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ZION ENVIRONMENTAL, LLC.

"QUALITY SERVICE AT AN HONEST PRICE"

October 26, 2018
Project No. 14-PSA-003

Mr. Daniel Lanners, Project Manager
NYSDEC,
625 Broadway, 11th Floor
Albany, NY 12233

Re: August 2018 Sampling Evaluation for PFAS and 1,4-Dioxane
Taylor's Lane Compost Site, Mamaroneck, New York
NYSDEC Site Number 360021

Dear Mr. Lanners:

Zion Environmental, LLC (Zion) personnel conducted a sampling evaluation for PFAS and 1,4-dioxane at the Taylor's Lane Compost Site in Mamaroneck, New York on August 15, 2018. This Report summarizes all activities performed and results obtained in association with the groundwater sampling. The sampling was performed in accordance with the August 14, 2018 sampling plan for PFAS and 1,4-dioxane for the Taylor Lane Compost Site prepared by Zion Environmental, LLC.

FIELD PROGRAM

Groundwater Evaluation

Six wells, one manhole, and QA/QC samples were selected for the sampling evaluation of PFAS and 1,4-dioxane for the Taylor Lane Compost Site. At each location, the PFAS samples were taken and packed in a cooler with ice prior to sampling for the 1,4-dioxane. The bottles for PFAS were kept in a separate cooler from the 1,4-dioxane amber glass jars. Table 1 contains the results from the lab analysis. The selected locations can be found on Figure 1. The following locations were selected for PFAS and 1,4-dioxane sampling evaluation:

- Upgradient wells: Well couplet MW-9S/MW-9D are upgradient wells located in a small wooded area on Greenhaven Road just before Boston Post Road.

- Downgradient wells: Well couplets MW-4S/ MW-4D and MW-2S/ MW-2D are downgradient wells that were selected for this evaluation. Well couplet MW-4S/MW-4D are located on the edge of the site property near residential property 1406 Shadow Lane. Well couplet MW-2S/MW-2D are located on Taylor Lane.

- Manhole: Manhole #1 (MH-1) is located on Shadow Lane between the landfill and the residential property 1406 Shadow Lane.

RESULTS

Groundwater Monitoring Results

A review of the August 15, 2018 groundwater analytical data indicated that several PFAS were detected in multiple wells including the upgradient wells. The equipment blank also had a detection PFHxS at a concentration of 0.31 ng/L and flagged with a "J" and "B" flag. The summary of analytical parameter results is provided in Attachment 1, Table 1. 1,4-dioxane was detected in wells MW-2S, MW-4D, MW-4S, and MH-1.

The summary table for the field data is provided in Attachment 2, the data usability summary report is provided in Attachment 3, the laboratory CAT-B report is provided in Attachment 4. Groundwater wells and Manhole (MH-1) locations are depicted on Figure 1 in Attachment 5.

If you should have any questions regarding the above information, please do not hesitate to contact us at 845-649-9346.

Sincerely,

Brian Nichols,
Vice President - CPM

Timothy S. Pagano, CPG
Senior Hydrogeologist

Attachment 1 – Table 1 - Summary of Analytical Parameters
Attachment 2 – Field Data Sheet
Attachment 3 – Data Usability Summary Report
Attachment 4 – Laboratory CAT-B Report
Attachment 5 – Figure 1

cc: Mr. Daniel Lanners, P.E, NYSDEC
cc: Mr. Dan Sarnoff, Assistant Village Manager, Village of Mamaroneck
cc: Mr. Kevin McGrath, PG, CPG, The Chazen Companies

Attachment 1

Table 1 - Summary of Analytical Parameters

Table 1
Village of Mamaroneck - Taylor Lane Compost Site
Groundwater Monitoring Results
August 15, 2018

CAS No.	PARAMETERS	UNIT	MW-9D	MW-9S	MW-2D	MW-2S	MW-4D	DUP-01 (MW-4D)	MW-4S	MH-1	EB-01
	Volatile Organic Compounds										
27619972	6:2 FTS	ng/L	ND	3.1 J	2.2 J	2.4 J	2.6 J	ND	2.1 J	ND	ND
39108344	8:2 FTS	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2991506	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ng/L	ND	ND	ND	3.4 J	ND	ND	ND	ND	ND
2355319	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
375735	Perfluorobutanesulfonic acid (PFBS)	ng/L	5.1	1.7 J	0.86 J	5.3	8.2	8.7	7.5	16	ND
375224	Perfluorobutanoic acid (PFBA)	ng/L	7.5	3.4	9.2	8	8.6	8.6	9	9.4	ND
335773	Perfluorodecanesulfonic acid (PFDS)	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
335762	Perfluorodecanoic acid (PFDA)	ng/L	ND	0.95 J	ND	ND	ND	ND	ND	ND	ND
307551	Perfluorododecanoic acid (PFDoA)	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
375928	Perfluoroheptanesulfonic Acid (PFHpS)	ng/L	0.27 J	0.29 J	ND	0.59 J	ND	ND	0.29 J	0.38 J	ND
375859	Perfluoroheptanoic acid (PFHpA)	ng/L	5.9	3.4	1 J	4.3	5.8	5.5	5.9	6.3	ND
355464	Perfluorohexanesulfonic acid (PFHxS)	ng/L	3 B	2.3 B	2.8 B	3.8 B	2.9 B	2.8 B	2.9 B	3.6 B	0.31 J B
307244	Perfluorohexanoic acid (PFHxA)	ng/L	9.3	3.1	1.3 J	6.4	12	12	12	9	ND
375951	Perfluorononanoic acid (PFNA)	ng/L	0.77 J	1.3 J	ND	1.1 J	0.35 J	0.45 J	0.42 J	0.48 J	ND
754916	Perfluorooctane Sulfonamide (FOSA)	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1763231	Perfluorooctanesulfonic acid (PFOS)	ng/L	4.9	5.7	23 F1	16	3.7	3.8	4.1	11	ND
335671	Perfluorooctanoic acid (PFOA)	ng/L	16	10	4.1	17	15	15	13	18	ND
2706903	Perfluoropentanoic acid (PFPeA)	ng/L	11	3.3	1.6 J	7.7	19	19	19	11	ND
376067	Perfluorotetradecanoic acid (PFTeA)	ng/L	ND	ND	ND	ND	ND	ND	0.57 J B	0.33 J B	ND
72629948	Perfluorotridecanoic Acid (PFTriA)	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2058948	Perfluoroundecanoic acid (PFUnA)	ng/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
123911	1,4-Dioxane	ug/L	ND	ND	ND	7.0 E	2.1 E	2.4	2.9	6.4 E	ND
	Field Parameters										
	Field pH	SU	7.41	6.64	8.30	7.71	7.49		7.89	7.75	NA
	Field Specific Conductivity	umhos/cm	976	989	974	929	913		867	916	NA
	Temperature	degC	16.4	15.8	16.5	18.7	19.5		21.8	19.5	NA
	Field Eh	mV	-77.8	-38.4	-122.4	-90.9	-79.9		-101.7	-93.6	NA
	Field Turbidity	NTU	135	122	6.0	20.3	70.2		241	12.1	NA
	DO	mg/l	4.16	3.95	3.36	2.3	2.73		4.79	4.49	NA
	Static Water Level (**TOC**)	ft	13.5	12.00	2.23	2.42	3.63		2.60	NA	NA

Legend

"NA" Parameter not available.

"NS" No sample taken.

"B" Compound was found in the blank and sample.

"J" Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

"E" Result exceeded calibration range.

"F1" MS and/or MSD Recovery is outside acceptance limits.

Attachment 2

Field Data Sheet

TAYLOR LANE, MAMARONECK - FIELD DATA - 08/15/2018

PFAS and 1,4-Dioxane Groundwater Sampling Data

MW #	Well Survey Elevation	Well Size	Metal or PVC	TPVC (in ft) (Top of PVC)	TOC (in ft) (Top of Casing)	BPVC (in ft) (Bottom of PVC)	BOC (in ft) (Bottom of Casing)	ELEVATION
9S	**32.61**	**2"**	**Metal**	11.50	12.00	18.49	18.69	20.61
9D	**32.85**	**4"**	**Metal**	12.50	13.50	69.41	70.18	19.35
4S	**17.66**	**2"**	**PVC**	2.18	2.60	12.47	12.73	15.06
4D	**18.50**	**2"**	**PVC**	2.87	3.63	16.87	17.84	14.87
2S	**16.71**	**2"**	**PVC**	2.08	2.42	16.30	16.65	14.29
2D	**17.05**	**2"**	**PVC**	2.00	2.23	68.06	68.34	14.82
MH-1								0.00
EB-01	NA	NA	NA	NA	NA	NA	NA	NA

Water Quality Parameters

MW #	Sampling Time	Gallons Purged	pH (SU)	Conductivity (mS/cm2)	Temp. (oC)	ORP (mv)	Turbidity (NTU)	Dissolved O2 (DO)
9S	1015	5	6.64	989	15.8	-38.4	122	3.95
9D	1020	Dry @ 34	7.41	976	16.4	-77.8	135	4.16
4S	1320	Dry @ 2	7.89	867	21.8	-101.7	241	4.79
4D	1310	7	7.49	913	19.5	-79.9	70.2	2.73
2S	1145	12	7.71	929	18.7	-90.9	20.3	2.3
2D	1200	32	8.30	974	16.5	-122.4	6.0	3.36
MH-1	1400	Grab	7.75	916	19.5	-93.6	12.1	4.49
EB-01	1420	Lab DI	NA	NA	NA	NA	NA	NA

Well Notes For Sampling

9S	Turbid, orange color to sample, no odors, pulled out some small tree roots while purging.
9D	Turbid, orange color to sample, no odors.
4S	Turbid, green tint to sample, no odors
4D	Slightly turbid to cloudy, no odors. (Water was dark orange while purging the first well volume)
2S	Clear, small black particles, no odors.
2D	Clear, no odors.
MH-1	Clear, slight orange tint to sample, no odors. (Steady flow of water coming into manhole)
EB-01	Utilized lab water from Pace Analytical.

DUP-01 on MW-4D / MS & MSD on MW-2D / EB-01 on New Bailer.

Attachment 3

Data Usability Summary Report

DATA USABILITY SUMMARY REPORT

PFAS & 1, 4-Dioxane TAYLORS LANE 8/15 via Method 537 (Modified) & 8270D SIM

SDG No. Job Number: 7061798
Sampling Date: August 15, 2018

Submitted to:

Zion Environmental LLC
134 Kelly Hill Road
Otisville, NY 10963
845-649-9346

Submitted by:

Environmental Data Validation Inc (EDV, Inc)
1326 Orangewood Avenue
Pittsburgh, PA 15216
412-341-5281

October 16, 2018

Site:	Taylors Lane 8/15
Client:	Zion Environmental
Analytical Laboratory:	Pace Analytical Services, LLC & Test America
Sample Delivery Group (SDG):	7061798
Sampling Date:	August 15, 2018
Analyses:	Perfluorinated Alkyl Substances (PFAS) & 1, 4-Dioxane
Analytical Method:	USEPA Method 537 (Modified) & 8270D SIM

Summary of Data Validation:

The adherence of laboratory analytical performance to USEPA Method 537 (Modified) Analytical Specifications was evaluated during the data validation process. The United States Environmental Protection Agency (USEPA) Contract Laboratory Program, National Functional Guidelines for Superfund Organic Methods Data Review (USEPA-540-R-2016-002,) was used as guideline for data qualifications.

Some results were qualified due to equipment blank, matrix spike and, or calibration issues.

The sample qualifiers applied by the data validator are in Section 15.0 and Attachment A-Qualified Analytical Results. The detailed discussions can be found in the report.

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Data Qualifier Definitions

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the Limit of Detection (LOD) for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the LOD
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected at a level greater than or equal to the adjusted LOD. However, the reported adjusted LOD is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

1.0 Sample Identifications

The following table summarizes sample IDENTIFICATIONS, matrix of each sample and analyses present in the data package for each sample.

Client Sample ID	Laboratory ID	Matrix	1,4-Dioxane	PFAS
MW-9S	480-140615-1	Liquid	X	
MW-9D	480-140615-2	Liquid	X	
MW-4S	480-140615-3	Liquid	X	
MW-4D	480-140615-4	Liquid	X	
MW-2S	480-140615-5	Liquid	X	
MW-2D	480-140615-6	Liquid	X	
DUP-01	480-140615-7	Liquid	X	
EB-01	480-140615-8	Liquid	X	
MH-01	480-140615-9	Liquid	X	
MW-2S MS/MSD	480-140615-6	Liquid	X	
MW-9S	320-42265-1	Liquid		X
MW-9D	320-42265-2	Liquid		X
MW-4S	320-42265-3	Liquid		X
MW-4D	320-42265-4	Liquid		X
MW-2S	320-42265-5	Liquid		X
MW-2D	320-42265-6	Liquid		X
DUP-01	320-42265-7	Liquid		X
EB-01	320-42265-8	Liquid		X
MH-01	320-42265-9	Liquid		X
MW-2S MS/MSD	320-42265-6	Liquid		X

2.0 Completeness Checklist

The following table identifies the summary form information and raw data found in the data package. Form numbers shown in parentheses refer to the current U.S. EPA CLP SOW equivalent reporting of results in an alternate summary format that has been determined to be acceptable. Analyses in this data package were performed in accordance with USEPA Method 537 (Modified).

Completeness Checklist

X	Case Narrative
X	Chain of Custody Records/Traffic Reports/Tracking Records
X	Preservation Information
X	Sample Cross Reference with Unique Identifiers
X	Sample Results Summary Form (Form 1/Form 1-TIC)
X	CLP Flagging used on Results Summary
X	SMC/Surrogate Results Summary (Form 2)
X	Matrix Spike/Matrix Spike Duplicate Results Summary (Form 3)
X	Laboratory Control Sample (LCS)/ Blank Spike Results Summary (Form 3)
NR	Control Charts
X	Method/Preparation Blank Results Summary (Form 4)
X	Initial Calibration Summary (Forms 6)
X	Continuing Calibration Summary (Form 7)
X	Analytical Sequence (Form 8)
X	Internal Standard Area Summary (Form X11)
X	Raw Data (incl. IS, Surr/SMC, RT, quant. Reports, etc.)
X	Samples
X	Initial Calibration
X	Clean-ups
X	Continuing Calibration
NR	Instrument Blanks
X	Preparation Blanks/Method Blanks
O	Other Blanks
X	LCS/Blank Spike
X	Matrix Spikes/Matrix Spike Duplicates
NR	Matrix Duplicates/Replicates
O	Field Blanks – Trip Blank
X	Field Duplicates
X	Extraction Log Benchsheets
X	Instrument Run Logs
X	Sample Descriptions
X	Legible Pages
X	Pages in Package Numbered and in Sequence
X	Electronic Data Deliverable (EDD)

X: Included in original Data Package
NR: Not Required
O: Not Included and/or Not Available
RS: Provided as a Resubmission
X/RS: Incomplete in original data package, completed as a resubmission

3.0 Detection Limits

While DL determination is not a specific requirement of this method, it may be required by various regulatory bodies associated with compliance monitoring. It is the responsibility of the laboratory to determine if DL determination is required based upon the intended use of the data.

All Contract Required Detection Limits (CRDLs) were met.

4.0 Holding Time & Preservation

The objective is to ascertain the validity of the analytical results based on sample condition (e.g., preservation and temperature) and the holding time of the sample from time of collection to time of sample extraction and analysis.

4.1 Holding Time

Holding time was within accepted QC criteria (14 days from sample collection to extraction and analyzed within 28 days following sample extraction).

4.1.1 Sample Preservation

Preservation is acceptable.

4.2 Percent Moisture

Percent moisture results were acceptable.

4.3 Chain of Custody Record (COC)

Chain of Custody Record was present.

5.0 Calibration Quality Control

Demonstration and documentation of acceptable initial calibration is required before any samples are analyzed. After the initial calibration is successful, a CCC is required at the beginning and end of each period in which analyses are performed, and after every tenth Field Sample. The LC/MS/MS system is calibrated using the IS technique. Use the LC/MS/MS data system software to generate a linear regression or quadratic calibration curve for each of the analytes. This curve must always be forced through zero and may be concentration weighted, if necessary. Forcing zero allows for a better estimate of the background levels of method analytes.

5.1 Initial Calibration (ICAL)

This LCMS methodology was via external calibration. All retention time windows for compounds in the standard mixture were within their QC limit. All percent RSDs were within QC limit. This means the lowest CAL point was within 50-150% of its true value. All other calibration point, for each analyte was within 70-130% of its true value. The initial calibration is acceptable.

5.2 Continuing Calibration Verification (CCV)

The absolute areas of the quantitation ions of the IS(s) were within 70-140% of the areas measured

in the most recent continuing calibration check, and within 50-150% from the average areas measured during initial calibration. Each analyte and surrogate in the CCV met QC requirements. That is the calculated amount for the lowest calibration point for each analyte was within ± 50% and the SUR within ± 30% of the true value. The calculated amount for each analyte and SUR for medium and high level CCCs were within ± 30% of the true value. The CCVs were acceptable.

6.0 Method Blanks Quality Control

The purpose of laboratory blank analyses is to determine the existence and magnitude of contamination resulting from laboratory activities. The purpose of the method blank is to determine the levels of contamination associated with the processing and analysis of the samples. The criteria for evaluation of blanks apply to any blank associated with samples (e.g., method blanks and field blanks).

The method blank result is acceptable.

7.0 Surrogate Recoveries

Laboratory performance on individual samples is established by means of spiking activities. Surrogate analytes are added to all Field and QC Samples to monitor the extraction efficiency of the method analytes.

Surrogate recoveries were acceptable.

8.0 Accuracy

Accuracy of the analytical procedure is measured through the validation of Laboratory control samples (LCS), matrix spikes and matrix spike duplicates (MS/MSDs) through their recoveries.

8.1 Laboratory Control Samples (LCS)/Blank Spikes

All Laboratory Control Sample recoveries were within the QC limit 25-150%.

8.2 Matrix Spike/Matrix Spike Duplicates (MS/MSD)

Data for MS and MSDs are generated to determine long-term precision and accuracy of the analytical method on the sample matrix and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis.

8.2.1 Frequency

Frequency is acceptable.

8.2.2 Recovery

Perfluorooctanesulfonic acid (PFOS) in all field samples were qualified as estimated due to matrix spike recovery issues.

9.0 Precision

Precision is measured through the performance of matrix duplicate and laboratory control duplicates if performed.

9.1 Matrix Duplicates

A matrix duplicate was not performed.

9.2 Matrix Spike Duplicates

RPDs are acceptable.

10.0 Field QC

The purpose of field blank analyses is to determine the existence and magnitude of contamination resulting from field, or sample transport activities. The criteria for evaluation of blanks apply to any blank associated with samples (e.g., method blanks and field blanks).

10.1 Field Blanks/Rinse Blanks

The equipment blank reported low level contamination and this resulted in PFTeA being qualified as non-detects in two samples.

10.2 Trip Blanks

Trip Blanks were not reported.

10.3 Field Duplicate

Sample MW-4D and DUP-01, were presented as the field duplicates and parent sample. Relative Percent Difference (RPDs) are calculated when both the FD and parent sample report detects for the same compound. The following RPD was calculated:

Compound	Sample ID Conc. (ng/L)	Duplicate ID Conc.(ng/L)	RPD
Perfluorobutanoic acid (PFBA)	8.6	8.6	0%
Perfluoropentanoic acid (PFPeA)	19	19	0%
Perfluorohexanoic acid (PFHxA)	12	12	0%
Perfluoroheptanoic acid (PFHpA)	5.8	5.5	5%
Perfluorooctanoic acid (PFOA)	15	15	0%
Perfluorononanoic acid (PFNA)	0.35	0.45	-25%
Perfluorobutanesulfonic acid (PFBS)	8.6	8.7	-1%
Perfluorohexanesulfonic acid(PFHxS)	2.9	2.8	4%
Perfluorooctanesulfonic acid (PFOS)	3.7	3.8	-3%

Compound	Sample ID Conc. (µg/L)	Duplicate ID Conc.(µg/L)	RPD
1,4-Dioxane	2.1	2.4	-13%

RPDs for the PFC compounds and 1, 4-dioxane were within the required QC and required no qualification.

11.0 Internal Standards (IS)

Internal standards (IS) are added to EVERY sample/ blank/calibration standard/QA sample/etc., that is not expected to be in the sample in appreciable quantities and is not an element of interest. IS monitor instrument drift (both short and long term) and matrix effects.

The IS responses (peak areas) for the chromatographic runs were within within 70-140% of the response in the most recent CCC and did not deviate by more than 50% from the average area measured during initial analyte calibration.

11.1 IS Area Counts

All IS area counts were within the method accepted criteria.

11.2 Retention Time (RT)

All RTs were within the method accepted criteria.

12.0 Target Compound Identification

The analytes are identified by comparing the acquired mass spectra and retention times to reference spectra and retention times for calibration standards acquired under identical LC/MS/MS conditions. The concentration of each analyte is determined by using the internal standard technique.

All target compounds identification are acceptable.

13.0 Calculations and Transcription

The objective is to ensure that the reported quantitation results and CRQLs are accurate.

Raw data were accurately transcribed to summary data sheets.

14.0 Additional Comments

Some 1, 4-Dioxane samples were qualified as estimated due to calibration range exceedance.

15.0 Data Qualifier Table

Sample ID	Compound	Qualifier	Section Reference
320-42265-1 320-42265-2 320-42265-3 320-42265-4 320-42265-5 320-42265-6 320-42265-7 320-42265-9	Perfluorooctanesulfonic acid (PFOS)	J	8.2.2
320-42265-3 320-42265-9	Perfluorotetradecanoic acid (PFTeA)	U	10.1
480-140615-4 480-140615-5 480-140615-9	1,4-Dioxane	J	14.0

16.0 Data Usability

Data qualified with the "UJ" qualifier are to be used cautiously as they are estimated data with some quality control issues. Data qualified with the "J" qualifier are to be used cautiously as they are estimated data with some quality control issues. Data qualified with the "U" qualifier are usable as there are no quality control issues.

ATTACHMENT A

FORM 1s

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: MW-9S
Date Collected: 08/15/18 10:15
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-1
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**3.4**		2.0	0.35	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoropentanoic acid (PFPeA)	**3.3**		2.0	0.49	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorohexanoic acid (PFHxA)	**3.1**		2.0	0.58	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoroheptanoic acid (PFHpA)	**3.4**		2.0	0.25	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorooctanoic acid (PFOA)	**10**		2.0	0.85	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorononanoic acid (PFNA)	**1.3**	**J**	2.0	0.27	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorodecanoic acid (PFDA)	**0.95**	**J**	2.0	0.31	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorobutanesulfonic acid (PFBS)	**1.7**	**J**	2.0	0.20	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorohexanesulfonic acid (PFHxS)	**2.3**	**B**	2.0	0.17	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.29**	**J**	2.0	0.19	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorooctanesulfonic acid (PFOS)	J **5.7**		2.0	0.54	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.0	0.35	ng/L		08/28/18 10:26	08/30/18 00:45	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		08/28/18 10:26	08/30/18 00:45	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		08/28/18 10:26	08/30/18 00:45	1
6:2 FTS	**3.1**	**J**	20	2.0	ng/L		08/28/18 10:26	08/30/18 00:45	1
8:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 00:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*70*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C5 PFPeA	*73*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFHxA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C4-PFHpA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C4 PFOA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C5 PFNA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFDA	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFUnA	*65*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFDoA	*54*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2-PFTeDA	*55*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C3-PFBS	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
18O2 PFHxS	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C4 PFOS	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C8 FOSA	*60*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
d3-NMeFOSAA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
d5-NEtFOSAA	*61*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
M2-6:2FTS	*112*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
M2-8:2FTS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: MW-9D
Date Collected: 08/15/18 10:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-2
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**7.5**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoropentanoic acid (PFPeA)	**11**		2.1	0.51	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorohexanoic acid (PFHxA)	**9.3**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoroheptanoic acid (PFHpA)	**5.9**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorooctanoic acid (PFOA)	**16**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorononanoic acid (PFNA)	**0.77**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorobutanesulfonic acid (PFBS)	**5.1**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorohexanesulfonic acid (PFHxS)	**3.0**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.27**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorooctanesulfonic acid (PFOS)	J **4.9**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 00:53	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 00:53	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 00:53	1
6:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 00:53	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 00:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C5 PFPeA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFHxA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C4-PFHpA	*89*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C4 PFOA	*84*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C5 PFNA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFDA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFUnA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFDoA	*63*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2-PFTeDA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C3-PFBS	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
18O2 PFHxS	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C4 PFOS	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C8 FOSA	*74*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
d3-NMeFOSAA	*65*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
d5-NEtFOSAA	*65*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
M2-6:2FTS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
M2-8:2FTS	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*

Client Sample ID: MW-4S
Date Collected: 08/15/18 13:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-3
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.0**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoropentanoic acid (PFPeA)	**19**		2.1	0.50	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorohexanoic acid (PFHxA)	**12**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoroheptanoic acid (PFHpA)	**5.9**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorooctanoic acid (PFOA)	**13**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorononanoic acid (PFNA)	**0.42**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorotetradecanoic acid (PFTeA)	~~0.57~~ 2.1U	~~J~~	2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorobutanesulfonic acid (PFBS)	**7.5**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorohexanesulfonic acid (PFHxS)	**2.9**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.29**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorooctanesulfonic acid (PFOS)	J **4.1**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:01	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 01:01	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 01:01	1
6:2 FTS	**2.1**	**J**	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:01	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*66*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C5 PFPeA	*70*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFHxA	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C4-PFHpA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C4 PFOA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C5 PFNA	*82*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFDA	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFUnA	*67*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFDoA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2-PFTeDA	*52*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C3-PFBS	*69*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
18O2 PFHxS	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C4 PFOS	*72*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C8 FOSA	*73*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
d3-NMeFOSAA	*67*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
d5-NEtFOSAA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
M2-6:2FTS	*104*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
M2-8:2FTS	*89*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: MW-4D
Date Collected: 08/15/18 13:10
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-4
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.6**		2.1	0.37	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoropentanoic acid (PFPeA)	**19**		2.1	0.51	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorohexanoic acid (PFHxA)	**12**		2.1	0.61	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoroheptanoic acid (PFHpA)	**5.8**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorooctanoic acid (PFOA)	**15**		2.1	0.89	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorononanoic acid (PFNA)	**0.35**	J	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.2	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.58	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.4	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorobutanesulfonic acid (PFBS)	**8.2**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorohexanesulfonic acid (PFHxS)	**2.9**	B	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorooctanesulfonic acid (PFOS)	J **3.7**		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.34	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.37	ng/L		08/28/18 10:26	08/30/18 01:09	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.3	ng/L		08/28/18 10:26	08/30/18 01:09	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 01:09	1
6:2 FTS	**2.6**	J	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:09	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C5 PFPeA	*83*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFHxA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C4-PFHpA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C4 PFOA	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFDA	*94*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFUnA	*82*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFDoA	*69*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2-PFTeDA	*68*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C3-PFBS	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
18O2 PFHxS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C4 PFOS	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C8 FOSA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
d3-NMeFOSAA	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
d5-NEtFOSAA	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
M2-6:2FTS	*99*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
M2-8:2FTS	*103*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: MW-2S
Date Collected: 08/15/18 11:45
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-5
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.0**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoropentanoic acid (PFPeA)	**7.7**		2.1	0.51	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorohexanoic acid (PFHxA)	**6.4**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoroheptanoic acid (PFHpA)	**4.3**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorooctanoic acid (PFOA)	**17**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorononanoic acid (PFNA)	**1.1**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorobutanesulfonic acid (PFBS)	**5.3**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorohexanesulfonic acid (PFHxS)	**3.8**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.59**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorooctanesulfonic acid (PFOS)	J **16**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:16	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 01:16	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	**3.4**	**J**	21	2.0	ng/L		08/28/18 10:26	08/30/18 01:16	1
6:2 FTS	**2.4**	**J**	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:16	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C5 PFPeA	*72*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFHxA	*76*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C4-PFHpA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C4 PFOA	*94*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFDA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFUnA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFDoA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2-PFTeDA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C3-PFBS	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
18O2 PFHxS	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C4 PFOS	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C8 FOSA	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
d3-NMeFOSAA	*84*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
M2-6:2FTS	*129*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
M2-8:2FTS	*108*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*

Client Sample ID: MW-2D
Date Collected: 08/15/18 12:00
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-6
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.2**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoropentanoic acid (PFPeA)	**1.6**	**J**	2.1	0.50	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorohexanoic acid (PFHxA)	**1.3**	**J**	2.1	0.60	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoroheptanoic acid (PFHpA)	**1.0**	**J**	2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorooctanoic acid (PFOA)	**4.1**		2.1	0.87	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorononanoic acid (PFNA)	ND		2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorobutanesulfonic acid (PFBS)	**0.86**	**J**	2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorohexanesulfonic acid (PFHxS)	**2.8**	**B**	2.1	0.17	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorooctanesulfonic acid (PFOS)	J **23**	**F1**	2.1	0.55	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:32	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 01:32	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 01:32	1
6:2 FTS	**2.2**	**J**	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:32	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C5 PFPeA	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFHxA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C4-PFHpA	*100*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C4 PFOA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C5 PFNA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFDA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFUnA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFDoA	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2-PFTeDA	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C3-PFBS	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
18O2 PFHxS	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C4 PFOS	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C8 FOSA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
d3-NMeFOSAA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
d5-NEtFOSAA	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
M2-6:2FTS	*98*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
M2-8:2FTS	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*

Client Sample ID: DUP-01
Date Collected: 08/15/18 13:15
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-7
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.6**		2.2	0.38	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoropentanoic acid (PFPeA)	**19**		2.2	0.53	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorohexanoic acid (PFHxA)	**12**		2.2	0.62	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoroheptanoic acid (PFHpA)	**5.5**		2.2	0.27	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorooctanoic acid (PFOA)	**15**		2.2	0.91	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorononanoic acid (PFNA)	**0.45**	J	2.2	0.29	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorodecanoic acid (PFDA)	ND		2.2	0.33	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoroundecanoic acid (PFUnA)	ND		2.2	1.2	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorododecanoic acid (PFDoA)	ND		2.2	0.59	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.2	1.4	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.2	0.31	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorobutanesulfonic acid (PFBS)	**8.7**		2.2	0.22	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorohexanesulfonic acid (PFHxS)	**2.8**	B	2.2	0.18	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.2	0.20	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorooctanesulfonic acid (PFOS)	J **3.8**		2.2	0.58	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.2	0.34	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.2	0.38	ng/L		08/28/18 10:26	08/30/18 01:56	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		22	3.3	ng/L		08/28/18 10:26	08/30/18 01:56	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		22	2.0	ng/L		08/28/18 10:26	08/30/18 01:56	1
6:2 FTS	ND		22	2.2	ng/L		08/28/18 10:26	08/30/18 01:56	1
8:2 FTS	ND		22	2.2	ng/L		08/28/18 10:26	08/30/18 01:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C5 PFPeA	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFHxA	*82*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C4-PFHpA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C4 PFOA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C5 PFNA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFDA	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFUnA	*66*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFDoA	*58*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2-PFTeDA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C3-PFBS	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
18O2 PFHxS	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C4 PFOS	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C8 FOSA	*72*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
d3-NMeFOSAA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
d5-NEtFOSAA	*61*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
M2-6:2FTS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
M2-8:2FTS	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*

Client Sample ID: EB-01
Date Collected: 08/15/18 14:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-8
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.36	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.50	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.59	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.87	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.28	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.32	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.56	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.30	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorohexanesulfonic acid (PFHxS)	**0.31**	**J B**	2.0	0.17	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.55	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.33	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.0	0.36	ng/L		08/28/18 10:26	08/30/18 02:03	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	3.2	ng/L		08/28/18 10:26	08/30/18 02:03	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		08/28/18 10:26	08/30/18 02:03	1
6:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 02:03	1
8:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 02:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*102*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C5 PFPeA	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFHxA	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C4-PFHpA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C4 PFOA	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFDA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFUnA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFDoA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2-PFTeDA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C3-PFBS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
18O2 PFHxS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C4 PFOS	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C8 FOSA	*84*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
d3-NMeFOSAA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
M2-6:2FTS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
M2-8:2FTS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*

Client Sample ID: MH-01
Date Collected: 08/15/18 14:00
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-9
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.4**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoropentanoic acid (PFPeA)	**11**		2.1	0.50	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorohexanoic acid (PFHxA)	**9.0**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoroheptanoic acid (PFHpA)	**6.3**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorooctanoic acid (PFOA)	**18**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorononanoic acid (PFNA)	**0.48**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorotetradecanoic acid (PFTeA)	~~0.33~~	~~J B~~	2.1	0.30	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorobutanesulfonic acid (PFBS)	**16**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorohexanesulfonic acid (PFHxS)	**3.6**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.38**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorooctanesulfonic acid (PFOS)	**11**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 02:11	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 02:11	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 02:11	1
6:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 02:11	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 02:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C5 PFPeA	*74*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFHxA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C4-PFHpA	*89*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C4 PFOA	*94*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C5 PFNA	*106*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFDA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFUnA	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFDoA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2-PFTeDA	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C3-PFBS	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
18O2 PFHxS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C4 PFOS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C8 FOSA	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
d3-NMeFOSAA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
M2-6:2FTS	*142*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
M2-8:2FTS	*115*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*

Isotope Dilution Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-42265-1	MW-9S	70	73	80	86	88	86	77	65
320-42265-2	MW-9D	80	80	80	89	84	87	81	64
320-42265-3	MW-4S	66	70	75	81	81	82	77	67
320-42265-4	MW-4D	75	83	87	93	91	96	94	82
320-42265-5	MW-2S	59	72	76	87	94	96	93	87
320-42265-6	MW-2D	90	91	93	100	97	97	93	87
320-42265-6 MS	MW-2D	87	89	95	94	92	97	95	90
320-42265-6 MSD	MW-2D	84	91	93	93	92	97	92	88
320-42265-7	DUP-01	79	78	82	90	87	90	79	66
320-42265-8	EB-01	102	92	95	96	95	96	97	97
320-42265-9	MH-01	64	74	81	89	94	106	96	91
LCS 320-242502/2-A	Lab Control Sample	90	89	92	87	92	92	90	90
MB 320-242502/1-A	Method Blank	94	93	93	96	95	96	101	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	-NMeFOSA (25-150)	-NEtFOSA (25-150)
320-42265-1	MW-9S	54	55	79	81	75	60	64	61
320-42265-2	MW-9D	63	59	78	86	77	74	65	65
320-42265-3	MW-4S	59	52	69	77	72	73	67	64
320-42265-4	MW-4D	69	68	88	90	88	80	78	75
320-42265-5	MW-2S	88	86	75	86	85	78	84	88
320-42265-6	MW-2D	92	92	86	96	91	90	86	85
320-42265-6 MS	MW-2D	89	91	86	91	91	88	85	88
320-42265-6 MSD	MW-2D	86	91	90	94	91	90	84	86
320-42265-7	DUP-01	58	59	79	87	80	72	64	61
320-42265-8	EB-01	90	86	90	95	92	84	90	88
320-42265-9	MH-01	88	85	85	90	90	85	87	88
LCS 320-242502/2-A	Lab Control Sample	92	91	87	88	88	84	88	94
MB 320-242502/1-A	Method Blank	95	92	92	91	93	88	90	91

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)						
320-42265-1	MW-9S	112	90						
320-42265-2	MW-9D	95	85						
320-42265-3	MW-4S	104	89						
320-42265-4	MW-4D	99	103						
320-42265-5	MW-2S	129	108						
320-42265-6	MW-2D	98	96						
320-42265-6 MS	MW-2D	95	97						
320-42265-6 MSD	MW-2D	93	100						
320-42265-7	DUP-01	90	78						
320-42265-8	EB-01	95	95						
320-42265-9	MH-01	142	115						
LCS 320-242502/2-A	Lab Control Sample	103	90						
MB 320-242502/1-A	Method Blank	97	97						

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA

Isotope Dilution Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

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

Client Sample ID: MW-9S
Lab Sample ID: 480-140615-1
Date Collected: 08/15/18 10:15
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/25/18 01:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*29*		*15 - 110*	*08/20/18 14:25*	*08/25/18 01:43*	*1*

Client Sample ID: MW-9D
Lab Sample ID: 480-140615-2
Date Collected: 08/15/18 10:20
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/25/18 02:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*26*		*15 - 110*	*08/20/18 14:25*	*08/25/18 02:06*	*1*

Client Sample ID: MW-4S
Lab Sample ID: 480-140615-3
Date Collected: 08/15/18 13:20
Matrix: Water
Date Received: 08/18/18 09:00

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	**2.9**		2.0	1.0	ug/L		08/20/18 14:25	08/25/18 03:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*31*		*15 - 110*	*08/20/18 14:25*	*08/25/18 03:44*	*1*

Client Sample ID: MW-4D
Lab Sample ID: 480-140615-4
Date Collected: 08/15/18 13:10
Matrix: Water
Date Received: 08/18/18 09:00

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	J **2.1**	E	0.20	0.10	ug/L		08/20/18 14:25	08/25/18 04:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*31*		*15 - 110*	*08/20/18 14:25*	*08/25/18 04:07*	*1*

Client Sample ID: MW-2S
Lab Sample ID: 480-140615-5
Date Collected: 08/15/18 11:45
Matrix: Water
Date Received: 08/18/18 09:00

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	J **7.0**	E	1.0	0.50	ug/L		08/20/18 14:25	08/25/18 04:31	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*29*		*15 - 110*	*08/20/18 14:25*	*08/25/18 04:31*	*5*

Client Sample ID: MW-2D

Lab Sample ID: 480-140615-6

Date Collected: 08/15/18 12:00
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/24/18 22:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*35*		*15 - 110*	*08/20/18 14:25*	*08/24/18 22:57*	*1*

Client Sample ID: DUP-01

Lab Sample ID: 480-140615-7

Date Collected: 08/15/18 13:15
Matrix: Water
Date Received: 08/18/18 09:00

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	**2.4**		2.0	1.0	ug/L		08/20/18 14:31	08/25/18 05:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*38*		*15 - 110*	*08/20/18 14:31*	*08/25/18 05:41*	*1*

Client Sample ID: EB-01

Lab Sample ID: 480-140615-8

Date Collected: 08/15/18 14:20
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/25/18 04:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*33*		*15 - 110*	*08/20/18 14:25*	*08/25/18 04:54*	*1*

Client Sample ID: MH-01

Lab Sample ID: 480-140615-9

Date Collected: 08/15/18 14:00
Matrix: Water
Date Received: 08/18/18 09:00

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	J **6.4**	J E	1.0	0.50	ug/L		08/20/18 14:25	08/27/18 15:02	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*28*		*15 - 110*	*08/20/18 14:25*	*08/27/18 15:02*	*5*

Default Detection Limits

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

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

Prep: 3510C

Analyte	RL	MDL	Units	Method
1,4-Dioxane	0.20	0.10	ug/L	8270D SIM ID

ATTACHMENT B

CASE NARRATIVE & COC

WO#:7061798

7061798

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Required Client Information:	Required Project Information:	Section C Invoice Information:
Company: Zion Environmental, LLC	Report To: Nichols, Brian	Attention:
Address: 134 Kelly Hill Road	Copy To:	Company Name:
Otisville, NY 10963		Address:
Email:	Purchase Order #:	Pace Quote:
Phone: Fax:	Project Name: Taylors Lane	Pace Project Manager: jennifer.aracri@pacelabs.com,
Requested Due Date:	Project #:	Pace Profile #: 7400

Regulatory Agency	State / Location
	NY

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N: 1,4 Dioxane by 8270 SIM	PFAS EPA method 537	Residual Chlorine (Y/N)	
1	MW-9S	WT	G	8/15/19	1015				4	X								2	2		001
2	MW-9D	WT	G	8/15/19	1020				4	X								2	2		002
3	MW-4S	WT	G	8/15/19	1320				4	X								2	2		003
4	MW-4D	WT	G	8/15/19	1310				4	X								2	2		004
5	MW-2S	WT	G	8/15/19	1145				4	X								2	2		005
6	MW-2D	WT	G	8/15/19	1200				4	X								2	2		006
7	Dup-01	WT	G	8/15/19	1315				4	X								2	2		007
8	MS	WT	G	8/15/19	1203				4	X								2	2		006 ~~008~~
9	MSD	WT	G	8/15/19	1206				4	X								2	2		* ~~009~~
10	EB-01	WT	G	8/15/19	1420				4	X								2	2		008 ~~010~~
11	MH-01	WT	G	8/15/19	1400				4	X								2	2		009 ~~011~~
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Sub to TA Buffalo	Brian	8/15/19	1600	Danielle Williams	8/16/19	1030	2.1	Y	N	Y
1,4 Dioxane by EPA method 8270 SIM										
PFAS by EPA method 537										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brian Nichols / Wayne Keller

SIGNATURE of SAMPLER: B

DATE Signed: 8/15/19

TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

Note: 1,4 Dioxane method detection limits should not exceed 0.28 ug/L (PPB)

Reporting limits for PFAS should not exceed 2 ng/L (PPT)

Job ID: 480-140615-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-140615-1

Comments
No additional comments.

Receipt
The samples were received on 8/18/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.9º C, 3.1º C and 3.4º C.

GC/MS Semi VOA
Method(s) 8270D SIM ID: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-2S (480-140615-5). Elevated reporting limits (RLs) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for samples MW-4D (480-140615-4) and MW-2S (480-140615-5) 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 sample was diluted to bring the concentration of target analytes within the calibration range: MH-01 (480-140615-9). Elevated reporting limits (RLs) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for sample MH-01 (480-140615-9) 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.

Organic Prep
Method(s) 3510C: Due to the matrix, the initial volume(s) used for the following samples deviated from the standard procedure: MW-4S (480-140615-3) and DUP-01 (480-140615-7). The reporting limits (RLs) have been adjusted proportionately.

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

Comments
No additional comments.

Receipt
The samples were received on 8/18/2018 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2º C.

Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody MW-2D (320-42265-6), MW-2D (320-42265-6[MS]), MW-2D (320-42265-6[MSD]). Received MS/MSD containers not listed on COC.

LCMS
Method(s) 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Perfluorooctanesulfonic acid (PFOS) for preparation batch 320-242502 and analytical batch 320-242977 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery 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
Method(s) 3535: The following samples, MW-9S (320-42265-1), MW-9D (320-42265-2), MW-4S (320-42265-3) and DUP-01 (320-42265-7), had non-settleable particulate matter which plugged the solid-phase extraction column. The amount of sample remaining plus the weight of the bottle are recorded in the "Notes" field of the prep batch. The tare weight recorded is the weight of the emptied bottle.

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

Attachment 4

Laboratory CAT-B Report

Analytical Data Package

Prepared by:

Pace Analytical Services

Pace Project No.: 7061798

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Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

September 09, 2018

Brian Nichols
Zion Environmental LLC
134 Kelly Hill Road
Otisville, NY 10963

RE: Project: TAYLORS LANE 8/15
Pace Project No.: 7061798

Dear Brian Nichols:
Enclosed are the analytical results for sample(s) received by the laboratory on August 16, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Aracri
jennifer.aracri@pacelabs.com
(631)694-3040
Project Manager

Enclosures

WO#:7061798

7061798

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Required Client Information:	Required Project Information:	Section C Invoice Information:
Company: Zion Environmental, LLC	Report To: Nichols, Brian	Attention:
Address: 134 Kelly Hill Road	Copy To:	Company Name:
Otisville, NY 10963		Address:
Email:	Purchase Order #:	Pace Quote:
Phone: Fax:	Project Name: Taylors Lane	Pace Project Manager: jennifer.aracri@pacelabs.com,
Requested Due Date:	Project #:	Pace Profile #: 7400

Regulatory Agency	State / Location
	NY

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N: 1,4 Dioxane by 8270 SIM	PFAS EPA method 537	Residual Chlorine (Y/N)	
1	MW-9S	WT	G	8/15/19	1015				4	X								2	2		001
2	MW-9D	WT	G	8/15/19	1020				4	X								2	2		002
3	MW-4S	WT	G	8/15/19	1320				4	X								2	2		003
4	MW-4D	WT	G	8/15/19	1310				4	X								2	2		004
5	MW-2S	WT	G	8/15/19	1145				4	X								2	2		005
6	MW-2D	WT	G	8/15/19	1200				4	X								2	2		006
7	Dup-01	WT	G	8/15/19	1315				4	X								2	2		007
8	MS	WT	G	8/15/19	1203				4	X								2	2		006 ~~008~~
9	MSD	WT	G	8/15/19	1206				4	X								2	2		* ~~009~~
10	EB-01	WT	G	8/15/19	1420				4	X								2	2		008 ~~010~~
11	MH-01	WT	G	8/15/19	1400				4	X								2	2		009 ~~011~~
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Sub to TA Buffalo	Brian	8/15/19	1600	Danielle Williams	8/16/19	1030	2.1	Y	N	Y
1,4 Dioxane by EPA method 8270 SIM										
PFAS by EPA method 537										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brian Nichols / Wayne Keller

SIGNATURE of SAMPLER: B

DATE Signed: 8/15/19

TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

Note: 1,4 Dioxane method detection limits should not exceed 0.28 ug/L (PPB)

Reporting limits for PFAS should not exceed 2 ng/L (PPT)

Sample Condition Upon Receipt

Pace Analytical

WO#:7061798
PM: JSA Due Date: 09/07/18
CLIENT: ZION

Client Name: ZION Environmental Proj

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking #: 4598 4538 5041 7940

Custody Seal on Cooler/Box Present: ☐ Yes ☐ No Seals intact: ☐ Yes ☐ No

Temperature Blank Present: ☐ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ Ziploc ☐ None ☐ Other

Type of Ice: Wet Blue None

Thermometer Used: TH091 Correction Factor: 0.0

☐ Samples on ice, cooling process has begun

Cooler Temperature (°C): 2.1 Cooler Temperature Corrected (°C): 2.1

Date/Time 5035A kits placed in freezer

Temp should be above freezing to 6.0°C

USDA Regulated Soil (☐ N/A, water sample)

Date and Initials of person examining contents: AW 8/16/18

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? ☐ YES ☐ NO

Did samples orignate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present:	☐Yes	☐No		1.
Chain of Custody Filled Out:	☐Yes	☐No		2.
Chain of Custody Relinquished:	☐Yes	☐No		3.
Sampler Name & Signature on COC:	☐Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☐Yes	☐No		5.
Short Hold Time Analysis (<72hr):	☐Yes	☐No		6.
Rush Turn Around Time Requested:	☐Yes	☐No		7.
Sufficient Volume: (Triple volume provided for MS/MSD	☐Yes	☐No		8.
Correct Containers Used:	☐Yes	☐No		9.
-Pace Containers Used:	☐Yes	☐No		
Containers Intact:	☐Yes	☐No		10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☐N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	☐Yes	☐No		12.
-Includes date/time/ID/Analysis Matrix SL WT OIL				
All containers needing preservation have been checked	☐Yes	☐No	☐N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
pH paper Lot #				Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl, NaOH>9 Sulfide, NAOH>12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis	☐Yes	☐No	☐N/A	Initial when completed: / Lot # of added preservative: / Date/Time preservative added:
Samples checked for dechlorination:	☐Yes	☐No	☐N/A	14.
KI starch test strips Lot #				
Residual chlorine strips Lot #				Positive for Res. Chlorine? Y N
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☐N/A	15.
Trip Blank Present:	☐Yes	☐No	☐N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☐N/A	
Pace Trip Blank Lot # (if applicable):				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

* PM (Project Manager) review is documented electronically in LIMS.

F-LI-C-002-rev.02

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-140615-1
Client Project/Site: Taylors Lane 8/15

For:
Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, New York 11747

Attn: General Reporting

Authorized for release by:
8/29/2018 2:10:32 PM
Rebecca Jones, Project Management Assistant I
rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II
(716)504-9838
john.schove@testamericainc.com

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Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	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)

Job ID: 480-140615-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-140615-1

Comments
No additional comments.

Receipt
The samples were received on 8/18/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.9º C, 3.1º C and 3.4º C.

GC/MS Semi VOA
Method(s) 8270D SIM ID: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-2S (480-140615-5). Elevated reporting limits (RLs) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for samples MW-4D (480-140615-4) and MW-2S (480-140615-5) 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 sample was diluted to bring the concentration of target analytes within the calibration range: MH-01 (480-140615-9). Elevated reporting limits (RLs) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for sample MH-01 (480-140615-9) 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.

Organic Prep
Method(s) 3510C: Due to the matrix, the initial volume(s) used for the following samples deviated from the standard procedure: MW-4S (480-140615-3) and DUP-01 (480-140615-7). The reporting limits (RLs) have been adjusted proportionately.

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

Detection Summary

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

Client Sample ID: MW-9S — Lab Sample ID: 480-140615-1

No Detections.

Client Sample ID: MW-9D — Lab Sample ID: 480-140615-2

No Detections.

Client Sample ID: MW-4S — Lab Sample ID: 480-140615-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.9		2.0	1.0	ug/L	1		8270D SIM ID	Total/NA

Client Sample ID: MW-4D — Lab Sample ID: 480-140615-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.1	E	0.20	0.10	ug/L	1		8270D SIM ID	Total/NA

Client Sample ID: MW-2S — Lab Sample ID: 480-140615-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	7.0	E	1.0	0.50	ug/L	5		8270D SIM ID	Total/NA

Client Sample ID: MW-2D — Lab Sample ID: 480-140615-6

No Detections.

Client Sample ID: DUP-01 — Lab Sample ID: 480-140615-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.4		2.0	1.0	ug/L	1		8270D SIM ID	Total/NA

Client Sample ID: EB-01 — Lab Sample ID: 480-140615-8

No Detections.

Client Sample ID: MH-01 — Lab Sample ID: 480-140615-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	6.4	E	1.0	0.50	ug/L	5		8270D SIM ID	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-9S
Lab Sample ID: 480-140615-1
Date Collected: 08/15/18 10:15
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/25/18 01:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*29*		*15 - 110*	*08/20/18 14:25*	*08/25/18 01:43*	*1*

Client Sample ID: MW-9D
Lab Sample ID: 480-140615-2
Date Collected: 08/15/18 10:20
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/25/18 02:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*26*		*15 - 110*	*08/20/18 14:25*	*08/25/18 02:06*	*1*

Client Sample ID: MW-4S
Lab Sample ID: 480-140615-3
Date Collected: 08/15/18 13:20
Matrix: Water
Date Received: 08/18/18 09:00

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	**2.9**		2.0	1.0	ug/L		08/20/18 14:25	08/25/18 03:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*31*		*15 - 110*	*08/20/18 14:25*	*08/25/18 03:44*	*1*

Client Sample ID: MW-4D
Lab Sample ID: 480-140615-4
Date Collected: 08/15/18 13:10
Matrix: Water
Date Received: 08/18/18 09:00

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	**2.1**	**E**	0.20	0.10	ug/L		08/20/18 14:25	08/25/18 04:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*31*		*15 - 110*	*08/20/18 14:25*	*08/25/18 04:07*	*1*

Client Sample ID: MW-2S
Lab Sample ID: 480-140615-5
Date Collected: 08/15/18 11:45
Matrix: Water
Date Received: 08/18/18 09:00

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	**7.0**	**E**	1.0	0.50	ug/L		08/20/18 14:25	08/25/18 04:31	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*29*		*15 - 110*	*08/20/18 14:25*	*08/25/18 04:31*	*5*

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

Client Sample ID: MW-2D
Lab Sample ID: 480-140615-6
Date Collected: 08/15/18 12:00
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/24/18 22:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*35*		*15 - 110*	*08/20/18 14:25*	*08/24/18 22:57*	*1*

Client Sample ID: DUP-01
Lab Sample ID: 480-140615-7
Date Collected: 08/15/18 13:15
Matrix: Water
Date Received: 08/18/18 09:00

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	**2.4**		2.0	1.0	ug/L		08/20/18 14:31	08/25/18 05:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*38*		*15 - 110*	*08/20/18 14:31*	*08/25/18 05:41*	*1*

Client Sample ID: EB-01
Lab Sample ID: 480-140615-8
Date Collected: 08/15/18 14:20
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/25/18 04:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*33*		*15 - 110*	*08/20/18 14:25*	*08/25/18 04:54*	*1*

Client Sample ID: MH-01
Lab Sample ID: 480-140615-9
Date Collected: 08/15/18 14:00
Matrix: Water
Date Received: 08/18/18 09:00

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	**6.4**	**E**	1.0	0.50	ug/L		08/20/18 14:25	08/27/18 15:02	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*28*		*15 - 110*	*08/20/18 14:25*	*08/27/18 15:02*	*5*

Isotope Dilution Summary

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

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)							
480-140615-1	MW-9S	29							
480-140615-2	MW-9D	26							
480-140615-3	MW-4S	31							
480-140615-4	MW-4D	31							
480-140615-5	MW-2S	29							
480-140615-6	MW-2D	35							
480-140615-6 MS	MW-2D	32							
480-140615-6 MSD	MW-2D	33							
480-140615-7	DUP-01	38							
480-140615-8	EB-01	33							
480-140615-9	MH-01	28							
LCS 480-430511/2-A	Lab Control Sample	37							
MB 480-430511/1-A	Method Blank	37							

Surrogate Legend

DXE = 1,4-Dioxane-d8

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

Lab Sample ID: MB 480-430511/1-A
Matrix: Water
Analysis Batch: 431347

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430511

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		08/20/18 14:25	08/24/18 21:22	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*37*		*15 - 110*	*08/20/18 14:25*	*08/24/18 21:22*	*1*

Lab Sample ID: LCS 480-430511/2-A
Matrix: Water
Analysis Batch: 431347

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430511

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			1.00	1.04		ug/L		104	40 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*37*		*15 - 110*

Lab Sample ID: 480-140615-6 MS
Matrix: Water
Analysis Batch: 431347

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 430511

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	ND		1.00	1.10		ug/L		110	40 - 140		

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
1,4-Dioxane-d8	*32*		*15 - 110*

Lab Sample ID: 480-140615-6 MSD
Matrix: Water
Analysis Batch: 431347

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 430511

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	ND		1.00	1.09		ug/L		109	40 - 140	0	20

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,4-Dioxane-d8	*33*		*15 - 110*

QC Association Summary

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

GC/MS Semi VOA

Prep Batch: 430511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140615-1	MW-9S	Total/NA	Water	3510C	
480-140615-2	MW-9D	Total/NA	Water	3510C	
480-140615-3	MW-4S	Total/NA	Water	3510C	
480-140615-4	MW-4D	Total/NA	Water	3510C	
480-140615-5	MW-2S	Total/NA	Water	3510C	
480-140615-6	MW-2D	Total/NA	Water	3510C	
480-140615-7	DUP-01	Total/NA	Water	3510C	
480-140615-8	EB-01	Total/NA	Water	3510C	
480-140615-9	MH-01	Total/NA	Water	3510C	
MB 480-430511/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-430511/2-A	Lab Control Sample	Total/NA	Water	3510C	
480-140615-6 MS	MW-2D	Total/NA	Water	3510C	
480-140615-6 MSD	MW-2D	Total/NA	Water	3510C	

Analysis Batch: 431347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140615-1	MW-9S	Total/NA	Water	8270D SIM ID	430511
480-140615-2	MW-9D	Total/NA	Water	8270D SIM ID	430511
480-140615-6	MW-2D	Total/NA	Water	8270D SIM ID	430511
MB 480-430511/1-A	Method Blank	Total/NA	Water	8270D SIM ID	430511
LCS 480-430511/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	430511
480-140615-6 MS	MW-2D	Total/NA	Water	8270D SIM ID	430511
480-140615-6 MSD	MW-2D	Total/NA	Water	8270D SIM ID	430511

Analysis Batch: 431348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140615-3	MW-4S	Total/NA	Water	8270D SIM ID	430511
480-140615-4	MW-4D	Total/NA	Water	8270D SIM ID	430511
480-140615-5	MW-2S	Total/NA	Water	8270D SIM ID	430511
480-140615-7	DUP-01	Total/NA	Water	8270D SIM ID	430511
480-140615-8	EB-01	Total/NA	Water	8270D SIM ID	430511

Analysis Batch: 431595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140615-9	MH-01	Total/NA	Water	8270D SIM ID	430511

Client Sample ID: MW-9S
Date Collected: 08/15/18 10:15
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431347	08/25/18 01:43	DMR	TAL BUF

Client Sample ID: MW-9D
Date Collected: 08/15/18 10:20
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431347	08/25/18 02:06	DMR	TAL BUF

Client Sample ID: MW-4S
Date Collected: 08/15/18 13:20
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431348	08/25/18 03:44	DMR	TAL BUF

Client Sample ID: MW-4D
Date Collected: 08/15/18 13:10
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431348	08/25/18 04:07	DMR	TAL BUF

Client Sample ID: MW-2S
Date Collected: 08/15/18 11:45
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		5	431348	08/25/18 04:31	DMR	TAL BUF

Client Sample ID: MW-2D
Date Collected: 08/15/18 12:00
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431347	08/24/18 22:57	DMR	TAL BUF

Lab Chronicle

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

Client Sample ID: DUP-01

Lab Sample ID: 480-140615-7

Date Collected: 08/15/18 13:15

Matrix: Water

Date Received: 08/18/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:31	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431348	08/25/18 05:41	DMR	TAL BUF

Client Sample ID: EB-01

Lab Sample ID: 480-140615-8

Date Collected: 08/15/18 14:20

Matrix: Water

Date Received: 08/18/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431348	08/25/18 04:54	DMR	TAL BUF

Client Sample ID: MH-01

Lab Sample ID: 480-140615-9

Date Collected: 08/15/18 14:00

Matrix: Water

Date Received: 08/18/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		5	431595	08/27/18 15:02	DMR	TAL BUF

Laboratory References:

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

Accreditation/Certification Summary

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

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

Method Summary

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

Method	Method Description	Protocol	Laboratory
8270D SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	TAL BUF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF

Protocol References:

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

Sample Summary

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-140615-1	MW-9S	Water	08/15/18 10:15	08/18/18 09:00
480-140615-2	MW-9D	Water	08/15/18 10:20	08/18/18 09:00
480-140615-3	MW-4S	Water	08/15/18 13:20	08/18/18 09:00
480-140615-4	MW-4D	Water	08/15/18 13:10	08/18/18 09:00
480-140615-5	MW-2S	Water	08/15/18 11:45	08/18/18 09:00
480-140615-6	MW-2D	Water	08/15/18 12:00	08/18/18 09:00
480-140615-7	DUP-01	Water	08/15/18 13:15	08/18/18 09:00
480-140615-8	EB-01	Water	08/15/18 14:20	08/18/18 09:00
480-140615-9	MH-01	Water	08/15/18 14:00	08/18/18 09:00

Transfers	Released By	Date/Time	Received By	Date/Time
1	[illegible]	8/10/18 18:00	[illegible]	8/18/18 0900
2				
3				

Comments: #1

480-140815 COC

Cooler Temperature on Receipt °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 7061798 **Workorder Name:** TAYLORS LANE 8/15 **Results Requested By:** 9/7/2018

Report / Invoice To	Subcontract To
Jennifer Aracri Pace Analytical Melville 575 Broad Hollow Road Melville, NY 11747 Phone (631)694-3040 Email: jennifer.aracri@pacelabs.com	Test America-Buffalo 10 Hazelwood Drive Amherst, NY 14228

P.O. 7061798JSA

State of Sample Origin: NY

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	1,4 Dioxane by 8270 SIM	LAB USE ONLY
1	MW-9S	8/15/2018 10:15	7061798001	Water		X	
2	MW-9D	8/15/2018 10:20	7061798002	Water		X	
3	MW-4S	8/15/2018 13:20	7061798003	Water		X	
4	MW-4D	8/15/2018 13:10	7061798004	Water		X	
5	MW-2S	8/15/2018 11:45	7061798005	Water		X	
6	MW-2D	8/15/2018 12:00	7061798006	Water		X	
7	DUP-01	8/15/2018 13:15	7061798007	Water		X	
8	EB-01	8/15/2018 14:20	7061798008	Water		X	
9	MH-01	8/15/2018 14:00	7061798009	Water		X	
10							
11							
12							

#1 3,4, 3,1, 2,9

Login Sample Receipt Checklist

Client: Pace Analytical Services, LLC

Job Number: 480-140615-1

Login Number: 140615
List Number: 1
Creator: Harper, Marcus D

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	PACE
Samples received within 48 hours of sampling.	False	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 320-42265-1
Client Project/Site: Pace PFAS Testing

For:
Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, New York 11747

Attn: Jennifer Aracri

Authorized for release by:
9/7/2018 3:53:45 PM
David Alltucker, Project Manager I
(916)374-4383
david.alltucker@testamericainc.com

Designee for

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

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Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	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)

Job ID: 320-42265-1

Laboratory: TestAmerica Sacramento

Narrative

Comments
No additional comments.

Receipt
The samples were received on 8/18/2018 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2º C.

Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody MW-2D (320-42265-6), MW-2D (320-42265-6[MS]), MW-2D (320-42265-6[MSD]). Received MS/MSD containers not listed on COC.

LCMS
Method(s) 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Perfluorooctanesulfonic acid (PFOS) for preparation batch 320-242502 and analytical batch 320-242977 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery 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
Method(s) 3535: The following samples, MW-9S (320-42265-1), MW-9D (320-42265-2), MW-4S (320-42265-3) and DUP-01 (320-42265-7), had non-settleable particulate matter which plugged the solid-phase extraction column. The amount of sample remaining plus the weight of the bottle are recorded in the "Notes" field of the prep batch. The tare weight recorded is the weight of the emptied bottle.

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

Detection Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: MW-9S — Lab Sample ID: 320-42265-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.4		2.0	0.35	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.3		2.0	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.1		2.0	0.58	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.4		2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	10		2.0	0.85	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.3	J	2.0	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.95	J	2.0	0.31	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.7	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.3	B	2.0	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.29	J	2.0	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.7		2.0	0.54	ng/L	1		537 (modified)	Total/NA
6:2 FTS	3.1	J	20	2.0	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-9D — Lab Sample ID: 320-42265-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.5		2.1	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	11		2.1	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	9.3		2.1	0.60	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.9		2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	16		2.1	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.77	J	2.1	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.1		2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.0	B	2.1	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.27	J	2.1	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.9		2.1	0.56	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-4S — Lab Sample ID: 320-42265-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.0		2.1	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	19		2.1	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	12		2.1	0.60	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.9		2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	13		2.1	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.42	J	2.1	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.57	J B	2.1	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	7.5		2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.9	B	2.1	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.29	J	2.1	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.1		2.1	0.56	ng/L	1		537 (modified)	Total/NA
6:2 FTS	2.1	J	21	2.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-4D — Lab Sample ID: 320-42265-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.6		2.1	0.37	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	19		2.1	0.51	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-4D (Continued) — Lab Sample ID: 320-42265-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	12		2.1	0.61	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.8		2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	15		2.1	0.89	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.35	J	2.1	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	8.2		2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.9	B	2.1	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.7		2.1	0.57	ng/L	1		537 (modified)	Total/NA
6:2 FTS	2.6	J	21	2.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-2S — Lab Sample ID: 320-42265-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.0		2.1	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	7.7		2.1	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.4		2.1	0.60	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.3		2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	17		2.1	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.1	J	2.1	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.3		2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.8	B	2.1	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.59	J	2.1	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	16		2.1	0.56	ng/L	1		537 (modified)	Total/NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	3.4	J	21	2.0	ng/L	1		537 (modified)	Total/NA
6:2 FTS	2.4	J	21	2.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-2D — Lab Sample ID: 320-42265-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.2		2.1	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.6	J	2.1	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.3	J	2.1	0.60	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.0	J	2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.1		2.1	0.87	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.86	J	2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.8	B	2.1	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	23	F1	2.1	0.55	ng/L	1		537 (modified)	Total/NA
6:2 FTS	2.2	J	21	2.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: DUP-01 — Lab Sample ID: 320-42265-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.6		2.2	0.38	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	19		2.2	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	12		2.2	0.62	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.5		2.2	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	15		2.2	0.91	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.45	J	2.2	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	8.7		2.2	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.8	B	2.2	0.18	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DUP-01 (Continued) — Lab Sample ID: 320-42265-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	3.8		2.2	0.58	ng/L	1		537 (modified)	Total/NA

Client Sample ID: EB-01 — Lab Sample ID: 320-42265-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.31	J B	2.0	0.17	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MH-01 — Lab Sample ID: 320-42265-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.4		2.1	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	11		2.1	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	9.0		2.1	0.60	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.3		2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	18		2.1	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.48	J	2.1	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.33	J B	2.1	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	16		2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.6	B	2.1	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.38	J	2.1	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	11		2.1	0.56	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: MW-9S
Date Collected: 08/15/18 10:15
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-1
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**3.4**		2.0	0.35	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoropentanoic acid (PFPeA)	**3.3**		2.0	0.49	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorohexanoic acid (PFHxA)	**3.1**		2.0	0.58	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoroheptanoic acid (PFHpA)	**3.4**		2.0	0.25	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorooctanoic acid (PFOA)	**10**		2.0	0.85	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorononanoic acid (PFNA)	**1.3**	**J**	2.0	0.27	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorodecanoic acid (PFDA)	**0.95**	**J**	2.0	0.31	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorobutanesulfonic acid (PFBS)	**1.7**	**J**	2.0	0.20	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorohexanesulfonic acid (PFHxS)	**2.3**	**B**	2.0	0.17	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.29**	**J**	2.0	0.19	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorooctanesulfonic acid (PFOS)	**5.7**		2.0	0.54	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.0	0.35	ng/L		08/28/18 10:26	08/30/18 00:45	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		08/28/18 10:26	08/30/18 00:45	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		08/28/18 10:26	08/30/18 00:45	1
6:2 FTS	**3.1**	**J**	20	2.0	ng/L		08/28/18 10:26	08/30/18 00:45	1
8:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 00:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*70*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C5 PFPeA	*73*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFHxA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C4-PFHpA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C4 PFOA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C5 PFNA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFDA	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFUnA	*65*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFDoA	*54*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2-PFTeDA	*55*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C3-PFBS	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
18O2 PFHxS	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C4 PFOS	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C8 FOSA	*60*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
d3-NMeFOSAA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
d5-NEtFOSAA	*61*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
M2-6:2FTS	*112*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
M2-8:2FTS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: MW-9D
Date Collected: 08/15/18 10:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-2
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**7.5**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoropentanoic acid (PFPeA)	**11**		2.1	0.51	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorohexanoic acid (PFHxA)	**9.3**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoroheptanoic acid (PFHpA)	**5.9**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorooctanoic acid (PFOA)	**16**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorononanoic acid (PFNA)	**0.77**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorobutanesulfonic acid (PFBS)	**5.1**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorohexanesulfonic acid (PFHxS)	**3.0**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.27**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorooctanesulfonic acid (PFOS)	**4.9**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 00:53	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 00:53	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 00:53	1
6:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 00:53	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 00:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C5 PFPeA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFHxA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C4-PFHpA	*89*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C4 PFOA	*84*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C5 PFNA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFDA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFUnA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFDoA	*63*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2-PFTeDA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C3-PFBS	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
18O2 PFHxS	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C4 PFOS	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C8 FOSA	*74*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
d3-NMeFOSAA	*65*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
d5-NEtFOSAA	*65*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
M2-6:2FTS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
M2-8:2FTS	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: MW-4S
Date Collected: 08/15/18 13:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-3
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.0**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoropentanoic acid (PFPeA)	**19**		2.1	0.50	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorohexanoic acid (PFHxA)	**12**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoroheptanoic acid (PFHpA)	**5.9**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorooctanoic acid (PFOA)	**13**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorononanoic acid (PFNA)	**0.42**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorotetradecanoic acid (PFTeA)	**0.57**	**J B**	2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorobutanesulfonic acid (PFBS)	**7.5**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorohexanesulfonic acid (PFHxS)	**2.9**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.29**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorooctanesulfonic acid (PFOS)	**4.1**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:01	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 01:01	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 01:01	1
6:2 FTS	**2.1**	**J**	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:01	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*66*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C5 PFPeA	*70*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFHxA	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C4-PFHpA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C4 PFOA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C5 PFNA	*82*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFDA	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFUnA	*67*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFDoA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2-PFTeDA	*52*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C3-PFBS	*69*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
18O2 PFHxS	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C4 PFOS	*72*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C8 FOSA	*73*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
d3-NMeFOSAA	*67*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
d5-NEtFOSAA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
M2-6:2FTS	*104*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
M2-8:2FTS	*89*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: MW-4D
Date Collected: 08/15/18 13:10
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-4
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.6**		2.1	0.37	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoropentanoic acid (PFPeA)	**19**		2.1	0.51	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorohexanoic acid (PFHxA)	**12**		2.1	0.61	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoroheptanoic acid (PFHpA)	**5.8**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorooctanoic acid (PFOA)	**15**		2.1	0.89	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorononanoic acid (PFNA)	**0.35**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.2	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.58	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.4	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorobutanesulfonic acid (PFBS)	**8.2**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorohexanesulfonic acid (PFHxS)	**2.9**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorooctanesulfonic acid (PFOS)	**3.7**		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.34	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.37	ng/L		08/28/18 10:26	08/30/18 01:09	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.3	ng/L		08/28/18 10:26	08/30/18 01:09	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 01:09	1
6:2 FTS	**2.6**	**J**	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:09	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C5 PFPeA	*83*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFHxA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C4-PFHpA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C4 PFOA	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFDA	*94*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFUnA	*82*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFDoA	*69*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2-PFTeDA	*68*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C3-PFBS	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
18O2 PFHxS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C4 PFOS	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C8 FOSA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
d3-NMeFOSAA	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
d5-NEtFOSAA	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
M2-6:2FTS	*99*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
M2-8:2FTS	*103*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: MW-2S
Date Collected: 08/15/18 11:45
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-5
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.0**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoropentanoic acid (PFPeA)	**7.7**		2.1	0.51	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorohexanoic acid (PFHxA)	**6.4**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoroheptanoic acid (PFHpA)	**4.3**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorooctanoic acid (PFOA)	**17**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorononanoic acid (PFNA)	**1.1**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorobutanesulfonic acid (PFBS)	**5.3**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorohexanesulfonic acid (PFHxS)	**3.8**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.59**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorooctanesulfonic acid (PFOS)	**16**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:16	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 01:16	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	**3.4**	**J**	21	2.0	ng/L		08/28/18 10:26	08/30/18 01:16	1
6:2 FTS	**2.4**	**J**	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:16	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C5 PFPeA	*72*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFHxA	*76*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C4-PFHpA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C4 PFOA	*94*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFDA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFUnA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFDoA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2-PFTeDA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C3-PFBS	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
18O2 PFHxS	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C4 PFOS	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C8 FOSA	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
d3-NMeFOSAA	*84*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
M2-6:2FTS	*129*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
M2-8:2FTS	*108*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*

Client Sample ID: MW-2D
Date Collected: 08/15/18 12:00
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-6
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.2**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoropentanoic acid (PFPeA)	**1.6**	**J**	2.1	0.50	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorohexanoic acid (PFHxA)	**1.3**	**J**	2.1	0.60	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoroheptanoic acid (PFHpA)	**1.0**	**J**	2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorooctanoic acid (PFOA)	**4.1**		2.1	0.87	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorononanoic acid (PFNA)	ND		2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorobutanesulfonic acid (PFBS)	**0.86**	**J**	2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorohexanesulfonic acid (PFHxS)	**2.8**	**B**	2.1	0.17	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorooctanesulfonic acid (PFOS)	**23**	**F1**	2.1	0.55	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:32	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 01:32	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 01:32	1
6:2 FTS	**2.2**	**J**	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:32	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C5 PFPeA	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFHxA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C4-PFHpA	*100*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C4 PFOA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C5 PFNA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFDA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFUnA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFDoA	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2-PFTeDA	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C3-PFBS	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
18O2 PFHxS	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C4 PFOS	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C8 FOSA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
d3-NMeFOSAA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
d5-NEtFOSAA	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
M2-6:2FTS	*98*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
M2-8:2FTS	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: DUP-01
Date Collected: 08/15/18 13:15
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-7
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.6**		2.2	0.38	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoropentanoic acid (PFPeA)	**19**		2.2	0.53	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorohexanoic acid (PFHxA)	**12**		2.2	0.62	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoroheptanoic acid (PFHpA)	**5.5**		2.2	0.27	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorooctanoic acid (PFOA)	**15**		2.2	0.91	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorononanoic acid (PFNA)	**0.45**	**J**	2.2	0.29	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorodecanoic acid (PFDA)	ND		2.2	0.33	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoroundecanoic acid (PFUnA)	ND		2.2	1.2	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorododecanoic acid (PFDoA)	ND		2.2	0.59	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.2	1.4	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.2	0.31	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorobutanesulfonic acid (PFBS)	**8.7**		2.2	0.22	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorohexanesulfonic acid (PFHxS)	**2.8**	**B**	2.2	0.18	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.2	0.20	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorooctanesulfonic acid (PFOS)	**3.8**		2.2	0.58	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.2	0.34	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.2	0.38	ng/L		08/28/18 10:26	08/30/18 01:56	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		22	3.3	ng/L		08/28/18 10:26	08/30/18 01:56	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		22	2.0	ng/L		08/28/18 10:26	08/30/18 01:56	1
6:2 FTS	ND		22	2.2	ng/L		08/28/18 10:26	08/30/18 01:56	1
8:2 FTS	ND		22	2.2	ng/L		08/28/18 10:26	08/30/18 01:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C5 PFPeA	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFHxA	*82*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C4-PFHpA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C4 PFOA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C5 PFNA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFDA	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFUnA	*66*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFDoA	*58*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2-PFTeDA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C3-PFBS	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
18O2 PFHxS	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C4 PFOS	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C8 FOSA	*72*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
d3-NMeFOSAA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
d5-NEtFOSAA	*61*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
M2-6:2FTS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
M2-8:2FTS	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*

Client Sample ID: EB-01
Date Collected: 08/15/18 14:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-8
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.36	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.50	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.59	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.87	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.28	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.32	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.56	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.30	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorohexanesulfonic acid (PFHxS)	**0.31**	**J B**	2.0	0.17	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.55	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.33	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.0	0.36	ng/L		08/28/18 10:26	08/30/18 02:03	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	3.2	ng/L		08/28/18 10:26	08/30/18 02:03	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		08/28/18 10:26	08/30/18 02:03	1
6:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 02:03	1
8:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 02:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*102*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C5 PFPeA	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFHxA	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C4-PFHpA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C4 PFOA	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFDA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFUnA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFDoA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2-PFTeDA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C3-PFBS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
18O2 PFHxS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C4 PFOS	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C8 FOSA	*84*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
d3-NMeFOSAA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
M2-6:2FTS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
M2-8:2FTS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: MH-01
Date Collected: 08/15/18 14:00
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-9
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.4**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoropentanoic acid (PFPeA)	**11**		2.1	0.50	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorohexanoic acid (PFHxA)	**9.0**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoroheptanoic acid (PFHpA)	**6.3**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorooctanoic acid (PFOA)	**18**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorononanoic acid (PFNA)	**0.48**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorotetradecanoic acid (PFTeA)	**0.33**	**J B**	2.1	0.30	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorobutanesulfonic acid (PFBS)	**16**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorohexanesulfonic acid (PFHxS)	**3.6**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.38**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorooctanesulfonic acid (PFOS)	**11**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 02:11	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 02:11	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 02:11	1
6:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 02:11	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 02:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C5 PFPeA	*74*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFHxA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C4-PFHpA	*89*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C4 PFOA	*94*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C5 PFNA	*106*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFDA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFUnA	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFDoA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2-PFTeDA	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C3-PFBS	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
18O2 PFHxS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C4 PFOS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C8 FOSA	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
d3-NMeFOSAA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
M2-6:2FTS	*142*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
M2-8:2FTS	*115*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*

Isotope Dilution Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-42265-1	MW-9S	70	73	80	86	88	86	77	65
320-42265-2	MW-9D	80	80	80	89	84	87	81	64
320-42265-3	MW-4S	66	70	75	81	81	82	77	67
320-42265-4	MW-4D	75	83	87	93	91	96	94	82
320-42265-5	MW-2S	59	72	76	87	94	96	93	87
320-42265-6	MW-2D	90	91	93	100	97	97	93	87
320-42265-6 MS	MW-2D	87	89	95	94	92	97	95	90
320-42265-6 MSD	MW-2D	84	91	93	93	92	97	92	88
320-42265-7	DUP-01	79	78	82	90	87	90	79	66
320-42265-8	EB-01	102	92	95	96	95	96	97	97
320-42265-9	MH-01	64	74	81	89	94	106	96	91
LCS 320-242502/2-A	Lab Control Sample	90	89	92	87	92	92	90	90
MB 320-242502/1-A	Method Blank	94	93	93	96	95	96	101	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	-NMeFOSA (25-150)	-NEtFOSA (25-150)
320-42265-1	MW-9S	54	55	79	81	75	60	64	61
320-42265-2	MW-9D	63	59	78	86	77	74	65	65
320-42265-3	MW-4S	59	52	69	77	72	73	67	64
320-42265-4	MW-4D	69	68	88	90	88	80	78	75
320-42265-5	MW-2S	88	86	75	86	85	78	84	88
320-42265-6	MW-2D	92	92	86	96	91	90	86	85
320-42265-6 MS	MW-2D	89	91	86	91	91	88	85	88
320-42265-6 MSD	MW-2D	86	91	90	94	91	90	84	86
320-42265-7	DUP-01	58	59	79	87	80	72	64	61
320-42265-8	EB-01	90	86	90	95	92	84	90	88
320-42265-9	MH-01	88	85	85	90	90	85	87	88
LCS 320-242502/2-A	Lab Control Sample	92	91	87	88	88	84	88	94
MB 320-242502/1-A	Method Blank	95	92	92	91	93	88	90	91

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)						
320-42265-1	MW-9S	112	90						
320-42265-2	MW-9D	95	85						
320-42265-3	MW-4S	104	89						
320-42265-4	MW-4D	99	103						
320-42265-5	MW-2S	129	108						
320-42265-6	MW-2D	98	96						
320-42265-6 MS	MW-2D	95	97						
320-42265-6 MSD	MW-2D	93	100						
320-42265-7	DUP-01	90	78						
320-42265-8	EB-01	95	95						
320-42265-9	MH-01	142	115						
LCS 320-242502/2-A	Lab Control Sample	103	90						
MB 320-242502/1-A	Method Blank	97	97						

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA

Isotope Dilution Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

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

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-242502/1-A
Matrix: Water
Analysis Batch: 242977

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 242502

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.35	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorotetradecanoic acid (PFTeA)	0.293	J	2.0	0.29	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorohexanesulfonic acid (PFHxS)	0.323	J	2.0	0.17	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.0	0.35	ng/L		08/28/18 10:26	08/30/18 00:06	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		08/28/18 10:26	08/30/18 00:06	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		08/28/18 10:26	08/30/18 00:06	1
6:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 00:06	1
8:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 00:06	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C5 PFPeA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C2 PFHxA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C4-PFHpA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C4 PFOA	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C2 PFDA	*101*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C2 PFUnA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C2 PFDoA	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C2-PFTeDA	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C3-PFBS	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
18O2 PFHxS	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C4 PFOS	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C8 FOSA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
d3-NMeFOSAA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
d5-NEtFOSAA	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
M2-6:2FTS	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
M2-8:2FTS	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*

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

Lab Sample ID: LCS 320-242502/2-A
Matrix: Water
Analysis Batch: 242977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242502

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	40.3		ng/L		101	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	39.0		ng/L		97	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	36.9		ng/L		92	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	40.5		ng/L		101	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	38.7		ng/L		97	64 - 124
Perfluorononanoic acid (PFNA)	40.0	39.8		ng/L		100	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	39.0		ng/L		98	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	36.3		ng/L		91	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	35.4		ng/L		89	71 - 131
Perfluorotridecanoic Acid (PFTriA)	40.0	37.1		ng/L		93	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	36.2		ng/L		90	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	34.7		ng/L		98	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.5		ng/L		92	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.8		ng/L		105	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	35.8		ng/L		96	67 - 127
Perfluorodecanesulfonic acid (PFDS)	38.6	37.5		ng/L		97	68 - 128
Perfluorooctane Sulfonamide (FOSA)	40.0	39.7		ng/L		99	70 - 130
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	38.8		ng/L		97	67 - 127
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	36.4		ng/L		91	65 - 125
6:2 FTS	37.9	38.1		ng/L		101	66 - 126
8:2 FTS	38.3	37.6		ng/L		98	67 - 127

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*90*		*25 - 150*
13C5 PFPeA	*89*		*25 - 150*
13C2 PFHxA	*92*		*25 - 150*
13C4-PFHpA	*87*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*
13C5 PFNA	*92*		*25 - 150*
13C2 PFDA	*90*		*25 - 150*
13C2 PFUnA	*90*		*25 - 150*
13C2 PFDoA	*92*		*25 - 150*
13C2-PFTeDA	*91*		*25 - 150*
13C3-PFBS	*87*		*25 - 150*
18O2 PFHxS	*88*		*25 - 150*
13C4 PFOS	*88*		*25 - 150*
13C8 FOSA	*84*		*25 - 150*

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

Lab Sample ID: LCS 320-242502/2-A
Matrix: Water
Analysis Batch: 242977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242502

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
d3-NMeFOSAA	88		25 - 150
d5-NEtFOSAA	94		25 - 150
M2-6:2FTS	103		25 - 150
M2-8:2FTS	90		25 - 150

Lab Sample ID: 320-42265-6 MS
Matrix: Water
Analysis Batch: 242977

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 242502

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	9.2		41.2	49.2		ng/L		97	70 - 130
Perfluoropentanoic acid (PFPeA)	1.6	J	41.2	39.8		ng/L		93	66 - 126
Perfluorohexanoic acid (PFHxA)	1.3	J	41.2	39.7		ng/L		93	66 - 126
Perfluoroheptanoic acid (PFHpA)	1.0	J	41.2	38.2		ng/L		90	66 - 126
Perfluorooctanoic acid (PFOA)	4.1		41.2	46.5		ng/L		103	64 - 124
Perfluorononanoic acid (PFNA)	ND		41.2	40.7		ng/L		99	68 - 128
Perfluorodecanoic acid (PFDA)	ND		41.2	39.5		ng/L		96	69 - 129
Perfluoroundecanoic acid (PFUnA)	ND		41.2	37.7		ng/L		92	60 - 120
Perfluorododecanoic acid (PFDoA)	ND		41.2	38.0		ng/L		92	71 - 131
Perfluorotridecanoic Acid (PFTriA)	ND		41.2	42.8		ng/L		104	72 - 132
Perfluorotetradecanoic acid (PFTeA)	ND		41.2	37.9		ng/L		92	68 - 128
Perfluorobutanesulfonic acid (PFBS)	0.86	J	36.4	38.3		ng/L		103	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	2.8	B	37.5	37.1		ng/L		91	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	ND		39.2	41.1		ng/L		105	68 - 128
Perfluorooctanesulfonic acid (PFOS)	23	F1	38.2	35.9	F1	ng/L		33	67 - 127
Perfluorodecanesulfonic acid (PFDS)	ND		39.7	34.3		ng/L		86	68 - 128
Perfluorooctane Sulfonamide (FOSA)	ND		41.2	40.5		ng/L		98	70 - 130
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		41.2	38.0		ng/L		92	67 - 127
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		41.2	40.8		ng/L		99	65 - 125
6:2 FTS	2.2	J	39.0	43.0		ng/L		105	66 - 126
8:2 FTS	ND		39.5	38.3		ng/L		97	67 - 127

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C4 PFBA	87		25 - 150
13C5 PFPeA	89		25 - 150
13C2 PFHxA	95		25 - 150
13C4-PFHpA	94		25 - 150
13C4 PFOA	92		25 - 150

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

Lab Sample ID: 320-42265-6 MS
Matrix: Water
Analysis Batch: 242977

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 242502

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C5 PFNA	97		25 - 150
13C2 PFDA	95		25 - 150
13C2 PFUnA	90		25 - 150
13C2 PFDoA	89		25 - 150
13C2-PFTeDA	91		25 - 150
13C3-PFBS	86		25 - 150
18O2 PFHxS	91		25 - 150
13C4 PFOS	91		25 - 150
13C8 FOSA	88		25 - 150
d3-NMeFOSAA	85		25 - 150
d5-NEtFOSAA	88		25 - 150
M2-6:2FTS	95		25 - 150
M2-8:2FTS	97		25 - 150

Lab Sample ID: 320-42265-6 MSD
Matrix: Water
Analysis Batch: 242977

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 242502

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	9.2		41.4	49.8		ng/L		98	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)	1.6	J	41.4	40.8		ng/L		95	66 - 126	3	30
Perfluorohexanoic acid (PFHxA)	1.3	J	41.4	41.2		ng/L		96	66 - 126	4	30
Perfluoroheptanoic acid (PFHpA)	1.0	J	41.4	40.8		ng/L		96	66 - 126	7	30
Perfluorooctanoic acid (PFOA)	4.1		41.5	43.9		ng/L		96	64 - 124	6	30
Perfluorononanoic acid (PFNA)	ND		41.4	38.9		ng/L		94	68 - 128	4	30
Perfluorodecanoic acid (PFDA)	ND		41.4	40.3		ng/L		97	69 - 129	2	30
Perfluoroundecanoic acid (PFUnA)	ND		41.4	34.8		ng/L		84	60 - 120	8	30
Perfluorododecanoic acid (PFDoA)	ND		41.4	37.5		ng/L		91	71 - 131	1	30
Perfluorotridecanoic Acid (PFTriA)	ND		41.4	41.6		ng/L		100	72 - 132	3	30
Perfluorotetradecanoic acid (PFTeA)	ND		41.4	37.3		ng/L		90	68 - 128	1	30
Perfluorobutanesulfonic acid (PFBS)	0.86	J	36.6	36.3		ng/L		97	73 - 133	5	30
Perfluorohexanesulfonic acid (PFHxS)	2.8	B	37.7	37.1		ng/L		91	63 - 123	0	30
Perfluoroheptanesulfonic Acid (PFHpS)	ND		39.4	42.4		ng/L		107	68 - 128	3	30
Perfluorooctanesulfonic acid (PFOS)	23	F1	38.4	36.9	F1	ng/L		35	67 - 127	3	30
Perfluorodecanesulfonic acid (PFDS)	ND		39.9	35.5		ng/L		89	68 - 128	3	30
Perfluorooctane Sulfonamide (FOSA)	ND		41.4	39.6		ng/L		96	70 - 130	2	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		41.4	40.1		ng/L		97	67 - 127	5	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		41.4	40.9		ng/L		99	65 - 125	0	30

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

Lab Sample ID: 320-42265-6 MSD
Matrix: Water
Analysis Batch: 242977

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 242502

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
6:2 FTS	2.2	J	39.3	42.5		ng/L		103	66 - 126	1	30
8:2 FTS	ND		39.7	38.2		ng/L		96	67 - 127	0	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C4 PFBA	*84*		*25 - 150*
13C5 PFPeA	*91*		*25 - 150*
13C2 PFHxA	*93*		*25 - 150*
13C4-PFHpA	*93*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*
13C5 PFNA	*97*		*25 - 150*
13C2 PFDA	*92*		*25 - 150*
13C2 PFUnA	*88*		*25 - 150*
13C2 PFDoA	*86*		*25 - 150*
13C2-PFTeDA	*91*		*25 - 150*
13C3-PFBS	*90*		*25 - 150*
18O2 PFHxS	*94*		*25 - 150*
13C4 PFOS	*91*		*25 - 150*
13C8 FOSA	*90*		*25 - 150*
d3-NMeFOSAA	*84*		*25 - 150*
d5-NEtFOSAA	*86*		*25 - 150*
M2-6:2FTS	*93*		*25 - 150*
M2-8:2FTS	*100*		*25 - 150*

QC Association Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

LCMS

Prep Batch: 242502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-42265-1	MW-9S	Total/NA	Water	3535	
320-42265-2	MW-9D	Total/NA	Water	3535	
320-42265-3	MW-4S	Total/NA	Water	3535	
320-42265-4	MW-4D	Total/NA	Water	3535	
320-42265-5	MW-2S	Total/NA	Water	3535	
320-42265-6	MW-2D	Total/NA	Water	3535	
320-42265-7	DUP-01	Total/NA	Water	3535	
320-42265-8	EB-01	Total/NA	Water	3535	
320-42265-9	MH-01	Total/NA	Water	3535	
MB 320-242502/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-242502/2-A	Lab Control Sample	Total/NA	Water	3535	
320-42265-6 MS	MW-2D	Total/NA	Water	3535	
320-42265-6 MSD	MW-2D	Total/NA	Water	3535	

Analysis Batch: 242977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-42265-1	MW-9S	Total/NA	Water	537 (modified)	242502
320-42265-2	MW-9D	Total/NA	Water	537 (modified)	242502
320-42265-3	MW-4S	Total/NA	Water	537 (modified)	242502
320-42265-4	MW-4D	Total/NA	Water	537 (modified)	242502
320-42265-5	MW-2S	Total/NA	Water	537 (modified)	242502
320-42265-6	MW-2D	Total/NA	Water	537 (modified)	242502
320-42265-7	DUP-01	Total/NA	Water	537 (modified)	242502
320-42265-8	EB-01	Total/NA	Water	537 (modified)	242502
320-42265-9	MH-01	Total/NA	Water	537 (modified)	242502
MB 320-242502/1-A	Method Blank	Total/NA	Water	537 (modified)	242502
LCS 320-242502/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	242502
320-42265-6 MS	MW-2D	Total/NA	Water	537 (modified)	242502
320-42265-6 MSD	MW-2D	Total/NA	Water	537 (modified)	242502

Client Sample ID: MW-9S
Date Collected: 08/15/18 10:15
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250.6 mL	10.0 mL	242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			242977	08/30/18 00:45	S1M	TAL SAC

Client Sample ID: MW-9D
Date Collected: 08/15/18 10:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			241.2 mL	10.0 mL	242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			242977	08/30/18 00:53	S1M	TAL SAC

Client Sample ID: MW-4S
Date Collected: 08/15/18 13:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242.6 mL	10.0 mL	242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			242977	08/30/18 01:01	S1M	TAL SAC

Client Sample ID: MW-4D
Date Collected: 08/15/18 13:10
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			238.1 mL	10.0 mL	242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			242977	08/30/18 01:09	S1M	TAL SAC

Client Sample ID: MW-2S
Date Collected: 08/15/18 11:45
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242.3 mL	10.0 mL	242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			242977	08/30/18 01:16	S1M	TAL SAC

Client Sample ID: MW-2D
Date Collected: 08/15/18 12:00
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			243.3 mL	10.0 mL	242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			242977	08/30/18 01:32	S1M	TAL SAC

Lab Chronicle

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Client Sample ID: DUP-01

Date Collected: 08/15/18 13:15
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			232.5 mL	10.0 mL	242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			242977	08/30/18 01:56	S1M	TAL SAC

Client Sample ID: EB-01

Date Collected: 08/15/18 14:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			245.1 mL	10.0 mL	242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			242977	08/30/18 02:03	S1M	TAL SAC

Client Sample ID: MH-01

Date Collected: 08/15/18 14:00
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242.6 mL	10.0 mL	242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			242977	08/30/18 02:11	S1M	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	11666	03-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Water	6:2 FTS
537 (modified)	3535	Water	8:2 FTS
537 (modified)	3535	Water	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)
537 (modified)	3535	Water	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)
537 (modified)	3535	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	3535	Water	Perfluorobutanoic acid (PFBA)
537 (modified)	3535	Water	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	3535	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	3535	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	3535	Water	Perfluoroheptanesulfonic Acid (PFHpS)
537 (modified)	3535	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	3535	Water	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	3535	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	3535	Water	Perfluorononanoic acid (PFNA)
537 (modified)	3535	Water	Perfluorooctane Sulfonamide (FOSA)
537 (modified)	3535	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	3535	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	3535	Water	Perfluoropentanoic acid (PFPeA)
537 (modified)	3535	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	3535	Water	Perfluorotridecanoic Acid (PFTriA)
537 (modified)	3535	Water	Perfluoroundecanoic acid (PFUnA)

Method Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

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

Sample Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-42265-1	MW-9S	Water	08/15/18 10:15	08/18/18 09:20
320-42265-2	MW-9D	Water	08/15/18 10:20	08/18/18 09:20
320-42265-3	MW-4S	Water	08/15/18 13:20	08/18/18 09:20
320-42265-4	MW-4D	Water	08/15/18 13:10	08/18/18 09:20
320-42265-5	MW-2S	Water	08/15/18 11:45	08/18/18 09:20
320-42265-6	MW-2D	Water	08/15/18 12:00	08/18/18 09:20
320-42265-7	DUP-01	Water	08/15/18 13:15	08/18/18 09:20
320-42265-8	EB-01	Water	08/15/18 14:20	08/18/18 09:20
320-42265-9	MH-01	Water	08/15/18 14:00	08/18/18 09:20

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 7061798 **Workorder Name:** TAYLORS LANE 8/15 **Results Requested By:** 9/7/2018

Report / Invoice To	Subcontract To
Jennifer Aracri Pace Analytical Melville 575 Broad Hollow Road Melville, NY 11747 Phone (631)694-3040 Email: jennifer.aracri@pacelabs.com	Test America-Sacramento P.O. 7061798JSA 880 Riverside Pkwy West Sacramento, CA 95605

State of Sample Origin: NY

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved						Requested Analysis: PFOA/PFAS												LAB USE ONLY
1	MW-9S	8/15/2018 10:15	7061798001	Water							X												
2	MW-9D	8/15/2018 10:20	7061798002	Water							X												
3	MW-4S	8/15/2018 13:20	7061798003	Water							X												
4	MW-4D	8/15/2018 13:10	7061798004	Water							X												
5	MW-2S	8/15/2018 11:45	7061798005	Water							X												
6	MW-2D	8/15/2018 12:00	7061798006	Water							X												
7	DUP-01	8/15/2018 13:15	7061798007	Water							X												
8	EB-01	8/15/2018 14:20	7061798008	Water							X												
9	MH-01	8/15/2018 14:00	7061798009	Water							X												
10																							
11																							
12																							
13																							

MS/MSD Received not Marked on COC. DH 8/18/18

320-42265 Chain of Custody

13					
					Comments
Transfers	Released By	Date/Time	Received By	Date/Time	
1	[illegible]	8/17/18 1800	[illegible] TA Sent	8/16/18 920	
2					
3					

Cooler Temperature on Receipt 8.2 °C | Custody Seal Y or (N) | Received on Ice (Y) or N | Samples Intact (Y) or N

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

/08/18

Required Client Information:	Required Project Information:	Section C Invoice Information:
Company: Zion Environmental, LLC	Report To: Nichols, Brian	Attention:
Address: 134 Kelly Hill Road	Copy To:	Company Name:
Pittsville, NY 10963		Address:
Email:	Purchase Order #:	Pace Quote:
Phone: Fax:	Project Name: Taylors Lane	Pace Project Manager: jennifer.aracri@pacelabs.com,
Requested Due Date	Project #:	Pace Profile #: 7400

Regulatory Agency

State / Location: NY

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	1,4 Dioxane by 8270 SIM	PFAS EPA method 537	Residual Chlorine (Y/N)	
1	MW-9S	WT	G	8/15/19	1015				4	X								Y	2	2		001
2	MW-9D	WT	G	8/15/19	1020				4	X								Y	2	2		002
3	MW-4S	WT	G	8/15/19	1330				4	X								Y	2	2		003
4	MW-4D	WT	G	8/15/19	1310				4	X								Y	2	2		004
5	MW-2S	WT	G	8/15/19	1145				4	X								Y	2	2		005
6	MW-2D	WT	G	8/15/19	1200				4	X								Y	2	2		006
7	Dup-01	WT	G	8/15/19	1315				4	X								Y	2	2		007
8	MS	WT	G	8/15/19	1203				4	X								Y	2	2		006 ~~008~~
9	MSD	WT	G	8/15/19	1206				4	X								Y	2	2		↓ ~~009~~
10	EB-01	WT	G	8/15/19	1420				4	X								Y	2	2		008 ~~010~~
11	MH-01	WT	G	8/15/19	1400				4	X								Y	2	2		009 ~~011~~
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Sub to TA Buffalo	Brian	8/16/19	1600	Danielle Williams	8/16/19	1030	2.1 Y N Y
1,4 Dioxane by EPA method 8270SIM							
PFAS by EPA method 537							

Note: 1,4 Dioxane method detection limits should not exceed 0.28 ug/L (PAS)
Reporting limits for PFAS should not exceed 2 ng/L (PPT)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brian Nichols / Wayne Keller

SIGNATURE of SAMPLER: B

DATE Signed: 8/15/19

TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

Sample Condition Upon Receipt

Pace Analytical

Client Name: ZION Environmental Proj

WO#:7061798

PM: JSA Due Date: 09/07/18

CLIENT: ZION

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking #: 4598 4538 5041 7940

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No Seals intact: ☐ Yes ☑ No

Temperature Blank Present: ☐ Yes ☑ No

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ Ziploc ☐ None ☐ Other

Type of Ice: (Wet) Blue None

Thermometer Used: TH091 Correction Factor: 0.0

☐ Samples on ice, cooling process has begun

Cooler Temperature (°C): 2.1 Cooler Temperature Corrected (°C): 2.1

Date/Time 5035A kits placed in freezer _____

Temp should be above freezing to 6.0°C

USDA Regulated Soil (☑ N/A, water sample)

Date and Initials of person examining contents: AW 8/16/18

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? ☐ YES ☐ NO

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☒ No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present:	☑ Yes	☐ No		1.
Chain of Custody Filled Out:	☑ Yes	☐ No		2.
Chain of Custody Relinquished:	☑ Yes	☐ No		3.
Sampler Name & Signature on COC:	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time:	☑ Yes	☐ No		5.
Short Hold Time Analysis (<72hr):	☐ Yes	☑ No		6.
Rush Turn Around Time Requested:	☐ Yes	☑ No		7.
Sufficient Volume: (Triple volume provided for MS/MSD)	☑ Yes	☐ No		8.
Correct Containers Used:	☑ Yes	☐ No		9.
-Pace Containers Used.	☑ Yes	☐ No		
Containers Intact:	☑ Yes	☐ No		10.
Filtered volume received for Dissolved tests	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	☑ Yes	☐ No		12.
-Includes date/time/ID/Analysis Matrix SL WT OIL				
All containers needing preservation have been checked	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
pH paper Lot #				Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl, NaOH>9 Sulfide, NaOH>12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis	☐ Yes	☐ No	☑ N/A	Initial when completed: / Lot # of added preservative: / Date/Time preservative added
Samples checked for dechlorination:	☐ Yes	☐ No	☑ N/A	14.
KI starch test strips Lot #				Positive for Res. Chlorine? Y N
Residual chlorine strips Lot #				
Headspace in VOA Vials (>6mm):	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Present:	☐ Yes	☐ No	☑ N/A	16.
Trip Blank Custody Seals Present	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if applicable): _____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

* PM (Project Manager) review is documented electronically in LIMS.

F-LI-C-002-rev.02

Login Sample Receipt Checklist

Client: Pace Analytical Services, LLC

Job Number: 320-42265-1

Login Number: 42265
List Number: 1
Creator: Her, David A

List Source: TestAmerica Sacramento

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

ANALYTICAL REPORT

Job Number: 320-42265-1

Job Description: Pace PFAS Testing

For:
Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747

Attention: Jennifer Aracri

Approved for release.
Jill Kellmann
Manager of Project Management
9/14/2018 11:41 AM

Jill Kellmann, Manager of Project Management
880 Riverside Parkway, West Sacramento, CA, 95605
(916)374-4402
jill.kellmann@testamericainc.com
09/14/2018

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Comments
No additional comments.

Receipt
The samples were received on 8/18/2018 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2º C.

Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody MW-2D (320-42265-6), MW-2D (320-42265-6[MS]), MW-2D (320-42265-6[MSD]). Received MS/MSD containers not listed on COC.

LCMS
Method(s) 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Perfluorooctanesulfonic acid (PFOS) for preparation batch 320-242502 and analytical batch 320-242977 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery 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
Method(s) 3535: The following samples, MW-9S (320-42265-1), MW-9D (320-42265-2), MW-4S (320-42265-3) and DUP-01 (320-42265-7), had non-settleable particulate matter which plugged the solid-phase extraction column. The amount of sample remaining plus the weight of the bottle are recorded in the "Notes" field of the prep batch. The tare weight recorded is the weight of the emptied bottle.

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

Sample Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-42265-1	MW-9S	Water	08/15/18 10:15	08/18/18 09:20
320-42265-2	MW-9D	Water	08/15/18 10:20	08/18/18 09:20
320-42265-3	MW-4S	Water	08/15/18 13:20	08/18/18 09:20
320-42265-4	MW-4D	Water	08/15/18 13:10	08/18/18 09:20
320-42265-5	MW-2S	Water	08/15/18 11:45	08/18/18 09:20
320-42265-6	MW-2D	Water	08/15/18 12:00	08/18/18 09:20
320-42265-7	DUP-01	Water	08/15/18 13:15	08/18/18 09:20
320-42265-8	EB-01	Water	08/15/18 14:20	08/18/18 09:20
320-42265-9	MH-01	Water	08/15/18 14:00	08/18/18 09:20

Client Sample ID: MW-9S — Lab Sample ID: 320-42265-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.4		2.0	0.35	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.3		2.0	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.1		2.0	0.58	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.4		2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	10		2.0	0.85	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.3	J	2.0	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.95	J	2.0	0.31	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.7	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.3	B	2.0	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.29	J	2.0	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.7		2.0	0.54	ng/L	1		537 (modified)	Total/NA
6:2 FTS	3.1	J	20	2.0	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-9D — Lab Sample ID: 320-42265-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.5		2.1	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	11		2.1	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	9.3		2.1	0.60	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.9		2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	16		2.1	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.77	J	2.1	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.1		2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.0	B	2.1	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.27	J	2.1	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.9		2.1	0.56	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-4S — Lab Sample ID: 320-42265-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.0		2.1	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	19		2.1	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	12		2.1	0.60	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.9		2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	13		2.1	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.42	J	2.1	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.57	J B	2.1	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	7.5		2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.9	B	2.1	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.29	J	2.1	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.1		2.1	0.56	ng/L	1		537 (modified)	Total/NA
6:2 FTS	2.1	J	21	2.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-4D — Lab Sample ID: 320-42265-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.6		2.1	0.37	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	19		2.1	0.51	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-4D (Continued) — Lab Sample ID: 320-42265-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	12		2.1	0.61	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.8		2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	15		2.1	0.89	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.35	J	2.1	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	8.2		2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.9	B	2.1	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.7		2.1	0.57	ng/L	1		537 (modified)	Total/NA
6:2 FTS	2.6	J	21	2.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-2S — Lab Sample ID: 320-42265-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.0		2.1	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	7.7		2.1	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.4		2.1	0.60	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.3		2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	17		2.1	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.1	J	2.1	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.3		2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.8	B	2.1	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.59	J	2.1	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	16		2.1	0.56	ng/L	1		537 (modified)	Total/NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	3.4	J	21	2.0	ng/L	1		537 (modified)	Total/NA
6:2 FTS	2.4	J	21	2.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-2D — Lab Sample ID: 320-42265-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.2		2.1	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.6	J	2.1	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.3	J	2.1	0.60	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.0	J	2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.1		2.1	0.87	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.86	J	2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.8	B	2.1	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	23	F1	2.1	0.55	ng/L	1		537 (modified)	Total/NA
6:2 FTS	2.2	J	21	2.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: DUP-01 — Lab Sample ID: 320-42265-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.6		2.2	0.38	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	19		2.2	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	12		2.2	0.62	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.5		2.2	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	15		2.2	0.91	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.45	J	2.2	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	8.7		2.2	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.8	B	2.2	0.18	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DUP-01 (Continued)

Lab Sample ID: 320-42265-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	3.8		2.2	0.58	ng/L	1		537 (modified)	Total/NA

Client Sample ID: EB-01

Lab Sample ID: 320-42265-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.31	J B	2.0	0.17	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MH-01

Lab Sample ID: 320-42265-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.4		2.1	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	11		2.1	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	9.0		2.1	0.60	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.3		2.1	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	18		2.1	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.48	J	2.1	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.33	J B	2.1	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	16		2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.6	B	2.1	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.38	J	2.1	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	11		2.1	0.56	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

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

Client Sample ID: MW-9S

Date Collected: 08/15/18 10:15
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-1

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**3.4**		2.0	0.35	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoropentanoic acid (PFPeA)	**3.3**		2.0	0.49	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorohexanoic acid (PFHxA)	**3.1**		2.0	0.58	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoroheptanoic acid (PFHpA)	**3.4**		2.0	0.25	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorooctanoic acid (PFOA)	**10**		2.0	0.85	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorononanoic acid (PFNA)	**1.3**	**J**	2.0	0.27	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorodecanoic acid (PFDA)	**0.95**	**J**	2.0	0.31	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorobutanesulfonic acid (PFBS)	**1.7**	**J**	2.0	0.20	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorohexanesulfonic acid (PFHxS)	**2.3**	**B**	2.0	0.17	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.29**	**J**	2.0	0.19	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorooctanesulfonic acid (PFOS)	**5.7**		2.0	0.54	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		08/28/18 10:26	08/30/18 00:45	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.0	0.35	ng/L		08/28/18 10:26	08/30/18 00:45	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		08/28/18 10:26	08/30/18 00:45	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		08/28/18 10:26	08/30/18 00:45	1
6:2 FTS	**3.1**	**J**	20	2.0	ng/L		08/28/18 10:26	08/30/18 00:45	1
8:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 00:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*70*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C5 PFPeA	*73*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFHxA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C4-PFHpA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C4 PFOA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C5 PFNA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFDA	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFUnA	*65*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2 PFDoA	*54*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C2-PFTeDA	*55*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C3-PFBS	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
18O2 PFHxS	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C4 PFOS	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
13C8 FOSA	*60*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
d3-NMeFOSAA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
d5-NEtFOSAA	*61*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
M2-6:2FTS	*112*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*
M2-8:2FTS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:45*	*1*

Client Sample ID: MW-9D

Date Collected: 08/15/18 10:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-2

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**7.5**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoropentanoic acid (PFPeA)	**11**		2.1	0.51	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorohexanoic acid (PFHxA)	**9.3**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoroheptanoic acid (PFHpA)	**5.9**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorooctanoic acid (PFOA)	**16**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorononanoic acid (PFNA)	**0.77**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorobutanesulfonic acid (PFBS)	**5.1**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorohexanesulfonic acid (PFHxS)	**3.0**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.27**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorooctanesulfonic acid (PFOS)	**4.9**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 00:53	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 00:53	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 00:53	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 00:53	1
6:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 00:53	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 00:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C5 PFPeA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFHxA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C4-PFHpA	*89*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C4 PFOA	*84*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C5 PFNA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFDA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFUnA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2 PFDoA	*63*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C2-PFTeDA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C3-PFBS	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
18O2 PFHxS	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C4 PFOS	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
13C8 FOSA	*74*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
d3-NMeFOSAA	*65*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
d5-NEtFOSAA	*65*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
M2-6:2FTS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*
M2-8:2FTS	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:53*	*1*

Client Sample ID: MW-4S

Date Collected: 08/15/18 13:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-3

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.0**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoropentanoic acid (PFPeA)	**19**		2.1	0.50	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorohexanoic acid (PFHxA)	**12**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoroheptanoic acid (PFHpA)	**5.9**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorooctanoic acid (PFOA)	**13**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorononanoic acid (PFNA)	**0.42**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorotetradecanoic acid (PFTeA)	**0.57**	**J B**	2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorobutanesulfonic acid (PFBS)	**7.5**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorohexanesulfonic acid (PFHxS)	**2.9**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.29**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorooctanesulfonic acid (PFOS)	**4.1**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:01	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:01	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 01:01	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 01:01	1
6:2 FTS	**2.1**	**J**	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:01	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*66*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C5 PFPeA	*70*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFHxA	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C4-PFHpA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C4 PFOA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C5 PFNA	*82*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFDA	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFUnA	*67*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2 PFDoA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C2-PFTeDA	*52*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C3-PFBS	*69*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
18O2 PFHxS	*77*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C4 PFOS	*72*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
13C8 FOSA	*73*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
d3-NMeFOSAA	*67*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
d5-NEtFOSAA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
M2-6:2FTS	*104*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*
M2-8:2FTS	*89*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:01*	*1*

Client Sample ID: MW-4D

Date Collected: 08/15/18 13:10
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-4

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.6**		2.1	0.37	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoropentanoic acid (PFPeA)	**19**		2.1	0.51	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorohexanoic acid (PFHxA)	**12**		2.1	0.61	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoroheptanoic acid (PFHpA)	**5.8**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorooctanoic acid (PFOA)	**15**		2.1	0.89	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorononanoic acid (PFNA)	**0.35**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.2	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.58	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.4	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorobutanesulfonic acid (PFBS)	**8.2**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorohexanesulfonic acid (PFHxS)	**2.9**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorooctanesulfonic acid (PFOS)	**3.7**		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.34	ng/L		08/28/18 10:26	08/30/18 01:09	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.37	ng/L		08/28/18 10:26	08/30/18 01:09	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.3	ng/L		08/28/18 10:26	08/30/18 01:09	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 01:09	1
6:2 FTS	**2.6**	**J**	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:09	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C5 PFPeA	*83*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFHxA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C4-PFHpA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C4 PFOA	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFDA	*94*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFUnA	*82*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2 PFDoA	*69*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C2-PFTeDA	*68*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C3-PFBS	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
18O2 PFHxS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C4 PFOS	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
13C8 FOSA	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
d3-NMeFOSAA	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
d5-NEtFOSAA	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
M2-6:2FTS	*99*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*
M2-8:2FTS	*103*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:09*	*1*

Client Sample ID: MW-2S

Date Collected: 08/15/18 11:45
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-5

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.0**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoropentanoic acid (PFPeA)	**7.7**		2.1	0.51	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorohexanoic acid (PFHxA)	**6.4**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoroheptanoic acid (PFHpA)	**4.3**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorooctanoic acid (PFOA)	**17**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorononanoic acid (PFNA)	**1.1**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorobutanesulfonic acid (PFBS)	**5.3**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorohexanesulfonic acid (PFHxS)	**3.8**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.59**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorooctanesulfonic acid (PFOS)	**16**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:16	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:16	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 01:16	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	**3.4**	**J**	21	2.0	ng/L		08/28/18 10:26	08/30/18 01:16	1
6:2 FTS	**2.4**	**J**	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:16	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C5 PFPeA	*72*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFHxA	*76*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C4-PFHpA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C4 PFOA	*94*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFDA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFUnA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2 PFDoA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C2-PFTeDA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C3-PFBS	*75*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
18O2 PFHxS	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C4 PFOS	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
13C8 FOSA	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
d3-NMeFOSAA	*84*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
M2-6:2FTS	*129*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*
M2-8:2FTS	*108*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:16*	*1*

Client Sample ID: MW-2D

Date Collected: 08/15/18 12:00
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-6

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.2**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoropentanoic acid (PFPeA)	**1.6**	**J**	2.1	0.50	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorohexanoic acid (PFHxA)	**1.3**	**J**	2.1	0.60	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoroheptanoic acid (PFHpA)	**1.0**	**J**	2.1	0.26	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorooctanoic acid (PFOA)	**4.1**		2.1	0.87	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorononanoic acid (PFNA)	ND		2.1	0.28	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorobutanesulfonic acid (PFBS)	**0.86**	**J**	2.1	0.21	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorohexanesulfonic acid (PFHxS)	**2.8**	**B**	2.1	0.17	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.1	0.20	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorooctanesulfonic acid (PFOS)	**23**	**F1**	2.1	0.55	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 01:32	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 01:32	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 01:32	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 01:32	1
6:2 FTS	**2.2**	**J**	21	2.1	ng/L		08/28/18 10:26	08/30/18 01:32	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 01:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C5 PFPeA	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFHxA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C4-PFHpA	*100*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C4 PFOA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C5 PFNA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFDA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFUnA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2 PFDoA	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C2-PFTeDA	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C3-PFBS	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
18O2 PFHxS	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C4 PFOS	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
13C8 FOSA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
d3-NMeFOSAA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
d5-NEtFOSAA	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
M2-6:2FTS	*98*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*
M2-8:2FTS	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:32*	*1*

Client Sample ID: DUP-01

Date Collected: 08/15/18 13:15
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-7

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.6**		2.2	0.38	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoropentanoic acid (PFPeA)	**19**		2.2	0.53	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorohexanoic acid (PFHxA)	**12**		2.2	0.62	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoroheptanoic acid (PFHpA)	**5.5**		2.2	0.27	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorooctanoic acid (PFOA)	**15**		2.2	0.91	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorononanoic acid (PFNA)	**0.45**	**J**	2.2	0.29	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorodecanoic acid (PFDA)	ND		2.2	0.33	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoroundecanoic acid (PFUnA)	ND		2.2	1.2	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorododecanoic acid (PFDoA)	ND		2.2	0.59	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.2	1.4	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.2	0.31	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorobutanesulfonic acid (PFBS)	**8.7**		2.2	0.22	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorohexanesulfonic acid (PFHxS)	**2.8**	**B**	2.2	0.18	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.2	0.20	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorooctanesulfonic acid (PFOS)	**3.8**		2.2	0.58	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.2	0.34	ng/L		08/28/18 10:26	08/30/18 01:56	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.2	0.38	ng/L		08/28/18 10:26	08/30/18 01:56	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		22	3.3	ng/L		08/28/18 10:26	08/30/18 01:56	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		22	2.0	ng/L		08/28/18 10:26	08/30/18 01:56	1
6:2 FTS	ND		22	2.2	ng/L		08/28/18 10:26	08/30/18 01:56	1
8:2 FTS	ND		22	2.2	ng/L		08/28/18 10:26	08/30/18 01:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C5 PFPeA	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFHxA	*82*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C4-PFHpA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C4 PFOA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C5 PFNA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFDA	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFUnA	*66*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2 PFDoA	*58*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C2-PFTeDA	*59*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C3-PFBS	*79*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
18O2 PFHxS	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C4 PFOS	*80*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
13C8 FOSA	*72*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
d3-NMeFOSAA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
d5-NEtFOSAA	*61*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
M2-6:2FTS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*
M2-8:2FTS	*78*		*25 - 150*	*08/28/18 10:26*	*08/30/18 01:56*	*1*

Client Sample ID: EB-01

Date Collected: 08/15/18 14:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-8

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.36	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.50	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.59	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.87	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.28	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.32	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.56	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.30	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorohexanesulfonic acid (PFHxS)	**0.31**	**J B**	2.0	0.17	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.55	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.33	ng/L		08/28/18 10:26	08/30/18 02:03	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.0	0.36	ng/L		08/28/18 10:26	08/30/18 02:03	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	3.2	ng/L		08/28/18 10:26	08/30/18 02:03	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		08/28/18 10:26	08/30/18 02:03	1
6:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 02:03	1
8:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 02:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*102*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C5 PFPeA	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFHxA	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C4-PFHpA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C4 PFOA	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFDA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFUnA	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2 PFDoA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C2-PFTeDA	*86*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C3-PFBS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
18O2 PFHxS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C4 PFOS	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
13C8 FOSA	*84*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
d3-NMeFOSAA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
M2-6:2FTS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*
M2-8:2FTS	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:03*	*1*

Client Sample ID: MH-01

Date Collected: 08/15/18 14:00
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-9

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.4**		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoropentanoic acid (PFPeA)	**11**		2.1	0.50	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorohexanoic acid (PFHxA)	**9.0**		2.1	0.60	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoroheptanoic acid (PFHpA)	**6.3**		2.1	0.26	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorooctanoic acid (PFOA)	**18**		2.1	0.88	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorononanoic acid (PFNA)	**0.48**	**J**	2.1	0.28	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorotetradecanoic acid (PFTeA)	**0.33**	**J B**	2.1	0.30	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorobutanesulfonic acid (PFBS)	**16**		2.1	0.21	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorohexanesulfonic acid (PFHxS)	**3.6**	**B**	2.1	0.18	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.38**	**J**	2.1	0.20	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorooctanesulfonic acid (PFOS)	**11**		2.1	0.56	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33	ng/L		08/28/18 10:26	08/30/18 02:11	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36	ng/L		08/28/18 10:26	08/30/18 02:11	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2	ng/L		08/28/18 10:26	08/30/18 02:11	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0	ng/L		08/28/18 10:26	08/30/18 02:11	1
6:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 02:11	1
8:2 FTS	ND		21	2.1	ng/L		08/28/18 10:26	08/30/18 02:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*64*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C5 PFPeA	*74*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFHxA	*81*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C4-PFHpA	*89*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C4 PFOA	*94*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C5 PFNA	*106*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFDA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFUnA	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2 PFDoA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C2-PFTeDA	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C3-PFBS	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
18O2 PFHxS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C4 PFOS	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
13C8 FOSA	*85*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
d3-NMeFOSAA	*87*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
M2-6:2FTS	*142*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*
M2-8:2FTS	*115*		*25 - 150*	*08/28/18 10:26*	*08/30/18 02:11*	*1*

Isotope Dilution Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
320-42265-1	MW-9S	70	73	80	86	88	86	77	65
320-42265-2	MW-9D	80	80	80	89	84	87	81	64
320-42265-3	MW-4S	66	70	75	81	81	82	77	67
320-42265-4	MW-4D	75	83	87	93	91	96	94	82
320-42265-5	MW-2S	59	72	76	87	94	96	93	87
320-42265-6	MW-2D	90	91	93	100	97	97	93	87
320-42265-6 MS	MW-2D	87	89	95	94	92	97	95	90
320-42265-6 MSD	MW-2D	84	91	93	93	92	97	92	88
320-42265-7	DUP-01	79	78	82	90	87	90	79	66
320-42265-8	EB-01	102	92	95	96	95	96	97	97
320-42265-9	MH-01	64	74	81	89	94	106	96	91
LCS 320-242502/2-A	Lab Control Sample	90	89	92	87	92	92	90	90
MB 320-242502/1-A	Method Blank	94	93	93	96	95	96	101	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	3C3-PFBS	PFHxS	PFOS	PFOSA	-NMeFOSA	-NEtFOSA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
320-42265-1	MW-9S	54	55	79	81	75	60	64	61
320-42265-2	MW-9D	63	59	78	86	77	74	65	65
320-42265-3	MW-4S	59	52	69	77	72	73	67	64
320-42265-4	MW-4D	69	68	88	90	88	80	78	75
320-42265-5	MW-2S	88	86	75	86	85	78	84	88
320-42265-6	MW-2D	92	92	86	96	91	90	86	85
320-42265-6 MS	MW-2D	89	91	86	91	91	88	85	88
320-42265-6 MSD	MW-2D	86	91	90	94	91	90	84	86
320-42265-7	DUP-01	58	59	79	87	80	72	64	61
320-42265-8	EB-01	90	86	90	95	92	84	90	88
320-42265-9	MH-01	88	85	85	90	90	85	87	88
LCS 320-242502/2-A	Lab Control Sample	92	91	87	88	88	84	88	94
MB 320-242502/1-A	Method Blank	95	92	92	91	93	88	90	91

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M262FTS	M282FTS						
Lab Sample ID	Client Sample ID	(25-150)	(25-150)						
320-42265-1	MW-9S	112	90						
320-42265-2	MW-9D	95	85						
320-42265-3	MW-4S	104	89						
320-42265-4	MW-4D	99	103						
320-42265-5	MW-2S	129	108						
320-42265-6	MW-2D	98	96						
320-42265-6 MS	MW-2D	95	97						
320-42265-6 MSD	MW-2D	93	100						
320-42265-7	DUP-01	90	78						
320-42265-8	EB-01	95	95						
320-42265-9	MH-01	142	115						
LCS 320-242502/2-A	Lab Control Sample	103	90						
MB 320-242502/1-A	Method Blank	97	97						

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA

Isotope Dilution Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

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

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-242502/1-A
Matrix: Water
Analysis Batch: 242977

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 242502

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.35	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorotetradecanoic acid (PFTeA)	0.293	J	2.0	0.29	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorohexanesulfonic acid (PFHxS)	0.323	J	2.0	0.17	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		08/28/18 10:26	08/30/18 00:06	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.0	0.35	ng/L		08/28/18 10:26	08/30/18 00:06	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		08/28/18 10:26	08/30/18 00:06	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		08/28/18 10:26	08/30/18 00:06	1
6:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 00:06	1
8:2 FTS	ND		20	2.0	ng/L		08/28/18 10:26	08/30/18 00:06	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C5 PFPeA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C2 PFHxA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C4-PFHpA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C4 PFOA	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C5 PFNA	*96*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C2 PFDA	*101*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C2 PFUnA	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C2 PFDoA	*95*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C2-PFTeDA	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C3-PFBS	*92*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
18O2 PFHxS	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C4 PFOS	*93*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
13C8 FOSA	*88*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
d3-NMeFOSAA	*90*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
d5-NEtFOSAA	*91*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
M2-6:2FTS	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*
M2-8:2FTS	*97*		*25 - 150*	*08/28/18 10:26*	*08/30/18 00:06*	*1*

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

Lab Sample ID: LCS 320-242502/2-A
Matrix: Water
Analysis Batch: 242977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242502

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	40.3		ng/L		101	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	39.0		ng/L		97	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	36.9		ng/L		92	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	40.5		ng/L		101	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	38.7		ng/L		97	64 - 124
Perfluorononanoic acid (PFNA)	40.0	39.8		ng/L		100	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	39.0		ng/L		98	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	36.3		ng/L		91	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	35.4		ng/L		89	71 - 131
Perfluorotridecanoic Acid (PFTriA)	40.0	37.1		ng/L		93	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	36.2		ng/L		90	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	34.7		ng/L		98	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.5		ng/L		92	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.8		ng/L		105	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	35.8		ng/L		96	67 - 127
Perfluorodecanesulfonic acid (PFDS)	38.6	37.5		ng/L		97	68 - 128
Perfluorooctane Sulfonamide (FOSA)	40.0	39.7		ng/L		99	70 - 130
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	38.8		ng/L		97	67 - 127
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	36.4		ng/L		91	65 - 125
6:2 FTS	37.9	38.1		ng/L		101	66 - 126
8:2 FTS	38.3	37.6		ng/L		98	67 - 127

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*90*		*25 - 150*
13C5 PFPeA	*89*		*25 - 150*
13C2 PFHxA	*92*		*25 - 150*
13C4-PFHpA	*87*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*
13C5 PFNA	*92*		*25 - 150*
13C2 PFDA	*90*		*25 - 150*
13C2 PFUnA	*90*		*25 - 150*
13C2 PFDoA	*92*		*25 - 150*
13C2-PFTeDA	*91*		*25 - 150*
13C3-PFBS	*87*		*25 - 150*
18O2 PFHxS	*88*		*25 - 150*
13C4 PFOS	*88*		*25 - 150*
13C8 FOSA	*84*		*25 - 150*

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

Lab Sample ID: LCS 320-242502/2-A
Matrix: Water
Analysis Batch: 242977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 242502

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
d3-NMeFOSAA	*88*		*25 - 150*
d5-NEtFOSAA	*94*		*25 - 150*
M2-6:2FTS	*103*		*25 - 150*
M2-8:2FTS	*90*		*25 - 150*

Lab Sample ID: 320-42265-6 MS
Matrix: Water
Analysis Batch: 242977

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 242502

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	9.2		41.2	49.2		ng/L		97	70 - 130
Perfluoropentanoic acid (PFPeA)	1.6	J	41.2	39.8		ng/L		93	66 - 126
Perfluorohexanoic acid (PFHxA)	1.3	J	41.2	39.7		ng/L		93	66 - 126
Perfluoroheptanoic acid (PFHpA)	1.0	J	41.2	38.2		ng/L		90	66 - 126
Perfluorooctanoic acid (PFOA)	4.1		41.2	46.5		ng/L		103	64 - 124
Perfluorononanoic acid (PFNA)	ND		41.2	40.7		ng/L		99	68 - 128
Perfluorodecanoic acid (PFDA)	ND		41.2	39.5		ng/L		96	69 - 129
Perfluoroundecanoic acid (PFUnA)	ND		41.2	37.7		ng/L		92	60 - 120
Perfluorododecanoic acid (PFDoA)	ND		41.2	38.0		ng/L		92	71 - 131
Perfluorotridecanoic Acid (PFTriA)	ND		41.2	42.8		ng/L		104	72 - 132
Perfluorotetradecanoic acid (PFTeA)	ND		41.2	37.9		ng/L		92	68 - 128
Perfluorobutanesulfonic acid (PFBS)	0.86	J	36.4	38.3		ng/L		103	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	2.8	B	37.5	37.1		ng/L		91	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	ND		39.2	41.1		ng/L		105	68 - 128
Perfluorooctanesulfonic acid (PFOS)	23	F1	38.2	35.9	F1	ng/L		33	67 - 127
Perfluorodecanesulfonic acid (PFDS)	ND		39.7	34.3		ng/L		86	68 - 128
Perfluorooctane Sulfonamide (FOSA)	ND		41.2	40.5		ng/L		98	70 - 130
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		41.2	38.0		ng/L		92	67 - 127
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		41.2	40.8		ng/L		99	65 - 125
6:2 FTS	2.2	J	39.0	43.0		ng/L		105	66 - 126
8:2 FTS	ND		39.5	38.3		ng/L		97	67 - 127

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C4 PFBA	*87*		*25 - 150*
13C5 PFPeA	*89*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C4-PFHpA	*94*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*

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

Lab Sample ID: 320-42265-6 MS
Matrix: Water
Analysis Batch: 242977

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 242502

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C5 PFNA	*97*		*25 - 150*
13C2 PFDA	*95*		*25 - 150*
13C2 PFUnA	*90*		*25 - 150*
13C2 PFDoA	*89*		*25 - 150*
13C2-PFTeDA	*91*		*25 - 150*
13C3-PFBS	*86*		*25 - 150*
18O2 PFHxS	*91*		*25 - 150*
13C4 PFOS	*91*		*25 - 150*
13C8 FOSA	*88*		*25 - 150*
d3-NMeFOSAA	*85*		*25 - 150*
d5-NEtFOSAA	*88*		*25 - 150*
M2-6:2FTS	*95*		*25 - 150*
M2-8:2FTS	*97*		*25 - 150*

Lab Sample ID: 320-42265-6 MSD
Matrix: Water
Analysis Batch: 242977

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 242502

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	9.2		41.4	49.8		ng/L		98	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)	1.6	J	41.4	40.8		ng/L		95	66 - 126	3	30
Perfluorohexanoic acid (PFHxA)	1.3	J	41.4	41.2		ng/L		96	66 - 126	4	30
Perfluoroheptanoic acid (PFHpA)	1.0	J	41.4	40.8		ng/L		96	66 - 126	7	30
Perfluorooctanoic acid (PFOA)	4.1		41.5	43.9		ng/L		96	64 - 124	6	30
Perfluorononanoic acid (PFNA)	ND		41.4	38.9		ng/L		94	68 - 128	4	30
Perfluorodecanoic acid (PFDA)	ND		41.4	40.3		ng/L		97	69 - 129	2	30
Perfluoroundecanoic acid (PFUnA)	ND		41.4	34.8		ng/L		84	60 - 120	8	30
Perfluorododecanoic acid (PFDoA)	ND		41.4	37.5		ng/L		91	71 - 131	1	30
Perfluorotridecanoic Acid (PFTriA)	ND		41.4	41.6		ng/L		100	72 - 132	3	30
Perfluorotetradecanoic acid (PFTeA)	ND		41.4	37.3		ng/L		90	68 - 128	1	30
Perfluorobutanesulfonic acid (PFBS)	0.86	J	36.6	36.3		ng/L		97	73 - 133	5	30
Perfluorohexanesulfonic acid (PFHxS)	2.8	B	37.7	37.1		ng/L		91	63 - 123	0	30
Perfluoroheptanesulfonic Acid (PFHpS)	ND		39.4	42.4		ng/L		107	68 - 128	3	30
Perfluorooctanesulfonic acid (PFOS)	23	F1	38.4	36.9	F1	ng/L		35	67 - 127	3	30
Perfluorodecanesulfonic acid (PFDS)	ND		39.9	35.5		ng/L		89	68 - 128	3	30
Perfluorooctane Sulfonamide (FOSA)	ND		41.4	39.6		ng/L		96	70 - 130	2	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		41.4	40.1		ng/L		97	67 - 127	5	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		41.4	40.9		ng/L		99	65 - 125	0	30

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

Lab Sample ID: 320-42265-6 MSD
Matrix: Water
Analysis Batch: 242977

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 242502

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
6:2 FTS	2.2	J	39.3	42.5		ng/L		103	66 - 126	1	30
8:2 FTS	ND		39.7	38.2		ng/L		96	67 - 127	0	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C4 PFBA	*84*		*25 - 150*
13C5 PFPeA	*91*		*25 - 150*
13C2 PFHxA	*93*		*25 - 150*
13C4-PFHpA	*93*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*
13C5 PFNA	*97*		*25 - 150*
13C2 PFDA	*92*		*25 - 150*
13C2 PFUnA	*88*		*25 - 150*
13C2 PFDoA	*86*		*25 - 150*
13C2-PFTeDA	*91*		*25 - 150*
13C3-PFBS	*90*		*25 - 150*
18O2 PFHxS	*94*		*25 - 150*
13C4 PFOS	*91*		*25 - 150*
13C8 FOSA	*90*		*25 - 150*
d3-NMeFOSAA	*84*		*25 - 150*
d5-NEtFOSAA	*86*		*25 - 150*
M2-6:2FTS	*93*		*25 - 150*
M2-8:2FTS	*100*		*25 - 150*

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	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)

LCMS

Prep Batch: 242502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-42265-1	MW-9S	Total/NA	Water	3535	
320-42265-2	MW-9D	Total/NA	Water	3535	
320-42265-3	MW-4S	Total/NA	Water	3535	
320-42265-4	MW-4D	Total/NA	Water	3535	
320-42265-5	MW-2S	Total/NA	Water	3535	
320-42265-6	MW-2D	Total/NA	Water	3535	
320-42265-7	DUP-01	Total/NA	Water	3535	
320-42265-8	EB-01	Total/NA	Water	3535	
320-42265-9	MH-01	Total/NA	Water	3535	
MB 320-242502/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-242502/2-A	Lab Control Sample	Total/NA	Water	3535	
320-42265-6 MS	MW-2D	Total/NA	Water	3535	
320-42265-6 MSD	MW-2D	Total/NA	Water	3535	

Analysis Batch: 242977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-42265-1	MW-9S	Total/NA	Water	537 (modified)	242502
320-42265-2	MW-9D	Total/NA	Water	537 (modified)	242502
320-42265-3	MW-4S	Total/NA	Water	537 (modified)	242502
320-42265-4	MW-4D	Total/NA	Water	537 (modified)	242502
320-42265-5	MW-2S	Total/NA	Water	537 (modified)	242502
320-42265-6	MW-2D	Total/NA	Water	537 (modified)	242502
320-42265-7	DUP-01	Total/NA	Water	537 (modified)	242502
320-42265-8	EB-01	Total/NA	Water	537 (modified)	242502
320-42265-9	MH-01	Total/NA	Water	537 (modified)	242502
MB 320-242502/1-A	Method Blank	Total/NA	Water	537 (modified)	242502
LCS 320-242502/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	242502
320-42265-6 MS	MW-2D	Total/NA	Water	537 (modified)	242502
320-42265-6 MSD	MW-2D	Total/NA	Water	537 (modified)	242502

Client Sample ID: MW-9S
Date Collected: 08/15/18 10:15
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1	242977	08/30/18 00:45	S1M	TAL SAC

Client Sample ID: MW-9D
Date Collected: 08/15/18 10:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1	242977	08/30/18 00:53	S1M	TAL SAC

Client Sample ID: MW-4S
Date Collected: 08/15/18 13:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1	242977	08/30/18 01:01	S1M	TAL SAC

Client Sample ID: MW-4D
Date Collected: 08/15/18 13:10
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1	242977	08/30/18 01:09	S1M	TAL SAC

Client Sample ID: MW-2S
Date Collected: 08/15/18 11:45
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1	242977	08/30/18 01:16	S1M	TAL SAC

Client Sample ID: MW-2D
Date Collected: 08/15/18 12:00
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1	242977	08/30/18 01:32	S1M	TAL SAC

Client Sample ID: DUP-01
Date Collected: 08/15/18 13:15
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1	242977	08/30/18 01:56	S1M	TAL SAC

Client Sample ID: EB-01
Date Collected: 08/15/18 14:20
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1	242977	08/30/18 02:03	S1M	TAL SAC

Client Sample ID: MH-01
Date Collected: 08/15/18 14:00
Date Received: 08/18/18 09:20

Lab Sample ID: 320-42265-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242502	08/28/18 10:26	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1	242977	08/30/18 02:11	S1M	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Pace Analytical Services, LLC
Project/Site: Pace PFAS Testing

TestAmerica Job ID: 320-42265-1

Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	11666	03-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Water	6:2 FTS
537 (modified)	3535	Water	8:2 FTS
537 (modified)	3535	Water	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)
537 (modified)	3535	Water	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)
537 (modified)	3535	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	3535	Water	Perfluorobutanoic acid (PFBA)
537 (modified)	3535	Water	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	3535	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	3535	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	3535	Water	Perfluoroheptanesulfonic Acid (PFHpS)
537 (modified)	3535	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	3535	Water	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	3535	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	3535	Water	Perfluorononanoic acid (PFNA)
537 (modified)	3535	Water	Perfluorooctane Sulfonamide (FOSA)
537 (modified)	3535	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	3535	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	3535	Water	Perfluoropentanoic acid (PFPeA)
537 (modified)	3535	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	3535	Water	Perfluorotridecanoic Acid (PFTriA)
537 (modified)	3535	Water	Perfluoroundecanoic acid (PFUnA)

Method PFC IDA

Fluorinated Hydrocarbons by Method PFAS IDA

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	M262FTS #	PFOA #
MW-9S	320-42265-1	70	73	79	80	86	81	112	88
MW-9D	320-42265-2	80	80	78	80	89	86	95	84
MW-4S	320-42265-3	66	70	69	75	81	77	104	81
MW-4D	320-42265-4	75	83	88	87	93	90	99	91
MW-2S	320-42265-5	59	72	75	76	87	86	129	94
MW-2D	320-42265-6	90	91	86	93	100	96	98	97
DUP-01	320-42265-7	79	78	79	82	90	87	90	87
EB-01	320-42265-8	102	92	90	95	96	95	95	95
MH-01	320-42265-9	64	74	85	81	89	90	142	94
	MB 320-242502/1-A	94	93	92	93	96	91	97	95
	LCS 320-242502/2-A	90	89	87	92	87	88	103	92
MW-2D MS	320-42265-6 MS	87	89	86	95	94	91	95	92
MW-2D MSD	320-42265-6 MSD	84	91	90	93	93	94	93	92

	QC LIMITS
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 = M2-6:2FTS	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 Sacramento Job No.: 320-42265-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFNA #	PFOS #	M282FTS #	PFDA #	PFOSA #	d3NMFOS #	d5NEFOS #	PFUnA #
MW-9S	320-42265-1	86	75	90	77	60	64	61	65
MW-9D	320-42265-2	87	77	85	81	74	65	65	64
MW-4S	320-42265-3	82	72	89	77	73	67	64	67
MW-4D	320-42265-4	96	88	103	94	80	78	75	82
MW-2S	320-42265-5	96	85	108	93	78	84	88	87
MW-2D	320-42265-6	97	91	96	93	90	86	85	87
DUP-01	320-42265-7	90	80	78	79	72	64	61	66
EB-01	320-42265-8	96	92	95	97	84	90	88	97
MH-01	320-42265-9	106	90	115	96	85	87	88	91
	MB 320-242502/1-A	96	93	97	101	88	90	91	93
	LCS 320-242502/2-A	92	88	90	90	84	88	94	90
MW-2D MS	320-42265-6 MS	97	91	97	95	88	85	88	90
MW-2D MSD	320-42265-6 MSD	97	91	100	92	90	84	86	88

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

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFDoA #	PFTDA #
MW-9S	320-42265-1	54	55
MW-9D	320-42265-2	63	59
MW-4S	320-42265-3	59	52
MW-4D	320-42265-4	69	68
MW-2S	320-42265-5	88	86
MW-2D	320-42265-6	92	92
DUP-01	320-42265-7	58	59
EB-01	320-42265-8	90	86
MH-01	320-42265-9	88	85
	MB 320-242502/1-A	95	92
	LCS 320-242502/2-A	92	91
MW-2D MS	320-42265-6 MS	89	91
MW-2D MSD	320-42265-6 MSD	86	91

	QC LIMITS
PFDoA = 13C2 PFDoA	25-150
PFTDA = 13C2-PFTeDA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.08.29LLB_034.d

Lab ID: LCS 320-242502/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	40.3	101	70-130	
Perfluoropentanoic acid (PFPeA)	40.0	39.0	97	66-126	
Perfluorohexanoic acid (PFHxA)	40.0	36.9	92	66-126	
Perfluoroheptanoic acid (PFHpA)	40.0	40.5	101	66-126	
Perfluorooctanoic acid (PFOA)	40.0	38.7	97	64-124	
Perfluorononanoic acid (PFNA)	40.0	39.8	100	68-128	
Perfluorodecanoic acid (PFDA)	40.0	39.0	98	69-129	
Perfluoroundecanoic acid (PFUnA)	40.0	36.3	91	60-120	
Perfluorododecanoic acid (PFDoA)	40.0	35.4	89	71-131	
Perfluorotridecanoic Acid (PFTriA)	40.0	37.1	93	72-132	
Perfluorotetradecanoic acid (PFTeA)	40.0	36.2	90	68-128	
Perfluorobutanesulfonic acid (PFBS)	35.4	34.7	98	73-133	
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.5	92	63-123	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.8	105	68-128	
Perfluorooctanesulfonic acid (PFOS)	37.1	35.8	96	67-127	
Perfluorodecanesulfonic acid (PFDS)	38.6	37.5	97	68-128	
Perfluorooctane Sulfonamide (FOSA)	40.0	39.7	99	70-130	
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	38.8	97	67-127	
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	36.4	91	65-125	
6:2 FTS	37.9	38.1	101	66-126	
8:2 FTS	38.3	37.6	98	67-127	
13C4 PFBA	100	90.4	90	25-150	
13C5 PFPeA	100	89.4	89	25-150	
13C2 PFHxA	100	91.5	92	25-150	
13C4-PFHpA	100	87.4	87	25-150	
13C4 PFOA	100	91.9	92	25-150	
13C5 PFNA	100	91.6	92	25-150	
13C2 PFDA	100	89.8	90	25-150	
13C2 PFUnA	100	89.9	90	25-150	
13C2 PFDoA	100	92.0	92	25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.08.29LLB_034.d

Lab ID: LCS 320-242502/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
13C2-PFTeDA	100	90.5	91	25-150	
13C3-PFBS	93.0	80.7	87	25-150	
18O2 PFHxS	94.6	83.5	88	25-150	
13C4 PFOS	95.6	84.6	88	25-150	
13C8 FOSA	100	83.5	84	25-150	
d3-NMeFOSAA	100	87.8	88	25-150	
d5-NEtFOSAA	100	93.9	94	25-150	
M2-6:2FTS	95.0	97.6	103	25-150	
M2-8:2FTS	95.8	86.0	90	25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.08.29LLB_045.d

Lab ID: 320-42265-6 MS Client ID: MW-2D MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	41.2	9.2	49.2	97	70-130	
Perfluoropentanoic acid (PFPeA)	41.2	1.6 J	39.8	93	66-126	
Perfluorohexanoic acid (PFHxA)	41.2	1.3 J	39.7	93	66-126	
Perfluoroheptanoic acid (PFHpA)	41.2	1.0 J	38.2	90	66-126	
Perfluorooctanoic acid (PFOA)	41.2	4.1	46.5	103	64-124	
Perfluorononanoic acid (PFNA)	41.2	ND	40.7	99	68-128	
Perfluorodecanoic acid (PFDA)	41.2	ND	39.5	96	69-129	
Perfluoroundecanoic acid (PFUnA)	41.2	ND	37.7	92	60-120	
Perfluorododecanoic acid (PFDoA)	41.2	ND	38.0	92	71-131	
Perfluorotridecanoic Acid (PFTriA)	41.2	ND	42.8	104	72-132	
Perfluorotetradecanoic acid (PFTeA)	41.2	ND	37.9	92	68-128	
Perfluorobutanesulfonic acid (PFBS)	36.4	0.86 J	38.3	103	73-133	
Perfluorohexanesulfonic acid (PFHxS)	37.5	2.8	37.1	91	63-123	
Perfluoroheptanesulfonic Acid (PFHpS)	39.2	ND	41.1	105	68-128	
Perfluorooctanesulfonic acid (PFOS)	38.2	23	35.9	33	67-127	F1
Perfluorodecanesulfonic acid (PFDS)	39.7	ND	34.3	86	68-128	
Perfluorooctane Sulfonamide (FOSA)	41.2	ND	40.5	98	70-130	
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	41.2	ND	38.0	92	67-127	
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	41.2	ND	40.8	99	65-125	
6:2 FTS	39.0	2.2 J	43.0	105	66-126	
8:2 FTS	39.5	ND	38.3	97	67-127	
13C4 PFBA	103	93	89.9	87	25-150	
13C5 PFPeA	103	93	91.9	89	25-150	
13C2 PFHxA	103	95	98.1	95	25-150	
13C4-PFHpA	103	100	96.7	94	25-150	
13C4 PFOA	103	99	94.8	92	25-150	
13C5 PFNA	103	100	99.9	97	25-150	
13C2 PFDA	103	96	97.4	95	25-150	
13C2 PFUnA	103	90	92.3	90	25-150	
13C2 PFDoA	103	95	91.7	89	25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.08.29LLB_045.d

Lab ID: 320-42265-6 MS Client ID: MW-2D MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
13C2-PFTeDA	103	95	93.6	91	25-150	
13C3-PFBS	95.8	82	82.7	86	25-150	
18O2 PFHxS	97.4	93	88.3	91	25-150	
13C4 PFOS	98.4	89	90.1	91	25-150	
13C8 FOSA	103	93	90.9	88	25-150	
d3-NMeFOSAA	103	88	87.4	85	25-150	
d5-NEtFOSAA	103	87	90.8	88	25-150	
M2-6:2FTS	97.8	96	93.2	95	25-150	
M2-8:2FTS	98.6	94	95.3	97	25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.08.29LLB_046.d

Lab ID: 320-42265-6 MSD Client ID: MW-2D MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	41.4	49.8	98	1	30	70-130	
Perfluoropentanoic acid (PFPeA)	41.4	40.8	95	3	30	66-126	
Perfluorohexanoic acid (PFHxA)	41.4	41.2	96	4	30	66-126	
Perfluoroheptanoic acid (PFHpA)	41.4	40.8	96	7	30	66-126	
Perfluorooctanoic acid (PFOA)	41.5	43.9	96	6	30	64-124	
Perfluorononanoic acid (PFNA)	41.4	38.9	94	4	30	68-128	
Perfluorodecanoic acid (PFDA)	41.4	40.3	97	2	30	69-129	
Perfluoroundecanoic acid (PFUnA)	41.4	34.8	84	8	30	60-120	
Perfluorododecanoic acid (PFDoA)	41.4	37.5	91	1	30	71-131	
Perfluorotridecanoic Acid (PFTriA)	41.4	41.6	100	3	30	72-132	
Perfluorotetradecanoic acid (PFTeA)	41.4	37.3	90	1	30	68-128	
Perfluorobutanesulfonic acid (PFBS)	36.6	36.3	97	5	30	73-133	
Perfluorohexanesulfonic acid (PFHxS)	37.7	37.1	91	0	30	63-123	
Perfluoroheptanesulfonic Acid (PFHpS)	39.4	42.4	107	3	30	68-128	
Perfluorooctanesulfonic acid (PFOS)	38.4	36.9	35	3	30	67-127	F1
Perfluorodecanesulfonic acid (PFDS)	39.9	35.5	89	3	30	68-128	
Perfluorooctane Sulfonamide (FOSA)	41.4	39.6	96	2	30	70-130	
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	41.4	40.1	97	5	30	67-127	
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	41.4	40.9	99	0	30	65-125	
6:2 FTS	39.3	42.5	103	1	30	66-126	
8:2 FTS	39.7	38.2	96	0	30	67-127	
13C4 PFBA	104	87.0	84			25-150	
13C5 PFPeA	104	94.2	91			25-150	
13C2 PFHxA	104	96.2	93			25-150	
13C4-PFHpA	104	96.5	93			25-150	
13C4 PFOA	104	95.2	92			25-150	
13C5 PFNA	104	100	97			25-150	
13C2 PFDA	104	95.3	92			25-150	
13C2 PFUnA	104	91.4	88			25-150	
13C2 PFDoA	104	88.8	86			25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.08.29LLB_046.d

Lab ID: 320-42265-6 MSD Client ID: MW-2D MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
13C2-PFTeDA	104	94.1	91			25-150	
13C3-PFBS	96.3	86.9	90			25-150	
18O2 PFHxS	98.0	92.6	94			25-150	
13C4 PFOS	99.0	90.1	91			25-150	
13C8 FOSA	104	93.4	90			25-150	
d3-NMeFOSAA	104	87.2	84			25-150	
d5-NEtFOSAA	104	88.8	86			25-150	
M2-6:2FTS	98.4	91.5	93			25-150	
M2-8:2FTS	99.2	99.4	100			25-150	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab File ID: 2018.08.29LLB_033.d Lab Sample ID: MB 320-242502/1-A

Matrix: Water Date Extracted: 08/28/2018 10:26

Instrument ID: A8_N Date Analyzed: 08/30/2018 00:06

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-242502/2-A	2018.08.29LLB_034.d	08/30/2018 00:14
MW-9S	320-42265-1	2018.08.29LLB_038.d	08/30/2018 00:45
MW-9D	320-42265-2	2018.08.29LLB_039.d	08/30/2018 00:53
MW-4S	320-42265-3	2018.08.29LLB_040.d	08/30/2018 01:01
MW-4D	320-42265-4	2018.08.29LLB_041.d	08/30/2018 01:09
MW-2S	320-42265-5	2018.08.29LLB_042.d	08/30/2018 01:16
MW-2D	320-42265-6	2018.08.29LLB_044.d	08/30/2018 01:32
MW-2D MS	320-42265-6 MS	2018.08.29LLB_045.d	08/30/2018 01:40
MW-2D MSD	320-42265-6 MSD	2018.08.29LLB_046.d	08/30/2018 01:48
DUP-01	320-42265-7	2018.08.29LLB_047.d	08/30/2018 01:56
EB-01	320-42265-8	2018.08.29LLB_048.d	08/30/2018 02:03
MH-01	320-42265-9	2018.08.29LLB_049.d	08/30/2018 02:11

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Sample No.: IC 320-242895/5 Date Analyzed: 08/29/2018 12:53

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2018.08.29LLICAL_00 Heated Purge: (Y/N) N

Calibration ID: 40869

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		3616189	2.63				
UPPER LIMIT		5424284	2.83				
LOWER LIMIT		1808095	2.43				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 320-242895/9		3812540	2.64				
ICV 320-242895/10		3790736	2.64				
CCV 320-242971/3 CCVIS		3789378	2.64				

13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area
RT Limit = ± 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 Sacramento Job No.: 320-42265-1

SDG No.:

Sample No.: CCV 320-242971/3 Date Analyzed: 08/29/2018 20:26

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2018.08.29LLB_005.d Heated Purge: (Y/N) N

Calibration ID: 40869

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		3789378	2.64				
UPPER LIMIT		5684067	2.84				
LOWER LIMIT		1894689	2.44				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCB 320-242971/1		3723120	2.64				
CCVL 320-242971/2		3974392	2.64				
CCV 320-242977/1		3835208	2.64				
MB 320-242502/1-A		4579737	2.64				
LCS 320-242502/2-A		4647575	2.64				
320-42265-1	MW-9S	4890420	2.65				
320-42265-2	MW-9D	4823086	2.64				
320-42265-3	MW-4S	5256310	2.64				
320-42265-4	MW-4D	4772262	2.64				
320-42265-5	MW-2S	5346025	2.64				
CCV 320-242977/12		3529047	2.64				
320-42265-6	MW-2D	4549699	2.64				
320-42265-6 MS	MW-2D MS	4646811	2.64				
320-42265-6 MSD	MW-2D MSD	4551924	2.64				
320-42265-7	DUP-01	4962303	2.64				
320-42265-8	EB-01	4650257	2.64				
320-42265-9	MH-01	4864865	2.64				
CCV 320-242977/20		3741257	2.64				

13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 (MODIFIED)

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-9S | Lab Sample ID: 320-42265-1

Matrix: Water | Lab File ID: 2018.08.29LLB_038.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 10:15

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 250.6(mL) | Date Analyzed: 08/30/2018 00:45

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	3.4		2.0	0.35
2706-90-3	Perfluoropentanoic acid (PFPeA)	3.3		2.0	0.49
307-24-4	Perfluorohexanoic acid (PFHxA)	3.1		2.0	0.58
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.4		2.0	0.25
335-67-1	Perfluorooctanoic acid (PFOA)	10		2.0	0.85
375-95-1	Perfluorononanoic acid (PFNA)	1.3	J	2.0	0.27
335-76-2	Perfluorodecanoic acid (PFDA)	0.95	J	2.0	0.31
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.7	J	2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.3	B	2.0	0.17
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.29	J	2.0	0.19
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	5.7		2.0	0.54
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32
754-91-6	Perfluorooctane Sulfonamide (FOSA)	ND		2.0	0.35
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9
27619-97-2	6:2 FTS	3.1	J	20	2.0
39108-34-4	8:2 FTS	ND		20	2.0

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-9S | Lab Sample ID: 320-42265-1

Matrix: Water | Lab File ID: 2018.08.29LLB_038.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 10:15

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 250.6(mL) | Date Analyzed: 08/30/2018 00:45

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	70		25-150
STL01893	13C5 PFPeA	73		25-150
STL00993	13C2 PFHxA	80		25-150
STL01892	13C4-PFHpA	86		25-150
STL00990	13C4 PFOA	88		25-150
STL00995	13C5 PFNA	86		25-150
STL00996	13C2 PFDA	77		25-150
STL00997	13C2 PFUnA	65		25-150
STL00998	13C2 PFDoA	54		25-150
STL02116	13C2-PFTeDA	55		25-150
STL02337	13C3-PFBS	79		25-150
STL00994	18O2 PFHxS	81		25-150
STL00991	13C4 PFOS	75		25-150
STL01056	13C8 FOSA	60		25-150
STL02118	d3-NMeFOSAA	64		25-150
STL02117	d5-NEtFOSAA	61		25-150
STL02279	M2-6:2FTS	112		25-150
STL02280	M2-8:2FTS	90		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_038.d
Lims ID: 320-42265-A-1-A
Client ID: MW-9S
Sample Type: Client
Inject. Date: 30-Aug-2018 00:45:38 ALS Bottle#: 28 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-42265-a-1-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:38:07 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:38:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.418	1.421	-0.003	0.536	5281677	1.75		69.9	7950	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.418	1.424	-0.006	1.000	160228	0.0853			13.6	M
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.684	1.684	0.0	1.000	134102	0.0829			3.0	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.684	1.687	-0.003	0.637	3506729	1.84		73.4	4188	
D 47 13C3-PFBS										
301.90 > 83.00	1.716	1.720	-0.004	0.649	82807	1.83		78.8	161	
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.716	1.724	-0.008	1.000	110962	0.0416			4.3	M
298.90 > 99.00	1.724	1.724	0.0	1.005	45720		2.43(1.25-3.74)		11.5	
D 7 13C2 PFHxA										
315.00 > 270.00	1.970	1.966	0.004	0.745	4263299	1.99		79.6	10130	
6 Perfluorohexanoic acid										M
313.00 > 269.00	1.970	1.970	0.0	1.000	134035	0.0781			4.5	M
313.00 > 119.00	1.970	1.970	0.0	1.000	13509		9.92(5.03-15.10)		14.3	
D 9 13C4-PFHpA										
367.00 > 322.00	2.292	2.289	0.003	0.866	4328860	2.14		85.7	9129	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.292	2.292	0.0	1.000	159522	0.0841			12.5	
363.00 > 169.00	2.292	2.292	0.0	1.000	67316		2.37(1.13-3.40)		114	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.314	2.303	0.011	1.005	137632	0.0576			23.3	M
399.00 > 99.00	2.314	2.303	0.011	1.005	49976		2.75(1.50-4.49)		23.2	
D 11 18O2 PFHxS										
403.00 > 84.00	2.303	2.311	-0.008	0.871	5163266	1.92		81.3	9017	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.614	2.609	0.005	1.000	59032	0.0768			343	
D 12 M2-6:2FTS										
429.00 > 81.00	2.614	2.613	0.001	0.988	1214226	2.65		112	805	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.645	2.639	0.006	1.000	501327	0.2630			44.9	M
413.00 > 169.00	2.645	2.639	0.006	1.000	267229		1.88(0.84-2.52)		460	
* 62 13C2-PFOA										
415.00 > 370.00	2.645	2.639	0.006		4890420	2.50			10343	
D 14 13C4 PFOA										
417.00 > 372.00	2.645	2.644	0.001	1.000	4215669	2.19		87.5	10993	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.653	2.647	0.006	0.879	12191	0.007248			5.0	
449.00 > 99.00	2.653	2.647	0.006	0.879	3416		3.57(1.94-5.82)		5.0	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.017	3.006	0.011	1.000	216535	0.1426			87.8	M
499.00 > 99.00	3.017	3.006	0.011	1.000	39119		5.54(2.31-6.93)		65.7	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.017	3.006	0.011	1.000	47112	0.0331			9.6	
463.00 > 169.00	3.017	3.006	0.011	1.000	12095		3.90(1.90-5.69)		63.0	
D 18 13C4 PFOS										
503.00 > 80.00	3.017	3.009	0.008	1.140	3300018	1.80		75.2	2334	
D 19 13C5 PFNA										
468.00 > 423.00	3.017	3.016	0.001	1.140	3419634	2.16		86.4	8085	
D 26 M2-8:2FTS										
529.00 > 81.00	3.365	3.357	0.008	1.272	1144381	2.15		89.7	1473	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.372	3.362	0.010	1.000	6253	0.003972			26.7	
24 Perfluorodecanoic acid										R
513.00 > 469.00	3.380	3.362	0.018	1.002	26364	0.0239			16.7	R
513.00 > 169.00	3.380	3.362	0.018	1.002	2553		10.33(2.36-7.09)		29.5	
D 21 13C8 FOSA										
506.00 > 78.00	3.372	3.364	0.008	1.275	4081407	1.50		60.1	5751	
D 23 13C2 PFDA										
515.00 > 470.00	3.372	3.372	0.0	1.275	2842875	1.93		77.4	7029	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.524	3.523	0.001	1.332	1092414	1.60		63.8	4595	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.685	3.685	0.0	1.393	1138331	1.51		60.6	488	
D 30 13C2 PFUnA										
565.00 > 520.00	3.694	3.693	0.001	1.396	2064233	1.63		65.0	7797	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.983	3.978	0.005	1.000	3428	0.004242			2.0	
613.00 > 169.00	3.991	3.978	0.013	1.002	972		3.53(2.13-6.40)		12.0	
D 36 13C2 PFDoA										
615.00 > 570.00	3.983	3.991	-0.008	1.506	1842762	1.36		54.4	4965	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.481	4.492	-0.011	1.694	2226045	1.37		54.8	5833	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Report Date: 31-Aug-2018 14:38:08 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_038.d

Injection Date: 30-Aug-2018 00:45:38 Instrument ID: A8_N

Lims ID: 320-42265-A-1-A Lab Sample ID: 320-42265-1

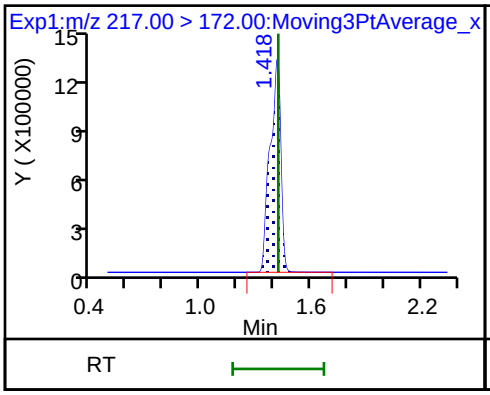
Client ID: MW-9S

Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 7

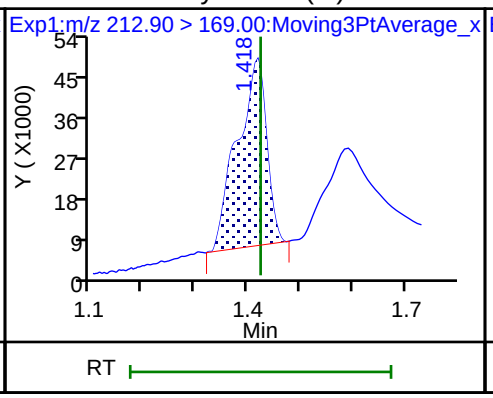
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

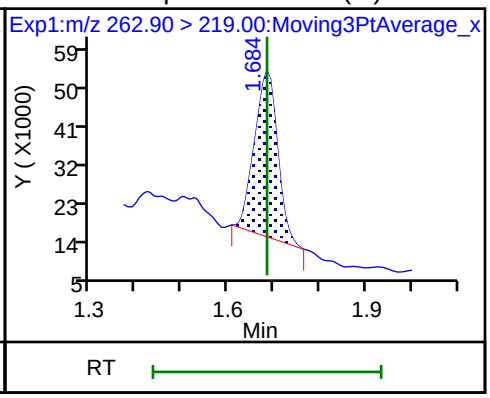
D 1 13C4 PFBA



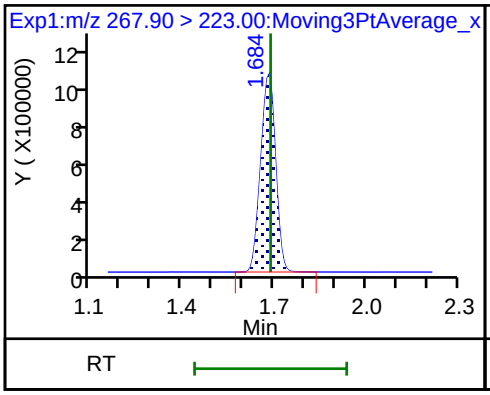
2 Perfluorobutyric acid (M)



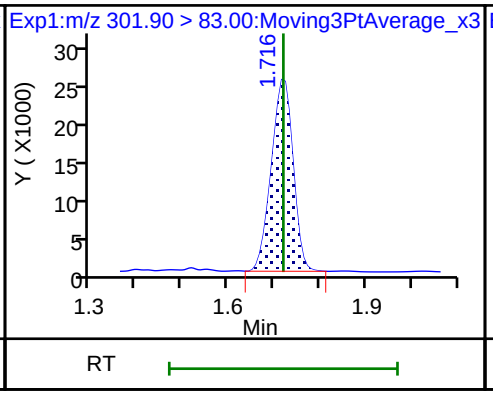
4 Perfluoropentanoic acid (M)



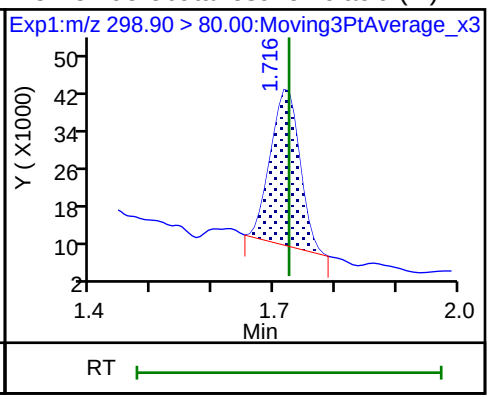
D 3 13C5-PFPeA



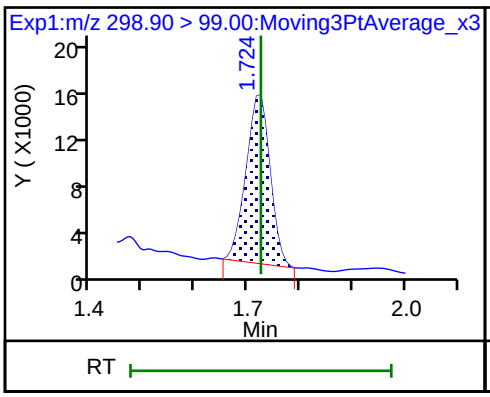
D 47 13C3-PFBS



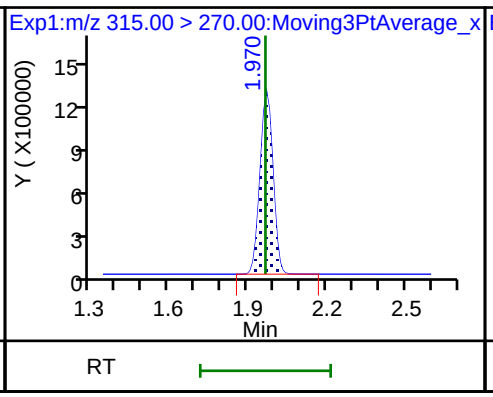
5 Perfluorobutanesulfonic acid (M)



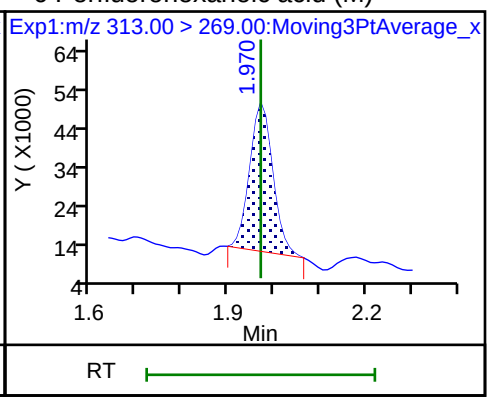
5 Perfluorobutanesulfonic acid



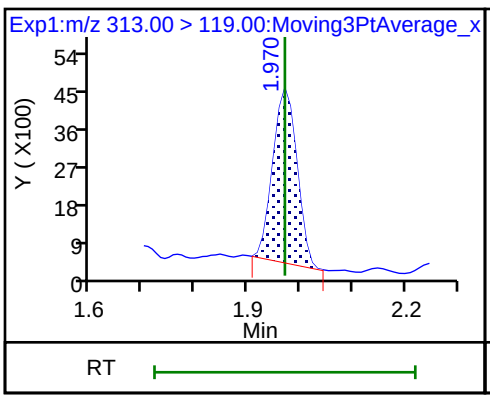
D 7 13C2 PFHxA



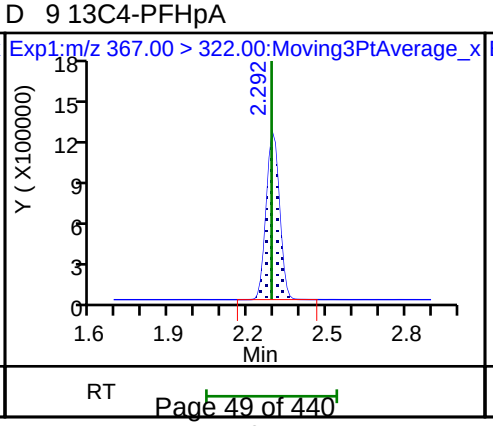
6 Perfluorohexanoic acid (M)



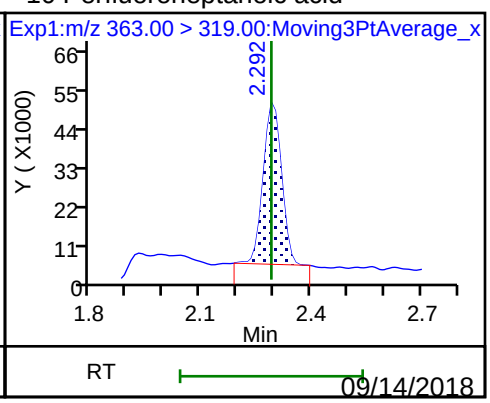
6 Perfluorohexanoic acid



D 9 13C4-PFHpA



10 Perfluoroheptanoic acid



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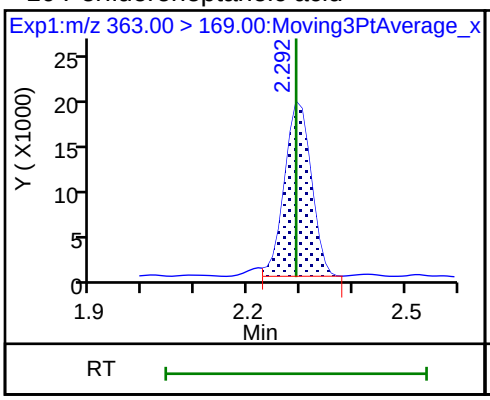
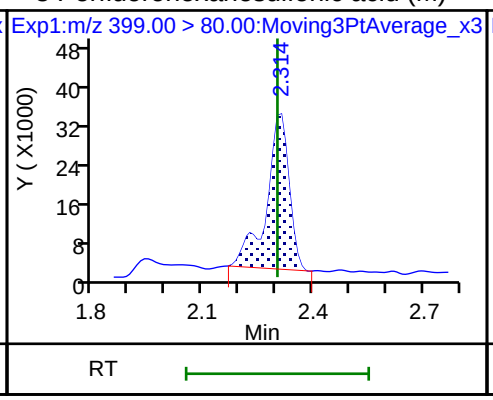
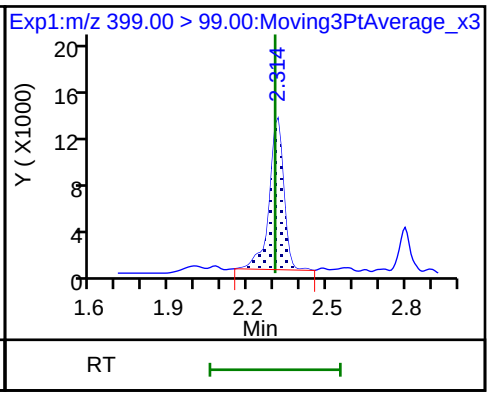


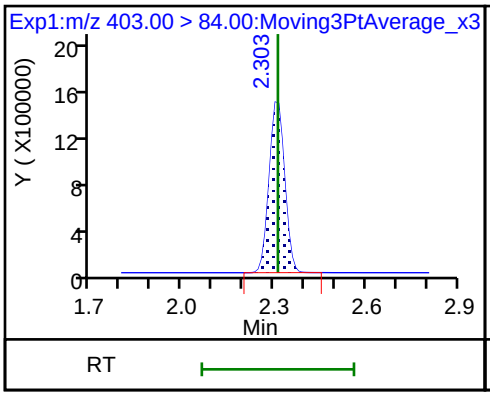
8 Perfluorohexanesulfonic acid (M)



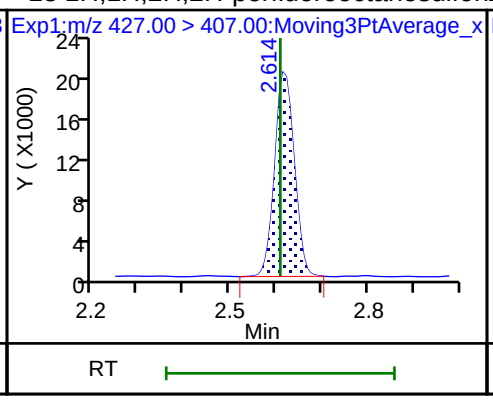
8 Perfluorohexanesulfonic acid



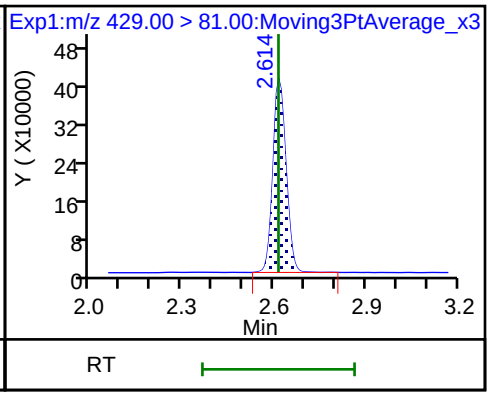
D 11 18O2 PFHxS



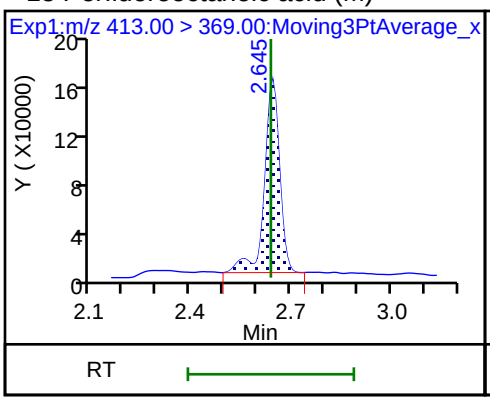
13 1H,1H,2H,2H-perfluorooctanesulfon



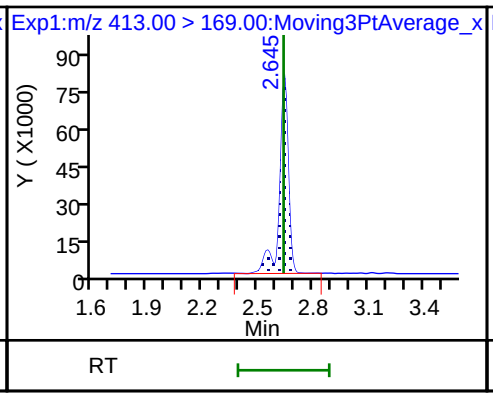
D 12 M2-6:2FTS



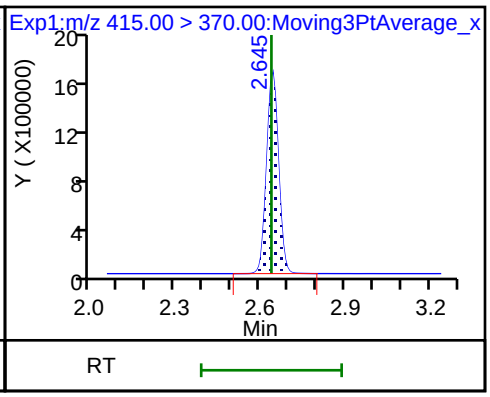
15 Perfluorooctanoic acid (M)



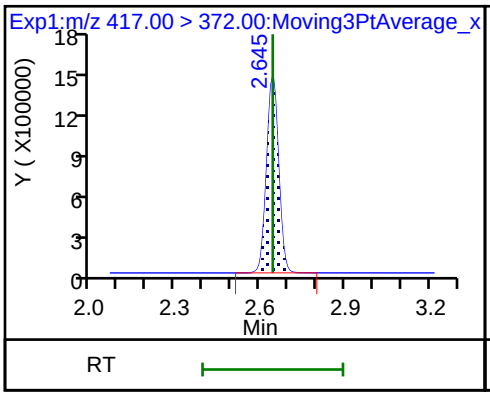
15 Perfluorooctanoic acid



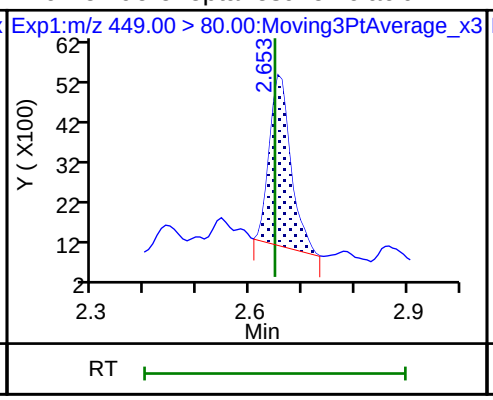
* 62 13C2-PFOA



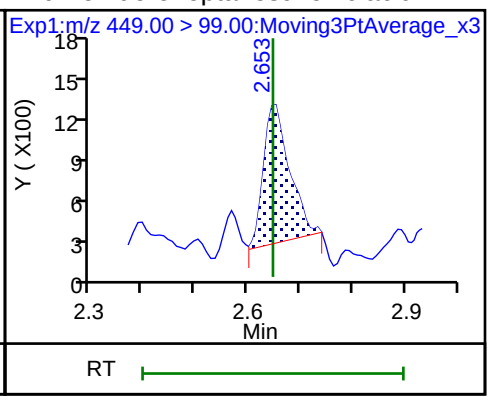
D 14 13C4 PFOA



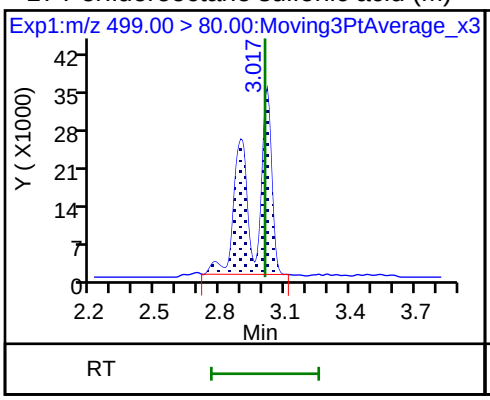
16 Perfluoroheptanesulfonic acid



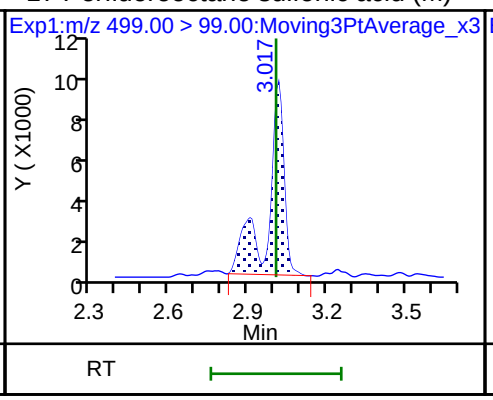
16 Perfluoroheptanesulfonic acid



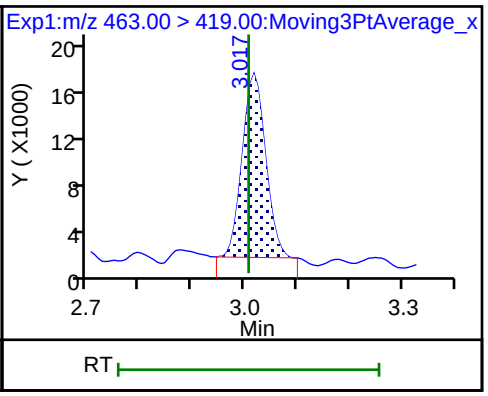
17 Perfluorooctane sulfonic acid (M)



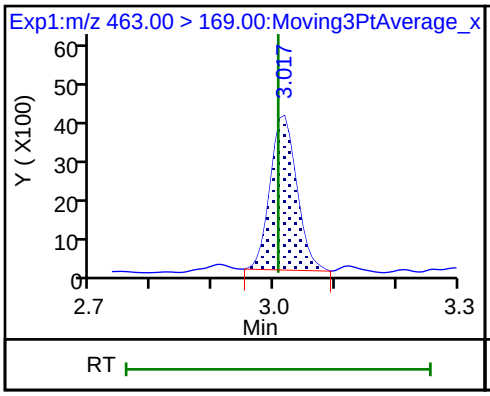
17 Perfluorooctane sulfonic acid (M)



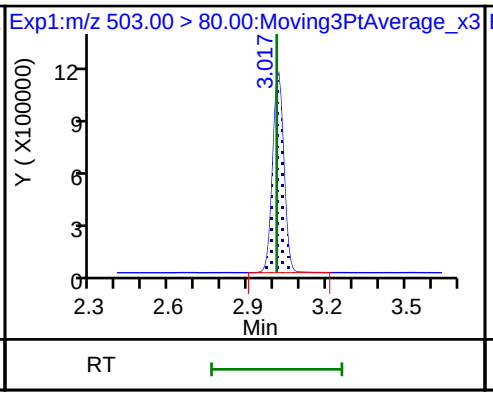
20 Perfluorononanoic acid



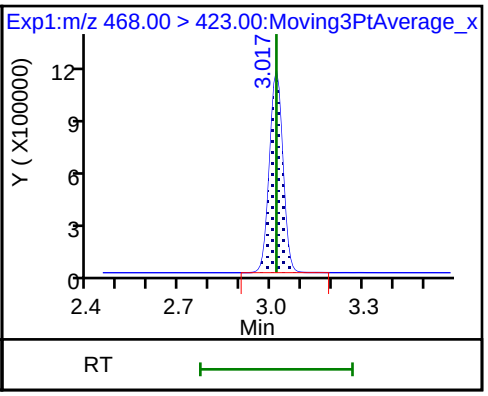
20 Perfluorononanoic acid



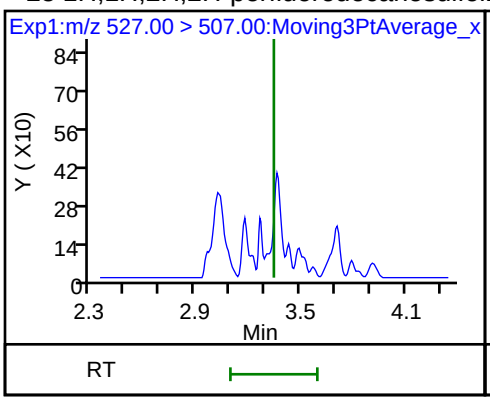
D 18 13C4 PFOS



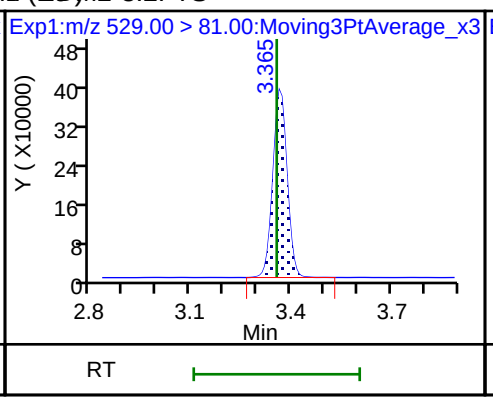
D 19 13C5 PFNA



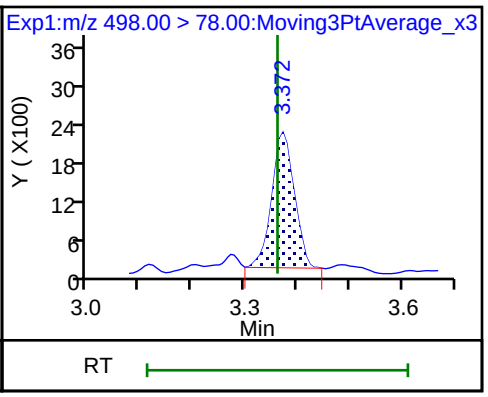
25 1H,1H,2H,2H-perfluorodecanesulfonic acid (M)



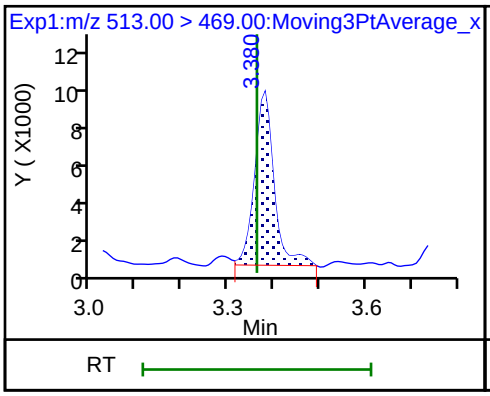
D 16 M2-8:2FTS



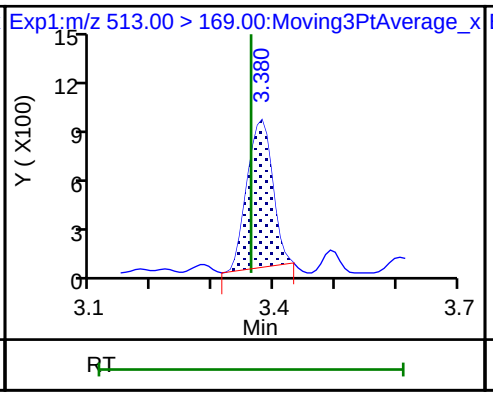
22 Perfluorooctane Sulfonamide



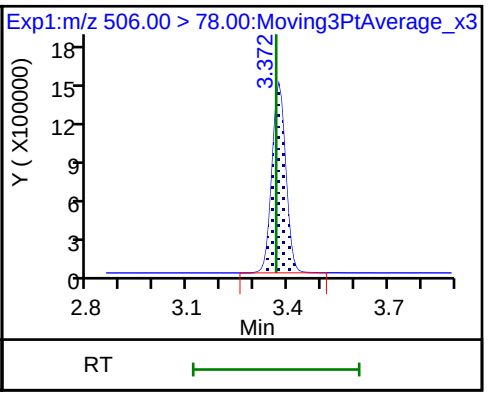
24 Perfluorodecanoic acid



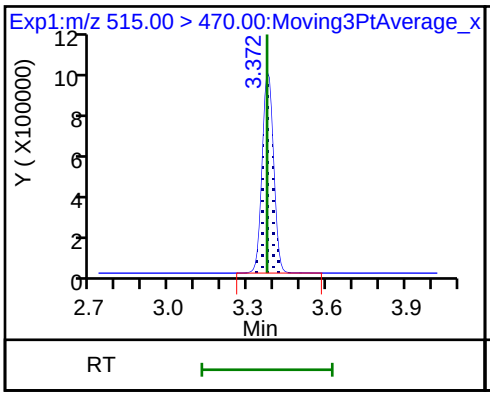
24 Perfluorodecanoic acid



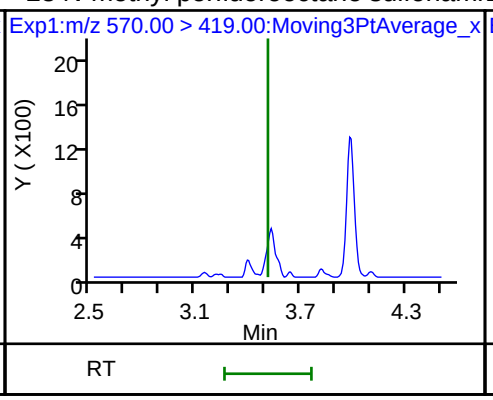
D 21 13C8 FOSA



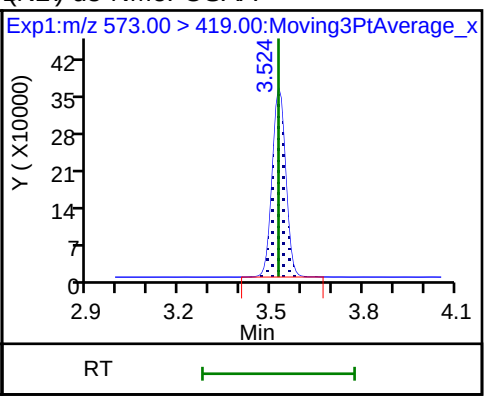
D 23 13C2 PFDA



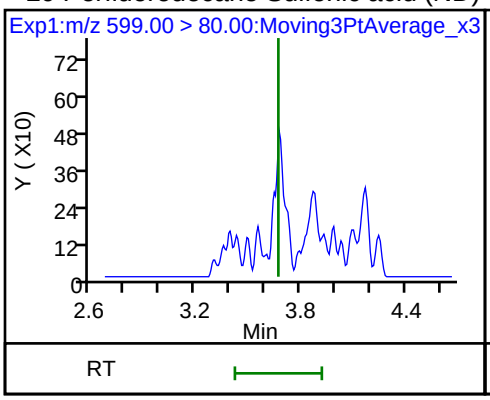
28 N-methyl perfluorooctane sulfonamid (ND)



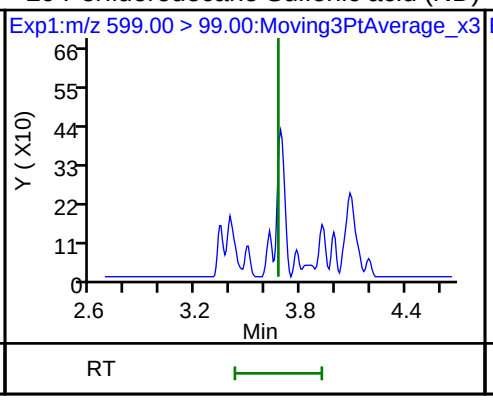
D 27 d3-NMeFOSAA



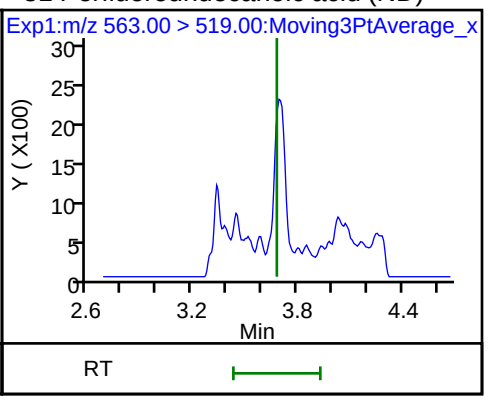
29 Perfluorodecane Sulfonic acid (ND)



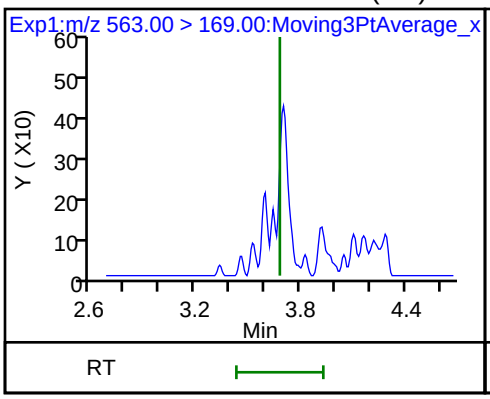
29 Perfluorodecane Sulfonic acid (ND)



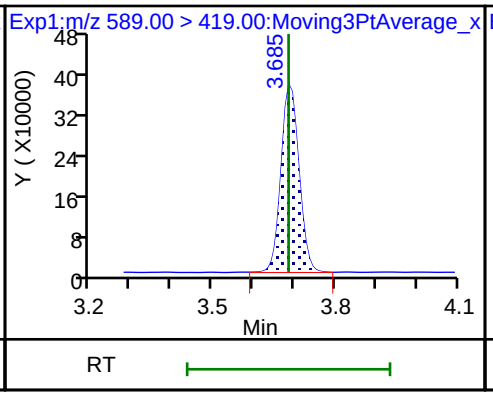
31 Perfluoroundecanoic acid (ND)



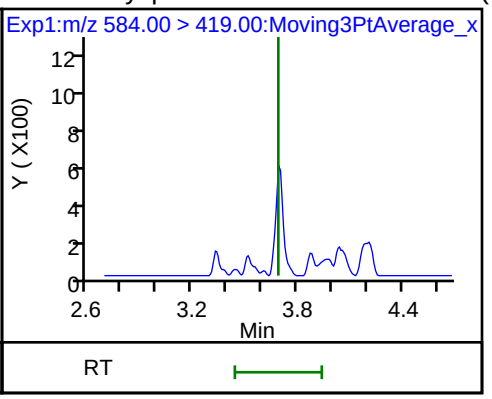
31 Perfluoroundecanoic acid (ND)



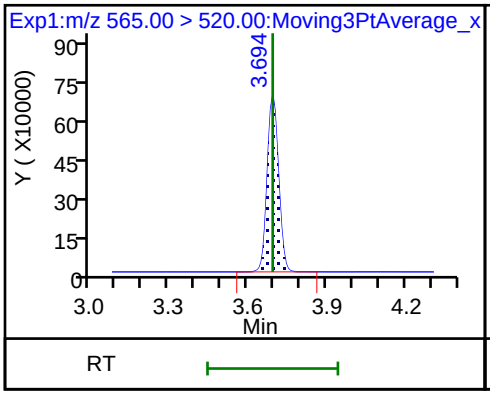
D 32 d5-NEtFOSAA



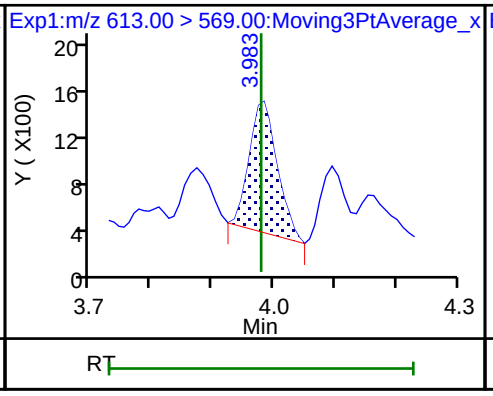
33 N-ethyl perfluorooctane sulfonamid (ND)



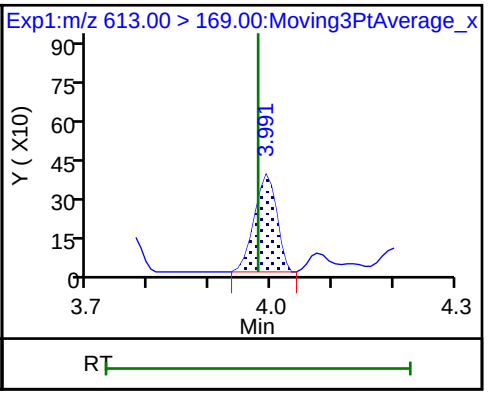
D 30 13C2 PFUnA



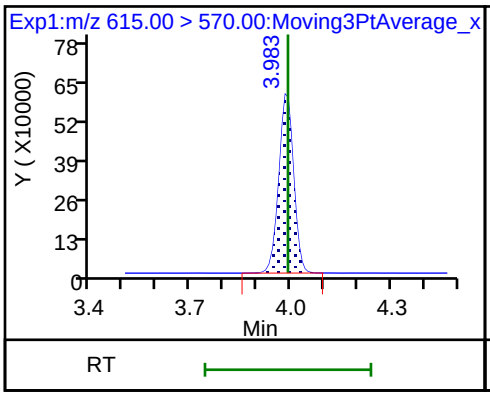
37 Perfluorododecanoic acid



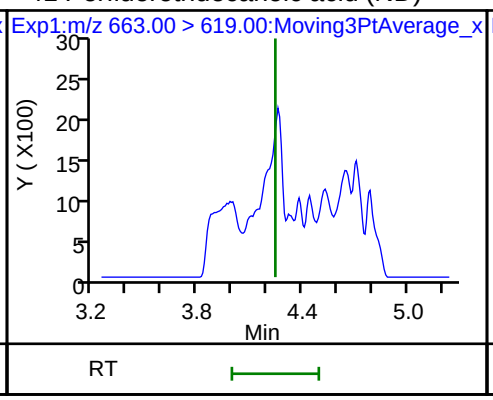
37 Perfluorododecanoic acid



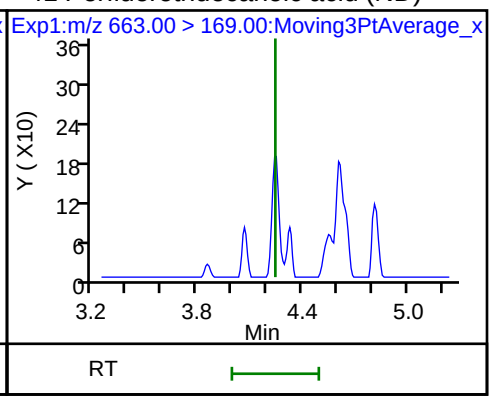
D 36 13C2 PFDoA



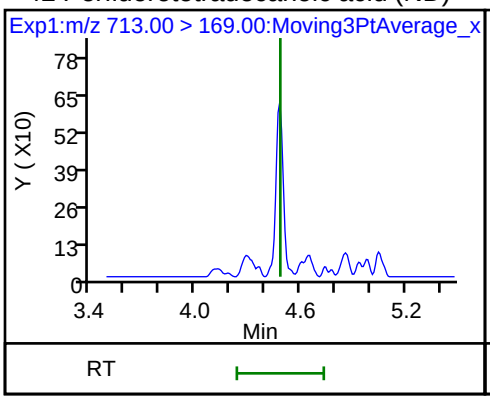
41 Perfluorotridecanoic acid (ND)



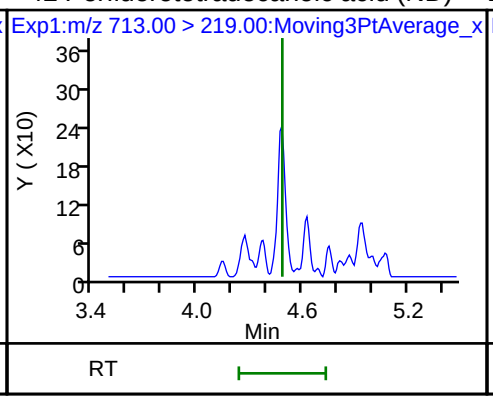
41 Perfluorotridecanoic acid (ND)



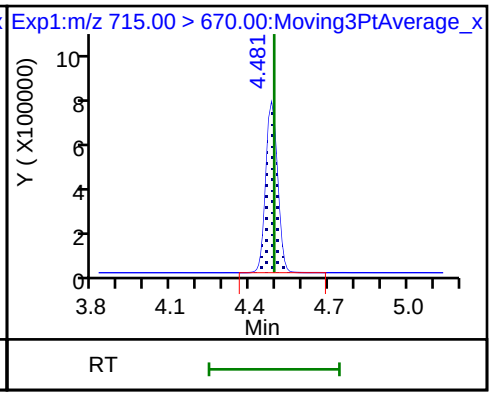
42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



D 43 13C2-PFTeDA



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

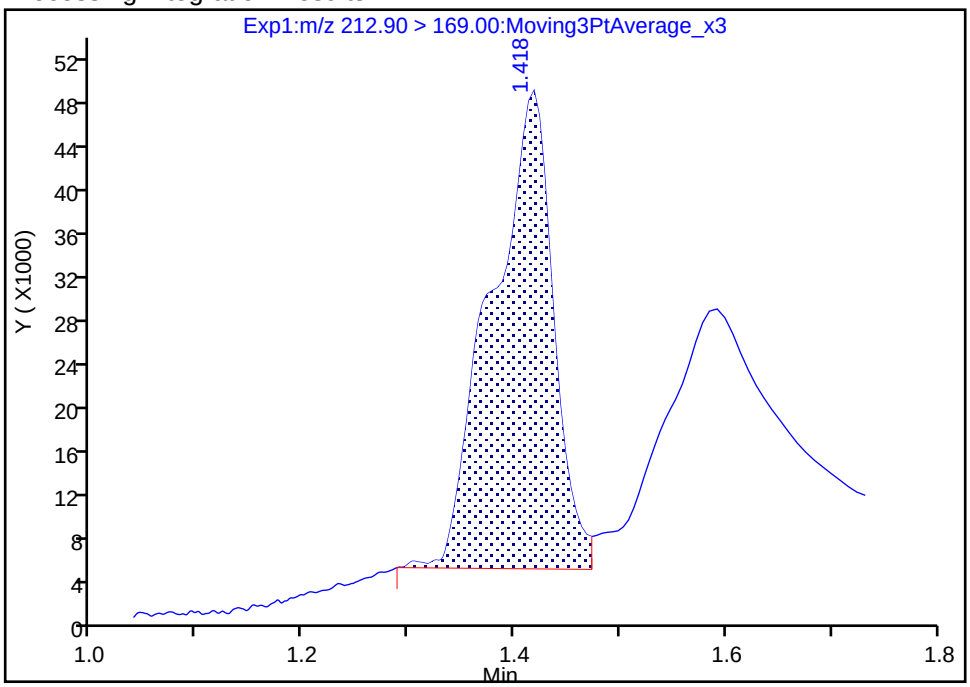
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_038.d				
Injection Date:	30-Aug-2018 00:45:38	Instrument ID:	A8_N		
Lims ID:	320-42265-A-1-A	Lab Sample ID:	320-42265-1		
Client ID:	MW-9S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

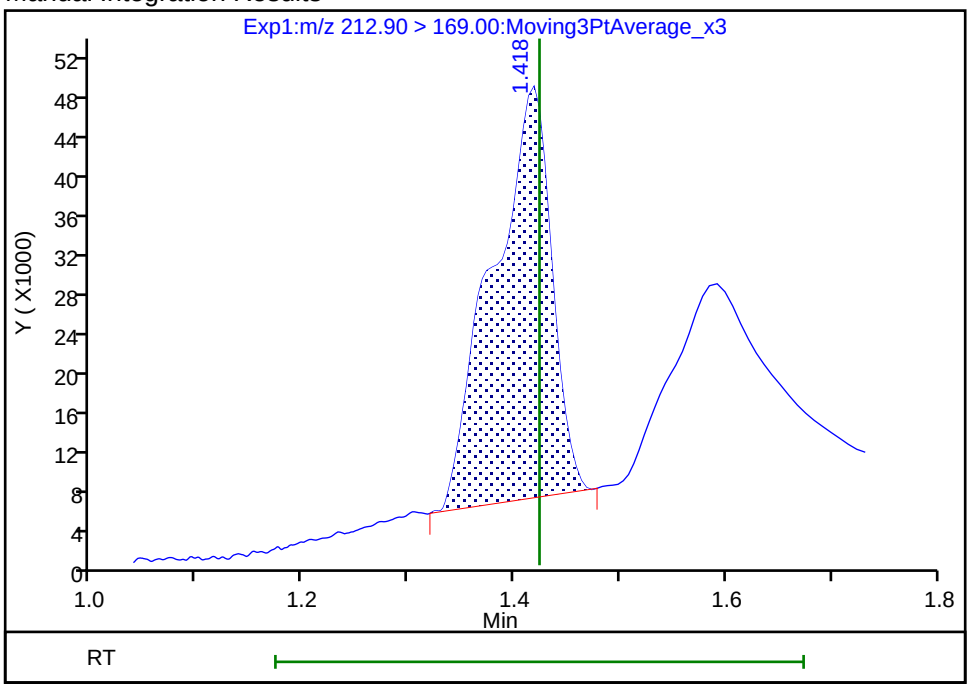
Processing Integration Results

RT: 1.42
Area: 176856
Amount: 0.094197
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 160228
Amount: 0.085340
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:37:04

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

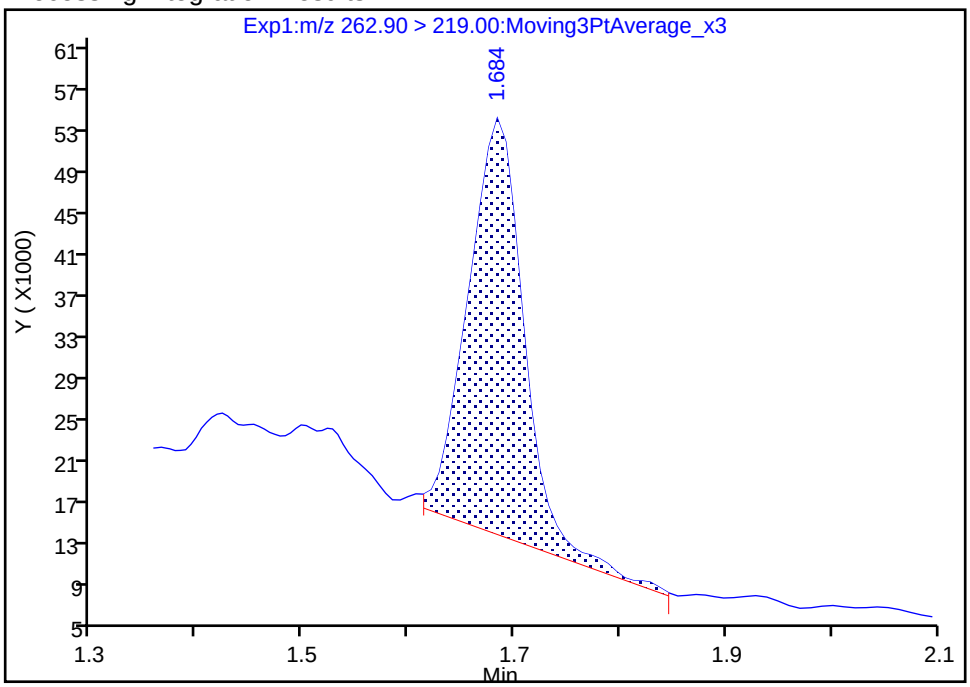
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_038.d				
Injection Date:	30-Aug-2018 00:45:38	Instrument ID:	A8_N		
Lims ID:	320-42265-A-1-A	Lab Sample ID:	320-42265-1		
Client ID:	MW-9S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

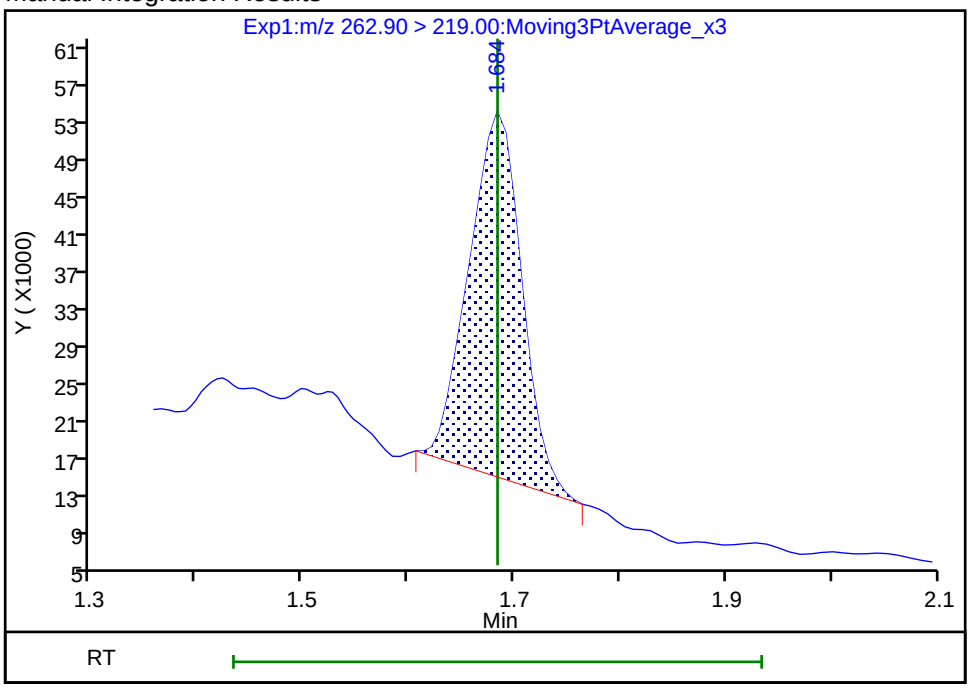
Processing Integration Results

RT: 1.68
Area: 147638
Amount: 0.091278
Amount Units: ng/ml



Manual Integration Results

RT: 1.68
Area: 134102
Amount: 0.082910
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:37:09
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

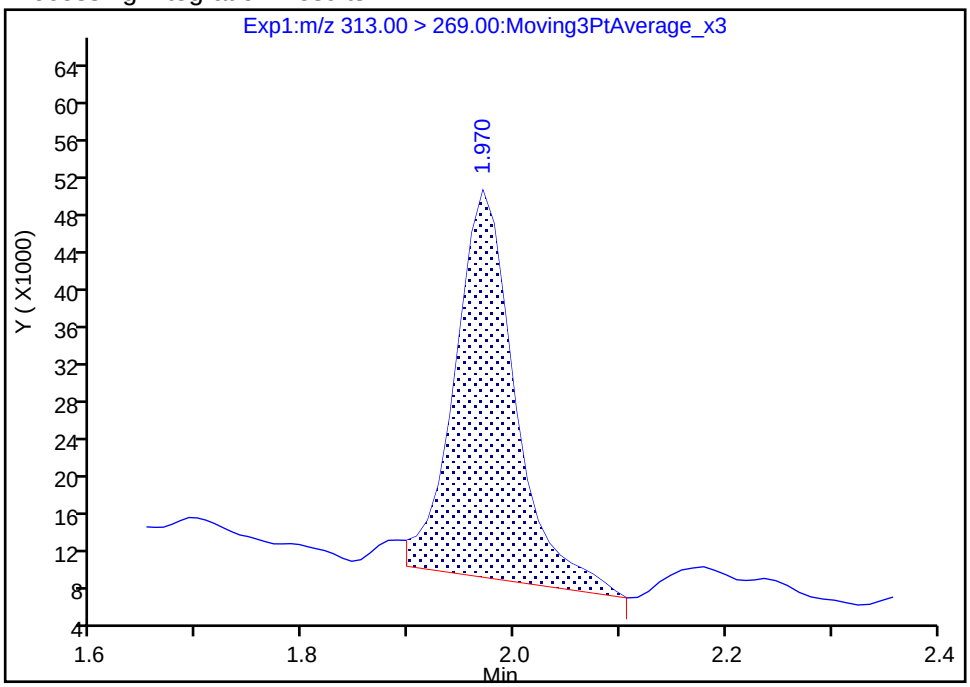
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_038.d				
Injection Date:	30-Aug-2018 00:45:38	Instrument ID:	A8_N		
Lims ID:	320-42265-A-1-A	Lab Sample ID:	320-42265-1		
Client ID:	MW-9S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

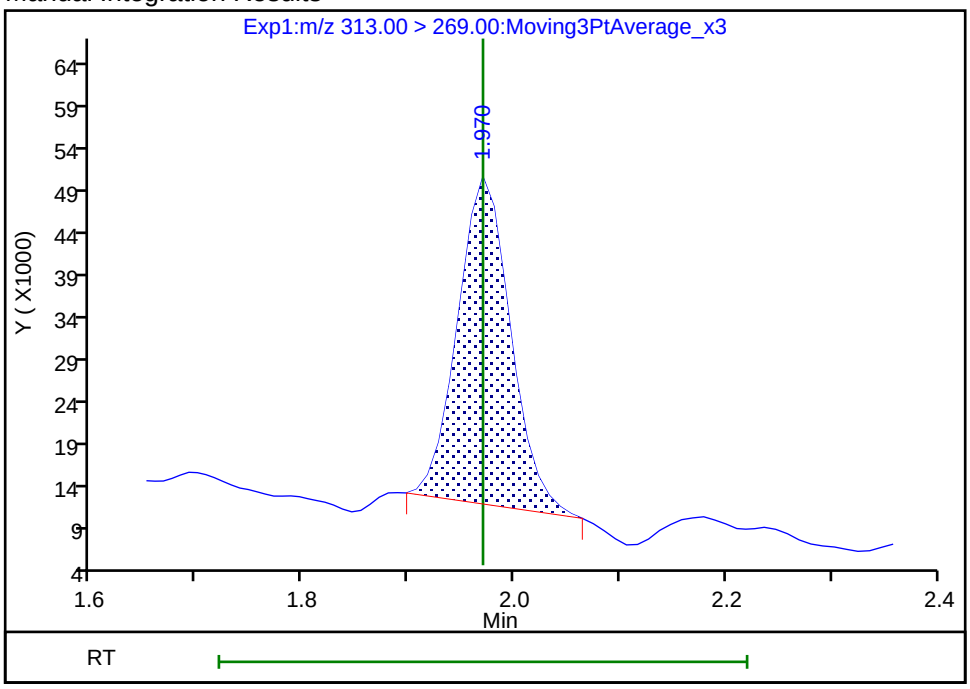
Processing Integration Results

RT: 1.97
Area: 163160
Amount: 0.095018
Amount Units: ng/ml



Manual Integration Results

RT: 1.97
Area: 134035
Amount: 0.078057
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:37:22

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

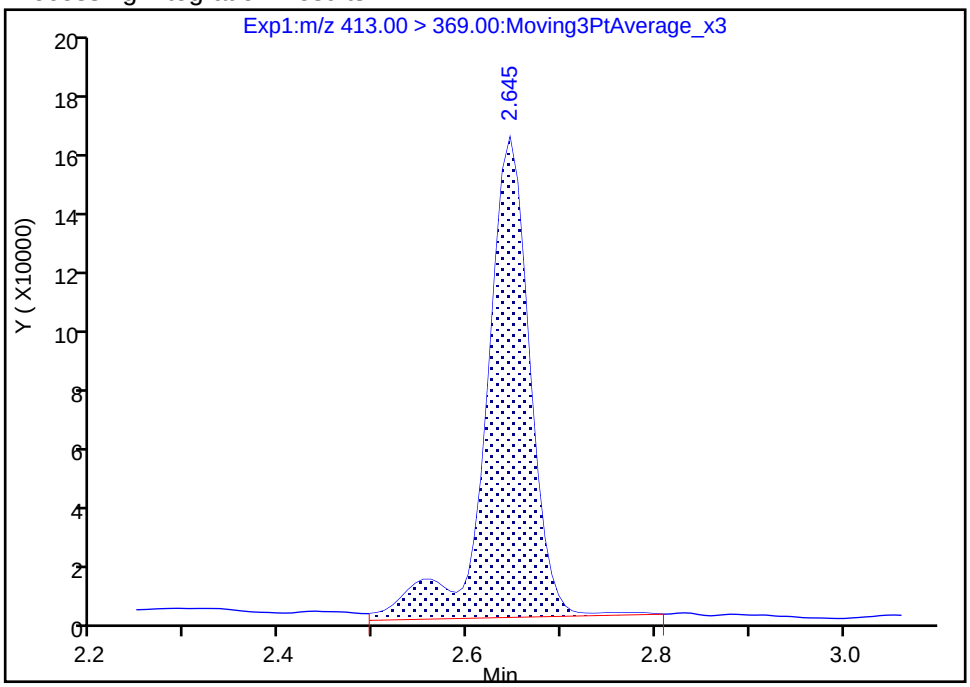
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_038.d				
Injection Date:	30-Aug-2018 00:45:38	Instrument ID:	A8_N		
Lims ID:	320-42265-A-1-A	Lab Sample ID:	320-42265-1		
Client ID:	MW-9S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

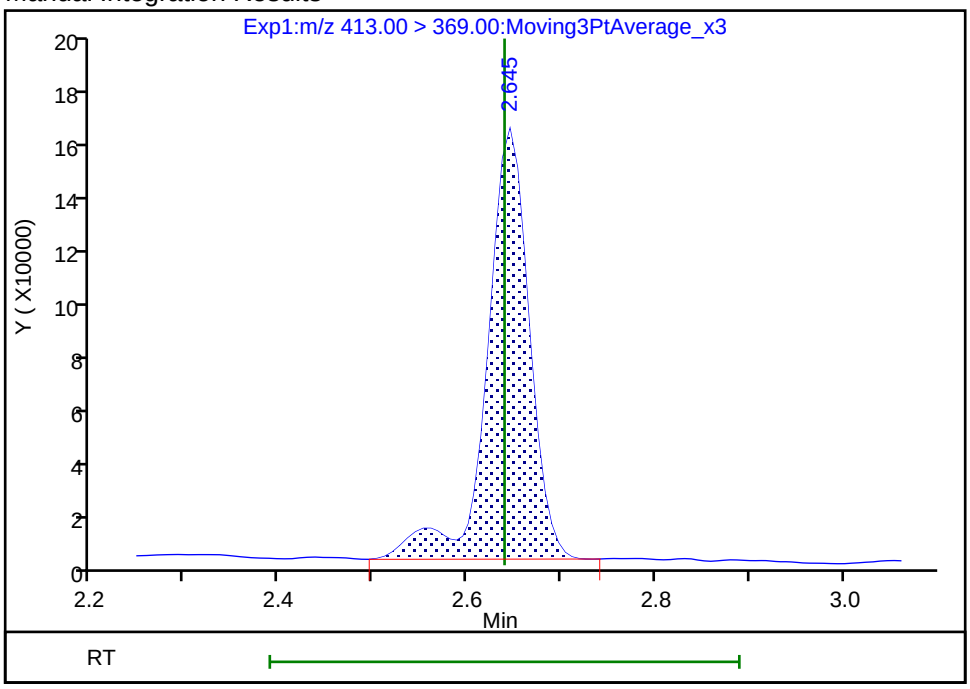
Processing Integration Results

RT: 2.65
Area: 525821
Amount: 0.275876
Amount Units: ng/ml



Manual Integration Results

RT: 2.65
Area: 501327
Amount: 0.263025
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:37:44

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

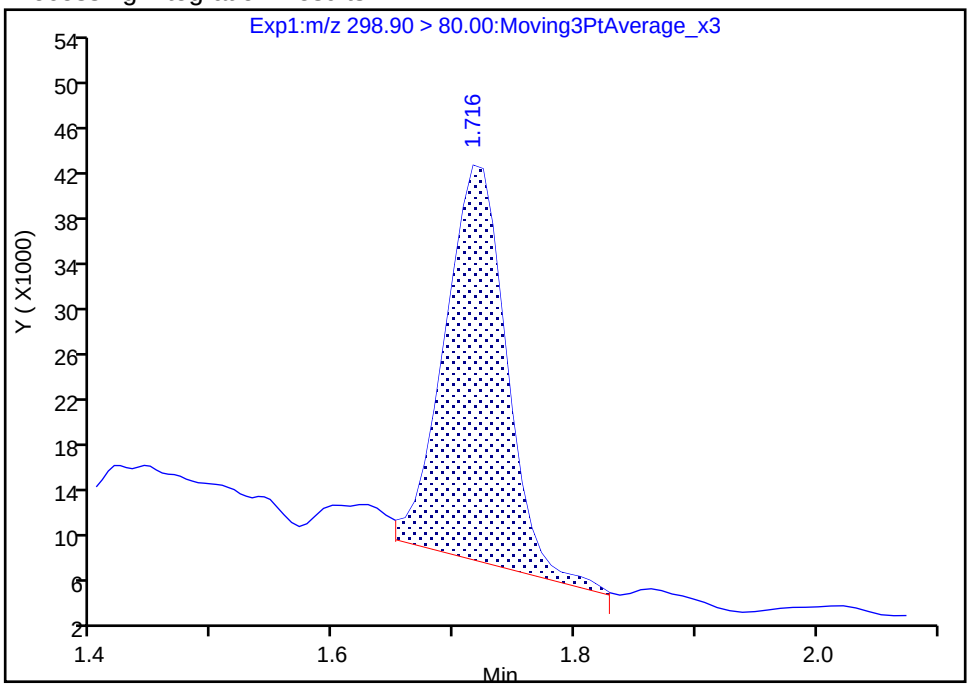
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_038.d				
Injection Date:	30-Aug-2018 00:45:38	Instrument ID:	A8_N		
Lims ID:	320-42265-A-1-A	Lab Sample ID:	320-42265-1		
Client ID:	MW-9S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

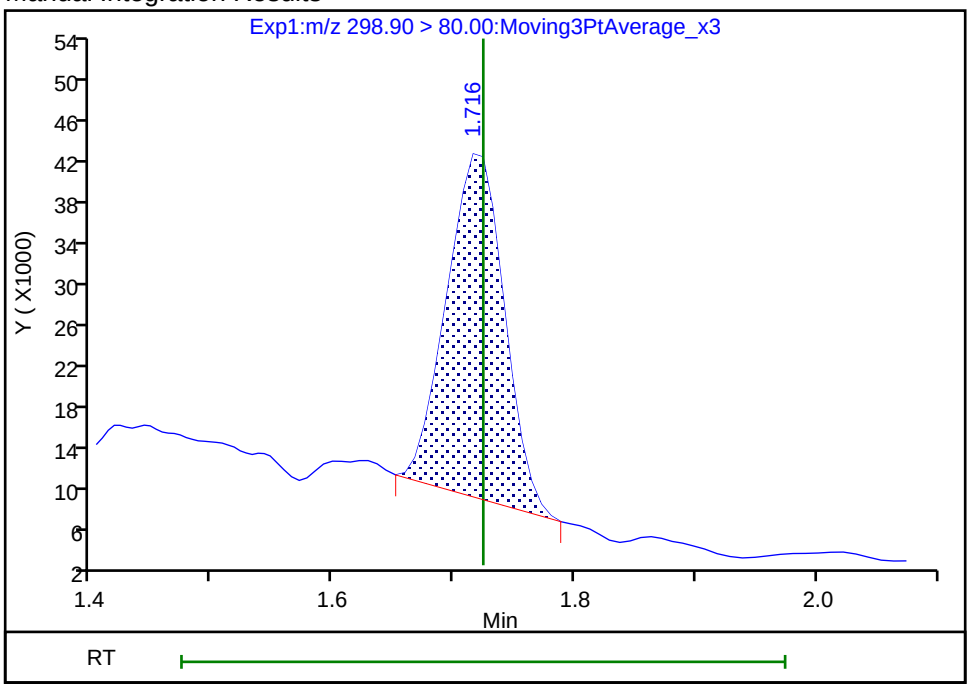
Processing Integration Results

RT: 1.72
Area: 123494
Amount: 0.046312
Amount Units: ng/ml



Manual Integration Results

RT: 1.72
Area: 110962
Amount: 0.041612
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:37:15
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

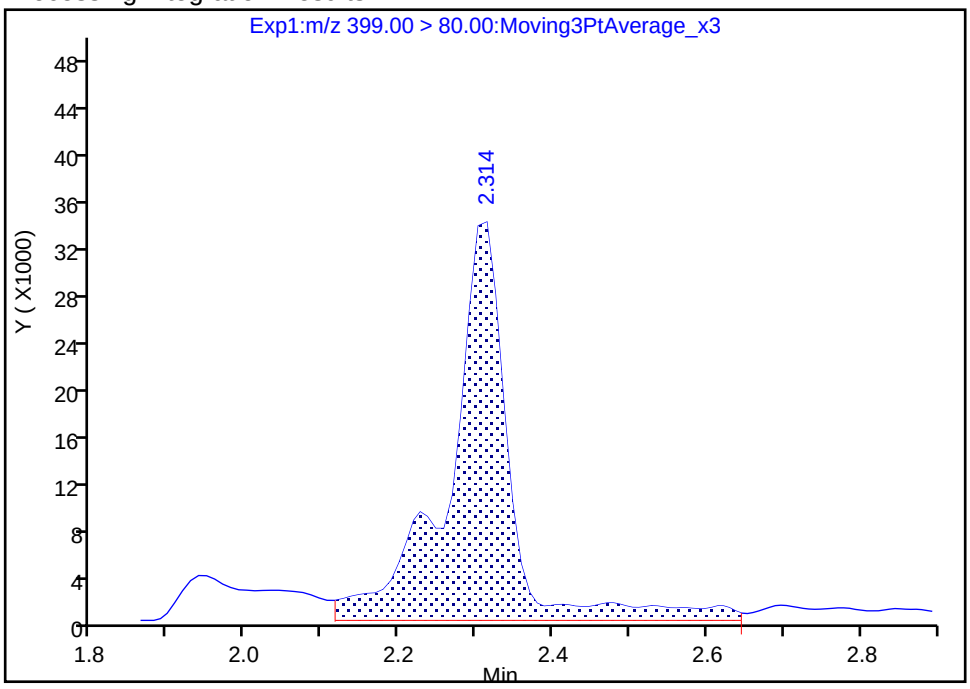
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_038.d				
Injection Date:	30-Aug-2018 00:45:38	Instrument ID:	A8_N		
Lims ID:	320-42265-A-1-A	Lab Sample ID:	320-42265-1		
Client ID:	MW-9S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

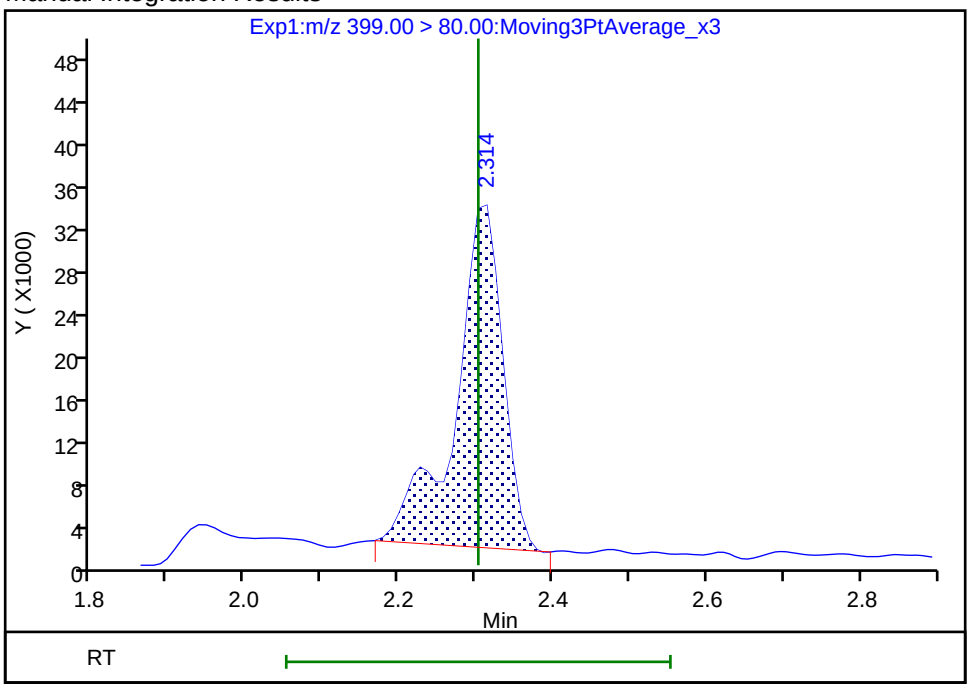
Processing Integration Results

RT: 2.31
Area: 185945
Amount: 0.077846
Amount Units: ng/ml



Manual Integration Results

RT: 2.31
Area: 137632
Amount: 0.057620
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:37:37

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

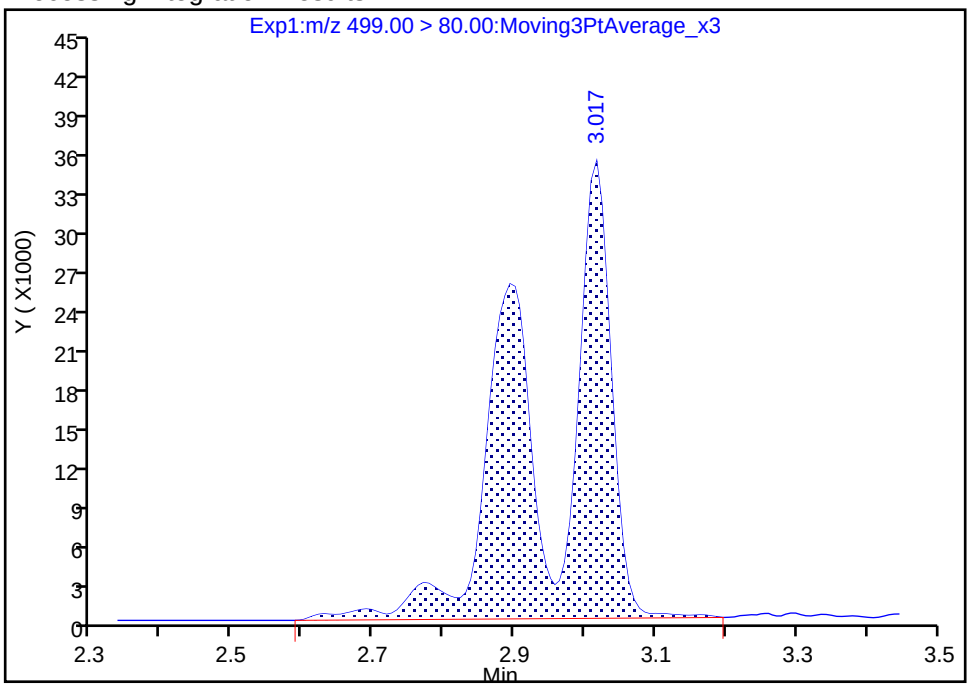
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_038.d				
Injection Date:	30-Aug-2018 00:45:38	Instrument ID:	A8_N		
Lims ID:	320-42265-A-1-A	Lab Sample ID:	320-42265-1		
Client ID:	MW-9S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

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

Signal: 1

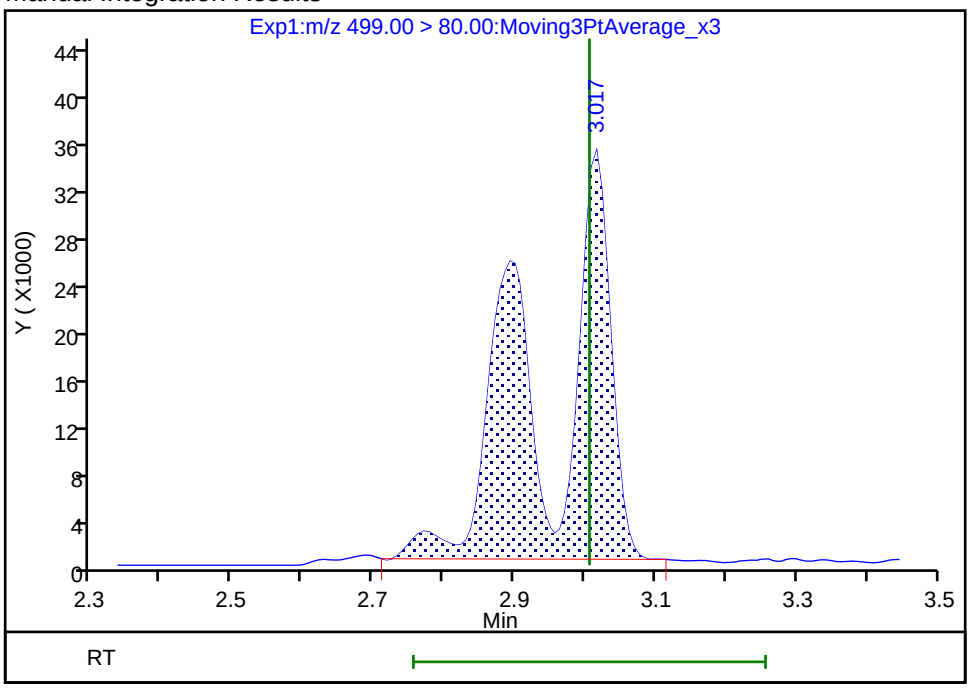
Processing Integration Results

RT: 3.02
Area: 230693
Amount: 0.151910
Amount Units: ng/ml



Manual Integration Results

RT: 3.02
Area: 216535
Amount: 0.142587
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:37:52

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_038.d

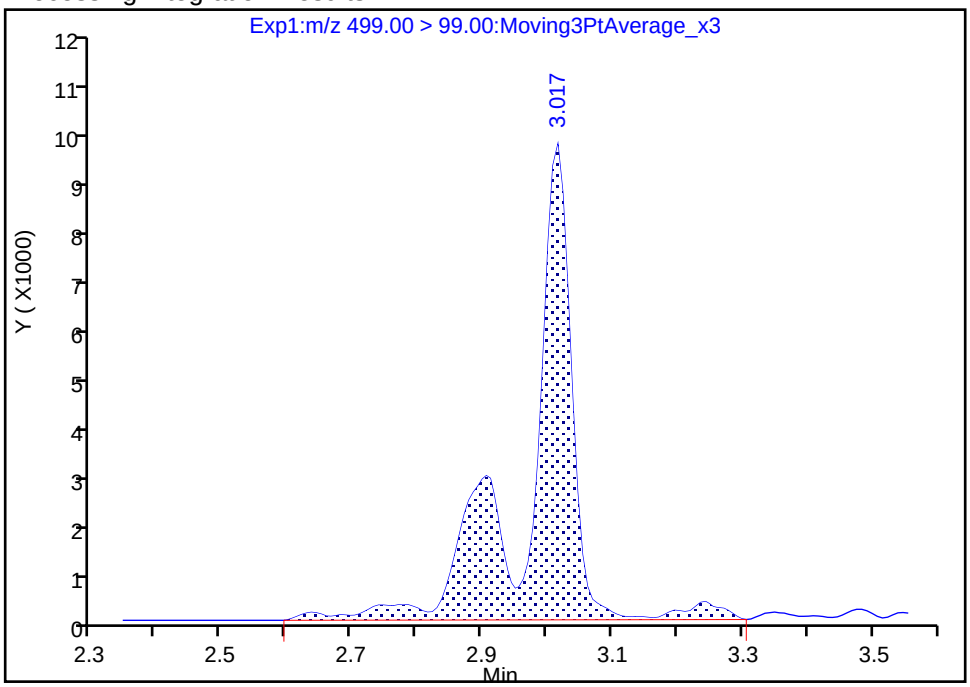
Injection Date:	30-Aug-2018 00:45:38	Instrument ID:	A8_N		
Lims ID:	320-42265-A-1-A	Lab Sample ID:	320-42265-1		
Client ID:	MW-9S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

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

Signal: 2

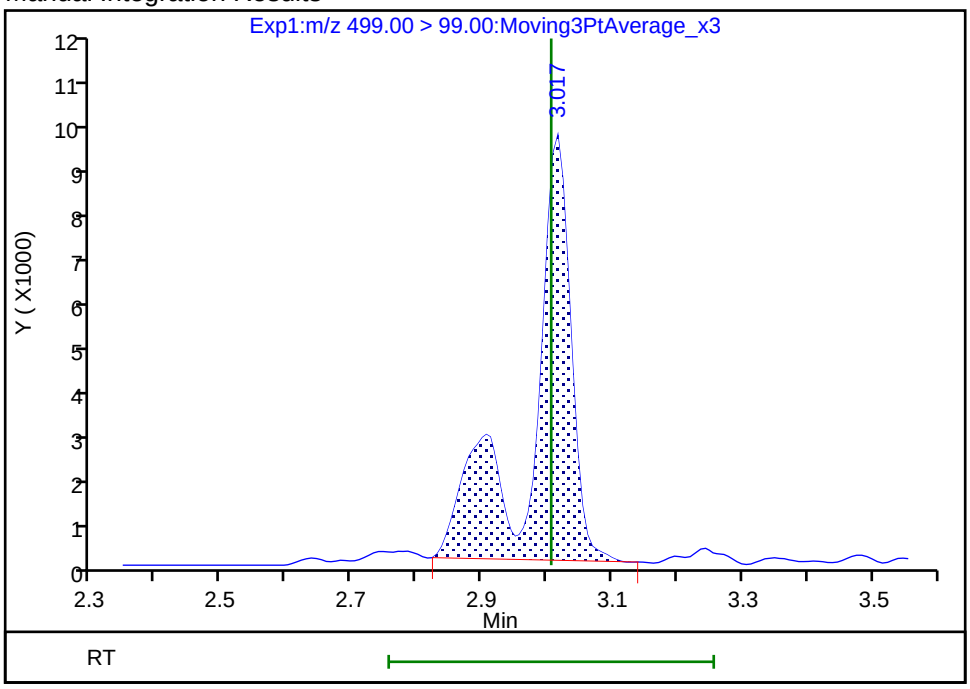
Processing Integration Results

RT: 3.02
Area: 44987
Amount: 0.151910
Amount Units: ng/ml



Manual Integration Results

RT: 3.02
Area: 39119
Amount: 0.142587
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:37:55

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-9D | Lab Sample ID: 320-42265-2

Matrix: Water | Lab File ID: 2018.08.29LLB_039.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 10:20

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 241.2(mL) | Date Analyzed: 08/30/2018 00:53

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	7.5		2.1	0.36
2706-90-3	Perfluoropentanoic acid (PFPeA)	11		2.1	0.51
307-24-4	Perfluorohexanoic acid (PFHxA)	9.3		2.1	0.60
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.9		2.1	0.26
335-67-1	Perfluorooctanoic acid (PFOA)	16		2.1	0.88
375-95-1	Perfluorononanoic acid (PFNA)	0.77	J	2.1	0.28
335-76-2	Perfluorodecanoic acid (PFDA)	ND		2.1	0.32
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30
375-73-5	Perfluorobutanesulfonic acid (PFBS)	5.1		2.1	0.21
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	3.0	B	2.1	0.18
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.27	J	2.1	0.20
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	4.9		2.1	0.56
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33
754-91-6	Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0
27619-97-2	6:2 FTS	ND		21	2.1
39108-34-4	8:2 FTS	ND		21	2.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-9D | Lab Sample ID: 320-42265-2

Matrix: Water | Lab File ID: 2018.08.29LLB_039.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 10:20

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 241.2(mL) | Date Analyzed: 08/30/2018 00:53

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	80		25-150
STL01893	13C5 PFPeA	80		25-150
STL00993	13C2 PFHxA	80		25-150
STL01892	13C4-PFHpA	89		25-150
STL00990	13C4 PFOA	84		25-150
STL00995	13C5 PFNA	87		25-150
STL00996	13C2 PFDA	81		25-150
STL00997	13C2 PFUnA	64		25-150
STL00998	13C2 PFDoA	63		25-150
STL02116	13C2-PFTeDA	59		25-150
STL02337	13C3-PFBS	78		25-150
STL00994	18O2 PFHxS	86		25-150
STL00991	13C4 PFOS	77		25-150
STL01056	13C8 FOSA	74		25-150
STL02118	d3-NMeFOSAA	65		25-150
STL02117	d5-NEtFOSAA	65		25-150
STL02279	M2-6:2FTS	95		25-150
STL02280	M2-8:2FTS	85		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_039.d
Lims ID: 320-42265-A-2-A
Client ID: MW-9D
Sample Type: Client
Inject. Date: 30-Aug-2018 00:53:28 ALS Bottle#: 29 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-42265-a-2-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:54:56 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:54:56

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.411	1.421	-0.010	0.535	5926334	1.99		79.5	8312	
2 Perfluorobutyric acid										
212.90 > 169.00	1.411	1.424	-0.013	1.000	379268	0.1800			39.5	
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.675	1.684	-0.009	1.000	471149	0.2713			22.1	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.675	1.687	-0.012	0.634	3765142	2.00		79.9	6384	
D 47 13C3-PFBS										
301.90 > 83.00	1.707	1.720	-0.013	0.647	81286	1.82		78.4	303	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.715	1.724	-0.009	1.005	323088	0.1234			35.2	
298.90 > 99.00	1.715	1.724	-0.009	1.005	136742		2.36(1.25-3.74)		53.6	
D 7 13C2 PFHxA										
315.00 > 270.00	1.958	1.966	-0.008	0.742	4216608	2.00		79.8	10822	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.958	1.970	-0.012	1.000	381838	0.2248			40.2	
313.00 > 119.00	1.958	1.970	-0.012	1.000	34602		11.04(5.03-15.10)		67.2	
D 9 13C4-PFHpA										
367.00 > 322.00	2.281	2.289	-0.008	0.864	4438466	2.23		89.1	14540	
10 Perfluoroheptanoic acid										M
363.00 > 319.00	2.292	2.292	0.0	1.005	278151	0.1431			53.8	M
363.00 > 169.00	2.292	2.292	0.0	1.005	102777		2.71(1.13-3.40)		172	M
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.304	2.303	0.001	1.000	179799	0.0721			99.7	M
399.00 > 99.00	2.304	2.303	0.001	1.000	59189		3.04(1.50-4.49)		54.1	M
D 11 18O2 PFHxS										
403.00 > 84.00	2.304	2.311	-0.007	0.873	5392916	2.04		86.1	15581	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.609	2.609	0.0	1.000	27417	0.0424			264	
D 12 M2-6:2FTS										
429.00 > 81.00	2.609	2.613	-0.004	0.988	1022220	2.26		95.3	1498	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.640	2.639	0.001	1.000	713950	0.3937			89.5	M
413.00 > 169.00	2.640	2.639	0.001	1.000	404685		1.76(0.84-2.52)		718	
* 62 13C2-PFOA										
415.00 > 370.00	2.640	2.639	0.001		4823086	2.50			11829	
D 14 13C4 PFOA										
417.00 > 372.00	2.640	2.644	-0.004	1.000	4011179	2.11		84.4	16357	
16 Perfluoroheptanesulfonic acid										R
449.00 > 80.00	2.648	2.647	0.001	0.881	11172	0.006575			7.2	R
449.00 > 99.00	2.640	2.647	-0.007	0.878	1047		10.67(1.94-5.82)		3.3	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.889	3.006	-0.117	0.961	180164	0.1174			121	
499.00 > 99.00	3.005	3.006	-0.001	1.000	31826		5.66(2.31-6.93)		65.0	
20 Perfluorononanoic acid										M
463.00 > 419.00	3.005	3.006	-0.001	1.000	26283	0.0185			7.4	M
463.00 > 169.00	3.005	3.006	-0.001	1.000	5514		4.77(1.90-5.69)		24.1	
D 18 13C4 PFOS										
503.00 > 80.00	3.005	3.009	-0.004	1.139	3334079	1.84		77.1	5615	
D 19 13C5 PFNA										
468.00 > 423.00	3.005	3.016	-0.011	1.139	3412363	2.19		87.4	10313	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.352	3.347	0.005	0.998	1001	0.001733			4.9	
D 26 M2-8:2FTS										
529.00 > 81.00	3.360	3.357	0.003	1.273	1067228	2.03		84.8	2549	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.360	3.362	-0.002	0.998	1886	0.000986			13.8	
D 21 13C8 FOSA										
506.00 > 78.00	3.367	3.364	0.003	1.276	4958195	1.85		74.0	4860	
D 23 13C2 PFDA										
515.00 > 470.00	3.367	3.372	-0.005	1.276	2916815	2.01		80.5	6689	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.519	3.523	-0.004	1.333	1097818	1.63		65.0	4526	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.690	3.681	0.009	1.000	4400	0.005966			3.4	
563.00 > 169.00	3.690	3.681	0.009	1.000	1477		2.98(2.12-6.36)		13.3	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.681	3.685	-0.004	1.395	1213700	1.64		65.5	522	
D 30 13C2 PFUnA										
565.00 > 520.00	3.690	3.693	-0.003	1.398	2017325	1.61		64.4	5762	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.978	3.978	0.0	1.000	3278	0.003562			1.4	
613.00 > 169.00	3.978	3.978	0.0	1.000	806		4.07(2.13-6.40)		8.2	
D 36 13C2 PFDoA										
615.00 > 570.00	3.978	3.991	-0.013	1.507	2098797	1.57		62.8	4331	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 43 13C2-PFTeDA										
715.00 > 670.00	4.473	4.492	-0.019	1.694	2379847	1.48		59.4	4980	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

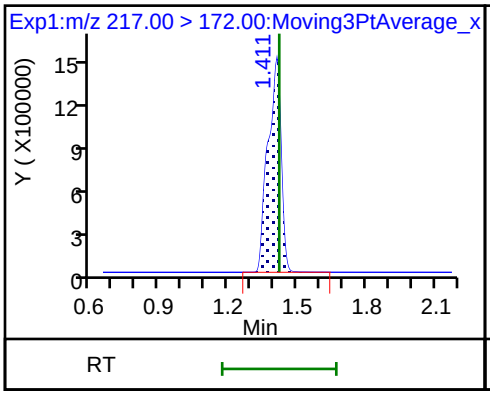
Report Date: 31-Aug-2018 14:54:57 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

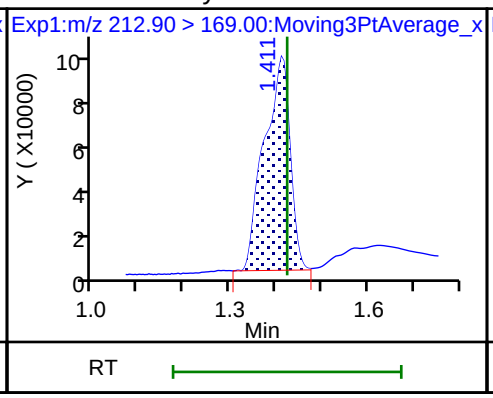
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_039.d

Injection Date:	30-Aug-2018 00:53:28	Instrument ID:	A8_N		
Lims ID:	320-42265-A-2-A	Lab Sample ID:	320-42265-2		
Client ID:	MW-9D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		

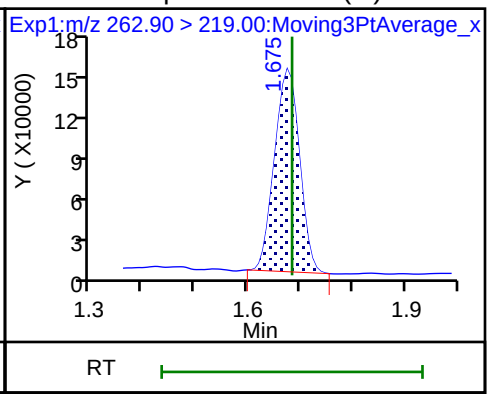
D 1 13C4 PFBA



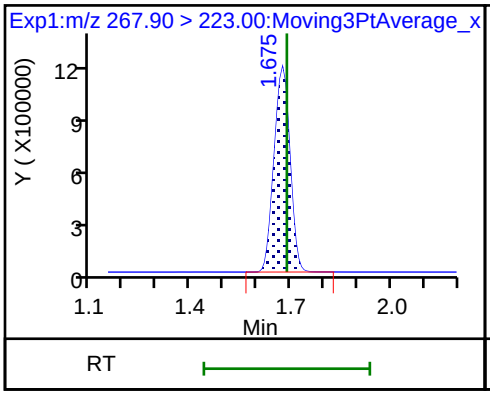
2 Perfluorobutyric acid



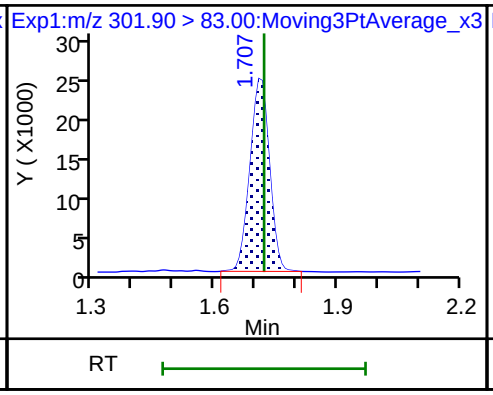
4 Perfluoropentanoic acid (M)



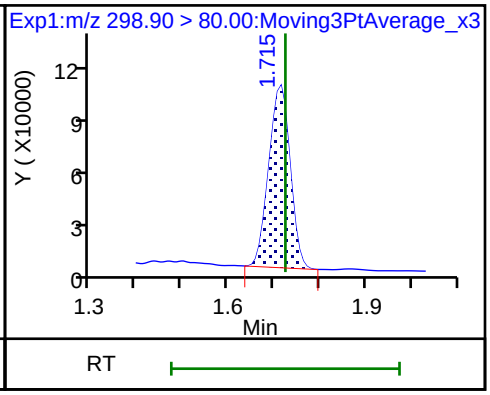
D 3 13C5-PFPeA



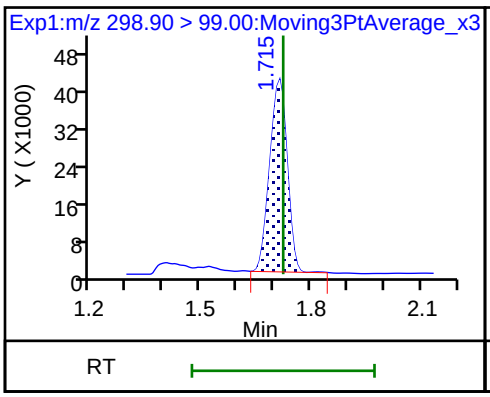
D 47 13C3-PFBS



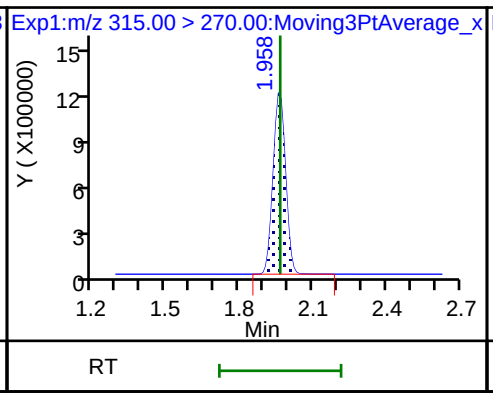
5 Perfluorobutanesulfonic acid



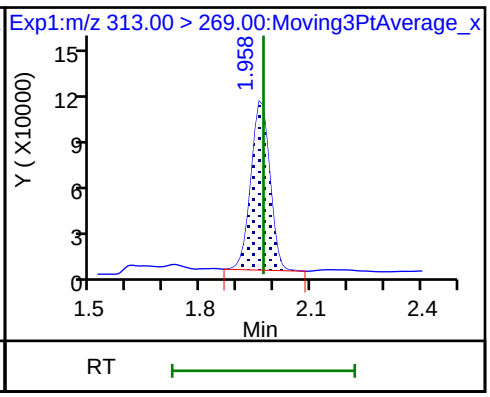
5 Perfluorobutanesulfonic acid



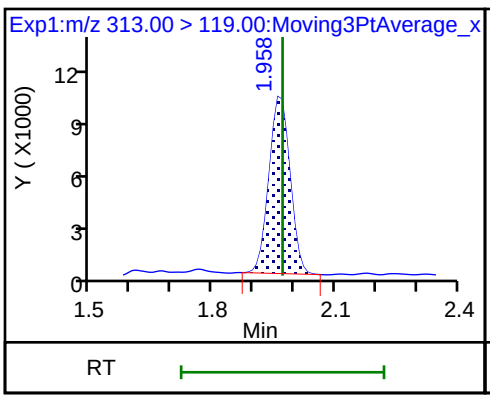
D 7 13C2 PFHxA



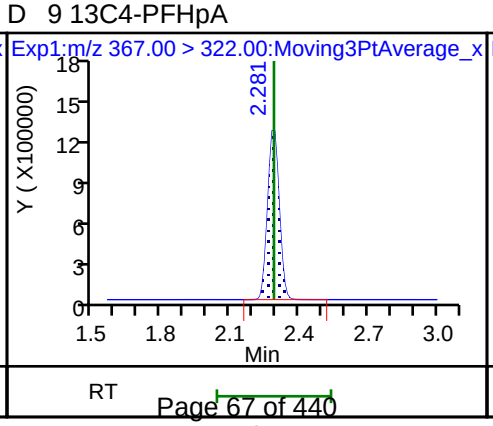
6 Perfluorohexanoic acid



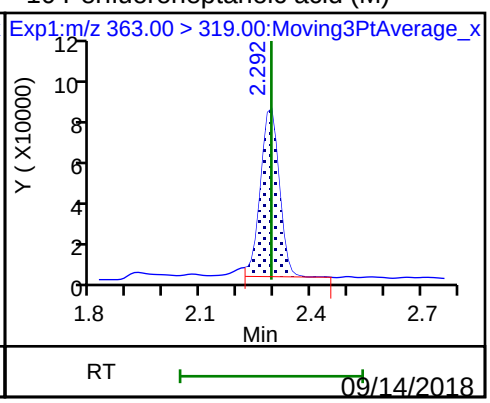
6 Perfluorohexanoic acid



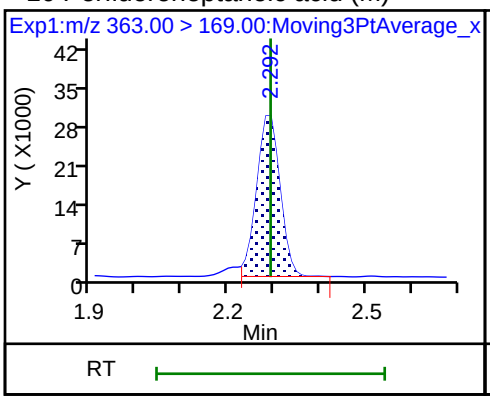
D 9 13C4-PFHpA



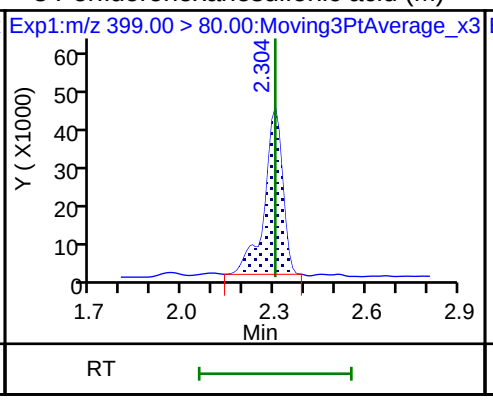
10 Perfluoroheptanoic acid (M)



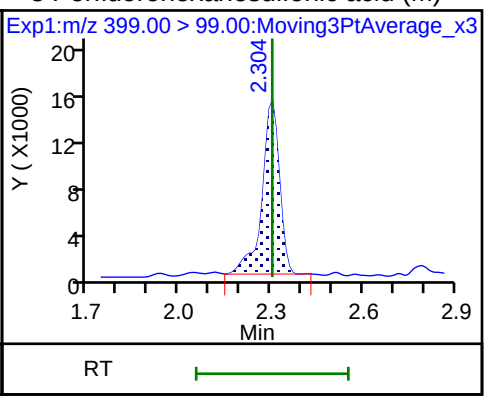
10 Perfluoroheptanoic acid (M)



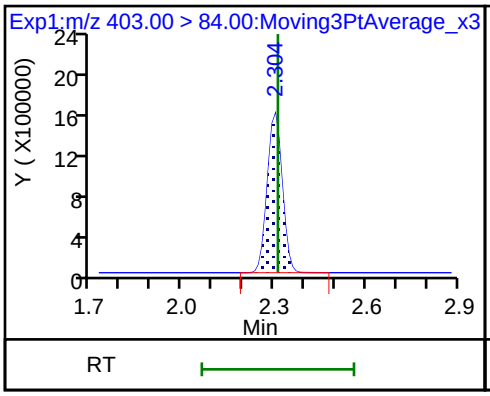
8 Perfluorohexanesulfonic acid (M)



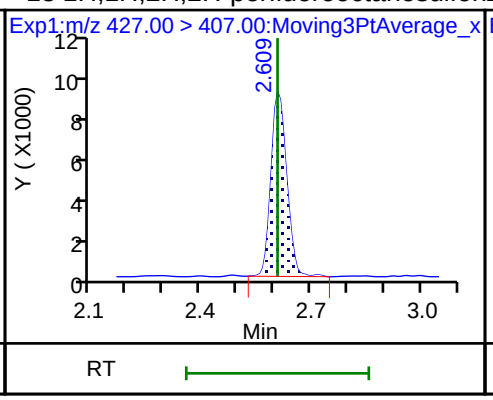
8 Perfluorohexanesulfonic acid (M)



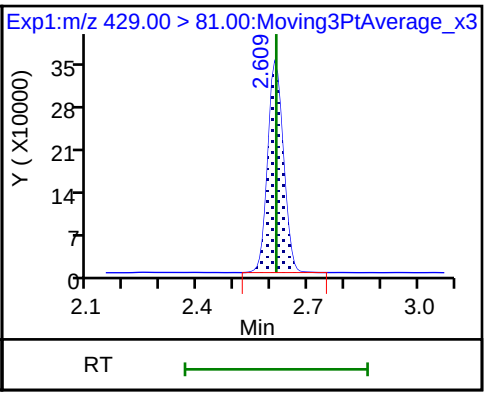
D 11 18O2 PFHxS



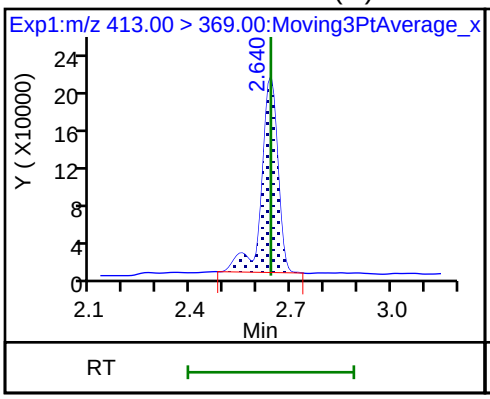
13 1H,1H,2H,2H-perfluorooctanesulfon



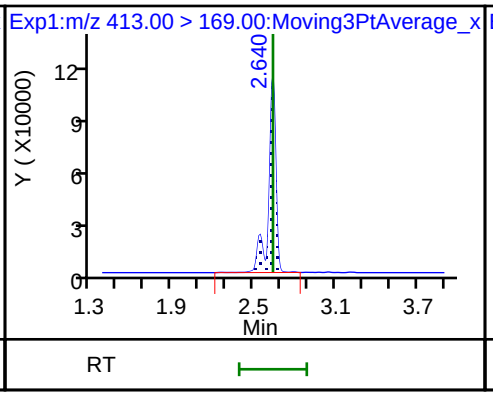
D 12 M2-6:2FTS



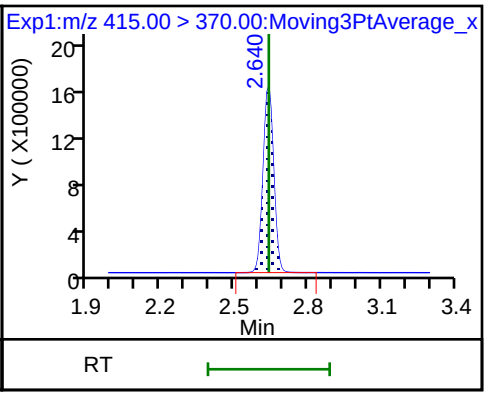
15 Perfluorooctanoic acid (M)



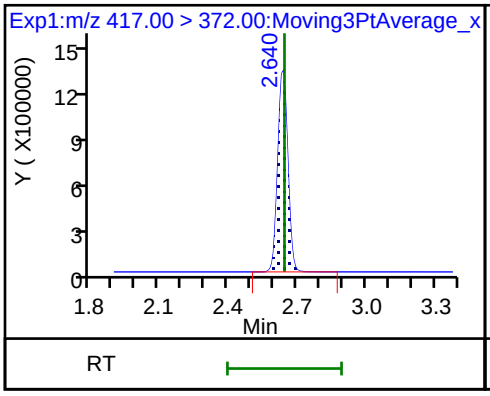
15 Perfluorooctanoic acid



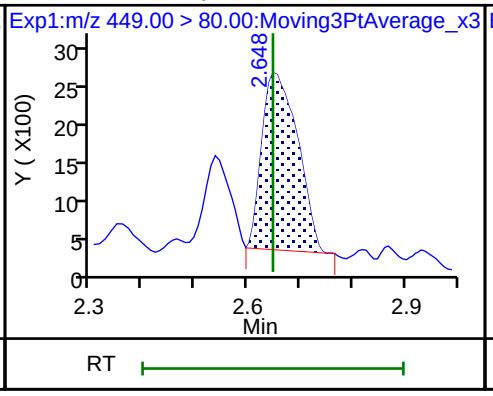
* 62 13C2-PFOA



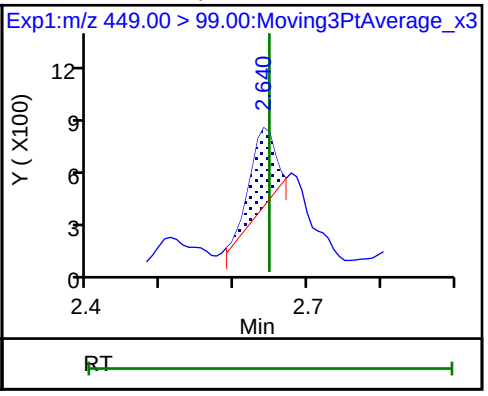
D 14 13C4 PFOA



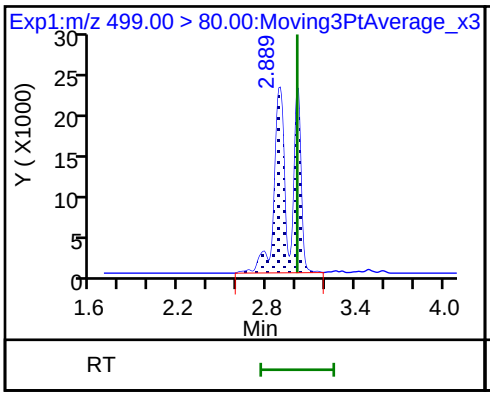
16 Perfluoroheptanesulfonic acid



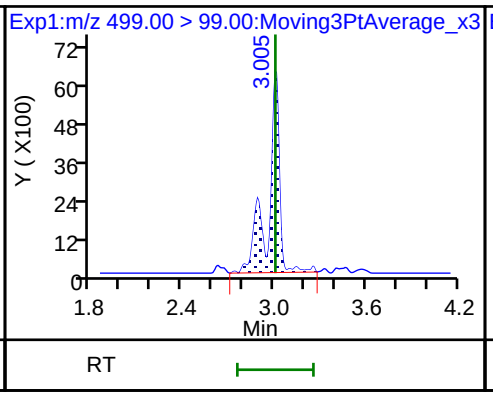
16 Perfluoroheptanesulfonic acid



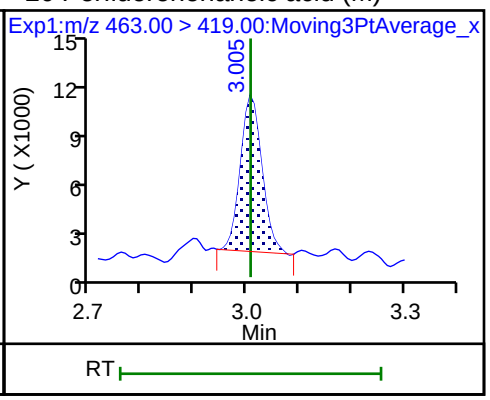
17 Perfluorooctane sulfonic acid



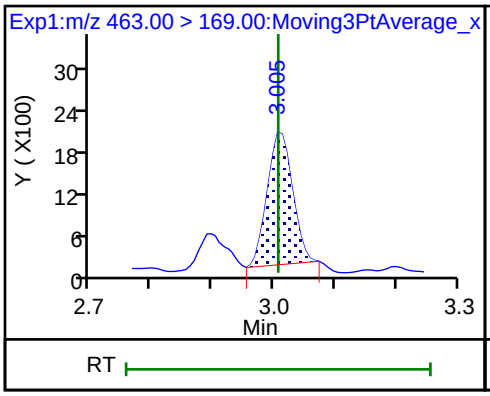
17 Perfluorooctane sulfonic acid



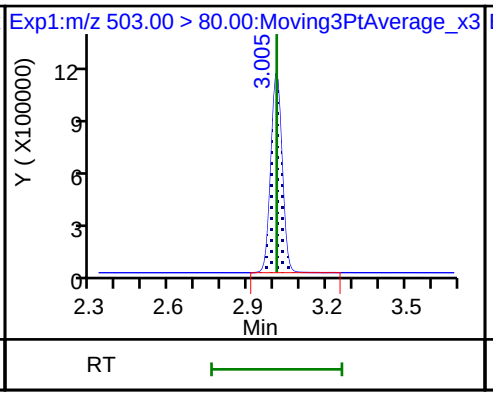
20 Perfluorononanoic acid (M)



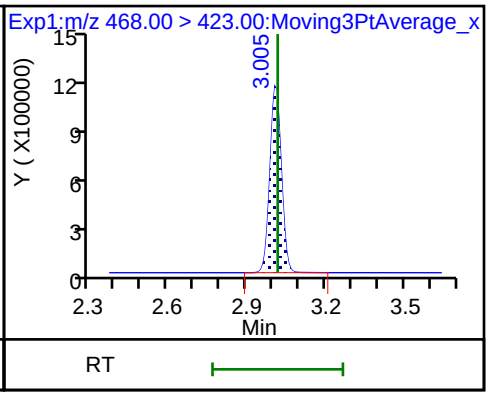
20 Perfluorononanoic acid



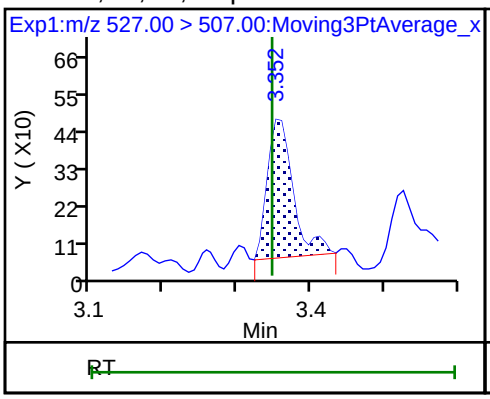
D 18 13C4 PFOS



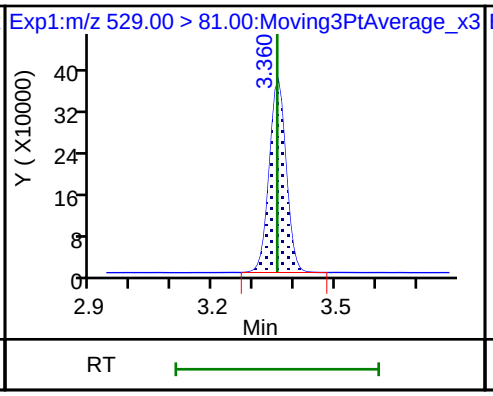
D 19 13C5 PFNA



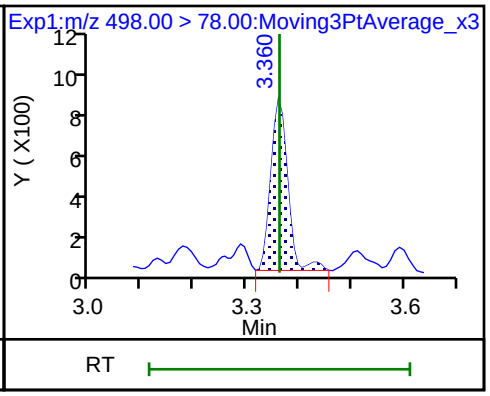
25 1H,1H,2H,2H-perfluorodecanesulfon



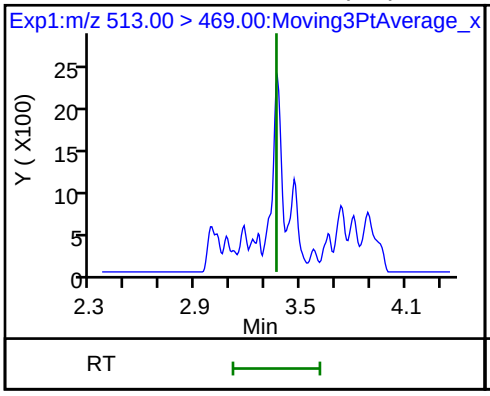
D 26 M2-8:2FTS



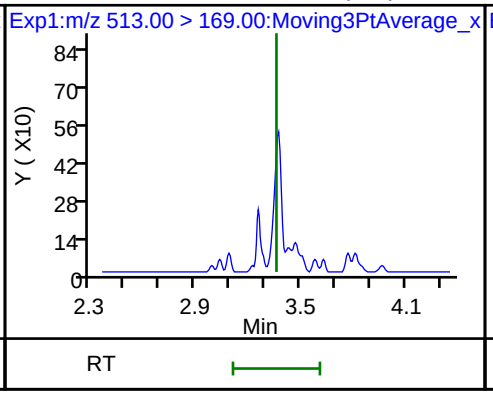
22 Perfluorooctane Sulfonamide



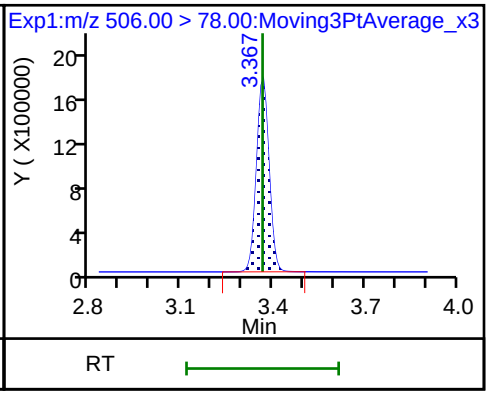
24 Perfluorodecanoic acid (ND)



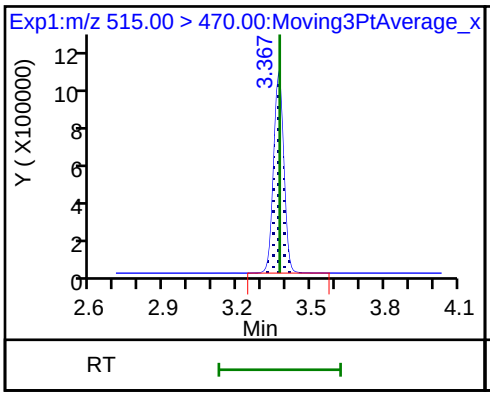
24 Perfluorodecanoic acid (ND)



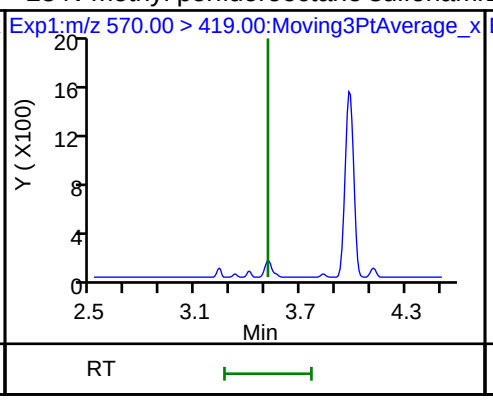
D 21 13C8 FOSA



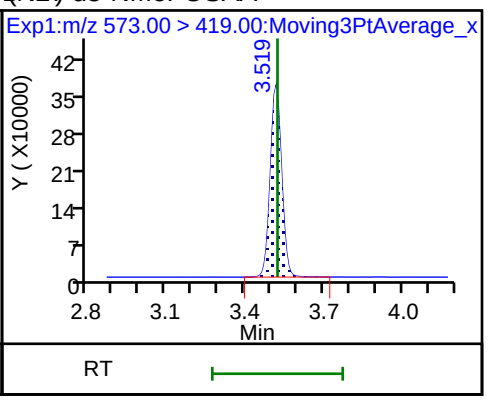
D 23 13C2 PFDA



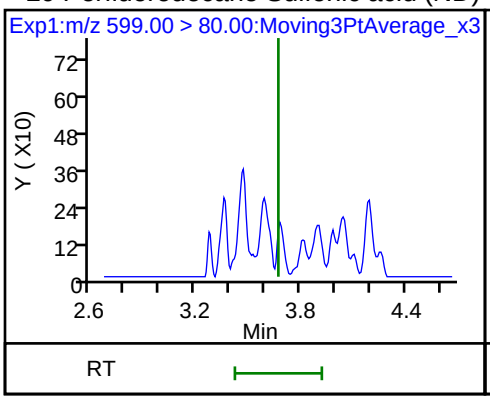
28 N-methyl perfluorooctane sulfonamid (ND)



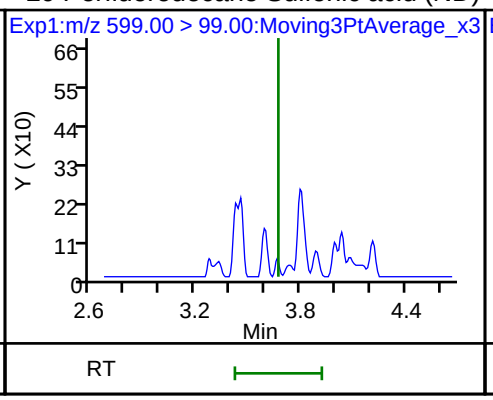
D 27 d3-NMeFOSAA



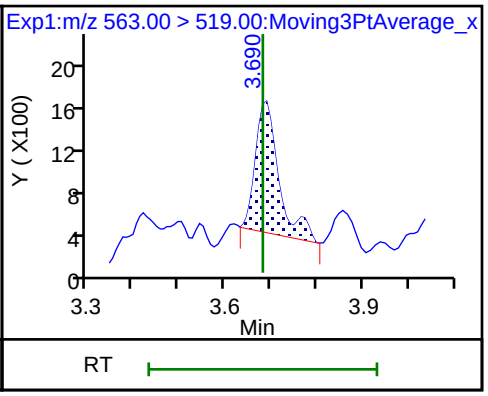
29 Perfluorodecane Sulfonic acid (ND)



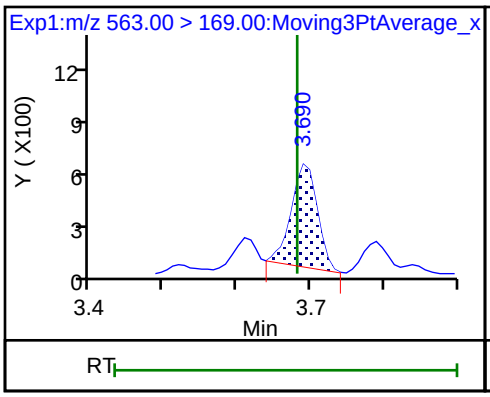
29 Perfluorodecane Sulfonic acid (ND)



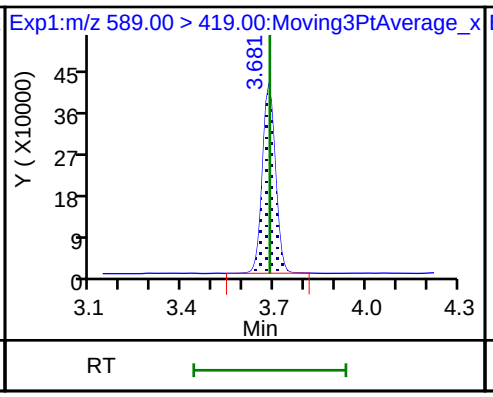
31 Perfluoroundecanoic acid



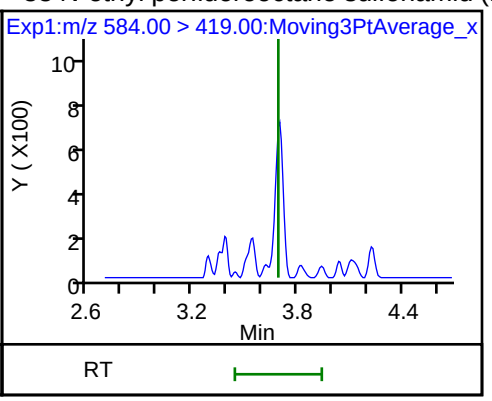
31 Perfluoroundecanoic acid



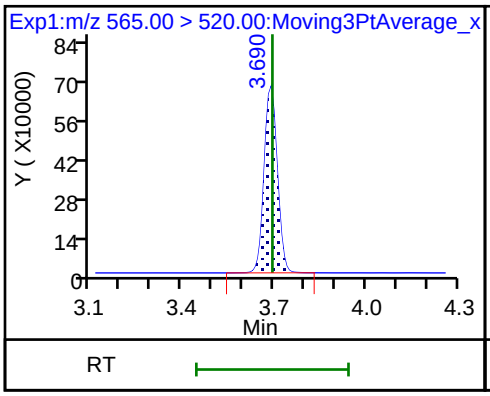
D 32 d5-NEtFOSAA



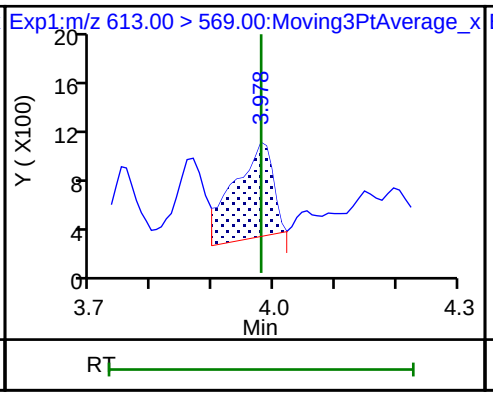
33 N-ethyl perfluorooctane sulfonamid (ND)



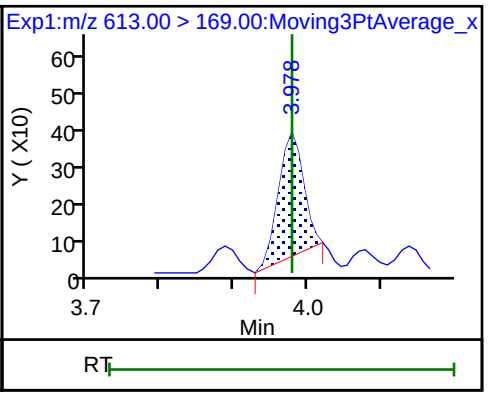
D 30 13C2 PFUnA



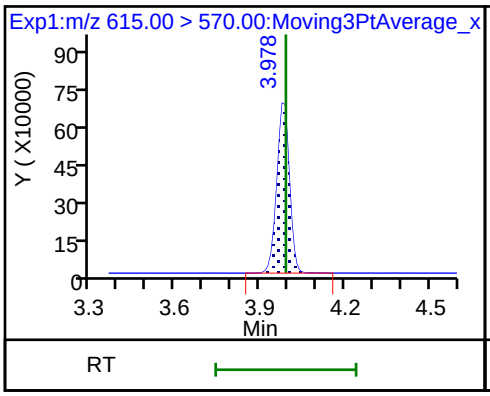
37 Perfluorododecanoic acid



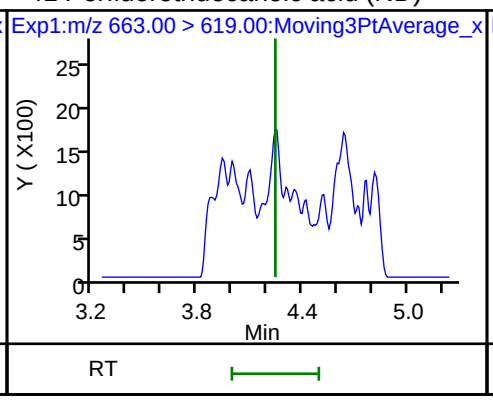
37 Perfluorododecanoic acid



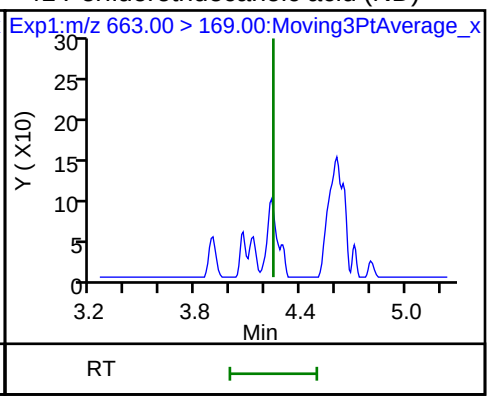
D 36 13C2 PFDoA



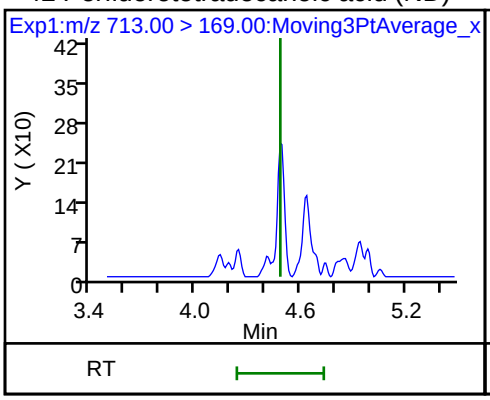
41 Perfluorotridecanoic acid (ND)



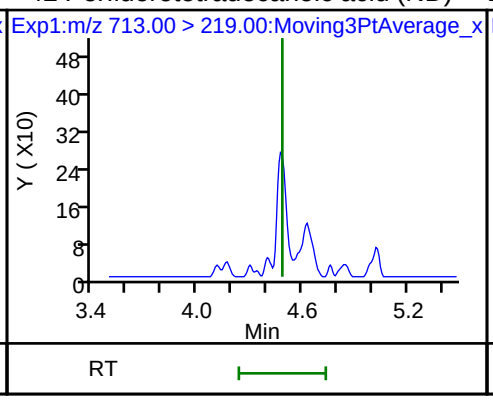
41 Perfluorotridecanoic acid (ND)



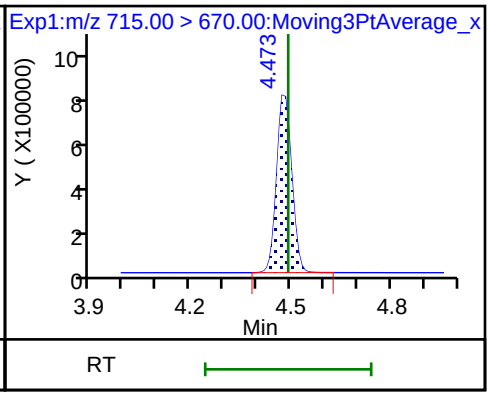
42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



D 43 13C2-PFTeDA



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

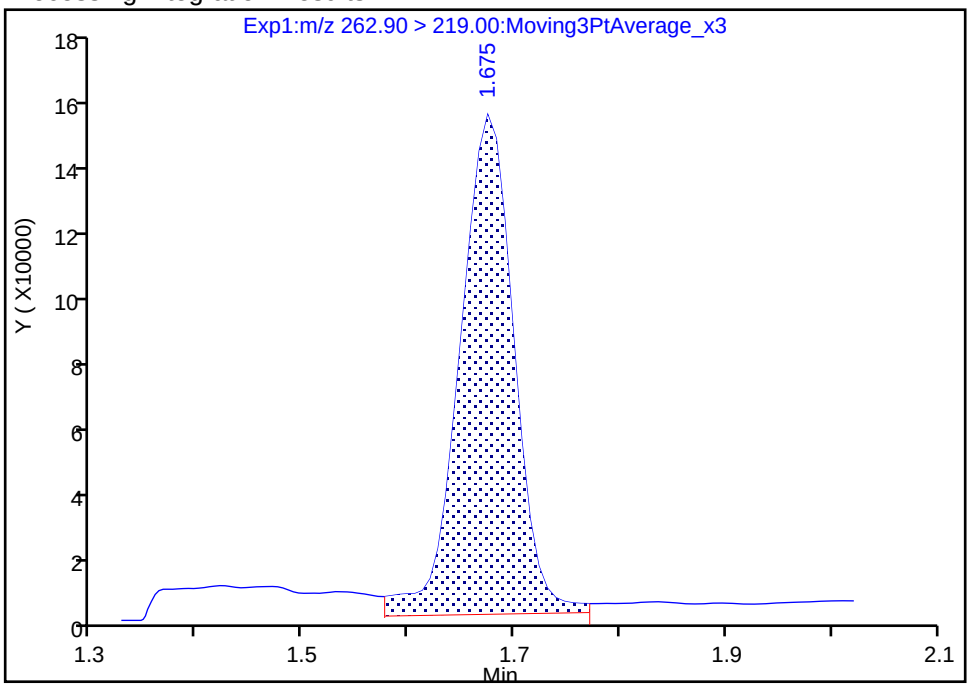
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_039.d				
Injection Date:	30-Aug-2018 00:53:28	Instrument ID:	A8_N		
Lims ID:	320-42265-A-2-A	Lab Sample ID:	320-42265-2		
Client ID:	MW-9D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

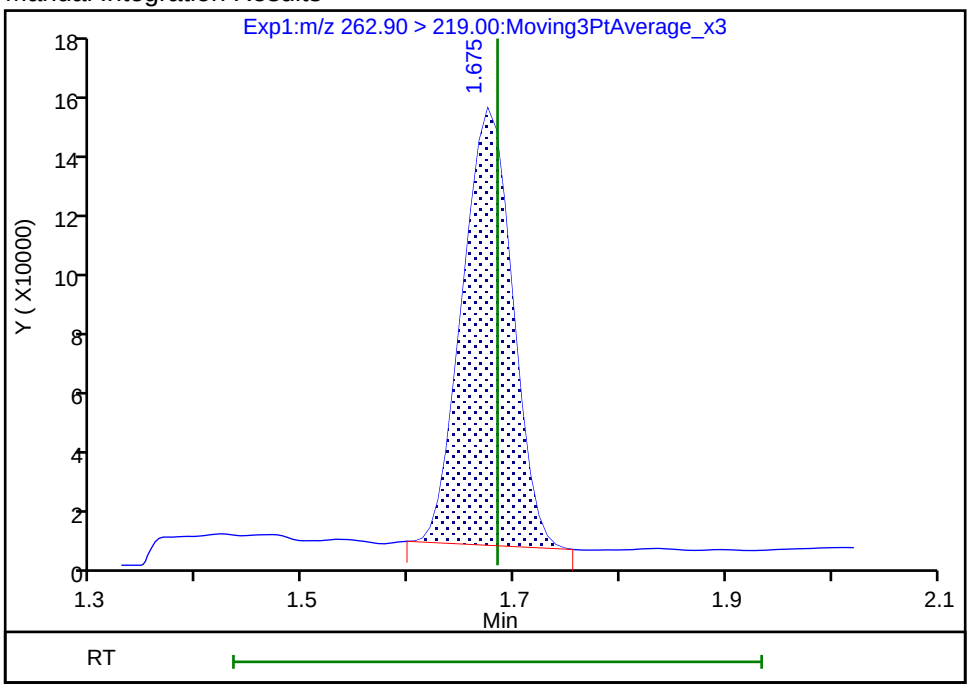
Processing Integration Results

RT: 1.67
Area: 525670
Amount: 0.302694
Amount Units: ng/ml



Manual Integration Results

RT: 1.67
Area: 471149
Amount: 0.271300
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:54:00

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

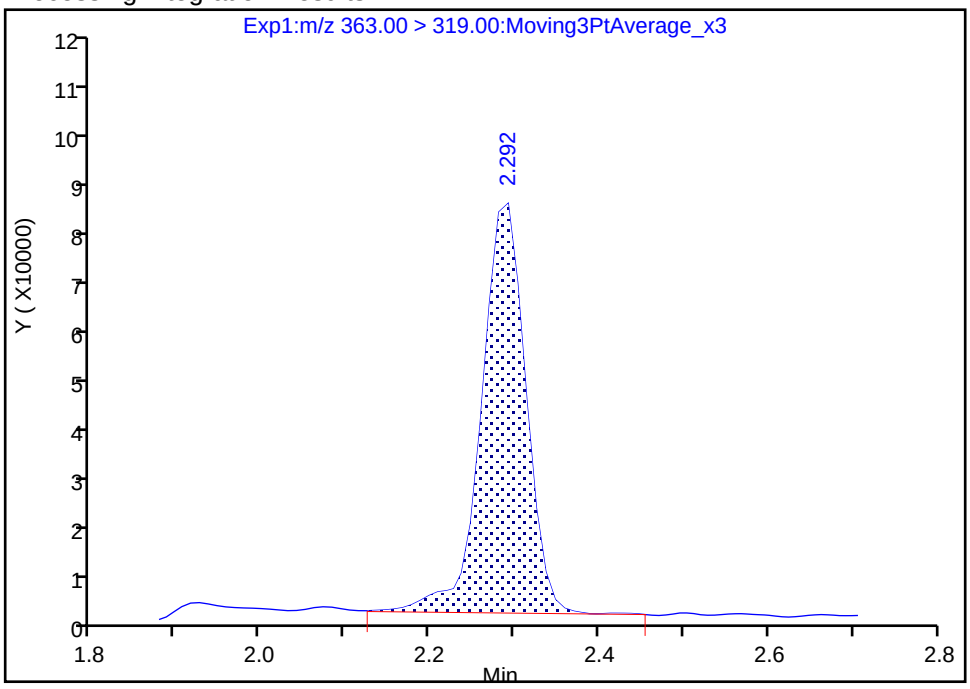
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_039.d				
Injection Date:	30-Aug-2018 00:53:28	Instrument ID:	A8_N		
Lims ID:	320-42265-A-2-A	Lab Sample ID:	320-42265-2		
Client ID:	MW-9D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

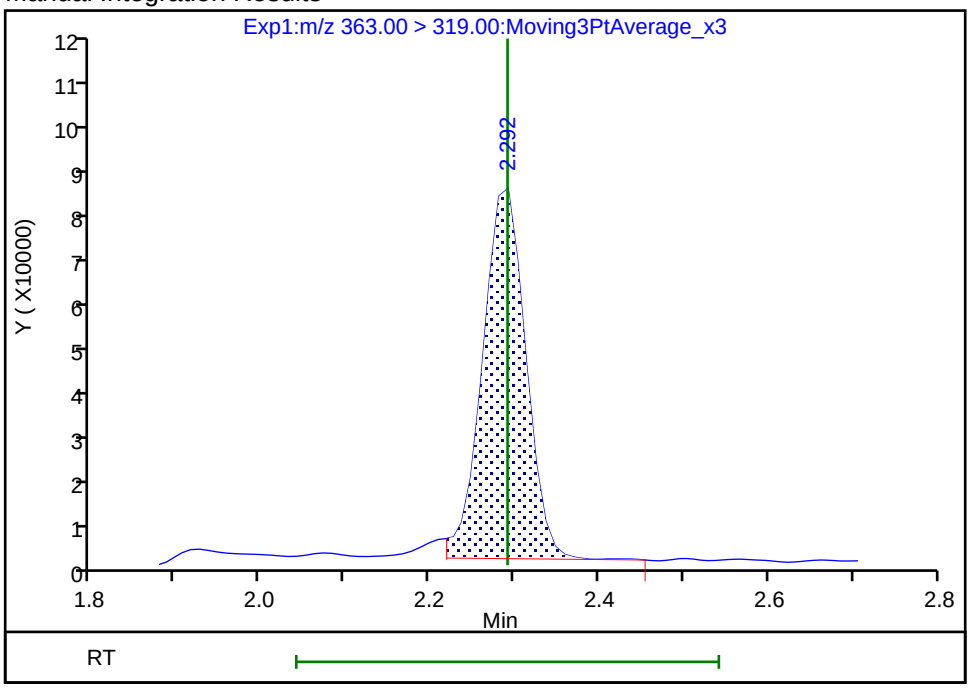
Processing Integration Results

RT: 2.29
Area: 287218
Amount: 0.147723
Amount Units: ng/ml



Manual Integration Results

RT: 2.29
Area: 278151
Amount: 0.143060
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:54:09

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

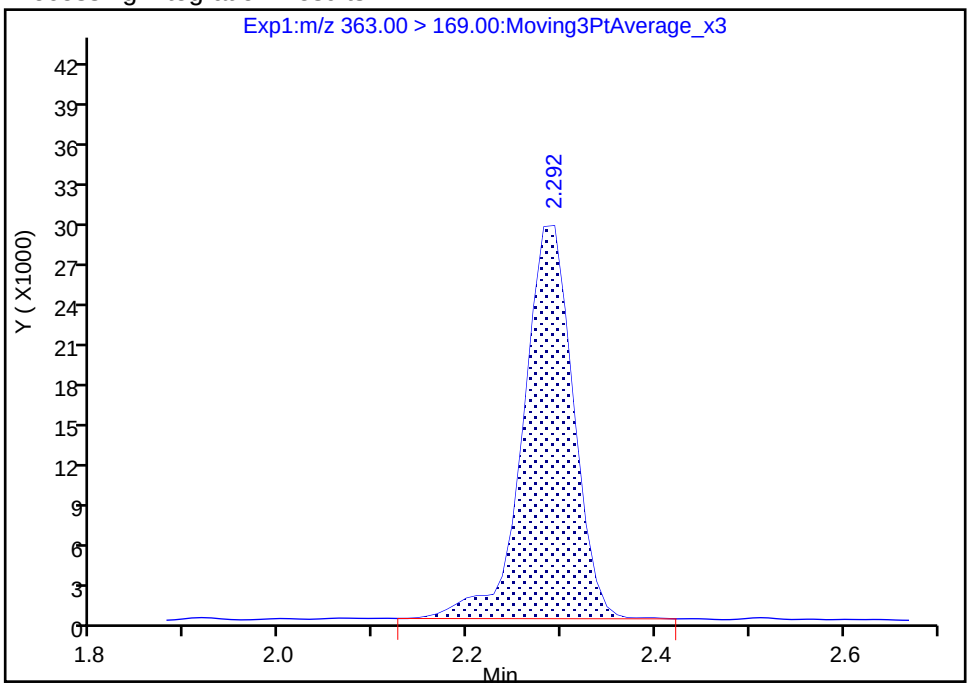
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_039.d				
Injection Date:	30-Aug-2018 00:53:28	Instrument ID:	A8_N		
Lims ID:	320-42265-A-2-A	Lab Sample ID:	320-42265-2		
Client ID:	MW-9D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 2

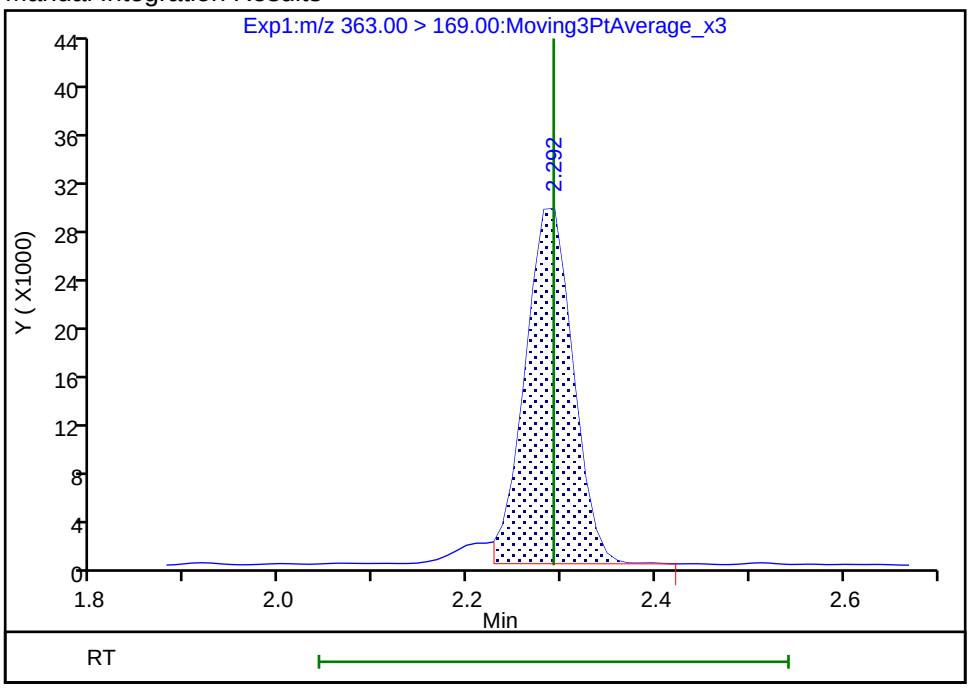
Processing Integration Results

RT: 2.29
Area: 107598
Amount: 0.147723
Amount Units: ng/ml



Manual Integration Results

RT: 2.29
Area: 102777
Amount: 0.143060
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:54:12

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

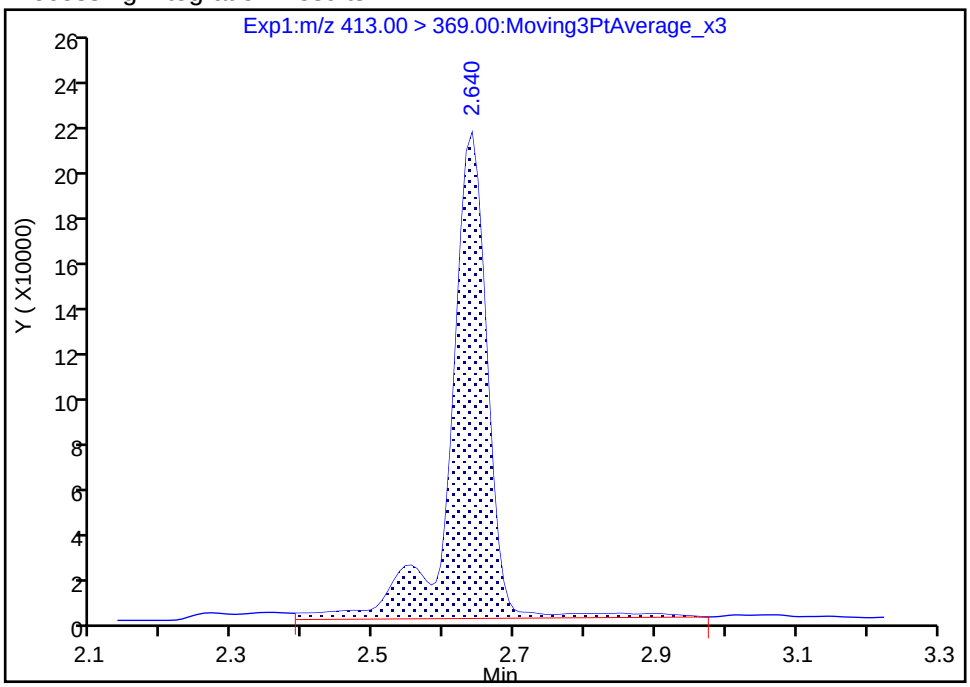
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_039.d				
Injection Date:	30-Aug-2018 00:53:28	Instrument ID:	A8_N		
Lims ID:	320-42265-A-2-A	Lab Sample ID:	320-42265-2		
Client ID:	MW-9D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

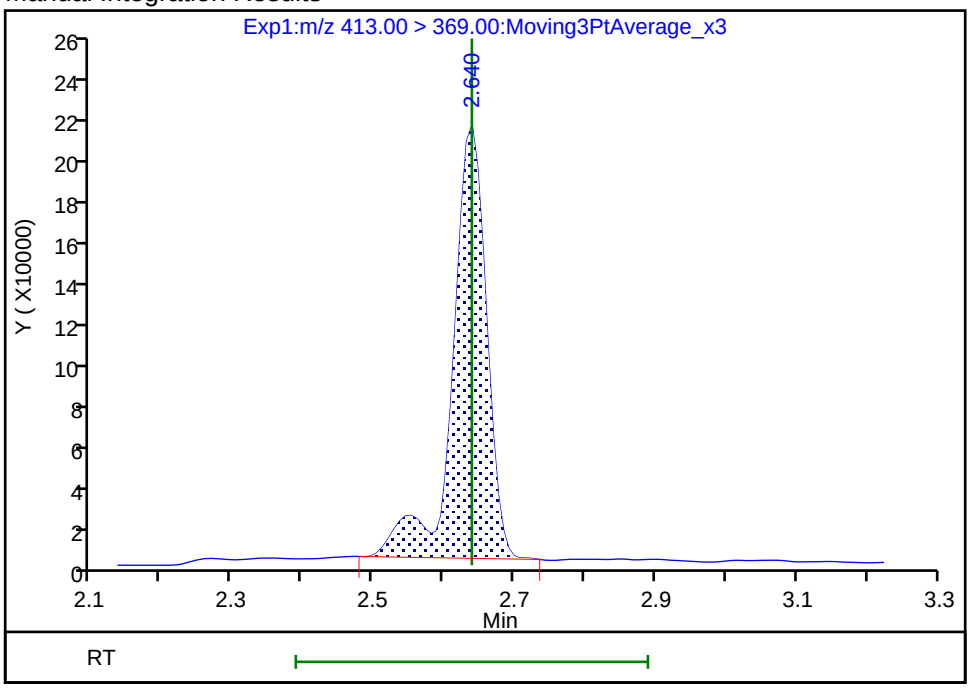
Processing Integration Results

RT: 2.64
Area: 793516
Amount: 0.437549
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 713950
Amount: 0.393676
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:54:26

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

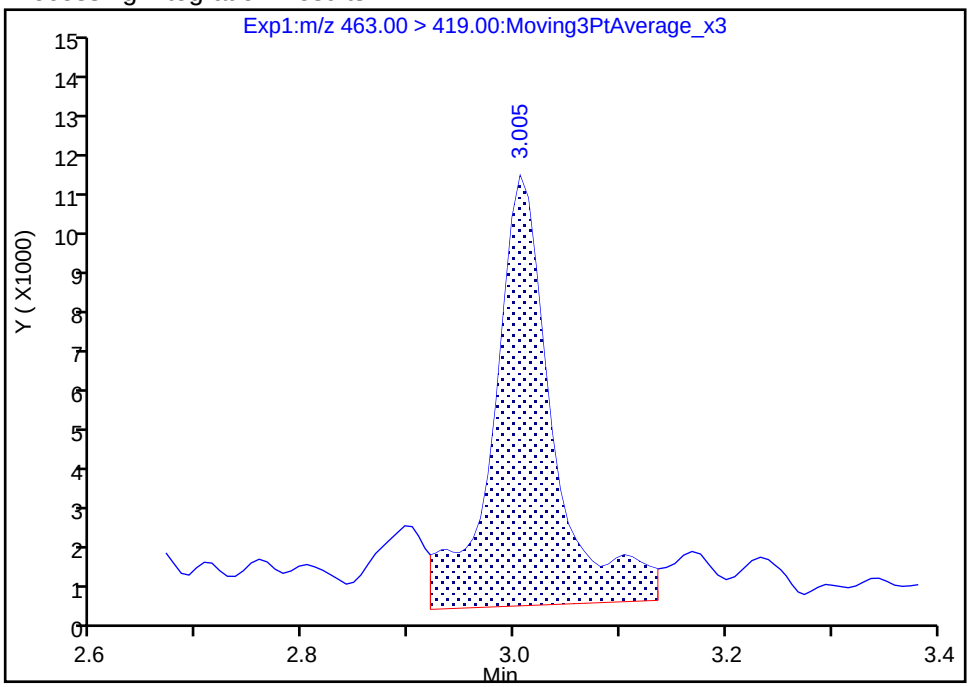
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_039.d				
Injection Date:	30-Aug-2018 00:53:28	Instrument ID:	A8_N		
Lims ID:	320-42265-A-2-A	Lab Sample ID:	320-42265-2		
Client ID:	MW-9D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

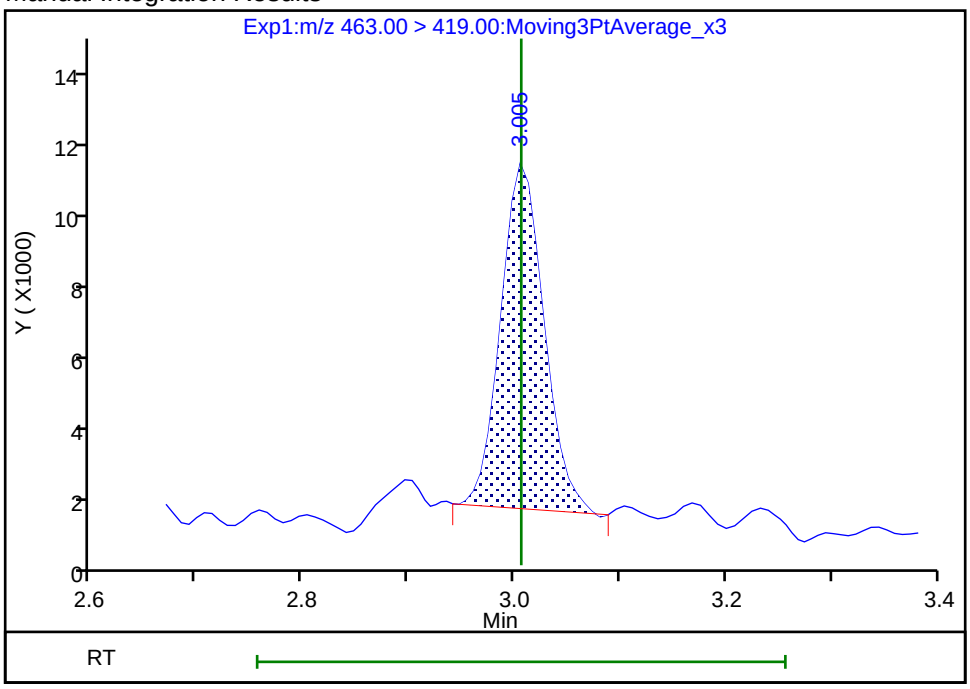
Processing Integration Results

RT: 3.01
Area: 40881
Amount: 0.028822
Amount Units: ng/ml



Manual Integration Results

RT: 3.01
Area: 26283
Amount: 0.018530
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:54:48

