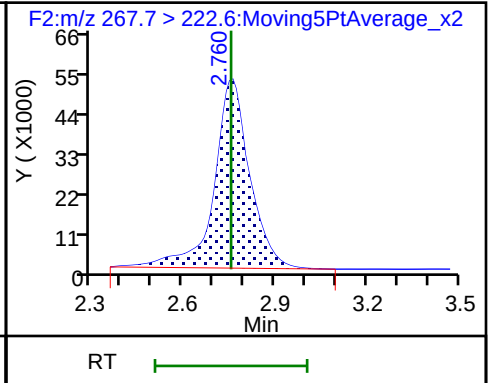
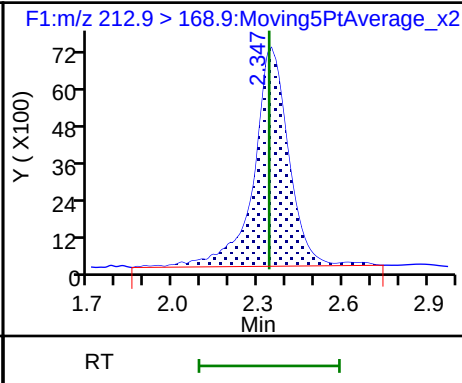
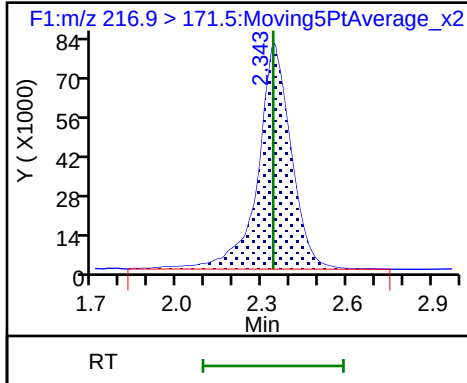
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid (M)

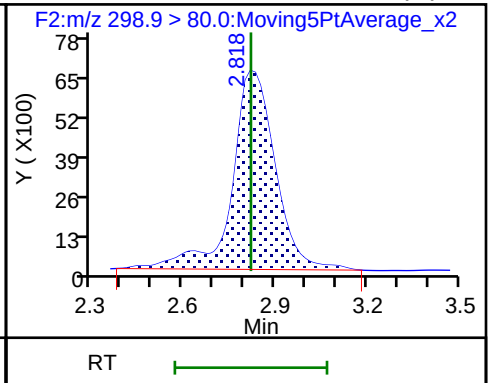
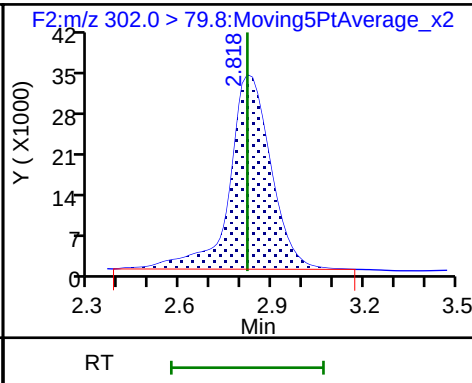
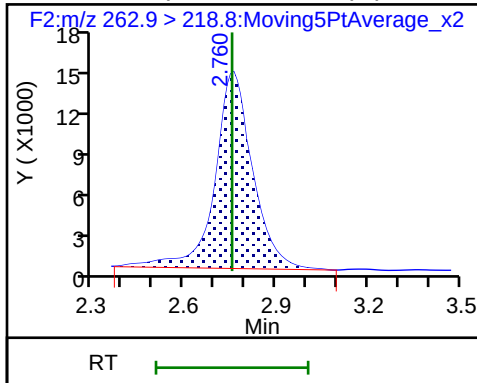
D 3 13C5 PFPeA



4 Perfluoropentanoic acid (M)

D 6 13C3 PFBS

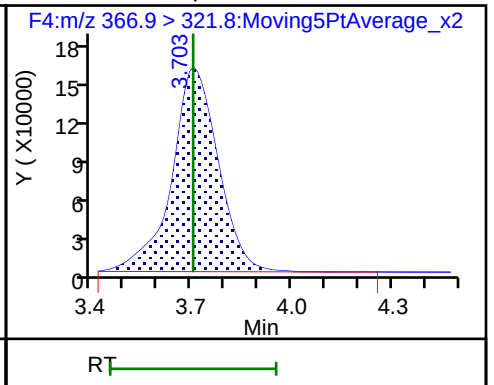
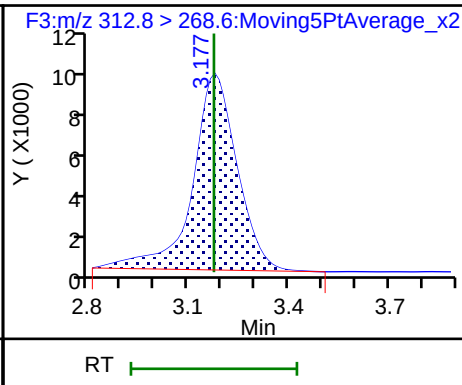
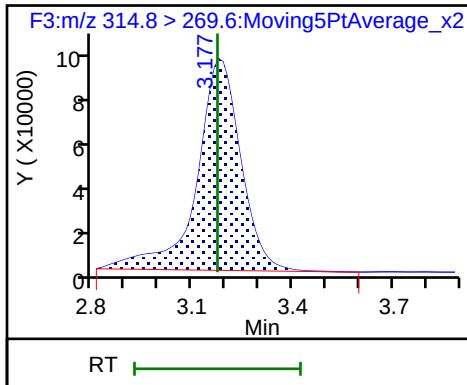
5 Perfluorobutanesulfonic acid (M)



D 7 13C2 PFHxA

8 Perfluorohexanoic acid

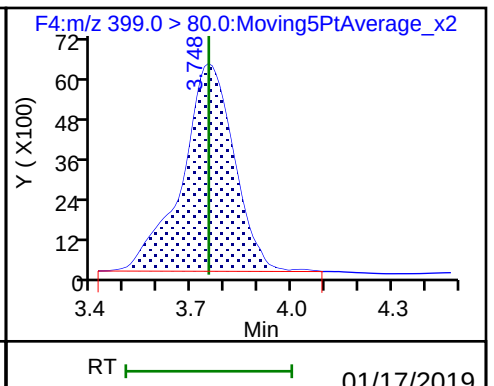
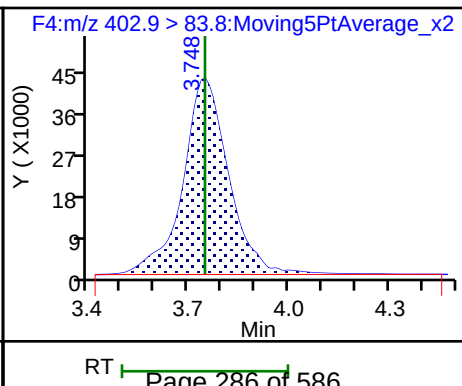
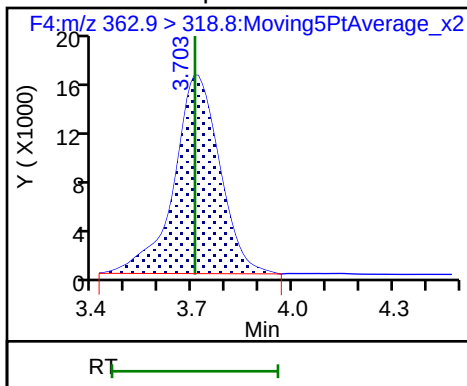
D 9 13C4 PFHpA



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

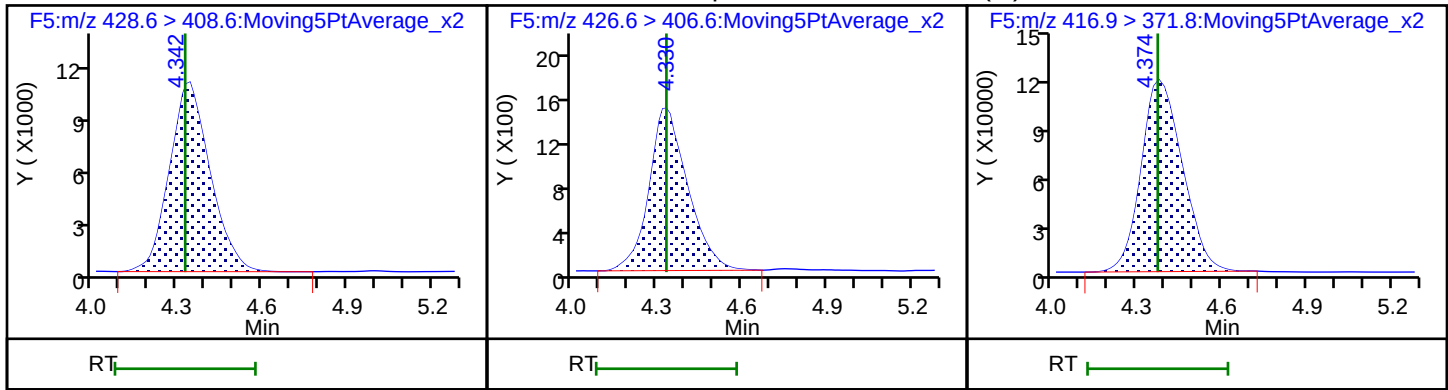
12 Perfluorohexanesulfonic acid



D 13 M2-6:2 FTS

14 1H,1H,2H,2H-perfluorooctanesulfonate (M)

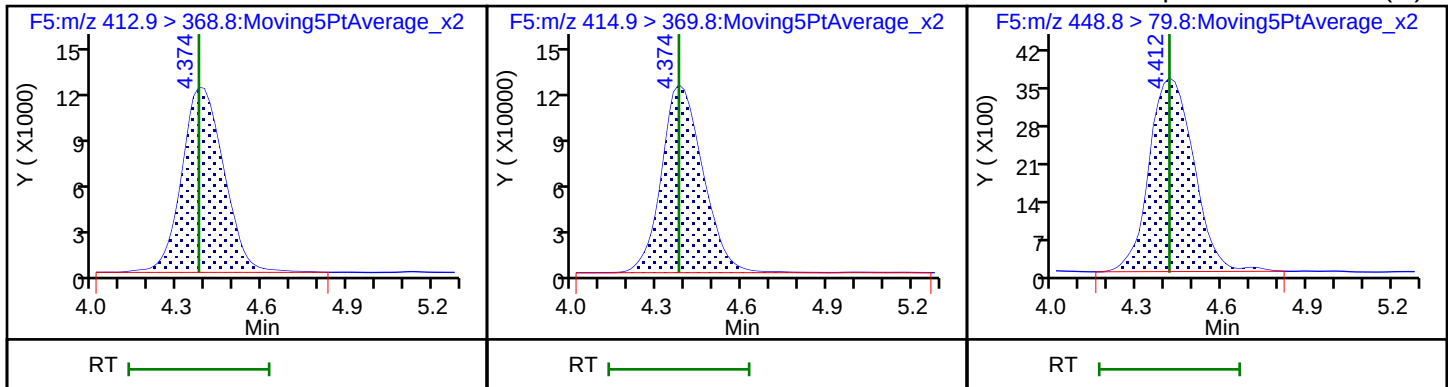
D 17 13C4 PFOA



16 Perfluorooctanoic acid

* 15 13C2 PFOA

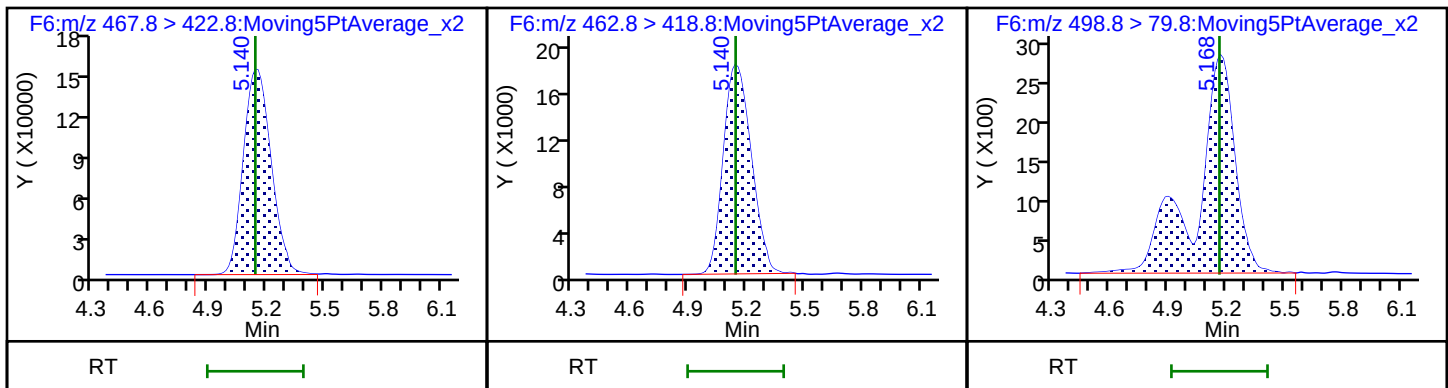
18 Perfluoroheptanesulfonic acid (M)



D 20 13C5 PFNA

19 Perfluorononanoic acid

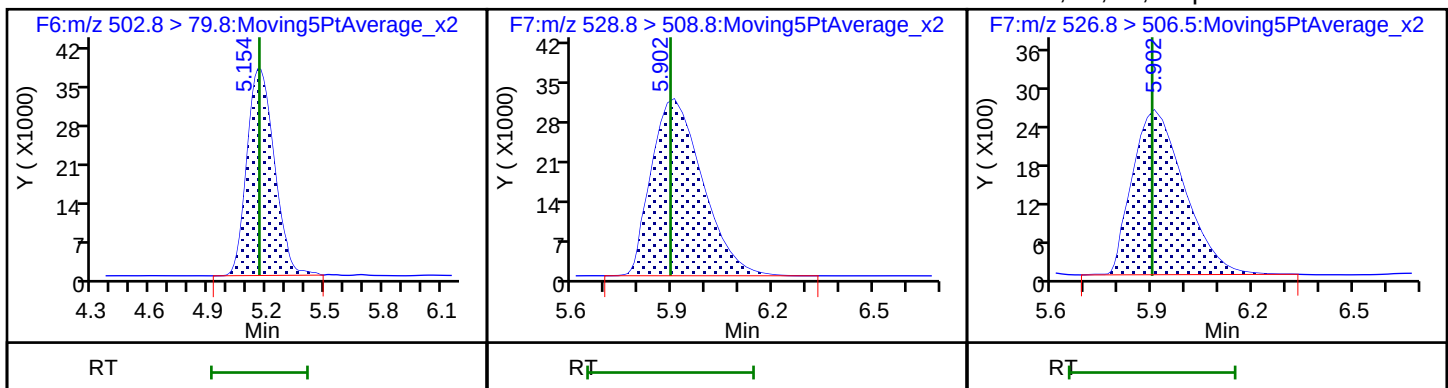
21 Perfluorooctanesulfonic acid



D 22 13C4 PFOS

D 24 M2-8:2 FTS

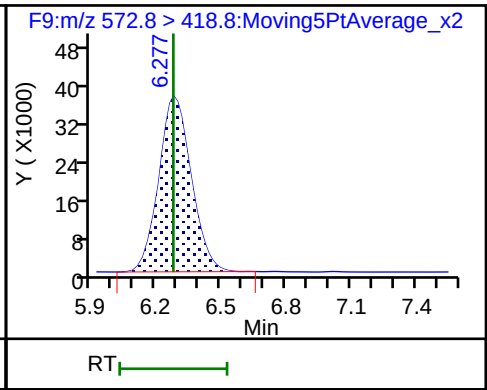
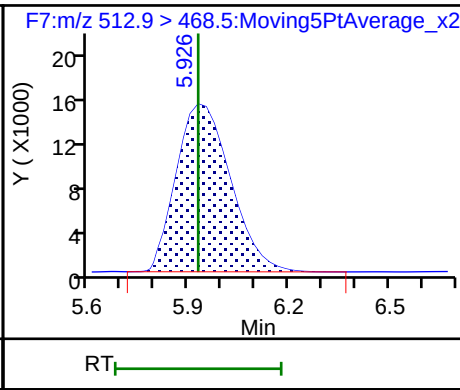
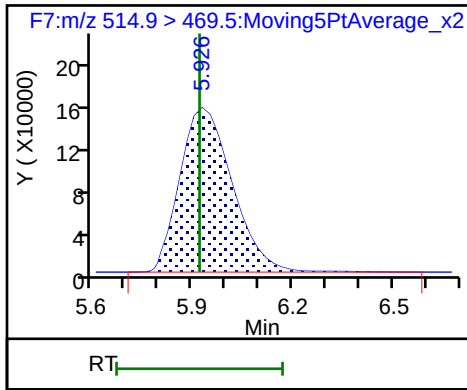
23 1H,1H,2H,2H-perfluorodecanesulfonate (M)



D 26 13C2 PFDA

25 Perfluorodecanoic acid

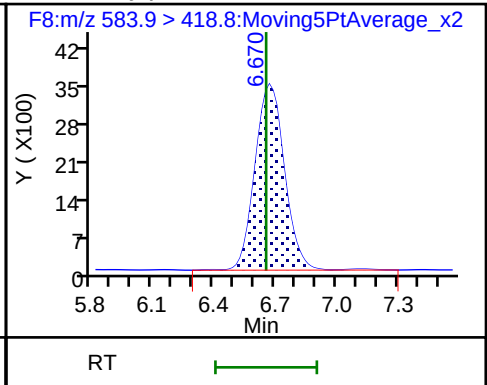
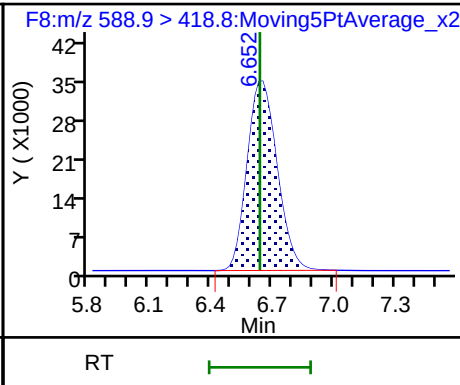
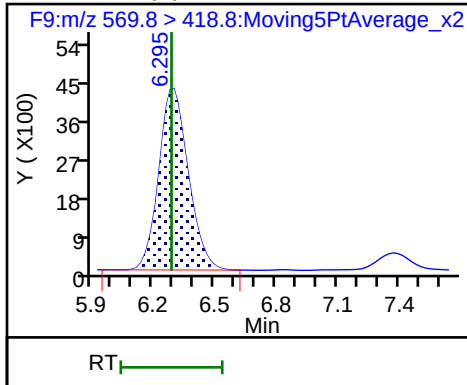
D 27 d3-NMeFOSAA



28 N-methylperfluorooctanesulfonamidD

29 d5-NEtFOSAA

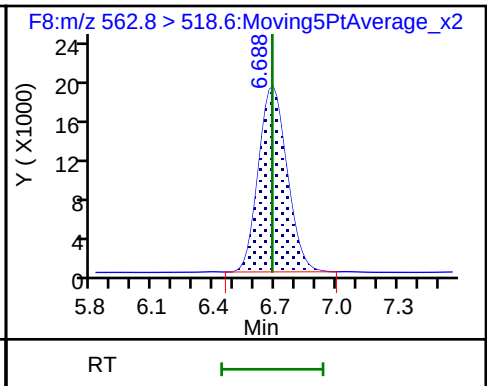
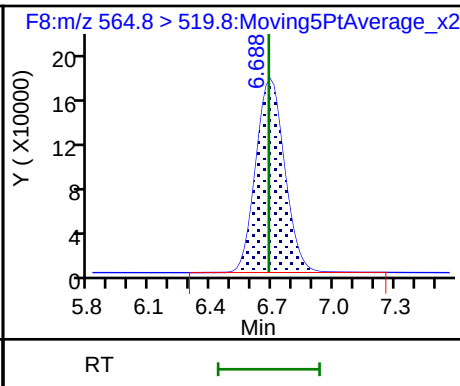
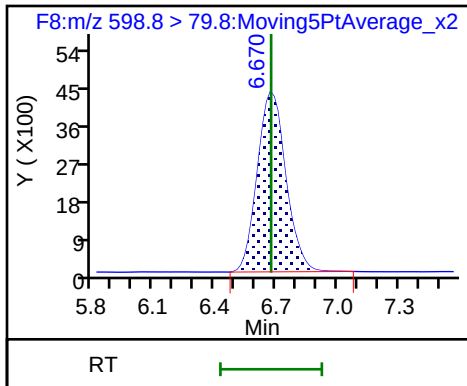
30 N-ethylperfluorooctanesulfonamidoa



31 Perfluorodecanesulfonic acid

D 32 13C2 PFUnA

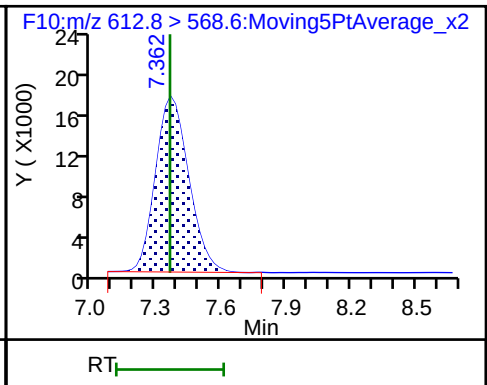
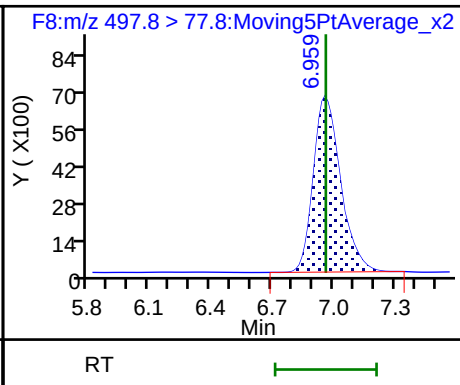
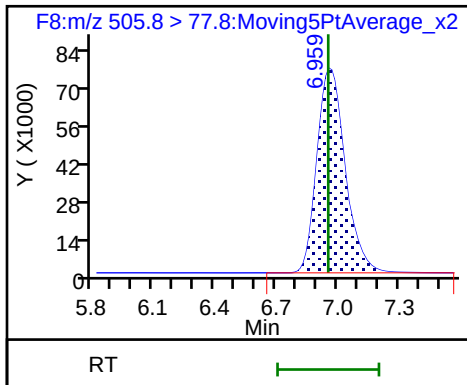
33 Perfluoroundecanoic acid



D 35 13C8 FOSA

34 Perfluorooctanesulfonamide

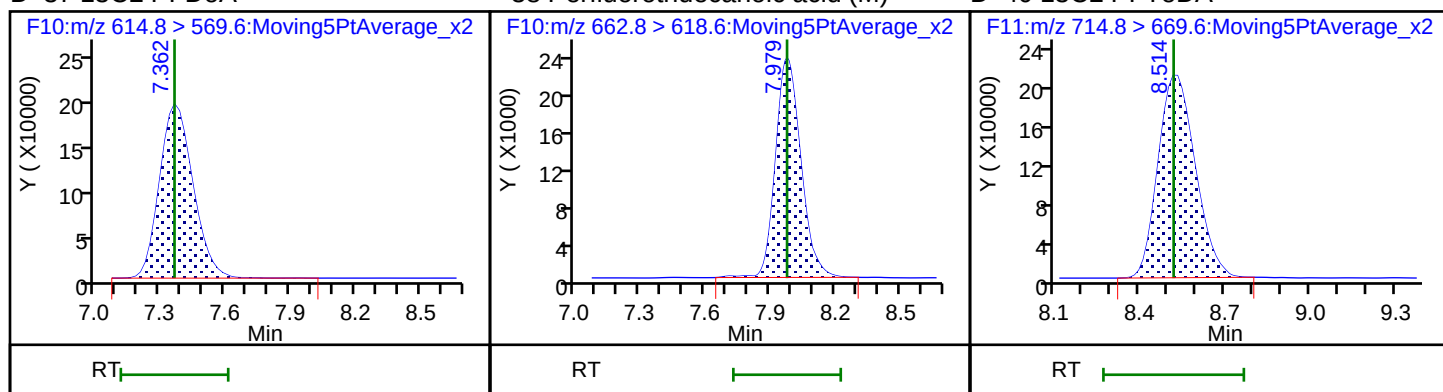
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (M)

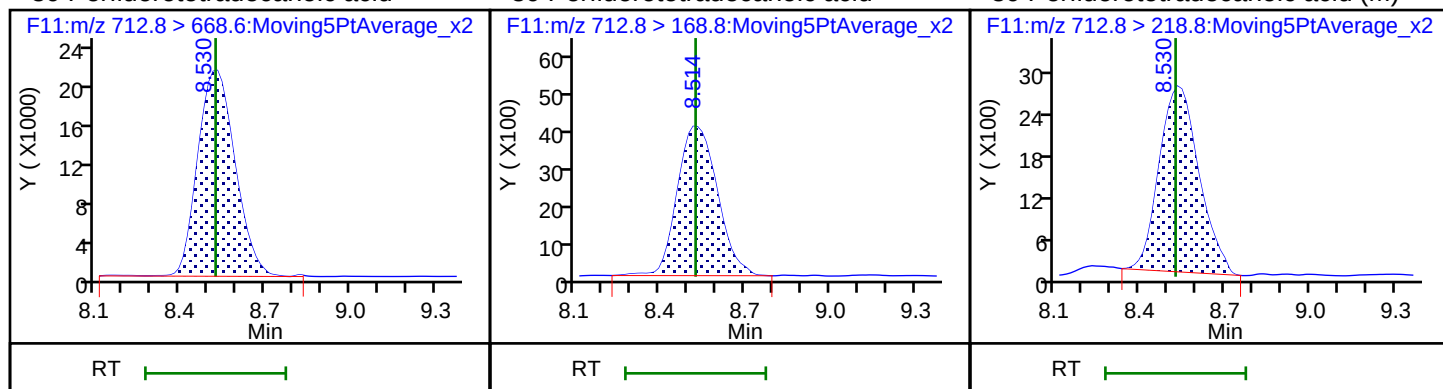
D 40 13C2 PFTeDA



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid (M)



TestAmerica Burlington

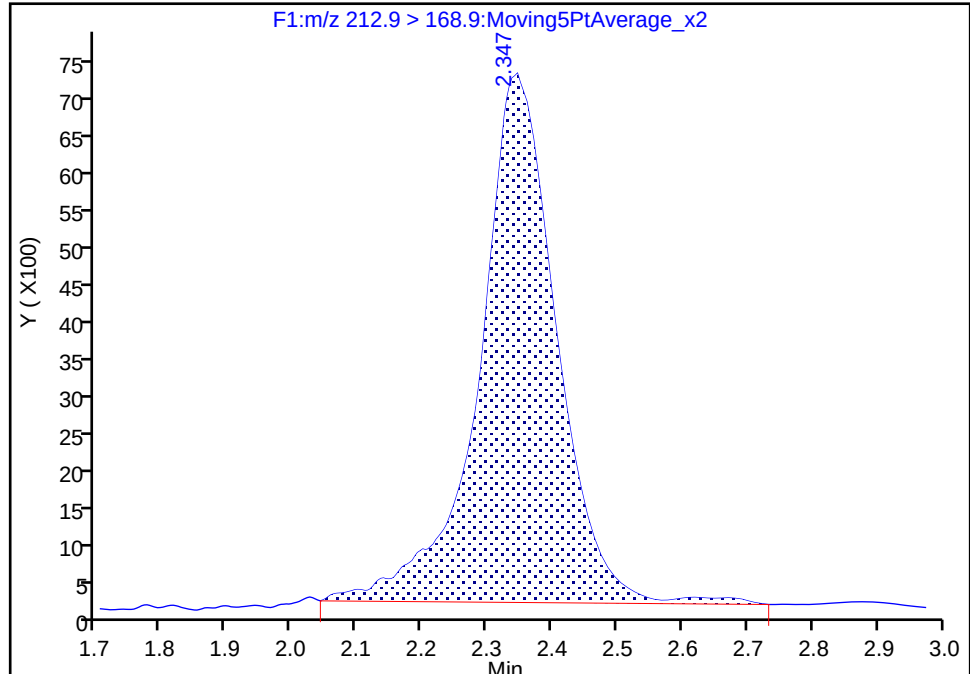
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A08.d
Injection Date: 17-Oct-2018 13:51:56 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

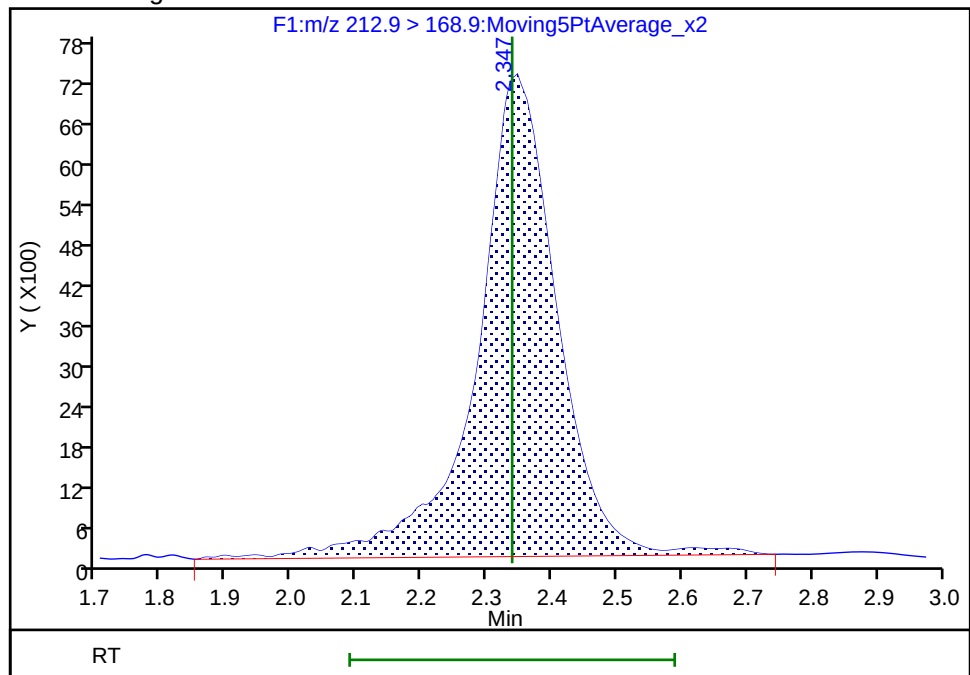
RT: 2.35
Area: 59256
Amount: 6.633008
Amount Units: ng/ml

Processing Integration Results



RT: 2.35
Area: 62168
Amount: 5.299140
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:47:12
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

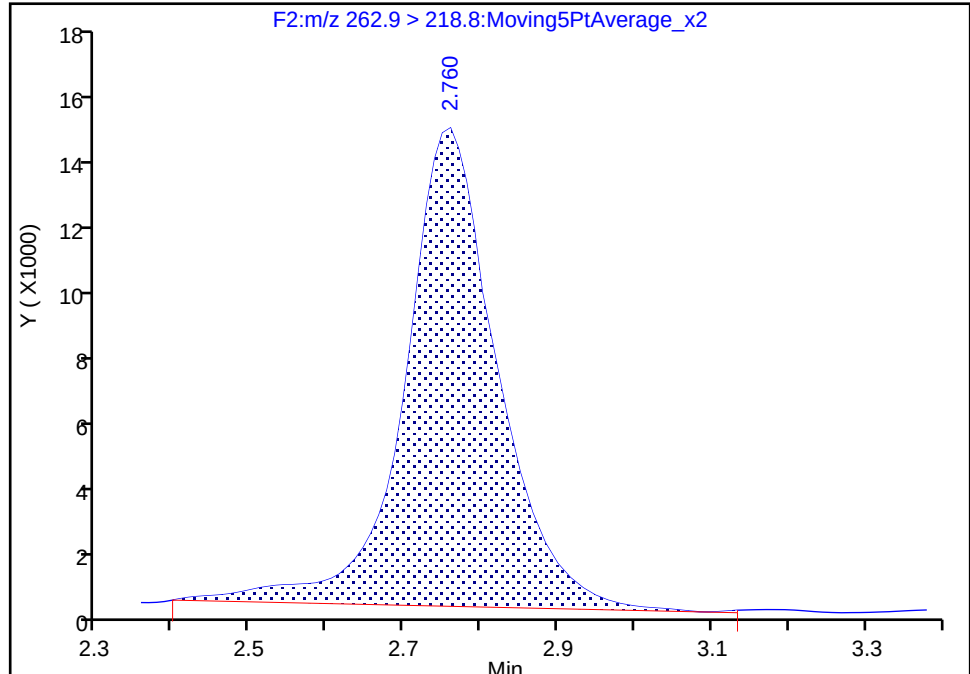
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Injection Date: 17-Oct-2018 13:51:56 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

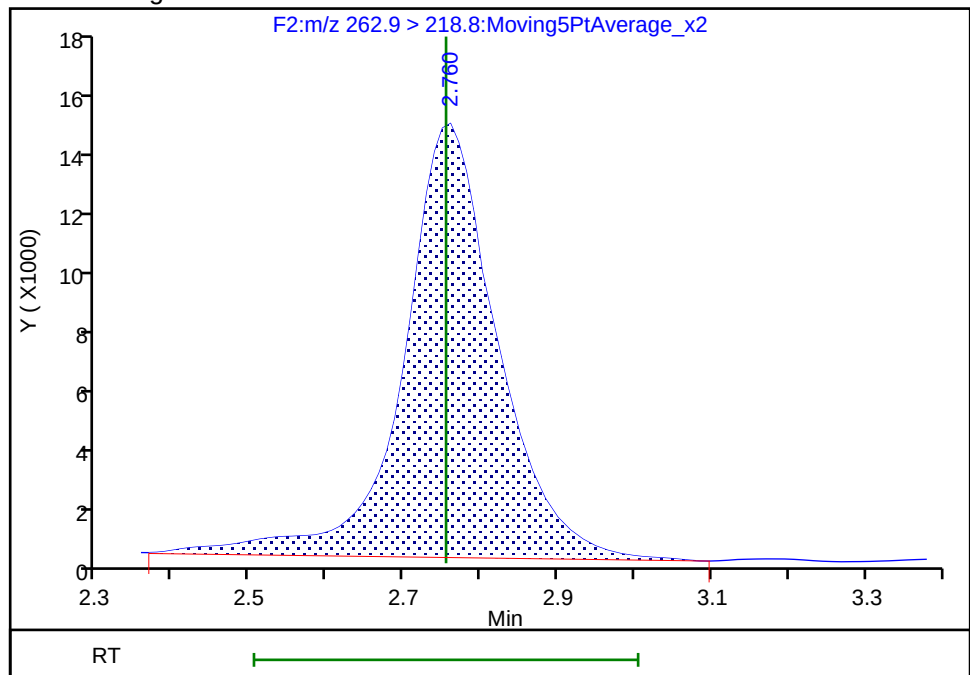
RT: 2.76
Area: 123570
Amount: 4.912651
Amount Units: ng/ml

Processing Integration Results



RT: 2.76
Area: 125927
Amount: 5.154278
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:47:05
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

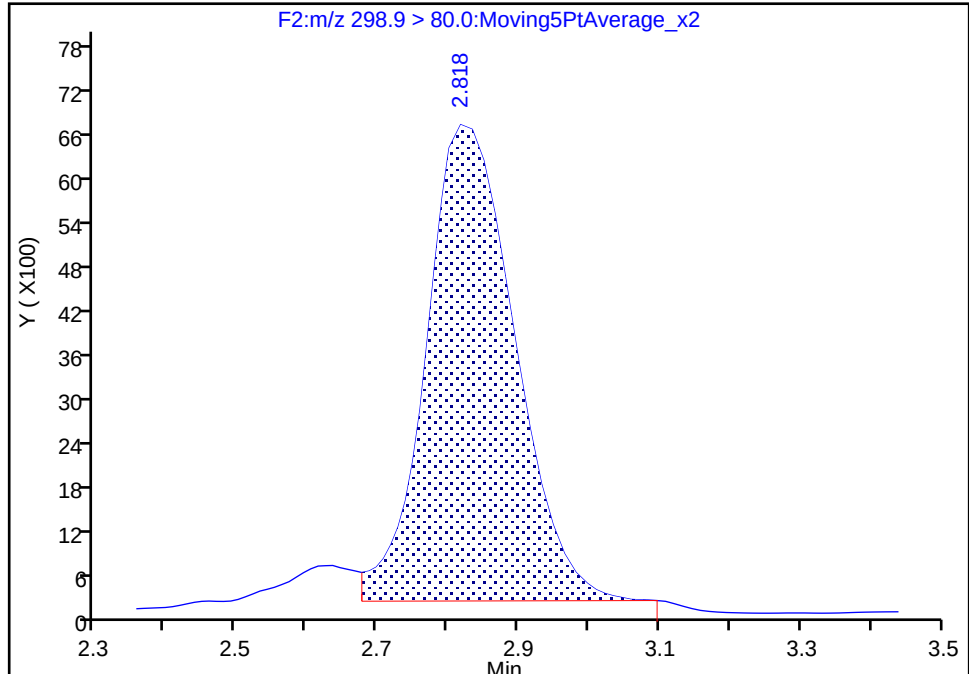
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A08.d
Injection Date: 17-Oct-2018 13:51:56 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

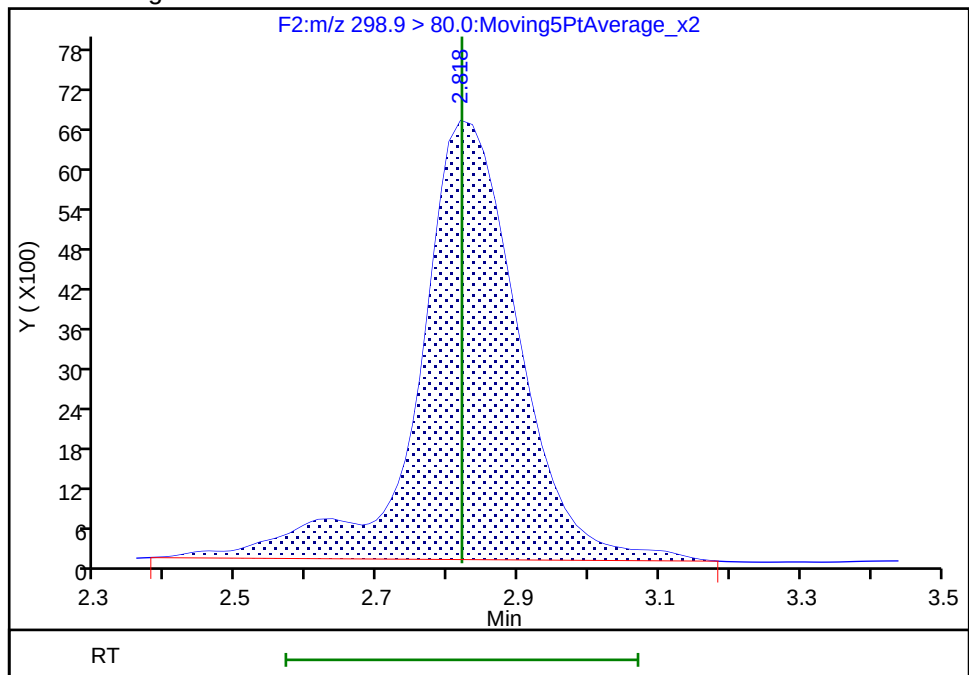
RT: 2.82
Area: 56330
Amount: 4.699740
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 64865
Amount: 5.480563
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:46:55
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

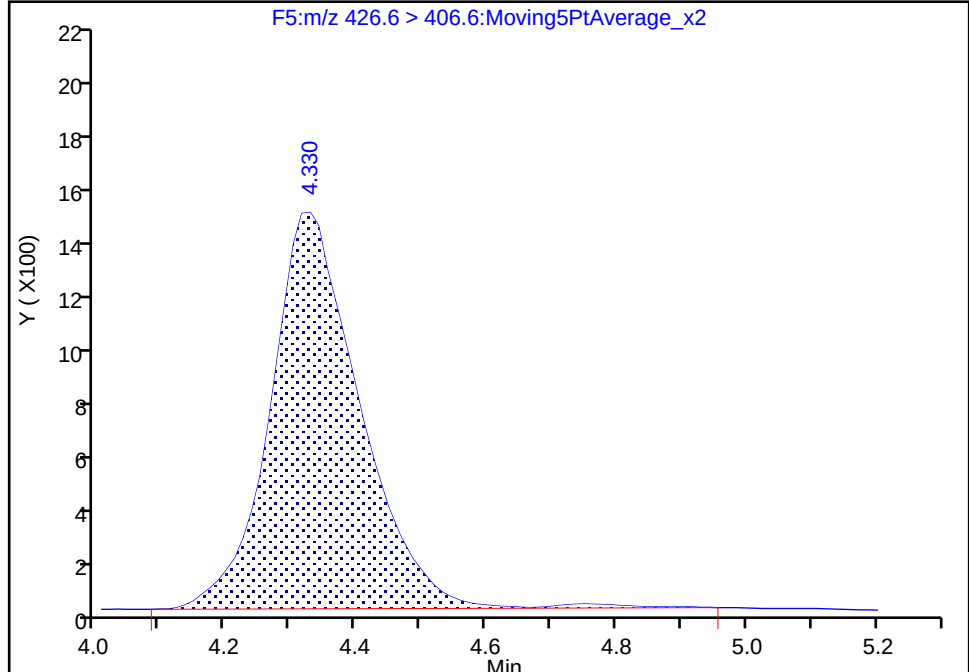
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A08.d
Injection Date: 17-Oct-2018 13:51:56 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F5:MRM

14 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:, CAS: 27619-97-2

Signal: 1

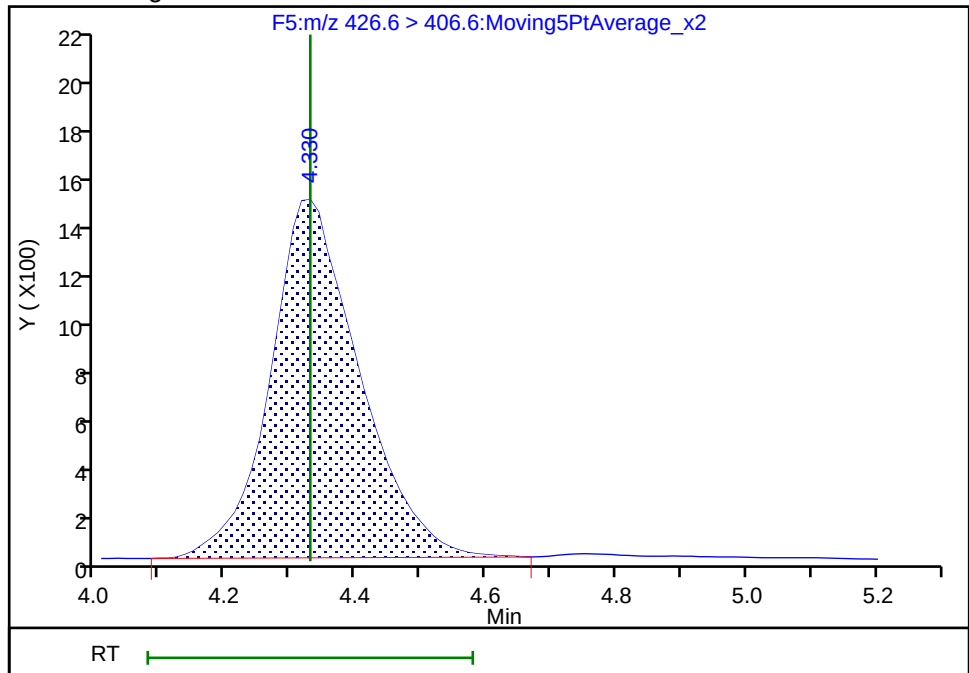
RT: 4.33
Area: 13642
Amount: 5.503637
Amount Units: ng/ml

Processing Integration Results



RT: 4.33
Area: 13494
Amount: 5.993161
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:46:44
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

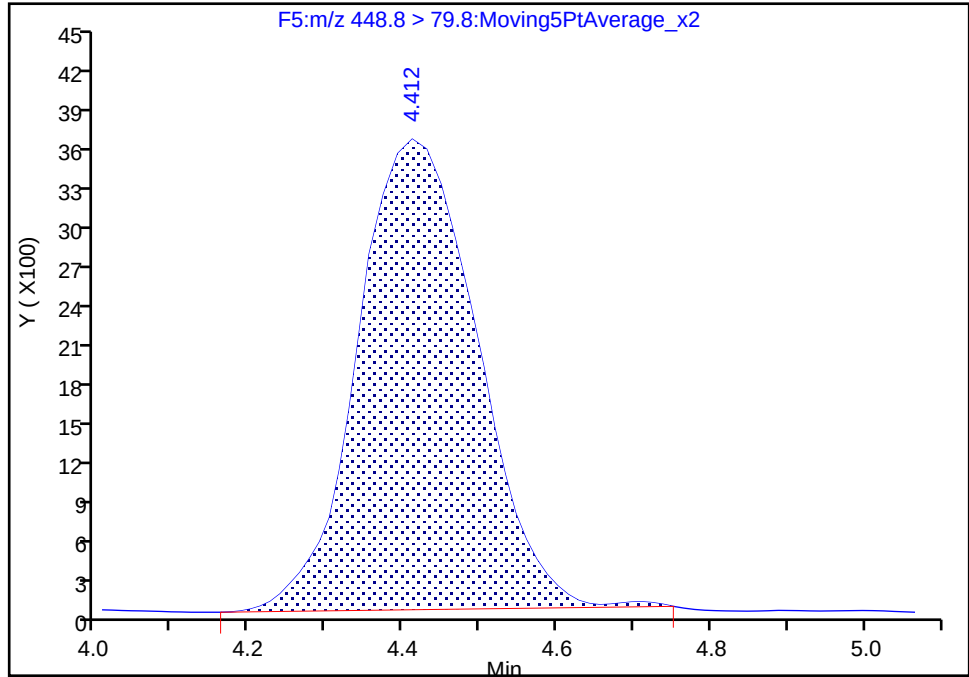
Data File:	\\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A08.d		
Injection Date:	17-Oct-2018 13:51:56	Instrument ID:	LC410
Lims ID:	IC		
Client ID:			
Operator ID:	BC	ALS Bottle#:	0 Worklist Smp#: 8
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector	F5:MRM

18 Perfluoroheptanesulfonic acid, CAS: 375-92-8

Signal: 1

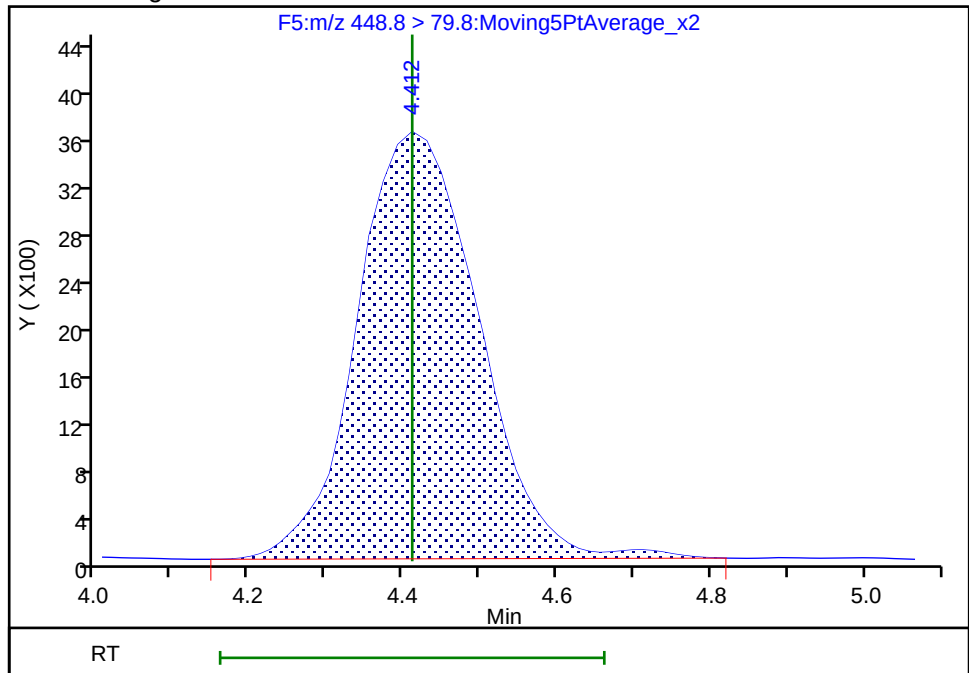
RT: 4.41
Area: 38043
Amount: 5.185811
Amount Units: ng/ml

Processing Integration Results



RT: 4.41
Area: 38707
Amount: 5.226096
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:46:37

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

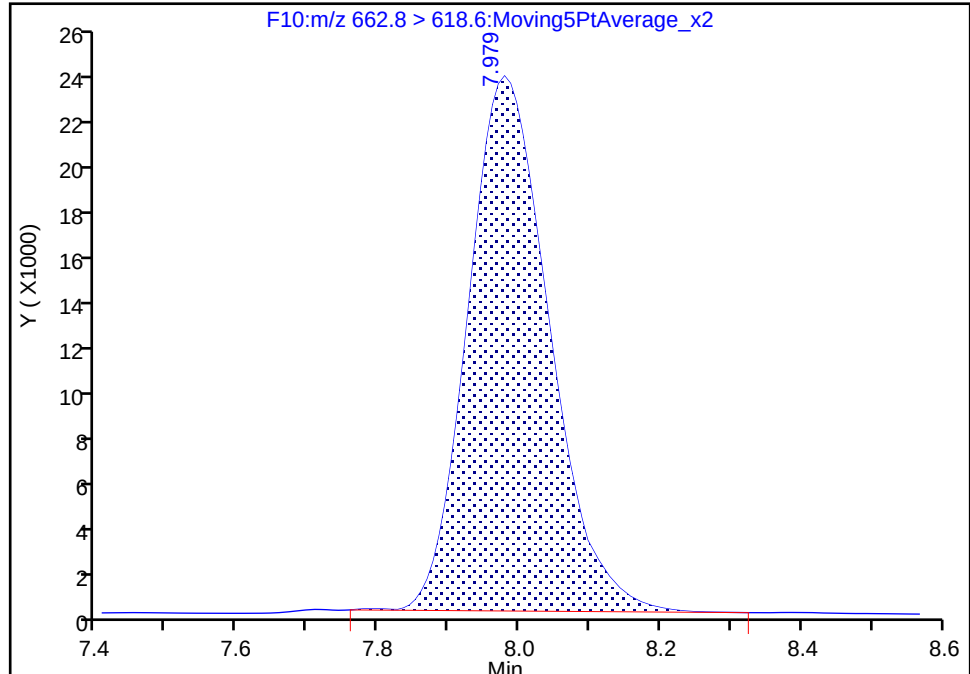
Data File:	\\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A08.d		
Injection Date:	17-Oct-2018 13:51:56	Instrument ID:	LC410
Lims ID:	IC		
Client ID:			
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector:	F10:MRM
		Worklist Smp#:	8

38 Perfluorotridecanoic acid, CAS: 72629-94-8

Signal: 1

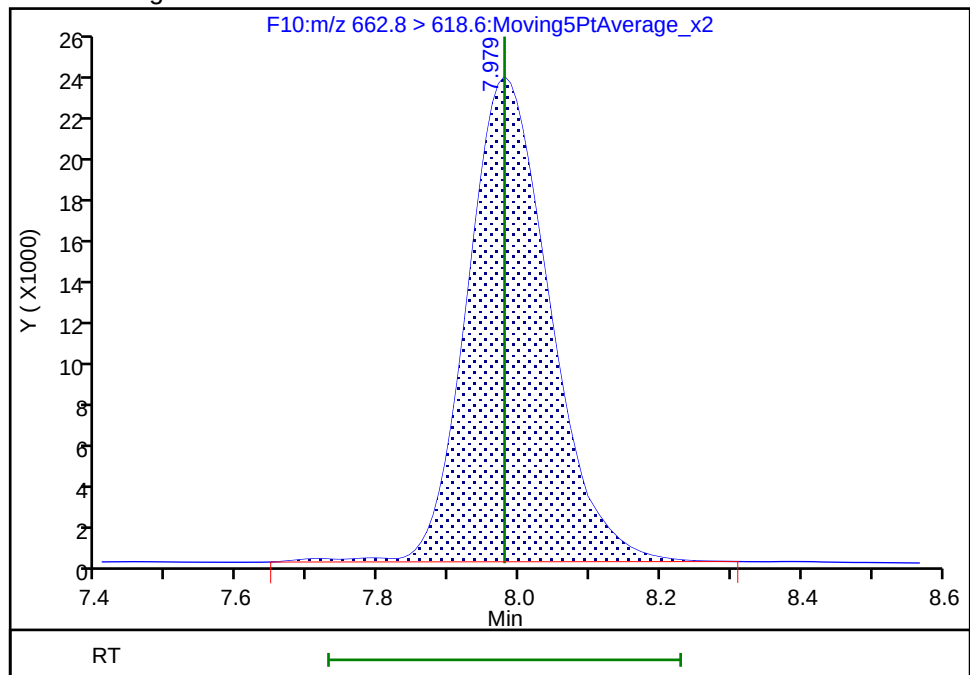
RT: 7.98
Area: 188835
Amount: 5.075920
Amount Units: ng/ml

Processing Integration Results



RT: 7.98
Area: 191672
Amount: 5.159116
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:46:21
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

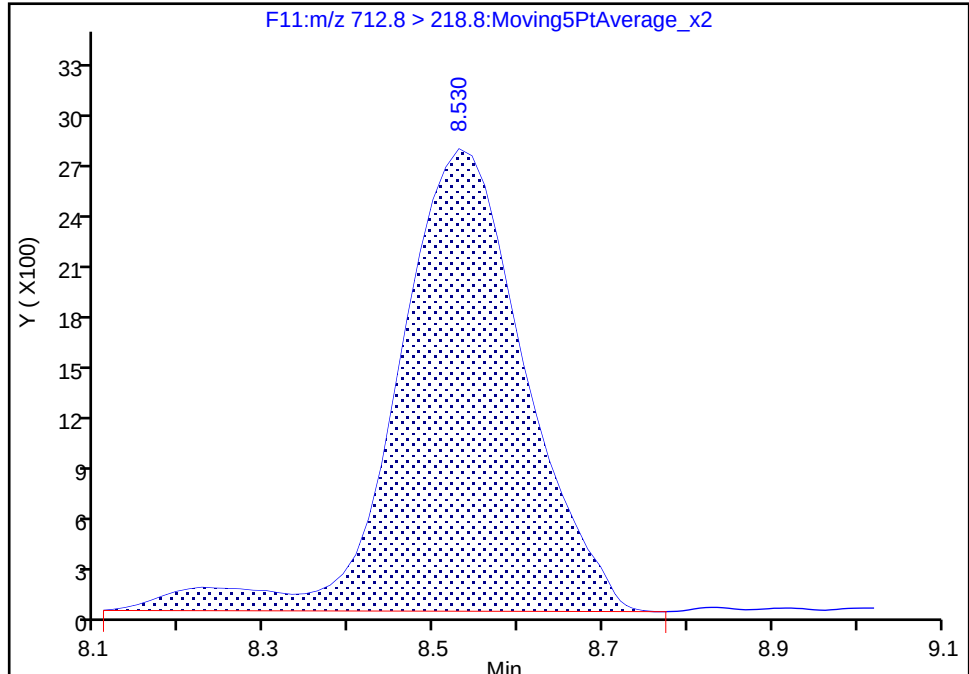
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A08.d
Injection Date: 17-Oct-2018 13:51:56 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F11:MRM

39 Perfluorotetradecanoic acid, CAS: 376-06-7

Signal: 3

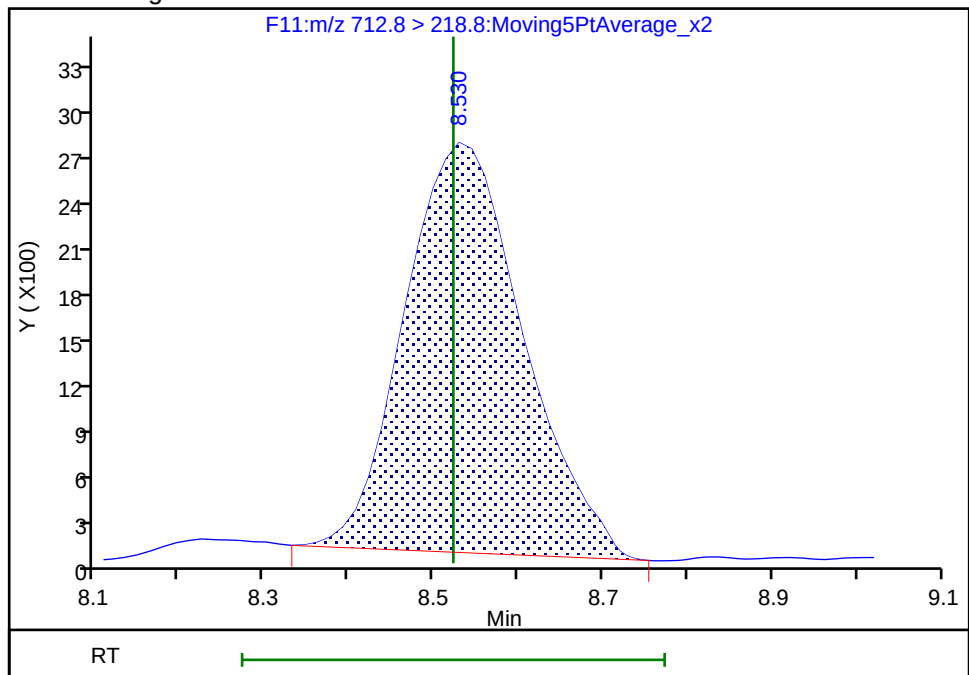
RT: 8.53
Area: 28479
Amount: 5.154109
Amount Units: ng/ml

Processing Integration Results



RT: 8.53
Area: 26023
Amount: 5.291698
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:46:16
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A09.d
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 17-Oct-2018 14:07:54 ALS Bottle#: 0 Worklist Smp#: 9
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0032684-009 ICIS
 Misc. Info.: PFAS21 101718A ICAL
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 17-Oct-2018 16:38:23 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: XAWRK002

First Level Reviewer: chirgwinb

Date: 17-Oct-2018 15:04:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										M
216.9 > 171.5	2.322	2.336	-0.014	1.000	679847	43.4		86.8	2012	M
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.330	2.337	-0.007	1.003	118688	10.1		101	330	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.750	2.754	-0.004	1.000	434921	43.8		87.6	2354	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.750	2.754	-0.004	1.000	257221	10.4		104	596	
D 6 13C3 PFBS										M
302.0 > 79.8	2.801	2.814	-0.013	1.000	338617	41.3		88.8	391	M
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.818	2.820	-0.002	1.006	128344	10.1		101	319	
D 7 13C2 PFHxA										
314.8 > 269.6	3.164	3.172	-0.008	1.000	832949	46.6		93.1	1712	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.177	3.174	0.003	1.004	176119	10.2		102	1330	
D 9 13C4 PFHpA										
366.9 > 321.8	3.692	3.702	-0.010	1.000	1500566	45.8		91.6	813	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.703	3.705	-0.002	1.003	297831	10.2		102	4485	
D 11 18O2 PFHxS										
402.9 > 83.8	3.737	3.747	-0.010	1.000	403737	42.6		90.0	101	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.748	3.749	-0.001	1.003	123878	9.30		93.0	221	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.317	4.325	-0.008	1.000	112280	38.4		80.8	667	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.317	4.330	-0.013	1.000	25028	10.8		108	369	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.355	4.370	-0.015	1.000	1167546	46.7		93.3	1342	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.374	4.374	0.0	1.004	220137	9.52		95.2	2252	
* 15 13C2 PFOA										
414.9 > 369.8	4.374	4.374	0.0		1333110	50.0			1475	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.412	4.412	0.0	0.856	70999	9.93		99.3	284	
D 20 13C5 PFNA										
467.8 > 422.8	5.127	5.140	-0.013	1.000	1540942	45.7		91.3	1795	
19 Perfluorononanoic acid										
462.8 > 418.8	5.140	5.142	-0.002	1.003	309354	9.13		91.3	850	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.154	5.161	-0.007	1.000	77495	10.0		100	354	
D 22 13C4 PFOS										
502.8 > 79.8	5.154	5.161	-0.007	1.000	358054	42.7		89.2	667	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.882	5.891	-0.009	1.000	355854	44.9		93.8	4366	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.882	5.896	-0.014	1.000	69878	11.7		117	481	
D 26 13C2 PFDA										
514.9 > 469.5	5.902	5.918	-0.016	1.000	1668807	48.0		95.9	6675	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.902	5.922	-0.020	1.000	326087	9.68		96.8	4335	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.259	6.275	-0.016	1.000	380957	42.9		85.7	1911	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.277	6.283	-0.006	1.003	83136	10.0		100	206	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.634	6.638	-0.004	1.000	366081	48.5		97.1	1830	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.652	6.654	-0.002	1.003	66780	9.47		94.7	1095	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.652	6.670	-0.018	1.291	78955	10.1		101	991	
D 32 13C2 PFUnA										
564.8 > 519.8	6.670	6.682	-0.012	1.000	1734742	47.9		95.8	2145	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.670	6.682	-0.012	1.000	357513	10.0		100	2369	
D 35 13C8 FOSA										
505.8 > 77.8	6.945	6.955	-0.010	1.000	706019	43.7		87.3	4403	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.945	6.959	-0.014	1.000	123818	10.4		104	1650	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.362	7.359	0.003	1.000	359390	10.3		103	1933	
D 37 13C2 PFDaA										
614.8 > 569.6	7.362	7.362	0.0	1.000	2031630	44.3		88.7	3451	
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.970	7.977	-0.007	0.936	263751	9.95		99.5	1545	

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A09.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 40 13C2 PFTeDA										
714.8 > 669.6	8.514	8.516	-0.002	1.000	1870811	44.5		89.0	1385	
39 Perfluorotetradecanoic acid										M
712.8 > 668.6	8.514	8.522	-0.008	1.000	362652	9.94		99.4	871	
712.8 > 168.8	8.514	8.522	-0.008	1.000	75743		4.79(0.00-0.00)	99.4	487	
712.8 > 218.8	8.514	8.522	-0.008	1.000	39667		9.14(0.00-0.00)	99.4	121	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L3A_00001

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A09.d

Injection Date: 17-Oct-2018 14:07:54

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 9

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

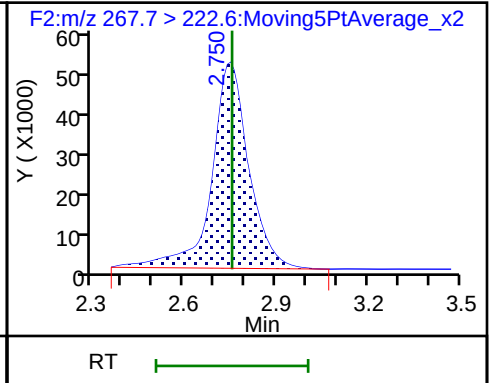
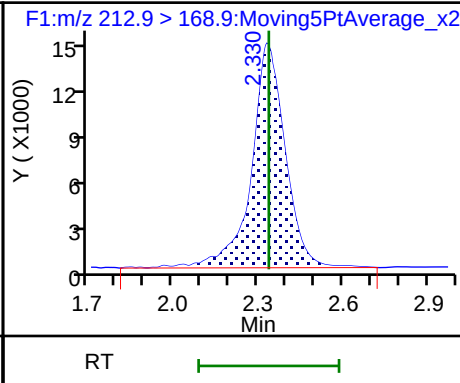
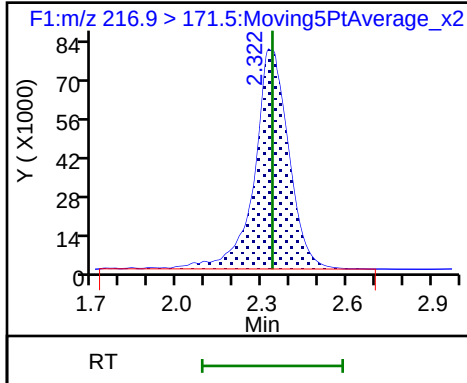
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

D 1 13C4 PFBA (M)

2 Perfluorobutanoic acid (M)

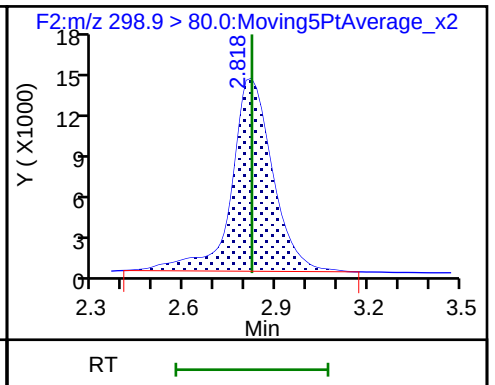
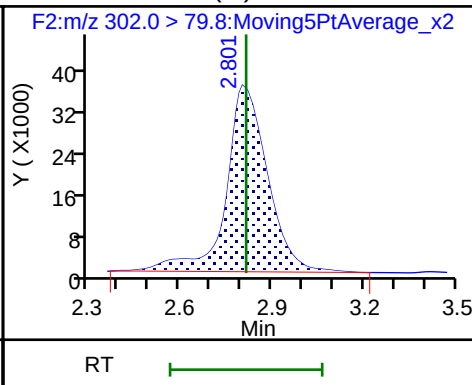
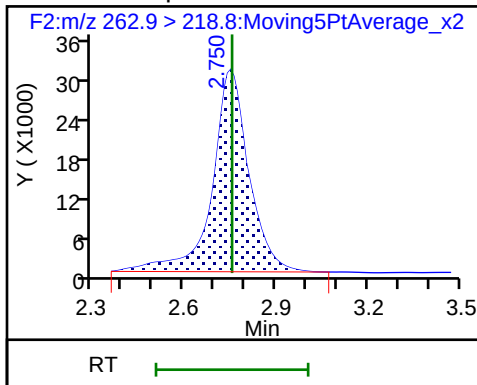
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 6 13C3 PFBS (M)

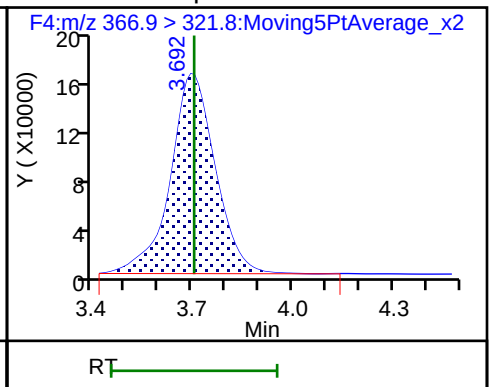
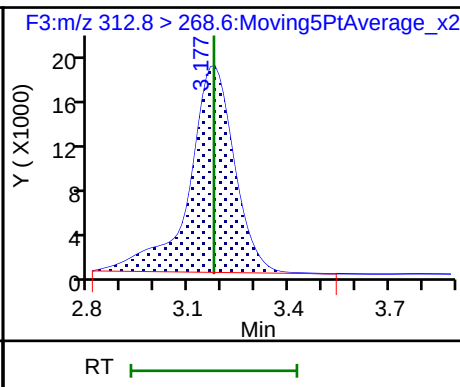
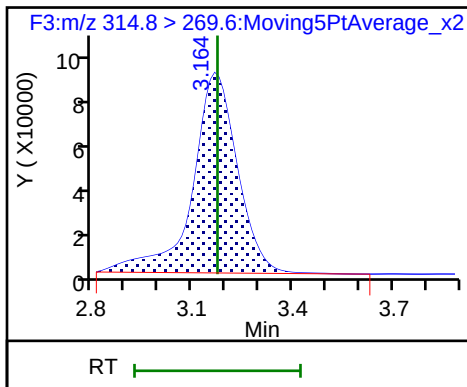
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

8 Perfluorohexanoic acid

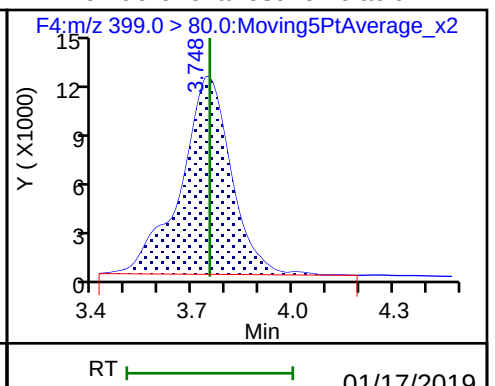
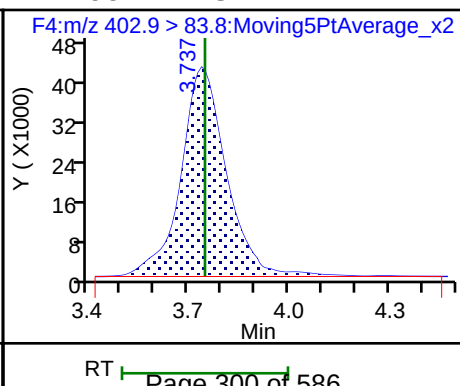
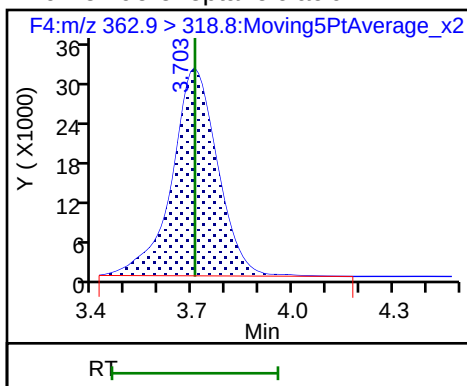
D 9 13C4 PFHpA



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

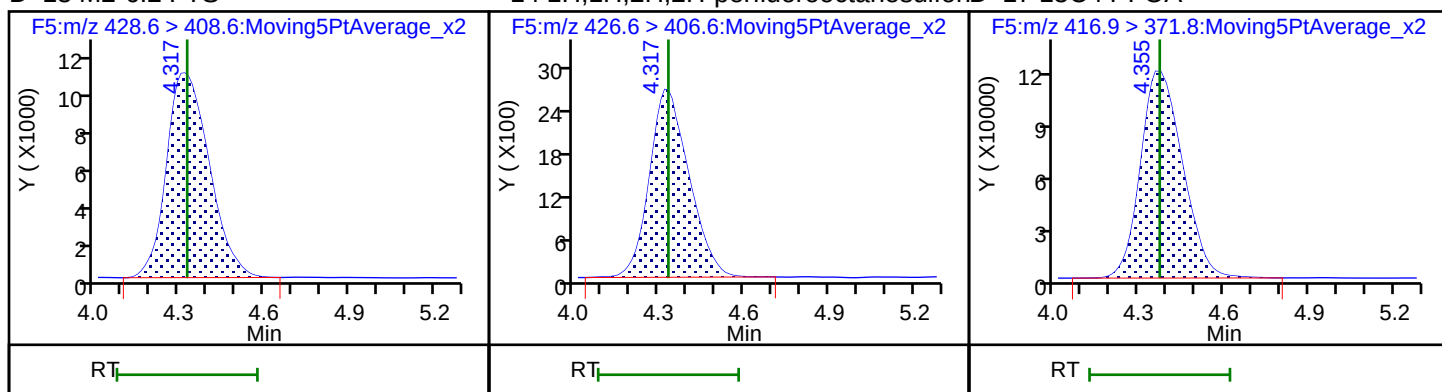
12 Perfluorohexanesulfonic acid



D 13 M2-6:2 FTS

14 1H,1H,2H,2H-perfluorooctanesulfonD

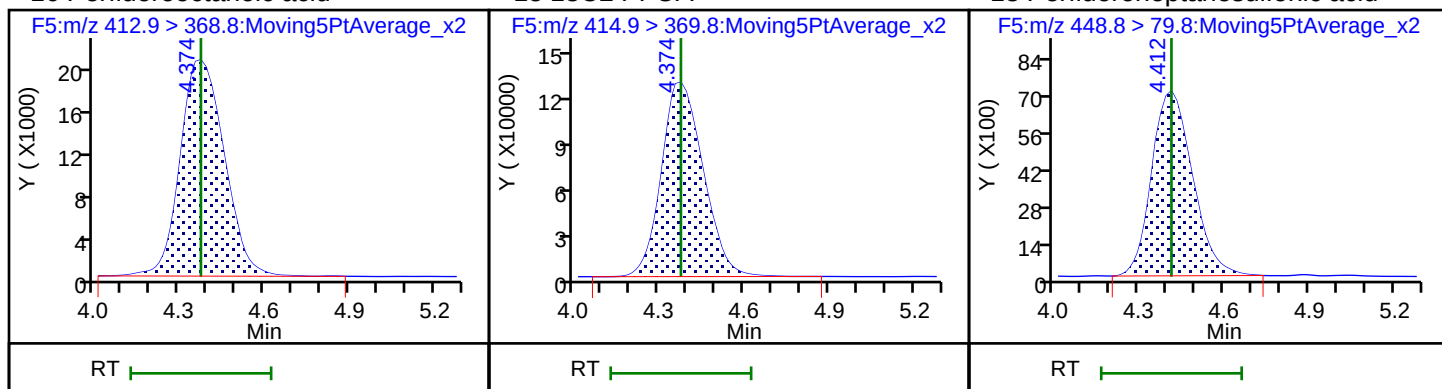
17 13C4 PFOA



16 Perfluorooctanoic acid

* 15 13C2 PFOA

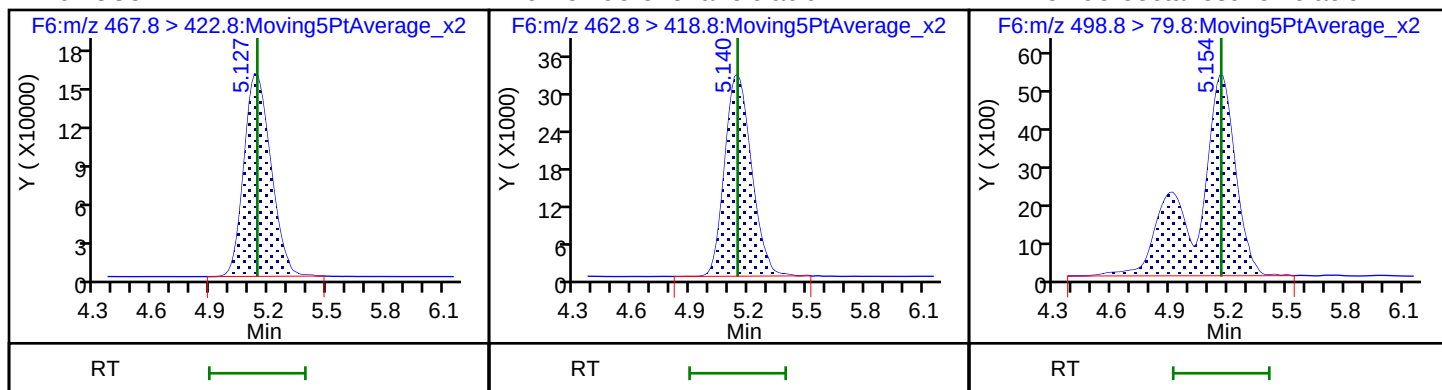
18 Perfluoroheptanesulfonic acid



D 20 13C5 PFNA

19 Perfluorononanoic acid

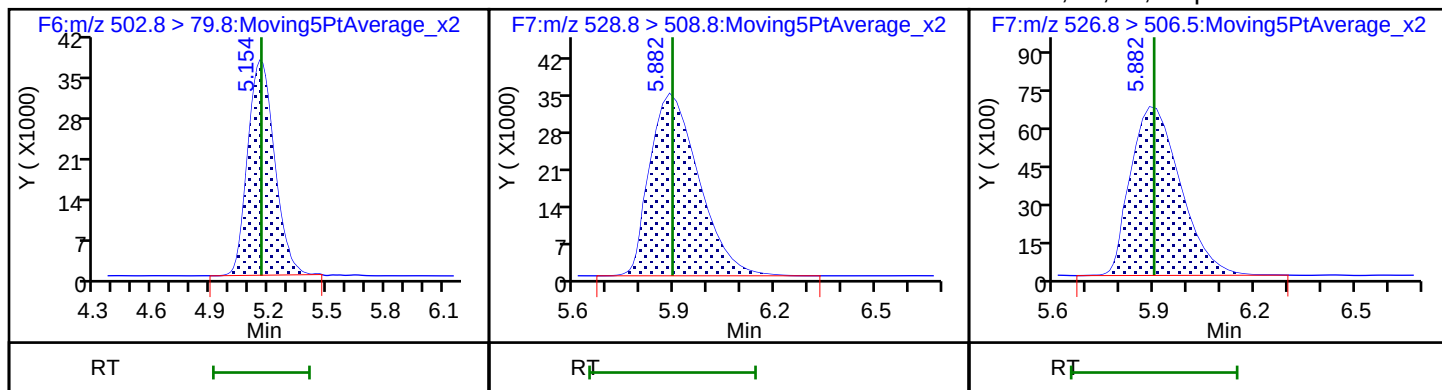
21 Perfluorooctanesulfonic acid



D 22 13C4 PFOS

D 24 M2-8:2 FTS

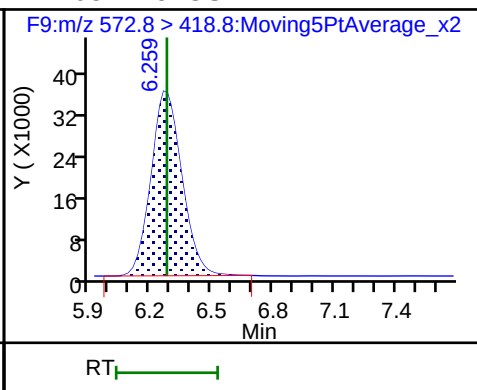
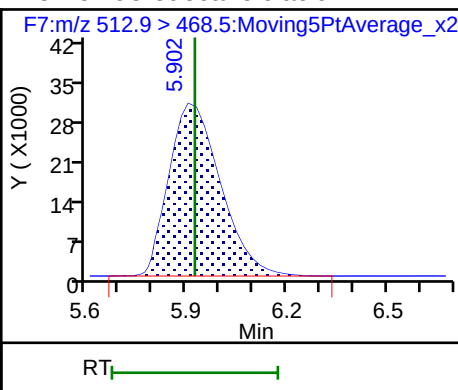
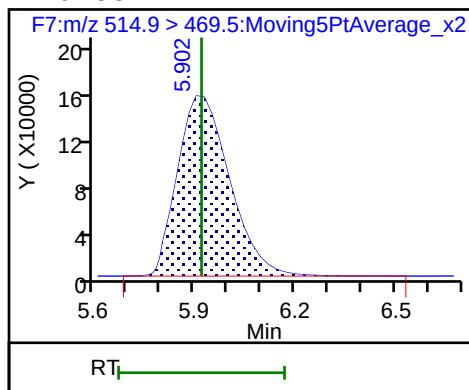
23 1H,1H,2H,2H-perfluorodecanesulfoni



D 26 13C2 PFDA

25 Perfluorodecanoic acid

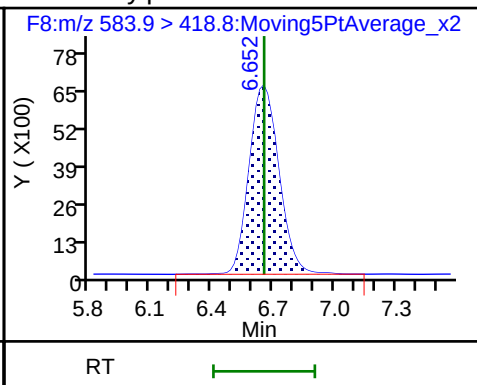
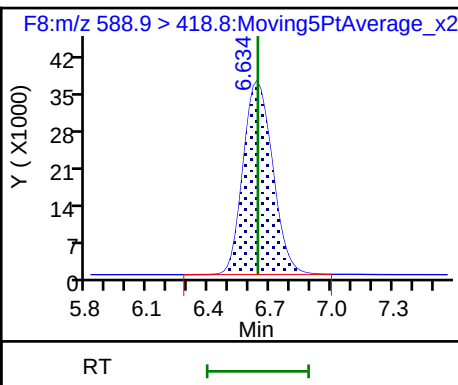
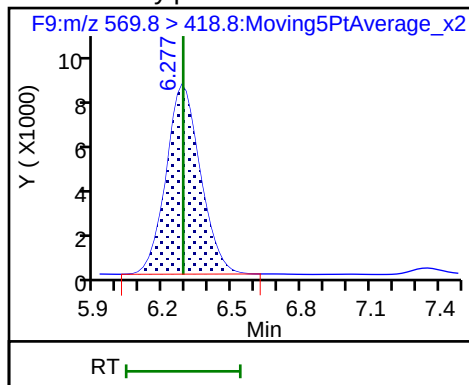
D 27 d3-NMeFOSAA



28 N-methylperfluorooctanesulfonamid

D 29 d5-NEtFOSAA

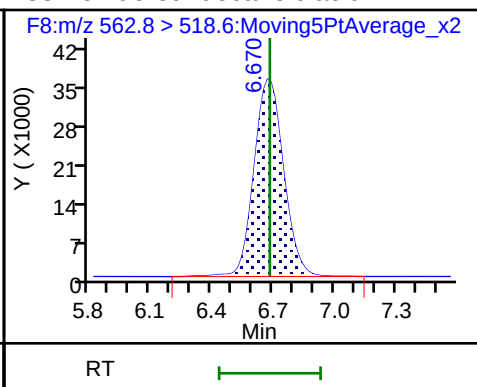
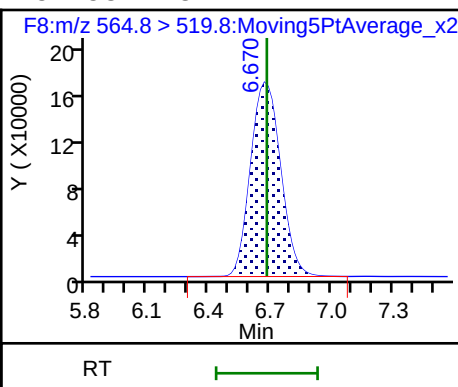
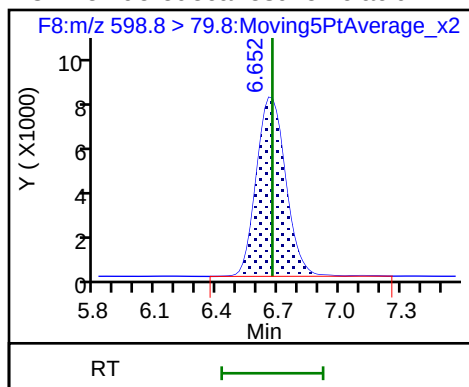
30 N-ethylperfluorooctanesulfonamidoa



31 Perfluorodecanesulfonic acid

D 32 13C2 PFUnA

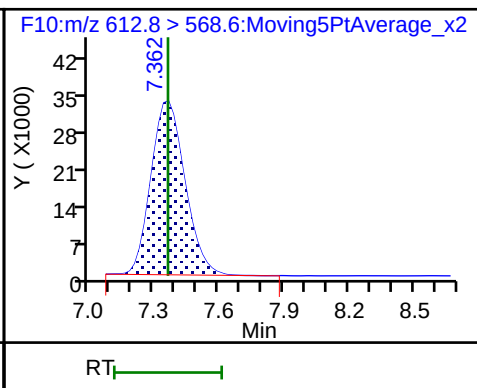
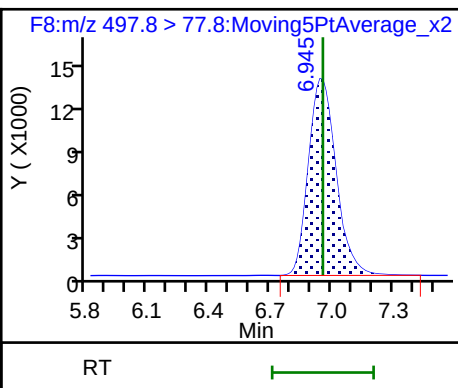
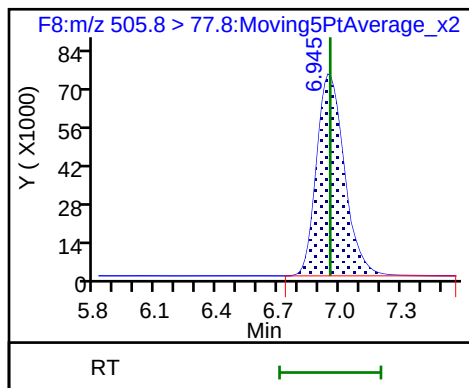
33 Perfluoroundecanoic acid



D 35 13C8 FOSA

34 Perfluorooctanesulfonamide

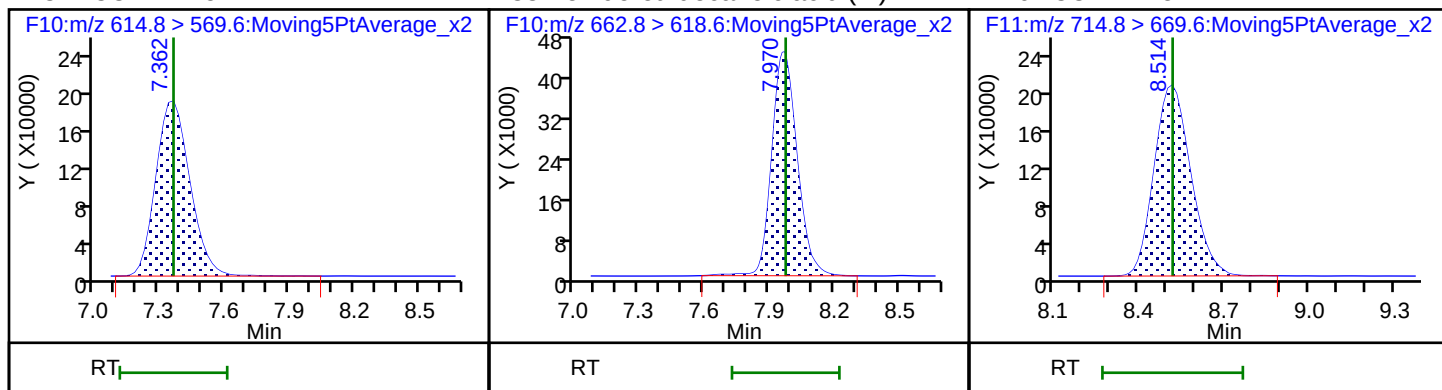
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (M)

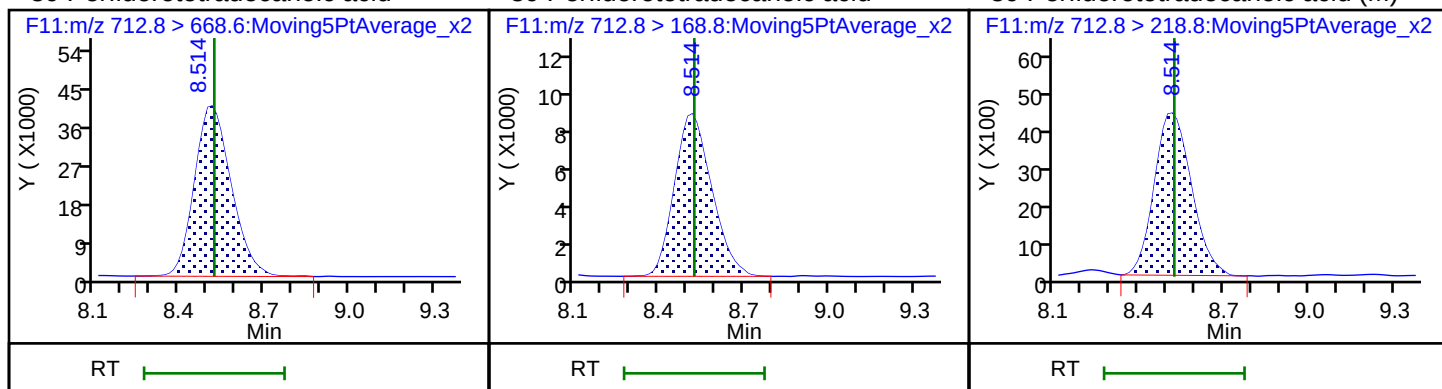
D 40 13C2 PFTeDA



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid (M)



TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A09.d

Injection Date: 17-Oct-2018 14:07:54

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 9

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

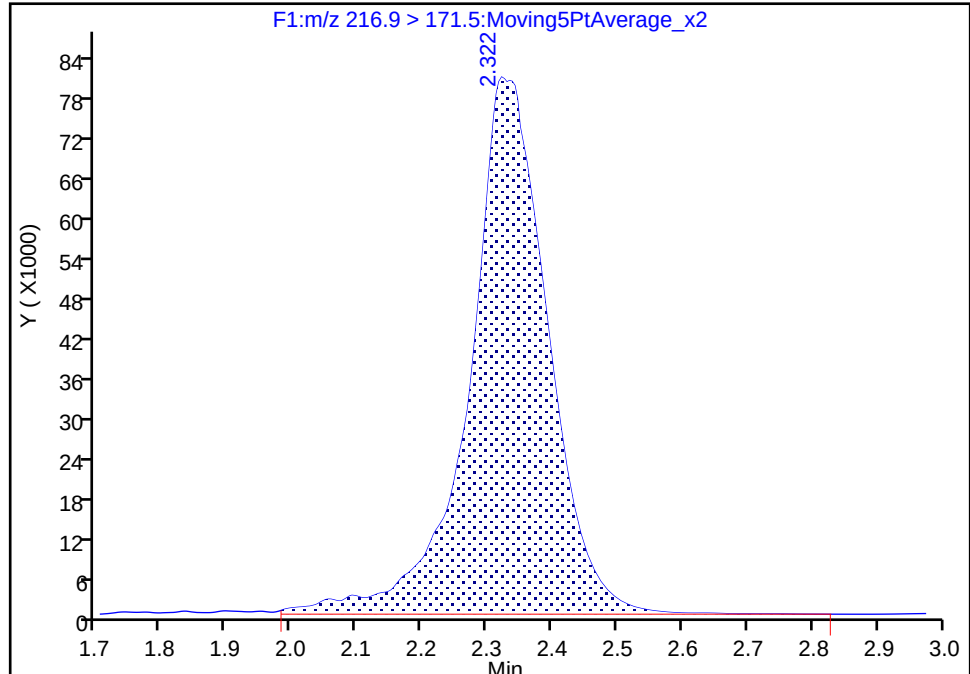
Detector F1:MRM

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

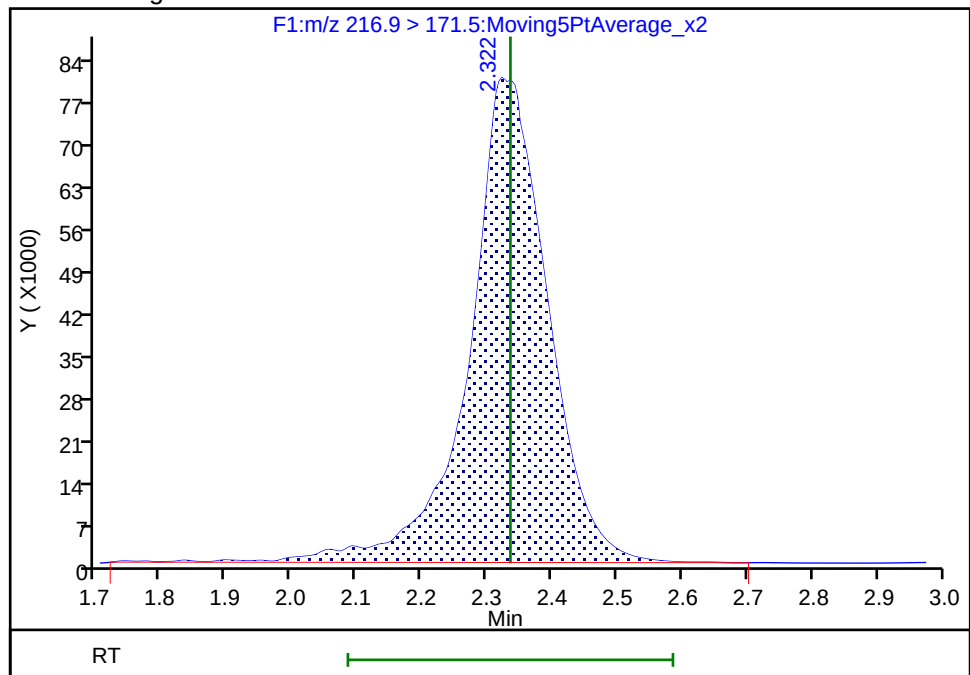
RT: 2.32
Area: 681129
Amount: 46.068003
Amount Units: ng/ml

Processing Integration Results



RT: 2.32
Area: 679847
Amount: 43.400784
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:59:26

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

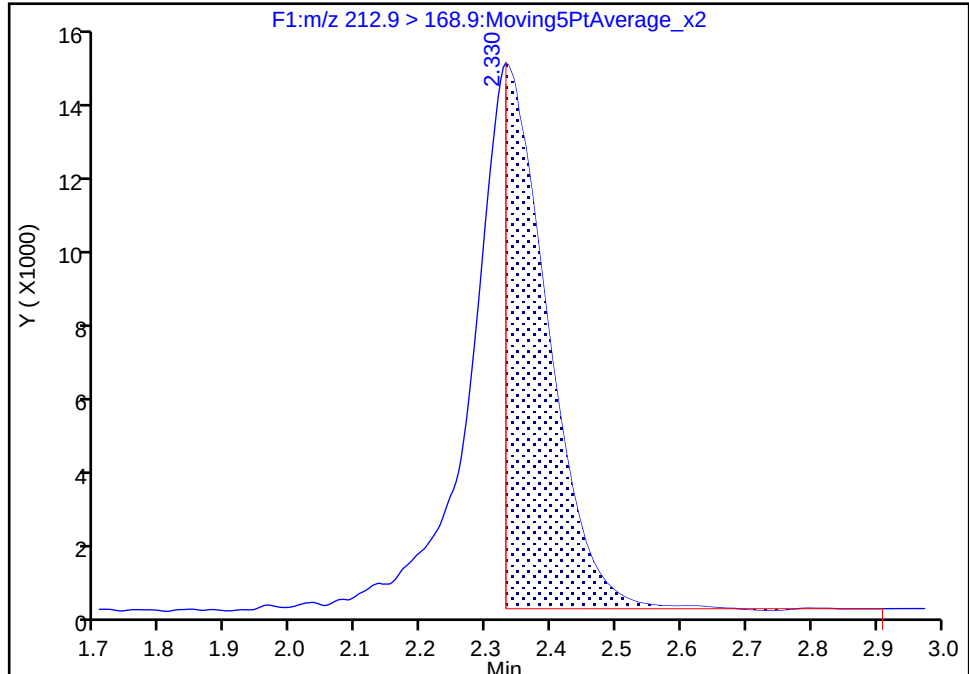
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A09.d
Injection Date: 17-Oct-2018 14:07:54 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

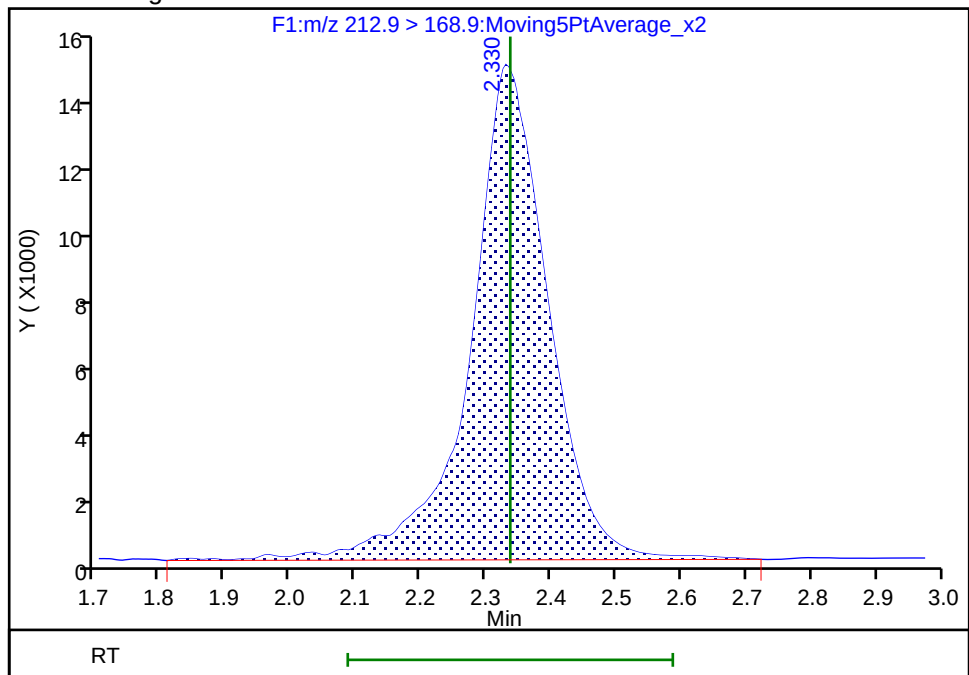
RT: 2.33
Area: 62678
Amount: 6.716263
Amount Units: ng/ml

Processing Integration Results



RT: 2.33
Area: 118688
Amount: 10.112157
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:59:33
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A09.d

Injection Date: 17-Oct-2018 14:07:54

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 9

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

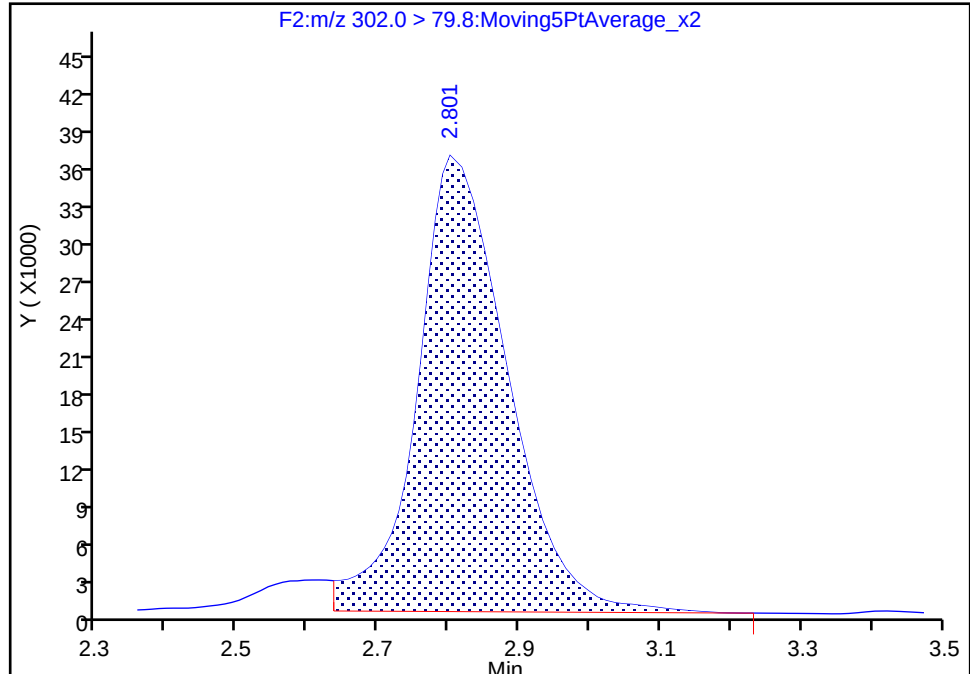
Detector F2:MRM

D 6 13C3 PFBS, CAS: STL02337

Signal: 1

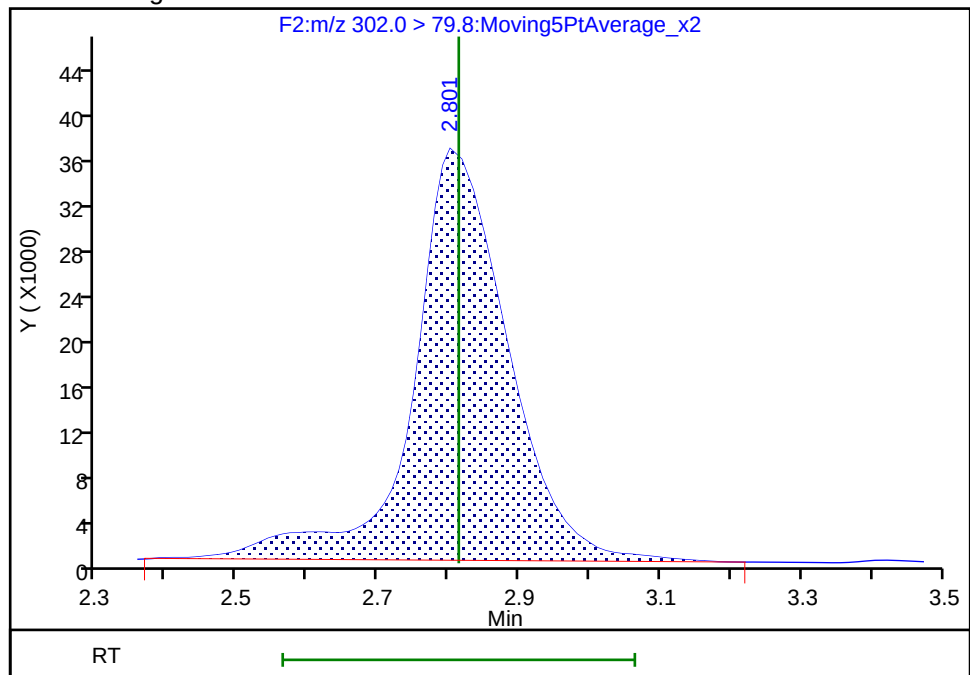
RT: 2.80
Area: 322189
Amount: 42.803660
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 338617
Amount: 41.307297
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 14:59:39

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

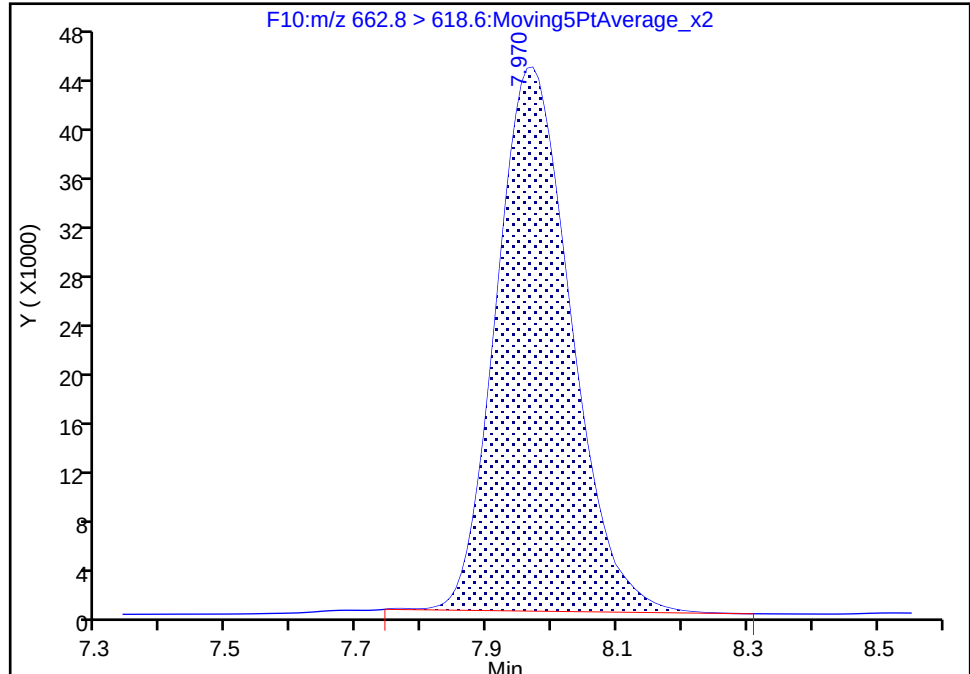
Data File:	\\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A09.d		
Injection Date:	17-Oct-2018 14:07:54	Instrument ID:	LC410
Lims ID:	IC		
Client ID:			
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector:	F10:MRM
		Worklist Smp#:	9

38 Perfluorotridecanoic acid, CAS: 72629-94-8

Signal: 1

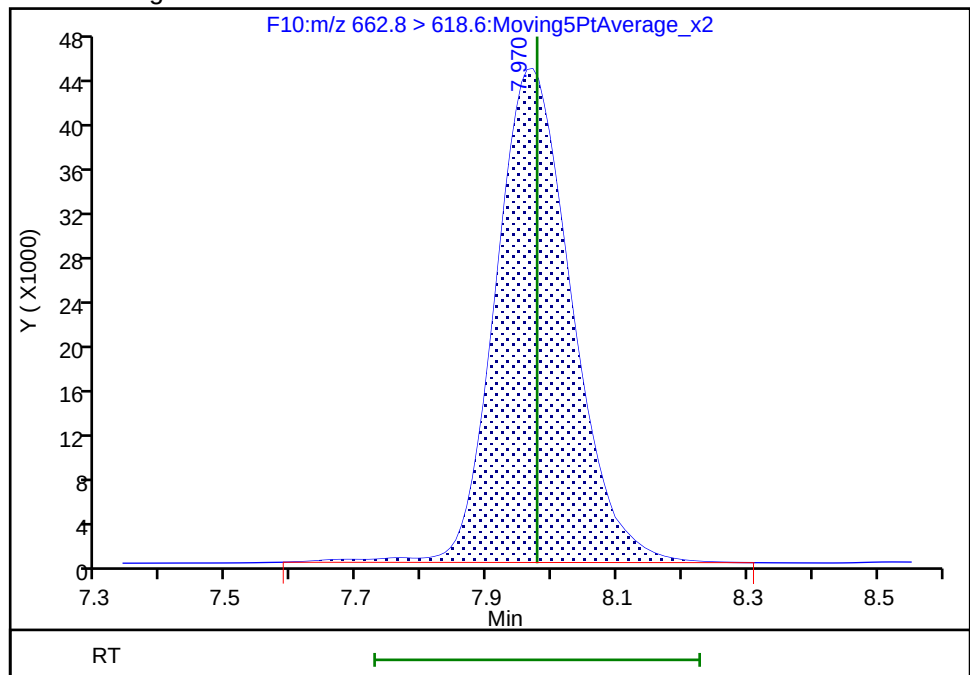
RT: 7.97
Area: 356573
Amount: 9.661576
Amount Units: ng/ml

Processing Integration Results



RT: 7.97
Area: 363751
Amount: 9.945776
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 15:00:43
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

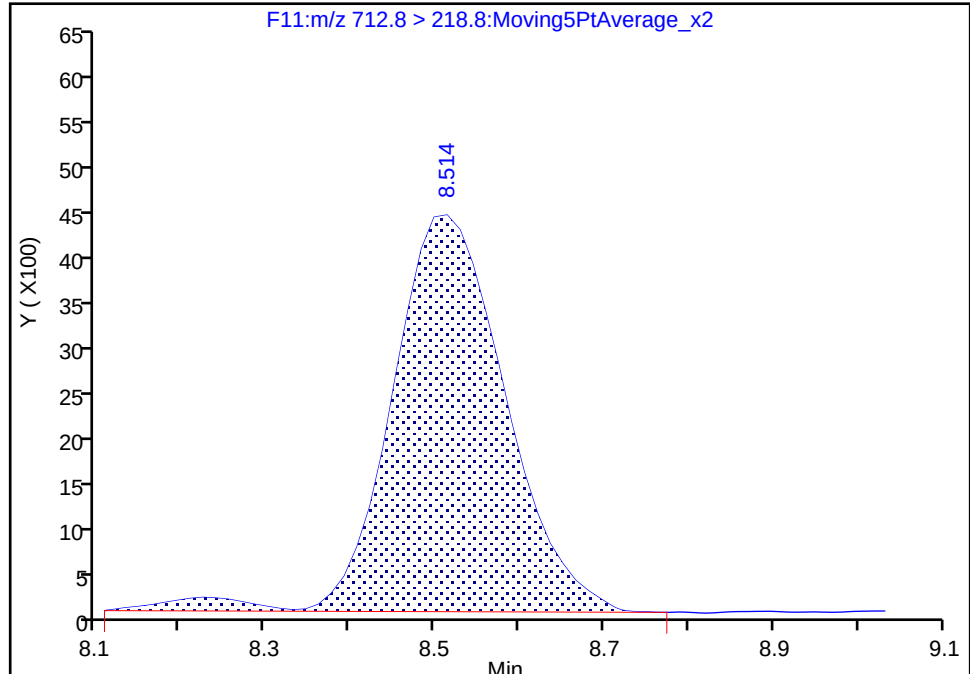
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A09.d
Injection Date: 17-Oct-2018 14:07:54 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 9
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F11:MRM

39 Perfluorotetradecanoic acid, CAS: 376-06-7

Signal: 3

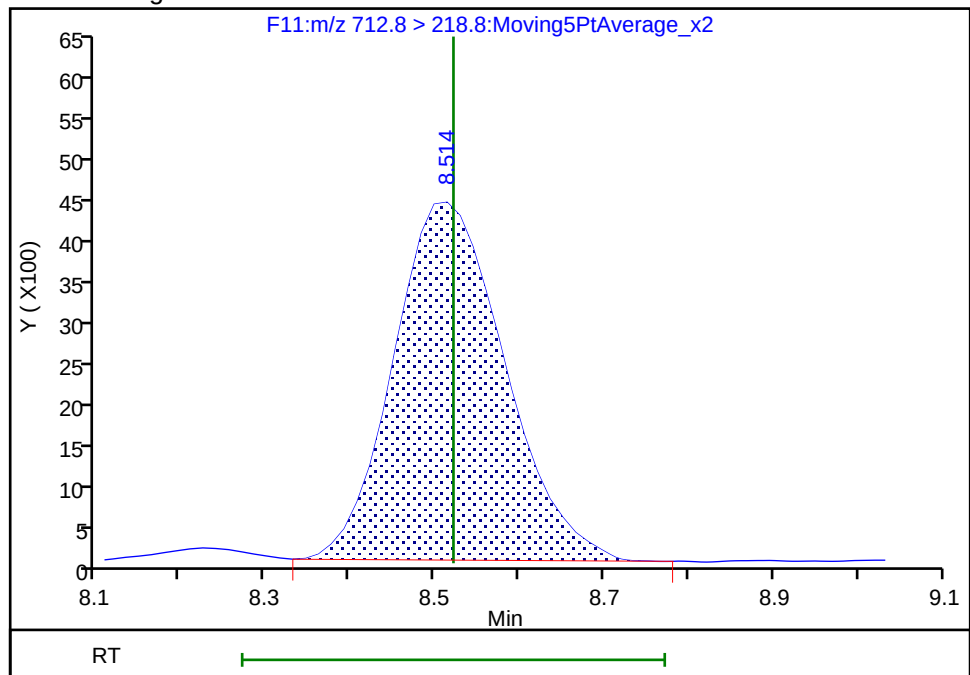
RT: 8.51
Area: 40949
Amount: 9.662693
Amount Units: ng/ml

Processing Integration Results



RT: 8.51
Area: 39667
Amount: 9.943124
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 15:04:16
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A10.d
 Lims ID: ICIS
 Client ID:
 Sample Type: ICIS Calib Level: 5
 Inject. Date: 17-Oct-2018 14:23:52 ALS Bottle#: 0 Worklist Smp#: 10
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0032684-010 IC 5
 Misc. Info.: PFAS21 101718A ICAL
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 17-Oct-2018 16:38:27 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: XAWRK002

First Level Reviewer: chirgwinb

Date: 17-Oct-2018 16:05:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
216.9 > 171.5	2.334	2.336	-0.002	1.000	645885	47.9		95.9	385	
2 Perfluorobutanoic acid										
212.9 > 168.9	2.343	2.337	0.006	1.004	220914	20.0		100.0	226	
D 3 13C5 PFPeA										
267.7 > 222.6	2.750	2.754	-0.004	1.000	411808	48.2		96.4	303	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.760	2.754	0.006	1.004	467563	19.9		99.7	2838	
D 6 13C3 PFBS										M
302.0 > 79.8	2.818	2.814	0.004	1.000	344027	48.8		105	378	M
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.818	2.820	-0.002	1.000	241309	18.7		93.5	398	
D 7 13C2 PFHxA										
314.8 > 269.6	3.164	3.172	-0.008	1.000	755922	49.1		98.3	934	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.177	3.174	0.003	1.004	316464	20.2		101	1564	
D 9 13C4 PFHpA										
366.9 > 321.8	3.703	3.702	0.001	1.000	1446406	51.3		103	1070	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.703	3.705	-0.002	1.000	557789	19.7		98.6	969	
D 11 18O2 PFHxS										
402.9 > 83.8	3.748	3.747	0.001	1.000	383361	47.0		99.4	165	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.748	3.749	-0.001	1.000	249693	20.0		100	581	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.330	4.325	0.005	1.000	115369	45.9		96.6	741	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.330	4.330	0.0	1.000	488509	20.4		102	630	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.374	4.370	0.004	1.000	1092624	50.8		102	2013	
* 15 13C2 PFOA										
414.9 > 369.8	4.374	4.374	0.0		1146400	50.0			3471	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.374	4.374	0.0	1.000	426187	19.7		98.5	1201	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.411	4.412	-0.001	0.854	130750	18.5		92.3	477	
D 20 13C5 PFNA										
467.8 > 422.8	5.140	5.140	0.0	1.000	1468139	50.6		101	1064	
19 Perfluorononanoic acid										
462.8 > 418.8	5.140	5.142	-0.002	1.000	589760	18.3		91.4	2693	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.168	5.160	0.008	1.000	154040	20.1		100	2184	
D 22 13C4 PFOS										
502.8 > 79.8	5.168	5.161	0.007	1.000	354522	49.1		103	556	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.902	5.891	0.011	1.000	328510	48.2		101	1558	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.902	5.896	0.006	1.000	99493	18.0		89.9	826	
D 26 13C2 PFDA										
514.9 > 469.5	5.926	5.918	0.008	1.000	1559492	52.1		104	1277	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.926	5.923	0.003	1.000	586742	18.6		93.2	2286	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.277	6.275	0.002	1.000	368677	48.2		96.5	930	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.295	6.283	0.012	1.003	158990	19.9		99.3	199	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.634	6.638	-0.004	1.000	323668	49.9		99.8	1129	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.652	6.654	-0.002	1.003	128045	20.5		103	1778	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.670	6.670	0.0	1.291	149455	19.3		96.3	1260	
D 32 13C2 PFUnA										
564.8 > 519.8	6.688	6.682	0.006	1.000	1587674	51.0		102	17636	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.688	6.683	0.005	1.000	629524	19.3		96.6	1014	
D 35 13C8 FOSA										
505.8 > 77.8	6.958	6.955	0.003	1.000	702765	50.6		101	3239	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.958	6.959	-0.001	1.000	241945	20.3		102	1750	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.361	7.359	0.002	1.000	660163	19.5		97.6	1359	
D 37 13C2 PFDoA										
614.8 > 569.6	7.361	7.362	-0.001	1.000	1969434	50.0		100.0	7062	
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.979	7.976	0.003	0.937	593824	20.1		100	2472	

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A10.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 40 13C2 PFTeDA										
714.8 > 669.6	8.514	8.516	-0.002	1.000	1768278	48.9		97.8	1232	
39 Perfluorotetradecanoic acid										
712.8 > 668.6	8.514	8.521	-0.007	1.000	660889	19.2		95.9	2276	
712.8 > 168.8	8.529	8.521	0.008	1.002	139463		4.74(0.00-0.00)	95.9	477	
712.8 > 218.8	8.514	8.521	-0.007	1.000	81707		8.09(0.00-0.00)	95.9	275	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L4_00003

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\ChromNA\\Burlington\\ChromData\\LC410\\20181017-32684.b\\PF101718A10.d

Injection Date: 17-Oct-2018 14:23:52

Instrument ID: LC410

Lims ID: ICIS

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 10

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

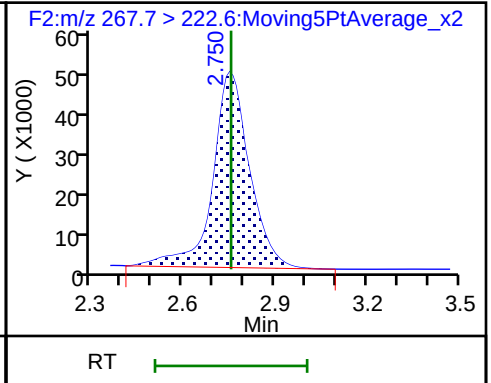
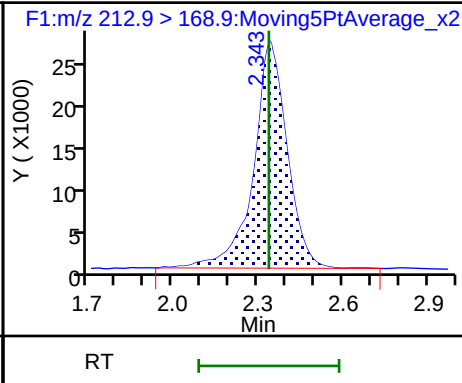
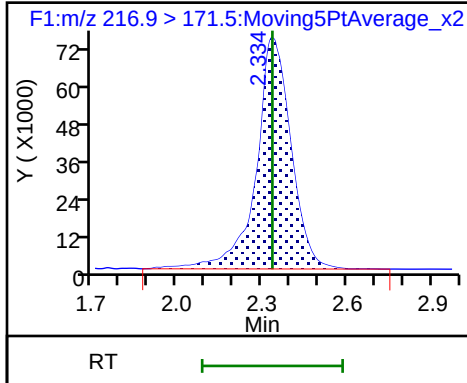
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

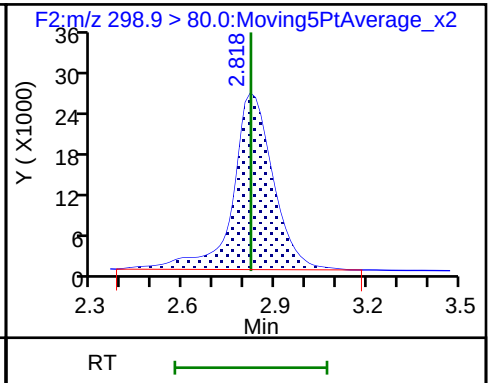
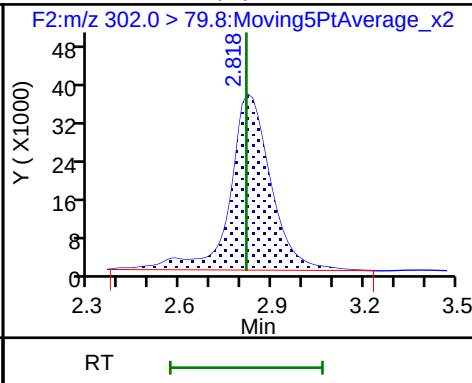
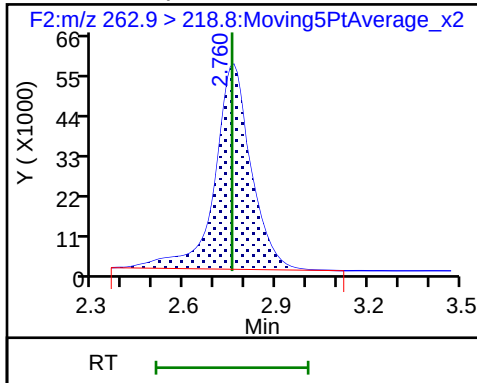
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 6 13C3 PFBS (M)

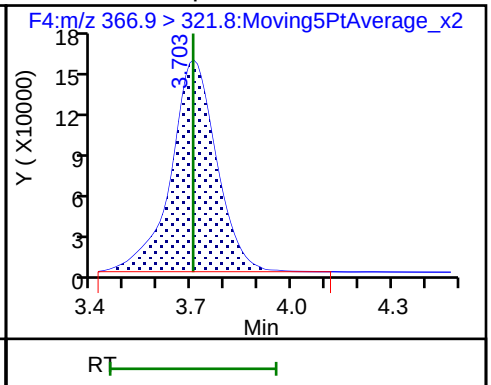
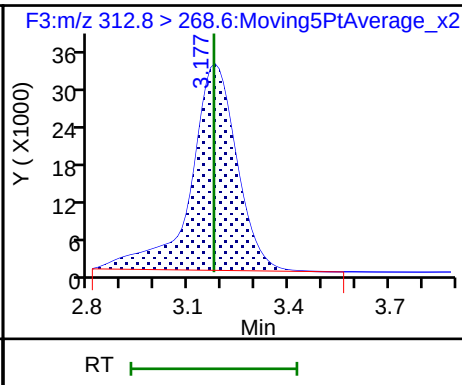
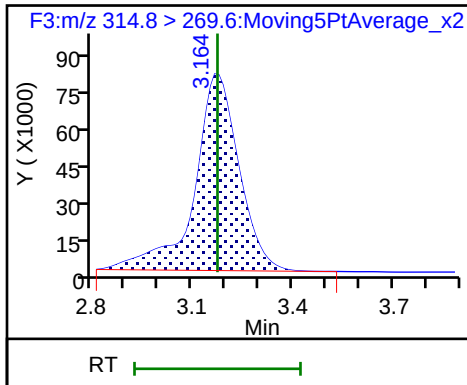
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

8 Perfluorohexanoic acid

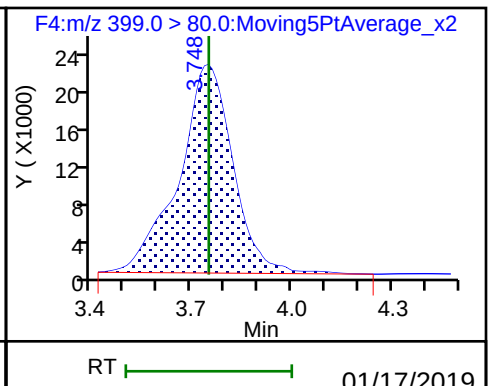
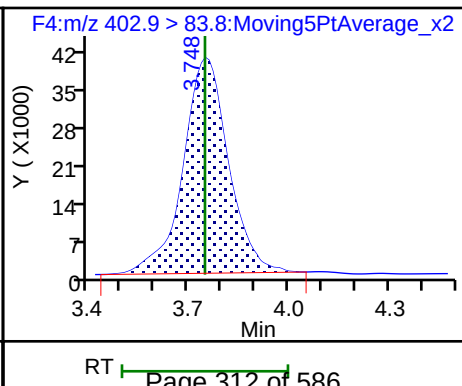
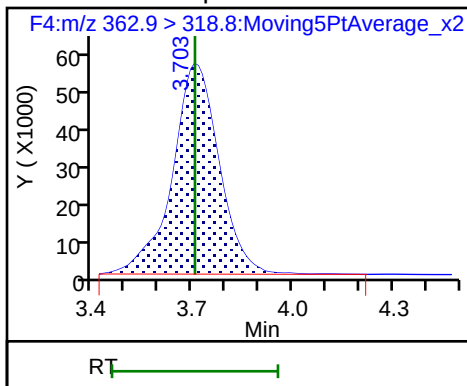
D 9 13C4 PFHpA



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

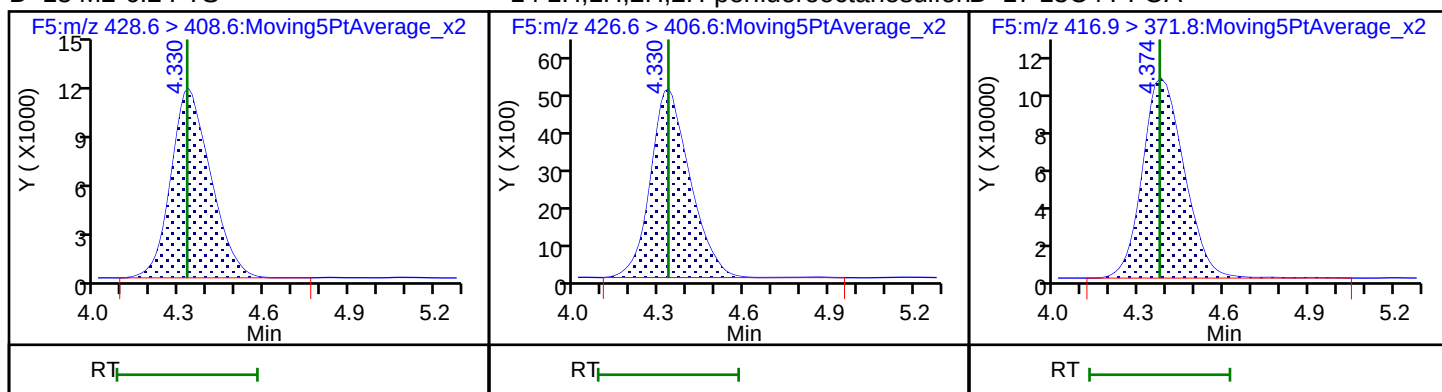
12 Perfluorohexanesulfonic acid



D 13 M2-6:2 FTS

14 1H,1H,2H,2H-perfluorooctanesulfonD

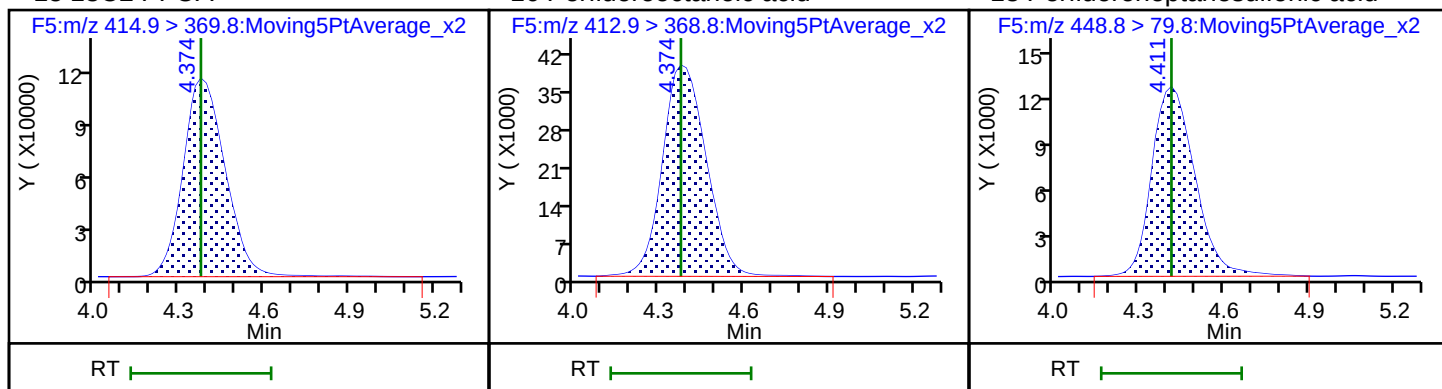
17 13C4 PFOA



* 15 13C2 PFOA

16 Perfluorooctanoic acid

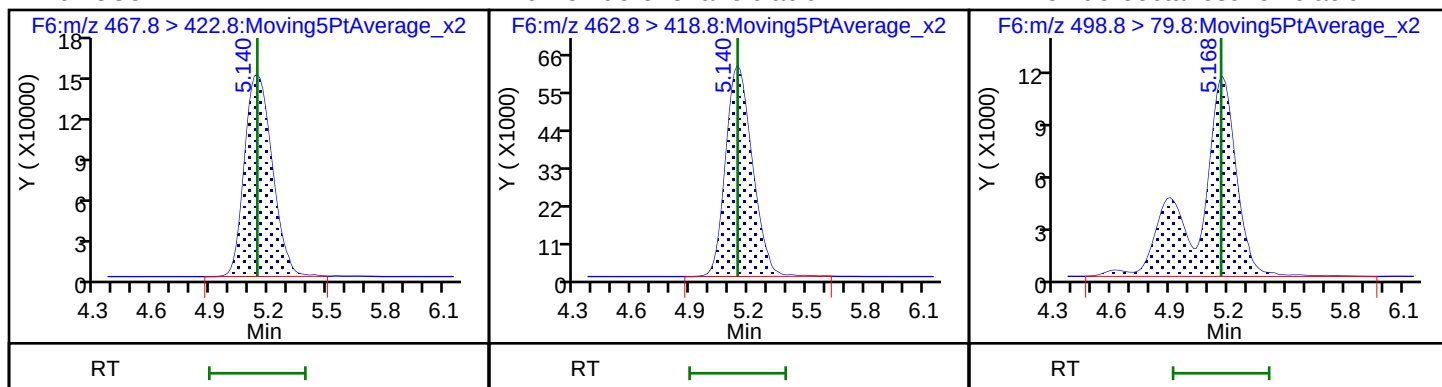
18 Perfluoroheptanesulfonic acid



D 20 13C5 PFNA

19 Perfluorononanoic acid

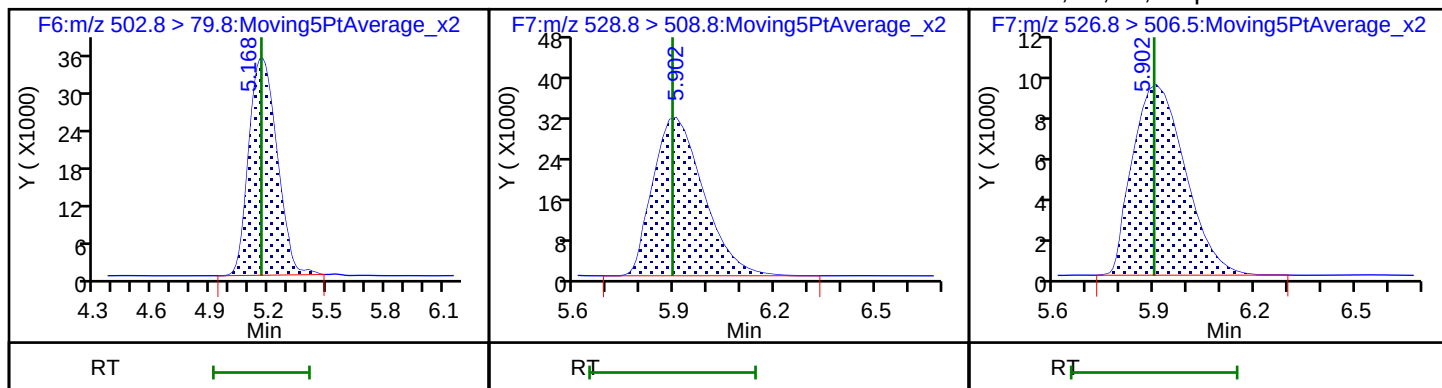
21 Perfluorooctanesulfonic acid



D 22 13C4 PFOS

D 24 M2-8:2 FTS

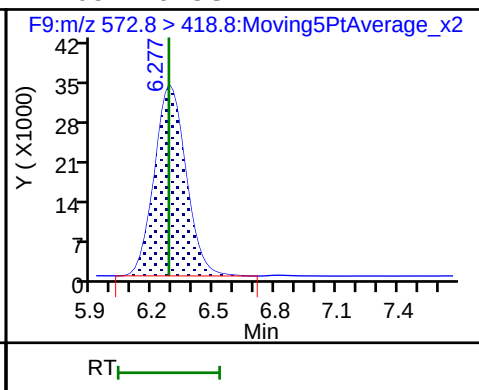
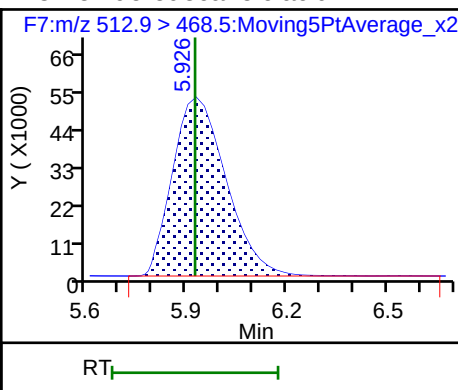
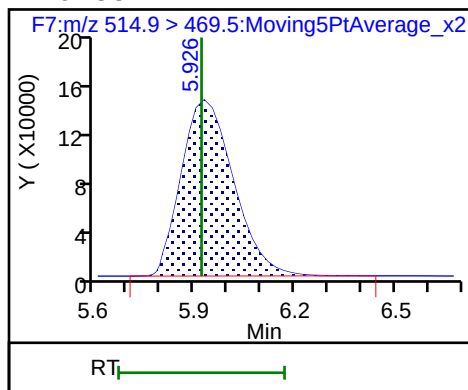
23 1H,1H,2H,2H-perfluorodecanesulfoni



D 26 13C2 PFDA

25 Perfluorodecanoic acid

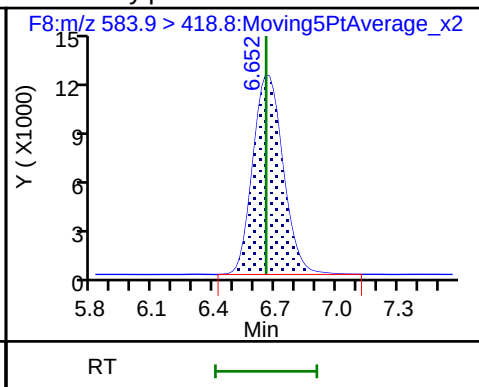
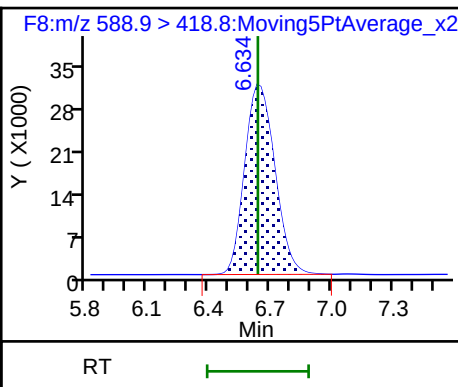
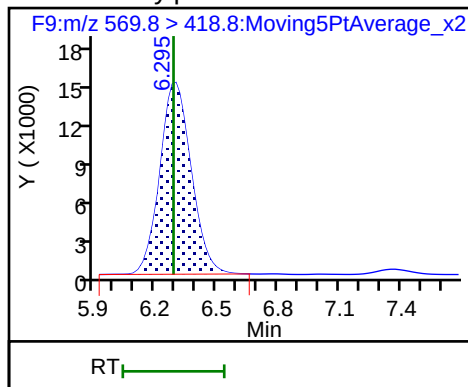
D 27 d3-NMeFOSAA



28 N-methylperfluorooctanesulfonamid

D 29 d5-NEtFOSAA

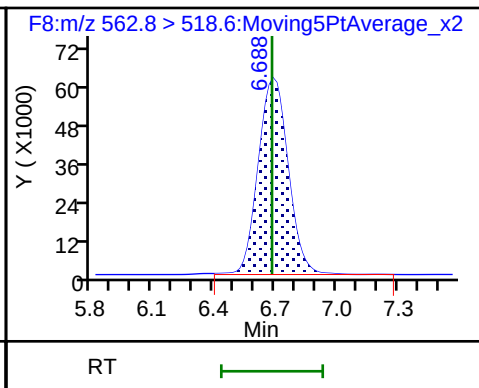
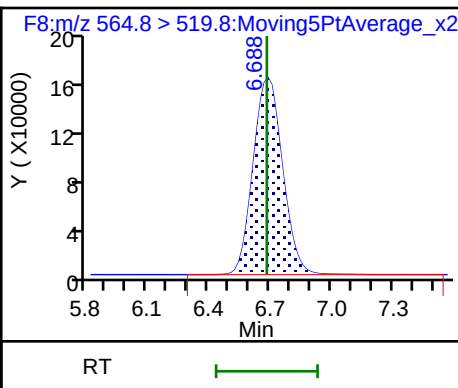
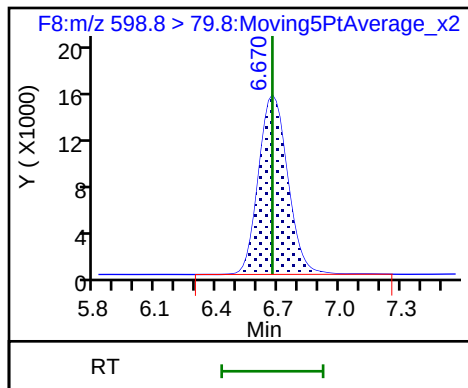
30 N-ethylperfluorooctanesulfonamidoa



31 Perfluorodecanesulfonic acid

D 32 13C2 PFUnA

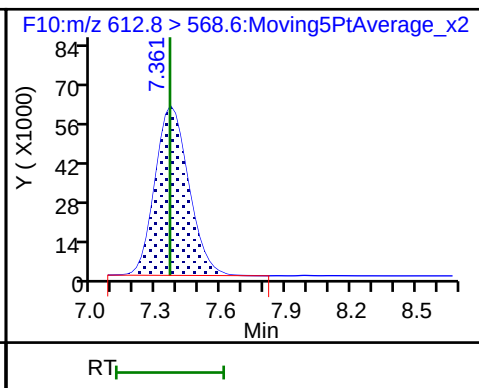
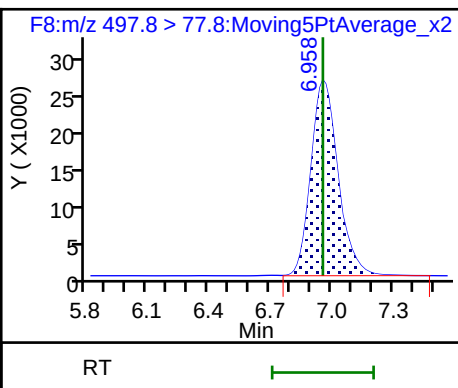
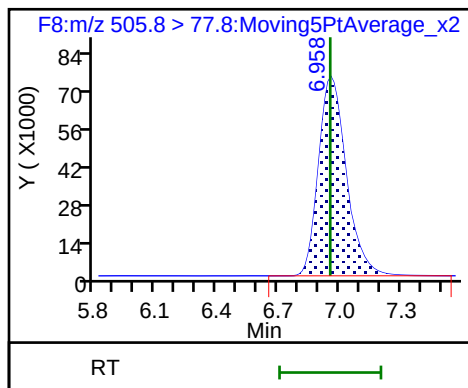
33 Perfluoroundecanoic acid



D 35 13C8 FOSA

34 Perfluorooctanesulfonamide

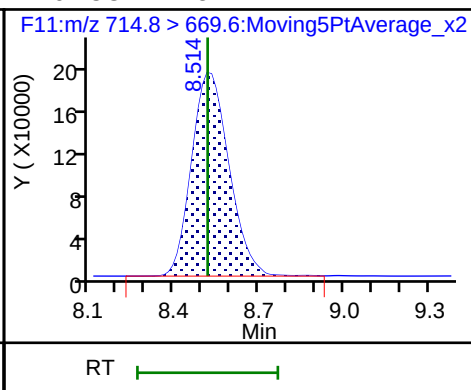
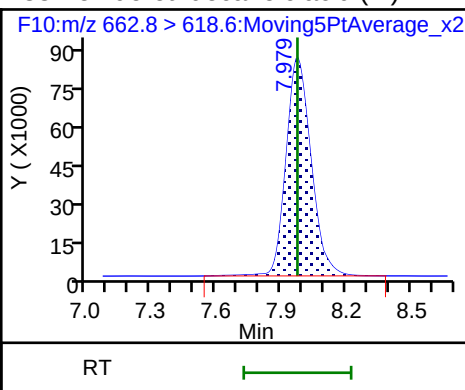
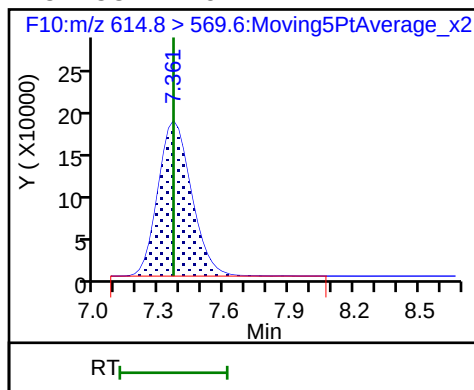
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (M)

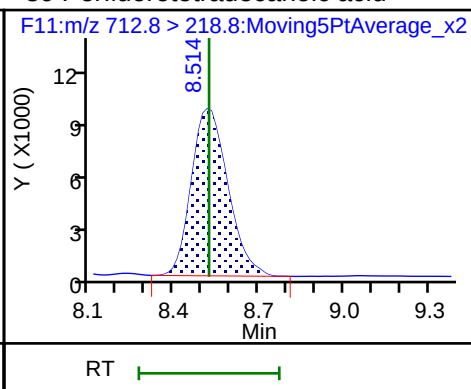
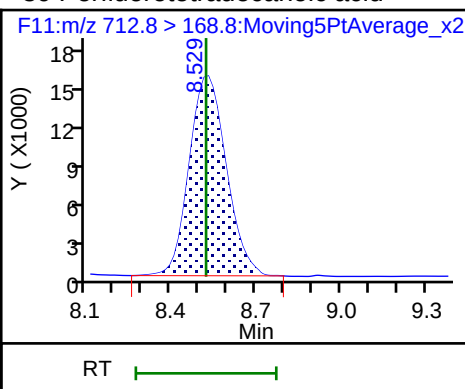
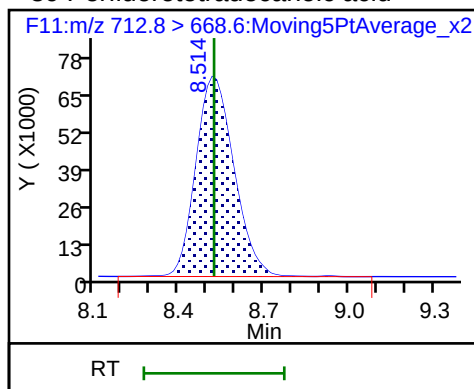
D 40 13C2 PFTeDA



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid



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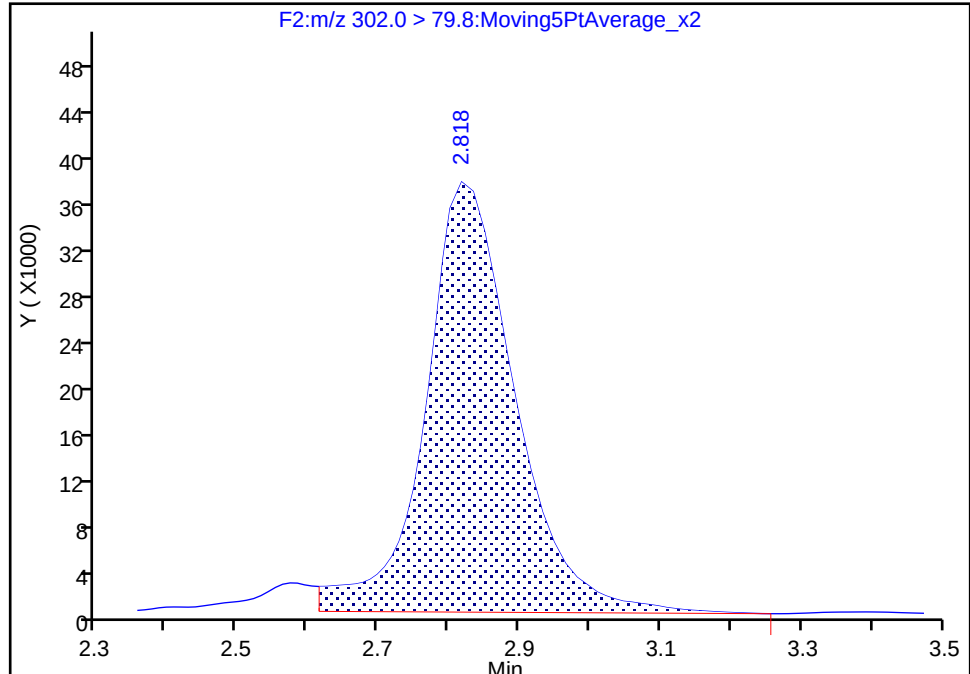
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A10.d
Injection Date: 17-Oct-2018 14:23:52 Instrument ID: LC410
Lims ID: ICIS
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 10
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

D 6 13C3 PFBS, CAS: STL02337

Signal: 1

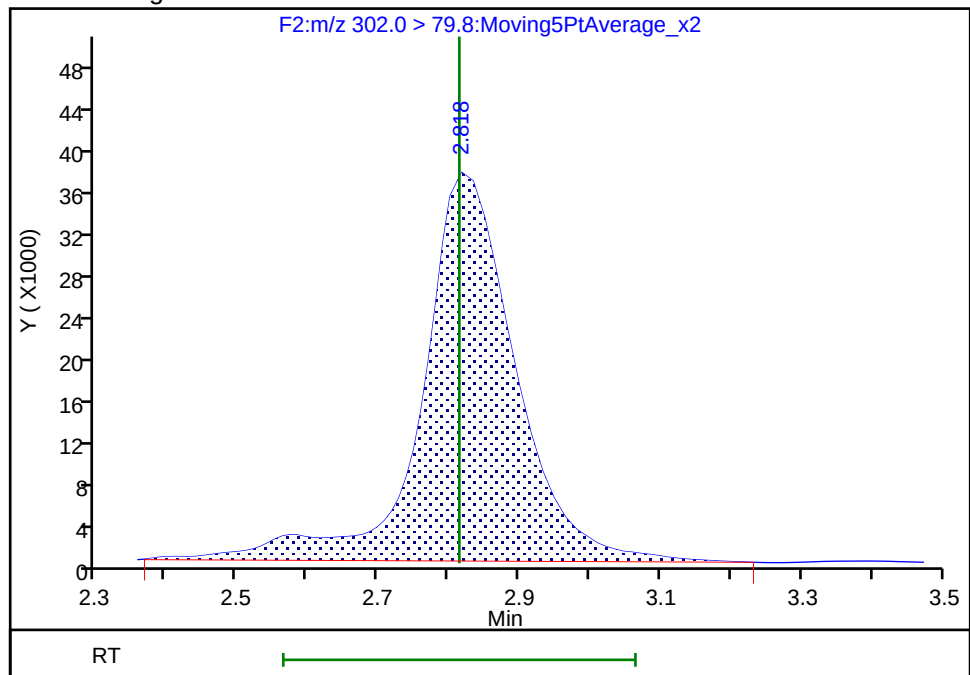
RT: 2.82
Area: 329077
Amount: 47.178168
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 344027
Amount: 48.802308
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:05:29
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

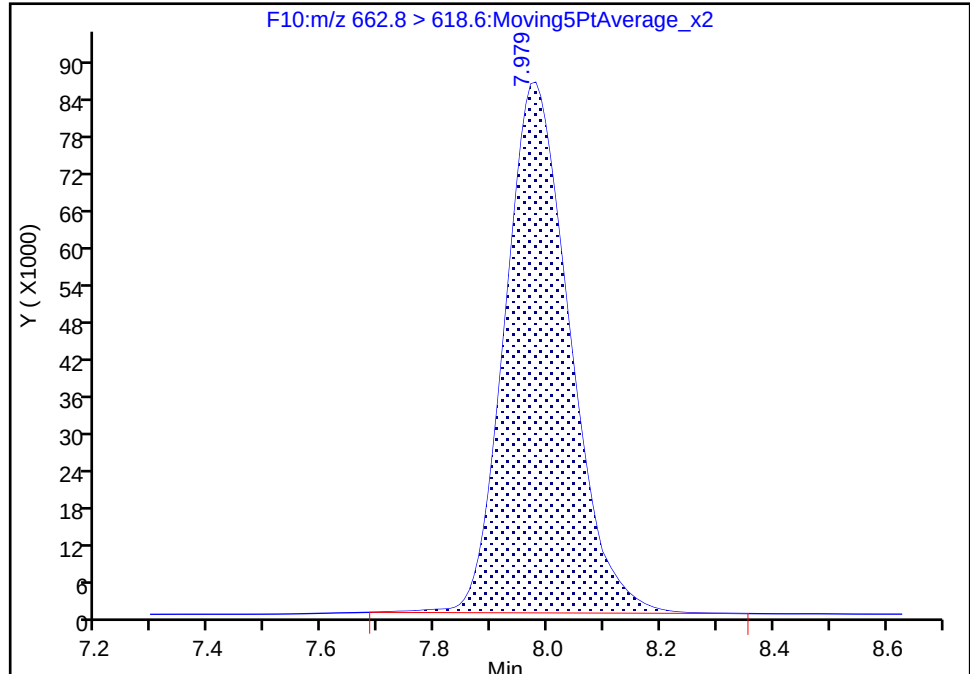
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A10.d
Injection Date: 17-Oct-2018 14:23:52 Instrument ID: LC410
Lims ID: ICIS
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 10
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F10:MRM

38 Perfluorotridecanoic acid, CAS: 72629-94-8

Signal: 1

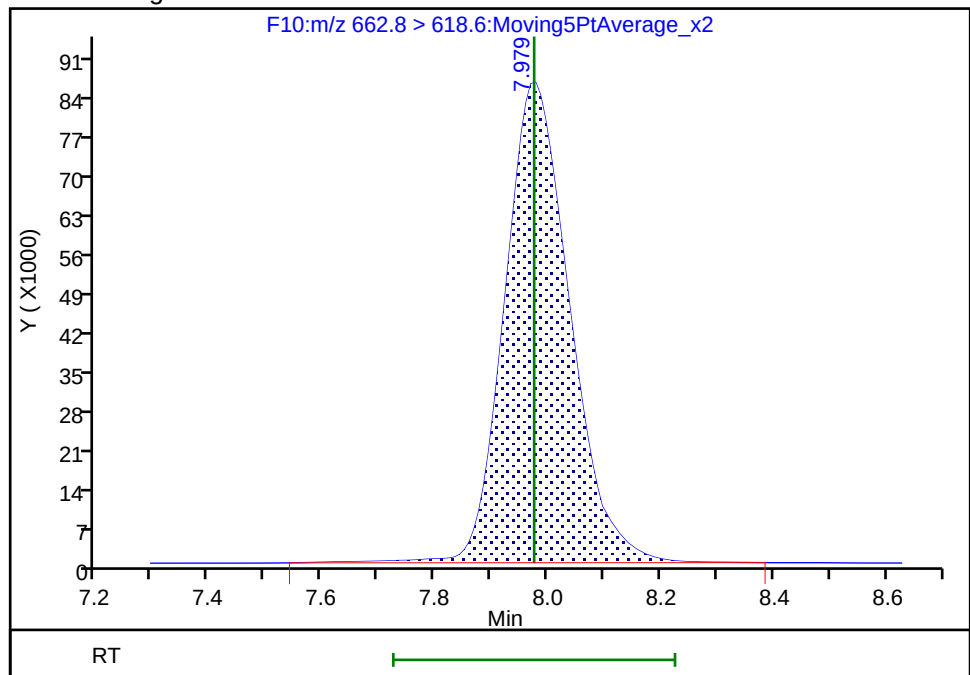
RT: 7.98
Area: 687104
Amount: 19.885018
Amount Units: ng/ml