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

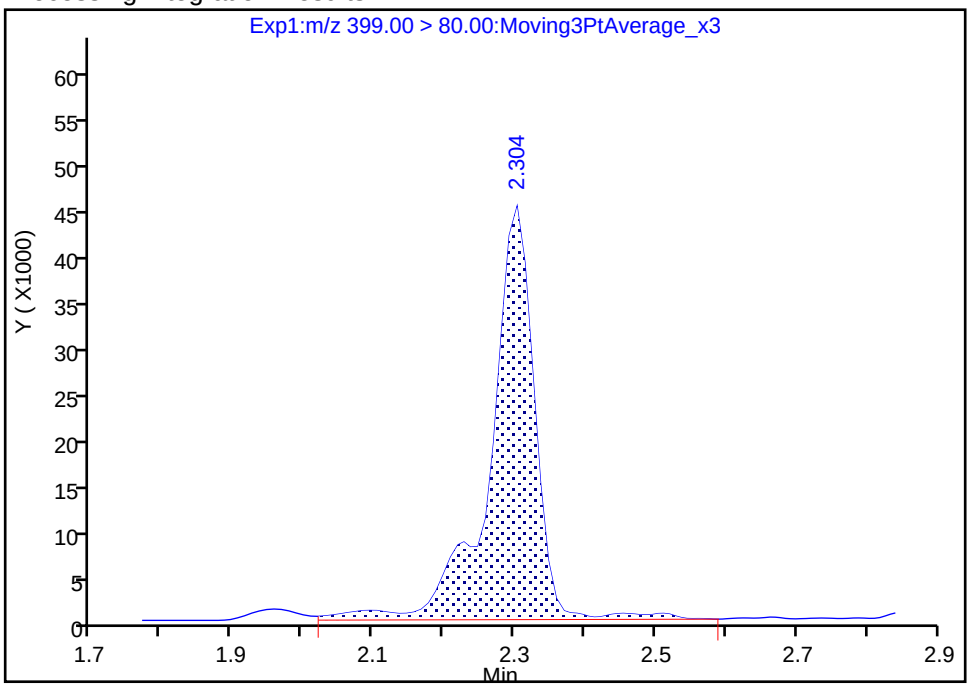
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_039.d				
Injection Date:	30-Aug-2018 00:53:28	Instrument ID:	A8_N		
Lims ID:	320-42265-A-2-A	Lab Sample ID:	320-42265-2		
Client ID:	MW-9D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

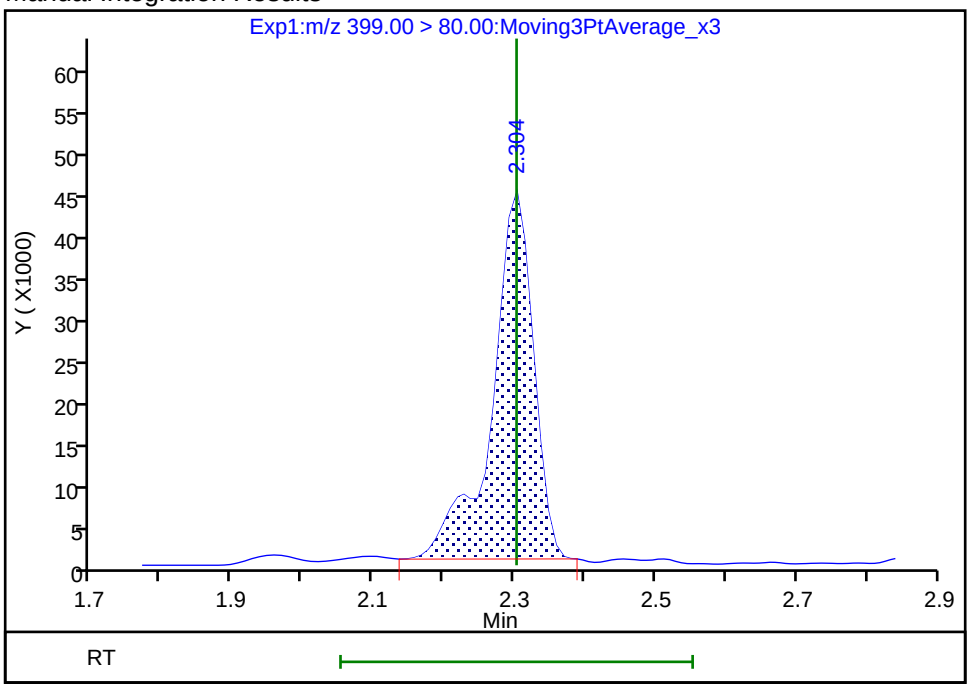
Processing Integration Results

RT: 2.30
Area: 199953
Amount: 0.080146
Amount Units: ng/ml



Manual Integration Results

RT: 2.30
Area: 179799
Amount: 0.072067
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:54:18

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

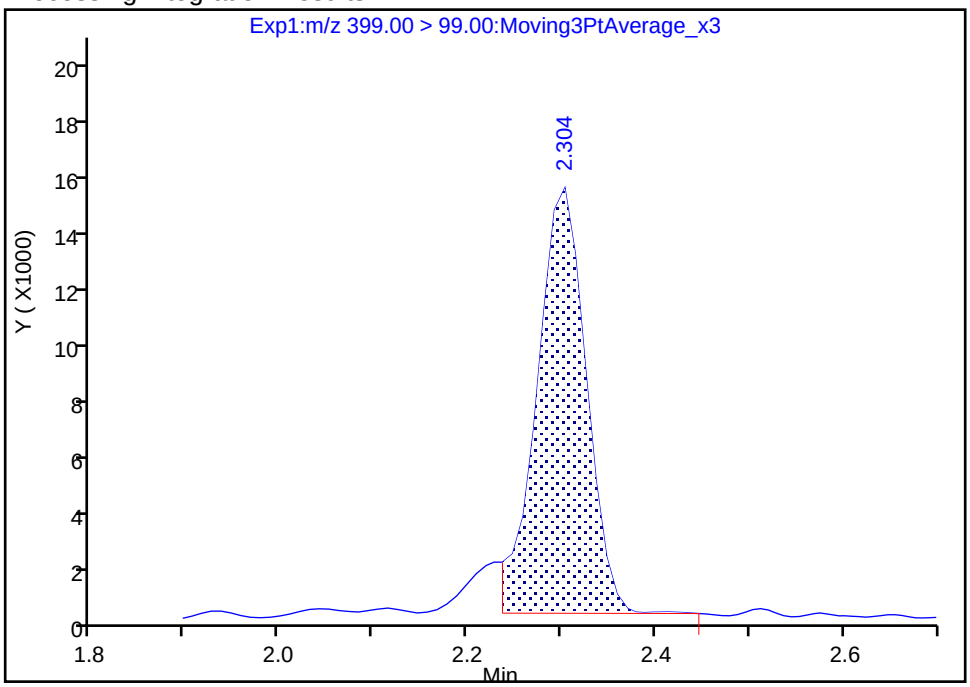
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_039.d				
Injection Date:	30-Aug-2018 00:53:28	Instrument ID:	A8_N		
Lims ID:	320-42265-A-2-A	Lab Sample ID:	320-42265-2		
Client ID:	MW-9D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

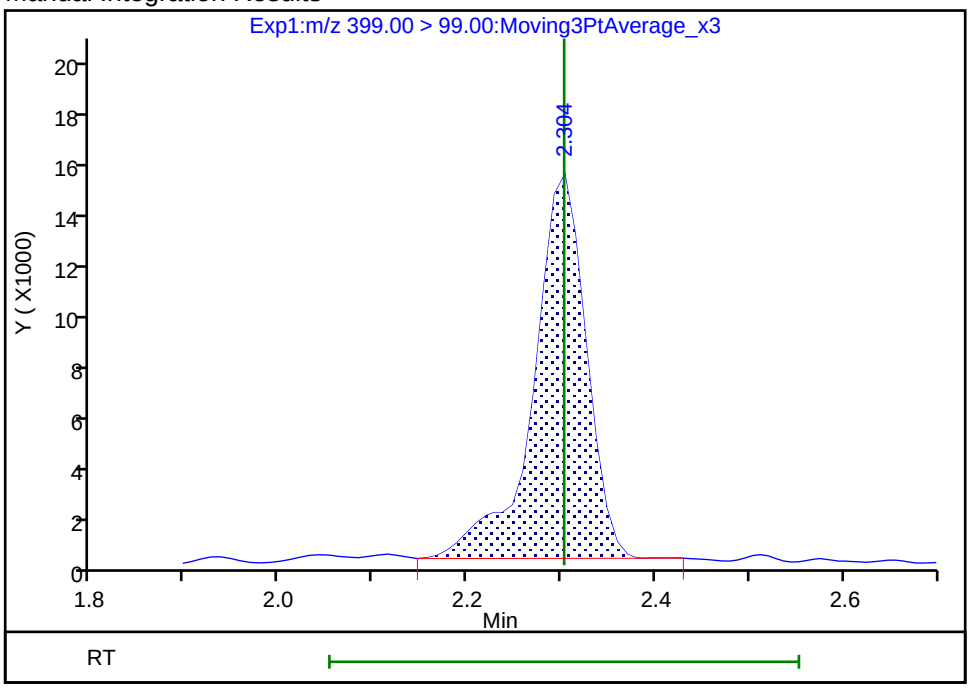
Processing Integration Results

RT: 2.30
Area: 54856
Amount: 0.080146
Amount Units: ng/ml



Manual Integration Results

RT: 2.30
Area: 59189
Amount: 0.072067
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:54:20

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-4S | Lab Sample ID: 320-42265-3

Matrix: Water | Lab File ID: 2018.08.29LLB_040.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 13:20

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 242.6(mL) | Date Analyzed: 08/30/2018 01:01

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	9.0		2.1	0.36
2706-90-3	Perfluoropentanoic acid (PFPeA)	19		2.1	0.50
307-24-4	Perfluorohexanoic acid (PFHxA)	12		2.1	0.60
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.9		2.1	0.26
335-67-1	Perfluorooctanoic acid (PFOA)	13		2.1	0.88
375-95-1	Perfluorononanoic acid (PFNA)	0.42	J	2.1	0.28
335-76-2	Perfluorodecanoic acid (PFDA)	ND		2.1	0.32
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.57	J B	2.1	0.30
375-73-5	Perfluorobutanesulfonic acid (PFBS)	7.5		2.1	0.21
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.9	B	2.1	0.18
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.29	J	2.1	0.20
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	4.1		2.1	0.56
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33
754-91-6	Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0
27619-97-2	6:2 FTS	2.1	J	21	2.1
39108-34-4	8:2 FTS	ND		21	2.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-4S | Lab Sample ID: 320-42265-3

Matrix: Water | Lab File ID: 2018.08.29LLB_040.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 13:20

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 242.6(mL) | Date Analyzed: 08/30/2018 01:01

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	66		25-150
STL01893	13C5 PFPeA	70		25-150
STL00993	13C2 PFHxA	75		25-150
STL01892	13C4-PFHpA	81		25-150
STL00990	13C4 PFOA	81		25-150
STL00995	13C5 PFNA	82		25-150
STL00996	13C2 PFDA	77		25-150
STL00997	13C2 PFUnA	67		25-150
STL00998	13C2 PFDoA	59		25-150
STL02116	13C2-PFTeDA	52		25-150
STL02337	13C3-PFBS	69		25-150
STL00994	18O2 PFHxS	77		25-150
STL00991	13C4 PFOS	72		25-150
STL01056	13C8 FOSA	73		25-150
STL02118	d3-NMeFOSAA	67		25-150
STL02117	d5-NEtFOSAA	64		25-150
STL02279	M2-6:2FTS	104		25-150
STL02280	M2-8:2FTS	89		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_040.d
Lims ID: 320-42265-A-3-A
Client ID: MW-4S
Sample Type: Client
Inject. Date: 30-Aug-2018 01:01:17 ALS Bottle#: 30 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-42265-a-3-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:56:16 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:56:16

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.416	1.421	-0.005	0.536	5395979	1.66		66.4	8129	
2 Perfluorobutyric acid										
212.90 > 169.00	1.421	1.424	-0.003	1.004	417832	0.2178			33.6	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.686	1.684	0.002	1.000	775894	0.4649			14.6	
D 3 13C5-PFPeA										
267.90 > 223.00	1.686	1.687	-0.001	0.638	3618171	1.76		70.5	5303	
D 47 13C3-PFBS										
301.90 > 83.00	1.719	1.720	-0.001	0.650	77845	1.60		68.9	158	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.719	1.724	-0.005	1.000	457637	0.1826			25.5	
298.90 > 99.00	1.719	1.724	-0.005	1.000	193635		2.36(1.25-3.74)		41.2	
D 7 13C2 PFHxA										
315.00 > 270.00	1.975	1.966	0.009	0.747	4312139	1.87		74.9	8135	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.975	1.970	0.005	1.000	520301	0.2996			27.8	
313.00 > 119.00	1.975	1.970	0.005	1.000	44534		11.68(5.03-15.10)		65.2	
D 9 13C4-PFHpA										
367.00 > 322.00	2.299	2.289	0.010	0.870	4420183	2.04		81.4	9735	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.299	2.292	0.007	1.000	276021	0.1426			29.1	
363.00 > 169.00	2.299	2.292	0.007	1.000	99520		2.77(1.13-3.40)		170	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.310	2.303	0.007	1.000	172356	0.0707			35.0	
399.00 > 99.00	2.310	2.303	0.007	1.000	47786		3.61(1.50-4.49)		32.9	
D 11 18O2 PFHxS										
403.00 > 84.00	2.310	2.311	-0.001	0.874	5269932	1.83		77.2	14454	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.620	2.609	0.011	1.000	39648	0.0517			280	
D 12 M2-6:2FTS										
429.00 > 81.00	2.620	2.613	0.007	0.991	1211638	2.46		104	717	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.643	2.639	0.004	1.000	590525	0.3103			69.2	M
413.00 > 169.00	2.643	2.639	0.004	1.000	328636		1.80(0.84-2.52)		554	M
* 62 13C2-PFOA										
415.00 > 370.00	2.643	2.639	0.004		5256310	2.50			11791	
D 14 13C4 PFOA										
417.00 > 372.00	2.643	2.644	-0.001	1.000	4209202	2.03		81.3	10614	
16 Perfluoroheptanesulfonic acid										R
449.00 > 80.00	2.658	2.647	0.011	0.881	12013	0.006928			0.5	R
449.00 > 99.00	2.665	2.647	0.018	0.884	1347		8.92(1.94-5.82)		1.8	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.016	3.006	0.010	1.000	156465	0.0999			85.3	M
499.00 > 99.00	3.016	3.006	0.010	1.000	26330		5.94(2.31-6.93)		34.9	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.016	3.006	0.010	1.000	14864	0.0103			2.9	
463.00 > 169.00	3.008	3.006	0.002	0.997	3257		4.56(1.90-5.69)		13.1	
D 18 13C4 PFOS										
503.00 > 80.00	3.016	3.009	0.007	1.141	3402304	1.72		72.2	3479	
D 19 13C5 PFNA										
468.00 > 423.00	3.016	3.016	0.0	1.141	3481061	2.05		81.8	7009	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.371	3.347	0.024	1.004	1119	0.001694			5.5	
D 26 M2-8:2FTS										
529.00 > 81.00	3.356	3.357	-0.001	1.270	1220303	2.13		89.0	1816	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.371	3.362	0.009	1.002	7530	0.003683			37.8	
D 21 13C8 FOSA										
506.00 > 78.00	3.364	3.364	0.0	1.273	5299980	1.81		72.6	7660	
D 23 13C2 PFDA										
515.00 > 470.00	3.371	3.372	-0.001	1.276	3039145	1.92		77.0	6883	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.523	3.523	0.0	1.333	1224400	1.66		66.6	3507	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.692	3.681	0.011	1.000	6361	0.007595			4.4	
563.00 > 169.00	3.692	3.681	0.011	1.000	1792		3.55(2.12-6.36)		12.4	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.683	3.685	-0.002	1.394	1302515	1.61		64.5	589	
D 30 13C2 PFUnA										
565.00 > 520.00	3.692	3.693	-0.001	1.397	2290760	1.68		67.1	7327	
D 36 13C2 PFDoA										
615.00 > 570.00	3.988	3.991	-0.003	1.509	2150566	1.48		59.0	6843	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.246	4.244	0.002	1.065	6210	0.006942			2.1	
663.00 > 169.00	4.255	4.244	0.011	1.067	2145		2.90(1.25-3.76)		16.6	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										R
713.00 > 169.00	4.475	4.484	-0.009	0.998	3168	0.0139			39.7	R
713.00 > 219.00	4.475	4.484	-0.009	0.998	1247		2.54(0.71-2.13)		10.7	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.485	4.492	-0.007	1.697	2289532	1.31		52.4	6180	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Report Date: 31-Aug-2018 14:56:17 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_040.d

Injection Date: 30-Aug-2018 01:01:17 Instrument ID: A8_N

Lims ID: 320-42265-A-3-A Lab Sample ID: 320-42265-3

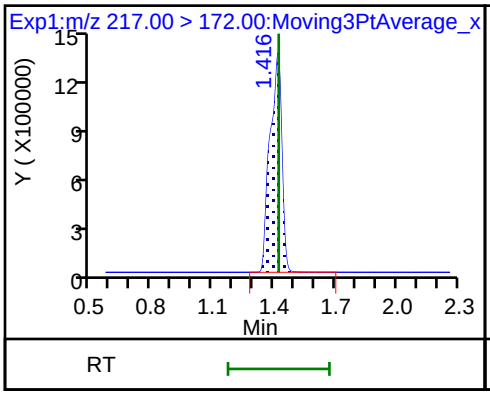
Client ID: MW-4S

Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 9

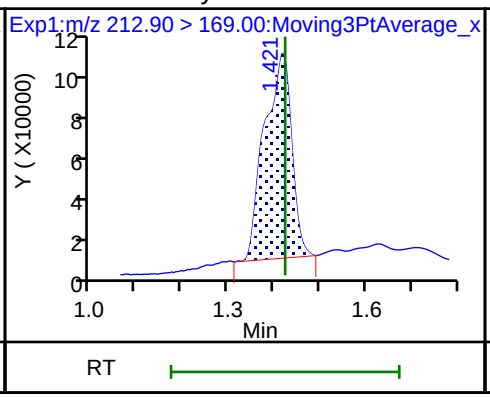
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

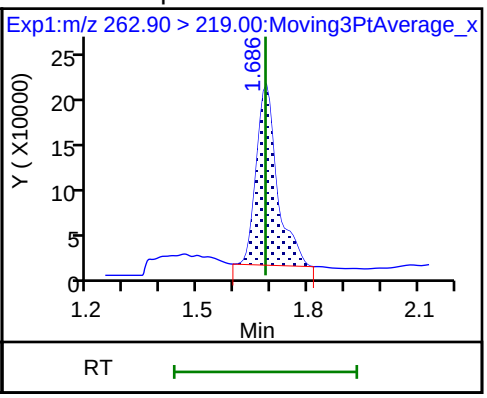
D 1 13C4 PFBA



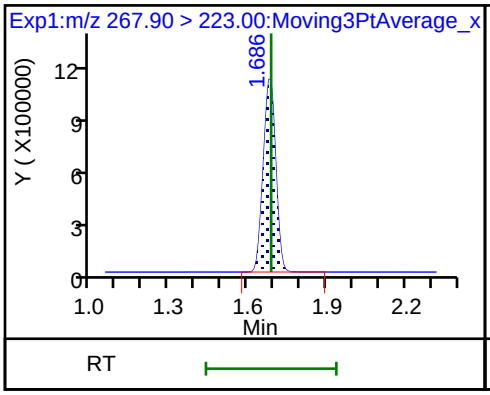
2 Perfluorobutyric acid



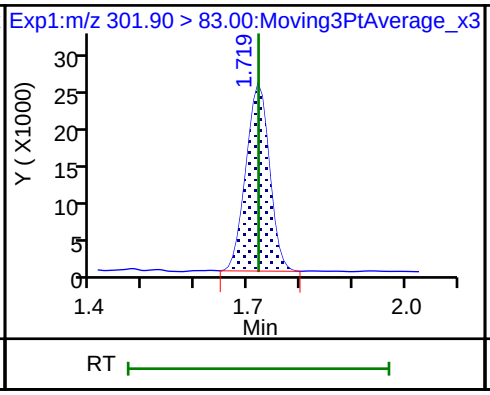
4 Perfluoropentanoic acid



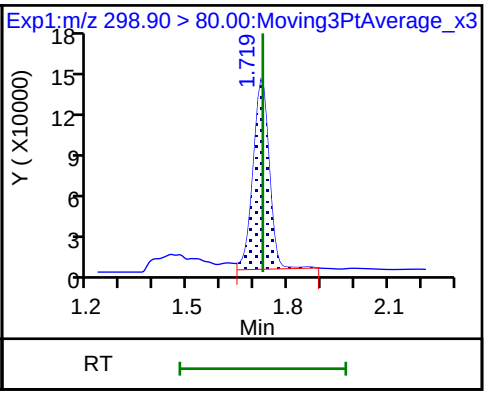
D 3 13C5-PFPeA



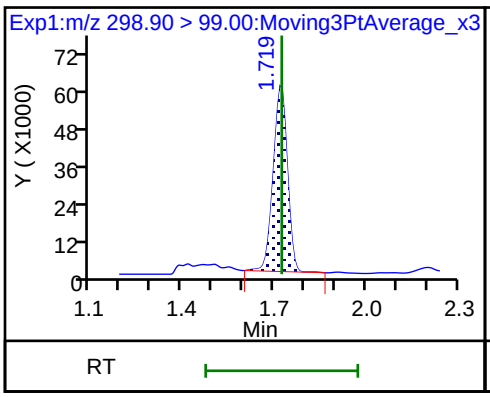
D 47 13C3-PFBS



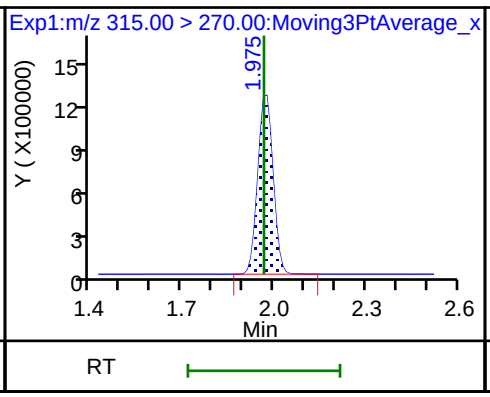
5 Perfluorobutanesulfonic acid



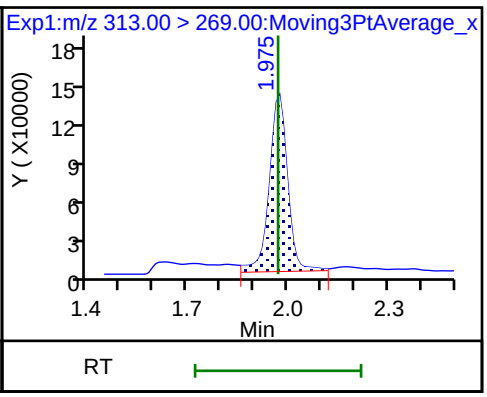
5 Perfluorobutanesulfonic acid



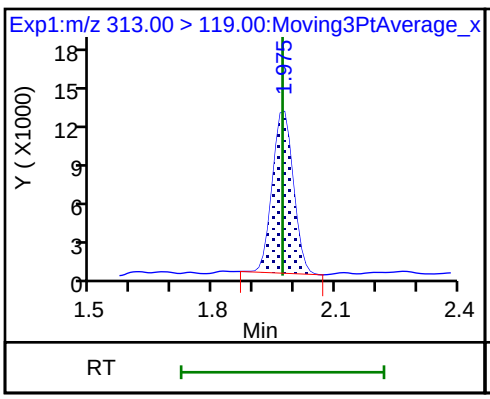
D 7 13C2 PFHxA



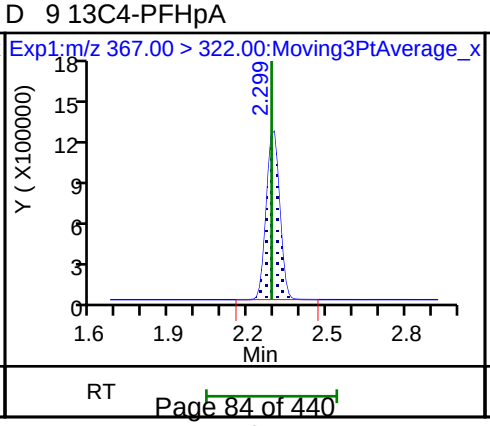
6 Perfluorohexanoic acid



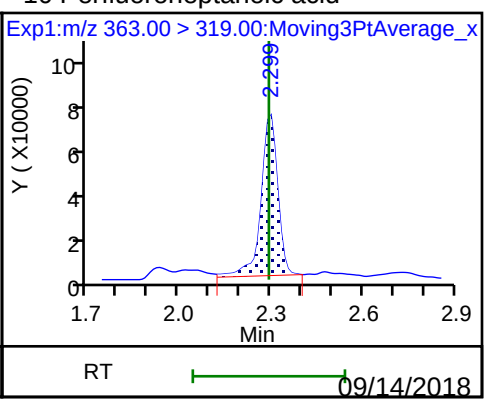
6 Perfluorohexanoic acid



D 9 13C4-PFHpA



10 Perfluoroheptanoic acid



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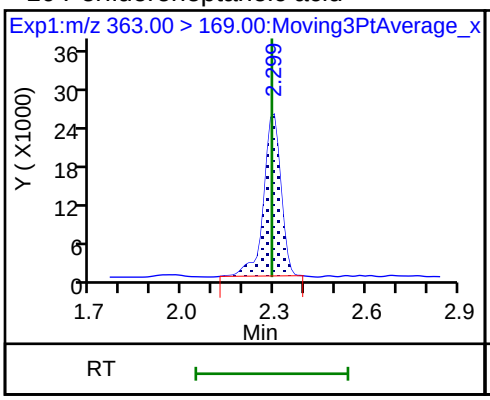
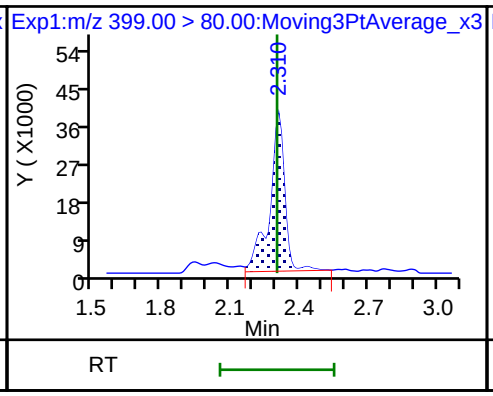
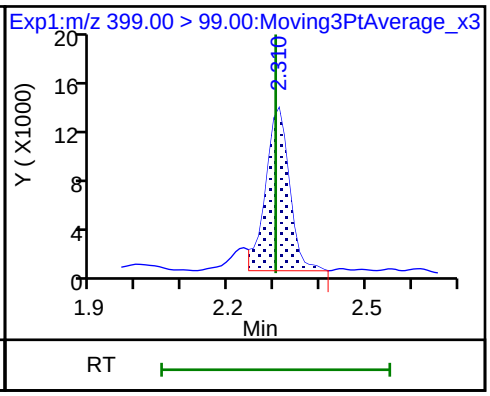


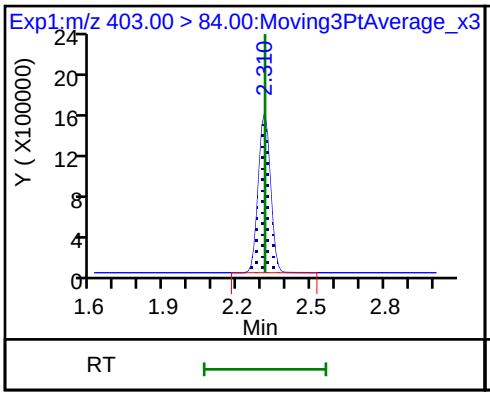
8 Perfluorohexanesulfonic acid



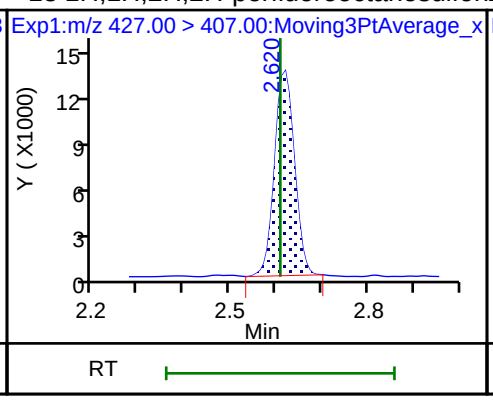
8 Perfluorohexanesulfonic acid



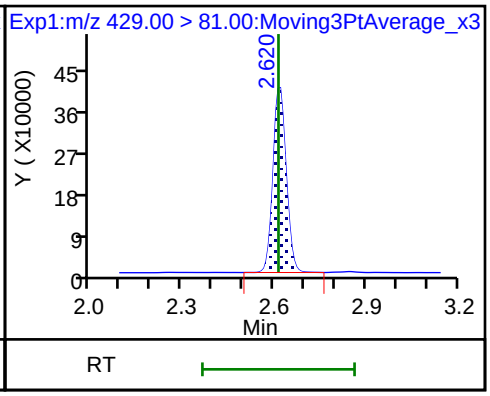
D 11 18O2 PFHxS



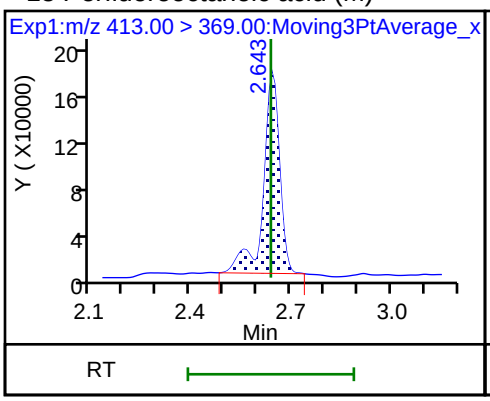
13 1H,1H,2H,2H-perfluorooctanesulfon



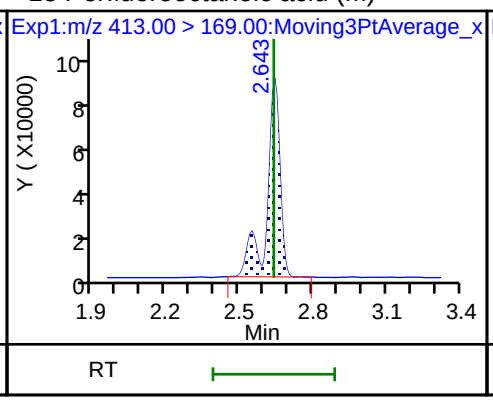
D 12 M2-6:2FTS



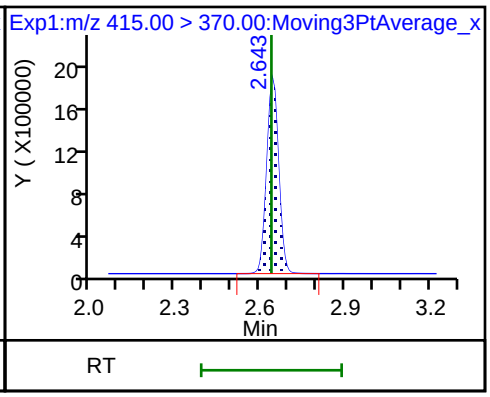
15 Perfluorooctanoic acid (M)



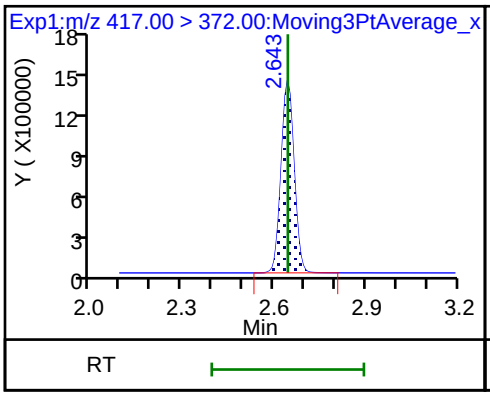
15 Perfluorooctanoic acid (M)



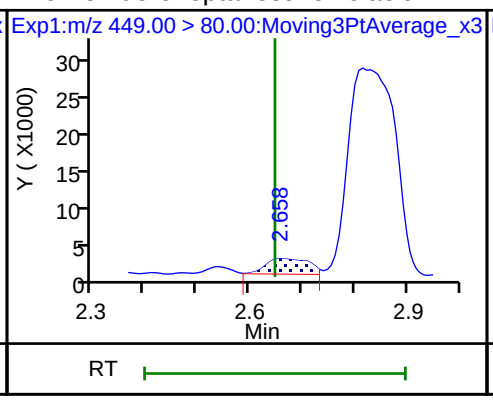
* 62 13C2-PFOA



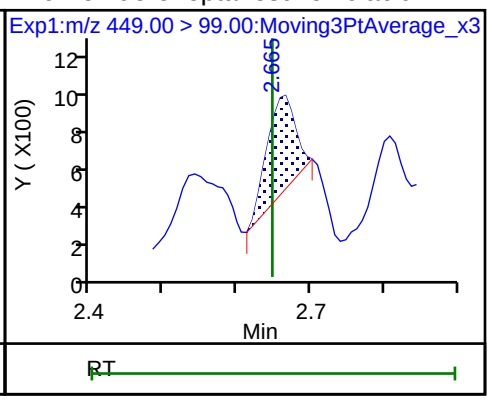
D 14 13C4 PFOA



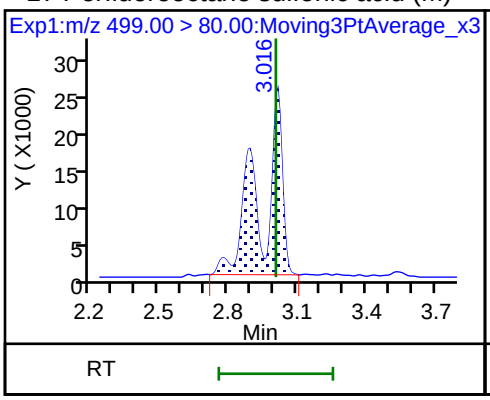
16 Perfluoroheptanesulfonic acid



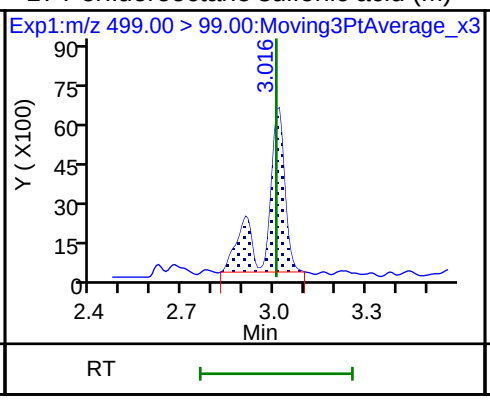
16 Perfluoroheptanesulfonic acid



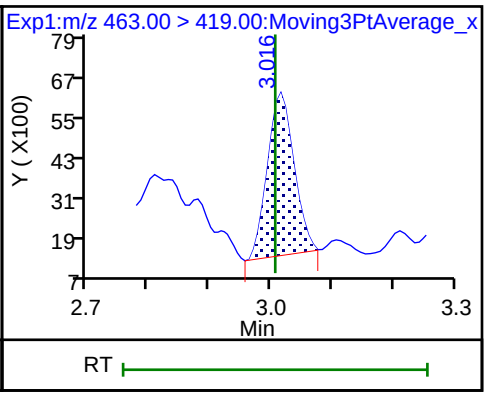
17 Perfluorooctane sulfonic acid (M)



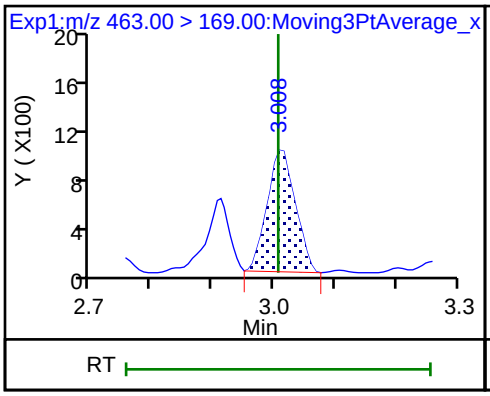
17 Perfluorooctane sulfonic acid (M)



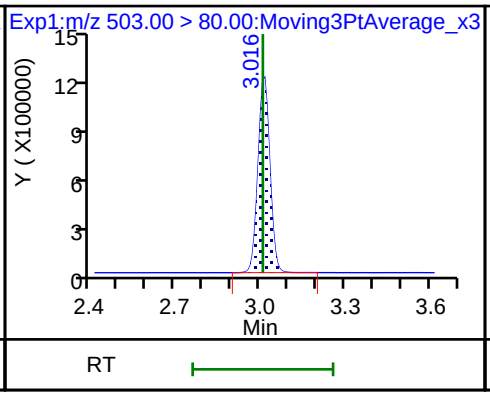
20 Perfluorononanoic acid



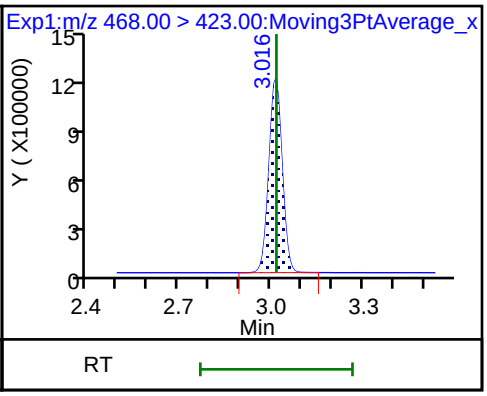
20 Perfluorononanoic acid



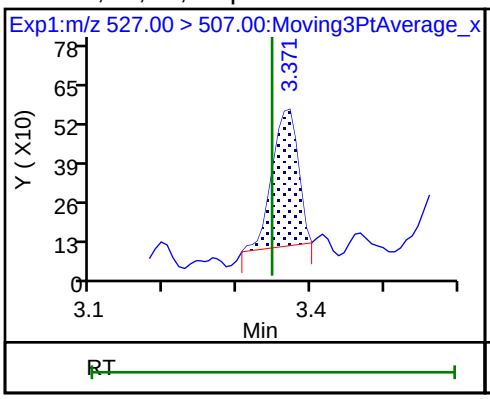
D 18 13C4 PFOS



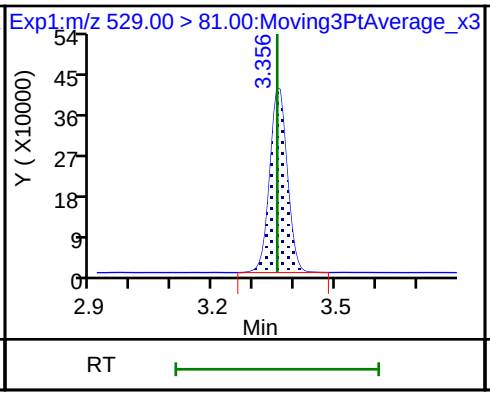
D 19 13C5 PFNA



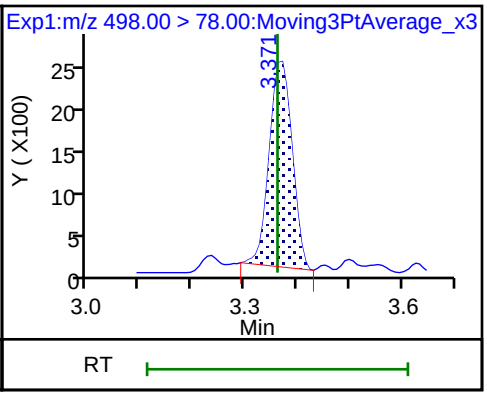
25 1H,1H,2H,2H-perfluorodecanesulfon



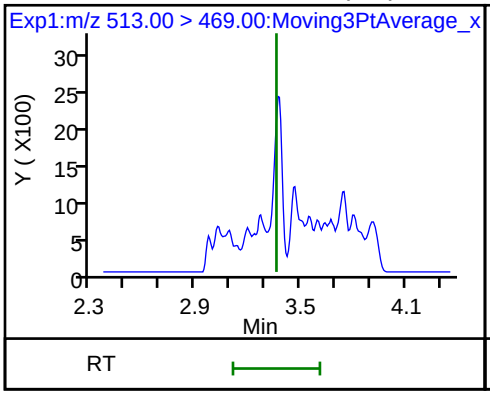
D 26 M2-8:2FTS



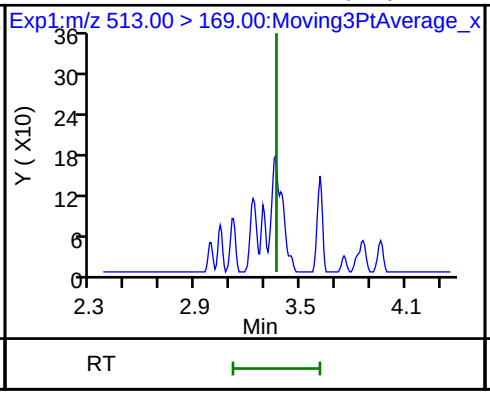
22 Perfluorooctane Sulfonamide



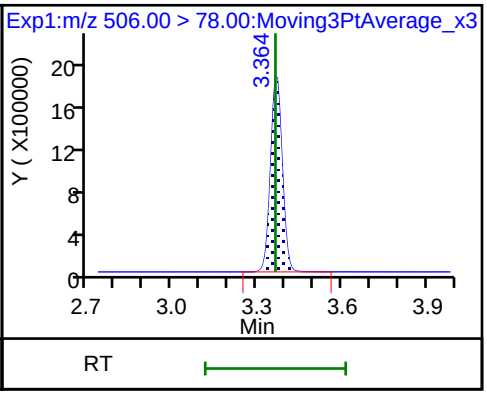
24 Perfluorodecanoic acid (ND)



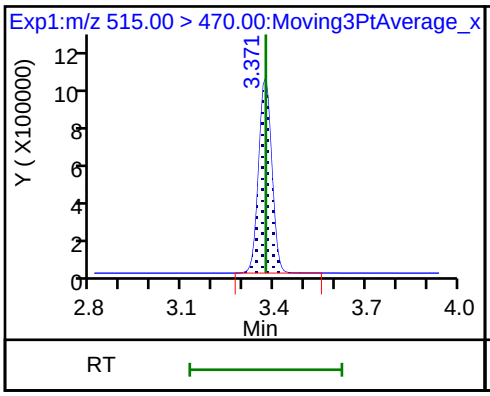
24 Perfluorodecanoic acid (ND)



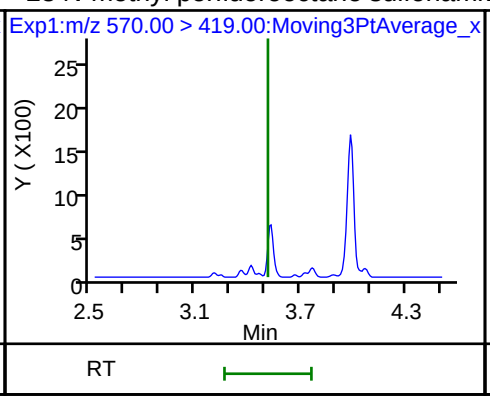
D 21 13C8 FOSA



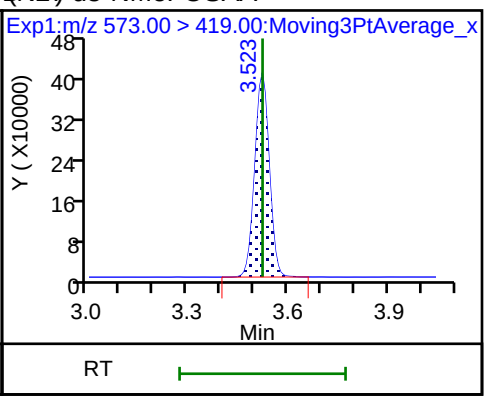
D 23 13C2 PFDA



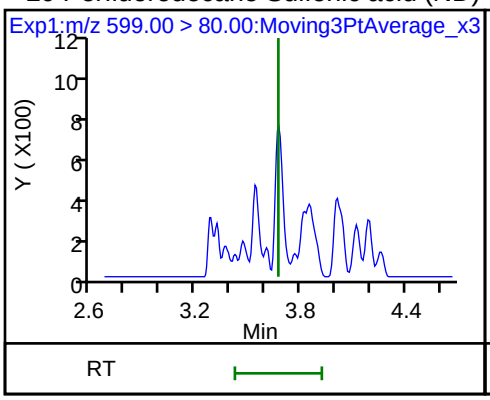
28 N-methyl perfluorooctane sulfonamid (ND)



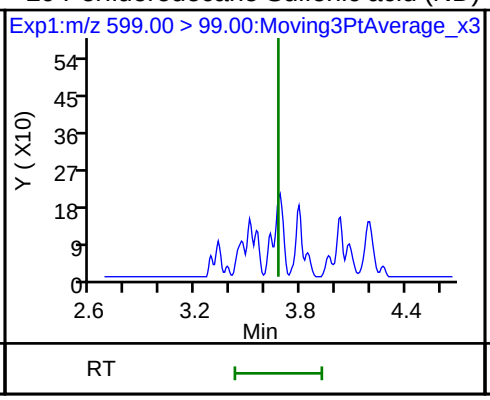
D 27 d3-NMeFOSAA



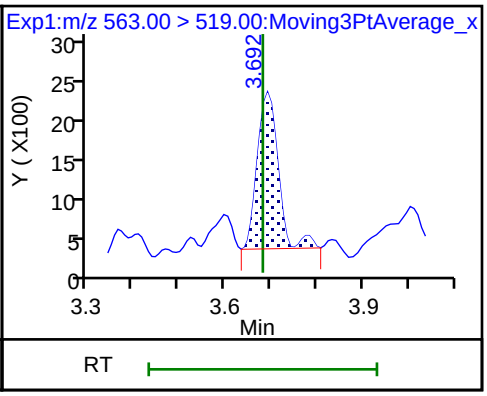
29 Perfluorodecane Sulfonic acid (ND)



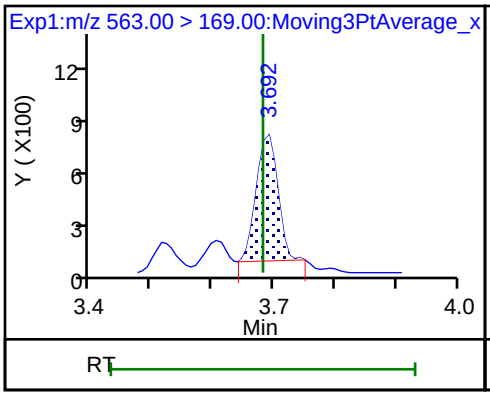
29 Perfluorodecane Sulfonic acid (ND)



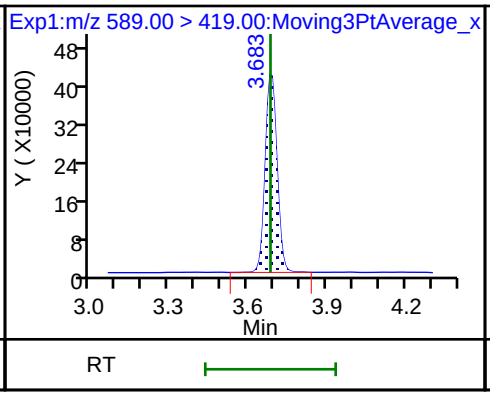
31 Perfluoroundecanoic acid



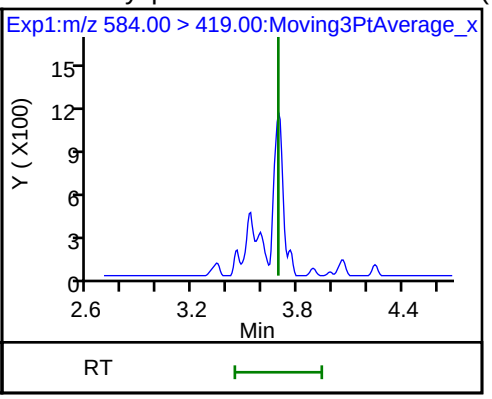
31 Perfluoroundecanoic acid



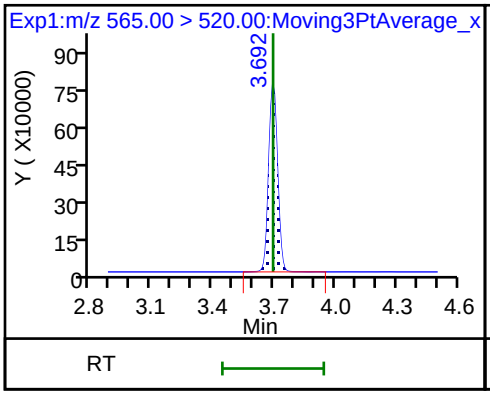
D 32 d5-NEtFOSAA



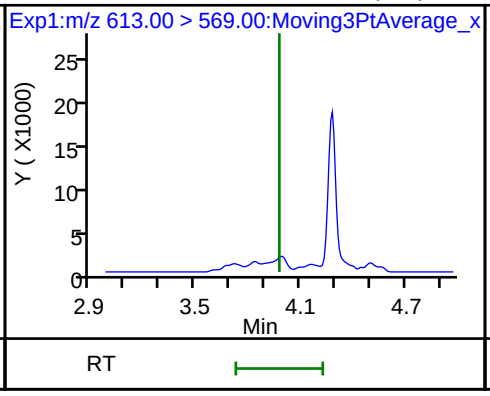
33 N-ethyl perfluorooctane sulfonamid (ND)



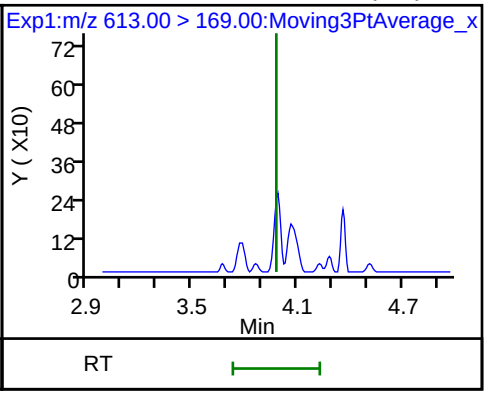
D 30 13C2 PFUnA



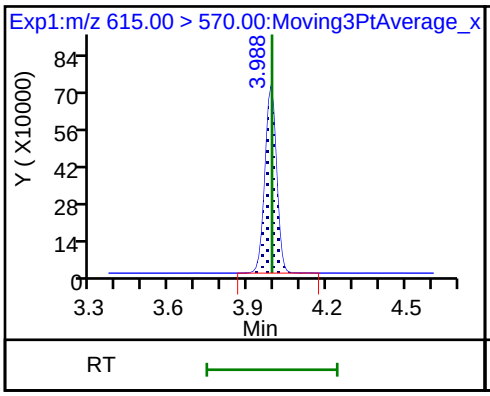
37 Perfluorododecanoic acid (ND)



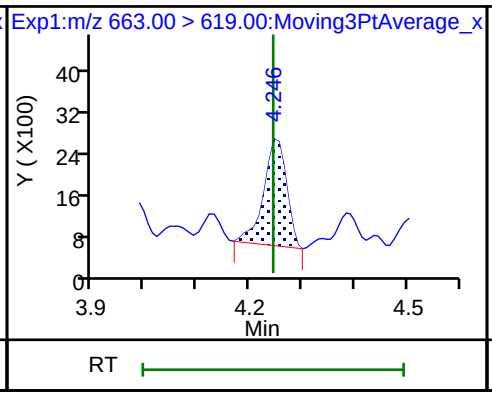
37 Perfluorododecanoic acid (ND)



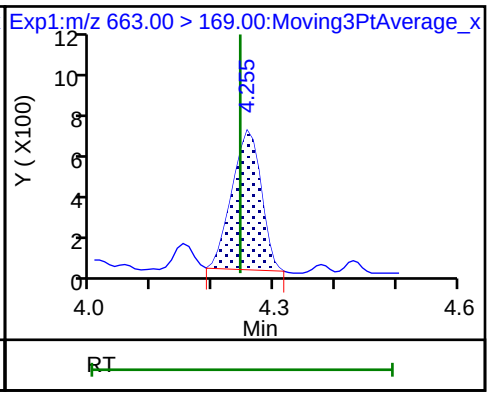
D 36 13C2 PFDoA



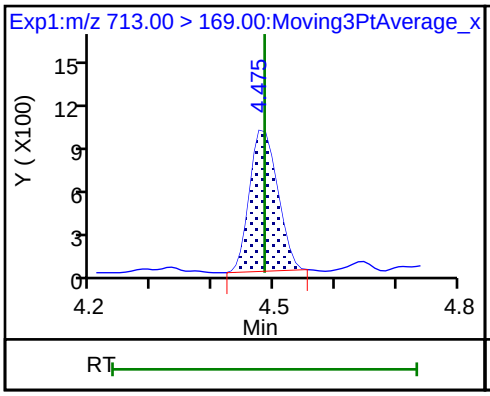
41 Perfluorotridecanoic acid



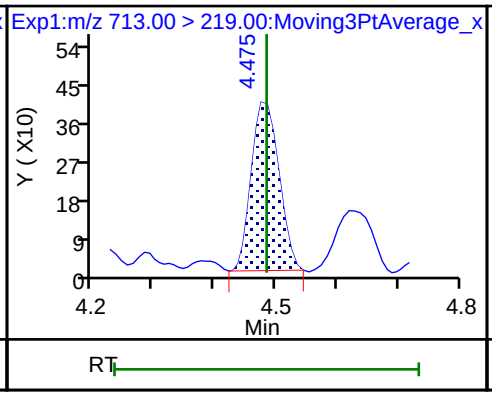
41 Perfluorotridecanoic acid



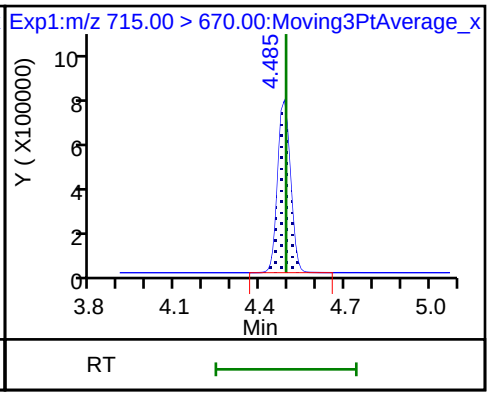
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid



D 43 13C2-PFTeDA



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

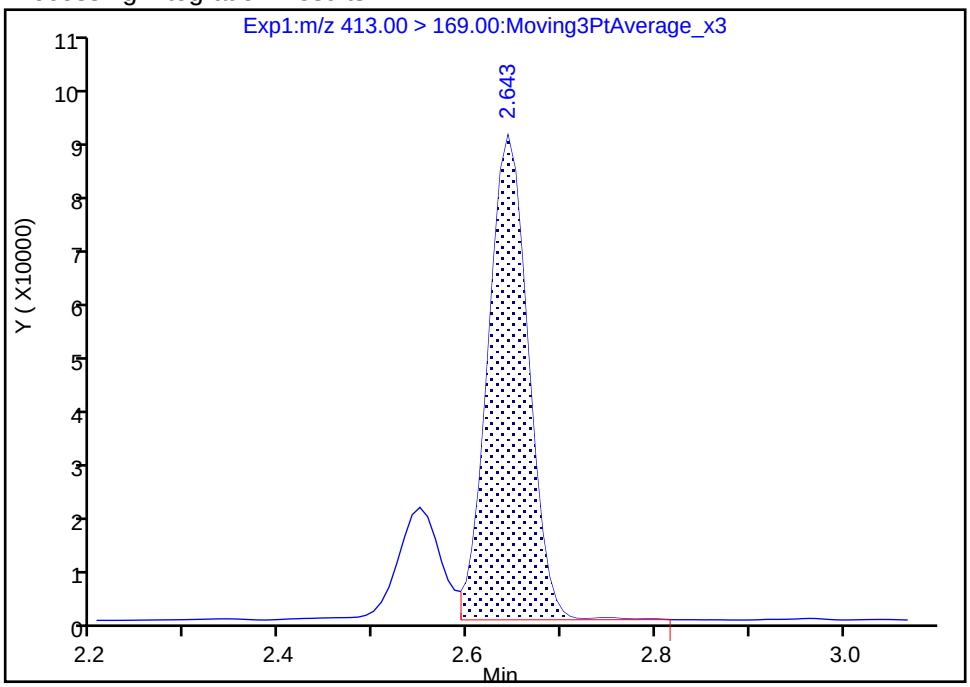
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_040.d				
Injection Date:	30-Aug-2018 01:01:17	Instrument ID:	A8_N		
Lims ID:	320-42265-A-3-A	Lab Sample ID:	320-42265-3		
Client ID:	MW-4S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	30	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

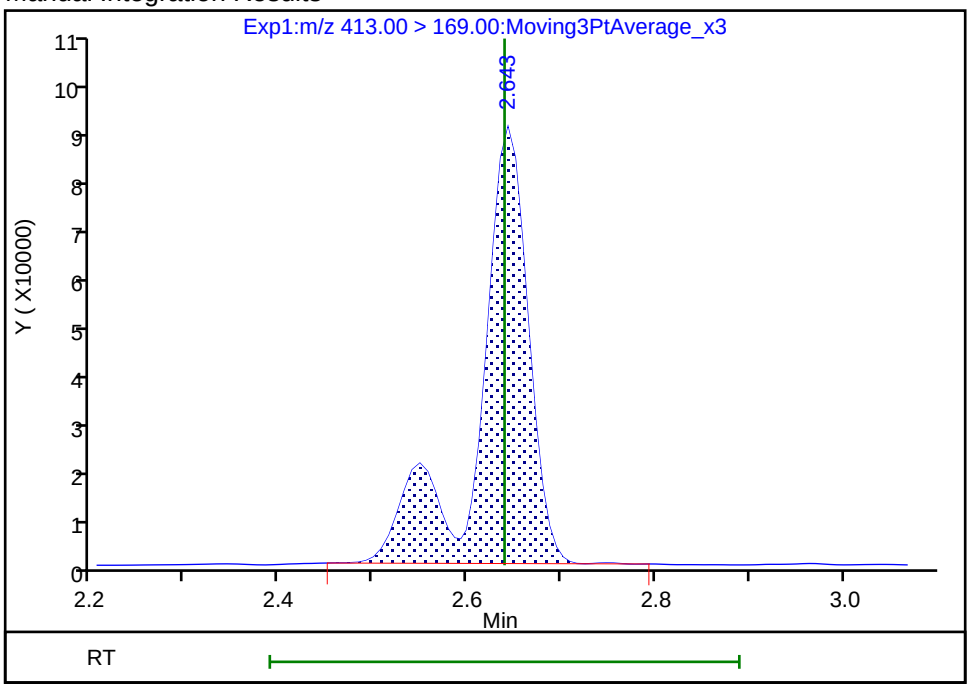
Processing Integration Results

RT: 2.64
Area: 267645
Amount: 0.353839
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 328636
Amount: 0.310300
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:55:46

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

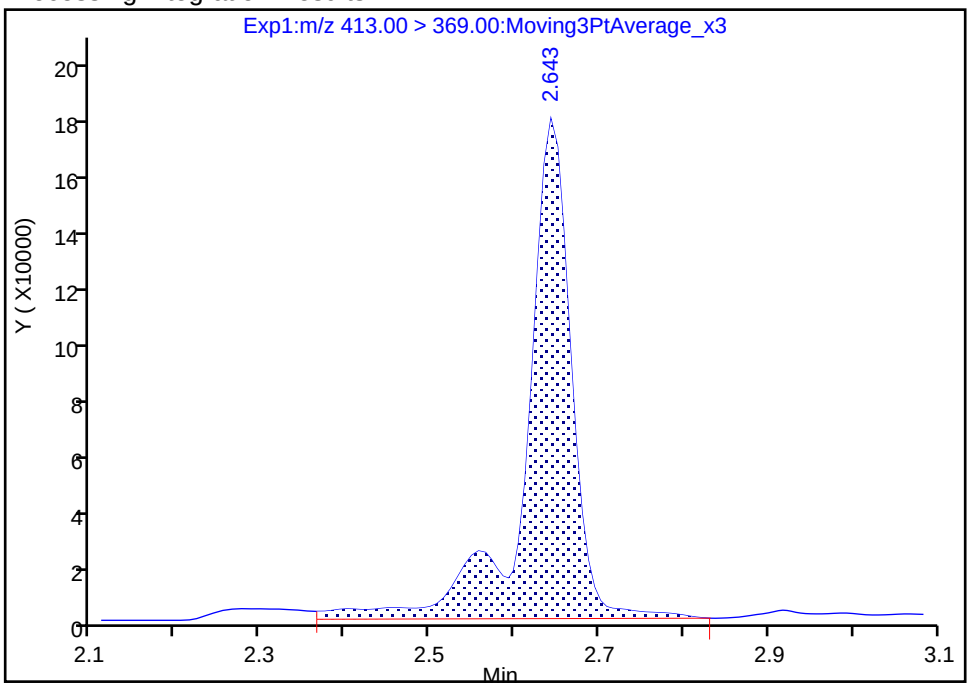
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_040.d				
Injection Date:	30-Aug-2018 01:01:17	Instrument ID:	A8_N		
Lims ID:	320-42265-A-3-A	Lab Sample ID:	320-42265-3		
Client ID:	MW-4S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	30	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

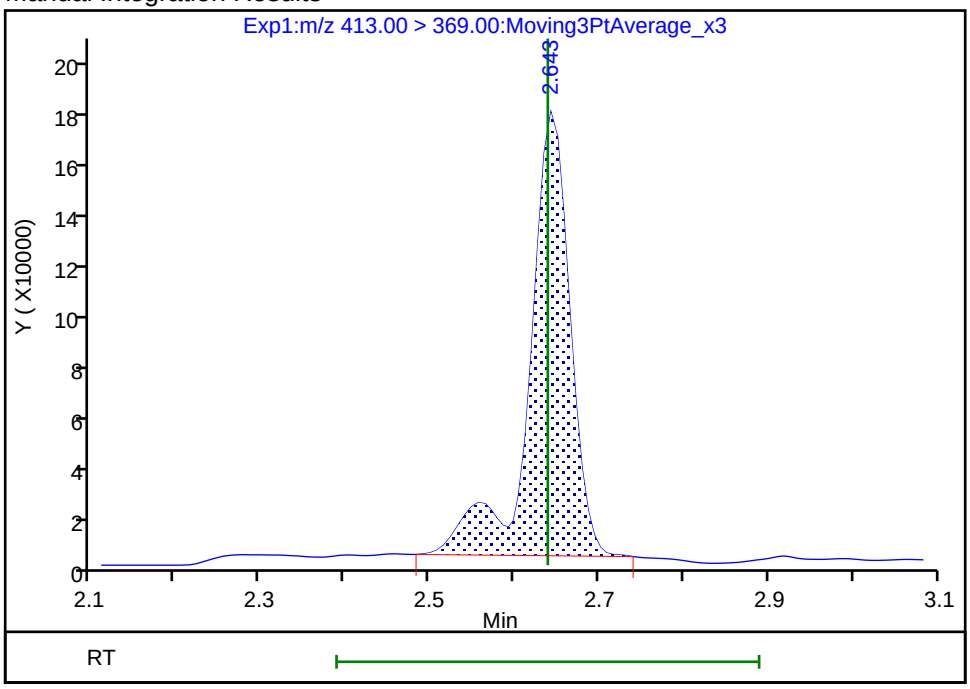
Processing Integration Results

RT: 2.64
Area: 673384
Amount: 0.353839
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 590525
Amount: 0.310300
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:55:50

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

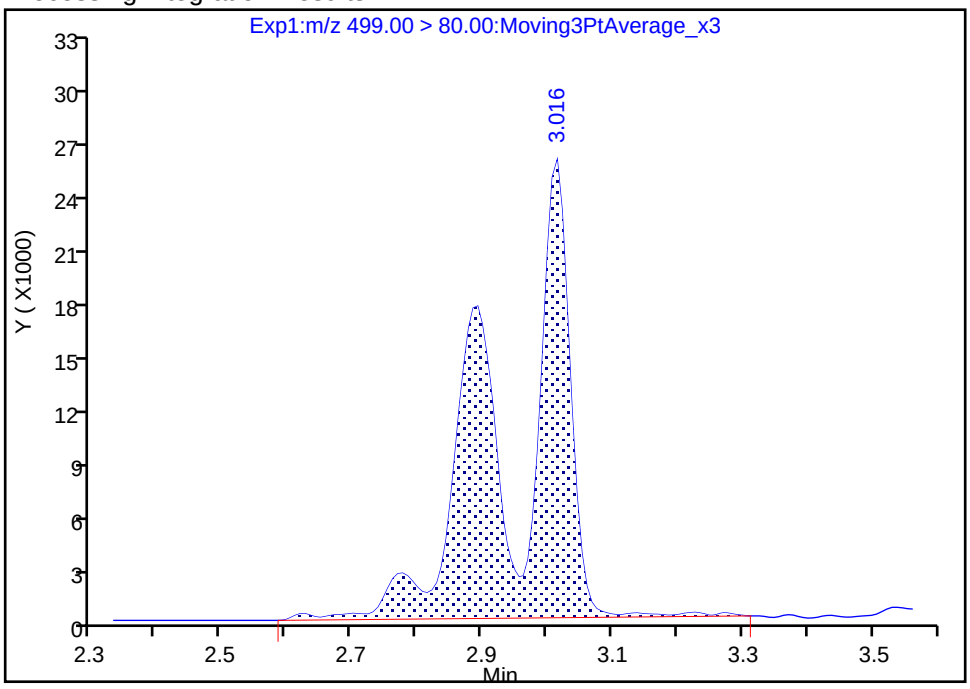
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_040.d				
Injection Date:	30-Aug-2018 01:01:17	Instrument ID:	A8_N		
Lims ID:	320-42265-A-3-A	Lab Sample ID:	320-42265-3		
Client ID:	MW-4S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	30	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

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

Signal: 1

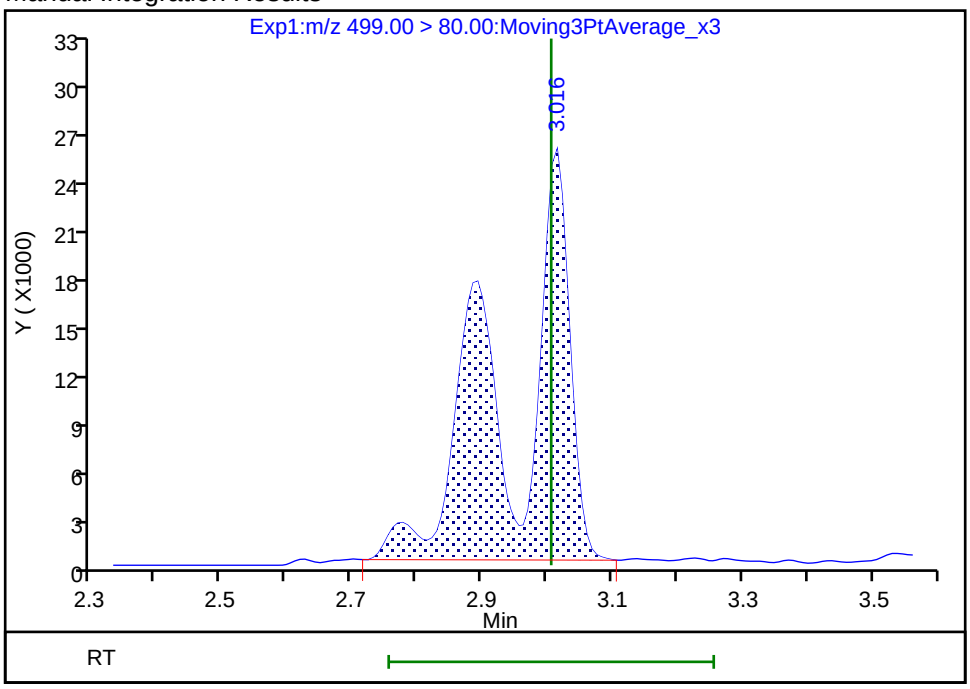
Processing Integration Results

RT: 3.02
Area: 165046
Amount: 0.105414
Amount Units: ng/ml



Manual Integration Results

RT: 3.02
Area: 156465
Amount: 0.099933
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:56:02

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

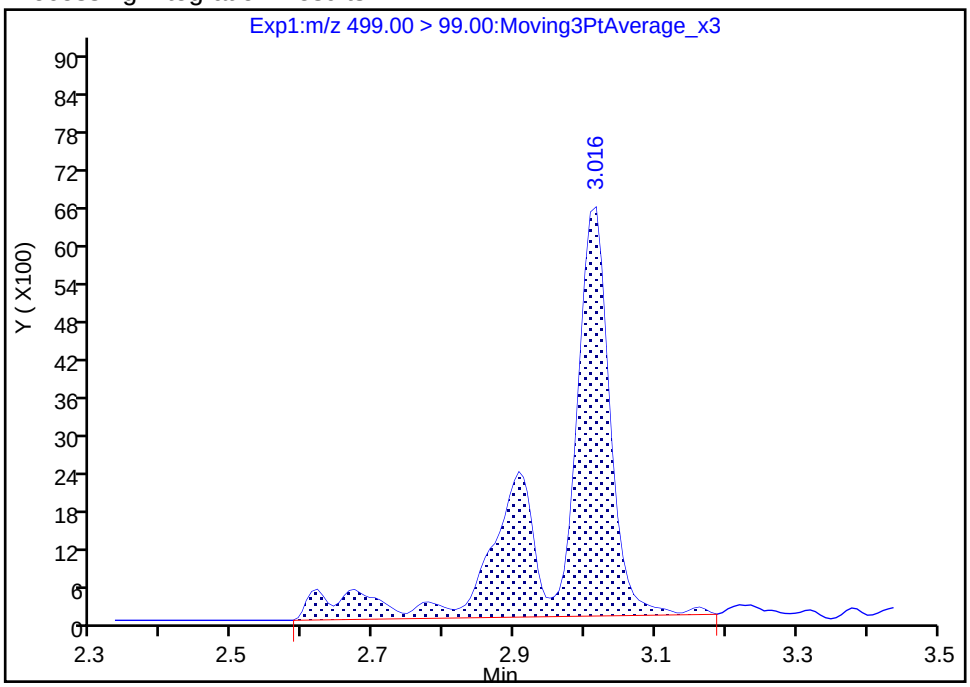
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_040.d				
Injection Date:	30-Aug-2018 01:01:17	Instrument ID:	A8_N		
Lims ID:	320-42265-A-3-A	Lab Sample ID:	320-42265-3		
Client ID:	MW-4S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	30	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

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

Signal: 2

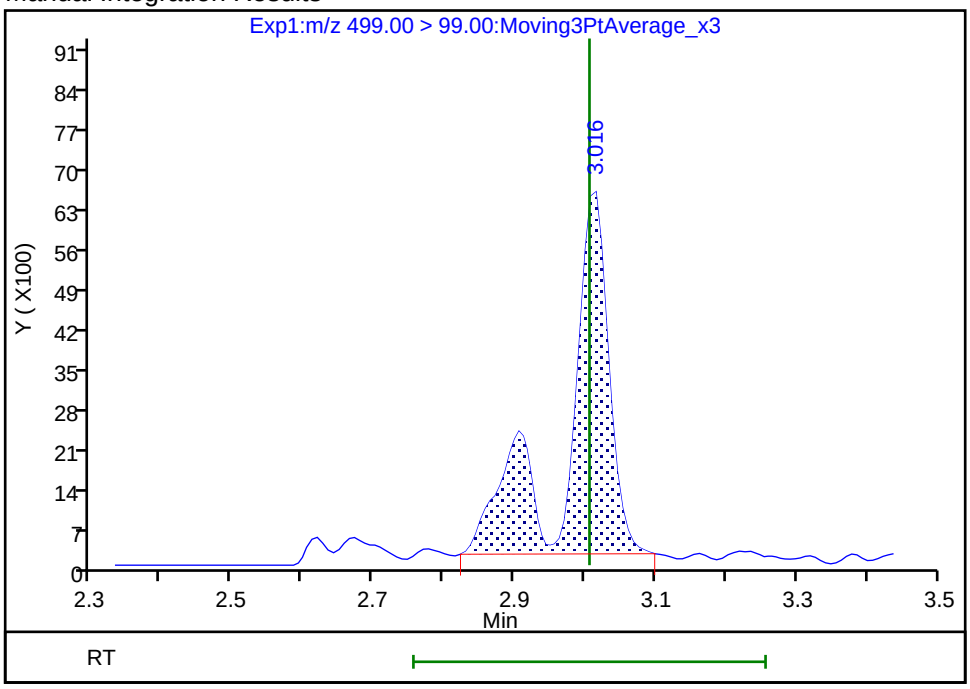
Processing Integration Results

RT: 3.02
Area: 32546
Amount: 0.105414
Amount Units: ng/ml



Manual Integration Results

RT: 3.02
Area: 26330
Amount: 0.099933
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:56:06

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-4D | Lab Sample ID: 320-42265-4

Matrix: Water | Lab File ID: 2018.08.29LLB_041.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 13:10

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 238.1(mL) | Date Analyzed: 08/30/2018 01:09

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	8.6		2.1	0.37
2706-90-3	Perfluoropentanoic acid (PFPeA)	19		2.1	0.51
307-24-4	Perfluorohexanoic acid (PFHxA)	12		2.1	0.61
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.8		2.1	0.26
335-67-1	Perfluorooctanoic acid (PFOA)	15		2.1	0.89
375-95-1	Perfluorononanoic acid (PFNA)	0.35	J	2.1	0.28
335-76-2	Perfluorodecanoic acid (PFDA)	ND		2.1	0.33
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.2
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.1	0.58
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.4
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30
375-73-5	Perfluorobutanesulfonic acid (PFBS)	8.2		2.1	0.21
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.9	B	2.1	0.18
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.1	0.20
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.7		2.1	0.57
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.34
754-91-6	Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.37
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.3
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0
27619-97-2	6:2 FTS	2.6	J	21	2.1
39108-34-4	8:2 FTS	ND		21	2.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-4D | Lab Sample ID: 320-42265-4

Matrix: Water | Lab File ID: 2018.08.29LLB_041.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 13:10

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 238.1(mL) | Date Analyzed: 08/30/2018 01:09

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	75		25-150
STL01893	13C5 PFPeA	83		25-150
STL00993	13C2 PFHxA	87		25-150
STL01892	13C4-PFHpA	93		25-150
STL00990	13C4 PFOA	91		25-150
STL00995	13C5 PFNA	96		25-150
STL00996	13C2 PFDA	94		25-150
STL00997	13C2 PFUnA	82		25-150
STL00998	13C2 PFDoA	69		25-150
STL02116	13C2-PFTeDA	68		25-150
STL02337	13C3-PFBS	88		25-150
STL00994	18O2 PFHxS	90		25-150
STL00991	13C4 PFOS	88		25-150
STL01056	13C8 FOSA	80		25-150
STL02118	d3-NMeFOSAA	78		25-150
STL02117	d5-NEtFOSAA	75		25-150
STL02279	M2-6:2FTS	99		25-150
STL02280	M2-8:2FTS	103		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_041.d
Lims ID: 320-42265-A-4-A
Client ID: MW-4D
Sample Type: Client
Inject. Date: 30-Aug-2018 01:09:06 ALS Bottle#: 31 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-42265-a-4-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:41:28 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:41:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.413	1.421	-0.008	0.536	5536125	1.88		75.1	8186	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.418	1.424	-0.006	1.004	401143	0.2038			36.2	M
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.684	1.684	0.0	1.005	817862	0.4569			22.3	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.676	1.687	-0.011	0.635	3880809	2.08		83.3	6068	
D 47 13C3-PFBS										
301.90 > 83.00	1.716	1.720	-0.004	0.651	89878	2.04		87.7	212	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.716	1.724	-0.008	1.000	566131	0.1956			35.0	
298.90 > 99.00	1.716	1.724	-0.008	1.000	255413		2.22(1.25-3.74)		67.2	
D 7 13C2 PFHxA										
315.00 > 270.00	1.970	1.966	0.004	0.747	4536524	2.17		86.8	9171	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.970	1.970	0.0	1.000	518854	0.2840			33.8	
313.00 > 119.00	1.970	1.970	0.0	1.000	47974		10.82(5.03-15.10)		102	
D 9 13C4-PFHpA										
367.00 > 322.00	2.292	2.289	0.003	0.869	4595977	2.33		93.3	18885	
10 Perfluoroheptanoic acid										M
363.00 > 319.00	2.292	2.292	0.0	1.000	276722	0.1374			33.3	M
363.00 > 169.00	2.292	2.292	0.0	1.000	108902		2.54(1.13-3.40)		177	M
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.303	2.303	0.0	1.000	181477	0.0700			49.6	M
399.00 > 99.00	2.303	2.303	0.0	1.000	59654		3.04(1.50-4.49)		17.0	
D 11 18O2 PFHxS										
403.00 > 84.00	2.303	2.311	-0.008	0.873	5604073	2.14		90.4	10823	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.614	2.609	0.005	1.000	40616	0.0611			303	
D 12 M2-6:2FTS										
429.00 > 81.00	2.614	2.613	0.001	0.991	1049803	2.35		98.9	820	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.645	2.639	0.006	1.003	689536	0.3575			72.4	M
413.00 > 169.00	2.645	2.639	0.006	1.003	402710		1.71(0.84-2.52)		728	
* 62 13C2-PFOA										
415.00 > 370.00	2.637	2.639	-0.002		4772262	2.50			9323	
D 14 13C4 PFOA										
417.00 > 372.00	2.637	2.644	-0.007	1.000	4265869	2.27		90.7	11061	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.009	3.006	0.003	1.000	152342	0.0876			75.6	M
499.00 > 99.00	3.009	3.006	0.003	1.000	22728		6.70(2.31-6.93)		34.9	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.016	3.006	0.010	1.003	12791	0.008342			2.9	
463.00 > 169.00	3.016	3.006	0.010	1.003	3481		3.67(1.90-5.69)		14.1	
D 18 13C4 PFOS										
503.00 > 80.00	3.009	3.009	0.0	1.141	3780716	2.11		88.3	4036	
D 19 13C5 PFNA										
468.00 > 423.00	3.009	3.016	-0.007	1.141	3688800	2.39		95.5	8161	
D 26 M2-8:2FTS										
529.00 > 81.00	3.365	3.357	0.008	1.276	1282799	2.47		103	2238	
D 21 13C8 FOSA										
506.00 > 78.00	3.365	3.364	0.001	1.276	5320690	2.01		80.2	6761	
D 23 13C2 PFDA										
515.00 > 470.00	3.372	3.372	0.0	1.279	3363706	2.35		93.8	5012	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.524	3.523	0.001	1.336	1298849	1.94		77.8	3438	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.694	3.681	0.013	1.000	4250	0.004605			3.6	
563.00 > 169.00	3.694	3.681	0.013	1.000	1895		2.24(2.12-6.36)		17.8	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.685	3.685	0.0	1.397	1373891	1.87		74.9	614	
D 30 13C2 PFUnA										
565.00 > 520.00	3.694	3.693	0.001	1.401	2524481	2.04		81.5	8165	
D 36 13C2 PFDoA										
615.00 > 570.00	3.983	3.991	-0.008	1.510	2296038	1.74		69.4	6231	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.478	4.492	-0.014	1.698	2687299	1.69		67.8	5746	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 31-Aug-2018 14:41:28 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_041.d

Injection Date: 30-Aug-2018 01:09:06 Instrument ID: A8_N

Lims ID: 320-42265-A-4-A Lab Sample ID: 320-42265-4

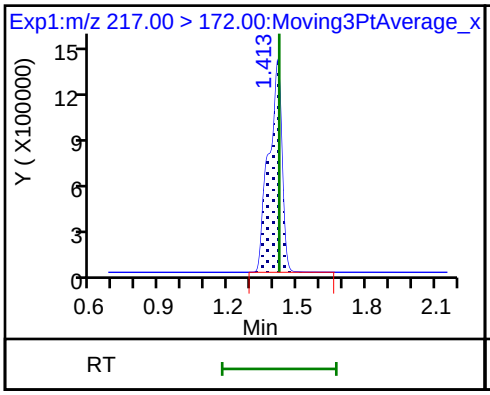
Client ID: MW-4D

Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 10

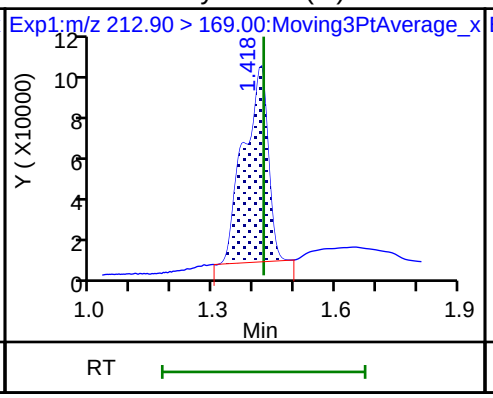
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

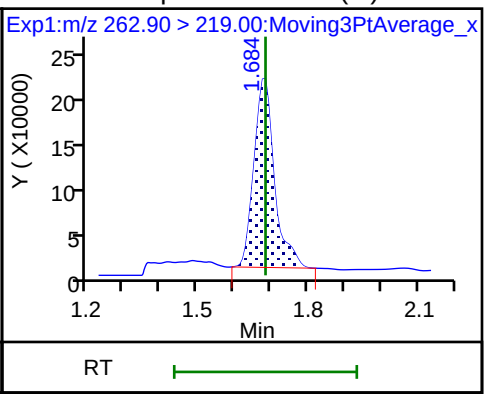
D 1 13C4 PFBA



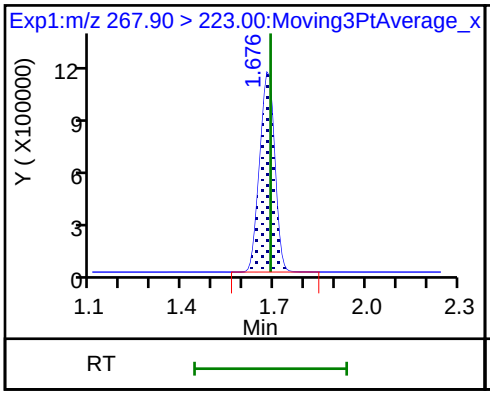
2 Perfluorobutyric acid (M)



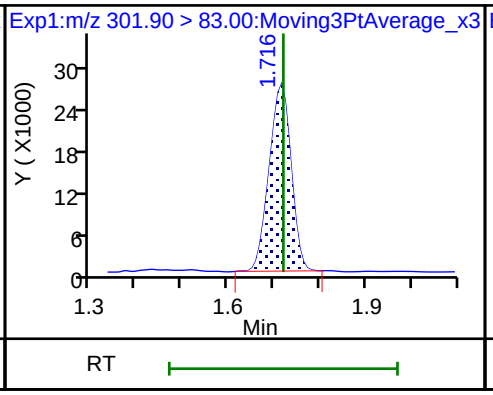
4 Perfluoropentanoic acid (M)



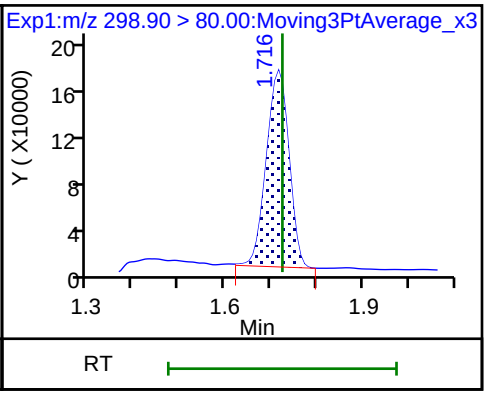
D 3 13C5-PFPeA



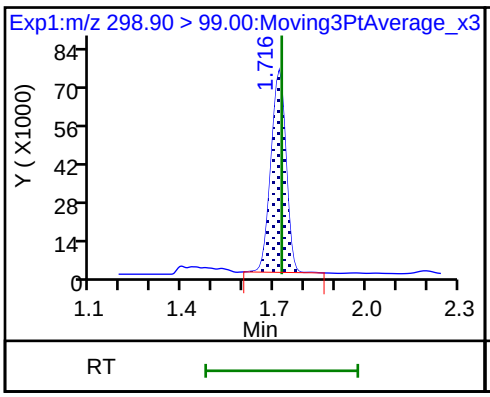
D 47 13C3-PFBS



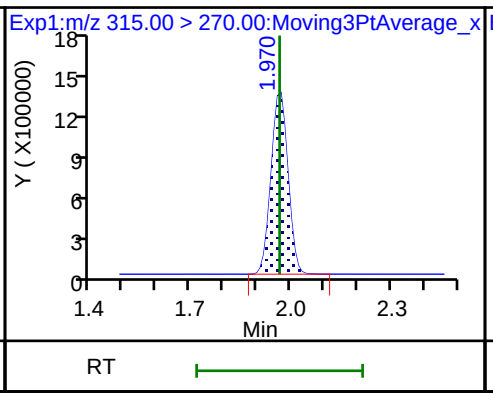
5 Perfluorobutanesulfonic acid



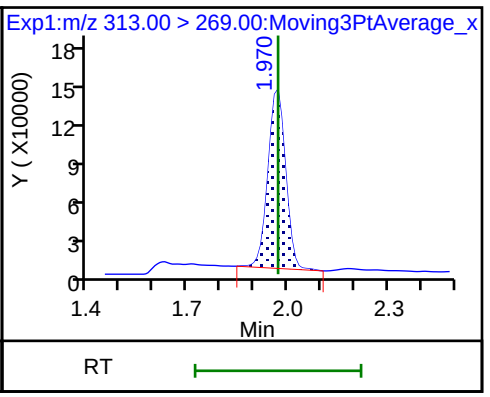
5 Perfluorobutanesulfonic acid



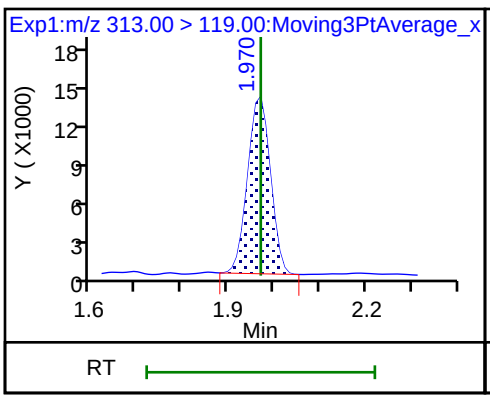
D 7 13C2 PFHxA



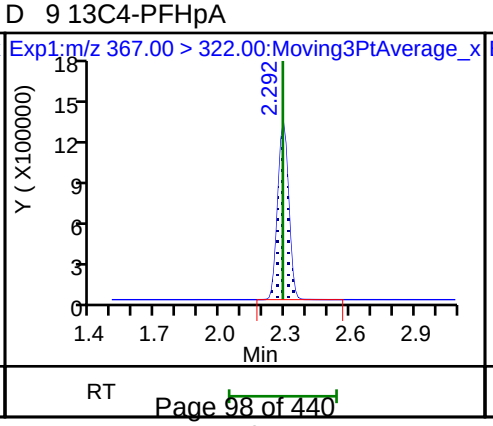
6 Perfluorohexanoic acid



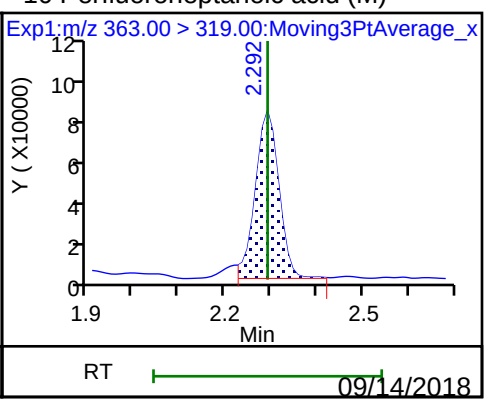
6 Perfluorohexanoic acid



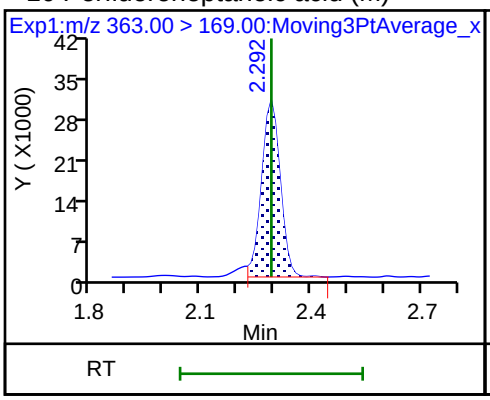
D 9 13C4-PFHpA



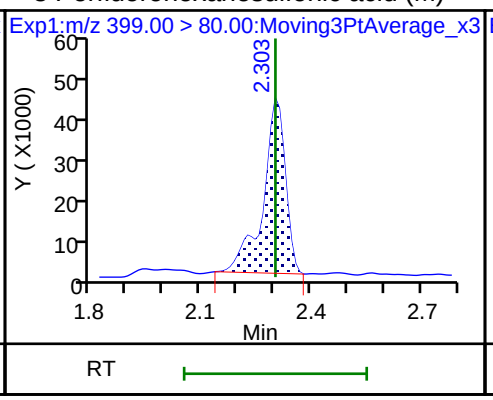
10 Perfluoroheptanoic acid (M)



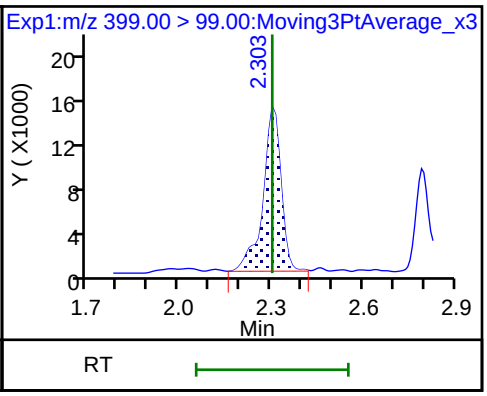
10 Perfluoroheptanoic acid (M)



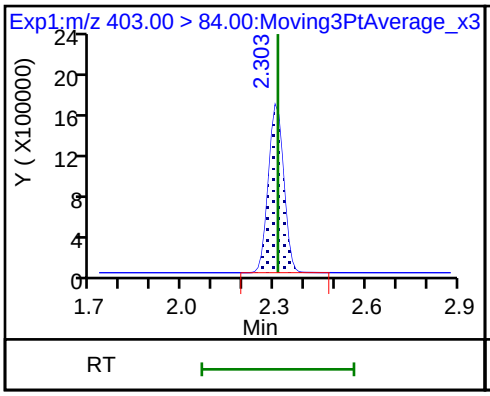
8 Perfluorohexanesulfonic acid (M)



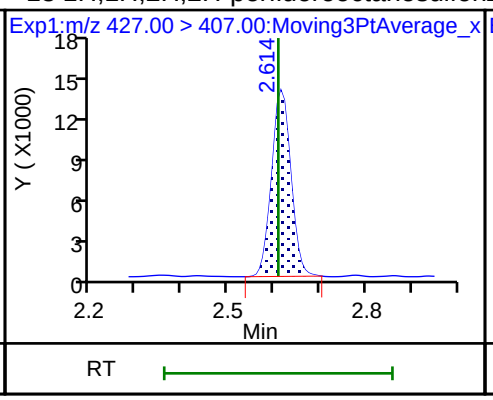
8 Perfluorohexanesulfonic acid



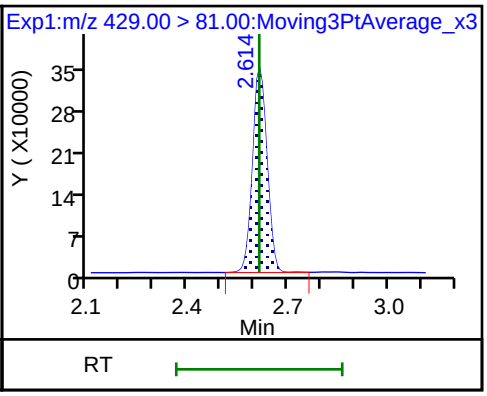
D 11 18O2 PFHxS



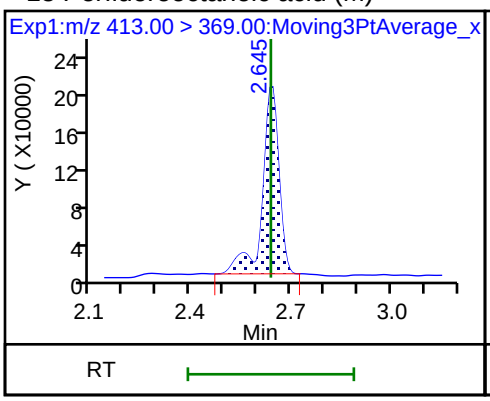
13 1H,1H,2H,2H-perfluorooctanesulfon



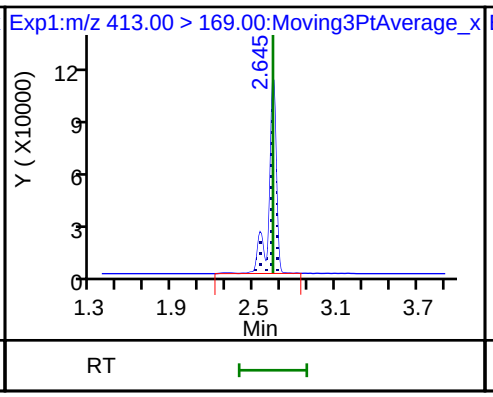
D 12 M2-6:2FTS



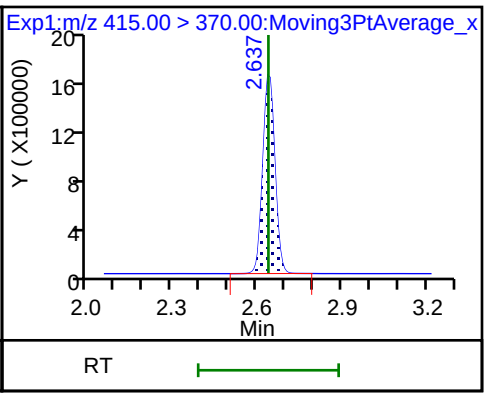
15 Perfluorooctanoic acid (M)



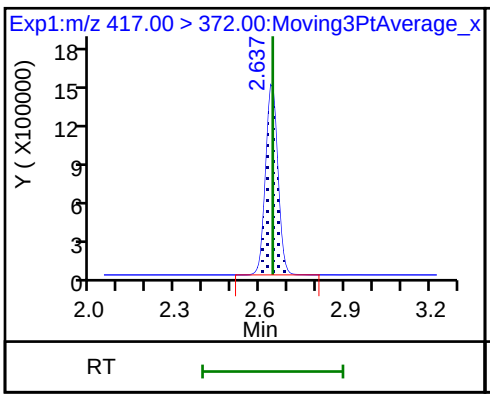
15 Perfluorooctanoic acid



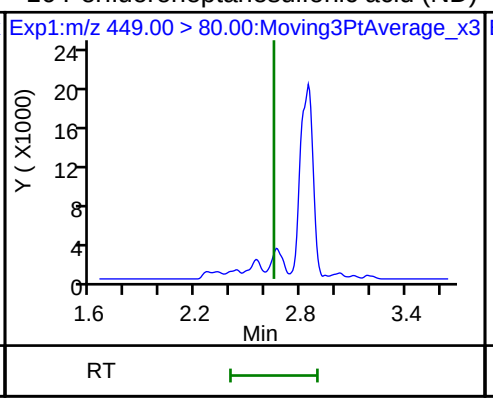
* 62 13C2-PFOA



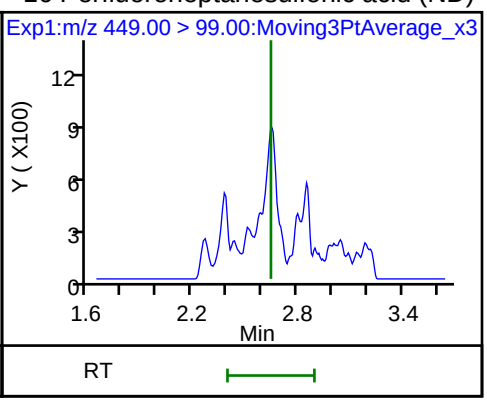
D 14 13C4 PFOA



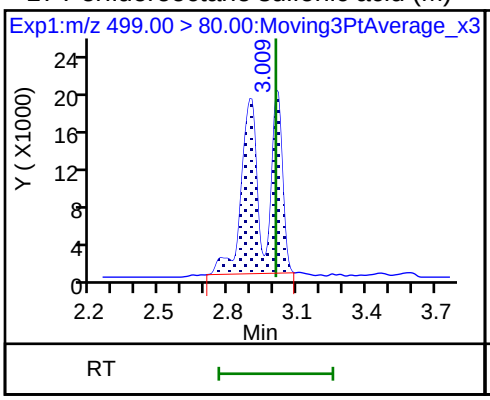
16 Perfluoroheptanesulfonic acid (ND)



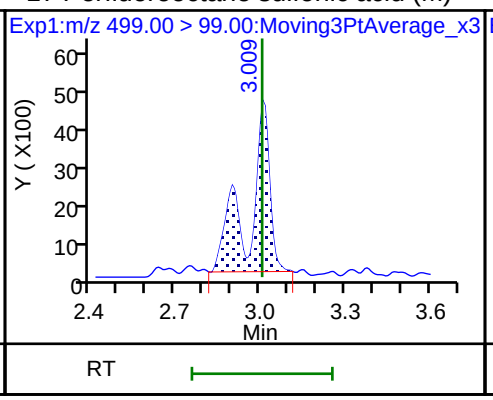
16 Perfluoroheptanesulfonic acid (ND)



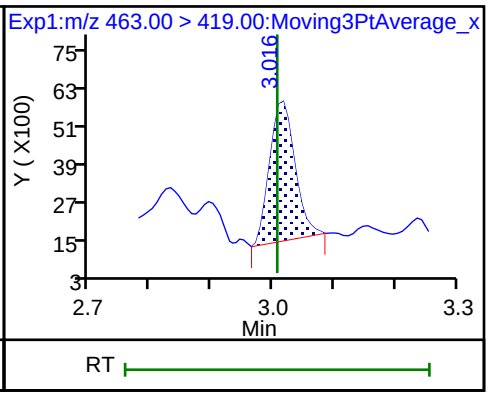
17 Perfluorooctane sulfonic acid (M)



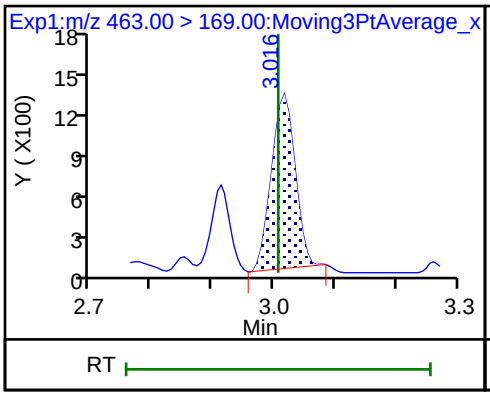
17 Perfluorooctane sulfonic acid (M)



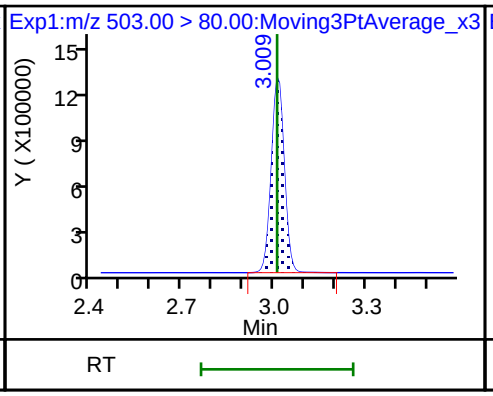
20 Perfluorononanoic acid



20 Perfluorononanoic acid



D 18 13C4 PFOS



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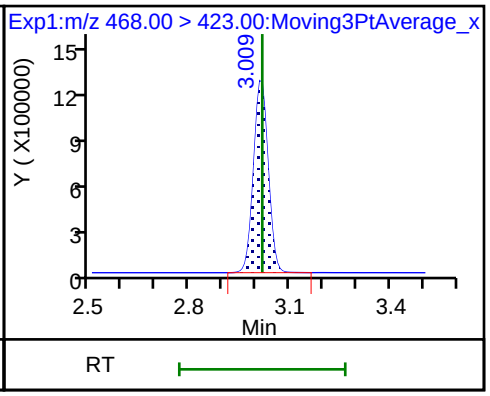
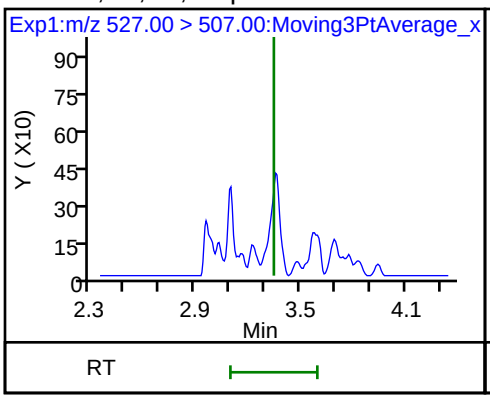
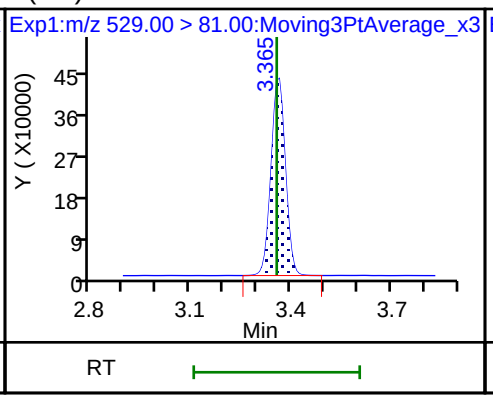


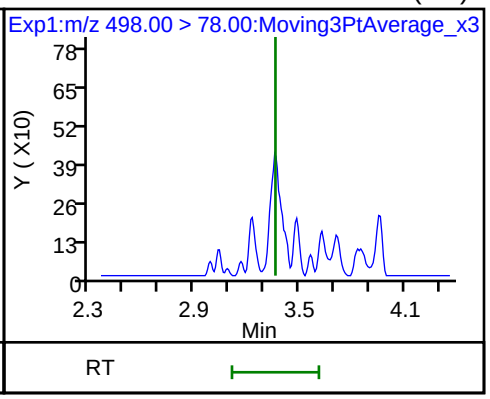
25 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)



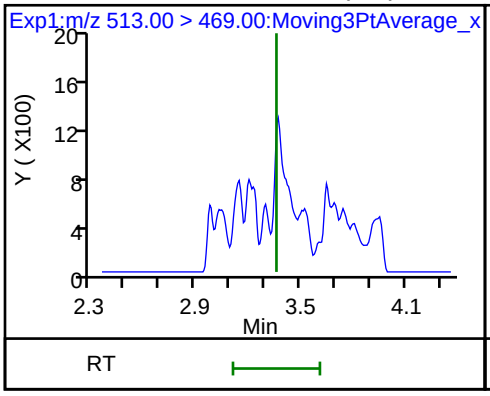
D 26 M2-8:2FTS



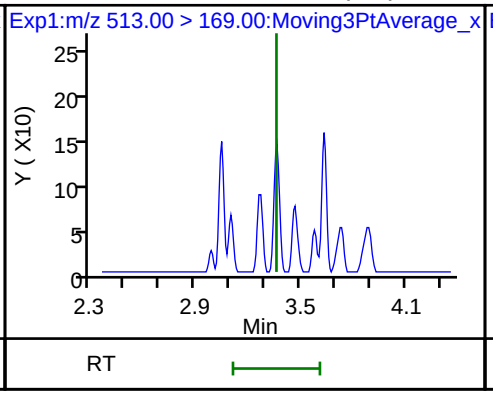
22 Perfluorooctane Sulfonamide (ND)



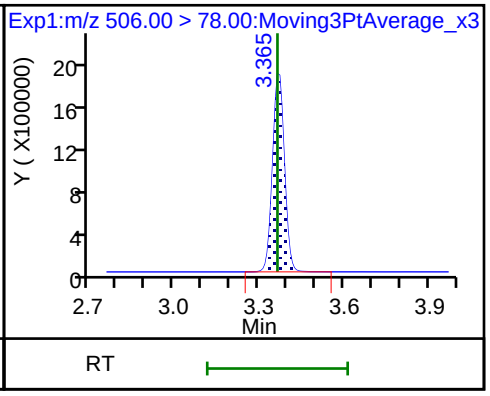
24 Perfluorodecanoic acid (ND)



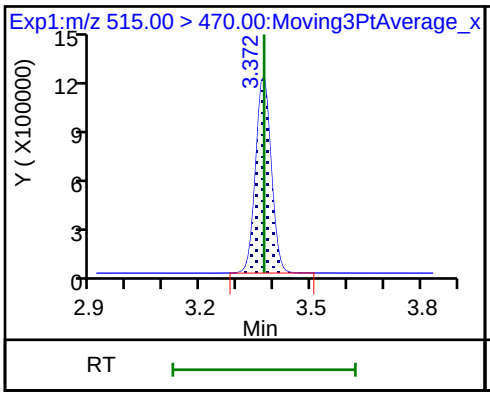
24 Perfluorodecanoic acid (ND)



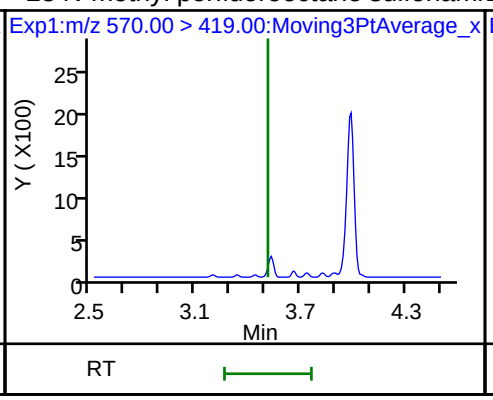
D 21 13C8 FOSA



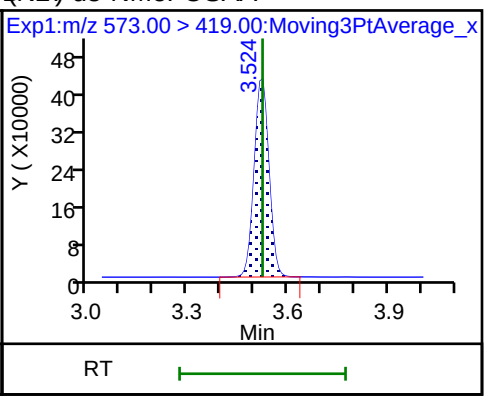
D 23 13C2 PFDA



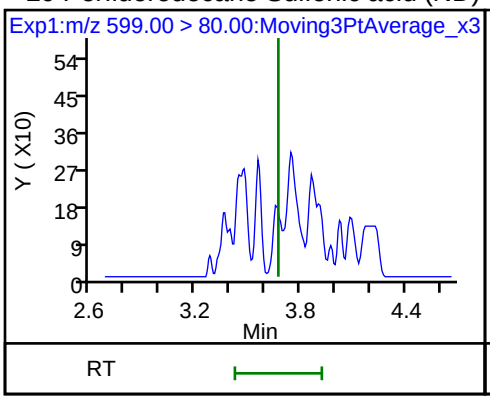
28 N-methyl perfluorooctane sulfonamid (ND)



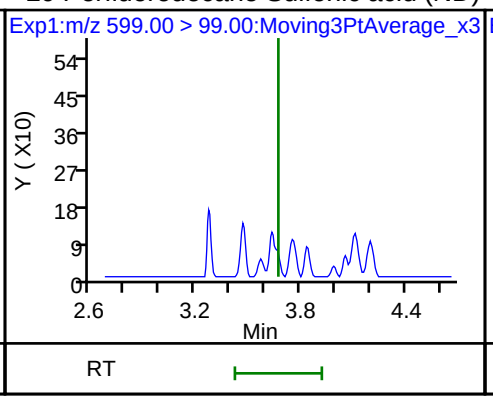
D 27 d3-NMeFOSAA



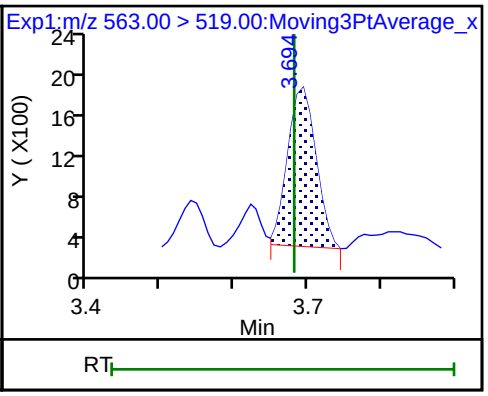
29 Perfluorodecane Sulfonic acid (ND)



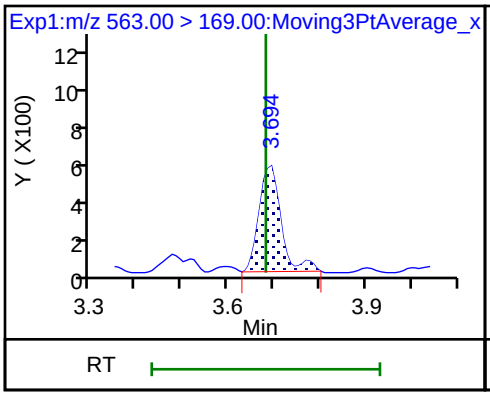
29 Perfluorodecane Sulfonic acid (ND)



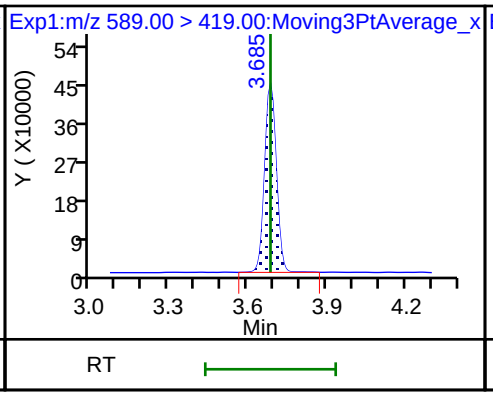
31 Perfluoroundecanoic acid



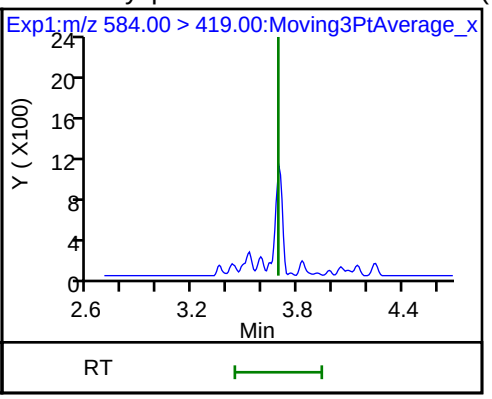
31 Perfluoroundecanoic acid



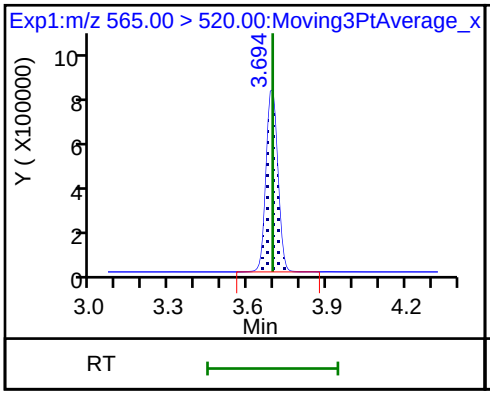
D 32 d5-NEtFOSAA



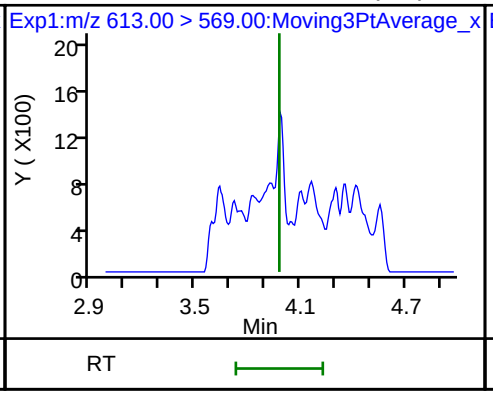
33 N-ethyl perfluorooctane sulfonamid (ND)



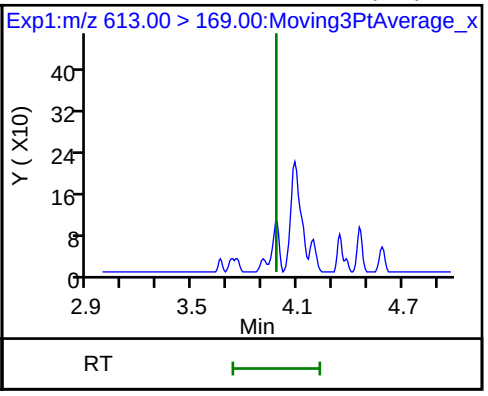
D 30 13C2 PFUnA



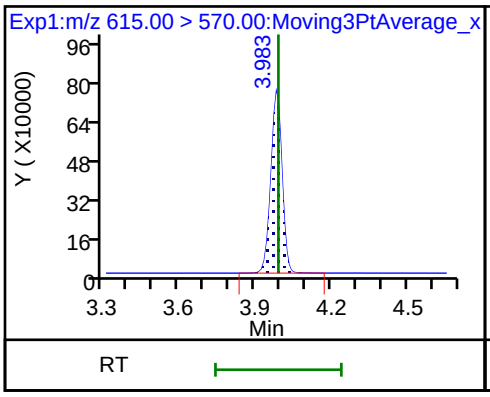
37 Perfluorododecanoic acid (ND)



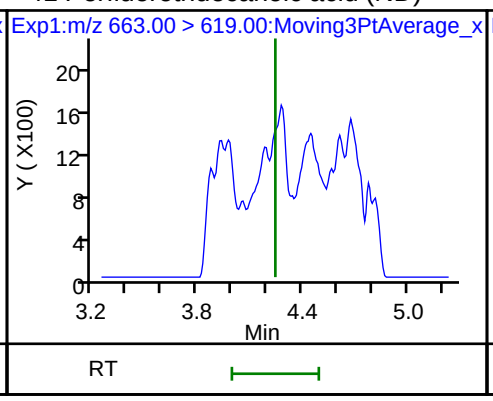
37 Perfluorododecanoic acid (ND)



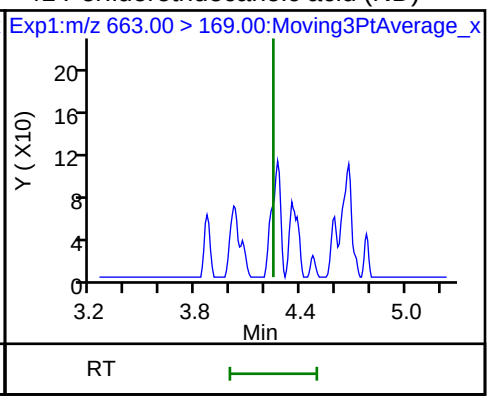
D 36 13C2 PFDoA



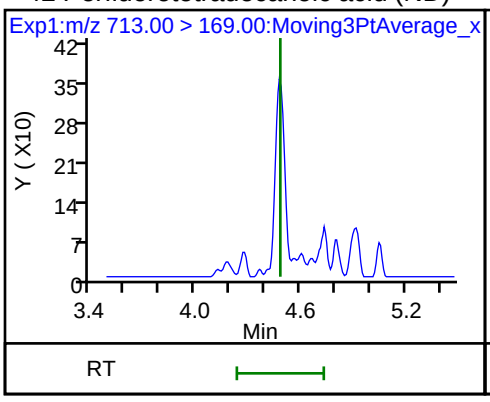
41 Perfluorotridecanoic acid (ND)



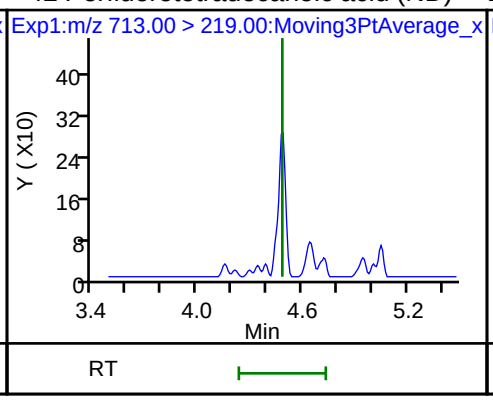
41 Perfluorotridecanoic acid (ND)



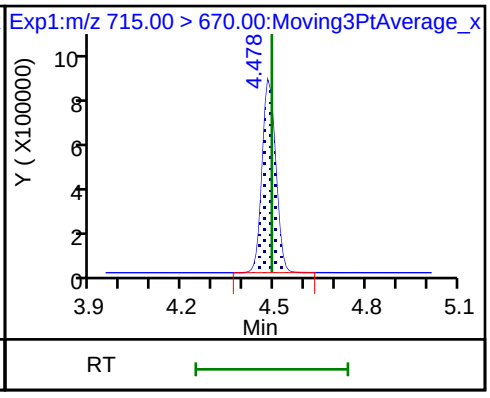
42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



D 43 13C2-PFTeDA



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

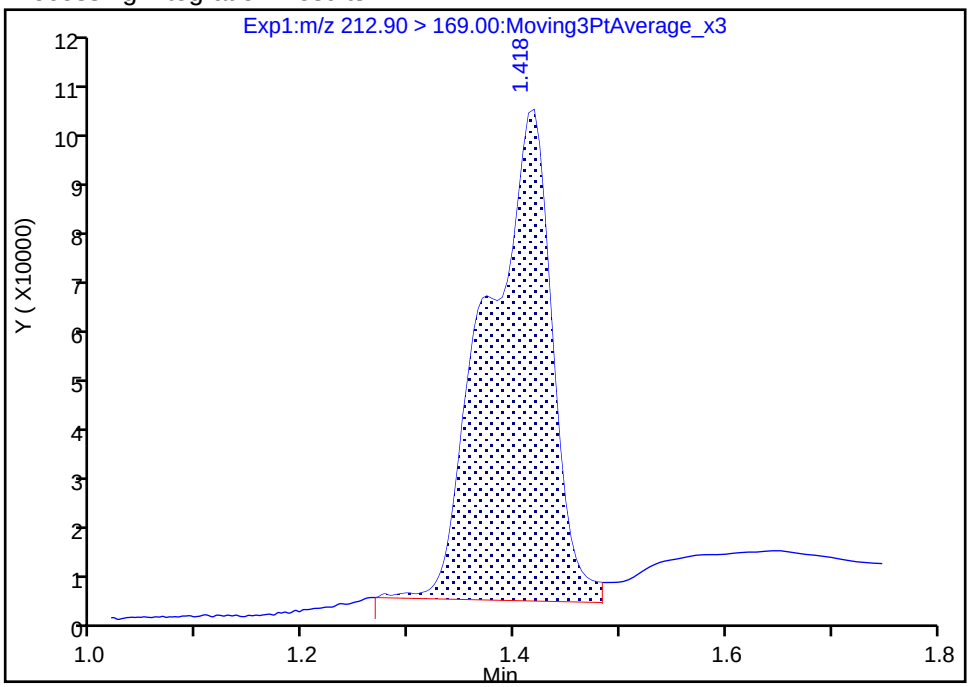
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_041.d				
Injection Date:	30-Aug-2018 01:09:06	Instrument ID:	A8_N		
Lims ID:	320-42265-A-4-A	Lab Sample ID:	320-42265-4		
Client ID:	MW-4D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

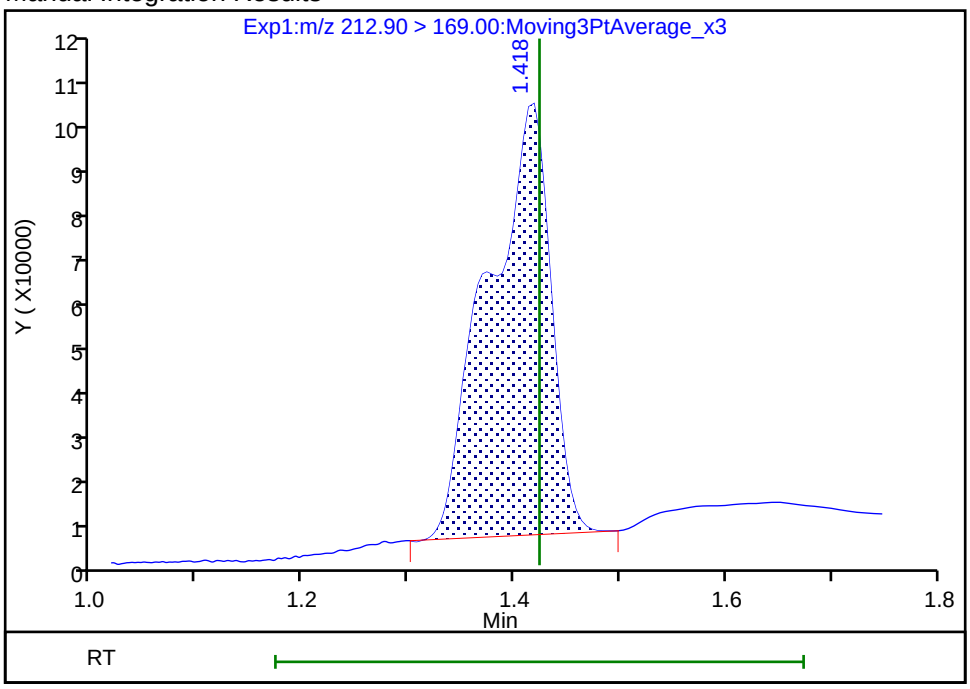
Processing Integration Results

RT: 1.42
Area: 429771
Amount: 0.218383
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 401143
Amount: 0.203836
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:40:30

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

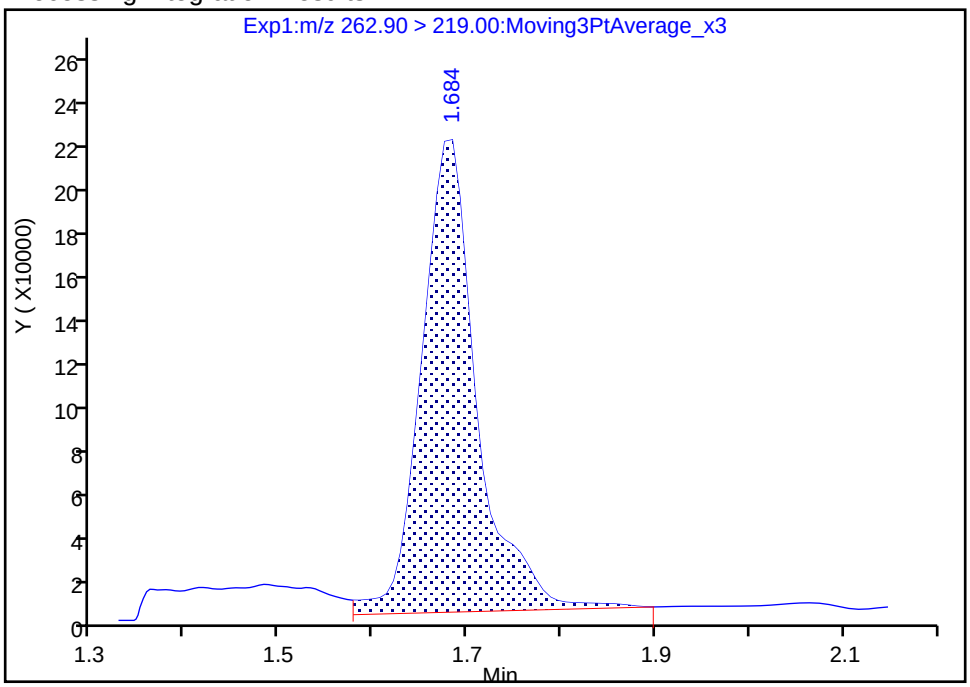
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_041.d				
Injection Date:	30-Aug-2018 01:09:06	Instrument ID:	A8_N		
Lims ID:	320-42265-A-4-A	Lab Sample ID:	320-42265-4		
Client ID:	MW-4D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

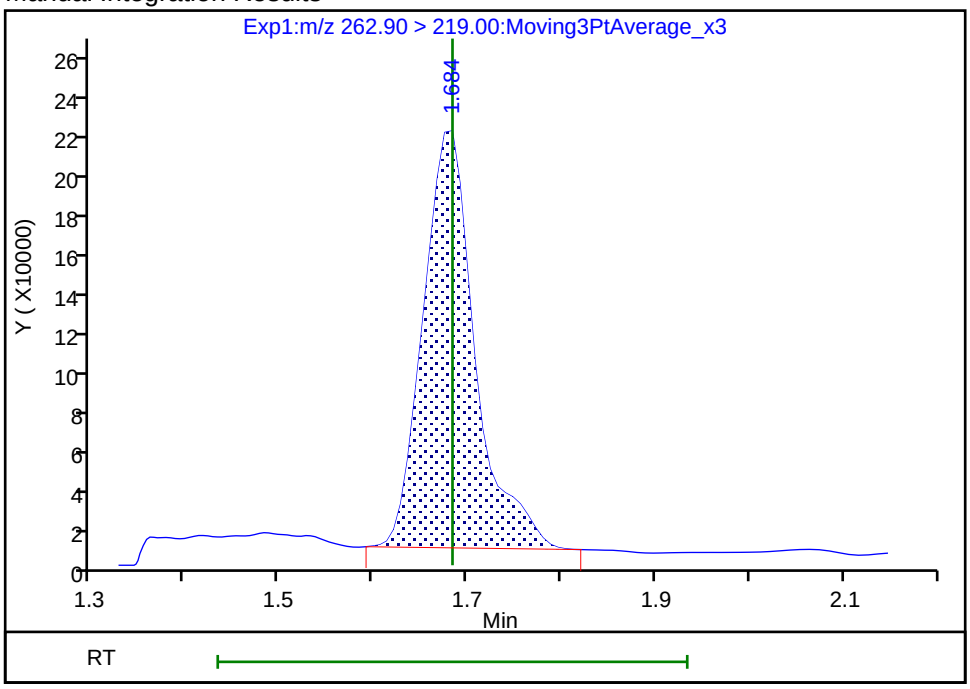
Processing Integration Results

RT: 1.68
Area: 894211
Amount: 0.499563
Amount Units: ng/ml



Manual Integration Results

RT: 1.68
Area: 817862
Amount: 0.456909
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:40:36

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

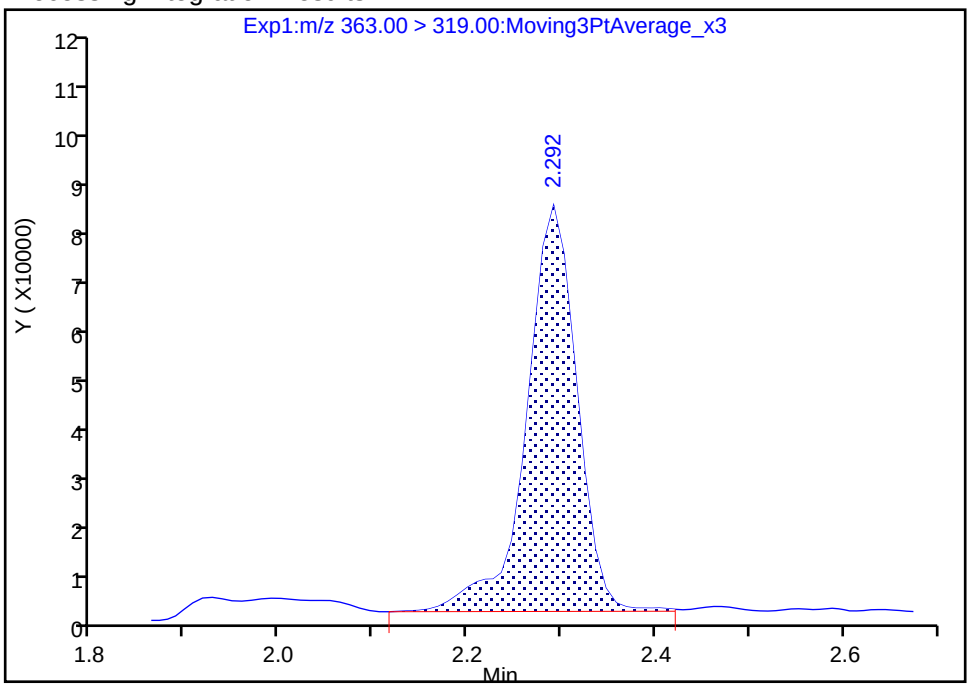
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_041.d				
Injection Date:	30-Aug-2018 01:09:06	Instrument ID:	A8_N		
Lims ID:	320-42265-A-4-A	Lab Sample ID:	320-42265-4		
Client ID:	MW-4D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

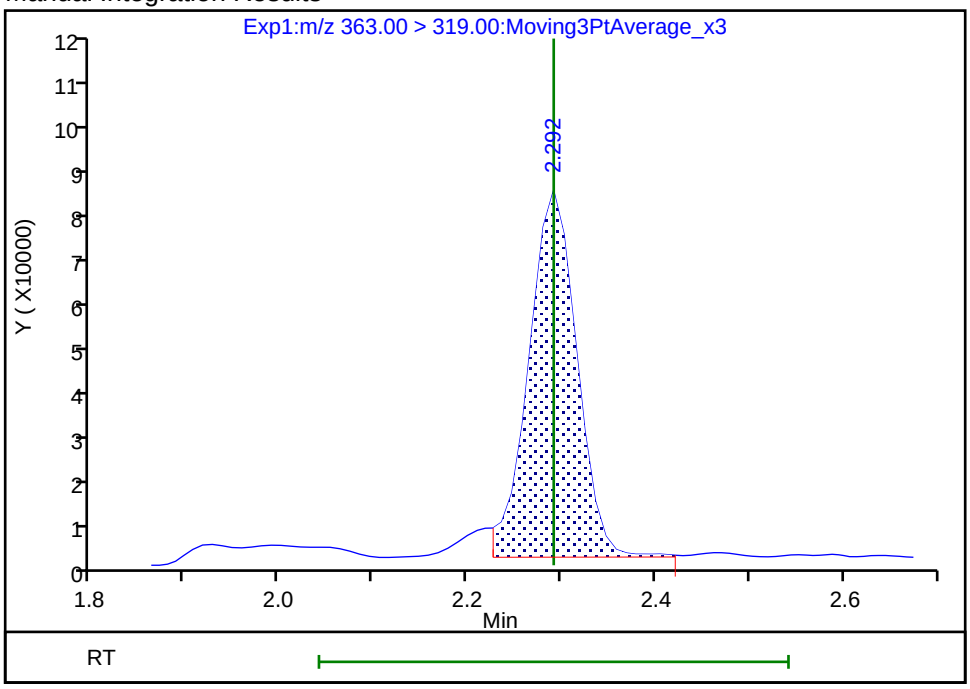
Processing Integration Results

RT: 2.29
Area: 292123
Amount: 0.145097
Amount Units: ng/ml



Manual Integration Results

RT: 2.29
Area: 276722
Amount: 0.137447
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:40:45

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

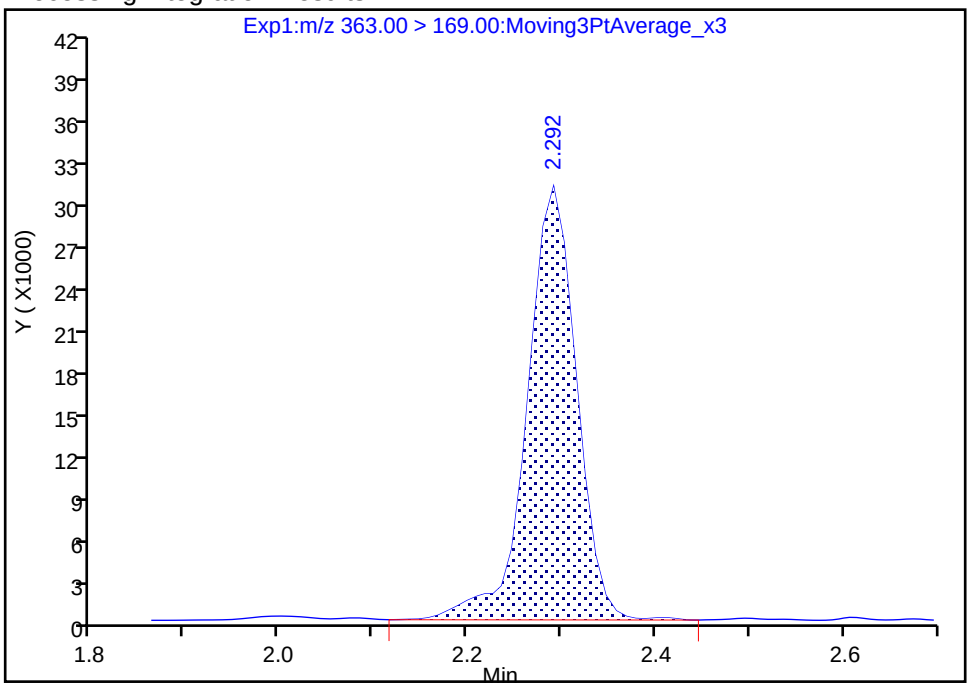
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_041.d				
Injection Date:	30-Aug-2018 01:09:06	Instrument ID:	A8_N		
Lims ID:	320-42265-A-4-A	Lab Sample ID:	320-42265-4		
Client ID:	MW-4D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 2

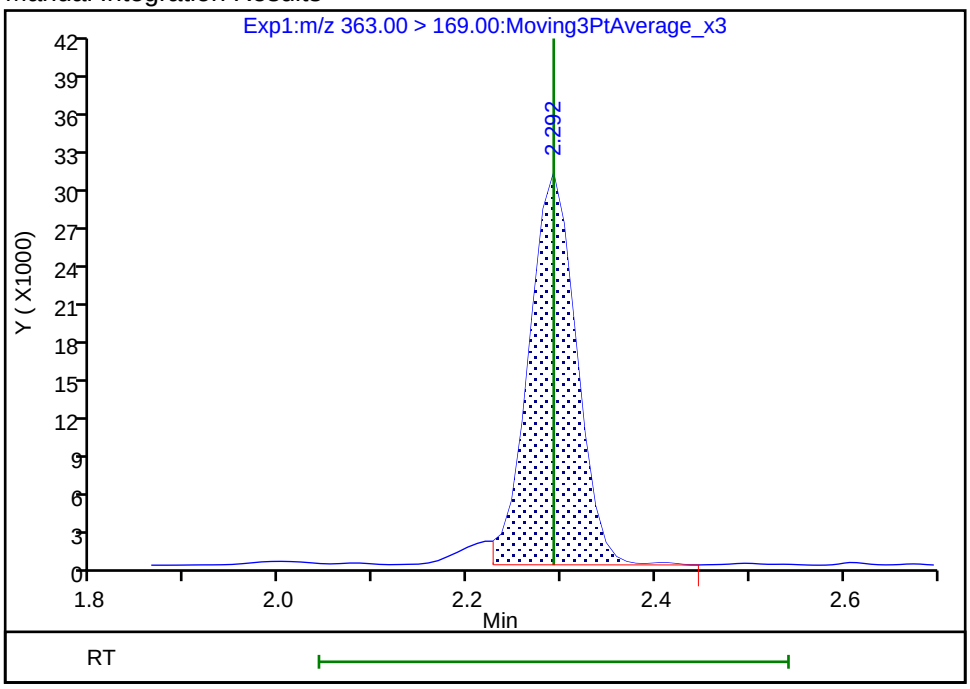
Processing Integration Results

RT: 2.29
Area: 113556
Amount: 0.145097
Amount Units: ng/ml



Manual Integration Results

RT: 2.29
Area: 108902
Amount: 0.137447
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:40:48

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

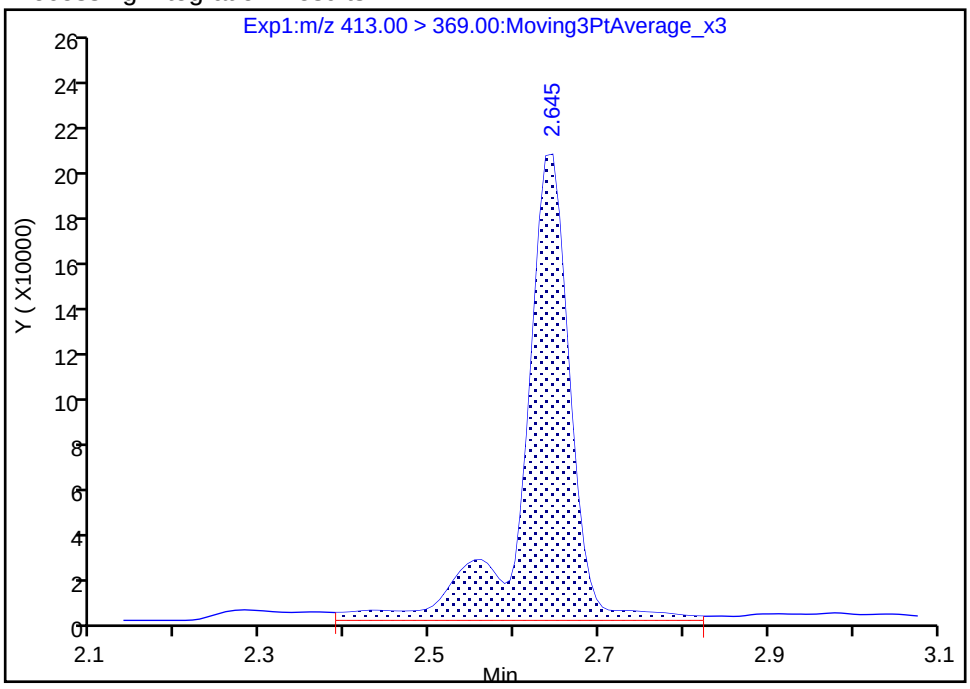
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_041.d				
Injection Date:	30-Aug-2018 01:09:06	Instrument ID:	A8_N		
Lims ID:	320-42265-A-4-A	Lab Sample ID:	320-42265-4		
Client ID:	MW-4D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

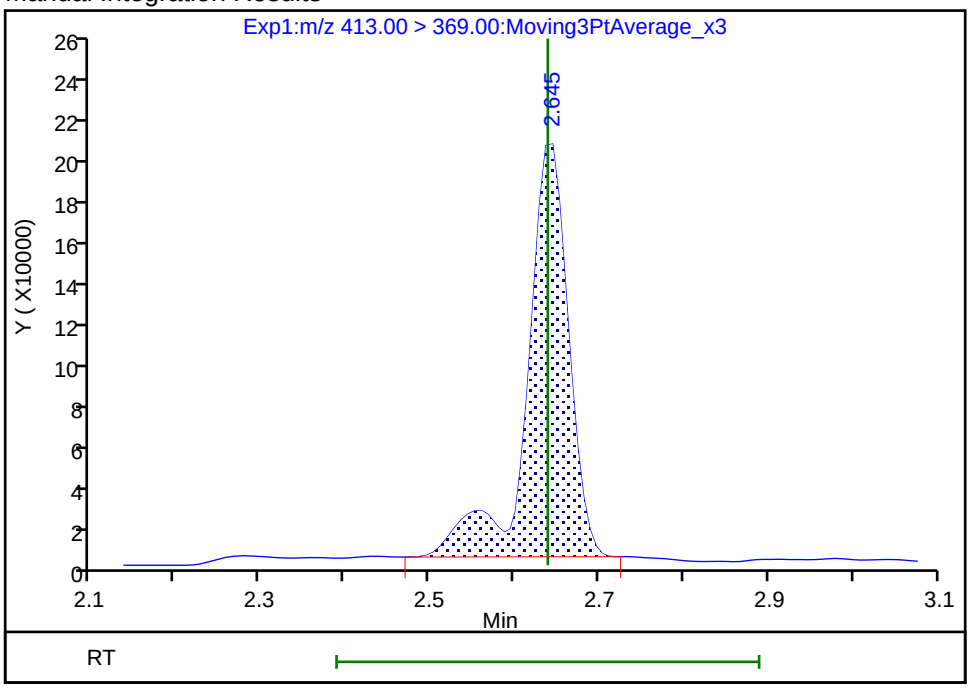
Processing Integration Results

RT: 2.64
Area: 789600
Amount: 0.409395
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 689536
Amount: 0.357513
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:41:01

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

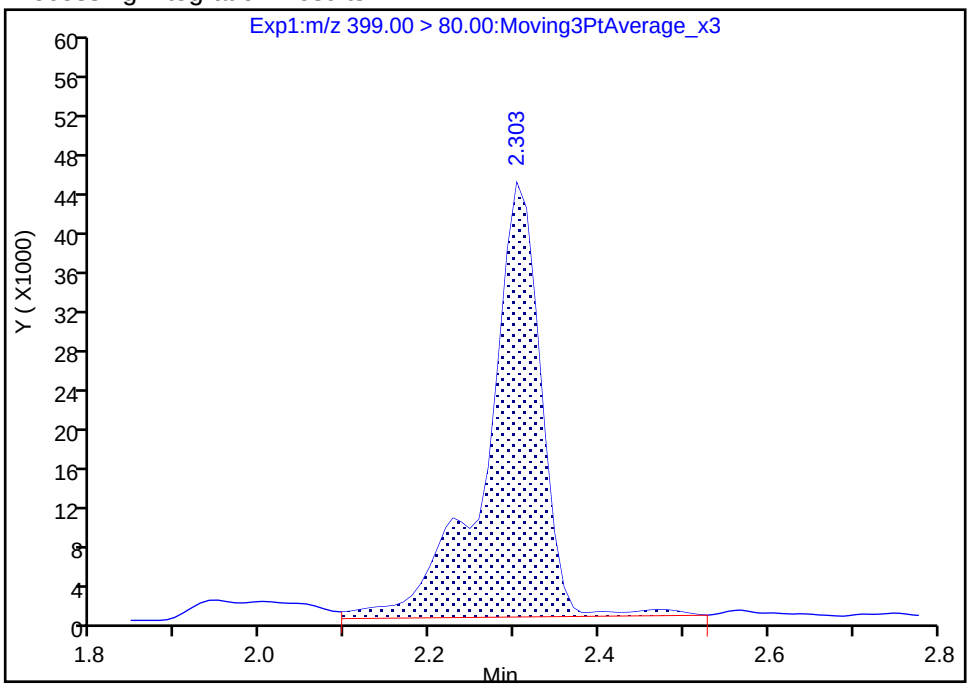
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_041.d				
Injection Date:	30-Aug-2018 01:09:06	Instrument ID:	A8_N		
Lims ID:	320-42265-A-4-A	Lab Sample ID:	320-42265-4		
Client ID:	MW-4D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

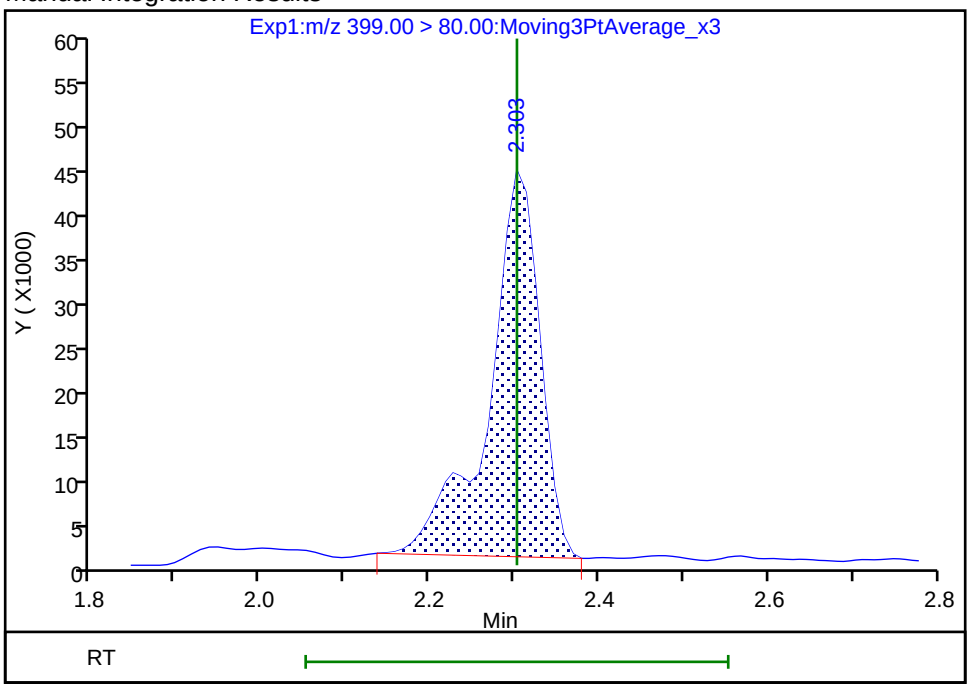
Processing Integration Results

RT: 2.30
Area: 198020
Amount: 0.076380
Amount Units: ng/ml



Manual Integration Results

RT: 2.30
Area: 181477
Amount: 0.069999
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:40:55

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

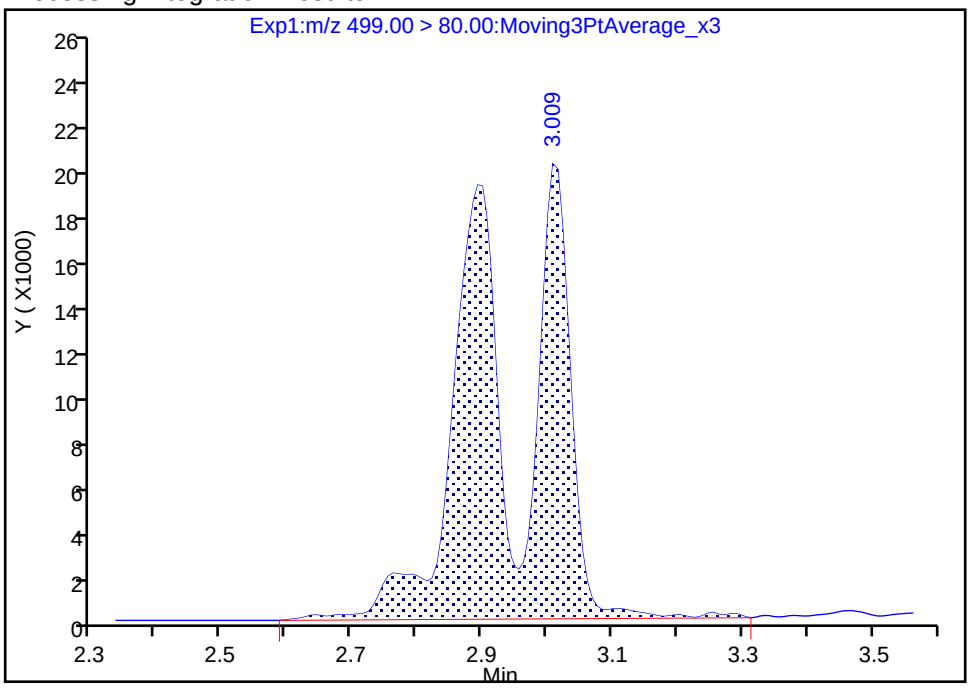
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_041.d				
Injection Date:	30-Aug-2018 01:09:06	Instrument ID:	A8_N		
Lims ID:	320-42265-A-4-A	Lab Sample ID:	320-42265-4		
Client ID:	MW-4D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

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

Signal: 1

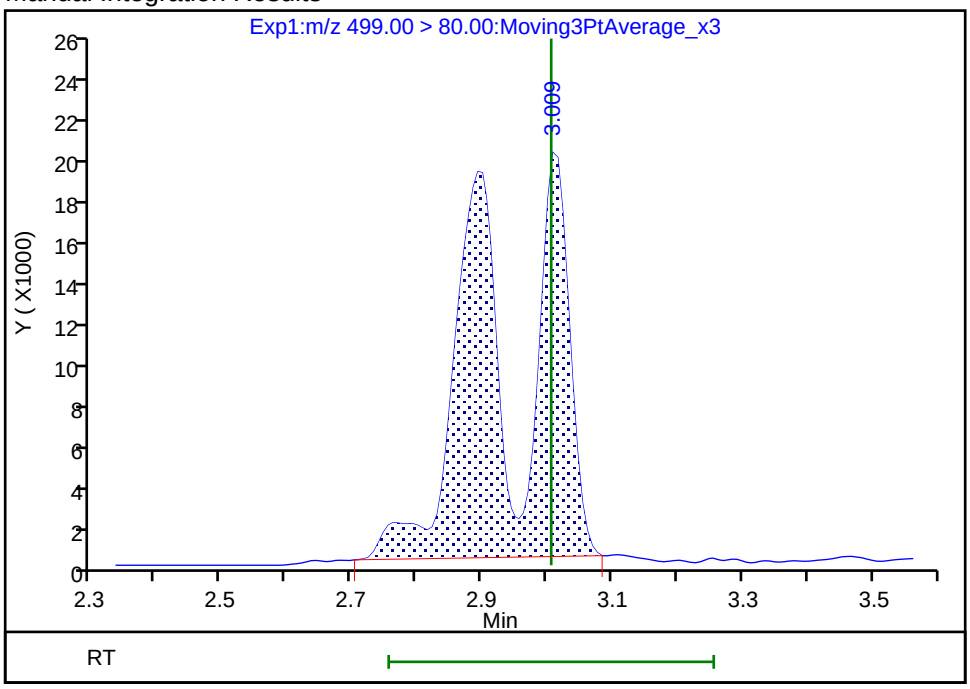
Processing Integration Results

RT: 3.01
Area: 163345
Amount: 0.093886
Amount Units: ng/ml



Manual Integration Results

RT: 3.01
Area: 152342
Amount: 0.087561
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:41:12

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

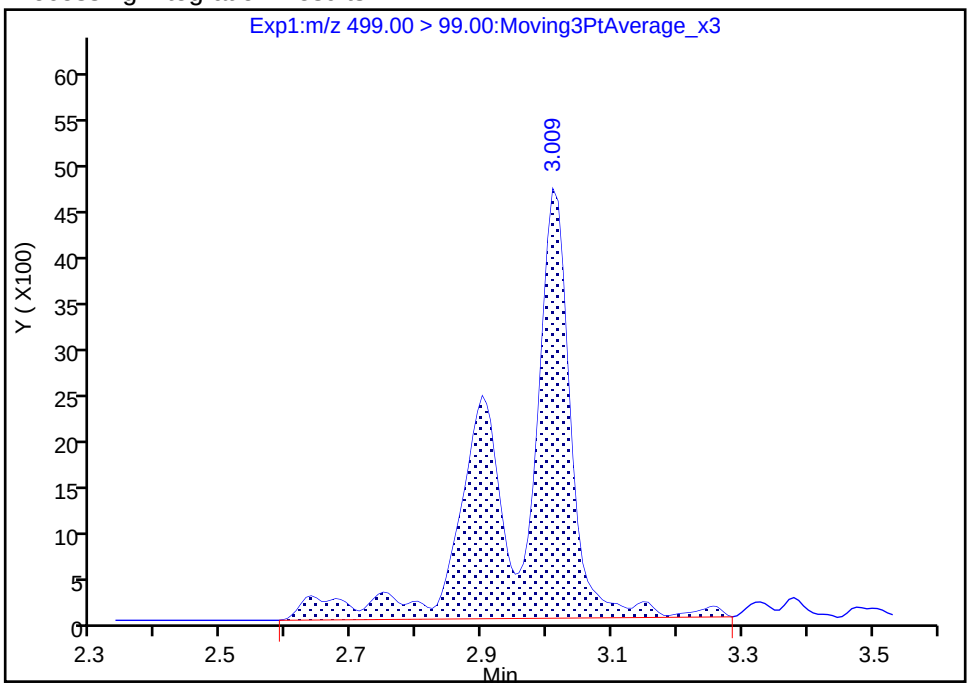
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_041.d				
Injection Date:	30-Aug-2018 01:09:06	Instrument ID:	A8_N		
Lims ID:	320-42265-A-4-A	Lab Sample ID:	320-42265-4		
Client ID:	MW-4D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

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

Signal: 2

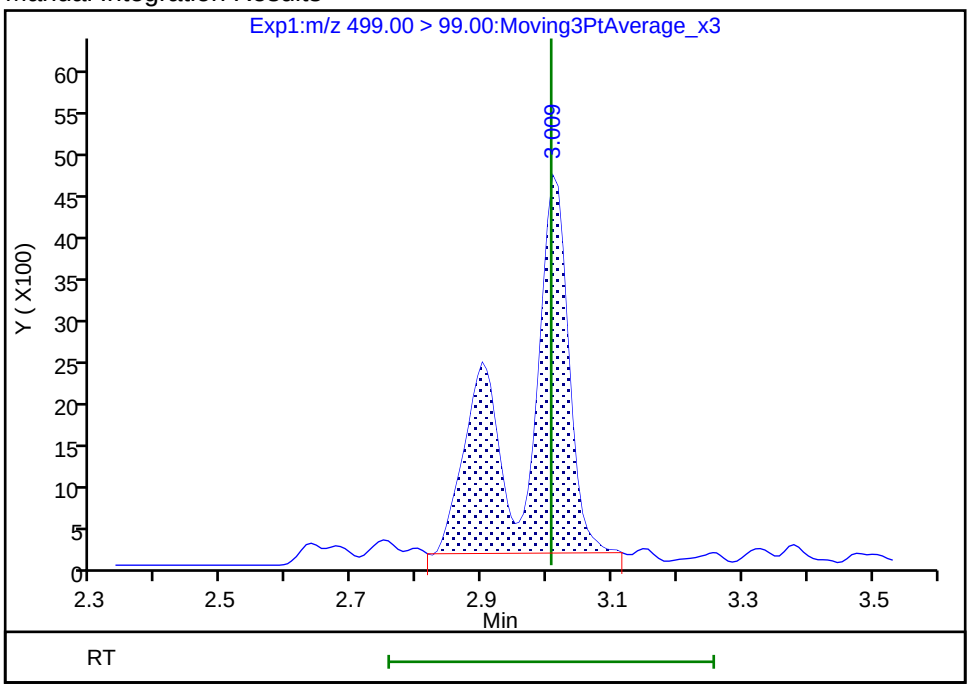
Processing Integration Results

RT: 3.01
Area: 28183
Amount: 0.093886
Amount Units: ng/ml



Manual Integration Results

RT: 3.01
Area: 22728
Amount: 0.087561
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:41:15

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-2S | Lab Sample ID: 320-42265-5

Matrix: Water | Lab File ID: 2018.08.29LLB_042.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 11:45

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 242.3(mL) | Date Analyzed: 08/30/2018 01:16

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	8.0		2.1	0.36
2706-90-3	Perfluoropentanoic acid (PFPeA)	7.7		2.1	0.51
307-24-4	Perfluorohexanoic acid (PFHxA)	6.4		2.1	0.60
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3		2.1	0.26
335-67-1	Perfluorooctanoic acid (PFOA)	17		2.1	0.88
375-95-1	Perfluorononanoic acid (PFNA)	1.1	J	2.1	0.28
335-76-2	Perfluorodecanoic acid (PFDA)	ND		2.1	0.32
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30
375-73-5	Perfluorobutanesulfonic acid (PFBS)	5.3		2.1	0.21
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	3.8	B	2.1	0.18
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.59	J	2.1	0.20
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16		2.1	0.56
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33
754-91-6	Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	3.4	J	21	2.0
27619-97-2	6:2 FTS	2.4	J	21	2.1
39108-34-4	8:2 FTS	ND		21	2.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-2S | Lab Sample ID: 320-42265-5

Matrix: Water | Lab File ID: 2018.08.29LLB_042.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 11:45

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 242.3(mL) | Date Analyzed: 08/30/2018 01:16

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	59		25-150
STL01893	13C5 PFPeA	72		25-150
STL00993	13C2 PFHxA	76		25-150
STL01892	13C4-PFHpA	87		25-150
STL00990	13C4 PFOA	94		25-150
STL00995	13C5 PFNA	96		25-150
STL00996	13C2 PFDA	93		25-150
STL00997	13C2 PFUnA	87		25-150
STL00998	13C2 PFDoA	88		25-150
STL02116	13C2-PFTeDA	86		25-150
STL02337	13C3-PFBS	75		25-150
STL00994	18O2 PFHxS	86		25-150
STL00991	13C4 PFOS	85		25-150
STL01056	13C8 FOSA	78		25-150
STL02118	d3-NMeFOSAA	84		25-150
STL02117	d5-NEtFOSAA	88		25-150
STL02279	M2-6:2FTS	129		25-150
STL02280	M2-8:2FTS	108		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d
Lims ID: 320-42265-A-5-A
Client ID: MW-2S
Sample Type: Client
Inject. Date: 30-Aug-2018 01:16:55 ALS Bottle#: 32 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-42265-a-5-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:42:46 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:42:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.411	1.421	-0.010	0.535	4898307	1.48		59.3	7927	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.416	1.424	-0.008	1.004	338528	0.1944			26.6	M
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.678	1.684	-0.006	1.000	323882	0.1869			4.5	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.678	1.687	-0.009	0.637	3757337	1.80		72.0	3162	
D 47 13C3-PFBS										
301.90 > 83.00	1.718	1.720	-0.002	0.652	86667	1.75		75.5	109	
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.718	1.724	-0.006	1.000	360758	0.1293			12.8	M
298.90 > 99.00	1.718	1.724	-0.006	1.000	161304		2.24(1.25-3.74)		22.3	
D 7 13C2 PFHxA										
315.00 > 270.00	1.964	1.966	-0.002	0.745	4463106	1.91		76.2	10391	
6 Perfluorohexanoic acid										M
313.00 > 269.00	1.964	1.970	-0.006	1.000	279272	0.1554			8.6	M
313.00 > 119.00	1.964	1.970	-0.006	1.000	29156		9.58(5.03-15.10)		28.7	
D 9 13C4-PFHpA										
367.00 > 322.00	2.288	2.289	-0.001	0.868	4818498	2.18		87.3	17568	
10 Perfluoroheptanoic acid										M
363.00 > 319.00	2.288	2.292	-0.004	1.000	220694	0.1046			15.3	M
363.00 > 169.00	2.288	2.292	-0.004	1.000	84703		2.61(1.13-3.40)		92.6	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.310	2.303	0.007	1.000	255799	0.0921			39.4	M
399.00 > 99.00	2.310	2.303	0.007	1.000	88960		2.88(1.50-4.49)		47.9	M
D 11 18O2 PFHxS										
403.00 > 84.00	2.310	2.311	-0.001	0.877	6004798	2.05		86.5	14363	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.612	2.609	0.003	1.000	56565	0.0583			350	
D 12 M2-6:2FTS										
429.00 > 81.00	2.612	2.613	-0.001	0.991	1531793	3.06		129	929	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.643	2.639	0.004	1.003	896288	0.4004			79.8	M
413.00 > 169.00	2.635	2.639	-0.004	1.000	507732		1.77(0.84-2.52)		881	
* 62 13C2-PFOA										
415.00 > 370.00	2.635	2.639	-0.004		5346025	2.50			11960	
D 14 13C4 PFOA										
417.00 > 372.00	2.635	2.644	-0.009	1.000	4951462	2.35		94.0	15393	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.643	2.647	-0.004	0.879	29979	0.0144			2.5	
449.00 > 99.00	2.650	2.647	0.003	0.881	8369		3.58(1.94-5.82)		6.1	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.007	3.006	0.001	1.000	738974	0.3923			254	M
499.00 > 99.00	3.007	3.006	0.001	1.000	137216		5.39(2.31-6.93)		109	
20 Perfluorononanoic acid										
463.00 > 419.00	3.007	3.006	0.001	1.000	45049	0.0261			10.2	
463.00 > 169.00	3.007	3.006	0.001	1.000	12598		3.58(1.90-5.69)		35.9	
D 18 13C4 PFOS										
503.00 > 80.00	3.007	3.009	-0.002	1.141	4093634	2.04		85.4	2957	
D 19 13C5 PFNA										
468.00 > 423.00	3.007	3.016	-0.009	1.141	4145835	2.40		95.8	7727	
D 26 M2-8:2FTS										
529.00 > 81.00	3.348	3.357	-0.009	1.271	1500036	2.58		108	1996	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.356	3.362	-0.006	1.000	8410	0.003764			13.9	
D 21 13C8 FOSA										
506.00 > 78.00	3.356	3.364	-0.008	1.274	5792341	1.95		78.0	6847	
D 23 13C2 PFDA										
515.00 > 470.00	3.363	3.372	-0.009	1.277	3733882	2.32		93.0	6169	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.514	3.523	-0.009	1.334	1568667	2.10		83.9	3376	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.691	3.681	0.010	1.002	5787	0.005246			4.0	
563.00 > 169.00	3.667	3.681	-0.014	0.996	1425		4.06(2.12-6.36)		9.6	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.683	3.685	-0.002	1.398	1797536	2.19		87.5	750	
33 N-ethyl perfluorooctane sulfonamid										M
584.00 > 419.00	3.691	3.690	0.001	1.002	49253	0.0816			149	M
D 30 13C2 PFUnA										
565.00 > 520.00	3.683	3.693	-0.010	1.398	3017289	2.17		87.0	8639	
D 36 13C2 PFDoA										
615.00 > 570.00	3.978	3.991	-0.013	1.510	3254574	2.20		87.8	5497	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.483	4.484	-0.001	1.000	1294	0.003378			17.6	
713.00 > 219.00	4.483	4.484	-0.001	1.000	1261		1.03(0.71-2.13)		12.2	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 43 13C2-PFTeDA										
715.00 > 670.00	4.483	4.492	-0.009	1.702	3835666	2.16		86.3	5718	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 31-Aug-2018 14:42:47 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d

Injection Date: 30-Aug-2018 01:16:55 Instrument ID: A8_N

Lims ID: 320-42265-A-5-A Lab Sample ID: 320-42265-5

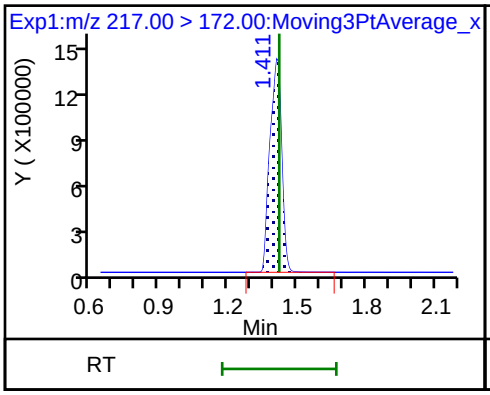
Client ID: MW-2S

Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 11

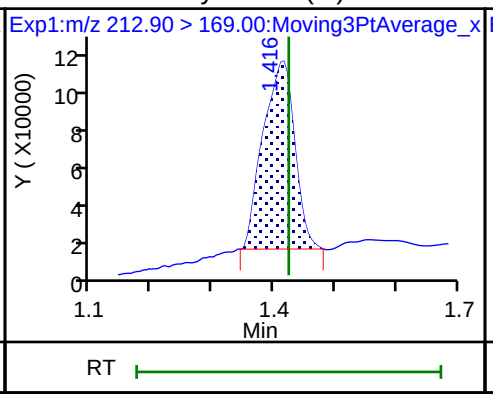
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

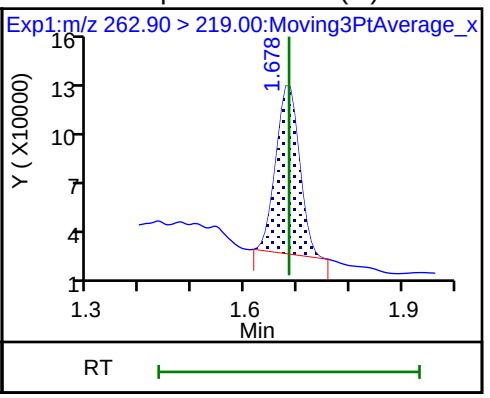
D 1 13C4 PFBA



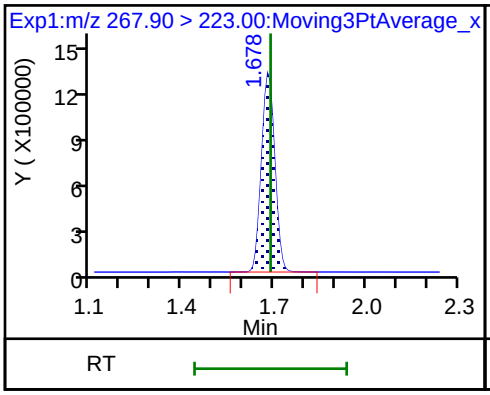
2 Perfluorobutyric acid (M)



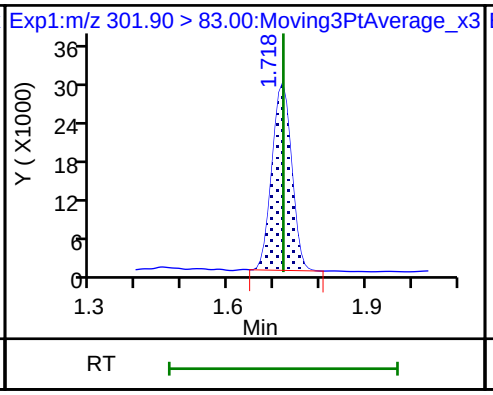
4 Perfluoropentanoic acid (M)



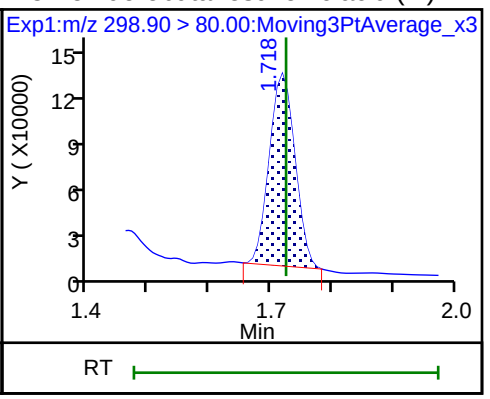
D 3 13C5-PFPeA



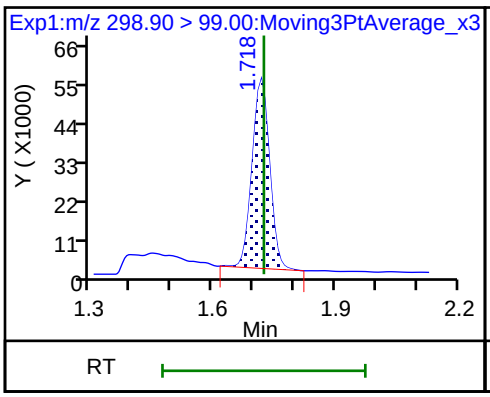
D 47 13C3-PFBS



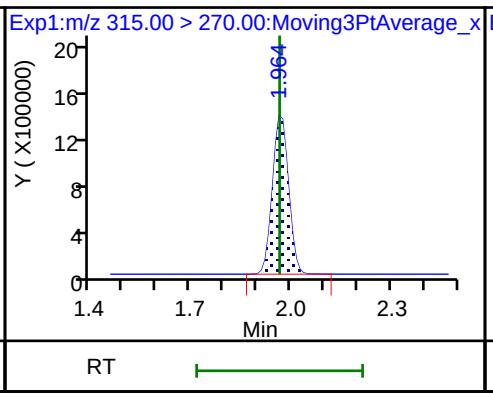
5 Perfluorobutanesulfonic acid (M)



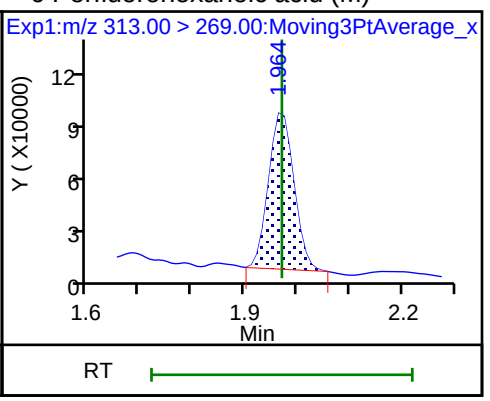
5 Perfluorobutanesulfonic acid



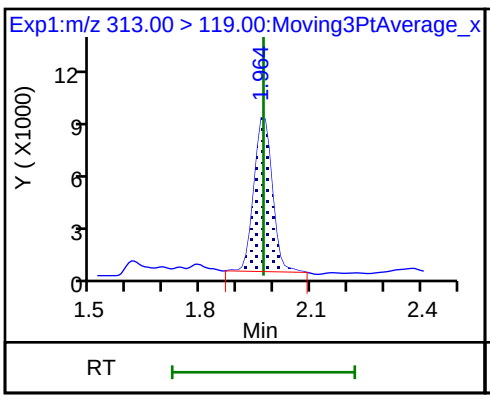
D 7 13C2 PFHxA



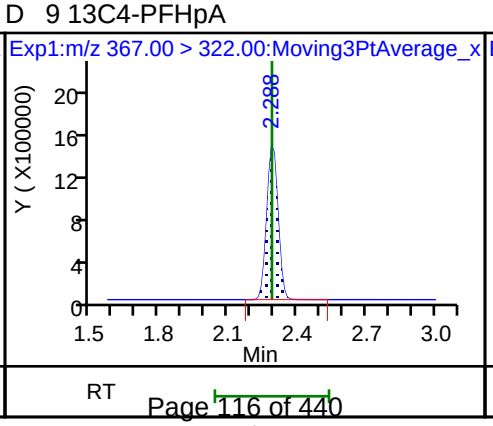
6 Perfluorohexanoic acid (M)



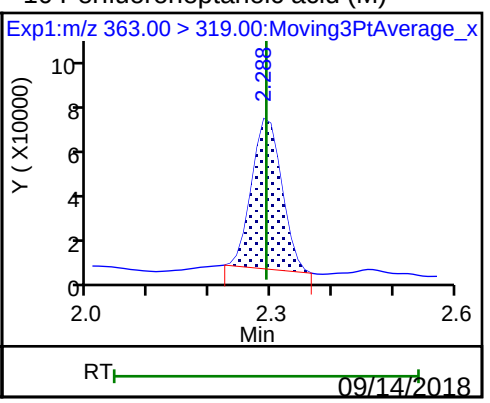
6 Perfluorohexanoic acid



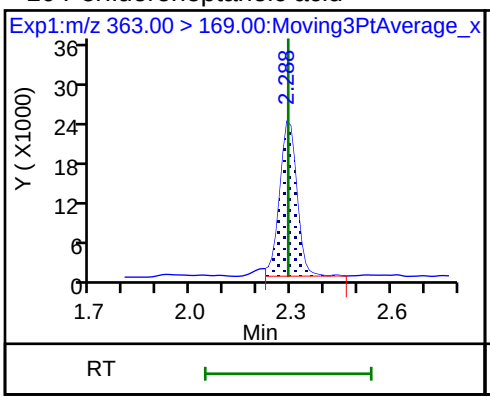
D 9 13C4-PFHpA



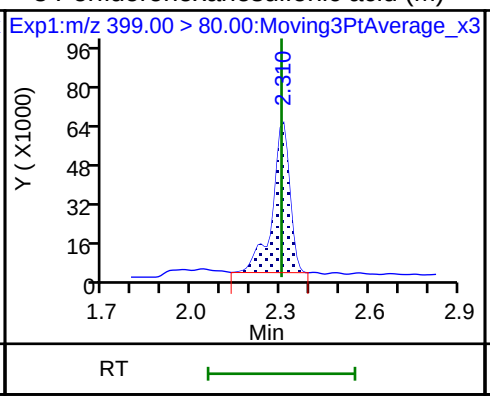
10 Perfluoroheptanoic acid (M)



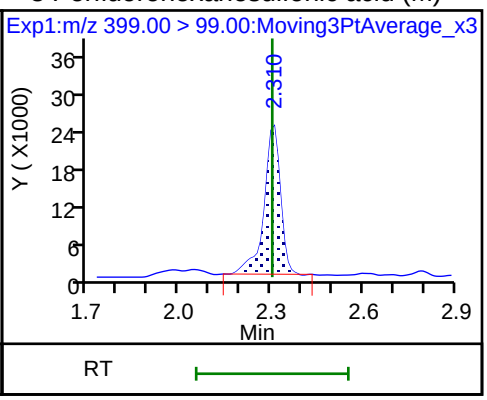
10 Perfluoroheptanoic acid



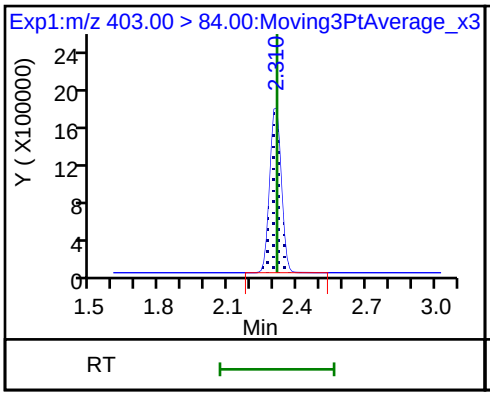
8 Perfluorohexanesulfonic acid (M)



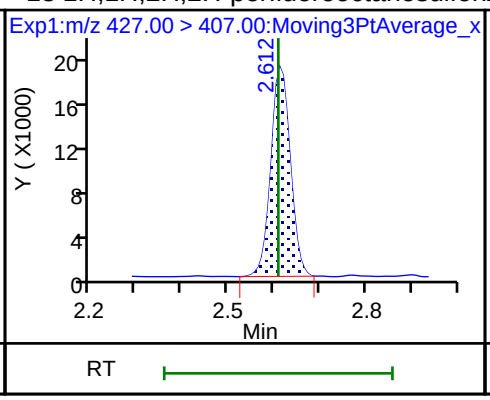
8 Perfluorohexanesulfonic acid (M)



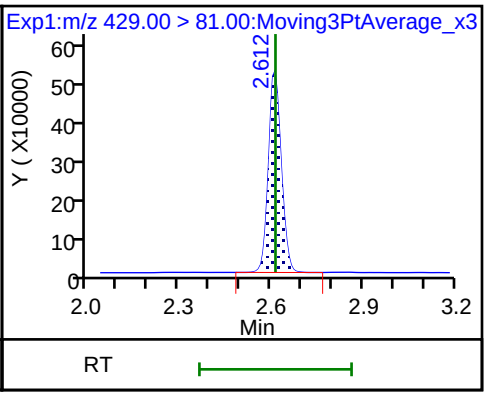
D 11 18O2 PFHxS



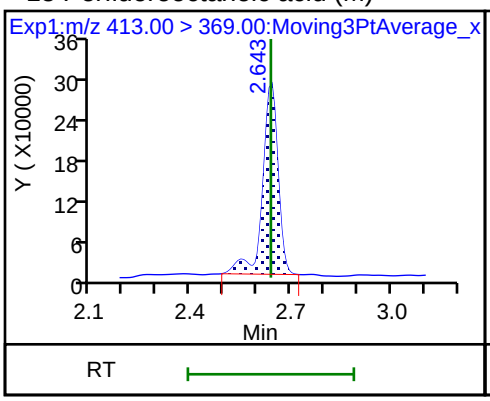
13 1H,1H,2H,2H-perfluorooctanesulfon



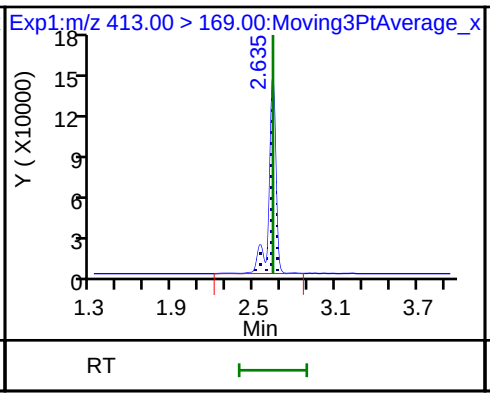
D 12 M2-6:2FTS



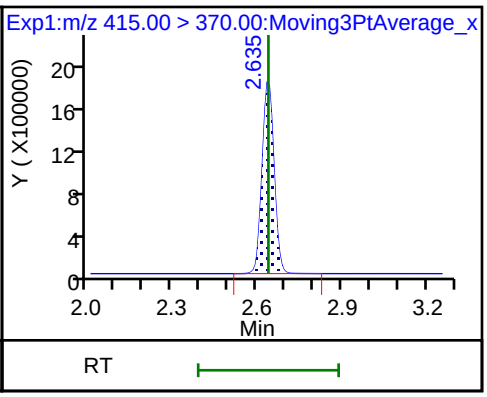
15 Perfluorooctanoic acid (M)



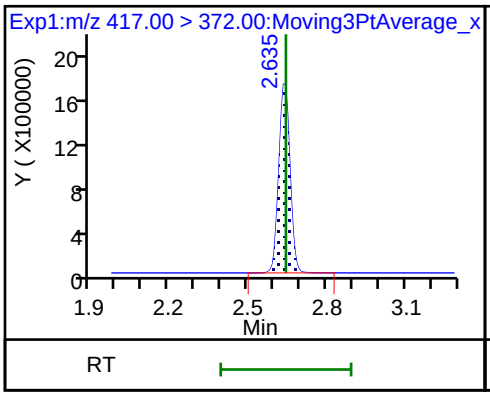
15 Perfluorooctanoic acid



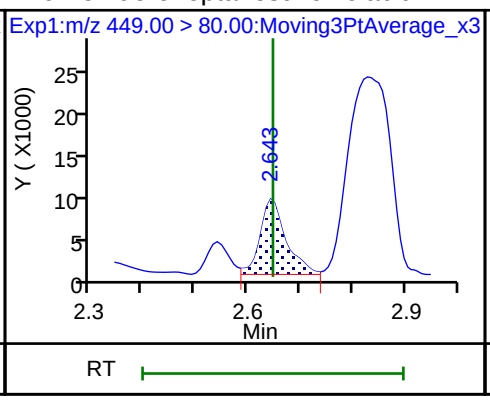
* 62 13C2-PFOA



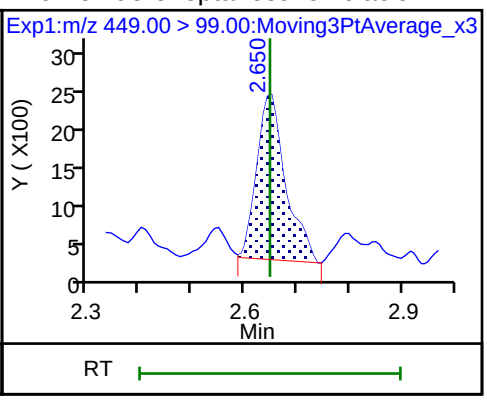
D 14 13C4 PFOA



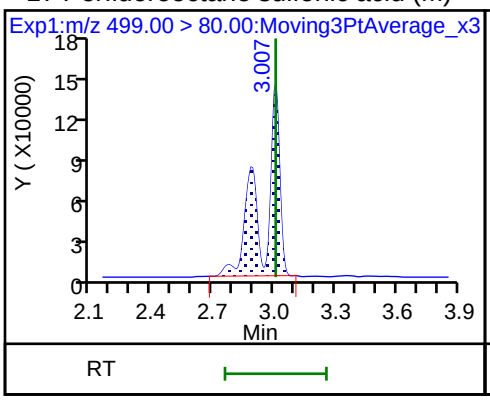
16 Perfluoroheptanesulfonic acid



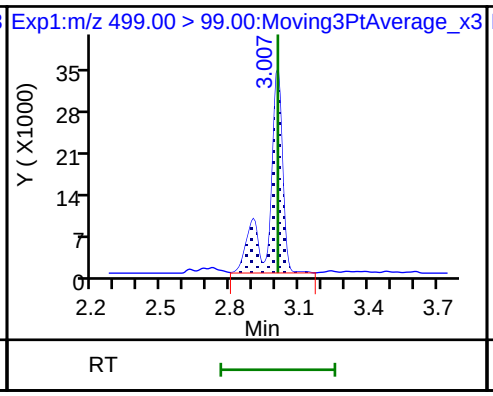
16 Perfluoroheptanesulfonic acid



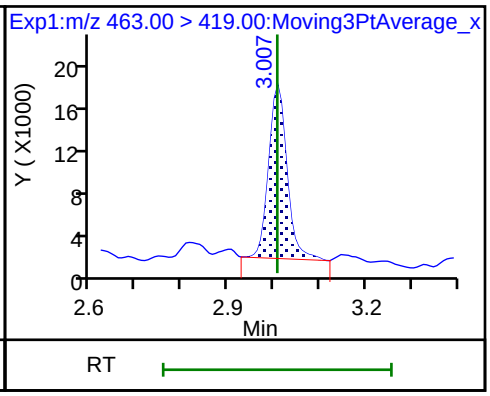
17 Perfluorooctane sulfonic acid (M)



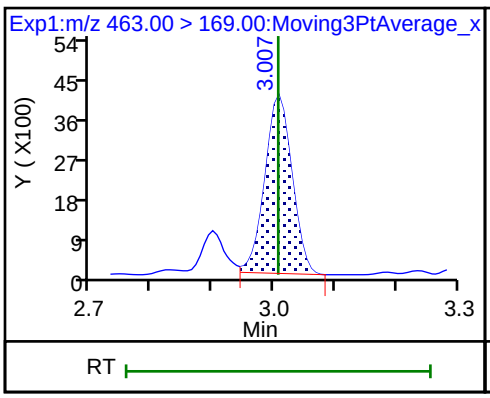
17 Perfluorooctane sulfonic acid



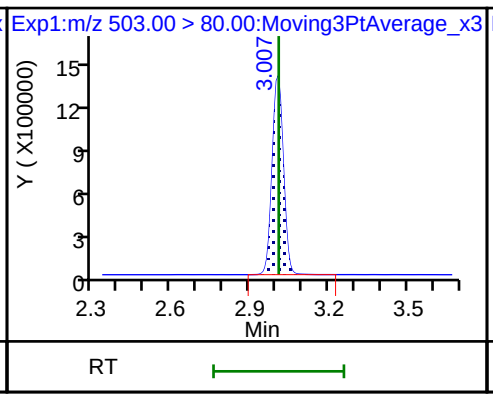
20 Perfluorononanoic acid



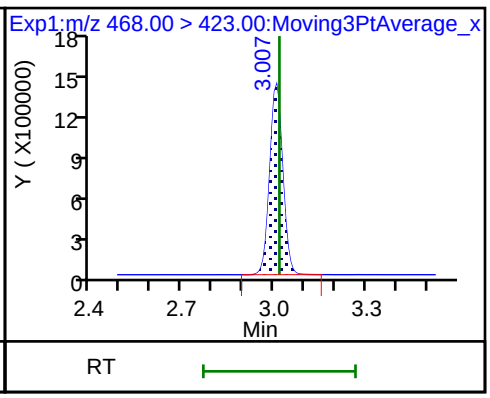
20 Perfluorononanoic acid



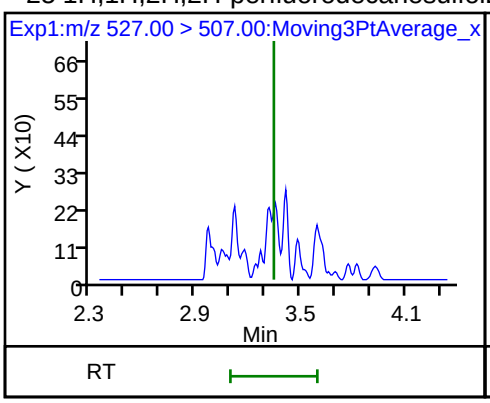
D 18 13C4 PFOS



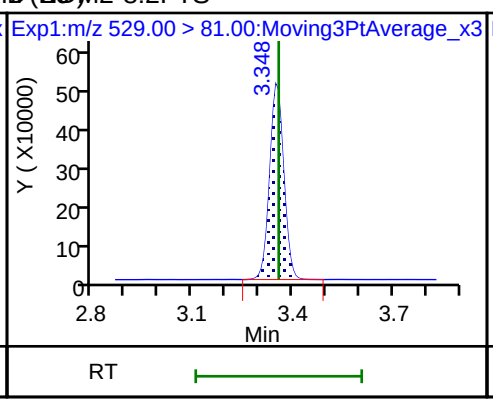
D 19 13C5 PFNA



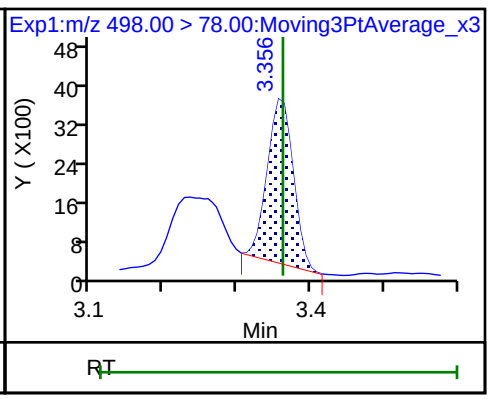
25 1H,1H,2H,2H-perfluorodecanesulfonic acid (M)



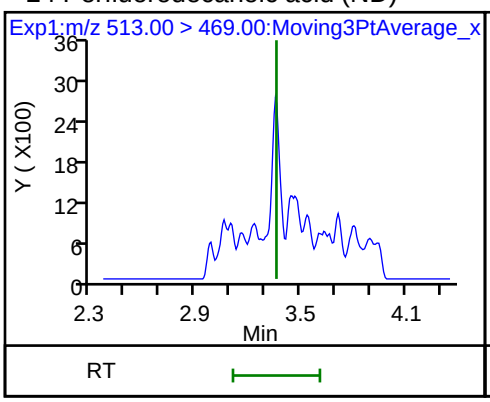
D 26 M2-8:2FTS



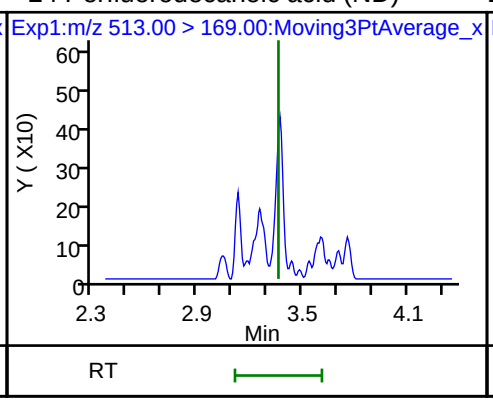
22 Perfluorooctane Sulfonamide



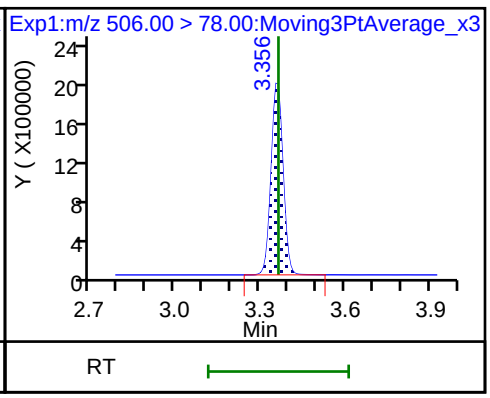
24 Perfluorodecanoic acid (ND)



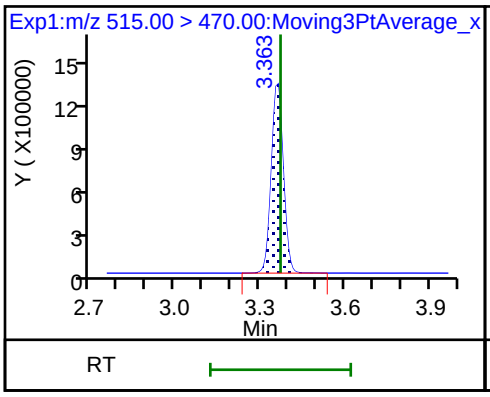
24 Perfluorodecanoic acid (ND)



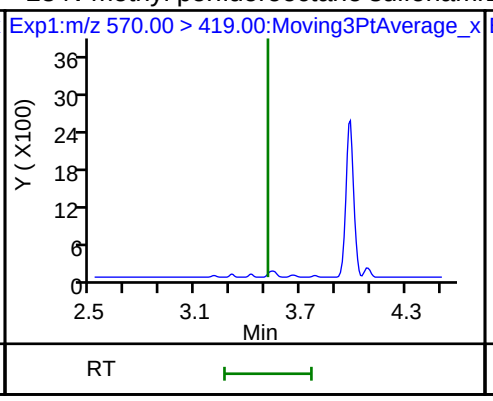
D 21 13C8 FOSA



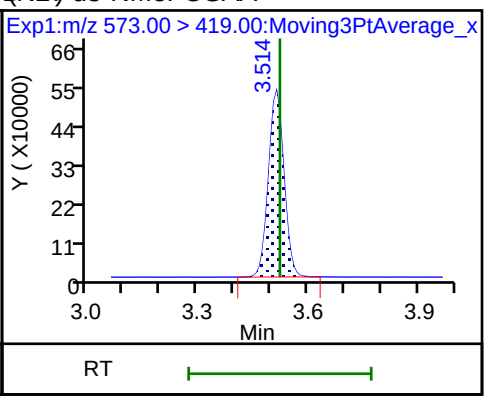
D 23 13C2 PFDA



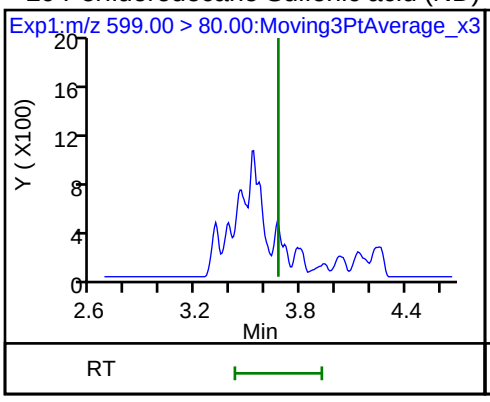
28 N-methyl perfluorooctane sulfonamid (ND)



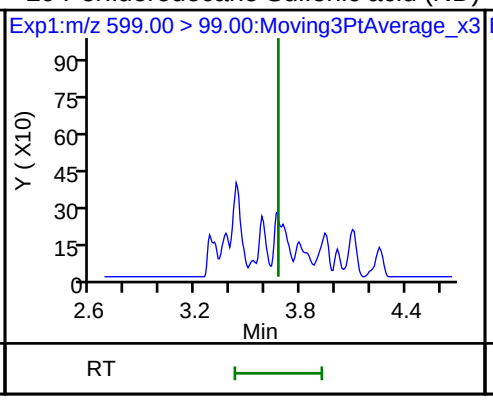
D 27 d3-NMeFOSAA



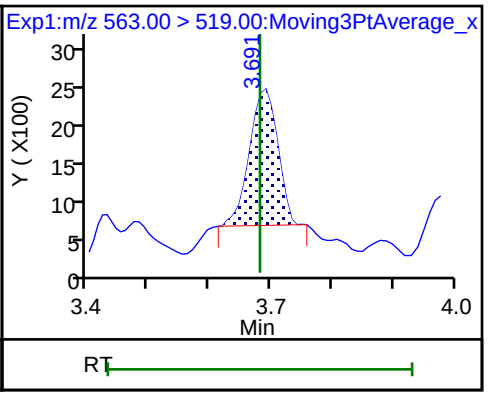
29 Perfluorodecane Sulfonic acid (ND)



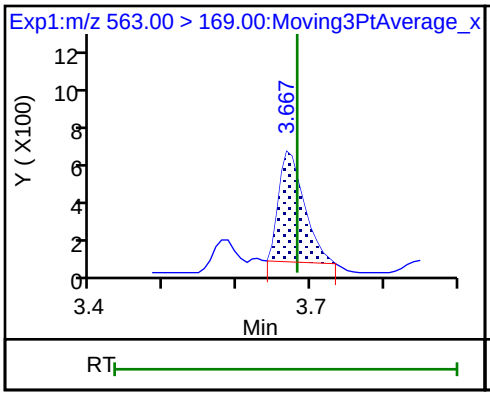
29 Perfluorodecane Sulfonic acid (ND)



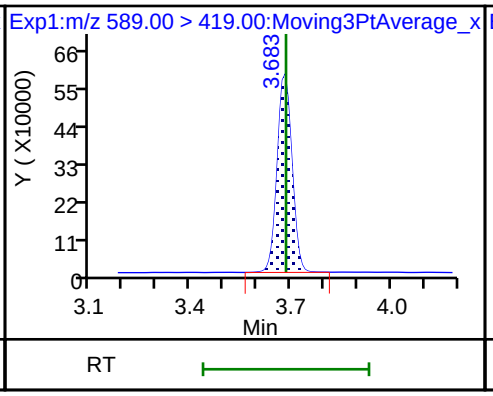
31 Perfluoroundecanoic acid



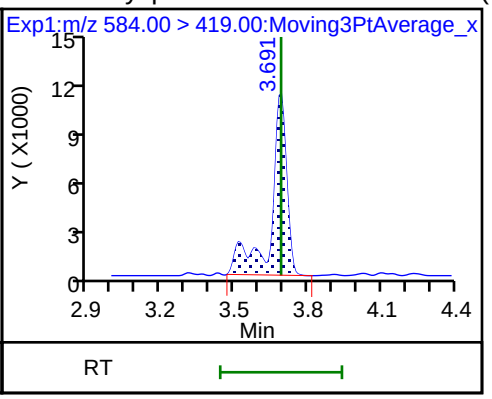
31 Perfluoroundecanoic acid



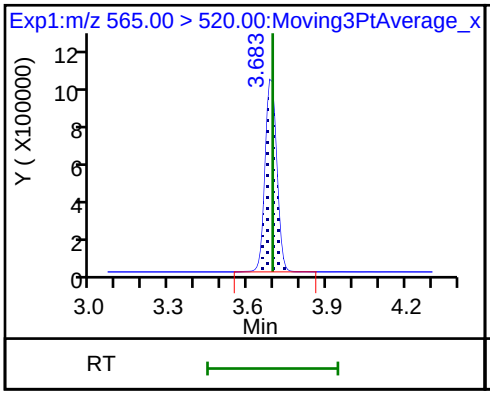
D 32 d5-NEtFOSAA



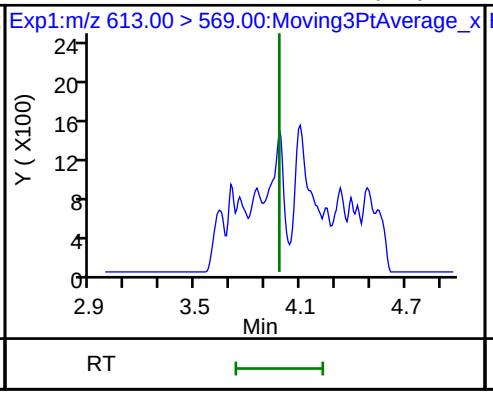
33 N-ethyl perfluorooctane sulfonamid (M)



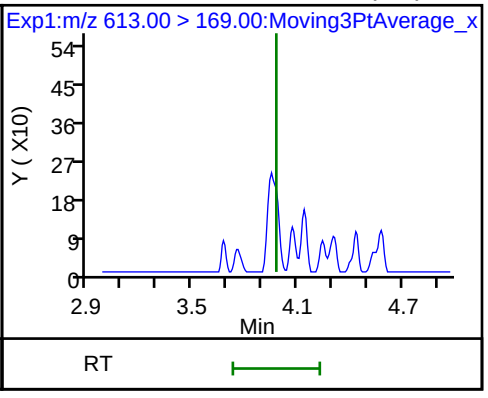
D 30 13C2 PFUnA



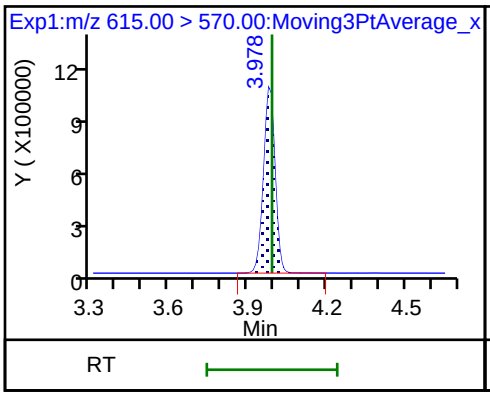
37 Perfluorododecanoic acid (ND)



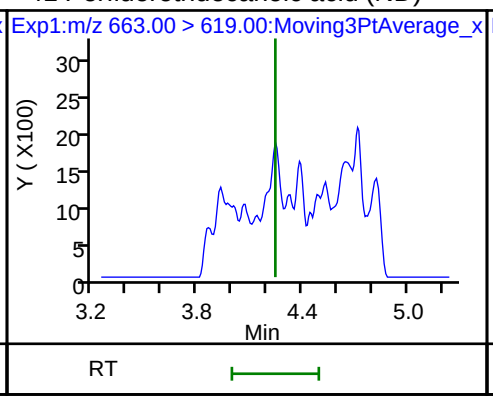
37 Perfluorododecanoic acid (ND)



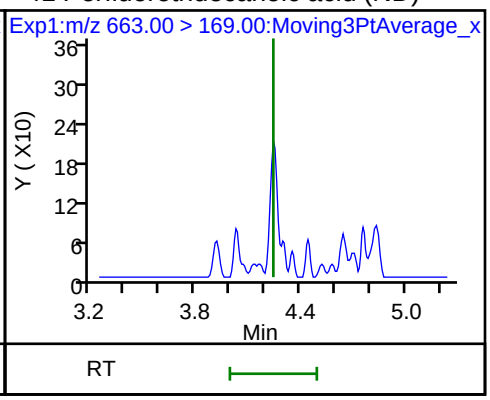
D 36 13C2 PFDoA



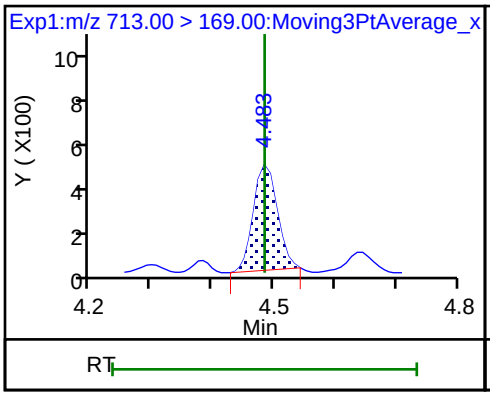
41 Perfluorotridecanoic acid (ND)



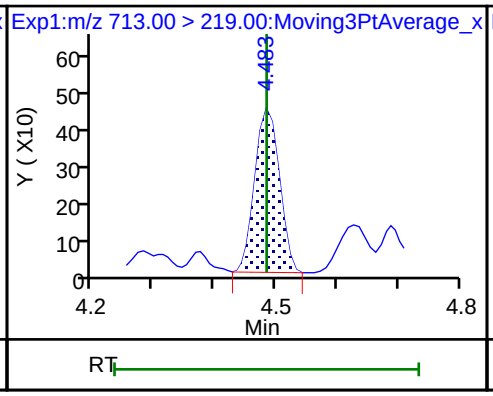
41 Perfluorotridecanoic acid (ND)



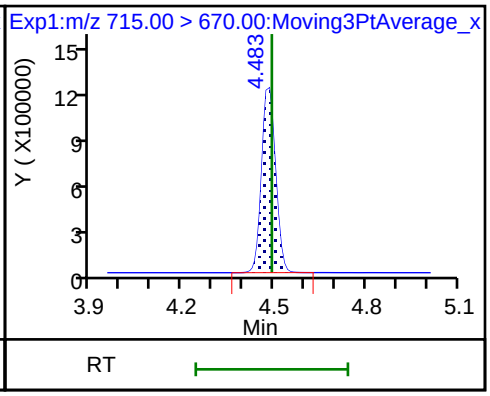
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid



D 43 13C2-PFTeDA



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

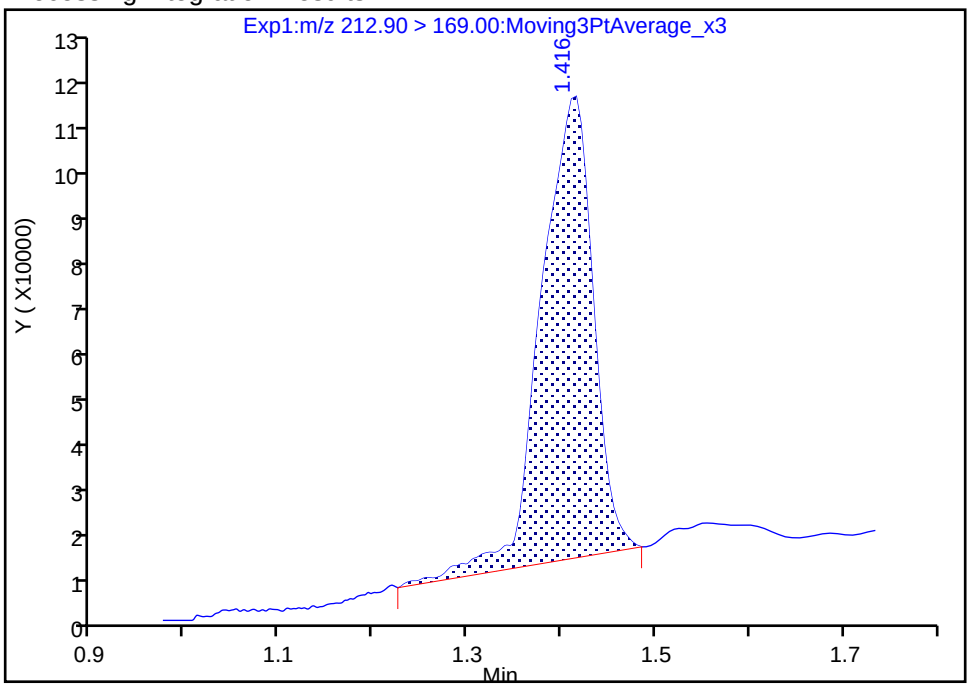
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d				
Injection Date:	30-Aug-2018 01:16:55	Instrument ID:	A8_N		
Lims ID:	320-42265-A-5-A	Lab Sample ID:	320-42265-5		
Client ID:	MW-2S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

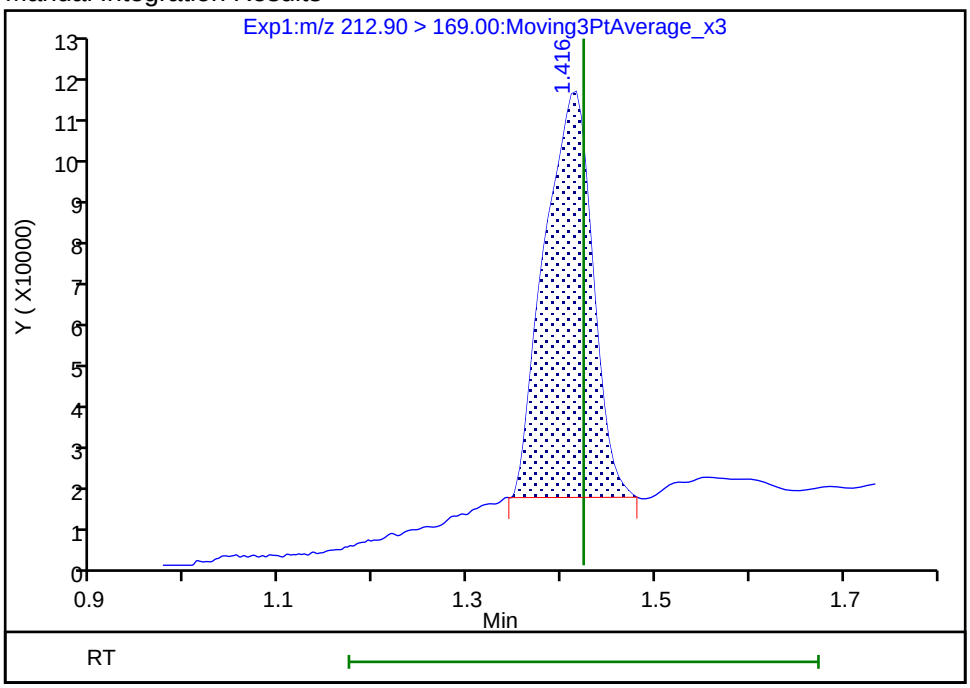
Processing Integration Results

RT: 1.42
Area: 377610
Amount: 0.216863
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 338528
Amount: 0.194418
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:41:45

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

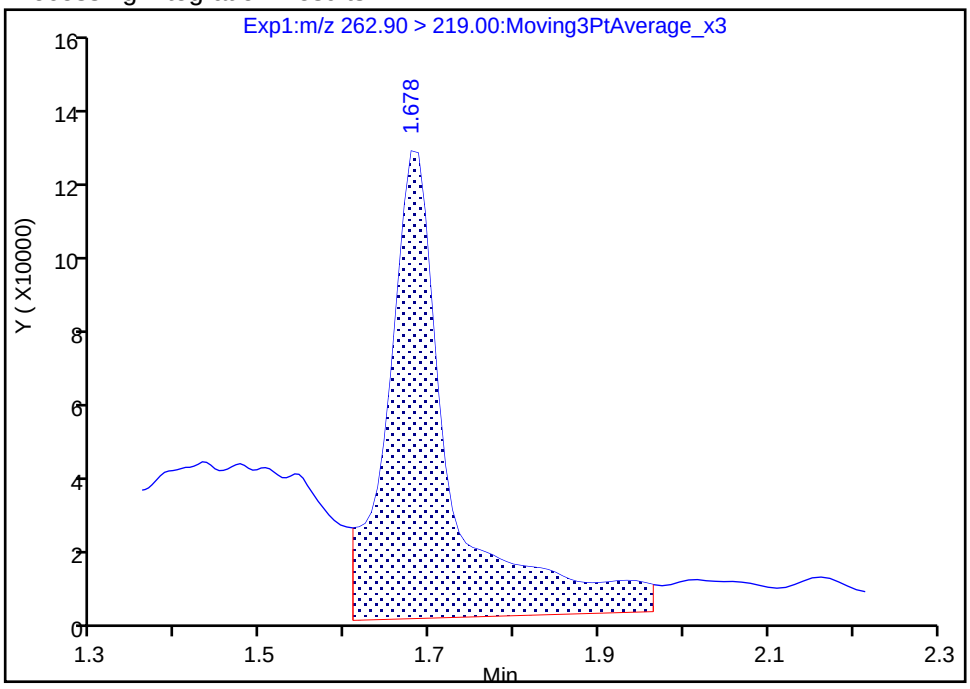
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d				
Injection Date:	30-Aug-2018 01:16:55	Instrument ID:	A8_N		
Lims ID:	320-42265-A-5-A	Lab Sample ID:	320-42265-5		
Client ID:	MW-2S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

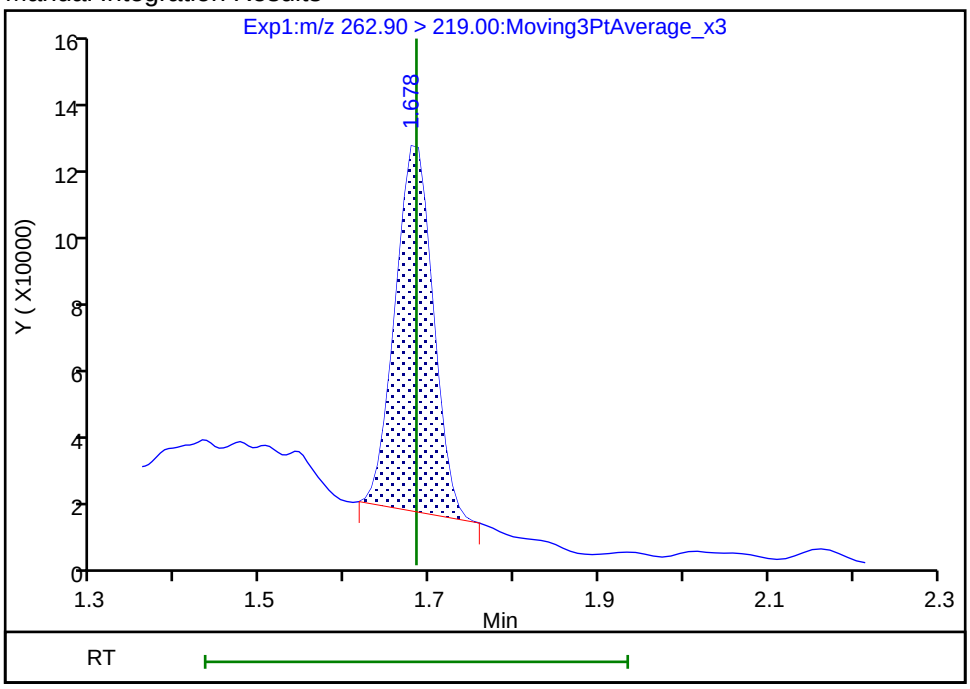
Processing Integration Results

RT: 1.68
Area: 654783
Amount: 0.377824
Amount Units: ng/ml



Manual Integration Results

RT: 1.68
Area: 323882
Amount: 0.186887
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:41:50

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

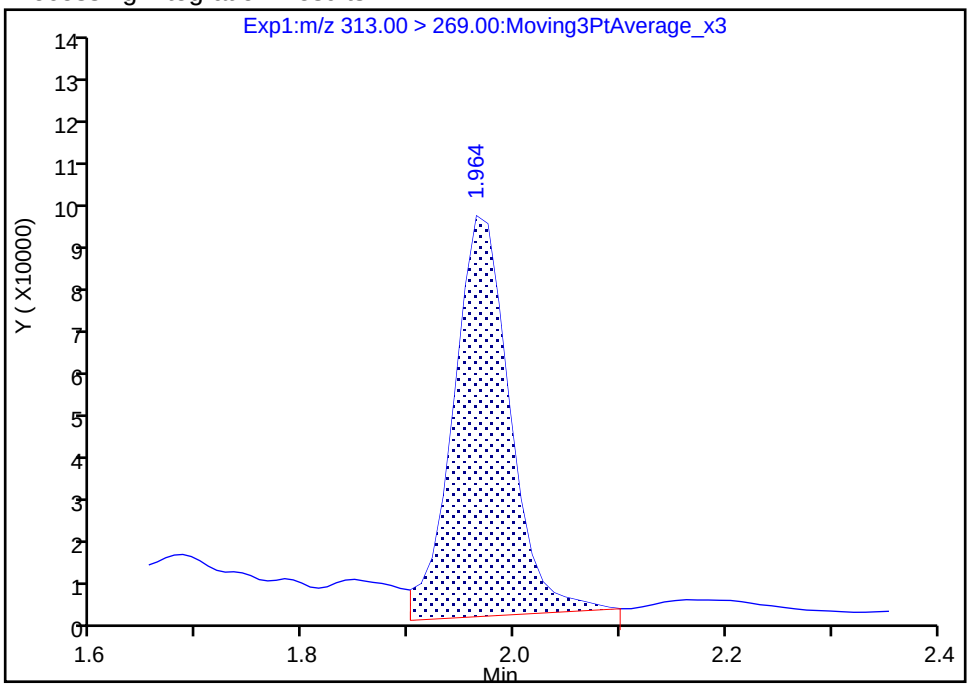
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d				
Injection Date:	30-Aug-2018 01:16:55	Instrument ID:	A8_N		
Lims ID:	320-42265-A-5-A	Lab Sample ID:	320-42265-5		
Client ID:	MW-2S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

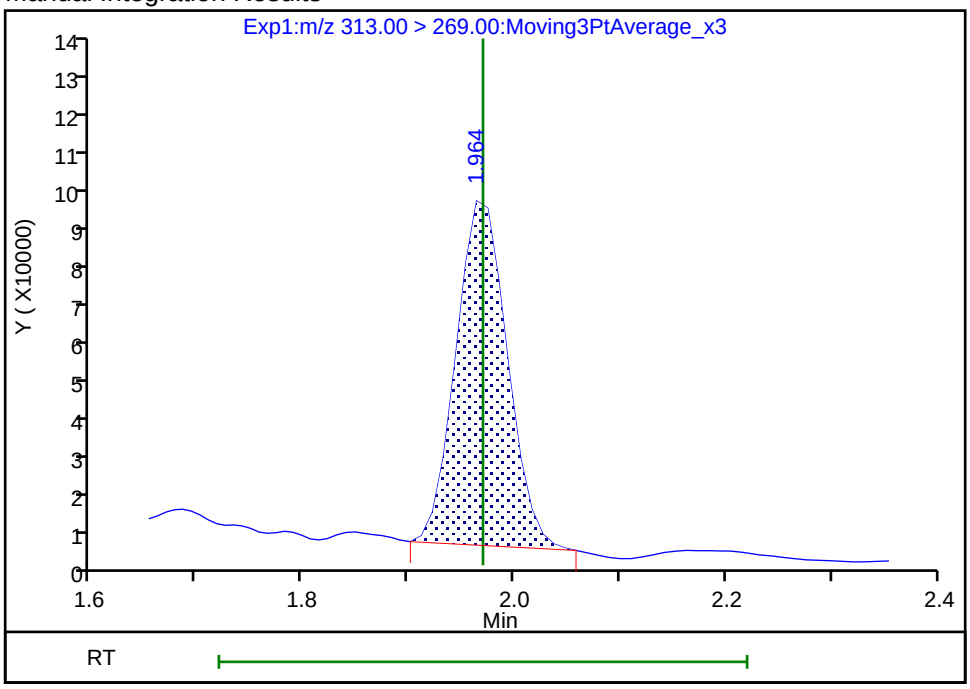
Processing Integration Results

RT: 1.96
Area: 325085
Amount: 0.180841
Amount Units: ng/ml



Manual Integration Results

RT: 1.96
Area: 279272
Amount: 0.155356
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:42:00

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

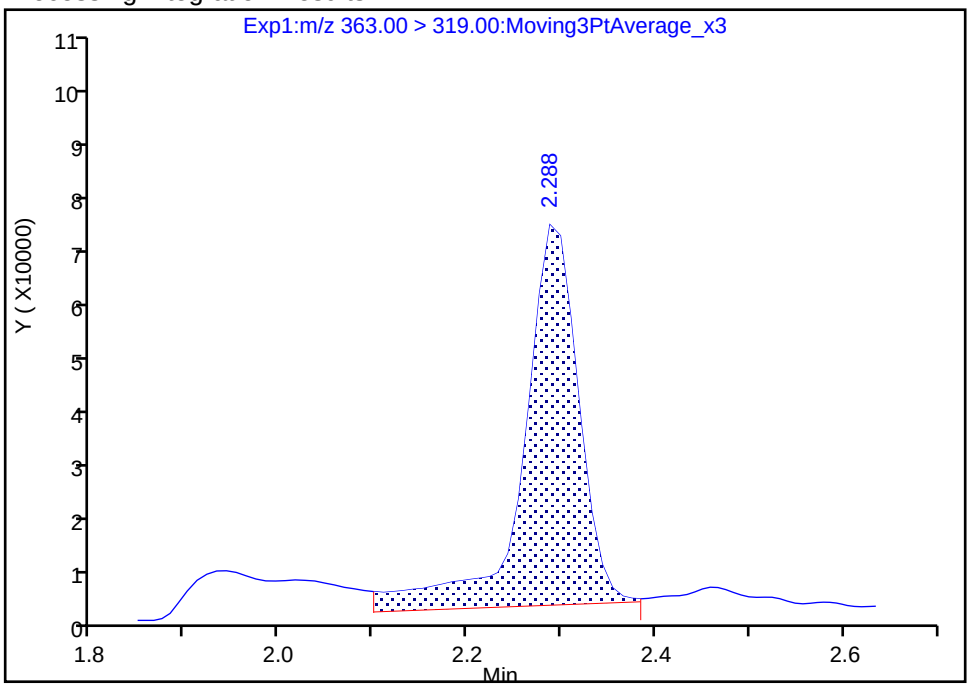
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d				
Injection Date:	30-Aug-2018 01:16:55	Instrument ID:	A8_N		
Lims ID:	320-42265-A-5-A	Lab Sample ID:	320-42265-5		
Client ID:	MW-2S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

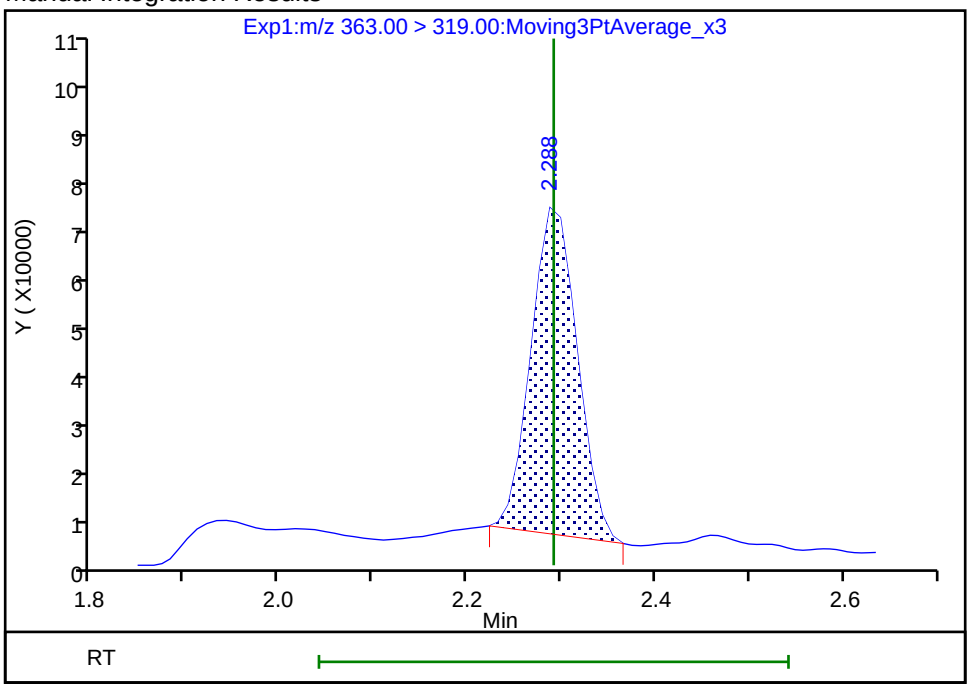
Processing Integration Results

RT: 2.29
Area: 281509
Amount: 0.133368
Amount Units: ng/ml



Manual Integration Results

RT: 2.29
Area: 220694
Amount: 0.104556
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:42:06

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

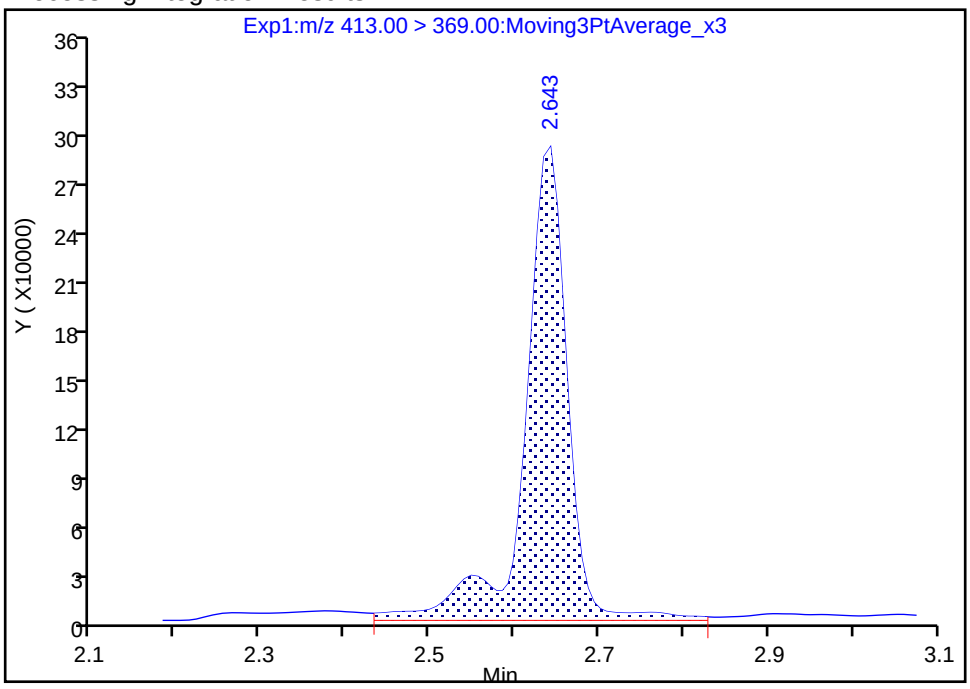
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d				
Injection Date:	30-Aug-2018 01:16:55	Instrument ID:	A8_N		
Lims ID:	320-42265-A-5-A	Lab Sample ID:	320-42265-5		
Client ID:	MW-2S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

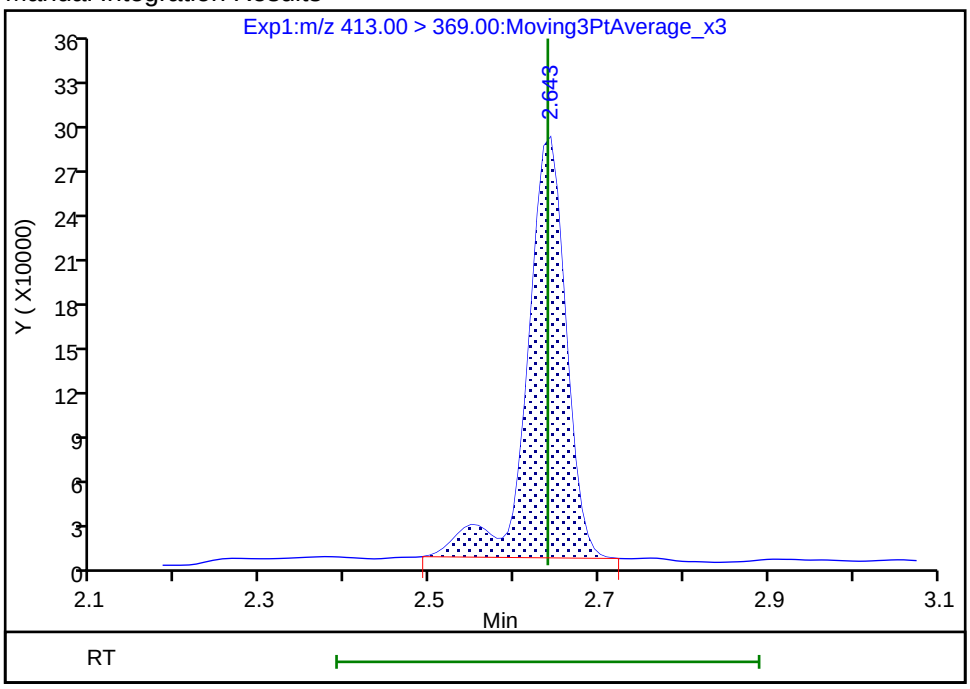
Processing Integration Results

RT: 2.64
Area: 1007899
Amount: 0.450222
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 896288
Amount: 0.400366
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:42:21

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

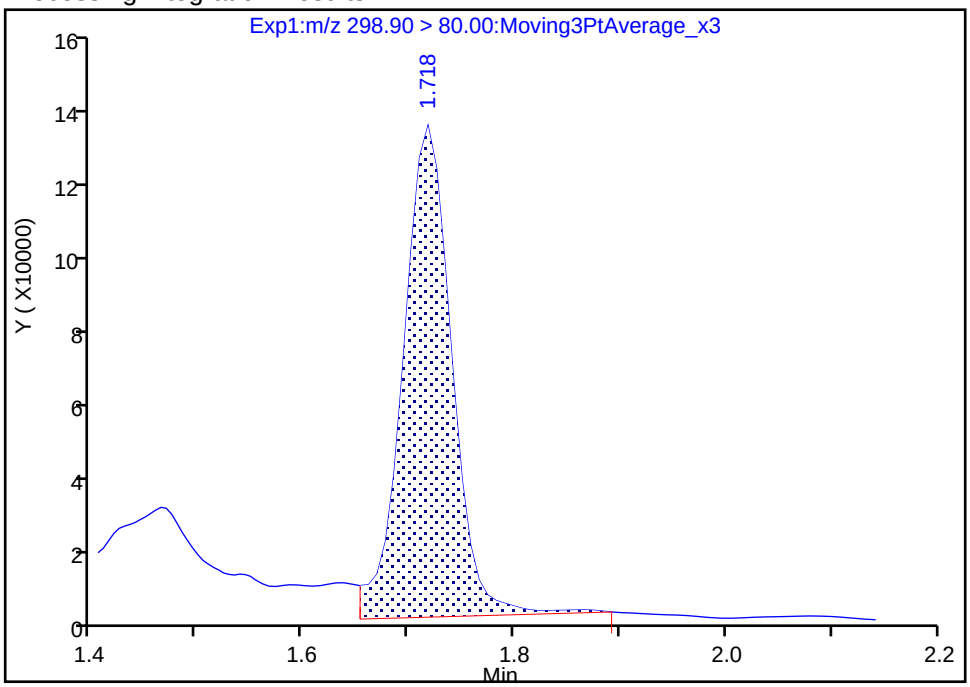
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d				
Injection Date:	30-Aug-2018 01:16:55	Instrument ID:	A8_N		
Lims ID:	320-42265-A-5-A	Lab Sample ID:	320-42265-5		
Client ID:	MW-2S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

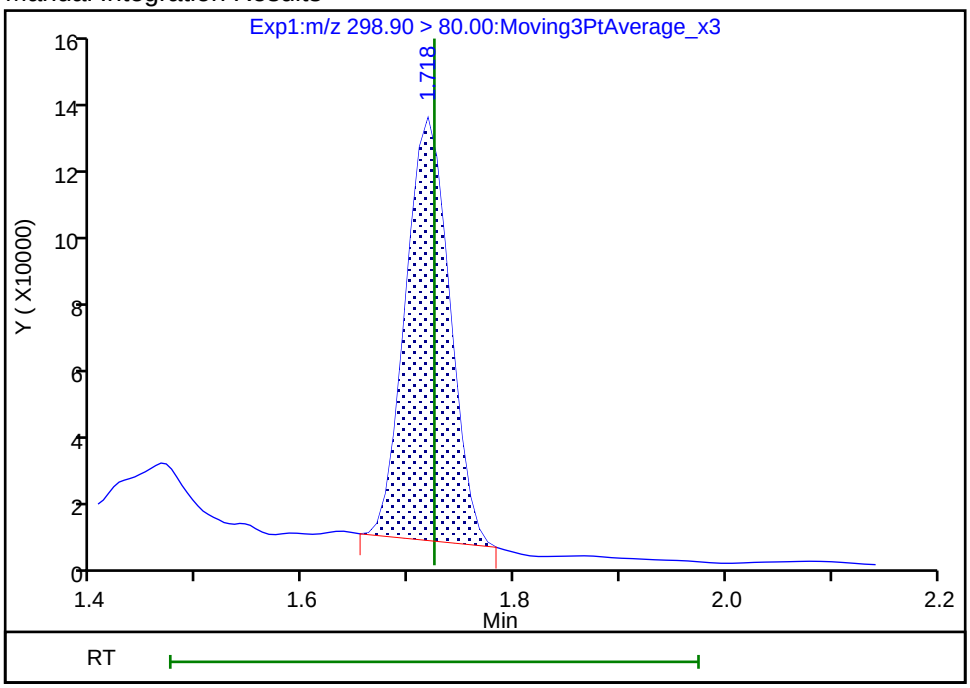
Processing Integration Results

RT: 1.72
Area: 418235
Amount: 0.149857
Amount Units: ng/ml



Manual Integration Results

RT: 1.72
Area: 360758
Amount: 0.129263
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:41:55

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

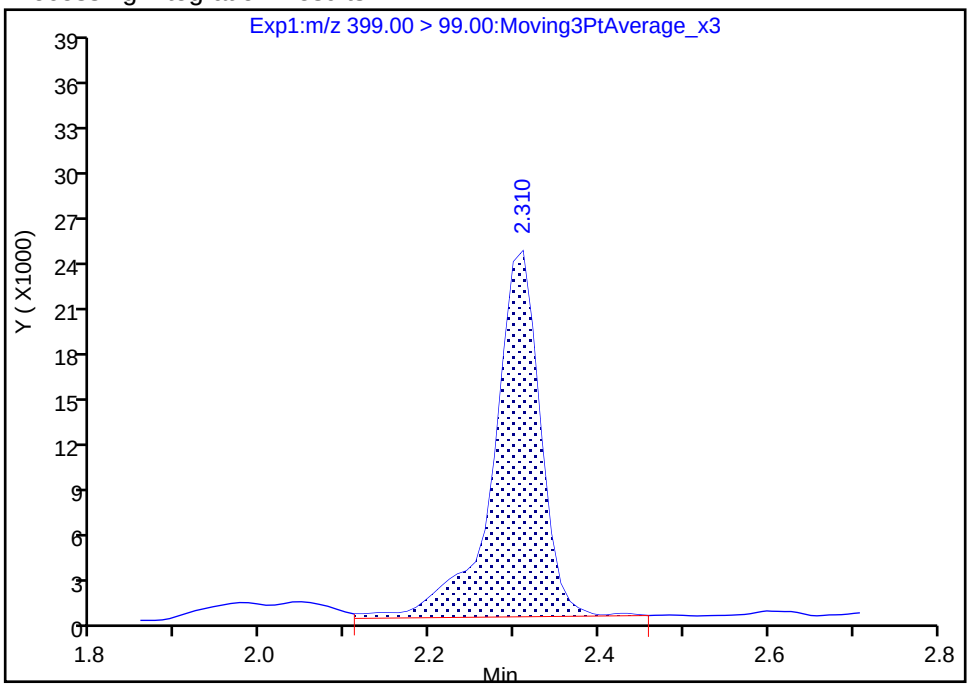
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d				
Injection Date:	30-Aug-2018 01:16:55	Instrument ID:	A8_N		
Lims ID:	320-42265-A-5-A	Lab Sample ID:	320-42265-5		
Client ID:	MW-2S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

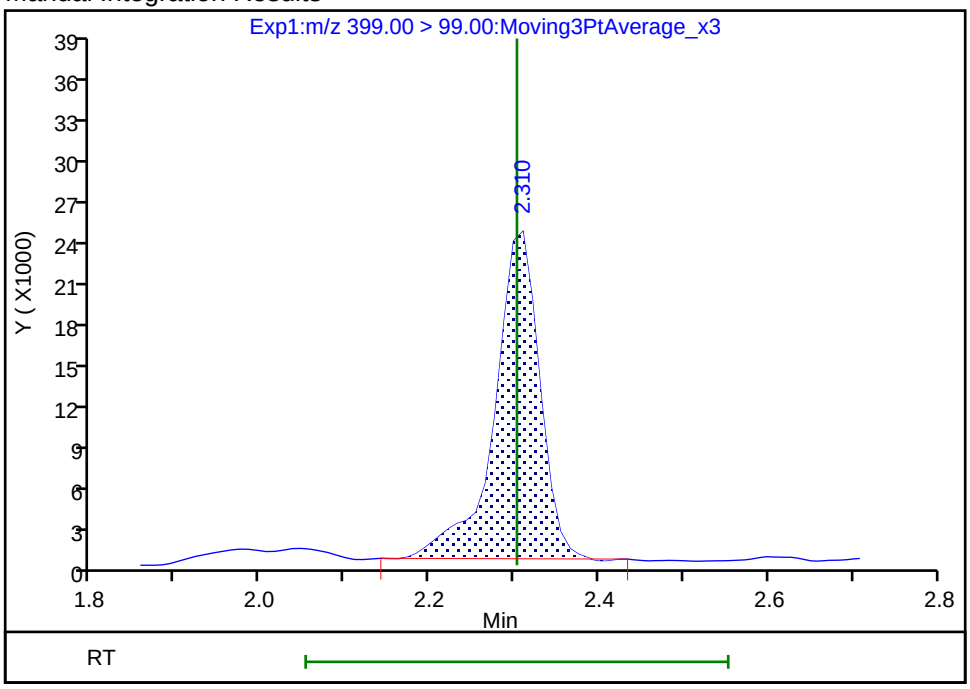
Processing Integration Results

RT: 2.31
Area: 94054
Amount: 0.102844
Amount Units: ng/ml



Manual Integration Results

RT: 2.31
Area: 88960
Amount: 0.092082
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:42:12

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d

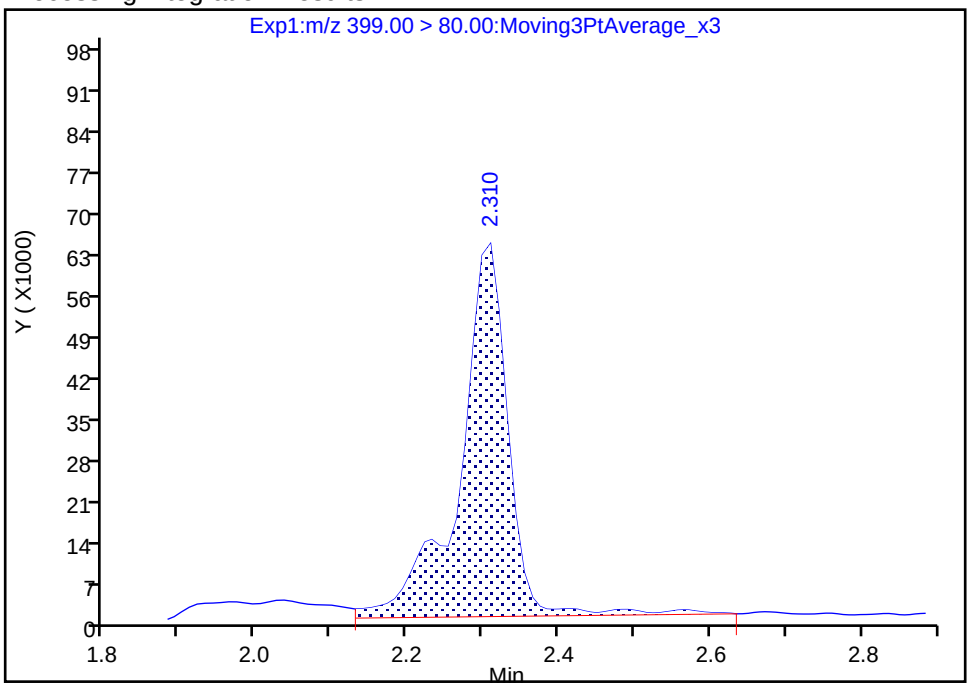
Injection Date:	30-Aug-2018 01:16:55	Instrument ID:	A8_N		
Lims ID:	320-42265-A-5-A	Lab Sample ID:	320-42265-5		
Client ID:	MW-2S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

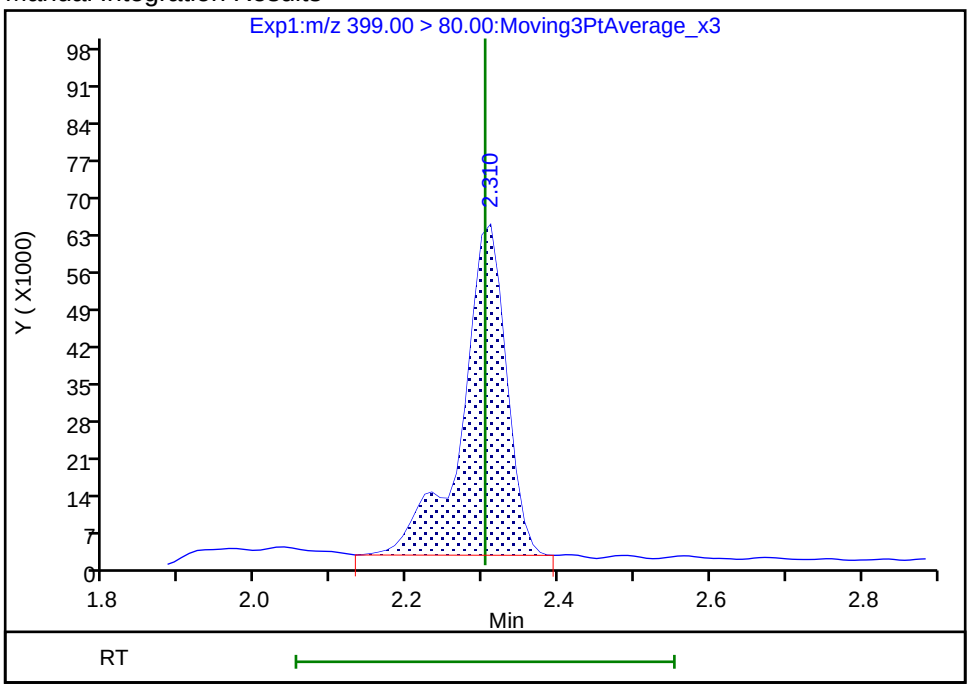
Processing Integration Results

RT: 2.31
Area: 285695
Amount: 0.102844
Amount Units: ng/ml



Manual Integration Results

RT: 2.31
Area: 255799
Amount: 0.092082
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:42:15

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

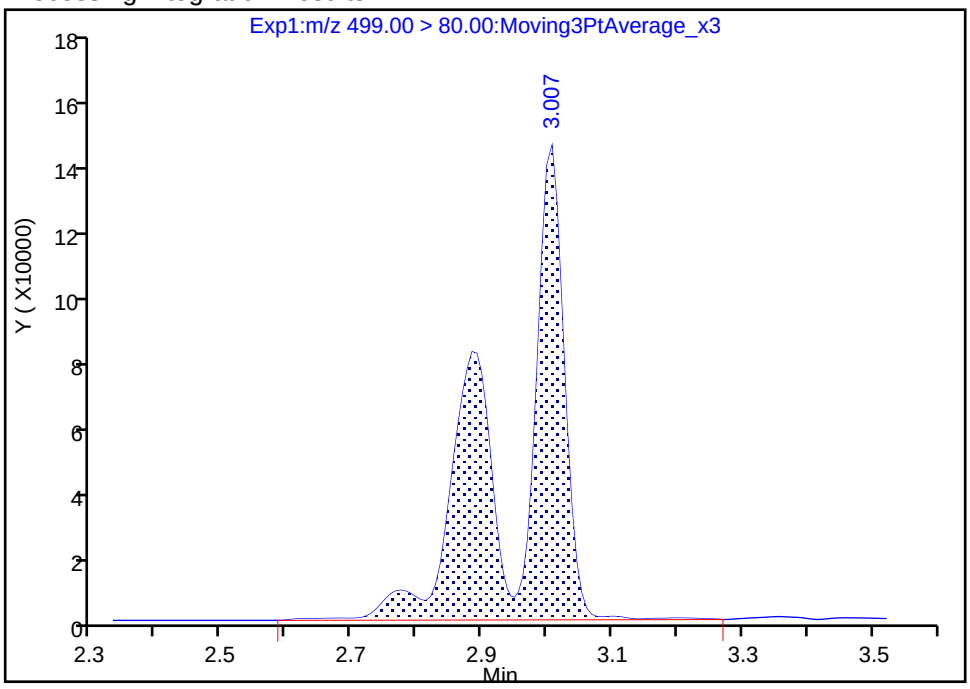
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d				
Injection Date:	30-Aug-2018 01:16:55	Instrument ID:	A8_N		
Lims ID:	320-42265-A-5-A	Lab Sample ID:	320-42265-5		
Client ID:	MW-2S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

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

Signal: 1

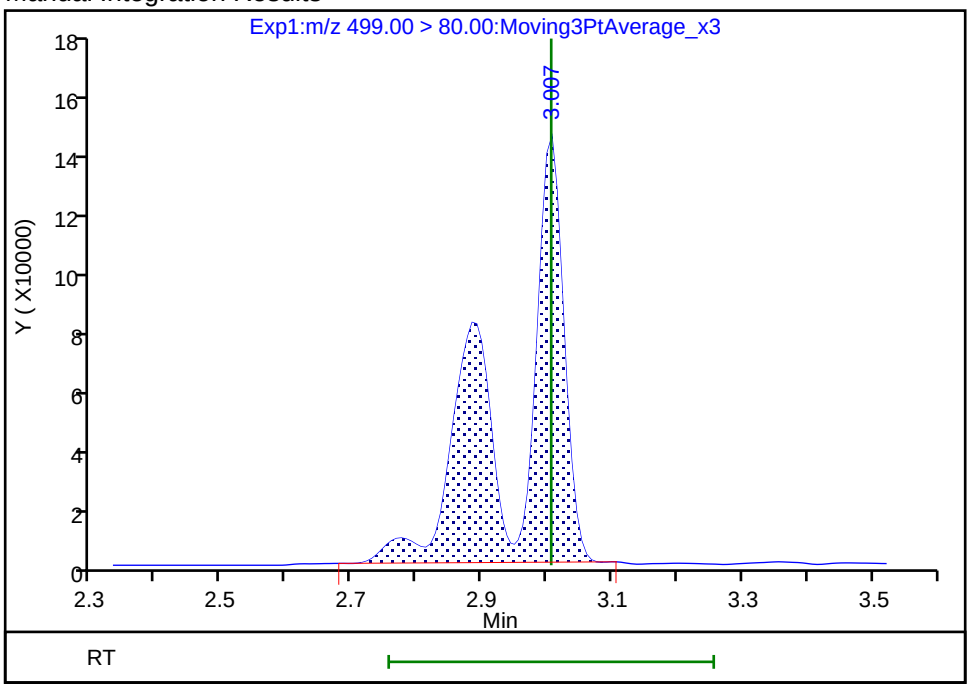
Processing Integration Results

RT: 3.01
Area: 763679
Amount: 0.405386
Amount Units: ng/ml



Manual Integration Results

RT: 3.01
Area: 738974
Amount: 0.392272
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:42:28

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

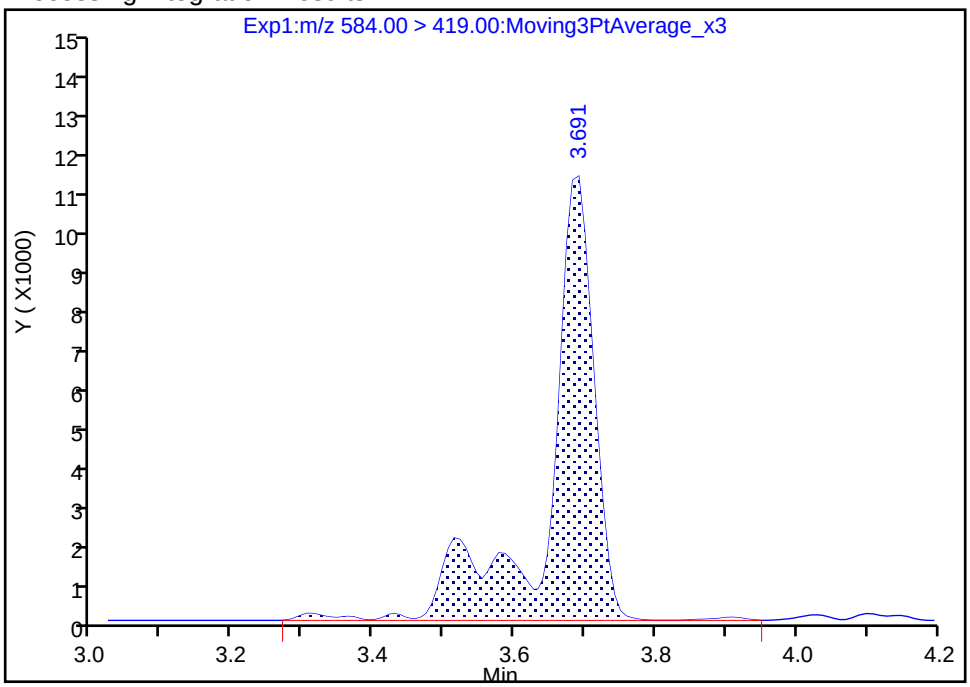
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_042.d				
Injection Date:	30-Aug-2018 01:16:55	Instrument ID:	A8_N		
Lims ID:	320-42265-A-5-A	Lab Sample ID:	320-42265-5		
Client ID:	MW-2S				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

33 N-ethyl perfluorooctane sulfonamidoacetic ac, CAS: 2991-50-6

Signal: 1

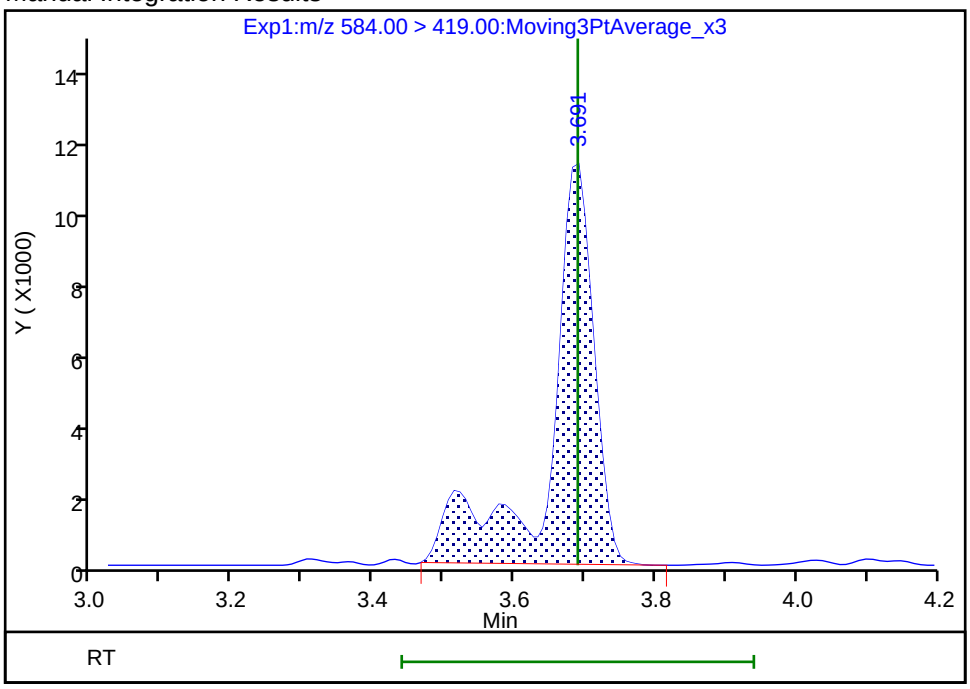
Processing Integration Results

RT: 3.69
Area: 51305
Amount: 0.085006
Amount Units: ng/ml



Manual Integration Results

RT: 3.69
Area: 49253
Amount: 0.081606
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:42:41

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-2D | Lab Sample ID: 320-42265-6

Matrix: Water | Lab File ID: 2018.08.29LLB_044.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 12:00

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 243.3(mL) | Date Analyzed: 08/30/2018 01:32

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	9.2		2.1	0.36
2706-90-3	Perfluoropentanoic acid (PFPeA)	1.6	J	2.1	0.50
307-24-4	Perfluorohexanoic acid (PFHxA)	1.3	J	2.1	0.60
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.0	J	2.1	0.26
335-67-1	Perfluorooctanoic acid (PFOA)	4.1		2.1	0.87
375-95-1	Perfluorononanoic acid (PFNA)	ND		2.1	0.28
335-76-2	Perfluorodecanoic acid (PFDA)	ND		2.1	0.32
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.30
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.86	J	2.1	0.21
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.8	B	2.1	0.17
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.1	0.20
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	F1	2.1	0.55
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33
754-91-6	Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0
27619-97-2	6:2 FTS	2.2	J	21	2.1
39108-34-4	8:2 FTS	ND		21	2.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-2D | Lab Sample ID: 320-42265-6

Matrix: Water | Lab File ID: 2018.08.29LLB_044.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 12:00

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 243.3(mL) | Date Analyzed: 08/30/2018 01:32

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	90		25-150
STL01893	13C5 PFPeA	91		25-150
STL00993	13C2 PFHxA	93		25-150
STL01892	13C4-PFHpA	100		25-150
STL00990	13C4 PFOA	97		25-150
STL00995	13C5 PFNA	97		25-150
STL00996	13C2 PFDA	93		25-150
STL00997	13C2 PFUnA	87		25-150
STL00998	13C2 PFDoA	92		25-150
STL02116	13C2-PFTeDA	92		25-150
STL02337	13C3-PFBS	86		25-150
STL00994	18O2 PFHxS	96		25-150
STL00991	13C4 PFOS	91		25-150
STL01056	13C8 FOSA	90		25-150
STL02118	d3-NMeFOSAA	86		25-150
STL02117	d5-NEtFOSAA	85		25-150
STL02279	M2-6:2FTS	98		25-150
STL02280	M2-8:2FTS	96		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_044.d
Lims ID: 320-42265-A-6-A
Client ID: MW-2D
Sample Type: Client
Inject. Date: 30-Aug-2018 01:32:32 ALS Bottle#: 33 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-42265-a-6-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:44:32 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:44:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.416	1.421	-0.005	0.537	6342406	2.26		90.2	9302	
2 Perfluorobutyric acid										
212.90 > 169.00	1.416	1.424	-0.008	1.000	507177	0.2250			53.4	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.678	1.684	-0.006	1.000	72909	0.0391			1.8	
D 3 13C5-PFPeA										
267.90 > 223.00	1.678	1.687	-0.009	0.637	4039893	2.27		90.9	5316	
D 47 13C3-PFBS										
301.90 > 83.00	1.710	1.720	-0.010	0.649	83801	1.99		85.7	184	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.718	1.724	-0.006	1.005	56683	0.0210			5.1	
298.90 > 99.00	1.710	1.724	-0.014	1.000	23306		2.43(1.25-3.74)		5.7	
D 7 13C2 PFHxA										
315.00 > 270.00	1.964	1.966	-0.002	0.746	4628662	2.32		92.9	8629	
6 Perfluorohexanoic acid										R
313.00 > 269.00	1.964	1.970	-0.006	1.000	60230	0.0323			5.5	R
313.00 > 119.00	1.964	1.970	-0.006	1.000	3958		15.22(5.03-15.10)		9.4	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.985	1.991	-0.006	1.161	49283	0.0198			14.4	
349.00 > 99.00	1.985	1.991	-0.006	1.161	12321		4.00(1.36-4.07)		8.3	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.058	2.064	-0.006	1.000	2300	0.008661			0.7	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.058	2.070	-0.012	0.781	209671	2.19		87.5	619	
D 9 13C4-PFHpA										
367.00 > 322.00	2.288	2.289	-0.001	0.868	4679755	2.49		99.6	13402	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
10 Perfluoroheptanoic acid										M
363.00 > 319.00	2.288	2.292	-0.004	1.000	52029	0.0254			10.4	M
363.00 > 169.00	2.288	2.292	-0.004	1.000	20138		2.58(1.13-3.40)		37.2	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.299	2.303	-0.004	1.000	177417	0.0679			111	M
399.00 > 99.00	2.299	2.303	-0.004	1.000	61927		2.86(1.50-4.49)		93.6	M
D 11 18O2 PFHxS										
403.00 > 84.00	2.299	2.311	-0.012	0.873	5647662	2.26		95.6	9428	
77 DONA										
377.00 > 251.00	2.332	2.336	-0.004	0.775	3152	0.000604			11.1	
377.00 > 85.00	2.299	2.336	-0.037	0.764	1504		2.10(0.85-2.54)		0.9	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.604	2.609	-0.005	0.997	33104	0.0525			208	
D 12 M2-6:2FTS										
429.00 > 81.00	2.612	2.613	-0.001	0.991	996531	2.34		98.5	2134	
D 73 13C8 PFOA										
421.00 > 376.00	2.627	2.636	-0.009	0.997	8115	0.002720		0.0	113	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.635	2.639	-0.004	1.000	193561	0.0989			23.6	M
413.00 > 169.00	2.635	2.639	-0.004	1.000	137767		1.40(0.84-2.52)		362	
* 62 13C2-PFOA										
415.00 > 370.00	2.635	2.639	-0.004		4549699	2.50			8645	
D 14 13C4 PFOA										
417.00 > 372.00	2.635	2.644	-0.009	1.000	4328026	2.41		96.6	12212	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.643	2.647	-0.004	0.879	7555	0.003987			3.9	
449.00 > 99.00	2.643	2.647	-0.004	0.879	2540		2.97(1.94-5.82)		7.1	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.008	3.006	0.002	1.000	967665	0.5656			968	
499.00 > 99.00	3.000	3.006	-0.006	0.997	252181		3.84(2.31-6.93)		878	
D 72 13C8 PFOS										
507.00 > 99.00	3.008	3.009	-0.001	1.141	808	0.000925		0.0	9.6	
D 18 13C4 PFOS										
503.00 > 80.00	3.008	3.009	-0.001	1.141	3717708	2.18		91.1	6028	
D 19 13C5 PFNA										
468.00 > 423.00	3.008	3.016	-0.008	1.141	3579463	2.43		97.2	8549	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.211	3.218	-0.007	1.068	2316	0.000821			5.9	
D 26 M2-8:2FTS										
529.00 > 81.00	3.356	3.357	-0.001	1.274	1136697	2.29		95.8	2959	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.356	3.362	-0.006	0.998	1466	0.000667			9.8	
D 21 13C8 FOSA										
506.00 > 78.00	3.364	3.364	0.0	1.277	5694816	2.25		90.1	7063	
D 23 13C2 PFDA										
515.00 > 470.00	3.364	3.372	-0.008	1.277	3190910	2.33		93.4	6794	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.515	3.523	-0.008	1.334	1368762	2.15		86.0	3589	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.683	3.685	-0.002	1.398	1477648	2.11		84.5	591	
D 30 13C2 PFUnA										
565.00 > 520.00	3.683	3.693	-0.010	1.398	2582341	2.19		87.4	5958	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.850	3.848	0.002	1.280	3793	0.000886			33.1	
D 36 13C2 PFDoA										
615.00 > 570.00	3.979	3.991	-0.012	1.510	2915698	2.31		92.5	10384	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.475	4.492	-0.017	1.698	3491659	2.31		92.4	4622	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.889	4.897	-0.008	1.855	3945732	1.81		72.3	5894	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.898	4.898	0.0	1.002	37184	0.003665			5.3	
813.00 > 169.00	4.889	4.898	-0.009	1.000	7341		5.07(2.86-8.58)		91.7	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Report Date: 31-Aug-2018 14:44:33 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_044.d

Injection Date: 30-Aug-2018 01:32:32 Instrument ID: A8_N

Lims ID: 320-42265-A-6-A Lab Sample ID: 320-42265-6

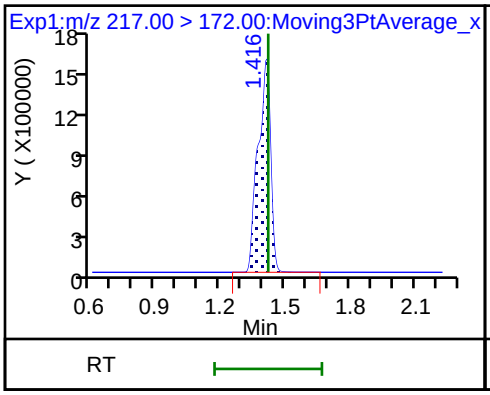
Client ID: MW-2D

Operator ID: SACINSTLCMS01 ALS Bottle#: 33 Worklist Smp#: 13

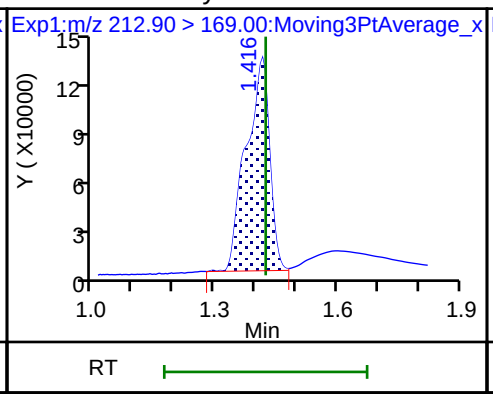
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

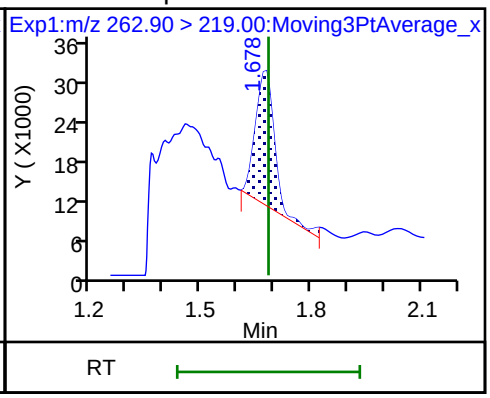
D 1 13C4 PFBA



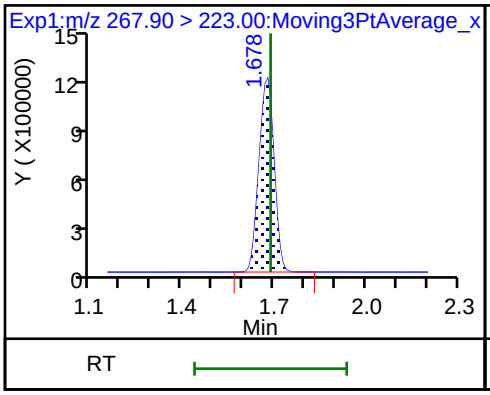
2 Perfluorobutyric acid



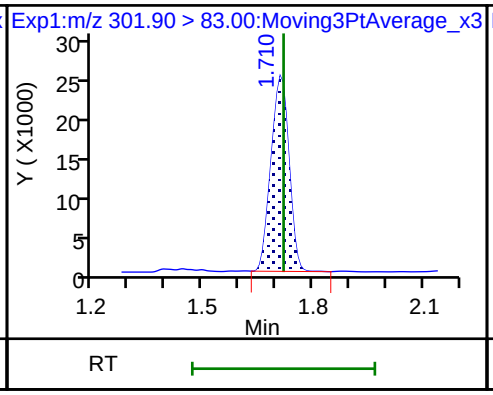
4 Perfluoropentanoic acid



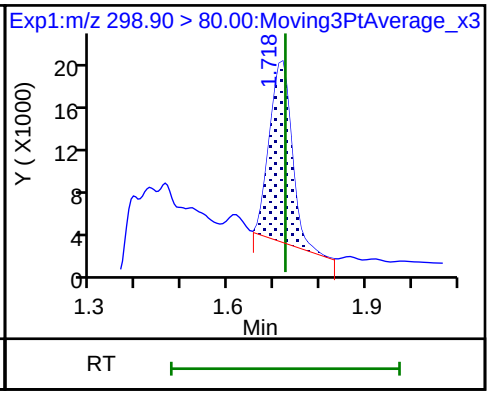
D 3 13C5-PFPeA



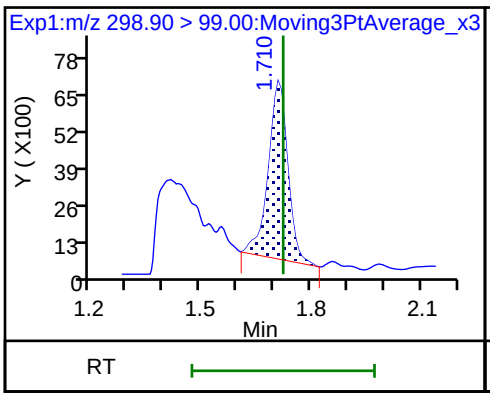
D 47 13C3-PFBS



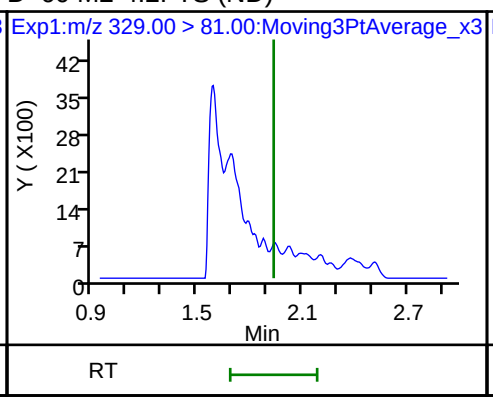
5 Perfluorobutanesulfonic acid



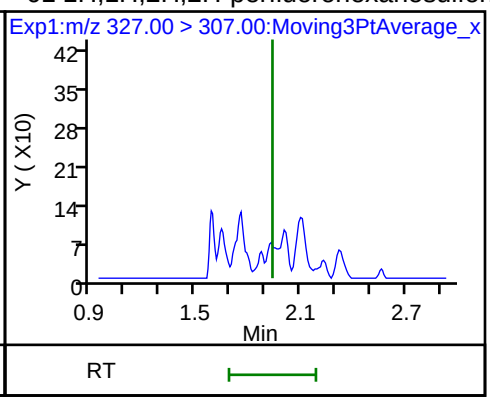
5 Perfluorobutanesulfonic acid



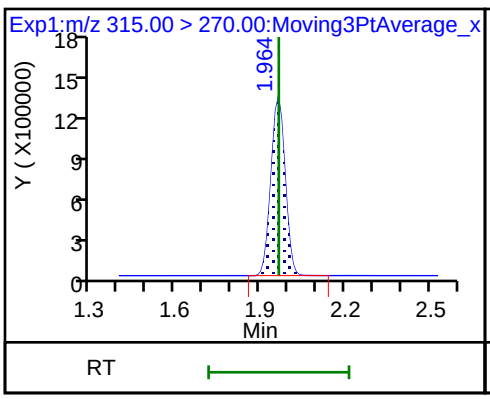
D 60 M2-4:2FTS (ND)



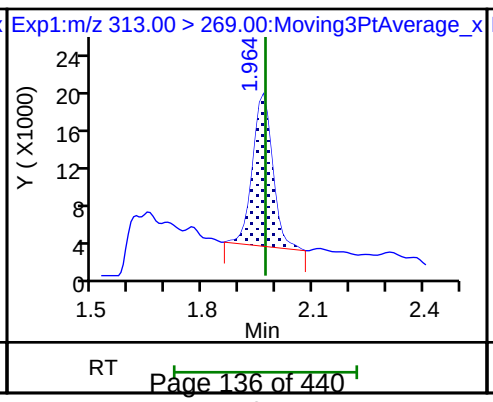
61 1H,1H,2H,2H-perfluorohexanesulfoni (ND)



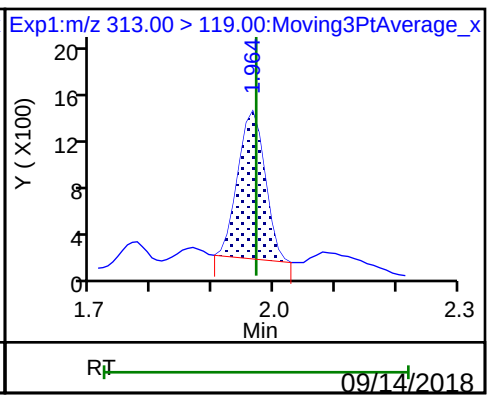
D 7 13C2 PFHxA



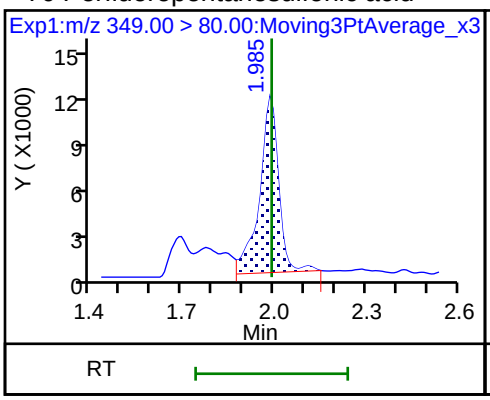
6 Perfluorohexanoic acid



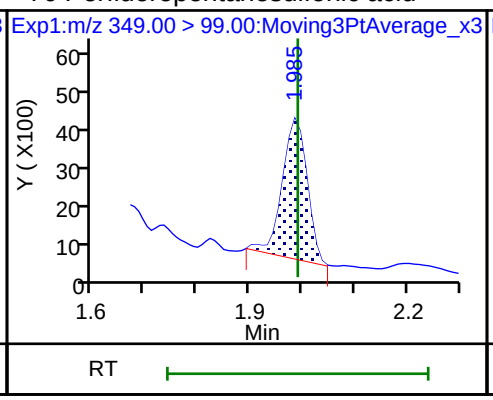
6 Perfluorohexanoic acid



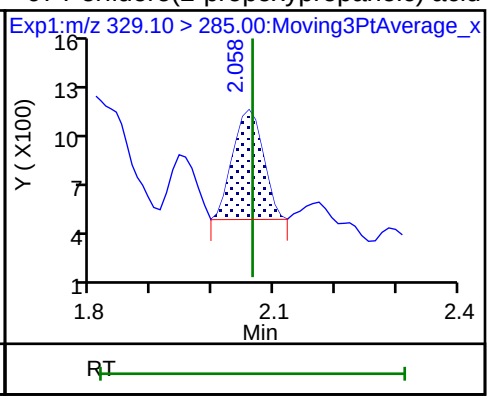
70 Perfluoropentanesulfonic acid



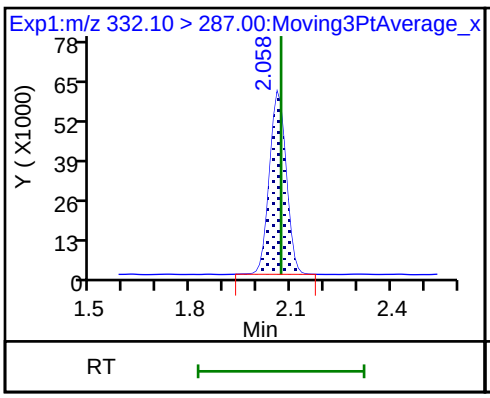
70 Perfluoropentanesulfonic acid



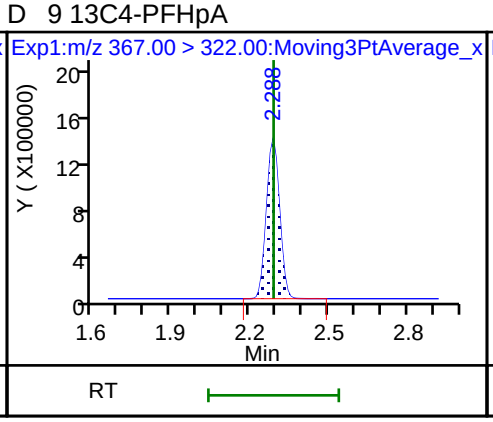
67 Perfluoro(2-propoxypropanoic) acid



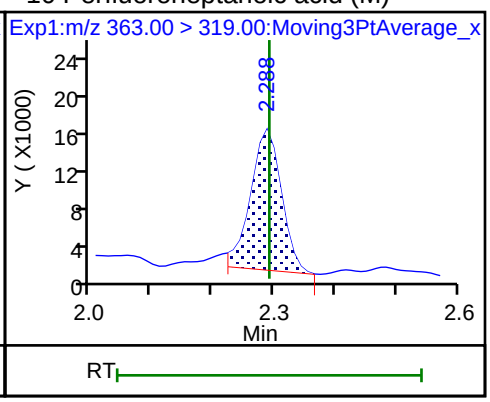
D 64 13C3 HFPO-DA



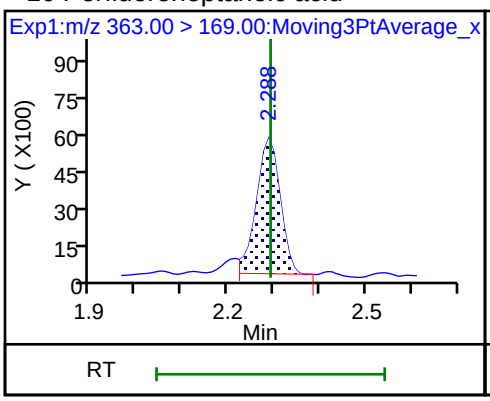
D 9 13C4-PFHpA



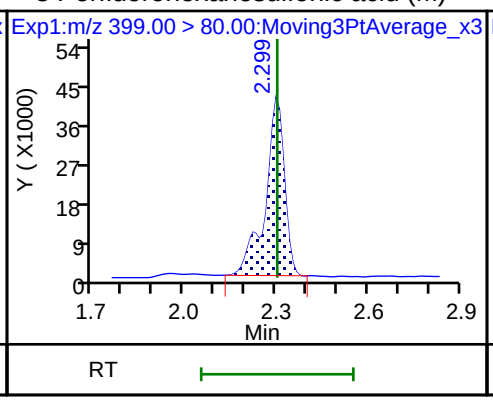
10 Perfluoroheptanoic acid (M)



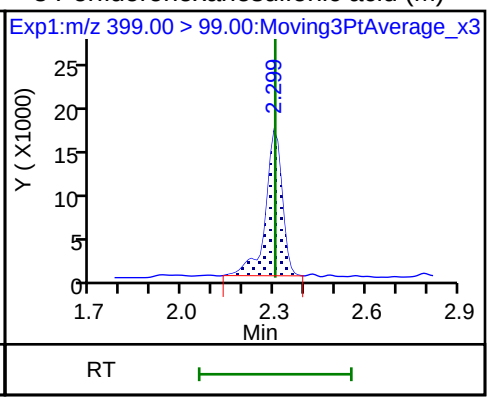
10 Perfluoroheptanoic acid



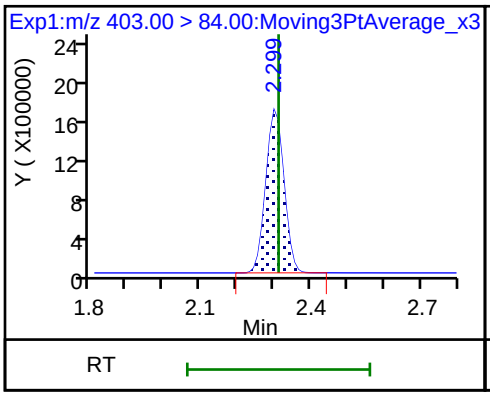
8 Perfluorohexanesulfonic acid (M)



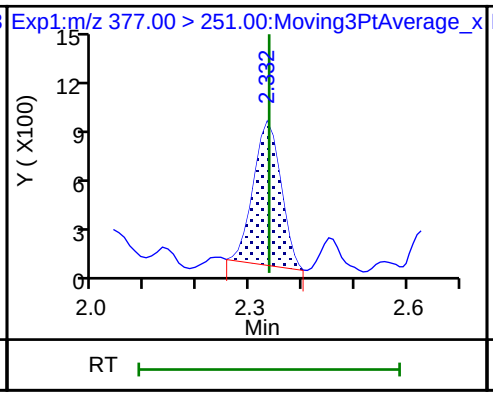
8 Perfluorohexanesulfonic acid (M)



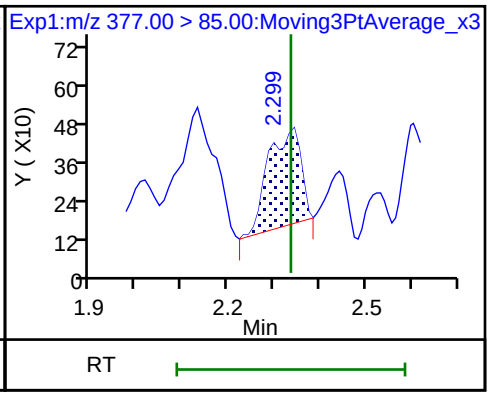
D 11 18O2 PFHxS



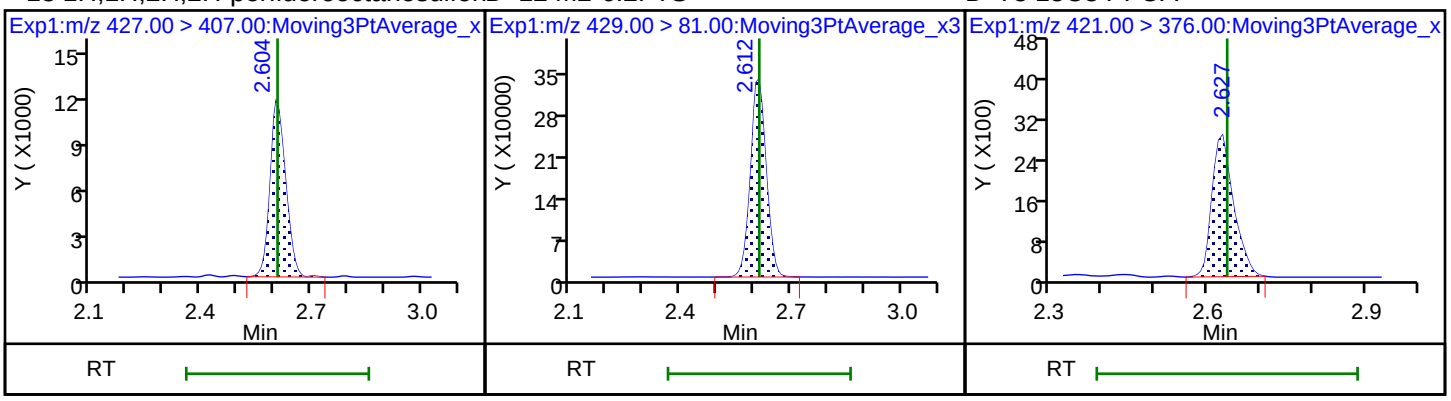
77 DONA



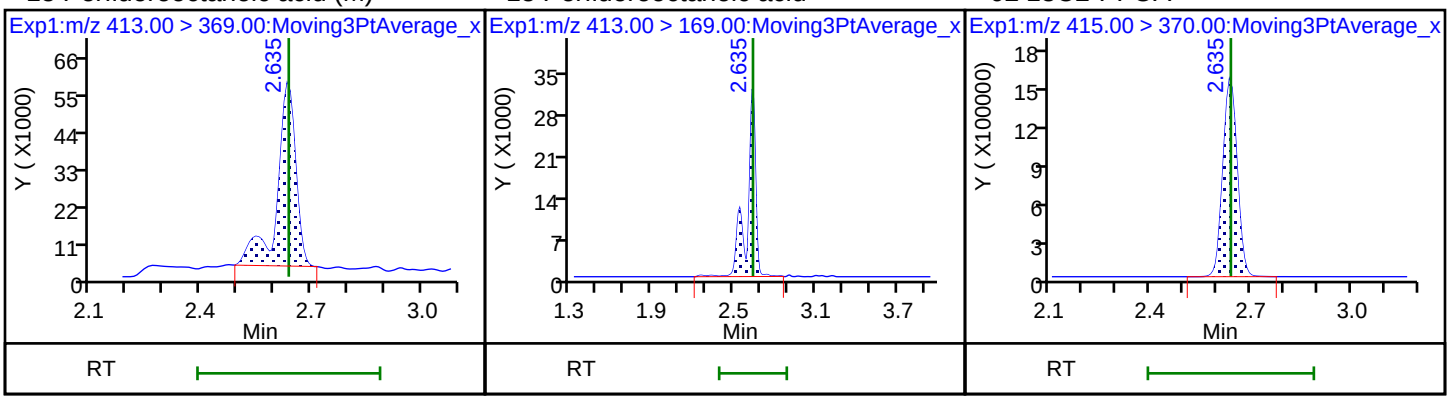
77 DONA



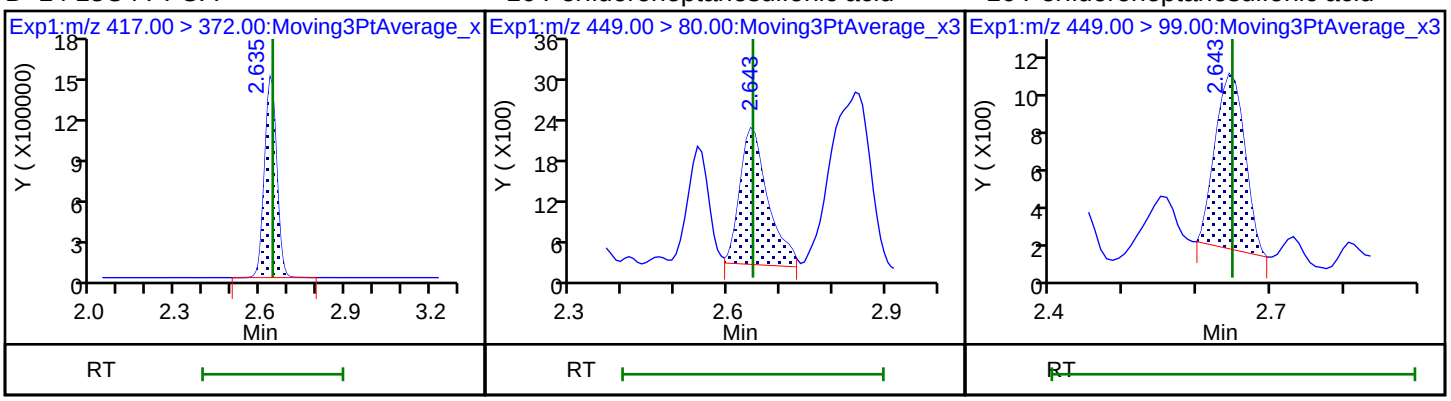
13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2FTS D 73 13C8 PFOA



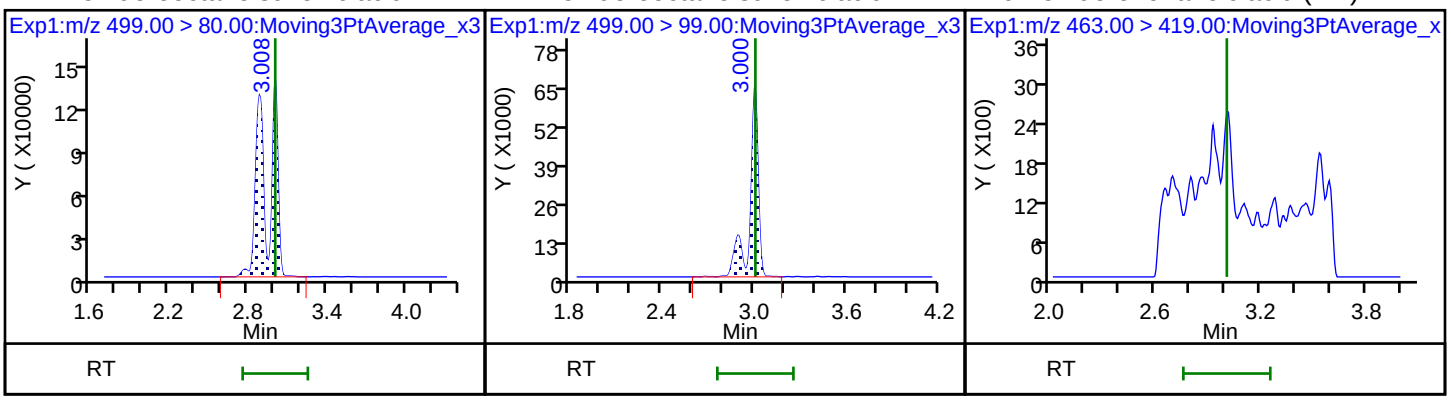
15 Perfluorooctanoic acid (M) 15 Perfluorooctanoic acid * 62 13C2-PFOA



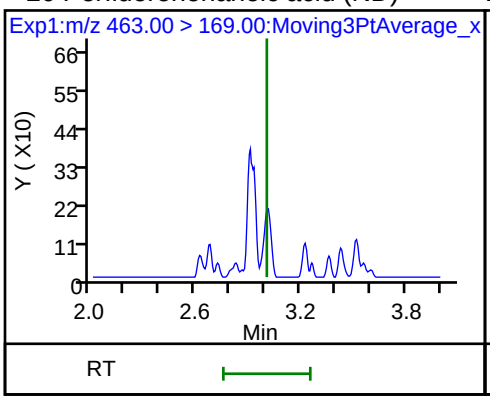
D 14 13C4 PFOA 16 Perfluoroheptanesulfonic acid 16 Perfluoroheptanesulfonic acid



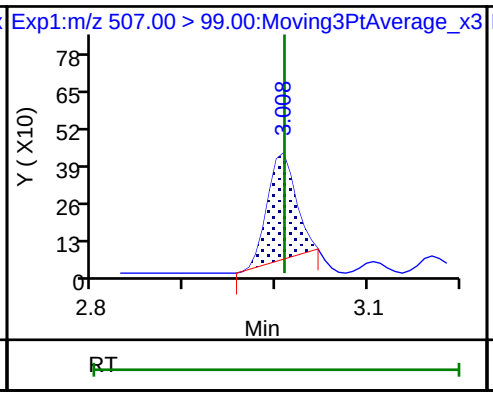
17 Perfluorooctane sulfonic acid 17 Perfluorooctane sulfonic acid 20 Perfluorononanoic acid (ND)



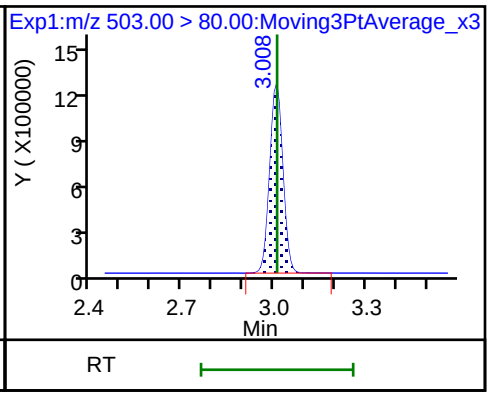
20 Perfluorononanoic acid (ND)



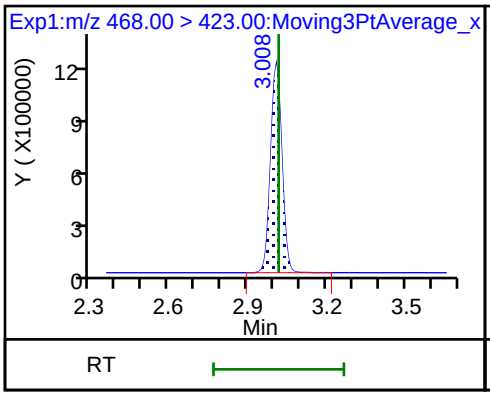
D 72 13C8 PFOS



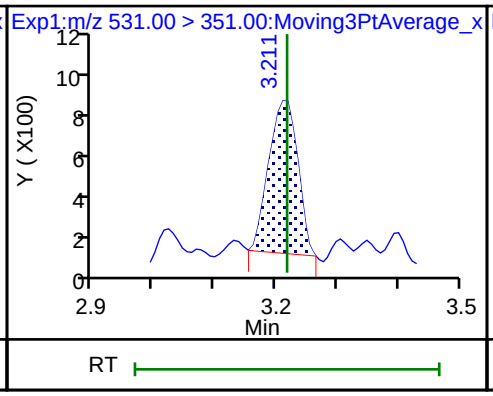
D 18 13C4 PFOS



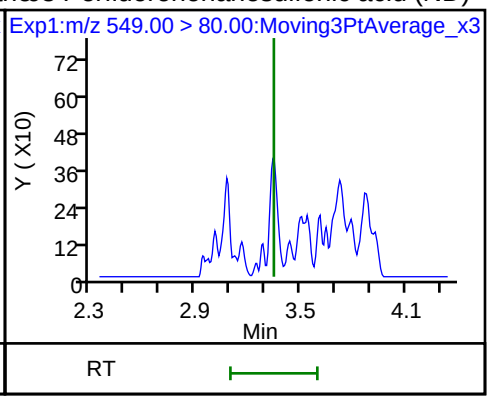
D 19 13C5 PFNA



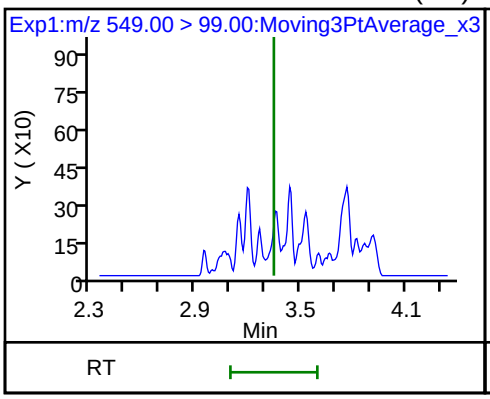
69 9-Chlorohexadecafluoro-3-oxanonane



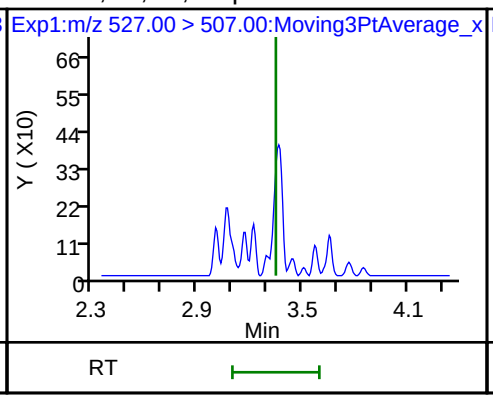
68 Perfluorononanesulfonic acid (ND)



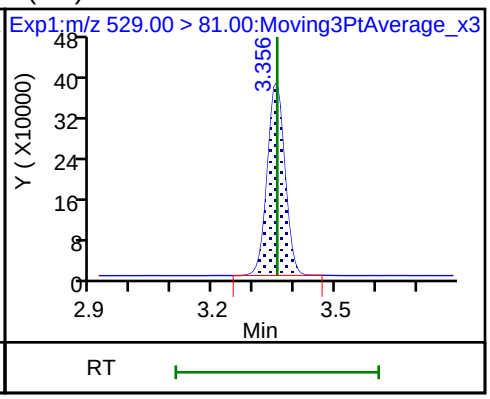
68 Perfluorononanesulfonic acid (ND)



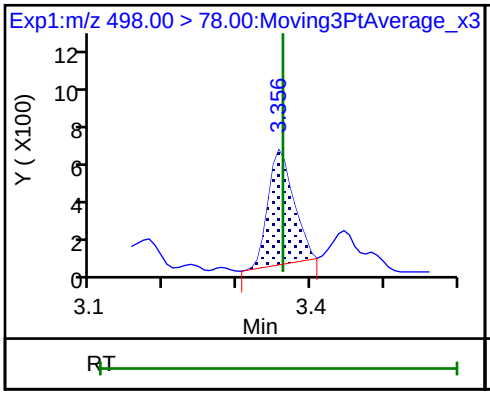
25 1H,1H,2H,2H-perfluorodecanesulfonic acid (ND)



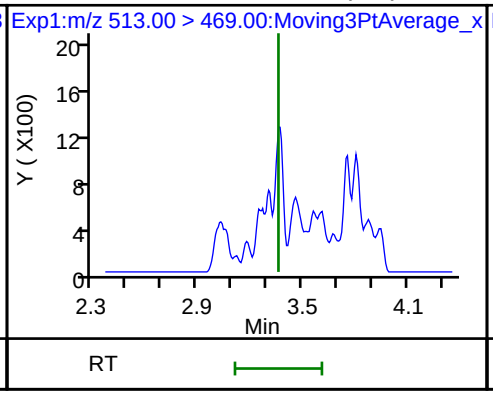
D 26 M2-8:2FTS



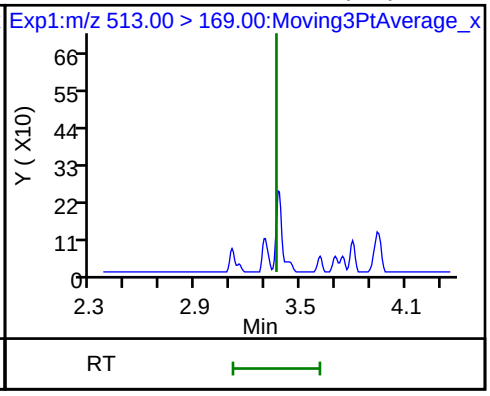
22 Perfluorooctane Sulfonamide



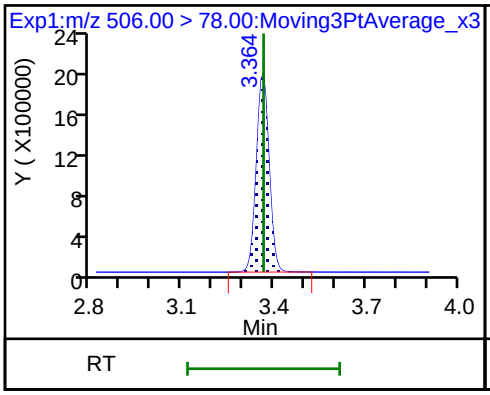
24 Perfluorodecanoic acid (ND)



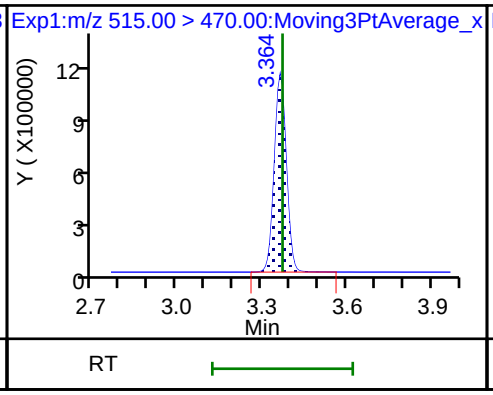
24 Perfluorodecanoic acid (ND)



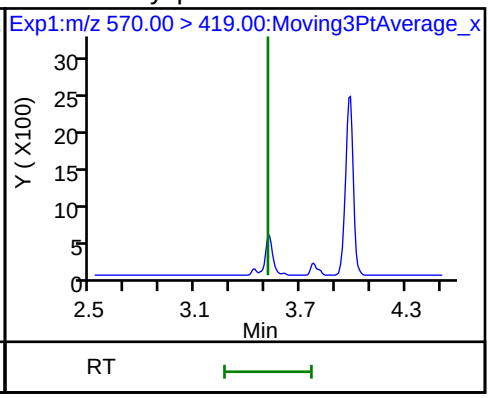
D 21 13C8 FOSA



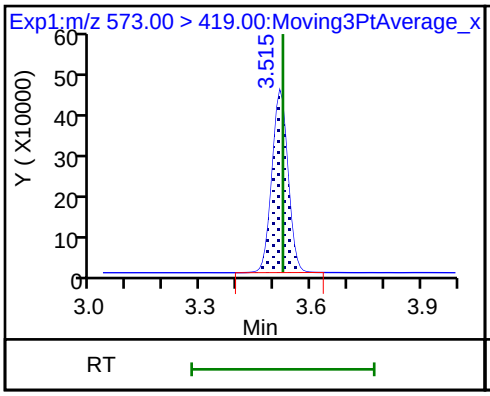
D 23 13C2 PFDA



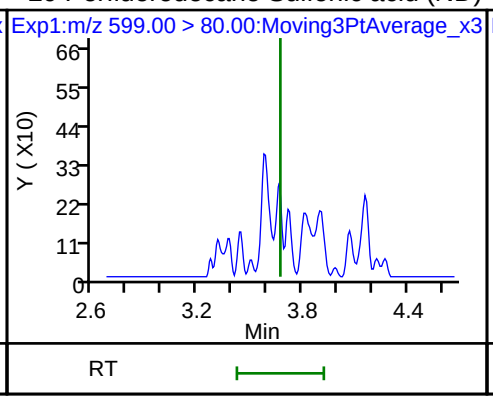
28 N-methyl perfluorooctane sulfonami (ND)



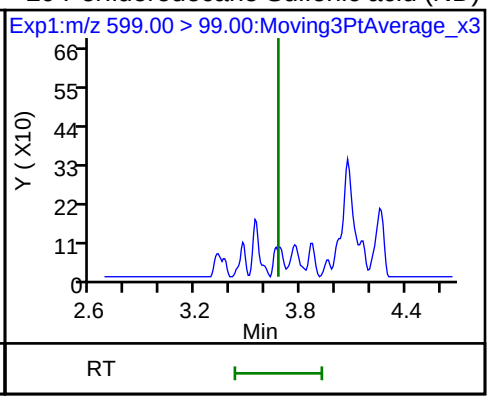
D 27 d3-NMeFOSAA



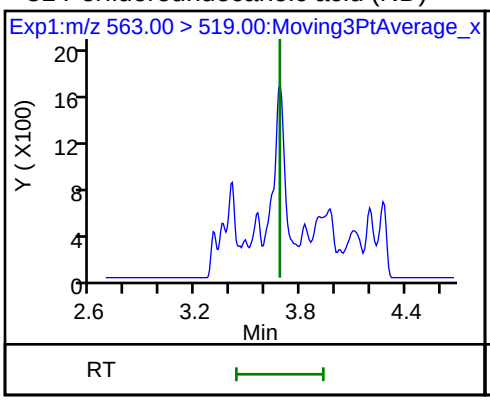
29 Perfluorodecane Sulfonic acid (ND)



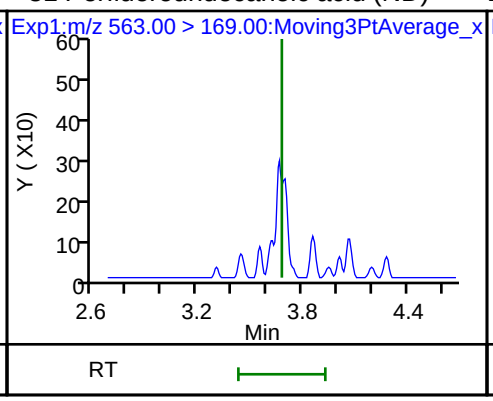
29 Perfluorodecane Sulfonic acid (ND)



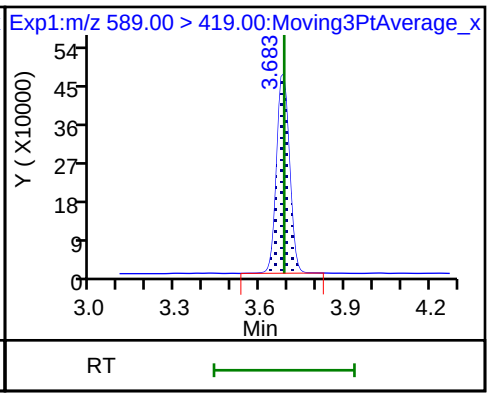
31 Perfluoroundecanoic acid (ND)



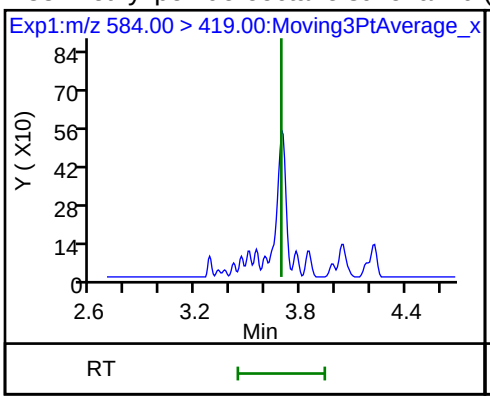
31 Perfluoroundecanoic acid (ND)



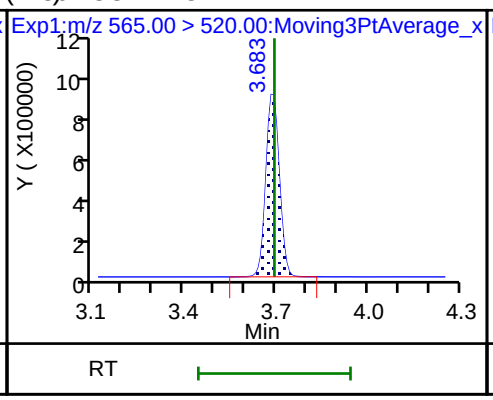
D 32 d5-NEtFOSAA



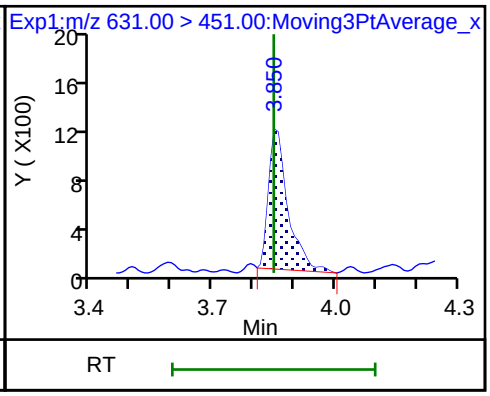
33 N-ethyl perfluorooctane sulfonamid (ND)



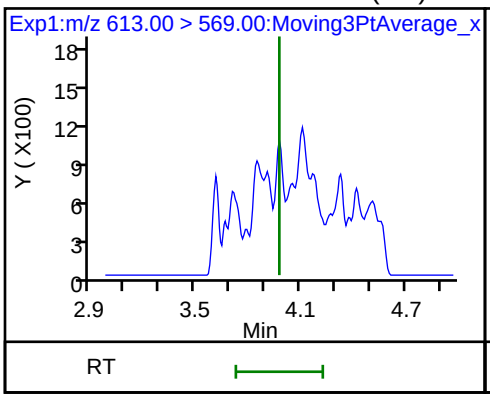
D 30 13C2 PFUnA



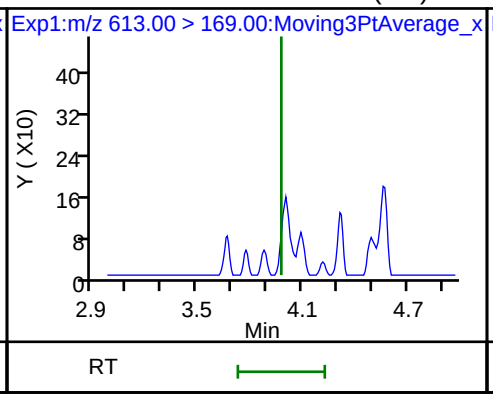
66 11-Chloroeicosafluoro-3-oxaundecan



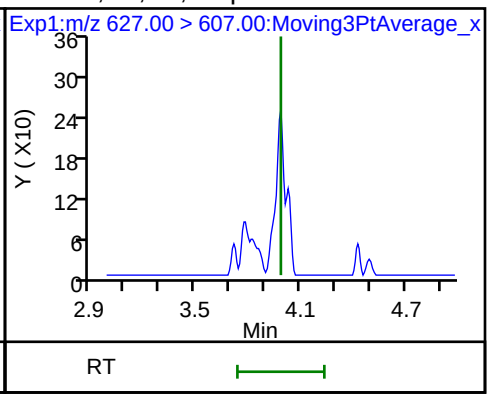
37 Perfluorododecanoic acid (ND)



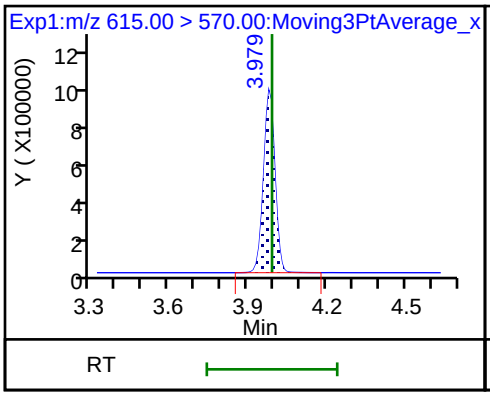
37 Perfluorododecanoic acid (ND)