Processing Integration Results



RT: 7.98
Area: 693824
Amount: 20.070730
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:13:25
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A11.d
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 17-Oct-2018 14:39:50 ALS Bottle#: 0 Worklist Smp#: 11
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0032684-011 IC 6
 Misc. Info.: PFAS21 101718A ICAL
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 17-Oct-2018 16:38:29 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: XAWRK002

First Level Reviewer: chirgwinb

Date: 17-Oct-2018 16:07:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
216.9 > 171.5	2.338	2.336	0.002	1.000	637703	52.7		105	707	
2 Perfluorobutanoic acid										
212.9 > 168.9	2.343	2.338	0.005	1.002	317597	29.2		97.3	341	
D 3 13C5 PFPeA										
267.7 > 222.6	2.750	2.754	-0.004	1.000	409798	53.4		107	4889	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.760	2.754	0.006	1.004	662266	28.4		94.6	1254	
D 6 13C3 PFBS										
302.0 > 79.8	2.818	2.815	0.003	1.000	305671	48.2		104	534	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.834	2.820	0.014	1.006	341905	29.8		99.4	464	
D 7 13C2 PFHxA										
314.8 > 269.6	3.177	3.172	0.005	1.000	749159	54.2		108	9759	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.177	3.174	0.003	1.000	456836	29.4		98.0	4462	
D 9 13C4 PFHpA										
366.9 > 321.8	3.715	3.702	0.013	1.000	1314020	51.9		104	1195	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.703	3.705	-0.002	0.997	745215	29.0		96.7	1094	
D 11 18O2 PFHxS										
402.9 > 83.8	3.748	3.747	0.001	1.000	344516	47.0		99.4	272	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.748	3.749	-0.001	1.000	342568	30.7		102	1110	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.317	4.325	-0.008	1.000	111438	49.3		104	925	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.330	4.330	0.0	1.003	66022	28.6		95.3	1025	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.374	4.370	0.004	1.000	996848	51.6		103	3736	
* 15 13C2 PFOA										
414.9 > 369.8	4.374	4.374	0.0		1030333	50.0			5136	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.374	4.374	0.0	1.000	575433	29.2		97.2	896	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.411	4.412	-0.001	0.854	194023	29.6		98.8	618	M
D 20 13C5 PFNA										
467.8 > 422.8	5.140	5.140	0.0	1.000	1371470	52.6		105	2582	
19 Perfluorononanoic acid										
462.8 > 418.8	5.140	5.142	-0.002	1.000	789377	26.2		87.3	1237	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.168	5.160	0.008	1.000	209502	29.6		98.5	332	M
D 22 13C4 PFOS										
502.8 > 79.8	5.168	5.161	0.007	1.000	327712	50.5		106	636	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.882	5.891	-0.009	1.000	283037	46.2		96.5	838	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.882	5.896	-0.014	1.000	154728	32.5		108	402	
D 26 13C2 PFDA										
514.9 > 469.5	5.926	5.918	0.008	1.000	1346103	50.1		100	815	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.926	5.923	0.003	1.000	828327	30.5		102	1108	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.277	6.275	0.002	1.000	329801	48.0		96.0	1481	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.277	6.283	-0.006	1.000	223351	31.2		104	340	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.634	6.638	-0.004	1.000	295427	50.7		101	2068	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.652	6.654	-0.002	1.003	172294	30.3		101	1367	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.670	6.670	0.0	1.291	217089	30.3		101	4445	M
D 32 13C2 PFUnA										
564.8 > 519.8	6.688	6.682	0.006	1.000	1461436	52.2		104	6169	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.688	6.683	0.005	1.000	888797	29.6		98.8	1808	
D 35 13C8 FOSA										
505.8 > 77.8	6.959	6.955	0.004	1.000	660912	52.9		106	7229	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.959	6.959	0.0	1.000	323592	28.9		96.4	1842	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.362	7.359	0.003	1.000	905170	29.7		99.1	2020	
D 37 13C2 PFDaA										
614.8 > 569.6	7.362	7.362	0.0	1.000	1773342	50.1		100	2499	
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.979	7.977	0.002	0.937	260634	30.1		100	3032	

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A11.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 40 13C2 PFTeDA										
714.8 > 669.6	8.514	8.516	-0.002	1.000	1630900	50.2		100	1277	
39 Perfluorotetradecanoic acid										M
712.8 > 668.6	8.514	8.521	-0.007	1.000	933224	29.4		97.8	1084	
712.8 > 168.8	8.514	8.521	-0.007	1.000	195712		4.77(0.00-0.00)	97.8	341	
712.8 > 218.8	8.514	8.521	-0.007	1.000	108828		8.58(0.00-0.00)	97.8	223	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L4A_00001

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\ChromNA\\Burlington\\ChromData\\LC410\\20181017-32684.b\\PF101718A11.d

Injection Date: 17-Oct-2018 14:39:50

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 11

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

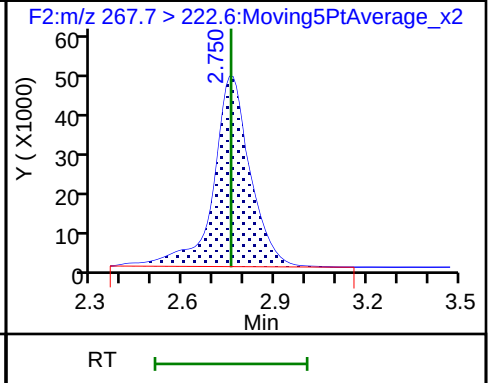
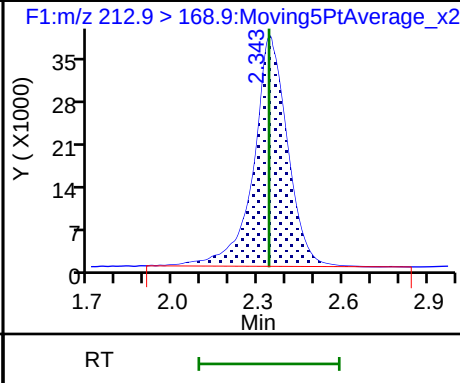
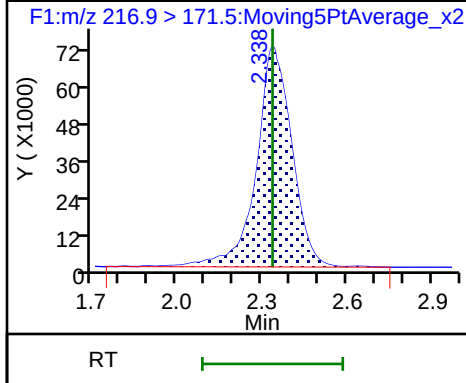
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

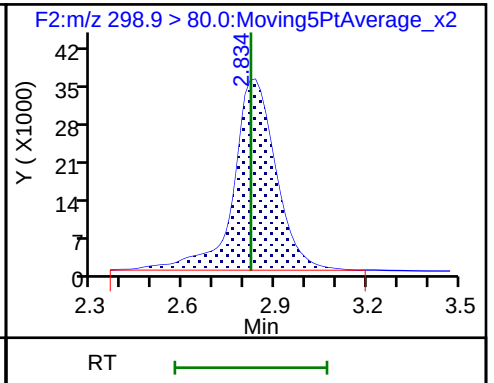
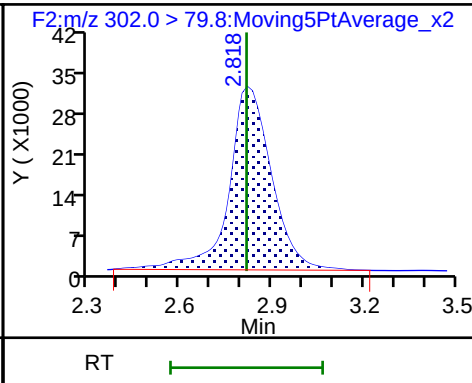
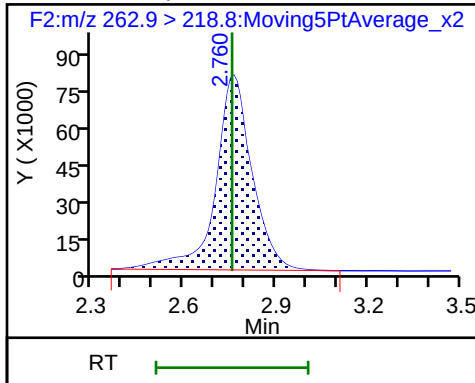
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 6 13C3 PFBS

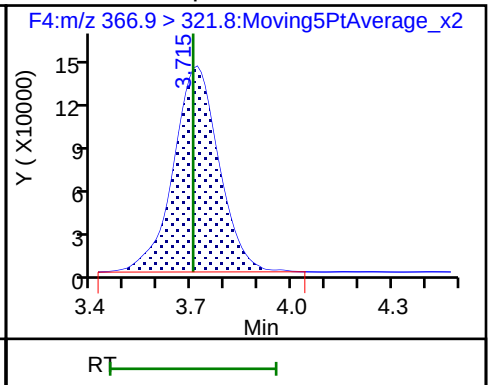
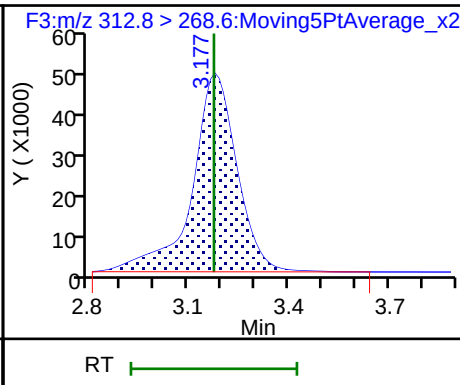
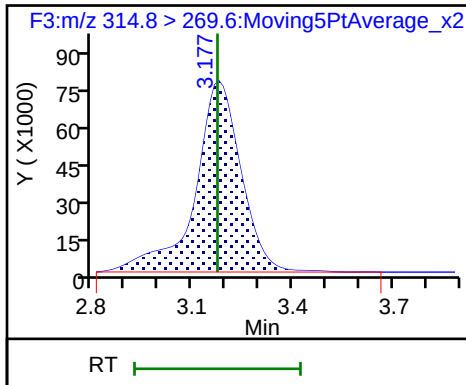
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

8 Perfluorohexanoic acid

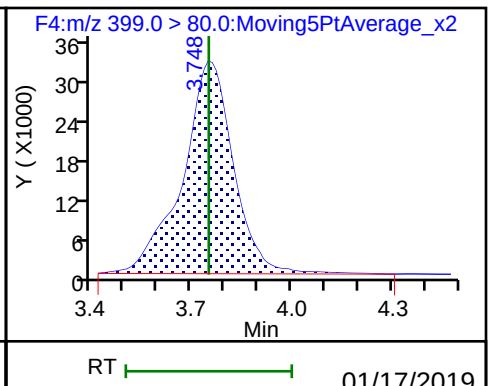
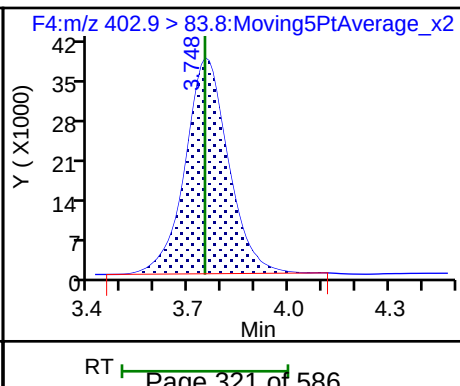
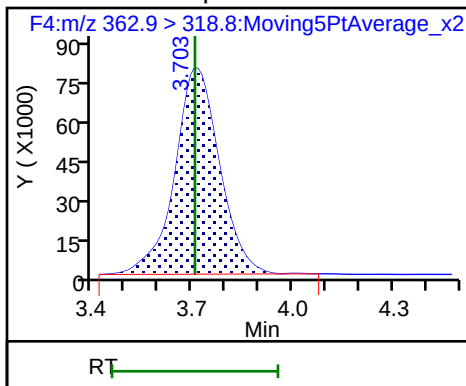
D 9 13C4 PFHpA



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

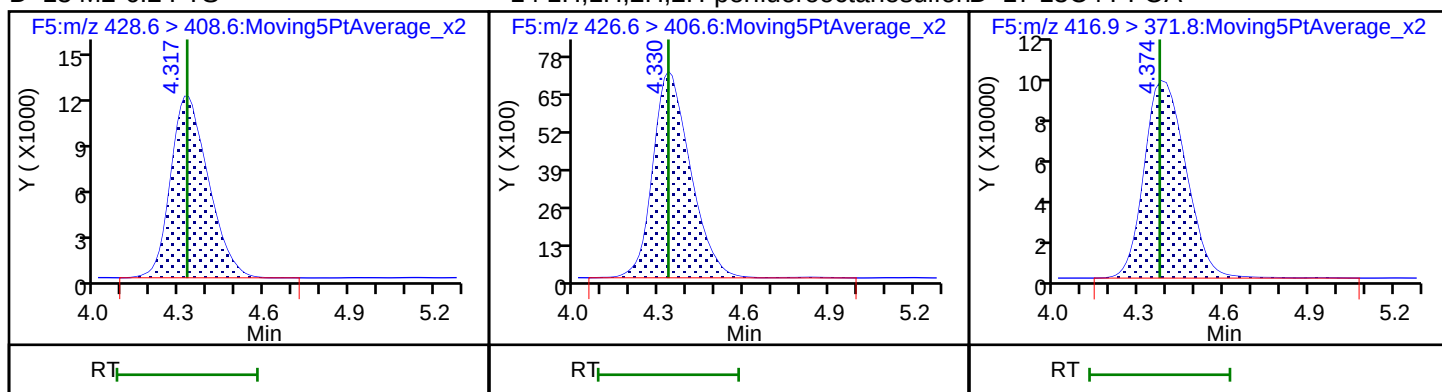
12 Perfluorohexanesulfonic acid



D 13 M2-6:2 FTS

14 1H,1H,2H,2H-perfluorooctanesulfonD

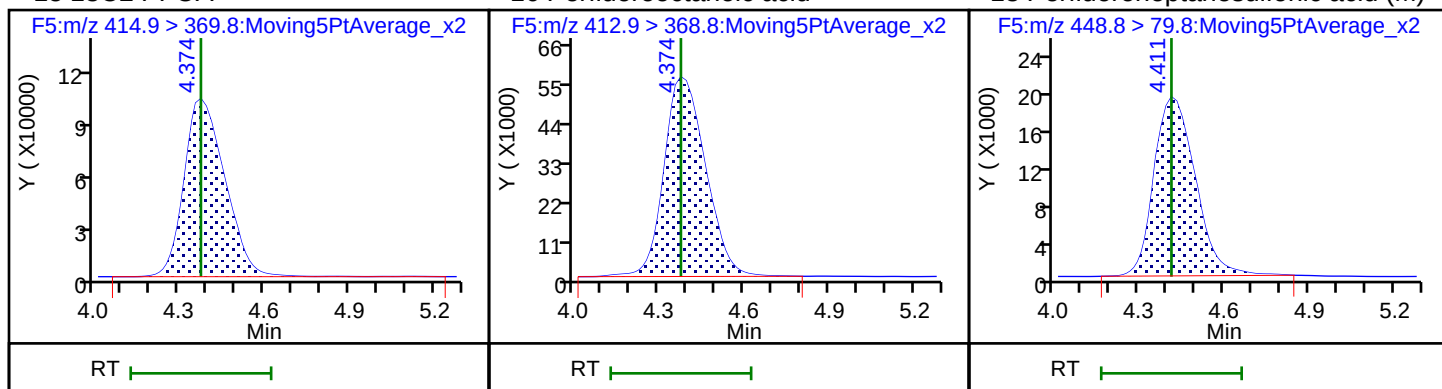
17 13C4 PFOA



* 15 13C2 PFOA

16 Perfluorooctanoic acid

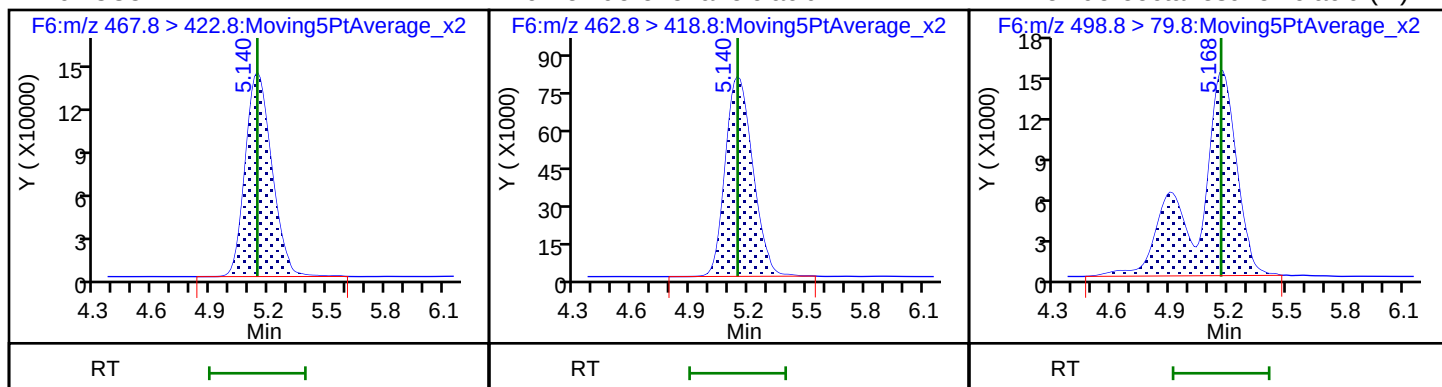
18 Perfluoroheptanesulfonic acid (M)



D 20 13C5 PFNA

19 Perfluorononanoic acid

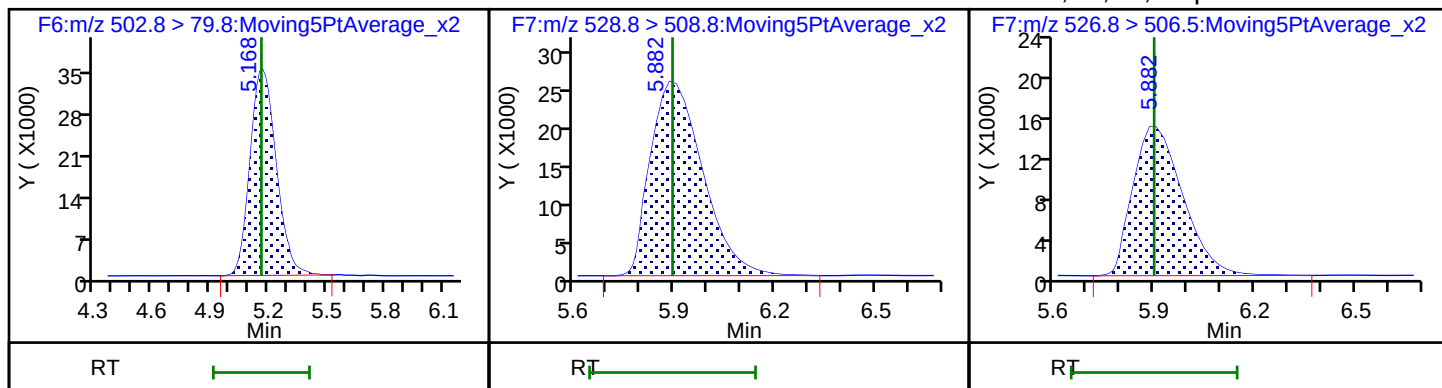
21 Perfluorooctanesulfonic acid (M)



D 22 13C4 PFOS

D 24 M2-8:2 FTS

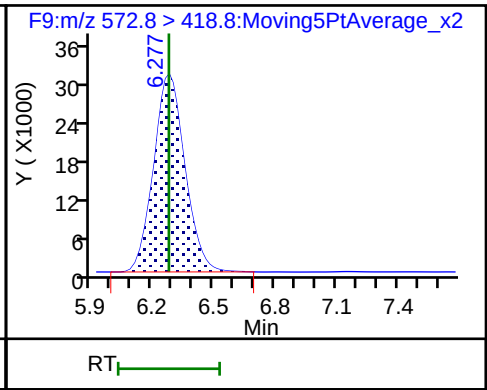
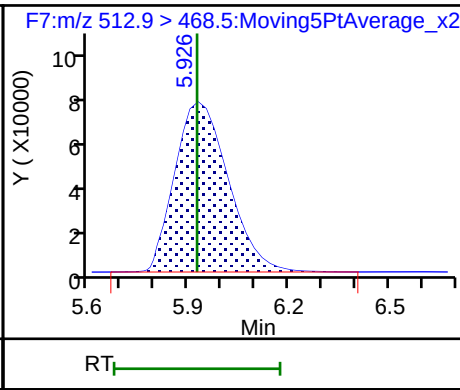
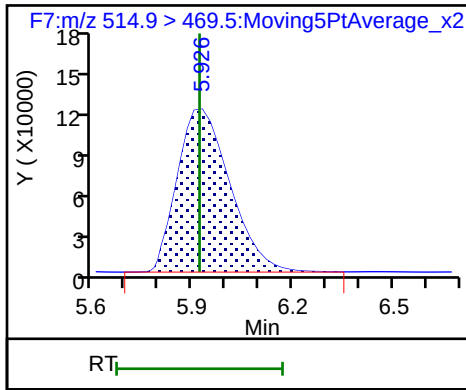
23 1H,1H,2H,2H-perfluorodecanesulfoni



D 26 13C2 PFDA

25 Perfluorodecanoic acid

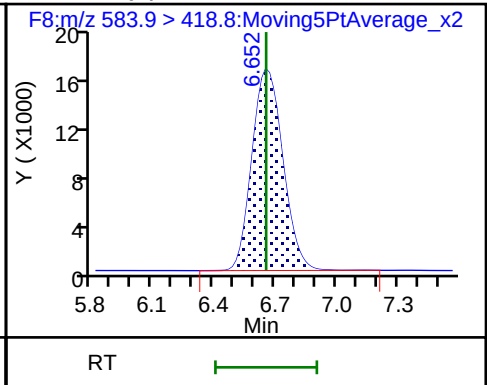
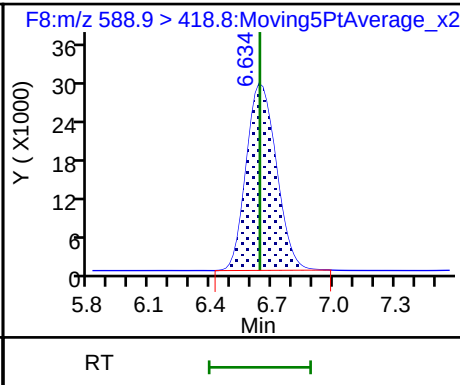
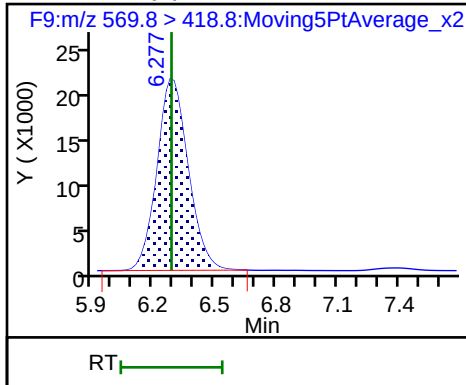
D 27 d3-NMeFOSAA



28 N-methylperfluorooctanesulfonamid

D 29 d5-NEtFOSAA

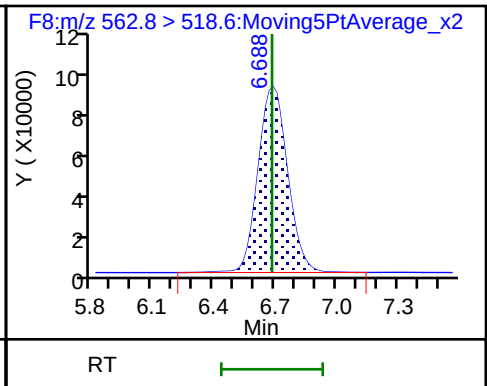
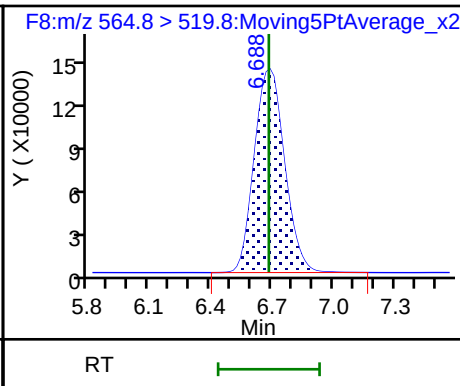
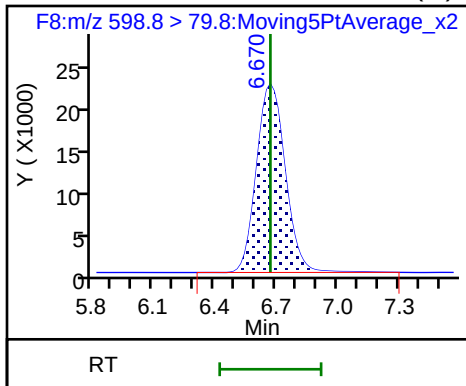
30 N-ethylperfluorooctanesulfonamidoa



31 Perfluorodecanesulfonic acid (M)

D 32 13C2 PFUnA

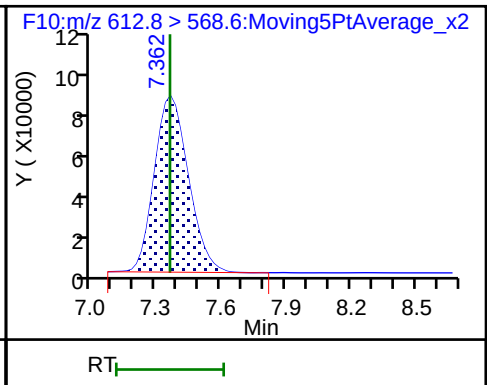
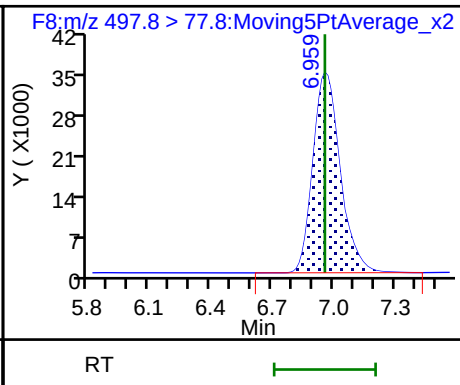
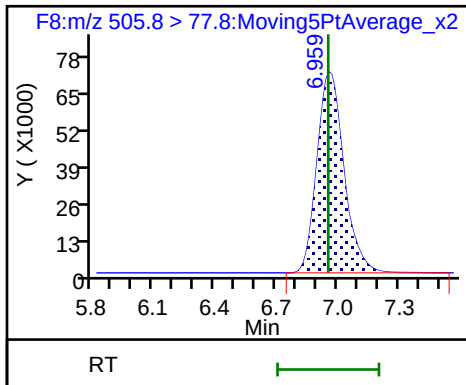
33 Perfluoroundecanoic acid



D 35 13C8 FOSA

34 Perfluorooctanesulfonamide

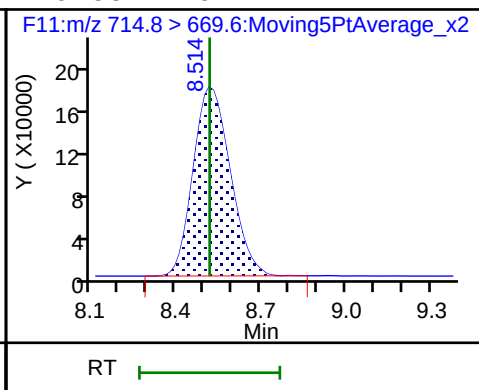
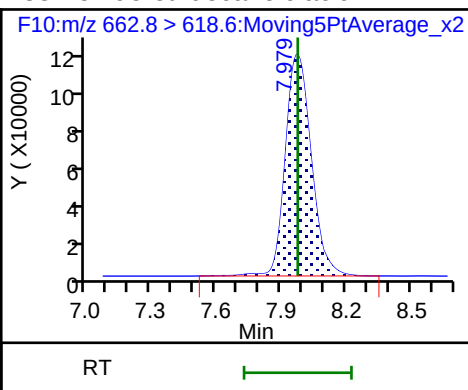
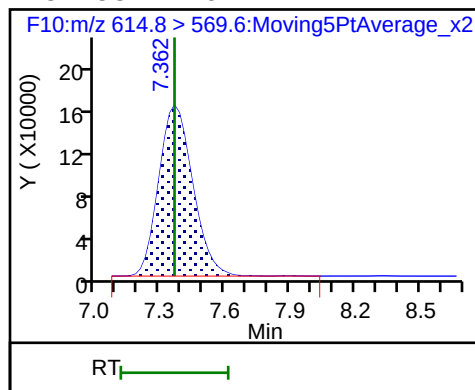
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

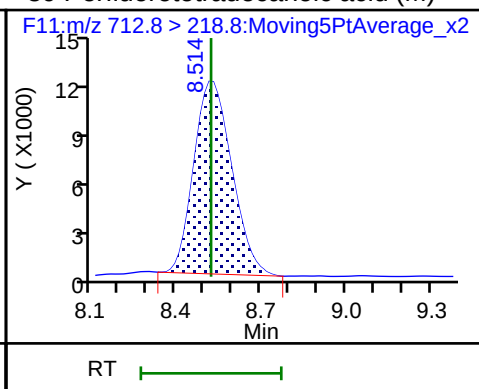
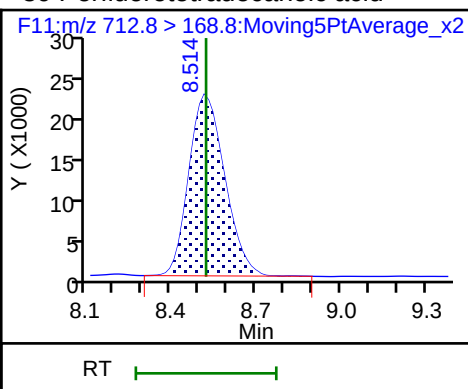
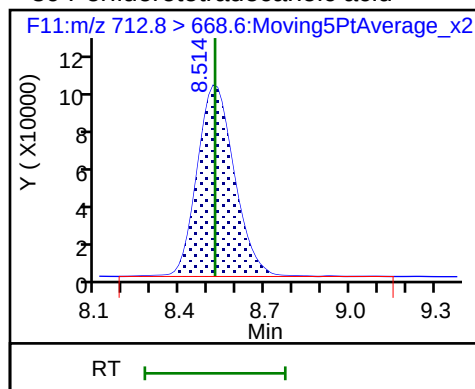
D 40 13C2 PFTeDA



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid (M)



TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A11.d

Injection Date: 17-Oct-2018 14:39:50

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 11

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

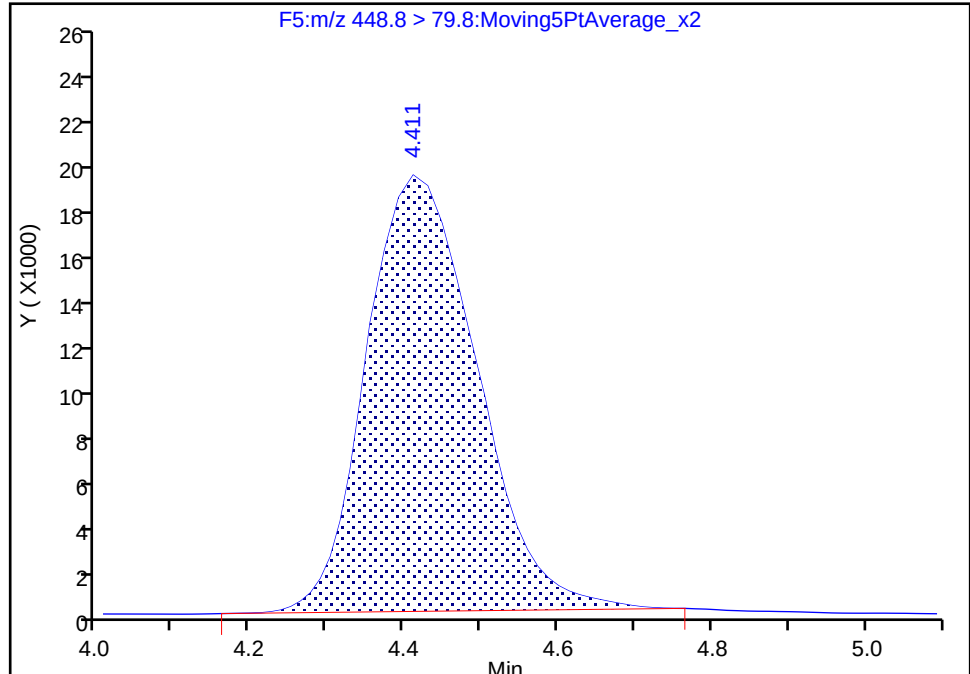
Detector F5:MRM

18 Perfluoroheptanesulfonic acid, CAS: 375-92-8

Signal: 1

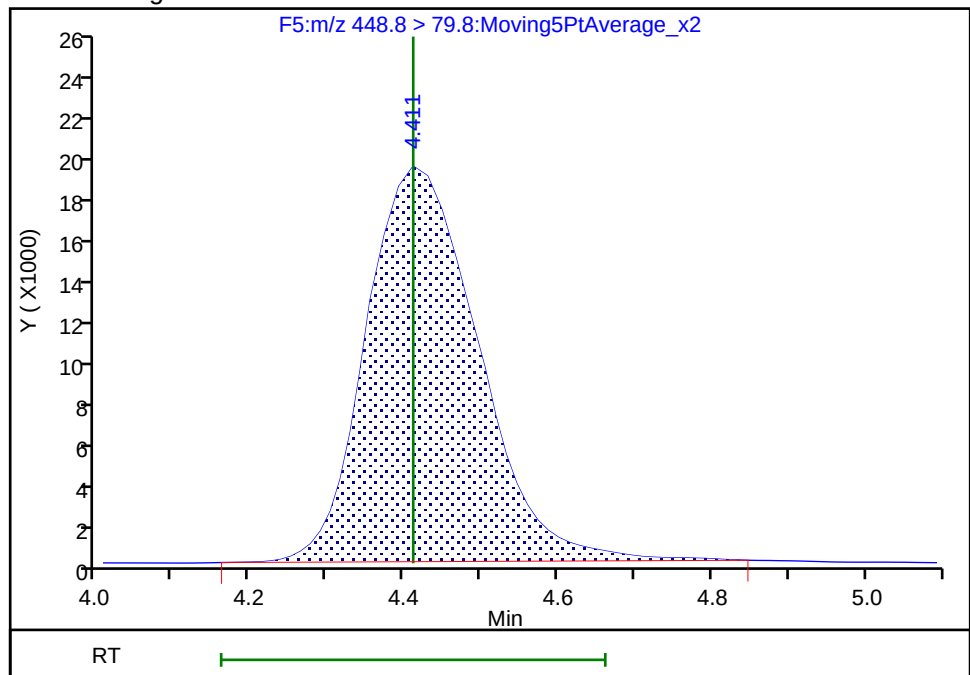
RT: 4.41
Area: 191328
Amount: 29.338930
Amount Units: ng/ml

Processing Integration Results



RT: 4.41
Area: 194023
Amount: 29.642697
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:06:25

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

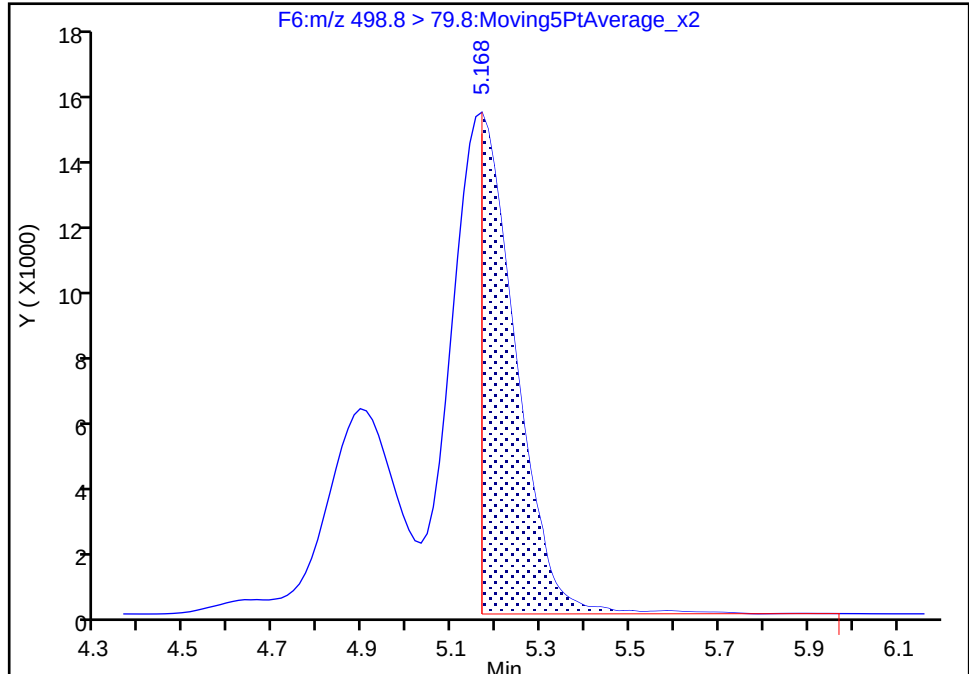
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A11.d
Injection Date: 17-Oct-2018 14:39:50 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 11
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F6:MRM

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

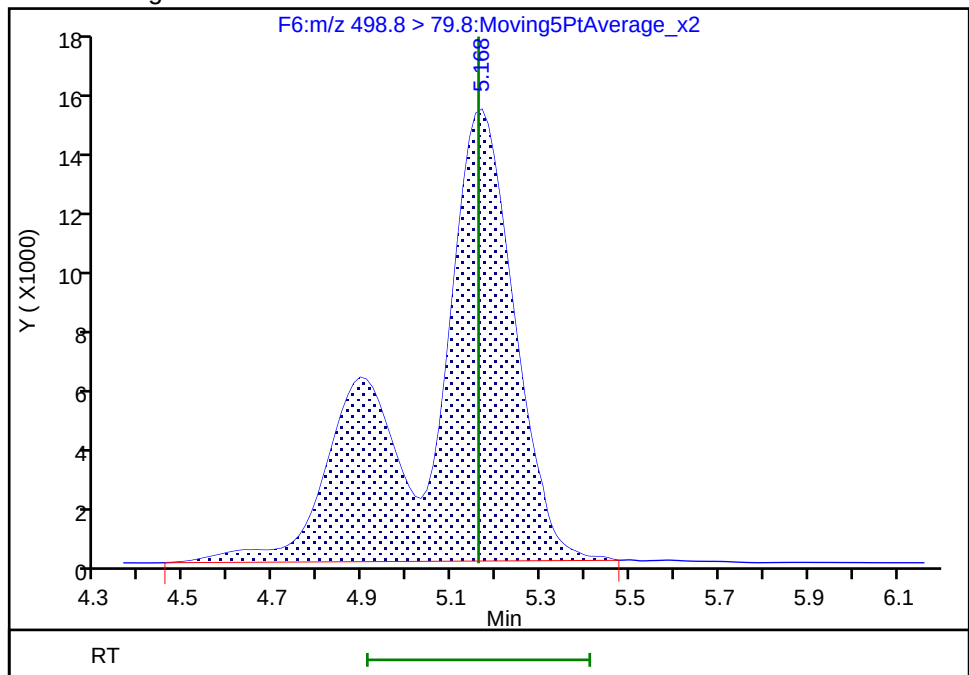
RT: 5.17
Area: 76953
Amount: 11.666659
Amount Units: ng/ml

Processing Integration Results



RT: 5.17
Area: 209502
Amount: 29.561877
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:06:34
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A11.d

Injection Date: 17-Oct-2018 14:39:50

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 11

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

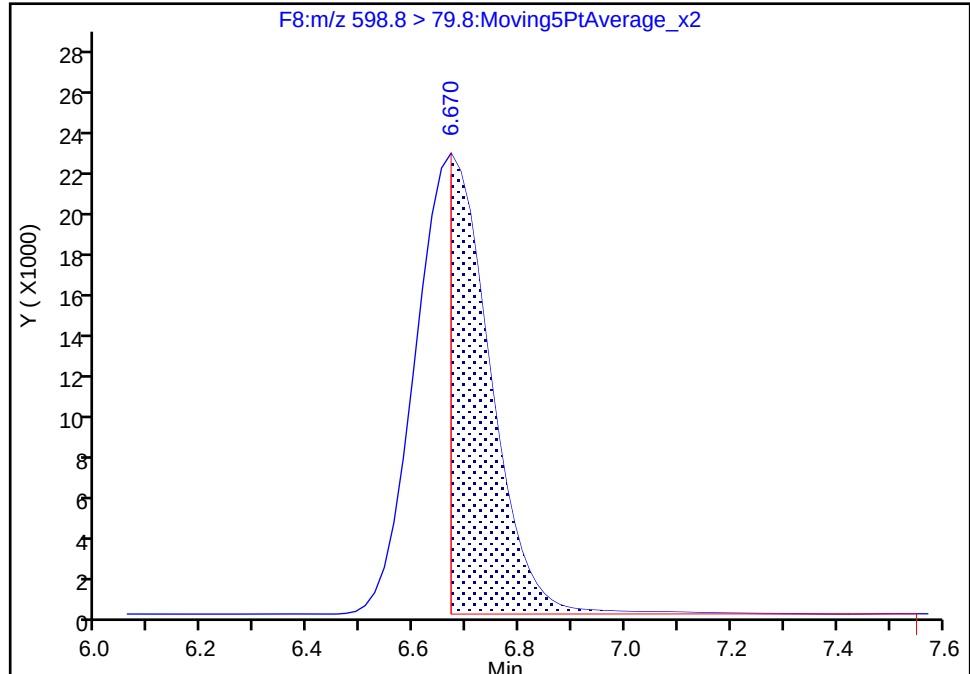
Detector F8:MRM

31 Perfluorodecanesulfonic acid, CAS: 335-77-3

Signal: 1

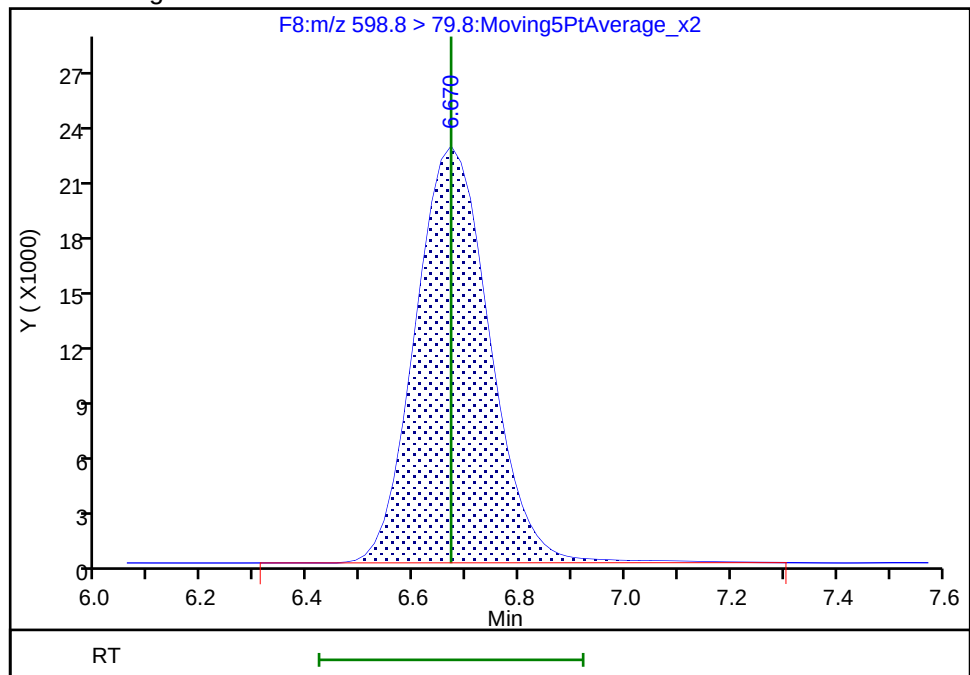
RT: 6.67
Area: 114572
Amount: 17.892788
Amount Units: ng/ml

Processing Integration Results



RT: 6.67
Area: 217089
Amount: 30.269536
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:06:43

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

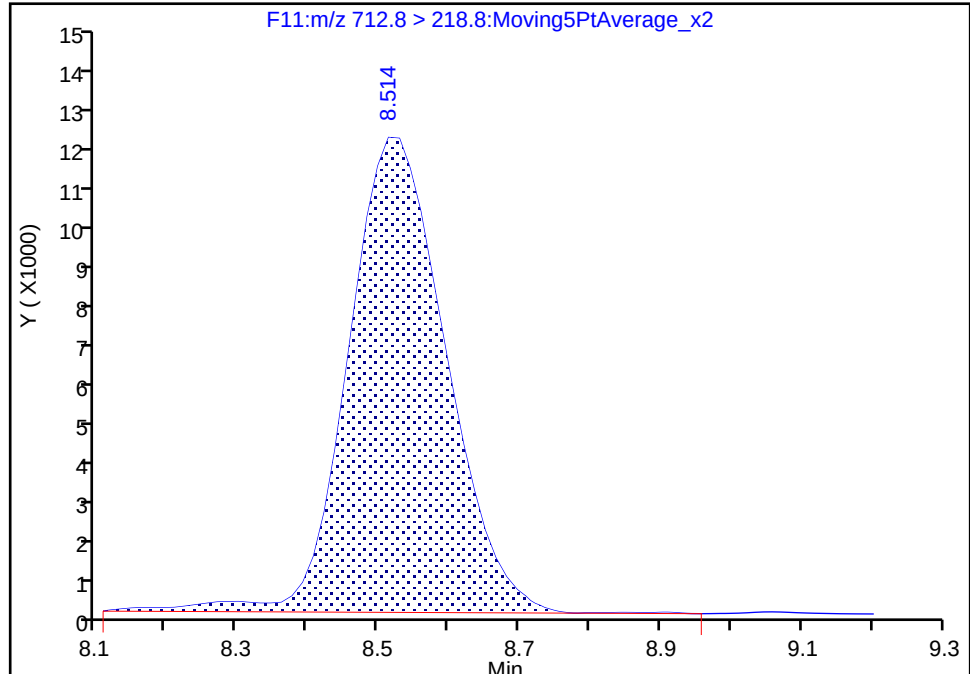
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A11.d
Injection Date: 17-Oct-2018 14:39:50 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 11
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F11:MRM

39 Perfluorotetradecanoic acid, CAS: 376-06-7

Signal: 3

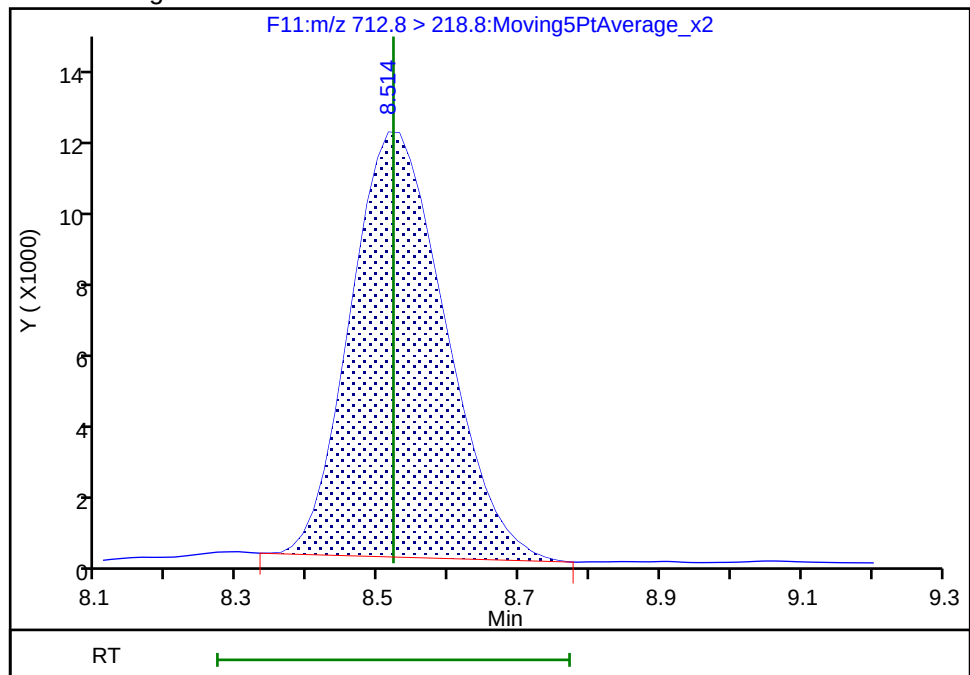
RT: 8.51
Area: 113678
Amount: 29.471920
Amount Units: ng/ml

Processing Integration Results



RT: 8.51
Area: 108828
Amount: 29.350888
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:06:54
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A12.d
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 17-Oct-2018 14:55:40 ALS Bottle#: 0 Worklist Smp#: 12
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0032684-012 IC 7
 Misc. Info.: PFAS21 101718A ICAL
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 17-Oct-2018 16:38:32 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: XAWRK002

First Level Reviewer: chirgwinb

Date: 17-Oct-2018 16:12:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
216.9 > 171.5	2.334	2.336	-0.002	1.000	623368	50.1		100	882	
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.334	2.338	-0.004	1.000	527859	49.8		99.6	465	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.750	2.754	-0.004	1.000	397986	50.5		101	1175	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.750	2.754	-0.004	1.000	1085160	47.9		95.7	4688	
D 6 13C3 PFBS										M
302.0 > 79.8	2.801	2.813	-0.012	1.000	306130	47.1		101	291	M
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.818	2.820	-0.002	1.006	560395	48.8		97.6	914	
D 7 13C2 PFHxA										
314.8 > 269.6	3.164	3.172	-0.008	1.000	710134	50.0		100	1986	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.164	3.174	-0.010	1.000	733096	49.7		99.5	2339	
D 9 13C4 PFHpA										
366.9 > 321.8	3.703	3.702	0.001	1.000	1290126	49.6		99.2	1572	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.703	3.705	-0.002	1.000	1292036	51.2		102	366	
D 11 18O2 PFHxS										
402.9 > 83.8	3.748	3.747	0.001	1.000	350859	46.6		98.6	969	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.748	3.749	-0.001	1.000	551375	48.6		97.2	12377	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.330	4.325	0.005	1.000	108495	46.8		98.4	1011	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.330	4.330	0.0	1.000	111701	49.7		99.3	5844	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.374	4.370	0.004	1.000	973826	49.1		98.1	2719	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.374	4.374	0.0	1.000	953489	49.5		98.9	1695	
* 15 13C2 PFOA										
414.9 > 369.8	4.374	4.374	0.0		1057865	50.0			2035	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.412	4.412	0.0	0.856	326805	52.5		105	1065	
D 20 13C5 PFNA										
467.8 > 422.8	5.140	5.140	0.0	1.000	1350557	50.4		101	887	
19 Perfluorononanoic acid										
462.8 > 418.8	5.140	5.142	-0.002	1.000	1359420	45.8		91.6	3537	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.154	5.160	-0.006	1.000	355328	52.7		105	12011	
D 22 13C4 PFOS										
502.8 > 79.8	5.154	5.161	-0.007	1.000	311818	46.8		97.9	475	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.882	5.891	-0.009	1.000	279105	44.4		92.7	4282	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.882	5.896	-0.014	1.000	245658	52.3		105	1651	
D 26 13C2 PFDA										
514.9 > 469.5	5.902	5.918	-0.016	1.000	1338483	48.5		97.0	4311	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.902	5.920	-0.018	1.000	1385659	51.3		103	4004	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.277	6.275	0.002	1.000	364220	51.7		103	2967	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.277	6.283	-0.006	1.000	378059	47.8		95.6	903	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.634	6.638	-0.004	1.000	288272	48.2		96.4	1072	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.652	6.654	-0.002	1.003	278513	50.2		100	3839	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.652	6.668	-0.016	1.291	368285	54.0		108	7410	
D 32 13C2 PFUnA										
564.8 > 519.8	6.670	6.682	-0.012	1.000	1360311	47.3		94.7	1458	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.670	6.682	-0.012	1.000	1412068	50.6		101	1368	
D 35 13C8 FOSA										
505.8 > 77.8	6.944	6.955	-0.011	1.000	642325	50.1		100	2911	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.944	6.957	-0.013	1.000	562051	51.7		103	5475	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.339	7.359	-0.020	0.997	1574332	49.9		99.8	3758	
D 37 13C2 PFDoA										
614.8 > 569.6	7.362	7.362	0.0	1.000	1836762	50.5		101	2932	
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.962	7.975	-0.013	0.935	1612310	49.2		98.3	4102	

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A12.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 40 13C2 PFTeDA										
714.8 > 669.6	8.514	8.516	-0.002	1.000	1677487	50.3		101	1366	
39 Perfluorotetradecanoic acid										
712.8 > 668.6	8.514	8.521	-0.007	1.000	1605926	49.1		98.2	1770	
712.8 > 168.8	8.514	8.521	-0.007	1.000	313490		5.12(0.00-0.00)	98.2	251	
712.8 > 218.8	8.514	8.521	-0.007	1.000	178724		8.99(0.00-0.00)	98.2	142	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L5_00003

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A12.d

Injection Date: 17-Oct-2018 14:55:40

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 12

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

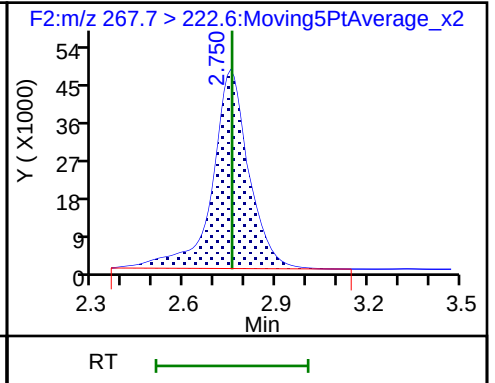
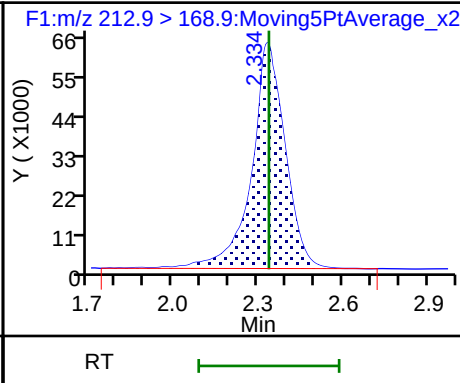
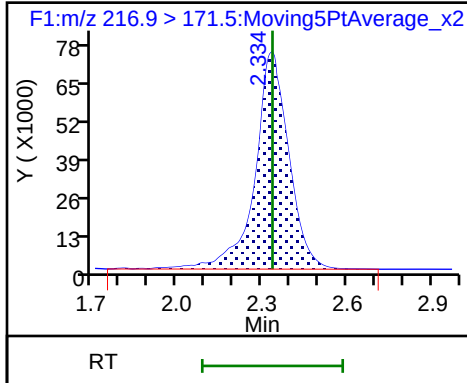
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid (M)

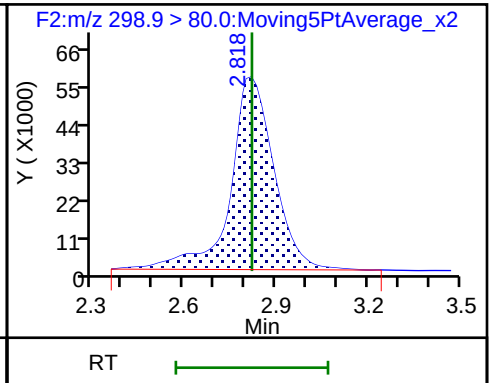
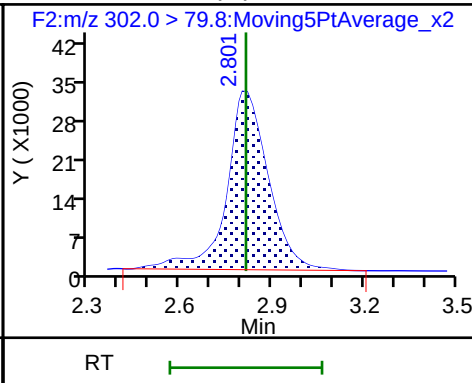
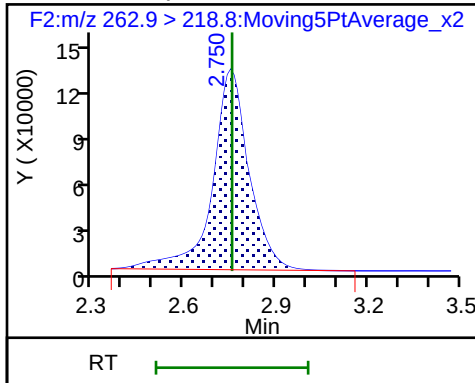
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 6 13C3 PFBS (M)

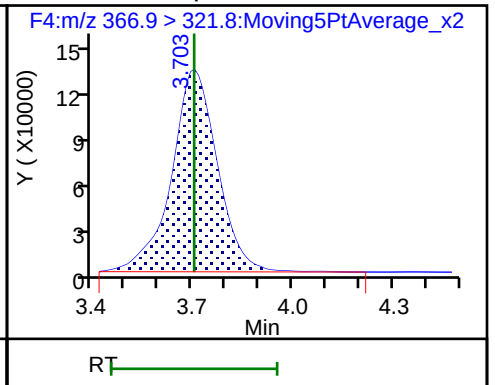
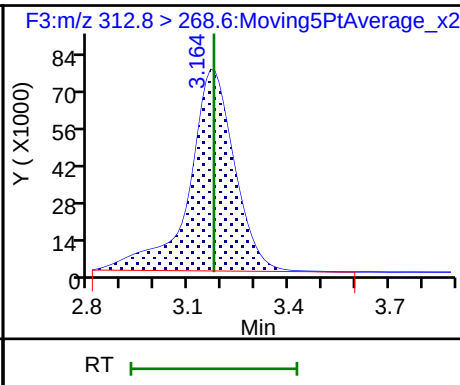
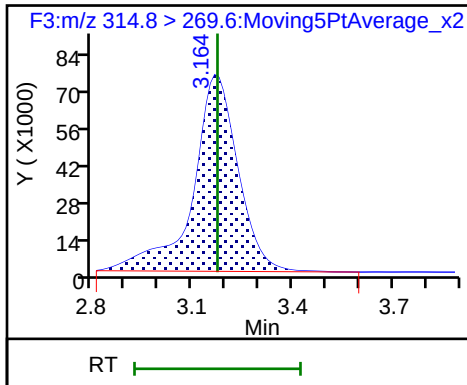
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

8 Perfluorohexanoic acid

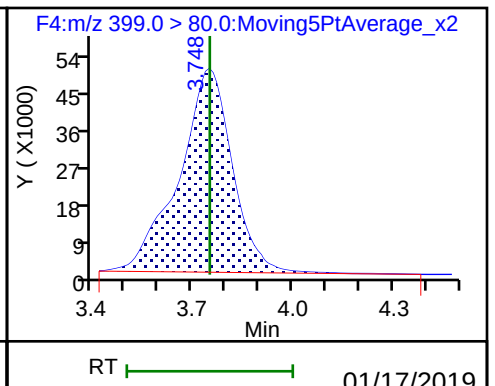
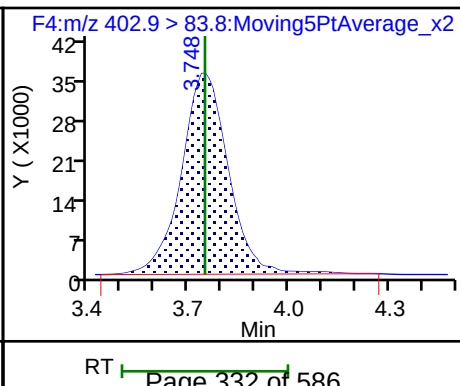
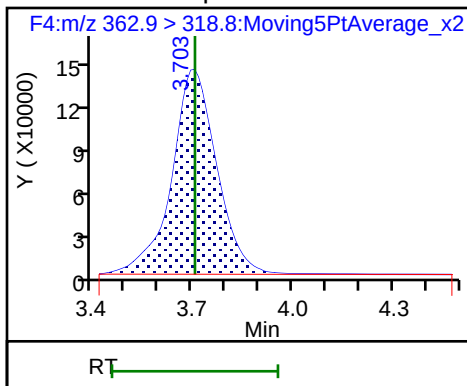
D 9 13C4 PFHpA



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

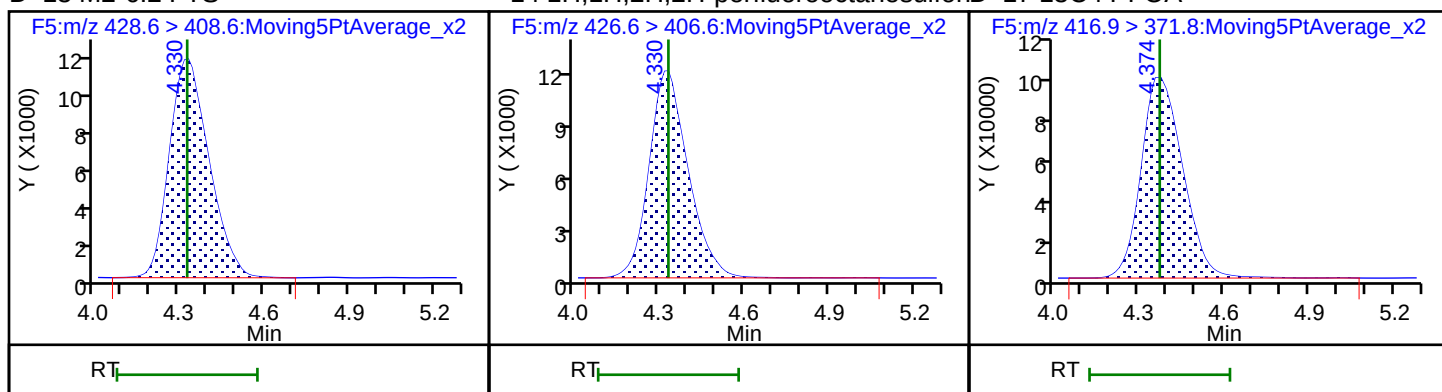
12 Perfluorohexanesulfonic acid



D 13 M2-6:2 FTS

14 1H,1H,2H,2H-perfluorooctanesulfonD

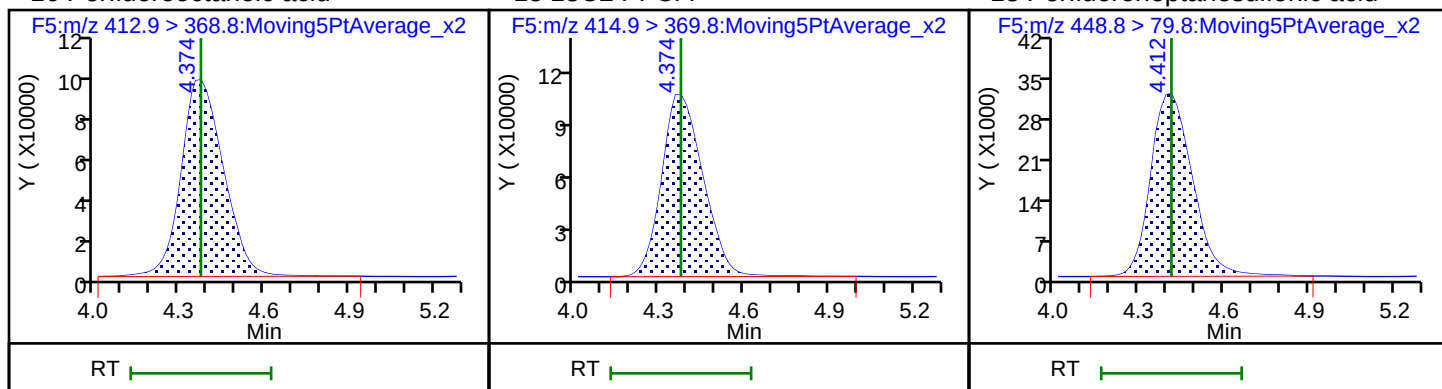
17 13C4 PFOA



16 Perfluorooctanoic acid

* 15 13C2 PFOA

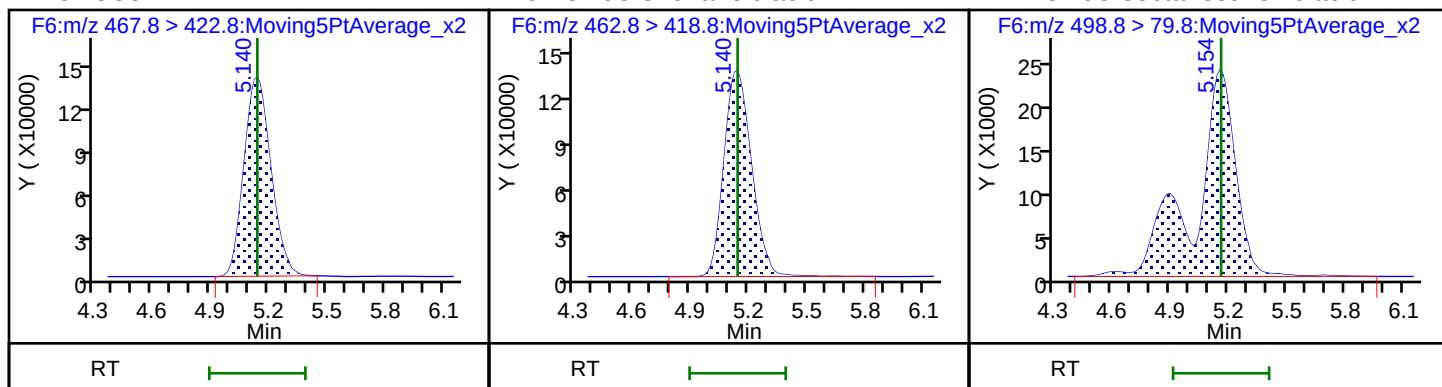
18 Perfluoroheptanesulfonic acid



D 20 13C5 PFNA

19 Perfluorononanoic acid

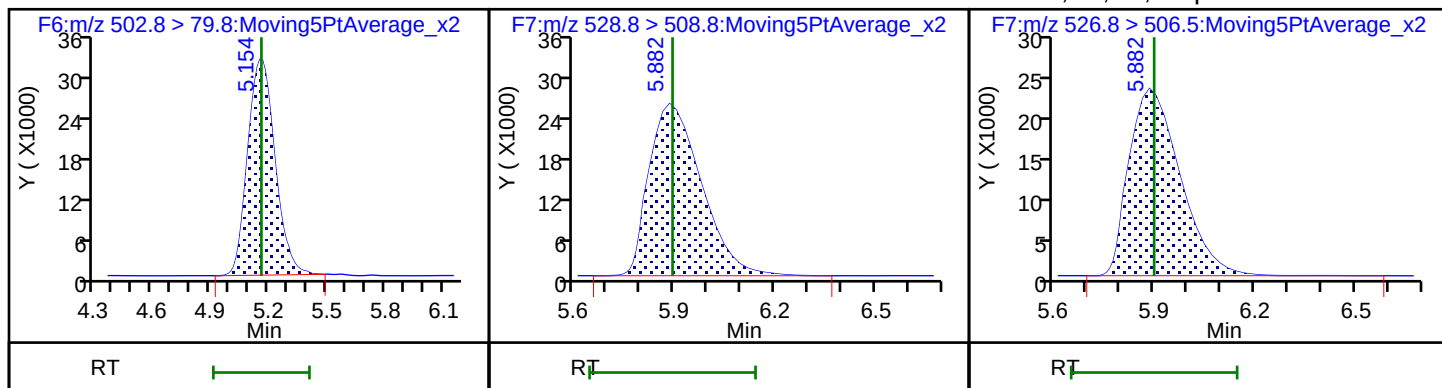
21 Perfluorooctanesulfonic acid



D 22 13C4 PFOS

D 24 M2-8:2 FTS

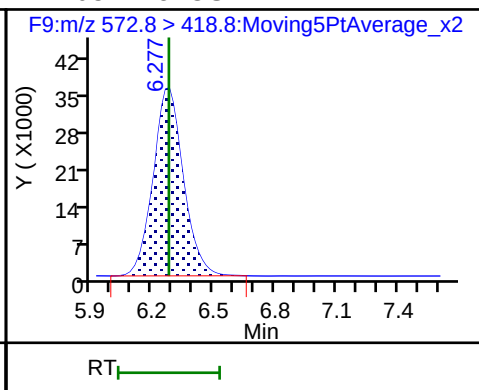
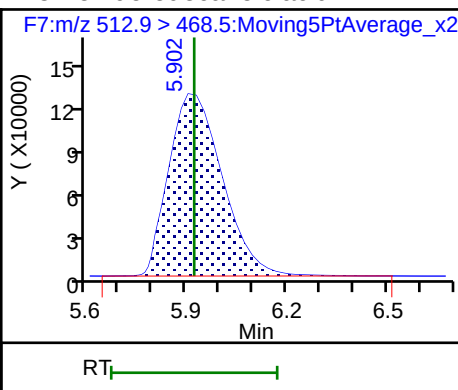
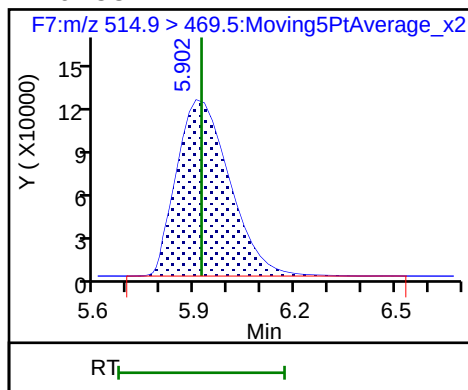
23 1H,1H,2H,2H-perfluorodecanesulfoni



D 26 13C2 PFDA

25 Perfluorodecanoic acid

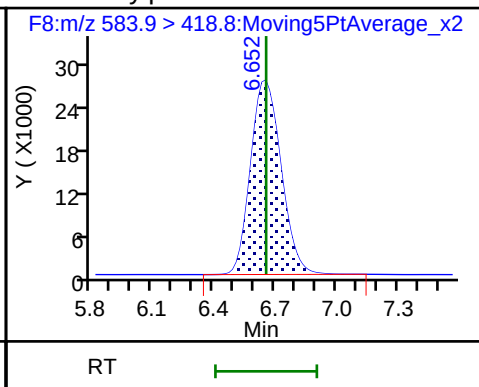
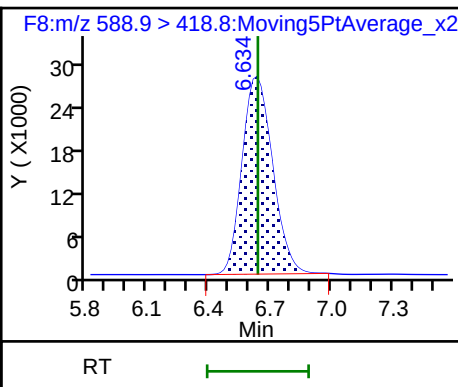
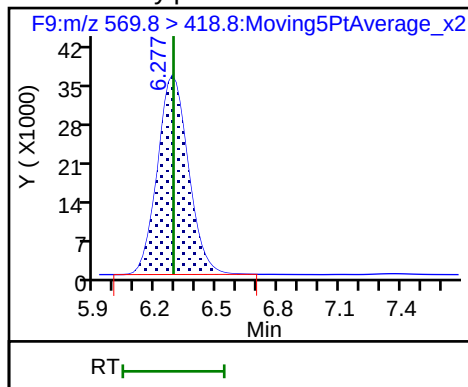
D 27 d3-NMeFOSAA



28 N-methylperfluorooctanesulfonamid

D 29 d5-NEtFOSAA

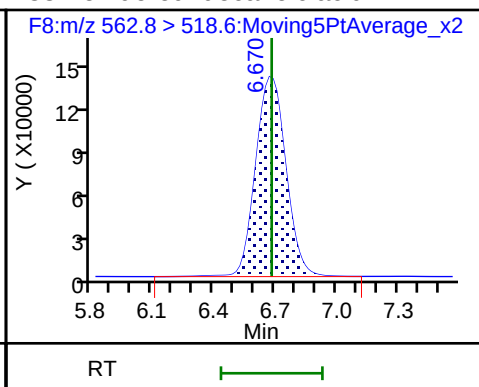
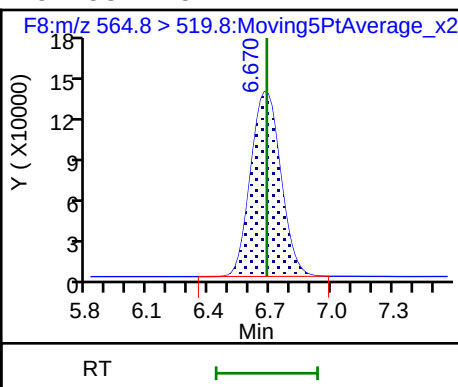
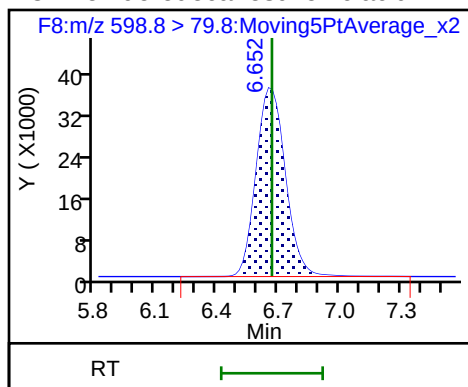
30 N-ethylperfluorooctanesulfonamidoa



31 Perfluorodecanesulfonic acid

D 32 13C2 PFUnA

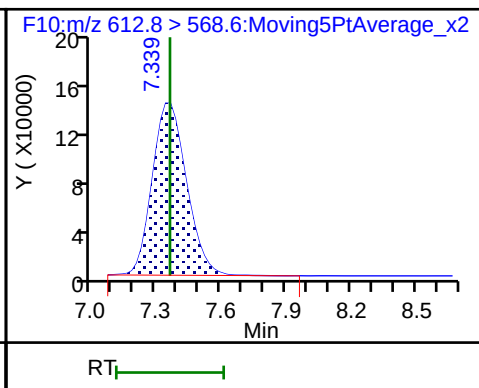
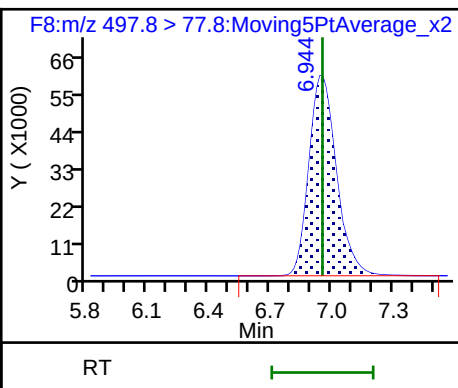
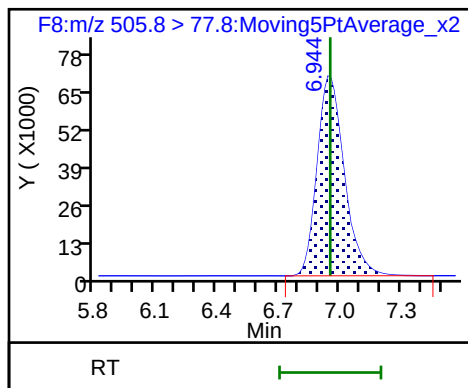
33 Perfluoroundecanoic acid



D 35 13C8 FOSA

34 Perfluorooctanesulfonamide

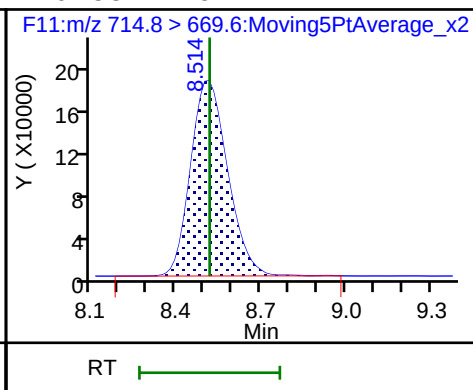
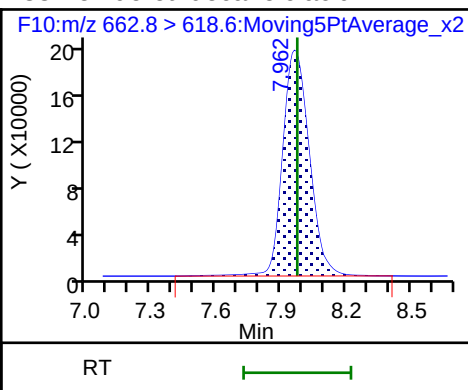
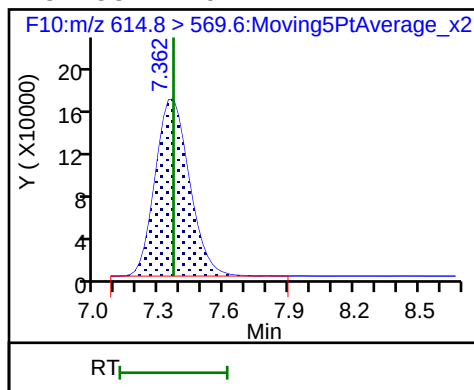
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

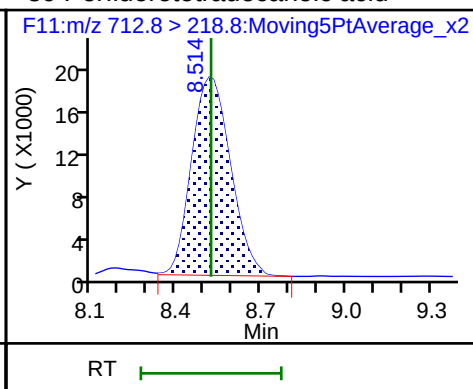
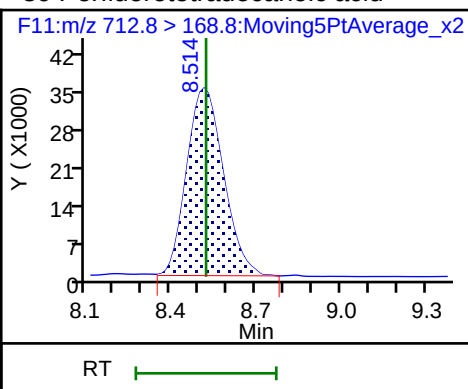
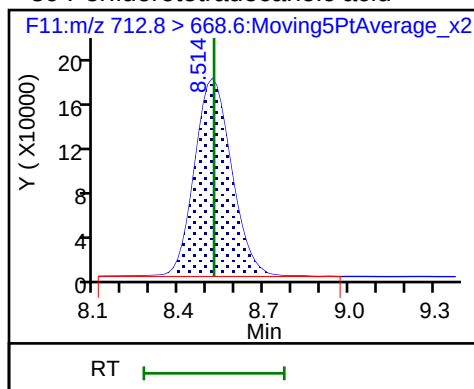
D 40 13C2 PFTeDA



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid



TestAmerica Burlington

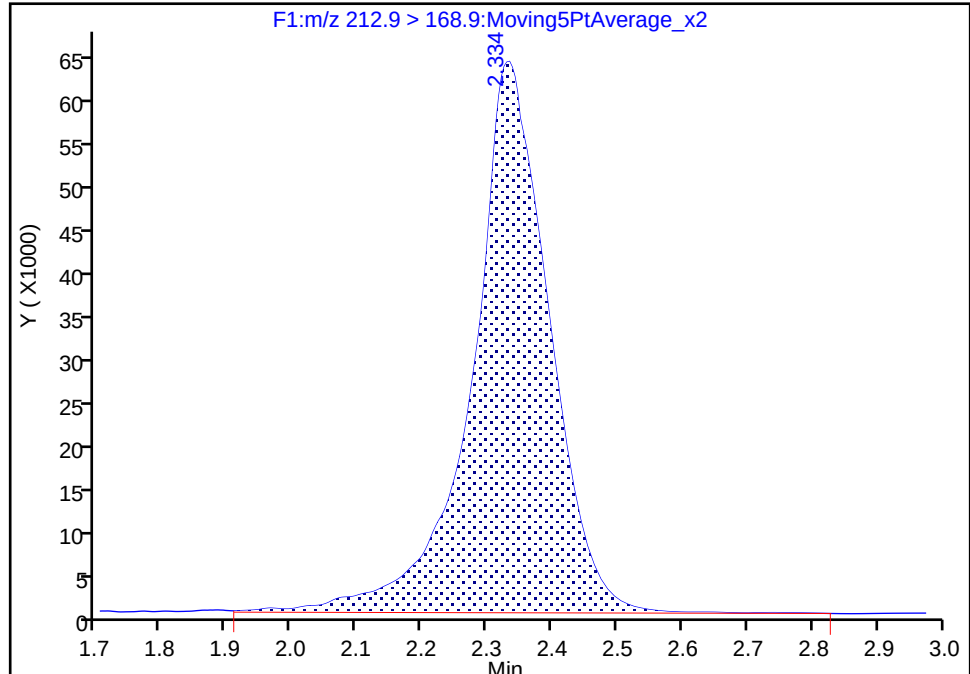
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A12.d
Injection Date: 17-Oct-2018 14:55:40 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

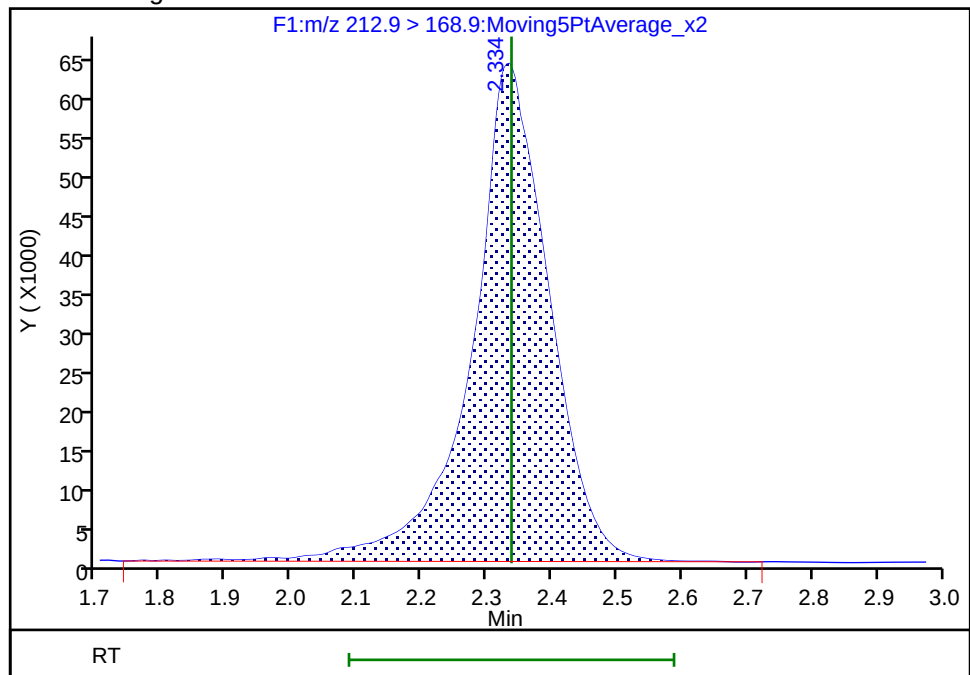
RT: 2.33
Area: 528885
Amount: 49.938106
Amount Units: ng/ml

Processing Integration Results



RT: 2.33
Area: 527859
Amount: 49.781263
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:09:47
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

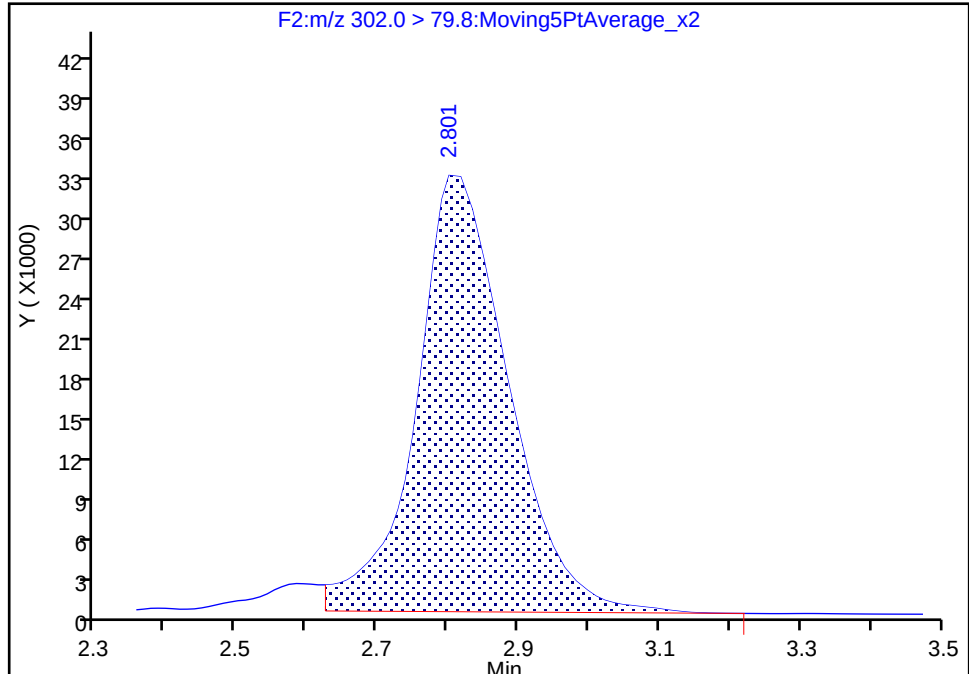
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A12.d
Injection Date: 17-Oct-2018 14:55:40 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

D 6 13C3 PFBS, CAS: STL02337

Signal: 1

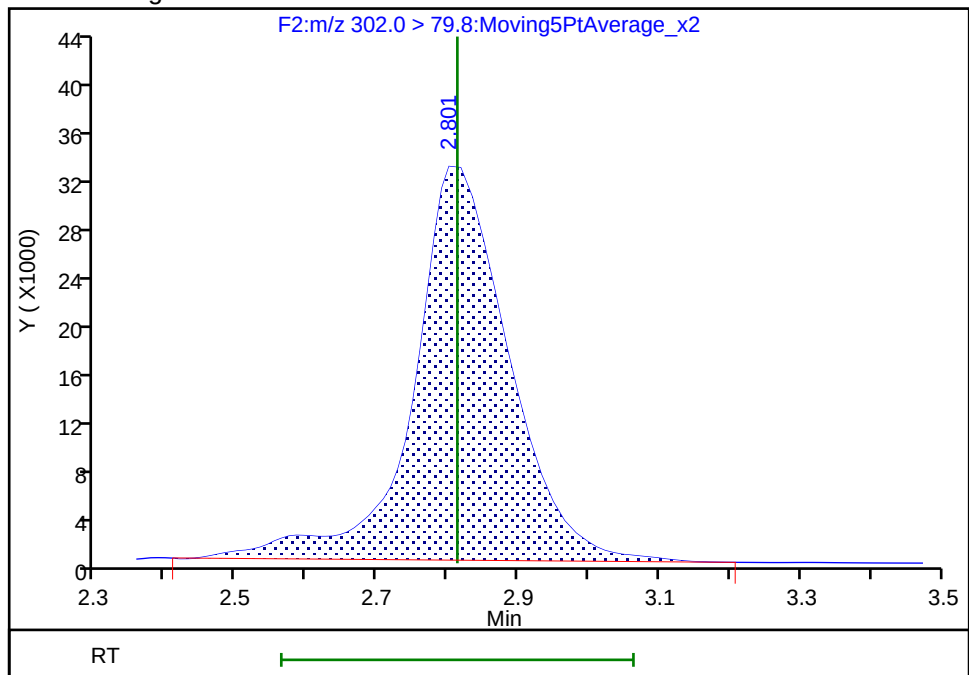
RT: 2.80
Area: 295751
Amount: 45.714837
Amount Units: ng/ml

Processing Integration Results



RT: 2.80
Area: 306130
Amount: 47.060837
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:09:59
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
Page 337 of 586

01/17/2019

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A13.d
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 17-Oct-2018 15:11:38 ALS Bottle#: 0 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0032684-013 IC 8
 Misc. Info.: PFAS21 101718A ICAL
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 17-Oct-2018 16:38:35 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: XAWRK002

First Level Reviewer: chirgwinb

Date: 17-Oct-2018 16:13:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										M
216.9 > 171.5	2.338	2.336	0.002	1.000	613765	53.7		107	1138	M
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.338	2.338	0.0	1.000	1047755	100.6		101	682	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.750	2.754	-0.004	1.000	398357	54.9		110	1479	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.750	2.754	-0.004	1.000	2135896	94.1		94.1	5665	
D 6 13C3 PFBS										
302.0 > 79.8	2.818	2.814	0.004	1.000	310742	51.9		112	424	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.818	2.820	-0.002	1.000	1158992	99.4		99.4	2947	
D 7 13C2 PFHxA										
314.8 > 269.6	3.177	3.172	0.005	1.000	663953	50.8		102	2868	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.177	3.174	0.003	1.000	1377885	100.0		100	8086	
D 9 13C4 PFHpA										
366.9 > 321.8	3.703	3.702	0.001	1.000	1195044	49.9		99.9	976	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.703	3.705	-0.002	1.000	2372623	101.6		102	426	
D 11 18O2 PFHxS										
402.9 > 83.8	3.748	3.747	0.001	1.000	362565	52.4		111	2472	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.748	3.749	-0.001	1.000	1152538	98.6		98.6	2442	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.330	4.325	0.005	1.000	113019	52.9		111	512	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.330	4.330	0.0	1.000	219475	93.7		93.7	833	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.374	4.370	0.004	1.000	881871	48.3		96.6	1989	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.374	4.374	0.0	1.000	1803420	103.3		103	1267	
* 15 13C2 PFOA										
414.9 > 369.8	4.374	4.374	0.0		973339	50.0			849	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.412	4.412	0.0	0.854	626455	99.1		99.1	1958	
D 20 13C5 PFNA										
467.8 > 422.8	5.140	5.140	0.0	1.000	1246159	50.6		101	1598	
19 Perfluorononanoic acid										
462.8 > 418.8	5.140	5.142	-0.002	1.000	2471507	90.2		90.2	8089	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.154	5.160	-0.006	0.997	706214	103.2		103	1867	
D 22 13C4 PFOS										
502.8 > 79.8	5.168	5.161	0.007	1.000	316504	51.6		108	643	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.882	5.891	-0.009	1.000	300907	52.0		109	561	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.902	5.896	0.006	1.003	484542	95.6		95.6	1889	
D 26 13C2 PFDA										
514.9 > 469.5	5.926	5.918	0.008	1.000	1229016	48.4		96.8	18042	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.926	5.921	0.005	1.000	2460309	99.2		99.2	1258	M
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.277	6.275	0.002	1.000	365274	56.3		113	1460	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.277	6.283	-0.006	1.000	760209	95.8		95.8	840	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.634	6.638	-0.004	1.000	281091	51.1		102	1888	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.652	6.654	-0.002	1.003	541296	100.0		100	6363	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.670	6.668	0.002	1.291	688953	99.5		99.5	3356	M
D 32 13C2 PFUnA										
564.8 > 519.8	6.688	6.682	0.006	1.000	1288532	48.7		97.5	2398	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.688	6.682	0.006	1.000	2593532	98.1		98.1	2180	M
D 35 13C8 FOSA										
505.8 > 77.8	6.959	6.955	0.004	1.000	631359	53.5		107	4808	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.959	6.957	0.002	1.000	1106058	103.5		104	9678	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.362	7.359	0.003	1.000	3051169	101.7		102	2847	
D 37 13C2 PFDaA										
614.8 > 569.6	7.362	7.362	0.0	1.000	1747263	52.2		104	5113	
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.979	7.975	0.004	0.937	3150003	101.0		101	2900	M

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A13.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 40 13C2 PFTeDA										
714.8 > 669.6	8.514	8.516	-0.002	1.000	1594870	52.0		104	1260	
39 Perfluorotetradecanoic acid										
712.8 > 668.6	8.514	8.521	-0.007	1.000	3140954	101.0		101	846	
712.8 > 168.8	8.514	8.521	-0.007	1.000	652382		4.81(0.00-0.00)	101	1180	
712.8 > 218.8	8.514	8.521	-0.007	1.000	364701		8.61(0.00-0.00)	101	178	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L5A_00001

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\ChromNA\\Burlington\\ChromData\\LC410\\20181017-32684.b\\PF101718A13.d

Injection Date: 17-Oct-2018 15:11:38

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

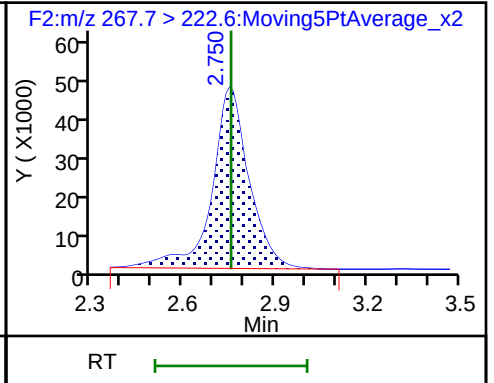
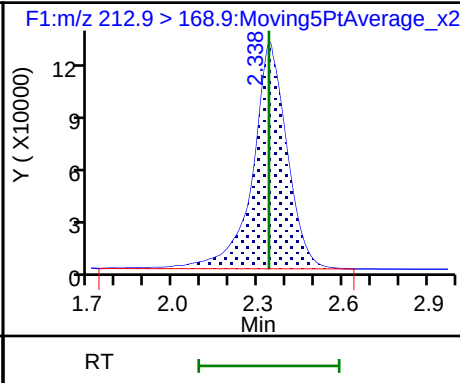
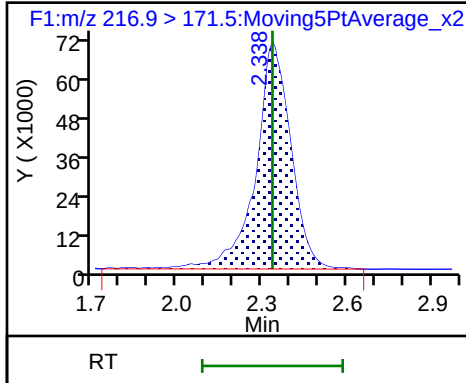
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

D 1 13C4 PFBA (M)

2 Perfluorobutanoic acid (M)

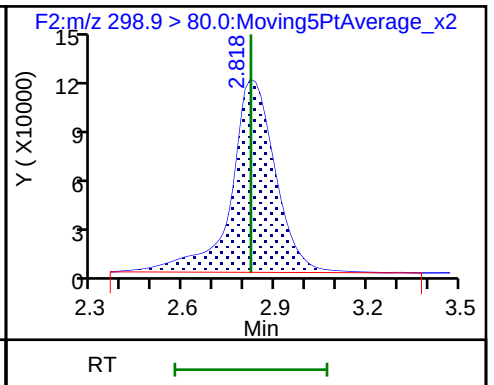
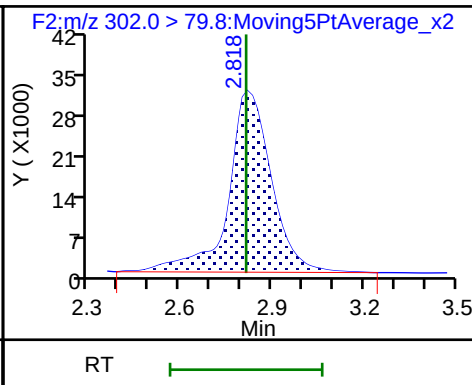
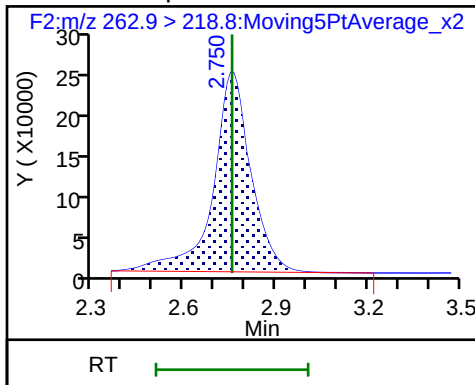
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 6 13C3 PFBS

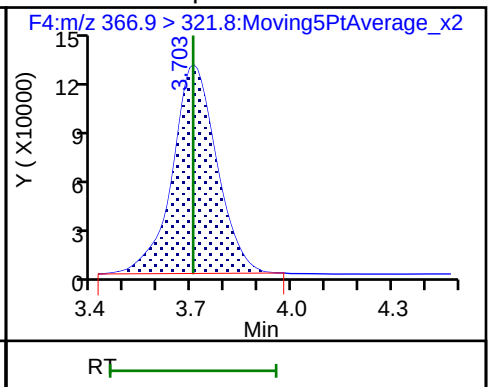
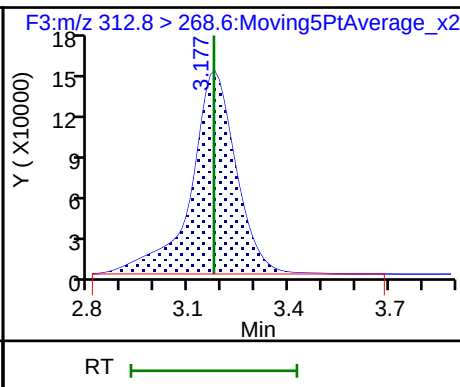
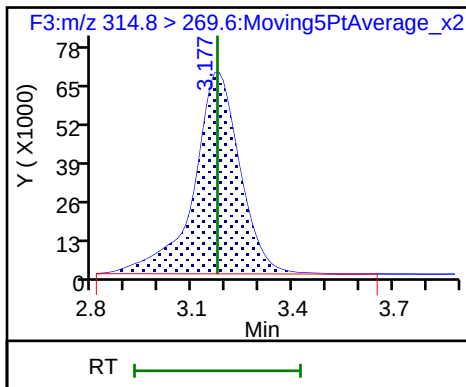
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

8 Perfluorohexanoic acid

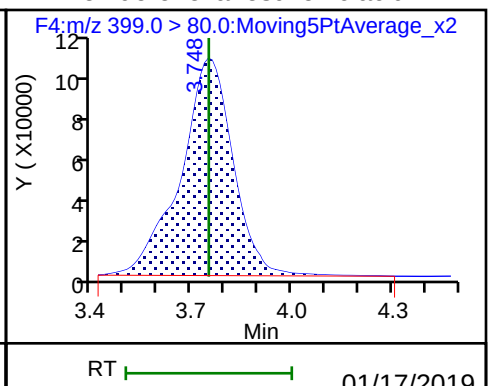
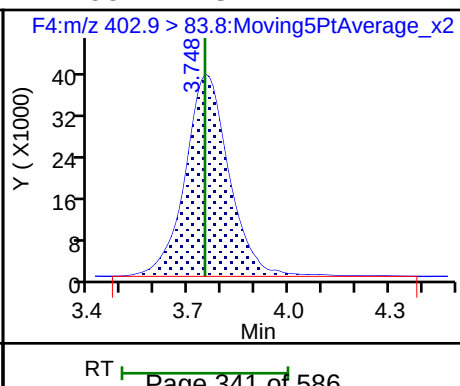
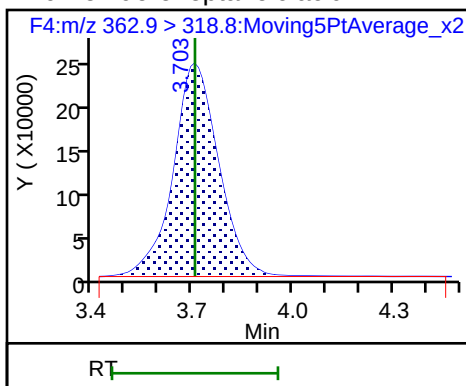
D 9 13C4 PFHpA



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

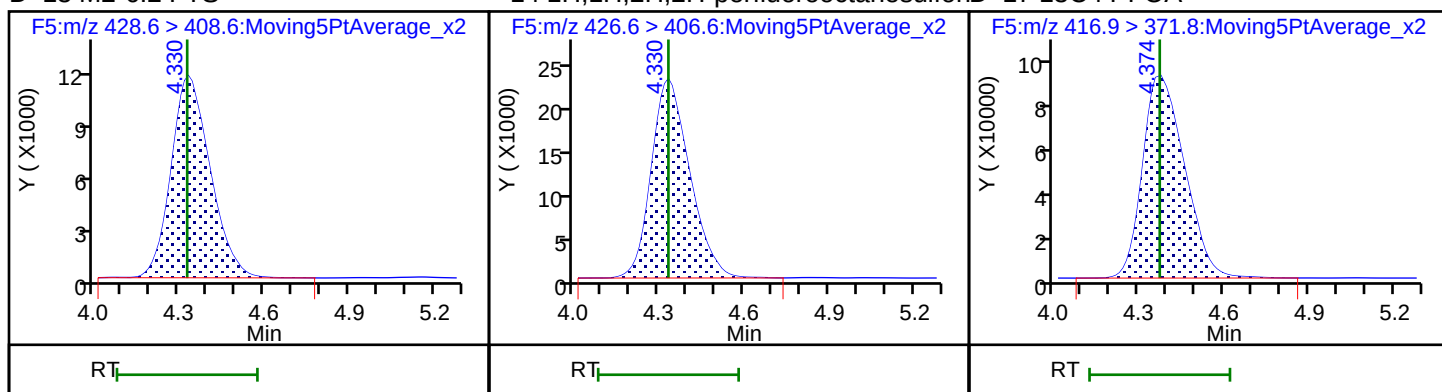
12 Perfluorohexanesulfonic acid



D 13 M2-6:2 FTS

14 1H,1H,2H,2H-perfluorooctanesulfonD

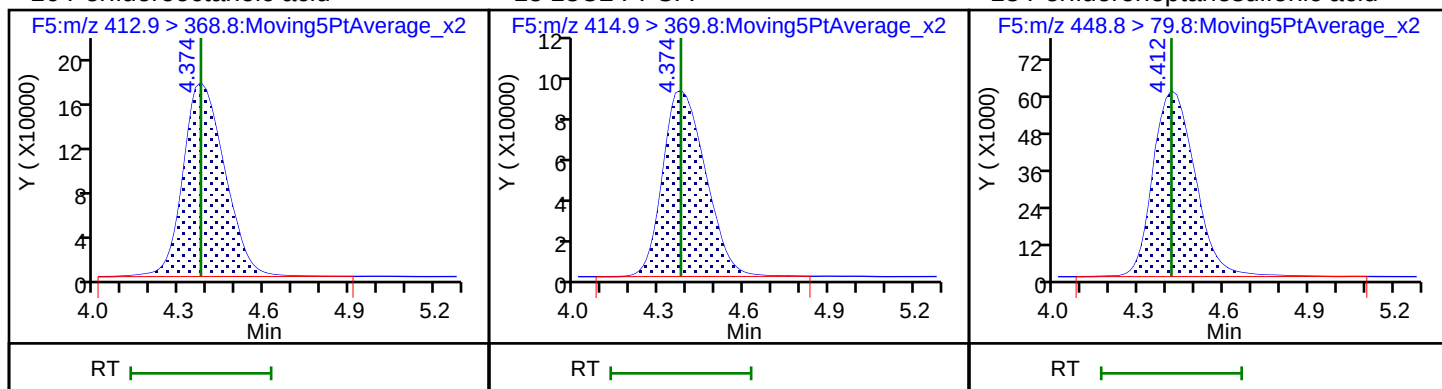
17 13C4 PFOA



16 Perfluorooctanoic acid

* 15 13C2 PFOA

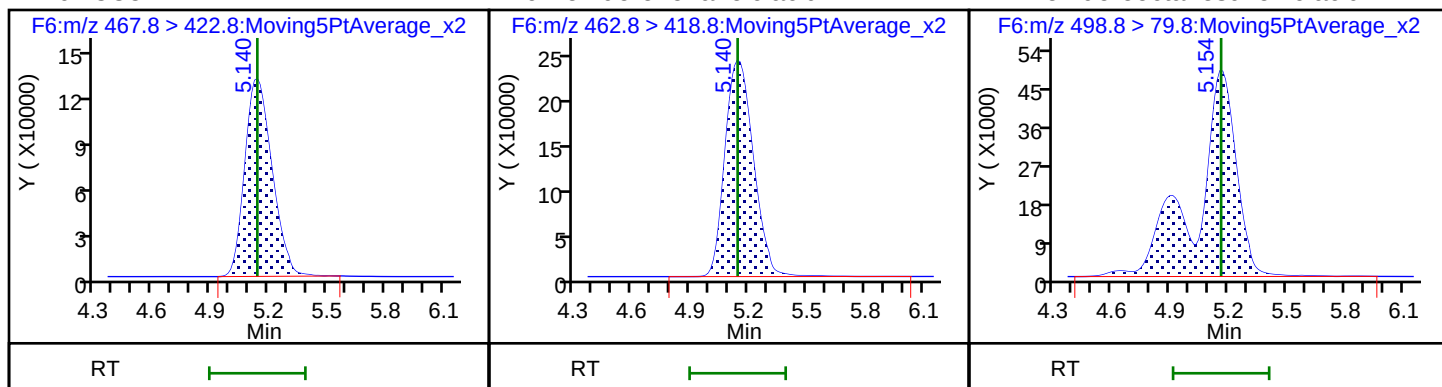
18 Perfluoroheptanesulfonic acid



D 20 13C5 PFNA

19 Perfluorononanoic acid

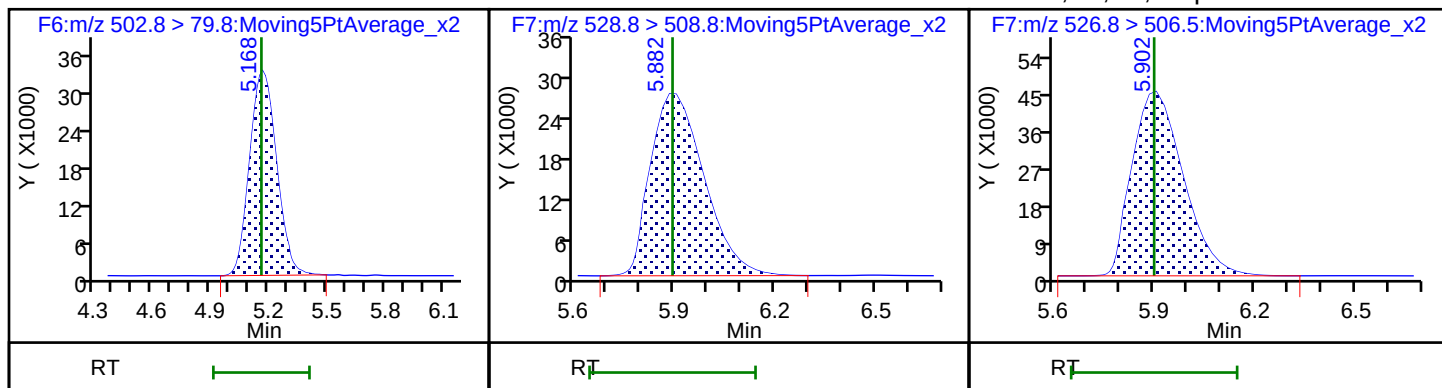
21 Perfluorooctanesulfonic acid



D 22 13C4 PFOS

D 24 M2-8:2 FTS

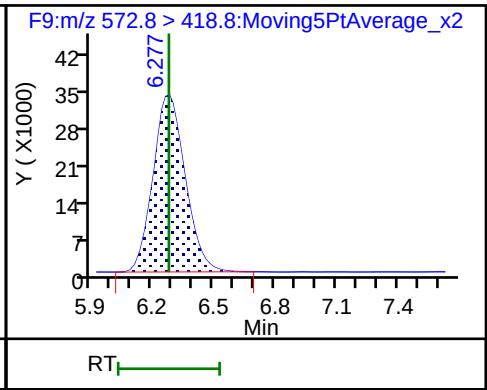
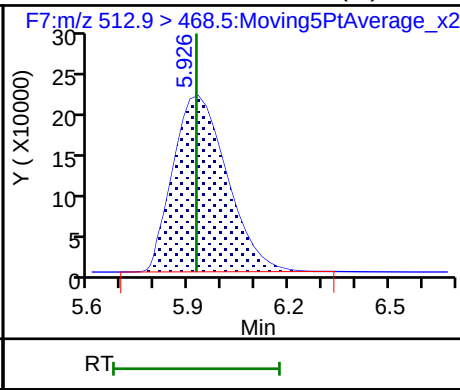
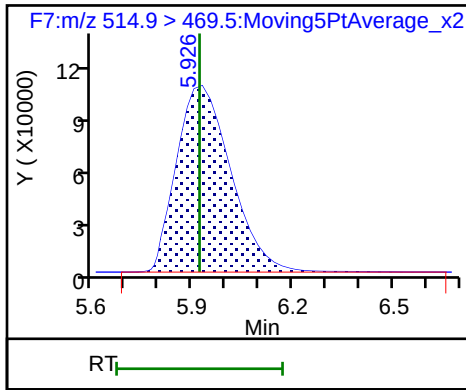
23 1H,1H,2H,2H-perfluorodecanesulfoni



D 26 13C2 PFDA

25 Perfluorodecanoic acid (M)

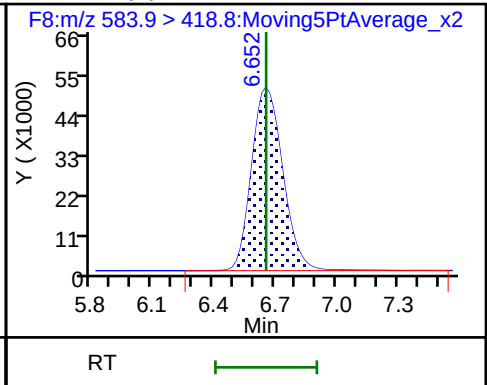
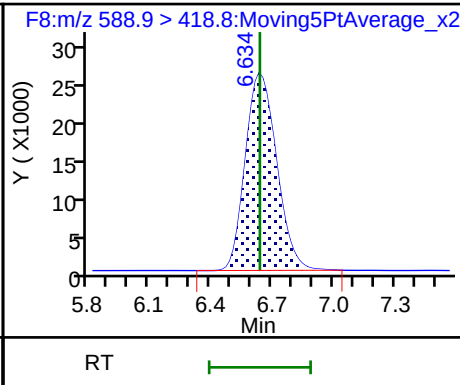
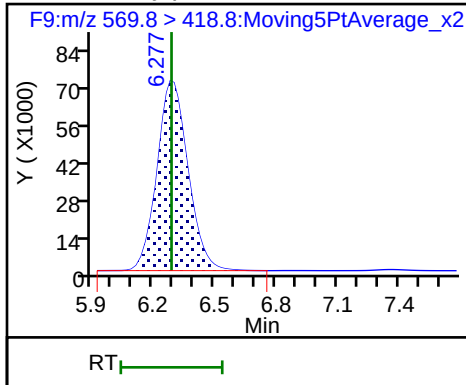
D 27 d3-NMeFOSAA



28 N-methylperfluorooctanesulfonamid

D 29 d5-NEtFOSAA

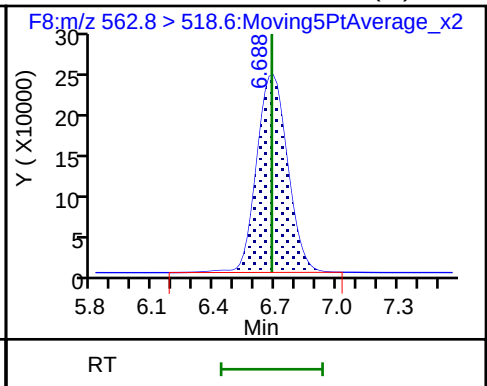
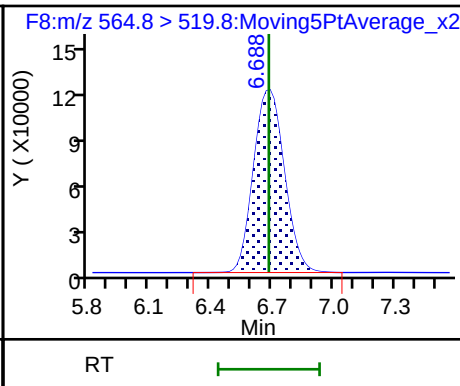
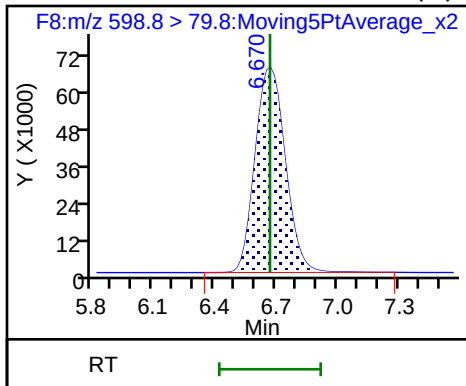
30 N-ethylperfluorooctanesulfonamidoa



31 Perfluorodecanesulfonic acid (M)

D 32 13C2 PFUnA

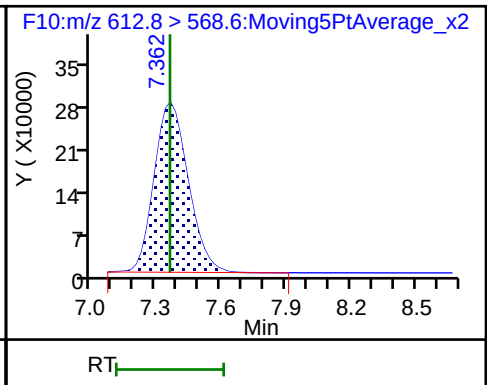
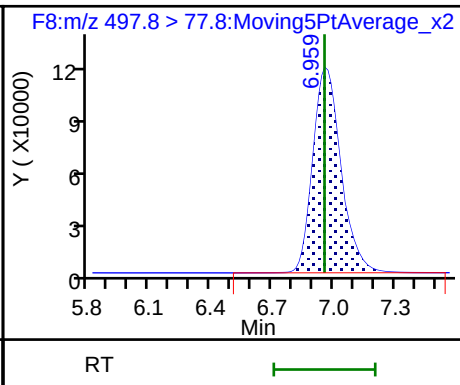
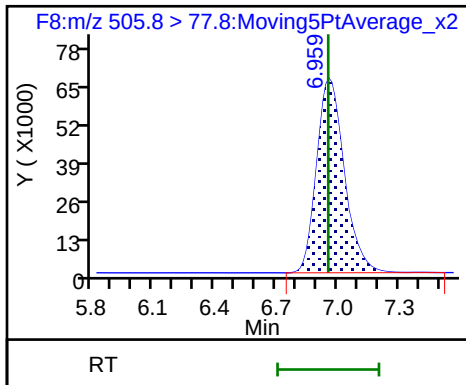
33 Perfluoroundecanoic acid (M)



D 35 13C8 FOSA

34 Perfluorooctanesulfonamide

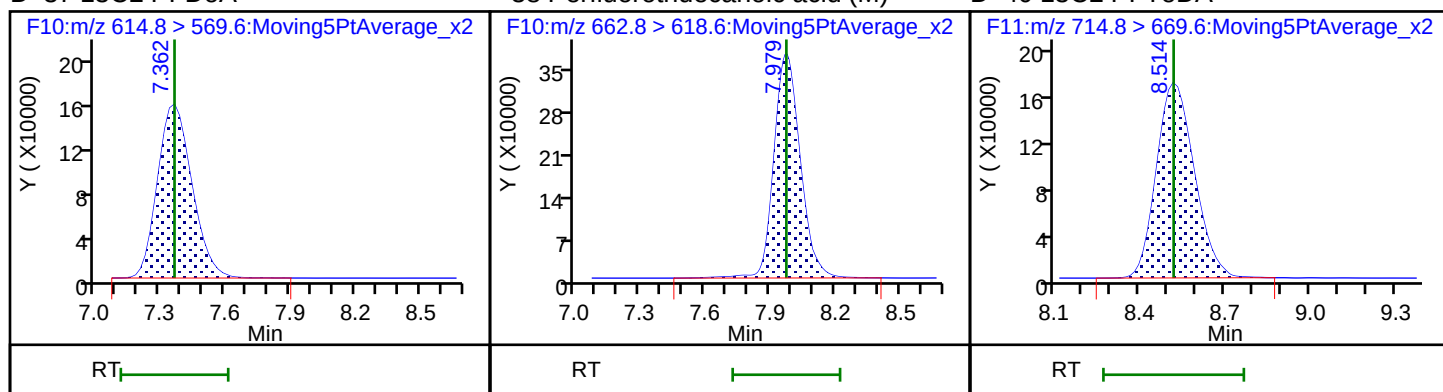
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (M)

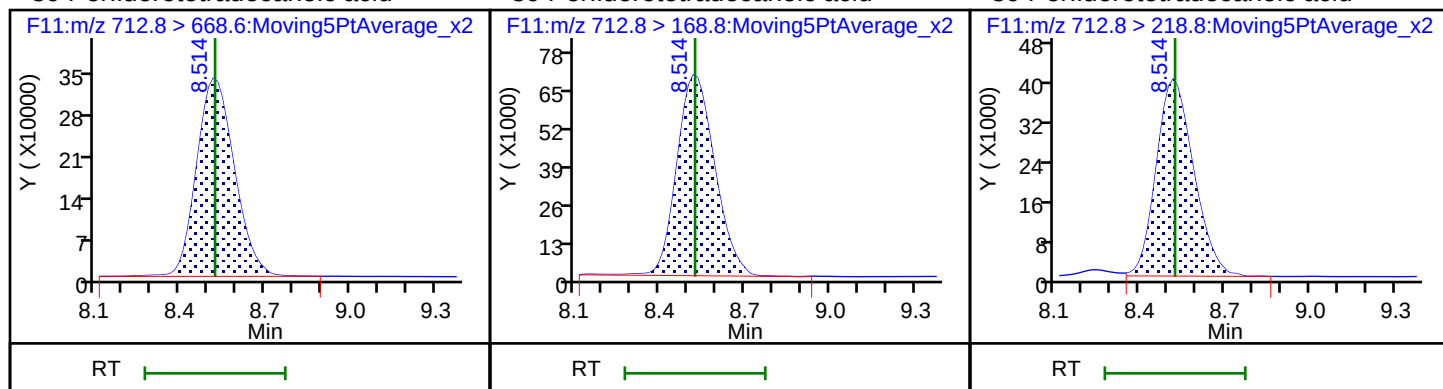
D 40 13C2 PFTeDA



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid



TestAmerica Burlington

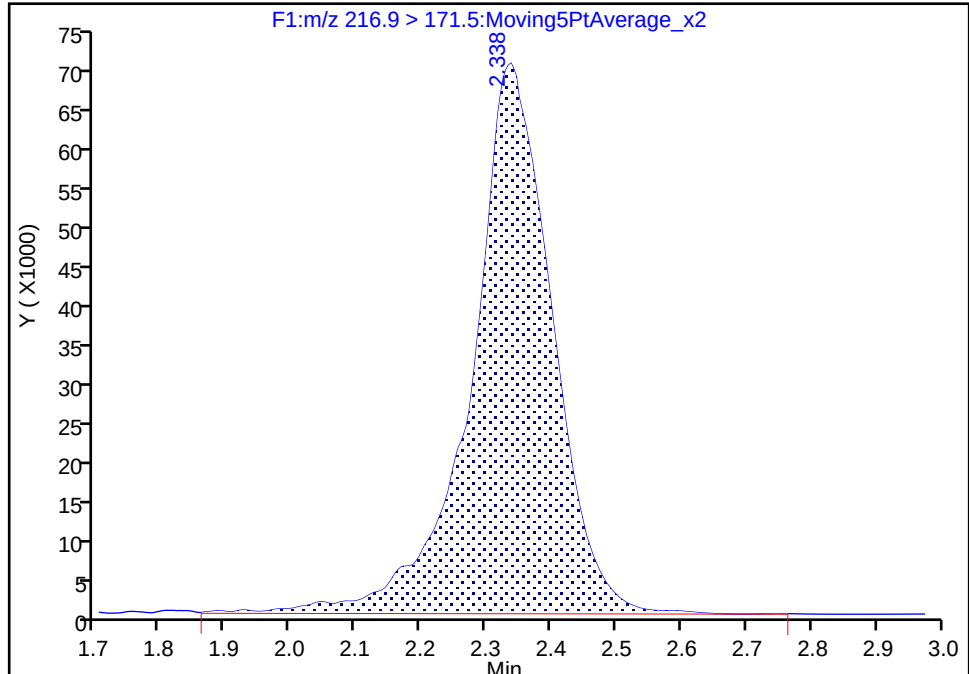
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Injection Date: 17-Oct-2018 15:11:38 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

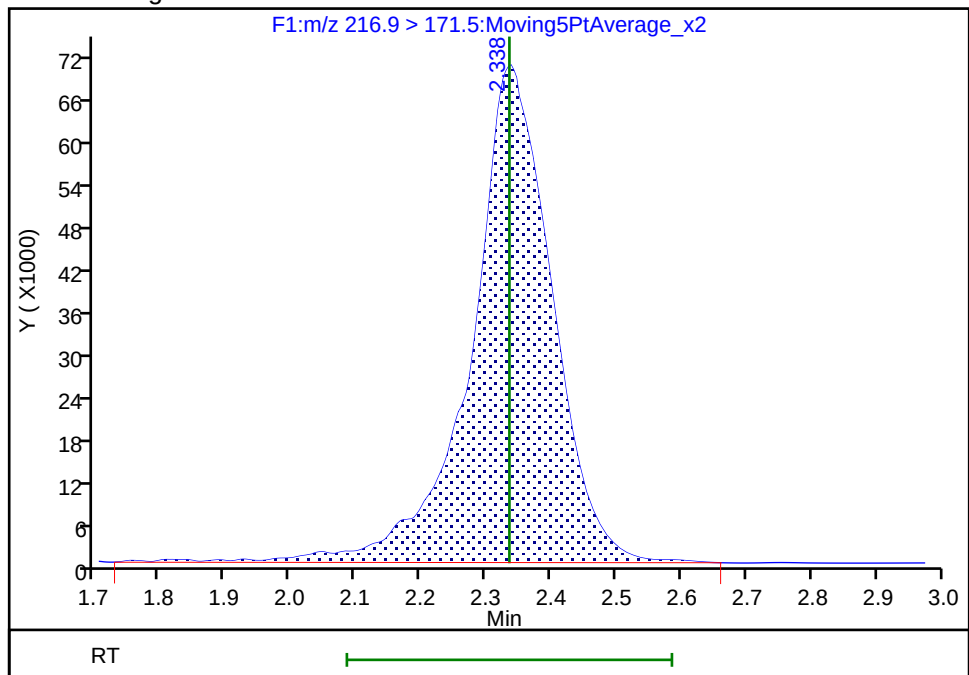
RT: 2.34
Area: 612893
Amount: 53.597743
Amount Units: ng/ml

Processing Integration Results



RT: 2.34
Area: 613765
Amount: 53.664906
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:12:24

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

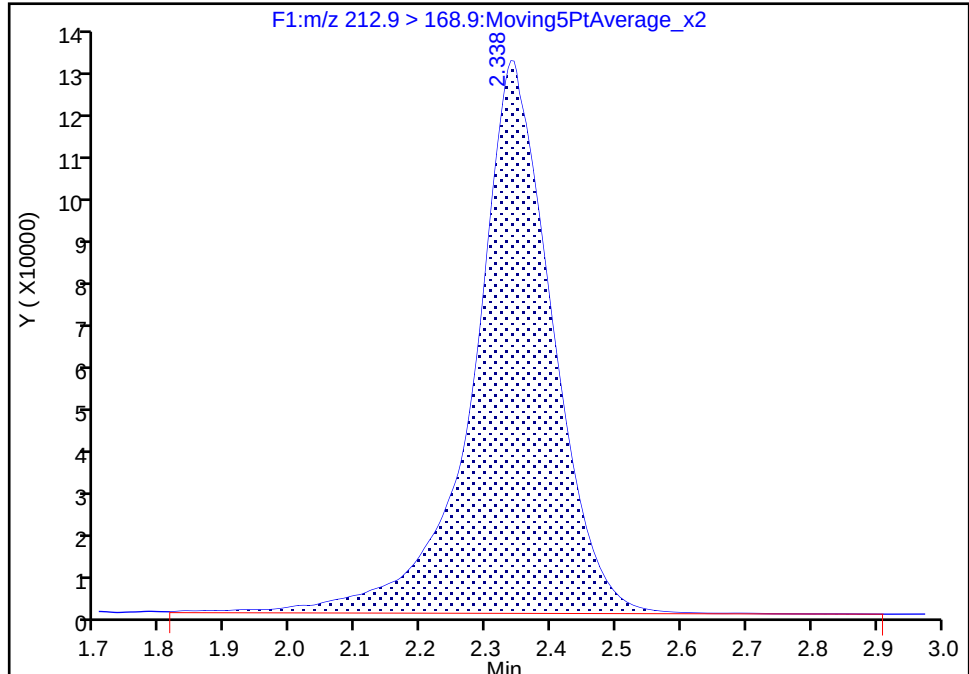
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A13.d
Injection Date: 17-Oct-2018 15:11:38 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

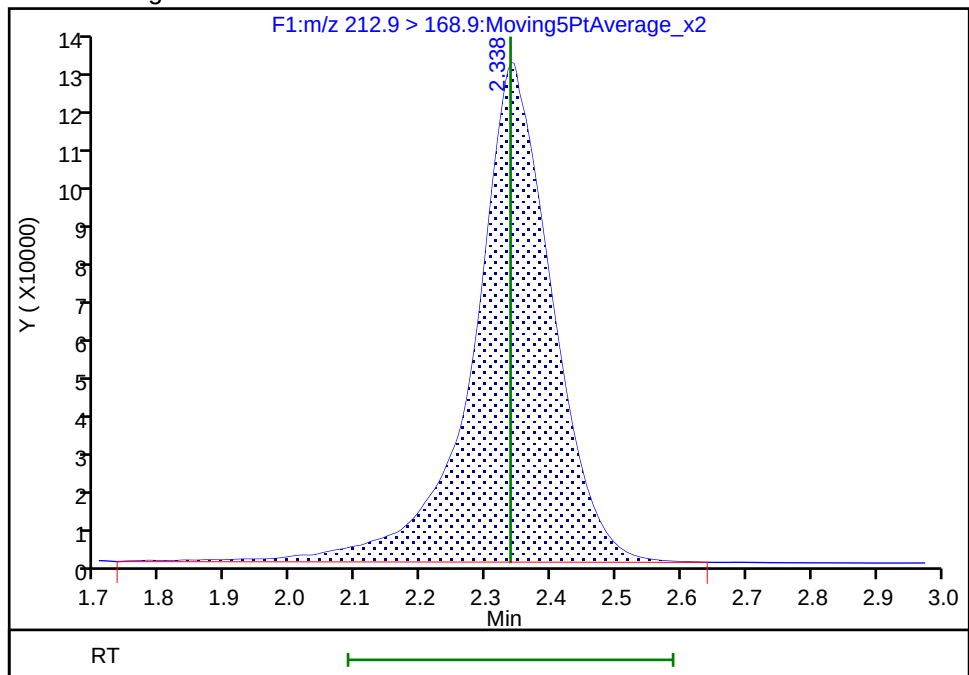
RT: 2.34
Area: 1049717
Amount: 100.9229
Amount Units: ng/ml

Processing Integration Results



RT: 2.34
Area: 1047755
Amount: 100.5510
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:12:28

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A13.d

Injection Date: 17-Oct-2018 15:11:38

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 13

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

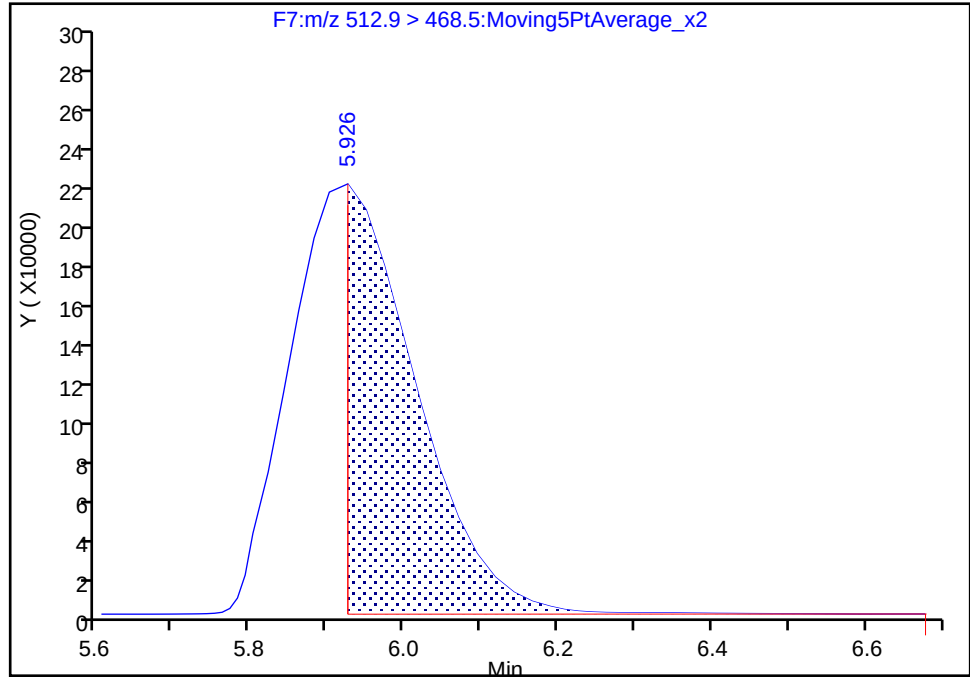
Detector F7:MRM

25 Perfluorodecanoic acid, CAS: 335-76-2

Signal: 1

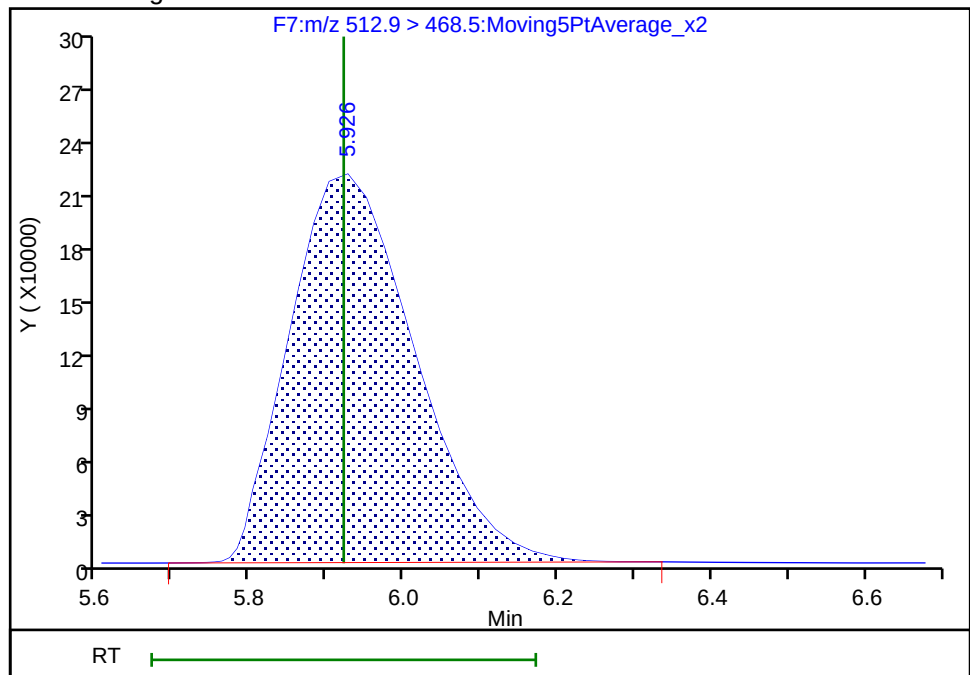
RT: 5.93
Area: 1351468
Amount: 57.310548
Amount Units: ng/ml

Processing Integration Results



RT: 5.93
Area: 2460309
Amount: 99.151900
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:12:44

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A13.d

Injection Date: 17-Oct-2018 15:11:38

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 13

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

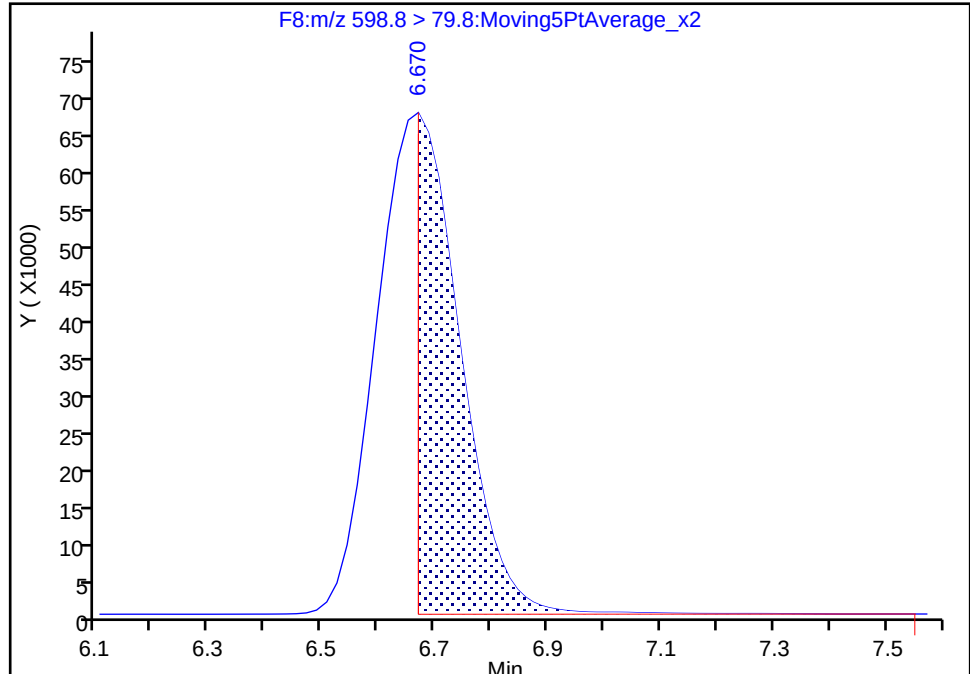
Detector F8:MRM

31 Perfluorodecanesulfonic acid, CAS: 335-77-3

Signal: 1

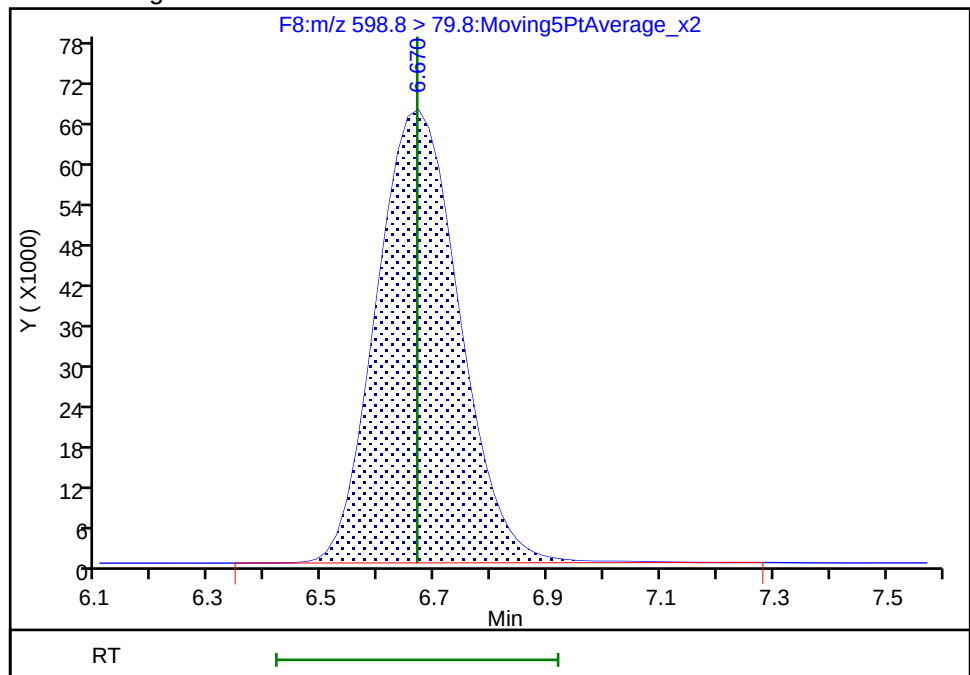
RT: 6.67
Area: 350895
Amount: 53.563898
Amount Units: ng/ml

Processing Integration Results



RT: 6.67
Area: 688953
Amount: 99.465091
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:12:50

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

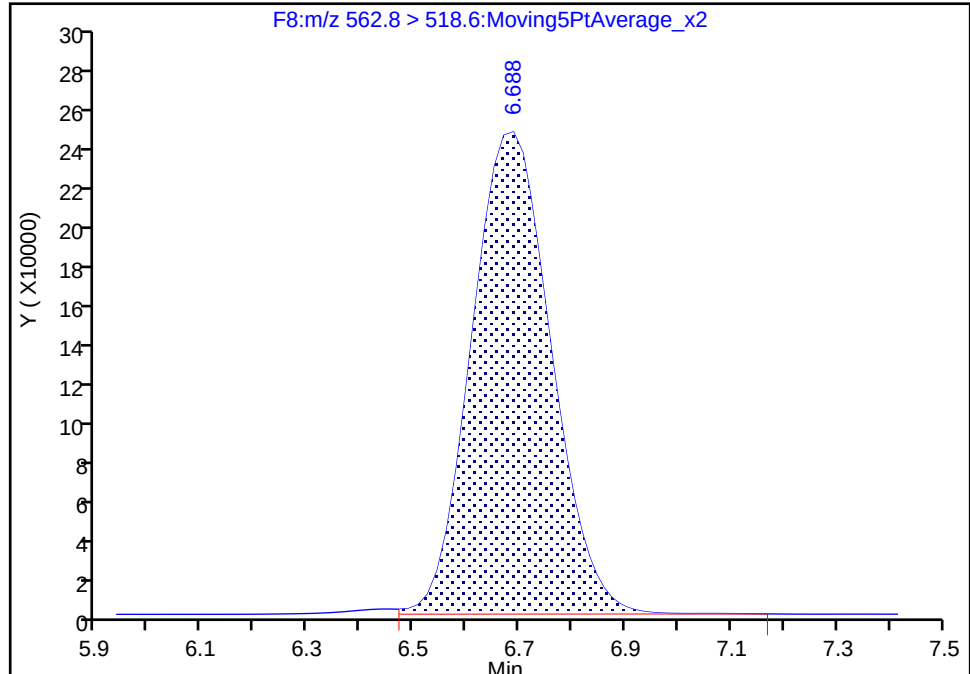
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A13.d
Injection Date: 17-Oct-2018 15:11:38 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F8:MRM

33 Perfluoroundecanoic acid, CAS: 2058-94-8

Signal: 1

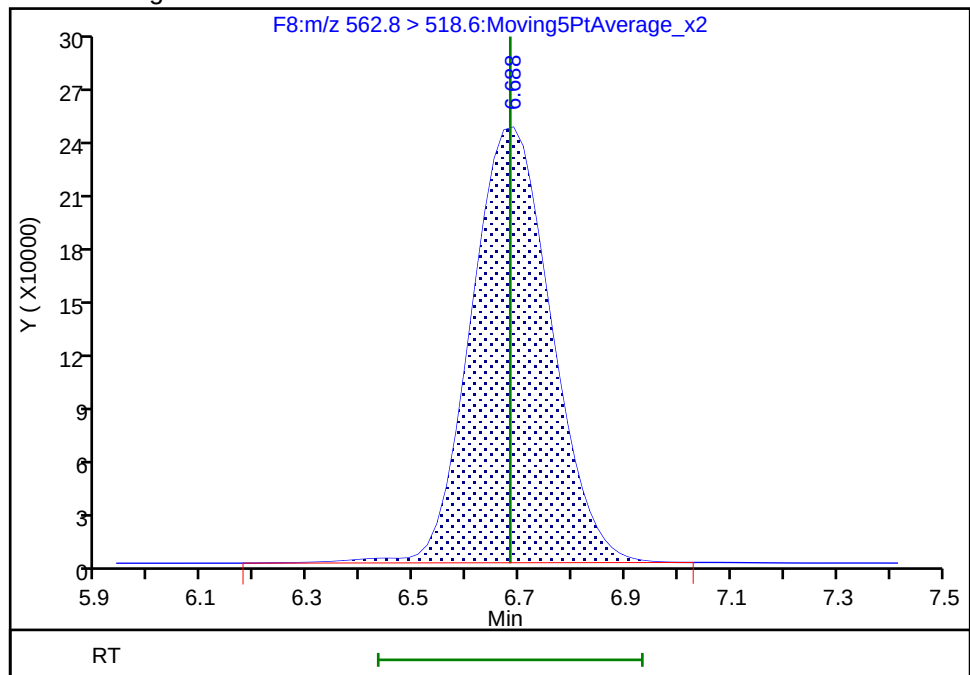
RT: 6.69
Area: 2582819
Amount: 97.254463
Amount Units: ng/ml

Processing Integration Results



RT: 6.69
Area: 2593532
Amount: 98.098825
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:12:55
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

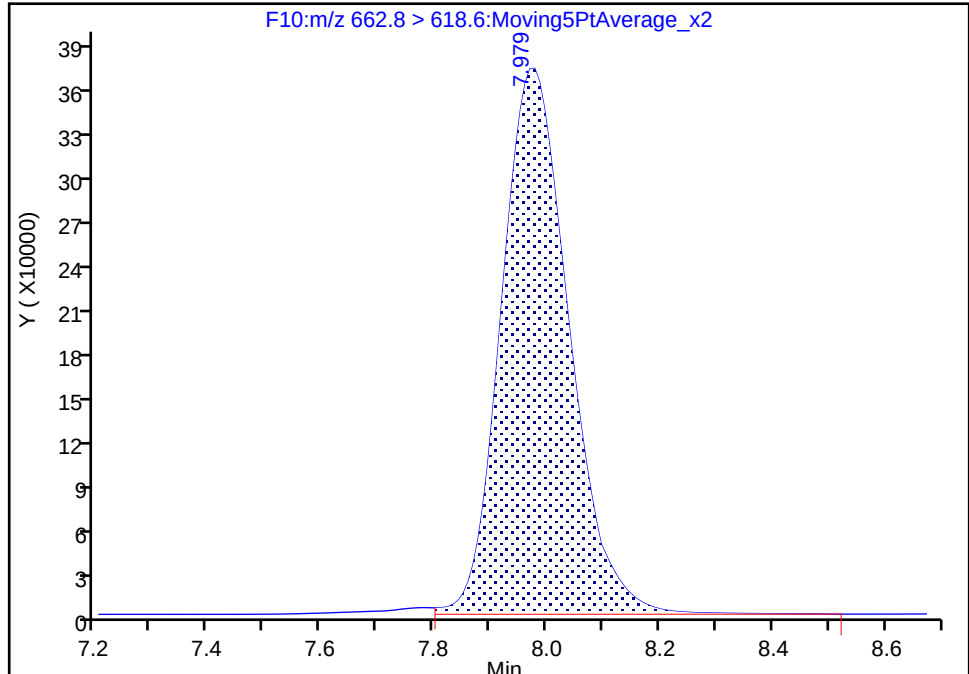
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A13.d
Injection Date: 17-Oct-2018 15:11:38 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F10:MRM

38 Perfluorotridecanoic acid, CAS: 72629-94-8

Signal: 1

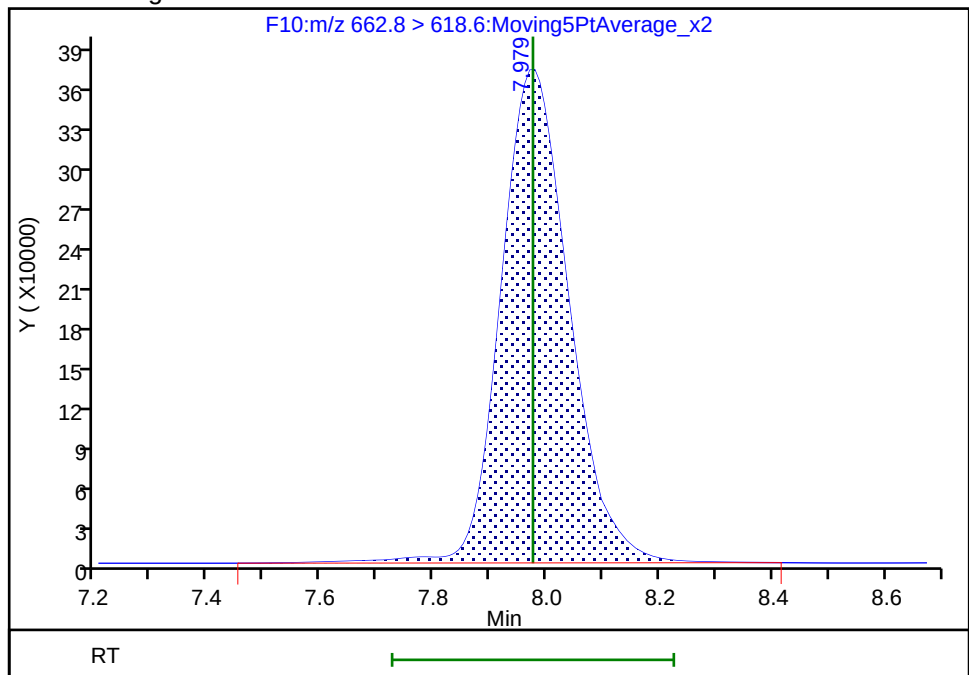
RT: 7.98
Area: 3125897
Amount: 100.4067
Amount Units: ng/ml

Processing Integration Results



RT: 7.98
Area: 3150003
Amount: 101.0299
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:13:01
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
Page 350 of 586

01/17/2019

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Lims ID: IC
 Client ID:
 Sample Type: IC Calib Level: 9
 Inject. Date: 17-Oct-2018 15:27:36 ALS Bottle#: 0 Worklist Smp#: 14
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0032684-014 IC 9
 Misc. Info.: PFAS21 101718A ICAL
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 17-Oct-2018 16:38:37 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: XAWRK002

First Level Reviewer: chirgwinb

Date: 17-Oct-2018 16:14:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
216.9 > 171.5	2.334	2.336	-0.002	1.000	567698	56.9		114	237	
2 Perfluorobutanoic acid										
212.9 > 168.9	2.338	2.338	0.0	1.002	1927671	200.2		100	787	
D 3 13C5 PFPeA										
267.7 > 222.6	2.760	2.754	0.006	1.000	333076	52.6		105	1252	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.750	2.754	-0.004	0.996	3810569	200.9		100	6878	
D 6 13C3 PFBS										M
302.0 > 79.8	2.818	2.814	0.004	1.000	259525	49.7		107	304	M
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.818	2.820	-0.002	1.000	2049258	210.4		105	49093	
D 7 13C2 PFHxA										
314.8 > 269.6	3.177	3.172	0.005	1.000	558939	49.0		98.0	1740	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.164	3.174	-0.010	0.996	2467003	212.7		106	4718	
D 9 13C4 PFHpA										
366.9 > 321.8	3.692	3.702	-0.010	1.000	1010258	48.4		96.8	349	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.703	3.705	-0.002	1.003	4235283	214.4		107	322	
D 11 18O2 PFHxS										
402.9 > 83.8	3.748	3.747	0.001	1.000	314147	52.0		110	465	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.748	3.749	-0.001	1.000	2051663	202.8		101	34920	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.317	4.325	-0.008	1.000	127432	68.4		144	885	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.330	4.330	0.0	1.003	422543	163.8		81.9	6497	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.355	4.370	-0.015	1.000	809948	50.8		102	1160	
16 Perfluorooctanoic acid										M
412.9 > 368.8	4.374	4.374	0.0	1.004	3197469	199.4		99.7	1643	M
* 15 13C2 PFOA										
414.9 > 369.8	4.374	4.374	0.0		849547	50.0			4870	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.411	4.412	-0.001	0.854	1118747	208.3		104	1067	
D 20 13C5 PFNA										
467.8 > 422.8	5.140	5.140	0.0	1.000	1071206	49.8		99.6	708	
19 Perfluorononanoic acid										
462.8 > 418.8	5.140	5.142	-0.002	1.000	4567285	193.9		97.0	64334	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.154	5.160	-0.006	0.997	1356719	233.3		117	10716	
D 22 13C4 PFOS										
502.8 > 79.8	5.168	5.161	0.007	1.000	268942	50.3		105	1054	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.882	5.891	-0.009	1.000	288539	57.2		119	897	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.882	5.896	-0.014	1.000	854174	175.8		87.9	4652	
D 26 13C2 PFDA										
514.9 > 469.5	5.902	5.918	-0.016	1.000	1045034	47.1		94.3	1860	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.926	5.921	0.005	1.004	4318588	204.7		102	775	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.277	6.275	0.002	1.000	360409	63.6		127	1215	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.277	6.283	-0.006	1.000	1527415	195.1		97.6	1148	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.634	6.638	-0.004	1.000	254374	52.9		106	1730	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.652	6.654	-0.002	1.003	965610	197.2		98.6	2707	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.670	6.668	0.002	1.291	1219877	207.3		104	12815	
D 32 13C2 PFUnA										
564.8 > 519.8	6.670	6.682	-0.012	1.000	1088312	47.2		94.3	2245	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.688	6.682	0.006	1.003	4519201	202.4		101	3007	
D 35 13C8 FOSA										
505.8 > 77.8	6.959	6.955	0.004	1.000	584014	56.7		113	5978	
34 Perfluorooctanesulfonamide										M
497.8 > 77.8	6.959	6.957	0.002	1.000	2045786	207.0		103	3392	M
36 Perfluorododecanoic acid										
612.8 > 568.6	7.362	7.359	0.003	1.000	5607453	195.3		97.7	3864	
D 37 13C2 PFDoA										
614.8 > 569.6	7.362	7.362	0.0	1.000	1671991	57.3		115	1771	
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.970	7.975	-0.005	0.936	5890696	194.3		97.2	3132	

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 40 13C2 PFTeDA										
714.8 > 669.6	8.514	8.516	-0.002	1.000	1526788	57.0		114	760	
39 Perfluorotetradecanoic acid										
712.8 > 668.6	8.514	8.521	-0.007	1.000	5895673	198.1		99.0	4755	
712.8 > 168.8	8.514	8.521	-0.007	1.000	1217053		4.84(0.00-0.00)	99.0	428	
712.8 > 218.8	8.514	8.521	-0.007	1.000	696621		8.46(0.00-0.00)	99.0	139	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L6_00003

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\ChromNA\\Burlington\\ChromData\\LC410\\20181017-32684.b\\PF101718A14.d

Injection Date: 17-Oct-2018 15:27:36

Instrument ID: LC410

Lims ID: IC

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 14

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

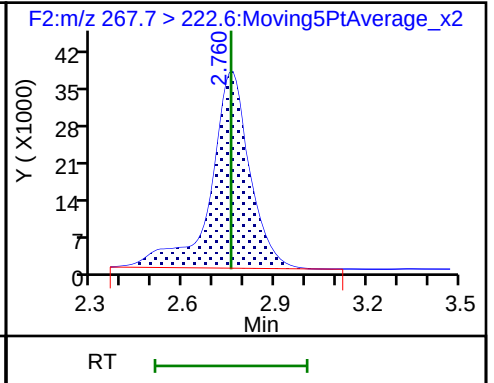
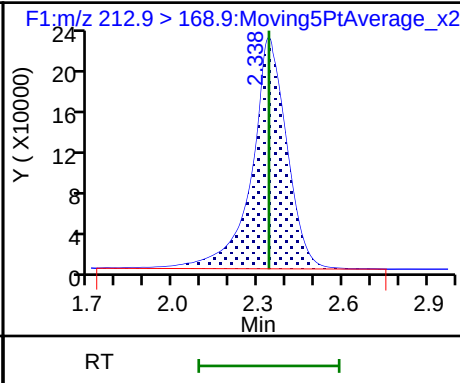
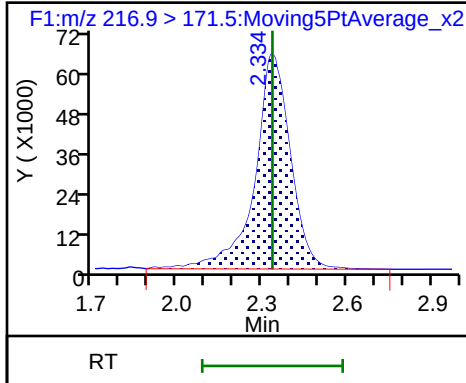
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

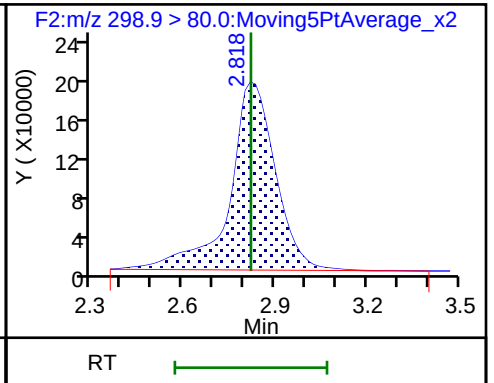
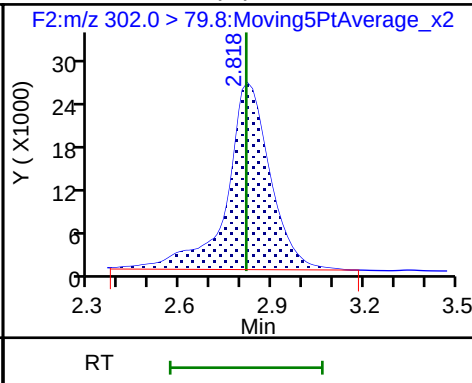
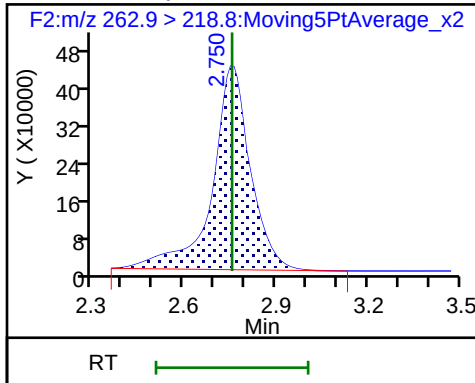
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 6 13C3 PFBS (M)

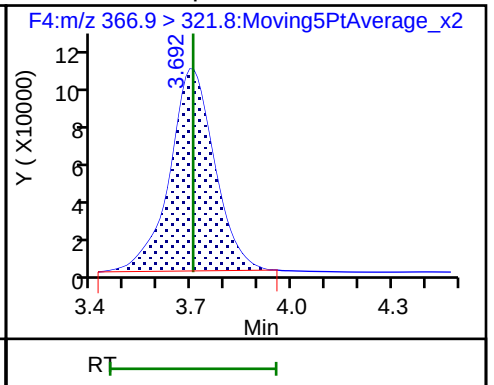
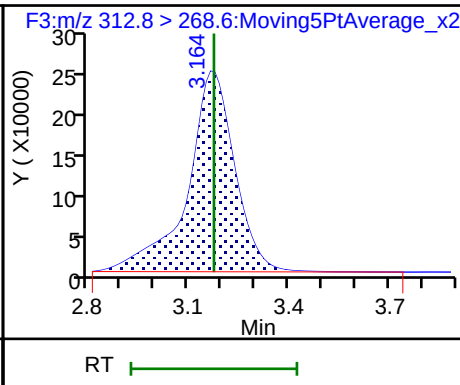
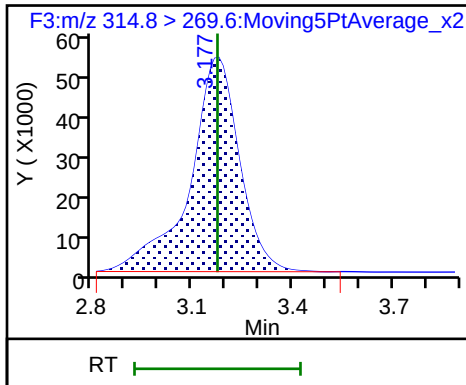
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

8 Perfluorohexanoic acid

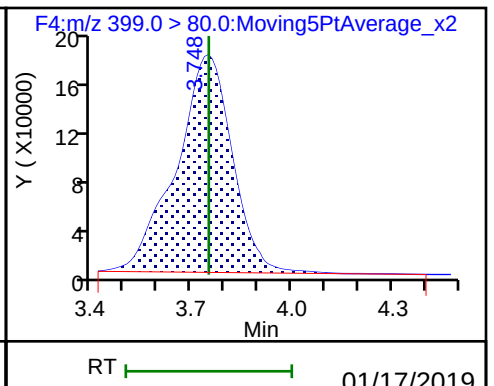
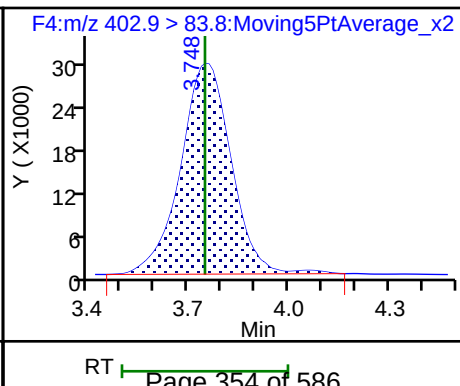
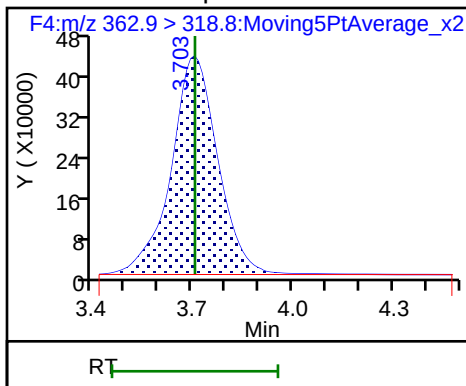
D 9 13C4 PFHpA



10 Perfluoroheptanoic acid

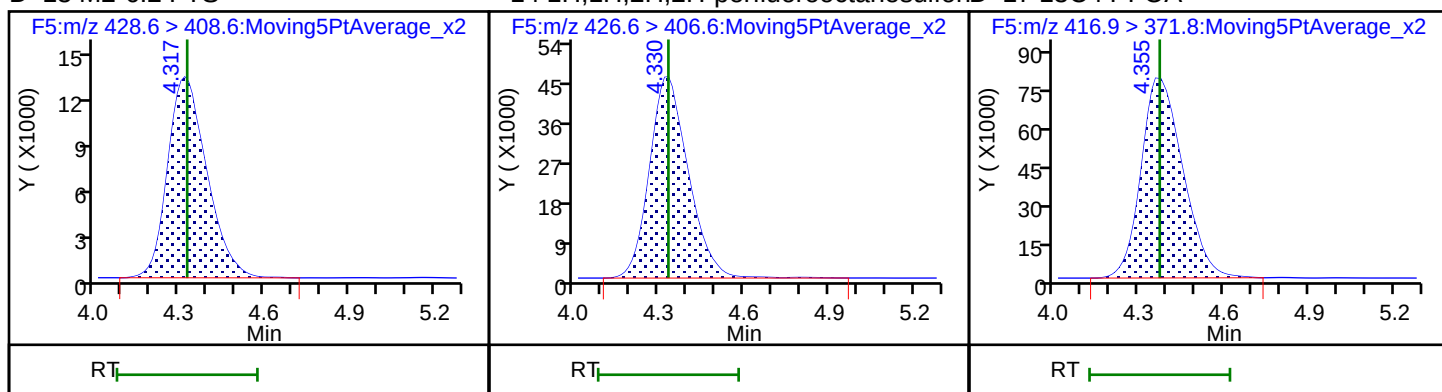
D 11 18O2 PFHxS

12 Perfluorohexanesulfonic acid



D 13 M2-6:2 FTS

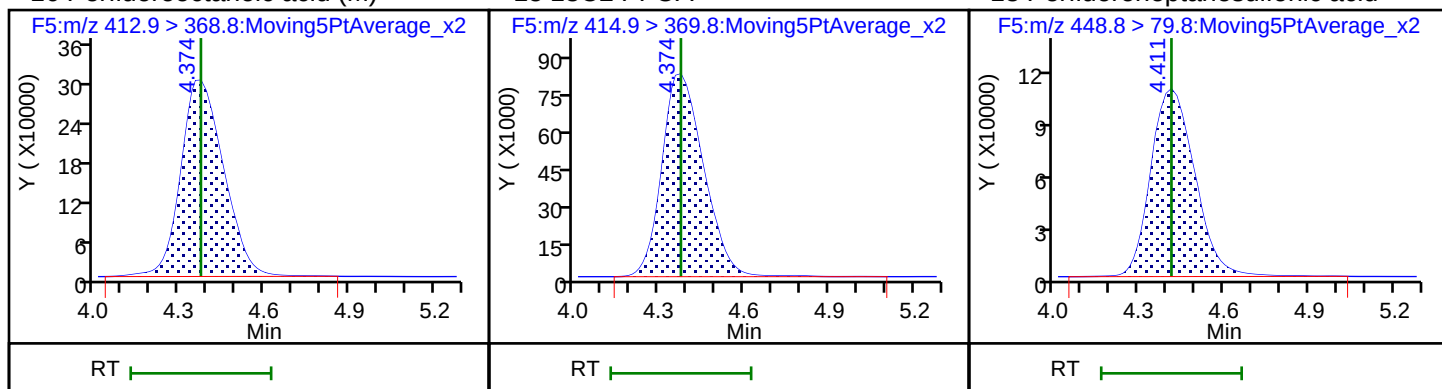
14 1H,1H,2H,2H-perfluorooctanesulfonD 17 13C4 PFOA



16 Perfluorooctanoic acid (M)

* 15 13C2 PFOA

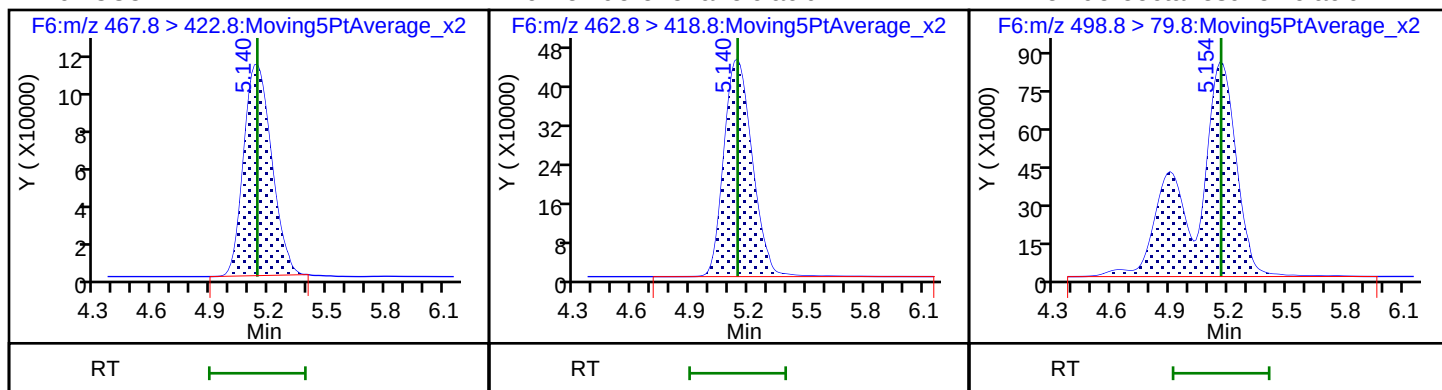
18 Perfluoroheptanesulfonic acid



D 20 13C5 PFNA

19 Perfluorononanoic acid

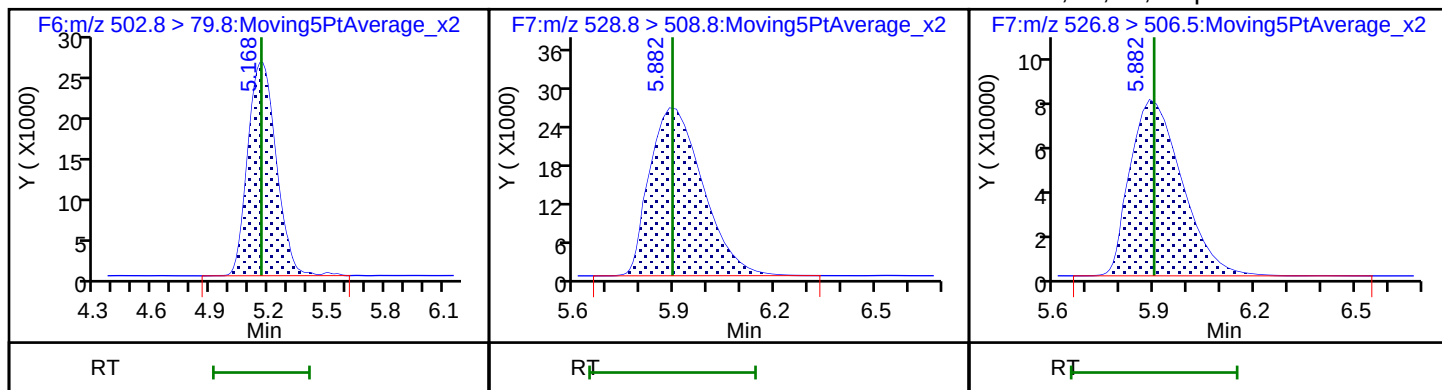
21 Perfluorooctanesulfonic acid



D 22 13C4 PFOS

D 24 M2-8:2 FTS

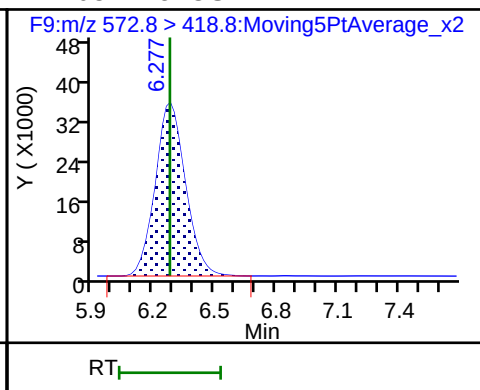
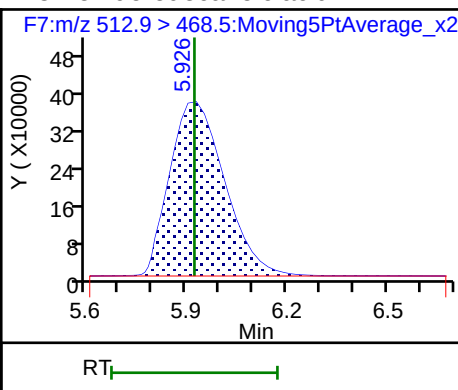
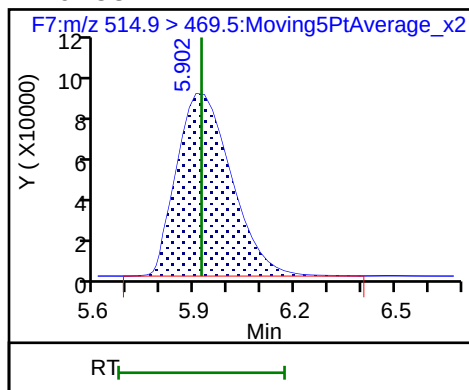
23 1H,1H,2H,2H-perfluorodecanesulfoni



D 26 13C2 PFDA

25 Perfluorodecanoic acid

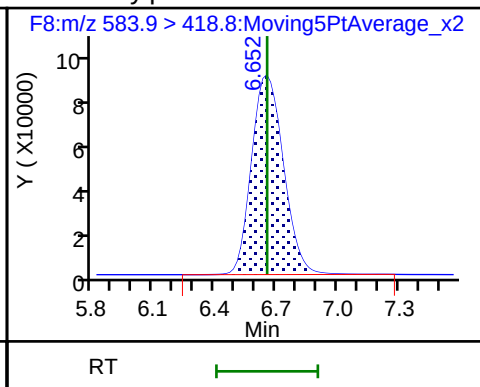
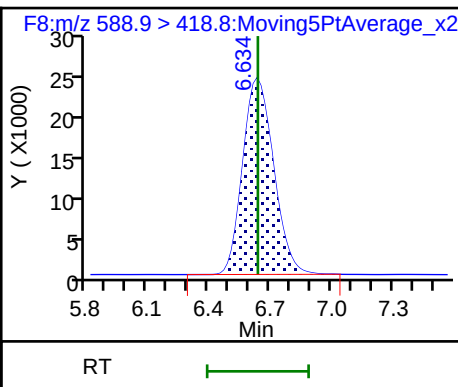
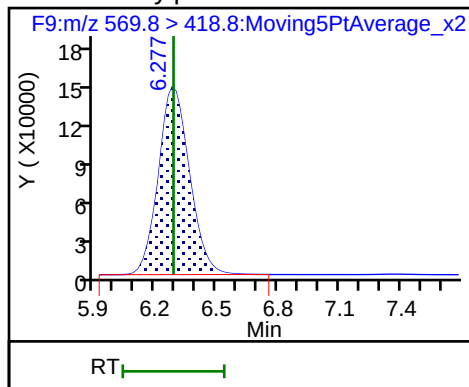
D 27 d3-NMeFOSAA



28 N-methylperfluorooctanesulfonamid

D 29 d5-NEtFOSAA

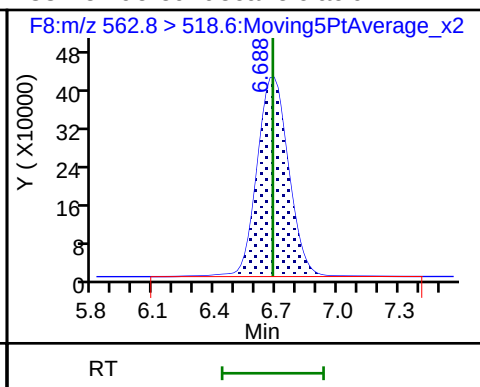
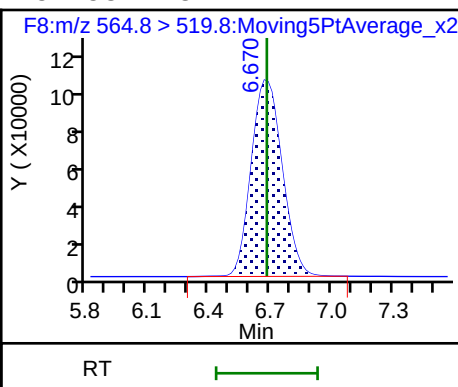
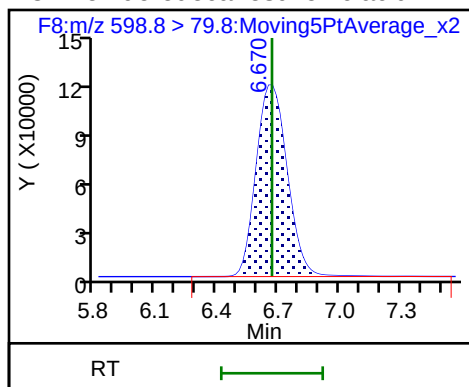
30 N-ethylperfluorooctanesulfonamidoa



31 Perfluorodecanesulfonic acid

D 32 13C2 PFUnA

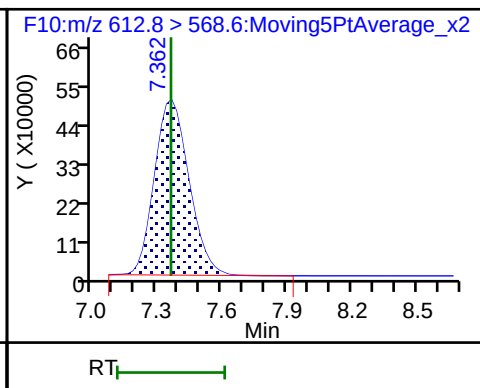
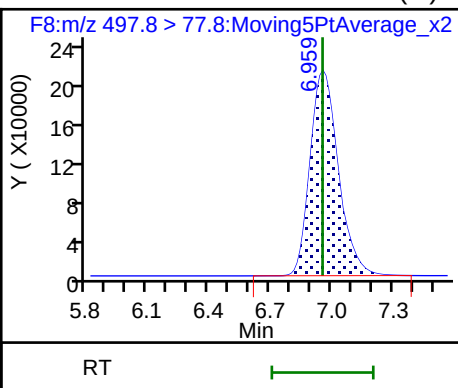
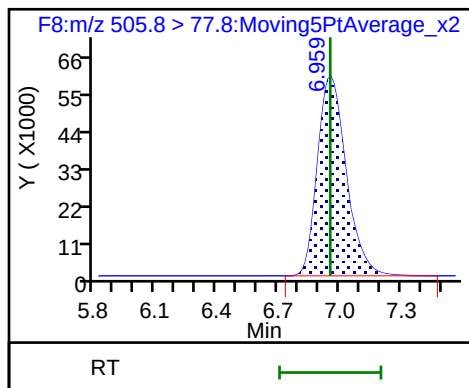
33 Perfluoroundecanoic acid



D 35 13C8 FOSA

34 Perfluorooctanesulfonamide (M)

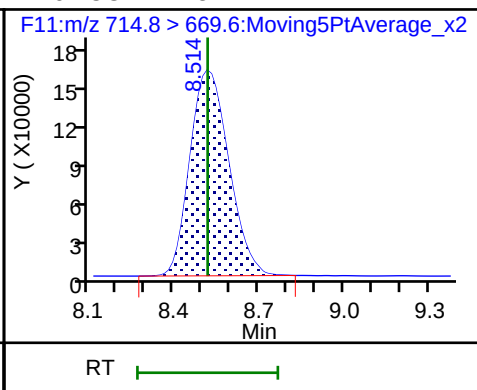
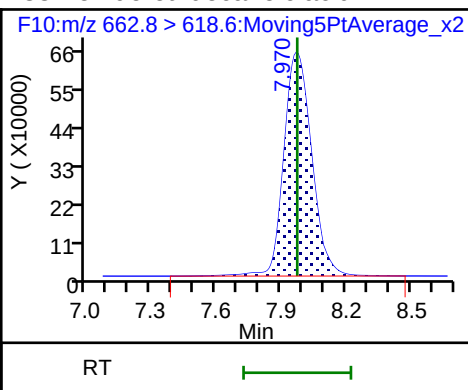
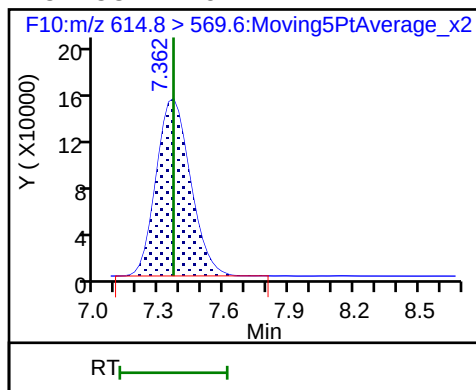
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

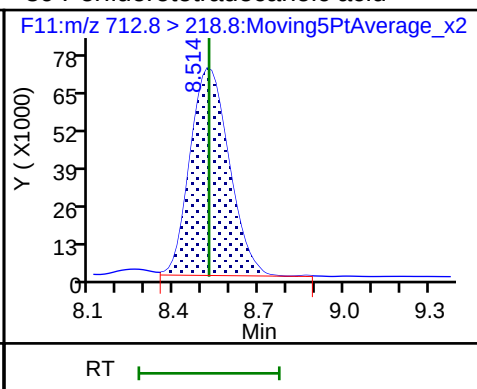
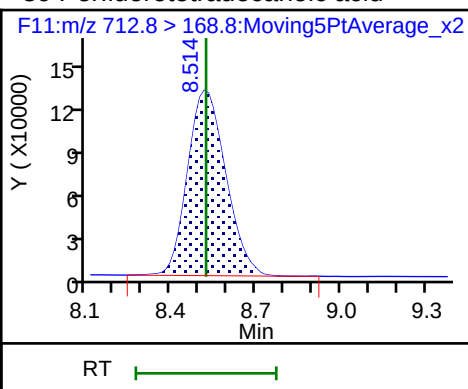
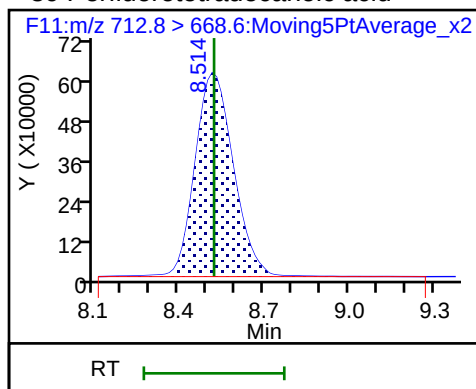
D 40 13C2 PFTeDA



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid



TestAmerica Burlington

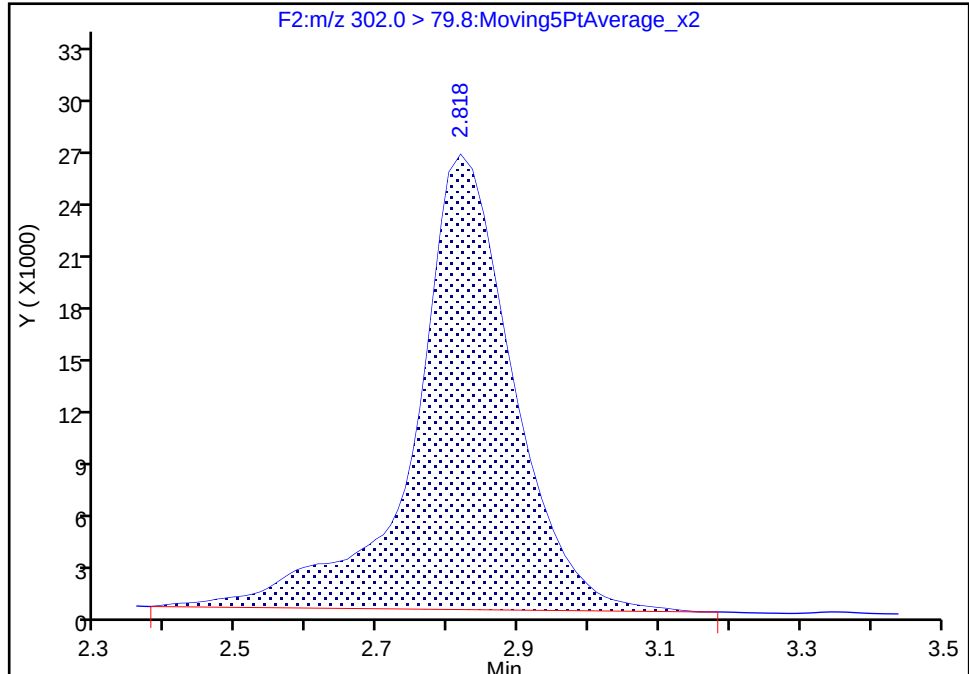
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
Injection Date: 17-Oct-2018 15:27:36 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

D 6 13C3 PFBS, CAS: STL02337

Signal: 1

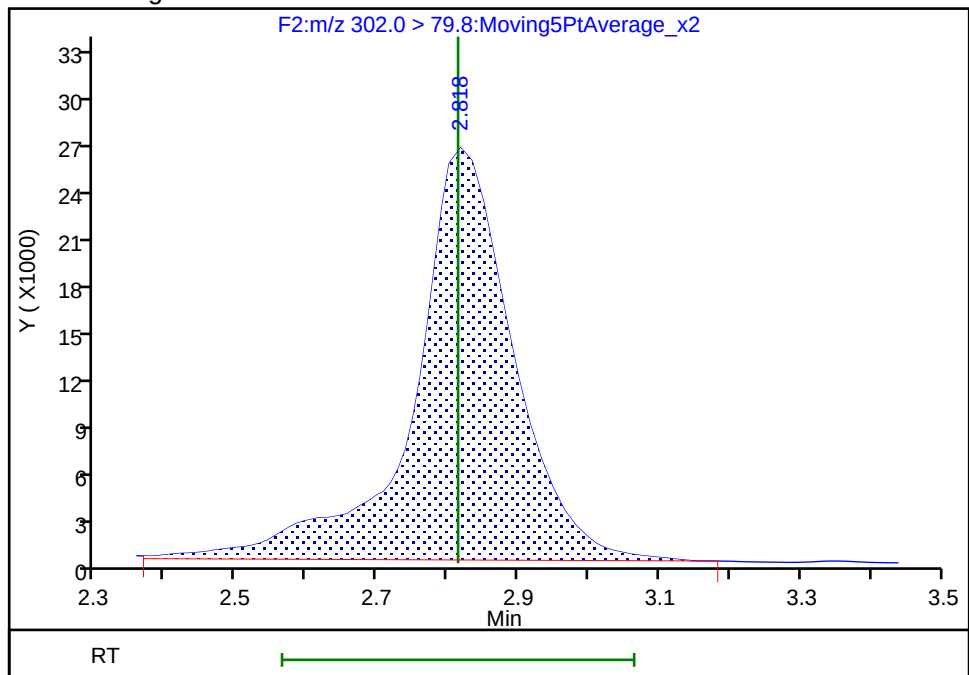
RT: 2.82
Area: 255926
Amount: 49.071183
Amount Units: ng/ml

Processing Integration Results



RT: 2.82
Area: 259525
Amount: 49.679338
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:14:15
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
Page 358 of 586

01/17/2019

TestAmerica Burlington

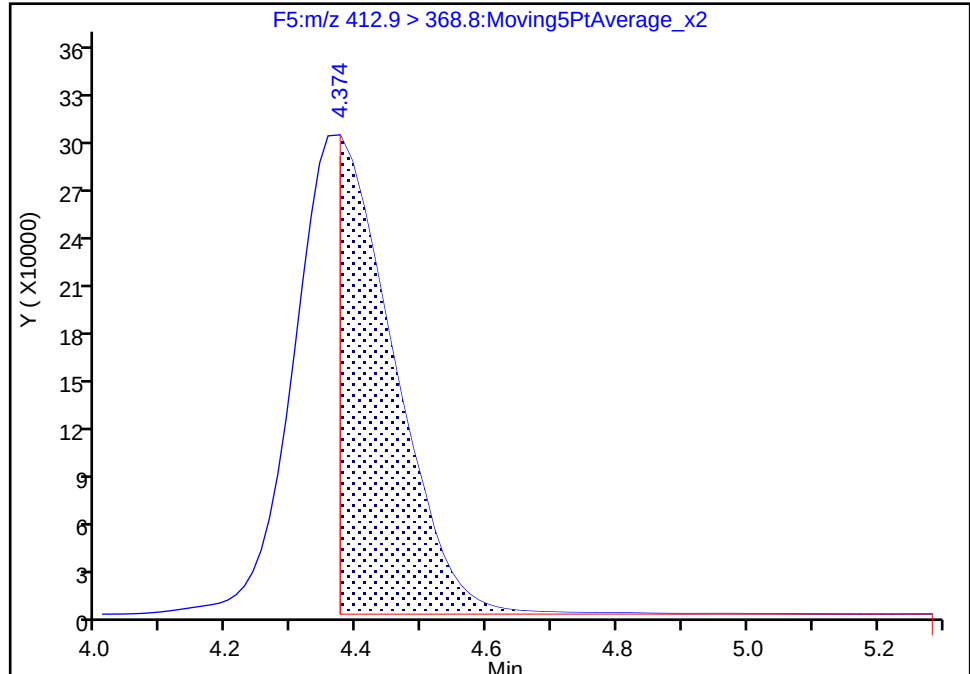
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
Injection Date: 17-Oct-2018 15:27:36 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F5:MRM

16 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

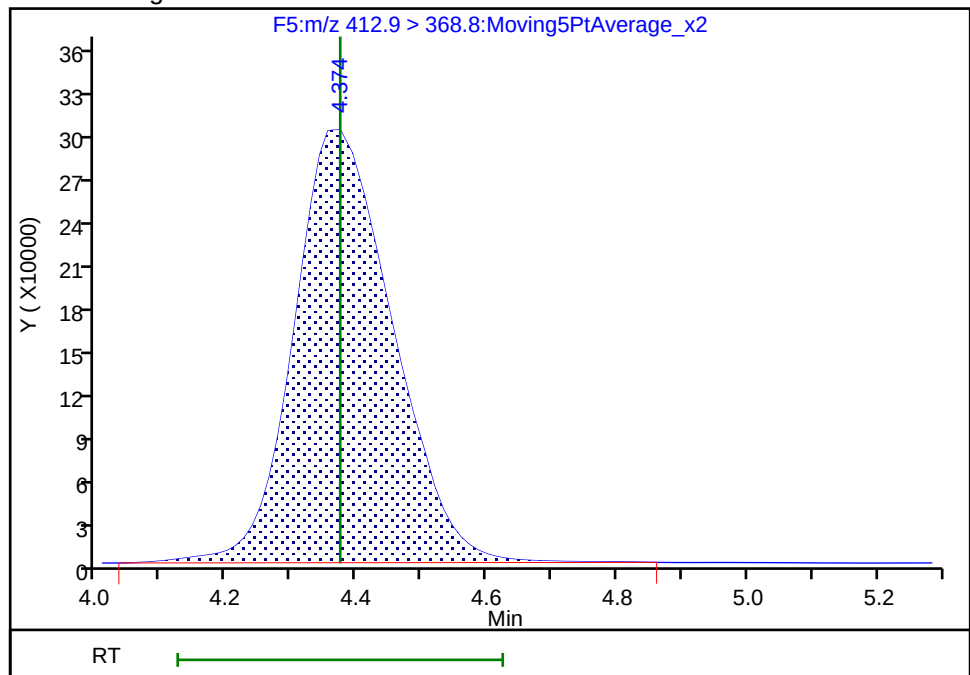
RT: 4.37
Area: 1732445
Amount: 113.8144
Amount Units: ng/ml

Processing Integration Results



RT: 4.37
Area: 3197469
Amount: 199.3985
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:14:27

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

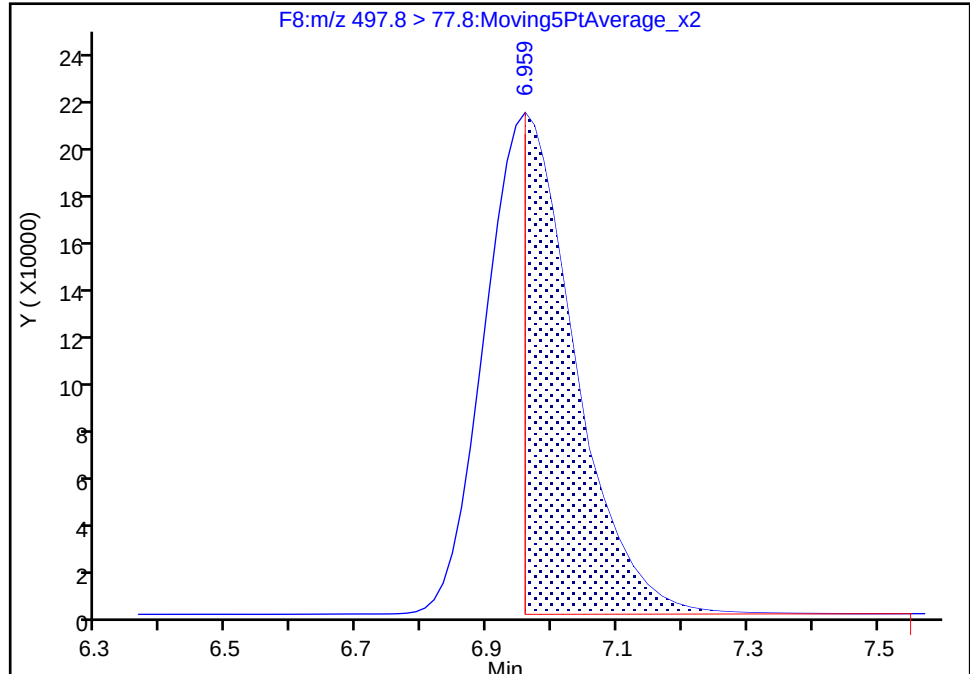
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Injection Date: 17-Oct-2018 15:27:36 Instrument ID: LC410
Lims ID: IC
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 14
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F8:MRM

34 Perfluorooctanesulfonamide, CAS: 754-91-6

Signal: 1

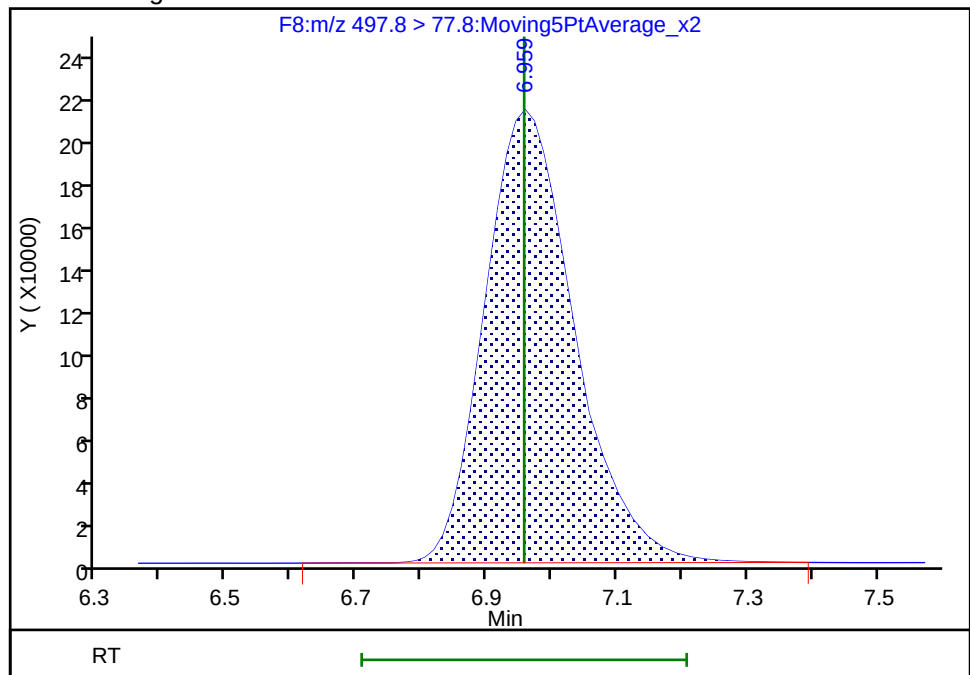
RT: 6.96
Area: 1141841
Amount: 121.7146
Amount Units: ng/ml

Processing Integration Results



RT: 6.96
Area: 2045786
Amount: 206.9903
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:14:42
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Lab Sample ID: ICV 200-135376/16 Calibration Date: 10/17/2018 15:59

Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20

GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27

Lab File ID: PF101718A16.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	L1ID		0.8001		18700	20000	-6.5	40.0
Perfluoropentanoic acid (PFPeA)	AveID	2.848	2.328		16400	20000	-18.2	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.745	1.567		15900	17700	-10.2	40.0
Perfluorohexanoic acid (PFHxA)	AveID	1.038	0.9012		17400	20000	-13.1	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9775	0.9499		19400	20000	-2.8	40.0
Perfluorohexanesulfonic acid (PFHxS)	L1ID		1.348		15900	18200	-12.7	40.0
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	AveID	0.9845	0.9456		18200	19000	-4.0	40.0
Perfluorooctanoic acid (PFOA)	AveID	0.9899	0.9252		18700	20000	-6.5	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	0.9547	0.8618		17100	19000	-9.7	50.0
Perfluorononanoic acid (PFNA)	AveID	1.099	0.8530		15500	20000	-22.4	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.034	1.047		18700	18500	1.3	40.0
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	AveID	0.8068	0.7391		17600	19200	-8.4	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.009	0.8931		17700	20000	-11.5	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.086	0.9801		18100	20000	-9.7	40.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9627	0.9103		18900	20000	-5.4	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	1.046	0.9384		17300	19300	-10.3	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.026	0.9439		18400	20000	-8.0	40.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.8462	0.8302		19600	20000	-1.9	40.0
Perfluorododecanoic acid (PFDoA)	AveID	0.8584	0.8355		19500	20000	-2.7	40.0
Perfluorotridecanoic acid (PFTrIA)	AveID	0.9775	0.9662		19800	20000	-1.2	540.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.9748	0.8246		16900	20000	-15.4	40.0
13C4 PFBA	Ave	0.5875	0.7063		60100	50000	20.2	50.0
13C5 PFPeA	Ave	0.3725	0.4748		63700	50000	27.5	50.0
13C3 PFBS	Ave	0.3075	0.3652		55200	46500	18.8	50.0
13C2 PFHxA	Ave	0.6710	0.7948		59200	50000	18.4	50.0
13C4 PFHpA	Ave	1.229	1.396		56800	50000	13.6	50.0
18O2 PFHxS	Ave	0.3555	0.4094		54500	47300	15.2	50.0
M2-6:2 FTS	Ave	0.1097	0.1339		58000	47500	22.1	50.0
13C4 PFOA	Ave	0.9383	1.093		58300	50000	16.5	50.0
13C5 PFNA	Ave	1.265	1.413		55800	50000	11.7	50.0
13C4 PFOS	Ave	0.3148	0.3626		55100	47800	15.2	50.0
M2-8:2 FTS	Ave	0.2971	0.3388		54600	47900	14.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Lab Sample ID: ICV 200-135376/16 Calibration Date: 10/17/2018 15:59
 Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20
 GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27
 Lab File ID: PF101718A16.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C2 PFDA	Ave	1.305	1.465		56100	50000	12.3	50.0
d3-NMeFOSAA	Ave	0.3333	0.3876		58200	50000	16.3	50.0
d5-NEtFOSAA	Ave	0.2828	0.3191		56400	50000	12.8	50.0
13C2 PFUnA	Ave	1.358	1.605		59100	50000	18.2	50.0
13C8 FOSA	Ave	0.6063	0.6836		56400	50000	12.8	50.0
13C2 PFDoA	Ave	1.718	1.970		57300	50000	14.6	50.0
13C2 PFTeDA	Ave	1.577	1.776		56300	50000	12.6	50.0

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A16.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 17-Oct-2018 15:59:24 ALS Bottle#: 0 Worklist Smp#: 16
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0032684-016 ICV
 Misc. Info.: PFAS21 101718A ICAL
 Operator ID: BC Instrument ID: LC410
 Sublist:
 Method: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 17-Oct-2018 16:40:38 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last Ical File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: XAWRK002

First Level Reviewer: chirgwinb

Date: 17-Oct-2018 16:25:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
216.9 > 171.5	2.326	2.336	-0.010	1.000	721296	60.1		120	542	
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.334	2.338	-0.004	1.003	230841	18.7			519	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.750	2.754	-0.004	1.000	484841	63.7		127	5240	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.750	2.754	-0.004	1.000	451525	16.4			2479	
D 6 13C3 PFBS										
302.0 > 79.8	2.818	2.818	0.0	1.000	346885	55.2		119	1450	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.818	2.820	-0.002	1.000	206971	15.9			436	
D 7 13C2 PFHxA										
314.8 > 269.6	3.177	3.172	0.005	1.000	811722	59.2		118	4345	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.177	3.174	0.003	1.000	292595	17.4			2111	
D 9 13C4 PFHpA										
366.9 > 321.8	3.703	3.702	0.001	1.000	1425501	56.8		114	452	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.703	3.705	-0.002	1.000	541612	19.4			1351	
D 11 18O2 PFHxS										
402.9 > 83.8	3.748	3.747	0.001	1.000	395530	54.5		115	925	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.737	3.749	-0.012	0.997	205608	15.9			450	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.330	4.325	0.005	1.000	129922	58.0		122	1444	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.330	4.330	0.0	1.000	49144	18.2			1145	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.374	4.370	0.004	1.000	1116500	58.3		117	1029	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.374	4.374	0.0	1.000	413187	18.7			1355	
* 15 13C2 PFOA										
414.9 > 369.8	4.374	4.374	0.0		1021250	50.0			2336	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.412	4.412	0.0	0.856	121251	17.1			322	M
D 20 13C5 PFNA										
467.8 > 422.8	5.140	5.140	0.0	1.000	1443301	55.8		112	963	
19 Perfluorononanoic acid										
462.8 > 418.8	5.140	5.142	-0.002	1.000	492429	15.5			837	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.154	5.160	-0.006	1.000	143520	18.7			2815	
D 22 13C4 PFOS										
502.8 > 79.8	5.154	5.161	-0.007	1.000	353980	55.1		115	617	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.882	5.891	-0.009	1.000	331443	54.6		114	1537	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.882	5.896	-0.014	1.000	98191	17.6			688	
D 26 13C2 PFDA										
514.9 > 469.5	5.926	5.918	0.008	1.000	1496238	56.1		112	1801	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.926	5.921	0.005	1.000	534507	17.7			951	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.259	6.275	-0.016	1.000	395879	58.2		116	633	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.277	6.283	-0.006	1.003	155197	18.1			279	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.634	6.638	-0.004	1.000	325908	56.4		113	1388	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.652	6.654	-0.002	1.003	118672	18.9			1456	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.670	6.668	0.002	1.294	134124	17.3			1492	
D 32 13C2 PFUnA										
564.8 > 519.8	6.670	6.682	-0.012	1.000	1639572	59.1		118	1928	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.670	6.682	-0.012	1.000	619014	18.4			1239	
D 35 13C8 FOSA										
505.8 > 77.8	6.959	6.955	0.004	1.000	698170	56.4		113	3566	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.959	6.957	0.002	1.000	231851	19.6			2070	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.362	7.359	0.003	1.000	672384	19.5			2963	
D 37 13C2 PFDaA										
614.8 > 569.6	7.362	7.362	0.0	1.000	2011865	57.3		115	3857	
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.970	7.975	-0.005	0.936	700879	19.8			2440	

Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A16.d

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 40 13C2 PFTeDA										
714.8 > 669.6	8.514	8.516	-0.002	1.000	1813525	56.3		113	752	
39 Perfluorotetradecanoic acid										
712.8 > 668.6	8.514	8.521	-0.007	1.000	598153	16.9			826	
712.8 > 168.8	8.514	8.521	-0.007	1.000	125581		4.76(0.00-0.00)		663	
712.8 > 218.8	8.514	8.521	-0.007	1.000	75583		7.91(0.00-0.00)		501	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24ISICV_00002

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\ChromNA\\Burlington\\ChromData\\LC410\\20181017-32684.b\\PF101718A16.d

Injection Date: 17-Oct-2018 15:59:24

Instrument ID: LC410

Lims ID: ICV

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 16

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

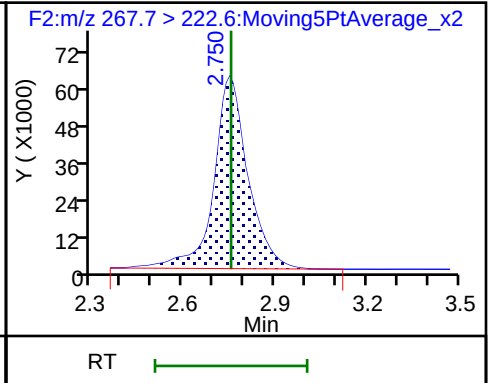
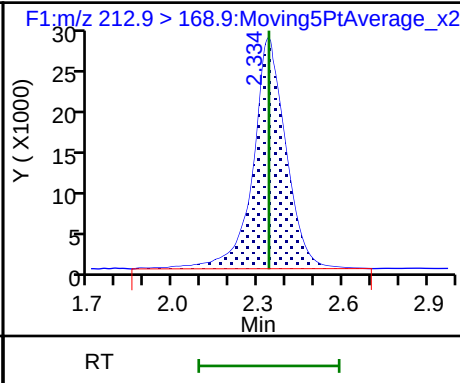
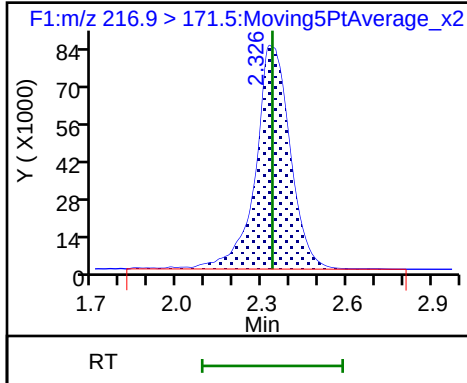
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid (M)

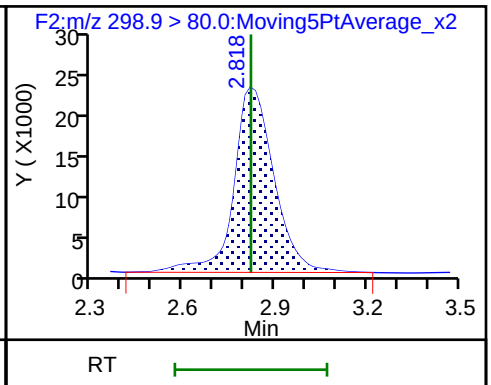
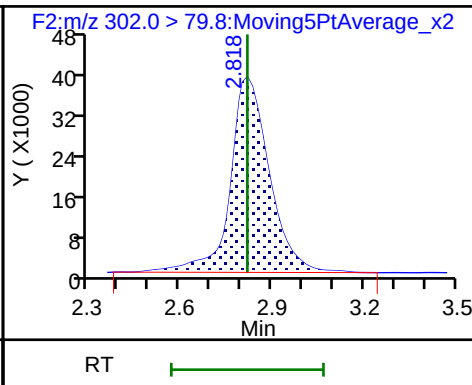
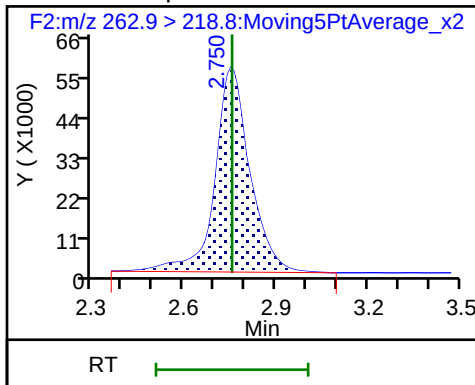
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 6 13C3 PFBS

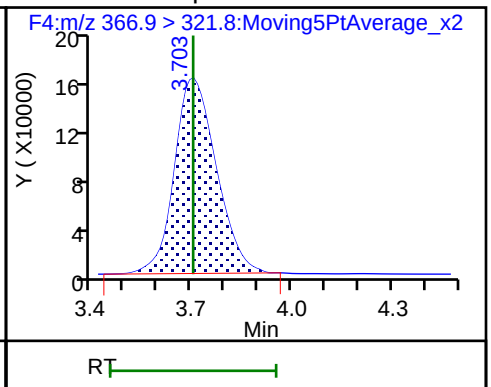
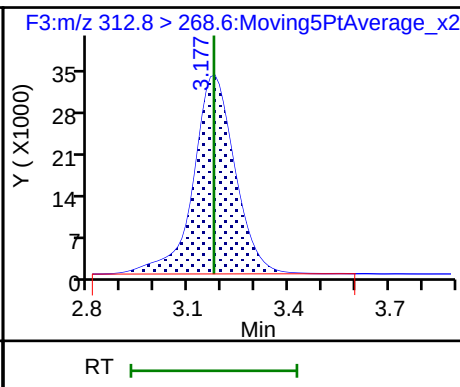
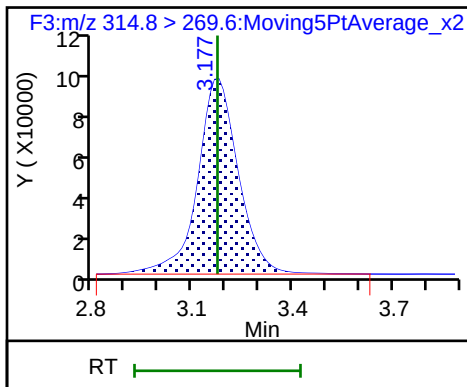
5 Perfluorobutanesulfonic acid



D 7 13C2 PFHxA

8 Perfluorohexanoic acid

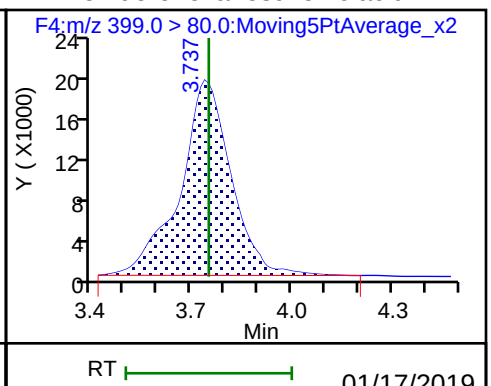
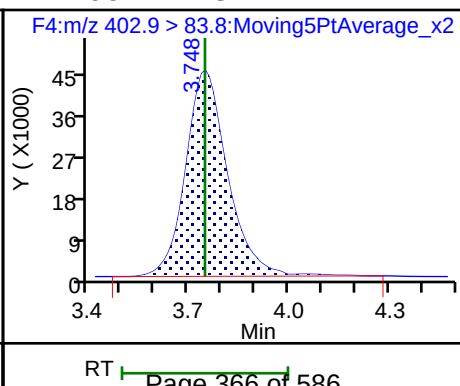
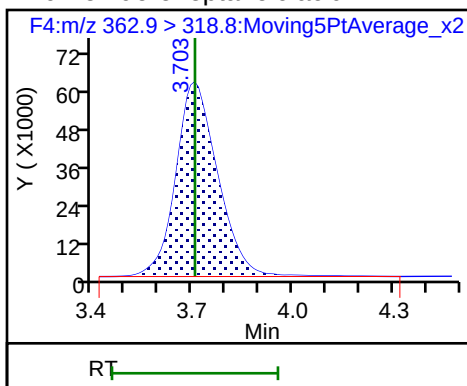
D 9 13C4 PFHpA



10 Perfluoroheptanoic acid

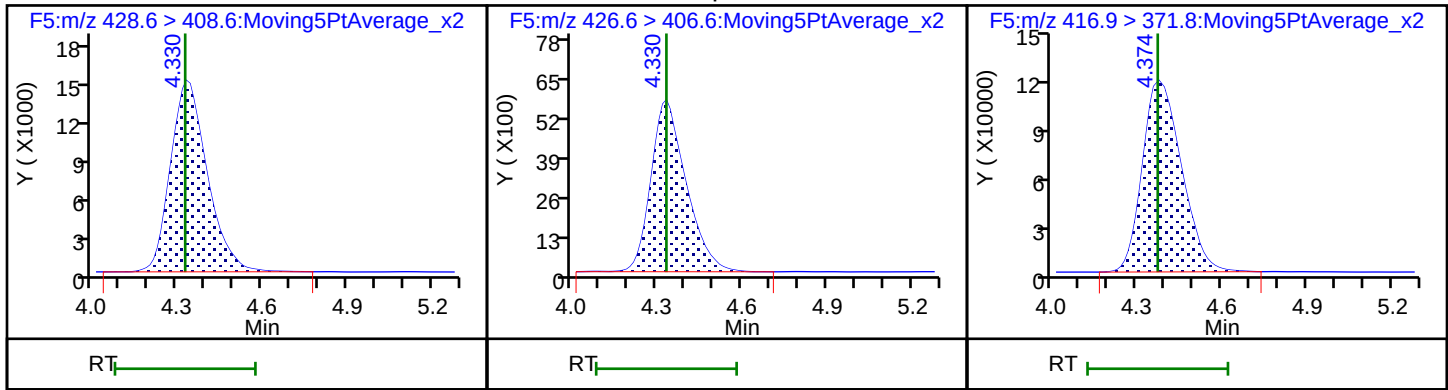
D 11 18O2 PFHxS

12 Perfluorohexanesulfonic acid



D 13 M2-6:2 FTS

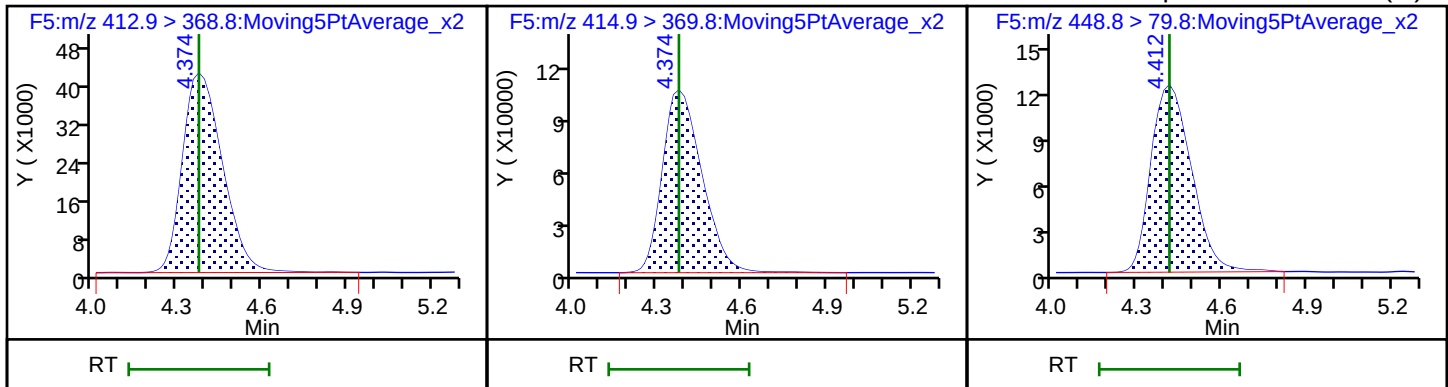
14 1H,1H,2H,2H-perfluorooctanesulfonD 17 13C4 PFOA



16 Perfluorooctanoic acid

* 15 13C2 PFOA

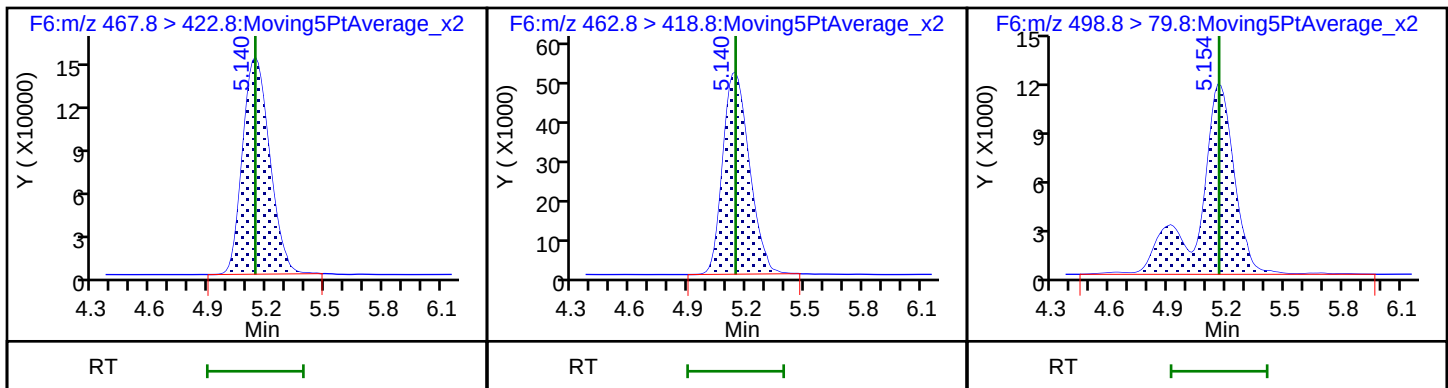
18 Perfluoroheptanesulfonic acid (M)



D 20 13C5 PFNA

19 Perfluorononanoic acid

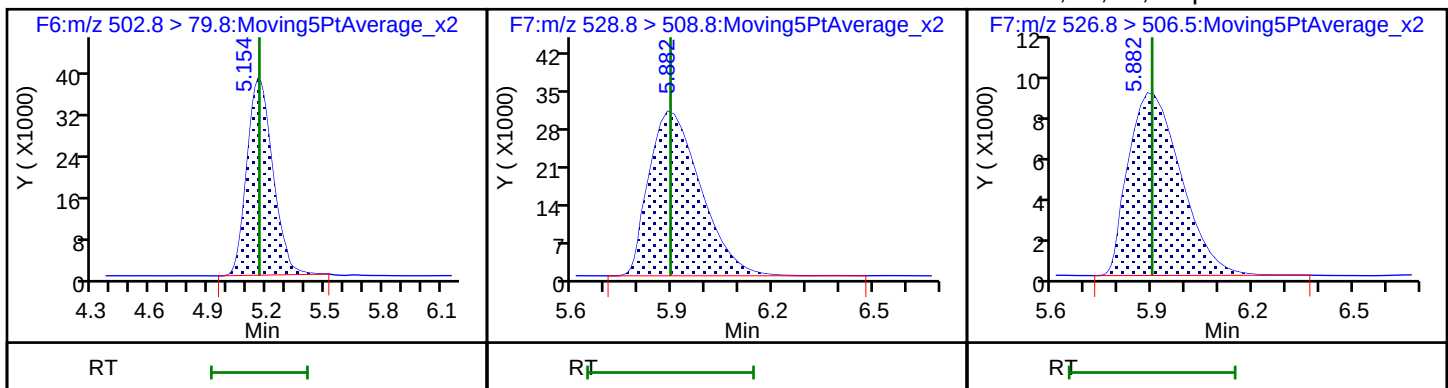
21 Perfluorooctanesulfonic acid



D 22 13C4 PFOS

D 24 M2-8:2 FTS

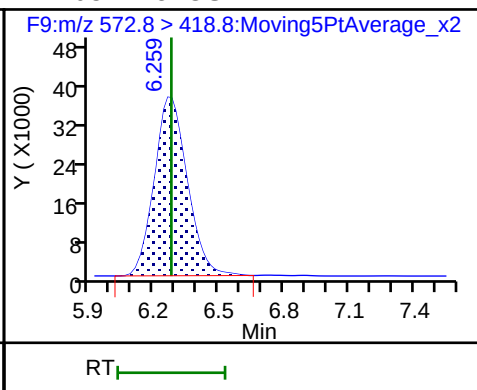
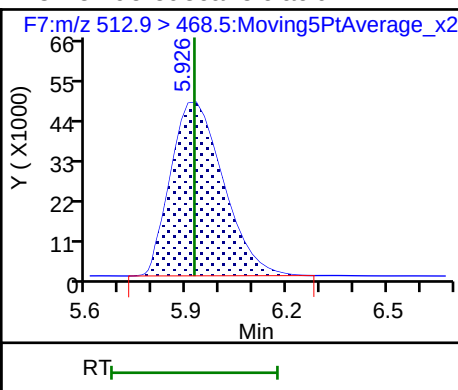
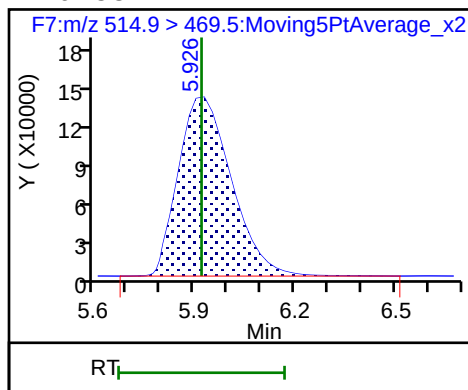
23 1H,1H,2H,2H-perfluorodecanesulfoni



D 26 13C2 PFDA

25 Perfluorodecanoic acid

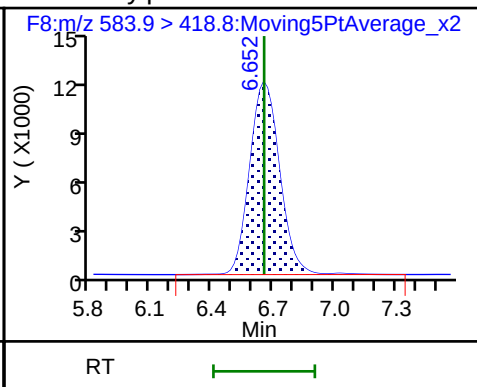
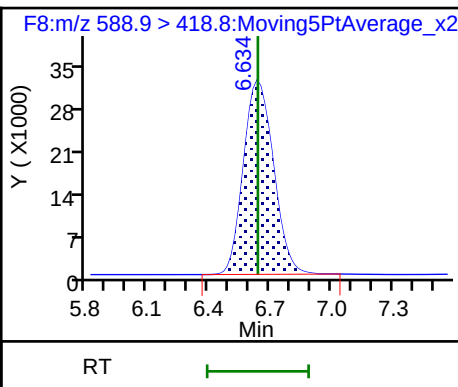
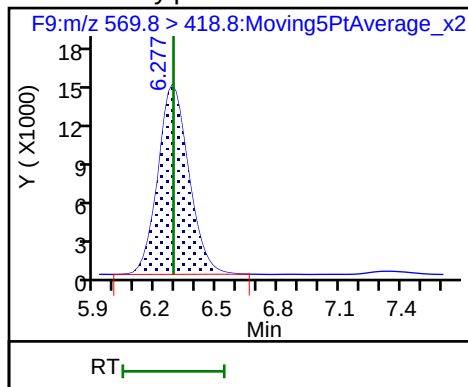
D 27 d3-NMeFOSAA



28 N-methylperfluorooctanesulfonamid

D 29 d5-NEtFOSAA

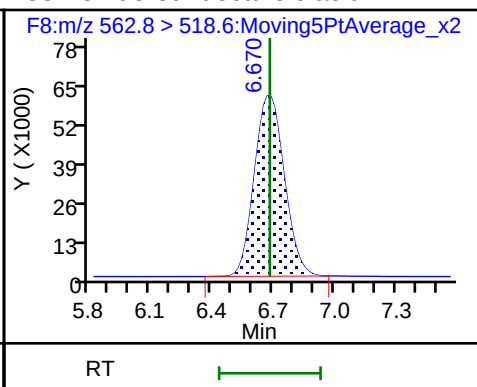
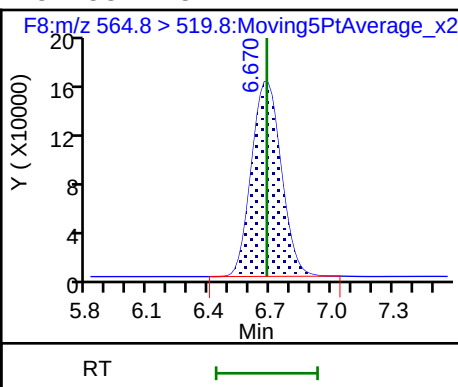
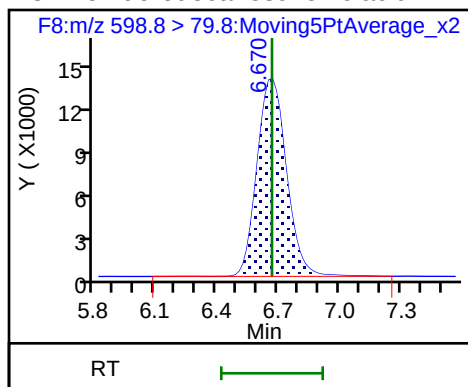
30 N-ethylperfluorooctanesulfonamidoa



31 Perfluorodecanesulfonic acid

D 32 13C2 PFUnA

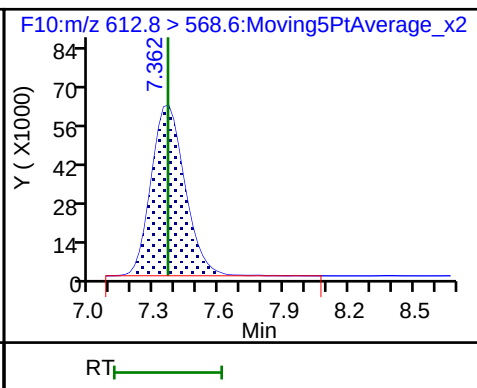
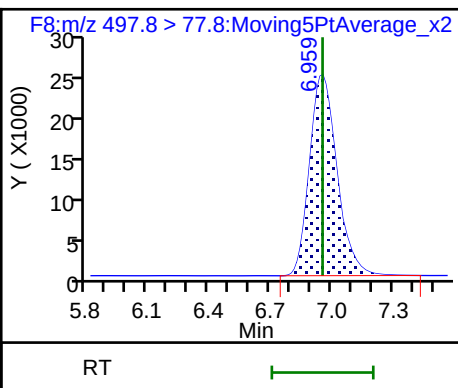
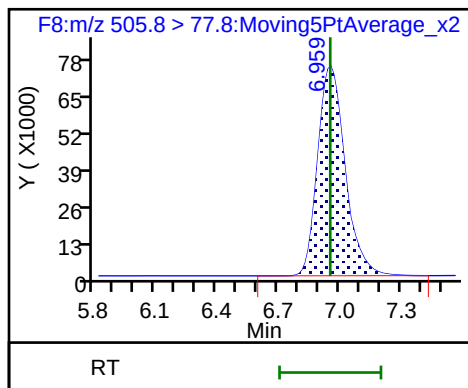
33 Perfluoroundecanoic acid



D 35 13C8 FOSA

34 Perfluorooctanesulfonamide

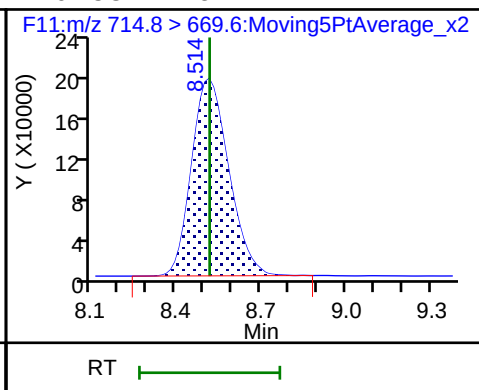
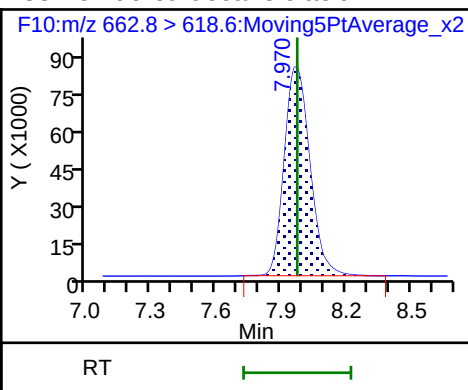
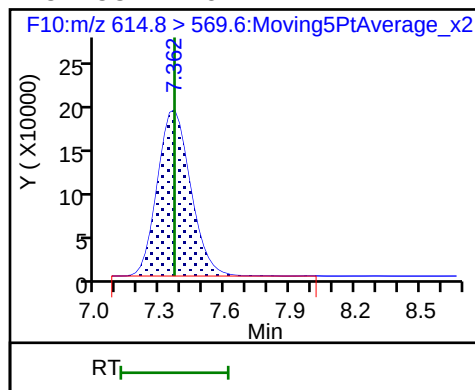
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

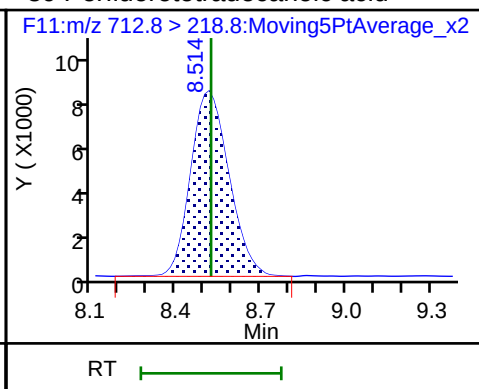
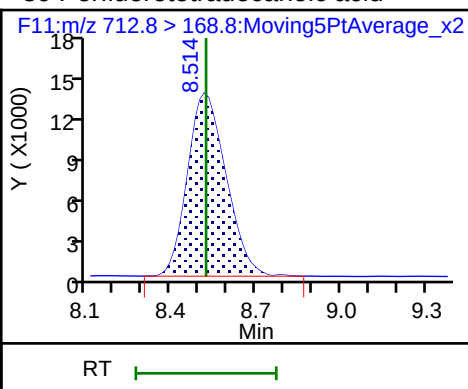
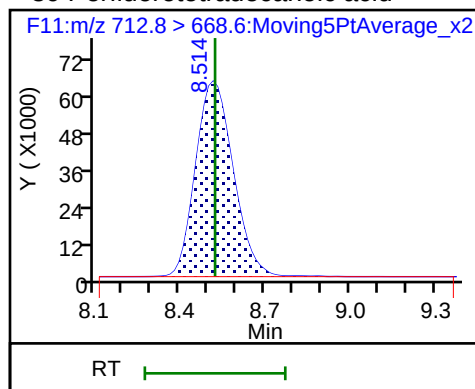
D 40 13C2 PFTeDA



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid



TestAmerica Burlington

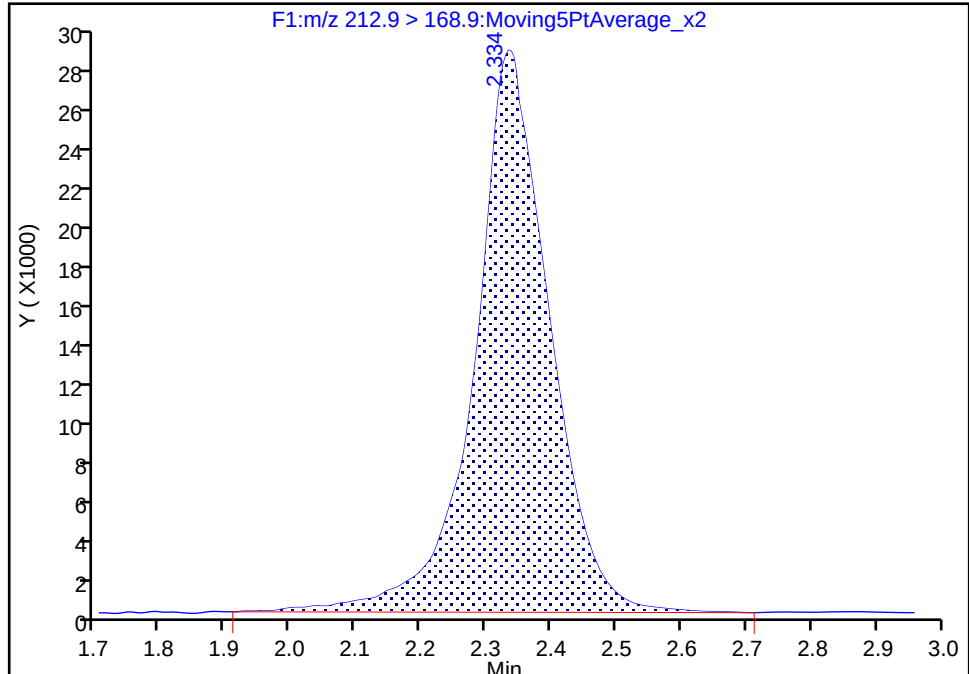
Data File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A16.d
Injection Date: 17-Oct-2018 15:59:24 Instrument ID: LC410
Lims ID: ICV
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 16
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

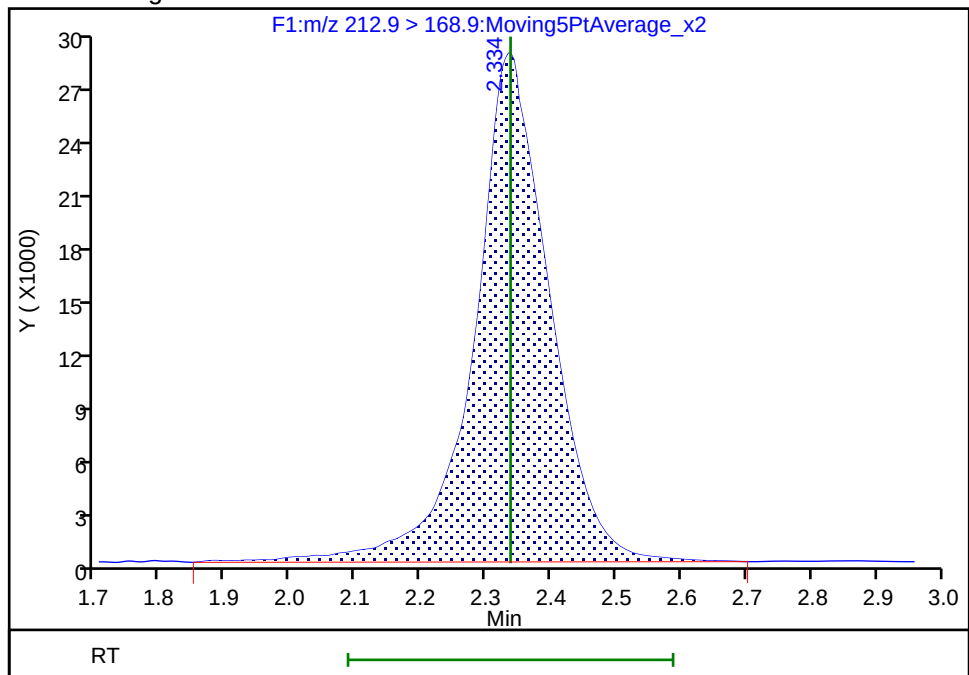
RT: 2.33
Area: 228795
Amount: 17.988882
Amount Units: ng/ml

Processing Integration Results



RT: 2.33
Area: 230841
Amount: 18.696009
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:24:57
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

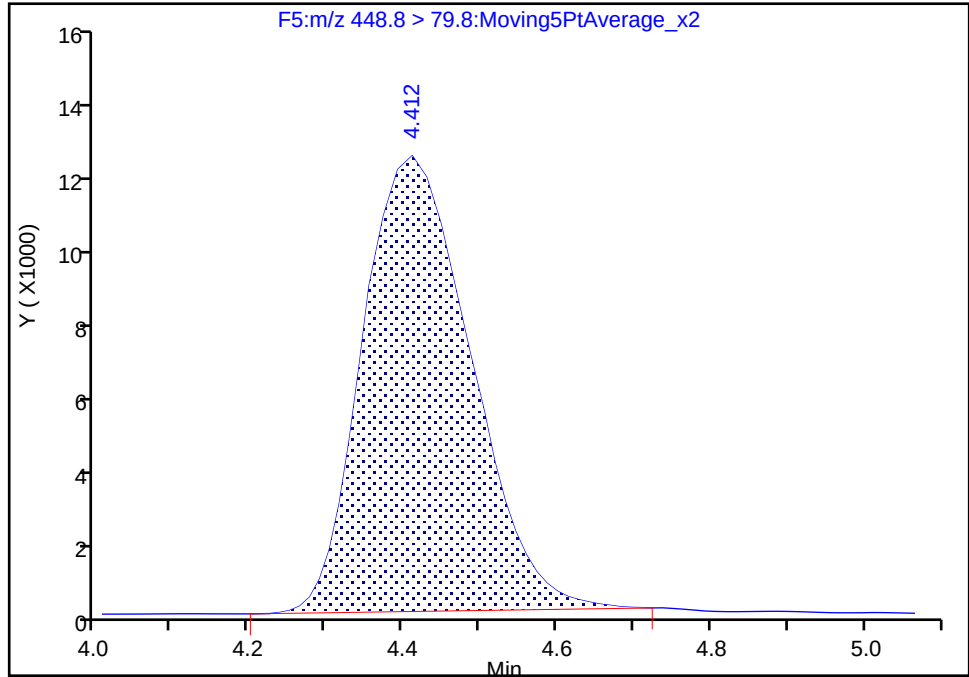
Data File:	\\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A16.d		
Injection Date:	17-Oct-2018 15:59:24	Instrument ID:	LC410
Lims ID:	ICV		
Client ID:			
Operator ID:	BC	ALS Bottle#:	0 Worklist Smp#: 16
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector	F5:MRM

18 Perfluoroheptanesulfonic acid, CAS: 375-92-8

Signal: 1

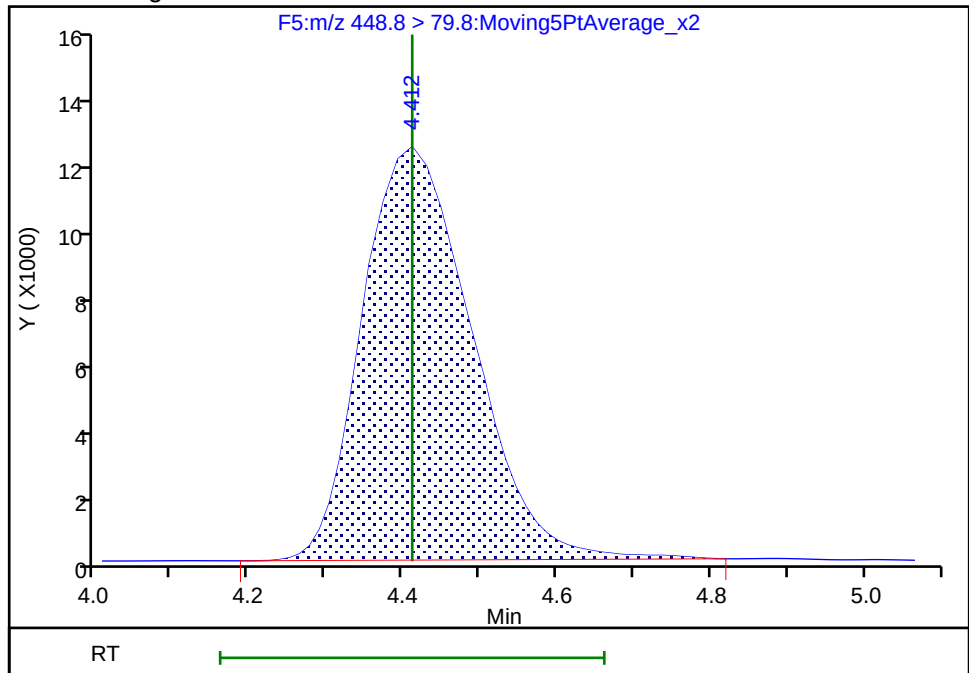
RT: 4.41
Area: 119246
Amount: 16.866382
Amount Units: ng/ml

Processing Integration Results



RT: 4.41
Area: 121251
Amount: 17.149973
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 17-Oct-2018 16:25:12
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Lab Sample ID: CCVIS 200-138946/6 Calibration Date: 01/09/2019 16:57

Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20

GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27

Lab File ID: PF010919A06.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	L1ID		0.8704		20400	20000	1.8	40.0
Perfluoropentanoic acid (PFPeA)	AveID	2.848	2.470		17300	20000	-13.3	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.745	1.444		16600	20000	-17.2	40.0
Perfluorohexanoic acid (PFHxA)	AveID	1.038	0.9255		17800	20000	-10.8	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9775	1.084		22200	20000	10.9	40.0
Perfluorohexanesulfonic acid (PFHxS)	L1ID		1.122		14500	20000	-27.4	40.0
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	AveID	0.9845	1.024		20800	20000	4.0	40.0
Perfluorooctanoic acid (PFOA)	AveID	0.9899	1.009		20400	20000	1.9	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	0.9547	0.7709		16100	20000	-19.3	50.0
Perfluorononanoic acid (PFNA)	AveID	1.099	0.9274		16900	20000	-15.6	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.034	0.9538		18500	20000	-7.7	40.0
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	AveID	0.8068	0.8175		20300	20000	1.3	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.009	0.8628		17100	20000	-14.5	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.086	0.7860		14500	20000	-27.6	40.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9627	0.8242		17100	20000	-14.4	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	1.046	0.9360		17900	20000	-10.5	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.026	1.056		20600	20000	2.9	40.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.8462	0.8193		19400	20000	-3.2	40.0
Perfluorododecanoic acid (PFDoA)	AveID	0.8584	0.8651		20200	20000	0.8	40.0
Perfluorotridecanoic acid (PFTrIA)	AveID	0.9775	1.135		23200	20000	16.2	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.9748	0.9105		18700	20000	-6.6	40.0
13C4 PFBA	Ave	0.5875	0.5578		47500	50000	-5.1	50.0
13C5 PFPeA	Ave	0.3725	0.4302		57700	50000	15.5	50.0
13C3 PFBS	Ave	0.3075	0.3899		59000	46500	26.8	50.0
13C2 PFHxA	Ave	0.6710	0.6284		46800	50000	-6.3	50.0
13C4 PFHpA	Ave	1.229	1.052		42800	50000	-14.4	50.0
18O2 PFHxS	Ave	0.3555	0.4808		64000	47300	35.2	50.0
M2-6:2 FTS	Ave	0.1097	0.1279		55400	47500	16.6	50.0
13C4 PFOA	Ave	0.9383	0.7765		41400	50000	-17.2	50.0
13C5 PFNA	Ave	1.265	1.082		42700	50000	-14.5	50.0
13C4 PFOS	Ave	0.3148	0.3891		59100	47800	23.6	50.0
M2-8:2 FTS	Ave	0.2971	0.3017		48600	47900	1.5	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Lab Sample ID: CCVIS 200-138946/6 Calibration Date: 01/09/2019 16:57
 Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20
 GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27
 Lab File ID: PF010919A06.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C2 PFDA	Ave	1.305	1.240		47500	50000	-5.0	50.0
d3-NMeFOSAA	Ave	0.3333	0.2616		39200	50000	-21.5	50.0
d5-NEtFOSAA	Ave	0.2828	0.2311		40800	50000	-18.3	50.0
13C2 PFUnA	Ave	1.358	1.142		42000	50000	-15.9	50.0
13C8 FOSA	Ave	0.6063	0.7253		59800	50000	19.6	50.0
13C2 PFDoA	Ave	1.718	1.388		40400	50000	-19.2	50.0
13C2 PFTeDA	Ave	1.577	1.095		34700	50000	-30.5	50.0

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A06.d
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 09-Jan-2019 16:57:10 ALS Bottle#: 0 Worklist Smp#: 6
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034076-006 CCVIS
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:04 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: chirgwinb Date: 09-Jan-2019 17:51:37

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.9 > 168.9	2.382	2.382	0.0	0.996	200886	20.4		102	194	
D 1 13C4 PFBA										
216.9 > 171.5	2.392	2.402	-0.010	1.000	577009	47.5		94.9	176	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.791	2.791	0.0	0.996	439648	17.3		86.7	574	
D 3 13C5 PFPeA										
267.7 > 222.6	2.801	2.818	-0.017	1.000	445037	57.7		115	1111	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.883	2.883	0.0	1.006	233083	16.6		82.8	607	
D 6 13C3 PFBS										
302.0 > 79.8	2.867	2.900	-0.033	1.000	375161	59.0		127	545	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.201	3.201	0.0	1.000	240685	17.8		89.2	897	
D 7 13C2 PFHxA										
314.8 > 269.6	3.201	3.250	-0.049	1.000	650148	46.8		93.7	1029	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.715	3.715	0.0	1.000	471831	22.2		111	121	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.748	3.748	0.0	0.997	223299	14.5		72.6	5040	
D 9 13C4 PFHpA										
366.9 > 321.8	3.715	3.782	-0.067	1.000	1088596	42.8		85.6	397	
D 11 18O2 PFHxS										
402.9 > 83.8	3.759	3.826	-0.067	1.000	470581	64.0		135	525	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.317	4.317	0.0	0.997	54208	20.8		104	631	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
16 Perfluorooctanoic acid										
412.9 > 368.8	4.355	4.355	0.0	1.000	324272	20.4		102	466	
* 15 13C2 PFOA										
414.9 > 369.8	4.355	4.355	0.0		1034537	50.0			1584	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.393	4.393	0.0	0.855	124119	16.1		80.7	419	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.330	4.411	-0.081	1.000	125678	55.4		117	601	
D 17 13C4 PFOA										
416.9 > 371.8	4.355	4.468	-0.113	1.000	803339	41.4		82.8	1621	
19 Perfluorononanoic acid										
462.8 > 418.8	5.113	5.113	0.0	1.000	415189	16.9		84.4	675	
21 Perfluorooctanesulfonic acid										M
498.8 > 79.8	5.140	5.140	0.0	1.000	153560	18.5		92.3	532	M
D 20 13C5 PFNA										
467.8 > 422.8	5.113	5.222	-0.109	1.000	1119261	42.7		85.5	821	
D 22 13C4 PFOS										
502.8 > 79.8	5.140	5.236	-0.096	1.000	384793	59.1		124	754	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.863	5.863	0.0	1.000	102054	20.3		101	859	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.882	5.882	0.0	1.000	442562	17.1		85.5	1515	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.863	5.998	-0.135	1.000	298984	48.6		102	1175	
D 26 13C2 PFDA										
514.9 > 469.5	5.882	6.022	-0.140	1.000	1282329	47.5		95.0	1047	
28 N-methylperfluorooctanesulfonamido										M
569.8 > 418.8	6.241	6.241	0.0	1.000	85080	14.5		72.4	78.5	M
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.241	6.367	-0.126	1.000	270627	39.2		78.5	1299	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.634	6.634	0.0	1.291	150696	17.9		89.5	4758	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.634	6.634	0.0	1.005	78807	17.1		85.6	25.6	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.652	6.652	0.0	1.000	498970	20.6		103	3255	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.598	6.734	-0.136	1.000	239040	40.8		81.7	836	
D 32 13C2 PFUnA										
564.8 > 519.8	6.652	6.777	-0.125	1.000	1181191	42.0		84.1	4766	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.917	6.917	0.0	1.000	245928	19.4		96.8	1383	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.945	-0.028	1.000	750395	59.8		120	3845	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.339	7.339	0.0	1.000	496796	20.2		101	1263	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags

D 37 13C2 PFD0A

614.8 > 569.6	7.339	7.474	-0.135	1.000	1435654	40.4		80.8	1842	

38 Perfluorotridecanoic acid

662.8 > 618.6	7.953	7.953	0.0	0.934	514664	23.2		116	1791	

39 Perfluorotetradecanoic acid

712.8 > 668.6	8.514	8.514	0.0	1.000	412713	18.7	Target=1.00	93.4	775	

712.8 > 168.8	8.514	8.514	0.0	1.000	89716		4.60(0.90-1.10)		529	

712.8 > 218.8	8.514	8.514	0.0	1.000	52260		7.90(0.90-1.10)		570	

D 40 13C2 PFTeDA

714.8 > 669.6	8.514	8.681	-0.167	1.000	1133272	34.7		69.5	564	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L4_00003

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A06.d

Injection Date: 09-Jan-2019 16:57:10

Instrument ID: LC410

Lims ID: CCVIS

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

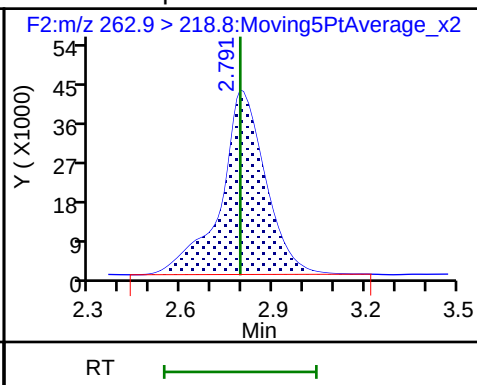
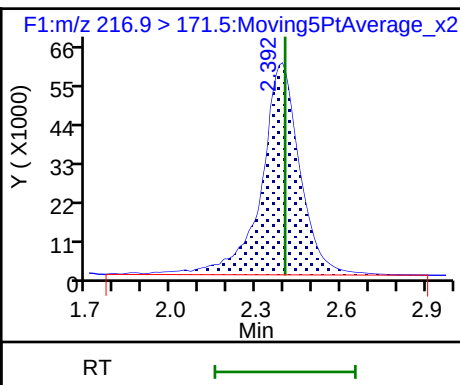
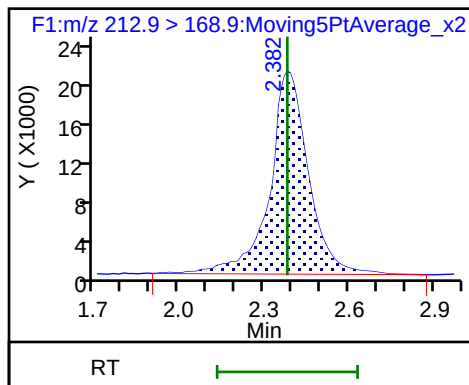
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid

D 1 13C4 PFBA

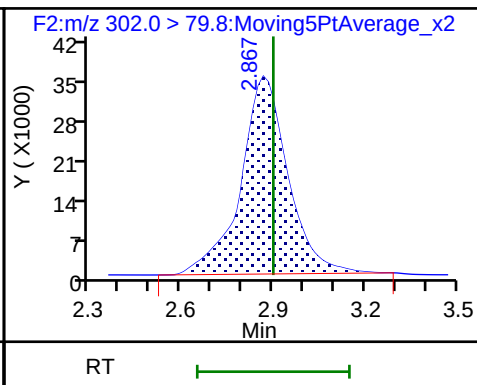
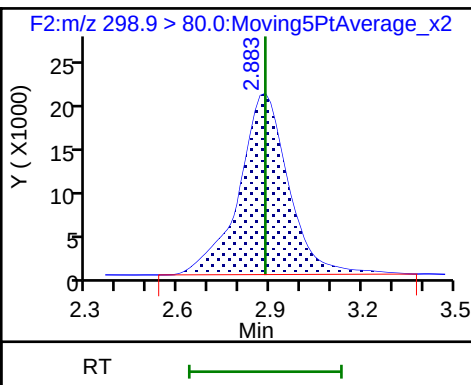
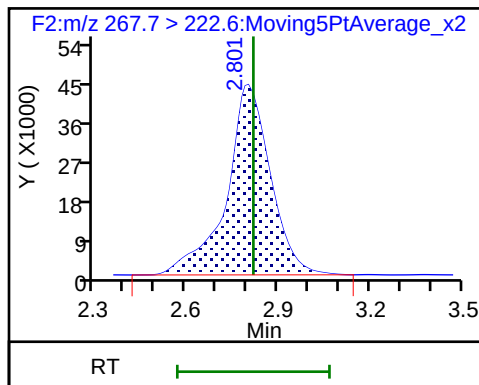
4 Perfluoropentanoic acid



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid

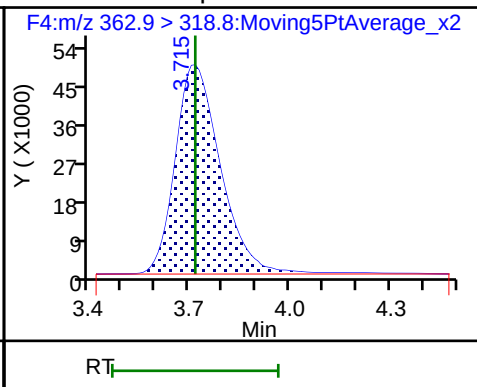
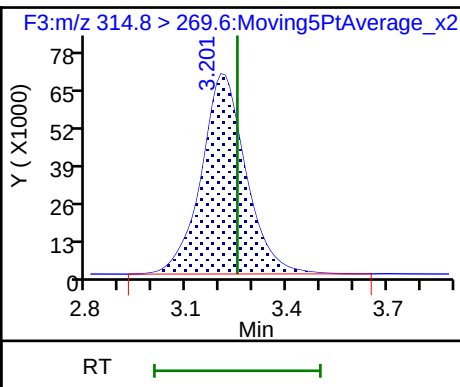
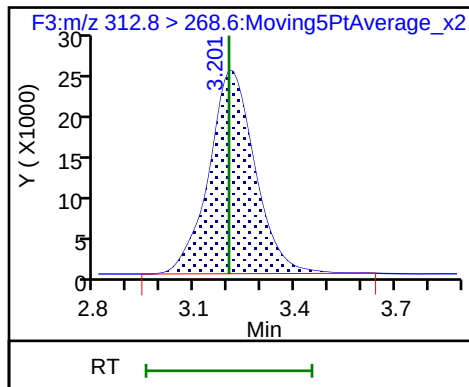
D 6 13C3 PFBS



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

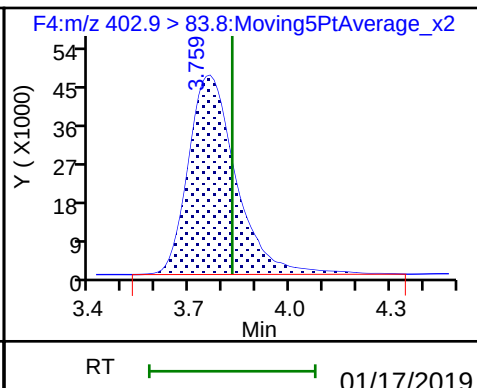
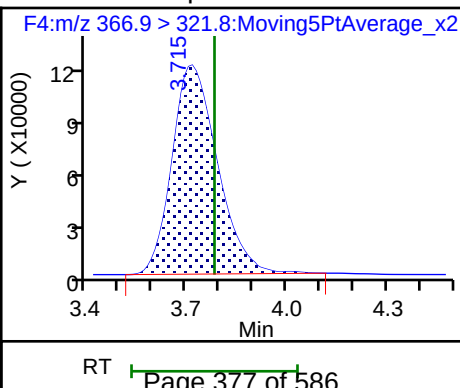
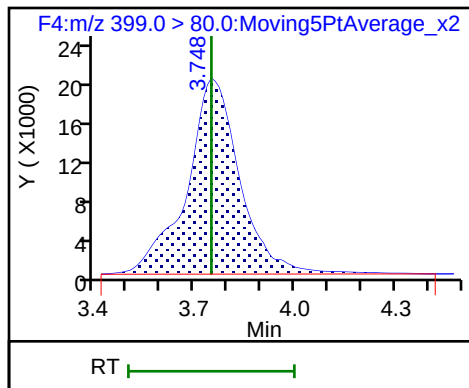
10 Perfluoroheptanoic acid



12 Perfluorohexanesulfonic acid

D 9 13C4 PFHpA

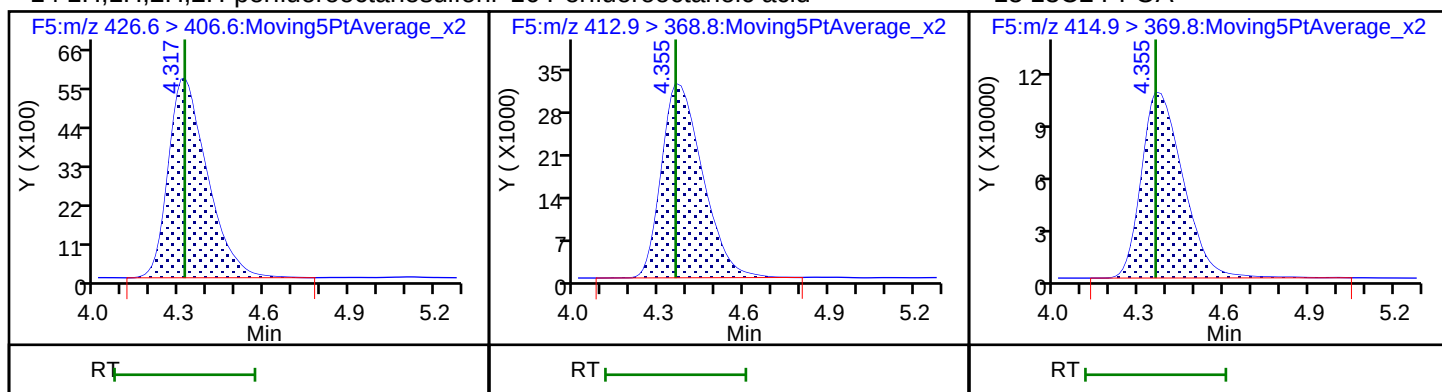
D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfoni

16 Perfluorooctanoic acid

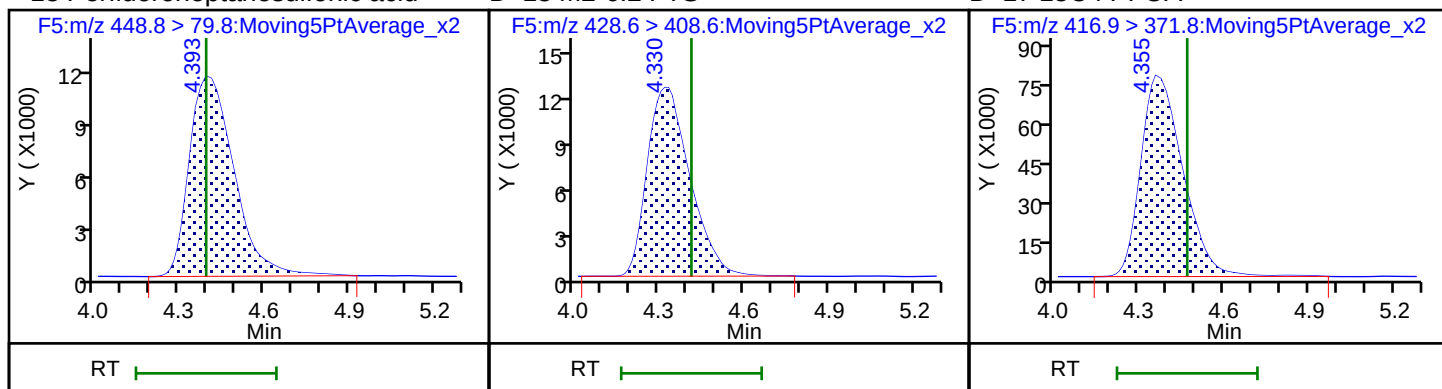
* 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid

D 13 M2-6:2 FTS

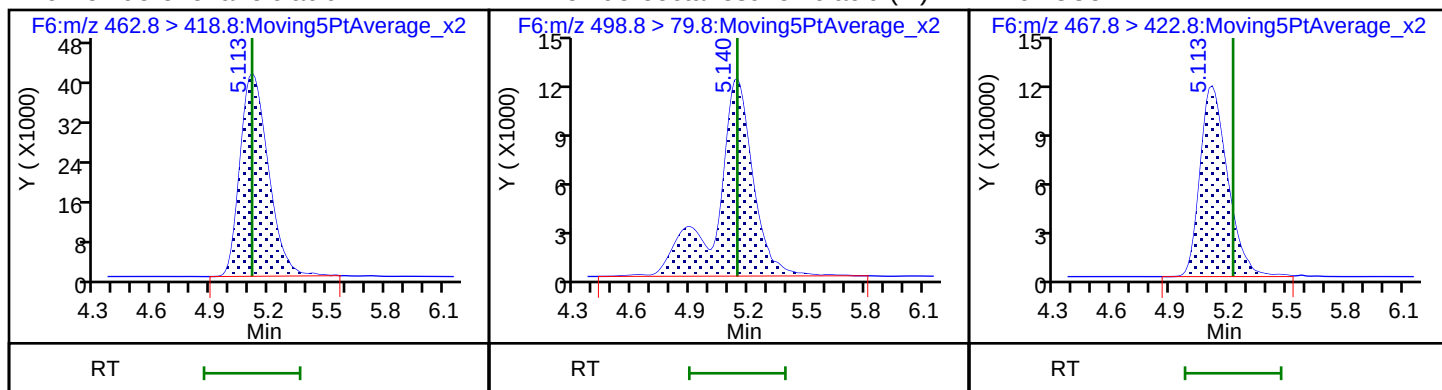
D 17 13C4 PFOA



19 Perfluorononanoic acid

21 Perfluorooctanesulfonic acid (M)

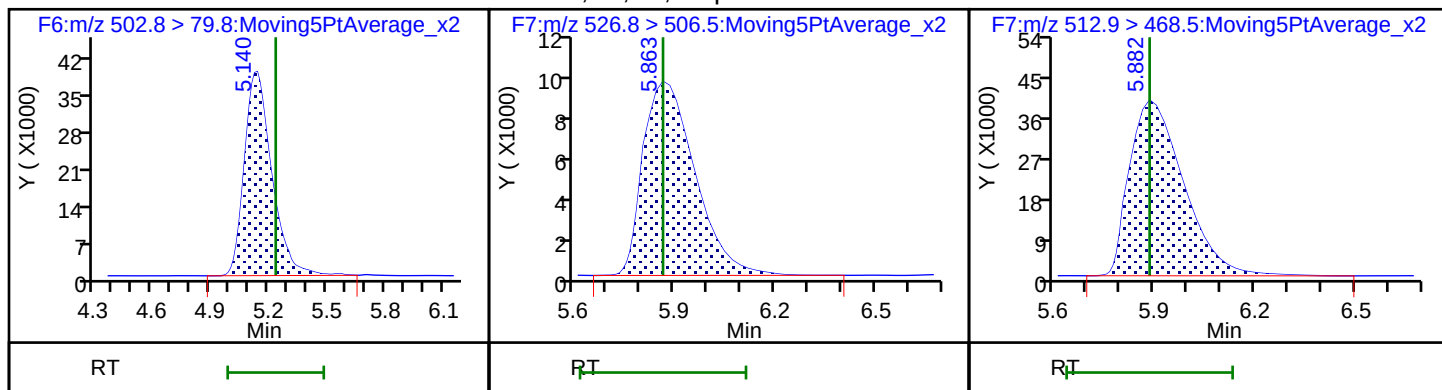
D 20 13C5 PFNA



D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfoni

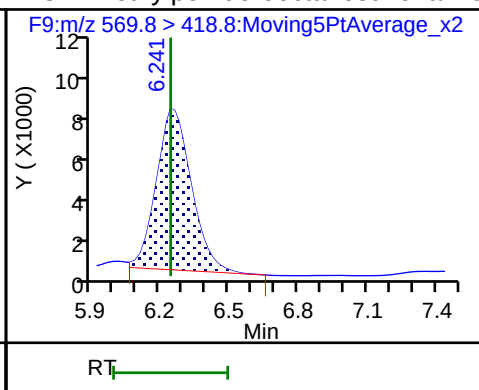
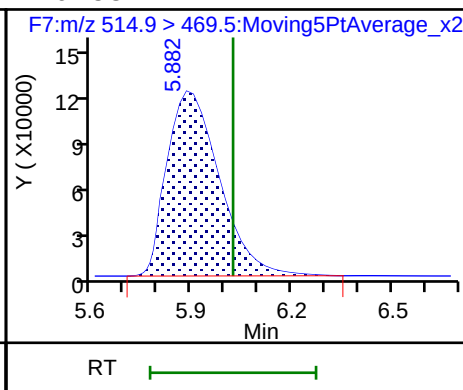
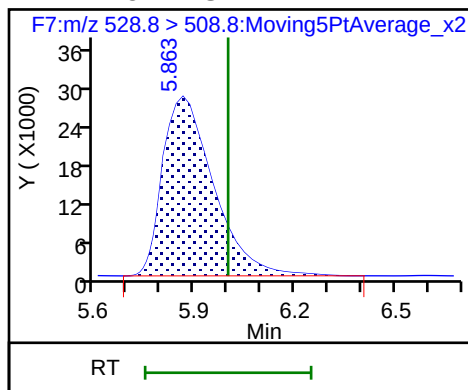
25 Perfluorodecanoic acid



D 24 M2-8:2 FTS

D 26 13C2 PFDA

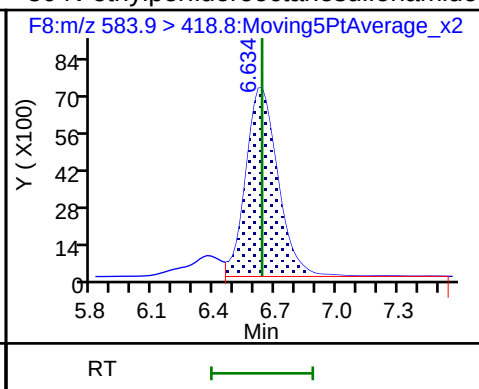
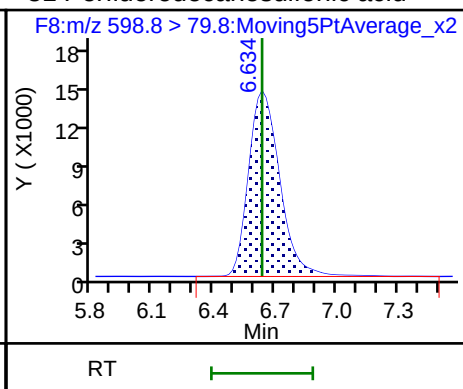
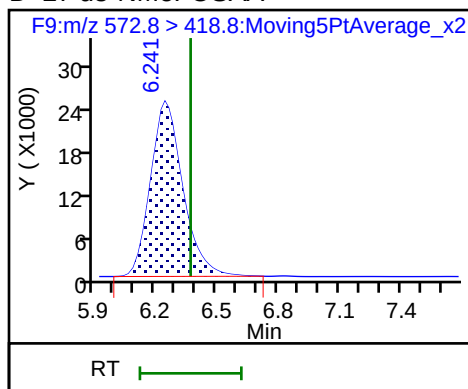
28 N-methylperfluorooctanesulfonamido (M)



D 27 d3-NMeFOSAA

31 Perfluorodecanesulfonic acid

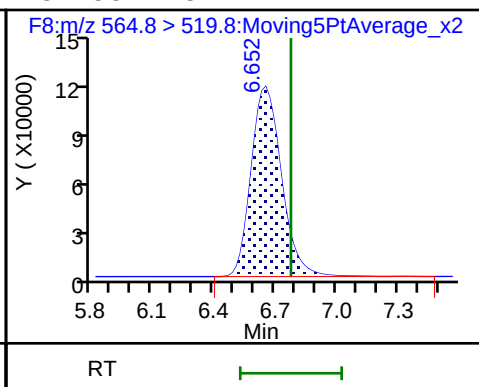
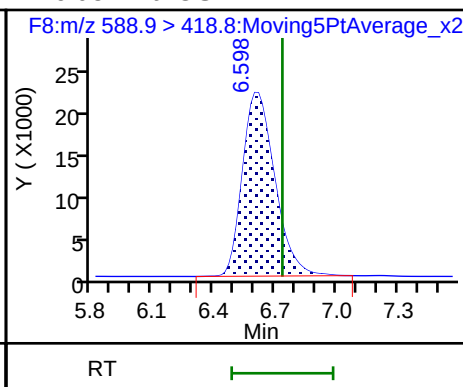
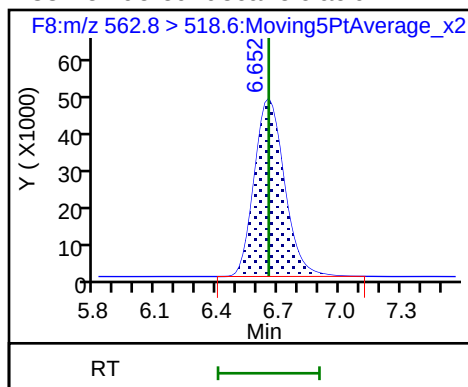
30 N-ethylperfluorooctanesulfonamidoa



33 Perfluoroundecanoic acid

D 29 d5-NEtFOSAA

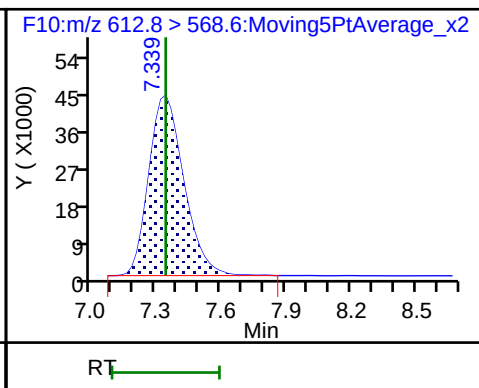
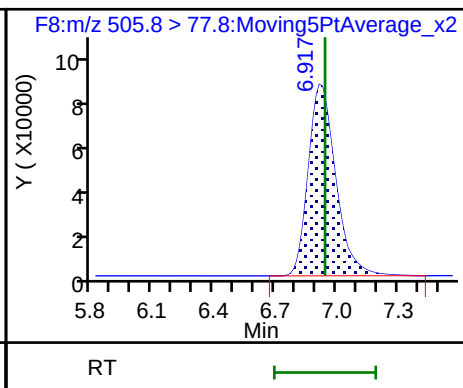
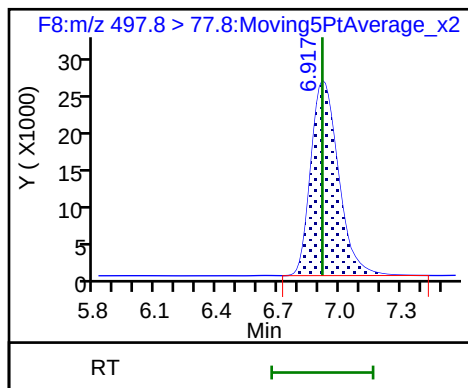
D 32 13C2 PFUnA



34 Perfluorooctanesulfonamide

D 35 13C8 FOSA

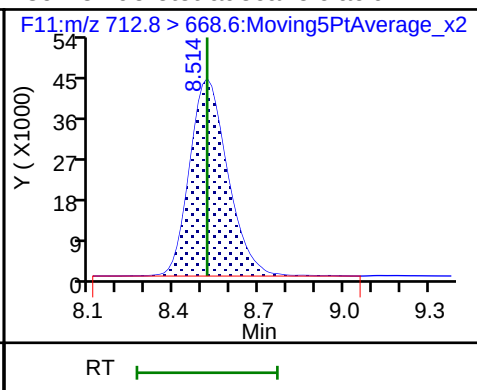
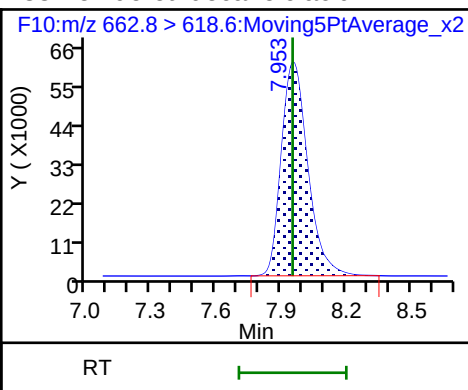
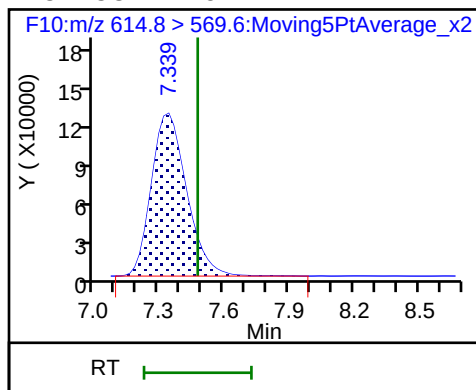
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

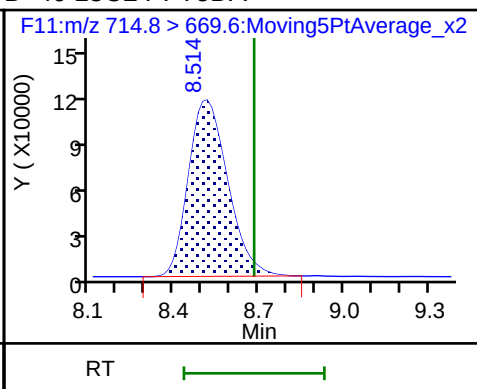
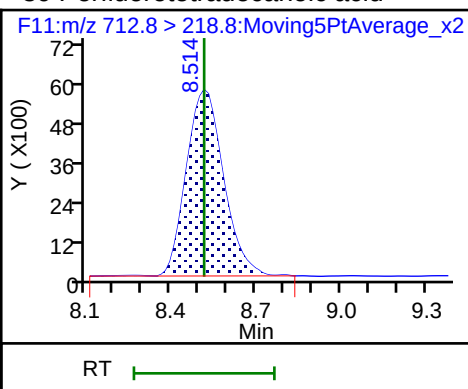
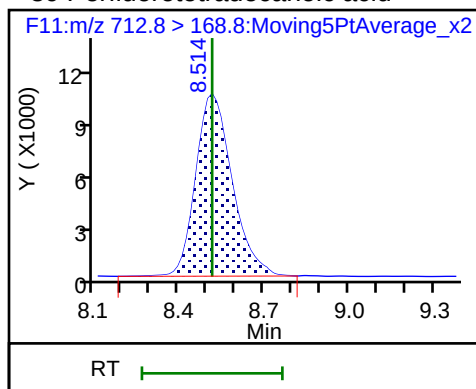
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

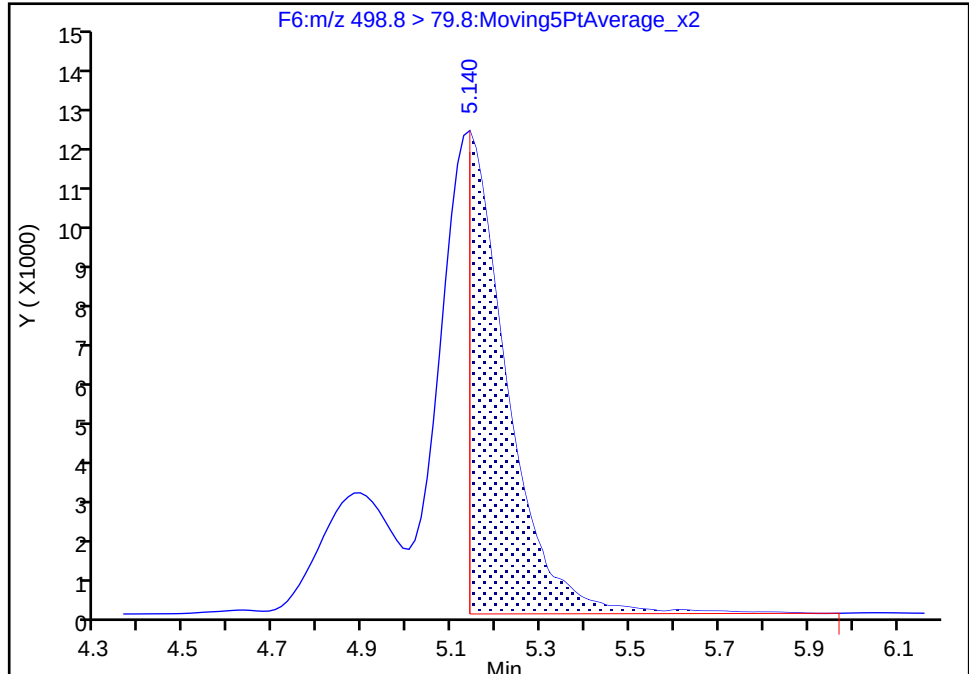
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A06.d
Injection Date: 09-Jan-2019 16:57:10 Instrument ID: LC410
Lims ID: CCVIS
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F6:MRM

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

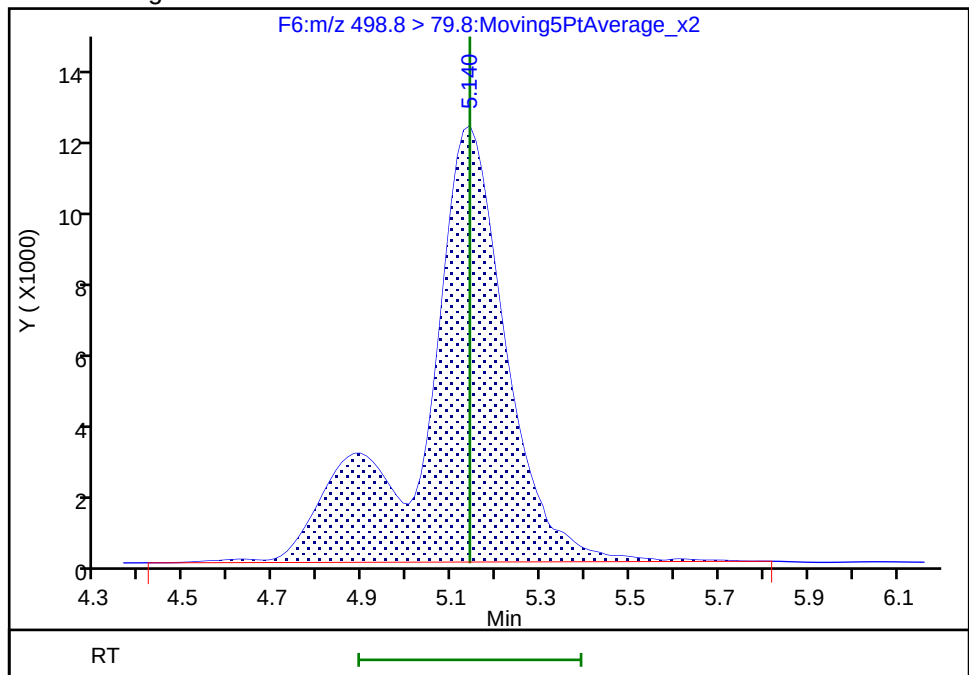
RT: 5.14
Area: 67955
Amount: 8.166396
Amount Units: ng/ml

Processing Integration Results



RT: 5.14
Area: 153560
Amount: 18.453855
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 09-Jan-2019 17:51:13
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

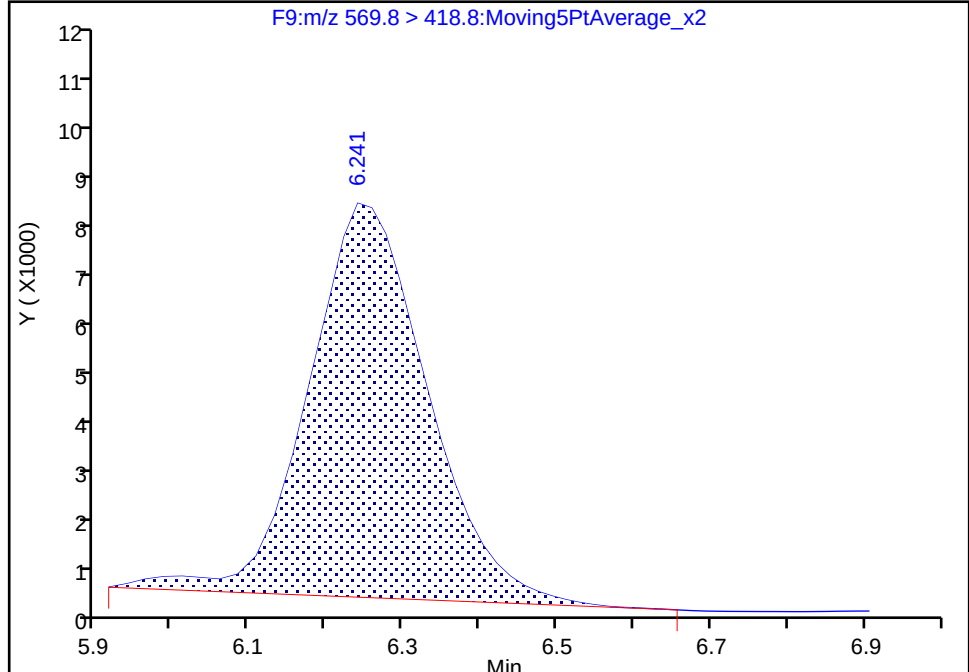
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A06.d
Injection Date: 09-Jan-2019 16:57:10 Instrument ID: LC410
Lims ID: CCVIS
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F9:MRM

28 N-methylperfluorooctanesulfonamidoacetic aci, CAS: 2355-31-9

Signal: 1

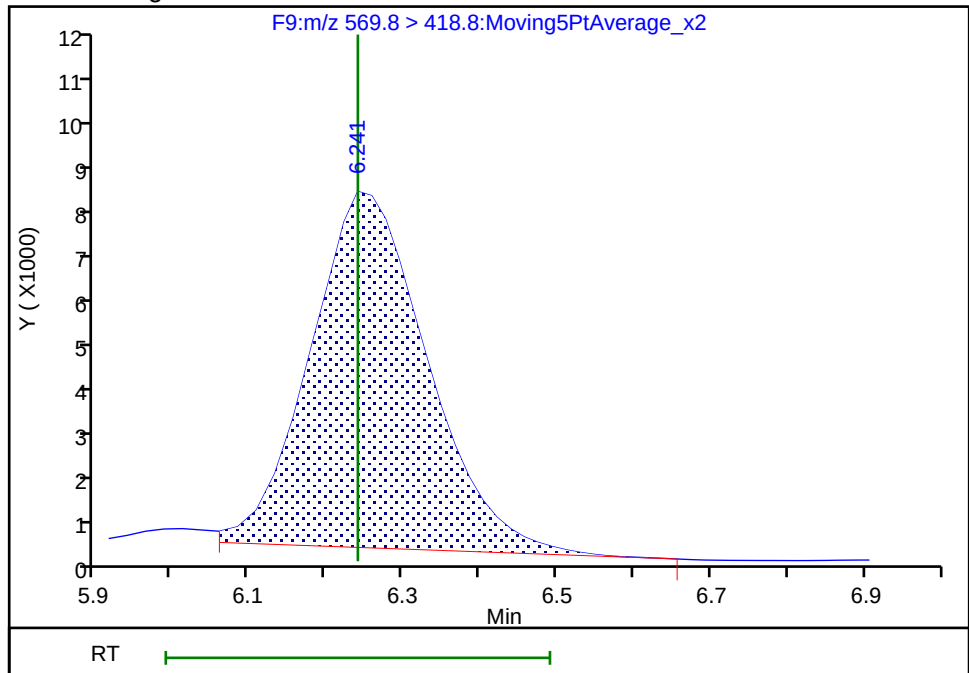
RT: 6.24
Area: 86888
Amount: 14.783195
Amount Units: ng/ml

Processing Integration Results



RT: 6.24
Area: 85080
Amount: 14.475580
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 09-Jan-2019 17:51:22

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Lab Sample ID: CCVL 200-138946/7 Calibration Date: 01/09/2019 17:13

Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20

GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27

Lab File ID: PF010919A07.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	L1ID		1.025		1020	1000	2.0	50.0
Perfluoropentanoic acid (PFPeA)	AveID	2.848	2.851		1000	1000	0.1	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.745	1.371		786	1000	-21.4	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.038	1.049		1010	1000	1.1	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9775	1.039		1060	1000	6.3	50.0
Perfluorohexanesulfonic acid (PFHxS)	L1ID		1.518		760	1000	-24.0	50.0
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	AveID	0.9845	1.018		1030	1000	3.4	50.0
Perfluorooctanoic acid (PFOA)	AveID	0.9899	1.050		1060	1000	6.1	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	0.9547	0.8741		916	1000	-8.4	50.0
Perfluorononanoic acid (PFNA)	AveID	1.099	1.182		1080	1000	7.5	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.034	1.028		995	1000	-0.5	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.009	1.131		1120	1000	12.0	50.0
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	AveID	0.8068	0.7699		954	1000	-4.6	50.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.086	1.086		1000	1000	-0.0	50.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9627	1.008		1050	1000	4.7	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	1.046	0.997		953	1000	-4.7	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.026	0.9911		966	1000	-3.4	50.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.8462	0.7897		933	1000	-6.7	50.0
Perfluorododecanoic acid (PFDoA)	AveID	0.8584	0.9607		1120	1000	11.9	50.0
Perfluorotridecanoic acid (PFTrIA)	AveID	0.9775	1.022		1050	1000	4.5	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.9748	0.9165		940	1000	-6.0	50.0
13C4 PFBA	Ave	0.5875	0.6027		51300	50000	2.6	50.0
13C5 PFPeA	Ave	0.3725	0.4250		57000	50000	14.1	50.0
13C3 PFBS	Ave	0.3075	0.4202		63500	46500	36.7	50.0
13C2 PFHxA	Ave	0.6710	0.6184		46100	50000	-7.8	50.0
13C4 PFHpA	Ave	1.229	1.151		46800	50000	-6.3	50.0
18O2 PFHxS	Ave	0.3555	0.4355		57900	47300	22.5	50.0
M2-6:2 FTS	Ave	0.1097	0.1350		58500	47500	23.1	50.0
13C4 PFOA	Ave	0.9383	0.8550		45600	50000	-8.9	50.0
13C5 PFNA	Ave	1.265	1.077		42600	50000	-14.9	50.0
13C4 PFOS	Ave	0.3148	0.3733		56700	47800	18.6	50.0
M2-8:2 FTS	Ave	0.2971	0.3289		53000	47900	10.7	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Lab Sample ID: CCVL 200-138946/7 Calibration Date: 01/09/2019 17:13
 Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20
 GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27
 Lab File ID: PF010919A07.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C2 PFDA	Ave	1.305	1.270		48700	50000	-2.6	50.0
d3-NMeFOSAA	Ave	0.3333	0.2634		39500	50000	-21.0	50.0
d5-NEtFOSAA	Ave	0.2828	0.2433		43000	50000	-14.0	50.0
13C2 PFUnA	Ave	1.358	1.290		47500	50000	-5.0	50.0
13C8 FOSA	Ave	0.6063	0.7076		58400	50000	16.7	50.0
13C2 PFDoA	Ave	1.718	1.392		40500	50000	-19.0	50.0
13C2 PFTeDA	Ave	1.577	1.162		36900	50000	-26.3	50.0

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A07.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 09-Jan-2019 17:13:01 ALS Bottle#: 0 Worklist Smp#: 7
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034076-007 CCVL
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:07 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: CTX0330

First Level Reviewer: chirgwinb

Date: 09-Jan-2019 17:54:04

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.382	2.382	0.0	1.000	11284	1.02		102	46.9	M
D 1 13C4 PFBA										M
216.9 > 171.5	2.382	2.402	-0.020	1.000	550247	51.3		103	188	M
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.791	2.791	0.0	1.000	22123	1.00		100	22.3	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.791	2.818	-0.027	1.000	387947	57.0		114	623	
5 Perfluorobutanesulfonic acid										M
298.9 > 80.0	2.883	2.883	0.0	1.006	10519	0.7857		78.6	72.4	M
D 6 13C3 PFBS										
302.0 > 79.8	2.867	2.900	-0.033	1.000	356746	63.5		137	377	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.226	3.201	0.025	1.004	11849	1.01		101	252	
D 7 13C2 PFHxA										
314.8 > 269.6	3.214	3.250	-0.036	1.000	564519	46.1		92.2	1666	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.715	3.715	0.0	1.000	21849	1.06		106	48.7	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.770	3.748	0.022	1.003	12069	0.7602		76.0	122	
D 9 13C4 PFHpA										
366.9 > 321.8	3.715	3.782	-0.067	1.000	1051131	46.8		93.7	597	
D 11 18O2 PFHxS										
402.9 > 83.8	3.759	3.826	-0.067	1.000	376140	57.9		123	2600	
14 1H,1H,2H,2H-perfluorooctanesulfoni										M
426.6 > 406.6	4.317	4.317	0.0	1.000	2509	1.03		103	45.8	M

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
16 Perfluorooctanoic acid										
412.9 > 368.8	4.374	4.355	0.019	1.004	16397	1.06		106	62.3	
* 15 13C2 PFOA										
414.9 > 369.8	4.355	4.355	0.0		912919	50.0			1646	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.393	4.393	0.0	0.857	5958	0.9156		91.6	54.6	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.317	4.411	-0.094	1.000	117052	58.5		123	1024	
D 17 13C4 PFOA										
416.9 > 371.8	4.355	4.468	-0.113	1.000	780563	45.6		91.1	2622	
19 Perfluorononanoic acid										
462.8 > 418.8	5.113	5.113	0.0	1.000	23252	1.08		108	143	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.140	5.140	0.0	1.003	7009	0.99		99.5	64.6	
D 20 13C5 PFNA										
467.8 > 422.8	5.113	5.222	-0.109	1.000	983516	42.6		85.1	269	
D 22 13C4 PFOS										
502.8 > 79.8	5.127	5.236	-0.109	1.000	325812	56.7		119	858	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.902	5.863	0.039	1.007	4624	0.9544		95.4	32.1	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.882	5.882	0.0	1.000	26222	1.12		112	85.3	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.863	5.998	-0.135	1.000	287670	53.0		111	1832	
D 26 13C2 PFDA										
514.9 > 469.5	5.882	6.022	-0.140	1.000	1159596	48.7		97.4	1435	
28 N-methylperfluorooctanesulfonamido										M
569.8 > 418.8	6.259	6.241	0.018	1.006	5221	1.00		100.0	16.2	M
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.223	6.367	-0.144	1.000	240475	39.5		79.0	940	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.634	6.634	0.0	1.294	6798	0.9534		95.3	147	
30 N-ethylperfluorooctanesulfonamidoa										M
583.9 > 418.8	6.598	6.634	-0.036	1.000	4477	1.05		105	39.3	M
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.652	6.652	0.0	1.003	23348	0.9661		96.6	197	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.598	6.734	-0.136	1.000	222153	43.0		86.0	689	
D 32 13C2 PFUnA										
564.8 > 519.8	6.634	6.777	-0.143	1.000	1177896	47.5		95.0	2138	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.903	6.917	-0.014	0.998	10203	0.9333		93.3	119	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.945	-0.028	1.000	645991	58.4		117	5011	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.317	7.339	-0.022	1.000	24410	1.12		112	215	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags

D 37 13C2 PFD0A

614.8 > 569.6	7.317	7.474	-0.157	1.000	1270451	40.5		81.0	2737	

38 Perfluorotridecanoic acid

662.8 > 618.6	7.945	7.953	-0.008	0.935	21683	1.05		105	182	

39 Perfluorotetradecanoic acid

712.8 > 668.6	8.499	8.514	-0.015	1.000	19445	0.9402	Target=1.00	94.0	127	

712.8 > 168.8	8.499	8.514	-0.015	1.000	4561		4.26(0.90-1.10)		28.9	

712.8 > 218.8	8.484	8.514	-0.030	0.998	2172		8.95(0.90-1.10)		23.2	

D 40 13C2 PFTeDA

714.8 > 669.6	8.499	8.681	-0.182	1.000	1060881	36.9		73.7	1290	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L1_00003

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A07.d

Injection Date: 09-Jan-2019 17:13:01

Instrument ID: LC410

Lims ID: CCVL

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

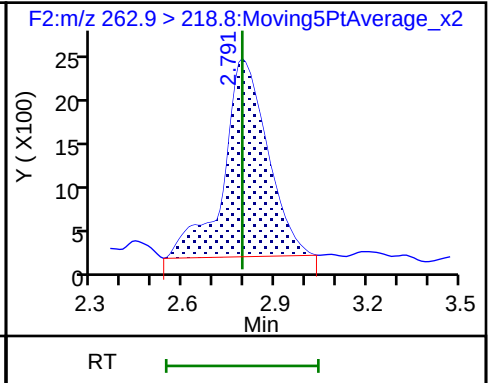
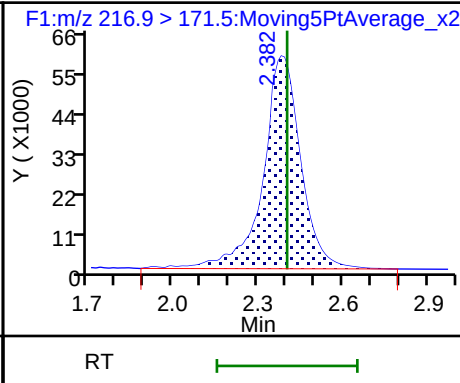
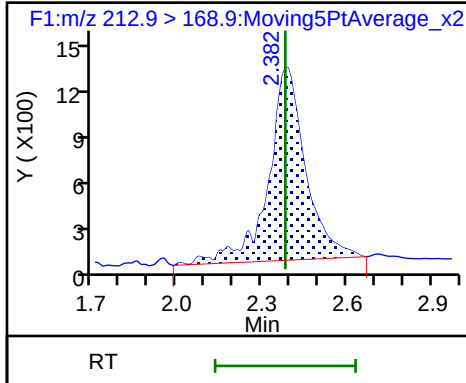
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA (M)

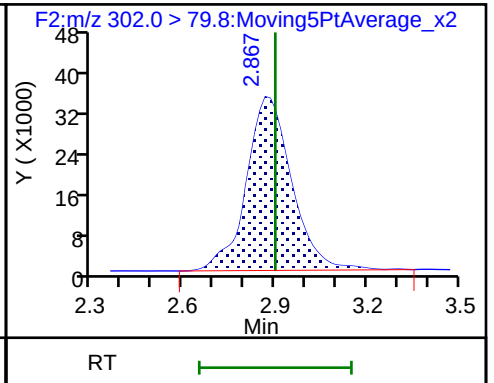
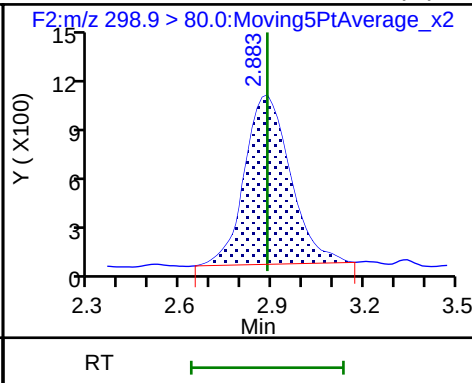
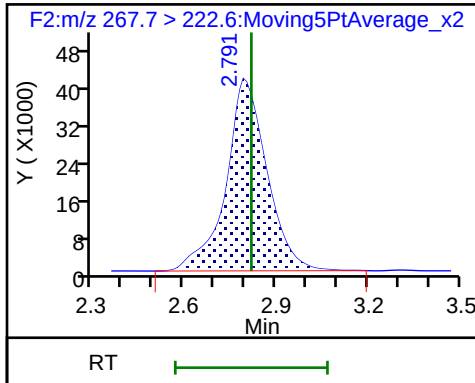
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid (M)

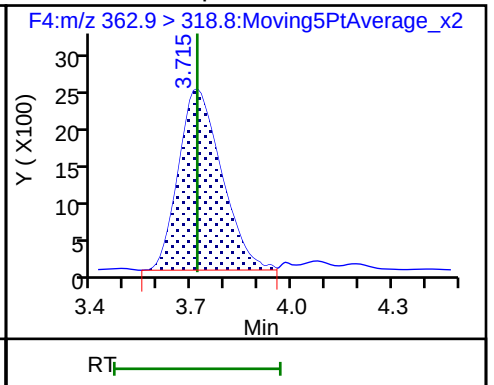
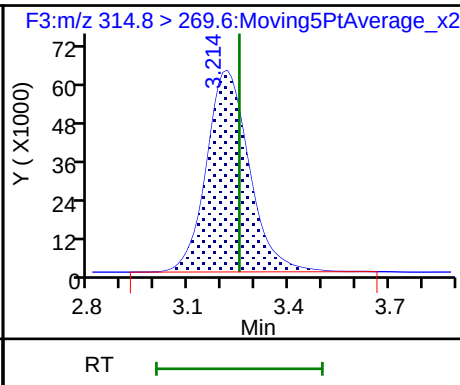
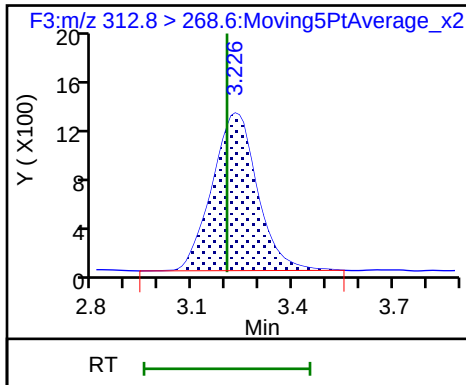
D 6 13C3 PFBS



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

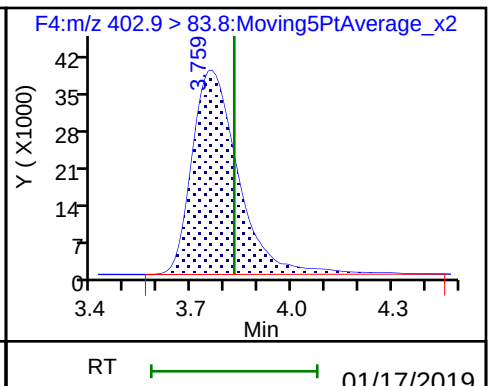
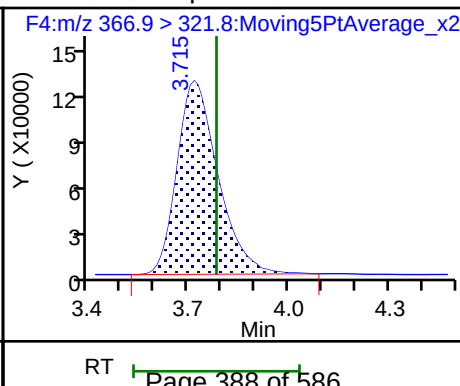
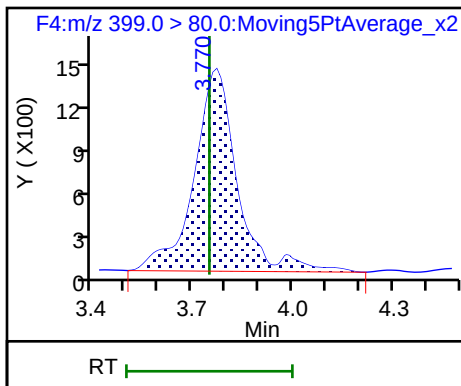
10 Perfluoroheptanoic acid



12 Perfluorohexanesulfonic acid

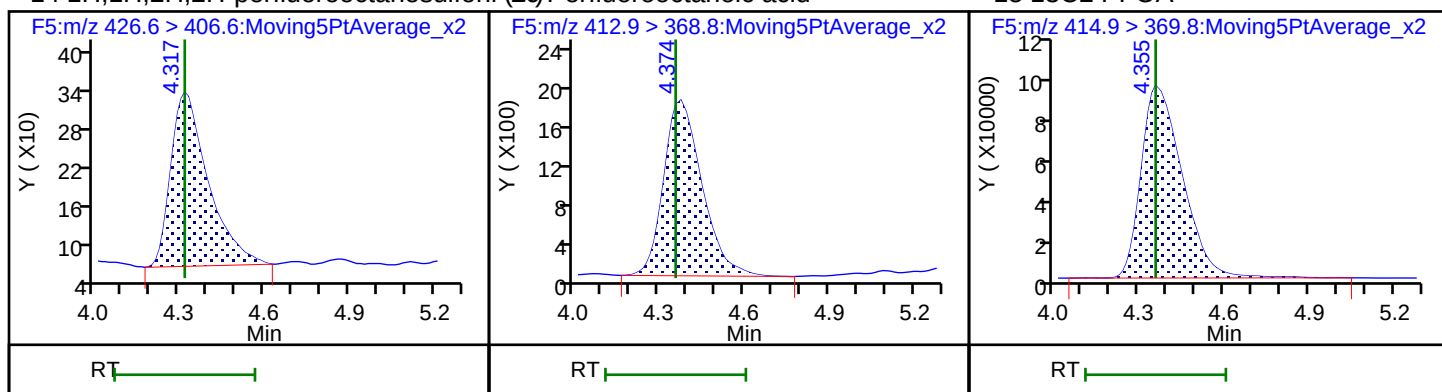
D 9 13C4 PFHpA

D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfoni (M) Perfluorooctanoic acid

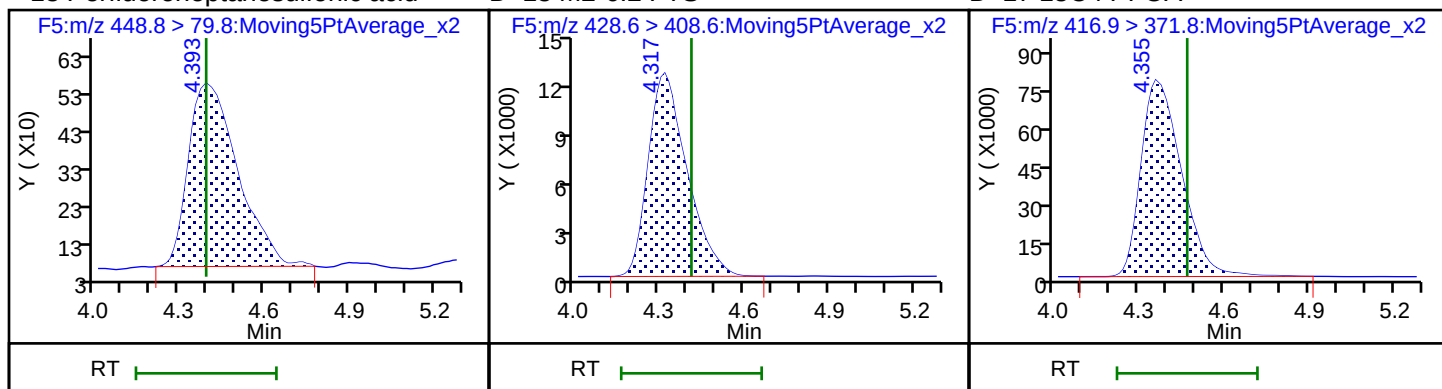
* 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid

D 13 M2-6:2 FTS

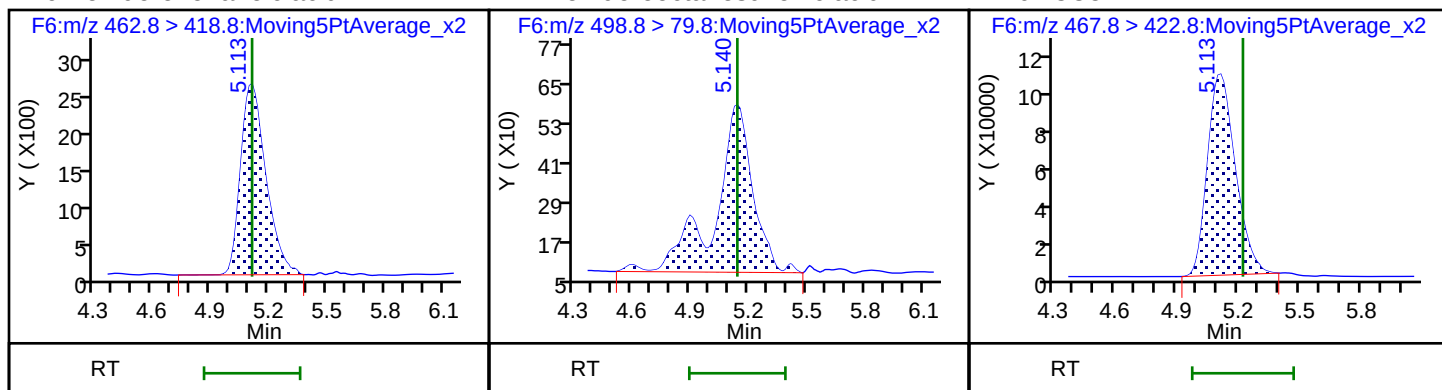
D 17 13C4 PFOA



19 Perfluorononanoic acid

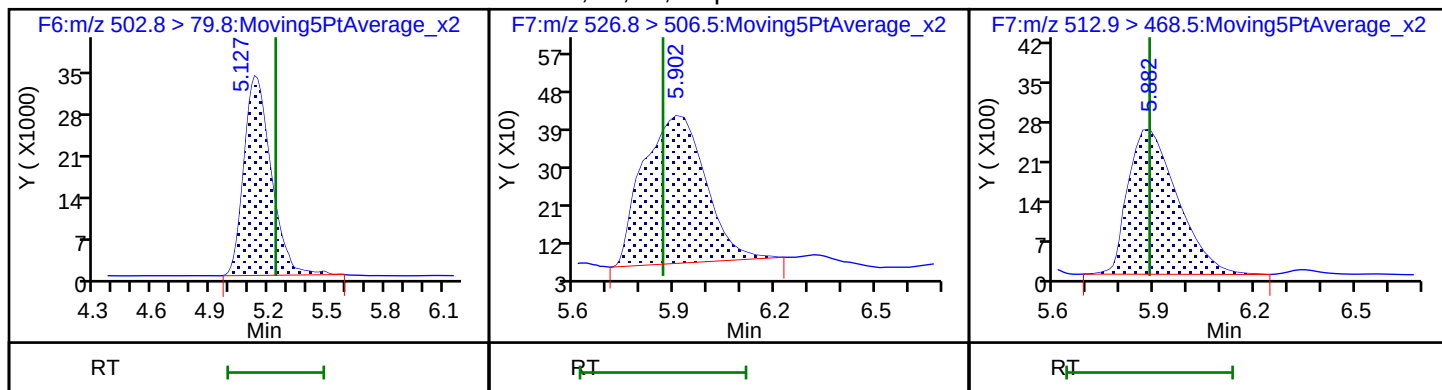
21 Perfluorooctanesulfonic acid

D 20 13C5 PFNA

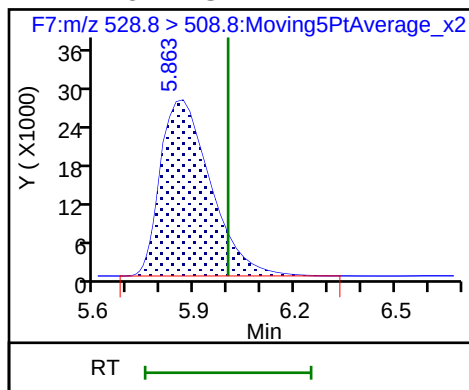


D 22 13C4 PFOS

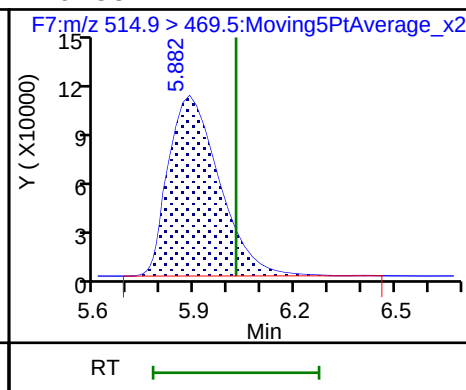
23 1H,1H,2H,2H-perfluorodecanesulfoni 25 Perfluorodecanoic acid