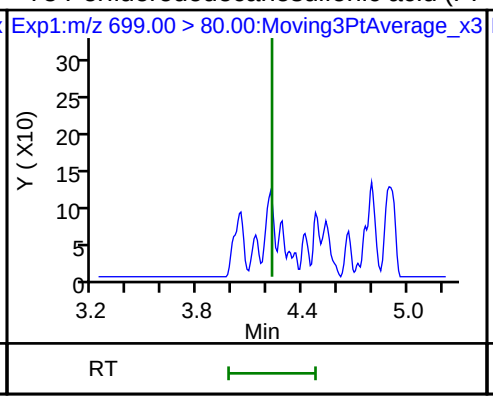
74 1H,1H,2H,2H-perfluorododecanesulfo (ND)



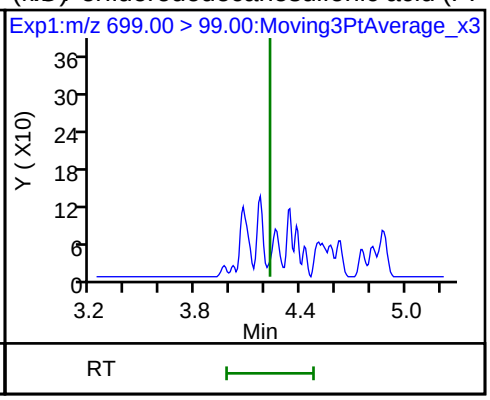
D 36 13C2 PFDoA



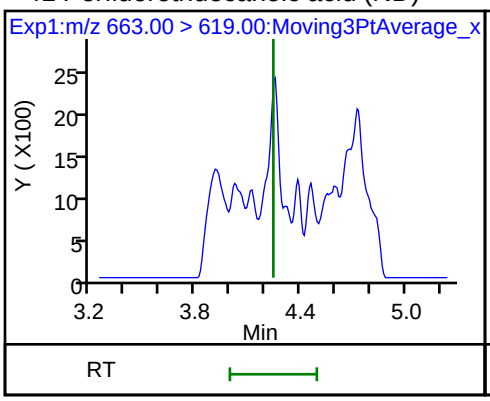
75 Perfluorododecanesulfonic acid (PF (ND)



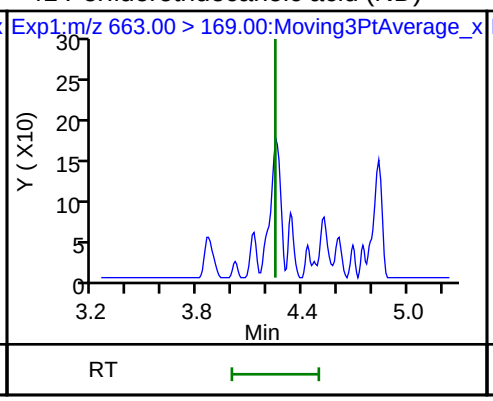
75 Perfluorododecanesulfonic acid (PF (ND)



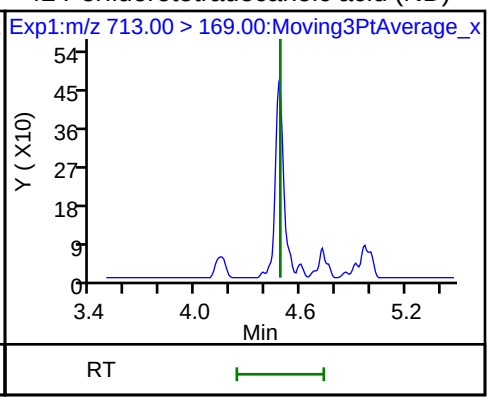
41 Perfluorotridecanoic acid (ND)



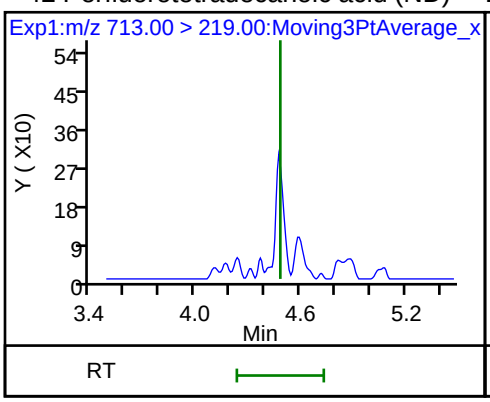
41 Perfluorotridecanoic acid (ND)



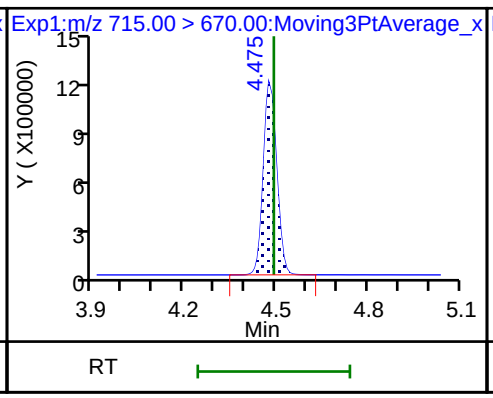
42 Perfluorotetradecanoic acid (ND)



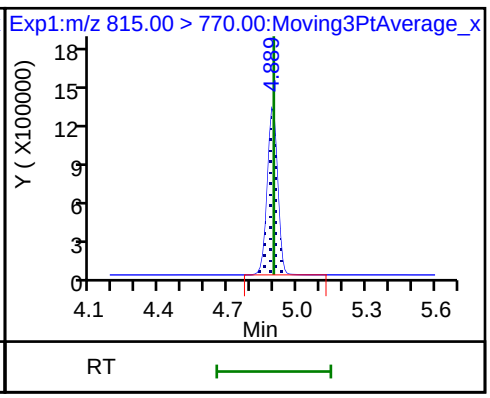
42 Perfluorotetradecanoic acid (ND)



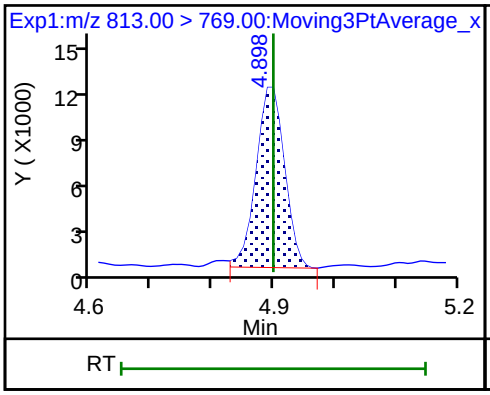
D 43 13C2-PFTeDA



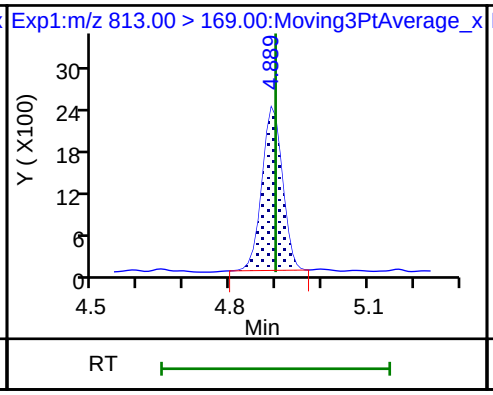
D 44 13C2-PFHxDA



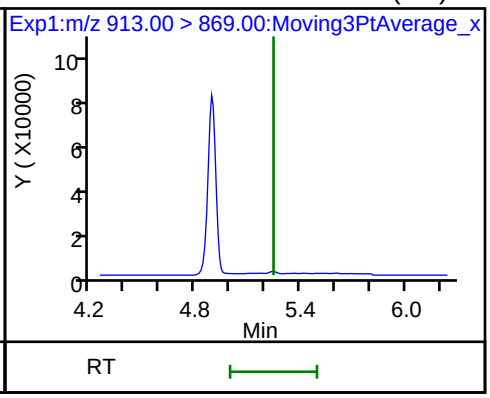
45 Perfluorohexadecanoic acid



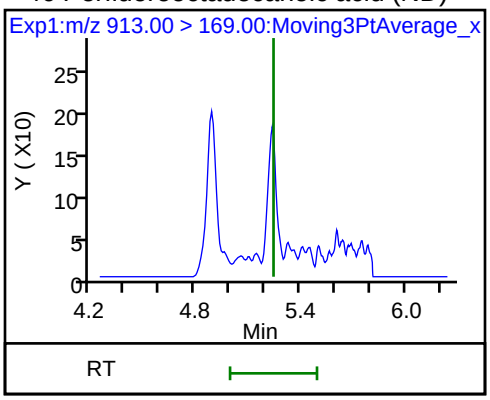
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid (ND)



46 Perfluorooctadecanoic acid (ND)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

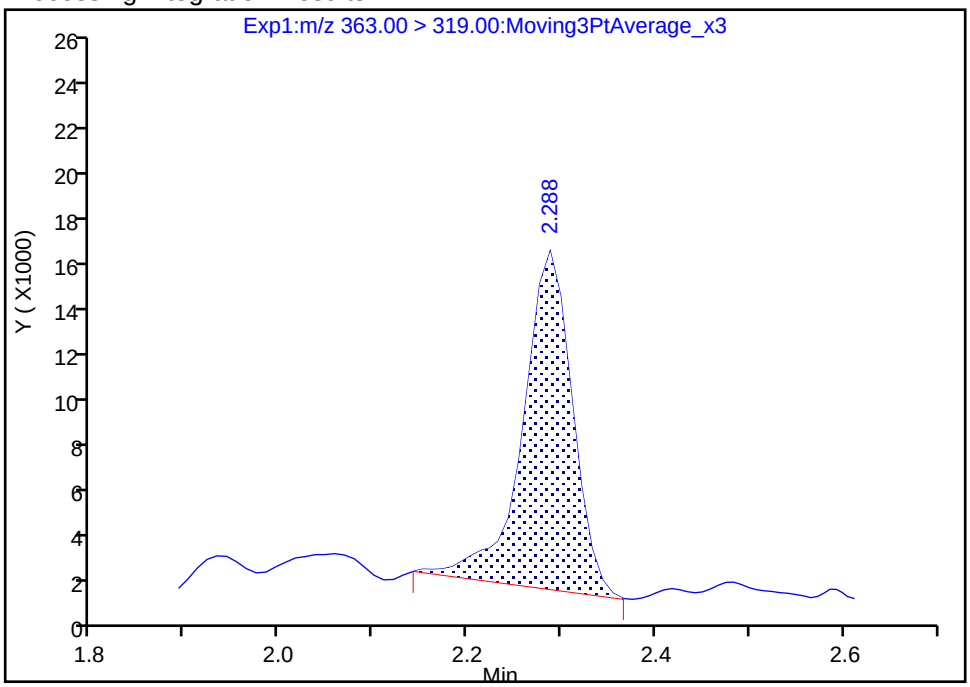
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_044.d				
Injection Date:	30-Aug-2018 01:32:32	Instrument ID:	A8_N		
Lims ID:	320-42265-A-6-A	Lab Sample ID:	320-42265-6		
Client ID:	MW-2D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	33	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

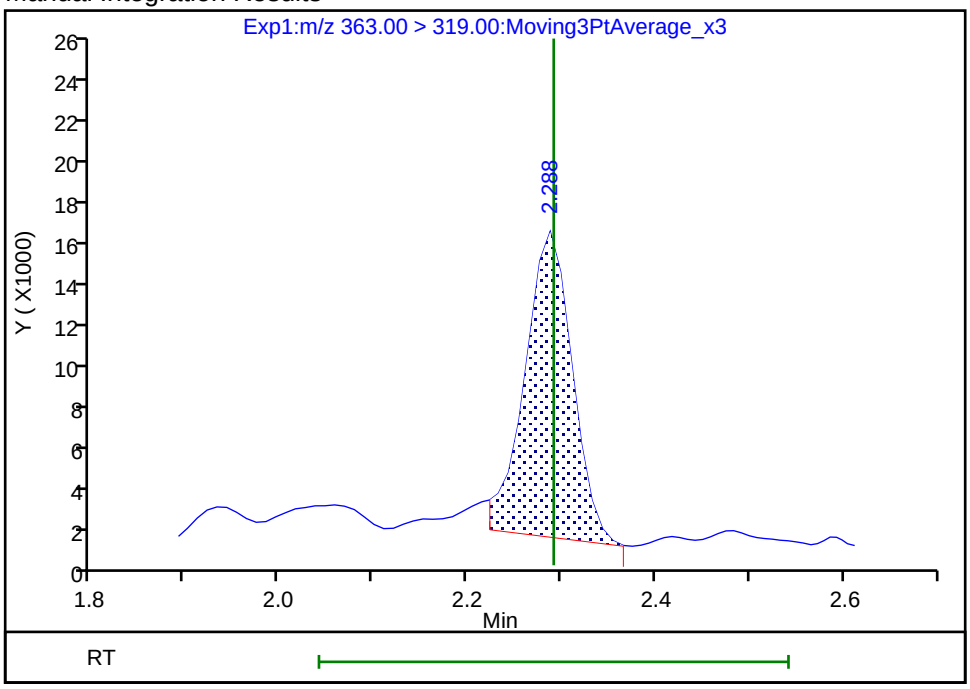
Processing Integration Results

RT: 2.29
Area: 55075
Amount: 0.026866
Amount Units: ng/ml



Manual Integration Results

RT: 2.29
Area: 52029
Amount: 0.025380
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:43:56

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

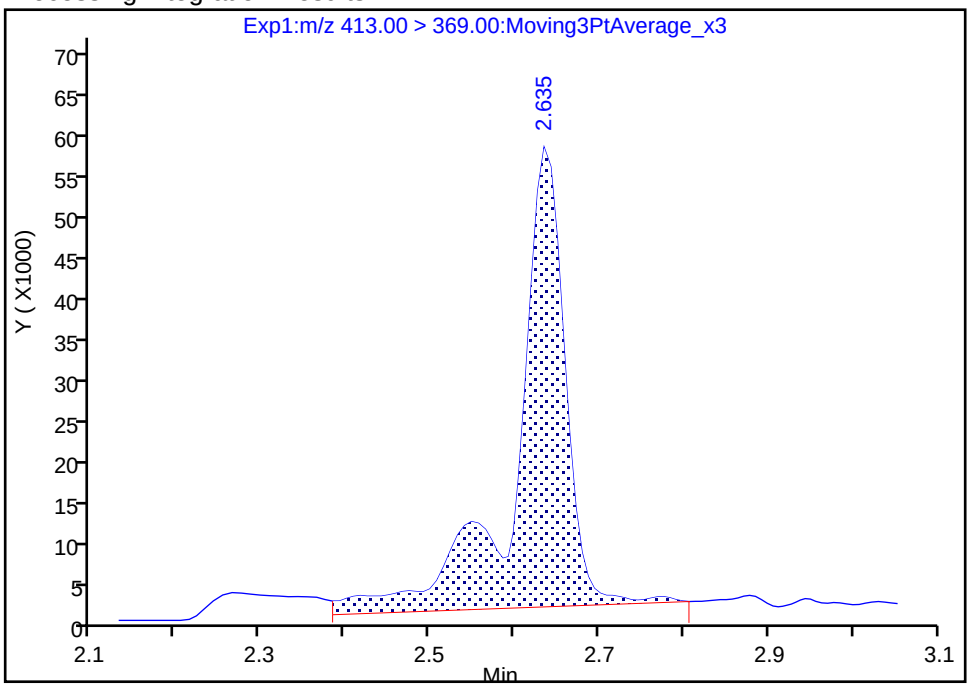
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_044.d				
Injection Date:	30-Aug-2018 01:32:32	Instrument ID:	A8_N		
Lims ID:	320-42265-A-6-A	Lab Sample ID:	320-42265-6		
Client ID:	MW-2D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	33	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

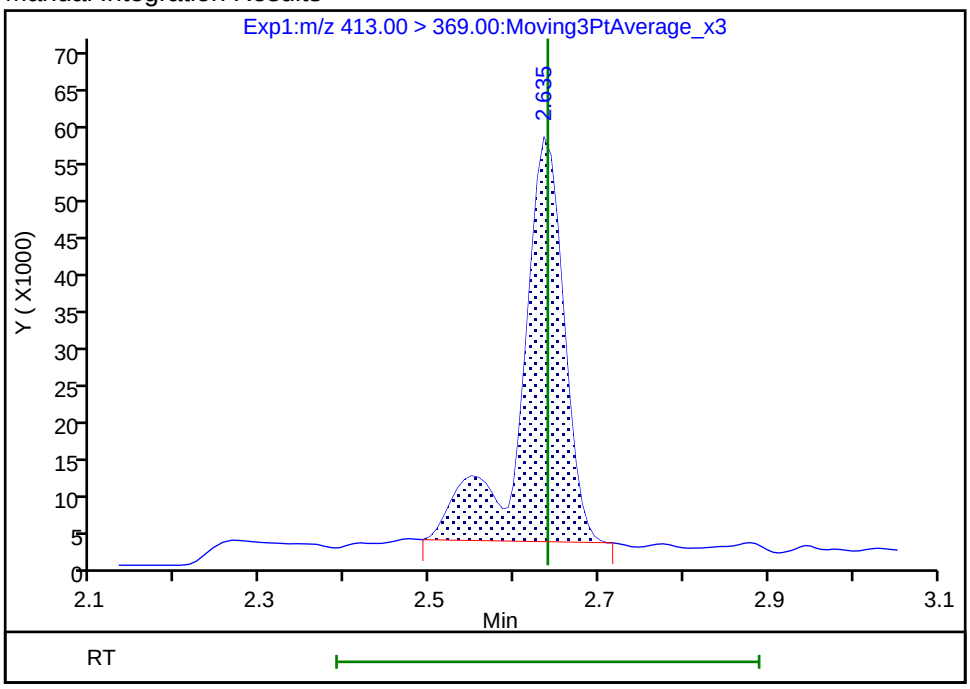
Processing Integration Results

RT: 2.63
Area: 233687
Amount: 0.119423
Amount Units: ng/ml



Manual Integration Results

RT: 2.63
Area: 193561
Amount: 0.098917
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:44:16

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

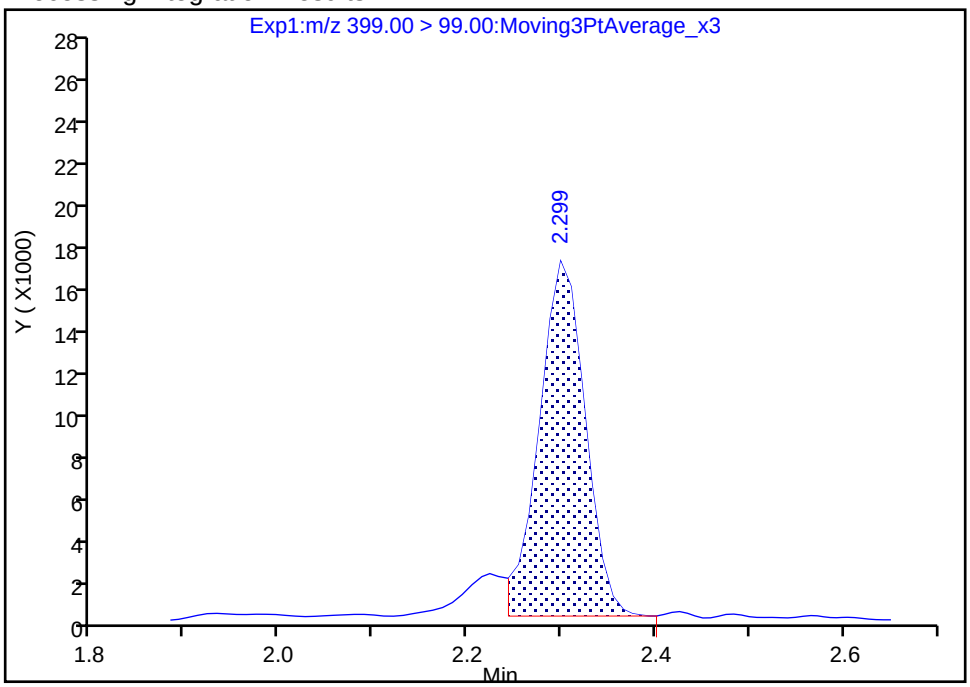
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_044.d				
Injection Date:	30-Aug-2018 01:32:32	Instrument ID:	A8_N		
Lims ID:	320-42265-A-6-A	Lab Sample ID:	320-42265-6		
Client ID:	MW-2D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	33	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

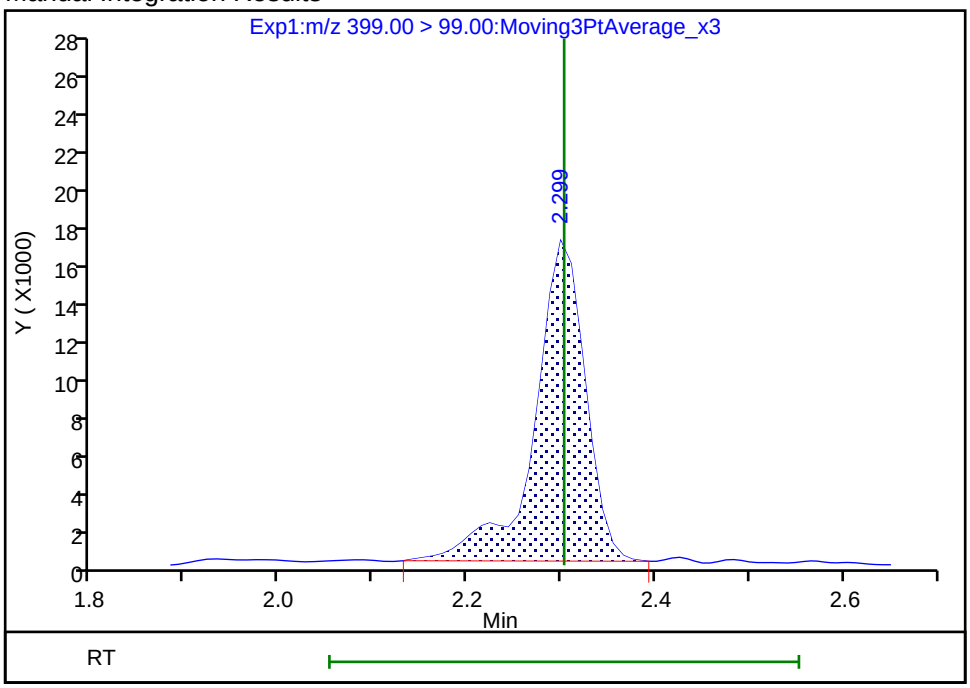
Processing Integration Results

RT: 2.30
Area: 55895
Amount: 0.070444
Amount Units: ng/ml



Manual Integration Results

RT: 2.30
Area: 61927
Amount: 0.067905
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:44:02

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

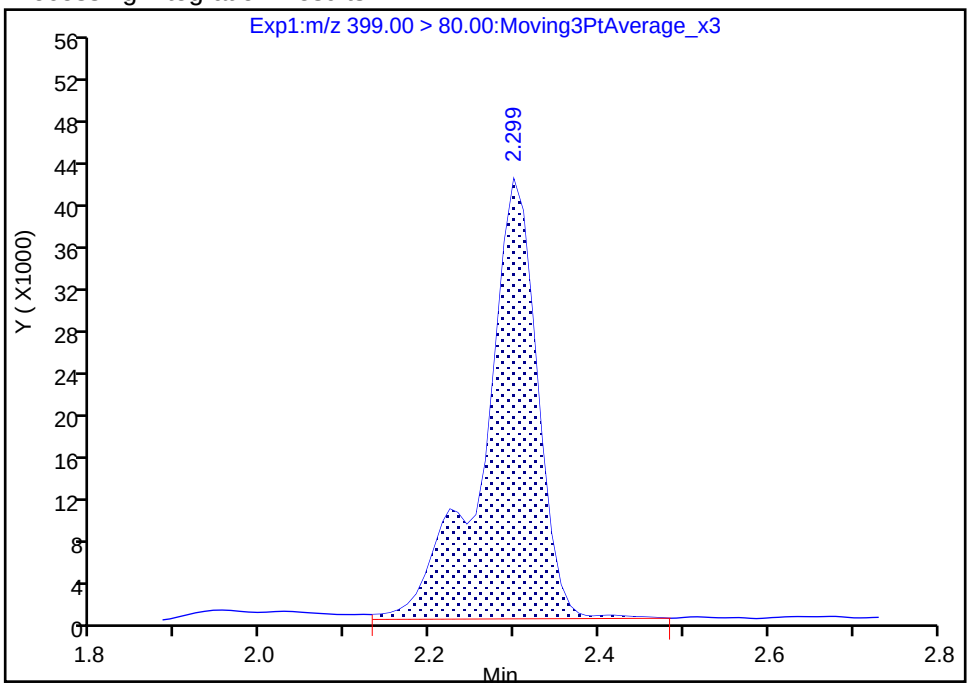
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_044.d				
Injection Date:	30-Aug-2018 01:32:32	Instrument ID:	A8_N		
Lims ID:	320-42265-A-6-A	Lab Sample ID:	320-42265-6		
Client ID:	MW-2D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	33	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

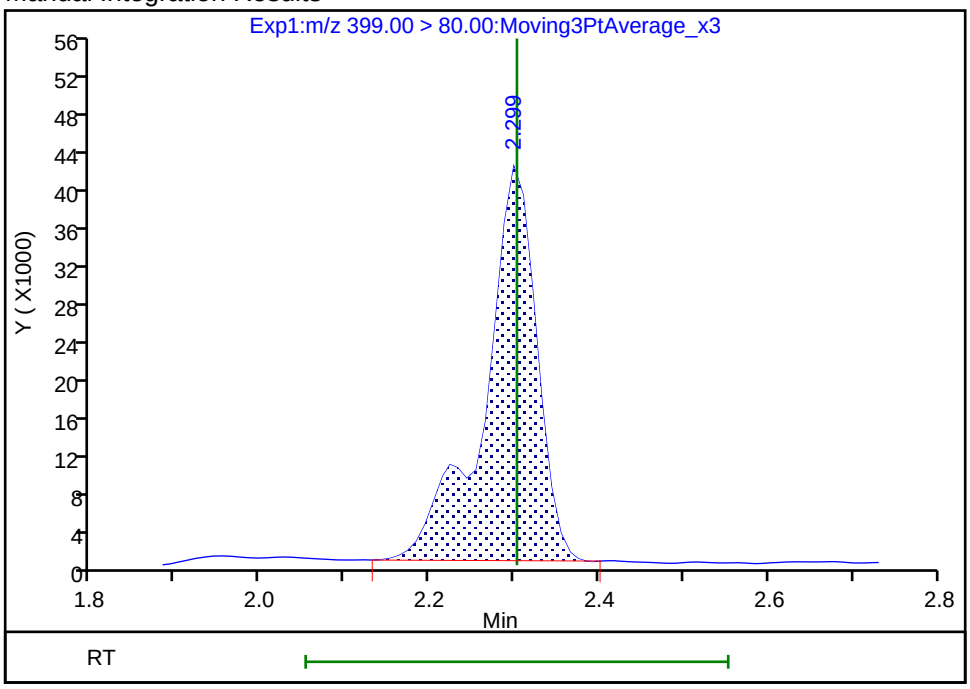
Processing Integration Results

RT: 2.30
Area: 184051
Amount: 0.070444
Amount Units: ng/ml



Manual Integration Results

RT: 2.30
Area: 177417
Amount: 0.067905
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:44:06

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: DUP-01 | Lab Sample ID: 320-42265-7

Matrix: Water | Lab File ID: 2018.08.29LLB_047.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 13:15

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 232.5(mL) | Date Analyzed: 08/30/2018 01:56

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	8.6		2.2	0.38
2706-90-3	Perfluoropentanoic acid (PFPeA)	19		2.2	0.53
307-24-4	Perfluorohexanoic acid (PFHxA)	12		2.2	0.62
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.5		2.2	0.27
335-67-1	Perfluorooctanoic acid (PFOA)	15		2.2	0.91
375-95-1	Perfluorononanoic acid (PFNA)	0.45	J	2.2	0.29
335-76-2	Perfluorodecanoic acid (PFDA)	ND		2.2	0.33
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.2	1.2
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.2	0.59
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	ND		2.2	1.4
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		2.2	0.31
375-73-5	Perfluorobutanesulfonic acid (PFBS)	8.7		2.2	0.22
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2.8	B	2.2	0.18
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.2	0.20
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	3.8		2.2	0.58
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.2	0.34
754-91-6	Perfluorooctane Sulfonamide (FOSA)	ND		2.2	0.38
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		22	3.3
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		22	2.0
27619-97-2	6:2 FTS	ND		22	2.2
39108-34-4	8:2 FTS	ND		22	2.2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: DUP-01 | Lab Sample ID: 320-42265-7

Matrix: Water | Lab File ID: 2018.08.29LLB_047.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 13:15

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 232.5(mL) | Date Analyzed: 08/30/2018 01:56

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	79		25-150
STL01893	13C5 PFPeA	78		25-150
STL00993	13C2 PFHxA	82		25-150
STL01892	13C4-PFHpA	90		25-150
STL00990	13C4 PFOA	87		25-150
STL00995	13C5 PFNA	90		25-150
STL00996	13C2 PFDA	79		25-150
STL00997	13C2 PFUnA	66		25-150
STL00998	13C2 PFDoA	58		25-150
STL02116	13C2-PFTeDA	59		25-150
STL02337	13C3-PFBS	79		25-150
STL00994	18O2 PFHxS	87		25-150
STL00991	13C4 PFOS	80		25-150
STL01056	13C8 FOSA	72		25-150
STL02118	d3-NMeFOSAA	64		25-150
STL02117	d5-NEtFOSAA	61		25-150
STL02279	M2-6:2FTS	90		25-150
STL02280	M2-8:2FTS	78		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_047.d
Lims ID: 320-42265-A-7-A
Client ID: DUP-01
Sample Type: Client
Inject. Date: 30-Aug-2018 01:56:02 ALS Bottle#: 36 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-42265-a-7-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:47:47 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:47:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.416	1.421	-0.005	0.536	6027071	1.97		78.6	8420	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.416	1.424	-0.008	1.000	427521	0.1995			38.3	M
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.679	1.684	-0.005	1.000	777973	0.4453			21.3	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.679	1.687	-0.008	0.635	3787521	1.95		78.1	5599	
D 47 13C3-PFBS										
301.90 > 83.00	1.720	1.720	0.0	0.650	84166	1.84		78.9	201	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.720	1.724	-0.004	1.000	548745	0.2025			37.1	
298.90 > 99.00	1.720	1.724	-0.004	1.000	238050		2.31(1.25-3.74)		62.5	
D 7 13C2 PFHxA										
315.00 > 270.00	1.965	1.966	-0.001	0.743	4455137	2.05		82.0	11686	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.965	1.970	-0.005	1.000	508686	0.2835			36.3	
313.00 > 119.00	1.965	1.970	-0.005	1.000	43824		11.61(5.03-15.10)		82.6	
D 9 13C4-PFHpA										
367.00 > 322.00	2.289	2.289	0.0	0.866	4629960	2.26		90.4	12734	
10 Perfluoroheptanoic acid										M
363.00 > 319.00	2.289	2.292	-0.003	1.000	259949	0.1282			33.6	M
363.00 > 169.00	2.289	2.292	-0.003	1.000	101364		2.56(1.13-3.40)		163	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.311	2.303	0.008	1.000	168803	0.0653			49.7	M
399.00 > 99.00	2.311	2.303	0.008	1.000	59768		2.82(1.50-4.49)		50.8	M
D 11 18O2 PFHxS										
403.00 > 84.00	2.311	2.311	0.0	0.874	5590665	2.05		86.8	12863	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.613	2.609	0.004	1.000	23169	0.0367			190	
D 12 M2-6:2FTS										
429.00 > 81.00	2.613	2.613	0.0	0.988	997193	2.15		90.4	831	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.644	2.639	0.005	1.003	677936	0.3513			85.7	M
413.00 > 169.00	2.644	2.639	0.005	1.003	387842		1.75(0.84-2.52)		727	
* 62 13C2-PFOA										
415.00 > 370.00	2.644	2.639	0.005		4962303	2.50			11199	
D 14 13C4 PFOA										
417.00 > 372.00	2.636	2.644	-0.008	0.997	4268835	2.18		87.3	15535	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.009	3.006	0.003	1.000	144935	0.0889			102	M
499.00 > 99.00	3.009	3.006	0.003	1.000	21655		6.69(2.31-6.93)		58.0	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.009	3.006	0.003	1.000	15562	0.0104			4.0	
463.00 > 169.00	3.001	3.006	-0.005	0.997	2974		5.23(1.90-5.69)		9.8	
D 18 13C4 PFOS										
503.00 > 80.00	3.009	3.009	0.0	1.138	3541192	1.90		79.6	3756	
D 19 13C5 PFNA										
468.00 > 423.00	3.009	3.016	-0.007	1.138	3606438	2.24		89.8	8889	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.350	3.347	0.003	1.000	2056	0.003747			11.5	
D 26 M2-8:2FTS										
529.00 > 81.00	3.350	3.357	-0.007	1.267	1013743	1.88		78.3	2360	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.357	3.362	-0.005	1.000	4549	0.002360			26.0	
D 21 13C8 FOSA										
506.00 > 78.00	3.357	3.364	-0.007	1.270	4996743	1.81		72.5	6388	
D 23 13C2 PFDA										
515.00 > 470.00	3.365	3.372	-0.007	1.273	2952278	1.98		79.2	6184	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.516	3.523	-0.007	1.330	1110950	1.60		64.0	3488	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.677	3.685	-0.008	1.391	1162752	1.52		61.0	477	
D 30 13C2 PFUnA										
565.00 > 520.00	3.685	3.693	-0.008	1.394	2126736	1.65		66.0	4458	
D 36 13C2 PFDoA										
615.00 > 570.00	3.983	3.991	-0.008	1.506	2006407	1.46		58.3	7453	
41 Perfluorotridecanoic acid										R
663.00 > 619.00	4.240	4.244	-0.004	1.064	5607	0.006718			1.2	R
663.00 > 169.00	4.240	4.244	-0.004	1.064	1291		4.34(1.25-3.76)		15.0	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.478	4.492	-0.014	1.694	2416592	1.47		58.6	5545	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Report Date: 31-Aug-2018 14:47:47 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_047.d

Injection Date: 30-Aug-2018 01:56:02 Instrument ID: A8_N

Lims ID: 320-42265-A-7-A Lab Sample ID: 320-42265-7

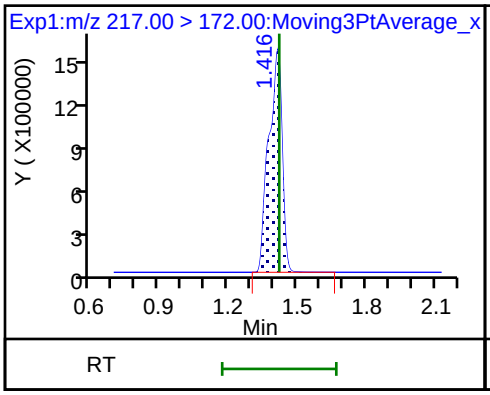
Client ID: DUP-01

Operator ID: SACINSTLCMS01 ALS Bottle#: 36 Worklist Smp#: 16

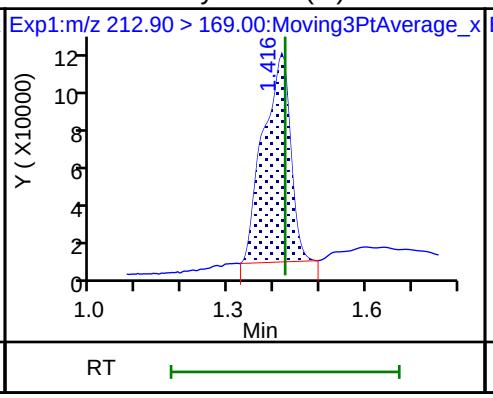
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

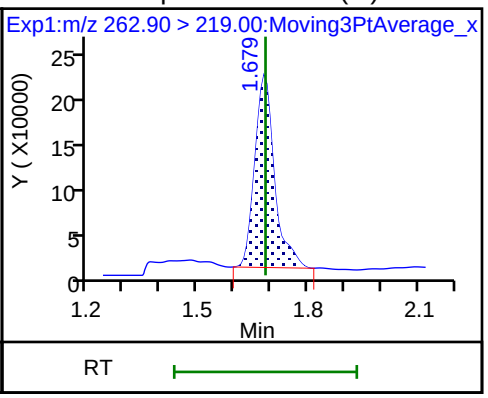
D 1 13C4 PFBA



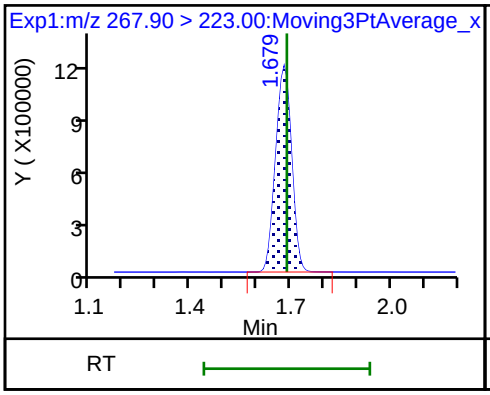
2 Perfluorobutyric acid (M)



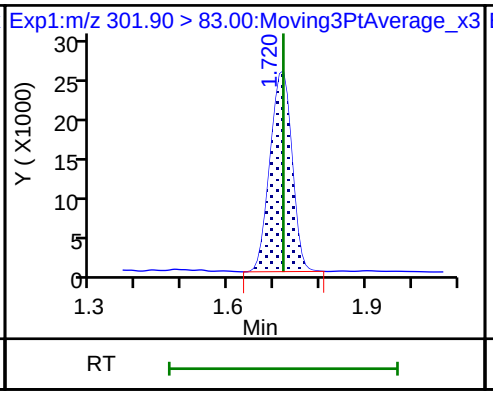
4 Perfluoropentanoic acid (M)



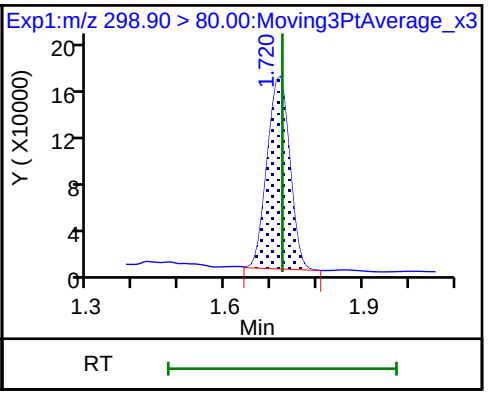
D 3 13C5-PFPeA



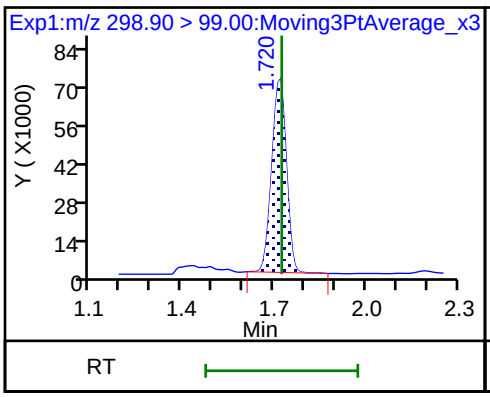
D 47 13C3-PFBS



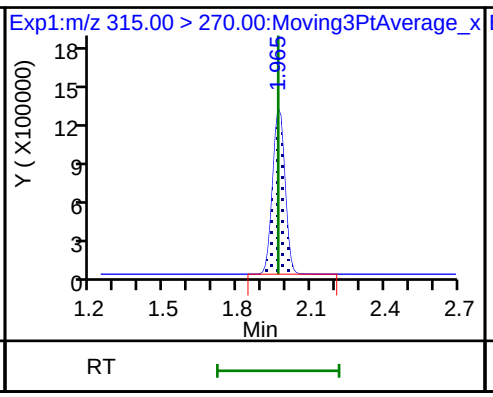
5 Perfluorobutanesulfonic acid



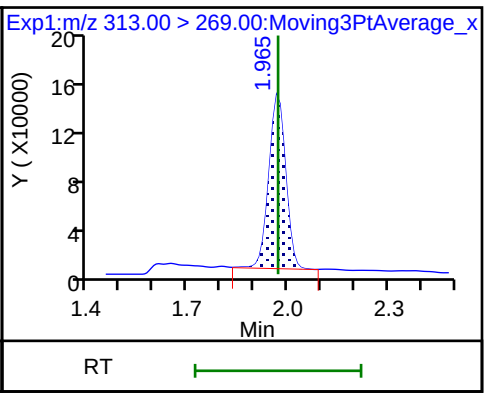
5 Perfluorobutanesulfonic acid



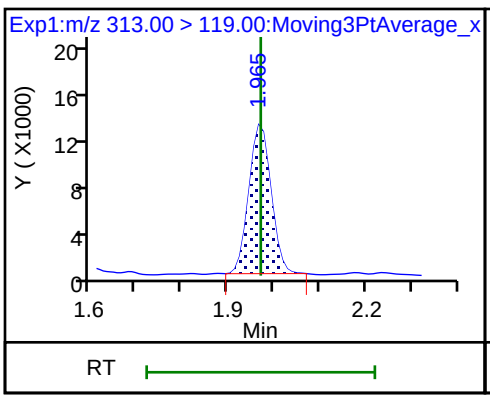
D 7 13C2 PFHxA



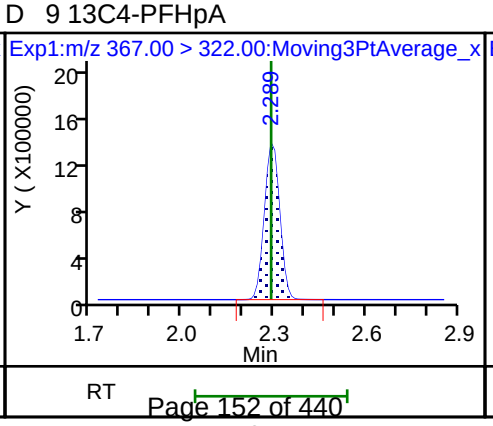
6 Perfluorohexanoic acid



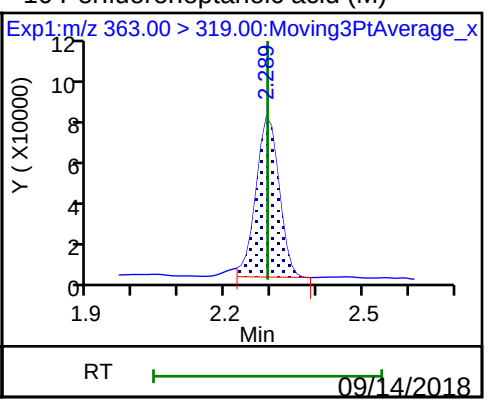
6 Perfluorohexanoic acid



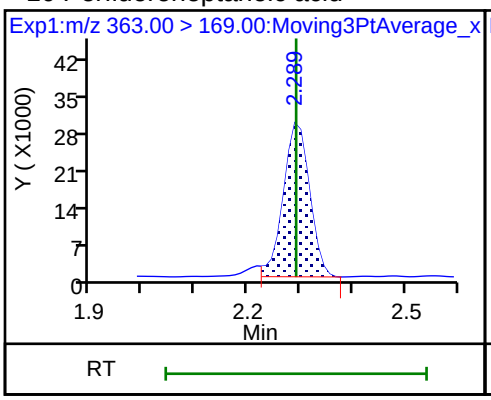
D 9 13C4-PFHpA



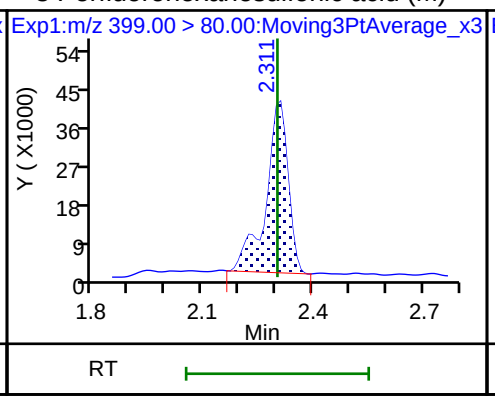
10 Perfluoroheptanoic acid (M)



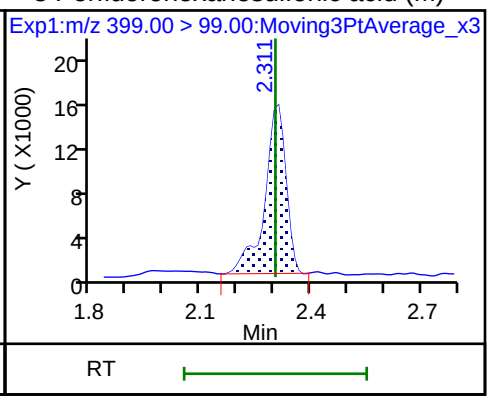
10 Perfluoroheptanoic acid



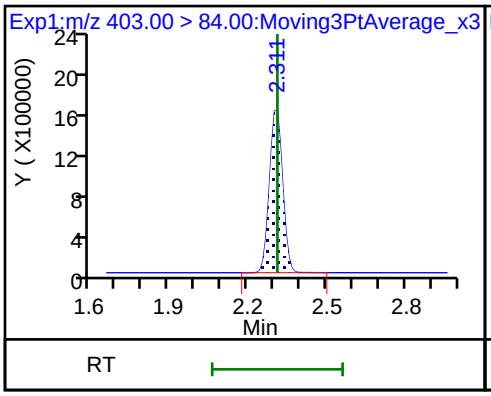
8 Perfluorohexanesulfonic acid (M)



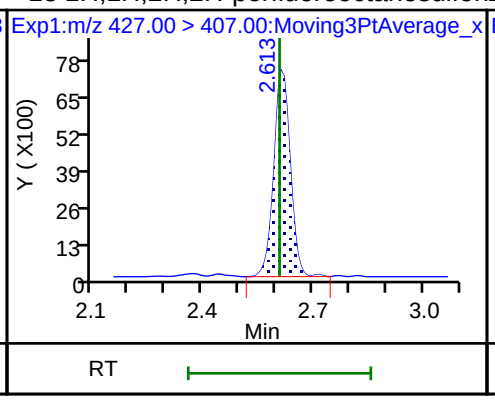
8 Perfluorohexanesulfonic acid (M)



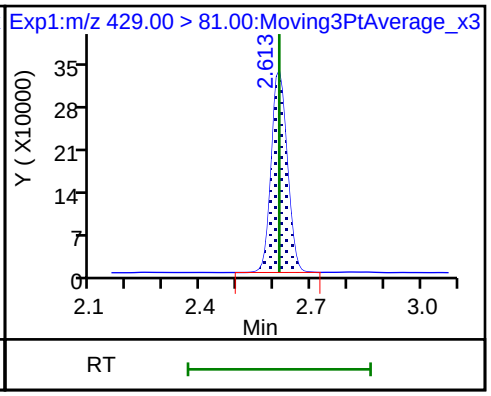
D 11 18O2 PFHxS



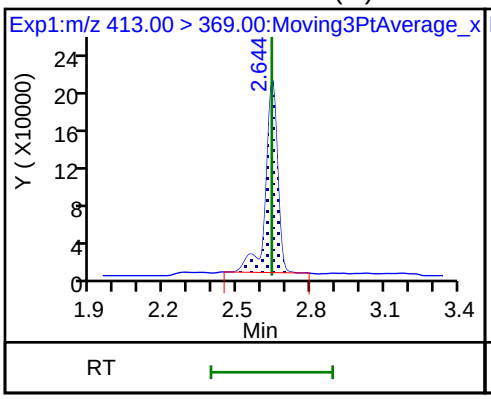
13 1H,1H,2H,2H-perfluorooctanesulfon



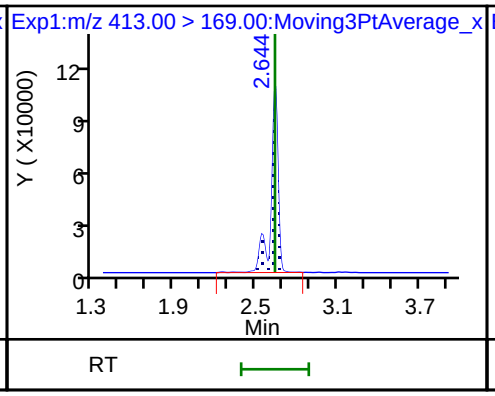
D 12 M2-6:2FTS



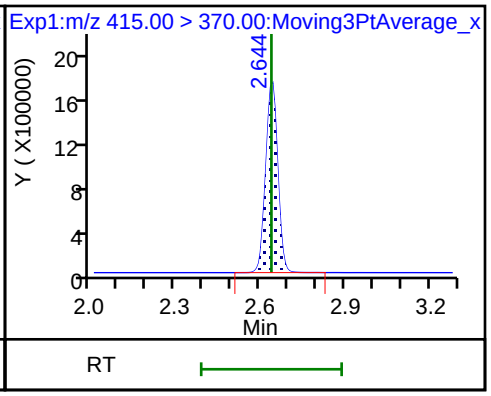
15 Perfluorooctanoic acid (M)



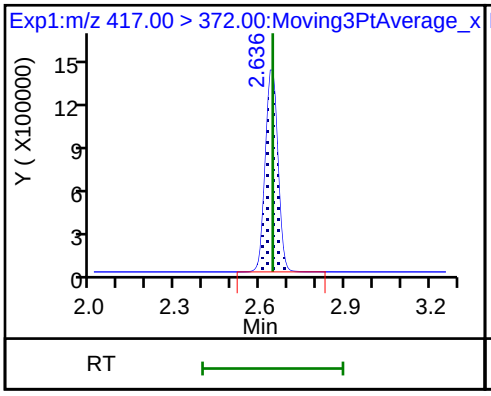
15 Perfluorooctanoic acid



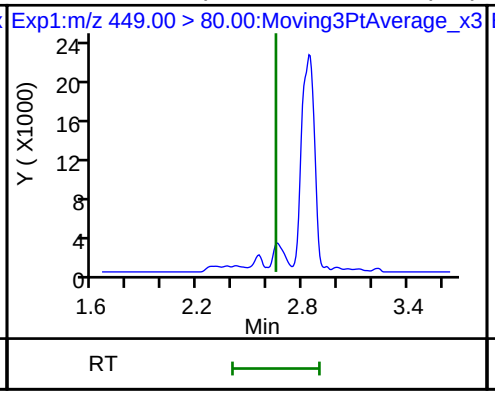
* 62 13C2-PFOA



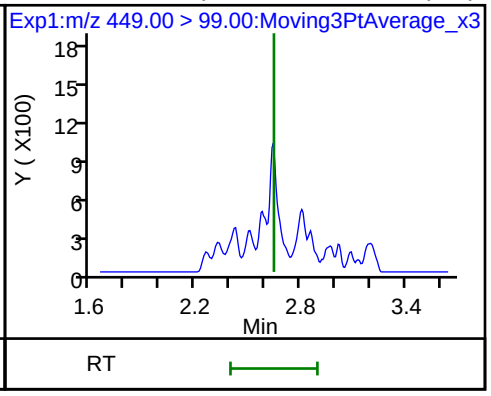
D 14 13C4 PFOA



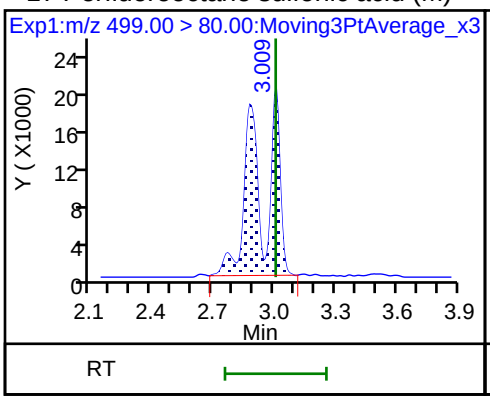
16 Perfluoroheptanesulfonic acid (ND)



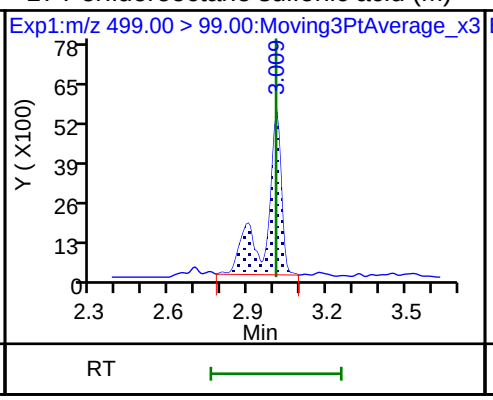
16 Perfluoroheptanesulfonic acid (ND)



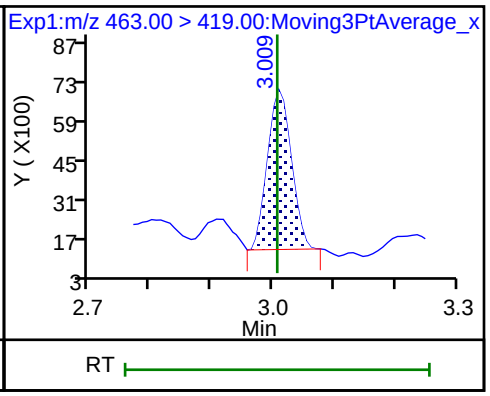
17 Perfluorooctane sulfonic acid (M)



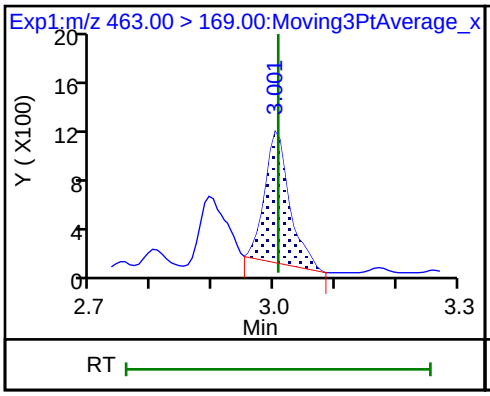
17 Perfluorooctane sulfonic acid (M)



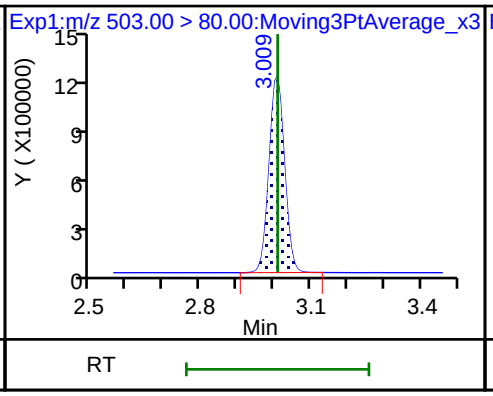
20 Perfluorononanoic acid



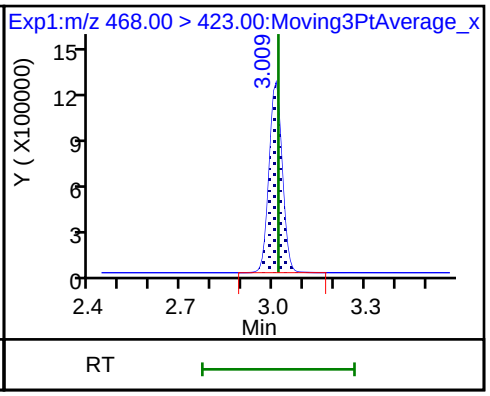
20 Perfluorononanoic acid



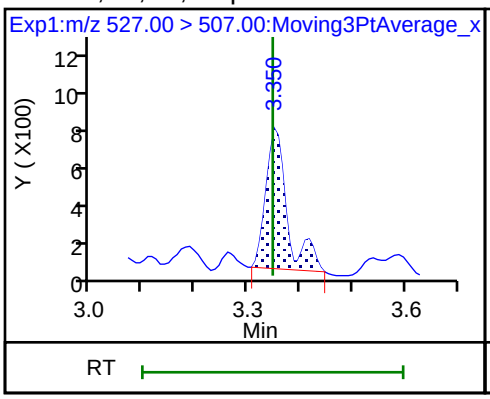
D 18 13C4 PFOS



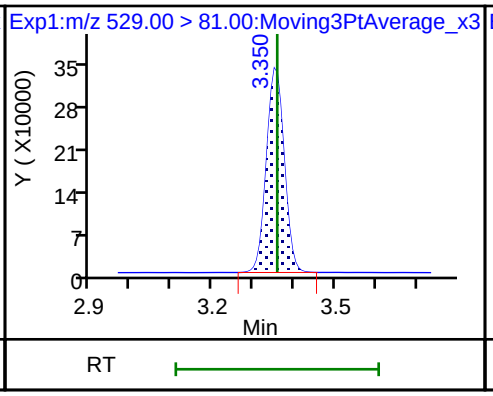
D 19 13C5 PFNA



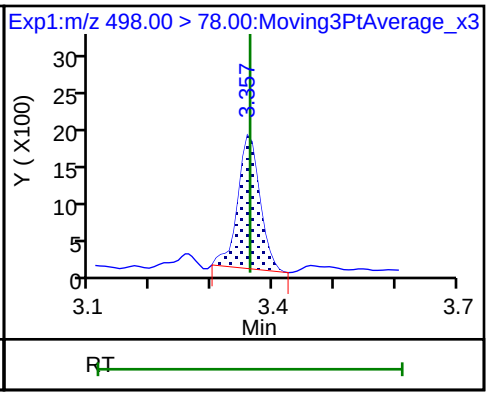
25 1H,1H,2H,2H-perfluorodecanesulfon



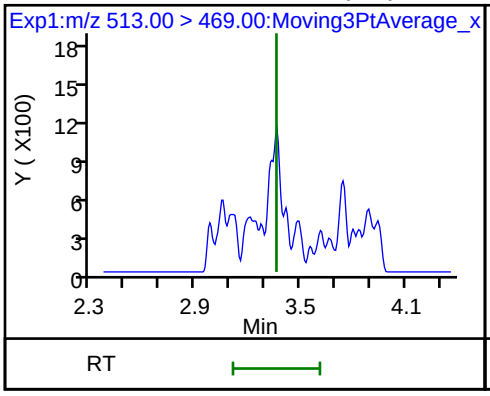
D 26 M2-8:2FTS



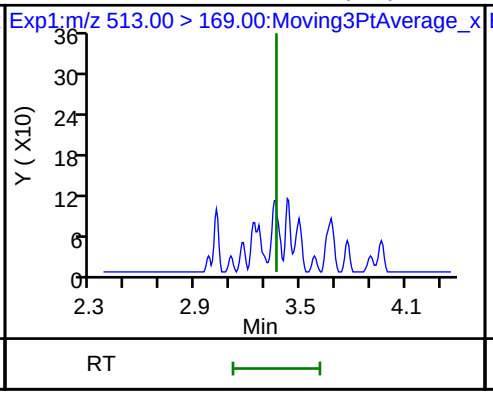
22 Perfluorooctane Sulfonamide



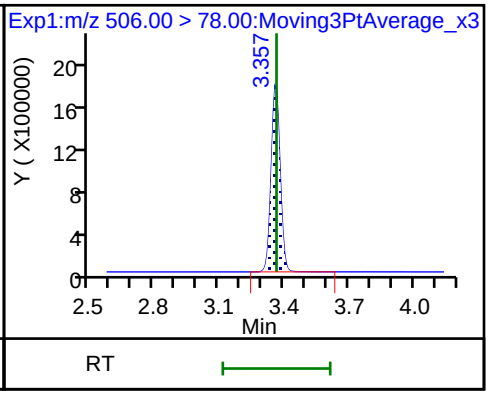
24 Perfluorodecanoic acid (ND)



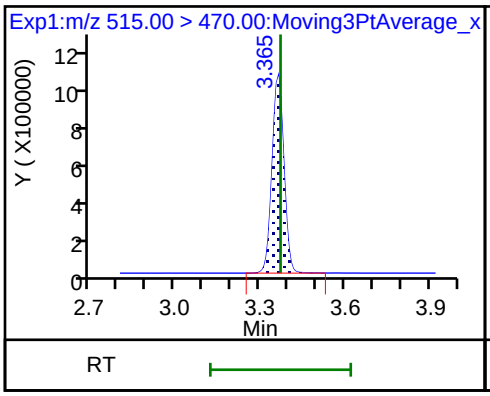
24 Perfluorodecanoic acid (ND)



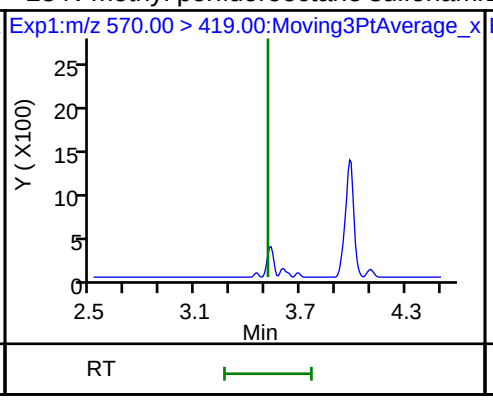
D 21 13C8 FOSA



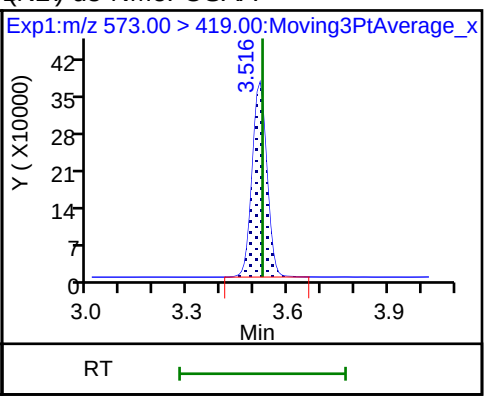
D 23 13C2 PFDA



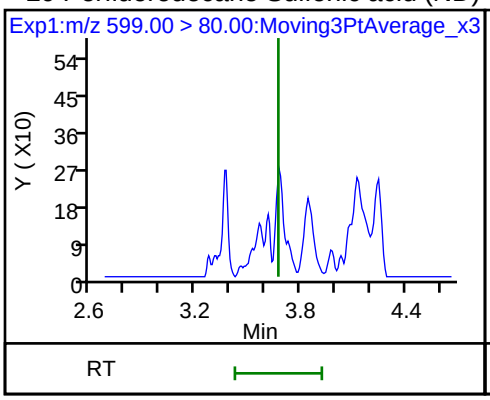
28 N-methyl perfluorooctane sulfonamid (ND)



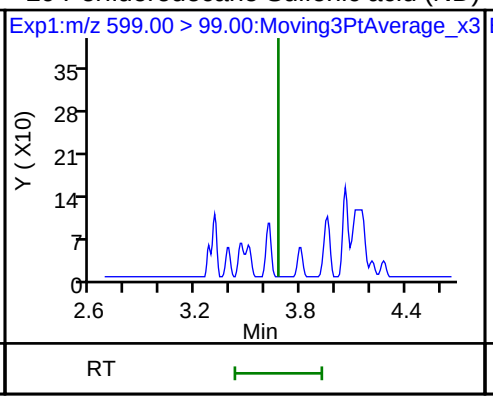
D 27 d3-NMeFOSAA



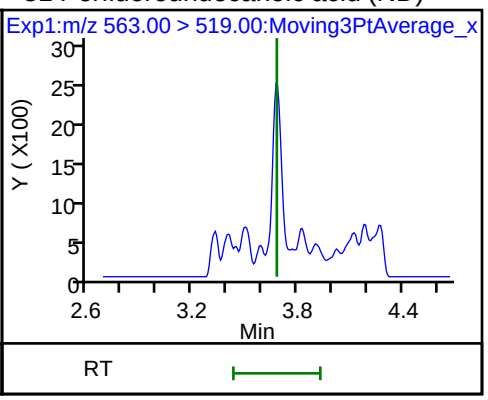
29 Perfluorodecane Sulfonic acid (ND)



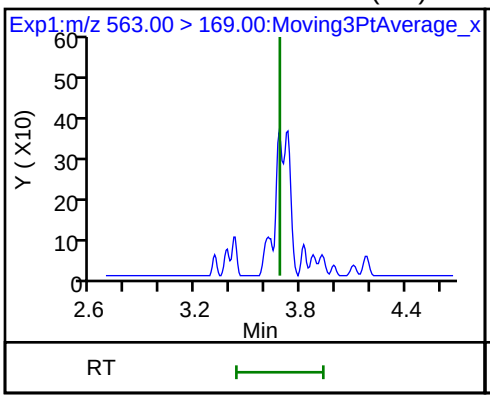
29 Perfluorodecane Sulfonic acid (ND)



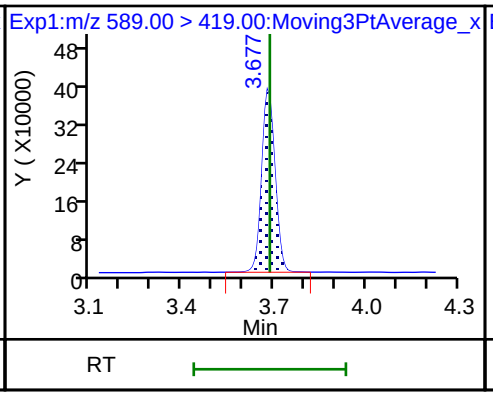
31 Perfluoroundecanoic acid (ND)



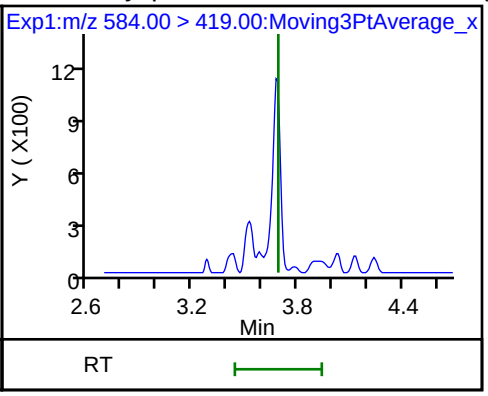
31 Perfluoroundecanoic acid (ND)



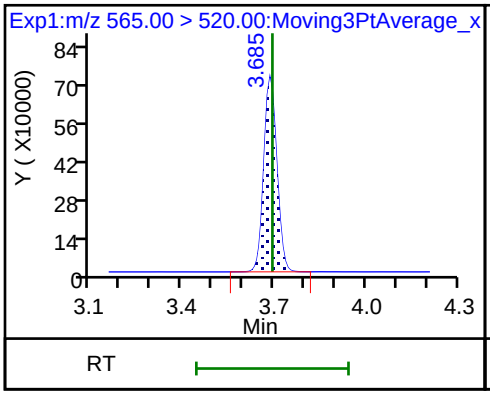
D 32 d5-NEtFOSAA



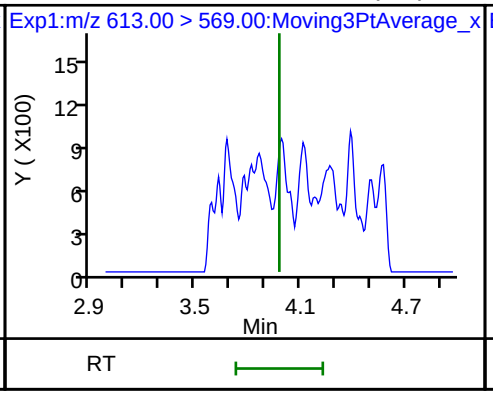
33 N-ethyl perfluorooctane sulfonamid (ND)



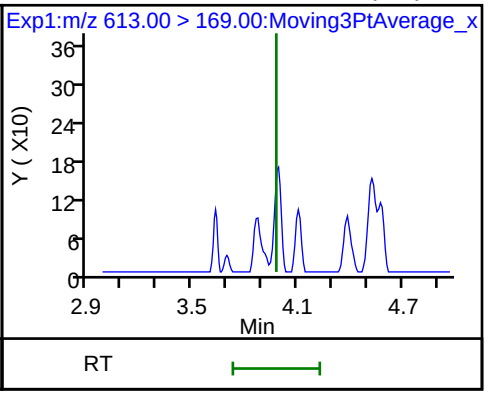
D 30 13C2 PFUnA



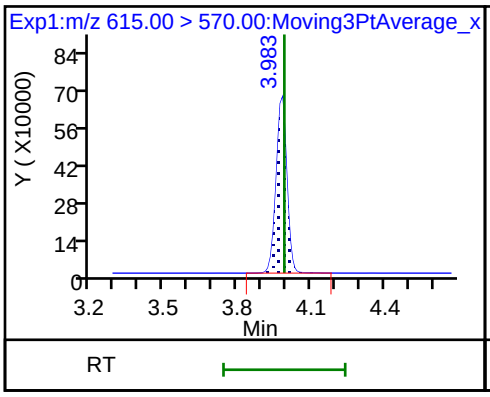
37 Perfluorododecanoic acid (ND)



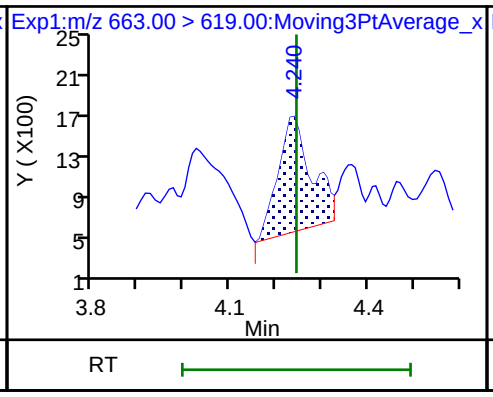
37 Perfluorododecanoic acid (ND)



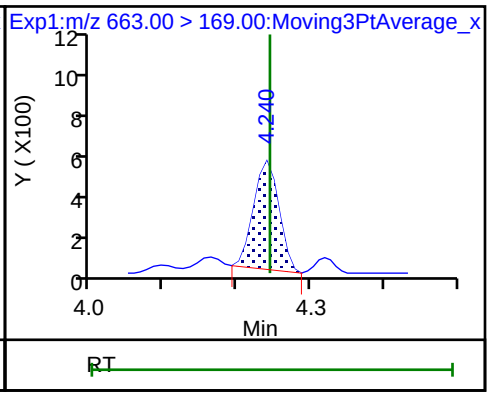
D 36 13C2 PFDoA



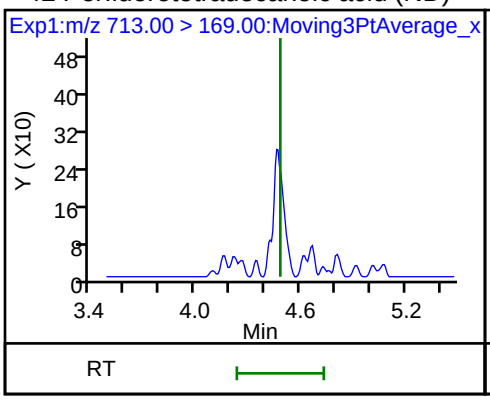
41 Perfluorotridecanoic acid



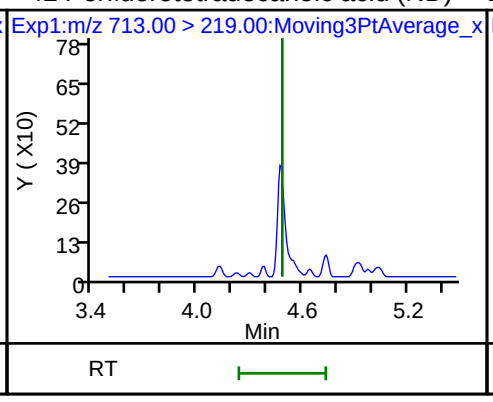
41 Perfluorotridecanoic acid



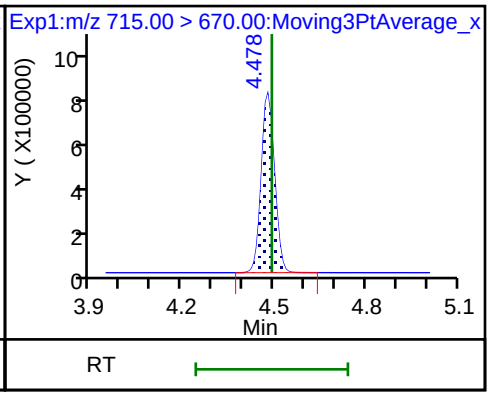
42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



D 43 13C2-PFTeDA



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

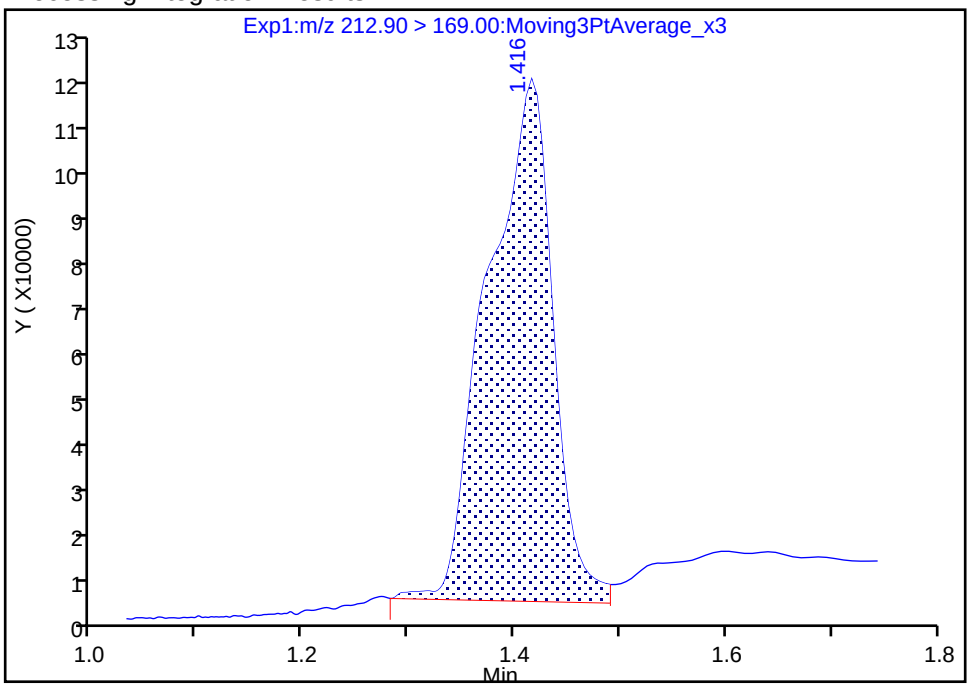
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_047.d				
Injection Date:	30-Aug-2018 01:56:02	Instrument ID:	A8_N		
Lims ID:	320-42265-A-7-A	Lab Sample ID:	320-42265-7		
Client ID:	DUP-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

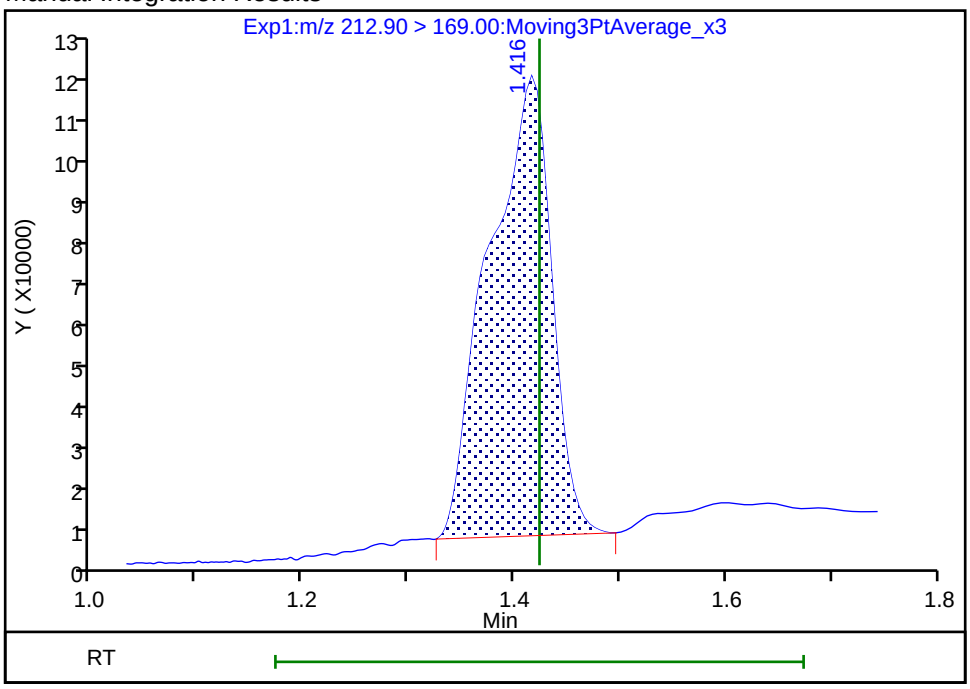
Processing Integration Results

RT: 1.42
Area: 457571
Amount: 0.213570
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 427521
Amount: 0.199544
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:46:39

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

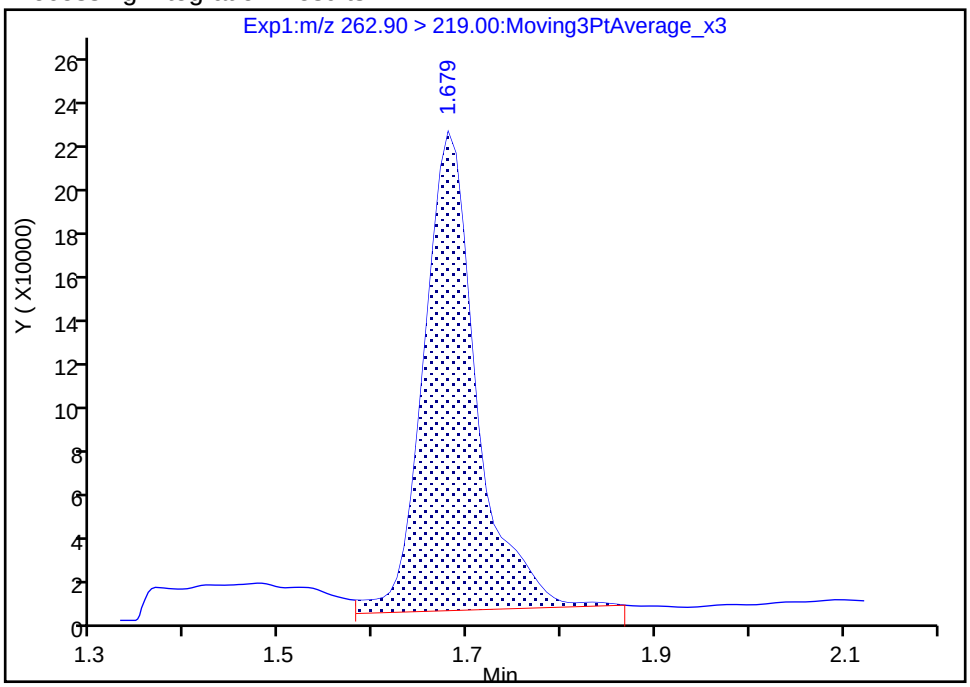
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_047.d				
Injection Date:	30-Aug-2018 01:56:02	Instrument ID:	A8_N		
Lims ID:	320-42265-A-7-A	Lab Sample ID:	320-42265-7		
Client ID:	DUP-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

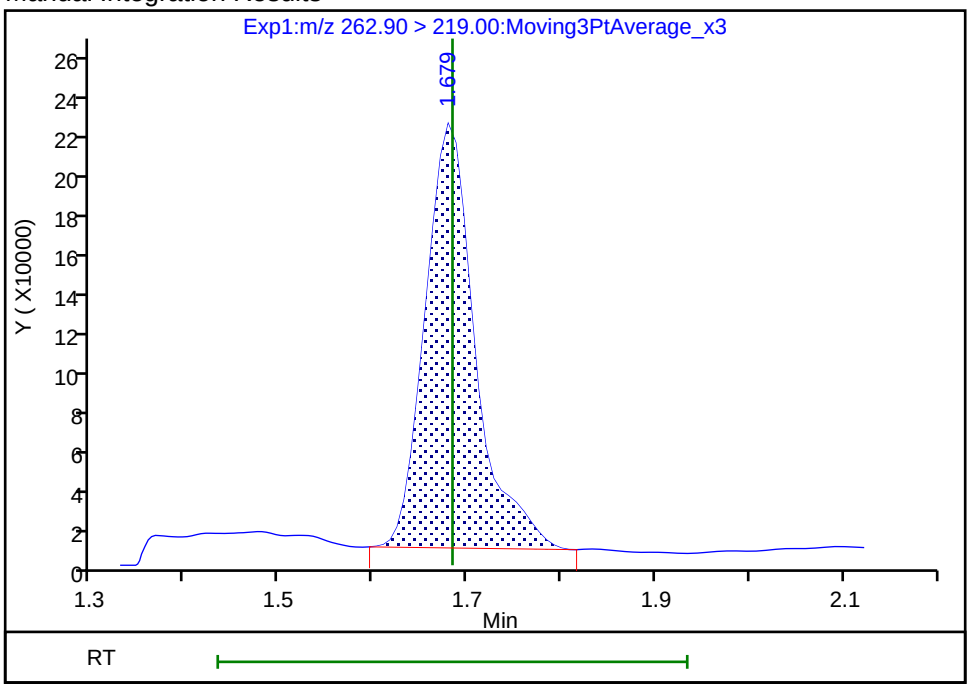
Processing Integration Results

RT: 1.68
Area: 835883
Amount: 0.478479
Amount Units: ng/ml



Manual Integration Results

RT: 1.68
Area: 777973
Amount: 0.445330
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:46:46

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

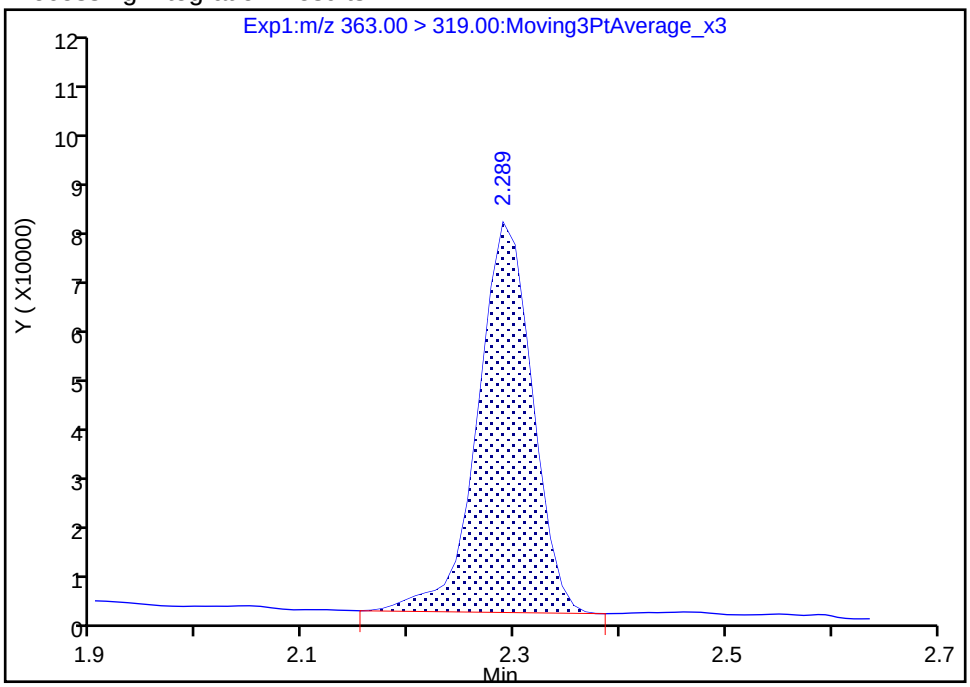
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_047.d				
Injection Date:	30-Aug-2018 01:56:02	Instrument ID:	A8_N		
Lims ID:	320-42265-A-7-A	Lab Sample ID:	320-42265-7		
Client ID:	DUP-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

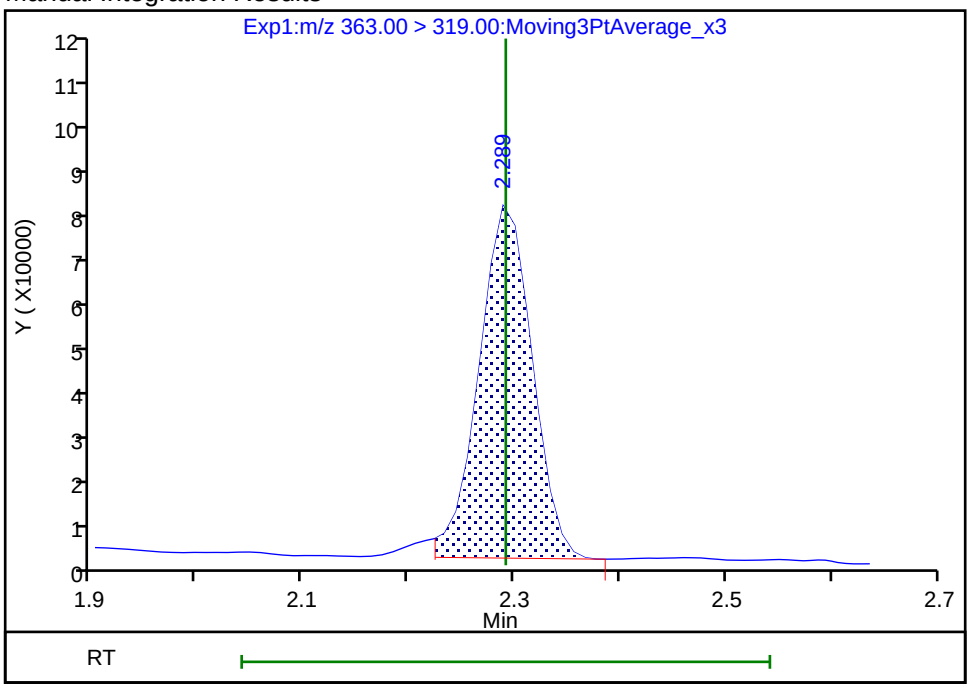
Processing Integration Results

RT: 2.29
Area: 267168
Amount: 0.131728
Amount Units: ng/ml



Manual Integration Results

RT: 2.29
Area: 259949
Amount: 0.128168
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:46:57

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

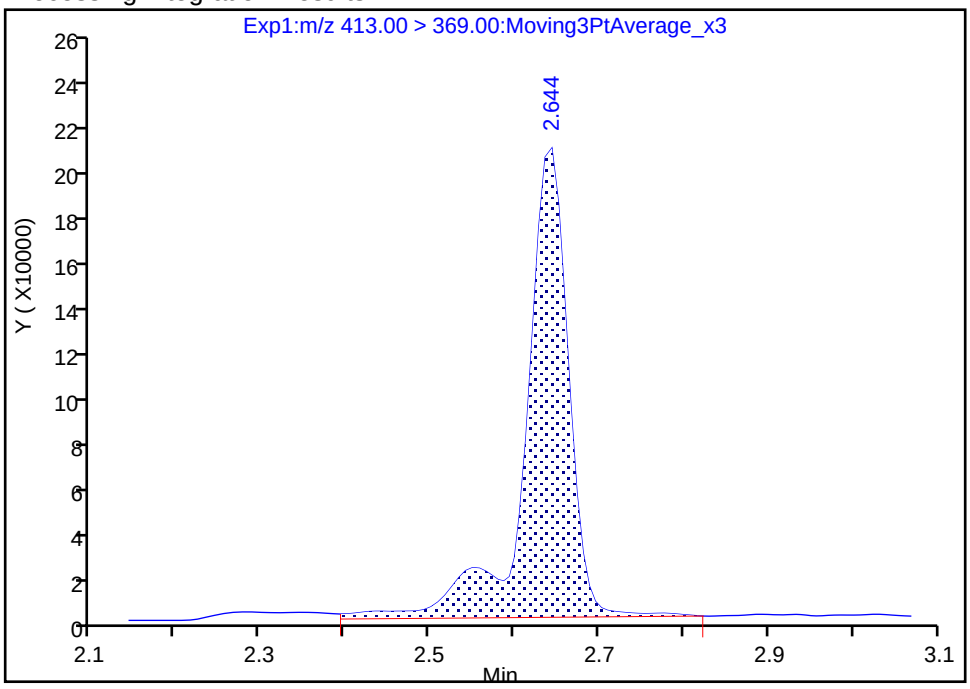
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_047.d				
Injection Date:	30-Aug-2018 01:56:02	Instrument ID:	A8_N		
Lims ID:	320-42265-A-7-A	Lab Sample ID:	320-42265-7		
Client ID:	DUP-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

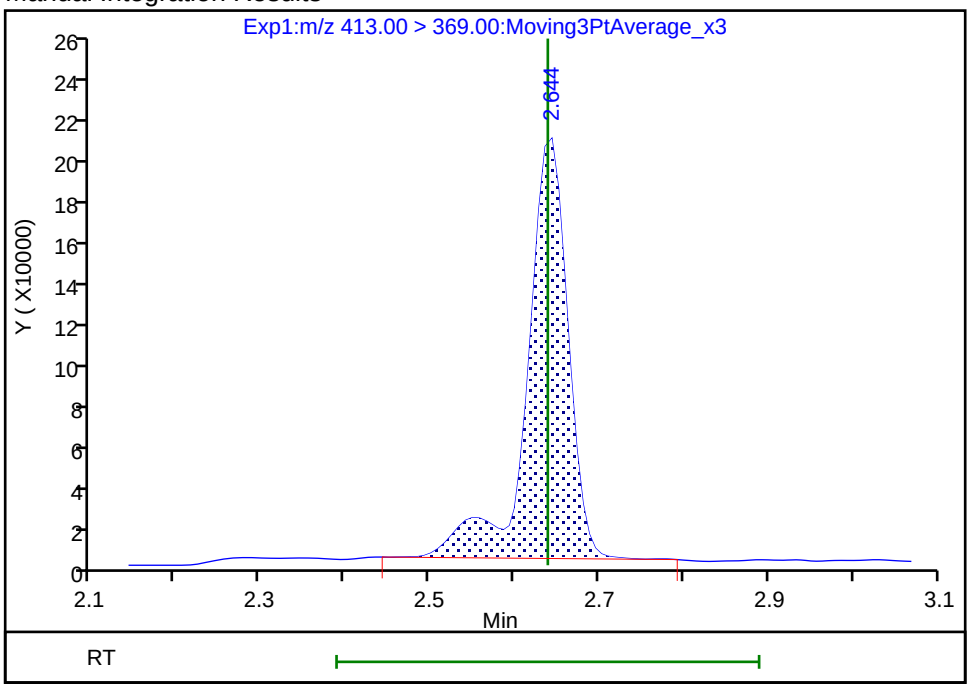
Processing Integration Results

RT: 2.64
Area: 729772
Amount: 0.378112
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 677936
Amount: 0.351255
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:47:19

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

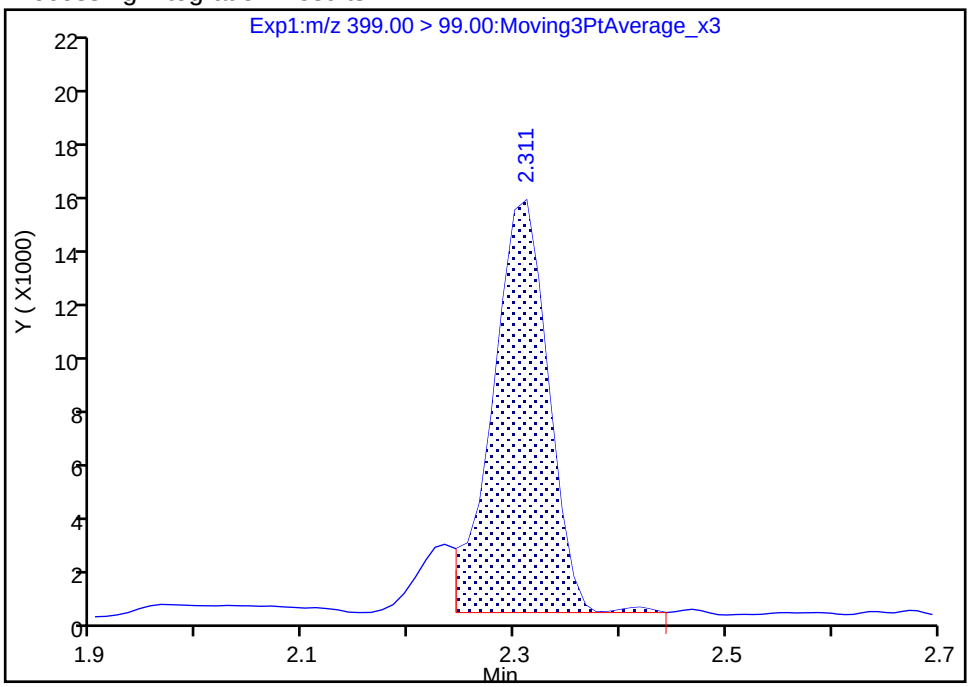
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_047.d				
Injection Date:	30-Aug-2018 01:56:02	Instrument ID:	A8_N		
Lims ID:	320-42265-A-7-A	Lab Sample ID:	320-42265-7		
Client ID:	DUP-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

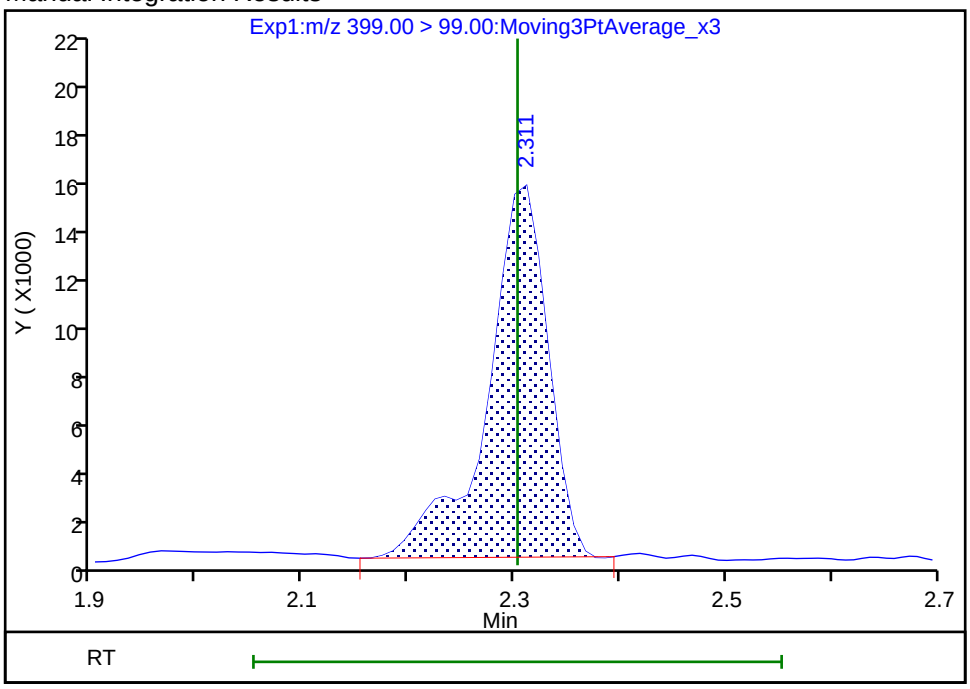
Processing Integration Results

RT: 2.31
Area: 54515
Amount: 0.078931
Amount Units: ng/ml



Manual Integration Results

RT: 2.31
Area: 59768
Amount: 0.065267
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:47:05

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

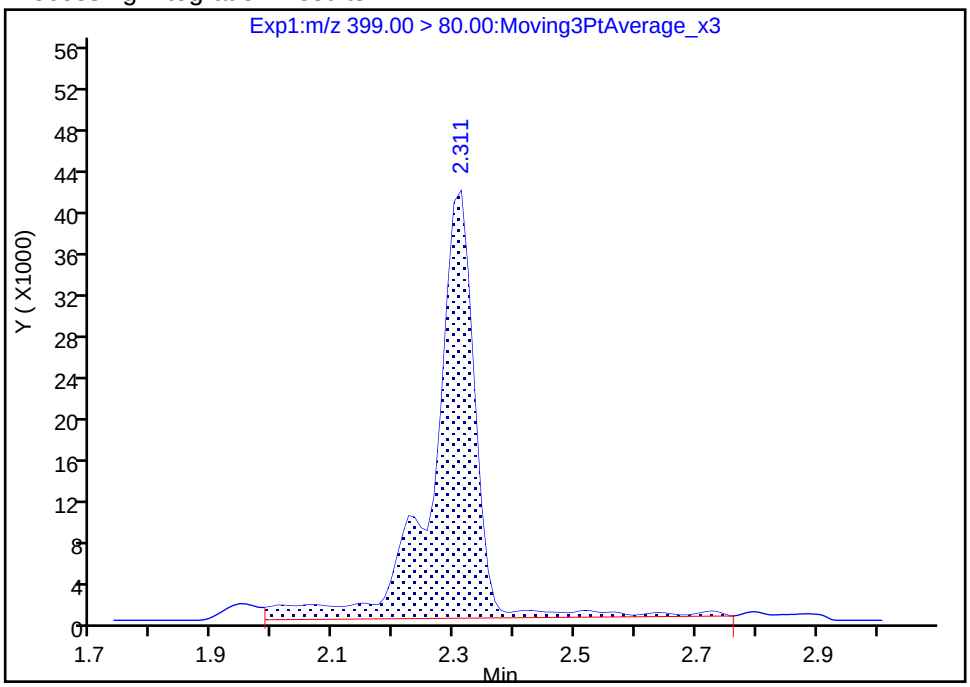
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_047.d				
Injection Date:	30-Aug-2018 01:56:02	Instrument ID:	A8_N		
Lims ID:	320-42265-A-7-A	Lab Sample ID:	320-42265-7		
Client ID:	DUP-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

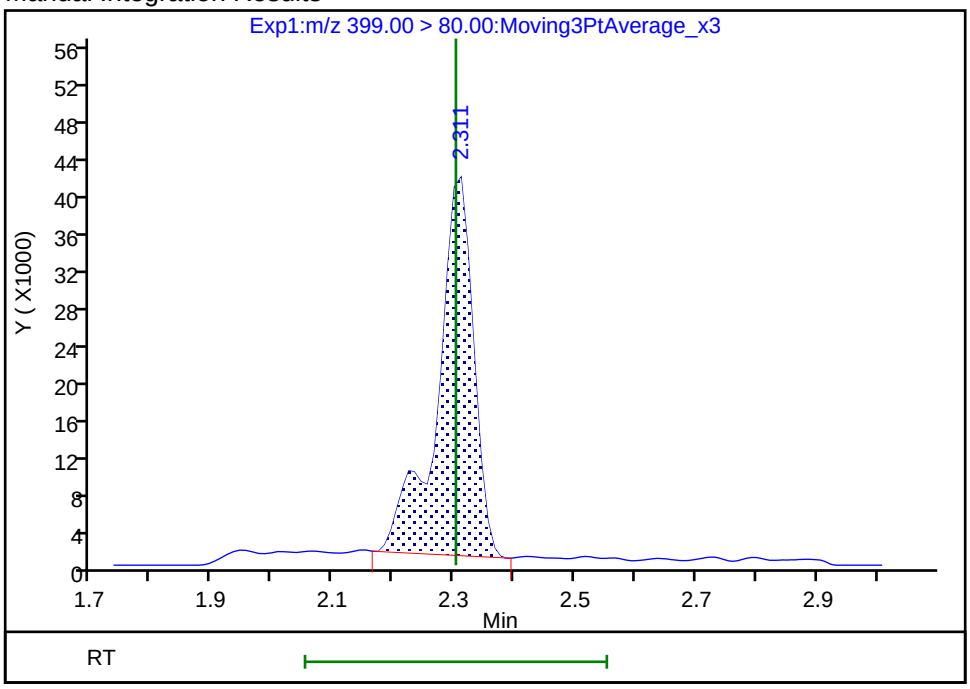
Processing Integration Results

RT: 2.31
Area: 204143
Amount: 0.078931
Amount Units: ng/ml



Manual Integration Results

RT: 2.31
Area: 168803
Amount: 0.065267
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:47:09

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

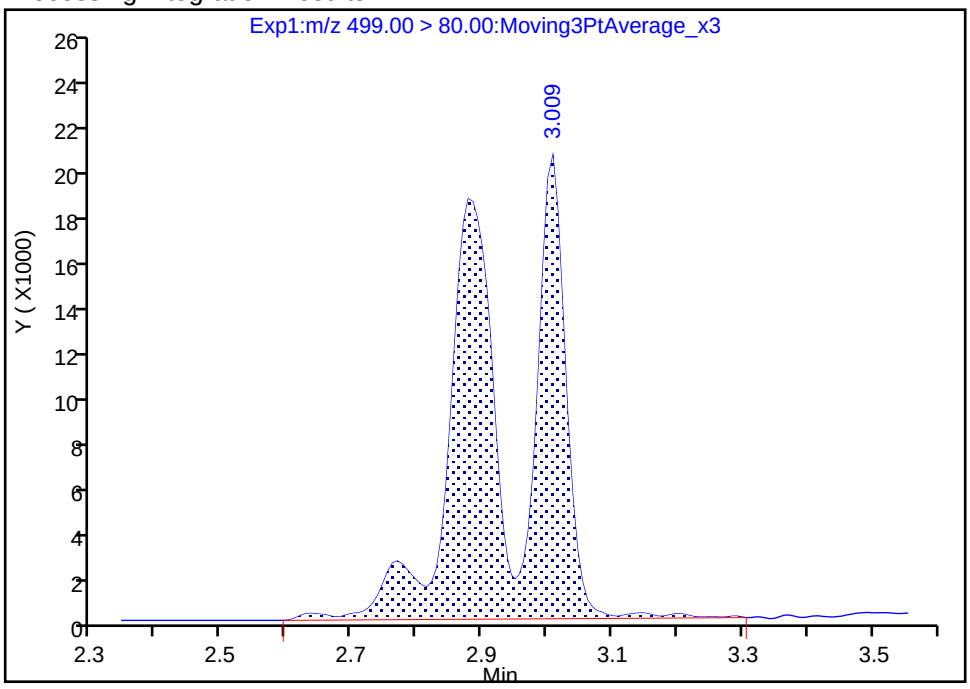
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_047.d				
Injection Date:	30-Aug-2018 01:56:02	Instrument ID:	A8_N		
Lims ID:	320-42265-A-7-A	Lab Sample ID:	320-42265-7		
Client ID:	DUP-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

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

Signal: 1

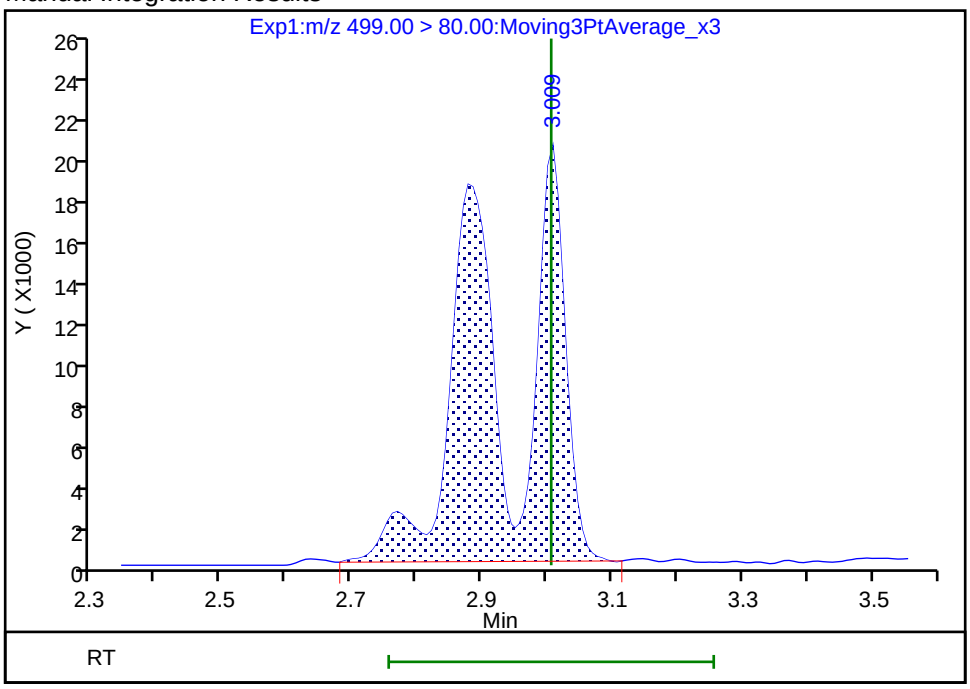
Processing Integration Results

RT: 3.01
Area: 150360
Amount: 0.092268
Amount Units: ng/ml



Manual Integration Results

RT: 3.01
Area: 144935
Amount: 0.088939
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:47:32

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

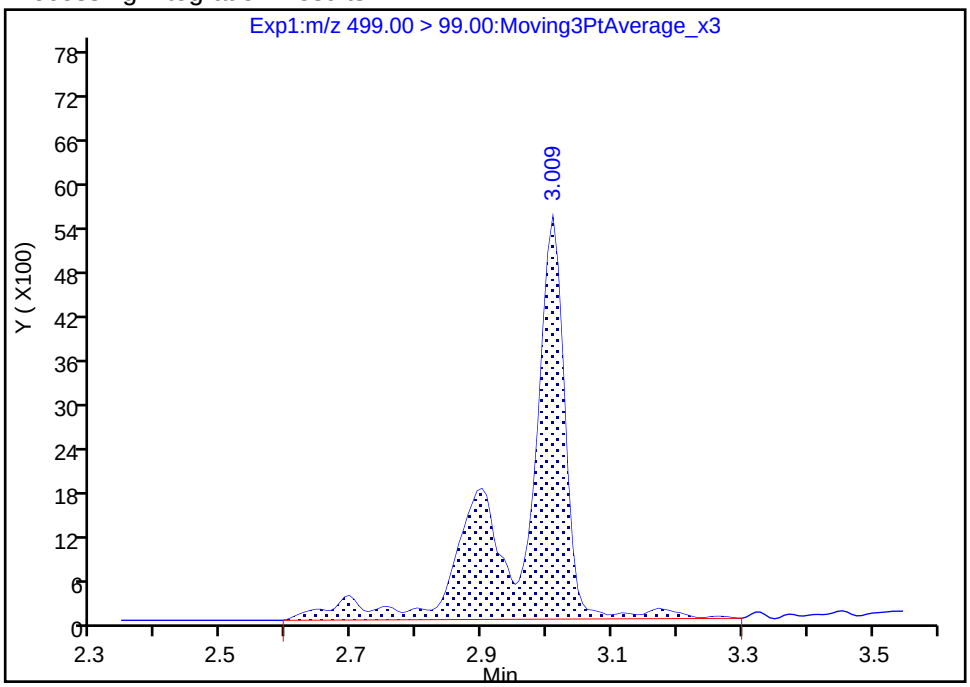
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_047.d				
Injection Date:	30-Aug-2018 01:56:02	Instrument ID:	A8_N		
Lims ID:	320-42265-A-7-A	Lab Sample ID:	320-42265-7		
Client ID:	DUP-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

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

Signal: 2

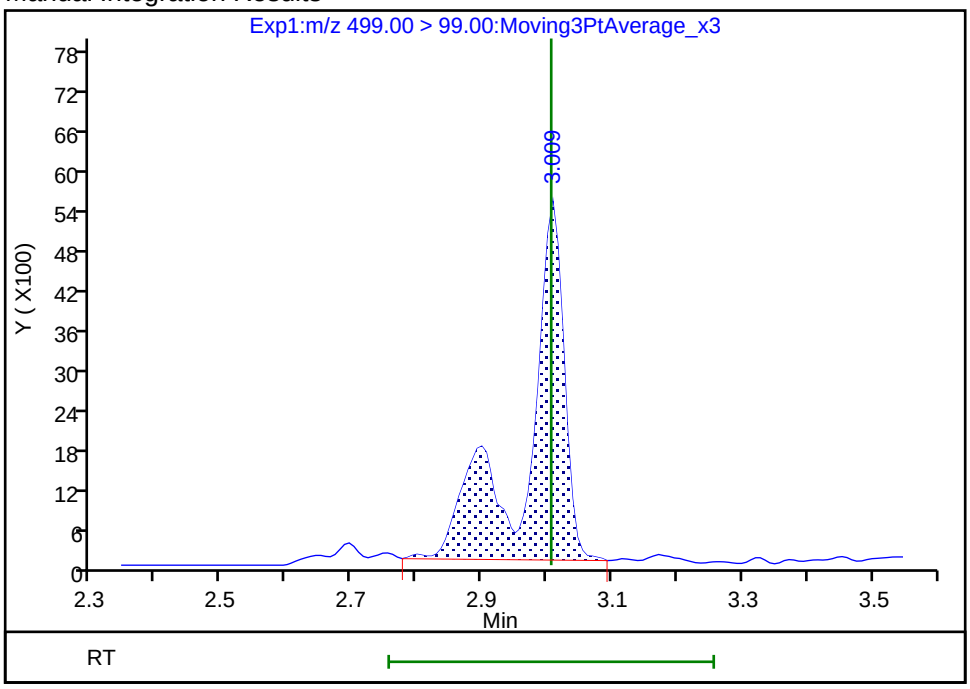
Processing Integration Results

RT: 3.01
Area: 25287
Amount: 0.092268
Amount Units: ng/ml



Manual Integration Results

RT: 3.01
Area: 21655
Amount: 0.088939
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:47:38

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: EB-01 | Lab Sample ID: 320-42265-8

Matrix: Water | Lab File ID: 2018.08.29LLB_048.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 14:20

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 245.1(mL) | Date Analyzed: 08/30/2018 02:03

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		2.0	0.36
2706-90-3	Perfluoropentanoic acid (PFPeA)	ND		2.0	0.50
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		2.0	0.59
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25
335-67-1	Perfluorooctanoic acid (PFOA)	ND		2.0	0.87
375-95-1	Perfluorononanoic acid (PFNA)	ND		2.0	0.28
335-76-2	Perfluorodecanoic acid (PFDA)	ND		2.0	0.32
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.0	0.56
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.30
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.31	J B	2.0	0.17
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.55
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.33
754-91-6	Perfluorooctane Sulfonamide (FOSA)	ND		2.0	0.36
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	3.2
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9
27619-97-2	6:2 FTS	ND		20	2.0
39108-34-4	8:2 FTS	ND		20	2.0

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: EB-01 | Lab Sample ID: 320-42265-8

Matrix: Water | Lab File ID: 2018.08.29LLB_048.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 14:20

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 245.1(mL) | Date Analyzed: 08/30/2018 02:03

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	102		25-150
STL01893	13C5 PFPeA	92		25-150
STL00993	13C2 PFHxA	95		25-150
STL01892	13C4-PFHpA	96		25-150
STL00990	13C4 PFOA	95		25-150
STL00995	13C5 PFNA	96		25-150
STL00996	13C2 PFDA	97		25-150
STL00997	13C2 PFUnA	97		25-150
STL00998	13C2 PFDoA	90		25-150
STL02116	13C2-PFTeDA	86		25-150
STL02337	13C3-PFBS	90		25-150
STL00994	18O2 PFHxS	95		25-150
STL00991	13C4 PFOS	92		25-150
STL01056	13C8 FOSA	84		25-150
STL02118	d3-NMeFOSAA	90		25-150
STL02117	d5-NEtFOSAA	88		25-150
STL02279	M2-6:2FTS	95		25-150
STL02280	M2-8:2FTS	95		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_048.d
Lims ID: 320-42265-A-8-A
Client ID: EB-01
Sample Type: Client
Inject. Date: 30-Aug-2018 02:03:50 ALS Bottle#: 37 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-42265-a-8-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:48:37 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:48:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.416	1.421	-0.005	0.536	7314585	2.55		102	11208	
2 Perfluorobutyric acid										
212.90 > 169.00	1.421	1.424	-0.003	1.004	22042	0.008477			2.1	
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.678	1.684	-0.006	1.000	8378	0.004342			0.5	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.678	1.687	-0.009	0.635	4183703	2.30		92.1	10565	
D 47 13C3-PFBS										
301.90 > 83.00	1.718	1.720	-0.002	0.650	89908	2.09		90.0	603	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.726	1.724	0.002	1.005	2313	0.000799			5.6	
298.90 > 99.00	1.710	1.724	-0.014	0.995	1469		1.57(1.25-3.74)		3.1	
D 7 13C2 PFHxA										
315.00 > 270.00	1.964	1.966	-0.002	0.743	4857031	2.38		95.4	14913	
D 9 13C4-PFHpA										
367.00 > 322.00	2.288	2.289	-0.001	0.866	4618451	2.40		96.2	18302	
10 Perfluoroheptanoic acid										R
363.00 > 319.00	2.288	2.292	-0.004	1.000	2028	0.001002			1.2	R
363.00 > 169.00	2.277	2.292	-0.015	0.995	2217		0.91(1.13-3.40)		5.4	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.310	2.303	0.007	1.000	20045	0.007527			95.6	
399.00 > 99.00	2.310	2.303	0.007	1.000	7032		2.85(1.50-4.49)		13.3	
D 11 18O2 PFHxS										
403.00 > 84.00	2.310	2.311	-0.001	0.874	5756282	2.25		95.3	14242	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.612	2.609	0.003	0.997	28434	0.0455			263	
D 12 M2-6:2FTS										
429.00 > 81.00	2.619	2.613	0.006	0.991	987503	2.27		95.5	5717	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.643	2.639	0.003	1.000	14481	0.007381			2.3	M
413.00 > 169.00	2.643	2.639	0.003	1.000	4814		3.01(0.84-2.52)		11.7	M
* 62 13C2-PFOA										
415.00 > 370.00	2.643	2.639	0.003		4650257	2.50			14558	
D 14 13C4 PFOA										
417.00 > 372.00	2.643	2.644	-0.002	1.000	4339125	2.37		94.7	11585	
D 18 13C4 PFOS										
503.00 > 80.00	3.015	3.009	0.006	1.141	3847495	2.20		92.2	6415	
D 19 13C5 PFNA										
468.00 > 423.00	3.015	3.016	-0.001	1.141	3613429	2.40		96.0	9781	
D 26 M2-8:2FTS										
529.00 > 81.00	3.359	3.357	0.002	1.271	1153432	2.28		95.1	3907	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.381	3.362	0.019	1.004	2365	0.001124			13.4	
D 21 13C8 FOSA										
506.00 > 78.00	3.366	3.364	0.002	1.274	5455700	2.11		84.4	5912	
D 23 13C2 PFDA										
515.00 > 470.00	3.366	3.372	-0.006	1.274	3375543	2.42		96.6	5834	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.517	3.523	-0.006	1.331	1456668	2.24		89.5	3570	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.688	3.685	0.003	1.396	1575448	2.20		88.2	573	
D 30 13C2 PFUnA										
565.00 > 520.00	3.697	3.693	0.004	1.399	2920766	2.42		96.8	9227	
D 36 13C2 PFDoA										
615.00 > 570.00	3.985	3.991	-0.006	1.508	2916160	2.26		90.5	7341	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.483	4.492	-0.009	1.697	3319223	2.15		85.9	6710	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Report Date: 31-Aug-2018 14:48:38 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_048.d

Injection Date: 30-Aug-2018 02:03:50 Instrument ID: A8_N

Lims ID: 320-42265-A-8-A Lab Sample ID: 320-42265-8

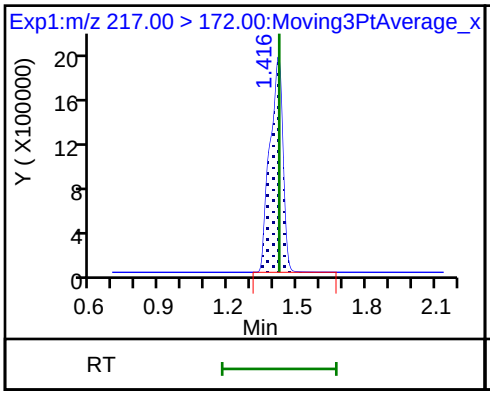
Client ID: EB-01

Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 17

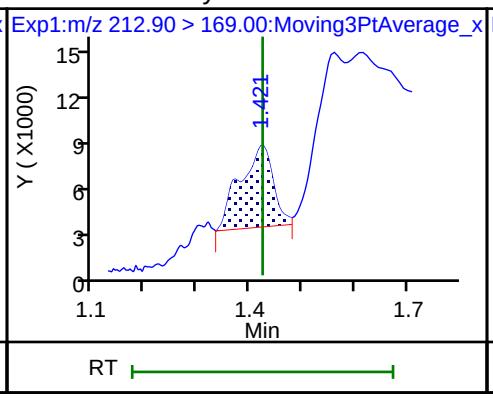
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

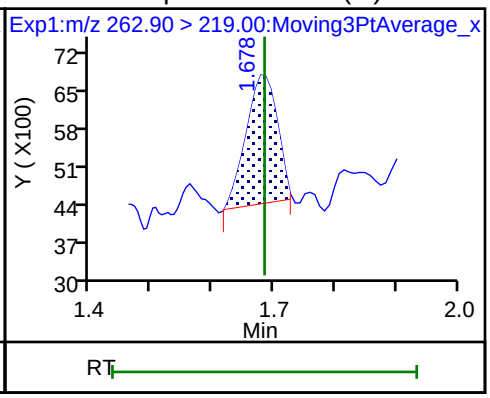
D 1 13C4 PFBA



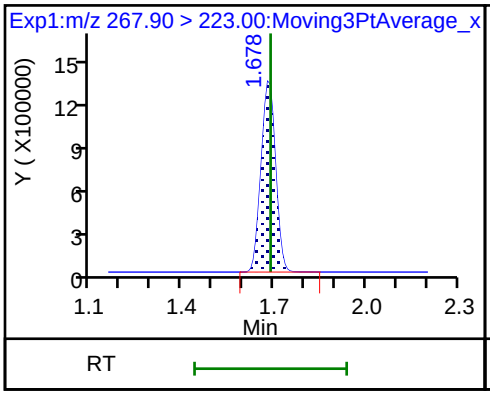
2 Perfluorobutyric acid



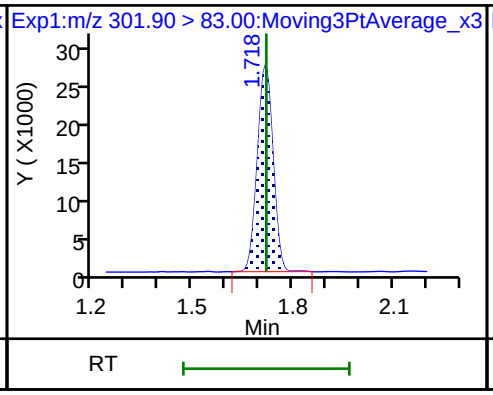
4 Perfluoropentanoic acid (M)



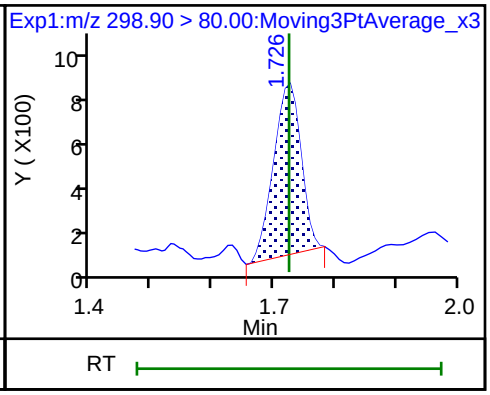
D 3 13C5-PFPeA



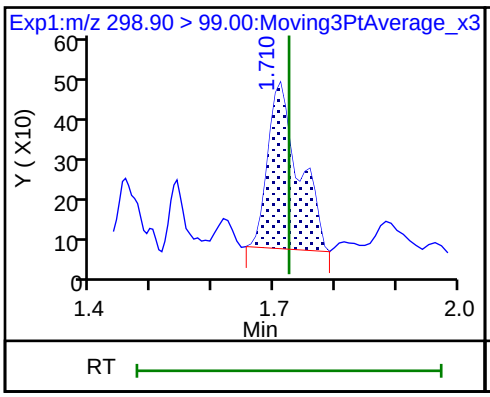
D 47 13C3-PFBS



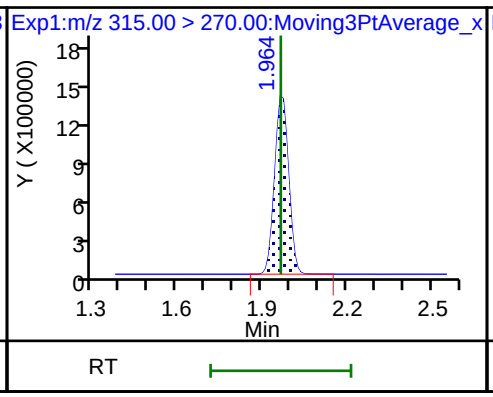
5 Perfluorobutanesulfonic acid



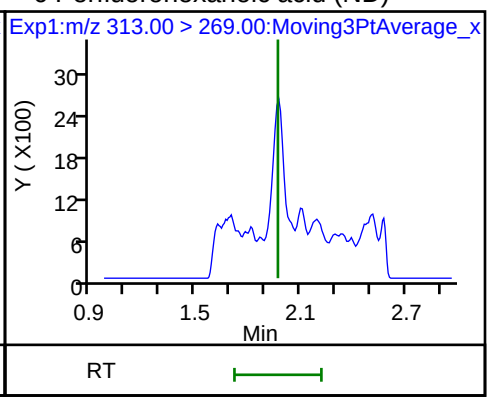
5 Perfluorobutanesulfonic acid



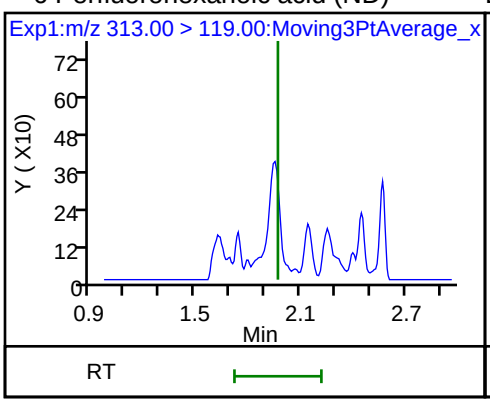
D 7 13C2 PFHxA



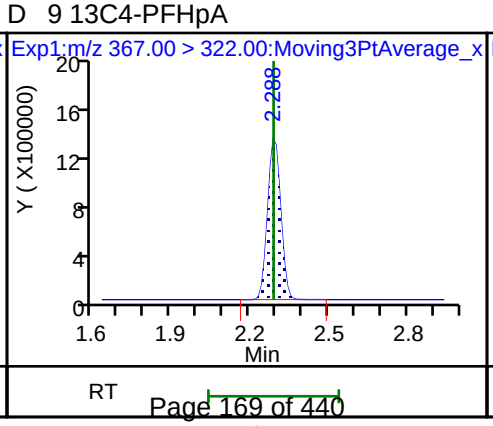
6 Perfluorohexanoic acid (ND)



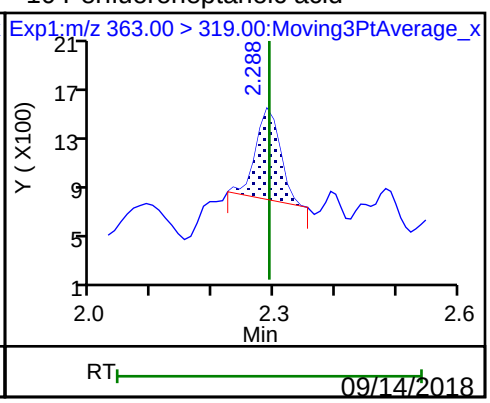
6 Perfluorohexanoic acid (ND)



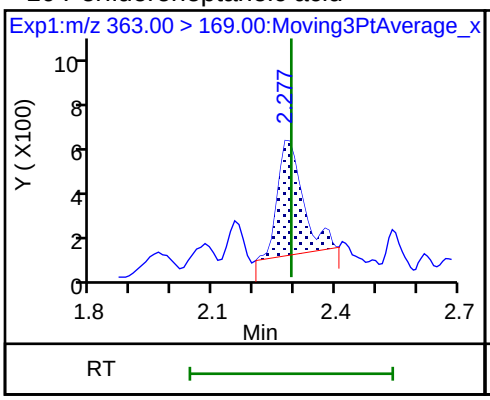
D 9 13C4-PFHpA



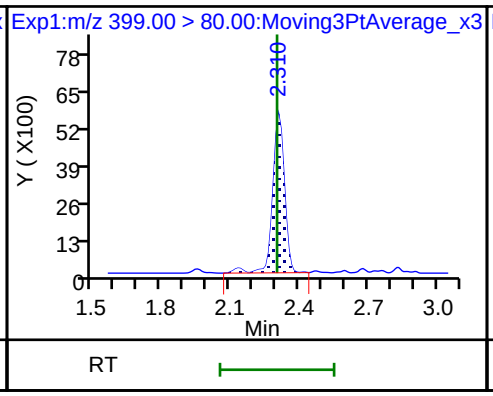
10 Perfluoroheptanoic acid



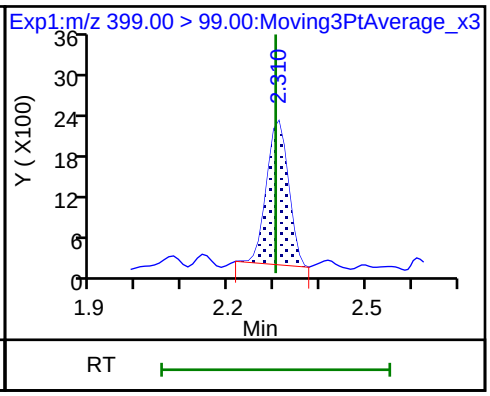
10 Perfluoroheptanoic acid



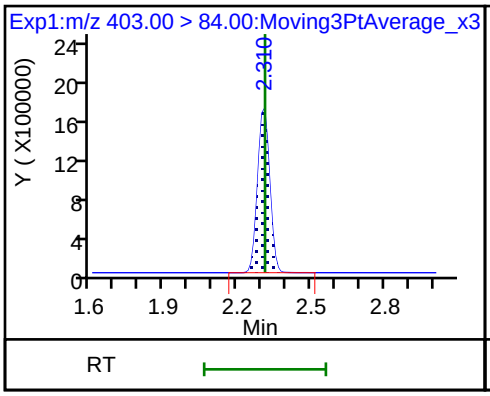
8 Perfluorohexanesulfonic acid



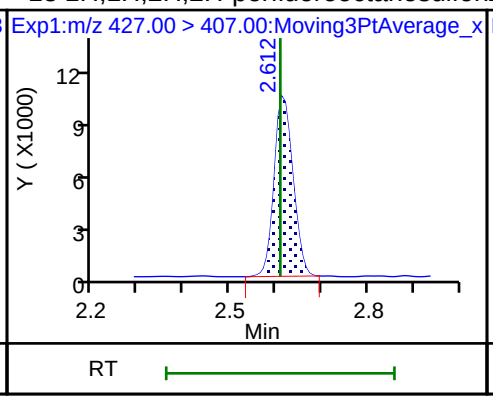
8 Perfluorohexanesulfonic acid



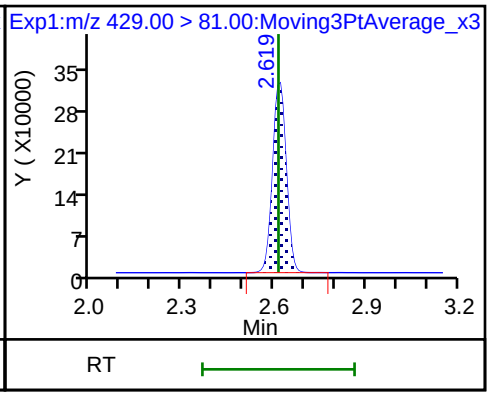
D 11 18O2 PFHxS



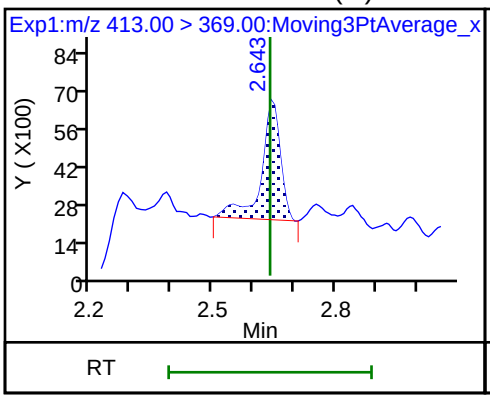
13 1H,1H,2H,2H-perfluorooctanesulfon



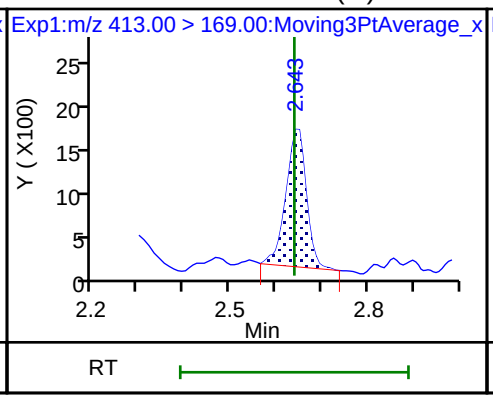
D 12 M2-6:2FTS



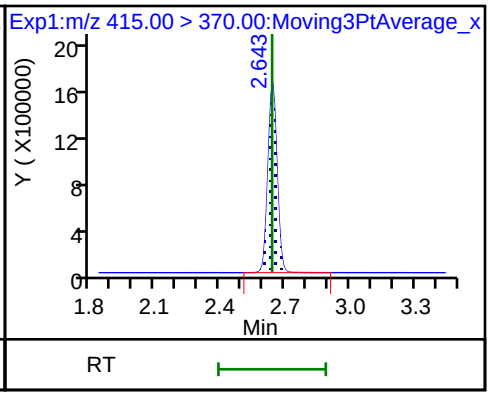
15 Perfluorooctanoic acid (M)



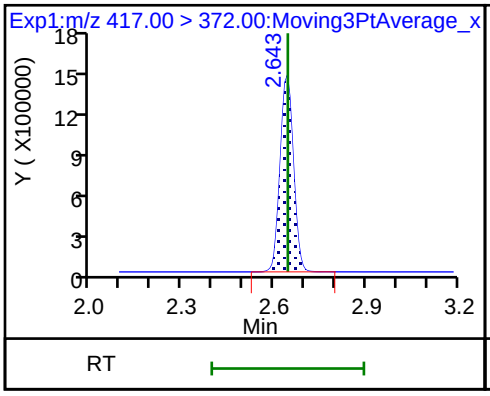
15 Perfluorooctanoic acid (M)



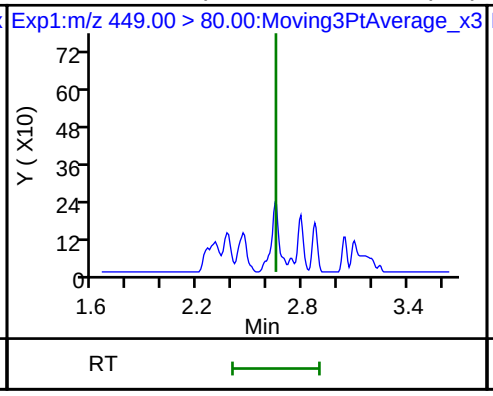
* 62 13C2-PFOA



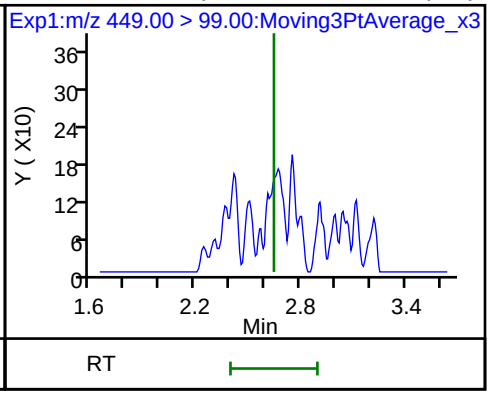
D 14 13C4 PFOA



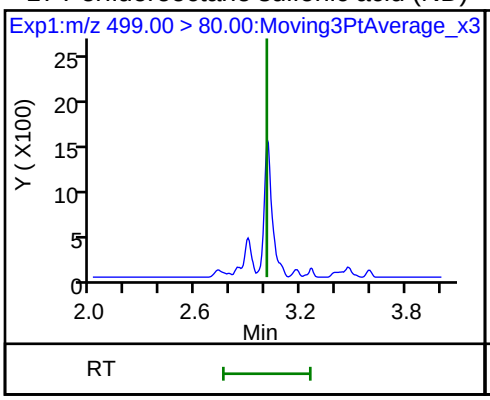
16 Perfluoroheptanesulfonic acid (ND)



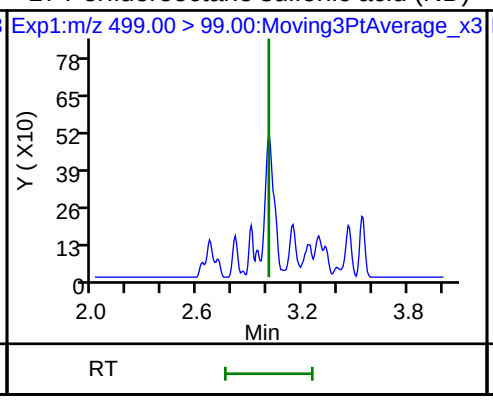
16 Perfluoroheptanesulfonic acid (ND)



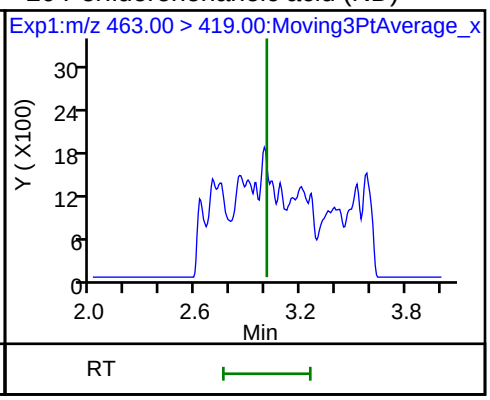
17 Perfluorooctane sulfonic acid (ND)



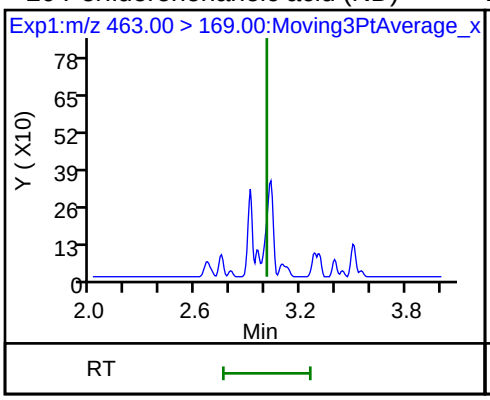
17 Perfluorooctane sulfonic acid (ND)



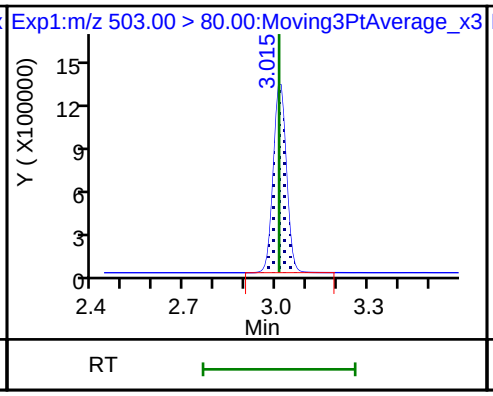
20 Perfluorononanoic acid (ND)



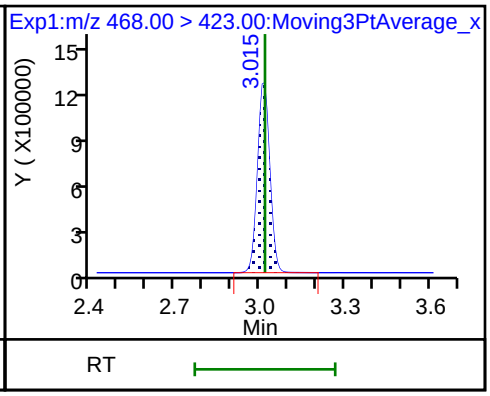
20 Perfluorononanoic acid (ND)



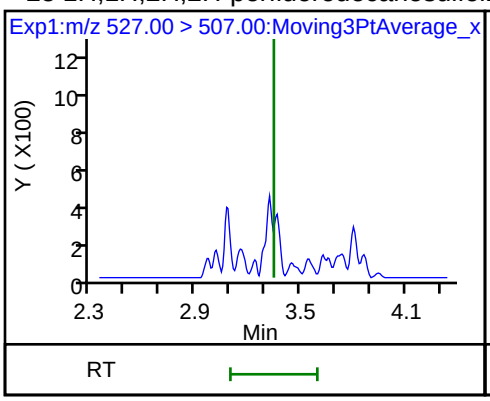
D 18 13C4 PFOS



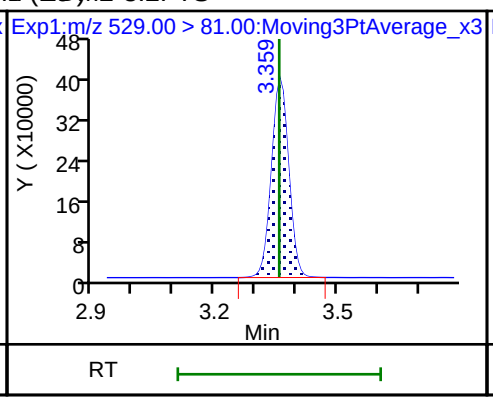
D 19 13C5 PFNA



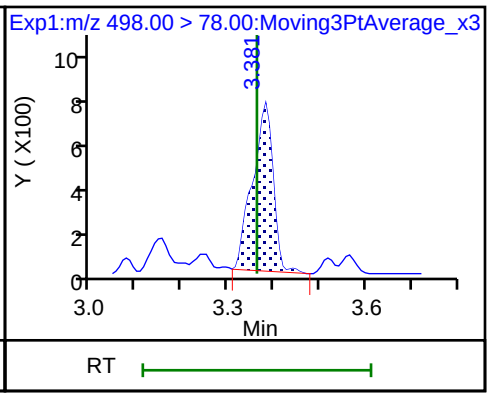
25 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2FTS)



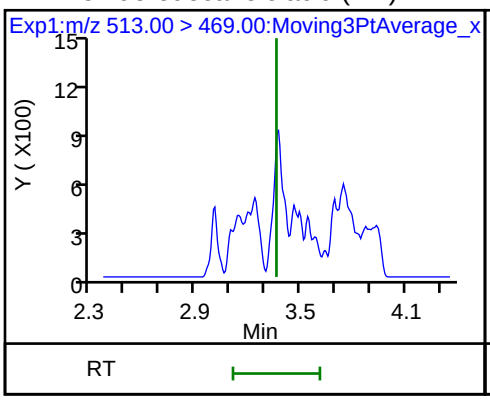
D 26 M2-8:2FTS



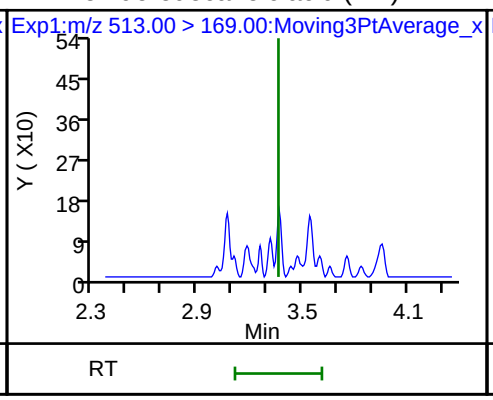
22 Perfluorooctane Sulfonamide



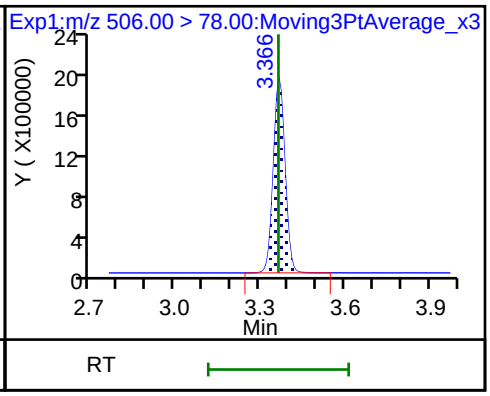
24 Perfluorodecanoic acid (ND)



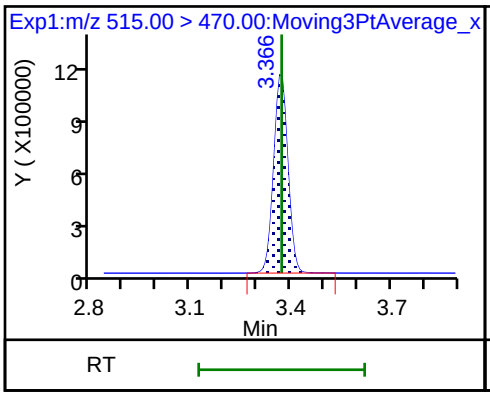
24 Perfluorodecanoic acid (ND)



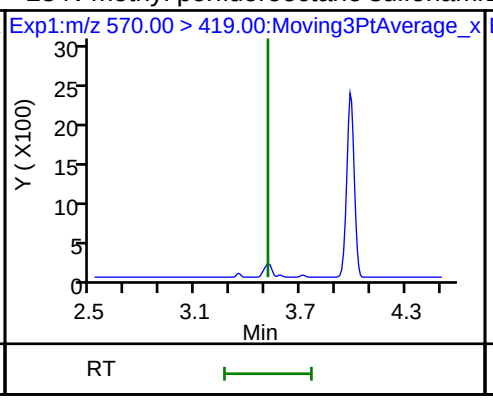
D 21 13C8 FOSA



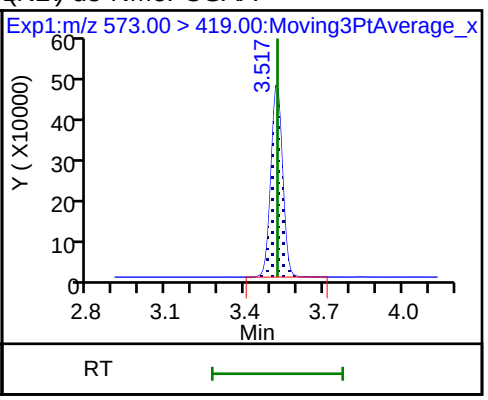
D 23 13C2 PFDA



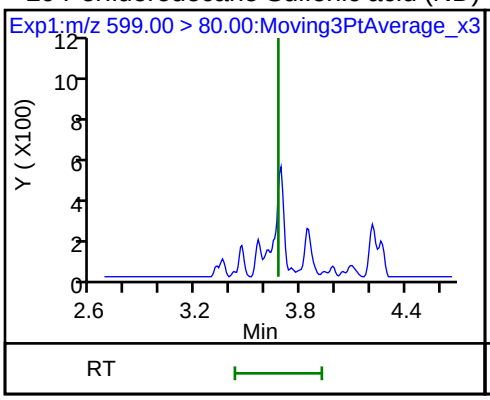
28 N-methyl perfluorooctane sulfonamid (ND)



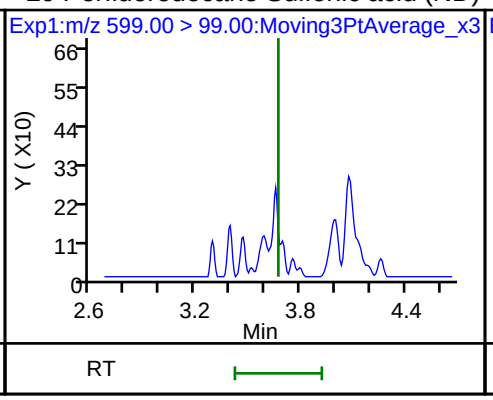
D 27 d3-NMeFOSAA



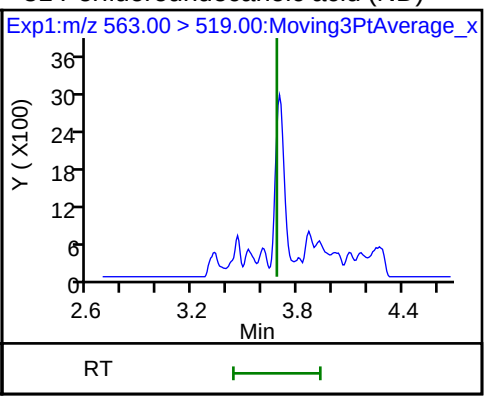
29 Perfluorodecane Sulfonic acid (ND)



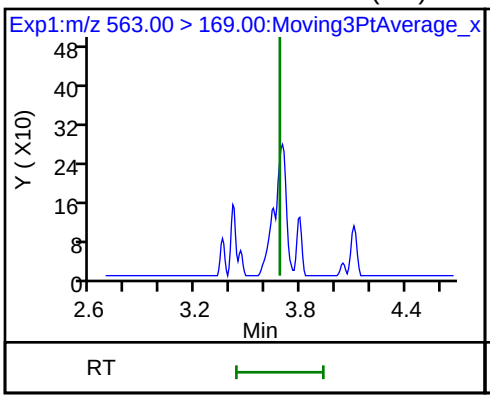
29 Perfluorodecane Sulfonic acid (ND)



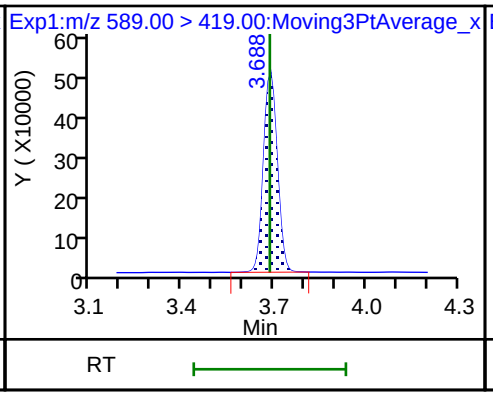
31 Perfluoroundecanoic acid (ND)



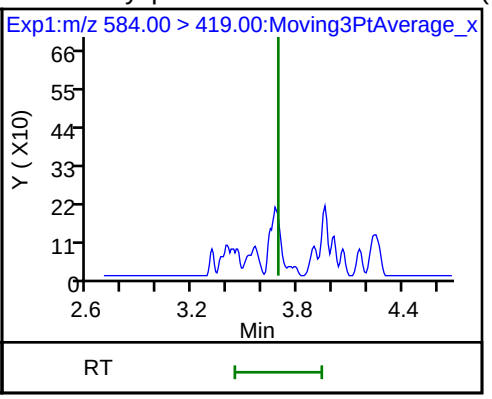
31 Perfluoroundecanoic acid (ND)



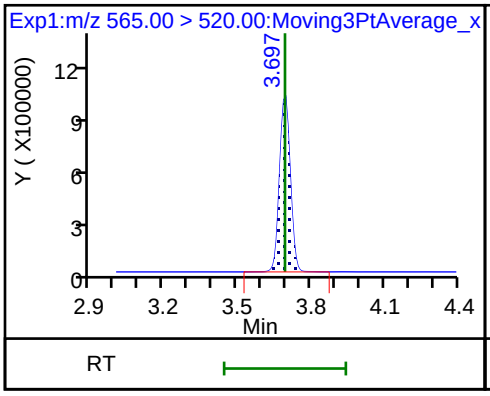
D 32 d5-NEtFOSAA



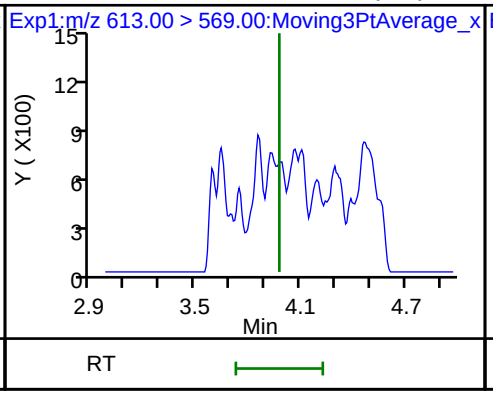
33 N-ethyl perfluorooctane sulfonamid (ND)



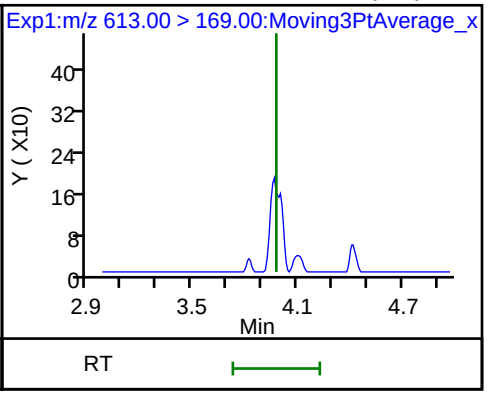
D 30 13C2 PFUnA



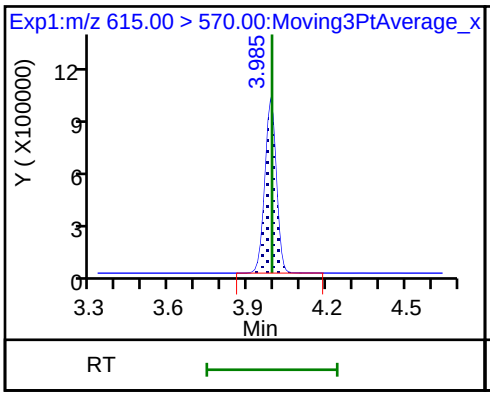
37 Perfluorododecanoic acid (ND)



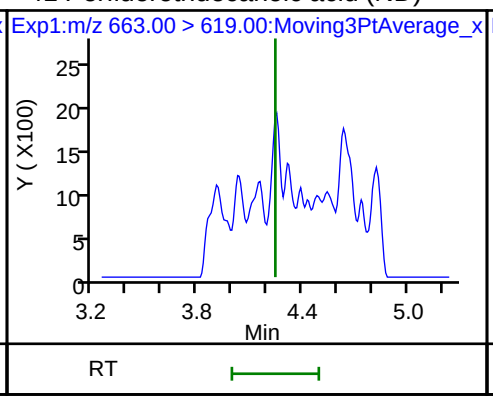
37 Perfluorododecanoic acid (ND)



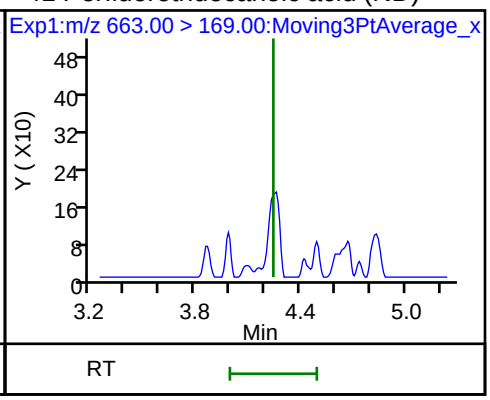
D 36 13C2 PFDoA



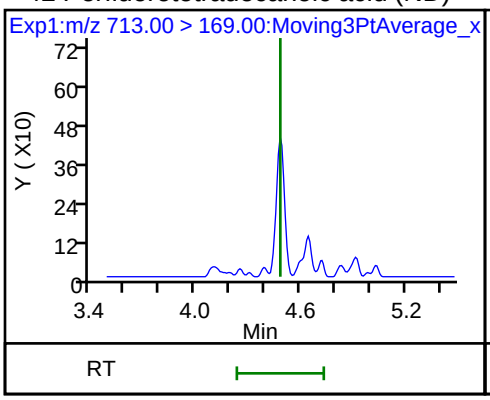
41 Perfluorotridecanoic acid (ND)



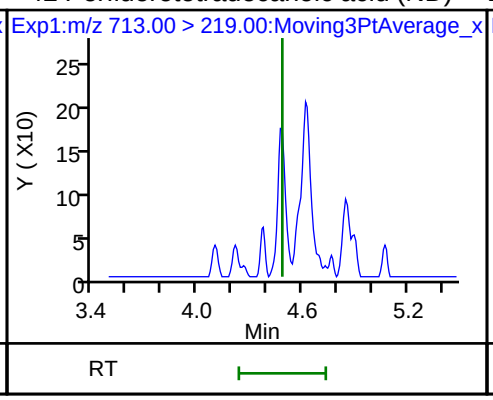
41 Perfluorotridecanoic acid (ND)



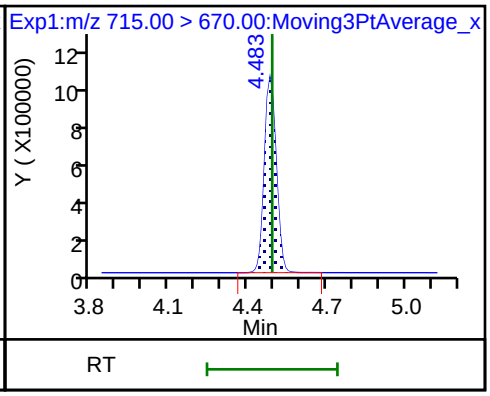
42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)



D 43 13C2-PFTeDA



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

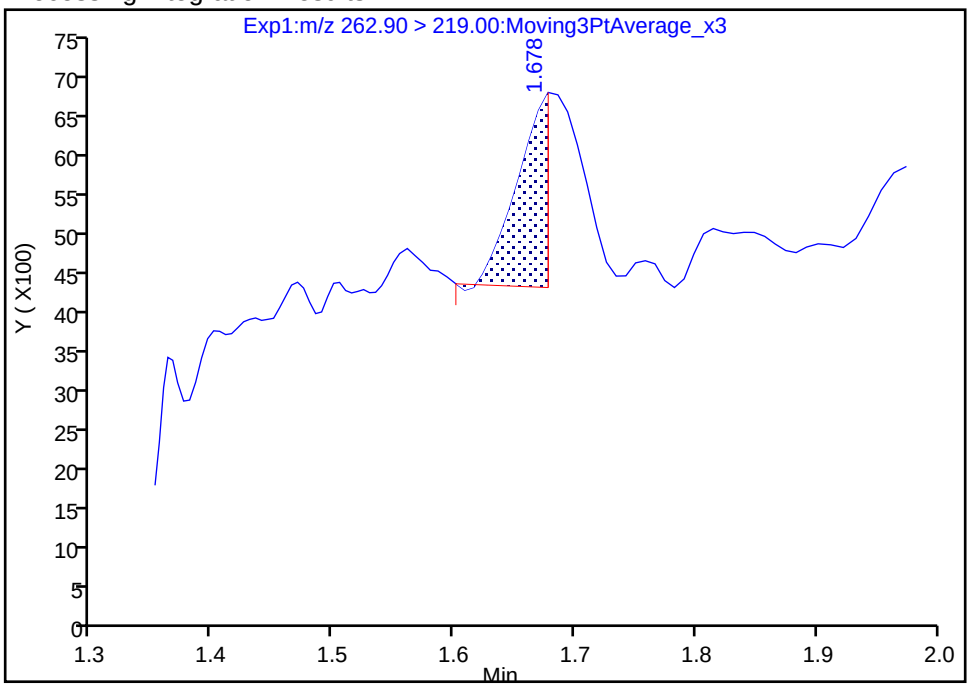
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_048.d				
Injection Date:	30-Aug-2018 02:03:50	Instrument ID:	A8_N		
Lims ID:	320-42265-A-8-A	Lab Sample ID:	320-42265-8		
Client ID:	EB-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	37	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

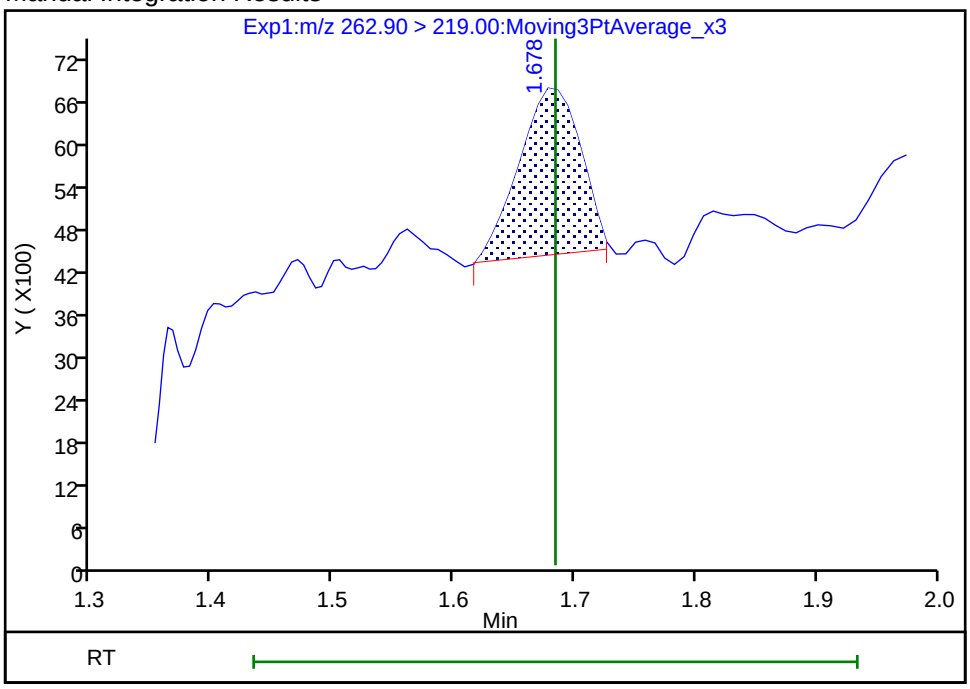
Processing Integration Results

RT: 1.68
Area: 4199
Amount: 0.002176
Amount Units: ng/ml



Manual Integration Results

RT: 1.68
Area: 8378
Amount: 0.004342
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:48:10

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

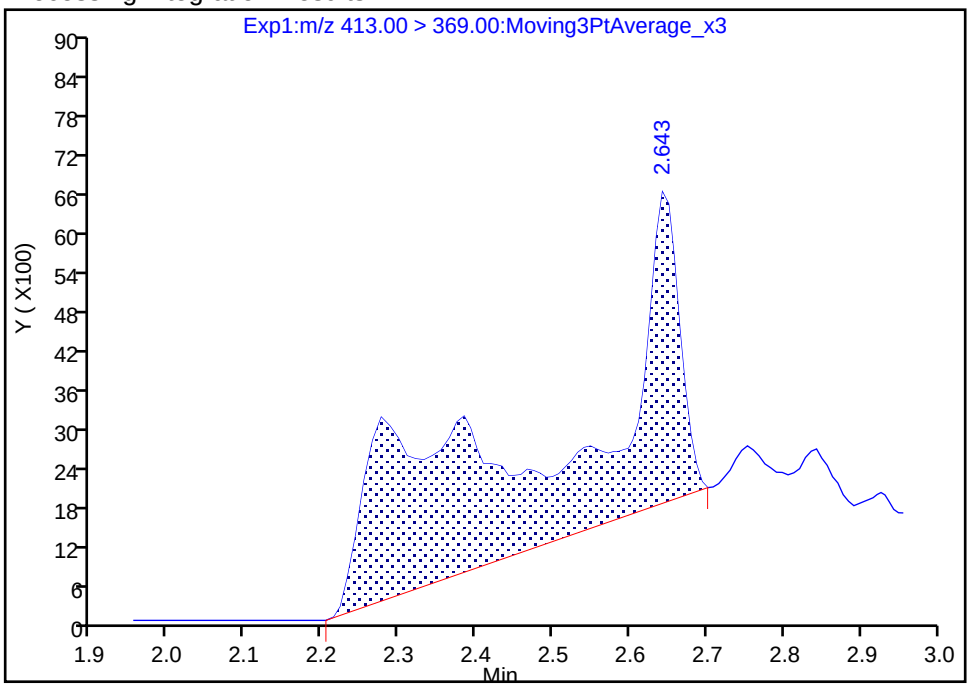
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_048.d				
Injection Date:	30-Aug-2018 02:03:50	Instrument ID:	A8_N		
Lims ID:	320-42265-A-8-A	Lab Sample ID:	320-42265-8		
Client ID:	EB-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	37	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

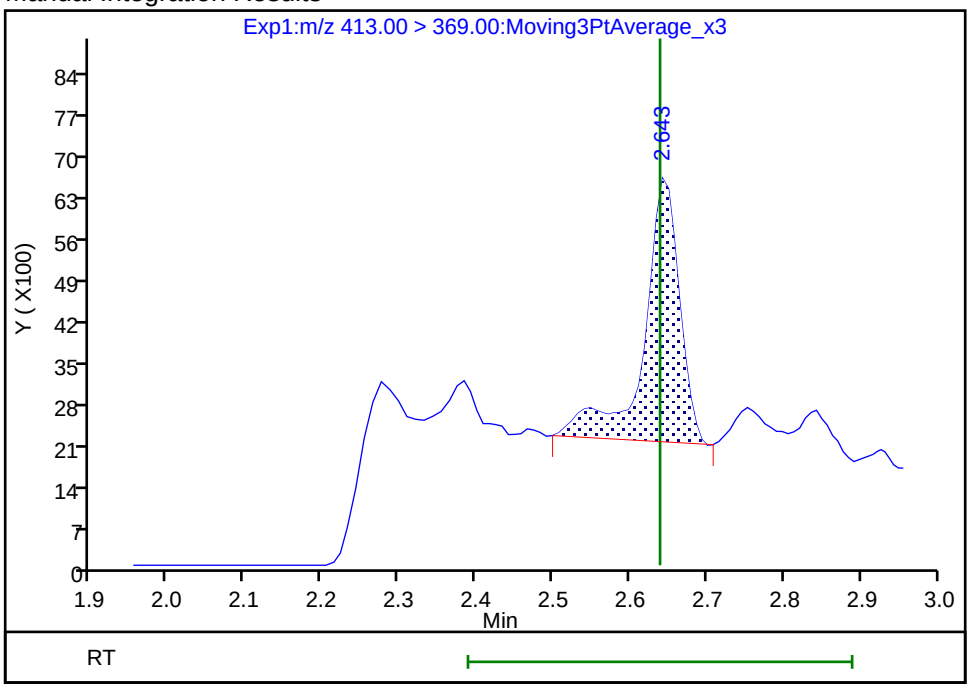
Processing Integration Results

RT: 2.64
Area: 49945
Amount: 0.025458
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 14481
Amount: 0.007381
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:48:23

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

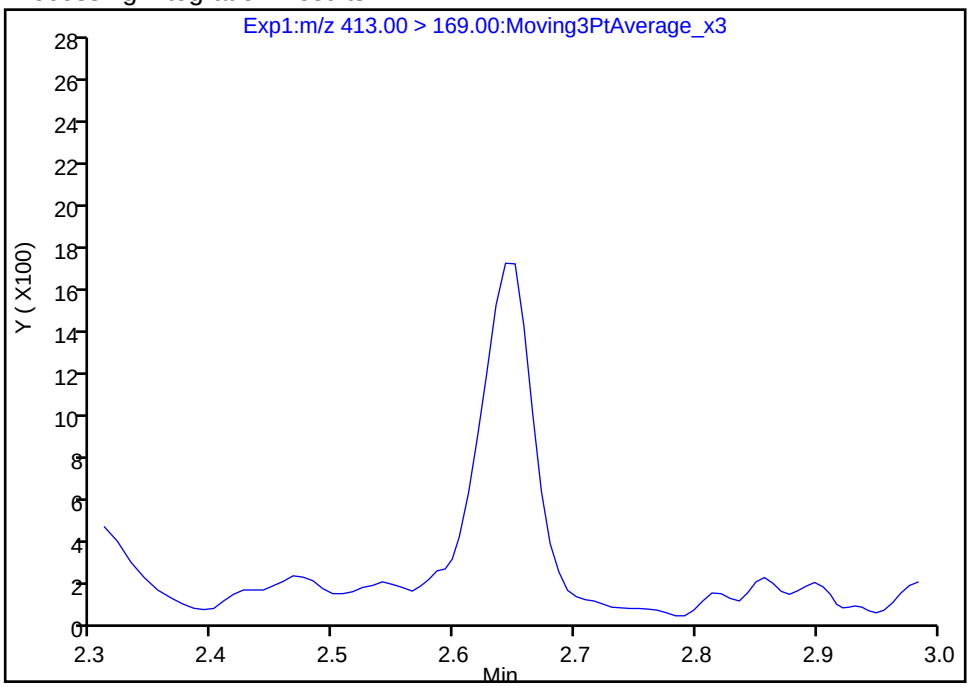
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_048.d				
Injection Date:	30-Aug-2018 02:03:50	Instrument ID:	A8_N		
Lims ID:	320-42265-A-8-A	Lab Sample ID:	320-42265-8		
Client ID:	EB-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	37	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

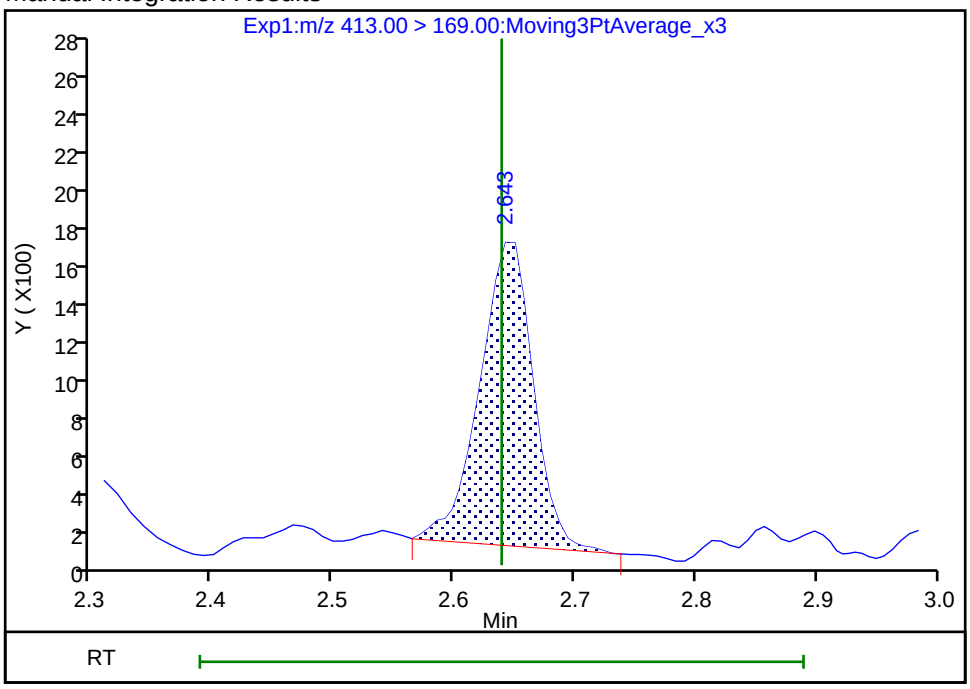
Processing Integration Results

RT: 2.64
Area: 0
Amount: 0.025458
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 4814
Amount: 0.007381
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:48:28

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MH-01 | Lab Sample ID: 320-42265-9

Matrix: Water | Lab File ID: 2018.08.29LLB_049.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 14:00

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 242.6(mL) | Date Analyzed: 08/30/2018 02:11

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	9.4		2.1	0.36
2706-90-3	Perfluoropentanoic acid (PFPeA)	11		2.1	0.50
307-24-4	Perfluorohexanoic acid (PFHxA)	9.0		2.1	0.60
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.3		2.1	0.26
335-67-1	Perfluorooctanoic acid (PFOA)	18		2.1	0.88
375-95-1	Perfluorononanoic acid (PFNA)	0.48	J	2.1	0.28
335-76-2	Perfluorodecanoic acid (PFDA)	ND		2.1	0.32
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	ND		2.1	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.33	J B	2.1	0.30
375-73-5	Perfluorobutanesulfonic acid (PFBS)	16		2.1	0.21
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	3.6	B	2.1	0.18
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.38	J	2.1	0.20
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11		2.1	0.56
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.1	0.33
754-91-6	Perfluorooctane Sulfonamide (FOSA)	ND		2.1	0.36
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		21	3.2
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		21	2.0
27619-97-2	6:2 FTS	ND		21	2.1
39108-34-4	8:2 FTS	ND		21	2.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MH-01 | Lab Sample ID: 320-42265-9

Matrix: Water | Lab File ID: 2018.08.29LLB_049.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 14:00

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 242.6(mL) | Date Analyzed: 08/30/2018 02:11

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	64		25-150
STL01893	13C5 PFPeA	74		25-150
STL00993	13C2 PFHxA	81		25-150
STL01892	13C4-PFHpA	89		25-150
STL00990	13C4 PFOA	94		25-150
STL00995	13C5 PFNA	106		25-150
STL00996	13C2 PFDA	96		25-150
STL00997	13C2 PFUnA	91		25-150
STL00998	13C2 PFDoA	88		25-150
STL02116	13C2-PFTeDA	85		25-150
STL02337	13C3-PFBS	85		25-150
STL00994	18O2 PFHxS	90		25-150
STL00991	13C4 PFOS	90		25-150
STL01056	13C8 FOSA	85		25-150
STL02118	d3-NMeFOSAA	87		25-150
STL02117	d5-NEtFOSAA	88		25-150
STL02279	M2-6:2FTS	142		25-150
STL02280	M2-8:2FTS	115		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_049.d
Lims ID: 320-42265-A-9-A
Client ID: MH-01
Sample Type: Client
Inject. Date: 30-Aug-2018 02:11:39 ALS Bottle#: 38 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-42265-a-9-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:50:09 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:50:09

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.411	1.421	-0.010	0.534	4828957	1.61		64.2	8001	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.411	1.424	-0.013	1.000	389632	0.2270			34.8	M
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.678	1.684	-0.006	1.000	430631	0.2647			7.4	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.678	1.687	-0.009	0.635	3527097	1.86		74.2	3890	
D 47 13C3-PFBS										
301.90 > 83.00	1.718	1.720	-0.002	0.650	88582	1.97		84.7	168	
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.718	1.724	-0.006	1.000	1116247	0.3913			55.6	M
298.90 > 99.00	1.718	1.724	-0.006	1.000	473245		2.36(1.25-3.74)		80.4	
D 7 13C2 PFHxA										
315.00 > 270.00	1.964	1.966	-0.002	0.743	4308875	2.02		80.9	8368	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.975	1.970	0.005	1.005	378835	0.2183			15.4	
313.00 > 119.00	1.964	1.970	-0.006	1.000	35177		10.77(5.03-15.10)		39.4	
D 9 13C4-PFHpA										
367.00 > 322.00	2.288	2.289	-0.001	0.866	4487608	2.23		89.3	8812	
10 Perfluoroheptanoic acid										M
363.00 > 319.00	2.299	2.292	0.007	1.005	299736	0.1525			23.3	M
363.00 > 169.00	2.299	2.292	0.007	1.005	120079		2.50(1.13-3.40)		132	M
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.310	2.303	0.007	1.000	227544	0.0866			44.5	M
399.00 > 99.00	2.310	2.303	0.007	1.000	73730		3.09(1.50-4.49)		37.1	M
D 11 18O2 PFHxS										
403.00 > 84.00	2.310	2.311	-0.001	0.874	5681091	2.13		89.9	13770	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.612	2.609	0.003	1.000	40754	0.0419			262	
D 12 M2-6:2FTS										
429.00 > 81.00	2.612	2.613	-0.001	0.988	1537492	3.38		142	1120	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.643	2.639	0.004	1.000	898122	0.4430			83.4	M
413.00 > 169.00	2.643	2.639	0.004	1.000	533339		1.68(0.84-2.52)		1061	
* 62 13C2-PFOA										
415.00 > 370.00	2.643	2.639	0.004		4864865	2.50			12705	
D 14 13C4 PFOA										
417.00 > 372.00	2.643	2.644	-0.001	1.000	4483910	2.34		93.6	8244	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.651	2.647	0.004	0.881	18371	0.009221			5.1	
449.00 > 99.00	2.651	2.647	0.004	0.881	6940		2.65(1.94-5.82)		4.4	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.008	3.006	0.002	1.000	484195	0.2692			245	
499.00 > 99.00	3.008	3.006	0.002	1.000	81688		5.93(2.31-6.93)		58.9	
20 Perfluorononanoic acid										
463.00 > 419.00	3.008	3.006	0.002	1.000	20386	0.0118			4.3	
463.00 > 169.00	3.008	3.006	0.002	1.000	5090		4.01(1.90-5.69)		8.5	
D 18 13C4 PFOS										
503.00 > 80.00	3.008	3.009	-0.001	1.138	3909166	2.14		89.6	3133	
D 19 13C5 PFNA										
468.00 > 423.00	3.008	3.016	-0.008	1.138	4169214	2.65		106	10762	
D 26 M2-8:2FTS										
529.00 > 81.00	3.349	3.357	-0.008	1.267	1460774	2.76		115	1946	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.356	3.362	-0.006	0.998	6797	0.003078			18.2	
D 21 13C8 FOSA										
506.00 > 78.00	3.363	3.364	-0.001	1.273	5723575	2.12		84.7	7309	
D 23 13C2 PFDA										
515.00 > 470.00	3.363	3.372	-0.009	1.273	3508412	2.40		96.0	7217	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.514	3.523	-0.009	1.330	1489302	2.19		87.5	2934	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.683	3.681	0.002	1.000	11807	0.0112			7.7	
563.00 > 169.00	3.691	3.681	0.010	1.002	3265		3.62(2.12-6.36)		12.5	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.674	3.685	-0.011	1.390	1637102	2.19		87.6	696	
33 N-ethyl perfluorooctane sulfonamid										M
584.00 > 419.00	3.683	3.690	-0.007	1.002	8565	0.0156			39.7	M
D 30 13C2 PFUnA										
565.00 > 520.00	3.683	3.693	-0.010	1.394	2883529	2.28		91.3	7888	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.978	3.978	0.0	1.000	9517	0.007347			4.1	
613.00 > 169.00	3.978	3.978	0.0	1.000	1691		5.63(2.13-6.40)		8.1	
D 36 13C2 PFDoA										
615.00 > 570.00	3.978	3.991	-0.013	1.505	2954076	2.19		87.6	4434	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.244	4.244	0.0	1.067	10304	0.008385			3.0	
663.00 > 169.00	4.244	4.244	0.0	1.067	3422		3.01(1.25-3.76)		7.1	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.482	4.484	-0.002	1.000	2723	0.007923			29.1	
713.00 > 219.00	4.482	4.484	-0.002	1.000	1711		1.59(0.71-2.13)		14.3	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.482	4.492	-0.010	1.696	3440800	2.13		85.1	7026	

QC Flag Legend

Review Flags

M - Manually Integrated

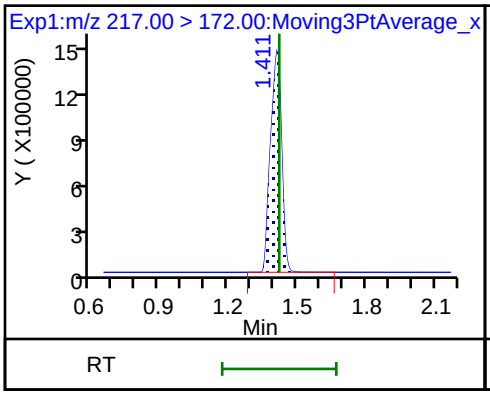
Report Date: 31-Aug-2018 14:50:10 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

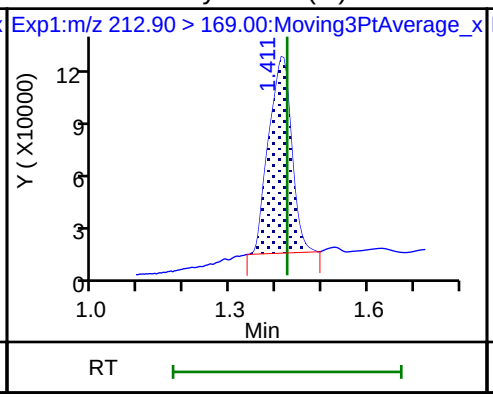
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_049.d

Injection Date:	30-Aug-2018 02:11:39	Instrument ID:	A8_N		
Lims ID:	320-42265-A-9-A	Lab Sample ID:	320-42265-9		
Client ID:	MH-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		

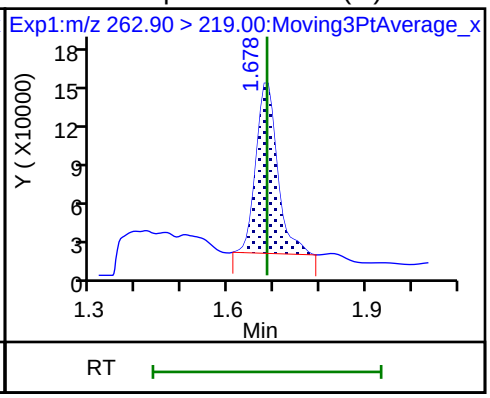
D 1 13C4 PFBA



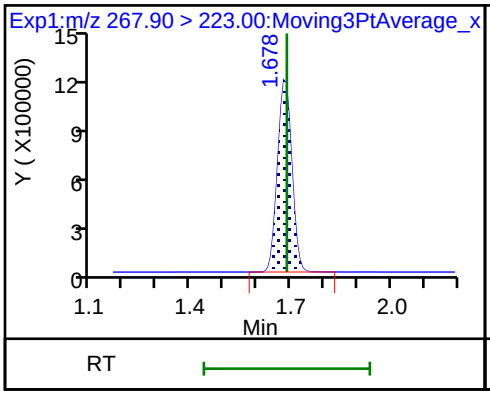
2 Perfluorobutyric acid (M)



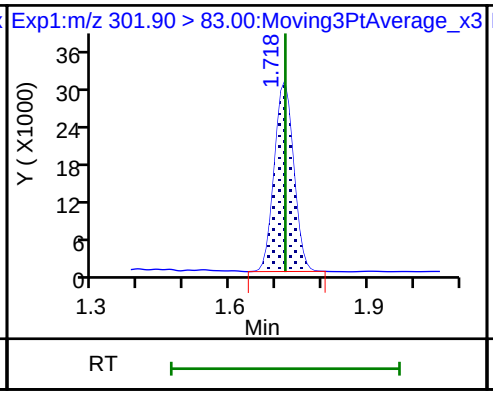
4 Perfluoropentanoic acid (M)



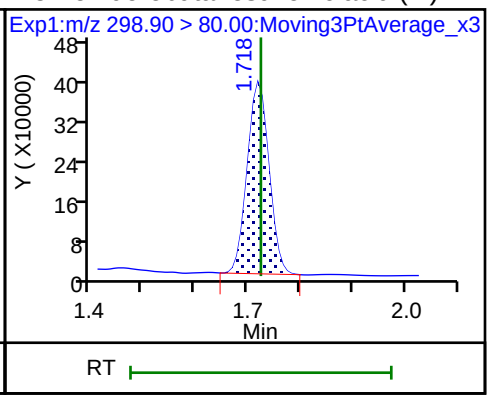
D 3 13C5-PFPeA



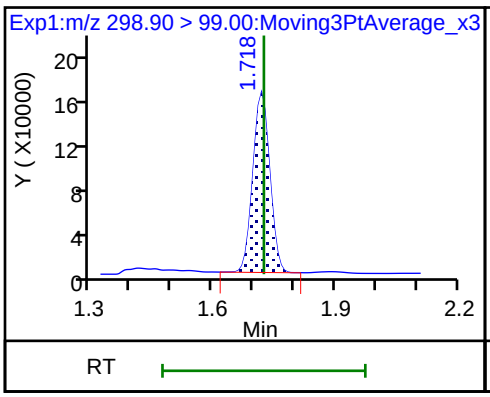
D 47 13C3-PFBS



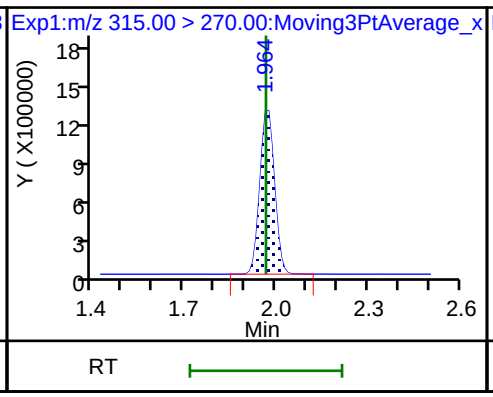
5 Perfluorobutanesulfonic acid (M)



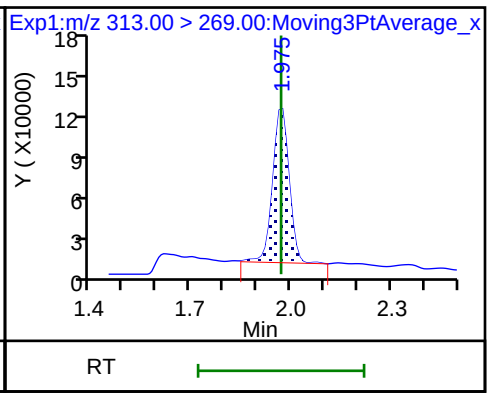
5 Perfluorobutanesulfonic acid



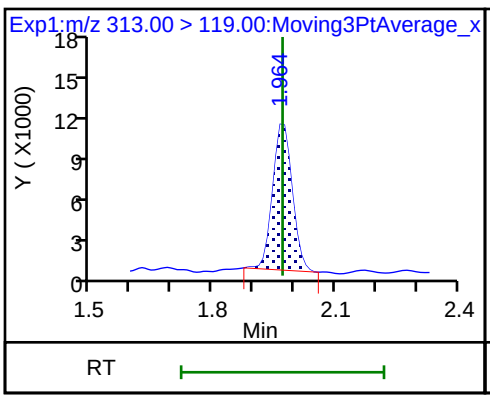
D 7 13C2 PFHxA



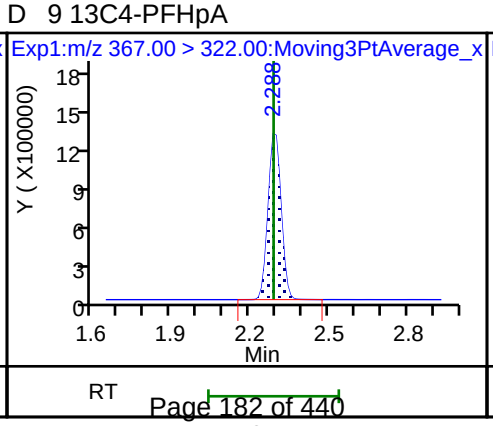
6 Perfluorohexanoic acid



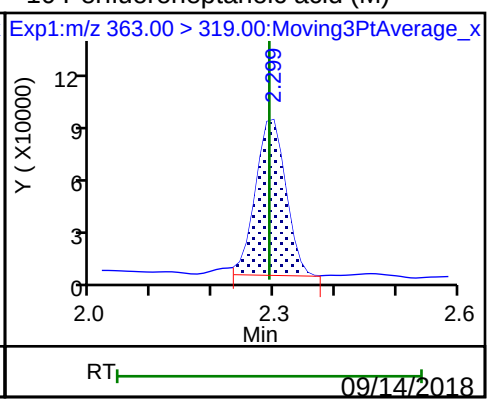
6 Perfluorohexanoic acid



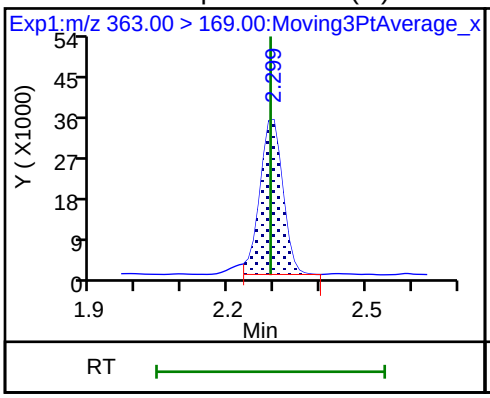
D 9 13C4-PFHpA



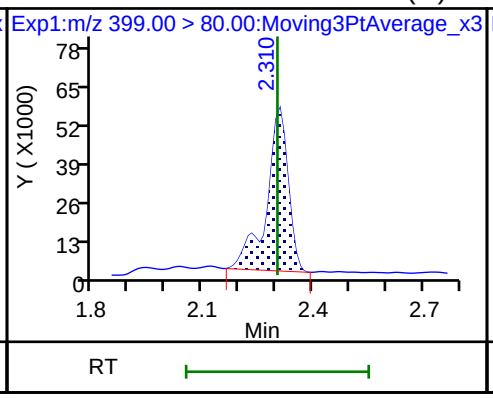
10 Perfluoroheptanoic acid (M)



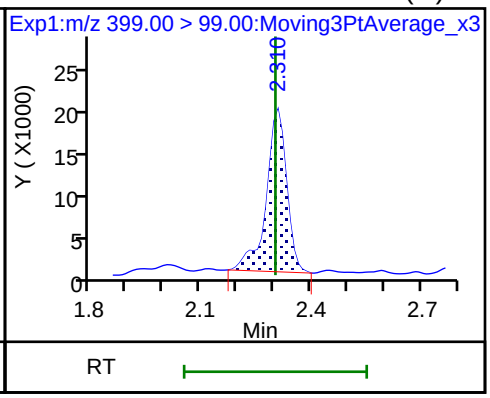
10 Perfluoroheptanoic acid (M)



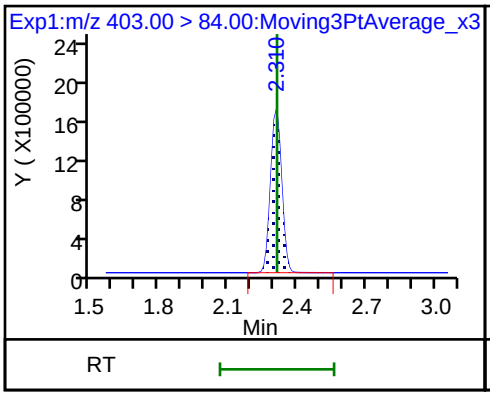
8 Perfluorohexanesulfonic acid (M)



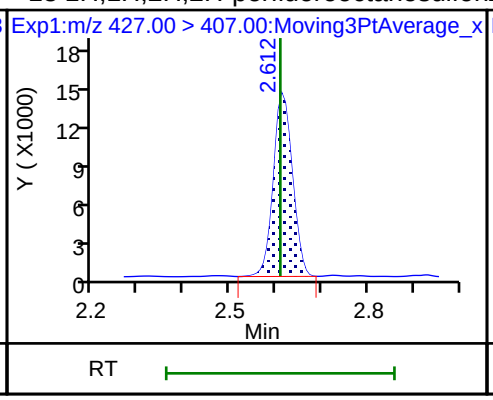
8 Perfluorohexanesulfonic acid (M)



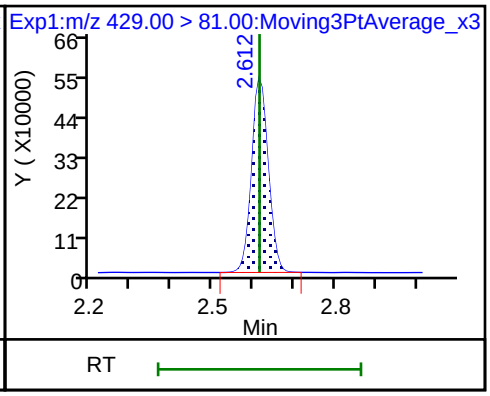
D 11 18O2 PFHxS



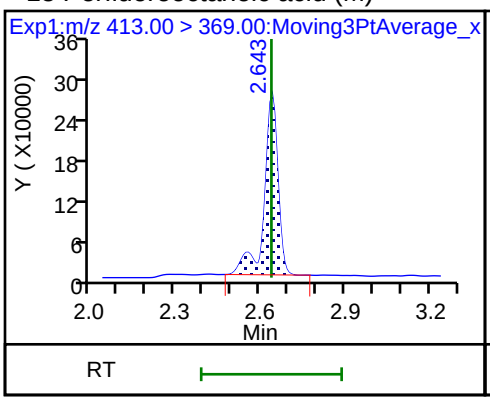
13 1H,1H,2H,2H-perfluorooctanesulfon



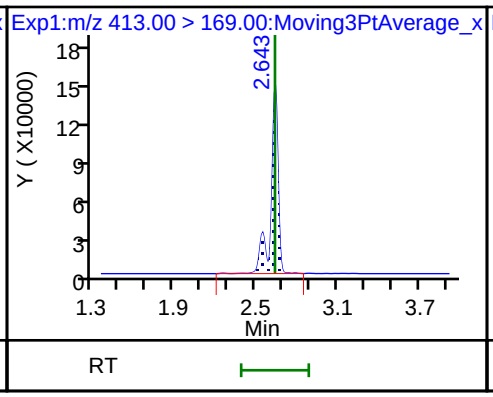
D 12 M2-6:2FTS



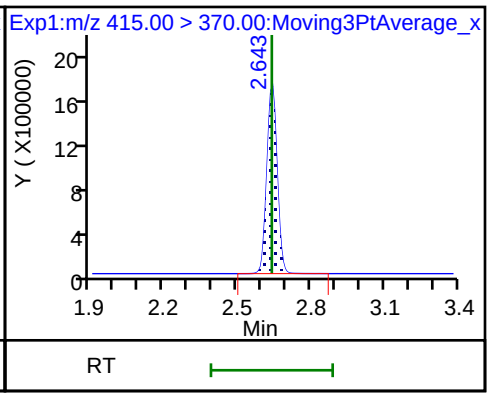
15 Perfluorooctanoic acid (M)



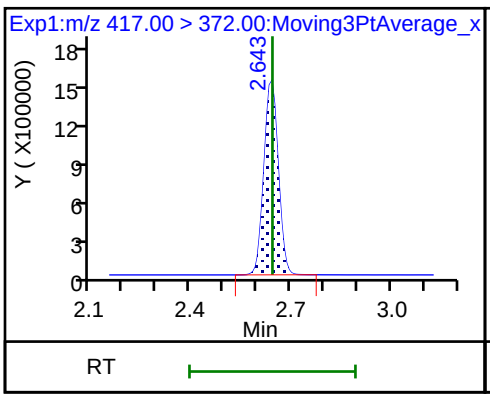
15 Perfluorooctanoic acid



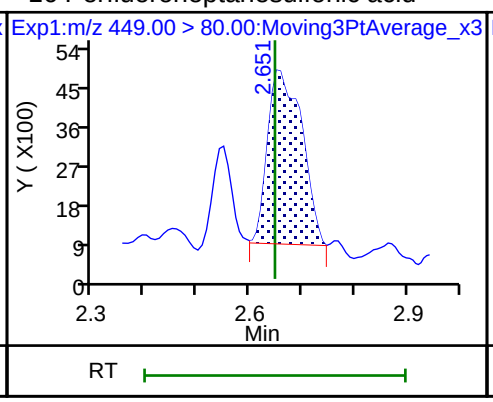
* 62 13C2-PFOA



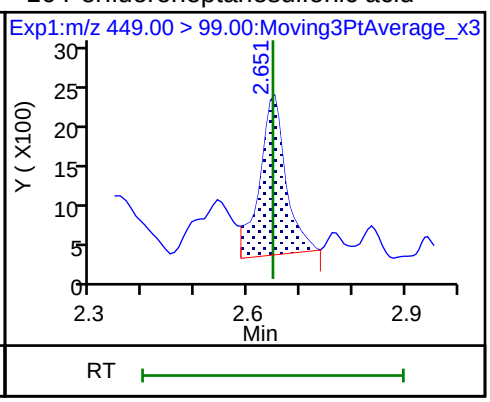
D 14 13C4 PFOA



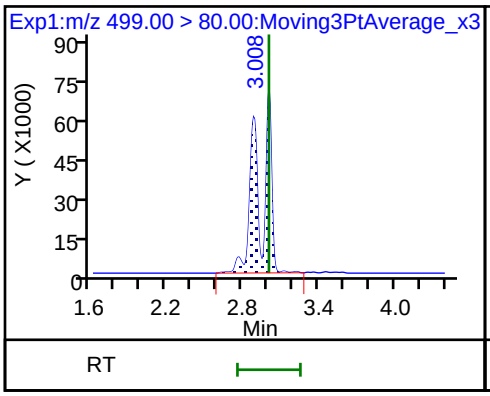
16 Perfluoroheptanesulfonic acid



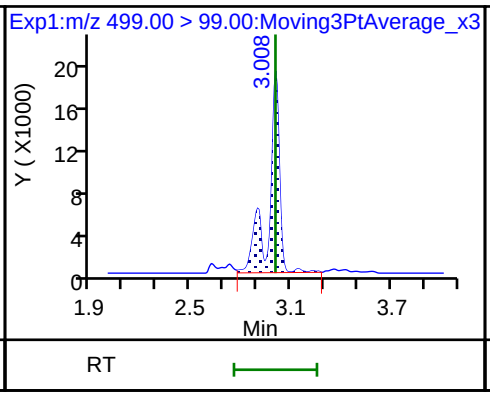
16 Perfluoroheptanesulfonic acid



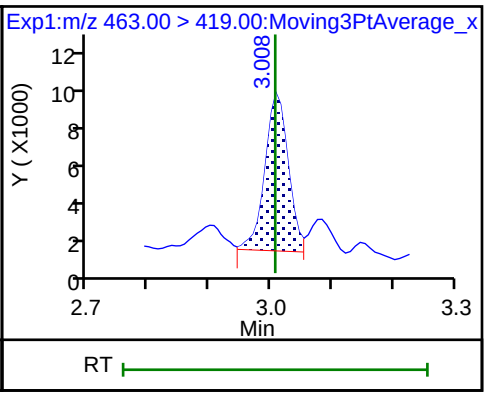
17 Perfluorooctane sulfonic acid



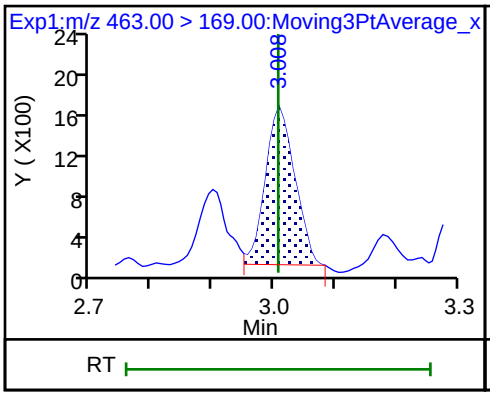
17 Perfluorooctane sulfonic acid



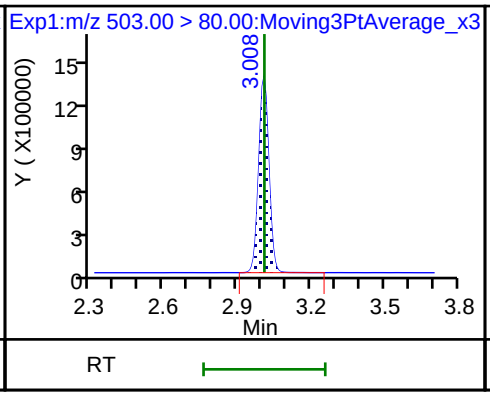
20 Perfluorononanoic acid



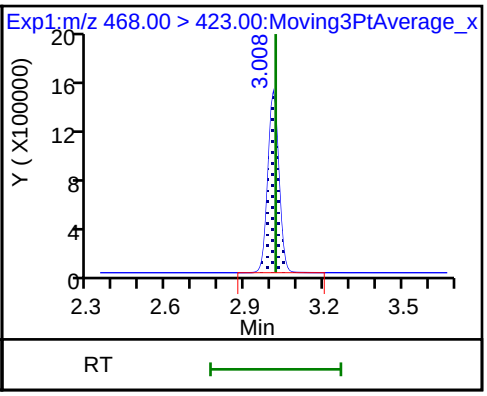
20 Perfluorononanoic acid



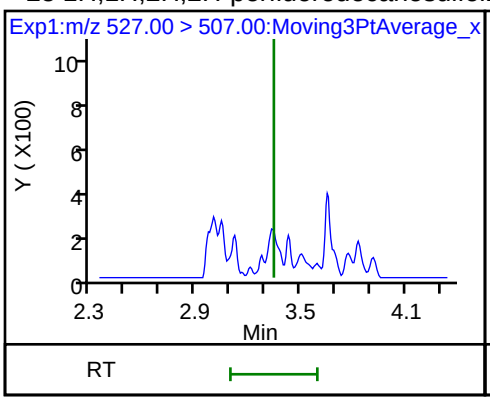
D 18 13C4 PFOS



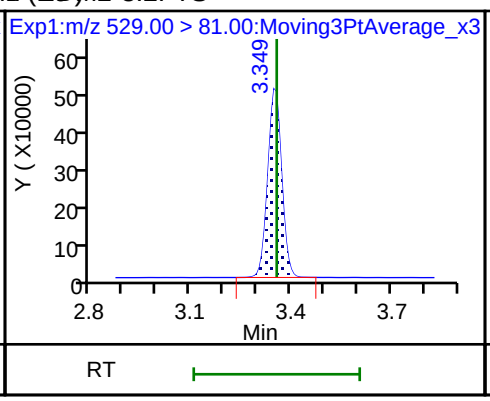
D 19 13C5 PFNA



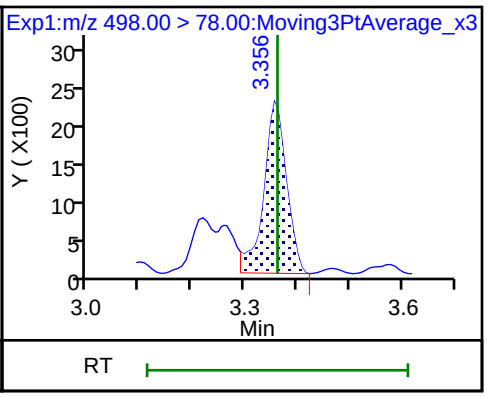
25 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2FTS)



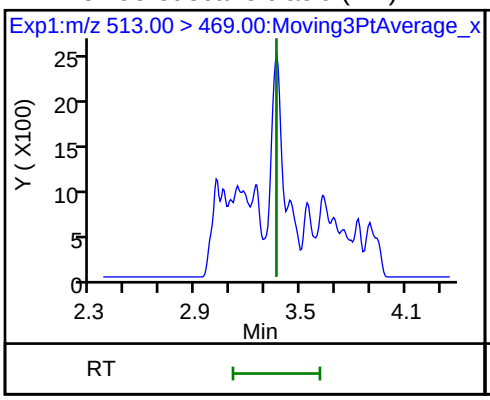
D 26 M2-8:2FTS



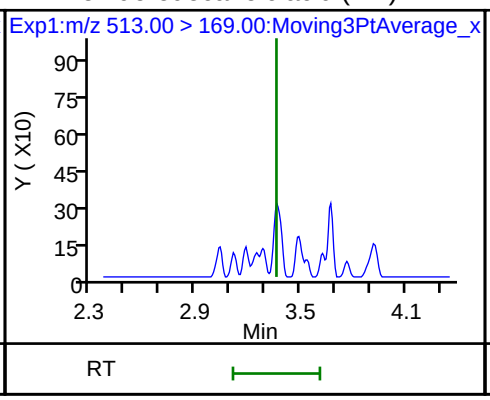
22 Perfluorooctane Sulfonamide



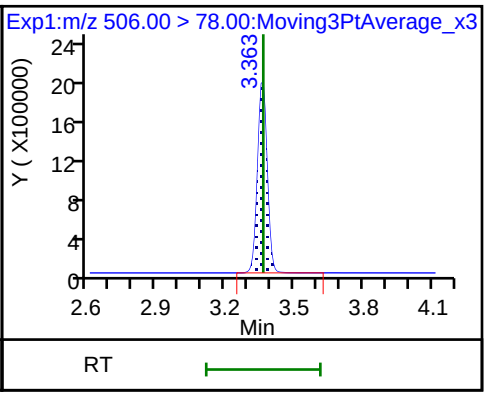
24 Perfluorodecanoic acid (ND)



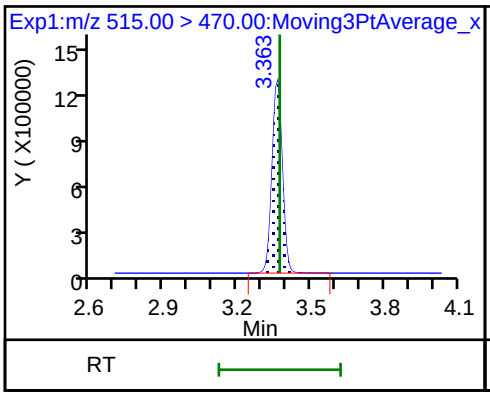
24 Perfluorodecanoic acid (ND)



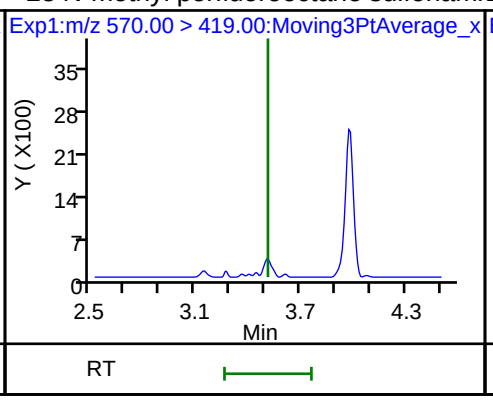
D 21 13C8 FOSA



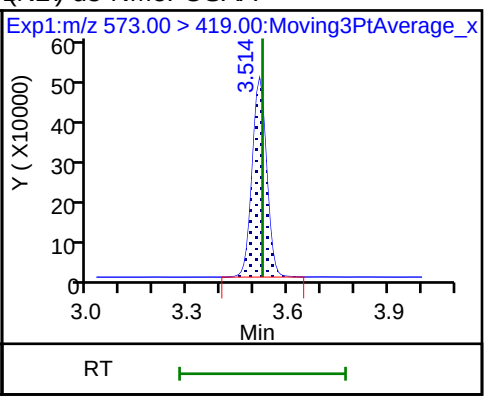
D 23 13C2 PFDA



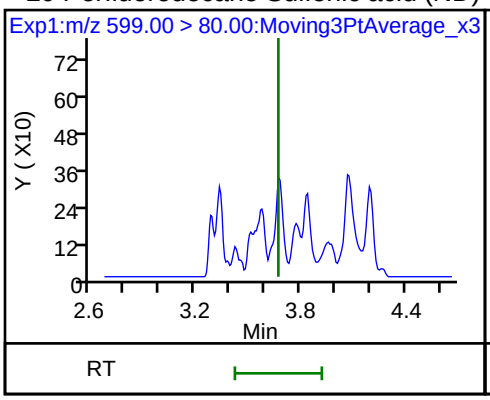
28 N-methyl perfluorooctane sulfonamid (ND)



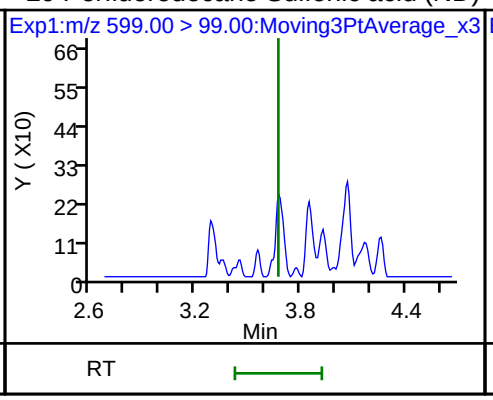
D 27 d3-NMeFOSAA



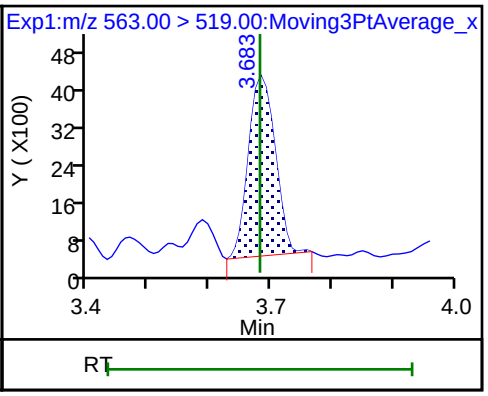
29 Perfluorodecane Sulfonic acid (ND)



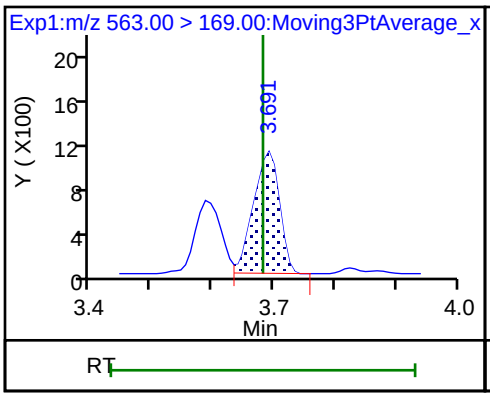
29 Perfluorodecane Sulfonic acid (ND)



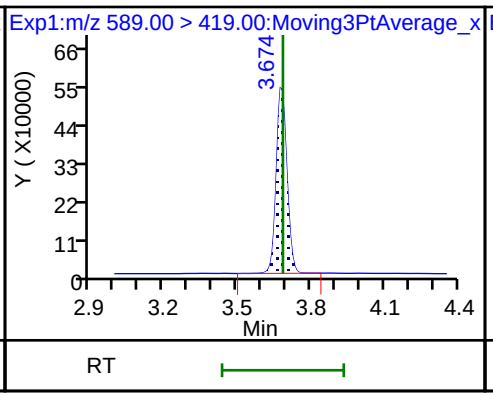
31 Perfluoroundecanoic acid



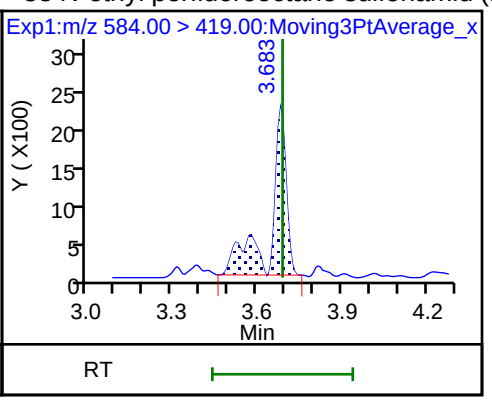
31 Perfluoroundecanoic acid



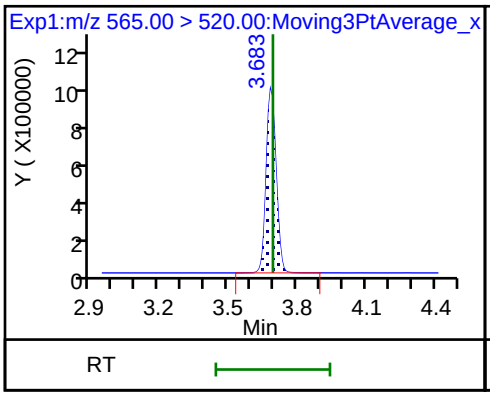
D 32 d5-NEtFOSAA



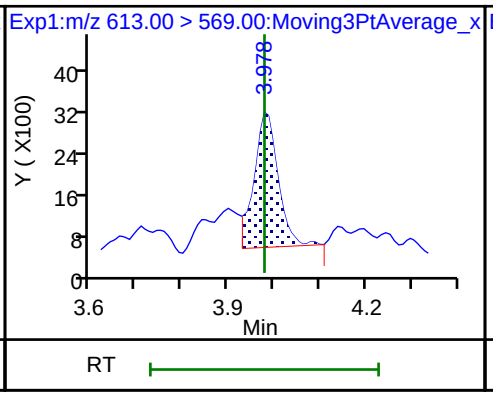
33 N-ethyl perfluorooctane sulfonamid (M)



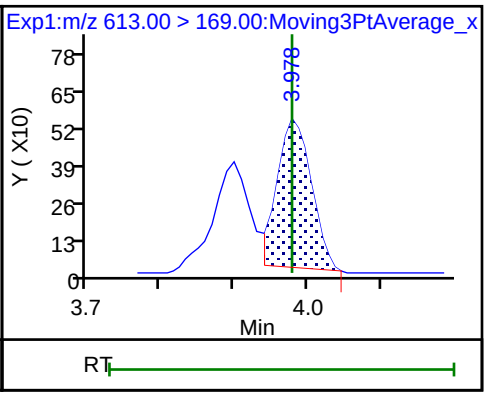
D 30 13C2 PFUnA



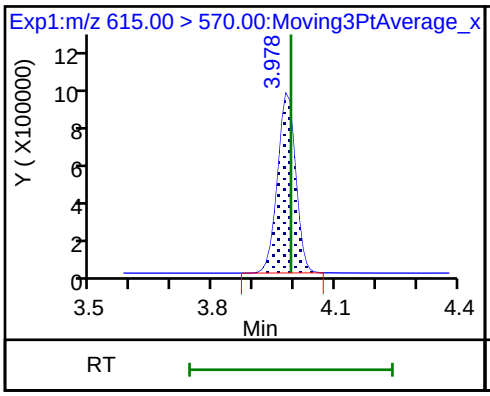
37 Perfluorododecanoic acid



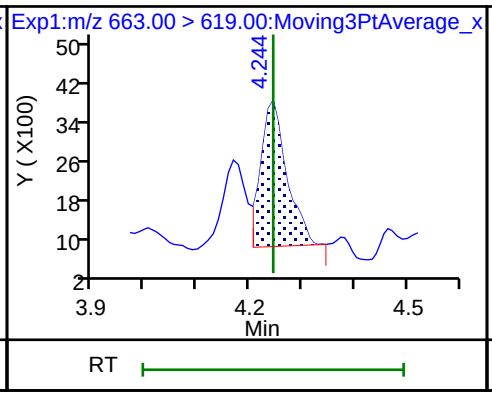
37 Perfluorododecanoic acid



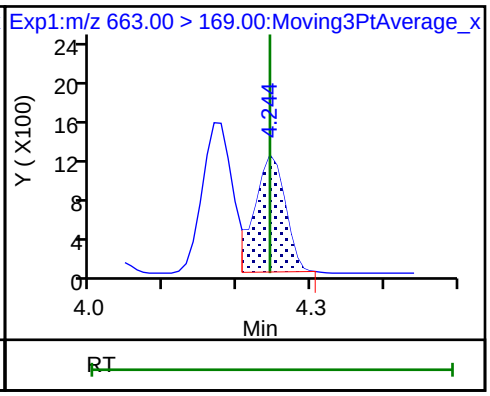
D 36 13C2 PFDoA



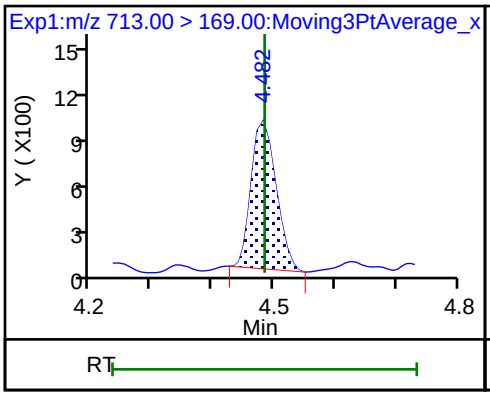
41 Perfluorotridecanoic acid



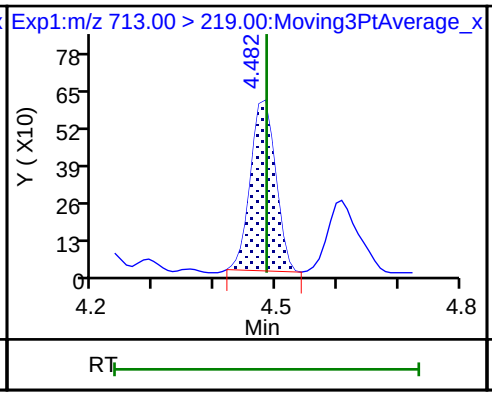
41 Perfluorotridecanoic acid



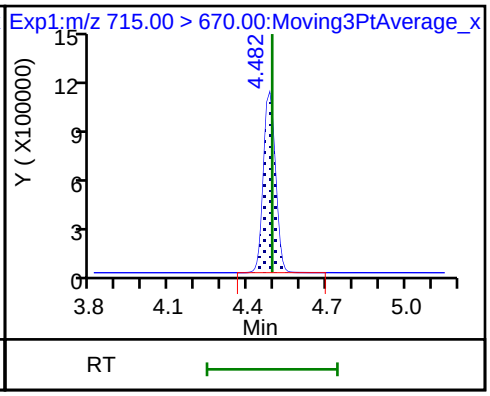
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid



D 43 13C2-PFTeDA



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

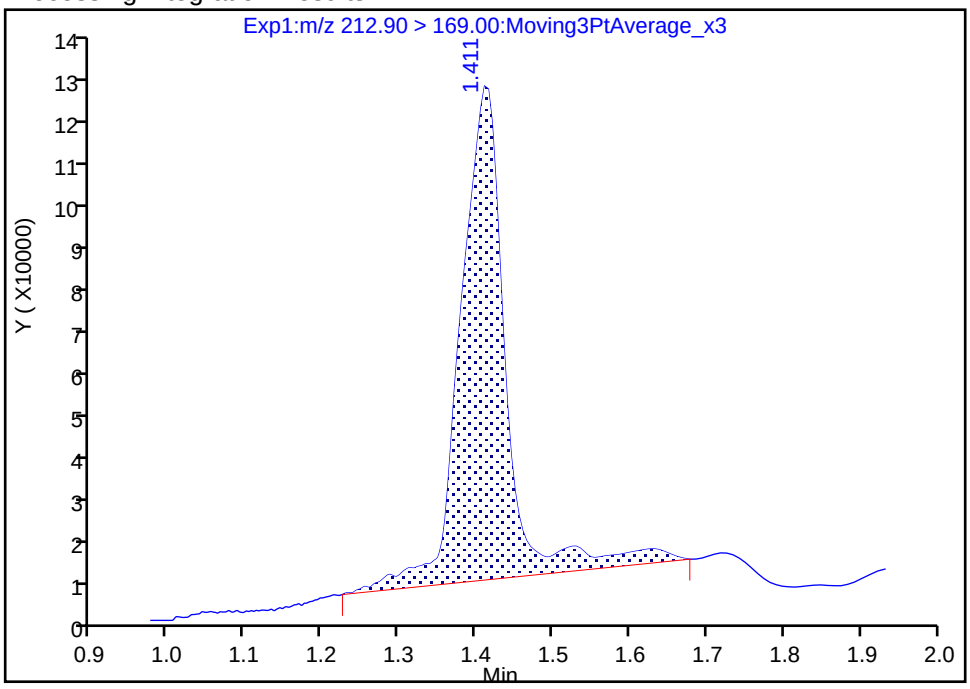
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_049.d				
Injection Date:	30-Aug-2018 02:11:39	Instrument ID:	A8_N		
Lims ID:	320-42265-A-9-A	Lab Sample ID:	320-42265-9		
Client ID:	MH-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

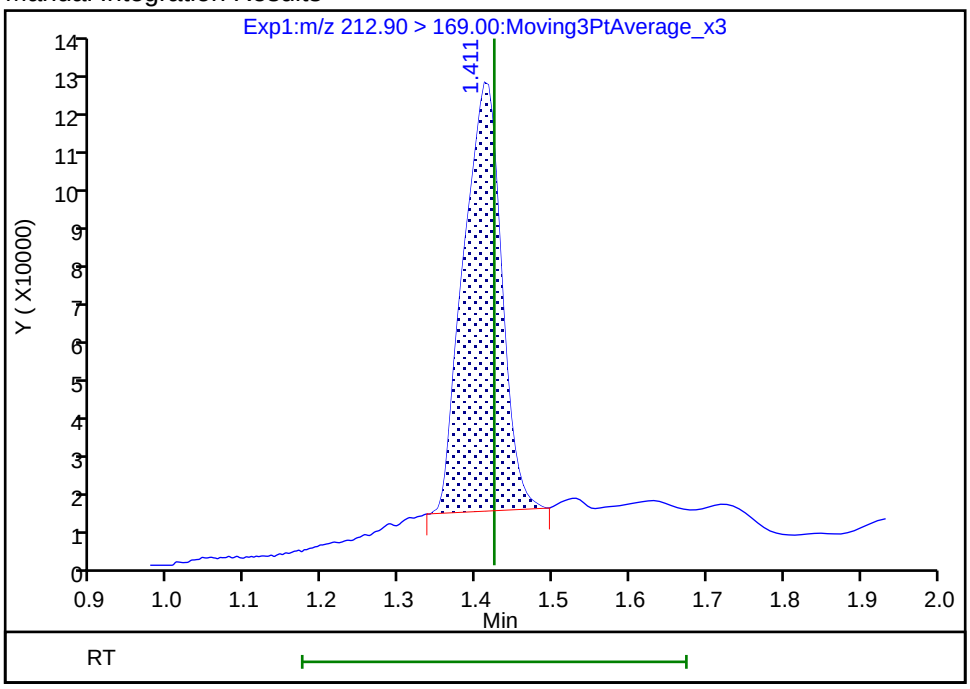
Processing Integration Results

RT: 1.41
Area: 486608
Amount: 0.283474
Amount Units: ng/ml



Manual Integration Results

RT: 1.41
Area: 389632
Amount: 0.226981
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:48:58

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

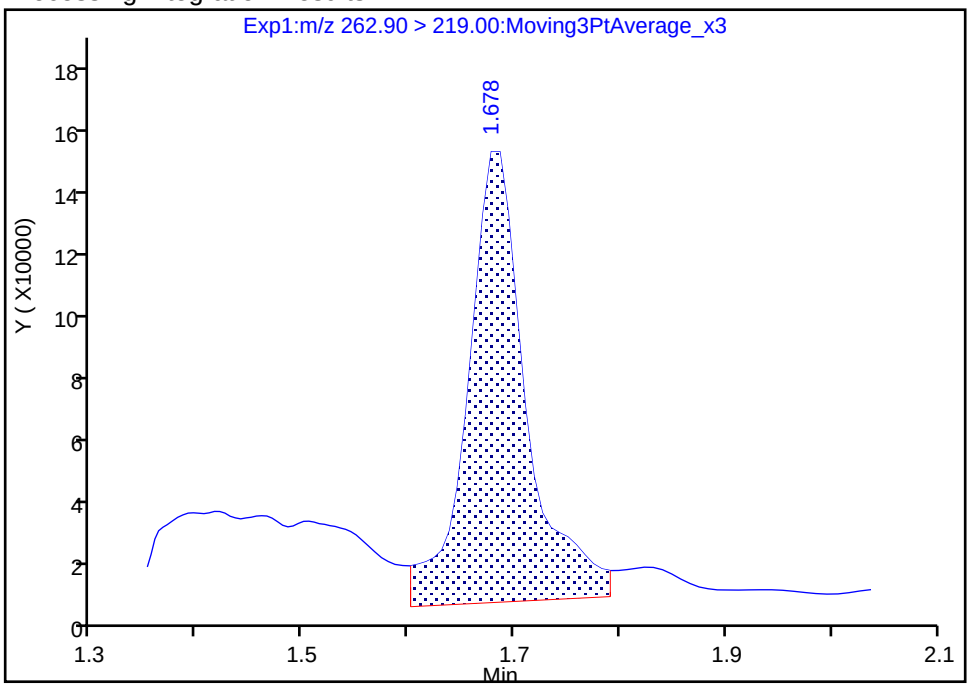
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_049.d				
Injection Date:	30-Aug-2018 02:11:39	Instrument ID:	A8_N		
Lims ID:	320-42265-A-9-A	Lab Sample ID:	320-42265-9		
Client ID:	MH-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

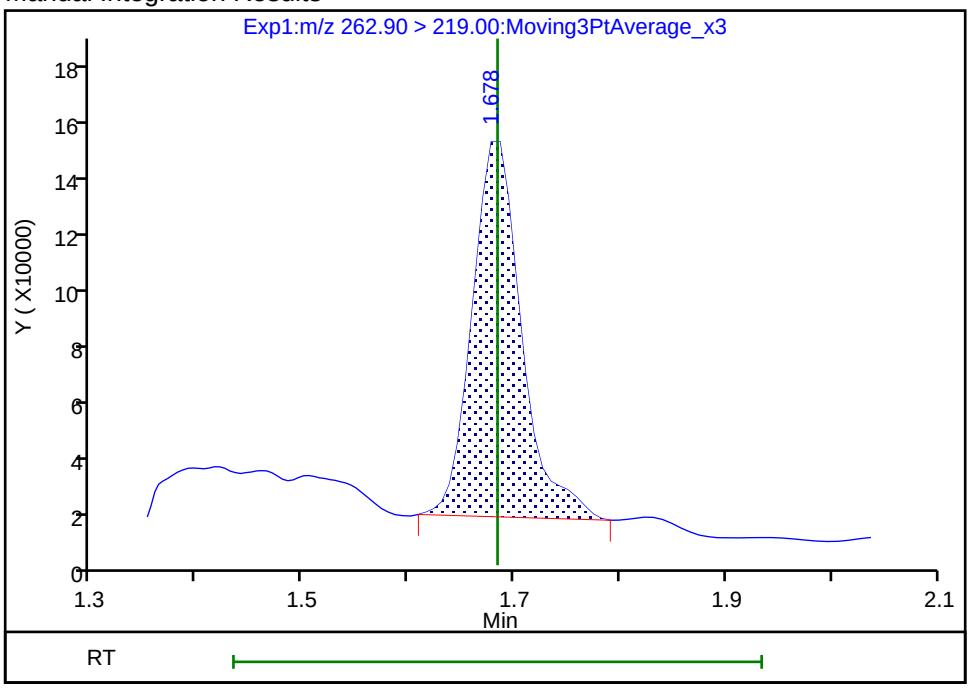
Processing Integration Results

RT: 1.68
Area: 555069
Amount: 0.341194
Amount Units: ng/ml



Manual Integration Results

RT: 1.68
Area: 430631
Amount: 0.264704
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:49:09

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

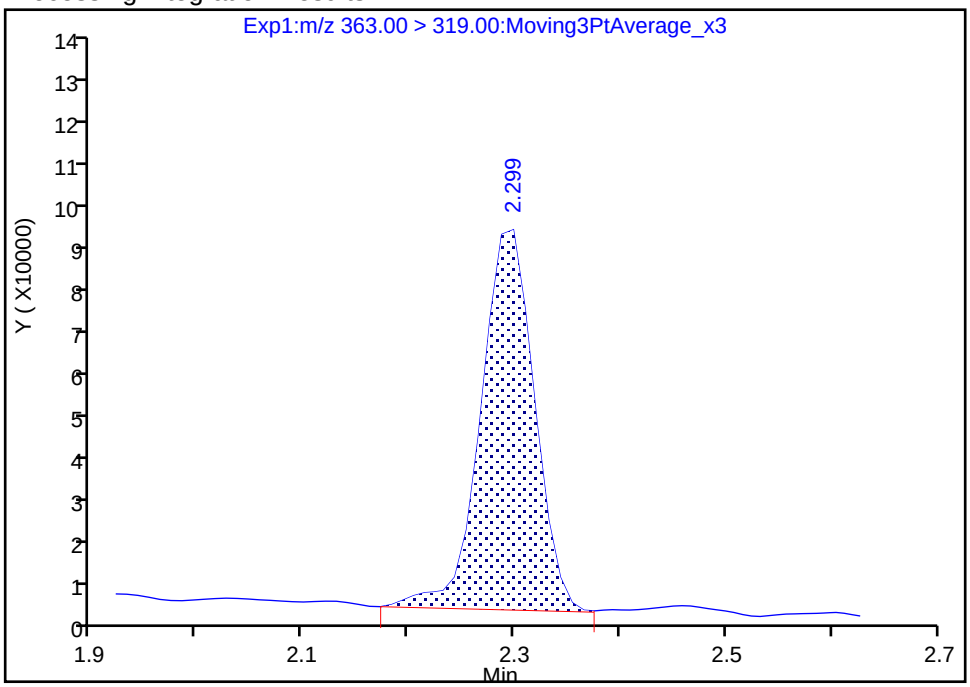
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_049.d				
Injection Date:	30-Aug-2018 02:11:39	Instrument ID:	A8_N		
Lims ID:	320-42265-A-9-A	Lab Sample ID:	320-42265-9		
Client ID:	MH-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

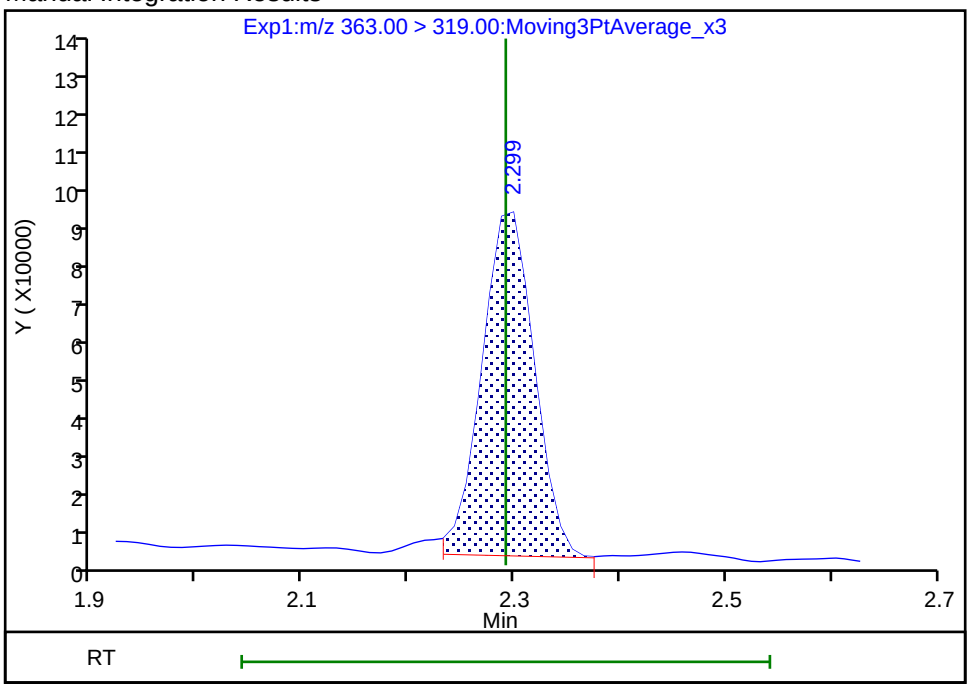
Processing Integration Results

RT: 2.30
Area: 307934
Amount: 0.156644
Amount Units: ng/ml



Manual Integration Results

RT: 2.30
Area: 299736
Amount: 0.152473
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:49:24

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

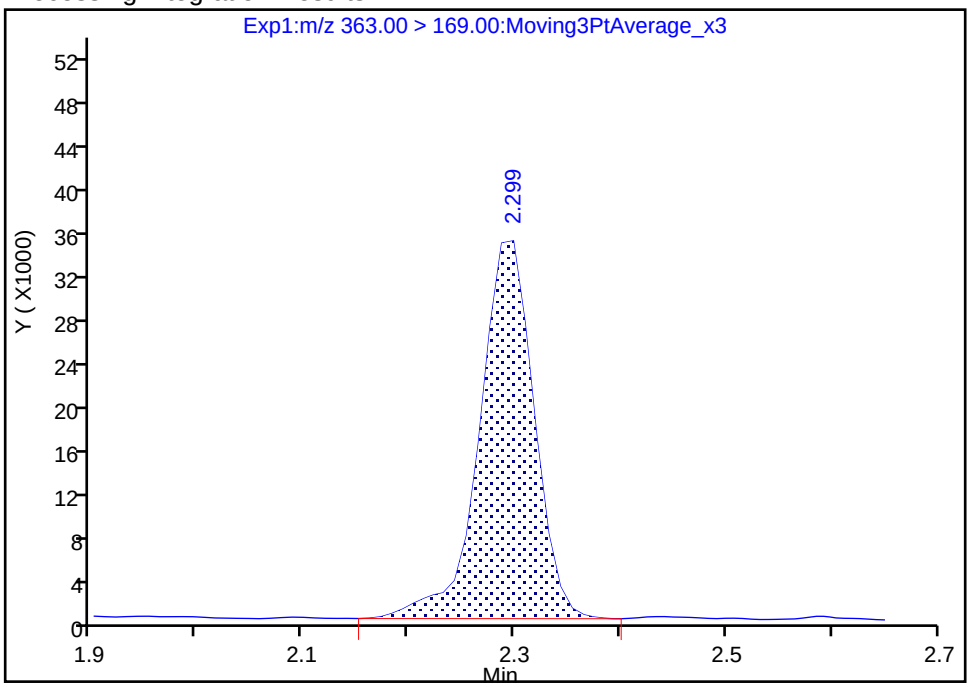
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_049.d				
Injection Date:	30-Aug-2018 02:11:39	Instrument ID:	A8_N		
Lims ID:	320-42265-A-9-A	Lab Sample ID:	320-42265-9		
Client ID:	MH-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 2

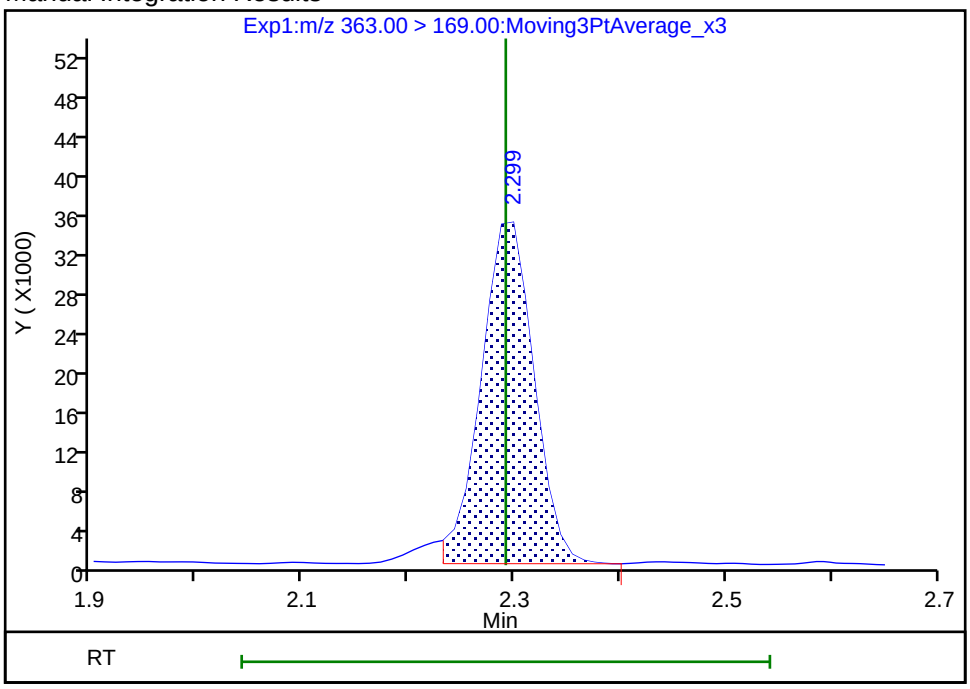
Processing Integration Results

RT: 2.30
Area: 124811
Amount: 0.156644
Amount Units: ng/ml



Manual Integration Results

RT: 2.30
Area: 120079
Amount: 0.152473
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:49:27
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

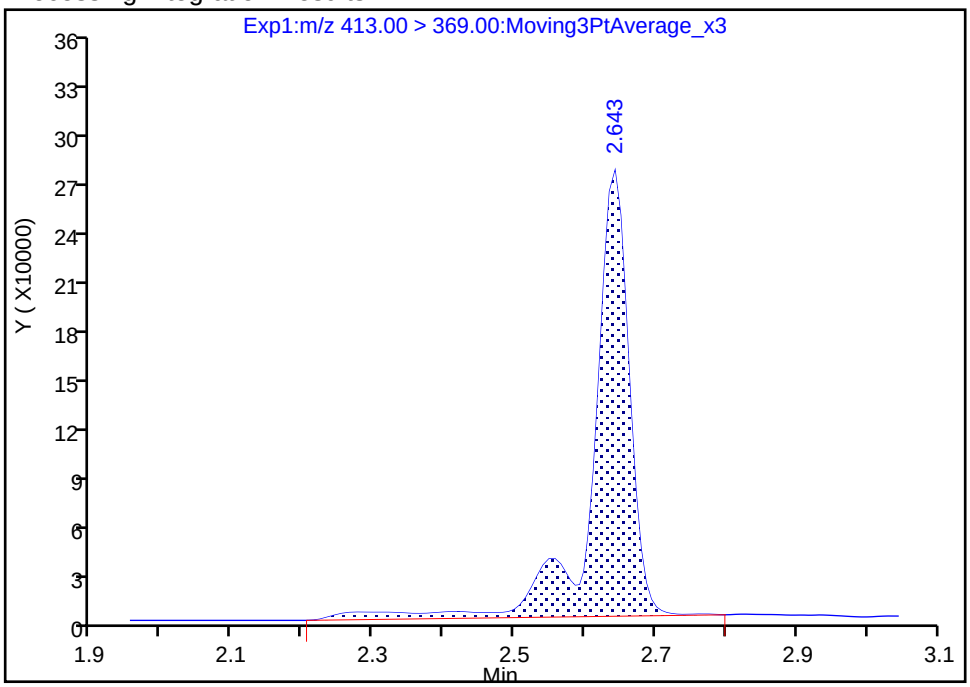
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_049.d				
Injection Date:	30-Aug-2018 02:11:39	Instrument ID:	A8_N		
Lims ID:	320-42265-A-9-A	Lab Sample ID:	320-42265-9		
Client ID:	MH-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

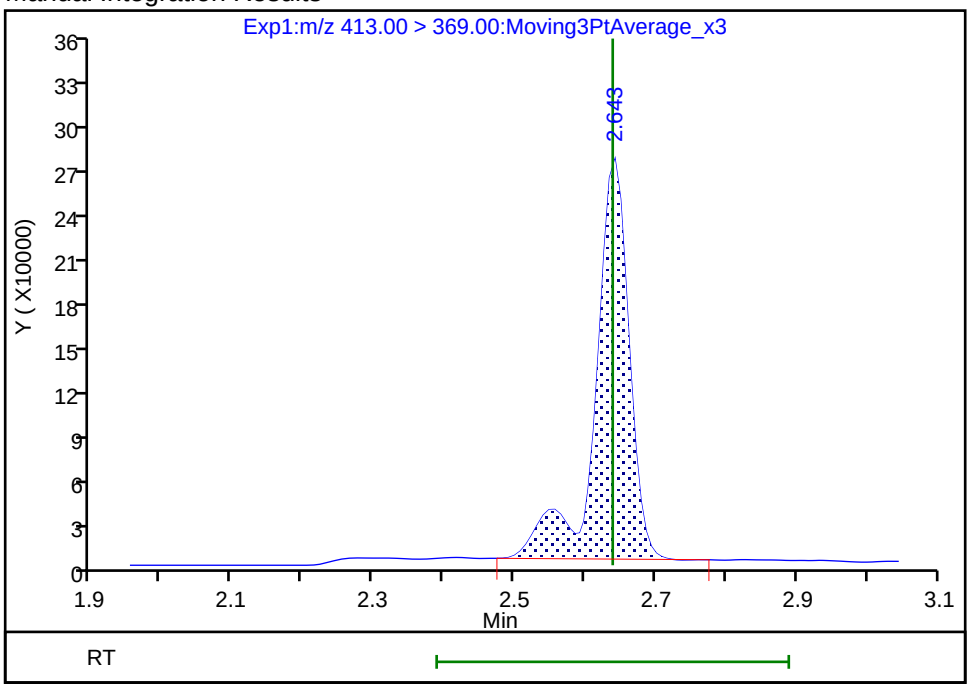
Processing Integration Results

RT: 2.64
Area: 984217
Amount: 0.485486
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 898122
Amount: 0.443018
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:49:43

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

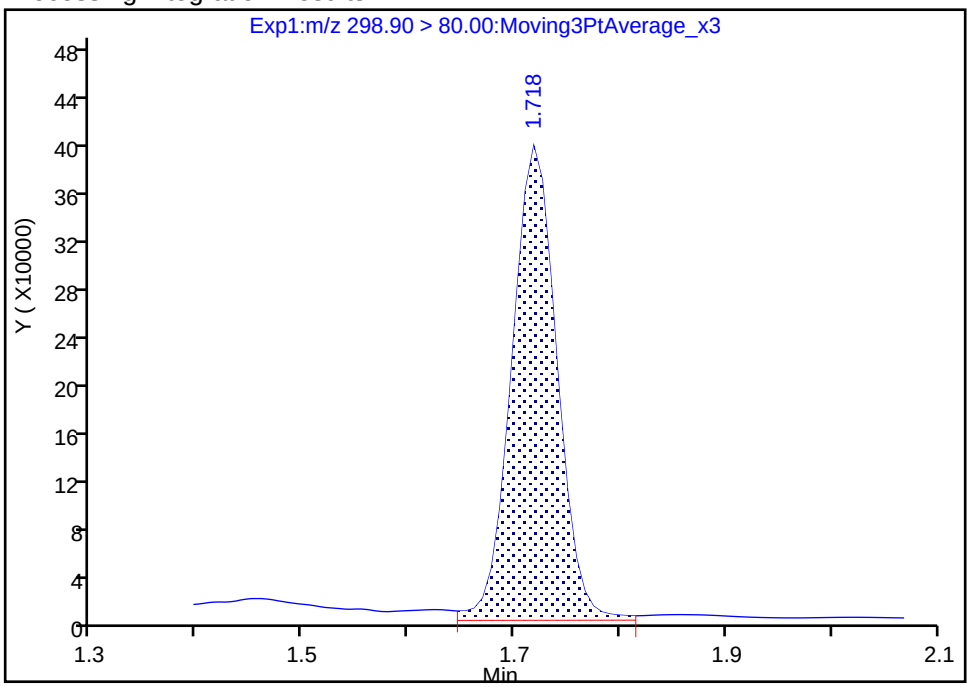
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_049.d				
Injection Date:	30-Aug-2018 02:11:39	Instrument ID:	A8_N		
Lims ID:	320-42265-A-9-A	Lab Sample ID:	320-42265-9		
Client ID:	MH-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

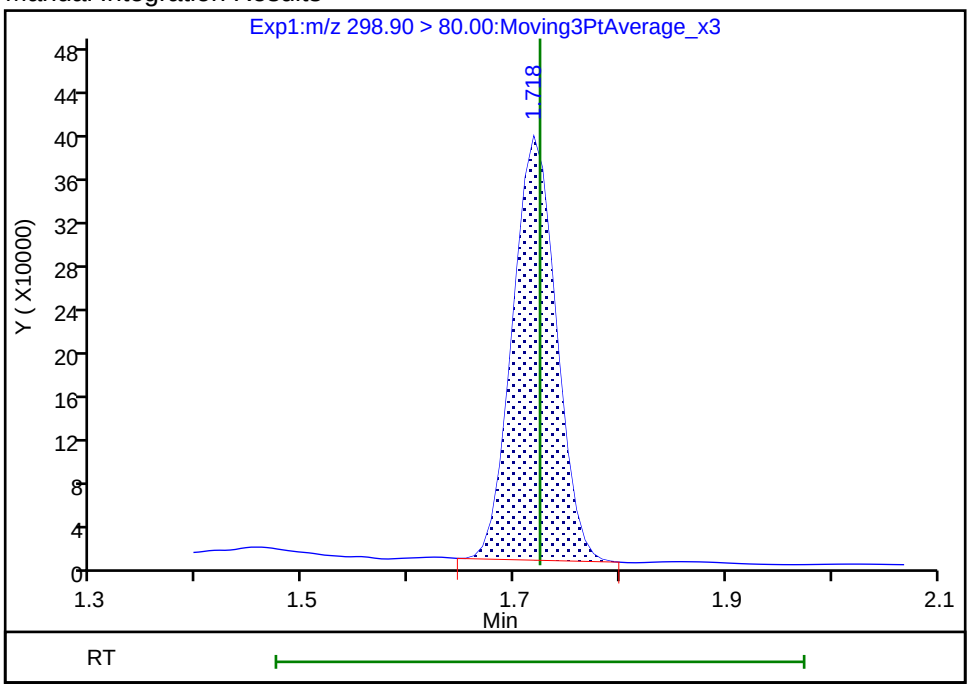
Processing Integration Results

RT: 1.72
Area: 1174710
Amount: 0.411809
Amount Units: ng/ml



Manual Integration Results

RT: 1.72
Area: 1116247
Amount: 0.391314
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:49:15

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

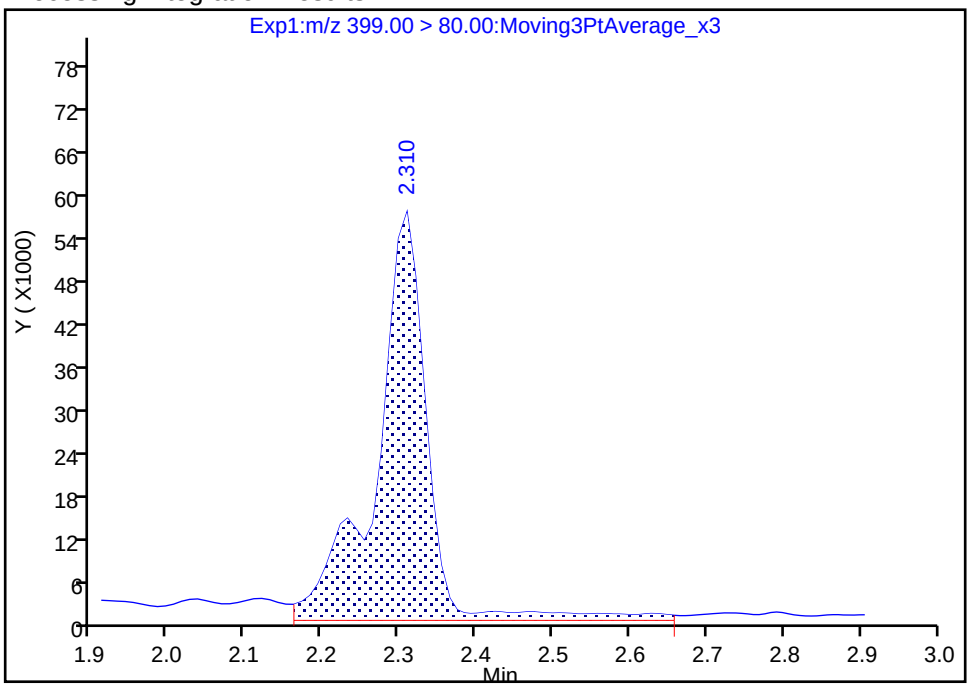
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_049.d				
Injection Date:	30-Aug-2018 02:11:39	Instrument ID:	A8_N		
Lims ID:	320-42265-A-9-A	Lab Sample ID:	320-42265-9		
Client ID:	MH-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

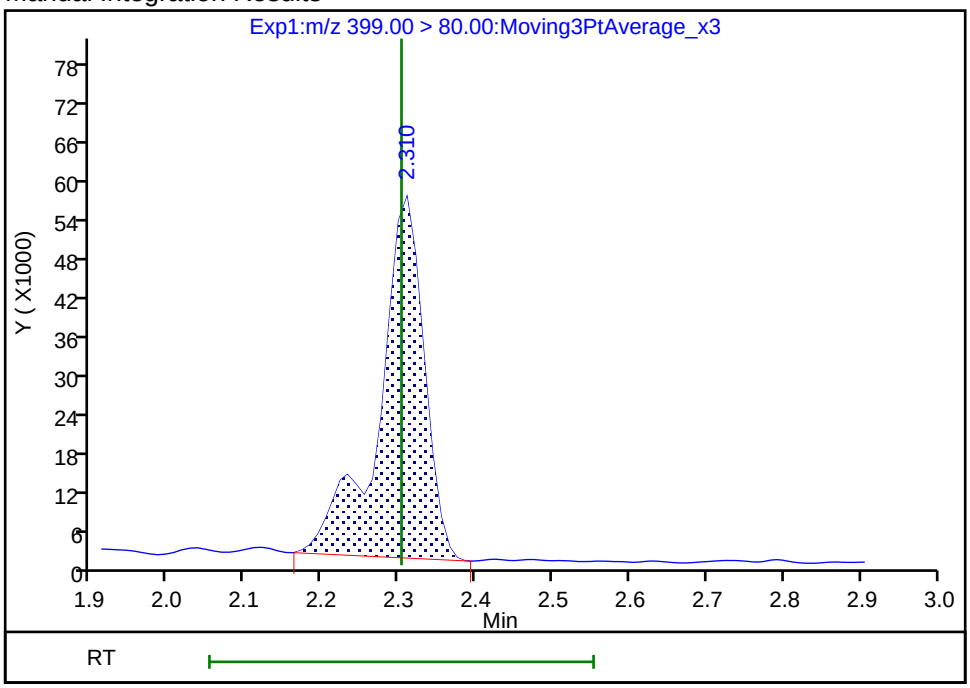
Processing Integration Results

RT: 2.31
Area: 265127
Amount: 0.100878
Amount Units: ng/ml



Manual Integration Results

RT: 2.31
Area: 227544
Amount: 0.086578
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:49:35

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

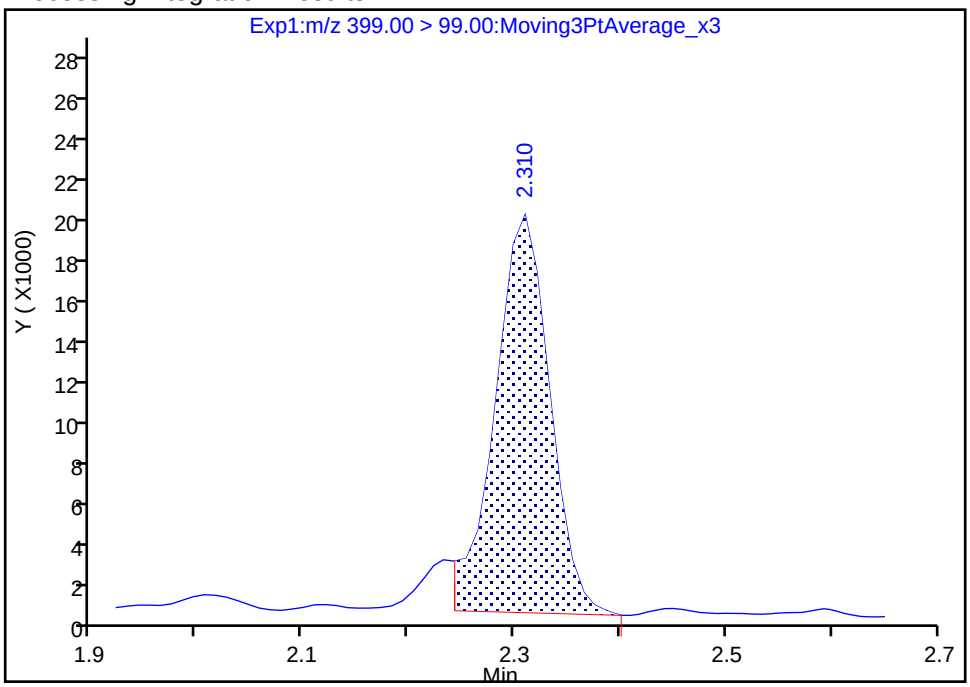
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_049.d				
Injection Date:	30-Aug-2018 02:11:39	Instrument ID:	A8_N		
Lims ID:	320-42265-A-9-A	Lab Sample ID:	320-42265-9		
Client ID:	MH-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

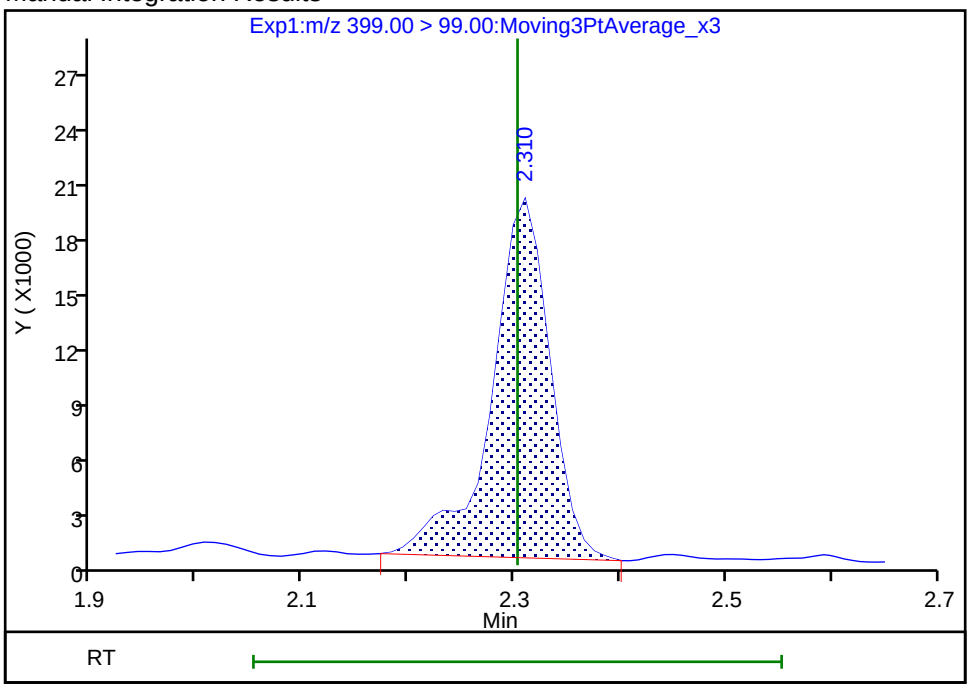
Processing Integration Results

RT: 2.31
Area: 68934
Amount: 0.100878
Amount Units: ng/ml



Manual Integration Results

RT: 2.31
Area: 73730
Amount: 0.086578
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:49:38

Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

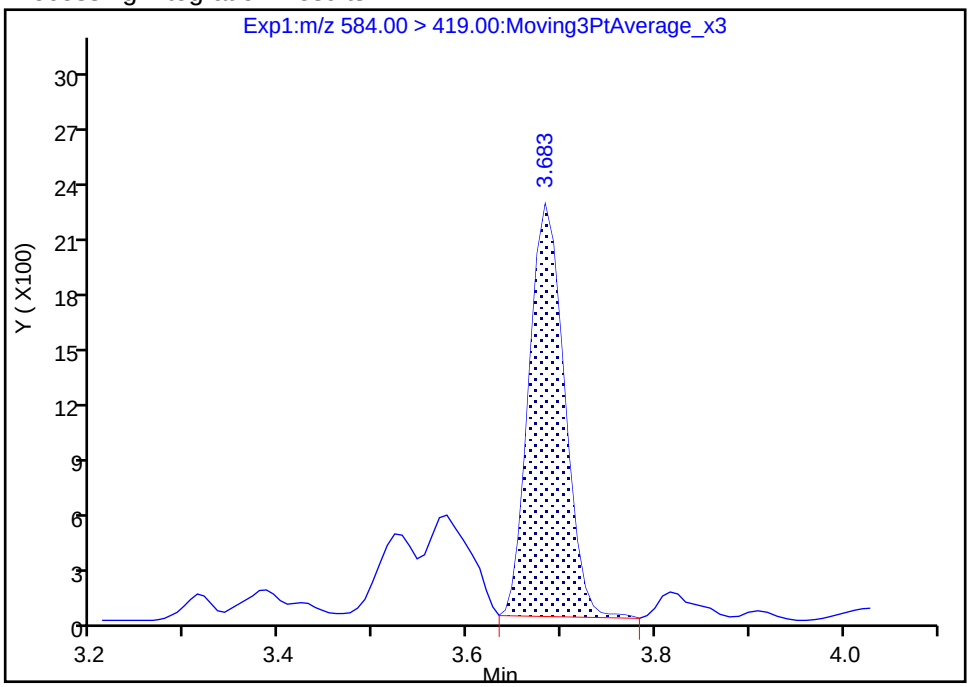
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_049.d				
Injection Date:	30-Aug-2018 02:11:39	Instrument ID:	A8_N		
Lims ID:	320-42265-A-9-A	Lab Sample ID:	320-42265-9		
Client ID:	MH-01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

33 N-ethyl perfluorooctane sulfonamidoacetic ac, CAS: 2991-50-6

Signal: 1

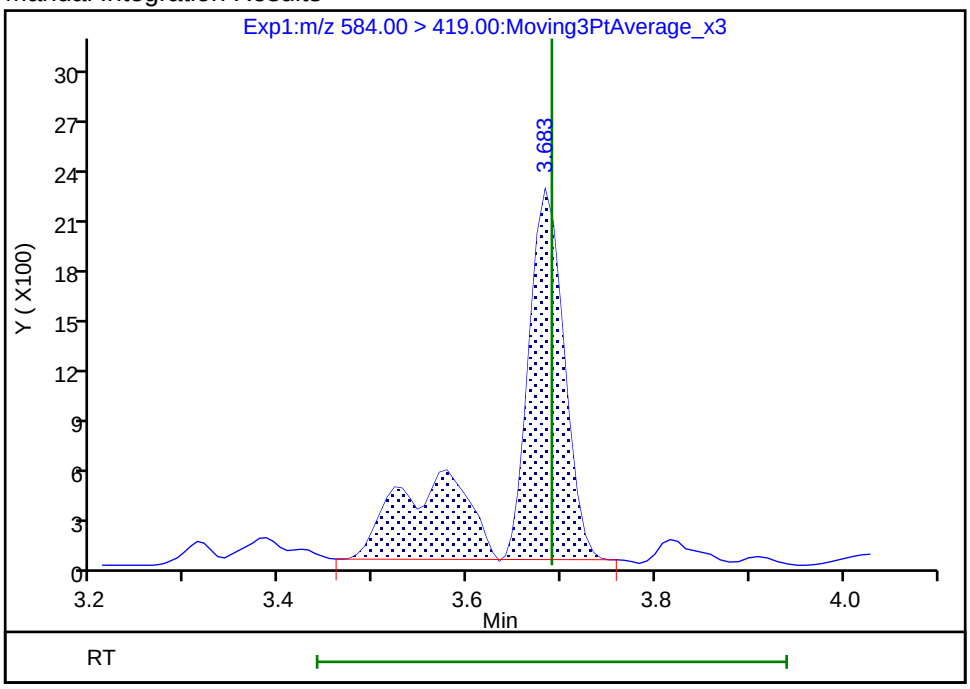
Processing Integration Results

RT: 3.68
Area: 5843
Amount: 0.010630
Amount Units: ng/ml



Manual Integration Results

RT: 3.68
Area: 8565
Amount: 0.015582
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:50:01
Audit Action: Manually Integrated Audit Reason: Baseline

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1 Analy Batch No.: 242895

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/29/2018 12:29 Calibration End Date: 08/29/2018 13:16 Calibration ID: 40869

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-242895/2	2018.08.29LLICAL_002.d
Level 2	IC 320-242895/3	2018.08.29LLICAL_003.d
Level 3	IC 320-242895/4	2018.08.29LLICAL_004.d
Level 4	IC 320-242895/5	2018.08.29LLICAL_005.d
Level 5	IC 320-242895/6	2018.08.29LLICAL_006.d
Level 6	IC 320-242895/7	2018.08.29LLICAL_007.d
Level 7	IC 320-242895/8	2018.08.29LLICAL_008.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 4	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	0.8342 0.9228	0.8764 0.9028	0.8802	0.8948	0.9097	AveID		0.8887				3.3		35.0			
Perfluoropentanoic acid (PFPeA)	1.3739 1.1161	1.1911 1.0994	1.0631	1.0922	1.1360	AveID		1.1531				9.1		35.0			
Perfluorobutanesulfonic acid (PFBS)	73.476 72.846	74.698 68.225	75.917	80.758	78.177	AveID		74.871				5.4		50.0			
4:2 FTS	16.490 13.857	17.636 13.683	15.078	16.450	14.503	AveID		15.385				9.8		50.0			
Perfluorohexanoic acid (PFHxA)	0.9456 1.0012	1.0629 0.9875	1.0338	0.9996	1.0180	AveID		1.0069				3.7		35.0			
Perfluoropentanesulfonic acid (PFPeS)	66.022 65.640	67.483 62.135	72.242	73.884	75.388	AveID		68.971				7.1		50.0			
HFPO-DA (GenX)	3.4850 3.4616	2.6766 3.3053	3.2109	2.8736	3.1522	AveID		3.1665				9.4		35.0			
Perfluoroheptanoic acid (PFHpA)	1.1727 1.1083	1.1015 1.0702	1.0186	1.1012	1.0935	AveID		1.0951				4.2		35.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4118 1.0796	1.1016 1.0172	0.9965	1.0398	1.0121	AveID		1.0941				13.3		35.0			
DONA	3.4245 3.1586	3.5363 2.7485	3.5940	3.5552	3.4676	AveID		3.3549				9.1		50.0			
6:2 FTS	1.3413 1.4771	1.4806 1.6094	1.6958	1.5055	1.4137	AveID		1.5033				7.9		35.0			
Perfluorooctanoic acid (PFOA)	1.3460 1.0768	1.2009 1.0244	1.0755	1.1412	1.0473	AveID		1.1303				9.9		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	1.2031 1.2636	1.1875 1.1935	1.2093	1.2356	1.2343	AveID		1.2181				2.2		50.0			
Perfluorononanoic acid (PFNA)	1.1091 1.0444	1.0051 1.0301	1.0031	1.0504	1.0318	AveID		1.0391				3.4		35.0			

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

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1 Analy Batch No.: 242895

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/29/2018 12:29 Calibration End Date: 08/29/2018 13:16 Calibration ID: 40869

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 4	LVL 5		B	M1	M2								
Perfluorooctanesulfonic acid (PFOS)	1.1023 1.1204	1.0677 1.1295	1.0829	1.0853	1.1107	AveID		1.0998				2.0		35.0			
F-53B Major	1.7620 1.8177	1.8088 1.7657	1.7793	1.8799	1.8858	AveID		1.8142				2.8		50.0			
Perfluorononanesulfonic acid (PFNS)	0.7817 0.8140	0.7870 0.8117	0.7735	0.8271	0.8442	AveID		0.8056				3.2		50.0			
8:2 FTS	1.3946 1.2233	1.3555 1.3012	1.3160	1.2496	1.2347	AveID		1.2964				5.0		35.0			
Perfluorodecanoic acid (PFDA)	1.0304 1.0003	0.8799 1.0120	0.9727	0.9445	0.9612	AveID		0.9716				5.2		35.0			
Perfluorooctane Sulfonamide (FOSA)	0.9733 0.9912	0.9275 0.9175	0.9592	0.9928	0.9893	AveID		0.9644				3.2		35.0			
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	0.9799 0.9420	0.9826 0.9987	0.9598	0.9483	0.9668	AveID		0.9683				2.1		35.0			
Perfluorodecanesulfonic acid (PFDS)	0.7371 0.7475	0.6814 0.7528	0.6595	0.6943	0.6995	AveID		0.7103				5.0		50.0			
Perfluoroundecanoic acid (PFUnA)	1.1374 0.8865	0.8510 0.8949	0.8890	0.8742	0.8651	AveID		0.9140				10.9		35.0			
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.8943 0.8522	0.8155 0.9003	0.7639	0.8296	0.8201	AveID		0.8394				5.7		35.0			
F-53B Minor	2.6130 2.7354	2.6445 2.4766	2.9099	2.9217	2.9570	AveID		2.7512				6.7		50.0			
Perfluorododecanoic acid (PFDoA)	1.1854 1.0331	1.1889 1.0895	1.0642	1.0486	1.0644	AveID		1.0963				5.9		35.0			
10:2 FTS	1.1942 1.2179	1.2541 1.1246	1.1741	1.2338	1.1540	AveID		1.1932				3.8		50.0			
Perfluorododecanesulfonic acid (PFDoS)	0.2678 0.3007	0.3117 0.3042	0.2863	0.3041	0.2990	AveID		0.2963				5.0		50.0			
Perfluorotridecanoic Acid (PFTriA)	1.0443 0.9962	1.0623 1.0244	1.0380	1.0439	1.0705	AveID		1.0400				2.4		50.0			
Perfluorotetradecanoic acid (PFTeA)	0.2772 0.2353	0.2746 0.2313	0.2538	0.2291	0.2467	AveID		0.2497				8.0		50.0			
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.7552 0.9222	1.2891 0.8824	0.9578	0.8546	0.8893	L1ID	0.0203	0.8881							0.9990		0.9900
Perfluoro-n-octadecanoic acid (PFODA)	1.0388 0.9957	1.0200 0.9138	0.9927	1.0142	1.0312	AveID		1.0009				4.2		50.0			
13C4 PFBA	1.5038 1.6059	1.4956 1.6193	1.5274	1.5179	1.5459	Ave		1.5451				3.2		50.0			
13C5 PFPeA	0.9625 0.9856	0.9606 1.0014	0.9903	0.9743	0.9622	Ave		0.9767				1.6		50.0			

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

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1 Analy Batch No.: 242895

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/29/2018 12:29 Calibration End Date: 08/29/2018 13:16 Calibration ID: 40869

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 4	LVL 5		B	M1	M2								
13C3-PFBS	0.0236 0.0249	0.0221 0.0245	0.0224	0.0218	0.0224	Ave		0.0231				5.4		50.0			
M2-4:2FTS	0.1591 0.1493	0.1522 0.1441	0.1577	0.1621	0.1551	Ave		0.1542				4.0		50.0			
13C2 PFHxA	1.1549 1.0772	1.0821 1.0805	1.0682	1.1031	1.1003	Ave		1.0952				2.7		50.0			
13C3 HFPO-DA	0.0526 0.0479	0.0524 0.0543	0.0517	0.0565	0.0533	Ave		0.0527				5.0		50.0			
13C4-PFHpA	1.0614 0.9945	1.0403 0.9994	1.0550	1.0401	1.0368	Ave		1.0325				2.5		50.0			
18O2 PFHxS	1.3535 1.3676	1.3953 1.3761	1.3622	1.3713	1.3830	Ave		1.3727				1.0		50.0			
M2-6:2FTS	0.2308 0.2394	0.2331 0.2345	0.2302	0.2381	0.2325	Ave		0.2341				1.5		50.0			
13C8 PFOA	1.6841 1.6144	1.5897 1.6677	1.6505	1.6163	1.6541	Ave		1.6396				2.0		50.0			
13C4 PFOA	0.9864 0.9865	0.9853 0.9919	0.9926	0.9695	0.9837	Ave		0.9851				0.8		50.0			
13C8 PFOS	0.4703 0.4989	0.4759 0.4874	0.4699	0.4718	0.4857	Ave		0.4800				2.3		50.0			
13C4 PFOS	0.9249 0.9668	0.9276 0.9413	0.9236	0.9351	0.9482	Ave		0.9382				1.7		50.0			
13C5 PFNA	0.8014 0.8045	0.8063 0.8017	0.8102	0.8073	0.8342	Ave		0.8094				1.4		50.0			
M2-8:2FTS	0.2790 0.2584	0.2841 0.2538	0.2796	0.2769	0.2747	Ave		0.2723				4.2		50.0			
13C2 PFDA	0.7380 0.7265	0.7926 0.6965	0.7823	0.7692	0.7531	Ave		0.7512				4.5		50.0			
13C8 FOSA	1.4530 1.3478	1.4246 1.2991	1.4233	1.4120	1.3668	Ave		1.3895				3.9		50.0			
d3-NMeFOSAA	0.3296 0.3754	0.3386 0.3667	0.3370	0.3533	0.3488	Ave		0.3499				4.7		50.0			
d5-NEtFOSAA	0.4041 0.3700	0.3959 0.3493	0.4079	0.3832	0.3794	Ave		0.3843				5.4		50.0			
13C2 PFUnA	0.6854 0.6414	0.6580 0.6069	0.6685	0.6529	0.6303	Ave		0.6491				4.0		50.0			
13C2 PFDoA	0.6785 0.7097	0.7103 0.6715	0.6956	0.7024	0.6836	Ave		0.6931				2.2		50.0			
13C2-PFTeDA	0.8128 0.8381	0.8328 0.8483	0.8177	0.8465	0.8207	Ave		0.8310				1.7		50.0			

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

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1 Analy Batch No.: 242895

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/29/2018 12:29 Calibration End Date: 08/29/2018 13:16 Calibration ID: 40869

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 4	LVL 5		B	M1	M2								
13C2-PFHxDA	1.1754 1.2466	1.1735 1.2375	1.1767	1.2339	1.1476	Ave		1.1987				3.3		50.0			

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 Sacramento Job No.: 320-42265-1 Analy Batch No.: 242895

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/29/2018 12:29 Calibration End Date: 08/29/2018 13:16 Calibration ID: 40869

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-242895/2	2018.08.29LLICAL_002.d
Level 2	IC 320-242895/3	2018.08.29LLICAL_003.d
Level 3	IC 320-242895/4	2018.08.29LLICAL_004.d
Level 4	IC 320-242895/5	2018.08.29LLICAL_005.d
Level 5	IC 320-242895/6	2018.08.29LLICAL_006.d
Level 6	IC 320-242895/7	2018.08.29LLICAL_007.d
Level 7	IC 320-242895/8	2018.08.29LLICAL_008.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorobutanoic acid (PFBA)		AveID	47714 11369613	99994 21006497	498575	1964542	4946160	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanoic acid (PFPeA)		AveID	50297 8439911	87290 15819306	390426	1539273	3844352	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorobutanesulfonic acid (PFBS)		AveID	58245 12308003	111499 21269593	556521	2249895	5445742	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
4:2 FTS		AveID	13811 2473658	27813 4506913	116781	484217	1067420	0.0234 4.67	0.0467 9.34	0.234	0.934	2.34
Perfluorohexanoic acid (PFHxA)		AveID	41536 8274782	87738 15331533	409557	1595005	3939532	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanesulfonic acid (PFPeS)		AveID	55533 11767977	106883 20554495	561933	2184139	5572259	0.0235 4.69	0.0469 9.38	0.235	0.938	2.35
HFPO-DA (GenX)		AveID	6966 1272421	10695 2578067	61570	234774	590658	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanoic acid (PFHpA)		AveID	47345 8457247	87420 15368637	398511	1656659	3987361	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid (PFHxS)		AveID	66140 10308125	106710 18303264	458102	1876913	4480163	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
DONA		AveID	113486 22070329	235744 35020253	1159616	4530058	10893260	0.0236 4.71	0.0471 9.42	0.236	0.942	2.36
6:2 FTS		AveID	11163 2571549	24964 5140939	137275	491561	1096049	0.0237 4.74	0.0474 9.48	0.237	0.948	2.37
Perfluorooctanoic acid (PFOA)		AveID	50551 8158597	90355 14615092	396325	1601868	3626886	0.0250 5.01	0.0501 10.0	0.250	1.00	2.50
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	40292 8922933	80007 15368277	394319	1591108	3918667	0.0238 4.76	0.0476 9.52	0.238	0.952	2.38
Perfluorononanoic acid (PFNA)		AveID	33808 6446581	61828 11867050	301426	1226675	3027058	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorooctanesulfonic acid (PFOS)		AveID	35988 7712456	70119 14178076	344210	1362379	3437382	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32

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

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1 Analy Batch No.: 242895

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/29/2018 12:29 Calibration End Date: 08/29/2018 13:16 Calibration ID: 40869

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
F-53B Major		AveID	57773 12566387	119303 22259604	567995	2369939	5861148	0.0233 4.66	0.0466 9.32	0.233	0.932	2.33
Perfluorononanesulfonic acid (PFNS)		AveID	26399 5796503	53465 10539365	254352	1074020	2702580	0.0240 4.80	0.0480 9.60	0.240	0.960	2.40
8:2 FTS		AveID	14179 2323183	28148 4545087	130727	479405	1142754	0.0240 4.79	0.0479 9.58	0.240	0.958	2.40
Perfluorodecanoic acid (PFDA)		AveID	28923 5575939	53205 10128414	282208	1050863	2545941	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorooctane Sulfonamide (FOSA)		AveID	53788 10249627	100804 17127523	506317	2027690	4755895	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	12283 2713327	25384 5261991	119967	484565	1186265	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanesulfonic acid (PFDS)		AveID	24999 5344848	46483 9815397	217765	905383	2248884	0.0241 4.82	0.0482 9.64	0.241	0.964	2.41
Perfluoroundecanoic acid (PFUnA)		AveID	29652 4362409	42720 7803919	220425	825590	1917934	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	13746 2419584	24629 4518115	115557	459875	1094433	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
F-53B Minor		AveID	86594 19113626	176291 31556310	938896	3722901	9289246	0.0236 4.71	0.0471 9.42	0.236	0.942	2.36
Perfluorododecanoic acid (PFDoA)		AveID	30591 5625557	64426 10512830	274538	1065402	2559172	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
10:2 FTS		AveID	12218 2327340	26204 3952875	117362	476311	1074814	0.0241 4.82	0.0482 9.64	0.241	0.964	2.41
Perfluorododecanesulfonic acid (PFDoS)		AveID	9121 2158958	21351 3983515	94917	398149	965249	0.0242 4.84	0.0484 9.68	0.242	0.968	2.42
Perfluorotridecanoic Acid (PFTriA)		AveID	26952 5424299	57565 9885330	267782	1060680	2573767	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotetradecanoic acid (PFTeA)		AveID	8569 1512978	17448 2819548	76958	280548	711993	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-hexadecanoic acid (PFHxDA)		L1ID	78474 8820127	115407 15690224	418012	1525336	3589437	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-octadecanoic acid (PFODA)		AveID	46441 9523300	91314 16247649	433212	1810203	4162136	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C4 PFBA	13PFOA	Ave	5719619 6160677	5704852 5816809	5664603	5488865	5437095	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C5 PFPeA	13PFOA	Ave	3660882 3781038	3664372 3597133	3672678	3523411	3384128	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3-PFBS	13PFOA	Ave	83396 88876	78517 81995	77121	73274	73284	2.33 2.33	2.33 2.33	2.33	2.33	2.33
M2-4:2FTS	13PFOA	Ave	565142 535031	542289 483323	546154	547480	509587	2.34 2.34	2.34 2.34	2.34	2.34	2.34

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

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1 Analy Batch No.: 242895

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/29/2018 12:29 Calibration End Date: 08/29/2018 13:16 Calibration ID: 40869

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C2 PFHxA	13PF OA	Ave	4392596 4132255	4127484 3881429	3961600	3989082	3870057	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3 HFPO-DA	13PF OA	Ave	199888 183789	199784 194995	191754	204251	187380	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4-PFHpA	13PF OA	Ave	4037112 3815284	3968116 3590240	3912524	3761052	3646572	2.50 2.50	2.50 2.50	2.50	2.50	2.50
18O2 PFHxS	13PF OA	Ave	4870044 4962966	5034945 4676266	4779192	4691108	4601558	2.37 2.37	2.37 2.37	2.37	2.37	2.37
M2-6:2FTS	13PF OA	Ave	834021 872332	844827 800268	811184	817998	776922	2.38 2.38	2.38 2.38	2.38	2.38	2.38
13C8 PFOA	13PF OA	Ave	6271173 6063311	5936691 5865115	5992728	5722270	5695418	2.45 2.45	2.45 2.45	2.45	2.45	2.45
13C4 PFOA	13PF OA	Ave	3751803 3784421	3758285 3563134	3681191	3505767	3459678	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C8 PFOS	13PF OA	Ave	1709947 1829649	1735397 1673800	1666225	1630893	1633176	2.39 2.39	2.39 2.39	2.39	2.39	2.39
13C4 PFOS	13PF OA	Ave	3363202 3545645	3382737 3232748	3274486	3232850	3188162	2.39 2.39	2.39 2.39	2.39	2.39	2.39
13C5 PFNA	13PF OA	Ave	3048271 3086183	3075590 2880054	3004975	2919440	2933893	2.50 2.50	2.50 2.50	2.50	2.50	2.50
M2-8:2FTS	13PF OA	Ave	1016720 949558	1038268 873254	993365	959144	925568	2.40 2.40	2.40 2.40	2.40	2.40	2.40
13C2 PFDA	13PF OA	Ave	2806991 2787149	3023299 2502045	2901357	2781648	2648629	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C8 FOSA	13PF OA	Ave	5526446 5170371	5434088 4666694	5278651	5105972	4807145	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d3-NMeFOSAA	13PF OA	Ave	1253517 1440249	1291615 1317218	1249855	1277421	1226949	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d5-NEtFOSAA	13PF OA	Ave	1537133 1419589	1510032 1254669	1512664	1385854	1334519	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFUnA	13PF OA	Ave	2606973 2460446	2509891 2180048	2479464	2360981	2217016	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFDoA	13PF OA	Ave	2580747 2722624	2709395 2412373	2579877	2540101	2404260	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFTeDA	13PF OA	Ave	3091539 3215304	3176552 3047305	3032464	3061022	2886501	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFHxDA	13PF OA	Ave	4470851 4782251	4476145 4445259	4364068	4462104	4036324	2.50 2.50	2.50 2.50	2.50	2.50	2.50

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

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1 Analy Batch No.: 242895

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/29/2018 12:29 Calibration End Date: 08/29/2018 13:16 Calibration ID: 40869

Curve Type Legend:

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_002.d
Lims ID: IC L1 Full
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 29-Aug-2018 12:29:46 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L1-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 29-Aug-2018 16:04:01 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK020

First Level Reviewer: roycea Date: 29-Aug-2018 14:48:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.416	1.417	-0.001	0.537	5719619	2.43		97.3	10123	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.421	1.417	0.004	1.004	47714	0.0235		93.9	5.8	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.678	1.678	0.0	0.637	3660882	2.46		98.5	9656	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.686	1.679	0.007	1.005	50297	0.0298		119	3.0	
D 47 13C3-PFBS										
301.90 > 83.00	1.718	1.716	0.002	0.652	83396	2.37		102	492	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.718	1.717	0.001	1.000	58245	0.0217		98.1	127	
298.90 > 99.00	1.718	1.717	0.001	1.000	23875		2.44(1.25-3.74)	98.1	82.2	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.933	1.931	0.002	1.125	13811	0.0250		107	173	
D 60 M2-4:2FTS										
329.00 > 81.00	1.933	1.931	0.002	0.734	565142	2.41		103	1568	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.964	1.963	0.001	1.000	41536	0.0235		93.9	20.9	
313.00 > 119.00	1.964	1.963	0.001	1.000	4601		9.03(5.03-15.10)	93.9	20.8	
D 7 13C2 PFHxA										
315.00 > 270.00	1.964	1.963	0.001	0.746	4392596	2.64		105	11030	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.985	1.985	0.0	1.155	55533	0.0224		95.7	267	
349.00 > 99.00	1.985	1.985	0.0	1.155	22126		2.51(1.36-4.07)	95.7	104	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.058	2.058	0.0	0.781	199888	2.50		99.8	1069	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.058	2.063	-0.005	1.000	6966	0.0275		110	8.7	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.288	2.286	0.002	1.000	47345	0.0268		107	22.9	
363.00 > 169.00	2.288	2.286	0.002	1.000	17107		2.77(1.13-3.40)	107	56.1	
D 9 13C4-PFHpA										
367.00 > 322.00	2.288	2.286	0.002	0.868	4037112	2.57		103	7209	
D 11 18O2 PFHxS										
403.00 > 84.00	2.299	2.298	0.001	0.873	4870044	2.33		98.6	6757	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.299	2.300	-0.001	1.000	66140	0.0294		129	250	
399.00 > 99.00	2.299	2.300	-0.001	1.000	22132		2.99(1.50-4.49)	129	53.5	
77 DONA										
377.00 > 251.00	2.332	2.330	0.002	0.777	113486	0.0240		102	492	
377.00 > 85.00	2.332	2.330	0.002	0.777	71031		1.60(0.85-2.54)	102	130	
D 12 M2-6:2FTS										
429.00 > 81.00	2.612	2.609	0.003	0.991	834021	2.34		98.6	3747	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.612	2.611	0.001	1.000	11163	0.0211		89.2	110	
D 73 13C8 PFOA										
421.00 > 376.00	2.627	2.627	0.0	0.997	6271173	2.51		103	10360	
* 62 13C2-PFOA										
415.00 > 370.00	2.635	2.635	0.0		3803528	2.50			7302	
D 14 13C4 PFOA										
417.00 > 372.00	2.635	2.635	0.0	1.000	3751803	2.50		100	8905	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.635	2.637	-0.002	1.000	50551	0.0298		119	8.2	M
413.00 > 169.00	2.635	2.637	-0.002	1.000	26180		1.93(0.84-2.52)	119	54.4	M
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.643	2.643	0.0	0.881	40292	0.0235		98.8	328	
449.00 > 99.00	2.651	2.643	0.008	0.884	11789		3.42(1.94-5.82)	98.8	70.6	
D 72 13C8 PFOS										
507.00 > 99.00	3.000	3.001	-0.001	1.139	1709947	2.34		98.0	4762	
D 18 13C4 PFOS										
503.00 > 80.00	3.000	3.004	-0.004	1.139	3363202	2.36		98.6	7968	
17 Perfluorooctane sulfonic acid										M
499.00 > 80.00	3.008	3.006	0.002	1.003	35988	0.0233		100	188	
499.00 > 99.00	3.000	3.006	-0.006	1.000	7772		4.63(2.31-6.93)	100	32.2	M
20 Perfluorononanoic acid										
463.00 > 419.00	3.008	3.006	0.002	1.000	33808	0.0267		107	10.1	
463.00 > 169.00	3.008	3.006	0.002	1.000	8183		4.13(1.90-5.69)	107	54.5	
D 19 13C5 PFNA										
468.00 > 423.00	3.008	3.006	0.002	1.141	3048271	2.48		99.0	8055	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.219	3.216	0.003	1.073	57773	0.0226		97.1	189	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.348	3.349	-0.001	1.116	26399	0.0233		97.0	288	
549.00 > 99.00	3.348	3.349	-0.001	1.116	9142		2.89(1.33-3.97)	97.0	55.0	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 26 M2-8:2FTS										
529.00 > 81.00	3.348	3.350	-0.002	1.271	1016720	2.45		102	4362	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.356	3.352	0.004	1.002	14179	0.0258		108	52.4	
D 23 13C2 PFDA										
515.00 > 470.00	3.363	3.362	0.001	1.276	2806991	2.46		98.2	5015	
D 21 13C8 FOSA										
506.00 > 78.00	3.363	3.362	0.001	1.276	5526446	2.61		105	7075	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.363	3.363	0.0	1.000	28923	0.0265		106	38.8	
513.00 > 169.00	3.363	3.363	0.0	1.000	6342		4.56(2.36-7.09)	106	65.5	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.363	3.363	0.0	1.000	53788	0.0252		101	355	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.514	3.515	-0.001	1.334	1253517	2.35		94.2	2716	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.522	3.519	0.003	1.002	12283	0.0253		101	8.1	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.674	3.672	0.002	1.225	24999	0.0250		104	227	
599.00 > 99.00	3.674	3.672	0.002	1.225	8144		3.07(1.39-4.16)	104	63.8	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.682	3.681	0.001	1.398	1537133	2.63		105	535	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.691	3.687	0.004	1.000	29652	0.0311		124	31.8	
563.00 > 169.00	3.691	3.687	0.004	1.000	5413		5.48(2.12-6.36)	124	57.7	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.691	3.689	0.002	1.002	13746	0.0266		107	62.8	
D 30 13C2 PFUnA										
565.00 > 520.00	3.691	3.689	0.002	1.401	2606973	2.64		106	6437	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.849	3.848	0.001	1.283	86594	0.0224		95.0	814	
35 MeFOSA										
512.00 > 169.00	3.868	3.867	0.001		11965	NC			91.6	
D 36 13C2 PFDoA										
615.00 > 570.00	3.987	3.982	0.005	1.513	2580747	2.45		97.9	4965	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.987	3.983	0.004	1.000	30591	0.0270		108	23.3	
613.00 > 169.00	3.987	3.983	0.004	1.000	6907		4.43(2.13-6.40)	108	43.5	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.987	3.985	0.002	1.191	12218	0.0241		100	85.0	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.225	4.219	0.006	1.408	9121	0.0219		90.4	78.2	
699.00 > 99.00	4.225	4.219	0.006	1.408	12657		0.72(0.00-0.00)	90.4	128	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.244	4.243	0.001	1.064	26952	0.0251		100	8.6	
663.00 > 169.00	4.244	4.243	0.001	1.064	8043		3.35(1.25-3.76)	100	77.3	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.473	4.475	-0.002	0.998	8569	0.0277		111	146	
713.00 > 219.00	4.483	4.475	0.008	1.000	5250		1.63(0.71-2.13)	111	121	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.483	4.477	0.006	1.702	3091539	2.45		97.8	5803	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.888	4.889	-0.001	1.855	4470851	2.45		98.1	5378	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.898	4.893	0.005	1.002	78474	0.0265		106	7.1	
813.00 > 169.00	4.898	4.893	0.005	1.002	13095		5.99(2.86-8.58)	106	134	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.237	5.236	0.001	1.071	46441	0.0259		104	3.4	
913.00 > 169.00	5.237	5.236	0.001	1.071	5532		8.39(3.83-11.48)	104	68.3	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL1_00010 Amount Added: 1.00 Units: mL

Report Date: 29-Aug-2018 16:04:03 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_002.d

Injection Date: 29-Aug-2018 12:29:46 Instrument ID: A8_N

Lims ID: IC L1 Full

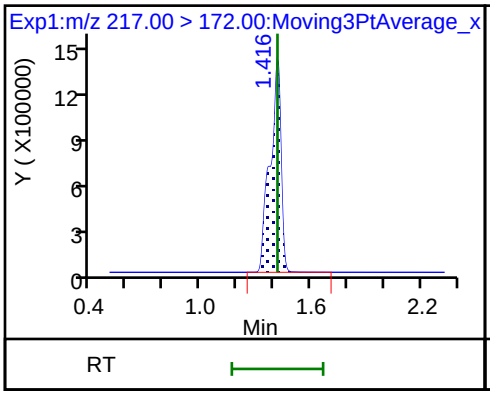
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2

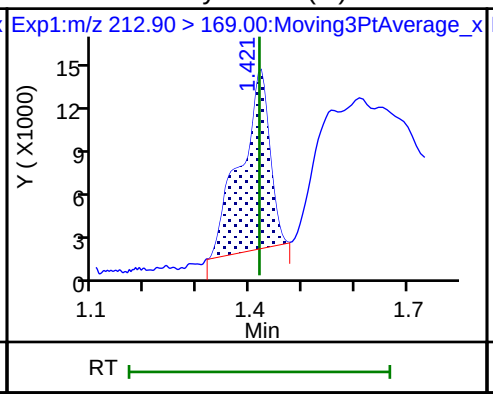
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

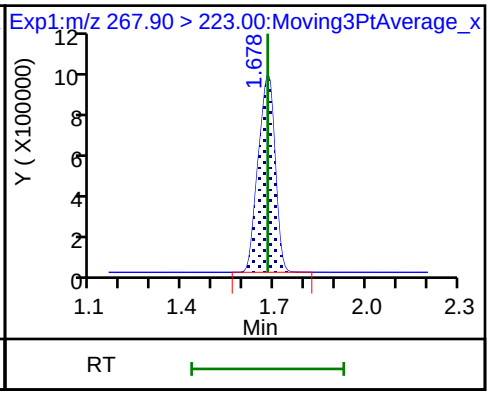
D 1 13C4 PFBA



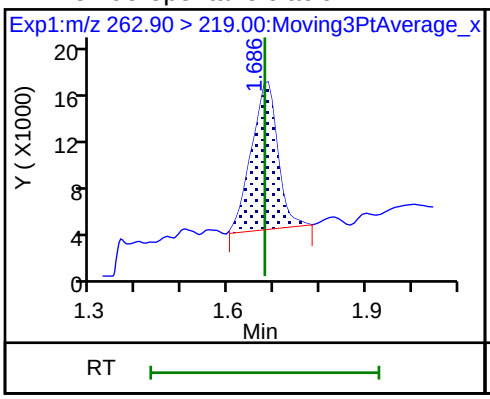
2 Perfluorobutyric acid (M)



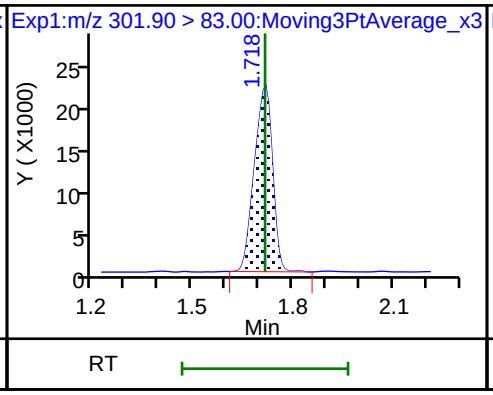
D 3 13C5-PFPeA



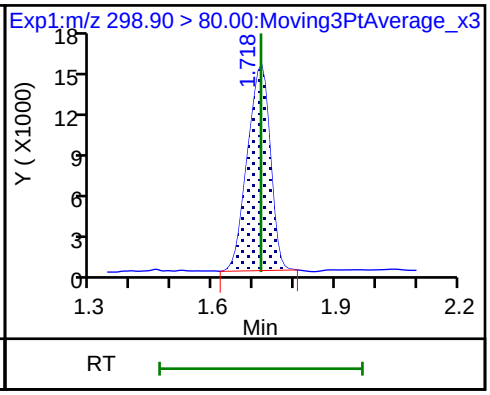
4 Perfluoropentanoic acid



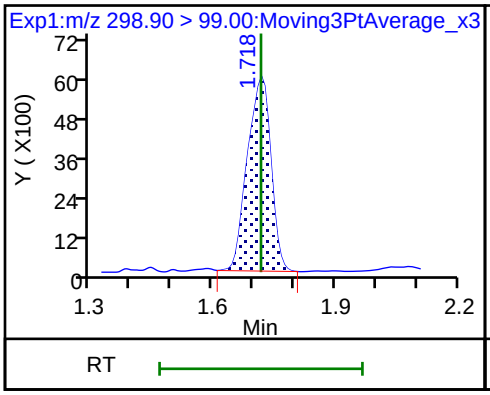
D 47 13C3-PFBS



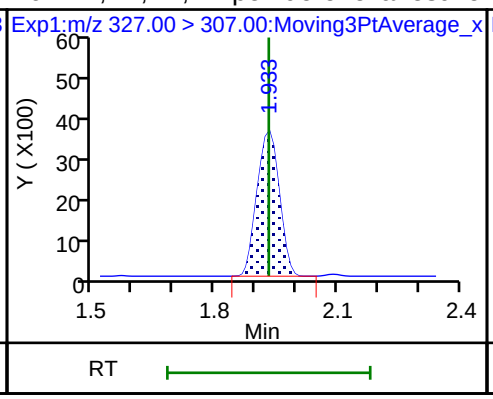
5 Perfluorobutanesulfonic acid



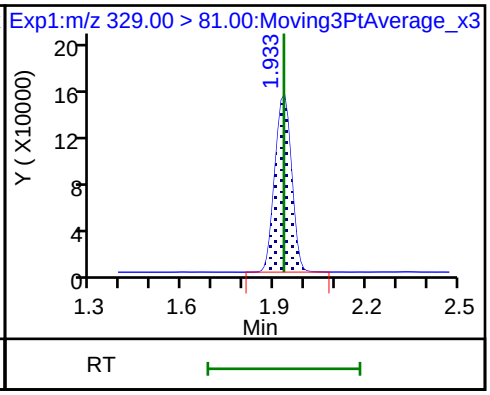
5 Perfluorobutanesulfonic acid



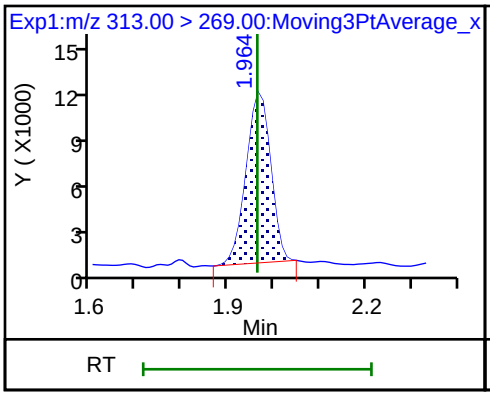
61 1H,1H,2H,2H-perfluorohexanesulfon



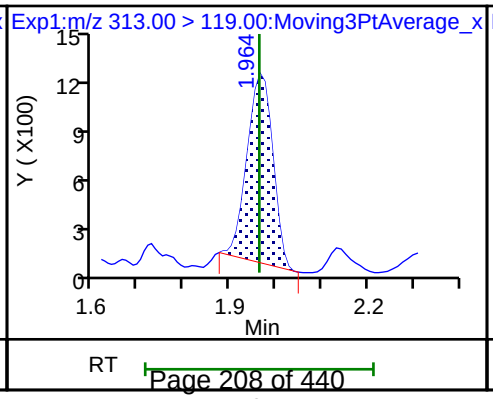
D 60 M2-4:2FTS



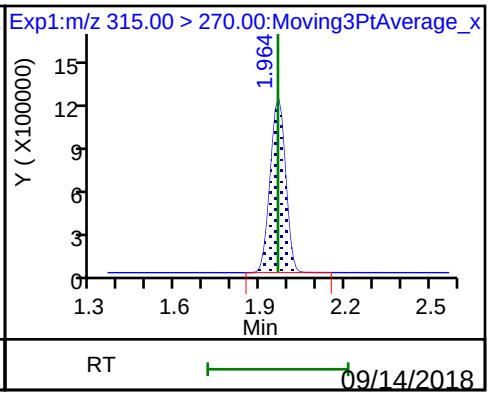
6 Perfluorohexanoic acid



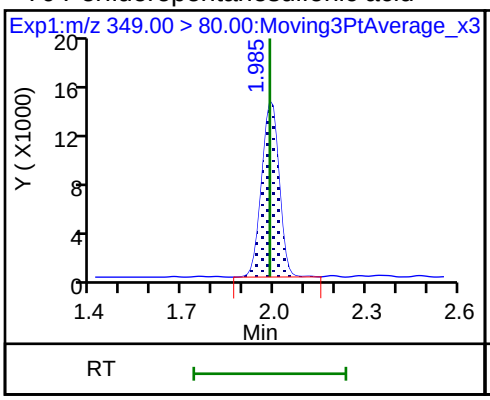
6 Perfluorohexanoic acid



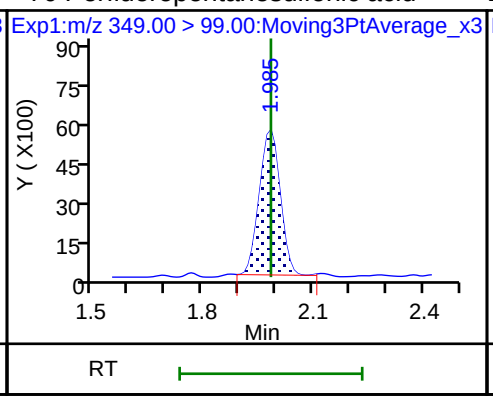
D 7 13C2 PFHxA



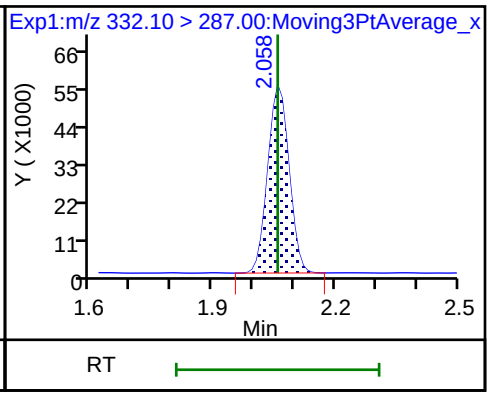
70 Perfluoropentanesulfonic acid



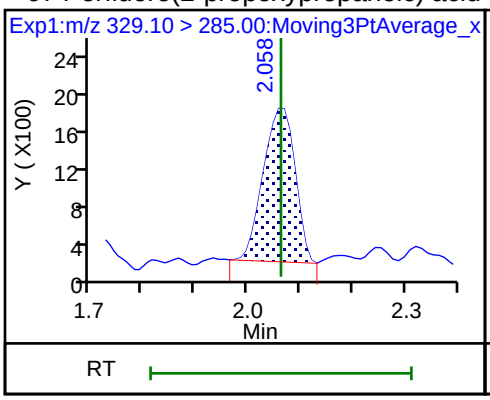
70 Perfluoropentanesulfonic acid



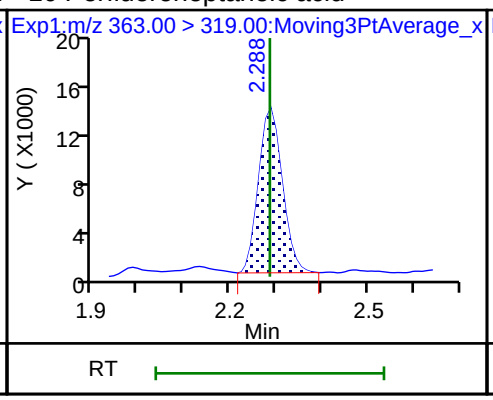
D 64 13C3 HFPO-DA



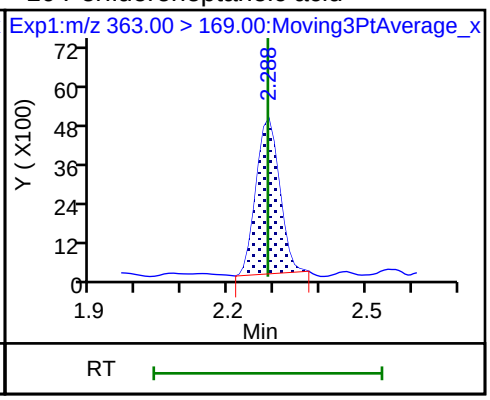
67 Perfluoro(2-propoxypropanoic) acid



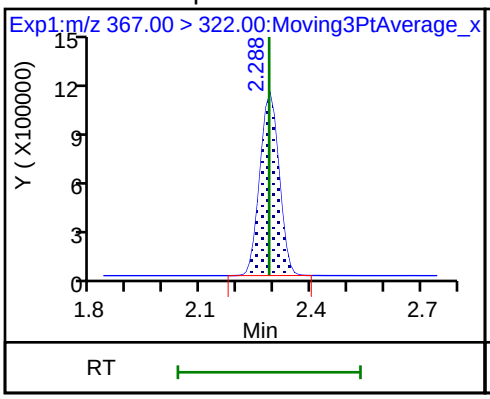
10 Perfluoroheptanoic acid



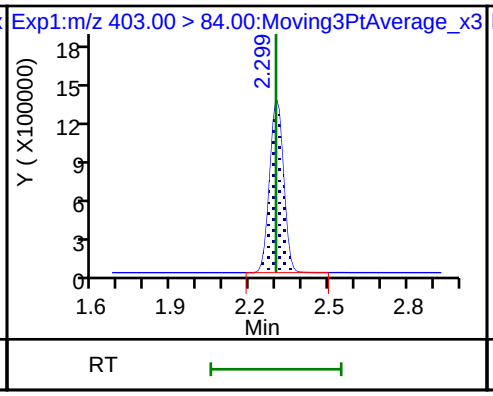
10 Perfluoroheptanoic acid



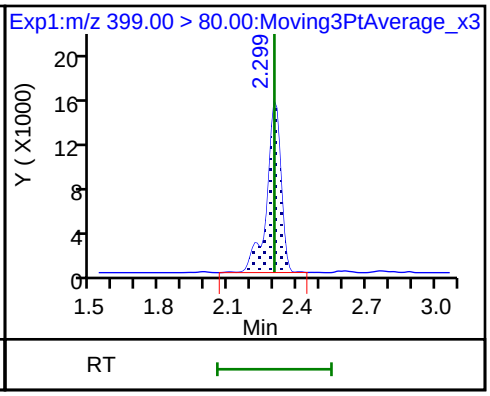
D 9 13C4-PFHpA



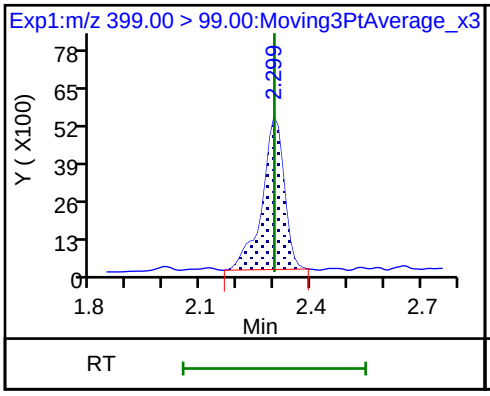
D 11 18O2 PFHxS



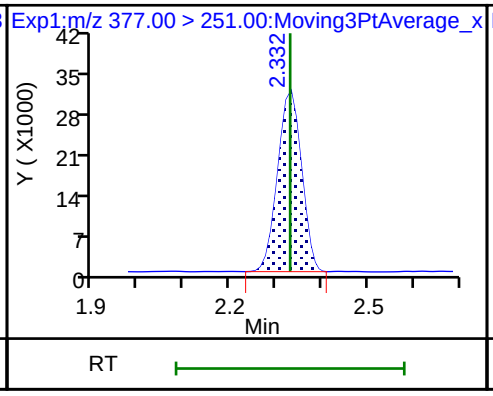
8 Perfluorohexanesulfonic acid



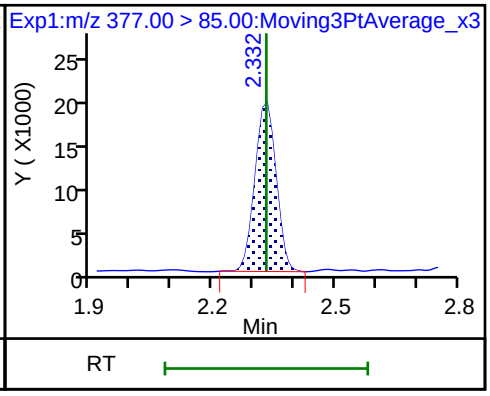
8 Perfluorohexanesulfonic acid



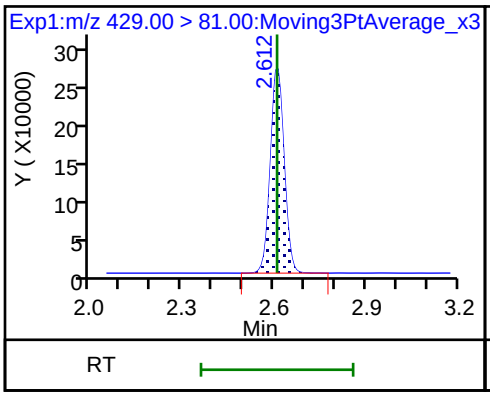
77 DONA



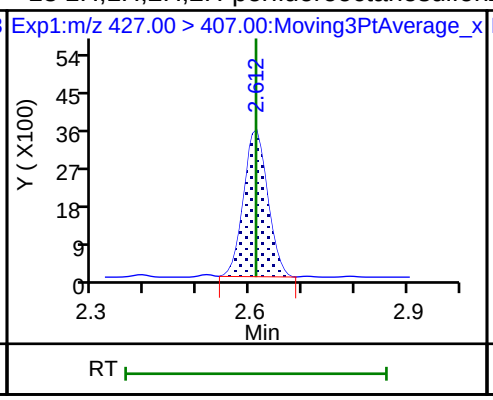
77 DONA



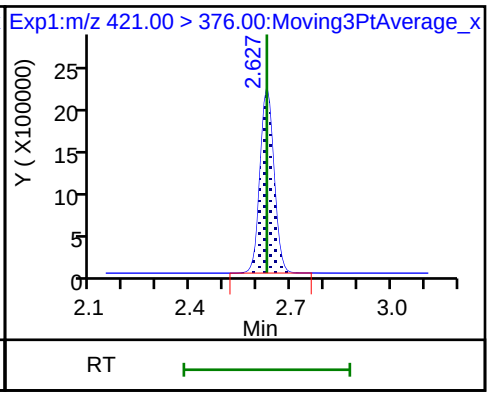
D 12 M2-6:2FTS



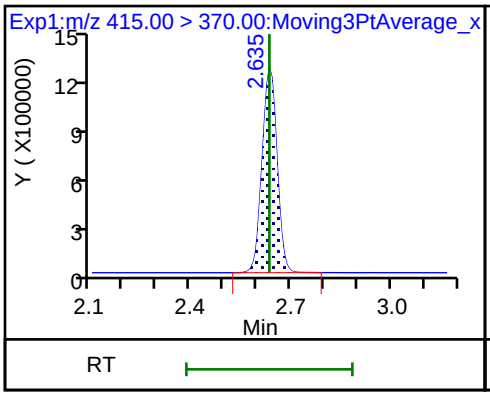
13 1H,1H,2H,2H-perfluorooctanesulfon



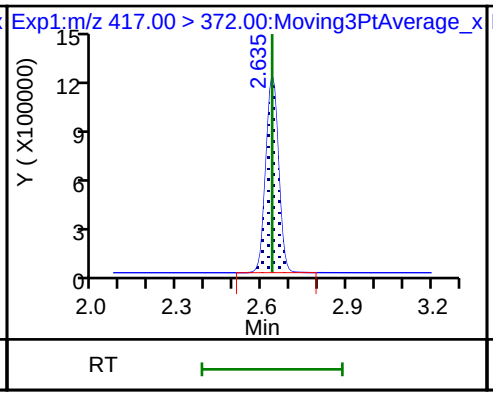
D 73 13C8 PFOA



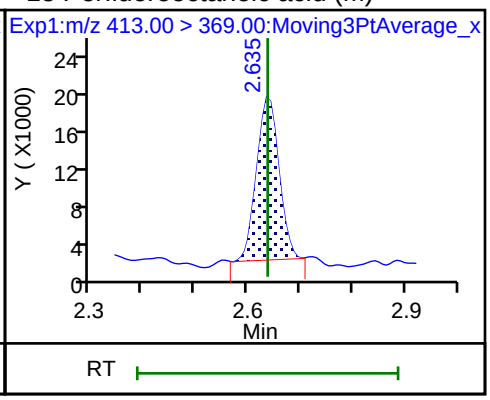
* 62 13C2-PFOA



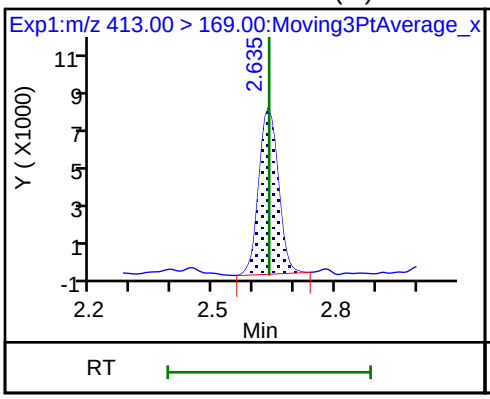
D 14 13C4 PFOA



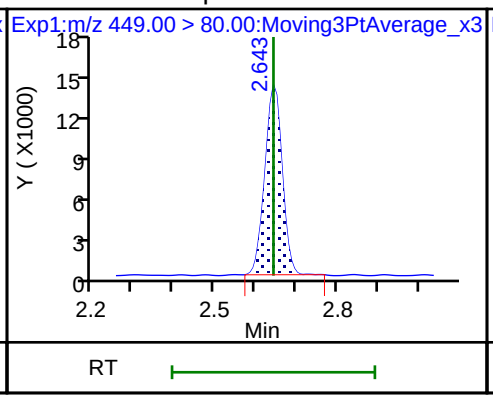
15 Perfluorooctanoic acid (M)