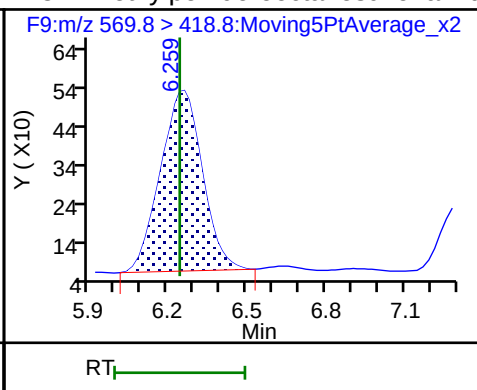
D 24 M2-8:2 FTS



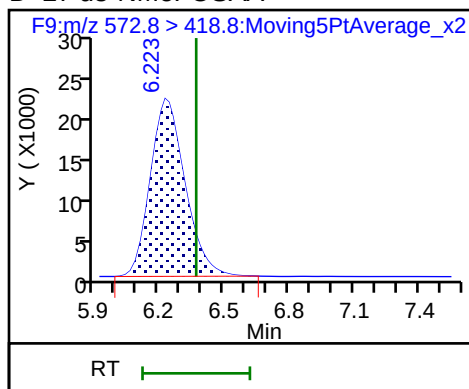
D 26 13C2 PFDA



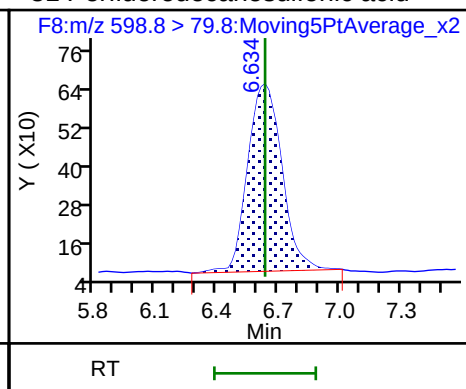
28 N-methylperfluorooctanesulfonamido (M)



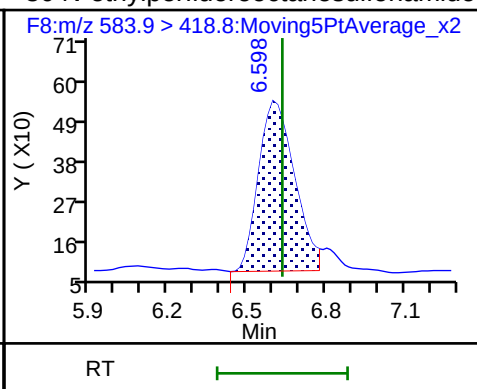
D 27 d3-NMeFOSAA



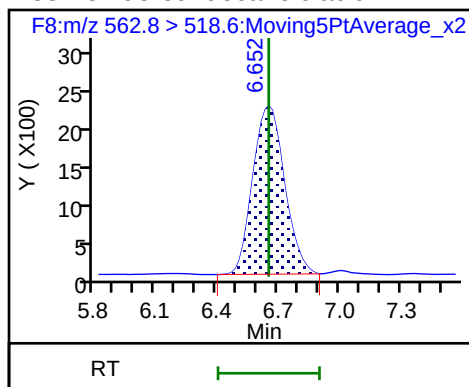
31 Perfluorodecanesulfonic acid



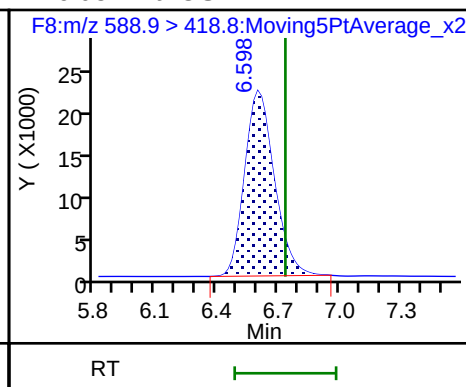
30 N-ethylperfluorooctanesulfonamido (M)



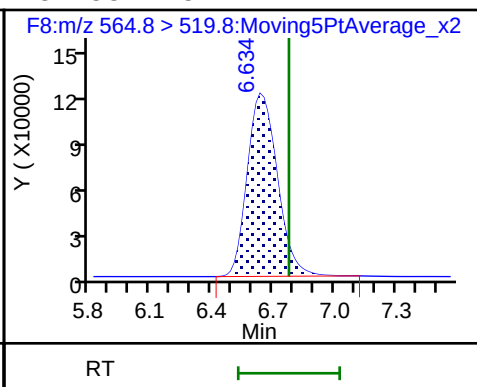
33 Perfluoroundecanoic acid



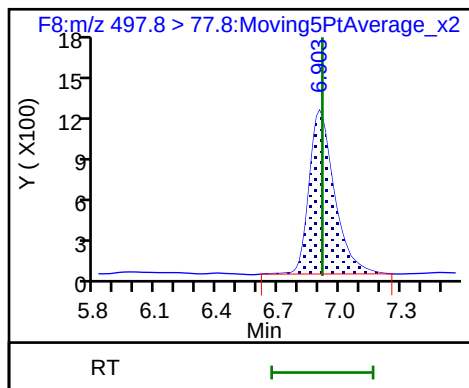
D 29 d5-NEtFOSAA



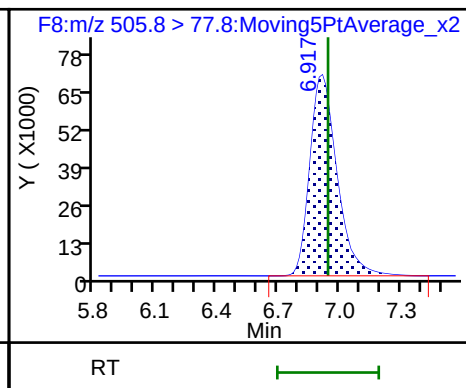
D 32 13C2 PFUnA



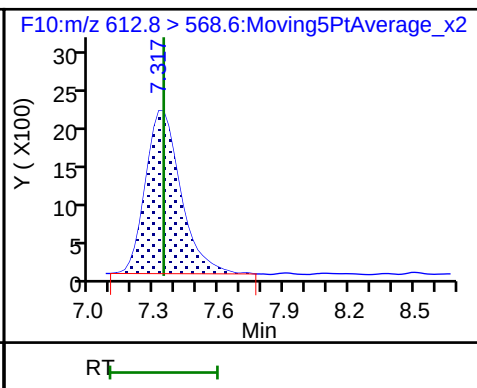
34 Perfluorooctanesulfonamide



D 35 13C8 FOSA



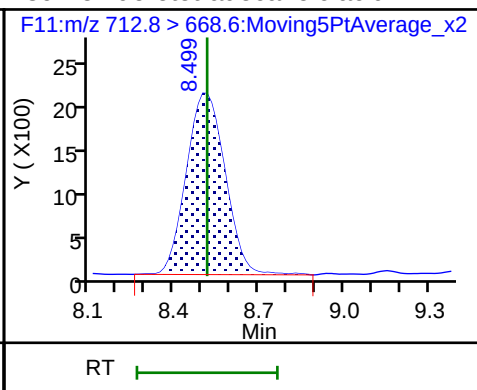
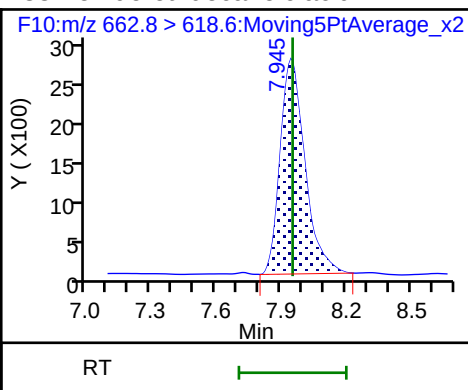
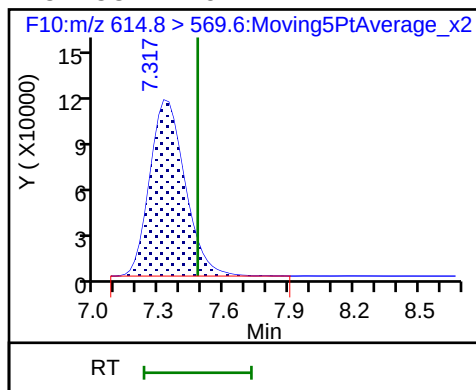
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

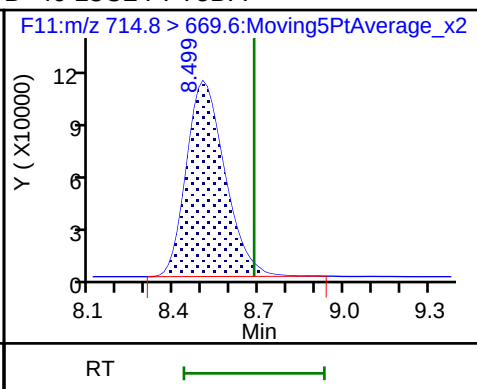
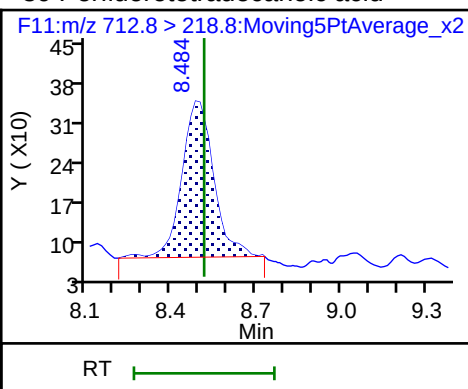
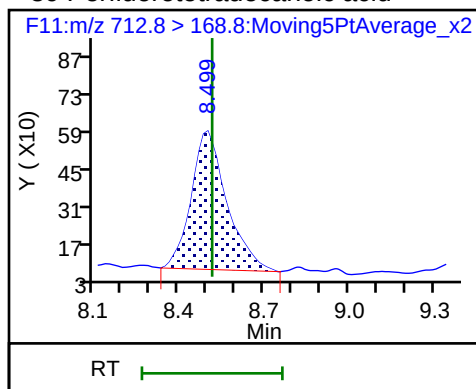
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

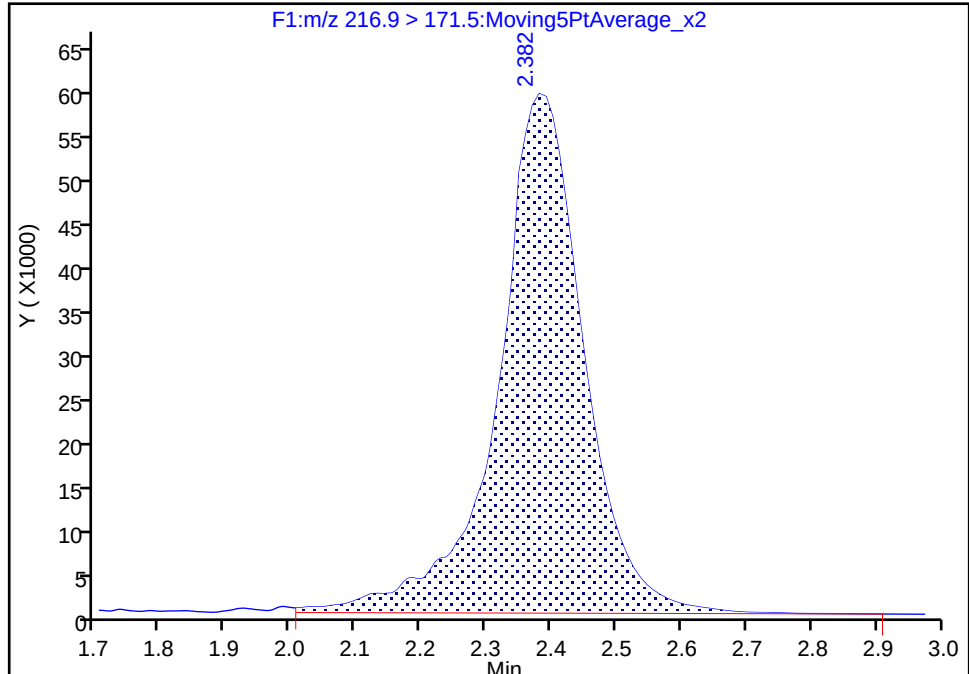
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A07.d
Injection Date: 09-Jan-2019 17:13:01 Instrument ID: LC410
Lims ID: CCVL
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

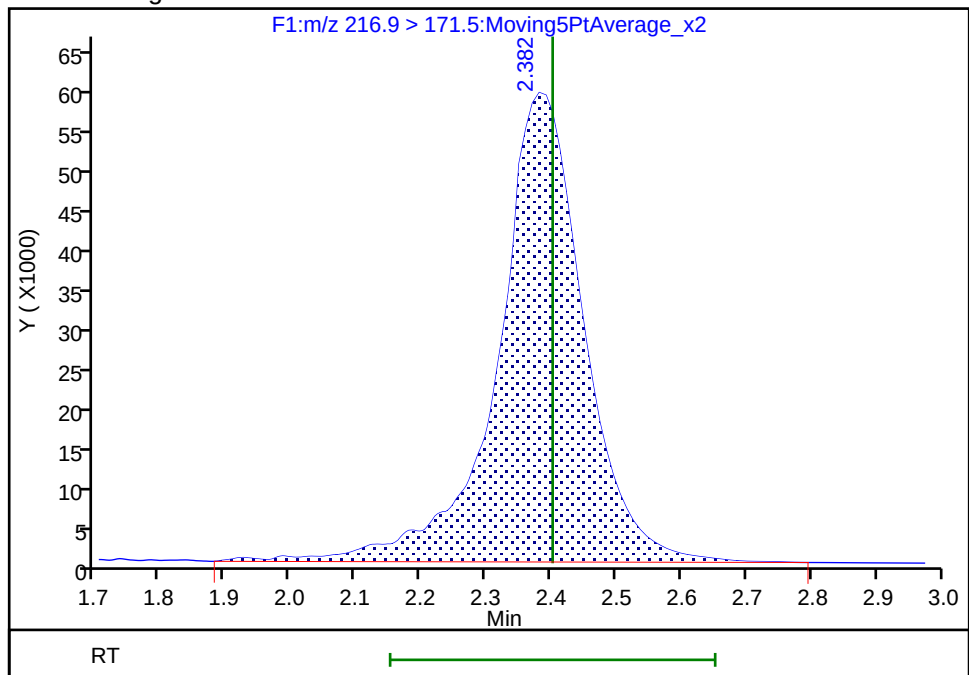
RT: 2.38
Area: 548543
Amount: 51.136478
Amount Units: ng/ml

Processing Integration Results



RT: 2.38
Area: 550247
Amount: 51.295329
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 09-Jan-2019 17:53:09

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A07.d

Injection Date: 09-Jan-2019 17:13:01

Instrument ID: LC410

Lims ID: CCVL

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

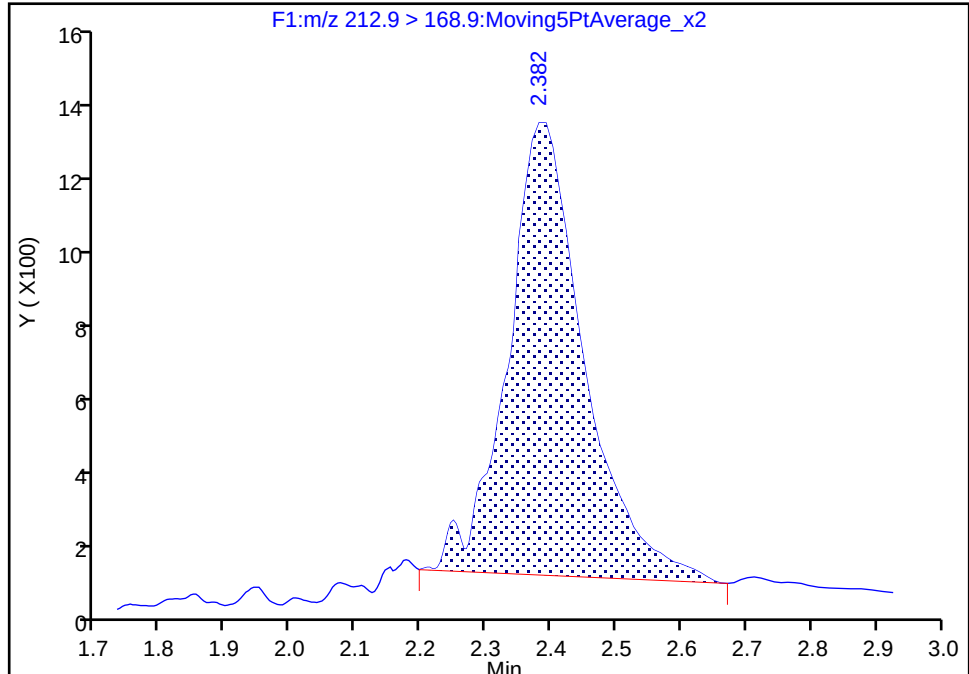
Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

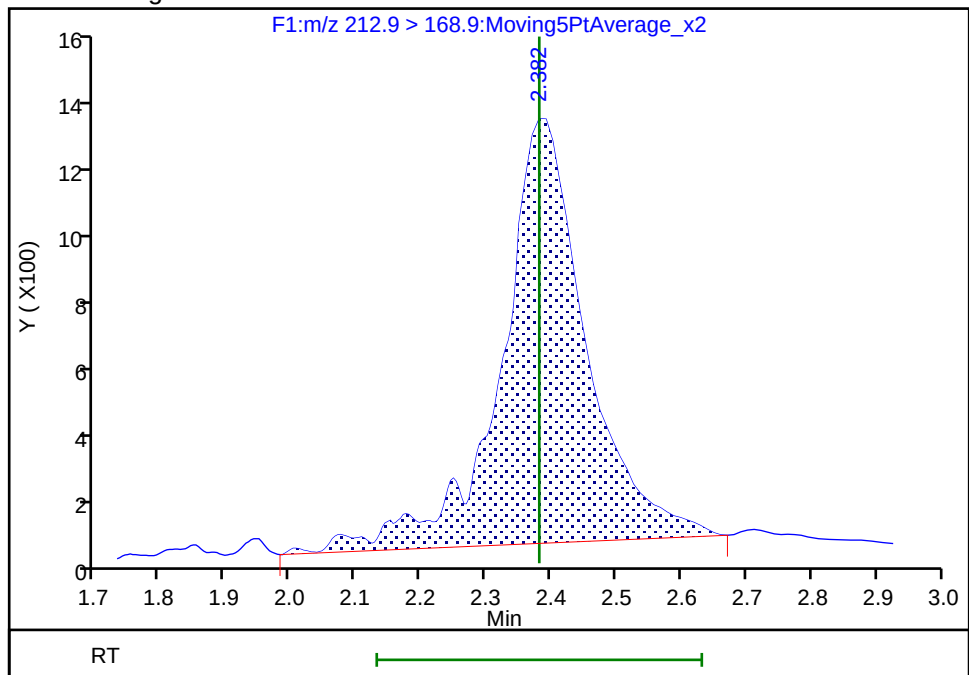
RT: 2.38
Area: 9703
Amount: 0.853440
Amount Units: ng/ml

Processing Integration Results



RT: 2.38
Area: 11284
Amount: 1.019768
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 09-Jan-2019 17:53:02

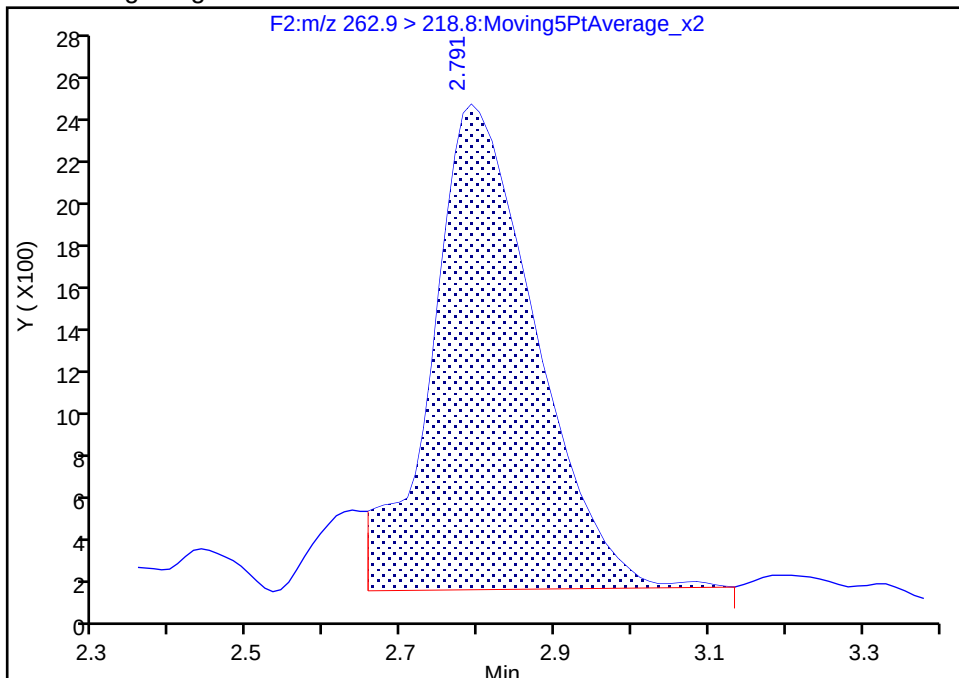
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A07.d		
Injection Date:	09-Jan-2019 17:13:01	Instrument ID:	LC410
Lims ID:	CCVL		
Client ID:			
Operator ID:	BC	ALS Bottle#:	0 Worklis
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector	F2:MRM

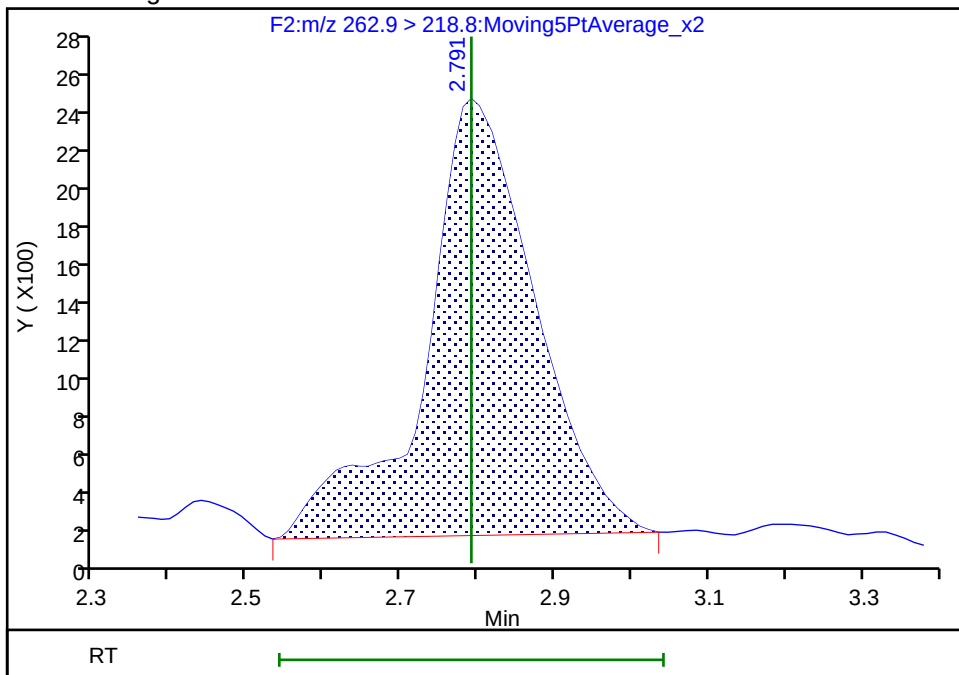
Signal: 1

Processing Integration Results



RT: 2.79
Area: 22123
Amount: 1.001182
Amount Units: ng/ml

Manual Integration Results



Audit Reason: Incomplete Integration

TestAmerica Burlington

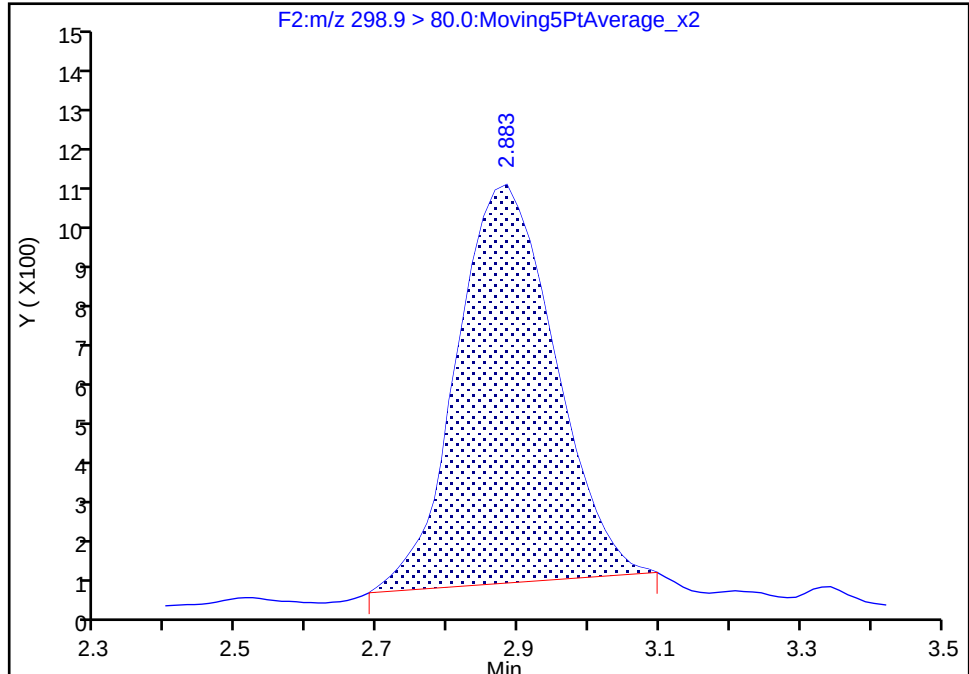
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A07.d
Injection Date: 09-Jan-2019 17:13:01 Instrument ID: LC410
Lims ID: CCVL
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

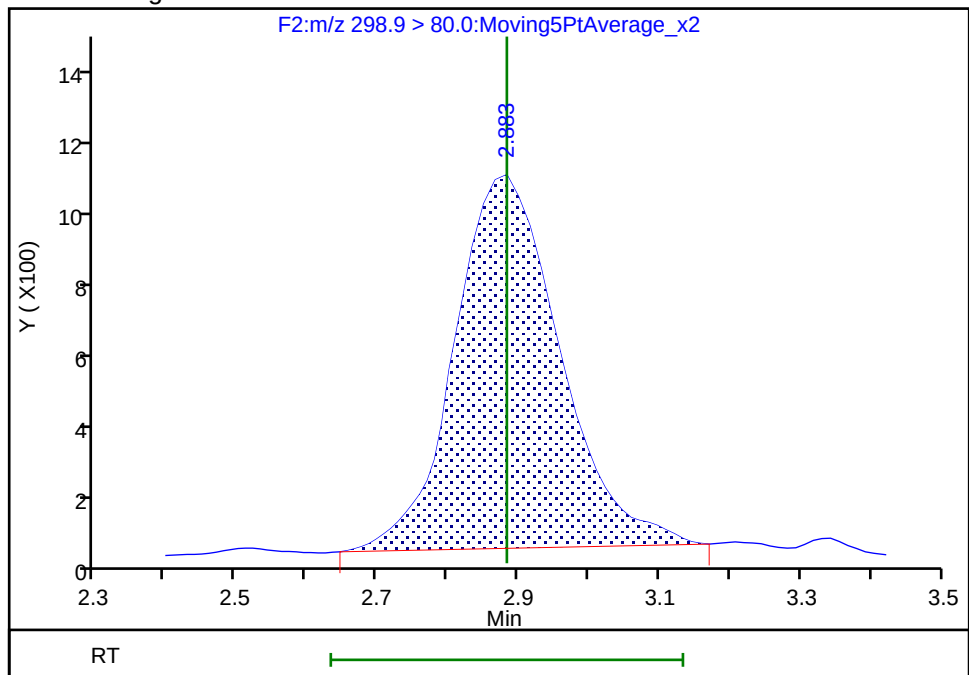
RT: 2.88
Area: 9495
Amount: 0.709231
Amount Units: ng/ml

Processing Integration Results



RT: 2.88
Area: 10519
Amount: 0.785719
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 09-Jan-2019 17:53:19

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A07.d

Injection Date: 09-Jan-2019 17:13:01

Instrument ID: LC410

Lims ID: CCVL

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

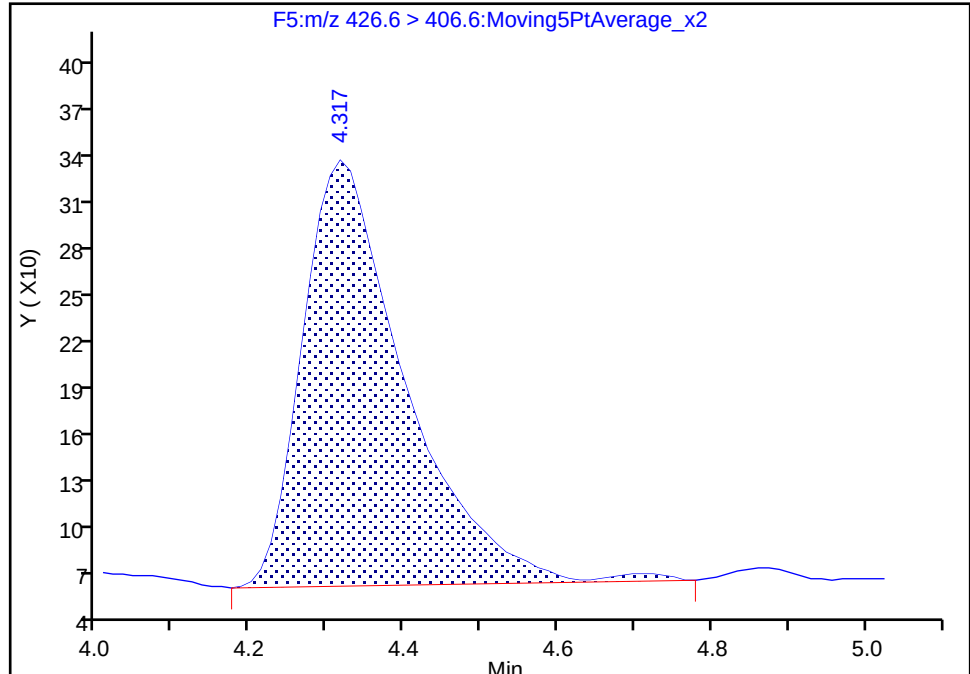
Detector F5:MRM

14 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:, CAS: 27619-97-2

Signal: 1

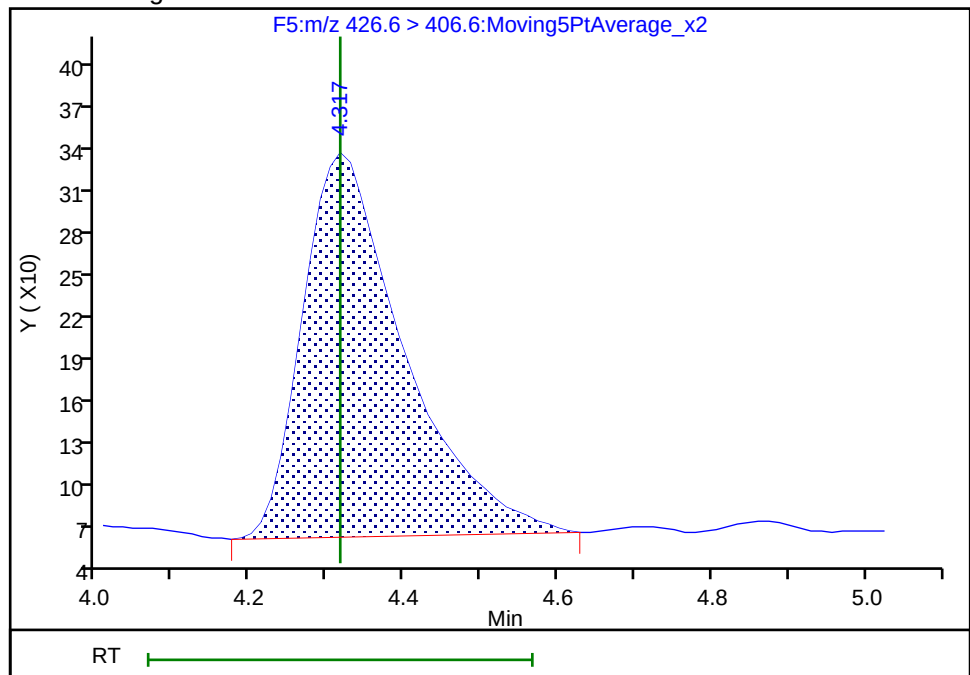
RT: 4.32
Area: 2551
Amount: 1.051460
Amount Units: ng/ml

Processing Integration Results



RT: 4.32
Area: 2509
Amount: 1.034148
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 09-Jan-2019 17:53:33

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A07.d

Injection Date: 09-Jan-2019 17:13:01

Instrument ID: LC410

Lims ID: CCVL

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

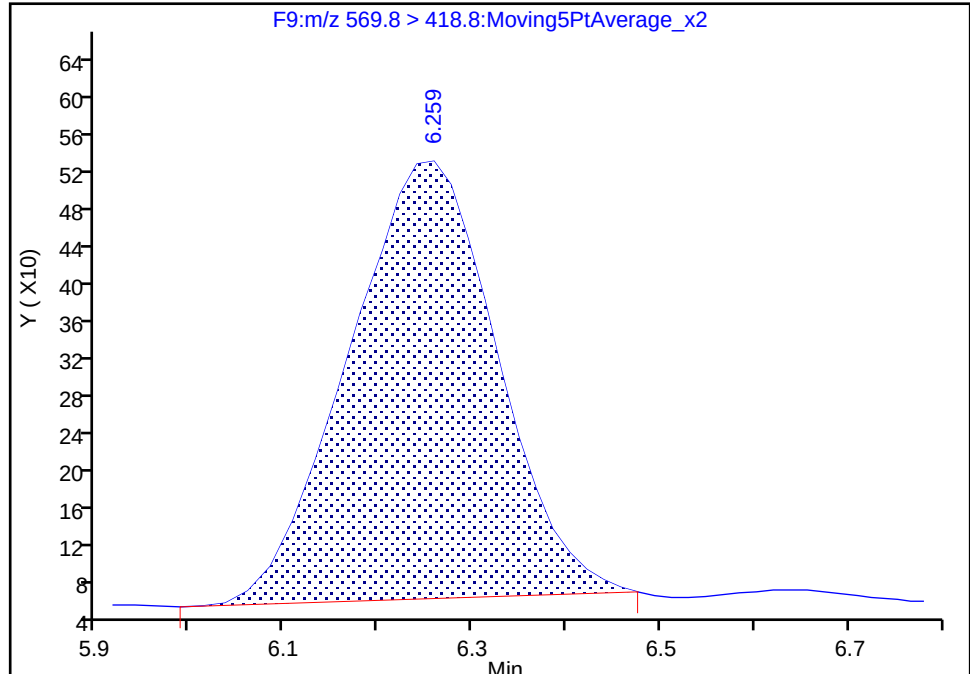
Detector F9:MRM

28 N-methylperfluorooctanesulfonamidoacetic aci, CAS: 2355-31-9

Signal: 1

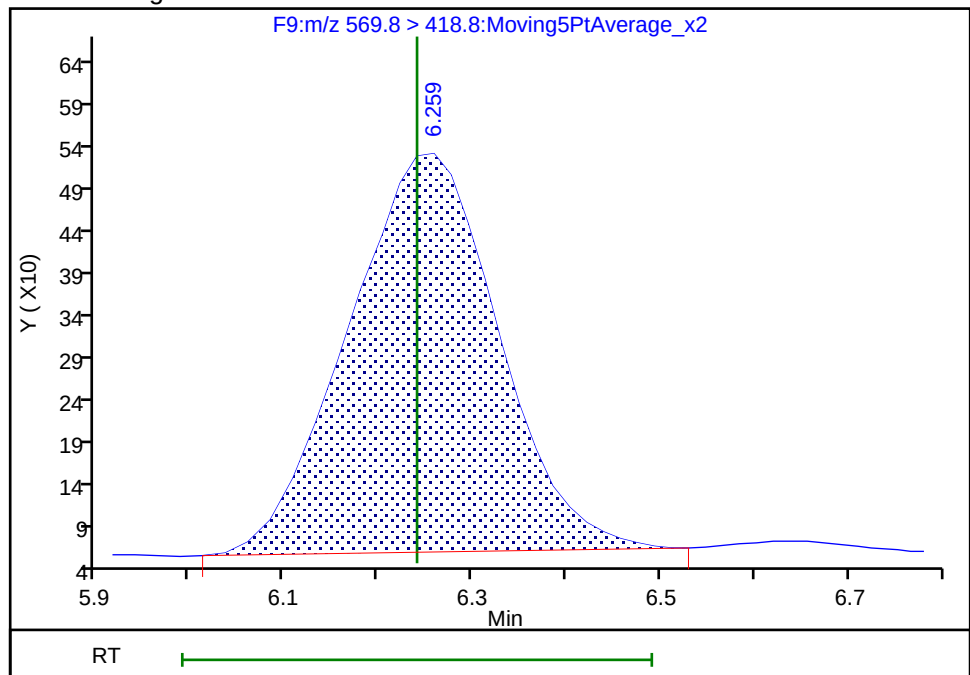
RT: 6.26
Area: 5121
Amount: 0.980538
Amount Units: ng/ml

Processing Integration Results



RT: 6.26
Area: 5221
Amount: 0.999685
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 09-Jan-2019 17:53:44

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A07.d

Injection Date: 09-Jan-2019 17:13:01

Instrument ID: LC410

Lims ID: CCVL

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

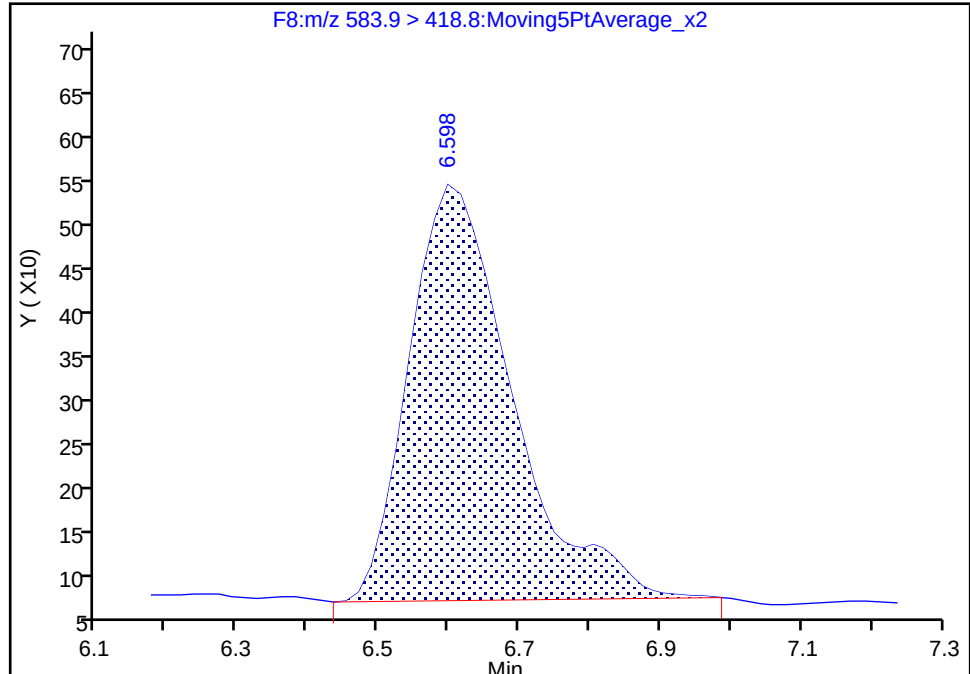
Detector F8:MRM

30 N-ethylperfluorooctanesulfonamidoacetic acid, CAS: 2991-50-6

Signal: 1

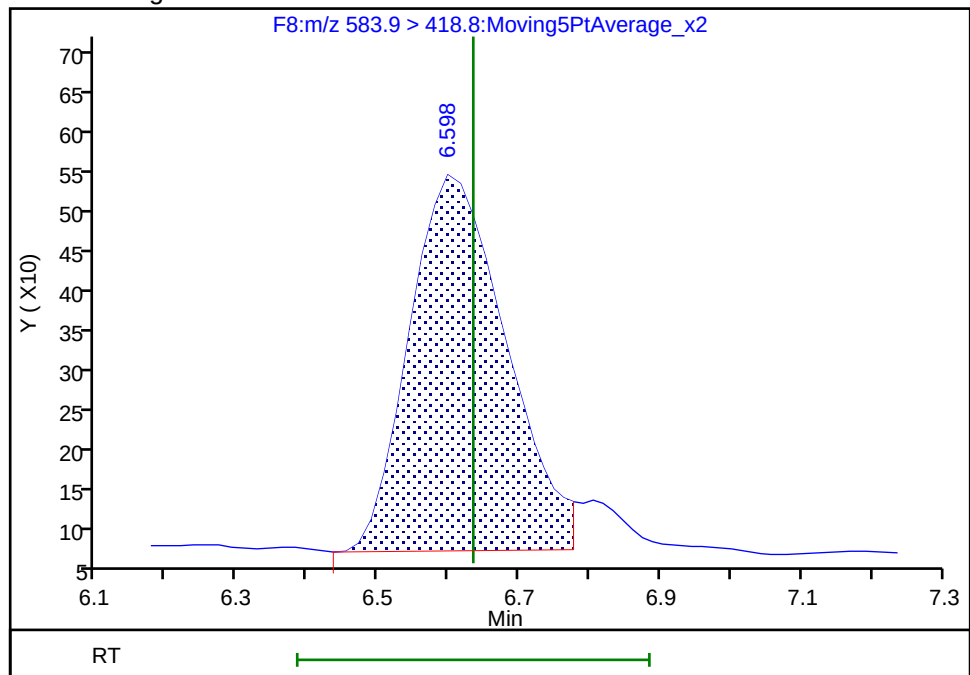
RT: 6.60
Area: 4777
Amount: 1.116811
Amount Units: ng/ml

Processing Integration Results



RT: 6.60
Area: 4477
Amount: 1.046674
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 09-Jan-2019 17:53:52

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Lab Sample ID: CCV 200-138946/11 Calibration Date: 01/09/2019 18:16

Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20

GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27

Lab File ID: PF010919A11.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	L1ID		0.9710		57100	50000	14.2	40.0
Perfluoropentanoic acid (PFPeA)	AveID	2.848	2.745		48200	50000	-3.6	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.745	1.490		42700	50000	-14.6	40.0
Perfluorohexanoic acid (PFHxA)	AveID	1.038	0.9860		47500	50000	-5.0	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9775	1.135		58100	50000	16.1	40.0
Perfluorohexanesulfonic acid (PFHxS)	L1ID		1.274		41600	50000	-16.7	40.0
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	AveID	0.9845	0.9828		49900	50000	-0.2	40.0
Perfluorooctanoic acid (PFOA)	AveID	0.9899	1.135		57300	50000	14.6	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	0.9547	0.9575		50100	50000	0.3	50.0
Perfluorononanoic acid (PFNA)	AveID	1.099	1.069		48600	50000	-2.8	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.034	1.091		52800	50000	5.6	40.0
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	AveID	0.8068	0.8665		53700	50000	7.4	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.009	1.032		51100	50000	2.2	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.086	0.8699		40100	50000	-19.9	40.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9627	0.8267		42900	50000	-14.1	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	1.046	0.9929		47500	50000	-5.1	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.026	1.103		53800	50000	7.5	40.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.8462	0.9006		53200	50000	6.4	40.0
Perfluorododecanoic acid (PFDoA)	AveID	0.8584	0.9424		54900	50000	9.8	40.0
Perfluorotridecanoic acid (PFTrIA)	AveID	0.9775	1.142		58400	50000	16.9	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.9748	0.9484		48600	50000	-2.7	40.0
13C4 PFBA	Ave	0.5875	0.6475		55100	50000	10.2	50.0
13C5 PFPeA	Ave	0.3725	0.4620		62000	50000	24.0	50.0
13C3 PFBS	Ave	0.3075	0.4726		71500	46500	53.7*	50.0
13C2 PFHxA	Ave	0.6710	0.6759		50400	50000	0.7	50.0
13C4 PFHpA	Ave	1.229	1.162		47300	50000	-5.5	50.0
18O2 PFHxS	Ave	0.3555	0.4848		64500	47300	36.4	50.0
M2-6:2 FTS	Ave	0.1097	0.1619		70100	47500	47.7	50.0
13C4 PFOA	Ave	0.9383	0.8529		45400	50000	-9.1	50.0
13C5 PFNA	Ave	1.265	1.158		45800	50000	-8.5	50.0
13C4 PFOS	Ave	0.3148	0.4488		68100	47800	42.6	50.0
M2-8:2 FTS	Ave	0.2971	0.3526		56800	47900	18.7	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Lab Sample ID: CCV 200-138946/11 Calibration Date: 01/09/2019 18:16
 Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20
 GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27
 Lab File ID: PF010919A11.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C2 PFDA	Ave	1.305	1.332		51000	50000	2.1	50.0
d3-NMeFOSAA	Ave	0.3333	0.2930		44000	50000	-12.1	50.0
d5-NEtFOSAA	Ave	0.2828	0.2556		45200	50000	-9.6	50.0
13C2 PFUnA	Ave	1.358	1.266		46600	50000	-6.7	50.0
13C8 FOSA	Ave	0.6063	0.8101		66800	50000	33.6	50.0
13C2 PFDoA	Ave	1.718	1.625		47300	50000	-5.4	50.0
13C2 PFTeDA	Ave	1.577	1.338		42400	50000	-15.2	50.0

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A11.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 09-Jan-2019 18:16:41 ALS Bottle#: 0 Worklist Smp#: 11
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034076-011 CCV 5
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:18 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: murrayjw Date: 10-Jan-2019 09:07:04

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.9 > 168.9	2.392	2.382	0.010	1.000	489507	57.1		114	154	
D 1 13C4 PFBA										
216.9 > 171.5	2.392	2.402	-0.010	1.000	504134	55.1		110	124	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.801	2.791	0.010	1.000	987229	48.2		96.4	1675	
D 3 13C5 PFPeA										
267.7 > 222.6	2.801	2.818	-0.017	1.000	359709	62.0		124	1525	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.883	2.883	0.0	1.000	548345	42.7		85.4	678	
D 6 13C3 PFBS										
302.0 > 79.8	2.883	2.900	-0.017	1.000	342169	71.5		154	452	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.214	3.201	0.013	1.000	518808	47.5		95.0	1188	
D 7 13C2 PFHxA										M
314.8 > 269.6	3.214	3.250	-0.036	1.000	526177	50.4		101	523	M
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.715	3.715	0.0	1.000	1026676	58.1		116	28087	
12 Perfluorohexanesulfonic acid										M
399.0 > 80.0	3.759	3.748	0.011	1.000	480956	41.6		83.3	144	M
D 9 13C4 PFHpA										
366.9 > 321.8	3.715	3.782	-0.067	1.000	904699	47.3		94.5	2577	
D 11 18O2 PFHxS										
402.9 > 83.8	3.759	3.826	-0.067	1.000	357051	64.5		136	550	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.317	4.317	0.0	1.000	123909	49.9		99.8	1366	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
16 Perfluorooctanoic acid										
412.9 > 368.8	4.355	4.355	0.0	1.000	753312	57.3		115	857	
* 15 13C2 PFOA										
414.9 > 369.8	4.355	4.355	0.0		778544	50.0			2029	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.393	4.393	0.0	0.855	334545	50.1		100	764	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.317	4.411	-0.094	1.000	119777	70.1		148	664	
D 17 13C4 PFOA										
416.9 > 371.8	4.355	4.468	-0.113	1.000	664002	45.4		90.9	731	
19 Perfluorononanoic acid										
462.8 > 418.8	5.113	5.113	0.0	1.000	963685	48.6		97.2	1390	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.127	5.140	-0.013	0.997	381223	52.8		106	636	
D 20 13C5 PFNA										
467.8 > 422.8	5.113	5.222	-0.109	1.000	901769	45.8		91.5	350	
D 22 13C4 PFOS										
502.8 > 79.8	5.140	5.236	-0.096	1.000	334007	68.1		143	2418	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.863	5.863	0.0	1.000	237849	53.7		107	1018	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.883	5.882	0.001	1.000	1069798	51.1		102	6035	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.863	5.998	-0.135	1.000	262968	56.8		119	916	
D 26 13C2 PFDA										
514.9 > 469.5	5.883	6.022	-0.139	1.000	1036836	51.0		102	1235	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.241	6.241	0.0	1.000	198448	40.1		80.1	261	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.241	6.367	-0.126	1.000	228133	44.0		87.9	581	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.634	6.634	0.0	1.291	346907	47.5		94.9	8332	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.616	6.634	-0.018	1.003	164531	42.9		85.9	35.0	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.652	6.652	0.0	1.000	1087690	53.8		108	10322	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.598	6.734	-0.136	1.000	199030	45.2		90.4	509	
D 32 13C2 PFUnA										
564.8 > 519.8	6.652	6.777	-0.125	1.000	985938	46.6		93.3	2831	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.931	6.917	0.014	1.000	568013	53.2		106	3363	
D 35 13C8 FOSA										
505.8 > 77.8	6.931	6.945	-0.014	1.000	630718	66.8		134	4783	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.339	7.339	0.0	1.000	1192518	54.9		110	1945	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags

D 37 13C2 PFDaA

614.8 > 569.6	7.339	7.474	-0.135	1.000	1265361	47.3		94.6	1943	

38 Perfluorotridecanoic acid

662.8 > 618.6	7.953	7.953	0.0	0.936	1189451	58.4		117	2813	

39 Perfluorotetradecanoic acid

712.8 > 668.6	8.498	8.514	-0.016	1.000	987560	48.6	Target=1.00	97.3	2963	

712.8 > 168.8	8.514	8.514	0.0	1.002	201116		4.91(0.90-1.10)		665	

712.8 > 218.8	8.514	8.514	0.0	1.002	123661		7.99(0.90-1.10)		591	

D 40 13C2 PFTeDA

714.8 > 669.6	8.498	8.681	-0.183	1.000	1041300	42.4		84.8	1352	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L5_00001

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A11.d

Injection Date: 09-Jan-2019 18:16:41

Instrument ID: LC410

Lims ID: CCV L5

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 11

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

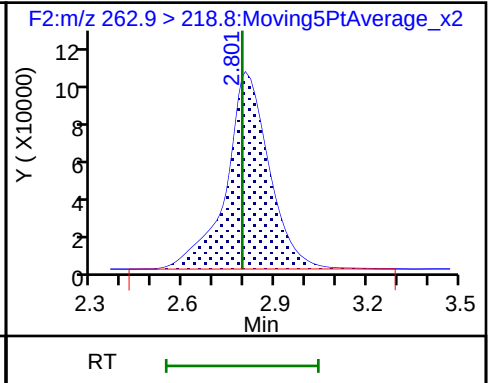
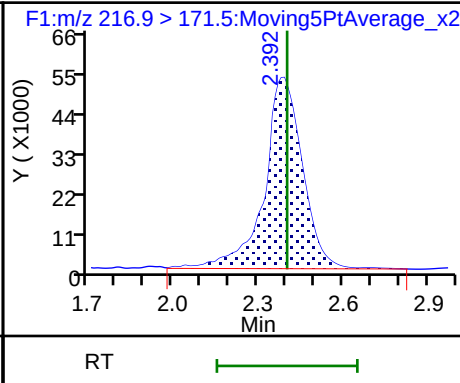
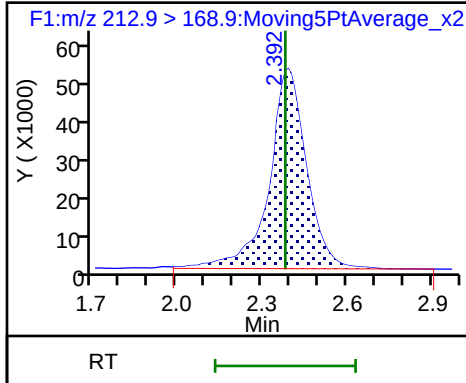
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid

D 1 13C4 PFBA

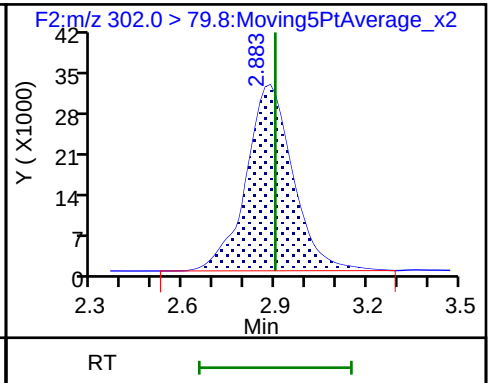
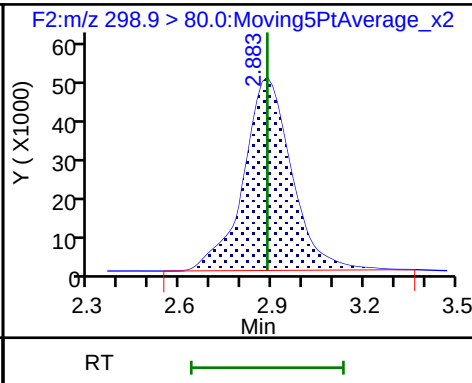
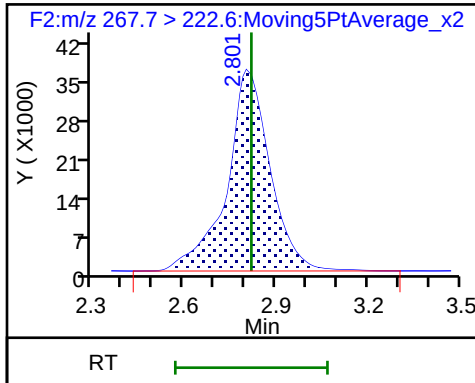
4 Perfluoropentanoic acid



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid

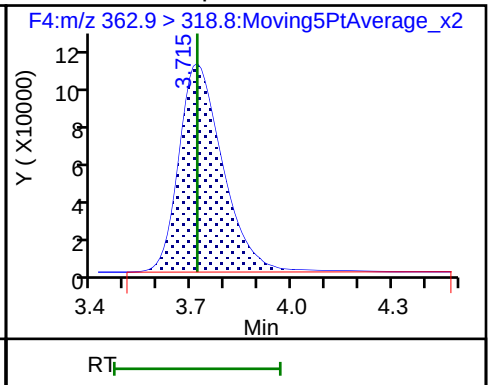
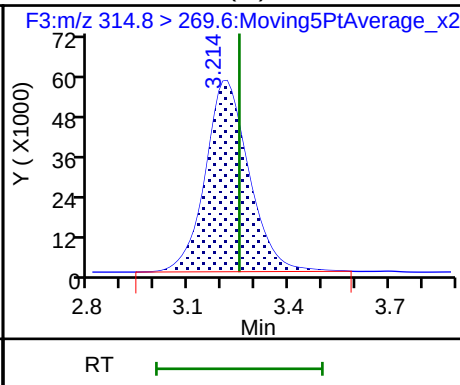
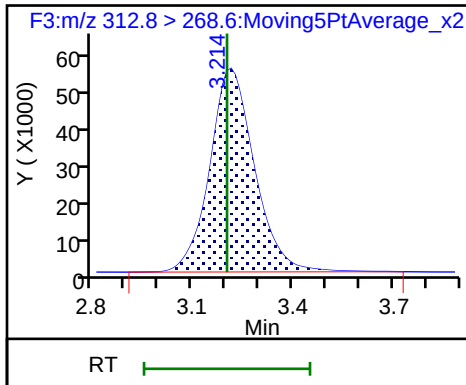
D 6 13C3 PFBS



8 Perfluorohexanoic acid

D 7 13C2 PFHxA (M)

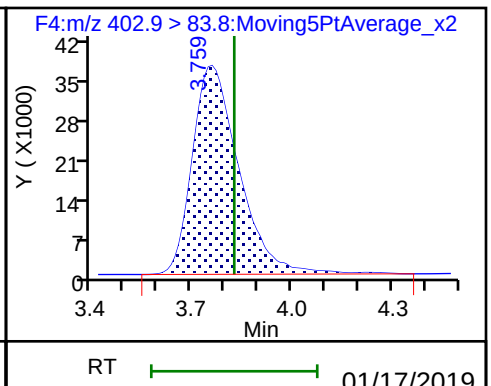
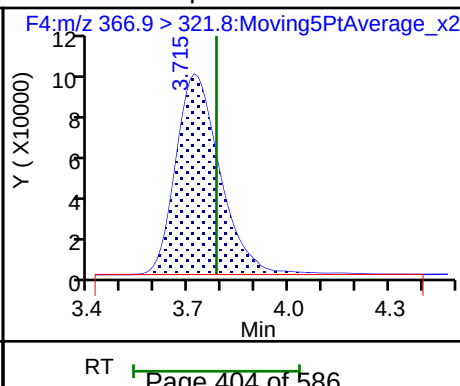
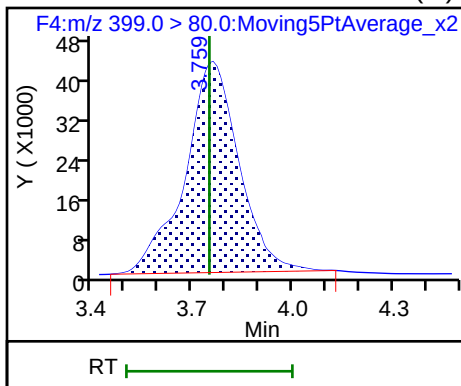
10 Perfluoroheptanoic acid



12 Perfluorohexanesulfonic acid (M)

D 9 13C4 PFHpA

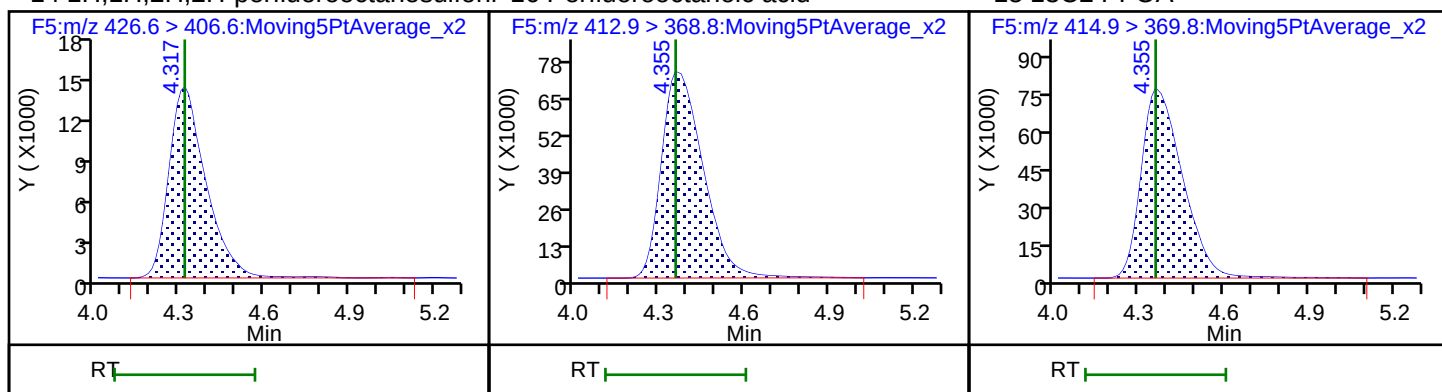
D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfoni

16 Perfluorooctanoic acid

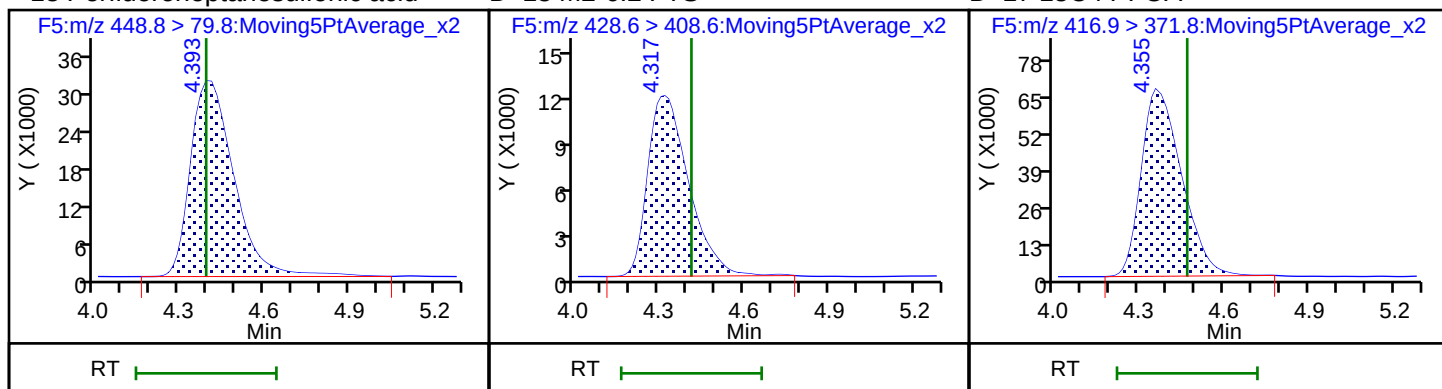
* 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid

D 13 M2-6:2 FTS

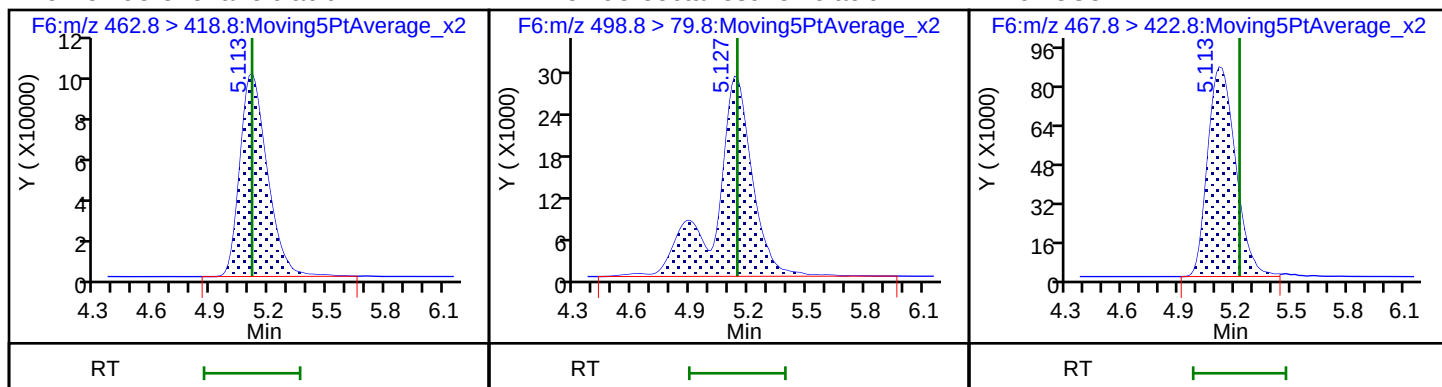
D 17 13C4 PFOA



19 Perfluorononanoic acid

21 Perfluorooctanesulfonic acid

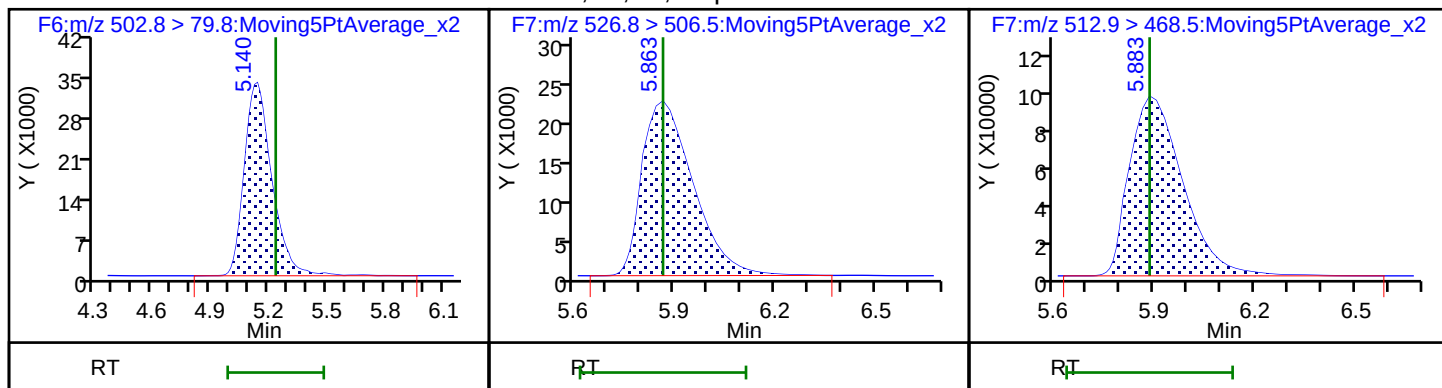
D 20 13C5 PFNA



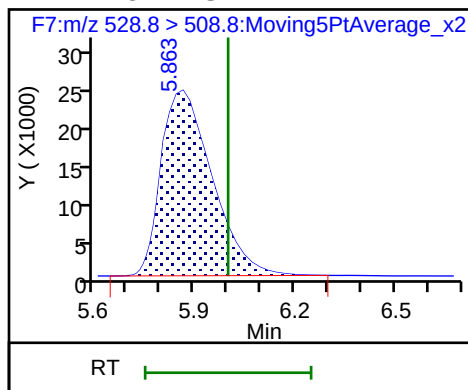
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23 1H,1H,2H,2H-perfluorodecanesulfoni

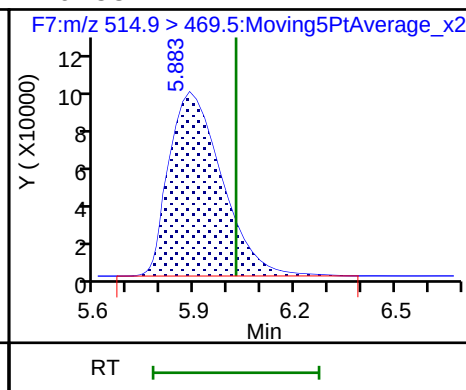
25 Perfluorodecanoic acid



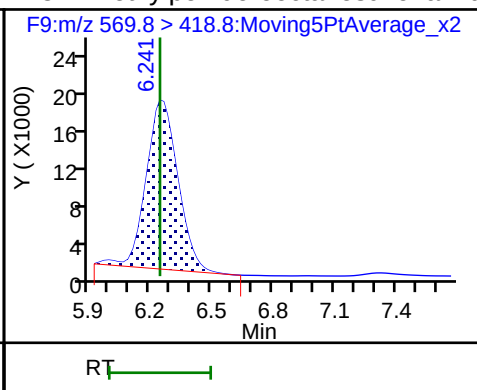
D 24 M2-8:2 FTS



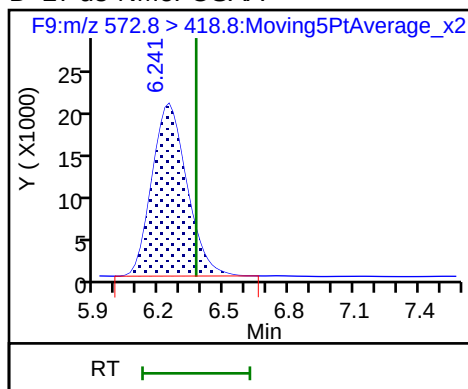
D 26 13C2 PFDA



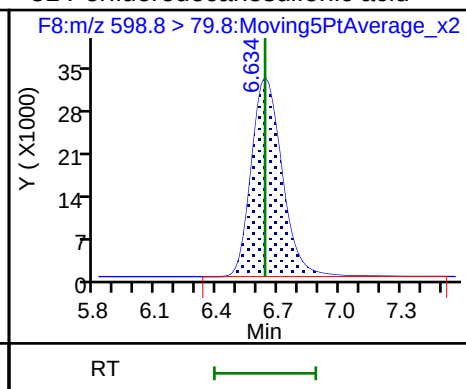
28 N-methylperfluorooctanesulfonamido



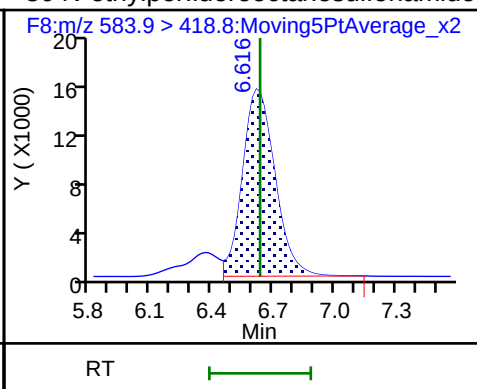
D 27 d3-NMeFOSAA



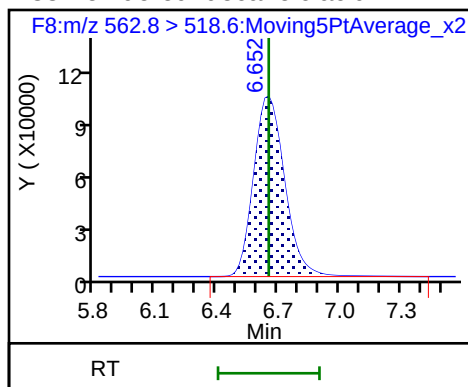
31 Perfluorodecanesulfonic acid



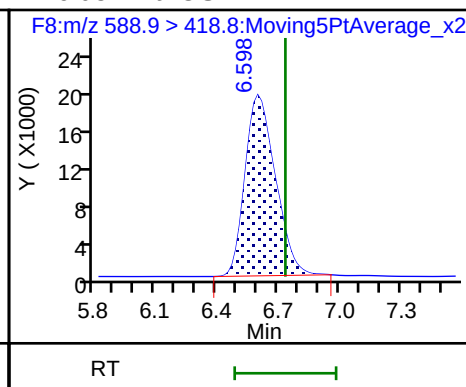
30 N-ethylperfluorooctanesulfonamidoa



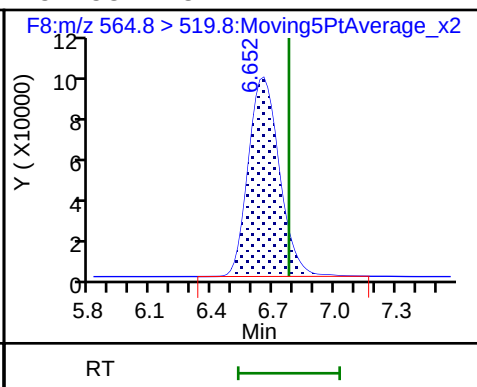
33 Perfluoroundecanoic acid



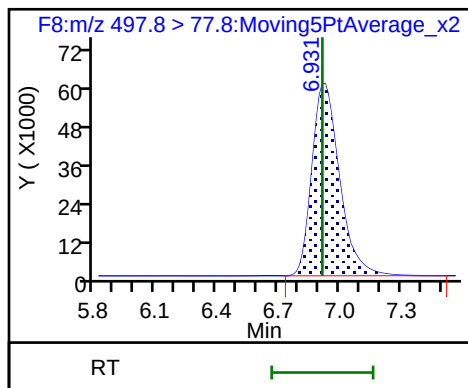
D 29 d5-NEtFOSAA



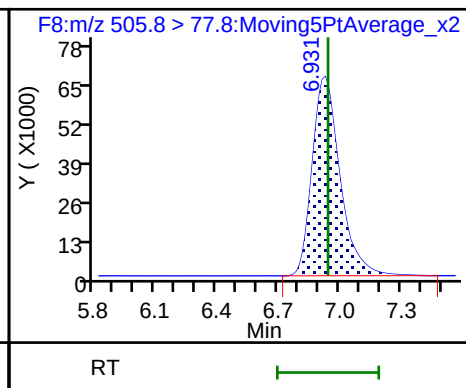
D 32 13C2 PFUnA



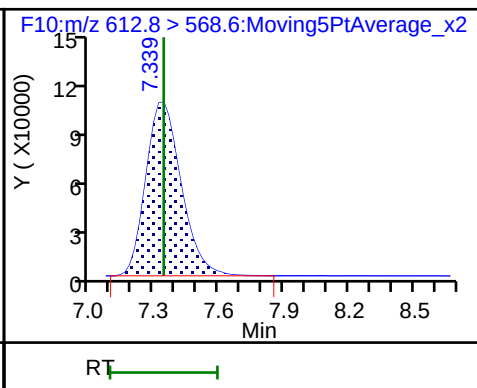
34 Perfluorooctanesulfonamide



D 35 13C8 FOSA



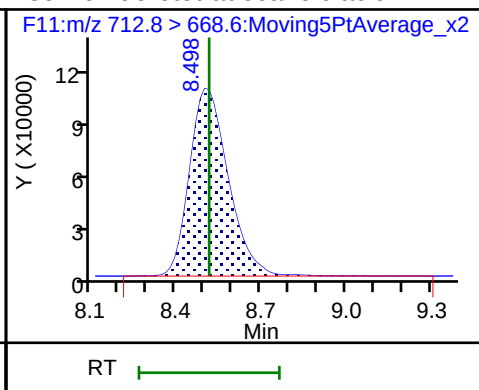
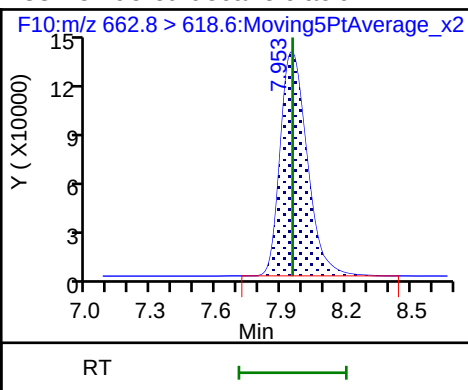
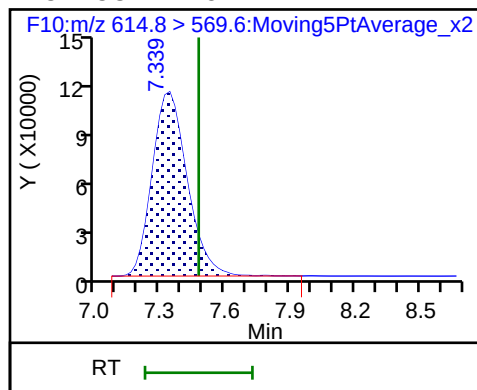
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

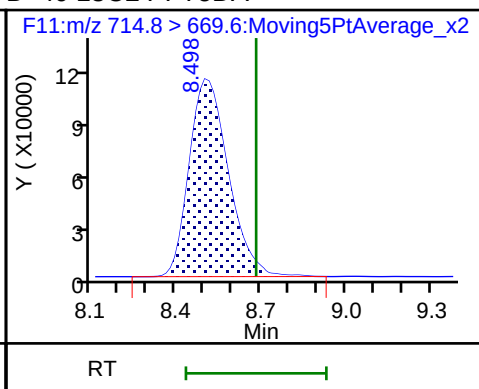
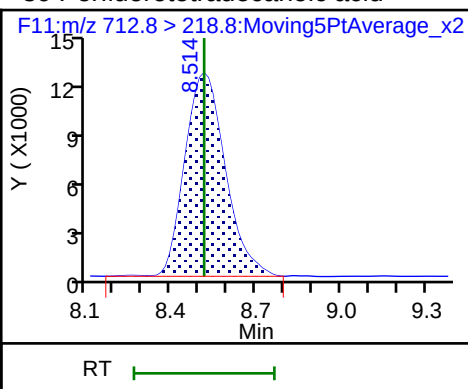
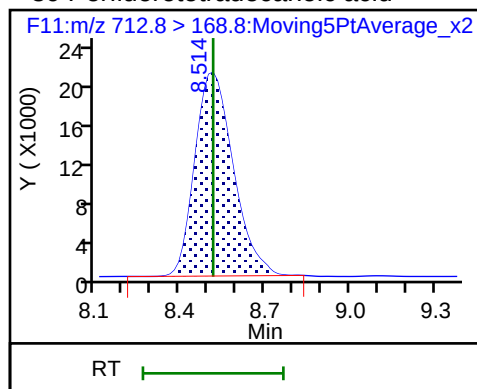
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

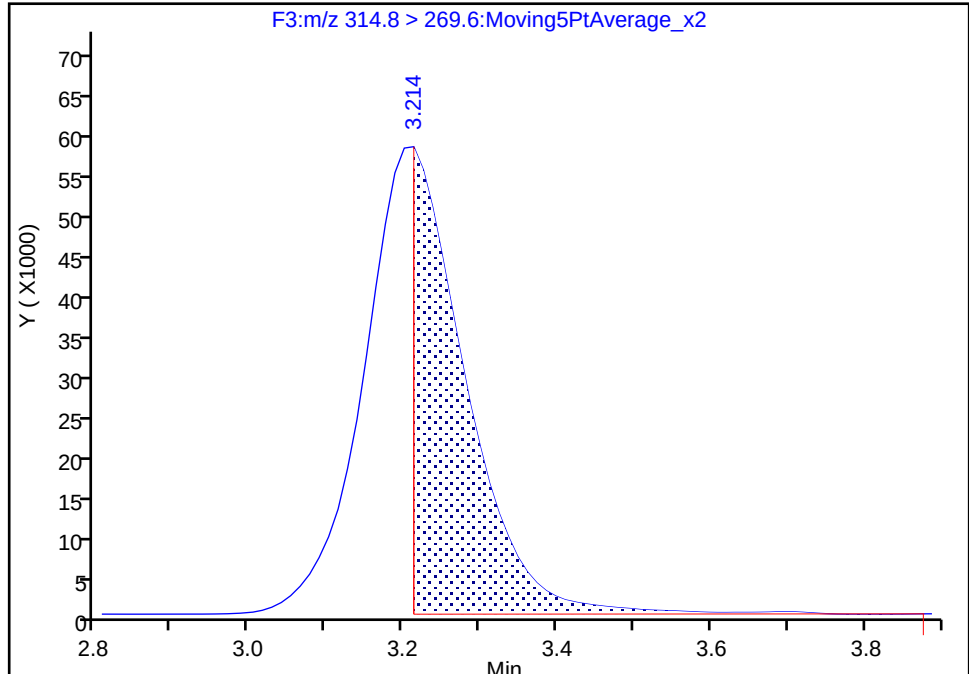
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Injection Date: 09-Jan-2019 18:16:41 Instrument ID: LC410
Lims ID: CCV L5
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 11
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F3:MRM

D 7 13C2 PFHxA, CAS: STL00993

Signal: 1

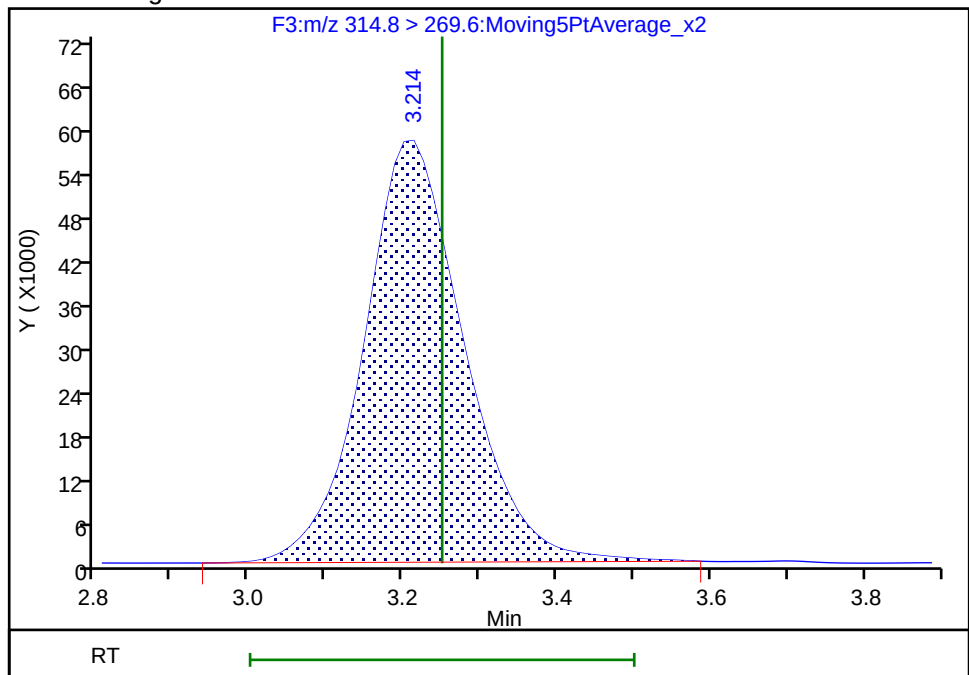
RT: 3.21
Area: 274297
Amount: 26.252055
Amount Units: ng/ml

Processing Integration Results



RT: 3.21
Area: 526177
Amount: 50.358653
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:05:01
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

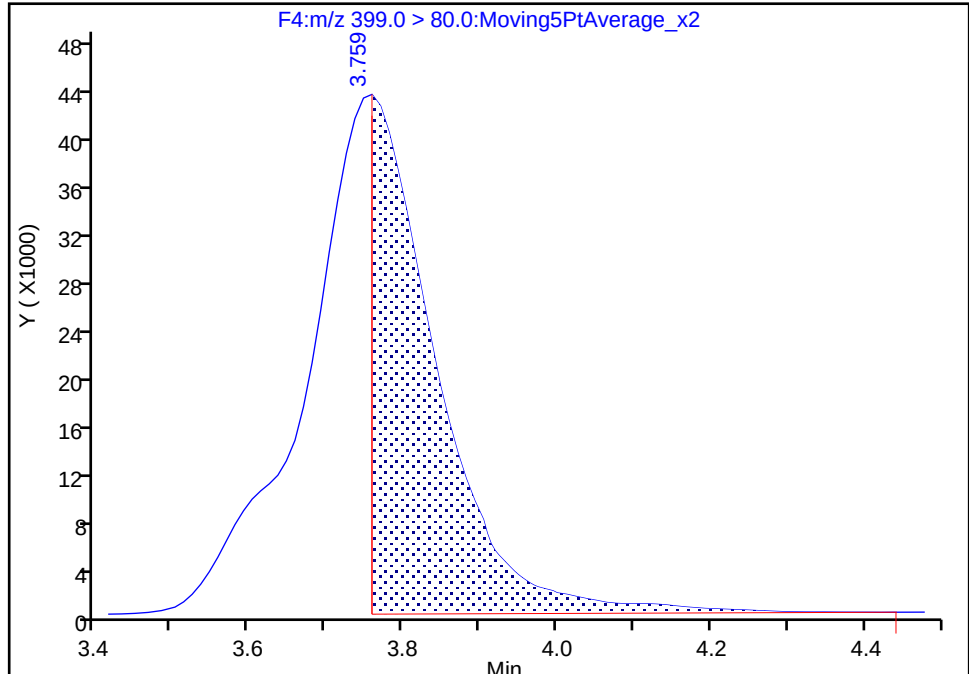
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Injection Date: 09-Jan-2019 18:16:41 Instrument ID: LC410
Lims ID: CCV L5
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 11
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F4:MRM

12 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

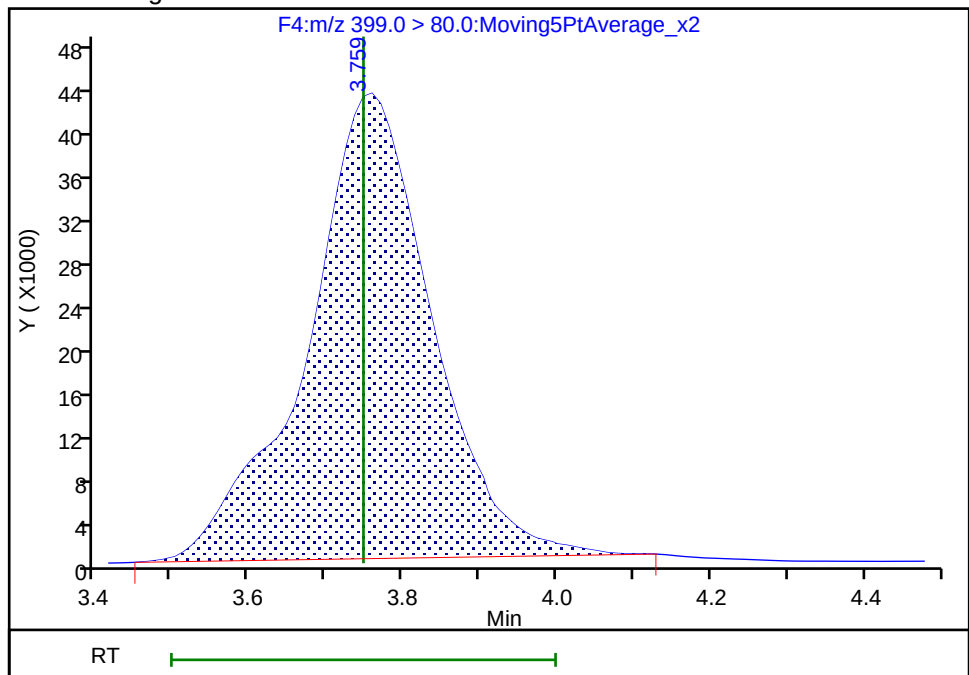
RT: 3.76
Area: 249621
Amount: 21.494998
Amount Units: ng/ml

Processing Integration Results



RT: 3.76
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Amount: 41.635188
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:05:18
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
Page 409 of 586

01/17/2019

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Lab Sample ID: CCV 200-138946/24 Calibration Date: 01/09/2019 21:43

Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20

GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27

Lab File ID: PF010919A24.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	L1ID		0.8495		4820	5000	-3.6	40.0
Perfluoropentanoic acid (PFPeA)	AveID	2.848	2.421		4250	5000	-15.0	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.745	1.228		3520	5000	-29.6	40.0
Perfluorohexanoic acid (PFHxA)	AveID	1.038	0.9403		4530	5000	-9.4	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9775	0.9860		5040	5000	0.9	40.0
Perfluorohexanesulfonic acid (PFHxS)	L1ID		1.162		3580	5000	-28.4	40.0
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	AveID	0.9845	0.8999		4570	5000	-8.6	40.0
Perfluorooctanoic acid (PFOA)	AveID	0.9899	1.039		5250	5000	4.9	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	0.9547	0.8792		4600	5000	-7.9	50.0
Perfluorononanoic acid (PFNA)	AveID	1.099	0.9396		4270	5000	-14.5	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.034	0.9630		4660	5000	-6.8	40.0
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	AveID	0.8068	0.6619		4100	5000	-18.0	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.009	0.9315		4610	5000	-7.7	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.086	0.7706		3550	5000	-29.0	40.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9627	0.7358		3820	5000	-23.6	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	1.046	0.9427		4510	5000	-9.9	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.026	1.024		4990	5000	-0.2	40.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.8462	0.7990		4720	5000	-5.6	40.0
Perfluorododecanoic acid (PFDoA)	AveID	0.8584	0.8585		5000	5000	0.0	40.0
Perfluorotridecanoic acid (PFTrIA)	AveID	0.9775	1.150		5880	5000	17.6	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.9748	1.003		5140	5000	2.9	40.0
13C4 PFBA	Ave	0.5875	0.5480		46600	50000	-6.7	50.0
13C5 PFPeA	Ave	0.3725	0.4153		55800	50000	11.5	50.0
13C3 PFBS	Ave	0.3075	0.4031		61000	46500	31.1	50.0
13C2 PFHxA	Ave	0.6710	0.6538		48700	50000	-2.6	50.0
13C4 PFHpA	Ave	1.229	1.095		44500	50000	-10.9	50.0
18O2 PFHxS	Ave	0.3555	0.4185		55700	47300	17.7	50.0
M2-6:2 FTS	Ave	0.1097	0.1367		59200	47500	24.7	50.0
13C4 PFOA	Ave	0.9383	0.8088		43100	50000	-13.8	50.0
13C5 PFNA	Ave	1.265	1.086		42900	50000	-14.2	50.0
13C4 PFOS	Ave	0.3148	0.3764		57200	47800	19.6	50.0
M2-8:2 FTS	Ave	0.2971	0.3255		52500	47900	9.5	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Lab Sample ID: CCV 200-138946/24 Calibration Date: 01/09/2019 21:43
 Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20
 GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27
 Lab File ID: PF010919A24.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C2 PFDA	Ave	1.305	1.278		49000	50000	-2.0	50.0
d3-NMeFOSAA	Ave	0.3333	0.2527		37900	50000	-24.2	50.0
d5-NEtFOSAA	Ave	0.2828	0.2446		43200	50000	-13.5	50.0
13C2 PFUnA	Ave	1.358	1.227		45200	50000	-9.6	50.0
13C8 FOSA	Ave	0.6063	0.7251		59800	50000	19.6	50.0
13C2 PFDoA	Ave	1.718	1.448		42100	50000	-15.7	50.0
13C2 PFTeDA	Ave	1.577	1.077		34200	50000	-31.7	50.0

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A24.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCV
 Inject. Date: 09-Jan-2019 21:43:32 ALS Bottle#: 0 Worklist Smp#: 24
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034076-024 CCV 3
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:49 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: murrayjw Date: 10-Jan-2019 09:04:33

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.392	2.382	0.010	1.004	52497	4.82		96.4	191	M
D 1 13C4 PFBA										
216.9 > 171.5	2.382	2.402	-0.020	1.000	618008	46.6		93.3	134	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.791	2.791	0.0	1.000	113384	4.25		85.0	97.8	
D 3 13C5 PFPeA										
267.7 > 222.6	2.791	2.818	-0.027	1.000	468397	55.8		112	897	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.867	2.883	-0.016	1.000	55823	3.52		70.4	160	
D 6 13C3 PFBS										
302.0 > 79.8	2.867	2.900	-0.033	1.000	422826	61.0		131	279	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.201	3.201	0.0	1.000	69332	4.53		90.6	509	
D 7 13C2 PFHxA										
314.8 > 269.6	3.201	3.250	-0.049	1.000	737371	48.7		97.4	368	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.703	3.715	-0.012	1.000	121730	5.04		101	161	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.748	3.748	0.0	1.000	54841	3.58		71.6	90.9	
D 9 13C4 PFHpA										
366.9 > 321.8	3.703	3.782	-0.079	1.000	1234569	44.5		89.1	652	
D 11 18O2 PFHxS										M
402.9 > 83.8	3.748	3.826	-0.078	1.000	446542	55.7		118	132	M
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.304	4.317	-0.013	1.003	13878	4.57		91.4	295	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
16 Perfluorooctanoic acid										
412.9 > 368.8	4.342	4.355	-0.013	1.000	94751	5.25		105	351	
* 15 13C2 PFOA										
414.9 > 369.8	4.342	4.355	-0.013		1127859	50.0			800	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.374	4.393	-0.019	0.855	37327	4.60		92.1	259	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.291	4.411	-0.120	1.000	146513	59.2		125	398	
D 17 13C4 PFOA										
416.9 > 371.8	4.342	4.468	-0.126	1.000	912215	43.1		86.2	767	
19 Perfluorononanoic acid										
462.8 > 418.8	5.099	5.113	-0.014	1.000	115035	4.27		85.5	684	
21 Perfluorooctanesulfonic acid										M
498.8 > 79.8	5.113	5.140	-0.027	1.000	40883	4.66		93.2	127	M
D 20 13C5 PFNA										
467.8 > 422.8	5.099	5.222	-0.123	1.000	1224291	42.9		85.8	386	
D 22 13C4 PFOS										
502.8 > 79.8	5.113	5.236	-0.123	1.000	405874	57.2		120	496	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.823	5.863	-0.040	0.997	24295	4.10		82.0	193	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.863	5.882	-0.019	0.997	134265	4.61		92.3	959	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.843	5.998	-0.155	1.000	351651	52.5		110	2165	
D 26 13C2 PFDA										
514.9 > 469.5	5.882	6.022	-0.140	1.000	1441466	49.0		98.0	7170	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.241	6.241	0.0	1.003	21960	3.55		71.0	51.7	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.223	6.367	-0.144	1.000	284969	37.9		75.8	934	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.616	6.634	-0.018	1.294	40023	4.51		90.1	737	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.598	6.634	-0.036	1.003	20301	3.82		76.4	39.6	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.634	6.652	-0.018	1.000	141769	4.99		99.8	721	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.580	6.734	-0.154	1.000	275921	43.2		86.5	897	
D 32 13C2 PFUnA										
564.8 > 519.8	6.634	6.777	-0.143	1.000	1384047	45.2		90.4	1907	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.917	6.917	0.0	1.000	65345	4.72		94.4	863	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.945	-0.028	1.000	817827	59.8		120	3503	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.317	7.339	-0.022	1.000	140203	5.00		100	961	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags

D 37 13C2 PFD_oA

614.8 > 569.6	7.317	7.474	-0.157	1.000	1633037	42.1		84.3	4994	

38 Perfluorotridecanoic acid

662.8 > 618.6	7.928	7.953	-0.025	0.935	139717	5.88		118	1402	

39 Perfluorotetradecanoic acid

712.8 > 668.6	8.484	8.514	-0.030	1.000	121884	5.14	Target=1.00	103	897	

712.8 > 168.8	8.484	8.514	-0.030	1.000	21505		5.67(0.90-1.10)		181	

712.8 > 218.8	8.484	8.514	-0.030	1.000	12487		9.76(0.90-1.10)		63.6	

D 40 13C2 PFTeDA

714.8 > 669.6	8.484	8.681	-0.197	1.000	1215150	34.2		68.3	992	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L3_00001

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A24.d

Injection Date: 09-Jan-2019 21:43:32

Instrument ID: LC410

Lims ID: CCV L3

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 24

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

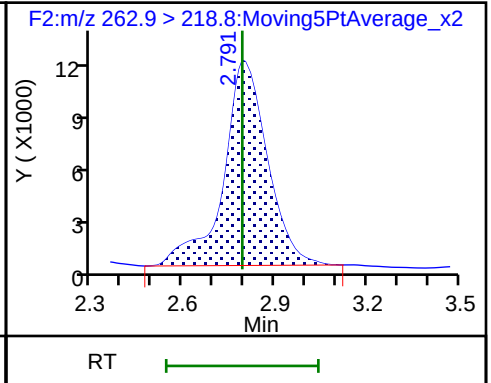
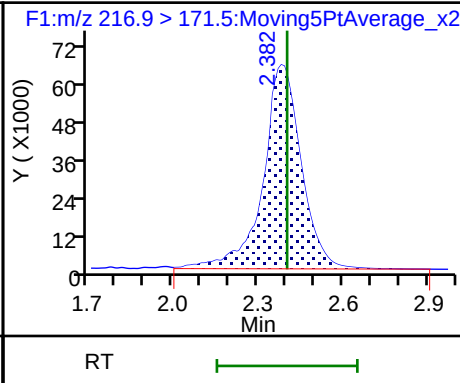
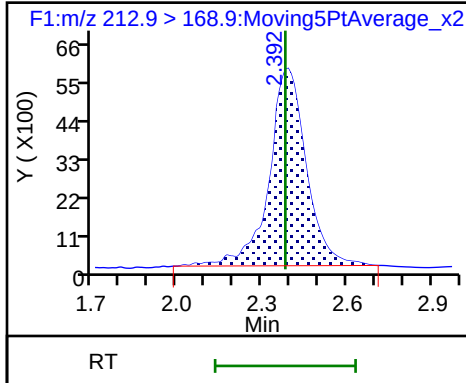
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA

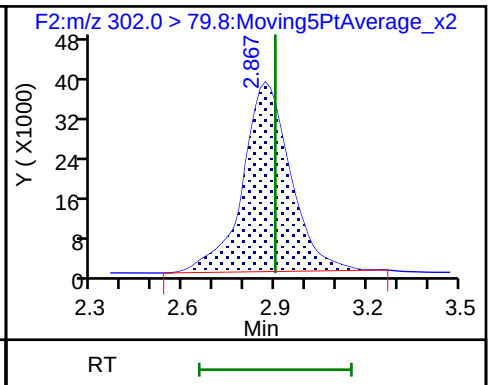
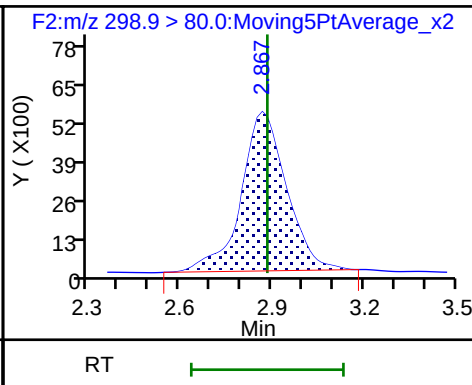
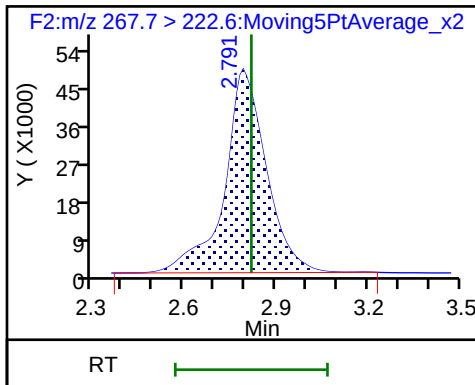
4 Perfluoropentanoic acid



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid

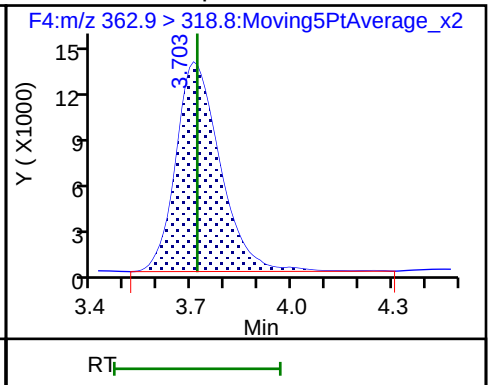
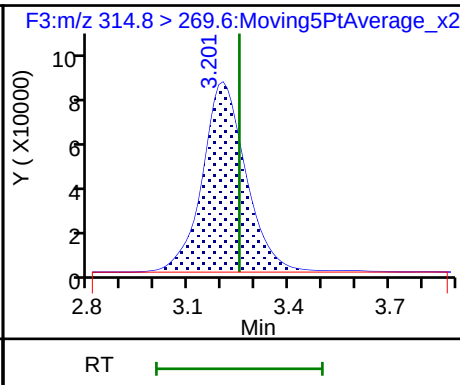
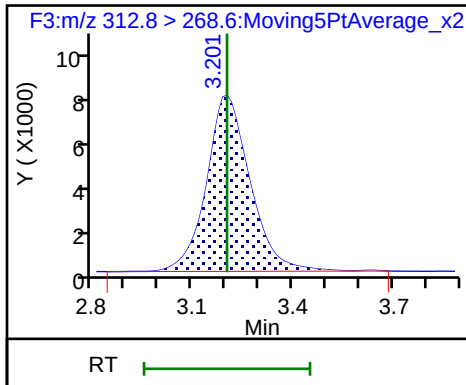
D 6 13C3 PFBS



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

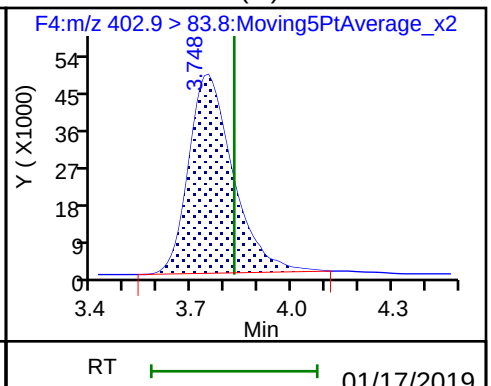
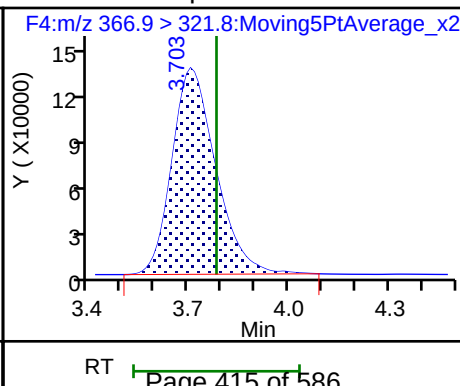
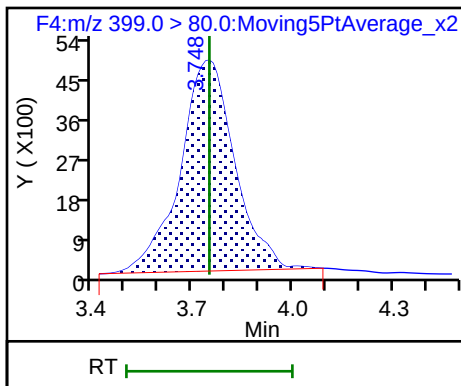
10 Perfluoroheptanoic acid



12 Perfluorohexanesulfonic acid

D 9 13C4 PFHpA

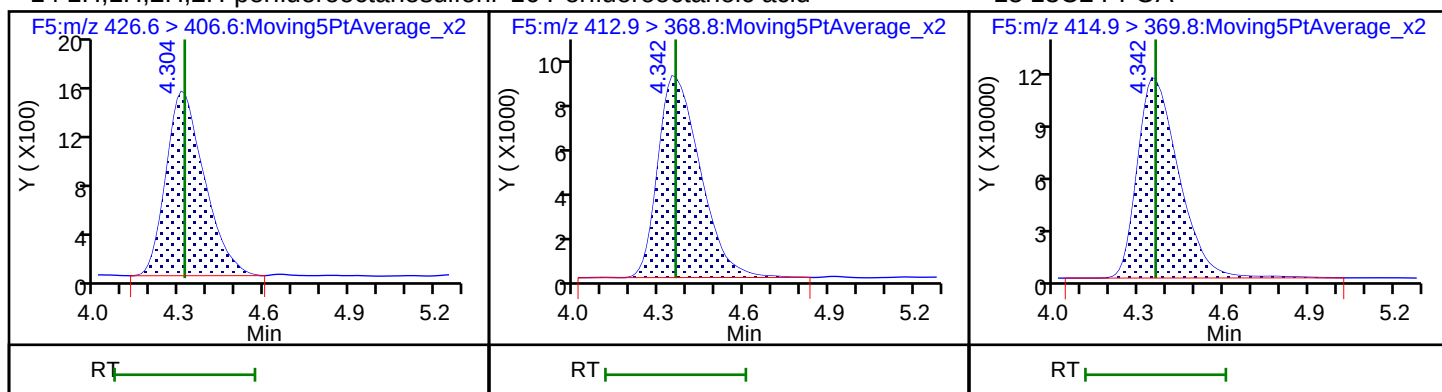
D 11 18O2 PFHxS (M)



14 1H,1H,2H,2H-perfluorooctanesulfoni

16 Perfluorooctanoic acid

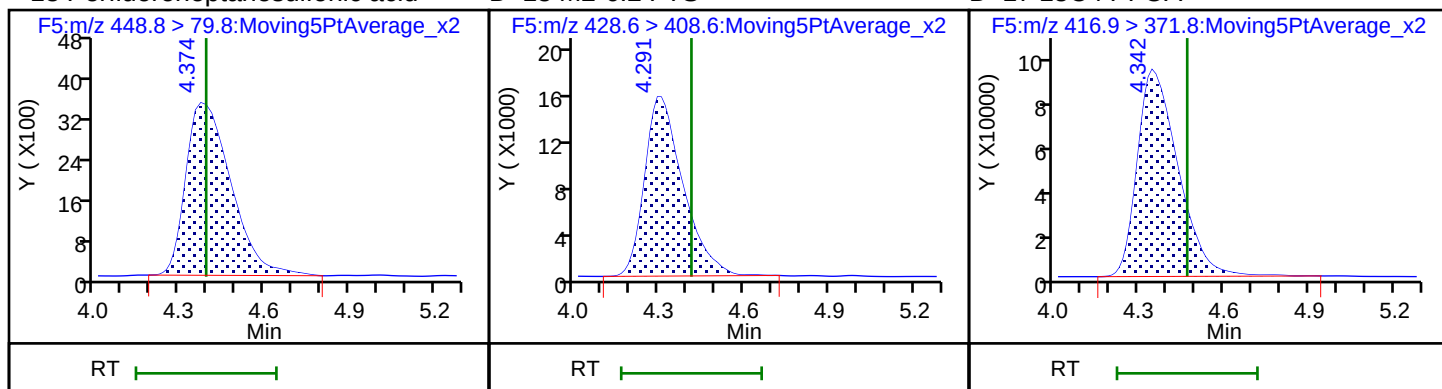
* 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid

D 13 M2-6:2 FTS

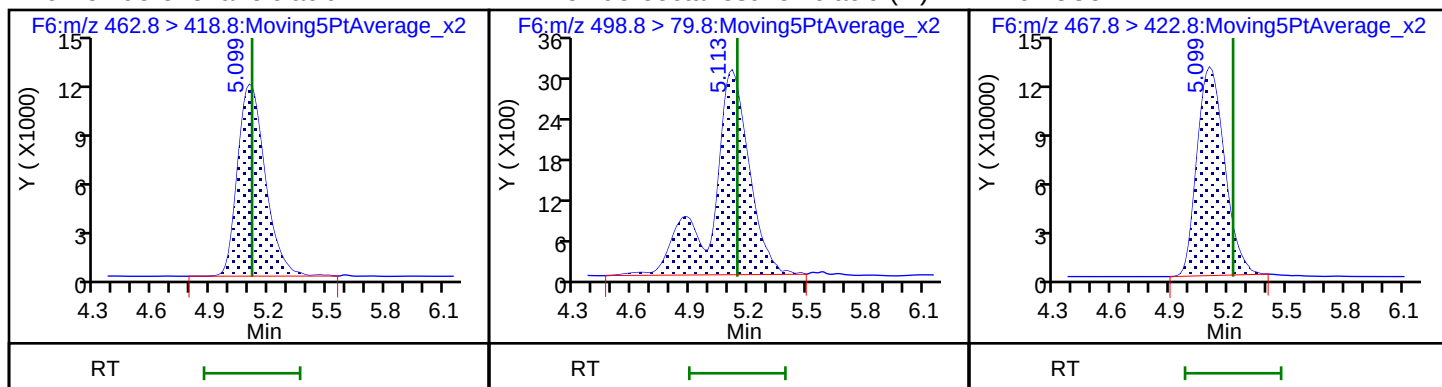
D 17 13C4 PFOA



19 Perfluorononanoic acid

21 Perfluorooctanesulfonic acid (M)

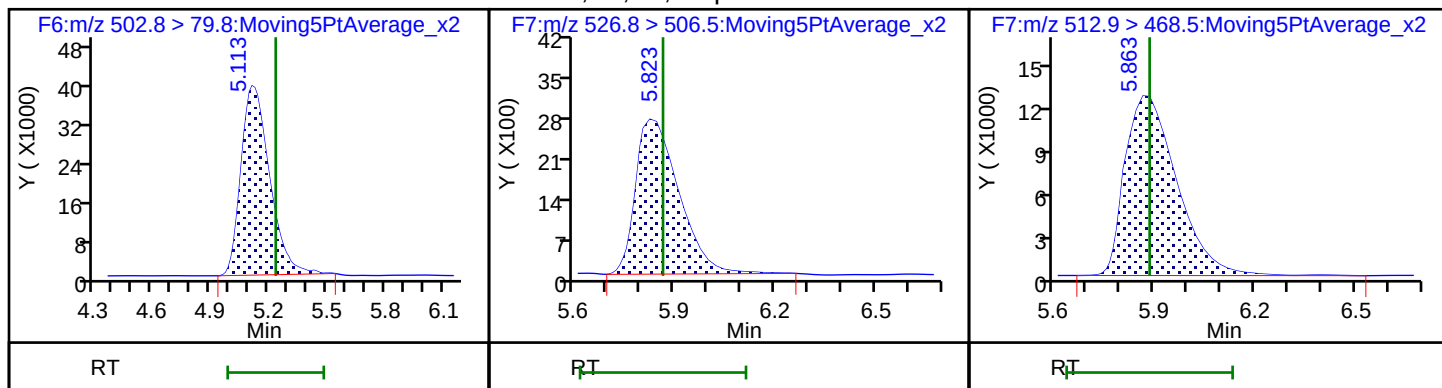
D 20 13C5 PFNA



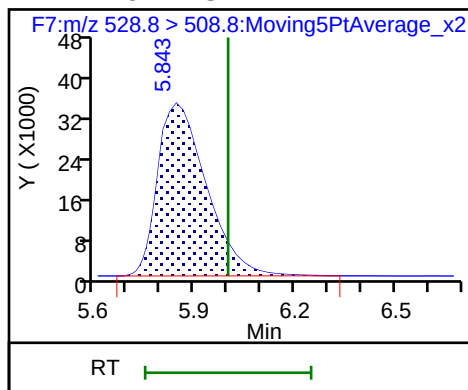
D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfoni

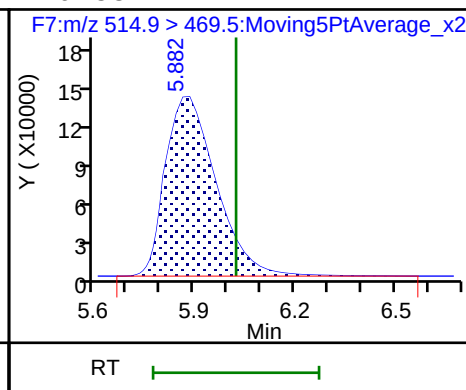
25 Perfluorodecanoic acid



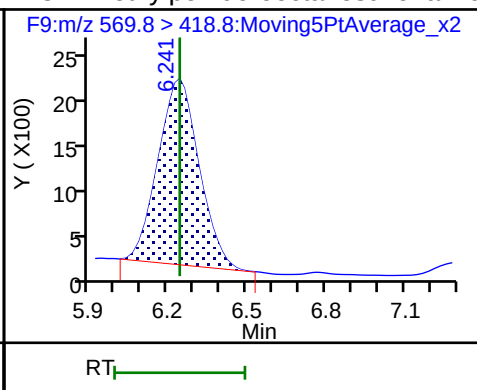
D 24 M2-8:2 FTS



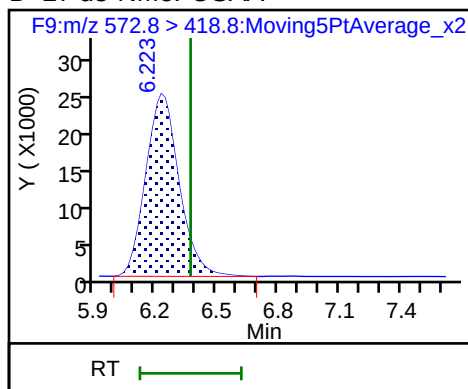
D 26 13C2 PFDA



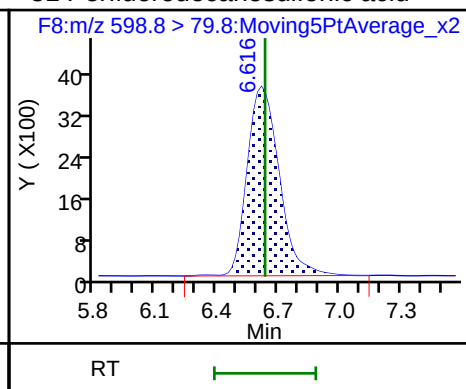
28 N-methylperfluorooctanesulfonamido



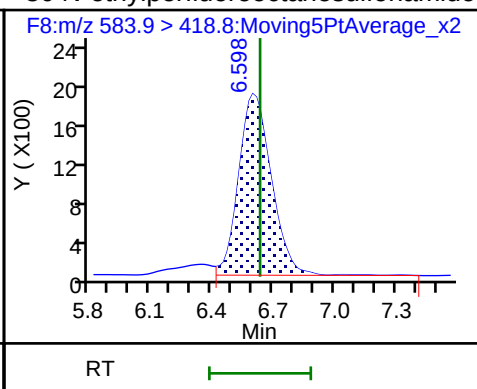
D 27 d3-NMeFOSAA



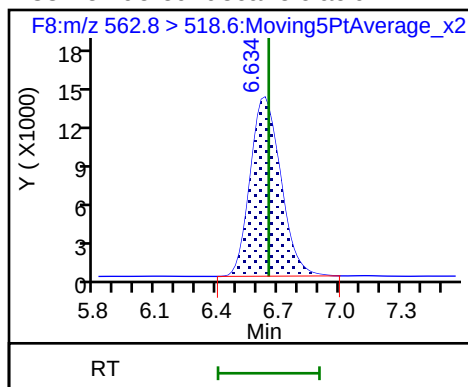
31 Perfluorodecanesulfonic acid



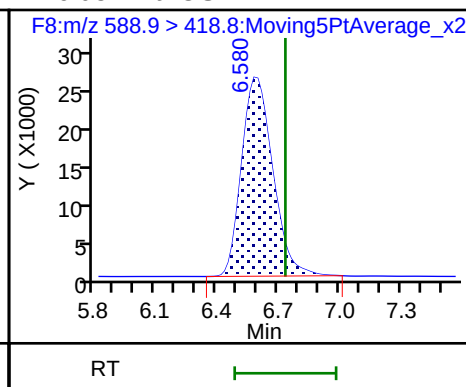
30 N-ethylperfluorooctanesulfonamidoa



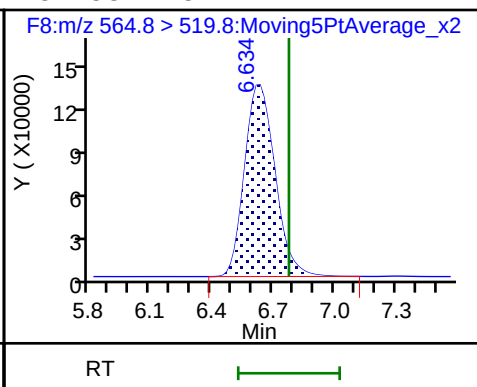
33 Perfluoroundecanoic acid



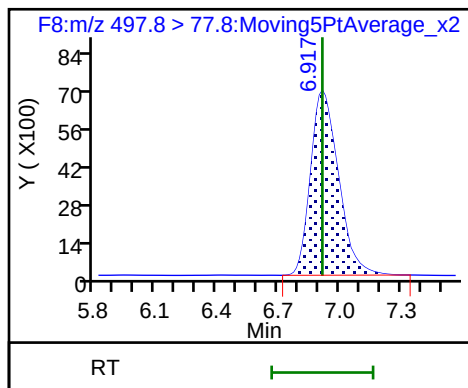
D 29 d5-NEtFOSAA



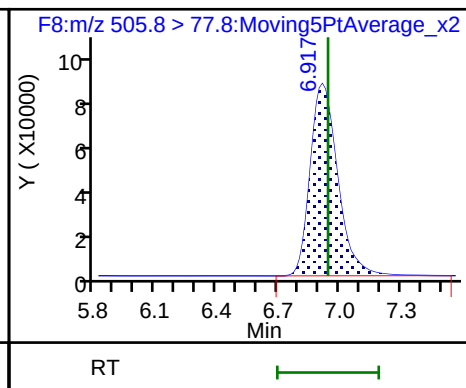
D 32 13C2 PFUnA



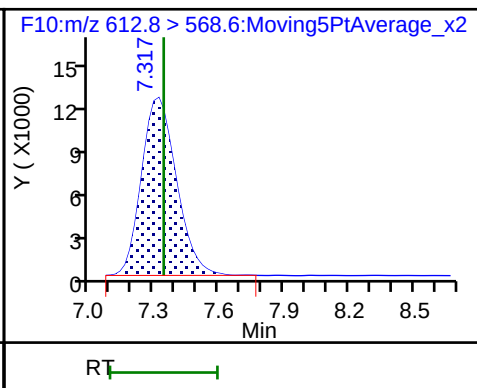
34 Perfluorooctanesulfonamide



D 35 13C8 FOSA



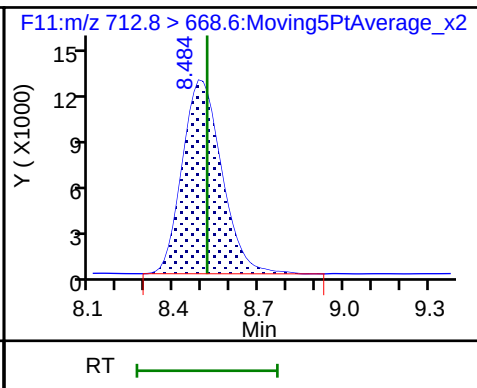
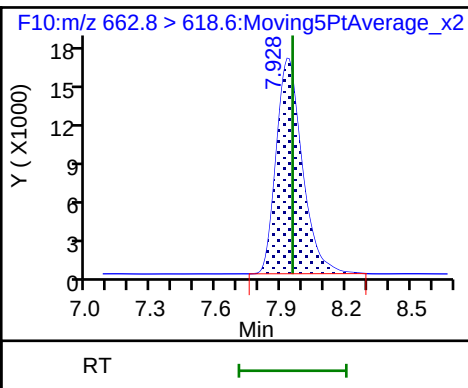
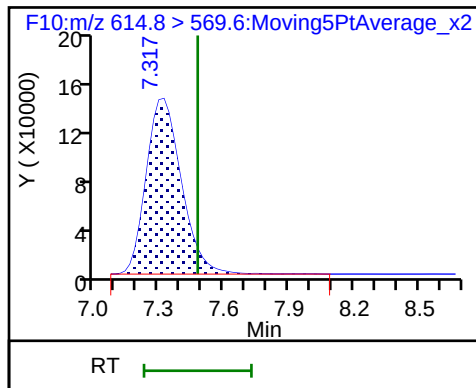
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

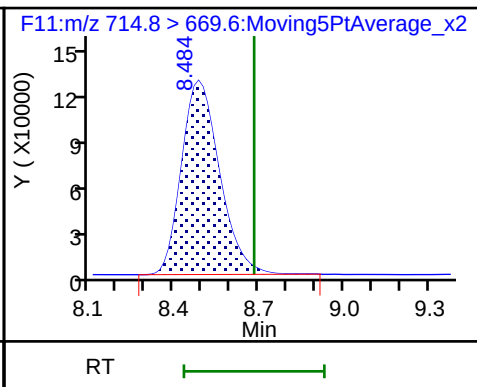
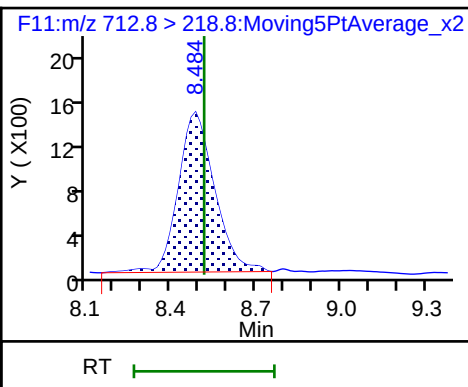
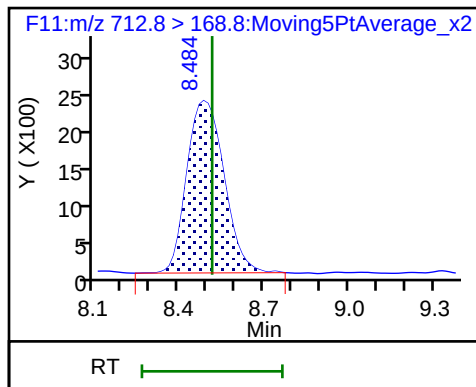
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

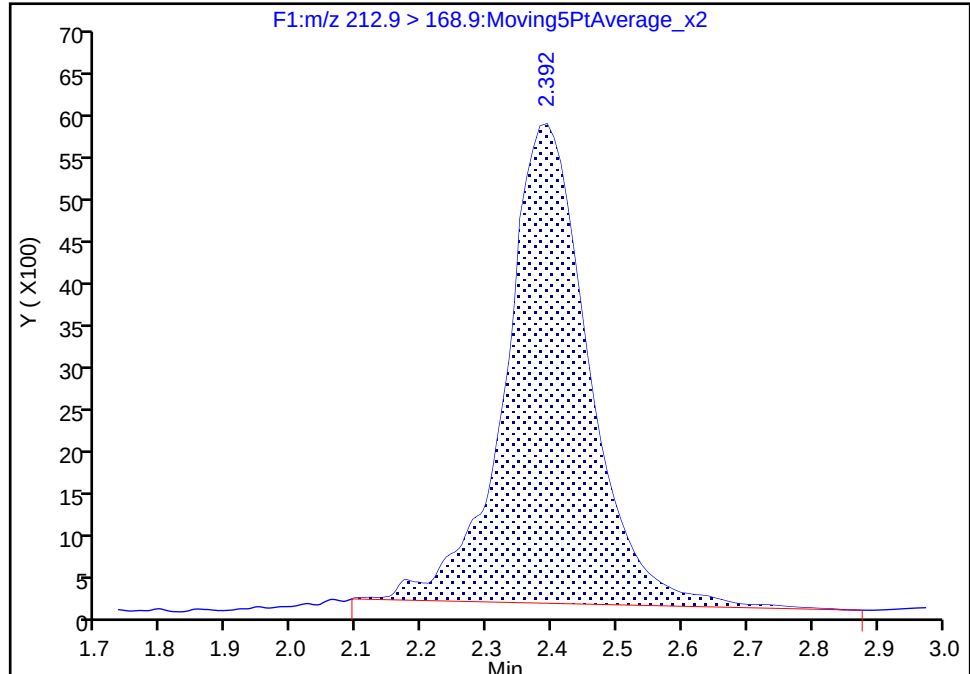
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Injection Date: 09-Jan-2019 21:43:32 Instrument ID: LC410
Lims ID: CCV L3
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 24
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

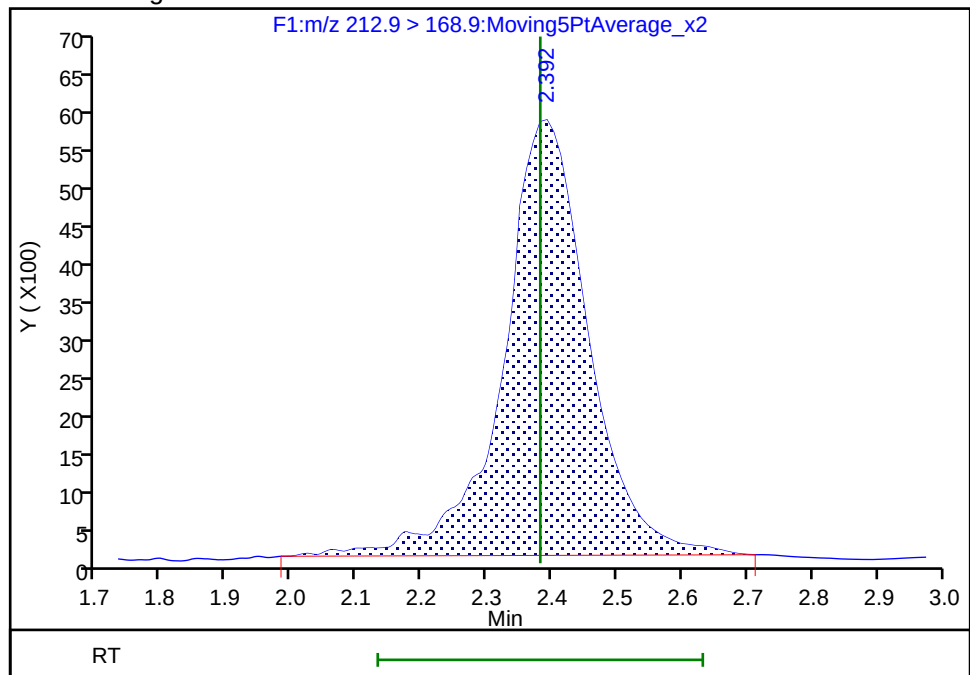
RT: 2.39
Area: 51392
Amount: 4.716978
Amount Units: ng/ml

Processing Integration Results



RT: 2.39
Area: 52497
Amount: 4.822494
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:03:24
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
Page 419 of 586

01/17/2019

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A24.d

Injection Date: 09-Jan-2019 21:43:32

Instrument ID: LC410

Lims ID: CCV L3

Client ID:

Operator ID: BC

ALS Bottle#: 0 Worklist Smp#: 24

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

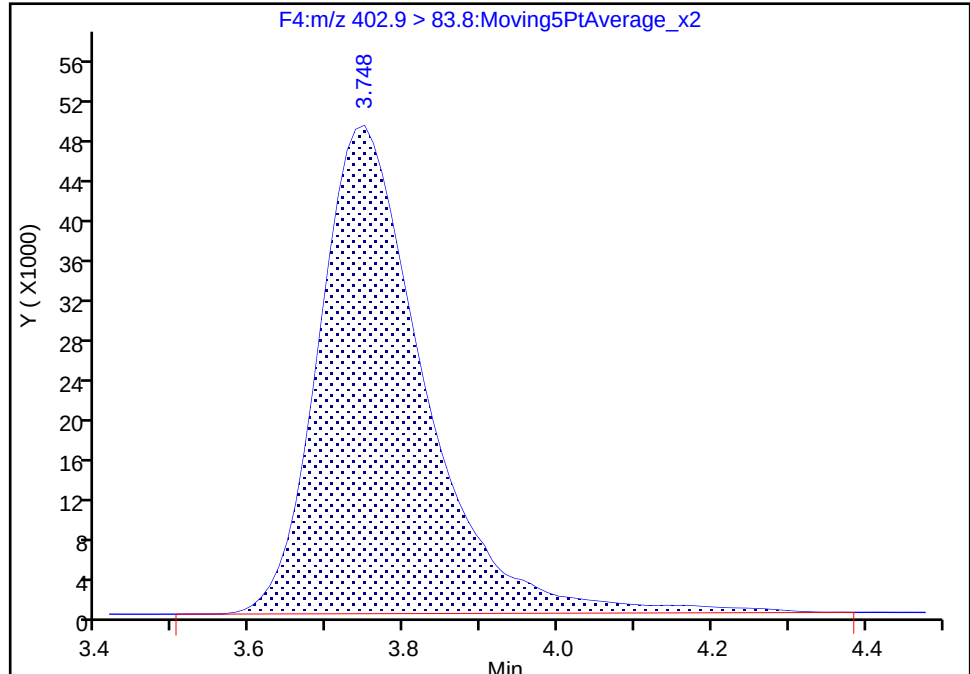
Detector F4:MRM

D 11 18O2 PFHxS, CAS: STL00994

Signal: 1

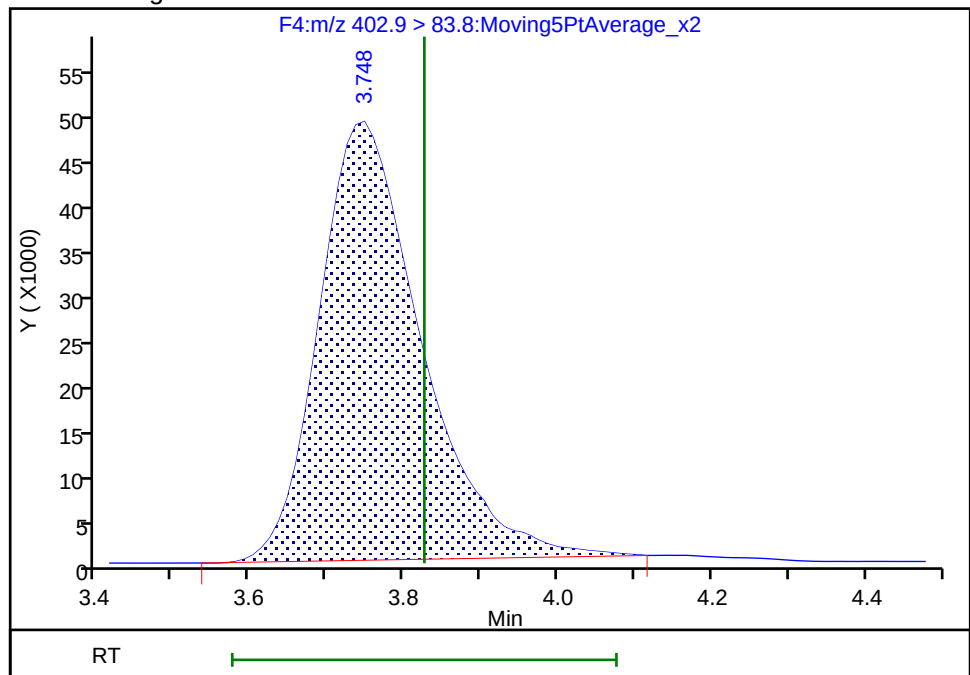
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Amount: 57.992273
Amount Units: ng/ml

Processing Integration Results



RT: 3.75
Area: 446542
Amount: 55.680353
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:03:42

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

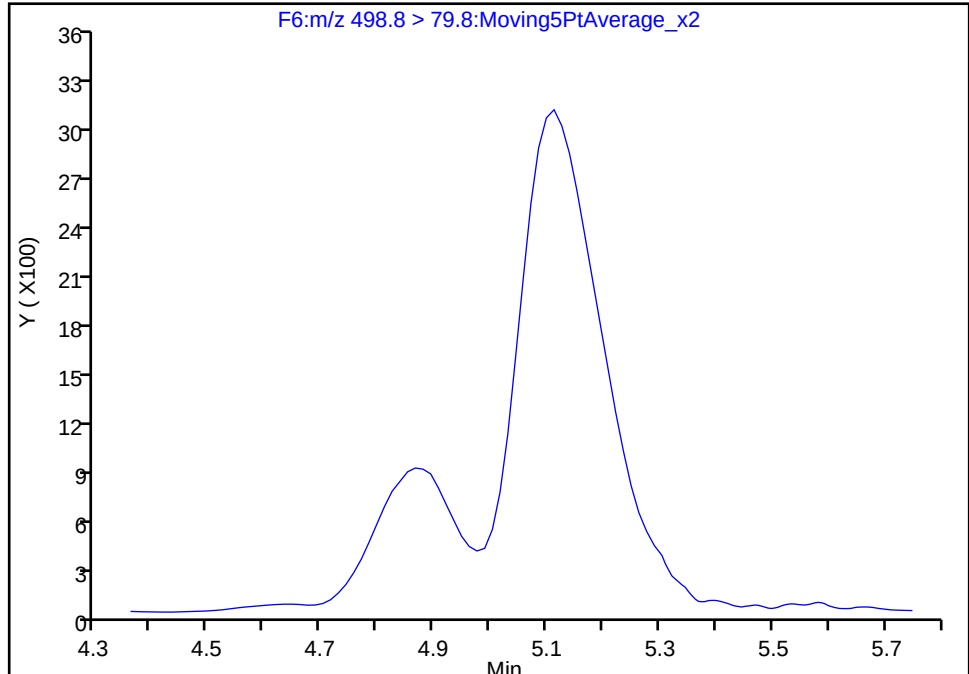
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A24.d
Injection Date: 09-Jan-2019 21:43:32 Instrument ID: LC410
Lims ID: CCV L3
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 24
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F6:MRM

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

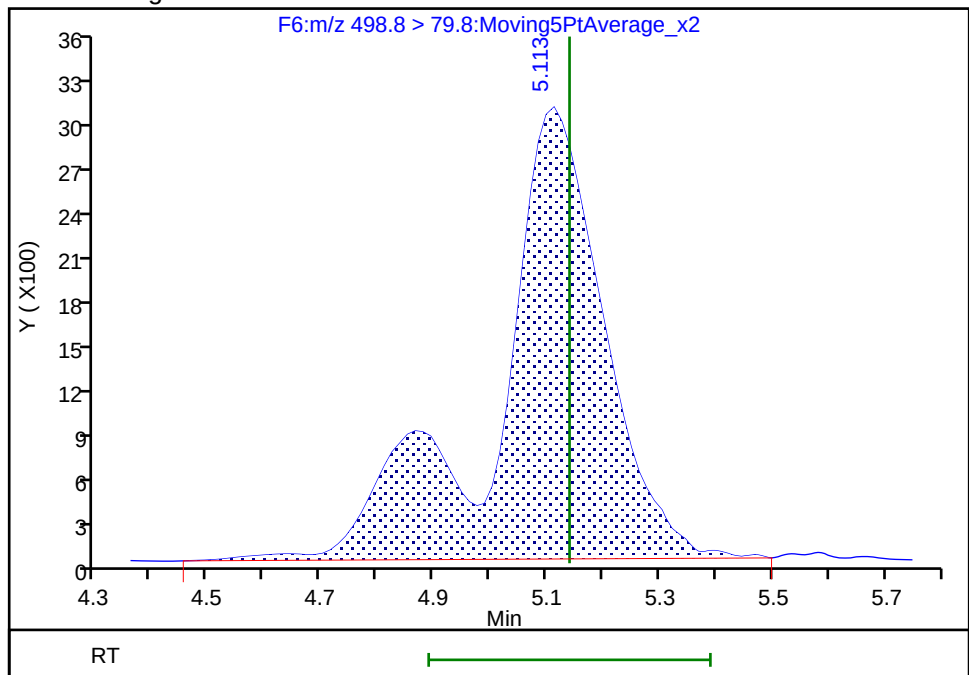
Not Detected
Expected RT: 5.14

Processing Integration Results



Manual Integration Results

RT: 5.11
Area: 40883
Amount: 4.657874
Amount Units: ng/ml



Reviewer: murrayjw, 10-Jan-2019 09:04:05
Audit Action: Manually Integrated

Audit Reason: Missed Peak
Page 421 of 586

01/17/2019

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Lab Sample ID: CCV 200-138946/37 Calibration Date: 01/10/2019 01:09

Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20

GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27

Lab File ID: PF010919A37.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	L1ID		0.8647		20200	20000	1.1	40.0
Perfluoropentanoic acid (PFPeA)	AveID	2.848	2.281		16000	20000	-19.9	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.745	1.174		13500	20000	-32.7	40.0
Perfluorohexanoic acid (PFHxA)	AveID	1.038	0.9174		17700	20000	-11.6	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9775	1.063		21800	20000	8.8	40.0
Perfluorohexanesulfonic acid (PFHxS)	L1ID		1.070		13800	20000	-30.8	40.0
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	AveID	0.9845	0.9384		19100	20000	-4.7	40.0
Perfluorooctanoic acid (PFOA)	AveID	0.9899	1.055		21300	20000	6.6	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	0.9547	0.8944		18700	20000	-6.3	50.0
Perfluorononanoic acid (PFNA)	AveID	1.099	0.9218		16800	20000	-16.1	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.034	0.9820		19000	20000	-5.0	40.0
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	AveID	0.8068	0.8354		20700	20000	3.5	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.009	0.8833		17500	20000	-12.5	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.086	0.7871		14500	20000	-27.5	40.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9627	0.7687		16000	20000	-20.1	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	1.046	0.9403		18000	20000	-10.1	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.026	1.025		20000	20000	-0.0	40.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.8462	0.8350		19700	20000	-1.3	40.0
Perfluorododecanoic acid (PFDoA)	AveID	0.8584	0.8582		20000	20000	-0.0	40.0
Perfluorotridecanoic acid (PFTrIA)	AveID	0.9775	1.119		22900	20000	14.5	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.9748	0.8956		18400	20000	-8.1	40.0
13C4 PFBA	Ave	0.5875	0.5016		42700	50000	-14.6	50.0
13C5 PFPeA	Ave	0.3725	0.4176		56100	50000	12.1	50.0
13C3 PFBS	Ave	0.3075	0.3816		57700	46500	24.1	50.0
13C2 PFHxA	Ave	0.6710	0.6407		47700	50000	-4.5	50.0
13C4 PFHpA	Ave	1.229	1.035		42100	50000	-15.8	50.0
18O2 PFHxS	Ave	0.3555	0.3854		51300	47300	8.4	50.0
M2-6:2 FTS	Ave	0.1097	0.1369		59300	47500	24.9	50.0
13C4 PFOA	Ave	0.9383	0.7700		41000	50000	-17.9	50.0
13C5 PFNA	Ave	1.265	1.053		41600	50000	-16.8	50.0
13C4 PFOS	Ave	0.3148	0.3281		49800	47800	4.2	50.0
M2-8:2 FTS	Ave	0.2971	0.2588		41700	47900	-12.9	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Lab Sample ID: CCV 200-138946/37 Calibration Date: 01/10/2019 01:09
 Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20
 GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27
 Lab File ID: PF010919A37.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C2 PFDA	Ave	1.305	1.178		45100	50000	-9.7	50.0
d3-NMeFOSAA	Ave	0.3333	0.2443		36700	50000	-26.7	50.0
d5-NEtFOSAA	Ave	0.2828	0.2217		39200	50000	-21.6	50.0
13C2 PFUnA	Ave	1.358	1.121		41300	50000	-17.4	50.0
13C8 FOSA	Ave	0.6063	0.6528		53800	50000	7.7	50.0
13C2 PFDoA	Ave	1.718	1.336		38900	50000	-22.3	50.0
13C2 PFTeDA	Ave	1.577	0.9900		31400	50000	-37.2	50.0

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A37.d
 Lims ID: CCV L4
 Client ID:
 Sample Type: CCV
 Inject. Date: 10-Jan-2019 01:09:51 ALS Bottle#: 0 Worklist Smp#: 37
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034076-037 CCV 4
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:26:19 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: murrayjw Date: 10-Jan-2019 09:03:02

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.9 > 168.9	2.382	2.382	0.0	1.000	192887	20.2		101	154	
D 1 13C4 PFBA										
216.9 > 171.5	2.382	2.402	-0.020	1.000	557677	42.7		85.4	158	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.791	2.791	0.0	1.000	423490	16.0		80.1	919	
D 3 13C5 PFPeA										
267.7 > 222.6	2.791	2.818	-0.027	1.000	464226	56.1		112	2504	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.867	2.883	-0.016	1.000	199279	13.5		67.3	198	
D 6 13C3 PFBS										
302.0 > 79.8	2.867	2.900	-0.033	1.000	394512	57.7		124	456	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.201	3.201	0.0	1.000	261367	17.7		88.4	933	
D 7 13C2 PFHxA										
314.8 > 269.6	3.201	3.250	-0.049	1.000	712270	47.7		95.5	1881	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.703	3.715	-0.012	1.003	489180	21.8		109	703	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.737	3.748	-0.011	1.000	183418	13.8		69.2	1034	
D 9 13C4 PFHpA										
366.9 > 321.8	3.692	3.782	-0.090	1.000	1150423	42.1		84.2	747	
D 11 18O2 PFHxS										
402.9 > 83.8	3.737	3.826	-0.089	1.000	405280	51.3		108	1170	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.304	4.317	-0.013	1.000	57149	19.1		95.3	468	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
16 Perfluorooctanoic acid										
412.9 > 368.8	4.342	4.355	-0.013	1.000	361328	21.3		107	554	
* 15 13C2 PFOA										
414.9 > 369.8	4.342	4.355	-0.013		1111744	50.0			2872	
18 Perfluoroheptanesulfonic acid										M
448.8 > 79.8	4.374	4.393	-0.019	0.855	130499	18.7		93.7	406	M
D 13 M2-6:2 FTS										
428.6 > 408.6	4.304	4.411	-0.107	1.000	144632	59.3		125	738	
D 17 13C4 PFOA										
416.9 > 371.8	4.342	4.468	-0.126	1.000	856061	41.0		82.1	595	
19 Perfluorononanoic acid										
462.8 > 418.8	5.099	5.113	-0.014	1.003	431463	16.8		83.9	364	
21 Perfluorooctanesulfonic acid										M
498.8 > 79.8	5.113	5.140	-0.027	1.000	143279	19.0		95.0	221	M
D 20 13C5 PFNA										
467.8 > 422.8	5.085	5.222	-0.137	1.000	1170210	41.6		83.2	456	
D 22 13C4 PFOS										
502.8 > 79.8	5.113	5.236	-0.123	1.000	348721	49.8		104	889	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.843	5.863	-0.020	1.000	96160	20.7		104	500	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.863	5.882	-0.019	1.000	462696	17.5		87.5	1329	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.843	5.998	-0.155	1.000	275679	41.7		87.1	2607	
D 26 13C2 PFDA										
514.9 > 469.5	5.863	6.022	-0.159	1.000	1309590	45.1		90.3	993	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.223	6.241	-0.018	1.000	85507	14.5		72.5	163	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.223	6.367	-0.144	1.000	271607	36.7		73.3	1246	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.616	6.634	-0.018	1.294	137195	18.0		89.9	1302	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.598	6.634	-0.036	1.003	75784	16.0		79.9	40.4	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.616	6.652	-0.036	1.000	511254	20.0		99.9	4867	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.580	6.734	-0.154	1.000	246461	39.2		78.4	951	
D 32 13C2 PFUnA										
564.8 > 519.8	6.616	6.777	-0.161	1.000	1246498	41.3		82.6	3535	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.917	6.917	0.0	1.000	242398	19.7		98.7	2013	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.945	-0.028	1.000	725727	53.8		108	1335	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.317	7.339	-0.022	1.003	509773	20.0		100.0	1567	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags

D 37 13C2 PFD_oA

614.8 > 569.6	7.294	7.474	-0.180	1.000	1485089	38.9		77.7	4122	

38 Perfluorotridecanoic acid

662.8 > 618.6	7.928	7.953	-0.025	0.936	492829	22.9		115	1216	

39 Perfluorotetradecanoic acid

712.8 > 668.6	8.484	8.514	-0.030	1.002	394272	18.4	Target=1.00	91.9	1186	

712.8 > 168.8	8.484	8.514	-0.030	1.002	80792		4.88(0.90-1.10)		646	

712.8 > 218.8	8.484	8.514	-0.030	1.002	41508		9.50(0.90-1.10)		389	

D 40 13C2 PFTeDA

714.8 > 669.6	8.468	8.681	-0.213	1.000	1100600	31.4		62.8	1046	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L4_00003

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A37.d

Injection Date: 10-Jan-2019 01:09:51

Instrument ID: LC410

Lims ID: CCV L4

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 37

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

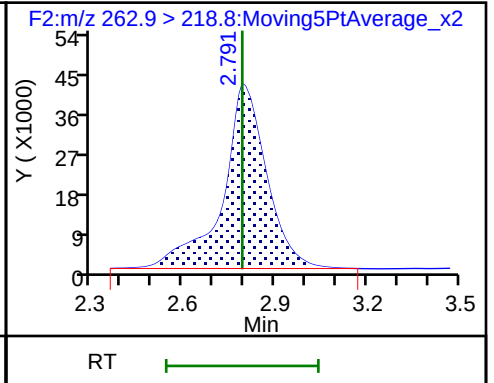
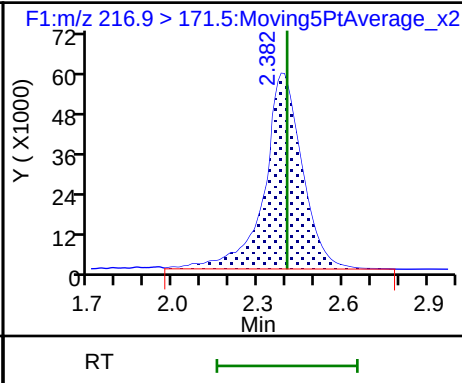
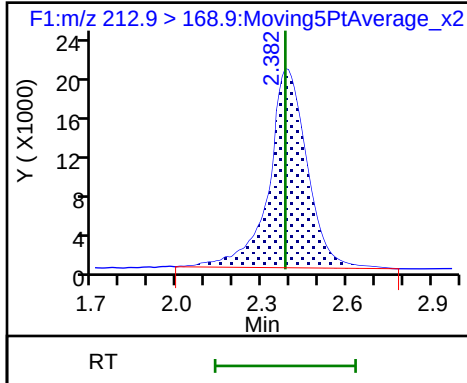
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid

D 1 13C4 PFBA

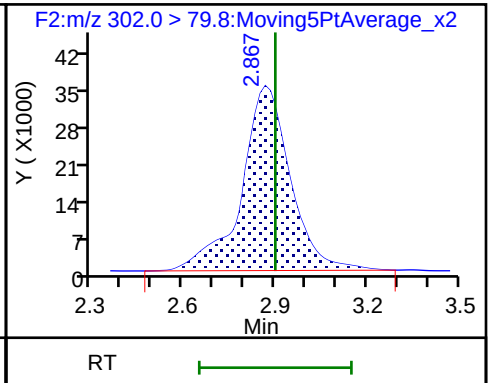
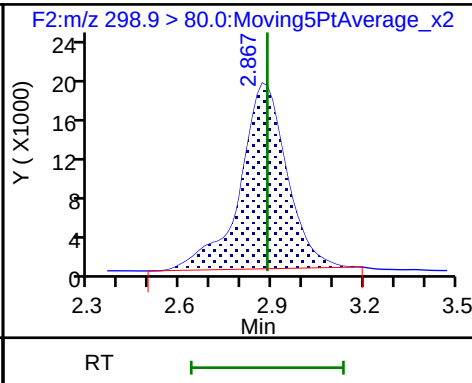
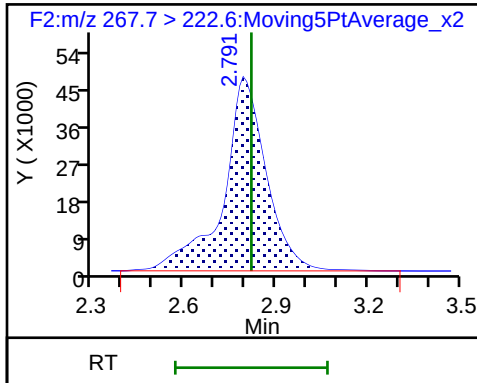
4 Perfluoropentanoic acid



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid

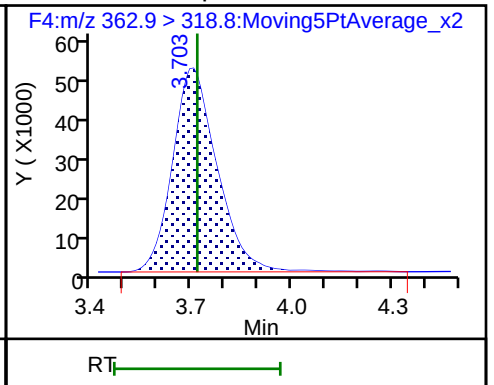
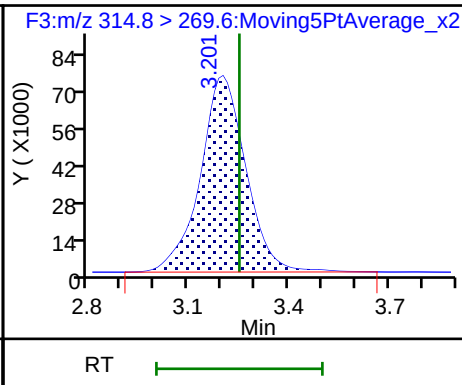
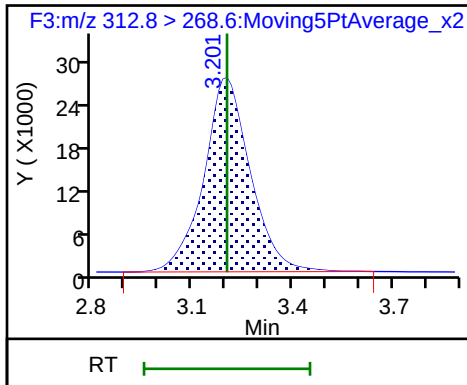
D 6 13C3 PFBS



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

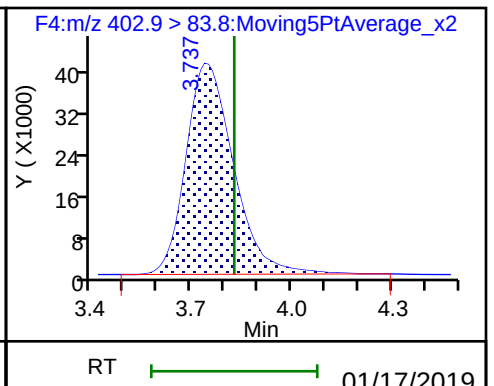
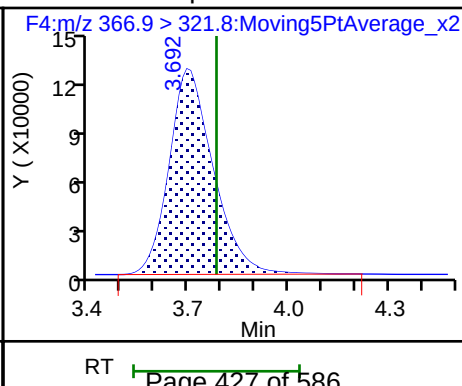
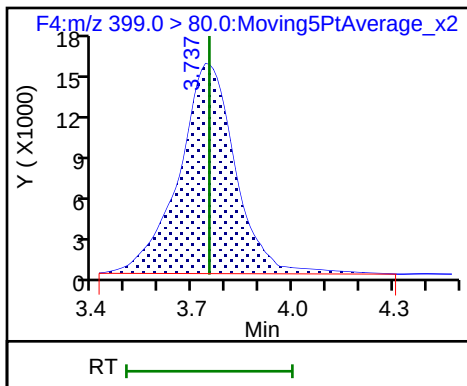
10 Perfluoroheptanoic acid



12 Perfluorohexanesulfonic acid

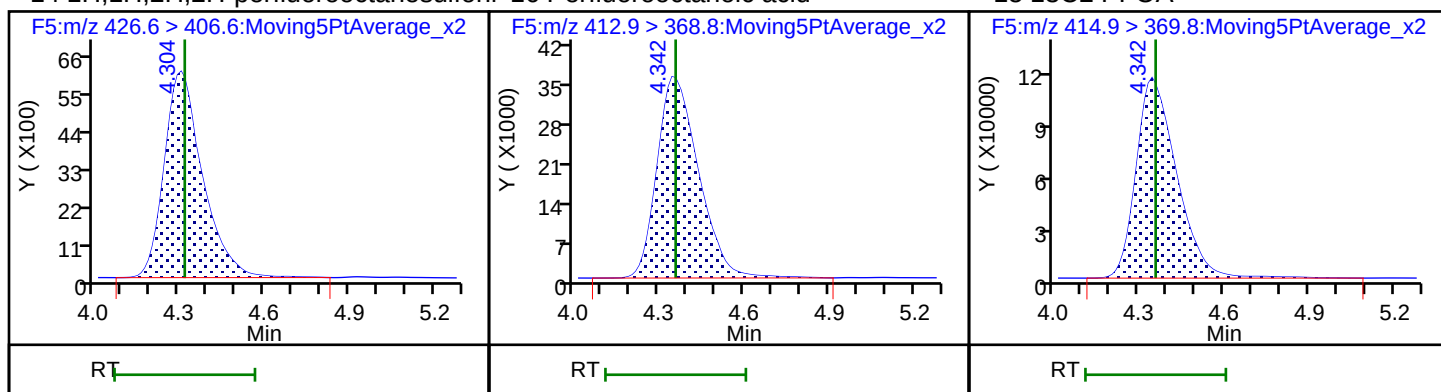
D 9 13C4 PFHpA

D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfonyl 16 Perfluorooctanoic acid

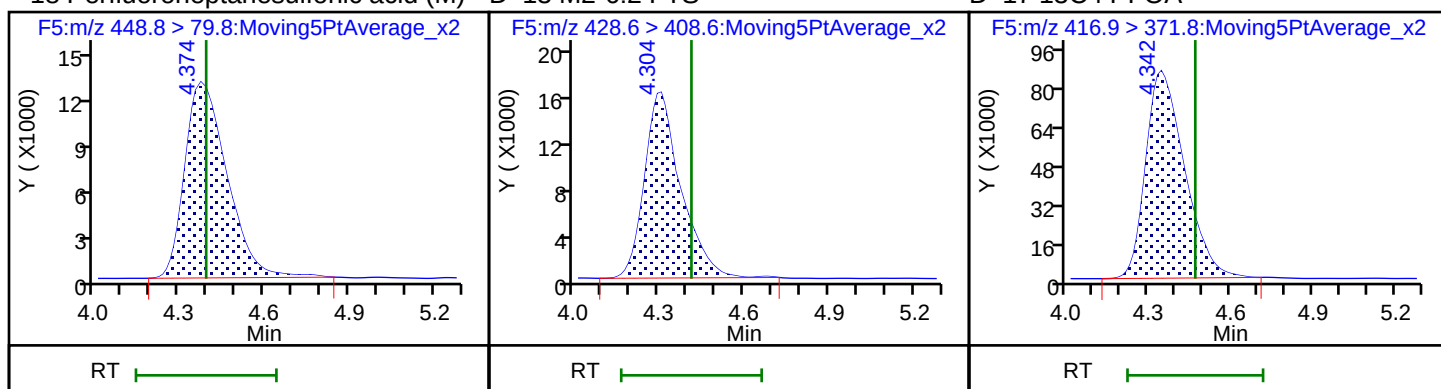
* 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid (M)

D 13 M2-6:2 FTS

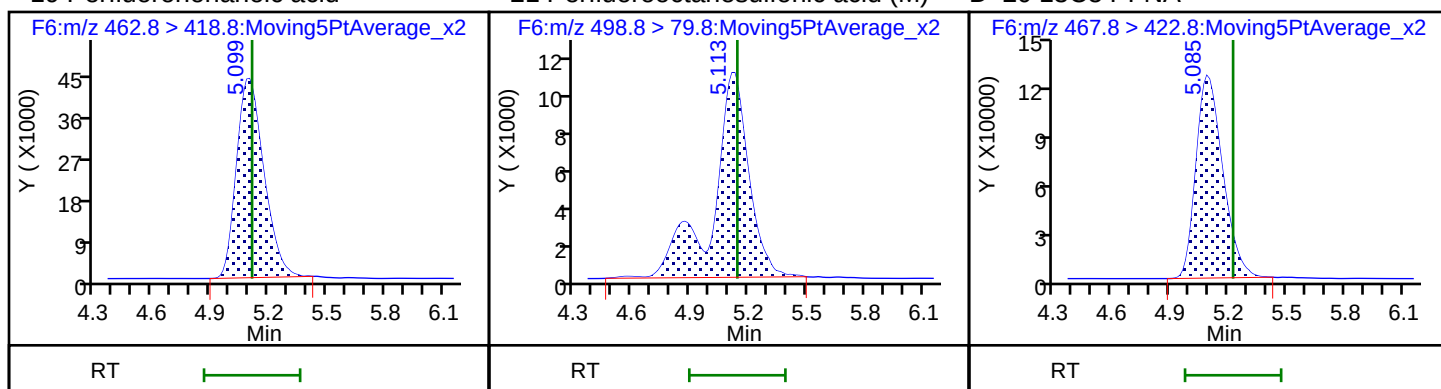
D 17 13C4 PFOA



19 Perfluorononanoic acid

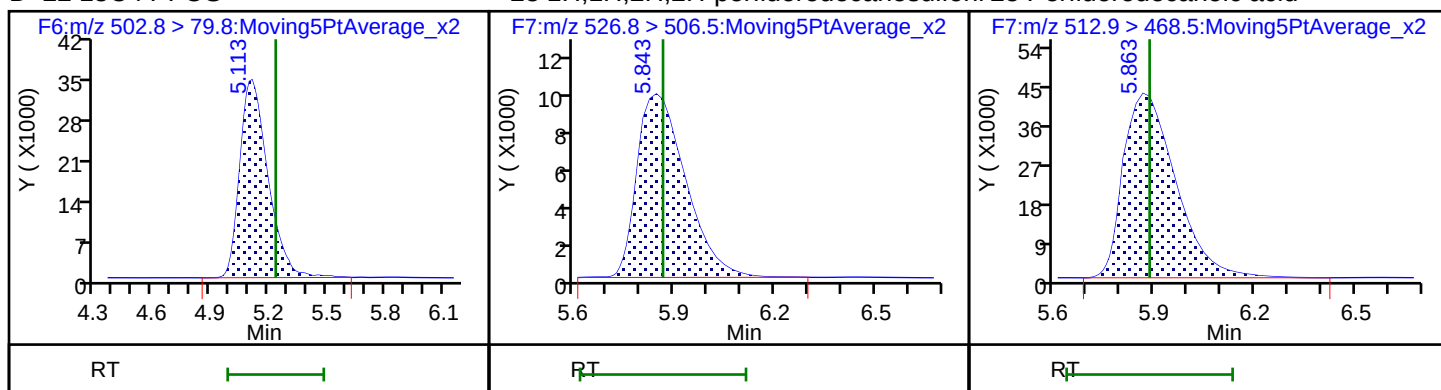
21 Perfluorooctanesulfonic acid (M)

D 20 13C5 PFNA

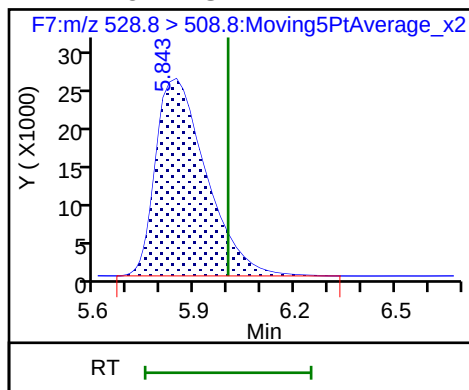


D 22 13C4 PFOS

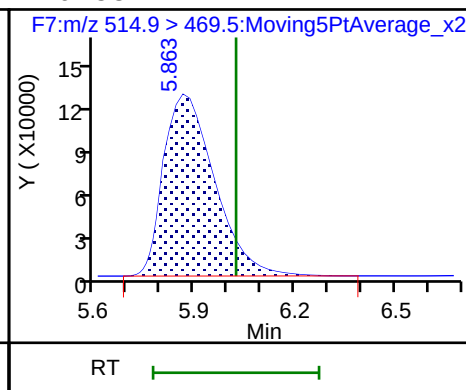
23 1H,1H,2H,2H-perfluorodecanesulfonyl 25 Perfluorodecanoic acid



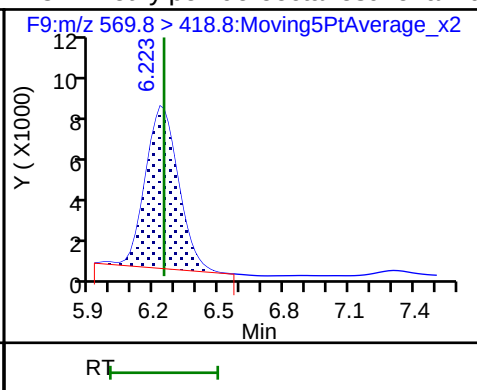
D 24 M2-8:2 FTS



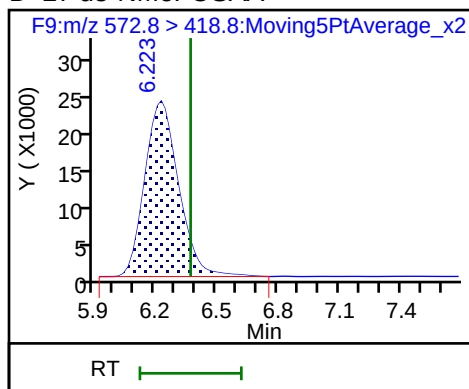
D 26 13C2 PFDA



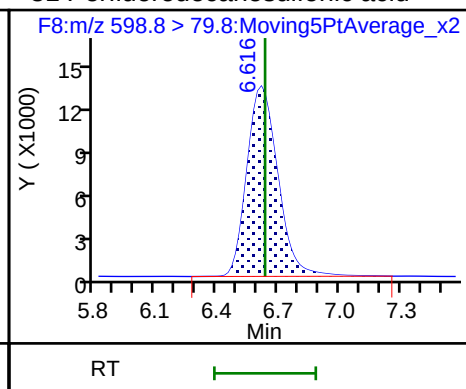
28 N-methylperfluorooctanesulfonamido



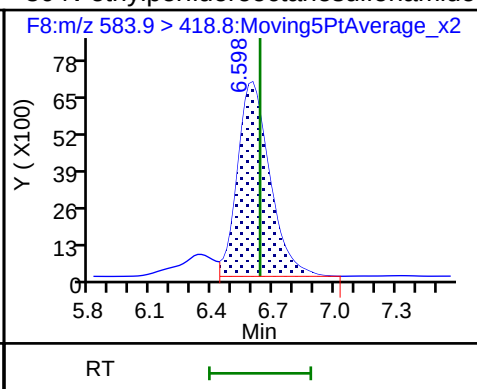
D 27 d3-NMeFOSAA



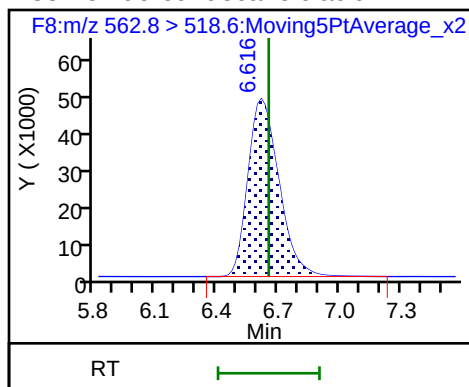
31 Perfluorodecanesulfonic acid



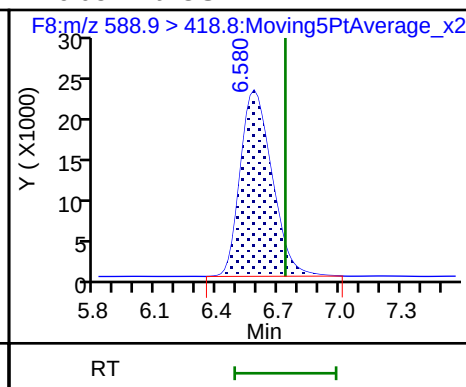
30 N-ethylperfluorooctanesulfonamidoa



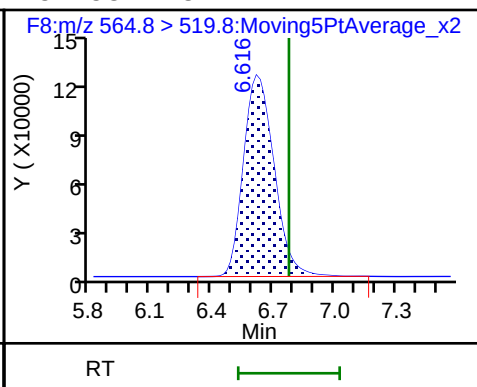
33 Perfluoroundecanoic acid



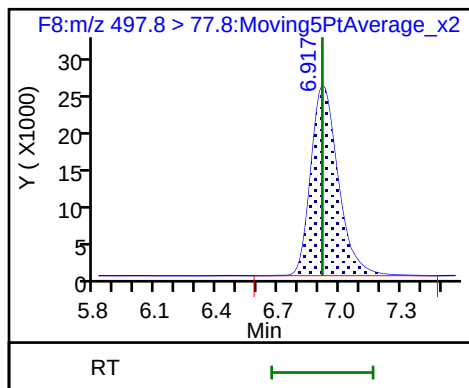
D 29 d5-NEtFOSAA



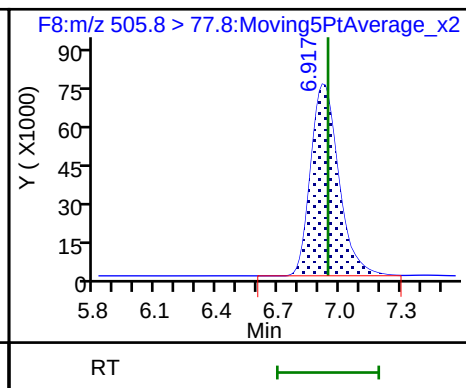
D 32 13C2 PFUnA



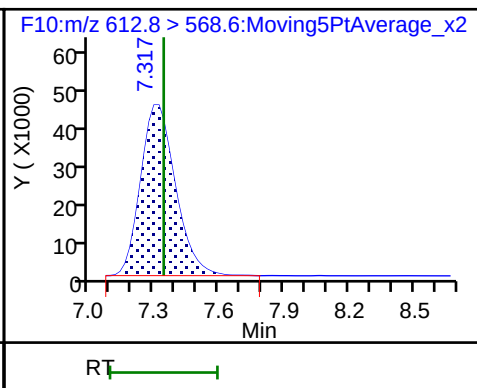
34 Perfluorooctanesulfonamide



D 35 13C8 FOSA



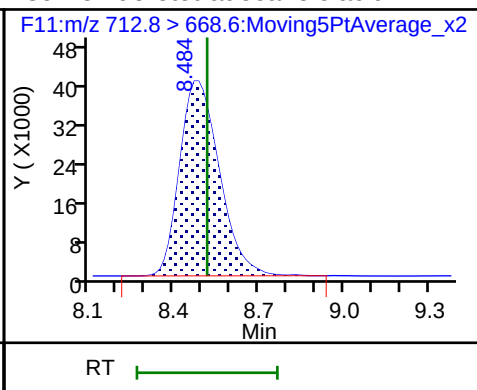
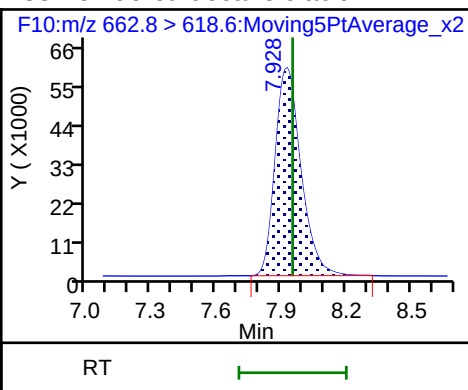
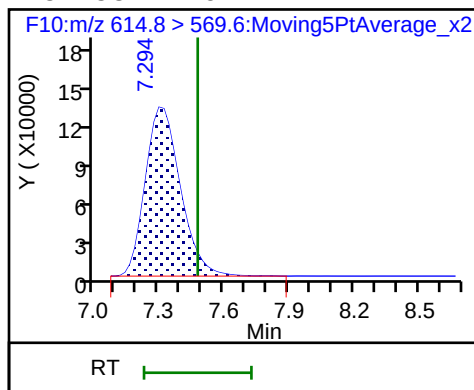
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

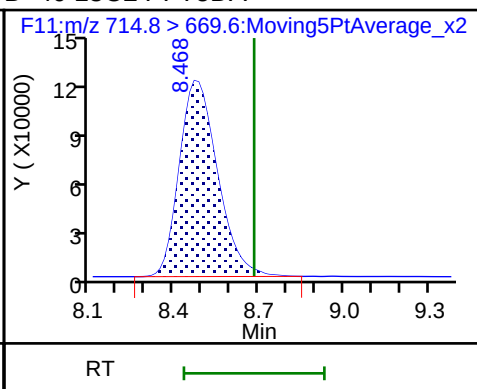
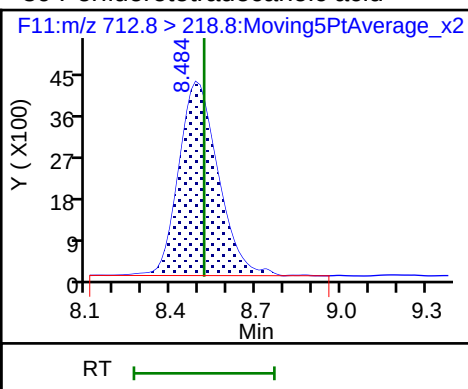
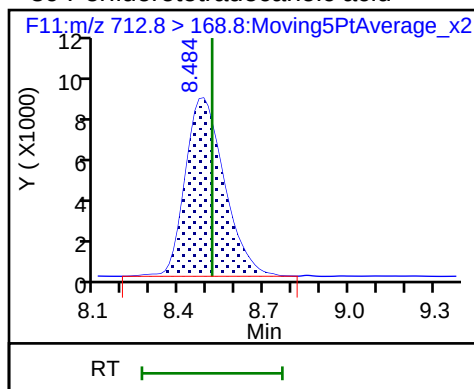
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

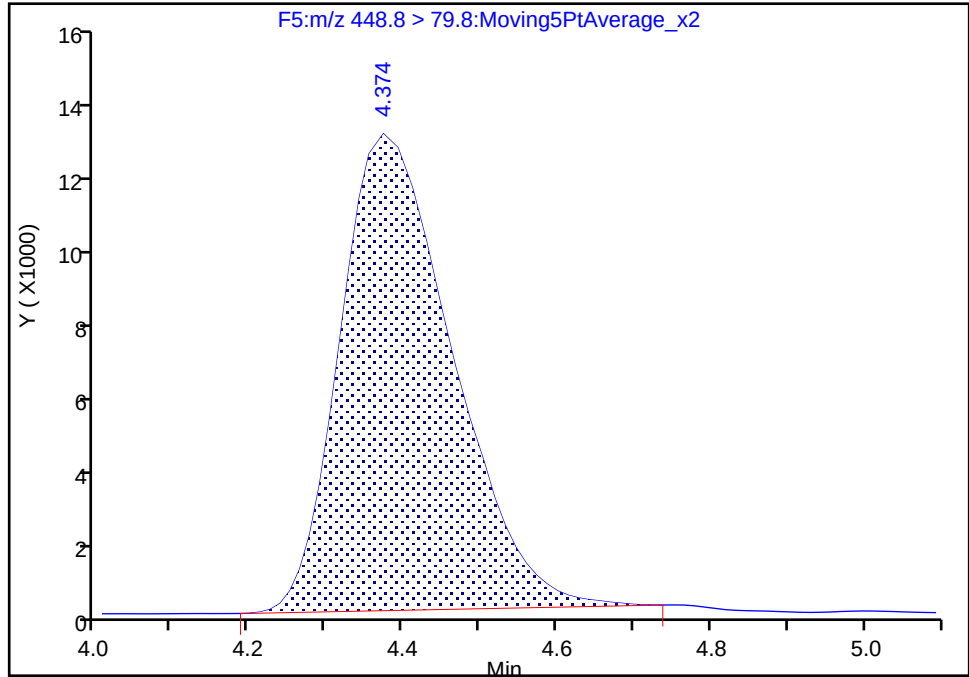
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A37.d
Injection Date: 10-Jan-2019 01:09:51 Instrument ID: LC410
Lims ID: CCV L4
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 37
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F5:MRM

18 Perfluoroheptanesulfonic acid, CAS: 375-92-8

Signal: 1

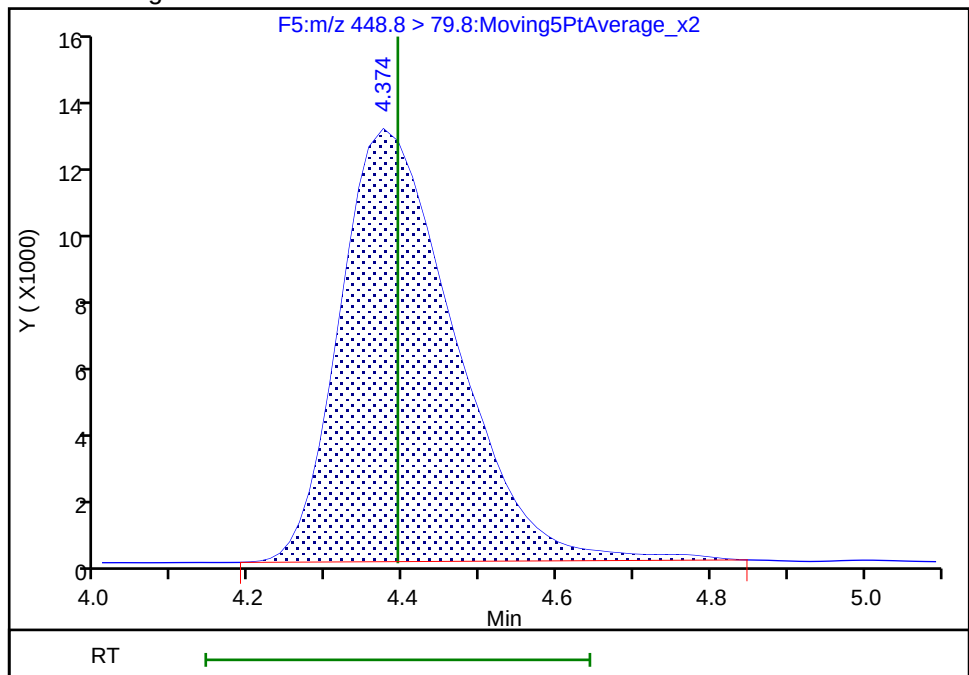
RT: 4.37
Area: 127302
Amount: 18.277381
Amount Units: ng/ml

Processing Integration Results



RT: 4.37
Area: 130499
Amount: 18.736390
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:02:15
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

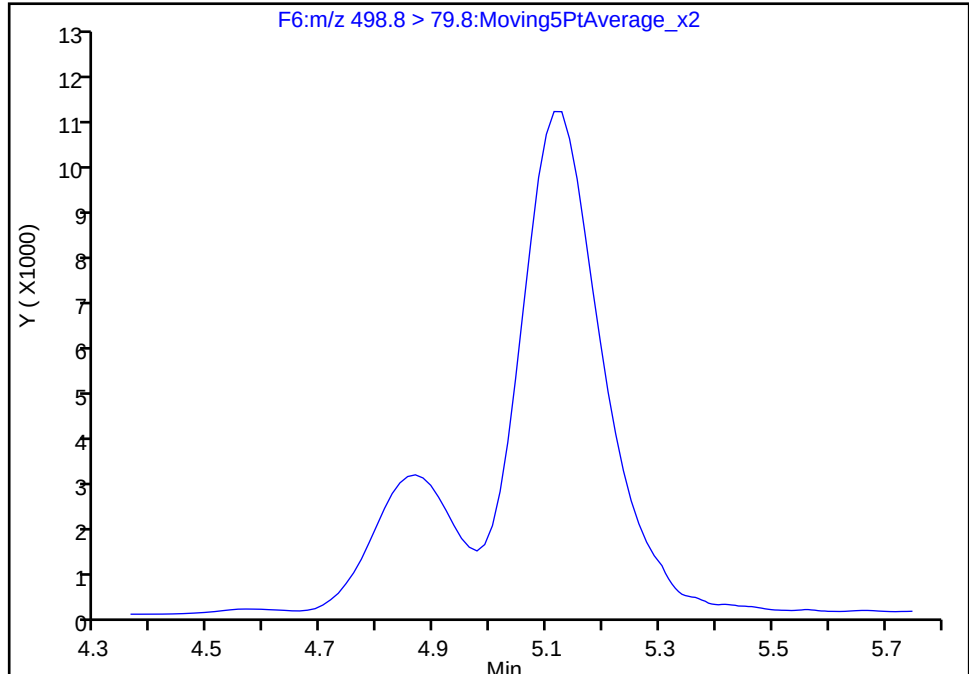
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A37.d
Injection Date: 10-Jan-2019 01:09:51 Instrument ID: LC410
Lims ID: CCV L4
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 37
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F6:MRM

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

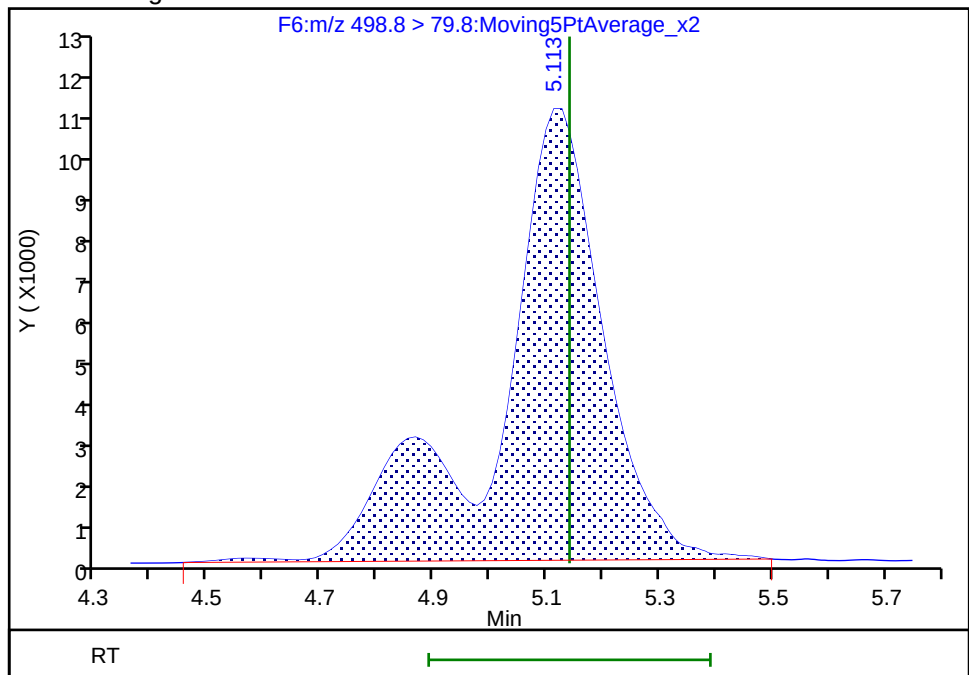
Not Detected
Expected RT: 5.14

Processing Integration Results



Manual Integration Results

RT: 5.11
Area: 143279
Amount: 18.999432
Amount Units: ng/ml



Reviewer: murrayjw, 10-Jan-2019 09:02:27
Audit Action: Manually Integrated

Audit Reason: Missed Peak
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01/17/2019

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Lab Sample ID: CCVIS 200-138989/6 Calibration Date: 01/10/2019 14:22

Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20

GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27

Lab File ID: PF011019A06.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	L1ID		0.8386		19600	20000	-2.0	40.0
Perfluoropentanoic acid (PFPeA)	AveID	2.848	2.212		15500	20000	-22.3	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.745	1.416		16200	20000	-18.9	40.0
Perfluorohexanoic acid (PFHxA)	AveID	1.038	0.9440		18200	20000	-9.0	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9775	1.031		21100	20000	5.5	40.0
Perfluorohexanesulfonic acid (PFHxS)	L1ID		1.072		13900	20000	-30.7	40.0
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	AveID	0.9845	0.9519		19300	20000	-3.3	40.0
Perfluorooctanoic acid (PFOA)	AveID	0.9899	1.011		20400	20000	2.1	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	0.9547	0.8554		17900	20000	-10.4	50.0
Perfluorononanoic acid (PFNA)	AveID	1.099	0.9339		17000	20000	-15.0	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.034	0.9881		19100	20000	-4.4	40.0
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	AveID	0.8068	0.7396		18300	20000	-8.3	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.009	1.002		19900	20000	-0.7	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.086	0.8159		15000	20000	-24.9	40.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9627	0.7919		16500	20000	-17.7	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	1.046	0.9186		17600	20000	-12.2	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.026	1.036		20200	20000	1.0	40.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.8462	0.8549		20200	20000	1.0	40.0
Perfluorododecanoic acid (PFDoA)	AveID	0.8584	0.9040		21100	20000	5.3	40.0
Perfluorotridecanoic acid (PFTrIA)	AveID	0.9775	1.049		21500	20000	7.3	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.9748	0.8785		18000	20000	-9.9	40.0
13C4 PFBA	Ave	0.5875	0.5560		47300	50000	-5.4	50.0
13C5 PFPeA	Ave	0.3725	0.4454		59800	50000	19.6	50.0
13C3 PFBS	Ave	0.3075	0.3368		50900	46500	9.5	50.0
13C2 PFHxA	Ave	0.6710	0.6346		47300	50000	-5.4	50.0
13C4 PFHpA	Ave	1.229	1.086		44200	50000	-11.6	50.0
18O2 PFHxS	Ave	0.3555	0.3806		50600	47300	7.0	50.0
M2-6:2 FTS	Ave	0.1097	0.1389		60200	47500	26.6	50.0
13C4 PFOA	Ave	0.9383	0.7993		42600	50000	-14.8	50.0
13C5 PFNA	Ave	1.265	1.088		43000	50000	-14.0	50.0
13C4 PFOS	Ave	0.3148	0.3244		49300	47800	3.1	50.0
M2-8:2 FTS	Ave	0.2971	0.2680		43200	47900	-9.8	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Lab Sample ID: CCVIS 200-138989/6 Calibration Date: 01/10/2019 14:22
 Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20
 GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27
 Lab File ID: PF011019A06.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C2 PFDA	Ave	1.305	1.129		43300	50000	-13.5	50.0
d3-NMeFOSAA	Ave	0.3333	0.2282		34200	50000	-31.5	50.0
d5-NEtFOSAA	Ave	0.2828	0.2239		39600	50000	-20.9	50.0
13C2 PFUnA	Ave	1.358	1.095		40300	50000	-19.4	50.0
13C8 FOSA	Ave	0.6063	0.6194		51100	50000	2.2	50.0
13C2 PFDoA	Ave	1.718	1.246		36300	50000	-27.5	50.0
13C2 PFTeDA	Ave	1.577	1.046		33200	50000	-33.6	50.0

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A06.d
 Lims ID: CCVIS
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 10-Jan-2019 14:22:58 ALS Bottle#: 0 Worklist Smp#: 6
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034093-006 CCVIS
 Misc. Info.: PFAS21 011019A
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 17:18:45 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM
 Process Host: CTX0308

First Level Reviewer: chirgwinb Date: 10-Jan-2019 14:47:41

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.392	2.392	0.0	1.000	167402	19.6		98.0	429	M
D 1 13C4 PFBA										M
216.9 > 171.5	2.392	2.392	0.0	1.000	499040	47.3		94.6	192	M
4 Perfluoropentanoic acid										
262.9 > 218.8	2.791	2.791	0.0	1.000	353664	15.5		77.7	989	
D 3 13C5 PFPeA										
267.7 > 222.6	2.791	2.801	-0.010	1.000	399753	59.8		120	1706	
D 6 13C3 PFBS										
302.0 > 79.8	2.867	2.867	0.0	1.000	281117	50.9		110	369	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.867	2.867	0.0	1.000	171199	16.2		81.1	5303	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.189	3.189	0.0	1.000	215090	18.2		91.0	1670	
D 7 13C2 PFHxA										
314.8 > 269.6	3.189	3.201	-0.012	1.000	569650	47.3		94.6	617	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.692	3.692	0.0	1.000	402197	21.1		106	3628	
D 9 13C4 PFHpA										
366.9 > 321.8	3.692	3.715	-0.023	1.000	974901	44.2		88.4	7147	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.737	3.737	0.0	1.000	146444	13.9		69.3	134	
D 11 18O2 PFHxS										
402.9 > 83.8	3.737	3.759	-0.022	1.000	323142	50.6		107	288	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.291	4.291	0.0	1.000	47467	19.3		96.7	425	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 13 M2-6:2 FTS										
428.6 > 408.6	4.291	4.330	-0.039	1.000	118431	60.2		127	433	
* 15 13C2 PFOA										
414.9 > 369.8	4.330	4.330	0.0		897593	50.0			22427	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.342	4.342	0.0	1.000	290115	20.4		102	488	
D 17 13C4 PFOA										
416.9 > 371.8	4.342	4.355	-0.013	1.000	717426	42.6		85.2	942	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.374	4.374	0.0	0.855	99638	17.9		89.6	238	M
19 Perfluorononanoic acid										
462.8 > 418.8	5.085	5.085	0.0	1.000	364849	17.0		85.0	1306	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.099	5.099	0.0	0.997	115095	19.1		95.6	234	M
D 20 13C5 PFNA										
467.8 > 422.8	5.085	5.113	-0.028	1.000	976635	43.0		86.0	531	
D 22 13C4 PFOS										
502.8 > 79.8	5.113	5.140	-0.027	1.000	278391	49.3		103	632	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.823	5.823	0.0	0.997	71162	18.3		91.7	348	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.843	5.863	-0.020	1.000	230441	43.2		90.2	959	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.863	5.863	0.0	1.000	406200	19.9		99.3	2996	
D 26 13C2 PFDA										
514.9 > 469.5	5.863	5.882	-0.019	1.000	1013092	43.3		86.5	1188	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.223	6.223	0.0	1.003	66863	15.0		75.1	85.3	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.205	6.241	-0.036	1.000	204869	34.2		68.5	740	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.580	6.580	0.0	1.003	63643	16.5		82.3	34.4	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.562	6.598	-0.036	1.000	200929	39.6		79.1	975	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.598	6.598	0.0	1.290	107002	17.6		87.8	484	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.616	6.616	0.0	1.000	407201	20.2		101	1277	
D 32 13C2 PFUnA										
564.8 > 519.8	6.616	6.652	-0.036	1.000	982903	40.3		80.6	6280	
D 35 13C8 FOSA										
505.8 > 77.8	6.903	6.917	-0.014	1.000	555954	51.1		102	2409	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.917	6.917	0.0	1.002	190119	20.2		101	1044	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.294	7.294	0.0	1.000	404466	21.1		105	1102	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags

D 37 13C2 PFD_oA

614.8 > 569.6	7.294	7.339	-0.045	1.000	1118561	36.3		72.5	3031	

38 Perfluorotridecanoic acid

662.8 > 618.6	7.920	7.920	0.0	0.935	393940	21.5		107	1105	

39 Perfluorotetradecanoic acid

712.8 > 668.6	8.468	8.468	0.0	1.000	330049	18.0	Target=1.00	90.1	1279	

712.8 > 168.8	8.468	8.468	0.0	1.000	74125		4.45(0.90-1.10)		374	

712.8 > 218.8	8.484	8.468	0.016	1.002	38112		8.66(0.90-1.10)		275	

D 40 13C2 PFTeDA

714.8 > 669.6	8.468	8.514	-0.046	1.000	939210	33.2		66.4	808	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L4_00003

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A06.d

Injection Date: 10-Jan-2019 14:22:58

Instrument ID: LC410

Lims ID: CCVIS

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

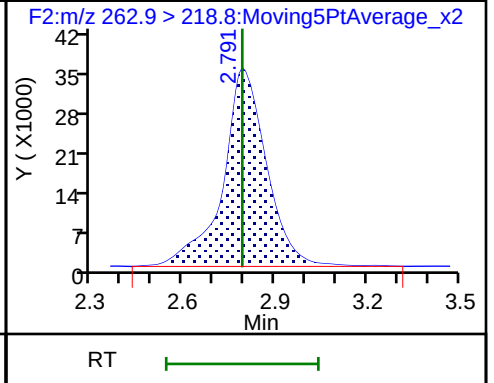
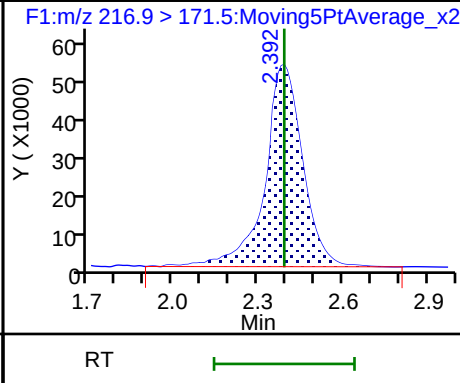
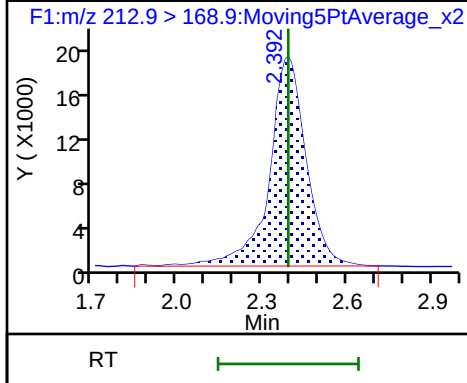
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA (M)

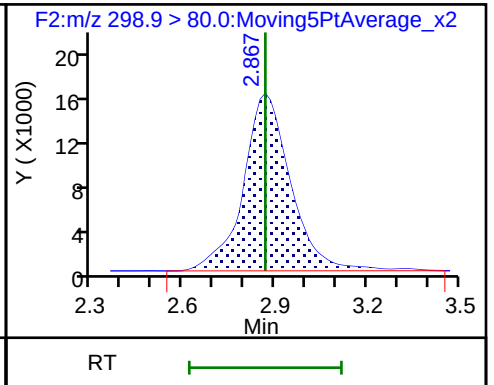
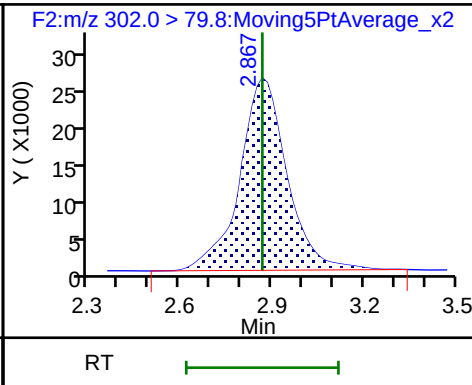
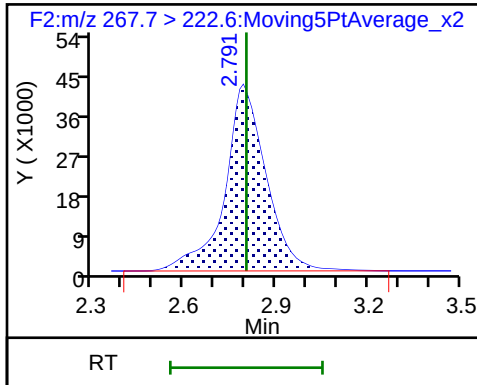
4 Perfluoropentanoic acid



D 3 13C5 PFPeA

D 6 13C3 PFBS

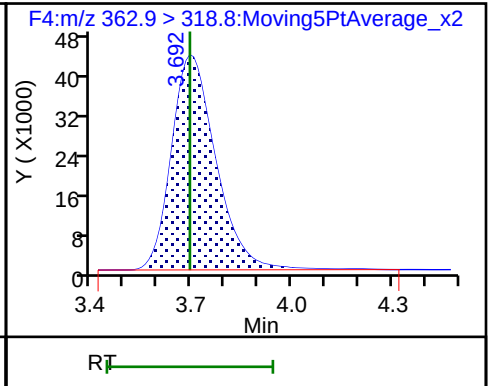
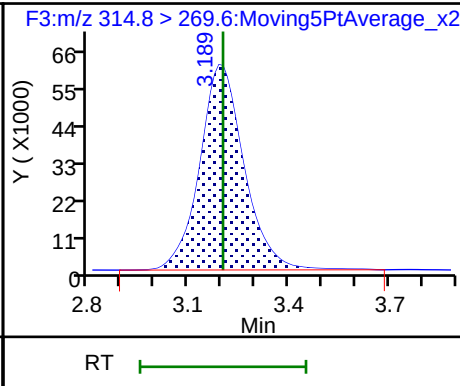
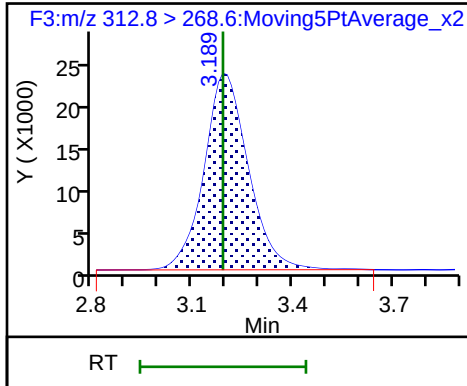
5 Perfluorobutanesulfonic acid



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

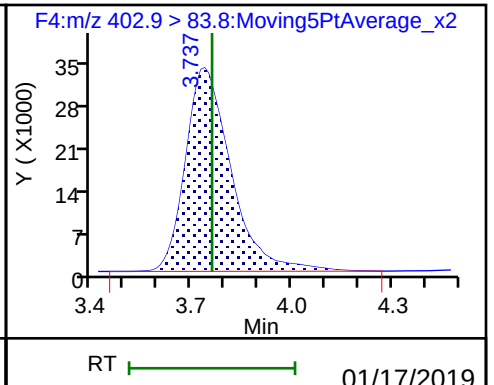
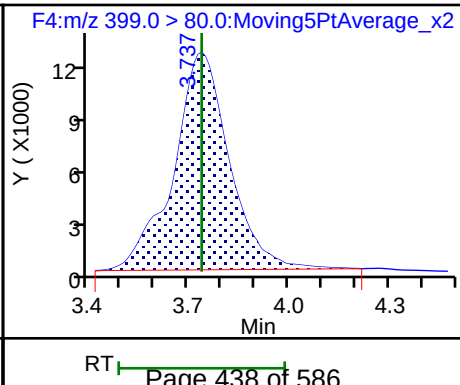
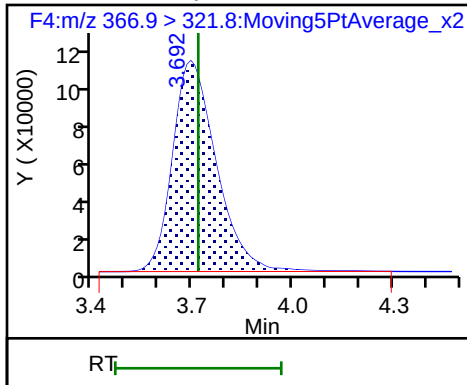
10 Perfluoroheptanoic acid



D 9 13C4 PFHpA

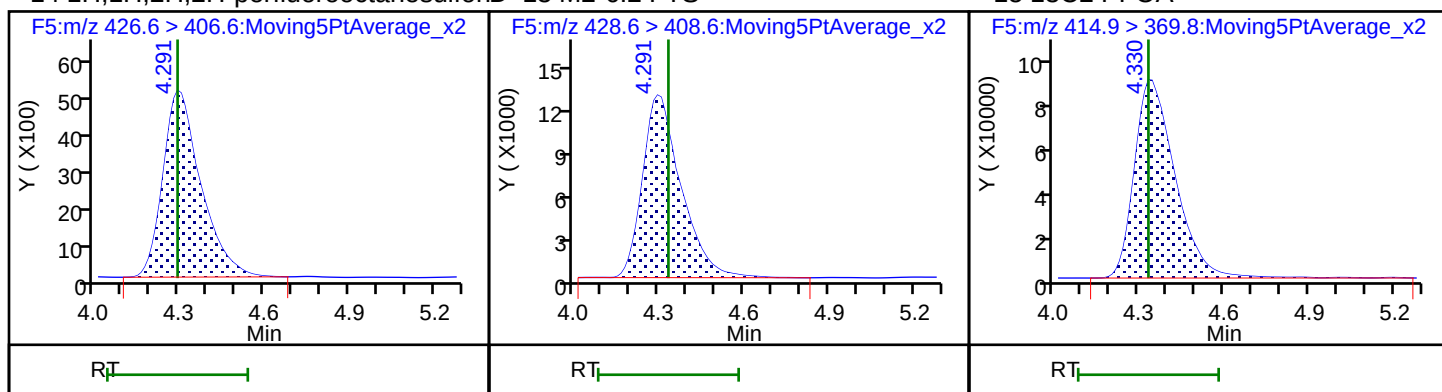
12 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfonD 13 M2-6:2 FTS

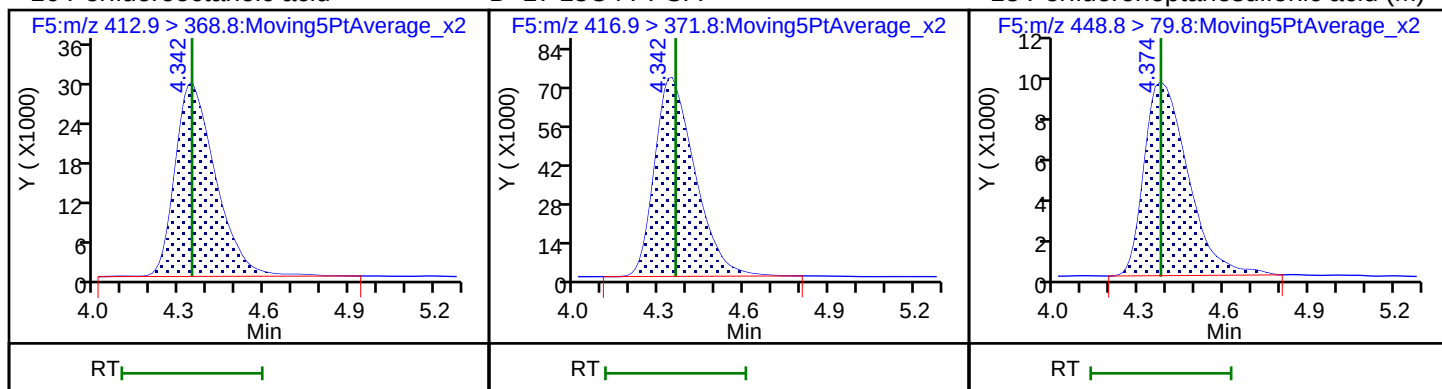
* 15 13C2 PFOA



16 Perfluorooctanoic acid

D 17 13C4 PFOA

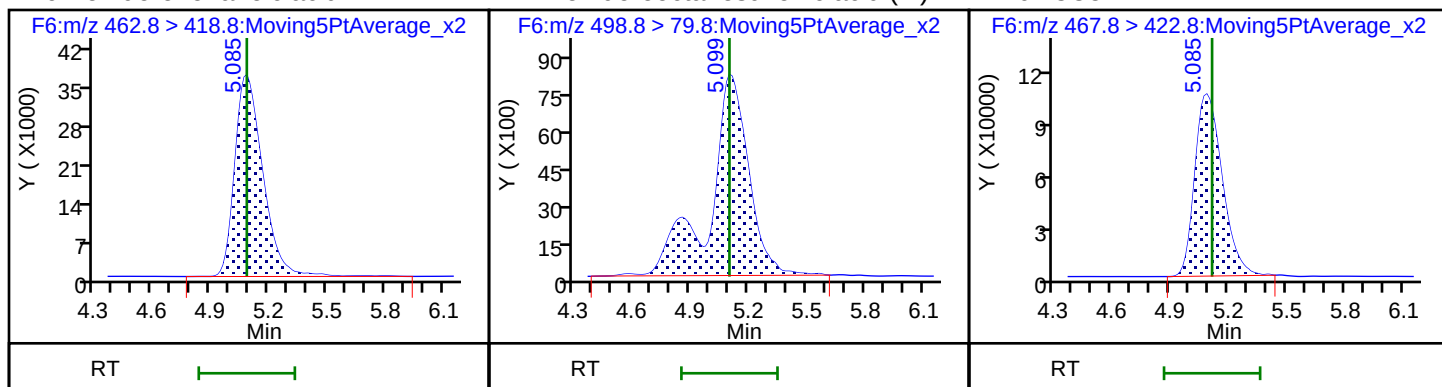
18 Perfluoroheptanesulfonic acid (M)



19 Perfluorononanoic acid

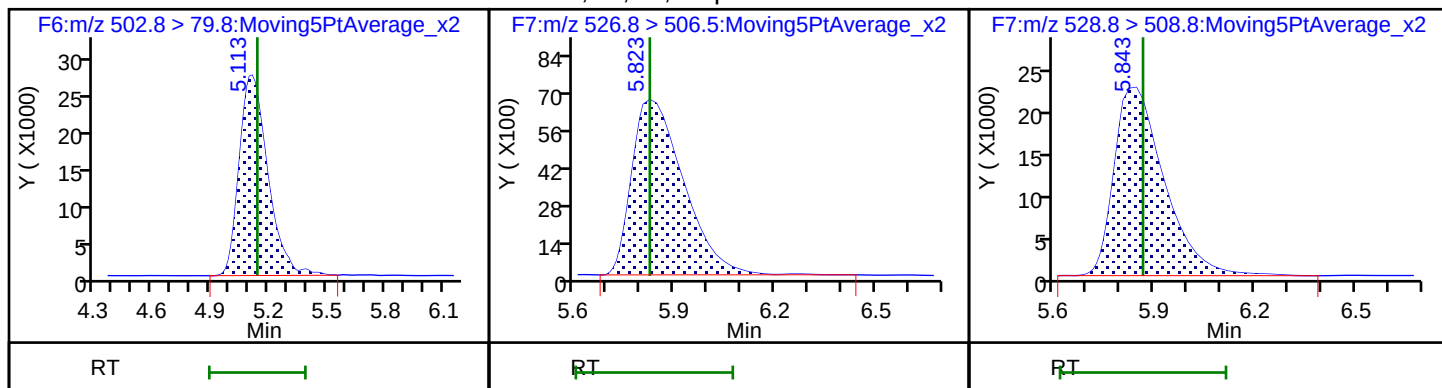
21 Perfluorooctanesulfonic acid (M)

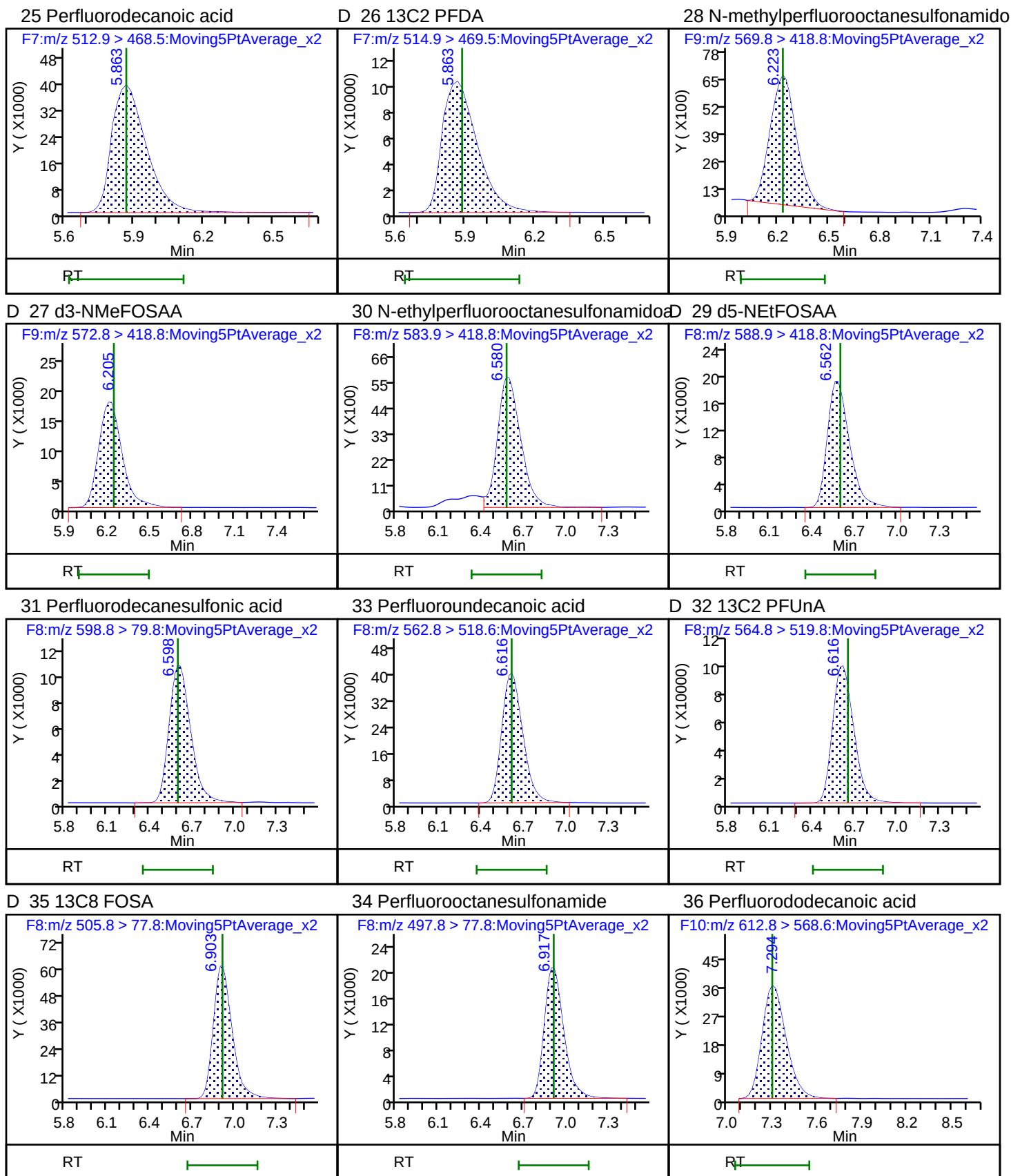
D 20 13C5 PFNA



D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfonD 24 M2-8:2 FTS

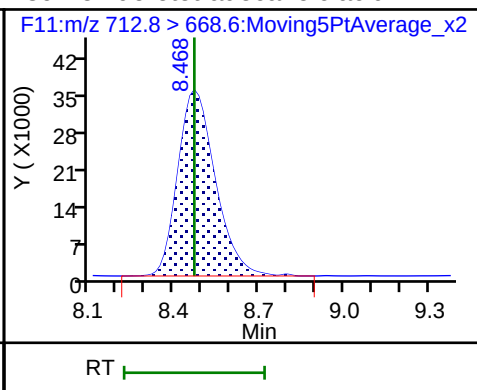
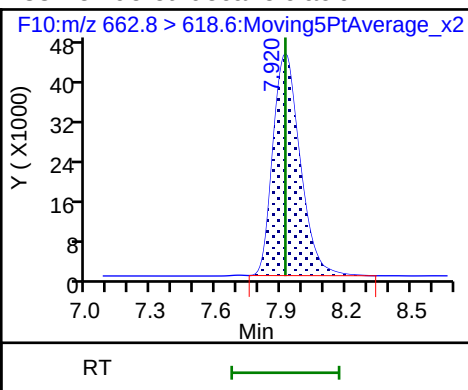
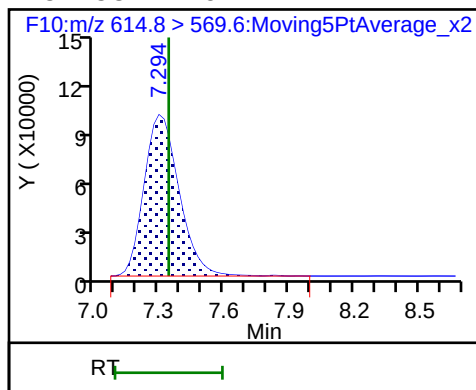




D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

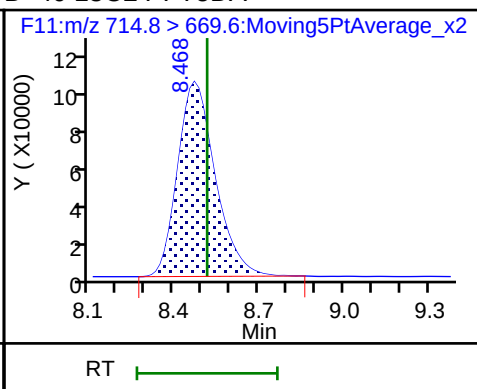
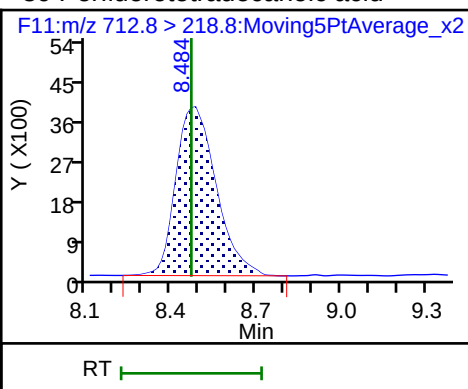
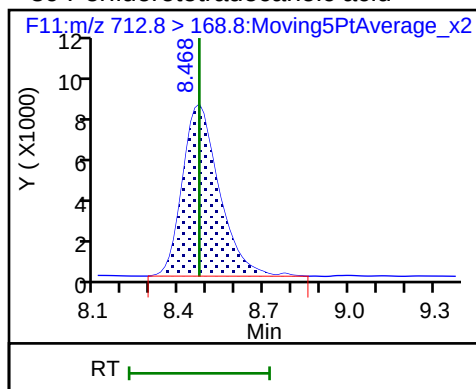
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

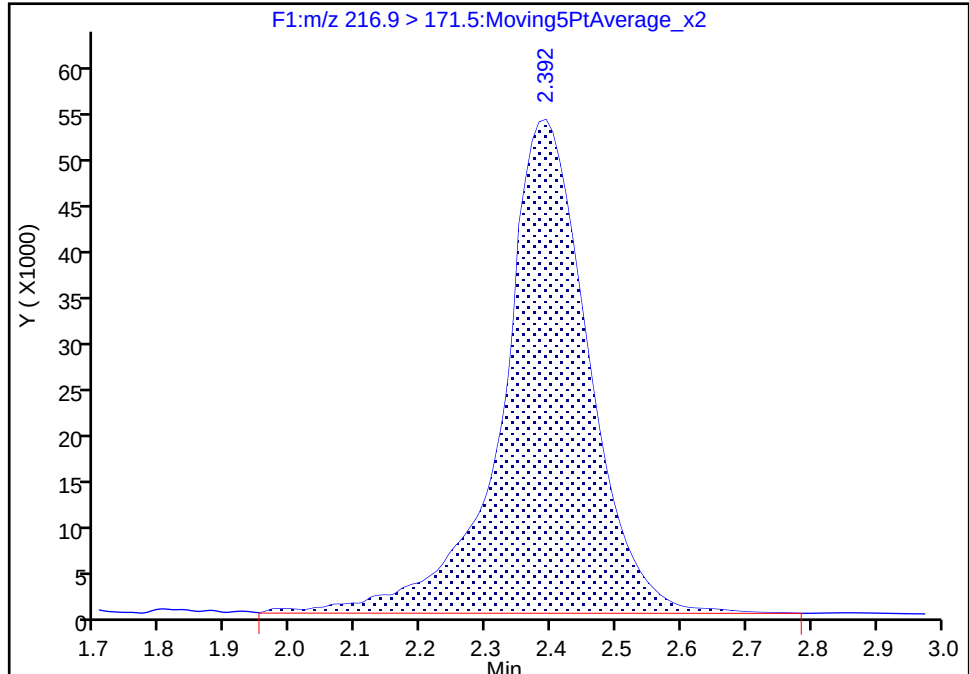
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Injection Date: 10-Jan-2019 14:22:58 Instrument ID: LC410
Lims ID: CCVIS
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

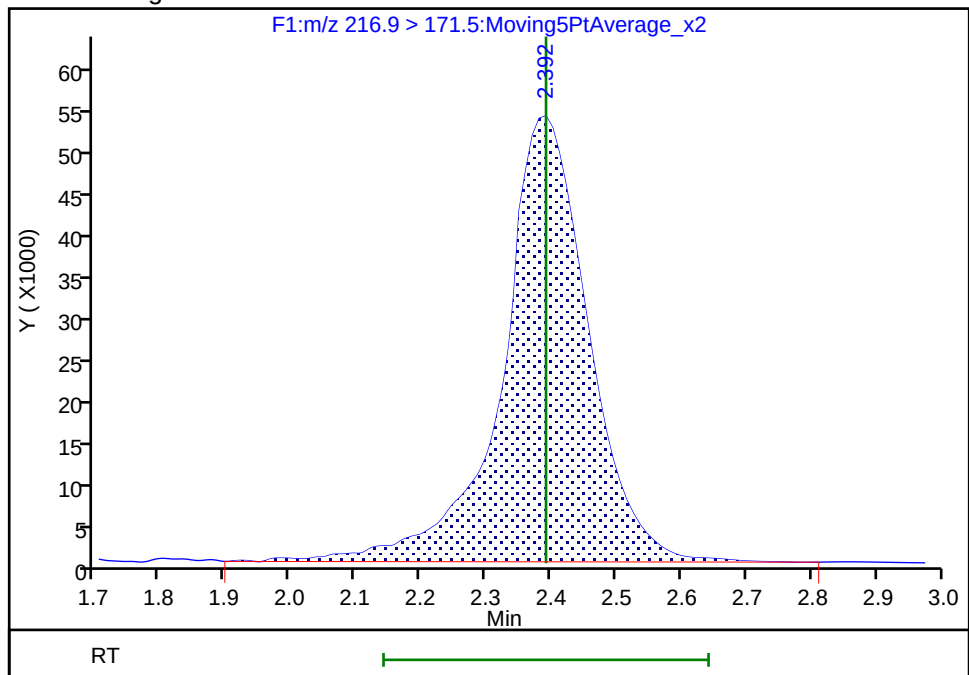
RT: 2.39
Area: 501277
Amount: 47.528127
Amount Units: ng/ml

Processing Integration Results



RT: 2.39
Area: 499040
Amount: 47.316028
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 14:47:24
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

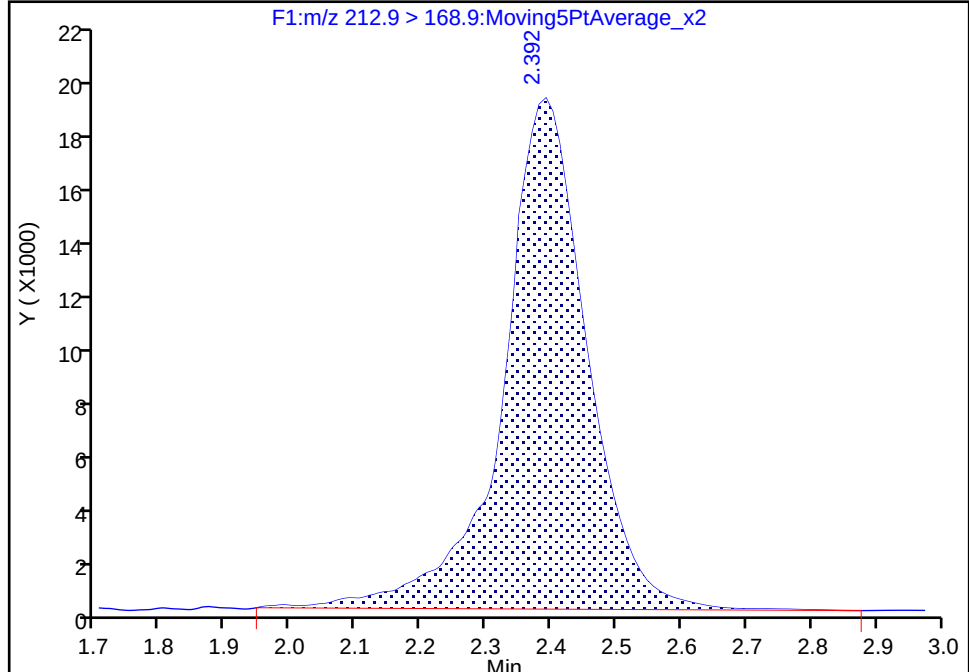
Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A06.d
Injection Date: 10-Jan-2019 14:22:58 Instrument ID: LC410
Lims ID: CCVIS
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

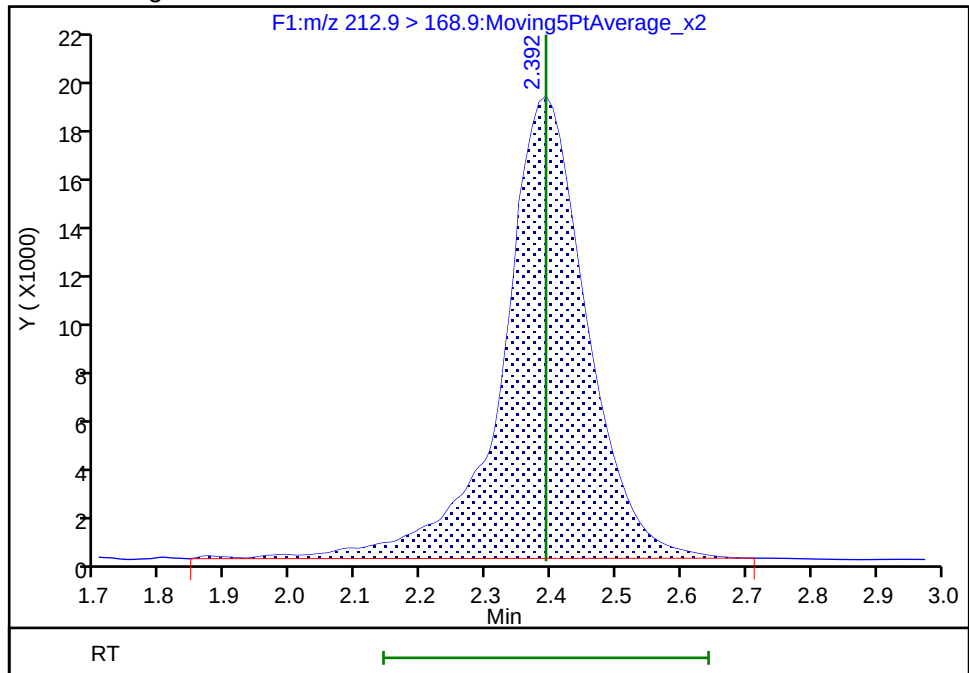
RT: 2.39
Area: 166767
Amount: 19.442404
Amount Units: ng/ml

Processing Integration Results



RT: 2.39
Area: 167402
Amount: 19.605501
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 14:47:20
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

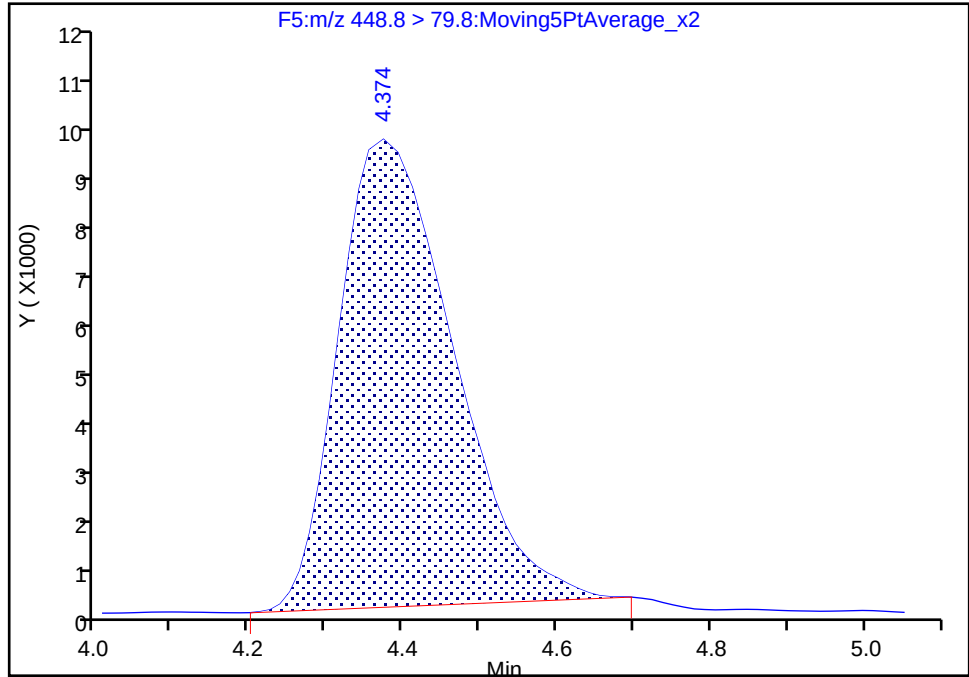
Data File:	\\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A06.d		
Injection Date:	10-Jan-2019 14:22:58	Instrument ID:	LC410
Lims ID:	CCVIS		
Client ID:			
Operator ID:	BC	ALS Bottle#:	0 Worklist Smp#: 6
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector	F5:MRM

18 Perfluoroheptanesulfonic acid, CAS: 375-92-8

Signal: 1

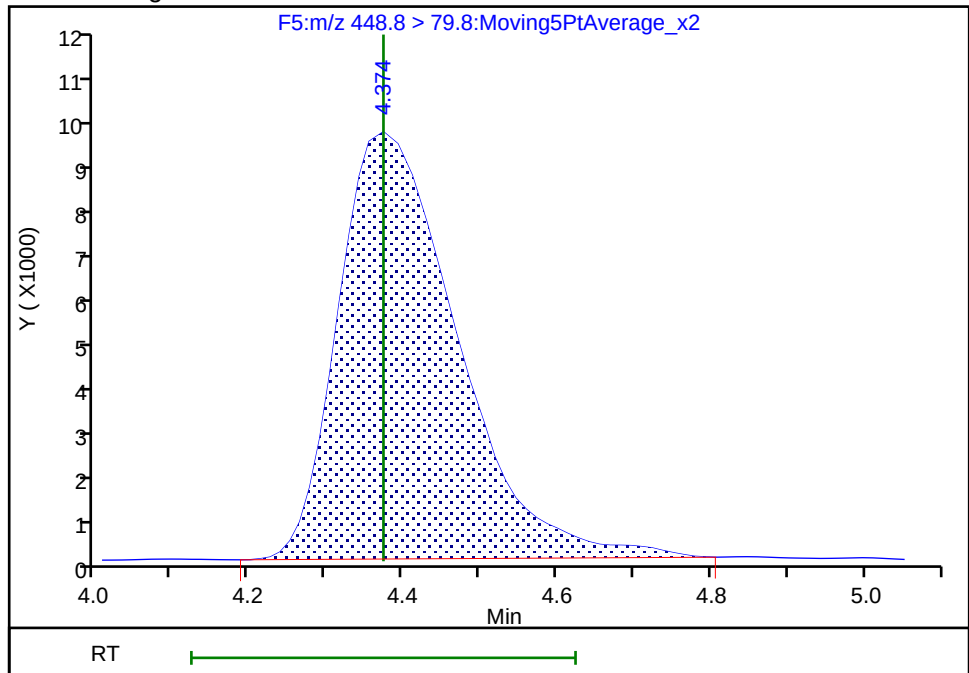
RT: 4.37
Area: 95018
Amount: 17.088641
Amount Units: ng/ml

Processing Integration Results



RT: 4.37
Area: 99638
Amount: 17.919532
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 14:48:11
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

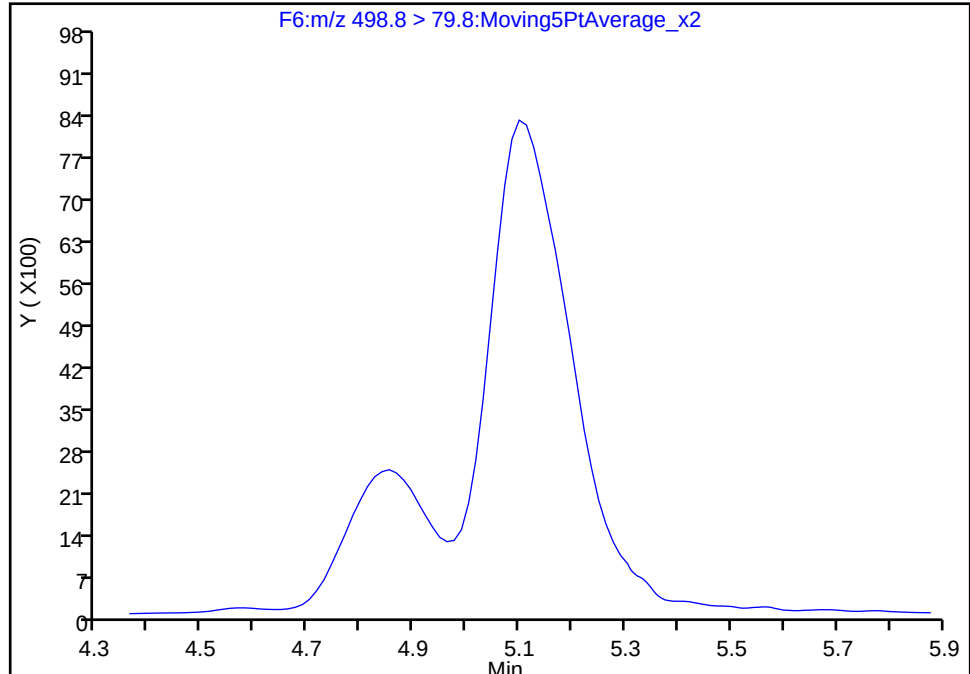
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Injection Date: 10-Jan-2019 14:22:58 Instrument ID: LC410
Lims ID: CCVIS
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 6
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F6:MRM

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

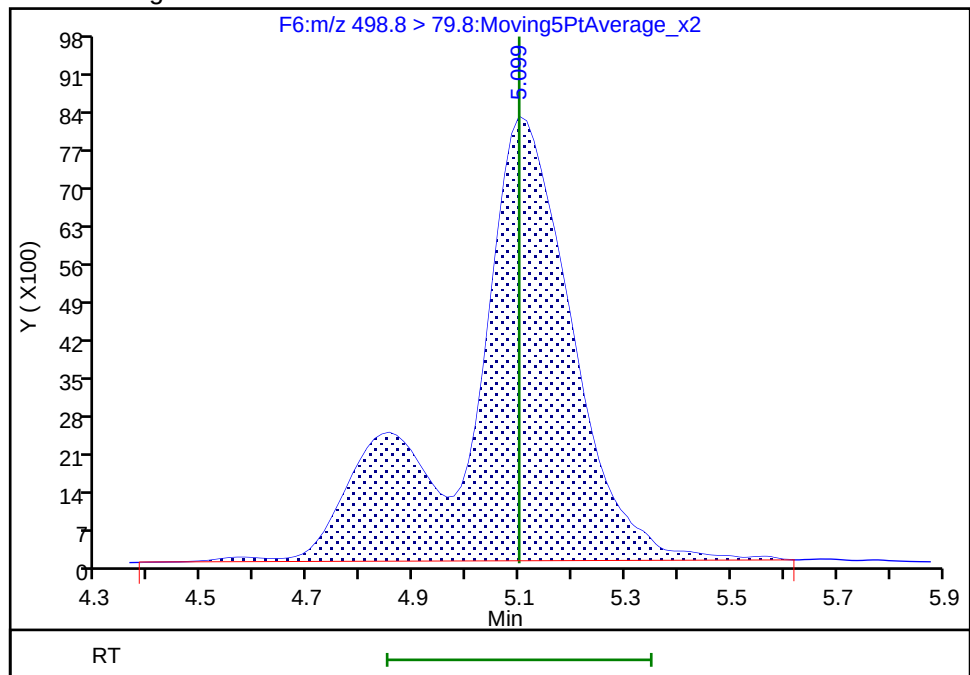
Not Detected
Expected RT: 5.10

Processing Integration Results



Manual Integration Results

RT: 5.10
Area: 115095
Amount: 19.117779
Amount Units: ng/ml



Reviewer: chirgwinb, 10-Jan-2019 14:47:07
Audit Action: Manually Integrated

Audit Reason: Missed Peak
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FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Lab Sample ID: CCVL 200-138989/7 Calibration Date: 01/10/2019 14:38

Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20

GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27

Lab File ID: PF011019A07.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	L1ID		0.9859		973	1000	-2.7	50.0
Perfluoropentanoic acid (PFPeA)	AveID	2.848	2.770		973	1000	-2.7	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.745	1.366		783	1000	-21.7	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.038	1.146		1100	1000	10.5	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9775	0.998		1020	1000	2.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	L1ID		1.344		646	1000	-35.4	50.0
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	AveID	0.9845	0.9682		983	1000	-1.7	50.0
Perfluorooctanoic acid (PFOA)	AveID	0.9899	1.092		1100	1000	10.3	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	0.9547	0.7199		754	1000	-24.6	50.0
Perfluorononanoic acid (PFNA)	AveID	1.099	0.9636		877	1000	-12.3	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.034	1.045		1010	1000	1.1	50.0
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	AveID	0.8068	0.4455		552	1000	-44.8	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.009	0.8603		852	1000	-14.8	50.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.086	0.8505		783	1000	-21.7	50.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9627	0.9134		949	1000	-5.1	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	1.046	0.9189		878	1000	-12.2	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.026	1.057		1030	1000	3.0	50.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.8462	1.007		1190	1000	19.0	50.0
Perfluorododecanoic acid (PFDoA)	AveID	0.8584	0.8936		1040	1000	4.1	50.0
Perfluorotridecanoic acid (PFTrIA)	AveID	0.9775	1.134		1160	1000	16.0	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.9748	0.9035		927	1000	-7.3	50.0
13C4 PFBA	Ave	0.5875	0.5534		47100	50000	-5.8	50.0
13C5 PFPeA	Ave	0.3725	0.4894		65700	50000	31.4	50.0
13C3 PFBS	Ave	0.3075	0.3964		59900	46500	28.9	50.0
13C2 PFHxA	Ave	0.6710	0.6885		51300	50000	2.6	50.0
13C4 PFHpA	Ave	1.229	1.152		46900	50000	-6.3	50.0
18O2 PFHxS	Ave	0.3555	0.3900		51900	47300	9.7	50.0
M2-6:2 FTS	Ave	0.1097	0.1539		66700	47500	40.3	50.0
13C4 PFOA	Ave	0.9383	0.8969		47800	50000	-4.4	50.0
13C5 PFNA	Ave	1.265	1.209		47800	50000	-4.5	50.0
13C4 PFOS	Ave	0.3148	0.3451		52400	47800	9.6	50.0
M2-8:2 FTS	Ave	0.2971	0.2890		46600	47900	-2.7	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Lab Sample ID: CCVL 200-138989/7 Calibration Date: 01/10/2019 14:38
 Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20
 GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27
 Lab File ID: PF011019A07.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C2 PFDA	Ave	1.305	1.336		51200	50000	2.4	50.0
d3-NMeFOSAA	Ave	0.3333	0.2401		36000	50000	-27.9	50.0
d5-NEtFOSAA	Ave	0.2828	0.2503		44200	50000	-11.5	50.0
13C2 PFUnA	Ave	1.358	1.213		44600	50000	-10.7	50.0
13C8 FOSA	Ave	0.6063	0.6614		54500	50000	9.1	50.0
13C2 PFDoA	Ave	1.718	1.333		38800	50000	-22.5	50.0
13C2 PFTeDA	Ave	1.577	1.052		33400	50000	-33.3	50.0

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 10-Jan-2019 14:38:49 ALS Bottle#: 0 Worklist Smp#: 7
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034093-007 CCVL
 Misc. Info.: PFAS21 011019A
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 17:18:51 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM
 Process Host: CTX0308

First Level Reviewer: chirgwinb Date: 10-Jan-2019 15:11:05

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.392	2.392	0.0	1.004	9183	0.9731		97.3	29.8	M
D 1 13C4 PFBA										
216.9 > 171.5	2.382	2.392	-0.010	1.000	465741	47.1		94.2	182	
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.791	2.791	0.0	1.004	22818	0.9727		97.3	24.4	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.781	2.801	-0.020	1.000	411872	65.7		131	782	
D 6 13C3 PFBS										
302.0 > 79.8	2.851	2.867	-0.016	1.000	310260	59.9		129	1588	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.867	2.867	0.0	1.006	9111	0.7825		78.3	55.3	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.177	3.189	-0.012	0.996	13284	1.10		110	239	
D 7 13C2 PFHxA										
314.8 > 269.6	3.189	3.201	-0.012	1.000	579486	51.3		103	2530	
10 Perfluoroheptanoic acid										M
362.9 > 318.8	3.692	3.692	0.0	1.003	19353	1.02		102	36.1	M
D 9 13C4 PFHpA										
366.9 > 321.8	3.681	3.715	-0.034	1.000	969666	46.9		93.7	203	
12 Perfluorohexanesulfonic acid										M
399.0 > 80.0	3.726	3.737	-0.011	1.000	8820	0.6459		64.6	46.5	M
D 11 18O2 PFHxS										
402.9 > 83.8	3.726	3.759	-0.033	1.000	310474	51.9		110	279	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.304	4.291	0.013	1.003	2508	0.9834		98.3	40.9	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 13 M2-6:2 FTS										
428.6 > 408.6	4.291	4.330	-0.039	1.000	123042	66.7		140	489	
* 15 13C2 PFOA										
414.9 > 369.8	4.330	4.330	0.0		841637	50.0			3459	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.330	4.342	-0.012	1.000	16479	1.10		110	62.6	
D 17 13C4 PFOA										
416.9 > 371.8	4.330	4.355	-0.025	1.000	754864	47.8		95.6	2501	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.374	4.374	0.0	0.855	4182	0.7540		75.4	21.1	M
19 Perfluorononanoic acid										
462.8 > 418.8	5.072	5.085	-0.013	0.997	19608	0.8766		87.7	98.2	M
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.099	5.099	0.0	0.997	6071	1.01		101	45.0	M
D 20 13C5 PFNA										
467.8 > 422.8	5.085	5.113	-0.028	1.000	1017440	47.8		95.5	900	
D 22 13C4 PFOS										
502.8 > 79.8	5.113	5.140	-0.027	1.000	277689	52.4		110	562	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.843	5.823	0.020	1.003	2167	0.5522		55.2	18.5	M
D 24 M2-8:2 FTS										
528.8 > 508.8	5.823	5.863	-0.040	1.000	232996	46.6		97.3	672	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.843	5.863	-0.020	0.997	19345	0.8522		85.2	97.4	
D 26 13C2 PFDA										
514.9 > 469.5	5.863	5.882	-0.019	1.000	1124297	51.2		102	2735	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.223	6.223	0.0	1.003	3438	0.7833		78.3	10.8	M
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.205	6.241	-0.036	1.000	202108	36.0		72.1	1188	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.580	6.580	0.0	1.000	3848	0.9488		94.9	69.2	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.580	6.598	-0.018	1.000	210646	44.2		88.5	1962	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.598	6.598	0.0	1.290	5338	0.8784		87.8	40.4	M
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.616	6.616	0.0	1.003	21574	1.03		103	153	
D 32 13C2 PFUnA										
564.8 > 519.8	6.598	6.652	-0.054	1.000	1020628	44.6		89.3	2124	
D 35 13C8 FOSA										
505.8 > 77.8	6.903	6.917	-0.014	1.000	556692	54.5		109	4953	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.889	6.917	-0.028	0.998	11215	1.19		119	84.8	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.294	7.294	0.0	1.000	20044	1.04		104	302	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags

D 37 13C2 PFD0A

614.8 > 569.6	7.294	7.339	-0.045	1.000	1121498	38.8		77.5	3906	
38 Perfluorotridecanoic acid										M
662.8 > 618.6	7.903	7.920	-0.017	0.935	20081	1.16		116	176	M
39 Perfluorotetradecanoic acid										M
712.8 > 668.6	8.453	8.468	-0.015	1.000	15994	0.9268	Target=1.00	92.7	63.8	
712.8 > 168.8	8.453	8.468	-0.015	1.000	2371		6.75(0.90-1.10)		10.2	M
712.8 > 218.8	8.484	8.468	0.016	1.004	2042		7.83(0.90-1.10)		10.3	M

D 40 13C2 PFTeDA

714.8 > 669.6	8.453	8.514	-0.061	1.000	885160	33.4		66.7	937	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L1_00003

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d

Injection Date: 10-Jan-2019 14:38:49

Instrument ID: LC410

Lims ID: CCVL

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

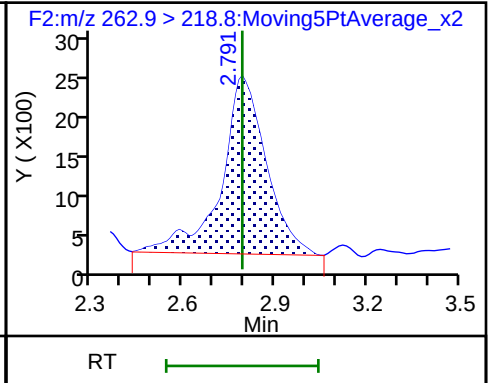
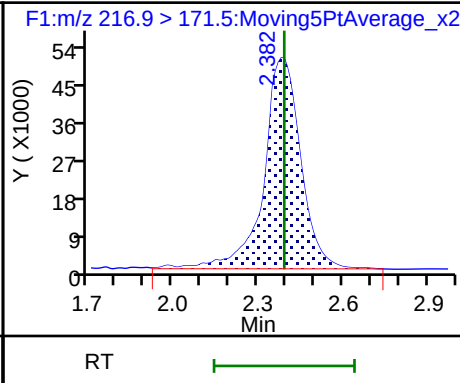
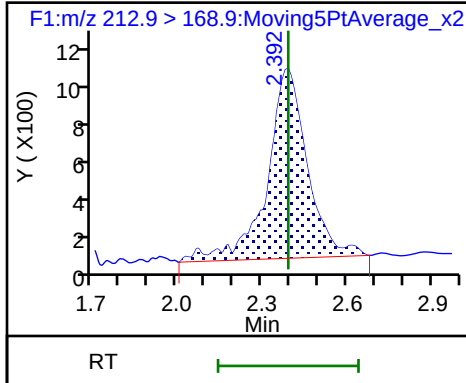
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA

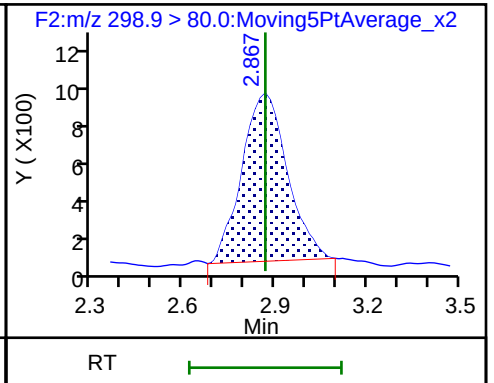
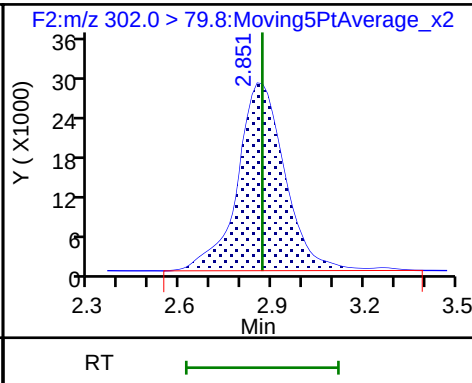
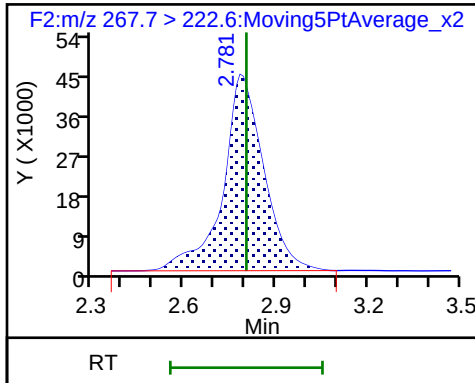
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

D 6 13C3 PFBS

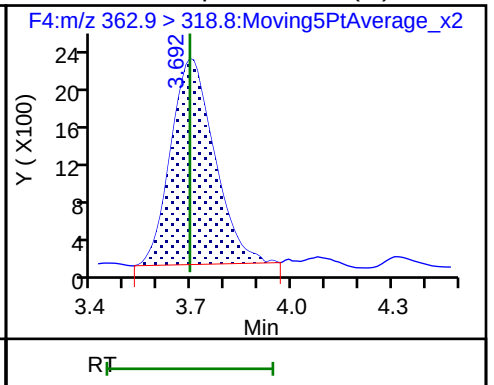
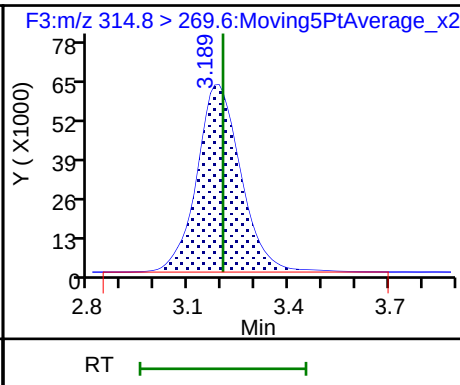
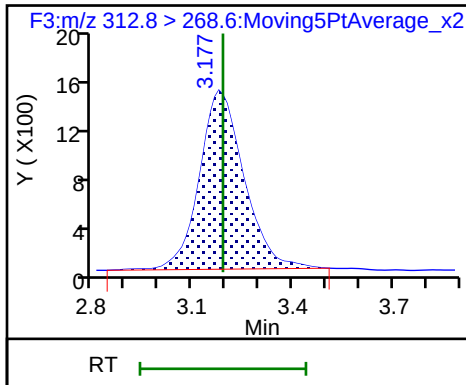
5 Perfluorobutanesulfonic acid



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

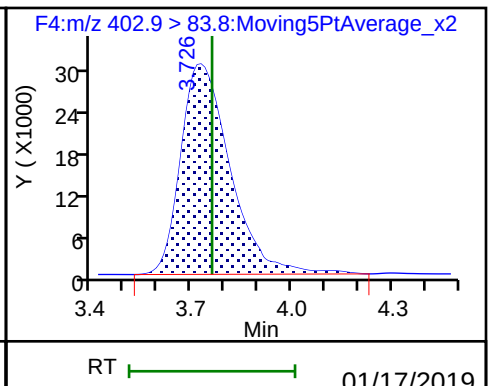
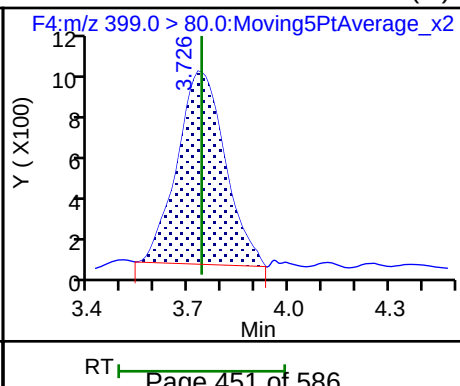
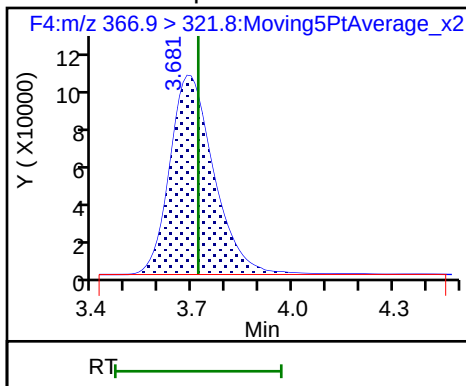
10 Perfluoroheptanoic acid (M)



D 9 13C4 PFHpA

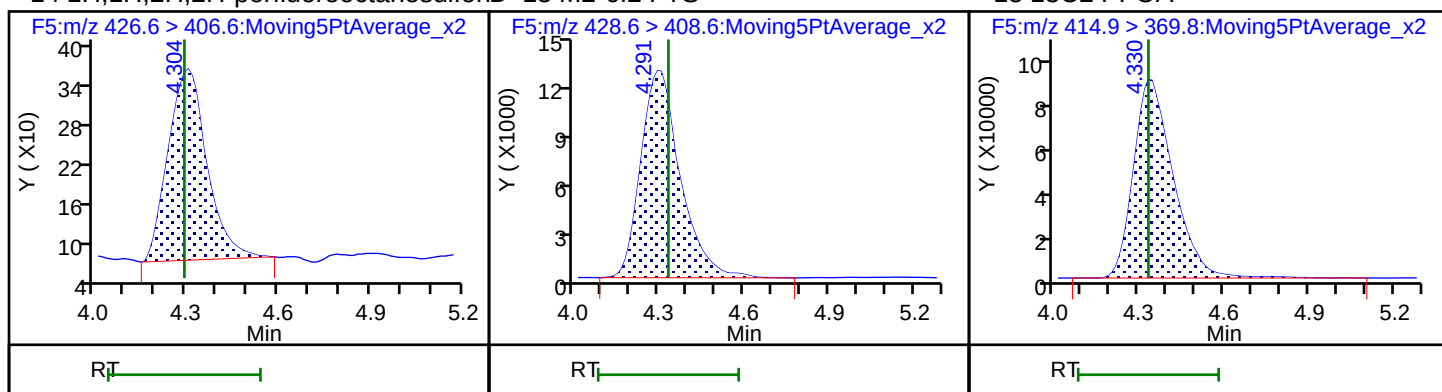
12 Perfluorohexanesulfonic acid (M)

D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfonD 13 M2-6:2 FTS

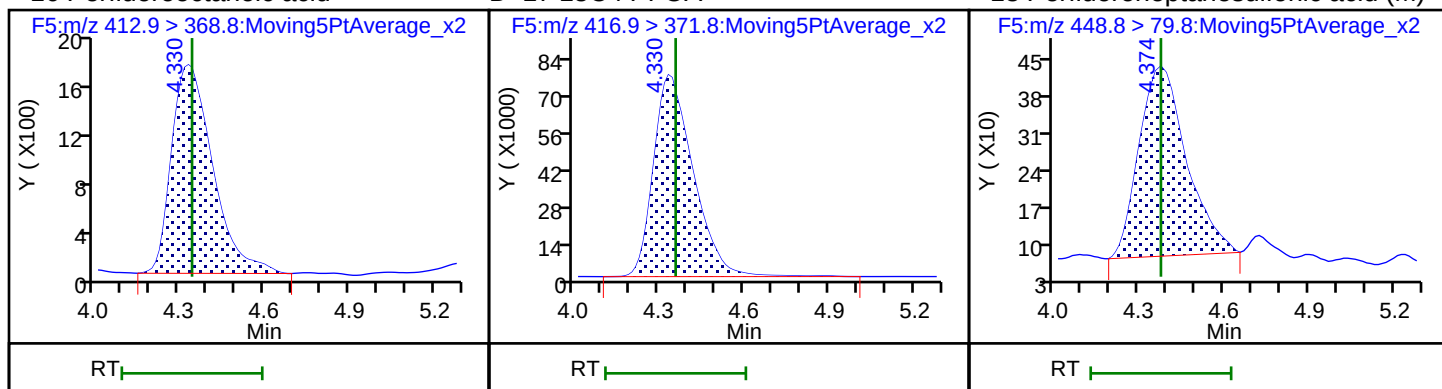
* 15 13C2 PFOA



16 Perfluorooctanoic acid

D 17 13C4 PFOA

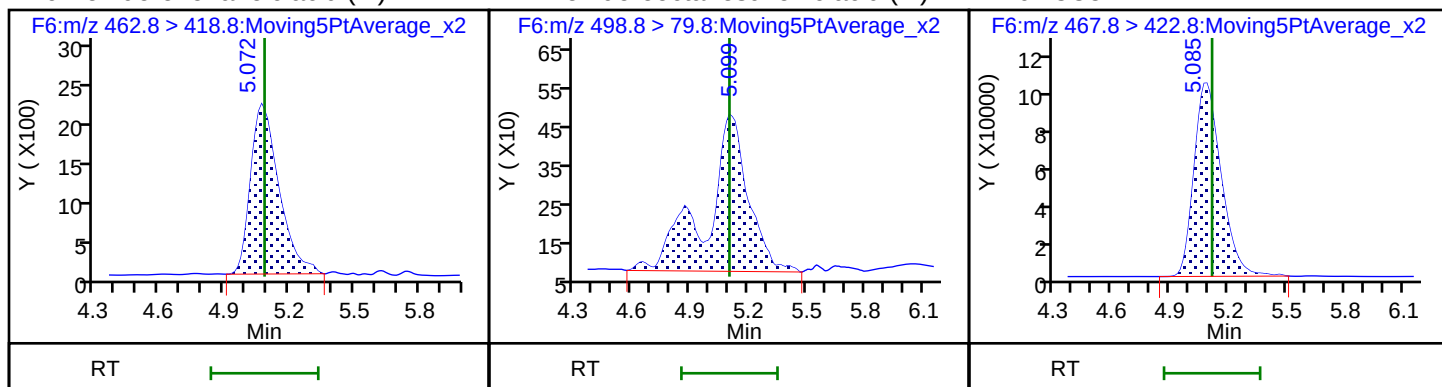
18 Perfluoroheptanesulfonic acid (M)



19 Perfluorononanoic acid (M)

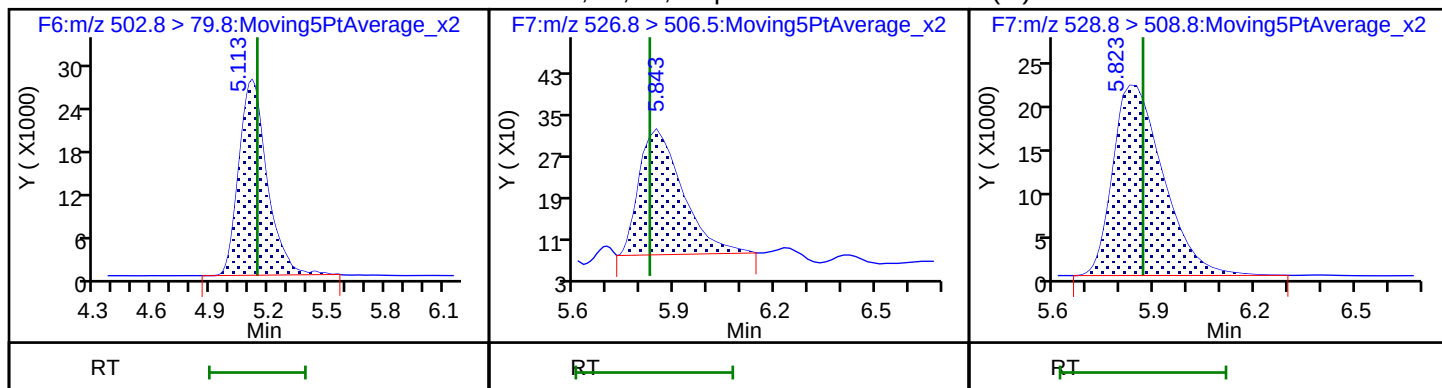
21 Perfluorooctanesulfonic acid (M)

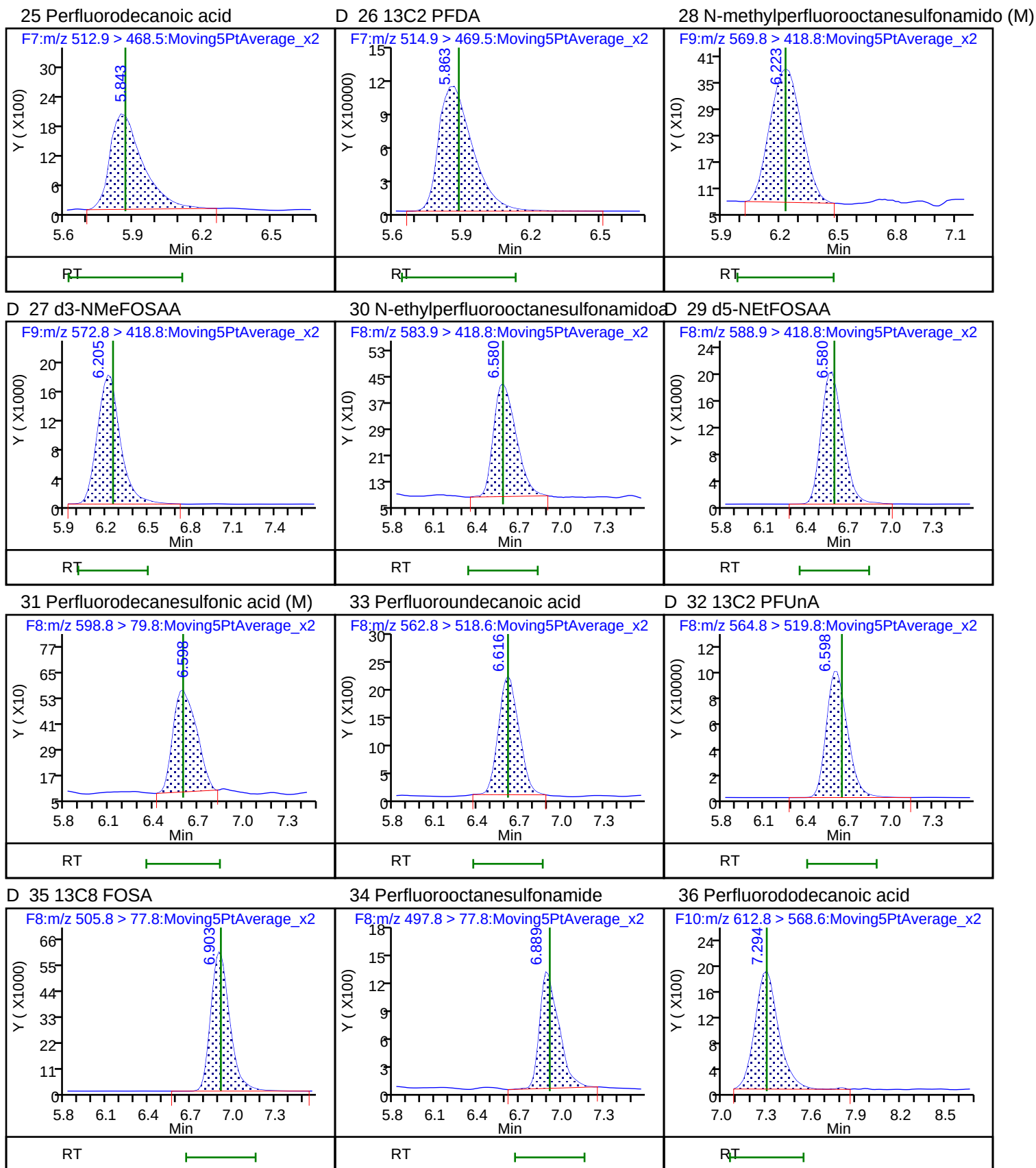
D 20 13C5 PFNA



D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfonD (M) M2-8:2 FTS

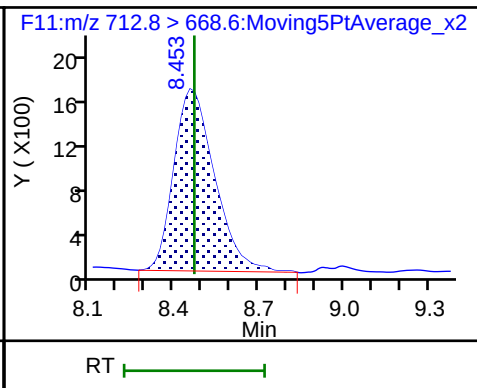
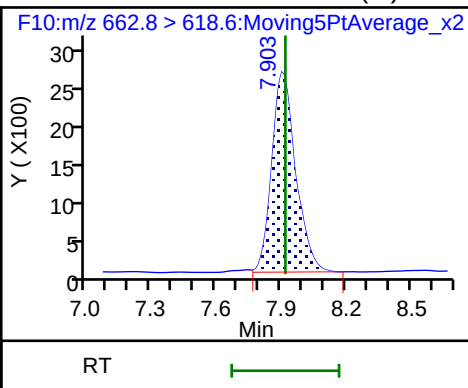
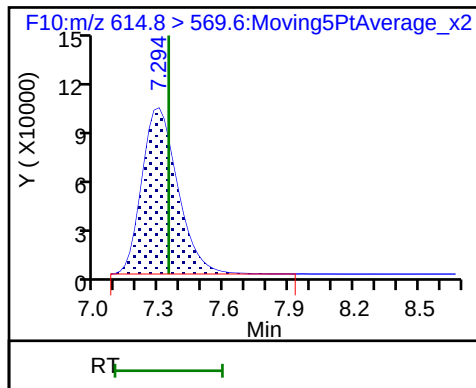




D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (M)

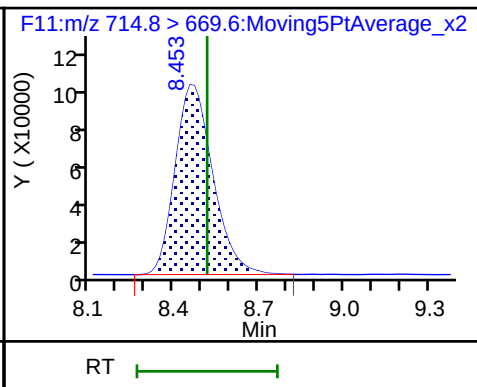
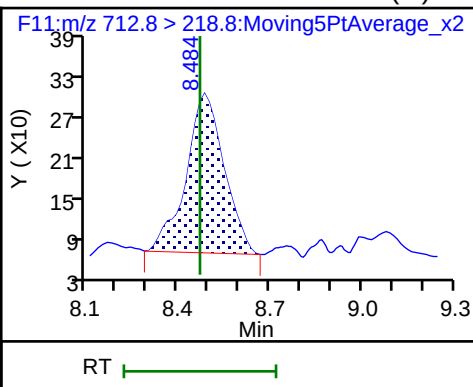
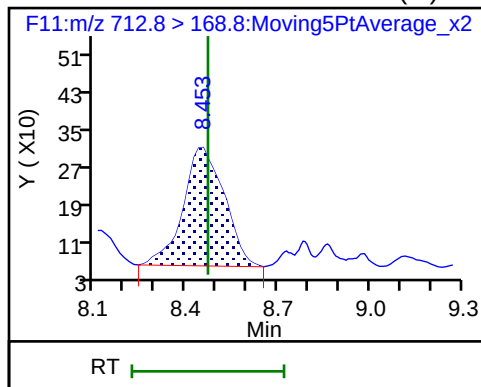
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid (M)

39 Perfluorotetradecanoic acid (M)

D 40 13C2 PFTeDA



TestAmerica Burlington

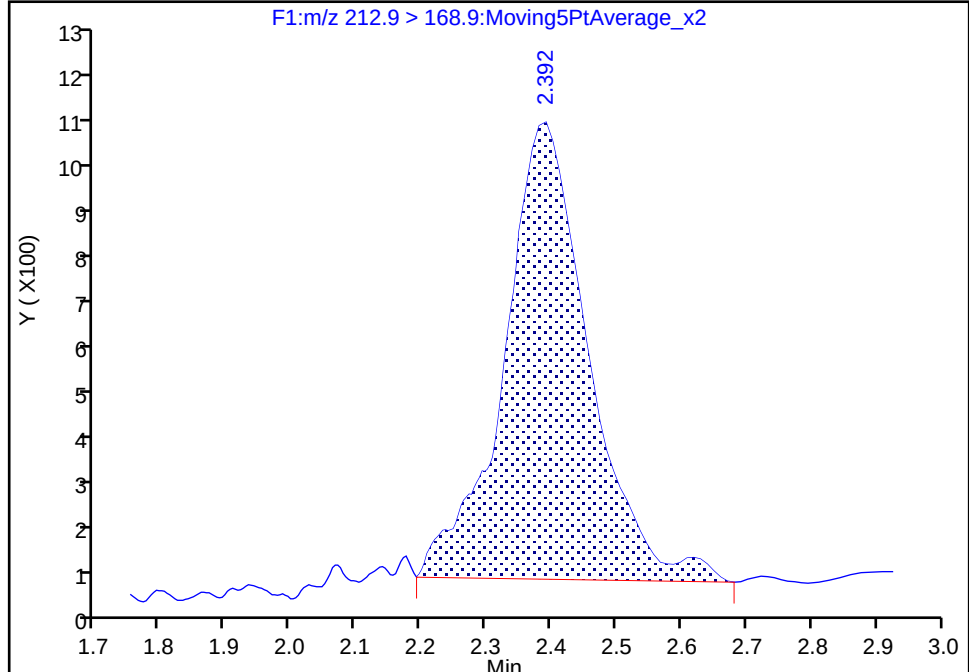
Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d
Injection Date: 10-Jan-2019 14:38:49 Instrument ID: LC410
Lims ID: CCVL
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

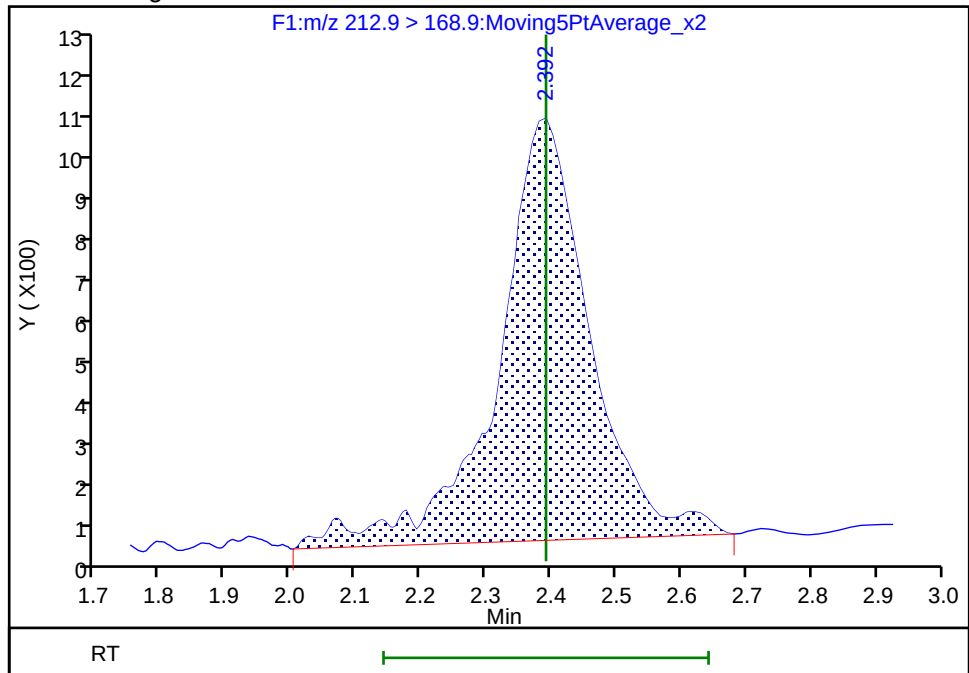
RT: 2.39
Area: 8230
Amount: 0.852383
Amount Units: ng/ml

Processing Integration Results



RT: 2.39
Area: 9183
Amount: 0.973136
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:08:48

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d

Injection Date: 10-Jan-2019 14:38:49

Instrument ID: LC410

Lims ID: CCVL

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

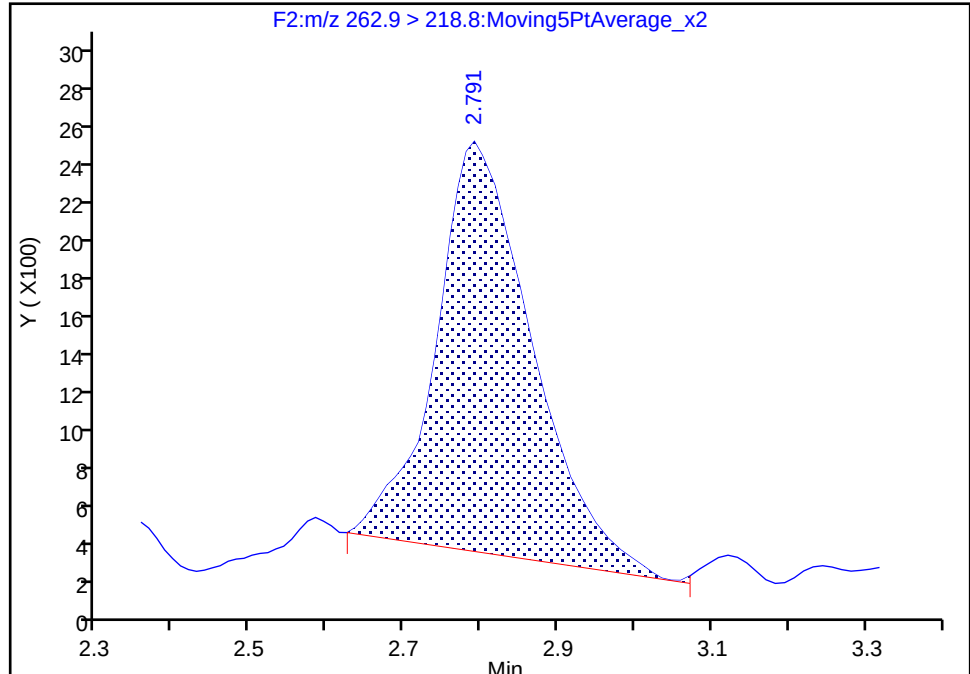
Detector F2:MRM

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

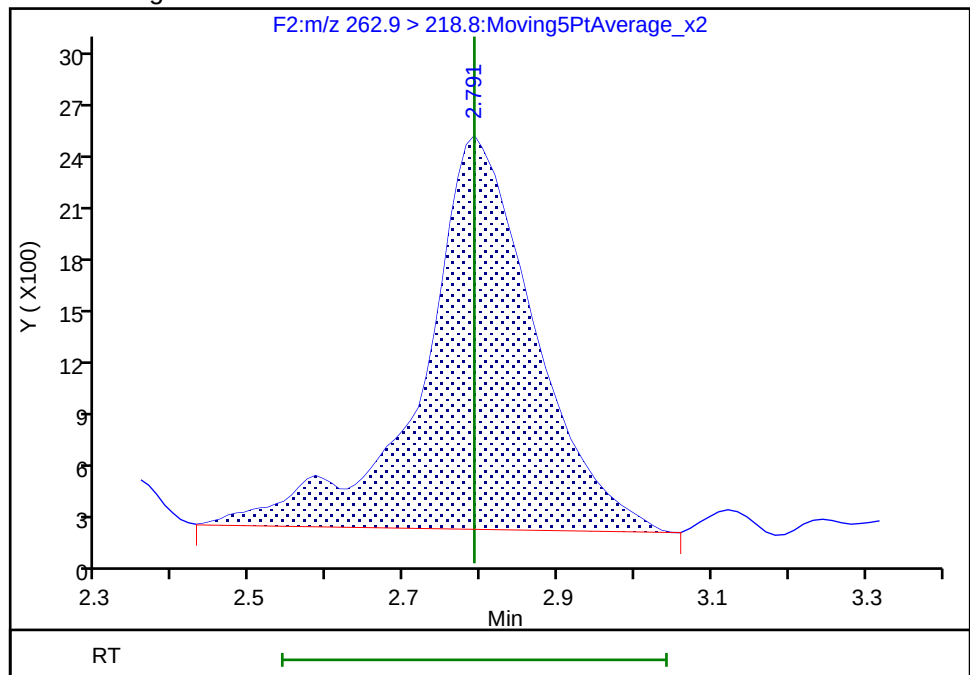
RT: 2.79
Area: 18493
Amount: 0.788291
Amount Units: ng/ml

Processing Integration Results



RT: 2.79
Area: 22818
Amount: 0.972650
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:08:54

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d

Injection Date: 10-Jan-2019 14:38:49

Instrument ID: LC410

Lims ID: CCVL

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

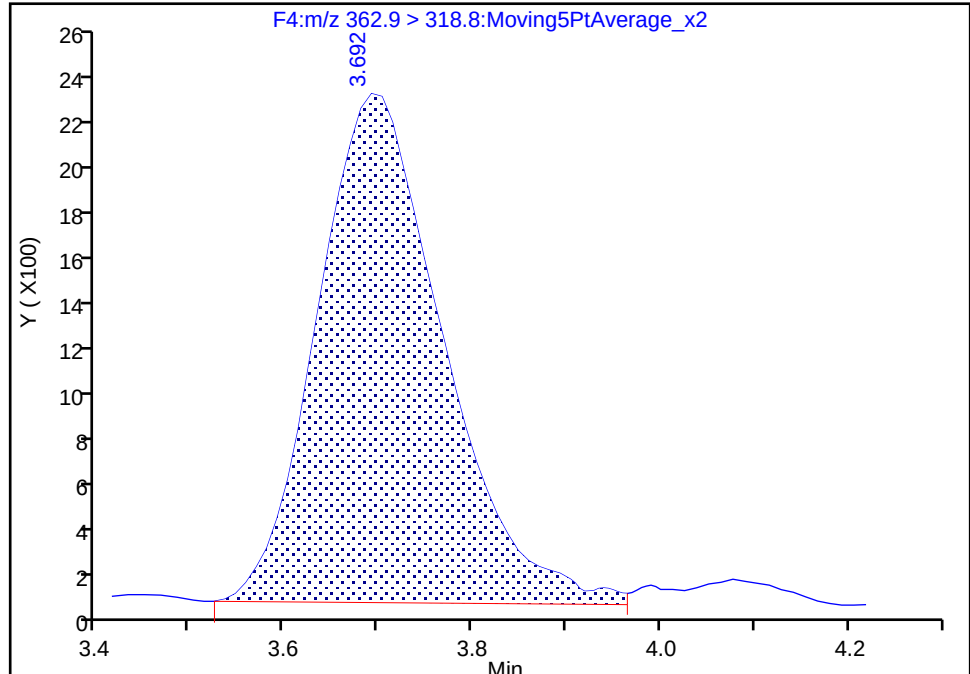
Detector F4:MRM

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

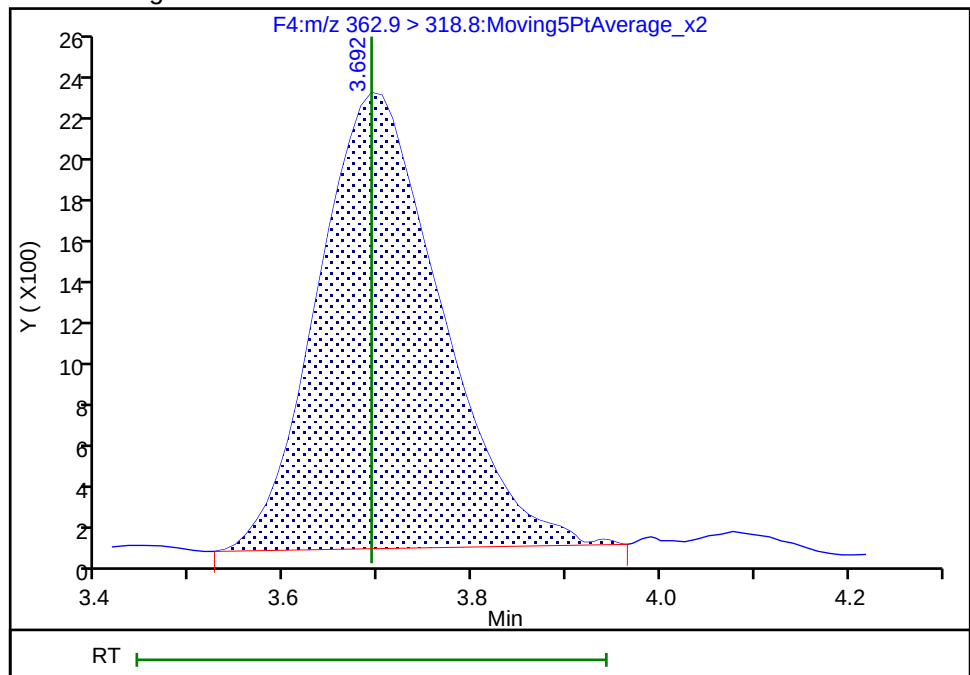
RT: 3.69
Area: 19972
Amount: 1.053592
Amount Units: ng/ml

Processing Integration Results



RT: 3.69
Area: 19353
Amount: 1.020938
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:09:47

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

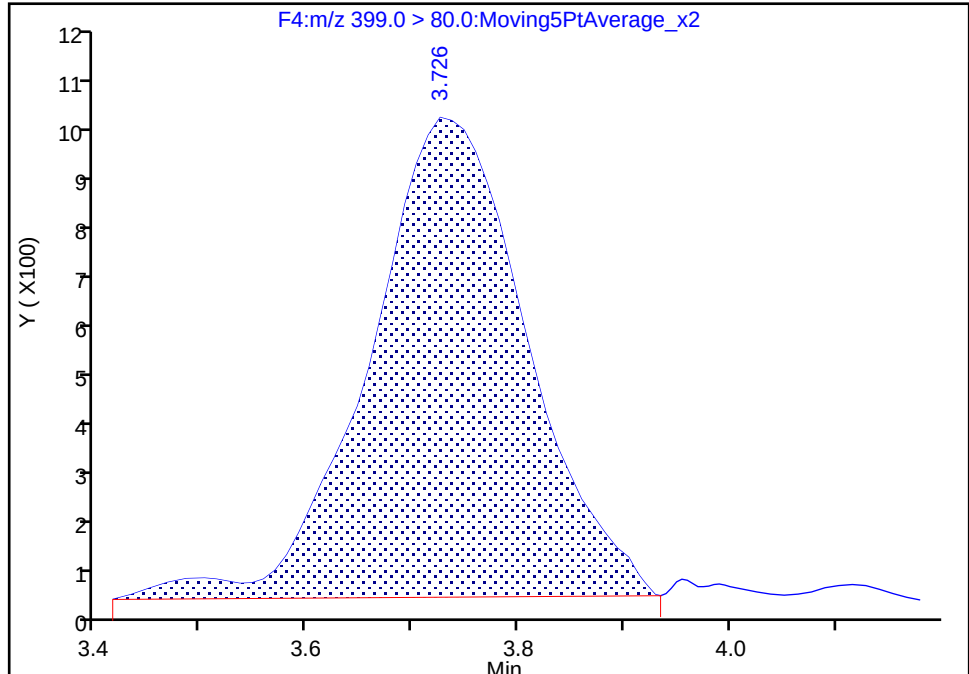
Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d
Injection Date: 10-Jan-2019 14:38:49 Instrument ID: LC410
Lims ID: CCVL
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F4:MRM

12 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

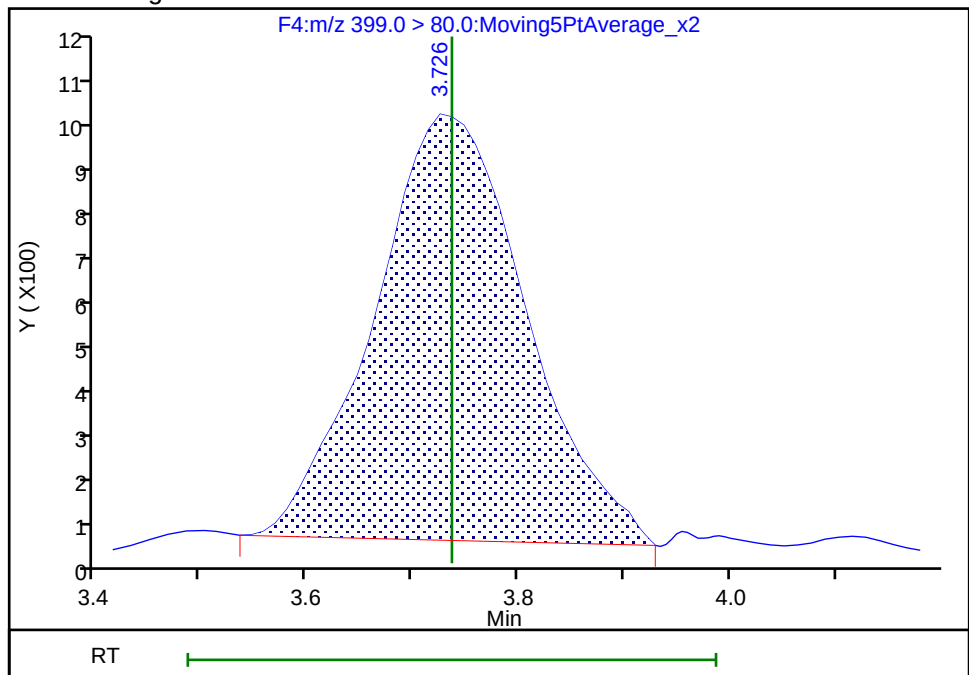
RT: 3.73
Area: 9372
Amount: 0.701154
Amount Units: ng/ml

Processing Integration Results



RT: 3.73
Area: 8820
Amount: 0.645887
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:09:54

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

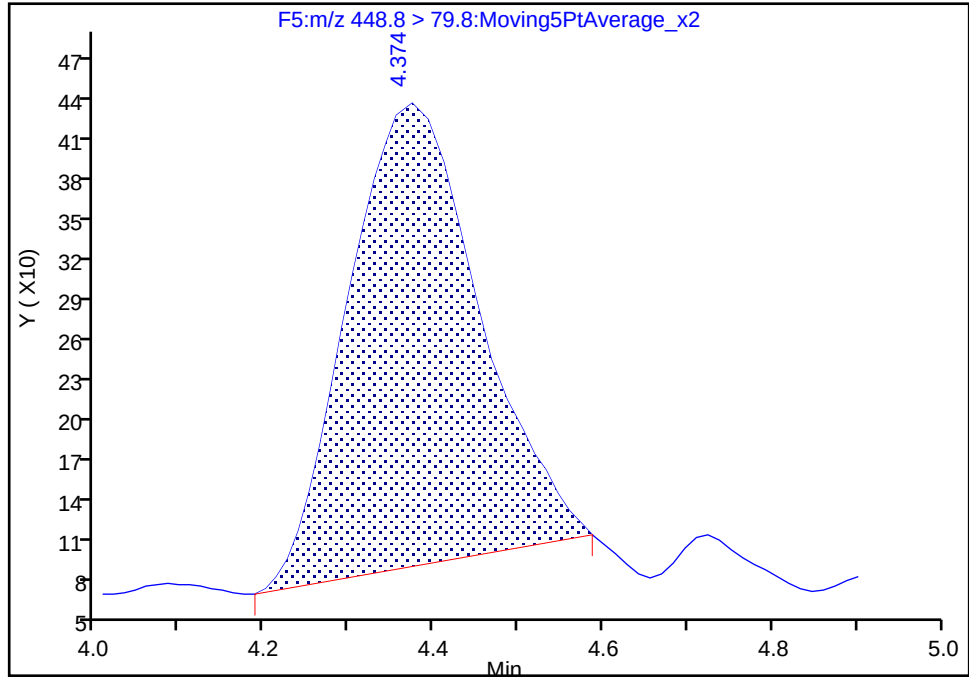
Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d
Injection Date: 10-Jan-2019 14:38:49 Instrument ID: LC410
Lims ID: CCVL
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F5:MRM

18 Perfluoroheptanesulfonic acid, CAS: 375-92-8

Signal: 1

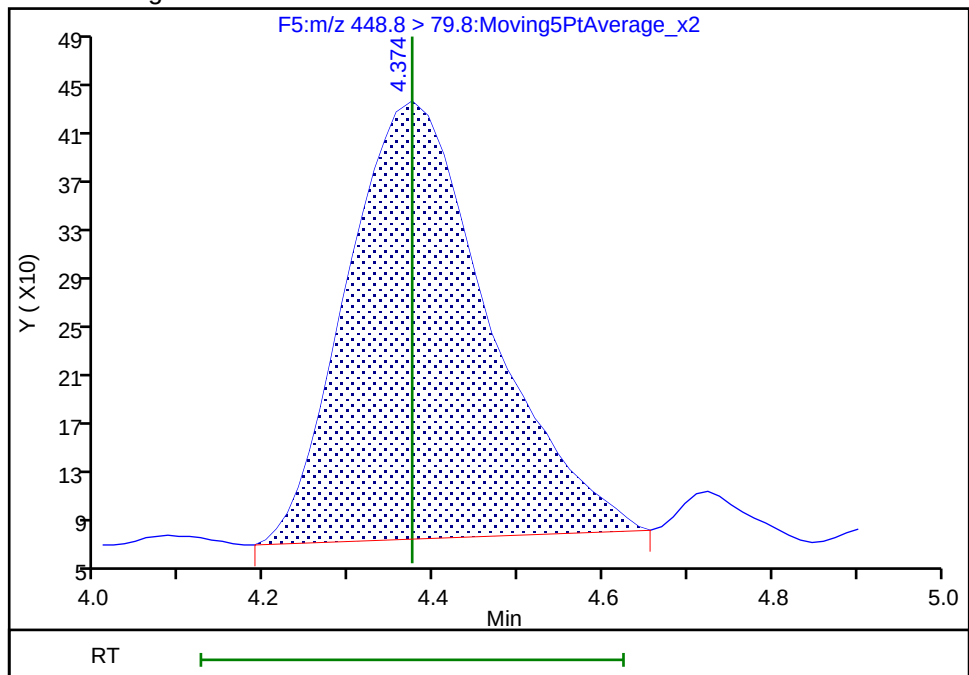
RT: 4.37
Area: 3714
Amount: 0.669638
Amount Units: ng/ml

Processing Integration Results



RT: 4.37
Area: 4182
Amount: 0.754019
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:10:06

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

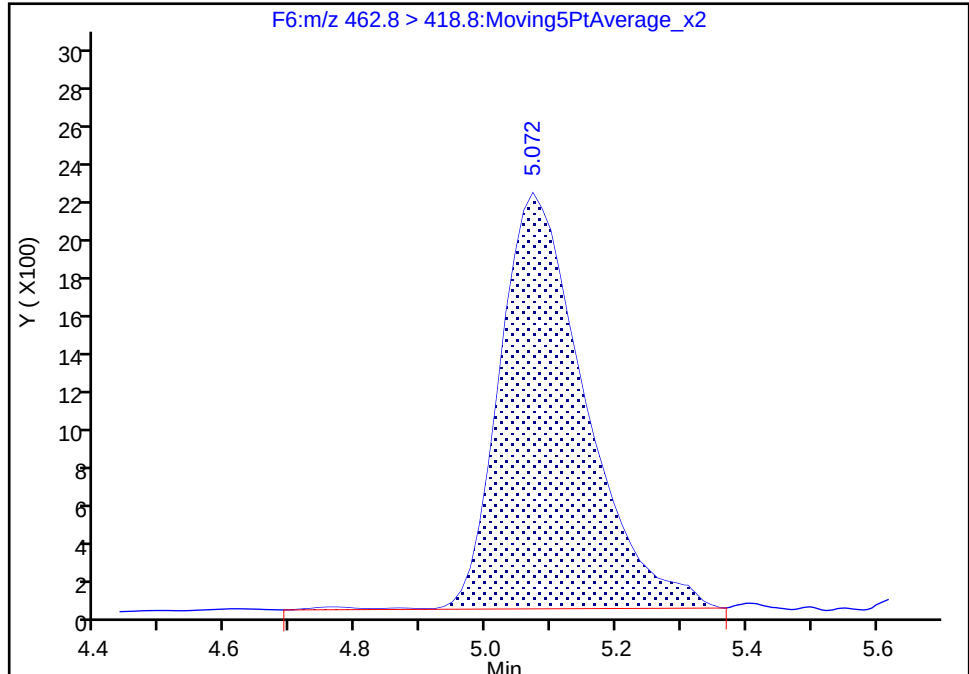
Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d
Injection Date: 10-Jan-2019 14:38:49 Instrument ID: LC410
Lims ID: CCVL
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F6:MRM

19 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

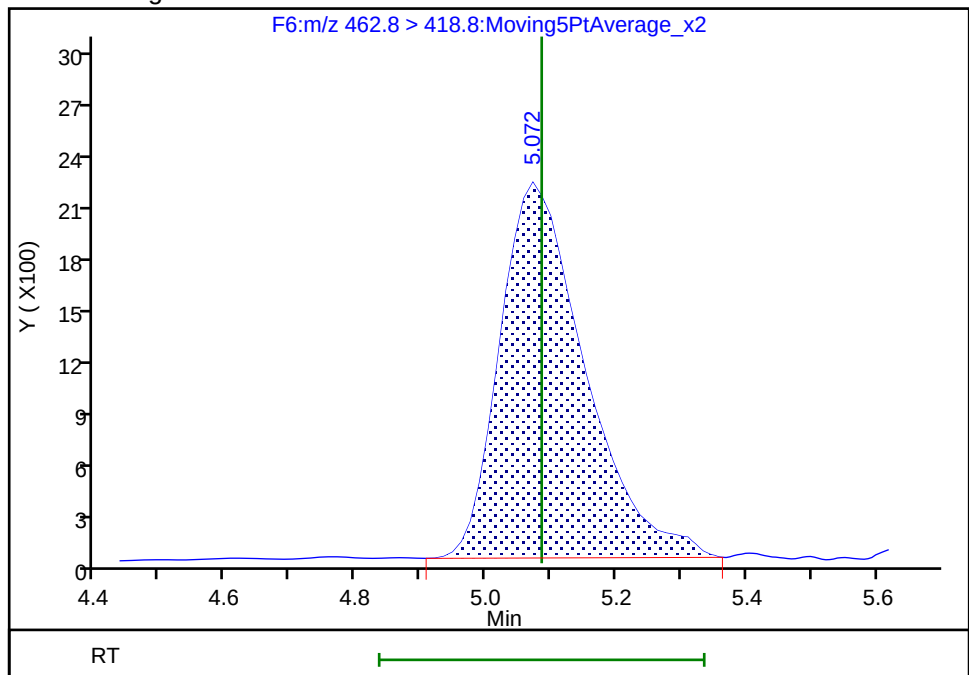
RT: 5.07
Area: 19727
Amount: 0.881892
Amount Units: ng/ml

Processing Integration Results



RT: 5.07
Area: 19608
Amount: 0.876572
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:10:12
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
Page 460 of 586

01/17/2019

TestAmerica Burlington

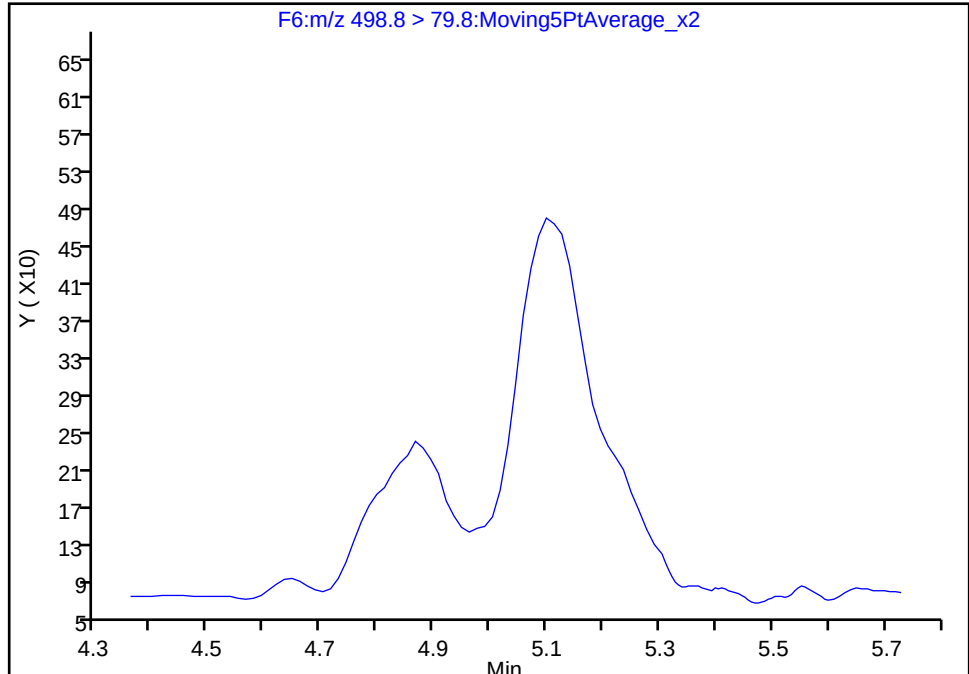
Data File:	\\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d		
Injection Date:	10-Jan-2019 14:38:49	Instrument ID:	LC410
Lims ID:	CCVL		
Client ID:			
Operator ID:	BC	ALS Bottle#:	0 Worklist Smp#: 7
Injection Vol:	20.0 ul	Dil. Factor:	1.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector	F6:MRM

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

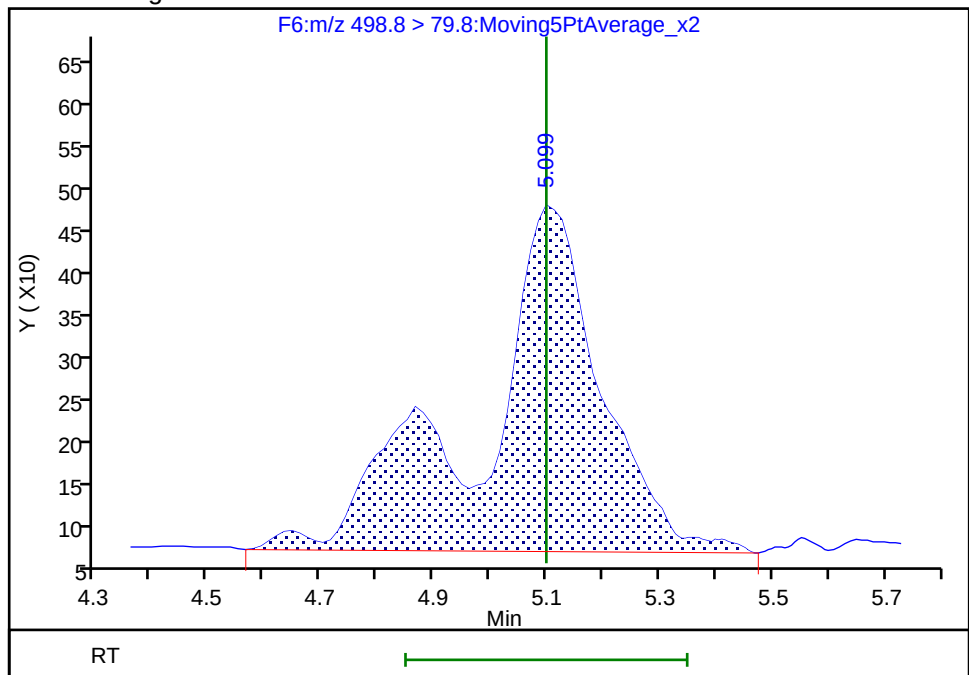
Signal: 1

Not Detected
Expected RT: 5.10

Processing Integration Results



Manual Integration Results



RT: 5.10
Area: 6071
Amount: 1.010969
Amount Units: ng/ml

Reviewer: chirgwinb, 10-Jan-2019 15:08:37

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Burlington

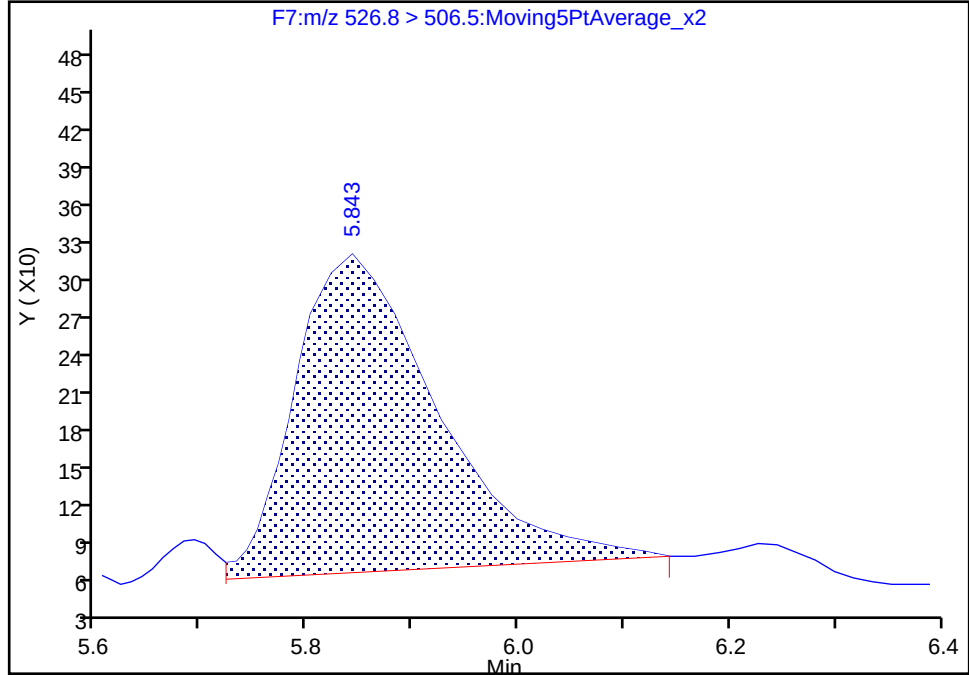
Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d
Injection Date: 10-Jan-2019 14:38:49 Instrument ID: LC410
Lims ID: CCVL
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F7:MRM

23 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:, CAS: 39108-34-4

Signal: 1

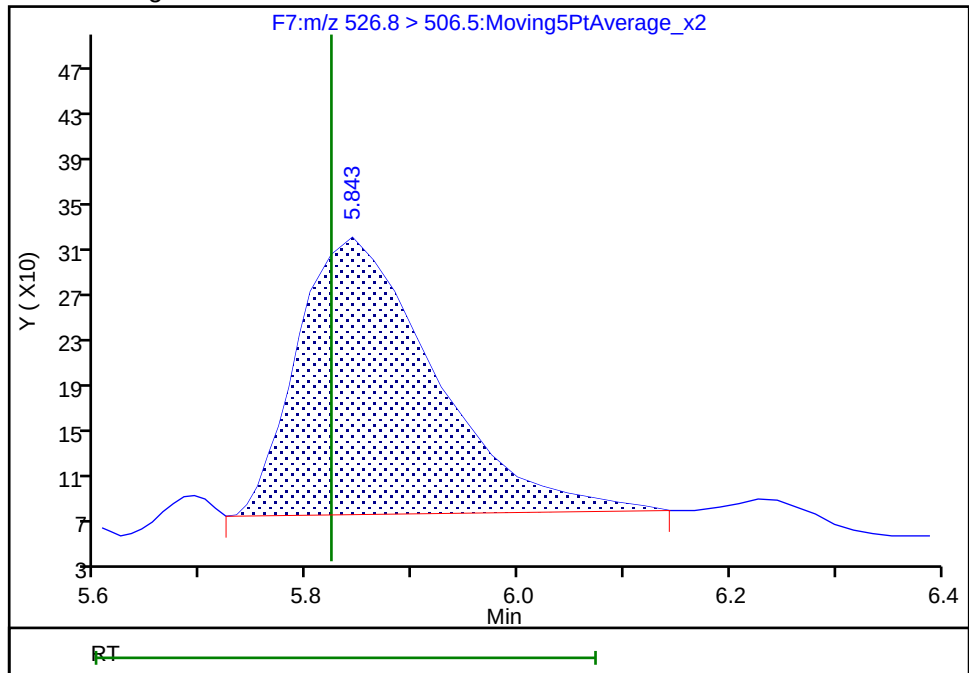
RT: 5.84
Area: 2331
Amount: 0.593992
Amount Units: ng/ml

Processing Integration Results



RT: 5.84
Area: 2167
Amount: 0.552201
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:10:23
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

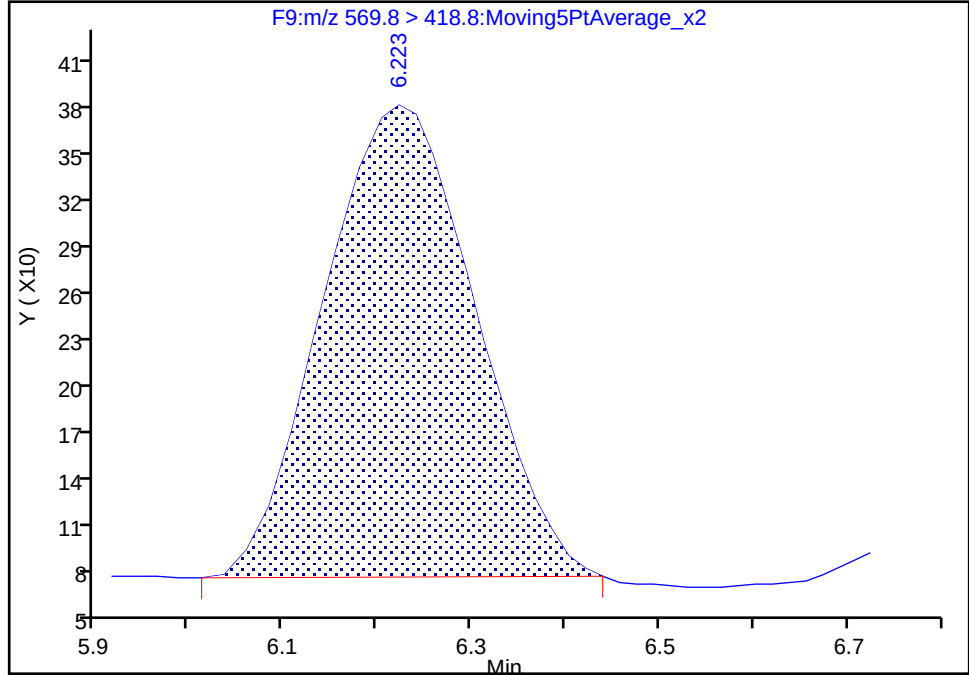
Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d
Injection Date: 10-Jan-2019 14:38:49 Instrument ID: LC410
Lims ID: CCVL
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F9:MRM

28 N-methylperfluorooctanesulfonamidoacetic aci, CAS: 2355-31-9

Signal: 1

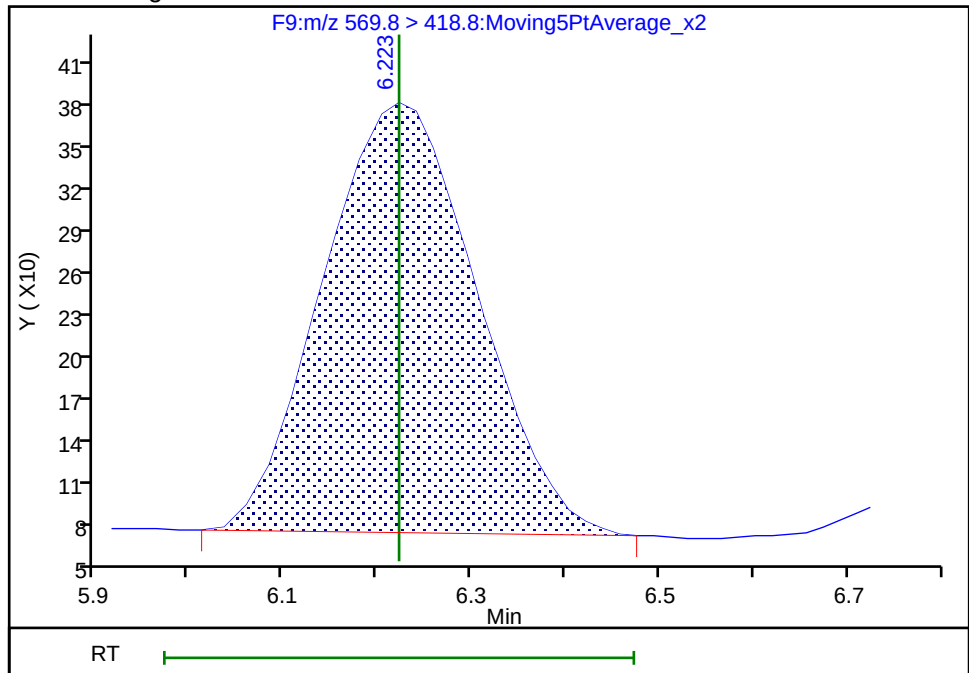
RT: 6.22
Area: 3375
Amount: 0.768900
Amount Units: ng/ml

Processing Integration Results



RT: 6.22
Area: 3438
Amount: 0.783253
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:10:33

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d

Injection Date: 10-Jan-2019 14:38:49

Instrument ID: LC410

Lims ID: CCVL

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

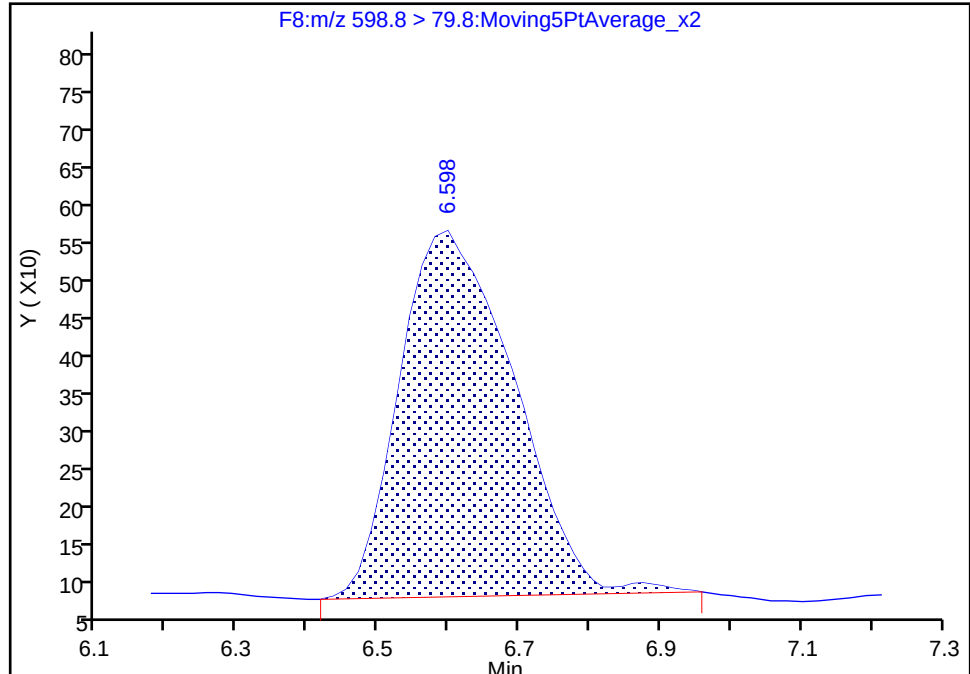
Detector F8:MRM

31 Perfluorodecanesulfonic acid, CAS: 335-77-3

Signal: 1

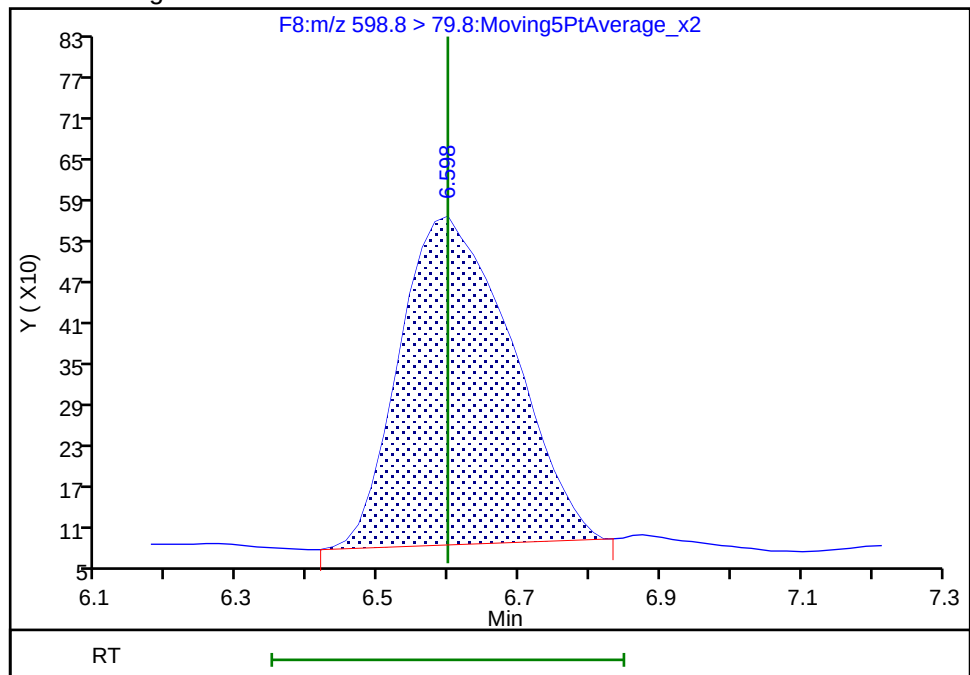
RT: 6.60
Area: 5502
Amount: 0.905362
Amount Units: ng/ml