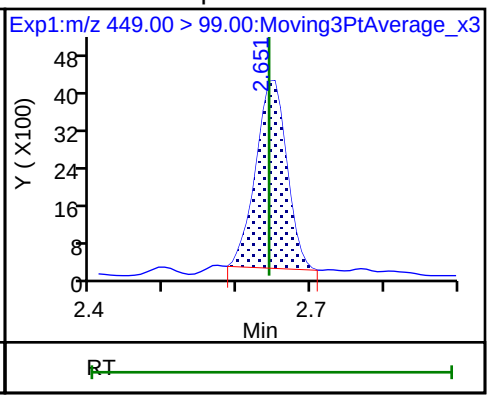
15 Perfluorooctanoic acid (M)



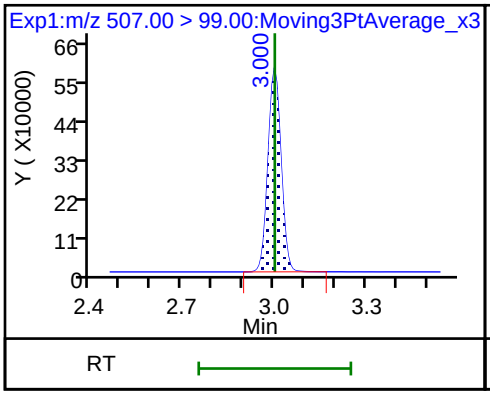
16 Perfluoroheptanesulfonic acid



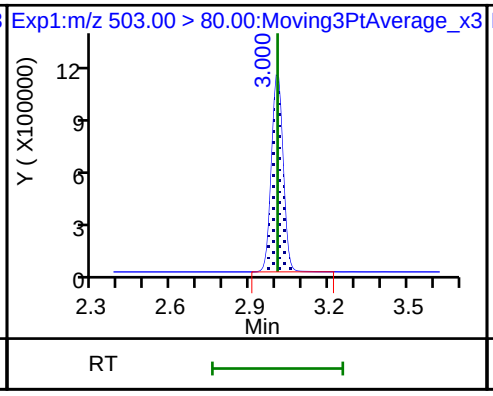
16 Perfluoroheptanesulfonic acid



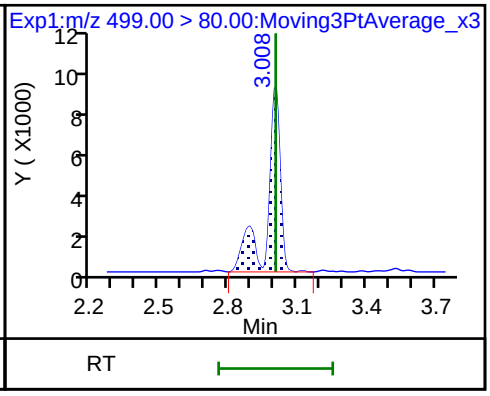
D 72 13C8 PFOS



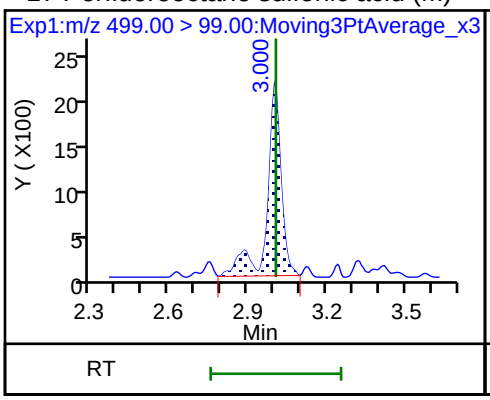
D 18 13C4 PFOS



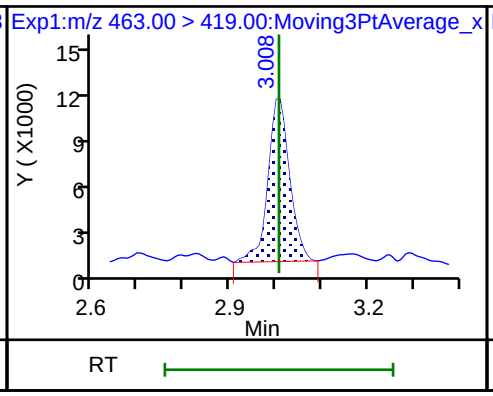
17 Perfluorooctane sulfonic acid



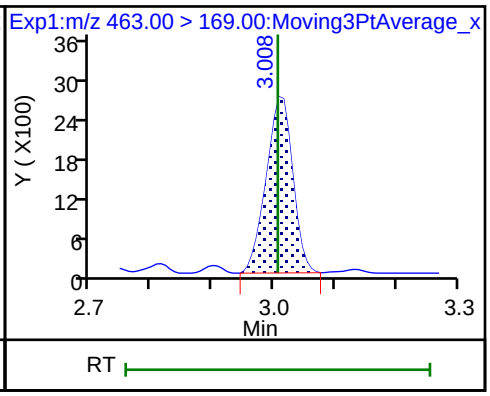
17 Perfluorooctane sulfonic acid (M)



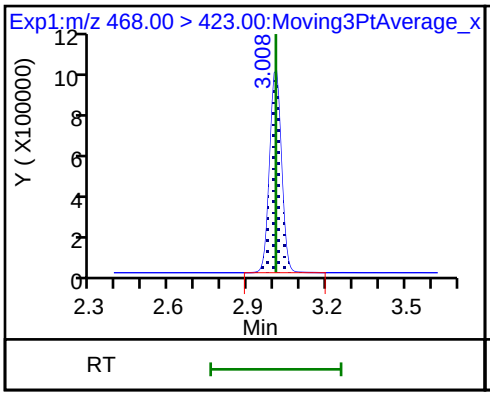
20 Perfluorononanoic acid



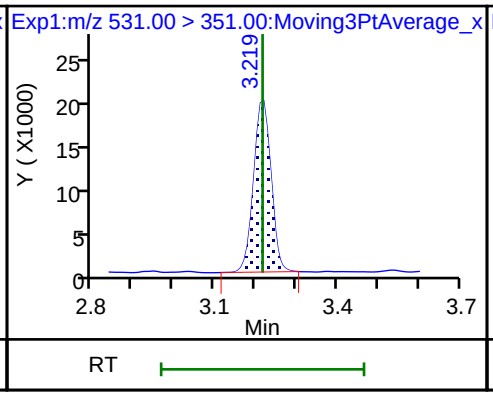
20 Perfluorononanoic acid



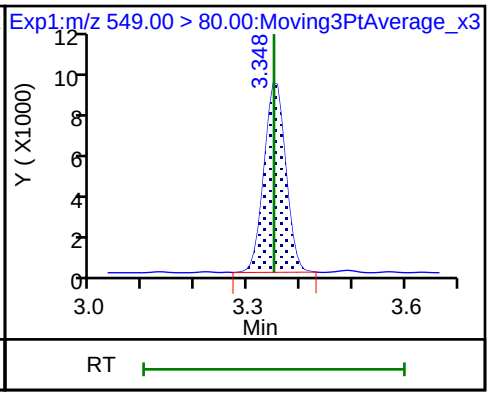
D 19 13C5 PFNA



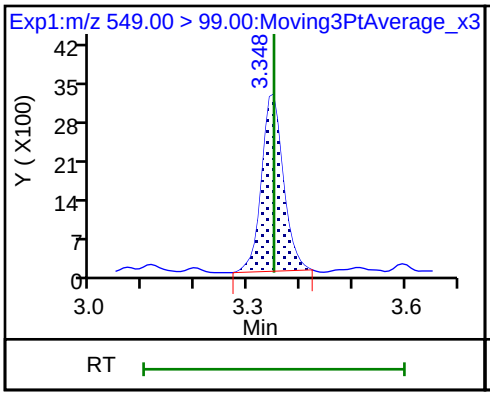
69 9-Chlorohexadecafluoro-3-oxanonane



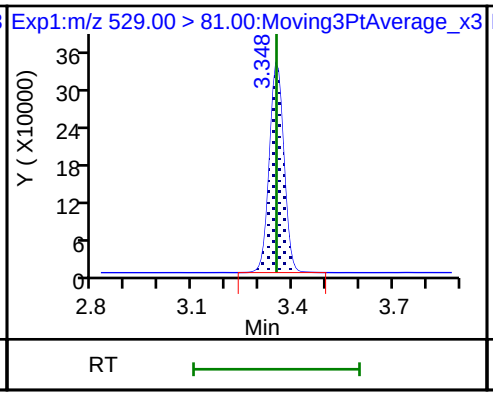
68 Perfluorononanesulfonic acid



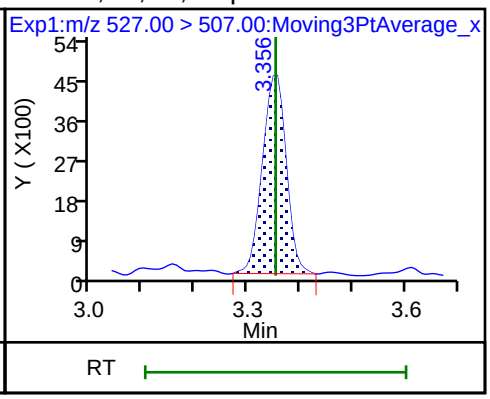
68 Perfluorononanesulfonic acid



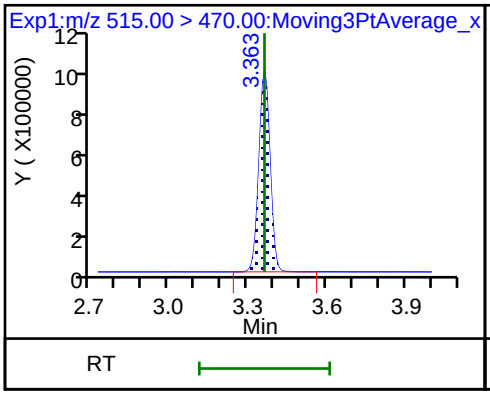
D 26 M2-8:2FTS



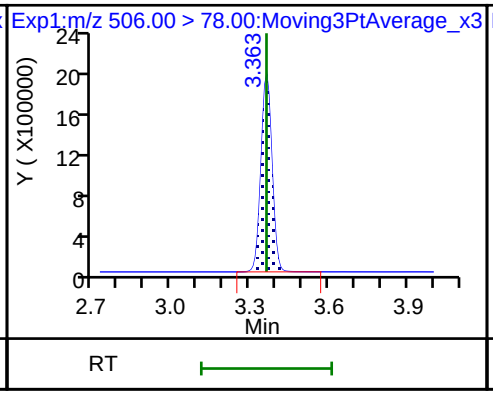
25 1H,1H,2H,2H-perfluorodecanesulfoni



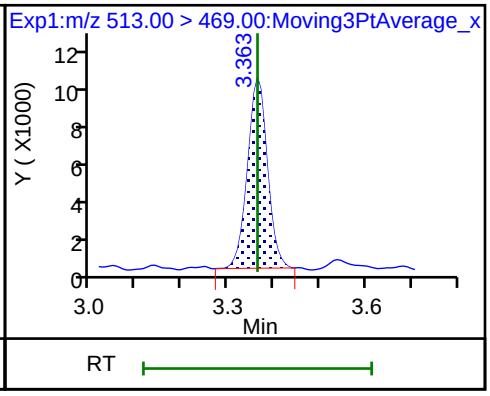
D 23 13C2 PFDA



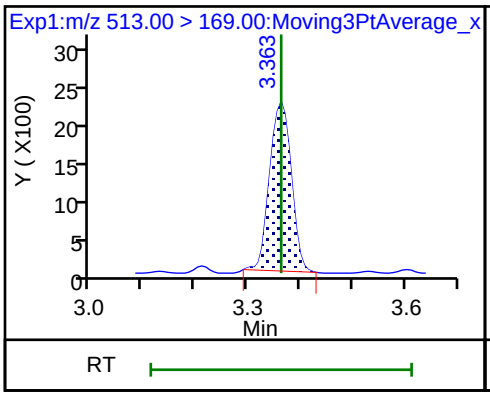
D 21 13C8 FOSA



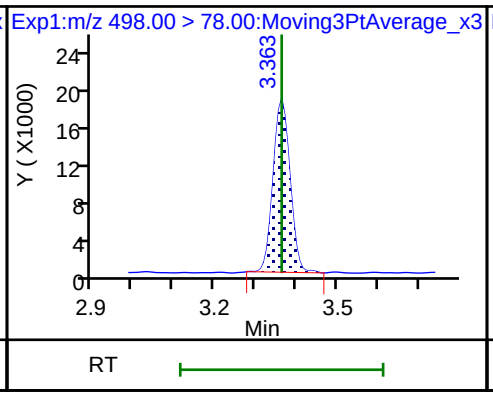
24 Perfluorodecanoic acid



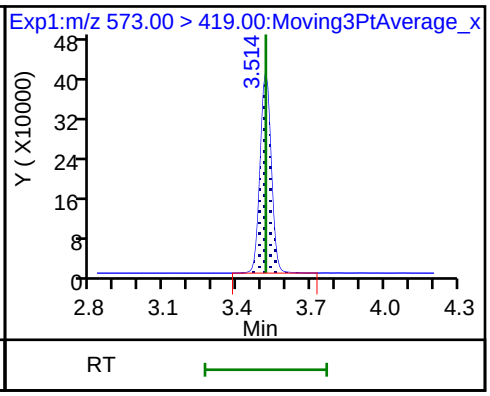
24 Perfluorodecanoic acid



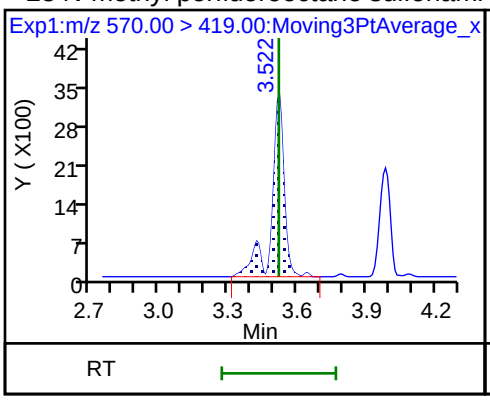
22 Perfluorooctane Sulfonamide



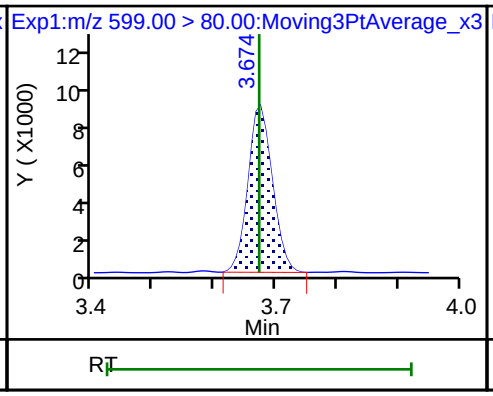
D 27 d3-NMeFOSAA



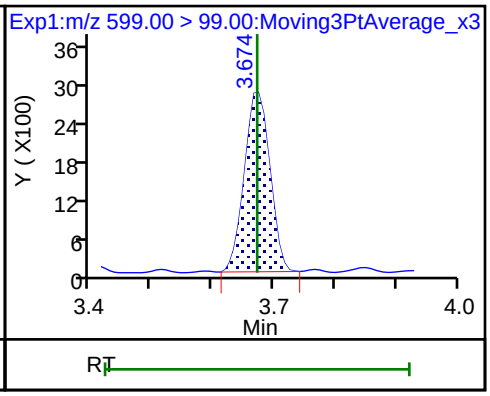
28 N-methyl perfluorooctane sulfonami



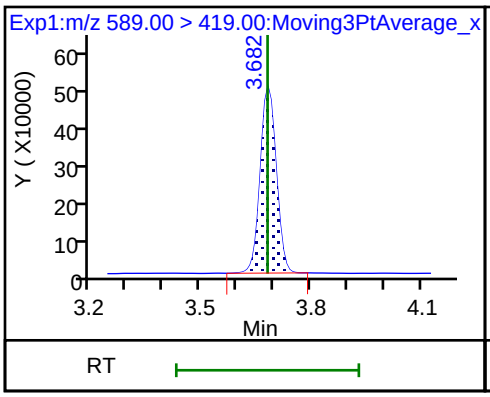
29 Perfluorodecane Sulfonic acid



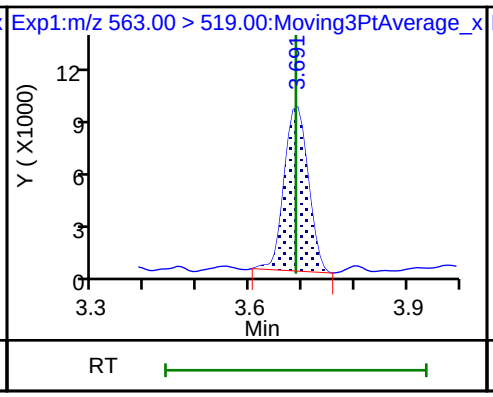
29 Perfluorodecane Sulfonic acid



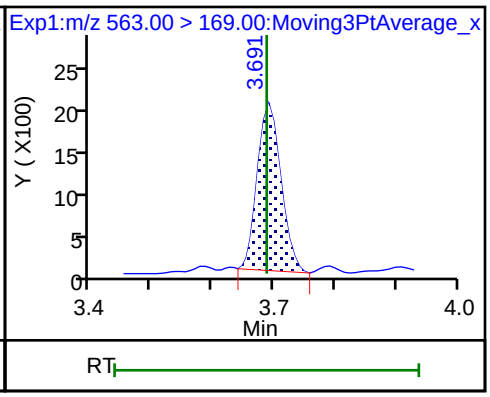
D 32 d5-NEtFOSAA



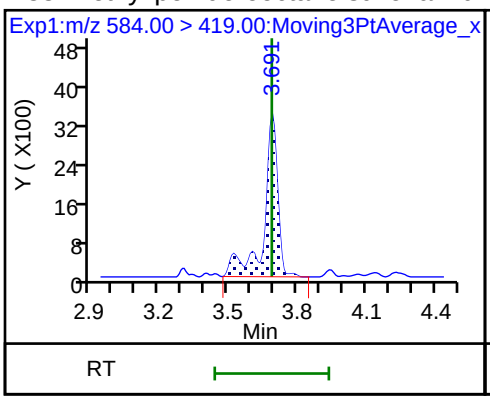
31 Perfluoroundecanoic acid



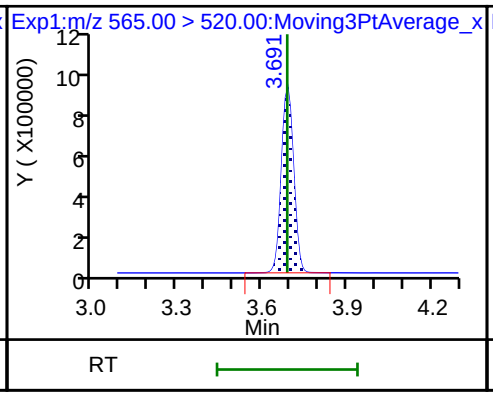
31 Perfluoroundecanoic acid



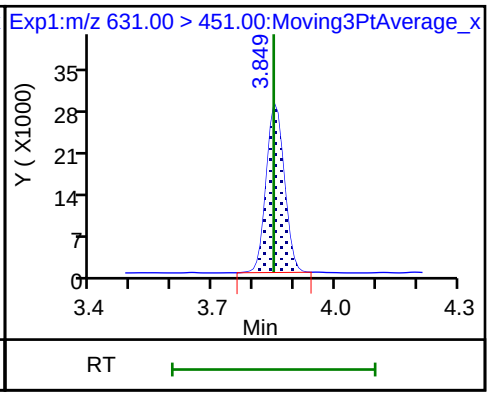
33 N-ethyl perfluorooctane sulfonamid



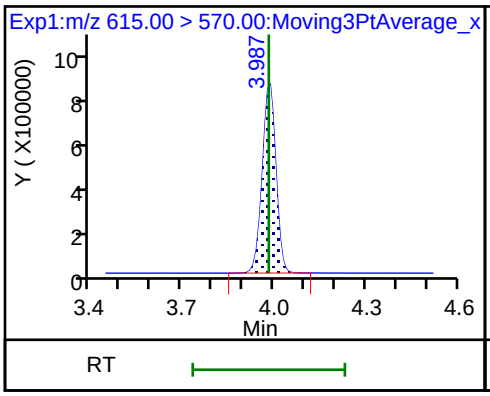
D 30 13C2 PFUnA



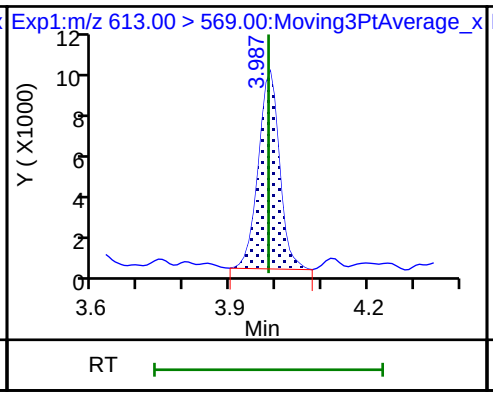
66 11-Chloroeicosafluoro-3-oxaundecan



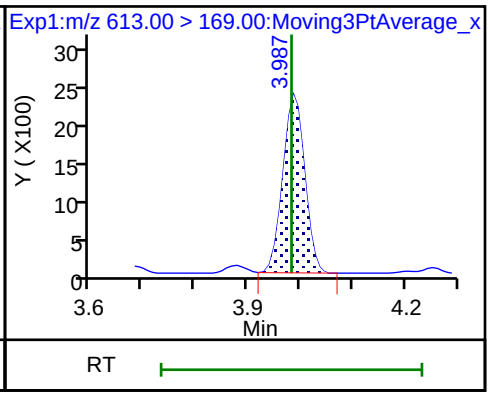
D 36 13C2 PFDoA



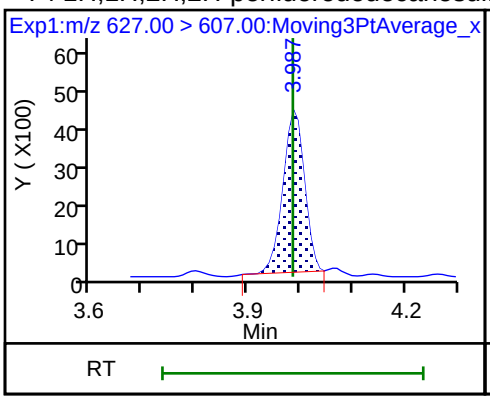
37 Perfluorododecanoic acid



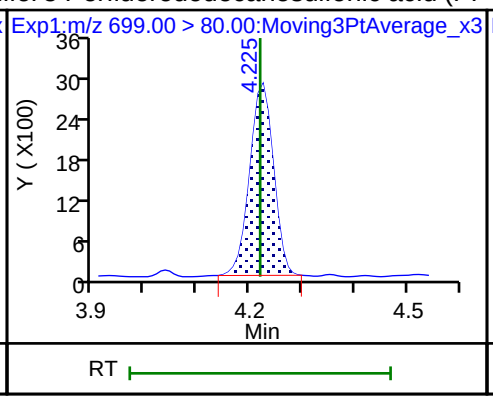
37 Perfluorododecanoic acid



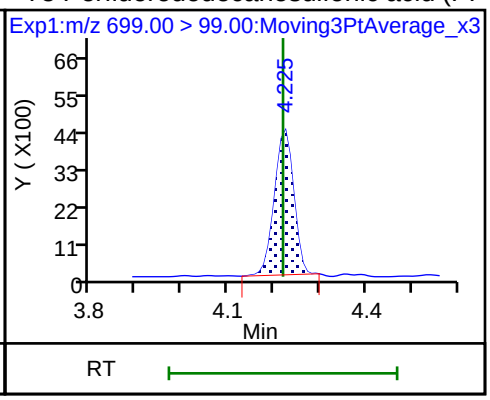
74 1H,1H,2H,2H-perfluorododecanesulfo



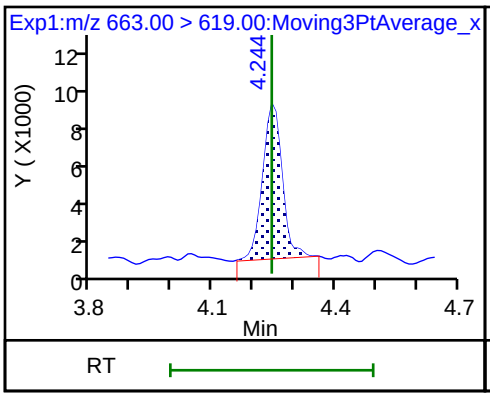
75 Perfluorododecanesulfonic acid (PF



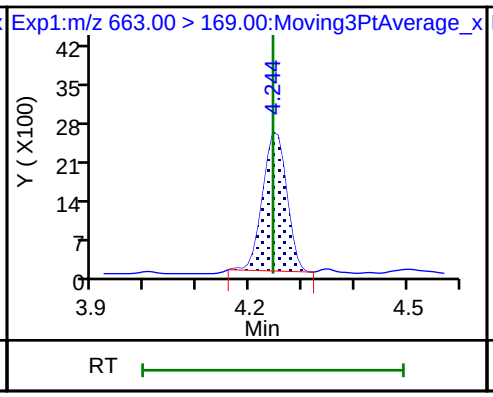
75 Perfluorododecanesulfonic acid (PF



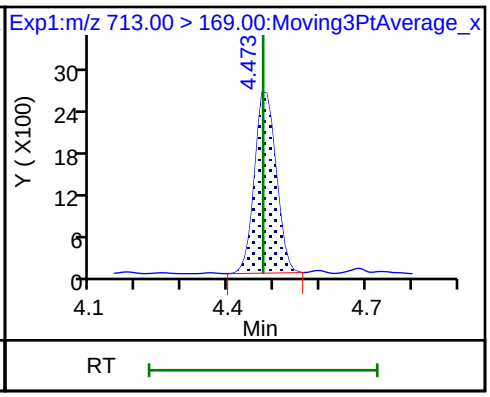
41 Perfluorotridecanoic acid



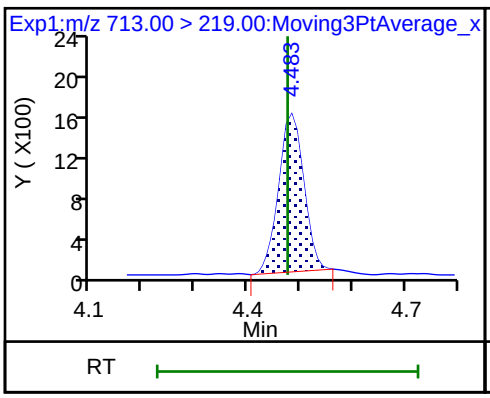
41 Perfluorotridecanoic acid



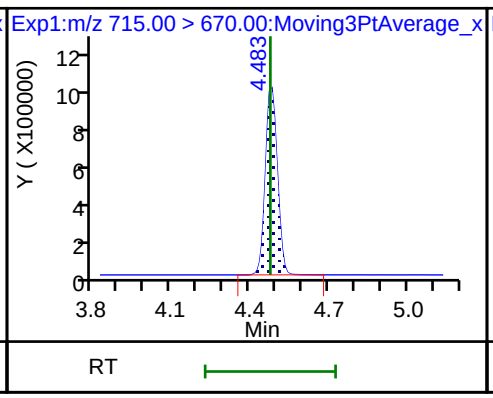
42 Perfluorotetradecanoic acid



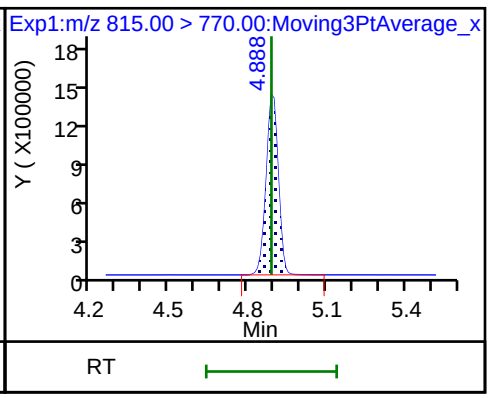
42 Perfluorotetradecanoic acid



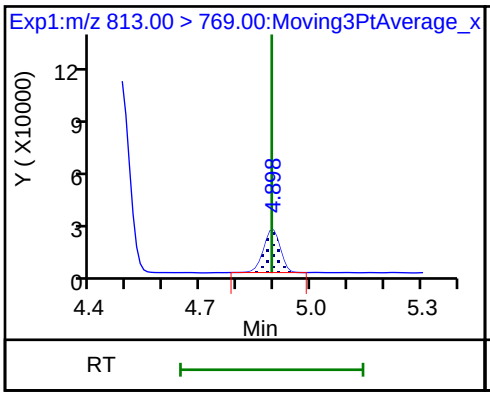
D 43 13C2-PFTeDA



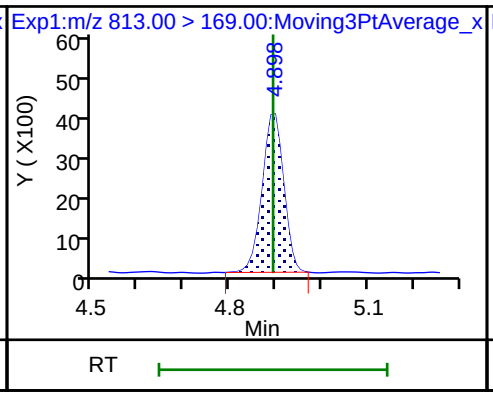
D 44 13C2-PFHxDA



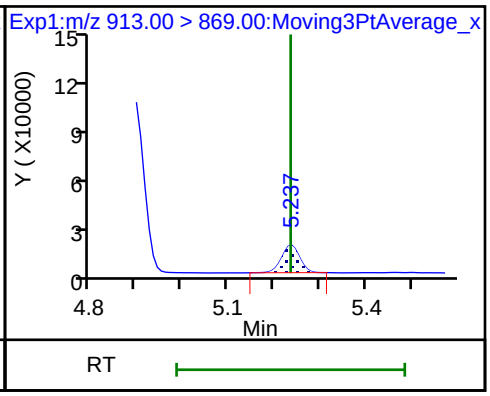
45 Perfluorohexadecanoic acid



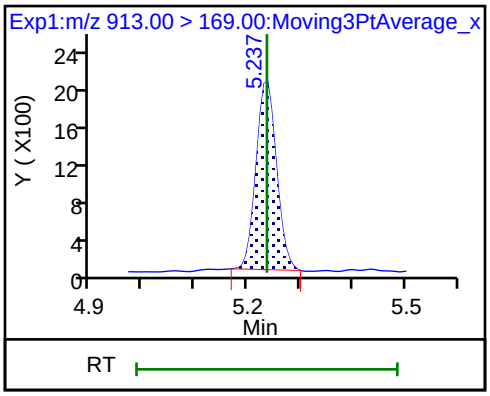
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

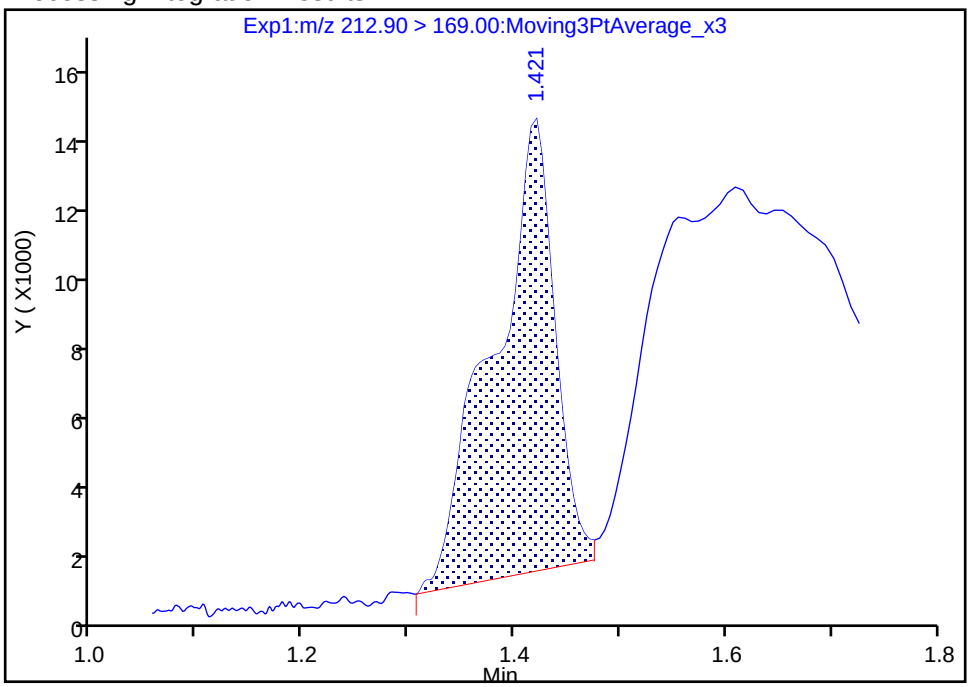
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_002.d				
Injection Date:	29-Aug-2018 12:29:46	Instrument ID:	A8_N		
Lims ID:	IC L1 Full				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	2
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

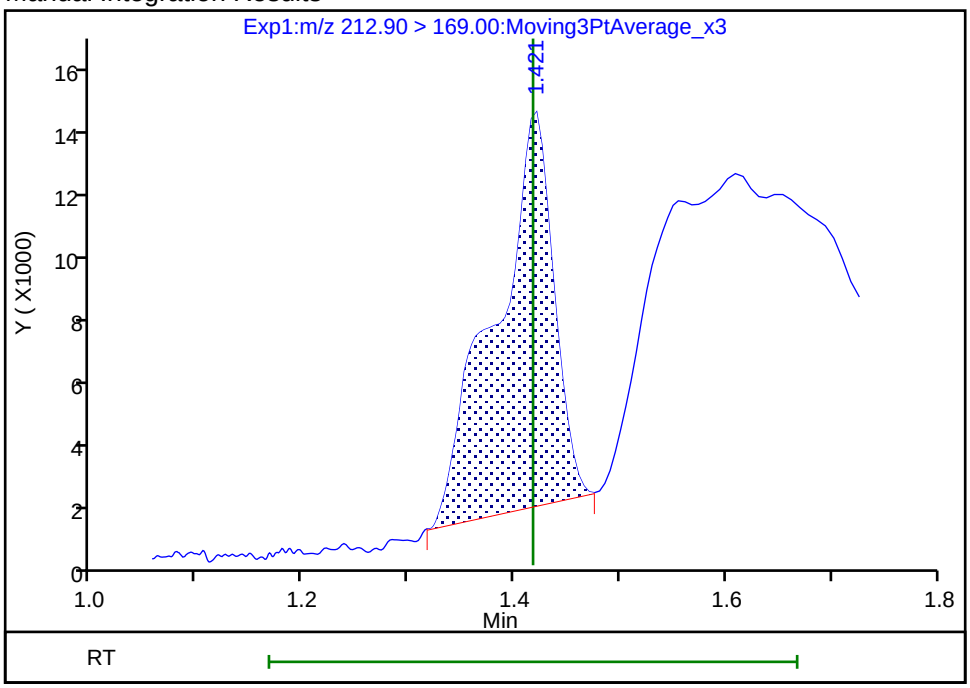
Processing Integration Results

RT: 1.42
Area: 51746
Amount: 0.025040
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 47714
Amount: 0.023467
Amount Units: ng/ml



Reviewer: roycea, 29-Aug-2018 15:46:57
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

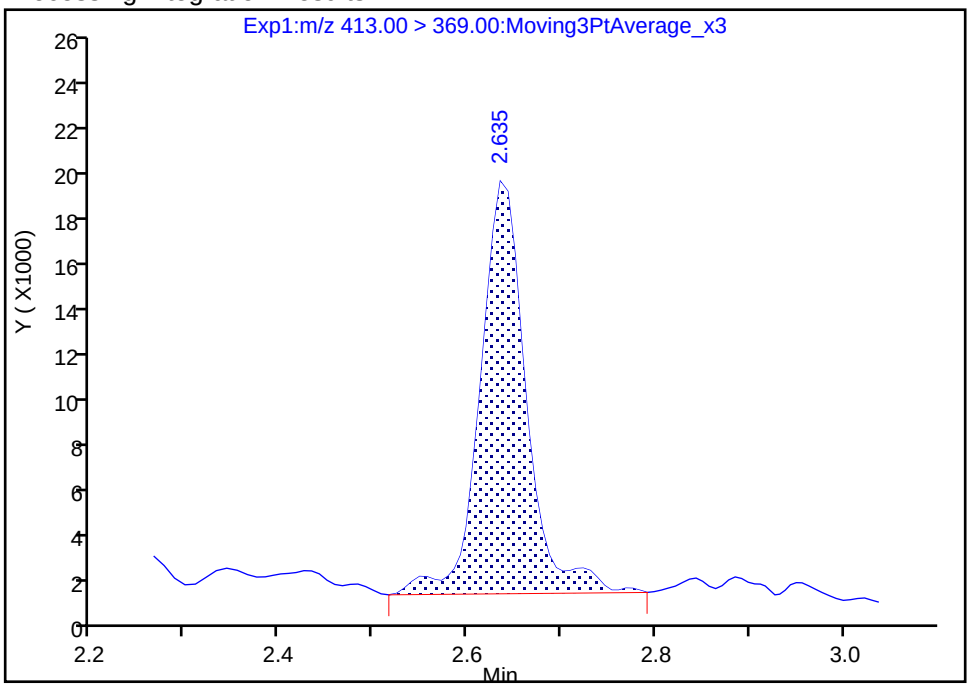
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_002.d
Injection Date: 29-Aug-2018 12:29:46 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

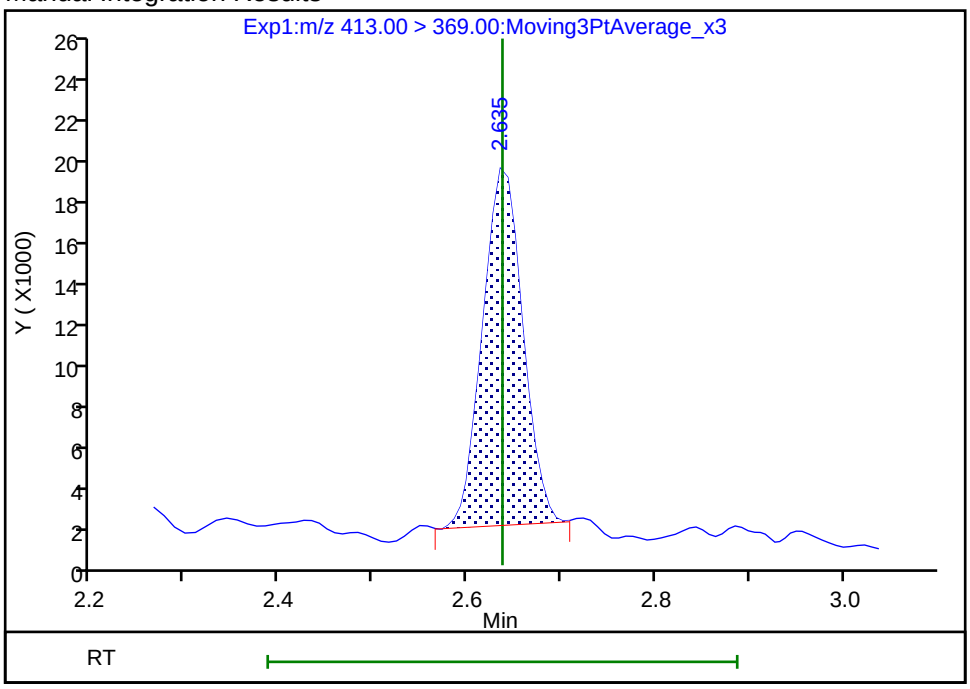
Processing Integration Results

RT: 2.63
Area: 60706
Amount: 0.033585
Amount Units: ng/ml



Manual Integration Results

RT: 2.63
Area: 50551
Amount: 0.029801
Amount Units: ng/ml



Reviewer: roycea, 29-Aug-2018 15:47:10
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

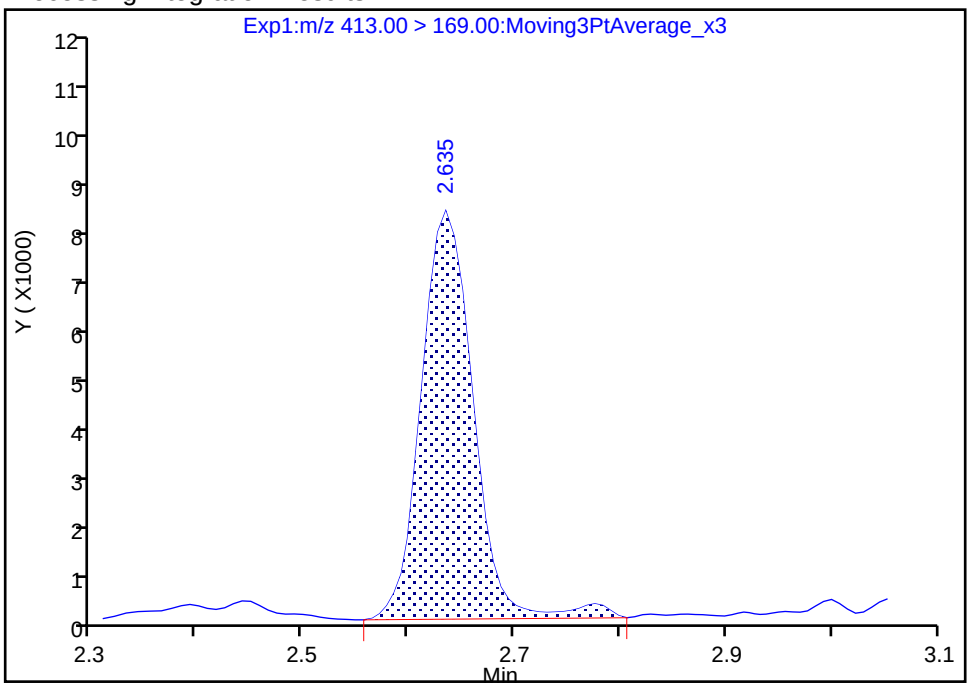
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_002.d
Injection Date: 29-Aug-2018 12:29:46 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

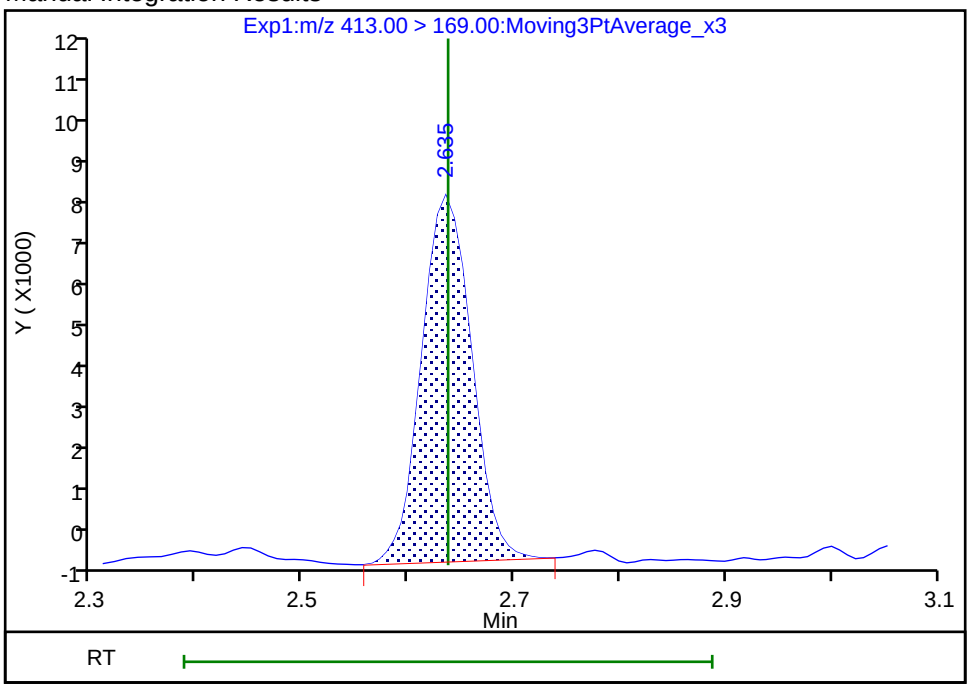
Processing Integration Results

RT: 2.63
Area: 27413
Amount: 0.033585
Amount Units: ng/ml



Manual Integration Results

RT: 2.63
Area: 26180
Amount: 0.029801
Amount Units: ng/ml



Reviewer: roycea, 29-Aug-2018 15:47:20
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

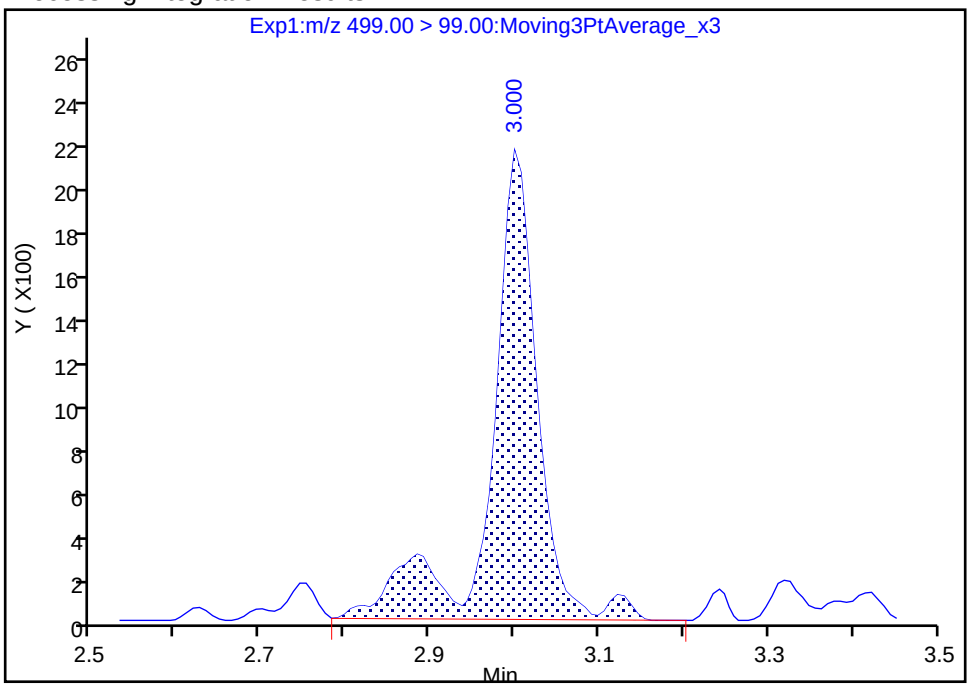
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_002.d
Injection Date: 29-Aug-2018 12:29:46 Instrument ID: A8_N
Lims ID: IC L1 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

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

Signal: 2

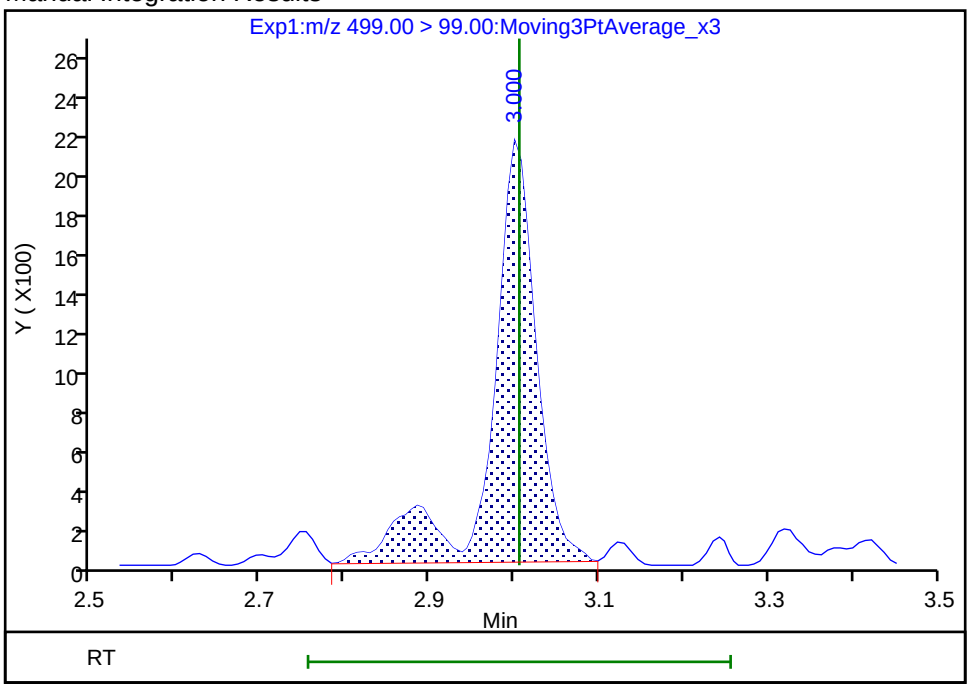
Processing Integration Results

RT: 3.00
Area: 8127
Amount: 0.023253
Amount Units: ng/ml



Manual Integration Results

RT: 3.00
Area: 7772
Amount: 0.023253
Amount Units: ng/ml



Reviewer: roycea, 29-Aug-2018 15:47:31
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_003.d
Lims ID: IC L2 Full
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 29-Aug-2018 12:37:35 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L2-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 29-Aug-2018 16:08:14 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK020

First Level Reviewer: roycea Date: 29-Aug-2018 14:50:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.416	1.417	-0.001	0.537	5704852	2.42		96.8	10283	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.416	1.417	-0.001	1.000	99994	0.0493		98.6	11.2	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.678	1.678	0.0	0.637	3664372	2.46		98.4	9792	
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.678	1.679	-0.001	1.000	87290	0.0516		103	5.5	M
D 47 13C3-PFBS										
301.90 > 83.00	1.711	1.716	-0.005	0.649	78517	2.23		95.8	474	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.719	1.717	0.002	1.005	111499	0.0441		99.8	227	
298.90 > 99.00	1.719	1.717	0.002	1.005	50488		2.21(1.25-3.74)	99.8	191	
D 60 M2-4:2FTS										
329.00 > 81.00	1.933	1.931	0.002	0.734	542289	2.30		98.7	1466	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.933	1.931	0.002	1.130	27813	0.0535		115	313	
D 7 13C2 PFHxA										
315.00 > 270.00	1.965	1.963	0.002	0.746	4127484	2.47		98.8	9378	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.965	1.963	0.002	1.000	87738	0.0528		106	50.1	
313.00 > 119.00	1.965	1.963	0.002	1.000	9428		9.31(5.03-15.10)	106	39.1	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.986	1.985	0.001	1.161	106883	0.0459		97.8	540	
349.00 > 99.00	1.986	1.985	0.001	1.161	43362		2.46(1.36-4.07)	97.8	262	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.059	2.058	0.001	0.781	199784	2.49		99.5	833	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.069	2.063	0.006	1.005	10695	0.0423		84.5	15.4	
D 9 13C4-PFHpA										
367.00 > 322.00	2.288	2.286	0.002	0.868	3968116	2.52		101	7452	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.288	2.286	0.002	1.000	87420	0.0503		101	42.9	
363.00 > 169.00	2.288	2.286	0.002	1.000	30549		2.86(1.13-3.40)	101	69.5	
D 11 18O2 PFHxS										
403.00 > 84.00	2.299	2.298	0.001	0.873	5034945	2.40		102	7558	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.299	2.300	-0.001	1.000	106710	0.0458		101	434	
399.00 > 99.00	2.299	2.300	-0.001	1.000	37428		2.85(1.50-4.49)	101	60.0	
77 DONA										
377.00 > 251.00	2.333	2.330	0.003	0.776	235744	0.0496		105	1331	
377.00 > 85.00	2.333	2.330	0.003	0.776	138037		1.71(0.85-2.54)	105	258	
D 12 M2-6:2FTS										
429.00 > 81.00	2.612	2.609	0.003	0.991	844827	2.37		99.6	4698	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.612	2.611	0.001	1.000	24964	0.0467		98.5	168	
D 73 13C8 PFOA										
421.00 > 376.00	2.628	2.627	0.001	0.997	5936691	2.37		97.0	18843	
D 14 13C4 PFOA										
417.00 > 372.00	2.635	2.635	0.0	1.000	3758285	2.50		100	8441	
* 62 13C2-PFOA										
415.00 > 370.00	2.635	2.635	0.0		3814484	2.50			7591	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.643	2.637	0.006	1.003	90355	0.0532		106	15.1	M
413.00 > 169.00	2.635	2.637	-0.002	1.000	45843		1.97(0.84-2.52)	106	118	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.643	2.643	0.0	0.879	80007	0.0464		97.5	475	
449.00 > 99.00	2.651	2.643	0.008	0.881	21328		3.75(1.94-5.82)	97.5	109	
D 72 13C8 PFOS										
507.00 > 99.00	3.008	3.001	0.007	1.141	1735397	2.37		99.1	6159	
D 18 13C4 PFOS										
503.00 > 80.00	3.008	3.004	0.004	1.141	3382737	2.36		98.9	7072	
D 19 13C5 PFNA										
468.00 > 423.00	3.008	3.006	0.002	1.141	3075590	2.49		99.6	5196	
20 Perfluorononanoic acid										
463.00 > 419.00	3.008	3.006	0.002	1.000	61828	0.0484		96.7	20.8	
463.00 > 169.00	3.008	3.006	0.002	1.000	15013		4.12(1.90-5.69)	96.7	119	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.008	3.006	0.002	1.000	70119	0.0450		97.1	316	
499.00 > 99.00	3.008	3.006	0.002	1.000	16838		4.16(2.31-6.93)	97.1	70.9	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.219	3.216	0.003	1.070	119303	0.0465		99.7	321	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.356	3.349	0.007	1.116	53465	0.0469		97.7	451	
549.00 > 99.00	3.356	3.349	0.007	1.116	19279		2.77(1.33-3.97)	97.7	88.4	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 26 M2-8:2FTS										
529.00 > 81.00	3.356	3.350	0.006	1.274	1038268	2.50		104	3719	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.349	3.352	-0.003	0.998	28148	0.0501		105	98.5	
D 21 13C8 FOSA										
506.00 > 78.00	3.364	3.362	0.002	1.276	5434088	2.56		103	6271	
D 23 13C2 PFDA										
515.00 > 470.00	3.364	3.362	0.002	1.276	3023299	2.64		106	5950	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.364	3.363	0.001	1.000	100804	0.0481		96.2	663	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.364	3.363	0.001	1.000	53205	0.0453		90.6	76.9	
513.00 > 169.00	3.364	3.363	0.001	1.000	8293		6.42(2.36-7.09)	90.6	48.6	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.520	3.515	0.005	1.336	1291615	2.42		96.8	7039	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.520	3.519	0.001	1.000	25384	0.0507		101	38.0	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.672	3.672	0.0	1.221	46483	0.0462		95.9	274	
599.00 > 99.00	3.672	3.672	0.0	1.221	14911		3.12(1.39-4.16)	95.9	128	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.681	3.681	0.0	1.397	1510032	2.58		103	587	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.689	3.687	0.002	1.000	42720	0.0466		93.1	39.7	
563.00 > 169.00	3.689	3.687	0.002	1.000	8767		4.87(2.12-6.36)	93.1	125	
D 30 13C2 PFUnA										
565.00 > 520.00	3.689	3.689	0.0	1.400	2509891	2.53		101	10353	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.689	3.689	0.0	1.002	24629	0.0486		97.2	101	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.847	3.848	-0.001	1.279	176291	0.0453		96.1	1795	
35 MeFOSA										
512.00 > 169.00	3.866	3.867	-0.001		25166	NC			205	
D 36 13C2 PFDoA										
615.00 > 570.00	3.987	3.982	0.005	1.513	2709395	2.56		102	6712	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.987	3.983	0.004	1.000	64426	0.0542		108	47.3	
613.00 > 169.00	3.987	3.983	0.004	1.000	15204		4.24(2.13-6.40)	108	135	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.987	3.985	0.002	1.188	26204	0.0507		105	361	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.224	4.219	0.005	1.404	21351	0.0509		105	158	
699.00 > 99.00	4.224	4.219	0.005	1.404	27881		0.77(0.00-0.00)	105	340	
41 Perfluorotridecanoic acid										M
663.00 > 619.00	4.243	4.243	0.0	1.064	57565	0.0511		102	19.9	M
663.00 > 169.00	4.243	4.243	0.0	1.064	17753		3.24(1.25-3.76)	102	308	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.484	4.475	0.009	1.000	17448	0.0550		110	189	
713.00 > 219.00	4.473	4.475	-0.002	0.998	10405		1.68(0.71-2.13)	110	160	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.484	4.477	0.007	1.701	3176552	2.51		100	5774	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.889	4.889	0.0	1.855	4476145	2.45		97.9	5378	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.898	4.893	0.005	1.002	115407	0.0497		99.4	10.7	
813.00 > 169.00	4.889	4.893	-0.004	1.000	21140		5.46(2.86-8.58)	99.4	158	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.238	5.236	0.002	1.071	91314	0.0510		102	6.8	
913.00 > 169.00	5.238	5.236	0.002	1.071	11434		7.99(3.83-11.48)	102	143	

QC Flag Legend

Processing Flags
NC - Not Calibrated
Review Flags
M - Manually Integrated

Reagents:

LCPFC_LL2_00009 Amount Added: 1.00 Units: mL

Report Date: 29-Aug-2018 16:08:17 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_003.d

Injection Date: 29-Aug-2018 12:37:35 Instrument ID: A8_N

Lims ID: IC L2 Full

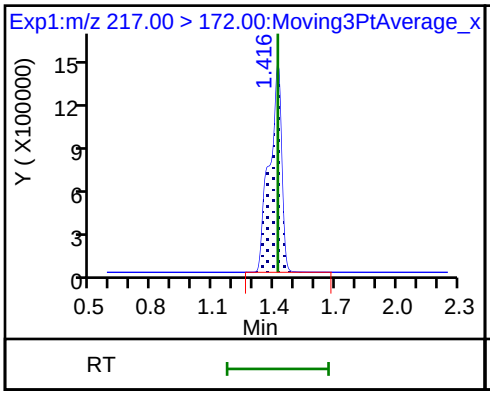
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3

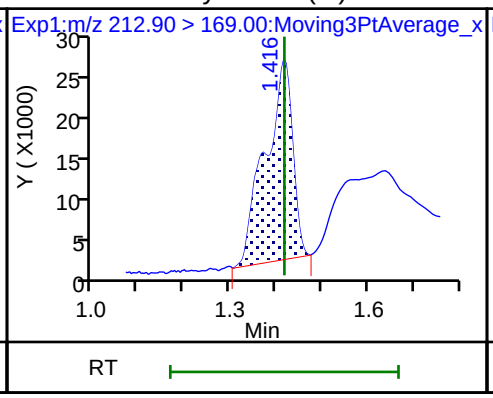
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

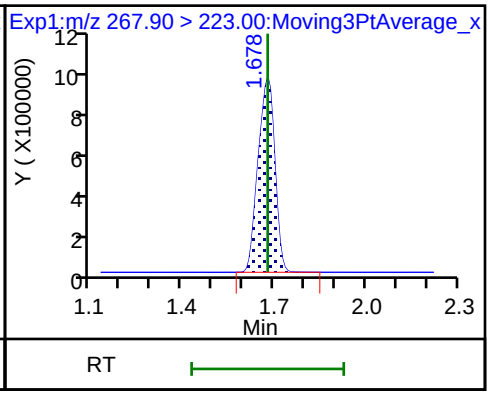
D 1 13C4 PFBA



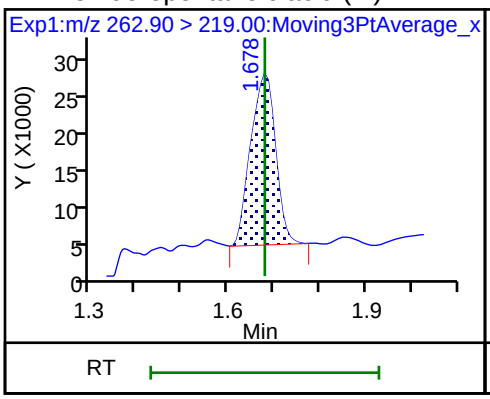
2 Perfluorobutyric acid (M)



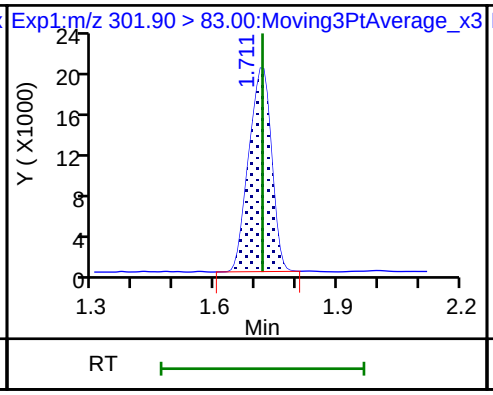
D 3 13C5-PFPeA



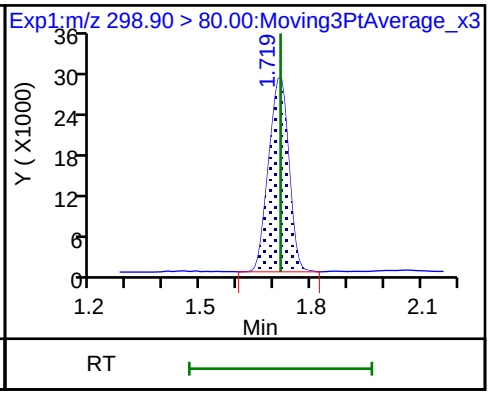
4 Perfluoropentanoic acid (M)



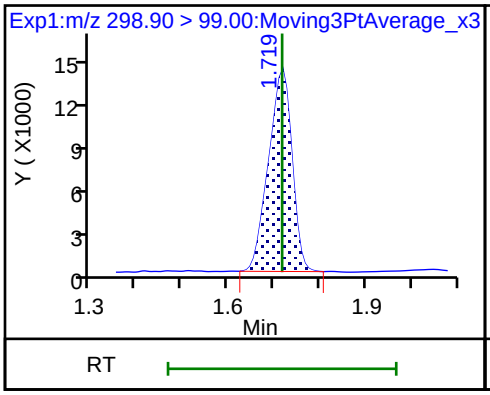
D 47 13C3-PFBS



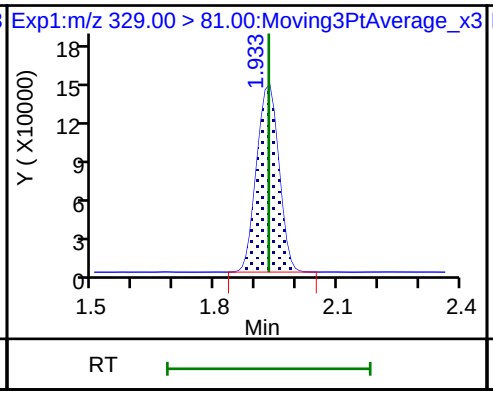
5 Perfluorobutanesulfonic acid



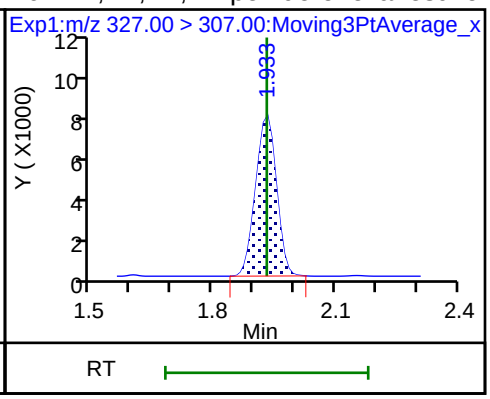
5 Perfluorobutanesulfonic acid



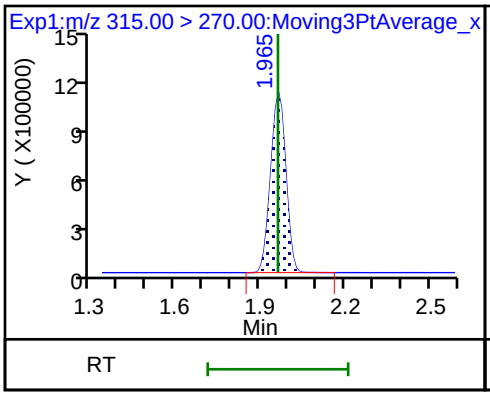
D 60 M2-4:2FTS



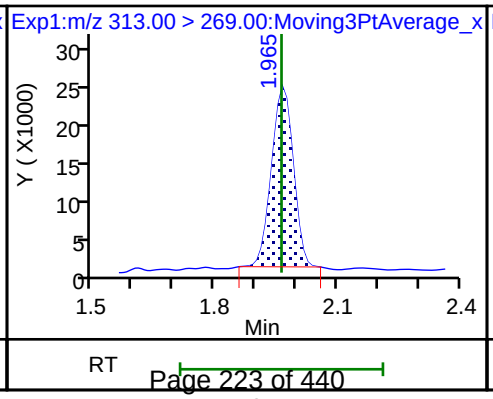
61 1H,1H,2H,2H-perfluorohexanesulfoni



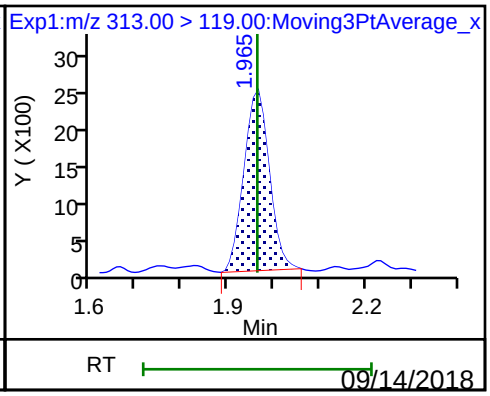
D 7 13C2 PFHxA



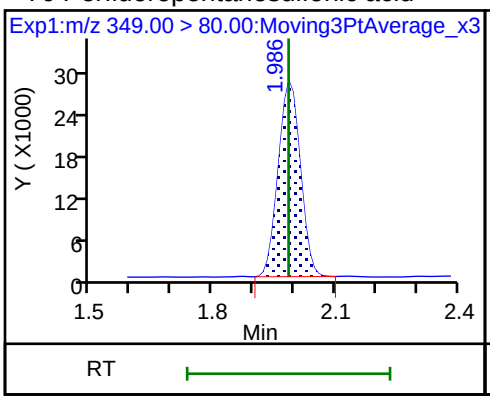
6 Perfluorohexanoic acid



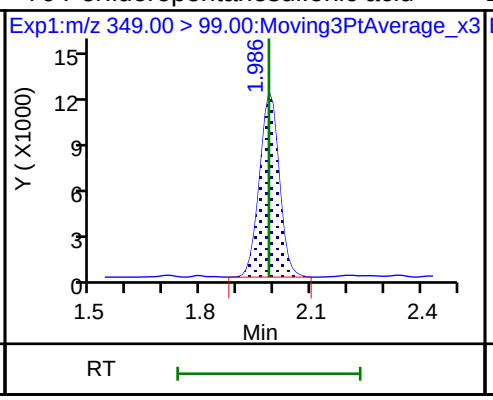
6 Perfluorohexanoic acid



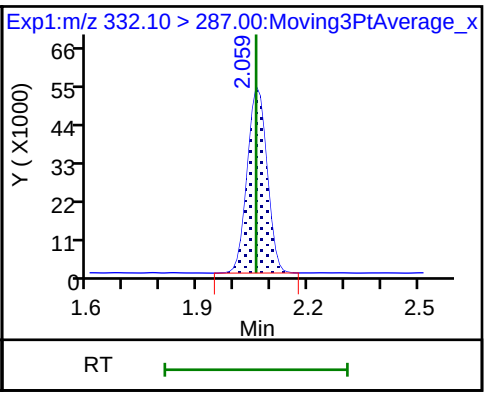
70 Perfluoropentanesulfonic acid



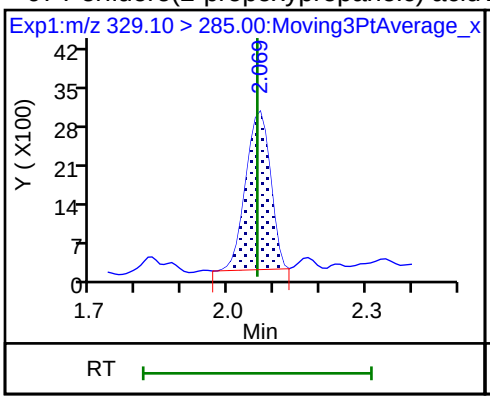
70 Perfluoropentanesulfonic acid



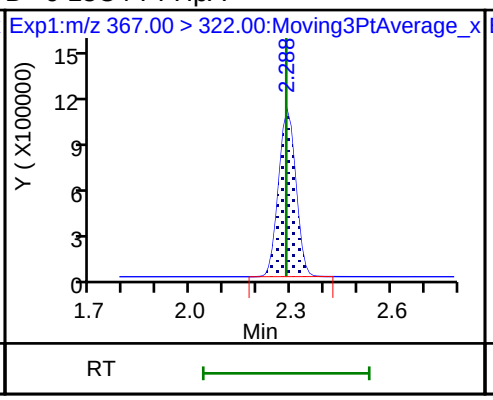
D 64 13C3 HFPO-DA



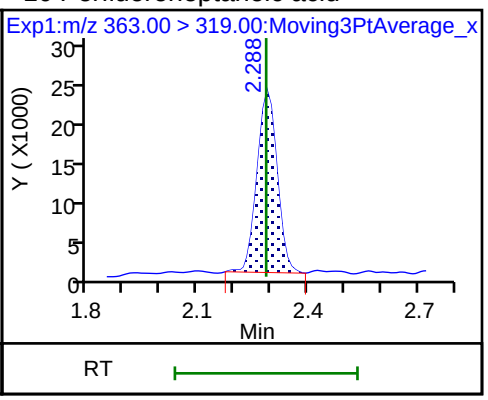
67 Perfluoro(2-propoxypropanoic) acid



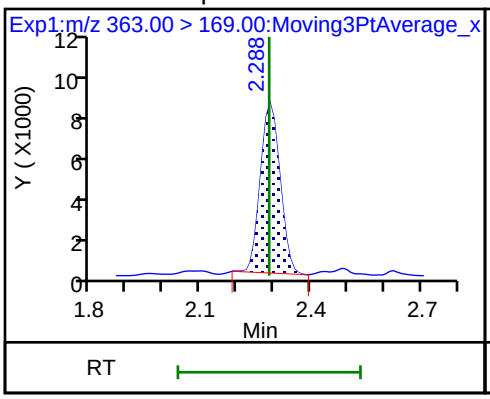
D 9 13C4-PFHpA



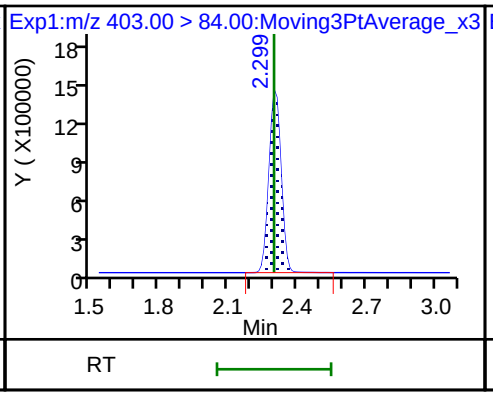
10 Perfluoroheptanoic acid



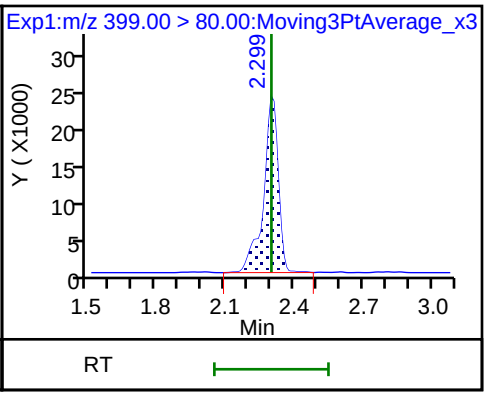
10 Perfluoroheptanoic acid



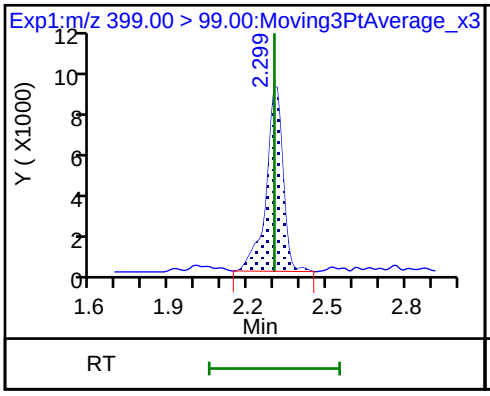
D 11 18O2 PFHxS



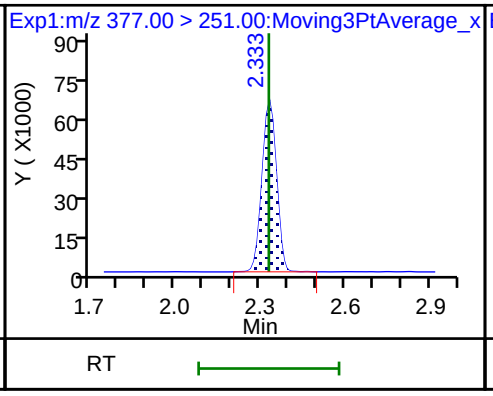
8 Perfluorohexanesulfonic acid



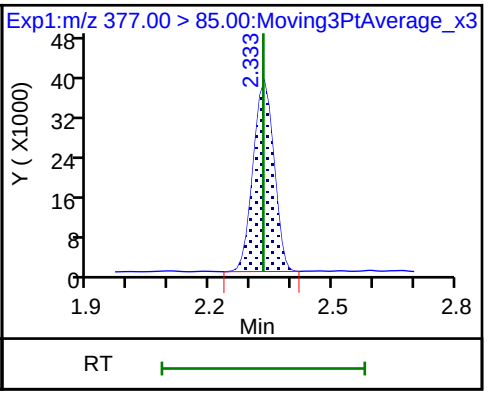
8 Perfluorohexanesulfonic acid



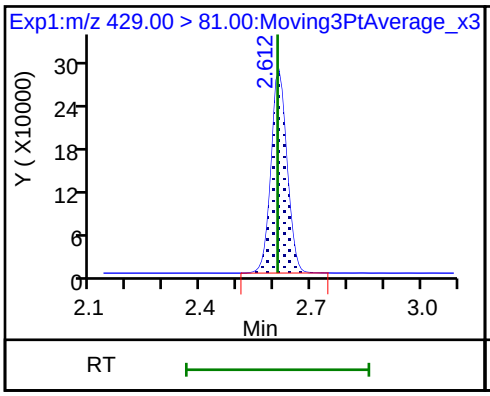
77 DONA



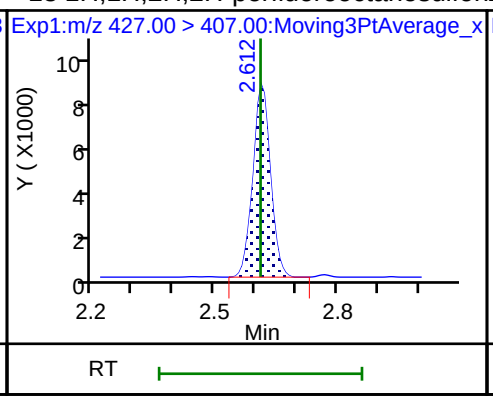
77 DONA



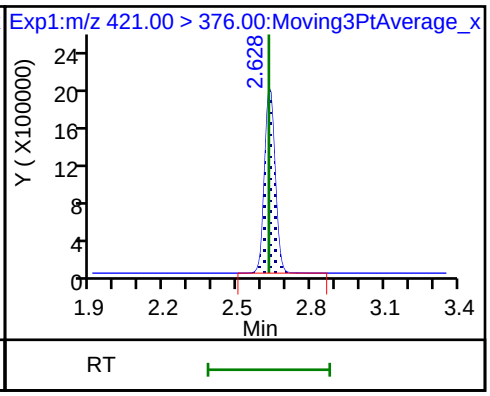
D 12 M2-6:2FTS



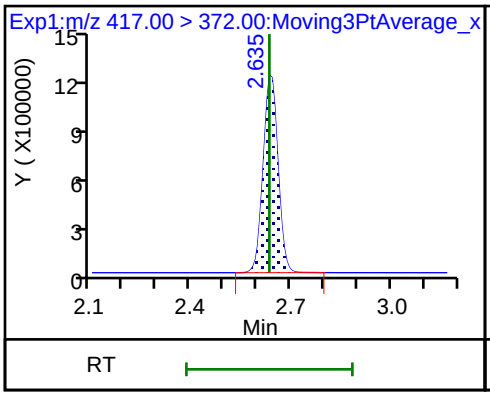
13 1H,1H,2H,2H-perfluorooctanesulfon



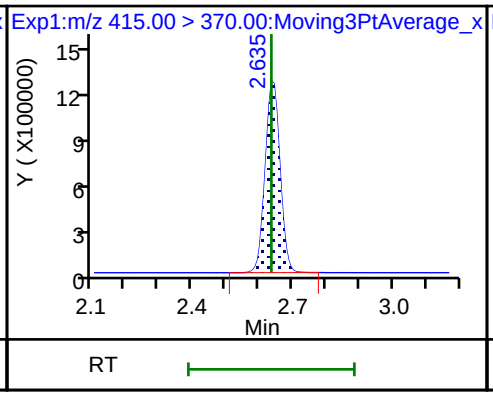
D 73 13C8 PFOA



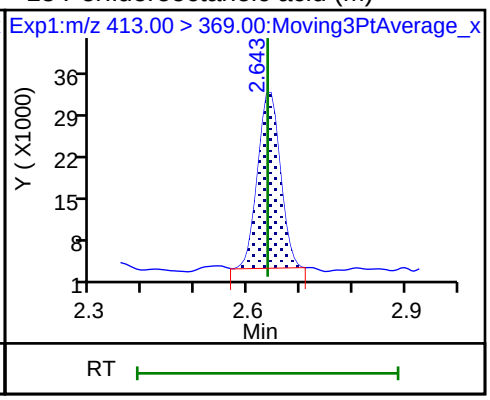
D 14 13C4 PFOA



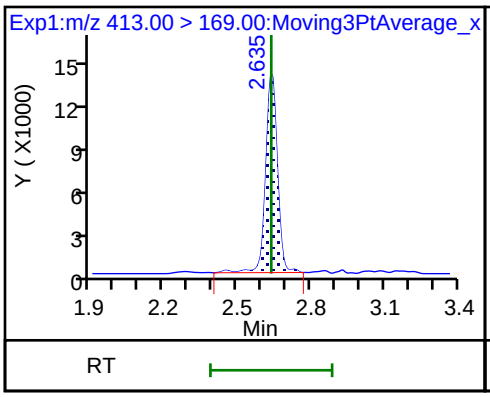
* 62 13C2-PFOA



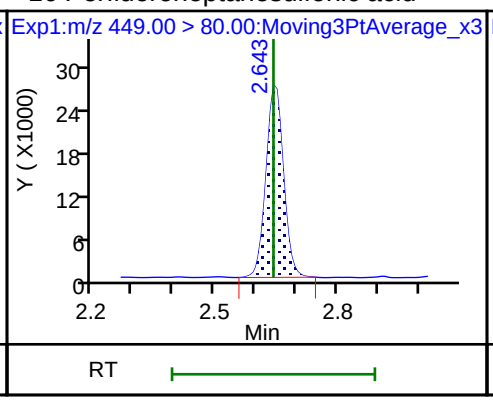
15 Perfluorooctanoic acid (M)



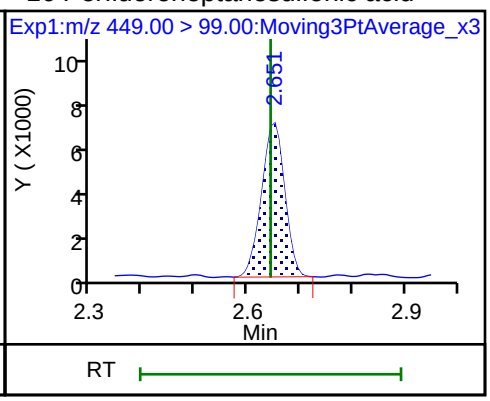
15 Perfluorooctanoic acid



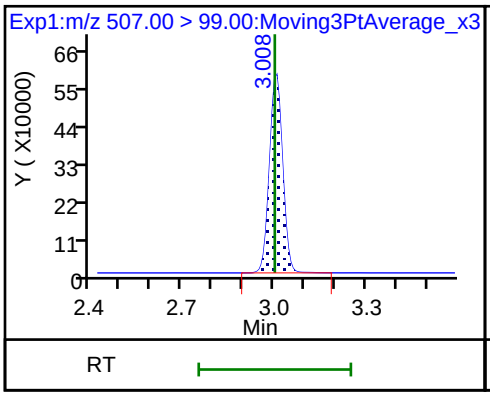
16 Perfluoroheptanesulfonic acid



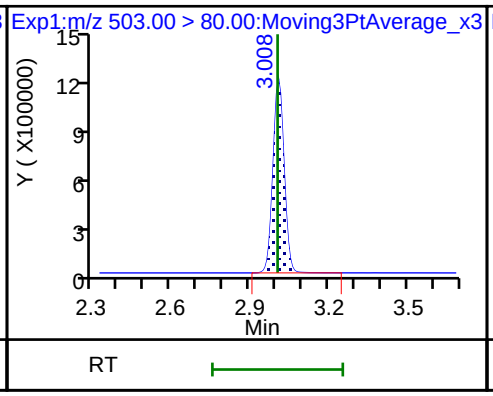
16 Perfluoroheptanesulfonic acid



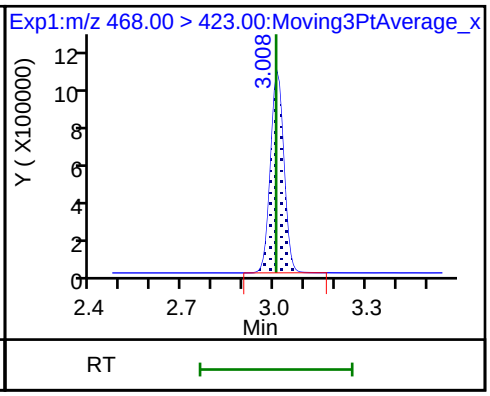
D 72 13C8 PFOS



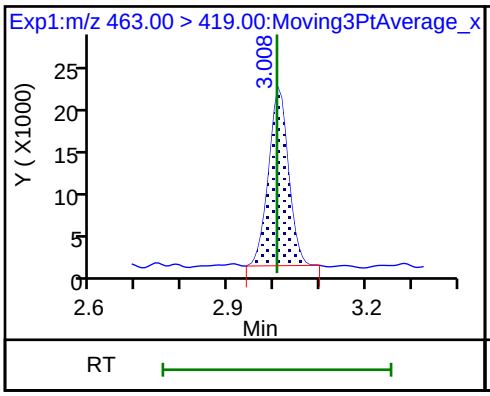
D 18 13C4 PFOS



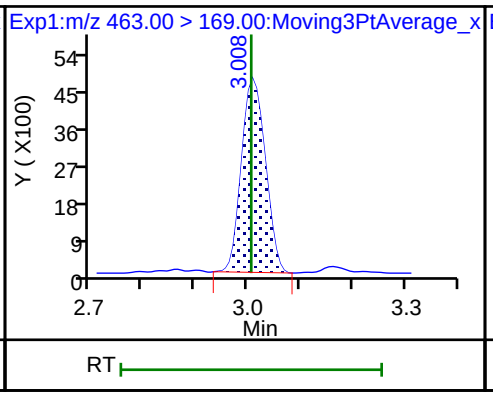
D 19 13C5 PFNA



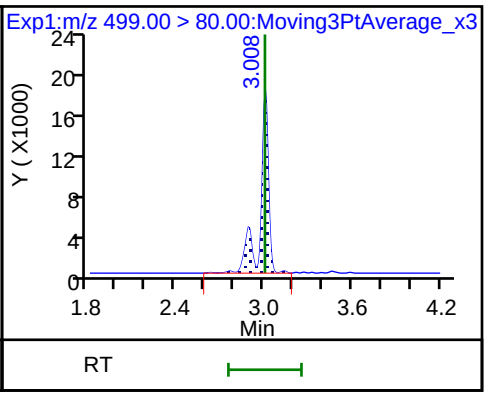
20 Perfluorononanoic acid



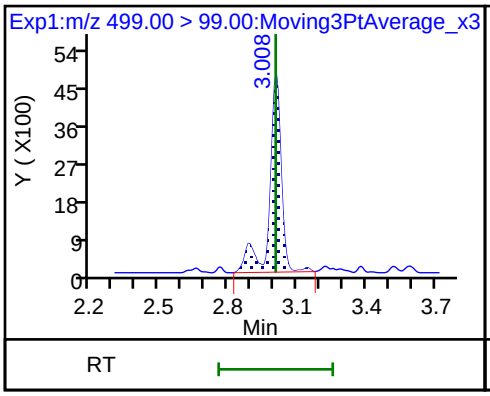
20 Perfluorononanoic acid



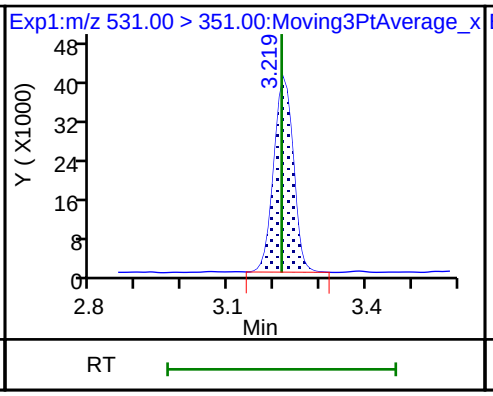
17 Perfluorooctane sulfonic acid



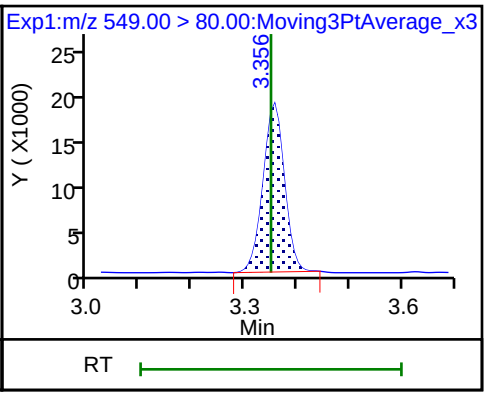
17 Perfluorooctane sulfonic acid



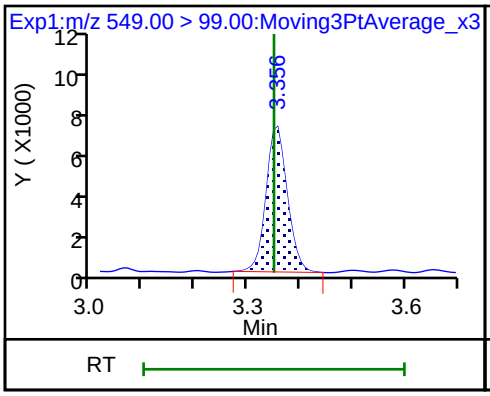
69 9-Chlorohexadecafluoro-3-oxanonane



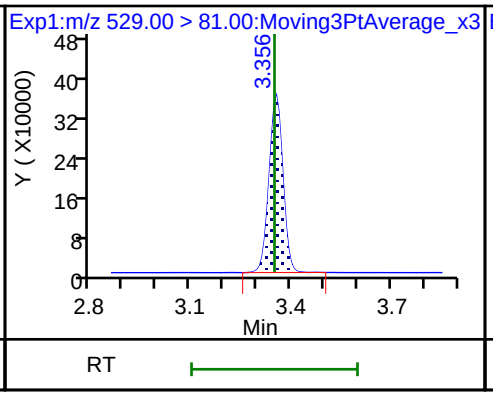
68 Perfluorononanesulfonic acid



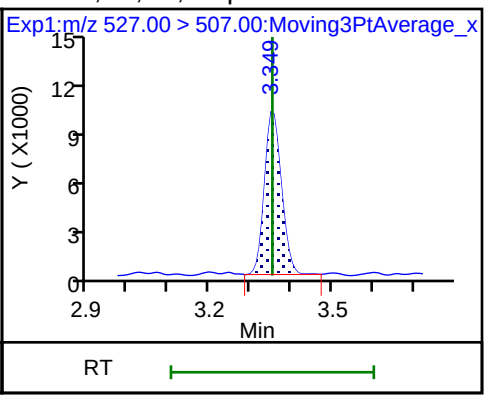
68 Perfluorononanesulfonic acid



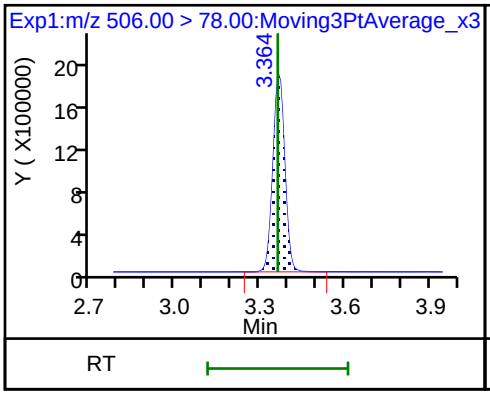
D 26 M2-8:2FTS



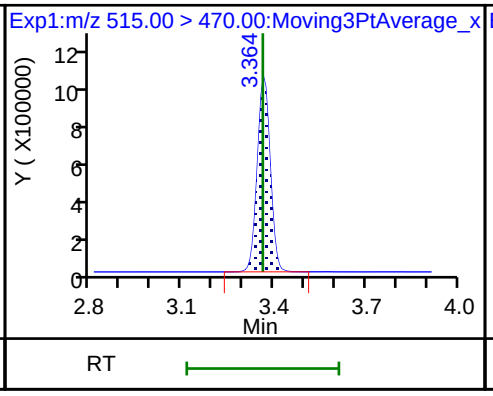
25 1H,1H,2H,2H-perfluorodecanesulfoni



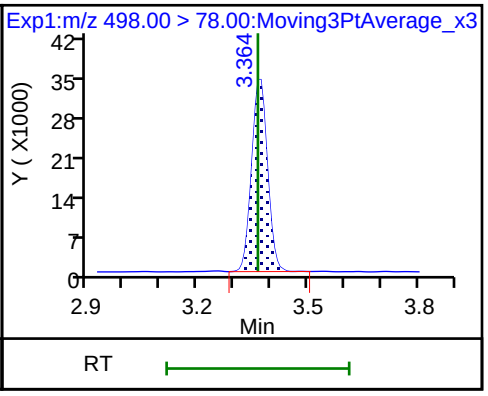
D 21 13C8 FOSA



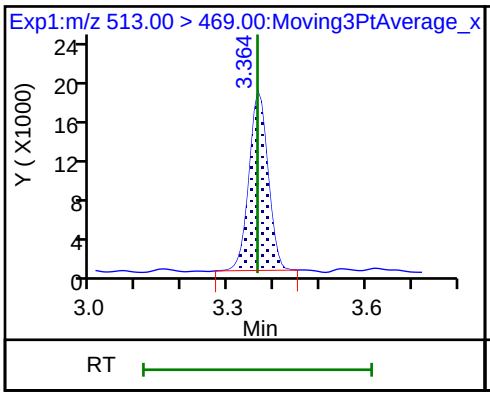
D 23 13C2 PFDA



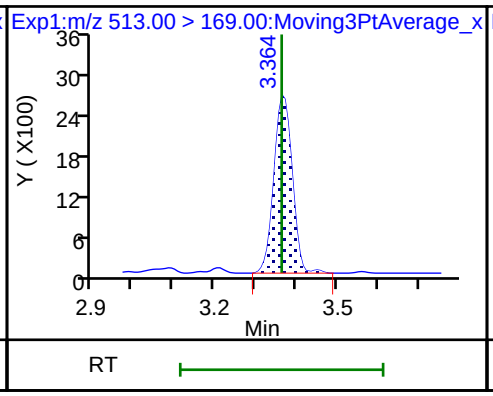
22 Perfluorooctane Sulfonamide



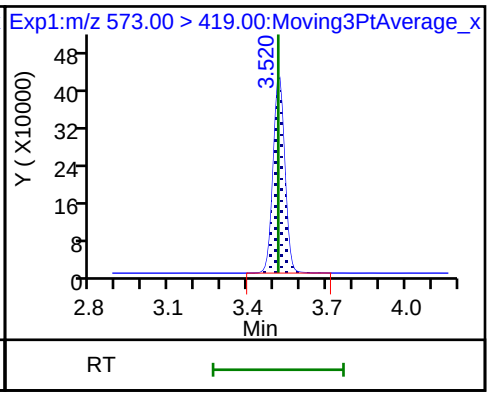
24 Perfluorodecanoic acid



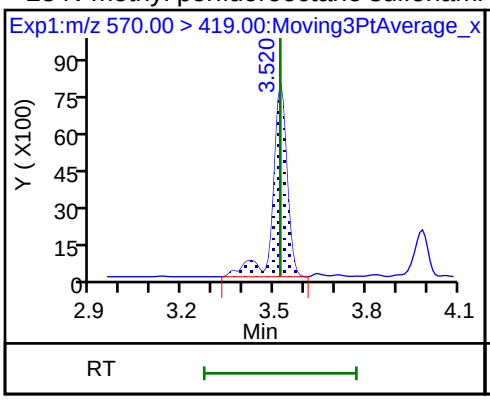
24 Perfluorodecanoic acid



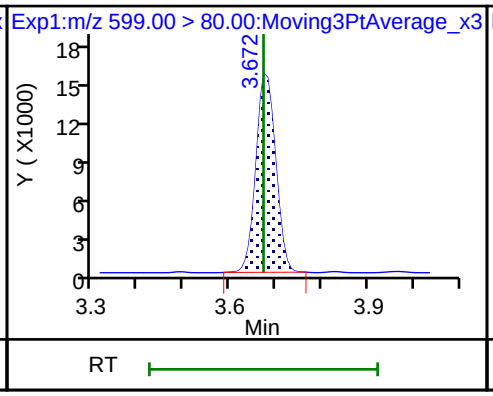
D 27 d3-NMeFOSAA



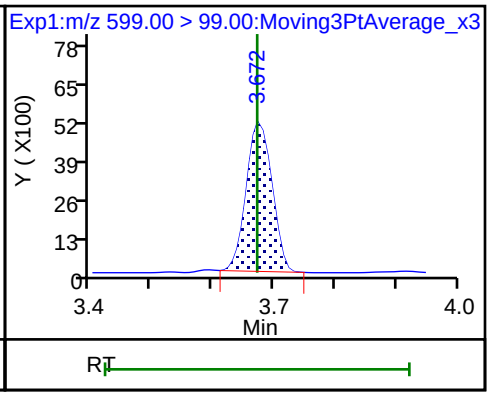
28 N-methyl perfluorooctane sulfonami



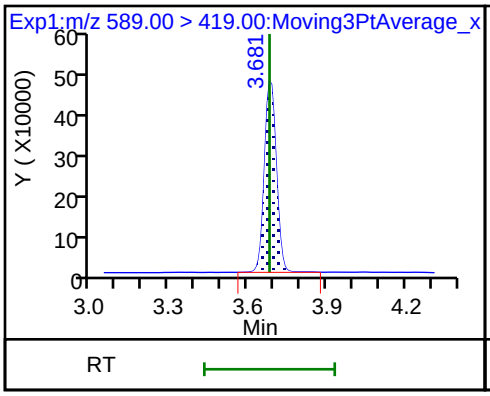
29 Perfluorodecane Sulfonic acid



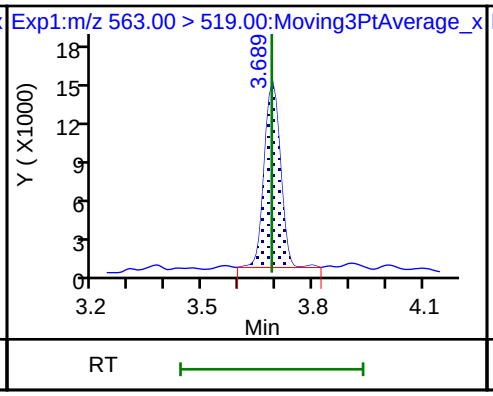
29 Perfluorodecane Sulfonic acid



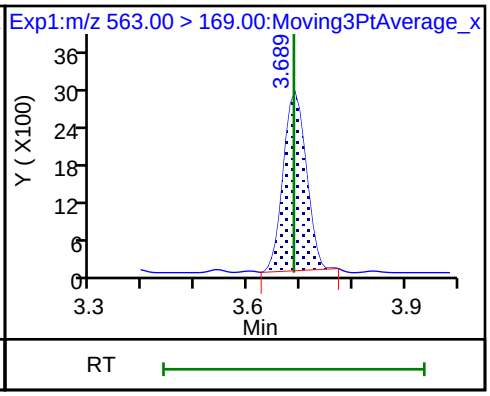
D 32 d5-NEtFOSAA



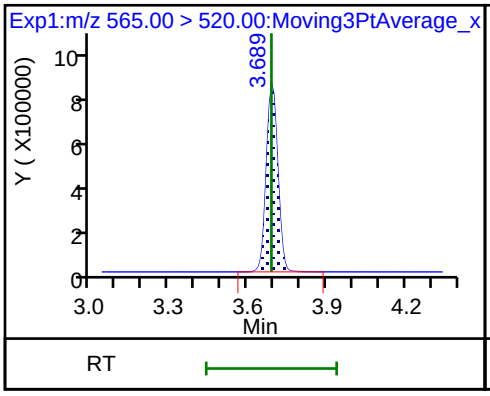
31 Perfluoroundecanoic acid



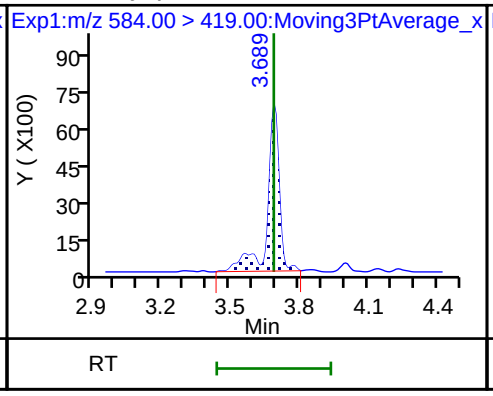
31 Perfluoroundecanoic acid



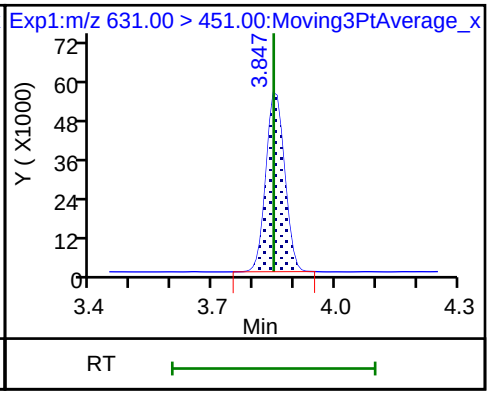
D 30 13C2 PFUnA



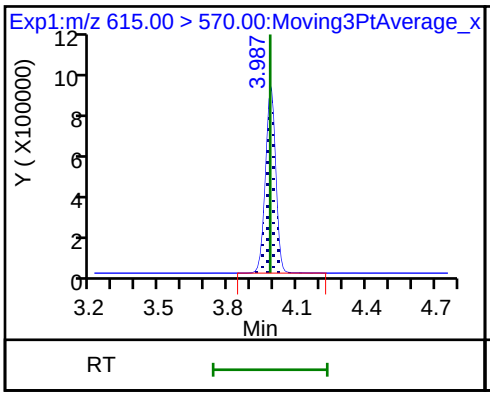
33 N-ethyl perfluorooctane sulfonamid



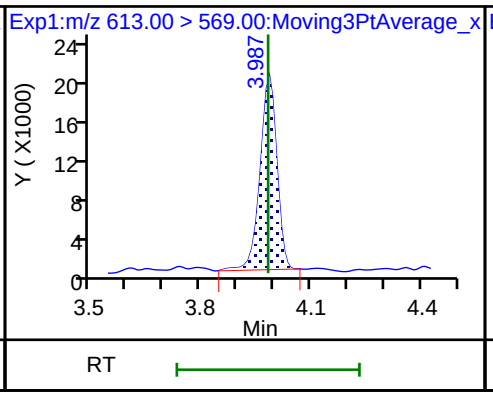
66 11-Chloroeicosafluoro-3-oxaundecan



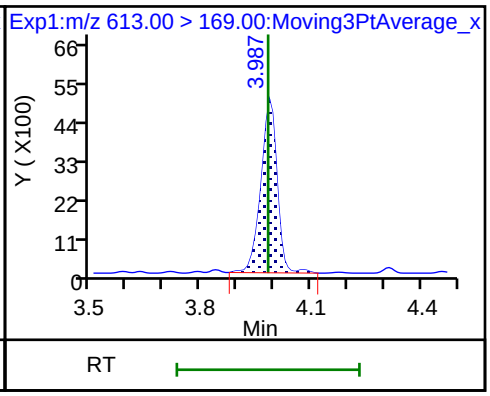
D 36 13C2 PFDoA



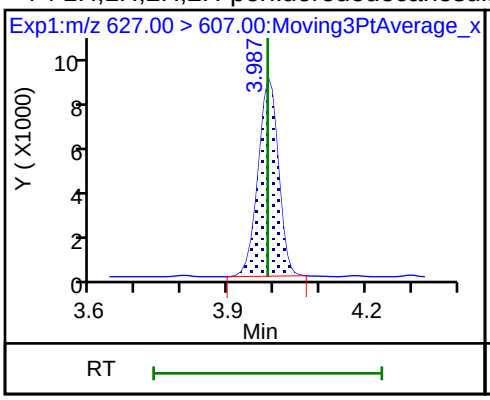
37 Perfluorododecanoic acid



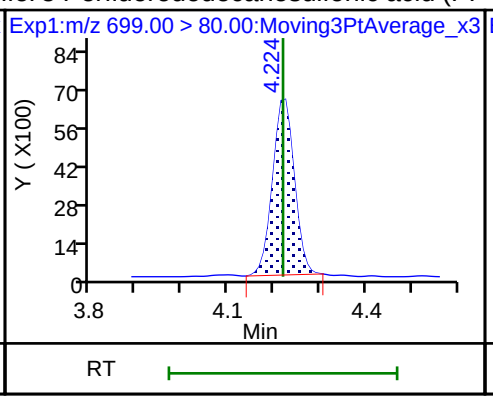
37 Perfluorododecanoic acid



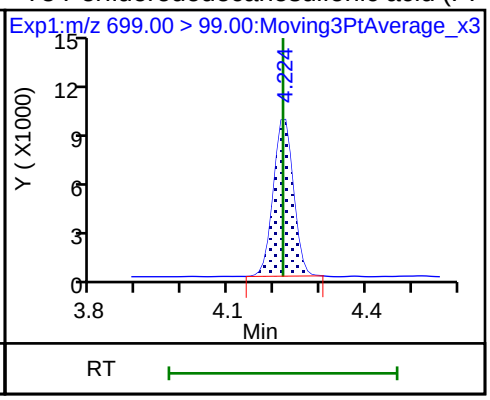
74 1H,1H,2H,2H-perfluorododecanesulfo



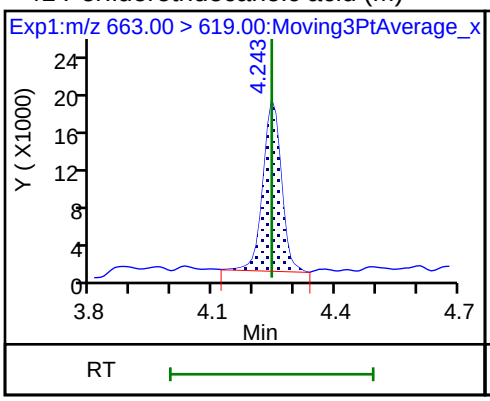
75 Perfluorododecanesulfonic acid (PF



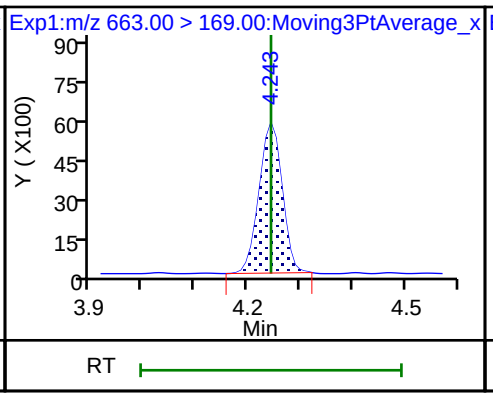
75 Perfluorododecanesulfonic acid (PF



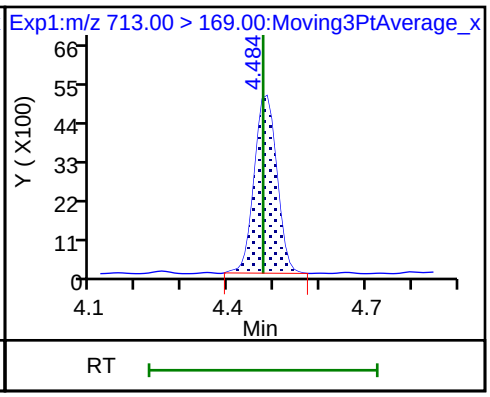
41 Perfluorotridecanoic acid (M)



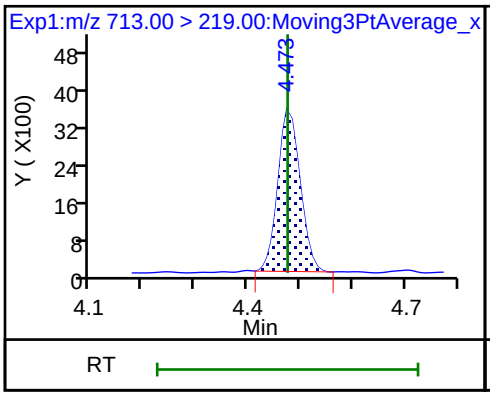
41 Perfluorotridecanoic acid



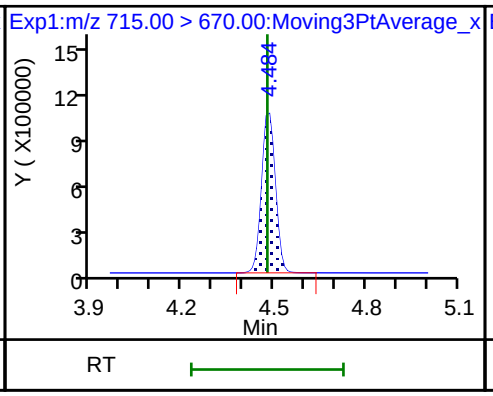
42 Perfluorotetradecanoic acid



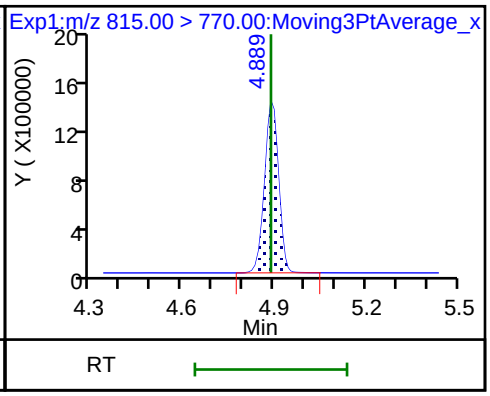
42 Perfluorotetradecanoic acid



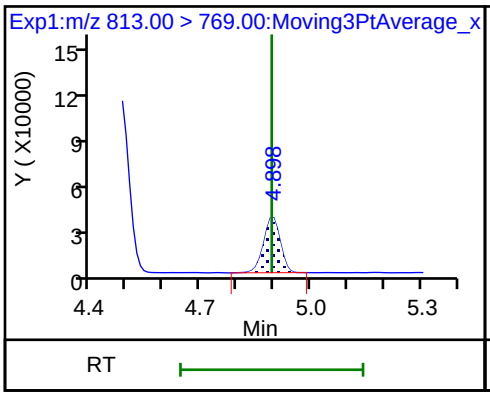
D 43 13C2-PFTeDA



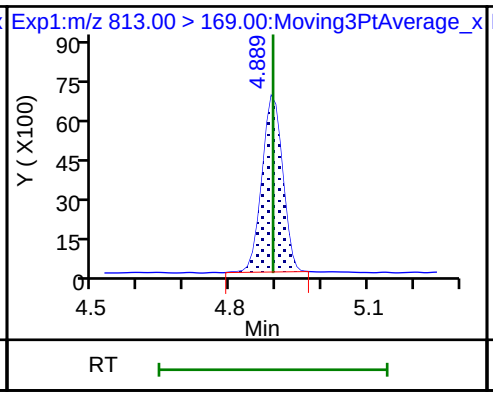
D 44 13C2-PFHxDA



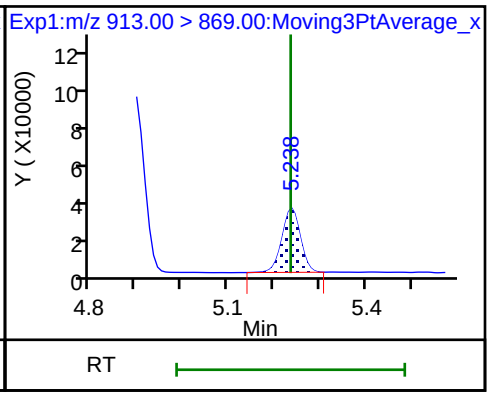
45 Perfluorohexadecanoic acid



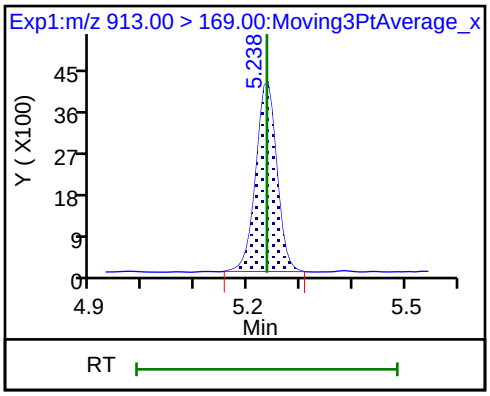
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

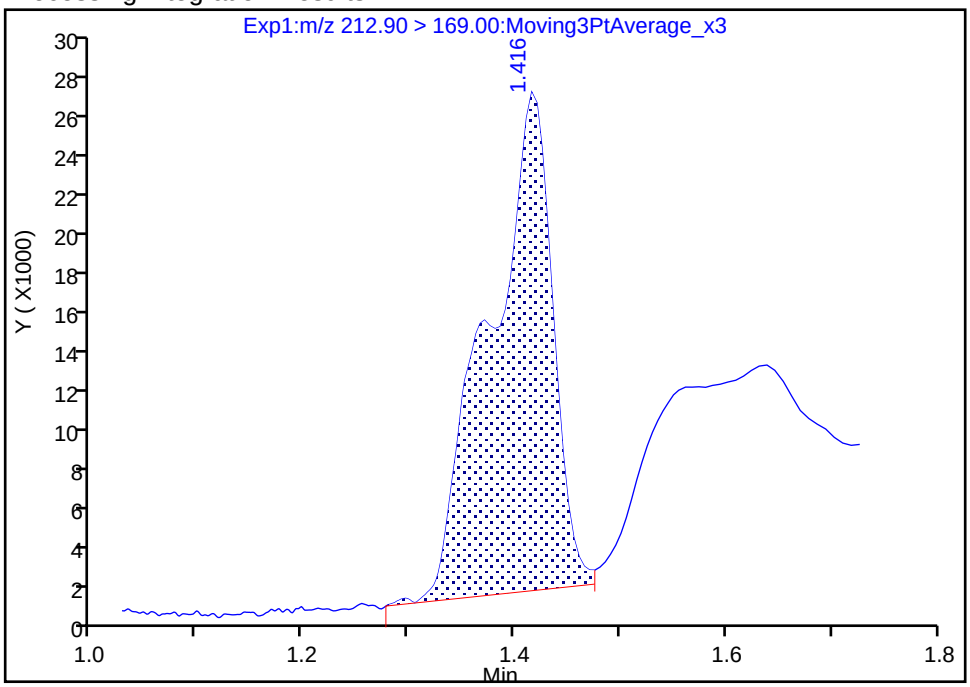
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_003.d
Injection Date: 29-Aug-2018 12:37:35 Instrument ID: A8_N
Lims ID: IC L2 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

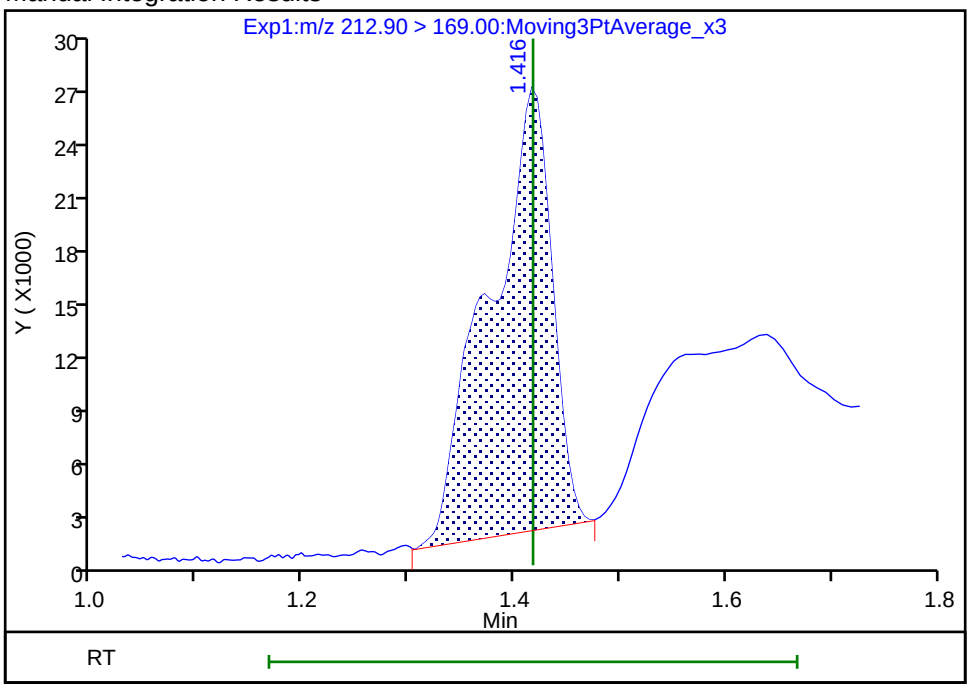
Processing Integration Results

RT: 1.42
Area: 103590
Amount: 0.050824
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 99994
Amount: 0.049308
Amount Units: ng/ml



Reviewer: roycea, 29-Aug-2018 15:52:23
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

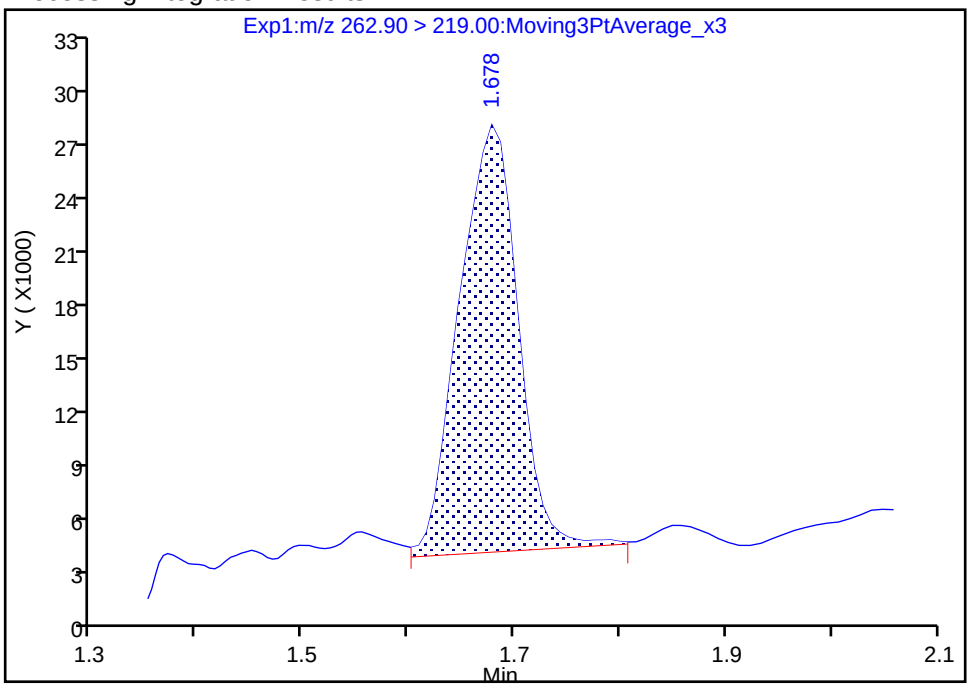
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_003.d
Injection Date: 29-Aug-2018 12:37:35 Instrument ID: A8_N
Lims ID: IC L2 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

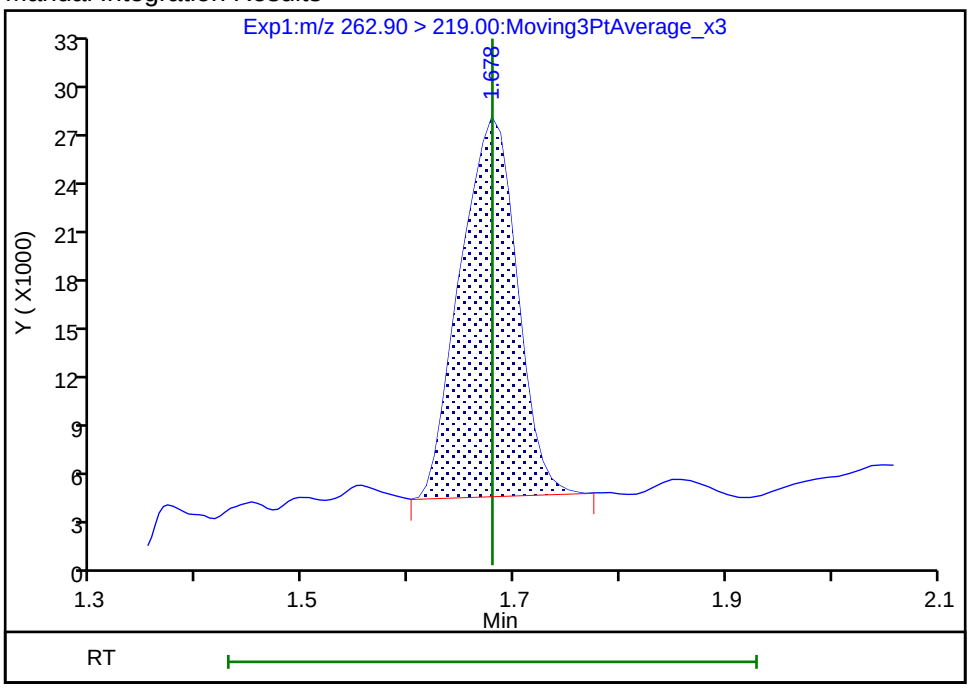
Processing Integration Results

RT: 1.68
Area: 92006
Amount: 0.054006
Amount Units: ng/ml



Manual Integration Results

RT: 1.68
Area: 87290
Amount: 0.051646
Amount Units: ng/ml



Reviewer: roycea, 29-Aug-2018 15:52:31
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

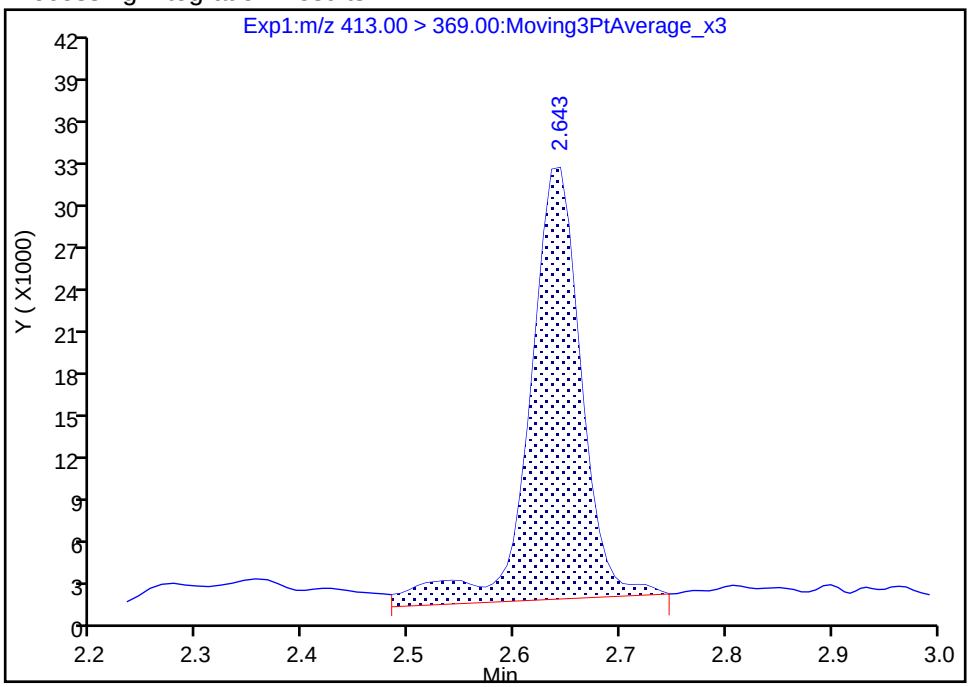
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_003.d
Injection Date: 29-Aug-2018 12:37:35 Instrument ID: A8_N
Lims ID: IC L2 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

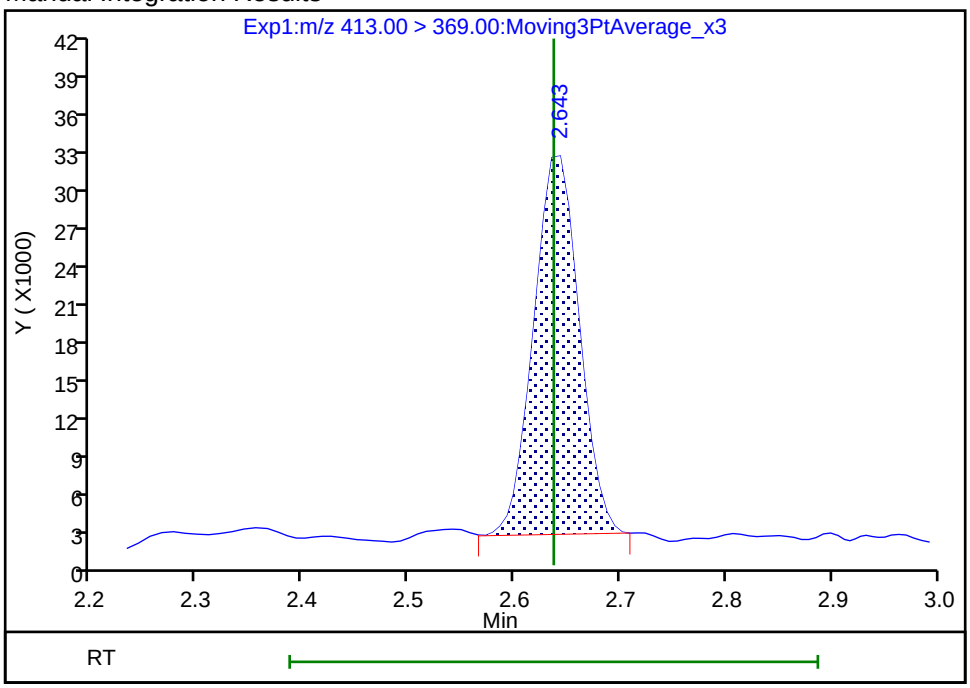
Processing Integration Results

RT: 2.64
Area: 106540
Amount: 0.060790
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 90355
Amount: 0.053175
Amount Units: ng/ml



Reviewer: roycea, 29-Aug-2018 15:50:09
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento

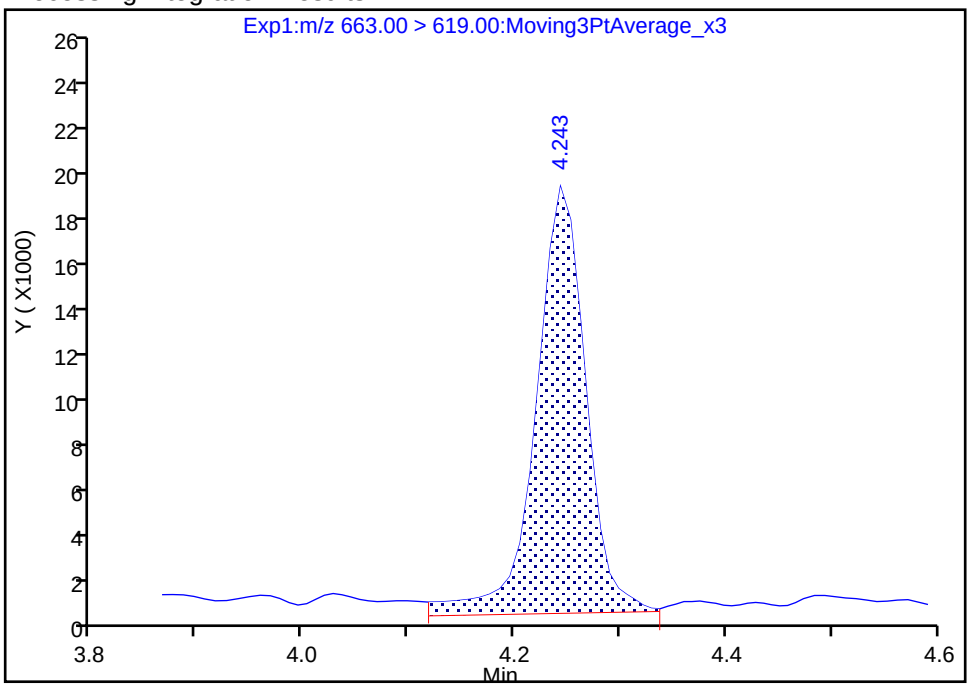
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_003.d
Injection Date: 29-Aug-2018 12:37:35 Instrument ID: A8_N
Lims ID: IC L2 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

41 Perfluorotridecanoic acid, CAS: 72629-94-8

Signal: 1

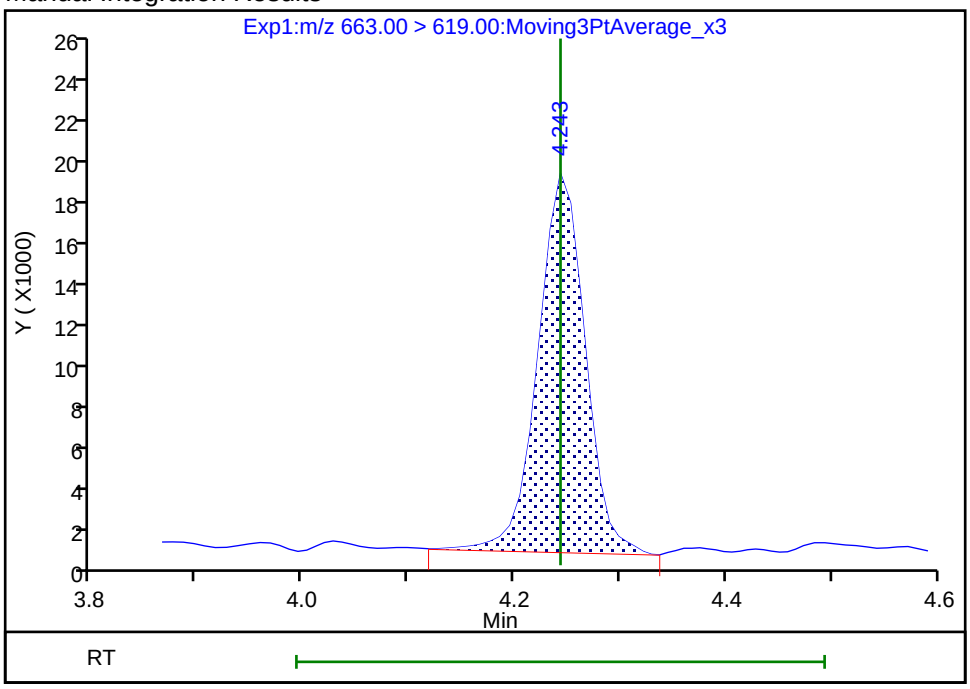
Processing Integration Results

RT: 4.24
Area: 62023
Amount: 0.054416
Amount Units: ng/ml



Manual Integration Results

RT: 4.24
Area: 57565
Amount: 0.051076
Amount Units: ng/ml



Reviewer: roycea, 29-Aug-2018 15:52:59
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_004.d
Lims ID: IC L3 Full
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 29-Aug-2018 12:45:26 ALS Bottle#: 12 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L3-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 29-Aug-2018 16:08:24 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK020

First Level Reviewer: roycea Date: 29-Aug-2018 14:52:11

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.414	1.417	-0.003	0.537	5664603	2.47		98.9	9004	
2 Perfluorobutyric acid										
212.90 > 169.00	1.414	1.417	-0.003	1.000	498575	0.2476		99.0	55.1	
D 3 13C5-PFPeA										
267.90 > 223.00	1.676	1.678	-0.002	0.637	3672678	2.53		101	7849	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.676	1.679	-0.003	1.000	390426	0.2305		92.2	25.9	
D 47 13C3-PFBS										
301.90 > 83.00	1.708	1.716	-0.008	0.649	77121	2.25		96.8	384	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.708	1.717	-0.009	1.000	556521	0.2241		101	1244	
298.90 > 99.00	1.708	1.717	-0.009	1.000	235968		2.36(1.25-3.74)	101	555	
D 60 M2-4:2FTS										
329.00 > 81.00	1.928	1.931	-0.003	0.733	546154	2.39		102	1478	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.928	1.931	-0.003	1.129	116781	0.2288		98.0	1828	
D 7 13C2 PFHxA										
315.00 > 270.00	1.960	1.963	-0.003	0.745	3961600	2.44		97.5	11564	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.960	1.963	-0.003	1.000	409557	0.2567		103	206	
313.00 > 119.00	1.960	1.963	-0.003	1.000	36157		11.33(5.03-15.10)	103	230	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.981	1.985	-0.004	1.160	561933	0.2456		105	3244	
349.00 > 99.00	1.981	1.985	-0.004	1.160	209832		2.68(1.36-4.07)	105	1199	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.054	2.058	-0.004	0.780	191754	2.45		98.2	693	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.054	2.063	-0.009	1.000	61570	0.2535		101	90.4	
D 9 13C4-PFHpA										
367.00 > 322.00	2.281	2.286	-0.005	0.867	3912524	2.55		102	14384	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.281	2.286	-0.005	1.000	398511	0.2325		93.0	193	
363.00 > 169.00	2.281	2.286	-0.005	1.000	171847		2.32(1.13-3.40)	93.0	344	
D 11 18O2 PFHxS										
403.00 > 84.00	2.292	2.298	-0.006	0.871	4779192	2.35		99.2	10637	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.303	2.300	0.003	1.005	458102	0.2072		91.1	1534	
399.00 > 99.00	2.292	2.300	-0.008	1.000	169045		2.71(1.50-4.49)	91.1	268	
77 DONA										
377.00 > 251.00	2.325	2.330	-0.005	0.774	1159616	0.2523		107	5487	
377.00 > 85.00	2.325	2.330	-0.005	0.774	684041		1.70(0.85-2.54)	107	1072	
D 12 M2-6:2FTS										
429.00 > 81.00	2.601	2.609	-0.008	0.988	811184	2.34		98.4	3922	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.609	2.611	-0.002	1.003	137275	0.2673		113	975	
D 73 13C8 PFOA										
421.00 > 376.00	2.624	2.627	-0.003	0.997	5992728	2.46		101	11613	
D 14 13C4 PFOA										
417.00 > 372.00	2.632	2.635	-0.003	1.000	3681191	2.52		101	6955	
* 62 13C2-PFOA										
415.00 > 370.00	2.632	2.635	-0.003		3708725	2.50			6684	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.632	2.637	-0.005	1.000	396325	0.2381		95.2	63.7	M
413.00 > 169.00	2.632	2.637	-0.005	1.000	205636		1.93(0.84-2.52)	95.2	570	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.639	2.643	-0.004	0.878	394319	0.2363		99.3	1981	
449.00 > 99.00	2.639	2.643	-0.004	0.878	114985		3.43(1.94-5.82)	99.3	585	
D 72 13C8 PFOS										
507.00 > 99.00	2.998	3.001	-0.003	1.139	1666225	2.34		97.9	4844	
D 18 13C4 PFOS										
503.00 > 80.00	3.005	3.004	0.001	1.142	3274486	2.35		98.4	6095	
D 19 13C5 PFNA										
468.00 > 423.00	3.005	3.006	-0.001	1.142	3004975	2.50		100	7823	
20 Perfluorononanoic acid										
463.00 > 419.00	3.005	3.006	-0.001	1.000	301426	0.2413		96.5	103	
463.00 > 169.00	3.005	3.006	-0.001	1.000	72899		4.13(1.90-5.69)	96.5	582	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.005	3.006	-0.001	1.000	344210	0.2284		98.5	1645	
499.00 > 99.00	3.005	3.006	-0.001	1.000	76079		4.52(2.31-6.93)	98.5	319	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.217	3.216	0.001	1.071	567995	0.2285		98.1	1621	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.346	3.349	-0.003	1.114	254352	0.2305		96.0	1597	
549.00 > 99.00	3.346	3.349	-0.003	1.114	96624		2.63(1.33-3.97)	96.0	394	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 26 M2-8:2FTS										
529.00 > 81.00	3.346	3.350	-0.004	1.272	993365	2.46		103	3131	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.354	3.352	0.002	1.002	130727	0.2431		102	502	
D 21 13C8 FOSA										
506.00 > 78.00	3.361	3.362	-0.001	1.277	5278651	2.56		102	8165	
D 23 13C2 PFDA										
515.00 > 470.00	3.361	3.362	-0.001	1.277	2901357	2.60		104	6173	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.361	3.363	-0.002	1.000	506317	0.2486		99.5	2388	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.361	3.363	-0.002	1.000	282208	0.2503		100	411	
513.00 > 169.00	3.361	3.363	-0.002	1.000	49269		5.73(2.36-7.09)	100	177	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.512	3.515	-0.003	1.335	1249855	2.41		96.3	3758	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.520	3.519	0.001	1.002	119967	0.2478		99.1	110	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.672	3.672	0.0	1.222	217765	0.2238		92.9	1085	
599.00 > 99.00	3.672	3.672	0.0	1.222	79866		2.73(1.39-4.16)	92.9	567	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.681	3.681	0.0	1.399	1512664	2.65		106	569	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.689	3.687	0.002	1.000	220425	0.2432		97.3	201	
563.00 > 169.00	3.689	3.687	0.002	1.000	49939		4.41(2.12-6.36)	97.3	509	
D 30 13C2 PFUnA										
565.00 > 520.00	3.689	3.689	0.0	1.402	2479464	2.58		103	7817	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.689	3.689	0.0	1.002	115557	0.2275		91.0	472	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.847	3.848	-0.001	1.280	938896	0.2491		106	5635	
35 MeFOSA										
512.00 > 169.00	3.866	3.867	-0.001		120650	NC			415	
D 36 13C2 PFDoA										
615.00 > 570.00	3.978	3.982	-0.004	1.512	2579877	2.51		100	5565	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.978	3.983	-0.005	1.000	274538	0.2427		97.1	233	
613.00 > 169.00	3.978	3.983	-0.005	1.000	68794		3.99(2.13-6.40)	97.1	567	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.987	3.985	0.002	1.191	117362	0.2371		98.4	1155	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.215	4.219	-0.004	1.403	94917	0.2338		96.6	736	
699.00 > 99.00	4.215	4.219	-0.004	1.403	127962		0.74(0.00-0.00)	96.6	1144	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.243	4.243	0.0	1.067	267782	0.2495		99.8	87.5	
663.00 > 169.00	4.243	4.243	0.0	1.067	80049		3.35(1.25-3.76)	99.8	714	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.473	4.475	-0.002	1.000	76958	0.2541		102	1137	
713.00 > 219.00	4.466	4.475	-0.009	0.998	47879		1.61(0.71-2.13)	102	806	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.473	4.477	-0.004	1.700	3032464	2.46		98.4	5310	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.889	4.889	0.0	1.858	4364068	2.45		98.2	6069	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.889	4.893	-0.004	1.000	418012	0.2468		98.7	51.9	
813.00 > 169.00	4.889	4.893	-0.004	1.000	73788		5.67(2.86-8.58)	98.7	603	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.231	5.236	-0.005	1.070	433212	0.2479		99.2	30.2	
913.00 > 169.00	5.231	5.236	-0.005	1.070	53600		8.08(3.83-11.48)	99.2	508	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL3_00009 Amount Added: 1.00 Units: mL

Report Date: 29-Aug-2018 16:08:27 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_004.d

Injection Date: 29-Aug-2018 12:45:26 Instrument ID: A8_N

Lims ID: IC L3 Full

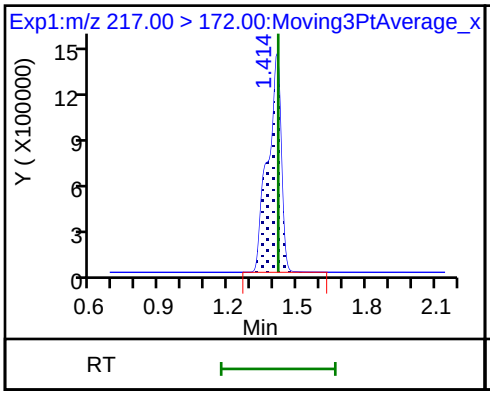
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 12 Worklist Smp#: 4

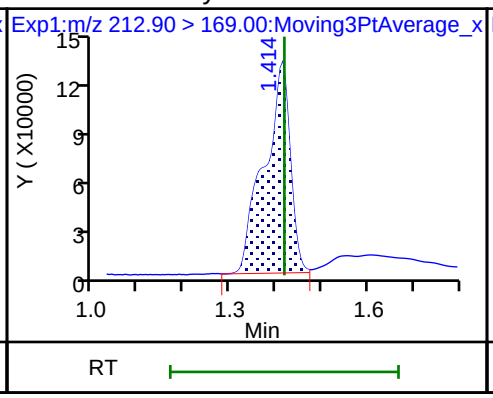
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

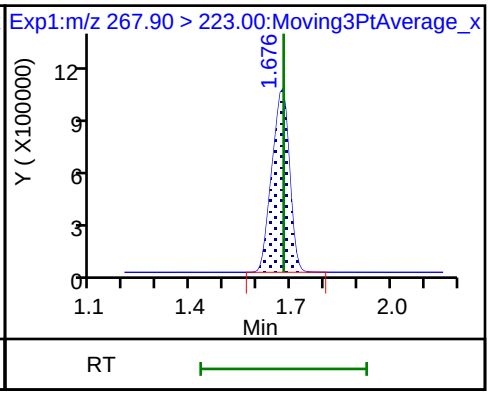
D 1 13C4 PFBA



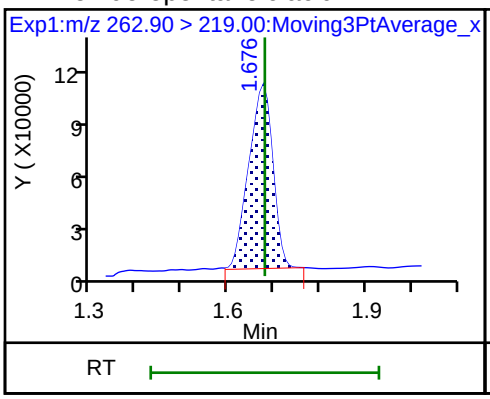
2 Perfluorobutyric acid



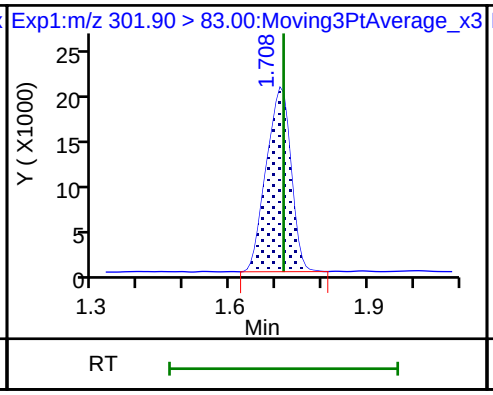
D 3 13C5-PFPeA



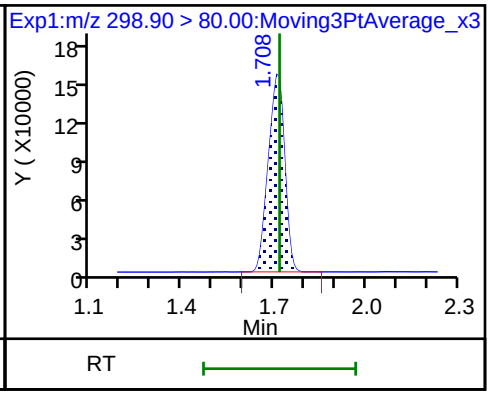
4 Perfluoropentanoic acid



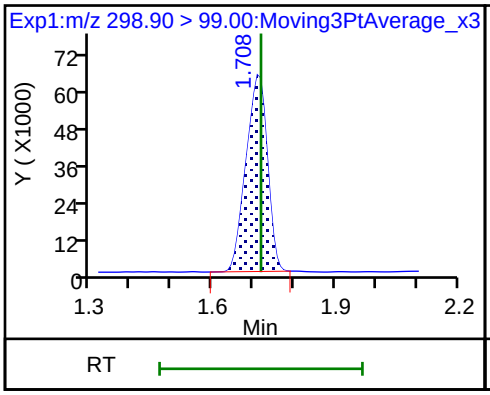
D 47 13C3-PFBS



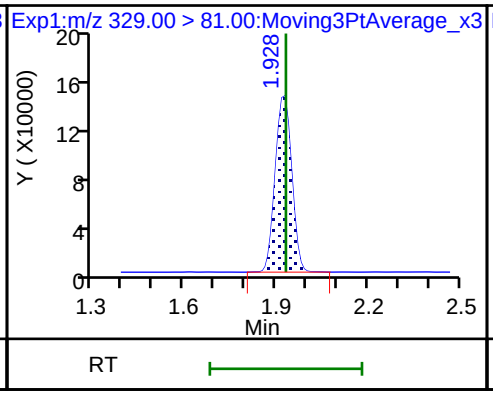
5 Perfluorobutanesulfonic acid



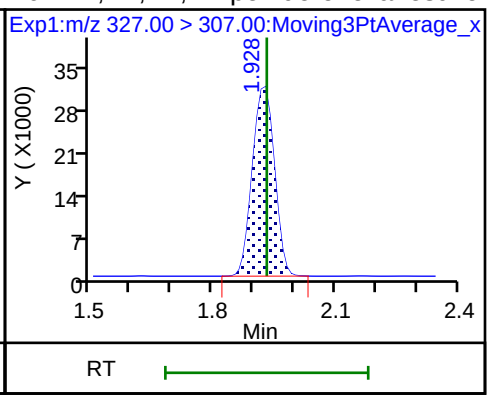
5 Perfluorobutanesulfonic acid



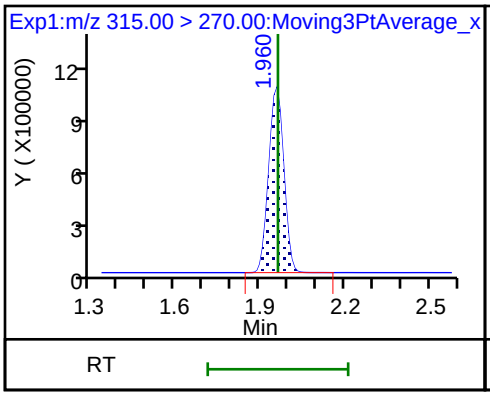
D 60 M2-4:2FTS



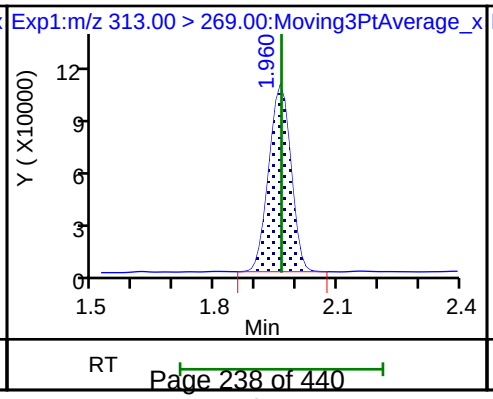
61 1H,1H,2H,2H-perfluorohexanesulfoni



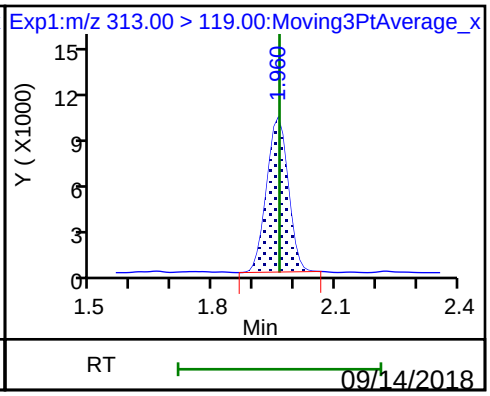
D 7 13C2 PFHxA



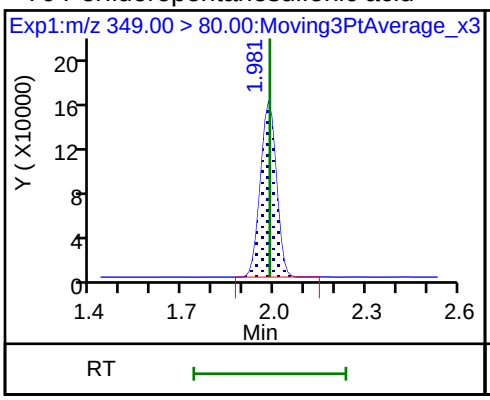
6 Perfluorohexanoic acid



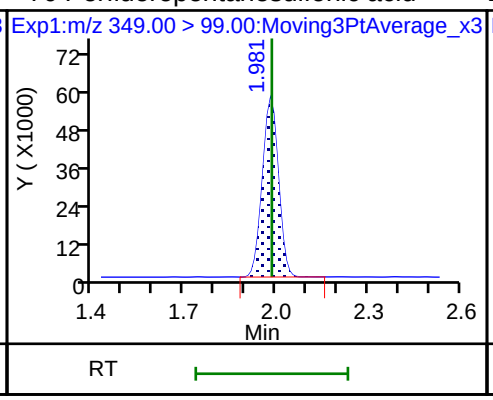
6 Perfluorohexanoic acid



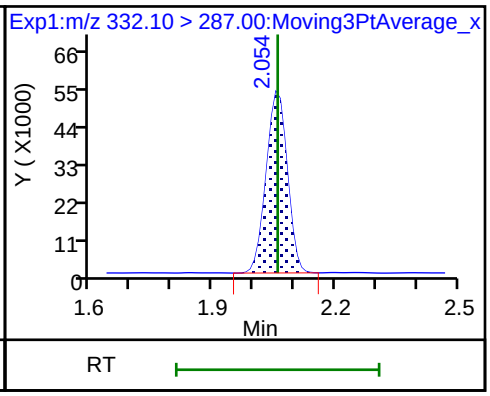
70 Perfluoropentanesulfonic acid



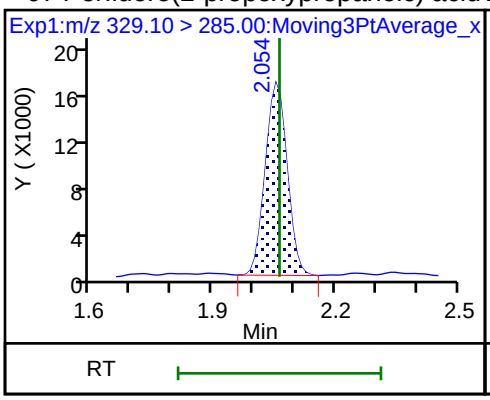
70 Perfluoropentanesulfonic acid



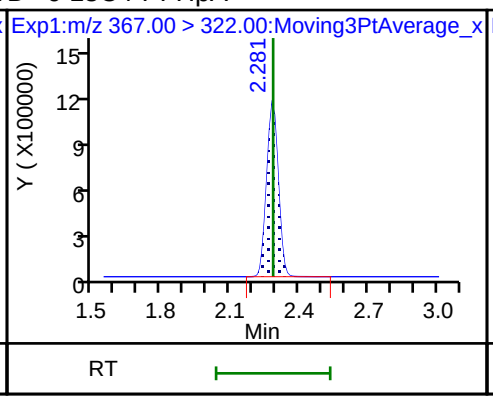
D 64 13C3 HFPO-DA



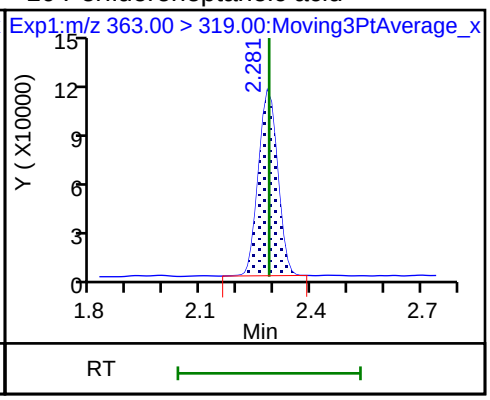
67 Perfluoro(2-propoxypropanoic) acid



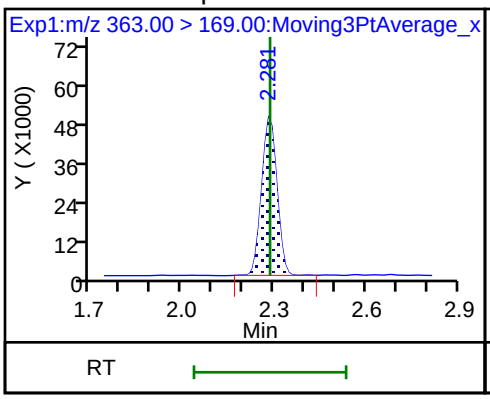
D 9 13C4-PFHpA



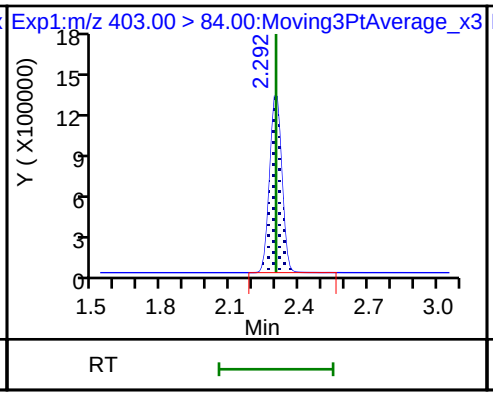
10 Perfluoroheptanoic acid



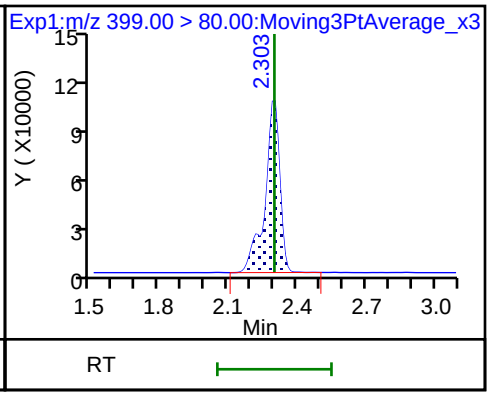
10 Perfluoroheptanoic acid



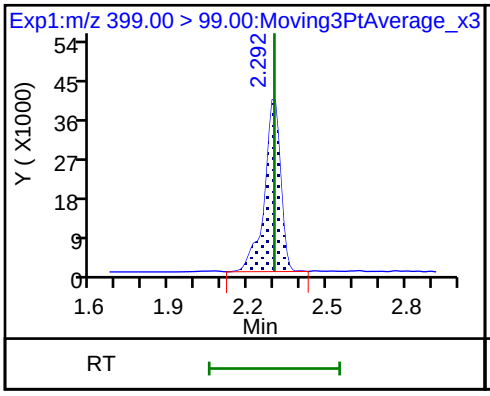
D 11 18O2 PFHxS



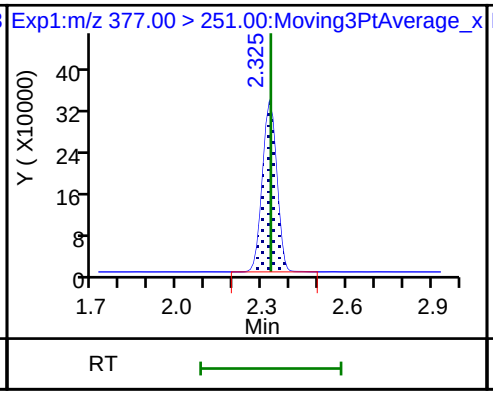
8 Perfluorohexanesulfonic acid



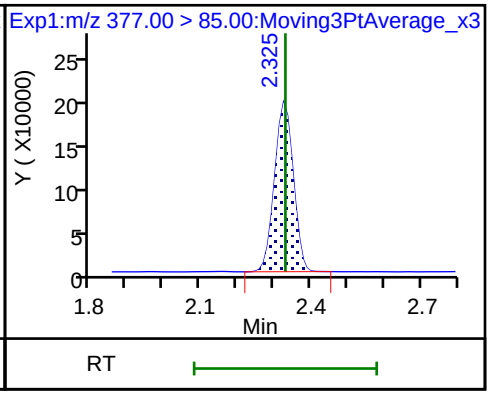
8 Perfluorohexanesulfonic acid



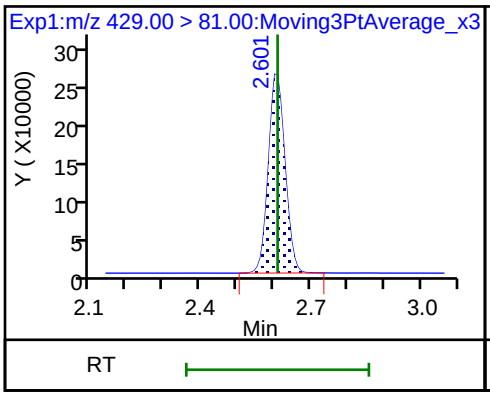
77 DONA



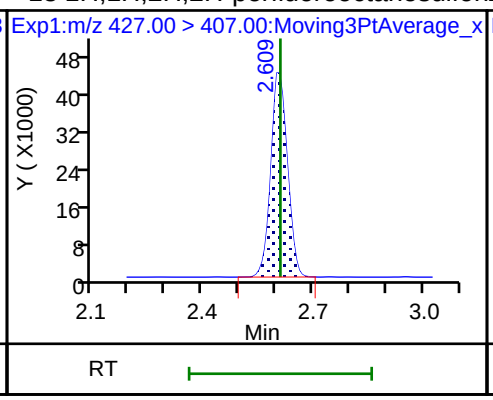
77 DONA



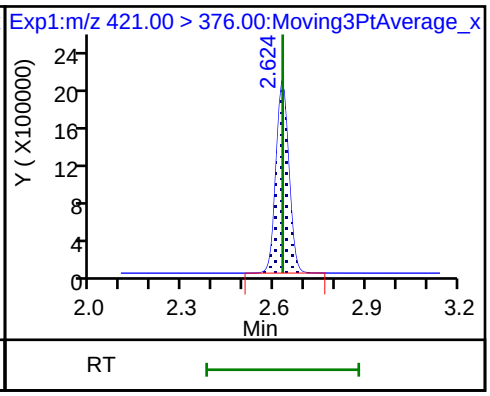
D 12 M2-6:2FTS



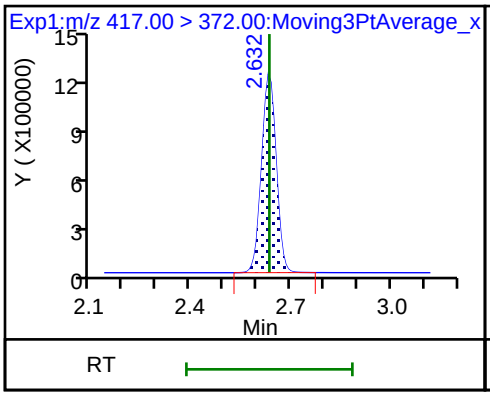
13 1H,1H,2H,2H-perfluorooctanesulfon



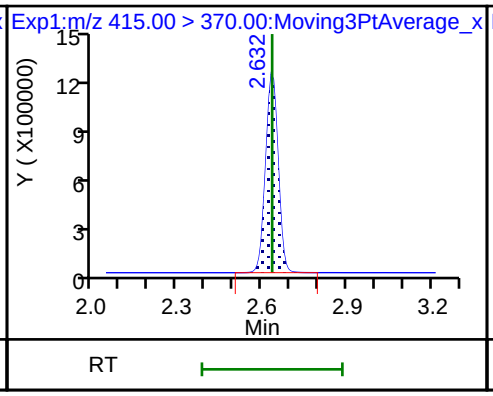
D 73 13C8 PFOA



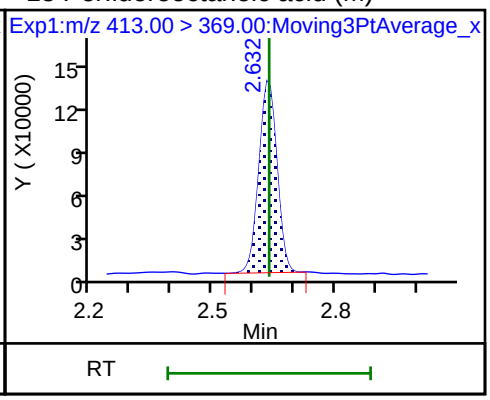
D 14 13C4 PFOA



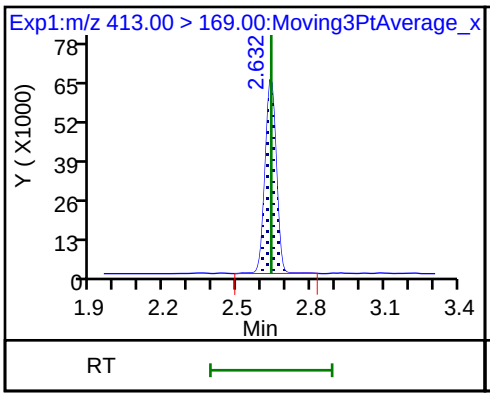
* 62 13C2-PFOA



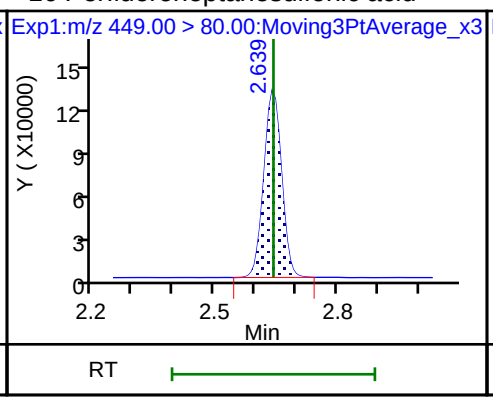
15 Perfluorooctanoic acid (M)



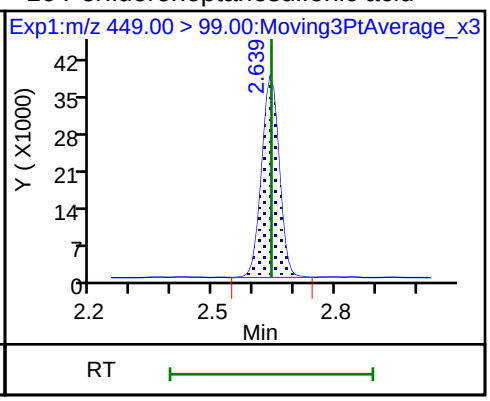
15 Perfluorooctanoic acid



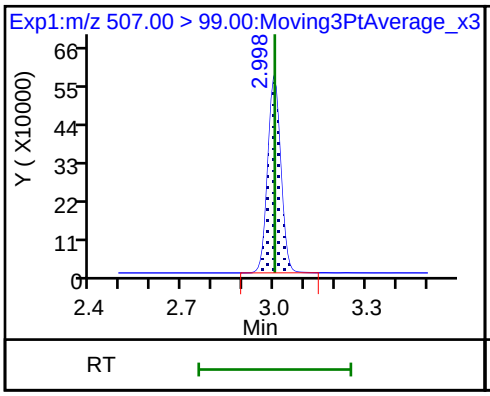
16 Perfluoroheptanesulfonic acid



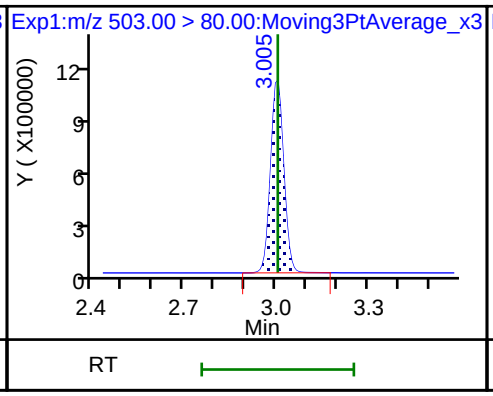
16 Perfluoroheptanesulfonic acid



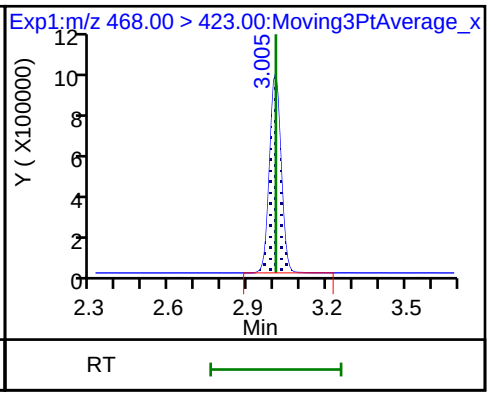
D 72 13C8 PFOS



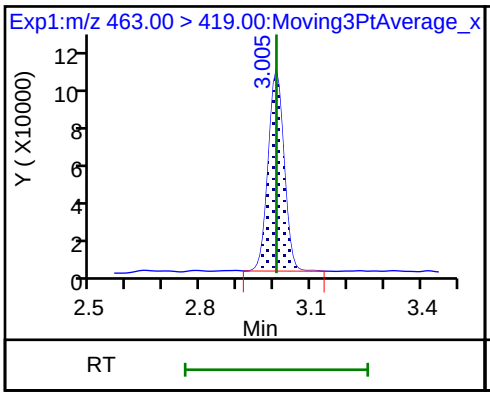
D 18 13C4 PFOS



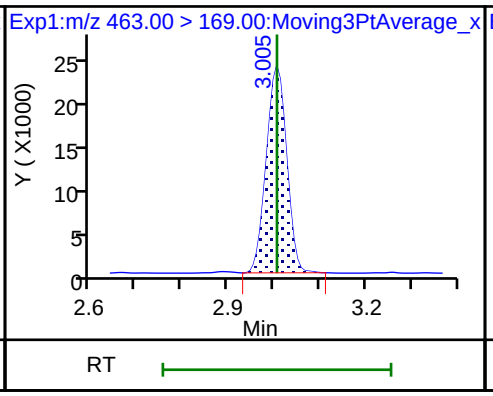
D 19 13C5 PFNA



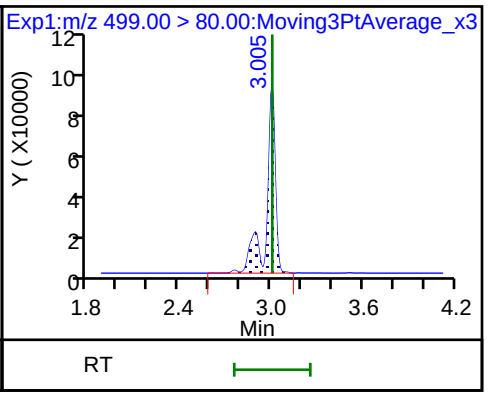
20 Perfluorononanoic acid



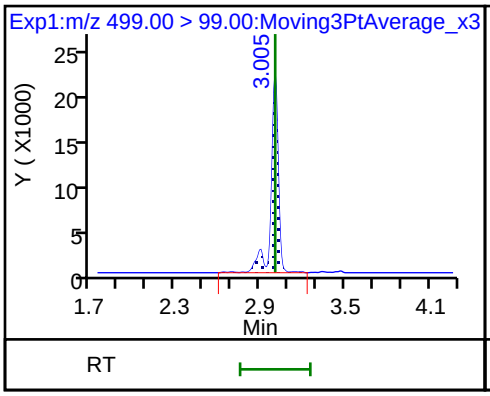
20 Perfluorononanoic acid



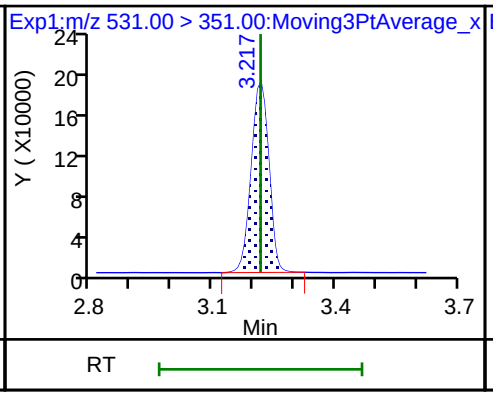
17 Perfluorooctane sulfonic acid



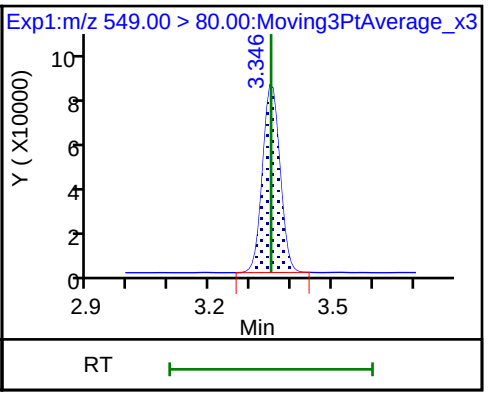
17 Perfluorooctane sulfonic acid



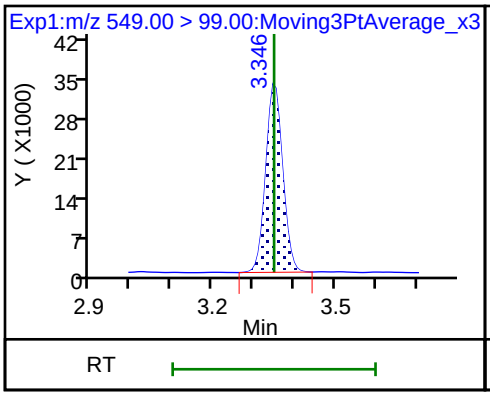
69 9-Chlorohexadecafluoro-3-oxanonane



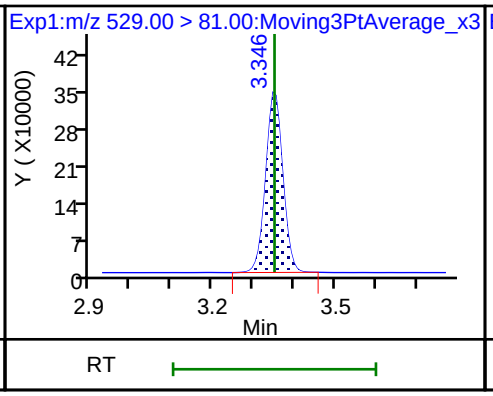
68 Perfluorononanesulfonic acid



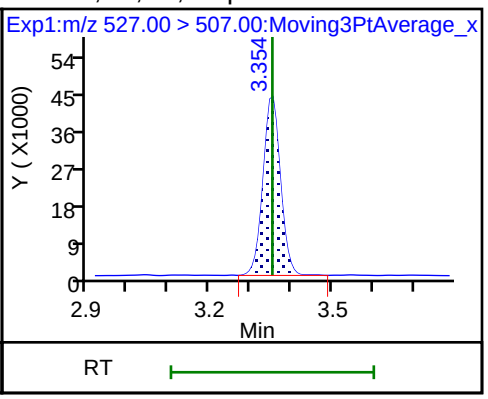
68 Perfluorononanesulfonic acid



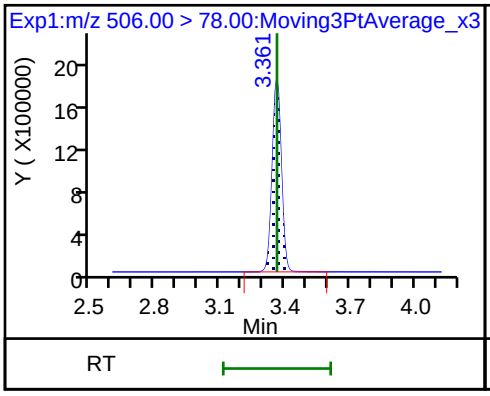
D 26 M2-8:2FTS



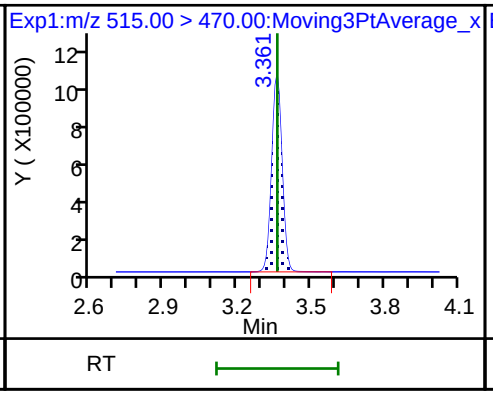
25 1H,1H,2H,2H-perfluorodecanesulfoni



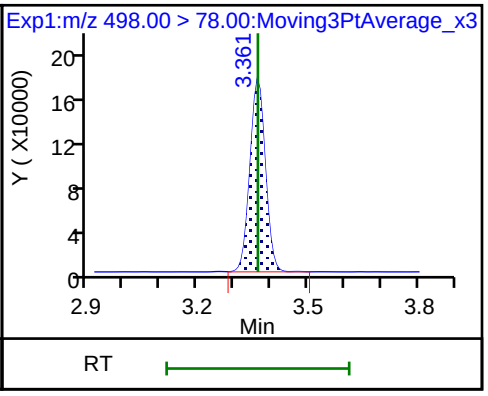
D 21 13C8 FOSA



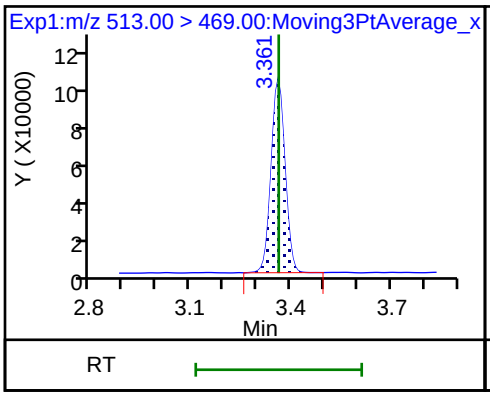
D 23 13C2 PFDA



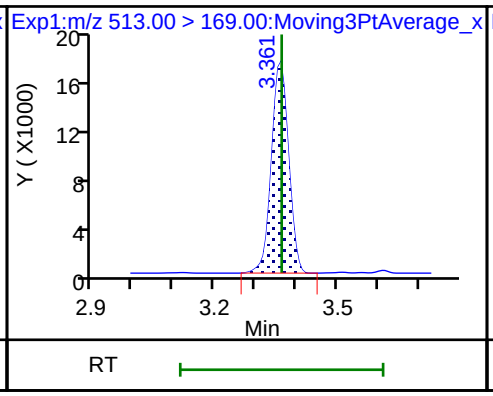
22 Perfluorooctane Sulfonamide



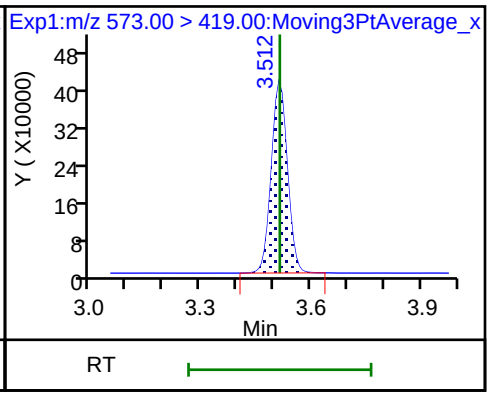
24 Perfluorodecanoic acid



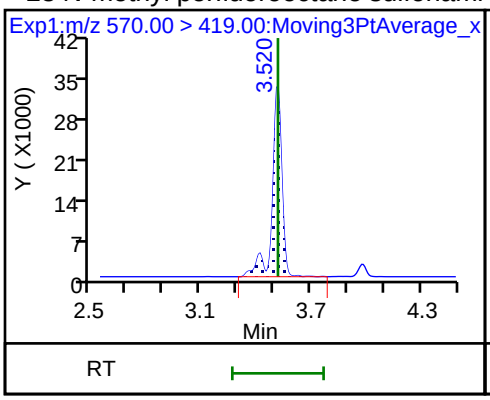
24 Perfluorodecanoic acid



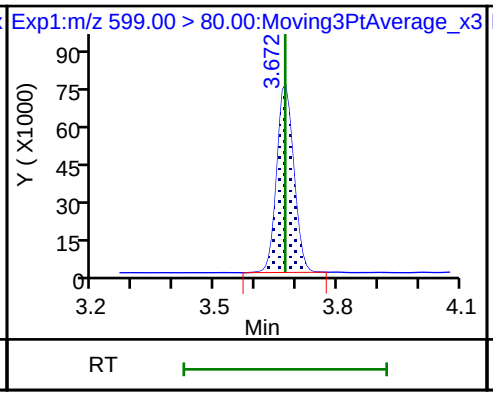
D 27 d3-NMeFOSAA



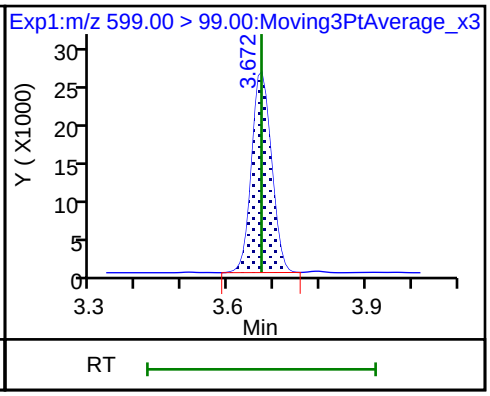
28 N-methyl perfluorooctane sulfonami



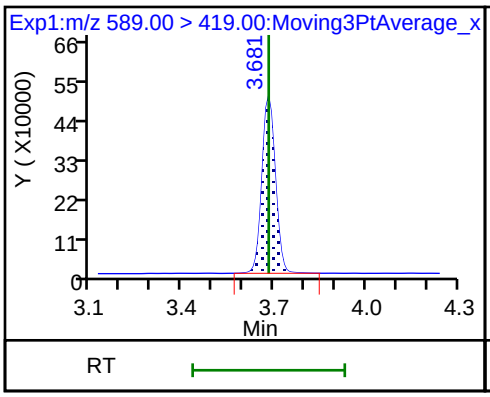
29 Perfluorodecane Sulfonic acid



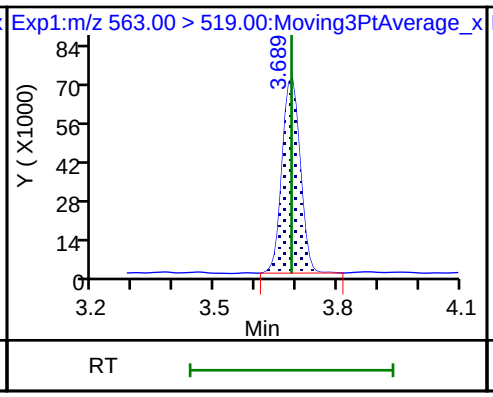
29 Perfluorodecane Sulfonic acid



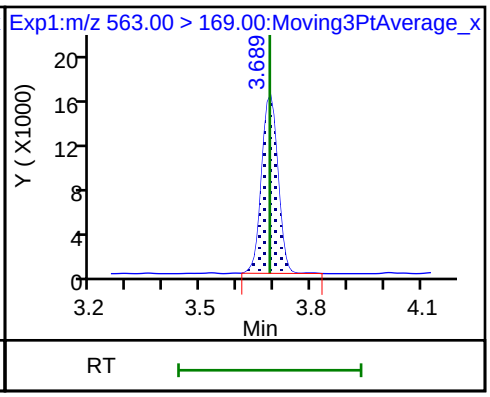
D 32 d5-NEtFOSAA



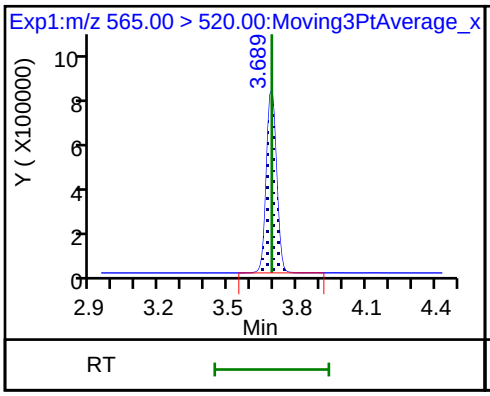
31 Perfluoroundecanoic acid



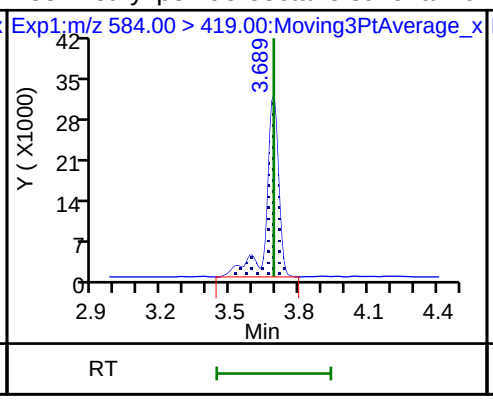
31 Perfluoroundecanoic acid



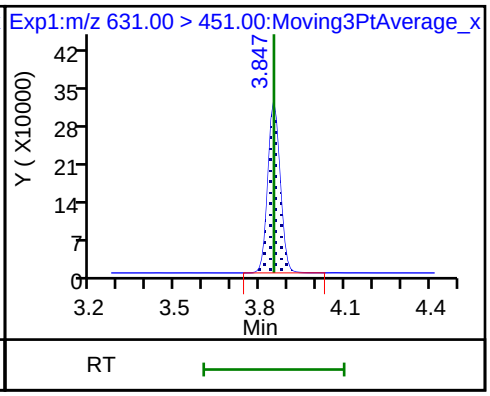
D 30 13C2 PFUnA



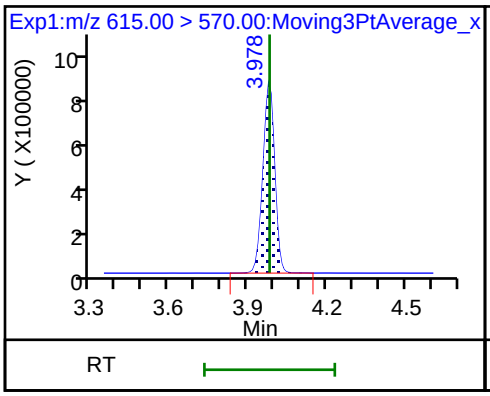
33 N-ethyl perfluorooctane sulfonamid



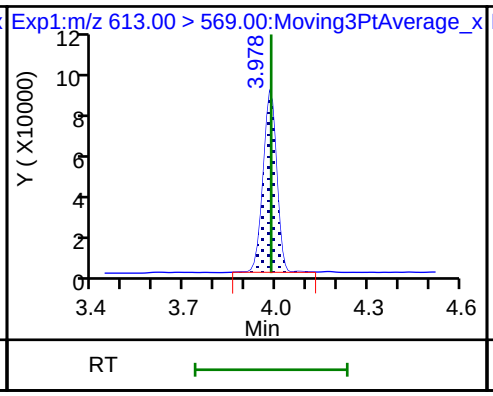
66 11-Chloroeicosafluoro-3-oxaundecan



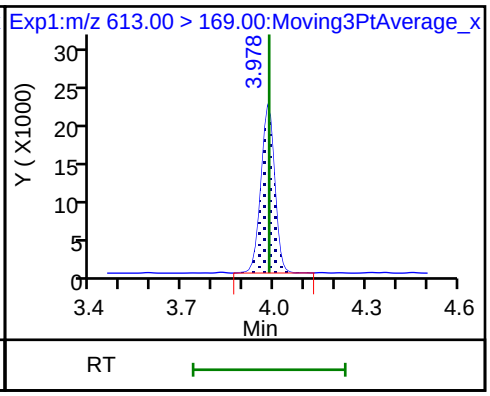
D 36 13C2 PFDoA



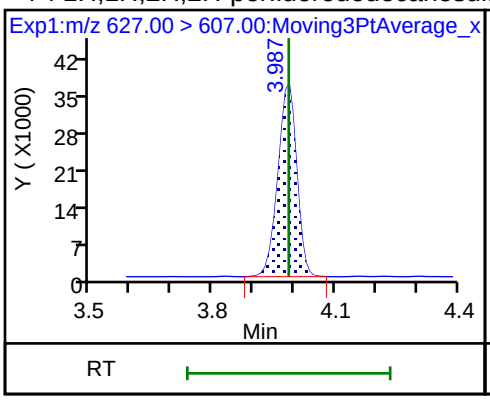
37 Perfluorododecanoic acid



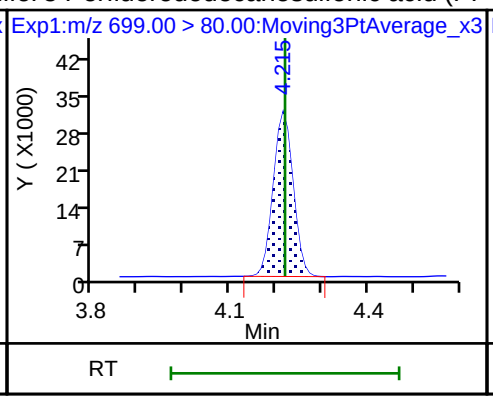
37 Perfluorododecanoic acid



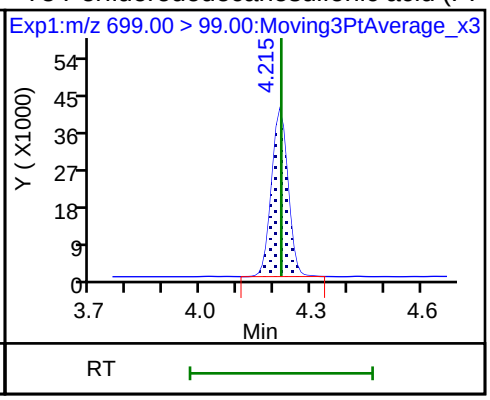
74 1H,1H,2H,2H-perfluorododecanesulfo



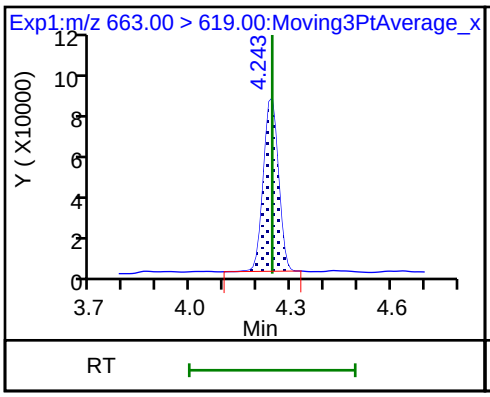
75 Perfluorododecanesulfonic acid (PF



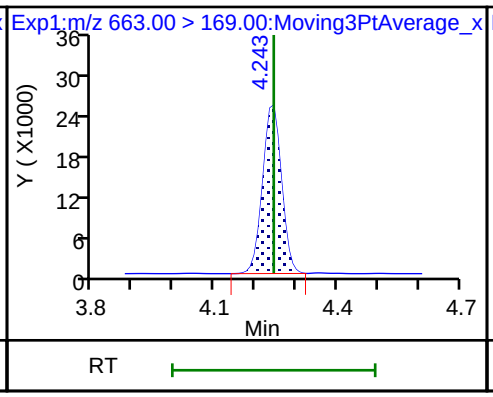
75 Perfluorododecanesulfonic acid (PF



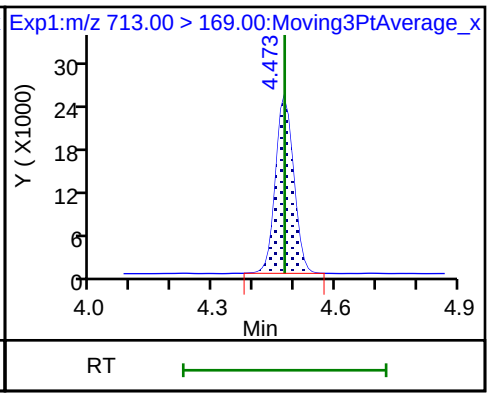
41 Perfluorotridecanoic acid



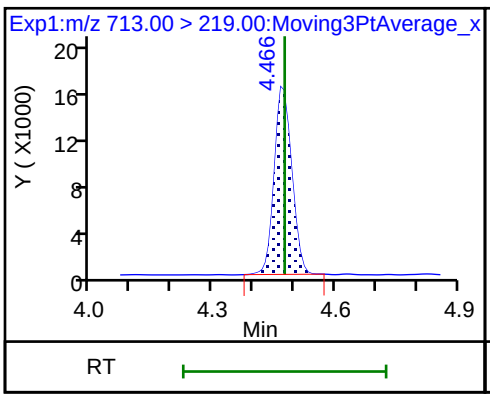
41 Perfluorotridecanoic acid



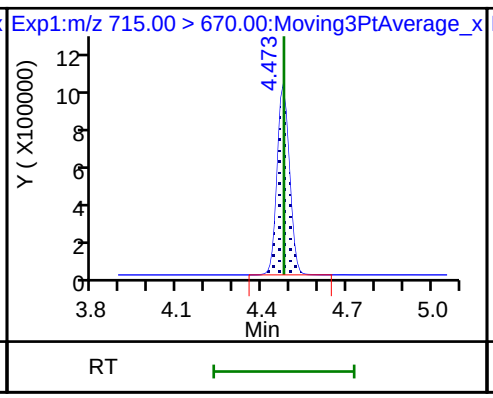
42 Perfluorotetradecanoic acid



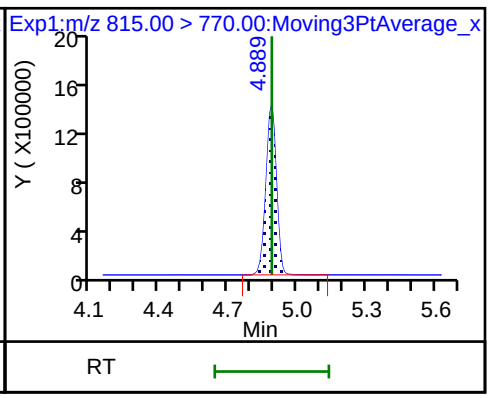
42 Perfluorotetradecanoic acid



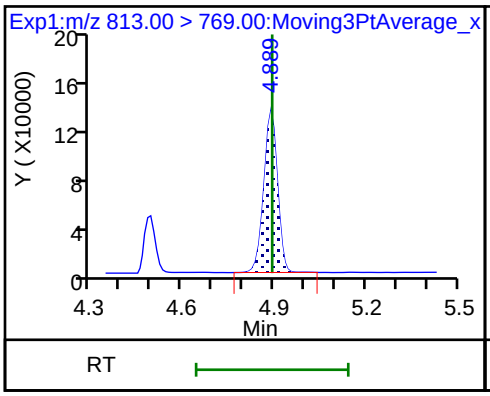
D 43 13C2-PFTeDA



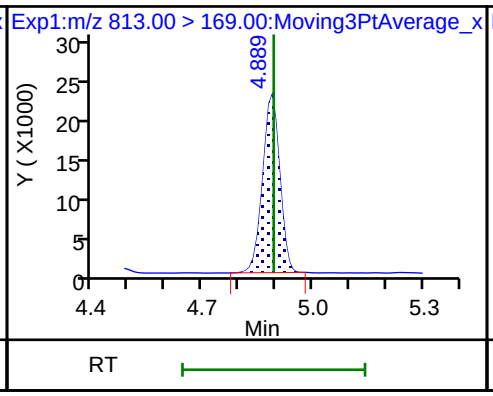
D 44 13C2-PFHxDA



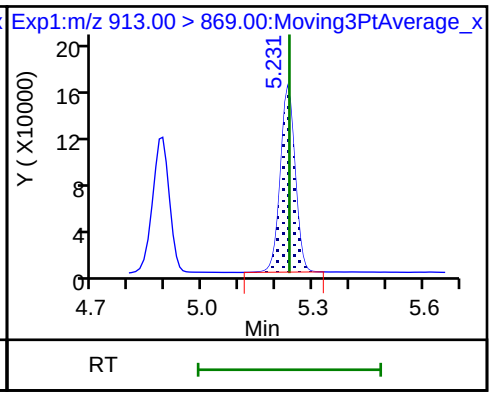
45 Perfluorohexadecanoic acid



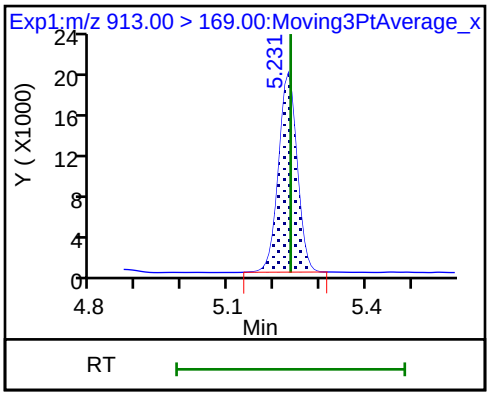
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

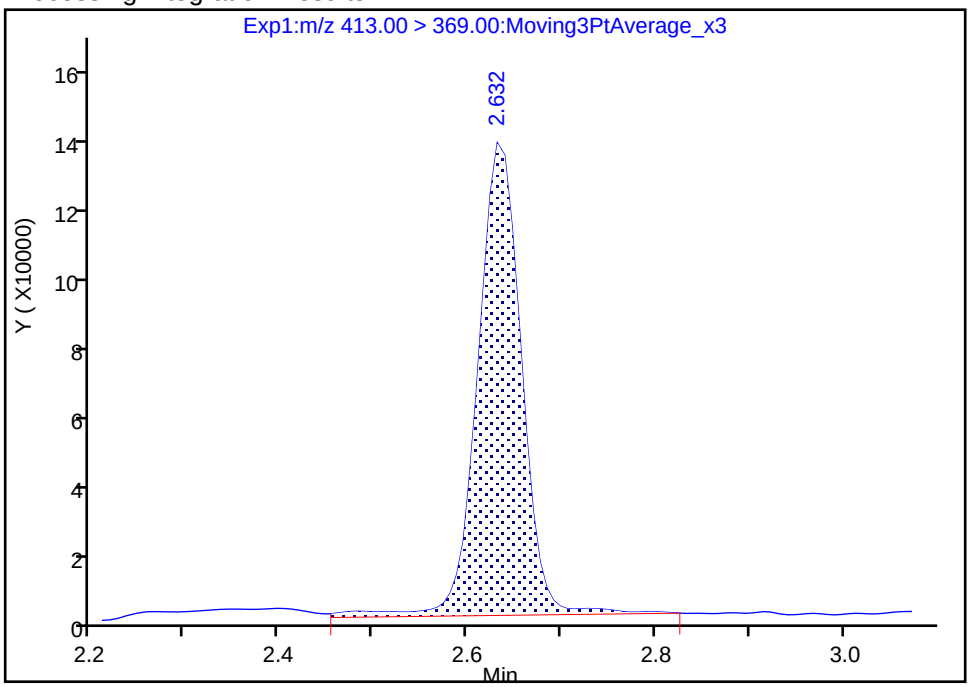
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_004.d
Injection Date: 29-Aug-2018 12:45:26 Instrument ID: A8_N
Lims ID: IC L3 Full
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 12 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

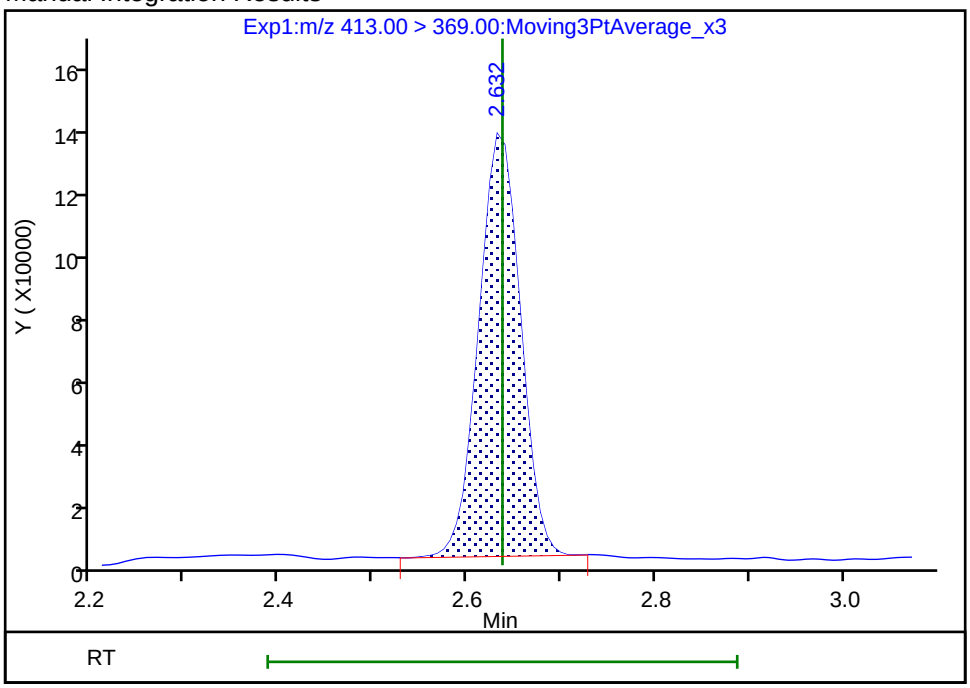
Processing Integration Results

RT: 2.63
Area: 422288
Amount: 0.251485
Amount Units: ng/ml



Manual Integration Results

RT: 2.63
Area: 396325
Amount: 0.238126
Amount Units: ng/ml



Reviewer: roycea, 29-Aug-2018 15:54:02
Audit Action: Manually Integrated Audit Reason: Baseline

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_005.d
Lims ID: IC L4 Full
Client ID:
Sample Type: ICIS Calib Level: 4
Inject. Date: 29-Aug-2018 12:53:13 ALS Bottle#: 13 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L4-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 29-Aug-2018 16:08:33 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK020

First Level Reviewer: roycea Date: 29-Aug-2018 14:53:27

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.423	1.417	0.006	0.540	5488865	2.46		98.2	10257	
2 Perfluorobutyric acid										
212.90 > 169.00	1.423	1.417	0.006	1.000	1964542	1.01		101	206	
D 3 13C5-PFPeA										
267.90 > 223.00	1.683	1.678	0.005	0.639	3523411	2.49		99.8	10858	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.683	1.679	0.004	1.000	1539273	0.9472		94.7	102	
D 47 13C3-PFBS										
301.90 > 83.00	1.724	1.716	0.008	0.654	73274	2.19		94.3	472	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.724	1.717	0.007	1.000	2249895	0.9535		108	3634	
298.90 > 99.00	1.724	1.717	0.007	1.000	932141		2.41(1.25-3.74)	108	2942	
D 60 M2-4:2FTS										
329.00 > 81.00	1.932	1.931	0.001	0.734	547480	2.45		105	1717	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.932	1.931	0.001	1.121	484217	1.00		107	3214	
D 7 13C2 PFHxA										
315.00 > 270.00	1.964	1.963	0.001	0.745	3989082	2.52		101	10060	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.964	1.963	0.001	1.000	1595005	0.99		99.3	698	
313.00 > 119.00	1.964	1.963	0.001	1.000	148182		10.76(5.03-15.10)	99.3	896	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.984	1.985	-0.001	1.151	2184139	1.00		107	8194	
349.00 > 99.00	1.995	1.985	0.010	1.157	813174		2.69(1.36-4.07)	107	2721	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.058	2.058	0.0	0.781	204251	2.68		107	862	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.068	2.063	0.005	1.005	234774	0.9075		90.8	343	
D 9 13C4-PFHpA										
367.00 > 322.00	2.287	2.286	0.001	0.868	3761052	2.52		101	8407	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.287	2.286	0.001	1.000	1656659	1.01		101	851	
363.00 > 169.00	2.287	2.286	0.001	1.000	635566		2.61(1.13-3.40)	101	1562	
D 11 18O2 PFHxS										
403.00 > 84.00	2.298	2.298	0.0	0.873	4691108	2.36		99.9	6545	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.298	2.300	-0.002	1.000	1876913	0.8649		95.0	3455	
399.00 > 99.00	2.309	2.300	0.009	1.005	645446		2.91(1.50-4.49)	95.0	931	
77 DONA										
377.00 > 251.00	2.332	2.330	0.002	0.777	4530058	1.00		106	8486	
377.00 > 85.00	2.332	2.330	0.002	0.777	2711855		1.67(0.85-2.54)	106	3650	
D 12 M2-6:2FTS										
429.00 > 81.00	2.611	2.609	0.002	0.991	817998	2.42		102	4139	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.611	2.611	0.0	1.000	491561	0.9494		100	4224	
D 73 13C8 PFOA										
421.00 > 376.00	2.627	2.627	0.0	0.997	5722270	2.41		98.6	19547	
D 14 13C4 PFOA										
417.00 > 372.00	2.634	2.635	-0.001	1.000	3505767	2.46		98.4	12579	
* 62 13C2-PFOA										
415.00 > 370.00	2.634	2.635	-0.001		3616189	2.50			8289	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.634	2.637	-0.003	1.000	1601868	1.01		101	246	
413.00 > 169.00	2.634	2.637	-0.003	1.000	833330		1.92(0.84-2.52)	101	1570	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.642	2.643	-0.001	0.881	1591108	0.9657		101	3769	
449.00 > 99.00	2.642	2.643	-0.001	0.881	460797		3.45(1.94-5.82)	101	2044	
D 72 13C8 PFOS										
507.00 > 99.00	3.000	3.001	-0.001	1.139	1630893	2.35		98.3	4769	
D 18 13C4 PFOS										
503.00 > 80.00	3.000	3.004	-0.004	1.139	3232850	2.38		99.7	4395	
D 19 13C5 PFNA										
468.00 > 423.00	3.000	3.006	-0.006	1.139	2919440	2.49		99.7	8820	
20 Perfluorononanoic acid										
463.00 > 419.00	3.000	3.006	-0.006	1.000	1226675	1.01		101	437	
463.00 > 169.00	3.000	3.006	-0.006	1.000	295962		4.14(1.90-5.69)	101	1915	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.000	3.006	-0.006	1.000	1362379	0.9158		98.7	3232	
499.00 > 99.00	3.000	3.006	-0.006	1.000	302520		4.50(2.31-6.93)	98.7	1099	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.210	3.216	-0.006	1.070	2369939	0.9658		104	3896	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.348	3.349	-0.001	1.116	1074020	0.9856		103	3626	
549.00 > 99.00	3.348	3.349	-0.001	1.116	387742		2.77(1.33-3.97)	103	1255	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 26 M2-8:2FTS										
529.00 > 81.00	3.348	3.350	-0.002	1.271	959144	2.43		102	3103	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.348	3.352	-0.004	1.000	479405	0.9234		96.4	1952	
D 21 13C8 FOSA										
506.00 > 78.00	3.355	3.362	-0.007	1.274	5105972	2.54		102	4171	
D 23 13C2 PFDA										
515.00 > 470.00	3.355	3.362	-0.007	1.274	2781648	2.56		102	4523	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.363	3.363	0.0	1.002	2027690	1.03		103	4378	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.363	3.363	0.0	1.002	1050863	0.9721		97.2	1402	
513.00 > 169.00	3.355	3.363	-0.008	1.000	185256		5.67(2.36-7.09)	97.2	344	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.514	3.515	-0.001	1.334	1277421	2.52		101	2683	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.514	3.519	-0.005	1.000	484565	0.9794		97.9	413	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.666	3.672	-0.006	1.222	905383	0.9423		97.8	3694	
599.00 > 99.00	3.666	3.672	-0.006	1.222	309163		2.93(1.39-4.16)	97.8	1635	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.673	3.681	-0.008	1.395	1385854	2.49		99.7	514	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.682	3.687	-0.005	1.000	825590	0.9564		95.6	779	
563.00 > 169.00	3.682	3.687	-0.005	1.000	182898		4.51(2.12-6.36)	95.6	1040	
D 30 13C2 PFUnA										
565.00 > 520.00	3.682	3.689	-0.007	1.398	2360981	2.51		101	5588	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.682	3.689	-0.007	1.002	459875	0.9883		98.8	1849	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.849	3.848	0.001	1.283	3722901	1.00		106	9395	
35 MeFOSA										
512.00 > 169.00	3.868	3.867	0.001		495798	NC			669	
D 36 13C2 PFDoA										
615.00 > 570.00	3.978	3.982	-0.004	1.510	2540101	2.53		101	6217	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.978	3.983	-0.005	1.000	1065402	0.9565		95.6	822	
613.00 > 169.00	3.978	3.983	-0.005	1.000	259354		4.11(2.13-6.40)	95.6	1329	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.978	3.985	-0.007	1.188	476311	1.00		103	3778	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.215	4.219	-0.004	1.405	398149	0.99		103	2251	
699.00 > 99.00	4.215	4.219	-0.004	1.405	552709		0.72(0.00-0.00)	103	3071	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.243	4.243	0.0	1.067	1060680	1.00		100	360	
663.00 > 169.00	4.243	4.243	0.0	1.067	332300		3.19(1.25-3.76)	100	2086	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.474	4.475	-0.001	1.000	280548	0.9176		91.8	2427	
713.00 > 219.00	4.474	4.475	-0.001	1.000	195154		1.44(0.71-2.13)	91.8	1395	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.474	4.477	-0.003	1.698	3061022	2.55		102	5531	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.889	4.889	0.0	1.856	4462104	2.57		103	5744	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.889	4.893	-0.004	1.000	1525336	0.9394		93.9	158	
813.00 > 169.00	4.889	4.893	-0.004	1.000	275471		5.54(2.86-8.58)	93.9	1808	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.238	5.236	0.002	1.071	1810203	1.01		101	114	
913.00 > 169.00	5.231	5.236	-0.005	1.070	225396		8.03(3.83-11.48)	101	1521	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL4_00009 Amount Added: 1.00 Units: mL

Report Date: 29-Aug-2018 16:08:38 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_005.d

Injection Date: 29-Aug-2018 12:53:13 Instrument ID: A8_N

Lims ID: IC L4 Full

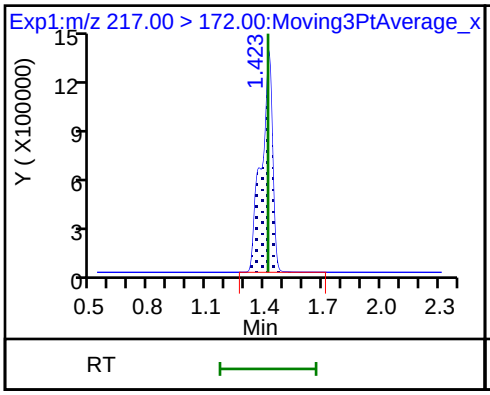
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 5

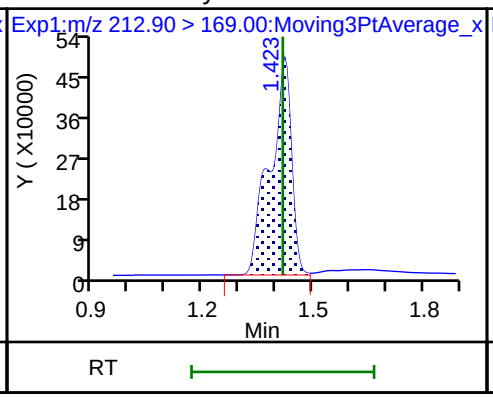
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

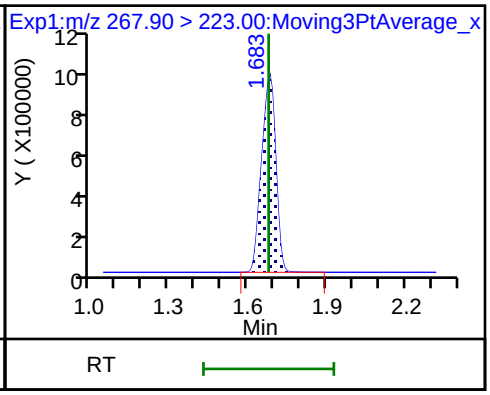
D 1 13C4 PFBA



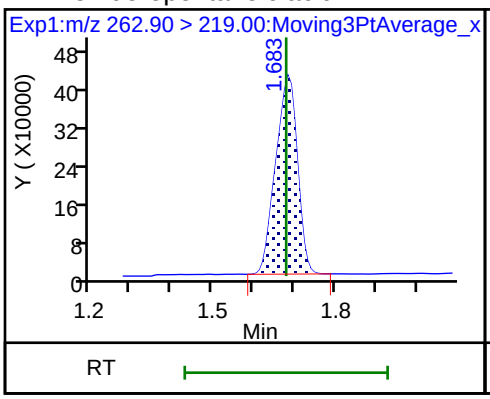
2 Perfluorobutyric acid



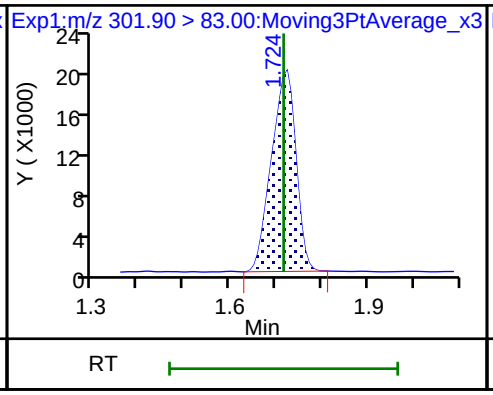
D 3 13C5-PFPeA



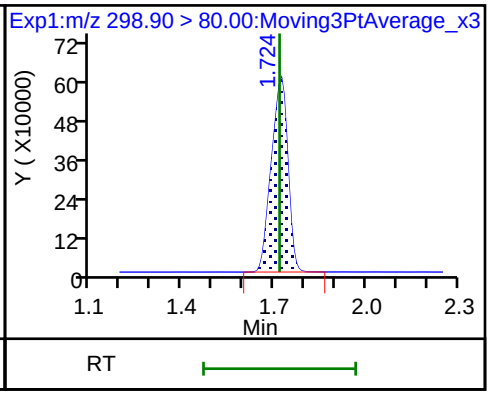
4 Perfluoropentanoic acid



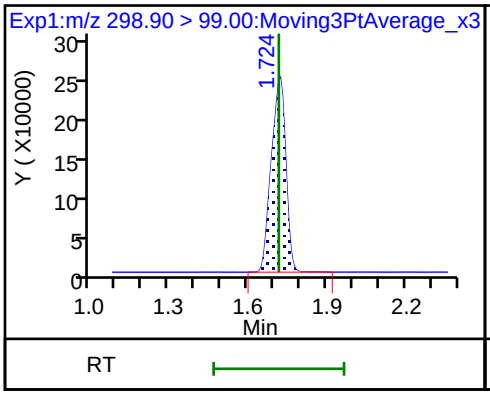
D 47 13C3-PFBS



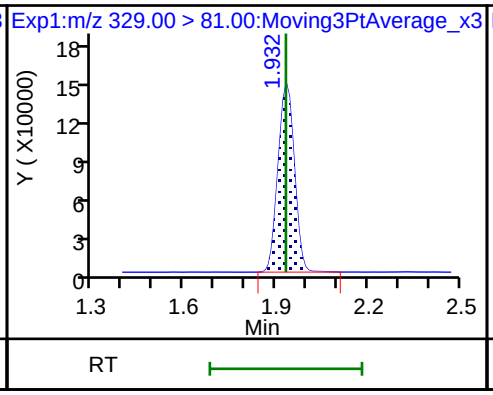
5 Perfluorobutanesulfonic acid



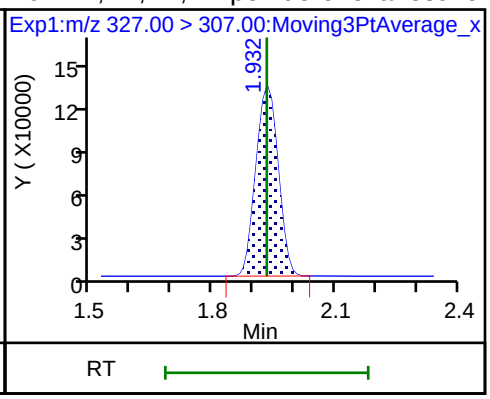
5 Perfluorobutanesulfonic acid



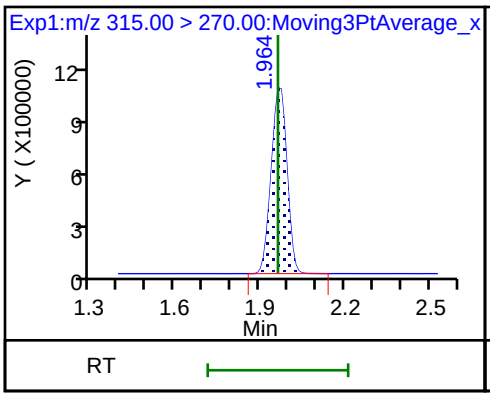
D 60 M2-4:2FTS



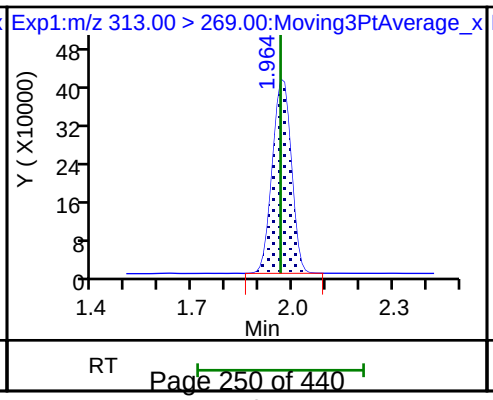
61 1H,1H,2H,2H-perfluorohexanesulfoni



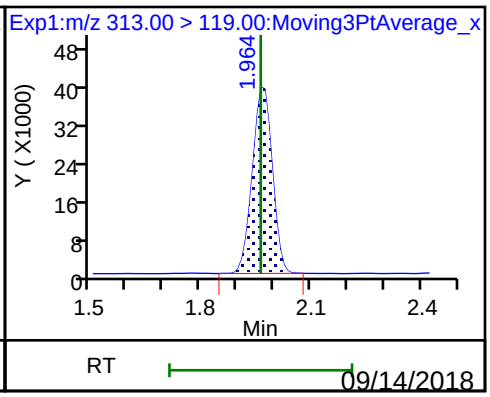
D 7 13C2 PFHxA



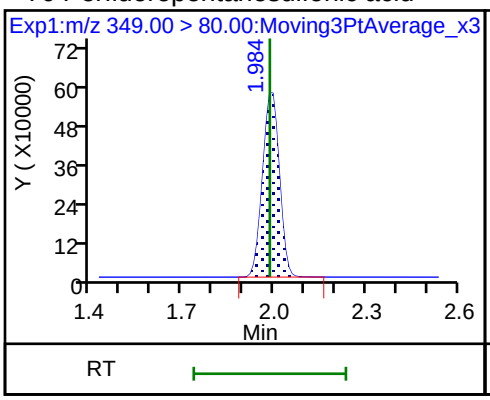
6 Perfluorohexanoic acid



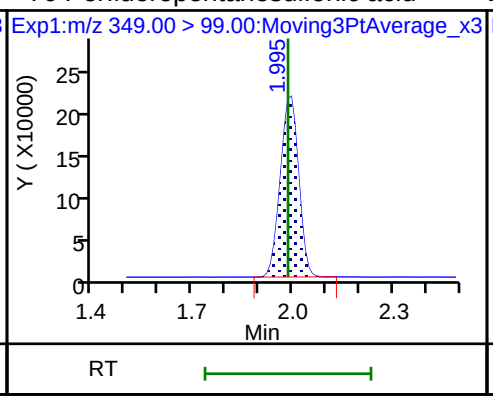
6 Perfluorohexanoic acid



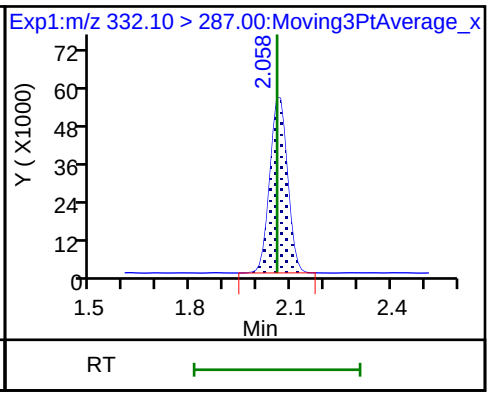
70 Perfluoropentanesulfonic acid



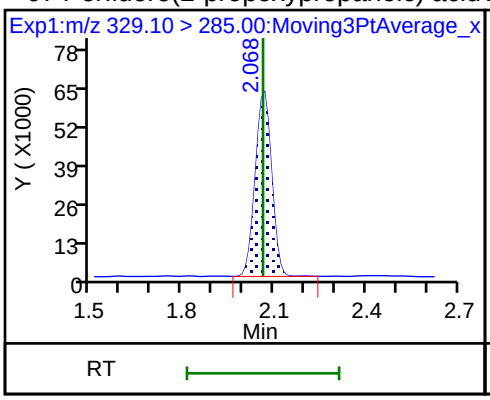
70 Perfluoropentanesulfonic acid



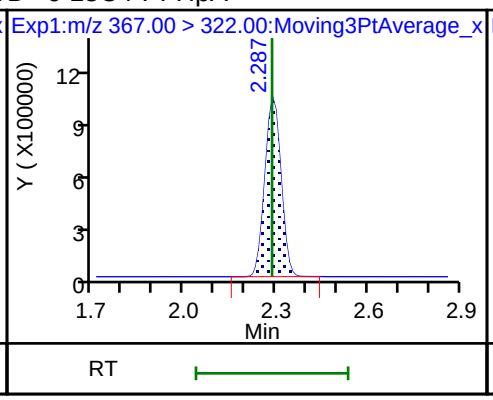
D 64 13C3 HFPO-DA



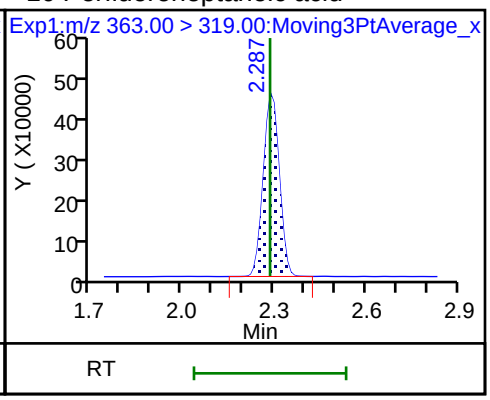
67 Perfluoro(2-propoxypropanoic) acid



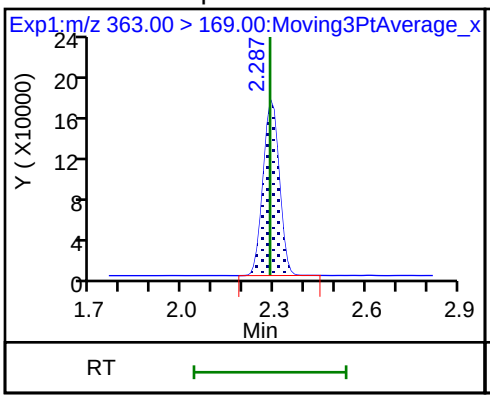
D 9 13C4-PFHpA



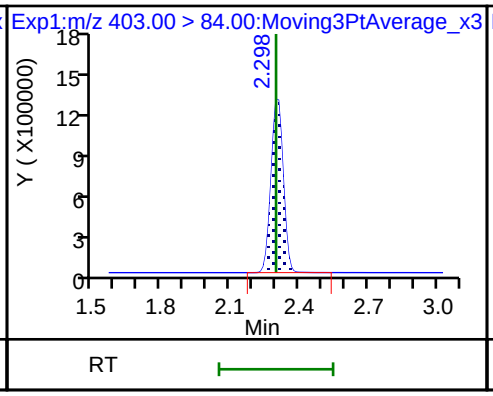
10 Perfluoroheptanoic acid



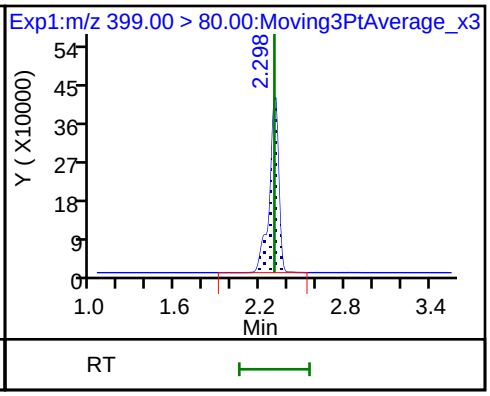
10 Perfluoroheptanoic acid



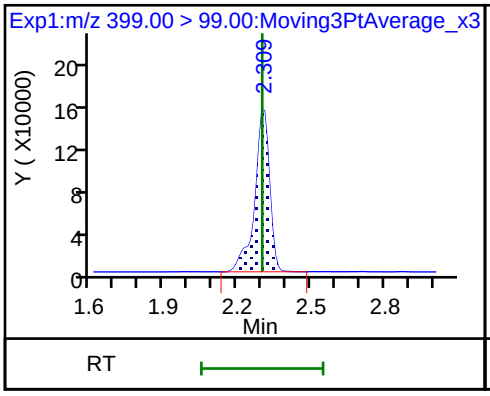
D 11 18O2 PFHxS



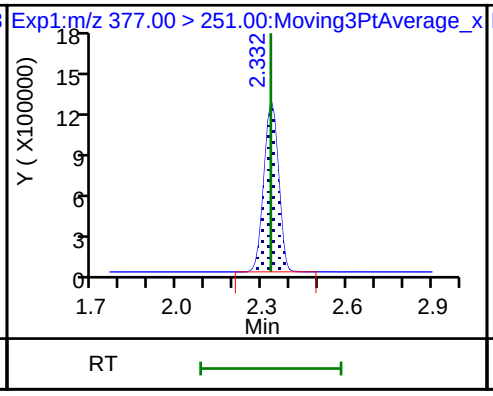
8 Perfluorohexanesulfonic acid



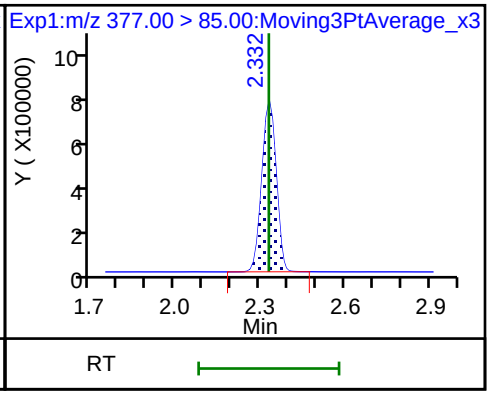
8 Perfluorohexanesulfonic acid



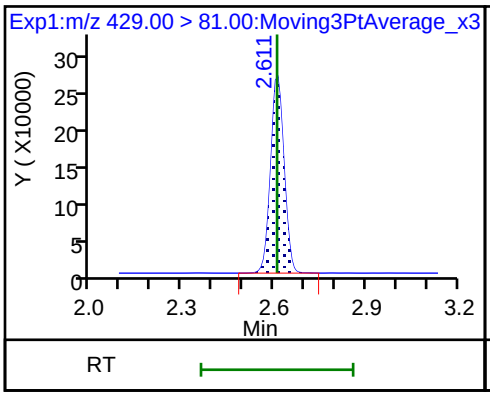
77 DONA



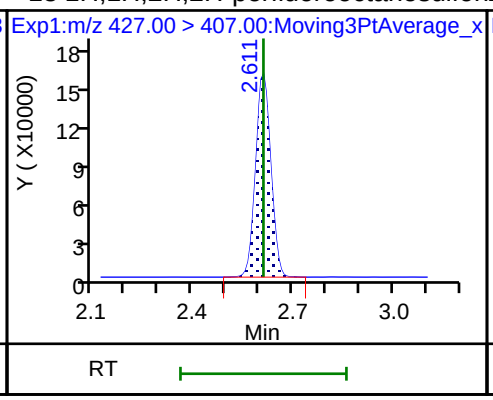
77 DONA



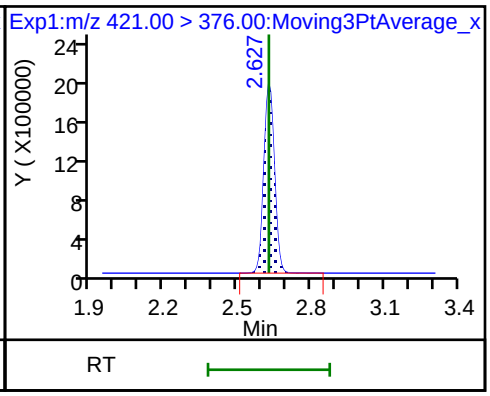
D 12 M2-6:2FTS



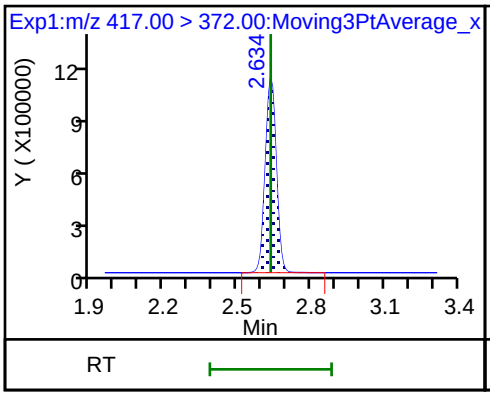
13 1H,1H,2H,2H-perfluorooctanesulfon



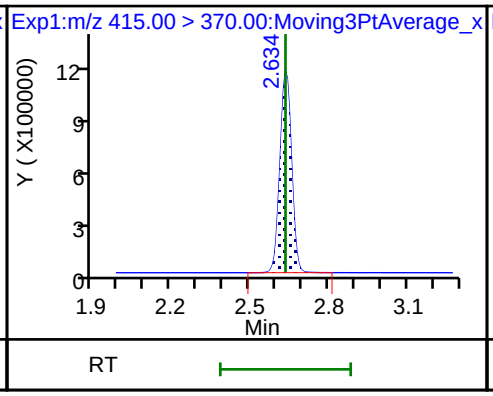
D 73 13C8 PFOA



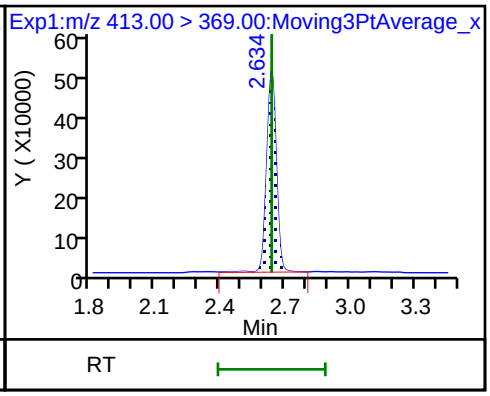
D 14 13C4 PFOA



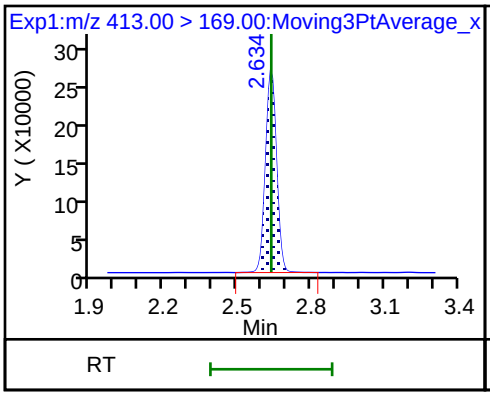
* 62 13C2-PFOA



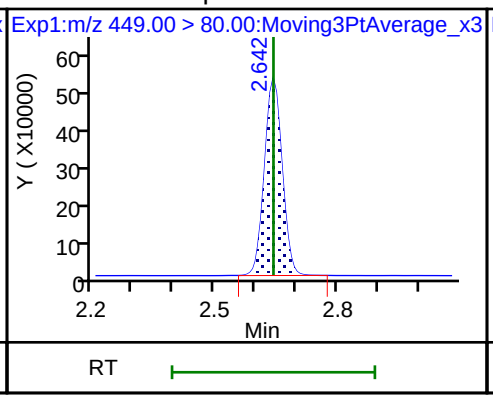
15 Perfluorooctanoic acid



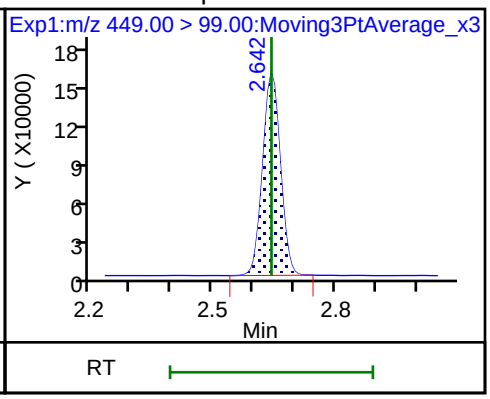
15 Perfluorooctanoic acid



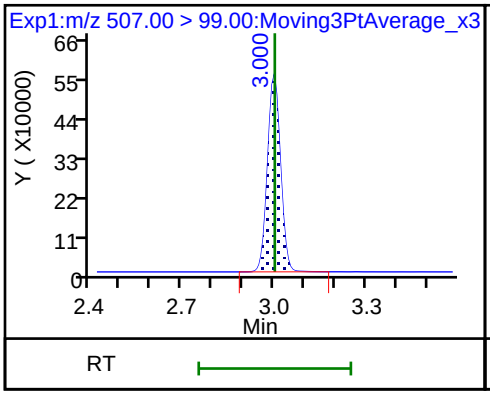
16 Perfluoroheptanesulfonic acid



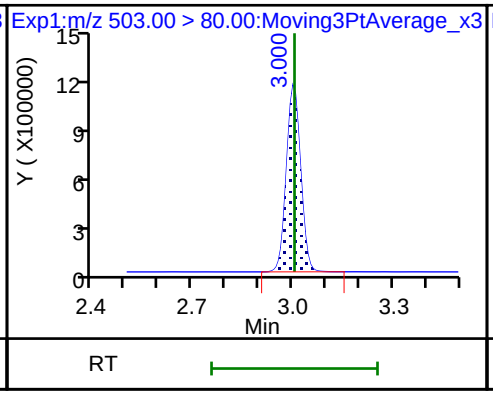
16 Perfluoroheptanesulfonic acid



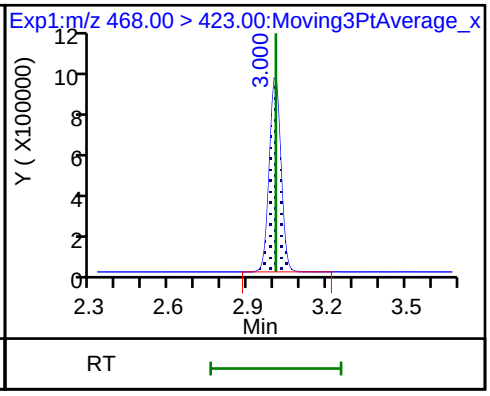
D 72 13C8 PFOS



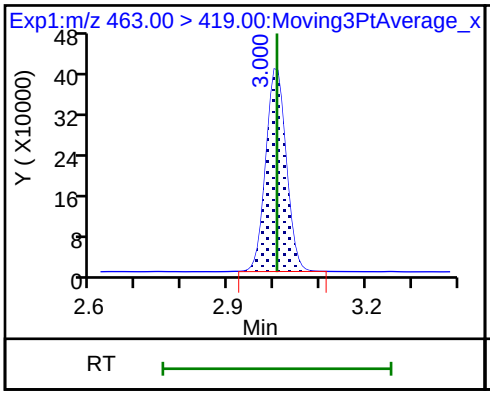
D 18 13C4 PFOS



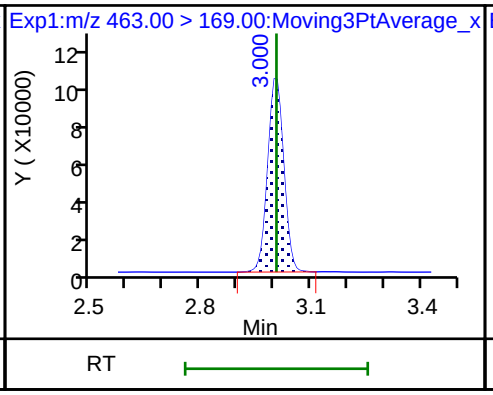
D 19 13C5 PFNA



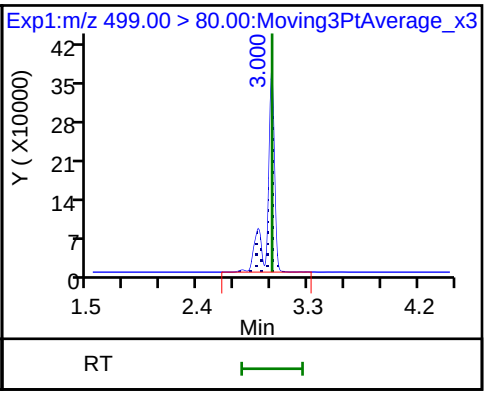
20 Perfluorononanoic acid



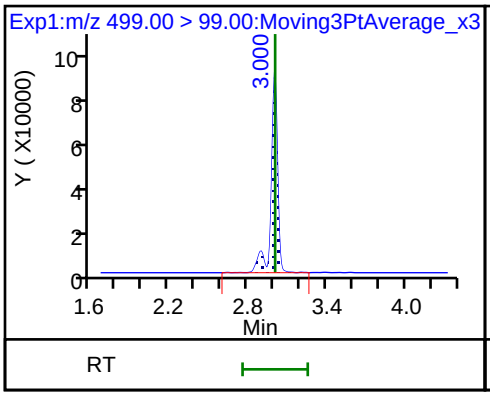
20 Perfluorononanoic acid



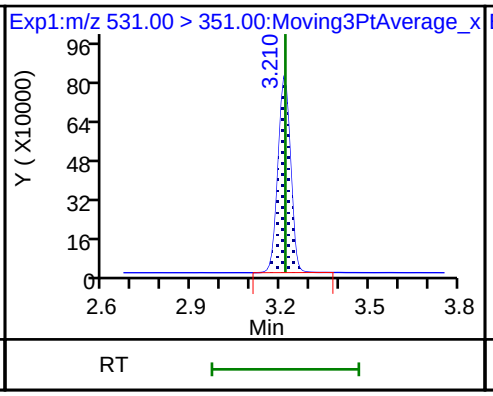
17 Perfluorooctane sulfonic acid



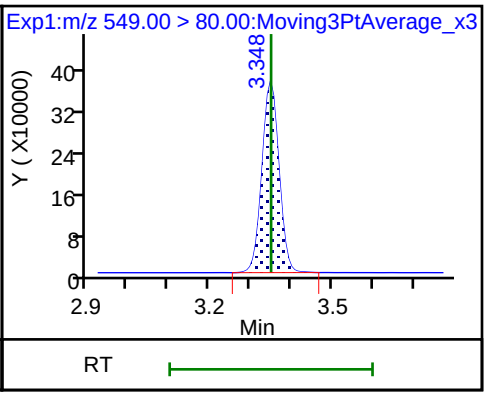
17 Perfluorooctane sulfonic acid



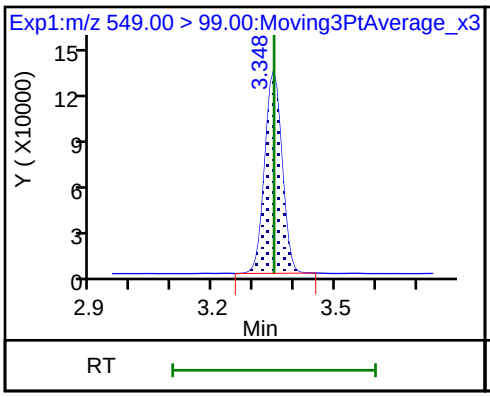
69 9-Chlorohexadecafluoro-3-oxanonane



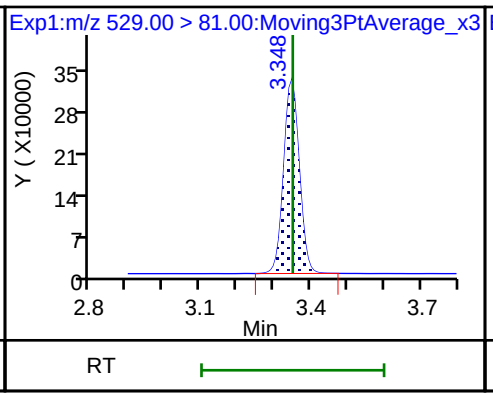
68 Perfluorononanesulfonic acid



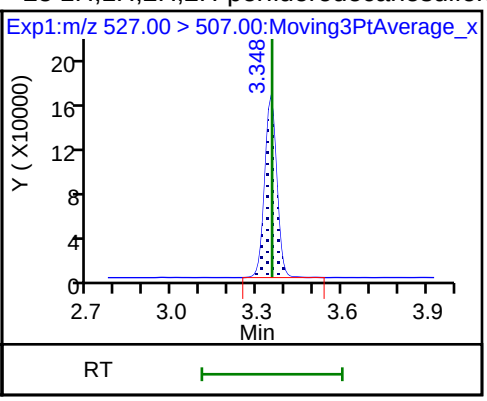
68 Perfluorononanesulfonic acid



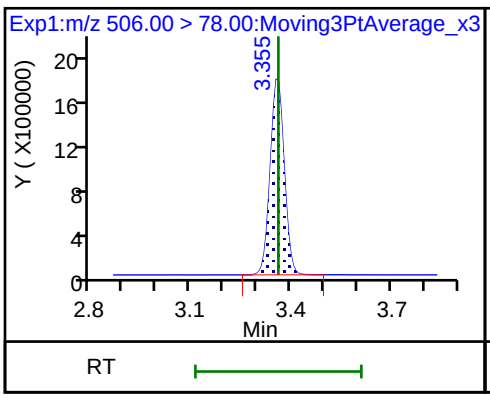
D 26 M2-8:2FTS



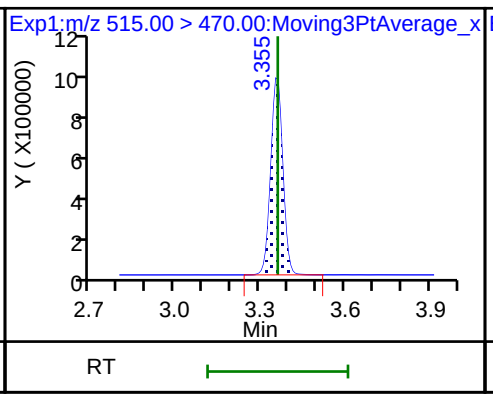
25 1H,1H,2H,2H-perfluorodecanesulfoni



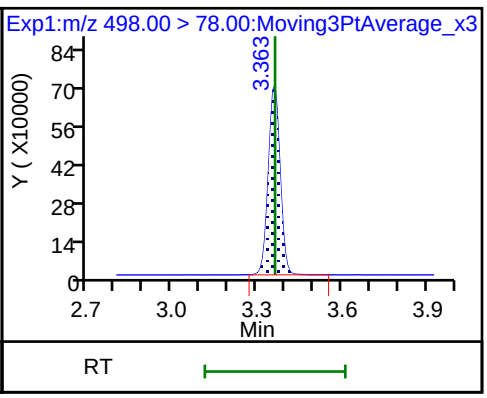
D 21 13C8 FOSA



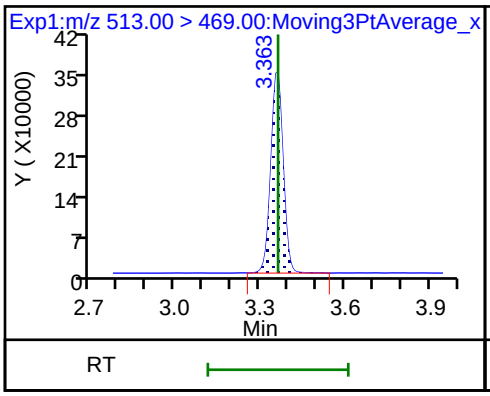
D 23 13C2 PFDA



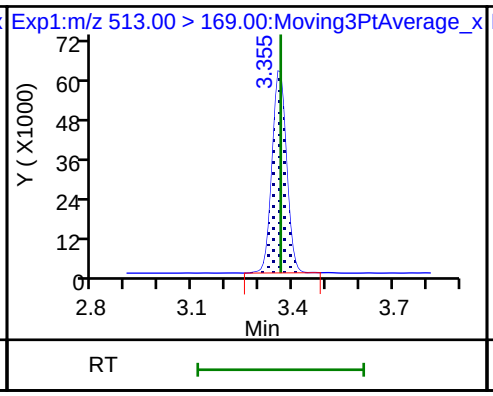
22 Perfluorooctane Sulfonamide



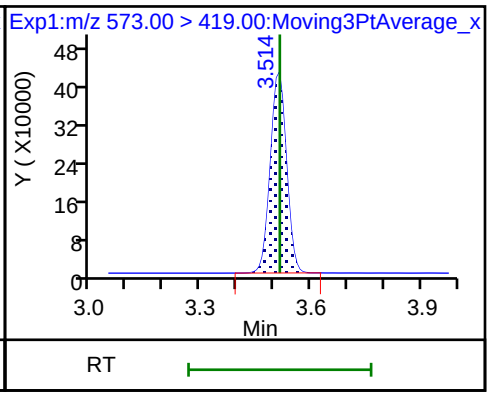
24 Perfluorodecanoic acid



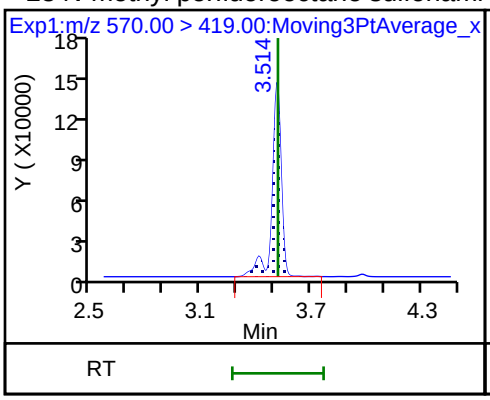
24 Perfluorodecanoic acid



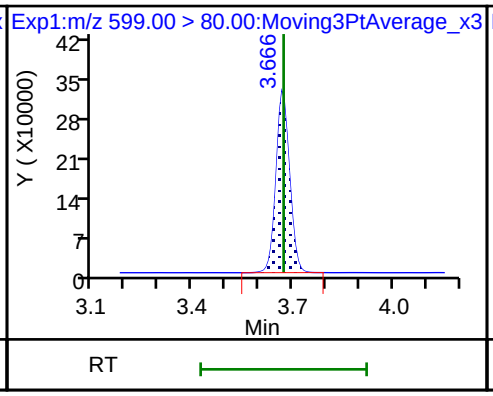
D 27 d3-NMeFOSAA



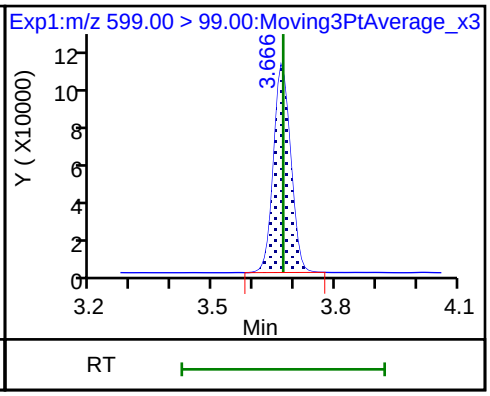
28 N-methyl perfluorooctane sulfonami



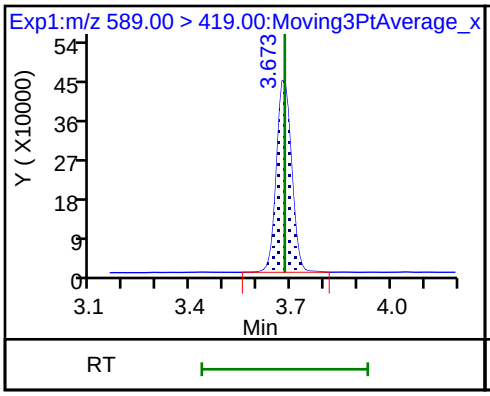
29 Perfluorodecane Sulfonic acid



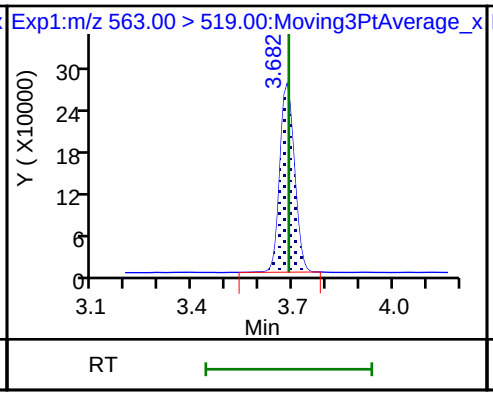
29 Perfluorodecane Sulfonic acid



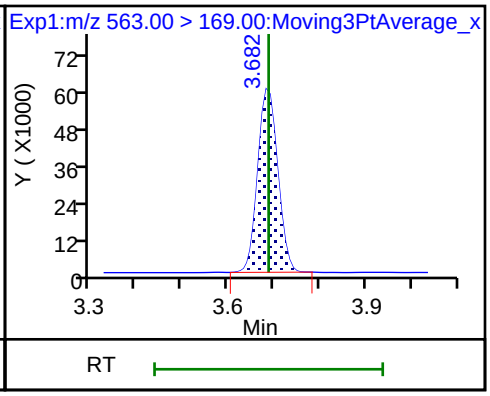
D 32 d5-NEtFOSAA



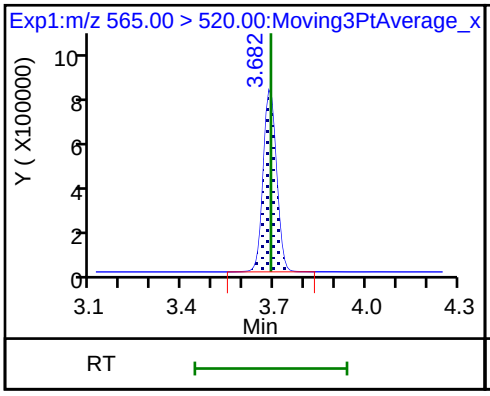
31 Perfluoroundecanoic acid



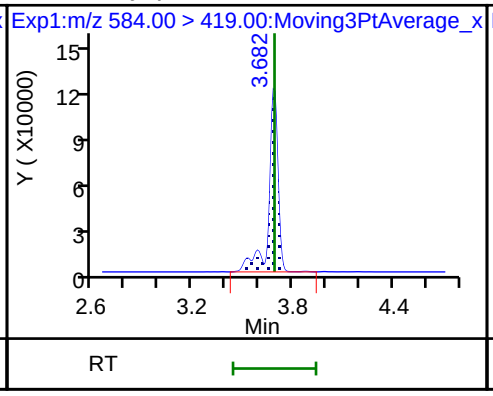
31 Perfluoroundecanoic acid



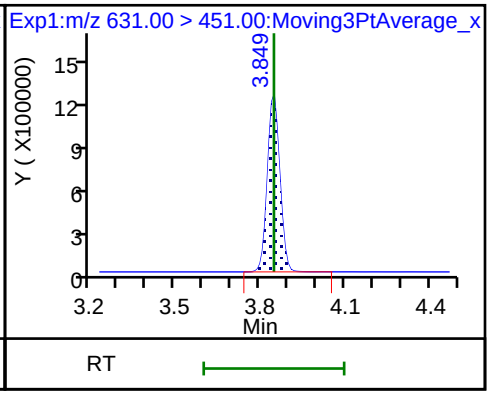
D 30 13C2 PFUnA



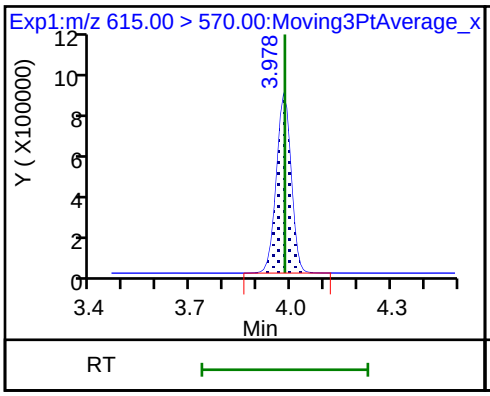
33 N-ethyl perfluorooctane sulfonamid



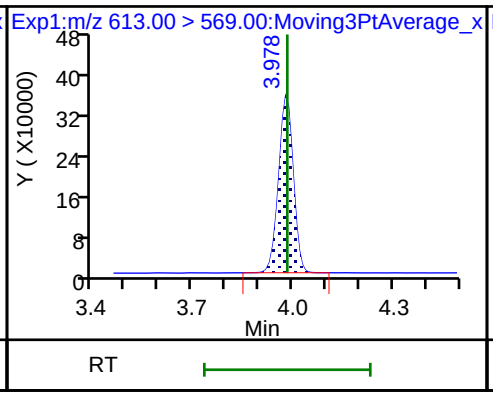
66 11-Chloroeicosafluoro-3-oxaundecan



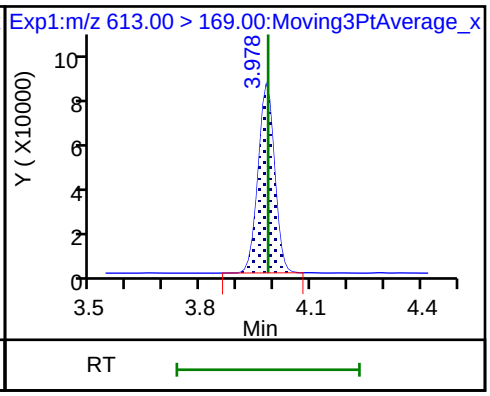
D 36 13C2 PFDoA



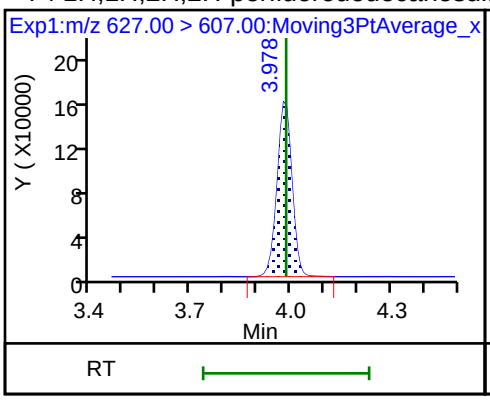
37 Perfluorododecanoic acid



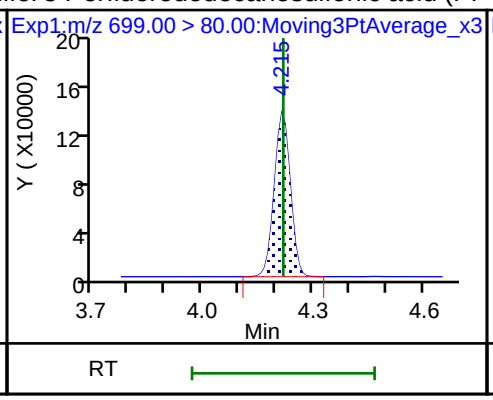
37 Perfluorododecanoic acid



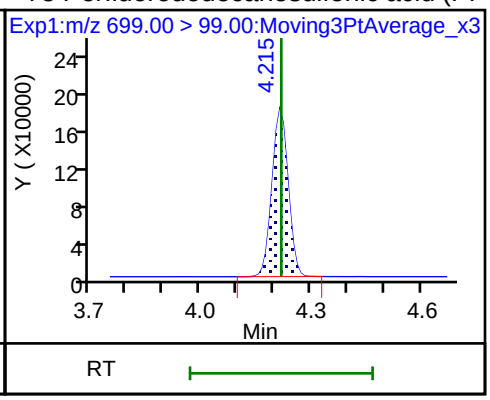
74 1H,1H,2H,2H-perfluorododecanesulfo



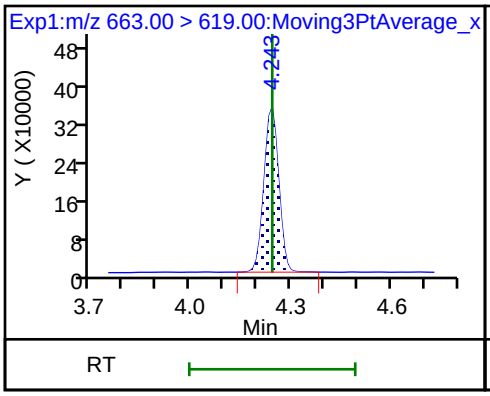
75 Perfluorododecanesulfonic acid (PF



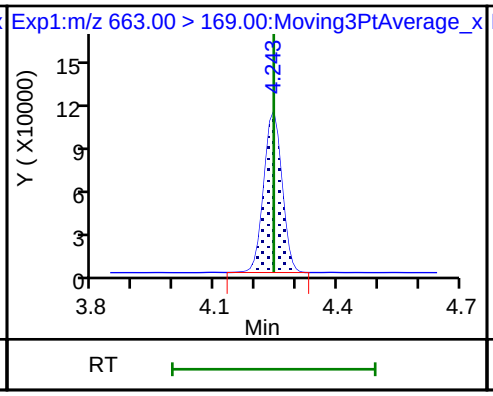
75 Perfluorododecanesulfonic acid (PF



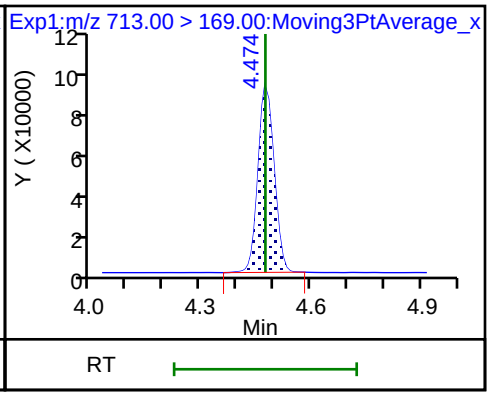
41 Perfluorotridecanoic acid



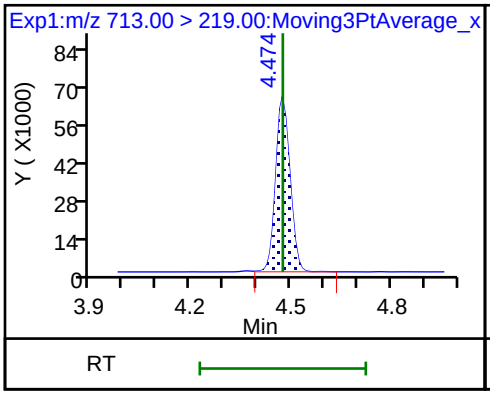
41 Perfluorotridecanoic acid



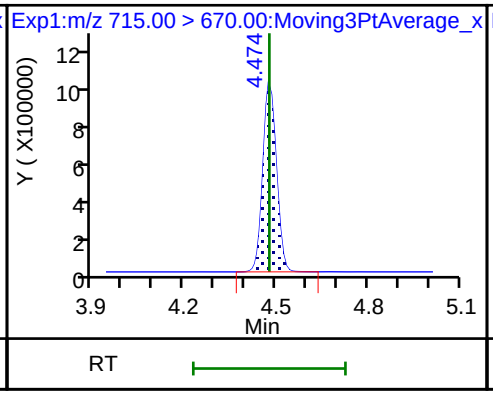
42 Perfluorotetradecanoic acid



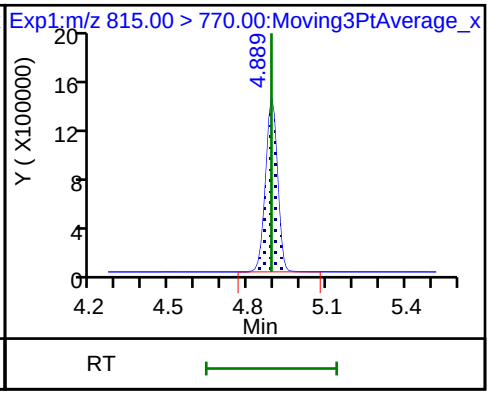
42 Perfluorotetradecanoic acid



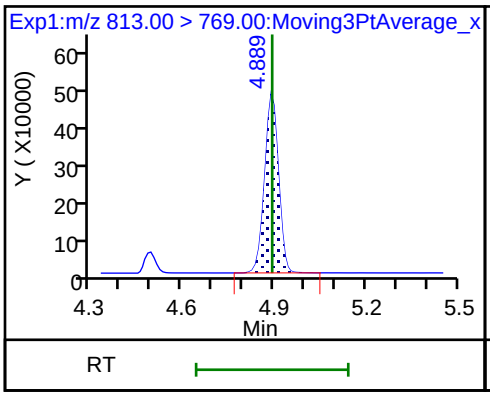
D 43 13C2-PFTeDA



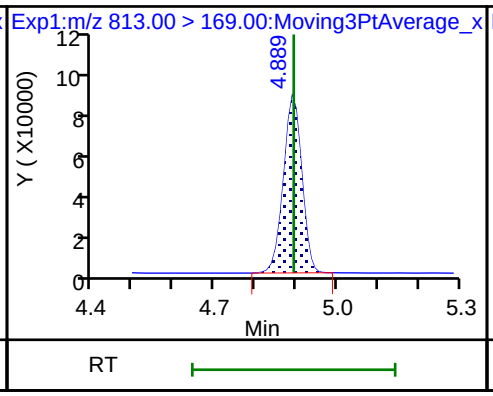
D 44 13C2-PFHxDA



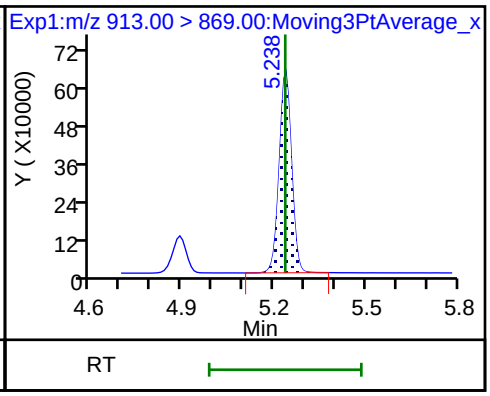
45 Perfluorohexadecanoic acid



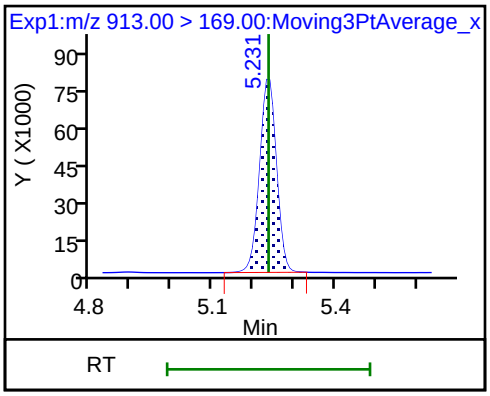
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_006.d
Lims ID: IC L5 Full
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 29-Aug-2018 13:01:03 ALS Bottle#: 14 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L5-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 29-Aug-2018 16:08:44 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK020

First Level Reviewer: roycea Date: 29-Aug-2018 14:54:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.416	1.417	-0.001	0.537	5437095	2.50		100	10709	
2 Perfluorobutyric acid										
212.90 > 169.00	1.416	1.417	-0.001	1.000	4946160	2.56		102	537	
D 3 13C5-PFPeA										
267.90 > 223.00	1.678	1.678	0.0	0.637	3384128	2.46		98.5	10367	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.678	1.679	-0.001	1.000	3844352	2.46		98.5	245	
D 47 13C3-PFBS										
301.90 > 83.00	1.718	1.716	0.002	0.652	73284	2.25		97.0	448	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.718	1.717	0.001	1.000	5445742	2.31		104	6597	
298.90 > 99.00	1.718	1.717	0.001	1.000	2303703		2.36(1.25-3.74)	104	4663	
D 60 M2-4:2FTS										
329.00 > 81.00	1.933	1.931	0.002	0.734	509587	2.35		101	1413	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.933	1.931	0.002	1.125	1067420	2.20		94.3	6702	
D 7 13C2 PFHxA										
315.00 > 270.00	1.965	1.963	0.001	0.746	3870057	2.51		100	16805	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.965	1.963	0.001	1.000	3939532	2.53		101	1706	
313.00 > 119.00	1.965	1.963	0.001	1.000	349516		11.27(5.03-15.10)	101	1320	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.985	1.985	0.0	1.155	5572259	2.56		109	8090	
349.00 > 99.00	1.985	1.985	0.0	1.155	2040499		2.73(1.36-4.07)	109	5440	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.059	2.058	0.001	0.781	187380	2.53		101	730	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.059	2.063	-0.004	1.000	590658	2.49		99.5	817	
D 9 13C4-PFHpA										
367.00 > 322.00	2.288	2.286	0.002	0.868	3646572	2.51		100	9502	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.288	2.286	0.002	1.000	3987361	2.50		99.8	1543	
363.00 > 169.00	2.288	2.286	0.002	1.000	1512676		2.64(1.13-3.40)	99.8	2880	
D 11 18O2 PFHxS										
403.00 > 84.00	2.299	2.298	0.001	0.873	4601558	2.38		101	8999	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.299	2.300	-0.001	1.000	4480163	2.10		92.5	33316	
399.00 > 99.00	2.299	2.300	-0.001	1.000	1545685		2.90(1.50-4.49)	92.5	2795	
77 DONA										
377.00 > 251.00	2.333	2.330	0.002	0.775	10893260	2.43		103	16758	
377.00 > 85.00	2.333	2.330	0.002	0.775	6708868		1.62(0.85-2.54)	103	7193	
D 12 M2-6:2FTS										
429.00 > 81.00	2.612	2.609	0.003	0.991	776922	2.36		99.3	4198	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.612	2.611	0.001	1.000	1096049	2.23		94.0	3605	
D 73 13C8 PFOA										
421.00 > 376.00	2.627	2.627	0.0	0.997	5695418	2.47		101	10266	
D 14 13C4 PFOA										
417.00 > 372.00	2.635	2.635	0.0	1.000	3459678	2.50		99.9	10071	
* 62 13C2-PFOA										
415.00 > 370.00	2.635	2.635	0.0		3517160	2.50			7968	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.643	2.637	0.006	1.003	3626886	2.32		92.7	601	
413.00 > 169.00	2.643	2.637	0.006	1.003	1941183		1.87(0.84-2.52)	92.7	3677	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.643	2.643	0.0	0.878	3918667	2.41		101	5724	
449.00 > 99.00	2.643	2.643	0.0	0.878	1047925		3.74(1.94-5.82)	101	3119	
D 72 13C8 PFOS										
507.00 > 99.00	3.002	3.001	0.001	1.139	1633176	2.42		101	5054	
D 18 13C4 PFOS										
503.00 > 80.00	3.009	3.004	0.005	1.142	3188162	2.42		101	4565	
D 19 13C5 PFNA										
468.00 > 423.00	3.009	3.006	0.003	1.142	2933893	2.58		103	5905	
20 Perfluorononanoic acid										
463.00 > 419.00	3.009	3.006	0.003	1.000	3027058	2.48		99.3	1080	
463.00 > 169.00	3.009	3.006	0.003	1.000	726024		4.17(1.90-5.69)	99.3	4068	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.009	3.006	0.003	1.000	3437382	2.34		101	4219	
499.00 > 99.00	3.009	3.006	0.003	1.000	777738		4.42(2.31-6.93)	101	2353	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.215	3.216	-0.001	1.068	5861148	2.42		104	7706	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.352	3.349	0.003	1.114	2702580	2.51		105	5678	
549.00 > 99.00	3.352	3.349	0.003	1.114	960352		2.81(1.33-3.97)	105	3005	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 26 M2-8:2FTS										
529.00 > 81.00	3.352	3.350	0.002	1.272	925568	2.42		101	2891	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.352	3.352	0.0	1.000	1142754	2.28		95.2	3388	
D 21 13C8 FOSA										
506.00 > 78.00	3.367	3.362	0.005	1.278	4807145	2.46		98.4	5147	
D 23 13C2 PFDA										
515.00 > 470.00	3.367	3.362	0.005	1.278	2648629	2.51		100	4549	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.367	3.363	0.004	1.000	4755895	2.56		103	4417	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.367	3.363	0.004	1.000	2545941	2.47		98.9	2401	
513.00 > 169.00	3.367	3.363	0.004	1.000	445820		5.71(2.36-7.09)	98.9	409	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.518	3.515	0.003	1.335	1226949	2.49		99.7	2678	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.518	3.519	-0.001	1.000	1186265	2.50		99.8	1030	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.672	3.672	0.0	1.220	2248884	2.37		98.5	4035	
599.00 > 99.00	3.672	3.672	0.0	1.220	767562		2.93(1.39-4.16)	98.5	3286	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.689	3.681	0.008	1.400	1334519	2.47		98.7	502	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.689	3.687	0.002	1.000	1917934	2.37		94.6	1675	
563.00 > 169.00	3.689	3.687	0.002	1.000	442203		4.34(2.12-6.36)	94.6	2940	
D 30 13C2 PFUnA										
565.00 > 520.00	3.689	3.689	0.0	1.400	2217016	2.43		97.1	6582	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.689	3.689	0.0	1.000	1094433	2.44		97.7	2192	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.847	3.848	-0.001	1.278	9289246	2.53		107	9704	
35 MeFOSA										
512.00 > 169.00	3.866	3.867	-0.001		1187755	NC			574	
D 36 13C2 PFDoA										
615.00 > 570.00	3.986	3.982	0.004	1.513	2404260	2.47		98.6	5992	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.986	3.983	0.003	1.000	2559172	2.43		97.1	1708	
613.00 > 169.00	3.986	3.983	0.003	1.000	627305		4.08(2.13-6.40)	97.1	2780	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.986	3.985	0.001	1.189	1074814	2.33		96.7	3746	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.224	4.219	0.005	1.404	965249	2.44		101	2897	
699.00 > 99.00	4.215	4.219	-0.004	1.401	1312792		0.74(0.00-0.00)	101	5027	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.243	4.243	0.0	1.064	2573767	2.57		103	806	
663.00 > 169.00	4.243	4.243	0.0	1.064	780069		3.30(1.25-3.76)	103	3576	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.475	4.475	0.0	1.000	711993	2.47		98.8	3423	
713.00 > 219.00	4.475	4.475	0.0	1.000	439622		1.62(0.71-2.13)	98.8	1473	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.475	4.477	-0.002	1.698	2886501	2.47		98.8	5709	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.889	4.889	0.0	1.855	4036324	2.39		95.7	5255	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.889	4.893	-0.004	1.000	3589437	2.48		99.2	336	
813.00 > 169.00	4.889	4.893	-0.004	1.000	648476		5.54(2.86-8.58)	99.2	3323	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.238	5.236	0.002	1.071	4162136	2.58		103	265	
913.00 > 169.00	5.238	5.236	0.002	1.071	498671		8.35(3.83-11.48)	103	2219	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL5_00009 Amount Added: 1.00 Units: mL

Report Date: 29-Aug-2018 16:08:47 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_006.d

Injection Date: 29-Aug-2018 13:01:03 Instrument ID: A8_N

Lims ID: IC L5 Full

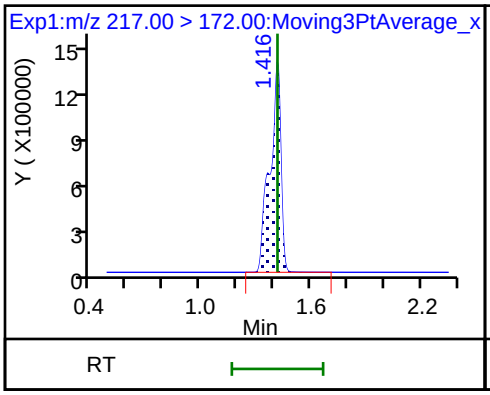
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 6

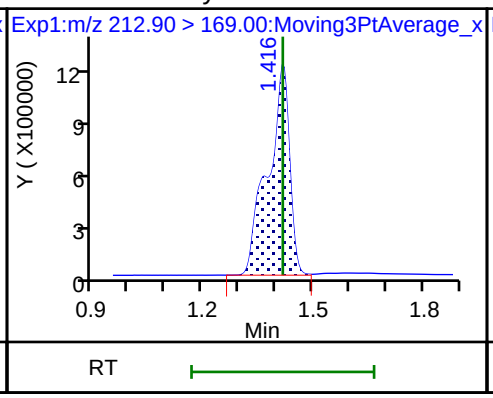
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

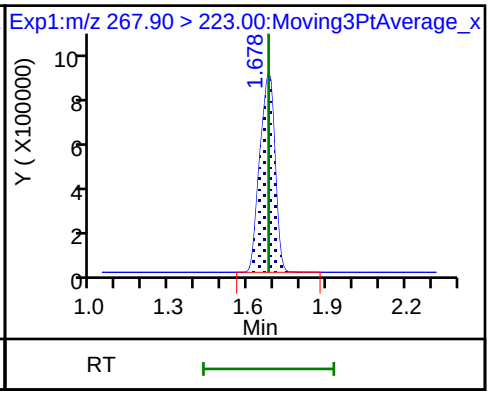
D 1 13C4 PFBA



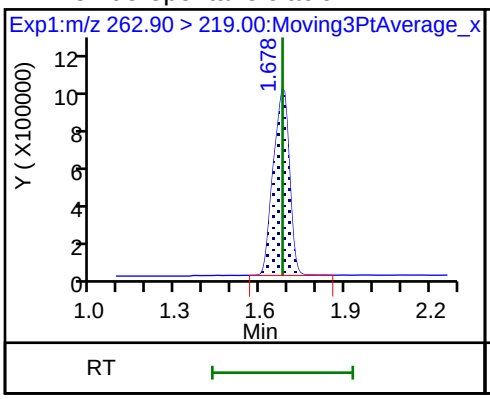
2 Perfluorobutyric acid



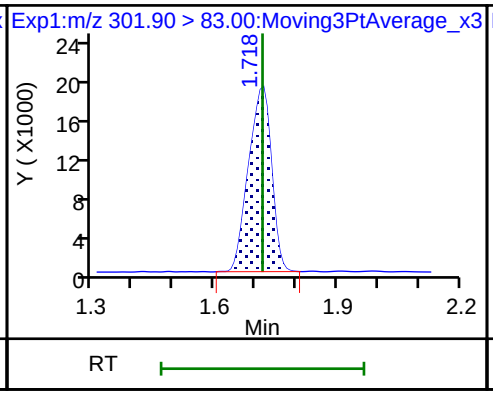
D 3 13C5-PFPeA



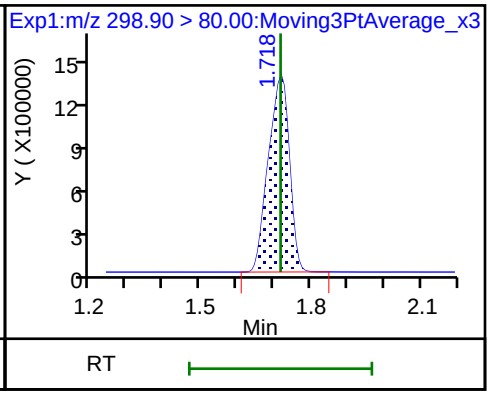
4 Perfluoropentanoic acid



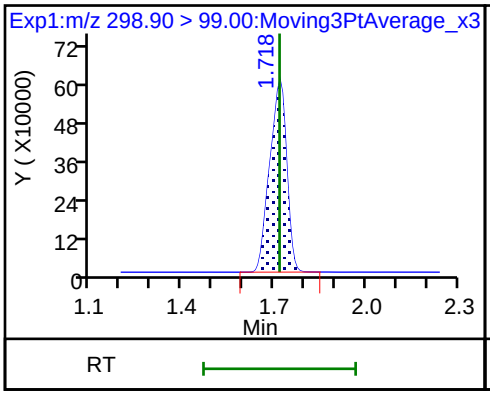
D 47 13C3-PFBS



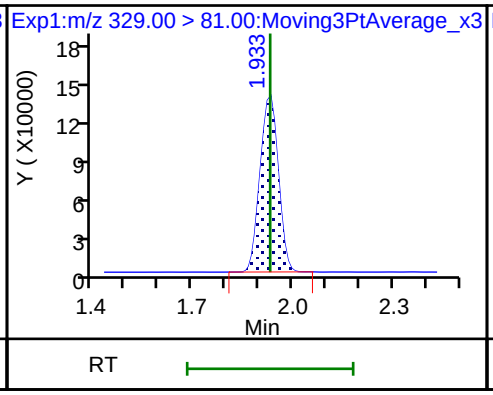
5 Perfluorobutanesulfonic acid



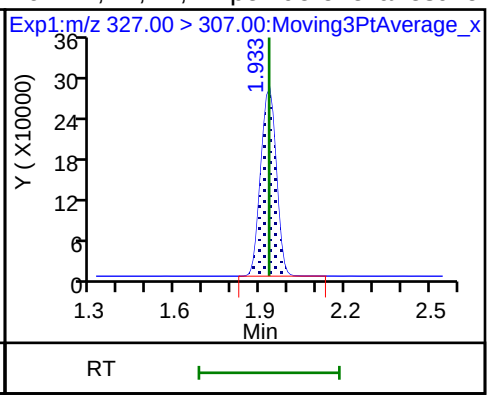
5 Perfluorobutanesulfonic acid



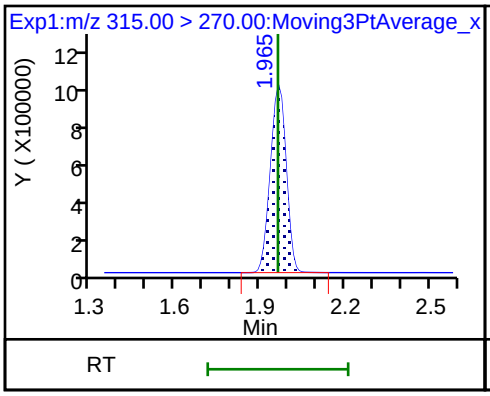
D 60 M2-4:2FTS



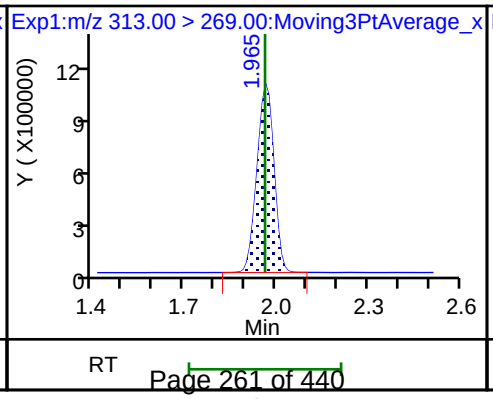
61 1H,1H,2H,2H-perfluorohexanesulfoni



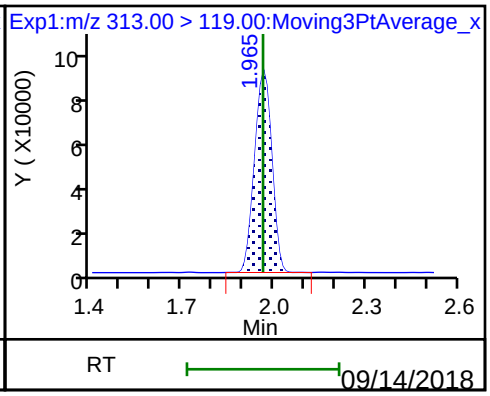
D 7 13C2 PFHxA



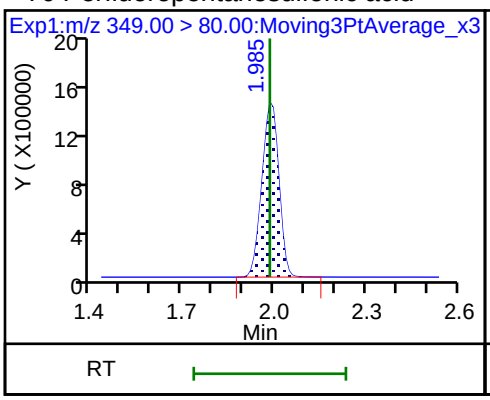
6 Perfluorohexanoic acid



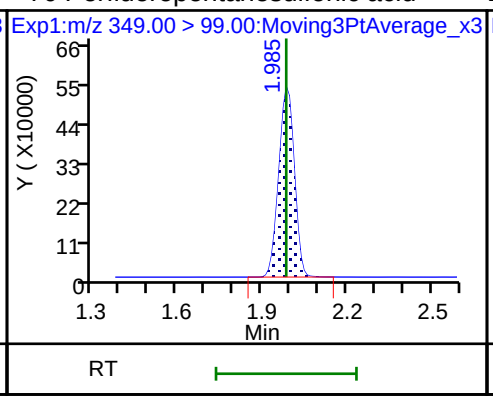
6 Perfluorohexanoic acid



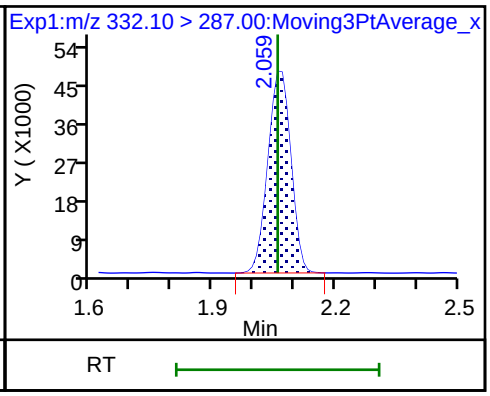
70 Perfluoropentanesulfonic acid



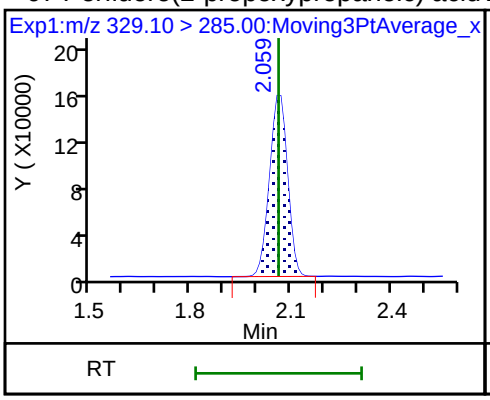
70 Perfluoropentanesulfonic acid



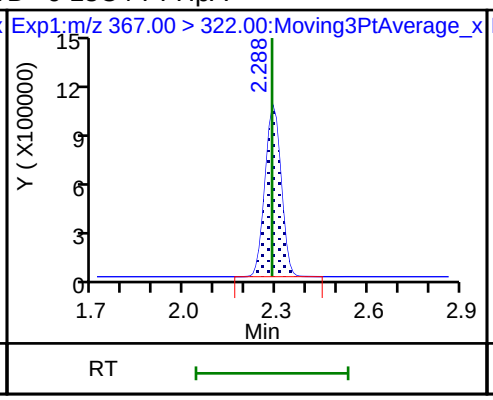
D 64 13C3 HFPO-DA



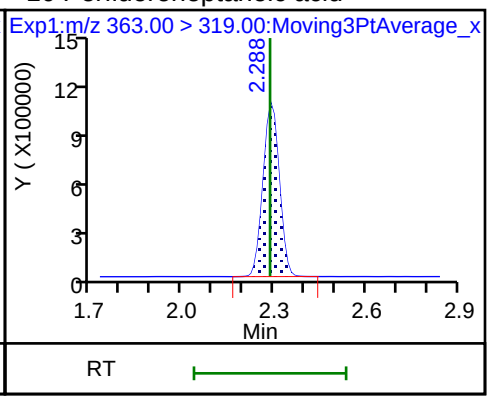
67 Perfluoro(2-propoxypropanoic) acid



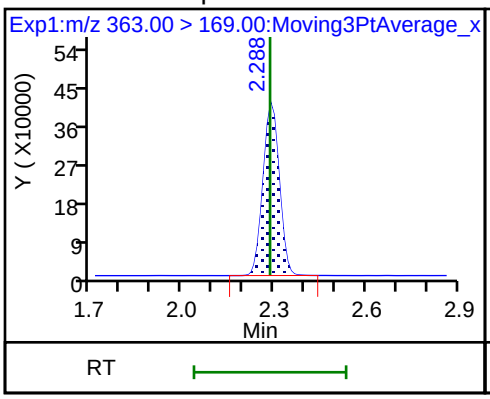
D 9 13C4-PFHpA



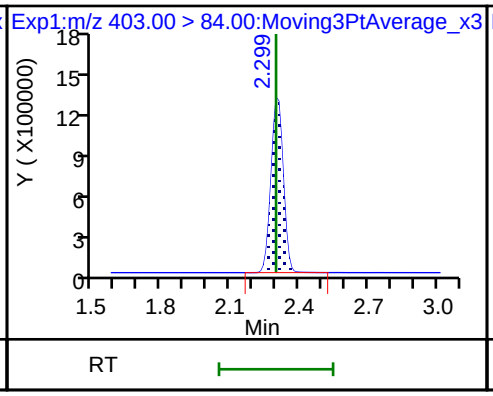
10 Perfluoroheptanoic acid



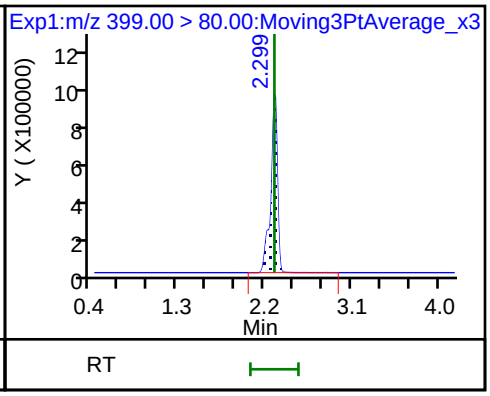
10 Perfluoroheptanoic acid



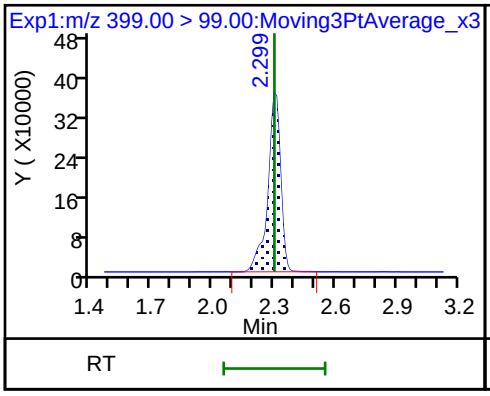
D 11 18O2 PFHxS



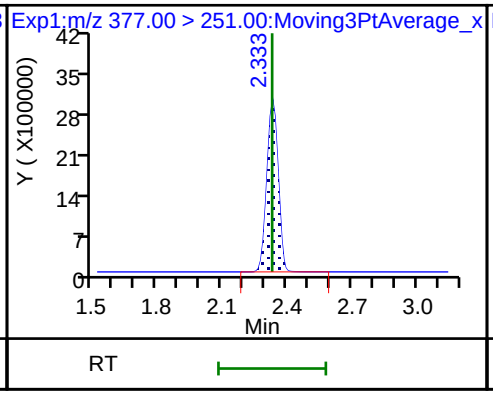
8 Perfluorohexanesulfonic acid



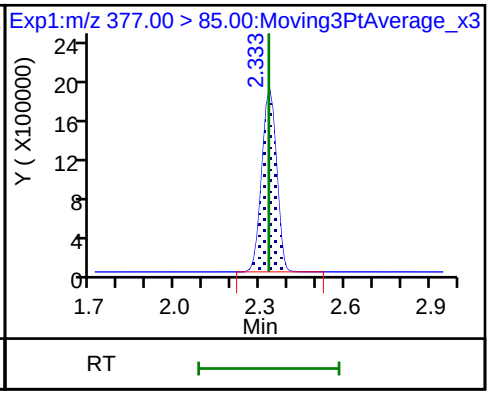
8 Perfluorohexanesulfonic acid



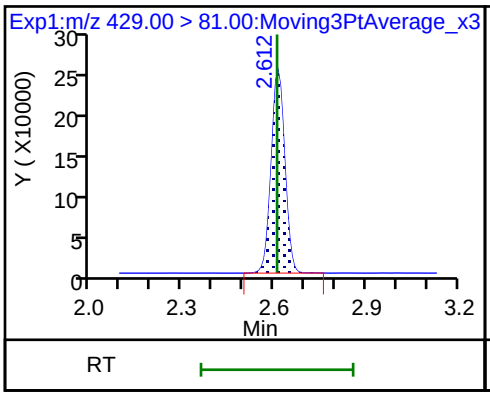
77 DONA



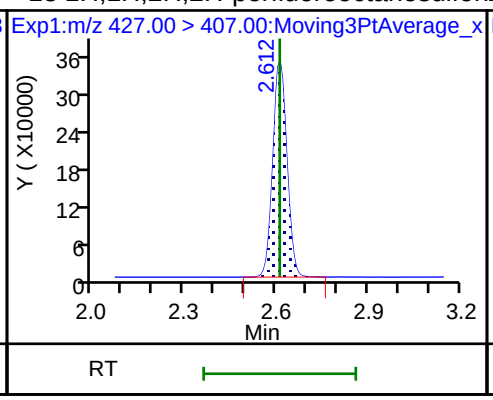
77 DONA



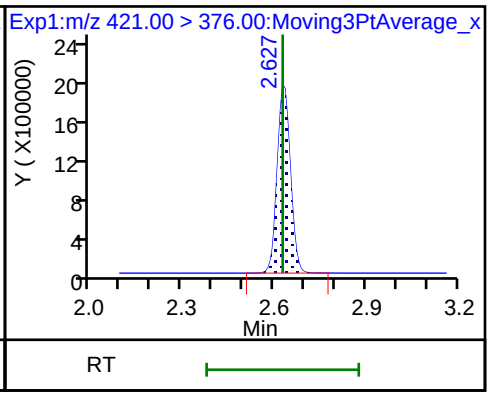
D 12 M2-6:2FTS



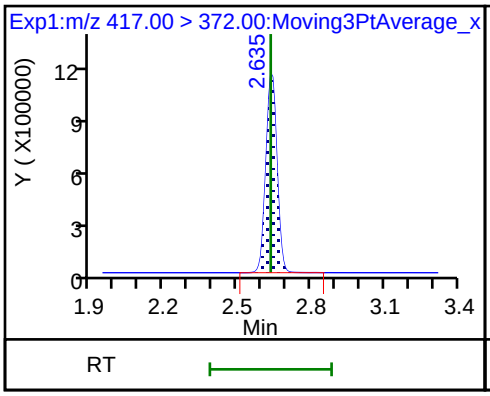
13 1H,1H,2H,2H-perfluorooctanesulfon



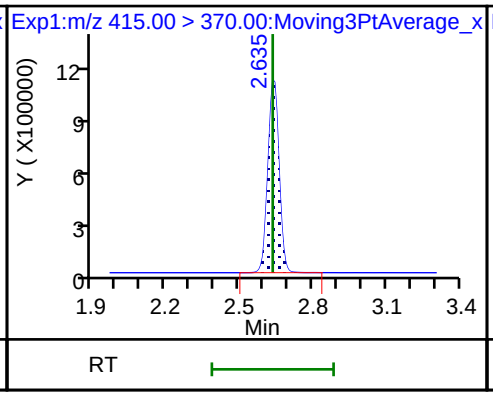
D 73 13C8 PFOA



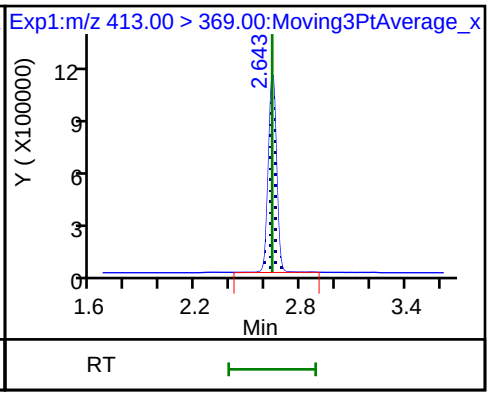
D 14 13C4 PFOA



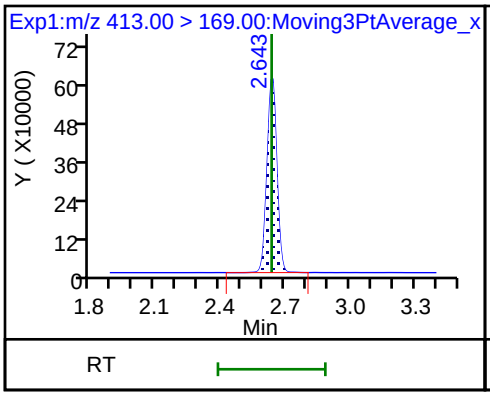
* 62 13C2-PFOA



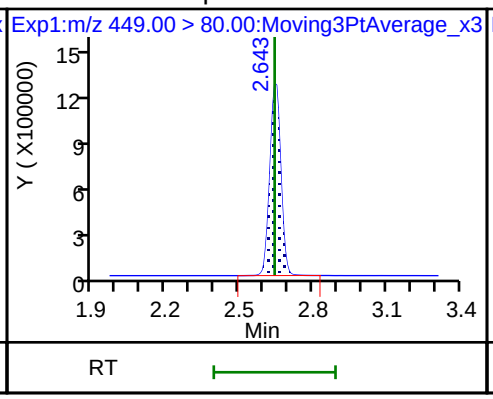
15 Perfluorooctanoic acid



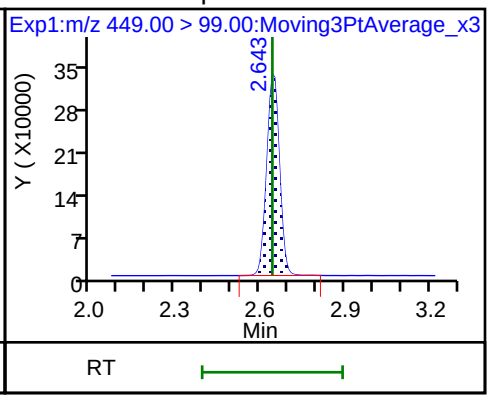
15 Perfluorooctanoic acid



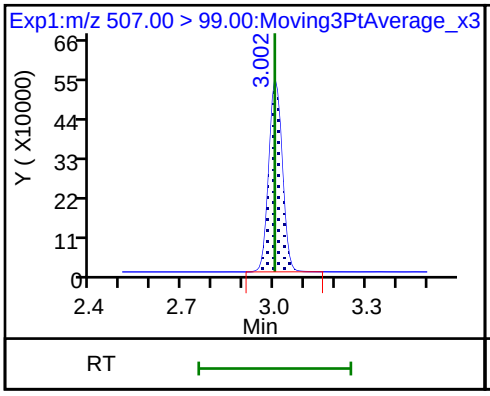
16 Perfluoroheptanesulfonic acid



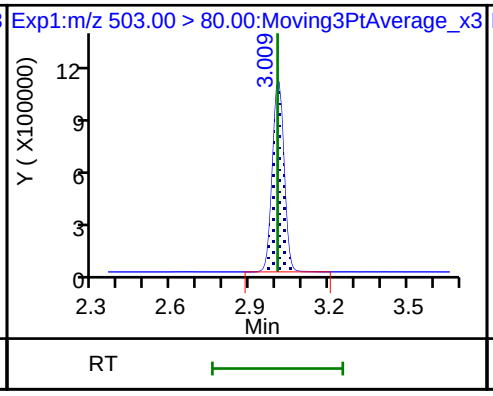
16 Perfluoroheptanesulfonic acid



D 72 13C8 PFOS



D 18 13C4 PFOS



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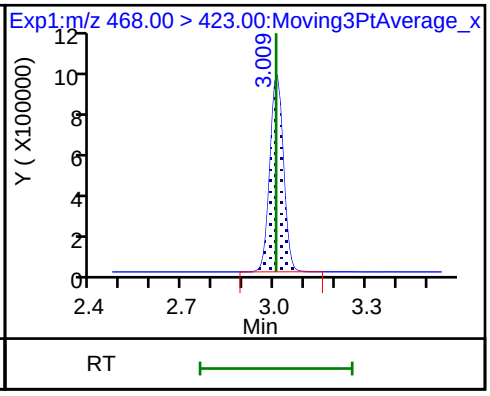
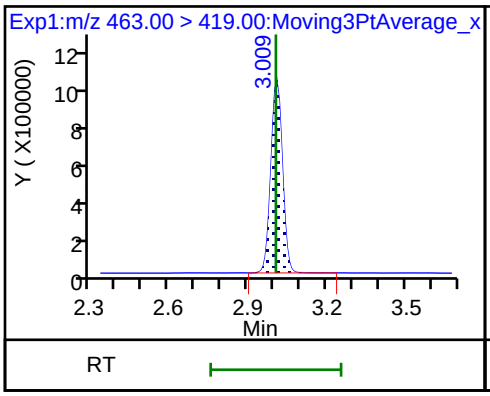
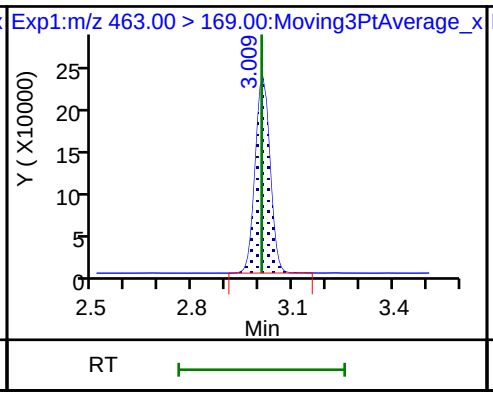