Processing Integration Results



RT: 6.60
Area: 5338
Amount: 0.878375
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:10:41

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d

Injection Date: 10-Jan-2019 14:38:49

Instrument ID: LC410

Lims ID: CCVL

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

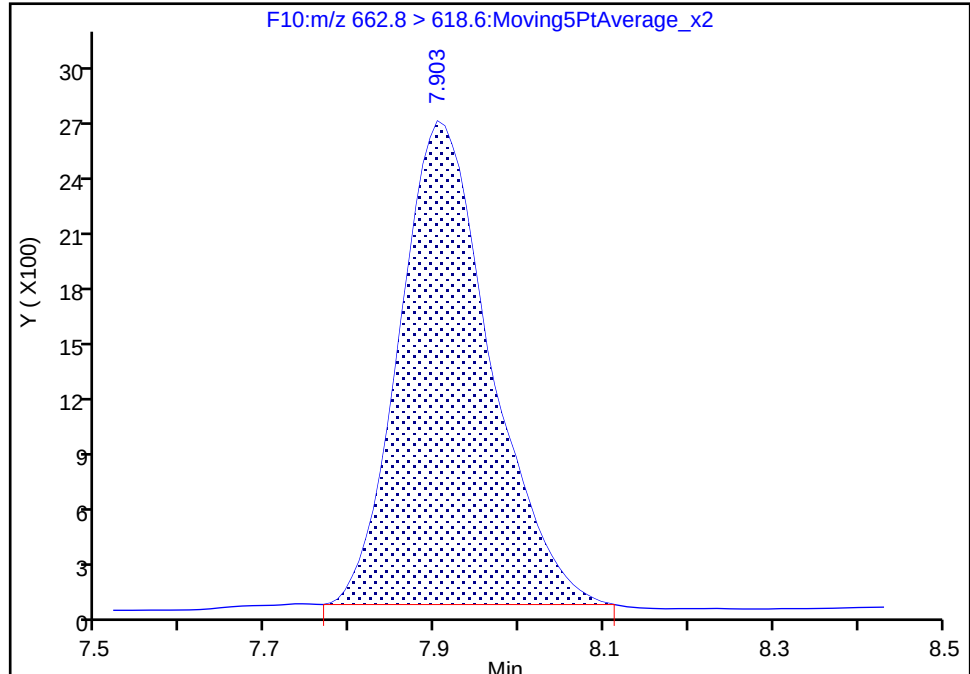
Detector F10:MRM

38 Perfluorotridecanoic acid, CAS: 72629-94-8

Signal: 1

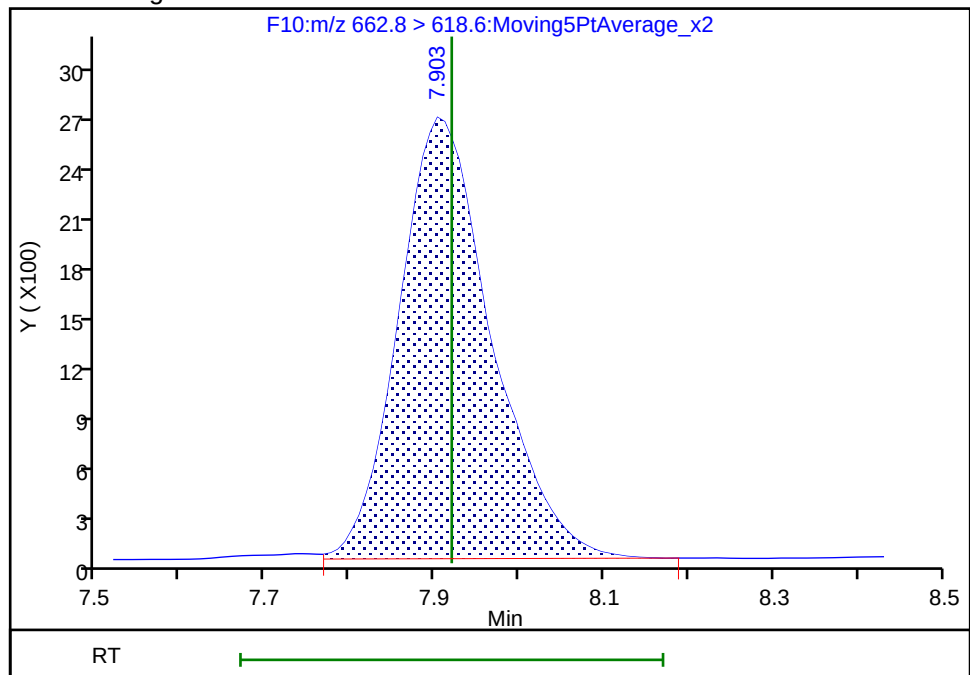
RT: 7.90
Area: 19529
Amount: 1.128555
Amount Units: ng/ml

Processing Integration Results



RT: 7.90
Area: 20081
Amount: 1.160454
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:10:57

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

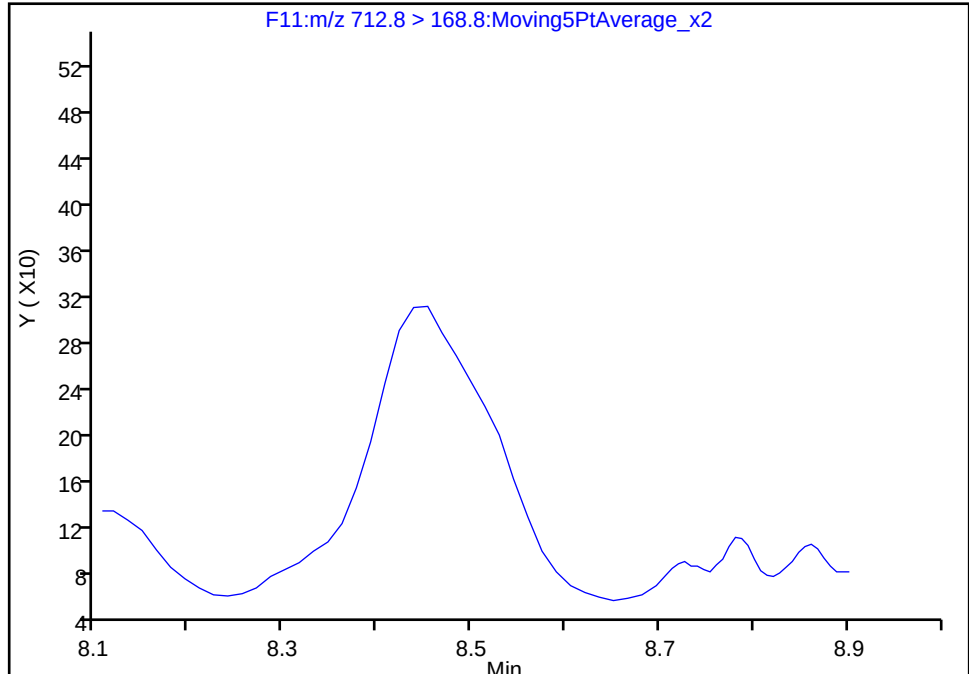
Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d
Injection Date: 10-Jan-2019 14:38:49 Instrument ID: LC410
Lims ID: CCVL
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 7
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F11:MRM

39 Perfluorotetradecanoic acid, CAS: 376-06-7

Signal: 2

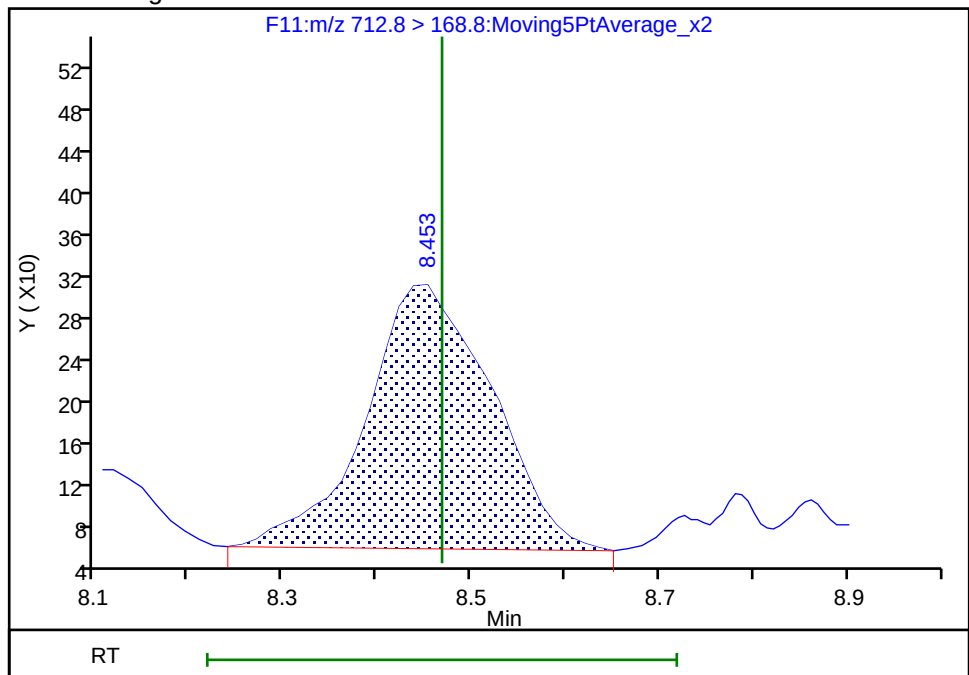
Not Detected
Expected RT: 8.47

Processing Integration Results



RT: 8.45
Area: 2371
Amount: 0.926826
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:08:27

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A07.d

Injection Date: 10-Jan-2019 14:38:49

Instrument ID: LC410

Lims ID: CCVL

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

Detector F11:MRM

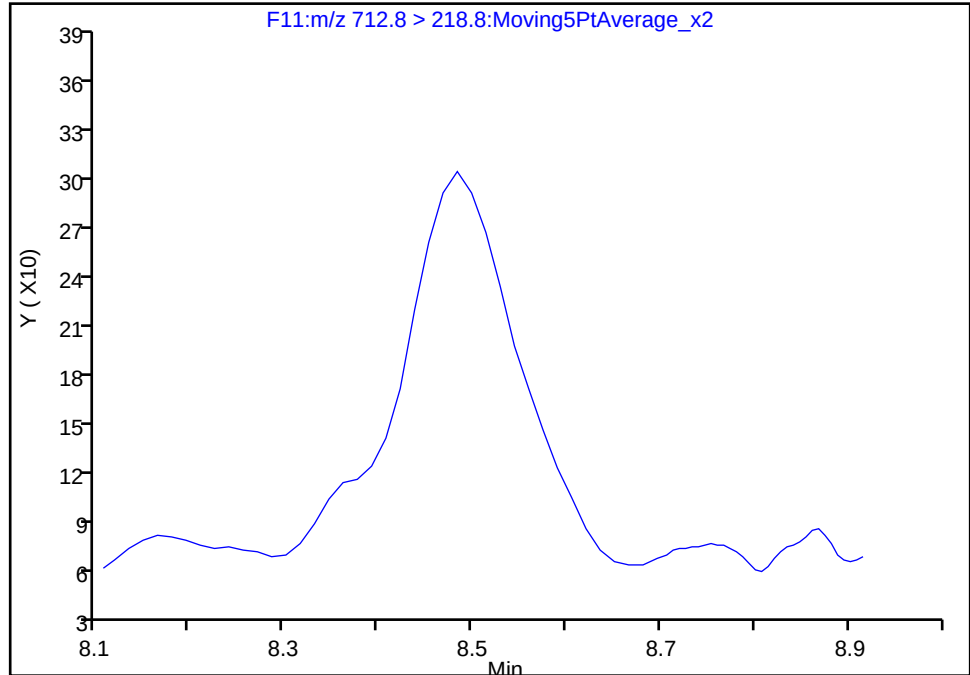
39 Perfluorotetradecanoic acid, CAS: 376-06-7

Signal: 3

Not Detected

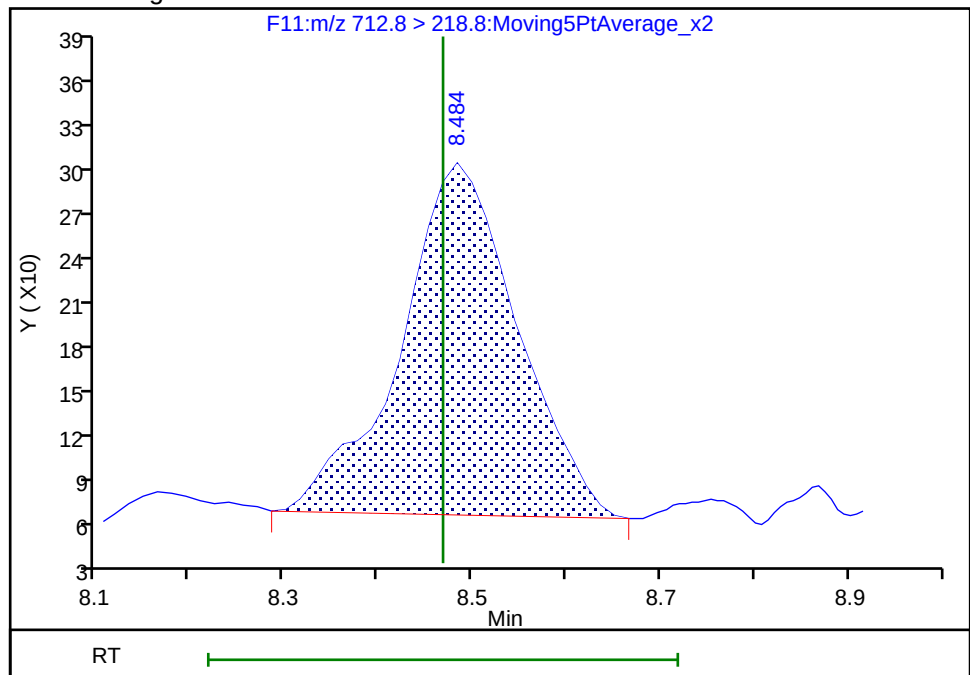
Expected RT: 8.47

Processing Integration Results



Manual Integration Results

RT: 8.48
Area: 2042
Amount: 0.926826
Amount Units: ng/ml



Reviewer: chirgwinb, 10-Jan-2019 15:08:30

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Lab Sample ID: CCV 200-138989/8 Calibration Date: 01/10/2019 14:54

Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20

GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27

Lab File ID: PF011019A08.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	L1ID		0.8185		9470	10000	-5.3	40.0
Perfluoropentanoic acid (PFPeA)	AveID	2.848	2.137		7500	10000	-25.0	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.745	1.274		7300	10000	-27.0	40.0
Perfluorohexanoic acid (PFHxA)	AveID	1.038	0.8845		8520	10000	-14.8	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9775	1.024		10500	10000	4.8	40.0
Perfluorohexanesulfonic acid (PFHxS)	L1ID		1.107		7040	10000	-29.6	40.0
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	AveID	0.9845	0.8795		8930	10000	-10.7	40.0
Perfluorooctanoic acid (PFOA)	AveID	0.9899	0.9384		9480	10000	-5.2	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	0.9547	0.8571		8980	10000	-10.2	50.0
Perfluorononanoic acid (PFNA)	AveID	1.099	0.8553		7780	10000	-22.2	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.034	0.9365		9060	10000	-9.4	40.0
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	AveID	0.8068	0.8831		10900	10000	9.5	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.009	0.8453		8370	10000	-16.3	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.086	0.7094		6530	10000	-34.7	40.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9627	0.7124		7400	10000	-26.0	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	1.046	0.9180		8780	10000	-12.2	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.026	0.9884		9630	10000	-3.7	40.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.8462	0.8229		9720	10000	-2.8	40.0
Perfluorododecanoic acid (PFDoA)	AveID	0.8584	0.8636		10100	10000	0.6	40.0
Perfluorotridecanoic acid (PFTrIA)	AveID	0.9775	1.025		10500	10000	4.8	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.9748	0.8274		8490	10000	-15.1	40.0
13C4 PFBA	Ave	0.5875	0.5226		44500	50000	-11.1	50.0
13C5 PFPeA	Ave	0.3725	0.4466		59900	50000	19.9	50.0
13C3 PFBS	Ave	0.3075	0.3276		49500	46500	6.6	50.0
13C2 PFHxA	Ave	0.6710	0.6446		48000	50000	-3.9	50.0
13C4 PFHpA	Ave	1.229	1.048		42600	50000	-14.8	50.0
18O2 PFHxS	Ave	0.3555	0.3662		48700	47300	3.0	50.0
M2-6:2 FTS	Ave	0.1097	0.1381		59800	47500	25.9	50.0
13C4 PFOA	Ave	0.9383	0.8491		45200	50000	-9.5	50.0
13C5 PFNA	Ave	1.265	1.077		42500	50000	-14.9	50.0
13C4 PFOS	Ave	0.3148	0.3323		50500	47800	5.6	50.0
M2-8:2 FTS	Ave	0.2971	0.2243		36200	47900	-24.5	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Lab Sample ID: CCV 200-138989/8 Calibration Date: 01/10/2019 14:54
 Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20
 GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27
 Lab File ID: PF011019A08.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C2 PFDA	Ave	1.305	1.133		43400	50000	-13.2	50.0
d3-NMeFOSAA	Ave	0.3333	0.2445		36700	50000	-26.6	50.0
d5-NEtFOSAA	Ave	0.2828	0.2313		40900	50000	-18.2	50.0
13C2 PFUnA	Ave	1.358	1.134		41800	50000	-16.5	50.0
13C8 FOSA	Ave	0.6063	0.6480		53400	50000	6.9	50.0
13C2 PFDoA	Ave	1.718	1.253		36500	50000	-27.1	50.0
13C2 PFTeDA	Ave	1.577	1.002		31800	50000	-36.4	50.0

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A08.d
 Lims ID: CCV 3A
 Client ID:
 Sample Type: CCV
 Inject. Date: 10-Jan-2019 14:54:40 ALS Bottle#: 0 Worklist Smp#: 8
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034093-008 CCV L3A
 Misc. Info.: PFAS21 011019A
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 17:18:54 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM
 Process Host: CTX0308

First Level Reviewer: chirgwinb Date: 10-Jan-2019 15:46:42

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.392	2.392	0.0	1.000	86693	9.47		94.7	281	M
D 1 13C4 PFBA										
216.9 > 171.5	2.392	2.392	0.0	1.000	529593	44.5		88.9	297	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.791	2.791	0.0	1.000	193379	7.50		75.0	257	
D 3 13C5 PFPeA										
267.7 > 222.6	2.791	2.801	-0.010	1.000	452558	59.9		120	2142	
D 6 13C3 PFBS										
302.0 > 79.8	2.867	2.867	0.0	1.000	308778	49.5		107	159	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.867	2.867	0.0	1.000	84605	7.30		73.0	132	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.189	3.189	0.0	1.000	115553	8.52		85.2	962	
D 7 13C2 PFHxA										
314.8 > 269.6	3.189	3.201	-0.012	1.000	653240	48.0		96.1	1032	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.681	3.692	-0.011	1.000	217512	10.5		105	249	
D 9 13C4 PFHpA										
366.9 > 321.8	3.681	3.715	-0.034	1.000	1061790	42.6		85.2	357	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.726	3.737	-0.011	1.000	82205	7.04		70.4	128	
D 11 18O2 PFHxS										M
402.9 > 83.8	3.726	3.759	-0.033	1.000	351121	48.7		103	188	M
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.291	4.291	0.0	1.000	24619	8.93		89.3	183	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 13 M2-6:2 FTS										
428.6 > 408.6	4.291	4.330	-0.039	1.000	132968	59.8		126	412	
* 15 13C2 PFOA										
414.9 > 369.8	4.330	4.330	0.0		1013447	50.0			1388	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.330	4.342	-0.012	1.000	161498	9.48		94.8	301	
D 17 13C4 PFOA										
416.9 > 371.8	4.330	4.355	-0.025	1.000	860470	45.2		90.5	1530	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.355	4.374	-0.019	0.854	57735	8.98		89.8	441	
19 Perfluorononanoic acid										
462.8 > 418.8	5.085	5.085	0.0	1.000	186649	7.78		77.8	248	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.113	5.099	0.014	1.003	63082	9.06		90.6	287	M
D 20 13C5 PFNA										
467.8 > 422.8	5.085	5.113	-0.028	1.000	1091106	42.5		85.1	435	
D 22 13C4 PFOS										
502.8 > 79.8	5.099	5.140	-0.041	1.000	321983	50.5		106	612	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.843	5.823	0.020	1.003	40146	10.9		109	260	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.823	5.863	-0.040	1.000	217746	36.2		75.5	1289	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.863	5.863	0.0	1.000	194047	8.37		83.7	597	
D 26 13C2 PFDA										
514.9 > 469.5	5.863	5.882	-0.019	1.000	1147777	43.4		86.8	1526	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.223	6.223	0.0	1.003	35154	6.53		65.3	57.4	M
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.205	6.241	-0.036	1.000	247768	36.7		73.4	798	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.580	6.580	0.0	1.000	33389	7.40		74.0	38.5	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.580	6.598	-0.018	1.000	234357	40.9		81.8	541	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.598	6.598	0.0	1.294	61836	8.78		87.8	411	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.616	6.616	0.0	1.000	227242	9.63		96.3	2379	
D 32 13C2 PFUnA										
564.8 > 519.8	6.616	6.652	-0.036	1.000	1149525	41.8		83.5	1775	
D 35 13C8 FOSA										
505.8 > 77.8	6.903	6.917	-0.014	1.000	656689	53.4		107	2102	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.903	6.917	-0.014	1.000	108075	9.72		97.2	1635	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.294	7.294	0.0	1.000	219352	10.1		101	809	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags

D 37 13C2 PFDaA

614.8 > 569.6	7.294	7.339	-0.045	1.000	1270056	36.5		72.9	1886	

38 Perfluorotridecanoic acid

662.8 > 618.6	7.911	7.920	-0.009	0.934	208183	10.5		105	1456	

39 Perfluorotetradecanoic acid

712.8 > 668.6	8.453	8.468	-0.015	0.998	168083	8.49	Target=1.00	84.9	826	

712.8 > 168.8	8.469	8.468	0.001	1.000	34303		4.90(0.90-1.10)		170	

712.8 > 218.8	8.469	8.468	0.001	1.000	24376		6.90(0.90-1.10)		133	

D 40 13C2 PFTeDA

714.8 > 669.6	8.469	8.514	-0.045	1.000	1015743	31.8		63.6	856	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L3A_00001

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A08.d

Injection Date: 10-Jan-2019 14:54:40

Instrument ID: LC410

Lims ID: CCV 3A

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 8

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

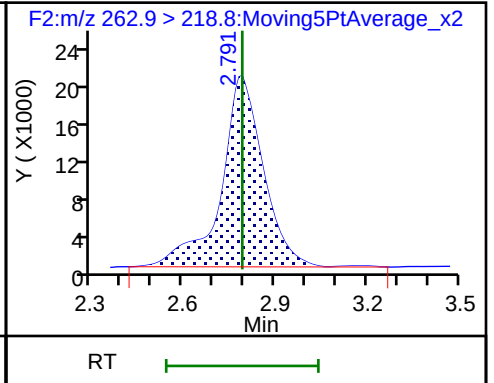
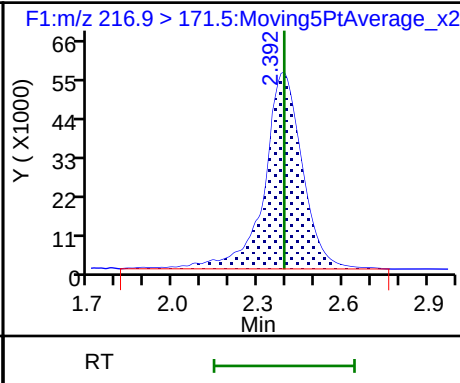
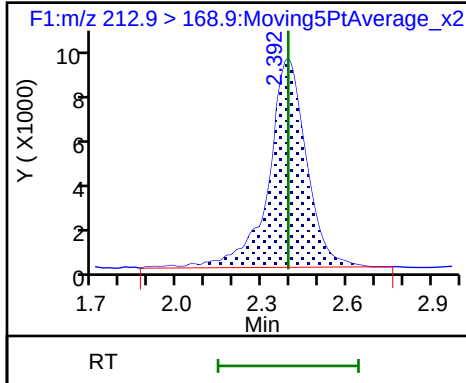
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA

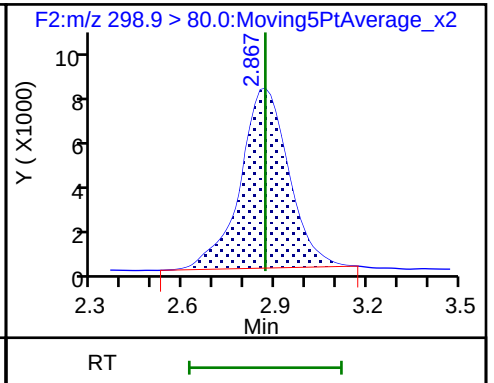
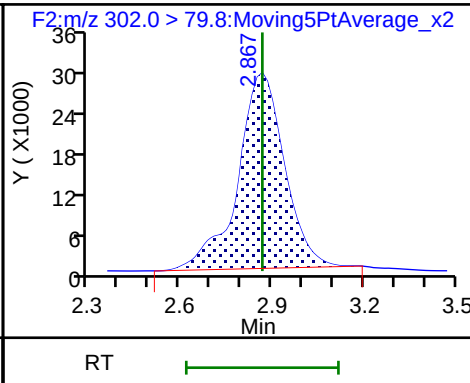
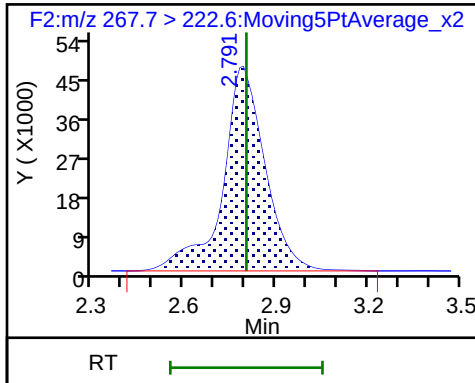
4 Perfluoropentanoic acid



D 3 13C5 PFPeA

D 6 13C3 PFBS

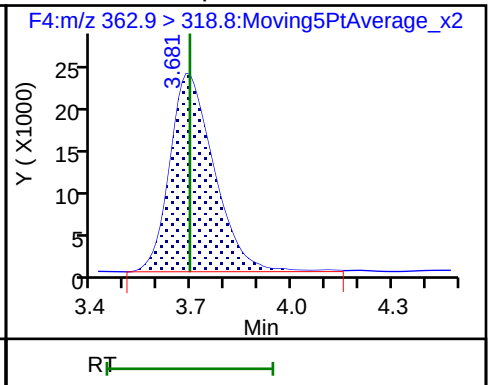
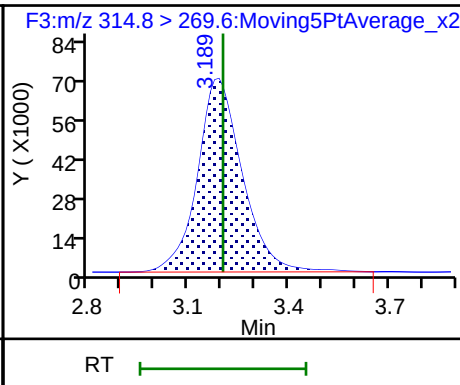
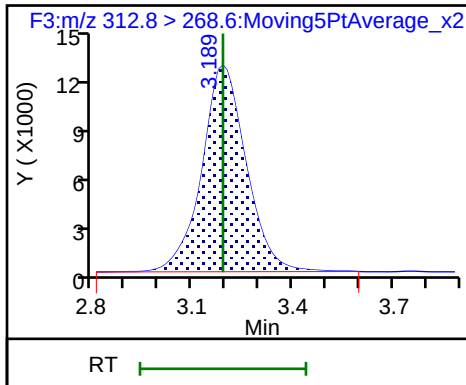
5 Perfluorobutanesulfonic acid



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

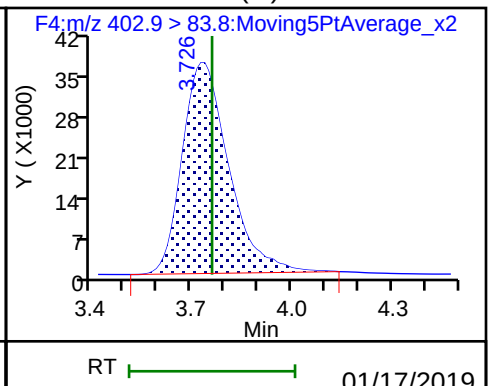
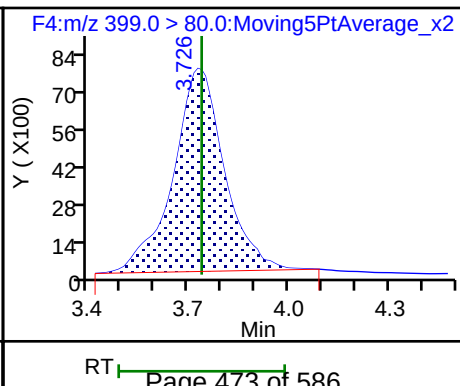
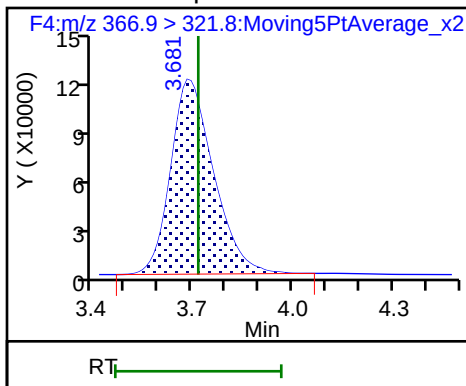
10 Perfluoroheptanoic acid



D 9 13C4 PFHpA

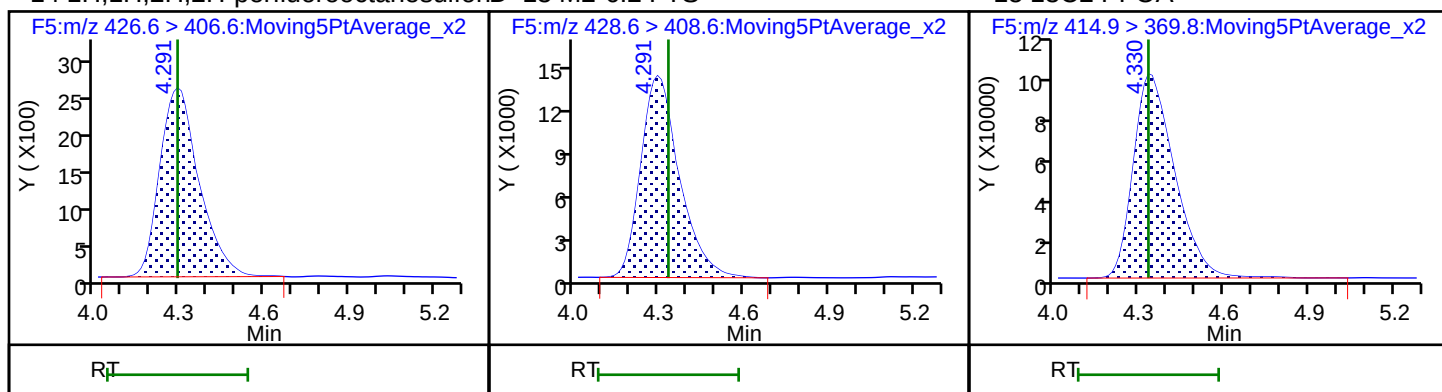
12 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS (M)



14 1H,1H,2H,2H-perfluorooctanesulfonD 13 M2-6:2 FTS

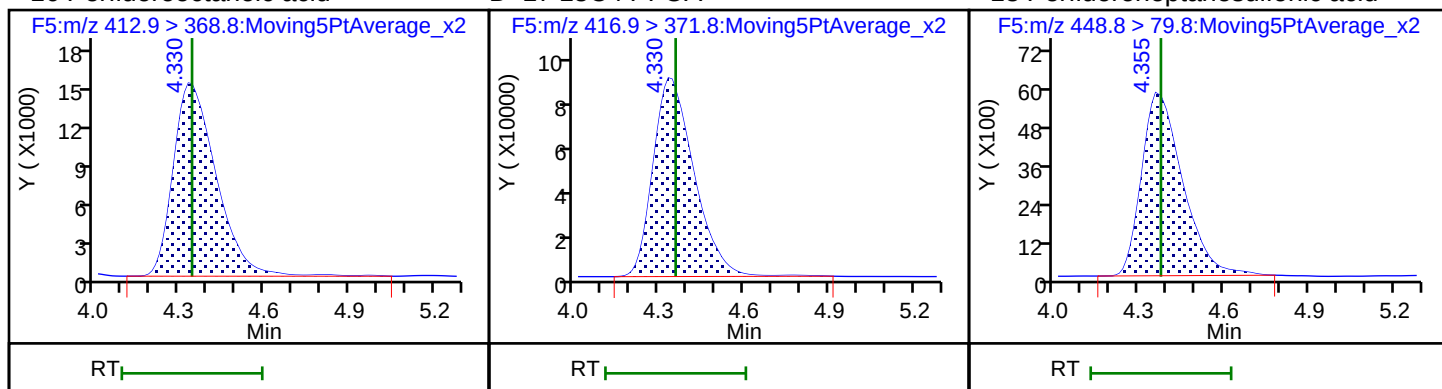
* 15 13C2 PFOA



16 Perfluorooctanoic acid

D 17 13C4 PFOA

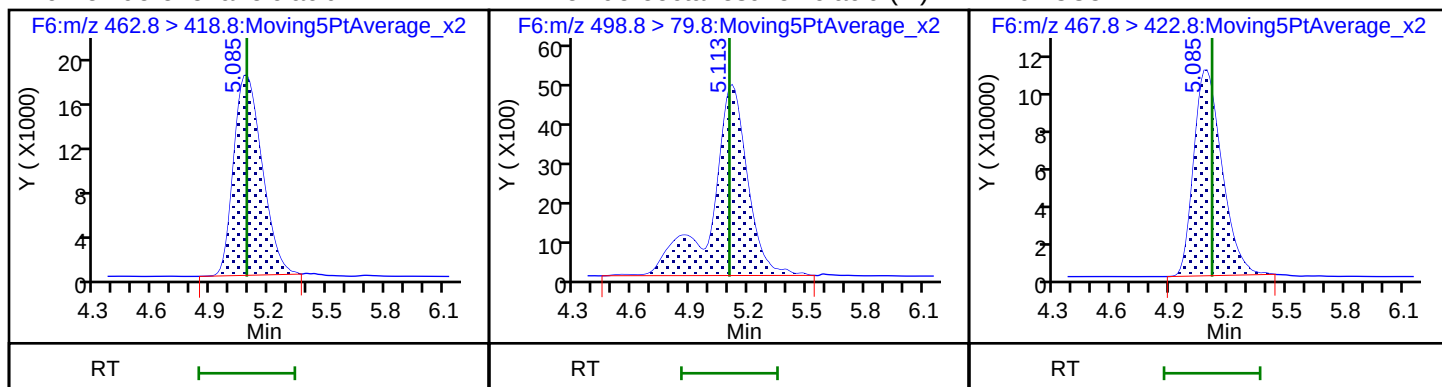
18 Perfluoroheptanesulfonic acid



19 Perfluorononanoic acid

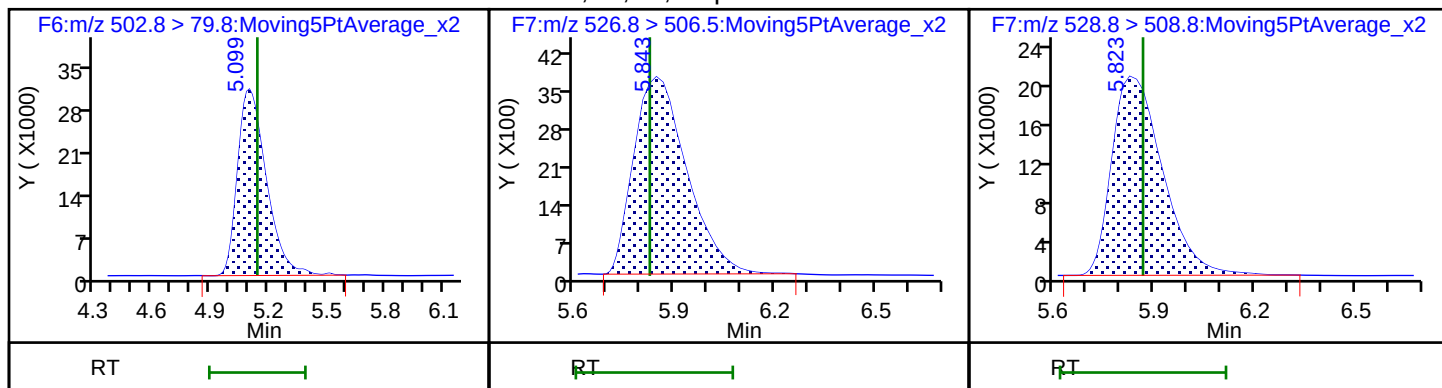
21 Perfluorooctanesulfonic acid (M)

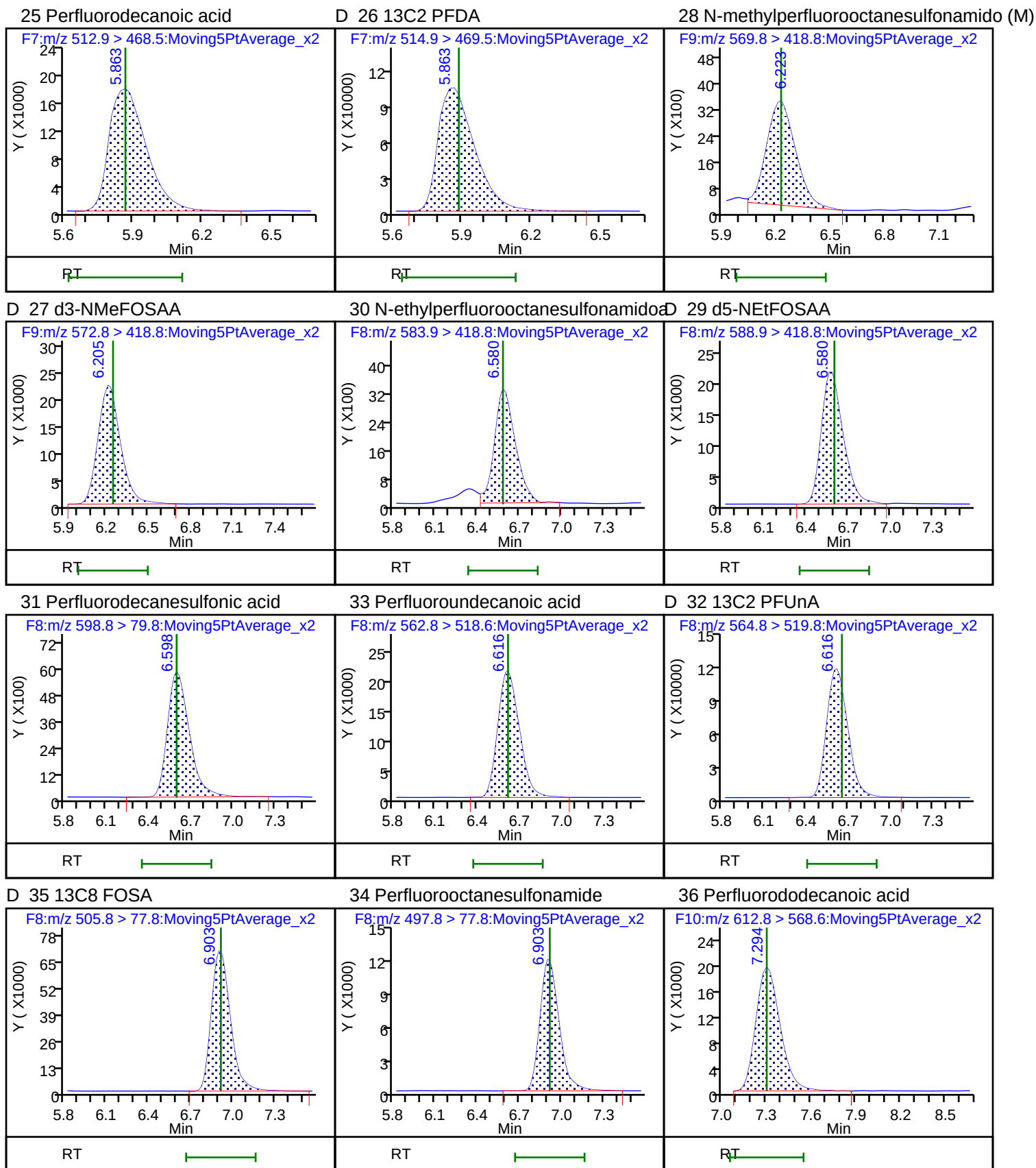
D 20 13C5 PFNA



D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfonD 24 M2-8:2 FTS

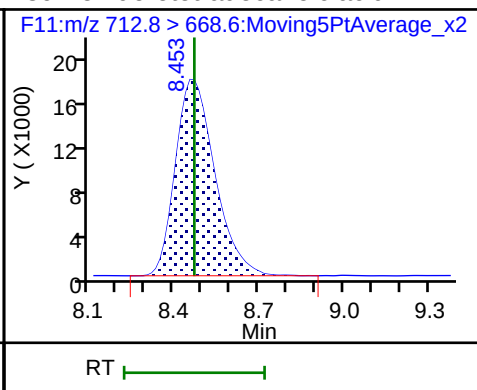
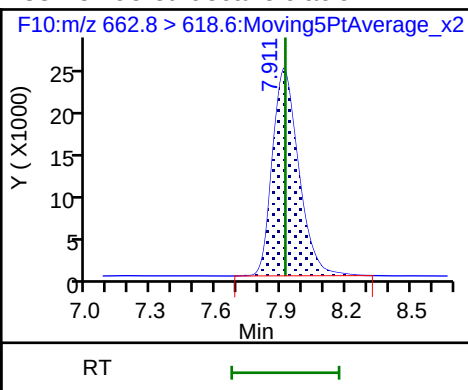
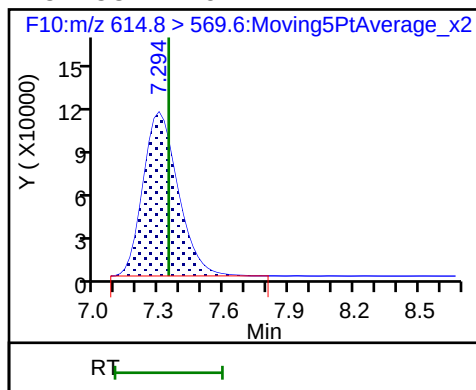




D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

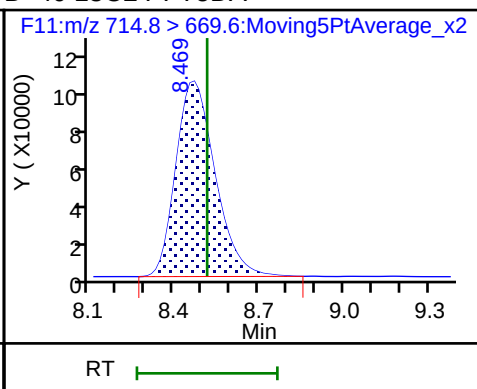
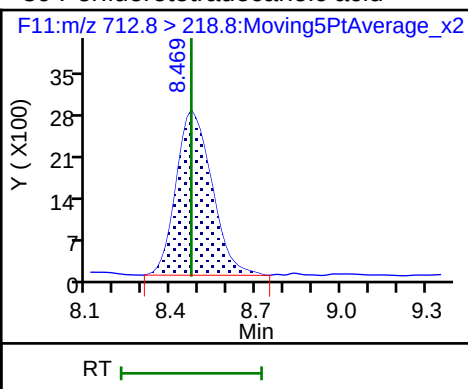
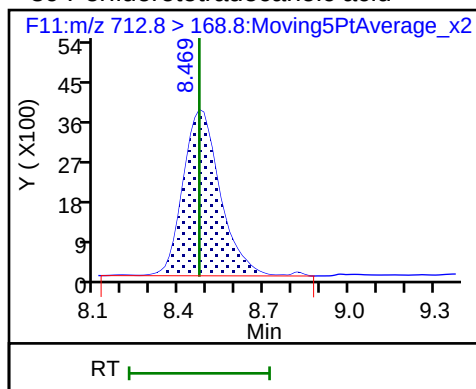
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

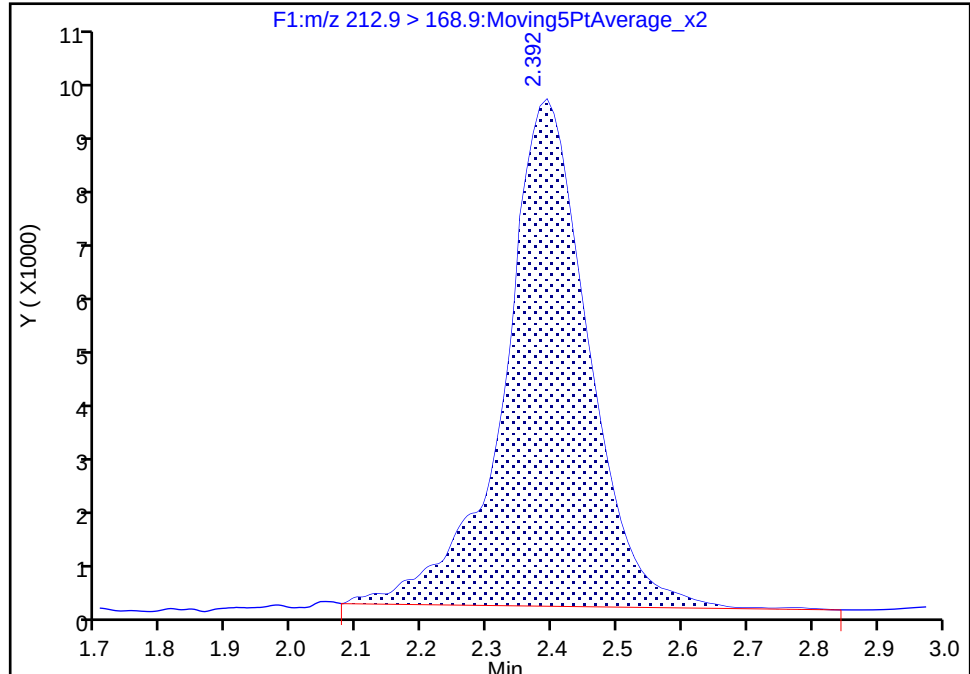
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Injection Date: 10-Jan-2019 14:54:40 Instrument ID: LC410
Lims ID: CCV 3A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

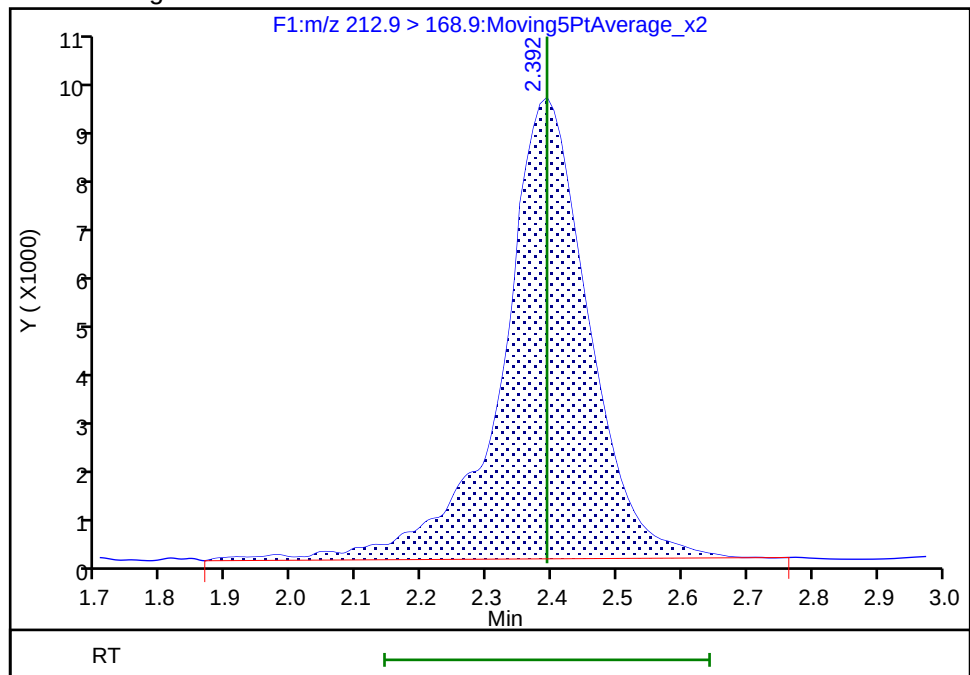
RT: 2.39
Area: 83471
Amount: 9.110879
Amount Units: ng/ml

Processing Integration Results



RT: 2.39
Area: 86693
Amount: 9.469911
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:44:37

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A08.d

Injection Date: 10-Jan-2019 14:54:40

Instrument ID: LC410

Lims ID: CCV 3A

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 8

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

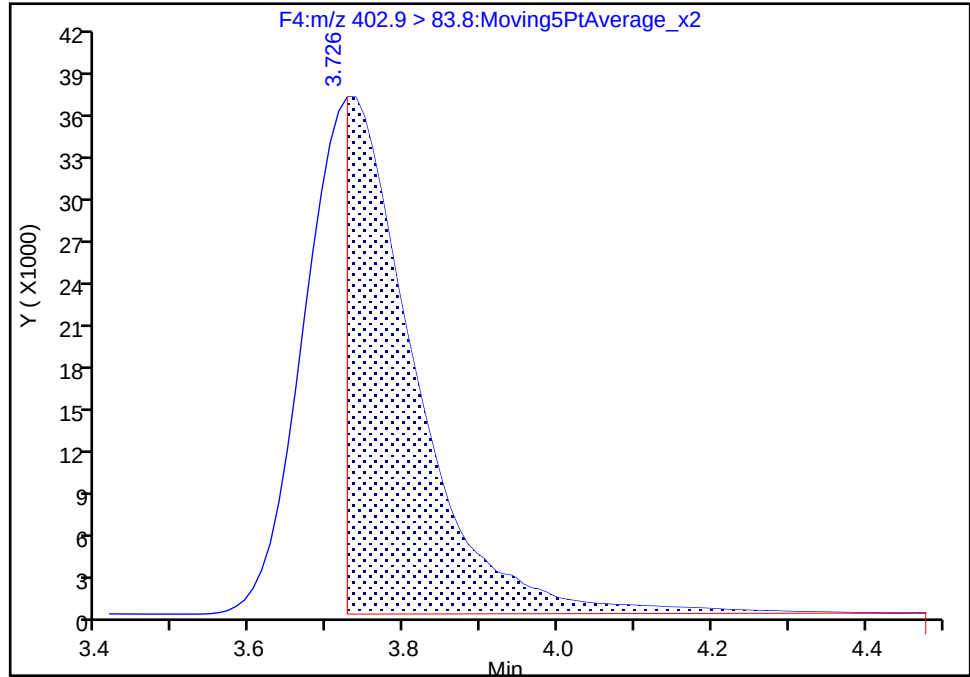
Detector F4:MRM

D 11 18O2 PFHxS, CAS: STL00994

Signal: 1

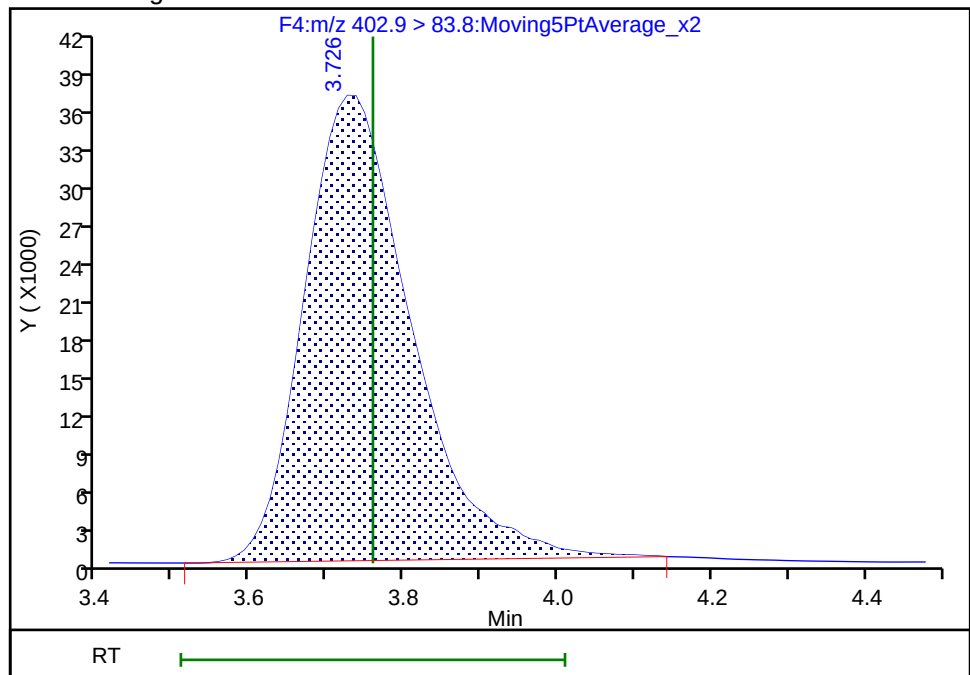
RT: 3.73
Area: 222154
Amount: 30.828158
Amount Units: ng/ml

Processing Integration Results



RT: 3.73
Area: 351121
Amount: 48.724820
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:46:33

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

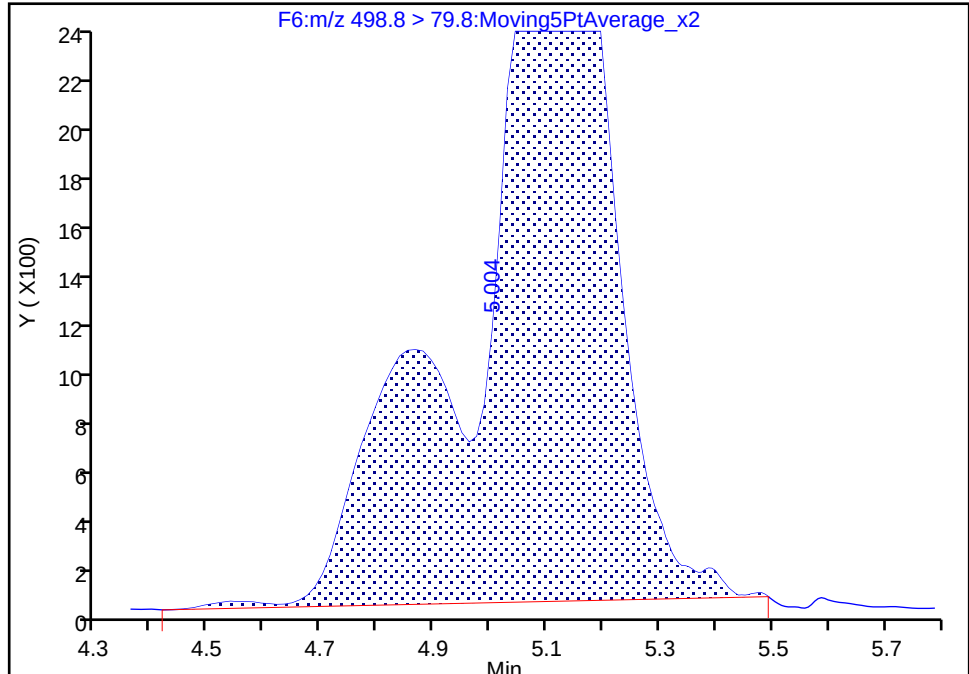
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Injection Date: 10-Jan-2019 14:54:40 Instrument ID: LC410
Lims ID: CCV 3A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F6:MRM

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

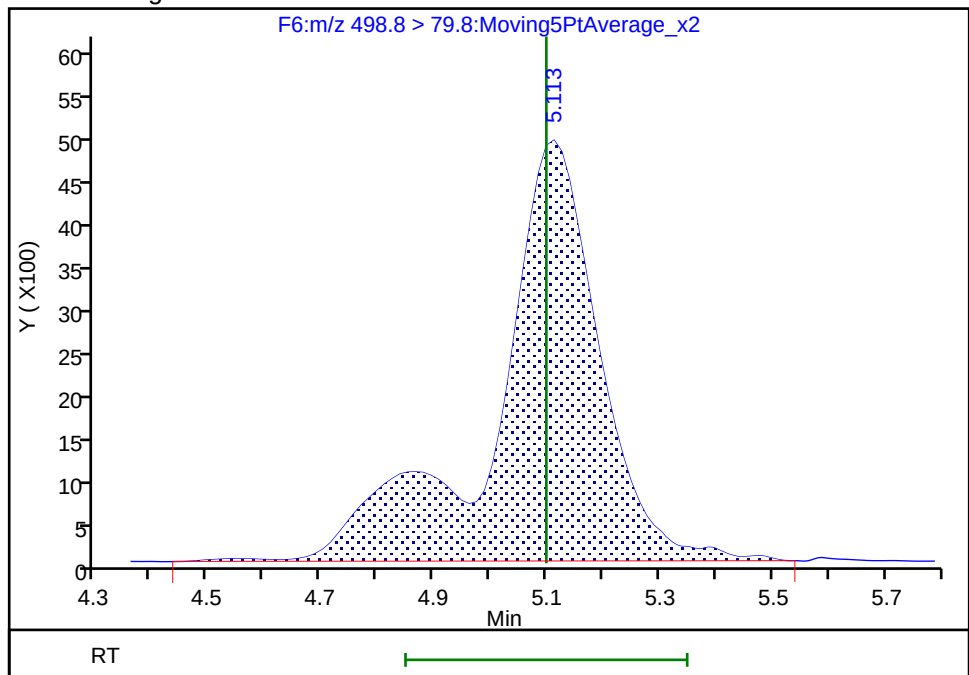
RT: 5.00
Area: 61800
Amount: 8.875477
Amount Units: ng/ml

Processing Integration Results



RT: 5.11
Area: 63082
Amount: 9.059593
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:45:22
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
Page 479 of 586

01/17/2019

TestAmerica Burlington

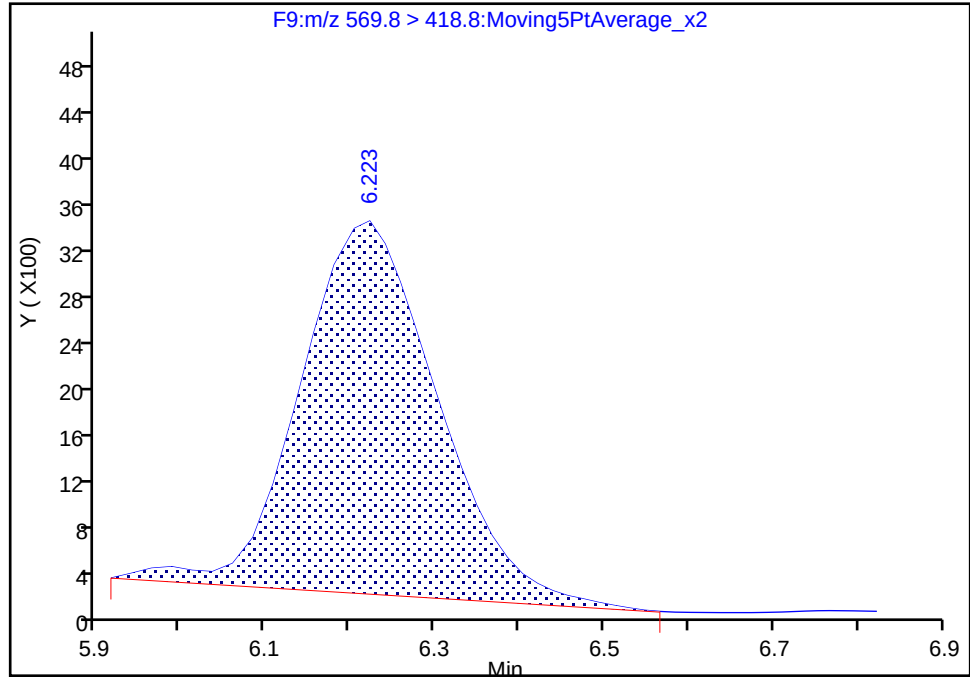
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Injection Date: 10-Jan-2019 14:54:40 Instrument ID: LC410
Lims ID: CCV 3A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 8
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F9:MRM

28 N-methylperfluorooctanesulfonamidoacetic aci, CAS: 2355-31-9

Signal: 1

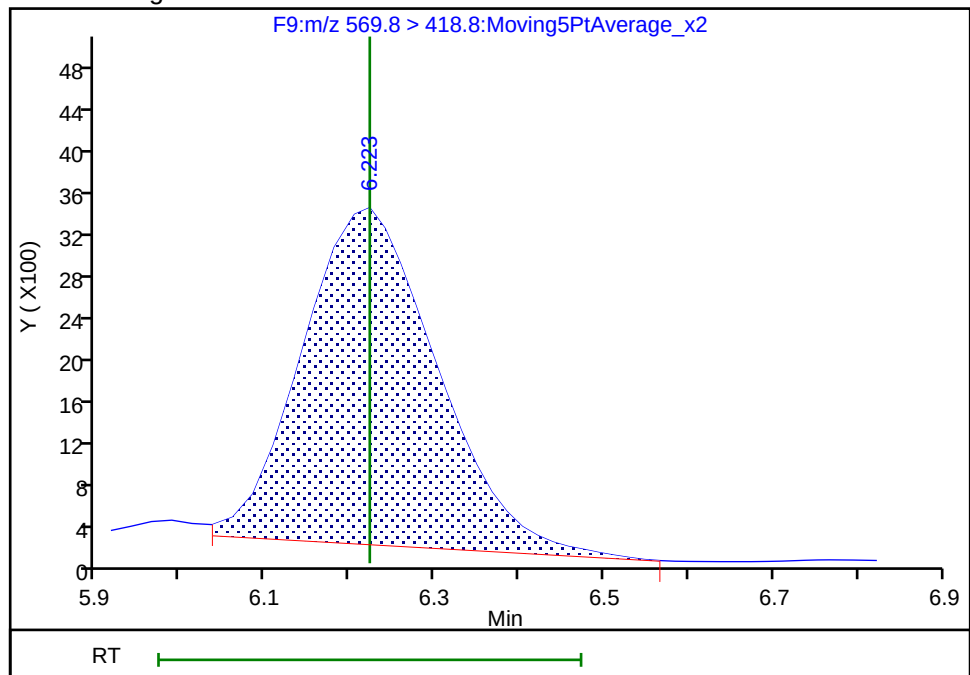
RT: 6.22
Area: 35854
Amount: 6.663034
Amount Units: ng/ml

Processing Integration Results



RT: 6.22
Area: 35154
Amount: 6.532947
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 15:45:31

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Lab Sample ID: CCV 200-138989/15 Calibration Date: 01/10/2019 16:45

Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20

GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27

Lab File ID: PF011019A15.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	L1ID		0.9732		57200	50000	14.5	40.0
Perfluoropentanoic acid (PFPeA)	AveID	2.848	2.593		45500	50000	-8.9	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	1.745	1.551		44500	50000	-11.1	40.0
Perfluorohexanoic acid (PFHxA)	AveID	1.038	1.077		51900	50000	3.8	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	0.9775	1.142		58400	50000	16.8	40.0
Perfluorohexanesulfonic acid (PFHxS)	L1ID		1.272		41600	50000	-16.9	40.0
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	AveID	0.9845	0.997		50600	50000	1.3	40.0
Perfluorooctanoic acid (PFOA)	AveID	0.9899	1.150		58100	50000	16.1	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	0.9547	0.9480		49700	50000	-0.7	50.0
Perfluorononanoic acid (PFNA)	AveID	1.099	1.015		46200	50000	-7.7	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.034	1.068		51700	50000	3.3	40.0
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	AveID	0.8068	0.9053		56100	50000	12.2	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.009	1.013		50200	50000	0.4	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.086	0.8605		39600	50000	-20.8	40.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9627	0.8507		44200	50000	-11.6	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	1.046	0.9894		47300	50000	-5.4	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.026	1.167		56900	50000	13.8	40.0
Perfluorooctanesulfonamide (PFOSA)	AveID	0.8462	0.9513		56200	50000	12.4	40.0
Perfluorododecanoic acid (PFDoA)	AveID	0.8584	0.9713		56600	50000	13.1	40.0
Perfluorotridecanoic acid (PFTrIA)	AveID	0.9775	1.148		58700	50000	17.5	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.9748	0.9355		48000	50000	-4.0	40.0
13C4 PFBA	Ave	0.5875	0.5812		49500	50000	-1.1	50.0
13C5 PFPeA	Ave	0.3725	0.4700		63100	50000	26.2	50.0
13C3 PFBS	Ave	0.3075	0.3904		59000	46500	27.0	50.0
13C2 PFHxA	Ave	0.6710	0.6562		48900	50000	-2.2	50.0
13C4 PFHpA	Ave	1.229	1.154		47000	50000	-6.1	50.0
18O2 PFHxS	Ave	0.3555	0.4250		56500	47300	19.5	50.0
M2-6:2 FTS	Ave	0.1097	0.1684		72900	47500	53.6*	50.0
13C4 PFOA	Ave	0.9383	0.9082		48400	50000	-3.2	50.0
13C5 PFNA	Ave	1.265	1.251		49400	50000	-1.2	50.0
13C4 PFOS	Ave	0.3148	0.3910		59400	47800	24.2	50.0
M2-8:2 FTS	Ave	0.2971	0.2894		46700	47900	-2.6	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Burlington Job No.: 480-147352-1
 SDG No.: _____
 Lab Sample ID: CCV 200-138989/15 Calibration Date: 01/10/2019 16:45
 Instrument ID: LC410 Calib Start Date: 10/17/2018 13:20
 GC Column: C-18 ID: 4.60 (mm) Calib End Date: 10/17/2018 15:27
 Lab File ID: PF011019A15.d Conc. Units: ng/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
13C2 PFDA	Ave	1.305	1.290		49400	50000	-1.1	50.0
d3-NMeFOSAA	Ave	0.3333	0.2923		43800	50000	-12.3	50.0
d5-NEtFOSAA	Ave	0.2828	0.2428		42900	50000	-14.1	50.0
13C2 PFUnA	Ave	1.358	1.196		44000	50000	-12.0	50.0
13C8 FOSA	Ave	0.6063	0.6797		56100	50000	12.1	50.0
13C2 PFDoA	Ave	1.718	1.442		42000	50000	-16.1	50.0
13C2 PFTeDA	Ave	1.577	1.217		38600	50000	-22.8	50.0

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A15.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 10-Jan-2019 16:45:52 ALS Bottle#: 0 Worklist Smp#: 15
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034093-015 CCV 5
 Misc. Info.: PFAS21 011019A
 Operator ID: BC Instrument ID: LC410
 Sublist: chrom-PFCISO_12MRM*sub9
 Method: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 17:19:20 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d

Column 1 : Det: F1:MRM

Process Host: CTX0308

First Level Reviewer: chirgwinb

Date: 10-Jan-2019 17:17:13

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.9 > 168.9	2.392	2.392	0.0	1.004	443253	57.2		114	247	
D 1 13C4 PFBA										
216.9 > 171.5	2.382	2.392	-0.010	1.000	455458	49.5		98.9	1949	
4 Perfluoropentanoic acid										
262.9 > 218.8	2.791	2.791	0.0	1.000	955280	45.5		91.1	433	
D 3 13C5 PFPeA										
267.7 > 222.6	2.791	2.801	-0.010	1.000	368345	63.1		126	1110	
D 6 13C3 PFBS										
302.0 > 79.8	2.851	2.867	-0.016	1.000	284530	59.0		127	2489	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.867	2.867	0.0	1.006	474663	44.5		88.9	345	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.177	3.189	-0.012	1.000	553696	51.9		104	1441	
D 7 13C2 PFHxA										
314.8 > 269.6	3.177	3.201	-0.024	1.000	514248	48.9		97.8	1587	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.681	3.692	-0.011	1.003	1032823	58.4		117	171	
D 9 13C4 PFHpA										
366.9 > 321.8	3.670	3.715	-0.045	1.000	904538	47.0		93.9	1895	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.726	3.737	-0.011	1.000	423615	41.6		83.1	5072	
D 11 18O2 PFHxS										
402.9 > 83.8	3.726	3.759	-0.033	1.000	315066	56.5		120	675	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.278	4.291	-0.013	1.000	131578	50.6		101	776	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 13 M2-6:2 FTS										M
428.6 > 408.6	4.278	4.330	-0.052	1.000	125377	72.9		154	1149	M
* 15 13C2 PFOA										
414.9 > 369.8	4.317	4.330	-0.013		783679	50.0			1436	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.330	4.342	-0.012	1.000	818270	58.1		116	1284	
D 17 13C4 PFOA										
416.9 > 371.8	4.330	4.355	-0.025	1.000	711707	48.4		96.8	1480	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.355	4.374	-0.019	0.854	290508	49.7		99.3	675	
19 Perfluorononanoic acid										
462.8 > 418.8	5.072	5.085	-0.013	1.000	994934	46.2		92.3	1281	
21 Perfluorooctanesulfonic acid										M
498.8 > 79.8	5.099	5.099	0.0	1.000	327272	51.7		103	292	M
D 20 13C5 PFNA										
467.8 > 422.8	5.072	5.113	-0.041	1.000	980186	49.4		98.8	707	
D 22 13C4 PFOS										
502.8 > 79.8	5.099	5.140	-0.041	1.000	292946	59.4		124	535	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.803	5.823	-0.020	1.000	205299	56.1		112	2254	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.803	5.863	-0.060	1.000	217255	46.7		97.4	1002	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.843	5.863	-0.020	1.000	1024458	50.2		100	1346	
D 26 13C2 PFDA										
514.9 > 469.5	5.843	5.882	-0.039	1.000	1011135	49.4		98.9	2098	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.223	6.223	0.0	1.003	197073	39.6		79.2	105	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.205	6.241	-0.036	1.000	229032	43.8		87.7	695	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.580	6.580	0.0	1.003	161892	44.2		88.4	36.4	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.562	6.598	-0.036	1.000	190309	42.9		85.9	719	
31 Perfluorodecanesulfonic acid										M
598.8 > 79.8	6.598	6.598	0.0	1.294	303172	47.3		94.6	1513	M
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.598	6.616	-0.018	1.000	1093489	56.9		114	2391	
D 32 13C2 PFUnA										
564.8 > 519.8	6.598	6.652	-0.054	1.000	936956	44.0		88.0	2341	
D 35 13C8 FOSA										
505.8 > 77.8	6.903	6.917	-0.014	1.000	532653	56.1		112	3702	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.903	6.917	-0.014	1.000	506685	56.2		112	2854	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.294	7.294	0.0	1.000	1097708	56.6		113	1597	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags

D 37 13C2 PFD_oA

614.8 > 569.6	7.294	7.339	-0.045	1.000	1130203	42.0		83.9	2811	

38 Perfluorotridecanoic acid

662.8 > 618.6	7.903	7.920	-0.017	0.935	1095039	58.7		117	5768	

39 Perfluorotetradecanoic acid

712.8 > 668.6	8.453	8.468	-0.015	1.000	892216	48.0	Target=1.00	96.0	713	M

712.8 > 168.8	8.453	8.468	-0.015	1.000	187054		4.77(0.90-1.10)		456	M

712.8 > 218.8	8.453	8.468	-0.015	1.000	111067		8.03(0.90-1.10)		384	

D 40 13C2 PFTeDA

714.8 > 669.6	8.453	8.514	-0.061	1.000	953731	38.6		77.2	1473	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LCPFAS24-L5_00001

Amount Added: 100.00

Units: uL

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A15.d

Injection Date: 10-Jan-2019 16:45:52

Instrument ID: LC410

Lims ID: CCV L5

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 15

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

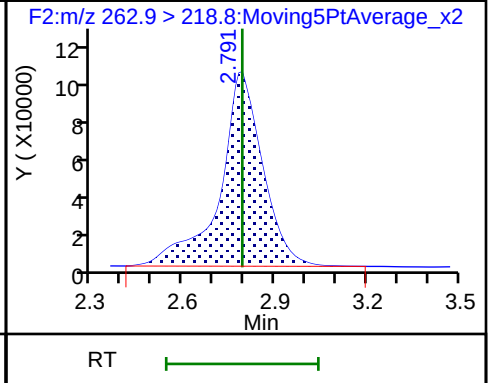
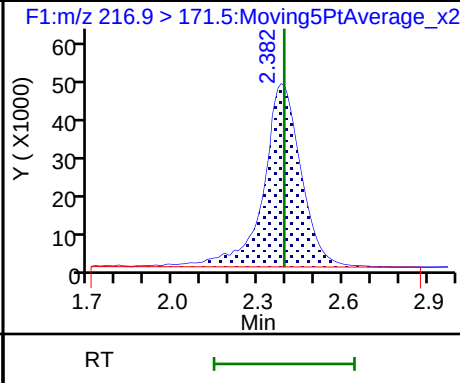
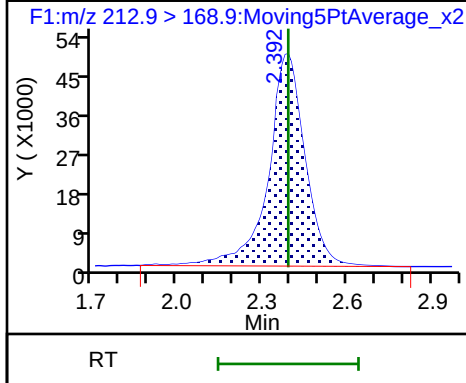
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid

D 1 13C4 PFBA

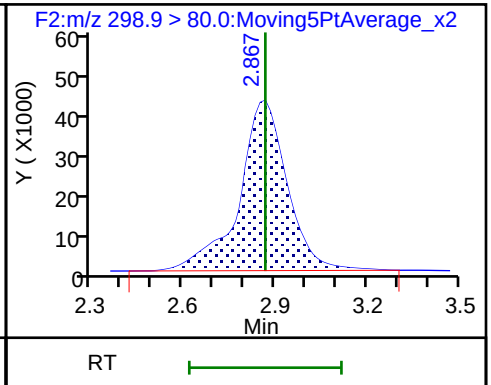
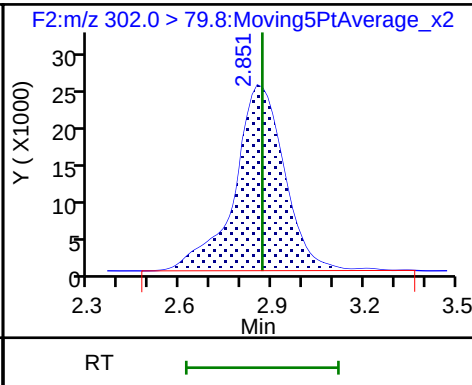
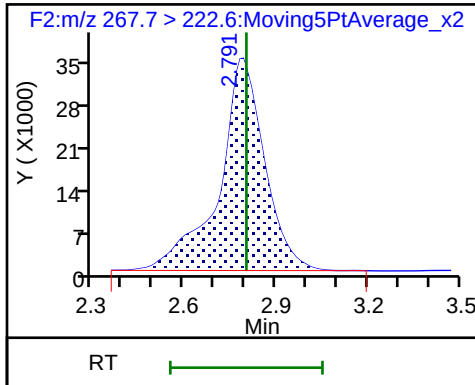
4 Perfluoropentanoic acid



D 3 13C5 PFPeA

D 6 13C3 PFBS

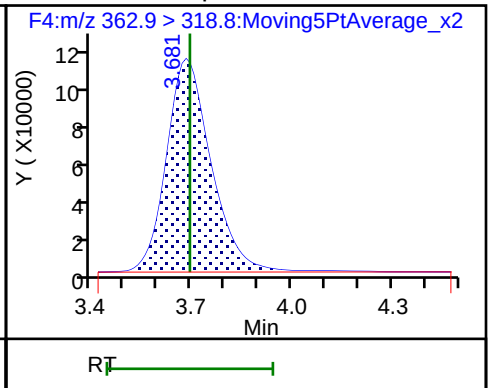
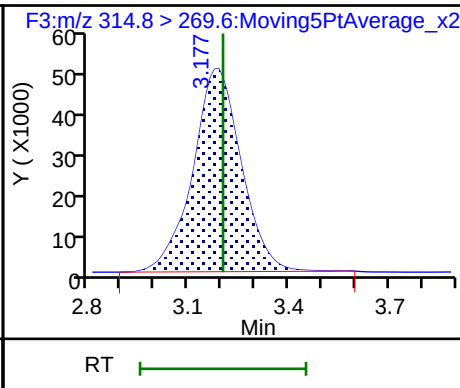
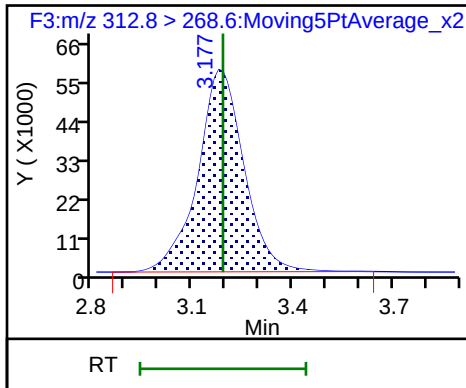
5 Perfluorobutanesulfonic acid



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

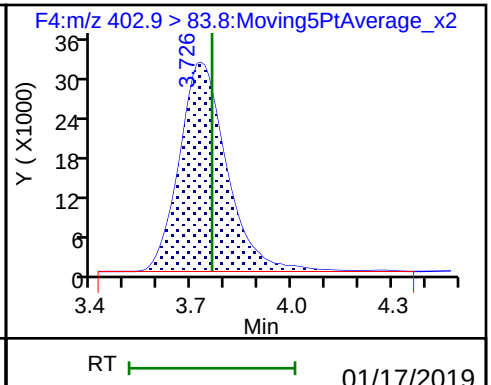
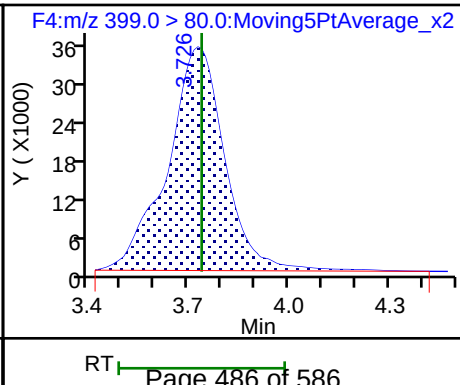
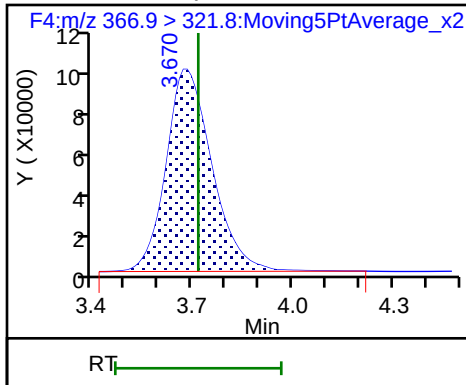
10 Perfluoroheptanoic acid



D 9 13C4 PFHpA

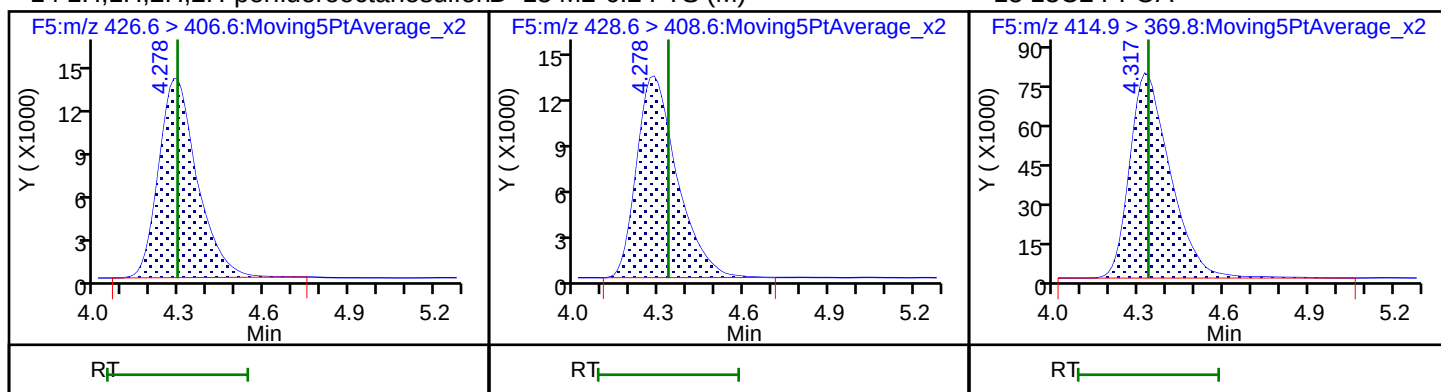
12 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfonD 13 M2-6:2 FTS (M)

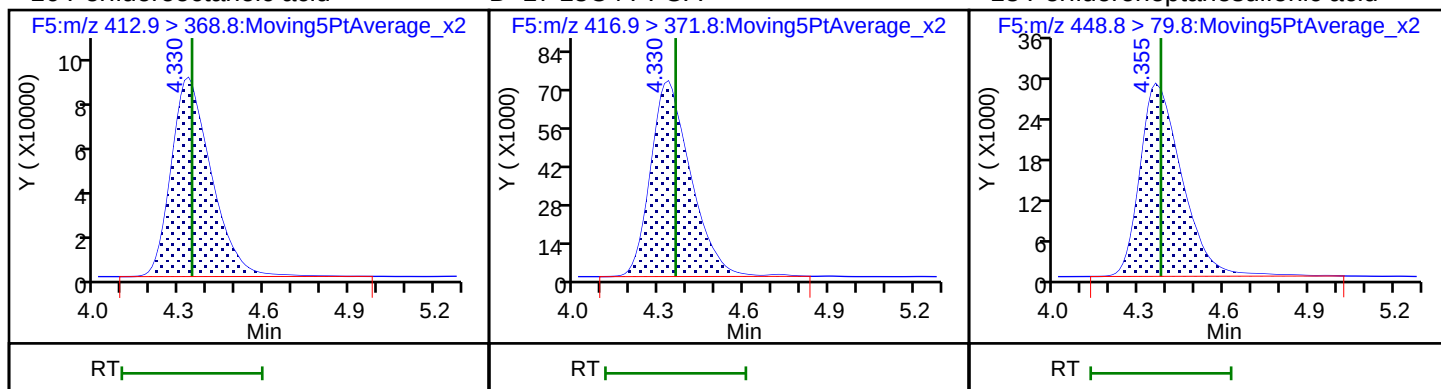
* 15 13C2 PFOA



16 Perfluorooctanoic acid

D 17 13C4 PFOA

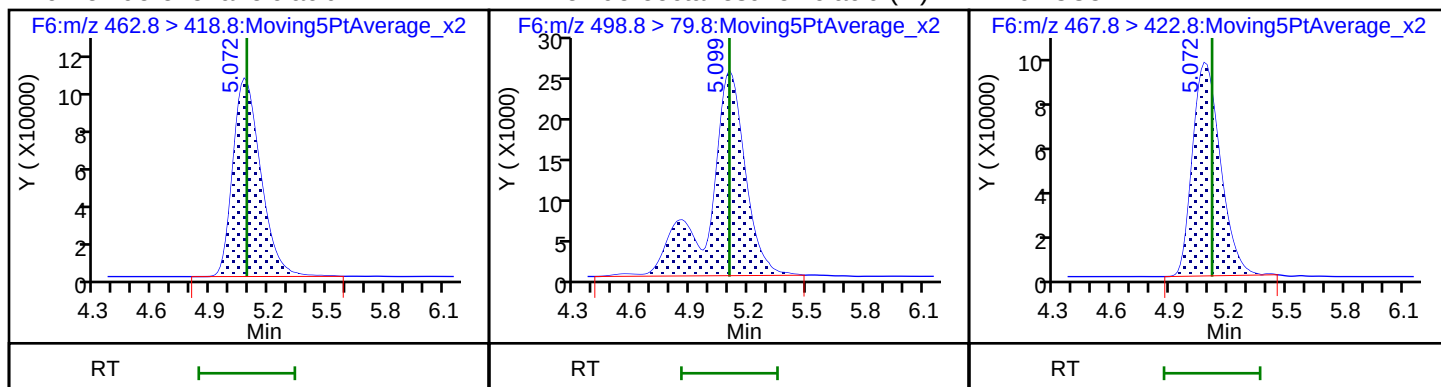
18 Perfluoroheptanesulfonic acid



19 Perfluorononanoic acid

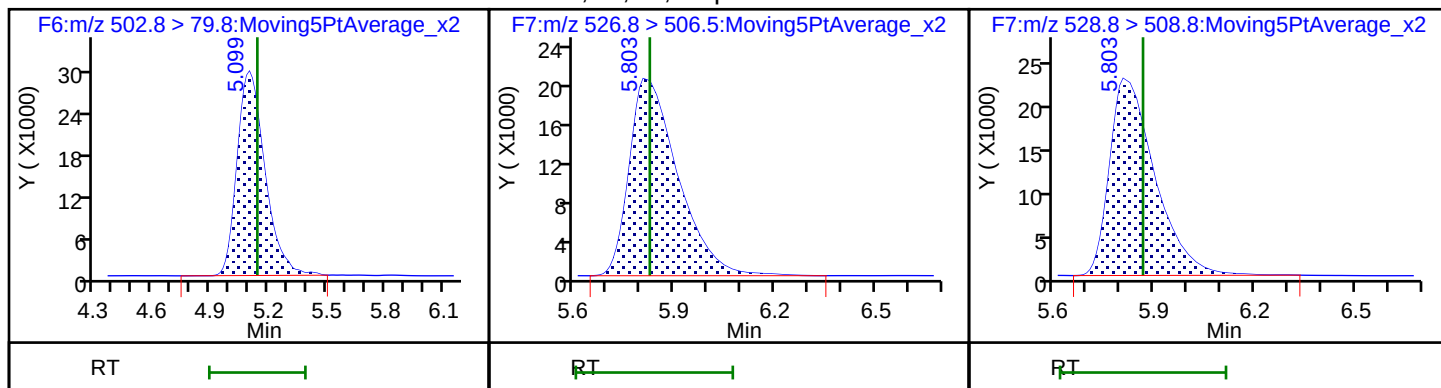
21 Perfluorooctanesulfonic acid (M)

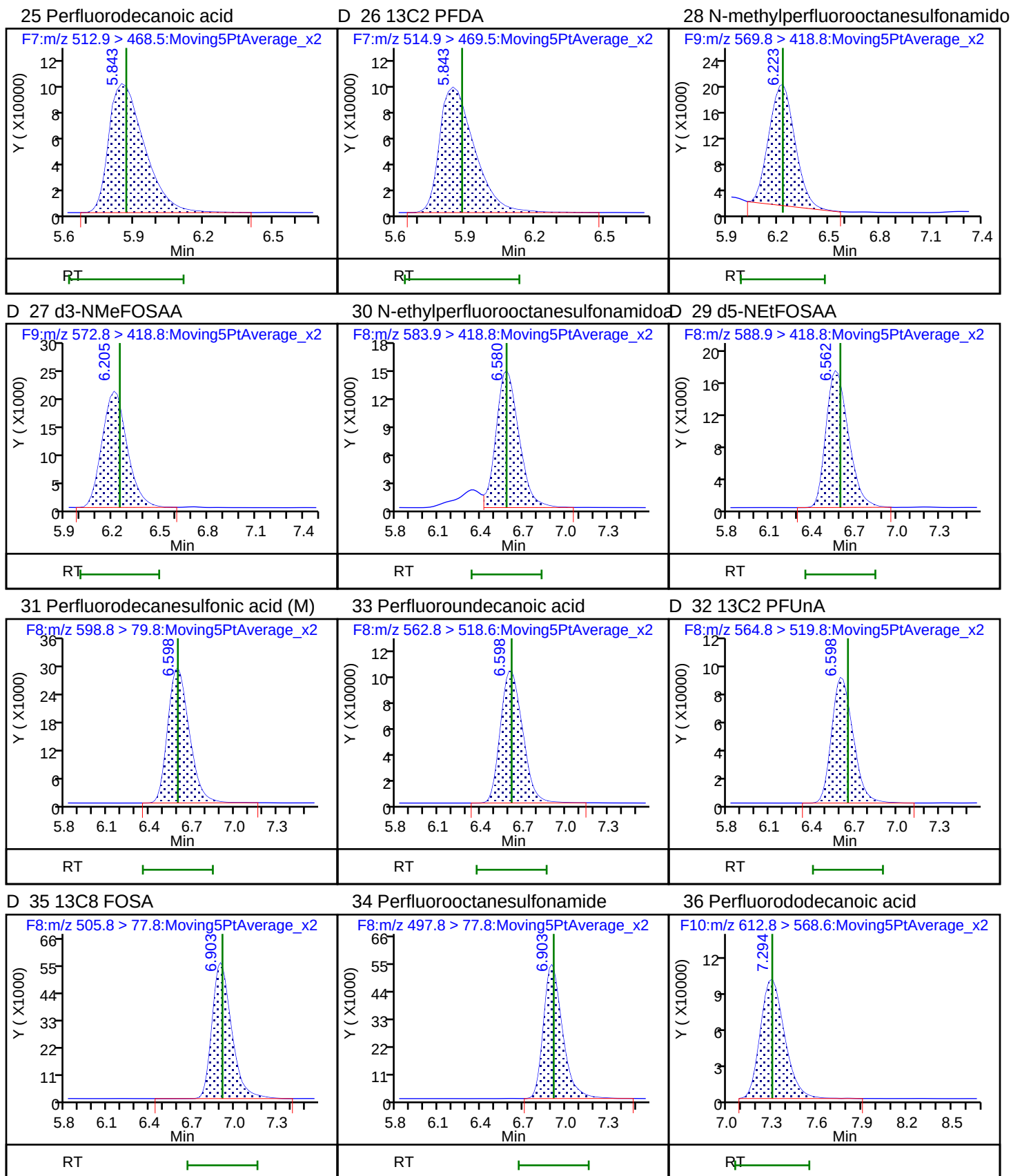
D 20 13C5 PFNA



D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfonD 24 M2-8:2 FTS

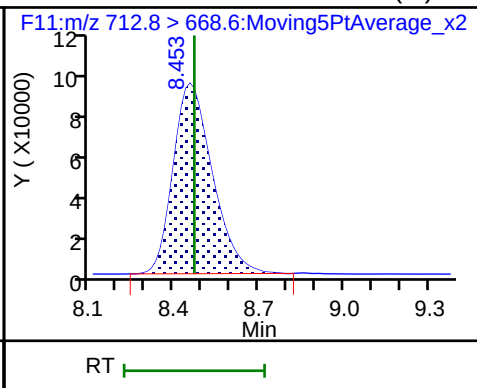
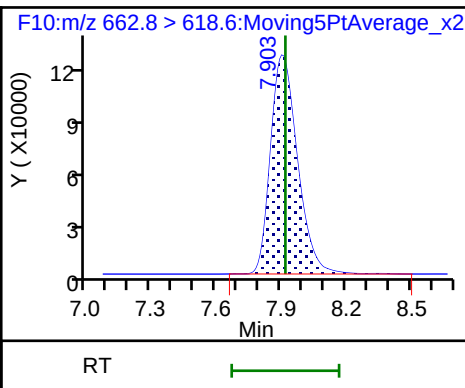
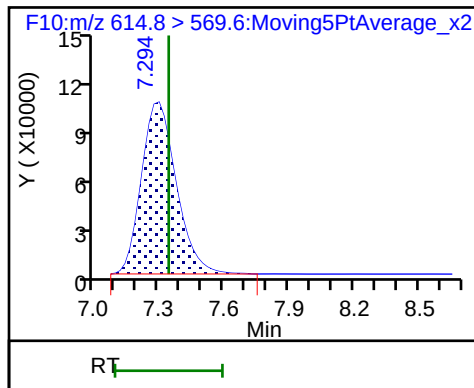




D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

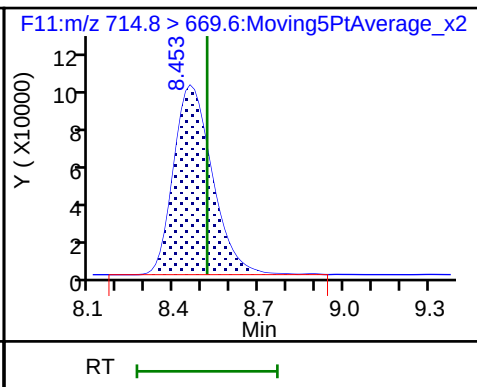
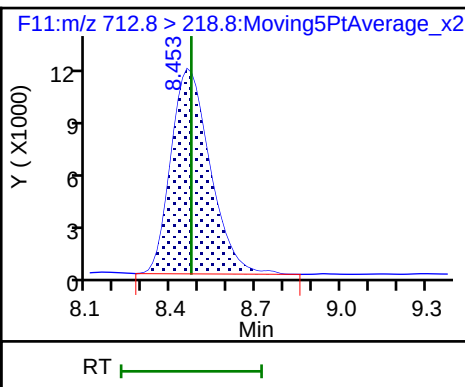
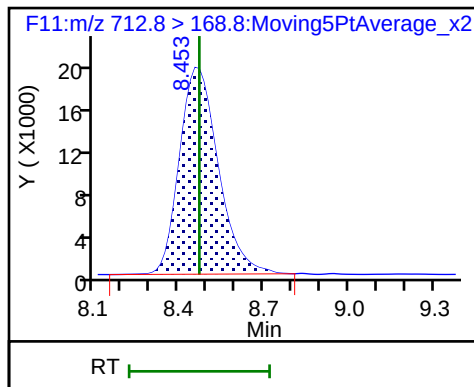
39 Perfluorotetradecanoic acid (M)



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

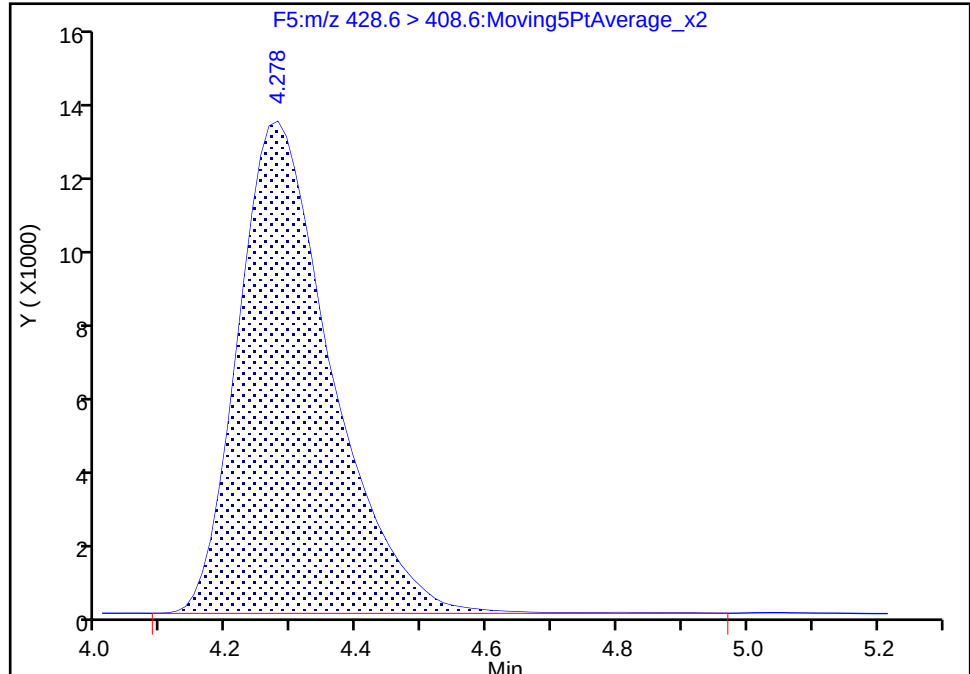
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Injection Date: 10-Jan-2019 16:45:52 Instrument ID: LC410
Lims ID: CCV L5
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 15
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F5:MRM

D 13 M2-6:2 FTS, CAS: STL02279

Signal: 1

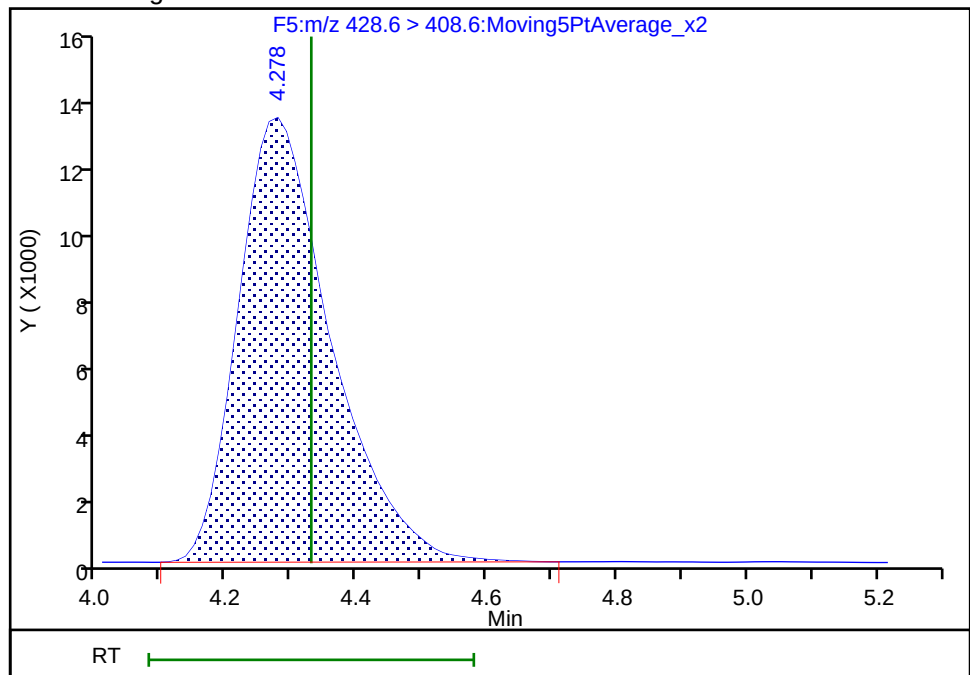
RT: 4.28
Area: 125804
Amount: 73.191140
Amount Units: ng/ml

Processing Integration Results



RT: 4.28
Area: 125377
Amount: 72.942717
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 17:16:55
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

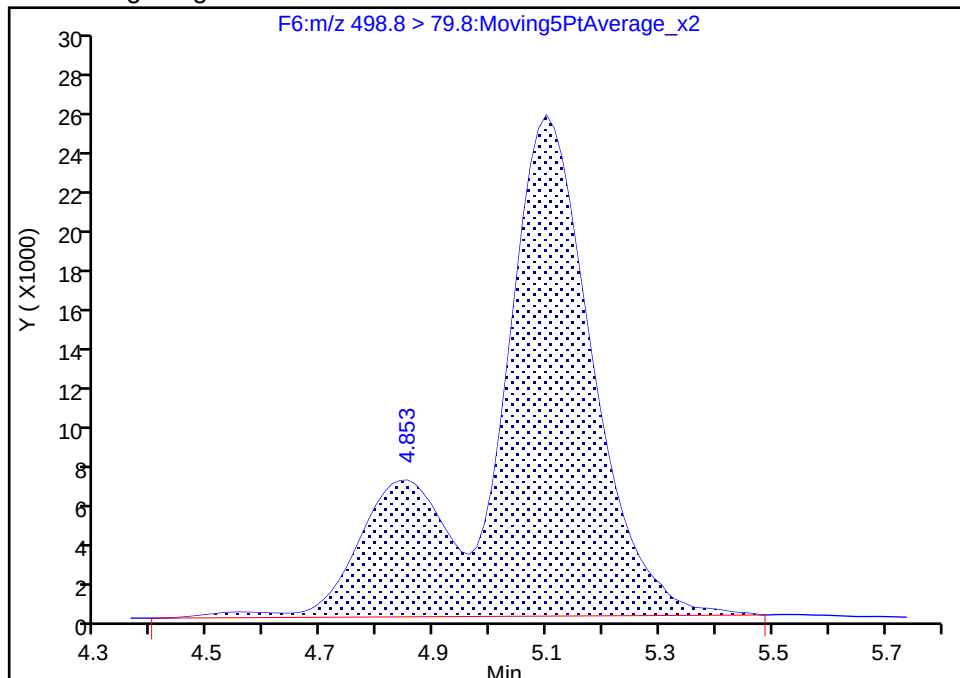
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Injection Date: 10-Jan-2019 16:45:52 Instrument ID: LC410
Lims ID: CCV L5
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 15
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F6:MRM

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

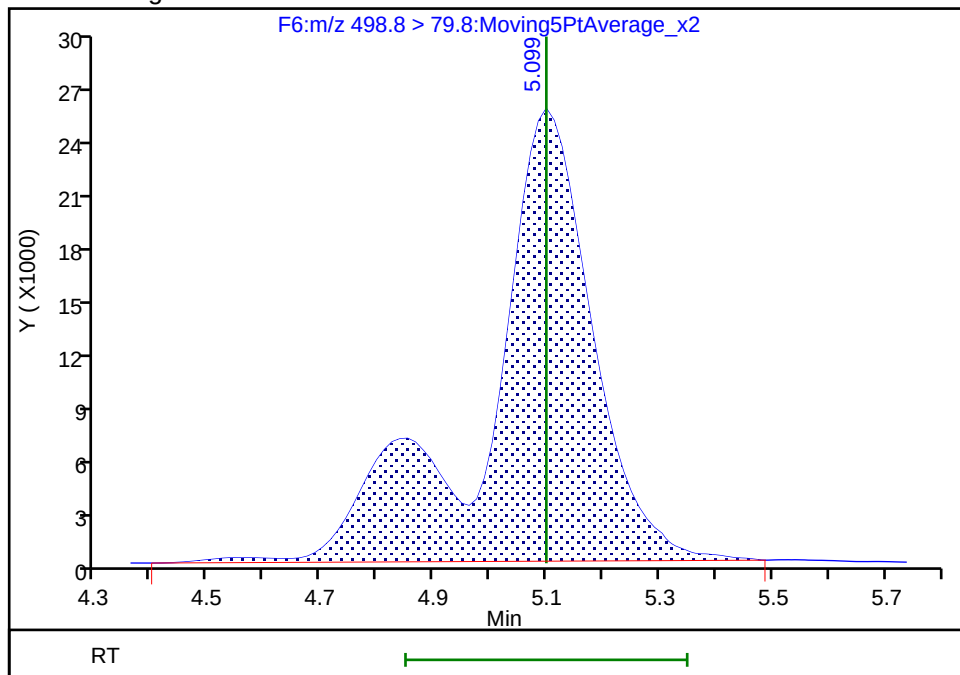
RT: 4.85
Area: 327304
Amount: 51.665414
Amount Units: ng/ml

Processing Integration Results



RT: 5.10
Area: 327272
Amount: 51.660363
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 17:16:23
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
Page 491 of 586

01/17/2019

TestAmerica Burlington

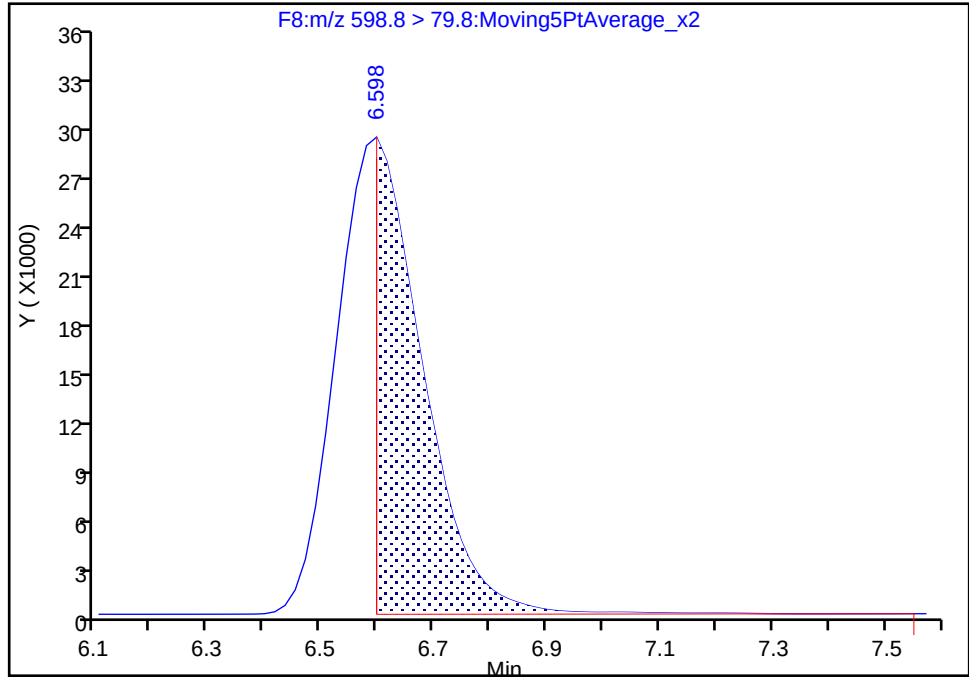
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Injection Date: 10-Jan-2019 16:45:52 Instrument ID: LC410
Lims ID: CCV L5
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 15
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F8:MRM

31 Perfluorodecanesulfonic acid, CAS: 335-77-3

Signal: 1

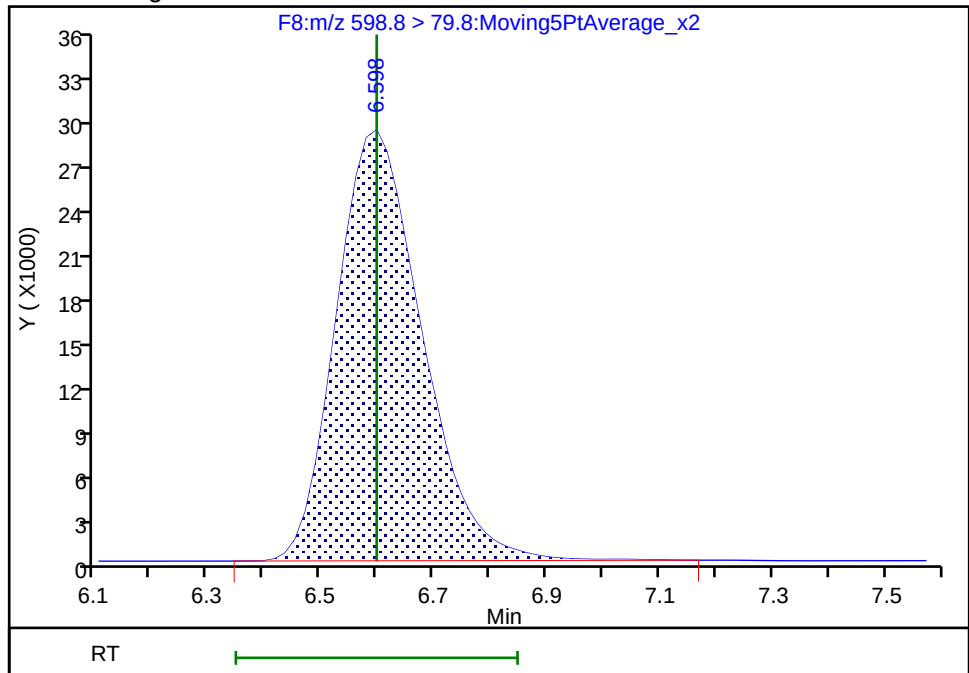
RT: 6.60
Area: 165026
Amount: 25.740981
Amount Units: ng/ml

Processing Integration Results



RT: 6.60
Area: 303172
Amount: 47.289183
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 17:16:33

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Burlington

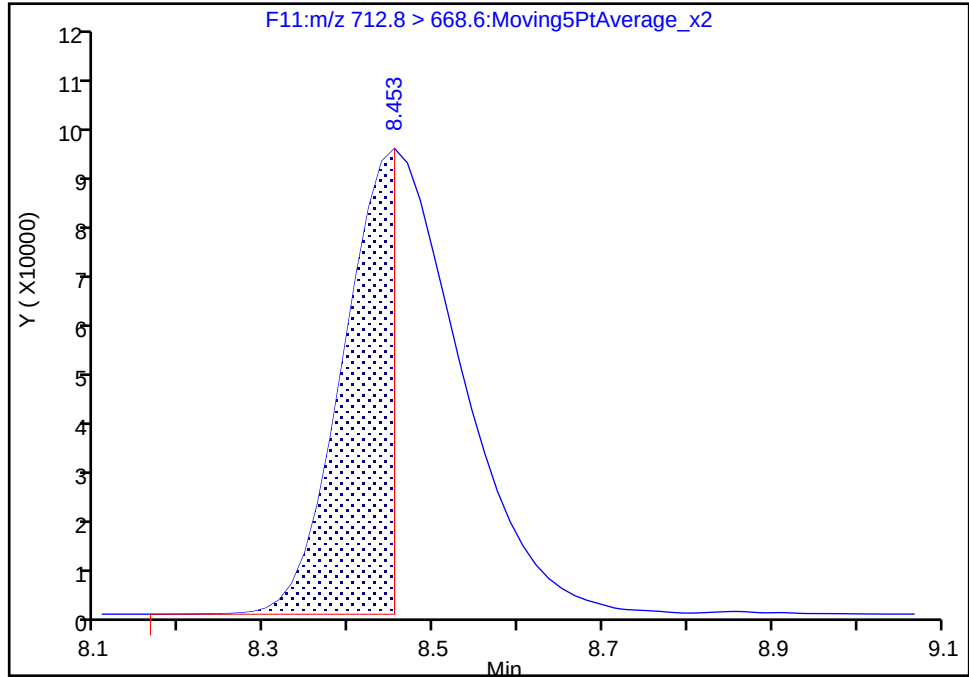
Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A15.d
Injection Date: 10-Jan-2019 16:45:52 Instrument ID: LC410
Lims ID: CCV L5
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 15
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F11:MRM

39 Perfluorotetradecanoic acid, CAS: 376-06-7

Signal: 1

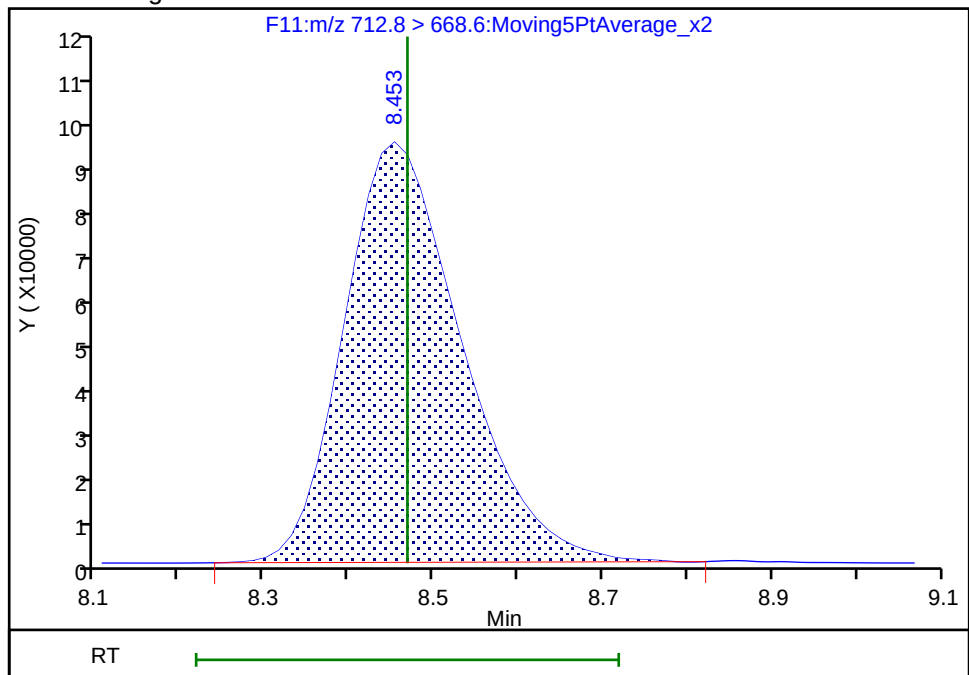
RT: 8.45
Area: 380549
Amount: 20.466678
Amount Units: ng/ml

Processing Integration Results



RT: 8.45
Area: 892216
Amount: 47.985142
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 17:16:41
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
Page 493 of 586

01/17/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: _____	Lab Sample ID: <u>MB 200-138891/1-A</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A12.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: _____
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>250 (mL)</u>	Date Analyzed: <u>01/09/2019 18:32</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		2.0	0.41
2706-90-3	Perfluoropentanoic acid (PFPeA)	ND		2.0	0.75
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		2.0	0.24
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.32
335-67-1	Perfluorooctanoic acid (PFOA)	ND		2.0	0.32
375-95-1	Perfluorononanoic acid (PFNA)	ND		2.0	0.38
335-76-2	Perfluorodecanoic acid (PFDA)	ND		2.0	0.38
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.25
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.0	0.35
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.24
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.45
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.44
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.26
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.82
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.76
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.53
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.56
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	0.45
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	0.70
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		20	1.0
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	0.56

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: _____	Lab Sample ID: <u>MB 200-138891/1-A</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A12.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: _____
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>250 (mL)</u>	Date Analyzed: <u>01/09/2019 18:32</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	99		50-150
STL01892	13C4 PFHpA	70		50-150
STL00990	13C4 PFOA	80		50-150
STL00991	13C4 PFOS	101		50-150
STL00995	13C5 PFNA	74		50-150
STL00992	13C4 PFBA	78		25-150
STL00993	13C2 PFHxA	80		50-150
STL00996	13C2 PFDA	78		50-150
STL00997	13C2 PFUnA	79		50-150
STL00998	13C2 PFDoA	69		50-150
STL01056	13C8 FOSA	59		25-150
STL01893	13C5 PFPeA	99		25-150
STL02116	13C2 PFTeDA	55		50-150
STL02118	d3-NMeFOSAA	52		50-150
STL02117	d5-NEtFOSAA	64		50-150
STL02279	M2-6:2 FTS	136		25-150
STL02280	M2-8:2 FTS	99		25-150
STL02337	13C3 PFBS	112		50-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
 Lims ID: MB 200-138891/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 09-Jan-2019 18:32:32 ALS Bottle#: 0 Worklist Smp#: 12
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034076-012 MB 891
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:18 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: murrayjw

Date: 10-Jan-2019 09:19:42

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.9 > 168.9	2.444	2.382	0.062	1.026	2708	0.0814			1.8	
D 1 13C4 PFBA										
216.9 > 171.5	2.382	2.402	-0.020	1.000	587861	39.0		78.0	107	
D 3 13C5 PFPeA										
267.7 > 222.6	2.791	2.818	-0.027	1.000	472098	49.4		98.8	1457	
5 Perfluorobutanesulfonic acid										M
298.9 > 80.0	2.916	2.883	0.033	1.017	259	0.0168			2.4	M
D 6 13C3 PFBS										
302.0 > 79.8	2.867	2.900	-0.033	1.000	411802	52.2		112	374	
8 Perfluorohexanoic acid										M
312.8 > 268.6	3.189	3.201	-0.012	0.996	674	0.0472			9.8	M
D 7 13C2 PFHxA										
314.8 > 269.6	3.201	3.250	-0.049	1.000	687673	39.9		79.8	1792	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.637	3.715	-0.078	0.985	287	0.0132			1.5	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.782	3.748	0.034	1.012	2161	-0.0792			18.9	
D 9 13C4 PFHpA										
366.9 > 321.8	3.692	3.782	-0.090	1.000	1111453	35.2		70.5	312	
D 11 18O2 PFHxS										
402.9 > 83.8	3.737	3.826	-0.089	1.000	425310	46.6		98.5	379	
16 Perfluorooctanoic acid										M
412.9 > 368.8	4.355	4.355	0.0	1.003	2011	0.1055			9.4	M
* 15 13C2 PFOA										
414.9 > 369.8	4.342	4.355	-0.013		1283510	50.0			7808	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.304	4.411	-0.107	1.000	181714	64.5		136	1438	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 17 13C4 PFOA										
416.9 > 371.8	4.342	4.468	-0.126	1.000	963023	40.0		80.0	1367	
19 Perfluorononanoic acid										M
462.8 > 418.8	5.058	5.113	-0.055	0.992	487	0.0184			5.5	M
21 Perfluorooctanesulfonic acid										M
498.8 > 79.8	5.127	5.140	-0.013	1.003	678	0.0805			7.6	M
D 20 13C5 PFNA										
467.8 > 422.8	5.099	5.222	-0.123	1.000	1202721	37.0		74.0	1089	
D 22 13C4 PFOS										
502.8 > 79.8	5.113	5.236	-0.123	1.000	389398	48.2		101	1173	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.843	5.998	-0.155	1.000	361510	47.4		99.0	884	
D 26 13C2 PFDA										
514.9 > 469.5	5.863	6.022	-0.159	1.000	1301438	38.9		77.7	3488	
28 N-methylperfluorooctanesulfonamido										M
569.8 > 418.8	6.277	6.241	0.036	1.009	418	0.0873			0.9	M
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.223	6.367	-0.144	1.000	220458	25.8		51.5	949	
30 N-ethylperfluorooctanesulfonamidoa										M
583.9 > 418.8	6.580	6.634	-0.054	1.000	279	0.0622			4.1	M
33 Perfluoroundecanoic acid										M
562.8 > 518.6	6.616	6.652	-0.036	1.000	3291	0.1168			20.5	M
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.580	6.734	-0.154	1.000	232787	32.1		64.1	1006	
D 32 13C2 PFUnA										
564.8 > 519.8	6.616	6.777	-0.161	1.000	1373232	39.4		78.8	4583	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.931	6.917	0.014	1.002	900	0.1151			10.8	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.945	-0.028	1.000	462037	29.7		59.4	1997	M
36 Perfluorododecanoic acid										M
612.8 > 568.6	7.317	7.339	-0.022	1.003	2122	0.0814			11.2	M
D 37 13C2 PFDaA										
614.8 > 569.6	7.294	7.474	-0.180	1.000	1519237	34.4		68.9	5011	
38 Perfluorotridecanoic acid										M
662.8 > 618.6	7.945	7.953	-0.008	0.937	1251	0.0575			13.6	M
39 Perfluorotetradecanoic acid										a
712.8 > 668.6	8.514	8.514	0.0	1.004	2477	0.1141	Target=1.00		20.4	
712.8 > 168.8	8.514	8.514	0.0	0.000	0		0.00(0.90-1.10)			
712.8 > 218.8	8.514	8.514	0.0	0.000	0		0.00(0.90-1.10)			
D 40 13C2 PFTeDA										
714.8 > 669.6	8.484	8.681	-0.197	1.000	1113816	27.5		55.0	580	M

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d

Injection Date: 09-Jan-2019 18:32:32

Instrument ID: LC410

Lims ID: MB 200-138891/1-A

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 12

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

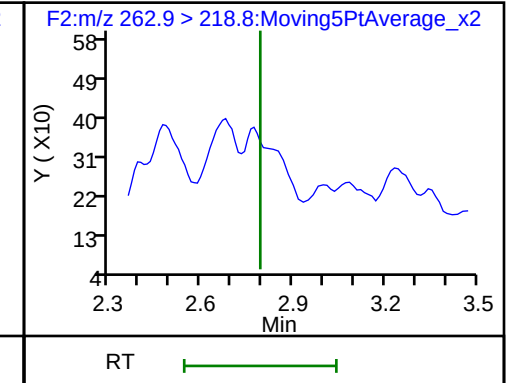
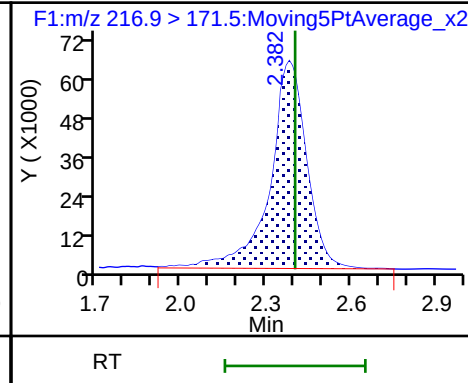
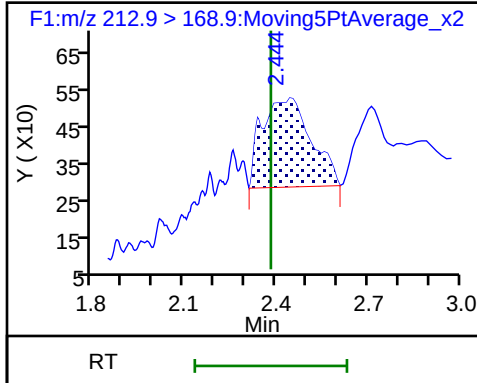
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid

D 1 13C4 PFBA

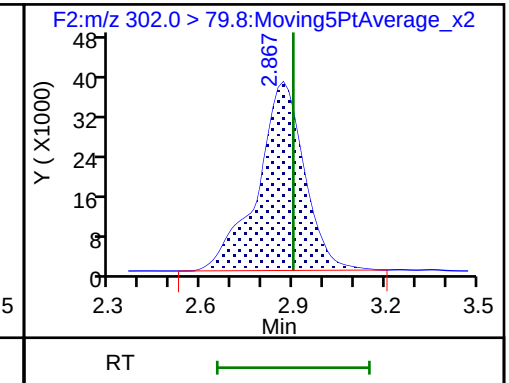
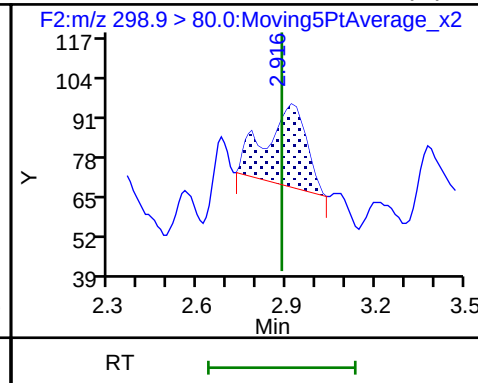
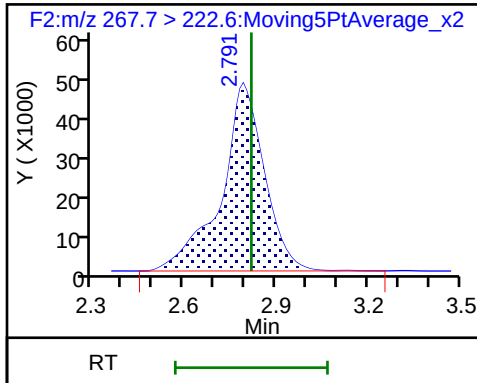
4 Perfluoropentanoic acid (ND)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid (M)

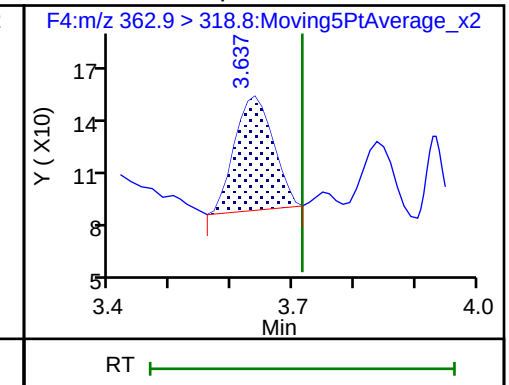
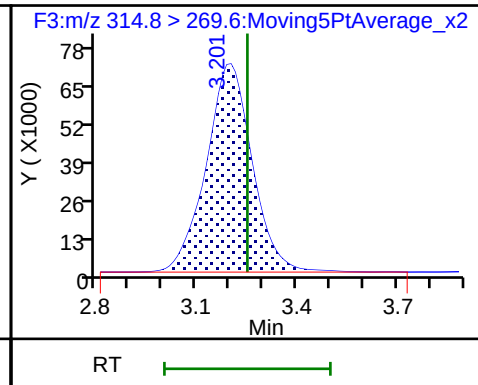
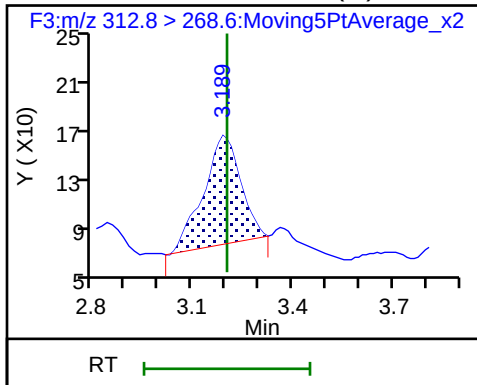
D 6 13C3 PFBS



8 Perfluorohexanoic acid (M)

D 7 13C2 PFHxA

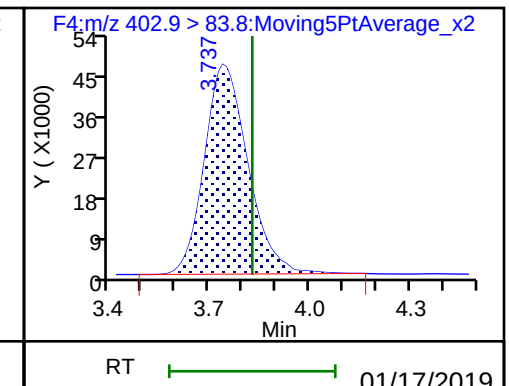
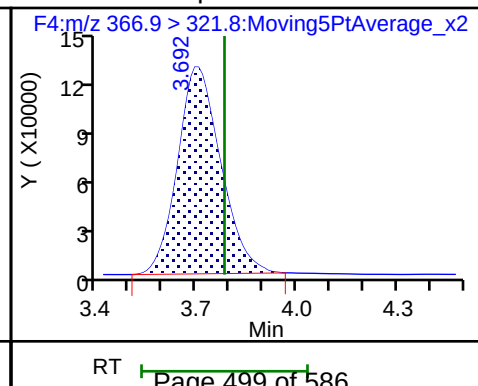
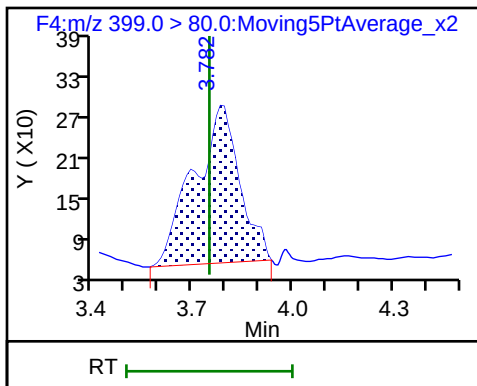
10 Perfluoroheptanoic acid



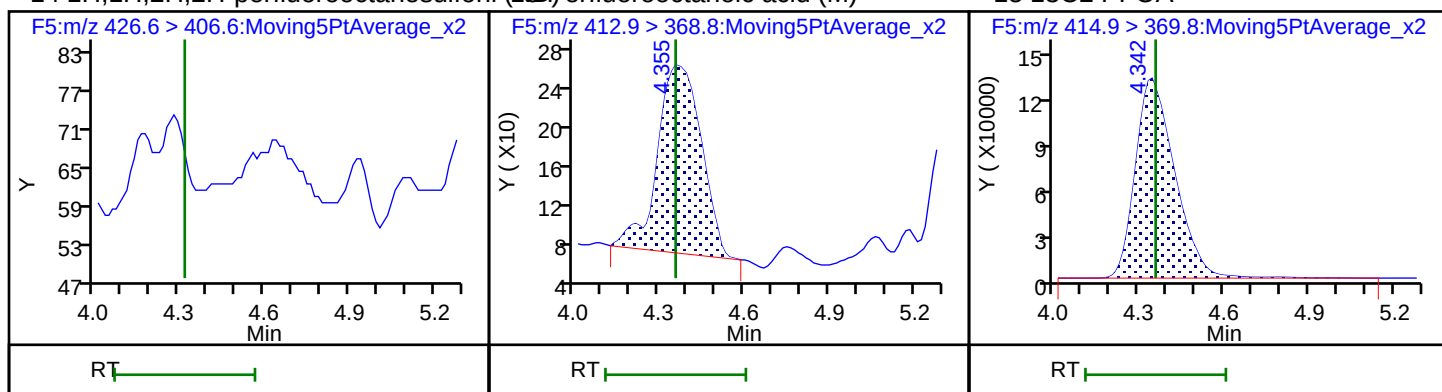
12 Perfluorohexanesulfonic acid

D 9 13C4 PFHpA

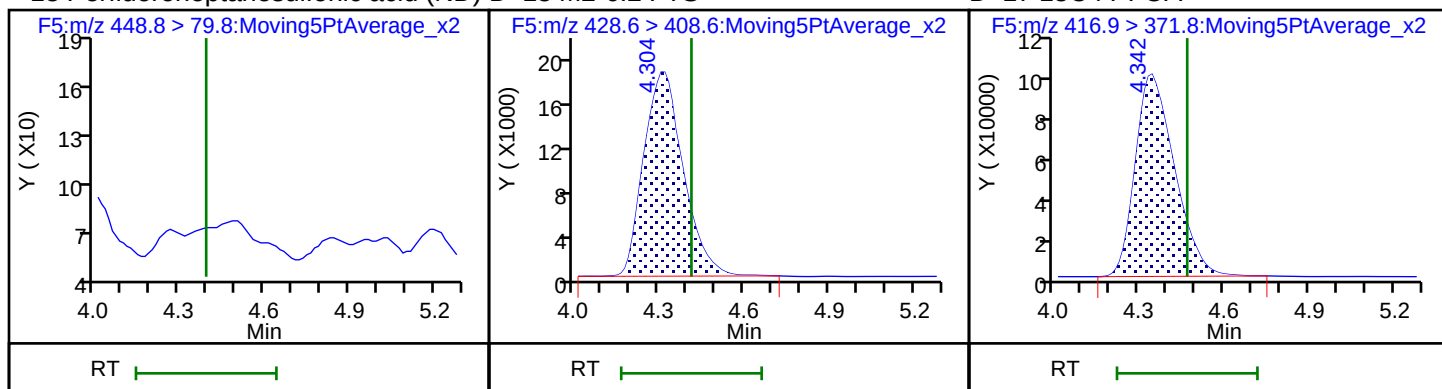
D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfoni (ND) 15 13C2 PFOA



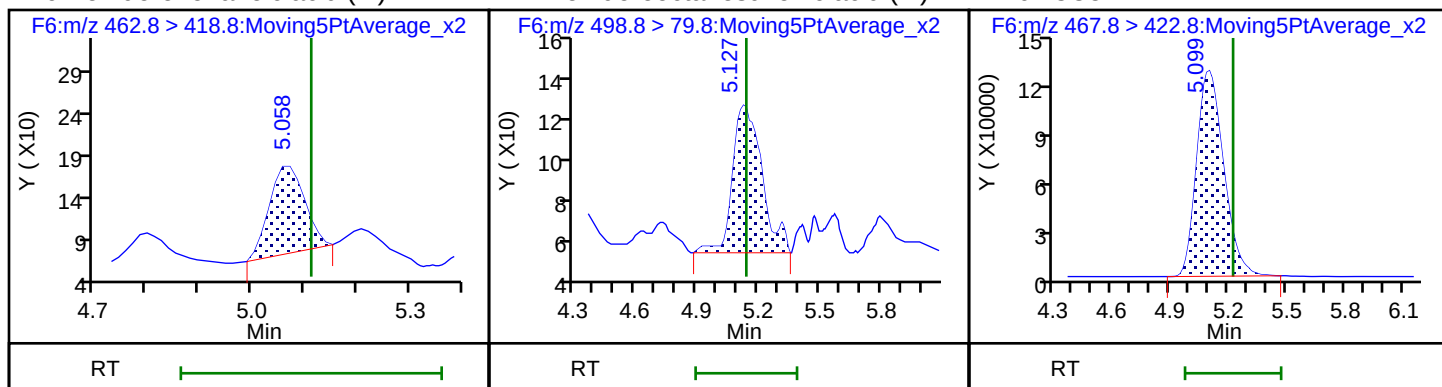
18 Perfluoroheptanesulfonic acid (ND) D 13 M2-6:2 FTS



19 Perfluorononanoic acid (M)

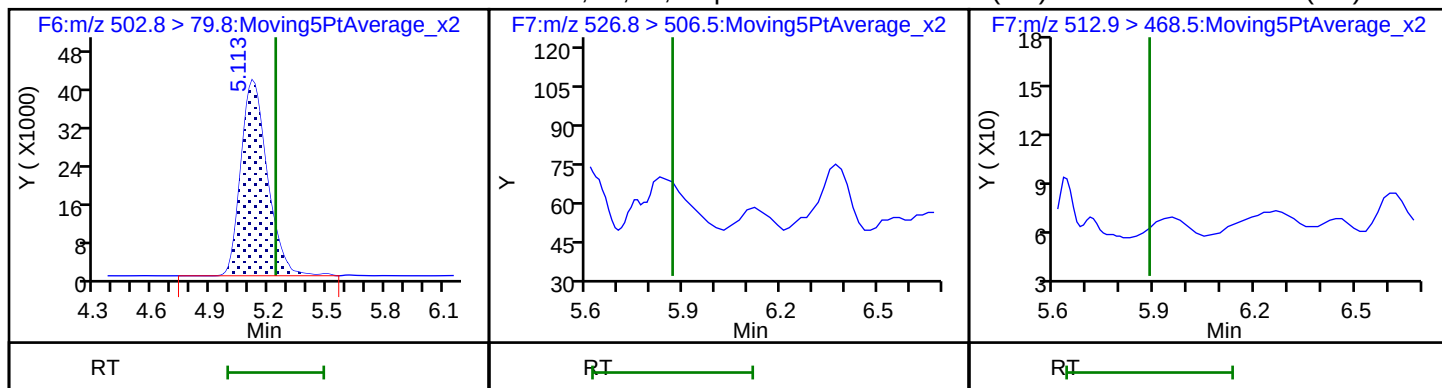
21 Perfluorooctanesulfonic acid (M)

D 20 13C5 PFNA



D 22 13C4 PFOS

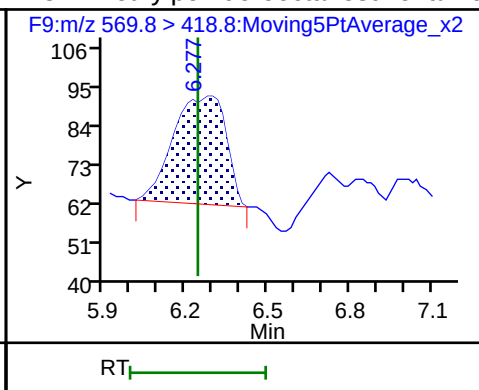
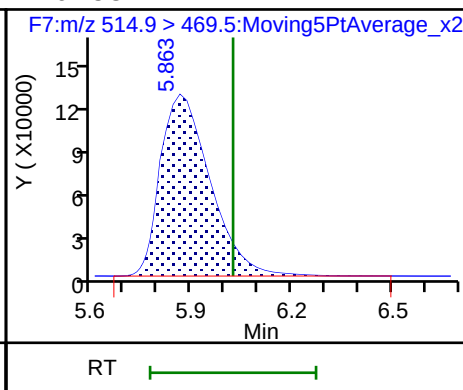
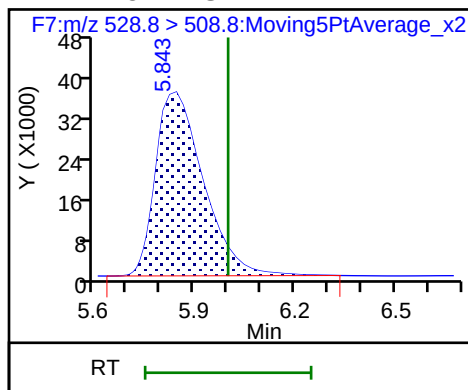
23 1H,1H,2H,2H-perfluorodecanesulfoni (ND) 24 13C4 PFDA



D 24 M2-8:2 FTS

D 26 13C2 PFDA

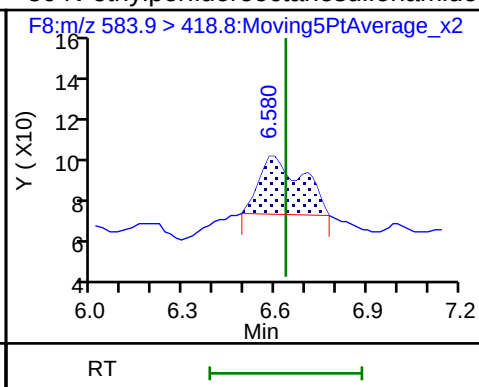
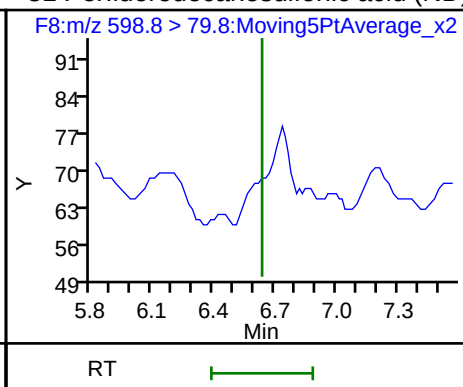
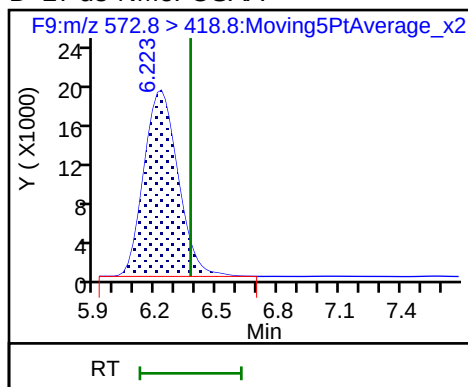
28 N-methylperfluorooctanesulfonamido (M)



D 27 d3-NMeFOSAA

31 Perfluorodecanesulfonic acid (ND)

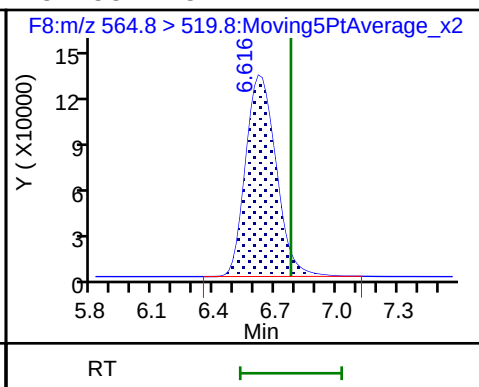
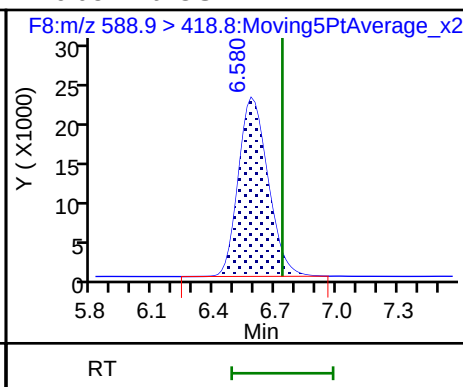
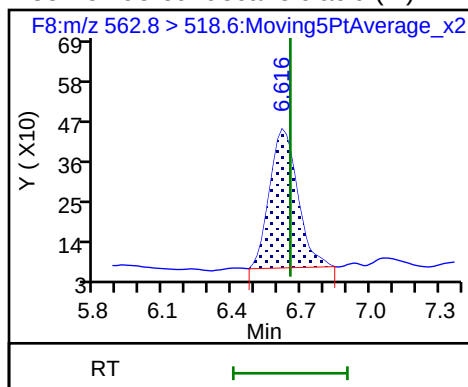
30 N-ethylperfluorooctanesulfonamidoa (M)



33 Perfluoroundecanoic acid (M)

D 29 d5-NEtFOSAA

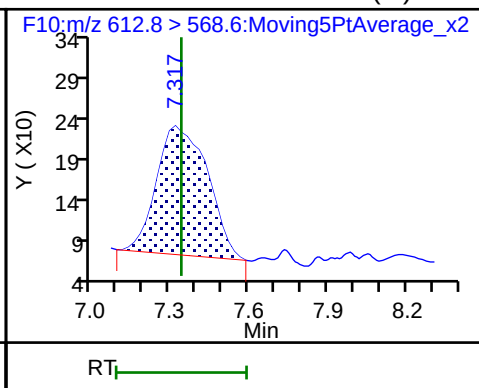
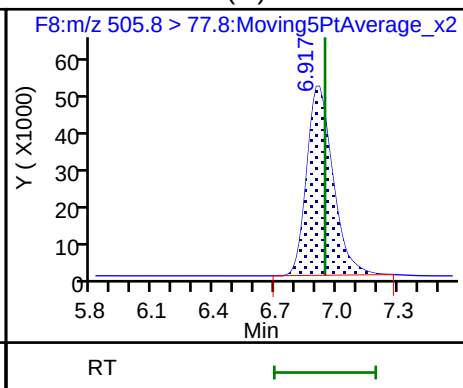
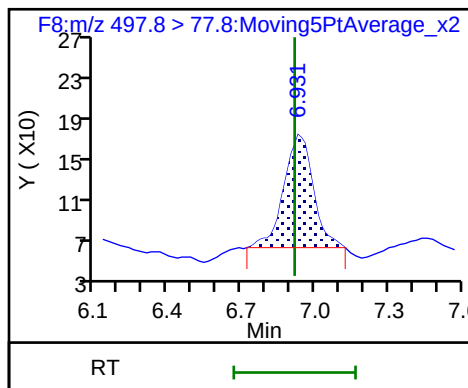
D 32 13C2 PFUnA



34 Perfluorooctanesulfonamide

D 35 13C8 FOSA (M)

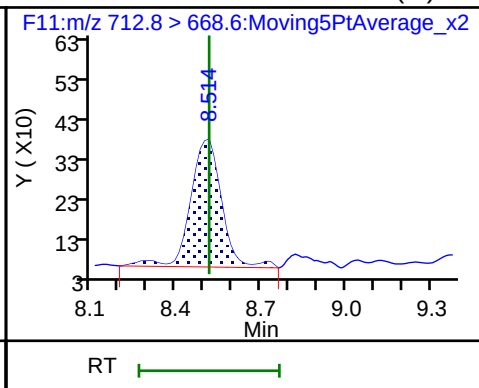
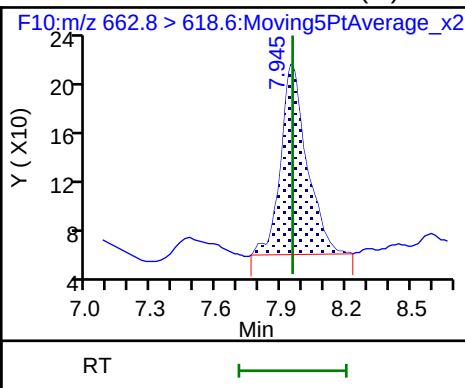
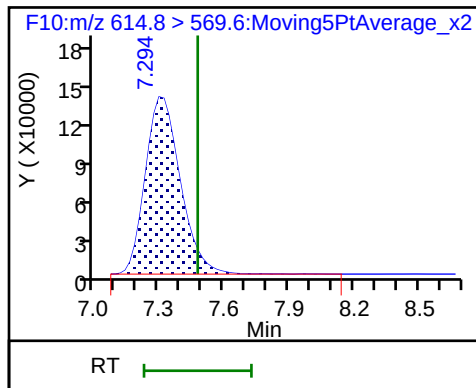
36 Perfluorododecanoic acid (M)



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (M)

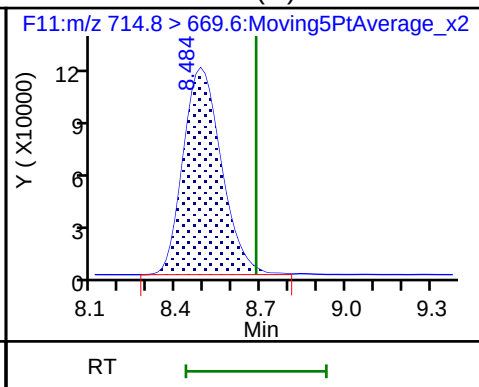
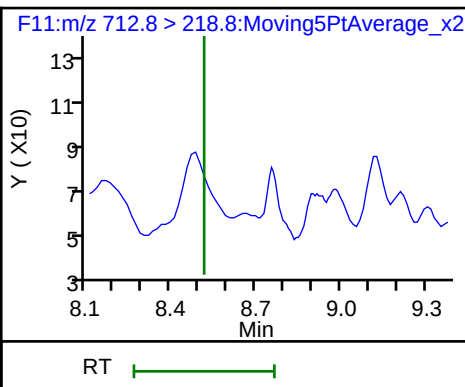
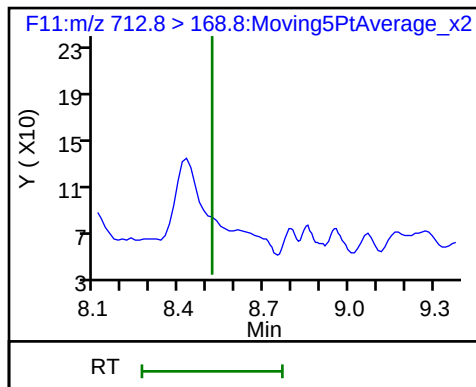
39 Perfluorotetradecanoic acid (M)



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA (M)



TestAmerica Burlington

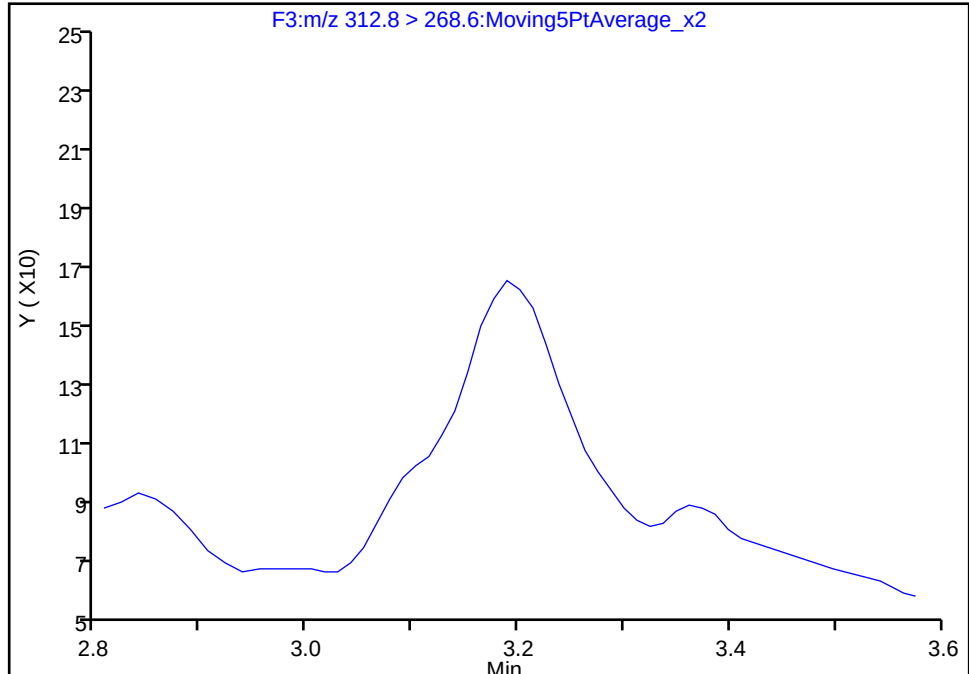
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F3:MRM

8 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

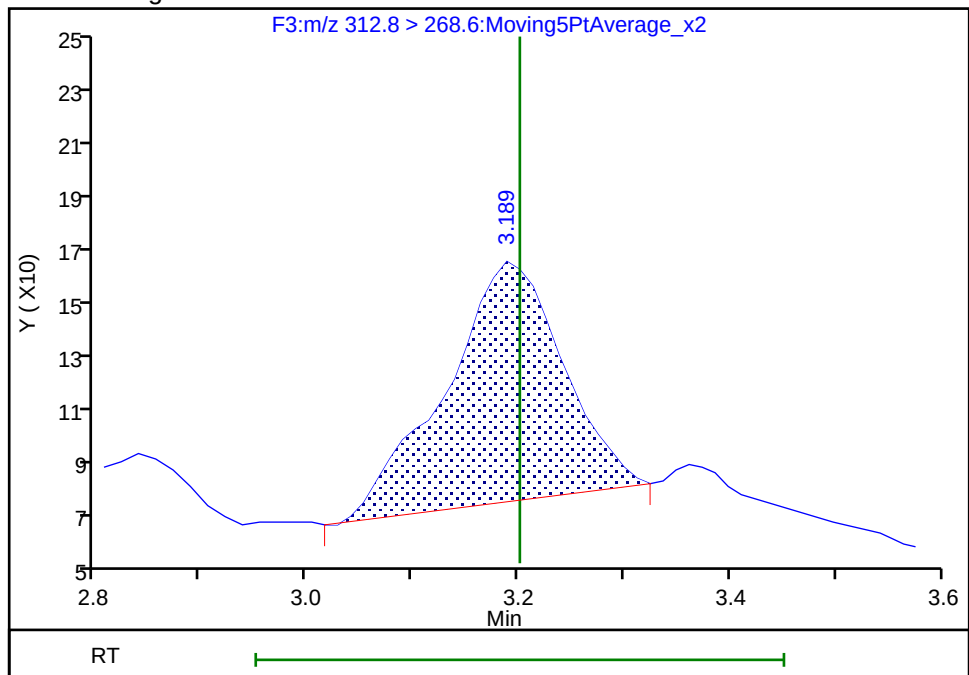
Not Detected
Expected RT: 3.20

Processing Integration Results



RT: 3.19
Area: 674
Amount: 0.047232
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:17:07