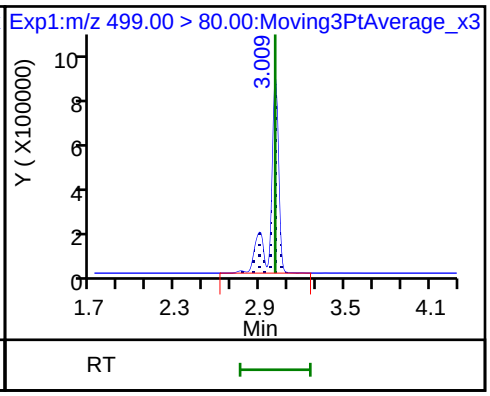
20 Perfluorononanoic acid



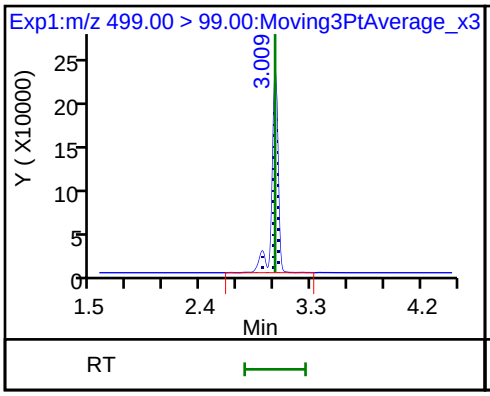
20 Perfluorononanoic acid



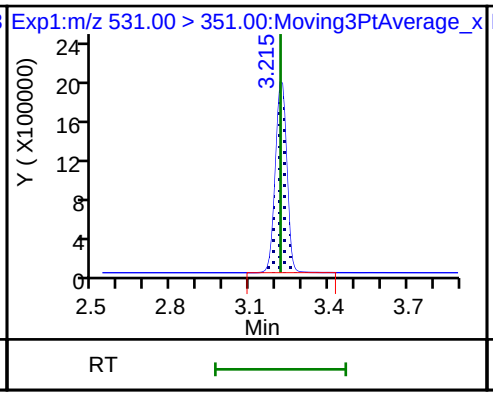
17 Perfluorooctane sulfonic acid



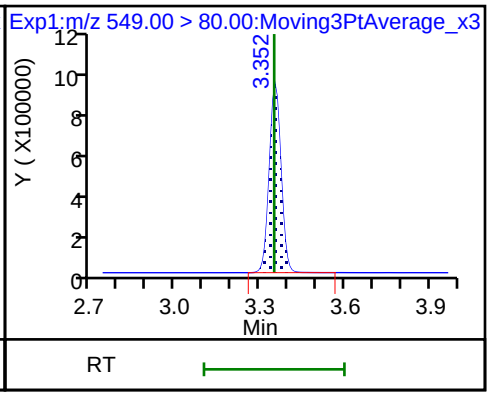
17 Perfluorooctane sulfonic acid



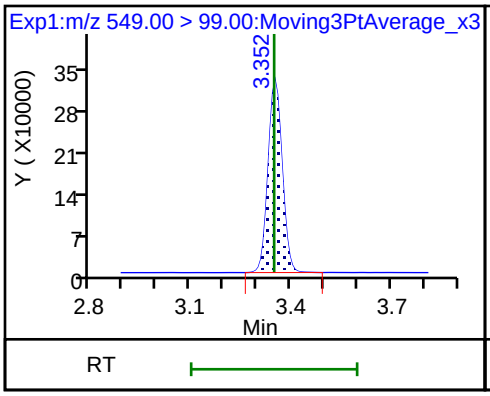
69 9-Chlorohexadecafluoro-3-oxanonane



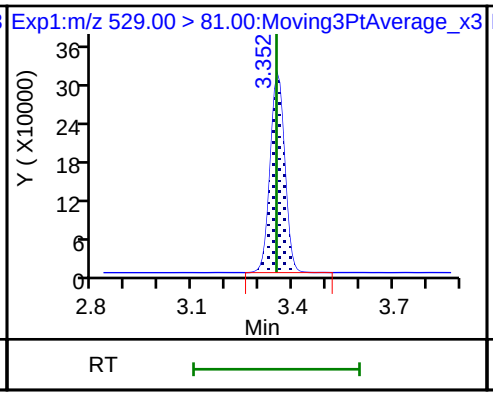
68 Perfluorononanesulfonic acid



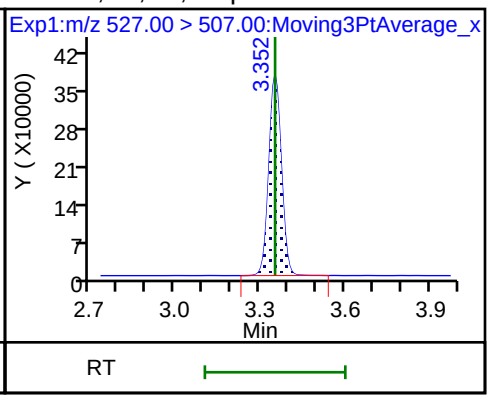
68 Perfluorononanesulfonic acid



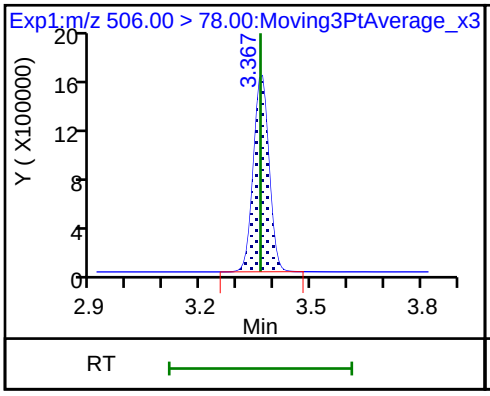
D 26 M2-8:2FTS



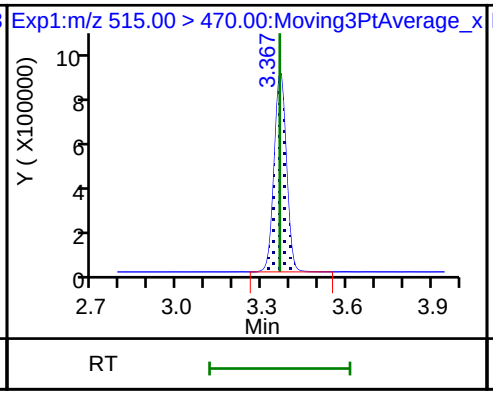
25 1H,1H,2H,2H-perfluorodecanesulfoni



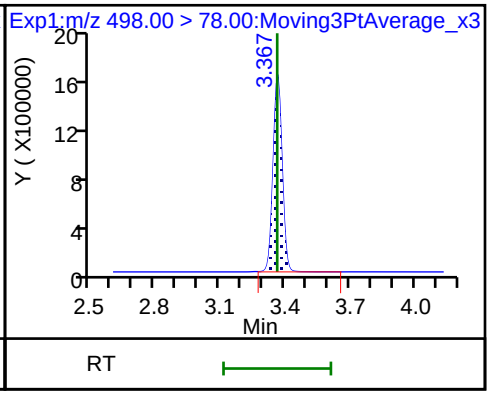
D 21 13C8 FOSA



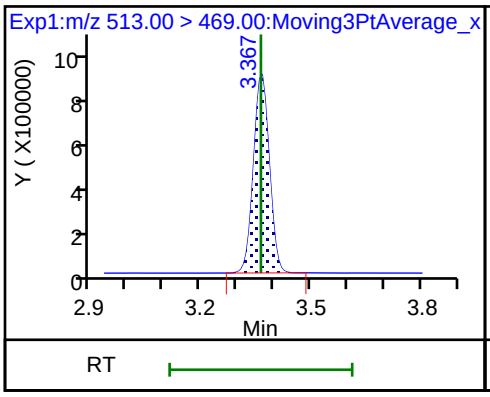
D 23 13C2 PFDA



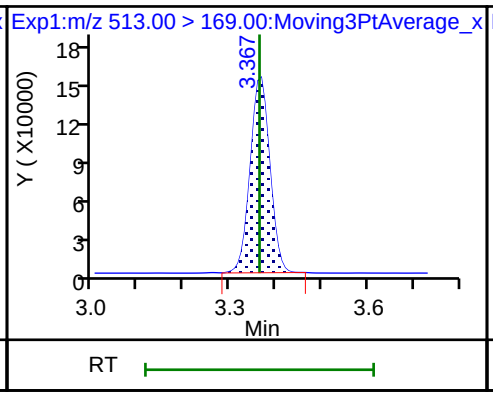
22 Perfluorooctane Sulfonamide



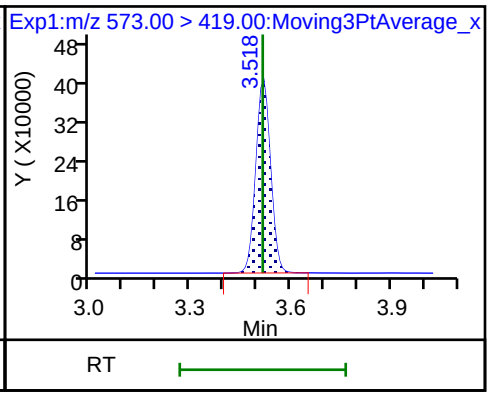
24 Perfluorodecanoic acid



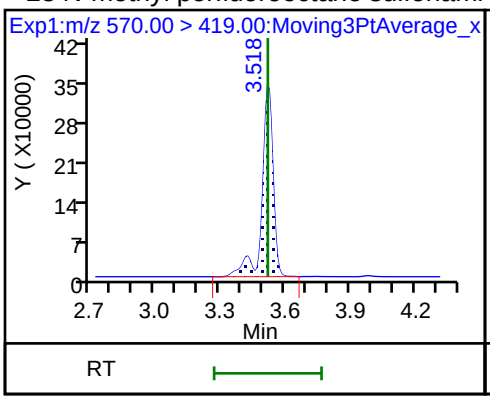
24 Perfluorodecanoic acid



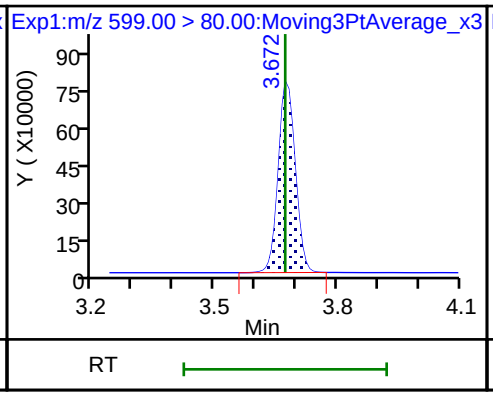
D 27 d3-NMeFOSAA



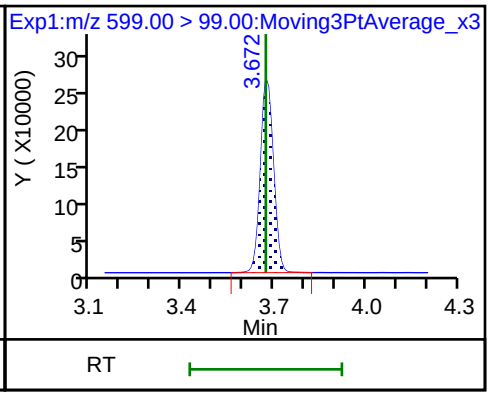
28 N-methyl perfluorooctane sulfonami



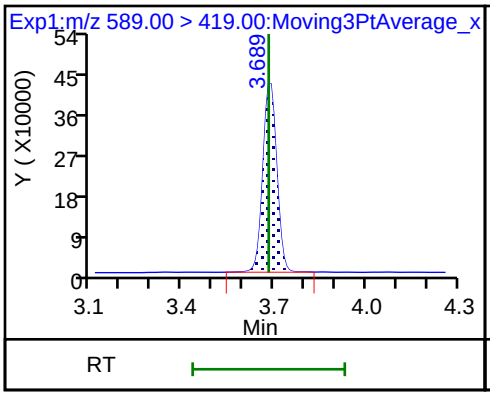
29 Perfluorodecane Sulfonic acid



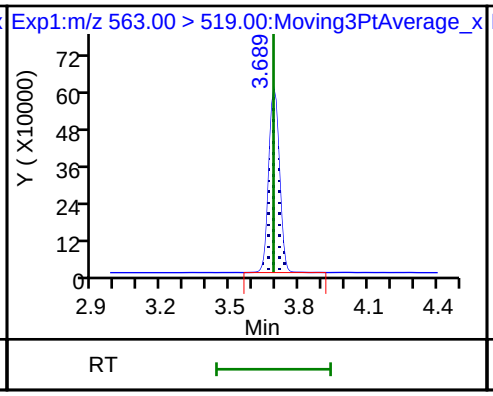
29 Perfluorodecane Sulfonic acid



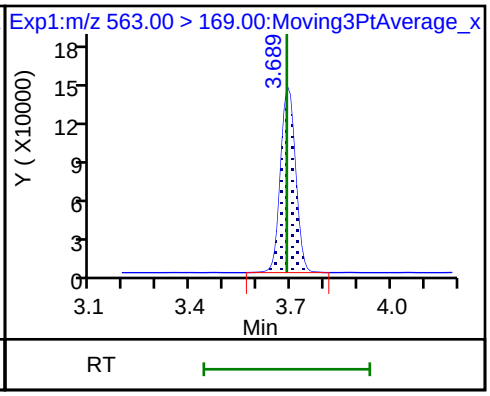
D 32 d5-NEtFOSAA



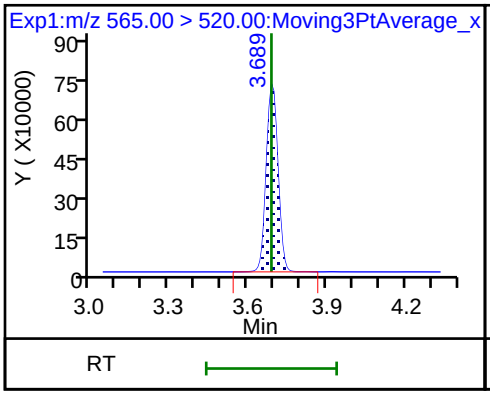
31 Perfluoroundecanoic acid



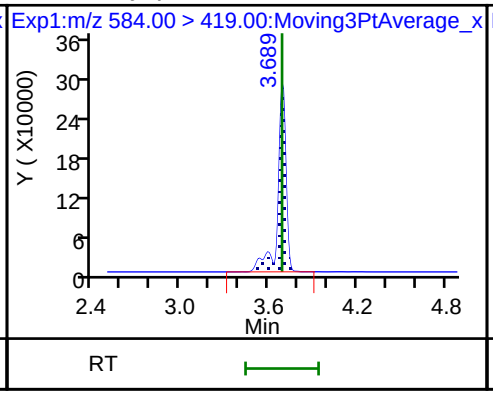
31 Perfluoroundecanoic acid



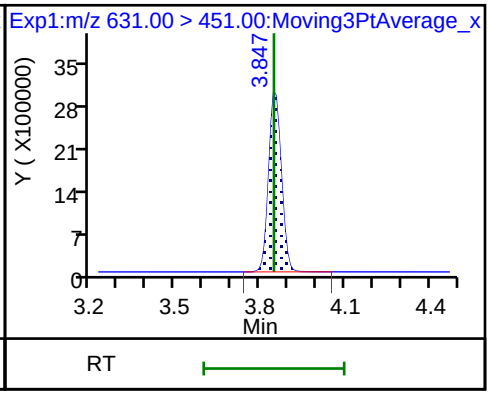
D 30 13C2 PFUnA



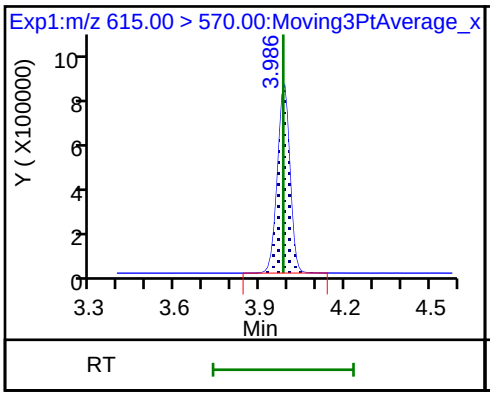
33 N-ethyl perfluorooctane sulfonamid



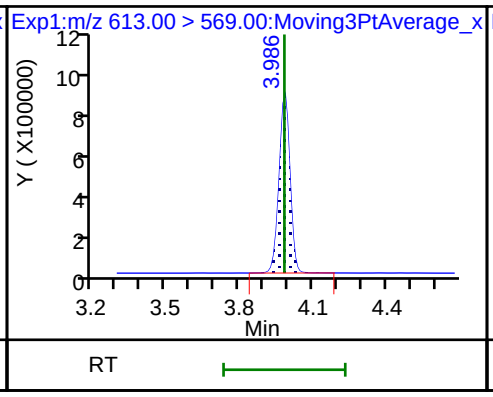
66 11-Chloroeicosafluoro-3-oxaundecan



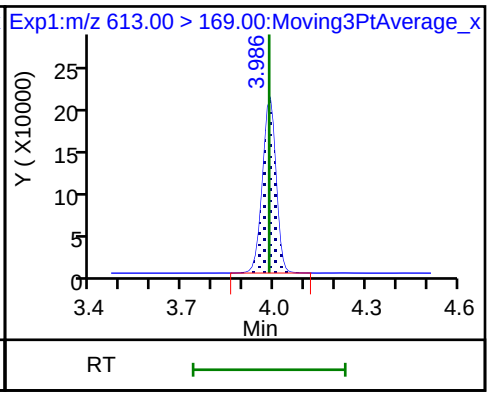
D 36 13C2 PFDoA



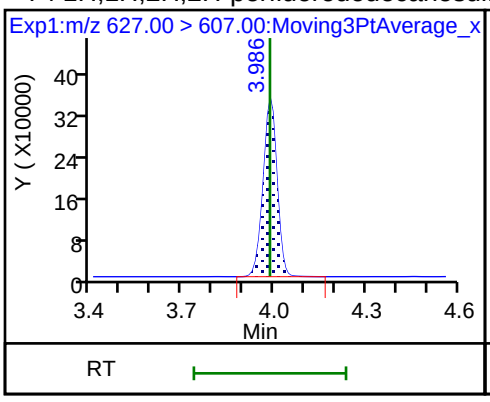
37 Perfluorododecanoic acid



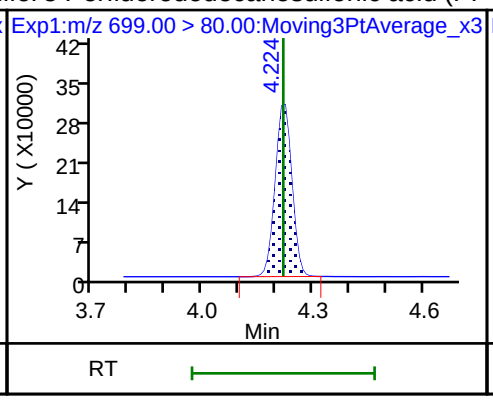
37 Perfluorododecanoic acid



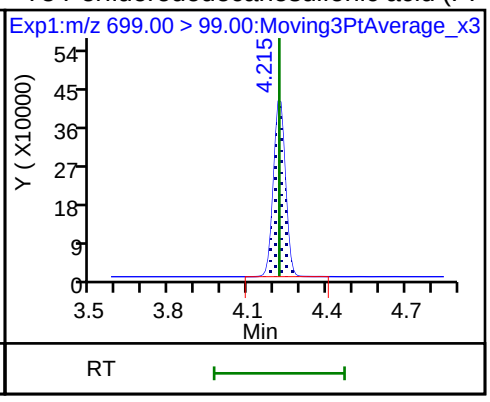
74 1H,1H,2H,2H-perfluorododecanesulfo



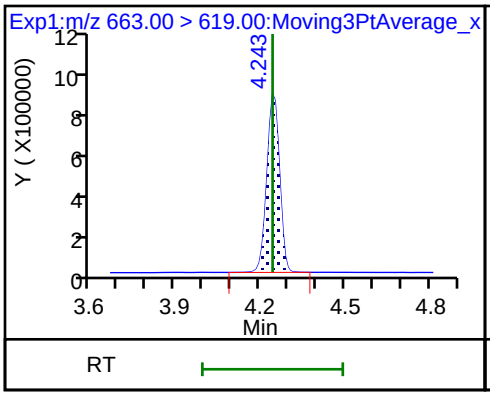
75 Perfluorododecanesulfonic acid (PF



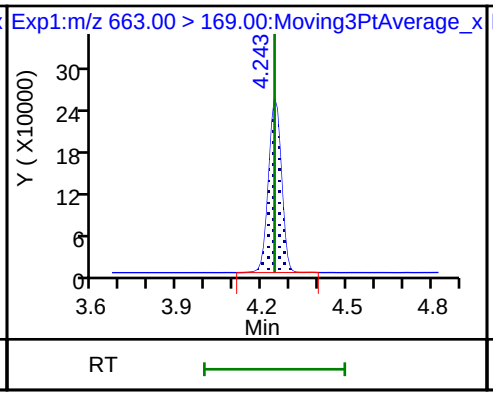
75 Perfluorododecanesulfonic acid (PF



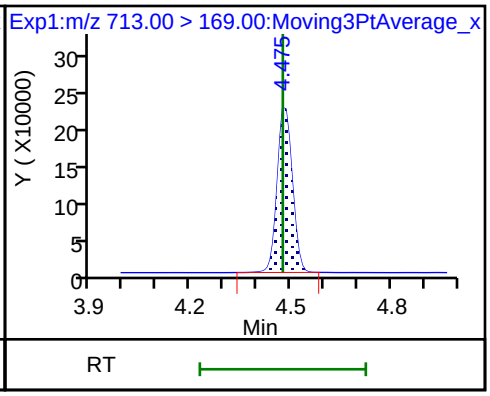
41 Perfluorotridecanoic acid



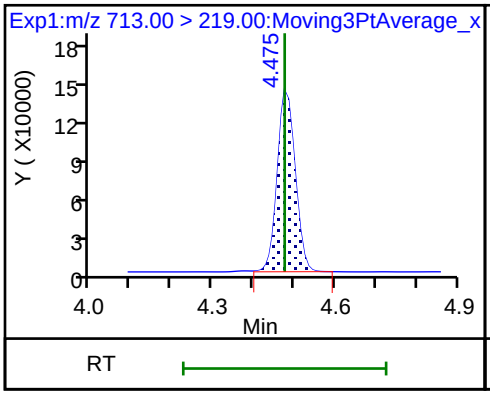
41 Perfluorotridecanoic acid



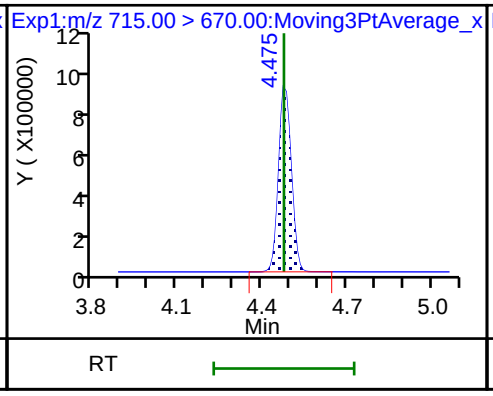
42 Perfluorotetradecanoic acid



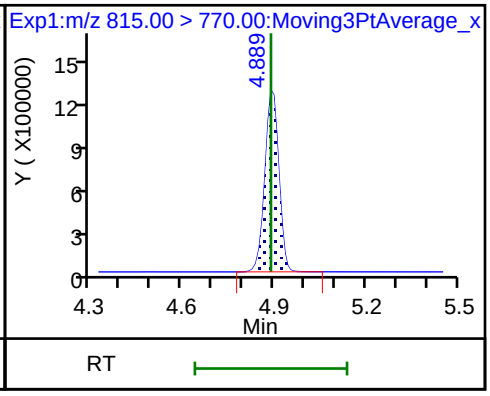
42 Perfluorotetradecanoic acid



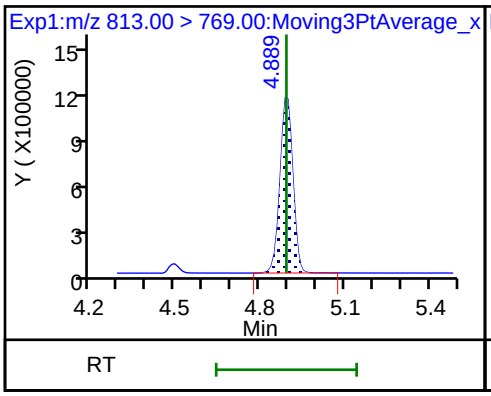
D 43 13C2-PFTeDA



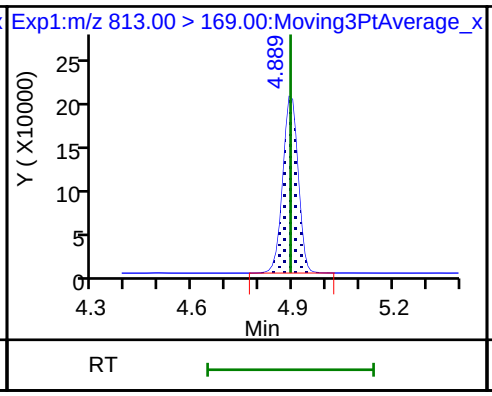
D 44 13C2-PFHxDA



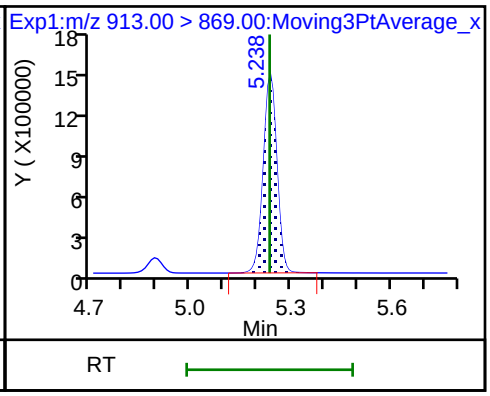
45 Perfluorohexadecanoic acid



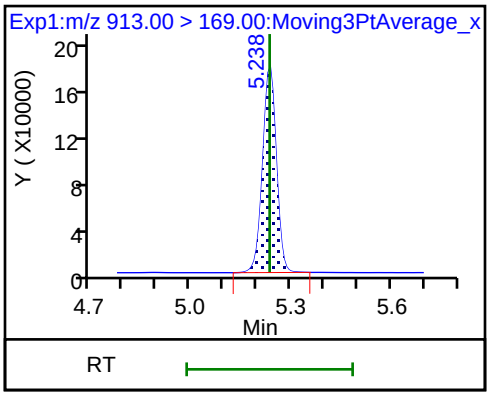
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_007.d
Lims ID: IC L6 Full
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 29-Aug-2018 13:08:51 ALS Bottle#: 15 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L6-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 29-Aug-2018 16:08:54 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK020

First Level Reviewer: roycea Date: 29-Aug-2018 14:55:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.421	1.417	0.004	0.539	6160677	2.60		104	12942	
2 Perfluorobutyric acid										
212.90 > 169.00	1.421	1.417	0.004	1.000	11369613	5.19		104	1393	
D 3 13C5-PFPeA										
267.90 > 223.00	1.680	1.678	0.002	0.637	3781038	2.52		101	8856	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.680	1.679	0.001	1.000	8439911	4.84		96.8	512	
D 47 13C3-PFBS										
301.90 > 83.00	1.720	1.716	0.004	0.652	88876	2.51		108	489	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.720	1.717	0.003	1.000	12308003	4.30		97.3	14560	
298.90 > 99.00	1.720	1.717	0.003	1.000	5142761		2.39(1.25-3.74)	97.3	11017	
D 60 M2-4:2FTS										
329.00 > 81.00	1.934	1.931	0.003	0.734	535031	2.26		96.8	1409	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.934	1.931	0.003	1.125	2473658	4.21		90.1	14169	
D 7 13C2 PFHxA										
315.00 > 270.00	1.966	1.963	0.003	0.746	4132255	2.46		98.4	13491	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.966	1.963	0.003	1.000	8274782	4.97		99.4	3349	
313.00 > 119.00	1.966	1.963	0.003	1.000	780197		10.61(5.03-15.10)	99.4	4091	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.987	1.985	0.002	1.155	11767977	4.46		95.2	14430	
349.00 > 99.00	1.987	1.985	0.002	1.155	4661291		2.52(1.36-4.07)	95.2	10358	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.060	2.058	0.002	0.781	183789	2.27		91.0	607	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.070	2.063	0.007	1.005	1272421	5.47		109	1799	
D 9 13C4-PFHpA										
367.00 > 322.00	2.289	2.286	0.003	0.868	3815284	2.41		96.3	12669	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.289	2.286	0.003	1.000	8457247	5.06		101	3229	
363.00 > 169.00	2.289	2.286	0.003	1.000	3291907		2.57(1.13-3.40)	101	4720	
D 11 18O2 PFHxS										
403.00 > 84.00	2.301	2.298	0.002	0.873	4962966	2.36		99.6	8876	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.301	2.300	0.0	1.000	10308125	4.49		98.7	9555	
399.00 > 99.00	2.301	2.300	0.0	1.000	3537835		2.91(1.50-4.49)	98.7	4101	
77 DONA										
377.00 > 251.00	2.334	2.330	0.004	0.777	22070329	4.43		94.1	18316	
377.00 > 85.00	2.334	2.330	0.004	0.777	14114333		1.56(0.85-2.54)	94.1	10400	
D 12 M2-6:2FTS										
429.00 > 81.00	2.606	2.609	-0.003	0.988	872332	2.43		102	4904	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.614	2.611	0.003	1.003	2571549	4.66		98.3	7223	
D 73 13C8 PFOA										
421.00 > 376.00	2.629	2.627	0.002	0.997	6063311	2.41		98.5	12827	
D 14 13C4 PFOA										
417.00 > 372.00	2.637	2.635	0.002	1.000	3784421	2.50		100	6838	
* 62 13C2-PFOA										
415.00 > 370.00	2.637	2.635	0.002		3836230	2.50			6449	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.637	2.637	0.0	1.000	8158597	4.77		95.3	1280	
413.00 > 169.00	2.637	2.637	0.0	1.000	4289740		1.90(0.84-2.52)	95.3	5135	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.644	2.643	0.001	0.880	8922933	4.94		104	9604	
449.00 > 99.00	2.644	2.643	0.001	0.880	2426074		3.68(1.94-5.82)	104	5005	
D 72 13C8 PFOS										
507.00 > 99.00	3.005	3.001	0.004	1.140	1829649	2.48		104	4944	
D 18 13C4 PFOS										
503.00 > 80.00	3.005	3.004	0.001	1.140	3545645	2.46		103	3510	
D 19 13C5 PFNA										
468.00 > 423.00	3.005	3.006	-0.001	1.140	3086183	2.48		99.4	8845	
20 Perfluorononanoic acid										
463.00 > 419.00	3.005	3.006	-0.001	1.000	6446581	5.03		101	2189	
463.00 > 169.00	3.005	3.006	-0.001	1.000	1547758		4.17(1.90-5.69)	101	5960	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.005	3.006	-0.001	1.000	7712456	4.73		102	4984	
499.00 > 99.00	3.005	3.006	-0.001	1.000	1683054		4.58(2.31-6.93)	102	3901	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.216	3.216	0.0	1.070	12566387	4.67		100	8183	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.347	3.349	-0.002	1.114	5796503	4.85		101	6291	
549.00 > 99.00	3.347	3.349	-0.002	1.114	2139188		2.71(1.33-3.97)	101	4318	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 26 M2-8:2FTS										
529.00 > 81.00	3.347	3.350	-0.003	1.270	949558	2.27		94.9	2569	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.355	3.352	0.003	1.002	2323183	4.52		94.4	3191	
D 21 13C8 FOSA										
506.00 > 78.00	3.362	3.362	0.0	1.275	5170371	2.42		97.0	6054	
D 23 13C2 PFDA										
515.00 > 470.00	3.362	3.362	0.0	1.275	2787149	2.42		96.7	5764	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.362	3.363	-0.001	1.000	10249627	5.14		103	4638	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.362	3.363	-0.001	1.000	5575939	5.15		103	4957	
513.00 > 169.00	3.362	3.363	-0.001	1.000	958652		5.82(2.36-7.09)	103	373	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.513	3.515	-0.002	1.332	1440249	2.68		107	3707	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.521	3.519	0.002	1.002	2713327	4.86		97.3	2345	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.673	3.672	0.001	1.222	5344848	5.07		105	8921	
599.00 > 99.00	3.673	3.672	0.001	1.222	1730169		3.09(1.39-4.16)	105	5010	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.682	3.681	0.001	1.396	1419589	2.41		96.3	484	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.682	3.687	-0.005	0.998	4362409	4.85		97.0	3233	
563.00 > 169.00	3.690	3.687	0.003	1.000	936399		4.66(2.12-6.36)	97.0	3912	
D 30 13C2 PFUnA										
565.00 > 520.00	3.690	3.689	0.001	1.400	2460446	2.47		98.8	8001	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.690	3.689	0.001	1.002	2419584	5.08		102	2404	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.849	3.848	0.001	1.281	19113626	4.68		99.4	11641	
35 MeFOSA										
512.00 > 169.00	3.868	3.867	0.001		2806574	NC			709	
D 36 13C2 PFDoA										
615.00 > 570.00	3.978	3.982	-0.004	1.509	2722624	2.56		102	7079	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.986	3.983	0.003	1.002	5625557	4.71		94.2	3570	
613.00 > 169.00	3.986	3.983	0.003	1.002	1364774		4.12(2.13-6.40)	94.2	5920	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.986	3.985	0.001	1.191	2327340	4.92		102	5606	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.215	4.219	-0.004	1.403	2158958	4.91		101	5957	
699.00 > 99.00	4.215	4.219	-0.004	1.403	3118075		0.69(0.00-0.00)	101	8346	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.243	4.243	0.0	1.067	5424299	4.79		95.8	1586	
663.00 > 169.00	4.243	4.243	0.0	1.067	1721130		3.15(1.25-3.76)	95.8	5521	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.475	4.475	0.0	1.000	1512978	4.71		94.2	5902	
713.00 > 219.00	4.475	4.475	0.0	1.000	1024581		1.48(0.71-2.13)	94.2	5135	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.475	4.477	-0.002	1.697	3215304	2.52		101	7103	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.889	4.889	0.0	1.854	4782251	2.60		104	5954	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.898	4.893	0.005	1.002	8820127	5.17		103	641	
813.00 > 169.00	4.898	4.893	0.005	1.002	1474091		5.98(2.86-8.58)	103	4414	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.238	5.236	0.002	1.071	9523300	4.97		99.5	429	
913.00 > 169.00	5.238	5.236	0.002	1.071	1175927		8.10(3.83-11.48)	99.5	3534	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL6_00010 Amount Added: 1.00 Units: mL

Report Date: 29-Aug-2018 16:08:57 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_007.d

Injection Date: 29-Aug-2018 13:08:51 Instrument ID: A8_N

Lims ID: IC L6 Full

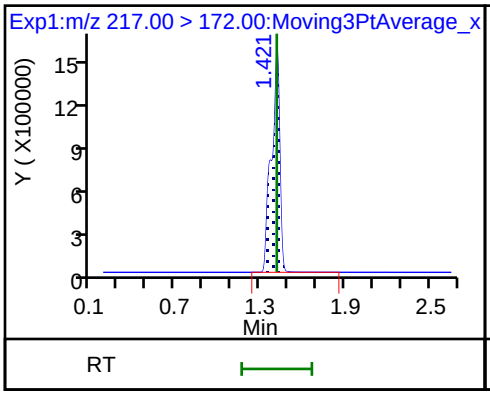
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 7

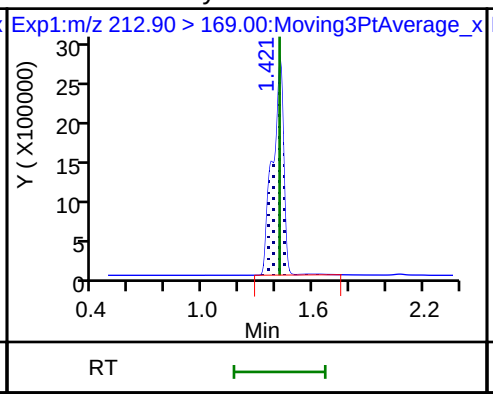
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

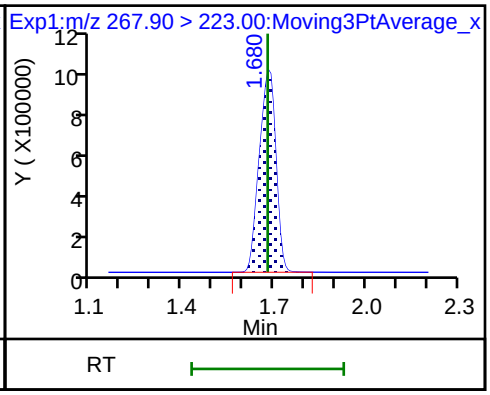
D 1 13C4 PFBA



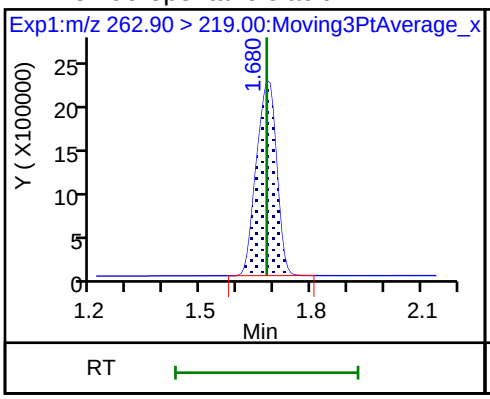
2 Perfluorobutyric acid



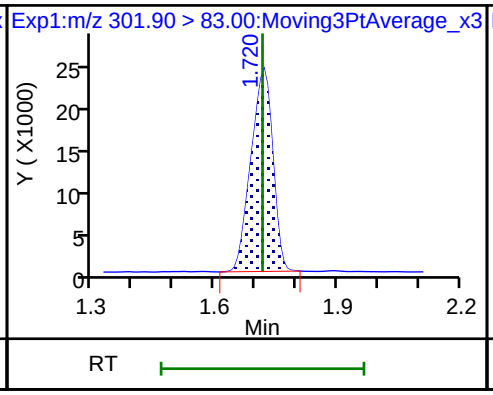
D 3 13C5-PFPeA



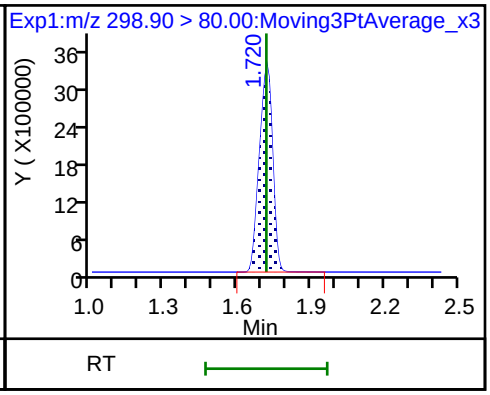
4 Perfluoropentanoic acid



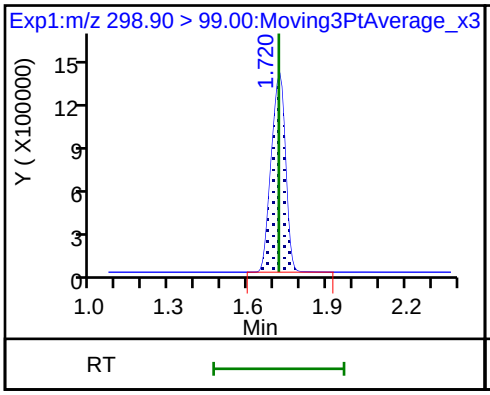
D 47 13C3-PFBS



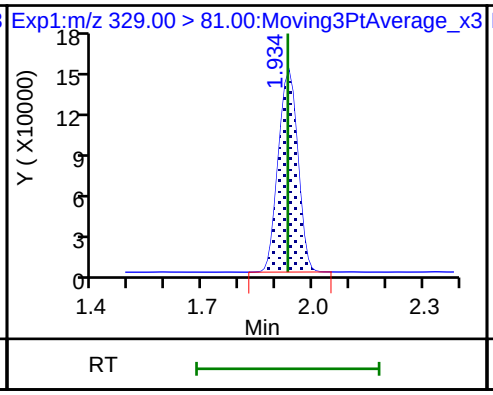
5 Perfluorobutanesulfonic acid



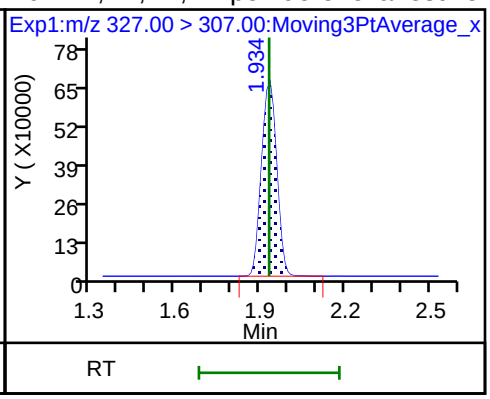
5 Perfluorobutanesulfonic acid



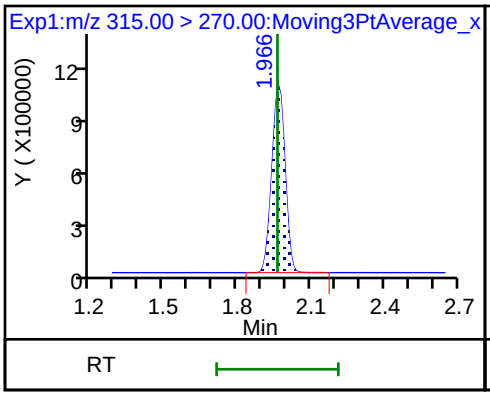
D 60 M2-4:2FTS



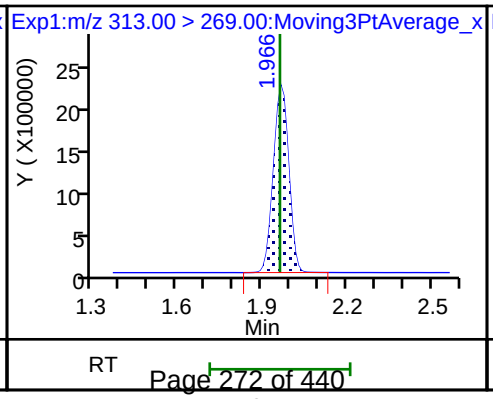
61 1H,1H,2H,2H-perfluorohexanesulfoni



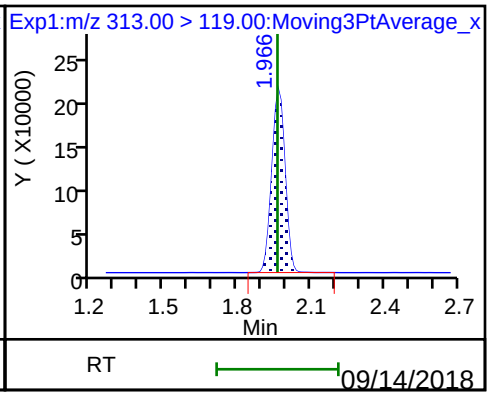
D 7 13C2 PFHxA



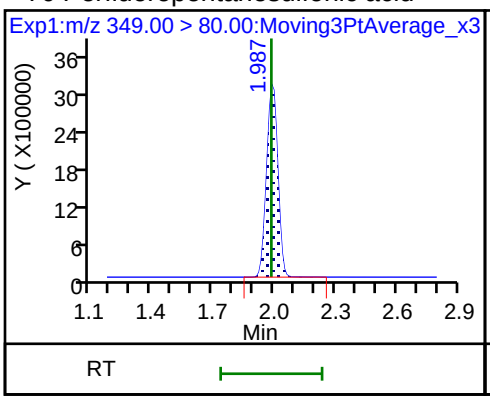
6 Perfluorohexanoic acid



6 Perfluorohexanoic acid



70 Perfluoropentanesulfonic acid



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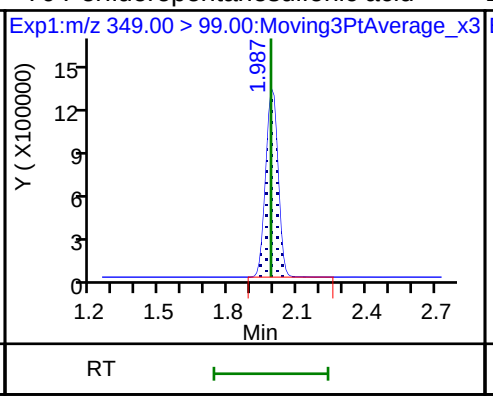
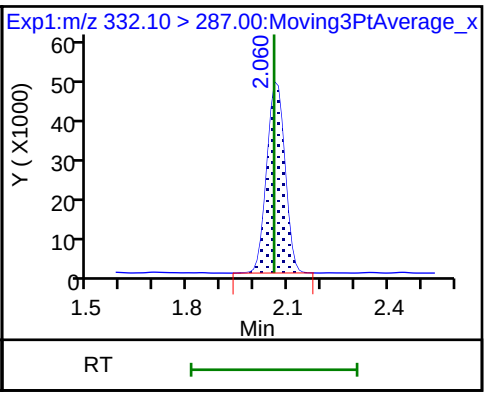
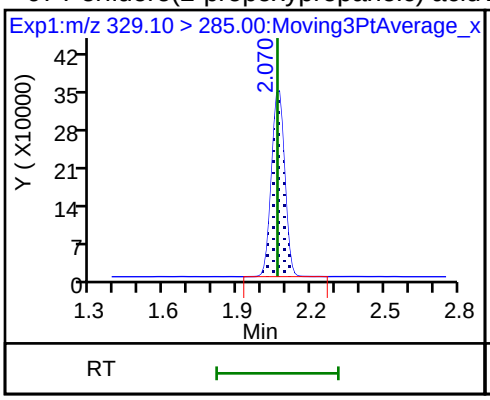


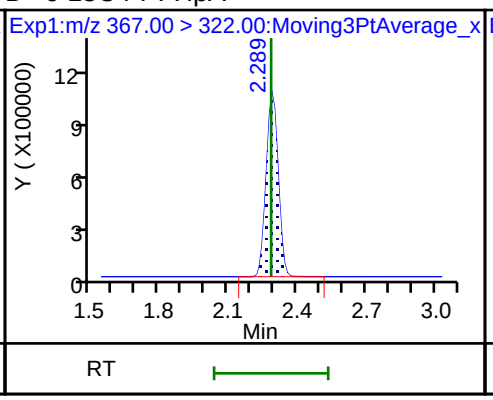
D 64 13C3 HFPO-DA



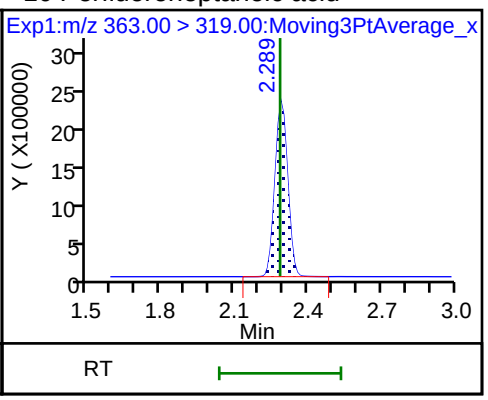
67 Perfluoro(2-propoxypropanoic) acid



D 9 13C4-PFHpA



10 Perfluoroheptanoic acid



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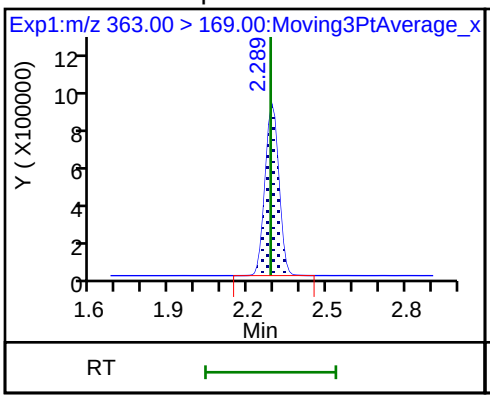
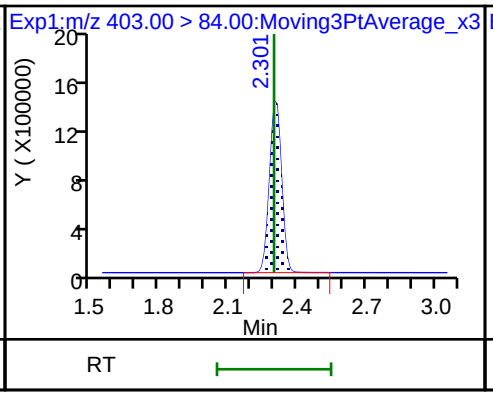
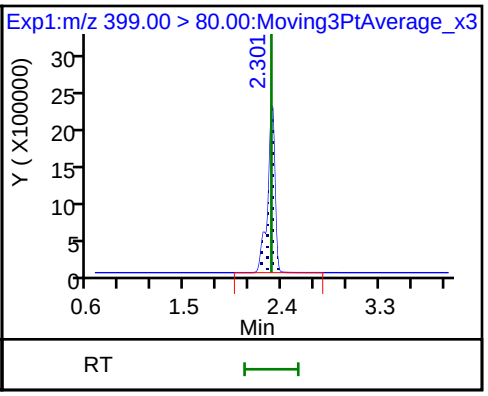


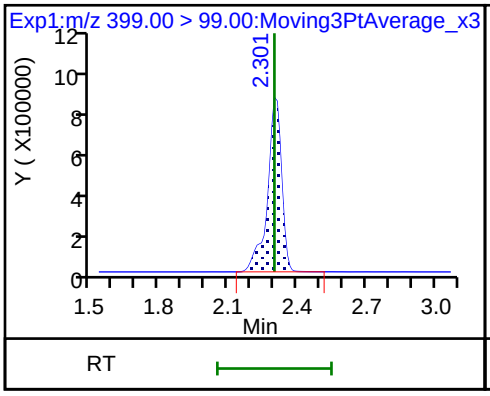
D 11 18O2 PFHxS



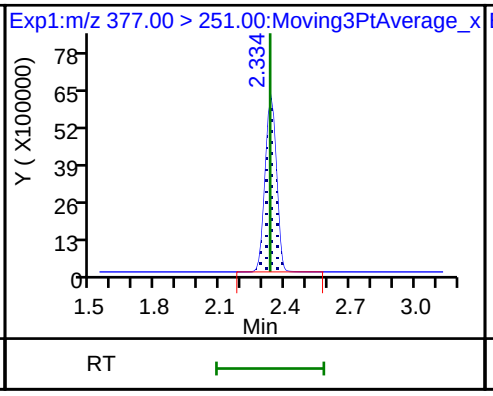
8 Perfluorohexanesulfonic acid



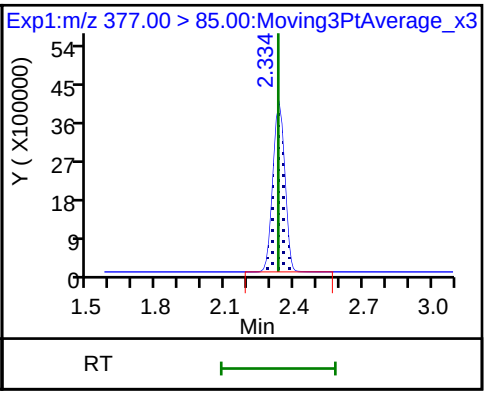
8 Perfluorohexanesulfonic acid



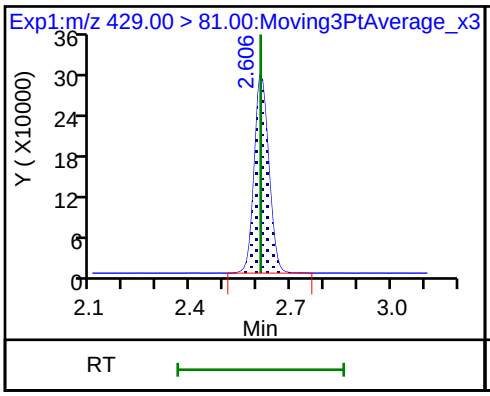
77 DONA



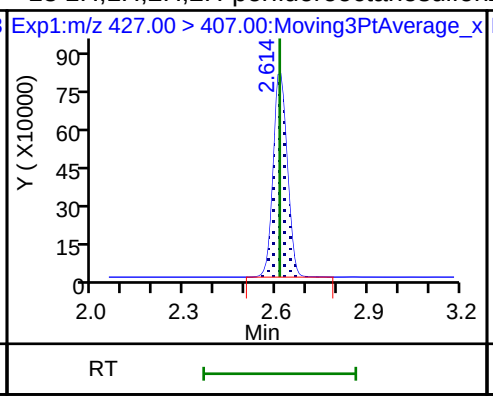
77 DONA



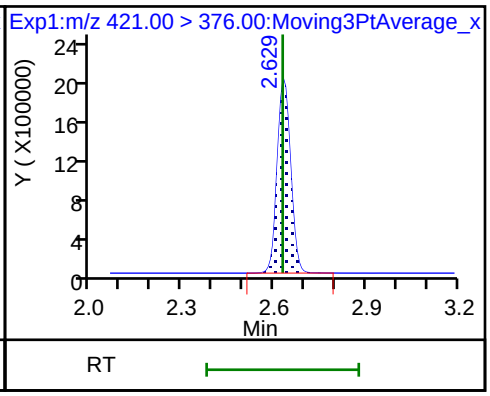
D 12 M2-6:2FTS



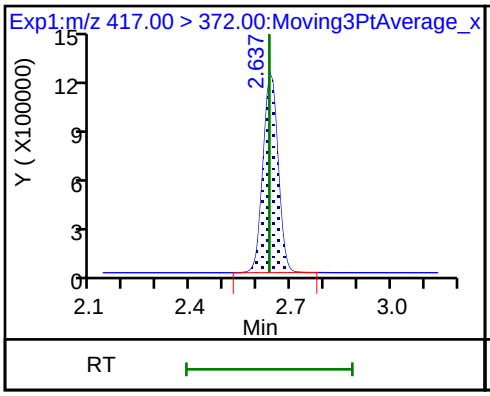
13 1H,1H,2H,2H-perfluorooctanesulfon



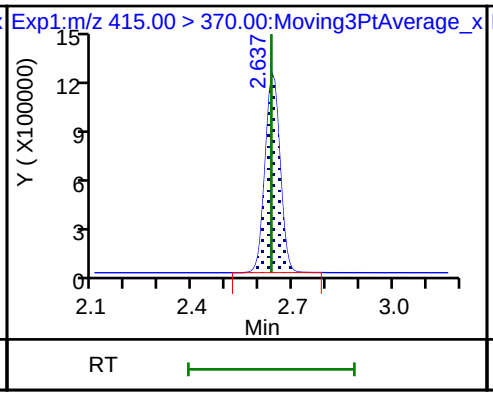
D 73 13C8 PFOA



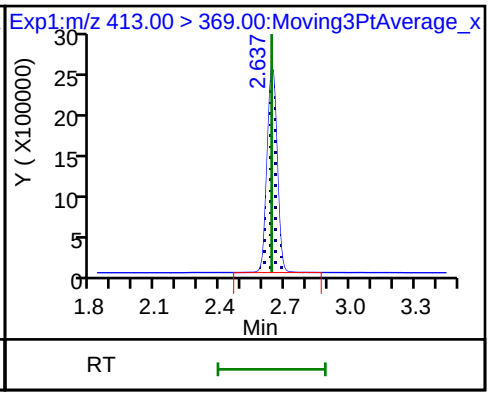
D 14 13C4 PFOA



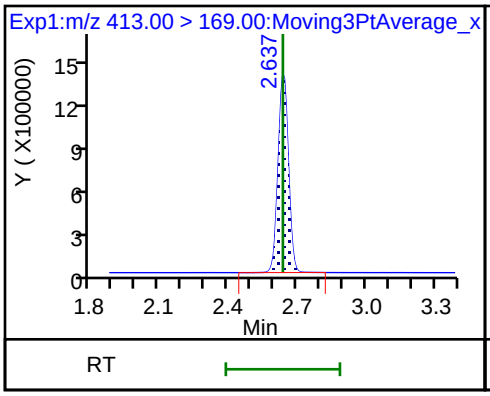
* 62 13C2-PFOA



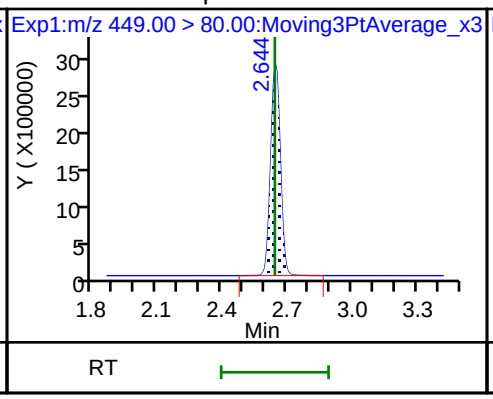
15 Perfluorooctanoic acid



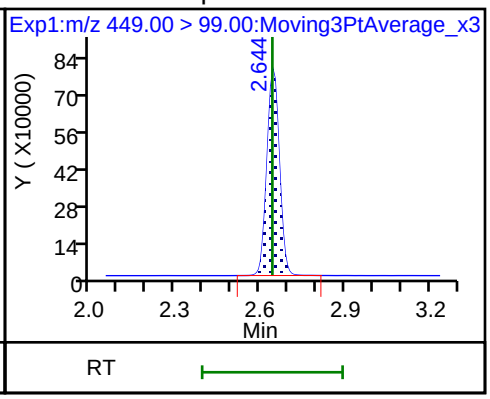
15 Perfluorooctanoic acid



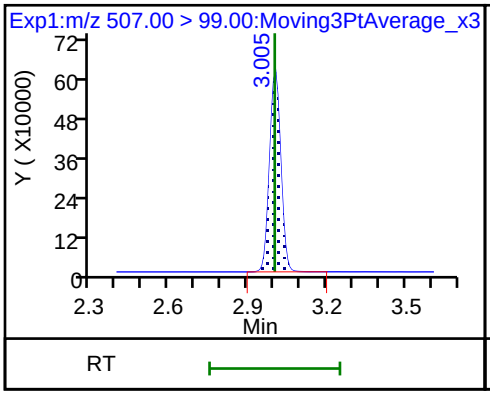
16 Perfluoroheptanesulfonic acid



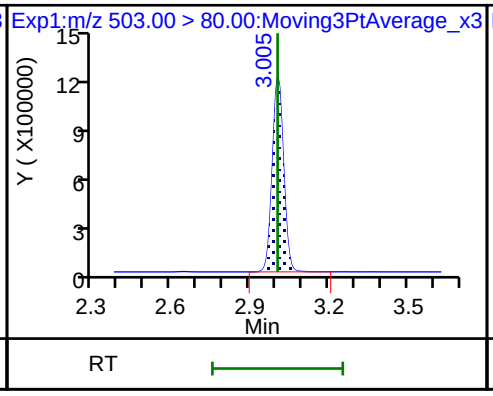
16 Perfluoroheptanesulfonic acid



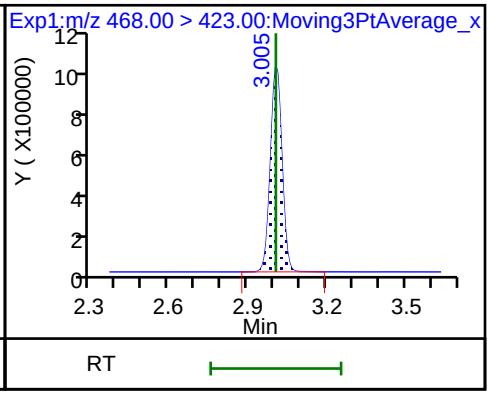
D 72 13C8 PFOS



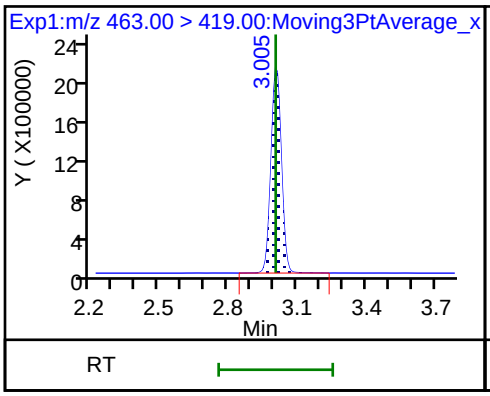
D 18 13C4 PFOS



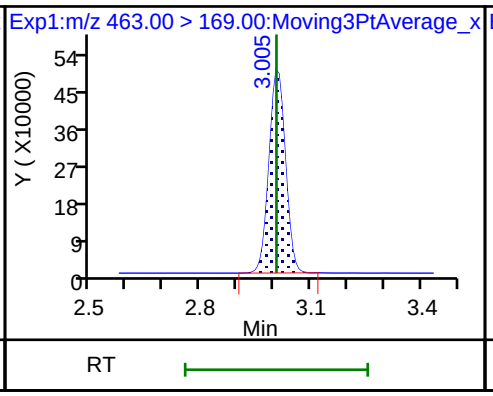
D 19 13C5 PFNA



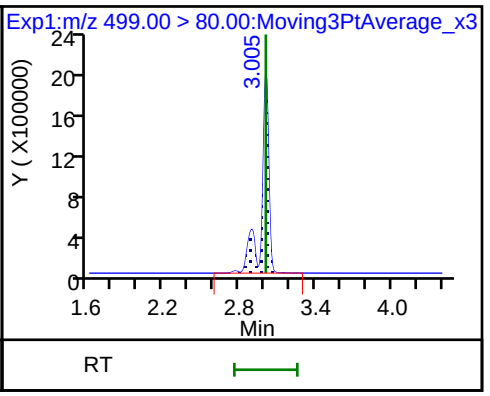
20 Perfluorononanoic acid



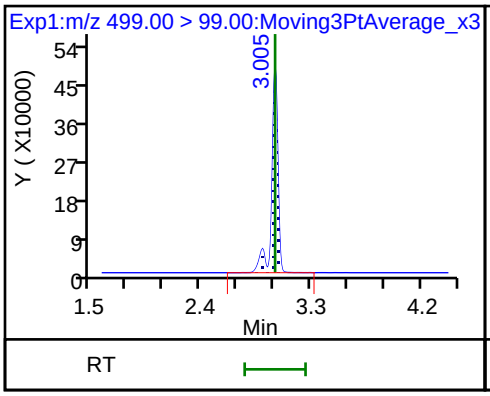
20 Perfluorononanoic acid



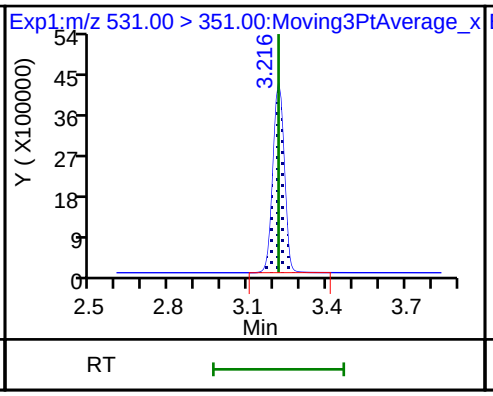
17 Perfluorooctane sulfonic acid



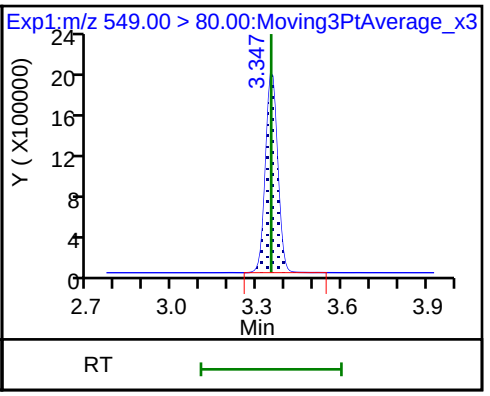
17 Perfluorooctane sulfonic acid



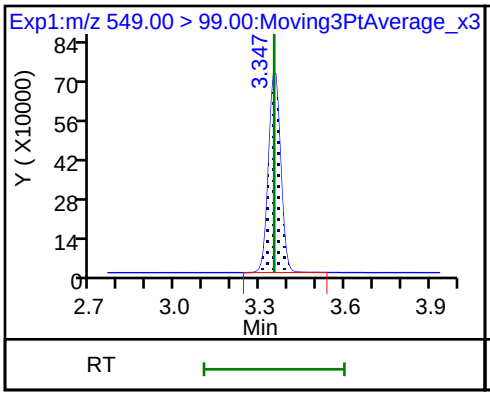
69 9-Chlorohexadecafluoro-3-oxanonane



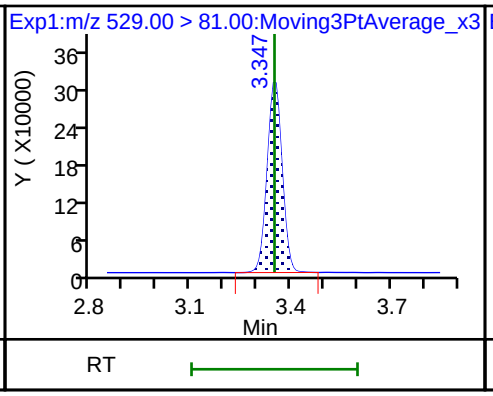
68 Perfluorononanesulfonic acid



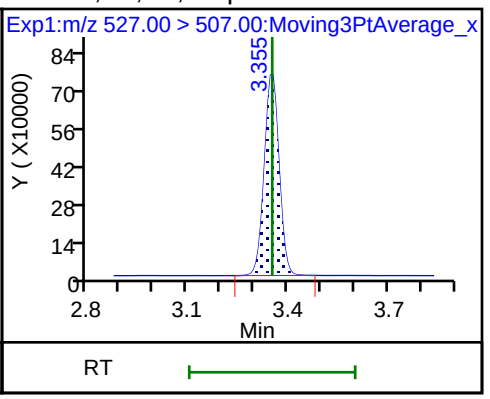
68 Perfluorononanesulfonic acid



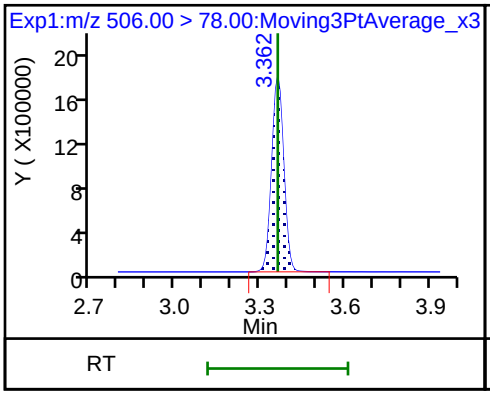
D 26 M2-8:2FTS



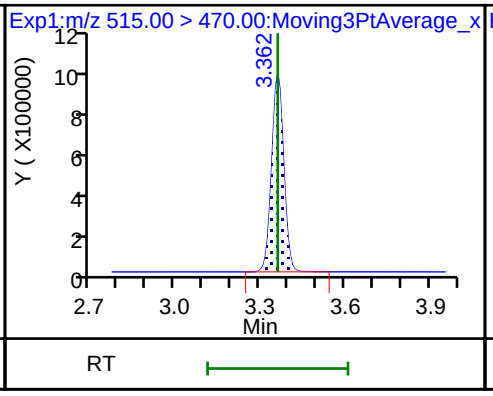
25 1H,1H,2H,2H-perfluorodecanesulfoni



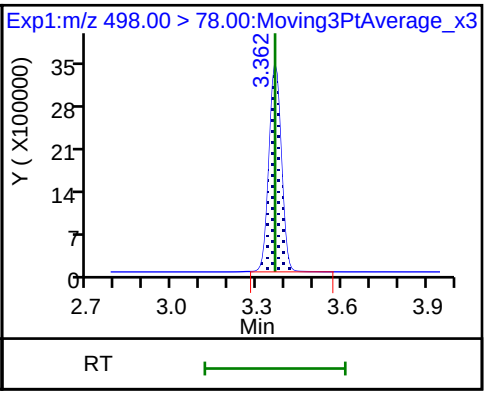
D 21 13C8 FOSA



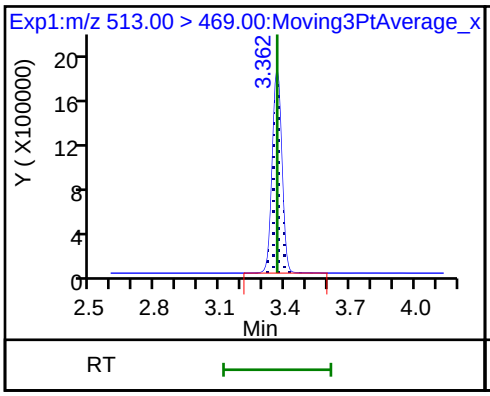
D 23 13C2 PFDA



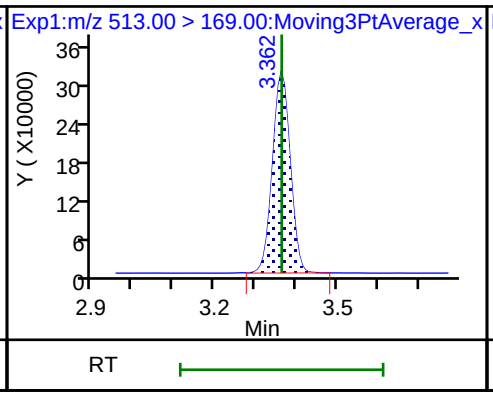
22 Perfluorooctane Sulfonamide



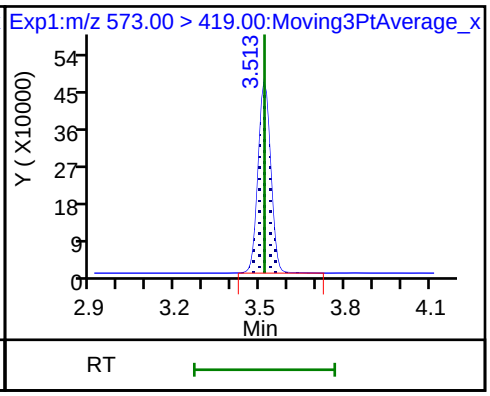
24 Perfluorodecanoic acid



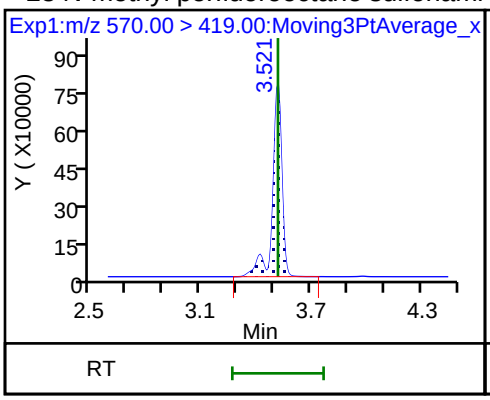
24 Perfluorodecanoic acid



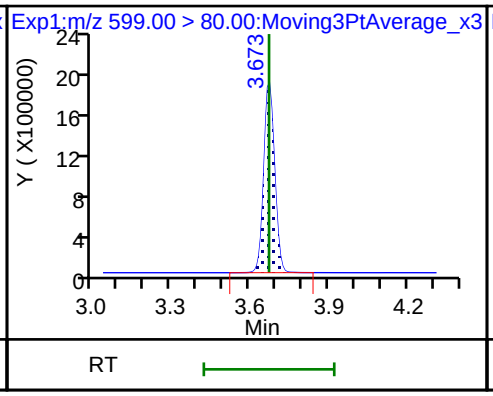
D 27 d3-NMeFOSAA



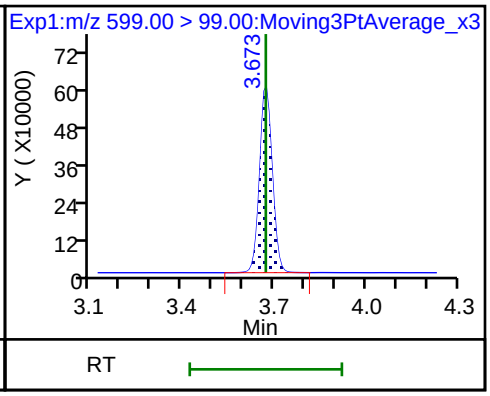
28 N-methyl perfluorooctane sulfonami



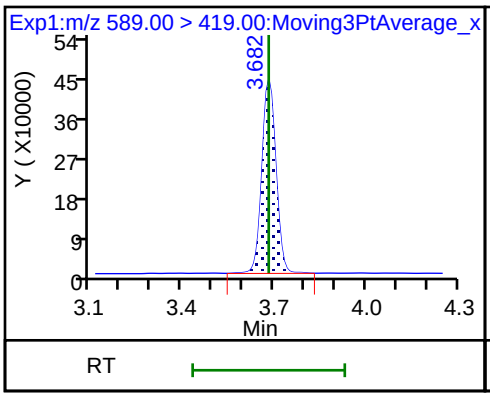
29 Perfluorodecane Sulfonic acid



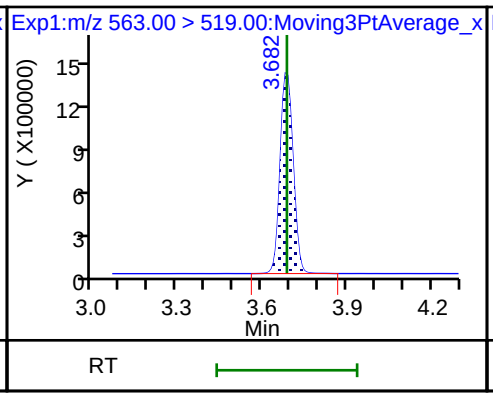
29 Perfluorodecane Sulfonic acid



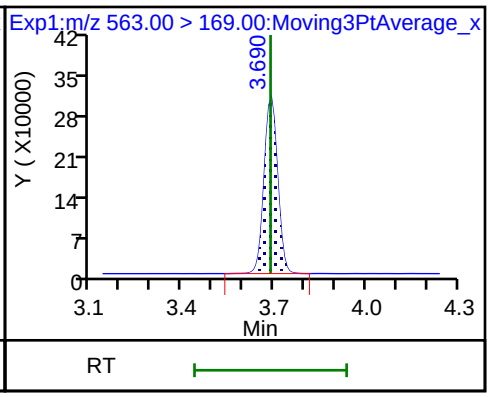
D 32 d5-NEtFOSAA



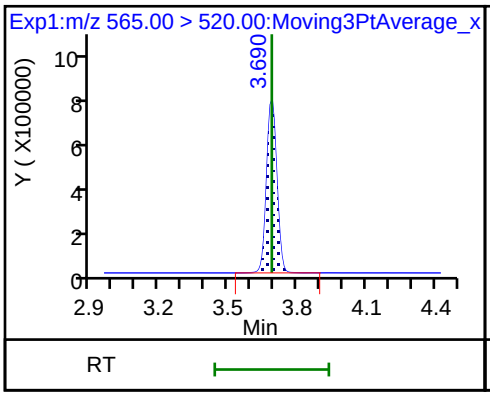
31 Perfluoroundecanoic acid



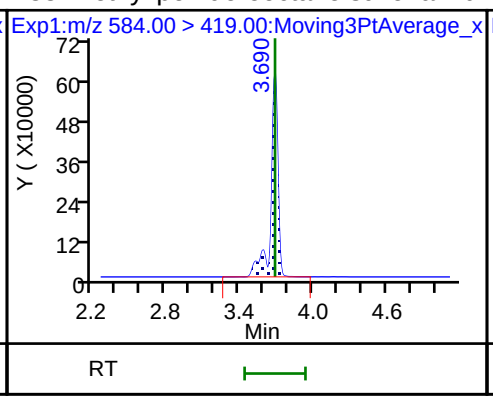
31 Perfluoroundecanoic acid



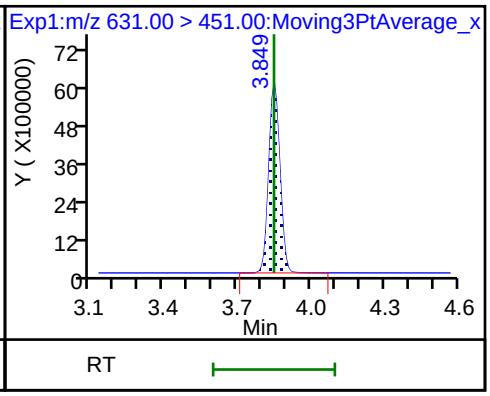
D 30 13C2 PFUnA



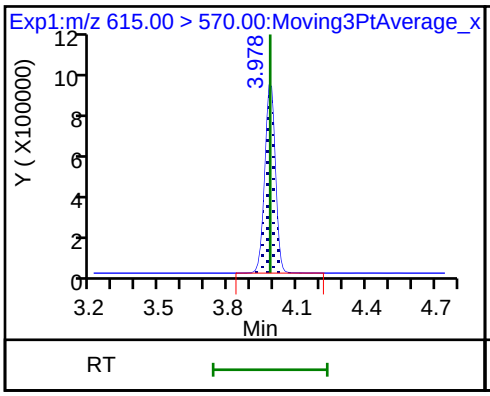
33 N-ethyl perfluorooctane sulfonamid



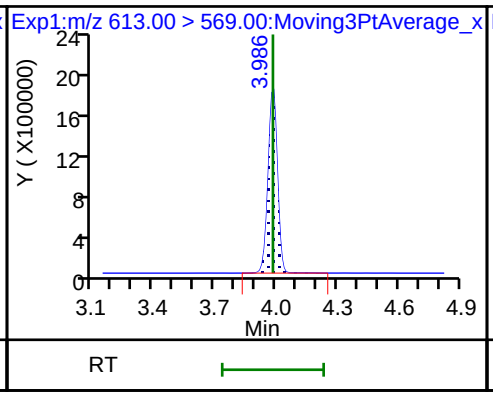
66 11-Chloroeicosafluoro-3-oxaundecan



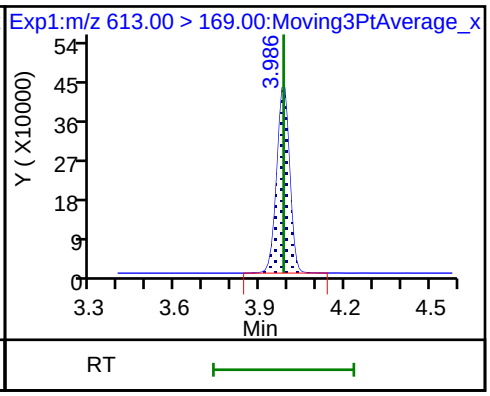
D 36 13C2 PFDoA



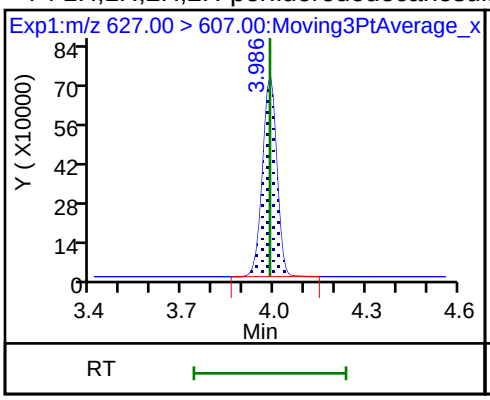
37 Perfluorododecanoic acid



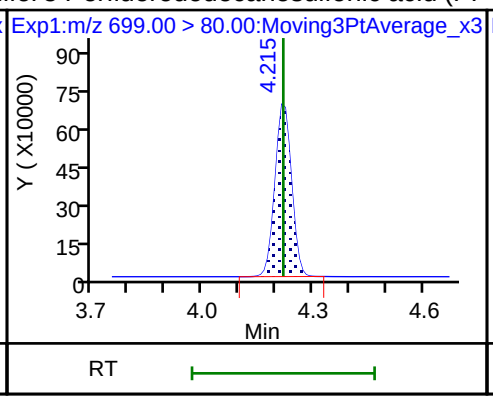
37 Perfluorododecanoic acid



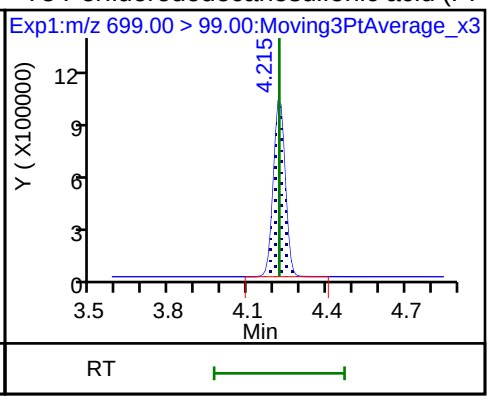
74 1H,1H,2H,2H-perfluorododecanesulfo



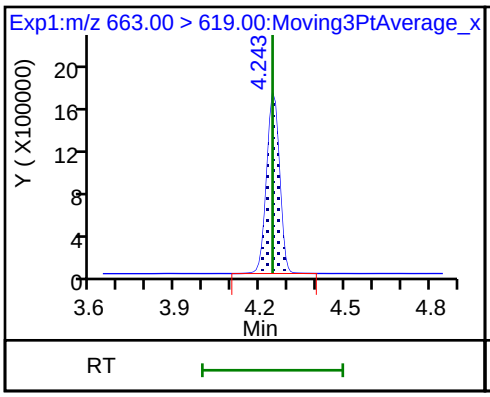
75 Perfluorododecanesulfonic acid (PF



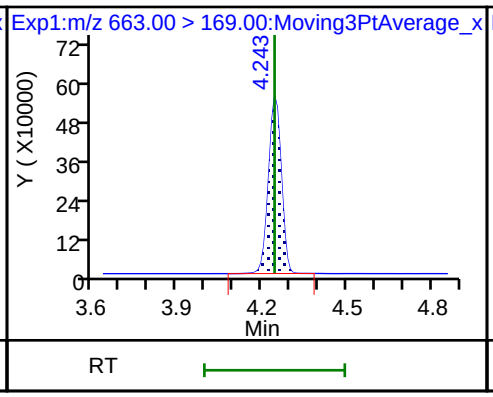
75 Perfluorododecanesulfonic acid (PF



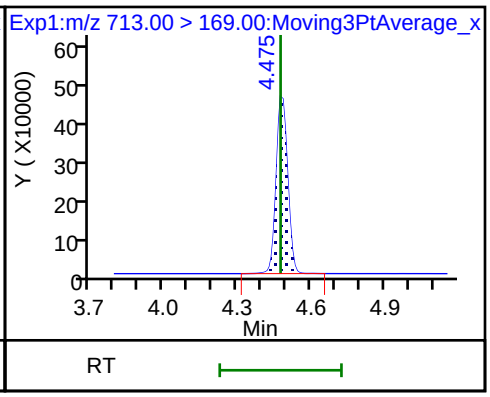
41 Perfluorotridecanoic acid



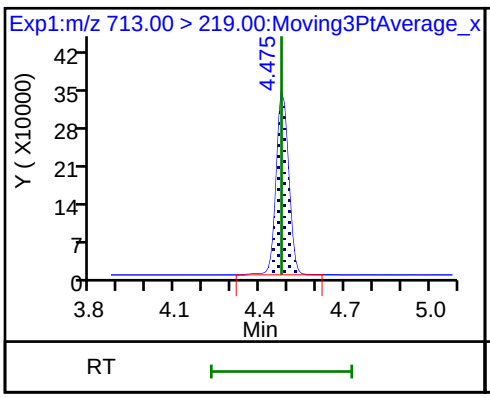
41 Perfluorotridecanoic acid



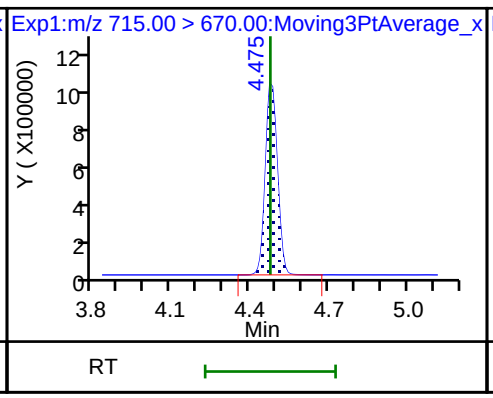
42 Perfluorotetradecanoic acid



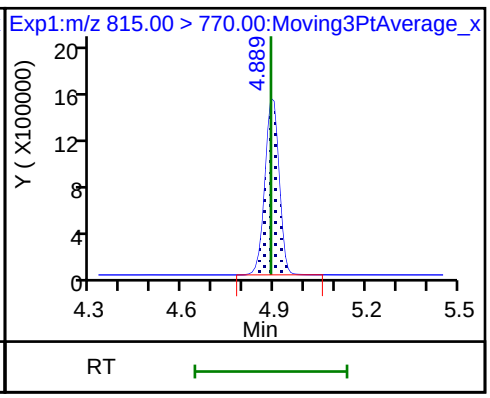
42 Perfluorotetradecanoic acid



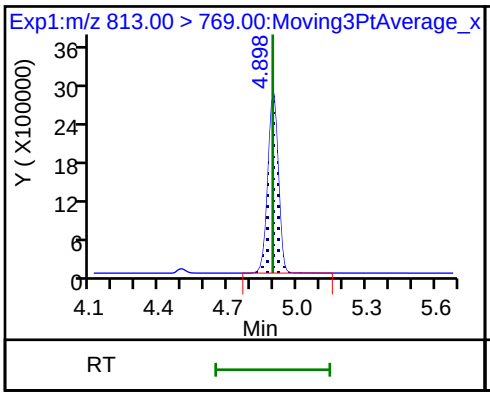
D 43 13C2-PFTeDA



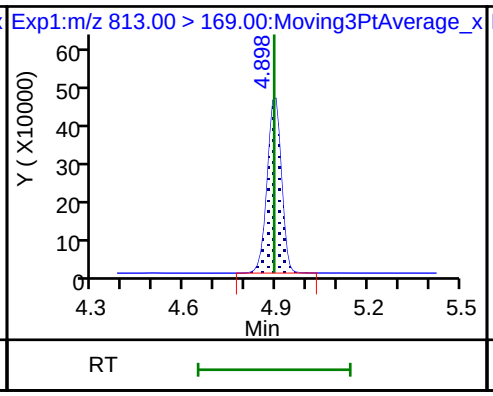
D 44 13C2-PFHxDA



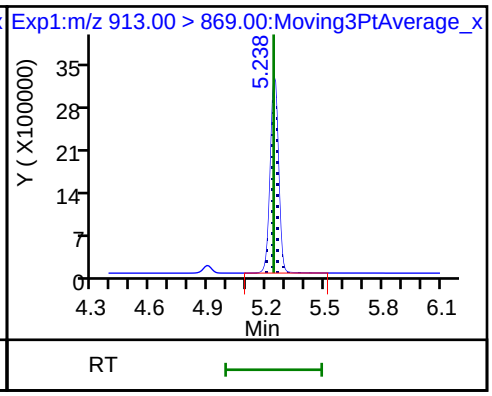
45 Perfluorohexadecanoic acid



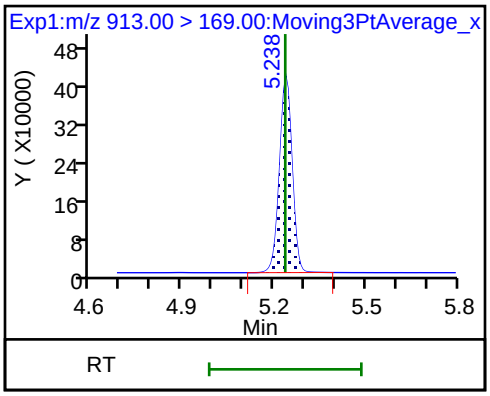
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d
Lims ID: IC L7 Full
Client ID:
Sample Type: IC Calib Level: 7
Inject. Date: 29-Aug-2018 13:16:39 ALS Bottle#: 16 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L7-FULL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 29-Aug-2018 16:09:05 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK020

First Level Reviewer: roycea Date: 29-Aug-2018 14:58:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.411	1.417	-0.006	0.535	5816809	2.62		105	9864	
2 Perfluorobutyric acid										
212.90 > 169.00	1.411	1.417	-0.006	1.000	21006497	10.2		102	2095	
D 3 13C5-PFPeA										
267.90 > 223.00	1.671	1.678	-0.007	0.634	3597133	2.56		103	11559	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.671	1.679	-0.008	1.000	15819306	9.53		95.3	972	
D 47 13C3-PFBS										
301.90 > 83.00	1.712	1.716	-0.004	0.649	81995	2.47		106	369	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.712	1.717	-0.005	1.000	21269593	8.06		91.1	12934	
298.90 > 99.00	1.712	1.717	-0.005	1.000	9832877		2.16(1.25-3.74)	91.1	13897	
D 60 M2-4:2FTS										
329.00 > 81.00	1.924	1.931	-0.007	0.730	483323	2.18		93.4	1329	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.924	1.931	-0.007	1.124	4506913	8.31		88.9	14755	
D 7 13C2 PFHxA										
315.00 > 270.00	1.955	1.963	-0.008	0.742	3881429	2.47		98.7	8463	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.955	1.963	-0.008	1.000	15331533	9.81		98.1	5153	
313.00 > 119.00	1.955	1.963	-0.008	1.000	1433501		10.70(5.03-15.10)	98.1	3887	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.987	1.985	0.002	1.161	20554495	8.45		90.1	20932	
349.00 > 99.00	1.976	1.985	-0.009	1.155	8468679		2.43(1.36-4.07)	90.1	13300	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.060	2.058	0.002	0.781	194995	2.58		103	927	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.060	2.063	-0.003	1.000	2578067	10.4		104	3028	
D 9 13C4-PFHpA										
367.00 > 322.00	2.278	2.286	-0.008	0.864	3590240	2.42		96.8	7176	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.278	2.286	-0.008	1.000	15368637	9.77		97.7	6085	
363.00 > 169.00	2.278	2.286	-0.008	1.000	6297847		2.44(1.13-3.40)	97.7	8828	
D 11 18O2 PFHxS										
403.00 > 84.00	2.300	2.298	0.002	0.873	4676266	2.37		100	6123	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.300	2.300	0.0	1.000	18303264	8.46		93.0	9142	
399.00 > 99.00	2.300	2.300	0.0	1.000	6508795		2.81(1.50-4.49)	93.0	6081	
77 DONA										
377.00 > 251.00	2.323	2.330	-0.007	0.773	35020253	7.72		81.9	20532	
377.00 > 85.00	2.323	2.330	-0.007	0.773	23919467		1.46(0.85-2.54)	81.9	17798	
D 12 M2-6:2FTS										
429.00 > 81.00	2.606	2.609	-0.003	0.988	800268	2.38		100	3429	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.606	2.611	-0.005	1.000	5140939	10.1		107	8654	
D 73 13C8 PFOA										
421.00 > 376.00	2.629	2.627	0.002	0.997	5865115	2.49		102	17892	
D 14 13C4 PFOA										
417.00 > 372.00	2.636	2.635	0.001	1.000	3563134	2.52		101	8696	
* 62 13C2-PFOA										
415.00 > 370.00	2.636	2.635	0.001		3592264	2.50			6170	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.636	2.637	-0.001	1.000	14615092	9.07		90.6	2073	
413.00 > 169.00	2.636	2.637	-0.001	1.000	8134511		1.80(0.84-2.52)	90.6	9695	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.644	2.643	0.001	0.880	15368277	9.33		98.0	10491	
449.00 > 99.00	2.644	2.643	0.001	0.880	4489600		3.42(1.94-5.82)	98.0	5303	
D 72 13C8 PFOS										
507.00 > 99.00	2.997	3.001	-0.004	1.137	1673800	2.43		102	3659	
D 18 13C4 PFOS										
503.00 > 80.00	3.005	3.004	0.001	1.140	3232748	2.40		100	2760	
D 19 13C5 PFNA										
468.00 > 423.00	3.005	3.006	-0.001	1.140	2880054	2.48		99.1	5718	
20 Perfluorononanoic acid										
463.00 > 419.00	3.005	3.006	-0.001	1.000	11867050	9.91		99.1	3506	
463.00 > 169.00	3.005	3.006	-0.001	1.000	2860364		4.15(1.90-5.69)	99.1	7582	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.005	3.006	-0.001	1.000	14178076	9.53		103	5698	
499.00 > 99.00	3.005	3.006	-0.001	1.000	3222836		4.40(2.31-6.93)	103	4386	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.215	3.216	-0.001	1.070	22259604	9.07		97.3	11009	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.346	3.349	-0.003	1.114	10539365	9.67		101	7033	
549.00 > 99.00	3.346	3.349	-0.003	1.114	3882483		2.71(1.33-3.97)	101	6432	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 26 M2-8:2FTS										
529.00 > 81.00	3.354	3.350	0.004	1.272	873254	2.23		93.2	2505	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.354	3.352	0.002	1.000	4545087	9.62		100	7699	
D 21 13C8 FOSA										
506.00 > 78.00	3.361	3.362	-0.001	1.275	4666694	2.34		93.5	6430	
D 23 13C2 PFDA										
515.00 > 470.00	3.361	3.362	-0.001	1.275	2502045	2.32		92.7	5013	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.361	3.363	-0.002	1.000	17127523	9.51		95.1	3706	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.361	3.363	-0.002	1.000	10128414	10.4		104	6319	
513.00 > 169.00	3.361	3.363	-0.002	1.000	1820894		5.56(2.36-7.09)	104	415	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.512	3.515	-0.003	1.332	1317218	2.62		105	4573	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.520	3.519	0.001	1.002	5261991	10.3		103	2694	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.672	3.672	0.0	1.222	9815397	10.2		106	11505	
599.00 > 99.00	3.672	3.672	0.0	1.222	3323797		2.95(1.39-4.16)	106	8339	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.681	3.681	0.0	1.396	1254669	2.27		90.9	422	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.689	3.687	0.002	1.000	7803919	9.79		97.9	4067	
563.00 > 169.00	3.689	3.687	0.002	1.000	1717344		4.54(2.12-6.36)	97.9	3949	
D 30 13C2 PFUnA										
565.00 > 520.00	3.689	3.689	0.0	1.399	2180048	2.34		93.5	5351	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.689	3.689	0.0	1.002	4518115	10.7		107	4145	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.848	3.848	0.0	1.281	31556310	8.48		90.0	20534	
35 MeFOSA										
512.00 > 169.00	3.867	3.867	0.0		5430546	NC			770	
D 36 13C2 PFDoA										
615.00 > 570.00	3.978	3.982	-0.004	1.509	2412373	2.42		96.9	6524	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.978	3.983	-0.005	1.000	10512830	9.94		99.4	4894	
613.00 > 169.00	3.978	3.983	-0.005	1.000	2509584		4.19(2.13-6.40)	99.4	9320	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.987	3.985	0.002	1.189	3952875	9.09		94.2	7939	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.215	4.219	-0.004	1.403	3983515	9.94		103	7426	
699.00 > 99.00	4.215	4.219	-0.004	1.403	5622164		0.71(0.00-0.00)	103	10948	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.244	4.243	0.001	1.067	9885330	9.85		98.5	3152	
663.00 > 169.00	4.244	4.243	0.001	1.067	3111479		3.18(1.25-3.76)	98.5	6938	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.474	4.475	-0.001	1.000	2819548	9.26		92.6	7279	
713.00 > 219.00	4.474	4.475	-0.001	1.000	1987714		1.42(0.71-2.13)	92.6	6470	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.474	4.477	-0.003	1.697	3047305	2.55		102	9444	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.888	4.889	-0.001	1.854	4445259	2.58		103	5780	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.888	4.893	-0.005	1.000	15690224	9.91		99.1	1403	
813.00 > 169.00	4.888	4.893	-0.005	1.000	2855998		5.49(2.86-8.58)	99.1	7486	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.230	5.236	-0.006	1.070	16247649	9.13		91.3	707	
913.00 > 169.00	5.230	5.236	-0.006	1.070	2114594		7.68(3.83-11.48)	91.3	3835	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL7_00009 Amount Added: 1.00 Units: mL

Report Date: 29-Aug-2018 16:09:07 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Injection Date: 29-Aug-2018 13:16:39 Instrument ID: A8_N

Lims ID: IC L7 Full

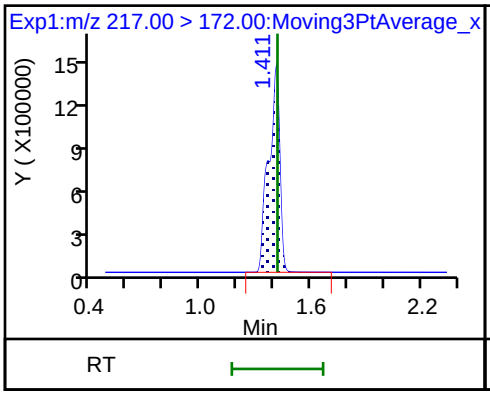
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 8

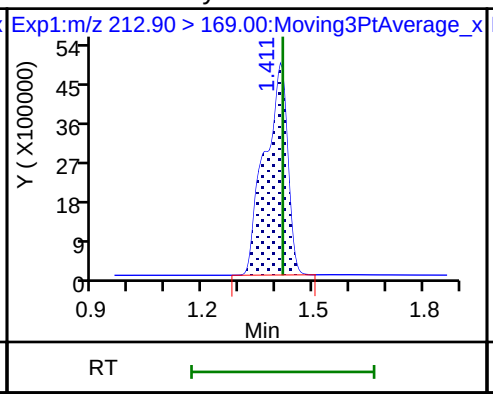
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

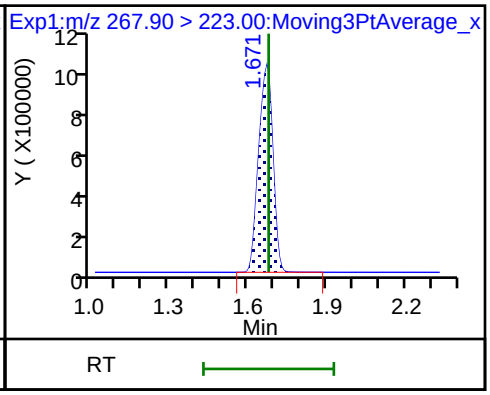
D 1 13C4 PFBA



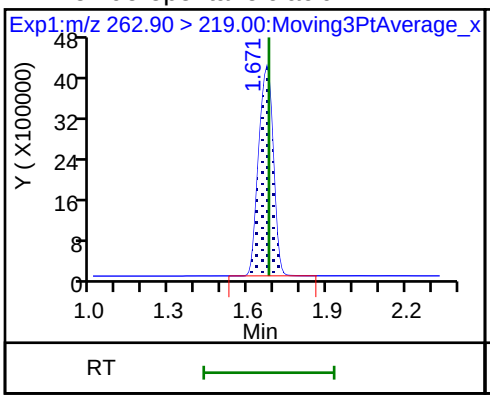
2 Perfluorobutyric acid



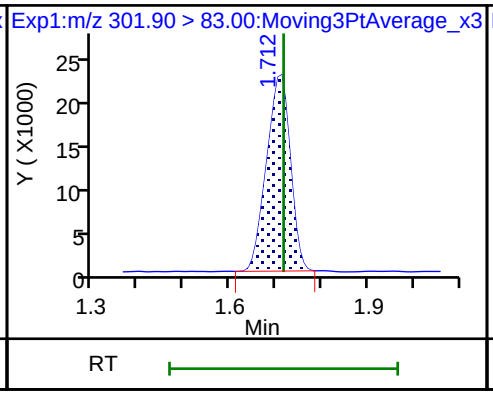
D 3 13C5-PFPeA



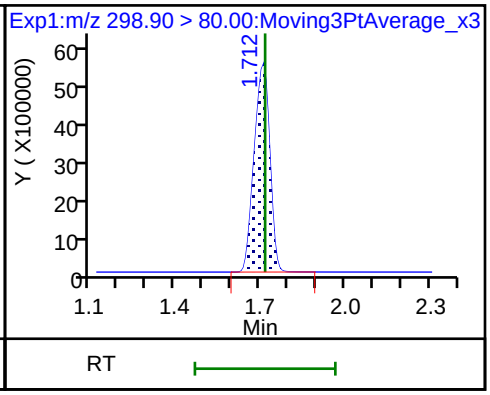
4 Perfluoropentanoic acid



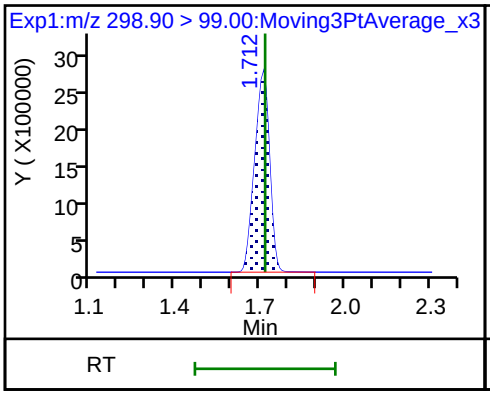
D 47 13C3-PFBS



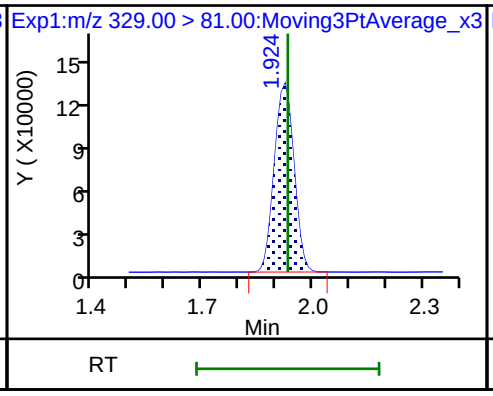
5 Perfluorobutanesulfonic acid



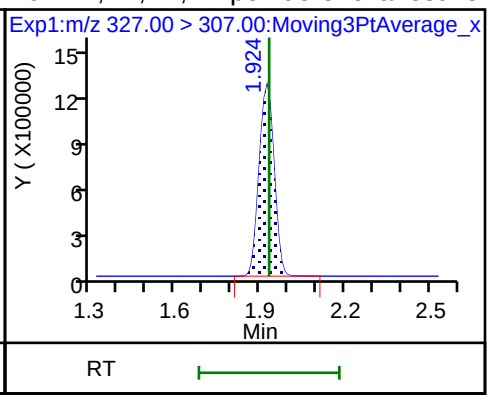
5 Perfluorobutanesulfonic acid



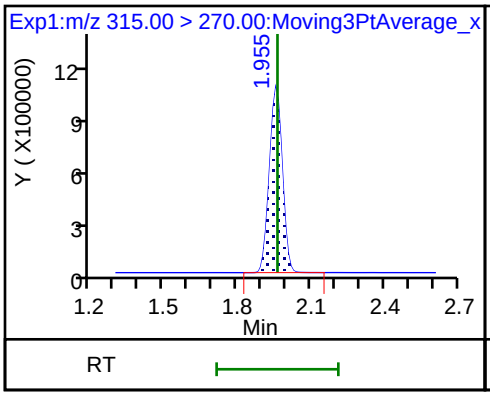
D 60 M2-4:2FTS



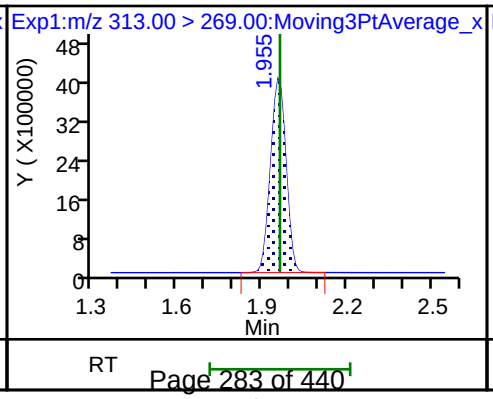
61 1H,1H,2H,2H-perfluorohexanesulfoni



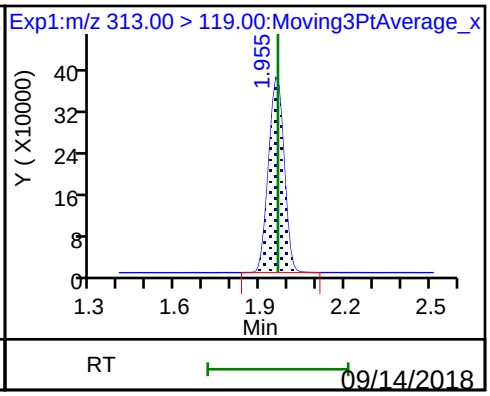
D 7 13C2 PFHxA



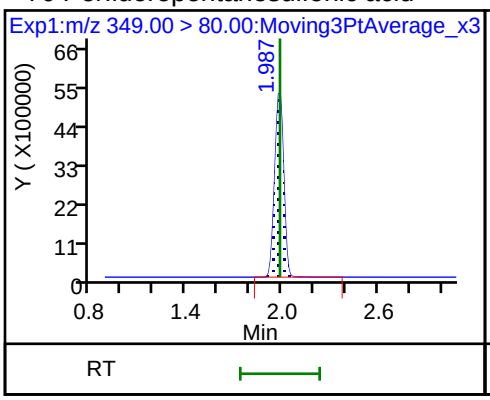
6 Perfluorohexanoic acid



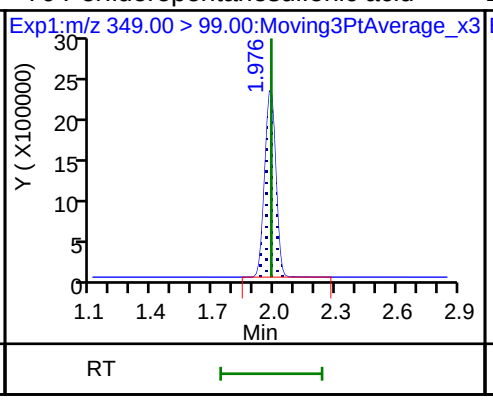
6 Perfluorohexanoic acid



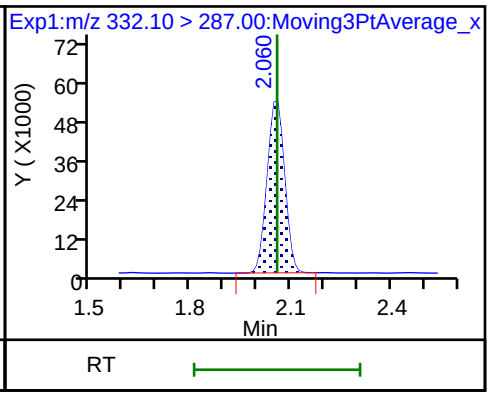
70 Perfluoropentanesulfonic acid



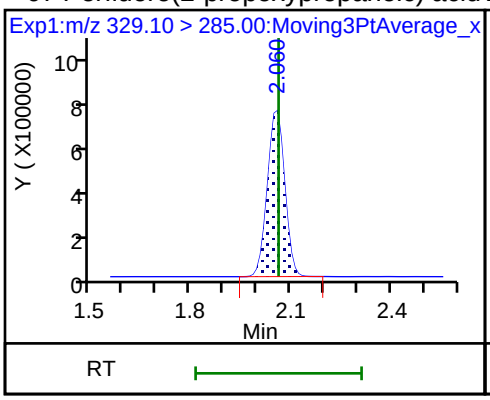
70 Perfluoropentanesulfonic acid



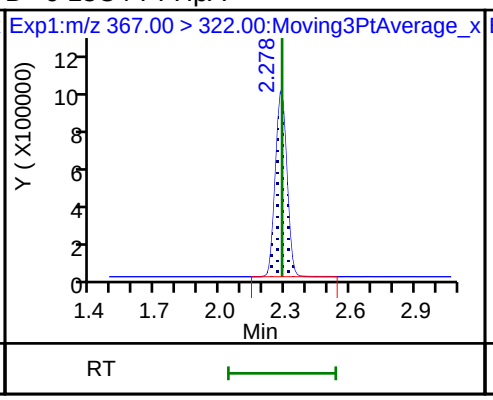
D 64 13C3 HFPO-DA



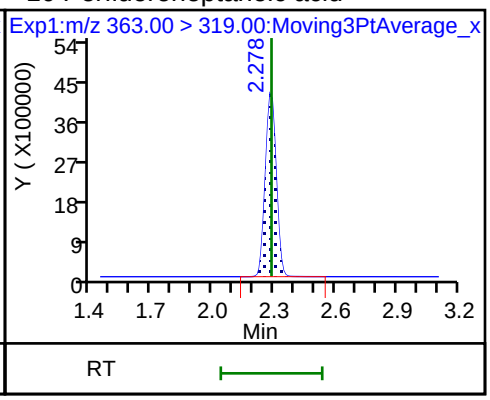
67 Perfluoro(2-propoxypropanoic) acid



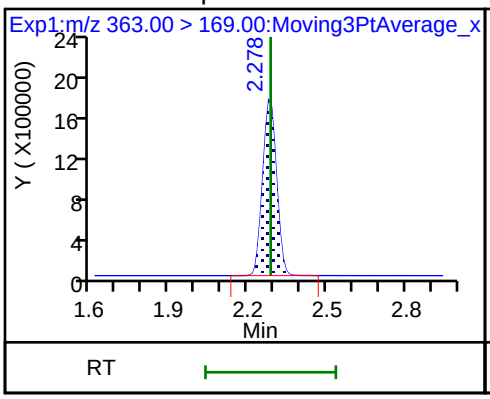
D 9 13C4-PFHpA



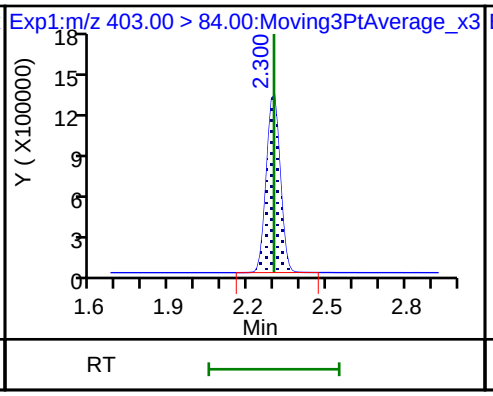
10 Perfluoroheptanoic acid



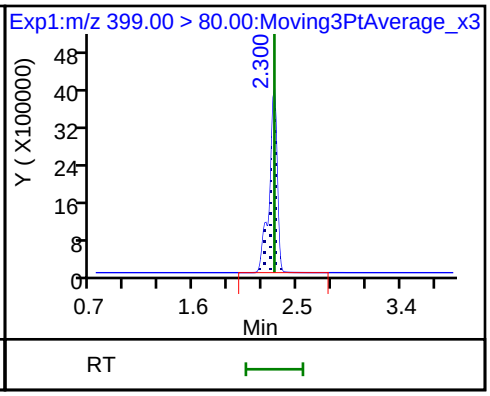
10 Perfluoroheptanoic acid



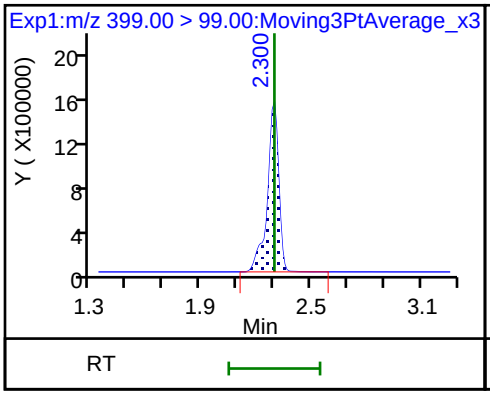
D 11 18O2 PFHxS



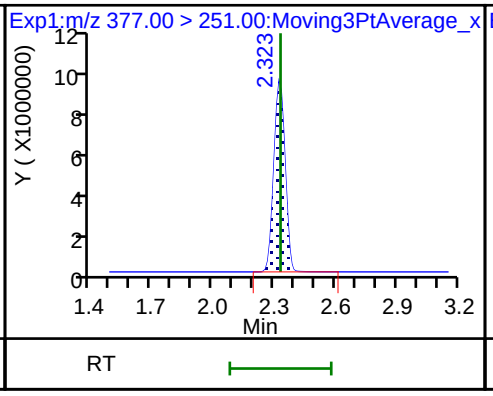
8 Perfluorohexanesulfonic acid



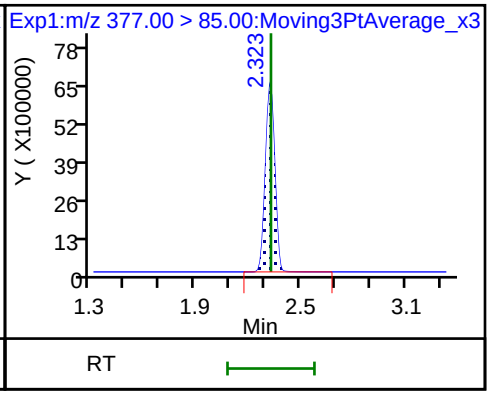
8 Perfluorohexanesulfonic acid



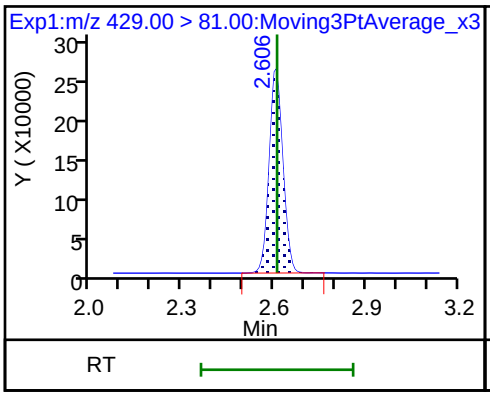
77 DONA



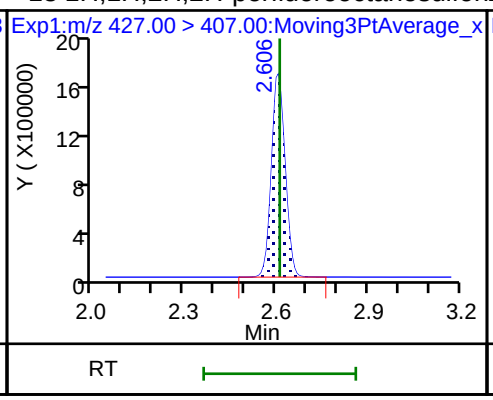
77 DONA



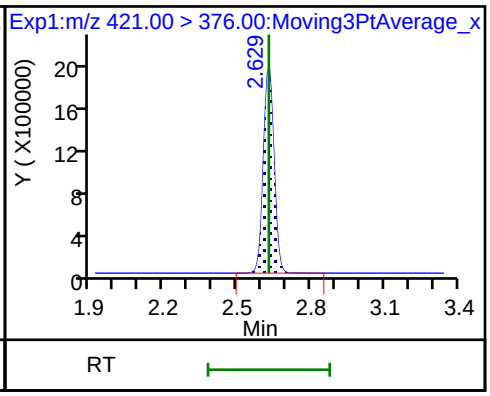
D 12 M2-6:2FTS



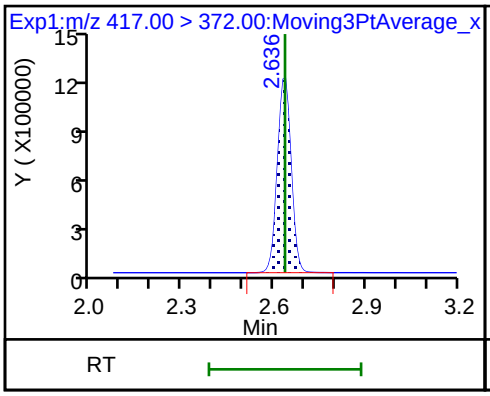
13 1H,1H,2H,2H-perfluorooctanesulfon



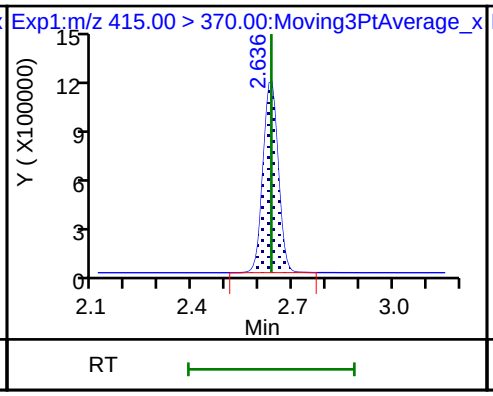
D 73 13C8 PFOA



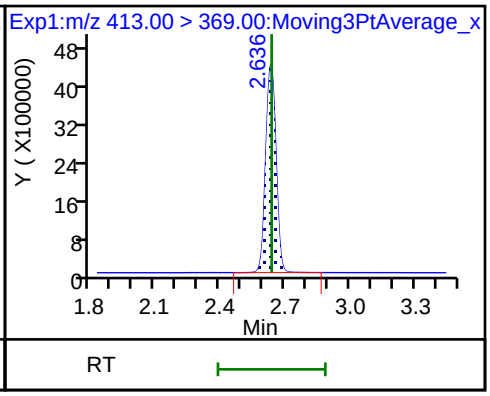
D 14 13C4 PFOA



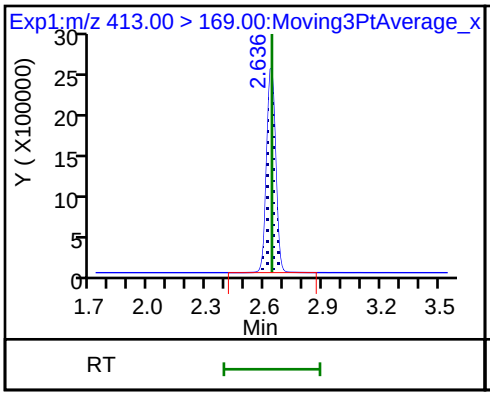
* 62 13C2-PFOA



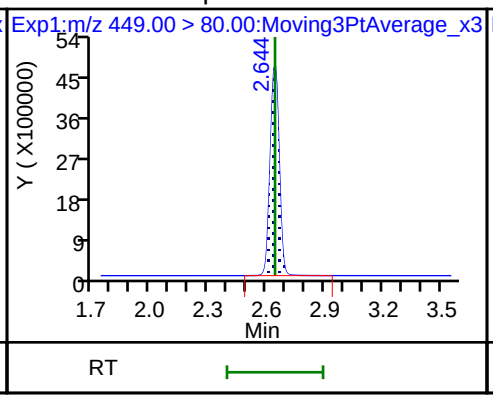
15 Perfluorooctanoic acid



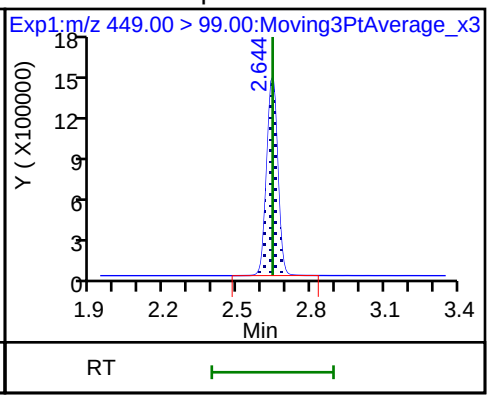
15 Perfluorooctanoic acid



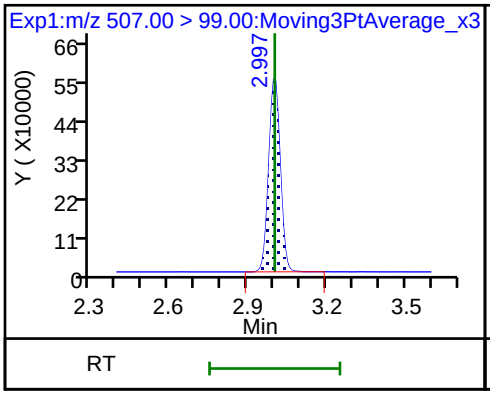
16 Perfluoroheptanesulfonic acid



16 Perfluoroheptanesulfonic acid



D 72 13C8 PFOS



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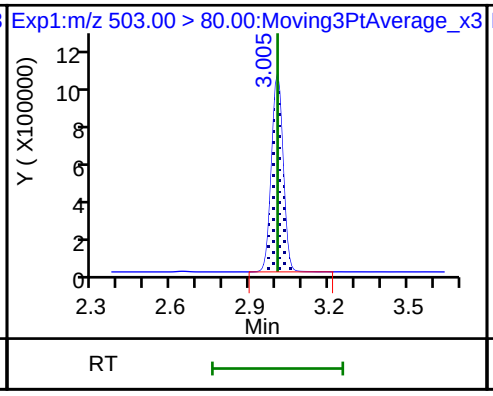
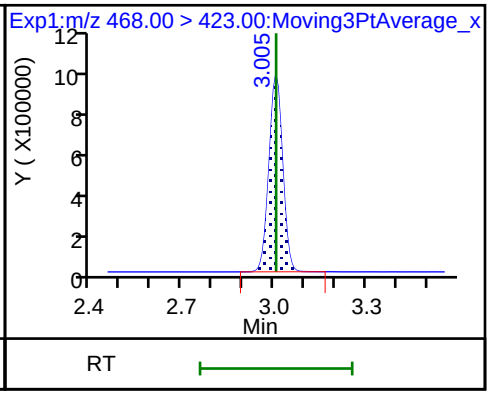
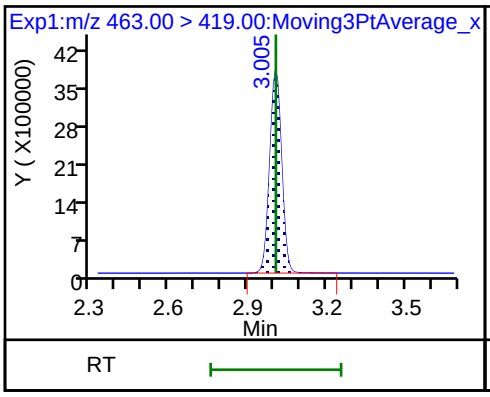


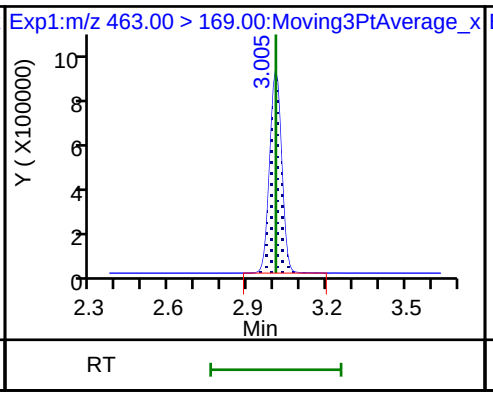
D 19 13C5 PFNA



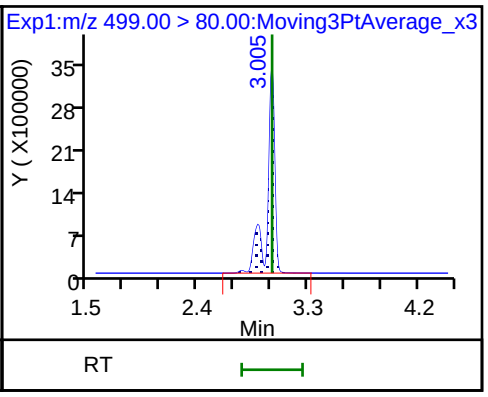
20 Perfluorononanoic acid



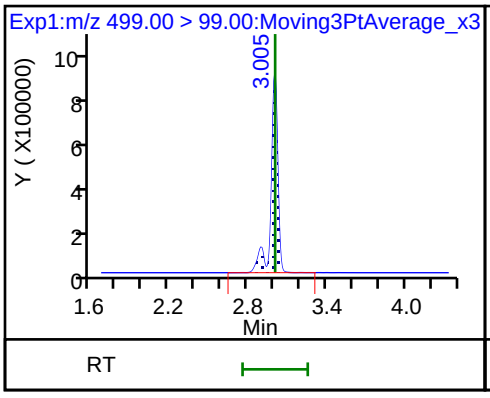
20 Perfluorononanoic acid



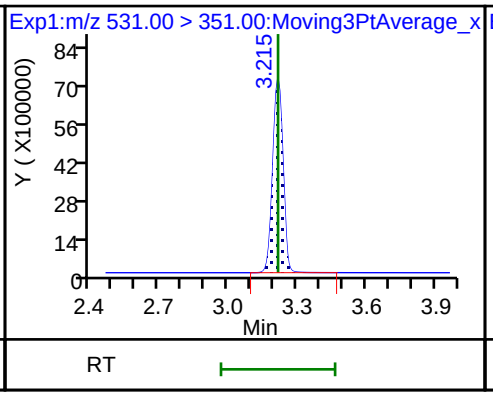
17 Perfluorooctane sulfonic acid



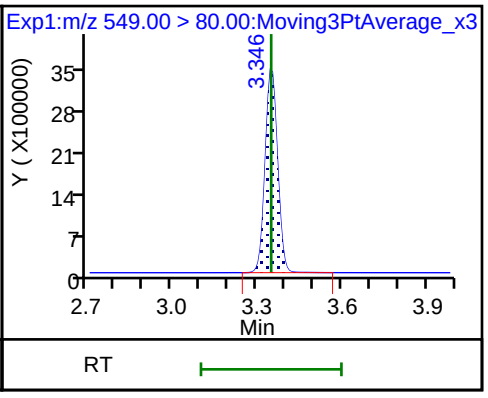
17 Perfluorooctane sulfonic acid



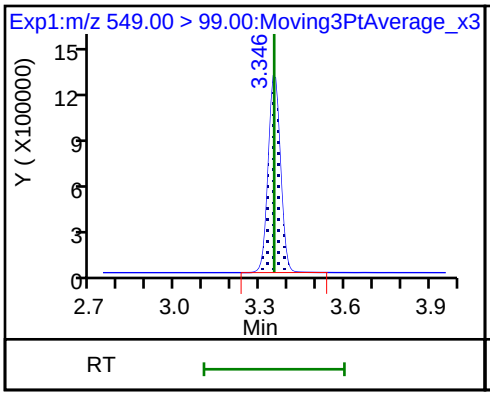
69 9-Chlorohexadecafluoro-3-oxanonane



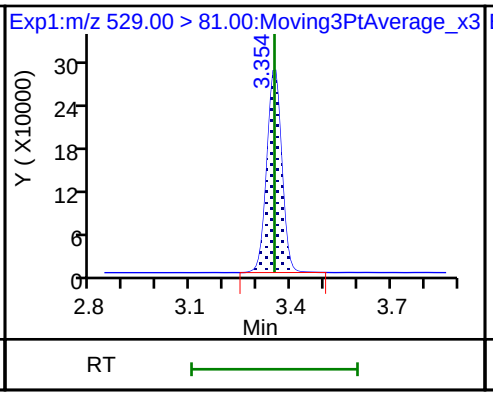
68 Perfluorononanesulfonic acid



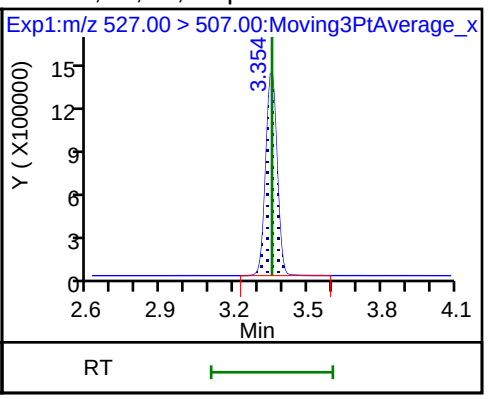
68 Perfluorononanesulfonic acid



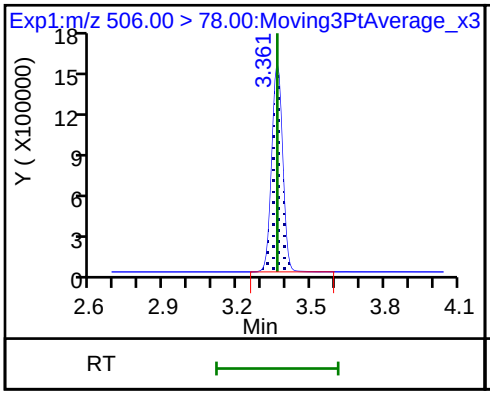
D 26 M2-8:2FTS



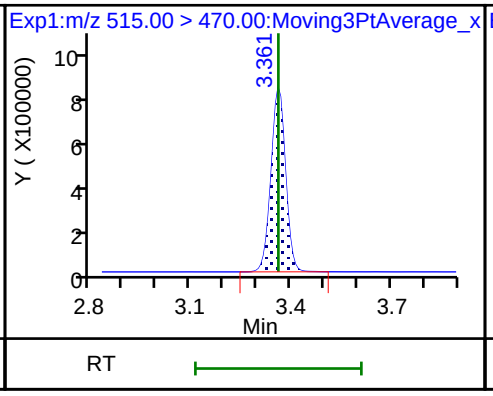
25 1H,1H,2H,2H-perfluorodecanesulfoni



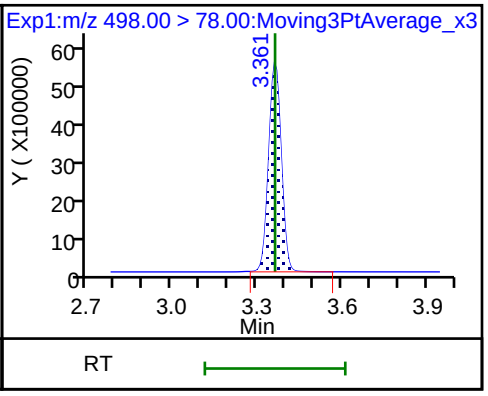
D 21 13C8 FOSA



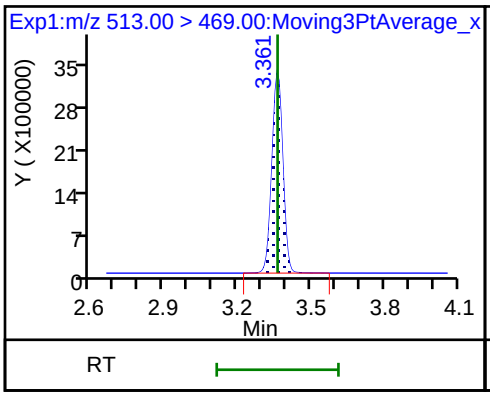
D 23 13C2 PFDA



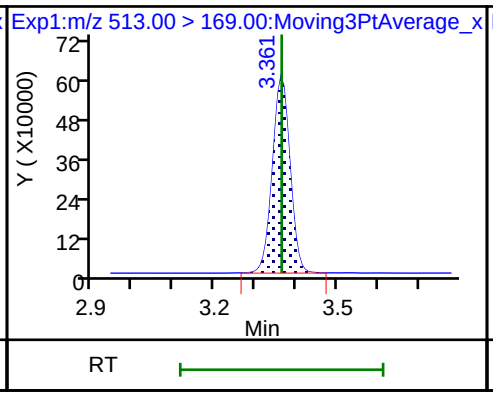
22 Perfluorooctane Sulfonamide



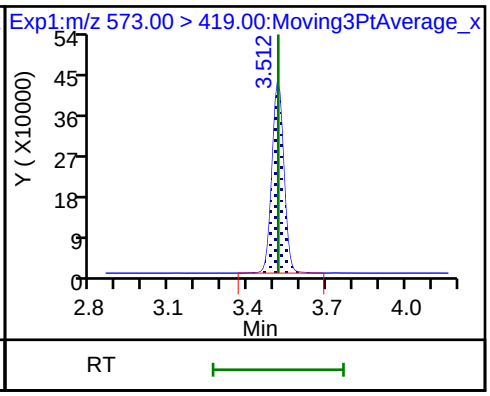
24 Perfluorodecanoic acid



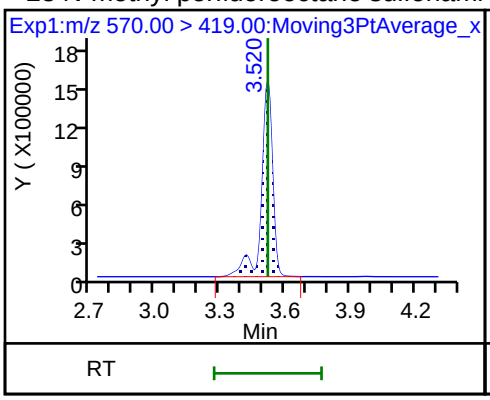
24 Perfluorodecanoic acid



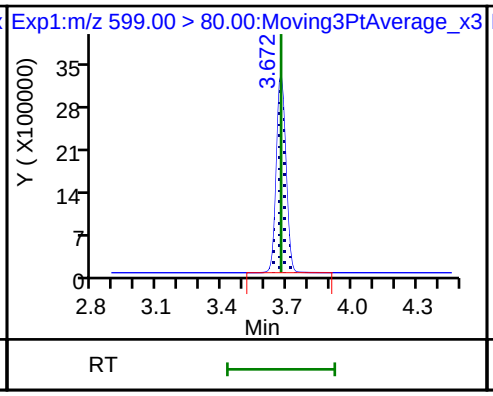
D 27 d3-NMeFOSAA



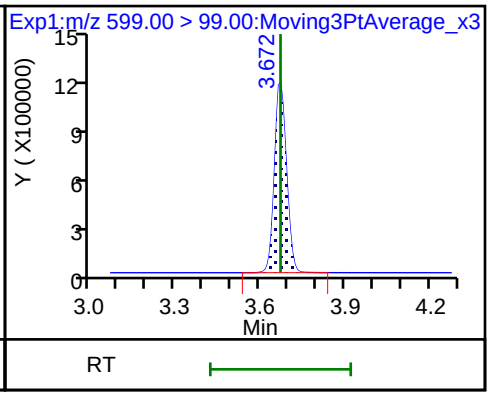
28 N-methyl perfluorooctane sulfonami



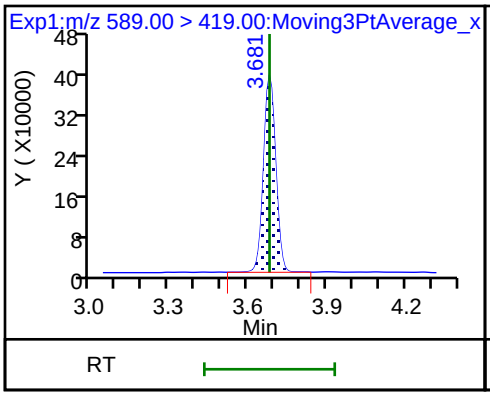
29 Perfluorodecane Sulfonic acid



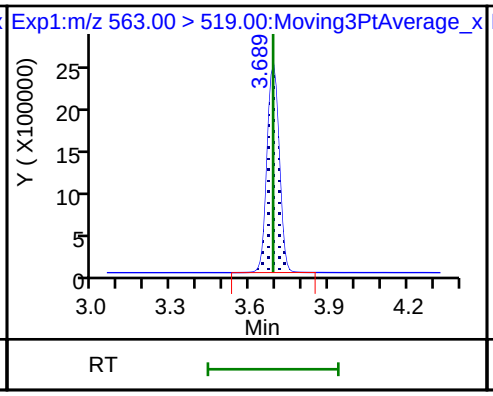
29 Perfluorodecane Sulfonic acid



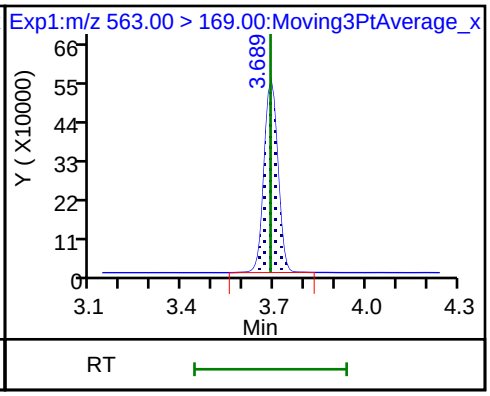
D 32 d5-NEtFOSAA



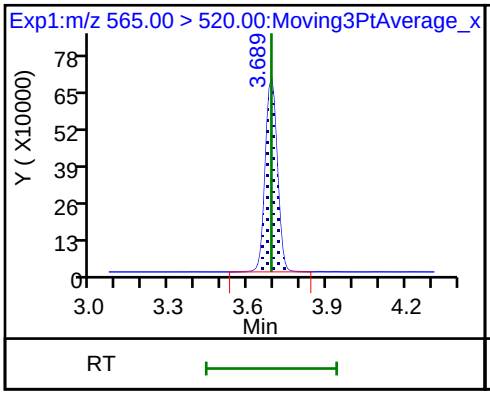
31 Perfluoroundecanoic acid



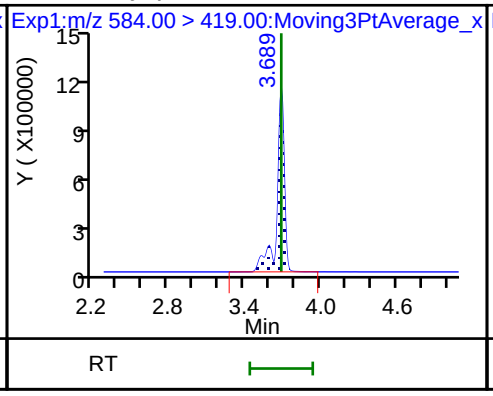
31 Perfluoroundecanoic acid



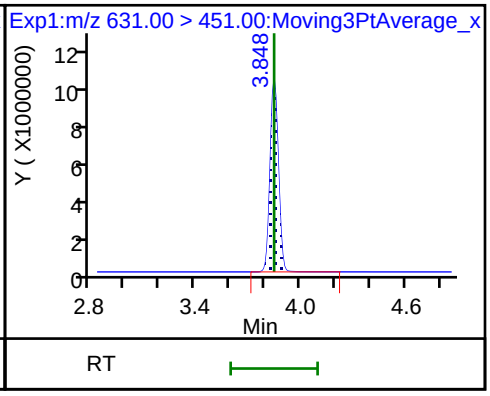
D 30 13C2 PFUnA



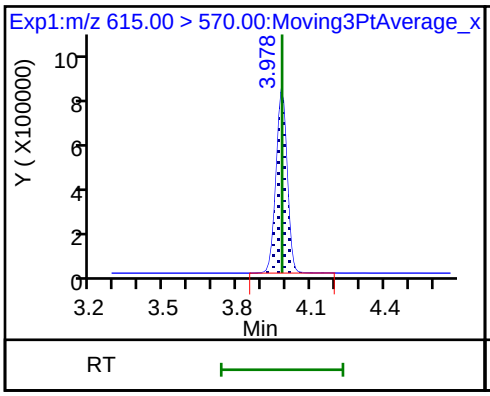
33 N-ethyl perfluorooctane sulfonamid



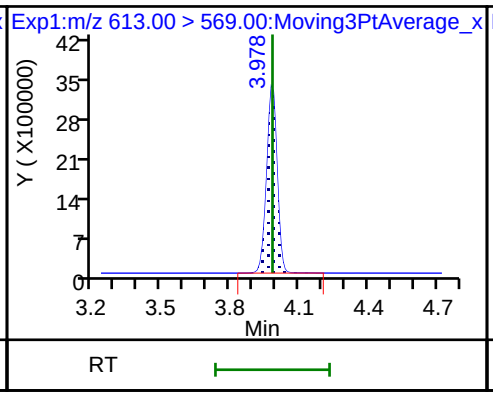
66 11-Chloroeicosafluoro-3-oxaundecan



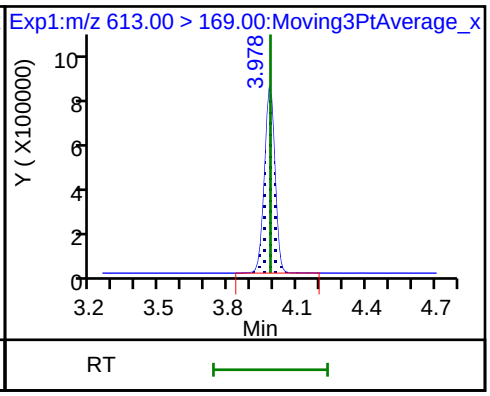
D 36 13C2 PFDoA



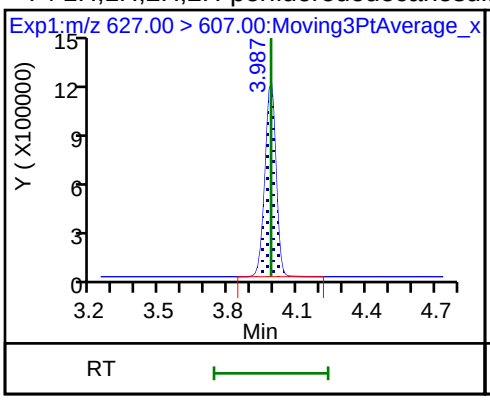
37 Perfluorododecanoic acid



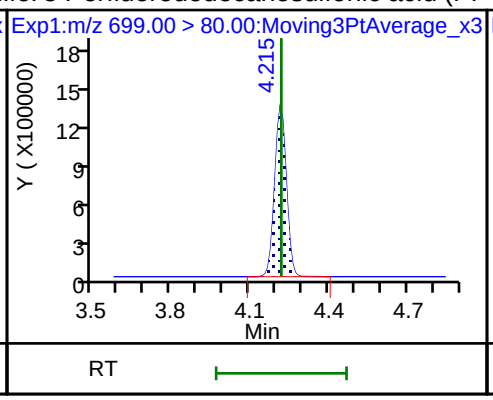
37 Perfluorododecanoic acid



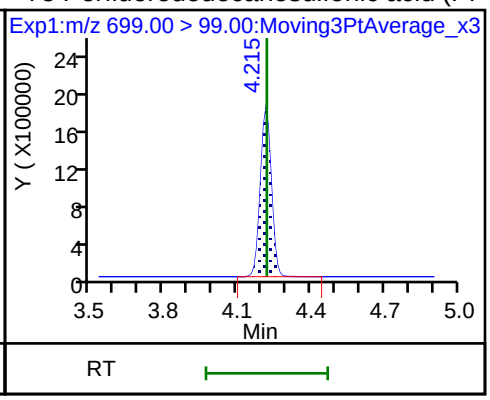
74 1H,1H,2H,2H-perfluorododecanesulfo



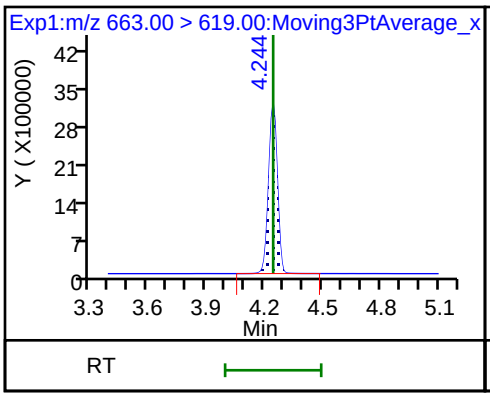
75 Perfluorododecanesulfonic acid (PF



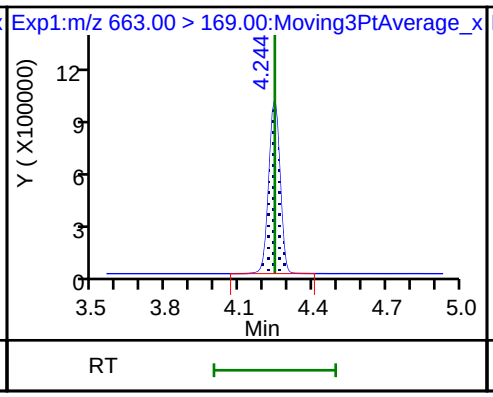
75 Perfluorododecanesulfonic acid (PF



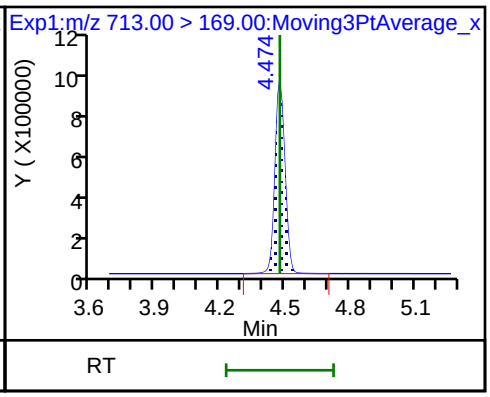
41 Perfluorotridecanoic acid



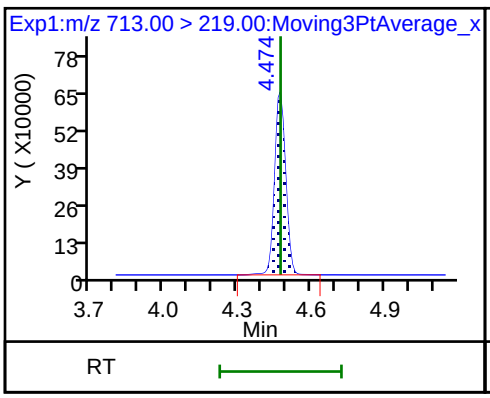
41 Perfluorotridecanoic acid



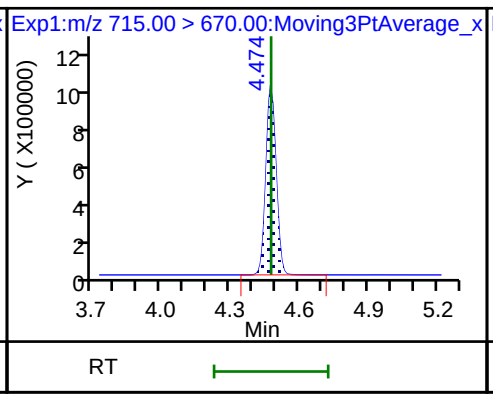
42 Perfluorotetradecanoic acid



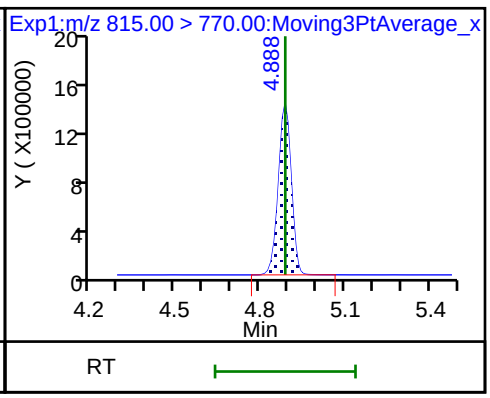
42 Perfluorotetradecanoic acid



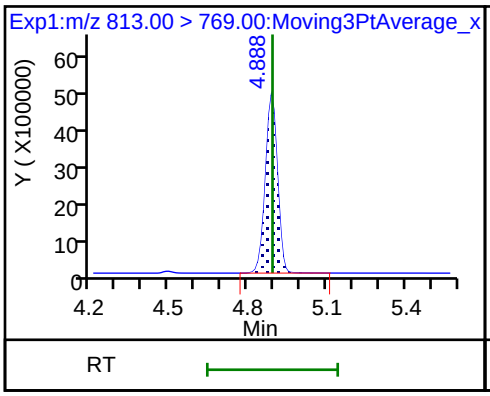
D 43 13C2-PFTeDA



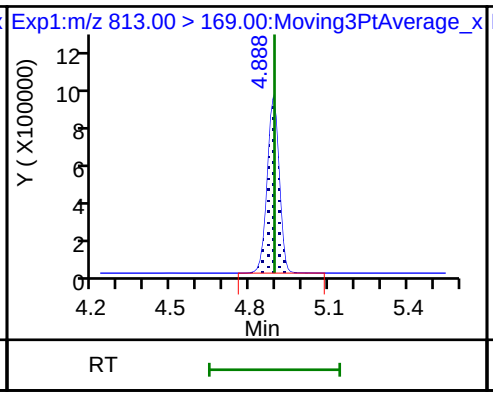
D 44 13C2-PFHxDA



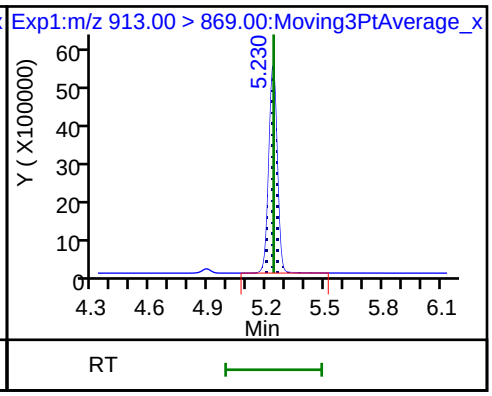
45 Perfluorohexadecanoic acid



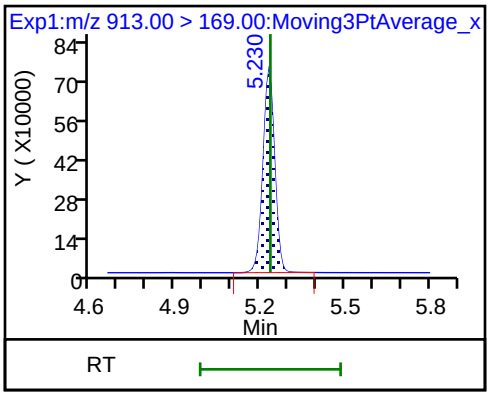
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: ICV 320-242895/10 Calibration Date: 08/29/2018 13:32

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLICAL_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8887	0.9171		2.58	2.50	3.2	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.153	1.163		2.52	2.50	0.9	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.87	76.85		2.27	2.21	2.6	50.0
4:2 FTS	AveID	15.39	13.71		2.08	2.34	-10.9	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	0.9918		2.46	2.50	-1.5	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	68.97	67.51		2.30	2.35	-2.1	50.0
HFPO-DA (GenX)	AveID	3.166	2.988		2.36	2.50	-5.6	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.095	1.080		2.47	2.50	-1.4	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.094	1.050		2.19	2.28	-4.0	40.0
DONA	AveID	3.355	3.506		2.46	2.36	4.5	50.0
6:2 FTS	AveID	1.503	1.592		2.51	2.38	5.9	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.130	1.123		2.48	2.50	-0.6	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.218	1.233		2.40	2.38	1.2	50.0
Perfluorononanoic acid (PFNA)	AveID	1.039	0.9842		2.37	2.50	-5.3	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.100	1.065		2.24	2.31	-3.2	40.0
F-53B Major	AveID	1.814	1.897		2.44	2.33	4.6	50.0
8:2 FTS	AveID	1.296	1.233		2.28	2.40	-4.9	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8056	0.8534		2.54	2.40	5.9	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9716	0.9330		2.40	2.50	-4.0	40.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9644	1.013		2.63	2.50	5.1	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9683	1.091		2.82	2.50	12.6	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.7103	0.6955		2.36	2.41	-2.1	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8394	0.9293		2.77	2.50	10.7	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9140	0.8529		2.33	2.50	-6.7	40.0
F-53B Minor	AveID	2.751	2.964		2.54	2.36	7.7	50.0
10:2 FTS	AveID	1.193	1.282		2.59	2.41	7.4	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.096	1.032		2.35	2.50	-5.9	40.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.2963	0.2971		2.43	2.42	0.3	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.040	0.9771		2.35	2.50	-6.0	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2497	0.2404		2.41	2.50	-3.7	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: ICV 320-242895/10 Calibration Date: 08/29/2018 13:32

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLICAL_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9298		2.59	2.50	3.8	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.001	1.016		2.54	2.50	1.5	50.0
13C4 PFBA	Ave	1.545	1.554		2.51	2.50	0.6	50.0
13C5 PFPeA	Ave	0.9767	0.9500		2.43	2.50	-2.7	50.0
13C3-PFBS	Ave	0.0231	0.0233		2.35	2.33	1.0	50.0
M2-4:2FTS	Ave	0.1542	0.1569		2.38	2.34	1.8	50.0
13C2 PFHxA	Ave	1.095	1.073		2.45	2.50	-2.0	50.0
13C3 HFPO-DA	Ave	0.0527	0.0542		2.57	2.50	3.0	50.0
13C4-PFHpA	Ave	1.032	1.027		2.49	2.50	-0.5	50.0
18O2 PFHxS	Ave	1.373	1.344		2.32	2.37	-2.1	50.0
M2-6:2FTS	Ave	0.2341	0.2298		2.33	2.38	-1.9	40.0
13C8 PFOA	Ave	1.640	1.594		2.38	2.45	-2.8	50.0
13C4 PFOA	Ave	0.9851	0.9470		2.40	2.50	-3.9	50.0
13C8 PFOS	Ave	0.4800	0.4821		2.40	2.39	0.4	50.0
13C4 PFOS	Ave	0.9382	0.9393		2.39	2.39	0.1	50.0
13C5 PFNA	Ave	0.8094	0.7985		2.47	2.50	-1.3	50.0
M2-8:2FTS	Ave	0.2723	0.2560		2.25	2.40	-6.0	40.0
13C2 PFDA	Ave	0.7512	0.7489		2.49	2.50	-0.3	50.0
13C8 FOSA	Ave	1.389	1.362		2.45	2.50	-1.9	50.0
d3-NMeFOSAA	Ave	0.3499	0.3439		2.46	2.50	-1.7	50.0
d5-NEtFOSAA	Ave	0.3843	0.3777		2.46	2.50	-1.7	50.0
13C2 PFUnA	Ave	0.6491	0.6302		2.43	2.50	-2.9	50.0
13C2 PFDoA	Ave	0.6931	0.7215		2.60	2.50	4.1	50.0
13C2-PFTeDA	Ave	0.8310	0.8394		2.53	2.50	1.0	50.0
13C2-PFHxDA	Ave	1.199	1.230		2.56	2.50	2.6	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_010.d
Lims ID: ICV Full
Client ID:
Sample Type: ICV
Inject. Date: 29-Aug-2018 13:32:15 ALS Bottle#: 17 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: ICV
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 29-Aug-2018 16:11:11 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK020

First Level Reviewer: roycea Date: 29-Aug-2018 14:20:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.416	1.417	-0.001	0.536	5891727	2.51		101	9939	
2 Perfluorobutyric acid										
212.90 > 169.00	1.416	1.417	-0.001	1.000	5403033	2.58			621	
D 3 13C5-PFPeA										
267.90 > 223.00	1.678	1.678	0.0	0.635	3601017	2.43		97.3	8956	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.678	1.679	-0.001	1.000	4187961	2.52			261	
D 47 13C3-PFBS										
301.90 > 83.00	1.718	1.716	0.002	0.650	82256	2.35		101	400	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.718	1.717	0.001	1.000	6015148	2.27			8450	
298.90 > 99.00	1.718	1.717	0.001	1.000	2486669		2.42(1.25-3.74)		5585	
D 60 M2-4:2FTS										
329.00 > 81.00	1.933	1.931	0.002	0.731	555609	2.38		102	1391	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.933	1.931	0.002	1.125	1134109	2.08			4577	
D 7 13C2 PFHxA										
315.00 > 270.00	1.964	1.963	0.001	0.743	4066733	2.45		98.0	8372	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.964	1.963	0.001	1.000	4033558	2.46			1916	
313.00 > 119.00	1.964	1.963	0.001	1.000	366603		11.00(5.03-15.10)		1330	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.985	1.985	0.0	1.155	5613012	2.30			10307	
349.00 > 99.00	1.985	1.985	0.0	1.155	2171450		2.58(1.36-4.07)		7013	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.058	2.058	0.0	0.779	205514	2.57		103	841	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.069	2.063	0.006	1.005	614021	2.36			955	
D 9 13C4-PFHpA										
367.00 > 322.00	2.288	2.286	0.002	0.866	3894573	2.49		99.5	9086	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.288	2.286	0.002	1.000	4206926	2.47			1801	
363.00 > 169.00	2.288	2.286	0.002	1.000	1612934		2.61(1.13-3.40)		2516	
D 11 18O2 PFHxS										
403.00 > 84.00	2.299	2.298	0.001	0.870	4819590	2.32		97.9	10251	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.299	2.300	-0.001	1.000	4879168	2.19			7410	
399.00 > 99.00	2.299	2.300	-0.001	1.000	1602971		3.04(1.50-4.49)		2233	
77 DONA										
377.00 > 251.00	2.332	2.330	0.002	0.775	11760433	2.46			15766	
377.00 > 85.00	2.332	2.330	0.002	0.775	7305896		1.61(0.85-2.54)		8160	
D 12 M2-6:2FTS										
429.00 > 81.00	2.612	2.609	0.003	0.988	827384	2.33		98.1	3956	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.612	2.611	0.001	1.000	1316870	2.51			5746	
D 73 13C8 PFOA										
421.00 > 376.00	2.635	2.627	0.008	0.997	5913855	2.38		97.2	13648	
D 14 13C4 PFOA										
417.00 > 372.00	2.643	2.635	0.008	1.000	3589653	2.40		96.1	7483	
* 62 13C2-PFOA										
415.00 > 370.00	2.643	2.635	0.008		3790736	2.50			5996	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.643	2.637	0.006	1.000	4031892	2.48			624	
413.00 > 169.00	2.643	2.637	0.006	1.000	2145481		1.88(0.84-2.52)		3821	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.651	2.643	0.008	0.881	4168942	2.40			4816	
449.00 > 99.00	2.643	2.643	0.0	0.878	1126955		3.70(1.94-5.82)		4350	
D 72 13C8 PFOS										
507.00 > 99.00	3.002	3.001	0.001	1.136	1746915	2.40		100	5370	
D 18 13C4 PFOS										
503.00 > 80.00	3.010	3.004	0.006	1.139	3403787	2.39		100	4350	
D 19 13C5 PFNA										
468.00 > 423.00	3.010	3.006	0.004	1.139	3026810	2.47		98.7	7451	
20 Perfluorononanoic acid										
463.00 > 419.00	3.010	3.006	0.004	1.000	2978830	2.37			909	
463.00 > 169.00	3.010	3.006	0.004	1.000	721254		4.13(1.90-5.69)		3095	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.010	3.006	0.004	1.000	3508532	2.24			4845	
499.00 > 99.00	3.010	3.006	0.004	1.000	779363		4.50(2.31-6.93)		2554	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.221	3.216	0.005	1.070	6296098	2.44			9010	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.351	3.349	0.002	1.113	2916797	2.54			4840	
549.00 > 99.00	3.351	3.349	0.002	1.113	1025578		2.84(1.33-3.97)		3092	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 26 M2-8:2FTS										
529.00 > 81.00	3.351	3.350	0.001	1.268	929627	2.25		94.0	3128	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.351	3.352	-0.001	1.000	1148988	2.28			2125	
D 21 13C8 FOSA										
506.00 > 78.00	3.366	3.362	0.004	1.274	5164581	2.45		98.1	5980	
D 23 13C2 PFDA										
515.00 > 470.00	3.366	3.362	0.004	1.274	2838997	2.49		99.7	5862	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.366	3.363	0.003	1.000	5232630	2.63			4343	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.366	3.363	0.003	1.000	2648665	2.40			2100	
513.00 > 169.00	3.366	3.363	0.003	1.000	487367		5.43(2.36-7.09)		1847	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.517	3.515	0.002	1.331	1303583	2.46		98.3	3197	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.517	3.519	-0.002	1.000	1421710	2.82			1016	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.671	3.672	-0.001	1.220	2389454	2.36			4965	
599.00 > 99.00	3.671	3.672	-0.001	1.220	814273		2.93(1.39-4.16)		3257	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.680	3.681	-0.001	1.392	1431804	2.46		98.3	512	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.688	3.687	0.001	1.000	2037416	2.33			1592	
563.00 > 169.00	3.688	3.687	0.001	1.000	470218		4.33(2.12-6.36)		2987	
D 30 13C2 PFUnA										
565.00 > 520.00	3.688	3.689	-0.001	1.395	2388944	2.43		97.1	7040	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.688	3.689	-0.001	1.002	1330551	2.77			3780	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.846	3.848	-0.002	1.278	9939659	2.54			11465	
D 36 13C2 PFDoA										
615.00 > 570.00	3.986	3.982	0.004	1.508	2735120	2.60		104	5726	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.986	3.983	0.003	1.000	2823063	2.35			1519	
613.00 > 169.00	3.977	3.983	-0.006	0.998	685349		4.12(2.13-6.40)		3242	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.986	3.985	0.001	1.189	1199104	2.59			5513	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.214	4.219	-0.005	1.400	1023882	2.43			4203	
699.00 > 99.00	4.214	4.219	-0.005	1.400	1407345		0.73(0.00-0.00)		5989	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.242	4.243	-0.001	1.064	2672599	2.35			924	
663.00 > 169.00	4.242	4.243	-0.001	1.064	825498		3.24(1.25-3.76)		3406	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.474	4.475	-0.001	1.000	764808	2.41			4599	
713.00 > 219.00	4.474	4.475	-0.001	1.000	476887		1.60(0.71-2.13)		3778	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 43 13C2-PFTeDA										
715.00 > 670.00	4.474	4.477	-0.003	1.693	3181794	2.53		101	5762	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.889	4.889	0.0	1.850	4661472	2.56		103	7144	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.889	4.893	-0.004	1.000	4334405	2.59			399	
813.00 > 169.00	4.889	4.893	-0.004	1.000	745377		5.82(2.86-8.58)		3441	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.231	5.236	-0.005	1.070	4734531	2.54			273	
913.00 > 169.00	5.231	5.236	-0.005	1.070	575742		8.22(3.83-11.48)		2445	

Reagents:

LCPFCIC_FULL_00016 Amount Added: 1.00 Units: mL

Report Date: 29-Aug-2018 16:11:14 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_010.d

Injection Date: 29-Aug-2018 13:32:15 Instrument ID: A8_N

Lims ID: ICV Full

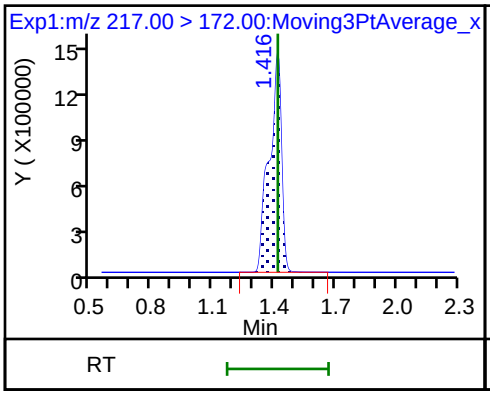
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 10

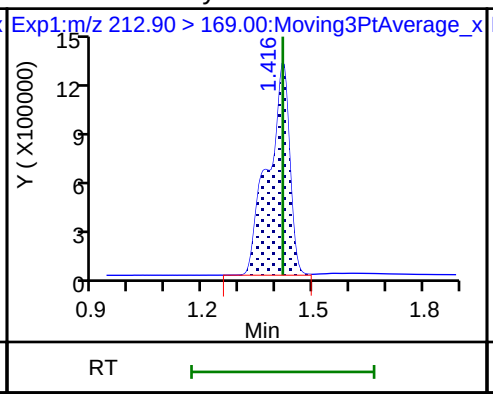
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

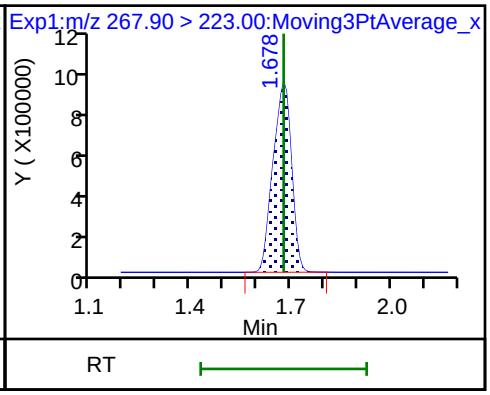
D 1 13C4 PFBA



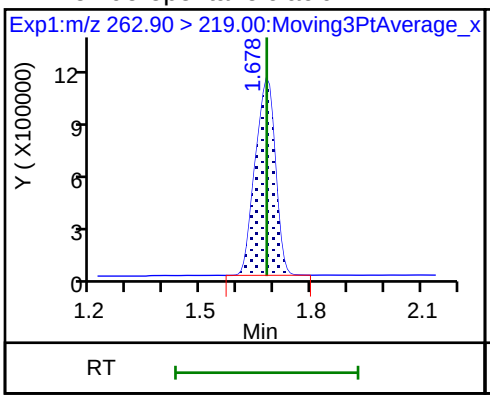
2 Perfluorobutyric acid



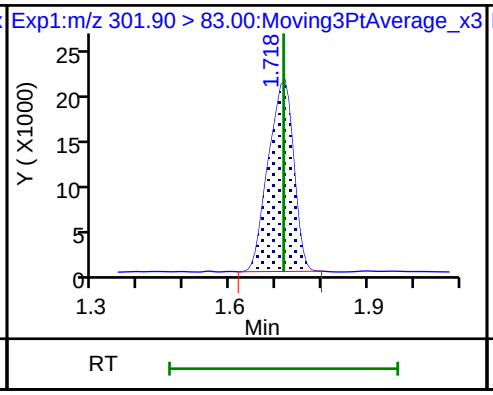
D 3 13C5-PFPeA



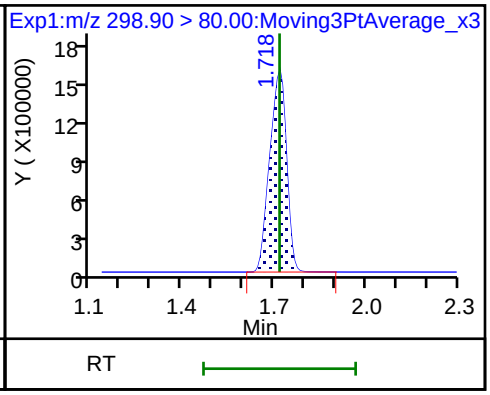
4 Perfluoropentanoic acid



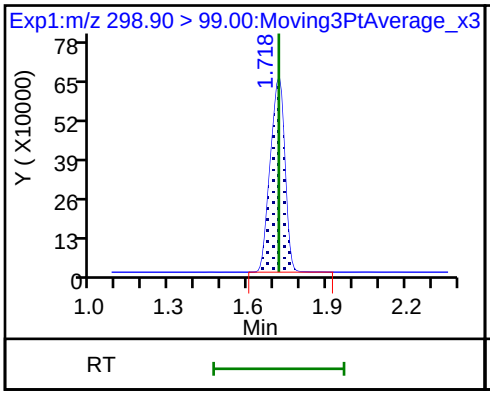
D 47 13C3-PFBS



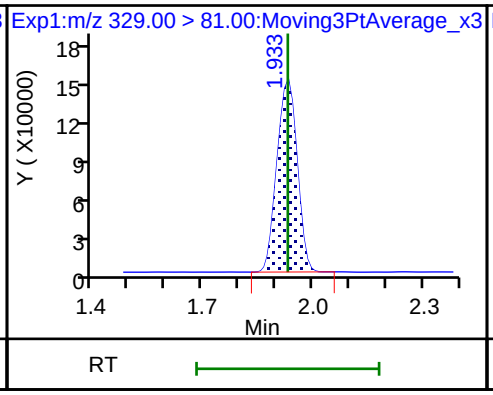
5 Perfluorobutanesulfonic acid



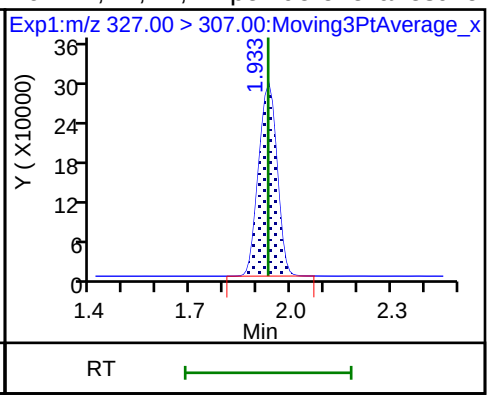
5 Perfluorobutanesulfonic acid



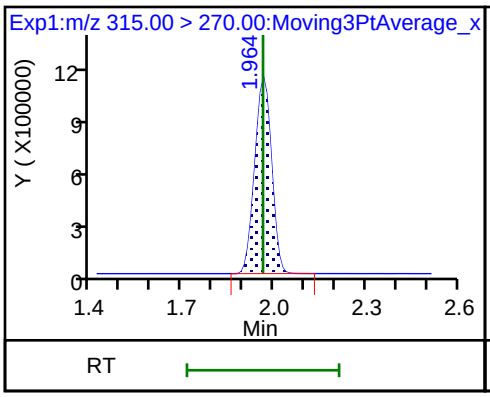
D 60 M2-4:2FTS



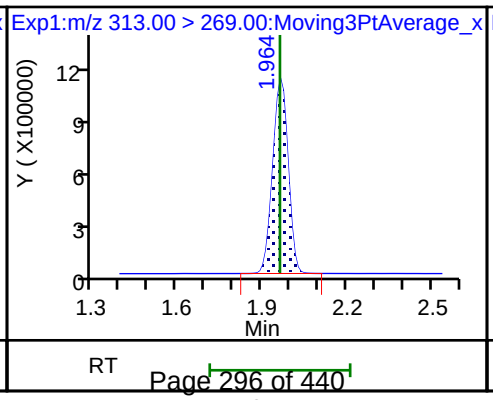
61 1H,1H,2H,2H-perfluorohexanesulfoni



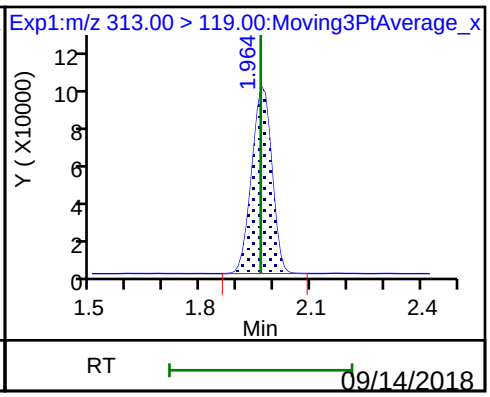
D 7 13C2 PFHxA



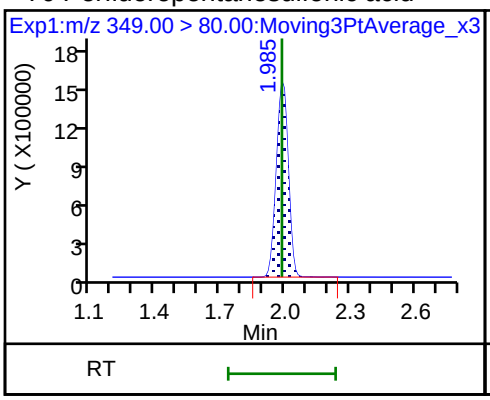
6 Perfluorohexanoic acid



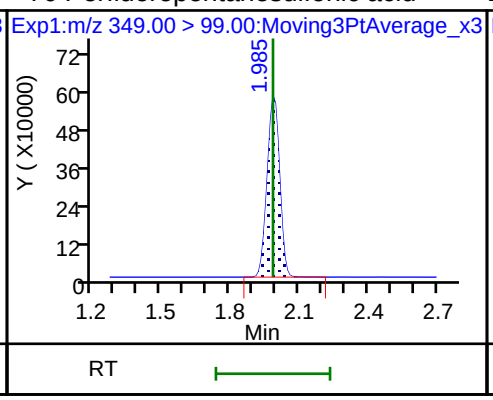
6 Perfluorohexanoic acid



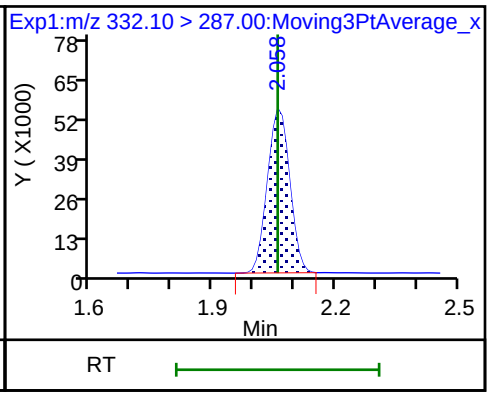
70 Perfluoropentanesulfonic acid



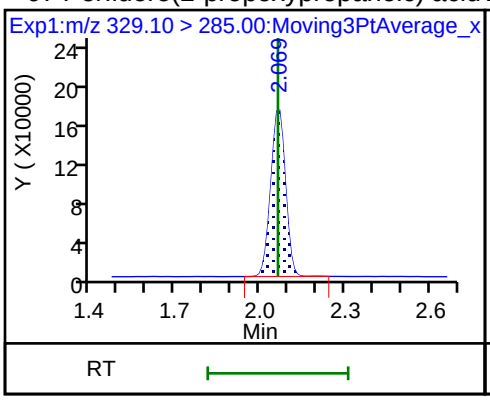
70 Perfluoropentanesulfonic acid



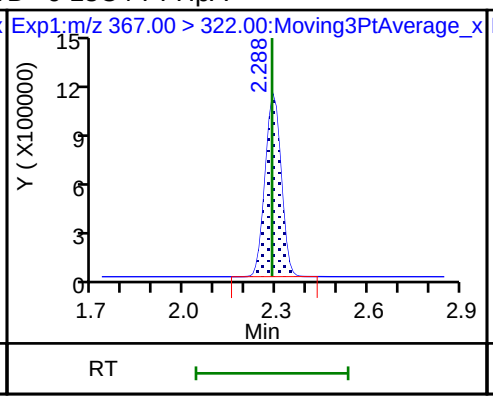
D 64 13C3 HFPO-DA



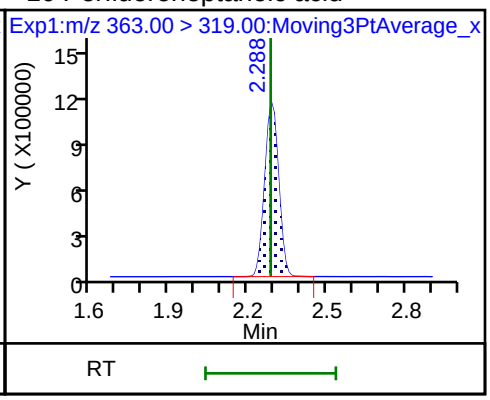
67 Perfluoro(2-propoxypropanoic) acid



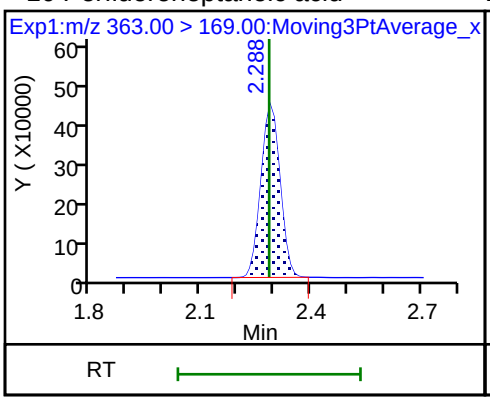
D 9 13C4-PFHpA



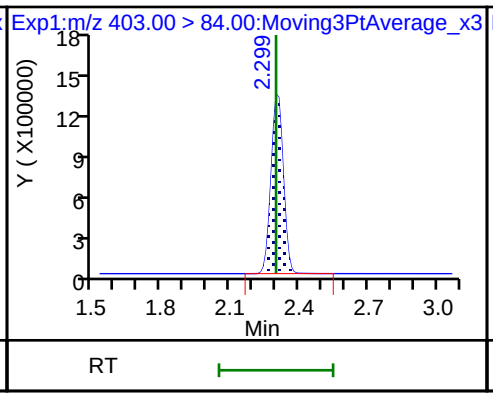
10 Perfluoroheptanoic acid



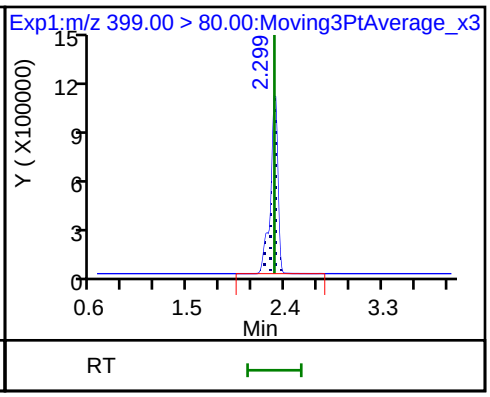
10 Perfluoroheptanoic acid



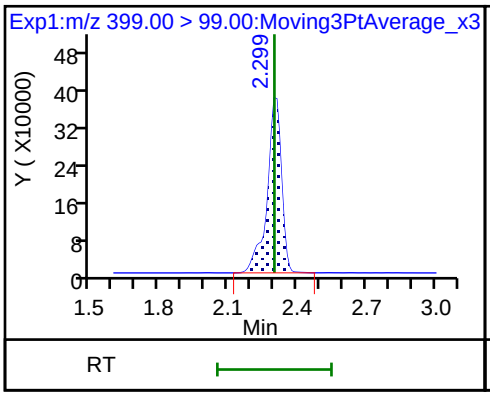
D 11 18O2 PFHxS



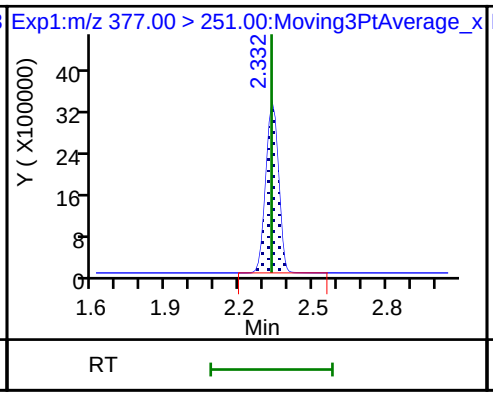
8 Perfluorohexanesulfonic acid



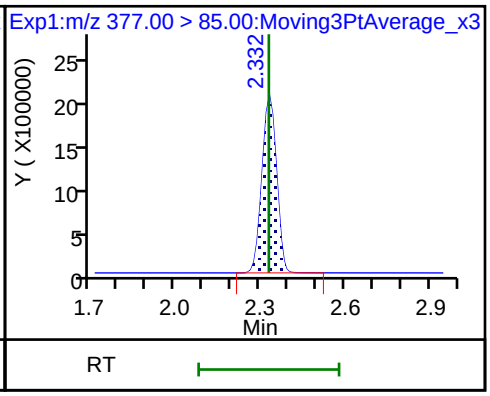
8 Perfluorohexanesulfonic acid



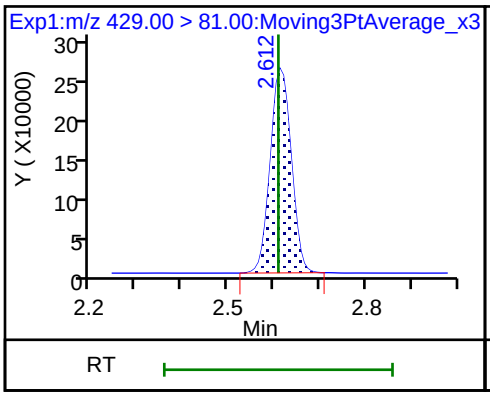
77 DONA



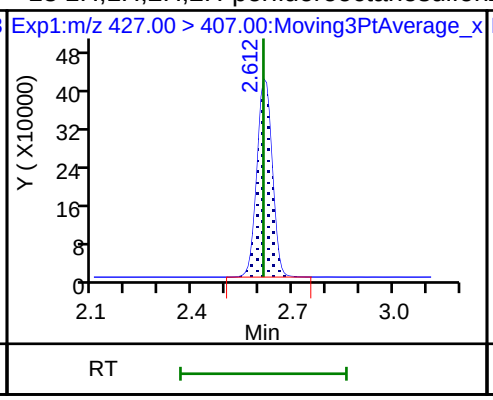
77 DONA



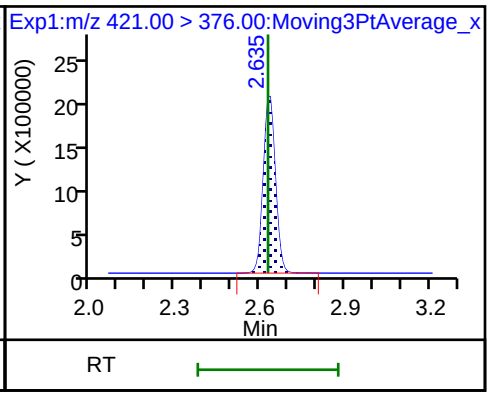
D 12 M2-6:2FTS



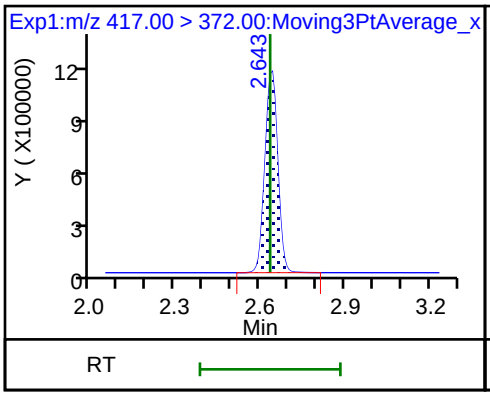
13 1H,1H,2H,2H-perfluorooctanesulfon



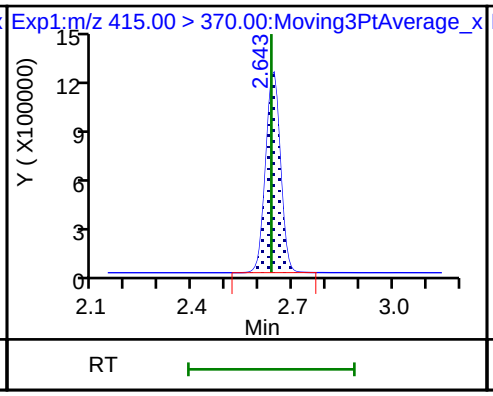
D 73 13C8 PFOA



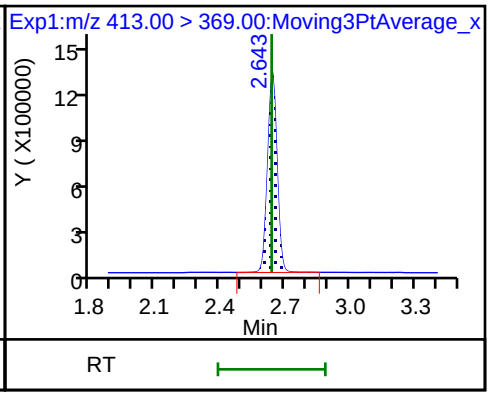
D 14 13C4 PFOA



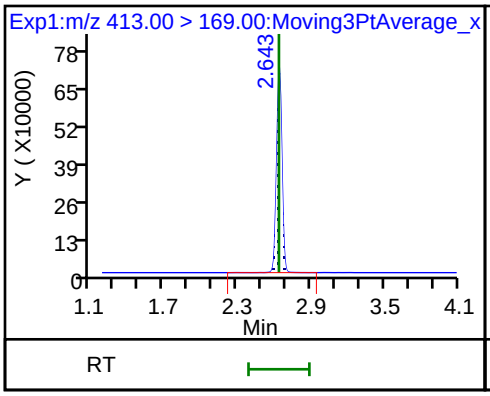
* 62 13C2-PFOA



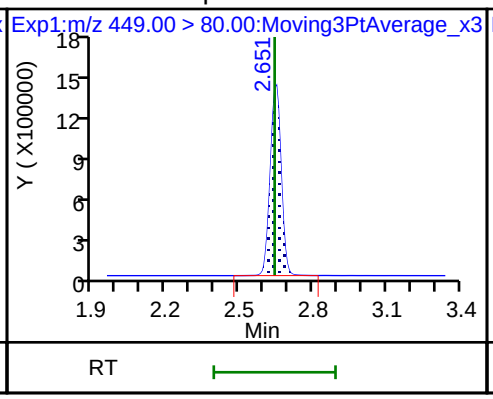
15 Perfluorooctanoic acid



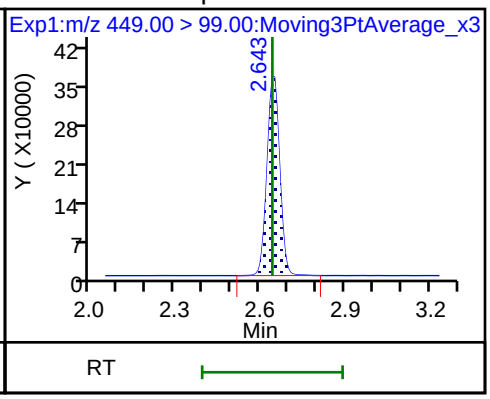
15 Perfluorooctanoic acid



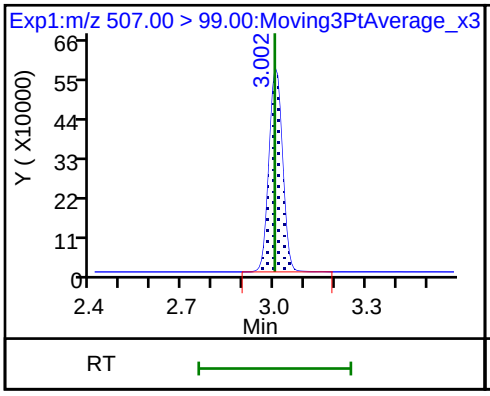
16 Perfluoroheptanesulfonic acid



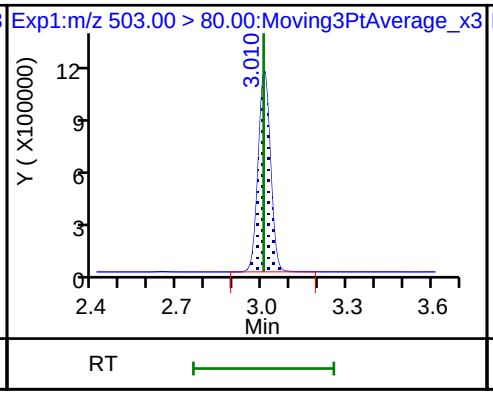
16 Perfluoroheptanesulfonic acid



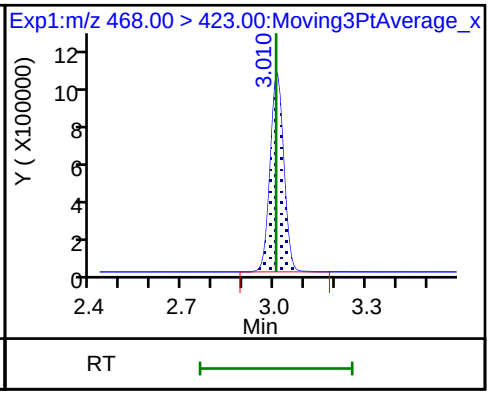
D 72 13C8 PFOS



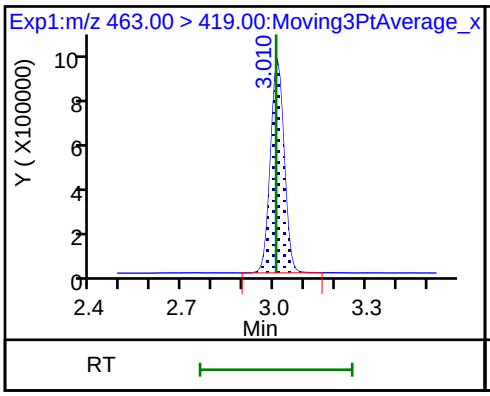
D 18 13C4 PFOS



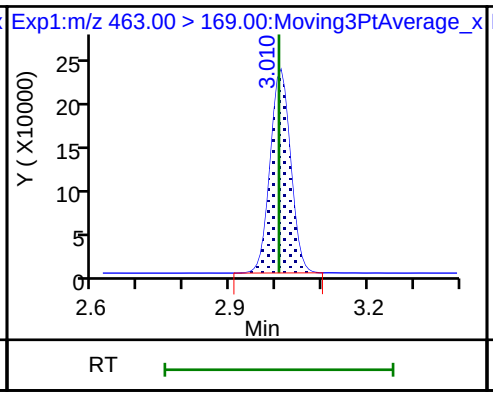
D 19 13C5 PFNA



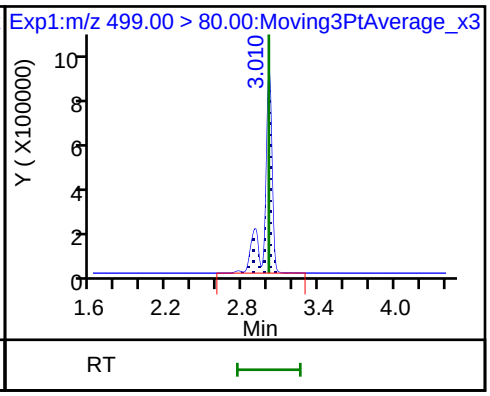
20 Perfluorononanoic acid



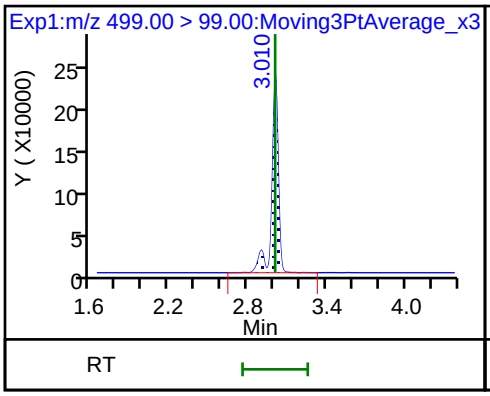
20 Perfluorononanoic acid



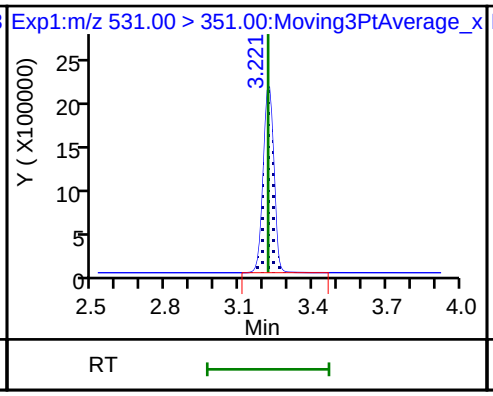
17 Perfluorooctane sulfonic acid



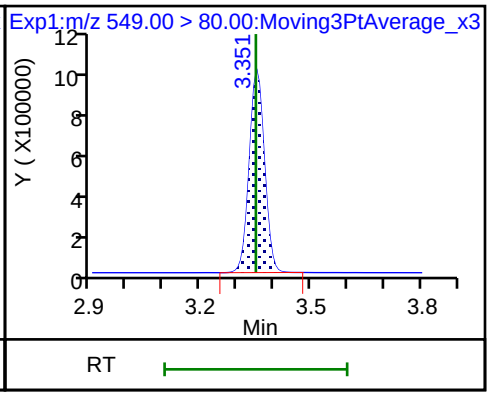
17 Perfluorooctane sulfonic acid



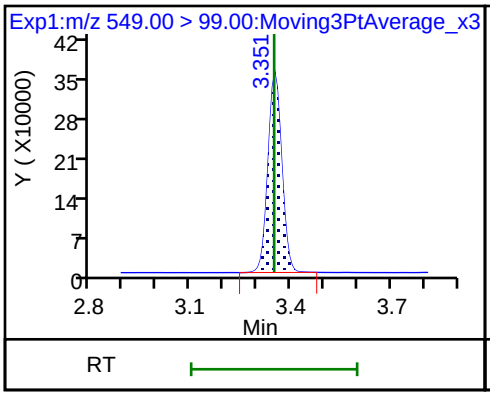
69 9-Chlorohexadecafluoro-3-oxanonane



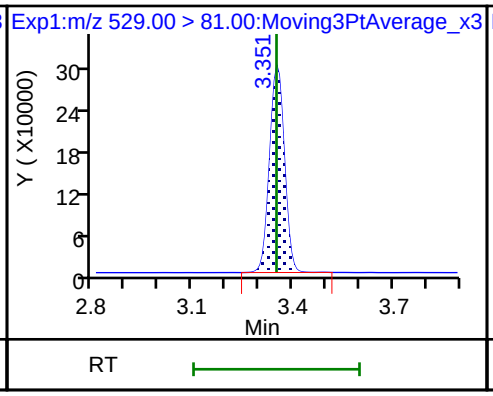
68 Perfluorononanesulfonic acid



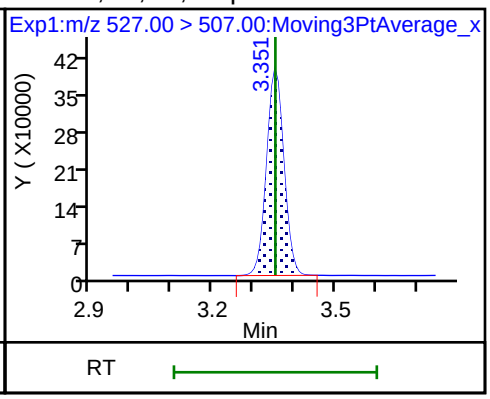
68 Perfluorononanesulfonic acid



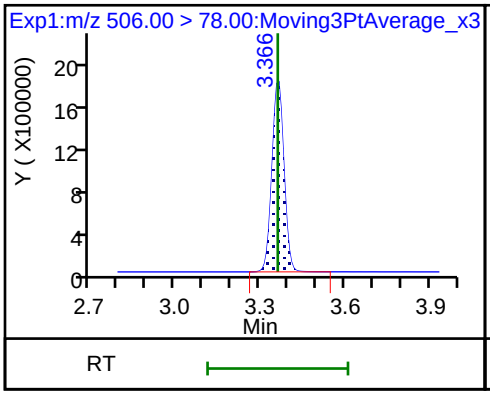
D 26 M2-8:2FTS



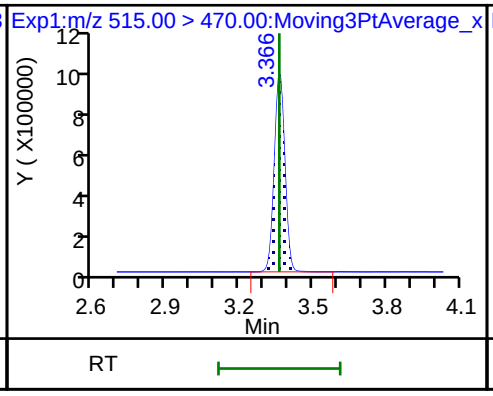
25 1H,1H,2H,2H-perfluorodecanesulfoni



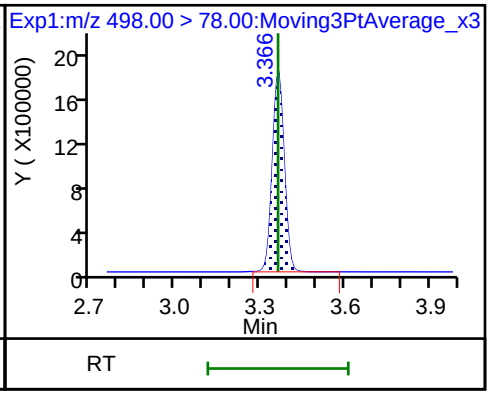
D 21 13C8 FOSA



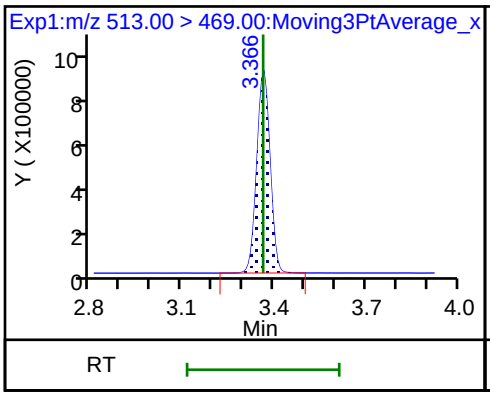
D 23 13C2 PFDA



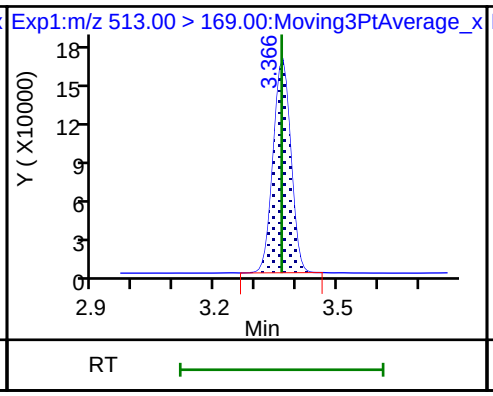
22 Perfluorooctane Sulfonamide



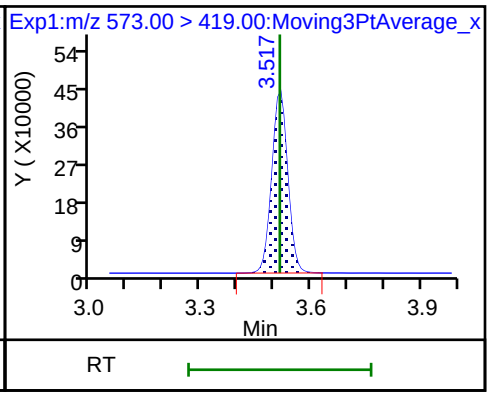
24 Perfluorodecanoic acid



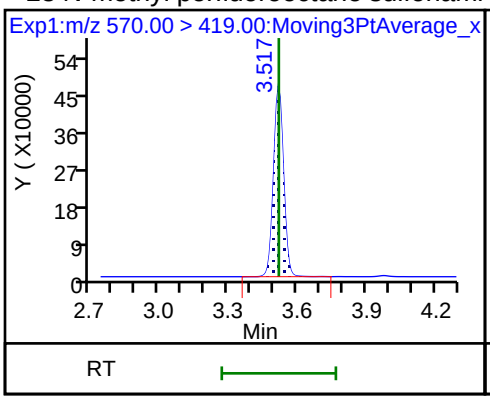
24 Perfluorodecanoic acid



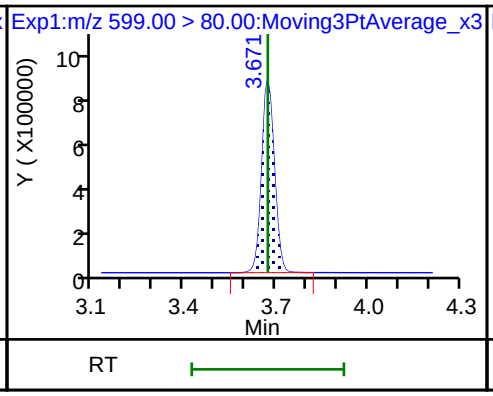
D 27 d3-NMeFOSAA



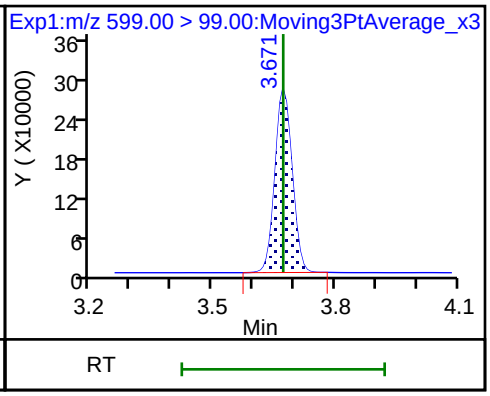
28 N-methyl perfluorooctane sulfonami



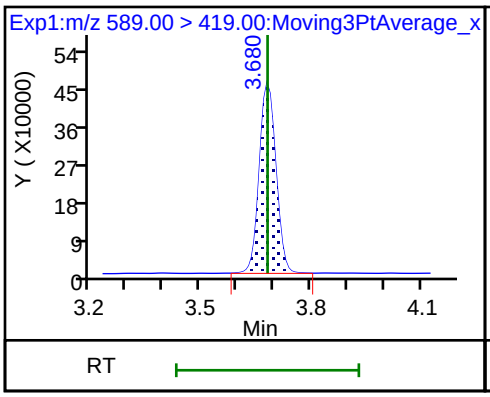
29 Perfluorodecane Sulfonic acid



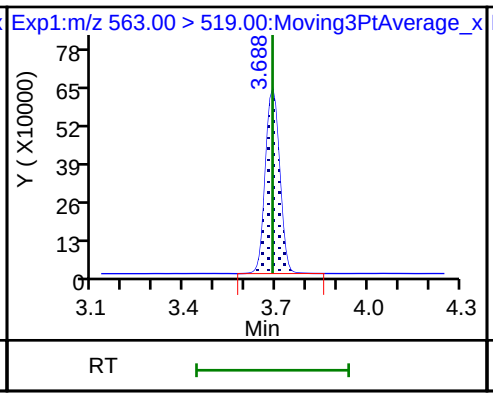
29 Perfluorodecane Sulfonic acid



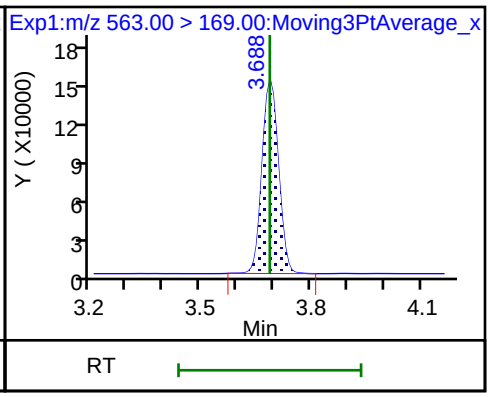
D 32 d5-NEtFOSAA



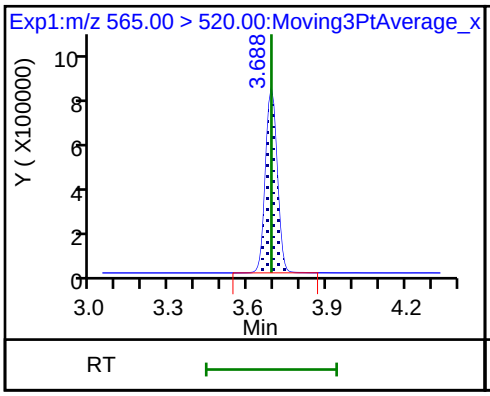
31 Perfluoroundecanoic acid



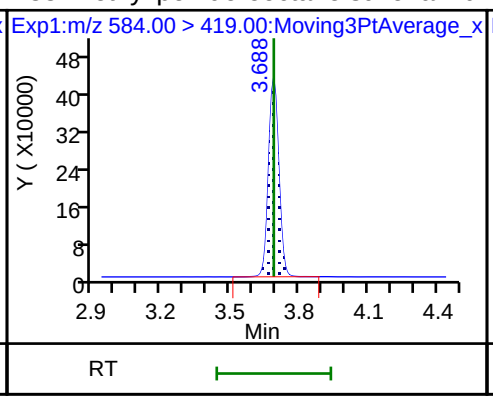
31 Perfluoroundecanoic acid



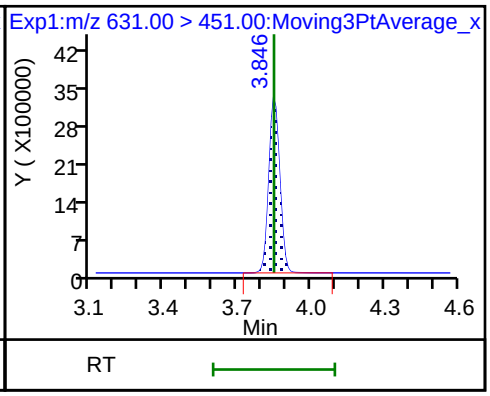
D 30 13C2 PFUnA



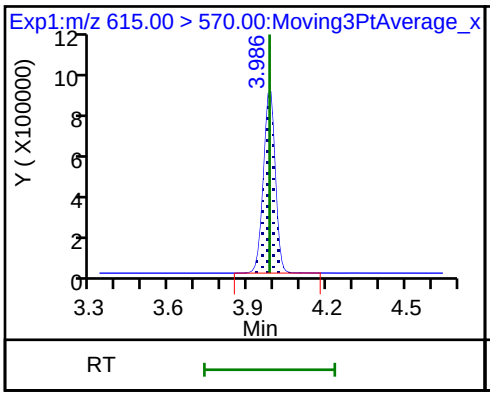
33 N-ethyl perfluorooctane sulfonamid



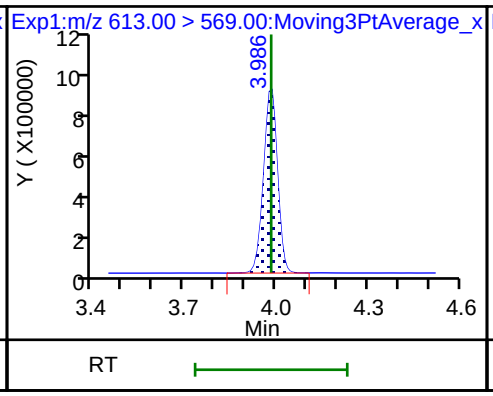
66 11-Chloroeicosafluoro-3-oxaundecan



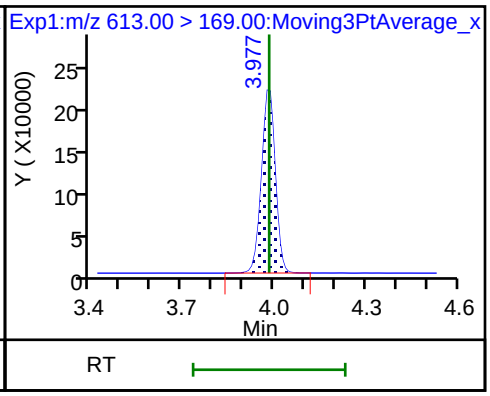
D 36 13C2 PFDoA



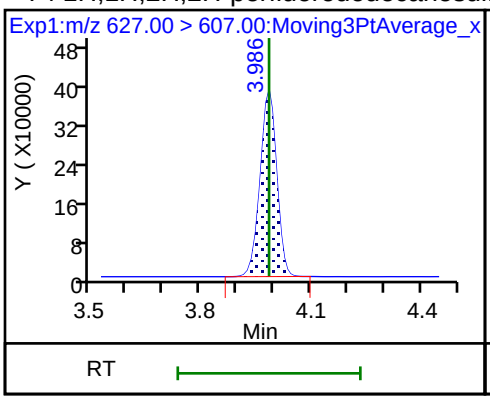
37 Perfluorododecanoic acid



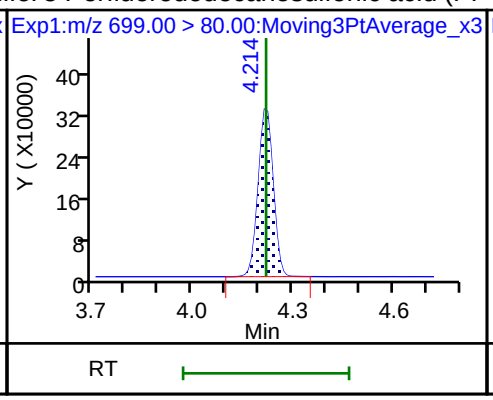
37 Perfluorododecanoic acid



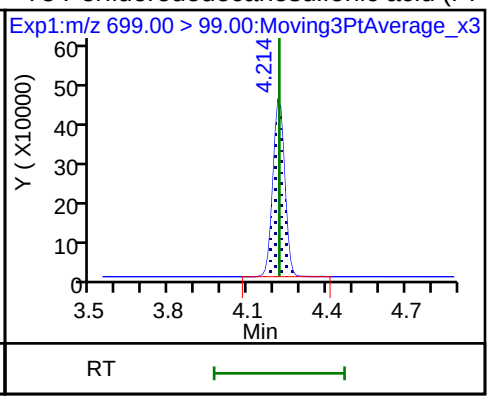
74 1H,1H,2H,2H-perfluorododecanesulfo



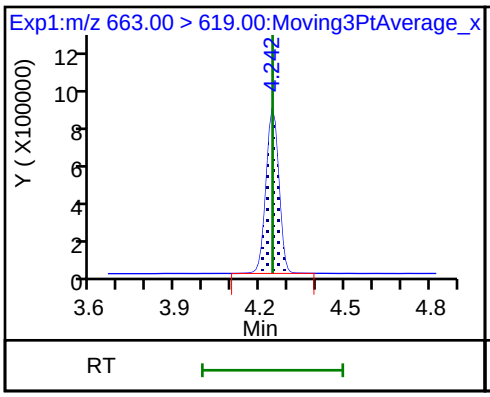
75 Perfluorododecanesulfonic acid (PF



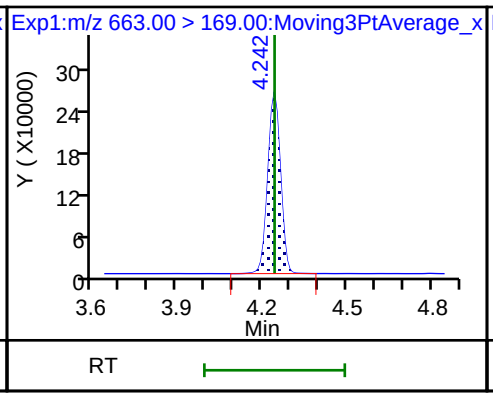
75 Perfluorododecanesulfonic acid (PF



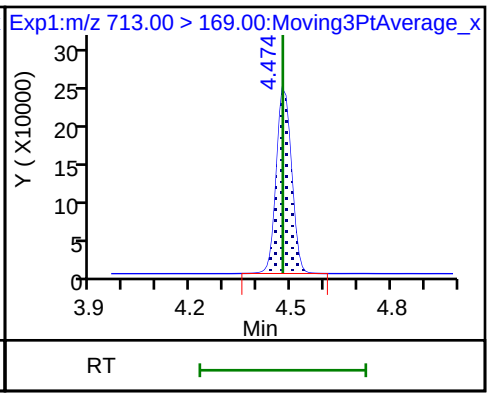
41 Perfluorotridecanoic acid



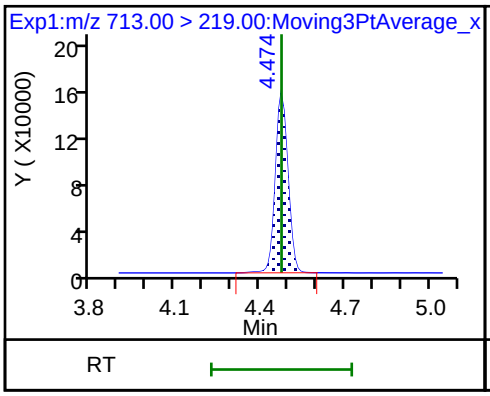
41 Perfluorotridecanoic acid



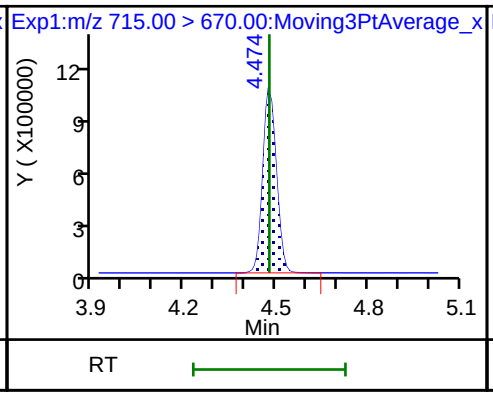
42 Perfluorotetradecanoic acid



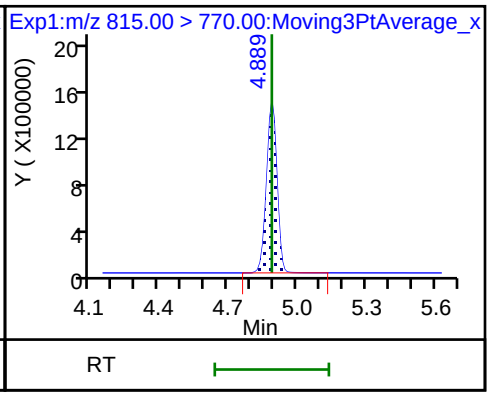
42 Perfluorotetradecanoic acid



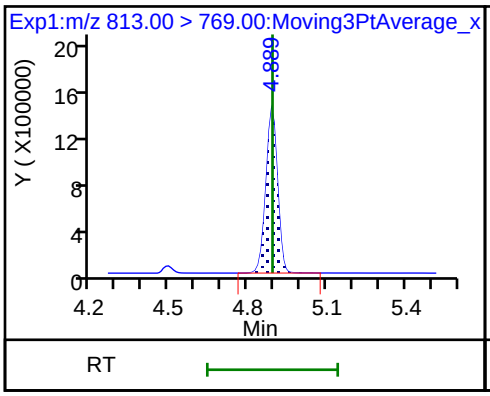
D 43 13C2-PFTeDA



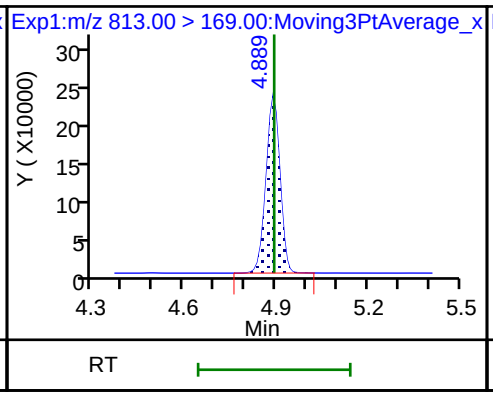
D 44 13C2-PFHxDA



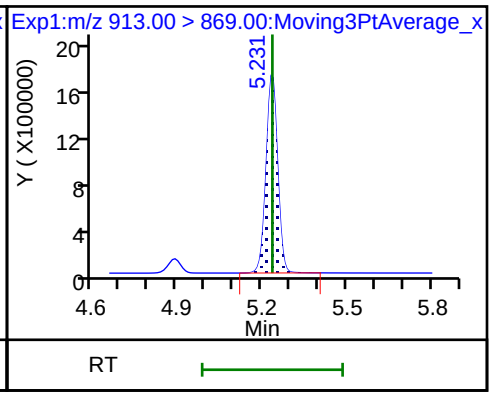
45 Perfluorohexadecanoic acid



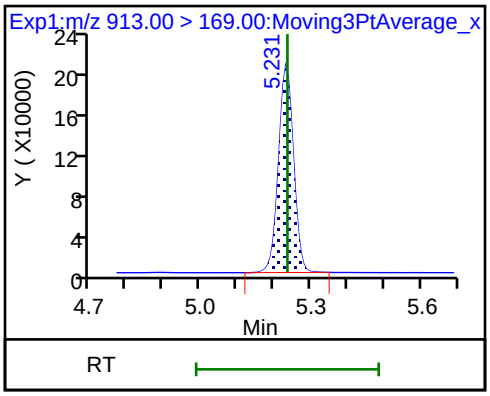
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: CCVL 320-242971/2 Calibration Date: 08/29/2018 20:19

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLB_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8887	0.9298		0.0523	0.0500	4.6	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.153	1.204		0.0522	0.0500	4.4	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.87	75.12		0.0443	0.0442	0.3	50.0
4:2 FTS	AveID	15.39	15.15			0.0467	-1.5	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	1.114		0.0553	0.0500	10.7	50.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	68.97	72.72		0.0495	0.0469	5.4	50.0
HFPO-DA (GenX)	AveID	3.166	3.161		0.0499	0.0500	-0.2	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.095	1.133		0.0517	0.0500	3.5	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.094	1.243		0.0517	0.0455	13.6	50.0
DONA	AveID	3.355	3.507		0.0492	0.0471	4.5	50.0
6:2 FTS	AveID	1.503	1.611		0.0508	0.0474	7.1	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.130	1.211		0.0536	0.0501	7.2	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.218	1.237		0.0484	0.0476	1.6	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.100	1.048		0.0442	0.0464	-4.7	50.0
Perfluorononanoic acid (PFNA)	AveID	1.039	1.057		0.0508	0.0500	1.7	50.0
F-53B Major	AveID	1.814	1.806		0.0464	0.0466	-0.5	50.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8056	0.7922		0.0472	0.0480	-1.7	50.0
8:2 FTS	AveID	1.296	1.416		0.0523	0.0479	9.2	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9716	1.026		0.0528	0.0500	5.6	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9644	0.8788		0.0456	0.0500	-8.9	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9683	1.051			0.0500	8.6	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.7103	0.6404		0.0435	0.0482	-9.8	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8394	0.8158		0.0486	0.0500	-2.8	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9140	0.8908		0.0487	0.0500	-2.5	50.0
F-53B Minor	AveID	2.751	2.810		0.0481	0.0471	2.1	50.0
10:2 FTS	AveID	1.193	1.130		0.0457	0.0482	-5.3	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.096	1.112		0.0507	0.0500	1.4	50.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.2963	0.2746		0.0449	0.0484	-7.3	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.040	1.061		0.0510	0.0500	2.0	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2497	0.2471		0.0495	0.0500	-1.1	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: CCVL 320-242971/2 Calibration Date: 08/29/2018 20:19

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLB_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.289		0.0497	0.0500	-0.6	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.001	1.029		0.0514	0.0500	2.8	50.0
13C4 PFBA	Ave	1.545	1.481		2.40	2.50	-4.2	50.0
13C5 PFPeA	Ave	0.9767	0.9431		2.41	2.50	-3.4	50.0
13C3-PFBS	Ave	0.0231	0.0221		2.23	2.33	-4.2	50.0
M2-4:2FTS	Ave	0.1542	0.1476		2.24	2.34	-4.3	50.0
13C2 PFHxA	Ave	1.095	1.068		2.44	2.50	-2.5	50.0
13C3 HFPO-DA	Ave	0.0527	0.0551		2.62	2.50	4.6	50.0
13C4-PFHpA	Ave	1.032	0.997		2.41	2.50	-3.4	50.0
18O2 PFHxS	Ave	1.373	1.385		2.39	2.37	0.9	50.0
M2-6:2FTS	Ave	0.2341	0.2295		2.33	2.38	-2.0	50.0
13C8 PFOA	Ave	1.640	1.550		2.31	2.45	-5.5	50.0
13C4 PFOA	Ave	0.9851	0.9880		2.51	2.50	0.3	50.0
13C4 PFOS	Ave	0.9382	0.9362		2.38	2.39	-0.2	50.0
13C8 PFOS	Ave	0.4800	0.4699		2.34	2.39	-2.1	50.0
13C5 PFNA	Ave	0.8094	0.8247		2.55	2.50	1.9	50.0
M2-8:2FTS	Ave	0.2723	0.2687		2.36	2.40	-1.3	50.0
13C2 PFDA	Ave	0.7512	0.7505		2.50	2.50	-0.0	50.0
13C8 FOSA	Ave	1.389	1.391		2.50	2.50	0.1	50.0
d3-NMeFOSAA	Ave	0.3499	0.3332		2.38	2.50	-4.8	50.0
13C2 PFUnA	Ave	0.6491	0.6524		2.51	2.50	0.5	50.0
d5-NEtFOSAA	Ave	0.3843	0.3911		2.54	2.50	1.8	50.0
13C2 PFDoA	Ave	0.6931	0.7154		2.58	2.50	3.2	50.0
13C2-PFTeDA	Ave	0.8310	0.7925		2.38	2.50	-4.6	50.0
13C2-PFHxDA	Ave	1.199	1.160		2.42	2.50	-3.2	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63497.b\2018.08.29LLB_004.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 29-Aug-2018 20:19:04 ALS Bottle#: 21 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCVL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63497.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 30-Aug-2018 13:30:46 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK020

First Level Reviewer: barnettj Date: 30-Aug-2018 13:28:48

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.414	1.411	0.003	0.536	5884183	2.40		95.8	9096	
2 Perfluorobutyric acid										
212.90 > 169.00	1.414	1.415	-0.001	1.000	109421	0.0523		105	12.3	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.676	1.677	-0.001	1.000	90281	0.0522		104	5.3	
D 3 13C5-PFPeA										
267.90 > 223.00	1.676	1.679	-0.003	0.635	3748427	2.41		96.6	7094	
D 47 13C3-PFBS										
301.90 > 83.00	1.716	1.712	0.004	0.650	81826	2.23		95.8	489	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.716	1.717	-0.001	1.000	116857	0.0443		100	217	
298.90 > 99.00	1.716	1.717	-0.001	1.000	50446		2.32(1.25-3.74)		118	
D 60 M2-4:2FTS										
329.00 > 81.00	1.928	1.924	0.004	0.731	548021	2.24		95.7	1495	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.928	1.930	-0.002	1.124	24898	0.0460		98.5	459	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.960	1.961	-0.001	1.000	94610	0.0553		111	40.2	
313.00 > 119.00	1.960	1.961	-0.001	1.000	9035		10.47(5.03-15.10)		32.5	
D 7 13C2 PFHxA										
315.00 > 270.00	1.960	1.966	-0.006	0.742	4245456	2.44		97.5	11306	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.991	1.982	0.009	1.160	120036	0.0495		105	849	
349.00 > 99.00	1.981	1.982	-0.001	1.154	43409		2.77(1.36-4.07)		220	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.064	2.055	0.009	1.005	13839	0.0499		99.8	15.8	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.054	2.060	-0.006	0.778	218901	2.62		105	1093	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.292	2.282	0.010	1.000	89814	0.0517		103	43.0	
363.00 > 169.00	2.281	2.282	-0.001	0.995	31136		2.88(1.13-3.40)		97.3	
D 9 13C4-PFHpA										
367.00 > 322.00	2.292	2.289	0.003	0.868	3963024	2.41		96.6	11098	
D 11 18O2 PFHxS										
403.00 > 84.00	2.303	2.300	0.003	0.872	5208308	2.39		101	8120	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.303	2.304	-0.001	1.000	124589	0.0517		114	506	
399.00 > 99.00	2.303	2.304	-0.001	1.000	41496		3.00(1.50-4.49)		82.1	
77 DONA										
377.00 > 251.00	2.325	2.327	-0.002	0.774	245828	0.0492		105	857	
377.00 > 85.00	2.325	2.327	-0.002	0.774	138069		1.78(0.85-2.54)		184	
D 12 M2-6:2FTS										
429.00 > 81.00	2.609	2.606	0.003	0.988	866606	2.33		98.0	4947	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.616	2.609	0.007	1.003	27856	0.0508		107	273	
D 73 13C8 PFOA										
421.00 > 376.00	2.632	2.629	0.003	0.997	6030341	2.31		94.5	12267	
D 14 13C4 PFOA										
417.00 > 372.00	2.639	2.636	0.003	1.000	3926855	2.51		100	9112	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.639	2.640	-0.001	1.000	95216	0.0536		107	13.7	M
413.00 > 169.00	2.639	2.640	-0.001	1.000	47428		2.01(0.84-2.52)		120	
* 62 13C2-PFOA										
415.00 > 370.00	2.639	2.640	-0.001		3974392	2.50			9376	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.647	2.647	0.0	0.881	87665	0.0484		102	691	
449.00 > 99.00	2.647	2.647	0.0	0.881	22489		3.90(1.94-5.82)		129	
D 72 13C8 PFOS										
507.00 > 99.00	3.005	3.001	0.004	1.139	1785289	2.34		97.9	4989	
20 Perfluorononanoic acid										
463.00 > 419.00	3.013	3.007	0.006	1.000	69255	0.0508		102	22.7	
463.00 > 169.00	3.013	3.007	0.006	1.000	16559		4.18(1.90-5.69)		138	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.005	3.007	-0.002	1.000	72363	0.0442		95.3	289	
499.00 > 99.00	3.013	3.007	0.006	1.003	18049		4.01(2.31-6.93)		96.9	
D 18 13C4 PFOS										
503.00 > 80.00	3.005	3.009	-0.004	1.139	3557122	2.38		99.8	6994	
D 19 13C5 PFNA										
468.00 > 423.00	3.013	3.009	0.004	1.141	3277483	2.55		102	5965	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.216	3.218	-0.002	1.070	125258	0.0464		99.5	403	
D 26 M2-8:2FTS										
529.00 > 81.00	3.352	3.350	0.002	1.270	1023192	2.36		98.7	2532	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.360	3.354	0.006	1.002	28983	0.0523		109	93.7	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.352	3.354	-0.002	1.115	56593	0.0472		98.3	603	
549.00 > 99.00	3.352	3.354	-0.002	1.115	19868		2.85(1.33-3.97)		86.0	
D 21 13C8 FOSA										
506.00 > 78.00	3.367	3.358	0.009	1.276	5529365	2.50		100	6372	
D 23 13C2 PFDA										
515.00 > 470.00	3.367	3.365	0.002	1.276	2982662	2.50		99.9	4924	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.367	3.369	-0.002	1.000	61211	0.0528		106	79.7	
513.00 > 169.00	3.367	3.369	-0.002	1.000	9524		6.43(2.36-7.09)		51.2	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.367	3.369	-0.002	1.000	97180	0.0456		91.1	499	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.519	3.516	0.003	1.333	1324183	2.38		95.2	3038	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.519	3.521	-0.002	1.000	27845	0.0543		109	21.9	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.672	3.673	-0.001	1.222	45944	0.0435		90.2	346	
599.00 > 99.00	3.672	3.673	-0.001	1.222	14383		3.19(1.39-4.16)		173	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.690	3.677	0.013	1.398	1554515	2.54		102	566	
D 30 13C2 PFUnA										
565.00 > 520.00	3.690	3.686	0.004	1.398	2592899	2.51		101	6108	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.690	3.690	0.0	1.000	46193	0.0487		97.5	38.8	
563.00 > 169.00	3.698	3.690	0.008	1.002	9256		4.99(2.12-6.36)		80.5	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.690	3.690	0.0	1.000	25363	0.0486		97.2	110	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.847	3.857	-0.010	1.280	196960	0.0481		102	1326	
35 MeFOSA										
512.00 > 169.00	3.866	3.868	-0.002		24110	NC			126	
D 36 13C2 PFDoA										
615.00 > 570.00	3.987	3.983	0.004	1.510	2843154	2.58		103	8543	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.987	3.987	0.0	1.189	23279	0.0457		94.7	188	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.987	3.987	0.0	1.000	63233	0.0507		101	40.6	
613.00 > 169.00	3.987	3.987	0.0	1.000	15409		4.10(2.13-6.40)		128	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.224	4.224	0.0	1.406	19777	0.0449		92.7	218	
699.00 > 99.00	4.224	4.224	0.0	1.406	27364		0.72(0.00-0.00)		306	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.253	4.243	0.010	1.067	60338	0.0510		102	20.3	
663.00 > 169.00	4.253	4.243	0.010	1.067	16564		3.64(1.25-3.76)		275	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 43 13C2-PFTeDA										
715.00 > 670.00	4.484	4.482	0.002	1.699	3149570	2.38		95.4	6823	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.484	4.484	0.0	1.000	15563	0.0495		98.9	166	
713.00 > 219.00	4.484	4.484	0.0	1.000	9043		1.72(0.71-2.13)		205	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.898	4.898	0.0	1.856	4611803	2.42		96.8	7057	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.898	4.899	-0.001	1.000	118877	0.0497		99.4	9.6	
813.00 > 169.00	4.898	4.899	-0.001	1.000	20615		5.77(2.86-8.58)		145	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.238	5.238	0.0	1.069	94899	0.0514		103	6.7	
913.00 > 169.00	5.238	5.238	0.0	1.069	12036		7.88(3.83-11.48)		133	

QC Flag Legend

Processing Flags
NC - Not Calibrated
Review Flags
M - Manually Integrated

Reagents:

LCPFC_LL2_00009 Amount Added: 1.00 Units: mL

Report Date: 30-Aug-2018 13:30:49 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63497.b\2018.08.29LLB_004.d

Injection Date: 29-Aug-2018 20:19:04 Instrument ID: A8_N

Lims ID: CCVL

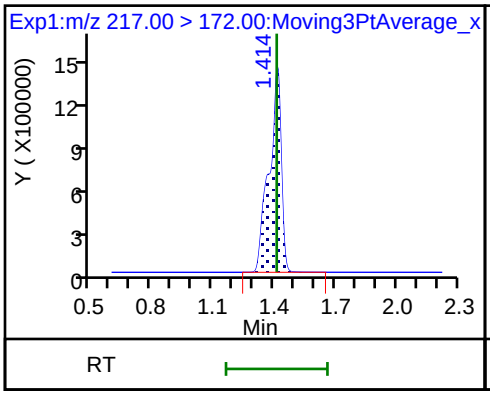
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 2

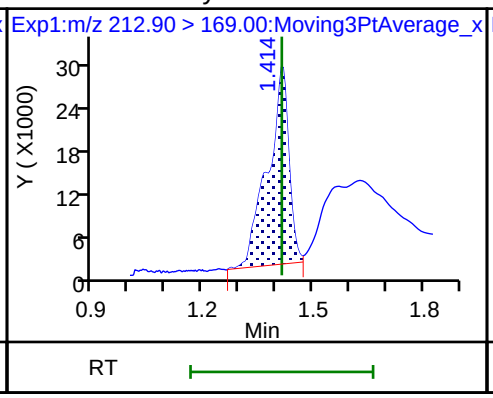
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

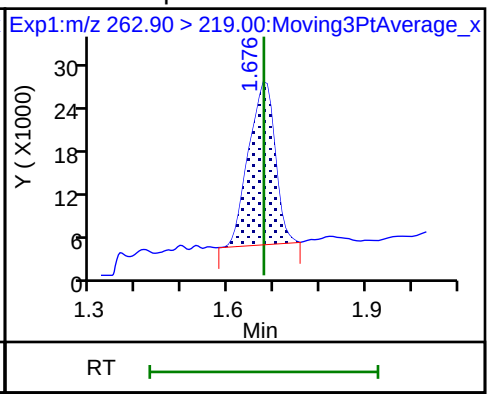
D 1 13C4 PFBA



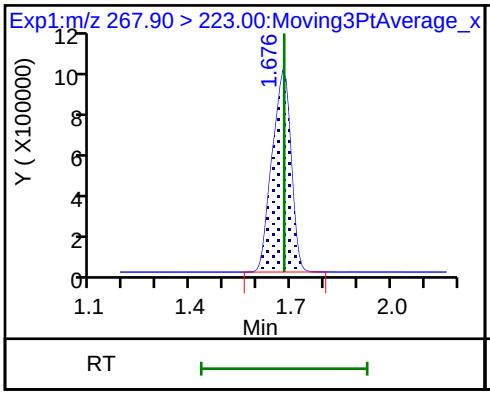
2 Perfluorobutyric acid



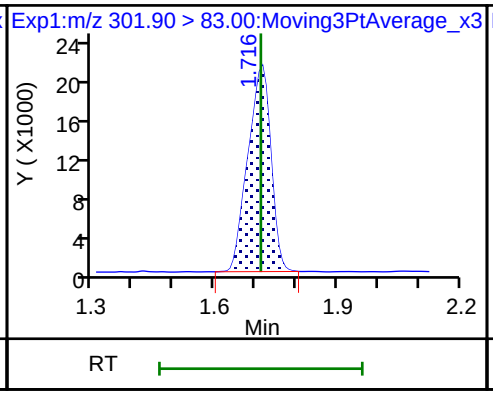
4 Perfluoropentanoic acid



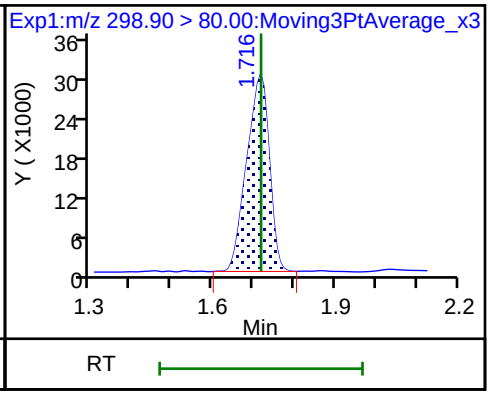
D 3 13C5-PFPeA



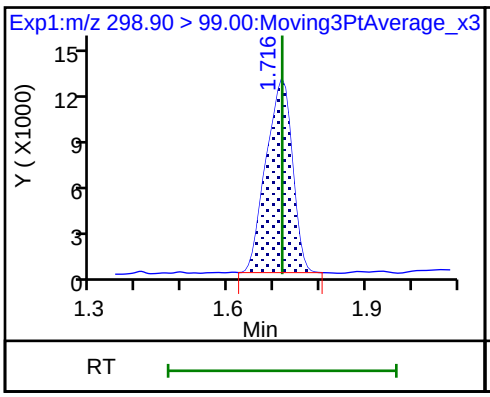
D 47 13C3-PFBS



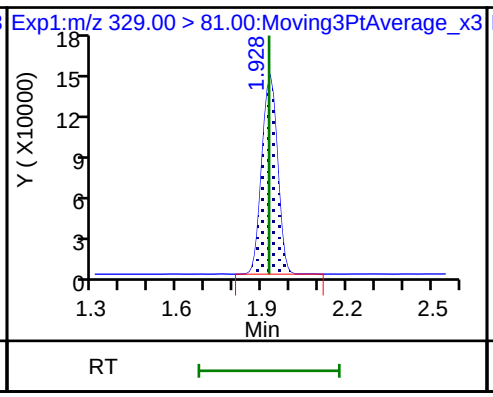
5 Perfluorobutanesulfonic acid



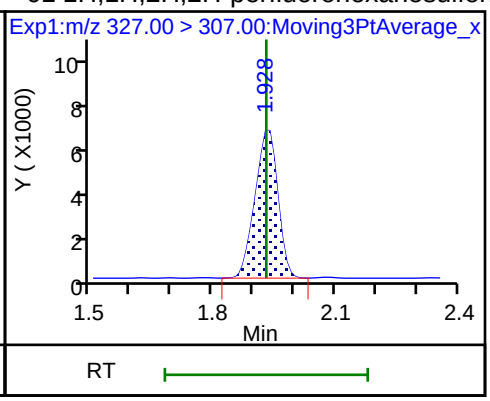
5 Perfluorobutanesulfonic acid



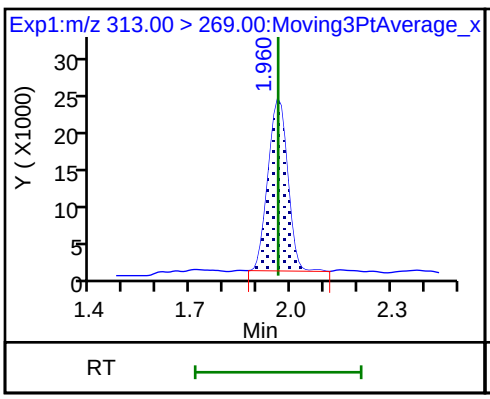
D 60 M2-4:2FTS



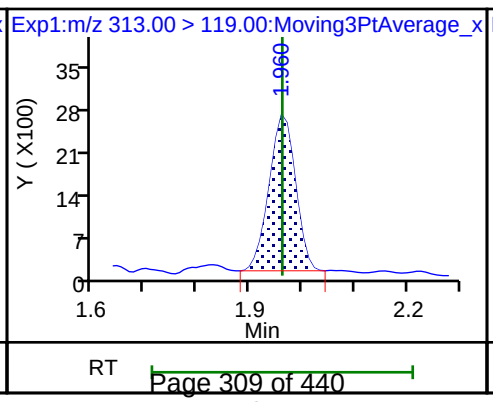
61 1H,1H,2H,2H-perfluorohexanesulfoni



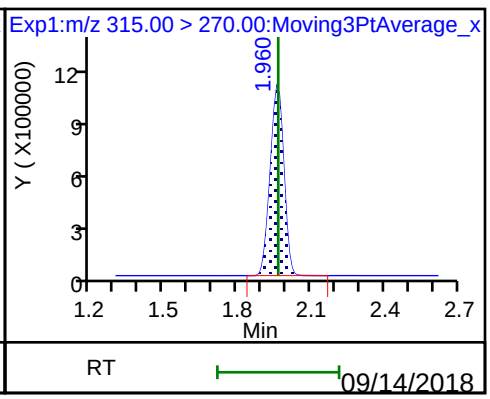
6 Perfluorohexanoic acid



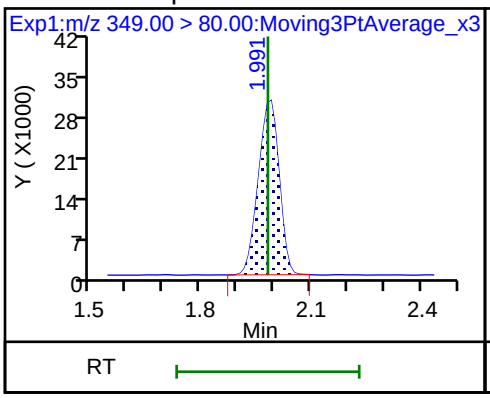
6 Perfluorohexanoic acid



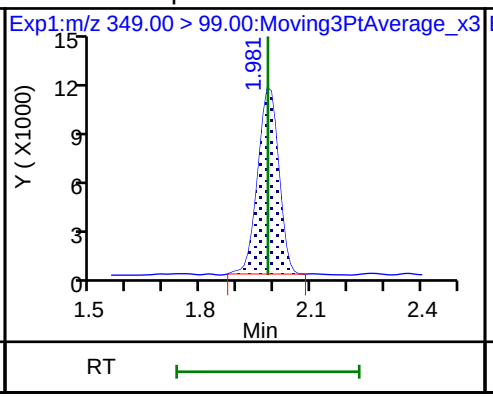
D 7 13C2 PFHxA



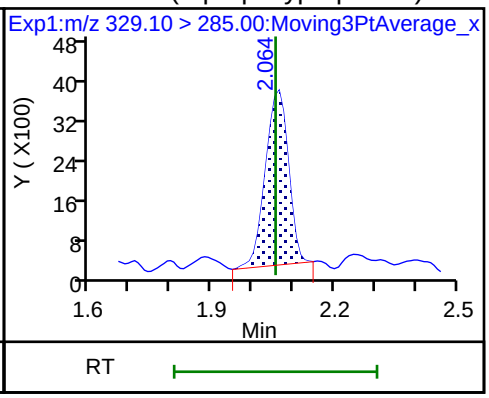
70 Perfluoropentanesulfonic acid



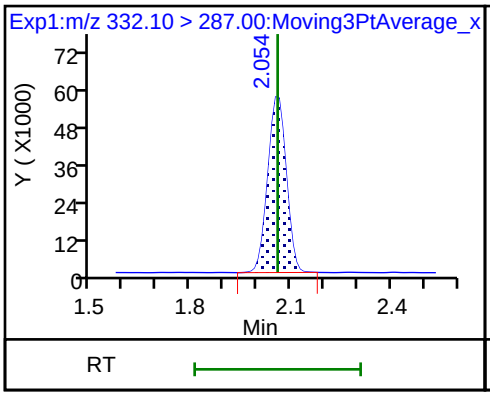
70 Perfluoropentanesulfonic acid



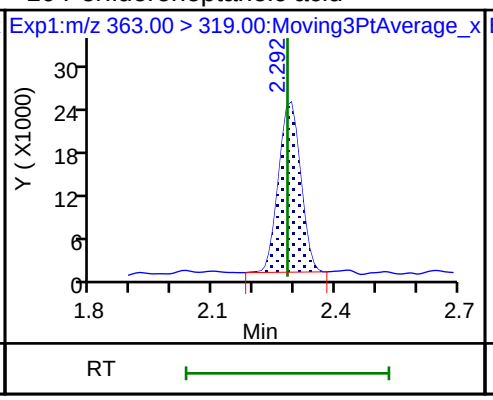
67 Perfluoro(2-propoxypropanoic) acid



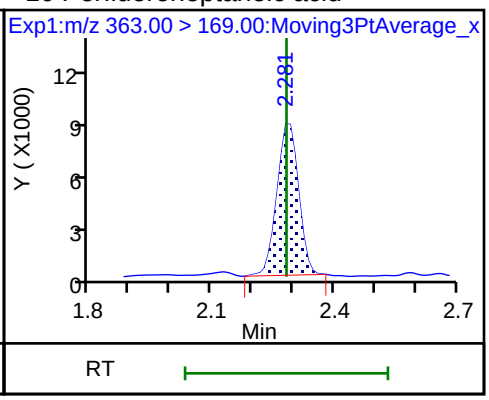
D 64 13C3 HFPO-DA



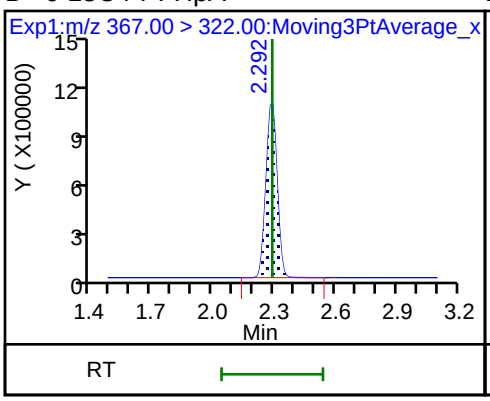
10 Perfluoroheptanoic acid



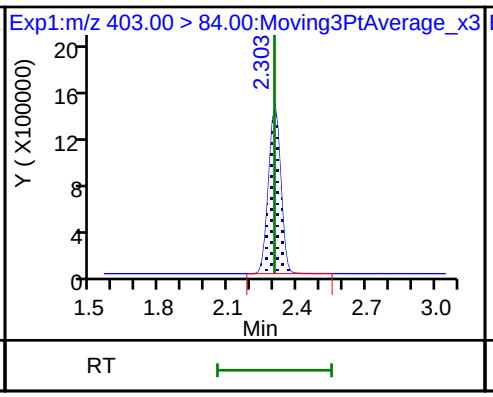
10 Perfluoroheptanoic acid



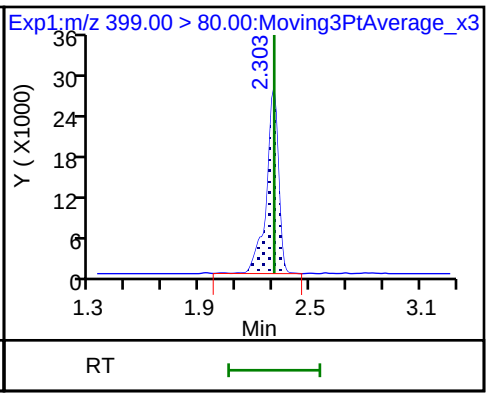
D 9 13C4-PFHpA



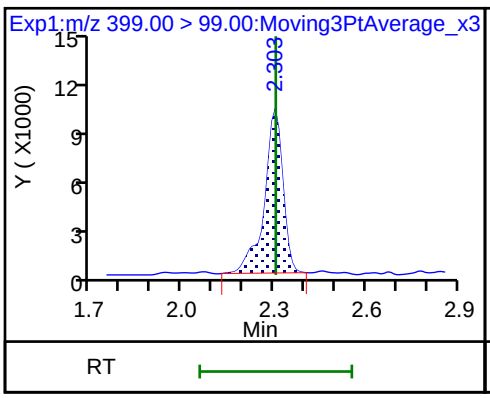
D 11 18O2 PFHxS



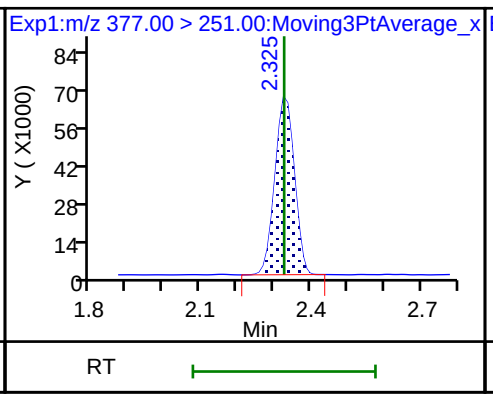
8 Perfluorohexanesulfonic acid



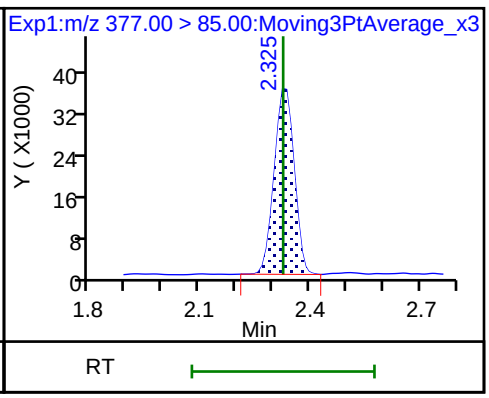
8 Perfluorohexanesulfonic acid



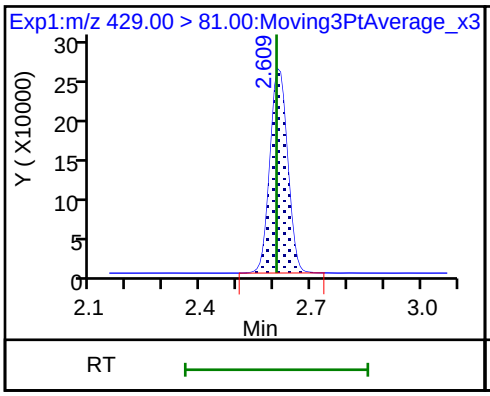
77 DONA



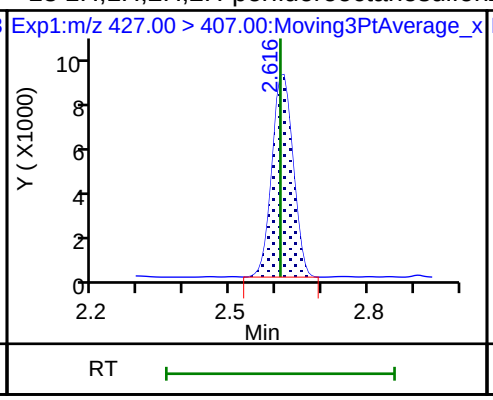
77 DONA



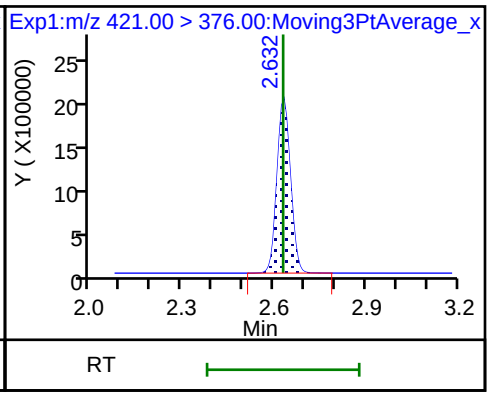
D 12 M2-6:2FTS



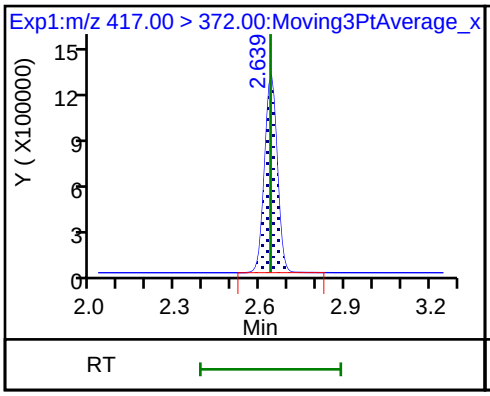
13 1H,1H,2H,2H-perfluorooctanesulfon



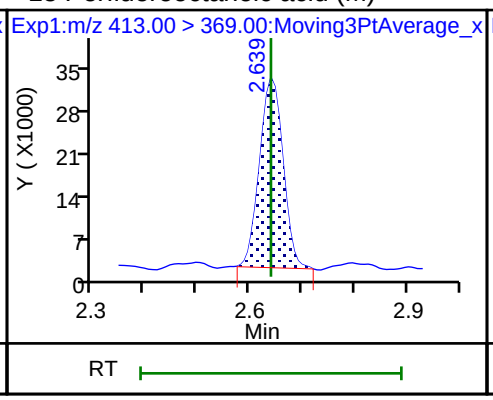
D 73 13C8 PFOA



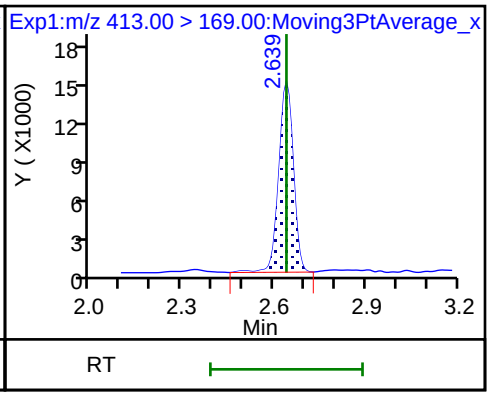
D 14 13C4 PFOA



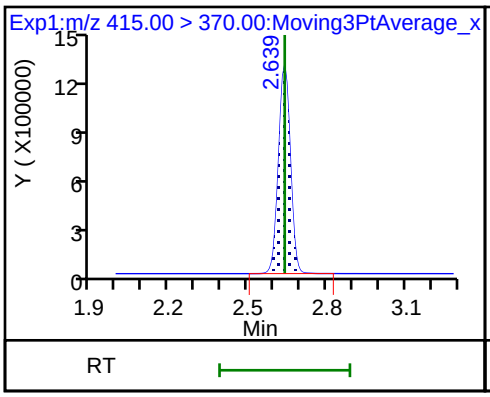
15 Perfluorooctanoic acid (M)



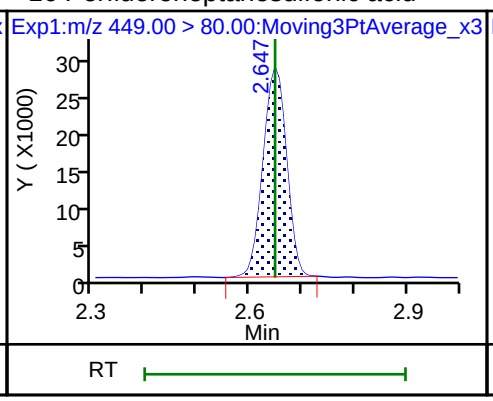
15 Perfluorooctanoic acid



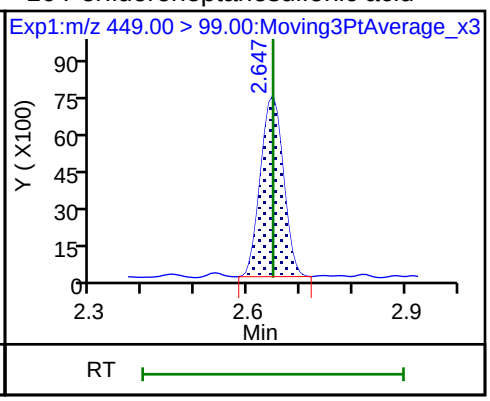
* 62 13C2-PFOA



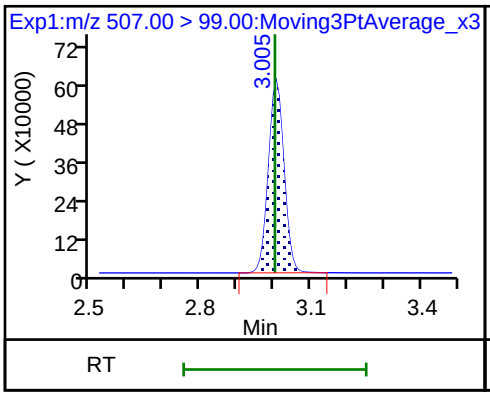
16 Perfluoroheptanesulfonic acid



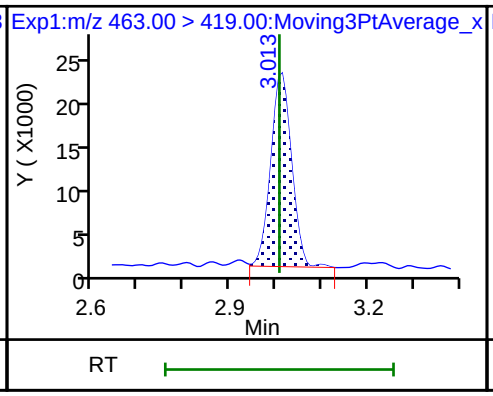
16 Perfluoroheptanesulfonic acid



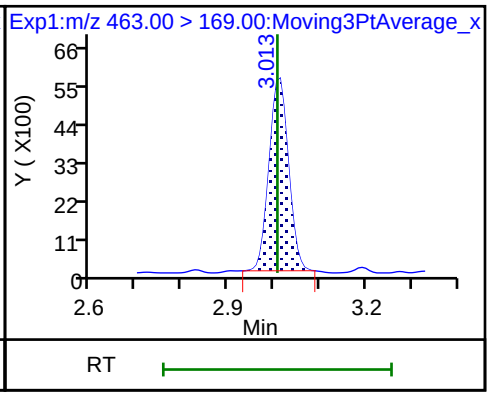
D 72 13C8 PFOS



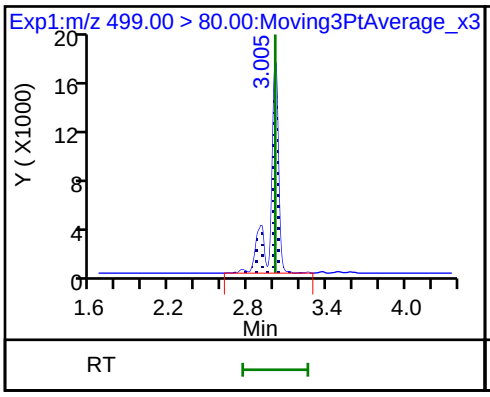
20 Perfluorononanoic acid



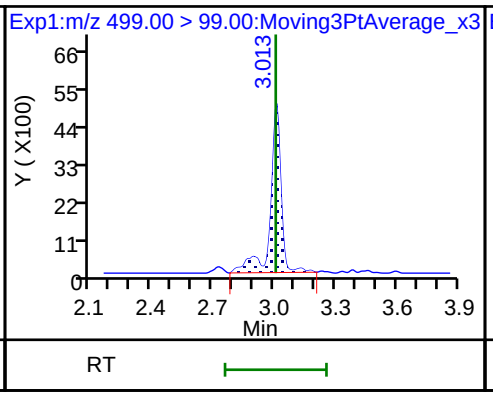
20 Perfluorononanoic acid



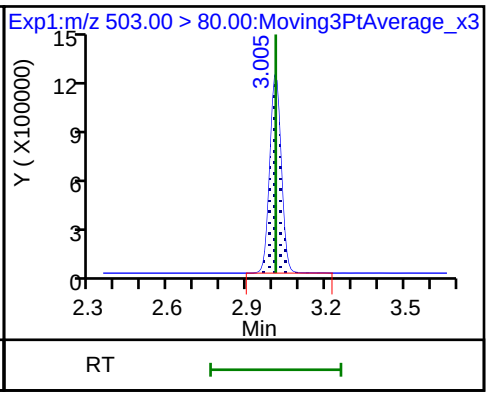
17 Perfluorooctane sulfonic acid



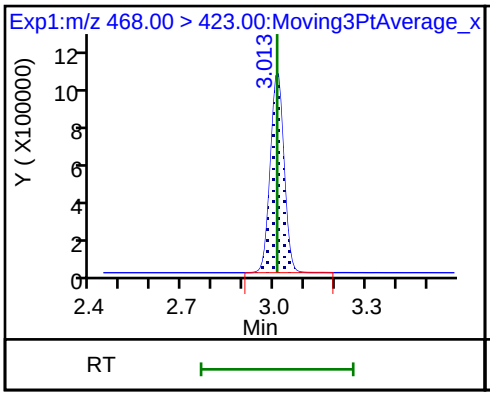
17 Perfluorooctane sulfonic acid



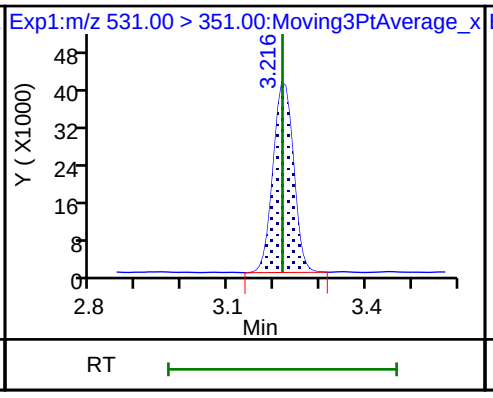
D 18 13C4 PFOS



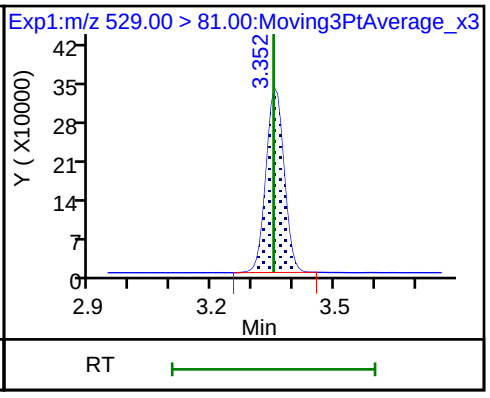
D 19 13C5 PFNA



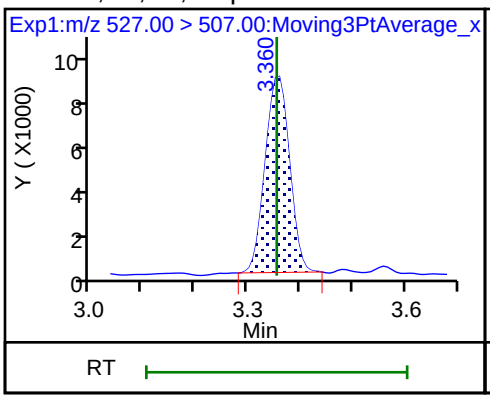
69 9-Chlorohexadecafluoro-3-oxanonane



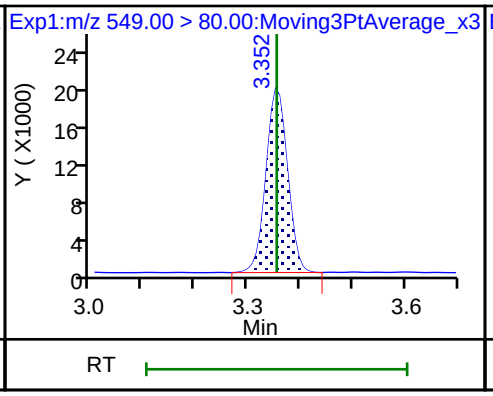
D 26 M2-8:2FTS



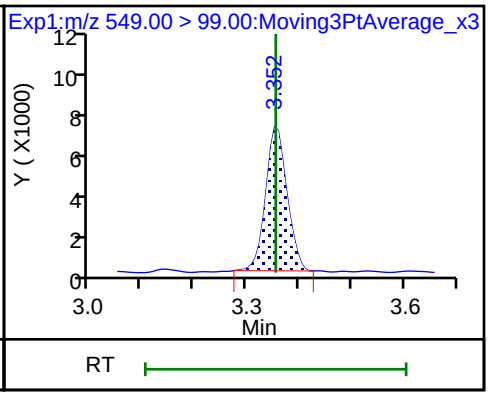
25 1H,1H,2H,2H-perfluorodecanesulfoni



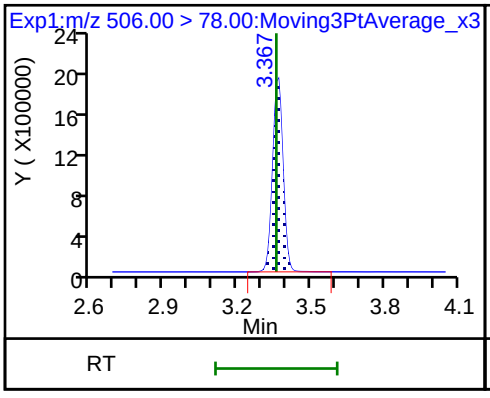
68 Perfluorononanesulfonic acid



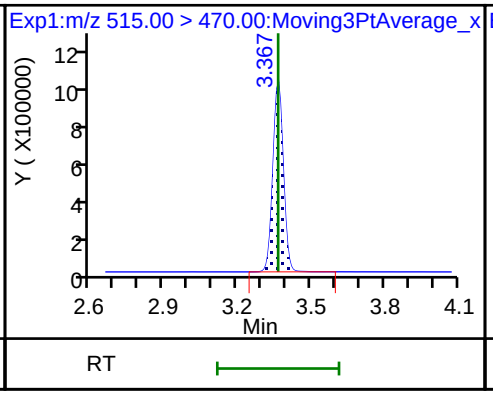
68 Perfluorononanesulfonic acid



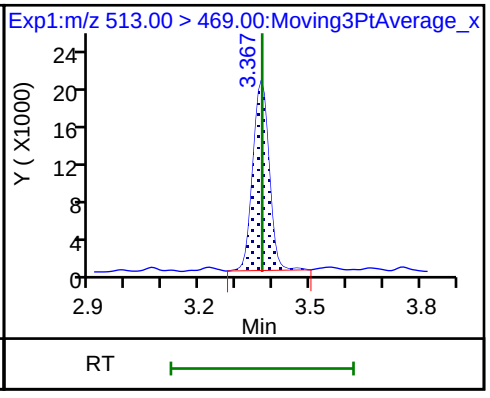
D 21 13C8 FOSA



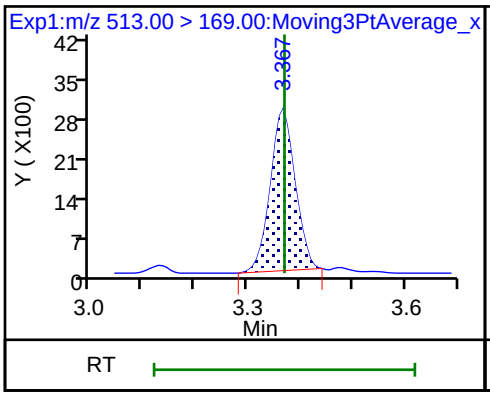
D 23 13C2 PFDA



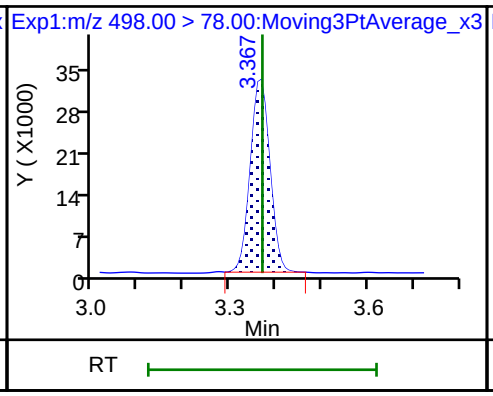
24 Perfluorodecanoic acid



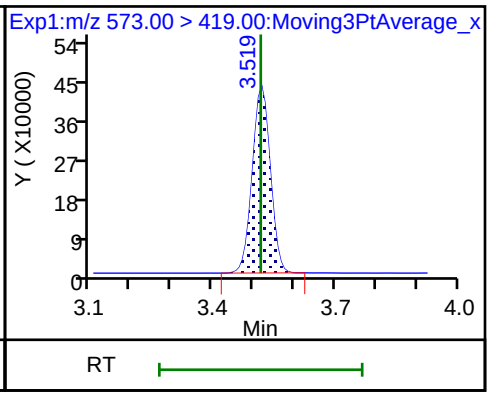
24 Perfluorodecanoic acid



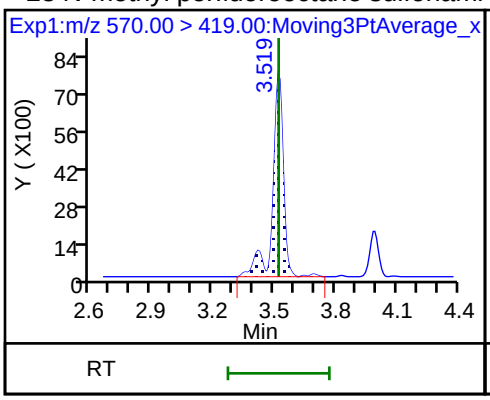
22 Perfluorooctane Sulfonamide



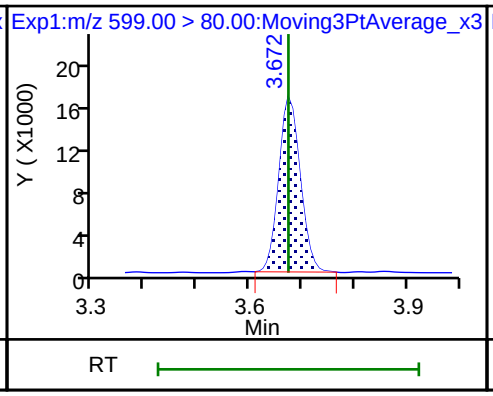
D 27 d3-NMeFOSAA



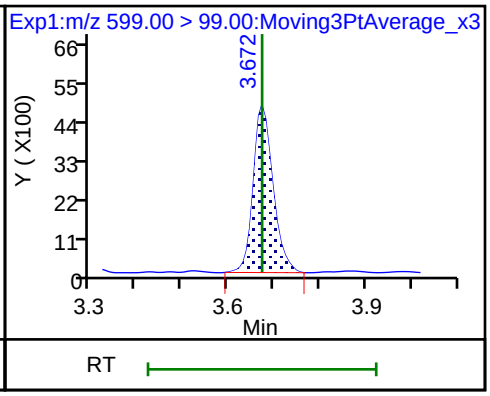
28 N-methyl perfluorooctane sulfonami



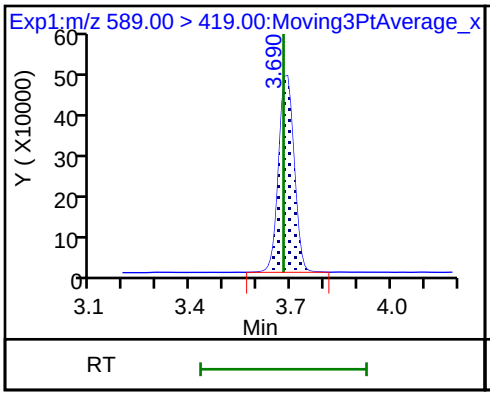
29 Perfluorodecane Sulfonic acid



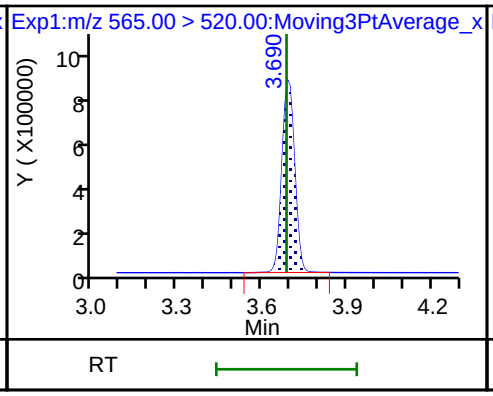
29 Perfluorodecane Sulfonic acid



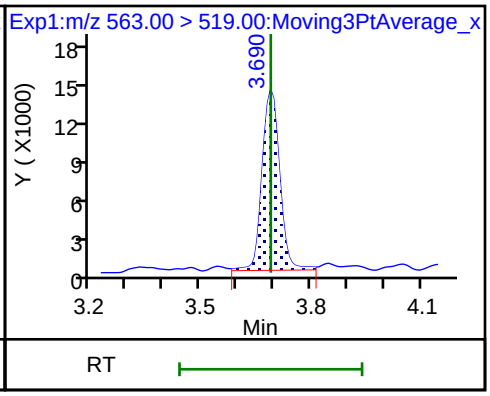
D 32 d5-NEtFOSAA



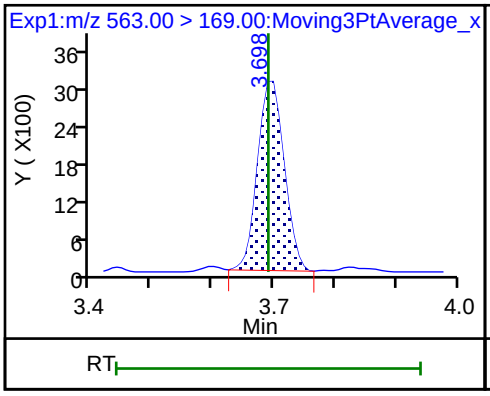
D 30 13C2 PFUnA



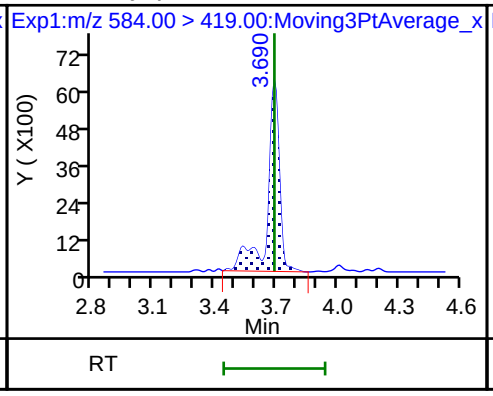
31 Perfluoroundecanoic acid



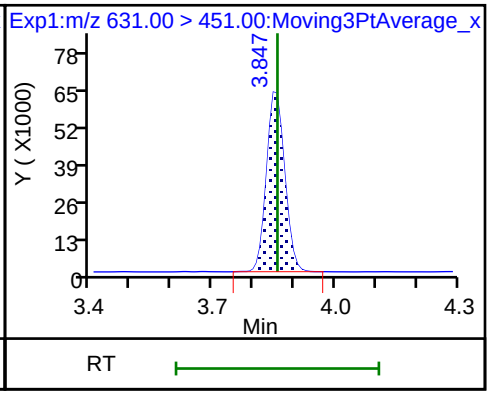
31 Perfluoroundecanoic acid



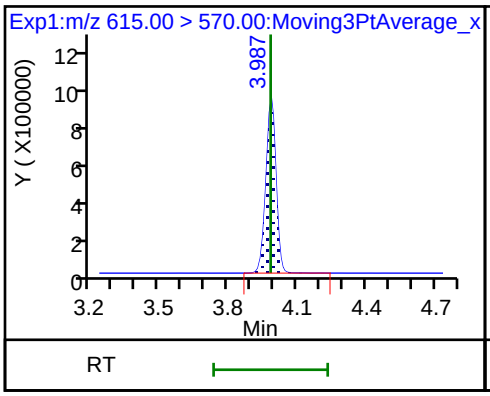
33 N-ethyl perfluorooctane sulfonamid



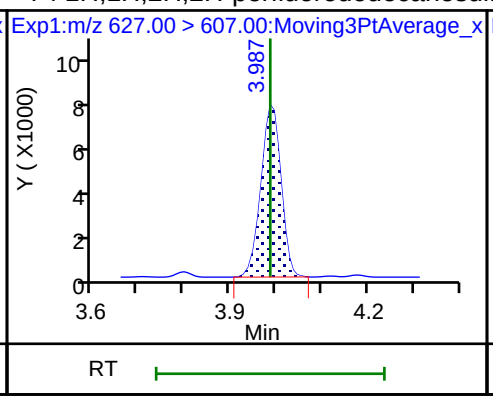
66 11-Chloroeicosafluoro-3-oxaundecan



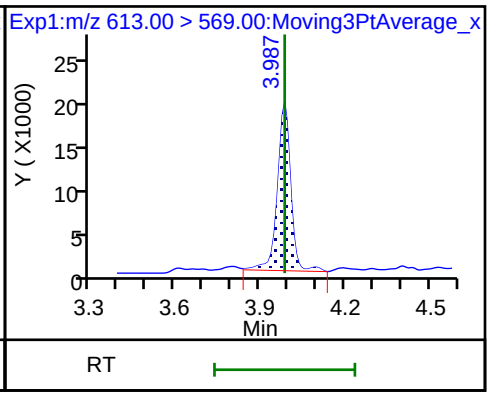
D 36 13C2 PFDoA



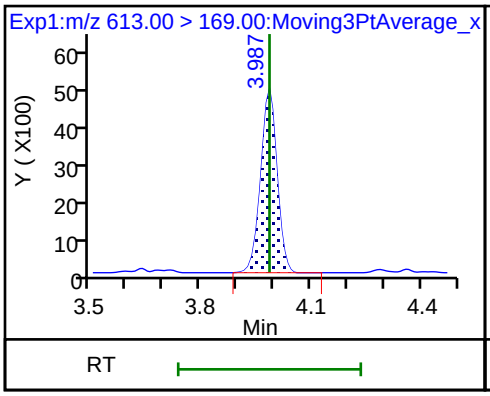
74 1H,1H,2H,2H-perfluorododecanesulfo



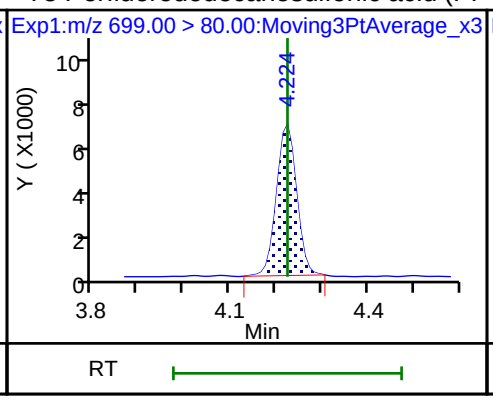
37 Perfluorododecanoic acid



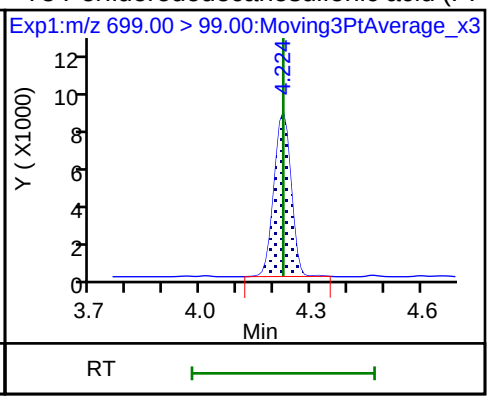
37 Perfluorododecanoic acid



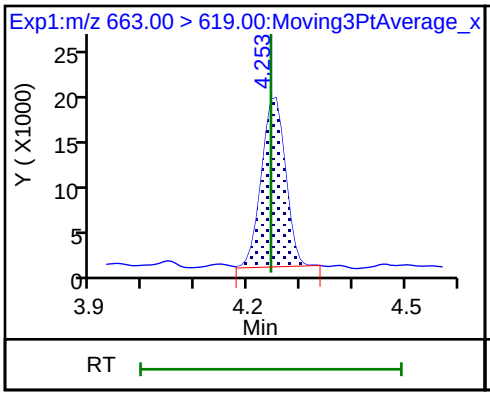
75 Perfluorododecanesulfonic acid (PF



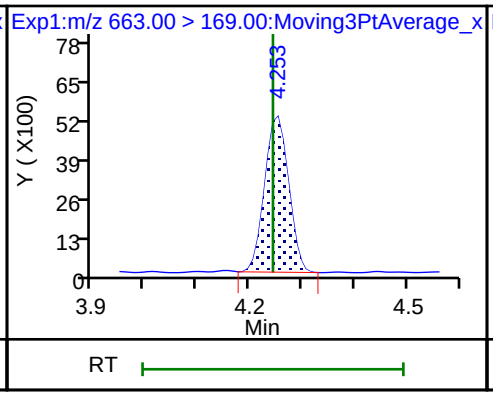
75 Perfluorododecanesulfonic acid (PF



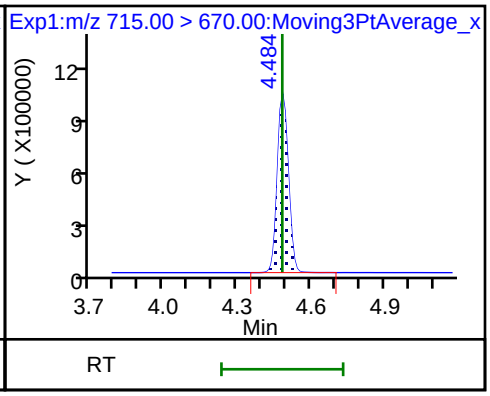
41 Perfluorotridecanoic acid



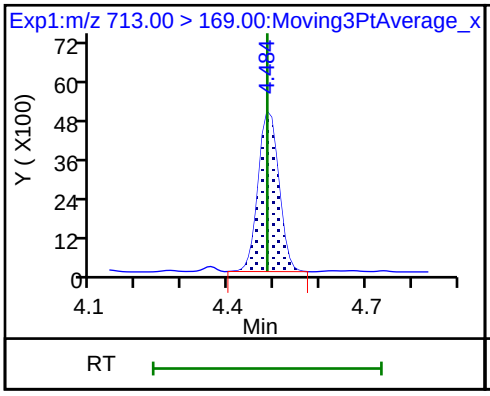
41 Perfluorotridecanoic acid



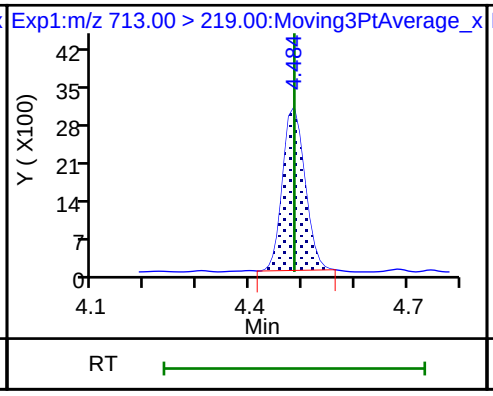
D 43 13C2-PFTeDA



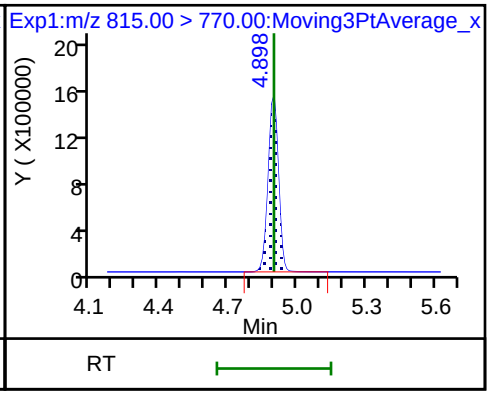
42 Perfluorotetradecanoic acid



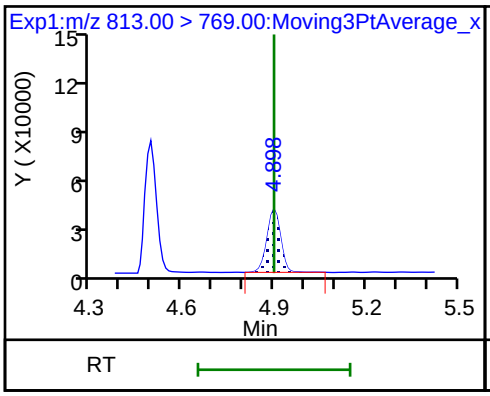
42 Perfluorotetradecanoic acid



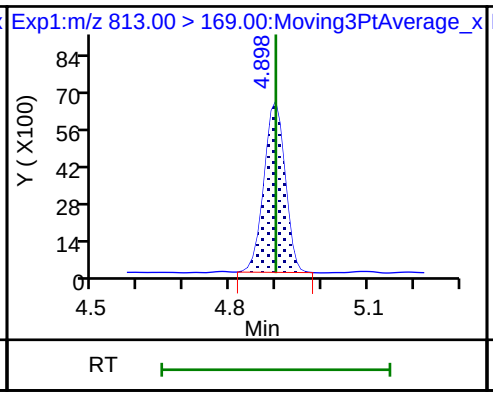
D 44 13C2-PFHxDA



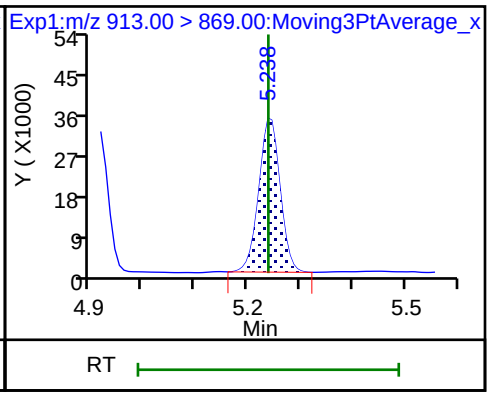
45 Perfluorohexadecanoic acid



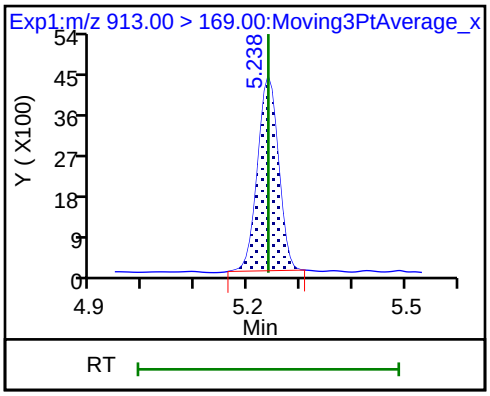
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

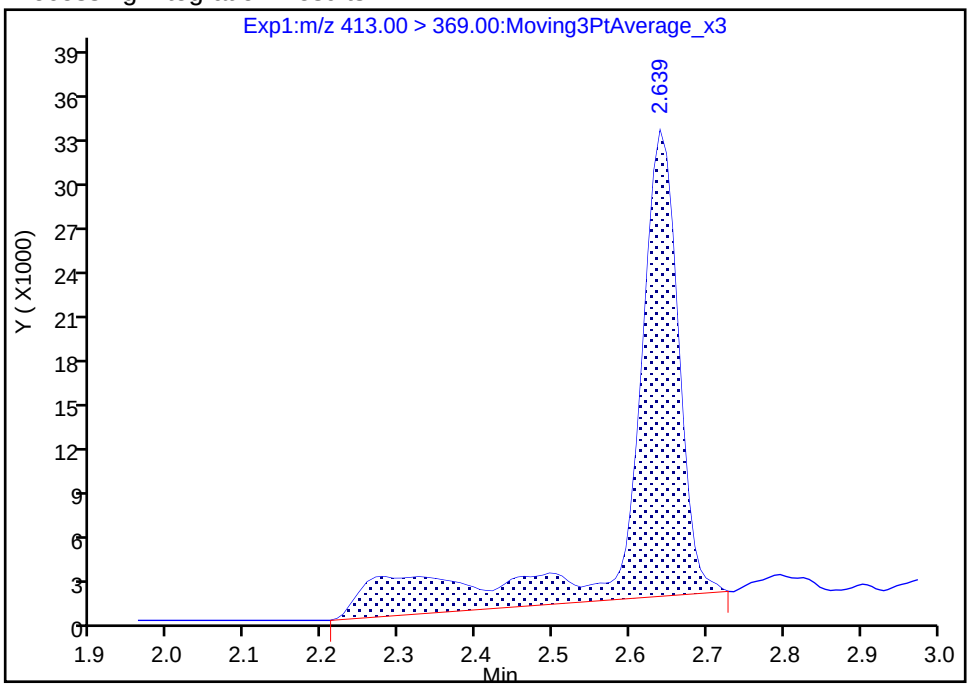
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63497.b\2018.08.29LLB_004.d
Injection Date: 29-Aug-2018 20:19:04 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

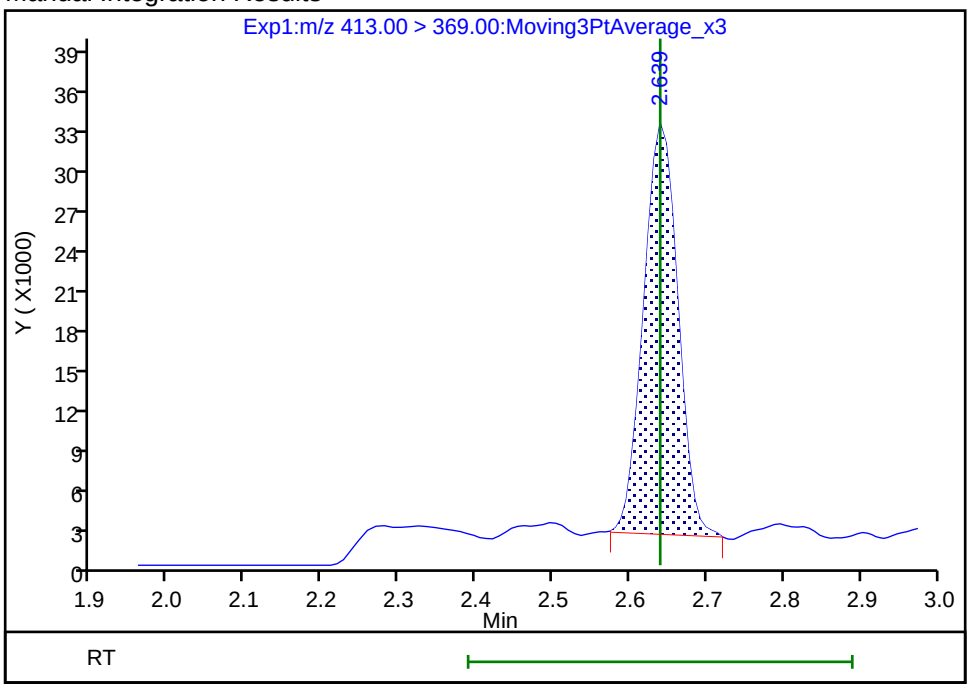
Processing Integration Results

RT: 2.64
Area: 139305
Amount: 0.078463
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 95216
Amount: 0.053630
Amount Units: ng/ml



Reviewer: barnettj, 30-Aug-2018 13:28:14
Audit Action: Manually Integrated Audit Reason: Baseline

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: CCV 320-242971/3 Calibration Date: 08/29/2018 20:26

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLB_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8887	0.8905		1.00	1.00	0.2	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.153	1.118		0.969	1.00	-3.1	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.87	77.87		0.919	0.884	4.0	50.0
4:2 FTS	AveID	15.39	15.17		0.921	0.934	-1.4	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	0.9820		0.975	1.00	-2.5	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	68.97	74.58		1.01	0.938	8.1	50.0
HFPO-DA (GenX)	AveID	3.166	3.002		0.948	1.00	-5.2	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.095	1.050		0.959	1.00	-4.1	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.094	1.043		0.867	0.910	-4.7	40.0
DONA	AveID	3.355	3.792		1.06	0.942	13.0	50.0
6:2 FTS	AveID	1.503	1.585		1.00	0.948	5.4	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.130	1.074		0.952	1.00	-4.9	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.218	1.253		0.979	0.952	2.9	50.0
Perfluorononanoic acid (PFNA)	AveID	1.039	0.9897		0.952	1.00	-4.8	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.100	1.101		0.929	0.928	0.1	40.0
F-53B Major	AveID	1.814	1.906		0.979	0.932	5.1	50.0
8:2 FTS	AveID	1.296	1.303		0.963	0.958	0.5	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8056	0.8389		1.00	0.960	4.1	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9716	0.9483		0.976	1.00	-2.4	40.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9644	0.9666		1.00	1.00	0.2	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9683	0.9146		0.945	1.00	-5.5	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.7103	0.7362		0.999	0.964	3.6	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8394	0.8417		1.00	1.00	0.3	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9140	0.8371		0.916	1.00	-8.4	40.0
F-53B Minor	AveID	2.751	3.090		1.06	0.942	12.3	50.0
10:2 FTS	AveID	1.193	1.339		1.08	0.964	12.2	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.096	0.9847		0.898	1.00	-10.2	40.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.2963	0.3106		1.01	0.968	4.8	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.040	0.9776		0.940	1.00	-6.0	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2497	0.2464		0.987	1.00	-1.3	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: CCV 320-242971/3 Calibration Date: 08/29/2018 20:26

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLB_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9274		1.02	1.00	2.1	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.001	1.002		1.00	1.00	0.1	50.0
13C4 PFBA	Ave	1.545	1.530		2.48	2.50	-0.9	50.0
13C5 PFPeA	Ave	0.9767	0.9426		2.41	2.50	-3.5	50.0
13C3-PFBS	Ave	0.0231	0.0218		2.19	2.33	-5.6	50.0
M2-4:2FTS	Ave	0.1542	0.1450		2.19	2.34	-6.0	50.0
13C2 PFHxA	Ave	1.095	1.099		2.51	2.50	0.3	50.0
13C3 HFPO-DA	Ave	0.0527	0.0517		2.46	2.50	-1.7	50.0
13C4-PFHpA	Ave	1.032	1.012		2.45	2.50	-2.0	50.0
18O2 PFHxS	Ave	1.373	1.332		2.29	2.37	-3.0	50.0
M2-6:2FTS	Ave	0.2341	0.2198		2.23	2.38	-6.1	40.0
13C8 PFOA	Ave	1.640	1.571		2.34	2.45	-4.2	50.0
13C4 PFOA	Ave	0.9851	0.9945		2.52	2.50	1.0	50.0
13C4 PFOS	Ave	0.9382	0.8902		2.27	2.39	-5.1	50.0
13C5 PFNA	Ave	0.8094	0.8162		2.52	2.50	0.8	50.0
13C8 PFOS	Ave	0.4800	0.4777		2.38	2.39	-0.5	50.0
M2-8:2FTS	Ave	0.2723	0.2694		2.37	2.40	-1.1	40.0
13C8 FOSA	Ave	1.389	1.393		2.51	2.50	0.3	50.0
13C2 PFDA	Ave	0.7512	0.7650		2.55	2.50	1.8	50.0
d3-NMeFOSAA	Ave	0.3499	0.3534		2.53	2.50	1.0	50.0
13C2 PFUnA	Ave	0.6491	0.6549		2.52	2.50	0.9	50.0
d5-NEtFOSAA	Ave	0.3843	0.3814		2.48	2.50	-0.7	50.0
13C2 PFDoA	Ave	0.6931	0.7310		2.64	2.50	5.5	50.0
13C2-PFTeDA	Ave	0.8310	0.8211		2.47	2.50	-1.2	50.0
13C2-PFHxDA	Ave	1.199	1.162		2.42	2.50	-3.1	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63497.b\2018.08.29LLB_005.d
Lims ID: CCV L4
Client ID:
Sample Type: CCVIS
Inject. Date: 29-Aug-2018 20:26:51 ALS Bottle#: 28 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63497.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 30-Aug-2018 13:30:53 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK020

First Level Reviewer: barnettj Date: 30-Aug-2018 13:29:58

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.415	1.411	0.004	0.536	5799512	2.48		99.1	8689	
2 Perfluorobutyric acid										
212.90 > 169.00	1.415	1.415	0.0	1.000	2065681	1.00		100	222	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.677	1.677	0.0	1.000	1597181	0.9694		96.9	93.4	
D 3 13C5-PFPeA										
267.90 > 223.00	1.677	1.679	-0.002	0.635	3571976	2.41		96.5	7559	
D 47 13C3-PFBS										
301.90 > 83.00	1.709	1.712	-0.003	0.647	76816	2.19		94.4	375	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.717	1.717	0.0	1.005	2274244	0.9194		104	3617	
298.90 > 99.00	1.717	1.717	0.0	1.005	945608		2.41(1.25-3.74)		2587	
D 60 M2-4:2FTS										
329.00 > 81.00	1.930	1.924	0.006	0.731	513105	2.19		94.0	1685	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.930	1.930	0.0	1.129	468032	0.9208		98.6	6896	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.961	1.961	0.0	1.000	1635550	0.9752		97.5	635	
313.00 > 119.00	1.961	1.961	0.0	1.000	146410		11.17(5.03-15.10)		652	
D 7 13C2 PFHxA										
315.00 > 270.00	1.961	1.966	-0.005	0.743	4164033	2.51		100	8286	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.982	1.982	0.0	1.160	2311364	1.01		108	7825	
349.00 > 99.00	1.982	1.982	0.0	1.160	835359		2.77(1.36-4.07)		2115	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.055	2.055	0.0	1.000	235400	0.9480		94.8	304	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.055	2.060	-0.005	0.779	196050	2.46		98.3	810	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.282	2.282	0.0	1.000	1611110	0.9588		95.9	665	
363.00 > 169.00	2.282	2.282	0.0	1.000	661306		2.44(1.13-3.40)		1602	
D 9 13C4-PFHpA										
367.00 > 322.00	2.282	2.289	-0.007	0.865	3835735	2.45		98.0	7027	
D 11 18O2 PFHxS										
403.00 > 84.00	2.304	2.300	0.004	0.873	4774186	2.29		97.0	6155	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.304	2.304	0.0	1.000	1915835	0.8674		95.3	6771	
399.00 > 99.00	2.304	2.304	0.0	1.000	671824		2.85(1.50-4.49)		1114	
77 DONA										
377.00 > 251.00	2.327	2.327	0.0	0.774	4819355	1.06		113	12491	
377.00 > 85.00	2.327	2.327	0.0	0.774	2851489		1.69(0.85-2.54)		4109	
D 12 M2-6:2FTS										
429.00 > 81.00	2.609	2.606	0.003	0.988	791377	2.23		93.9	3292	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.609	2.609	0.0	1.000	500739	1.00		105	3308	
D 73 13C8 PFOA										
421.00 > 376.00	2.632	2.629	0.003	0.997	5826497	2.34		95.8	15467	
D 14 13C4 PFOA										
417.00 > 372.00	2.640	2.636	0.004	1.000	3768481	2.52		101	8572	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.640	2.640	0.0	1.000	1621279	0.9516		95.1	251	
413.00 > 169.00	2.640	2.640	0.0	1.000	852942		1.90(0.84-2.52)		1584	
* 62 13C2-PFOA										
415.00 > 370.00	2.640	2.640	0.0		3789378	2.50			8807	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.647	2.647	0.0	0.881	1609433	0.9792		103	6169	
449.00 > 99.00	2.647	2.647	0.0	0.881	453616		3.55(1.94-5.82)		1420	
D 72 13C8 PFOS										
507.00 > 99.00	3.007	3.001	0.006	1.139	1730588	2.38		99.5	3701	
20 Perfluorononanoic acid										M
463.00 > 419.00	3.007	3.007	0.0	1.000	1224420	0.9524		95.2	413	M
463.00 > 169.00	3.007	3.007	0.0	1.000	298273		4.11(1.90-5.69)		2581	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.007	3.007	0.0	1.000	1379169	0.9293		100	6714	
499.00 > 99.00	3.007	3.007	0.0	1.000	301867		4.57(2.31-6.93)		780	
D 18 13C4 PFOS										
503.00 > 80.00	3.007	3.009	-0.002	1.139	3224940	2.27		94.9	3899	
D 19 13C5 PFNA										
468.00 > 423.00	3.007	3.009	-0.002	1.139	3092858	2.52		101	6454	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.218	3.218	0.0	1.070	2397061	0.9792		105	3870	
D 26 M2-8:2FTS										
529.00 > 81.00	3.354	3.350	0.004	1.271	977820	2.37		98.9	3554	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.354	3.354	0.0	1.000	509472	0.9626		100	1281	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.354	3.354	0.0	1.116	1086705	1.00		104	3237	
549.00 > 99.00	3.354	3.354	0.0	1.116	410418		2.65(1.33-3.97)		1648	
D 21 13C8 FOSA										
506.00 > 78.00	3.362	3.358	0.004	1.274	5279482	2.51		100	5891	
D 23 13C2 PFDA										
515.00 > 470.00	3.369	3.365	0.004	1.276	2898756	2.55		102	5839	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.369	3.369	0.0	1.000	1099596	0.9761		97.6	1219	
513.00 > 169.00	3.362	3.369	-0.007	0.998	206304		5.33(2.36-7.09)		293	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.369	3.369	0.0	1.002	2041191	1.00		100	2940	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.521	3.516	0.005	1.334	1339333	2.53		101	3112	
28 N-methyl perfluorooctane sulfonami										M
570.00 > 419.00	3.521	3.521	0.0	1.000	489972	0.9445		94.5	602	M
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.673	3.673	0.0	1.222	957623	1.00		104	3218	
599.00 > 99.00	3.673	3.673	0.0	1.222	328074		2.92(1.39-4.16)		2563	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.690	3.677	0.013	1.398	1445394	2.48		99.3	554	
D 30 13C2 PFUnA										
565.00 > 520.00	3.690	3.686	0.004	1.398	2481705	2.52		101	6720	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.690	3.690	0.0	1.000	831009	0.9159		91.6	683	
563.00 > 169.00	3.699	3.690	0.009	1.002	194751		4.27(2.12-6.36)		1862	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.690	3.690	0.0	1.000	486640	1.00		100	1757	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.857	3.857	0.0	1.283	3927079	1.06		112	8166	
35 MeFOSA										
512.00 > 169.00	3.868	3.868	0.0		516673	NC			614	
D 36 13C2 PFDoA										
615.00 > 570.00	3.987	3.983	0.004	1.510	2770046	2.64		105	7220	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.987	3.987	0.0	1.188	526844	1.08		112	3592	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.987	3.987	0.0	1.000	1091026	0.8982		89.8	737	
613.00 > 169.00	3.987	3.987	0.0	1.000	276482		3.95(2.13-6.40)		2268	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.224	4.224	0.0	1.405	405656	1.01		105	2201	
699.00 > 99.00	4.224	4.224	0.0	1.405	535628		0.76(0.00-0.00)		3400	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.243	4.243	0.0	1.064	1083177	0.9400		94.0	379	
663.00 > 169.00	4.243	4.243	0.0	1.064	349992		3.09(1.25-3.76)		2858	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 43 13C2-PFTeDA										
715.00 > 670.00	4.484	4.482	0.002	1.699	3111419	2.47		98.8	6297	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.484	4.484	0.0	1.000	306614	0.9866		98.7	4100	
713.00 > 219.00	4.474	4.484	-0.010	0.998	198092		1.55(0.71-2.13)		1835	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.889	4.898	-0.009	1.852	4402342	2.42		96.9	5808	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.899	4.899	0.0	1.002	1633146	1.02		102	146	
813.00 > 169.00	4.899	4.899	0.0	1.002	285779		5.71(2.86-8.58)		1701	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.238	5.238	0.0	1.071	1764356	1.00		100	118	
913.00 > 169.00	5.238	5.238	0.0	1.071	218118		8.09(3.83-11.48)		1324	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL4_00009 Amount Added: 1.00 Units: mL

Report Date: 30-Aug-2018 13:30:55 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63497.b\2018.08.29LLB_005.d

Injection Date: 29-Aug-2018 20:26:51 Instrument ID: A8_N

Lims ID: CCV L4

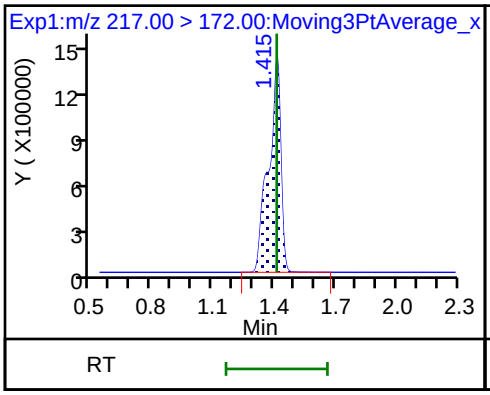
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 3

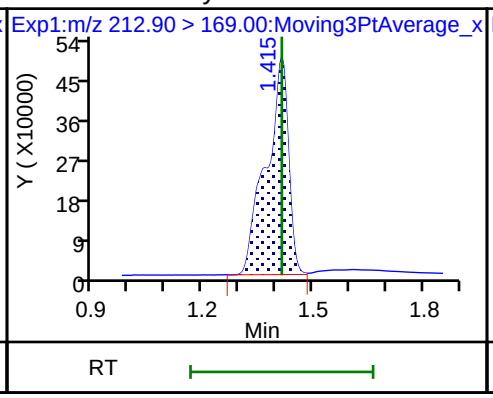
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

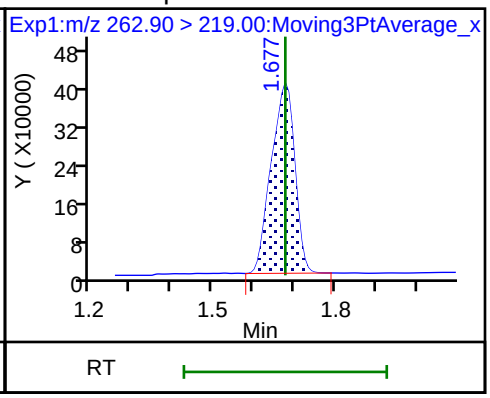
D 1 13C4 PFBA



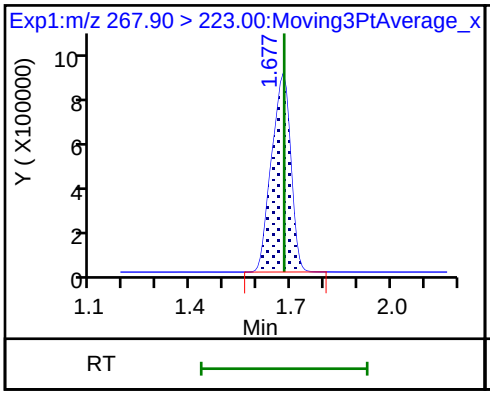
2 Perfluorobutyric acid



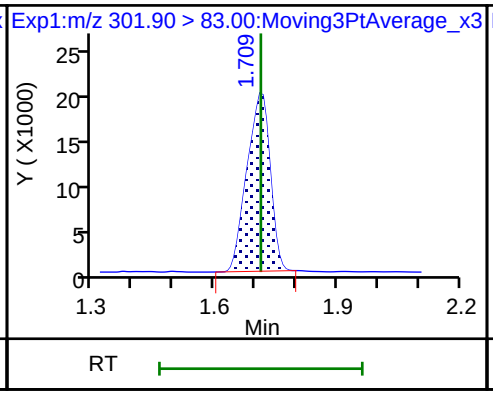
4 Perfluoropentanoic acid



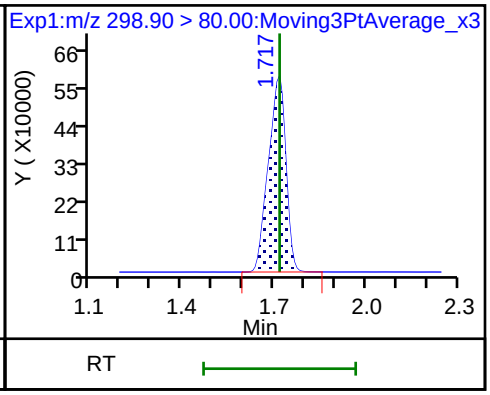
D 3 13C5-PFPeA



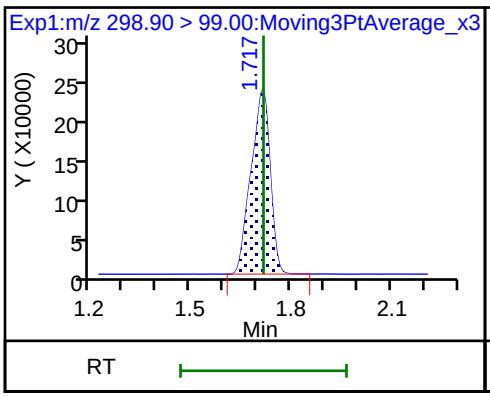
D 47 13C3-PFBS



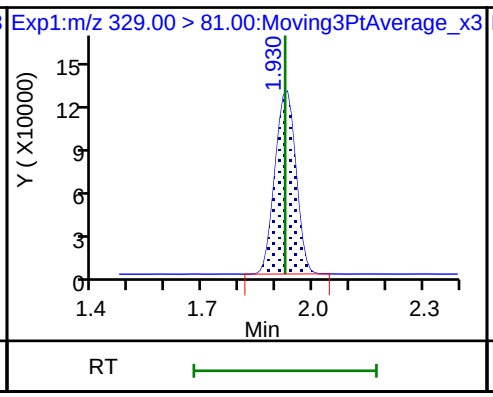
5 Perfluorobutanesulfonic acid



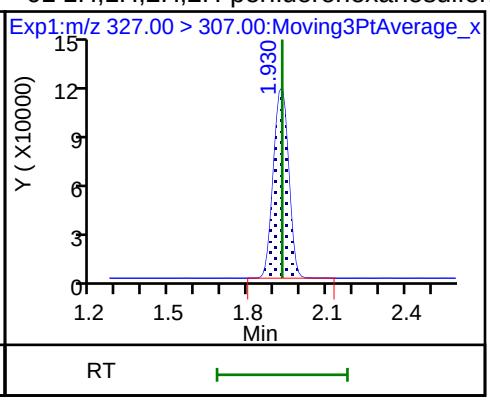
5 Perfluorobutanesulfonic acid



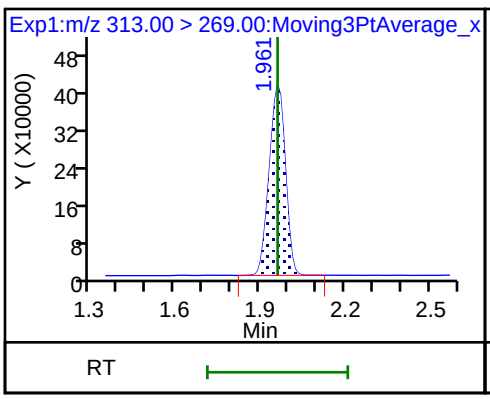
D 60 M2-4:2FTS



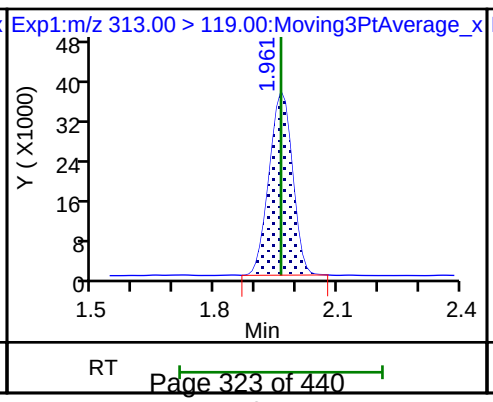
61 1H,1H,2H,2H-perfluorohexanesulfoni



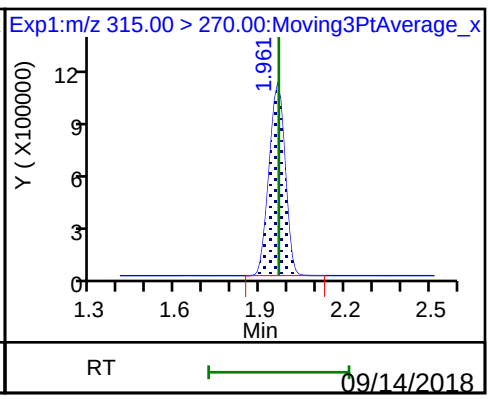
6 Perfluorohexanoic acid



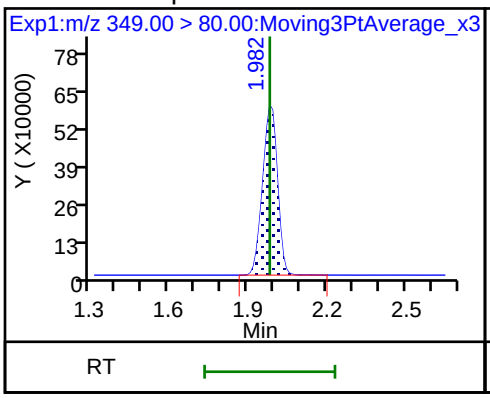
6 Perfluorohexanoic acid



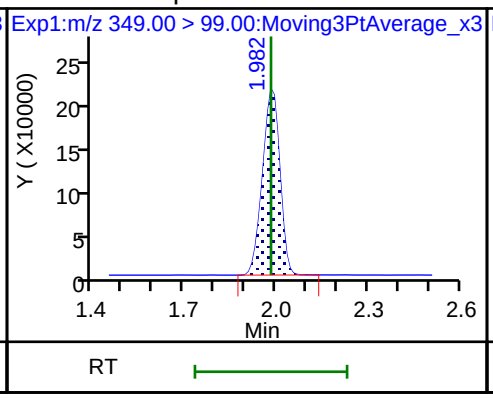
D 7 13C2 PFHxA



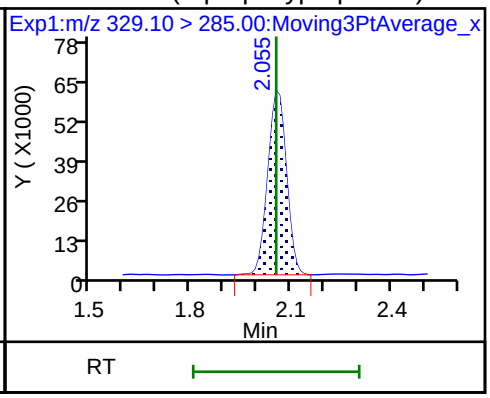
70 Perfluoropentanesulfonic acid



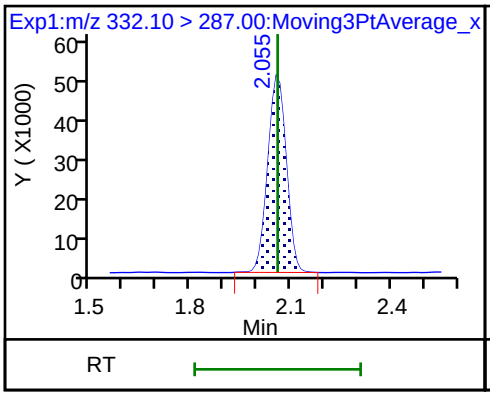
70 Perfluoropentanesulfonic acid



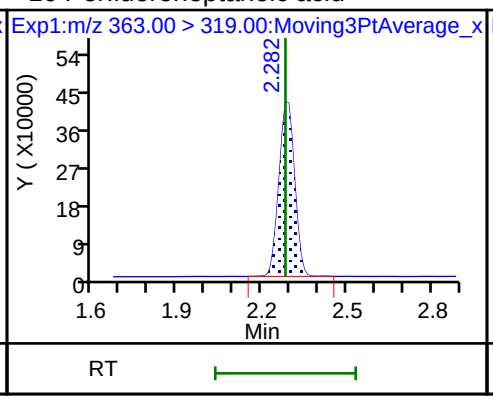
67 Perfluoro(2-propoxypropanoic) acid



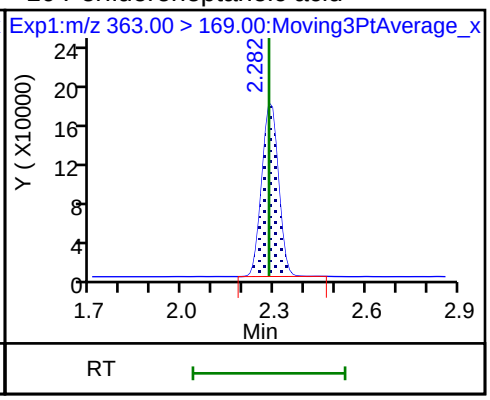
D 64 13C3 HFPO-DA



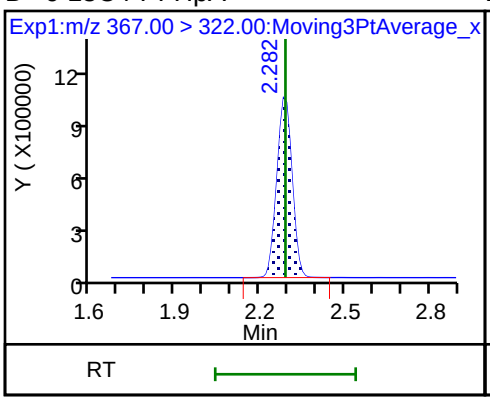
10 Perfluoroheptanoic acid



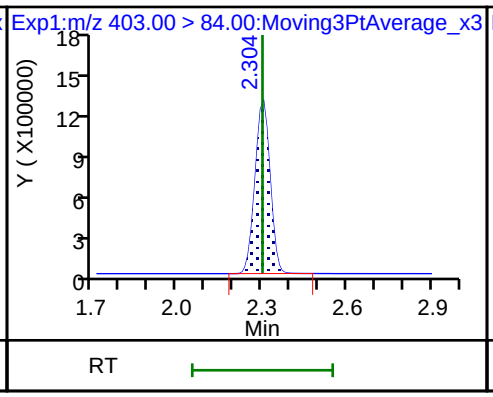
10 Perfluoroheptanoic acid



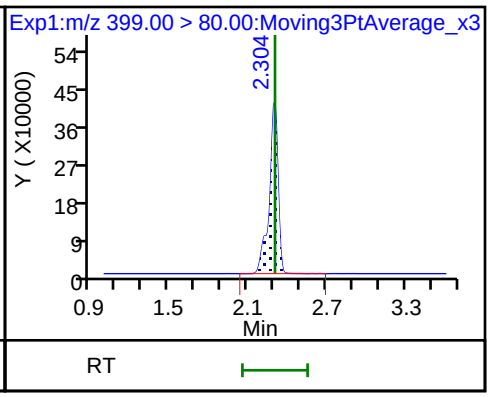
D 9 13C4-PFHpA



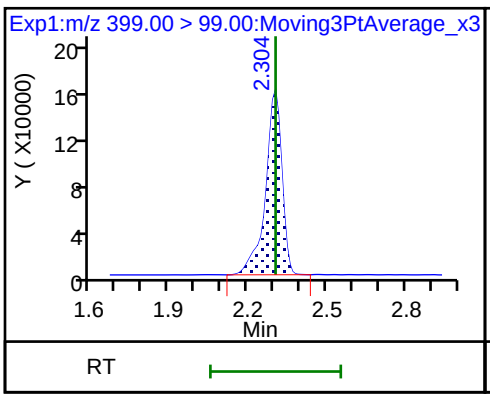
D 11 18O2 PFHxS



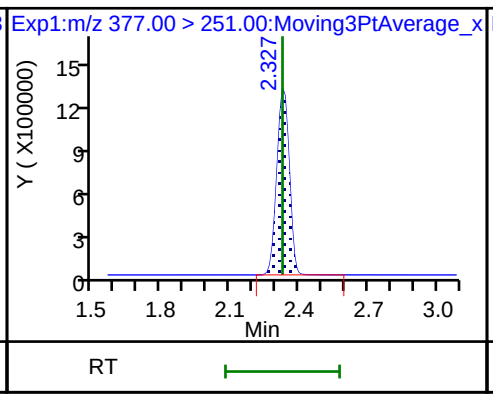
8 Perfluorohexanesulfonic acid



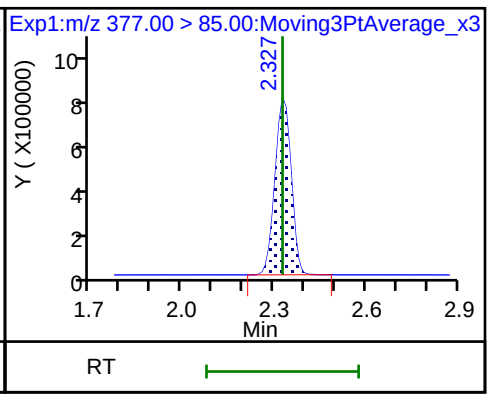
8 Perfluorohexanesulfonic acid



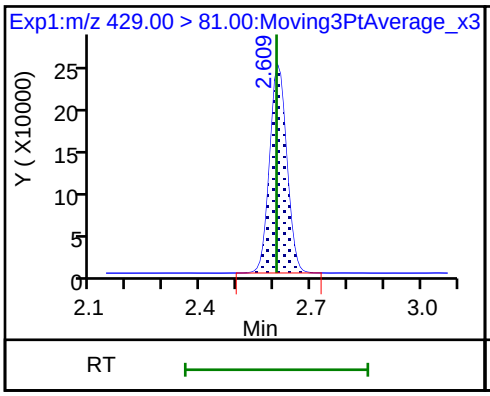
77 DONA



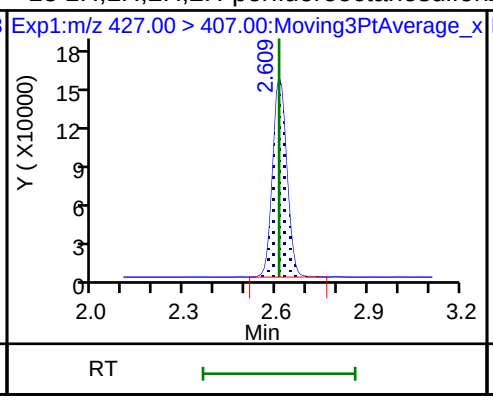
77 DONA



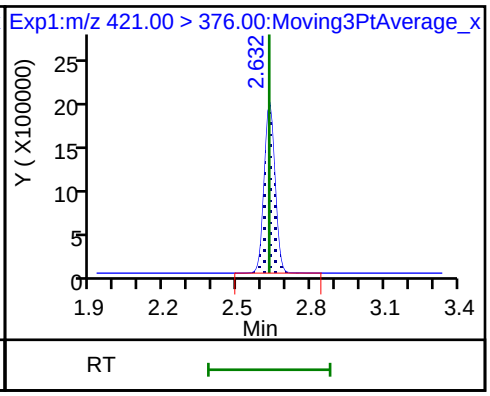
D 12 M2-6:2FTS



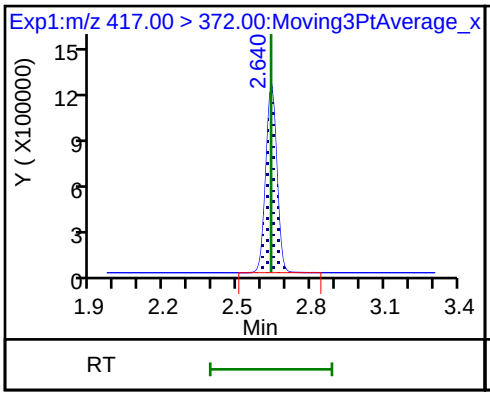
13 1H,1H,2H,2H-perfluorooctanesulfon



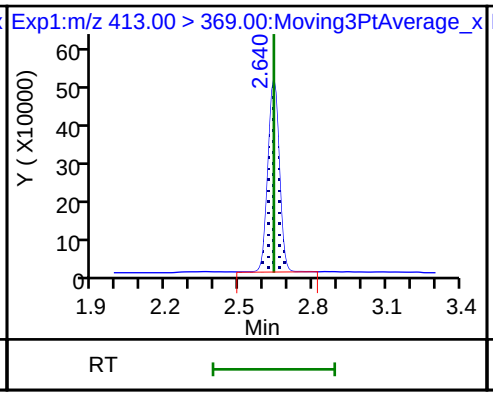
D 73 13C8 PFOA



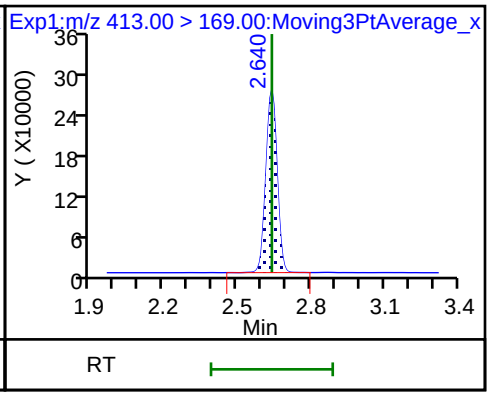
D 14 13C4 PFOA



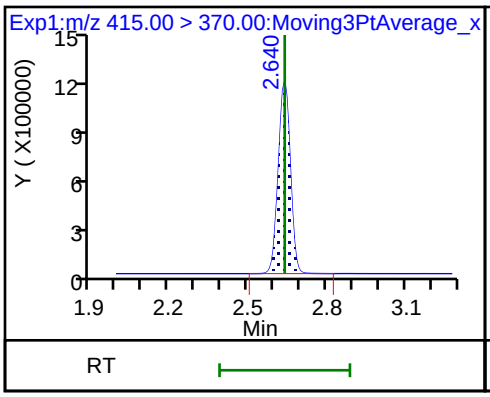
15 Perfluorooctanoic acid



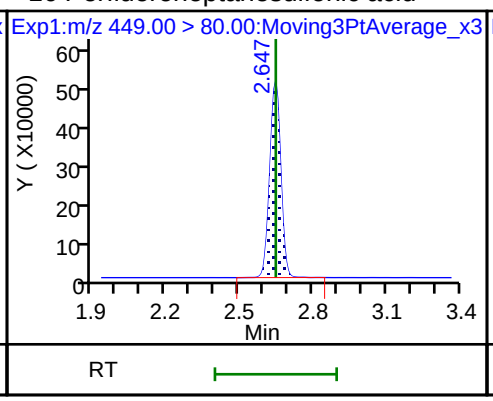
15 Perfluorooctanoic acid



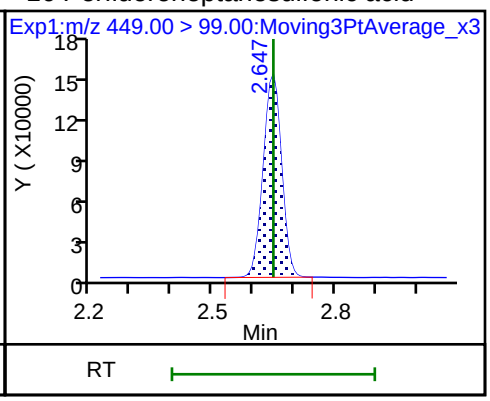
* 62 13C2-PFOA



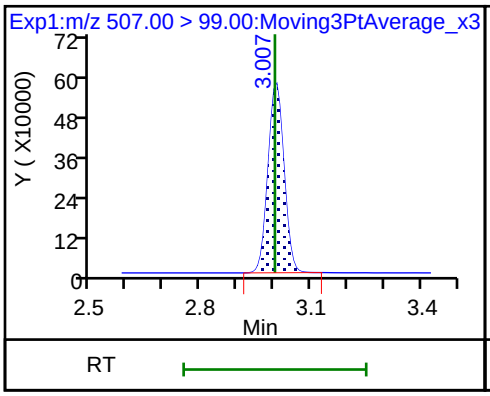
16 Perfluoroheptanesulfonic acid



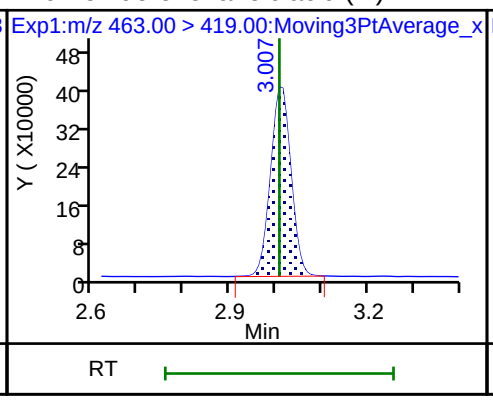
16 Perfluoroheptanesulfonic acid



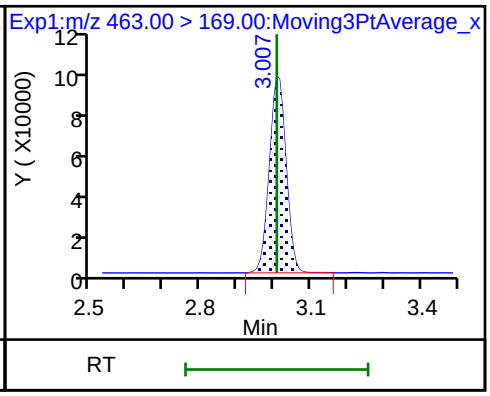
D 72 13C8 PFOS



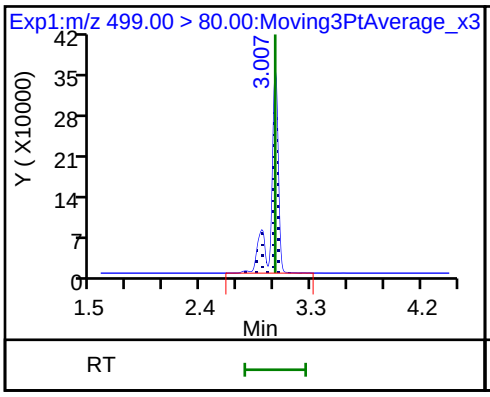
20 Perfluorononanoic acid (M)



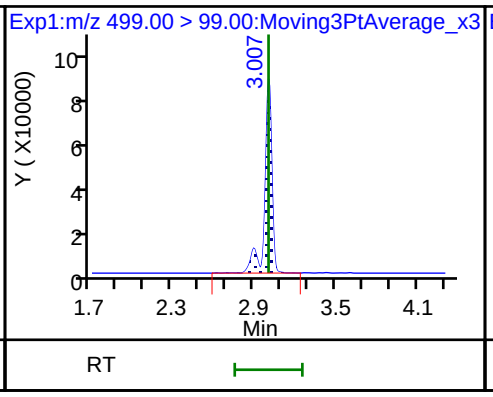
20 Perfluorononanoic acid



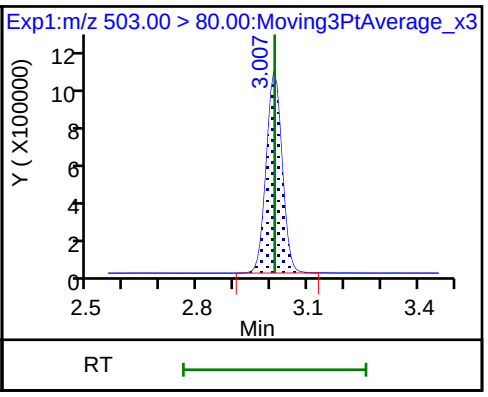
17 Perfluorooctane sulfonic acid



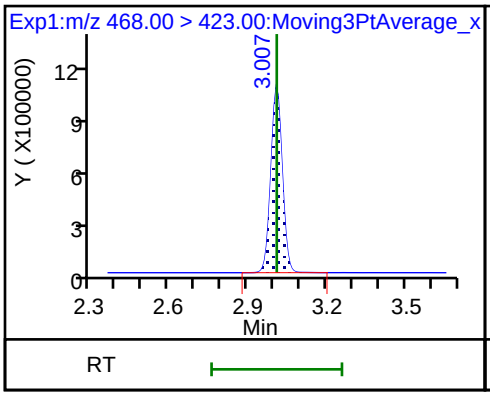
17 Perfluorooctane sulfonic acid



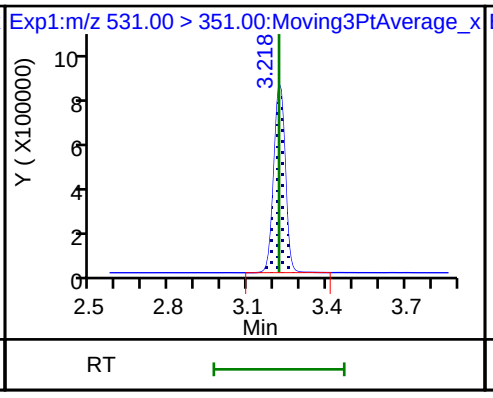
D 18 13C4 PFOS



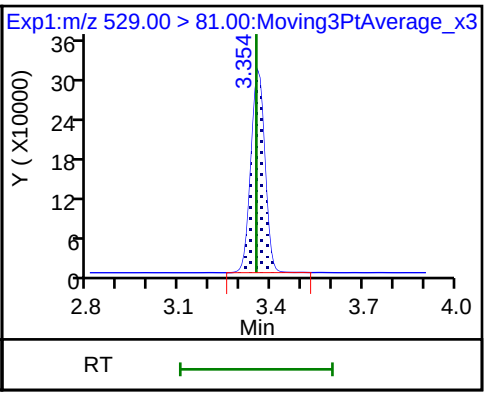
D 19 13C5 PFNA



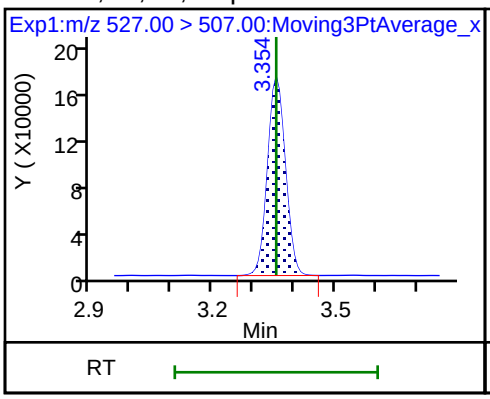
69 9-Chlorohexadecafluoro-3-oxanonane



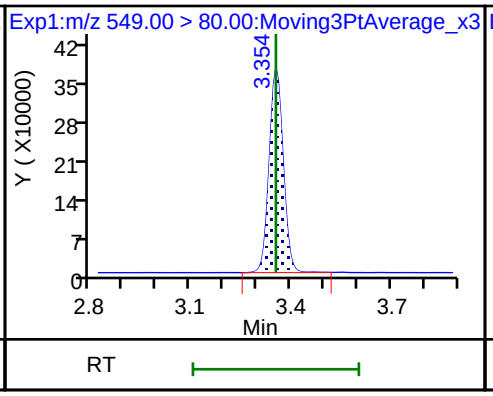
D 26 M2-8:2FTS



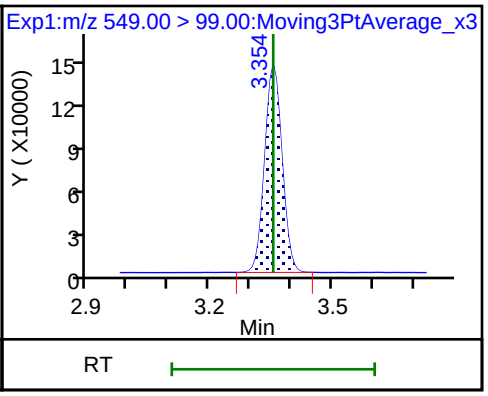
25 1H,1H,2H,2H-perfluorodecanesulfoni



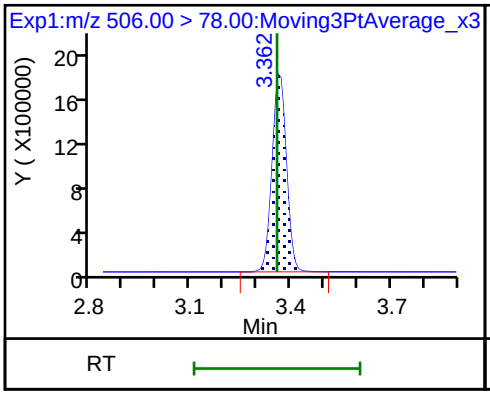
68 Perfluorononanesulfonic acid



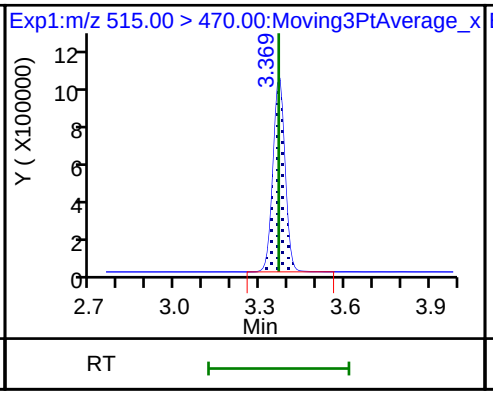
68 Perfluorononanesulfonic acid



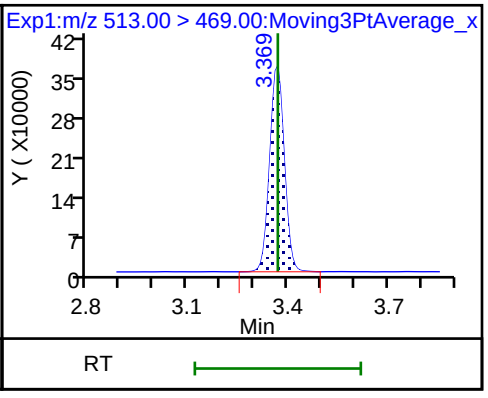
D 21 13C8 FOSA



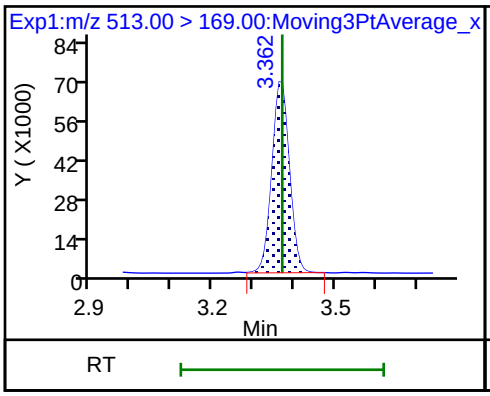
D 23 13C2 PFDA



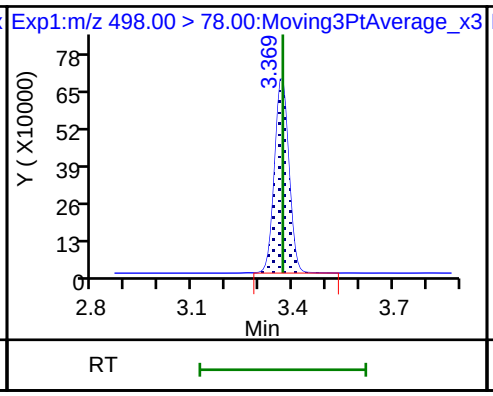
24 Perfluorodecanoic acid



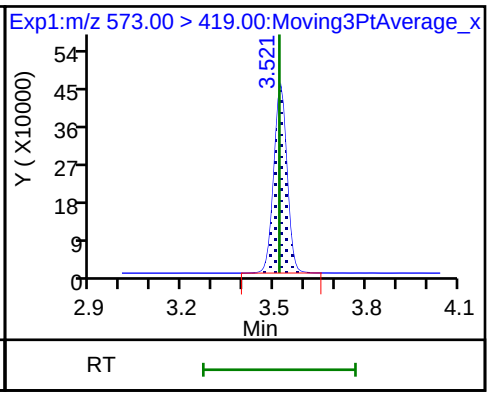
24 Perfluorodecanoic acid



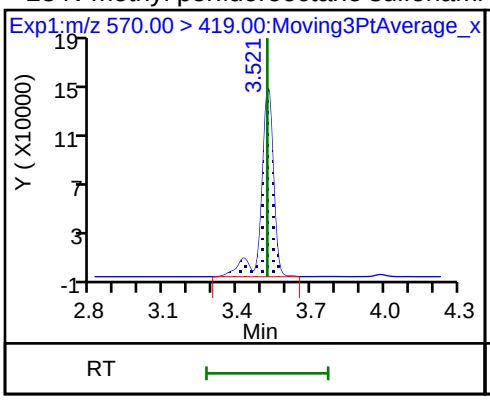
22 Perfluorooctane Sulfonamide



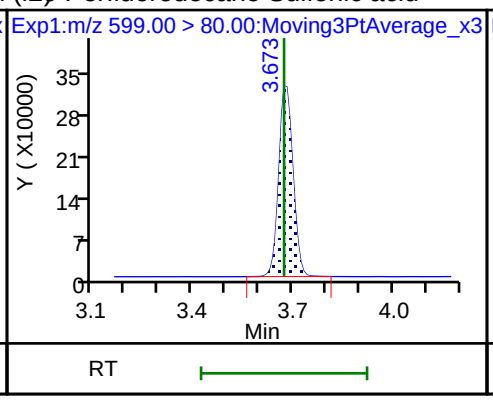
D 27 d3-NMeFOSAA



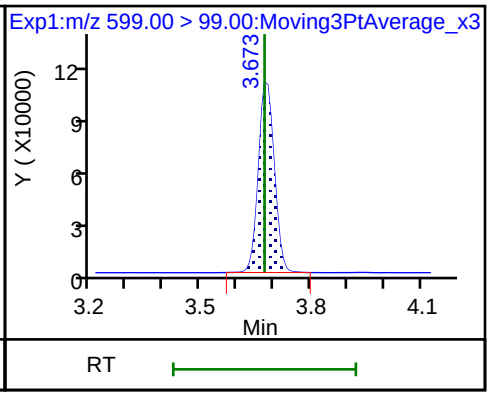
28 N-methyl perfluorooctane sulfonami (M)



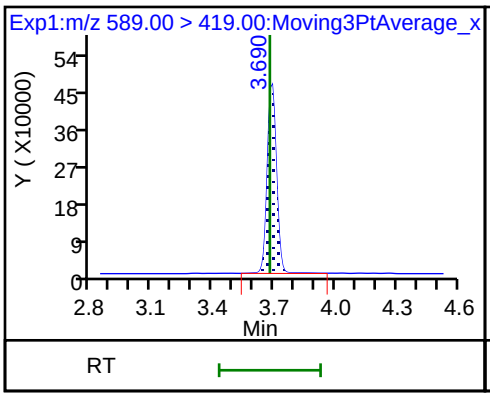
29 Perfluorodecane Sulfonic acid



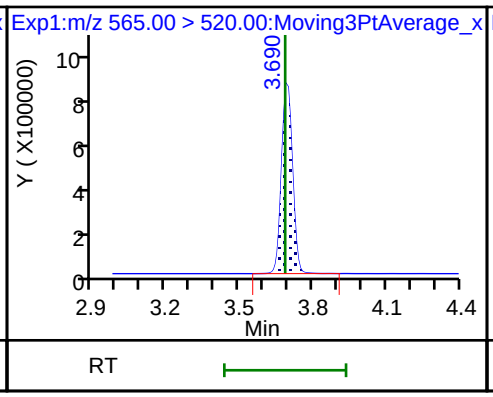
29 Perfluorodecane Sulfonic acid



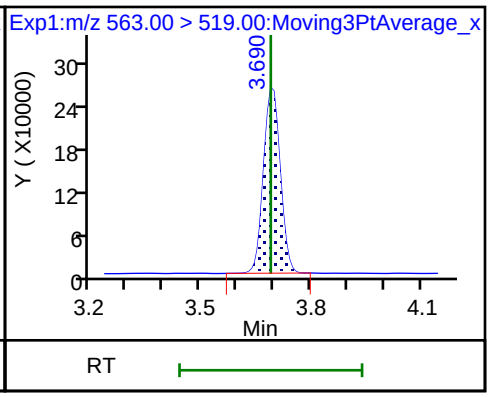
D 32 d5-NEtFOSAA



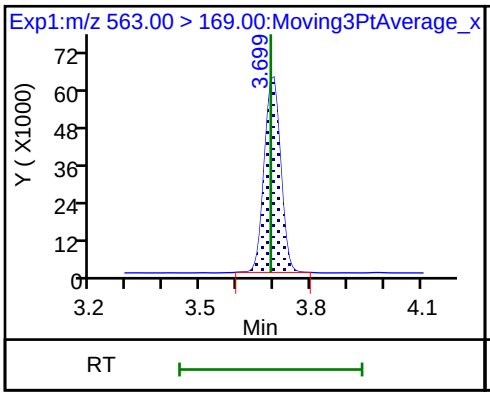
D 30 13C2 PFUnA



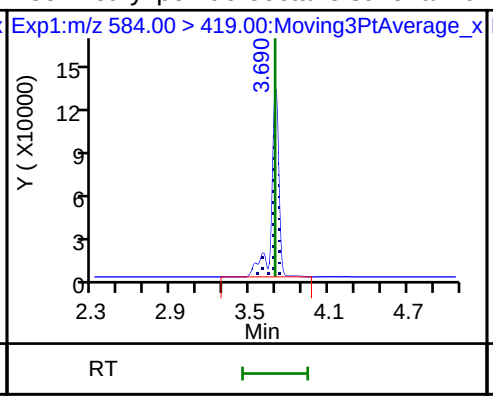
31 Perfluoroundecanoic acid



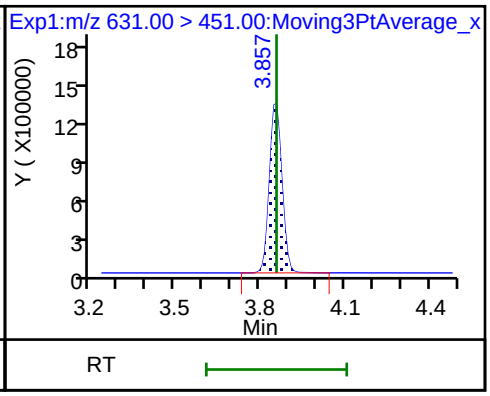
31 Perfluoroundecanoic acid



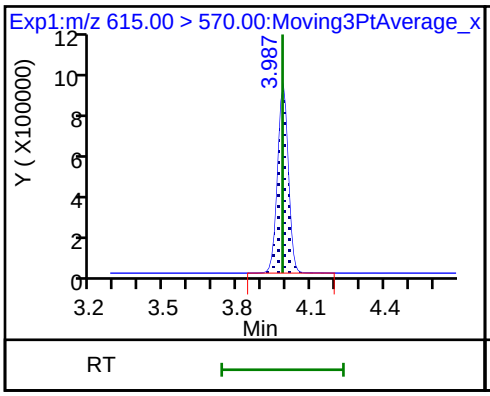
33 N-ethyl perfluorooctane sulfonamid



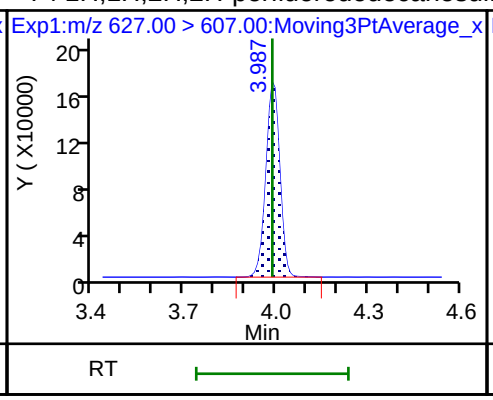
66 11-Chloroeicosafluoro-3-oxaundecan



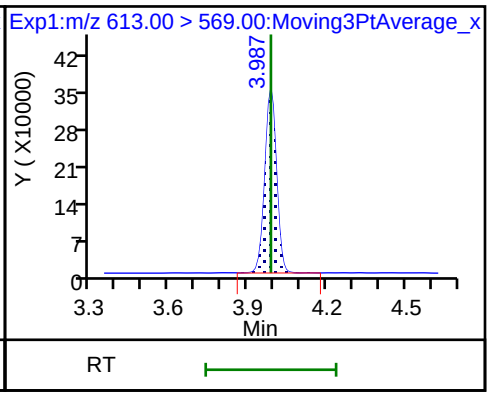
D 36 13C2 PFDoA



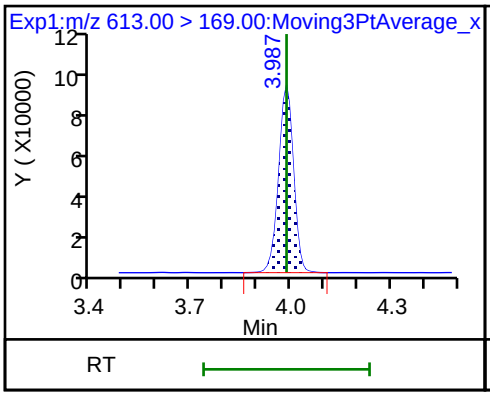
74 1H,1H,2H,2H-perfluorododecanesulfo



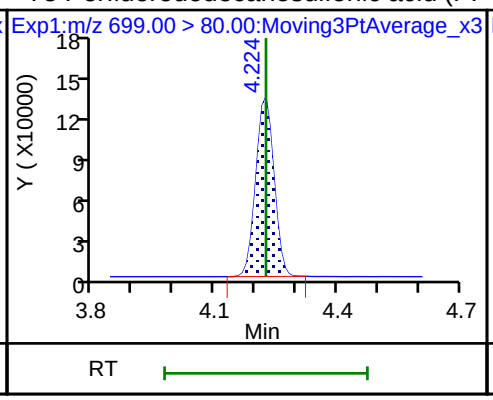
37 Perfluorododecanoic acid



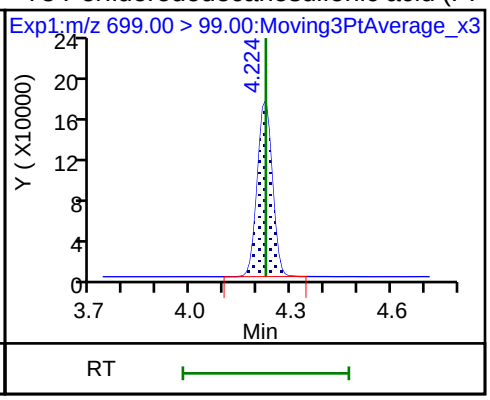
37 Perfluorododecanoic acid



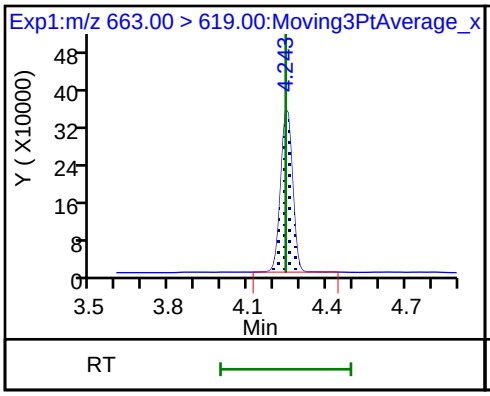
75 Perfluorododecanesulfonic acid (PF



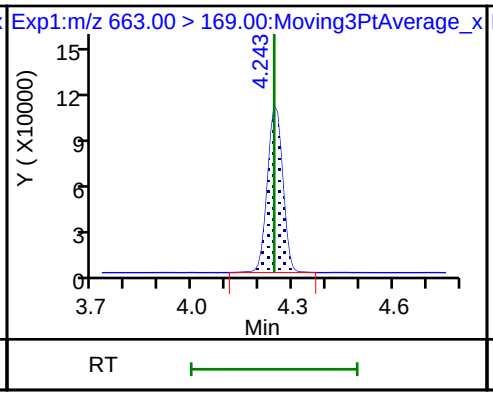
75 Perfluorododecanesulfonic acid (PF



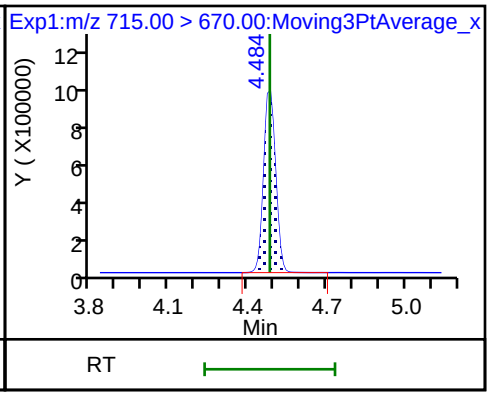
41 Perfluorotridecanoic acid



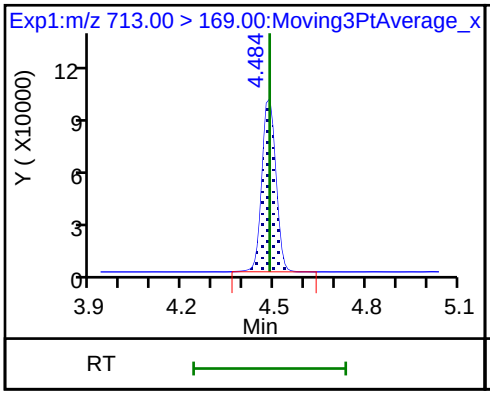
41 Perfluorotridecanoic acid



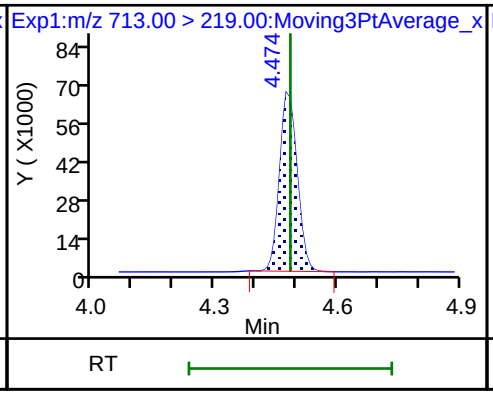
D 43 13C2-PFTeDA



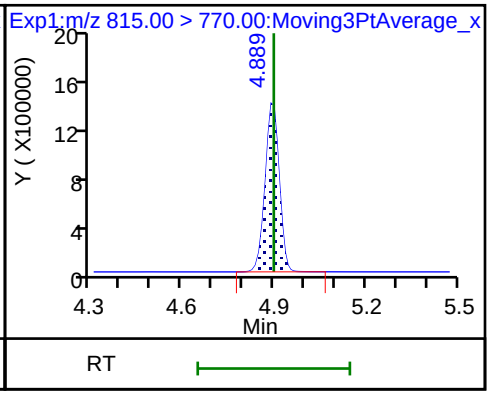
42 Perfluorotetradecanoic acid



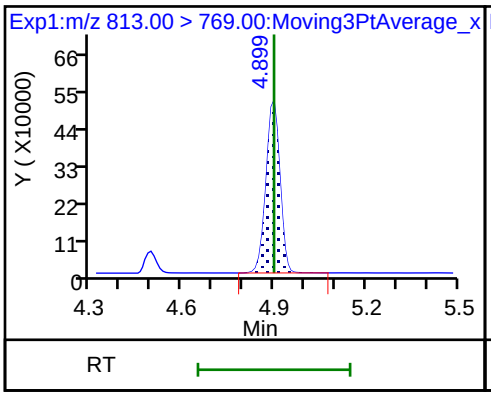
42 Perfluorotetradecanoic acid



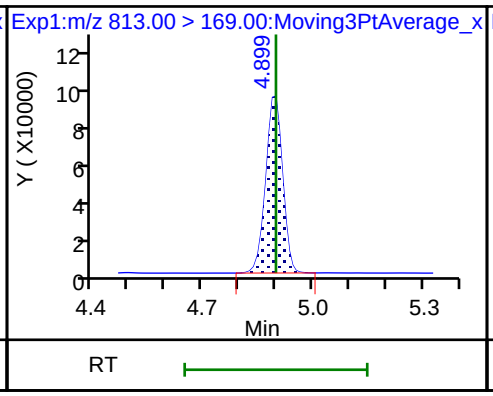
D 44 13C2-PFHxDA



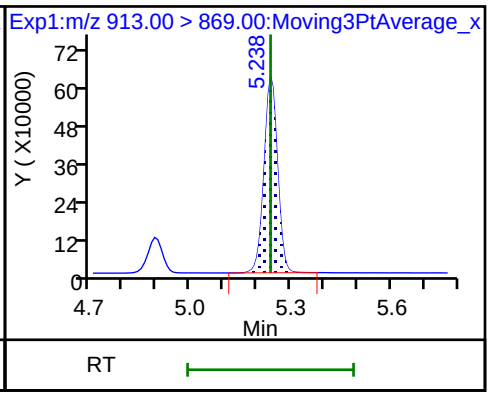
45 Perfluorohexadecanoic acid



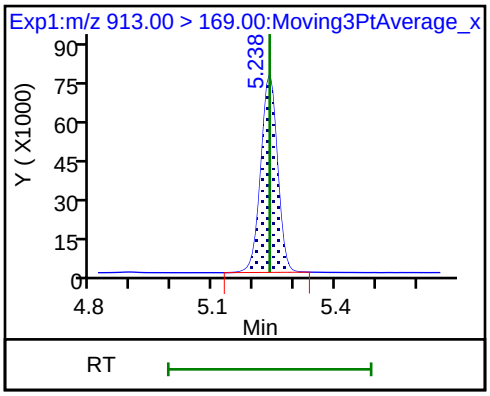
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

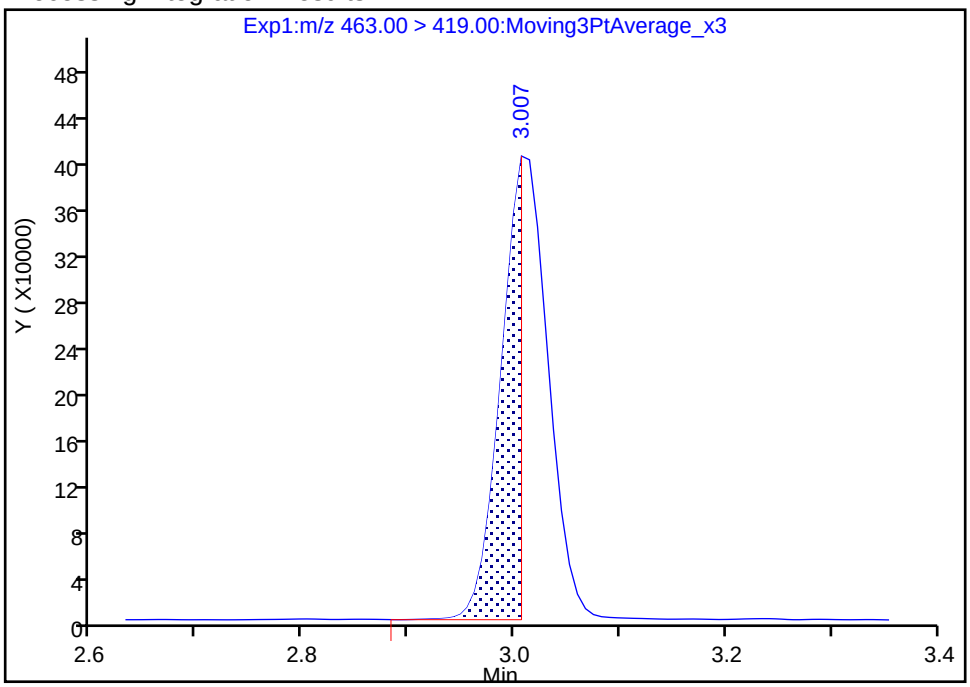
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63497.b\2018.08.29LLB_005.d
Injection Date: 29-Aug-2018 20:26:51 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

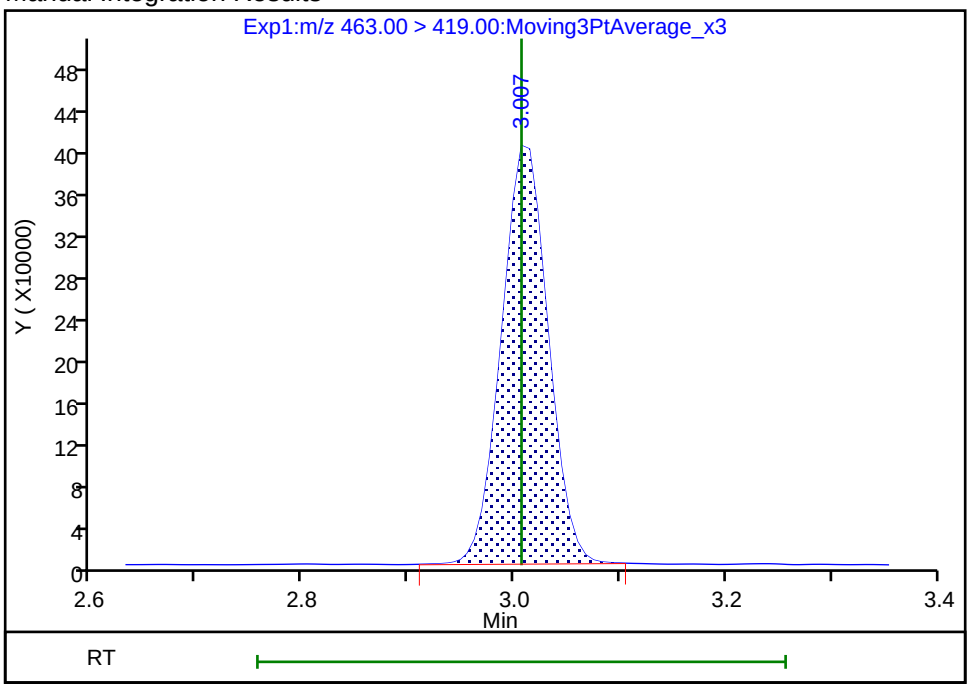
Processing Integration Results

RT: 3.01
Area: 533548
Amount: 0.415026
Amount Units: ng/ml



Manual Integration Results

RT: 3.01
Area: 1224420
Amount: 0.952429
Amount Units: ng/ml



Reviewer: barnettj, 30-Aug-2018 13:29:14
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

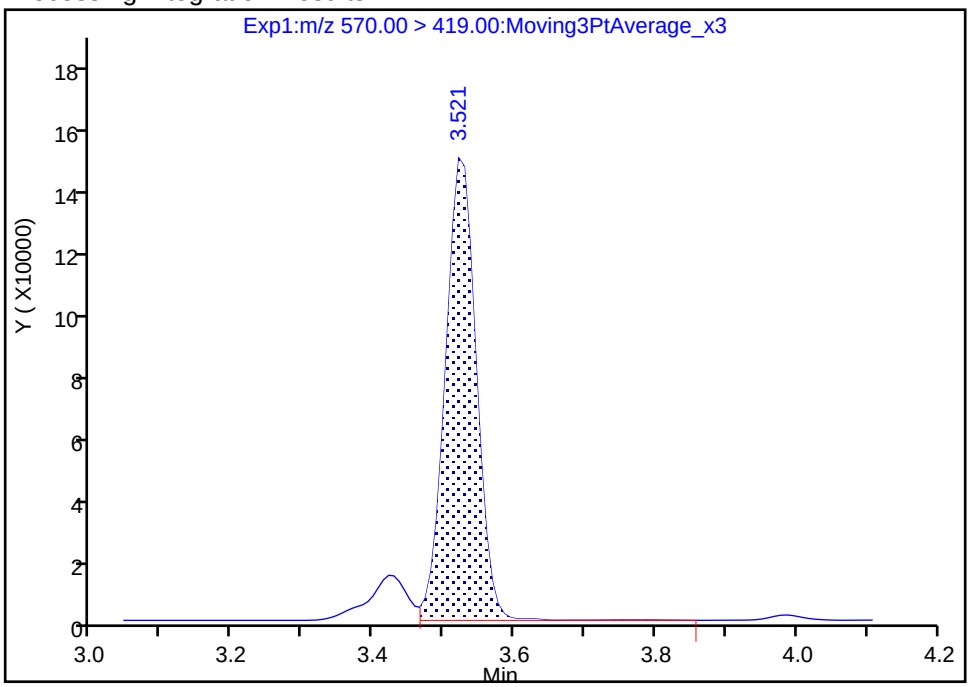
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63497.b\2018.08.29LLB_005.d
Injection Date: 29-Aug-2018 20:26:51 Instrument ID: A8_N
Lims ID: CCV L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

28 N-methyl perfluorooctane sulfonamidoacetic a, CAS: 2355-31-9

Signal: 1

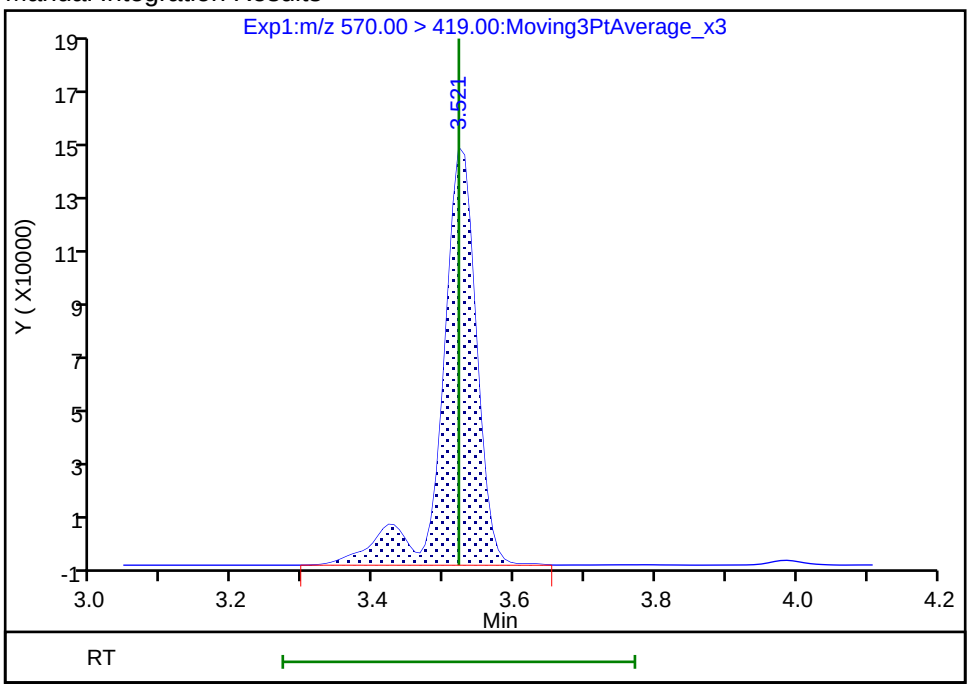
Processing Integration Results

RT: 3.52
Area: 437019
Amount: 0.842433
Amount Units: ng/ml



Manual Integration Results

RT: 3.52
Area: 489972
Amount: 0.944509
Amount Units: ng/ml



Reviewer: barnettj, 30-Aug-2018 13:29:43
Audit Action: Manually Integrated Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: CCV 320-242977/1 Calibration Date: 08/29/2018 23:58

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLB_032.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8887	0.9094		2.56	2.50	2.3	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.153	1.130		2.45	2.50	-2.0	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.87	79.23		2.34	2.21	5.8	50.0
4:2 FTS	AveID	15.39	15.33		2.33	2.34	-0.3	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	0.9568		2.38	2.50	-5.0	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	68.97	72.38		2.46	2.35	4.9	50.0
HFPO-DA (GenX)	AveID	3.166	3.171		2.50	2.50	0.1	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.095	1.110		2.53	2.50	1.3	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.094	1.038		2.16	2.28	-5.1	40.0
DONA	AveID	3.355	3.585		2.52	2.36	6.9	50.0
6:2 FTS	AveID	1.503	1.633		2.57	2.37	8.6	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.130	1.106		2.45	2.50	-2.1	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.218	1.287		2.51	2.38	5.6	50.0
Perfluorononanoic acid (PFNA)	AveID	1.039	1.004		2.42	2.50	-3.3	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.100	1.100		2.32	2.32	-0.0	40.0
F-53B Major	AveID	1.814	1.860		2.39	2.33	2.5	50.0
8:2 FTS	AveID	1.296	1.277		2.36	2.40	-1.5	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8056	0.8466		2.52	2.40	5.1	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9716	0.999		2.57	2.50	2.9	40.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9644	0.9818		2.55	2.50	1.8	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9683	0.9657		2.49	2.50	-0.3	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.7103	0.7163		2.43	2.41	0.8	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8394	0.8545		2.54	2.50	1.8	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9140	0.8280		2.26	2.50	-9.4	40.0
F-53B Minor	AveID	2.751	2.870		2.46	2.36	4.3	50.0
10:2 FTS	AveID	1.193	1.221		2.47	2.41	2.3	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.096	1.006		2.29	2.50	-8.2	40.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.2963	0.2920		2.39	2.42	-1.4	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.040	1.037		2.49	2.50	-0.3	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2497	0.2472		2.47	2.50	-1.0	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: CCV 320-242977/1 Calibration Date: 08/29/2018 23:58

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLB_032.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9189		2.56	2.50	2.6	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.001	1.001		2.50	2.50	0.0	50.0
13C4 PFBA	Ave	1.545	1.499		2.43	2.50	-3.0	50.0
13C5 PFPeA	Ave	0.9767	0.9329		2.39	2.50	-4.5	50.0
13C3-PFBS	Ave	0.0231	0.0219		2.21	2.33	-5.1	50.0
M2-4:2FTS	Ave	0.1542	0.1552		2.35	2.34	0.6	50.0
13C2 PFHxA	Ave	1.095	1.093		2.49	2.50	-0.2	50.0
13C3 HFPO-DA	Ave	0.0527	0.0510		2.42	2.50	-3.1	50.0
13C4-PFHpA	Ave	1.032	1.003		2.43	2.50	-2.8	50.0
18O2 PFHxS	Ave	1.373	1.350		2.33	2.37	-1.6	50.0
M2-6:2FTS	Ave	0.2341	0.2196		2.23	2.38	-6.2	40.0
13C8 PFOA	Ave	1.640	1.620		2.42	2.45	-1.2	50.0
13C4 PFOA	Ave	0.9851	0.9562		2.43	2.50	-2.9	50.0
13C4 PFOS	Ave	0.9382	0.9009		2.29	2.39	-4.0	50.0
13C5 PFNA	Ave	0.8094	0.7875		2.43	2.50	-2.7	50.0
13C8 PFOS	Ave	0.4800	0.4648		2.31	2.39	-3.2	50.0
M2-8:2FTS	Ave	0.2723	0.2591		2.28	2.40	-4.9	40.0
13C2 PFDA	Ave	0.7512	0.6972		2.32	2.50	-7.2	50.0
13C8 FOSA	Ave	1.389	1.337		2.41	2.50	-3.8	50.0
d3-NMeFOSAA	Ave	0.3499	0.3358		2.40	2.50	-4.0	50.0
d5-NEtFOSAA	Ave	0.3843	0.3631		2.36	2.50	-5.5	50.0
13C2 PFUnA	Ave	0.6491	0.6270		2.41	2.50	-3.4	50.0
13C2 PFDoA	Ave	0.6931	0.6849		2.47	2.50	-1.2	50.0
13C2-PFTeDA	Ave	0.8310	0.7895		2.38	2.50	-5.0	50.0
13C2-PFHxDA	Ave	1.199	1.140		2.38	2.50	-4.9	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_032.d
Lims ID: CCV L5
Client ID:
Sample Type: CCV
Inject. Date: 29-Aug-2018 23:58:27 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:28:03 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:28:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.419	1.421	-0.002	0.538	5748883	2.43		97.0	8296	
2 Perfluorobutyric acid										
212.90 > 169.00	1.419	1.424	-0.005	1.000	5228261	2.56		102	537	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.684	1.684	0.0	1.000	4044057	2.45		98.0	233	
D 3 13C5-PFPeA										
267.90 > 223.00	1.684	1.687	-0.003	0.638	3577985	2.39		95.5	9699	
D 47 13C3-PFBS										
301.90 > 83.00	1.716	1.720	-0.004	0.651	78201	2.21		94.9	327	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.716	1.724	-0.008	1.000	5889768	2.34		106	6830	
298.90 > 99.00	1.716	1.724	-0.008	1.000	2409702		2.44(1.25-3.74)		5252	
D 60 M2-4:2FTS										
329.00 > 81.00	1.928	1.934	-0.006	0.731	555817	2.35		101	1411	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.928	1.939	-0.011	1.124	1204110	2.33		99.7	8602	
D 7 13C2 PFHxA										
315.00 > 270.00	1.970	1.966	0.004	0.747	4191294	2.49		99.8	11040	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.970	1.970	0.0	1.000	4010100	2.38		95.0	1435	
313.00 > 119.00	1.970	1.970	0.0	1.000	368395		10.89(5.03-15.10)		849	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.991	1.991	0.0	1.160	5709184	2.46		105	8191	
349.00 > 99.00	1.991	1.991	0.0	1.160	2150285		2.66(1.36-4.07)		4634	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.064	2.064	0.0	1.000	620443	2.50		100	789	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.064	2.070	-0.006	0.783	195689	2.42		96.9	927	
D 9 13C4-PFHpA										
367.00 > 322.00	2.292	2.289	0.003	0.869	3847171	2.43		97.2	8387	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.292	2.292	0.0	1.000	4268733	2.53		101	1723	
363.00 > 169.00	2.292	2.292	0.0	1.000	1627849		2.62(1.13-3.40)		3217	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.303	2.303	0.0	1.000	4891119	2.16		94.9	5215	
399.00 > 99.00	2.303	2.303	0.0	1.000	1692891		2.89(1.50-4.49)		2167	
D 11 18O2 PFHxS										
403.00 > 84.00	2.303	2.311	-0.008	0.873	4898718	2.33		98.4	6218	
77 DONA										
377.00 > 251.00	2.325	2.336	-0.011	0.774	11668082	2.52		107	14907	
377.00 > 85.00	2.336	2.336	0.0	0.777	6850256		1.70(0.85-2.54)		6052	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.607	2.609	-0.002	1.000	1303545	2.57		109	5599	
D 12 M2-6:2FTS										
429.00 > 81.00	2.607	2.613	-0.006	0.988	800156	2.23		93.8	4219	
D 73 13C8 PFOA										
421.00 > 376.00	2.630	2.636	-0.006	0.997	6084393	2.42		98.8	18230	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.637	2.639	-0.002	1.000	4060540	2.45		97.9	667	
413.00 > 169.00	2.637	2.639	-0.002	1.000	2079148		1.95(0.84-2.52)		3781	
* 62 13C2-PFOA										
415.00 > 370.00	2.637	2.639	-0.002		3835208	2.50			10502	
D 14 13C4 PFOA										
417.00 > 372.00	2.637	2.644	-0.007	1.000	3667332	2.43		97.1	9029	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.645	2.647	-0.002	0.880	4232434	2.51		106	5990	
449.00 > 99.00	2.645	2.647	-0.002	0.880	1126217		3.76(1.94-5.82)		3336	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.005	3.006	-0.001	1.000	3525963	2.32		100.0	3536	
499.00 > 99.00	3.005	3.006	-0.001	1.000	806706		4.37(2.31-6.93)		2173	
20 Perfluorononanoic acid										
463.00 > 419.00	3.005	3.006	-0.001	1.000	3033643	2.42		96.7	892	
463.00 > 169.00	3.005	3.006	-0.001	1.000	730885		4.15(1.90-5.69)		4394	
D 72 13C8 PFOS										
507.00 > 99.00	3.005	3.009	-0.004	1.139	1704320	2.31		96.8	4798	
D 18 13C4 PFOS										
503.00 > 80.00	3.005	3.009	-0.004	1.139	3303176	2.29		96.0	4286	
D 19 13C5 PFNA										
468.00 > 423.00	3.005	3.016	-0.011	1.139	3020228	2.43		97.3	7213	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.216	3.218	-0.002	1.070	5990601	2.39		103	4179	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.355	3.347	0.008	1.116	2808125	2.52		105	5600	
549.00 > 99.00	3.355	3.347	0.008	1.116	1002898		2.80(1.33-3.97)		3256	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.355	3.347	0.008	1.000	1215696	2.36		98.5	3017	
D 26 M2-8:2FTS										
529.00 > 81.00	3.355	3.357	-0.002	1.272	952058	2.28		95.1	3890	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.362	3.362	0.0	1.000	5033608	2.55		102	5671	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.362	3.362	0.0	1.000	2672010	2.57		103	2535	
513.00 > 169.00	3.369	3.362	0.007	1.002	474889		5.63(2.36-7.09)		407	
D 21 13C8 FOSA										
506.00 > 78.00	3.362	3.364	-0.002	1.275	5126686	2.41		96.2	7370	
D 23 13C2 PFDA										
515.00 > 470.00	3.362	3.372	-0.010	1.275	2673701	2.32		92.8	5453	
28 N-methyl perfluorooctane sulfonami										M
570.00 > 419.00	3.521	3.513	0.008	1.000	1243762	2.49		99.7	1373	M
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.521	3.523	-0.002	1.335	1287900	2.40		96.0	3708	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.673	3.673	0.0	1.222	2385969	2.43		101	5971	
599.00 > 99.00	3.673	3.673	0.0	1.222	841532		2.84(1.39-4.16)		4054	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.690	3.681	0.009	1.000	1991077	2.26		90.6	1604	
563.00 > 169.00	3.690	3.681	0.009	1.000	472842		4.21(2.12-6.36)		3056	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.682	3.685	-0.003	1.396	1392647	2.36		94.5	480	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.690	3.690	0.0	1.002	1189992	2.54		102	2561	
D 30 13C2 PFUnA										
565.00 > 520.00	3.690	3.693	-0.003	1.399	2404582	2.41		96.6	3668	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.849	3.848	0.001	1.281	9341869	2.46		104	8819	
35 MeFOSA										
512.00 > 169.00	3.868	3.867	0.001		1235749	NC			639	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.987	3.978	0.009	1.000	2642618	2.29		91.8	1321	
613.00 > 169.00	3.987	3.978	0.009	1.000	661590		3.99(2.13-6.40)		2740	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.987	3.987	0.0	1.188	1169990	2.47		102	4638	
D 36 13C2 PFDoA										
615.00 > 570.00	3.987	3.991	-0.004	1.512	2626854	2.47		98.8	6176	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.225	4.225	0.0	1.406	976603	2.39		98.6	3232	
699.00 > 99.00	4.225	4.225	0.0	1.406	1320233		0.74(0.00-0.00)		4710	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.244	4.244	0.0	1.064	2723420	2.49		99.7	912	
663.00 > 169.00	4.244	4.244	0.0	1.064	836230		3.26(1.25-3.76)		3218	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.485	4.484	0.001	1.000	748453	2.47		99.0	4242	
713.00 > 219.00	4.485	4.484	0.001	1.000	503918		1.49(0.71-2.13)		3890	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.485	4.492	-0.007	1.701	3027729	2.38		95.0	6914	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.898	4.897	0.001	1.857	4373013	2.38		95.1	5869	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.898	4.898	0.0	1.000	4018553	2.56		103	323	
813.00 > 169.00	4.898	4.898	0.0	1.000	689472		5.83(2.86-8.58)		2786	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.244	5.245	-0.001	1.071	4377933	2.50		100	265	
913.00 > 169.00	5.244	5.245	-0.001	1.071	554658		7.89(3.83-11.48)		2202	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

LCPFC_LL5_00009 Amount Added: 1.00 Units: mL

Report Date: 31-Aug-2018 14:28:05 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_032.d

Injection Date: 29-Aug-2018 23:58:27 Instrument ID: A8_N

Lims ID: CCV L5

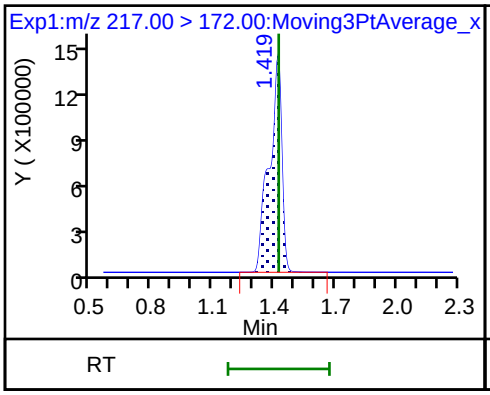
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 29 Worklist Smp#: 1

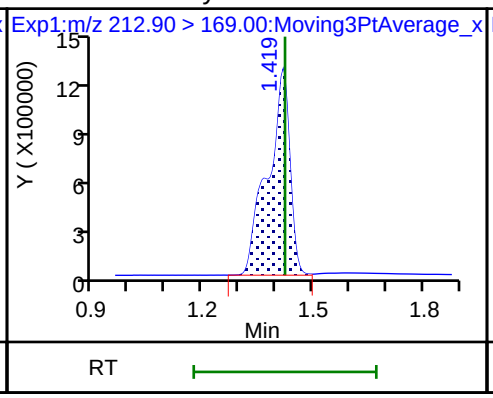
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

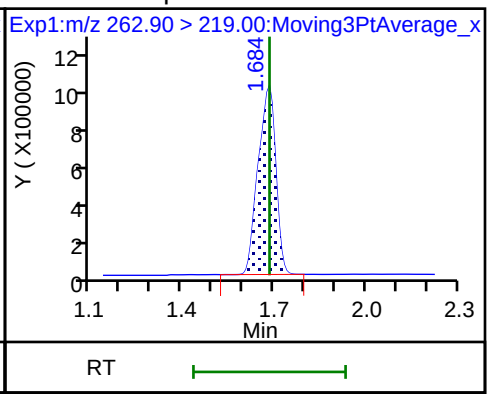
D 1 13C4 PFBA



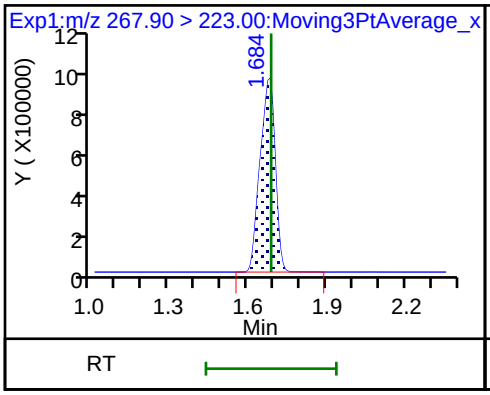
2 Perfluorobutyric acid



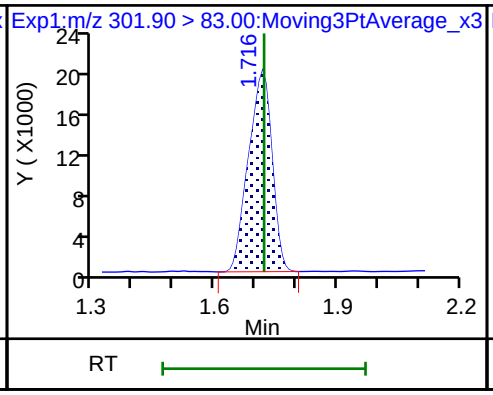
4 Perfluoropentanoic acid



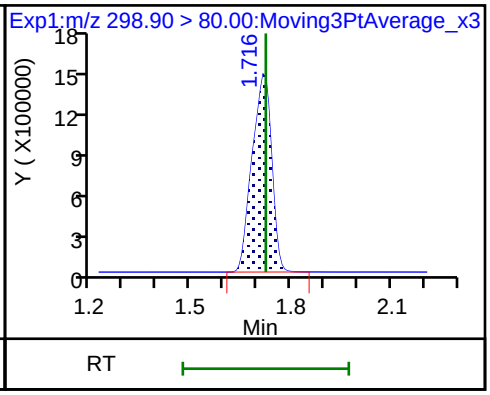
D 3 13C5-PFPeA



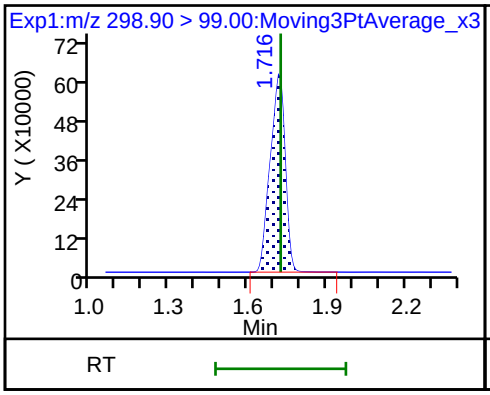
D 47 13C3-PFBS



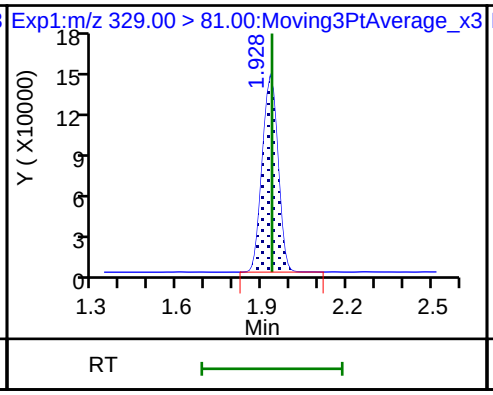
5 Perfluorobutanesulfonic acid



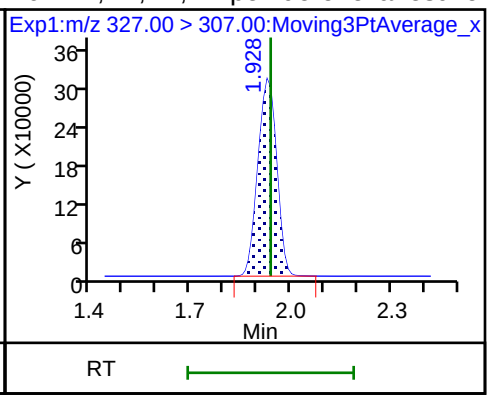
5 Perfluorobutanesulfonic acid



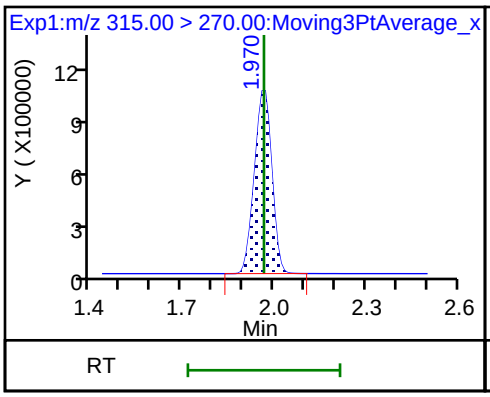
D 60 M2-4:2FTS



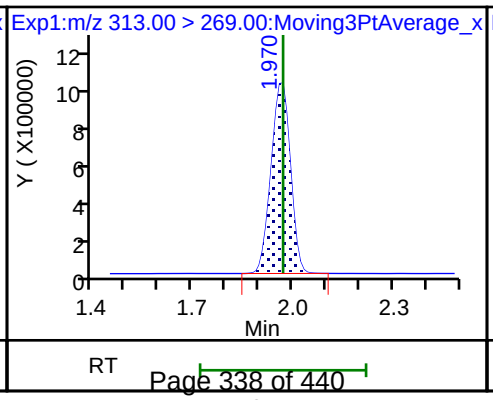
61 1H,1H,2H,2H-perfluorohexanesulfoni



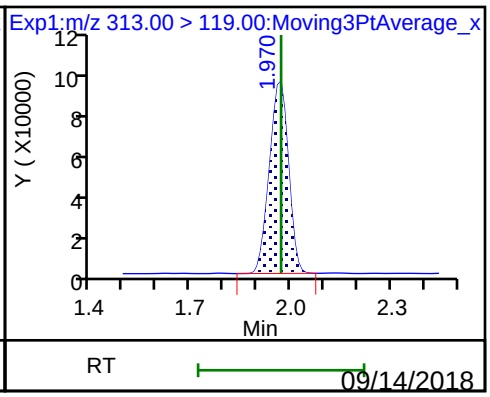
D 7 13C2 PFHxA



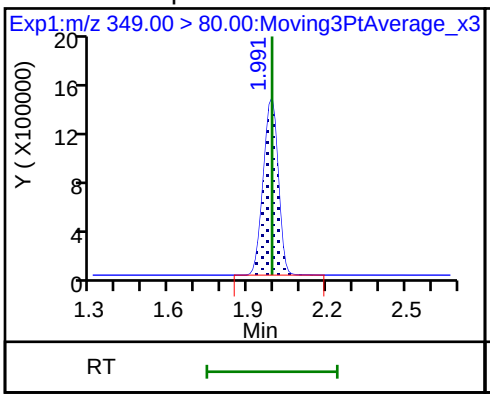
6 Perfluorohexanoic acid



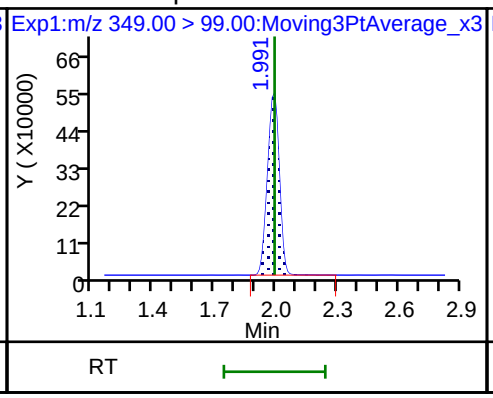
6 Perfluorohexanoic acid



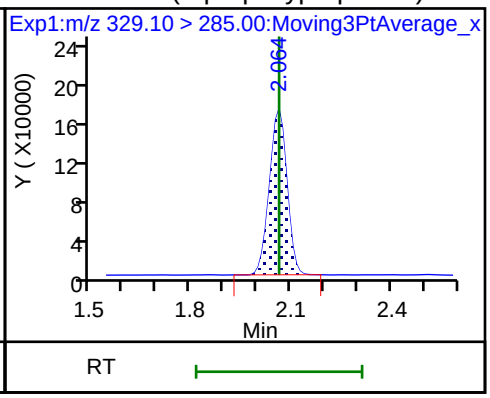
70 Perfluoropentanesulfonic acid



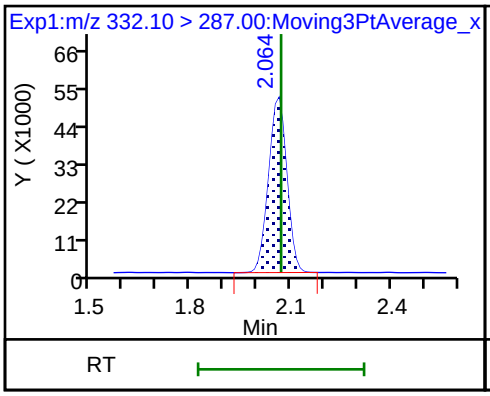
70 Perfluoropentanesulfonic acid



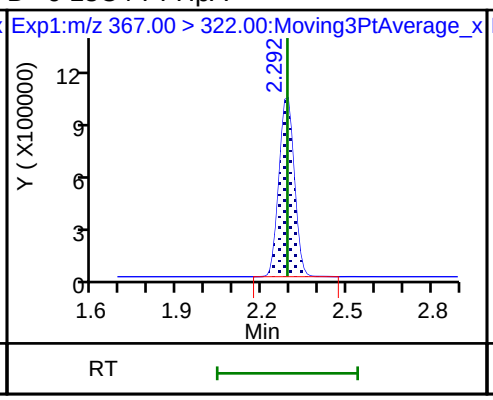
67 Perfluoro(2-propoxypropanoic) acid



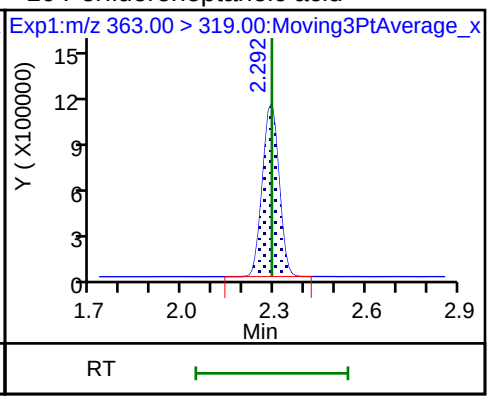
D 64 13C3 HFPO-DA



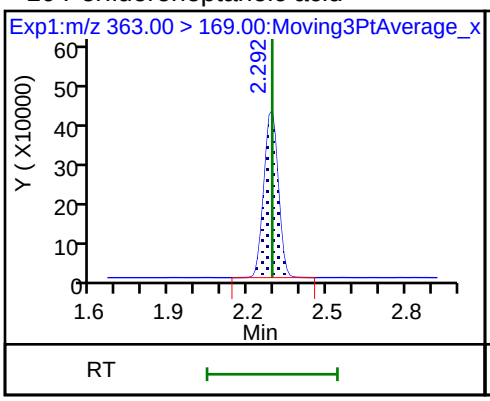
D 9 13C4-PFHpA



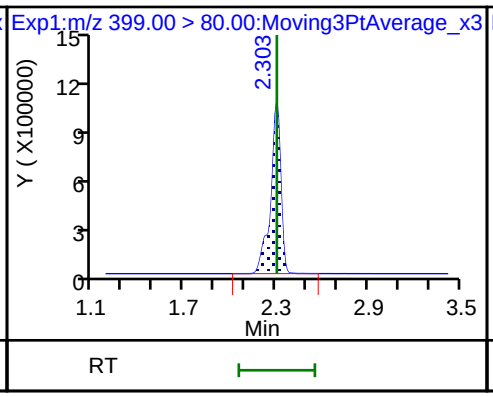
10 Perfluoroheptanoic acid



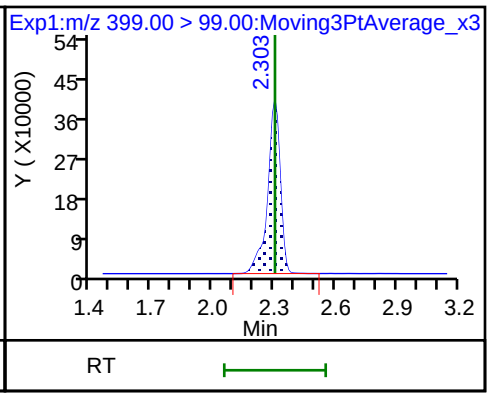
10 Perfluoroheptanoic acid



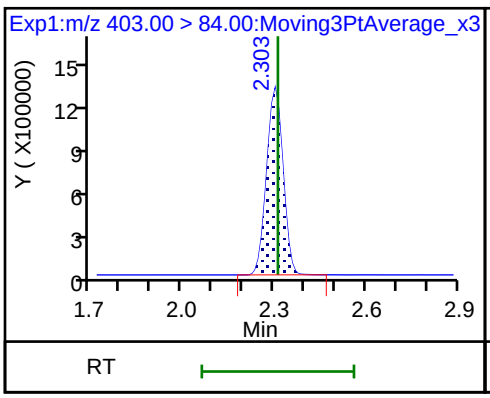
8 Perfluorohexanesulfonic acid



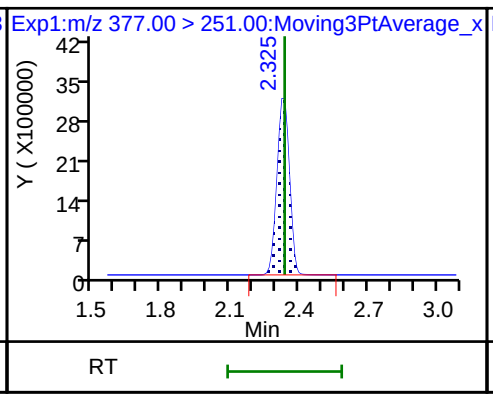
8 Perfluorohexanesulfonic acid



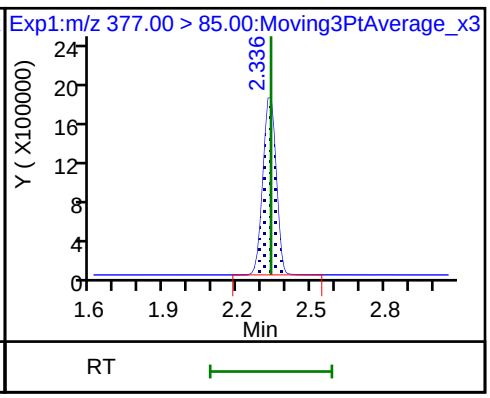
D 11 18O2 PFHxS



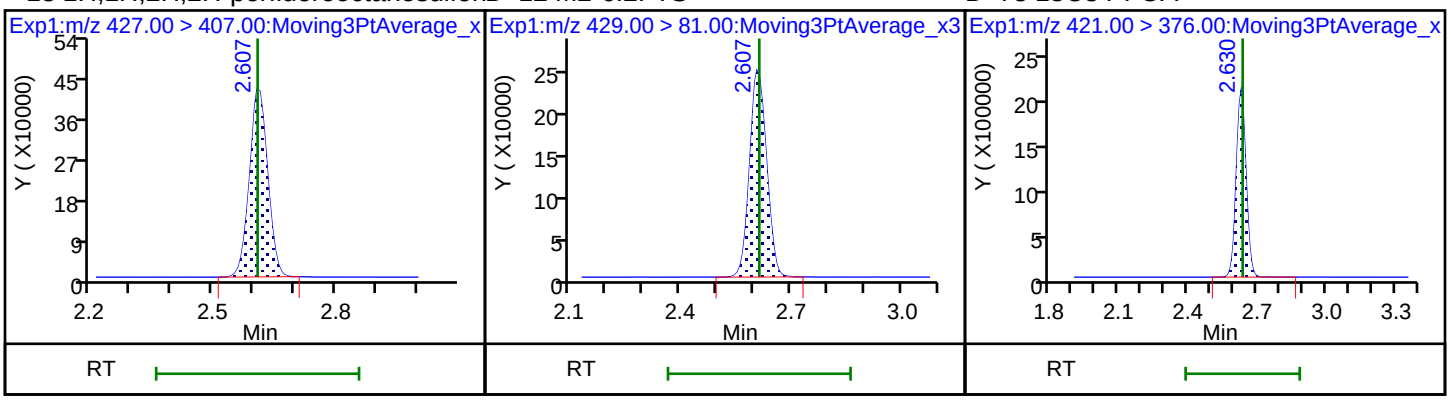
77 DONA



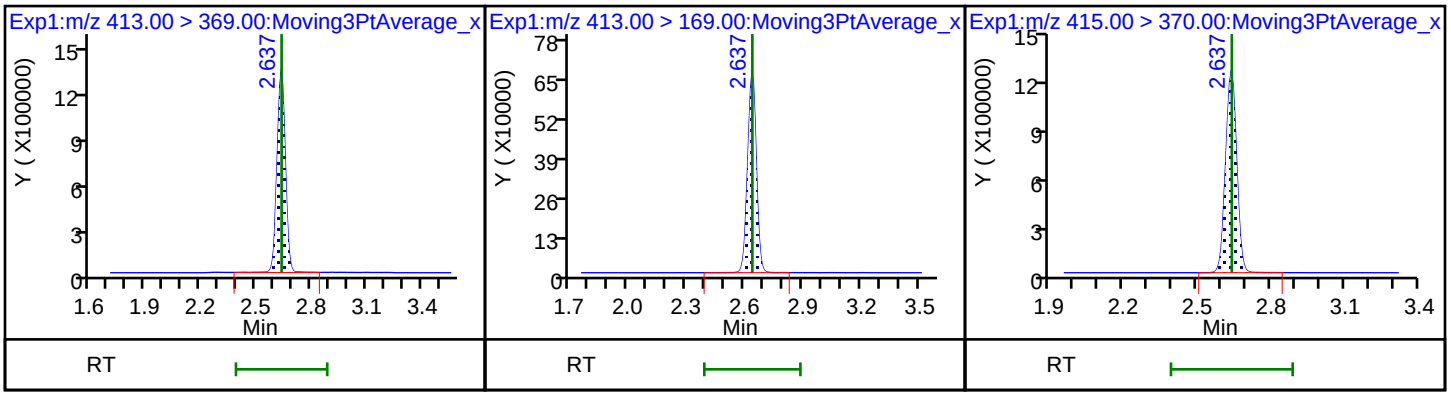
77 DONA



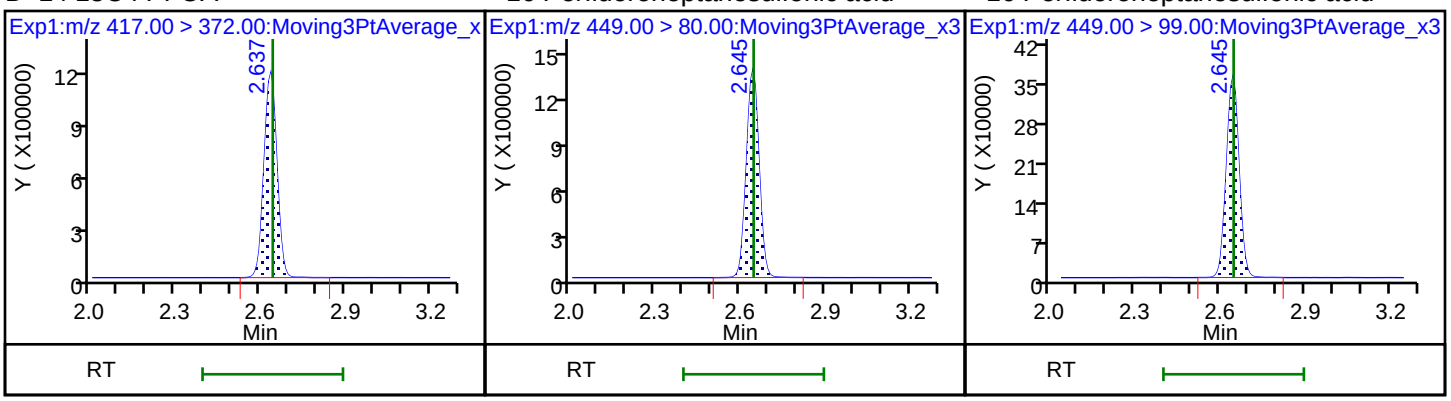
13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2FTS D 73 13C8 PFOA



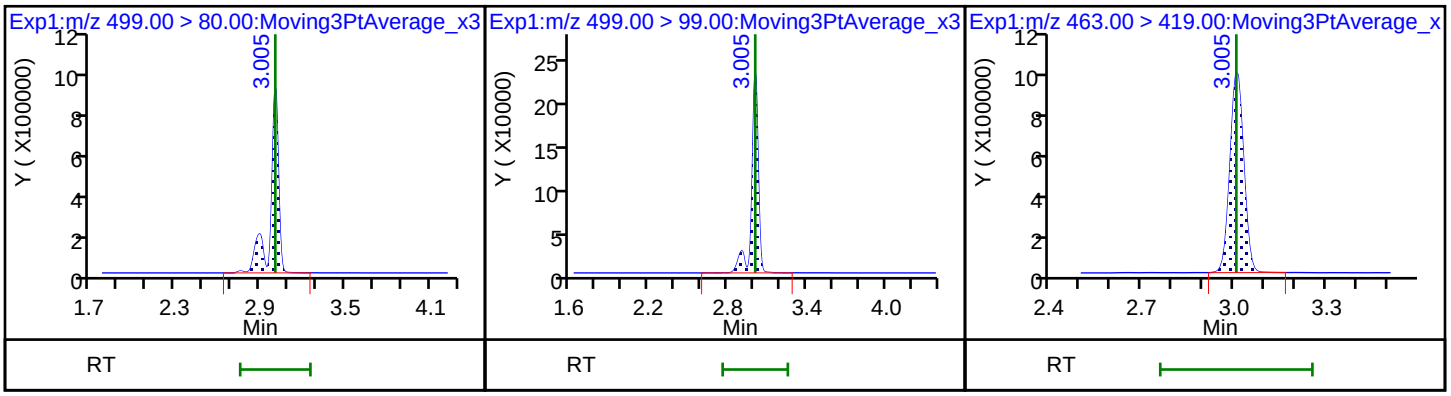
15 Perfluorooctanoic acid 15 Perfluorooctanoic acid * 62 13C2-PFOA



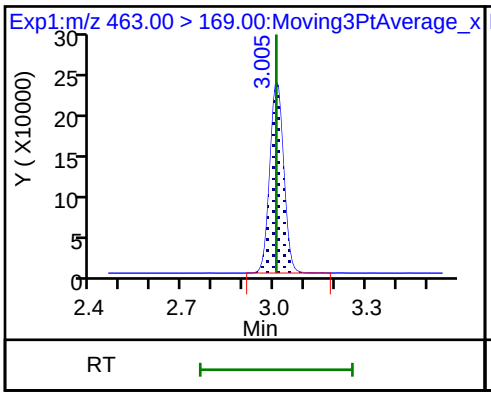
D 14 13C4 PFOA 16 Perfluoroheptanesulfonic acid 16 Perfluoroheptanesulfonic acid



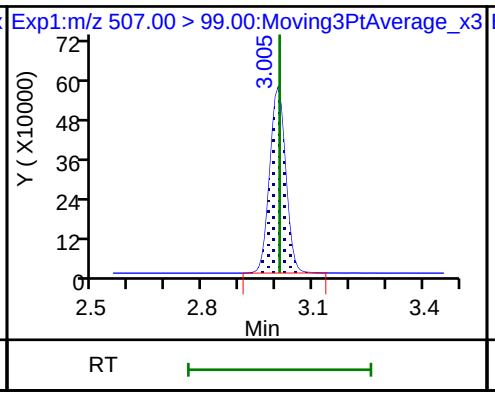
17 Perfluorooctane sulfonic acid 17 Perfluorooctane sulfonic acid 20 Perfluorononanoic acid



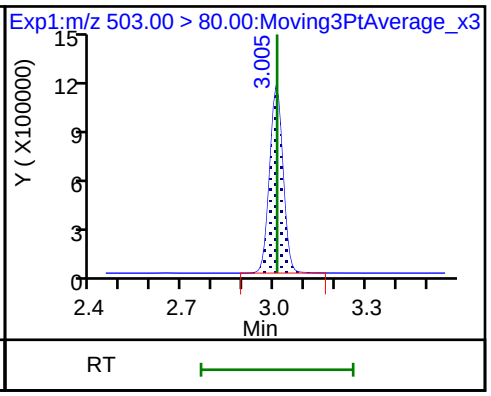
20 Perfluorononanoic acid



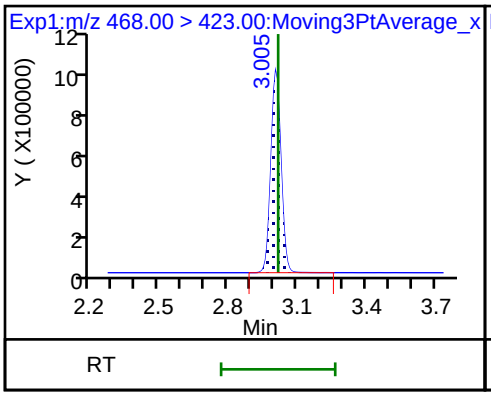
D 72 13C8 PFOS



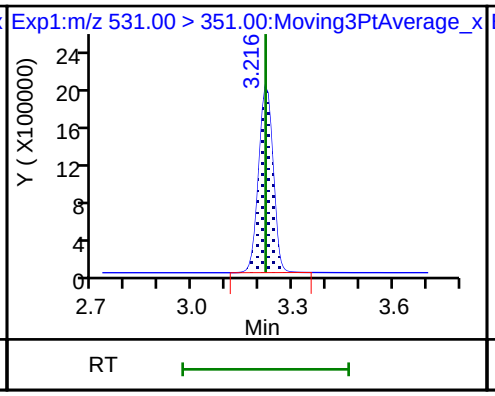
D 18 13C4 PFOS



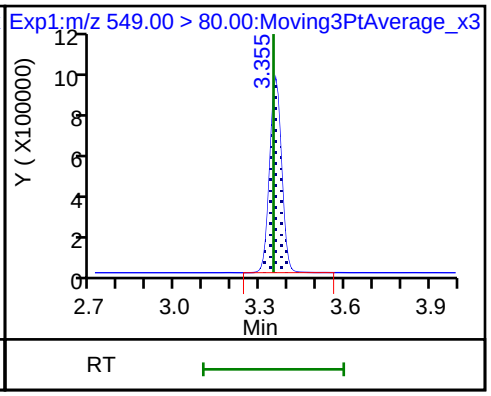
D 19 13C5 PFNA



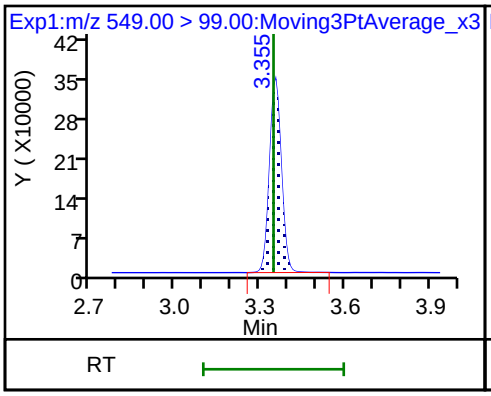
69 9-Chlorohexadecafluoro-3-oxanonane



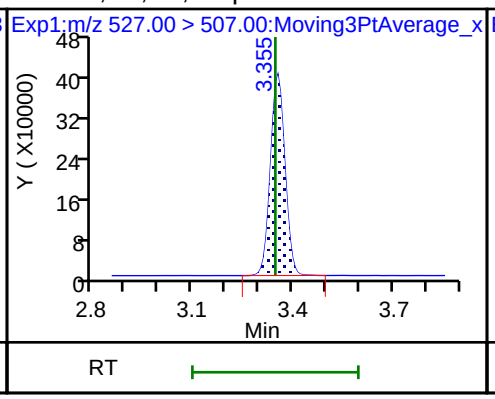
68 Perfluorononanesulfonic acid



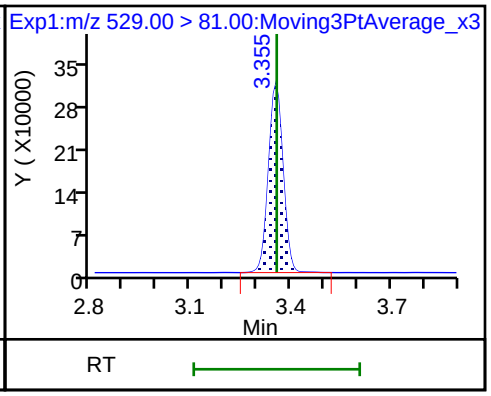
68 Perfluorononanesulfonic acid



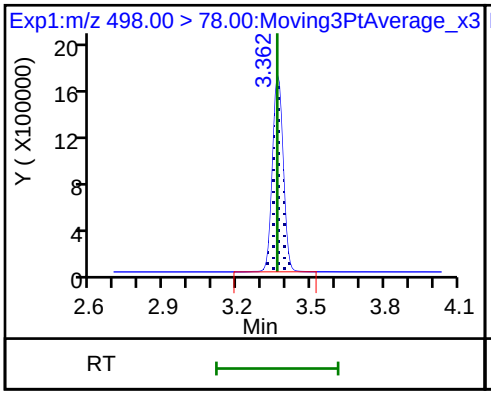
25 1H,1H,2H,2H-perfluorodecanesulfon



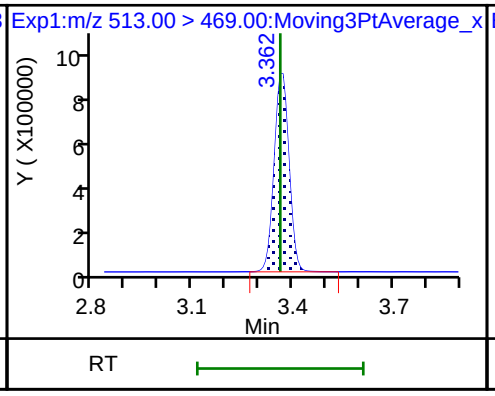
D 26 M2-8:2FTS



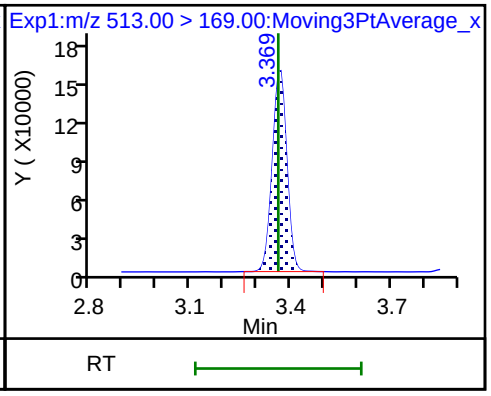
22 Perfluorooctane Sulfonamide



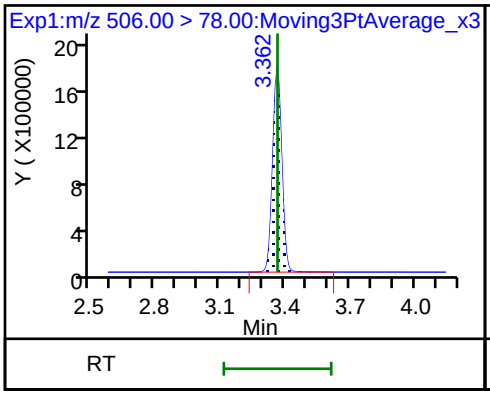
24 Perfluorodecanoic acid



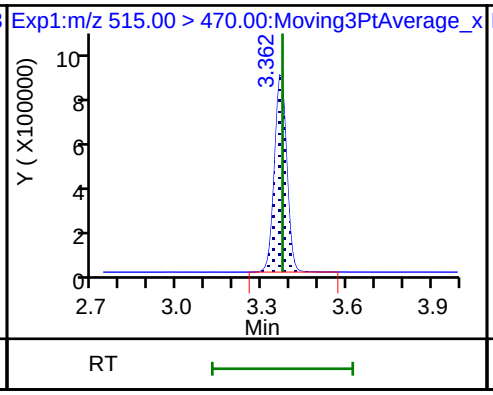
24 Perfluorodecanoic acid



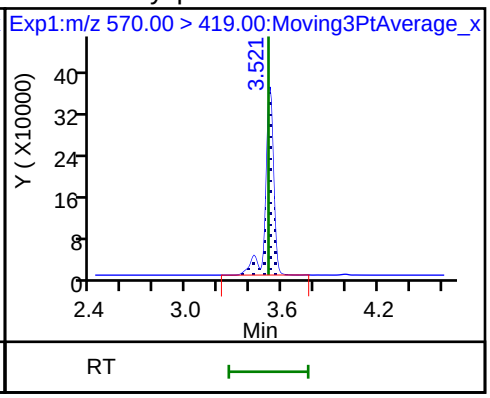
D 21 13C8 FOSA



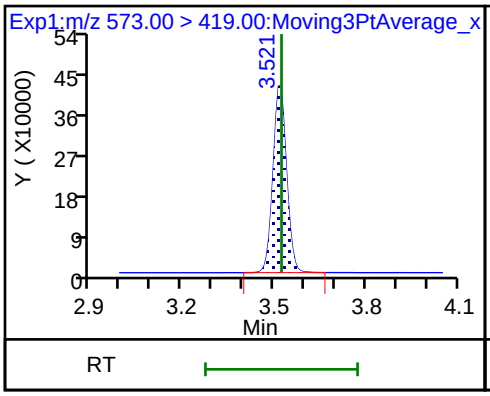
D 23 13C2 PFDA



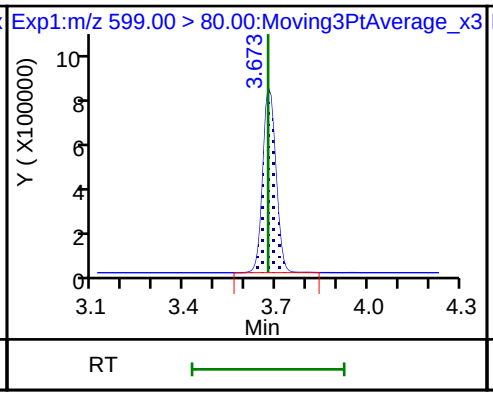
28 N-methyl perfluorooctane sulfonami (M)



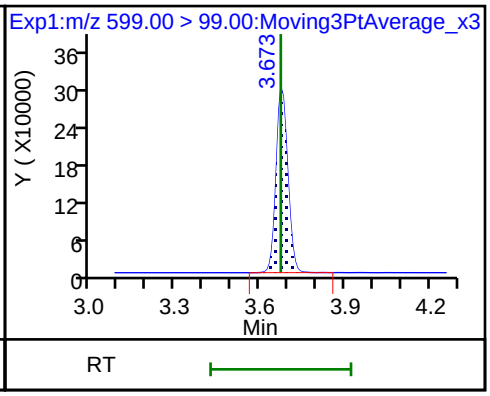
D 27 d3-NMeFOSAA



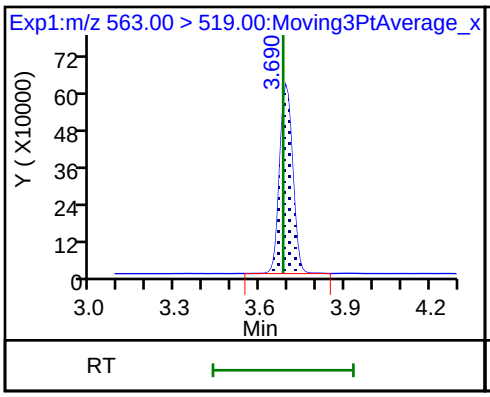
29 Perfluorodecane Sulfonic acid



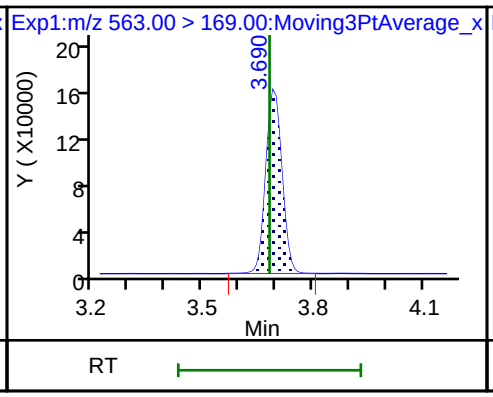
29 Perfluorodecane Sulfonic acid



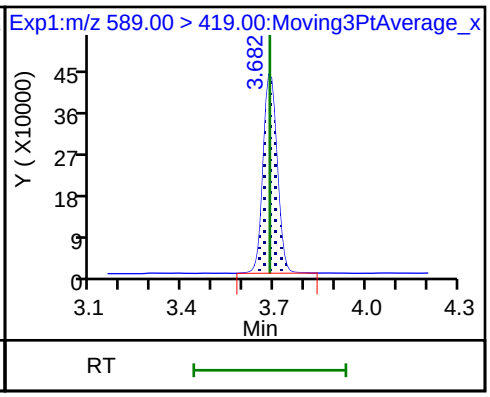
31 Perfluoroundecanoic acid



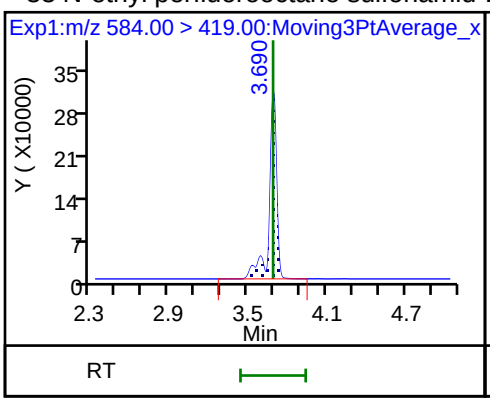
31 Perfluoroundecanoic acid



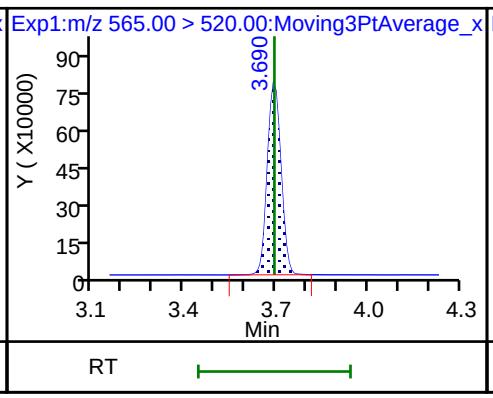
D 32 d5-NEtFOSAA



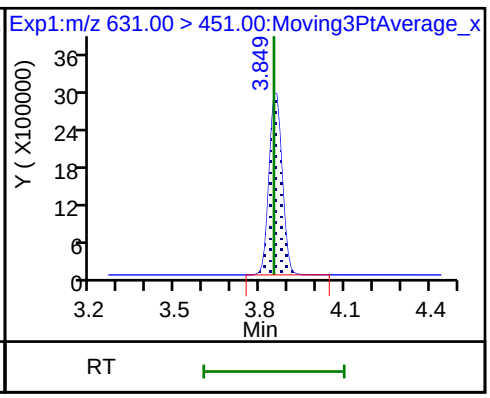
33 N-ethyl perfluorooctane sulfonamid



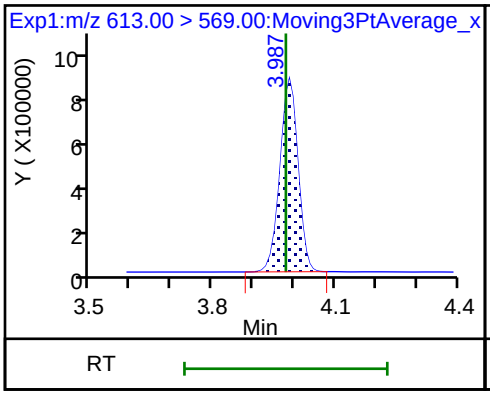
D 30 13C2 PFUnA



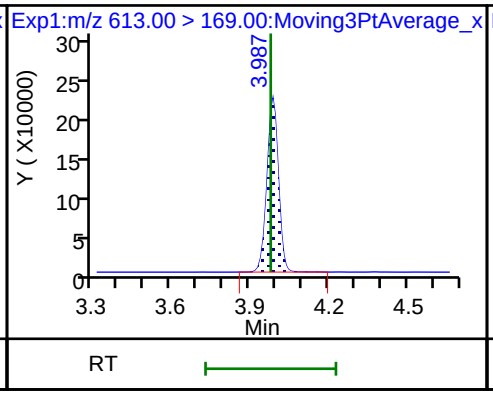
66 11-Chloroeicosafluoro-3-oxaundecan



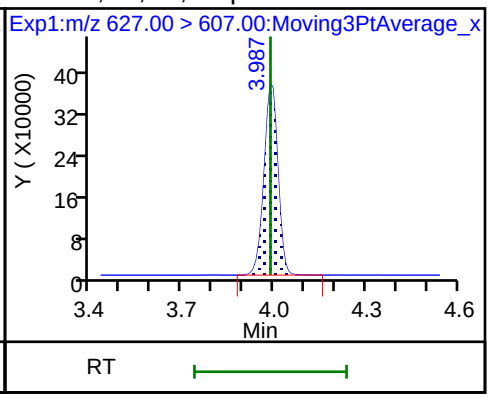
37 Perfluorododecanoic acid



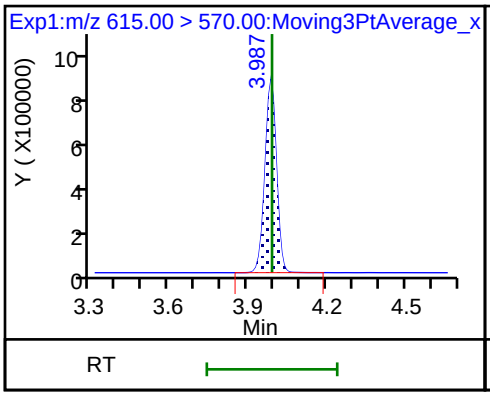
37 Perfluorododecanoic acid



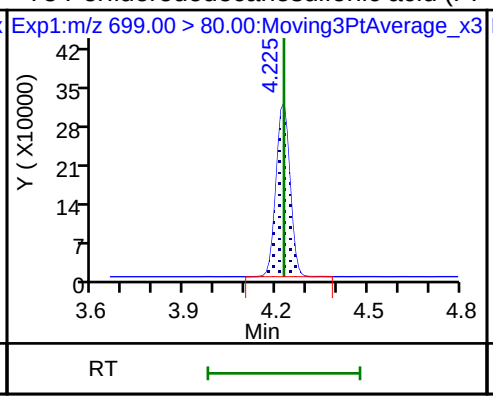
74 1H,1H,2H,2H-perfluorododecanesulfo



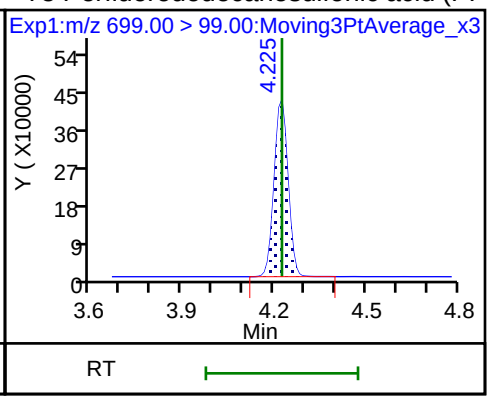
D 36 13C2 PFDoA



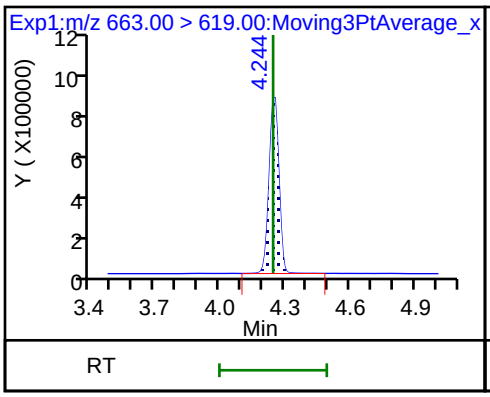
75 Perfluorododecanesulfonic acid (PF



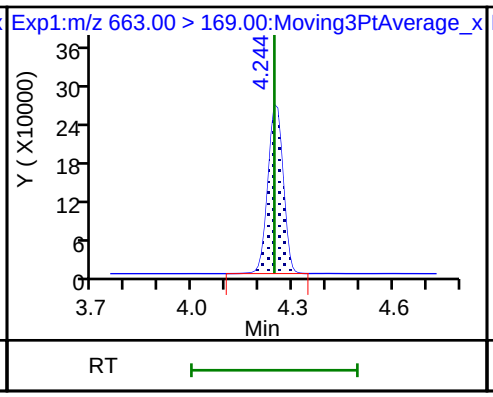
75 Perfluorododecanesulfonic acid (PF



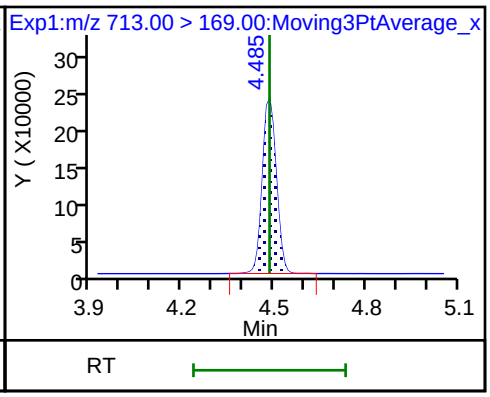
41 Perfluorotridecanoic acid



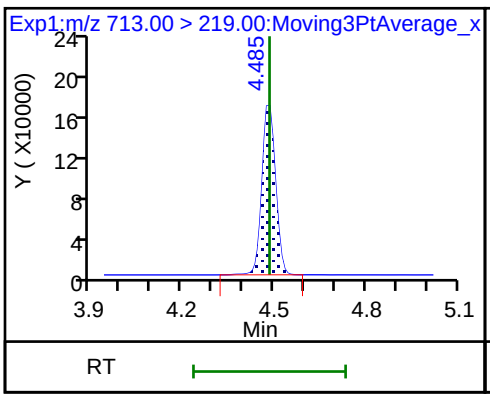
41 Perfluorotridecanoic acid



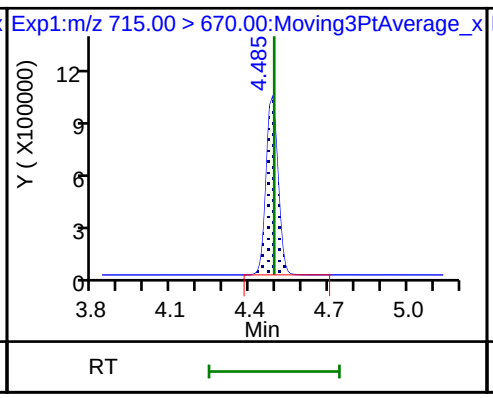
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid



D 43 13C2-PFTeDA



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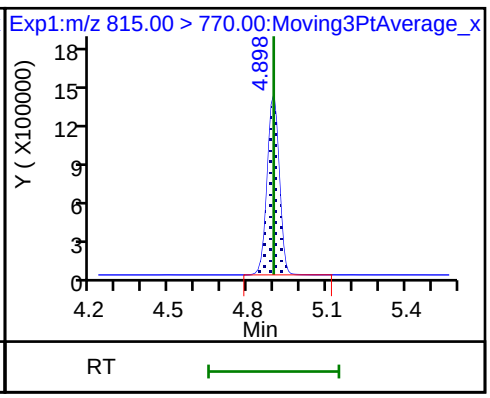
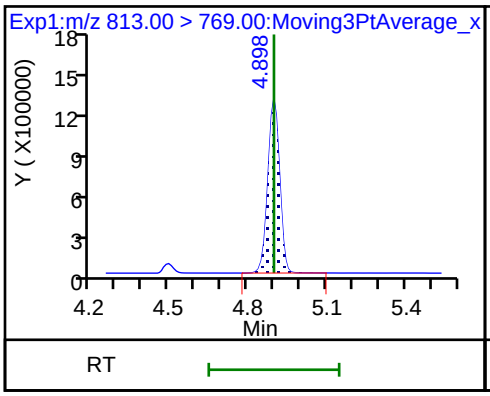
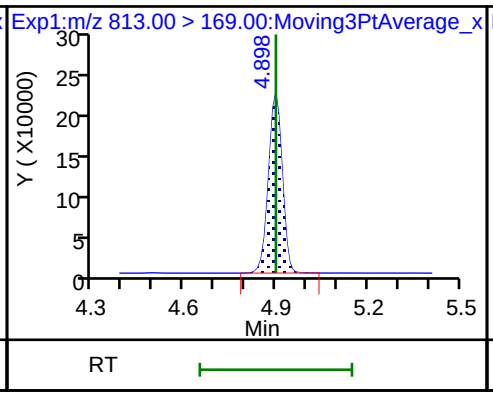


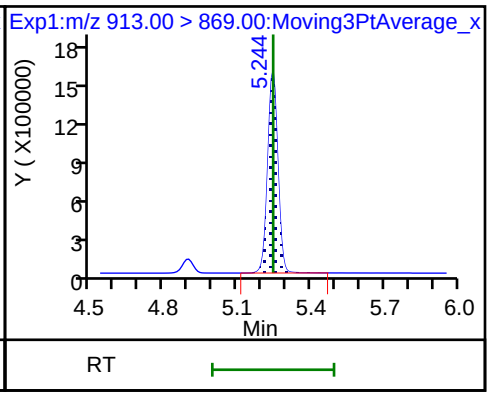
45 Perfluorohexadecanoic acid



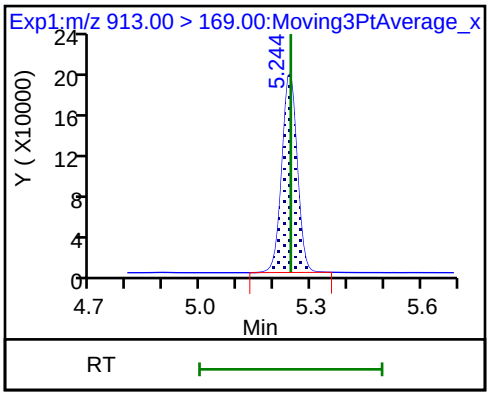
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

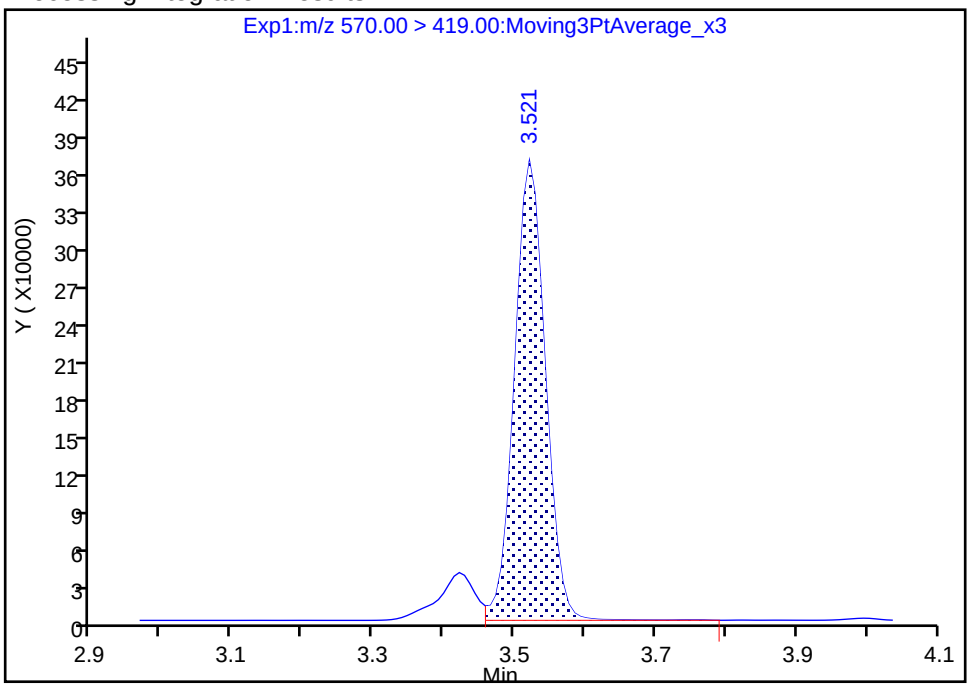
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_032.d
Injection Date: 29-Aug-2018 23:58:27 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 29 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

28 N-methyl perfluorooctane sulfonamidoacetic a, CAS: 2355-31-9

Signal: 1

Processing Integration Results

RT: 3.52
Area: 1113540
Amount: 2.232272
Amount Units: ng/ml



Manual Integration Results

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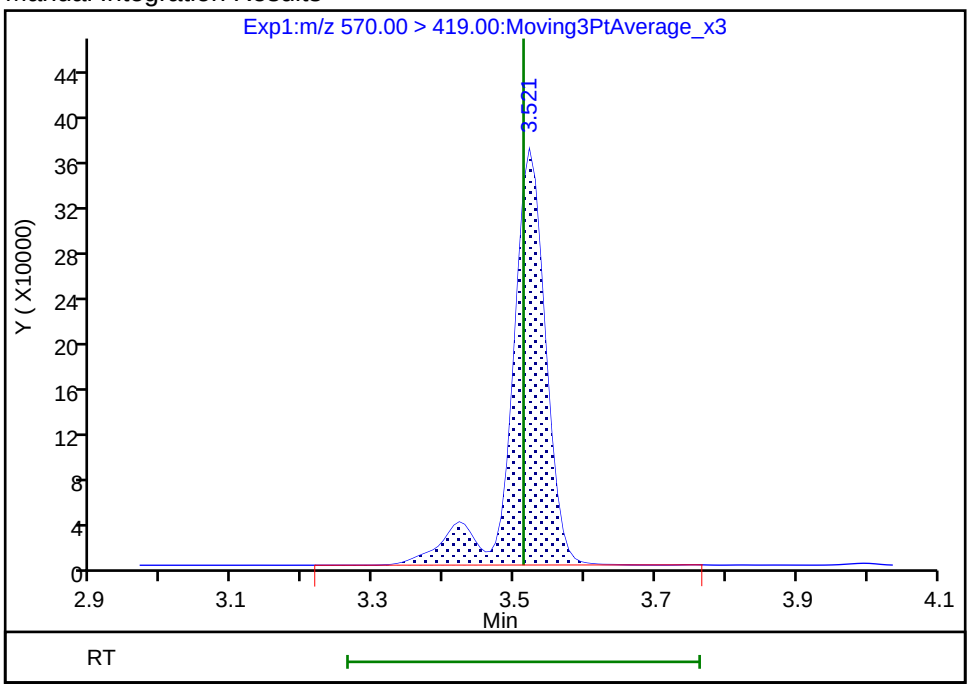
Amount: 2.493324
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:27:51
Audit Action: Manually Integrated Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: CCV 320-242977/12 Calibration Date: 08/30/2018 01:24

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLB_043.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8887	0.9050		1.02	1.00	1.8	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.153	1.110		0.962	1.00	-3.8	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.87	75.96		0.897	0.884	1.5	50.0
4:2 FTS	AveID	15.39	15.62		0.948	0.934	1.5	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	0.9947		0.988	1.00	-1.2	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	68.97	68.49		0.931	0.938	-0.7	50.0
HFPO-DA (GenX)	AveID	3.166	2.955		0.933	1.00	-6.7	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.095	1.027		0.938	1.00	-6.2	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.094	1.079		0.897	0.910	-1.4	40.0
DONA	AveID	3.355	3.589		1.01	0.942	7.0	50.0
6:2 FTS	AveID	1.503	1.443		0.910	0.948	-4.0	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.130	1.125		0.996	1.00	-0.5	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.218	1.267		0.990	0.952	4.0	50.0
Perfluorononanoic acid (PFNA)	AveID	1.039	1.023		0.984	1.00	-1.6	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.100	1.059		0.894	0.928	-3.7	40.0
F-53B Major	AveID	1.814	1.824		0.937	0.932	0.5	50.0
8:2 FTS	AveID	1.296	1.315		0.972	0.958	1.5	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8056	0.8296		0.989	0.960	3.0	50.0
Perfluorodecanoic acid (PFDA)	AveID	0.9716	1.003		1.03	1.00	3.3	40.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9644	0.9324		0.967	1.00	-3.3	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9683	0.9728		1.00	1.00	0.5	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.7103	0.6982		0.948	0.964	-1.7	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9140	0.8520		0.932	1.00	-6.8	40.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8394	0.7869		0.937	1.00	-6.3	40.0
F-53B Minor	AveID	2.751	2.905		0.995	0.942	5.6	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.096	1.085		0.990	1.00	-1.0	40.0
10:2 FTS	AveID	1.193	1.255		1.01	0.964	5.2	50.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.2963	0.2802		0.916	0.968	-5.4	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.040	1.038		0.998	1.00	-0.2	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2497	0.2355		0.943	1.00	-5.7	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: CCV 320-242977/12 Calibration Date: 08/30/2018 01:24

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLB_043.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9079		0.999	1.00	-0.0	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.001	0.9446		0.944	1.00	-5.6	50.0
13C4 PFBA	Ave	1.545	1.578		2.55	2.50	2.1	50.0
13C5 PFPeA	Ave	0.9767	0.9887		2.53	2.50	1.2	50.0
13C3-PFBS	Ave	0.0231	0.0233		2.35	2.33	1.0	50.0
M2-4:2FTS	Ave	0.1542	0.1507		2.28	2.34	-2.3	50.0
13C2 PFHxA	Ave	1.095	1.125		2.57	2.50	2.8	50.0
13C3 HFPO-DA	Ave	0.0527	0.0576		2.73	2.50	9.4	50.0
13C4-PFHpA	Ave	1.032	1.073		2.60	2.50	3.9	50.0
18O2 PFHxS	Ave	1.373	1.410		2.43	2.37	2.7	50.0
M2-6:2FTS	Ave	0.2341	0.2375		2.41	2.38	1.4	40.0
13C8 PFOA	Ave	1.640	1.665		2.49	2.45	1.6	50.0
13C4 PFOA	Ave	0.9851	1.004		2.55	2.50	1.9	50.0
13C8 PFOS	Ave	0.4800	0.4830		2.40	2.39	0.6	50.0
13C4 PFOS	Ave	0.9382	0.9573		2.44	2.39	2.0	50.0
13C5 PFNA	Ave	0.8094	0.8472		2.62	2.50	4.7	50.0
M2-8:2FTS	Ave	0.2723	0.2924		2.57	2.40	7.4	40.0
13C8 FOSA	Ave	1.389	1.458		2.62	2.50	4.9	50.0
13C2 PFDA	Ave	0.7512	0.7688		2.56	2.50	2.3	50.0
d3-NMeFOSAA	Ave	0.3499	0.3422		2.44	2.50	-2.2	50.0
d5-NEtFOSAA	Ave	0.3843	0.4056		2.64	2.50	5.6	50.0
13C2 PFUnA	Ave	0.6491	0.7208		2.78	2.50	11.0	50.0
13C2 PFDoA	Ave	0.6931	0.7331		2.64	2.50	5.8	50.0
13C2-PFTeDA	Ave	0.8310	0.8891		2.67	2.50	7.0	50.0
13C2-PFHxDA	Ave	1.199	1.262		2.63	2.50	5.2	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_043.d
Lims ID: CCV L4
Client ID:
Sample Type: CCV
Inject. Date: 30-Aug-2018 01:24:43 ALS Bottle#: 28 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L4
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:43:14 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:43:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.419	1.421	-0.002	0.537	5568990	2.55		102	9633	
2 Perfluorobutyric acid										
212.90 > 169.00	1.424	1.424	0.0	1.004	2016019	1.02		102	209	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.684	1.684	0.0	1.000	1548545	0.9622		96.2	88.8	
D 3 13C5-PFPeA										
267.90 > 223.00	1.684	1.687	-0.003	0.638	3489183	2.53		101	7989	
D 47 13C3-PFBS										
301.90 > 83.00	1.724	1.720	0.004	0.653	76569	2.35		101	388	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.724	1.724	0.0	1.000	2211441	0.8969		101	3390	
298.90 > 99.00	1.724	1.724	0.0	1.000	910736		2.43(1.25-3.74)		2043	
D 60 M2-4:2FTS										
329.00 > 81.00	1.928	1.934	-0.006	0.731	496642	2.28		97.7	1096	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.939	1.939	0.0	1.125	480482	0.9483		102	5200	
D 7 13C2 PFHxA										
315.00 > 270.00	1.970	1.966	0.004	0.746	3971447	2.57		103	7475	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.970	1.970	0.0	1.000	1580135	0.9878		98.8	666	
313.00 > 119.00	1.970	1.970	0.0	1.000	146478		10.79(5.03-15.10)		545	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.991	1.991	0.0	1.155	2115714	0.9315		99.3	4858	
349.00 > 99.00	1.991	1.991	0.0	1.155	809135		2.61(1.36-4.07)		2161	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.064	2.064	0.0	1.000	240207	0.9331		93.3	253	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.064	2.070	-0.006	0.782	203247	2.73		109	733	
D 9 13C4-PFHpA										
367.00 > 322.00	2.292	2.289	0.003	0.868	3786866	2.60		104	8412	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.292	2.292	0.0	1.000	1555712	0.9378		93.8	652	
363.00 > 169.00	2.292	2.292	0.0	1.000	603428		2.58(1.13-3.40)		1075	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.303	2.303	0.0	1.000	1953442	0.8974		98.6	4327	
399.00 > 99.00	2.303	2.303	0.0	1.000	648942		3.01(1.50-4.49)		1007	
D 11 18O2 PFHxS										
403.00 > 84.00	2.303	2.311	-0.008	0.872	4705594	2.43		103	8243	
77 DONA										
377.00 > 251.00	2.336	2.336	0.0	0.777	4568279	1.01		107	12843	
377.00 > 85.00	2.336	2.336	0.0	0.777	2764221		1.65(0.85-2.54)		3249	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.609	2.609	0.0	1.000	458593	0.9100		96.0	2285	
D 12 M2-6:2FTS										
429.00 > 81.00	2.609	2.613	-0.004	0.988	796143	2.41		101	3816	
D 73 13C8 PFOA										
421.00 > 376.00	2.631	2.636	-0.005	0.997	5753688	2.49		102	18314	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.639	2.639	0.0	1.000	1595611	1.00		99.5	253	
413.00 > 169.00	2.639	2.639	0.0	1.000	784636		2.03(0.84-2.52)		1636	
* 62 13C2-PFOA										
415.00 > 370.00	2.639	2.639	0.0		3529047	2.50			10011	
D 14 13C4 PFOA										
417.00 > 372.00	2.639	2.644	-0.005	1.000	3542420	2.55		102	7221	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.647	2.647	0.0	0.881	1630348	0.99		104	4030	
449.00 > 99.00	2.647	2.647	0.0	0.881	436241		3.74(1.94-5.82)		1542	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.006	3.006	0.0	1.000	1328593	0.8939		96.3	3004	
499.00 > 99.00	3.006	3.006	0.0	1.000	309531		4.29(2.31-6.93)		1147	
20 Perfluorononanoic acid										
463.00 > 419.00	3.006	3.006	0.0	1.000	1223540	0.9845		98.4	375	
463.00 > 169.00	3.006	3.006	0.0	1.000	295616		4.14(1.90-5.69)		1957	
D 72 13C8 PFOS										
507.00 > 99.00	2.999	3.009	-0.010	1.136	1629351	2.40		101	3874	
D 18 13C4 PFOS										
503.00 > 80.00	3.006	3.009	-0.003	1.139	3229854	2.44		102	5382	
D 19 13C5 PFNA										
468.00 > 423.00	3.006	3.016	-0.010	1.139	2989960	2.62		105	7009	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.218	3.218	0.0	1.070	2296907	0.9369		101	3332	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.347	3.347	0.0	1.113	1076225	0.9886		103	3288	
549.00 > 99.00	3.347	3.347	0.0	1.113	388817		2.77(1.33-3.97)		1980	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.347	3.347	0.0	1.000	520129	0.9720		101	1641	
D 26 M2-8:2FTS										
529.00 > 81.00	3.347	3.357	-0.010	1.268	988608	2.57		107	3666	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.362	3.362	0.0	1.002	1919096	0.9668		96.7	2951	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.362	3.362	0.0	1.000	1088670	1.03		103	1117	
513.00 > 169.00	3.362	3.362	0.0	1.000	181605		5.99(2.36-7.09)		371	
D 21 13C8 FOSA										
506.00 > 78.00	3.354	3.364	-0.010	1.271	5145669	2.62		105	5584	
D 23 13C2 PFDA										
515.00 > 470.00	3.362	3.372	-0.010	1.274	2712975	2.56		102	4014	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.513	3.513	0.0	1.000	469908	1.00		100	397	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.513	3.523	-0.010	1.331	1207644	2.44		97.8	5150	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.673	3.673	0.0	1.222	909546	0.9475		98.3	3744	
599.00 > 99.00	3.673	3.673	0.0	1.222	297053		3.06(1.39-4.16)		1988	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.681	3.681	0.0	0.998	866863	0.9321		93.2	882	
563.00 > 169.00	3.690	3.681	0.009	1.000	200421		4.33(2.12-6.36)		1888	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.681	3.685	-0.004	1.395	1431408	2.64		106	508	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.690	3.690	0.0	1.002	450537	0.9374		93.7	1582	
D 30 13C2 PFUnA										
565.00 > 520.00	3.690	3.693	-0.003	1.398	2543606	2.78		111	6795	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.848	3.848	0.0	1.280	3698196	0.99		106	8243	
35 MeFOSA										
512.00 > 169.00	3.867	3.867	0.0		492112	NC			698	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.978	3.978	0.0	1.000	1122876	0.9897		99.0	757	
613.00 > 169.00	3.978	3.978	0.0	1.000	268880		4.18(2.13-6.40)		2620	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.987	3.987	0.0	1.191	499505	1.01		105	3209	
D 36 13C2 PFDoA										
615.00 > 570.00	3.978	3.991	-0.013	1.507	2587295	2.64		106	5942	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.225	4.225	0.0	1.405	366591	0.9157		94.6	1855	
699.00 > 99.00	4.215	4.225	-0.010	1.402	529850		0.69(0.00-0.00)		2336	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.244	4.244	0.0	1.067	1074069	1.00		99.8	330	
663.00 > 169.00	4.244	4.244	0.0	1.067	325125		3.30(1.25-3.76)		1756	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.484	4.484	0.0	1.000	295547	0.9431		94.3	2425	
713.00 > 219.00	4.484	4.484	0.0	1.000	191919		1.54(0.71-2.13)		1117	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.484	4.492	-0.008	1.699	3137549	2.67		107	4262	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.898	4.897	0.001	1.856	4452260	2.63		105	5853	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.898	4.898	0.0	1.000	1616845	1.00		99.9	153	
813.00 > 169.00	4.898	4.898	0.0	1.000	283041		5.71(2.86-8.58)		1898	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.245	5.245	0.0	1.071	1682279	0.9438		94.4	136	
913.00 > 169.00	5.238	5.245	-0.007	1.069	215795		7.80(3.83-11.48)		1381	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL4_00009 Amount Added: 1.00 Units: mL

Report Date: 31-Aug-2018 14:43:16 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_043.d

Injection Date: 30-Aug-2018 01:24:43 Instrument ID: A8_N

Lims ID: CCV L4

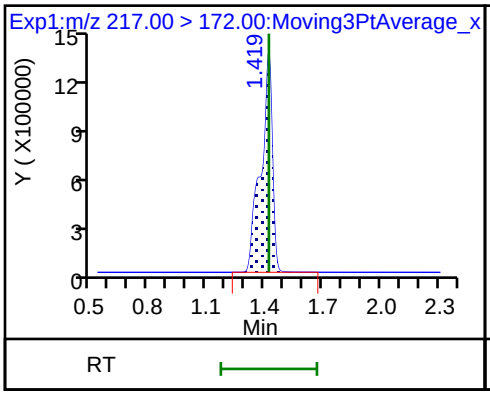
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 12

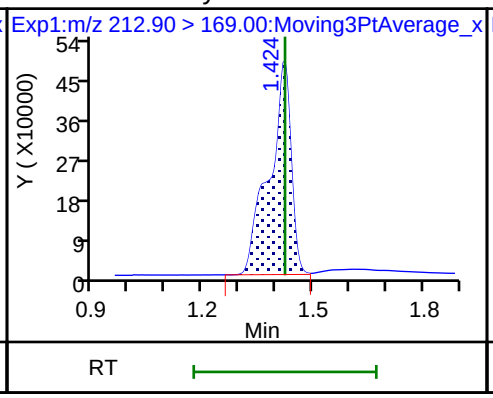
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

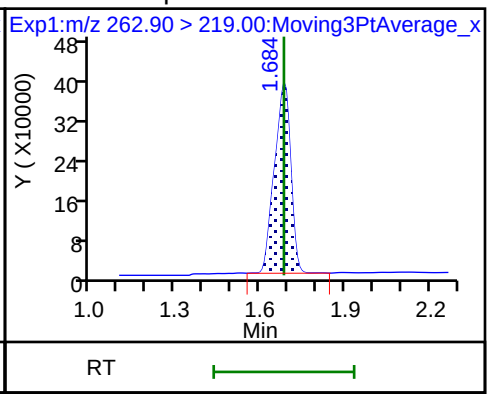
D 1 13C4 PFBA



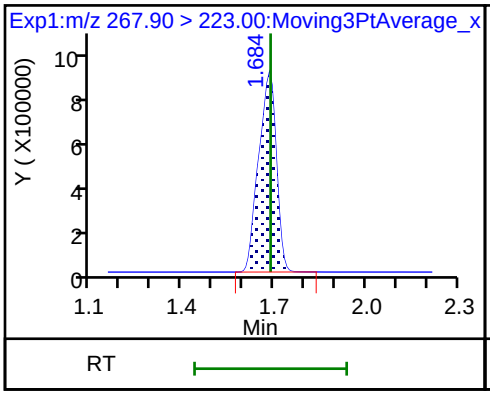
2 Perfluorobutyric acid



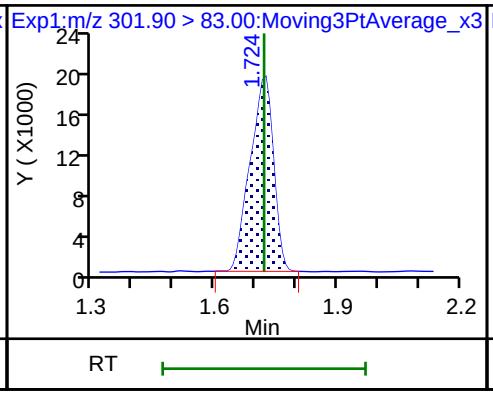
4 Perfluoropentanoic acid



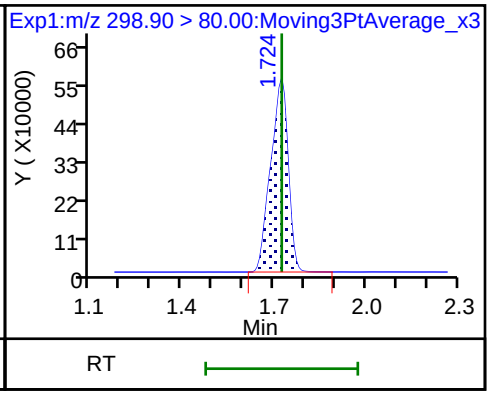
D 3 13C5-PFPeA



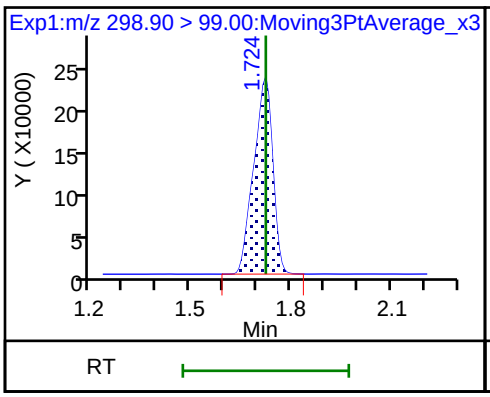
D 47 13C3-PFBS



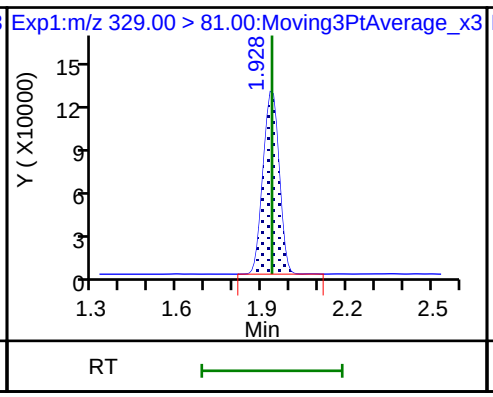
5 Perfluorobutanesulfonic acid



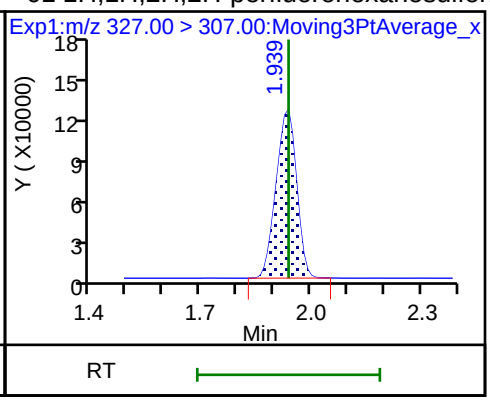
5 Perfluorobutanesulfonic acid



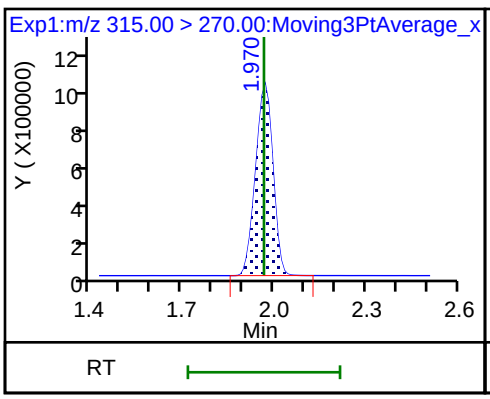
D 60 M2-4:2FTS



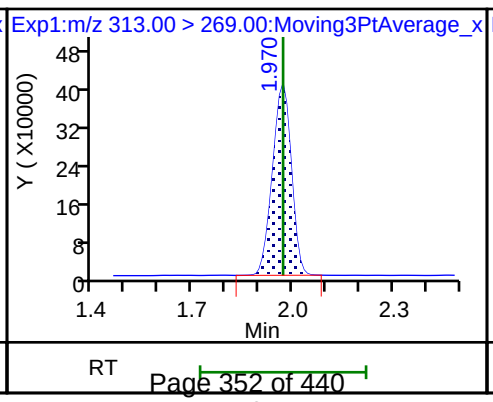
61 1H,1H,2H,2H-perfluorohexanesulfoni



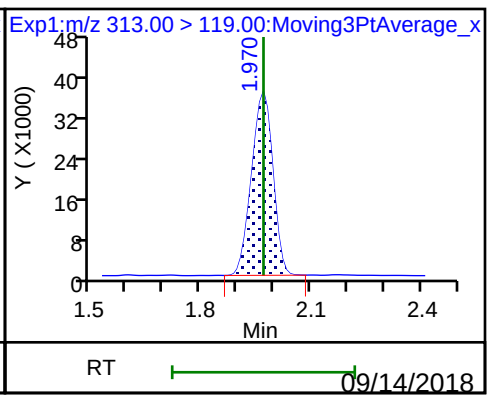
D 7 13C2 PFHxA



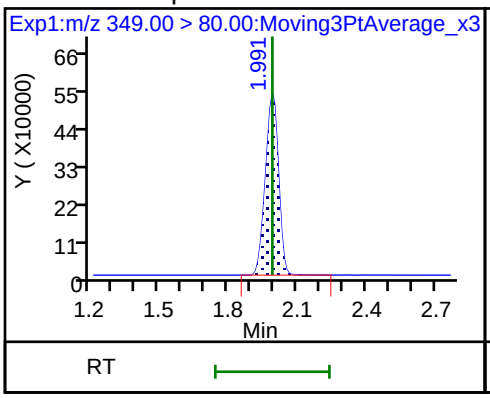
6 Perfluorohexanoic acid



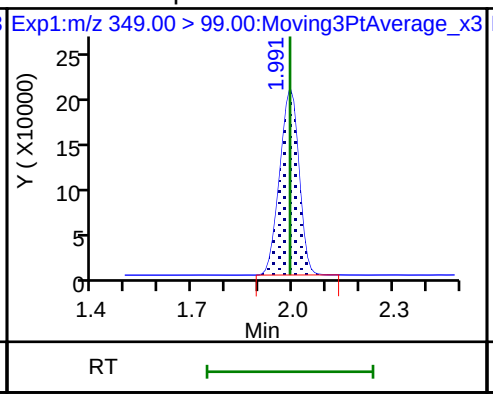
6 Perfluorohexanoic acid



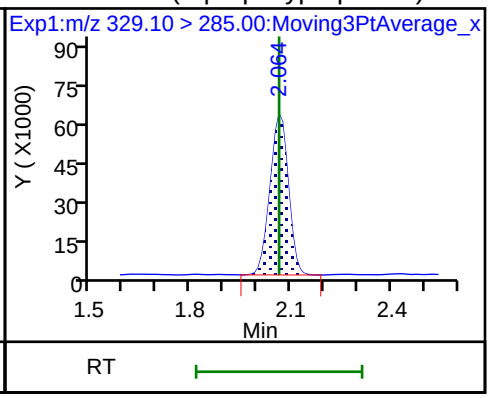
70 Perfluoropentanesulfonic acid



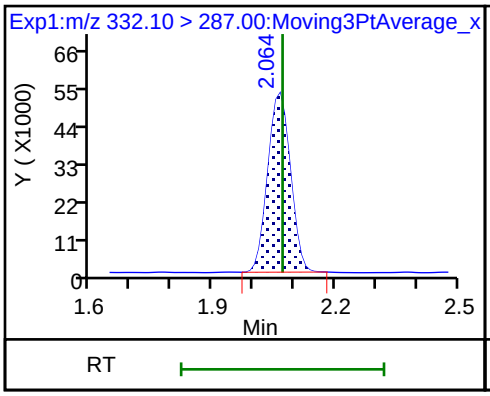
70 Perfluoropentanesulfonic acid



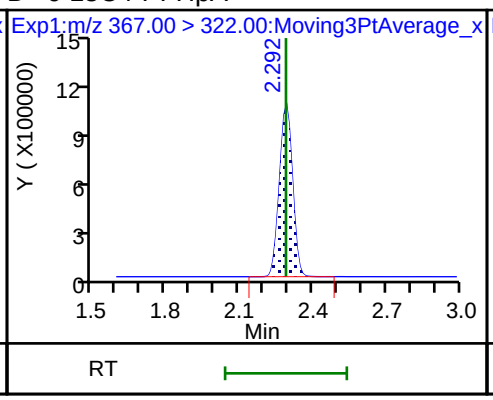
67 Perfluoro(2-propoxypropanoic) acid



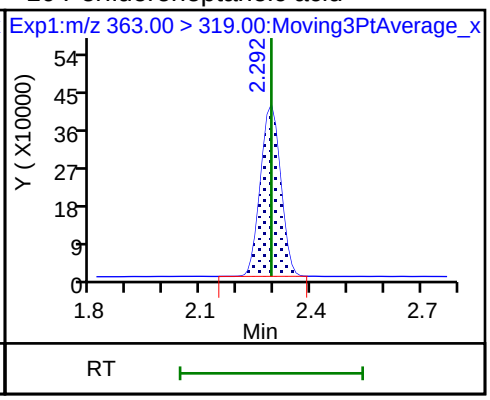
D 64 13C3 HFPO-DA



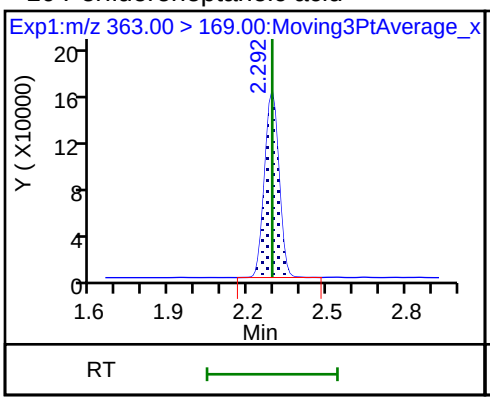
D 9 13C4-PFHpA



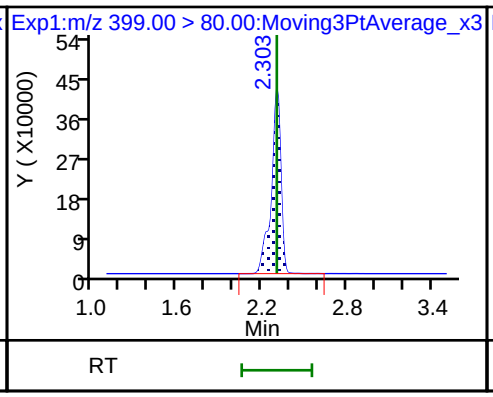
10 Perfluoroheptanoic acid



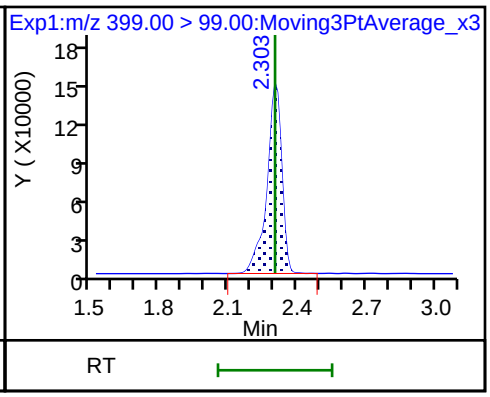
10 Perfluoroheptanoic acid



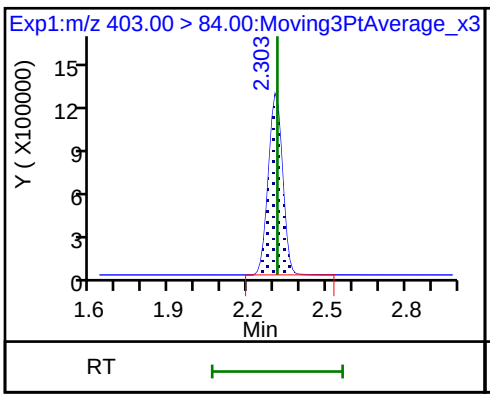
8 Perfluorohexanesulfonic acid



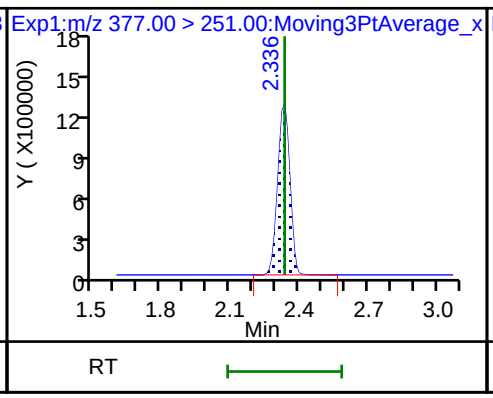
8 Perfluorohexanesulfonic acid



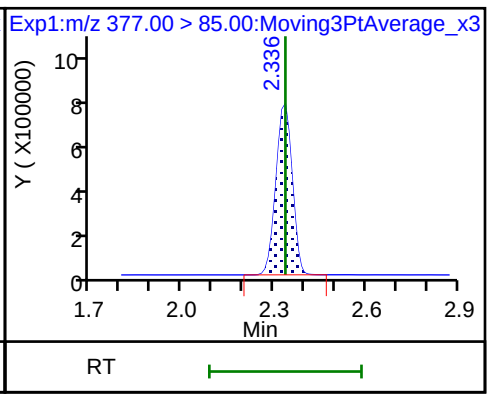
D 11 18O2 PFHxS



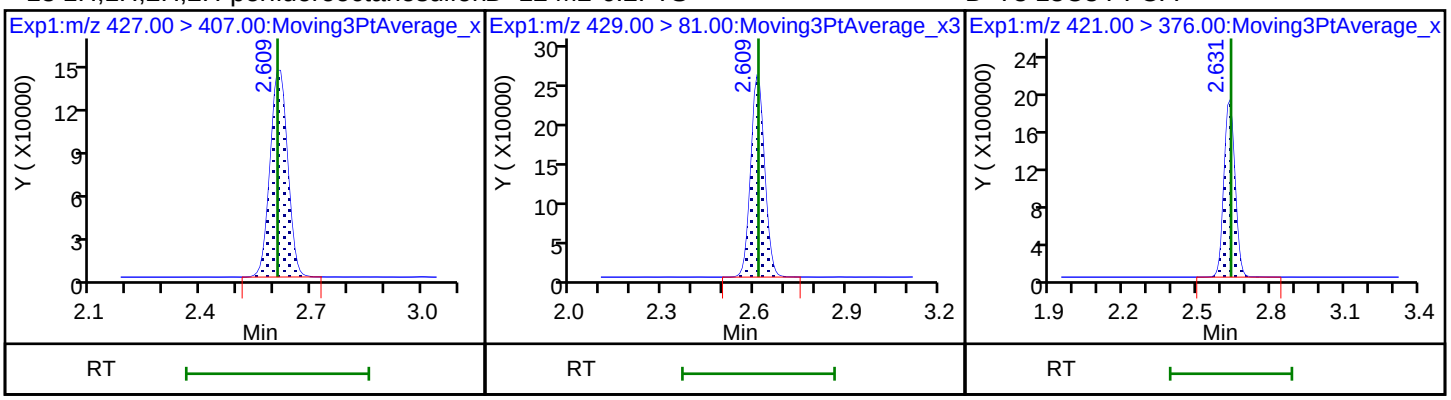
77 DONA



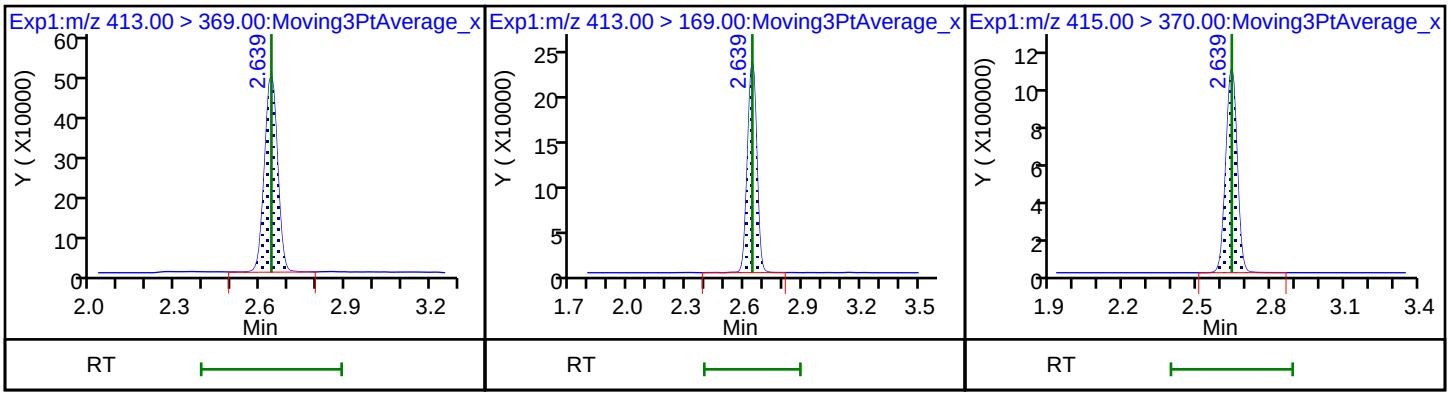
77 DONA



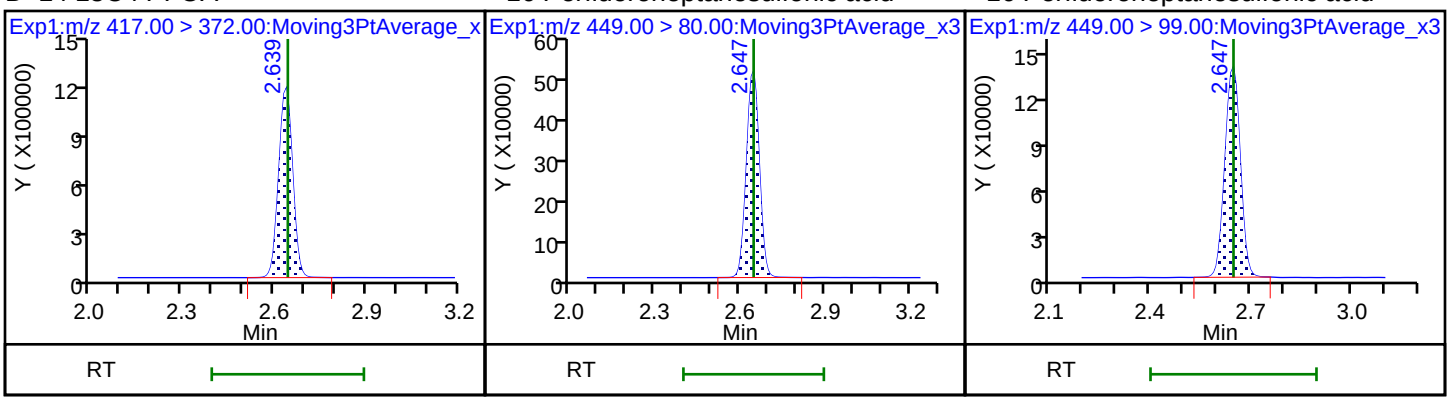
13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2FTS D 73 13C8 PFOA



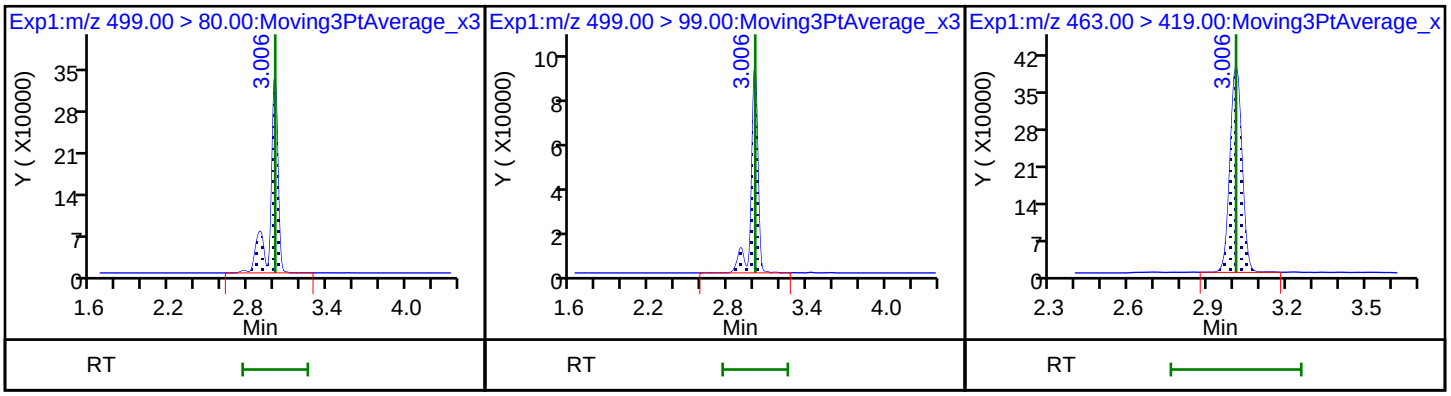
15 Perfluorooctanoic acid 15 Perfluorooctanoic acid * 62 13C2-PFOA



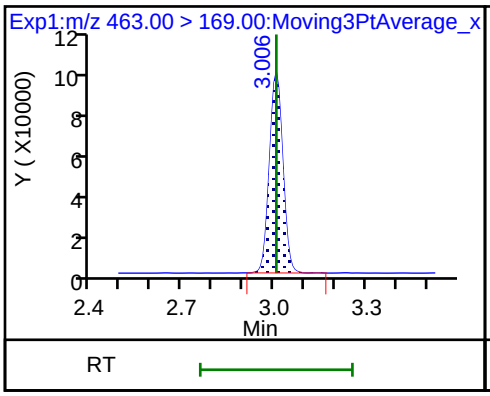
D 14 13C4 PFOA 16 Perfluoroheptanesulfonic acid 16 Perfluoroheptanesulfonic acid



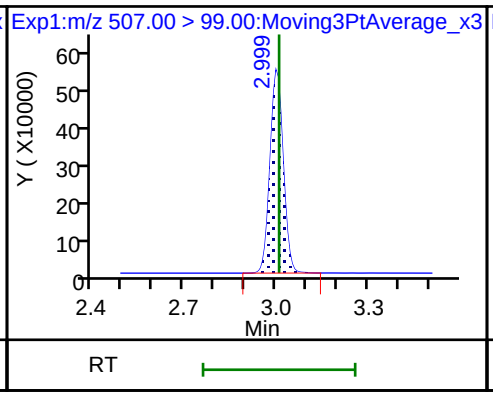
17 Perfluorooctane sulfonic acid 17 Perfluorooctane sulfonic acid 20 Perfluorononanoic acid



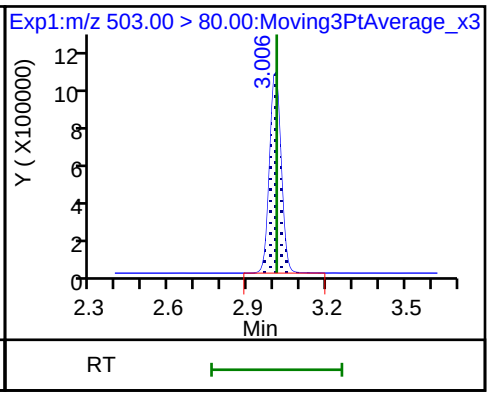
20 Perfluorononanoic acid



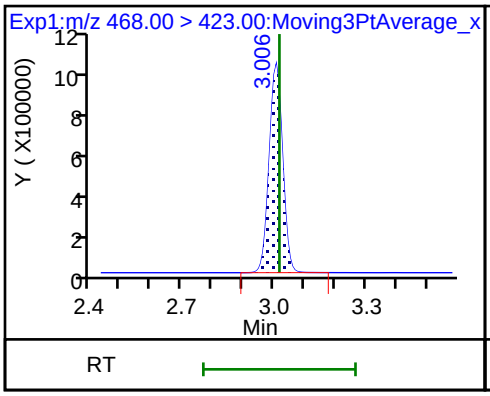
D 72 13C8 PFOS



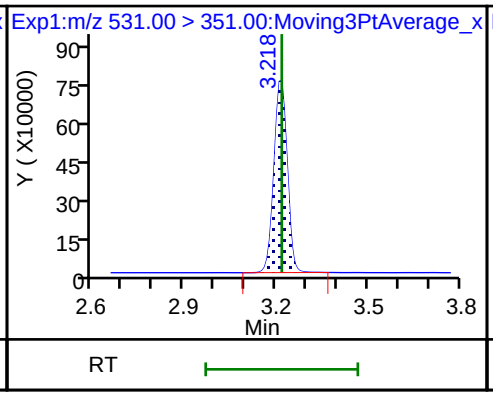
D 18 13C4 PFOS



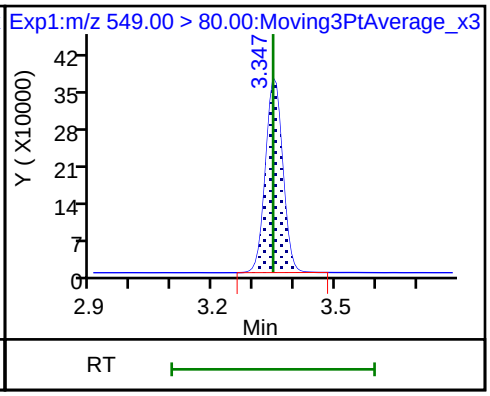
D 19 13C5 PFNA



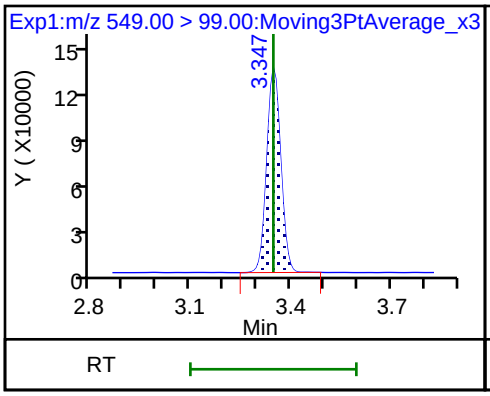
69 9-Chlorohexadecafluoro-3-oxanonane



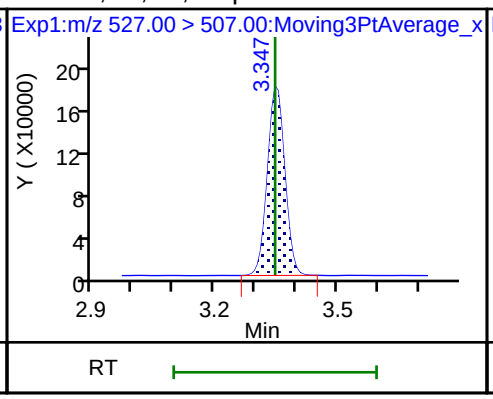
68 Perfluorononanesulfonic acid



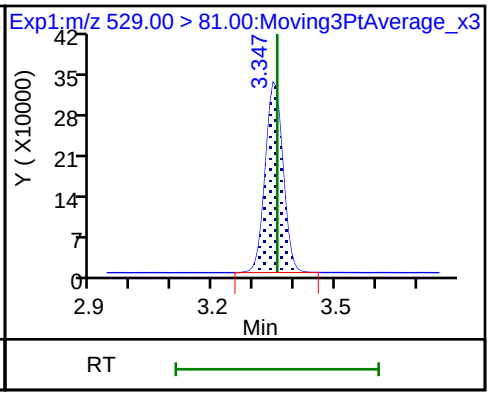
68 Perfluorononanesulfonic acid



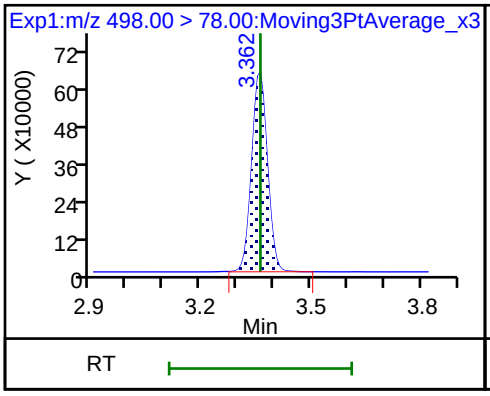
25 1H,1H,2H,2H-perfluorodecanesulfon



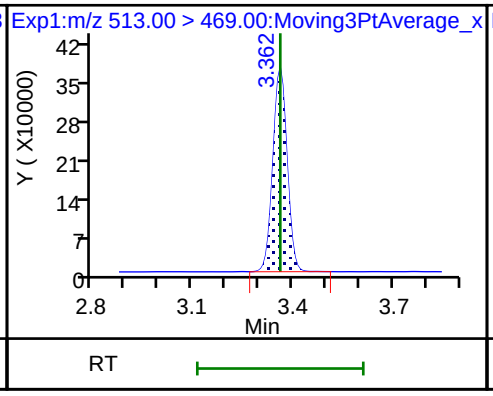
D 26 M2-8:2FTS



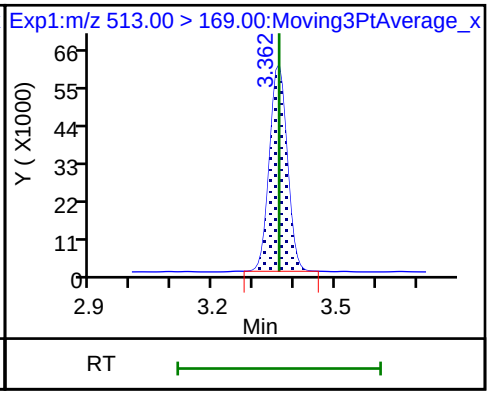
22 Perfluorooctane Sulfonamide



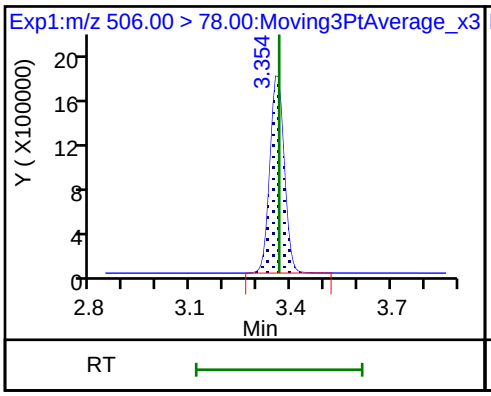
24 Perfluorodecanoic acid



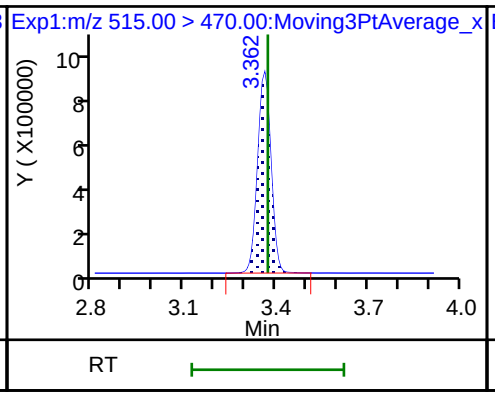
24 Perfluorodecanoic acid



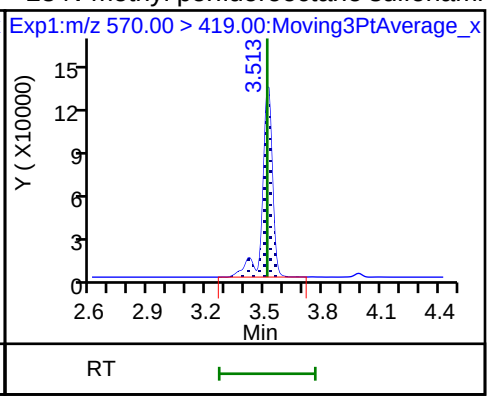
D 21 13C8 FOSA



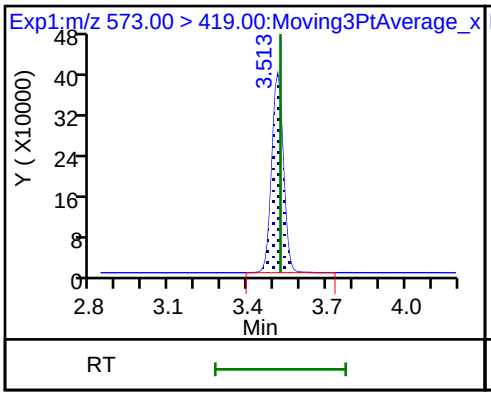
D 23 13C2 PFDA



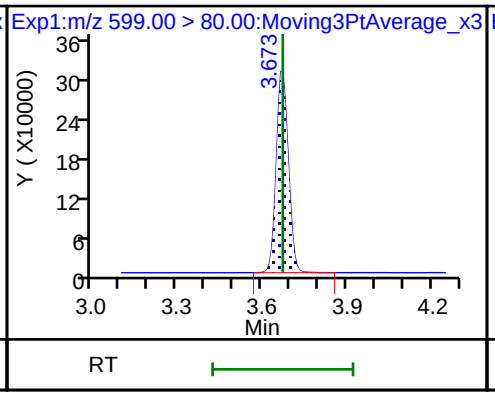
28 N-methyl perfluorooctane sulfonami



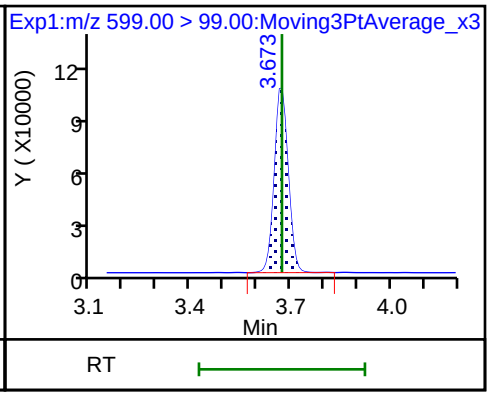
D 27 d3-NMeFOSAA



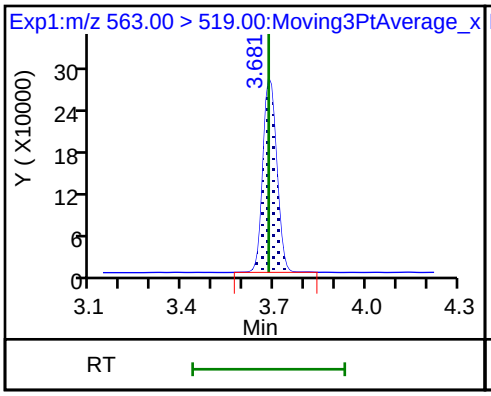
29 Perfluorodecane Sulfonic acid



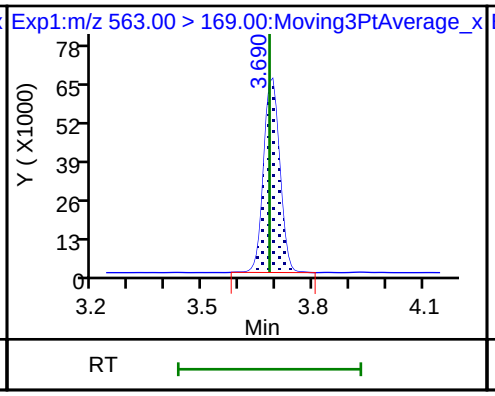
29 Perfluorodecane Sulfonic acid



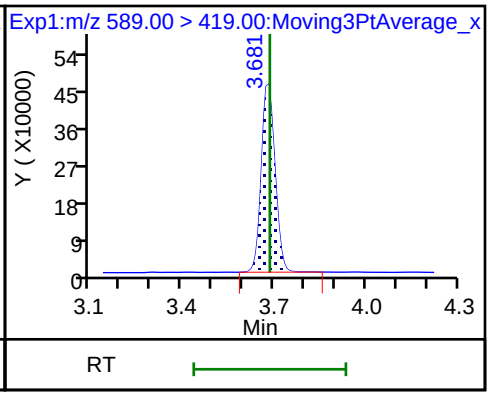
31 Perfluoroundecanoic acid



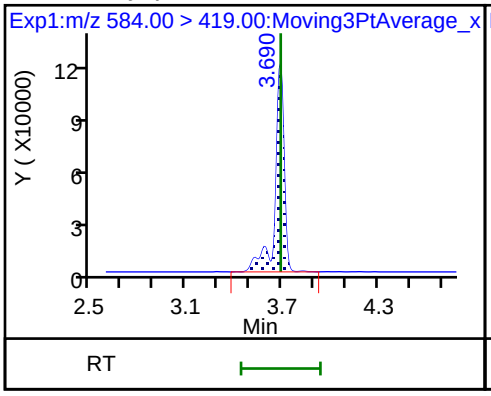
31 Perfluoroundecanoic acid



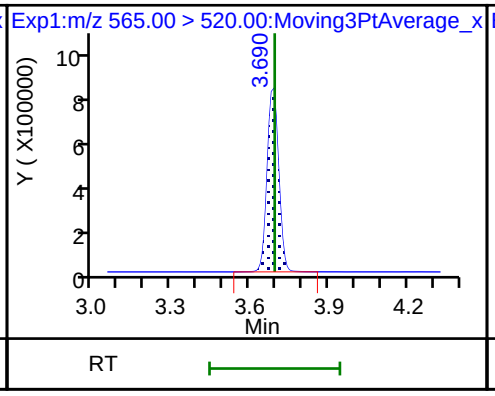
D 32 d5-NEtFOSAA



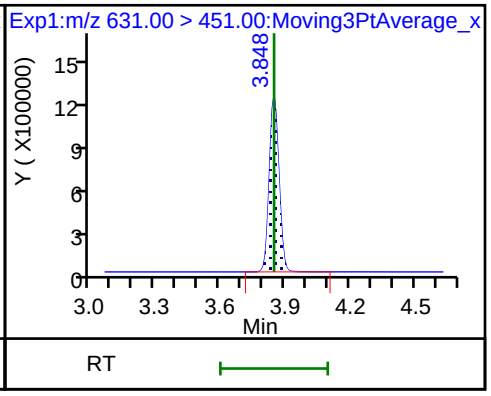
33 N-ethyl perfluorooctane sulfonamid



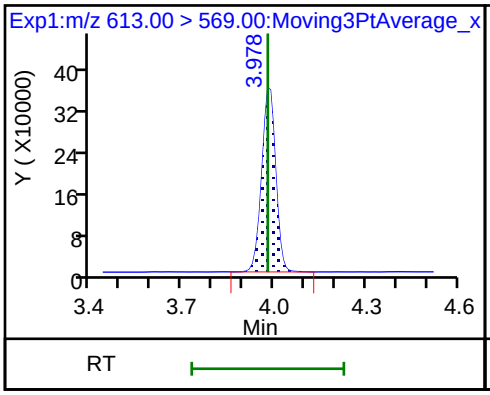
D 30 13C2 PFUnA



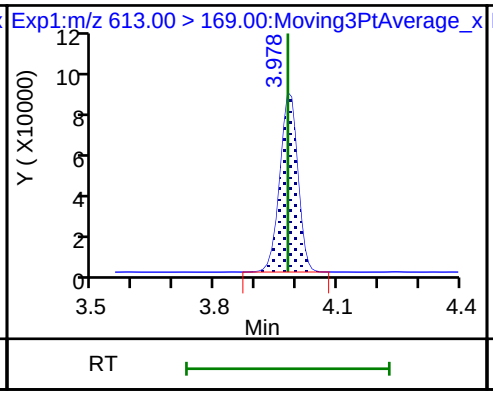
66 11-Chloroeicosafluoro-3-oxaundecan



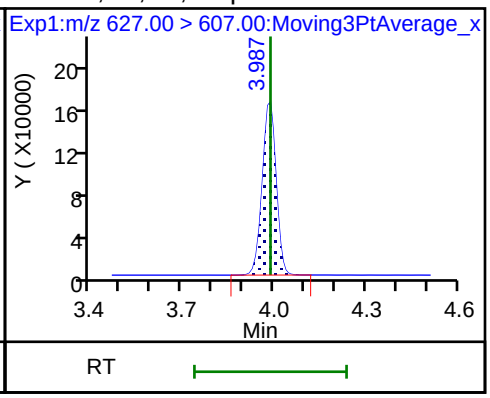
37 Perfluorododecanoic acid



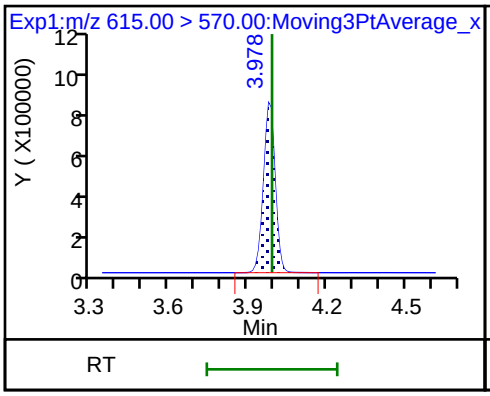
37 Perfluorododecanoic acid



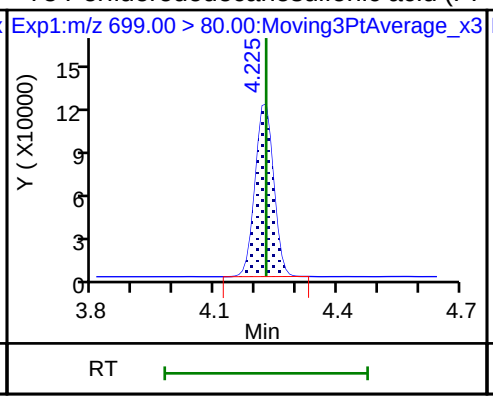
74 1H,1H,2H,2H-perfluorododecanesulfo



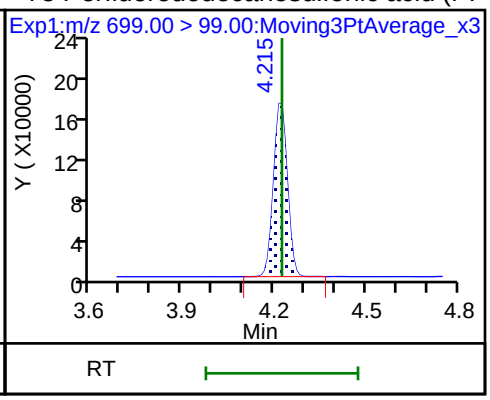
D 36 13C2 PFDoA



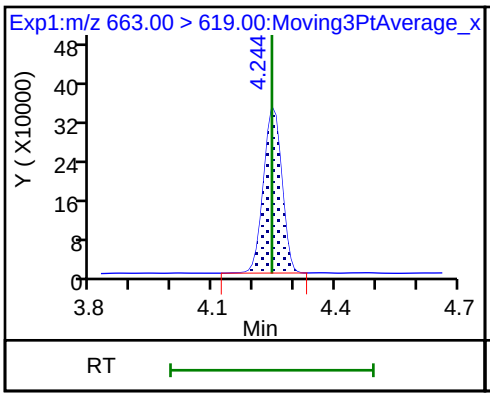
75 Perfluorododecanesulfonic acid (PF



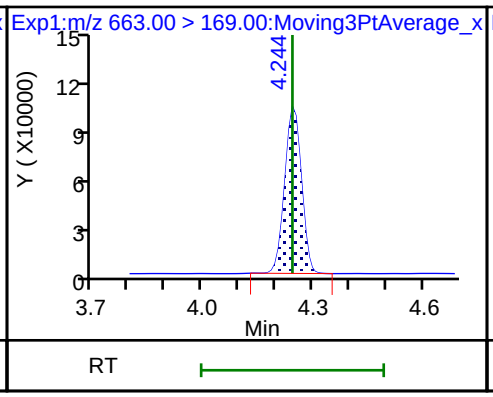
75 Perfluorododecanesulfonic acid (PF



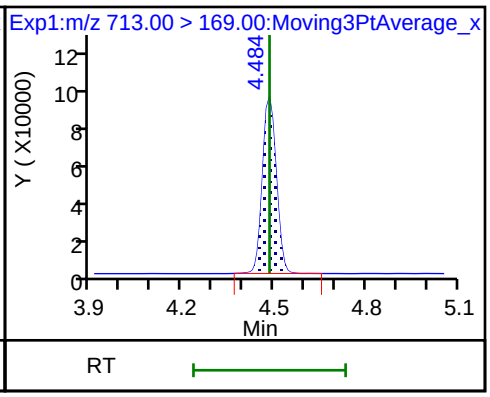
41 Perfluorotridecanoic acid



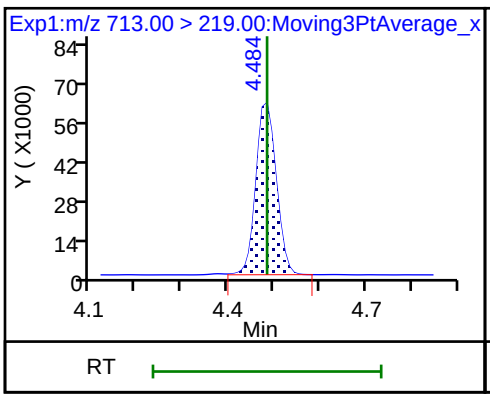
41 Perfluorotridecanoic acid



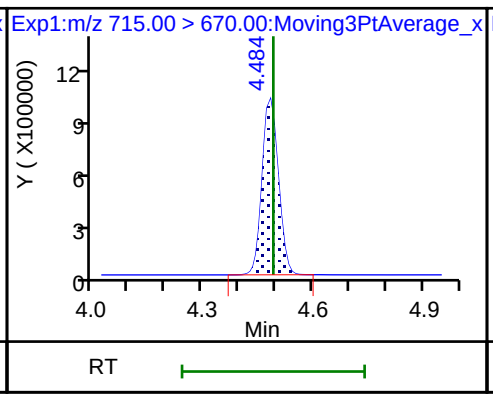
42 Perfluorotetradecanoic acid



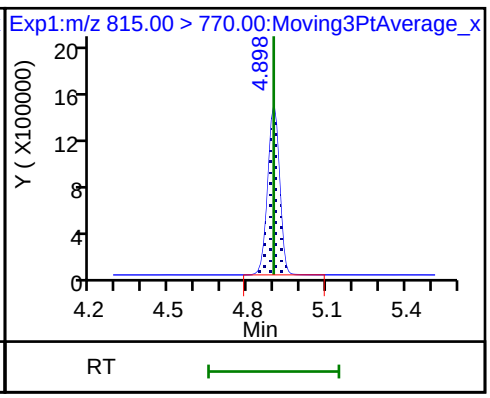
42 Perfluorotetradecanoic acid



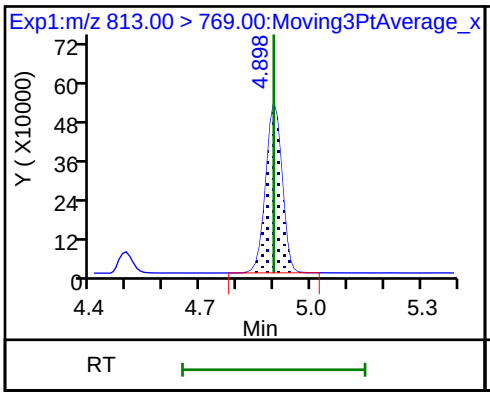
D 43 13C2-PFTeDA



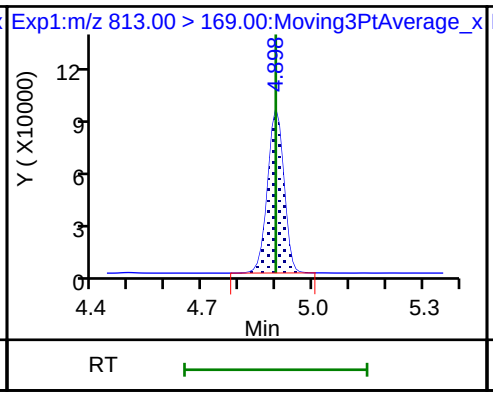
D 44 13C2-PFHxDA



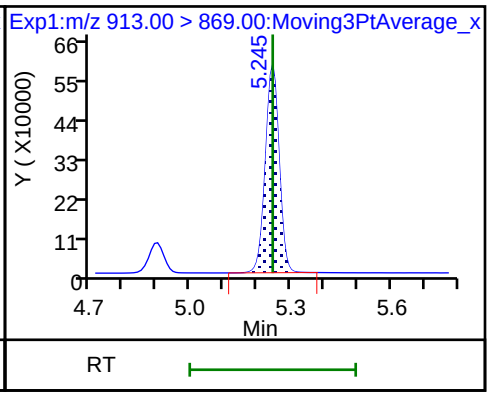
45 Perfluorohexadecanoic acid



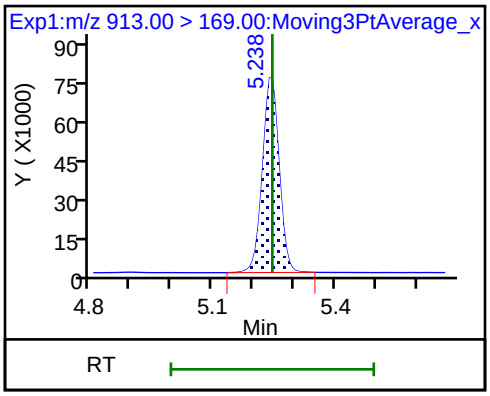
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: CCV 320-242977/20 Calibration Date: 08/30/2018 02:27

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLB_051.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.8887	0.9118		2.57	2.50	2.6	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.153	1.145		2.48	2.50	-0.7	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	74.87	79.86		2.36	2.21	6.7	50.0
4:2 FTS	AveID	15.39	14.56		2.21	2.34	-5.3	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.007	0.999		2.48	2.50	-0.8	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	68.97	71.37		2.43	2.35	3.5	50.0
HFPO-DA (GenX)	AveID	3.166	2.379		1.88	2.50	-24.9	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.095	1.055		2.41	2.50	-3.7	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.094	1.054		2.19	2.28	-3.6	40.0
DONA	AveID	3.355	3.451		2.42	2.36	2.8	50.0
6:2 FTS	AveID	1.503	1.553		2.45	2.37	3.3	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.130	1.083		2.40	2.50	-4.2	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.218	1.238		2.42	2.38	1.7	50.0
Perfluorononanoic acid (PFNA)	AveID	1.039	1.028		2.47	2.50	-1.0	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.100	1.100		2.32	2.32	-0.0	40.0
F-53B Major	AveID	1.814	1.861		2.39	2.33	2.6	50.0
8:2 FTS	AveID	1.296	1.275		2.35	2.40	-1.7	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8056	0.8064		2.40	2.40	0.1	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	0.9644	0.9942		2.58	2.50	3.1	40.0
Perfluorodecanoic acid (PFDA)	AveID	0.9716	0.996		2.56	2.50	2.5	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9683	0.9511		2.46	2.50	-1.8	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.7103	0.7245		2.46	2.41	2.0	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8394	0.8521		2.54	2.50	1.5	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9140	0.8475		2.32	2.50	-7.3	40.0
F-53B Minor	AveID	2.751	2.940		2.52	2.36	6.9	50.0
10:2 FTS	AveID	1.193	1.221		2.47	2.41	2.3	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.096	1.078		2.46	2.50	-1.7	40.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.2963	0.2932		2.40	2.42	-1.0	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.040	1.014		2.44	2.50	-2.5	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2497	0.2398		2.40	2.50	-4.0	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Lab Sample ID: CCV 320-242977/20 Calibration Date: 08/30/2018 02:27

Instrument ID: A8_N Calib Start Date: 08/29/2018 12:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 08/29/2018 13:16

Lab File ID: 2018.08.29LLB_051.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9101		2.54	2.50	1.6	50.0
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.001	0.999		2.49	2.50	-0.2	50.0
13C4 PFBA	Ave	1.545	1.540		2.49	2.50	-0.3	50.0
13C5 PFPeA	Ave	0.9767	0.9650		2.47	2.50	-1.2	50.0
13C3-PFBS	Ave	0.0231	0.0229		2.30	2.33	-1.0	50.0
M2-4:2FTS	Ave	0.1542	0.1425		2.16	2.34	-7.6	50.0
13C2 PFHxA	Ave	1.095	1.087		2.48	2.50	-0.7	50.0
13C3 HFPO-DA	Ave	0.0527	0.0680		3.23	2.50	29.1	50.0
13C4-PFHpA	Ave	1.032	1.022		2.47	2.50	-1.0	50.0
18O2 PFHxS	Ave	1.373	1.338		2.30	2.37	-2.5	50.0
M2-6:2FTS	Ave	0.2341	0.2252		2.28	2.38	-3.8	40.0
13C8 PFOA	Ave	1.640	1.692		2.53	2.45	3.2	50.0
13C4 PFOA	Ave	0.9851	0.9815		2.49	2.50	-0.4	50.0
13C4 PFOS	Ave	0.9382	0.9413		2.40	2.39	0.3	50.0
13C8 PFOS	Ave	0.4800	0.4872		2.43	2.39	1.5	50.0
13C5 PFNA	Ave	0.8094	0.8094		2.50	2.50	0.0	50.0
M2-8:2FTS	Ave	0.2723	0.2587		2.27	2.40	-5.0	40.0
13C8 FOSA	Ave	1.389	1.380		2.48	2.50	-0.7	50.0
13C2 PFDA	Ave	0.7512	0.7399		2.46	2.50	-1.5	50.0
d3-NMeFOSAA	Ave	0.3499	0.3447		2.46	2.50	-1.5	50.0
d5-NEtFOSAA	Ave	0.3843	0.3765		2.45	2.50	-2.0	50.0
13C2 PFUnA	Ave	0.6491	0.7117		2.74	2.50	9.7	50.0
13C2 PFDoA	Ave	0.6931	0.7159		2.58	2.50	3.3	50.0
13C2-PFTeDA	Ave	0.8310	0.8206		2.47	2.50	-1.2	50.0
13C2-PFHxDA	Ave	1.199	1.214		2.53	2.50	1.3	50.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_051.d
Lims ID: CCV L5
Client ID:
Sample Type: CCV
Inject. Date: 30-Aug-2018 02:27:19 ALS Bottle#: 29 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-A8_N*sub37

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:52:55 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:52:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.421	1.421	0.0	0.539	5762180	2.49		99.7	8687	
2 Perfluorobutyric acid										
212.90 > 169.00	1.421	1.424	-0.003	1.000	5254176	2.57		103	538	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.686	1.684	0.002	1.000	4134561	2.48		99.3	220	
D 3 13C5-PFPeA										
267.90 > 223.00	1.686	1.687	-0.001	0.640	3610218	2.47		98.8	7671	
D 47 13C3-PFBS										
301.90 > 83.00	1.718	1.720	-0.002	0.652	79607	2.30		99.0	321	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.718	1.724	-0.006	1.000	6042911	2.36		107	6435	
298.90 > 99.00	1.718	1.724	-0.006	1.000	2412788		2.50(1.25-3.74)		4483	
D 60 M2-4:2FTS										
329.00 > 81.00	1.933	1.934	-0.001	0.734	497770	2.16		92.4	1119	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.933	1.939	-0.006	1.125	1164240	2.21		94.7	6979	
D 7 13C2 PFHxA										
315.00 > 270.00	1.964	1.966	-0.002	0.746	4067796	2.48		99.3	10393	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.964	1.970	-0.006	1.000	4065231	2.48		99.2	1289	
313.00 > 119.00	1.964	1.970	-0.006	1.000	370354		10.98(5.03-15.10)		1194	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.985	1.991	-0.006	1.155	5730239	2.43		103	9763	
349.00 > 99.00	1.985	1.991	-0.006	1.155	2155342		2.66(1.36-4.07)		6580	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.058	2.064	-0.006	1.000	604983	1.88		75.1	693	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.058	2.070	-0.012	0.781	254340	3.23		129	891	
D 9 13C4-PFHpA										
367.00 > 322.00	2.288	2.289	-0.001	0.868	3822795	2.47		99.0	10969	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.288	2.292	-0.004	1.000	4033329	2.41		96.3	1755	
363.00 > 169.00	2.288	2.292	-0.004	1.000	1584220		2.55(1.13-3.40)		3694	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.299	2.303	-0.004	1.000	4801885	2.19		96.4	35696	
399.00 > 99.00	2.299	2.303	-0.004	1.000	1650423		2.91(1.50-4.49)		1916	
D 11 18O2 PFHxS										
403.00 > 84.00	2.299	2.311	-0.012	0.873	4734584	2.30		97.5	5674	
77 DONA										
377.00 > 251.00	2.332	2.336	-0.004	0.779	11447250	2.42		103	13647	
377.00 > 85.00	2.332	2.336	-0.004	0.779	6916784		1.65(0.85-2.54)		4912	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.612	2.609	0.003	1.003	1240489	2.45		103	6451	
D 12 M2-6:2FTS										
429.00 > 81.00	2.604	2.613	-0.009	0.988	800340	2.28		96.2	4095	
D 73 13C8 PFOA										
421.00 > 376.00	2.627	2.636	-0.009	0.997	6196709	2.53		103	12057	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.635	2.639	-0.004	1.000	3981847	2.40		95.8	630	
413.00 > 169.00	2.635	2.639	-0.004	1.000	2068137		1.93(0.84-2.52)		4488	
* 62 13C2-PFOA										
415.00 > 370.00	2.635	2.639	-0.004		3741257	2.50			9087	
D 14 13C4 PFOA										
417.00 > 372.00	2.635	2.644	-0.009	1.000	3672090	2.49		99.6	5773	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.643	2.647	-0.004	0.882	4151490	2.42		102	6191	
449.00 > 99.00	2.643	2.647	-0.004	0.882	1131742		3.67(1.94-5.82)		2362	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.002	3.006	-0.004	1.003	3594348	2.32		100	2311	
499.00 > 99.00	3.002	3.006	-0.004	1.003	801203		4.49(2.31-6.93)		2519	
20 Perfluorononanoic acid										
463.00 > 419.00	3.002	3.006	-0.004	1.000	3114007	2.47		99.0	923	
463.00 > 169.00	3.002	3.006	-0.004	1.000	757865		4.11(1.90-5.69)		4768	
D 72 13C8 PFOS										
507.00 > 99.00	2.995	3.009	-0.014	1.137	1742656	2.43		102	5566	
D 18 13C4 PFOS										
503.00 > 80.00	2.995	3.009	-0.014	1.137	3366812	2.40		100	3885	
D 19 13C5 PFNA										
468.00 > 423.00	3.002	3.016	-0.014	1.140	3028078	2.50		100	5728	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.213	3.218	-0.005	1.073	6108865	2.39		103	6941	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.344	3.347	-0.003	1.117	2726318	2.40		100	4924	
549.00 > 99.00	3.344	3.347	-0.003	1.117	1007654		2.71(1.33-3.97)		3019	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.344	3.347	-0.003	1.000	1181633	2.35		98.3	2854	
D 26 M2-8:2FTS										
529.00 > 81.00	3.344	3.357	-0.013	1.269	927122	2.27		95.0	2337	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.351	3.362	-0.011	1.000	5131175	2.58		103	4265	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.359	3.362	-0.003	1.000	2757726	2.56		103	2670	
513.00 > 169.00	3.359	3.362	-0.003	1.000	487514		5.66(2.36-7.09)		458	
D 21 13C8 FOSA										
506.00 > 78.00	3.351	3.364	-0.013	1.272	5161079	2.48		99.3	8230	
D 23 13C2 PFDA										
515.00 > 470.00	3.359	3.372	-0.013	1.275	2768207	2.46		98.5	3653	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.509	3.513	-0.004	1.000	1226475	2.46		98.2	1412	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.509	3.523	-0.014	1.332	1289593	2.46		98.5	4016	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.664	3.673	-0.009	1.223	2459795	2.46		102	7514	
599.00 > 99.00	3.664	3.673	-0.009	1.223	821074		3.00(1.39-4.16)		2658	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.680	3.681	-0.001	1.000	2256571	2.32		92.7	1747	
563.00 > 169.00	3.680	3.681	-0.001	1.000	518715		4.35(2.12-6.36)		2287	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.671	3.685	-0.014	1.393	1408578	2.45		98.0	545	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.680	3.690	-0.010	1.002	1200262	2.54		102	4294	
D 30 13C2 PFUnA										
565.00 > 520.00	3.680	3.693	-0.013	1.397	2662776	2.74		110	8327	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.846	3.848	-0.002	1.284	9753986	2.52		107	10024	
35 MeFOSA										
512.00 > 169.00	3.855	3.867	-0.012		1287170	NC			516	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.976	3.978	-0.002	1.000	2886443	2.46		98.3	1862	
613.00 > 169.00	3.976	3.978	-0.002	1.000	675696		4.27(2.13-6.40)		3182	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.976	3.987	-0.011	1.189	1139248	2.47		102	4004	
D 36 13C2 PFDoA										
615.00 > 570.00	3.976	3.991	-0.015	1.509	2678305	2.58		103	8464	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.213	4.225	-0.012	1.407	999622	2.40		99.0	2831	
699.00 > 99.00	4.213	4.225	-0.012	1.407	1376165		0.73(0.00-0.00)		4690	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.242	4.244	-0.002	1.067	2714979	2.44		97.5	862	
663.00 > 169.00	4.242	4.244	-0.002	1.067	864800		3.14(1.25-3.76)		5709	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.473	4.484	-0.011	1.000	736278	2.40		96.0	3001	
713.00 > 219.00	4.473	4.484	-0.011	1.000	483275		1.52(0.71-2.13)		2033	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.473	4.492	-0.019	1.698	3070089	2.47		98.8	5925	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.889	4.897	-0.008	1.856	4543169	2.53		101	6398	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.898	4.898	0.0	1.002	4134864	2.54		102	398	
813.00 > 169.00	4.889	4.898	-0.009	1.000	714432		5.79(2.86-8.58)		3035	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.238	5.245	-0.007	1.071	4537268	2.49		99.8	307	
913.00 > 169.00	5.238	5.245	-0.007	1.071	556194		8.16(3.83-11.48)		2320	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

LCPFC_LL5_00009 Amount Added: 1.00 Units: mL

Report Date: 31-Aug-2018 14:52:58 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_051.d

Injection Date: 30-Aug-2018 02:27:19 Instrument ID: A8_N

Lims ID: CCV L5

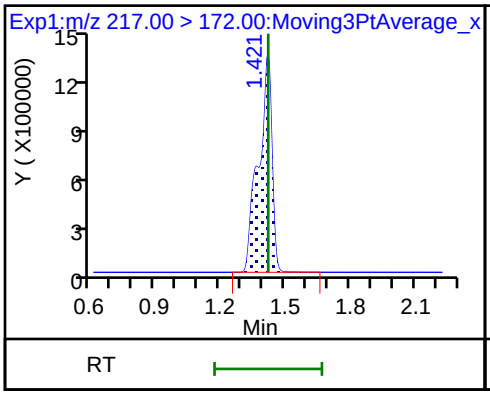
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 29 Worklist Smp#: 20

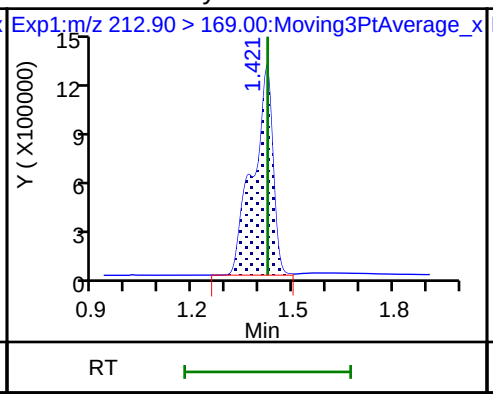
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

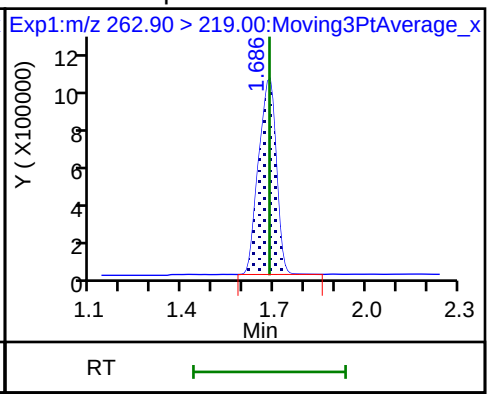
D 1 13C4 PFBA



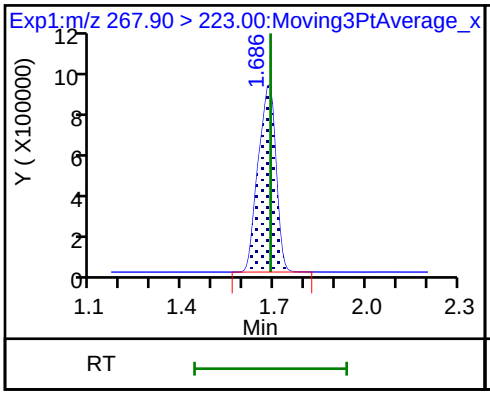
2 Perfluorobutyric acid



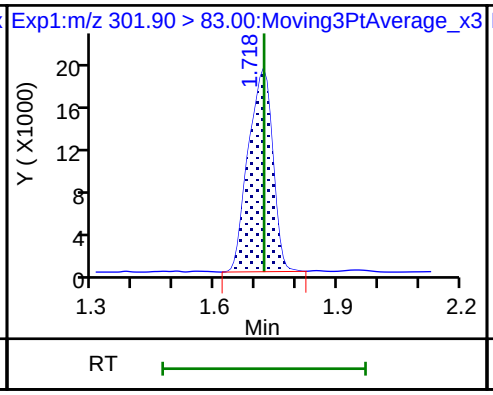
4 Perfluoropentanoic acid



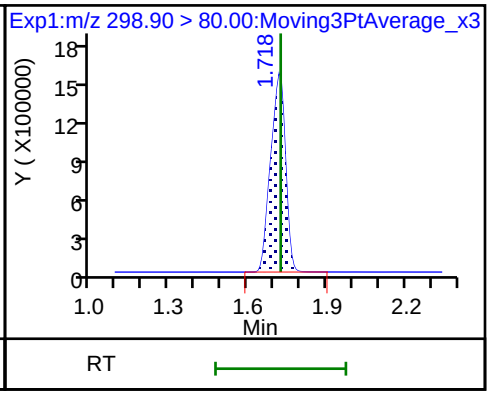
D 3 13C5-PFPeA



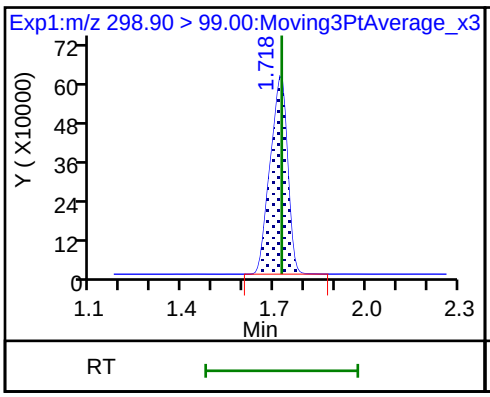
D 47 13C3-PFBS



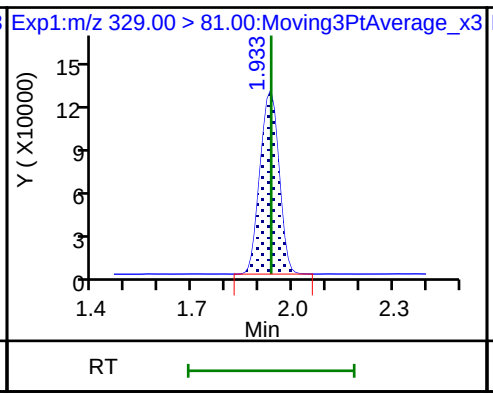
5 Perfluorobutanesulfonic acid



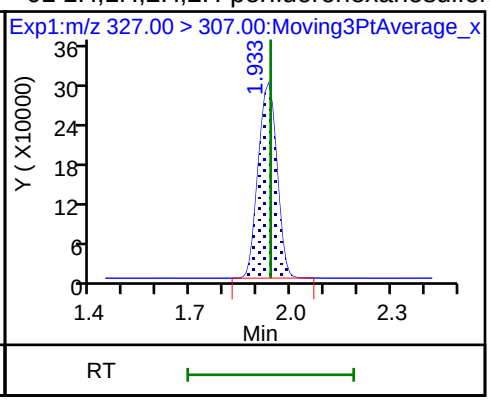
5 Perfluorobutanesulfonic acid



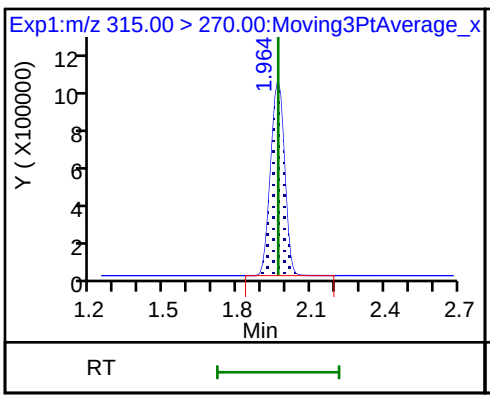
D 60 M2-4:2FTS



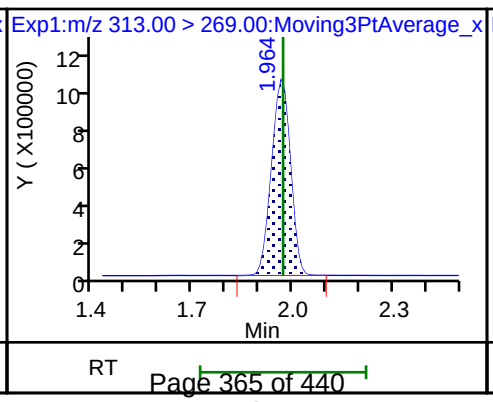
61 1H,1H,2H,2H-perfluorohexanesulfoni



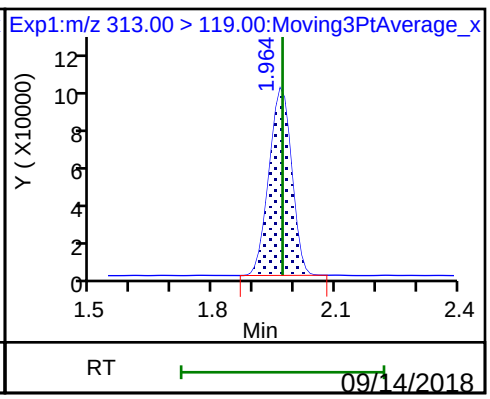
D 7 13C2 PFHxA



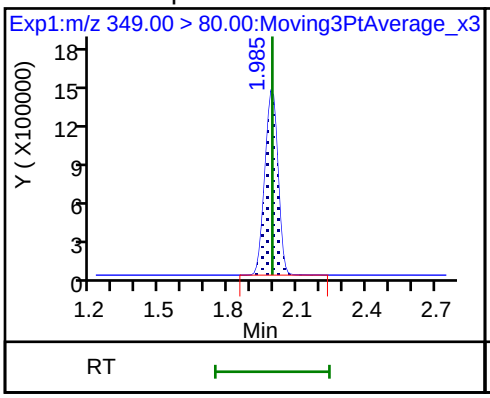
6 Perfluorohexanoic acid



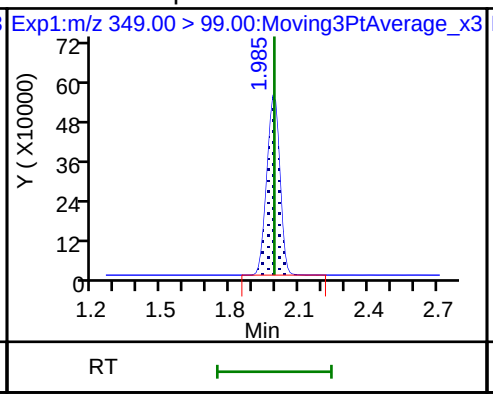
6 Perfluorohexanoic acid



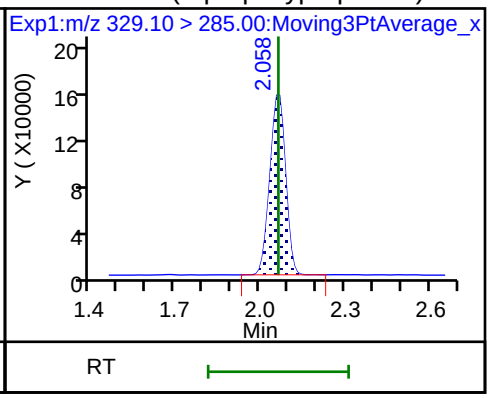
70 Perfluoropentanesulfonic acid



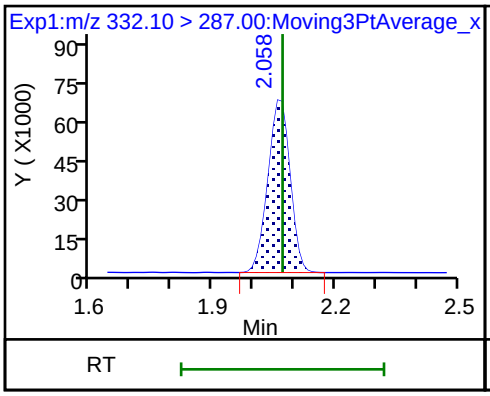
70 Perfluoropentanesulfonic acid



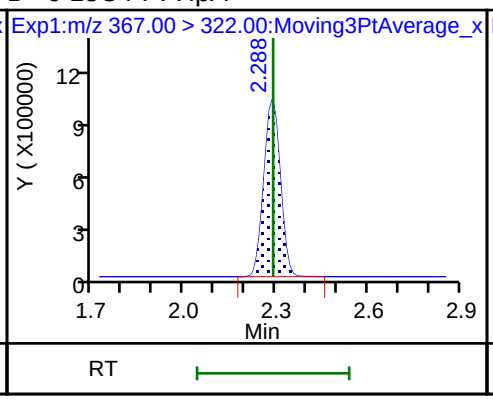
67 Perfluoro(2-propoxypropanoic) acid



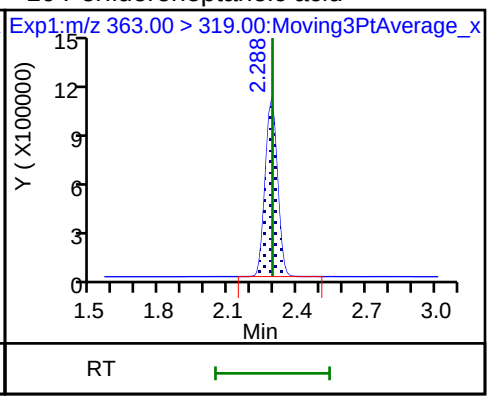
D 64 13C3 HFPO-DA



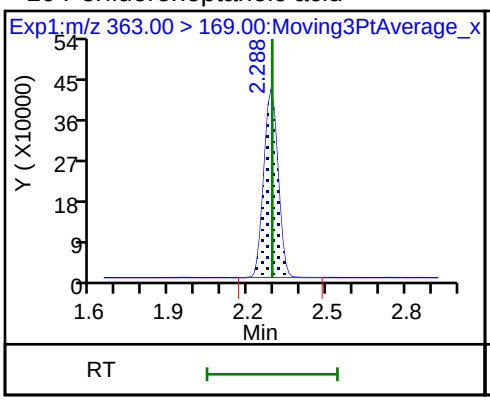
D 9 13C4-PFHpA



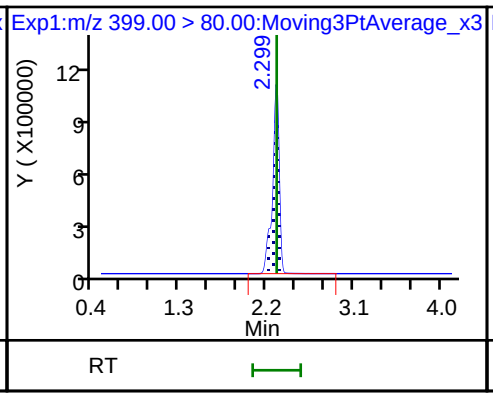
10 Perfluoroheptanoic acid



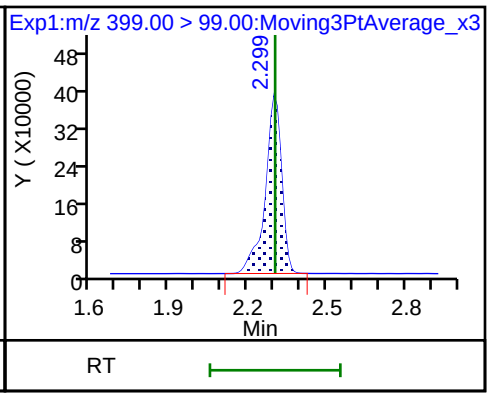
10 Perfluoroheptanoic acid



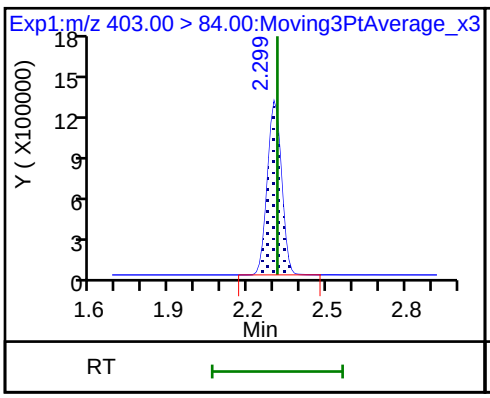
8 Perfluorohexanesulfonic acid



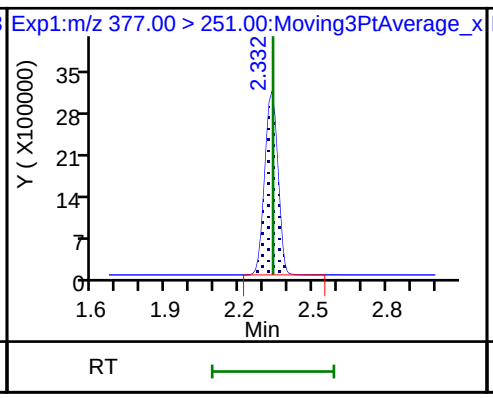
8 Perfluorohexanesulfonic acid



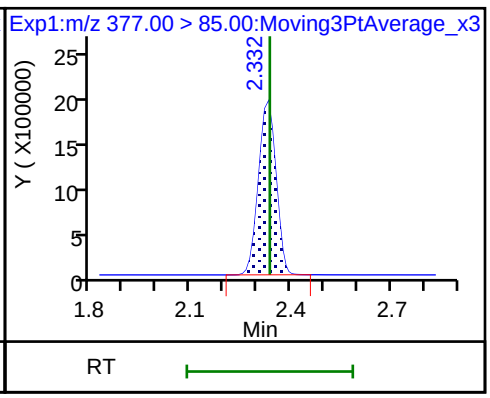
D 11 18O2 PFHxS



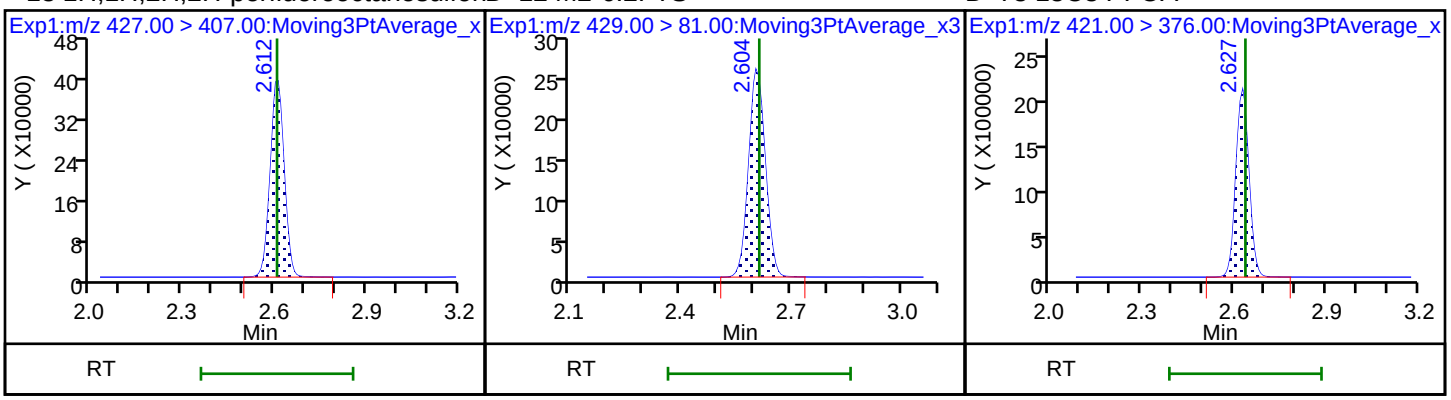
77 DONA



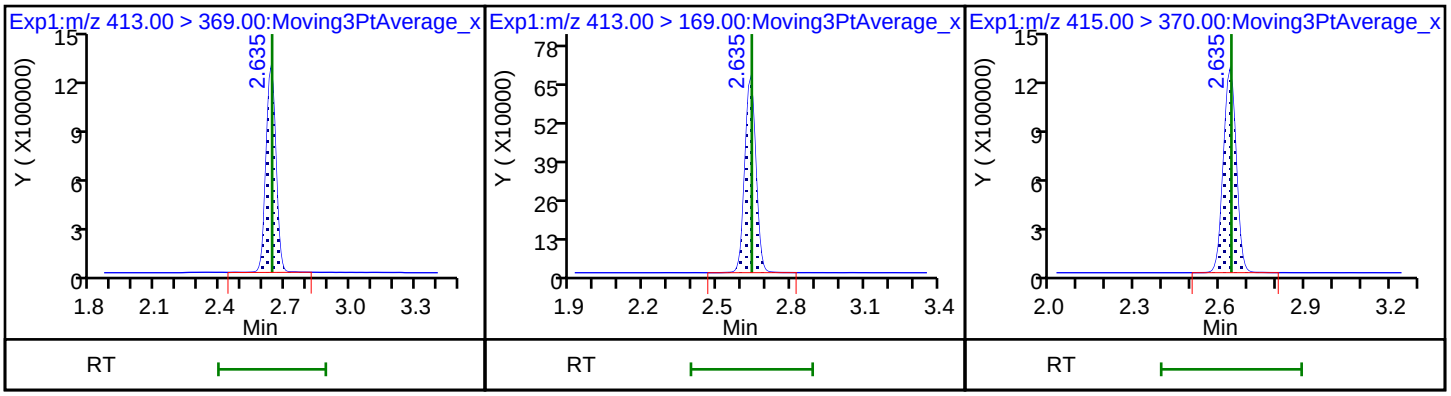
77 DONA



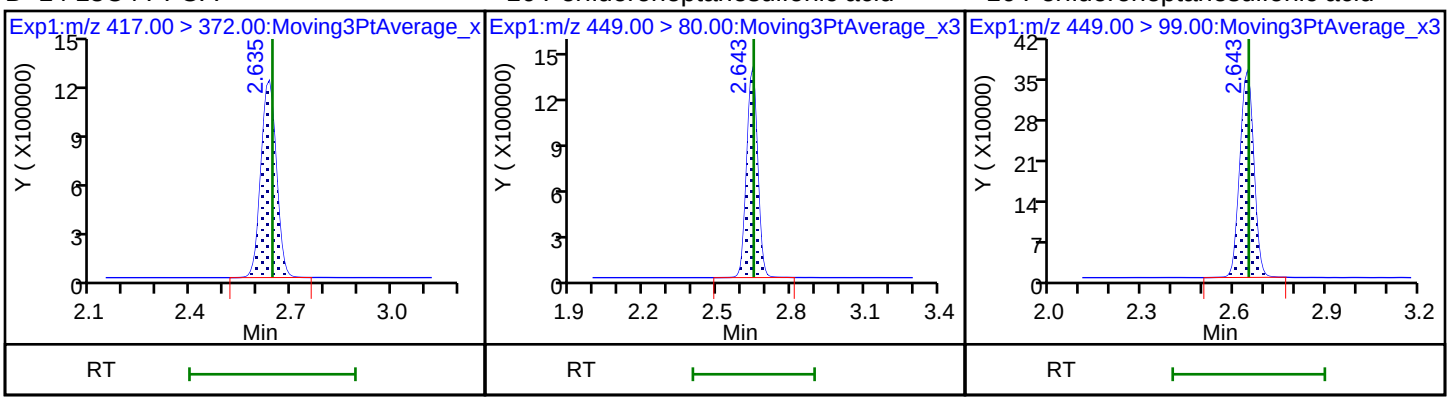
13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2FTS D 73 13C8 PFOA



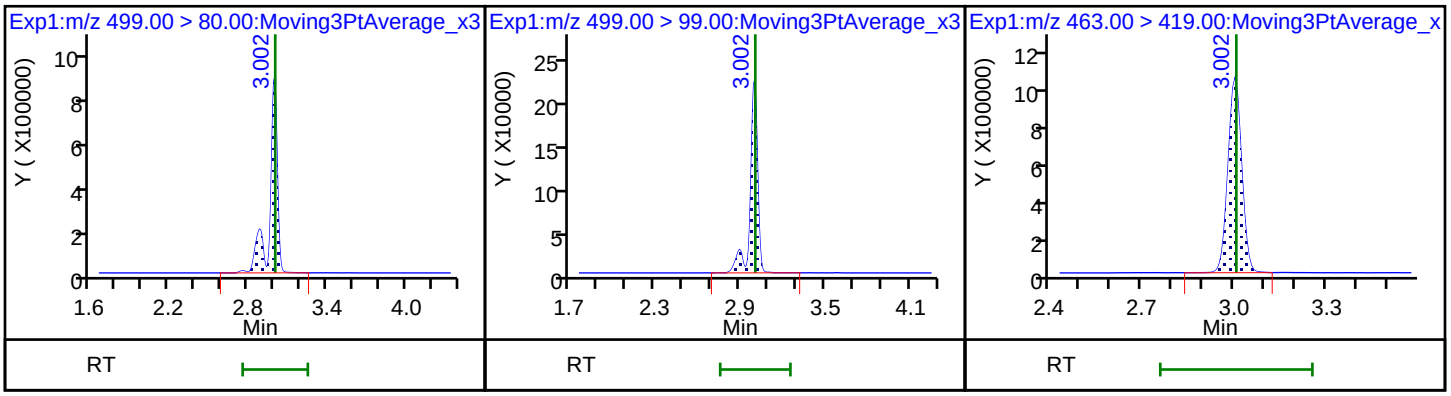
15 Perfluorooctanoic acid 15 Perfluorooctanoic acid * 62 13C2-PFOA



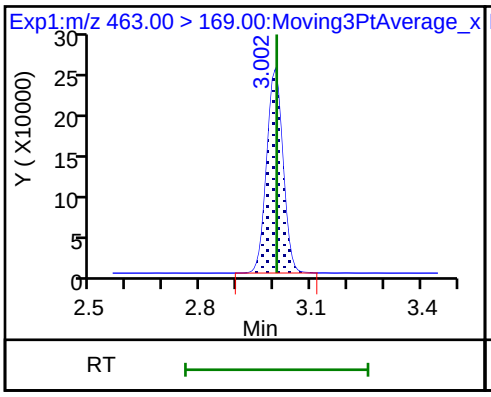
D 14 13C4 PFOA 16 Perfluoroheptanesulfonic acid 16 Perfluoroheptanesulfonic acid



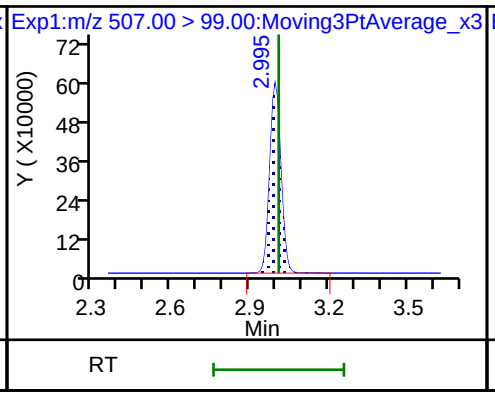
17 Perfluorooctane sulfonic acid 17 Perfluorooctane sulfonic acid 20 Perfluorononanoic acid



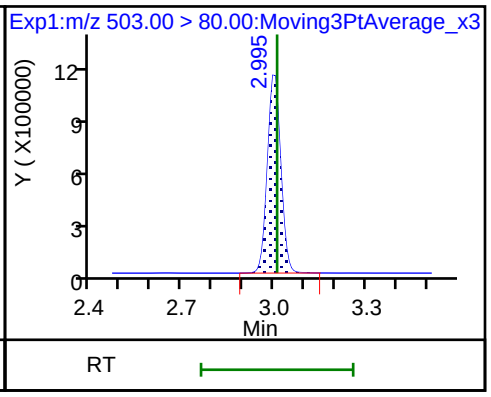
20 Perfluorononanoic acid



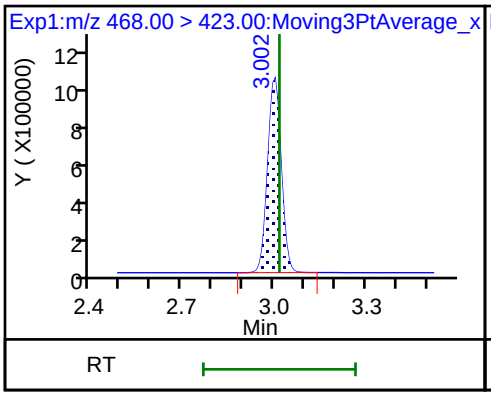
D 72 13C8 PFOS



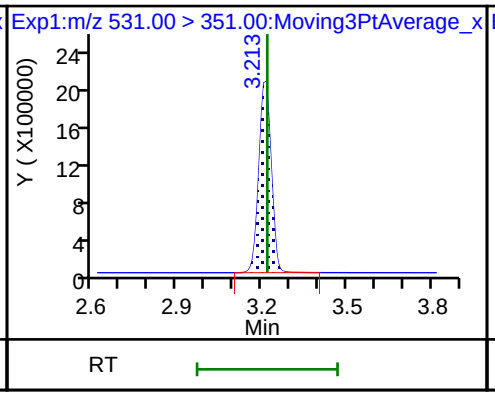
D 18 13C4 PFOS



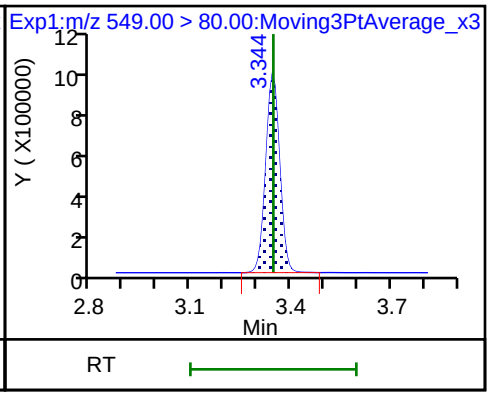
D 19 13C5 PFNA



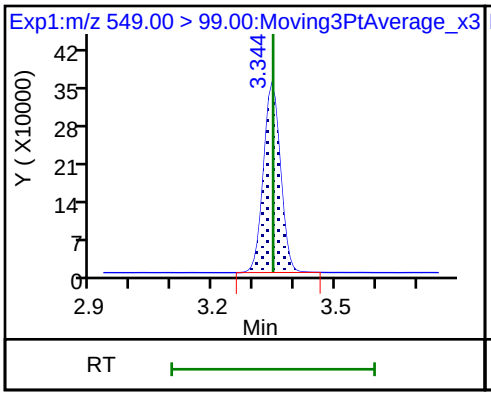
69 9-Chlorohexadecafluoro-3-oxanonane



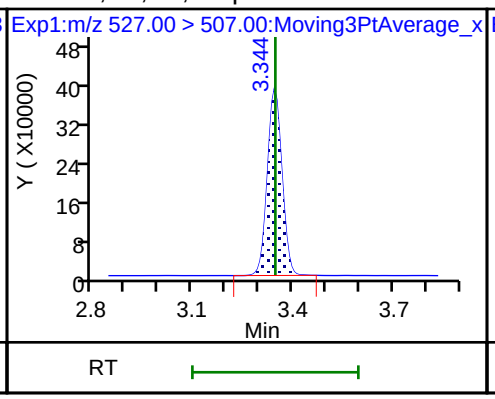
68 Perfluorononanesulfonic acid



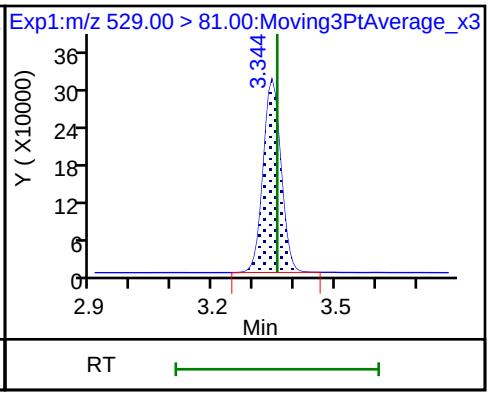
68 Perfluorononanesulfonic acid



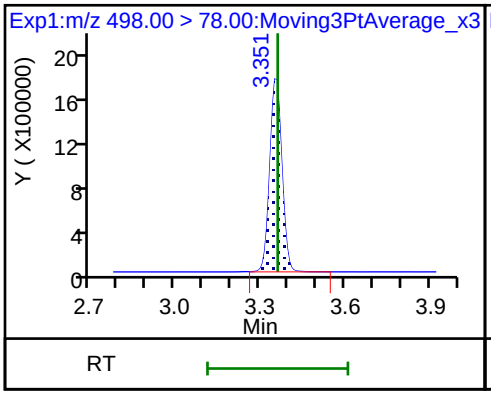
25 1H,1H,2H,2H-perfluorodecanesulfon



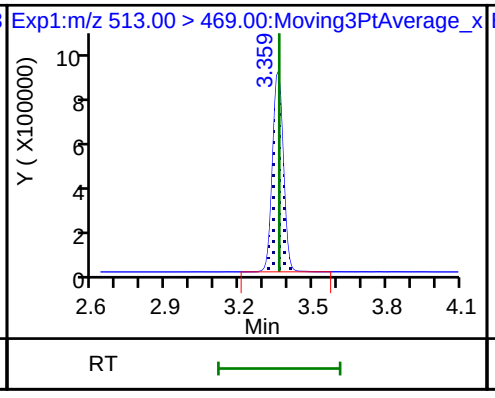
D 26 M2-8:2FTS



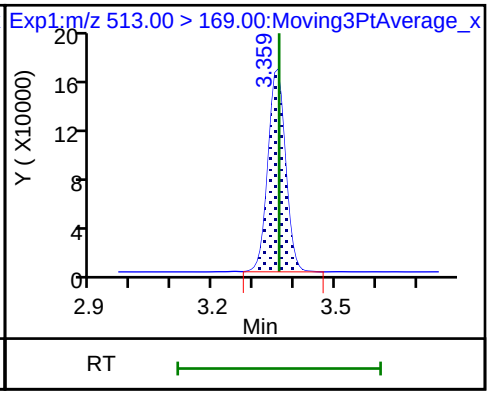
22 Perfluorooctane Sulfonamide



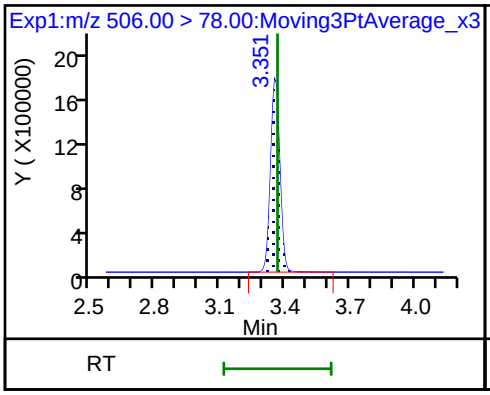
24 Perfluorodecanoic acid



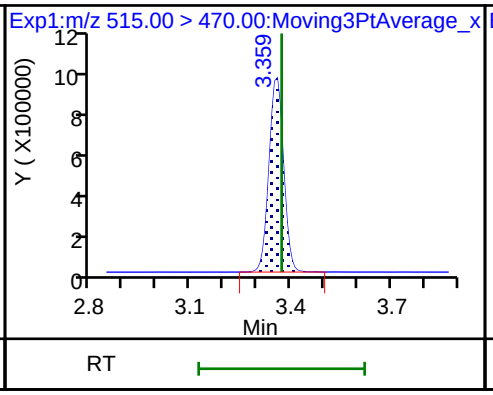
24 Perfluorodecanoic acid



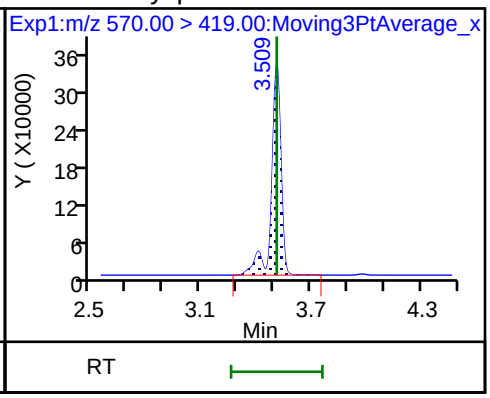
D 21 13C8 FOSA



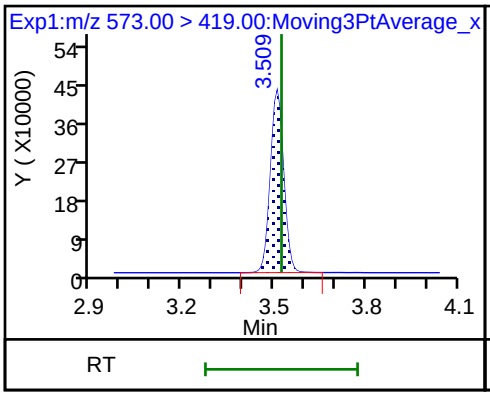
D 23 13C2 PFDA



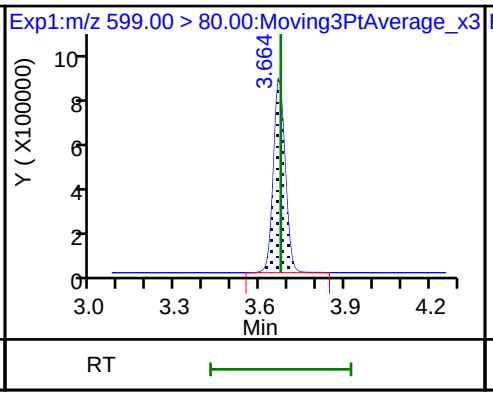
28 N-methyl perfluorooctane sulfonami



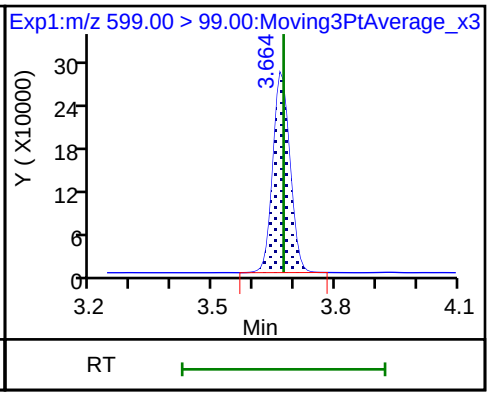
D 27 d3-NMeFOSAA



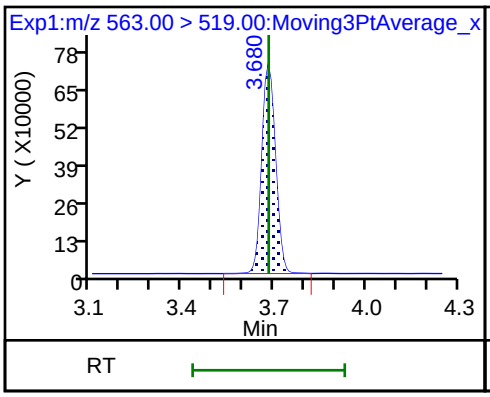
29 Perfluorodecane Sulfonic acid



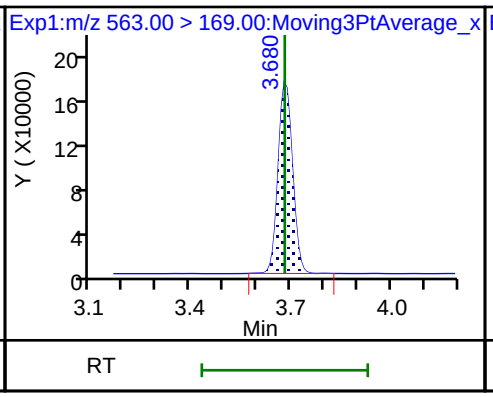
29 Perfluorodecane Sulfonic acid



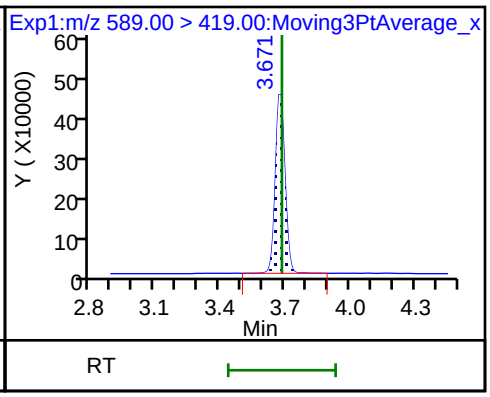
31 Perfluoroundecanoic acid



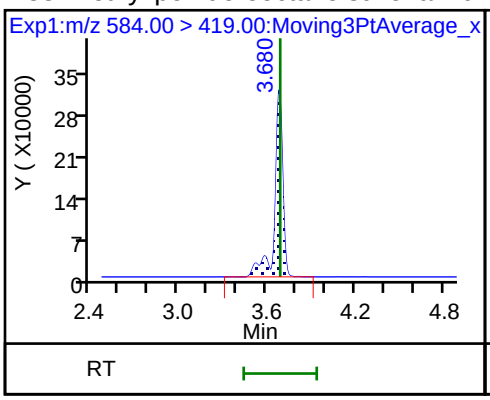
31 Perfluoroundecanoic acid



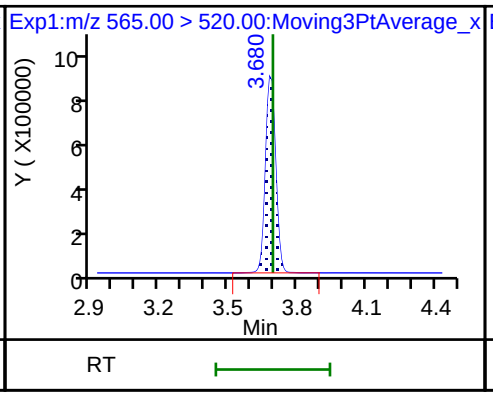
D 32 d5-NEtFOSAA



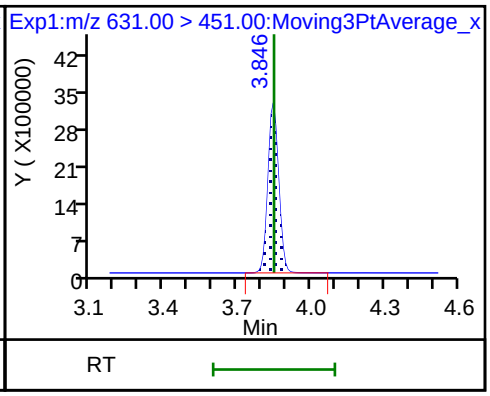
33 N-ethyl perfluorooctane sulfonamid



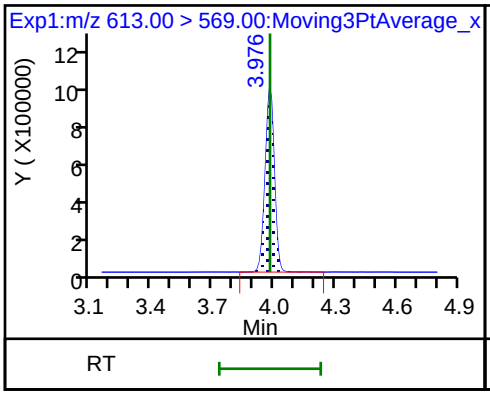
D 30 13C2 PFUnA



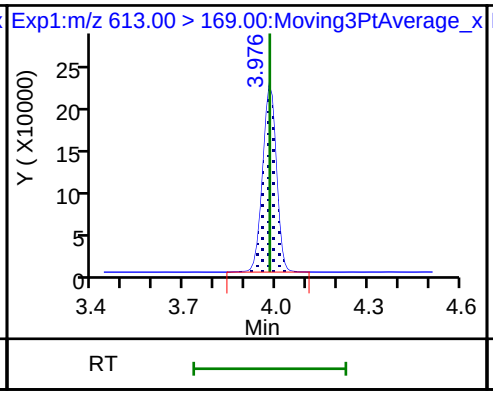
66 11-Chloroeicosafluoro-3-oxaundecan



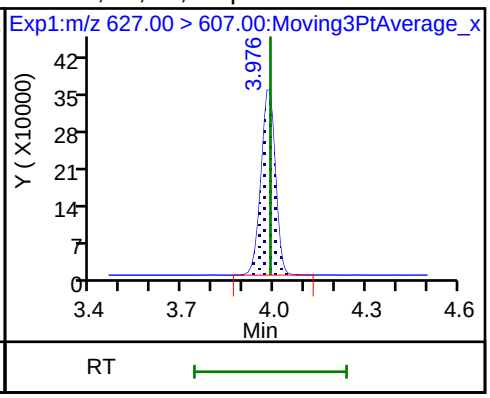
37 Perfluorododecanoic acid



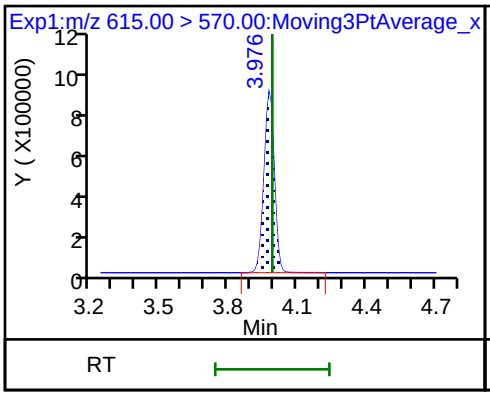
37 Perfluorododecanoic acid



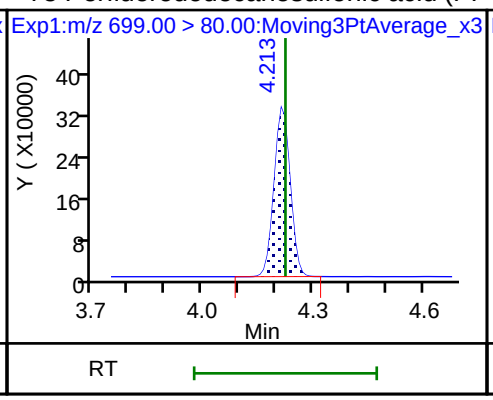
74 1H,1H,2H,2H-perfluorododecanesulfo



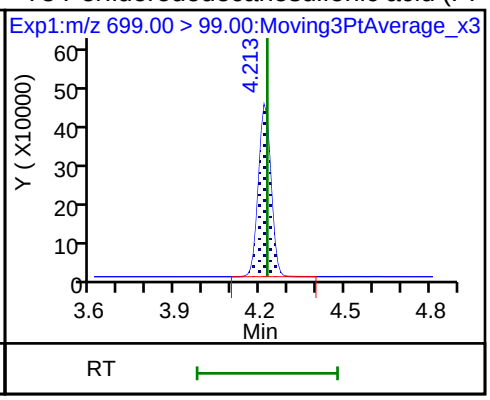
D 36 13C2 PFDoA



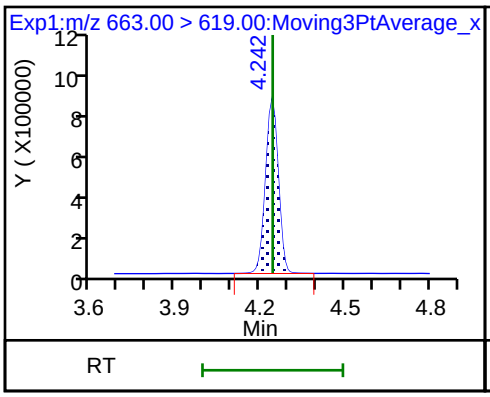
75 Perfluorododecanesulfonic acid (PF



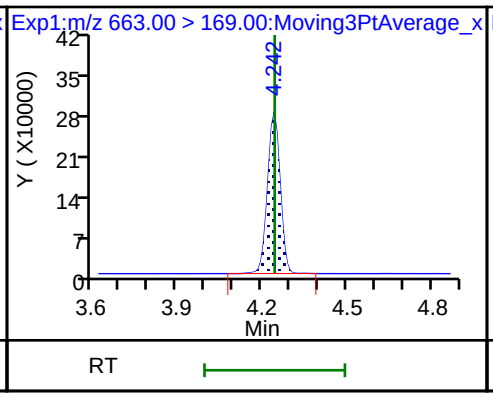
75 Perfluorododecanesulfonic acid (PF



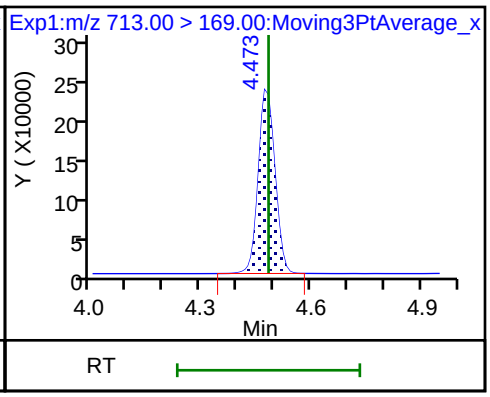
41 Perfluorotridecanoic acid



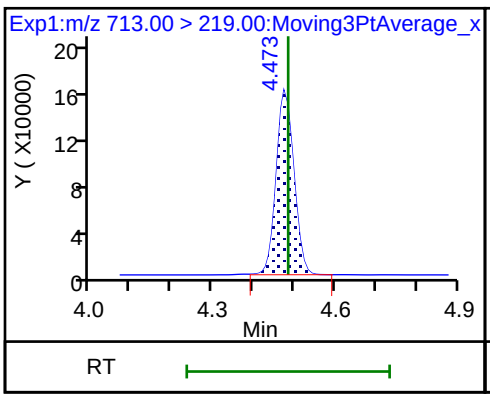
41 Perfluorotridecanoic acid



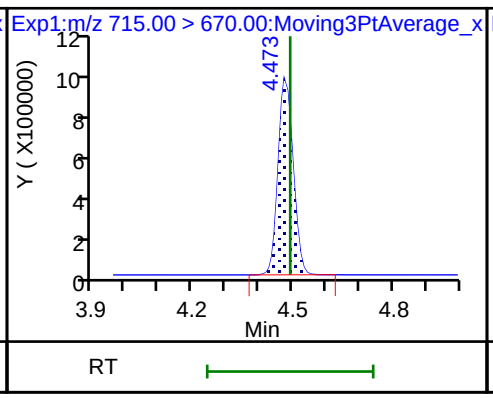
42 Perfluorotetradecanoic acid



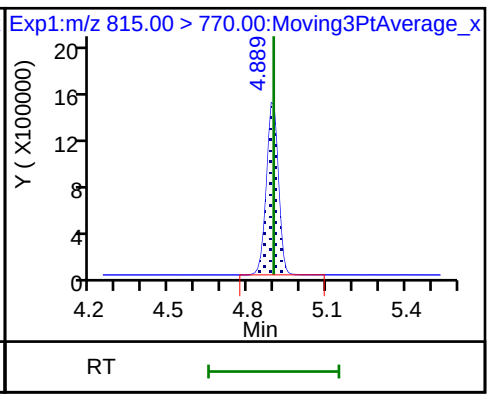
42 Perfluorotetradecanoic acid



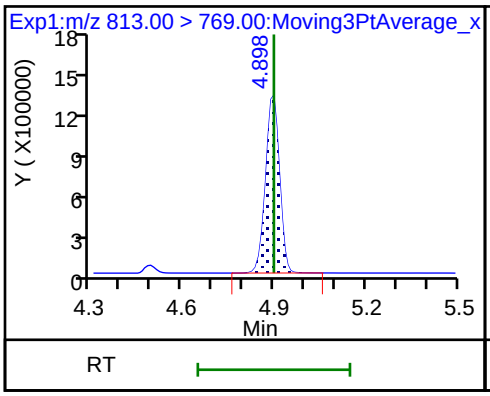
D 43 13C2-PFTeDA



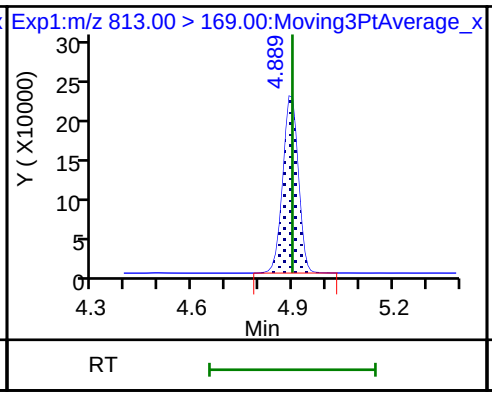
D 44 13C2-PFHxDA



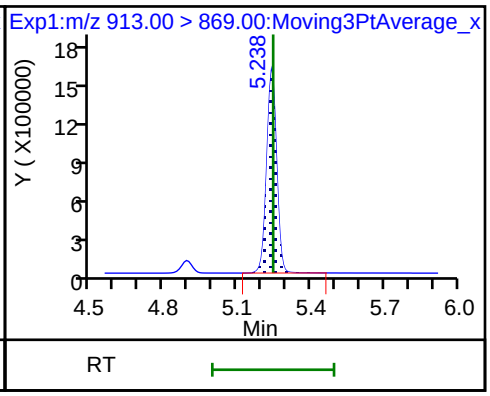
45 Perfluorohexadecanoic acid



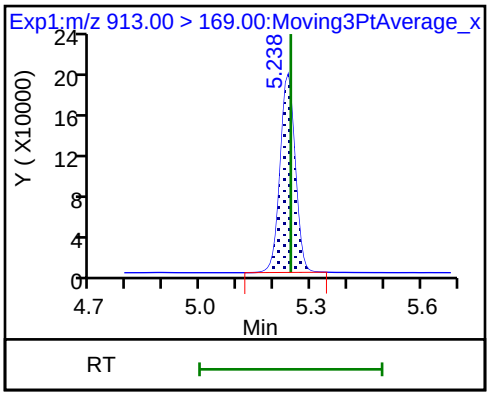
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-242502/1-A

Matrix: Water | Lab File ID: 2018.08.29LLB_033.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 250.0(mL) | Date Analyzed: 08/30/2018 00:06

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		2.0	0.35
2706-90-3	Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25
335-67-1	Perfluorooctanoic acid (PFOA)	ND		2.0	0.85
375-95-1	Perfluorononanoic acid (PFNA)	ND		2.0	0.27
335-76-2	Perfluorodecanoic acid (PFDA)	ND		2.0	0.31
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	ND		2.0	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.293	J	2.0	0.29
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.323	J	2.0	0.17
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32
754-91-6	Perfluorooctane Sulfonamide (FOSA)	ND		2.0	0.35
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9
27619-97-2	6:2 FTS	ND		20	2.0
39108-34-4	8:2 FTS	ND		20	2.0

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-242502/1-A

Matrix: Water | Lab File ID: 2018.08.29LLB_033.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 250.0(mL) | Date Analyzed: 08/30/2018 00:06

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	94		25-150
STL01893	13C5 PFPeA	93		25-150
STL00993	13C2 PFHxA	93		25-150
STL01892	13C4-PFHpA	96		25-150
STL00990	13C4 PFOA	95		25-150
STL00995	13C5 PFNA	96		25-150
STL00996	13C2 PFDA	101		25-150
STL00997	13C2 PFUnA	93		25-150
STL00998	13C2 PFDoA	95		25-150
STL02116	13C2-PFTeDA	92		25-150
STL02337	13C3-PFBS	92		25-150
STL00994	18O2 PFHxS	91		25-150
STL00991	13C4 PFOS	93		25-150
STL01056	13C8 FOSA	88		25-150
STL02118	d3-NMeFOSAA	90		25-150
STL02117	d5-NEtFOSAA	91		25-150
STL02279	M2-6:2FTS	97		25-150
STL02280	M2-8:2FTS	97		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_033.d
Lims ID: MB 320-242502/1-A
Client ID:
Sample Type: MB
Inject. Date: 30-Aug-2018 00:06:19 ALS Bottle#: 23 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-242502/1-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:29:10 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:29:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.416	1.421	-0.005	0.537	6642443	2.35		93.9	10471	
2 Perfluorobutyric acid										M
212.90 > 169.00	1.416	1.424	-0.008	1.000	17091	0.007238			1.9	M
4 Perfluoropentanoic acid										
262.90 > 219.00	1.687	1.684	0.003	1.005	13607	0.007063			0.7	
D 3 13C5-PFPeA										
267.90 > 223.00	1.679	1.687	-0.008	0.637	4176651	2.33		93.4	12930	
D 47 13C3-PFBS										
301.90 > 83.00	1.711	1.720	-0.009	0.649	90121	2.13		91.6	530	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.719	1.724	-0.005	1.005	3189	0.001099			11.6	
298.90 > 99.00	1.719	1.724	-0.005	1.005	1929		1.65(1.25-3.74)		7.2	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.934	1.939	-0.005	1.130	1261	0.002115			13.9	
D 7 13C2 PFHxA										
315.00 > 270.00	1.965	1.966	-0.001	0.746	4672273	2.33		93.2	18637	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.059	2.070	-0.011	0.781	218218	2.26		90.5	1095	
D 9 13C4-PFHpA										
367.00 > 322.00	2.289	2.289	0.0	0.868	4525134	2.39		95.7	8342	
10 Perfluoroheptanoic acid										R
363.00 > 319.00	2.289	2.292	-0.003	1.000	6301	0.003179			2.6	R
363.00 > 169.00	2.289	2.292	-0.003	1.000	1455		4.33(1.13-3.40)		4.7	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.311	2.303	0.008	1.005	20224	0.008063			86.0	
399.00 > 99.00	2.311	2.303	0.008	1.005	8597		2.35(1.50-4.49)		14.6	
D 11 18O2 PFHxS										
403.00 > 84.00	2.300	2.311	-0.011	0.873	5421696	2.16		91.2	12838	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
77 DONA										
377.00 > 251.00	2.333	2.336	-0.003	0.776	5119	0.000959			26.2	
377.00 > 85.00	2.333	2.336	-0.003	0.776	4041		1.27(0.85-2.54)		8.7	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.613	2.609	0.004	1.000	24728	0.0394			188	
D 12 M2-6:2FTS										
429.00 > 81.00	2.613	2.613	0.0	0.991	990585	2.31		97.3	3702	
D 73 13C8 PFOA										
421.00 > 376.00	2.636	2.636	0.0	1.000	8763	0.002918		0.0	121	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.644	2.639	0.005	1.003	17022	0.008787			2.6	M
413.00 > 169.00	2.636	2.639	-0.003	1.000	8274		2.06(0.84-2.52)		21.4	M
* 62 13C2-PFOA										
415.00 > 370.00	2.636	2.639	-0.003		4579737	2.50			15239	
D 14 13C4 PFOA										
417.00 > 372.00	2.636	2.644	-0.008	1.000	4284704	2.37		95.0	10520	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.009	3.006	0.003	1.000	11868	0.006785			60.1	
499.00 > 99.00	3.016	3.006	0.010	1.003	0		0.00(2.31-6.93)			
D 72 13C8 PFOS										
507.00 > 99.00	3.001	3.009	-0.008	1.139	1392	0.001583		0.0	23.6	
D 18 13C4 PFOS										
503.00 > 80.00	3.009	3.009	0.0	1.141	3800929	2.21		92.5	8810	
D 19 13C5 PFNA										
468.00 > 423.00	3.009	3.016	-0.007	1.141	3563233	2.40		96.1	7220	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.220	3.218	0.002	1.070	5350	0.001854			12.7	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.350	3.347	0.003	0.998	286	0.000458			1.7	
D 26 M2-8:2FTS										
529.00 > 81.00	3.357	3.357	0.0	1.274	1154764	2.31		96.6	3589	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.372	3.362	0.010	1.002	5361	0.002493			23.4	
D 21 13C8 FOSA										
506.00 > 78.00	3.364	3.364	0.0	1.276	5575482	2.19		87.6	6567	
D 23 13C2 PFDA										
515.00 > 470.00	3.364	3.372	-0.008	1.276	3474828	2.53		101	4057	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.515	3.523	-0.008	1.334	1442732	2.25		90.0	4442	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.687	3.685	0.002	1.399	1595867	2.27		90.7	665	
D 30 13C2 PFUnA										
565.00 > 520.00	3.687	3.693	-0.006	1.399	2754024	2.32		92.6	7375	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.846	3.848	-0.002	1.278	8782	0.002007			44.6	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.985	3.978	0.007	1.000	3254	0.002456			2.1	
613.00 > 169.00	3.985	3.978	0.007	1.000	1077		3.02(2.13-6.40)		13.9	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDoA										
615.00 > 570.00	3.985	3.991	-0.006	1.512	3021449	2.38		95.2	6955	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.492	4.484	0.008	1.002	2577	0.007333			39.2	
713.00 > 219.00	4.472	4.484	-0.012	0.998	1278		2.02(0.71-2.13)		18.4	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.482	4.492	-0.010	1.701	3518230	2.31		92.4	6405	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.897	4.897	0.0	1.858	4799622	2.19		87.4	7264	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.897	4.898	-0.001	1.000	46022	0.004129			4.2	
813.00 > 169.00	4.897	4.898	-0.001	1.000	8027		5.73(2.86-8.58)		69.4	

QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

Report Date: 31-Aug-2018 14:29:11 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_033.d

Injection Date: 30-Aug-2018 00:06:19 Instrument ID: A8_N

Lims ID: MB 320-242502/1-A

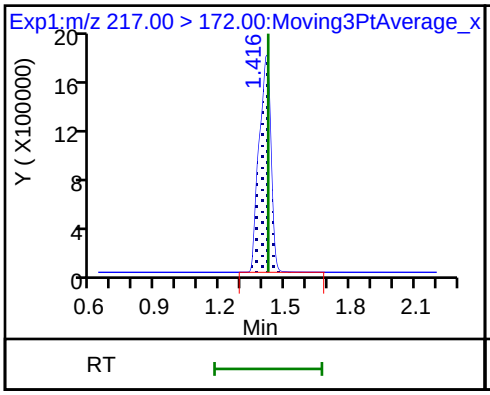
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 2

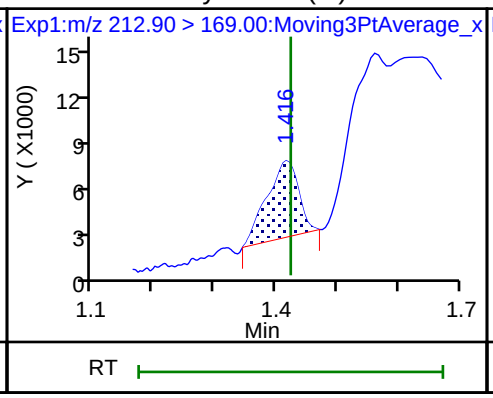
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

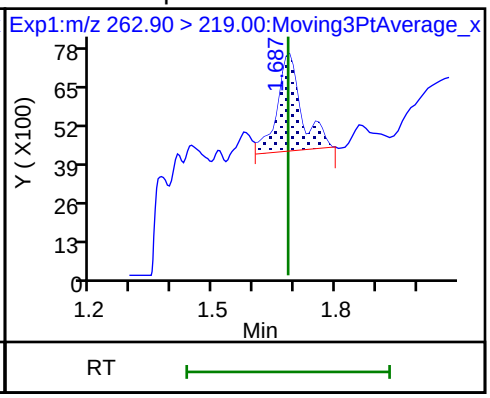
D 1 13C4 PFBA



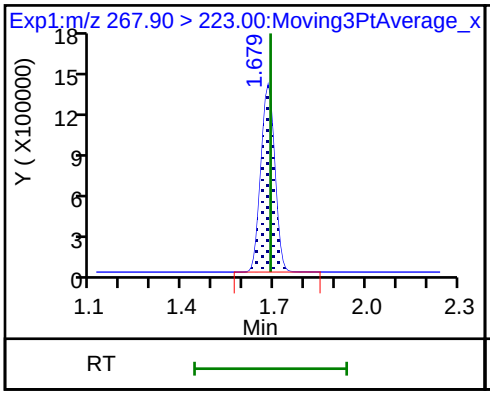
2 Perfluorobutyric acid (M)



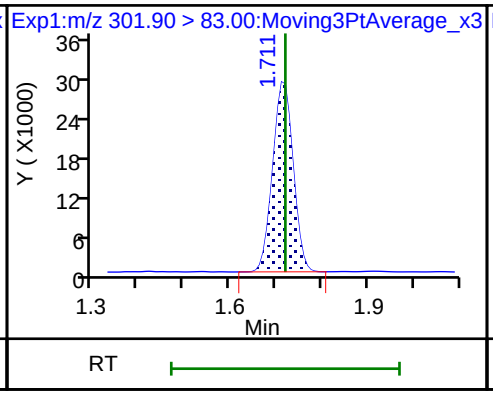
4 Perfluoropentanoic acid



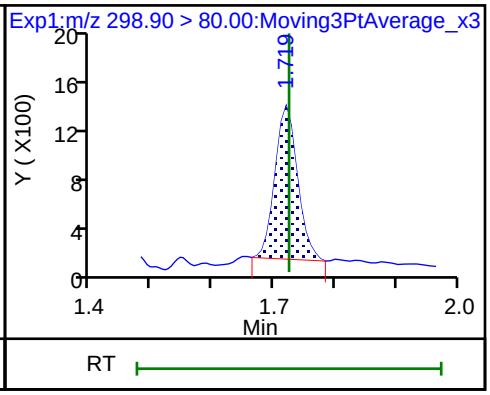
D 3 13C5-PFPeA



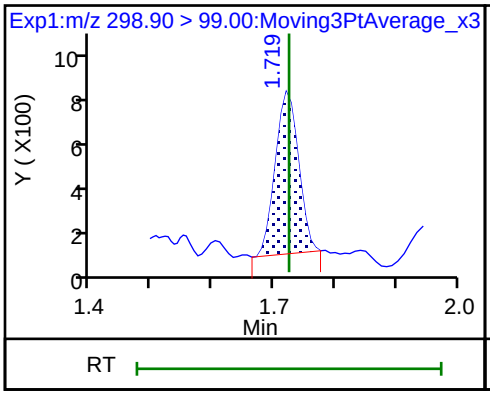
D 47 13C3-PFBS



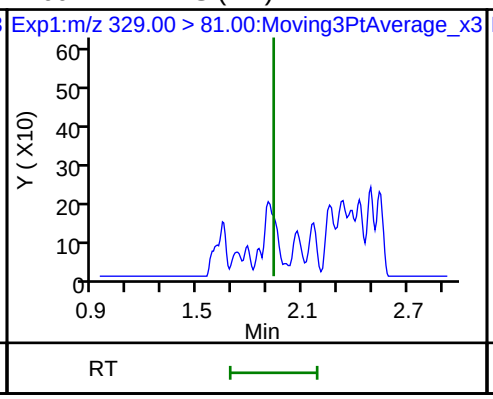
5 Perfluorobutanesulfonic acid



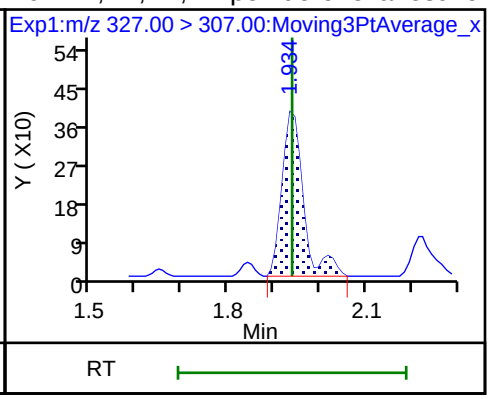
5 Perfluorobutanesulfonic acid



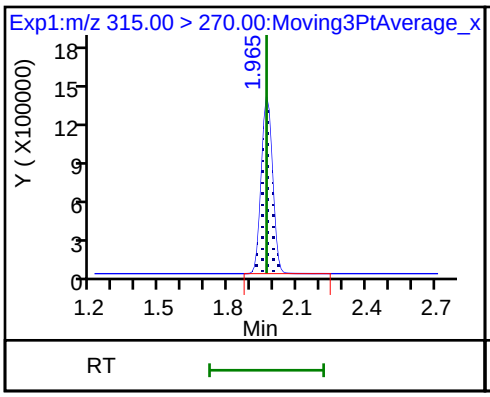
D 60 M2-4:2FTS (ND)



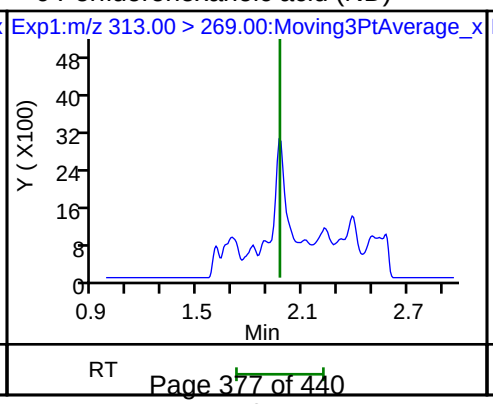
61 1H,1H,2H,2H-perfluorohexanesulfoni



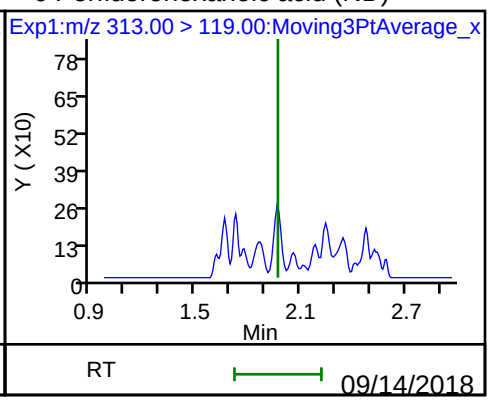
D 7 13C2 PFHxA



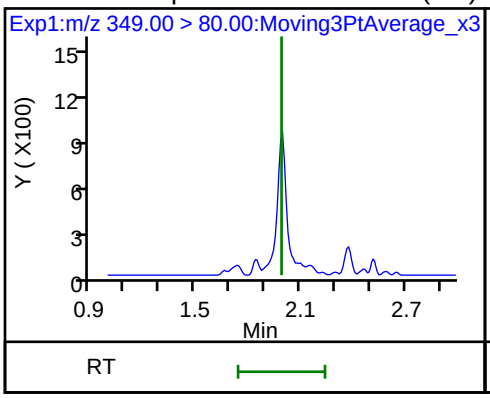
6 Perfluorohexanoic acid (ND)



6 Perfluorohexanoic acid (ND)



70 Perfluoropentanesulfonic acid (ND)



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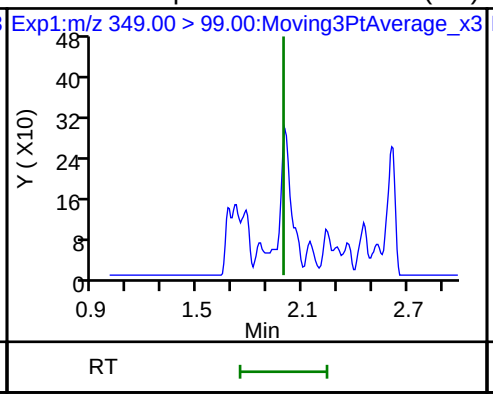
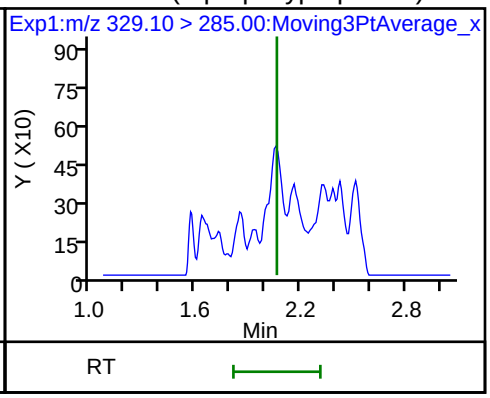
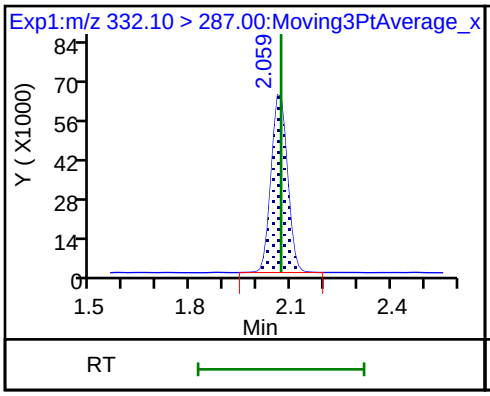


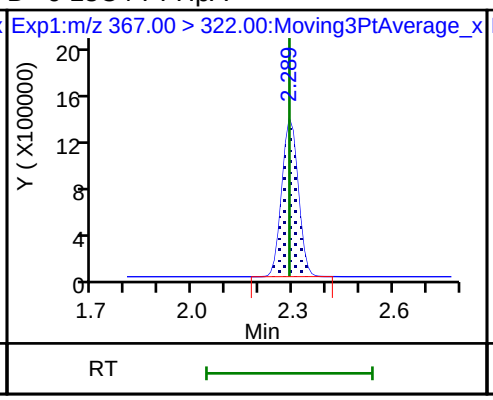
67 Perfluoro(2-propoxypropanoic) acid (ND)



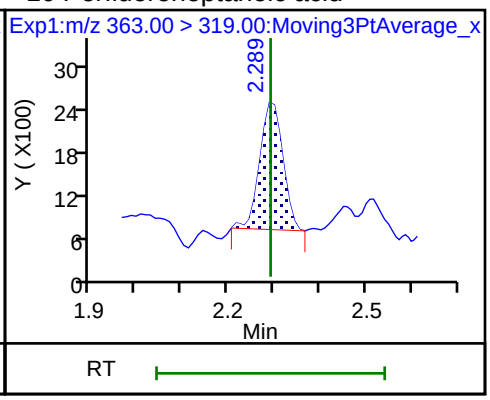
D 64 13C3 HFPO-DA



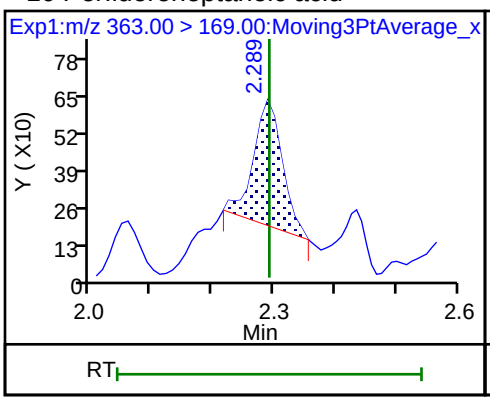
D 9 13C4-PFHpA



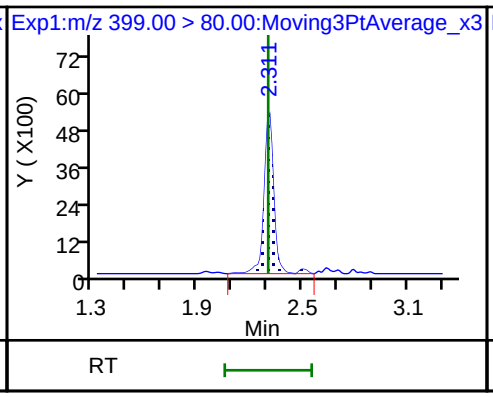
10 Perfluoroheptanoic acid



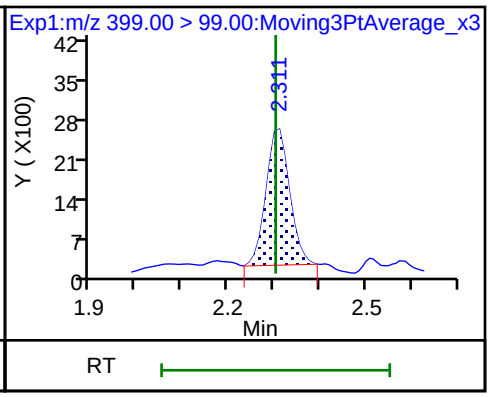
10 Perfluoroheptanoic acid



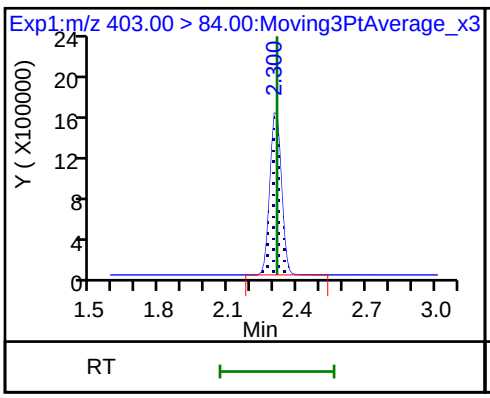
8 Perfluorohexanesulfonic acid



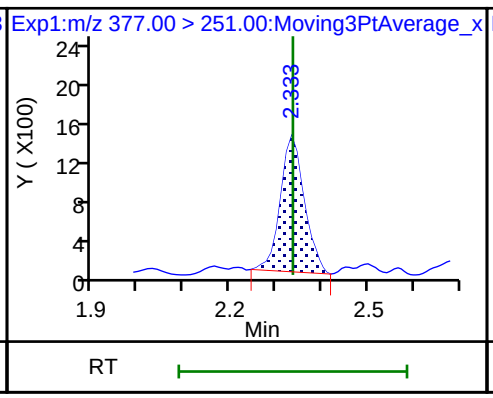
8 Perfluorohexanesulfonic acid



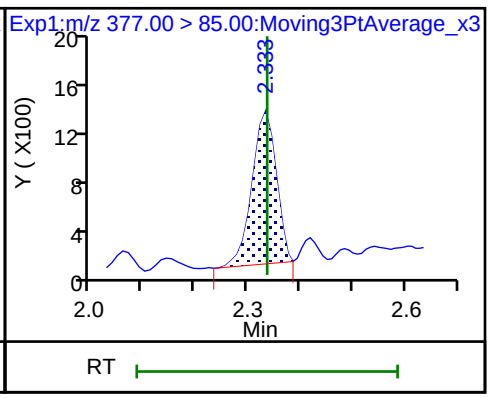
D 11 18O2 PFHxS



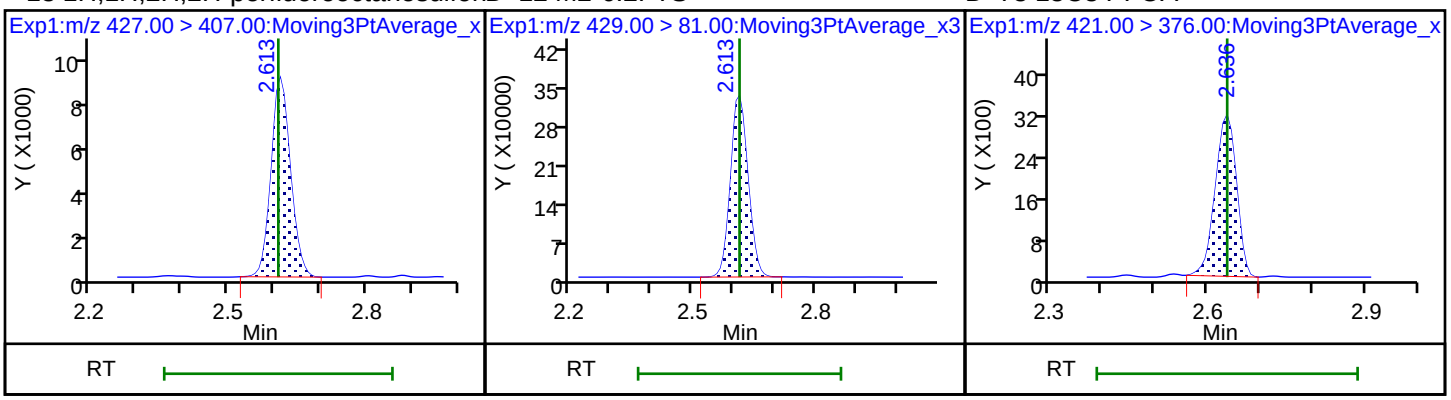
77 DONA



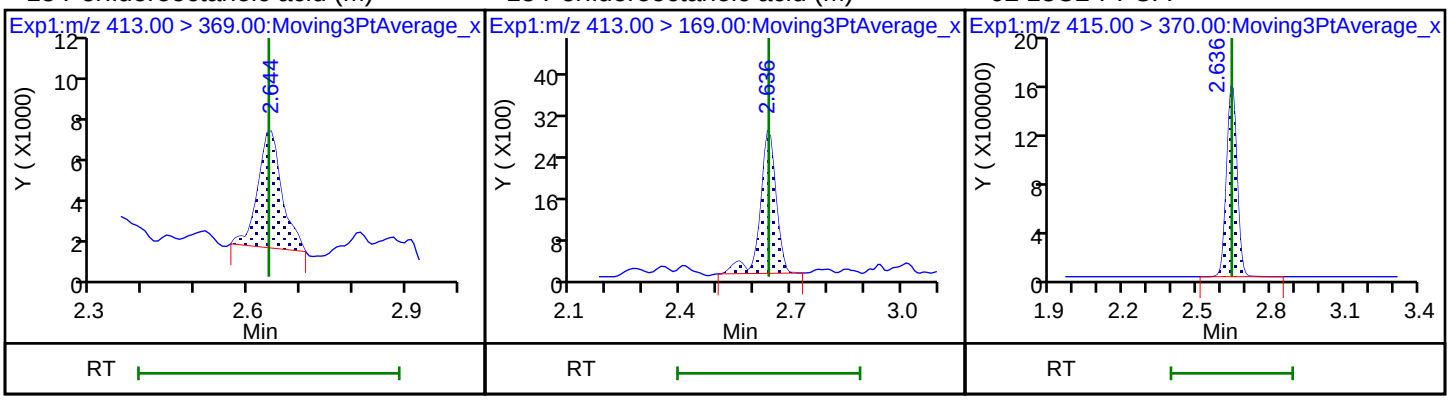
77 DONA



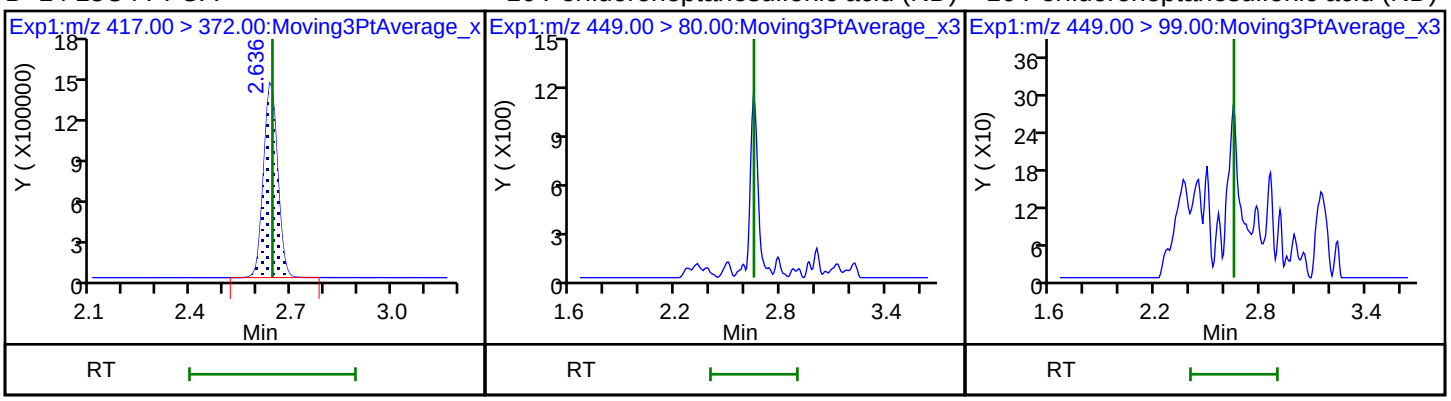
13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2FTS D 73 13C8 PFOA



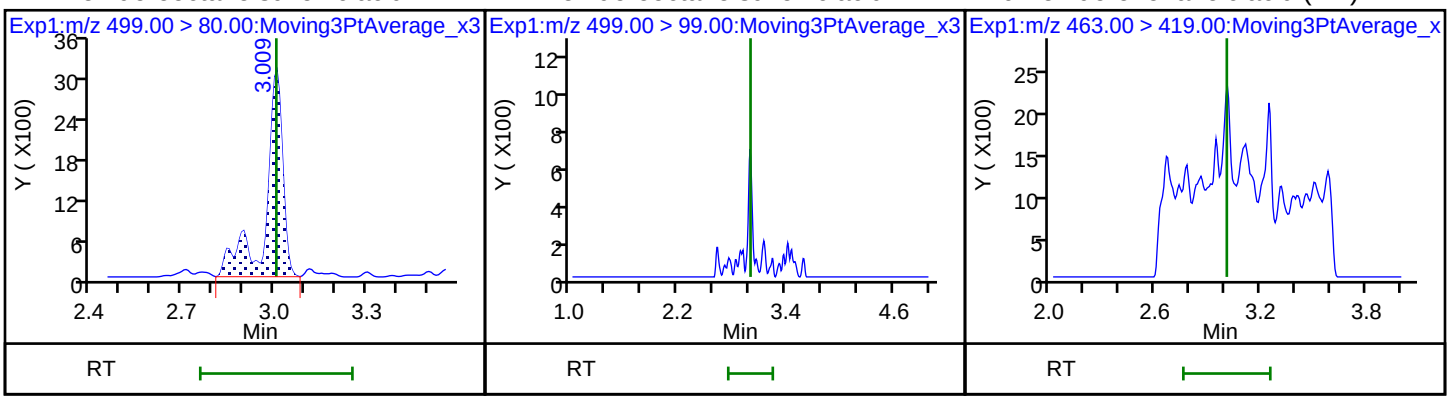
15 Perfluorooctanoic acid (M) 15 Perfluorooctanoic acid (M) * 62 13C2-PFOA



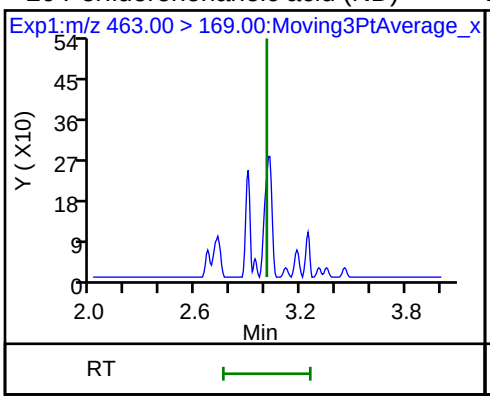
D 14 13C4 PFOA 16 Perfluoroheptanesulfonic acid (ND) 16 Perfluoroheptanesulfonic acid (ND)



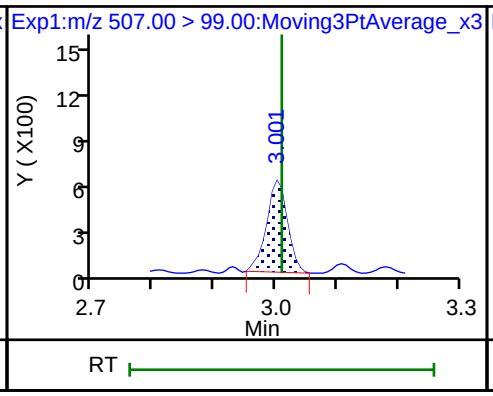
17 Perfluorooctane sulfonic acid 17 Perfluorooctane sulfonic acid 20 Perfluorononanoic acid (ND)



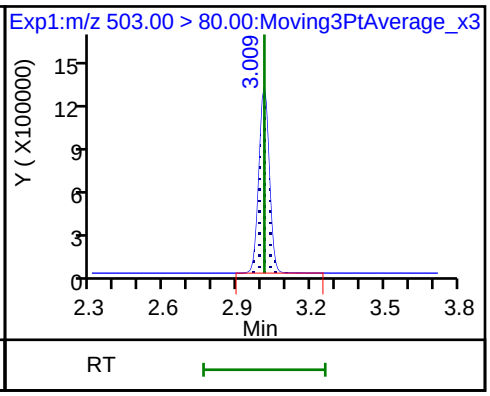
20 Perfluorononanoic acid (ND)



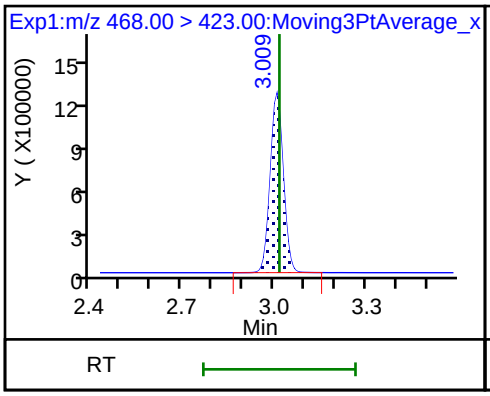
D 72 13C8 PFOS



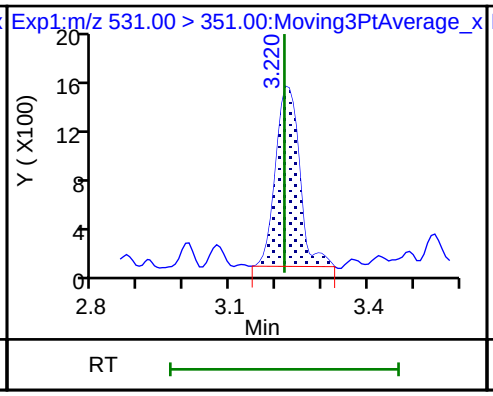
D 18 13C4 PFOS



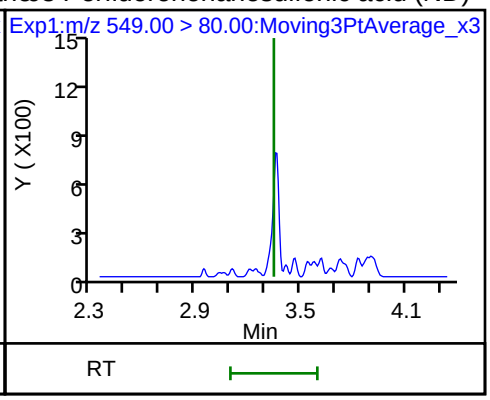
D 19 13C5 PFNA



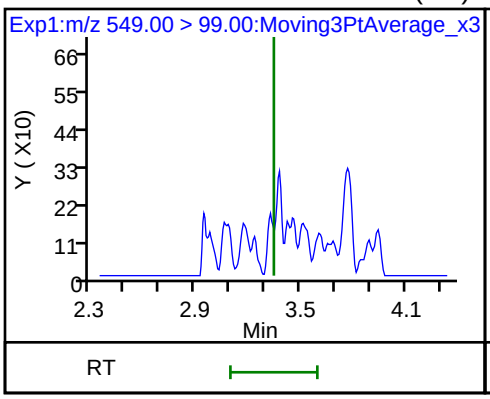
69 9-Chlorohexadecafluoro-3-oxanonane



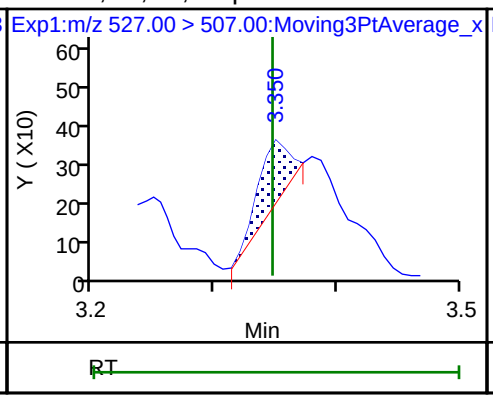
68 Perfluorononanesulfonic acid (ND)



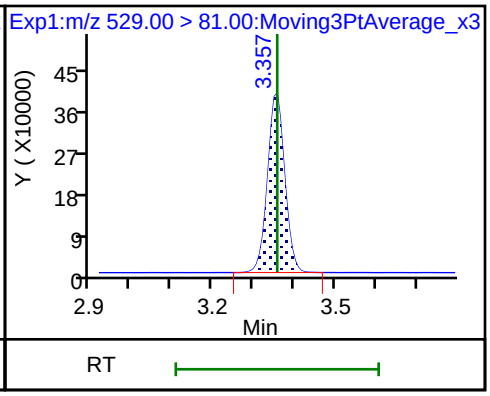
68 Perfluorononanesulfonic acid (ND)



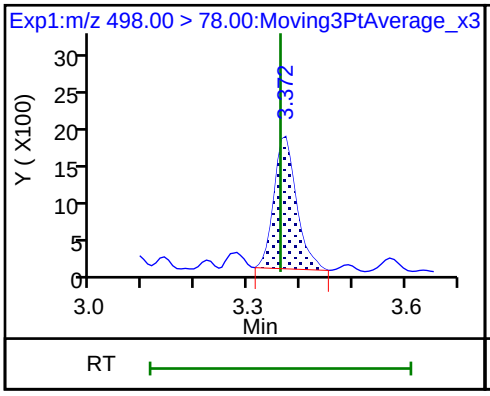
25 1H,1H,2H,2H-perfluorodecanesulfon



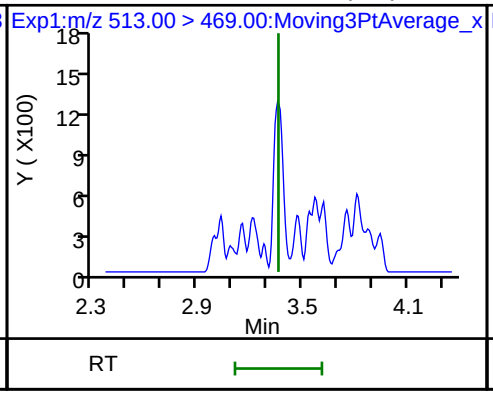
D 26 M2-8:2FTS



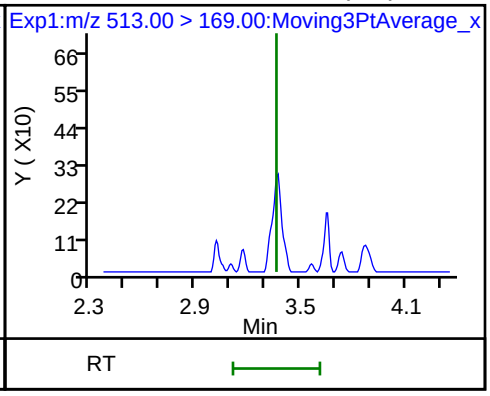
22 Perfluorooctane Sulfonamide



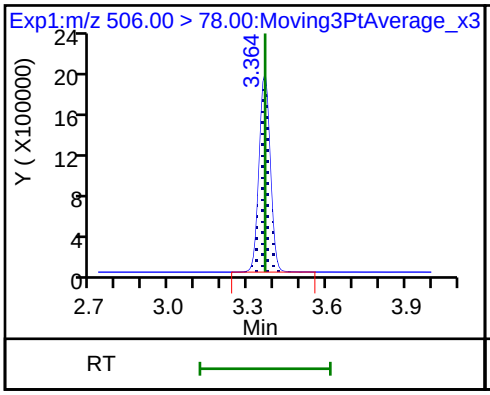
24 Perfluorodecanoic acid (ND)