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Burlington

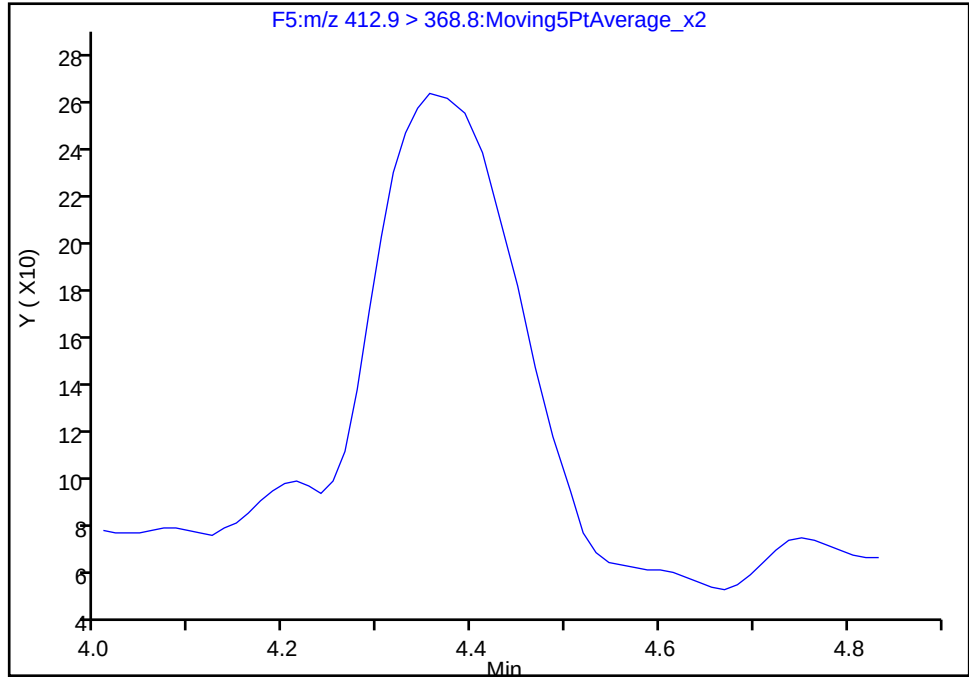
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F5:MRM

16 Perfluorooctanoic acid, CAS: 335-67-1

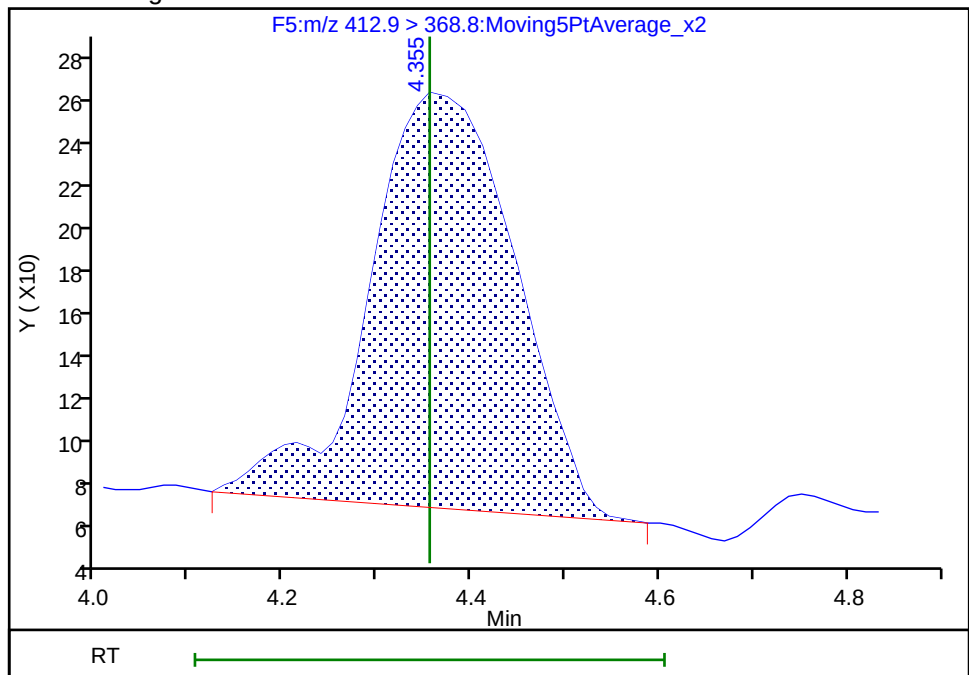
Signal: 1

Not Detected
Expected RT: 4.36

Processing Integration Results



Manual Integration Results



RT: 4.36
Area: 2011
Amount: 0.105475
Amount Units: ng/ml

Reviewer: murrayjw, 10-Jan-2019 09:17:39
Audit Action: Manually Integrated

Audit Reason: Missed Peak
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TestAmerica Burlington

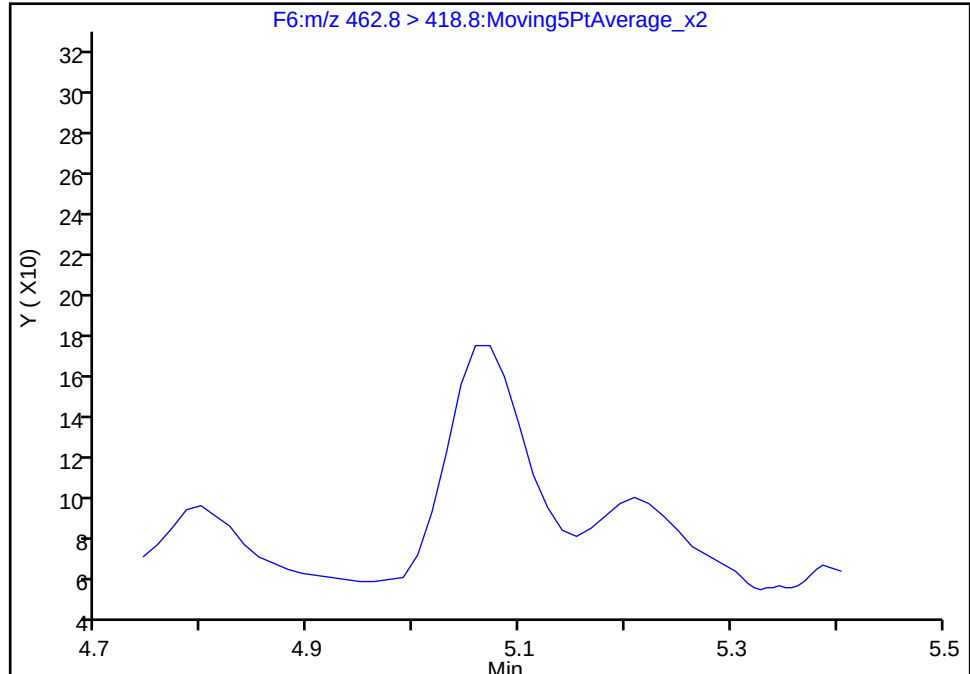
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F6:MRM

19 Perfluorononanoic acid, CAS: 375-95-1

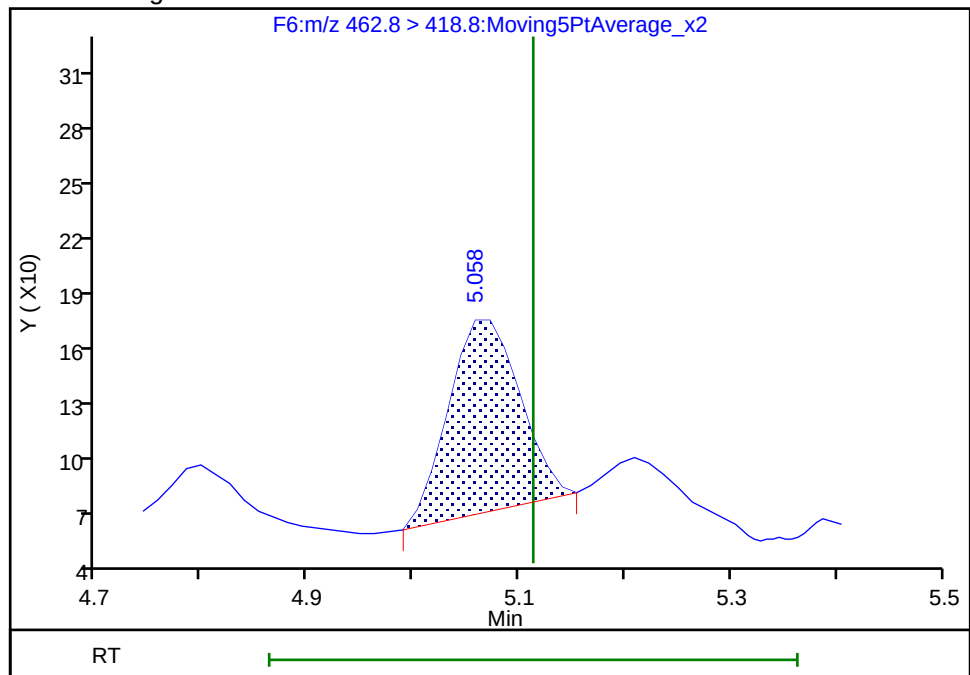
Signal: 1

Not Detected
Expected RT: 5.11

Processing Integration Results



Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:18:00
Audit Action: Manually Integrated

Audit Reason: Missed Peak
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TestAmerica Burlington

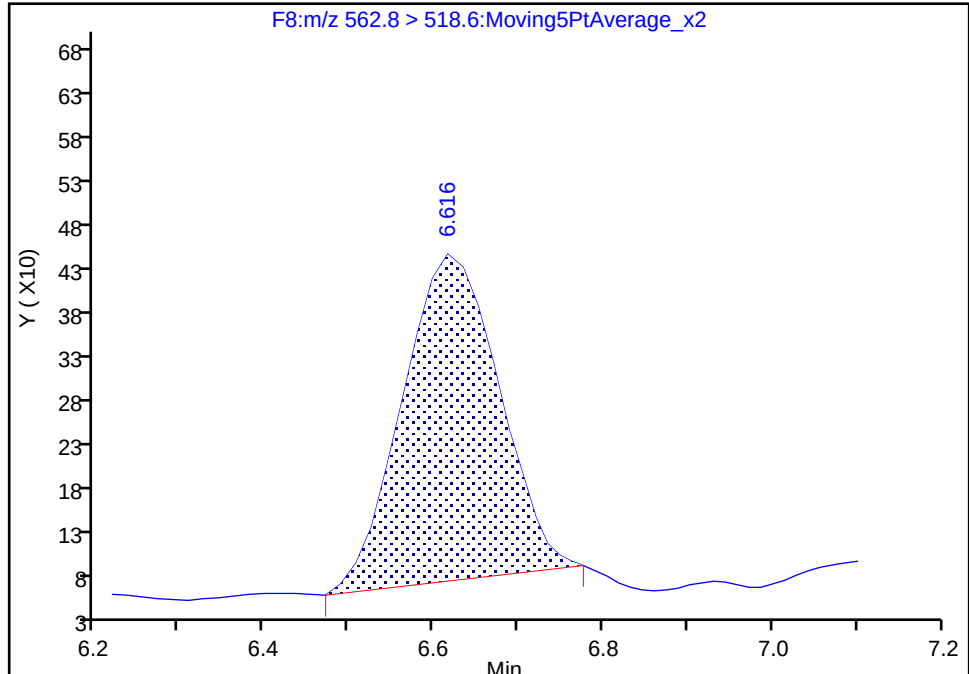
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F8:MRM

33 Perfluoroundecanoic acid, CAS: 2058-94-8

Signal: 1

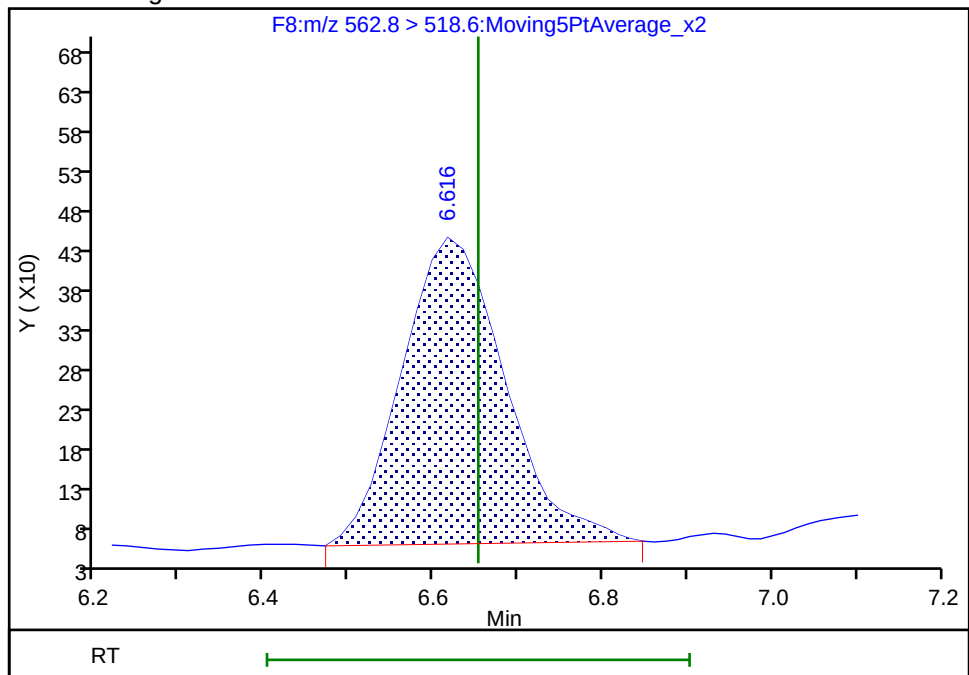
RT: 6.62
Area: 2969
Amount: 0.105374
Amount Units: ng/ml

Processing Integration Results



RT: 6.62
Area: 3291
Amount: 0.116802
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:18:36
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

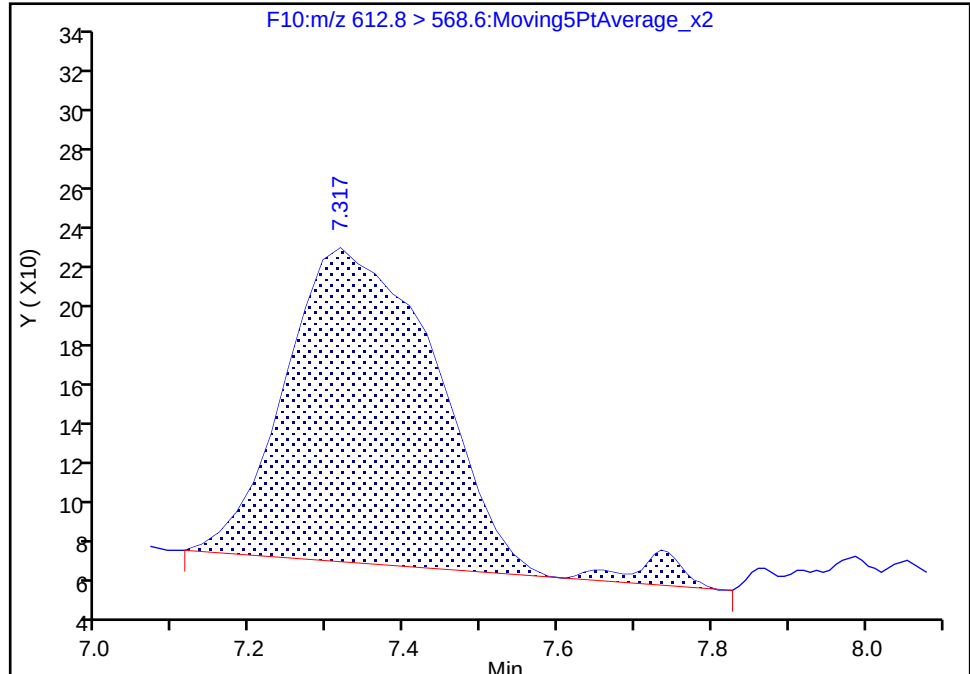
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F10:MRM

36 Perfluorododecanoic acid, CAS: 307-55-1

Signal: 1

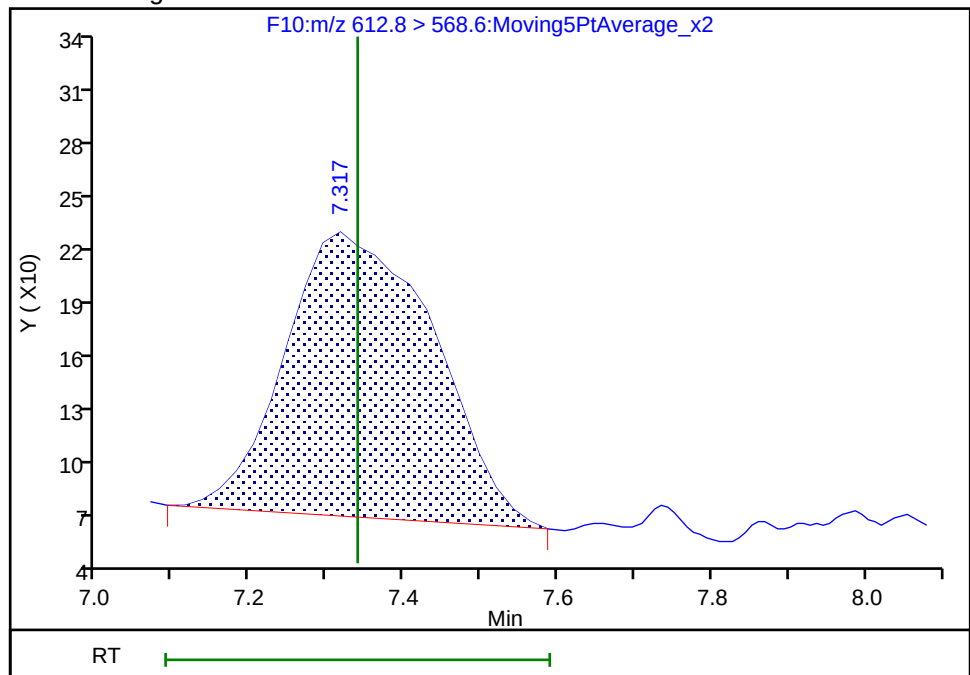
RT: 7.32
Area: 2191
Amount: 0.084000
Amount Units: ng/ml

Processing Integration Results



RT: 7.32
Area: 2122
Amount: 0.081354
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:18:59
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

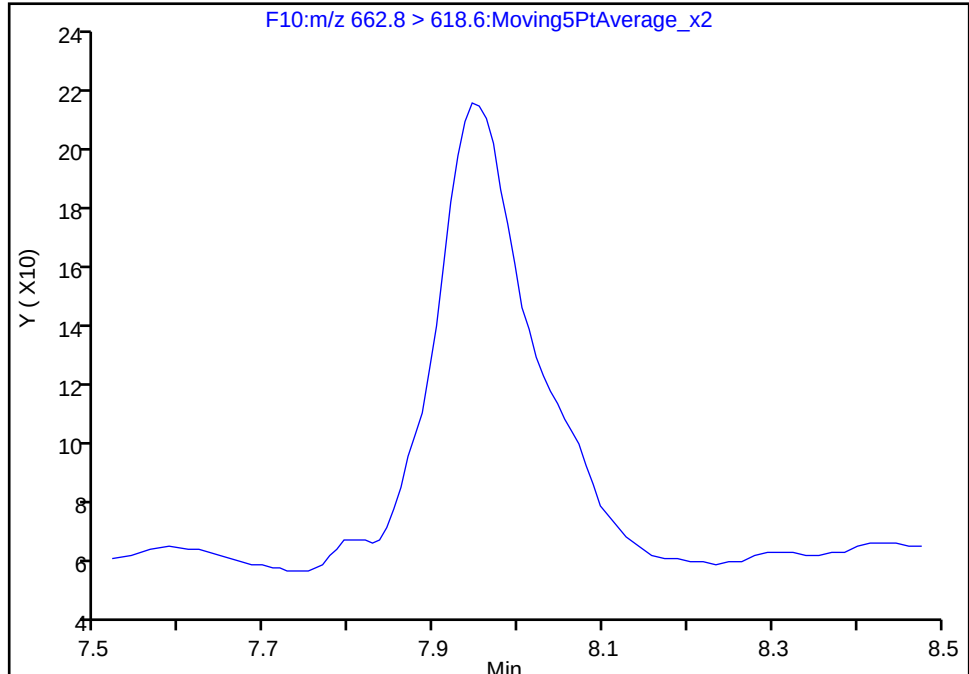
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F10:MRM

38 Perfluorotridecanoic acid, CAS: 72629-94-8

Signal: 1

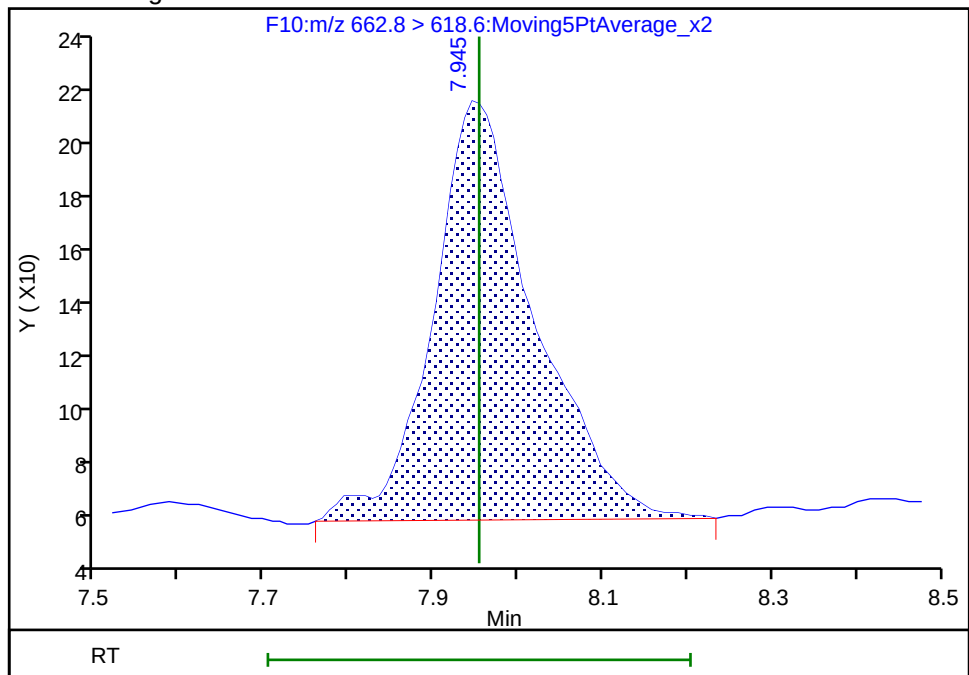
Not Detected
Expected RT: 7.95

Processing Integration Results



Manual Integration Results

RT: 7.95
Area: 1251
Amount: 0.057452
Amount Units: ng/ml



Reviewer: murrayjw, 10-Jan-2019 09:19:07
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

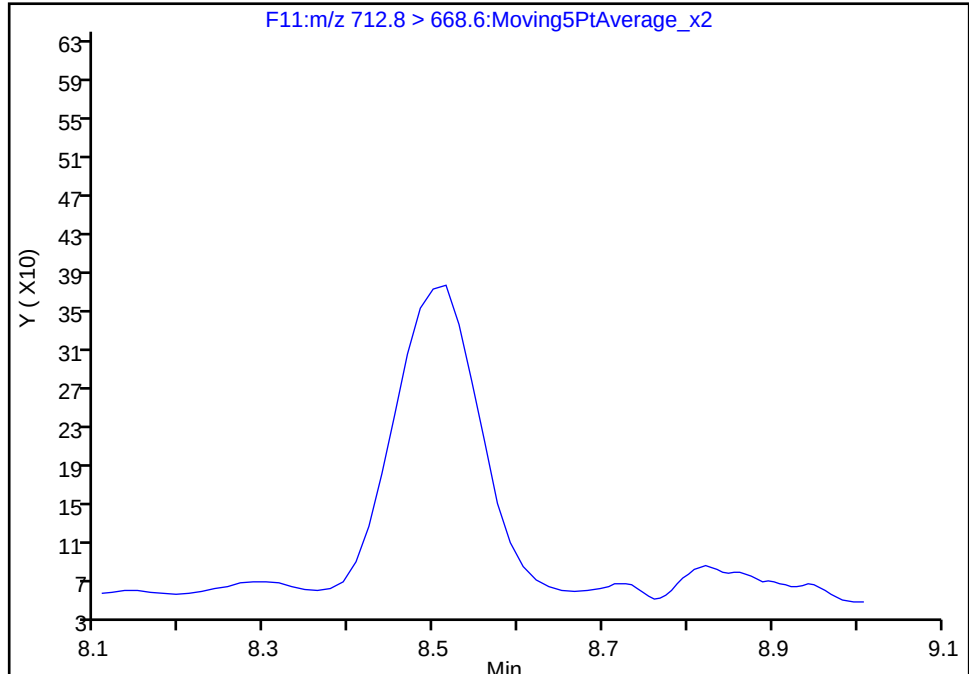
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F11:MRM

39 Perfluorotetradecanoic acid, CAS: 376-06-7

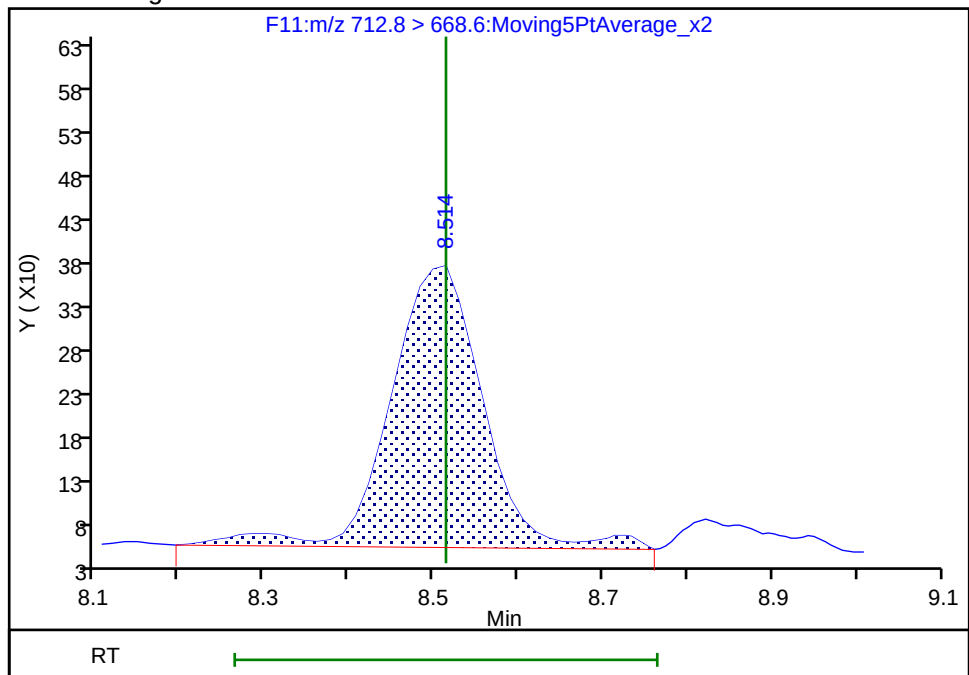
Signal: 1

Not Detected
Expected RT: 8.51

Processing Integration Results



Manual Integration Results



RT: 8.51
Area: 2477
Amount: 0.114071
Amount Units: ng/ml

Reviewer: murrayjw, 10-Jan-2019 09:19:29
Audit Action: Assigned Compound ID

Audit Reason: Incomplete Integration
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TestAmerica Burlington

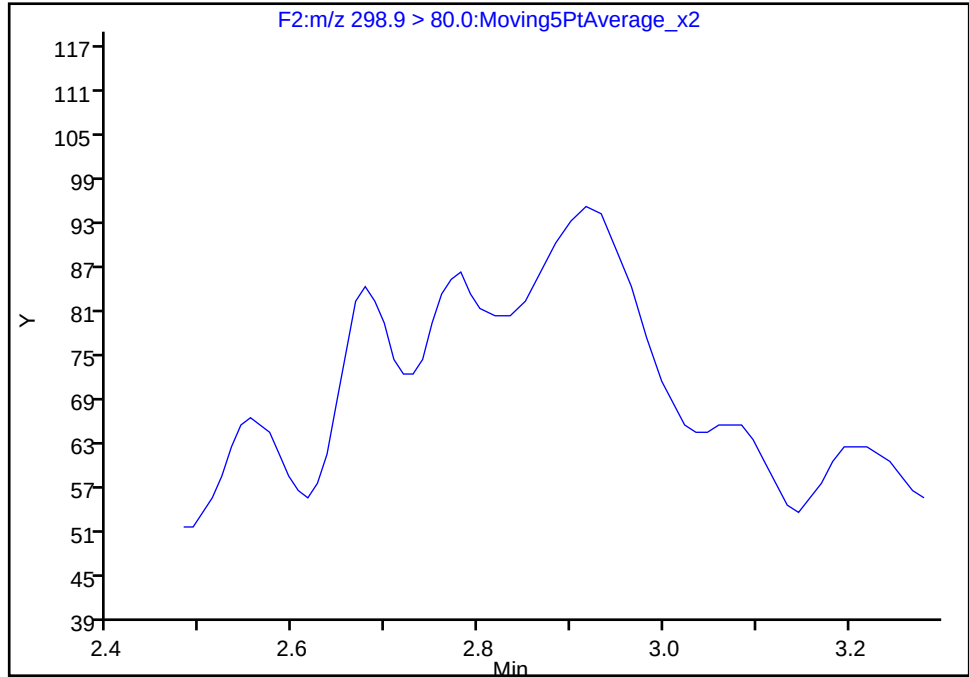
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

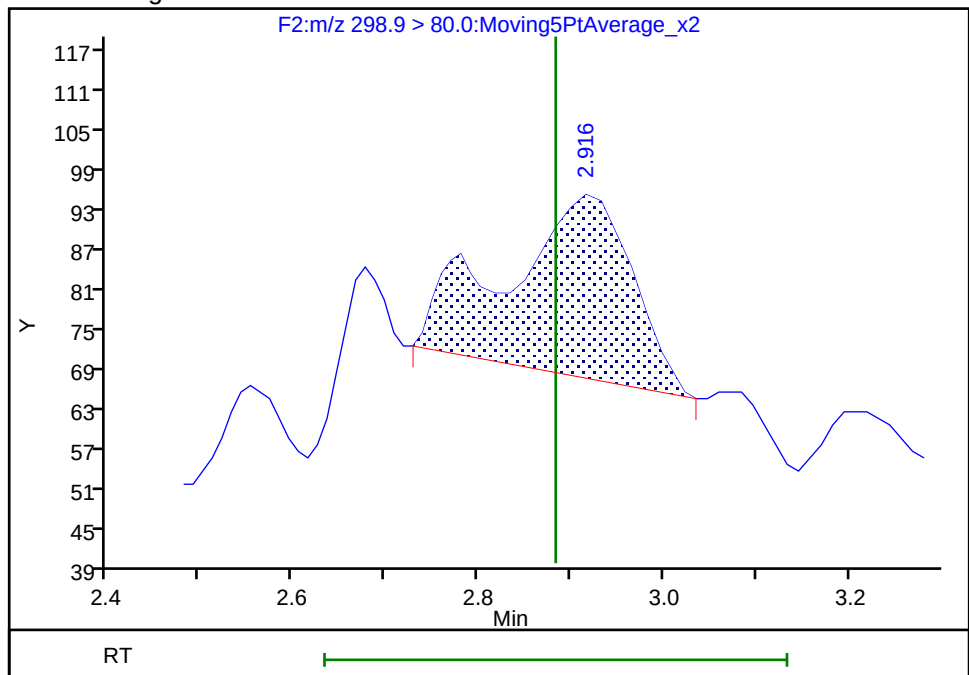
Not Detected
Expected RT: 2.88

Processing Integration Results



Manual Integration Results

RT: 2.92
Area: 259
Amount: 0.016760
Amount Units: ng/ml



Reviewer: murrayjw, 10-Jan-2019 09:17:14
Audit Action: Manually Integrated

Audit Reason: Missed Peak
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TestAmerica Burlington

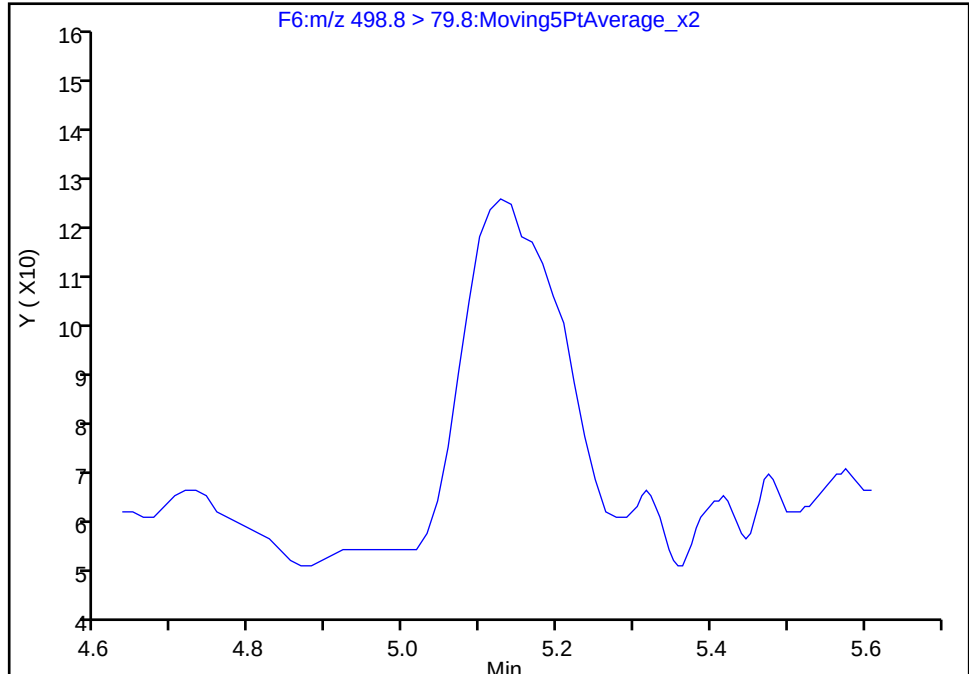
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F6:MRM

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

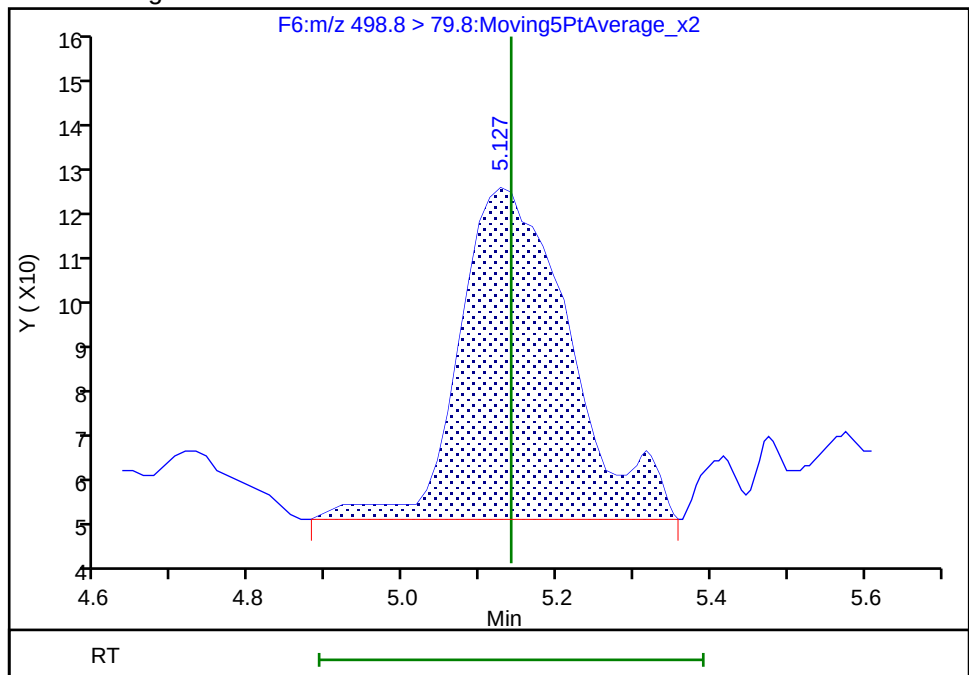
Not Detected
Expected RT: 5.14

Processing Integration Results



Manual Integration Results

RT: 5.13
Area: 678
Amount: 0.080514
Amount Units: ng/ml



Reviewer: murrayjw, 10-Jan-2019 09:17:56
Audit Action: Manually Integrated

Audit Reason: Missed Peak
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TestAmerica Burlington

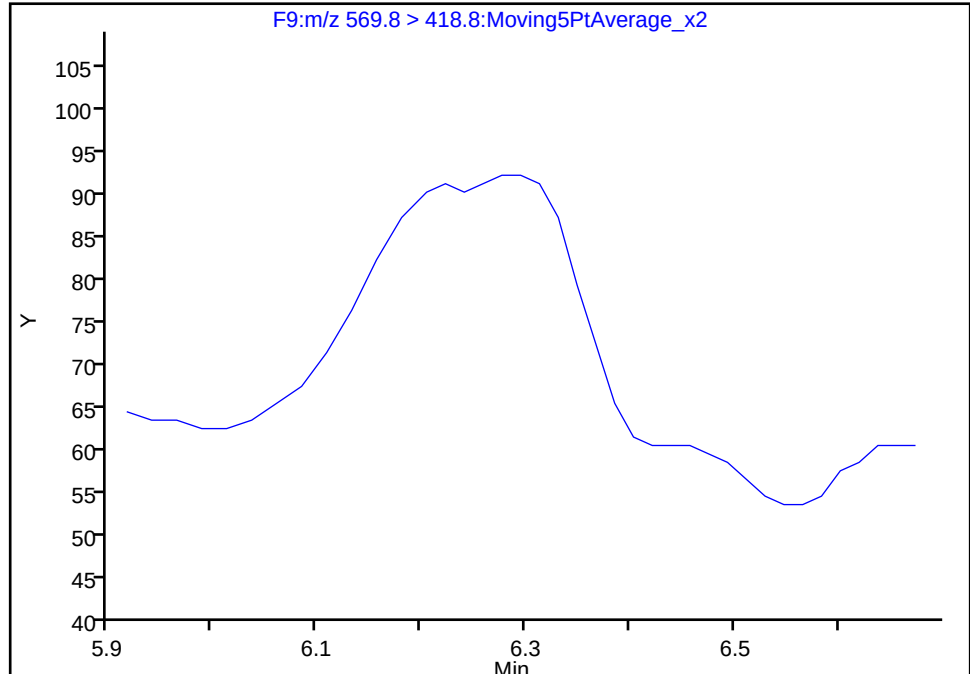
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F9:MRM

28 N-methylperfluorooctanesulfonamidoacetic aci, CAS: 2355-31-9

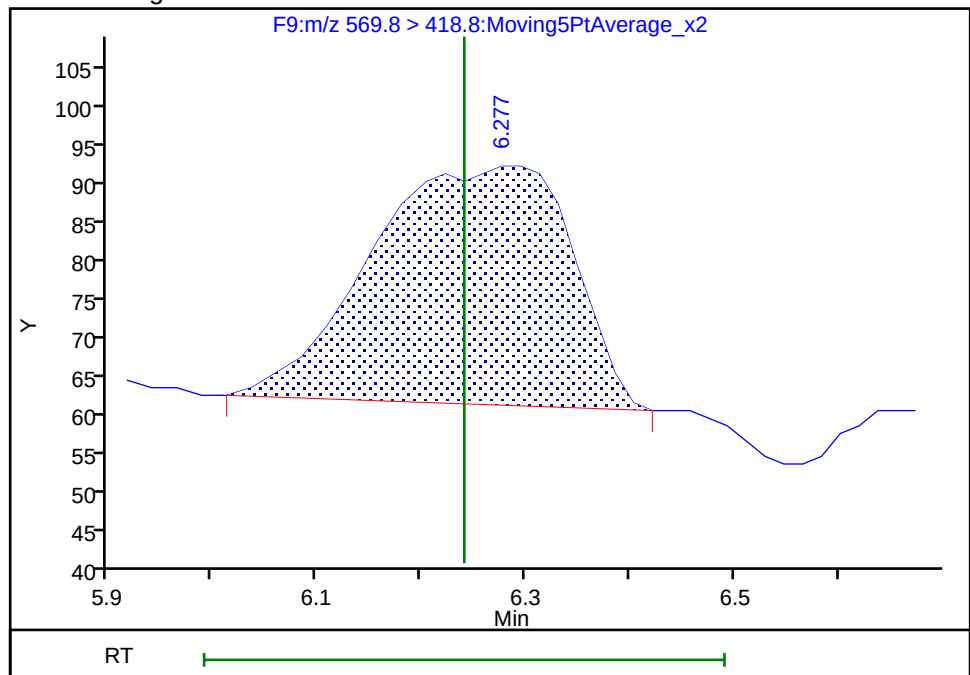
Signal: 1

Not Detected
Expected RT: 6.24

Processing Integration Results



Manual Integration Results



RT: 6.28
Area: 418
Amount: 0.087303
Amount Units: ng/ml

Reviewer: murrayjw, 10-Jan-2019 09:18:14
Audit Action: Manually Integrated

Audit Reason: Missed Peak
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TestAmerica Burlington

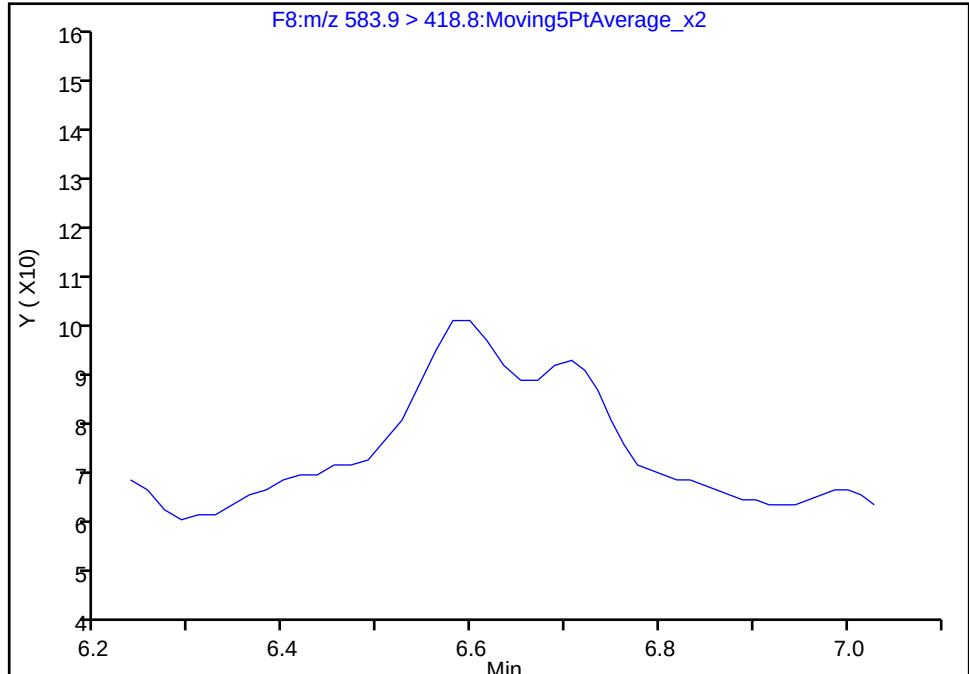
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F8:MRM

30 N-ethylperfluorooctanesulfonamidoacetic acid, CAS: 2991-50-6

Signal: 1

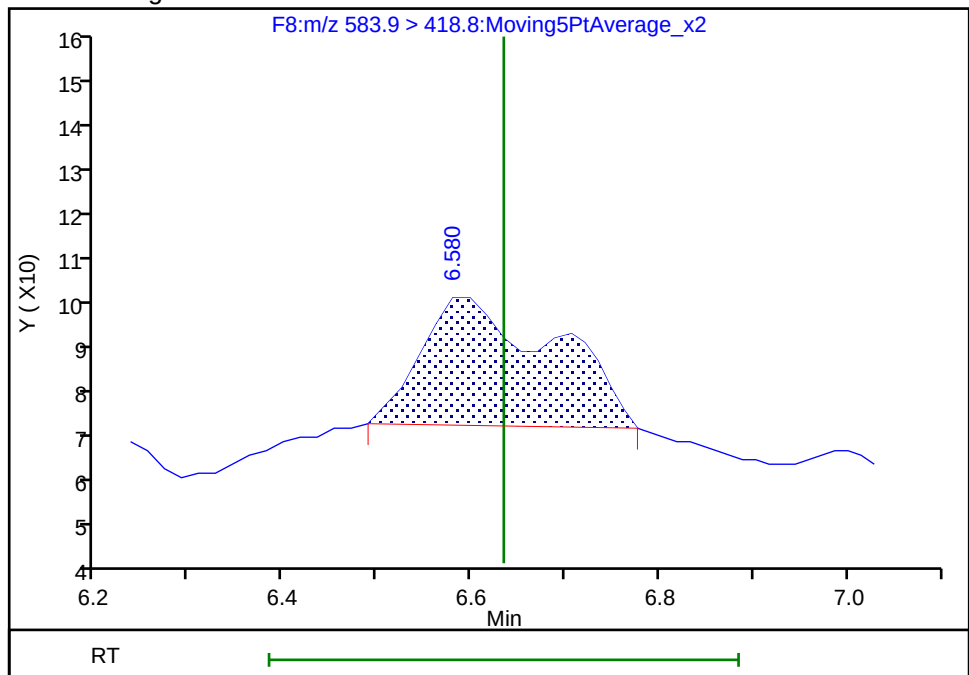
Not Detected
Expected RT: 6.63

Processing Integration Results



Manual Integration Results

RT: 6.58
Area: 279
Amount: 0.062248
Amount Units: ng/ml



Reviewer: murrayjw, 10-Jan-2019 09:18:25

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Burlington

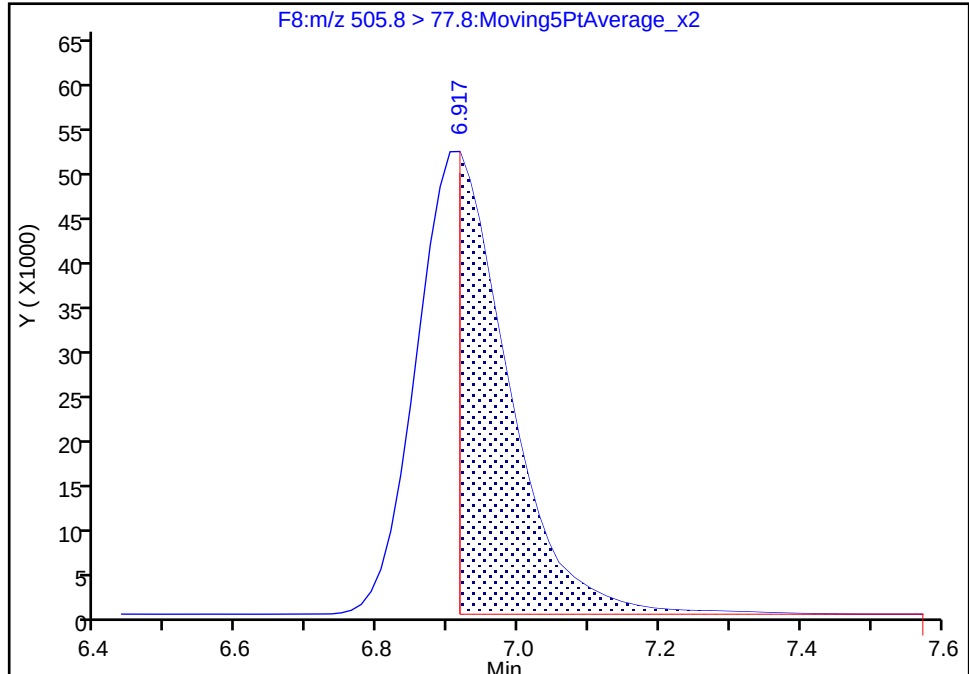
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d
Injection Date: 09-Jan-2019 18:32:32 Instrument ID: LC410
Lims ID: MB 200-138891/1-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 12
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F8:MRM

D 35 13C8 FOSA, CAS: STL01056

Signal: 1

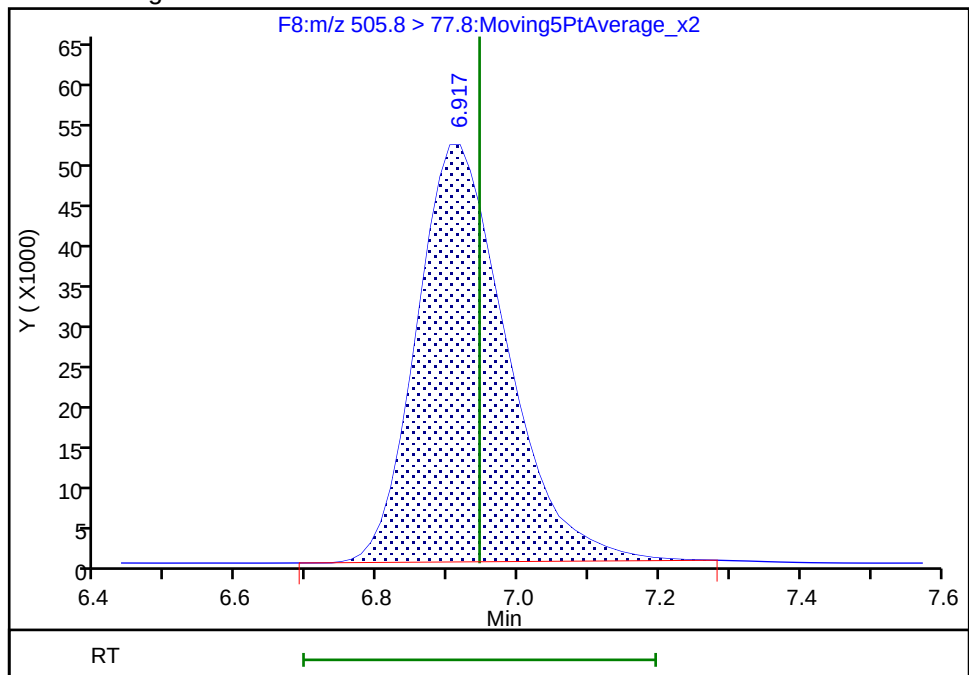
RT: 6.92
Area: 252716
Amount: 16.237102
Amount Units: ng/ml

Processing Integration Results



RT: 6.92
Area: 462037
Amount: 29.686058
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:18:48
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A12.d

Injection Date: 09-Jan-2019 18:32:32

Instrument ID: LC410

Lims ID: MB 200-138891/1-A

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 12

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

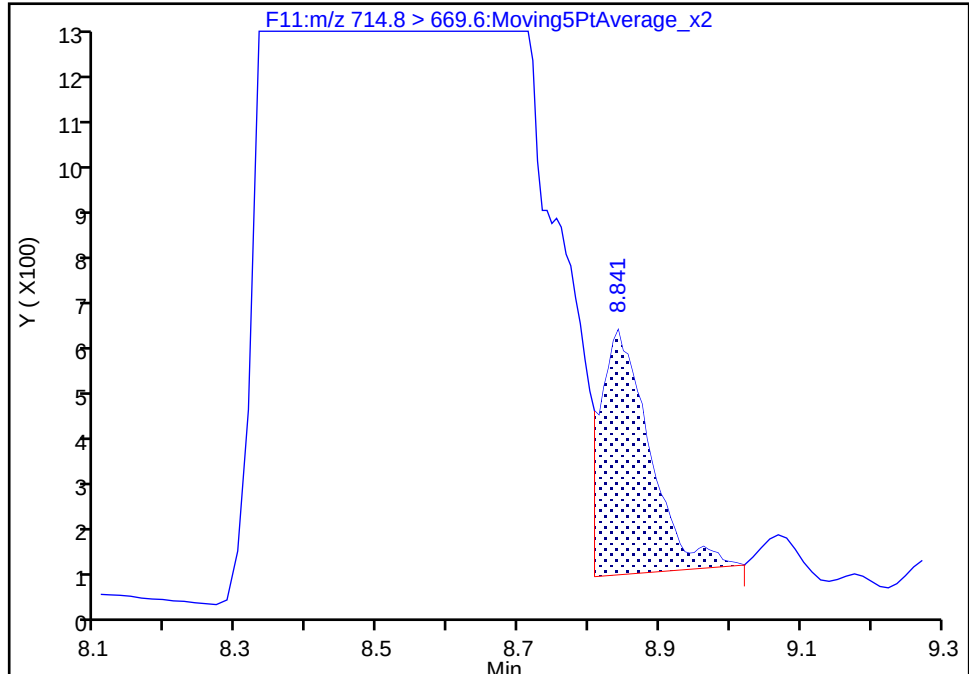
Detector F11:MRM

D 40 13C2 PFTeDA, CAS: STL02116

Signal: 1

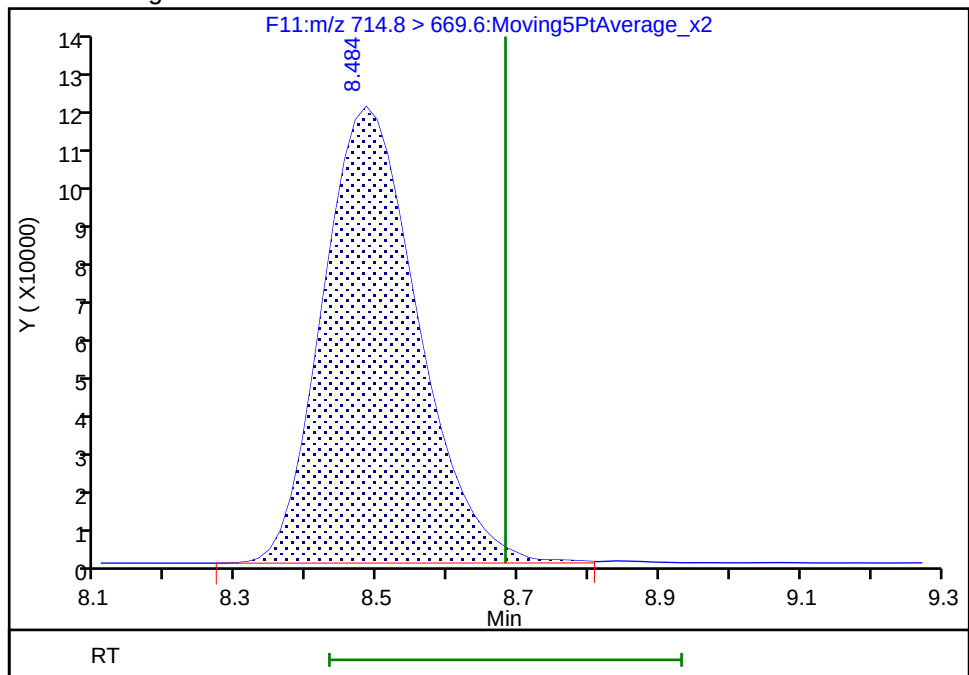
RT: 8.84
Area: 2500
Amount: 0.061767
Amount Units: ng/ml

Processing Integration Results



RT: 8.48
Area: 1113816
Amount: 27.518919
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:19:22

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: _____	Lab Sample ID: <u>LCS 200-138891/2-A</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A13.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: _____
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>250 (mL)</u>	Date Analyzed: <u>01/09/2019 18:48</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	38.5		2.0	0.41
2706-90-3	Perfluoropentanoic acid (PFPeA)	34.0		2.0	0.75
307-24-4	Perfluorohexanoic acid (PFHxA)	36.8		2.0	0.24
375-85-9	Perfluoroheptanoic acid (PFHpA)	40.7		2.0	0.32
335-67-1	Perfluorooctanoic acid (PFOA)	41.9		2.0	0.32
375-95-1	Perfluorononanoic acid (PFNA)	34.3		2.0	0.38
335-76-2	Perfluorodecanoic acid (PFDA)	35.7		2.0	0.38
2058-94-8	Perfluoroundecanoic acid (PFUnA)	41.6		2.0	0.25
307-55-1	Perfluorododecanoic acid (PFDoA)	40.8		2.0	0.35
72629-94-8	Perfluorotridecanoic acid (PFTriA)	43.6		2.0	0.24
376-06-7	Perfluorotetradecanoic acid (PFTeA)	36.7		2.0	0.45
375-73-5	Perfluorobutanesulfonic acid (PFBS)	30.9		2.0	0.44
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	28.8		2.0	0.26
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	34.4		2.0	0.82
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	35.4		2.0	0.76
335-77-3	Perfluorodecanesulfonic acid (PFDS)	30.5		2.0	0.53
754-91-6	Perfluorooctanesulfonamide (PFOSA)	34.1		2.0	0.56
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	30.1		20	0.45
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	29.9		20	0.70
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	35.2		20	1.0
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	38.0		20	0.56

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: _____	Lab Sample ID: <u>LCS 200-138891/2-A</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A13.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: _____
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>250 (mL)</u>	Date Analyzed: <u>01/09/2019 18:48</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	109		25-150
STL01892	13C4 PFHpA	79		25-150
STL00990	13C4 PFOA	78		25-150
STL00991	13C4 PFOS	109		25-150
STL00995	13C5 PFNA	75		25-150
STL00992	13C4 PFBA	87		25-150
STL00993	13C2 PFHxA	79		25-150
STL00996	13C2 PFDA	81		25-150
STL00997	13C2 PFUnA	76		25-150
STL00998	13C2 PFDoA	63		25-150
STL01056	13C8 FOSA	57		25-150
STL01893	13C5 PFPeA	98		25-150
STL02116	13C2 PFTeDA	53		25-150
STL02118	d3-NMeFOSAA	56		25-150
STL02117	d5-NEtFOSAA	65		25-150
STL02279	M2-6:2 FTS	150		25-150
STL02280	M2-8:2 FTS	102		25-150
STL02337	13C3 PFBS	114		25-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A13.d
 Lims ID: LCS 200-138891/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 09-Jan-2019 18:48:31 ALS Bottle#: 0 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 200-0034076-013 LCS
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:18 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: murrayjw

Date: 10-Jan-2019 09:21:10

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.382	2.382	0.0	1.000	184861	19.2		96.2	140	M
D 1 13C4 PFBA										M
216.9 > 171.5	2.382	2.402	-0.020	1.000	561471	43.4		86.8	202	M
4 Perfluoropentanoic acid										
262.9 > 218.8	2.791	2.791	0.0	1.000	389934	17.0		85.1	364	
D 3 13C5 PFPeA										
267.7 > 222.6	2.791	2.818	-0.027	1.000	402164	49.0		98.1	607	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.867	2.883	-0.016	1.006	208279	15.4		87.3	247	
D 6 13C3 PFBS										
302.0 > 79.8	2.851	2.900	-0.049	1.000	359740	53.1		114	357	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.189	3.201	-0.012	0.996	223797	18.4		92.1	1272	
D 7 13C2 PFHxA										
314.8 > 269.6	3.201	3.250	-0.049	1.000	585454	39.6		79.2	732	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.692	3.715	-0.023	1.000	426384	20.4		102	557	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.737	3.748	-0.011	1.000	189281	14.4		79.1	838	
D 9 13C4 PFHpA										
366.9 > 321.8	3.692	3.782	-0.090	1.000	1071018	39.6		79.1	5212	
D 11 18O2 PFHxS										
402.9 > 83.8	3.737	3.826	-0.089	1.000	401878	51.3		109	509	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.304	4.317	-0.013	1.003	62663	17.6		92.9	1684	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.342	4.355	-0.013	1.000	224977	20.9		105	669	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
* 15 13C2 PFOA										
414.9 > 369.8	4.342	4.355	-0.013		1101097	50.0			988	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.374	4.393	-0.019	0.855	124033	17.2		90.4	456	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.291	4.411	-0.120	1.000	171557	71.0		150	1854	
D 17 13C4 PFOA										
416.9 > 371.8	4.342	4.468	-0.126	1.000	807948	39.1		78.2	2237	
19 Perfluorononanoic acid										
462.8 > 418.8	5.099	5.113	-0.014	1.003	393116	17.2		85.8	521	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.113	5.140	-0.027	1.000	138116	17.7		95.4	556	M
D 20 13C5 PFNA										
467.8 > 422.8	5.085	5.222	-0.137	1.000	1041690	37.4		74.8	476	
D 22 13C4 PFOS										
502.8 > 79.8	5.113	5.236	-0.123	1.000	360859	52.1		109	926	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.843	5.863	-0.020	1.000	102405	19.0		99.1	415	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.863	5.882	-0.019	1.000	421326	17.9		89.4	1683	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.843	5.998	-0.155	1.000	320260	48.9		102	2865	
D 26 13C2 PFDA										
514.9 > 469.5	5.863	6.022	-0.159	1.000	1167656	40.6		81.3	1206	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.223	6.241	-0.018	1.000	66800	15.1		75.3	63.6	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.223	6.367	-0.144	1.000	204312	27.8		55.7	1378	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.616	6.634	-0.018	1.294	120440	15.3		79.1	1478	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.598	6.634	-0.036	1.000	58717	15.0		74.9	45.8	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.634	6.652	-0.018	1.003	483309	20.8		104	1569	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.598	6.734	-0.136	1.000	203699	32.7		65.4	1049	
D 32 13C2 PFUnA										
564.8 > 519.8	6.616	6.777	-0.161	1.000	1133651	37.9		75.8	2684	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.917	6.917	0.0	1.000	110115	17.0		85.2	2013	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.945	-0.028	1.000	381741	28.6		57.2	2603	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.317	7.339	-0.022	1.000	420037	20.4		102	1596	
D 37 13C2 PFDoA										
614.8 > 569.6	7.317	7.474	-0.157	1.000	1199659	31.7		63.4	2373	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.936	7.953	-0.017	0.936	395667	21.8		109	1614	
39 Perfluorotetradecanoic acid										
712.8 > 668.6	8.484	8.514	-0.030	1.000	332184	18.4	Target=1.00	91.8	2324	
712.8 > 168.8	8.484	8.514	-0.030	1.000	73235		4.54(0.90-1.10)		392	
712.8 > 218.8	8.484	8.514	-0.030	1.000	40285		8.25(0.90-1.10)		252	
D 40 13C2 PFTeDA										
714.8 > 669.6	8.484	8.681	-0.197	1.000	928458	26.7		53.5	2162	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A13.d

Injection Date: 09-Jan-2019 18:48:31

Instrument ID: LC410

Lims ID: LCS 200-138891/2-A

Client ID:

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

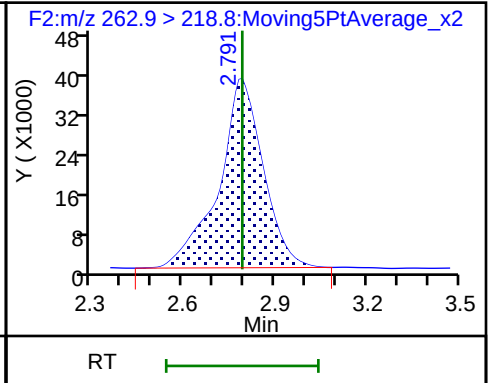
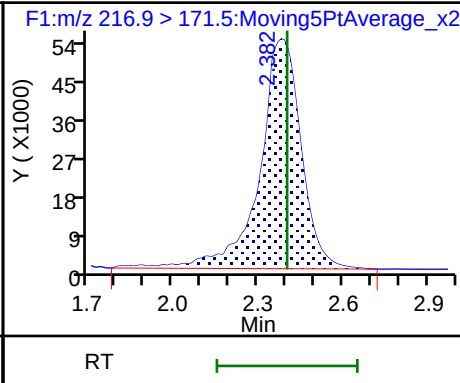
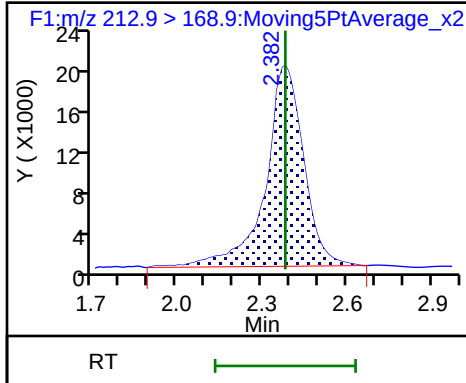
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA (M)

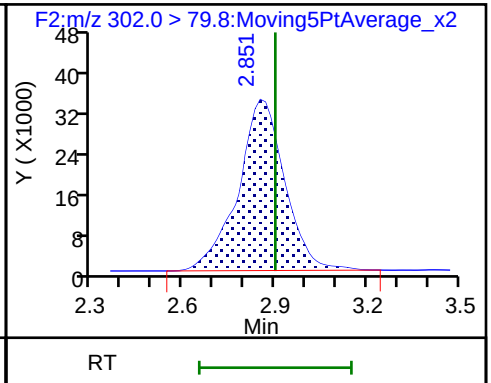
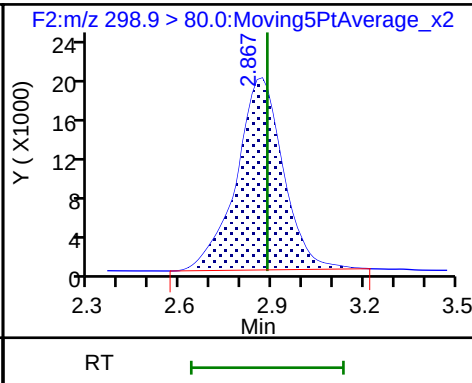
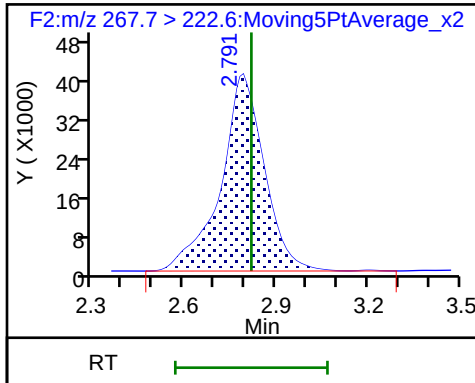
4 Perfluoropentanoic acid



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid

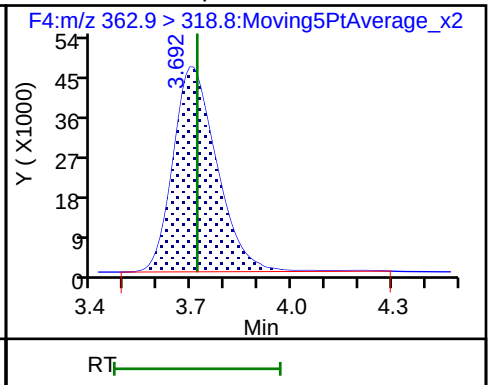
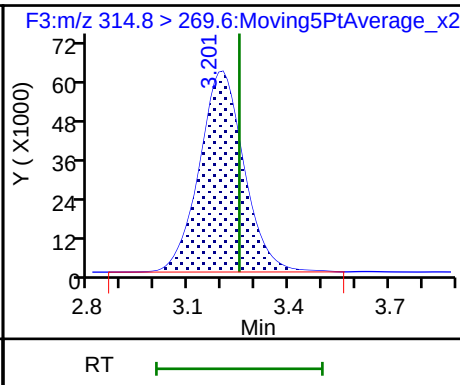
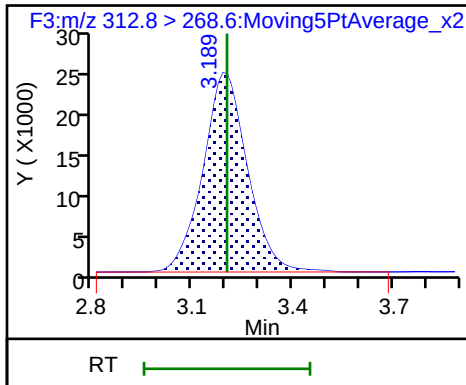
D 6 13C3 PFBS



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

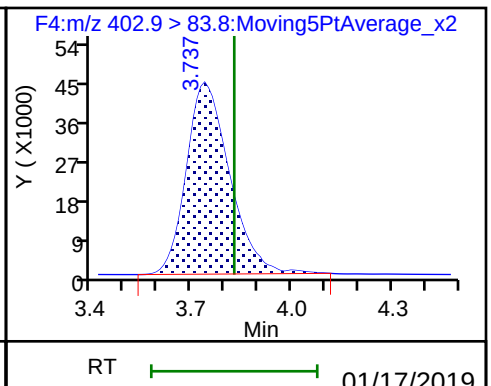
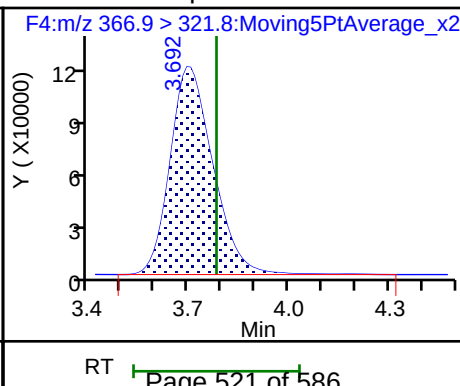
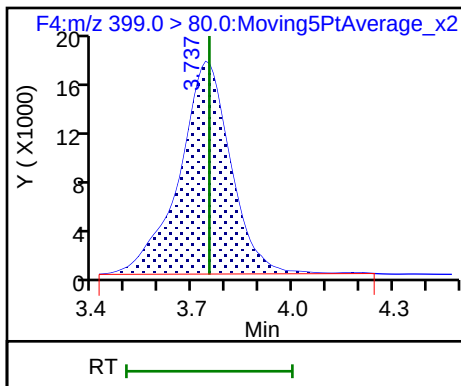
10 Perfluoroheptanoic acid



12 Perfluorohexanesulfonic acid

D 9 13C4 PFHpA

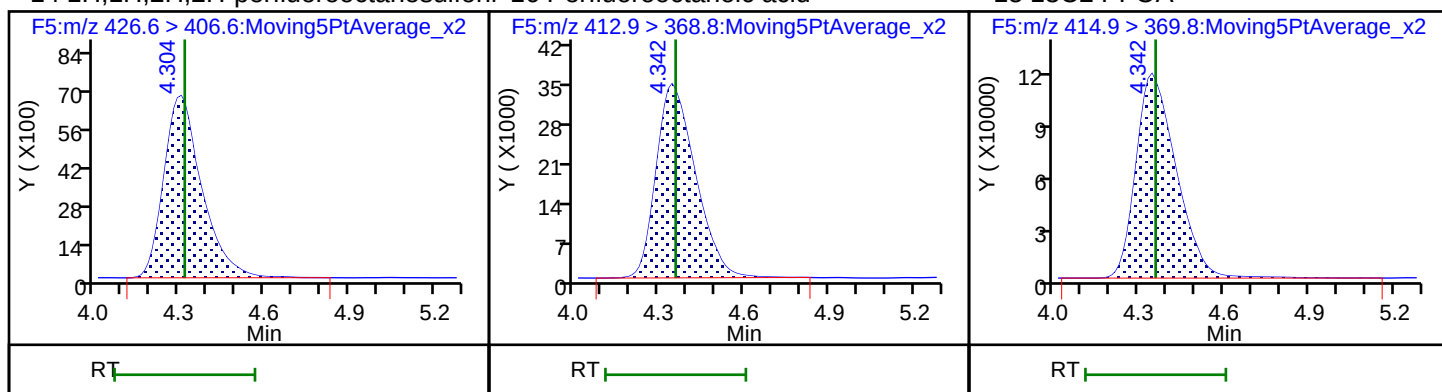
D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfoni

16 Perfluorooctanoic acid

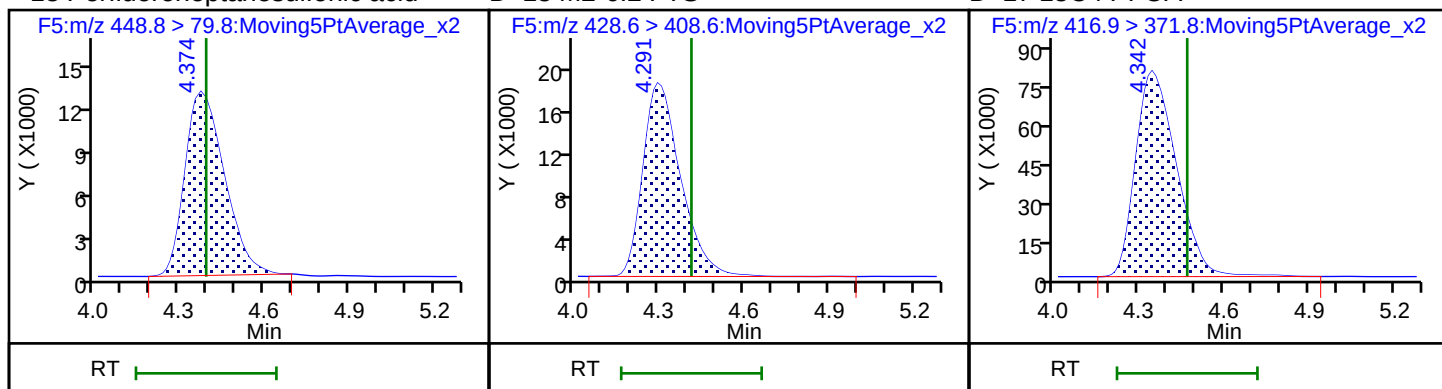
* 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid

D 13 M2-6:2 FTS

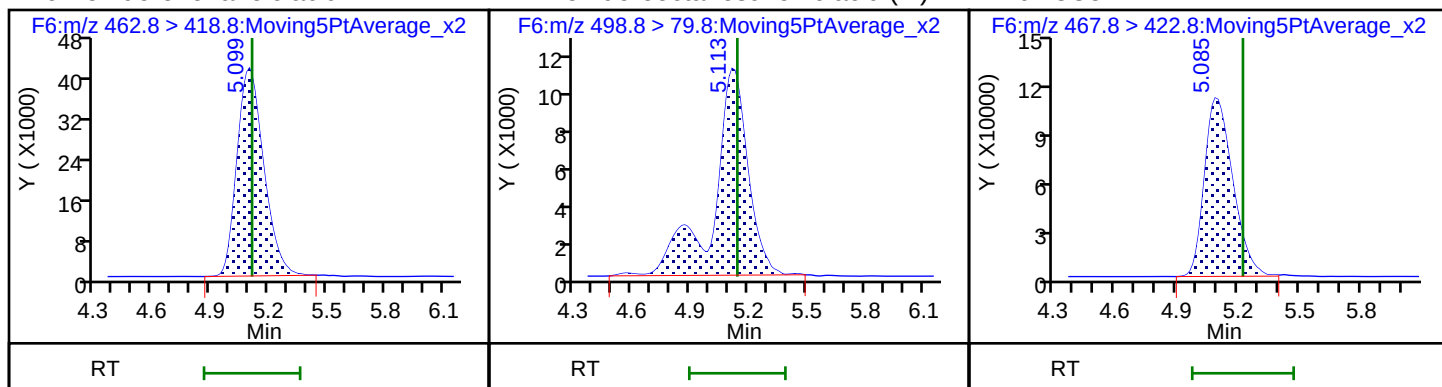
D 17 13C4 PFOA



19 Perfluorononanoic acid

21 Perfluorooctanesulfonic acid (M)

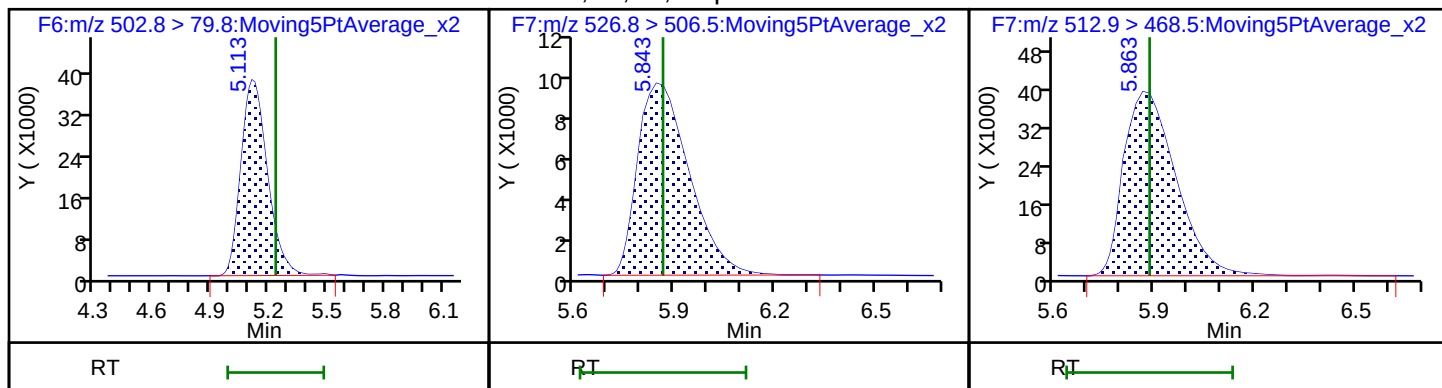
D 20 13C5 PFNA



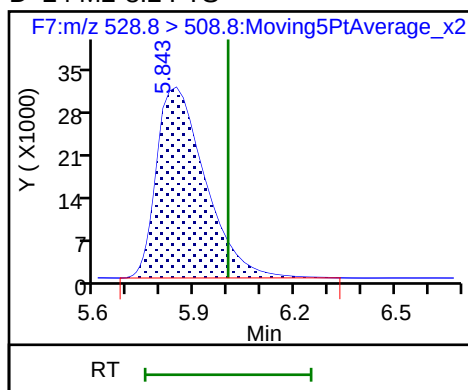
D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfoni

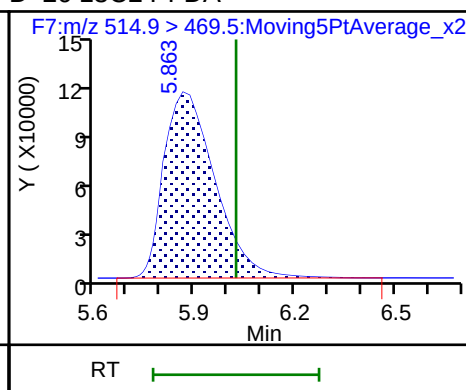
25 Perfluorodecanoic acid



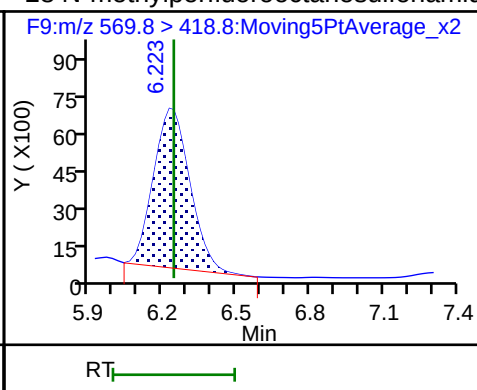
D 24 M2-8:2 FTS



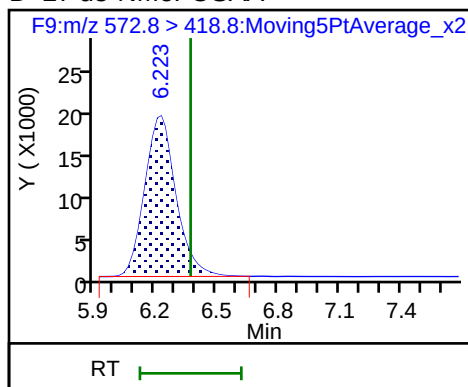
D 26 13C2 PFDA



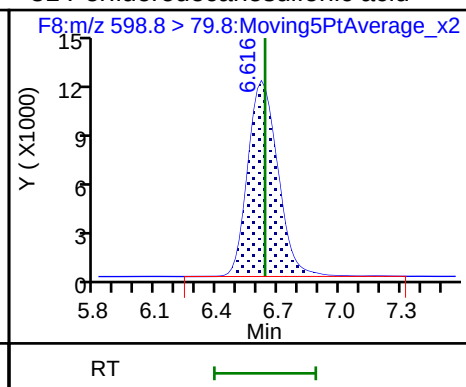
28 N-methylperfluorooctanesulfonamido



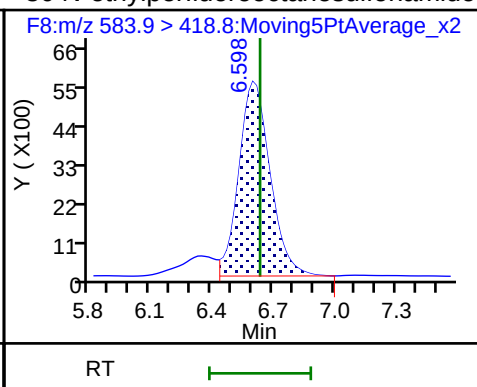
D 27 d3-NMeFOSAA



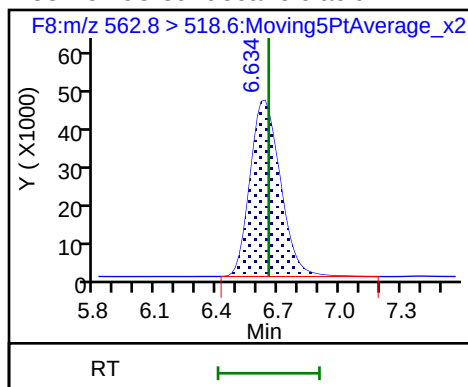
31 Perfluorodecanesulfonic acid



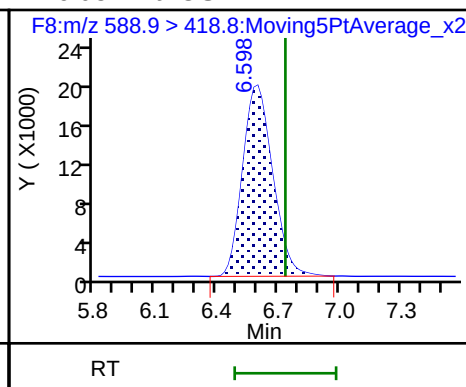
30 N-ethylperfluorooctanesulfonamidoa



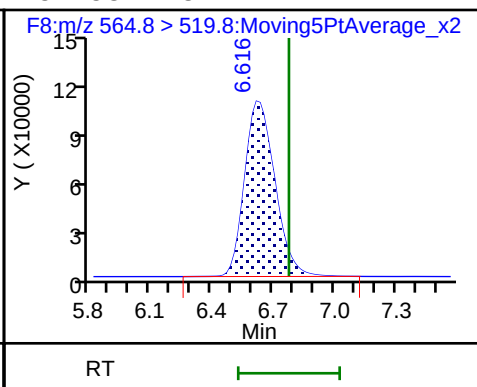
33 Perfluoroundecanoic acid



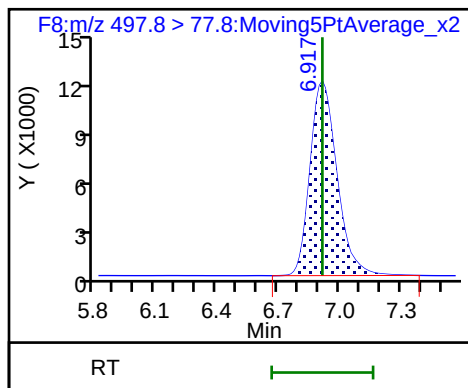
D 29 d5-NEtFOSAA



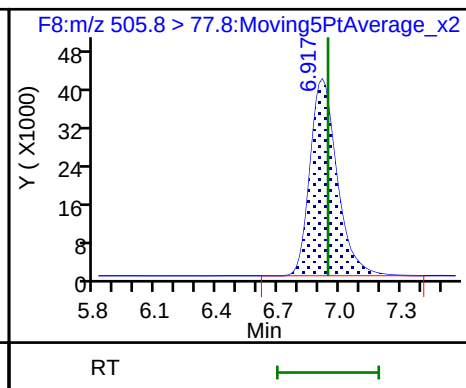
D 32 13C2 PFUnA



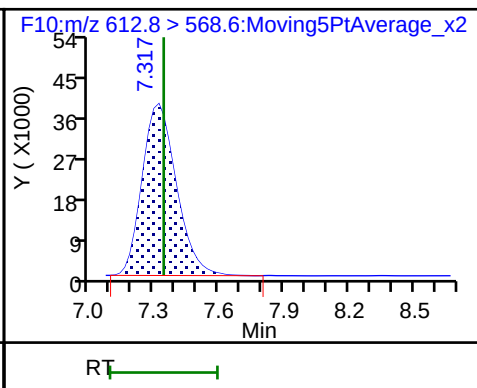
34 Perfluorooctanesulfonamide



D 35 13C8 FOSA



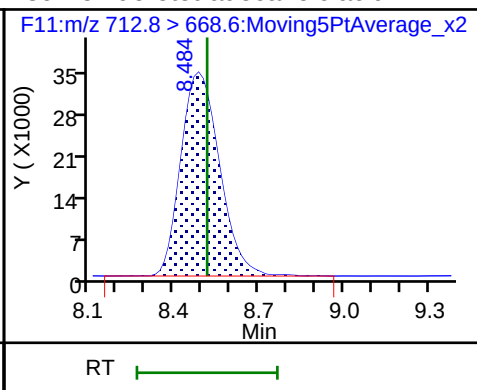
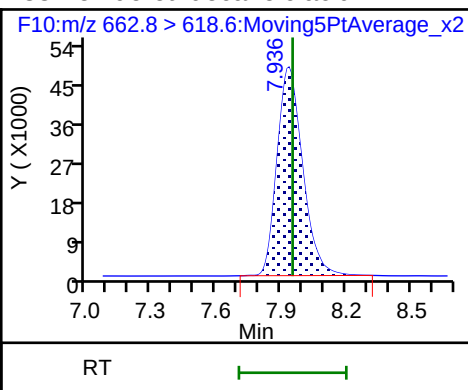
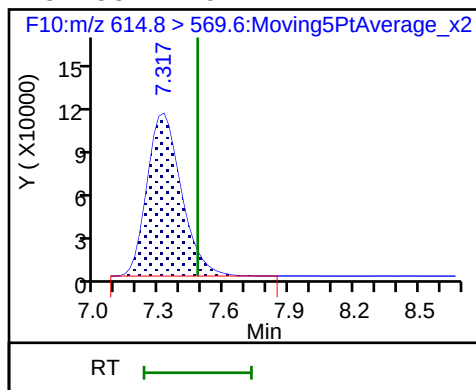
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

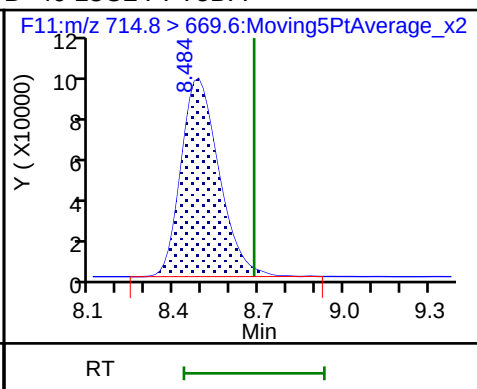
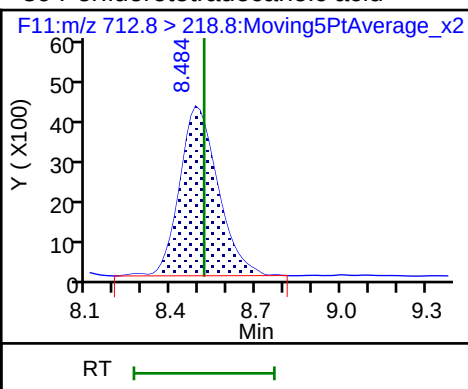
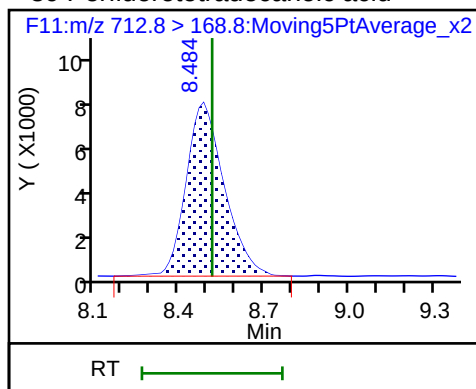
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

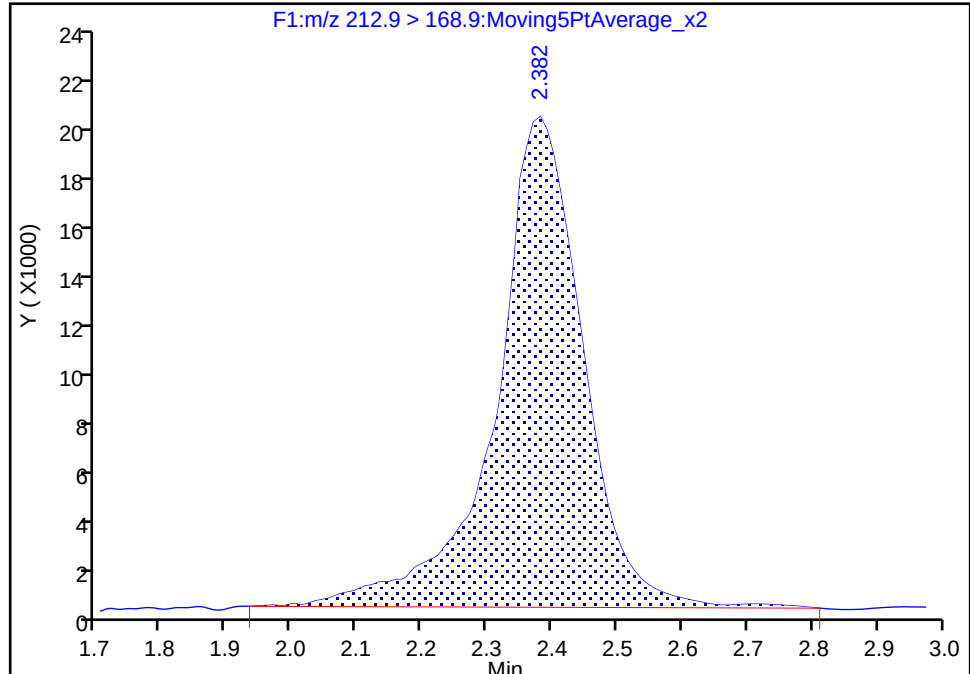
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Injection Date: 09-Jan-2019 18:48:31 Instrument ID: LC410
Lims ID: LCS 200-138891/2-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

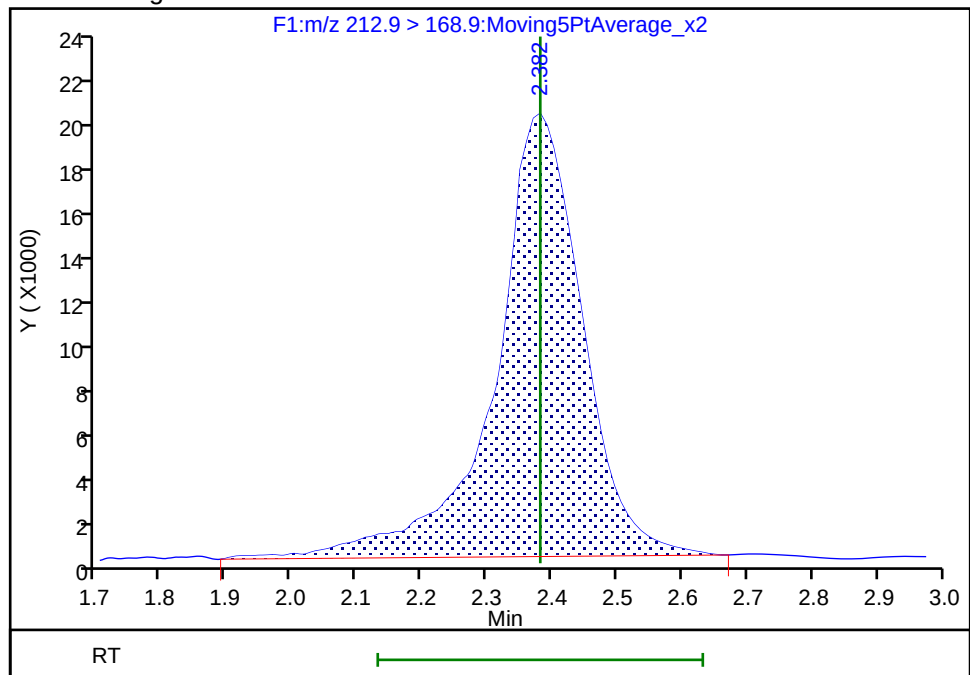
RT: 2.38
Area: 184919
Amount: 19.245479
Amount Units: ng/ml

Processing Integration Results



RT: 2.38
Area: 184861
Amount: 19.239383
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:20:21
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A13.d

Injection Date: 09-Jan-2019 18:48:31

Instrument ID: LC410

Lims ID: LCS 200-138891/2-A

Client ID:

Operator ID: BC

ALS Bottle#:

0

Worklist Smp#: 13

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

Column:

Detector F6:MRM

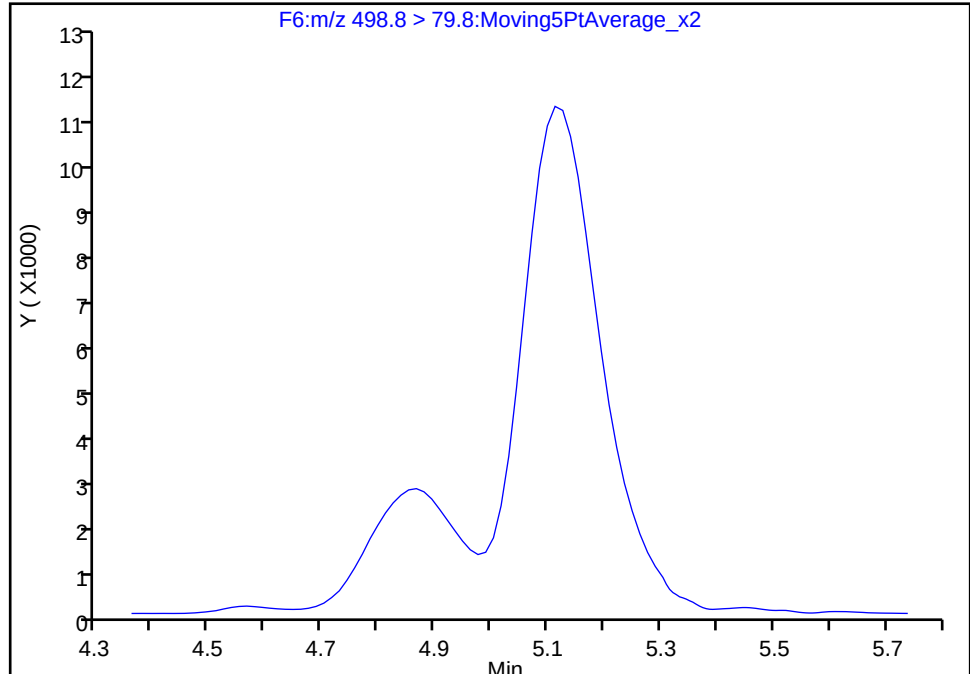
21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

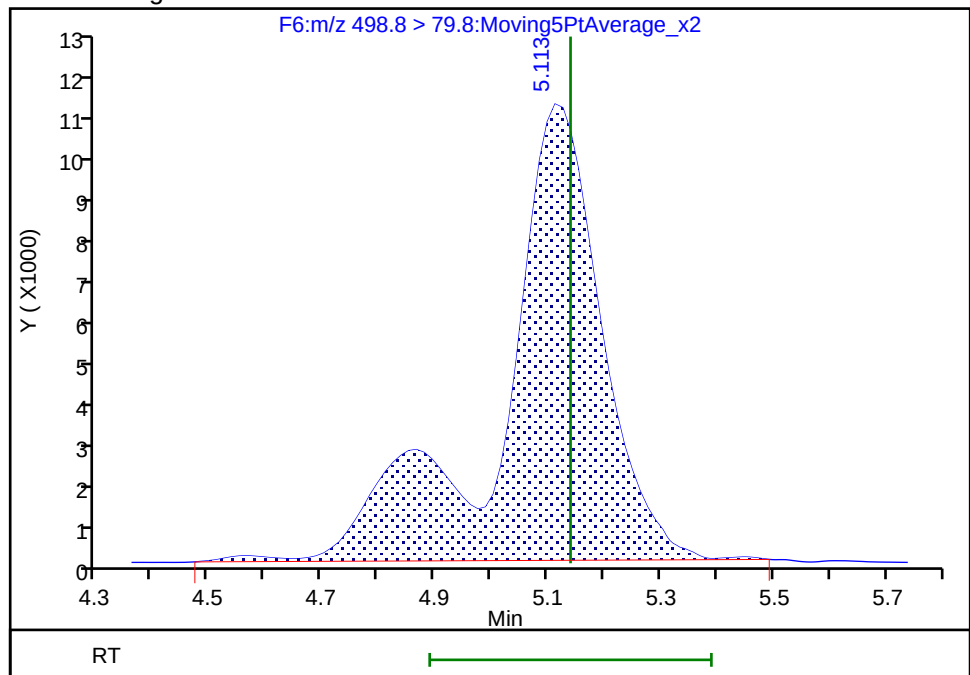
Not Detected

Expected RT: 5.14

Processing Integration Results



Manual Integration Results



RT: 5.11

Area: 138116

Amount: 17.698751

Amount Units: ng/ml

Reviewer: murrayjw, 10-Jan-2019 09:19:57

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Burlington

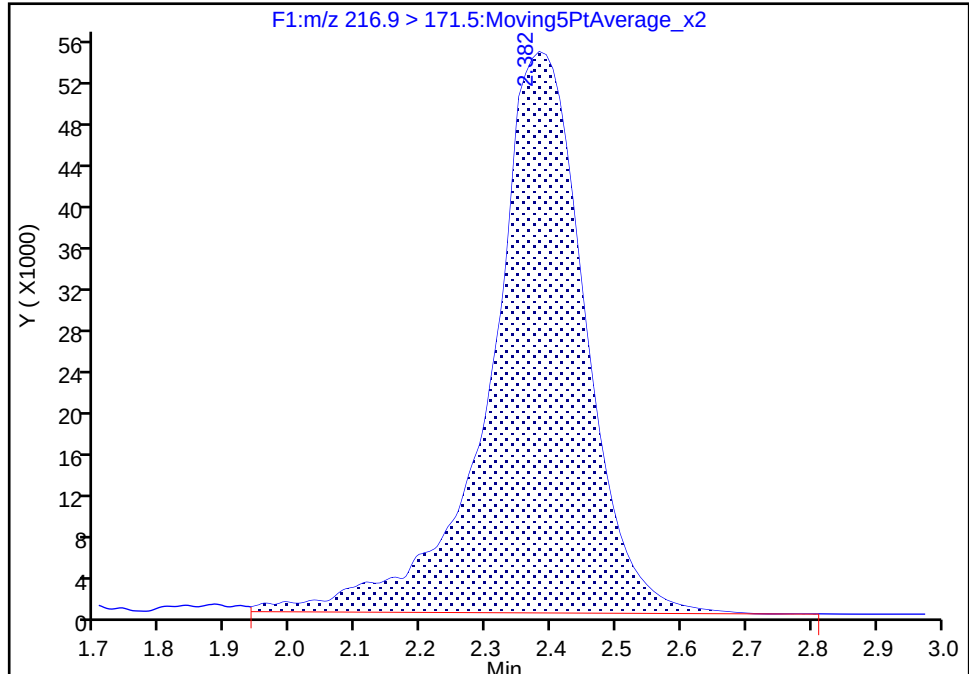
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Injection Date: 09-Jan-2019 18:48:31 Instrument ID: LC410
Lims ID: LCS 200-138891/2-A
Client ID:
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

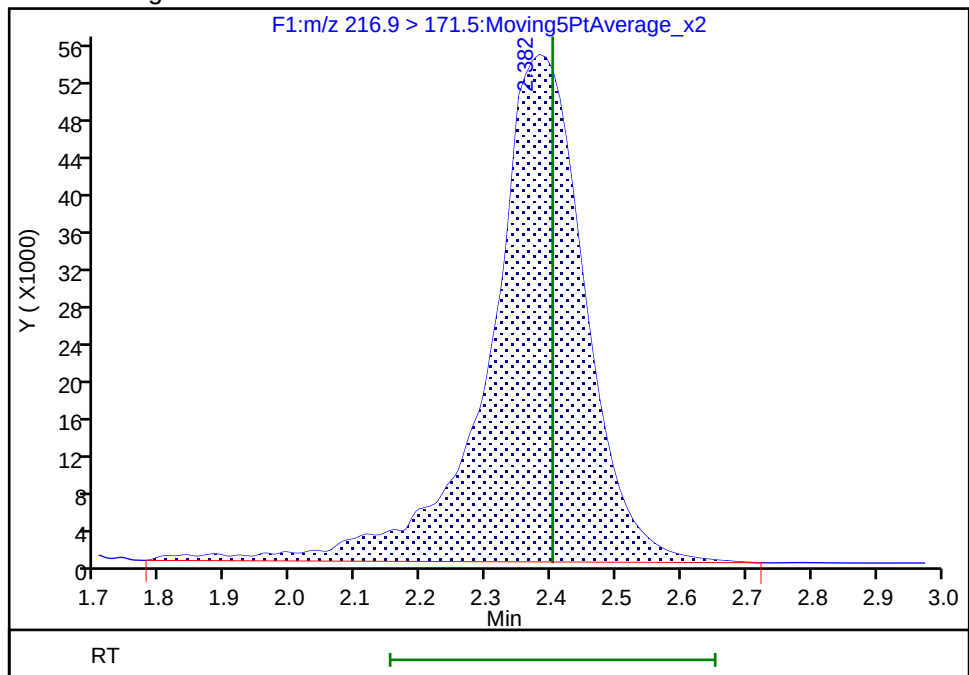
RT: 2.38
Area: 556979
Amount: 43.049253
Amount Units: ng/ml

Processing Integration Results



RT: 2.38
Area: 561471
Amount: 43.396443
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 09:20:11
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779078 MS</u>	Lab Sample ID: <u>480-147352-2 MS</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A32.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>259.7 (mL)</u>	Date Analyzed: <u>01/09/2019 23:50</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>5</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		260	260
2706-90-3	Perfluoropentanoic acid (PFPeA)	40.7		9.6	3.6
307-24-4	Perfluorohexanoic acid (PFHxA)	108		9.6	1.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	80.7		9.6	1.5
375-95-1	Perfluorononanoic acid (PFNA)	33.6		9.6	1.8
335-76-2	Perfluorodecanoic acid (PFDA)	35.8		9.6	1.8
2058-94-8	Perfluoroundecanoic acid (PFUnA)	39.6		9.6	1.2
307-55-1	Perfluorododecanoic acid (PFDoA)	37.0		9.6	1.7
72629-94-8	Perfluorotridecanoic acid (PFTriA)	38.2		9.6	1.2
376-06-7	Perfluorotetradecanoic acid (PFTeA)	30.2		9.6	2.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	42.3		9.6	2.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	79.9		9.6	1.3
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	31.2		9.6	3.9
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	331		9.6	3.7
335-77-3	Perfluorodecanesulfonic acid (PFDS)	22.2		9.6	2.6
754-91-6	Perfluorooctanesulfonamide (PFOSA)	44.1		9.6	2.7
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	26.6	J	96	2.2
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	55.0	J	96	3.4
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	36.1	J	96	2.7

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779078 MS</u>	Lab Sample ID: <u>480-147352-2 MS</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A32.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>259.7 (mL)</u>	Date Analyzed: <u>01/09/2019 23:50</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>5</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	103		50-150
STL01892	13C4 PFHpA	59		50-150
STL00991	13C4 PFOS	141		50-150
STL00995	13C5 PFNA	109		50-150
STL00992	13C4 PFBA	20	*	25-150
STL00993	13C2 PFHxA	40	*	50-150
STL00996	13C2 PFDA	124		50-150
STL00997	13C2 PFUnA	102		50-150
STL00998	13C2 PFDoA	73		50-150
STL01056	13C8 FOSA	94		25-150
STL01893	13C5 PFPeA	49		25-150
STL02116	13C2 PFTeDA	51		50-150
STL02118	d3-NMeFOSAA	81		50-150
STL02117	d5-NEtFOSAA	86		50-150
STL02280	M2-8:2 FTS	261	*	25-150
STL02337	13C3 PFBS	87		50-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A32.d
 Lims ID: 480-147352-A-2-A MS
 Client ID: 779078
 Sample Type: MS
 Inject. Date: 09-Jan-2019 23:50:28 ALS Bottle#: 0 Worklist Smp#: 32
 Injection Vol: 20.0 ul Dil. Factor: 5.0000
 Sample Info: 200-0034076-032 2MS
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 15:25:49 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0330

First Level Reviewer: murrayjw

Date: 10-Jan-2019 10:28:15

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.338	2.382	-0.044	1.002	35900	26.3		658	2.8	M
D 1 13C4 PFBA										M
216.9 > 171.5	2.334	2.402	-0.068	1.000	15986	2.05		20.5	19.6	M
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.719	2.791	-0.072	1.000	28941	4.23		106	1.2	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.719	2.818	-0.099	1.000	24032	4.85		48.5	20.6	
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.781	2.883	-0.102	1.000	27409	4.39		124	2.7	
D 6 13C3 PFBS										
302.0 > 79.8	2.781	2.900	-0.119	1.000	33256	8.14		87.5	53.2	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.103	3.201	-0.098	1.000	41691	11.2		281	14.5	
D 7 13C2 PFHxA										
314.8 > 269.6	3.103	3.250	-0.147	1.000	35742	4.01		40.1	142	
10 Perfluoroheptanoic acid										
362.9 > 318.8	3.592	3.715	-0.123	0.997	78387	8.39		210	46.9	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.625	3.748	-0.123	0.997	63214	8.30		228	6.1	
D 9 13C4 PFHpA										
366.9 > 321.8	3.603	3.782	-0.179	1.000	95606	5.85		58.5	358	
D 11 18O2 PFHxS										
402.9 > 83.8	3.637	3.826	-0.189	1.000	46020	9.74		103	195	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.162	4.317	-0.155	0.997	15915	3.84		101	263	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.201	4.355	-0.154	1.000	154120	16.2		405	48.6	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
* 15 13C2 PFOA										
414.9 > 369.8	4.201	4.355	-0.154		132938	10.0			791	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.214	4.393	-0.179	0.833	18204	3.24		85.0	65.3	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.175	4.411	-0.236	1.000	39950	27.4		288	287	
D 17 13C4 PFOA										
416.9 > 371.8	4.201	4.468	-0.267	0.000	96135	7.71		77.1	243	a
19 Perfluorononanoic acid										
462.8 > 418.8	5.044	5.113	-0.069	1.003	70021	3.49		87.2	144	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.058	5.140	-0.082	1.000	209254	34.4		926	331	M
D 20 13C5 PFNA										
467.8 > 422.8	5.031	5.222	-0.191	1.000	182635	10.9		109	572	
D 22 13C4 PFOS										
502.8 > 79.8	5.058	5.236	-0.178	1.000	56327	13.5		141	227	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.793	5.863	-0.070	1.002	31198	3.75		97.8	381	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.803	5.882	-0.079	1.000	80554	3.72		93.0	127	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.783	5.998	-0.215	1.000	98840	25.0		261	924	
D 26 13C2 PFDA										
514.9 > 469.5	5.803	6.022	-0.219	1.000	214429	12.4		124	1873	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.181	6.241	-0.060	1.000	10747	2.76		69.1	64.6	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.181	6.367	-0.186	1.000	35799	8.08		80.8	220	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.580	6.634	-0.054	1.301	14220	2.31		59.8	230	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.544	6.634	-0.090	1.000	17720	5.71		143	21.4	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.580	6.652	-0.072	1.000	77585	4.11		103	412	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.544	6.734	-0.190	1.000	32214	8.57		85.7	483	
D 32 13C2 PFUnA										
564.8 > 519.8	6.580	6.777	-0.197	1.000	183912	10.2		102	1541	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.917	6.917	0.0	1.000	29348	4.58		115	215	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.945	-0.028	1.000	75675	9.39		93.9	781	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.294	7.339	-0.045	1.003	55128	3.85		96.2	235	
D 37 13C2 PFDaA										
614.8 > 569.6	7.272	7.474	-0.202	1.000	166878	7.31		73.1	932	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.903	7.953	-0.050	0.935	41278	3.96		99.1	272	
39 Perfluorotetradecanoic acid										
712.8 > 668.6	8.453	8.514	-0.061	1.000	32602	3.14	Target=1.00	78.5	267	
712.8 > 168.8	8.453	8.514	-0.061	1.000	7179		4.54(0.90-1.10)		70.8	
712.8 > 218.8	8.453	8.514	-0.061	1.000	4067		8.02(0.90-1.10)		31.9	
D 40 13C2 PFTeDA										
714.8 > 669.6	8.453	8.681	-0.228	1.000	106520	5.08		50.8	701	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A32.d

Injection Date: 09-Jan-2019 23:50:28

Instrument ID: LC410

Lims ID: 480-147352-A-2-A MS

Client ID: 779078

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 32

Injection Vol: 20.0 ul

Dil. Factor: 5.0000

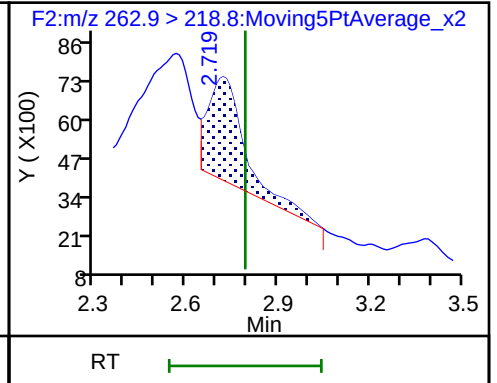
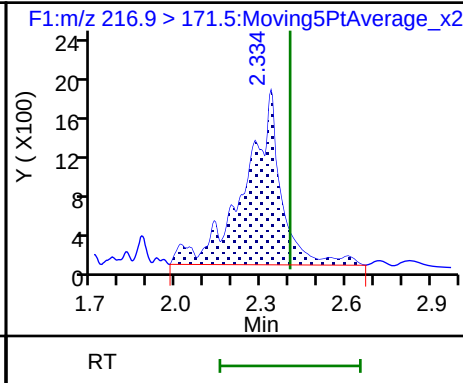
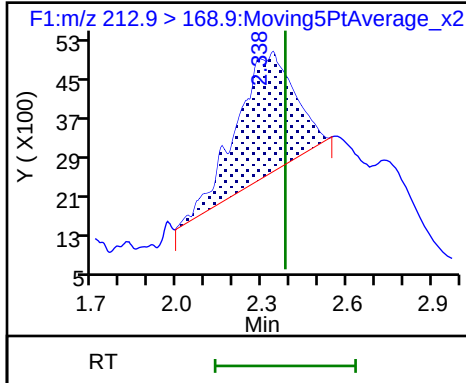
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA (M)

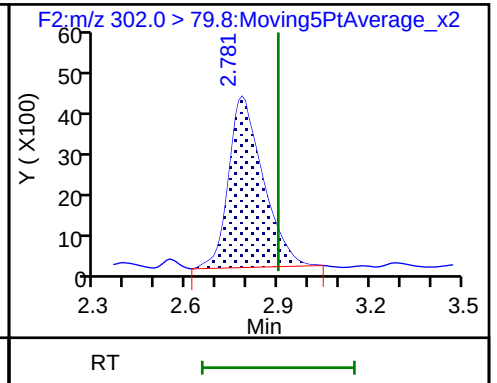
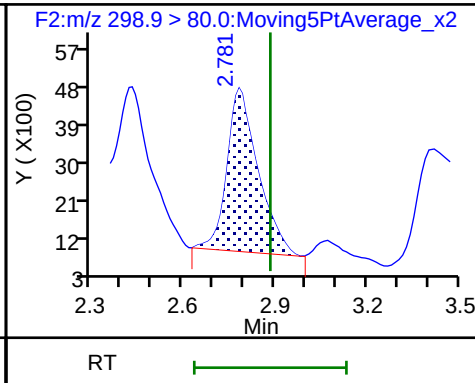
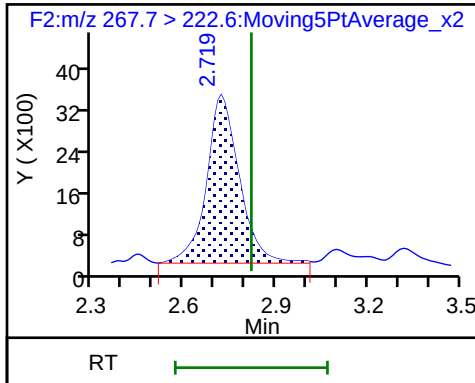
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid

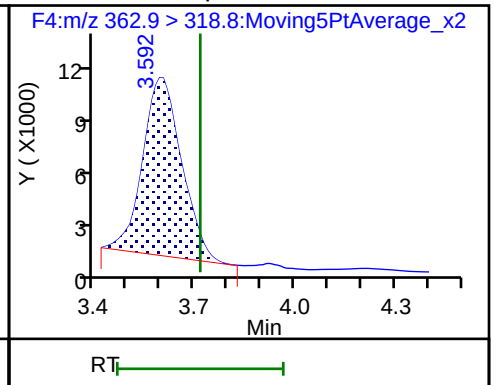
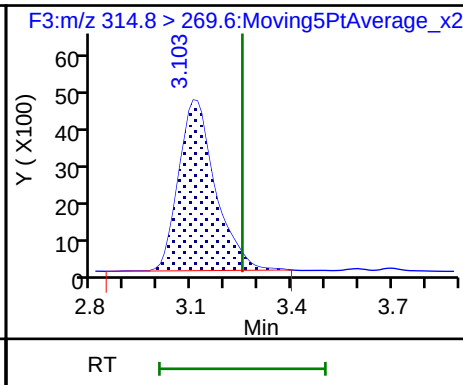
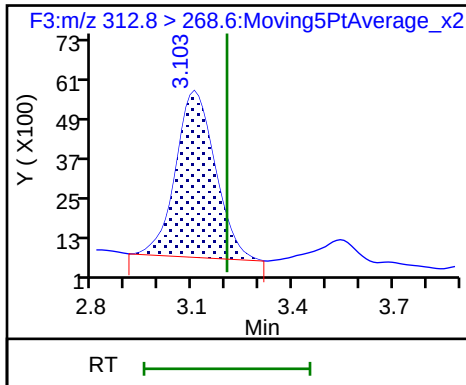
D 6 13C3 PFBS



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

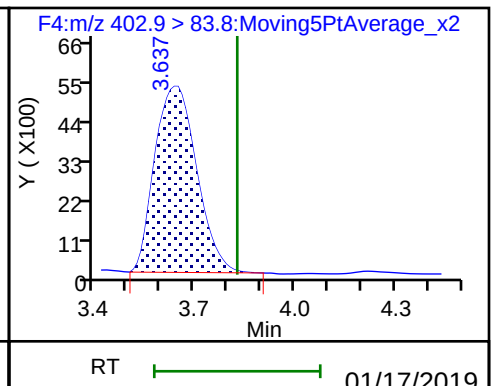
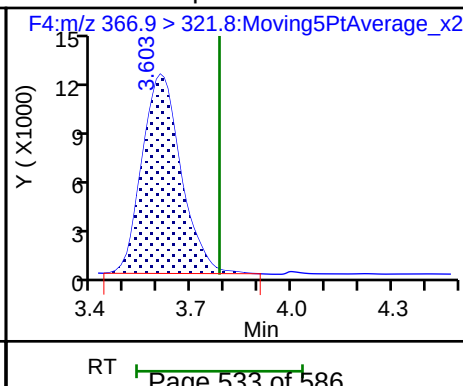
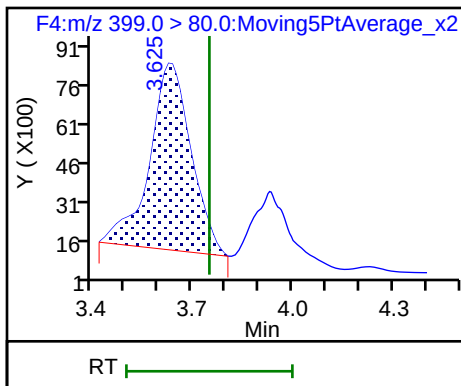
10 Perfluoroheptanoic acid



12 Perfluorohexanesulfonic acid

D 9 13C4 PFHpA

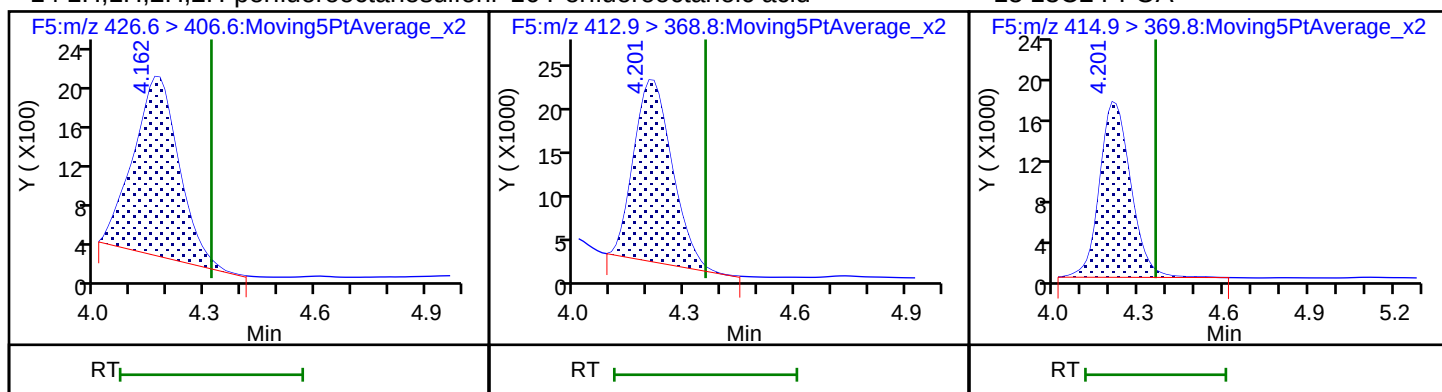
D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfoni

16 Perfluorooctanoic acid

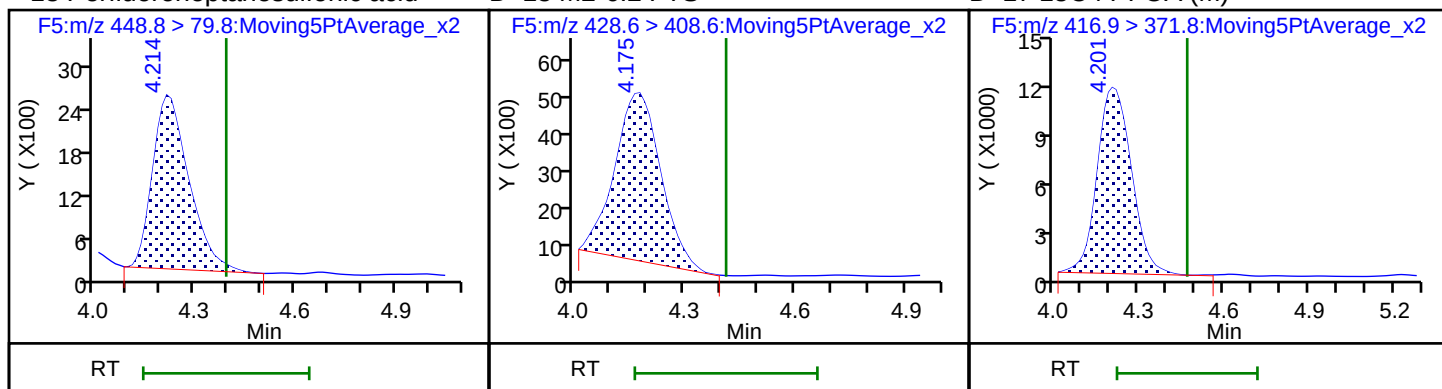
* 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid

D 13 M2-6:2 FTS

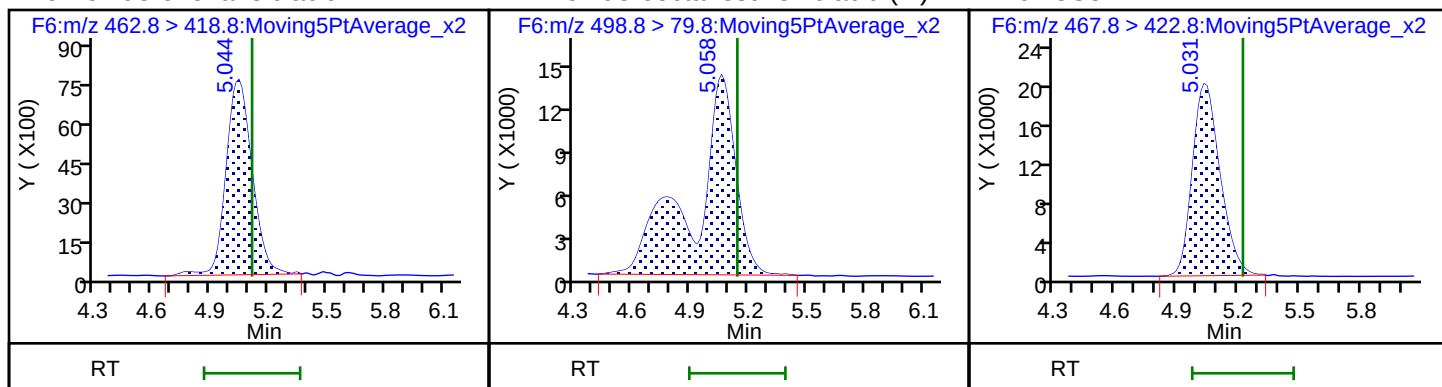
D 17 13C4 PFOA (M)



19 Perfluorononanoic acid

21 Perfluorooctanesulfonic acid (M)

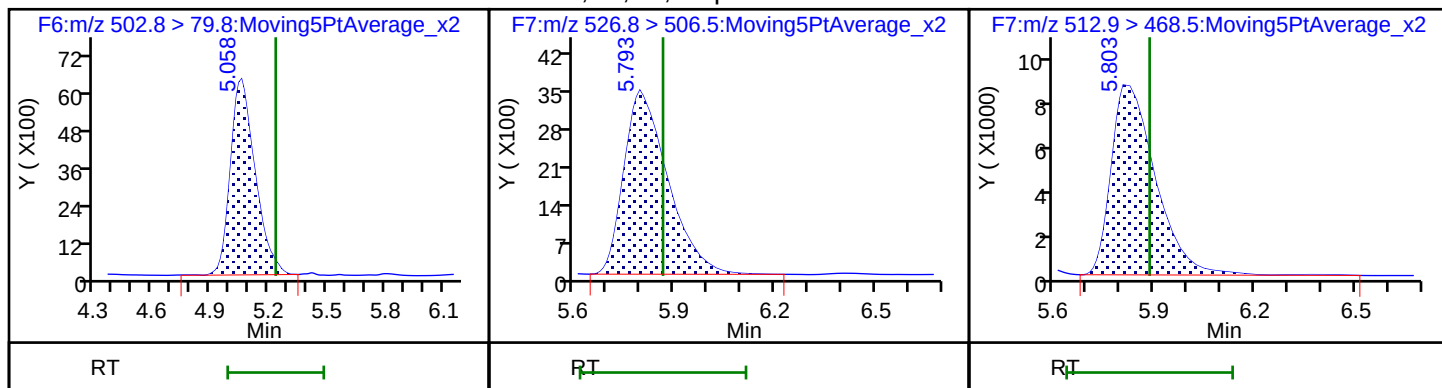
D 20 13C5 PFNA



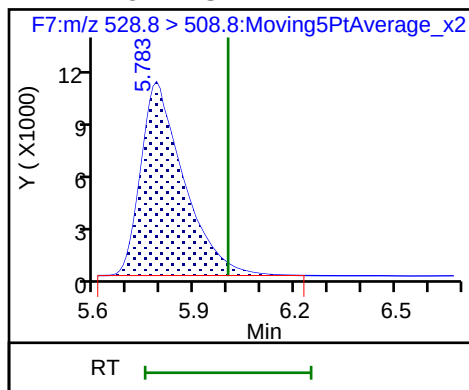
D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfoni

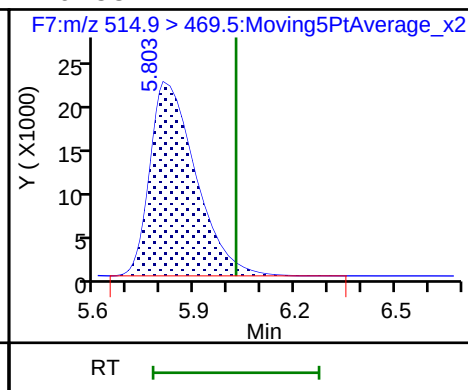
25 Perfluorodecanoic acid



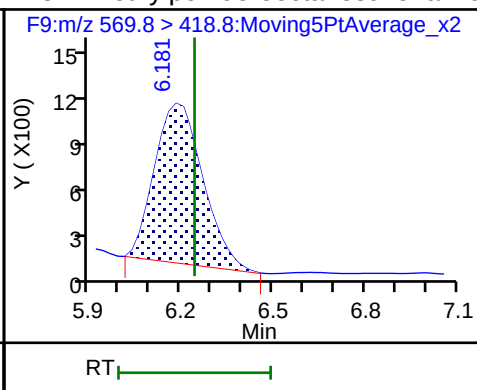
D 24 M2-8:2 FTS



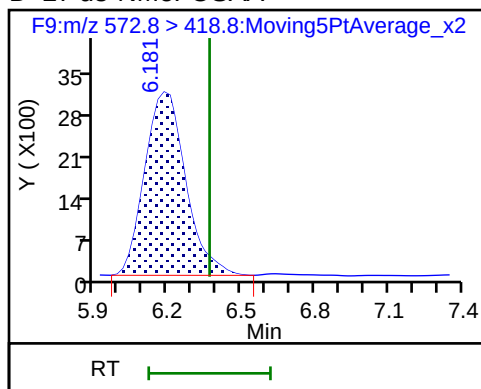
D 26 13C2 PFDA



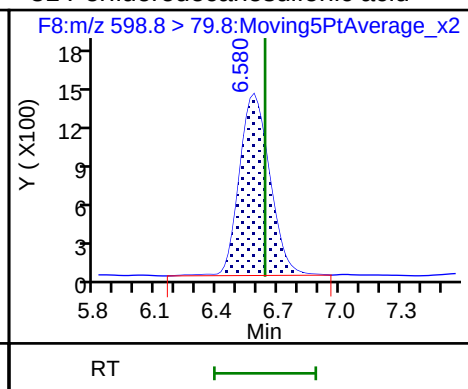
28 N-methylperfluorooctanesulfonamido



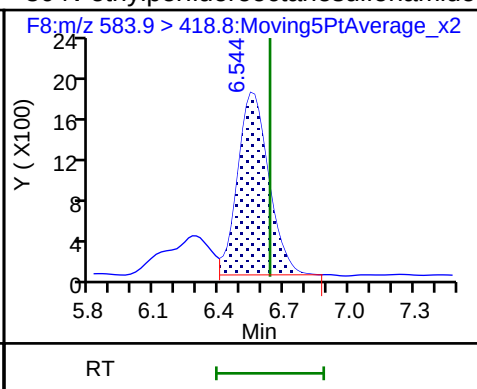
D 27 d3-NMeFOSAA



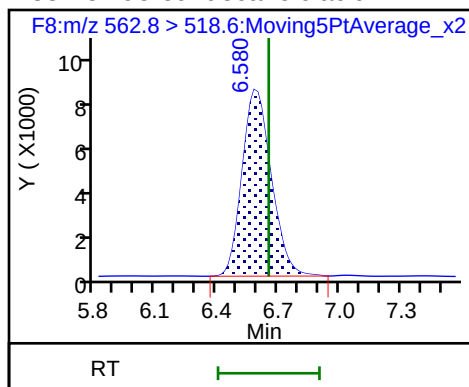
31 Perfluorodecanesulfonic acid



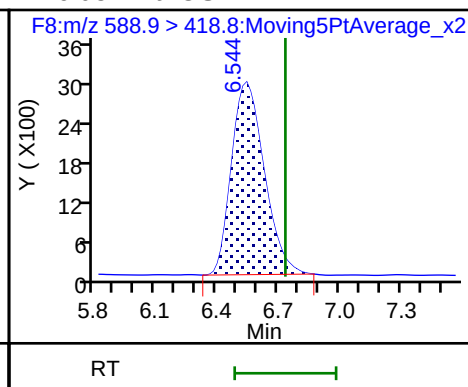
30 N-ethylperfluorooctanesulfonamidoa



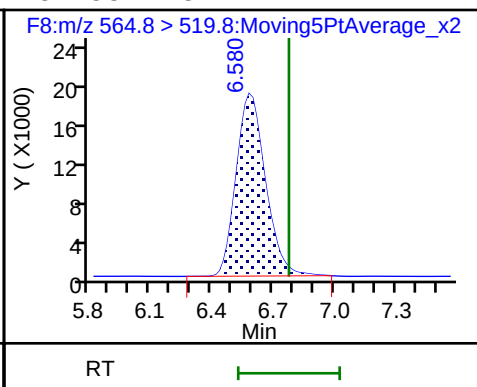
33 Perfluoroundecanoic acid



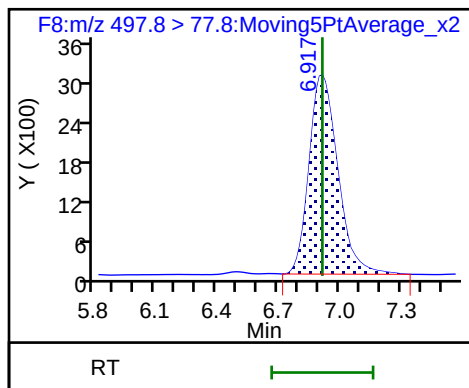
D 29 d5-NEtFOSAA



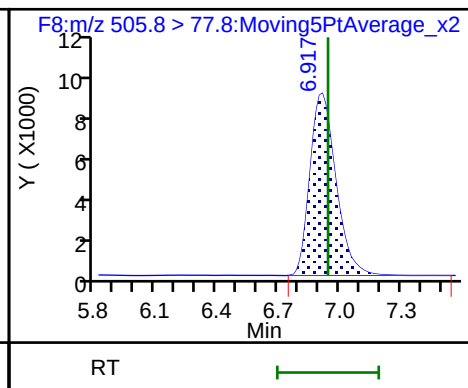
D 32 13C2 PFUnA



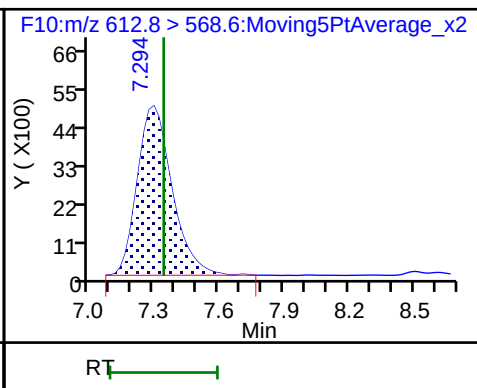
34 Perfluorooctanesulfonamide



D 35 13C8 FOSA



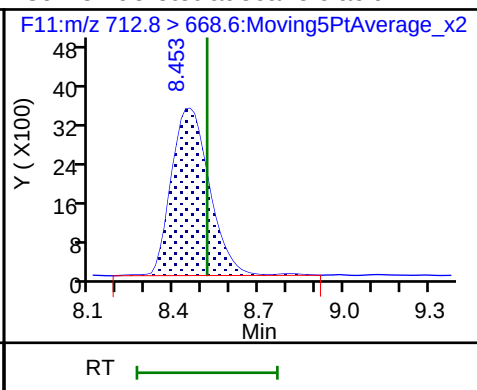
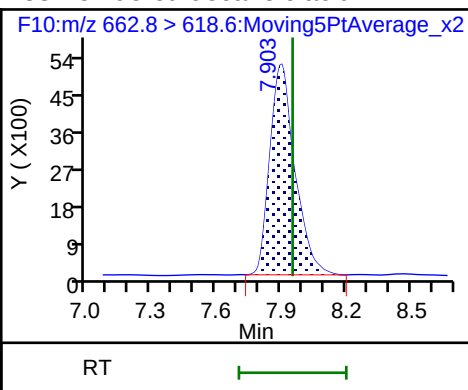
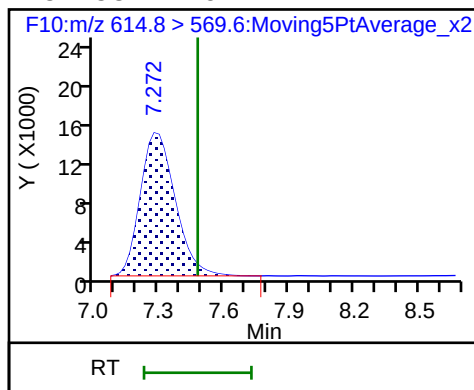
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

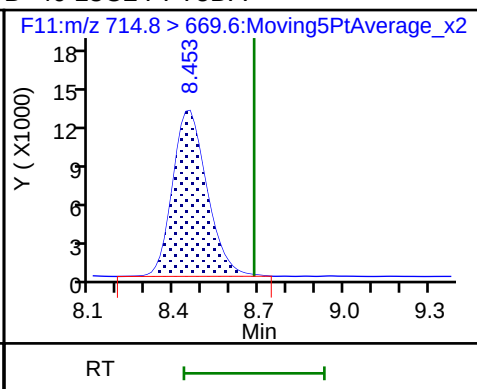
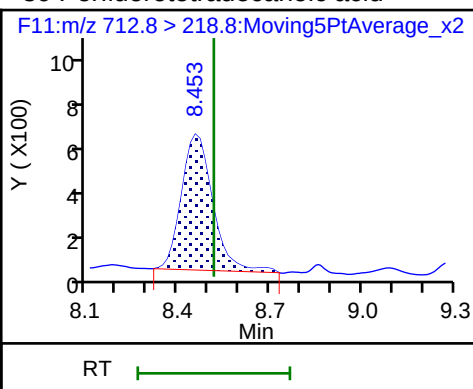
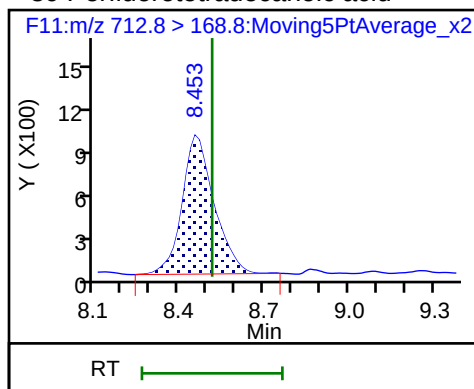
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

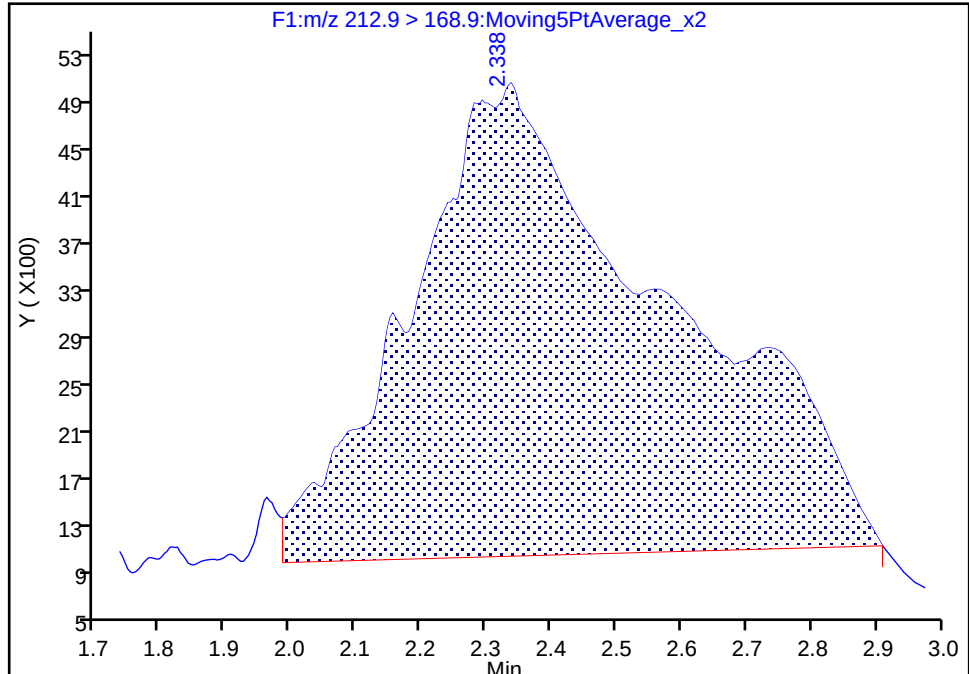
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Injection Date: 09-Jan-2019 23:50:28 Instrument ID: LC410
Lims ID: 480-147352-A-2-A MS
Client ID: 779078
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 32
Injection Vol: 20.0 ul Dil. Factor: 5.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

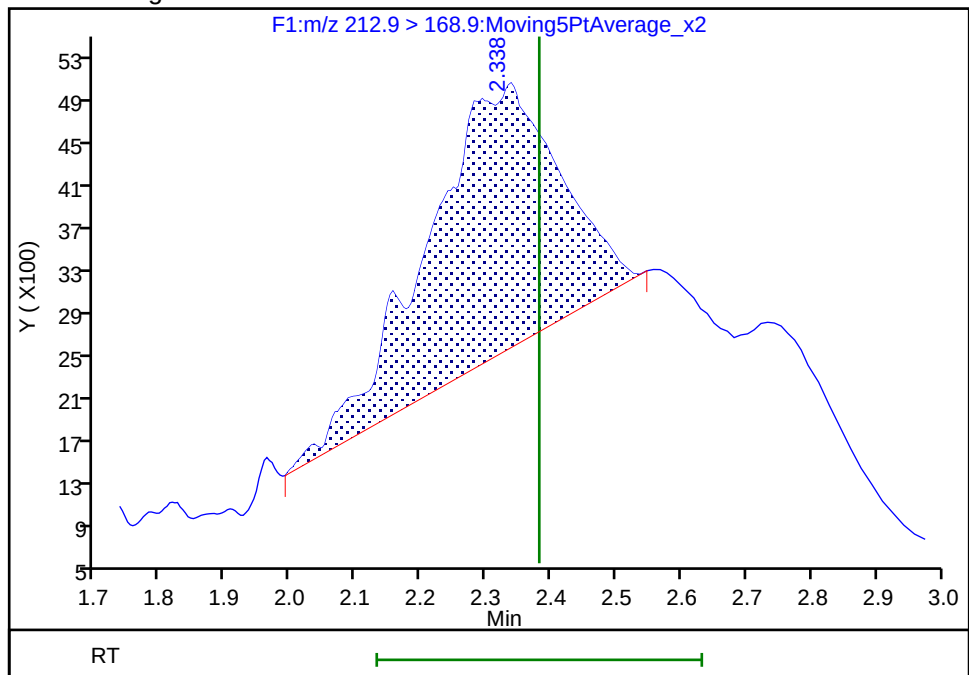
RT: 2.34
Area: 109862
Amount: 78.328767
Amount Units: ng/ml

Processing Integration Results



RT: 2.34
Area: 35900
Amount: 26.315026
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:10:14
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
Page 537 of 586

01/17/2019

TestAmerica Burlington

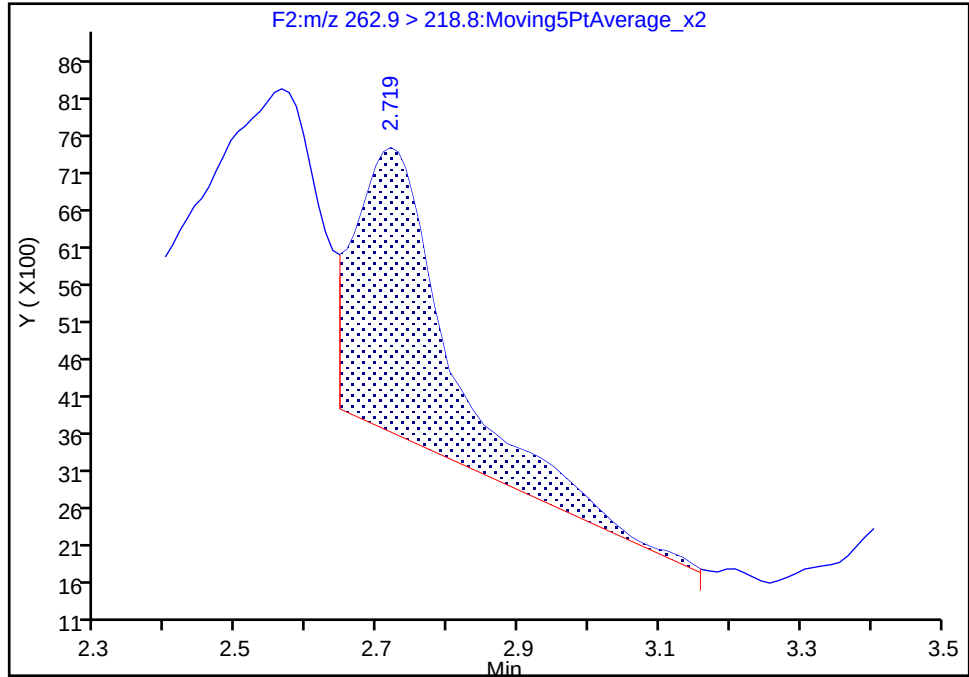
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Injection Date:	09-Jan-2019 23:50:28	Instrument ID:	LC410
Lims ID:	480-147352-A-2-A MS		
Client ID:	779078		
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	5.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector:	F2:MRM
		Worklist Smp#:	32

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

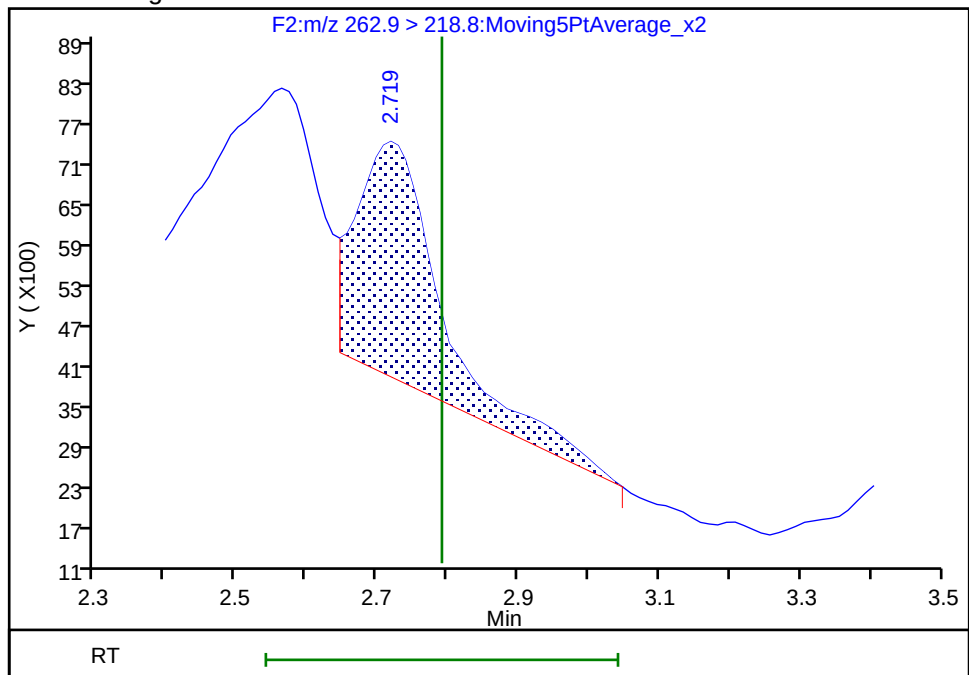
RT: 2.72
Area: 35080
Amount: 5.125558
Amount Units: ng/ml

Processing Integration Results



RT: 2.72
Area: 28941
Amount: 4.228585
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:11:56
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

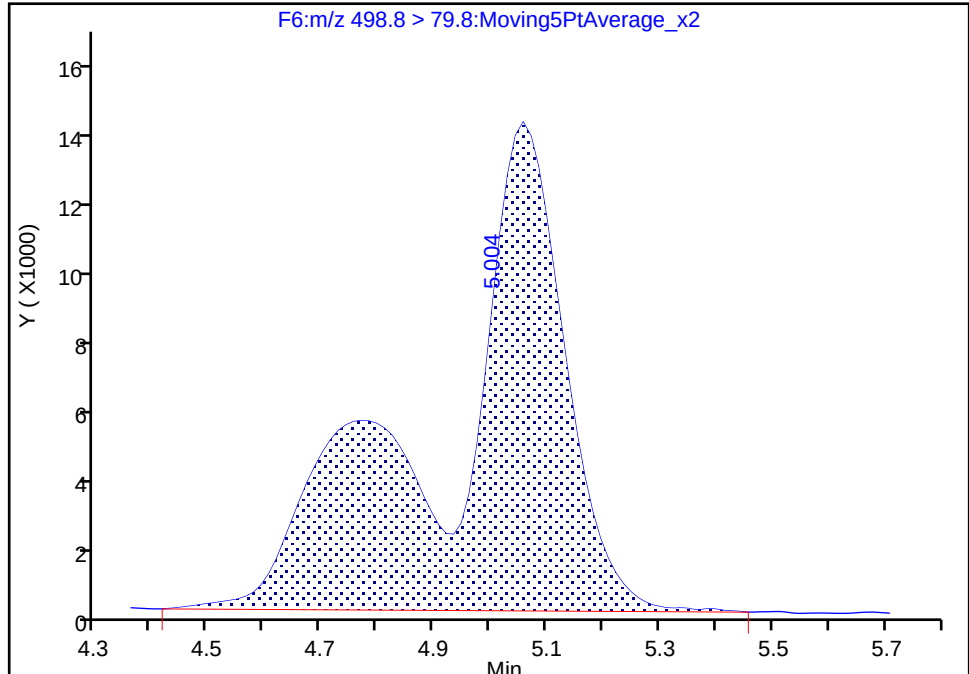
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Injection Date:	09-Jan-2019 23:50:28	Instrument ID:	LC410
Lims ID:	480-147352-A-2-A MS		
Client ID:	779078		
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	5.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector	F6:MRM
		Worklist Smp#:	32

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

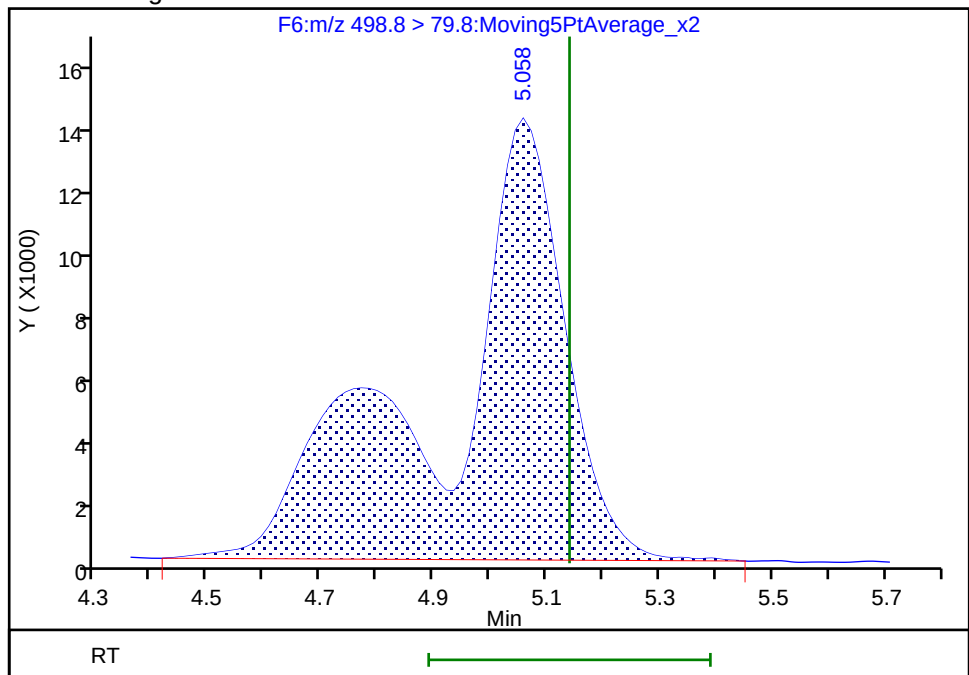
RT: 5.00
Area: 209542
Amount: 34.404926
Amount Units: ng/ml

Processing Integration Results



RT: 5.06
Area: 209254
Amount: 34.357639
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:13:52
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

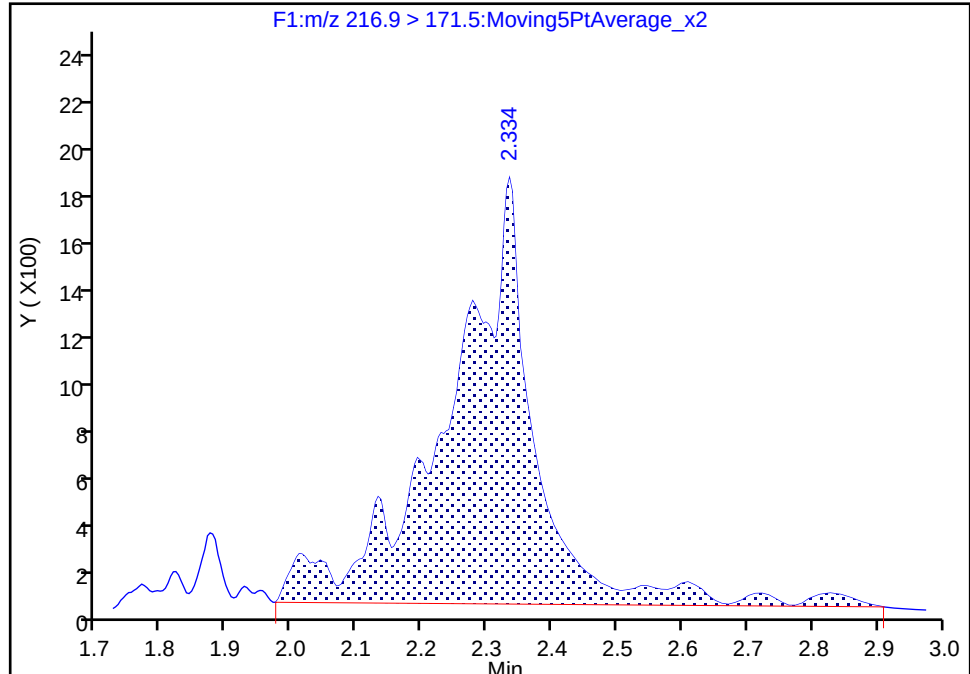
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A32.d
Injection Date: 09-Jan-2019 23:50:28 Instrument ID: LC410
Lims ID: 480-147352-A-2-A MS
Client ID: 779078
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 32
Injection Vol: 20.0 ul Dil. Factor: 5.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

D 1 13C4 PFBA, CAS: STL00992

Signal: 1

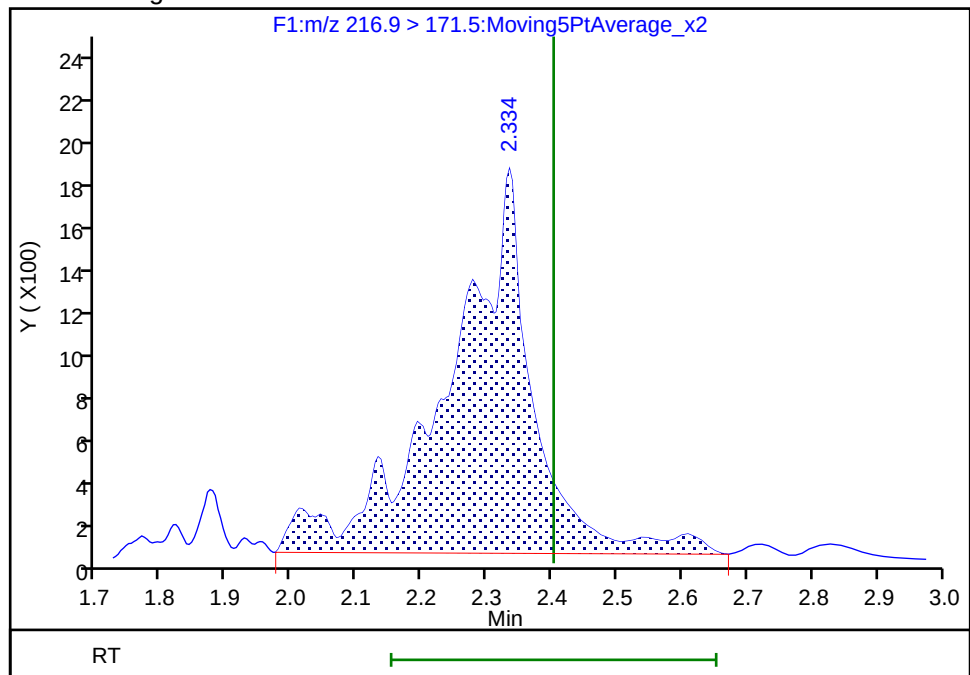
RT: 2.33
Area: 16514
Amount: 2.114392
Amount Units: ng/ml

Processing Integration Results



RT: 2.33
Area: 15986
Amount: 2.046789
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:08:26
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779078 MS</u>	Lab Sample ID: <u>480-147352-2 MS</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF011019A12.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>259.7 (mL)</u>	Date Analyzed: <u>01/10/2019 15:58</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>20</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138989</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
335-67-1	Perfluorooctanoic acid (PFOA)	241		39	6.2
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	47.6	J	390	19

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	62		50-150
STL02279	M2-6:2 FTS	196	*	25-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A12.d
 Lims ID: 480-147352-A-2-A MS
 Client ID: 779078
 Sample Type: MS
 Inject. Date: 10-Jan-2019 15:58:03 ALS Bottle#: 0 Worklist Smp#: 12
 Injection Vol: 20.0 ul Dil. Factor: 20.0000
 Sample Info: 200-0034093-012 2MS 20X
 Misc. Info.: PFAS21 011019A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 17:18:54 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0308

First Level Reviewer: chirgwinb

Date: 10-Jan-2019 17:05:11

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.351	2.392	-0.041	0.991	18447	5.61		561	4.5	M
D 1 13C4 PFBA										M
216.9 > 171.5	2.371	2.392	-0.021	1.000	9385	0.8281		33.1	39.9	M
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.750	2.791	-0.041	1.000	13184	1.07		107	1.3	M
D 3 13C5 PFPeA										M
267.7 > 222.6	2.750	2.801	-0.051	1.000	10789	1.50		60.1	12.1	M
D 6 13C3 PFBS										M
302.0 > 79.8	2.834	2.867	-0.033	1.000	11276	1.90		81.8	34.6	M
5 Perfluorobutanesulfonic acid										
298.9 > 80.0	2.818	2.867	-0.049	0.994	8618	1.02		115	3.0	
8 Perfluorohexanoic acid										
312.8 > 268.6	3.140	3.189	-0.049	0.996	20954	2.88		288	15.2	
D 7 13C2 PFHxA										
314.8 > 269.6	3.152	3.201	-0.049	1.000	17516	1.35		54.1	171	
10 Perfluoroheptanoic acid										M
362.9 > 318.8	3.637	3.692	-0.055	1.000	32633	2.22		222	32.4	M
D 9 13C4 PFHpA										
366.9 > 321.8	3.637	3.715	-0.078	1.000	37661	1.59		63.5	212	
12 Perfluorohexanesulfonic acid										M
399.0 > 80.0	3.692	3.737	-0.045	1.003	18673	1.48		163	7.8	M
D 11 18O2 PFHxS										
402.9 > 83.8	3.681	3.759	-0.078	1.000	16893	2.46		104	101	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.227	4.291	-0.064	1.000	5039	1.24		130	101	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.227	4.330	-0.103	1.000	9831	4.65		196	59.4	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
* 15 13C2 PFOA										
414.9 > 369.8	4.239	4.330	-0.091		48227	2.50			168	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.252	4.342	-0.090	1.000	69799	6.25		625	103	
D 17 13C4 PFOA										
416.9 > 371.8	4.252	4.355	-0.103	1.000	28217	1.56		62.4	128	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.304	4.374	-0.070	0.849	3740	0.6743		70.8	12.4	
19 Perfluorononanoic acid										
462.8 > 418.8	5.044	5.085	-0.041	0.997	20589	0.9107		91.1	61.7	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.072	5.099	-0.027	1.000	59725	9.94		1072	326	M
D 20 13C5 PFNA										
467.8 > 422.8	5.058	5.113	-0.055	1.000	51415	2.11		84.2	211	
D 22 13C4 PFOS										
502.8 > 79.8	5.072	5.140	-0.068	1.000	13886	2.29		95.7	66.6	M
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.793	5.823	-0.030	1.002	5554	0.8013		83.6	58.5	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.783	5.863	-0.080	1.000	20577	3.59		150	101	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.823	5.863	-0.040	1.000	14680	0.6566		65.7	77.4	
D 26 13C2 PFDA										
514.9 > 469.5	5.823	5.882	-0.059	1.000	55368	2.20		88.0	512	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.223	6.223	0.0	1.011	2681	1.04		104	19.3	M
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.156	6.241	-0.085	1.000	5923	0.9212		36.8	28.1	M
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.562	6.580	-0.018	1.003	3900	1.48		148	20.5	M
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.544	6.598	-0.054	1.000	6832	1.25		50.1	31.5	M
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.580	6.598	-0.018	1.297	4118	0.6775		70.3	39.7	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.580	6.616	-0.036	1.000	18192	0.8797		88.0	96.2	M
D 32 13C2 PFUnA										
564.8 > 519.8	6.580	6.652	-0.072	1.000	50396	1.92		76.9	250	
D 35 13C8 FOSA										
505.8 > 77.8	6.903	6.917	-0.014	1.000	19386	1.66		66.3	85.2	M
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.889	6.917	-0.028	0.998	7331	1.12		112	64.8	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.272	7.294	-0.022	1.000	15450	1.20		120	95.6	
D 37 13C2 PFDaA										
614.8 > 569.6	7.272	7.339	-0.067	1.000	37623	1.14		45.4	214	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
38 Perfluorotridecanoic acid										M
662.8 > 618.6	7.920	7.920	0.0	0.939	10004	0.9067		90.7	68.7	M
39 Perfluorotetradecanoic acid										M
712.8 > 668.6	8.453	8.468	-0.015	1.002	9682	0.8800	Target=1.00	88.0	75.1	
712.8 > 168.8	8.453	8.468	-0.015	1.002	1174		8.25(0.90-1.10)		7.6	M
712.8 > 218.8	8.408	8.468	-0.060	0.996	678		14.28(0.90-1.10)		8.7	M
D 40 13C2 PFTeDA										
714.8 > 669.6	8.438	8.514	-0.076	1.000	28218	0.9277		37.1	203	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A12.d

Injection Date: 10-Jan-2019 15:58:03

Instrument ID: LC410

Lims ID: 480-147352-A-2-A MS

Client ID: 779078

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 12

Injection Vol: 20.0 ul

Dil. Factor: 20.0000

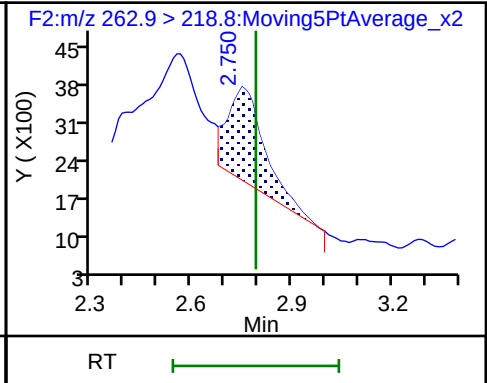
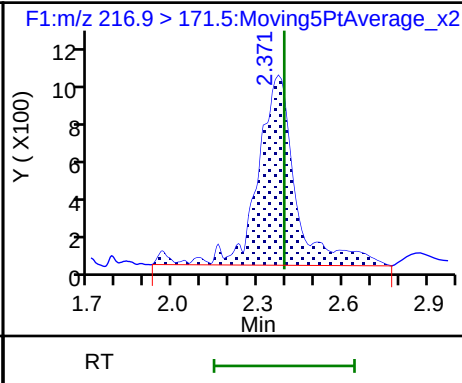
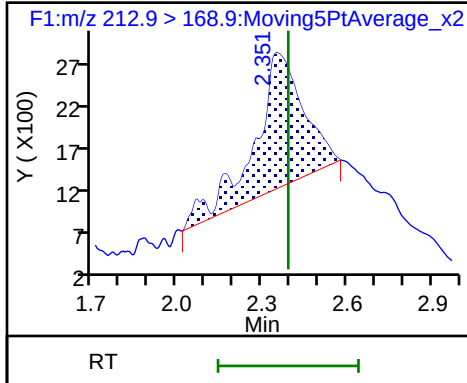
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA (M)

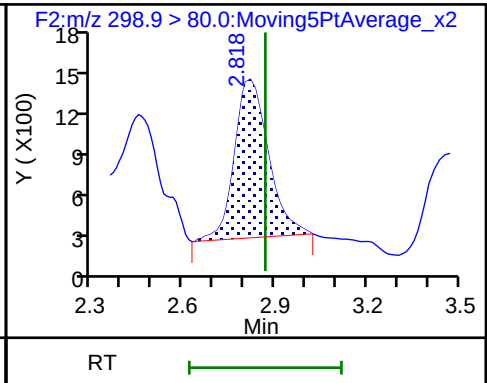
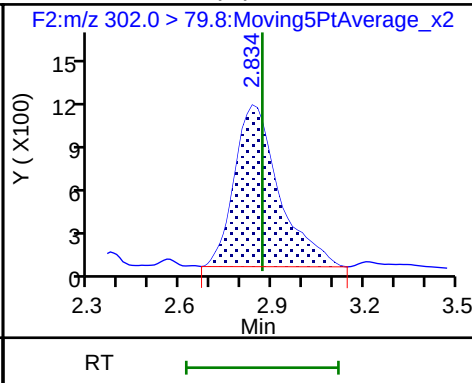
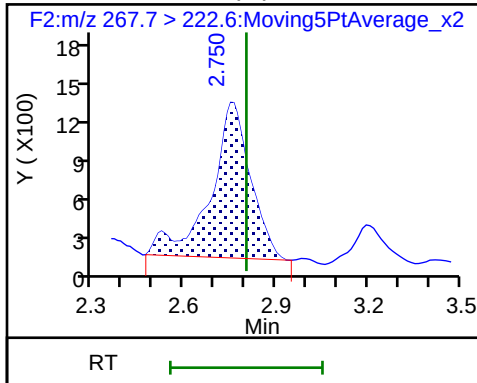
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA (M)

D 6 13C3 PFBS (M)

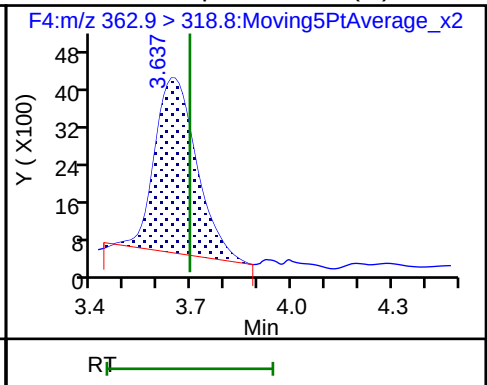
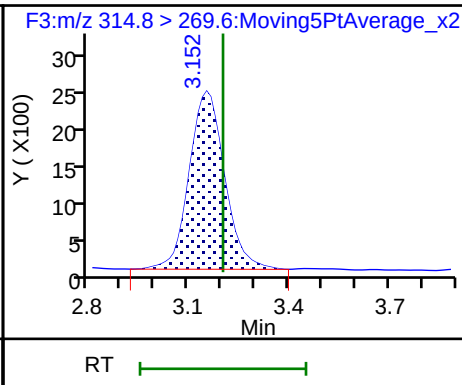
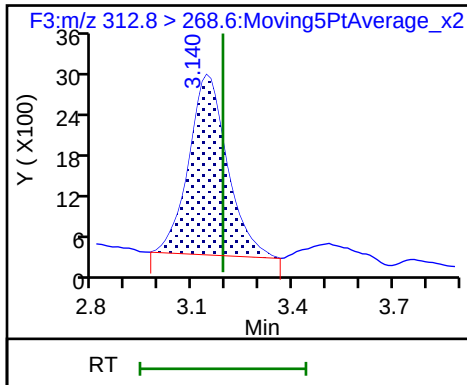
5 Perfluorobutanesulfonic acid



8 Perfluorohexanoic acid

D 7 13C2 PFHxA

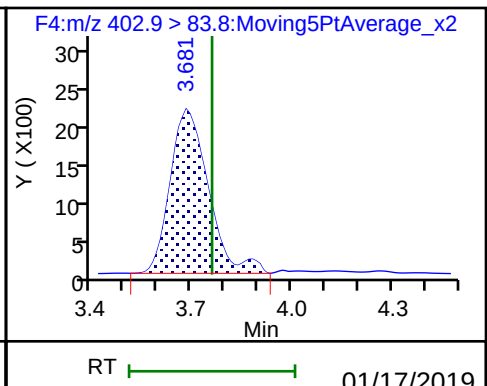
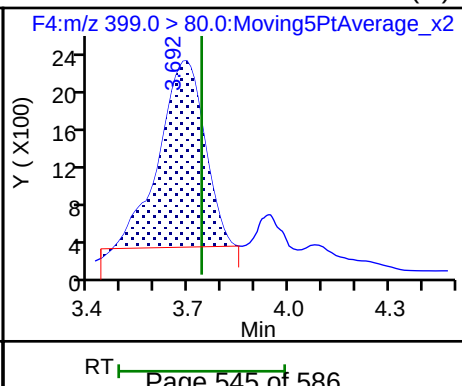
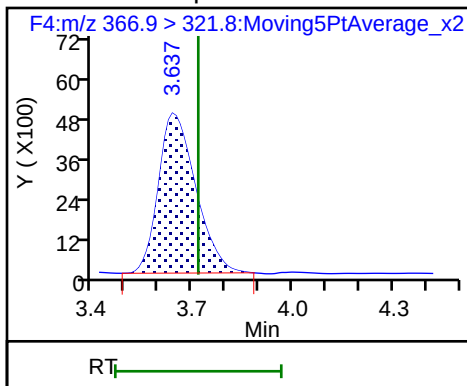
10 Perfluoroheptanoic acid (M)



D 9 13C4 PFHpA

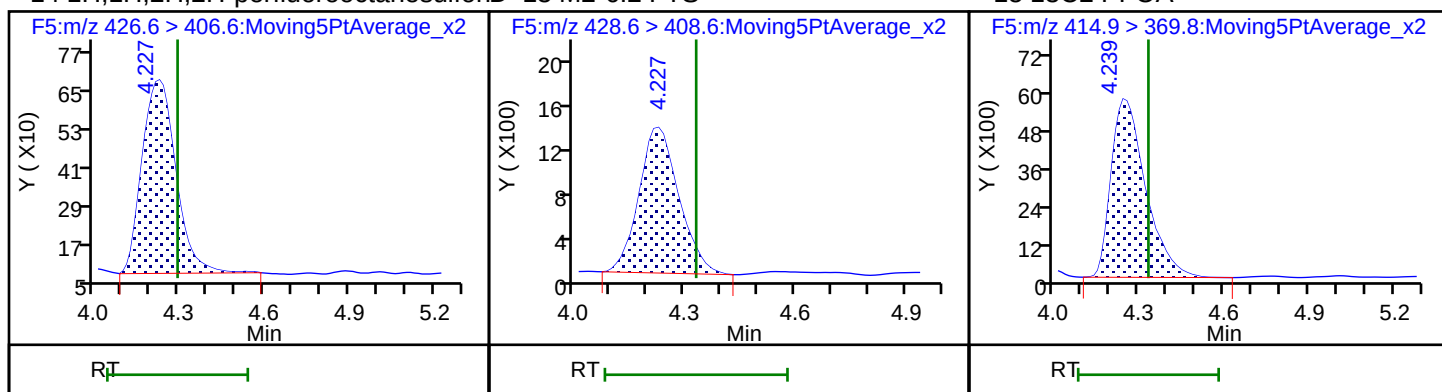
12 Perfluorohexanesulfonic acid (M)

D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfonD 13 M2-6:2 FTS

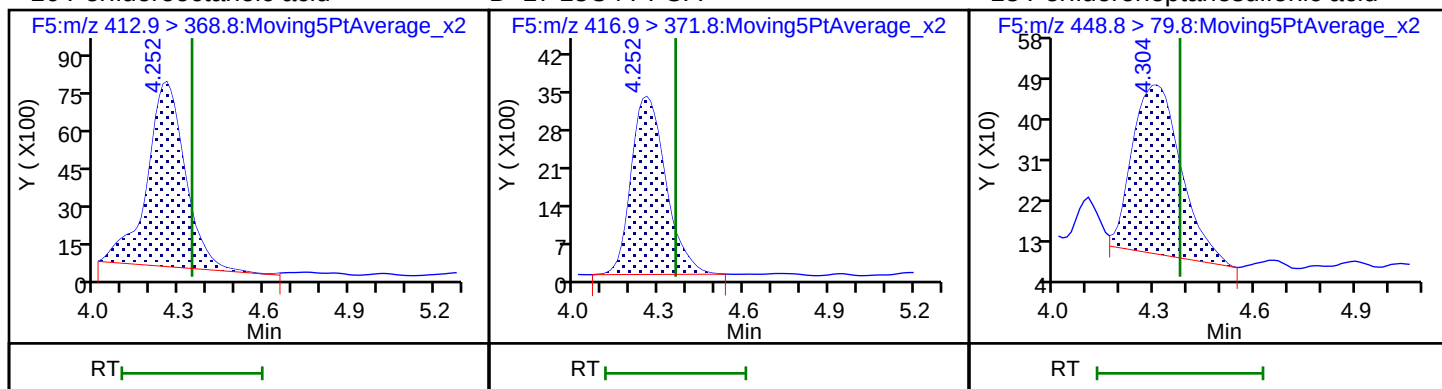
* 15 13C2 PFOA



16 Perfluorooctanoic acid

D 17 13C4 PFOA

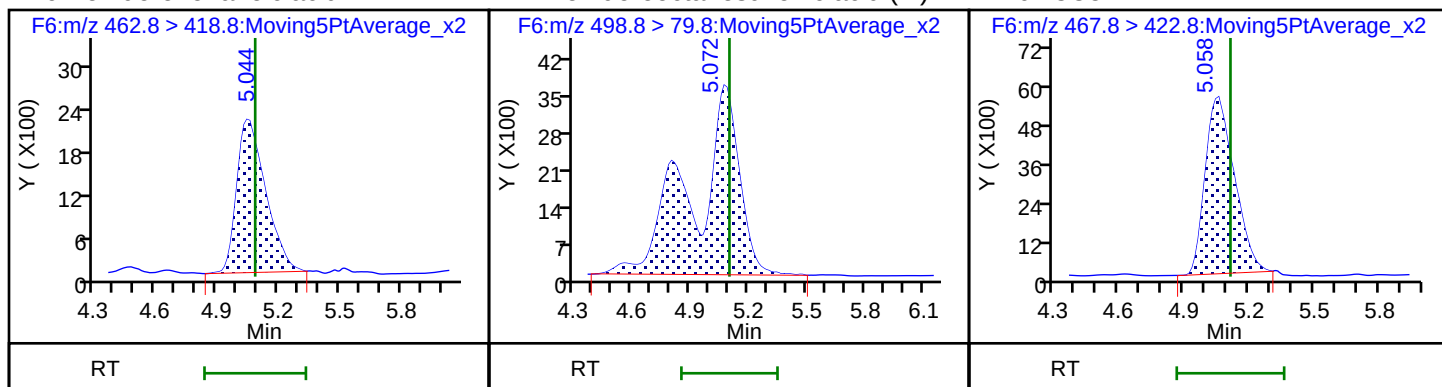
18 Perfluoroheptanesulfonic acid



19 Perfluorononanoic acid

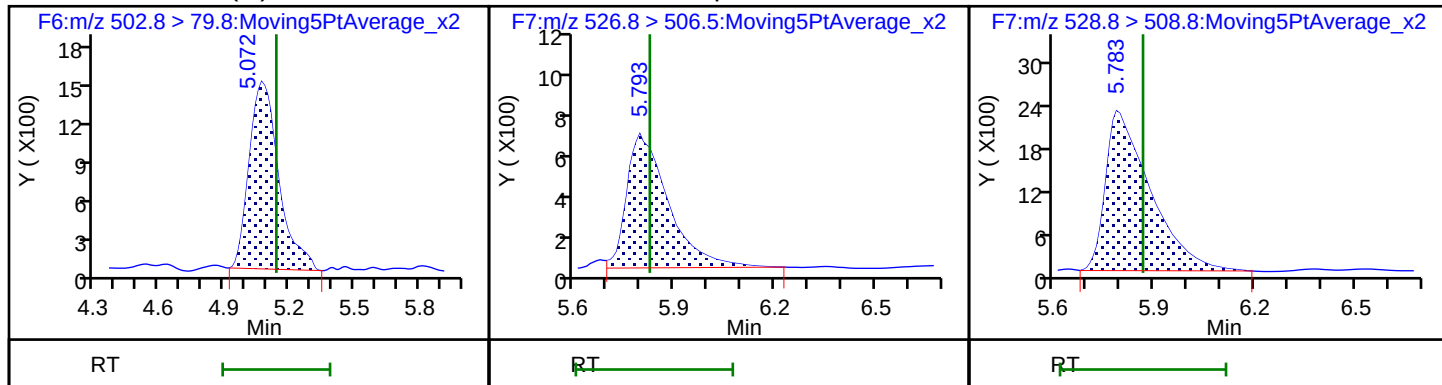
21 Perfluorooctanesulfonic acid (M)

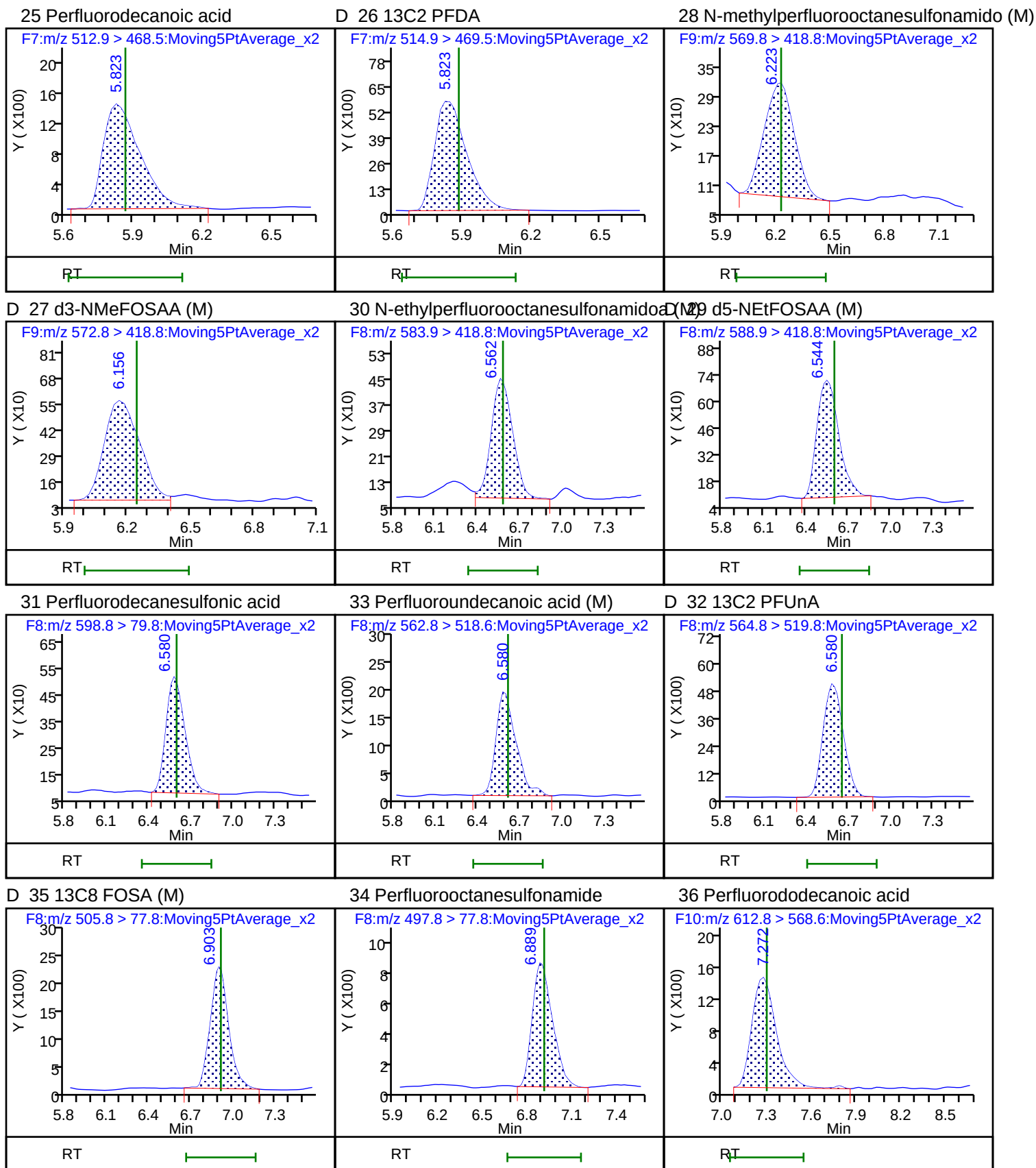
D 20 13C5 PFNA



D 22 13C4 PFOS (M)

23 1H,1H,2H,2H-perfluorodecanesulfonD 24 M2-8:2 FTS

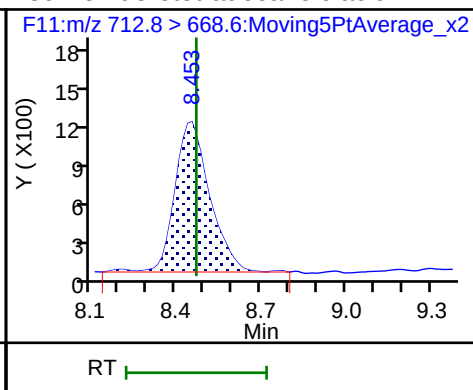
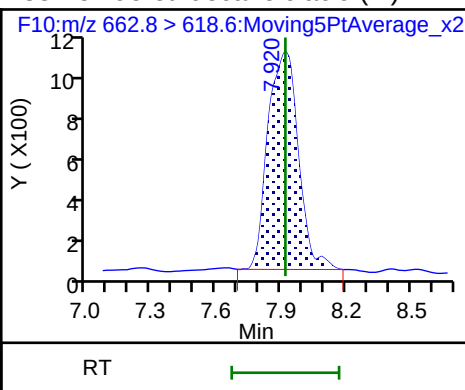
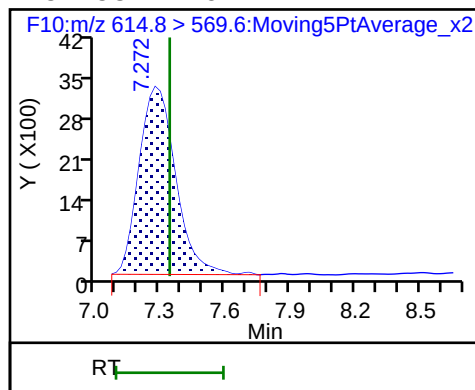




D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (M)

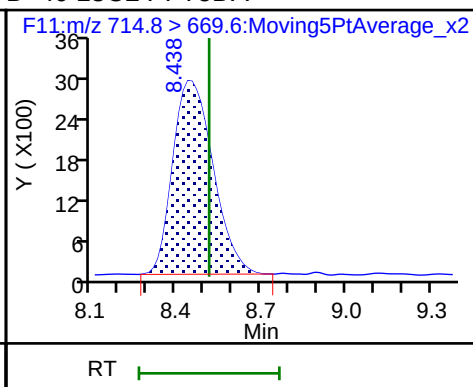
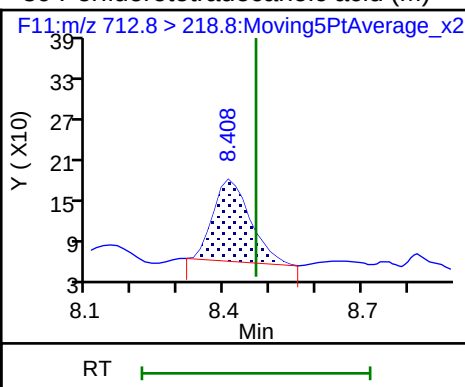
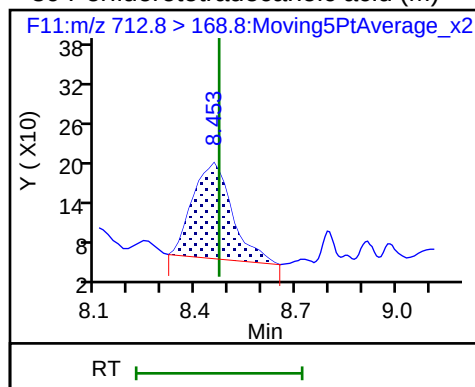
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid (M)

39 Perfluorotetradecanoic acid (M)

D 40 13C2 PFTeDA



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779078 MSD</u>	Lab Sample ID: <u>480-147352-2 MSD</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A33.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>263.1 (mL)</u>	Date Analyzed: <u>01/10/2019 00:06</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>5</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		220	220
2706-90-3	Perfluoropentanoic acid (PFPeA)	46.5		9.5	3.6
307-24-4	Perfluorohexanoic acid (PFHxA)	127		9.5	1.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	81.1		9.5	1.5
375-95-1	Perfluorononanoic acid (PFNA)	32.2		9.5	1.8
335-76-2	Perfluorodecanoic acid (PFDA)	34.4		9.5	1.8
2058-94-8	Perfluoroundecanoic acid (PFUnA)	34.2		9.5	1.2
307-55-1	Perfluorododecanoic acid (PFDoA)	31.3		9.5	1.7
72629-94-8	Perfluorotridecanoic acid (PFTriA)	43.2		9.5	1.1
376-06-7	Perfluorotetradecanoic acid (PFTeA)	31.8		9.5	2.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37.6		9.5	2.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	67.7		9.5	1.2
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	32.9		9.5	3.9
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	312		9.5	3.6
335-77-3	Perfluorodecanesulfonic acid (PFDS)	26.9		9.5	2.5
754-91-6	Perfluorooctanesulfonamide (PFOSA)	35.0		9.5	2.7
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	18.3	J	95	2.1
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	38.8	J	95	3.3
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	40.1	J	95	2.7

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779078 MSD</u>	Lab Sample ID: <u>480-147352-2 MSD</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF010919A33.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>263.1 (mL)</u>	Date Analyzed: <u>01/10/2019 00:06</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>5</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138946</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00994	18O2 PFHxS	90		50-150
STL01892	13C4 PFHpA	49	*	50-150
STL00990	13C4 PFOA	71		50-150
STL00991	13C4 PFOS	115		50-150
STL00995	13C5 PFNA	90		50-150
STL00992	13C4 PFBA	22	*	25-150
STL00993	13C2 PFHxA	32	*	50-150
STL00996	13C2 PFDA	102		50-150
STL00997	13C2 PFUnA	104		50-150
STL00998	13C2 PFDoA	74		50-150
STL01056	13C8 FOSA	85		25-150
STL01893	13C5 PFPeA	35		25-150
STL02116	13C2 PFTeDA	45	*	50-150
STL02118	d3-NMeFOSAA	75		50-150
STL02117	d5-NEtFOSAA	88		50-150
STL02279	M2-6:2 FTS	215	*	25-150
STL02280	M2-8:2 FTS	217	*	25-150
STL02337	13C3 PFBS	78		50-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A33.d
 Lims ID: 480-147352-A-2-B MSD
 Client ID: 779078
 Sample Type: MSD
 Inject. Date: 10-Jan-2019 00:06:27 ALS Bottle#: 0 Worklist Smp#: 33
 Injection Vol: 20.0 ul Dil. Factor: 5.0000
 Sample Info: 200-0034076-033 2MSD
 Misc. Info.: PFAS21 010919A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 11-Jan-2019 10:07:10 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0323

First Level Reviewer: murrayjw

Date: 10-Jan-2019 11:11:24

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.322	2.382	-0.060	1.004	33863	22.7		568	2.6	M
D 1 13C4 PFBA										
216.9 > 171.5	2.314	2.402	-0.088	1.000	17448	2.17		21.7	21.0	
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.729	2.791	-0.062	1.000	24611	4.89		122	1.3	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.729	2.818	-0.089	1.000	17674	3.47		34.7	15.1	
5 Perfluorobutanesulfonic acid										M
298.9 > 80.0	2.791	2.883	-0.092	1.004	22706	3.96		112	2.3	M
D 6 13C3 PFBS										
302.0 > 79.8	2.781	2.900	-0.119	1.000	30559	7.26		78.1	31.3	
8 Perfluorohexanoic acid										M
312.8 > 268.6	3.103	3.201	-0.098	1.000	40591	13.3		333	12.4	M
D 7 13C2 PFHxA										
314.8 > 269.6	3.103	3.250	-0.147	1.000	29359	3.20		32.0	86.8	
10 Perfluoroheptanoic acid										M
362.9 > 318.8	3.592	3.715	-0.123	1.000	69147	8.53		213	34.7	M
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.625	3.748	-0.123	0.997	49318	7.12		196	5.8	
D 9 13C4 PFHpA										
366.9 > 321.8	3.592	3.782	-0.190	1.000	82891	4.93		49.3	487	
D 11 18O2 PFHxS										
402.9 > 83.8	3.637	3.826	-0.189	1.000	41669	8.56		90.5	258	
14 1H,1H,2H,2H-perfluorooctanesulfoni										
426.6 > 406.6	4.175	4.317	-0.142	0.997	15147	4.77		126	185	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.214	4.355	-0.141	1.003	141308	15.6		391	486	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
* 15 13C2 PFOA										
414.9 > 369.8	4.214	4.355	-0.141		136908	10.0			437	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.227	4.393	-0.166	0.836	16353	3.46		91.0	61.4	
D 13 M2-6:2 FTS										
428.6 > 408.6	4.188	4.411	-0.223	1.000	30657	20.4		215	233	
D 17 13C4 PFOA										
416.9 > 371.8	4.201	4.468	-0.267	0.000	91238	7.10		71.0	403	a
19 Perfluorononanoic acid										
462.8 > 418.8	5.045	5.113	-0.068	1.000	58104	3.38		84.6	91.2	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.058	5.140	-0.082	1.000	167541	32.8		883	292	M
D 20 13C5 PFNA										
467.8 > 422.8	5.045	5.222	-0.177	1.000	156198	9.02		90.2	342	
D 22 13C4 PFOS										
502.8 > 79.8	5.058	5.236	-0.178	1.000	47260	11.0		115	213	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.793	5.863	-0.070	1.000	29973	4.22		110	136	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.823	5.882	-0.059	1.000	66584	3.62		90.5	192	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.793	5.998	-0.205	1.000	84403	20.7		217	1735	
D 26 13C2 PFDA										
514.9 > 469.5	5.823	6.022	-0.199	1.000	182133	10.2		102	1381	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.205	6.241	-0.036	1.004	7138	1.92		48.0	38.9	
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.181	6.367	-0.186	1.000	34205	7.50		75.0	348	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.580	6.634	-0.054	1.301	14631	2.83		73.4	179	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.580	6.634	-0.054	1.003	13425	4.09		102	21.5	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.580	6.652	-0.072	0.997	71550	3.60		89.9	299	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.562	6.734	-0.172	1.000	34112	8.81		88.1	170	
D 32 13C2 PFUnA										
564.8 > 519.8	6.598	6.777	-0.179	1.000	193979	10.4		104	570	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.917	6.917	0.0	1.000	22039	3.68		92.1	222	
D 35 13C8 FOSA										
505.8 > 77.8	6.917	6.945	-0.028	1.000	70716	8.52		85.2	469	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.294	7.339	-0.045	1.000	49214	3.29		82.2	389	
D 37 13C2 PFDaA										
614.8 > 569.6	7.294	7.474	-0.180	1.000	174306	7.41		74.1	618	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
38 Perfluorotridecanoic acid										
662.8 > 618.6	7.903	7.953	-0.050	0.935	43327	4.55		114	450	
39 Perfluorotetradecanoic acid										
712.8 > 668.6	8.468	8.514	-0.046	1.002	31757	3.34	Target=1.00	83.6	151	
712.8 > 168.8	8.453	8.514	-0.061	1.000	5097		6.23(0.90-1.10)		35.5	
712.8 > 218.8	8.484	8.514	-0.030	1.004	4471		7.10(0.90-1.10)		27.7	
D 40 13C2 PFTeDA										
714.8 > 669.6	8.453	8.681	-0.228	1.000	97437	4.51		45.1	375	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A33.d

Injection Date: 10-Jan-2019 00:06:27

Instrument ID: LC410

Lims ID: 480-147352-A-2-B MSD

Client ID: 779078

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 33

Injection Vol: 20.0 ul

Dil. Factor: 5.0000

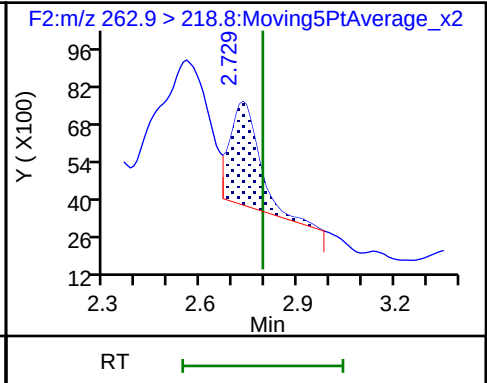
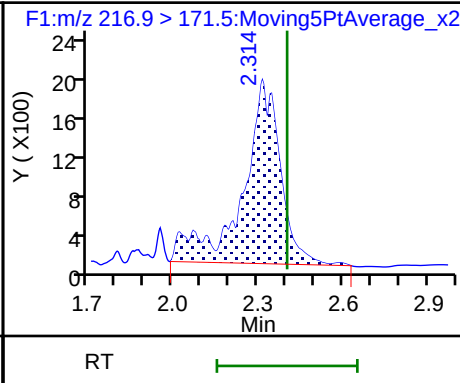
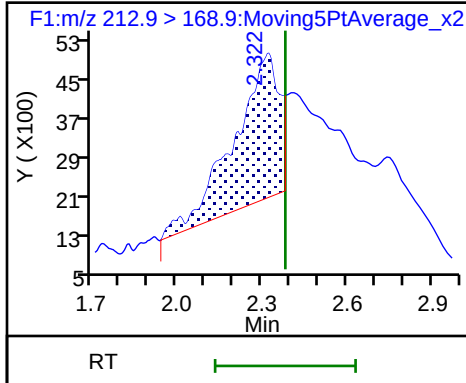
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA

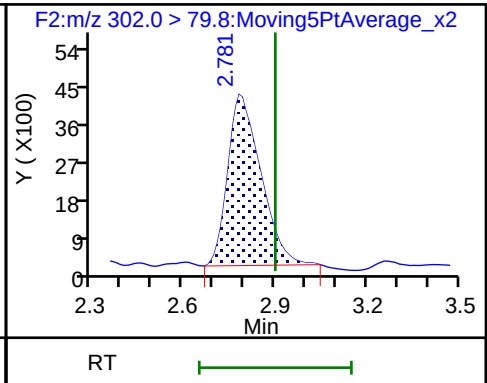
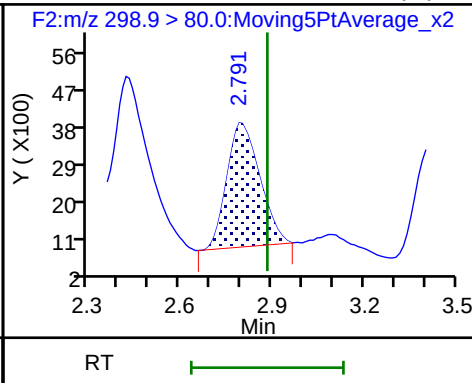
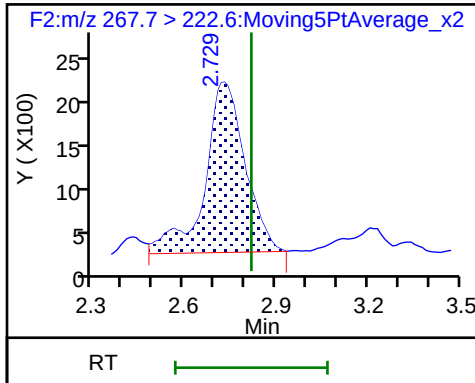
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid (M)

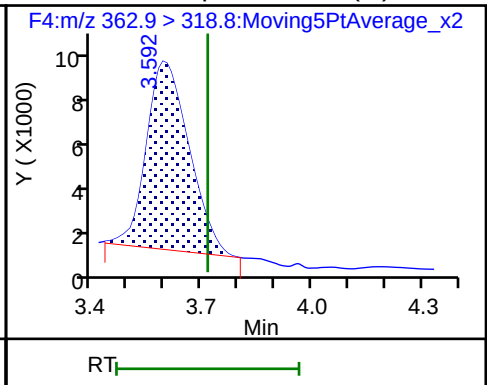
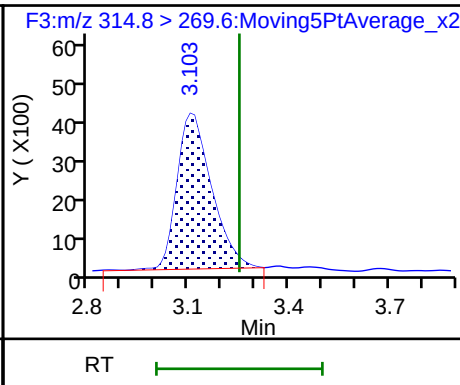
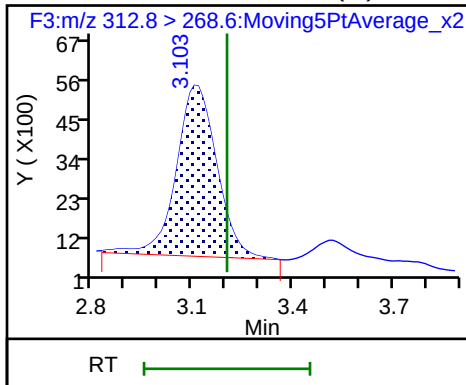
D 6 13C3 PFBS



8 Perfluorohexanoic acid (M)

D 7 13C2 PFHxA

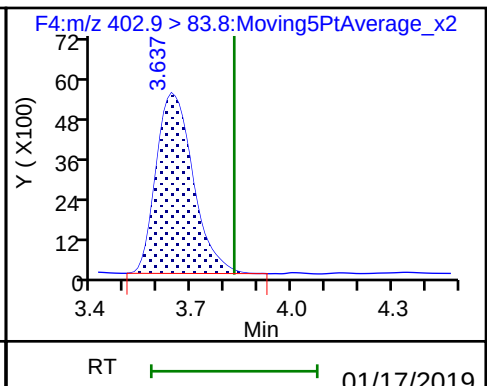
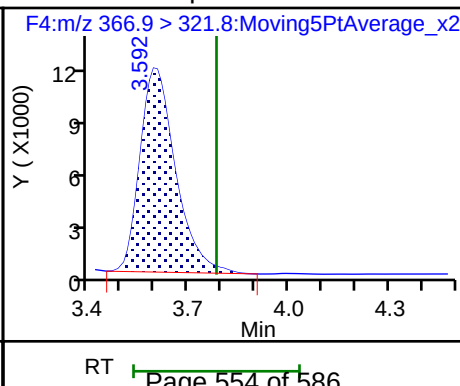
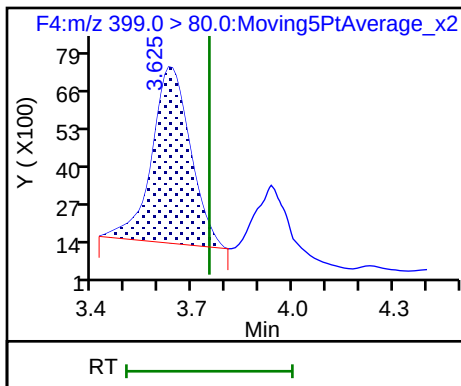
10 Perfluoroheptanoic acid (M)



12 Perfluorohexanesulfonic acid

D 9 13C4 PFHpA

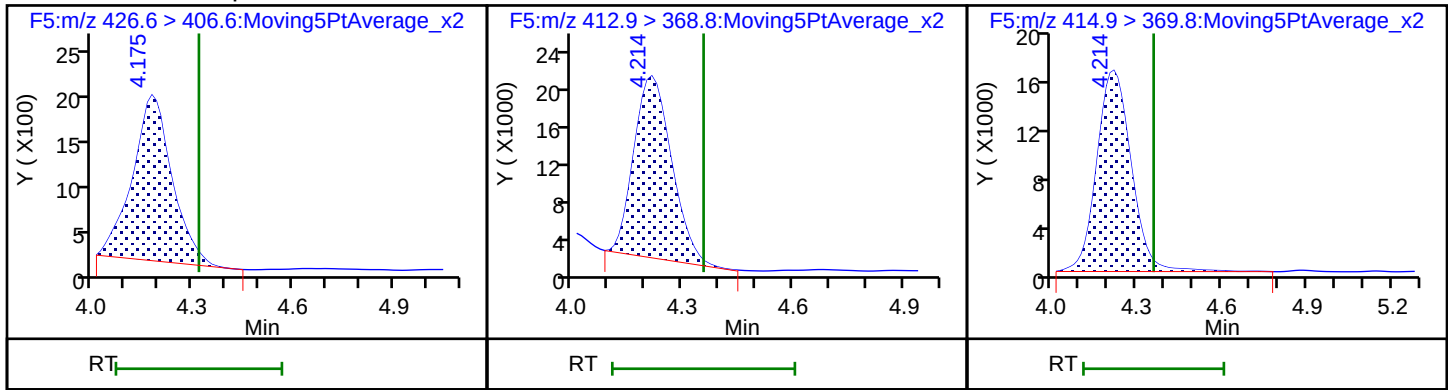
D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfoni

16 Perfluorooctanoic acid

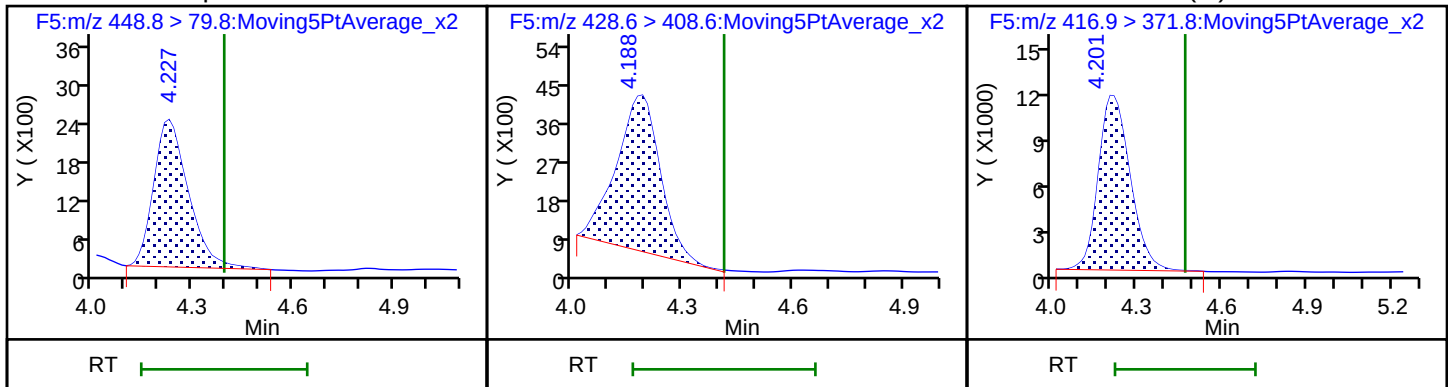
* 15 13C2 PFOA



18 Perfluoroheptanesulfonic acid

D 13 M2-6:2 FTS

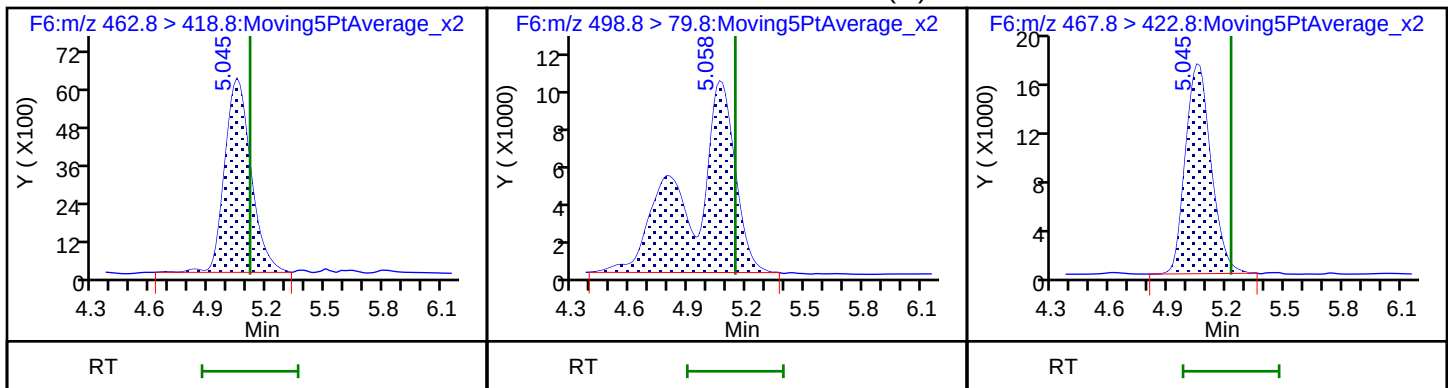
D 17 13C4 PFOA (M)



19 Perfluorononanoic acid

21 Perfluorooctanesulfonic acid (M)

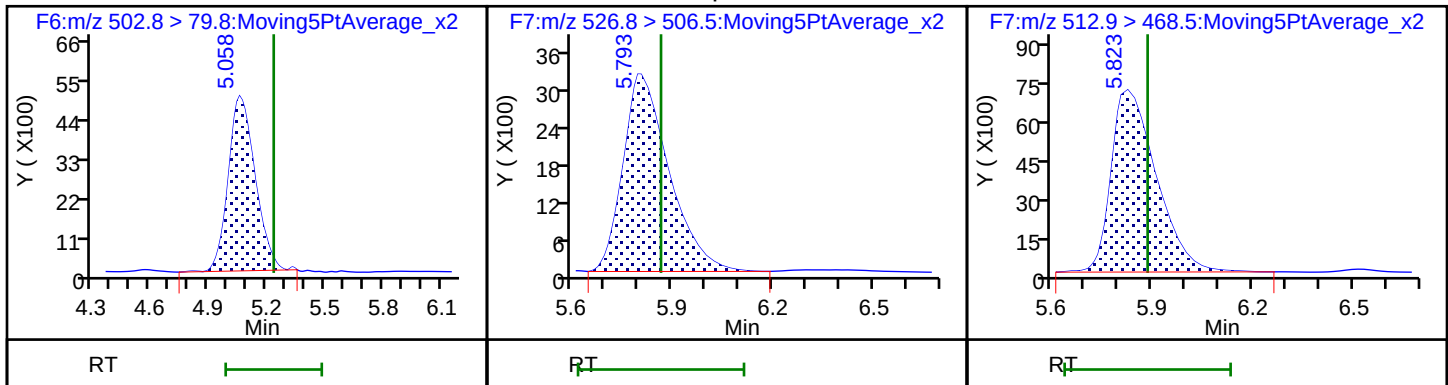
D 20 13C5 PFNA



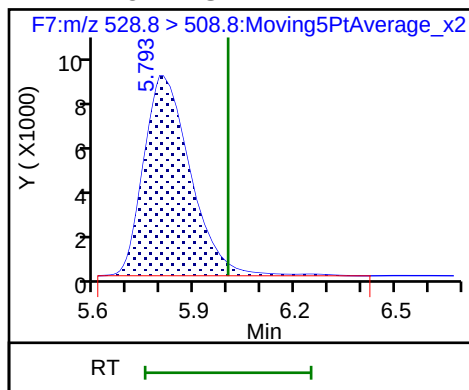
D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfoni

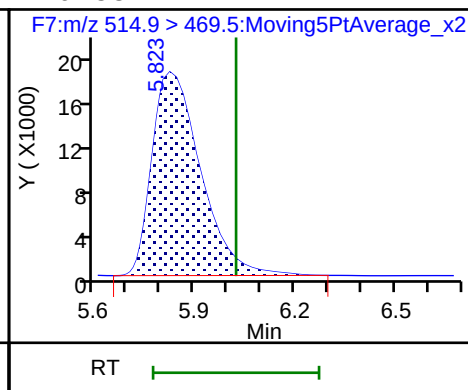
25 Perfluorodecanoic acid



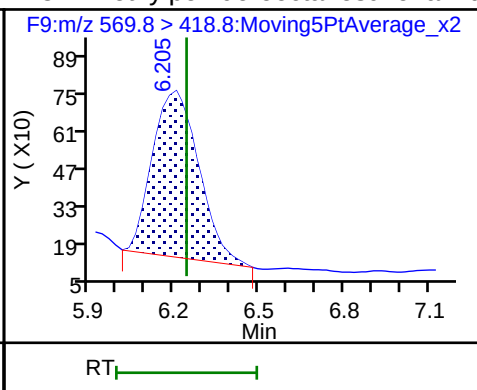
D 24 M2-8:2 FTS



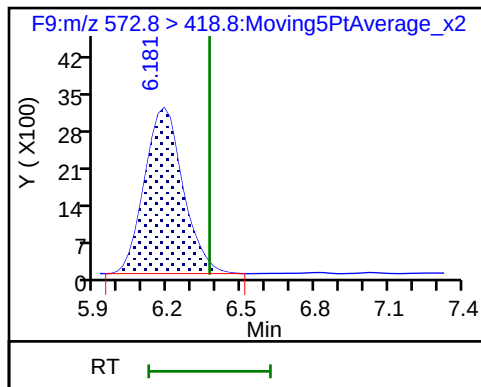
D 26 13C2 PFDA



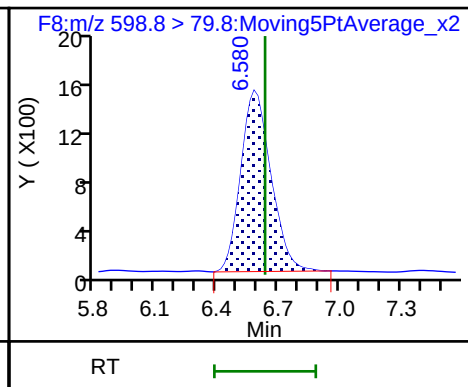
28 N-methylperfluorooctanesulfonamido



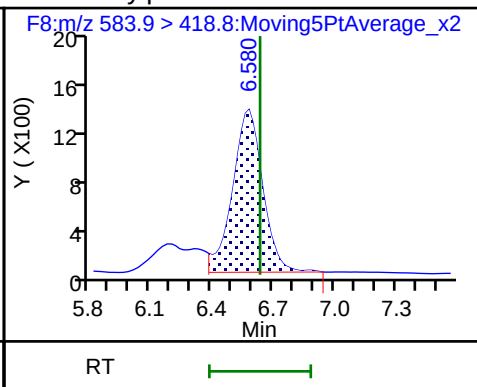
D 27 d3-NMeFOSAA



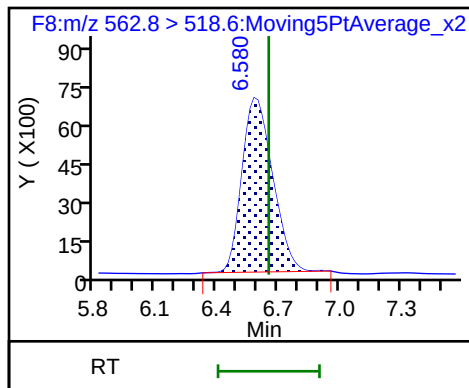
31 Perfluorodecanesulfonic acid



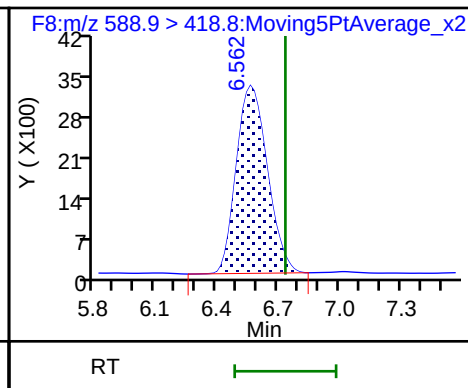
30 N-ethylperfluorooctanesulfonamidoa



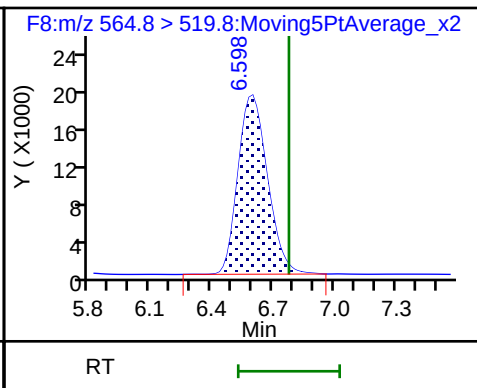
33 Perfluoroundecanoic acid



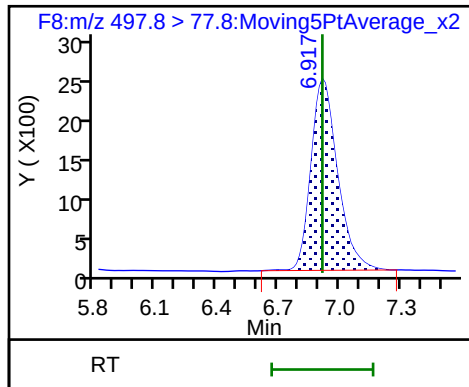
D 29 d5-NEtFOSAA



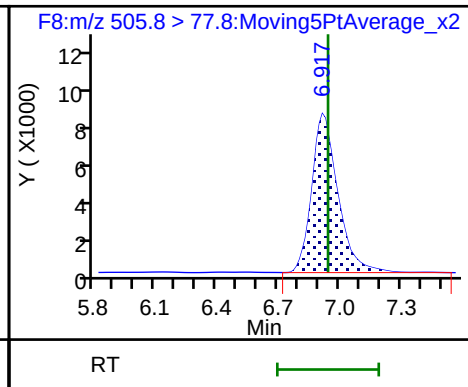
D 32 13C2 PFUnA



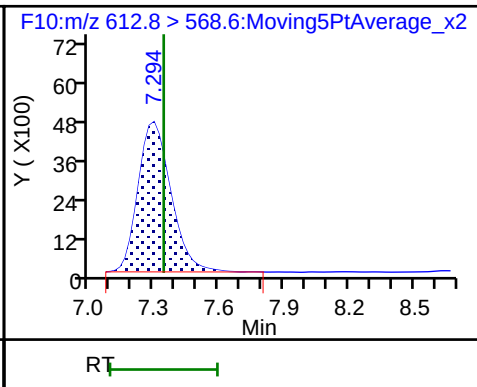
34 Perfluorooctanesulfonamide



D 35 13C8 FOSA



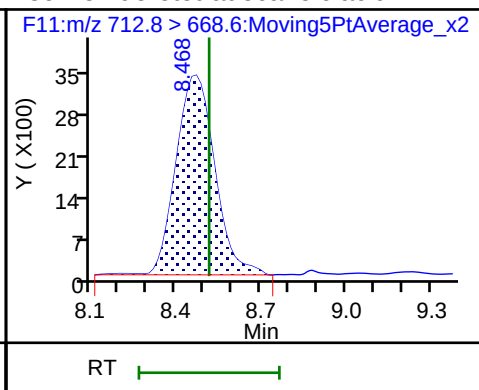
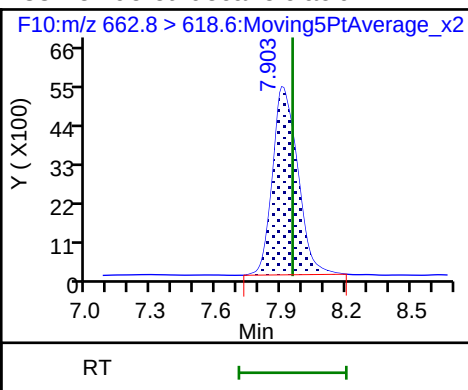
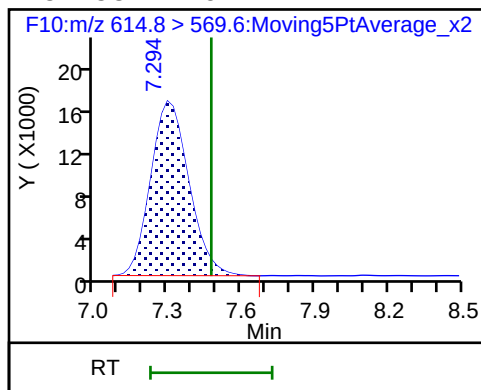
36 Perfluorododecanoic acid



D 37 13C2 PFDaA

38 Perfluorotridecanoic acid

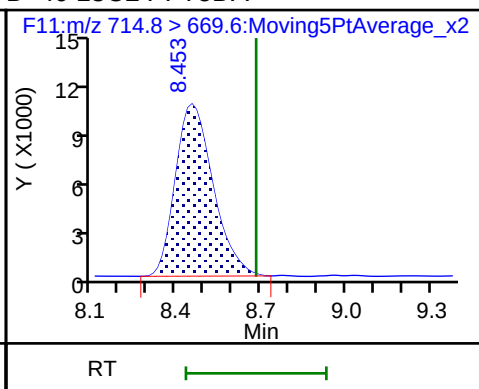
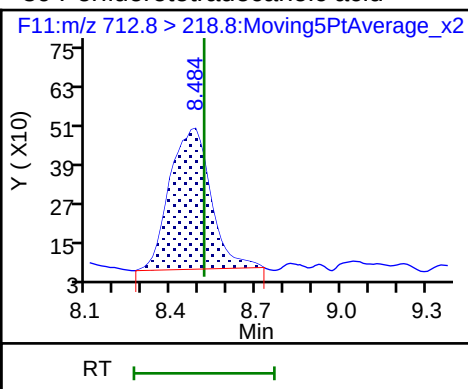
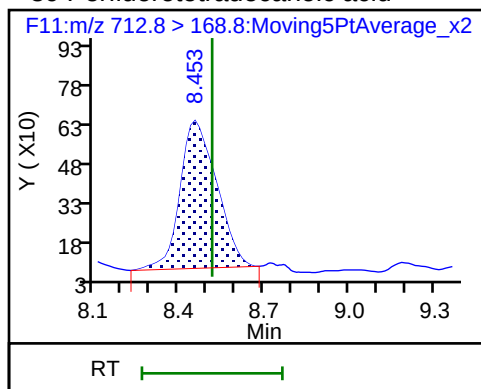
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid

D 40 13C2 PFTeDA



TestAmerica Burlington

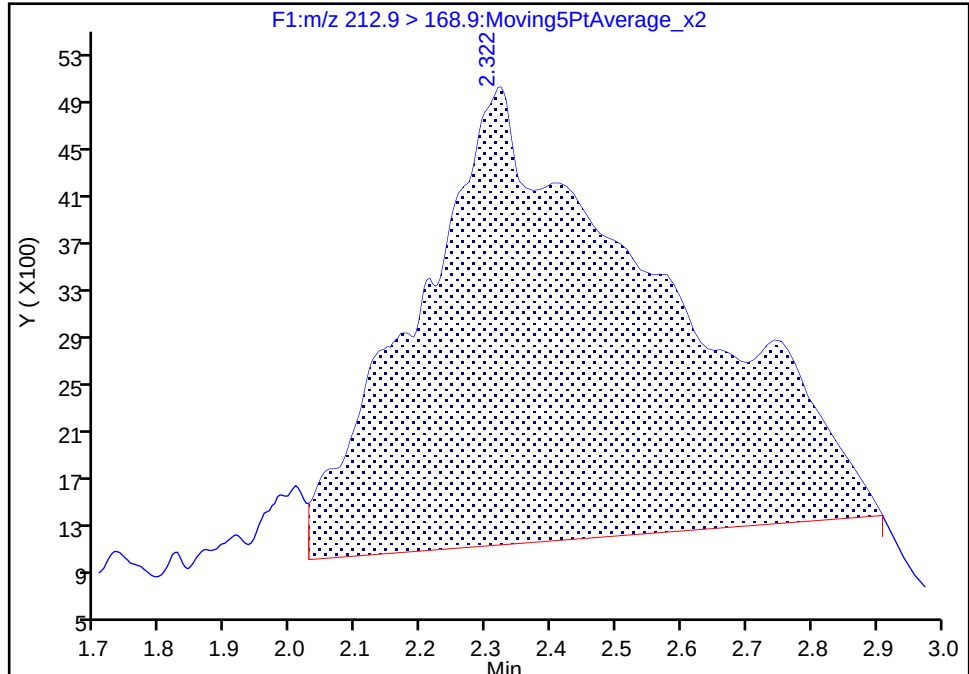
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Injection Date: 10-Jan-2019 00:06:27 Instrument ID: LC410
Lims ID: 480-147352-A-2-B MSD
Client ID: 779078
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 33
Injection Vol: 20.0 ul Dil. Factor: 5.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F1:MRM

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

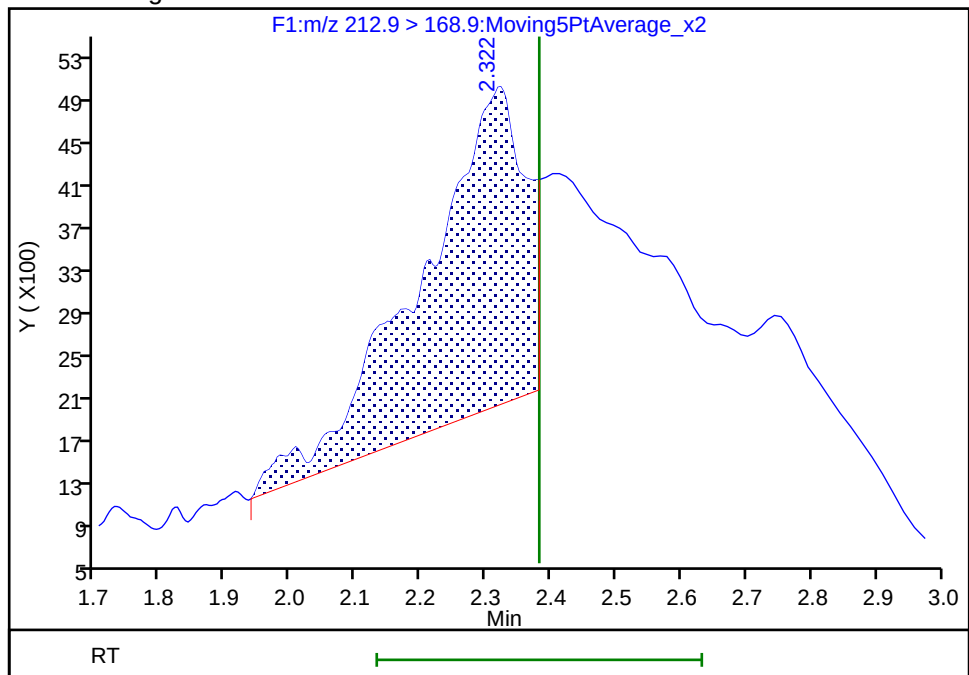
RT: 2.32
Area: 102041
Amount: 68.835090
Amount Units: ng/ml

Processing Integration Results



RT: 2.32
Area: 33863
Amount: 22.716159
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 11-Jan-2019 10:06:49
Audit Action: Manually Integrated

Audit Reason: Split Peak
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TestAmerica Burlington

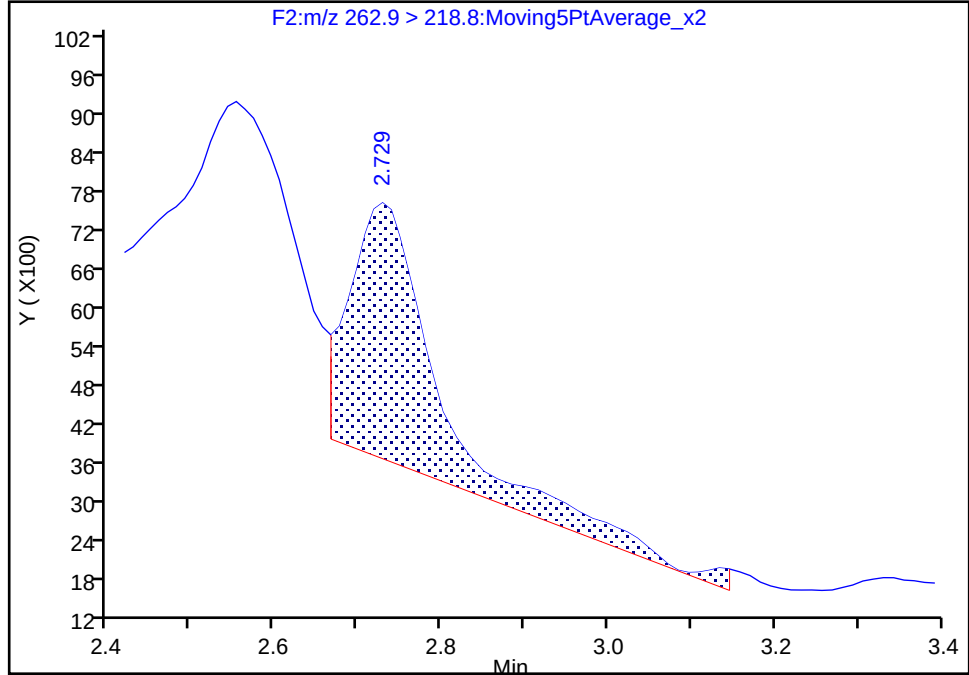
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Injection Date: 10-Jan-2019 00:06:27 Instrument ID: LC410
Lims ID: 480-147352-A-2-B MSD
Client ID: 779078
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 33
Injection Vol: 20.0 ul Dil. Factor: 5.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

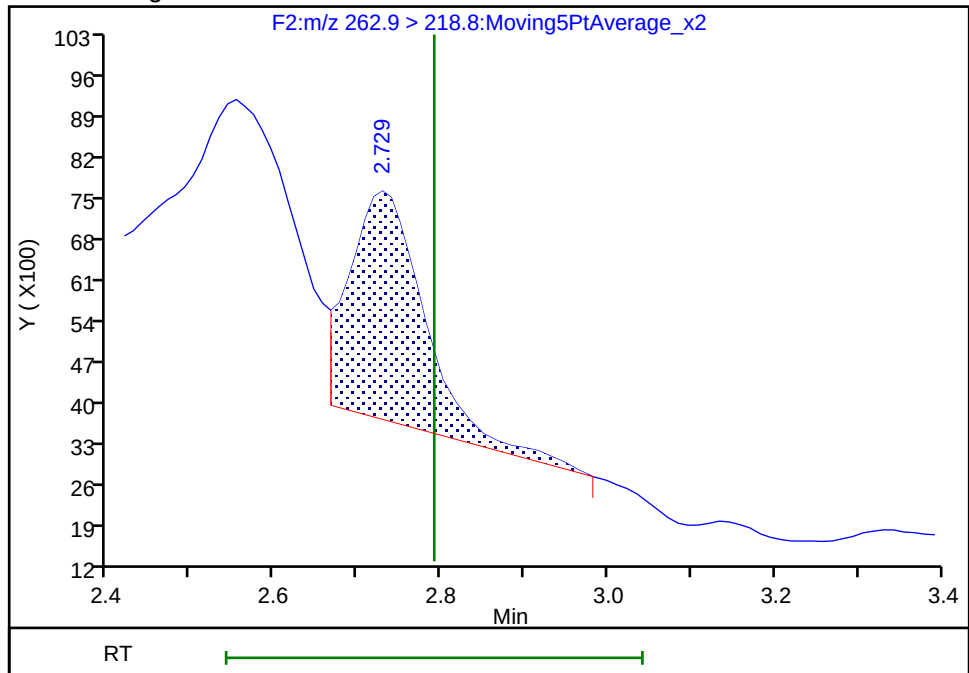
RT: 2.73
Area: 29343
Amount: 5.829632
Amount Units: ng/ml

Processing Integration Results



RT: 2.73
Area: 24611
Amount: 4.889516
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:15:29
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

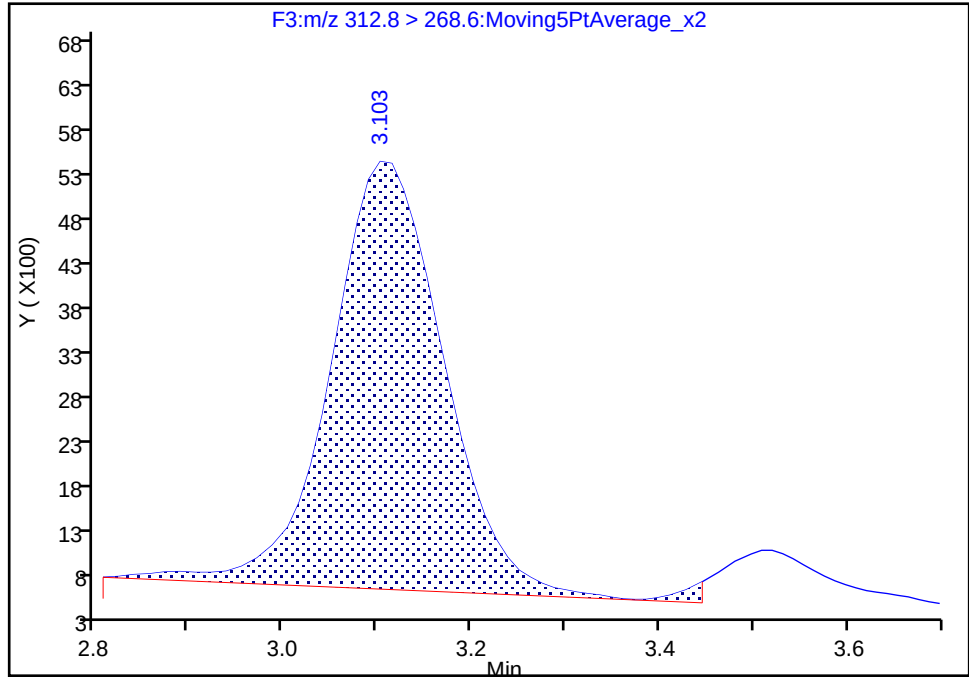
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Injection Date: 10-Jan-2019 00:06:27 Instrument ID: LC410
Lims ID: 480-147352-A-2-B MSD
Client ID: 779078
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 33
Injection Vol: 20.0 ul Dil. Factor: 5.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F3:MRM

8 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

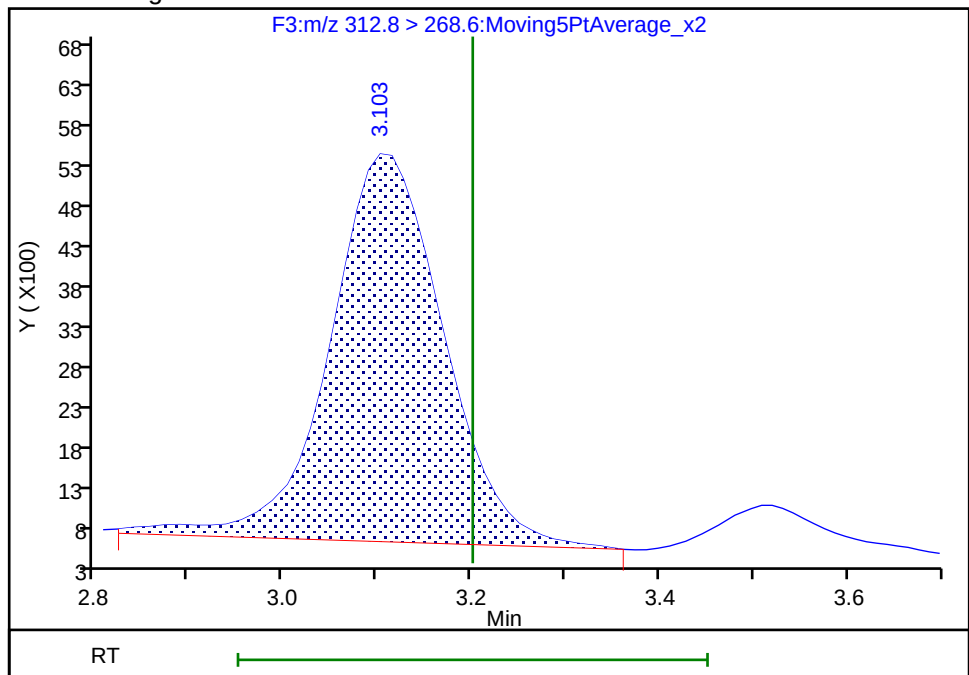
RT: 3.10
Area: 40575
Amount: 13.320125
Amount Units: ng/ml

Processing Integration Results



RT: 3.10
Area: 40591
Amount: 13.325377
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:15:55
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

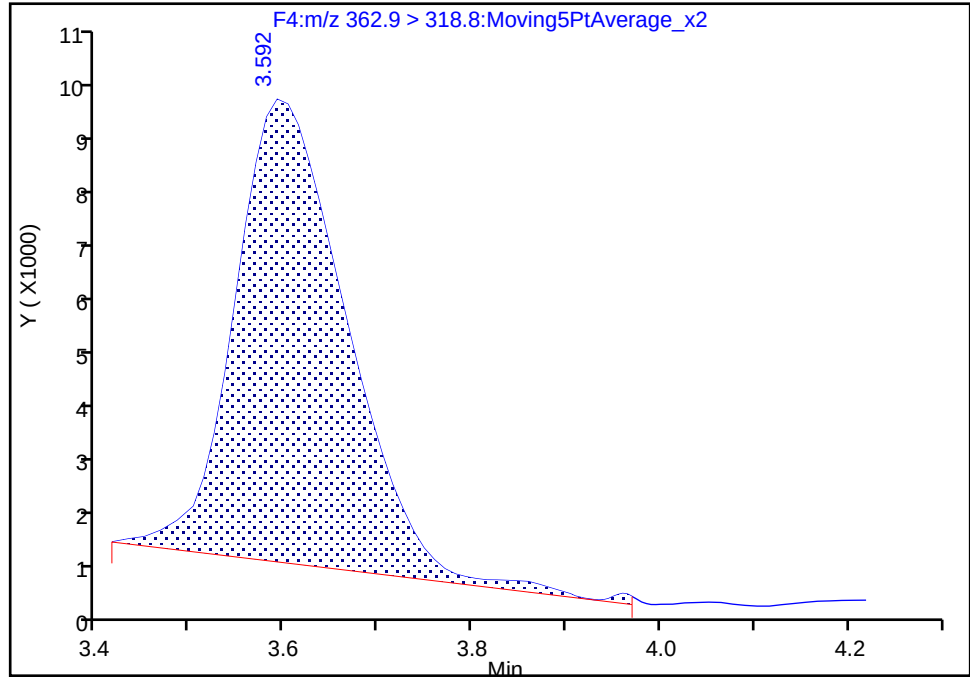
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Injection Date: 10-Jan-2019 00:06:27 Instrument ID: LC410
Lims ID: 480-147352-A-2-B MSD
Client ID: 779078
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 33
Injection Vol: 20.0 ul Dil. Factor: 5.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F4:MRM

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

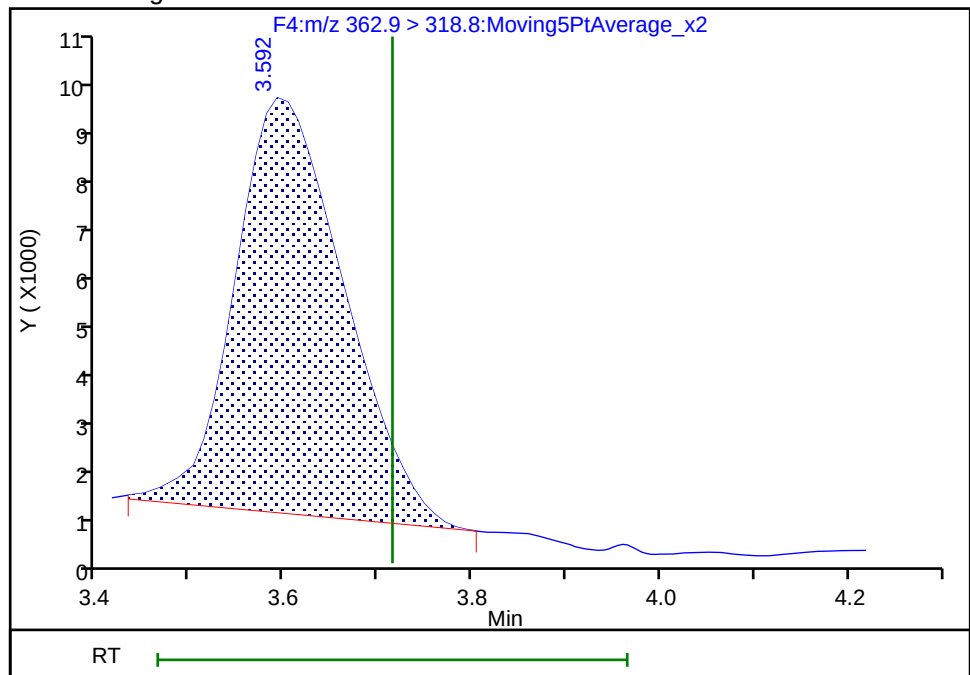
RT: 3.59
Area: 72163
Amount: 8.906569
Amount Units: ng/ml

Processing Integration Results



RT: 3.59
Area: 69147
Amount: 8.534326
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:16:03
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

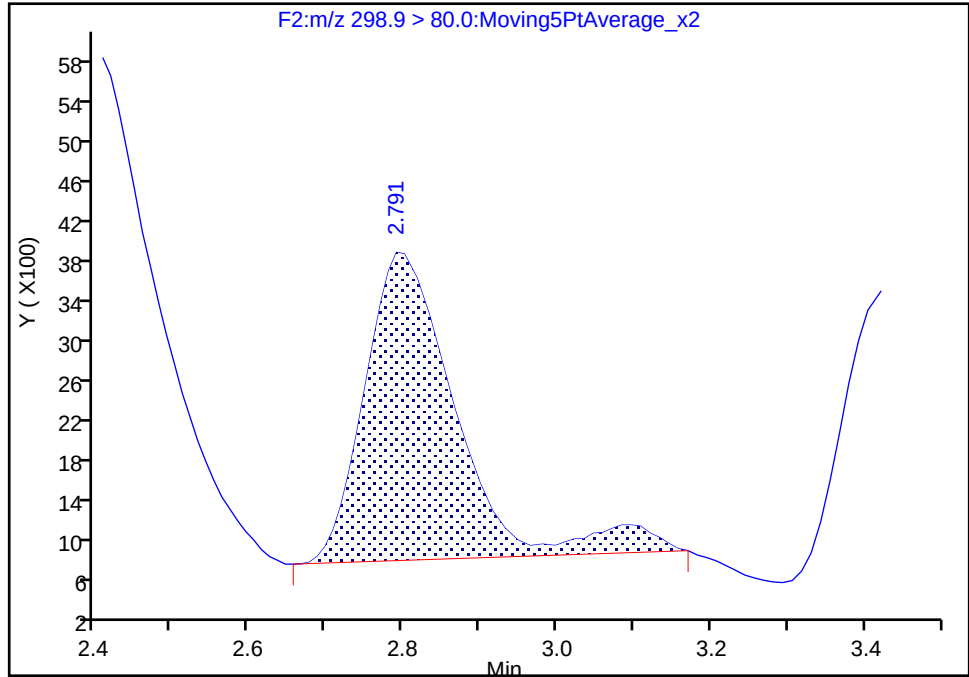
Data File: \\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A33.d
Injection Date: 10-Jan-2019 00:06:27 Instrument ID: LC410
Lims ID: 480-147352-A-2-B MSD
Client ID: 779078
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 33
Injection Vol: 20.0 ul Dil. Factor: 5.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F2:MRM

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

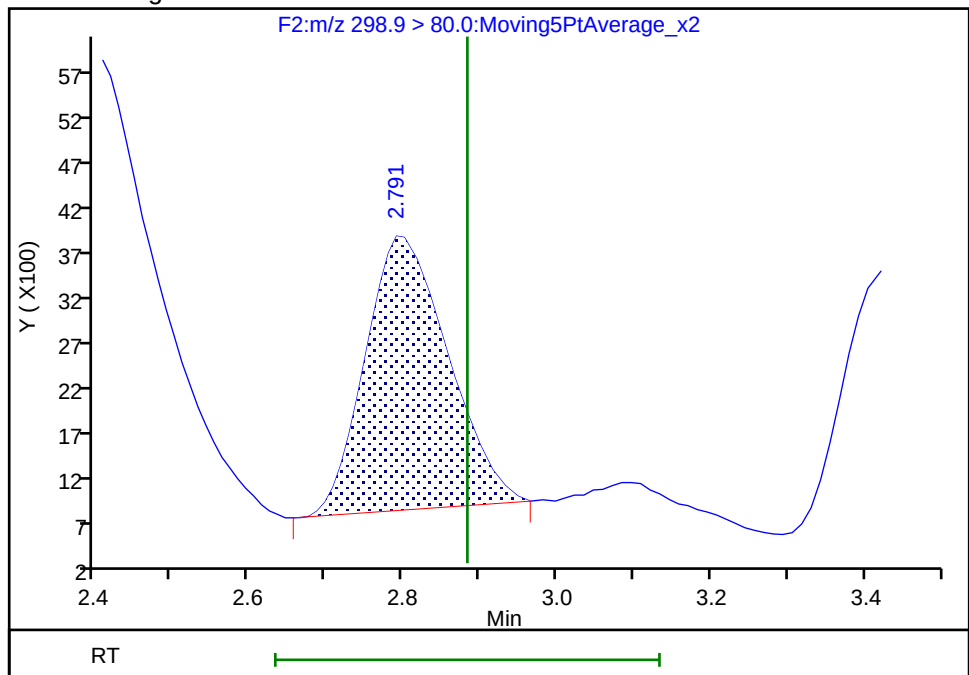
RT: 2.79
Area: 25647
Amount: 4.472796
Amount Units: ng/ml

Processing Integration Results



RT: 2.79
Area: 22706
Amount: 3.959890
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:15:47
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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01/17/2019

TestAmerica Burlington

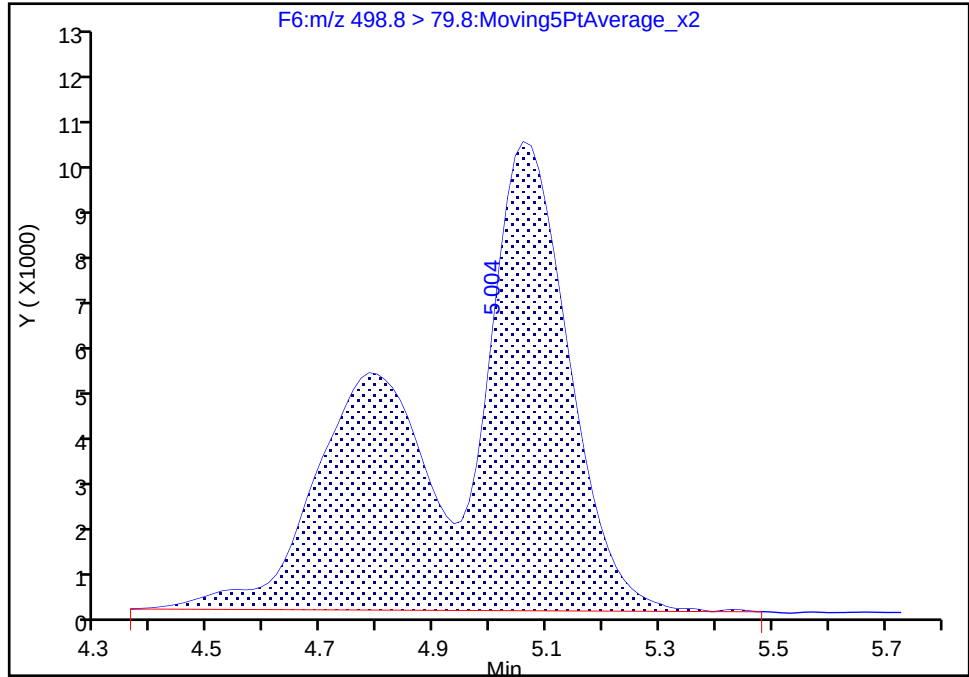
Data File:	\\chromna\Burlington\ChromData\LC410\20190109-34076.b\PF010919A33.d		
Injection Date:	10-Jan-2019 00:06:27	Instrument ID:	LC410
Lims ID:	480-147352-A-2-B MSD		
Client ID:	779078		
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	5.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector:	F6:MRM
		Worklist Smp#:	33

21 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

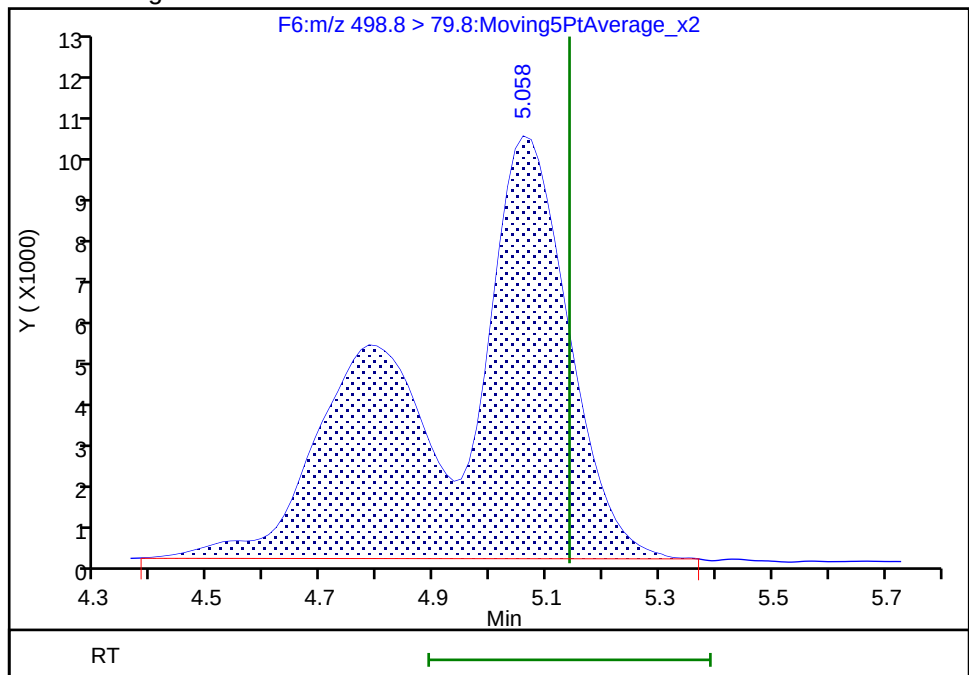
RT: 5.00
Area: 169030
Amount: 33.077772
Amount Units: ng/ml

Processing Integration Results



RT: 5.06
Area: 167541
Amount: 32.786387
Amount Units: ng/ml

Manual Integration Results



Reviewer: murrayjw, 10-Jan-2019 11:16:25
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
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TestAmerica Burlington

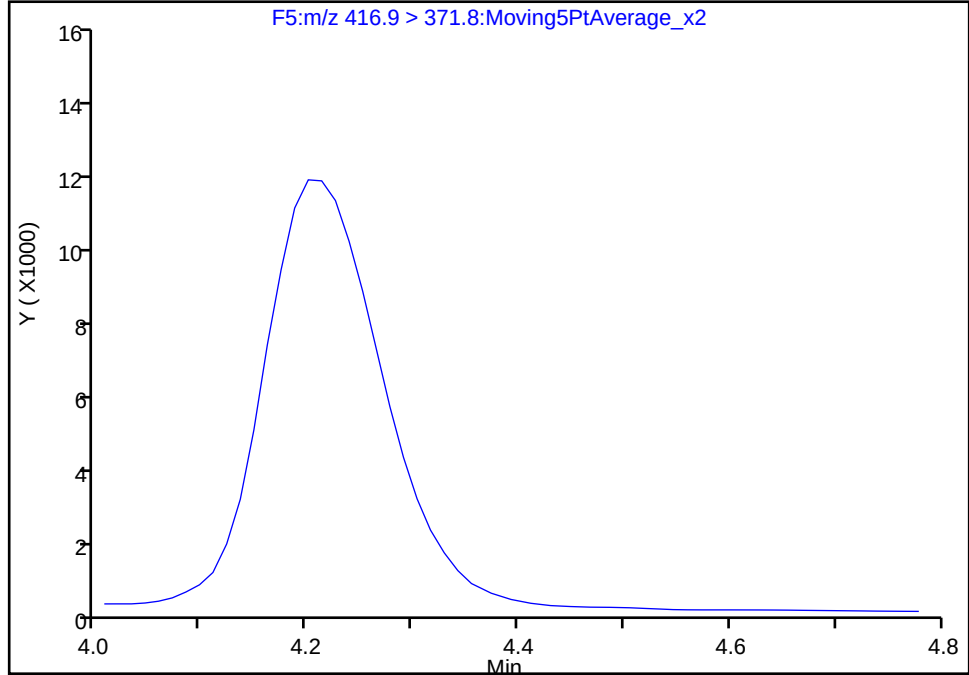
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Injection Date:	10-Jan-2019 00:06:27	Instrument ID:	LC410
Lims ID:	480-147352-A-2-B MSD		
Client ID:	779078		
Operator ID:	BC	ALS Bottle#:	0
Injection Vol:	20.0 ul	Dil. Factor:	5.0000
Method:	PFCISO_12MRM	Limit Group:	LC_PFC_ICAL
Column:		Detector	F5:MRM
		Worklist Smp#:	33

D 17 13C4 PFOA, CAS: STL00990

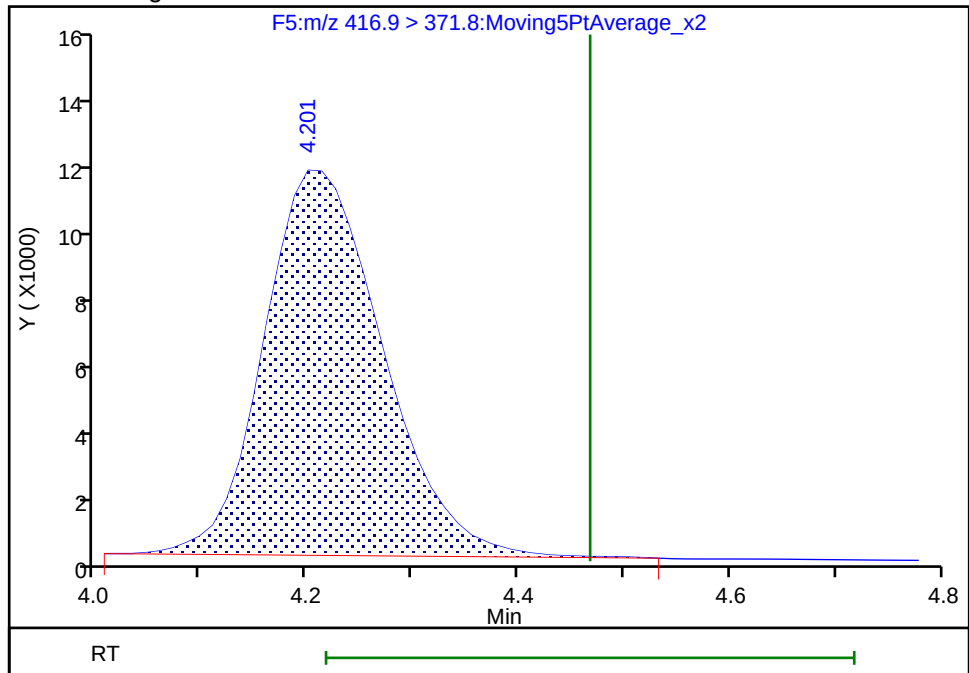
Signal: 1

Not Detected
Expected RT: 4.47

Processing Integration Results

RT: 4.20
Area: 91238
Amount: 7.102037
Amount Units: ng/ml

Manual Integration Results

Reviewer: murrayjw, 10-Jan-2019 11:16:16
Audit Action: Assigned Compound IDAudit Reason: Incomplete Integration
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01/17/2019

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>480-147352-1</u>
SDG No.: _____	
Client Sample ID: <u>779078 MSD</u>	Lab Sample ID: <u>480-147352-2 MSD</u>
Matrix: <u>Water</u>	Lab File ID: <u>PF011019A13.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>12/27/2018 15:10</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>01/08/2019 11:00</u>
Sample wt/vol: <u>263.1 (mL)</u>	Date Analyzed: <u>01/10/2019 16:13</u>
Con. Extract Vol.: <u>0.5 (mL)</u>	Dilution Factor: <u>20</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>C-18</u> ID: <u>4.6 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>138989</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
335-67-1	Perfluorooctanoic acid (PFOA)	191		38	6.1
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	38.3	J	380	19

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00990	13C4 PFOA	61		50-150
STL02279	M2-6:2 FTS	181	*	25-150

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A13.d
 Lims ID: 480-147352-A-2-B MSD
 Client ID: 779078
 Sample Type: MSD
 Inject. Date: 10-Jan-2019 16:13:54 ALS Bottle#: 0 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 20.0000
 Sample Info: 200-0034093-013 2MSD 20X
 Misc. Info.: PFAS21 011019A
 Operator ID: BC Instrument ID: LC410
 Method: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PFCISO_12MRM.m
 Limit Group: LC_PFC_ICAL
 Last Update: 10-Jan-2019 17:18:54 Calib Date: 17-Oct-2018 15:27:36
 Integrator: Picker
 Quant Method: Isotopic Dilution Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\LC410\20181017-32684.b\PF101718A14.d
 Column 1 : Det: F1:MRM
 Process Host: CTX0308

First Level Reviewer: chirgwinb

Date: 10-Jan-2019 17:11:13

Ratio Calibration: None

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.9 > 168.9	2.361	2.392	-0.031	1.000	26617	7.13		713	6.8	M
D 1 13C4 PFBA										M
216.9 > 171.5	2.361	2.392	-0.031	1.000	10735	0.7761		31.0	31.2	M
4 Perfluoropentanoic acid										M
262.9 > 218.8	2.750	2.791	-0.041	0.996	12477	1.26		126	1.4	M
D 3 13C5 PFPeA										
267.7 > 222.6	2.760	2.801	-0.041	1.000	8697	0.99		39.7	11.2	
D 6 13C3 PFBS										
302.0 > 79.8	2.818	2.867	-0.049	1.000	12625	1.74		75.0	37.2	
5 Perfluorobutanesulfonic acid										M
298.9 > 80.0	2.818	2.867	-0.049	1.000	8589	0.9064		103	2.7	M
8 Perfluorohexanoic acid										M
312.8 > 268.6	3.140	3.189	-0.049	1.004	21950	2.75		275	11.9	M
D 7 13C2 PFHxA										M
314.8 > 269.6	3.127	3.201	-0.074	1.000	19252	1.22		48.7	84.0	M
10 Perfluoroheptanoic acid										M
362.9 > 318.8	3.648	3.692	-0.044	1.000	37095	2.31		231	47.0	M
D 9 13C4 PFHpA										
366.9 > 321.8	3.648	3.715	-0.067	1.000	41016	1.42		56.7	219	
12 Perfluorohexanesulfonic acid										
399.0 > 80.0	3.681	3.737	-0.056	0.997	18380	1.53		168	6.9	
D 11 18O2 PFHxS										
402.9 > 83.8	3.692	3.759	-0.067	1.000	16151	1.93		81.6	203	
14 1H,1H,2H,2H-perfluorooctanesulfoni										M
426.6 > 406.6	4.214	4.291	-0.077	1.000	4651	1.01		106	121	M
D 13 M2-6:2 FTS										
428.6 > 408.6	4.214	4.330	-0.116	1.000	11125	4.31		181	101	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
* 15 13C2 PFOA										
414.9 > 369.8	4.252	4.330	-0.078		58860	2.50			168	
16 Perfluorooctanoic acid										
412.9 > 368.8	4.239	4.342	-0.103	1.000	67617	5.03		503	94.4	
D 17 13C4 PFOA										
416.9 > 371.8	4.239	4.355	-0.116	1.000	33924	1.54		61.4	108	
18 Perfluoroheptanesulfonic acid										
448.8 > 79.8	4.291	4.374	-0.083	0.846	2928	0.5024		52.8	13.8	M
19 Perfluorononanoic acid										
462.8 > 418.8	5.058	5.085	-0.027	1.000	22450	0.9161		91.6	68.3	
21 Perfluorooctanesulfonic acid										
498.8 > 79.8	5.085	5.099	-0.014	1.003	56654	8.98		967	285	M
D 20 13C5 PFNA										
467.8 > 422.8	5.058	5.113	-0.055	1.000	55735	1.87		74.8	288	
D 22 13C4 PFOS										
502.8 > 79.8	5.072	5.140	-0.068	1.000	14591	1.97		82.4	91.7	
23 1H,1H,2H,2H-perfluorodecanesulfoni										
526.8 > 506.5	5.823	5.823	0.0	1.000	4568	0.8536		89.1	33.0	
D 24 M2-8:2 FTS										
528.8 > 508.8	5.823	5.863	-0.040	1.000	15886	2.27		94.8	87.2	
25 Perfluorodecanoic acid										
512.9 > 468.5	5.843	5.863	-0.020	1.000	26053	1.09		109	180	
D 26 13C2 PFDA										
514.9 > 469.5	5.843	5.882	-0.039	1.000	59401	1.93		77.4	524	
28 N-methylperfluorooctanesulfonamido										
569.8 > 418.8	6.205	6.223	-0.018	1.000	2217	0.5176		51.8	25.6	M
D 27 d3-NMeFOSAA										
572.8 > 418.8	6.205	6.241	-0.036	1.000	9861	1.26		50.3	78.3	
30 N-ethylperfluorooctanesulfonamidoa										
583.9 > 418.8	6.580	6.580	0.0	1.003	4348	1.29		129	17.3	
D 29 d5-NEtFOSAA										
588.9 > 418.8	6.562	6.598	-0.036	1.000	8759	1.32		52.6	114	
31 Perfluorodecanesulfonic acid										
598.8 > 79.8	6.580	6.598	-0.018	1.297	5125	0.8025		83.2	75.5	
33 Perfluoroundecanoic acid										
562.8 > 518.6	6.598	6.616	-0.018	1.000	22820	1.10		110	144	
D 32 13C2 PFUnA										
564.8 > 519.8	6.598	6.652	-0.054	1.000	50703	1.59		63.4	511	
D 35 13C8 FOSA										
505.8 > 77.8	6.903	6.917	-0.014	1.000	26100	1.83		73.1	168	
34 Perfluorooctanesulfonamide										
497.8 > 77.8	6.917	6.917	0.0	1.002	7075	0.8009		80.1	90.6	
36 Perfluorododecanoic acid										
612.8 > 568.6	7.272	7.294	-0.022	0.997	14178	1.08		108	119	
D 37 13C2 PFDaA										
614.8 > 569.6	7.294	7.339	-0.045	1.000	38242	0.9453		37.8	181	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
38 Perfluorotridecanoic acid										M
662.8 > 618.6	7.886	7.920	-0.034	0.933	13367	1.03		103	150	M
39 Perfluorotetradecanoic acid										M
712.8 > 668.6	8.438	8.468	-0.030	0.998	9775	0.7571	Target=1.00	75.7	70.2	
712.8 > 168.8	8.438	8.468	-0.030	0.998	2373		4.12(0.90-1.10)		16.5	
712.8 > 218.8	8.468	8.468	0.0	1.002	1405		6.96(0.90-1.10)		13.4	M
D 40 13C2 PFTeDA										
714.8 > 669.6	8.453	8.514	-0.061	1.000	33113	0.8920		35.7	233	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Burlington

Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A13.d

Injection Date: 10-Jan-2019 16:13:54

Instrument ID: LC410

Lims ID: 480-147352-A-2-B MSD

Client ID: 779078

Operator ID: BC

ALS Bottle#: 0

Worklist Smp#: 13

Injection Vol: 20.0 ul

Dil. Factor: 20.0000

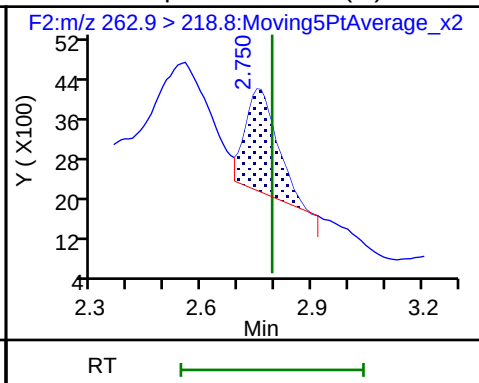
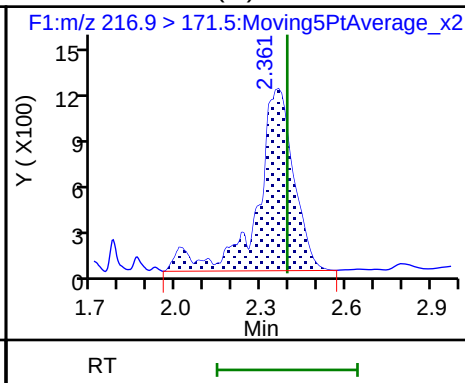
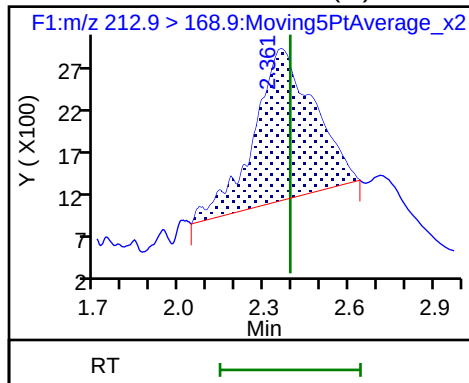
Method: PFCISO_12MRM

Limit Group: LC_PFC_ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA (M)

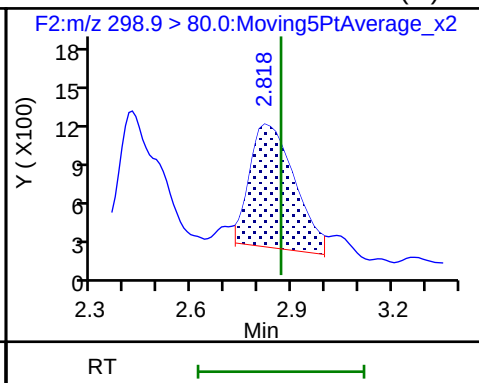
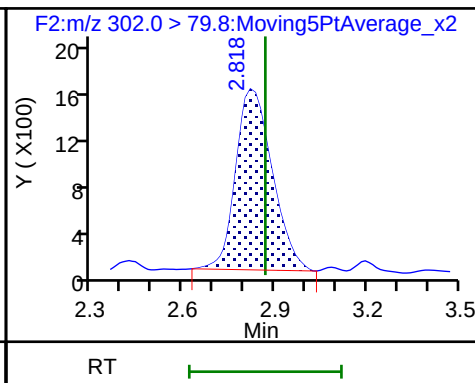
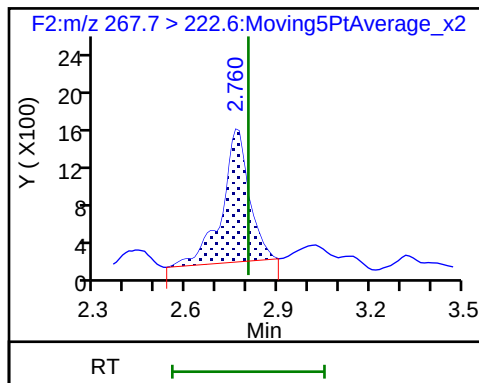
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

D 6 13C3 PFBS

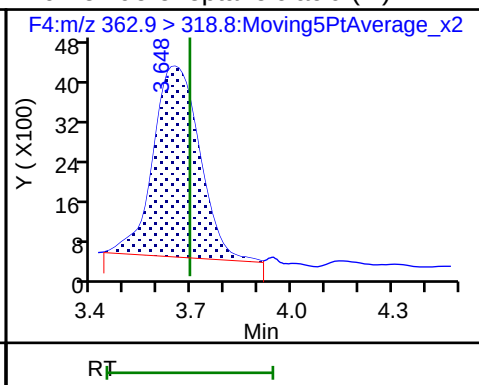
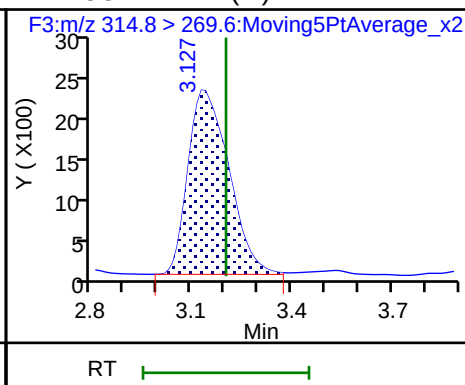
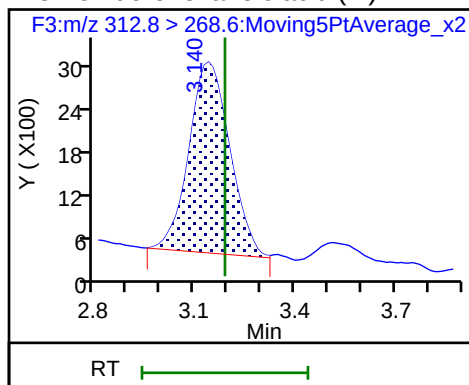
5 Perfluorobutanesulfonic acid (M)



8 Perfluorohexanoic acid (M)

D 7 13C2 PFHxA (M)

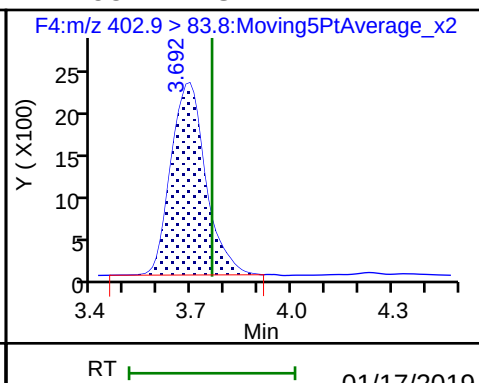
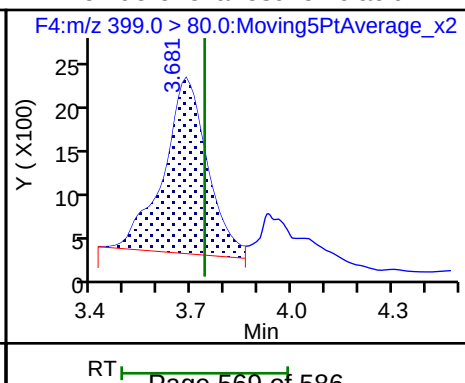
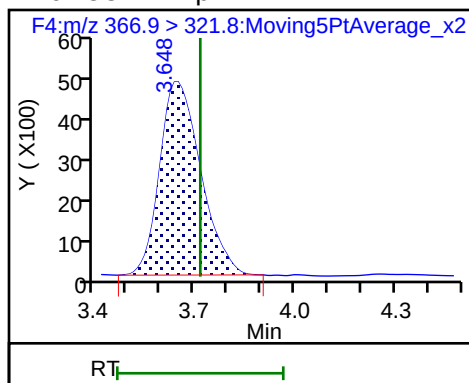
10 Perfluoroheptanoic acid (M)



D 9 13C4 PFHpA

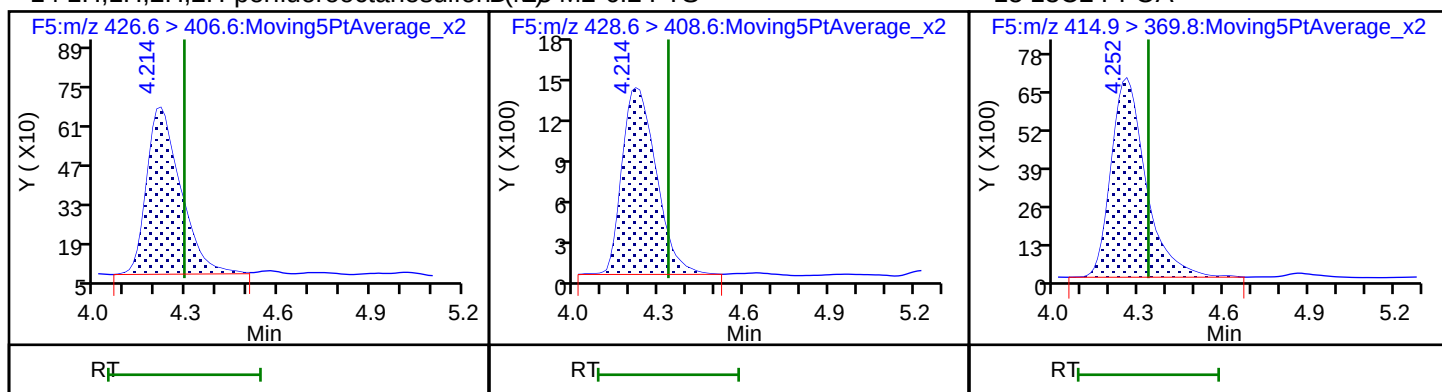
12 Perfluorohexanesulfonic acid

D 11 18O2 PFHxS



14 1H,1H,2H,2H-perfluorooctanesulfonate (M) M2-6:2 FTS

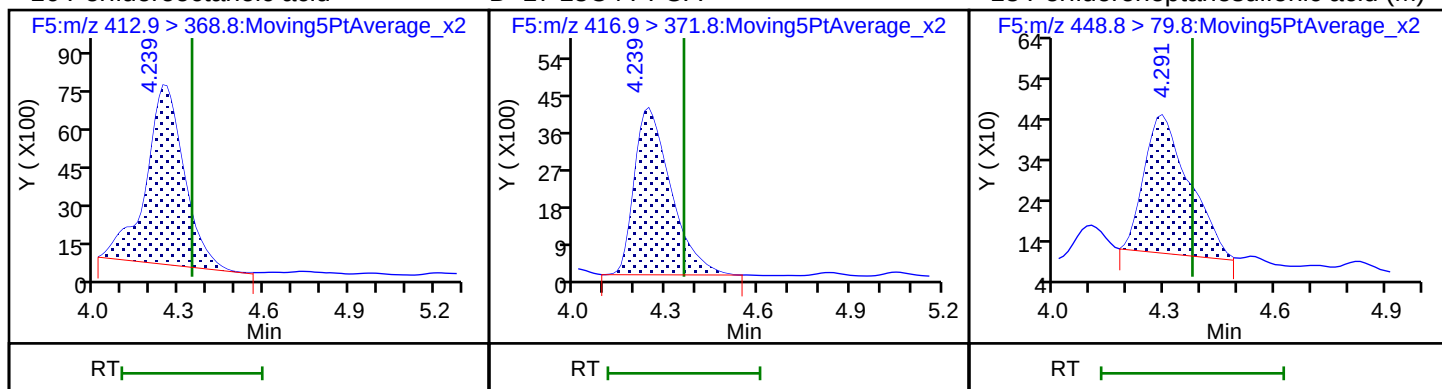
* 15 13C2 PFOA



16 Perfluorooctanoic acid

D 17 13C4 PFOA

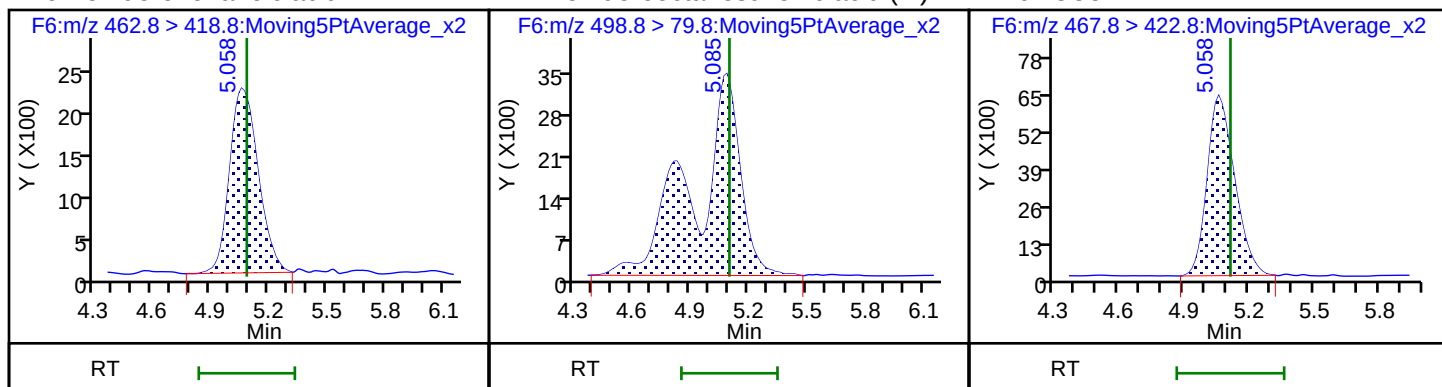
18 Perfluoroheptanesulfonic acid (M)



19 Perfluorononanoic acid

21 Perfluorooctanesulfonic acid (M)

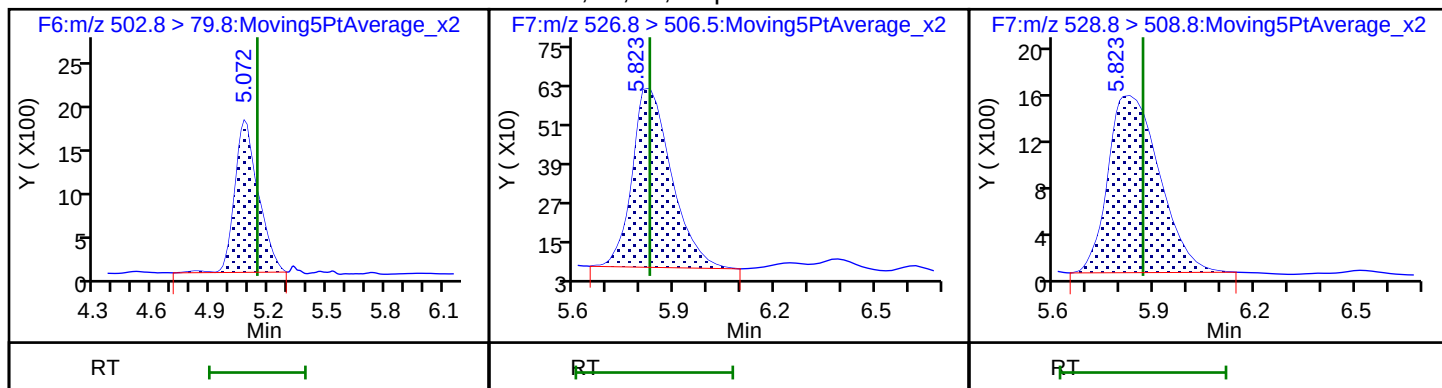
D 20 13C5 PFNA

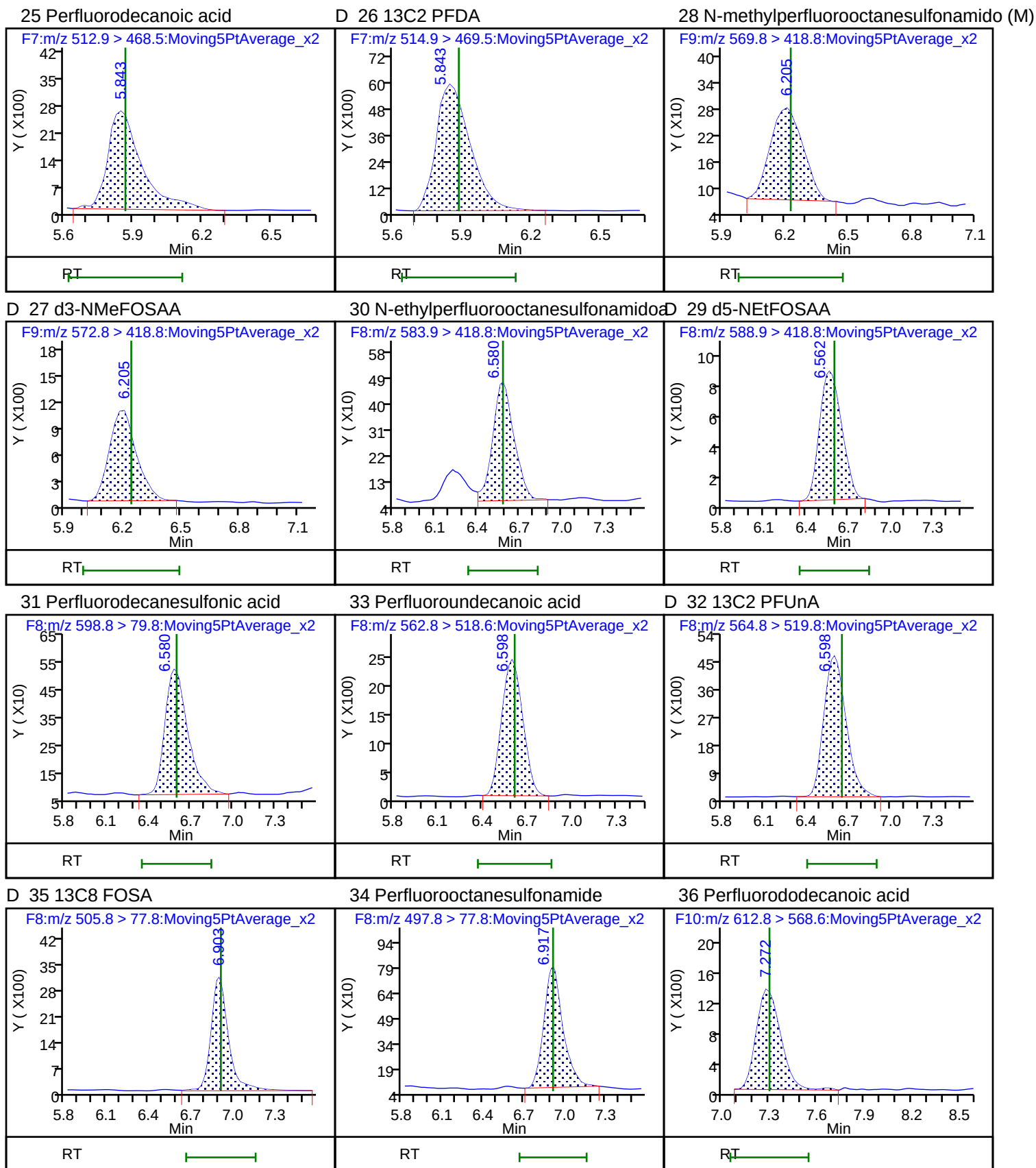


D 22 13C4 PFOS

23 1H,1H,2H,2H-perfluorodecanesulfonate (M) M2-8:2 FTS

D 24 M2-8:2 FTS

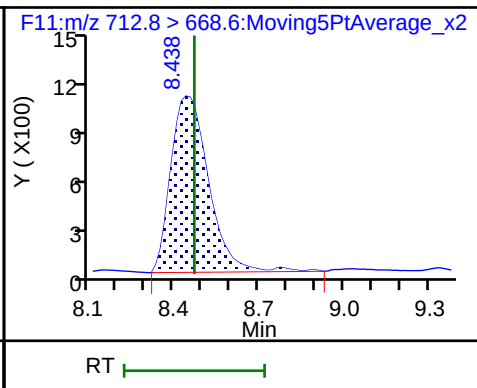
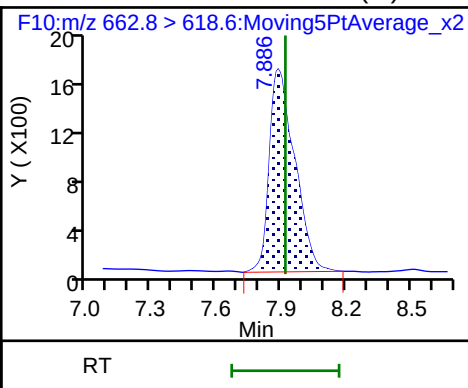
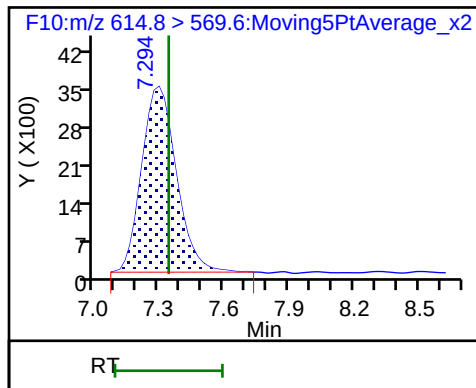




D 37 13C2 PFDaA

38 Perfluorotridecanoic acid (M)

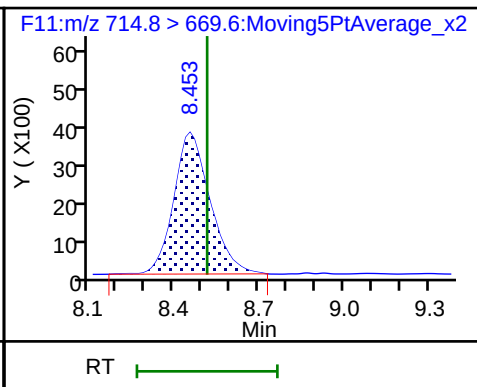
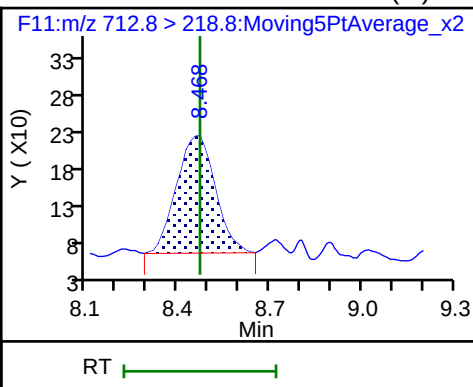
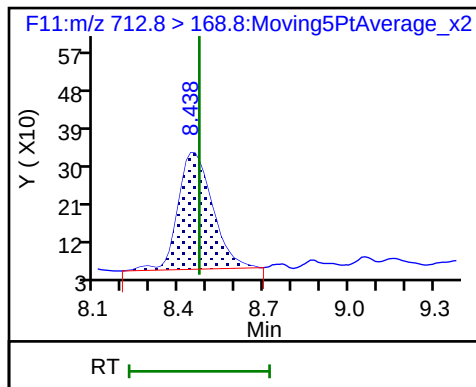
39 Perfluorotetradecanoic acid



39 Perfluorotetradecanoic acid

39 Perfluorotetradecanoic acid (M)

D 40 13C2 PFTeDA



TestAmerica Burlington

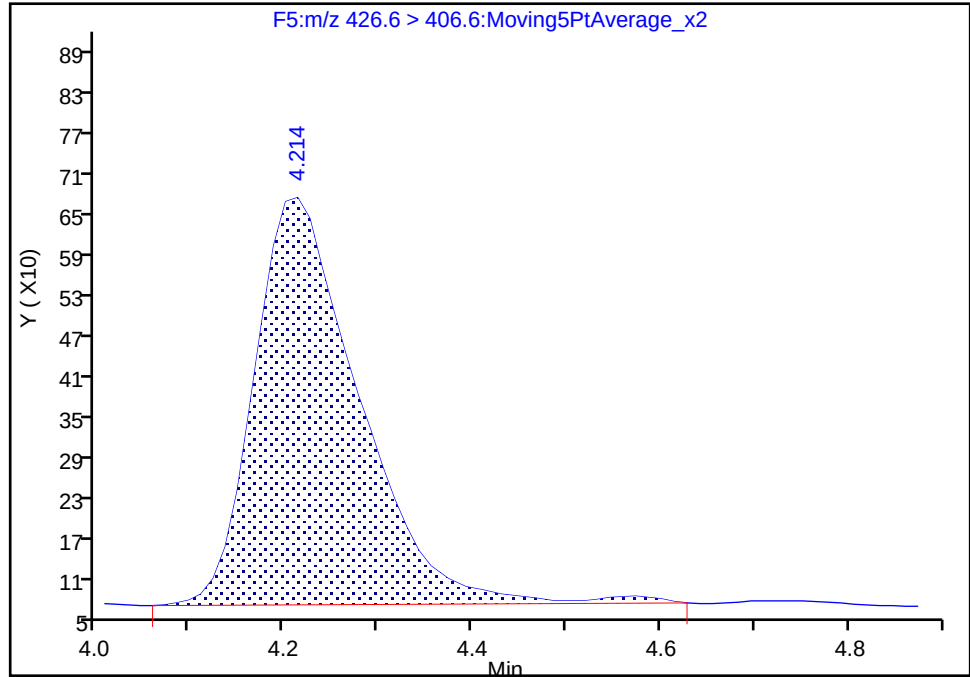
Data File: \\chromna\Burlington\ChromData\LC410\20190110-34093.b\PF011019A13.d
Injection Date: 10-Jan-2019 16:13:54 Instrument ID: LC410
Lims ID: 480-147352-A-2-B MSD
Client ID: 779078
Operator ID: BC ALS Bottle#: 0 Worklist Smp#: 13
Injection Vol: 20.0 ul Dil. Factor: 20.0000
Method: PFCISO_12MRM Limit Group: LC_PFC_ICAL
Column: Detector F5:MRM

14 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:, CAS: 27619-97-2

Signal: 1

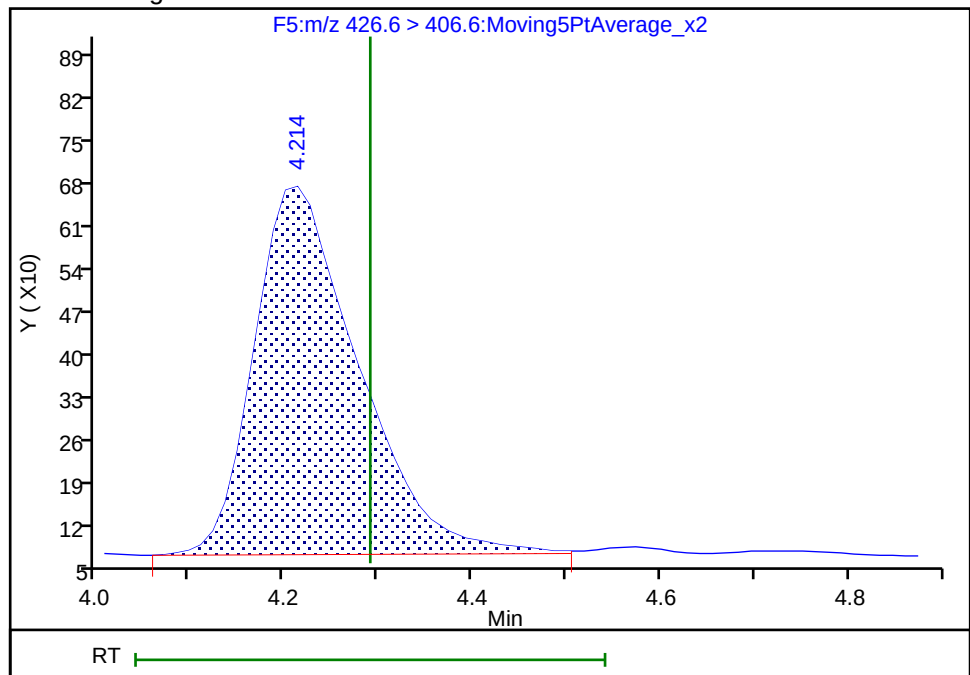
RT: 4.21
Area: 4696
Amount: 1.018261
Amount Units: ng/ml

Processing Integration Results



RT: 4.21
Area: 4651
Amount: 1.008503
Amount Units: ng/ml

Manual Integration Results



Reviewer: chirgwinb, 10-Jan-2019 17:10:26

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica BurlingtonJob No.: 480-147352-1

SDG No.: _____

Instrument ID: LC410Start Date: 10/17/2018 11:53Analysis Batch Number: 135376End Date: 10/18/2018 08:55

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		10/17/2018 11:53	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 12:16	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 12:32	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 12:48	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 13:04	1		C-18 4.6 (mm)
IC 200-135376/6		10/17/2018 13:20	1	PF101718A06.d	C-18 4.6 (mm)
IC 200-135376/7		10/17/2018 13:35	1	PF101718A07.d	C-18 4.6 (mm)
IC 200-135376/8		10/17/2018 13:51	1	PF101718A08.d	C-18 4.6 (mm)
IC 200-135376/9		10/17/2018 14:07	1	PF101718A09.d	C-18 4.6 (mm)
ICIS 200-135376/10		10/17/2018 14:23	1	PF101718A10.d	C-18 4.6 (mm)
IC 200-135376/11		10/17/2018 14:39	1	PF101718A11.d	C-18 4.6 (mm)
IC 200-135376/12		10/17/2018 14:55	1	PF101718A12.d	C-18 4.6 (mm)
IC 200-135376/13		10/17/2018 15:11	1	PF101718A13.d	C-18 4.6 (mm)
IC 200-135376/14		10/17/2018 15:27	1	PF101718A14.d	C-18 4.6 (mm)
ICB 200-135376/15		10/17/2018 15:43	1		C-18 4.6 (mm)
ICV 200-135376/16		10/17/2018 15:59	1	PF101718A16.d	C-18 4.6 (mm)
ZZZZZ		10/17/2018 16:15	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 16:31	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 16:47	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 17:03	2		C-18 4.6 (mm)
ZZZZZ		10/17/2018 17:18	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 17:34	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 17:50	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 18:06	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 18:22	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 18:38	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 18:54	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 19:10	1		C-18 4.6 (mm)
CCV 200-135376/29		10/17/2018 19:26	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 19:42	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 19:58	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 20:14	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 20:30	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 20:45	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 21:01	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 21:17	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 21:33	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 21:49	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 22:05	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 22:21	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 22:37	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 22:53	1		C-18 4.6 (mm)
CCV 200-135376/43		10/17/2018 23:08	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 23:24	1		C-18 4.6 (mm)
ZZZZZ		10/17/2018 23:40	1		C-18 4.6 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica BurlingtonJob No.: 480-147352-1

SDG No.: _____

Instrument ID: LC410Start Date: 10/17/2018 11:53Analysis Batch Number: 135376End Date: 10/18/2018 08:55

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		10/17/2018 23:56	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 00:12	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 00:28	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 00:44	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 01:00	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 01:16	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 01:31	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 01:47	1		C-18 4.6 (mm)
CCV 200-135376/54		10/18/2018 02:03	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 02:19	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 02:35	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 02:51	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 03:07	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 03:23	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 03:38	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 03:54	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 04:10	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 04:26	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 04:42	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 04:58	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 05:13	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 05:29	1		C-18 4.6 (mm)
CCV 200-135376/68		10/18/2018 05:45	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 06:01	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 06:17	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 06:33	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 06:48	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 07:04	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 07:20	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 07:36	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 07:52	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 08:08	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 08:23	1		C-18 4.6 (mm)
ZZZZZ		10/18/2018 08:39	1		C-18 4.6 (mm)
CCV 200-135376/80		10/18/2018 08:55	1		C-18 4.6 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica BurlingtonJob No.: 480-147352-1

SDG No.: _____

Instrument ID: LC410Start Date: 01/09/2019 15:30Analysis Batch Number: 138946End Date: 01/10/2019 07:46

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		01/09/2019 15:30	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 15:53	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 16:09	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 16:25	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 16:41	1		C-18 4.6 (mm)
CCVIS 200-138946/6		01/09/2019 16:57	1	PF010919A06.d	C-18 4.6 (mm)
CCVL 200-138946/7		01/09/2019 17:13	1	PF010919A07.d	C-18 4.6 (mm)
CCV 200-138946/8		01/09/2019 17:29	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 17:44	5		C-18 4.6 (mm)
ZZZZZ		01/09/2019 18:00	5		C-18 4.6 (mm)
CCV 200-138946/11		01/09/2019 18:16	1	PF010919A11.d	C-18 4.6 (mm)
MB 200-138891/1-A		01/09/2019 18:32	1	PF010919A12.d	C-18 4.6 (mm)
LCS 200-138891/2-A		01/09/2019 18:48	1	PF010919A13.d	C-18 4.6 (mm)
ZZZZZ		01/09/2019 19:04	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 19:20	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 19:36	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 19:52	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 20:08	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 20:24	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 20:39	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 20:55	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 21:11	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 21:27	1		C-18 4.6 (mm)
CCV 200-138946/24		01/09/2019 21:43	1	PF010919A24.d	C-18 4.6 (mm)
ZZZZZ		01/09/2019 21:59	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 22:15	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 22:31	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 22:46	1		C-18 4.6 (mm)
ZZZZZ		01/09/2019 23:02	1		C-18 4.6 (mm)
480-147352-1		01/09/2019 23:18	1	PF010919A30.d	C-18 4.6 (mm)
480-147352-2		01/09/2019 23:34	5	PF010919A31.d	C-18 4.6 (mm)
480-147352-2 MS		01/09/2019 23:50	5	PF010919A32.d	C-18 4.6 (mm)
480-147352-2 MSD		01/10/2019 00:06	5	PF010919A33.d	C-18 4.6 (mm)
480-147352-3		01/10/2019 00:22	1	PF010919A34.d	C-18 4.6 (mm)
480-147352-4		01/10/2019 00:38	5	PF010919A35.d	C-18 4.6 (mm)
480-147352-5		01/10/2019 00:54	1	PF010919A36.d	C-18 4.6 (mm)
CCV 200-138946/37		01/10/2019 01:09	1	PF010919A37.d	C-18 4.6 (mm)
ZZZZZ		01/10/2019 01:25	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 01:41	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 01:57	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 02:13	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 02:29	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 02:44	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 03:00	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 03:16	1		C-18 4.6 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Instrument ID: LC410 Start Date: 01/09/2019 15:30Analysis Batch Number: 138946 End Date: 01/10/2019 07:46

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		01/10/2019 03:32	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 03:48	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 04:04	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 04:20	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 04:36	1		C-18 4.6 (mm)
CCV 200-138946/51		01/10/2019 04:52	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 05:07	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 05:23	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 05:39	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 05:55	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 06:11	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 06:27	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 06:42	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 06:58	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 07:14	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 07:30	1		C-18 4.6 (mm)
CCV 200-138946/62		01/10/2019 07:46	1		C-18 4.6 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Instrument ID: LC410 Start Date: 01/10/2019 12:56Analysis Batch Number: 138989 End Date: 01/10/2019 16:45

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
ZZZZZ		01/10/2019 12:56	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 13:19	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 13:35	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 13:51	1		C-18 4.6 (mm)
ZZZZZ		01/10/2019 14:07	1		C-18 4.6 (mm)
CCVIS 200-138989/6		01/10/2019 14:22	1	PF011019A06.d	C-18 4.6 (mm)
CCVL 200-138989/7		01/10/2019 14:38	1	PF011019A07.d	C-18 4.6 (mm)
CCV 200-138989/8		01/10/2019 14:54	1	PF011019A08.d	C-18 4.6 (mm)
ZZZZZ		01/10/2019 15:10	10		C-18 4.6 (mm)
ZZZZZ		01/10/2019 15:26	10		C-18 4.6 (mm)
480-147352-2		01/10/2019 15:42	20	PF011019A11.d	C-18 4.6 (mm)
480-147352-2 MS		01/10/2019 15:58	20	PF011019A12.d	C-18 4.6 (mm)
480-147352-2 MSD		01/10/2019 16:13	20	PF011019A13.d	C-18 4.6 (mm)
480-147352-4		01/10/2019 16:29	20	PF011019A14.d	C-18 4.6 (mm)
CCV 200-138989/15		01/10/2019 16:45	1	PF011019A15.d	C-18 4.6 (mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Batch Number: 138891 Batch Start Date: 01/08/19 11:00 Batch Analyst: Murray, John WBatch Method: 3535 Batch End Date: 01/08/19 11:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFCIDA21 00006	LCPFAS 24SP 00002
MB 200-138891/1		3535, 537 (modified)		250 g	0 g	250 mL	0.5 mL	0.025 mL	
LCS 200-138891/2		3535, 537 (modified)		250 g	0 g	250 mL	0.5 mL	0.025 mL	0.01 mL
480-147352-A-1	779077	3535, 537 (modified)	T	288.15 g	26.08 g	262.1 mL	0.5 mL	0.025 mL	
480-147352-B-2	779078	3535, 537 (modified)	T	289.46 g	26.09 g	263.4 mL	0.5 mL	0.025 mL	
480-147352-A-2 MS	779078	3535, 537 (modified)	T	286.03 g	26.31 g	259.7 mL	0.5 mL	0.025 mL	0.01 mL
480-147352-A-2 MSD	779078	3535, 537 (modified)	T	289.07 g	25.99 g	263.1 mL	0.5 mL	0.025 mL	0.01 mL
480-147352-B-3	779079	3535, 537 (modified)	T	285.83 g	25.69 g	260.1 mL	0.5 mL	0.025 mL	
480-147352-A-4	779081	3535, 537 (modified)	T	283.50 g	25.41 g	258.1 mL	0.5 mL	0.025 mL	
480-147352-B-5	779082 (Field Blank)	3535, 537 (modified)	T	288.69 g	26.11 g	262.6 mL	0.5 mL	0.025 mL	

Lab Sample ID	Client Sample ID	Method Chain	Basis	PFAS21 IS Stk 00006					
MB 200-138891/1		3535, 537 (modified)		0.005 mL					
LCS 200-138891/2		3535, 537 (modified)		0.005 mL					
480-147352-A-1	779077	3535, 537 (modified)	T	0.005 mL					
480-147352-B-2	779078	3535, 537 (modified)	T	0.005 mL					
480-147352-A-2 MS	779078	3535, 537 (modified)	T	0.005 mL					
480-147352-A-2 MSD	779078	3535, 537 (modified)	T	0.005 mL					
480-147352-B-3	779079	3535, 537 (modified)	T	0.005 mL					
480-147352-A-4	779081	3535, 537 (modified)	T	0.005 mL					
480-147352-B-5	779082 (Field Blank)	3535, 537 (modified)	T	0.005 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.

537 (modified)

Page 1 of 2

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Burlington Job No.: 480-147352-1

SDG No.: _____

Batch Number: 138891 Batch Start Date: 01/08/19 11:00 Batch Analyst: Murray, John WBatch Method: 3535 Batch End Date: 01/08/19 11:45

Batch Notes	
Balance ID	M02926
First End time	01/08/2019 11:45
Manifold ID	IDA 3 & 4
Rinse Solvent Lot	1225830
Rinse Solvent Name	Hexane
Solvent Lot #	1236061
Solvent Name	Methanol (0.3% NH4OH)
SPE Cartridge Lot ID	Lot 004238285A
SPE Cartridge Type	Oasis WAX 500mg
Analyst ID - Spike Analyst	JWM
Analyst ID - Spike Witness Analyst	HCK
First Start time	01/08/2019 11:00

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.

Shipping and Receiving Documents

CHAIN OF CUSTODY RECORD (SEE BACK FOR TERMS & CONDITIONS)

CES Certified Environmental Services, Inc.
 7280 Caswell St. (Hancock Air Park)
 North Syracuse, New York 13212
 Phone 315-478-2374
 Fax 315-478-2107

CES BATCH NO: _____ PAGE _____ OF _____
 Turn-Around Time ☒ Standard ☐ 5 Working Days ☐ 3 Working Days
☐ 2 Working Days ☐ 1 Working Days

CLIENT NAME: CES, Inc
 ADDRESS: _____
 CONTACT NAME: Barb DuChene
 CLIENT PHONE: _____ FAX: _____
 PROJECT #/NAME/PO #: 36760

Standard TAT is end of day, 10 working days after lab receipt. Samples received after 2 pm are considered next day business. Rush TAT subject to laboratory approval and surcharges.
 Test America

CLIENT NAME: CES, Inc			CLIENT PHONE:			FAX:														
ADDRESS:			PROJECT #/NAME/PO #:																	
			36760																	
CONTACT NAME: Barb DuChene																				
CES LOG NUMBERS			Collected		Matrix	Grab or Comp.	CLIENT ID/SAMPLE LOCATION			Number of Containers										
(INTERNAL USE/DO NOT WRITE)			Date	Time																
			12/27/18	1130	NPW	Grab		779077	4	X	X									
			12/27/18	1510	NPW	Grab		779078	4	X	X									
			12/27/18	1056	NPW	Grab		779079	4	X	X									
			12/27/18	1512	NPW	Grab		779080 MS/MSD	4	X	X									
			12/27/18	1514	NPW	Grab		779081	4	X	X									
			12/27/18	1459	DI	Grab		779082(Field Blank)	4	X	X									
TA PROJ: 48018956																				
From Syn: PFCs → BVT																				

TA PROT: 48018956, TA PM: B. Fitcher,
 From Syn. PFC: → BVT, Dioxane → BVT - PFC

Preservative Codes: A= Unpreserved B=H₂SO₄ C=HCl D=NaOH E=Ascorbic Acid F=HNO₃
 G=Na₂S₂O₃ H= _____

Samples Collected By: Jason Ruhs
 Name (Print): Jason Ruhs
 Signature: _____
 Company: CES

779078 and 779080 are the same sample. Samples are not spiked. Please use 779080 as MS/MSD.

RELINQUISHED BY:	Date	Time	RECEIVED BY:
Name: Shannon Barry	12/18/18	15:10	Name: Alexan...
Signature: [Signature]			Signature: [Signature]
Name: [Name]	12/19/18	01:00	Name: [Name]
Signature: [Signature]			Signature: [Signature]

Receipt Temperature: 1.2 °C
 1.4
 #3

ORIGIN ID:SYRA (315) 431-0171
SYR SERVICE CENTER
TESTAMERICA
118 BOSS RD

SYRACUSE, NY 13211
UNITED STATES US

SHIP DATE: 28DEC18
ACTWGT: 25.00 LB MAN
CAD: 251798/CAFE3211

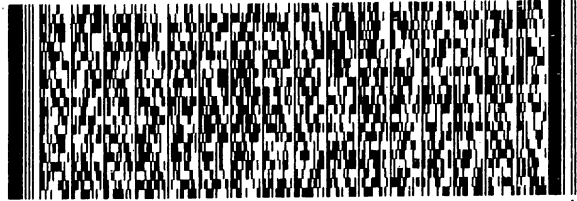
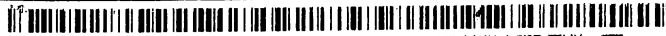
BILL RECIPIENT

TO **SAMPLE RECEIVING**
TESTAMERICA BURLINGTON
30 COMMUNITY DRIVE SUITE 11

SOUTH BURLINGTON VT 05403

(802) 660-1990

REF: CES PFCS 1COOLER



FedEx
Express



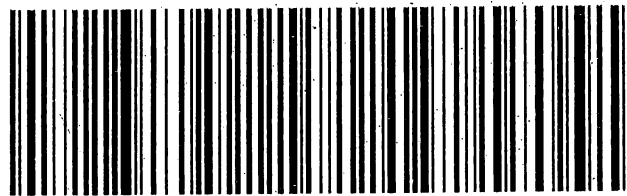
J183111806050749

TRK# 4651 0843 3656
0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO BTVA

05403
VT-US BTV



Login Sample Receipt Checklist

Client: Certified Environmental Services

Job Number: 480-147352-1

Login Number: 147352
List Number: 1
Creator: Velickovic, Zoran

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	SYR
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Certified Environmental Services

Job Number: 480-147352-1

Login Number: 147352
List Number: 2
Creator: Lavigne, Scott M

List Source: TestAmerica Burlington
List Creation: 12/31/18 10:35 AM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	True	
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	0.2°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	