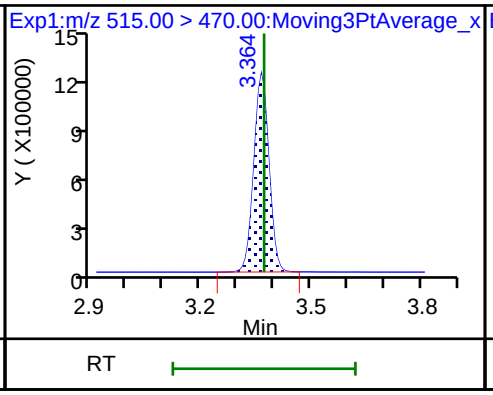
24 Perfluorodecanoic acid (ND)



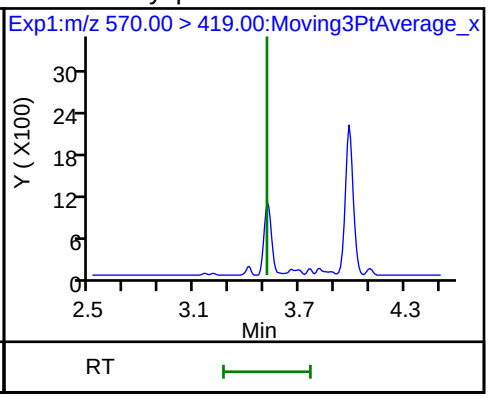
D 21 13C8 FOSA



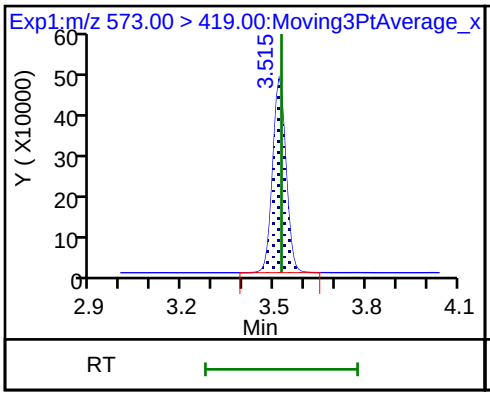
D 23 13C2 PFDA



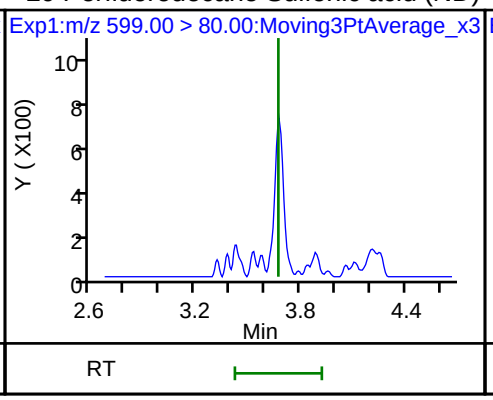
28 N-methyl perfluorooctane sulfonami (ND)



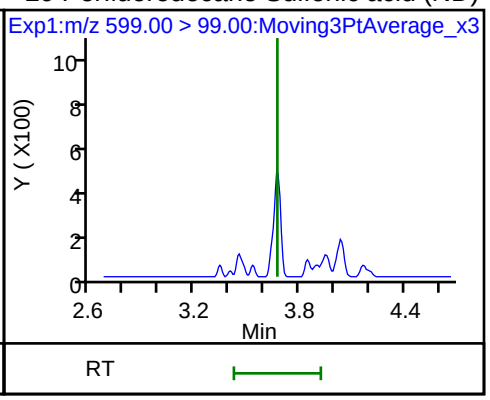
D 27 d3-NMeFOSAA



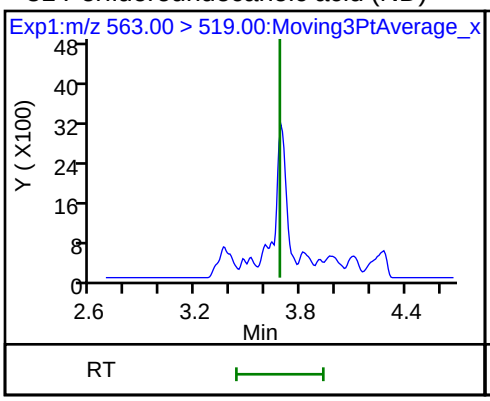
29 Perfluorodecane Sulfonic acid (ND)



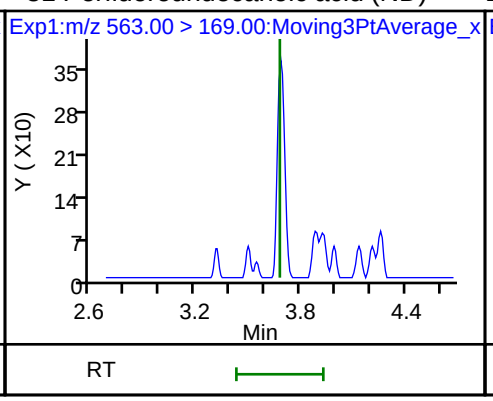
29 Perfluorodecane Sulfonic acid (ND)



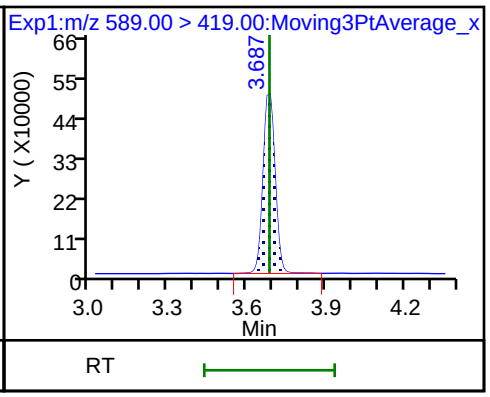
31 Perfluoroundecanoic acid (ND)



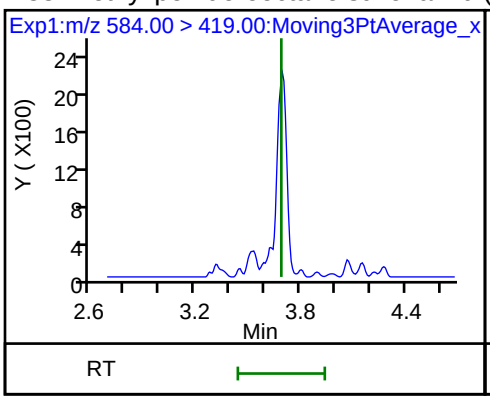
31 Perfluoroundecanoic acid (ND)



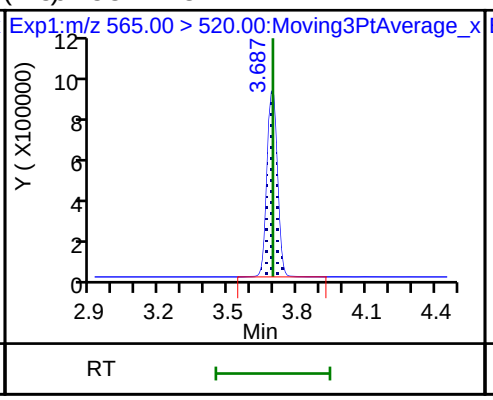
D 32 d5-NEtFOSAA



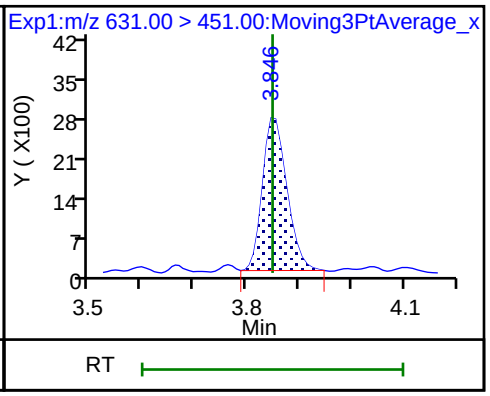
33 N-ethyl perfluorooctane sulfonamid (ND)



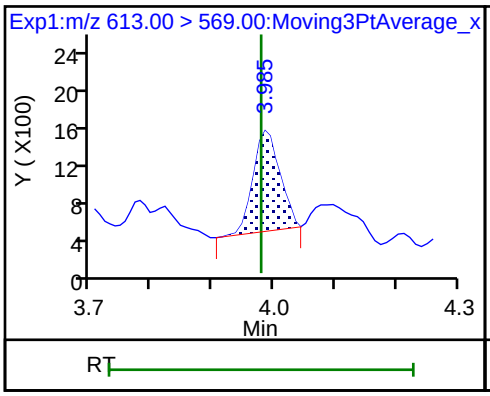
D 30 13C2 PFUnA



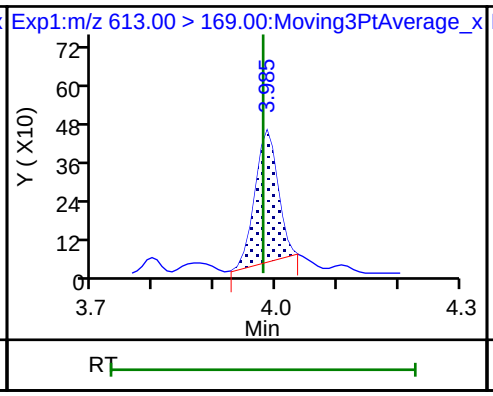
66 11-Chloroeicosafluoro-3-oxaundecan



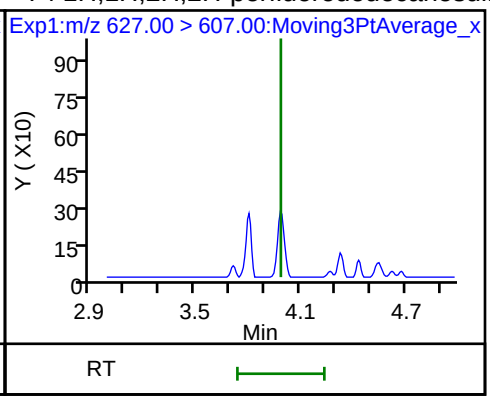
37 Perfluorododecanoic acid



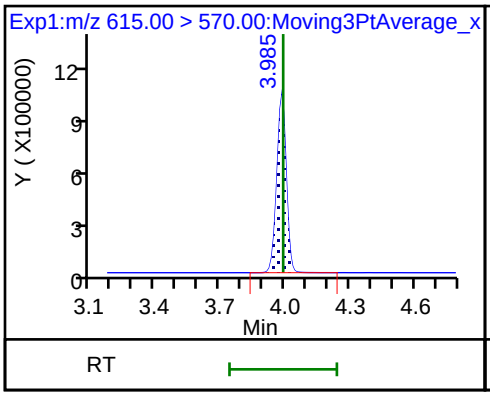
37 Perfluorododecanoic acid



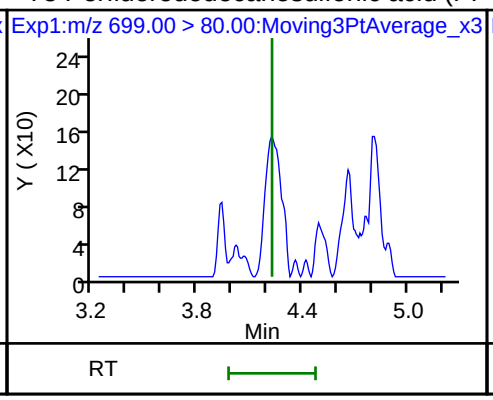
74 1H,1H,2H,2H-perfluorododecanesulfo (ND)



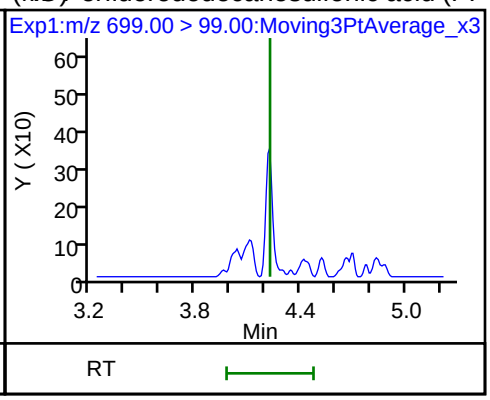
D 36 13C2 PFDoA



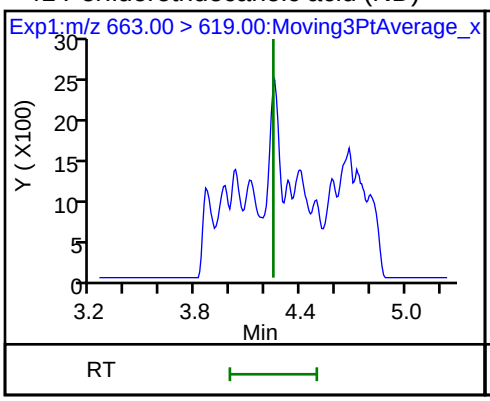
75 Perfluorododecanesulfonic acid (PF (ND)



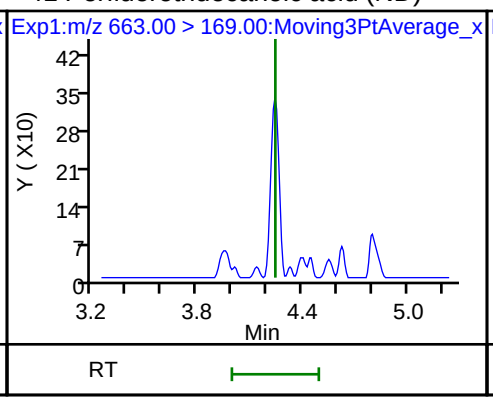
75 Perfluorododecanesulfonic acid (PF (ND)



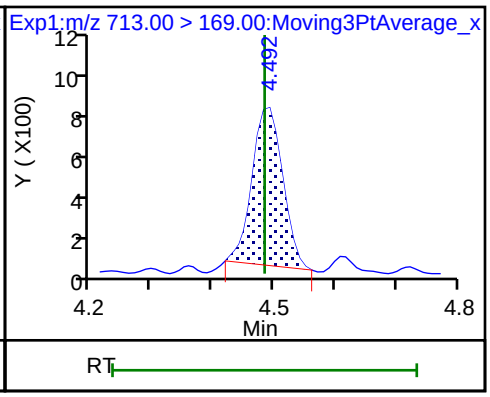
41 Perfluorotridecanoic acid (ND)



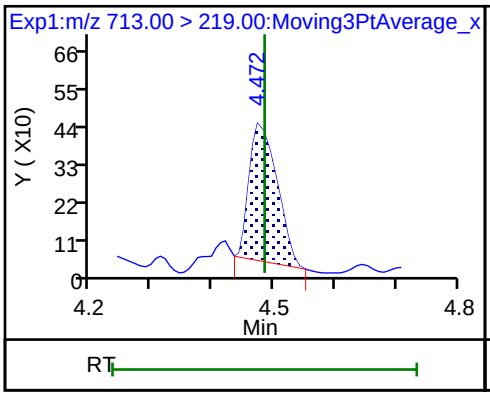
41 Perfluorotridecanoic acid (ND)



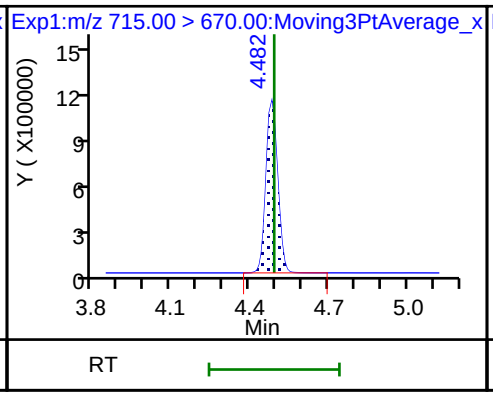
42 Perfluorotetradecanoic acid



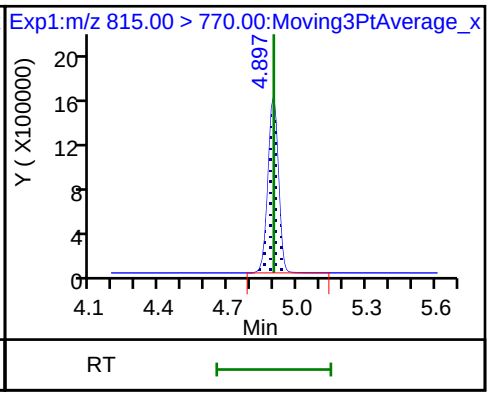
42 Perfluorotetradecanoic acid



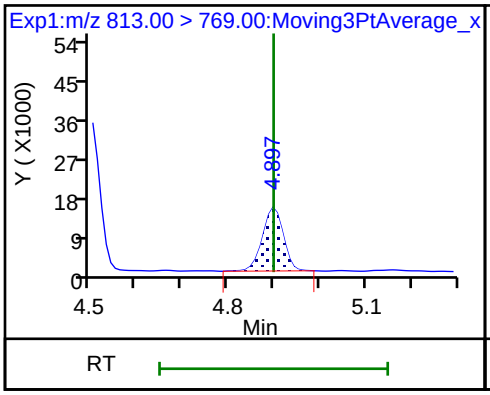
D 43 13C2-PFTeDA



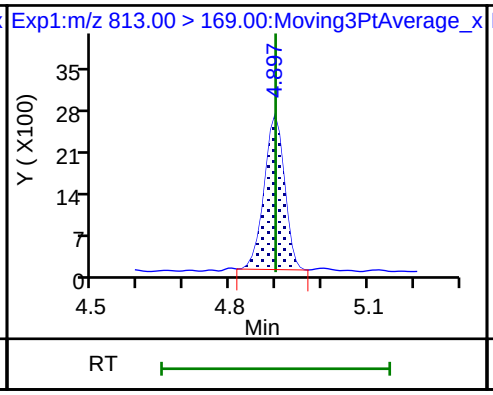
D 44 13C2-PFHxDA



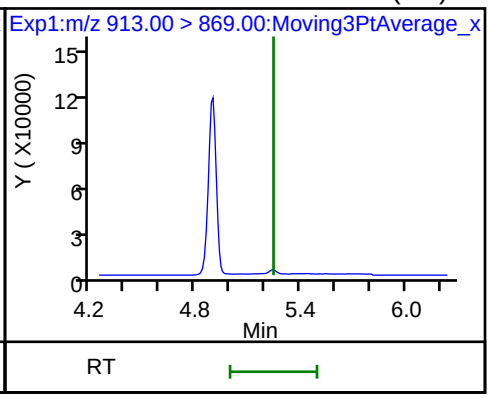
45 Perfluorohexadecanoic acid



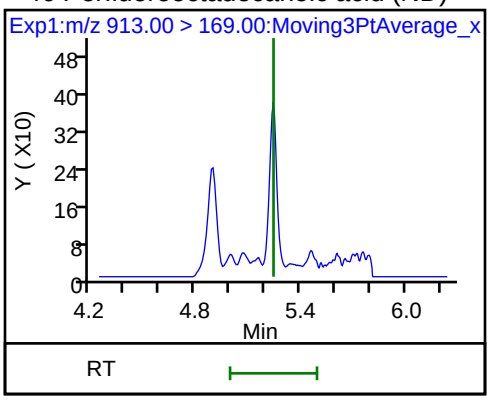
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid (ND)



46 Perfluorooctadecanoic acid (ND)



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

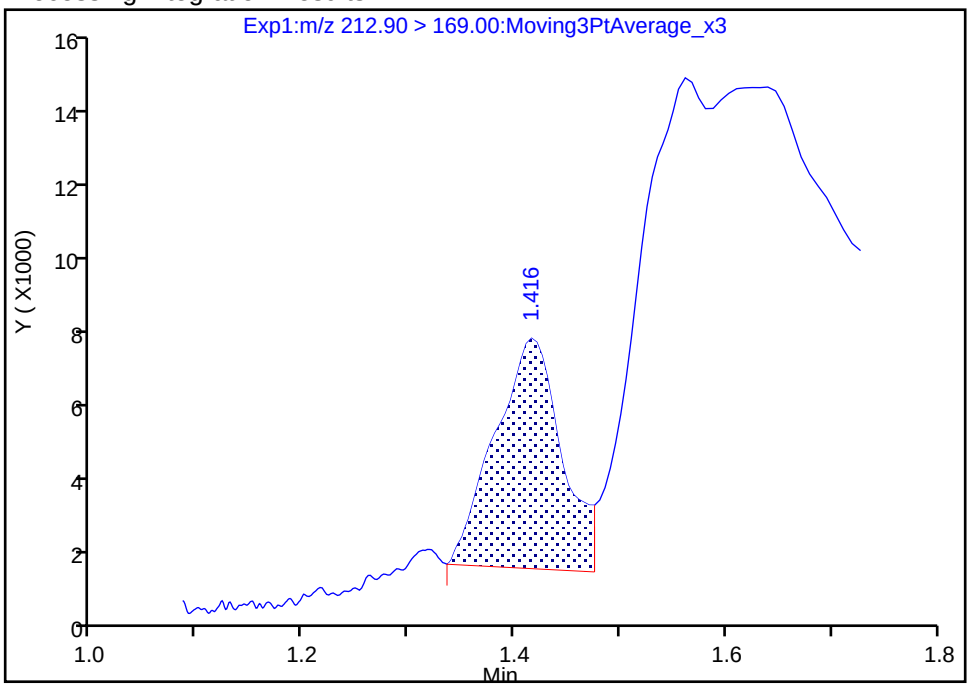
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_033.d
Injection Date: 30-Aug-2018 00:06:19 Instrument ID: A8_N
Lims ID: MB 320-242502/1-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

2 Perfluorobutyric acid, CAS: 375-22-4

Signal: 1

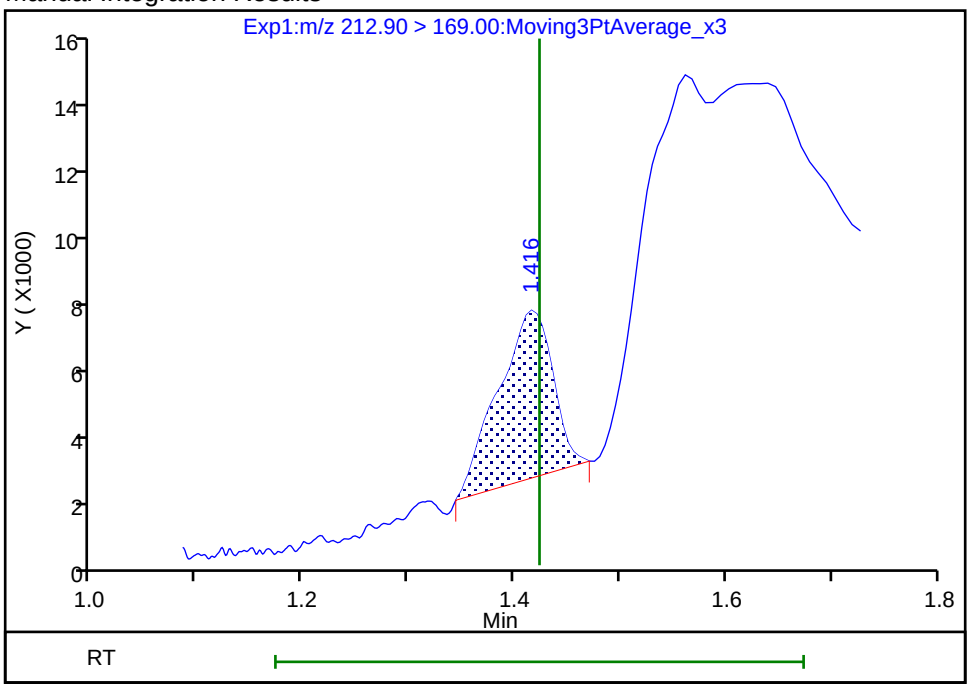
Processing Integration Results

RT: 1.42
Area: 25698
Amount: 0.010883
Amount Units: ng/ml



Manual Integration Results

RT: 1.42
Area: 17091
Amount: 0.007238
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:28:41
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

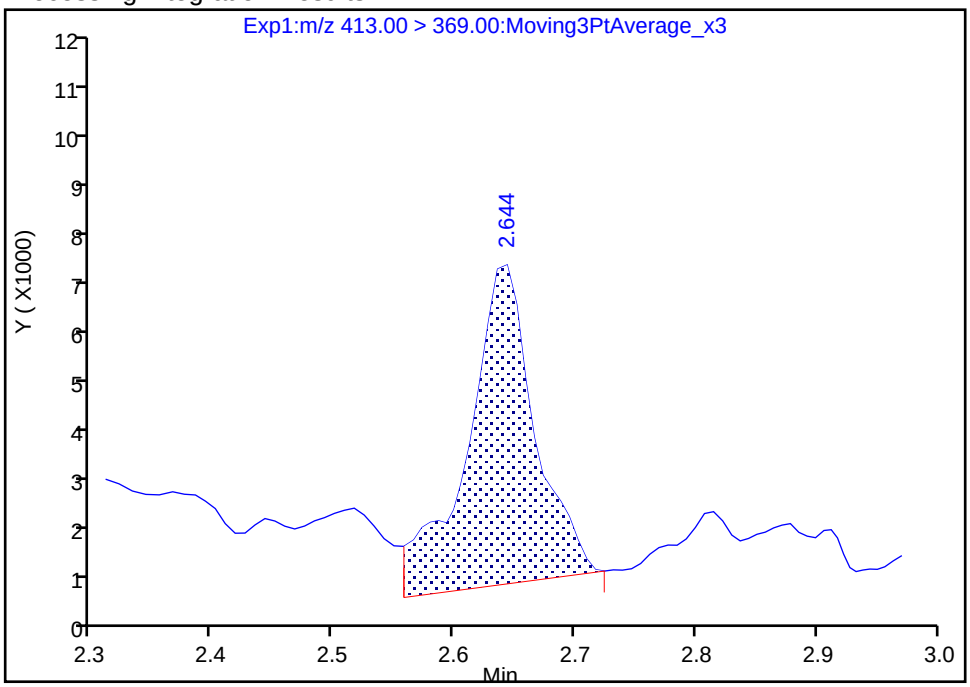
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_033.d
Injection Date: 30-Aug-2018 00:06:19 Instrument ID: A8_N
Lims ID: MB 320-242502/1-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

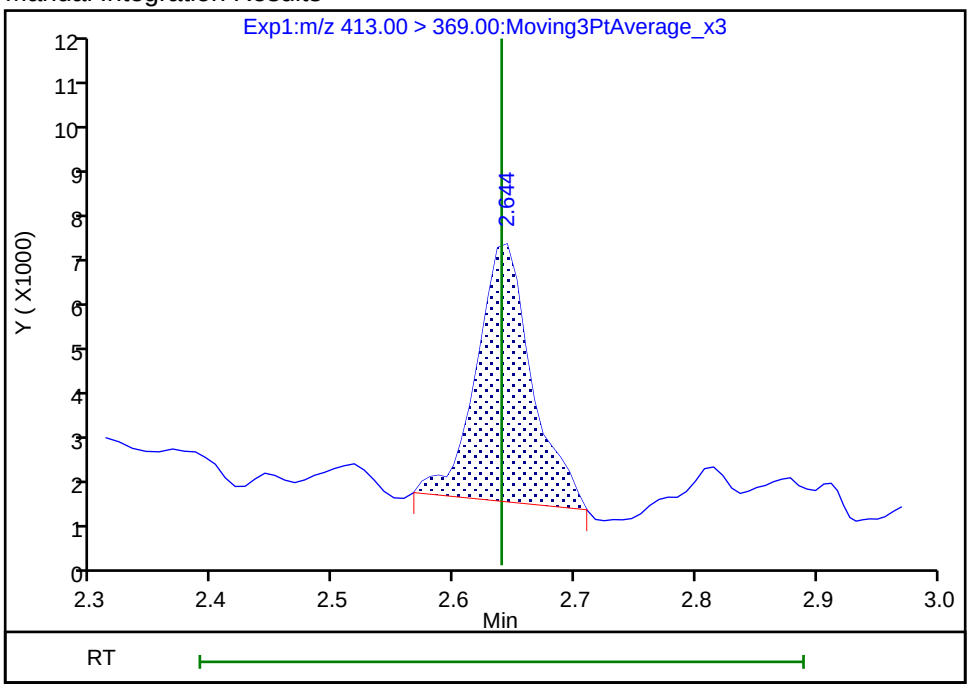
Processing Integration Results

RT: 2.64
Area: 23285
Amount: 0.012020
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 17022
Amount: 0.008787
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:28:57
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

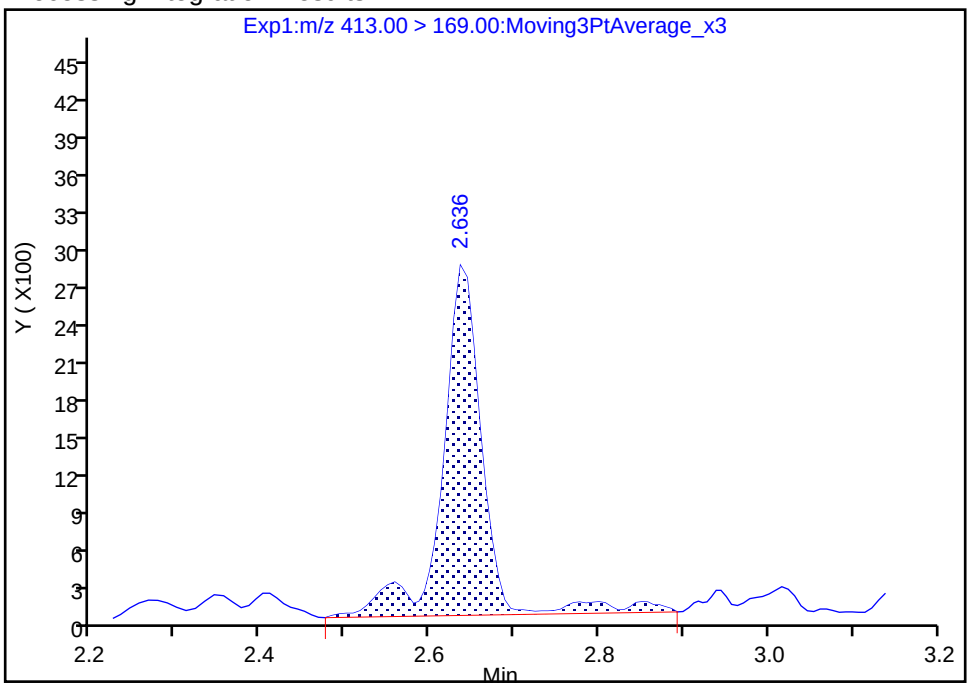
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_033.d
Injection Date: 30-Aug-2018 00:06:19 Instrument ID: A8_N
Lims ID: MB 320-242502/1-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: A8_N Limit Group: LC PFC ICAL
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

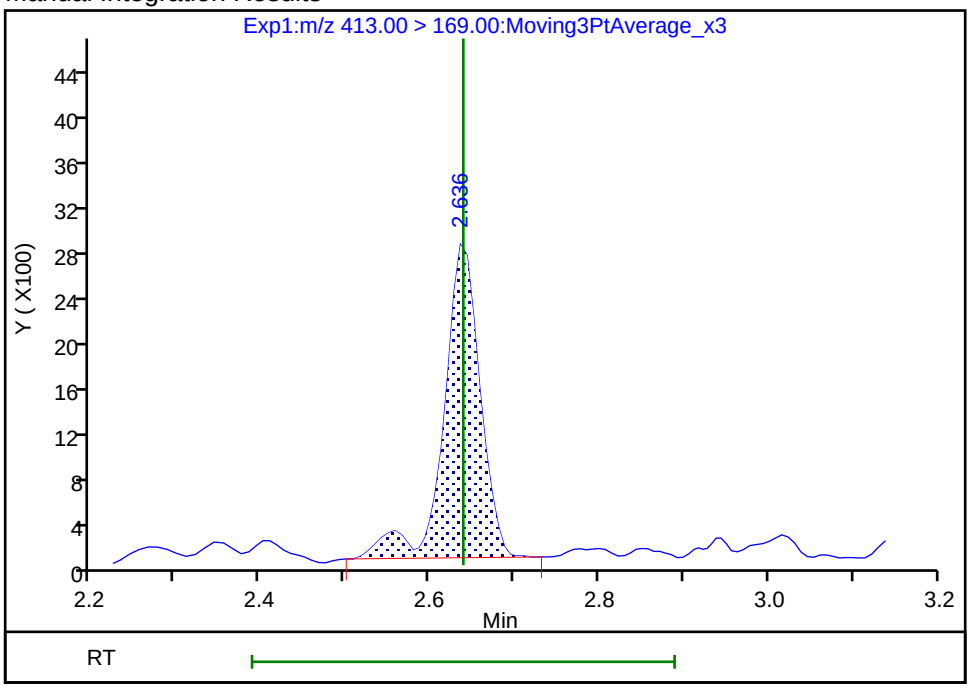
Processing Integration Results

RT: 2.64
Area: 9229
Amount: 0.012020
Amount Units: ng/ml



Manual Integration Results

RT: 2.64
Area: 8274
Amount: 0.008787
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:29:00
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 320-242502/2-A

Matrix: Water | Lab File ID: 2018.08.29LLB_034.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 250.0(mL) | Date Analyzed: 08/30/2018 00:14

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	40.3		2.0	0.35
2706-90-3	Perfluoropentanoic acid (PFPeA)	39.0		2.0	0.49
307-24-4	Perfluorohexanoic acid (PFHxA)	36.9		2.0	0.58
375-85-9	Perfluoroheptanoic acid (PFHpA)	40.5		2.0	0.25
335-67-1	Perfluorooctanoic acid (PFOA)	38.7		2.0	0.85
375-95-1	Perfluorononanoic acid (PFNA)	39.8		2.0	0.27
335-76-2	Perfluorodecanoic acid (PFDA)	39.0		2.0	0.31
2058-94-8	Perfluoroundecanoic acid (PFUnA)	36.3		2.0	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	35.4		2.0	0.55
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	37.1		2.0	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	36.2		2.0	0.29
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34.7		2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	33.5		2.0	0.17
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	39.8		2.0	0.19
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	35.8		2.0	0.54
335-77-3	Perfluorodecanesulfonic acid (PFDS)	37.5		2.0	0.32
754-91-6	Perfluorooctane Sulfonamide (FOSA)	39.7		2.0	0.35
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	38.8		20	3.1
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	36.4		20	1.9
27619-97-2	6:2 FTS	38.1		20	2.0
39108-34-4	8:2 FTS	37.6		20	2.0

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 320-242502/2-A

Matrix: Water | Lab File ID: 2018.08.29LLB_034.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 250.0(mL) | Date Analyzed: 08/30/2018 00:14

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	90		25-150
STL01893	13C5 PFPeA	89		25-150
STL00993	13C2 PFHxA	92		25-150
STL01892	13C4-PFHpA	87		25-150
STL00990	13C4 PFOA	92		25-150
STL00995	13C5 PFNA	92		25-150
STL00996	13C2 PFDA	90		25-150
STL00997	13C2 PFUnA	90		25-150
STL00998	13C2 PFDoA	92		25-150
STL02116	13C2-PFTeDA	91		25-150
STL02337	13C3-PFBS	87		25-150
STL00994	18O2 PFHxS	88		25-150
STL00991	13C4 PFOS	88		25-150
STL01056	13C8 FOSA	84		25-150
STL02118	d3-NMeFOSAA	88		25-150
STL02117	d5-NEtFOSAA	94		25-150
STL02279	M2-6:2FTS	103		25-150
STL02280	M2-8:2FTS	90		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_034.d
Lims ID: LCS 320-242502/2-A
Client ID:
Sample Type: LCS
Inject. Date: 30-Aug-2018 00:14:11 ALS Bottle#: 24 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-242502/2-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:29:10 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:29:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.411	1.421	-0.010	0.535	6488625	2.26		90.4	11832	
2 Perfluorobutyric acid										
212.90 > 169.00	1.416	1.424	-0.008	1.004	2323581	1.01		101	262	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.679	1.684	-0.005	1.000	1823950	0.9740		97.4	128	
D 3 13C5-PFPeA										
267.90 > 223.00	1.679	1.687	-0.008	0.637	4059800	2.24		89.4	10392	
D 47 13C3-PFBS										
301.90 > 83.00	1.711	1.720	-0.009	0.649	86670	2.02		86.8	482	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.711	1.724	-0.013	1.000	2422384	0.8679		98.2	4389	
298.90 > 99.00	1.711	1.724	-0.013	1.000	1019978		2.37(1.25-3.74)		2528	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.934	1.939	-0.005	1.130	551305	0.9613		103	5344	
D 7 13C2 PFHxA										
315.00 > 270.00	1.966	1.966	0.0	0.746	4657948	2.29		91.5	12943	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.966	1.970	-0.004	1.000	1731128	0.9227		92.3	779	
313.00 > 119.00	1.966	1.970	-0.004	1.000	154336		11.22(5.03-15.10)		659	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.986	1.991	-0.005	1.161	2622197	1.02		109	9357	
349.00 > 99.00	1.986	1.991	-0.005	1.161	962562		2.72(1.36-4.07)		3644	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.060	2.064	-0.004	1.000	269154	0.8944		89.4	349	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.060	2.070	-0.010	0.781	237589	2.43		97.1	1134	
D 9 13C4-PFHpA										
367.00 > 322.00	2.289	2.289	0.0	0.868	4193863	2.18		87.4	13675	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.289	2.292	-0.003	1.000	1858721	1.01		101	921	
363.00 > 169.00	2.289	2.292	-0.003	1.000	684669		2.71(1.13-3.40)		1856	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.300	2.303	-0.003	1.000	2065063	0.8378		92.1	3300	
399.00 > 99.00	2.300	2.303	-0.003	1.000	658966		3.13(1.50-4.49)		119	
D 11 18O2 PFHxS										
403.00 > 84.00	2.300	2.311	-0.011	0.873	5327872	2.09		88.3	10586	
77 DONA										
377.00 > 251.00	2.334	2.336	-0.002	0.777	5373395	1.04		110	10876	
377.00 > 85.00	2.334	2.336	-0.002	0.777	3138190		1.71(0.85-2.54)		3871	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.606	2.609	-0.003	0.997	640999	0.9534		101	4607	
D 12 M2-6:2FTS										
429.00 > 81.00	2.613	2.613	0.0	0.991	1062126	2.44		103	3849	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.636	2.639	-0.003	1.000	1838152	0.9668		96.6	333	
413.00 > 169.00	2.636	2.639	-0.003	1.000	980912		1.87(0.84-2.52)		2740	
* 62 13C2-PFOA										
415.00 > 370.00	2.636	2.639	-0.003		4647575	2.50			16220	
D 14 13C4 PFOA										
417.00 > 372.00	2.636	2.644	-0.008	1.000	4205340	2.30		91.9	9092	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.644	2.647	-0.003	0.881	1870462	0.99		105	4428	
449.00 > 99.00	2.644	2.647	-0.003	0.881	498261		3.75(1.94-5.82)		1843	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.002	3.006	-0.004	1.000	1518778	0.8947		96.4	4080	
499.00 > 99.00	3.002	3.006	-0.004	1.000	358779		4.23(2.31-6.93)		1349	
20 Perfluorononanoic acid										
463.00 > 419.00	3.010	3.006	0.004	1.003	1426037	1.00		99.6	454	
463.00 > 169.00	3.010	3.006	0.004	1.003	339901		4.20(1.90-5.69)		2128	
D 18 13C4 PFOS										
503.00 > 80.00	3.002	3.009	-0.007	1.139	3688856	2.11		88.5	5648	
D 19 13C5 PFNA										
468.00 > 423.00	3.002	3.016	-0.014	1.139	3444068	2.29		91.6	11283	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.213	3.218	-0.005	1.070	2611867	0.9328		100	5195	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.351	3.347	0.004	1.116	1168423	0.9397		97.9	4165	
549.00 > 99.00	3.351	3.347	0.004	1.116	434526		2.69(1.33-3.97)		1358	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.351	3.347	0.004	1.000	553316	0.9390		98.0	1684	
D 26 M2-8:2FTS										
529.00 > 81.00	3.351	3.357	-0.006	1.271	1088583	2.15		89.8	3188	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.359	3.362	-0.003	1.000	2062579	0.99		99.1	4490	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
24 Perfluorodecanoic acid										
513.00 > 469.00	3.366	3.362	0.004	1.002	1189588	0.9761		97.6	1281	
513.00 > 169.00	3.366	3.362	0.004	1.002	214274		5.55(2.36-7.09)		1426	
D 21 13C8 FOSA										
506.00 > 78.00	3.359	3.364	-0.005	1.274	5393917	2.09		83.5	6940	
D 23 13C2 PFDA										
515.00 > 470.00	3.359	3.372	-0.013	1.274	3135987	2.25		89.8	4758	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.517	3.513	0.004	1.000	535963	0.9693		96.9	527	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.517	3.523	-0.006	1.334	1427609	2.19		87.8	2595	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.671	3.673	-0.002	1.223	1027583	0.9373		97.2	3587	
599.00 > 99.00	3.671	3.673	-0.002	1.223	335832		3.06(1.39-4.16)		2140	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.679	3.681	-0.002	0.998	898604	0.9065		90.7	685	
563.00 > 169.00	3.688	3.681	0.007	1.000	208575		4.31(2.12-6.36)		1469	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.679	3.685	-0.006	1.396	1677139	2.35		93.9	652	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.688	3.690	-0.002	1.002	512475	0.9101		91.0	1222	
D 30 13C2 PFUnA										
565.00 > 520.00	3.688	3.693	-0.005	1.399	2711316	2.25		89.9	7926	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.846	3.848	-0.002	1.281	4122607	0.9709		103	8446	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.985	3.978	0.007	1.002	1150270	0.8856		88.6	729	
613.00 > 169.00	3.976	3.978	-0.002	1.000	292932		3.93(2.13-6.40)		2078	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.985	3.987	-0.002	1.189	526699	0.9711		101	3657	
D 36 13C2 PFDoA										
615.00 > 570.00	3.976	3.991	-0.015	1.508	2961926	2.30		92.0	9082	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.213	4.225	-0.012	1.403	415857	0.9095		94.0	1241	
699.00 > 99.00	4.213	4.225	-0.012	1.403	593216		0.70(0.00-0.00)		2895	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.242	4.244	-0.002	1.067	1143139	0.9278		92.8	377	
663.00 > 169.00	4.242	4.244	-0.002	1.067	355252		3.22(1.25-3.76)		2244	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.473	4.484	-0.011	1.000	315639	0.9039		90.4	2795	
713.00 > 219.00	4.473	4.484	-0.011	1.000	214020		1.47(0.71-2.13)		1866	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.473	4.492	-0.019	1.697	3496026	2.26		90.5	6158	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.888	4.897	-0.009	1.854	4678285	2.10		84.0	4230	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.898	4.898	0.0	1.002	1688657	0.99		99.3	174	
813.00 > 169.00	4.888	4.898	-0.010	1.000	300450		5.62(2.86-8.58)		1607	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.237	5.245	-0.008	1.071	1866092	1.00		99.6	127	
913.00 > 169.00	5.237	5.245	-0.008	1.071	235479		7.92(3.83-11.48)		1364	

Report Date: 31-Aug-2018 14:29:39 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_034.d

Injection Date: 30-Aug-2018 00:14:11 Instrument ID: A8_N

Lims ID: LCS 320-242502/2-A

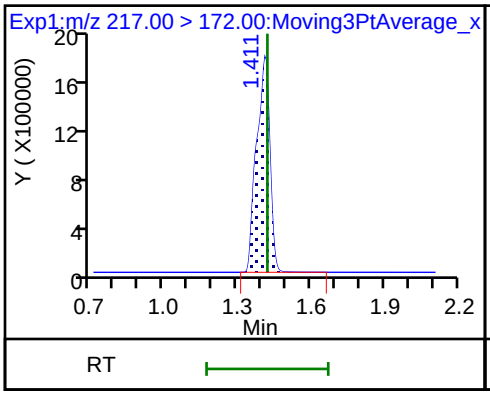
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 3

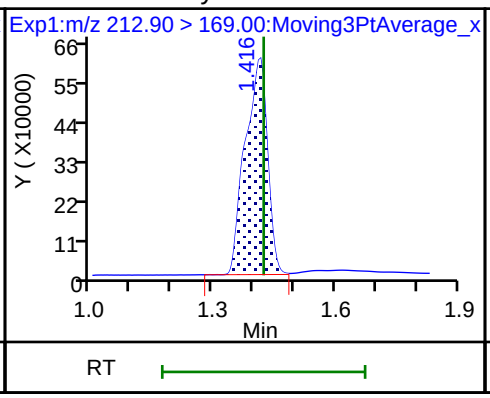
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

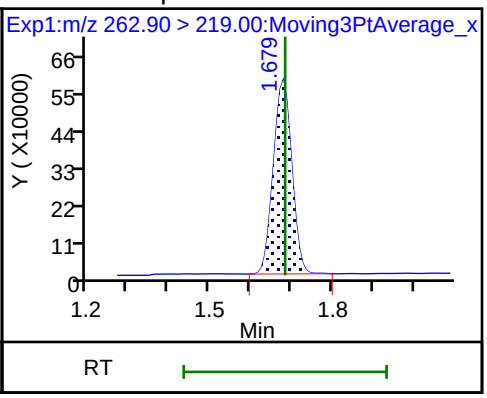
D 1 13C4 PFBA



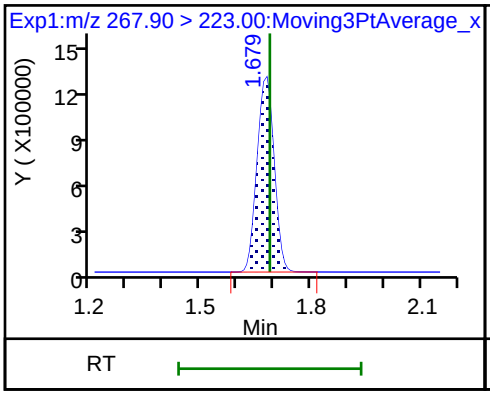
2 Perfluorobutyric acid



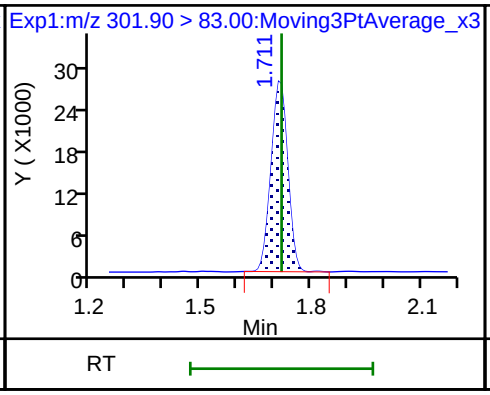
4 Perfluoropentanoic acid



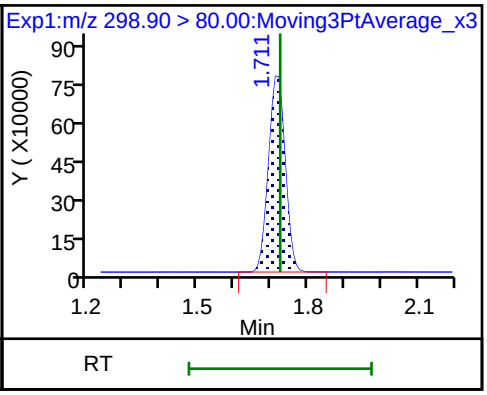
D 3 13C5-PFPeA



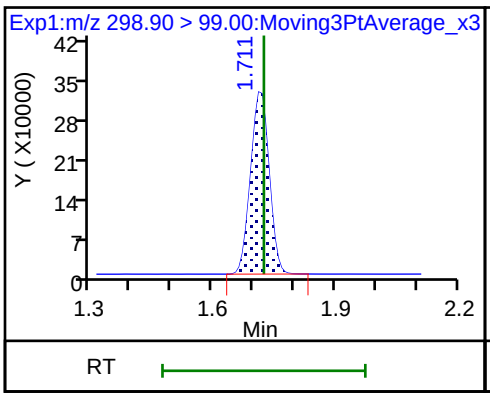
D 47 13C3-PFBS



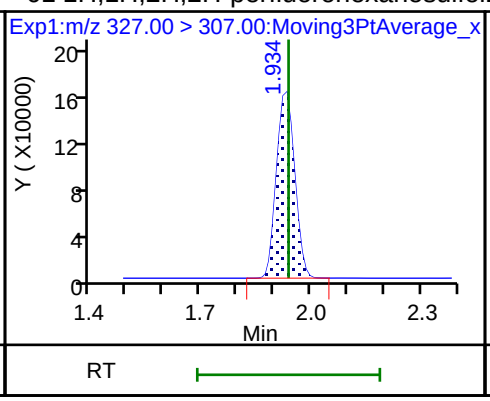
5 Perfluorobutanesulfonic acid



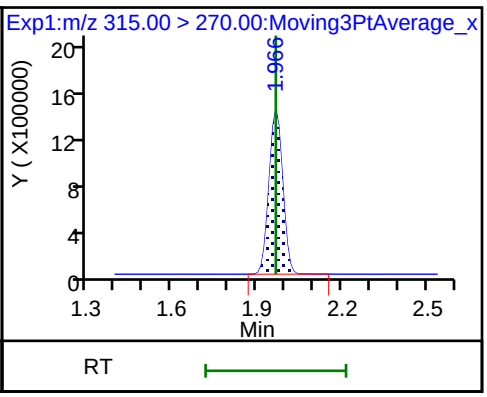
5 Perfluorobutanesulfonic acid



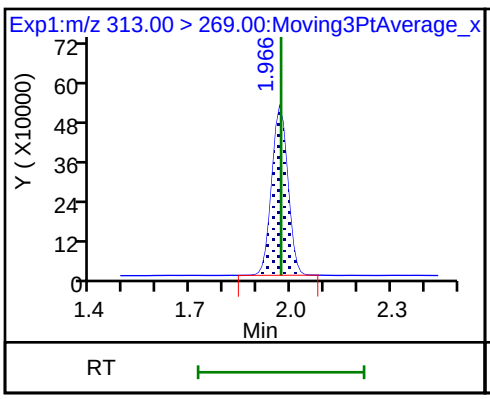
61 1H,1H,2H,2H-perfluorohexanesulfon



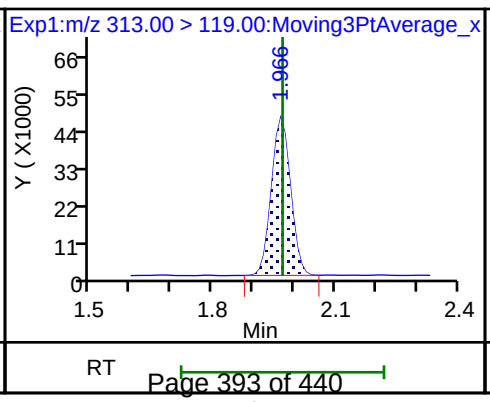
D 7 13C2 PFHxA



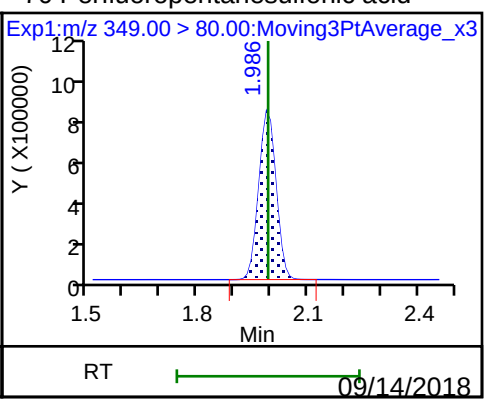
6 Perfluorohexanoic acid



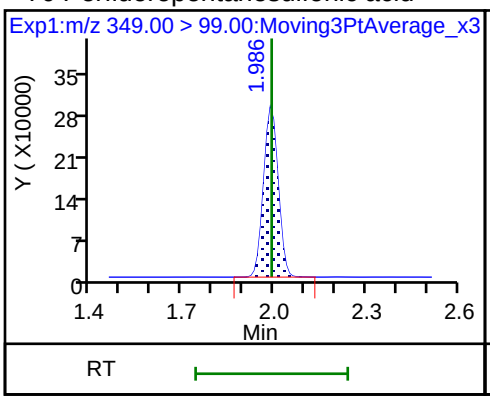
6 Perfluorohexanoic acid



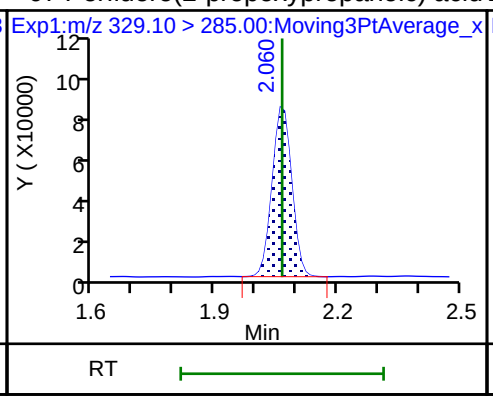
70 Perfluoropentanesulfonic acid



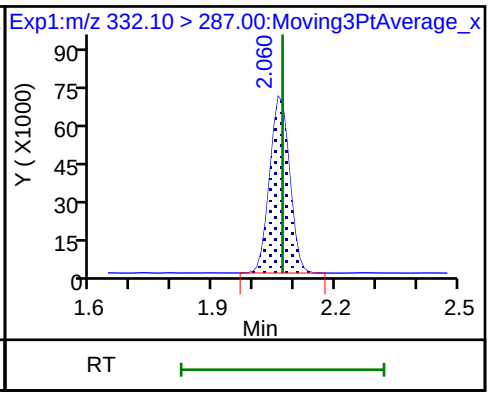
70 Perfluoropentanesulfonic acid



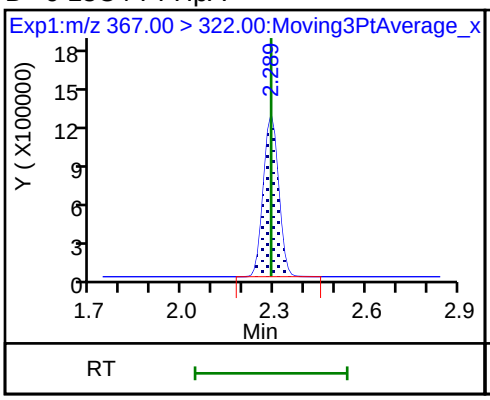
67 Perfluoro(2-propoxypropanoic) acid



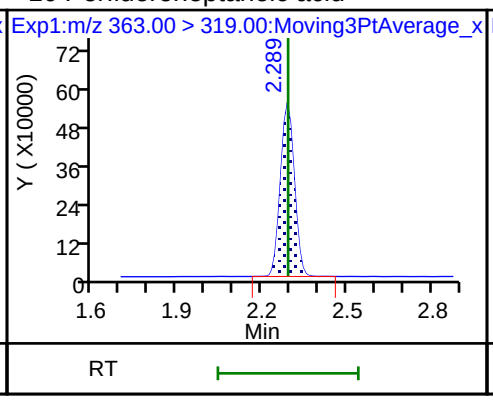
D 64 13C3 HFPO-DA



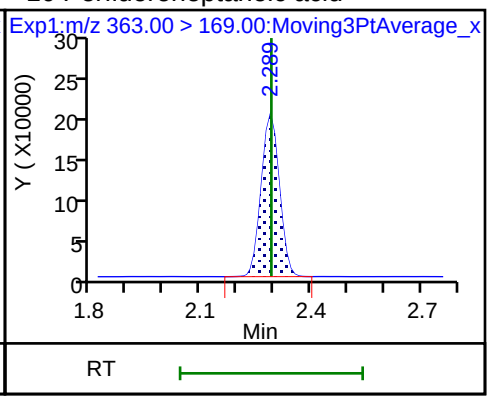
D 9 13C4-PFHpA



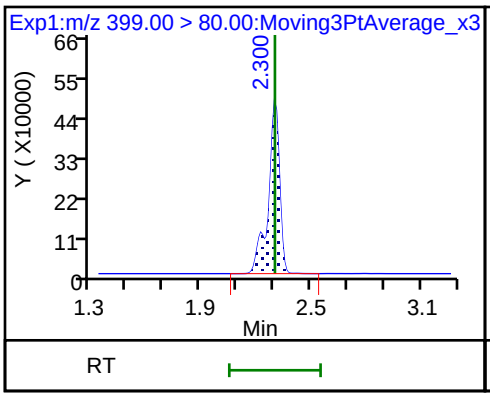
10 Perfluoroheptanoic acid



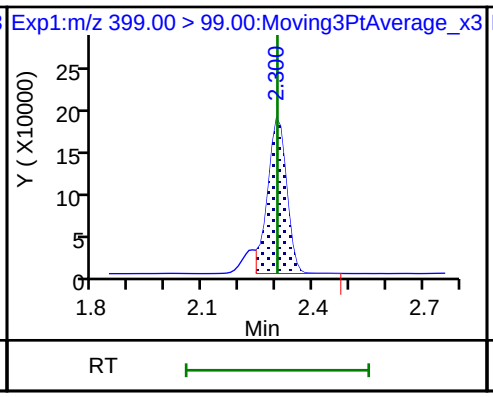
10 Perfluoroheptanoic acid



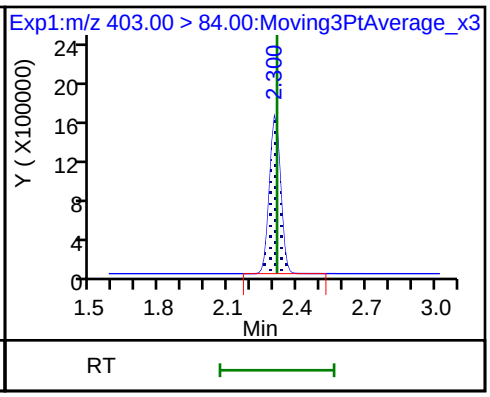
8 Perfluorohexanesulfonic acid



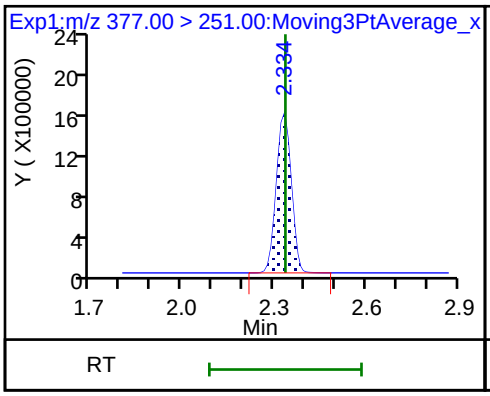
8 Perfluorohexanesulfonic acid



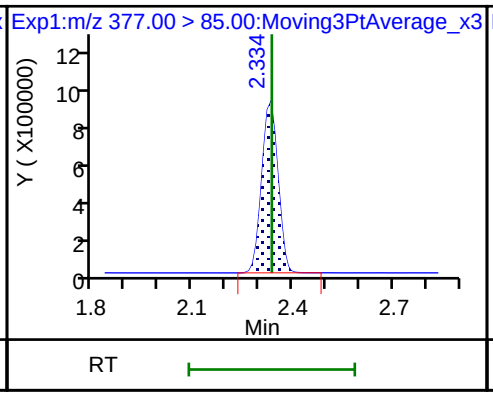
D 11 18O2 PFHxS



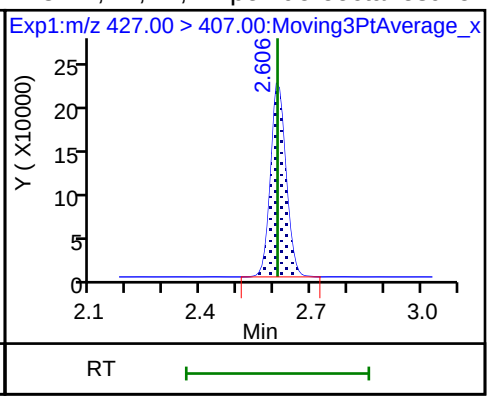
77 DONA



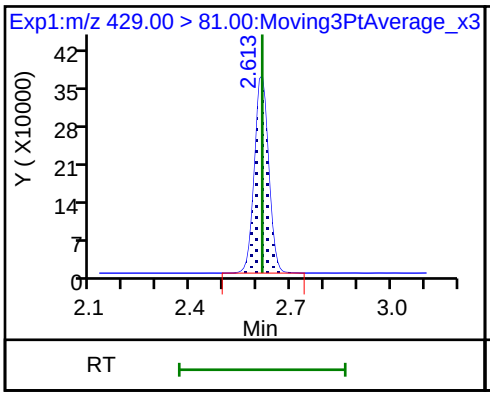
77 DONA



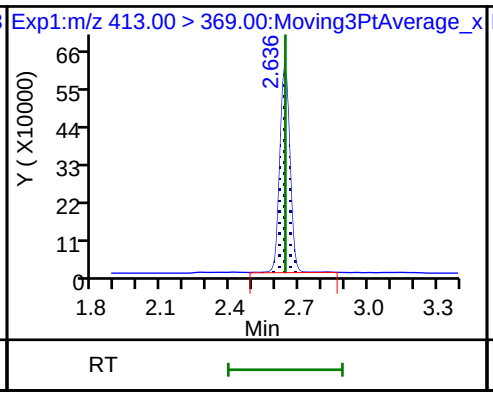
13 1H,1H,2H,2H-perfluorooctanesulfoni



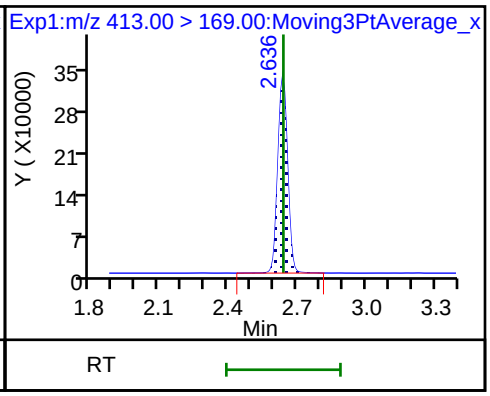
D 12 M2-6:2FTS



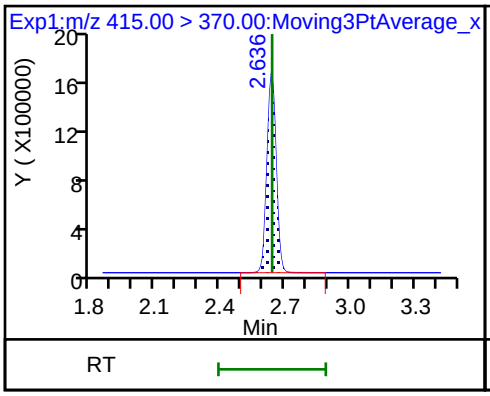
15 Perfluorooctanoic acid



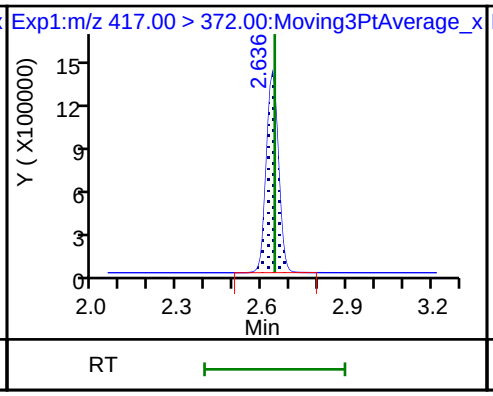
15 Perfluorooctanoic acid



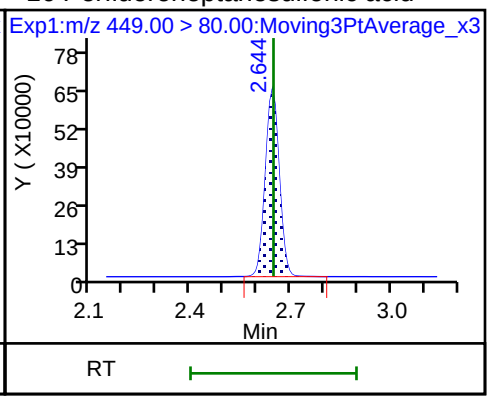
* 62 13C2-PFOA



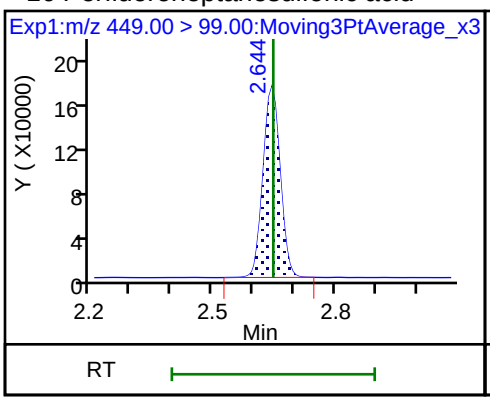
D 14 13C4 PFOA



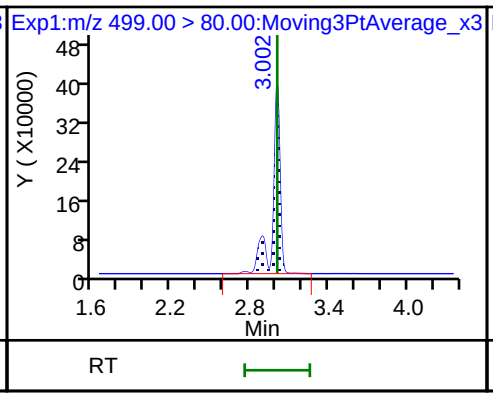
16 Perfluoroheptanesulfonic acid



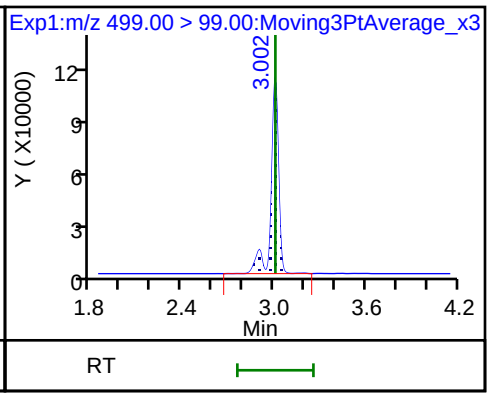
16 Perfluoroheptanesulfonic acid



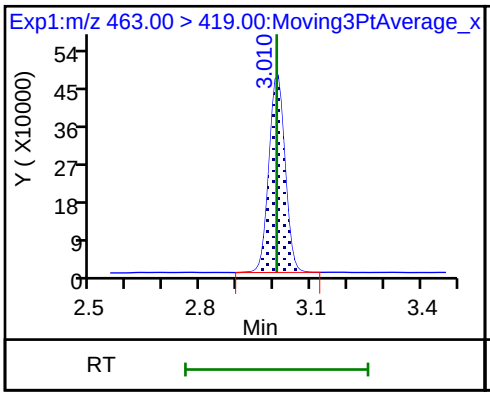
17 Perfluorooctane sulfonic acid



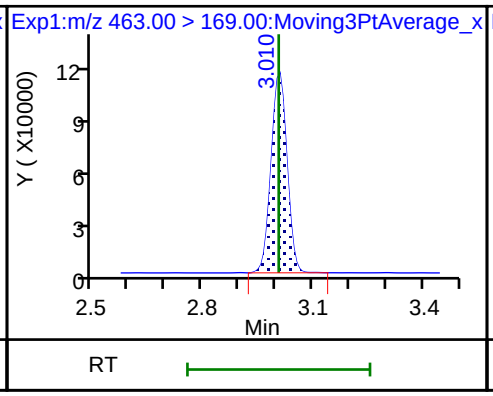
17 Perfluorooctane sulfonic acid



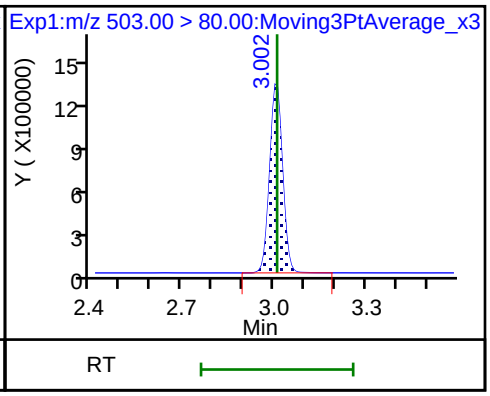
20 Perfluorononanoic acid



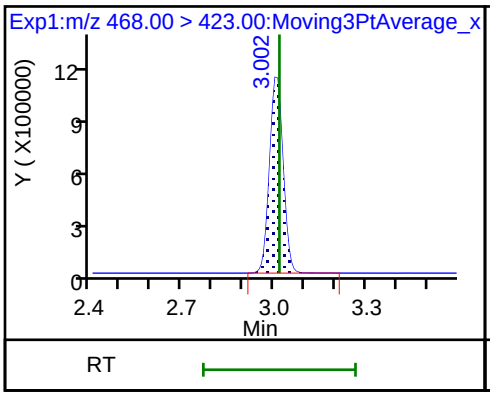
20 Perfluorononanoic acid



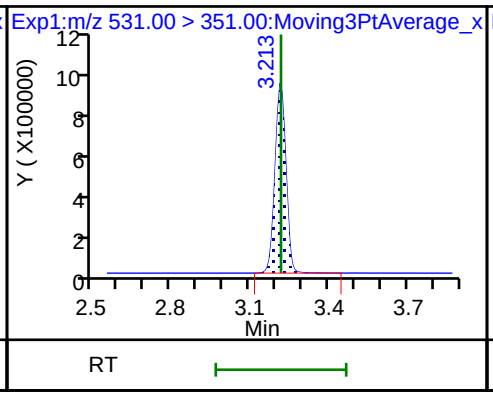
D 18 13C4 PFOS



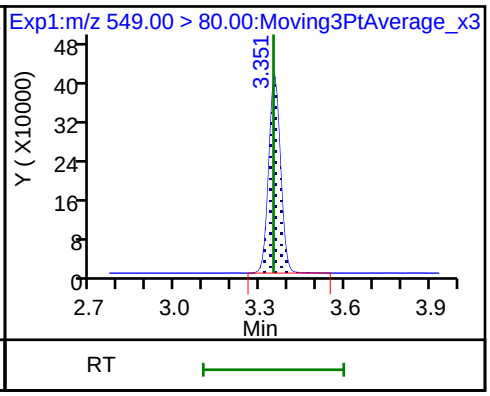
D 19 13C5 PFNA



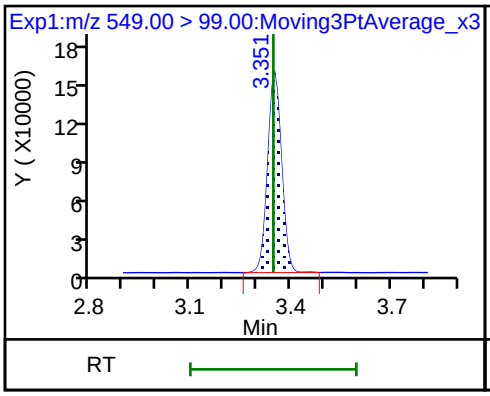
69 9-Chlorohexadecafluoro-3-oxanonane



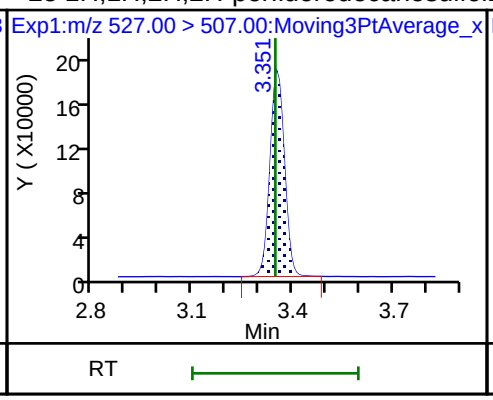
68 Perfluorononanesulfonic acid



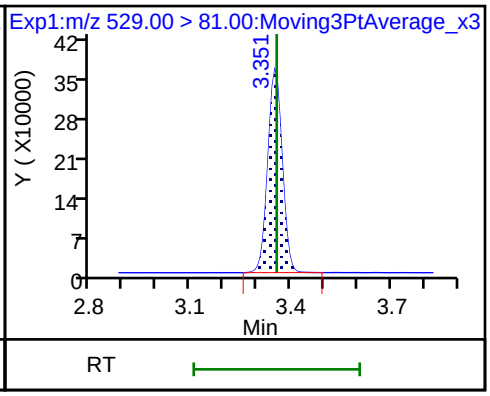
68 Perfluorononanesulfonic acid



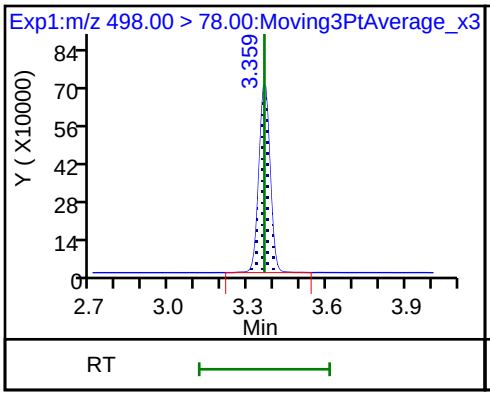
25 1H,1H,2H,2H-perfluorodecanesulfon



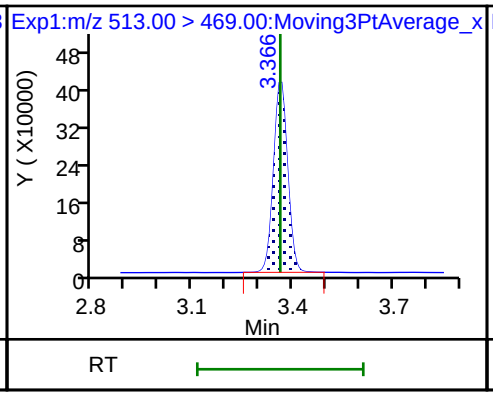
D 26 M2-8:2FTS



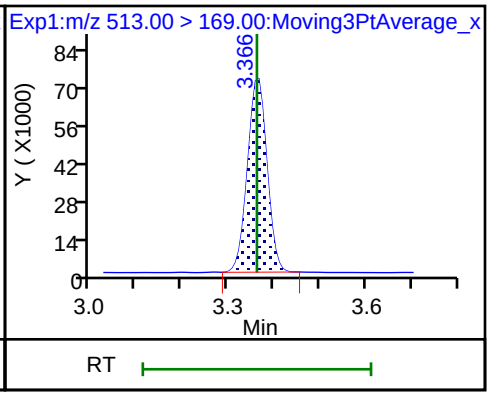
22 Perfluorooctane Sulfonamide



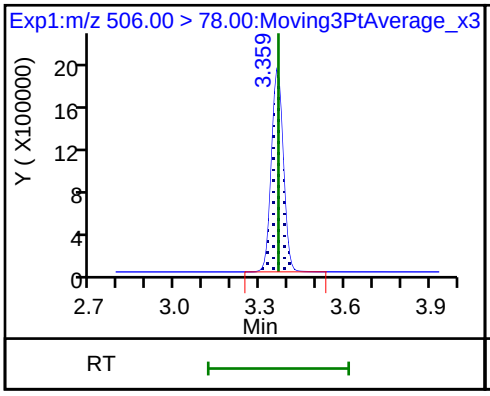
24 Perfluorodecanoic acid



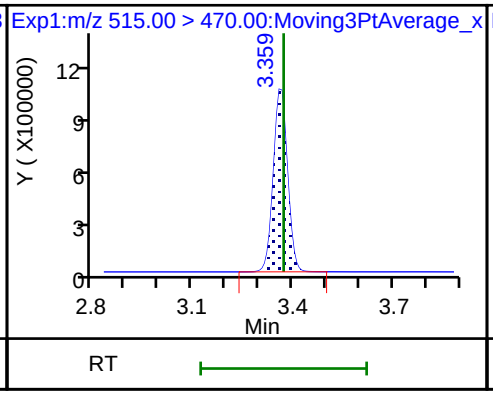
24 Perfluorodecanoic acid



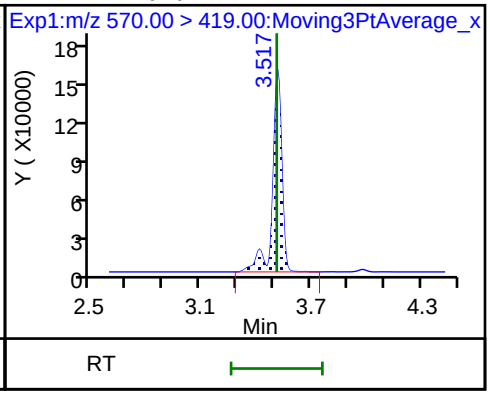
D 21 13C8 FOSA



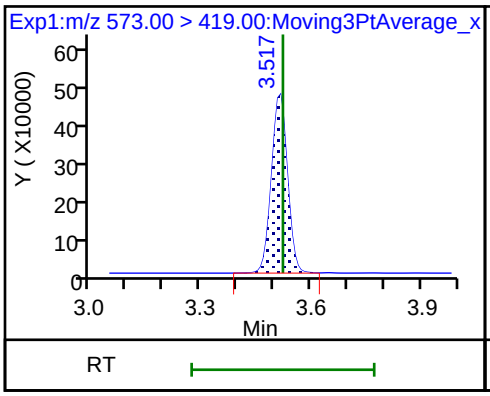
D 23 13C2 PFDA



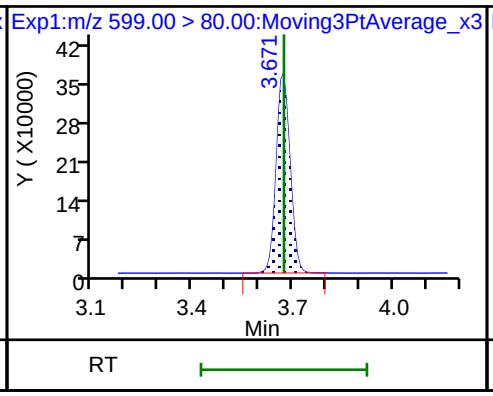
28 N-methyl perfluorooctane sulfonami



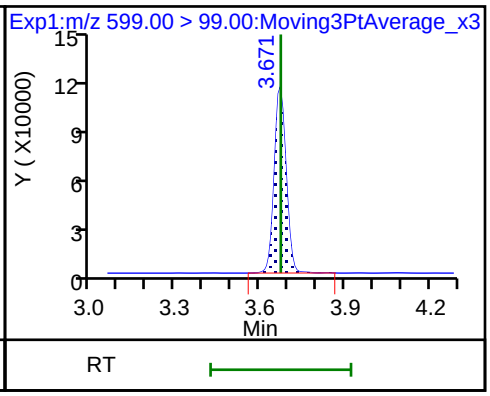
D 27 d3-NMeFOSAA



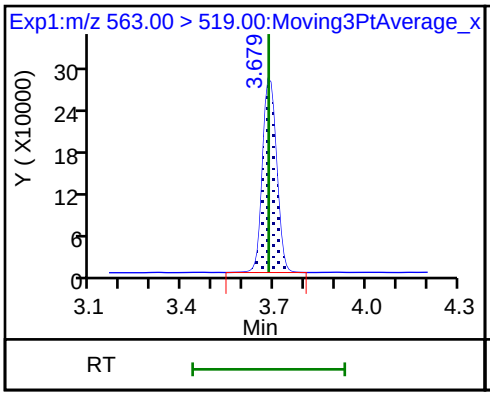
29 Perfluorodecane Sulfonic acid



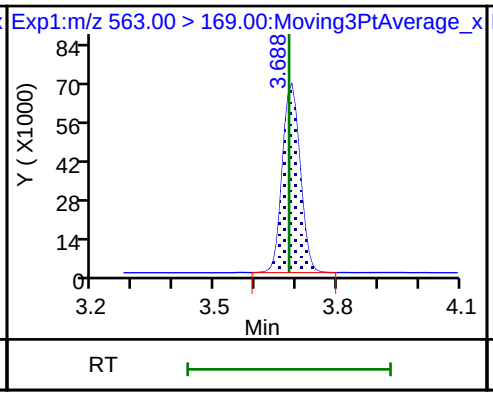
29 Perfluorodecane Sulfonic acid



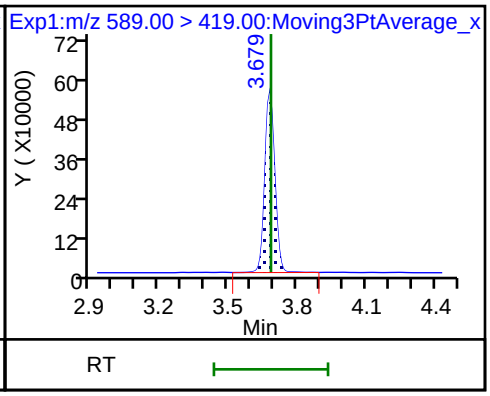
31 Perfluoroundecanoic acid



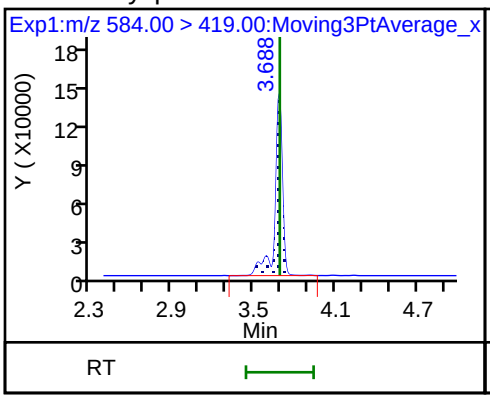
31 Perfluoroundecanoic acid



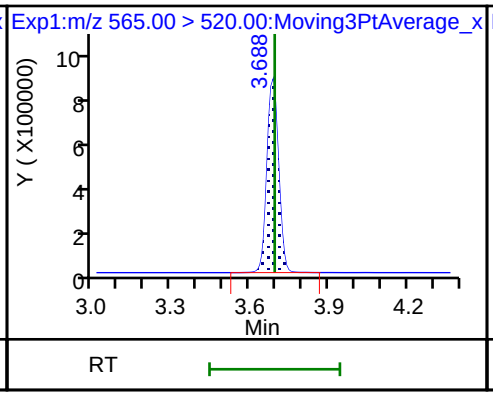
D 32 d5-NEtFOSAA



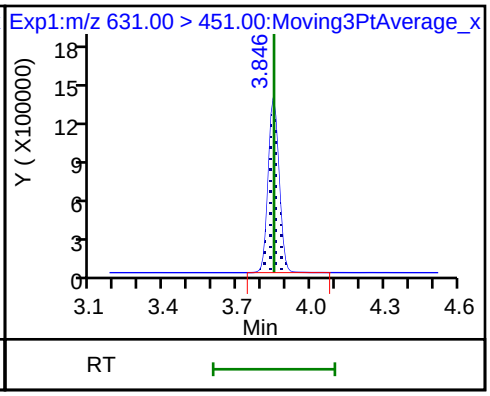
33 N-ethyl perfluorooctane sulfonamid



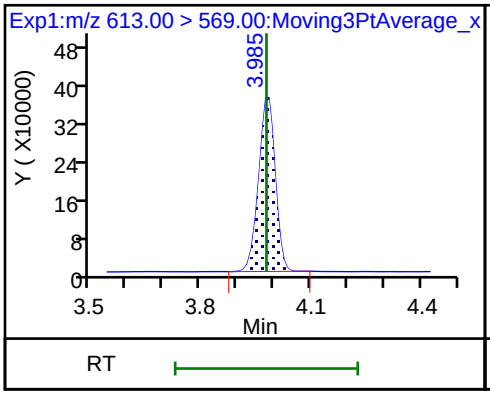
D 30 13C2 PFUnA



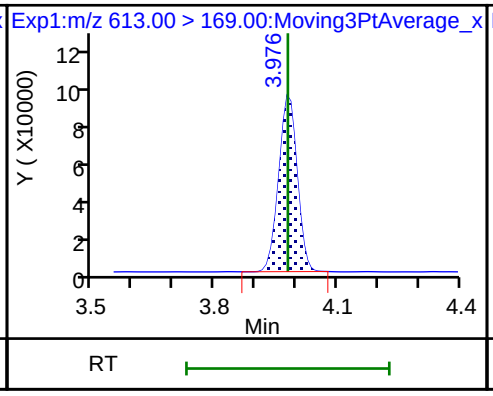
66 11-Chloroeicosafluoro-3-oxaundecan



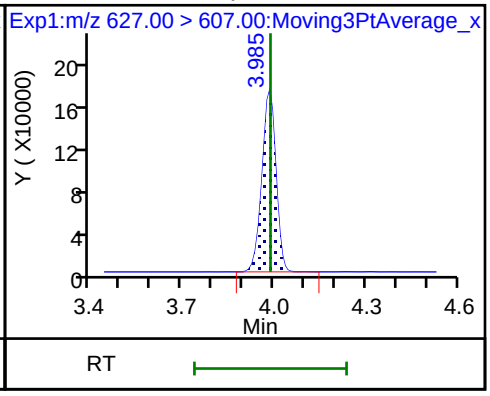
37 Perfluorododecanoic acid



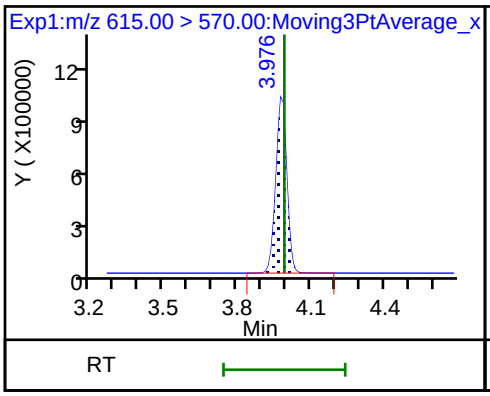
37 Perfluorododecanoic acid



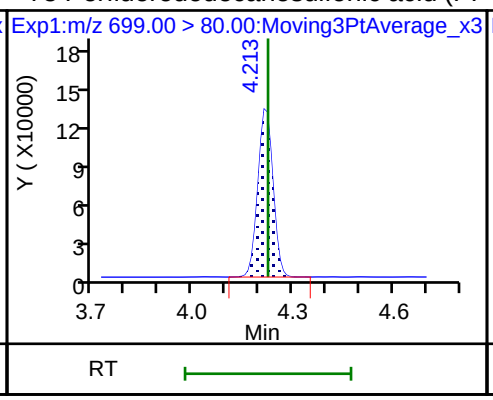
74 1H,1H,2H,2H-perfluorododecanesulfo



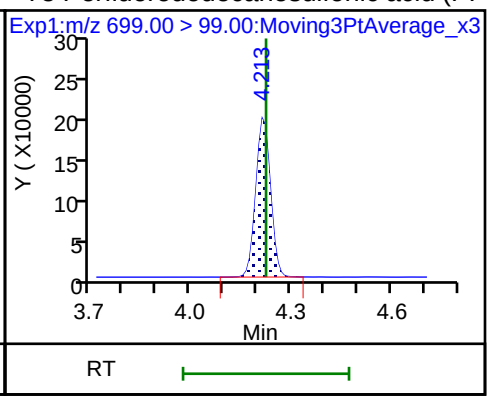
D 36 13C2 PFDoA



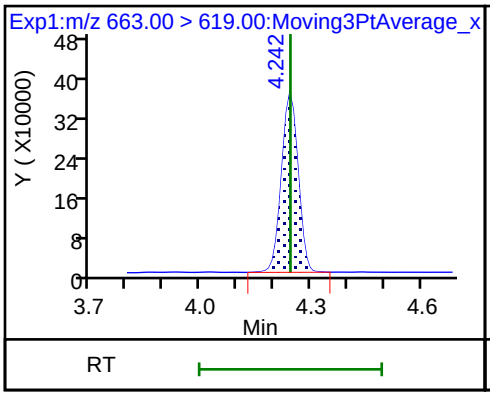
75 Perfluorododecanesulfonic acid (PF



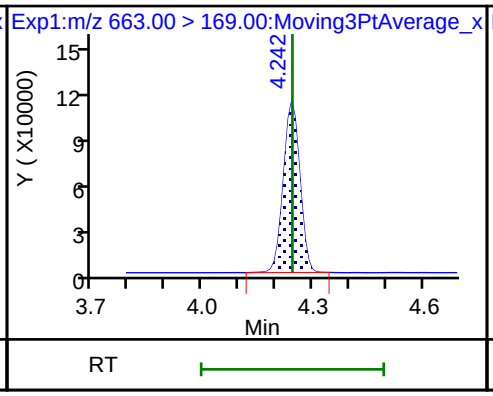
75 Perfluorododecanesulfonic acid (PF



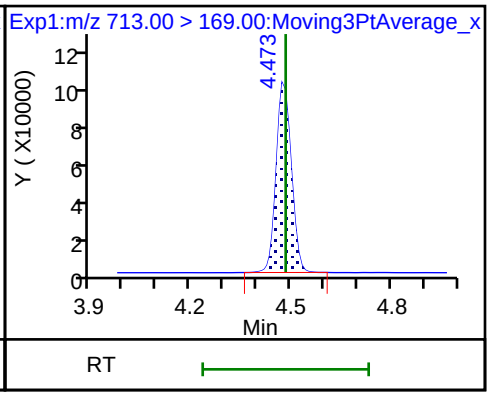
41 Perfluorotridecanoic acid



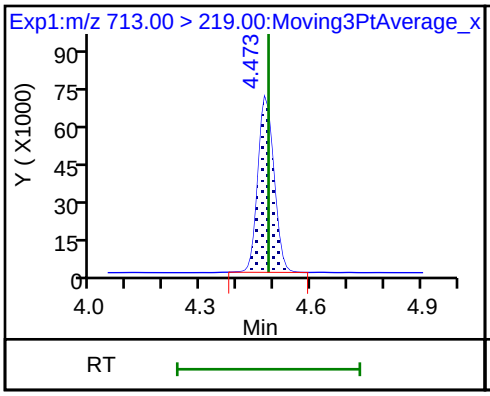
41 Perfluorotridecanoic acid



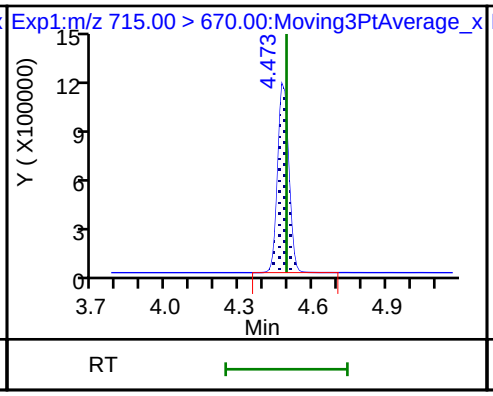
42 Perfluorotetradecanoic acid



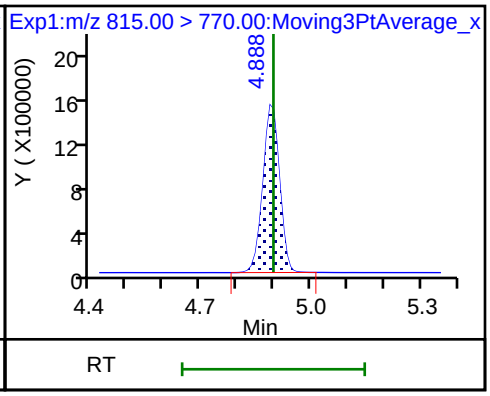
42 Perfluorotetradecanoic acid



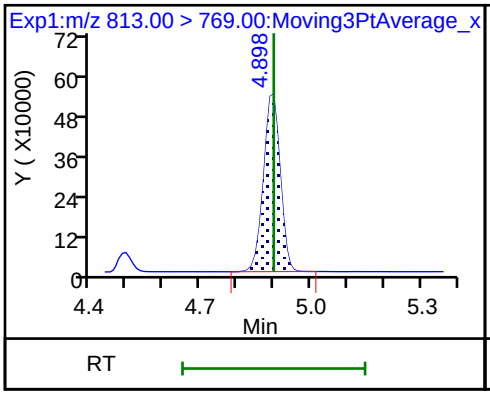
D 43 13C2-PFTeDA



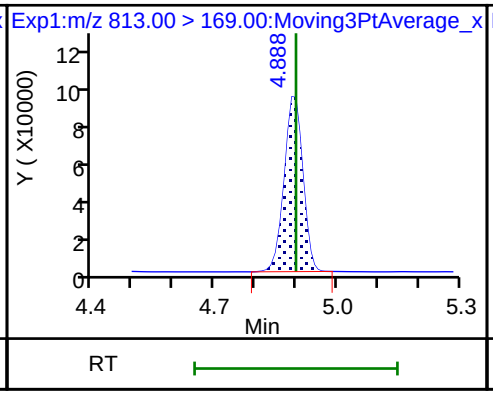
D 44 13C2-PFHxDA



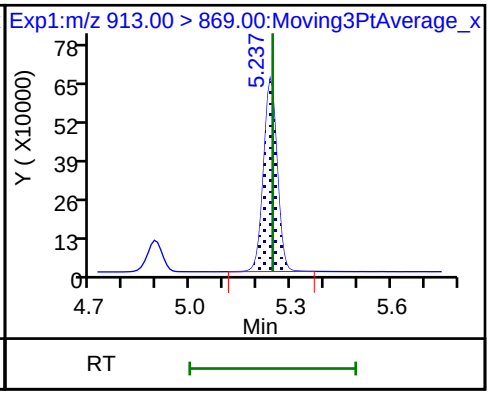
45 Perfluorohexadecanoic acid



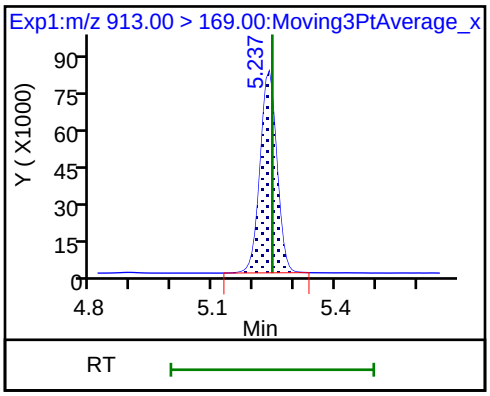
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-2D MS | Lab Sample ID: 320-42265-6 MS

Matrix: Water | Lab File ID: 2018.08.29LLB_045.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 12:00

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 242.8(mL) | Date Analyzed: 08/30/2018 01:40

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	49.2		2.1	0.36
2706-90-3	Perfluoropentanoic acid (PFPeA)	39.8		2.1	0.50
307-24-4	Perfluorohexanoic acid (PFHxA)	39.7		2.1	0.60
375-85-9	Perfluoroheptanoic acid (PFHpA)	38.2		2.1	0.26
335-67-1	Perfluorooctanoic acid (PFOA)	46.5		2.1	0.88
375-95-1	Perfluorononanoic acid (PFNA)	40.7		2.1	0.28
335-76-2	Perfluorodecanoic acid (PFDA)	39.5		2.1	0.32
2058-94-8	Perfluoroundecanoic acid (PFUnA)	37.7		2.1	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	38.0		2.1	0.57
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	42.8		2.1	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	37.9		2.1	0.30
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38.3		2.1	0.21
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	37.1		2.1	0.18
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	41.1		2.1	0.20
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	35.9		2.1	0.56
335-77-3	Perfluorodecanesulfonic acid (PFDS)	34.3		2.1	0.33
754-91-6	Perfluorooctane Sulfonamide (FOSA)	40.5		2.1	0.36
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	38.0		21	3.2
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.8		21	2.0
27619-97-2	6:2 FTS	43.0		21	2.1
39108-34-4	8:2 FTS	38.3		21	2.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-2D MS | Lab Sample ID: 320-42265-6 MS

Matrix: Water | Lab File ID: 2018.08.29LLB_045.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 12:00

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 242.8(mL) | Date Analyzed: 08/30/2018 01:40

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	87		25-150
STL01893	13C5 PFPeA	89		25-150
STL00993	13C2 PFHxA	95		25-150
STL01892	13C4-PFHpA	94		25-150
STL00990	13C4 PFOA	92		25-150
STL00995	13C5 PFNA	97		25-150
STL00996	13C2 PFDA	95		25-150
STL00997	13C2 PFUnA	90		25-150
STL00998	13C2 PFDoA	89		25-150
STL02116	13C2-PFTeDA	91		25-150
STL02337	13C3-PFBS	86		25-150
STL00994	18O2 PFHxS	91		25-150
STL00991	13C4 PFOS	91		25-150
STL01056	13C8 FOSA	88		25-150
STL02118	d3-NMeFOSAA	85		25-150
STL02117	d5-NEtFOSAA	88		25-150
STL02279	M2-6:2FTS	95		25-150
STL02280	M2-8:2FTS	97		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_045.d
Lims ID: 320-42265-A-6-B MS
Client ID: MW-2D
Sample Type: MS
Inject. Date: 30-Aug-2018 01:40:22 ALS Bottle#: 34 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-42265-a-6-b ms
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:45:26 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:45:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.416	1.421	-0.005	0.537	6266376	2.18		87.3	9447	
2 Perfluorobutyric acid										
212.90 > 169.00	1.416	1.424	-0.008	1.000	2660315	1.19		119	284	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.679	1.684	-0.005	1.000	1803738	0.9652		96.5	50.0	
D 3 13C5-PFPeA										
267.90 > 223.00	1.679	1.687	-0.008	0.637	4051729	2.23		89.3	6491	
D 47 13C3-PFBS										
301.90 > 83.00	1.712	1.720	-0.008	0.649	86221	2.01		86.4	222	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.720	1.724	-0.004	1.005	2578744	0.9288		105	241	
298.90 > 99.00	1.720	1.724	-0.004	1.005	1029072		2.51(1.25-3.74)		277	
D 60 M2-4:2FTS										
329.00 > 81.00	2.154	1.934	0.220	0.817	1398	0.004877		0.0	0.4	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.934	1.939	-0.005	1.130	746164	1.31		140	4366	
D 7 13C2 PFHxA										
315.00 > 270.00	1.966	1.966	0.0	0.746	4847479	2.38		95.3	12543	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.966	1.970	-0.004	1.000	1881625	0.9637		96.4	192	
313.00 > 119.00	1.966	1.970	-0.004	1.000	169157		11.12(5.03-15.10)		334	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.987	1.991	-0.004	1.161	2604853	1.02		109	936	
349.00 > 99.00	1.987	1.991	-0.004	1.161	979016		2.66(1.36-4.07)		602	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.070	2.064	0.006	1.000	260045	0.9056		90.6	77.9	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.070	2.070	0.0	0.785	226710	2.32		92.7	638	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 9 13C4-PFHpA										
367.00 > 322.00	2.289	2.289	0.0	0.868	4506397	2.35		93.9	11286	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.289	2.292	-0.003	1.000	1829912	0.9270		92.7	379	
363.00 > 169.00	2.289	2.292	-0.003	1.000	695787		2.63(1.13-3.40)		1465	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.300	2.303	-0.003	1.000	2277738	0.9000		98.9	982	
399.00 > 99.00	2.300	2.303	-0.003	1.000	784060		2.91(1.50-4.49)		1370	M
D 11 18O2 PFHxS										
403.00 > 84.00	2.300	2.311	-0.011	0.873	5470657	2.14		90.7	20061	
77 DONA										
377.00 > 251.00	2.334	2.336	-0.002	0.778	5478458	1.02		109	12274	
377.00 > 85.00	2.334	2.336	-0.002	0.778	3134113		1.75(0.85-2.54)		2268	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.606	2.609	-0.003	1.000	651674	1.05		110	3387	
D 12 M2-6:2FTS										
429.00 > 81.00	2.606	2.613	-0.007	0.988	984962	2.26		95.3	1450	
D 73 13C8 PFOA										
421.00 > 376.00	2.629	2.636	-0.007	0.997	5685	0.001865		0.0	115	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.636	2.639	-0.003	1.000	2149913	1.13		113	352	
413.00 > 169.00	2.636	2.639	-0.003	1.000	1054335		2.04(0.84-2.52)		2474	
* 62 13C2-PFOA										
415.00 > 370.00	2.636	2.639	-0.003		4646811	2.50			7880	
D 14 13C4 PFOA										
417.00 > 372.00	2.636	2.644	-0.008	1.000	4215150	2.30		92.1	11099	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.644	2.647	-0.003	0.881	1940545	1.00		105	342	
449.00 > 99.00	2.644	2.647	-0.003	0.881	525304		3.69(1.94-5.82)		977	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.001	3.006	-0.005	1.000	1529181	0.8714		93.9	1691	
499.00 > 99.00	3.001	3.006	-0.005	1.000	349689		4.37(2.31-6.93)		955	
20 Perfluorononanoic acid										
463.00 > 419.00	3.001	3.006	-0.005	1.000	1497759	0.9879		98.8	425	
463.00 > 169.00	3.009	3.006	0.003	1.003	345490		4.34(1.90-5.69)		1083	
D 18 13C4 PFOS										
503.00 > 80.00	3.001	3.009	-0.008	1.138	3813191	2.19		91.5	5097	
D 19 13C5 PFNA										
468.00 > 423.00	3.001	3.016	-0.015	1.138	3647546	2.42		97.0	8229	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.212	3.218	-0.006	1.070	2615749	0.9037		97.0	3925	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.351	3.347	0.004	1.116	1184130	0.9213		96.0	1937	
549.00 > 99.00	3.351	3.347	0.004	1.116	414852		2.85(1.33-3.97)		1138	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.351	3.347	0.004	1.000	589541	0.9296		97.0	1629	
D 26 M2-8:2FTS										
529.00 > 81.00	3.351	3.357	-0.006	1.271	1171663	2.31		96.6	2767	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.365	3.362	0.003	1.002	2161784	0.9831		98.3	3629	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.365	3.362	0.003	1.002	1231219	0.9597		96.0	1081	
513.00 > 169.00	3.365	3.362	0.003	1.002	213226		5.77(2.36-7.09)		1642	
D 21 13C8 FOSA										
506.00 > 78.00	3.358	3.364	-0.006	1.274	5700240	2.21		88.3	7560	
D 23 13C2 PFDA										
515.00 > 470.00	3.358	3.372	-0.014	1.274	3301009	2.36		94.6	5259	
28 N-methyl perfluorooctane sulfonami										M
570.00 > 419.00	3.516	3.513	0.003	1.000	493173	0.9228		92.3	472	M
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.516	3.523	-0.007	1.334	1379782	2.12		84.9	3239	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.670	3.673	-0.003	1.223	943502	0.8325		86.4	2133	
599.00 > 99.00	3.670	3.673	-0.003	1.223	314846		3.00(1.39-4.16)		1068	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.686	3.681	0.005	1.000	904788	0.9156		91.6	684	
563.00 > 169.00	3.686	3.681	0.005	1.000	198166		4.57(2.12-6.36)		1549	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.677	3.685	-0.008	1.395	1573850	2.20		88.1	628	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.686	3.690	-0.004	1.002	523685	0.99		99.1	1962	
D 30 13C2 PFUnA										
565.00 > 520.00	3.686	3.693	-0.007	1.398	2702945	2.24		89.6	8542	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.853	3.848	0.005	1.284	3920179	0.8931		94.8	13082	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.983	3.978	0.005	1.000	1159957	0.9226		92.3	770	
613.00 > 169.00	3.983	3.978	0.005	1.000	283340		4.09(2.13-6.40)		1803	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.983	3.987	-0.004	1.189	534634	0.9159		95.0	2930	
D 36 13C2 PFDoA										
615.00 > 570.00	3.983	3.991	-0.008	1.511	2867213	2.23		89.0	7943	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.221	4.225	-0.004	1.406	404178	0.8551		88.3	1205	
699.00 > 99.00	4.221	4.225	-0.004	1.406	550588		0.73(0.00-0.00)		2733	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.240	4.244	-0.004	1.064	1240054	1.04		104	369	
663.00 > 169.00	4.240	4.244	-0.004	1.064	383762		3.23(1.25-3.76)		1764	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.483	4.484	-0.002	1.000	322455	0.9194		91.9	2270	
713.00 > 219.00	4.472	4.484	-0.012	0.998	225058		1.43(0.71-2.13)		1033	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.483	4.492	-0.010	1.700	3511101	2.27		90.9	6232	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.897	4.897	0.0	1.857	4941074	2.22		88.7	7271	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.897	4.898	-0.001	1.000	1743399	0.9704		97.0	169	
813.00 > 169.00	4.897	4.898	-0.001	1.000	305959		5.70(2.86-8.58)		1654	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.236	5.245	-0.009	1.069	1876653	0.9487		94.9	134	
913.00 > 169.00	5.236	5.245	-0.009	1.069	241447		7.77(3.83-11.48)		1515	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 31-Aug-2018 14:45:27 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_045.d

Injection Date: 30-Aug-2018 01:40:22 Instrument ID: A8_N

Lims ID: 320-42265-A-6-B MS

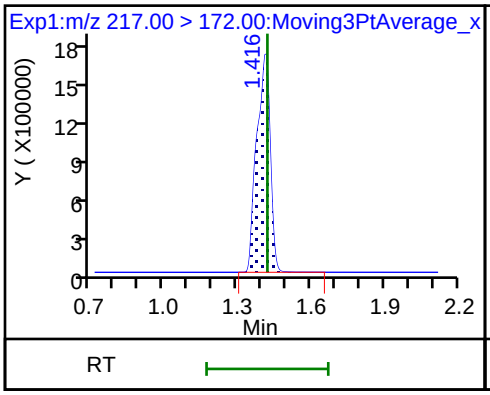
Client ID: MW-2D

Operator ID: SACINSTLCMS01 ALS Bottle#: 34 Worklist Smp#: 14

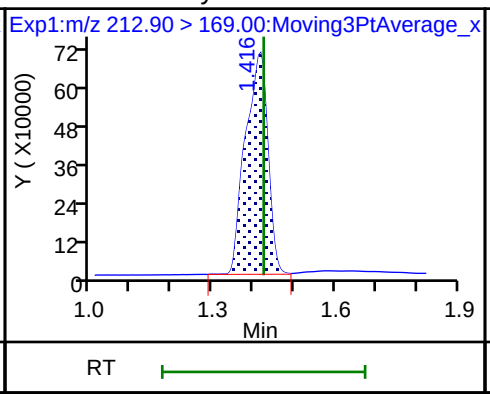
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

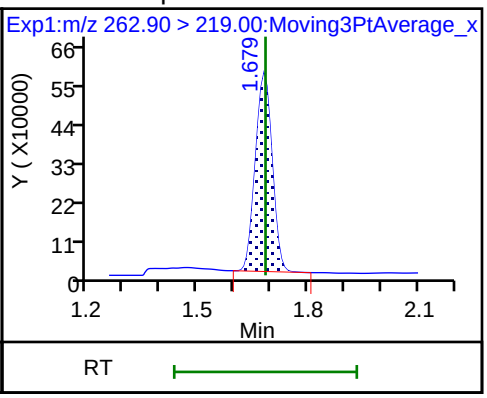
D 1 13C4 PFBA



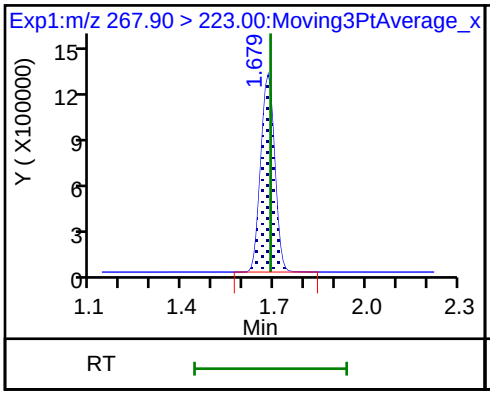
2 Perfluorobutyric acid



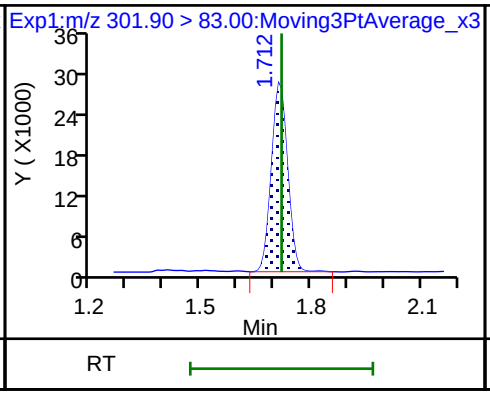
4 Perfluoropentanoic acid



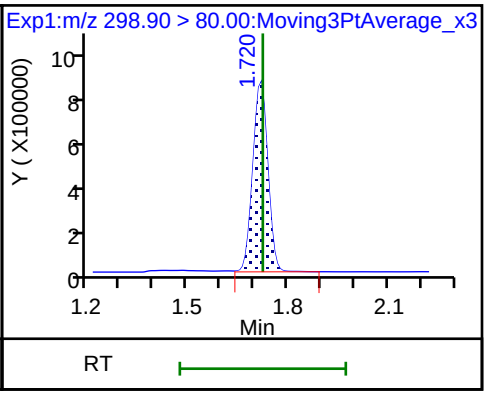
D 3 13C5-PFPeA



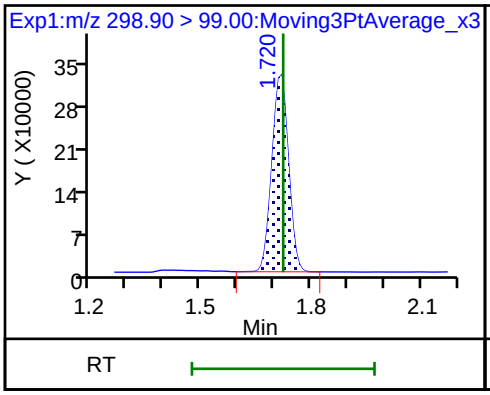
D 47 13C3-PFBS



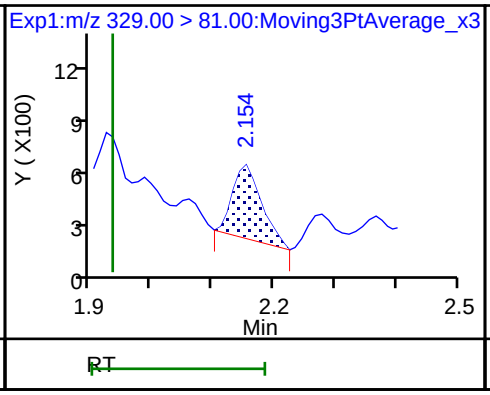
5 Perfluorobutanesulfonic acid



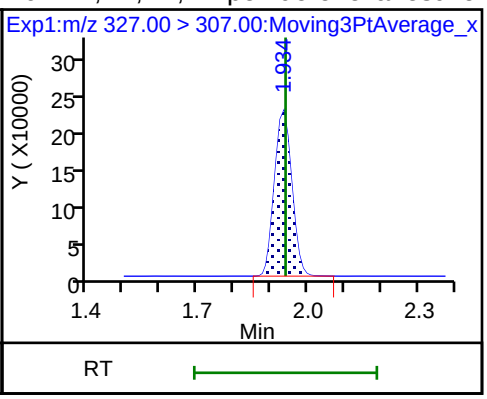
5 Perfluorobutanesulfonic acid



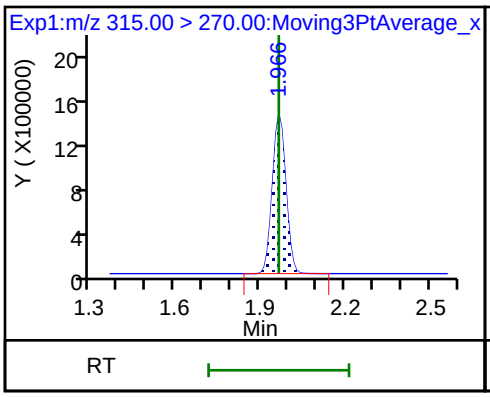
D 60 M2-4:2FTS



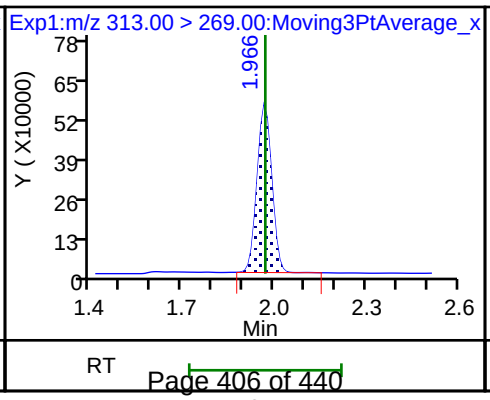
61 1H,1H,2H,2H-perfluorohexanesulfoni



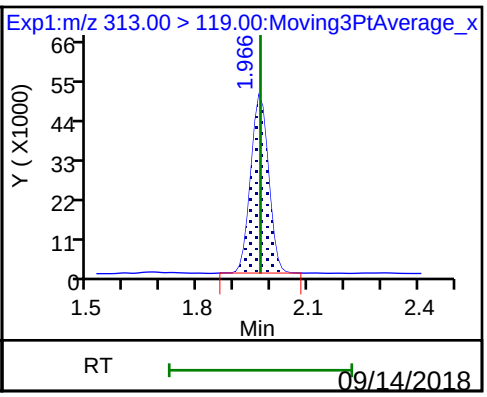
D 7 13C2 PFHxA



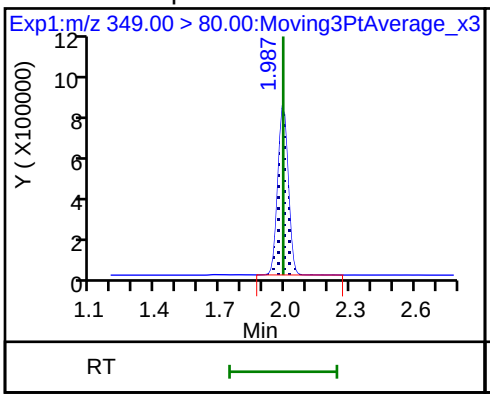
6 Perfluorohexanoic acid



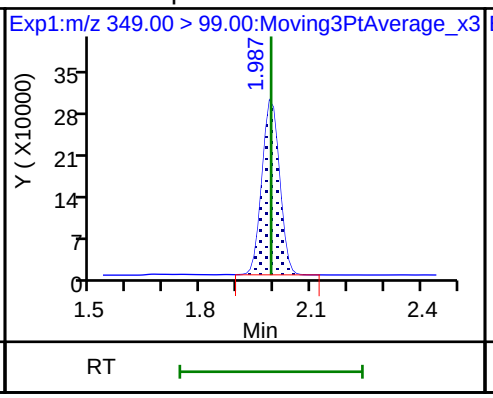
6 Perfluorohexanoic acid



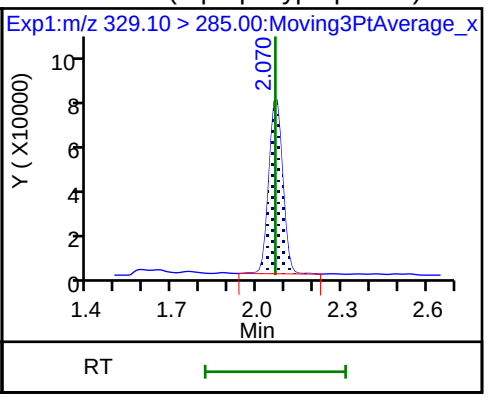
70 Perfluoropentanesulfonic acid



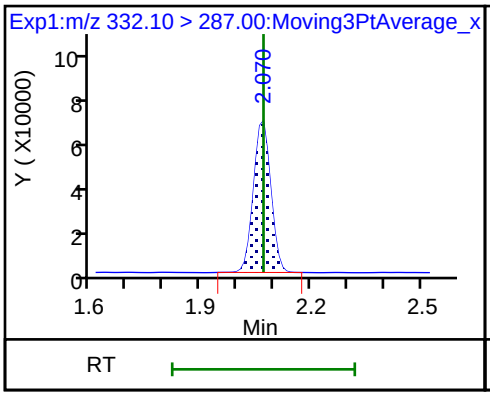
70 Perfluoropentanesulfonic acid



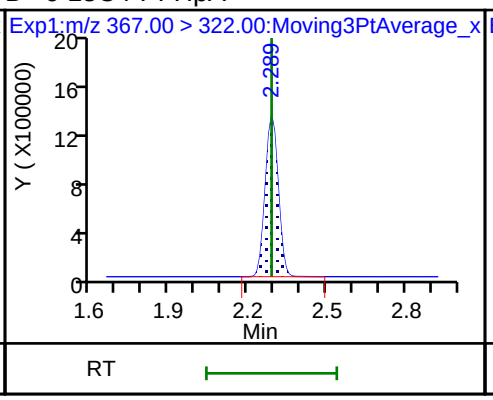
67 Perfluoro(2-propoxypropanoic) acid



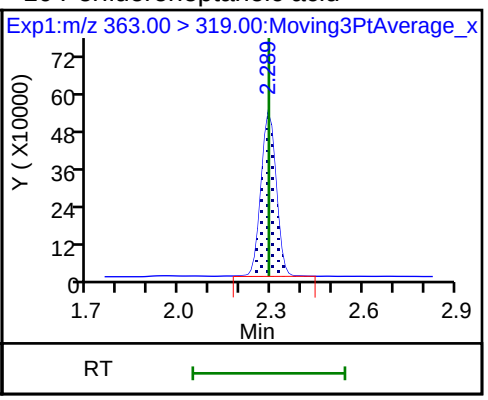
D 64 13C3 HFPO-DA



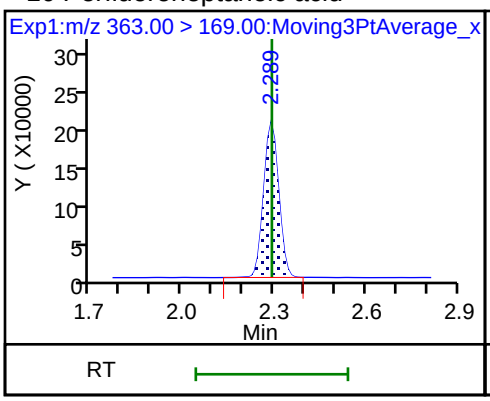
D 9 13C4-PFHpA



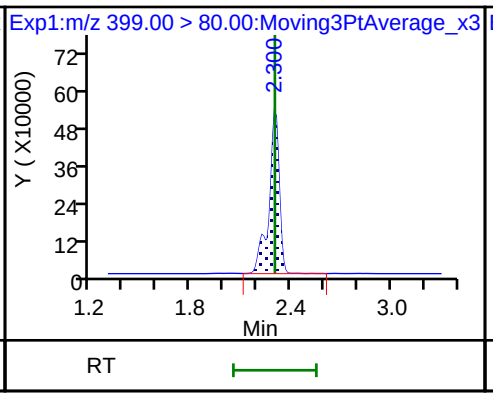
10 Perfluoroheptanoic acid



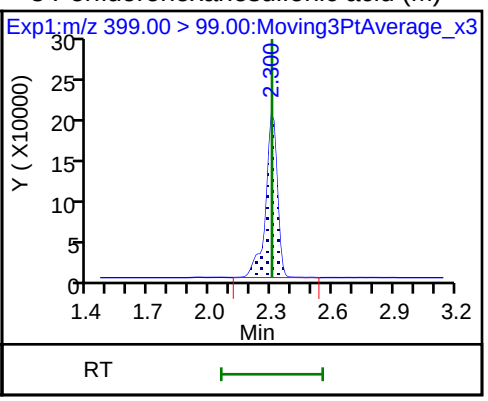
10 Perfluoroheptanoic acid



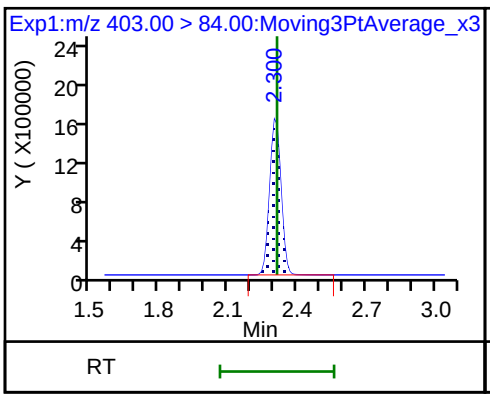
8 Perfluorohexanesulfonic acid



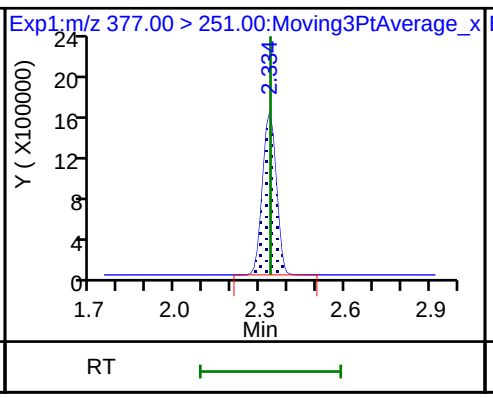
8 Perfluorohexanesulfonic acid (M)



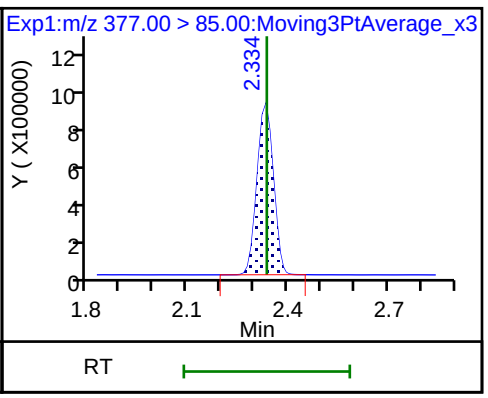
D 11 18O2 PFHxS



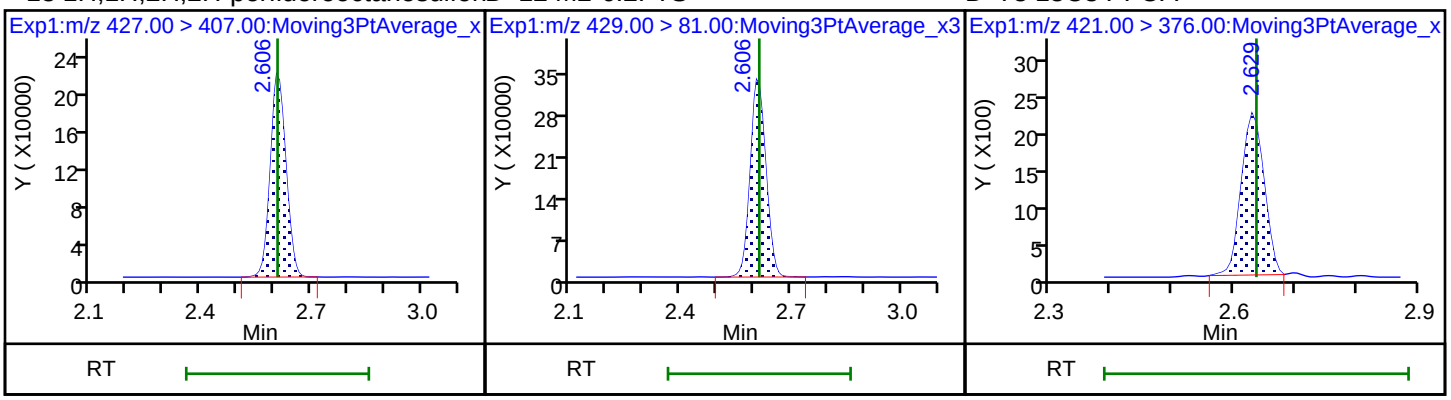
77 DONA



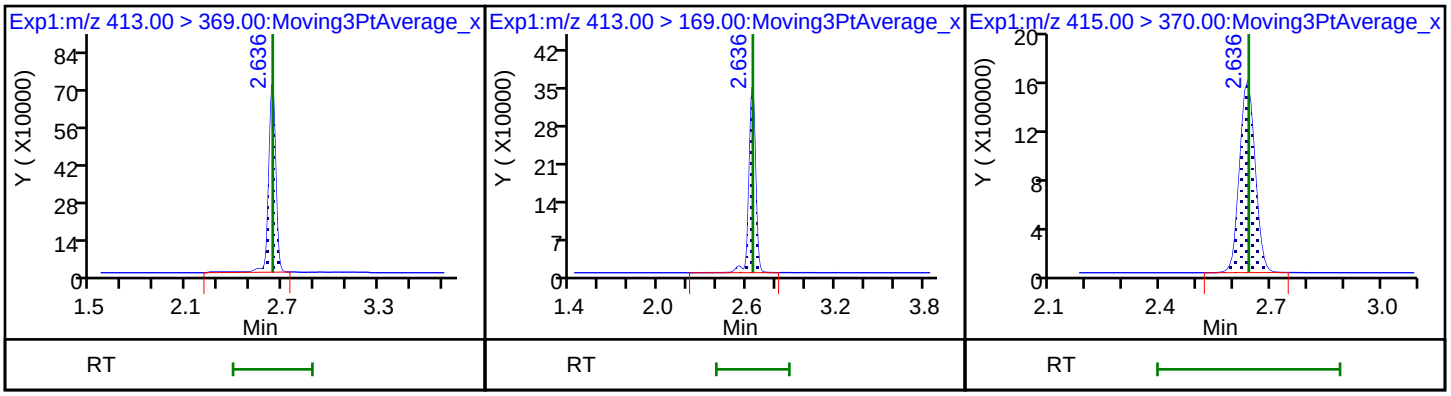
77 DONA



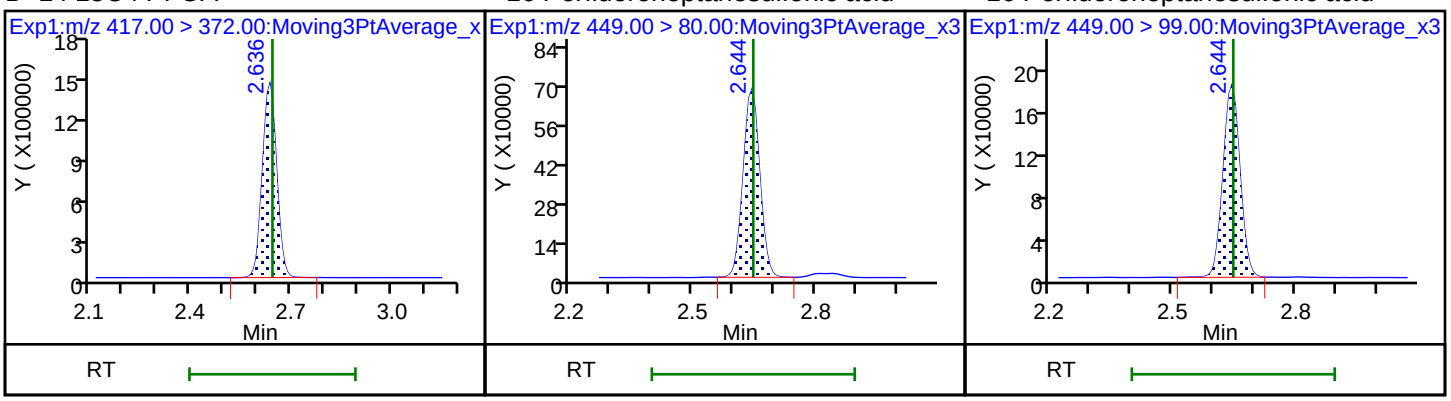
13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2FTS D 73 13C8 PFOA



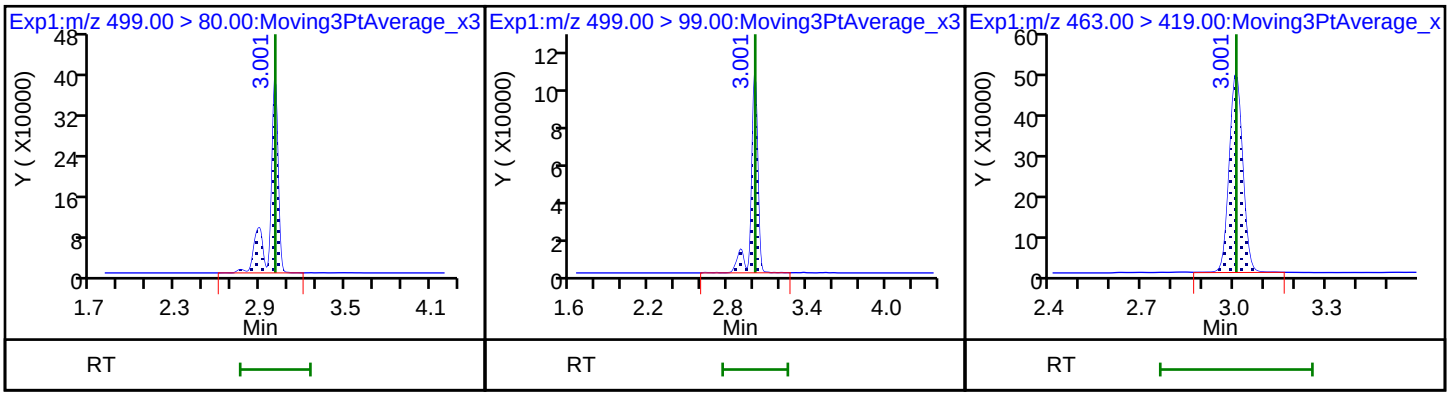
15 Perfluorooctanoic acid 15 Perfluorooctanoic acid * 62 13C2-PFOA



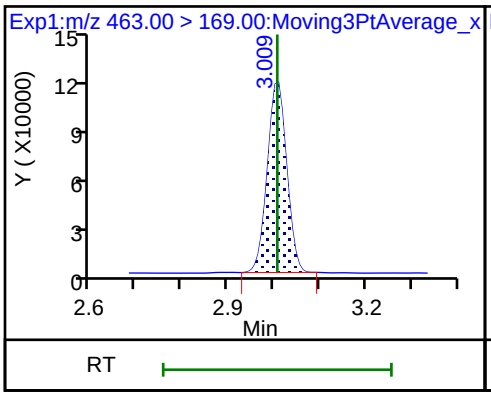
D 14 13C4 PFOA 16 Perfluoroheptanesulfonic acid 16 Perfluoroheptanesulfonic acid



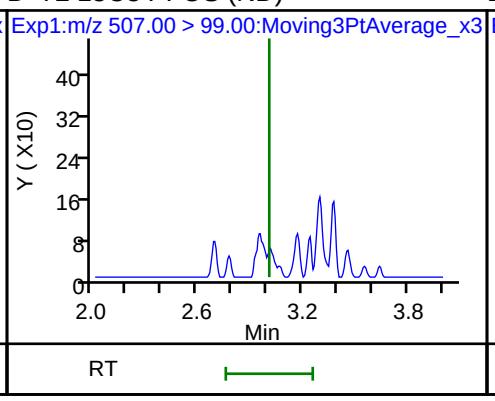
17 Perfluorooctane sulfonic acid 17 Perfluorooctane sulfonic acid 20 Perfluorononanoic acid



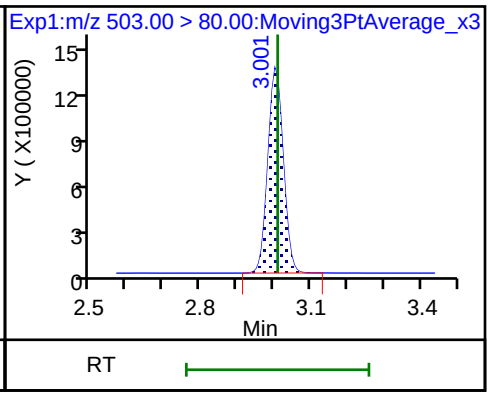
20 Perfluorononanoic acid



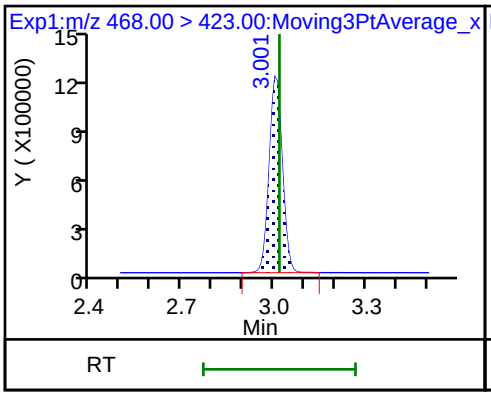
D 72 13C8 PFOS (ND)



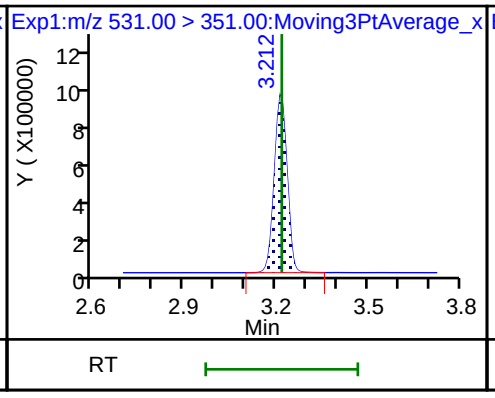
D 18 13C4 PFOS



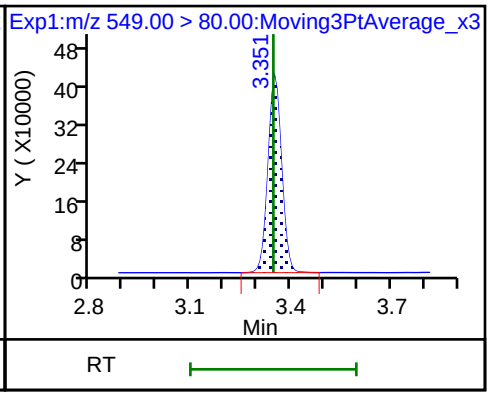
D 19 13C5 PFNA



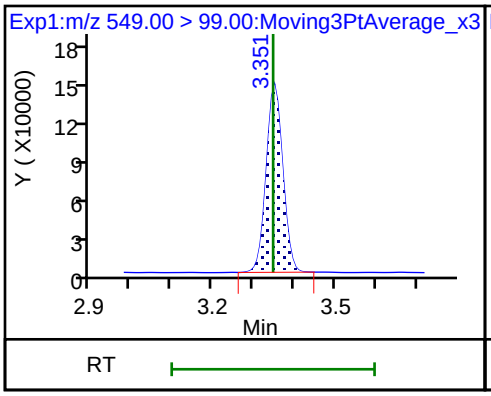
69 9-Chlorohexadecafluoro-3-oxanonane



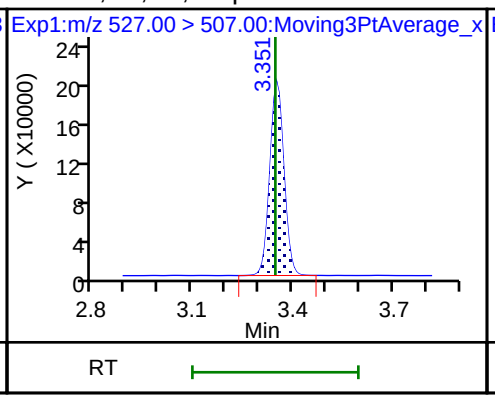
68 Perfluorononanesulfonic acid



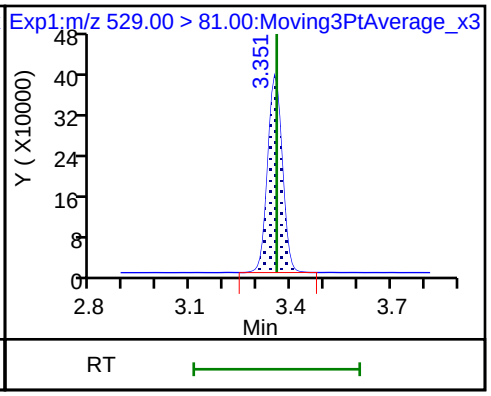
68 Perfluorononanesulfonic acid



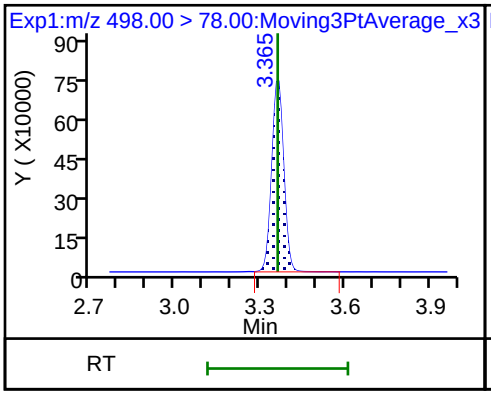
25 1H,1H,2H,2H-perfluorodecanesulfon



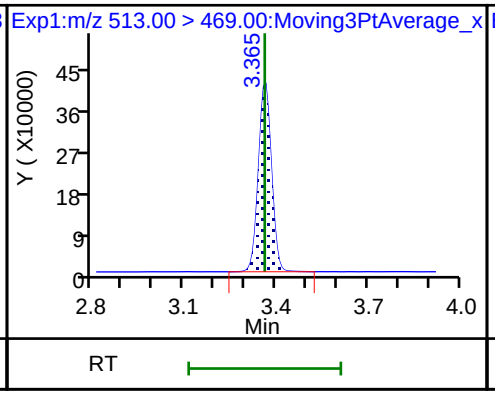
D 26 M2-8:2FTS



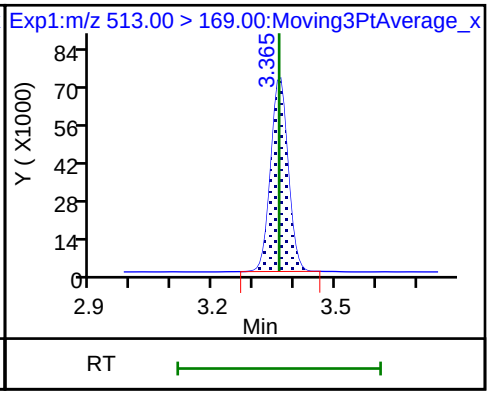
22 Perfluorooctane Sulfonamide



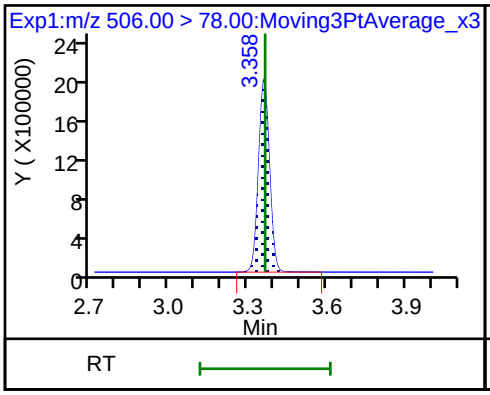
24 Perfluorodecanoic acid



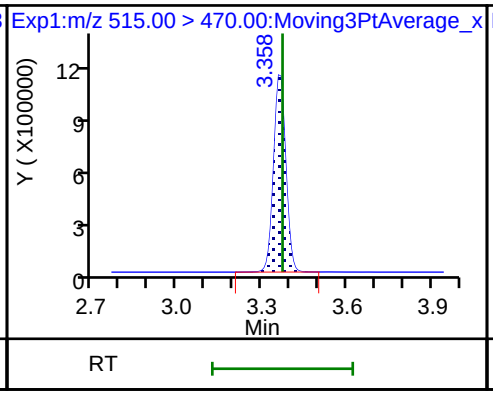
24 Perfluorodecanoic acid



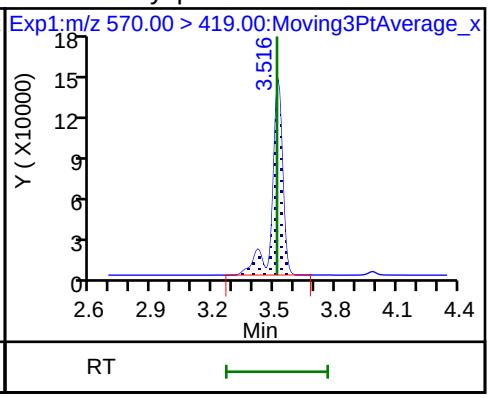
D 21 13C8 FOSA



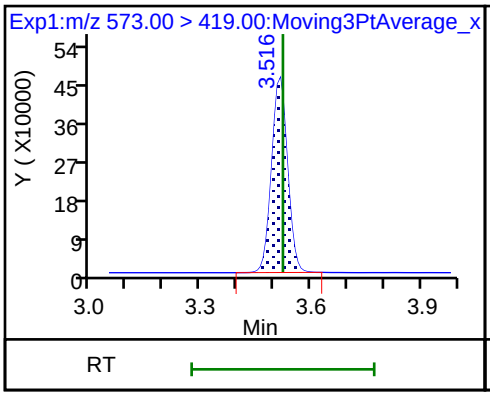
D 23 13C2 PFDA



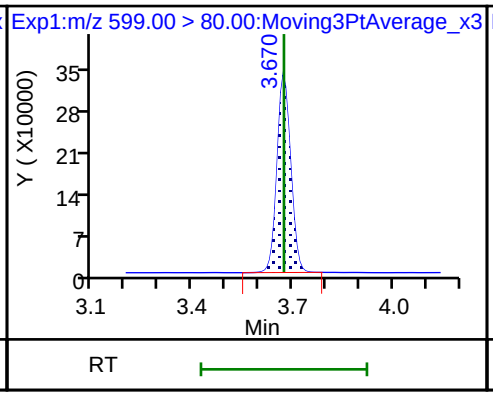
28 N-methyl perfluorooctane sulfonami (M)



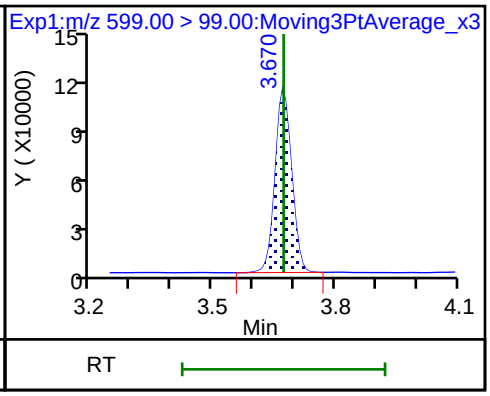
D 27 d3-NMeFOSAA



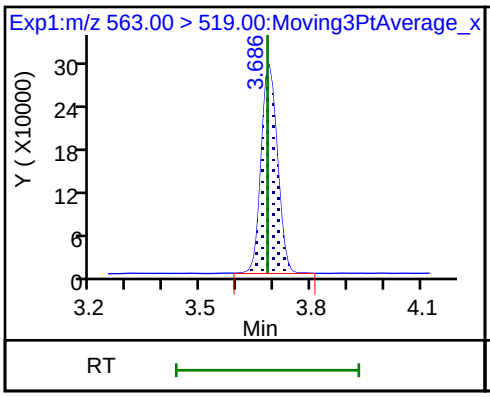
29 Perfluorodecane Sulfonic acid



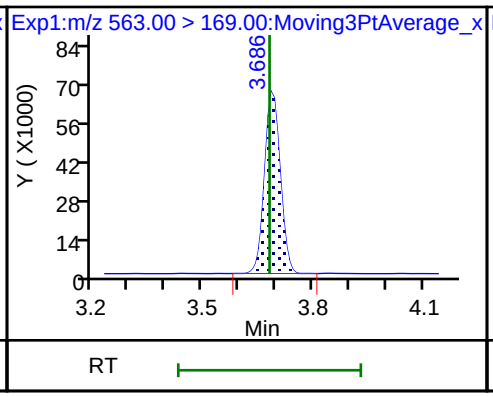
29 Perfluorodecane Sulfonic acid



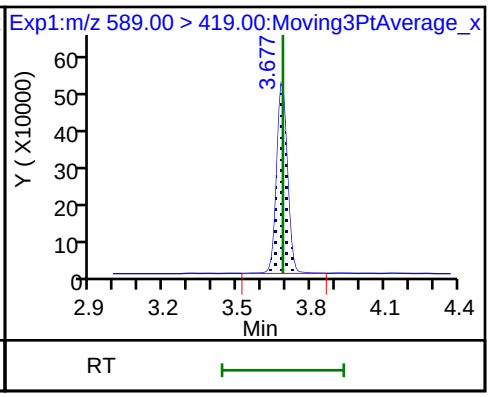
31 Perfluoroundecanoic acid



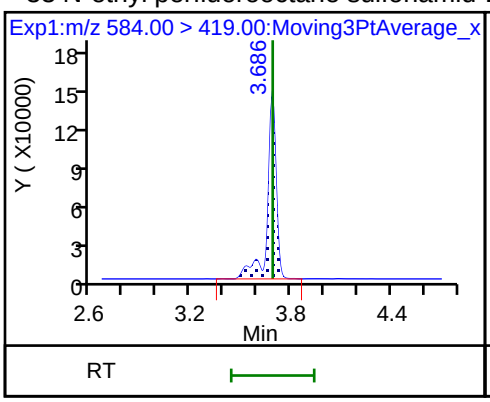
31 Perfluoroundecanoic acid



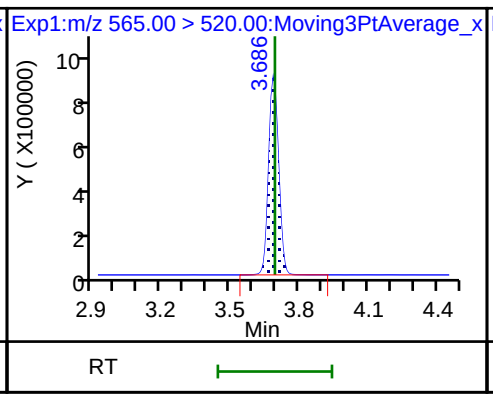
D 32 d5-NEtFOSAA



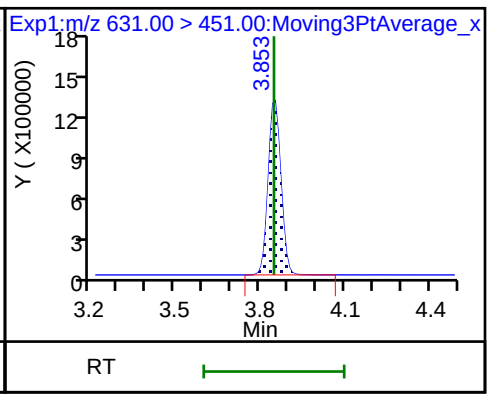
33 N-ethyl perfluorooctane sulfonamid



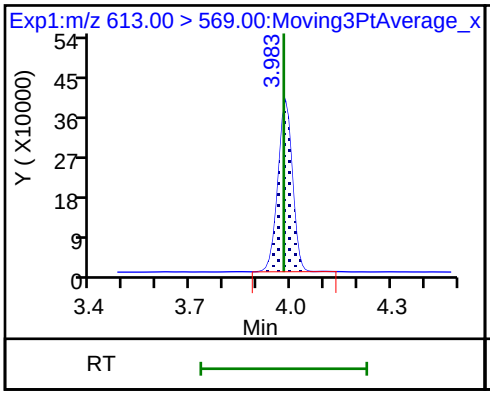
D 30 13C2 PFUnA



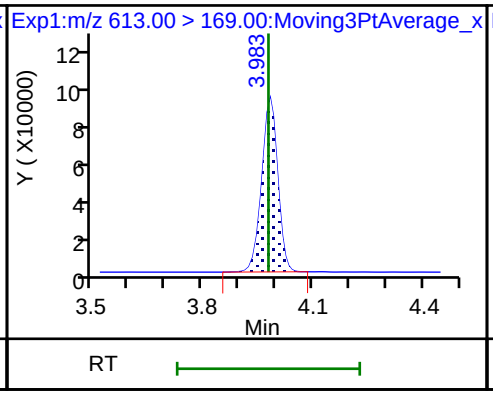
66 11-Chloroeicosafluoro-3-oxaundecan



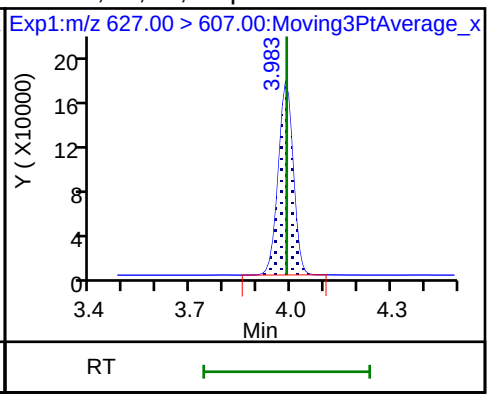
37 Perfluorododecanoic acid



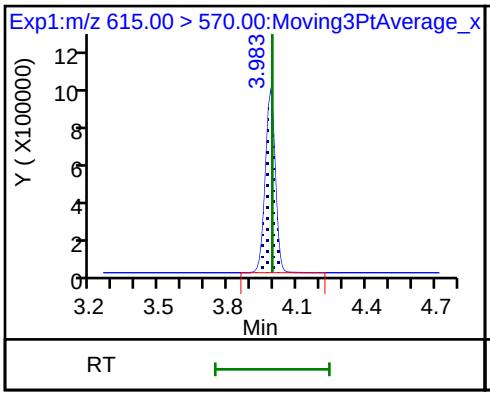
37 Perfluorododecanoic acid



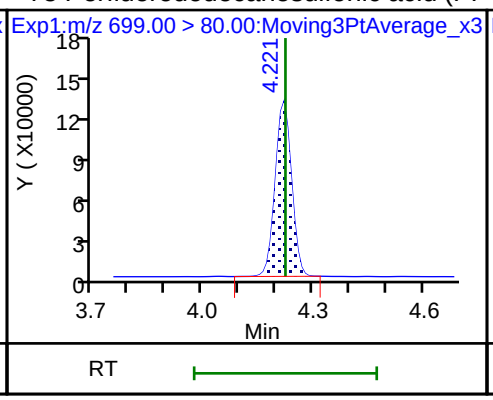
74 1H,1H,2H,2H-perfluorododecanesulfo



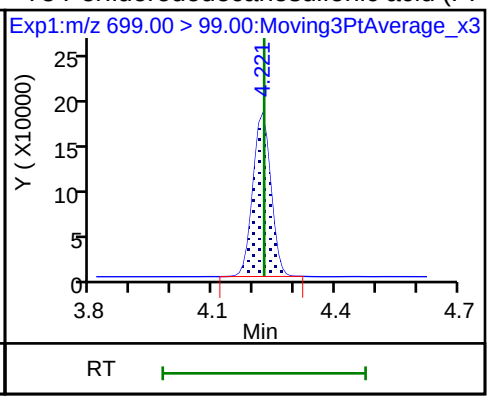
D 36 13C2 PFDoA



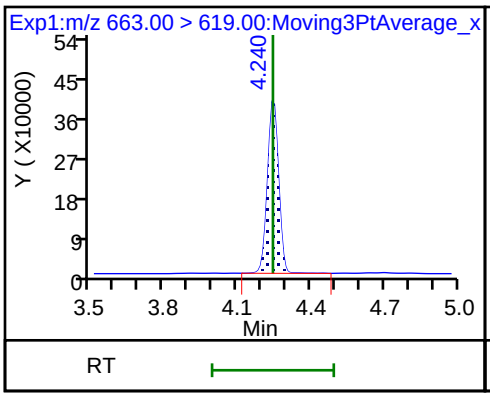
75 Perfluorododecanesulfonic acid (PF



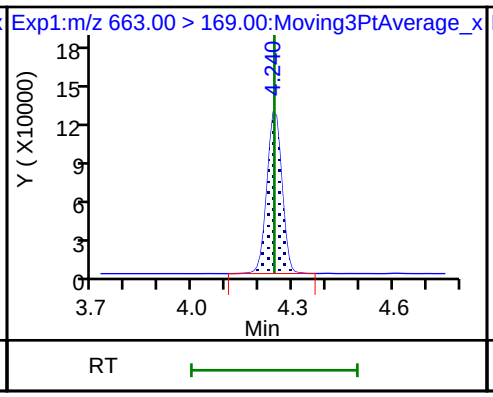
75 Perfluorododecanesulfonic acid (PF



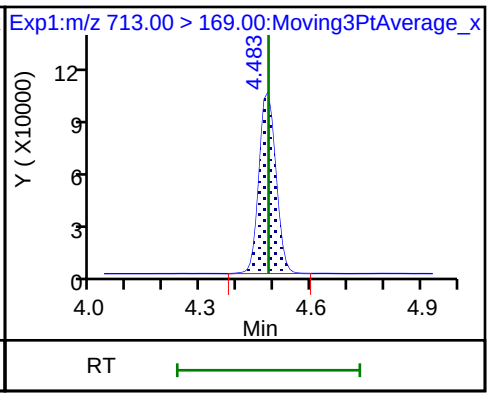
41 Perfluorotridecanoic acid



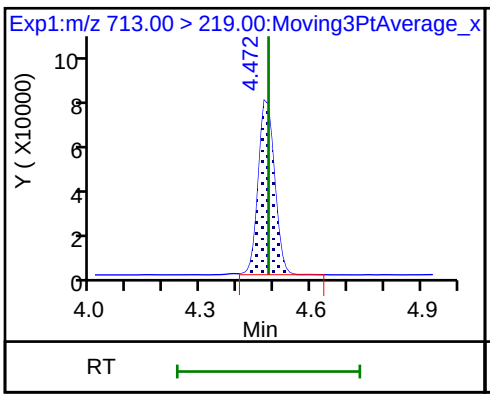
41 Perfluorotridecanoic acid



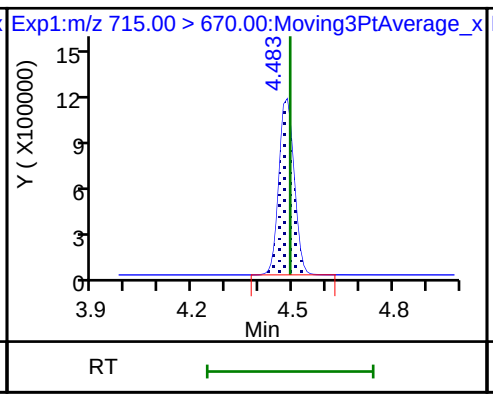
42 Perfluorotetradecanoic acid



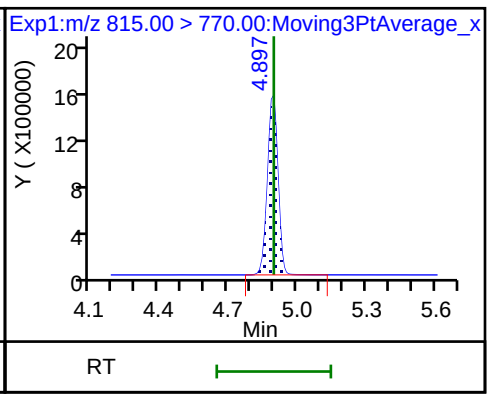
42 Perfluorotetradecanoic acid



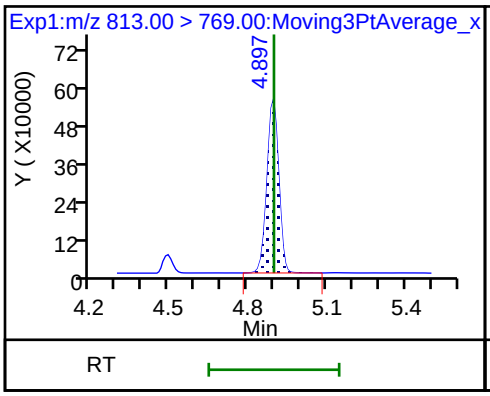
D 43 13C2-PFTeDA



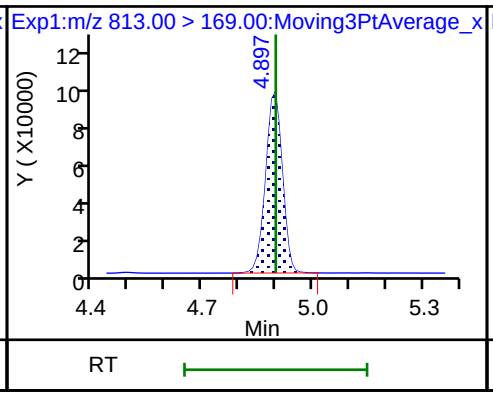
D 44 13C2-PFHxDA



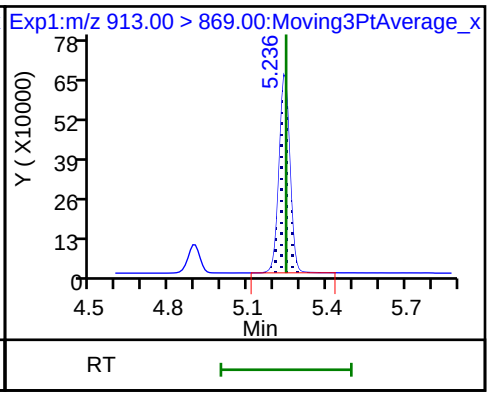
45 Perfluorohexadecanoic acid



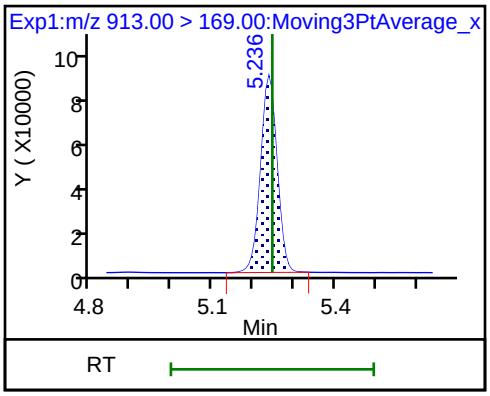
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

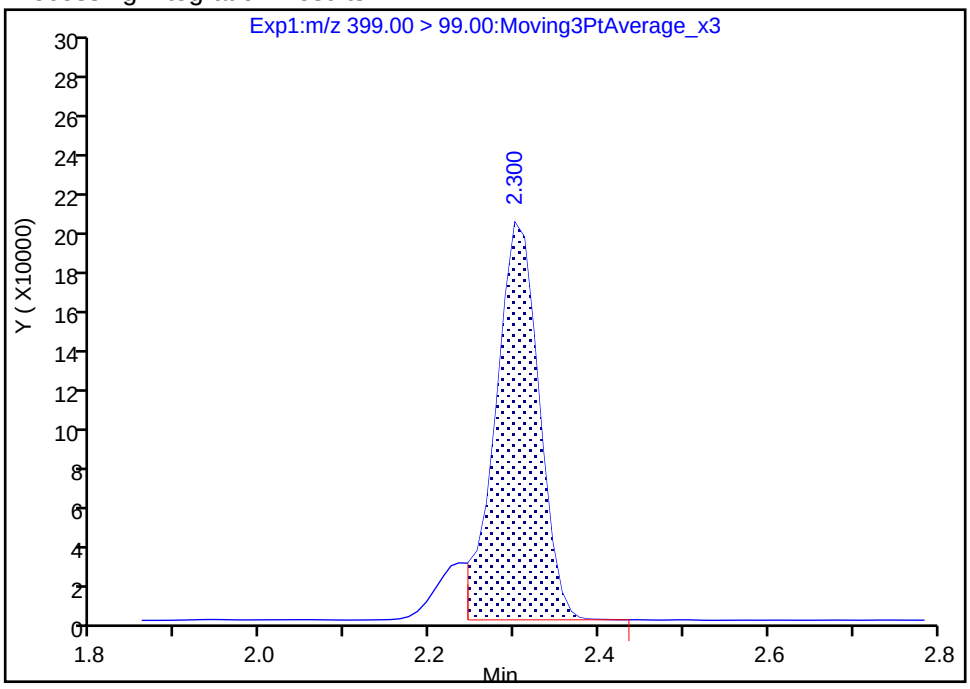
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_045.d				
Injection Date:	30-Aug-2018 01:40:22	Instrument ID:	A8_N		
Lims ID:	320-42265-A-6-B MS				
Client ID:	MW-2D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	34	Worklist Smp#:	14
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

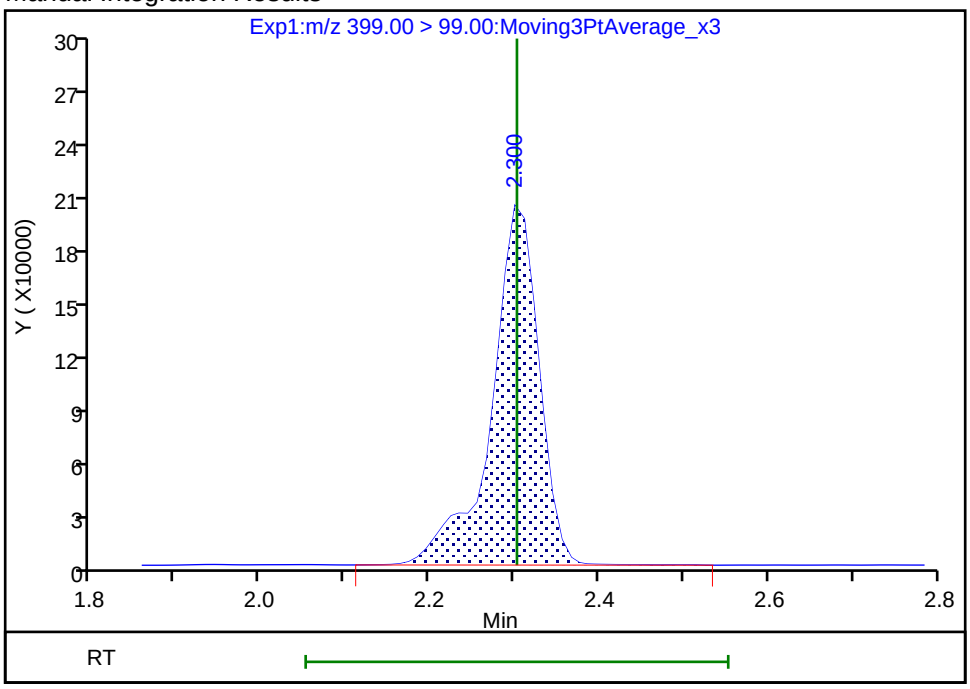
Processing Integration Results

RT: 2.30
Area: 707150
Amount: 0.899995
Amount Units: ng/ml



Manual Integration Results

RT: 2.30
Area: 784060
Amount: 0.899995
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:45:01

Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

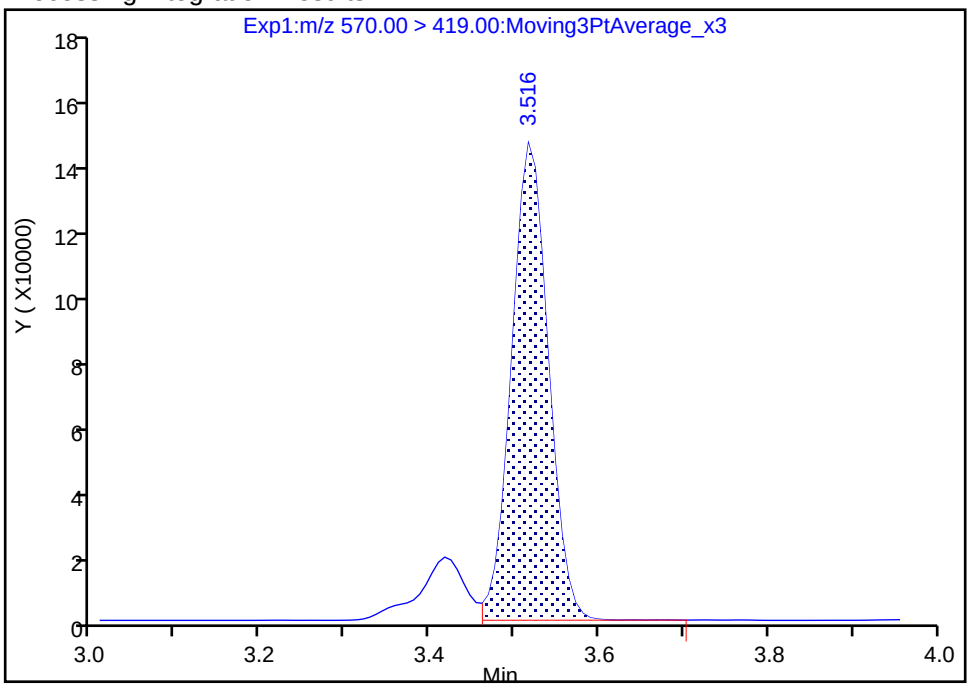
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_045.d				
Injection Date:	30-Aug-2018 01:40:22	Instrument ID:	A8_N		
Lims ID:	320-42265-A-6-B MS				
Client ID:	MW-2D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	34	Worklist Smp#:	14
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

28 N-methyl perfluorooctane sulfonamidoacetic a, CAS: 2355-31-9

Signal: 1

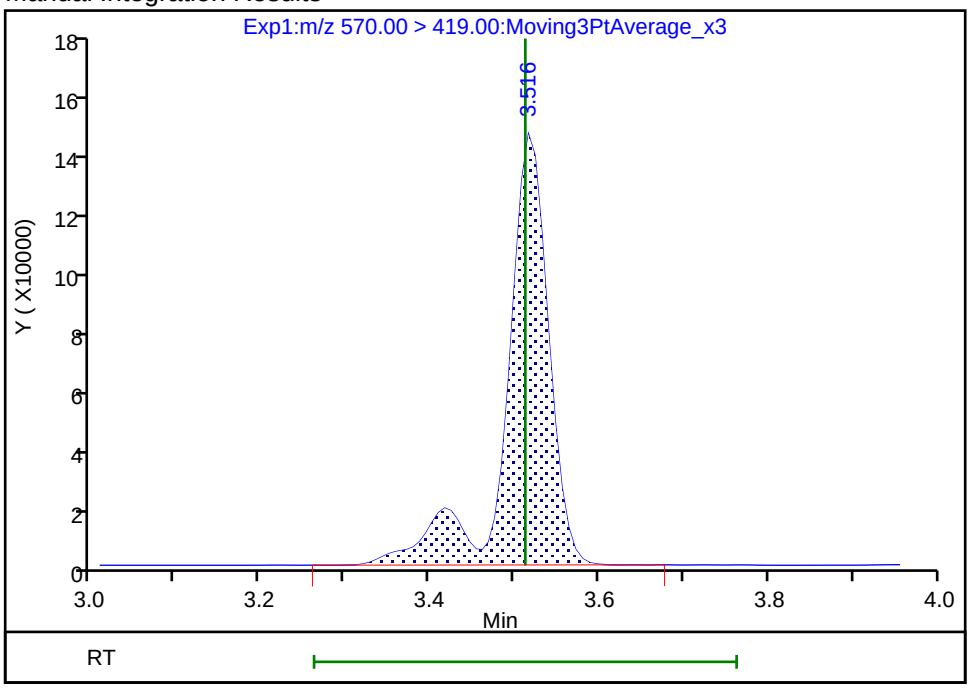
Processing Integration Results

RT: 3.52
Area: 424463
Amount: 0.794242
Amount Units: ng/ml



Manual Integration Results

RT: 3.52
Area: 493173
Amount: 0.922810
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:45:13

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-2D MSD | Lab Sample ID: 320-42265-6 MSD

Matrix: Water | Lab File ID: 2018.08.29LLB_046.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 12:00

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 241.4(mL) | Date Analyzed: 08/30/2018 01:48

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	49.8		2.1	0.36
2706-90-3	Perfluoropentanoic acid (PFPeA)	40.8		2.1	0.51
307-24-4	Perfluorohexanoic acid (PFHxA)	41.2		2.1	0.60
375-85-9	Perfluoroheptanoic acid (PFHpA)	40.8		2.1	0.26
335-67-1	Perfluorooctanoic acid (PFOA)	43.9		2.1	0.88
375-95-1	Perfluorononanoic acid (PFNA)	38.9		2.1	0.28
335-76-2	Perfluorodecanoic acid (PFDA)	40.3		2.1	0.32
2058-94-8	Perfluoroundecanoic acid (PFUnA)	34.8		2.1	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	37.5		2.1	0.57
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	41.6		2.1	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	37.3		2.1	0.30
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36.3		2.1	0.21
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	37.1		2.1	0.18
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	42.4		2.1	0.20
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	36.9		2.1	0.56
335-77-3	Perfluorodecanesulfonic acid (PFDS)	35.5		2.1	0.33
754-91-6	Perfluorooctane Sulfonamide (FOSA)	39.6		2.1	0.36
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.1		21	3.2
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.9		21	2.0
27619-97-2	6:2 FTS	42.5		21	2.1
39108-34-4	8:2 FTS	38.2		21	2.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-42265-1

SDG No.:

Client Sample ID: MW-2D MSD | Lab Sample ID: 320-42265-6 MSD

Matrix: Water | Lab File ID: 2018.08.29LLB_046.d

Analysis Method: 537 (modified) | Date Collected: 08/15/2018 12:00

Extraction Method: 3535 | Date Extracted: 08/28/2018 10:26

Sample wt/vol: 241.4(mL) | Date Analyzed: 08/30/2018 01:48

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 242977 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	84		25-150
STL01893	13C5 PFPeA	91		25-150
STL00993	13C2 PFHxA	93		25-150
STL01892	13C4-PFHpA	93		25-150
STL00990	13C4 PFOA	92		25-150
STL00995	13C5 PFNA	97		25-150
STL00996	13C2 PFDA	92		25-150
STL00997	13C2 PFUnA	88		25-150
STL00998	13C2 PFDoA	86		25-150
STL02116	13C2-PFTeDA	91		25-150
STL02337	13C3-PFBS	90		25-150
STL00994	18O2 PFHxS	94		25-150
STL00991	13C4 PFOS	91		25-150
STL01056	13C8 FOSA	90		25-150
STL02118	d3-NMeFOSAA	84		25-150
STL02117	d5-NEtFOSAA	86		25-150
STL02279	M2-6:2FTS	93		25-150
STL02280	M2-8:2FTS	100		25-150

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_046.d
Lims ID: 320-42265-A-6-C MSD
Client ID: MW-2D
Sample Type: MSD
Inject. Date: 30-Aug-2018 01:48:12 ALS Bottle#: 35 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-42265-a-6-c msd
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 31-Aug-2018 14:46:10 Calib Date: 29-Aug-2018 13:16:39
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180829-63471.b\2018.08.29LLICAL_008.d

Column 1 : Det: EXP1
Process Host: XAWRK005

First Level Reviewer: mongkols Date: 31-Aug-2018 14:46:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										
217.00 > 172.00	1.416	1.421	-0.005	0.536	5908959	2.10		84.0	9678	
2 Perfluorobutyric acid										
212.90 > 169.00	1.421	1.424	-0.003	1.004	2524937	1.20		120	265	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.687	1.684	0.003	1.000	1836128	0.9846		98.5	49.1	
D 3 13C5-PFPeA										
267.90 > 223.00	1.687	1.687	0.0	0.638	4042970	2.27		90.9	5984	
D 47 13C3-PFBS										
301.90 > 83.00	1.720	1.720	0.0	0.650	88230	2.10		90.2	282	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.720	1.724	-0.004	1.000	2487706	0.8756		99.0	219	
298.90 > 99.00	1.720	1.724	-0.004	1.000	1042015		2.39(1.25-3.74)		284	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.934	1.939	-0.005	1.125	658298	1.13		121	3110	
D 7 13C2 PFHxA										
315.00 > 270.00	1.976	1.966	0.010	0.747	4632244	2.32		92.9	13066	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.976	1.970	0.006	1.000	1854017	0.99		99.4	185	
313.00 > 119.00	1.976	1.970	0.006	1.000	159626		11.61(5.03-15.10)		306	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.997	1.991	0.006	1.161	2590558	0.9898		106	822	
349.00 > 99.00	1.997	1.991	0.006	1.161	962504		2.69(1.36-4.07)		549	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.070	2.064	0.006	1.000	255924	0.9455		94.5	82.4	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.070	2.070	0.0	0.783	213715	2.23		89.2	583	
D 9 13C4-PFHpA										
367.00 > 322.00	2.300	2.289	0.011	0.870	4378704	2.33		93.2	11875	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.300	2.292	0.008	1.000	1888498	0.9846		98.5	397	
363.00 > 169.00	2.300	2.292	0.008	1.000	732409		2.58(1.13-3.40)		1799	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.311	2.303	0.008	1.000	2315542	0.8963		98.5	1115	
399.00 > 99.00	2.311	2.303	0.008	1.000	789542		2.93(1.50-4.49)		827	M
D 11 18O2 PFHxS										
403.00 > 84.00	2.311	2.311	0.0	0.874	5584664	2.23		94.5	16635	
77 DONA										
377.00 > 251.00	2.345	2.336	0.009	0.779	5590477	1.07		114	10689	
377.00 > 85.00	2.345	2.336	0.009	0.779	3193072		1.75(0.85-2.54)		2372	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.621	2.609	0.012	1.000	611725	1.03		108	4230	
D 12 M2-6:2FTS										
429.00 > 81.00	2.621	2.613	0.008	0.991	941071	2.21		93.0	1689	
D 73 13C8 PFOA										
421.00 > 376.00	2.636	2.636	0.0	0.997	6460	0.002164		0.0	100	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.644	2.639	0.005	1.000	1974260	1.06		106	303	
413.00 > 169.00	2.644	2.639	0.005	1.000	1007460		1.96(0.84-2.52)		1947	
* 62 13C2-PFOA										
415.00 > 370.00	2.644	2.639	0.005		4551924	2.50			6698	
D 14 13C4 PFOA										
417.00 > 372.00	2.644	2.644	0.0	1.000	4120753	2.30		91.9	12474	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.652	2.647	0.005	0.881	1938675	1.02		107	631	
449.00 > 99.00	2.652	2.647	0.005	0.881	500693		3.87(1.94-5.82)		1031	
17 Perfluorooctane sulfonic acid										
499.00 > 80.00	3.011	3.006	0.005	1.000	1523109	0.8905		96.0	2928	
499.00 > 99.00	3.011	3.006	0.005	1.000	337451		4.51(2.31-6.93)		631	
20 Perfluorononanoic acid										
463.00 > 419.00	3.018	3.006	0.012	1.003	1390999	0.9393		93.9	374	
463.00 > 169.00	3.018	3.006	0.012	1.003	342240		4.06(1.90-5.69)		1843	
D 18 13C4 PFOS										
503.00 > 80.00	3.011	3.009	0.002	1.139	3716877	2.18		91.0	6859	
D 19 13C5 PFNA										
468.00 > 423.00	3.011	3.016	-0.005	1.139	3562588	2.42		96.7	7815	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.222	3.218	0.004	1.070	2505639	0.8881		95.3	3693	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.359	3.347	0.012	1.116	1113569	0.8888		92.6	2437	
549.00 > 99.00	3.352	3.347	0.005	1.113	416399		2.67(1.33-3.97)		1314	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.359	3.347	0.012	1.000	593162	0.9213		96.2	1840	
D 26 M2-8:2FTS										
529.00 > 81.00	3.359	3.357	0.002	1.270	1189455	2.40		100	4243	
22 Perfluorooctane Sulfonamide										
498.00 > 78.00	3.367	3.362	0.005	1.000	2103633	0.9559		95.6	4016	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
24 Perfluorodecanoic acid										
513.00 > 469.00	3.367	3.362	0.005	1.000	1187676	0.9717		97.2	1192	
513.00 > 169.00	3.367	3.362	0.005	1.000	203928		5.82(2.36-7.09)		1416	
D 21 13C8 FOSA										
506.00 > 78.00	3.367	3.364	0.003	1.273	5705024	2.25		90.2	6740	
D 23 13C2 PFDA										
515.00 > 470.00	3.367	3.372	-0.005	1.273	3145190	2.30		92.0	5887	
28 N-methyl perfluorooctane sulfonami										
570.00 > 419.00	3.526	3.513	0.013	1.002	502861	0.9678		96.8	449	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.518	3.523	-0.005	1.330	1341497	2.11		84.2	5626	
29 Perfluorodecane Sulfonic acid										
599.00 > 80.00	3.671	3.673	-0.002	1.220	945709	0.8561		88.8	3488	
599.00 > 99.00	3.671	3.673	-0.002	1.220	313813		3.01(1.39-4.16)		1946	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.688	3.681	0.007	1.000	801158	0.8404		84.0	586	
563.00 > 169.00	3.688	3.681	0.007	1.000	192826		4.15(2.12-6.36)		845	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.680	3.685	-0.005	1.392	1499953	2.14		85.8	603	
33 N-ethyl perfluorooctane sulfonamid										
584.00 > 419.00	3.688	3.690	-0.002	1.002	496911	0.9867		98.7	1380	
D 30 13C2 PFUnA										
565.00 > 520.00	3.688	3.693	-0.005	1.395	2607373	2.21		88.3	9165	
66 11-Chloroeicosafluoro-3-oxaundecan										
631.00 > 451.00	3.847	3.848	-0.002	1.278	3926675	0.9178		97.4	9059	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.986	3.978	0.008	1.000	1073664	0.9055		90.5	557	
613.00 > 169.00	3.986	3.978	0.008	1.000	267039		4.02(2.13-6.40)		2923	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.986	3.987	-0.001	1.187	534258	0.9015		93.5	3990	
D 36 13C2 PFDoA										
615.00 > 570.00	3.986	3.991	-0.005	1.507	2703939	2.14		85.7	8551	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.224	4.225	-0.001	1.403	385714	0.8372		86.5	1160	
699.00 > 99.00	4.224	4.225	-0.001	1.403	533889		0.72(0.00-0.00)		3059	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.243	4.244	-0.001	1.064	1128416	1.00		100	359	
663.00 > 169.00	4.243	4.244	-0.001	1.064	348598		3.24(1.25-3.76)		1635	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.484	4.484	0.0	1.000	309619	0.9015		90.1	1823	
713.00 > 219.00	4.484	4.484	0.0	1.000	208417		1.49(0.71-2.13)		1354	
D 43 13C2-PFTeDA										
715.00 > 670.00	4.484	4.492	-0.008	1.696	3438554	2.27		90.9	5830	
D 44 13C2-PFHxDA										
815.00 > 770.00	4.898	4.897	0.001	1.852	4498287	2.06		82.4	6100	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.898	4.898	0.0	1.000	1645462	1.01		101	166	
813.00 > 169.00	4.898	4.898	0.0	1.000	285472		5.76(2.86-8.58)		1785	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.245	5.245	0.0	1.071	1722606	0.9565		95.7	131	
913.00 > 169.00	5.245	5.245	0.0	1.071	214317		8.04(3.83-11.48)		1305	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 31-Aug-2018 14:46:11 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_046.d

Injection Date: 30-Aug-2018 01:48:12 Instrument ID: A8_N

Lims ID: 320-42265-A-6-C MSD

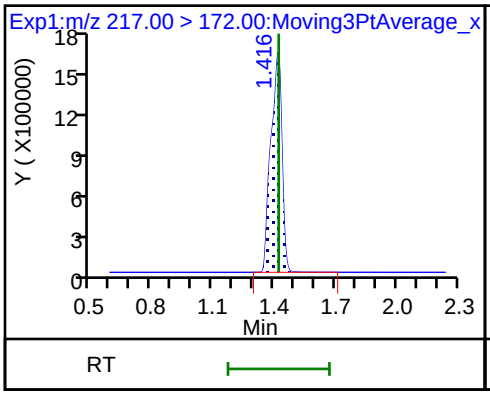
Client ID: MW-2D

Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 15

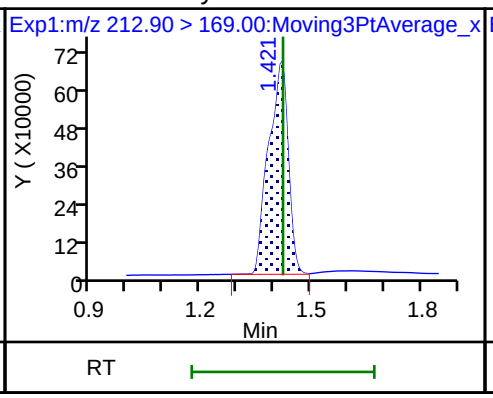
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: A8_N Limit Group: LC PFC ICAL

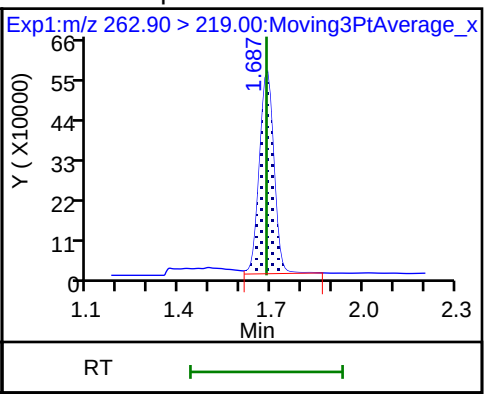
D 1 13C4 PFBA



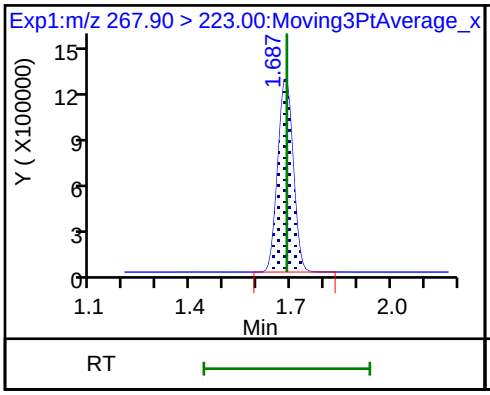
2 Perfluorobutyric acid



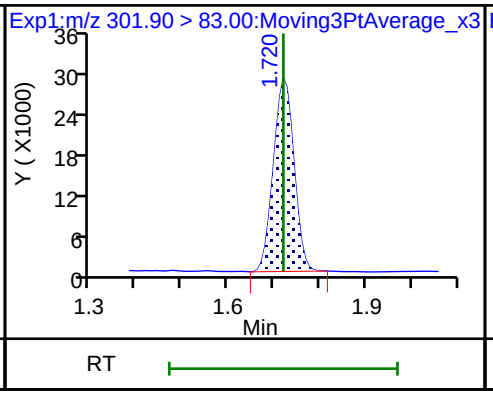
4 Perfluoropentanoic acid



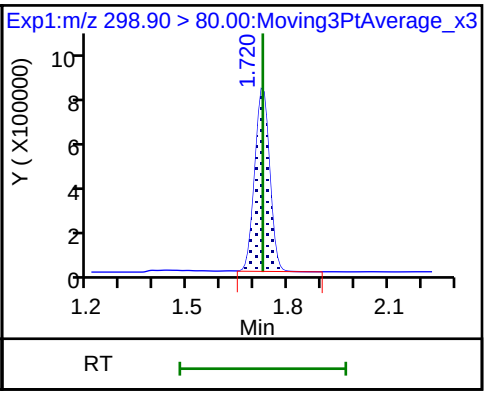
D 3 13C5-PFPeA



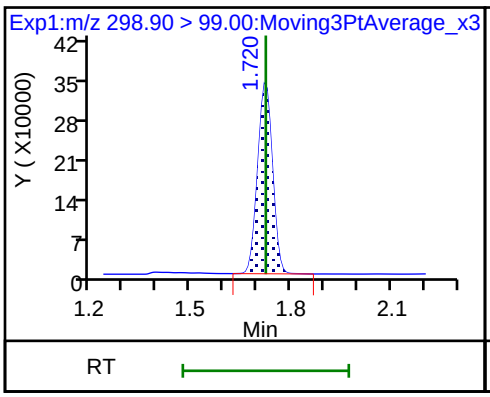
D 47 13C3-PFBS



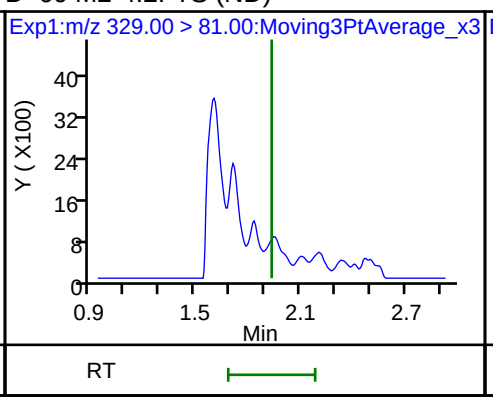
5 Perfluorobutanesulfonic acid



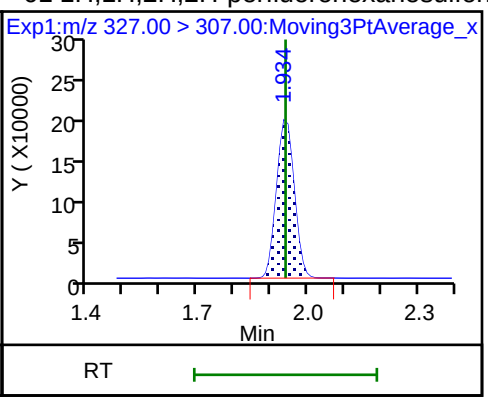
5 Perfluorobutanesulfonic acid



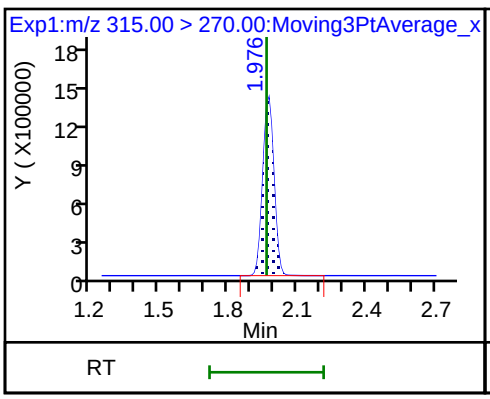
D 60 M2-4:2FTS (ND)



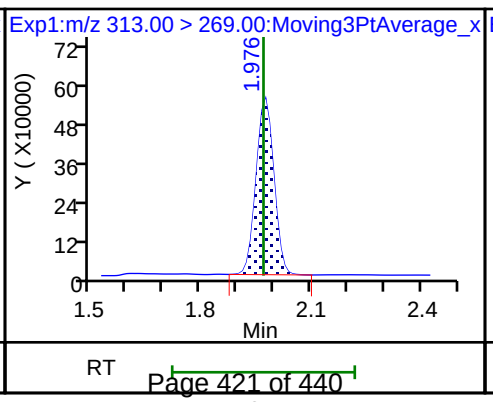
61 1H,1H,2H,2H-perfluorohexanesulfoni



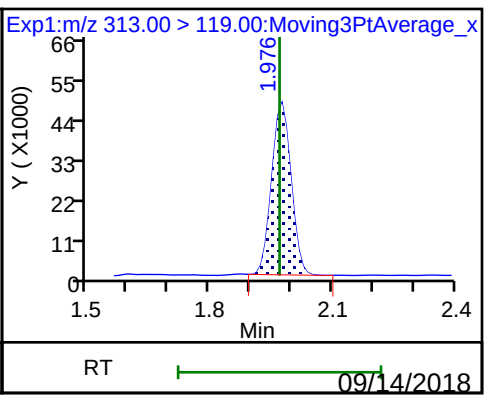
D 7 13C2 PFHxA



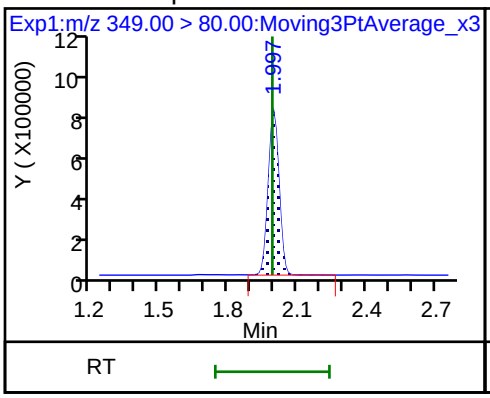
6 Perfluorohexanoic acid



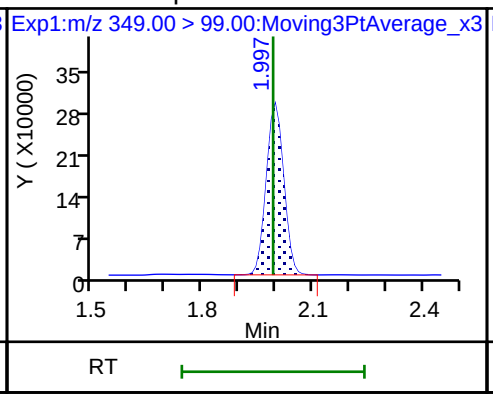
6 Perfluorohexanoic acid



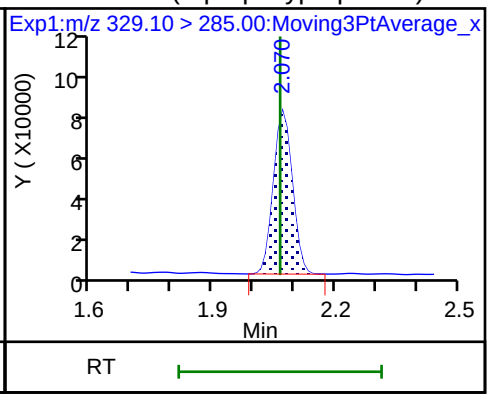
70 Perfluoropentanesulfonic acid



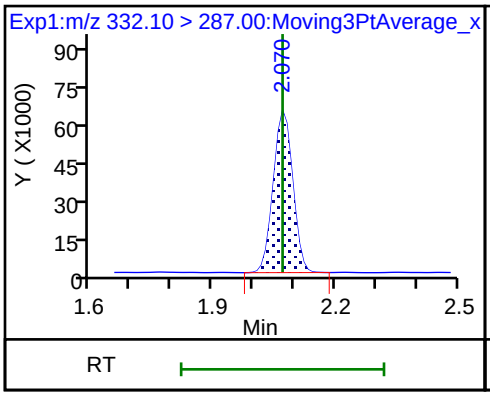
70 Perfluoropentanesulfonic acid



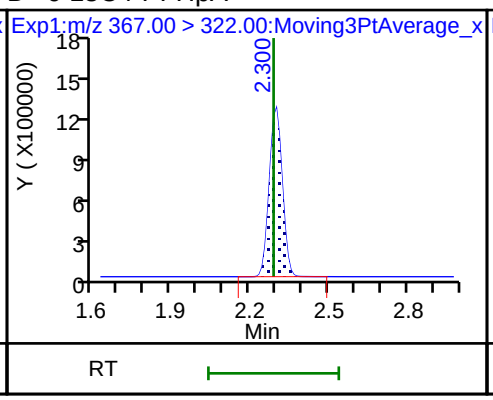
67 Perfluoro(2-propoxypropanoic) acid



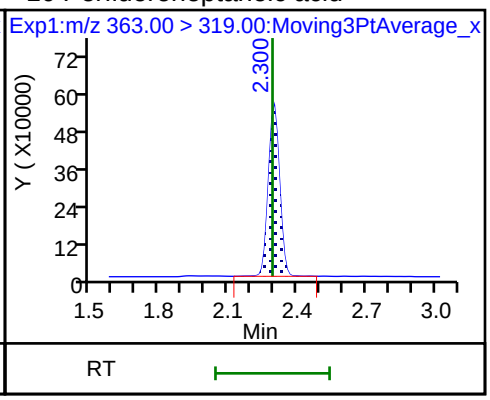
D 64 13C3 HFPO-DA



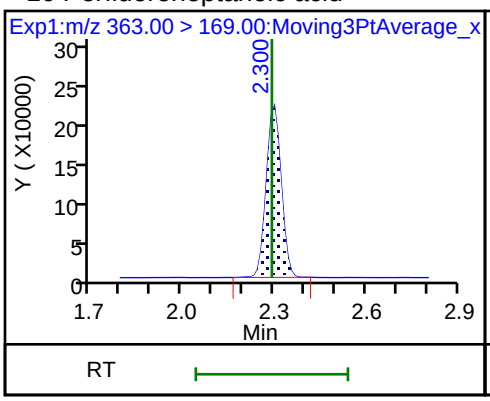
D 9 13C4-PFHpA



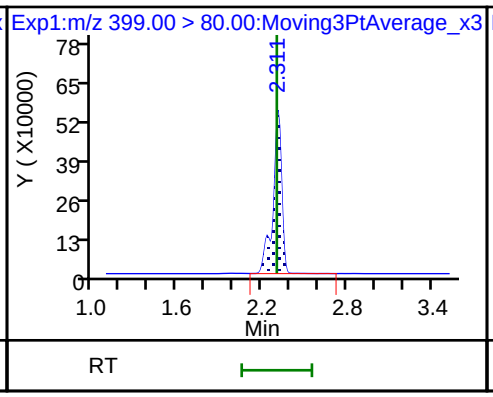
10 Perfluoroheptanoic acid



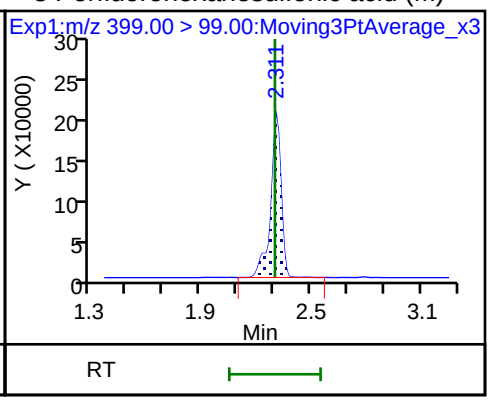
10 Perfluoroheptanoic acid



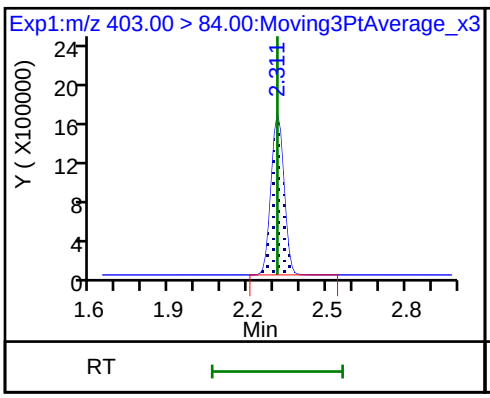
8 Perfluorohexanesulfonic acid



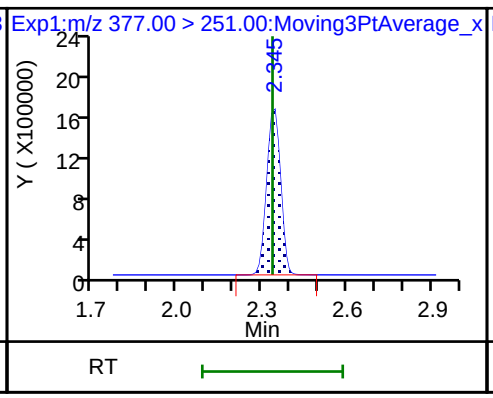
8 Perfluorohexanesulfonic acid (M)



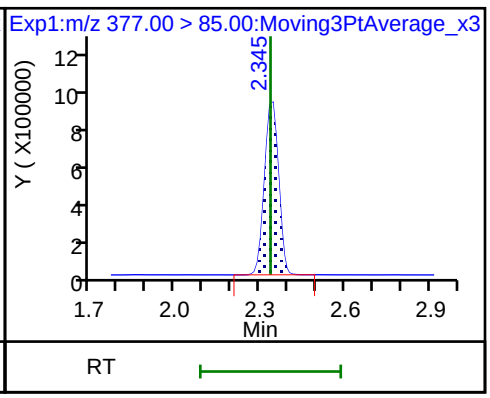
D 11 18O2 PFHxS



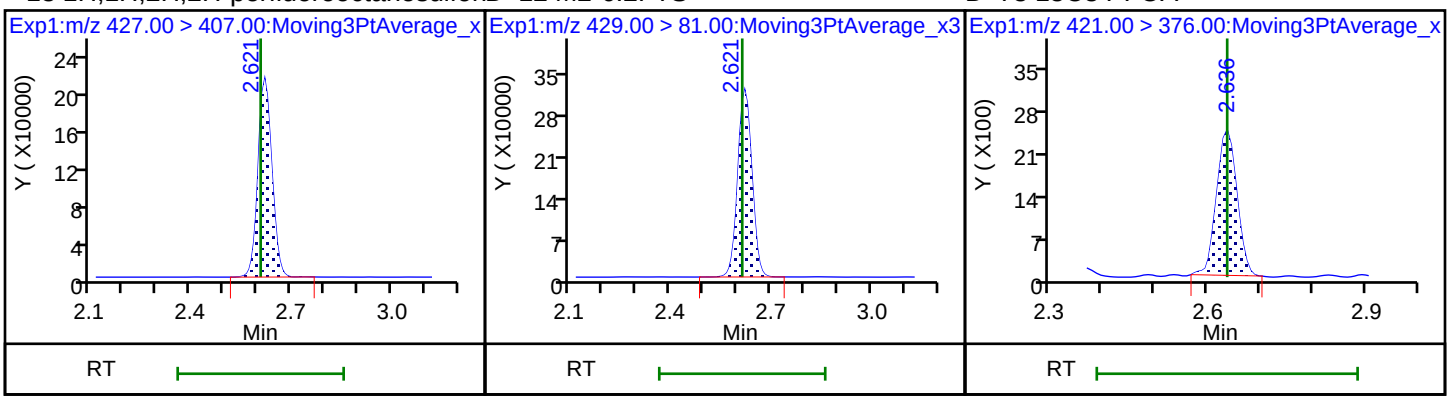
77 DONA



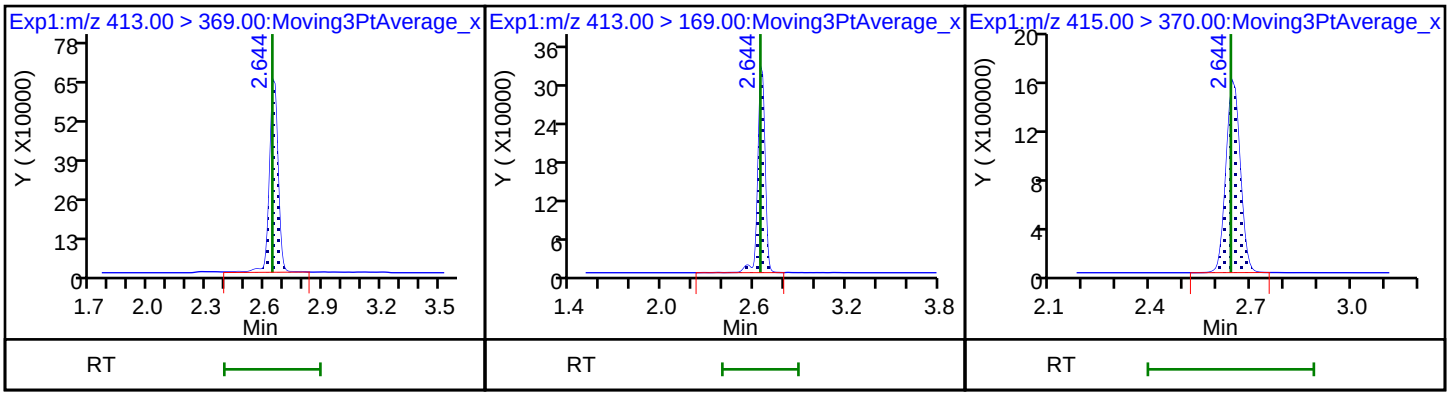
77 DONA



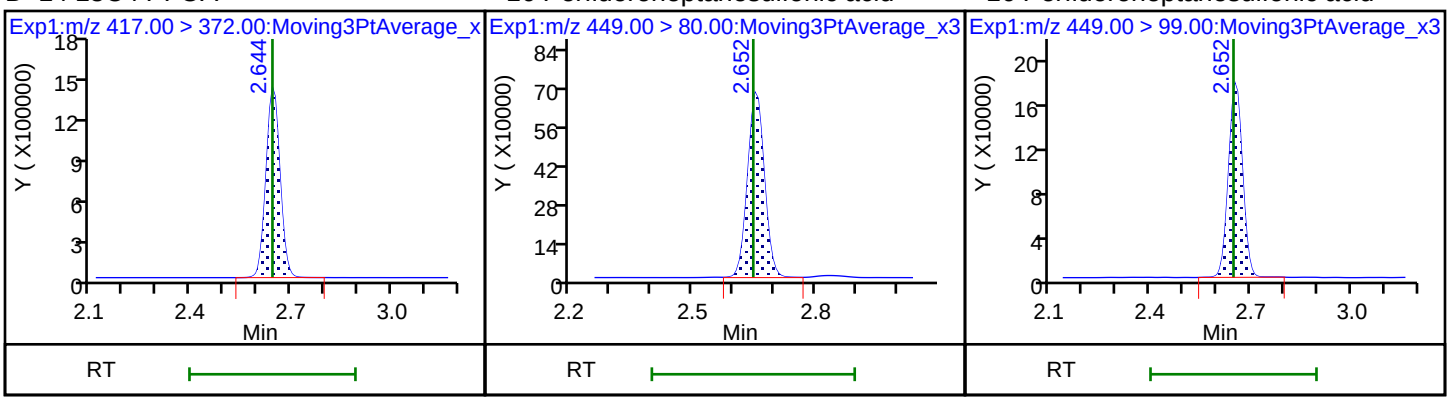
13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2FTS D 73 13C8 PFOA



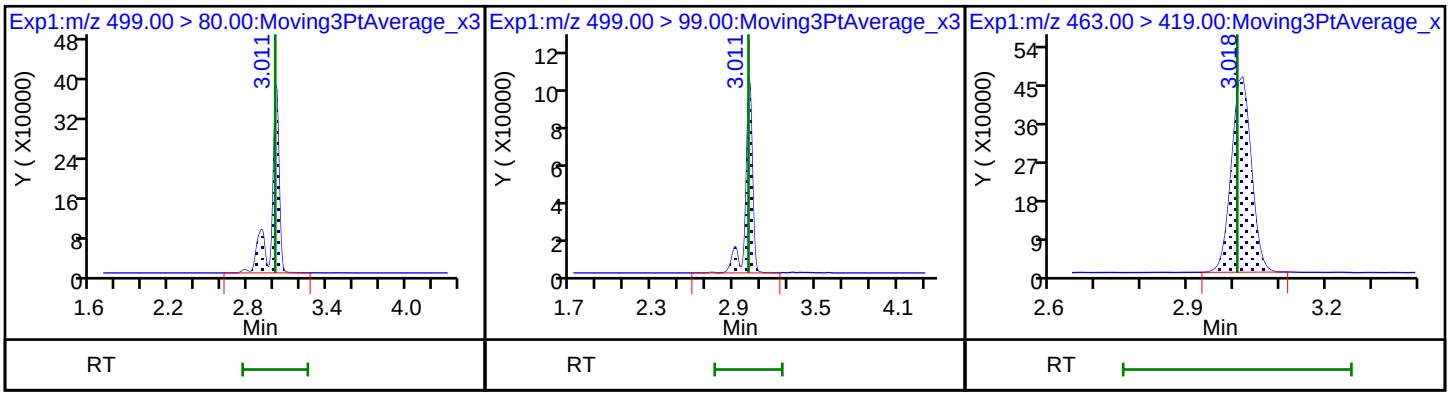
15 Perfluorooctanoic acid 15 Perfluorooctanoic acid * 62 13C2-PFOA



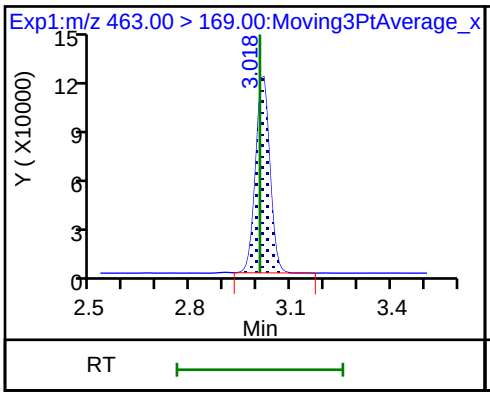
D 14 13C4 PFOA 16 Perfluoroheptanesulfonic acid 16 Perfluoroheptanesulfonic acid



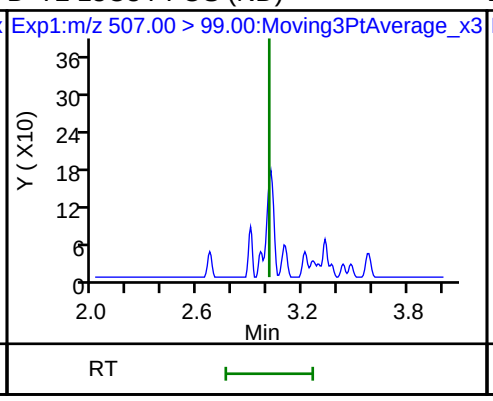
17 Perfluorooctane sulfonic acid 17 Perfluorooctane sulfonic acid 20 Perfluorononanoic acid



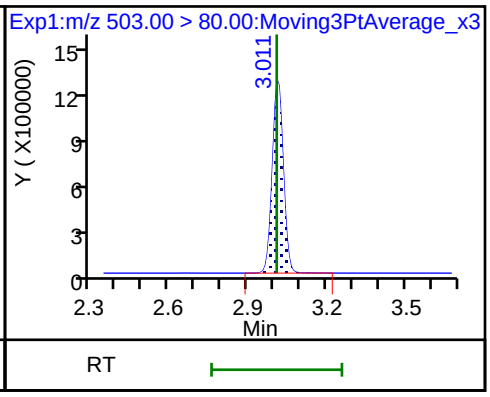
20 Perfluorononanoic acid



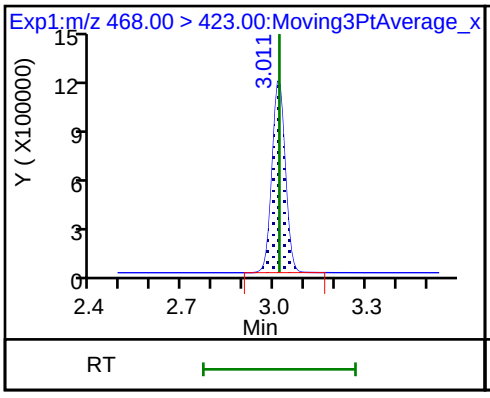
D 72 13C8 PFOS (ND)



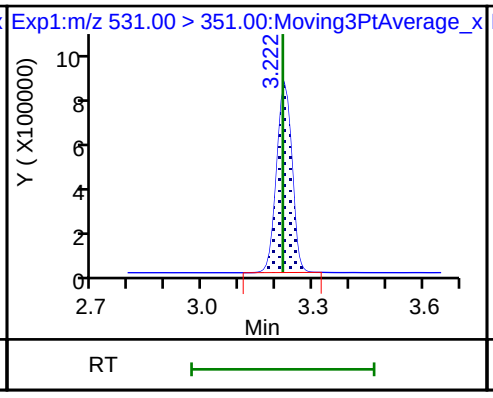
D 18 13C4 PFOS



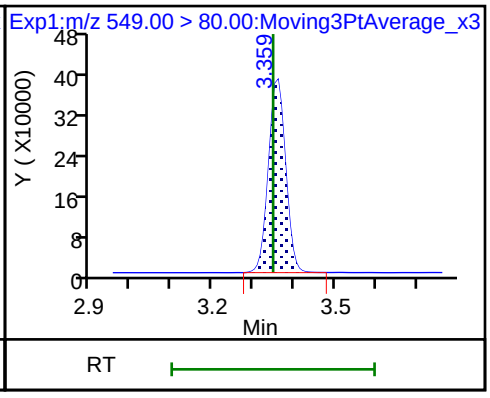
D 19 13C5 PFNA



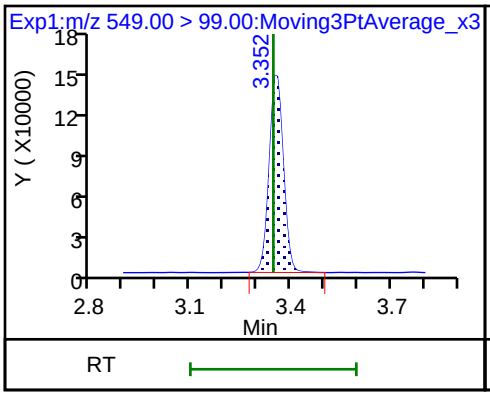
69 9-Chlorohexadecafluoro-3-oxanonane



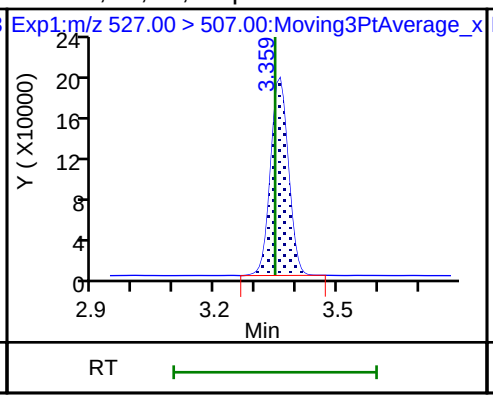
68 Perfluorononanesulfonic acid



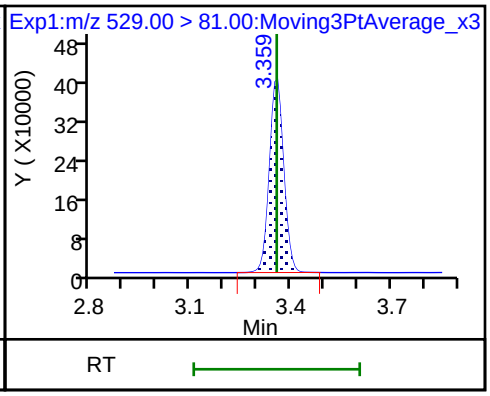
68 Perfluorononanesulfonic acid



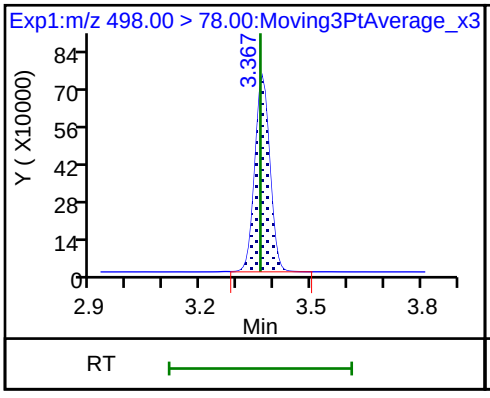
25 1H,1H,2H,2H-perfluorodecanesulfon



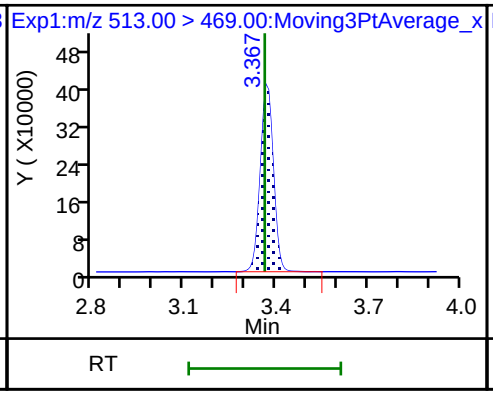
D 26 M2-8:2FTS



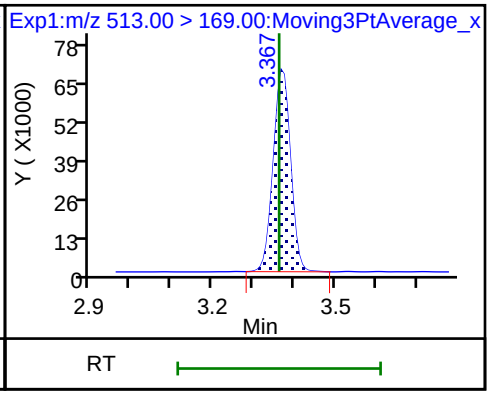
22 Perfluorooctane Sulfonamide



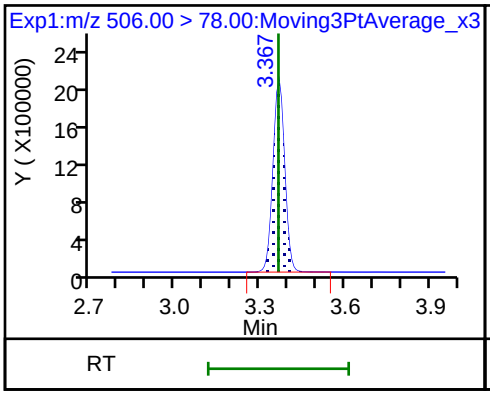
24 Perfluorodecanoic acid



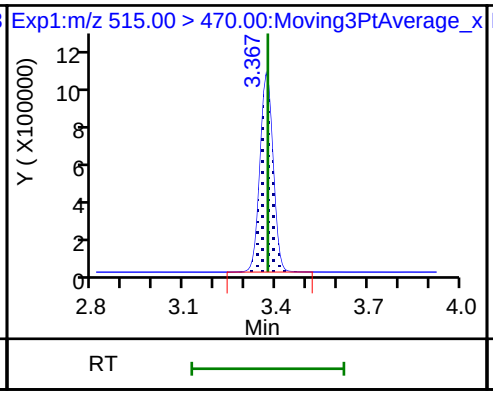
24 Perfluorodecanoic acid



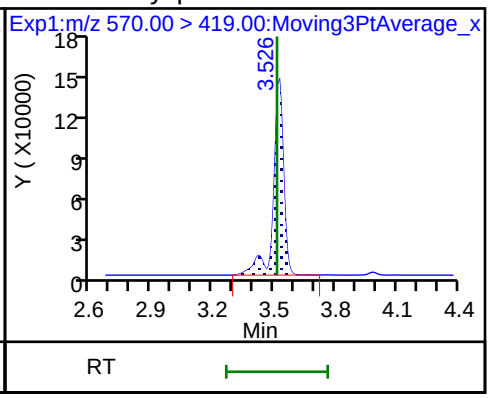
D 21 13C8 FOSA



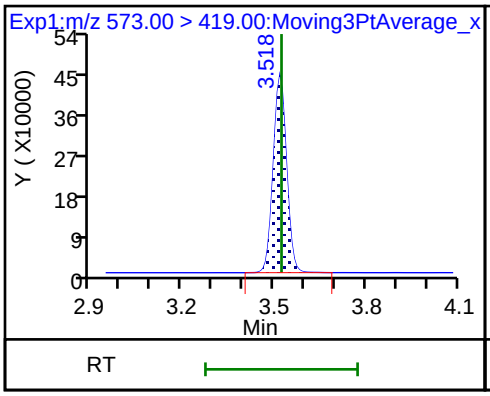
D 23 13C2 PFDA



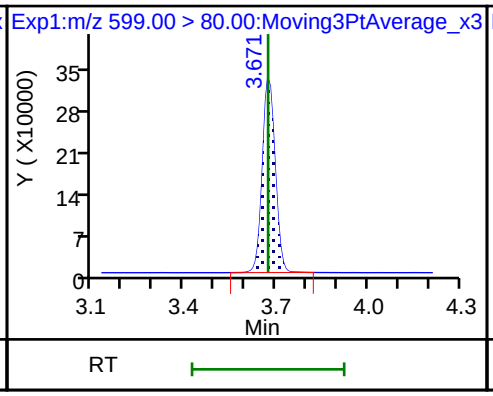
28 N-methyl perfluorooctane sulfonami



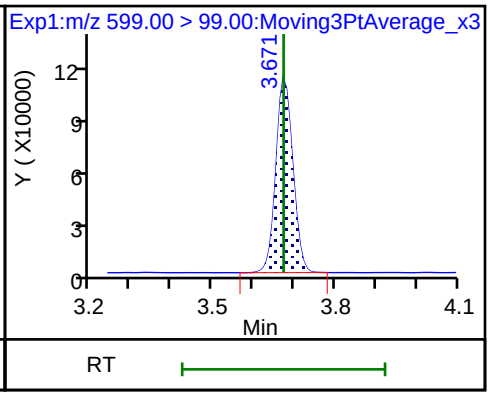
D 27 d3-NMeFOSAA



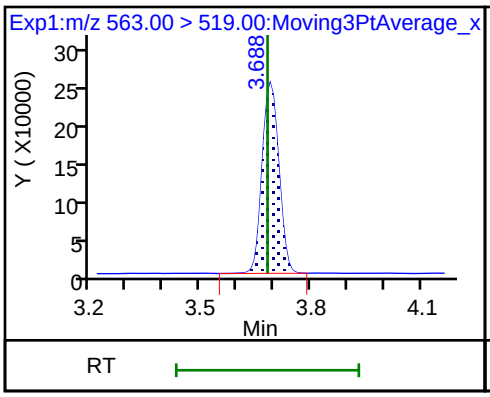
29 Perfluorodecane Sulfonic acid



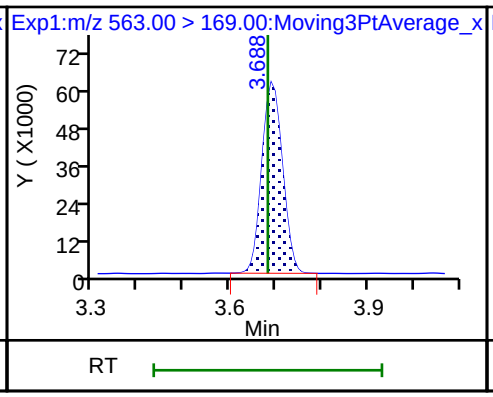
29 Perfluorodecane Sulfonic acid



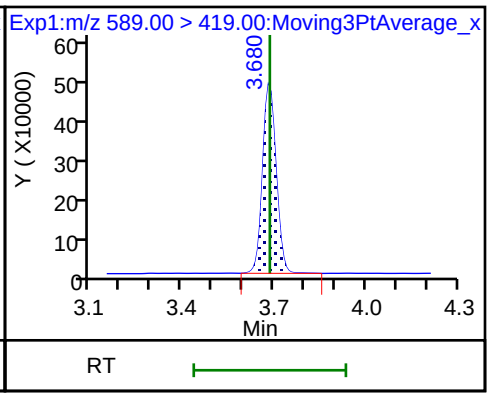
31 Perfluoroundecanoic acid



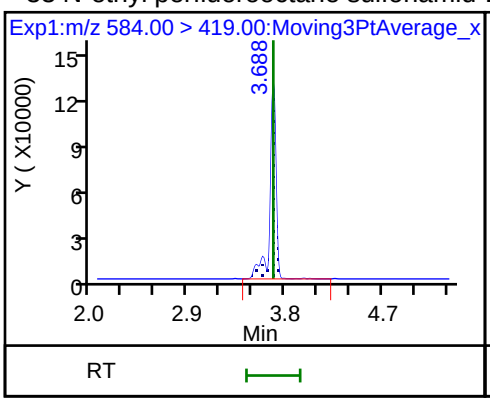
31 Perfluoroundecanoic acid



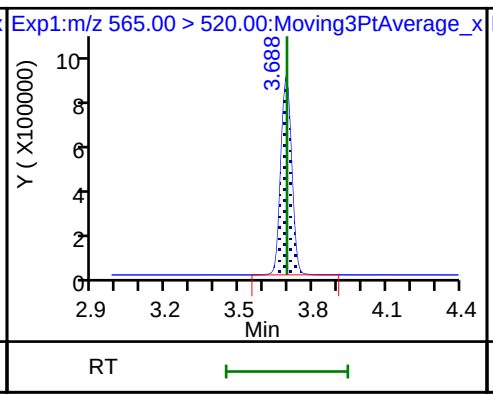
D 32 d5-NEtFOSAA



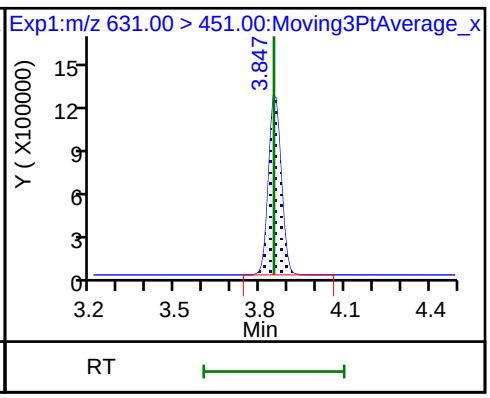
33 N-ethyl perfluorooctane sulfonamid



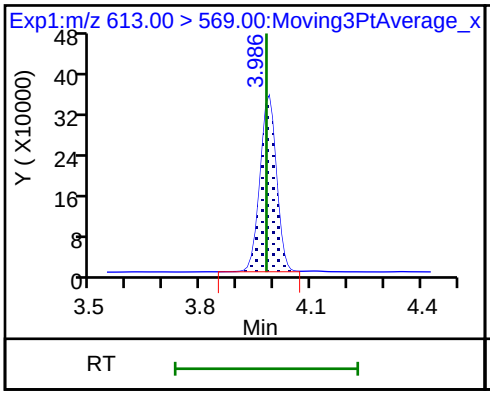
D 30 13C2 PFUnA



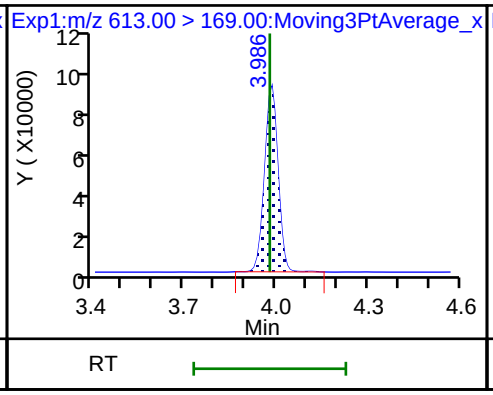
66 11-Chloroeicosafluoro-3-oxaundecan



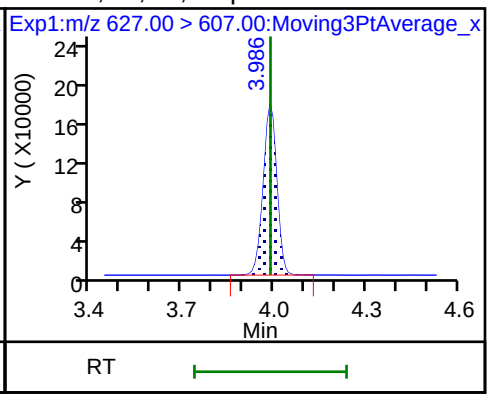
37 Perfluorododecanoic acid



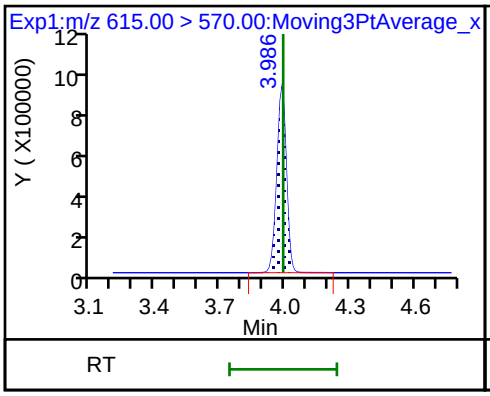
37 Perfluorododecanoic acid



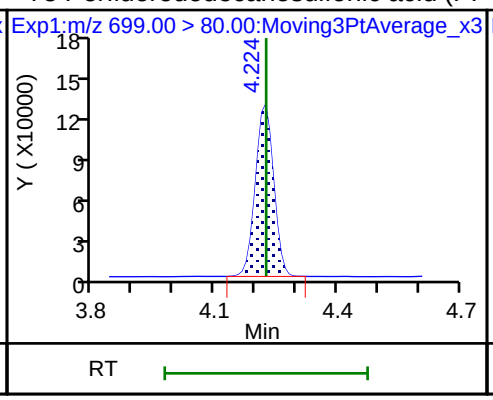
74 1H,1H,2H,2H-perfluorododecanesulfo



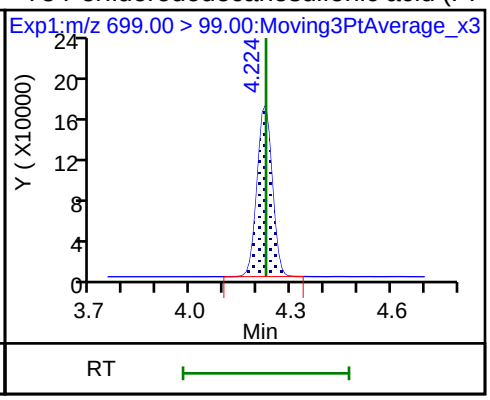
D 36 13C2 PFDoA



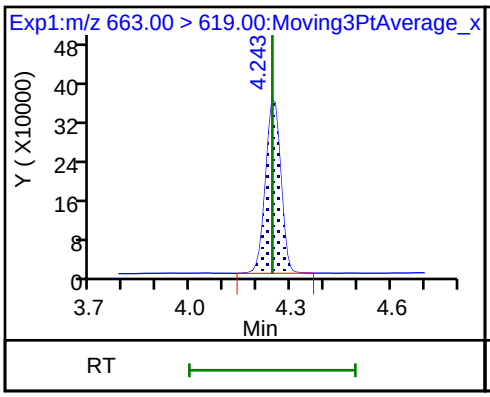
75 Perfluorododecanesulfonic acid (PF



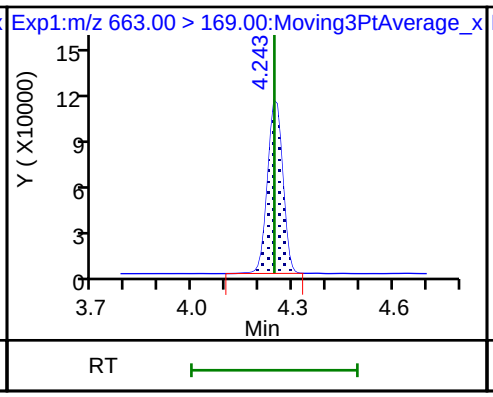
75 Perfluorododecanesulfonic acid (PF



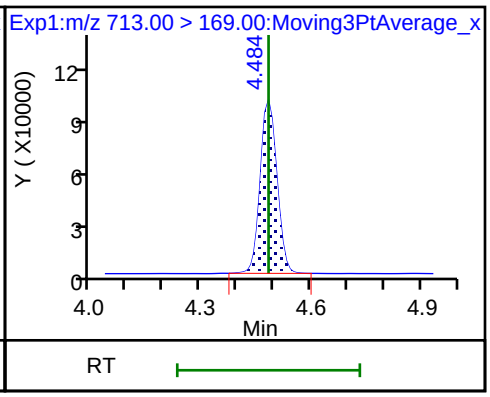
41 Perfluorotridecanoic acid



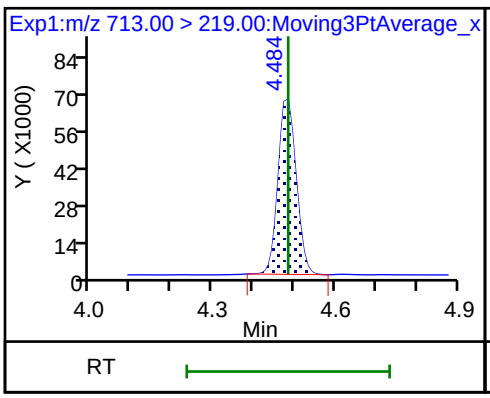
41 Perfluorotridecanoic acid



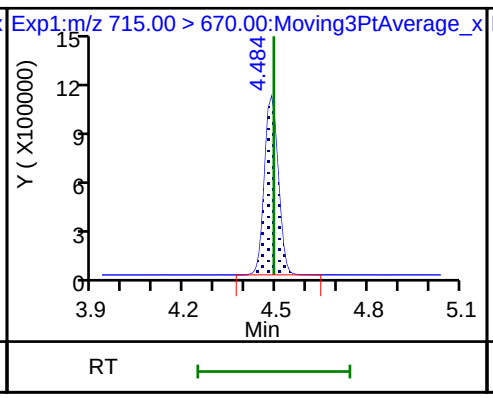
42 Perfluorotetradecanoic acid



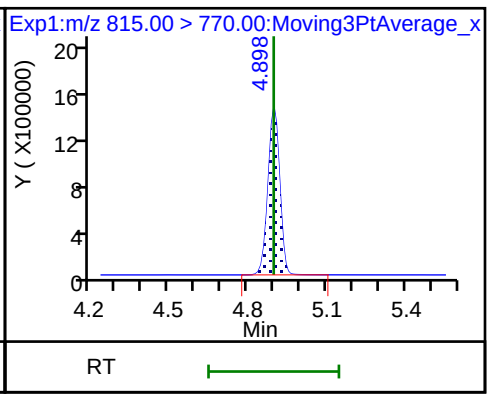
42 Perfluorotetradecanoic acid



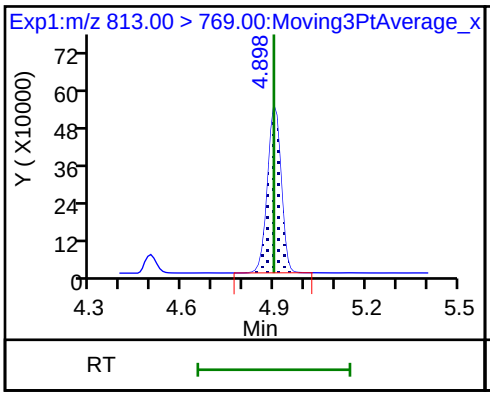
D 43 13C2-PFTeDA



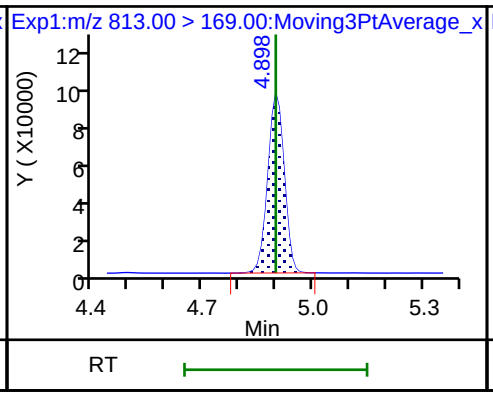
D 44 13C2-PFHxDA



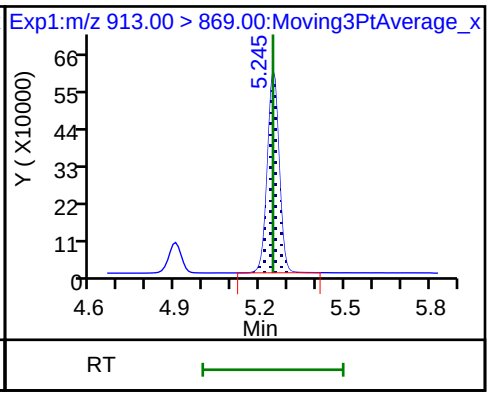
45 Perfluorohexadecanoic acid



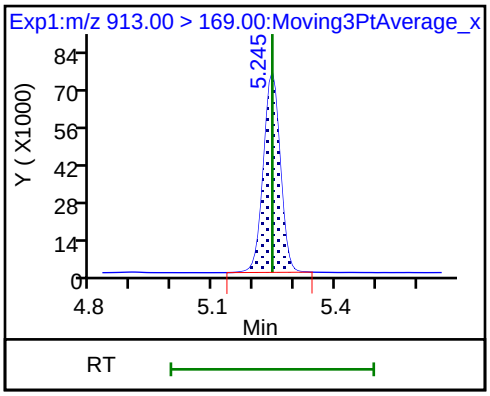
45 Perfluorohexadecanoic acid



46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



Manual Integration/User Assign Peak Report

TestAmerica Sacramento

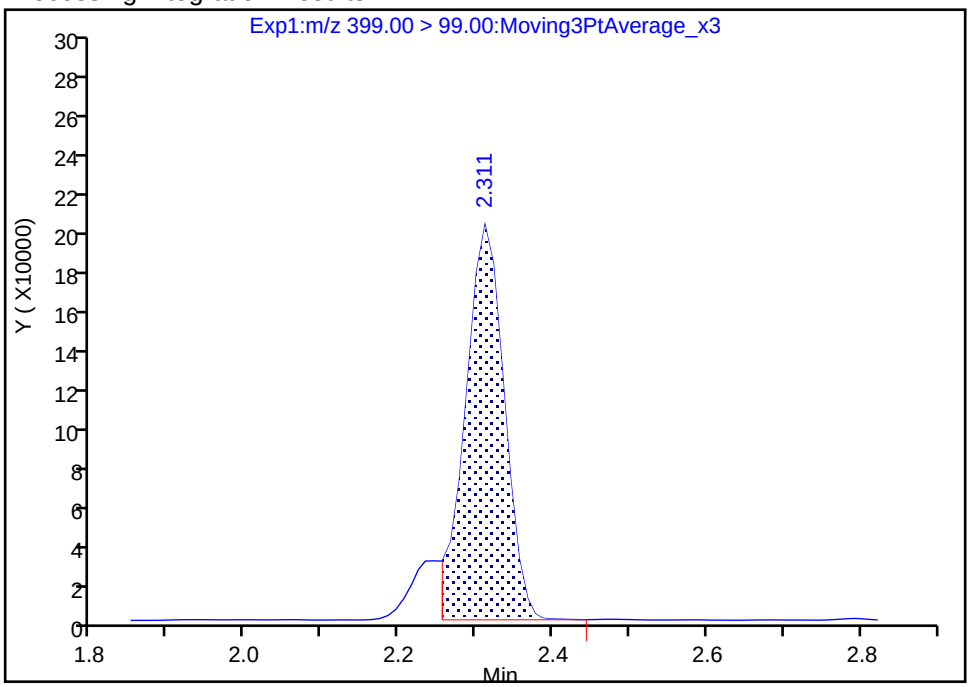
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180829-63499.b\2018.08.29LLB_046.d				
Injection Date:	30-Aug-2018 01:48:12	Instrument ID:	A8_N		
Lims ID:	320-42265-A-6-C MSD				
Client ID:	MW-2D				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	35	Worklist Smp#:	15
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	A8_N	Limit Group:	LC PFC ICAL		
Column:		Detector	EXP1		

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

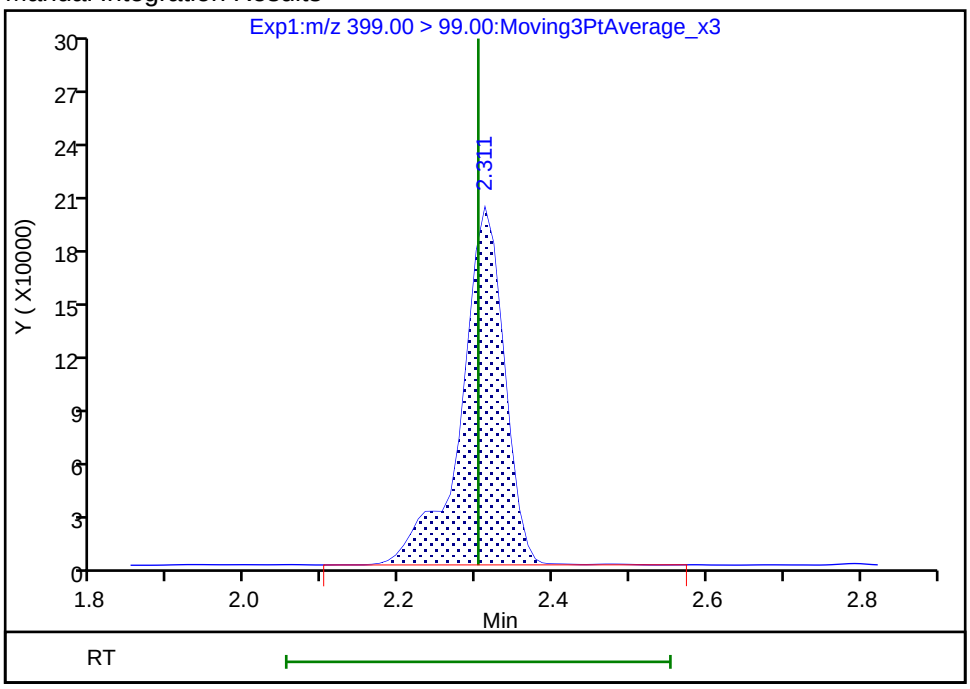
Processing Integration Results

RT: 2.31
Area: 703440
Amount: 0.896255
Amount Units: ng/ml



Manual Integration Results

RT: 2.31
Area: 789542
Amount: 0.896255
Amount Units: ng/ml



Reviewer: mongkols, 31-Aug-2018 14:46:00

Audit Action: Manually Integrated Audit Reason: Isomers

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Instrument ID: A8_N Start Date: 08/29/2018 12:29

Analysis Batch Number: 242895 End Date: 08/29/2018 13:40

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-242895/2		08/29/2018 12:29	1	2018.08.29LLICAL 002.d	GeminiC18 3x100 3(mm)
IC 320-242895/3		08/29/2018 12:37	1	2018.08.29LLICAL 003.d	GeminiC18 3x100 3(mm)
IC 320-242895/4		08/29/2018 12:45	1	2018.08.29LLICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-242895/5 ICIS		08/29/2018 12:53	1	2018.08.29LLICAL 005.d	GeminiC18 3x100 3(mm)
IC 320-242895/6		08/29/2018 13:01	1	2018.08.29LLICAL 006.d	GeminiC18 3x100 3(mm)
IC 320-242895/7		08/29/2018 13:08	1	2018.08.29LLICAL 007.d	GeminiC18 3x100 3(mm)
IC 320-242895/8		08/29/2018 13:16	1	2018.08.29LLICAL 008.d	GeminiC18 3x100 3(mm)
ICB 320-242895/9		08/29/2018 13:24	1	2018.08.29LLICAL 009.d	GeminiC18 3x100 3(mm)
ICV 320-242895/10		08/29/2018 13:32	1	2018.08.29LLICAL 010.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/29/2018 13:40	1		GeminiC18 3x100 3(mm)

537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Instrument ID: A8_N Start Date: 08/29/2018 20:11

Analysis Batch Number: 242971 End Date: 08/29/2018 22:55

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCB 320-242971/1		08/29/2018 20:11	1	2018.08.29LLB_003.d	GeminiC18 3x100 3(mm)
CCVL 320-242971/2		08/29/2018 20:19	1	2018.08.29LLB_004.d	GeminiC18 3x100 3(mm)
CCV 320-242971/3 CCVIS		08/29/2018 20:26	1	2018.08.29LLB_005.d	GeminiC18 3x100 3(mm)
CCV 320-242971/14		08/29/2018 21:53	1		GeminiC18 3x100 3(mm)
CCV 320-242971/22		08/29/2018 22:55	1		GeminiC18 3x100 3(mm)

537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Instrument ID: A8_N Start Date: 08/29/2018 23:58

Analysis Batch Number: 242977 End Date: 08/30/2018 02:27

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-242977/1		08/29/2018 23:58	1	2018.08.29LLB_032.d	GeminiC18 3x100 3(mm)
MB 320-242502/1-A		08/30/2018 00:06	1	2018.08.29LLB_033.d	GeminiC18 3x100 3(mm)
LCS 320-242502/2-A		08/30/2018 00:14	1	2018.08.29LLB_034.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/30/2018 00:22	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/30/2018 00:29	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/30/2018 00:37	1		GeminiC18 3x100 3(mm)
320-42265-1		08/30/2018 00:45	1	2018.08.29LLB_038.d	GeminiC18 3x100 3(mm)
320-42265-2		08/30/2018 00:53	1	2018.08.29LLB_039.d	GeminiC18 3x100 3(mm)
320-42265-3		08/30/2018 01:01	1	2018.08.29LLB_040.d	GeminiC18 3x100 3(mm)
320-42265-4		08/30/2018 01:09	1	2018.08.29LLB_041.d	GeminiC18 3x100 3(mm)
320-42265-5		08/30/2018 01:16	1	2018.08.29LLB_042.d	GeminiC18 3x100 3(mm)
CCV 320-242977/12		08/30/2018 01:24	1	2018.08.29LLB_043.d	GeminiC18 3x100 3(mm)
320-42265-6		08/30/2018 01:32	1	2018.08.29LLB_044.d	GeminiC18 3x100 3(mm)
320-42265-6 MS		08/30/2018 01:40	1	2018.08.29LLB_045.d	GeminiC18 3x100 3(mm)
320-42265-6 MSD		08/30/2018 01:48	1	2018.08.29LLB_046.d	GeminiC18 3x100 3(mm)
320-42265-7		08/30/2018 01:56	1	2018.08.29LLB_047.d	GeminiC18 3x100 3(mm)
320-42265-8		08/30/2018 02:03	1	2018.08.29LLB_048.d	GeminiC18 3x100 3(mm)
320-42265-9		08/30/2018 02:11	1	2018.08.29LLB_049.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/30/2018 02:19	1		GeminiC18 3x100 3(mm)
CCV 320-242977/20		08/30/2018 02:27	1	2018.08.29LLB_051.d	GeminiC18 3x100 3(mm)

537 (modified)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Batch Number: 242502 Batch Start Date: 08/28/18 10:26 Batch Analyst: Kolstad, Kate M

Batch Method: 3535 Batch End Date: 08/28/18 18:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC_ALL_SU 00100	LCPFC-IS 00077
MB 320-242502/1		3535, 537 (modified)				250.0 mL	10.0 mL	500 uL	500 uL
LCS 320-242502/2		3535, 537 (modified)				250.0 mL	10.0 mL	500 uL	500 uL
320-42265-A-1	MW-9S	3535, 537 (modified)	T	275.95 g	25.38 g	250.6 mL	10.0 mL	500 uL	500 uL
320-42265-A-2	MW-9D	3535, 537 (modified)	T	266.67 g	25.50 g	241.2 mL	10.0 mL	500 uL	500 uL
320-42265-A-3	MW-4S	3535, 537 (modified)	T	268.16 g	25.53 g	242.6 mL	10.0 mL	500 uL	500 uL
320-42265-A-4	MW-4D	3535, 537 (modified)	T	264.08 g	26.01 g	238.1 mL	10.0 mL	500 uL	500 uL
320-42265-A-5	MW-2S	3535, 537 (modified)	T	268.22 g	25.94 g	242.3 mL	10.0 mL	500 uL	500 uL
320-42265-A-6	MW-2D	3535, 537 (modified)	T	268.90 g	25.57 g	243.3 mL	10.0 mL	500 uL	500 uL
320-42265-A-6 MS	MW-2D	3535, 537 (modified)	T	268.33 g	25.53 g	242.8 mL	10.0 mL	500 uL	500 uL
320-42265-A-6 MSD	MW-2D	3535, 537 (modified)	T	266.51 g	25.10 g	241.4 mL	10.0 mL	500 uL	500 uL
320-42265-A-7	DUP-01	3535, 537 (modified)	T	258.37 g	25.90 g	232.5 mL	10.0 mL	500 uL	500 uL
320-42265-A-8	EB-01	3535, 537 (modified)	T	270.57 g	25.50 g	245.1 mL	10.0 mL	500 uL	500 uL
320-42265-A-9	MH-01	3535, 537 (modified)	T	268.85 g	26.30 g	242.6 mL	10.0 mL	500 uL	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFCSP 00179	AnalysisComment				
MB 320-242502/1		3535, 537 (modified)							
LCS 320-242502/2		3535, 537 (modified)		500 uL					
320-42265-A-1	MW-9S	3535, 537 (modified)	T		40.33g final weight.				
320-42265-A-2	MW-9D	3535, 537 (modified)	T		47.00g final weight.				
320-42265-A-3	MW-4S	3535, 537 (modified)	T		56.95g final weight.				
320-42265-A-4	MW-4D	3535, 537 (modified)	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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Batch Number: 242502 Batch Start Date: 08/28/18 10:26 Batch Analyst: Kolstad, Kate M

Batch Method: 3535 Batch End Date: 08/28/18 18:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFCSP 00179	AnalysisComment				
320-42265-A-5	MW-2S	3535, 537 (modified)	T						
320-42265-A-6	MW-2D	3535, 537 (modified)	T						
320-42265-A-6 MS	MW-2D	3535, 537 (modified)	T	500 uL					
320-42265-A-6 MSD	MW-2D	3535, 537 (modified)	T	500 uL					
320-42265-A-7	DUP-01	3535, 537 (modified)	T		42.52g final weight.				
320-42265-A-8	EB-01	3535, 537 (modified)	T						
320-42265-A-9	MH-01	3535, 537 (modified)	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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-42265-1

SDG No.:

Batch Number: 242502 Batch Start Date: 08/28/18 10:26 Batch Analyst: Kolstad, Kate M

Batch Method: 3535 Batch End Date: 08/28/18 18:00

Batch Notes	
Analyst ID - Aliquot Step	KMK
Balance ID	QA-078
Batch Comment	Client labels match TA label, KMK.
Analyst ID - Final Volume Step	KMK
H2O ID	08/27/18
Hexane ID	1328638
Internal Standard ID#	1337558
Manifold ID	D, G
Methanol ID	1342550
Sodium Hydroxide ID	1339969
Pipette ID	I46345G
Analyst ID - Reagent Drop	KMK
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	JER
Analyst ID - SU Reagent Drop	KMK
Analyst ID - SU Reagent Drop Witness	ABH
Solvent Lot #	1336320
Solvent Name	0.3% NH4OH/MeOH
SOP Number	WS-LC-0025
SPE Cartridge Type	Oasis WAX 500mg
Solid Phase Extraction Disk ID	003337172A

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

Pace Analytical®
www.pacelabs.com

Workorder: 7061798 **Workorder Name:** TAYLORS LANE 8/15 **Results Requested By:** 9/7/2018

Report / Invoice To	Subcontract To
Jennifer Aracri Pace Analytical Melville 575 Broad Hollow Road Melville, NY 11747 Phone (631)694-3040 Email: jennifer.aracri@pacelabs.com	Test America-Sacramento P.O. 7061798JSA 880 Riverside Pkwy West Sacramento, CA 95605

State of Sample Origin: NY

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved						Requested Analysis: PFOA/PFAS												LAB USE ONLY
1	MW-9S	8/15/2018 10:15	7061798001	Water							X												
2	MW-9D	8/15/2018 10:20	7061798002	Water							X												
3	MW-4S	8/15/2018 13:20	7061798003	Water							X												
4	MW-4D	8/15/2018 13:10	7061798004	Water							X												
5	MW-2S	8/15/2018 11:45	7061798005	Water							X												
6	MW-2D	8/15/2018 12:00	7061798006	Water							X												
7	DUP-01	8/15/2018 13:15	7061798007	Water							X												
8	EB-01	8/15/2018 14:20	7061798008	Water							X												
9	MH-01	8/15/2018 14:00	7061798009	Water							X												
10																							
11																							
12																							
13																							

MS/MSD Received not Marked on COC. DH 8/18/18

320-42265 Chain of Custody

13					
					Comments
Transfers	Released By	Date/Time	Received By	Date/Time	
1	[illegible]	8/17/18 1800	[illegible] TA Secure	8/14/18 920	
2					
3					

Cooler Temperature on Receipt 8.2 °C	Custody Seal Y or (N)	Received on Ice (Y) or N	Samples Intact (Y) or N

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

/06/1/98

Required Client Information:	Required Project Information:	Section C Invoice Information:
Company: Zion Environmental, LLC	Report To: Nichols, Brian	Attention:
Address: 134 Kelly Hill Road	Copy To:	Company Name:
Otisville, NY 10963		Address:
Email:	Purchase Order #	Pace Quote:
Phone: Fax:	Project Name: Taylors Lane	Pace Project Manager: jennifer.aracri@pacelabs.com,
Requested Due Date	Project #:	Pace Profile #: 7400

Regulatory Agency

State / Location: NY

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	1,4 Dioxane by 8270 SIM	PFAS EPA method 537	Residual Chlorine (Y/N)	
1	MW-9S	WT	G	8/15/18	1015				4	X									2	2		001
2	MW-9D	WT	G	8/15/18	1030				4	X									2	2		002
3	MW-4S	WT	G	8/15/18	1320				4	X									2	2		003
4	MW-4D	WT	G	8/15/18	1310				4	X									2	2		004
5	MW-2S	WT	G	8/15/18	1145				4	X									2	2		005
6	MW-2D	WT	G	8/15/18	1200				4	X									2	2		006
7	Dup-01	WT	G	8/15/18	1315				4	X									2	2		007
8	MS	WT	G	8/15/18	1203				4	X									2	2		006 ~~008~~
9	MSD	WT	G	8/15/18	1206				4	X									2	2		↓ ~~009~~
10	EB-01	WT	G	8/15/18	1420				4	X									2	2		008 ~~010~~
11	MH-01	WT	G	8/15/18	1400				4	X									2	2		009 ~~011~~
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Sub to TA Buffalo	Brian	8/16/18	1000	Danielle Wallace	8/16/18	1030	2.1 Y N Y
1,4 Dioxane by EPA method 8270 SIM							
PFAS by EPA method 537							

- NOTE: 1,4 Dioxane method detection limits should not exceed 0.28 ng/L (PPT)
- Reporting limits for PFAS should not exceed 2 ng/L (PPT)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brian Nichols / Wayne Keller

SIGNATURE of SAMPLER: B

DATE Signed: 8/15/19

TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

09/14/2018

Pace Analytical

Sample Condition Upon Receipt

Client Name: ZION Environmental Proj

WO#:7061798

PM: JSA Due Date: 09/07/18

CLIENT: ZION

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking #: 4598 4538 5041 7940

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No Seals intact: ☐ Yes ☑ No

Temperature Blank Present: ☐ Yes ☑ No

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ Ziploc ☐ None ☐ Other

Type of Ice: (Wet) Blue None

Thermometer Used: TH091 Correction Factor: 0.0

☐ Samples on ice, cooling process has begun

Cooler Temperature (°C): 2.1 Cooler Temperature Corrected (°C): 2.1

Date/Time 5035A kits placed in freezer _____

Temp should be above freezing to 6.0°C

USDA Regulated Soil (☑ N/A, water sample) Date and Initials of person examining contents: AW 8/16/18

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? ☐ YES ☐ NO

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☒ No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present:	☑Yes	☐No		1.
Chain of Custody Filled Out:	☑Yes	☐No		2.
Chain of Custody Relinquished:	☑Yes	☐No		3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No		5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No		6.
Rush Turn Around Time Requested:	☐Yes	☑No		7.
Sufficient Volume: (Triple volume provided for MS/MSD)	☑Yes	☐No		8.
Correct Containers Used:	☑Yes	☐No		9.
-Pace Containers Used	☑Yes	☐No		
Containers Intact:	☑Yes	☐No		10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	☑Yes	☐No		12.
-Includes date/time/ID/Analysis Matrix: SL WT OIL				
All containers needing preservation have been checked	☐Yes	☐No	☑N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
pH paper Lot #				Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl, NaOH>9 Sulfide, NaOH>12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis	☐Yes	☐No	☑N/A	Initial when completed: / Lot # of added preservative: / Date/Time preservative added:
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
KI starch test strips Lot #				Positive for Res. Chlorine? Y N
Residual chlorine strips Lot #				
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if applicable): _____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

F-LI-C-002-rev.02

* PM (Project Manager) review is documented electronically in LIMS.

Login Sample Receipt Checklist

Client: Pace Analytical Services, LLC

Job Number: 320-42265-1

Login Number: 42265
List Number: 1
Creator: Her, David A

List Source: TestAmerica Sacramento

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

ANALYTICAL REPORT

Job Number: 480-140615-1

Job Description: Taylors Lane 8/15

For:
Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747

Attention: Jennifer Aracri

Approved for release.
Rebecca M Jones
Project Management Assistant I
8/31/2018 4:45 PM

Designee for
John R Schove, Project Manager II
10 Hazelwood Drive, Amherst, NY, 14228-2298
(716)504-9838
john.schove@testamericainc.com
08/31/2018

cc: General Reporting

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.

TestAmerica Buffalo NELAC Certifications: CADPH 01169CA, FLDOH E87672, ILEPA 200003, KSDOH E-10187, LADEQ 30708, MDH 036-999-337, NHELAP 2973, NJDEP NY455, NYDOH 10026, ORELAP NY200003, PADEP 68-00281, TXCEQ T-104704412-10-1

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Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	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)

Job Narrative
480-140615-1

Comments
No additional comments.

Receipt
The samples were received on 8/18/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.9º C, 3.1º C and 3.4º C.

GC/MS Semi VOA
Method(s) 8270D SIM ID: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-2S (480-140615-5). Elevated reporting limits (RLs) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for samples MW-4D (480-140615-4) and MW-2S (480-140615-5) 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 sample was diluted to bring the concentration of target analytes within the calibration range: MH-01 (480-140615-9). Elevated reporting limits (RLs) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for sample MH-01 (480-140615-9) 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.

Organic Prep
Method(s) 3510C: Due to the matrix, the initial volume(s) used for the following samples deviated from the standard procedure: MW-4S (480-140615-3) and DUP-01 (480-140615-7). The reporting limits (RLs) have been adjusted proportionately.

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

Detection Summary

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

Client Sample ID: MW-9S — Lab Sample ID: 480-140615-1

No Detections.

Client Sample ID: MW-9D — Lab Sample ID: 480-140615-2

No Detections.

Client Sample ID: MW-4S — Lab Sample ID: 480-140615-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.9		2.0	1.0	ug/L	1		8270D SIM ID	Total/NA

Client Sample ID: MW-4D — Lab Sample ID: 480-140615-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.1	E	0.20	0.10	ug/L	1		8270D SIM ID	Total/NA

Client Sample ID: MW-2S — Lab Sample ID: 480-140615-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	7.0	E	1.0	0.50	ug/L	5		8270D SIM ID	Total/NA

Client Sample ID: MW-2D — Lab Sample ID: 480-140615-6

No Detections.

Client Sample ID: DUP-01 — Lab Sample ID: 480-140615-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	2.4		2.0	1.0	ug/L	1		8270D SIM ID	Total/NA

Client Sample ID: EB-01 — Lab Sample ID: 480-140615-8

No Detections.

Client Sample ID: MH-01 — Lab Sample ID: 480-140615-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	6.4	E	1.0	0.50	ug/L	5		8270D SIM ID	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-9S
Lab Sample ID: 480-140615-1
Date Collected: 08/15/18 10:15
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/25/18 01:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*29*		*15 - 110*	*08/20/18 14:25*	*08/25/18 01:43*	*1*

Client Sample ID: MW-9D
Lab Sample ID: 480-140615-2
Date Collected: 08/15/18 10:20
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/25/18 02:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*26*		*15 - 110*	*08/20/18 14:25*	*08/25/18 02:06*	*1*

Client Sample ID: MW-4S
Lab Sample ID: 480-140615-3
Date Collected: 08/15/18 13:20
Matrix: Water
Date Received: 08/18/18 09:00

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	**2.9**		2.0	1.0	ug/L		08/20/18 14:25	08/25/18 03:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*31*		*15 - 110*	*08/20/18 14:25*	*08/25/18 03:44*	*1*

Client Sample ID: MW-4D
Lab Sample ID: 480-140615-4
Date Collected: 08/15/18 13:10
Matrix: Water
Date Received: 08/18/18 09:00

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	**2.1**	**E**	0.20	0.10	ug/L		08/20/18 14:25	08/25/18 04:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*31*		*15 - 110*	*08/20/18 14:25*	*08/25/18 04:07*	*1*

Client Sample ID: MW-2S
Lab Sample ID: 480-140615-5
Date Collected: 08/15/18 11:45
Matrix: Water
Date Received: 08/18/18 09:00

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	**7.0**	**E**	1.0	0.50	ug/L		08/20/18 14:25	08/25/18 04:31	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*29*		*15 - 110*	*08/20/18 14:25*	*08/25/18 04:31*	*5*

Client Sample ID: MW-2D

Lab Sample ID: 480-140615-6

Date Collected: 08/15/18 12:00
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/24/18 22:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*35*		*15 - 110*	*08/20/18 14:25*	*08/24/18 22:57*	*1*

Client Sample ID: DUP-01

Lab Sample ID: 480-140615-7

Date Collected: 08/15/18 13:15
Matrix: Water
Date Received: 08/18/18 09:00

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	**2.4**		2.0	1.0	ug/L		08/20/18 14:31	08/25/18 05:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*38*		*15 - 110*	*08/20/18 14:31*	*08/25/18 05:41*	*1*

Client Sample ID: EB-01

Lab Sample ID: 480-140615-8

Date Collected: 08/15/18 14:20
Matrix: Water
Date Received: 08/18/18 09:00

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		08/20/18 14:25	08/25/18 04:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*33*		*15 - 110*	*08/20/18 14:25*	*08/25/18 04:54*	*1*

Client Sample ID: MH-01

Lab Sample ID: 480-140615-9

Date Collected: 08/15/18 14:00
Matrix: Water
Date Received: 08/18/18 09:00

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	**6.4**	**E**	1.0	0.50	ug/L		08/20/18 14:25	08/27/18 15:02	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*28*		*15 - 110*	*08/20/18 14:25*	*08/27/18 15:02*	*5*

Default Detection Limits

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

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

Prep: 3510C

Analyte	RL	MDL	Units	Method
1,4-Dioxane	0.20	0.10	ug/L	8270D SIM ID

Isotope Dilution Summary

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

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)							
480-140615-1	MW-9S	29							
480-140615-2	MW-9D	26							
480-140615-3	MW-4S	31							
480-140615-4	MW-4D	31							
480-140615-5	MW-2S	29							
480-140615-6	MW-2D	35							
480-140615-6 MS	MW-2D	32							
480-140615-6 MSD	MW-2D	33							
480-140615-7	DUP-01	38							
480-140615-8	EB-01	33							
480-140615-9	MH-01	28							
LCS 480-430511/2-A	Lab Control Sample	37							
MB 480-430511/1-A	Method Blank	37							

Surrogate Legend

DXE = 1,4-Dioxane-d8

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

Lab Sample ID: MB 480-430511/1-A
Matrix: Water
Analysis Batch: 431347

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430511

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		08/20/18 14:25	08/24/18 21:22	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*37*		*15 - 110*	*08/20/18 14:25*	*08/24/18 21:22*	*1*

Lab Sample ID: LCS 480-430511/2-A
Matrix: Water
Analysis Batch: 431347

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430511

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			1.00	1.04		ug/L		104	40 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*37*		*15 - 110*

Lab Sample ID: 480-140615-6 MS
Matrix: Water
Analysis Batch: 431347

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 430511

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	ND		1.00	1.10		ug/L		110	40 - 140		

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
1,4-Dioxane-d8	*32*		*15 - 110*

Lab Sample ID: 480-140615-6 MSD
Matrix: Water
Analysis Batch: 431347

Client Sample ID: MW-2D
Prep Type: Total/NA
Prep Batch: 430511

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	ND		1.00	1.09		ug/L		109	40 - 140	0	20

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,4-Dioxane-d8	*33*		*15 - 110*

GC/MS Semi VOA

Prep Batch: 430511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140615-1	MW-9S	Total/NA	Water	3510C	
480-140615-2	MW-9D	Total/NA	Water	3510C	
480-140615-3	MW-4S	Total/NA	Water	3510C	
480-140615-4	MW-4D	Total/NA	Water	3510C	
480-140615-5	MW-2S	Total/NA	Water	3510C	
480-140615-6	MW-2D	Total/NA	Water	3510C	
480-140615-7	DUP-01	Total/NA	Water	3510C	
480-140615-8	EB-01	Total/NA	Water	3510C	
480-140615-9	MH-01	Total/NA	Water	3510C	
MB 480-430511/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-430511/2-A	Lab Control Sample	Total/NA	Water	3510C	
480-140615-6 MS	MW-2D	Total/NA	Water	3510C	
480-140615-6 MSD	MW-2D	Total/NA	Water	3510C	

Analysis Batch: 431347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140615-1	MW-9S	Total/NA	Water	8270D SIM ID	430511
480-140615-2	MW-9D	Total/NA	Water	8270D SIM ID	430511
480-140615-6	MW-2D	Total/NA	Water	8270D SIM ID	430511
MB 480-430511/1-A	Method Blank	Total/NA	Water	8270D SIM ID	430511
LCS 480-430511/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	430511
480-140615-6 MS	MW-2D	Total/NA	Water	8270D SIM ID	430511
480-140615-6 MSD	MW-2D	Total/NA	Water	8270D SIM ID	430511

Analysis Batch: 431348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140615-3	MW-4S	Total/NA	Water	8270D SIM ID	430511
480-140615-4	MW-4D	Total/NA	Water	8270D SIM ID	430511
480-140615-5	MW-2S	Total/NA	Water	8270D SIM ID	430511
480-140615-7	DUP-01	Total/NA	Water	8270D SIM ID	430511
480-140615-8	EB-01	Total/NA	Water	8270D SIM ID	430511

Analysis Batch: 431595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140615-9	MH-01	Total/NA	Water	8270D SIM ID	430511

Client Sample ID: MW-9S
Date Collected: 08/15/18 10:15
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431347	08/25/18 01:43	DMR	TAL BUF

Client Sample ID: MW-9D
Date Collected: 08/15/18 10:20
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431347	08/25/18 02:06	DMR	TAL BUF

Client Sample ID: MW-4S
Date Collected: 08/15/18 13:20
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431348	08/25/18 03:44	DMR	TAL BUF

Client Sample ID: MW-4D
Date Collected: 08/15/18 13:10
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431348	08/25/18 04:07	DMR	TAL BUF

Client Sample ID: MW-2S
Date Collected: 08/15/18 11:45
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		5	431348	08/25/18 04:31	DMR	TAL BUF

Client Sample ID: MW-2D
Date Collected: 08/15/18 12:00
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431347	08/24/18 22:57	DMR	TAL BUF

Lab Chronicle

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

Client Sample ID: DUP-01
Date Collected: 08/15/18 13:15
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:31	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431348	08/25/18 05:41	DMR	TAL BUF

Client Sample ID: EB-01
Date Collected: 08/15/18 14:20
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	431348	08/25/18 04:54	DMR	TAL BUF

Client Sample ID: MH-01
Date Collected: 08/15/18 14:00
Date Received: 08/18/18 09:00

Lab Sample ID: 480-140615-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			430511	08/20/18 14:25	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		5	431595	08/27/18 15:02	DMR	TAL BUF

Laboratory References:

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

Accreditation/Certification Summary

Client: Pace Analytical Services, LLC
TestAmerica Job ID: 480-140615-1
Project/Site: Taylors Lane 8/15

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

Method Summary

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

Method	Method Description	Protocol	Laboratory
8270D SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	TAL BUF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF

Protocol References:

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

Sample Summary

Client: Pace Analytical Services, LLC
Project/Site: Taylors Lane 8/15

TestAmerica Job ID: 480-140615-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-140615-1	MW-9S	Water	08/15/18 10:15	08/18/18 09:00
480-140615-2	MW-9D	Water	08/15/18 10:20	08/18/18 09:00
480-140615-3	MW-4S	Water	08/15/18 13:20	08/18/18 09:00
480-140615-4	MW-4D	Water	08/15/18 13:10	08/18/18 09:00
480-140615-5	MW-2S	Water	08/15/18 11:45	08/18/18 09:00
480-140615-6	MW-2D	Water	08/15/18 12:00	08/18/18 09:00
480-140615-7	DUP-01	Water	08/15/18 13:15	08/18/18 09:00
480-140615-8	EB-01	Water	08/15/18 14:20	08/18/18 09:00
480-140615-9	MH-01	Water	08/15/18 14:00	08/18/18 09:00

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Instrument ID: HP5973U Analysis Batch Number: 431347

Lab Sample ID: MB 480-430511/1-A Client Sample ID:

Date Analyzed: 08/24/18 21:22 Lab File ID: U3310926.D GC Column: RXI-5Sil MS(0 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane		Invalid Compound ID	richardsd	08/27/18 11:46

Lab Sample ID: LCS 480-430511/2-A Client Sample ID:

Date Analyzed: 08/24/18 21:46 Lab File ID: U3310927.D GC Column: RXI-5Sil MS(0 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	2.32	Peak assignment corrected	richardsd	08/27/18 11:20

Lab Sample ID: 480-140615-6 MS Client Sample ID: MW-2D MS

Date Analyzed: 08/24/18 22:09 Lab File ID: U3310928.D GC Column: RXI-5Sil MS(0 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	2.30	Peak assignment corrected	richardsd	08/27/18 11:20

Lab Sample ID: 480-140615-6 MSD Client Sample ID: MW-2D MSD

Date Analyzed: 08/24/18 22:33 Lab File ID: U3310929.D GC Column: RXI-5Sil MS(0 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane	2.30	Peak assignment corrected	richardsd	08/27/18 11:21

Lab Sample ID: 480-140615-6 Client Sample ID: MW-2D

Date Analyzed: 08/24/18 22:57 Lab File ID: U3310930.D GC Column: RXI-5Sil MS(0 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane		Invalid Compound ID	richardsd	08/27/18 11:21

8270D SIM ID

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Instrument ID: HP5973U Analysis Batch Number: 431347

Lab Sample ID: 480-140615-1 Client Sample ID: MW-9S

Date Analyzed: 08/25/18 01:43 Lab File ID: U3310937.D GC Column: RXI-5Sil MS(0 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane		Invalid Compound ID	richardsd	08/27/18 11:22

8270D SIM ID

GC/MS SEMI VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Instrument ID: HP5973U Analysis Batch Number: 431348

Lab Sample ID: 480-140615-8 Client Sample ID: EB-01

Date Analyzed: 08/25/18 04:54 Lab File ID: U3310945.D GC Column: RXI-5Sil MS(0 ID: 0.25(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
1,4-Dioxane		Invalid Compound ID	richardsd	08/27/18 11:23

8270D SIM ID

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
MB_1,4SIM_WRK_00053	01/22/19	04/16/18	Methylene Chloride, Lot 196174	1 mL	MB_1,4SIM_INT_00009	10 uL	1,4-Dioxane	0.2 ug/mL
					MB_SIMSUR_INT_00002	10 uL	1,4-Dioxane-d8	2 ug/mL
.MB_1,4SIM_INT_00009	01/22/19	01/22/18	Methylene Chloride, Lot 187621	10 mL	MB_14Diox_STK_00024	100 uL	1,4-Dioxane	20 ug/mL
..MB_14Diox_STK_00024	01/22/19		Restek, Lot A0110448		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
.MB_SIMSUR_INT_00002	04/16/19	04/16/18	Methylene Chloride, Lot 194176	10 mL	MB_SIMSur_STK_00014	1000 uL	1,4-Dioxane-d8	200 ug/mL
..MB_SIMSur_STK_00014	04/16/19		Restek, Lot A0134839		(Purchased Reagent)		1,4-Dioxane-d8	2000 ug/mL
MB_1,4SIM_WRK_00054	01/22/19	04/16/18	Methylene Chloride, Lot 196174	1 mL	MB_1,4SIM_INT_00009	20 uL	1,4-Dioxane	0.4 ug/mL
					MB_SIMSUR_INT_00002	20 uL	1,4-Dioxane-d8	4 ug/mL
.MB_1,4SIM_INT_00009	01/22/19	01/22/18	Methylene Chloride, Lot 187621	10 mL	MB_14Diox_STK_00024	100 uL	1,4-Dioxane	20 ug/mL
..MB_14Diox_STK_00024	01/22/19		Restek, Lot A0110448		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
.MB_SIMSUR_INT_00002	04/16/19	04/16/18	Methylene Chloride, Lot 194176	10 mL	MB_SIMSur_STK_00014	1000 uL	1,4-Dioxane-d8	200 ug/mL
..MB_SIMSur_STK_00014	04/16/19		Restek, Lot A0134839		(Purchased Reagent)		1,4-Dioxane-d8	2000 ug/mL
MB_1,4SIM_WRK_00055	10/16/18	04/16/18	Methylene Chloride, Lot 196174	5 mL	MB_1,4SIM_INT_00009	150 uL	1,4-Dioxane	0.6 ug/mL
					MB_SIMSUR_INT_00002	150 uL	1,4-Dioxane-d8	6 ug/mL
.MB_1,4SIM_INT_00009	01/22/19	01/22/18	Methylene Chloride, Lot 187621	10 mL	MB_14Diox_STK_00024	100 uL	1,4-Dioxane	20 ug/mL
..MB_14Diox_STK_00024	01/22/19		Restek, Lot A0110448		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
.MB_SIMSUR_INT_00002	04/16/19	04/16/18	Methylene Chloride, Lot 194176	10 mL	MB_SIMSur_STK_00014	1000 uL	1,4-Dioxane-d8	200 ug/mL
..MB_SIMSur_STK_00014	04/16/19		Restek, Lot A0134839		(Purchased Reagent)		1,4-Dioxane-d8	2000 ug/mL
MB_1,4SIM_WRK_00056	01/22/19	04/16/18	Methylene Chloride, Lot 196174	1 mL	MB_1,4SIM_INT_00009	40 uL	1,4-Dioxane	0.8 ug/mL
					MB_SIMSUR_INT_00002	40 uL	1,4-Dioxane-d8	8 ug/mL
.MB_1,4SIM_INT_00009	01/22/19	01/22/18	Methylene Chloride, Lot 187621	10 mL	MB_14Diox_STK_00024	100 uL	1,4-Dioxane	20 ug/mL
..MB_14Diox_STK_00024	01/22/19		Restek, Lot A0110448		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
.MB_SIMSUR_INT_00002	04/16/19	04/16/18	Methylene Chloride, Lot 194176	10 mL	MB_SIMSur_STK_00014	1000 uL	1,4-Dioxane-d8	200 ug/mL
..MB_SIMSur_STK_00014	04/16/19		Restek, Lot A0134839		(Purchased Reagent)		1,4-Dioxane-d8	2000 ug/mL
MB_1,4SIM_WRK_00057	01/22/19	04/16/18	Methylene Chloride, Lot 196174	1 mL	MB_1,4SIM_INT_00009	50 uL	1,4-Dioxane	1 ug/mL
					MB_SIMSUR_INT_00002	50 uL	1,4-Dioxane-d8	10 ug/mL
.MB_1,4SIM_INT_00009	01/22/19	01/22/18	Methylene Chloride, Lot 187621	10 mL	MB_14Diox_STK_00024	100 uL	1,4-Dioxane	20 ug/mL
..MB_14Diox_STK_00024	01/22/19		Restek, Lot A0110448		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
.MB_SIMSUR_INT_00002	04/16/19	04/16/18	Methylene Chloride, Lot 194176	10 mL	MB_SIMSur_STK_00014	1000 uL	1,4-Dioxane-d8	200 ug/mL
..MB_SIMSur_STK_00014	04/16/19		Restek, Lot A0134839		(Purchased Reagent)		1,4-Dioxane-d8	2000 ug/mL
MB_1,4SIM_WRK_00058	01/22/19	04/16/18	Methylene Chloride, Lot 196174	1 mL	MB_1,4SIM_INT_00009	60 uL	1,4-Dioxane	1.2 ug/mL
					MB_SIMSUR_INT_00002	60 uL	1,4-Dioxane-d8	12 ug/mL

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.MB_1,4SIM_INT_00009	01/22/19	01/22/18	Methylene Chloride, Lot 187621	10 mL	MB_14Diox_STK_00024	100 uL	1,4-Dioxane	20 ug/mL
..MB_14Diox_STK_00024	01/22/19		Restek, Lot A0110448		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
.MB_SIMSUR_INT_00002	04/16/19	04/16/18	Methylene Chloride, Lot 194176	10 mL	MB_SIMSur_STK_00014	1000 uL	1,4-Dioxane-d8	200 ug/mL
..MB_SIMSur_STK_00014	04/16/19		Restek, Lot A0134839		(Purchased Reagent)		1,4-Dioxane-d8	2000 ug/mL
MB_1,4SIM_WRK_00059	01/16/19	07/16/18	Methylene Chloride, Lot 202206	10 mL	MB_1,4SIM_INT_00009	300 uL	1,4-Dioxane	0.6 ug/mL
					MB_SIMSUR_INT_00002	300 uL	1,4-Dioxane-d8	6 ug/mL
.MB_1,4SIM_INT_00009	01/22/19	01/22/18	Methylene Chloride, Lot 187621	10 mL	MB_14Diox_STK_00024	100 uL	1,4-Dioxane	20 ug/mL
..MB_14Diox_STK_00024	01/22/19		Restek, Lot A0110448		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
.MB_SIMSUR_INT_00002	04/16/19	04/16/18	Methylene Chloride, Lot 194176	10 mL	MB_SIMSur_STK_00014	1000 uL	1,4-Dioxane-d8	200 ug/mL
..MB_SIMSur_STK_00014	04/16/19		Restek, Lot A0134839		(Purchased Reagent)		1,4-Dioxane-d8	2000 ug/mL
MB_DFTPP_WRK_00333							1,4-Dichlorobenzene-d4	
							4,4'-DDD	
							4,4'-DDE	
					MB_DFTPP_STK_00083	100 uL	4,4'-DDT	10 ug/mL
							DFTPP	10 ug/mL
.MB_DFTPP_STK_00083	06/12/19		Ultra Scientific, Lot CR-3789		(Purchased Reagent)		4,4'-DDT	1000 ug/mL
							DFTPP	1000 ug/mL
MB_DFTPP_WRK_00336							4,4'-DDD	
							4,4'-DDE	
					MB_DFTPP_STK_00084	100 uL	4,4'-DDT	10 ug/mL
							DFTPP	10 ug/mL
.MB_DFTPP_STK_00084	07/10/19		Ultra Scientific, Lot CR-3789		(Purchased Reagent)		4,4'-DDT	1000 ug/mL
							DFTPP	1000 ug/mL
MB_LLIS_WRK_00149	12/05/18	06/19/18	Methylene Chloride, Lot 198703	10 mL	MB_INTSTD_STK_00049	1000 uL	1,4-Dichlorobenzene-d4	200 ug/mL
.MB_INTSTD_STK_00049	12/05/18		Restek, Lot A0133281		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MB_LLIS_WRK_00151	01/24/19	08/07/18	Methylene Chloride, Lot 203764	10 mL	MB_INTSTD_STK_00051	1000 uL	1,4-Dichlorobenzene-d4	200 ug/mL
.MB_INTSTD_STK_00051	01/24/19		Restek, Lot A0133281		(Purchased Reagent)		1,4-Dichlorobenzene-d4	2000 ug/mL
MB_SIMSS_WRK_00008	10/16/18	04/16/18	Methylene Chloride, Lot 197173	1 mL	MB_SIMSS_INT_00005	30 uL	1,4-Dioxane	0.6 ug/mL
					MB_SIMSUR_INT_00002	30 uL	1,4-Dioxane-d8	6 ug/mL
.MB_SIMSS_INT_00005	03/26/19	04/16/18	Methylene Chloride, Lot 197178	5 mL	MB_L1S1_SS_00023	100 uL	1,4-Dioxane	20 ug/mL
..MB_L1S1_SS_00023	03/26/19		Restek, Lot A0131190		(Purchased Reagent)		1,4-Dioxane	1000 ug/mL
.MB_SIMSUR_INT_00002	04/16/19	04/16/18	Methylene Chloride, Lot 194176	10 mL	MB_SIMSur_STK_00014	1000 uL	1,4-Dioxane-d8	200 ug/mL
..MB_SIMSur_STK_00014	04/16/19		Restek, Lot A0134839		(Purchased Reagent)		1,4-Dioxane-d8	2000 ug/mL
OP_SIM_LCS_00004	12/23/19	07/23/18	ACETONE, Lot 4752002	200 mL	O_1,4Diox_STK_00005	100 uL	1,4-Dioxane	1 ug/mL
.O_1,4Diox_STK_00005	06/30/22		Restek, Lot A0128697		(Purchased Reagent)		1,4-Dioxane	2000 ug/mL
OP_SimSurr_00007	02/10/19	08/10/18	ACETONE, Lot 4727427	200 mL	OP_1,4diox-d8_00011	1 mL	1,4-Dioxane-d8	10 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.OP_1,4diox-d8_00011	04/30/21		Restek, Lot A0137338		(Purchased Reagent)		1,4-Dioxane-d8	2000 ug/mL

Reagent

MB_1,4SIM_INT_00009

Reagent

MB_1,4SIM_WRK_00053

Reagent

MB_1,4SIM_WRK_00054

Reagent

MB_1,4SIM_WRK_00055

Reagent

MB_1,4SIM_WRK_00056

Reagent

MB_1,4SIM_WRK_00057

Reagent

MB_1,4SIM_WRK_00058

Reagent

MB_1,4SIM_WRK_00059

Reagent

MB_14Diox_STK_00024

Reference Standards

1,4-dioxane

Catalog # 31853

Lot # A0110448

110 Benner Circle Bellefonte, PA 16823-8812
1-814-353-1300 1-800-356-1168
www.restek.com

FOR LABORATORY USE ONLY. READ SDS PRIOR TO USE.

RAW MATERIAL TEST INFORMATION AVAILABLE UPON REQUEST

MANUFACTURED UNDER RESTEK'S ISO 9001 REGISTERED QUALITY SYSTEM

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110 Benner Circle
Bellefonte, PA 16823-8812
Tel: (800)356-1688
Fax: (814)353-1309

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31853 **Lot No.:** A0110448

Description : 1,4-dioxane

1,4-Dioxane 2,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : April 30, 2020 **Storage:** 0°C or colder

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane	2,005.0 µg/mL	+/- 11.7665	µg/mL	Gravimetric
	CAS # 123-91-1 (Lot SHBF2002V)		+/- 42.5509	µg/mL	Unstressed
	Purity 99%		+/- 42.7394	µg/mL	Stressed

Solvent: Methylene Chloride (MEOH FREE)
CAS # 75-09-2
Purity 99%

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

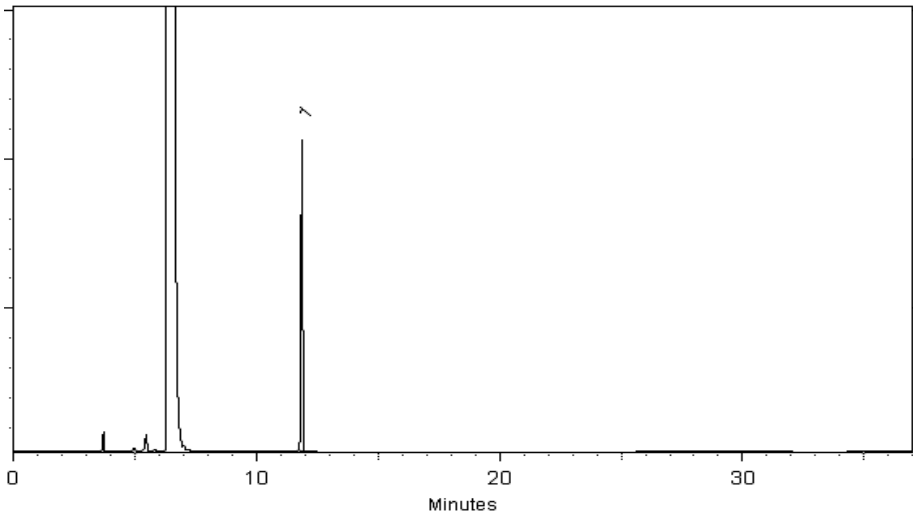
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Rebecca Sauer

Date Mixed: 16-Apr-2015 **Balance:** 1128360905

Amanda Miller - QC Analyst

Date Passed: 20-Apr-2015

Manufactured under Restek's ISO 9001:2008 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO Guides 34 and 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Samples should be transferred into deactivated vials for handling and storage. Restek supplies deactivated vials along with most standards packed in 2 mL ampules. Due to space constraints, Restek does not supply vials for larger volume ampules. Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions. Restek will also deactivate larger volume vials from our inventory as a custom ordered item. Contact your Restek sales or customer service representative for details.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

RESTEK

Chemical Standard Batch Sheet
Lot #: A0110448

Catalog #: 31853	**Target:** 2000 ug/mL	
Description: 1,4-dioxane		
Solvent: Methylene Chloride (MEOH FREE)	**Solvent Lot:** 150188	**Final Volume:** 100 ml

Made by: Rebecca Lauver	**Date:** 4/16/2015 11:55:20AM		
Tested by: Amanda Miller	**Date:** 4/17/2015 10:07:38AM		
Pass	**By:** Amanda Miller	**Date:** 4/20/2015 8:16:14AM	
Packaged by: Joe Conway / Rebecca Lauver	**Date:** 4/16/2015 1:36:41PM	**No. Units:** 71	**Pkg Size:** 1 mL
Balance Used: BEDEARMBALPC3 XP205	**Serial #:** 1128360905		

Compound	CAS	Storage Location	Lot #	Purity	Target Conc(ug/mL)	Target	Actual	Calc Conc(ug/mL)
1,4-Dioxane	123-91-1	R0581	SHBF2002V	0.99	2,000.00	200.00 mg	200.50 mg	2,005.0

QA Report: 1 4-dioxane (Cat.#31853)

	Runs of Lot # a079686						Runs of Lot # a0110448							
COMPONENT	Run #1	Run #2	Run #3	AVG	STD DEV	% RSD	Run #1	Run #2	Run #3	AVG	STD DEV	% RSD	%D MEAN	P/F
1,4-dioxane	4744769	4744247	4791536	4760184	27153	0.57	4764070	4797484	4777169	4779574	16836	0.35	-0.41	PASS

Reagent

MB_DFTPP_STK_00083

GCMS Semivolatile / Ion Chromatography - Opened Source Reagent Review Sheet

TALS Reagent ID(s):

4551024

ID: MB_DFTPP_STK_00083

Exp:06/12/19 Prpd:RJS Opn:06/12/18

8270 SVOA GC/MS Tuning ST

	N/A	Yes	No	2nd
Storage location updated? • **MB #12 – Opened Source reagents and Intermediates** • MB #13 – Unopened Source reagents / Opened IC reagents • IC Room Temperature		✓		Y
Open Date entered?		✓		Y
Expiration date updated? • 1 year for SVOA reagents (unless manufacture date expires first) • 6 months for IC reagents (unless manufacture date expires first)		✓		Y
Is the standard Approved?		✓		Y
Is the Review sheet for Unopened reagents attached to Docs?		✓		Y
Is the previous Source reagent set to Disposed and removed from MB#12?		✓		Y

1st Reviewer: BS **Date Reviewed:** 6/12/18

2nd Reviewer: DR **Date Reviewed:** 6/15/18

Comments: _____

Certificate of Analysis

Semi-Volatiles GC/MS Tuning Standard

Product Number: GCM-150 **Page:** 1 of 1

Lot Number: CR-3789 **Lot Issue Date:** 23-Aug-2017 **Expiration Date:** 30-Sep-2019

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
decafluorotriphenylphosphine	005074-71-5	RM03353	1005 ± 5 µg/mL
benzidine	000092-87-5	RM10200	1001 ± 5 µg/mL
pentachlorophenol	000087-86-5	RM02473	1004 ± 5 µg/mL
4,4'-DDT	000050-29-3	NT01175	1003 ± 5 µg/mL

Matrix: methylene chloride (purified)

Storage: Store Frozen (-25° to -10°C).

MB_DFTPP_STK_00083

Received 3/29/18

BS

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ISO 9001 Registered Quality System – TUV USA

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Reagent

MB_DFTPP_STK_00084

Certificate of Analysis

Semi-Volatiles GC/MS Tuning Standard

Product Number: GCM-150

Lot Number: CR-3789

Lot Issue Date: 23-Aug-2017

Expiration Date: 30-Sep-2019

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
decafluorotriphenylphosphine	005074-71-5	RM03353	1005 ± 5 µg/mL
benzidine	000092-87-5	RM10200	1001 ± 5 µg/mL
pentachlorophenol	000087-86-5	RM02473	1004 ± 5 µg/mL
4,4'-DDT	000050-29-3	NT01175	1003 ± 5 µg/mL

Matrix: methylene chloride (purified)

Storage: Store Frozen (-25° to -10°C).

MB_DFTPP_STK_00084-00087

Received 4/9/18

BS

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ISO 9001 Registered Quality System – TUV USA

Reagent

MB_DFTPP_WRK_00333

Reagent

MB_DFTPP_WRK_00336

Reagent

MB_INTSTD_STK_00049

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Certificate #3222.02

Certificate of Analysis

MB_INTSTD_STK_00049-00052
Received 5/8/18
BS

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 567684 **Lot No.:** A0133281

Description : 8270 Internal Standard

8270 Internal Standard 2,000µg/mL, Methylene chloride, 5mL/ampul

Container Size : 5 mL **Pkg Amt:** > 5 mL

Expiration Date : December 31, 2022 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	1,4-Dichlorobenzene-d4 **CAS #** 3855-82-1 (Lot PR-18488) **Purity** 99%	2,000.9 µg/mL	+/- 11.6334 µg/mL +/- 90.1217 µg/mL +/- 100.0012 µg/mL	Gravimetric Unstressed Stressed
2	Naphthalene-d8 **CAS #** 1146-65-2 (Lot M-1452) **Purity** 99%	2,000.1 µg/mL	+/- 11.6285 µg/mL +/- 90.0835 µg/mL +/- 99.9587 µg/mL	Gravimetric Unstressed Stressed
3	Acenaphthene-d10 **CAS #** 15067-26-2 (Lot PR-25444) **Purity** 99%	2,000.2 µg/mL	+/- 11.6290 µg/mL +/- 90.0880 µg/mL +/- 99.9637 µg/mL	Gravimetric Unstressed Stressed
4	Phenanthrene-d10 **CAS #** 1517-22-2 (Lot PR-23065) **Purity** 99%	2,002.8 µg/mL	+/- 11.6442 µg/mL +/- 90.2051 µg/mL +/- 100.0937 µg/mL	Gravimetric Unstressed Stressed
5	Chrysene-d12 **CAS #** 1719-03-5 (Lot PR-27952) **Purity** 99%	2,001.4 µg/mL	+/- 11.6360 µg/mL +/- 90.1420 µg/mL +/- 100.0237 µg/mL	Gravimetric Unstressed Stressed
6	Perylene-d12 **CAS #** 1520-96-3 (Lot PR-24113) **Purity** 99%	2,002.3 µg/mL	+/- 11.6413 µg/mL +/- 90.1825 µg/mL +/- 100.0687 µg/mL	Gravimetric Unstressed Stressed

Reagent

MB_INTSTD_STK_00051

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Certificate #3222.02

Certificate of Analysis

MB_INTSTD_STK_00049-00052
Received 5/8/18
BS

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 567684 **Lot No.:** A0133281

Description : 8270 Internal Standard

8270 Internal Standard 2,000µg/mL, Methylene chloride, 5mL/ampul

Container Size : 5 mL **Pkg Amt:** > 5 mL

Expiration Date : December 31, 2022 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	1,4-Dichlorobenzene-d4 **CAS #** 3855-82-1 (Lot PR-18488) **Purity** 99%	2,000.9 µg/mL	+/- 11.6334 µg/mL +/- 90.1217 µg/mL +/- 100.0012 µg/mL	Gravimetric Unstressed Stressed
2	Naphthalene-d8 **CAS #** 1146-65-2 (Lot M-1452) **Purity** 99%	2,000.1 µg/mL	+/- 11.6285 µg/mL +/- 90.0835 µg/mL +/- 99.9587 µg/mL	Gravimetric Unstressed Stressed
3	Acenaphthene-d10 **CAS #** 15067-26-2 (Lot PR-25444) **Purity** 99%	2,000.2 µg/mL	+/- 11.6290 µg/mL +/- 90.0880 µg/mL +/- 99.9637 µg/mL	Gravimetric Unstressed Stressed
4	Phenanthrene-d10 **CAS #** 1517-22-2 (Lot PR-23065) **Purity** 99%	2,002.8 µg/mL	+/- 11.6442 µg/mL +/- 90.2051 µg/mL +/- 100.0937 µg/mL	Gravimetric Unstressed Stressed
5	Chrysene-d12 **CAS #** 1719-03-5 (Lot PR-27952) **Purity** 99%	2,001.4 µg/mL	+/- 11.6360 µg/mL +/- 90.1420 µg/mL +/- 100.0237 µg/mL	Gravimetric Unstressed Stressed
6	Perylene-d12 **CAS #** 1520-96-3 (Lot PR-24113) **Purity** 99%	2,002.3 µg/mL	+/- 11.6413 µg/mL +/- 90.1825 µg/mL +/- 100.0687 µg/mL	Gravimetric Unstressed Stressed

Reagent

MB_L1S1_SS_00023

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

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Reference Material Producer
Certificate #3222.01

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ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 571995.SEC **Lot No.:** A0131190 MB_LISI_SS_00023-00027

Description : 8270 List 1 / Std #1 MegaMix (2017)

8270 List 1 / Std #1 MegaMix (2017) 500-2,000µg/mL, Methylene chloride, 5mL/ampul

Received 3/9/18

Container Size : 10 mL **Pkg Amt:** > 5 mL

Expiration Date : March 31, 2019 **Storage:** 0°C or colder

Handling: Carcinogen/reproductive toxin. Photosensitive. Sonicate.

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)	
1	1,4-Dioxane **CAS #** 123-91-1.SEC (Lot MUFZH) **Purity** 99%	1,000.0 µg/mL	+/- 5.8275 µg/mL +/- 11.9606 µg/mL +/- 19.0288 µg/mL	Gravimetric Unstressed Stressed
2	N-Nitrosodimethylamine **CAS #** 62-75-9.SEC (Lot 61H72) **Purity** 99%	1,000.0 µg/mL	+/- 5.8275 µg/mL +/- 11.9606 µg/mL +/- 19.0288 µg/mL	Gravimetric Unstressed Stressed
3	Pyridine **CAS #** 110-86-1.SEC (Lot QN8DK) **Purity** 99%	2,000.0 µg/mL	+/- 11.6282 µg/mL +/- 23.9081 µg/mL +/- 38.0494 µg/mL	Gravimetric Unstressed Stressed
4	Phenol **CAS #** 108-95-2.SEC (Lot EDPYN) **Purity** 99%	1,000.6 µg/mL	+/- 5.8310 µg/mL +/- 11.9678 µg/mL +/- 19.0402 µg/mL	Gravimetric Unstressed Stressed
5	Aniline **CAS #** 62-53-3.SEC (Lot ZCD3N) **Purity** 99%	1,000.4 µg/mL	+/- 5.8299 µg/mL +/- 11.9654 µg/mL +/- 19.0364 µg/mL	Gravimetric Unstressed Stressed
6	Bis(2-chloroethyl)ether **CAS #** 111-44-4.SEC (Lot FA010143) **Purity** 99%	1,000.6 µg/mL	+/- 5.8310 µg/mL +/- 11.9678 µg/mL +/- 19.0402 µg/mL	Gravimetric Unstressed Stressed
7	n-Decane (C10) **CAS #** 124-18-5.SEC (Lot UCVNN) **Purity** 99%	1,000.0 µg/mL	+/- 5.8275 µg/mL +/- 11.9606 µg/mL +/- 19.0288 µg/mL	Gravimetric Unstressed Stressed

8	2-Chlorophenol **CAS #** 95-57-8.SEC **Purity** 99%	(Lot GJ01)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
9	1,3-Dichlorobenzene **CAS #** 541-73-1.SEC **Purity** 99%	(Lot FMDFD)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
10	1,4-Dichlorobenzene **CAS #** 106-46-7.SEC **Purity** 99%	(Lot 4Y5DC)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
11	Benzyl alcohol **CAS #** 100-51-6.SEC **Purity** 99%	(Lot QZBUO)	1,000.6	µg/mL	+/- 5.8310 +/- 11.9678 +/- 19.0402	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
12	1,2-Dichlorobenzene **CAS #** 95-50-1.SEC **Purity** 99%	(Lot R6QDM)	1,000.4	µg/mL	+/- 5.8299 +/- 11.9654 +/- 19.0364	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
13	2-Methylphenol (o-cresol) **CAS #** 95-48-7.SEC **Purity** 99%	(Lot NC7HL)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
14	2,2'-oxybis(1-chloropropane) **CAS #** 108-60-1.SEC **Purity** 99%	(Lot 2-KMW-57-8)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
15	Acetophenone **CAS #** 98-86-2.SEC **Purity** 99%	(Lot NSGTI)	1,000.6	µg/mL	+/- 5.8310 +/- 11.9678 +/- 19.0402	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
16	3-Methylphenol (m-cresol) **CAS #** 108-39-4.SEC **Purity** 99%	(Lot 6LHTM)	500.0	µg/mL	+/- 2.9138 +/- 5.9803 +/- 9.5144	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
17	4-Methylphenol (p-cresol) **CAS #** 106-44-5.SEC **Purity** 99%	(Lot 65S2E)	501.0	µg/mL	+/- 2.9196 +/- 5.9923 +/- 9.5334	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
18	N-Nitroso-di-n-propylamine **CAS #** 621-64-7.SEC **Purity** 99%	(Lot 4423200)	1,001.4	µg/mL	+/- 5.8357 +/- 11.9773 +/- 19.0555	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
19	Hexachloroethane **CAS #** 67-72-1.SEC **Purity** 99%	(Lot 10173016)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
20	Nitrobenzene **CAS #** 98-95-3.SEC **Purity** 99%	(Lot FLYIG)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
21	Isophorone **CAS #** 78-59-1.SEC **Purity** 99%	(Lot XHGJI)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
22	2-Nitrophenol **CAS #** 88-75-5.SEC **Purity** 99%	(Lot GXJ7J)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
23	2,4-Dimethylphenol **CAS #** 105-67-9.SEC **Purity** 99%	(Lot MKBL3650V)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

24	Bis(2-chloroethoxy)methane **CAS #** 111-91-1 * **Purity** 99%	(Lot 5670100)	1,000.4	µg/mL	+/- 5.8299 +/- 11.9654 +/- 19.0364	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
25	2,4-Dichlorophenol **CAS #** 120-83-2.SEC **Purity** 99%	(Lot FHM01)	1,000.4	µg/mL	+/- 5.8299 +/- 11.9654 +/- 19.0364	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
26	1,2,4-Trichlorobenzene **CAS #** 120-82-1.SEC **Purity** 99%	(Lot OGO01)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
27	Naphthalene **CAS #** 91-20-3.SEC **Purity** 99%	(Lot SKZ5N)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
28	2,6-Dichlorophenol **CAS #** 87-65-0.SEC **Purity** 99%	(Lot SIDBB)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
29	4-Chloroaniline **CAS #** 106-47-8.SEC **Purity** 99%	(Lot 10171860)	1,000.2	µg/mL	+/- 5.8287 +/- 11.9630 +/- 19.0326	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
30	Hexachlorobutadiene **CAS #** 87-68-3.SEC **Purity** 97%	(Lot 1068200)	1,000.5	µg/mL	+/- 5.8302 +/- 11.9661 +/- 19.0375	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
31	4-Chloro-3-methylphenol **CAS #** 59-50-7.SEC **Purity** 99%	(Lot FDO02)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
32	2-Methylnaphthalene **CAS #** 91-57-6.SEC **Purity** 98%	(Lot 76023-1)	1,000.8	µg/mL	+/- 5.8320 +/- 11.9699 +/- 19.0436	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
33	1-Methylnaphthalene **CAS #** 90-12-0.SEC **Purity** 97%	(Lot UATSA)	1,000.1	µg/mL	+/- 5.8279 +/- 11.9614 +/- 19.0302	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
34	1,2,4,5-Tetrachlorobenzene **CAS #** 95-94-3.SEC **Purity** 99%	(Lot AF02)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
35	Hexachlorocyclopentadiene **CAS #** 77-47-4.SEC **Purity** 99%	(Lot 5608400)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
36	2,4,6-Trichlorophenol **CAS #** 88-06-2.SEC **Purity** 98%	(Lot UUMYM)	1,000.6	µg/mL	+/- 5.8309 +/- 11.9675 +/- 19.0399	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
37	2,4,5-Trichlorophenol **CAS #** 95-95-4.SEC **Purity** 97%	(Lot MKBQ9937V)	1,000.1	µg/mL	+/- 5.8279 +/- 11.9614 +/- 19.0302	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
38	2-Chloronaphthalene **CAS #** 91-58-7.SEC **Purity** 99%	(Lot LC07783V)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
39	Biphenyl **CAS #** 92-52-4.SEC **Purity** 99%	(Lot 33OQE)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

40	2-Nitroaniline **CAS #** 88-74-4.SEC **Purity** 99%	(Lot T6E7B)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
41	Acenaphthylene **CAS #** 208-96-8.SEC **Purity** 96%	(Lot 0012014)	999.9	µg/mL	+/- 5.8271 +/- 11.9598 +/- 19.0276	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
42	1,3-Dinitrobenzene **CAS #** 99-65-0.SEC **Purity** 99%	(Lot 3XXLB)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
43	Dimethylphthalate **CAS #** 131-11-3.SEC **Purity** 99%	(Lot 483WC)	1,002.0	µg/mL	+/- 5.8392 +/- 11.9845 +/- 19.0669	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
44	2,6-Dinitrotoluene **CAS #** 606-20-2.SEC **Purity** 99%	(Lot GE01)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
45	3-Nitroaniline **CAS #** 99-09-2.SEC **Purity** 99%	(Lot FGN03)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
46	Acenaphthene **CAS #** 83-32-9.SEC **Purity** 99%	(Lot BWZJE)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
47	2,4-Dinitrophenol **CAS #** 51-28-5.SEC **Purity** 99%	(Lot YTR6B)	2,000.0	µg/mL	+/- 11.6282 +/- 23.9081 +/- 38.0494	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
48	Dibenzofuran **CAS #** 132-64-9.SEC **Purity** 99%	(Lot 27ZGC)	1,000.8	µg/mL	+/- 5.8322 +/- 11.9702 +/- 19.0440	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
49	4-Nitrophenol **CAS #** 100-02-7.SEC **Purity** 99%	(Lot 2J5LB)	2,000.0	µg/mL	+/- 11.6282 +/- 23.9081 +/- 38.0494	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
50	2,4-Dinitrotoluene **CAS #** 121-14-2.SEC **Purity** 99%	(Lot SHRSA)	1,000.4	µg/mL	+/- 5.8299 +/- 11.9654 +/- 19.0364	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
51	2,3,4,6-Tetrachlorophenol **CAS #** 58-90-2.SEC **Purity** 99%	(Lot LC19623V)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
52	Fluorene **CAS #** 86-73-7.SEC **Purity** 99%	(Lot 5027400)	1,000.6	µg/mL	+/- 5.8310 +/- 11.9678 +/- 19.0402	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
53	n-Hexadecane (C16) **CAS #** 544-76-3.SEC **Purity** 99%	(Lot A0328141)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
54	Diethylphthalate **CAS #** 84-66-2.SEC **Purity** 99%	(Lot UMBJC)	1,000.4	µg/mL	+/- 5.8299 +/- 11.9654 +/- 19.0364	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
55	4-Chlorophenyl phenyl ether **CAS #** 7005-72-3.SEC **Purity** 99%	(Lot P31G)	1,000.4	µg/mL	+/- 5.8299 +/- 11.9654 +/- 19.0364	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

56	4-Nitroaniline **CAS #** 100-01-6.SEC **Purity** 99%	(Lot 5ITRC)	1,000.4	µg/mL	+/- 5.8299 +/- 11.9654 +/- 19.0364	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
57	4,6-Dinitro-2-methylphenol (Dinitro-o-cresol) **CAS #** 534-52-1.SEC **Purity** 99%	(Lot 6333400)	2,000.0	µg/mL	+/- 11.6282 +/- 23.9081 +/- 38.0494	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
58	Diphenylamine **CAS #** 122-39-4.SEC **Purity** 99%	(Lot 10164691)	850.0	µg/mL	+/- 4.9534 +/- 10.1665 +/- 16.1745	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
59	Azobenzene **CAS #** 103-33-3.SEC **Purity** 99%	(Lot JUWAG)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
60	4-Bromophenyl phenyl ether **CAS #** 101-55-3.SEC **Purity** 99%	(Lot 84C6D)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
61	Hexachlorobenzene **CAS #** 118-74-1.SEC **Purity** 99%	(Lot G120431)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
62	Pentachlorophenol **CAS #** 87-86-5.SEC **Purity** 99%	(Lot 5784900)	2,000.4	µg/mL	+/- 11.6305 +/- 23.9129 +/- 38.0570	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
63	n-Octadecane (C18) **CAS #** 593-45-3.SEC **Purity** 99%	(Lot G14U045)	1,001.0	µg/mL	+/- 5.8333 +/- 11.9726 +/- 19.0478	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
64	Phenanthrene **CAS #** 85-01-8.SEC **Purity** 98%	(Lot 4708400)	1,002.0	µg/mL	+/- 5.8389 +/- 11.9839 +/- 19.0660	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
65	Anthracene **CAS #** 120-12-7.SEC **Purity** 99%	(Lot WDFNJ)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
66	Carbazole **CAS #** 86-74-8.SEC **Purity** 99%	(Lot LMIZB)	1,000.4	µg/mL	+/- 5.8299 +/- 11.9654 +/- 19.0364	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
67	Di-n-butylphthalate **CAS #** 84-74-2.SEC **Purity** 99%	(Lot 42FSG)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
68	Fluoranthene **CAS #** 206-44-0.SEC **Purity** 99%	(Lot FREGF)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
69	Pyrene **CAS #** 129-00-0.SEC **Purity** 99%	(Lot ROVJC)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
70	Benzyl butyl phthalate **CAS #** 85-68-7.SEC **Purity** 98%	(Lot GX3GL)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9605 +/- 19.0287	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
71	Benz(a)anthracene **CAS #** 56-55-3.SEC **Purity** 99%	(Lot MTENF)	1,000.4	µg/mL	+/- 5.8299 +/- 11.9654 +/- 19.0364	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

72	chrysene **CAS #** 218-01-9.SEC **Purity** 99%	(Lot NICZC)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
73	Bis(2-ethylhexyl)phthalate **CAS #** 117-81-7.SEC **Purity** 99%	(Lot MT8AG)	1,000.4	µg/mL	+/- 5.8299 +/- 11.9654 +/- 19.0364	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
74	Di-n-octyl phthalate **CAS #** 117-84-0.SEC **Purity** 99%	(Lot O8DLD)	1,000.8	µg/mL	+/- 5.8322 +/- 11.9702 +/- 19.0440	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
75	Benzo(b)fluoranthene **CAS #** 205-99-2.SEC **Purity** 99%	(Lot 022011)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
76	Benzo(k)fluoranthene **CAS #** 207-08-9.SEC **Purity** 99%	(Lot ER041513-01)	1,000.6	µg/mL	+/- 5.8310 +/- 11.9678 +/- 19.0402	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
77	Benzo(a)pyrene **CAS #** 50-32-8.SEC **Purity** 97%	(Lot M8DFD)	1,000.5	µg/mL	+/- 5.8302 +/- 11.9661 +/- 19.0375	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
78	Indeno(1,2,3-cd)pyrene **CAS #** 193-39-5.SEC **Purity** 99%	(Lot 0012014)	1,000.4	µg/mL	+/- 5.8299 +/- 11.9654 +/- 19.0364	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
79	Dibenz(a,h)anthracene **CAS #** 53-70-3.SEC **Purity** 99%	(Lot 0012011)	1,000.0	µg/mL	+/- 5.8275 +/- 11.9606 +/- 19.0288	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed
80	Benzo(g,h,i)perylene **CAS #** 191-24-2.SEC **Purity** 97%	(Lot 0022012)	1,000.1	µg/mL	+/- 5.8279 +/- 11.9614 +/- 19.0302	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

*** Restek is unable to identify a reliable and/or acceptable second source for this material - the same batch of neat material may have been used to produce both the primary and secondary standard. The primary and secondary standards were prepared using different equipment and personnel.**

Specific Reference Material Notes:
N-nitrosodiphenylamine 1000 ug/mL equivalent when used for GC analysis. Actual formulation is diphenylamine 855 ug/mL.
N-Nitrosodiphenylamine is prone to breakdown in the injection port and will be converted to diphenylamine.
N-Nitrosodiphenylamine is also a reactive species that can initiate premature decomposition of other compounds in the mix. For these reasons diphenylamine is used in the preparation of this mixture. When comparing the response of this compound to mixtures manufactured using N-nitrosodiphenylamine, a difference in response will be observed.

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

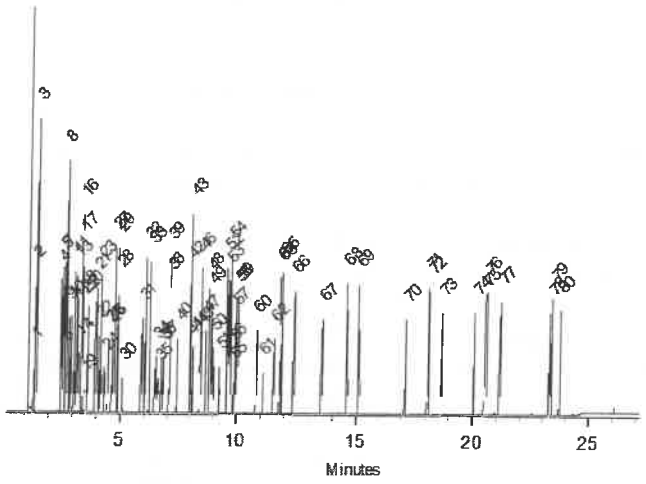
Carrier Gas:
hydrogen-constant flow 1.8 mL/min.

Temp. Program:
80°C (hold 0.1 min.) to 330°C
@ 9.6°C/min. (hold 2.86 min.)

Inj. Temp:
250°C

Det. Temp:
340°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Date Mixed: 28-Sep-2017 **Balance:** 1128342313

Justine Albertson - Operations Tech-ARM QC

Date Passed: 13-Oct-2017

Manufactured under Restek's ISO 9001:2008 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO Guides 34 and 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Samples should be transferred into deactivated vials for handling and storage. Restek supplies deactivated vials along with most standards packed in 2 mL ampules. Due to space constraints, Restek does not supply vials for larger volume ampules. Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions. Restek will also deactivate larger volume vials from our inventory as a custom ordered item. Contact your Restek sales or customer service representative for details.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

MB_LLIS_WRK_00149

Reagent

MB_LLIS_WRK_00151

Reagent

MB_SIMSS_INT_00005

Reagent

MB_SIMSS_WRK_00008

Reagent

MB_SIMSUR_INT_00002

Reagent

MB_SIMSur_STK_00014

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 30614 **Lot No.:** A0134839

Description : 1,4-dioxane-d8 Standard

1,4-dioxane-d8 Standard 2000 µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 28, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane-d8	2,008.7 µg/mL	+/- 11.7880	µg/mL	Gravimetric
	CAS # 17647-74-4 (Lot I-19942)		+/- 43.0356	µg/mL	Unstressed
	Purity 99%		+/- 44.2850	µg/mL	Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

MB_SIMSim_STK_00014 – 00017

Received 4/5/18
MKP

Reagent

O_1,4Diox_STK_00005

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ISO Guide 34 Accredited
Reference Material Producer
Certificate #3222.01

ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 31853 **Lot No.:** A0128697

Description : 1,4-dioxane

1,4-Dioxane 2,000µg/mL, Methylene Chloride, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : June 30, 2022 **Storage:** 0°C or colder

C E R T I F I E D V A L U E S

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane	2,000.0 µg/mL	+/- 11.7371	µg/mL	Gravimetric
	CAS # 123-91-1 (Lot SHBH5677)		+/- 42.8500	µg/mL	Unstressed
	Purity 99%		+/- 44.0940	µg/mL	Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

Column:
105m x 0.53mm x 3.0µm
Rtx-502.2 (cat.#10910)

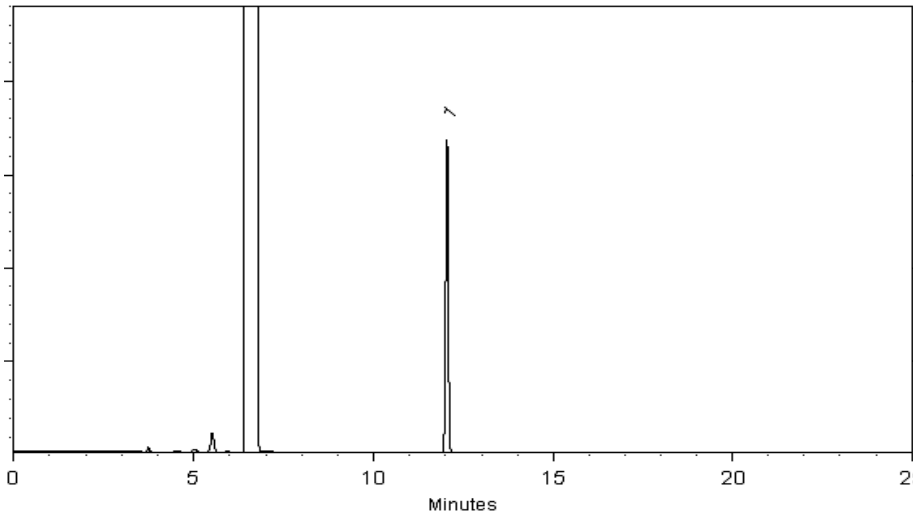
Carrier Gas:
hydrogen-constant pressure 11.0 psi.

Temp. Program:
40°C (hold 2 min.) to 240°C
@ 8°C/min. (hold 5 min.)

Inj. Temp:
200°C

Det. Temp:
250°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Cathleen Soltis - Mix Technician

Date Mixed: 26-Jun-2017 **Balance:** 1128360905

Tyler Brown - Operations Tech-ARM QC

Date Passed: 28-Jun-2017

Manufactured under Restek's ISO 9001:2008 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO Guides 34 and 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

  k is a coverage factor of 2, which gives a level of confidence of approximately 95%.
- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Samples should be transferred into deactivated vials for handling and storage. Restek supplies deactivated vials along with most standards packed in 2 mL ampules. Due to space constraints, Restek does not supply vials for larger volume ampules. Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions. Restek will also deactivate larger volume vials from our inventory as a custom ordered item. Contact your Restek sales or customer service representative for details.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

Reagent

OP_1,4diox-d8_00011

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Tel: (800)356-1688
Fax: (814)353-1309

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

ACCREDITED
ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 30614 **Lot No.:** A0137338

Description : 1,4-dioxane-d8 Standard

1,4-dioxane-d8 Standard 2000 µg/mL, P&T Methanol, 1mL/ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : April 30, 2021 **Storage:** 0°C or colder

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	1,4-Dioxane-d8 **CAS #** 17647-74-4 **Purity** 99% (Lot I-19942)	2,001.2 µg/mL	+/- 11.7442 +/- 42.8757 +/- 44.1204	µg/mL µg/mL µg/mL	Gravimetric Unstressed Stressed

Solvent: P&T Methanol
CAS # 67-56-1
Purity 99%

4622599
ID OP_1 4diox-d8_00009
Exp 04/30/21 Prpd CAM
1 4-dioxane-d8@2000

4622605
ID OP_1 4diox-d8_00010
Exp 04/30/21 Prpd CAM
1.4-dioxane-d8@2000

4622606
ID OP_1 4diox-d8_00011
Exp 04/30/21 Prpd CAM
1.4-dioxane-d8@2000

4622607
ID OP_1 4diox-d8_00012
Exp 04/30/21 Prpd CAM
1.4-dioxane-d8@2000

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\,stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.

RESTEK

Safety Data Sheet

Revision Date: 01/25/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**30614 / 1,4-dioxane-d8 Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	8
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1
Flammable Liquid Category 2
Acute Toxicity - Inhalation Dust / Mist Category 3
Acute Toxicity - Dermal Category 3
Acute Toxicity - Oral Category 3

GHS Signal Word:
Danger

GHS Hazard:
Highly flammable liquid and vapour.
Toxic if swallowed, in contact with skin or if inhaled.
Causes damage to organs.

GHS Precautions:

Safety Precautions:
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash hands and skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Measures:
IF SWALLOWED: Immediately call a POISON CENTER/doctor/....
IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Specific treatment see section 4.
Rinse mouth.
Take off immediately all contaminated clothing and wash it before reuse.
In case of fire: Use extinguishing media in section 5 for extinction.

Storage:
Store in a well-ventilated place. Keep container tightly closed.

Storage Technical Measures and Conditions:	breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	Liquid
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:

IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
p-dioxane-d8	17647-74-4	-	-	-	-

16. OTHER INFORMATION

Prior Version Date: 06/22/16

Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

References: No data available

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Reagent

OP_SimSurr_00007

1 ml Acetone → 200 ml

Organic Prep
Spike / Surrogate Verification Form

Spike / Surrogate Method: 8270_SIM_SURR. TALs Reagent ID: _____

Spike / Surrogate Code: 8270-SIM-Surrogate

Prepared By / Date: Anton / 08-10-2018

Date Submitted for Analysis: 8-10-2018

Solvent Exchanged? (YES) NO

Solvent Used for Exchange: MeCl2

Final Concentrated Volume: 1.0 ml

Final Method Volume: 1.0 ml

Final Method Volume Done by Prep? (Yes) No

Date of Analysis: ~~8/22~~ 8/21/18

Analyzed By: DR/MCP

Compounds within 80-120% of expected recovery? (YES) NO

Spike / Surrogate Verified for Preparation Use? (YES) NO

* Please return form with final concentration report to Organic Prep

Report Date: 22-Aug-2018 15:19:32 Chrom Revision: 2.3 19-Jul-2018 15:14:50

Preliminary Report

TestAmerica Buffalo

Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180821-74065.b\U3310781.D
Lims ID: SIM Surrogate Verification
Client ID:
Sample Type: Client
Inject. Date: 21-Aug-2018 22:44:30 ALS Bottle#: 26 Worklist Smp#: 26
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074065-026
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180821-74065.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 22-Aug-2018 15:19:31 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK034

	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	2.592	2.380	0.212	100	264078	8.59	85.9	a
	3 1,4-Dioxane	88		2.413				ND		U
*	2 1,4-Dichlorobenzene-d4	152	5.718	5.701	0.017	97	253205	4.00		

QC Flag Legend

Processing Flags
Review Flags
U - Marked Undetected
a - User Assigned ID

Reagents:

OP_SimSurr_00007 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

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.: 480-140615-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	DXE #
MW-9S	480-140615-1	29
MW-9D	480-140615-2	26
MW-4S	480-140615-3	31
MW-4D	480-140615-4	31
MW-2S	480-140615-5	29
MW-2D	480-140615-6	35
DUP-01	480-140615-7	38
EB-01	480-140615-8	33
MH-01	480-140615-9	28
	MB 480-430511/1-A	37
	LCS 480-430511/2-A	37
MW-2D MS	480-140615-6 MS	32
MW-2D MSD	480-140615-6 MSD	33

	QC LIMITS
DXE = 1,4-Dioxane-d8	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.: 480-140615-1

SDG No.:

Matrix: Water Level: Low Lab File ID: U3310927.D

Lab ID: LCS 480-430511/2-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,4-Dioxane	1.00	1.04	104	40-140	
1,4-Dioxane-d8	10.0	3.75	37	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.: 480-140615-1

SDG No.:

Matrix: Water Level: Low Lab File ID: U3310928.D

Lab ID: 480-140615-6 MS Client ID: MW-2D MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,4-Dioxane	1.00	ND	1.10	110	40-140	
1,4-Dioxane-d8	10.0	3.5	3.17	32	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.: 480-140615-1

SDG No.:

Matrix: Water Level: Low Lab File ID: U3310929.D

Lab ID: 480-140615-6 MSD Client ID: MW-2D MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
1,4-Dioxane	1.00	1.09	109	0	20	40-140	
1,4-Dioxane-d8	10.0	3.26	33			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.: 480-140615-1

SDG No.:

Lab File ID: U3310926.D Lab Sample ID: MB 480-430511/1-A

Matrix: Water Date Extracted: 08/20/2018 14:25

Instrument ID: HP5973U Date Analyzed: 08/24/2018 21:22

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 480-430511/2-A	U3310927.D	08/24/2018 21:46
MW-2D MS	480-140615-6 MS	U3310928.D	08/24/2018 22:09
MW-2D MSD	480-140615-6 MSD	U3310929.D	08/24/2018 22:33
MW-2D	480-140615-6	U3310930.D	08/24/2018 22:57
MW-9S	480-140615-1	U3310937.D	08/25/2018 01:43
MW-9D	480-140615-2	U3310938.D	08/25/2018 02:06
MW-4S	480-140615-3	U3310942.D	08/25/2018 03:44
MW-4D	480-140615-4	U3310943.D	08/25/2018 04:07
MW-2S	480-140615-5	U3310944.D	08/25/2018 04:31
EB-01	480-140615-8	U3310945.D	08/25/2018 04:54
DUP-01	480-140615-7	U3310947.D	08/25/2018 05:41
MH-01	480-140615-9	U3310988.D	08/27/2018 15:02

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

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Lab File ID: U3309386.D DFTPP Injection Date: 07/11/2018

Instrument ID: HP5973U DFTPP Injection Time: 18:14

Analysis Batch No.: 424045

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10-80% of Base Peak	42.8	
68	Less than 2% of mass 69	0.0	(0.0) 1
69	Mass 69 Relative abundance	42.1	
70	Less than 2% of mass 69	0.2	(0.4) 1
127	10-80% of Base Peak	47.6	
197	Less than 2% of mass 198	0.0	
198	Base peak	100.0	
199	5-9% of mass 198	7.0	
275	10-60% of Base Peak	26.3	
365	Greater than 1% of mass 198	3.3	
441	present but less than 24% of mass 442	10.2	(15.4) 2
442	Greater than 50% of mass 198	66.2	
443	15-24% of mass 442	13.4	(20.3) 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 480-424045/3	U3309387.D	07/11/2018	18:42
	IC 480-424045/4	U3309388.D	07/11/2018	19:06
	ICIS 480-424045/5	U3309389.D	07/11/2018	19:30
	IC 480-424045/6	U3309390.D	07/11/2018	19:54
	IC 480-424045/7	U3309391.D	07/11/2018	20:18
	IC 480-424045/8	U3309392.D	07/11/2018	20:42
	ICV 480-424045/9	U3309393.D	07/11/2018	21:06

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

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Lab File ID: U3310910.D DFTPP Injection Date: 08/24/2018

Instrument ID: HP5973U DFTPP Injection Time: 15:00

Analysis Batch No.: 431347

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10-80% of Base Peak	45.4	
68	Less than 2% of mass 69	0.1	(0.2) 1
69	Mass 69 Relative abundance	46.3	
70	Less than 2% of mass 69	0.3	(0.6) 1
127	10-80% of Base Peak	49.1	
197	Less than 2% of mass 198	0.0	
198	Base peak	100.0	
199	5-9% of mass 198	7.4	
275	10-60% of Base Peak	29.8	
365	Greater than 1% of mass 198	4.2	
441	present but less than 24% of mass 442	11.0	(17.1) 2
442	Greater than 50% of mass 198	64.1	
443	15-24% of mass 442	12.3	(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 480-431347/3	U3310911.D	08/24/2018	15:28
	MB 480-430511/1-A	U3310926.D	08/24/2018	21:22
	LCS 480-430511/2-A	U3310927.D	08/24/2018	21:46
MW-2D MS	480-140615-6 MS	U3310928.D	08/24/2018	22:09
MW-2D MSD	480-140615-6 MSD	U3310929.D	08/24/2018	22:33
MW-2D	480-140615-6	U3310930.D	08/24/2018	22:57
MW-9S	480-140615-1	U3310937.D	08/25/2018	01:43
MW-9D	480-140615-2	U3310938.D	08/25/2018	02:06

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

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Lab File ID: U3310940.D DFTPP Injection Date: 08/25/2018

Instrument ID: HP5973U DFTPP Injection Time: 02:53

Analysis Batch No.: 431348

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10-80% of Base Peak	48.2	
68	Less than 2% of mass 69	0.0	(0.0) 1
69	Mass 69 Relative abundance	50.9	
70	Less than 2% of mass 69	0.1	(0.1) 1
127	10-80% of Base Peak	52.2	
197	Less than 2% of mass 198	0.0	
198	Base peak	100.0	
199	5-9% of mass 198	7.4	
275	10-60% of Base Peak	32.2	
365	Greater than 1% of mass 198	5.2	
441	present but less than 24% of mass 442	11.9	(17.0) 2
442	Greater than 50% of mass 198	70.1	
443	15-24% of mass 442	13.9	(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 480-431348/3	U3310941.D	08/25/2018	03:21
MW-4S	480-140615-3	U3310942.D	08/25/2018	03:44
MW-4D	480-140615-4	U3310943.D	08/25/2018	04:07
MW-2S	480-140615-5	U3310944.D	08/25/2018	04:31
EB-01	480-140615-8	U3310945.D	08/25/2018	04:54
DUP-01	480-140615-7	U3310947.D	08/25/2018	05:41

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

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Lab File ID: U3310984.D DFTPP Injection Date: 08/27/2018

Instrument ID: HP5973U DFTPP Injection Time: 13:24

Analysis Batch No.: 431595

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10-80% of Base Peak	45.8	
68	Less than 2% of mass 69	0.0	(0.0) 1
69	Mass 69 Relative abundance	49.1	
70	Less than 2% of mass 69	0.4	(0.7) 1
127	10-80% of Base Peak	51.1	
197	Less than 2% of mass 198	0.0	
198	Base peak	100.0	
199	5-9% of mass 198	6.9	
275	10-60% of Base Peak	31.2	
365	Greater than 1% of mass 198	4.4	
441	present but less than 24% of mass 442	11.8	(16.1) 2
442	Greater than 50% of mass 198	73.2	
443	15-24% of mass 442	14.0	(19.1) 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 480-431595/3	U3310985.D	08/27/2018	13:52
MH-01	480-140615-9	U3310988.D	08/27/2018	15:02

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

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Sample No.: ICIS 480-424045/5 Date Analyzed: 07/11/2018 19:30

Instrument ID: HP5973U GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm)

Lab File ID (Standard): U3309389.D Heated Purge: (Y/N) N

Calibration ID: 34301

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		374104	5.84				
UPPER LIMIT		748208	6.34				
LOWER LIMIT		187052	5.34				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 480-424045/9		332798	5.84				
CCVIS 480-431347/3		318708	5.55				
CCVIS 480-431348/3		287316	5.54				
CCVIS 480-431595/3		242272	5.54				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM ID

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

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Sample No.: CCVIS 480-431347/3 Date Analyzed: 08/24/2018 15:28

Instrument ID: HP5973U GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm)

Lab File ID (Standard): U3310911.D Heated Purge: (Y/N) N

Calibration ID: 34301

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		318708	5.55				
UPPER LIMIT		637416	6.05				
LOWER LIMIT		159354	5.05				
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 480-430511/1-A		287640	5.55				
LCS 480-430511/2-A		275138	5.56				
480-140615-6 MS	MW-2D MS	288422	5.55				
480-140615-6 MSD	MW-2D MSD	285837	5.55				
480-140615-6	MW-2D	279197	5.55				
480-140615-1	MW-9S	272912	5.55				
480-140615-2	MW-9D	270966	5.55				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM ID

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

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Sample No.: CCVIS 480-431348/3 Date Analyzed: 08/25/2018 03:21

Instrument ID: HP5973U GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm)

Lab File ID (Standard): U3310941.D Heated Purge: (Y/N) N

Calibration ID: 34301

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		287316	5.54				
UPPER LIMIT		574632	6.04				
LOWER LIMIT		143658	5.04				
LAB SAMPLE ID	CLIENT SAMPLE ID						
480-140615-3	MW-4S	269288	5.55				
480-140615-4	MW-4D	272266	5.55				
480-140615-5	MW-2S	277926	5.55				
480-140615-8	EB-01	273867	5.55				
480-140615-7	DUP-01	266623	5.55				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM ID

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

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Sample No.: CCVIS 480-431595/3 Date Analyzed: 08/27/2018 13:52

Instrument ID: HP5973U GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm)

Lab File ID (Standard): U3310985.D Heated Purge: (Y/N) N

Calibration ID: 34301

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		242272	5.54				
UPPER LIMIT		484544	6.04				
LOWER LIMIT		121136	5.04				
LAB SAMPLE ID	CLIENT SAMPLE ID						
480-140615-9	MH-01	247088	5.54				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM ID

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-140615-1

SDG No.:

Client Sample ID: MW-9S | Lab Sample ID: 480-140615-1

Matrix: Water | Lab File ID: U3310937.D

Analysis Method: 8270D SIM ID | Date Collected: 08/15/2018 10:15

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 1000(mL) | Date Analyzed: 08/25/2018 01:43

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.: 431347 | 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	29		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310937.D
Lims ID: 480-140615-B-1-A
Client ID: MW-9S
Sample Type: Client
Inject. Date: 25-Aug-2018 01:43:30 ALS Bottle#: 29 Worklist Smp#: 29
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074162-029
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:34:05 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:22:43

	Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
	3 1,4-Dioxane	88		2.177				ND		U
D	1 1,4-Dioxane-d8	96	2.209	2.217	-0.008	100	97619	2.95	29.5	
*	2 1,4-Dichlorobenzene-d4	152	5.551	5.547	0.003	96	272912	4.00		

QC Flag Legend

Review Flags
U - Marked Undetected

Reagents:

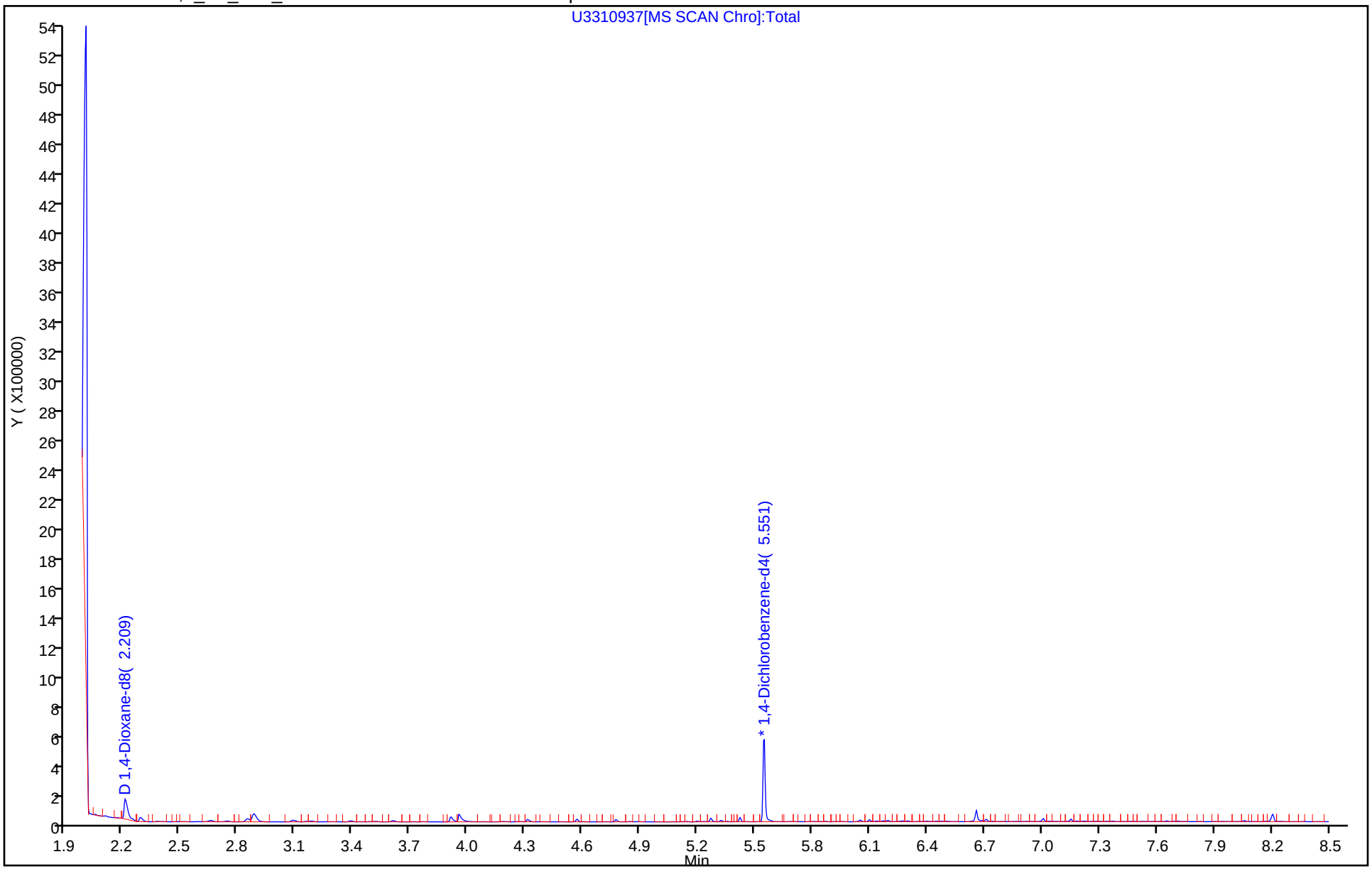
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:34:54 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310937.D

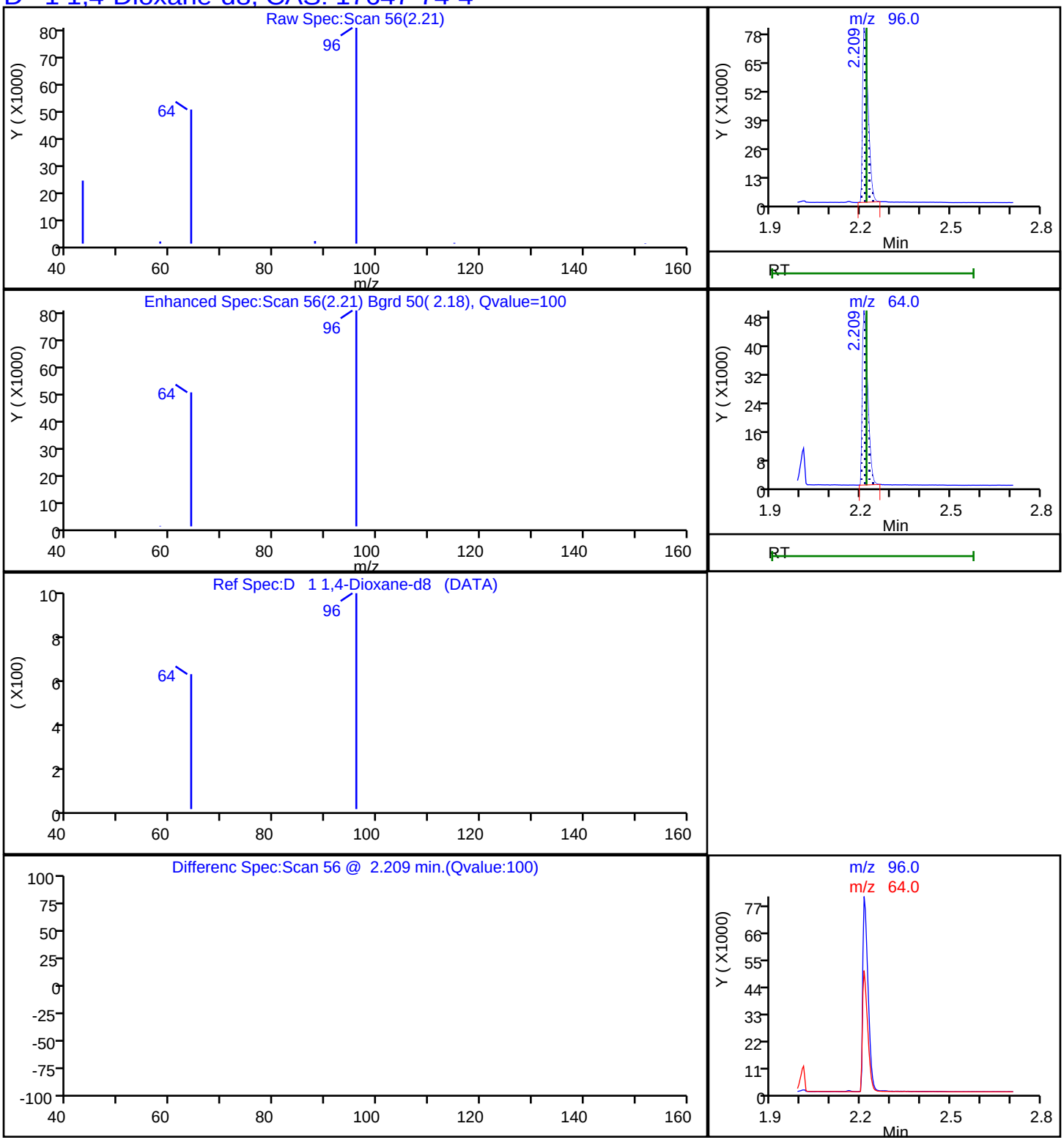
Injection Date:	25-Aug-2018 01:43:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	480-140615-B-1-A	Lab Sample ID:	480-140615-1	Worklist Smp#:	29
Client ID:	MW-9S				
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	29
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		



Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310937.D

Injection Date:	25-Aug-2018 01:43:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-B-1-A	Lab Sample ID:	480-140615-1		
Client ID:	MW-9S				
Operator ID:	DR	ALS Bottle#:	29	Worklist Smp#:	29
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



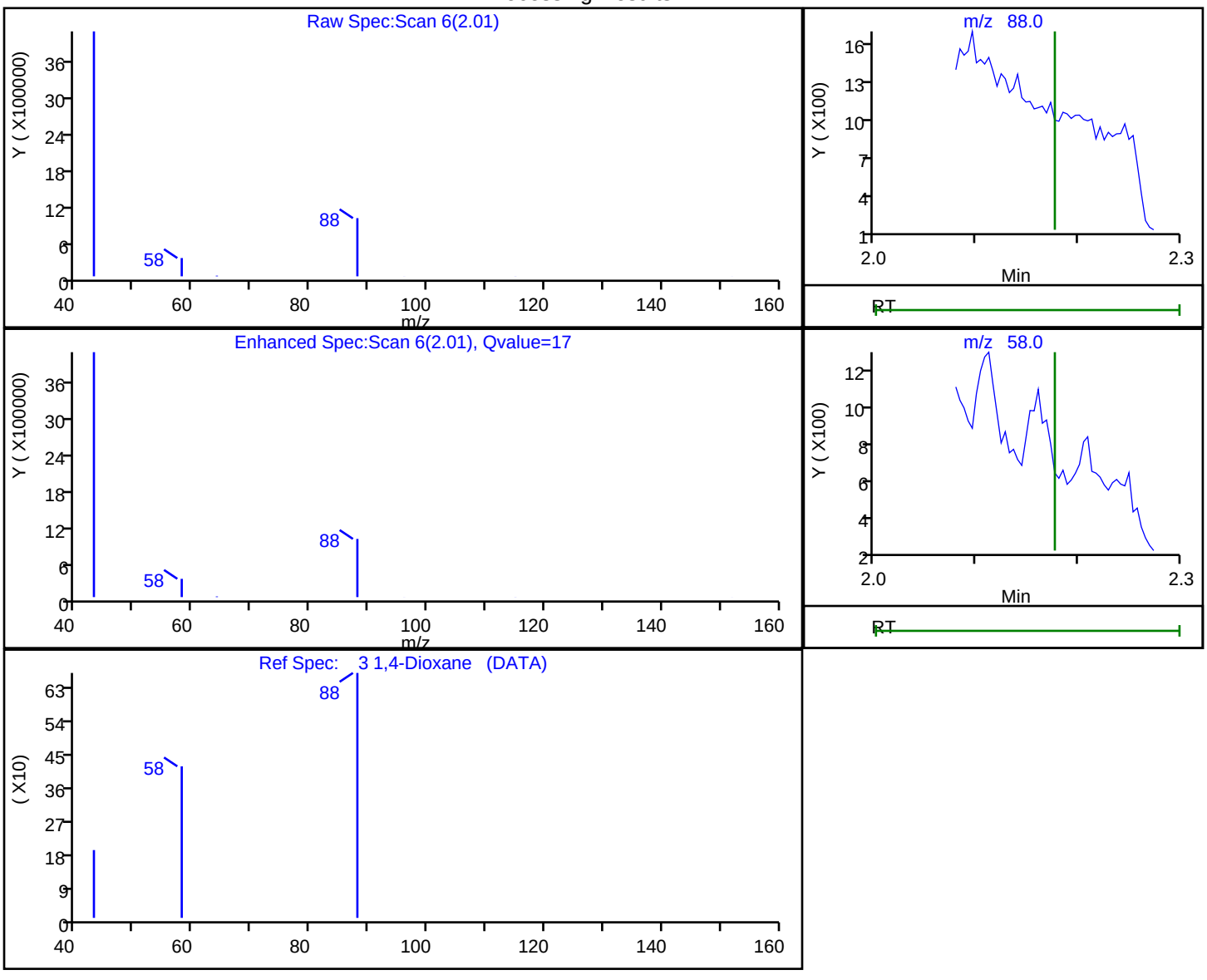
User Disabled Compound Report

TestAmerica Buffalo

Data File:	\\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310937.D				
Injection Date:	25-Aug-2018 01:43:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-B-1-A	Lab Sample ID:	480-140615-1		
Client ID:	MW-9S				
Operator ID:	DR	ALS Bottle#:	29	Worklist Smp#:	29
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
2.01	88.00	865132	80.093117
2.01	58.00	256055	

Reviewer: richardsd, 27-Aug-2018 11:22:37

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.: 480-140615-1

SDG No.:

Client Sample ID: MW-9D | Lab Sample ID: 480-140615-2

Matrix: Water | Lab File ID: U3310938.D

Analysis Method: 8270D SIM ID | Date Collected: 08/15/2018 10:20

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 1000(mL) | Date Analyzed: 08/25/2018 02:06

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.: 431347 | 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	26		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310938.D
Lims ID: 480-140615-B-2-A
Client ID: MW-9D
Sample Type: Client
Inject. Date: 25-Aug-2018 02:06:30 ALS Bottle#: 30 Worklist Smp#: 30
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074162-030
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:34:05 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:22:58

	Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
	3 1,4-Dioxane	88		2.177				ND		
D	1 1,4-Dioxane-d8	96	2.201	2.217	-0.016	99	84709	2.58	25.8	
*	2 1,4-Dichlorobenzene-d4	152	5.550	5.547	0.003	95	270966	4.00		

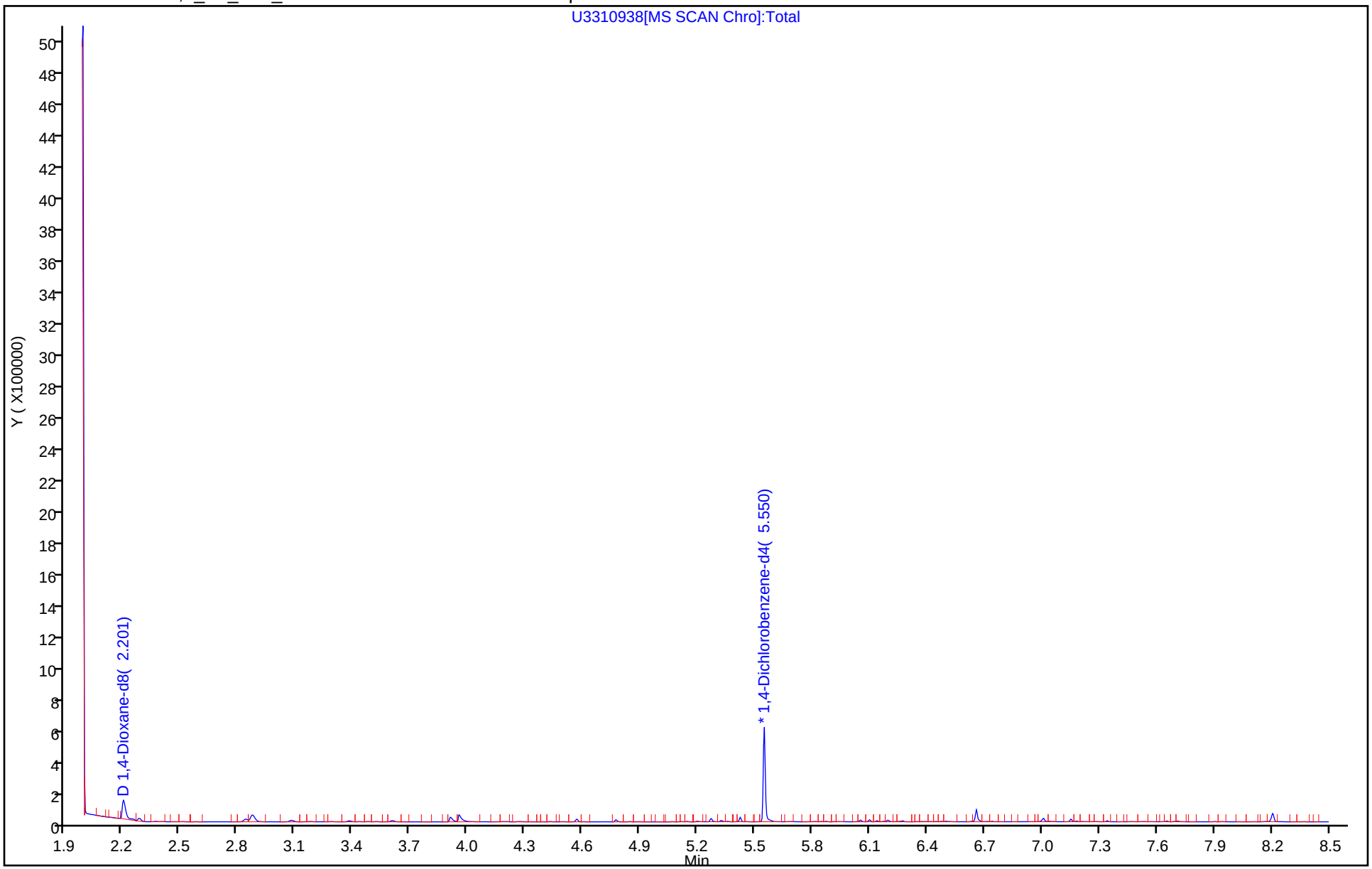
Reagents:

MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:34:55 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File:	\\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310938.D				
Injection Date:	25-Aug-2018 02:06:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	480-140615-B-2-A	Lab Sample ID:	480-140615-2	Worklist Smp#:	30
Client ID:	MW-9D				
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	30
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		



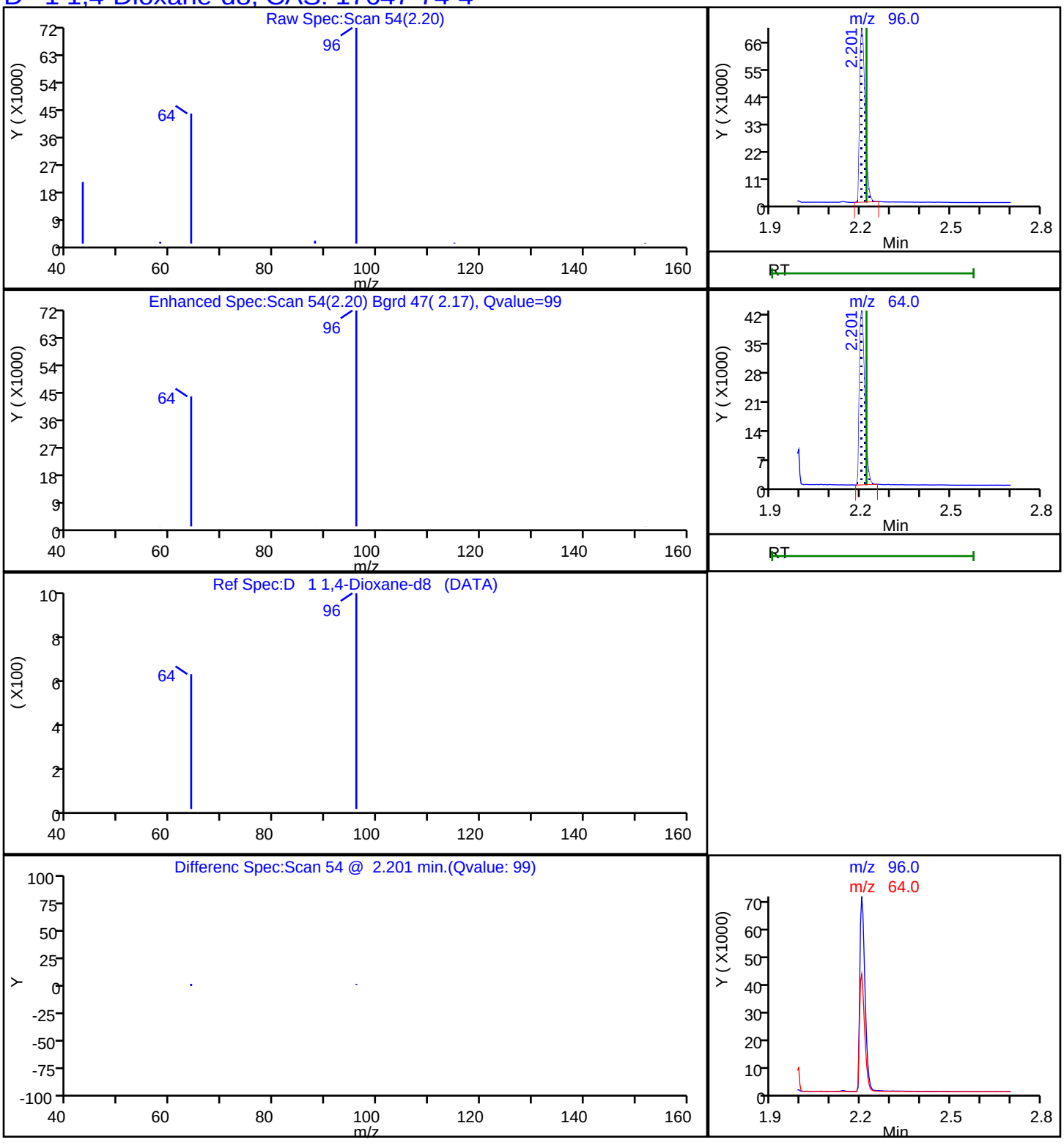
Report Date: 27-Aug-2018 11:34:55 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310938.D

Injection Date:	25-Aug-2018 02:06:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-B-2-A	Lab Sample ID:	480-140615-2		
Client ID:	MW-9D				
Operator ID:	DR	ALS Bottle#:	30	Worklist Smp#:	30
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.: 480-140615-1

SDG No.:

Client Sample ID: MW-4S | Lab Sample ID: 480-140615-3

Matrix: Water | Lab File ID: U3310942.D

Analysis Method: 8270D SIM ID | Date Collected: 08/15/2018 13:20

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 100(mL) | Date Analyzed: 08/25/2018 03:44

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.: 431348 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.9		2.0	1.0

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\20180824-74163.b\U3310942.D
Lims ID: 480-140615-A-3-A
Client ID: MW-4S
Sample Type: Client
Inject. Date: 25-Aug-2018 03:44:30 ALS Bottle#: 34 Worklist Smp#: 4
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074163-004
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:32:57 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:23:29

	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	2.209	2.144	0.065	98	101973	3.12	31.2	
	3 1,4-Dioxane	88	2.242	2.177	0.065	69	2973	0.2856		
*	2 1,4-Dichlorobenzene-d4	152	5.550	5.542	0.008	95	269288	4.00		

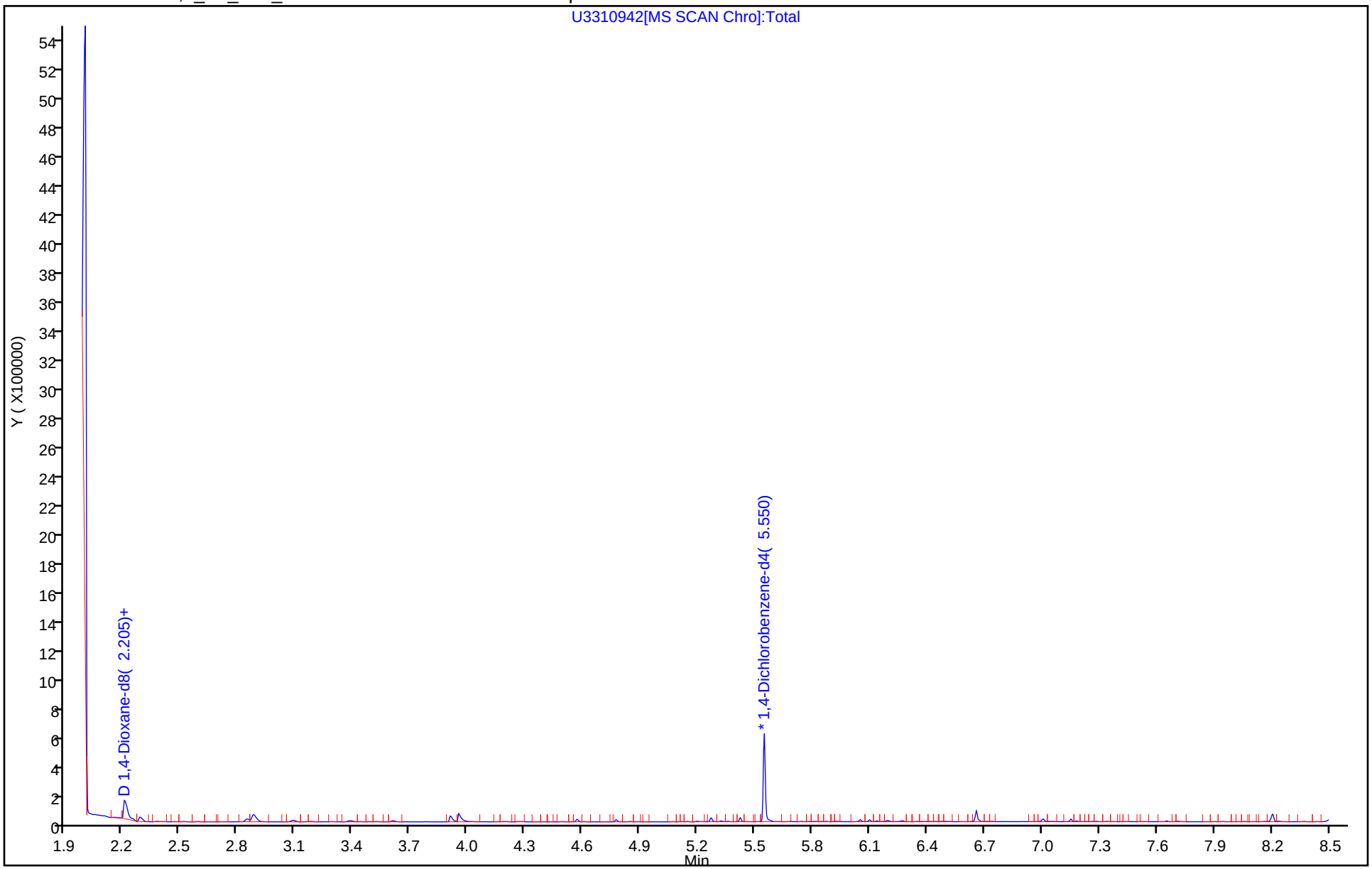
Reagents:

MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:33:00 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

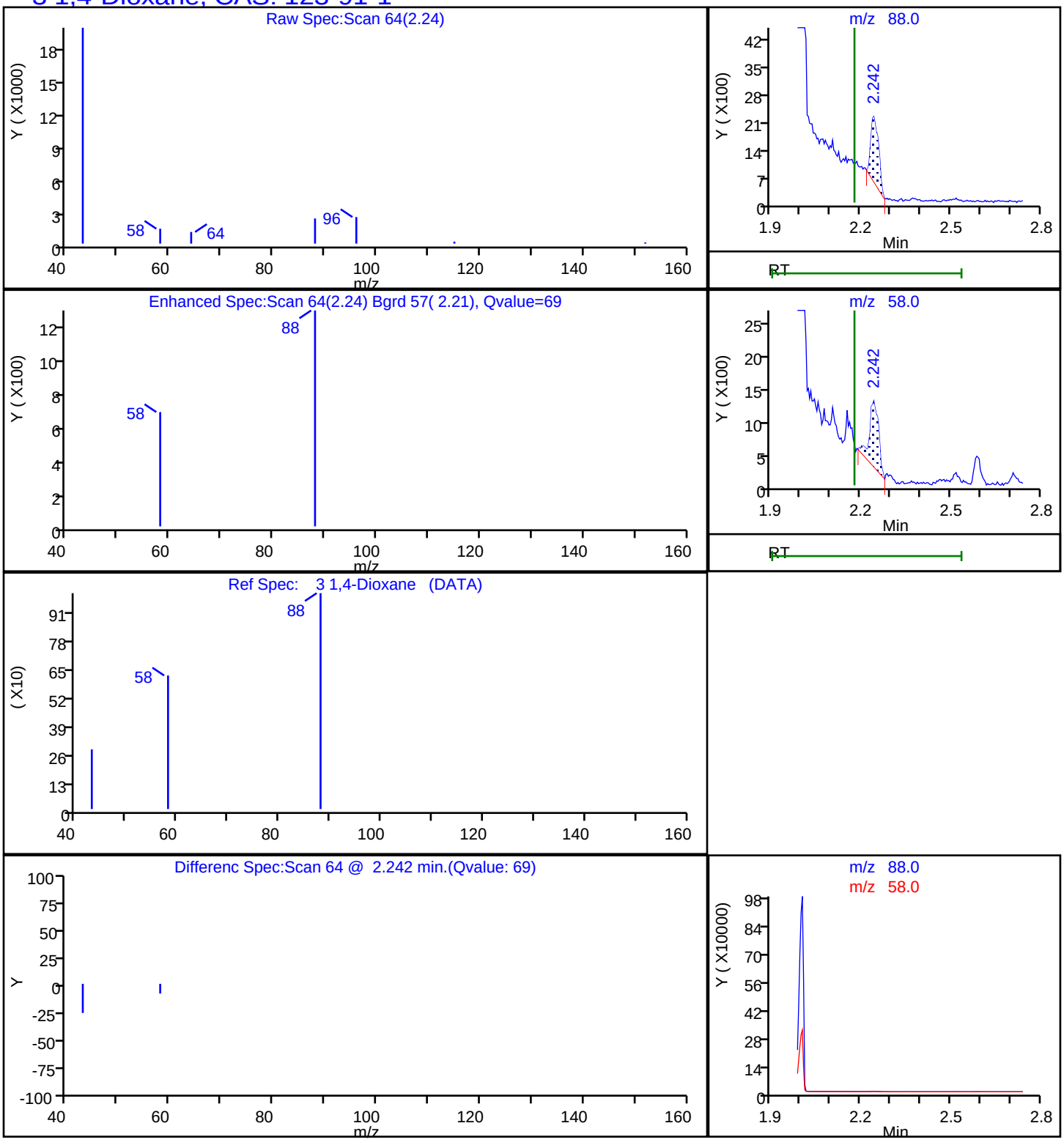
Data File:	\\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310942.D				
Injection Date:	25-Aug-2018 03:44:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	480-140615-A-3-A	Lab Sample ID:	480-140615-3	Worklist Smp#:	4
Client ID:	MW-4S				
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	34
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		



Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310942.D

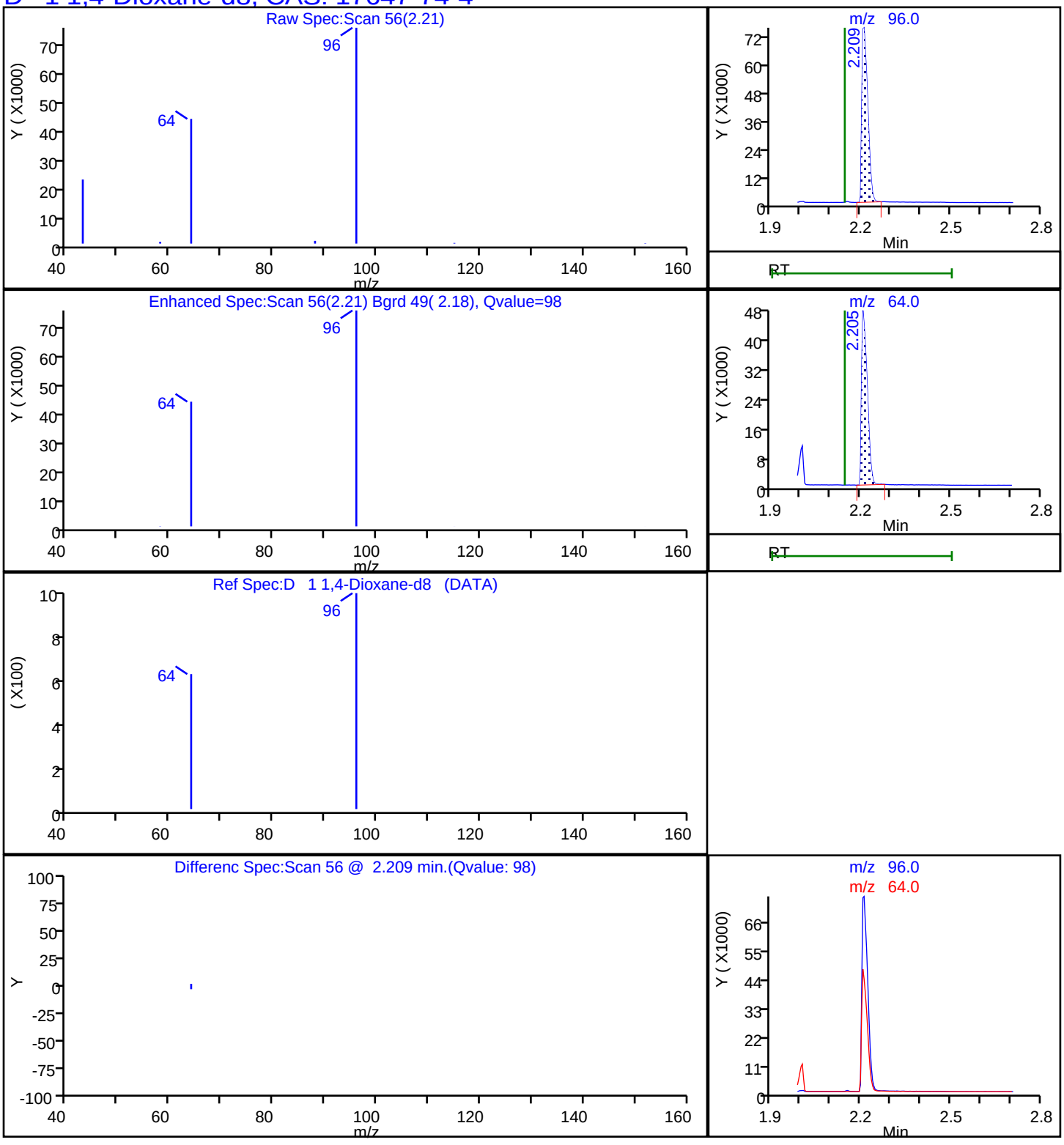
Injection Date:	25-Aug-2018 03:44:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-A-3-A	Lab Sample ID:	480-140615-3		
Client ID:	MW-4S				
Operator ID:	DR	ALS Bottle#:	34	Worklist Smp#:	4
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		
Column:		Detector	MS SCAN		

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



Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310942.D
Injection Date: 25-Aug-2018 03:44:30 Instrument ID: HP5973U
Lims ID: 480-140615-A-3-A Lab Sample ID: 480-140615-3
Client ID: MW-4S
Operator ID: DR ALS Bottle#: 34 Worklist Smp#: 4
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.: 480-140615-1

SDG No.:

Client Sample ID: MW-4D | Lab Sample ID: 480-140615-4

Matrix: Water | Lab File ID: U3310943.D

Analysis Method: 8270D SIM ID | Date Collected: 08/15/2018 13:10

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 1000(mL) | Date Analyzed: 08/25/2018 04:07

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.: 431348 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.1	E	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\20180824-74163.b\U3310943.D
Lims ID: 480-140615-A-4-A
Client ID: MW-4D
Sample Type: Client
Inject. Date: 25-Aug-2018 04:07:30 ALS Bottle#: 35 Worklist Smp#: 5
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074163-005
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:32:57 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:23:44

	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	2.209	2.144	0.065	99	101664	3.08	30.8	
	3 1,4-Dioxane	88	2.242	2.177	0.065	93	23314	2.09		E
*	2 1,4-Dichlorobenzene-d4	152	5.550	5.542	0.008	95	272266	4.00		

QC Flag Legend

Processing Flags
E - Exceeded Maximum Amount

Reagents:

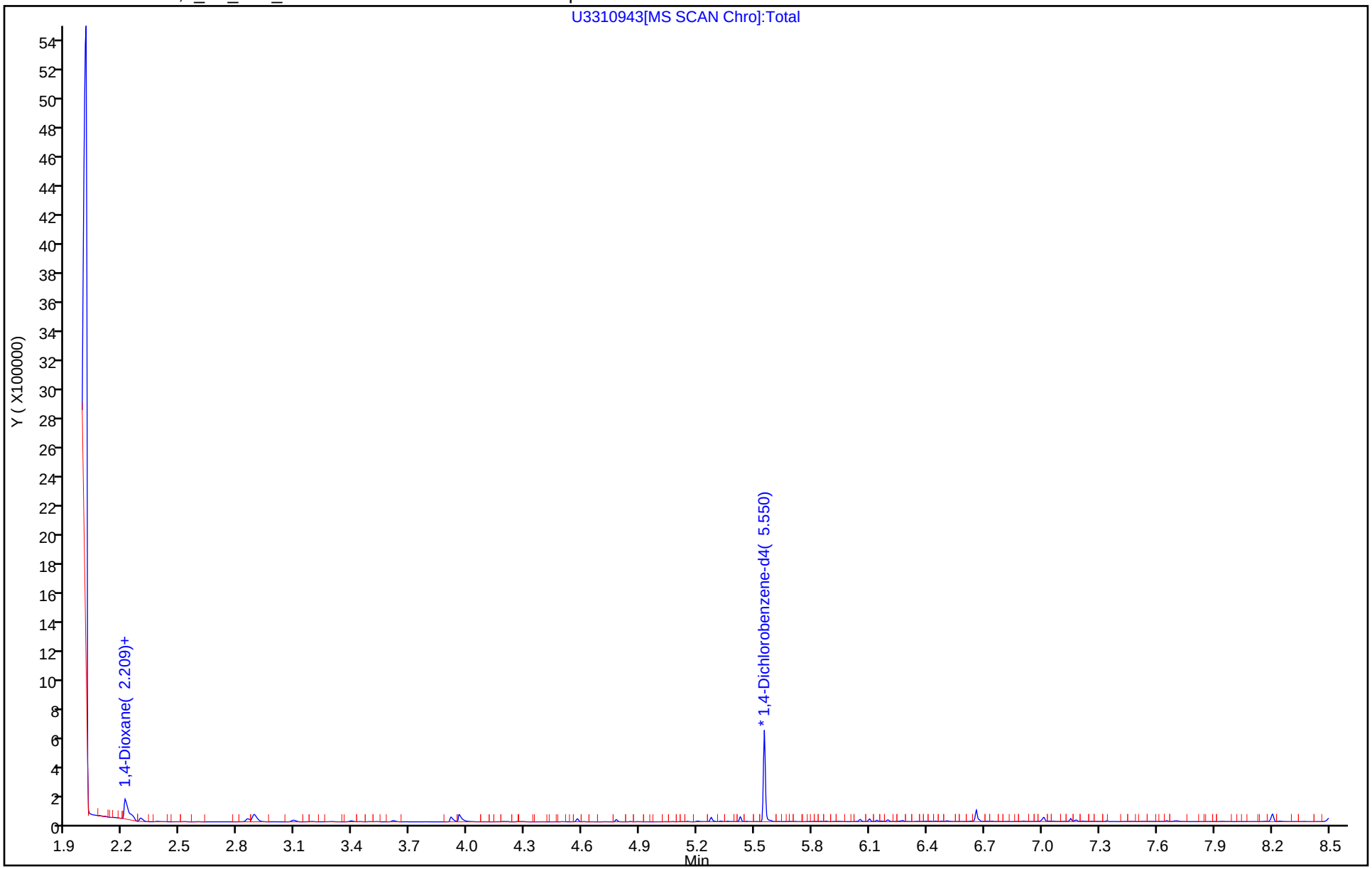
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:33:01 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310943.D

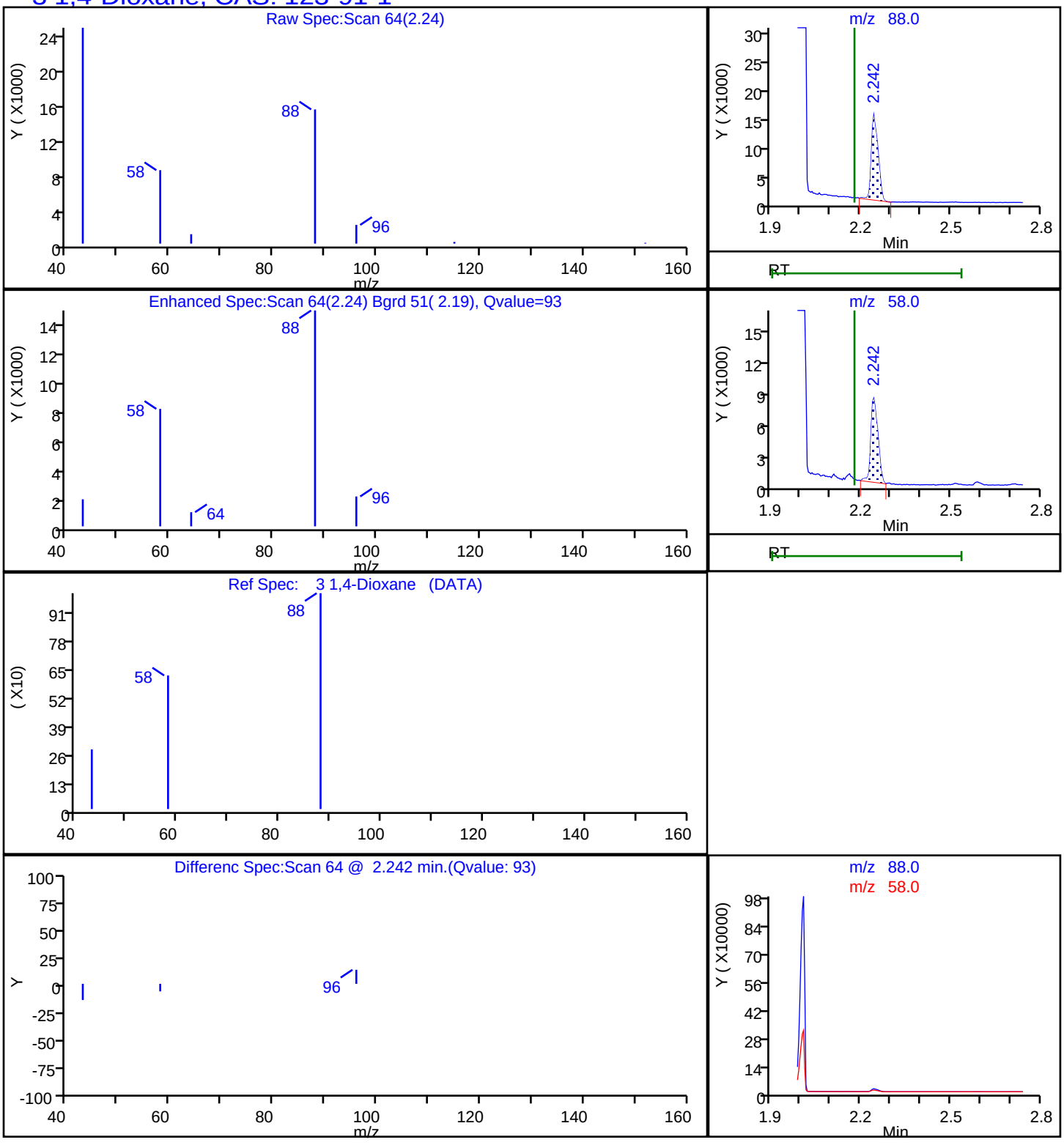
Injection Date:	25-Aug-2018 04:07:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	480-140615-A-4-A	Lab Sample ID:	480-140615-4	Worklist Smp#:	5
Client ID:	MW-4D				
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	35
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		



Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310943.D

Injection Date:	25-Aug-2018 04:07:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-A-4-A	Lab Sample ID:	480-140615-4		
Client ID:	MW-4D				
Operator ID:	DR	ALS Bottle#:	35	Worklist Smp#:	5
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



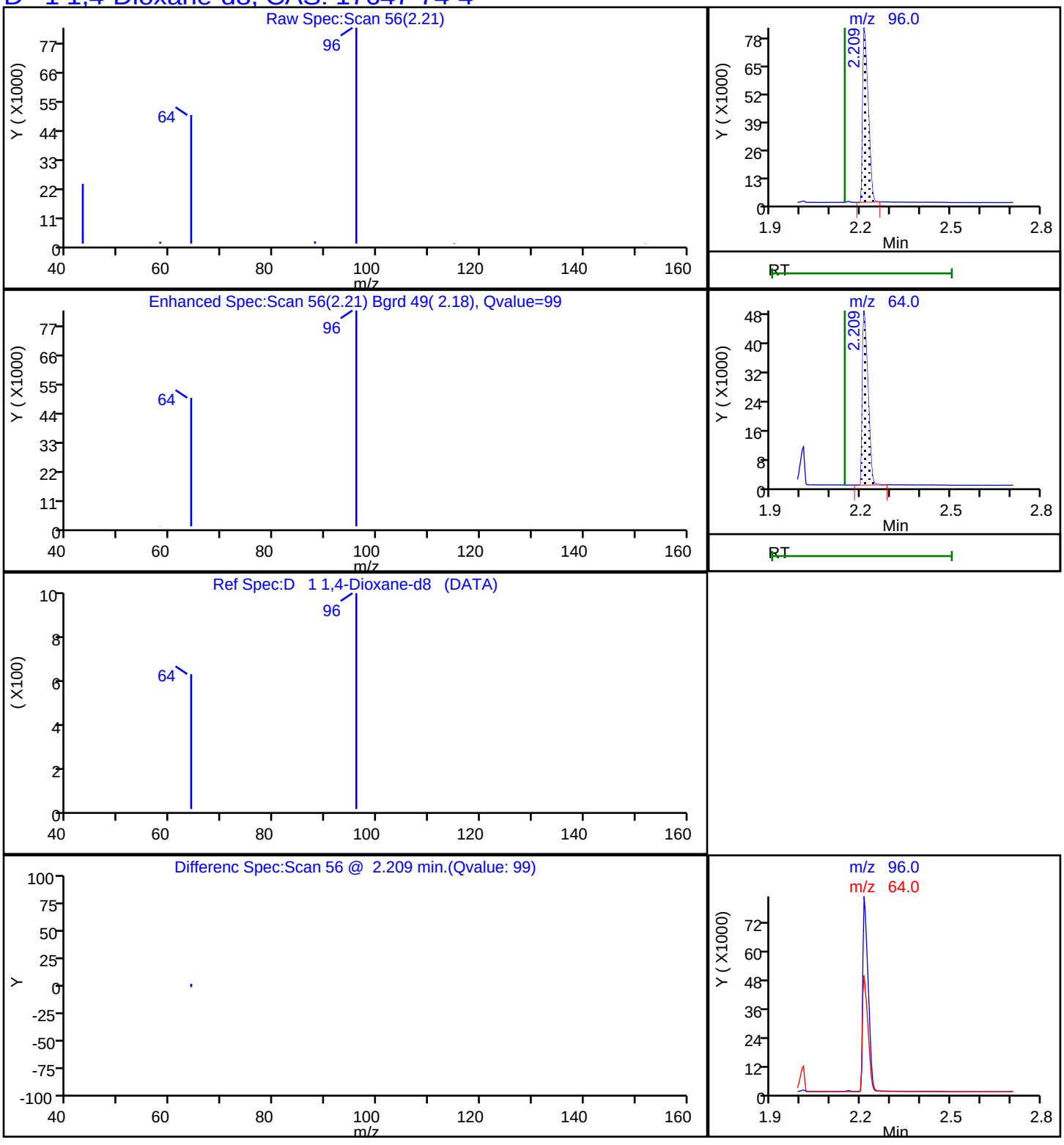
Report Date: 27-Aug-2018 11:33:01 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310943.D

Injection Date:	25-Aug-2018 04:07:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-A-4-A	Lab Sample ID:	480-140615-4		
Client ID:	MW-4D				
Operator ID:	DR	ALS Bottle#:	35	Worklist Smp#:	5
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.: 480-140615-1

SDG No.:

Client Sample ID: MW-2S | Lab Sample ID: 480-140615-5

Matrix: Water | Lab File ID: U3310944.D

Analysis Method: 8270D SIM ID | Date Collected: 08/15/2018 11:45

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 1000(mL) | Date Analyzed: 08/25/2018 04:31

Con. Extract Vol.: 1(mL) | Dilution Factor: 5

Injection Volume: 1(uL) | Level: (low/med) Low

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 431348 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	7.0	E	1.0	0.50

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\20180824-74163.b\U3310944.D
Lims ID: 480-140615-B-5-A
Client ID: MW-2S
Sample Type: Client
Inject. Date: 25-Aug-2018 04:31:30 ALS Bottle#: 36 Worklist Smp#: 6
Injection Vol: 1.0 ul Dil. Factor: 5.0000
Sample Info: 480-0074163-006
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:32:57 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:23:52

	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	2.169	2.144	0.025	98	19541	0.5794	29.0	
	3 1,4-Dioxane	88	2.197	2.177	0.020	97	14894	1.40		E
*	2 1,4-Dichlorobenzene-d4	152	5.546	5.542	0.004	96	277926	4.00		

QC Flag Legend

Processing Flags
E - Exceeded Maximum Amount

Reagents:

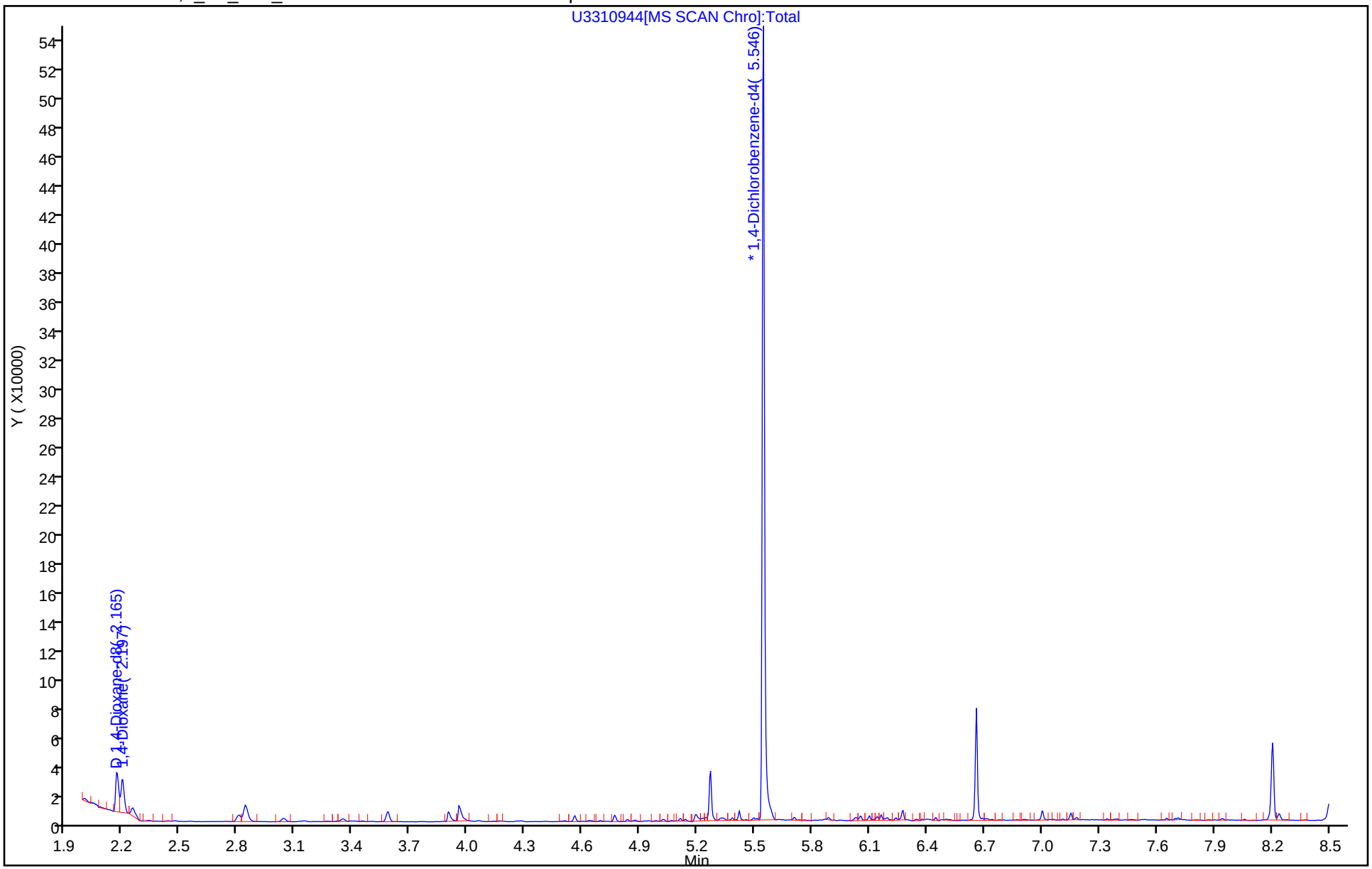
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:33:03 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310944.D

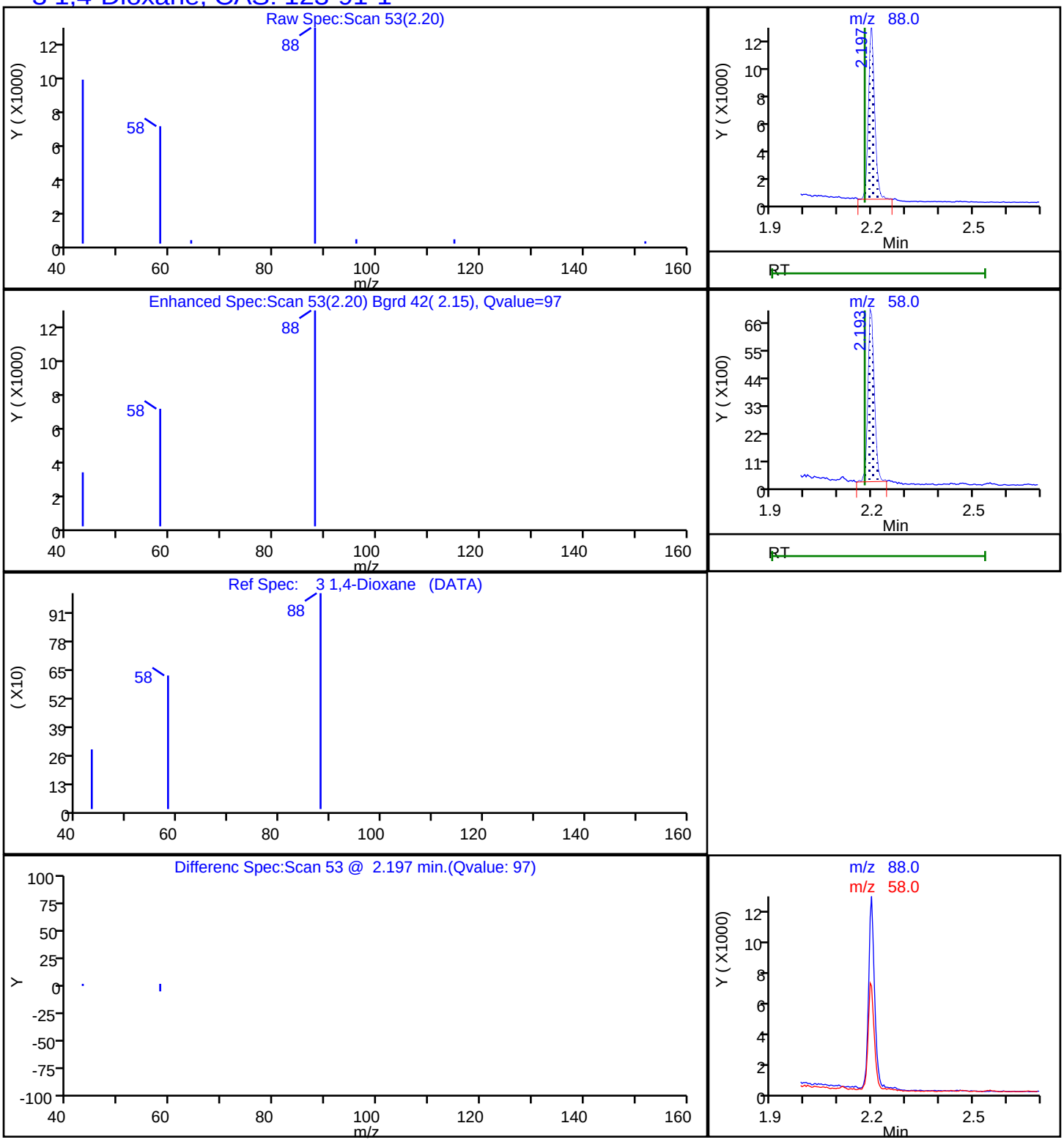
Injection Date:	25-Aug-2018 04:31:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	480-140615-B-5-A	Lab Sample ID:	480-140615-5	Worklist Smp#:	6
Client ID:	MW-2S				
Injection Vol:	1.0 ul	Dil. Factor:	5.0000	ALS Bottle#:	36
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		



Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310944.D

Injection Date:	25-Aug-2018 04:31:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-B-5-A	Lab Sample ID:	480-140615-5		
Client ID:	MW-2S				
Operator ID:	DR	ALS Bottle#:	36	Worklist Smp#:	6
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
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

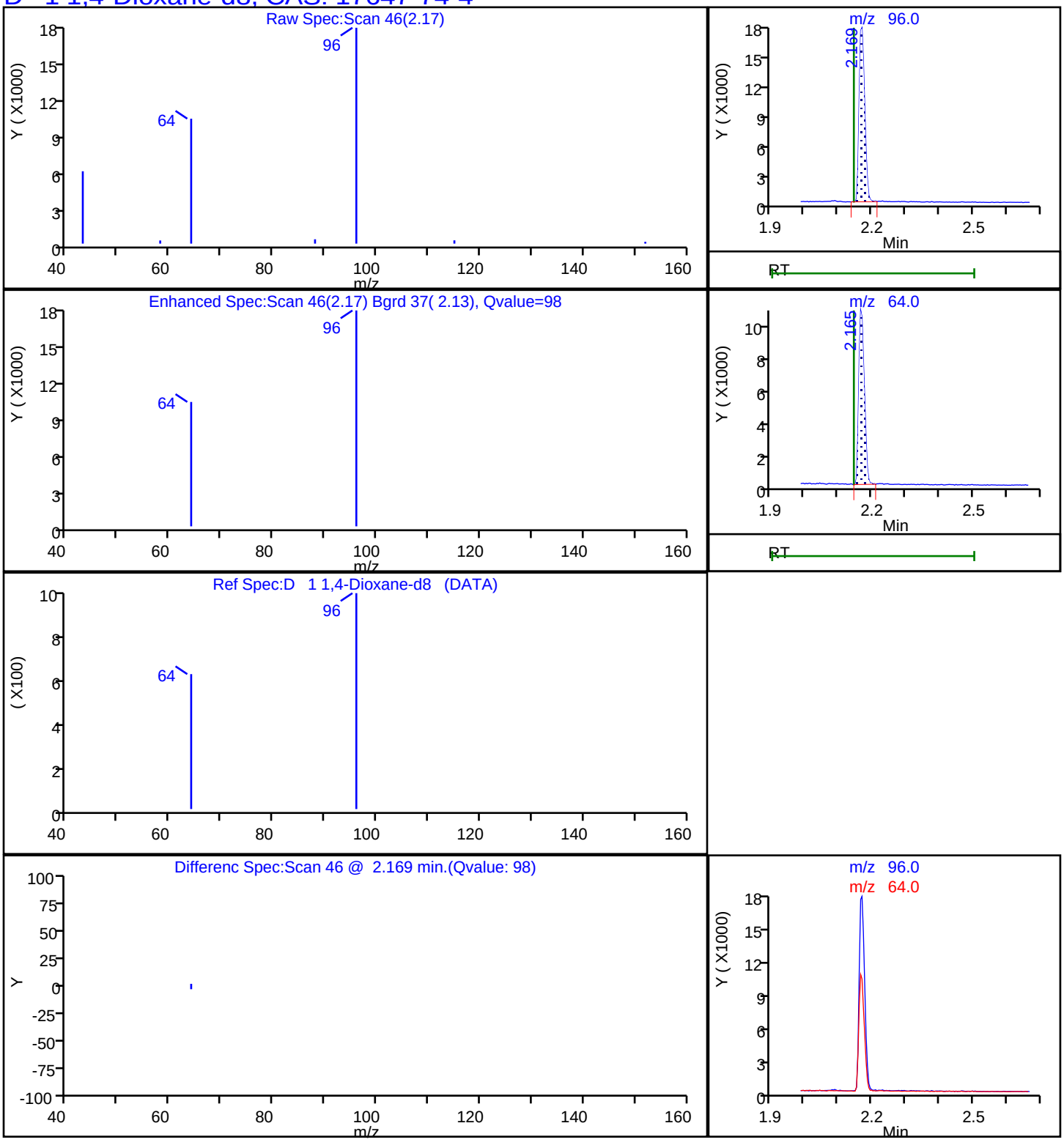


TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310944.D

Injection Date:	25-Aug-2018 04:31:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-B-5-A	Lab Sample ID:	480-140615-5		
Client ID:	MW-2S				
Operator ID:	DR	ALS Bottle#:	36	Worklist Smp#:	6
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
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.: 480-140615-1

SDG No.:

Client Sample ID: MW-2D | Lab Sample ID: 480-140615-6

Matrix: Water | Lab File ID: U3310930.D

Analysis Method: 8270D SIM ID | Date Collected: 08/15/2018 12:00

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 1000(mL) | Date Analyzed: 08/24/2018 22:57

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.: 431347 | 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	35		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310930.D
Lims ID: 480-140615-B-6-B
Client ID: MW-2D
Sample Type: Client
Inject. Date: 24-Aug-2018 22:57:30 ALS Bottle#: 22 Worklist Smp#: 22
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074162-022
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:34:05 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:21:11

	Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
	3 1,4-Dioxane	88		2.177				ND		U
D	1 1,4-Dioxane-d8	96	2.221	2.217	0.004	100	117210	3.46	34.6	
*	2 1,4-Dichlorobenzene-d4	152	5.554	5.547	0.007	95	279197	4.00		

QC Flag Legend

Review Flags
U - Marked Undetected

Reagents:

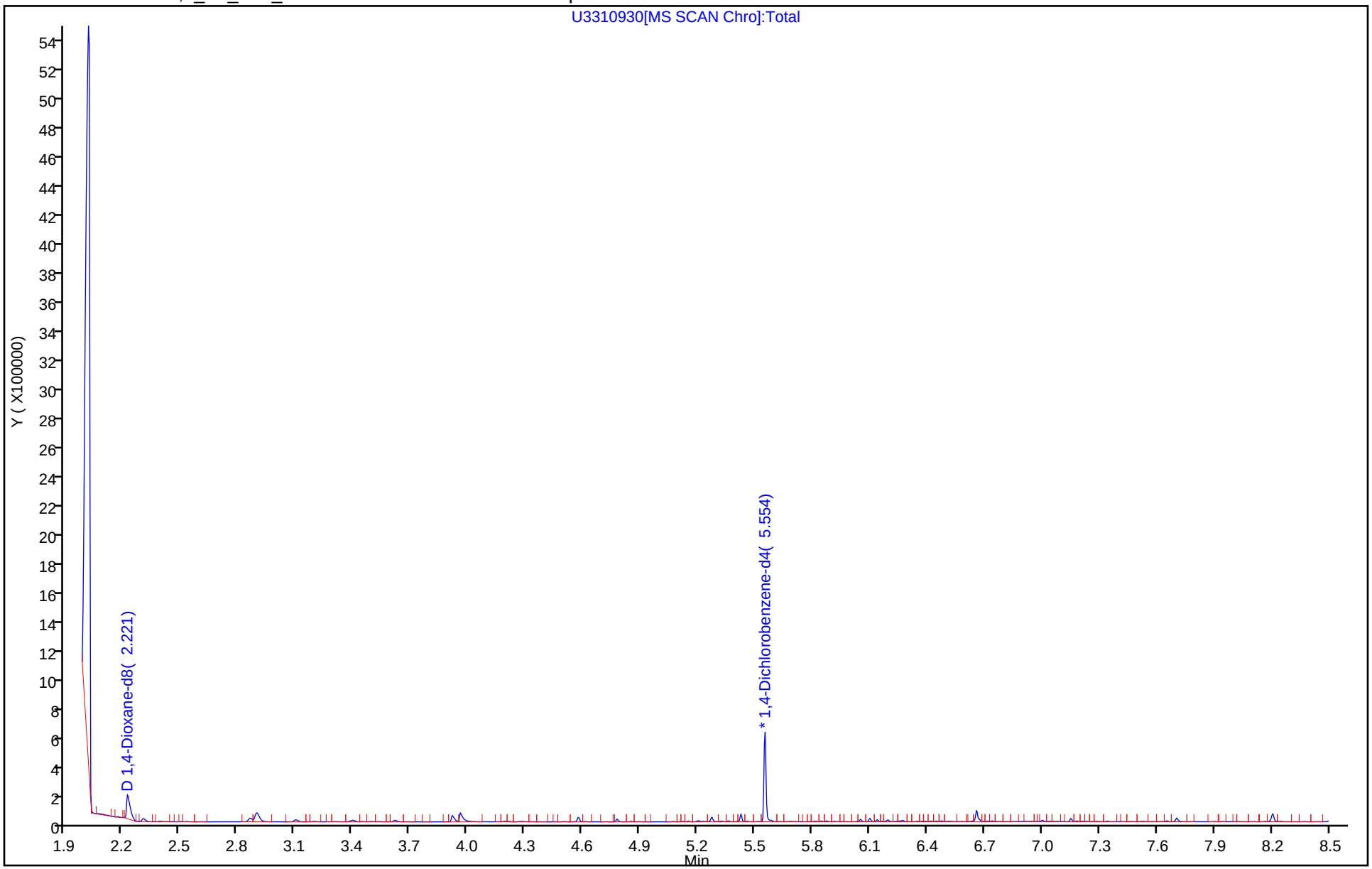
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:34:40 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

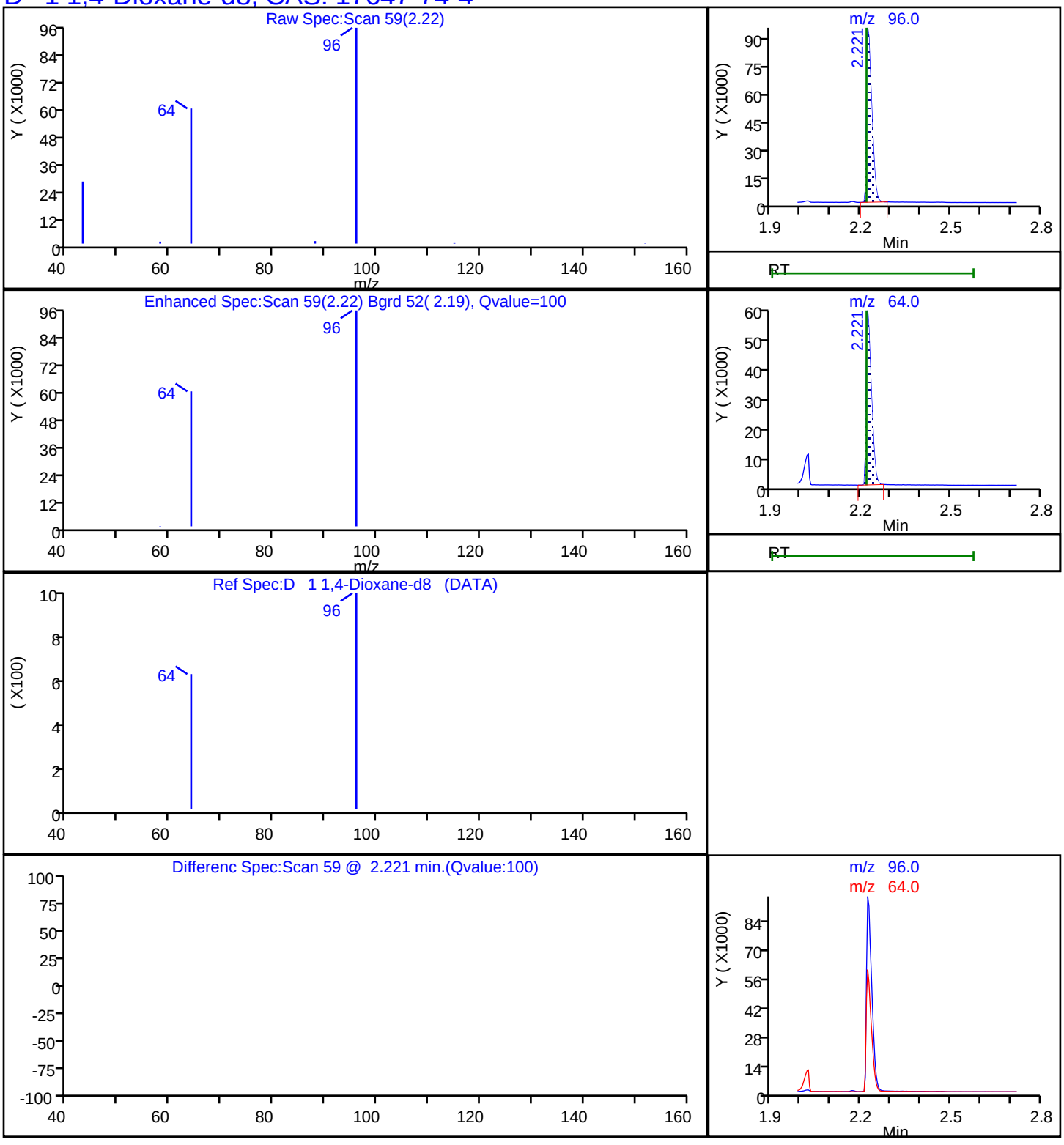
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310930.D

Injection Date:	24-Aug-2018 22:57:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	480-140615-B-6-B	Lab Sample ID:	480-140615-6	Worklist Smp#:	22
Client ID:	MW-2D				
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	22
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		



Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310930.D
Injection Date: 24-Aug-2018 22:57:30 Instrument ID: HP5973U
Lims ID: 480-140615-B-6-B Lab Sample ID: 480-140615-6
Client ID: MW-2D
Operator ID: DR ALS Bottle#: 22 Worklist Smp#: 22
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



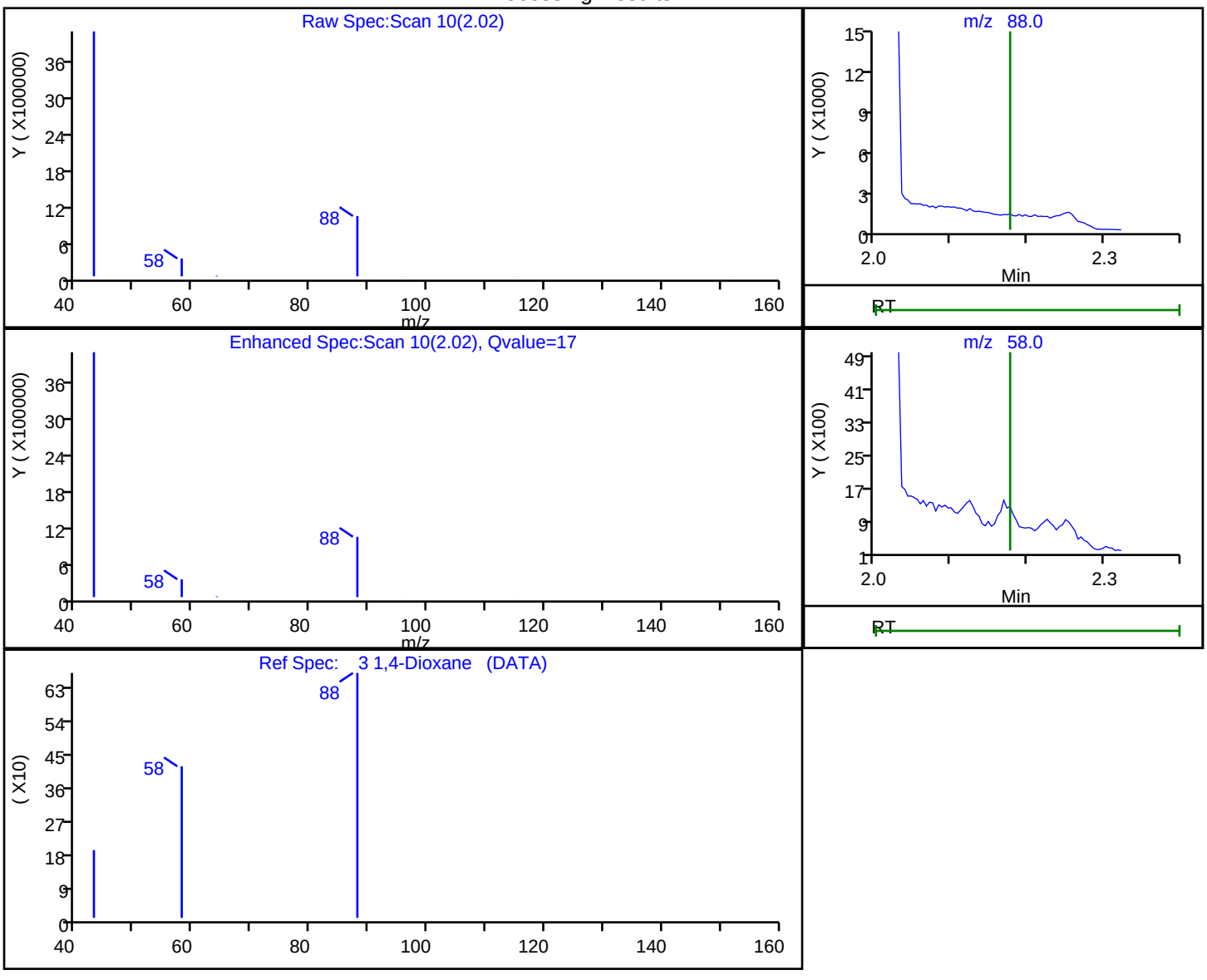
User Disabled Compound Report

TestAmerica Buffalo

Data File:	\\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310930.D				
Injection Date:	24-Aug-2018 22:57:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-B-6-B	Lab Sample ID:	480-140615-6		
Client ID:	MW-2D				
Operator ID:	DR	ALS Bottle#:	22	Worklist Smp#:	22
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
2.02	88.00	1110457	85.620251
2.02	58.00	350426	

Reviewer: richardsd, 27-Aug-2018 11:21:10

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.: 480-140615-1

SDG No.:

Client Sample ID: DUP-01 | Lab Sample ID: 480-140615-7

Matrix: Water | Lab File ID: U3310947.D

Analysis Method: 8270D SIM ID | Date Collected: 08/15/2018 13:15

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:31

Sample wt/vol: 100(mL) | Date Analyzed: 08/25/2018 05:41

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.: 431348 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.4		2.0	1.0

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	38		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310947.D
Lims ID: 480-140615-B-7-A
Client ID: DUP-01
Sample Type: Client
Inject. Date: 25-Aug-2018 05:41:30 ALS Bottle#: 39 Worklist Smp#: 9
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074163-009
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:32:57 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:25:18

	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	2.221	2.144	0.077	100	122288	3.78	37.8	
	3 1,4-Dioxane	88	2.258	2.177	0.081	60	2940	0.2394		
*	2 1,4-Dichlorobenzene-d4	152	5.550	5.542	0.008	94	266623	4.00		

Reagents:

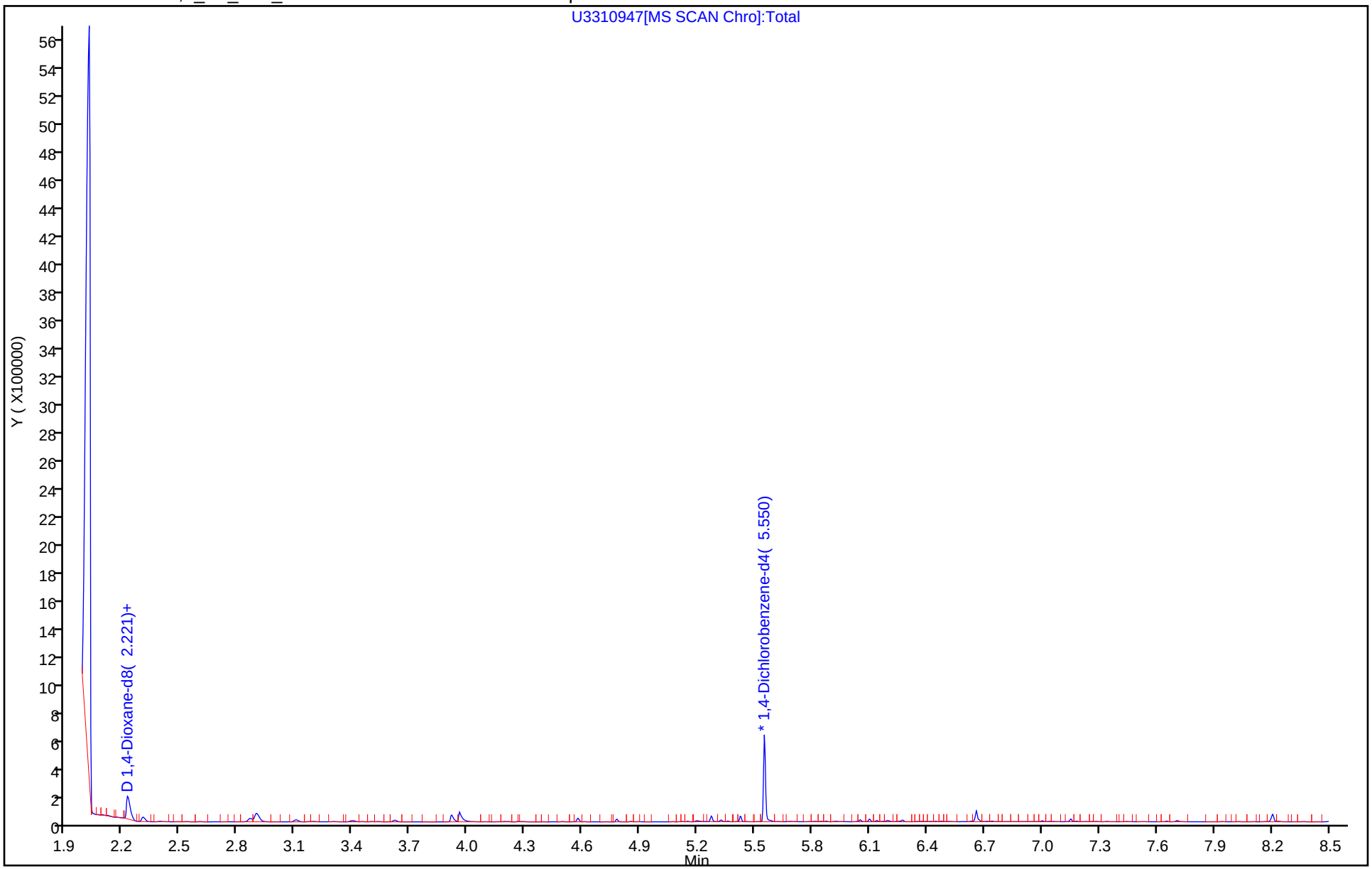
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:33:10 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

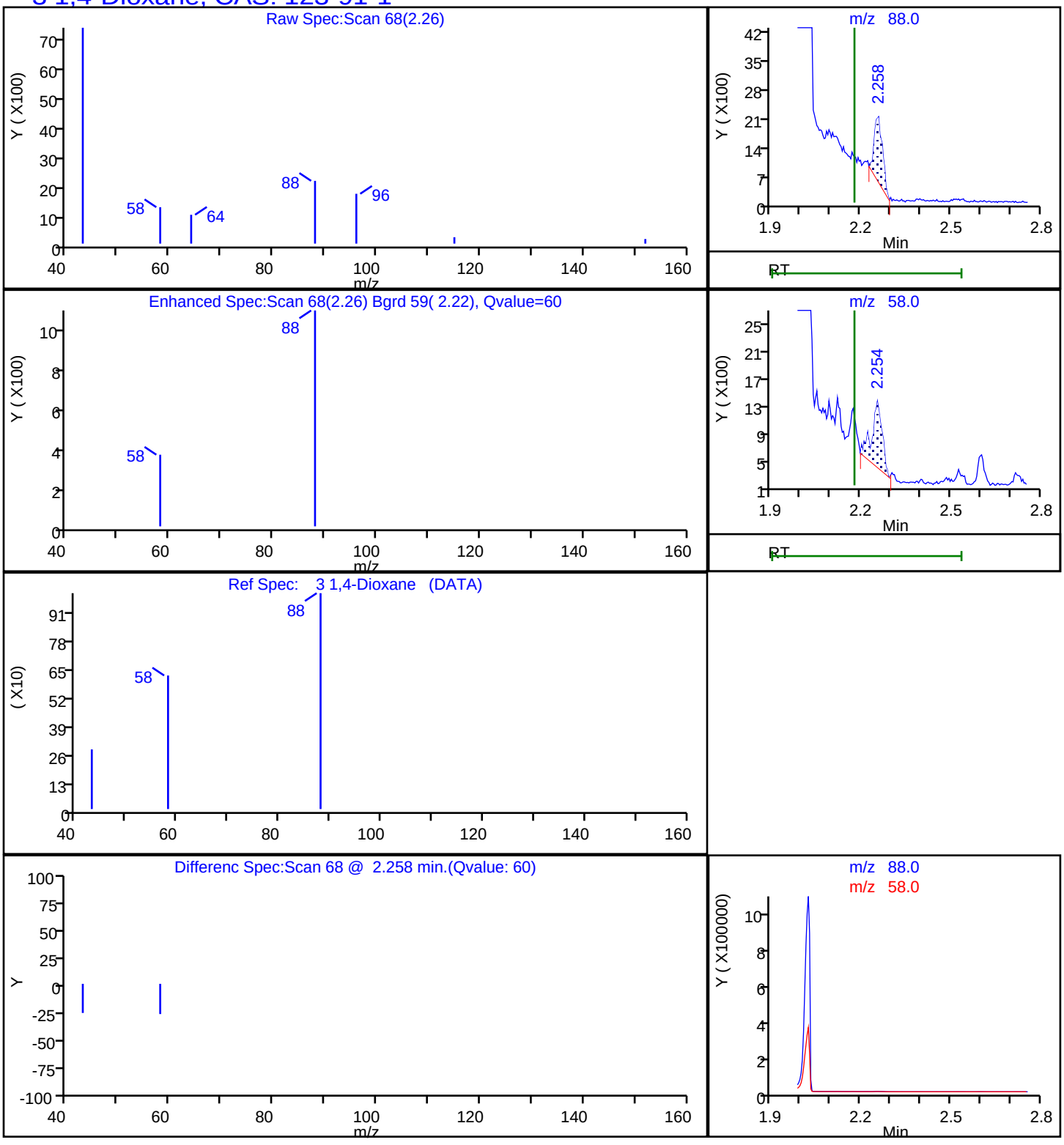
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310947.D

Injection Date:	25-Aug-2018 05:41:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	480-140615-B-7-A	Lab Sample ID:	480-140615-7	Worklist Smp#:	9
Client ID:	DUP-01				
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	39
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		



Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310947.D
Injection Date: 25-Aug-2018 05:41:30 Instrument ID: HP5973U
Lims ID: 480-140615-B-7-A Lab Sample ID: 480-140615-7
Client ID: DUP-01
Operator ID: DR ALS Bottle#: 39 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

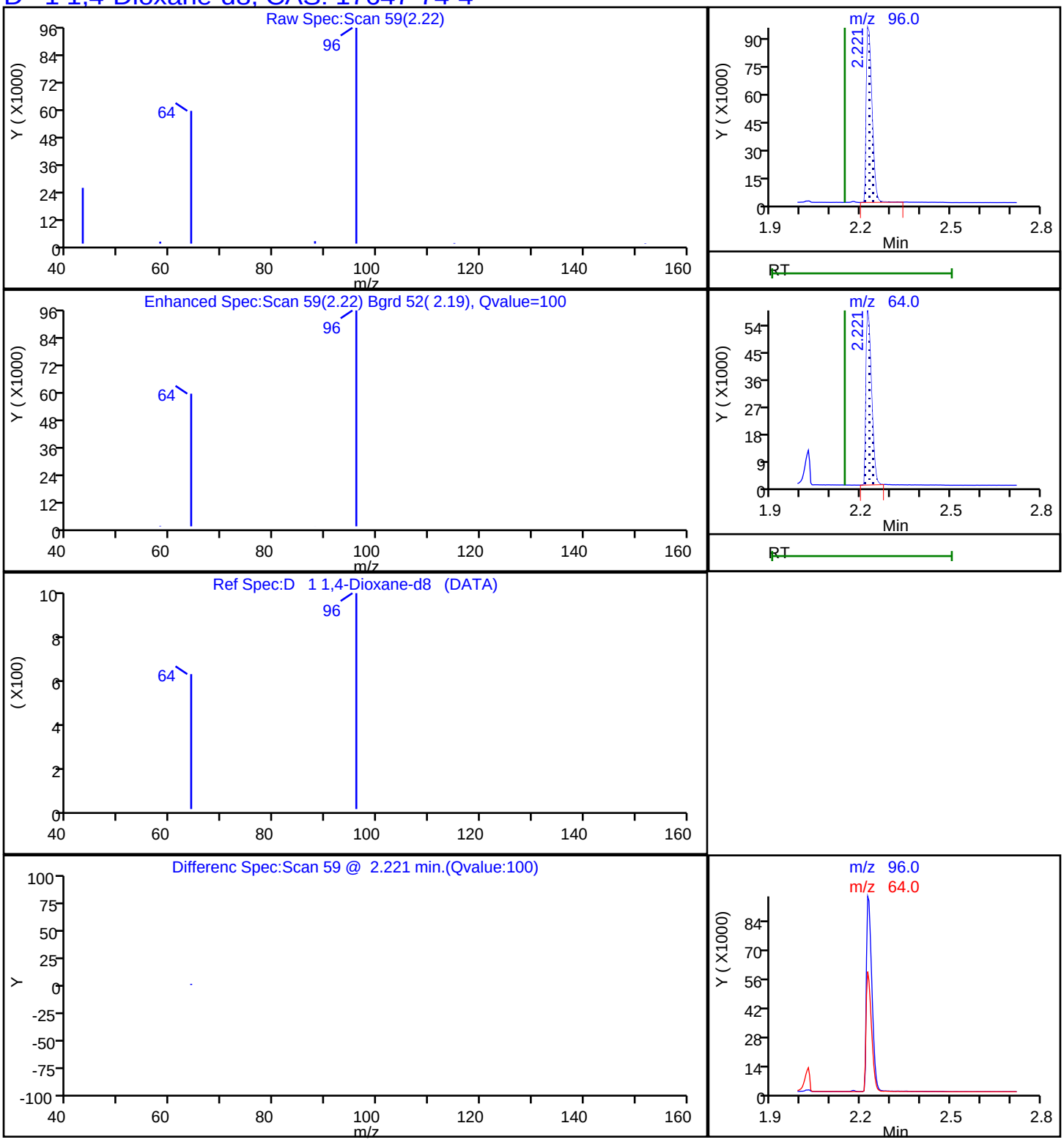
3 1,4-Dioxane, CAS: 123-91-1



Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310947.D

Injection Date:	25-Aug-2018 05:41:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-B-7-A	Lab Sample ID:	480-140615-7		
Client ID:	DUP-01				
Operator ID:	DR	ALS Bottle#:	39	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



FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-140615-1

SDG No.:

Client Sample ID: EB-01 | Lab Sample ID: 480-140615-8

Matrix: Water | Lab File ID: U3310945.D

Analysis Method: 8270D SIM ID | Date Collected: 08/15/2018 14:20

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 1000(mL) | Date Analyzed: 08/25/2018 04:54

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.: 431348 | 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	33		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310945.D
Lims ID: 480-140615-B-8-A
Client ID: EB-01
Sample Type: Client
Inject. Date: 25-Aug-2018 04:54:30 ALS Bottle#: 37 Worklist Smp#: 7
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074163-007
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:32:57 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:24:00

	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	2.218	2.144	0.074	100	110031	3.31	33.1	
	3 1,4-Dioxane	88		2.177				ND		U
*	2 1,4-Dichlorobenzene-d4	152	5.551	5.542	0.009	94	273867	4.00		

QC Flag Legend

Review Flags
U - Marked Undetected

Reagents:

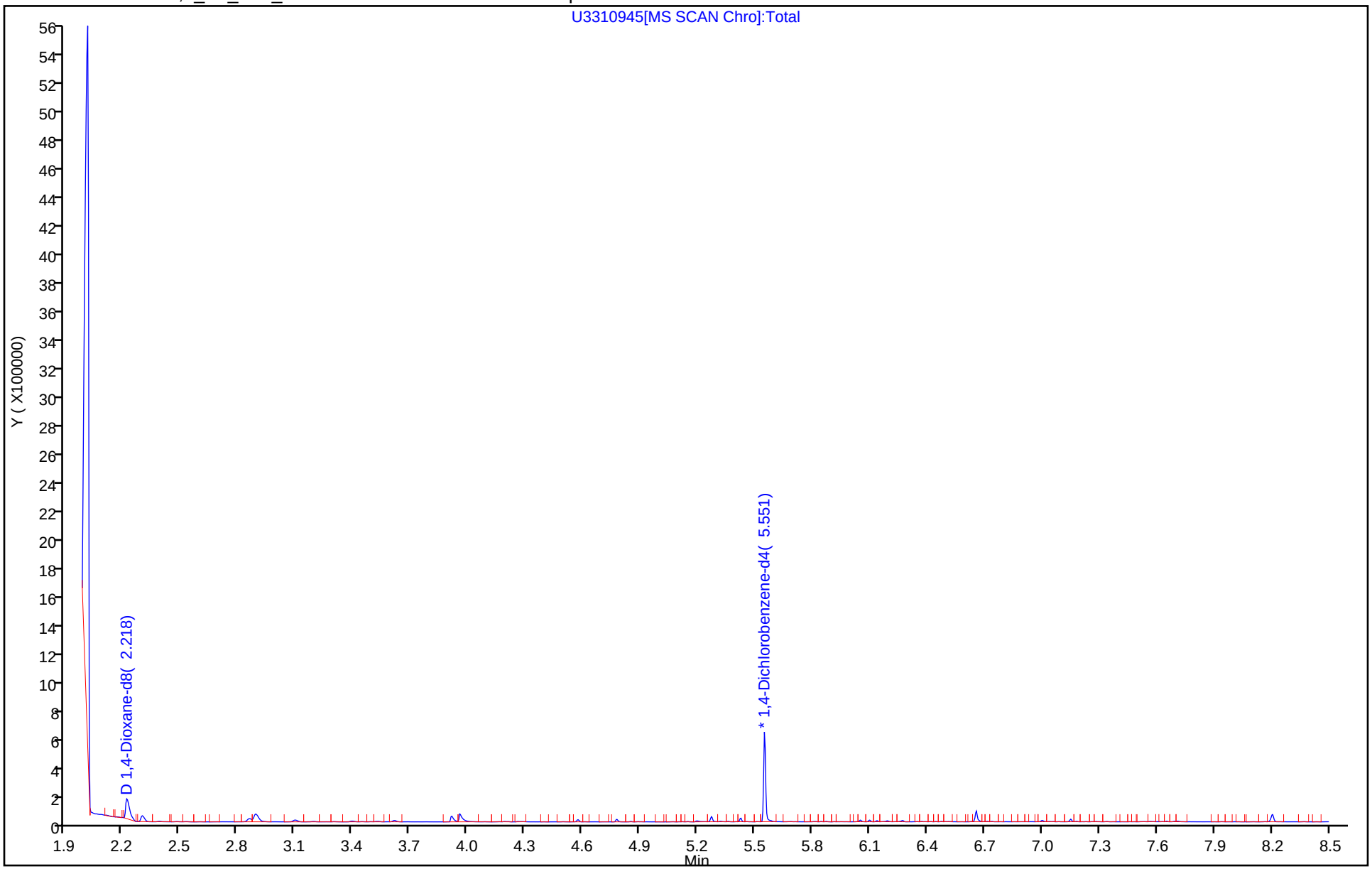
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:33:06 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310945.D

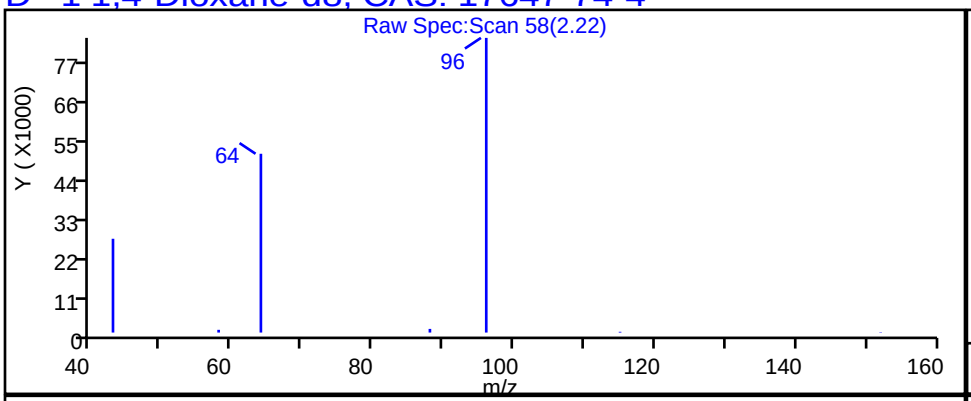
Injection Date:	25-Aug-2018 04:54:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	480-140615-B-8-A	Lab Sample ID:	480-140615-8	Worklist Smp#:	7
Client ID:	EB-01				
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	37
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		

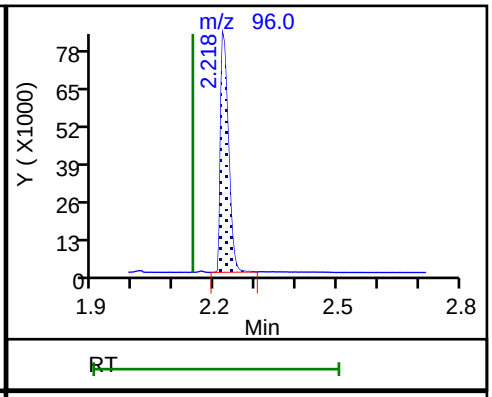


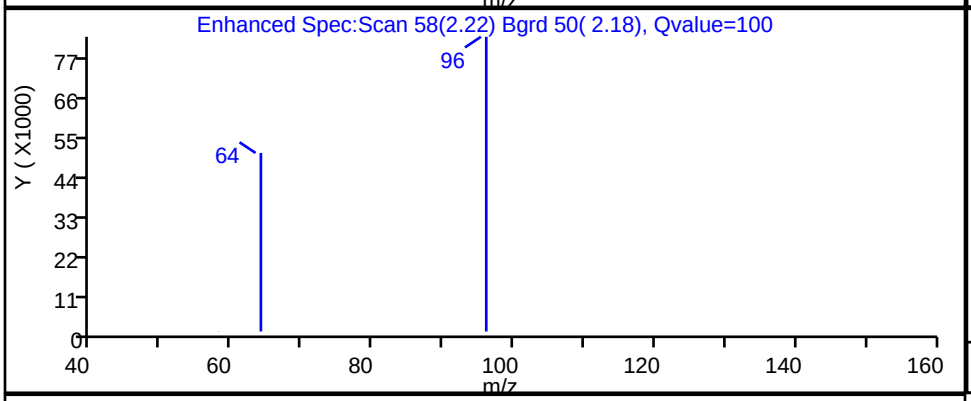
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310945.D

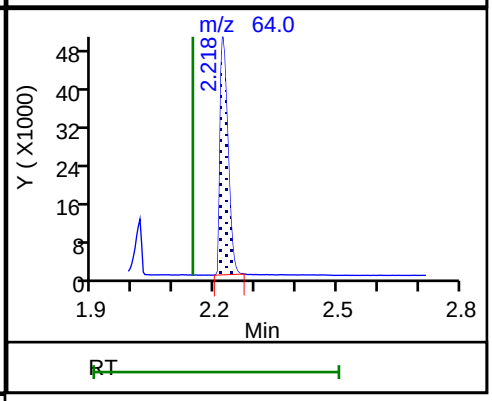
Injection Date:	25-Aug-2018 04:54:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-B-8-A	Lab Sample ID:	480-140615-8		
Client ID:	EB-01				
Operator ID:	DR	ALS Bottle#:	37	Worklist Smp#:	7
Injection Vol:	1.0 ul	Dil. Factor:	1.0000		
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		
Column:		Detector	MS SCAN		

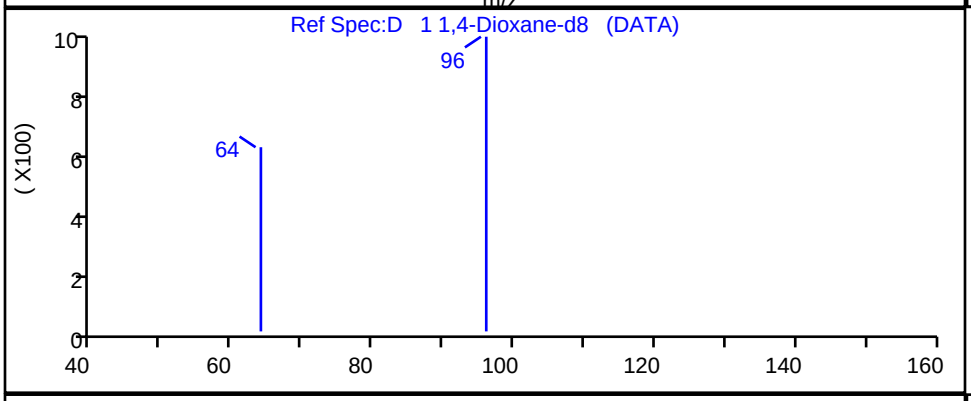
D 1 1,4-Dioxane-d8, CAS: 17647-74-4

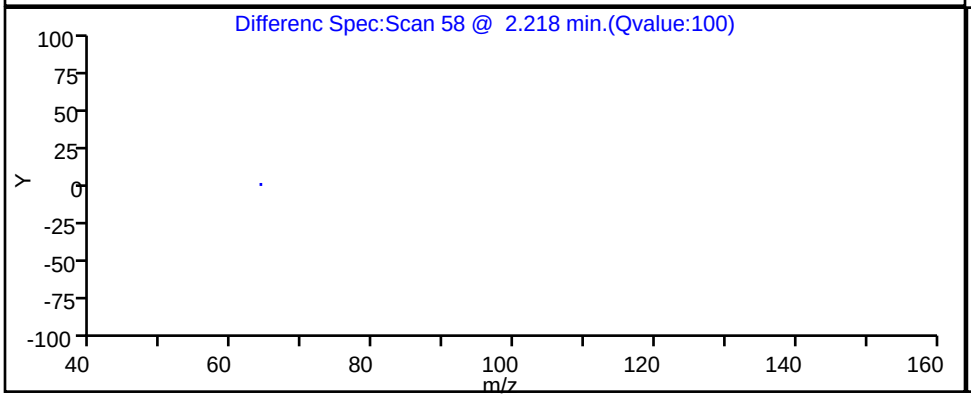


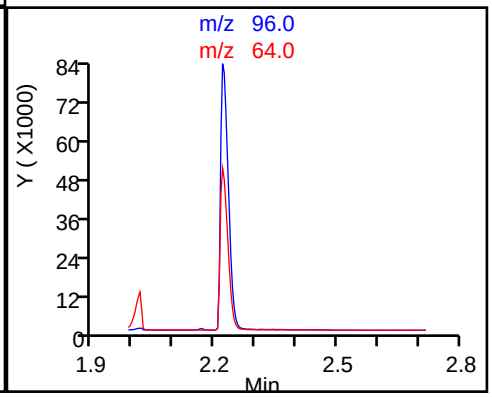












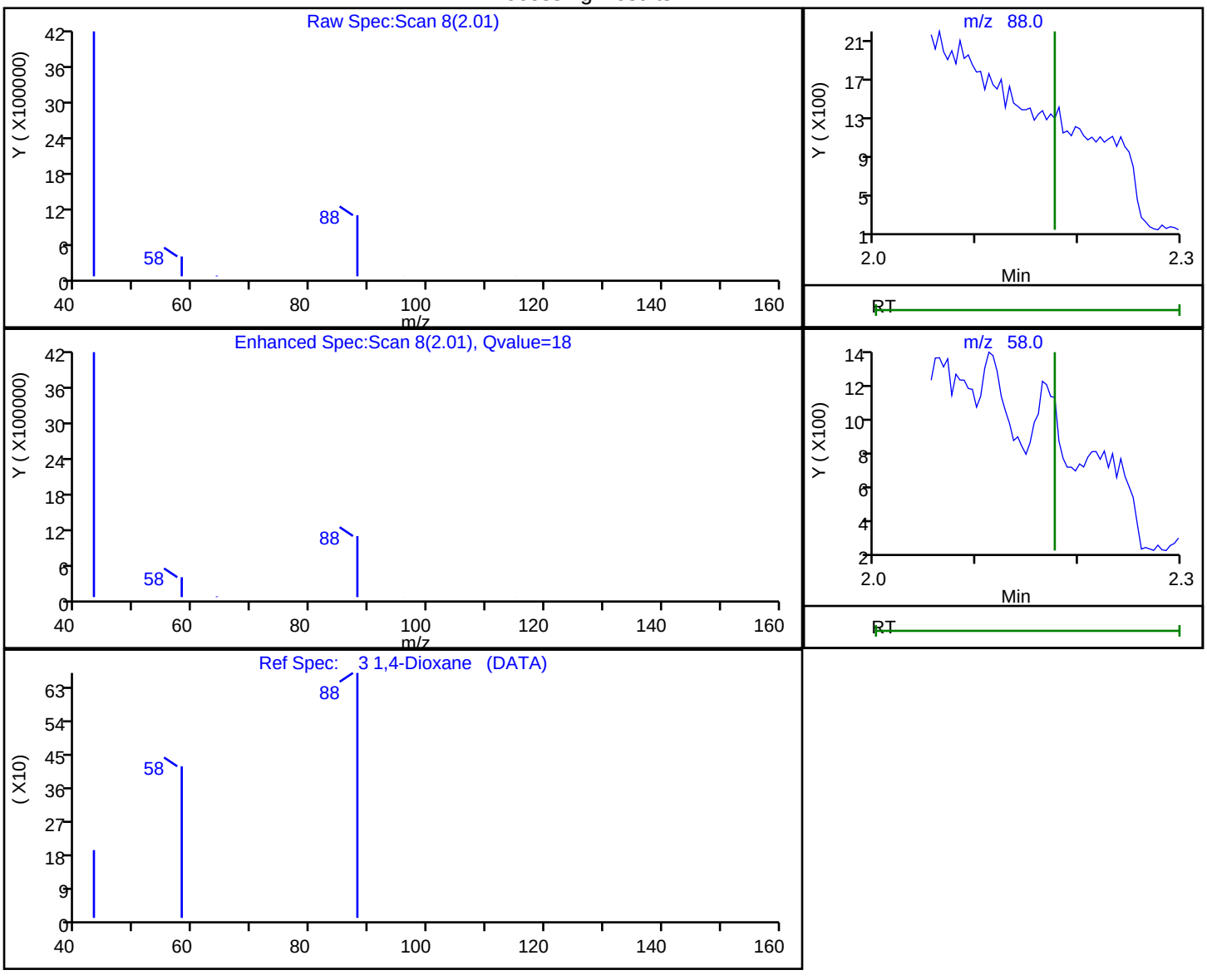
User Disabled Compound Report

TestAmerica Buffalo

Data File:	\\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310945.D				
Injection Date:	25-Aug-2018 04:54:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-B-8-A	Lab Sample ID:	480-140615-8		
Client ID:	EB-01				
Operator ID:	DR	ALS Bottle#:	37	Worklist Smp#:	7
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
2.01	88.00	1070551	87.928319
2.01	58.00	333845	

Reviewer: richardsd, 27-Aug-2018 11:23:59

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.: 480-140615-1

SDG No.:

Client Sample ID: MH-01 | Lab Sample ID: 480-140615-9

Matrix: Water | Lab File ID: U3310988.D

Analysis Method: 8270D SIM ID | Date Collected: 08/15/2018 14:00

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 1000(mL) | Date Analyzed: 08/27/2018 15:02

Con. Extract Vol.: 1(mL) | Dilution Factor: 5

Injection Volume: 1(uL) | Level: (low/med) Low

% Moisture: | GPC Cleanup:(Y/N) N

Analysis Batch No.: 431595 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	6.4	E	1.0	0.50

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\20180827-74205.b\U3310988.D
Lims ID: 480-140615-A-9-A
Client ID: MH-01
Sample Type: Client
Inject. Date: 27-Aug-2018 15:02:30 ALS Bottle#: 6 Worklist Smp#: 6
Injection Vol: 1.0 ul Dil. Factor: 5.0000
Sample Info: 480-0074205-006
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 29-Aug-2018 11:30:07 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK019

First Level Reviewer: richardsd Date: 27-Aug-2018 15:50:18

	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	2.156	2.140	0.016	99	16828	0.5612	28.1	
	3 1,4-Dioxane	88	2.185	2.164	0.021	96	11793	1.29		E
*	2 1,4-Dichlorobenzene-d4	152	5.542	5.542	0.000	93	247088	4.00		

QC Flag Legend

Processing Flags
E - Exceeded Maximum Amount

Reagents:

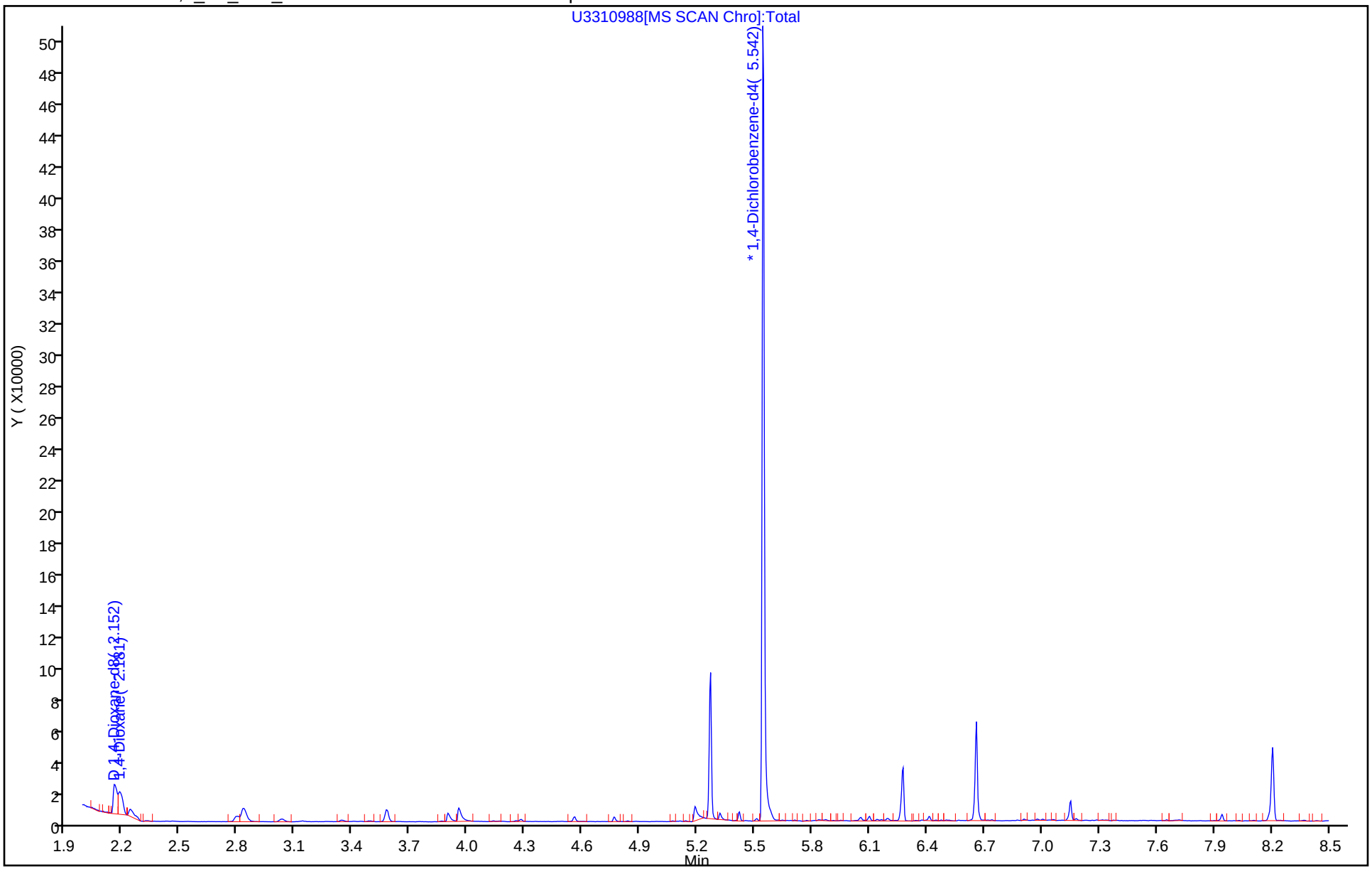
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 29-Aug-2018 11:30:12 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310988.D

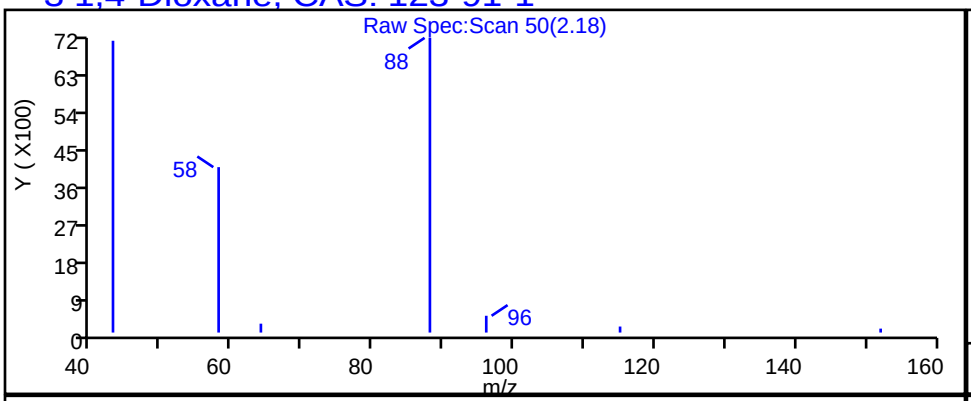
Injection Date:	27-Aug-2018 15:02:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	480-140615-A-9-A	Lab Sample ID:	480-140615-9	Worklist Smp#:	6
Client ID:	MH-01				
Injection Vol:	1.0 ul	Dil. Factor:	5.0000	ALS Bottle#:	6
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		

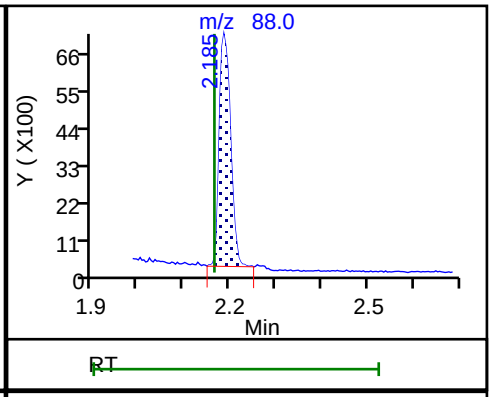


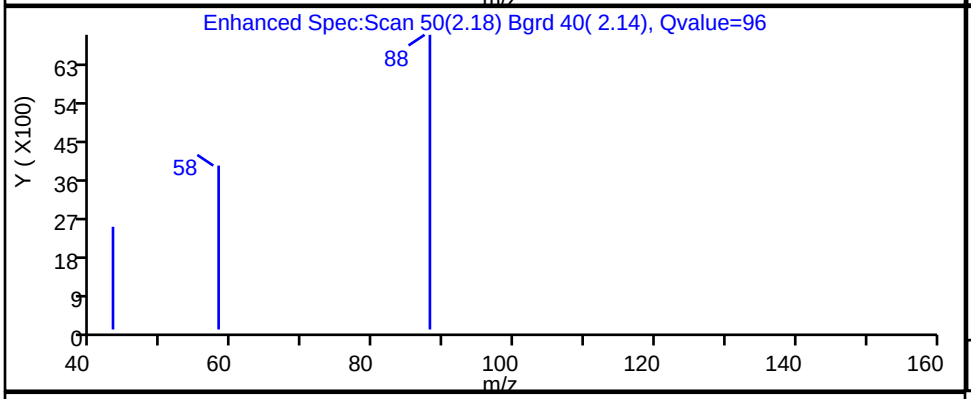
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310988.D

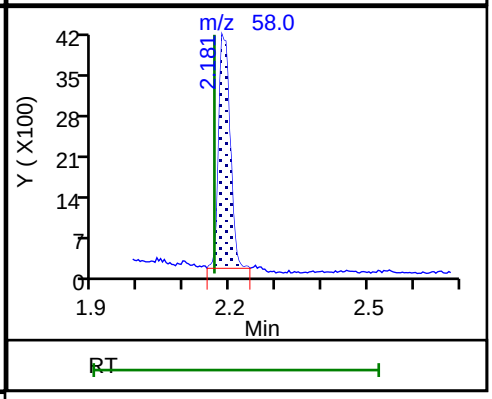
Injection Date:	27-Aug-2018 15:02:30	Instrument ID:	HP5973U
Lims ID:	480-140615-A-9-A	Lab Sample ID:	480-140615-9
Client ID:	MH-01		
Operator ID:	DR	ALS Bottle#:	6 Worklist Smp#: 6
Injection Vol:	1.0 ul	Dil. Factor:	5.0000
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL
Column:		Detector	MS SCAN

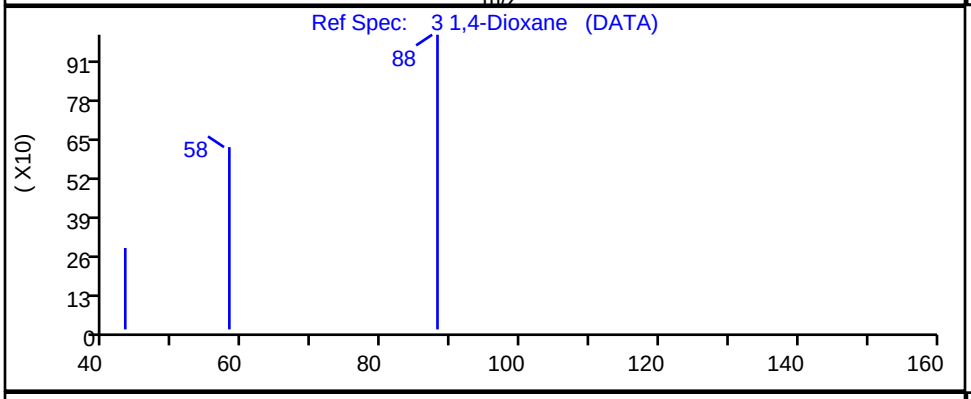
3 1,4-Dioxane, CAS: 123-91-1

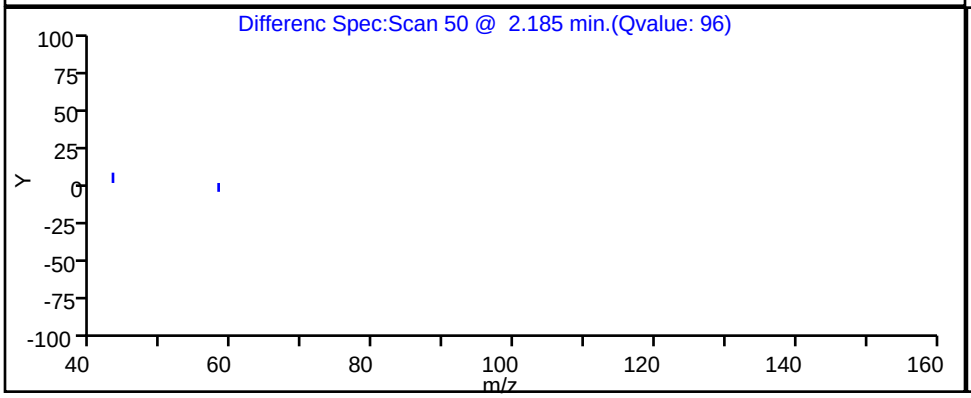


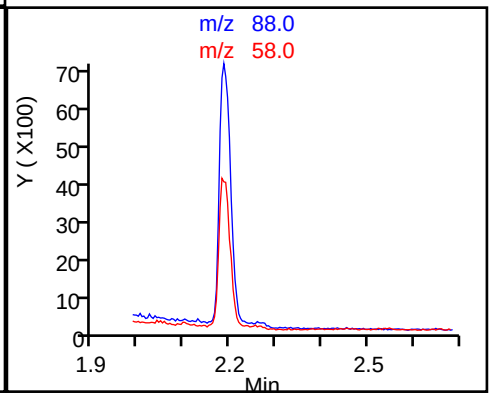








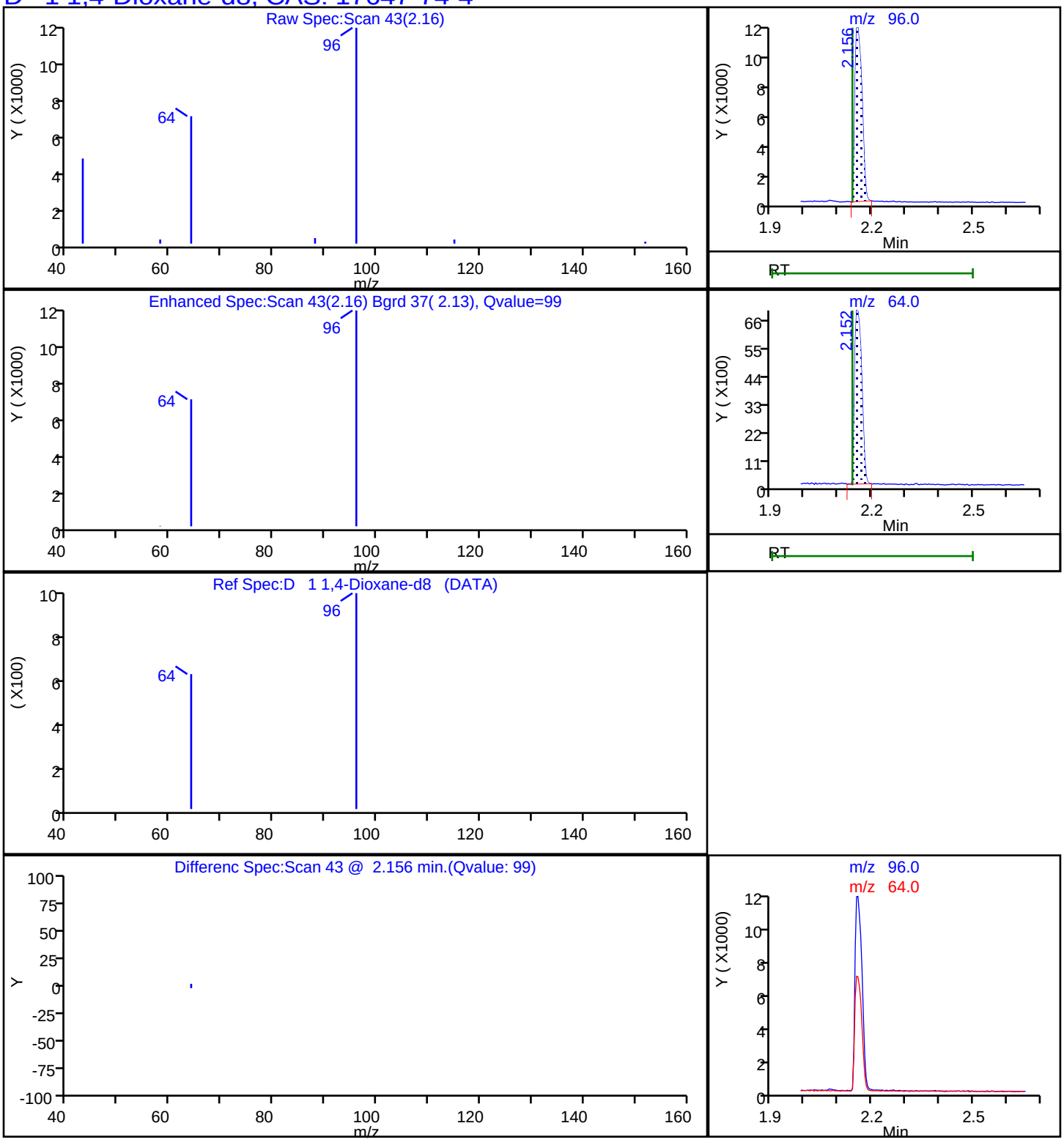




Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310988.D

Injection Date:	27-Aug-2018 15:02:30	Instrument ID:	HP5973U		
Lims ID:	480-140615-A-9-A	Lab Sample ID:	480-140615-9		
Client ID:	MH-01				
Operator ID:	DR	ALS Bottle#:	6	Worklist Smp#:	6
Injection Vol:	1.0 ul	Dil. Factor:	5.0000		
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 VI
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1 Analy Batch No.: 424045

SDG No.:

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

Calibration Start Date: 07/11/2018 18:42 Calibration End Date: 07/11/2018 20:42 Calibration ID: 34301

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 480-424045/3	U3309387.D
Level 2	ICIS 480-424045/5	U3309389.D
Level 3	IC 480-424045/6	U3309390.D
Level 4	IC 480-424045/7	U3309391.D
Level 5	IC 480-424045/8	U3309392.D
Level 6	IC 480-424045/4	U3309388.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	0.9779 1.0553	1.0802	1.0751	1.0742	1.0779	L2ID	-0.025	1.1068			0.0100				1.0000		0.9900
1,4-Dioxane-d8	0.4794 0.4907	0.4899	0.4884	0.4807	0.4834	Ave		0.4854			0.0100	1.0		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.: 480-140615-1 Analy Batch No.: 424045

SDG No.:

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

Calibration Start Date: 07/11/2018 18:42 Calibration End Date: 07/11/2018 20:42 Calibration ID: 34301

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 480-424045/3	U3309387.D
Level 2	ICIS 480-424045/5	U3309389.D
Level 3	IC 480-424045/6	U3309390.D
Level 4	IC 480-424045/7	U3309391.D
Level 5	IC 480-424045/8	U3309392.D
Level 6	IC 480-424045/4	U3309388.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		L2ID	7707 16928	29697	35587	43653	50828	0.200 0.400	0.600	0.800	1.00	1.20
1,4-Dioxane-d8	DCBd 4	Ave	78809 160410	274931	331002	406370	471566	2.00 4.00	6.00	8.00	10.0	12.0

Curve Type Legend:

Ave = Average ISTD
L2ID = Linear 1/conc^2 IsoDil

FORM VI
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1 Analy Batch No.: 424045

SDG No.:

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

Calibration Start Date: 07/11/2018 18:42 Calibration End Date: 07/11/2018 20:42 Calibration ID: 34301

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 480-424045/3	U3309387.D
Level 2	ICIS 480-424045/5	U3309389.D
Level 3	IC 480-424045/6	U3309390.D
Level 4	IC 480-424045/7	U3309391.D
Level 5	IC 480-424045/8	U3309392.D
Level 6	IC 480-424045/4	U3309388.D

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
1,4-Dioxane	-0.6	1.3	-0.1	-0.7	-0.8	0.9	30	30	30	30	30	30
1,4-Dioxane-d8	-1.2	0.9	0.6	-1.0	-0.4	1.1	30	30	30	30	30	30

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309387.D
Lims ID: IC - SIM 0.2
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 11-Jul-2018 18:42:30 ALS Bottle#: 3 Worklist Smp#: 3
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0073014-003
Operator ID: DR Instrument ID: HP5973U
Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 12-Jul-2018 11:01:30 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 11-Jul-2018 20:15:02

	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	2.592	2.588	0.004	98	78809	2.00	1.98	
	3 1,4-Dioxane	88	2.633	2.625	0.008	99	7707	0.2000	0.1989	
*	2 1,4-Dichlorobenzene-d4	152	5.840	5.840	0.000	99	328765	4.00	4.00	

Reagents:

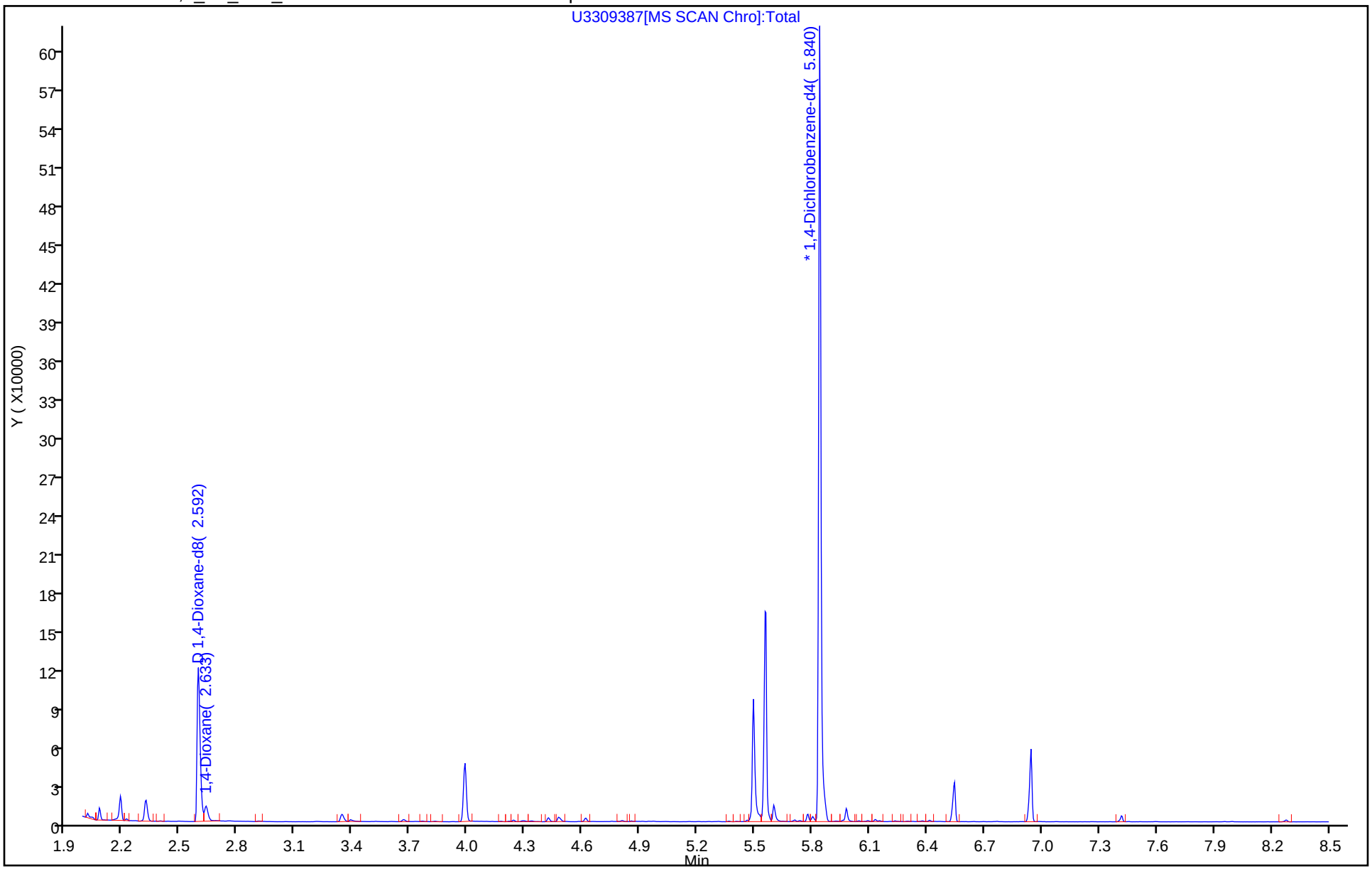
MB_1,4SIM_WRK_00053 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00149 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 12-Jul-2018 11:01:30 Chrom Revision: 2.2 07-Jun-2018 07:41:54

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309387.D

Injection Date:	11-Jul-2018 18:42:30	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\20180711-73014.b\U3309388.D
Lims ID: IC - SIM 0.4
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 11-Jul-2018 19:06:30 ALS Bottle#: 4 Worklist Smp#: 4
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0073014-004
Operator ID: DR Instrument ID: HP5973U
Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 12-Jul-2018 11:01:31 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 11-Jul-2018 20:15:06

	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	2.600	2.588	0.012	99	160410	4.00	4.04	
	3 1,4-Dioxane	88	2.637	2.625	0.012	99	16928	0.4000	0.4035	
*	2 1,4-Dichlorobenzene-d4	152	5.840	5.840	0.000	99	326903	4.00	4.00	

Reagents:

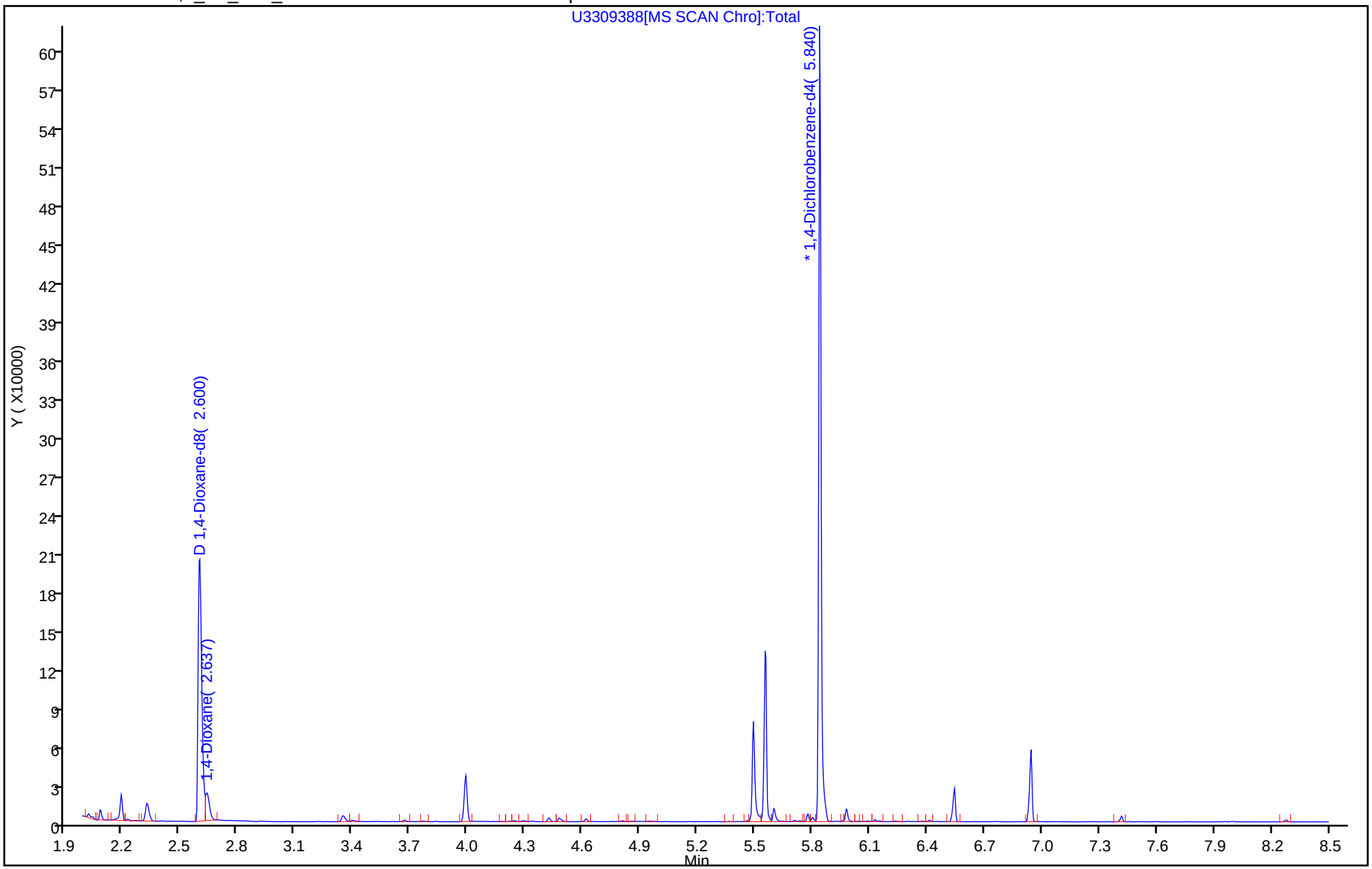
MB_1,4SIM_WRK_00054 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00149 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 12-Jul-2018 11:01:31 Chrom Revision: 2.2 07-Jun-2018 07:41:54

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309388.D

Injection Date:	11-Jul-2018 19:06:30	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\20180711-73014.b\U3309389.D
Lims ID: ICIS - SIM 0.6
Client ID:
Sample Type: ICIS Calib Level: 3
Inject. Date: 11-Jul-2018 19:30:30 ALS Bottle#: 5 Worklist Smp#: 5
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0073014-005
Operator ID: DR Instrument ID: HP5973U
Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 12-Jul-2018 11:01:32 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 11-Jul-2018 20:15:09

	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	2.596	2.596	0.000	99	274931	6.00	6.06	
	3 1,4-Dioxane	88	2.633	2.633	0.000	97	29697	0.6000	0.6077	
*	2 1,4-Dichlorobenzene-d4	152	5.840	5.840	0.000	99	374104	4.00	4.00	

Reagents:

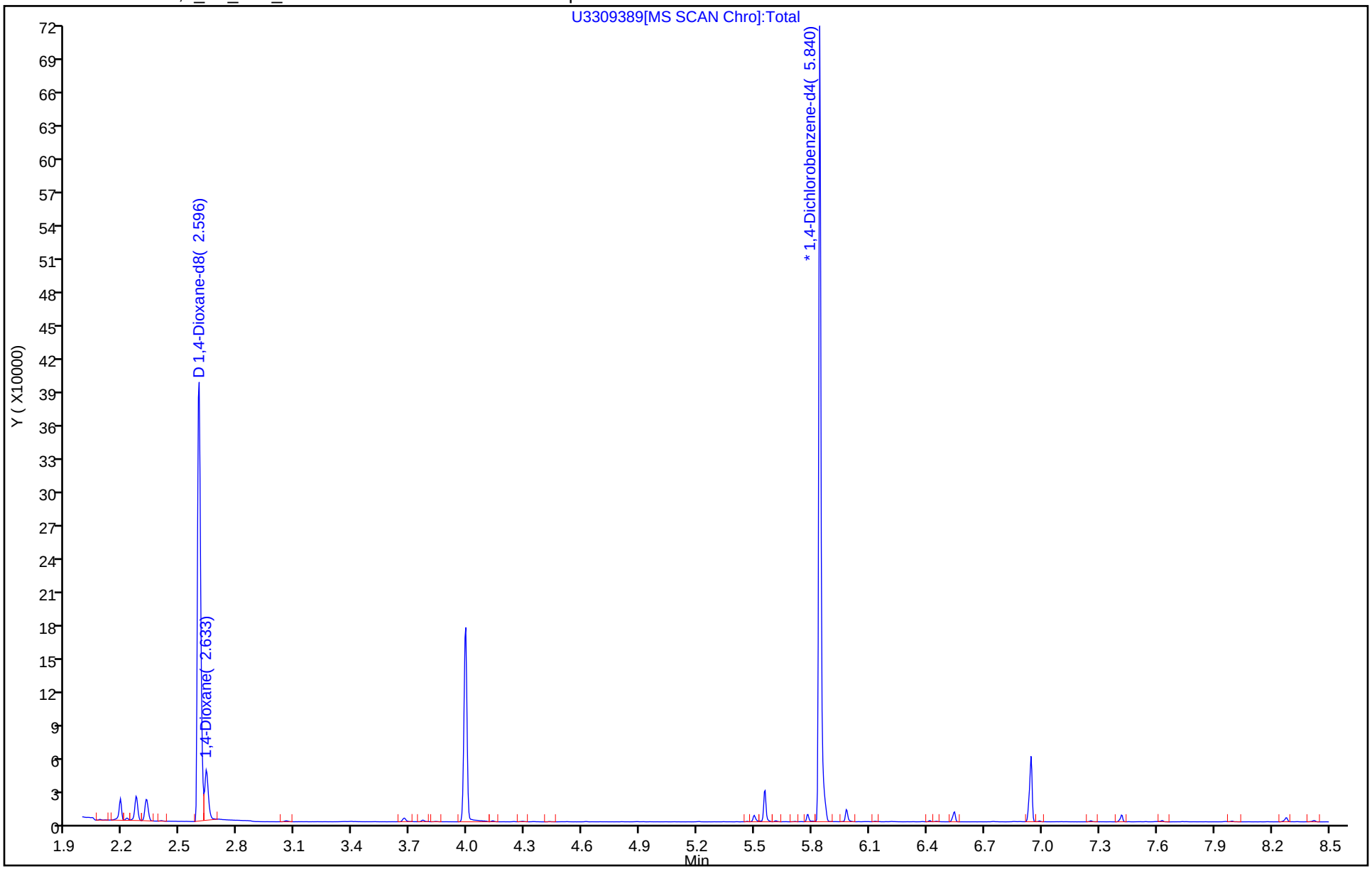
MB_1,4SIM_WRK_00055 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00149 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 12-Jul-2018 11:01:33 Chrom Revision: 2.2 07-Jun-2018 07:41:54

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309389.D

Injection Date:	11-Jul-2018 19:30:30	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\20180711-73014.b\U3309390.D
Lims ID: IC - SIM 0.8
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 11-Jul-2018 19:54:30 ALS Bottle#: 6 Worklist Smp#: 6
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0073014-006
Operator ID: DR Instrument ID: HP5973U
Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 12-Jul-2018 11:01:34 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 11-Jul-2018 20:15:13

	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	2.592	2.596	-0.004	98	331002	8.00	8.05	
	3 1,4-Dioxane	88	2.633	2.633	0.000	99	35587	0.8000	0.7992	
*	2 1,4-Dichlorobenzene-d4	152	5.840	5.840	0.000	99	338883	4.00	4.00	

Reagents:

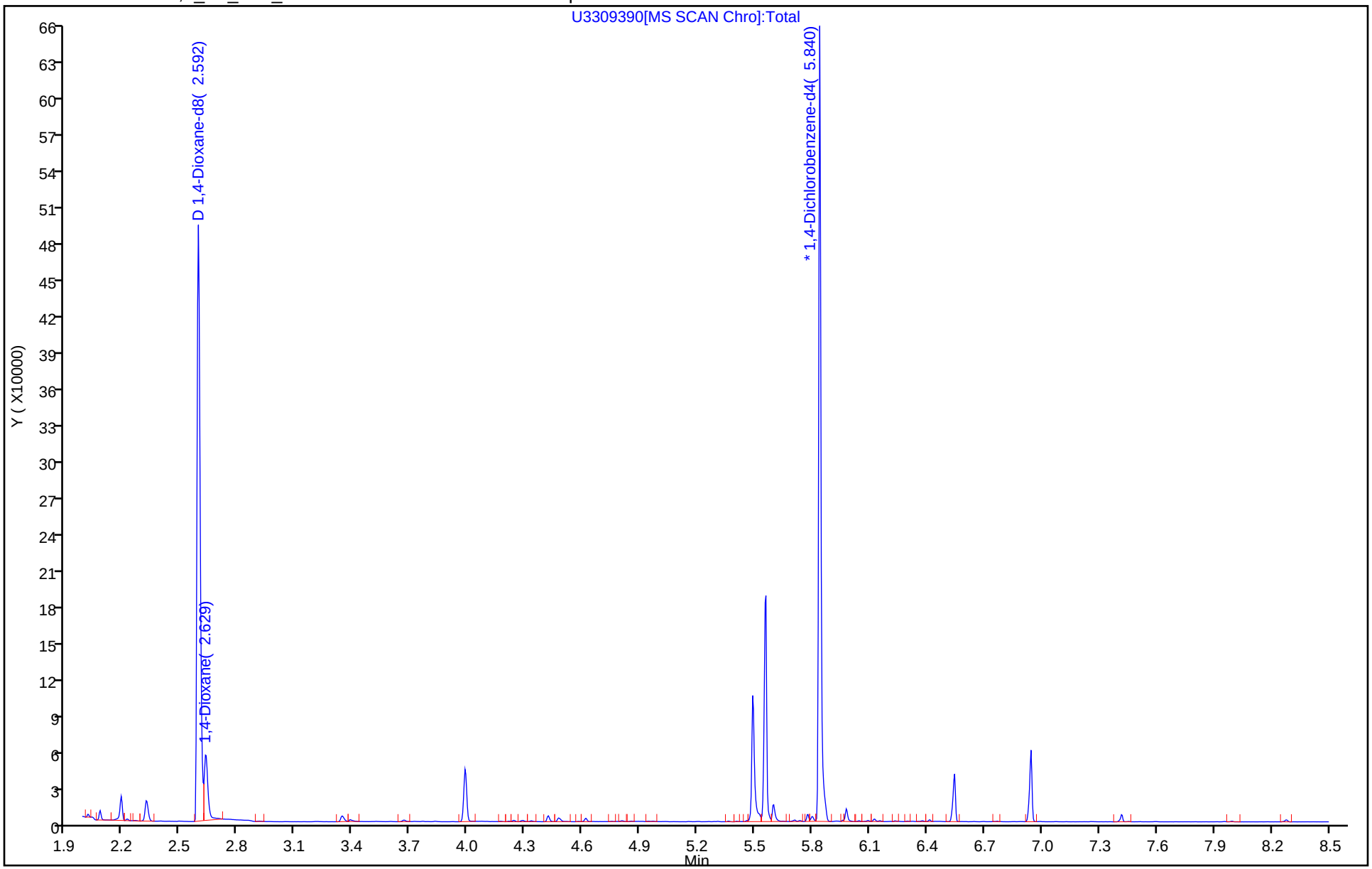
MB_1,4SIM_WRK_00056 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00149 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 12-Jul-2018 11:01:34 Chrom Revision: 2.2 07-Jun-2018 07:41:54

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309390.D

Injection Date:	11-Jul-2018 19:54:30	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\20180711-73014.b\U3309391.D
Lims ID: IC - SIM 1.0
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 11-Jul-2018 20:18:30 ALS Bottle#: 7 Worklist Smp#: 7
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0073014-007
Operator ID: DR Instrument ID: HP5973U
Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 12-Jul-2018 11:01:35 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 12-Jul-2018 11:00:28

	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	2.592	2.596	-0.004	97	406370	10.0	9.90	
	3 1,4-Dioxane	88	2.633	2.633	0.000	100	43653	1.00	0.99	
*	2 1,4-Dichlorobenzene-d4	152	5.840	5.840	0.000	98	338149	4.00	4.00	

Reagents:

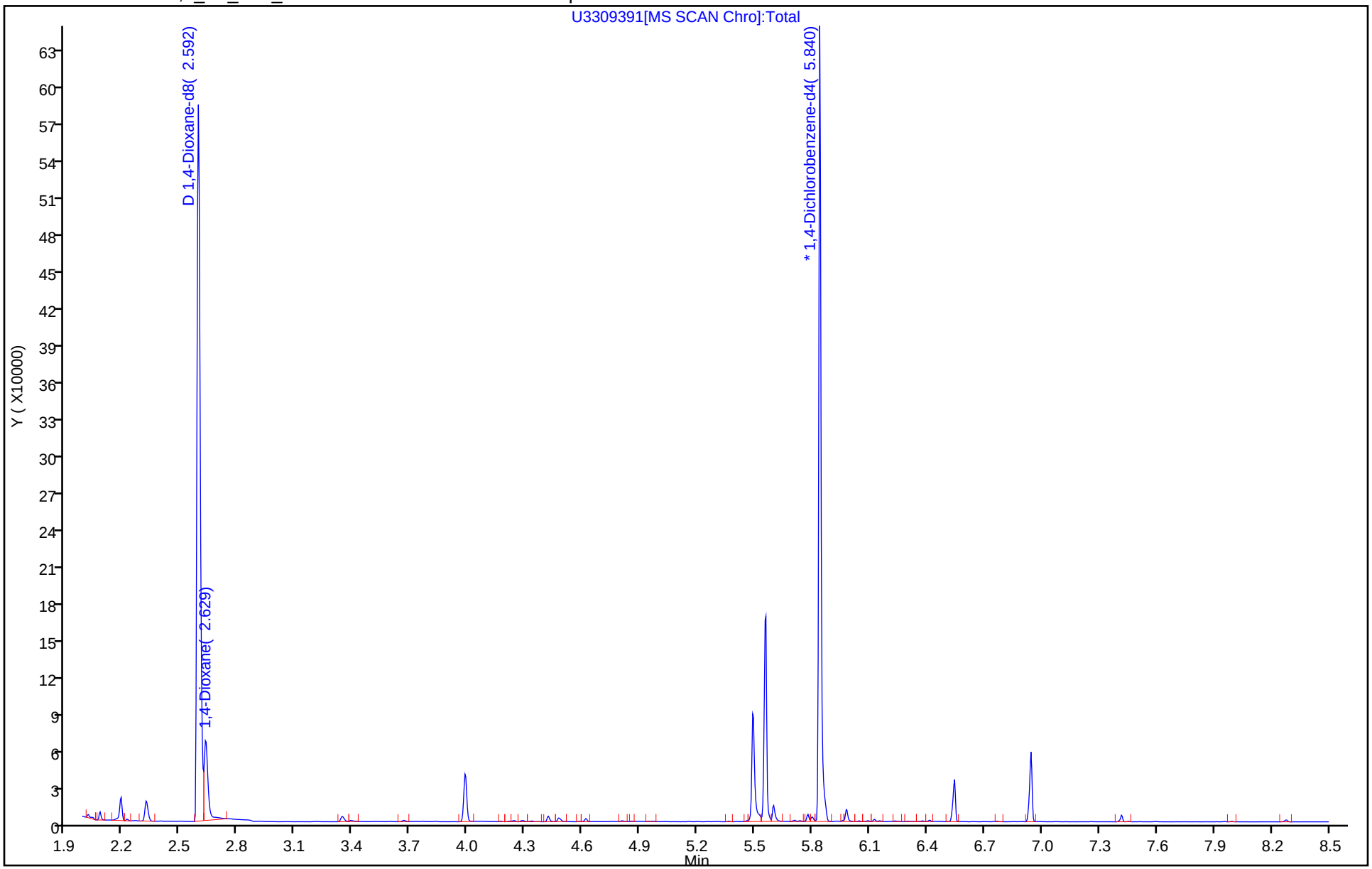
MB_1,4SIM_WRK_00057 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00149 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 12-Jul-2018 11:01:35 Chrom Revision: 2.2 07-Jun-2018 07:41:54

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309391.D

Injection Date:	11-Jul-2018 20:18:30	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\20180711-73014.b\U3309392.D
Lims ID: IC - SIM 1.2
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 11-Jul-2018 20:42:30 ALS Bottle#: 8 Worklist Smp#: 8
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0073014-008
Operator ID: DR Instrument ID: HP5973U
Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 12-Jul-2018 11:01:36 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 12-Jul-2018 11:00:32

	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	2.588	2.596	-0.008	98	471566	12.0	11.9	
	3 1,4-Dioxane	88	2.625	2.633	-0.008	98	50828	1.20	1.19	
*	2 1,4-Dichlorobenzene-d4	152	5.840	5.840	0.000	99	325204	4.00	4.00	

Reagents:

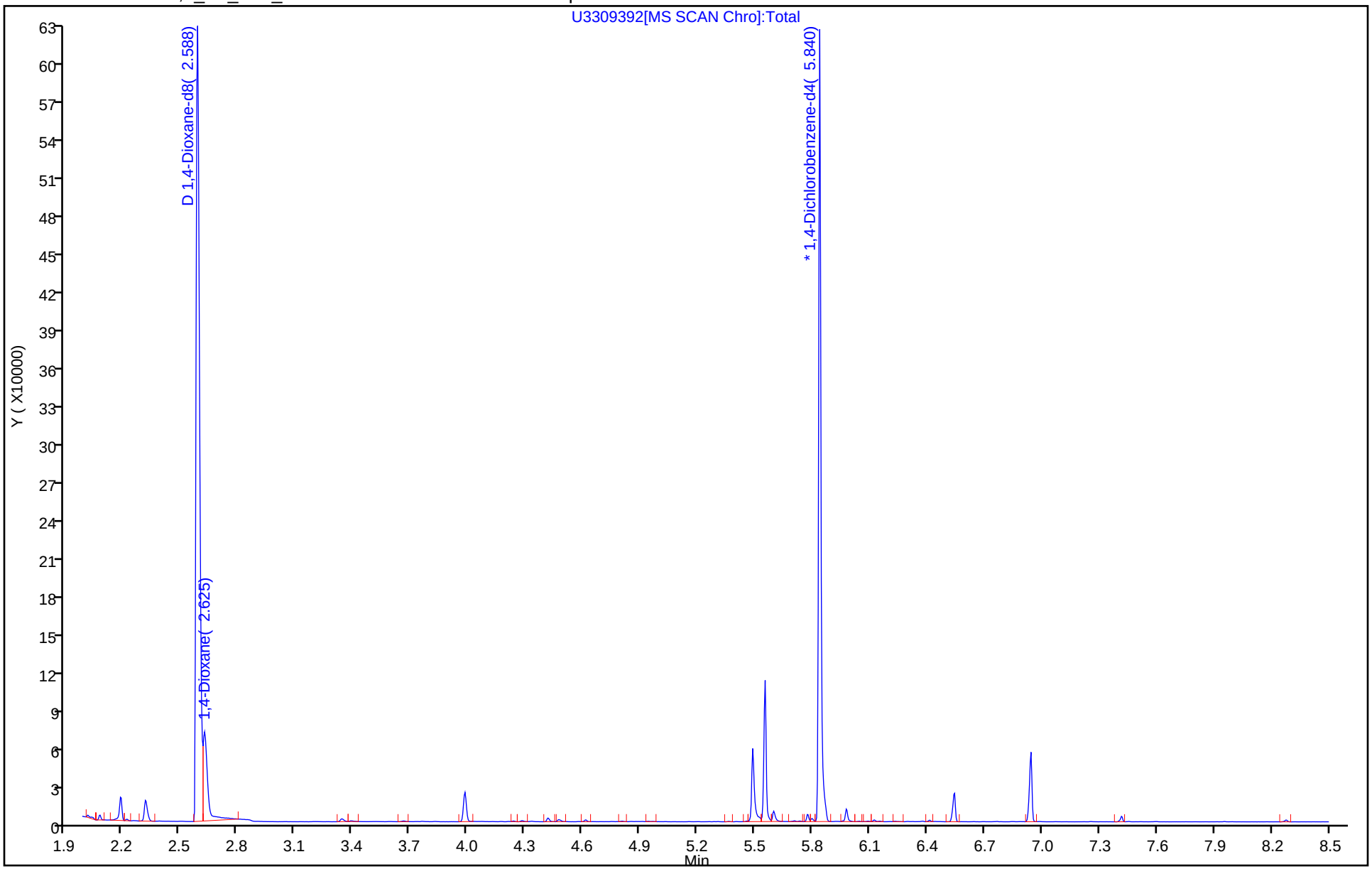
MB_1,4SIM_WRK_00058 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00149 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 12-Jul-2018 11:01:36 Chrom Revision: 2.2 07-Jun-2018 07:41:54

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Injection Date:	11-Jul-2018 20:42:30	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.: 480-140615-1

SDG No.:

Lab Sample ID: ICV 480-424045/9 Calibration Date: 07/11/2018 21:06

Instrument ID: HP5973U Calib Start Date: 07/11/2018 18:42

GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm) Calib End Date: 07/11/2018 20:42

Lab File ID: U3309393.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	L2ID		1.034	0.0100	583	600	-2.9	20.0
1,4-Dioxane-d8	Ave	0.4854	0.4713	0.0100	5830	6000	-2.9	20.0

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309393.D
Lims ID: ICV - SIM
Client ID:
Sample Type: ICV
Inject. Date: 11-Jul-2018 21:06:30 ALS Bottle#: 9 Worklist Smp#: 9
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0073014-009
Operator ID: DR Instrument ID: HP5973U
Sublist:

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 12-Jul-2018 11:01:36 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 12-Jul-2018 11:00:35

	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	2.596	2.588	0.008	99	235283	6.00	5.83	
	3 1,4-Dioxane	88	2.633	2.625	0.008	99	24326	0.6000	0.5826	
*	2 1,4-Dichlorobenzene-d4	152	5.840	5.840	0.000	98	332798	4.00	4.00	

Reagents:

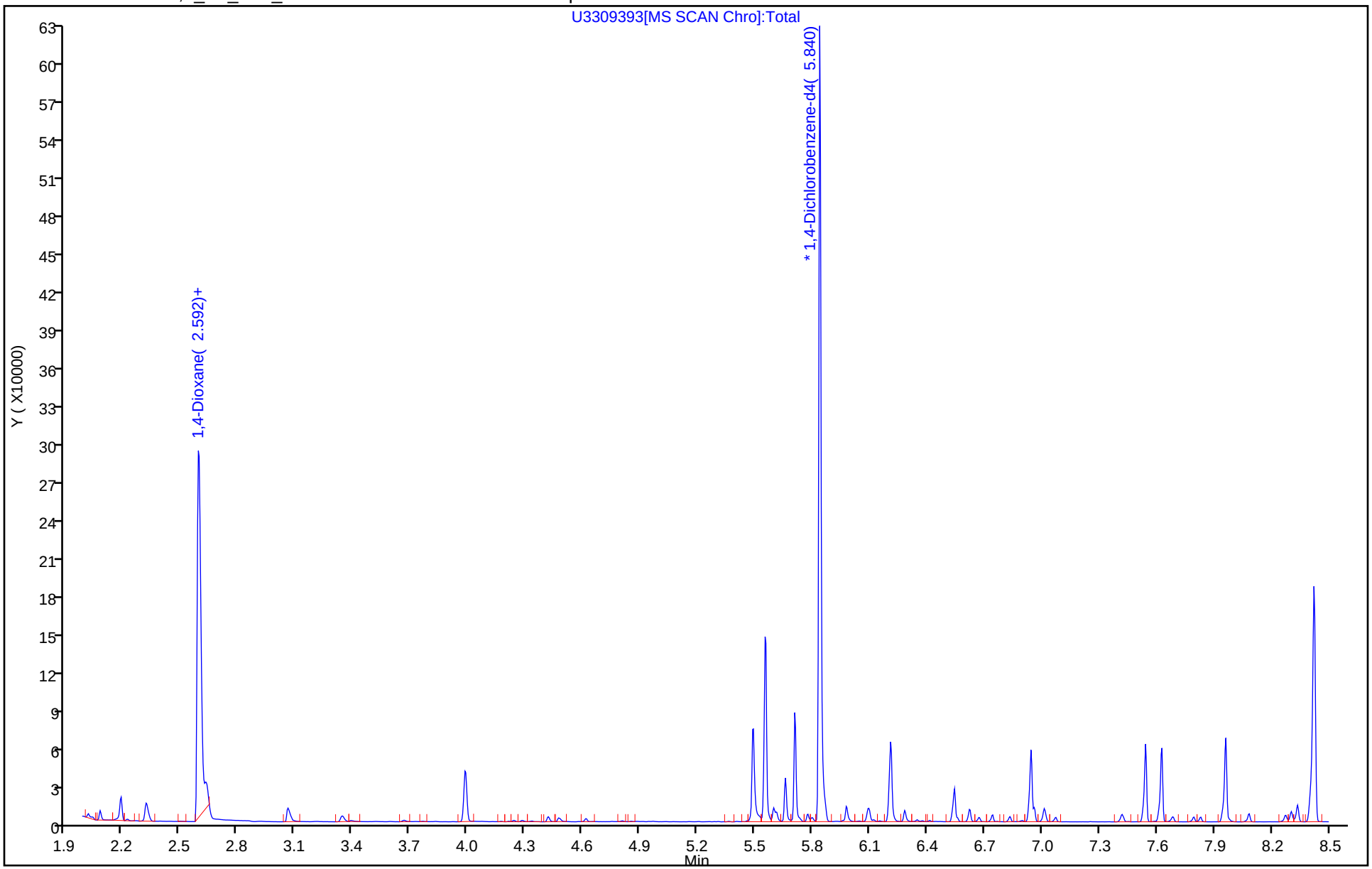
MB_SIMSS_WRK_00008 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00149 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 12-Jul-2018 11:02:17 Chrom Revision: 2.2 07-Jun-2018 07:41:54

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309393.D

Injection Date:	11-Jul-2018 21:06:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	ICV - SIM			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		



FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Lab Sample ID: CCVIS 480-431347/3 Calibration Date: 08/24/2018 15:28

Instrument ID: HP5973U Calib Start Date: 07/11/2018 18:42

GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm) Calib End Date: 07/11/2018 20:42

Lab File ID: U3310911.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	L2ID		1.056	0.0100	595	600	-0.9	20.0
1,4-Dioxane-d8	Ave	0.4854	0.4283	0.0100	5290	6000	-11.8	20.0

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310911.D
Lims ID: CCVIS
Client ID:
Sample Type: CCVIS
Inject. Date: 24-Aug-2018 15:28:30 ALS Bottle#: 3 Worklist Smp#: 3
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074162-003
Operator ID: DR Instrument ID: HP5973U
Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:34:05 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 24-Aug-2018 15:47:01

	Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
	3 1,4-Dioxane	88	2.177	2.177	0.000	97	21622	0.6000	0.5946	
D	1 1,4-Dioxane-d8	96	2.144	2.217	-0.073	100	204763	6.00	5.29	
*	2 1,4-Dichlorobenzene-d4	152	5.547	5.547	0.000	94	318708	4.00	4.00	

Reagents:

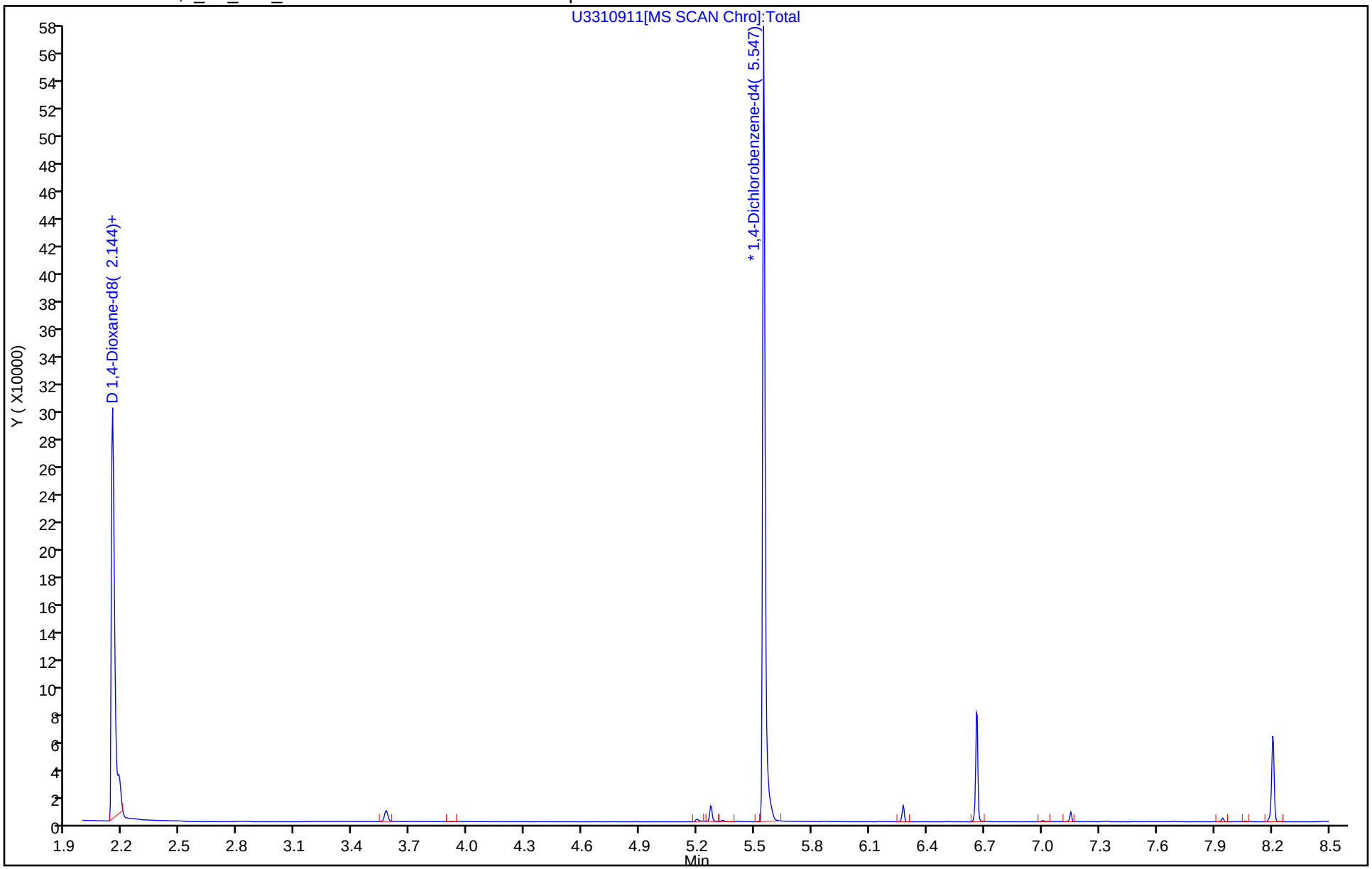
MB_1,4SIM_WRK_00059 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:34:05 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310911.D

Injection Date:	24-Aug-2018 15:28:30	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		



FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Lab Sample ID: CCVIS 480-431348/3 Calibration Date: 08/25/2018 03:21

Instrument ID: HP5973U Calib Start Date: 07/11/2018 18:42

GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm) Calib End Date: 07/11/2018 20:42

Lab File ID: U3310941.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	L2ID		0.9885	0.0100	558	600	-7.0	20.0
1,4-Dioxane-d8	Ave	0.4854	0.4489	0.0100	5550	6000	-7.5	20.0

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310941.D
Lims ID: CCVIS
Client ID:
Sample Type: CCVIS
Inject. Date: 25-Aug-2018 03:21:30 ALS Bottle#: 33 Worklist Smp#: 3
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074163-003
Operator ID: DR Instrument ID: HP5973U
Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:32:57 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:23:24

	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	2.140	2.144	-0.004	100	193444	6.00	5.55	
	3 1,4-Dioxane	88	2.177	2.177	0.000	95	19121	0.6000	0.5580	
*	2 1,4-Dichlorobenzene-d4	152	5.542	5.542	0.000	94	287316	4.00	4.00	

Reagents:

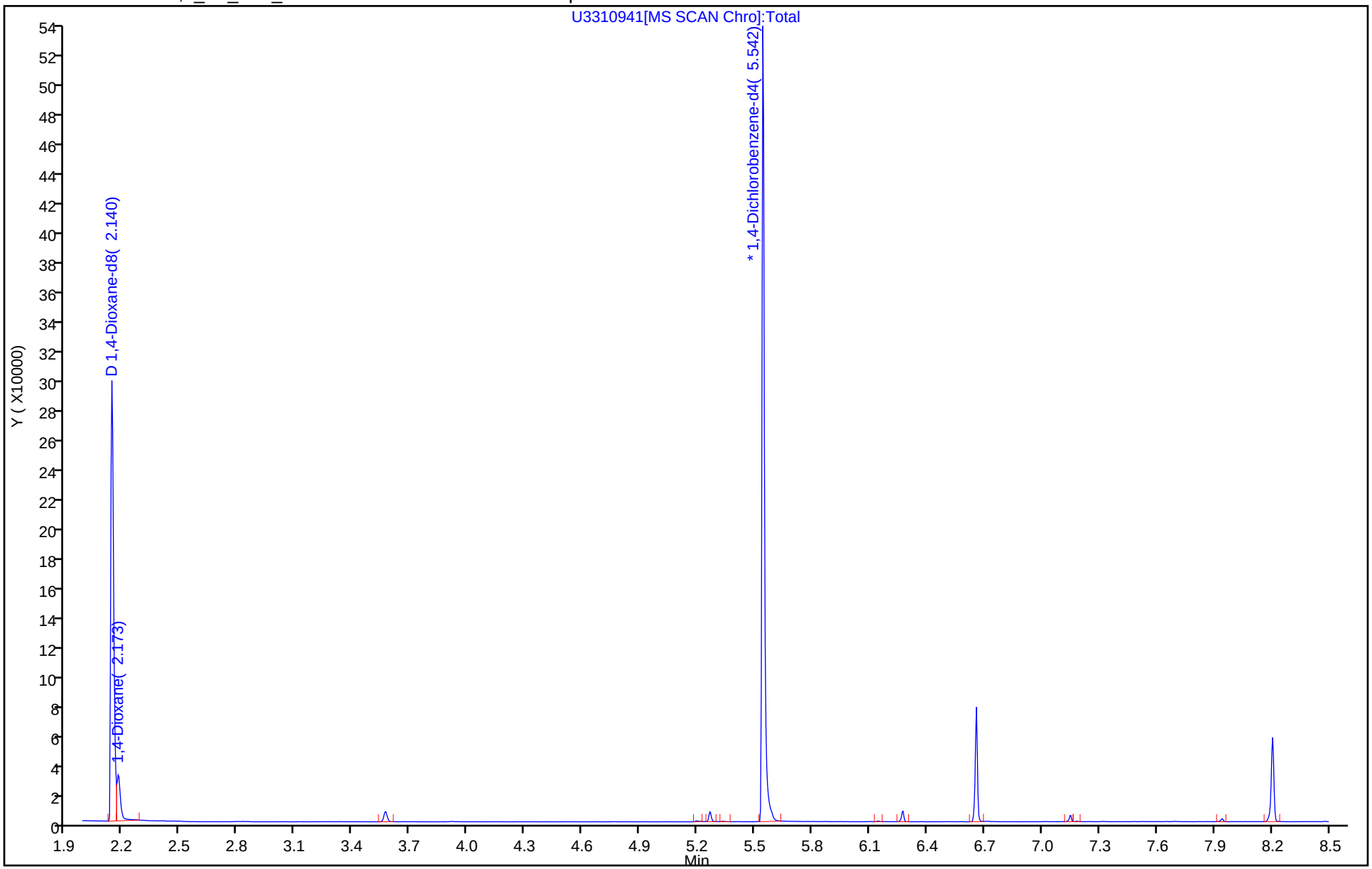
MB_1,4SIM_WRK_00059 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:32:58 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310941.D

Injection Date:	25-Aug-2018 03:21:30	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#:	33
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.: 480-140615-1

SDG No.:

Lab Sample ID: CCVIS 480-431595/3 Calibration Date: 08/27/2018 13:52

Instrument ID: HP5973U Calib Start Date: 07/11/2018 18:42

GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm) Calib End Date: 07/11/2018 20:42

Lab File ID: U3310985.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	L2ID		0.9908	0.0100	559	600	-6.8	20.0
1,4-Dioxane-d8	Ave	0.4854	0.4492	0.0100	5550	6000	-7.5	20.0

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310985.D
Lims ID: CCVIS
Client ID:
Sample Type: CCVIS
Inject. Date: 27-Aug-2018 13:52:30 ALS Bottle#: 3 Worklist Smp#: 3
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074205-003
Operator ID: DR Instrument ID: HP5973U
Sublist: chrom-1,4_Dx_SIM_HP5973U*sub1

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 29-Aug-2018 11:30:07 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK019

First Level Reviewer: richardsd Date: 27-Aug-2018 15:23:21

	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	2.128	2.140	-0.012	100	163243	6.00	5.55	
	3 1,4-Dioxane	88	2.164	2.164	0.000	94	16174	0.6000	0.5593	
*	2 1,4-Dichlorobenzene-d4	152	5.542	5.542	0.000	95	242272	4.00	4.00	

Reagents:

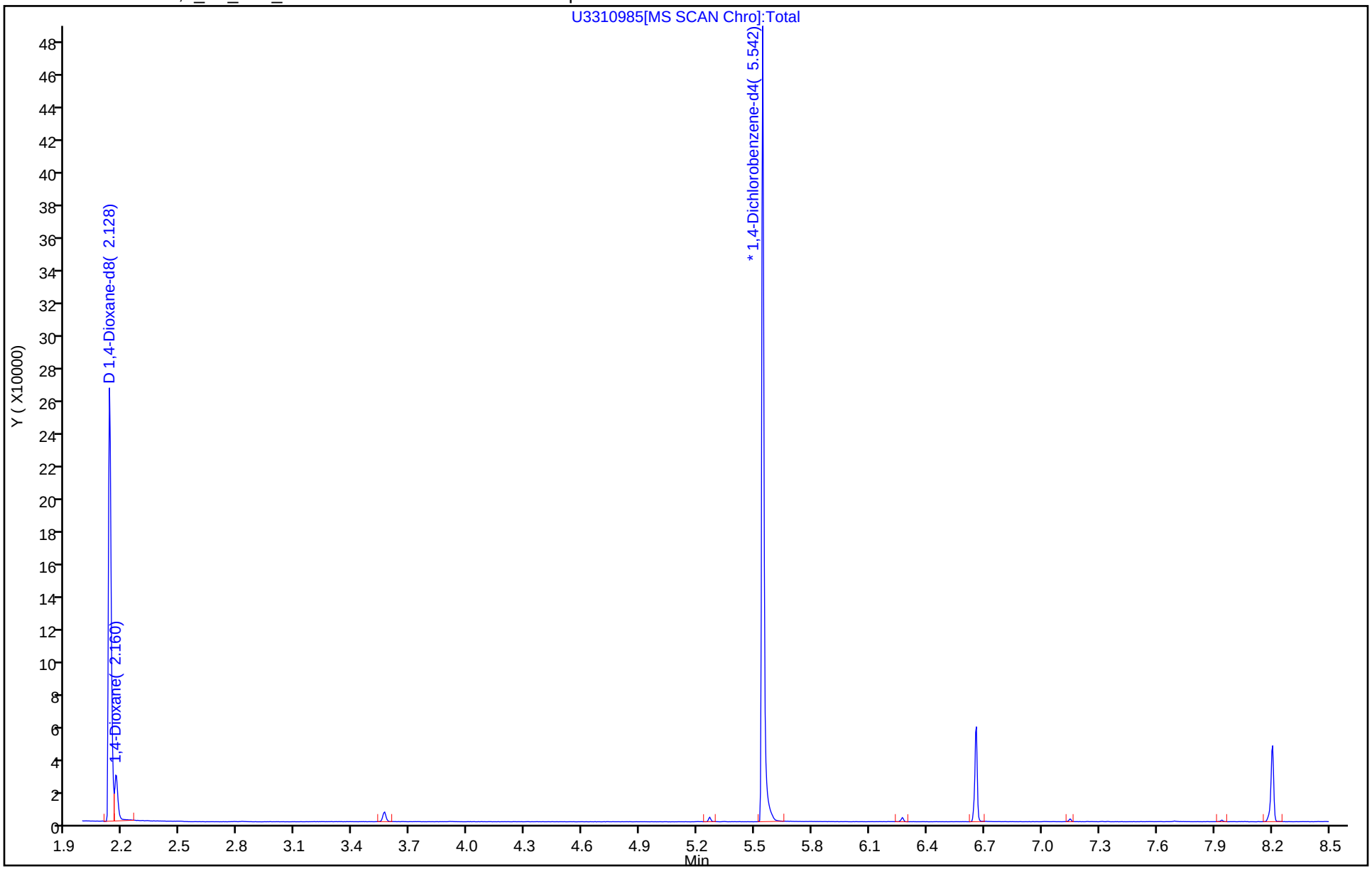
MB_1,4SIM_WRK_00059 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 29-Aug-2018 11:30:08 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310985.D

Injection Date:	27-Aug-2018 13:52:30	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\20180711-73014.b\U3309386.D
Lims ID: DFTPP
Client ID:
Sample Type: DFTPP
Inject. Date: 11-Jul-2018 18:14:30 ALS Bottle#: 2 Worklist Smp#: 2
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0073014-002
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 12-Jul-2018 11:02:18 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: Deconvolution ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 11-Jul-2018 19:10:47

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
* 2 1,4-Dichlorobenzene-d4	152		5.840				4.00	ND	
4 DFTPP									
7 4,4'-DDE	246		11.082					ND	
5 4,4'-DDD	235	11.227	11.227	0.000	93	1464			NR
6 4,4'-DDT	235	11.504	11.504	0.000	97	776818	NR		NR

QC Flag Legend

Processing Flags
NR - Missing Quant Standard

Reagents:

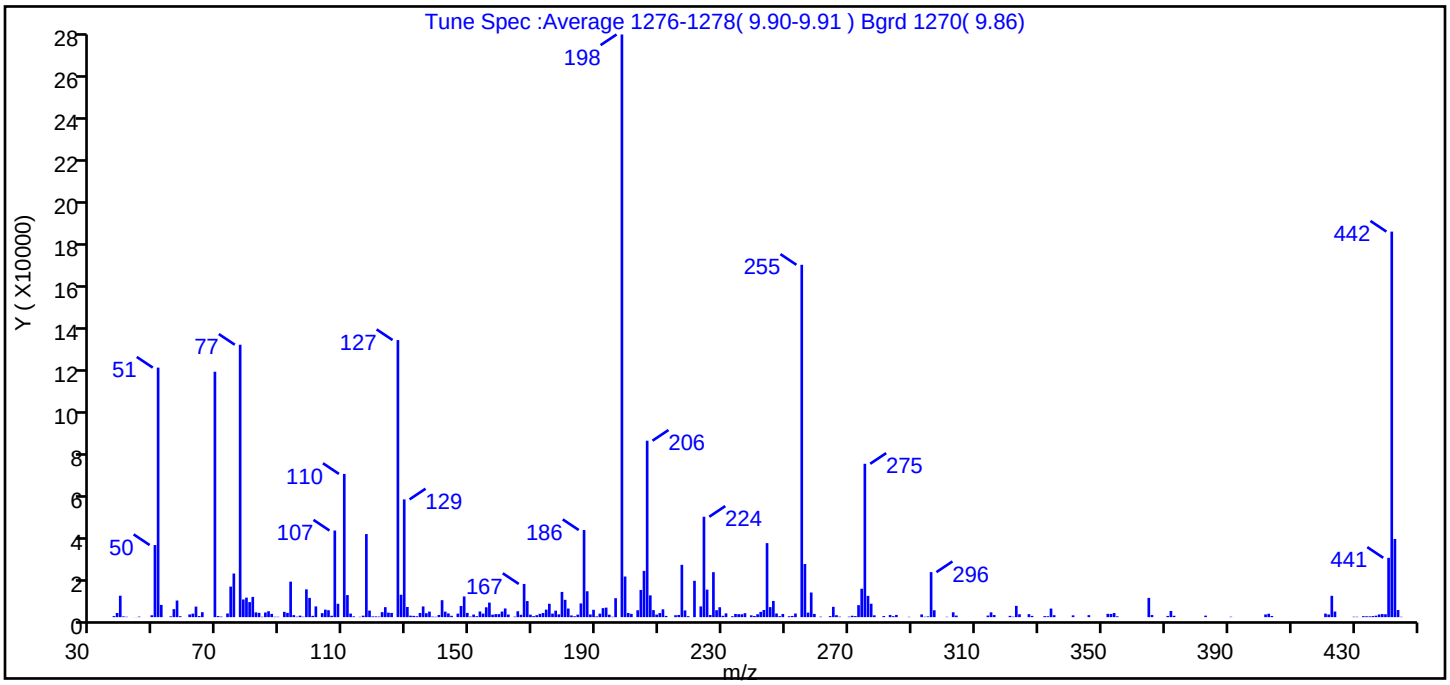
MB_DFTPP_WRK_00333 Amount Added: 1.00 Units: mL
MB_LLIS_WRK_00149 Amount Added: 20.00 Units: uL Run Reagent

MS Tune Report

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309386.D
Injection Date: 11-Jul-2018 18:14:30 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 (151.1)
51	10-80% of the base peak	42.8
68	<2% of mass 69	0.0 (0.0)
69	Present	42.1
70	<2% of mass 69	0.2 (0.4)
127	10-80% of the base peak	47.6
197	<2% of mass 198	0.0
199	5-9% of mass 198	7.0
275	10-60% of the base peak	26.3
365	>1% of mass 198	3.3
441	present but <24% of mass 442	10.2 (15.4)
442	base peak, or >50% of 198	66.2
443	15-24% of mass 442	13.4 (20.3)

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309386.D\1,4_Dx_SIM_HP5973U.rslt\spe
Injection Date: 11-Jul-2018 18:14:30
Spectrum: Tune Spec :Average 1276-1278(9.90-9.91) Bgrd 1270(9.86)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 268

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	511	121.00	275	191.00	1660	273.00	5720
38.00	1986	122.00	2378	192.00	4290	274.00	13526
39.00	10205	123.00	4750	193.00	4542	275.00	73040
40.00	357	124.00	2124	194.00	1155	276.00	10131
41.00	192	125.00	1998	195.00	185	277.00	6389
43.00	13	127.00	131968	196.00	9025	278.00	859
44.00	45	128.00	10671	198.00	277504	281.00	517
45.00	251	129.00	56080	199.00	19344	283.00	1040
49.00	889	130.00	4826	200.00	1994	284.00	465
50.00	34336	131.00	706	201.00	1560	285.00	1041
51.00	118840	132.00	613	203.00	3286	289.00	166
52.00	5825	133.00	411	204.00	12943	293.00	1295
55.00	368	134.00	1969	205.00	22032	294.00	192
56.00	3795	135.00	5089	206.00	84032	295.00	353
57.00	7913	136.00	1876	207.00	10377	296.00	21448
58.00	429	137.00	2638	208.00	3353	297.00	3275
61.00	1281	138.00	261	209.00	1215	301.00	170
62.00	1669	139.00	183	210.00	1951	303.00	2309
63.00	5025	140.00	1040	211.00	3724	304.00	741
64.00	510	141.00	8078	212.00	578	314.00	757
65.00	2353	142.00	2616	215.00	906	315.00	2286
69.00	116880	143.00	1773	216.00	1031	316.00	996
70.00	508	144.00	654	217.00	24912	321.00	615
71.00	257	146.00	1672	218.00	3200	322.00	214
73.00	1745	147.00	5311	219.00	460	323.00	5363
74.00	14543	148.00	9861	221.00	17304	324.00	1375
75.00	20768	149.00	2018	223.00	5107	327.00	1418
77.00	129744	150.00	270	224.00	47816	328.00	592
78.00	8427	151.00	1243	225.00	13089	332.00	484
79.00	9287	152.00	455	226.00	1005	333.00	435
80.00	7174	153.00	2705	227.00	21416	334.00	4093
81.00	9632	154.00	1689	228.00	3320	335.00	918
82.00	2266	155.00	4687	229.00	4715	341.00	852

Report Date: 12-Jul-2018 11:02:19 Chrom Revision: 2.2 07-Jun-2018 07:41:54
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309386.D\1,4_Dx_SIM_HP5973U.rslt\spe
Injection Date: 11-Jul-2018 18:14:30
Spectrum: Tune Spec :Average 1276-1278(9.90-9.91) Bgrd 1270(9.86)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 268

m/z	Y	m/z	Y	m/z	Y	m/z	Y
83.00	2046	156.00	6935	230.00	642	346.00	951
84.00	187	157.00	1181	231.00	1806	352.00	1578
85.00	2209	158.00	1431	233.00	436	353.00	1500
86.00	2823	159.00	1450	234.00	1531	354.00	1965
87.00	1544	160.00	2670	235.00	1421	355.00	384
88.00	195	161.00	4129	236.00	1372	365.00	9163
89.00	191	162.00	1244	237.00	1882	366.00	997
91.00	2515	164.00	245	239.00	864	371.00	577
92.00	2039	165.00	2802	240.00	525	372.00	2943
93.00	16896	166.00	1121	241.00	1379	373.00	651
94.00	951	167.00	15808	242.00	2508	383.00	718
95.00	231	168.00	7660	243.00	3416	391.00	191
96.00	716	169.00	1181	244.00	35256	402.00	1277
97.00	192	170.00	495	245.00	4786	403.00	1625
98.00	13242	171.00	933	246.00	7719	404.00	566
99.00	9169	172.00	1560	247.00	1755	421.00	1668
100.00	608	173.00	1959	248.00	452	422.00	1263
101.00	5111	174.00	3581	249.00	1506	423.00	10154
103.00	1902	175.00	6362	251.00	435	424.00	2667
104.00	3580	176.00	1699	252.00	569	430.00	199
105.00	3295	177.00	3092	253.00	1731	431.00	172
106.00	656	178.00	1324	255.00	167808	433.00	465
107.00	41248	179.00	12013	256.00	25296	434.00	417
108.00	6371	180.00	8244	257.00	2151	435.00	367
110.00	68216	181.00	4101	258.00	11735	436.00	512
111.00	10506	182.00	803	259.00	1533	437.00	690
112.00	1707	183.00	425	261.00	224	438.00	1277
113.00	369	184.00	1180	264.00	482	439.00	1455
115.00	174	185.00	6541	265.00	4907	440.00	1382
116.00	700	186.00	41488	266.00	928	441.00	28256
117.00	39576	187.00	12325	267.00	244	442.00	183616
118.00	3108	188.00	1281	270.00	238	443.00	37240
119.00	347	189.00	3506	271.00	657	444.00	3380
120.00	358	190.00	347	272.00	488	445.00	169

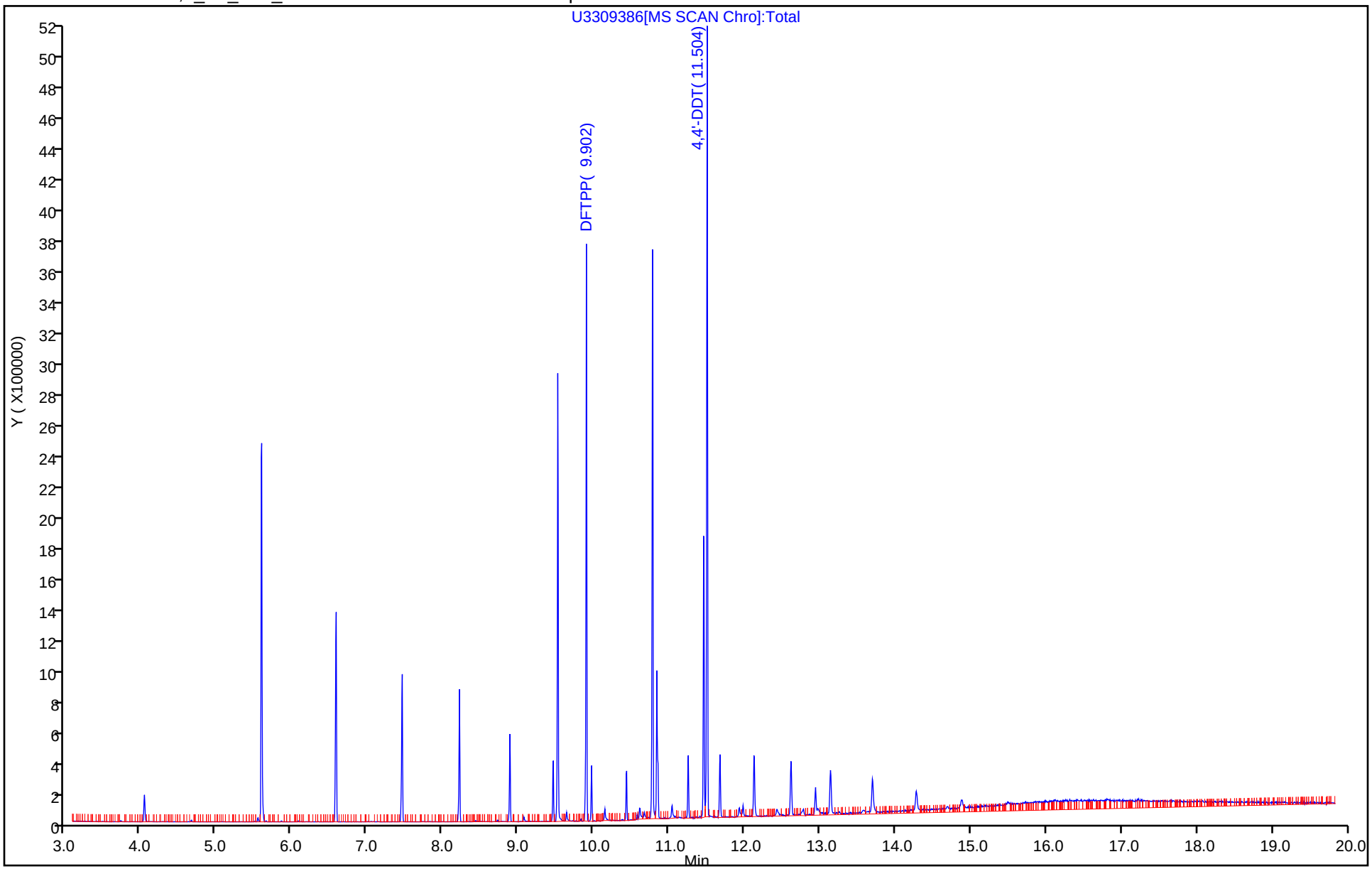
m/z	Y	m/z	Y	m/z	Y	m/z	Y
83.00	2046	156.00	6935	230.00	642	346.00	951
84.00	187	157.00	1181	231.00	1806	352.00	1578
85.00	2209	158.00	1431	233.00	436	353.00	1500
86.00	2823	159.00	1450	234.00	1531	354.00	1965
87.00	1544	160.00	2670	235.00	1421	355.00	384
88.00	195	161.00	4129	236.00	1372	365.00	9163
89.00	191	162.00	1244	237.00	1882	366.00	997
91.00	2515	164.00	245	239.00	864	371.00	577
92.00	2039	165.00	2802	240.00	525	372.00	2943
93.00	16896	166.00	1121	241.00	1379	373.00	651
94.00	951	167.00	15808	242.00	2508	383.00	718
95.00	231	168.00	7660	243.00	3416	391.00	191
96.00	716	169.00	1181	244.00	35256	402.00	1277
97.00	192	170.00	495	245.00	4786	403.00	1625
98.00	13242	171.00	933	246.00	7719	404.00	566
99.00	9169	172.00	1560	247.00	1755	421.00	1668
100.00	608	173.00	1959	248.00	452	422.00	1263
101.00	5111	174.00	3581	249.00	1506	423.00	10154
103.00	1902	175.00	6362	251.00	435	424.00	2667
104.00	3580	176.00	1699	252.00	569	430.00	199
105.00	3295	177.00	3092	253.00	1731	431.00	172
106.00	656	178.00	1324	255.00	167808	433.00	465
107.00	41248	179.00	12013	256.00	25296	434.00	417
108.00	6371	180.00	8244	257.00	2151	435.00	367
110.00	68216	181.00	4101	258.00	11735	436.00	512
111.00	10506	182.00	803	259.00	1533	437.00	690
112.00	1707	183.00	425	261.00	224	438.00	1277
113.00	369	184.00	1180	264.00	482	439.00	1455
115.00	174	185.00	6541	265.00	4907	440.00	1382
116.00	700	186.00	41488	266.00	928	441.00	28256
117.00	39576	187.00	12325	267.00	244	442.00	183616
118.00	3108	188.00	1281	270.00	238	443.00	37240
119.00	347	189.00	3506	271.00	657	444.00	3380
120.00	358	190.00	347	272.00	488	445.00	169

Report Date: 12-Jul-2018 11:02:19 Chrom Revision: 2.2 07-Jun-2018 07:41:54

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309386.D

Injection Date:	11-Jul-2018 18:14:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	DFTPP			Worklist Smp#:	2
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		

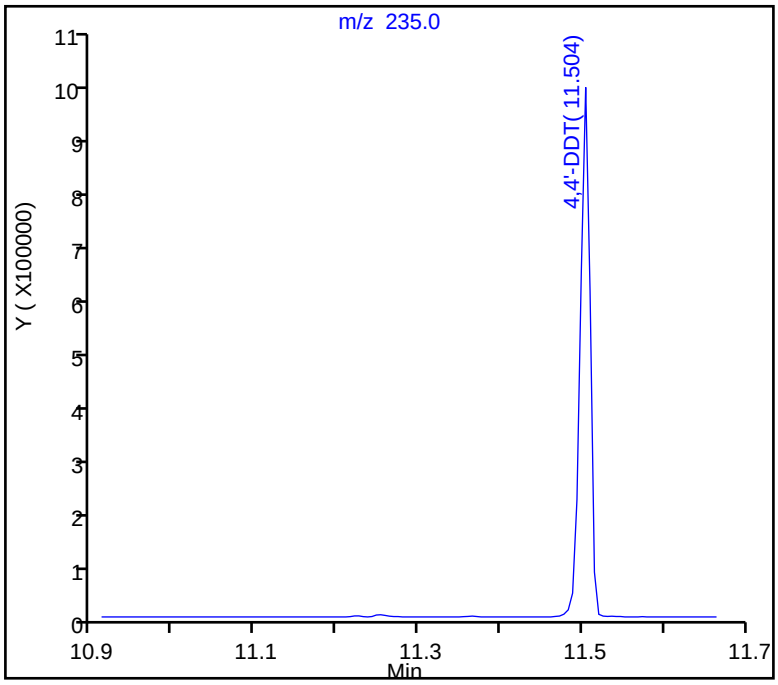


Breakdown Report

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309386.D
Injection Date: 11-Jul-2018 18:14:30 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 = 776818
5 4,4'-DDD, Area = 1464
7 4,4'-DDE, Area = 0

%Breakdown: 0.19%, Max Limit: 20.00%
Passed

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310910.D
Lims ID: DFTPP
Client ID:
Sample Type: DFTPP
Inject. Date: 24-Aug-2018 15:00:30 ALS Bottle#: 2 Worklist Smp#: 2
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074162-002
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:34:01 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: Deconvolution ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 24-Aug-2018 15:47:27

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	10.644	10.644	0.000	0	1944		NR	a
5 4,4'-DDD	235	10.944	10.944	0.000	90	6097		NR	a
6 4,4'-DDT	235	11.179	11.179	0.000	96	1032479	NR	NR	a

QC Flag Legend

Processing Flags
NR - Missing Quant Standard
Review Flags
M - Manually Integrated
a - User Assigned ID

Reagents:

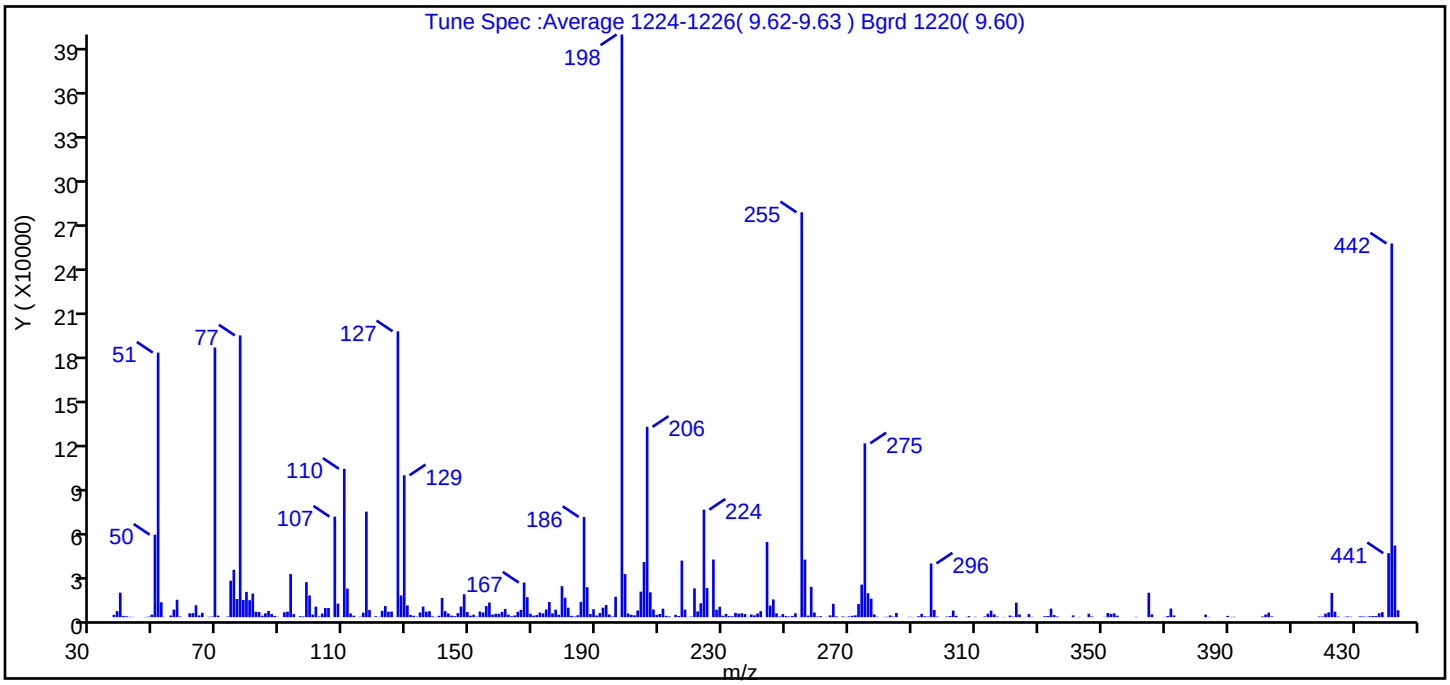
MB_DFTPP_WRK_00336 Amount Added: 1.00 Units: mL

MS Tune Report

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310910.D
Injection Date: 24-Aug-2018 15:00:30 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 (155.9)
51	10-80% of the base peak	45.4
68	<2% of mass 69	0.1 (0.2)
69	Present	46.3
70	<2% of mass 69	0.3 (0.6)
127	10-80% of the base peak	49.1
197	<2% of mass 198	0.0
199	5-9% of mass 198	7.4
275	10-60% of the base peak	29.8
365	>1% of mass 198	4.2
441	present but <24% of mass 442	11.0 (17.1)
442	base peak, or >50% of 198	64.1
443	15-24% of mass 442	12.3 (19.2)

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310910.D\1,4_Dx_SIM_HP5973U.rslt\spe
Injection Date: 24-Aug-2018 15:00:30
Spectrum: Tune Spec :Average 1224-1226(9.62-9.63) Bgrd 1220(9.60)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 306

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	1633	130.00	7975	208.00	5196	296.00	36592
38.00	4107	131.00	1432	209.00	1533	297.00	4900
39.00	16688	132.00	921	210.00	2131	298.00	412
40.00	837	133.00	315	211.00	5778	301.00	397
41.00	623	134.00	3183	212.00	892	302.00	731
42.00	283	135.00	7216	213.00	544	303.00	4473
43.00	183	136.00	3712	215.00	1601	304.00	862
47.00	167	137.00	4059	216.00	778	307.00	170
48.00	372	138.00	542	217.00	38544	308.00	678
49.00	1714	139.00	177	218.00	5138	310.00	240
50.00	56216	140.00	937	219.00	236	313.00	482
51.00	180288	141.00	13081	220.00	371	314.00	2369
52.00	10138	142.00	4035	221.00	19600	315.00	4467
53.00	189	143.00	2537	222.00	3960	316.00	1920
55.00	1124	144.00	1072	223.00	9468	317.00	405
56.00	5133	145.00	698	224.00	73248	319.00	173
57.00	11856	146.00	2732	225.00	19800	321.00	1071
58.00	438	147.00	7222	227.00	39256	322.00	378
61.00	2628	148.00	15642	228.00	5057	323.00	9866
62.00	2722	149.00	3480	229.00	7118	324.00	1781
63.00	8115	150.00	993	230.00	958	326.00	171
64.00	1151	151.00	1672	231.00	2165	327.00	2163
65.00	2945	152.00	371	232.00	766	328.00	213
67.00	269	153.00	3840	233.00	599	332.00	605
68.00	360	154.00	3180	234.00	2934	333.00	780
69.00	183744	155.00	7553	235.00	2409	334.00	5811
70.00	1050	156.00	9996	236.00	2614	335.00	1375
73.00	402	157.00	1729	237.00	2137	336.00	470
74.00	24872	158.00	2284	238.00	206	341.00	1202
75.00	32296	159.00	2298	239.00	1822	343.00	198
76.00	12348	160.00	3592	240.00	1246	346.00	2323
77.00	192000	161.00	5613	241.00	2492	347.00	435
78.00	11723	162.00	1713	242.00	4078	351.00	181

Report Date: 27-Aug-2018 11:34:02 Chrom Revision: 2.3 19-Jul-2018 15:14:50
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310910.D\1,4_Dx_SIM_HP5973U.rslt\spe
Injection Date: 24-Aug-2018 15:00:30
Spectrum: Tune Spec :Average 1224-1226(9.62-9.63) Bgrd 1220(9.60)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 306

m/z	Y	m/z	Y	m/z	Y	m/z	Y
79.00	17208	163.00	629	244.00	51248	352.00	2799
80.00	11580	164.00	1161	245.00	7914	353.00	2191
81.00	16097	165.00	3628	246.00	12087	354.00	2603
82.00	3735	166.00	4971	247.00	2551	355.00	993
83.00	3507	167.00	23560	248.00	496	361.00	219
84.00	981	168.00	13607	249.00	2073	365.00	16672
85.00	2616	169.00	2332	250.00	756	366.00	1885
86.00	4240	170.00	1037	251.00	454	370.00	178
87.00	2143	171.00	1413	252.00	811	371.00	818
88.00	829	172.00	3103	253.00	2669	372.00	5869
89.00	278	173.00	2599	255.00	275904	373.00	1169
91.00	3336	174.00	5167	256.00	39208	383.00	1715
92.00	3713	175.00	10320	257.00	1050	384.00	212
93.00	29440	176.00	2565	258.00	20664	390.00	860
94.00	2094	177.00	5110	259.00	3168	391.00	191
96.00	629	178.00	1655	260.00	453	392.00	277
97.00	476	179.00	21120	261.00	643	401.00	504
98.00	23856	180.00	13248	263.00	192	402.00	1726
99.00	14780	181.00	6457	264.00	1209	403.00	3071
100.00	1744	182.00	918	265.00	9087	404.00	489
101.00	7150	183.00	454	266.00	547	419.00	415
102.00	451	184.00	1312	268.00	453	420.00	460
103.00	2460	185.00	10420	269.00	196	421.00	2385
104.00	6222	186.00	68264	270.00	531	422.00	3258
105.00	6244	187.00	20432	271.00	940	423.00	16480
107.00	68520	188.00	2098	272.00	1225	424.00	3739
108.00	9205	189.00	5389	273.00	8920	425.00	436
110.00	101080	190.00	1088	274.00	22200	427.00	228
111.00	19496	191.00	2786	275.00	118448	428.00	463
112.00	2490	192.00	6438	276.00	16305	429.00	245
113.00	1031	193.00	8293	277.00	12585	432.00	536
115.00	346	194.00	1786	278.00	1840	433.00	436
116.00	3064	195.00	452	279.00	285	434.00	241
117.00	71896	196.00	13905	281.00	183	435.00	583

Report Date: 27-Aug-2018 11:34:02 Chrom Revision: 2.3 19-Jul-2018 15:14:50
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310910.D\1,4_Dx_SIM_HP5973U.rslt\spe
Injection Date: 24-Aug-2018 15:00:30
Spectrum: Tune Spec :Average 1224-1226(9.62-9.63) Bgrd 1220(9.60)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 306

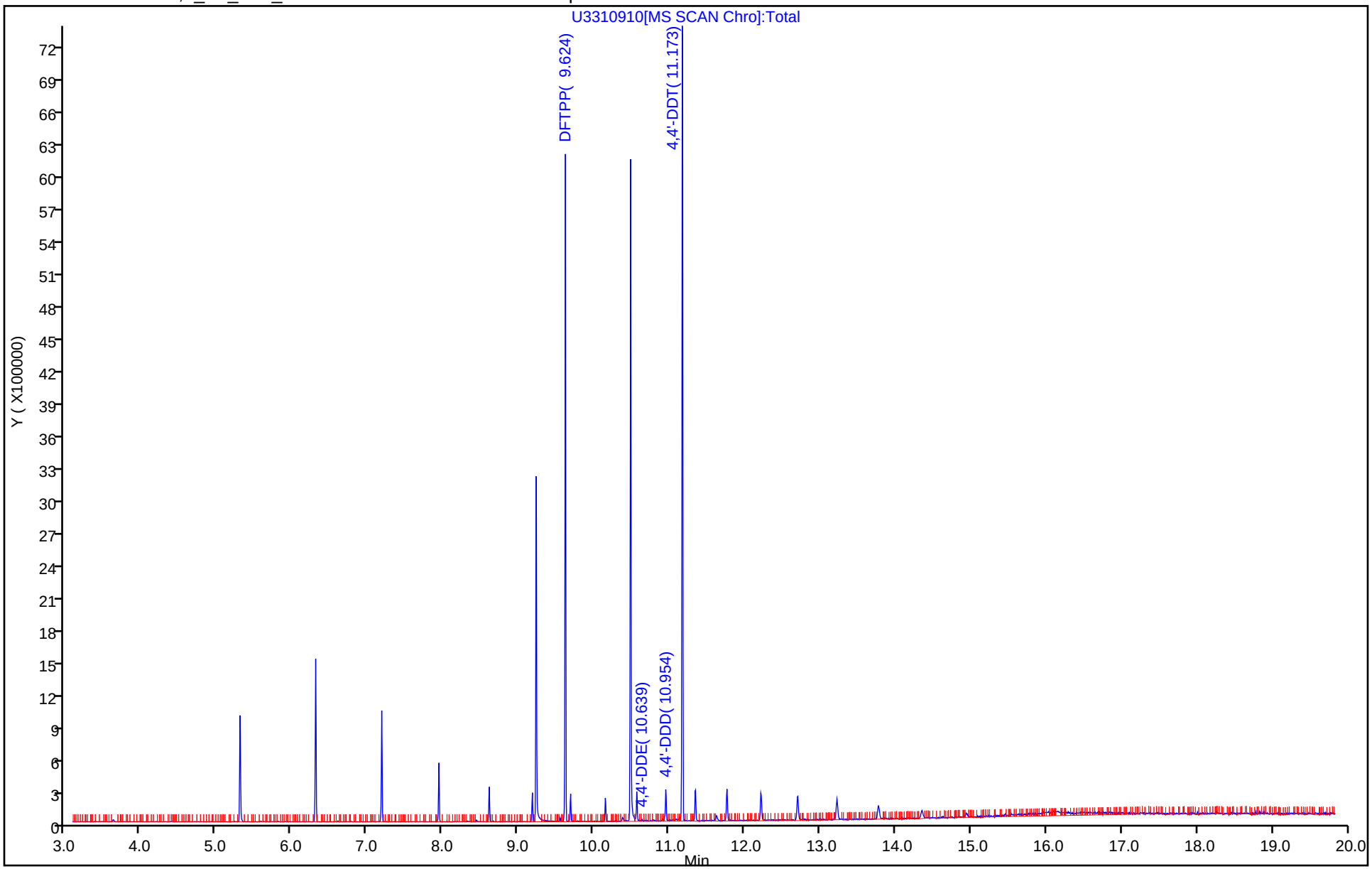
m/z	Y	m/z	Y	m/z	Y	m/z	Y
118.00	4823	198.00	397056	282.00	284	436.00	786
120.00	613	199.00	29400	283.00	1191	437.00	777
121.00	234	200.00	2461	284.00	407	438.00	2662
122.00	4304	201.00	1552	285.00	2842	439.00	3400
123.00	7588	202.00	1228	289.00	234	441.00	43624
124.00	3698	203.00	4523	290.00	176	442.00	254656
125.00	3827	204.00	17384	292.00	633	443.00	48824
127.00	194816	205.00	37576	293.00	2255	444.00	4698
128.00	14778	206.00	129680	294.00	568		
129.00	96696	207.00	16944	295.00	418		

Report Date: 27-Aug-2018 11:34:02 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310910.D

Injection Date:	24-Aug-2018 15:00:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	DFTPP			Worklist Smp#:	2
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		

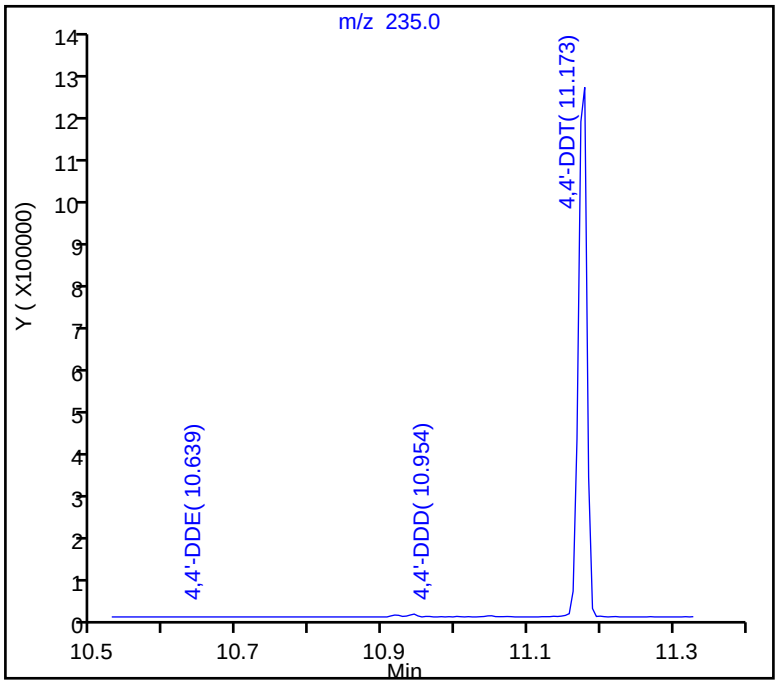


Breakdown Report

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310910.D
Injection Date: 24-Aug-2018 15:00:30 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 = 1032479
5 4,4'-DDD, Area = 6097
7 4,4'-DDE, Area = 1944

%Breakdown: 0.77%, Max Limit: 20.00%
Passed

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310940.D
Lims ID: DFTPP
Client ID:
Sample Type: DFTPP
Inject. Date: 25-Aug-2018 02:53:30 ALS Bottle#: 32 Worklist Smp#: 2
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074163-002
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:32:56 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: Deconvolution ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:23:19

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	10.639	10.639	0.000	0	2588		NR	
5 4,4'-DDD	235	10.917	10.917	0.000	95	57349		NR	
6 4,4'-DDT	235	11.173	11.173	0.000	97	834756	NR	NR	

QC Flag Legend

Processing Flags
NR - Missing Quant Standard

Reagents:

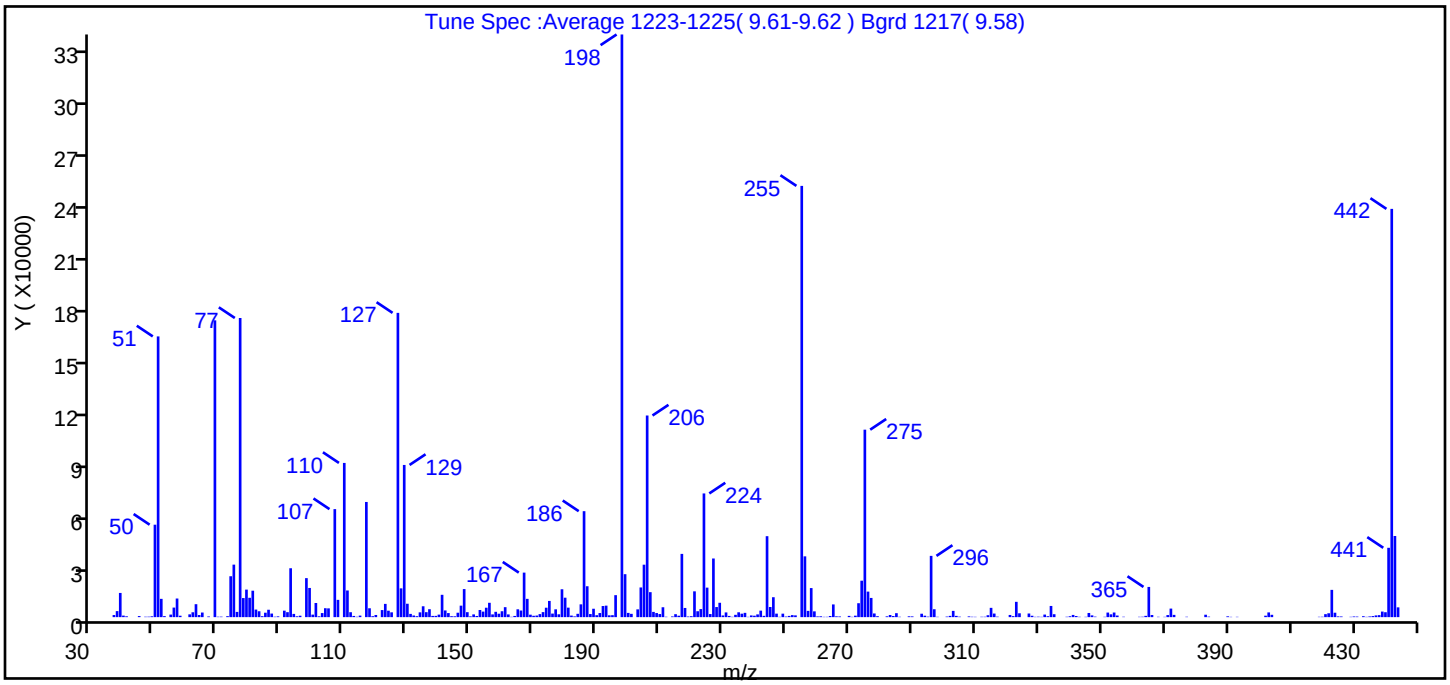
MB_DFTPP_WRK_00336 Amount Added: 1.00 Units: mL

MS Tune Report

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310940.D
Injection Date: 25-Aug-2018 02:53:30 Instrument ID: HP5973U
Lims ID: DFTPP
Client ID:
Operator ID: DR ALS Bottle#: 32 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 (142.7)
51	10-80% of the base peak	48.2
68	<2% of mass 69	0.0 (0.0)
69	Present	50.9
70	<2% of mass 69	0.1 (0.1)
127	10-80% of the base peak	52.2
197	<2% of mass 198	0.0
199	5-9% of mass 198	7.4
275	10-60% of the base peak	32.2
365	>1% of mass 198	5.2
441	present but <24% of mass 442	11.9 (17.0)
442	base peak, or >50% of 198	70.1
443	15-24% of mass 442	13.9 (19.9)

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310940.D\1,4_Dx_SIM_HP5973U.rslt\spe
Injection Date: 25-Aug-2018 02:53:30
Spectrum: Tune Spec :Average 1223-1225(9.61-9.62) Bgrd 1217(9.58)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 317

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	1209	134.00	2750	217.00	36280	310.00	184
38.00	3458	135.00	6233	218.00	5270	312.00	220
39.00	13879	136.00	2849	219.00	364	313.00	230
40.00	881	137.00	4546	220.00	546	314.00	1104
41.00	481	138.00	708	221.00	14801	315.00	5331
45.00	623	139.00	730	222.00	3389	316.00	2049
47.00	241	140.00	1445	223.00	4619	317.00	279
48.00	268	141.00	12814	224.00	70952	321.00	1254
49.00	477	142.00	3838	225.00	16928	322.00	572
50.00	53024	143.00	2334	226.00	1782	323.00	8785
51.00	161024	144.00	543	227.00	33640	324.00	2212
52.00	10492	145.00	481	228.00	5786	327.00	2085
53.00	586	146.00	2538	229.00	8242	328.00	791
55.00	1466	147.00	6585	230.00	961	329.00	178
56.00	5487	148.00	16098	231.00	2713	330.00	267
57.00	10682	149.00	2848	232.00	698	331.00	176
58.00	811	150.00	445	233.00	188	332.00	1475
61.00	1601	151.00	1578	234.00	1326	333.00	541
62.00	2795	152.00	669	235.00	2780	334.00	6416
63.00	7429	153.00	4100	236.00	1983	335.00	1678
64.00	1205	154.00	3176	237.00	2463	339.00	216
65.00	2643	155.00	5411	238.00	170	340.00	506
67.00	384	156.00	8233	239.00	977	341.00	1271
69.00	170240	157.00	1575	240.00	824	342.00	628
70.00	253	158.00	3062	241.00	1567	343.00	197
71.00	283	159.00	1958	242.00	3729	345.00	185
73.00	560	160.00	3388	243.00	748	346.00	2391
74.00	23464	161.00	5717	244.00	46440	347.00	1011
75.00	30120	162.00	1566	245.00	5818	348.00	293
76.00	3002	163.00	190	246.00	11431	351.00	198
77.00	171584	164.00	689	247.00	2009	352.00	2624
78.00	10940	165.00	4501	248.00	185	353.00	1616
79.00	15796	166.00	3789	249.00	1999	354.00	2649

Report Date: 27-Aug-2018 11:32:57 Chrom Revision: 2.3 19-Jul-2018 15:14:50
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310940.D\1,4_Dx_SIM_HP5973U.rslt\spe
Injection Date: 25-Aug-2018 02:53:30
Spectrum: Tune Spec :Average 1223-1225(9.61-9.62) Bgrd 1217(9.58)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 317

m/z	Y	m/z	Y	m/z	Y	m/z	Y
80.00	11099	167.00	25544	250.00	325	355.00	926
81.00	15163	168.00	10492	251.00	716	357.00	233
82.00	4345	169.00	1408	252.00	1167	362.00	203
83.00	3374	170.00	784	253.00	1015	363.00	239
84.00	544	171.00	917	255.00	247360	364.00	740
85.00	2540	172.00	1744	256.00	34872	365.00	17328
86.00	4244	173.00	2882	257.00	3597	366.00	1216
87.00	2052	174.00	5412	258.00	16672	368.00	207
88.00	248	175.00	9300	259.00	3316	370.00	171
89.00	447	176.00	2043	260.00	410	371.00	1184
91.00	3718	177.00	4489	261.00	478	372.00	4908
92.00	2845	178.00	1632	262.00	175	373.00	1299
93.00	28048	179.00	15992	263.00	186	377.00	225
94.00	1859	180.00	11154	264.00	659	383.00	1387
95.00	490	181.00	5450	265.00	7297	384.00	306
96.00	819	182.00	897	266.00	457	390.00	465
98.00	22376	183.00	430	267.00	398	391.00	167
99.00	16744	184.00	1912	270.00	722	393.00	184
100.00	1444	185.00	7339	271.00	175	402.00	836
101.00	8113	186.00	60776	272.00	841	403.00	2707
102.00	466	187.00	17720	273.00	7988	404.00	1342
103.00	2337	188.00	1778	274.00	20904	419.00	203
104.00	5122	189.00	4819	275.00	107528	420.00	228
105.00	5034	190.00	1118	276.00	14646	421.00	1713
107.00	61960	191.00	2358	277.00	11015	422.00	2221
108.00	9914	192.00	6380	278.00	2105	423.00	15642
110.00	88456	193.00	6598	279.00	551	424.00	2540
111.00	15295	194.00	1046	282.00	464	425.00	436
112.00	2829	195.00	1125	283.00	1233	426.00	376
113.00	693	196.00	12610	284.00	632	429.00	189
114.00	217	198.00	334208	285.00	2276	430.00	377
115.00	881	199.00	24640	286.00	217	431.00	323
117.00	66064	200.00	2432	289.00	473	433.00	529
118.00	5090	201.00	1894	290.00	419	434.00	168

Report Date: 27-Aug-2018 11:32:57 Chrom Revision: 2.3 19-Jul-2018 15:14:50
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310940.D\1,4_Dx_SIM_HP5973U.rslt\spe
Injection Date: 25-Aug-2018 02:53:30
Spectrum: Tune Spec :Average 1223-1225(9.61-9.62) Bgrd 1217(9.58)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 317

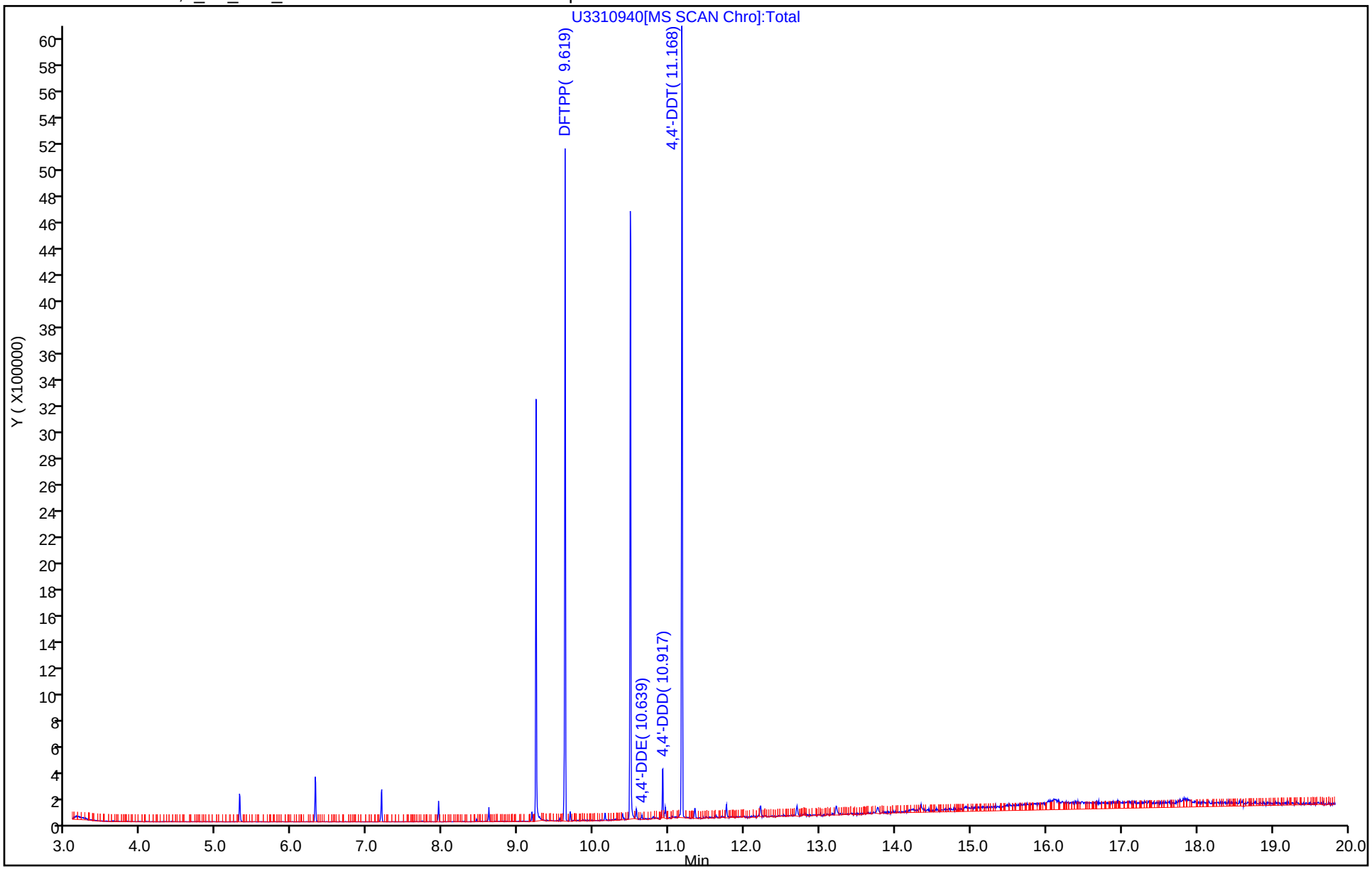
m/z	Y	m/z	Y	m/z	Y	m/z	Y
119.00	535	203.00	4463	293.00	1961	435.00	396
120.00	1237	204.00	17024	294.00	832	436.00	610
122.00	4057	205.00	30088	295.00	291	437.00	991
123.00	7604	206.00	115656	296.00	35144	438.00	1145
124.00	3696	207.00	14328	297.00	4529	439.00	3200
125.00	2761	208.00	3011	298.00	199	440.00	2822
127.00	174528	209.00	2354	301.00	315	441.00	39776
128.00	16512	210.00	1785	302.00	728	442.00	234176
129.00	87296	211.00	5673	303.00	3591	443.00	46544
130.00	7686	212.00	226	304.00	727	444.00	5620
131.00	1861	214.00	412	305.00	281		
132.00	941	215.00	1699	308.00	422		
133.00	543	216.00	811	309.00	225		

Report Date: 27-Aug-2018 11:32:57 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310940.D

Injection Date:	25-Aug-2018 02:53:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	DFTPP			Worklist Smp#:	2
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	32
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		

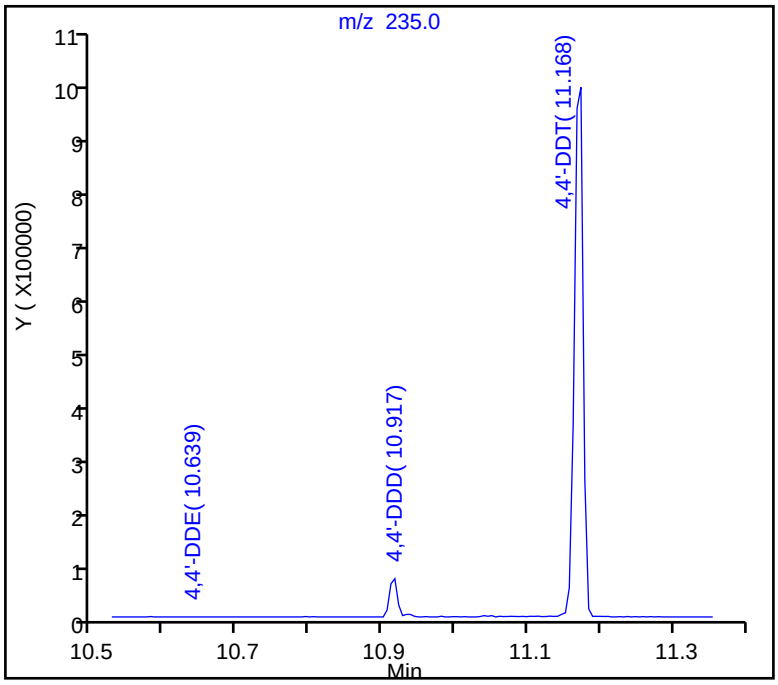


Breakdown Report

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74163.b\U3310940.D
Injection Date: 25-Aug-2018 02:53:30 Instrument ID: HP5973U
Lims ID: DFTPP
Client ID:
Operator ID: DR ALS Bottle#: 32 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 = 834756
5 4,4'-DDD, Area = 57349
7 4,4'-DDE, Area = 2588

%Breakdown: 6.70%, Max Limit: 20.00%
Passed

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310984.D
Lims ID: DFTPP
Client ID:
Sample Type: DFTPP
Inject. Date: 27-Aug-2018 13:24:30 ALS Bottle#: 2 Worklist Smp#: 2
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074205-002
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 29-Aug-2018 11:30:04 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: Deconvolution ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK019

First Level Reviewer: richardsd Date: 27-Aug-2018 14:28:24

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	10.634	10.634	0.000	0	908		NR	
5 4,4'-DDD	235	10.917	10.917	0.000	1	2276		NR	
6 4,4'-DDT	235	11.173	11.173	0.000	97	823825	NR	NR	

QC Flag Legend

Processing Flags
NR - Missing Quant Standard

Reagents:

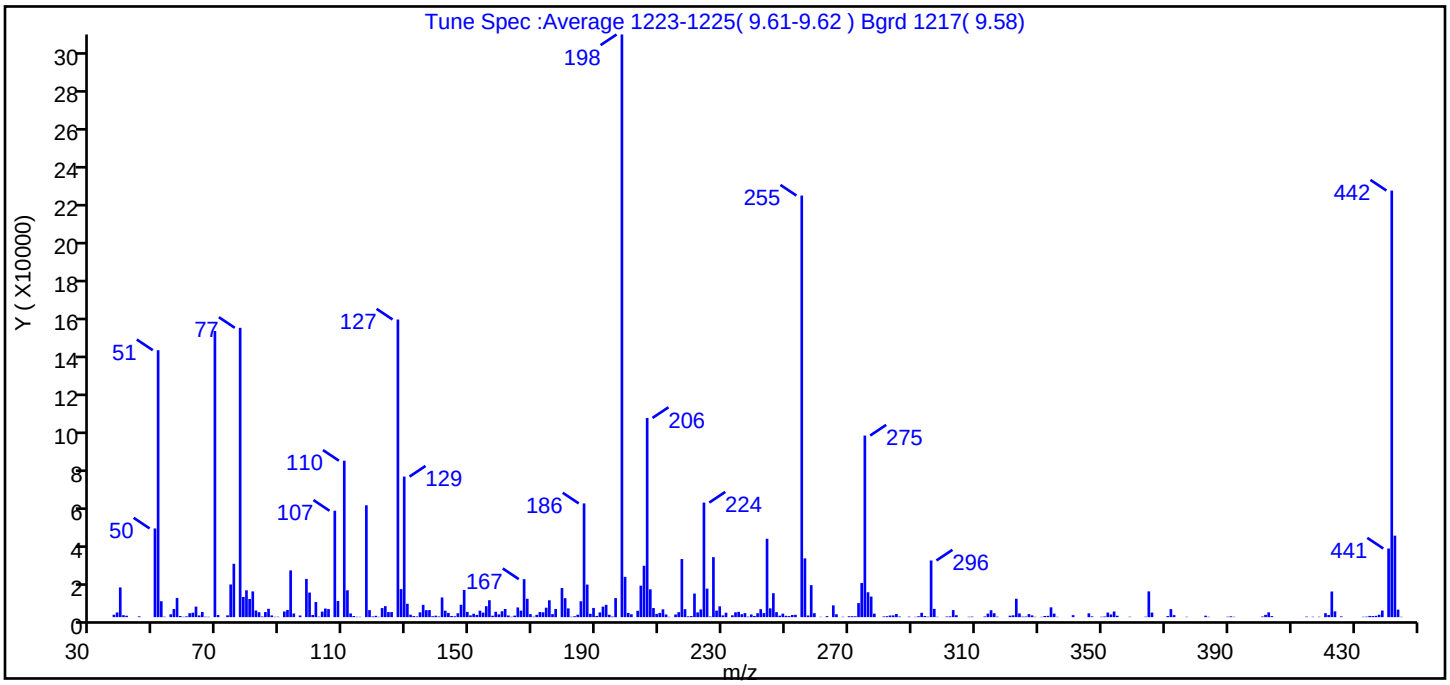
MB_DFTPP_WRK_00336 Amount Added: 1.00 Units: mL

MS Tune Report

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310984.D
Injection Date: 27-Aug-2018 13:24:30 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 (136.6)
51	10-80% of the base peak	45.8
68	<2% of mass 69	0.0 (0.0)
69	Present	49.1
70	<2% of mass 69	0.4 (0.7)
127	10-80% of the base peak	51.1
197	<2% of mass 198	0.0
199	5-9% of mass 198	6.9
275	10-60% of the base peak	31.2
365	>1% of mass 198	4.4
441	present but <24% of mass 442	11.8 (16.1)
442	base peak, or >50% of 198	73.2
443	15-24% of mass 442	14.0 (19.1)

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310984.D\1,4_Dx_SIM_HP5973U.rslt\spe
Injection Date: 27-Aug-2018 13:24:30
Spectrum: Tune Spec :Average 1223-1225(9.61-9.62) Bgrd 1217(9.58)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 299

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	1257	131.00	1272	209.00	1702	297.00	4325
38.00	2460	132.00	549	210.00	2225	298.00	182
39.00	15566	133.00	361	211.00	4088	301.00	329
40.00	1018	134.00	2523	212.00	1392	302.00	404
41.00	741	135.00	6441	213.00	171	303.00	3696
45.00	408	136.00	3664	215.00	1394	304.00	997
50.00	46432	137.00	3696	216.00	2616	308.00	209
51.00	139776	138.00	477	217.00	30432	309.00	280
52.00	8354	139.00	770	218.00	4176	313.00	355
53.00	238	140.00	339	219.00	433	314.00	1848
55.00	1499	141.00	10305	220.00	558	315.00	3608
56.00	4238	142.00	3373	221.00	12346	316.00	2041
57.00	10045	143.00	2221	222.00	2484	317.00	258
58.00	603	144.00	606	223.00	4040	321.00	749
59.00	181	145.00	449	224.00	59992	322.00	955
60.00	409	146.00	2043	225.00	14923	323.00	9640
61.00	2061	147.00	6491	226.00	313	324.00	1952
62.00	2323	148.00	14210	227.00	31424	325.00	272
63.00	5508	149.00	2739	228.00	3390	326.00	325
64.00	892	150.00	929	229.00	5670	327.00	1599
65.00	2715	151.00	1782	230.00	921	328.00	906
66.00	220	152.00	1164	231.00	2298	329.00	173
67.00	200	153.00	3386	233.00	959	331.00	168
69.00	149824	154.00	2366	234.00	2536	332.00	607
70.00	1113	155.00	5736	235.00	2782	333.00	670
73.00	941	156.00	8863	236.00	1537	334.00	5140
74.00	17104	157.00	748	237.00	2108	335.00	1842
75.00	27936	158.00	2787	238.00	273	336.00	175
77.00	151488	159.00	1448	239.00	1396	341.00	1035
78.00	10568	160.00	3075	240.00	640	346.00	2003
79.00	14055	161.00	4264	241.00	2058	347.00	405
80.00	9520	162.00	886	242.00	4176	350.00	219
81.00	13484	163.00	215	243.00	2114	351.00	330

Report Date: 29-Aug-2018 11:30:05 Chrom Revision: 2.3 19-Jul-2018 15:14:50
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310984.D\1,4_Dx_SIM_HP5973U.rslt\spe
Injection Date: 27-Aug-2018 13:24:30
Spectrum: Tune Spec :Average 1223-1225(9.61-9.62) Bgrd 1217(9.58)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 299

m/z	Y	m/z	Y	m/z	Y	m/z	Y
82.00	3471	164.00	796	244.00	41048	352.00	2385
83.00	2570	165.00	5087	245.00	4605	353.00	1404
84.00	332	166.00	3400	246.00	12536	354.00	2960
85.00	2668	167.00	19896	247.00	2626	355.00	719
86.00	4365	168.00	9616	248.00	776	359.00	209
87.00	898	169.00	1581	249.00	1840	364.00	230
88.00	188	170.00	231	250.00	688	365.00	13478
89.00	214	171.00	1210	251.00	555	366.00	2387
91.00	2943	172.00	2660	252.00	1109	371.00	567
92.00	3764	173.00	2544	253.00	1217	372.00	4203
93.00	24472	174.00	4949	255.00	220736	373.00	1037
94.00	1915	175.00	8833	256.00	30768	377.00	191
96.00	864	176.00	1576	257.00	877	383.00	750
98.00	20016	177.00	4284	258.00	16760	384.00	189
99.00	12883	179.00	15273	259.00	2064	390.00	217
100.00	1127	180.00	9935	261.00	167	391.00	438
101.00	7921	181.00	4568	263.00	550	392.00	187
102.00	252	182.00	211	265.00	6164	401.00	329
103.00	2900	183.00	484	266.00	1509	402.00	1191
104.00	4499	184.00	1267	268.00	198	403.00	2510
105.00	4217	185.00	8332	270.00	472	404.00	545
107.00	55712	186.00	59544	271.00	487	415.00	289
108.00	8485	187.00	17056	272.00	445	417.00	203
110.00	81904	188.00	1752	273.00	7355	419.00	212
111.00	14048	189.00	4814	274.00	17864	421.00	2078
112.00	1946	190.00	633	275.00	95080	422.00	1111
113.00	579	191.00	2472	276.00	13034	423.00	13418
114.00	203	192.00	5504	277.00	10758	424.00	3020
115.00	170	193.00	6432	278.00	1821	426.00	390
117.00	58576	194.00	1220	281.00	348	433.00	188
118.00	3680	195.00	308	282.00	501	434.00	259
119.00	361	196.00	9970	283.00	864	435.00	656
120.00	713	198.00	305088	284.00	914	436.00	581
121.00	171	199.00	21104	285.00	1675	437.00	681

Report Date: 29-Aug-2018 11:30:05 Chrom Revision: 2.3 19-Jul-2018 15:14:50
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310984.D\1,4_Dx_SIM_HP5973U.rslt\spe
Injection Date: 27-Aug-2018 13:24:30
Spectrum: Tune Spec :Average 1223-1225(9.61-9.62) Bgrd 1217(9.58)
Base Peak: 198.00
Minimum % Base Peak: 0
Number of Points: 299

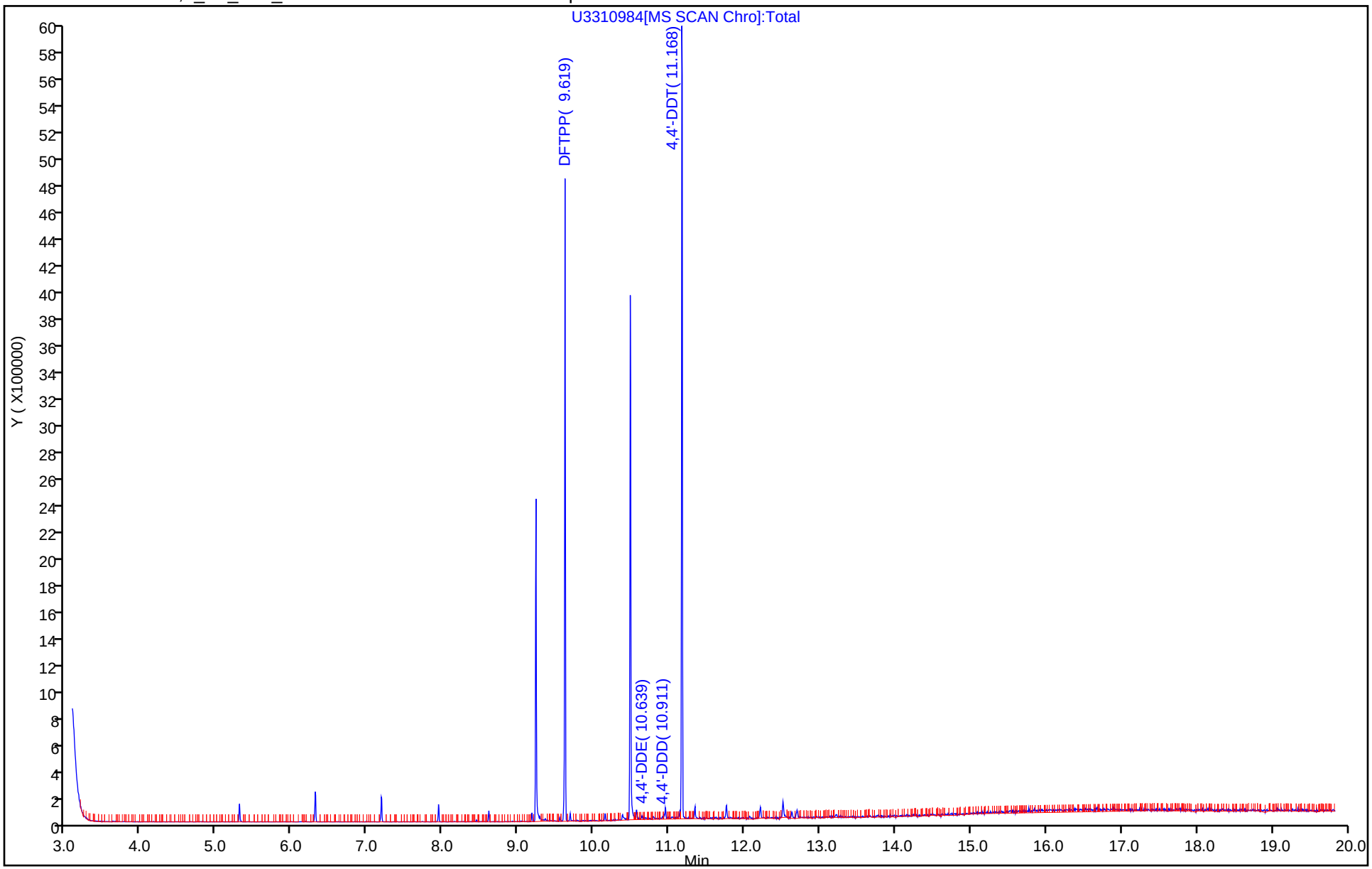
m/z	Y	m/z	Y	m/z	Y	m/z	Y
122.00	4741	200.00	2221	286.00	332	438.00	1249
123.00	5753	201.00	1507	289.00	271	439.00	3449
124.00	2660	203.00	3324	291.00	169	441.00	35936
125.00	2650	204.00	16480	292.00	465	442.00	223360
127.00	155840	205.00	26904	293.00	2268	443.00	42672
128.00	14677	206.00	104304	294.00	592	444.00	3928
129.00	73584	207.00	14573	295.00	250	445.00	175
130.00	7016	208.00	4778	296.00	29672		

Report Date: 29-Aug-2018 11:30:05 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310984.D

Injection Date:	27-Aug-2018 13:24:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	DFTPP			Worklist Smp#:	2
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	2
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		

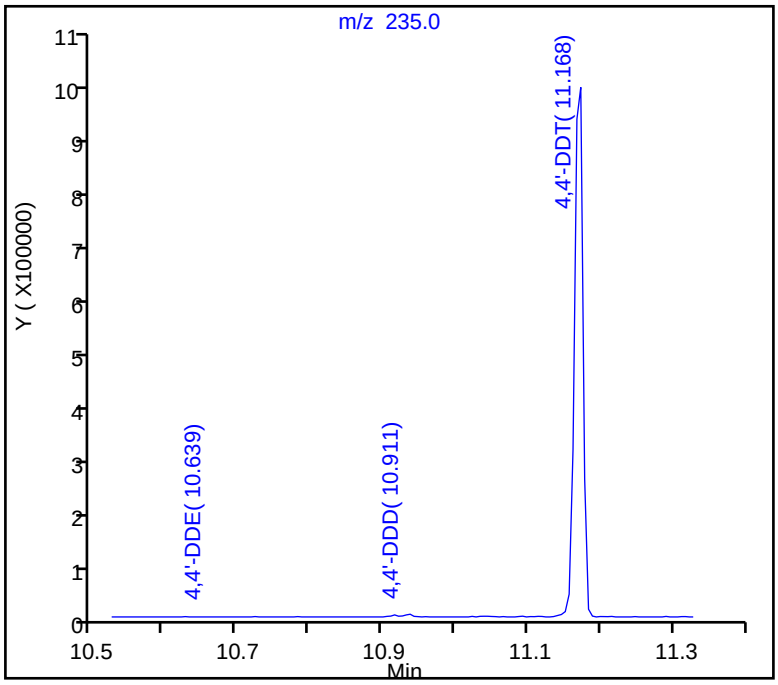


Breakdown Report

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180827-74205.b\U3310984.D
Injection Date: 27-Aug-2018 13:24:30 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 = 823825
5 4,4'-DDD, Area = 2276
7 4,4'-DDE, Area = 908

%Breakdown: 0.39%, Max Limit: 20.00%
Passed

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-140615-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 480-430511/1-A

Matrix: Water | Lab File ID: U3310926.D

Analysis Method: 8270D SIM ID | Date Collected:

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 1000(mL) | Date Analyzed: 08/24/2018 21:22

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.: 431347 | 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	37		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310926.D
Lims ID: MB 480-430511/1-A
Client ID:
Sample Type: MB
Inject. Date: 24-Aug-2018 21:22:30 ALS Bottle#: 18 Worklist Smp#: 18
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074162-018
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:46:08 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:46:08

	Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
	3 1,4-Dioxane	88		2.177					ND	U
D	1 1,4-Dioxane-d8	96	2.230	2.217	0.013	100	127850	10.0	3.66	
*	2 1,4-Dichlorobenzene-d4	152	5.550	5.547	0.003	93	287640	4.00	4.00	

QC Flag Legend

Review Flags
U - Marked Undetected

Reagents:

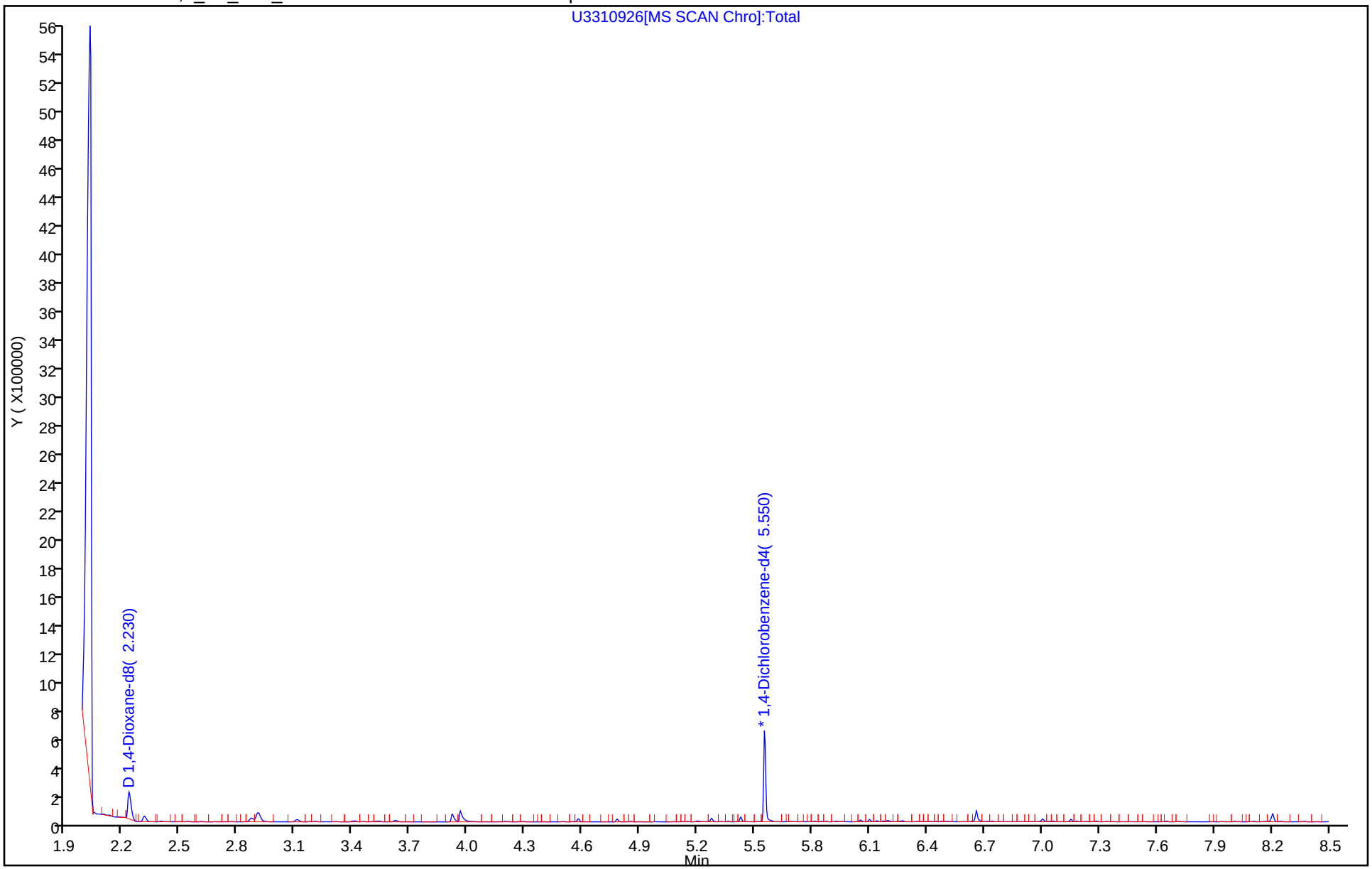
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:46:17 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

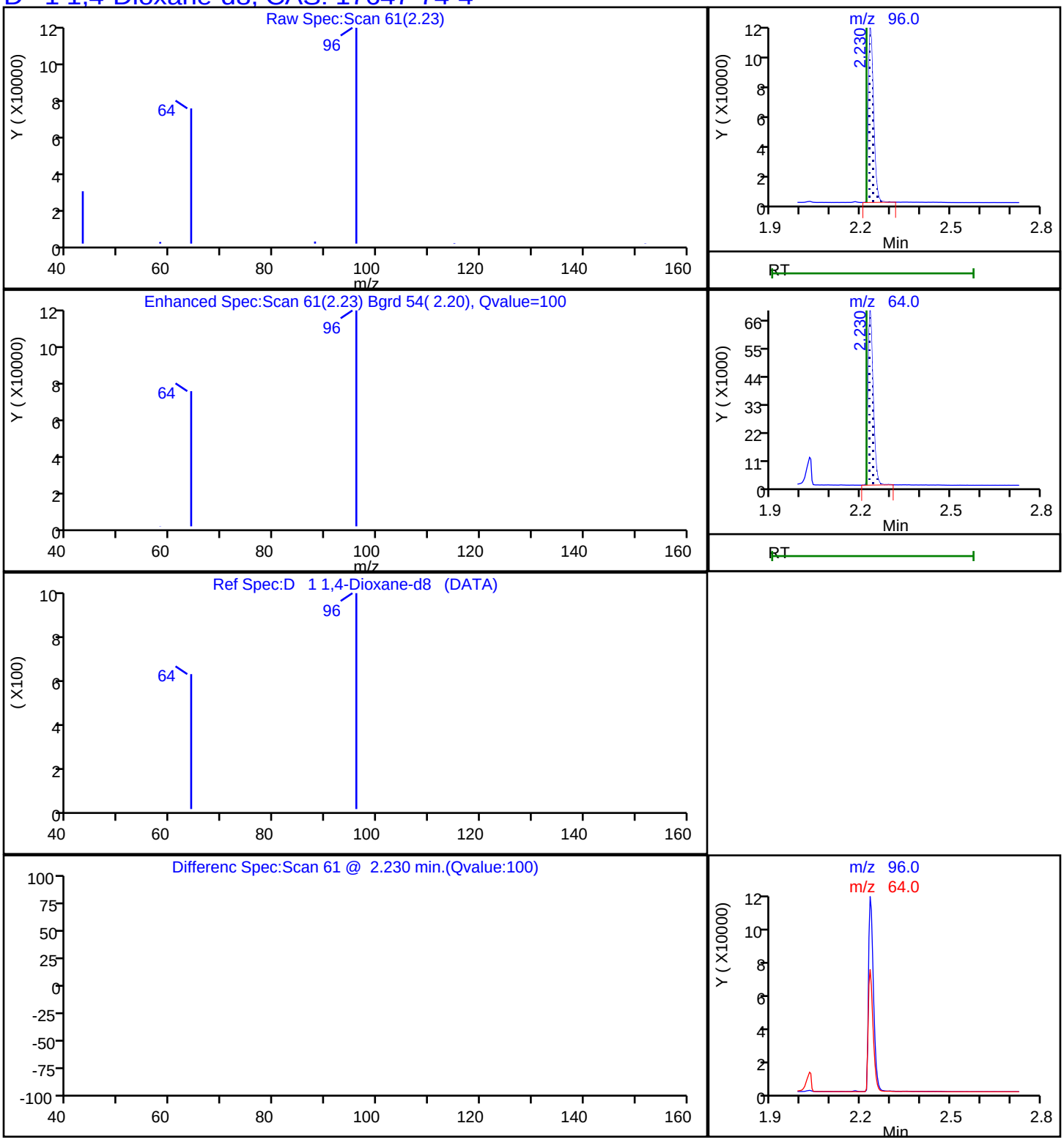
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310926.D

Injection Date:	24-Aug-2018 21:22:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	MB 480-430511/1-A			Worklist Smp#:	18
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	18
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		



Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310926.D
Injection Date: 24-Aug-2018 21:22:30 Instrument ID: HP5973U
Lims ID: MB 480-430511/1-A
Client ID:
Operator ID: DR ALS Bottle#: 18 Worklist Smp#: 18
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



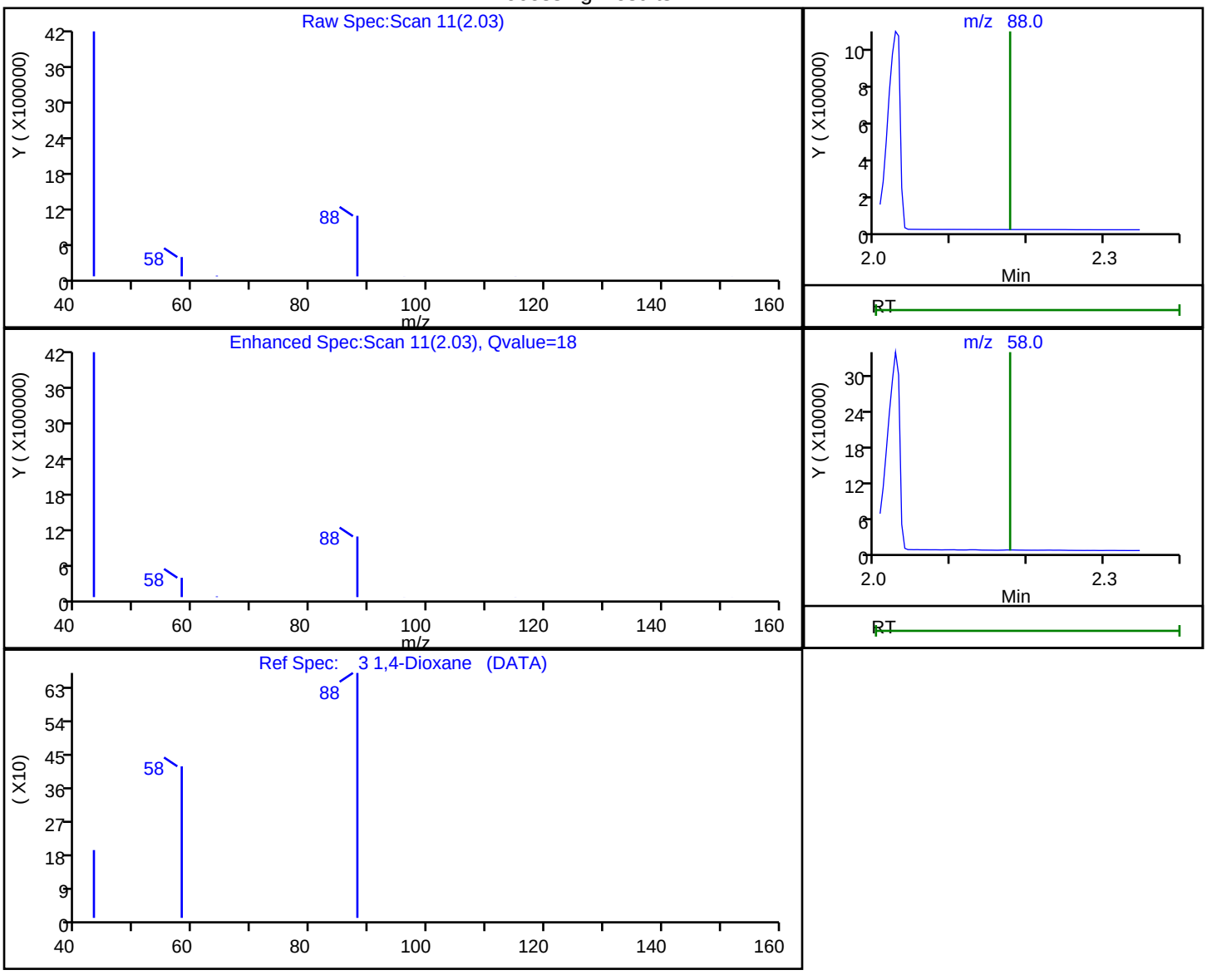
User Disabled Compound Report

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310926.D
Injection Date: 24-Aug-2018 21:22:30 Instrument ID: HP5973U
Lims ID: MB 480-430511/1-A
Client ID:
Operator ID: DR ALS Bottle#: 18 Worklist Smp#: 18
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
2.03	88.00	1173900	82.979987
2.03	58.00	372034	

Reviewer: richardsd, 27-Aug-2018 11:46:06
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.: 480-140615-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 480-430511/2-A

Matrix: Water | Lab File ID: U3310927.D

Analysis Method: 8270D SIM ID | Date Collected:

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 1000(mL) | Date Analyzed: 08/24/2018 21:46

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.: 431347 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	1.04		0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	37		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310927.D
Lims ID: LCS 480-430511/2-A
Client ID:
Sample Type: LCS
Inject. Date: 24-Aug-2018 21:46:30 ALS Bottle#: 19 Worklist Smp#: 19
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074162-019
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:34:05 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:20:52

	Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
	3 1,4-Dioxane	88	2.315	2.177	0.138	95	14154	1.00	1.04	a
D	1 1,4-Dioxane-d8	96	2.283	2.217	0.066	100	125155	10.0	3.75	
*	2 1,4-Dichlorobenzene-d4	152	5.555	5.547	0.008	95	275138	4.00	4.00	

QC Flag Legend

Review Flags
a - User Assigned ID

Reagents:

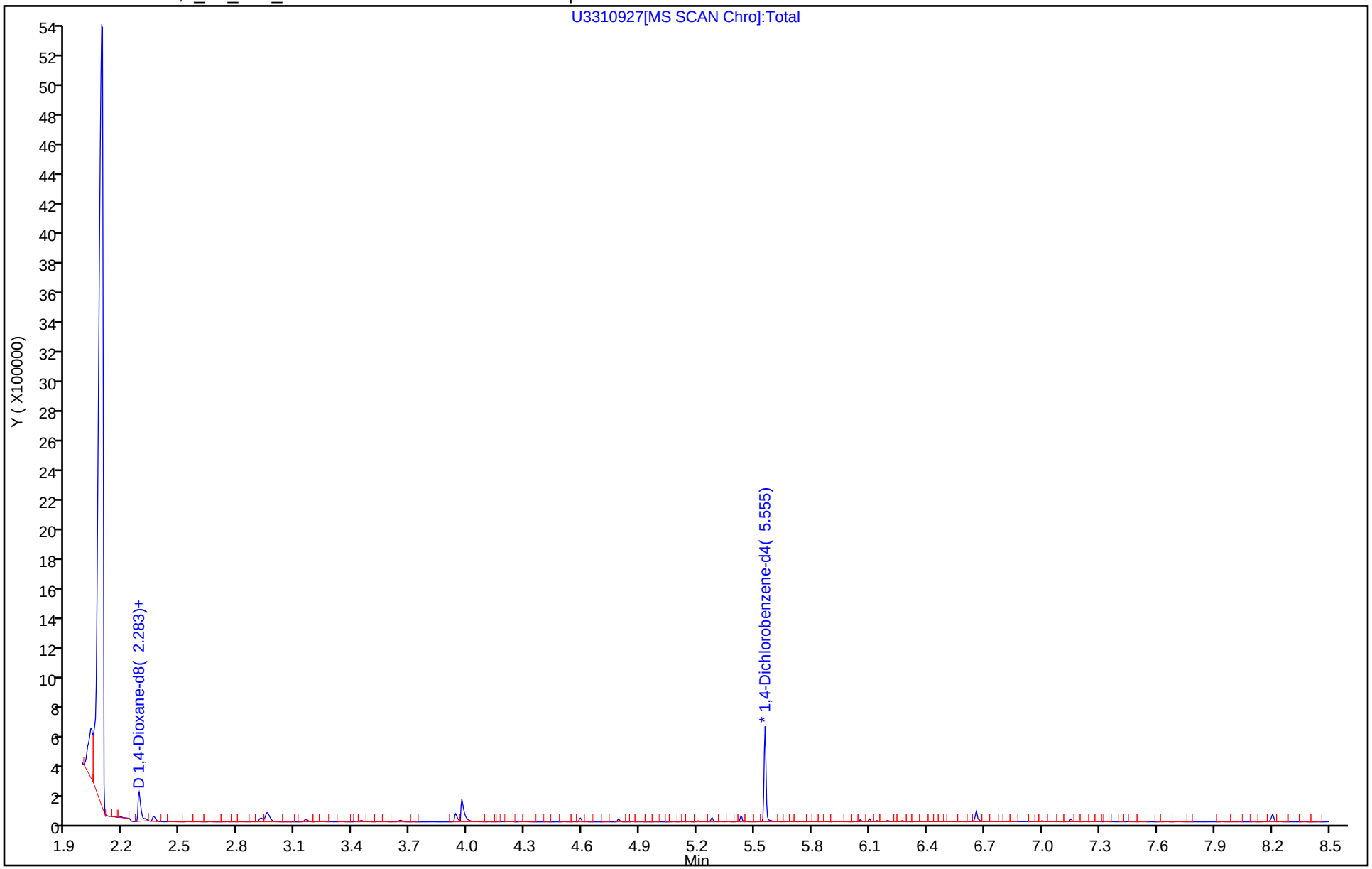
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:34:36 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310927.D

Injection Date:	24-Aug-2018 21:46:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	LCS 480-430511/2-A			Worklist Smp#:	19
Client ID:					
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	19
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		



Manual Integration/User Assign Peak Report

TestAmerica Buffalo

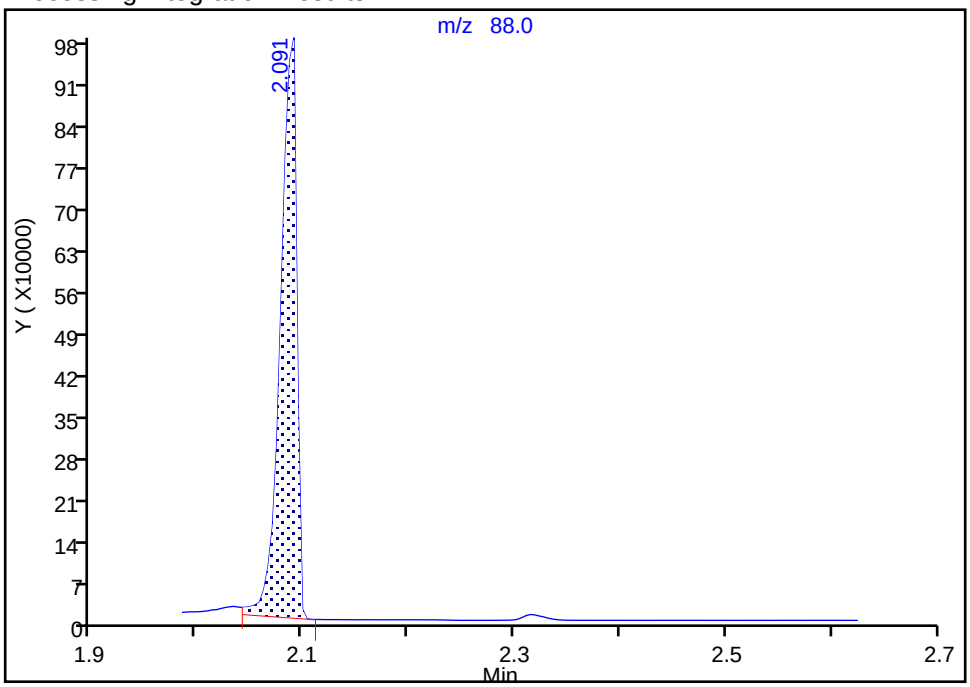
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310927.D
Injection Date: 24-Aug-2018 21:46:30 Instrument ID: HP5973U
Lims ID: LCS 480-430511/2-A
Client ID:
Operator ID: DR ALS Bottle#: 19 Worklist Smp#: 19
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4_Dx_SIM_HP5973U Limit Group: MB - 8270D SIM ID ICAL
Column: Detector MS SCAN

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

Signal: 1

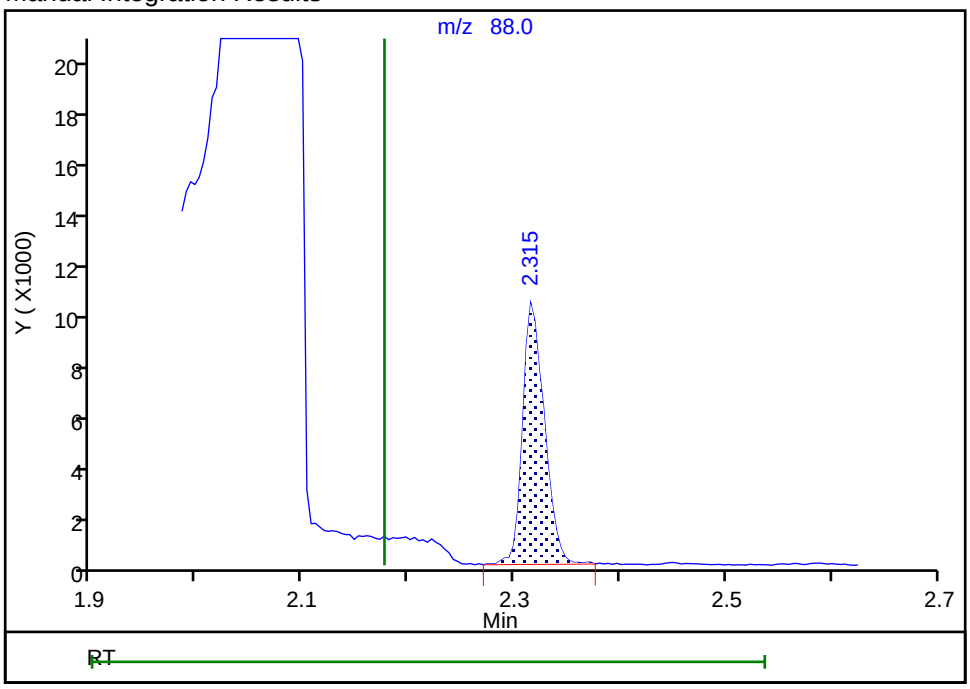
Processing Integration Results

RT: 2.09
Area: 1044704
Amount: 75.439645
Amount Units: ng/ul



Manual Integration Results

RT: 2.32
Area: 14154
Amount: 1.043927
Amount Units: ng/ul



Reviewer: richardsd, 27-Aug-2018 11:20:50
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-140615-1

SDG No.:

Client Sample ID: MW-2D MS | Lab Sample ID: 480-140615-6 MS

Matrix: Water | Lab File ID: U3310928.D

Analysis Method: 8270D SIM ID | Date Collected: 08/15/2018 12:00

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 1000(mL) | Date Analyzed: 08/24/2018 22:09

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.: 431347 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	1.10		0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	32		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310928.D
Lims ID: 480-140615-B-6-A MS
Client ID: MW-2D
Sample Type: MS
Inject. Date: 24-Aug-2018 22:09:30 ALS Bottle#: 20 Worklist Smp#: 20
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074162-020
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:34:05 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:20:59

	Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
	3 1,4-Dioxane	88	2.303	2.177	0.126	97	13201	1.00	1.10	a
D	1 1,4-Dioxane-d8	96	2.270	2.217	0.053	100	111014	10.0	3.17	
*	2 1,4-Dichlorobenzene-d4	152	5.554	5.547	0.007	95	288422	4.00	4.00	
	7 4,4'-DDE	246		10.644					ND	
	5 4,4'-DDD	235		10.944					ND	
	6 4,4'-DDT	235		11.179					ND	

QC Flag Legend

Review Flags
a - User Assigned ID

Reagents:

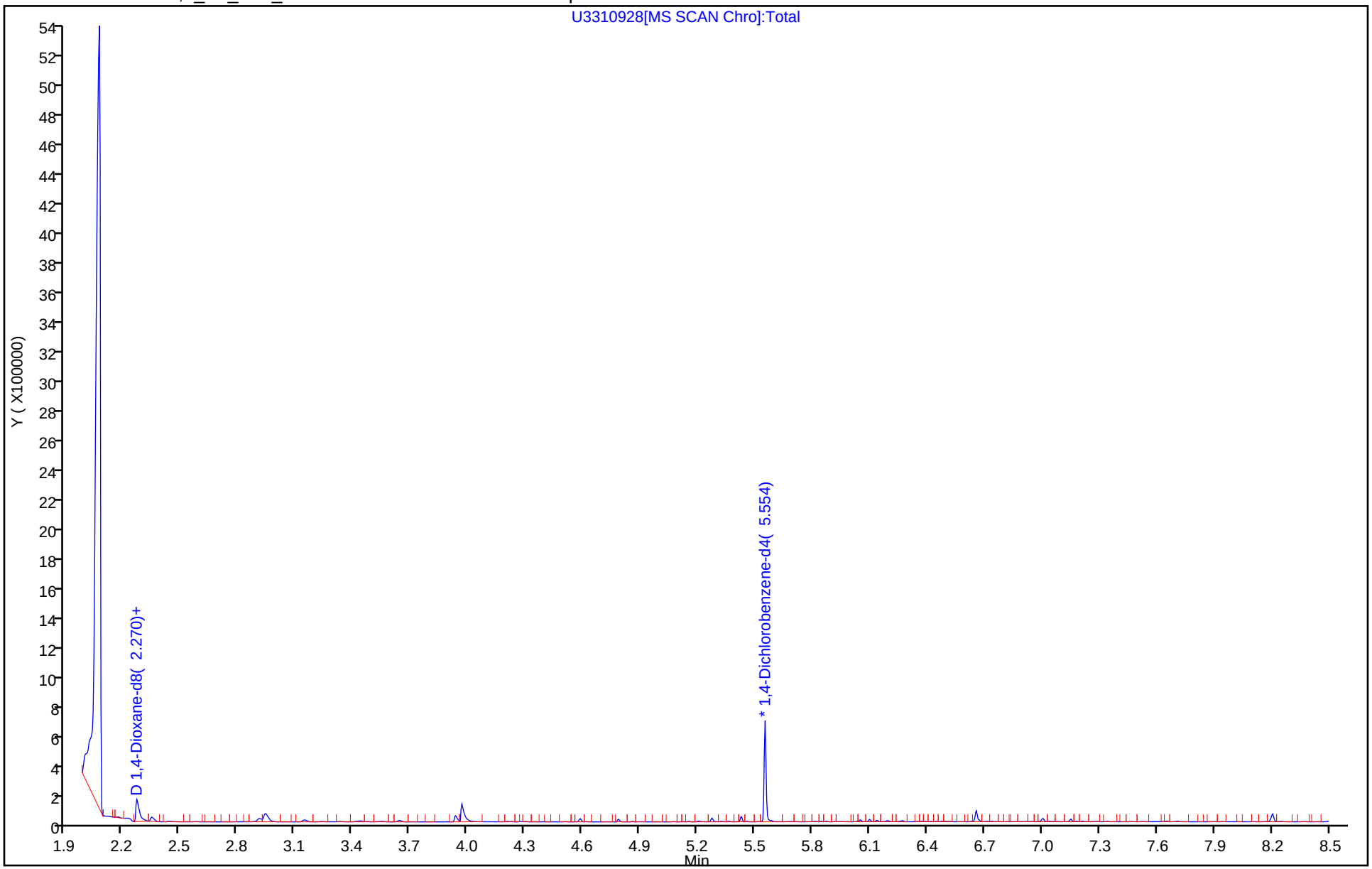
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:34:37 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310928.D

Injection Date:	24-Aug-2018 22:09:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	480-140615-B-6-A MS			Worklist Smp#:	20
Client ID:	MW-2D				
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	20
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		



Manual Integration/User Assign Peak Report

TestAmerica Buffalo

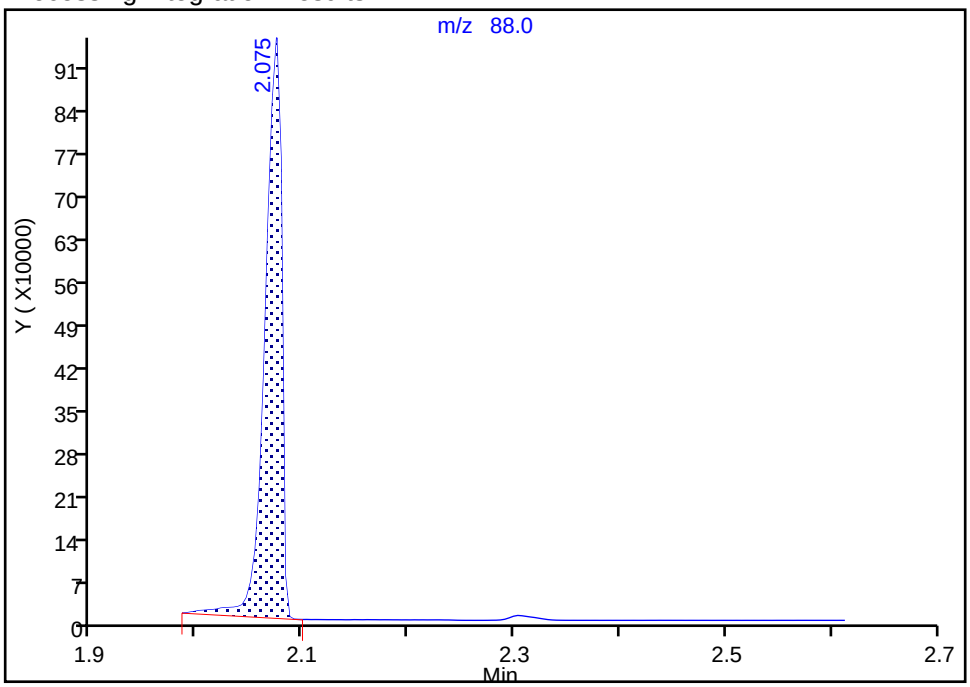
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310928.D
Injection Date: 24-Aug-2018 22:09:30 Instrument ID: HP5973U
Lims ID: 480-140615-B-6-A MS
Client ID: MW-2D
Operator ID: DR ALS Bottle#: 20 Worklist Smp#: 20
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4_Dx_SIM_HP5973U Limit Group: MB - 8270D SIM ID ICAL
Column: Detector MS SCAN

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

Signal: 1

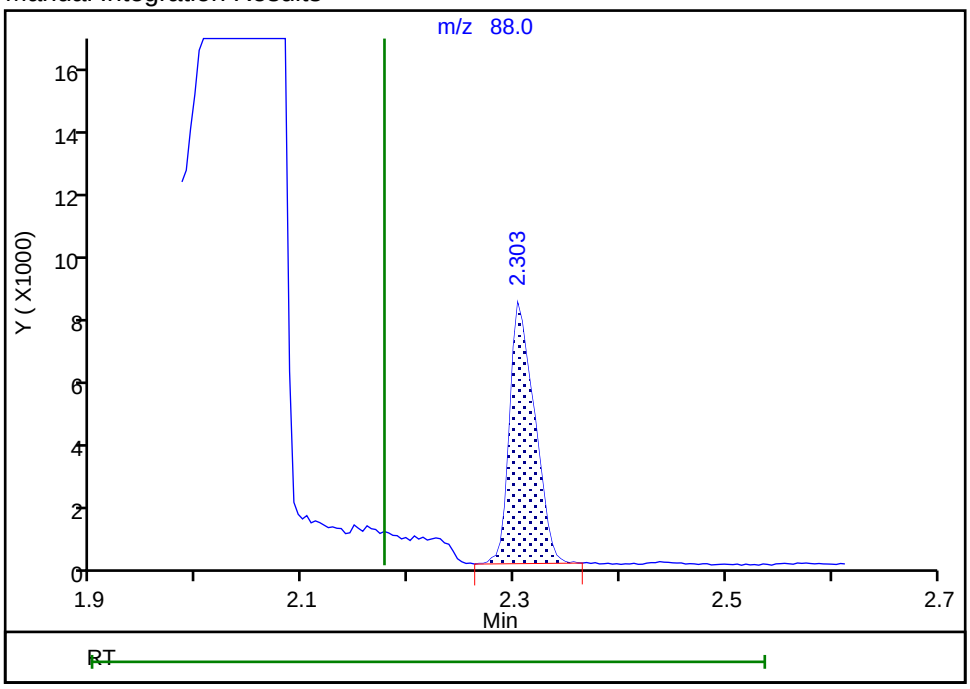
Processing Integration Results

RT: 2.07
Area: 1036557
Amount: 84.383299
Amount Units: ng/ul



Manual Integration Results

RT: 2.30
Area: 13201
Amount: 1.096522
Amount Units: ng/ul



Reviewer: richardsd, 27-Aug-2018 11:20:55
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-140615-1

SDG No.:

Client Sample ID: MW-2D MSD | Lab Sample ID: 480-140615-6 MSD

Matrix: Water | Lab File ID: U3310929.D

Analysis Method: 8270D SIM ID | Date Collected: 08/15/2018 12:00

Extract. Method: 3510C | Date Extracted: 08/20/2018 14:25

Sample wt/vol: 1000(mL) | Date Analyzed: 08/24/2018 22:33

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.: 431347 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	1.09		0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	33		15-110

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310929.D
Lims ID: 480-140615-A-6-A MSD
Client ID: MW-2D
Sample Type: MSD
Inject. Date: 24-Aug-2018 22:33:30 ALS Bottle#: 21 Worklist Smp#: 21
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0074162-021
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 27-Aug-2018 11:34:05 Calib Date: 11-Jul-2018 20:42:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180711-73014.b\U3309392.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 27-Aug-2018 11:21:05

	Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
	3 1,4-Dioxane	88	2.303	2.177	0.126	96	13389	1.00	1.09	a
D	1 1,4-Dioxane-d8	96	2.270	2.217	0.053	99	113055	10.0	3.26	
*	2 1,4-Dichlorobenzene-d4	152	5.554	5.547	0.007	95	285837	4.00	4.00	
	7 4,4'-DDE	246		10.644					ND	
	5 4,4'-DDD	235		10.944					ND	
	6 4,4'-DDT	235		11.179					ND	

QC Flag Legend

Review Flags
a - User Assigned ID

Reagents:

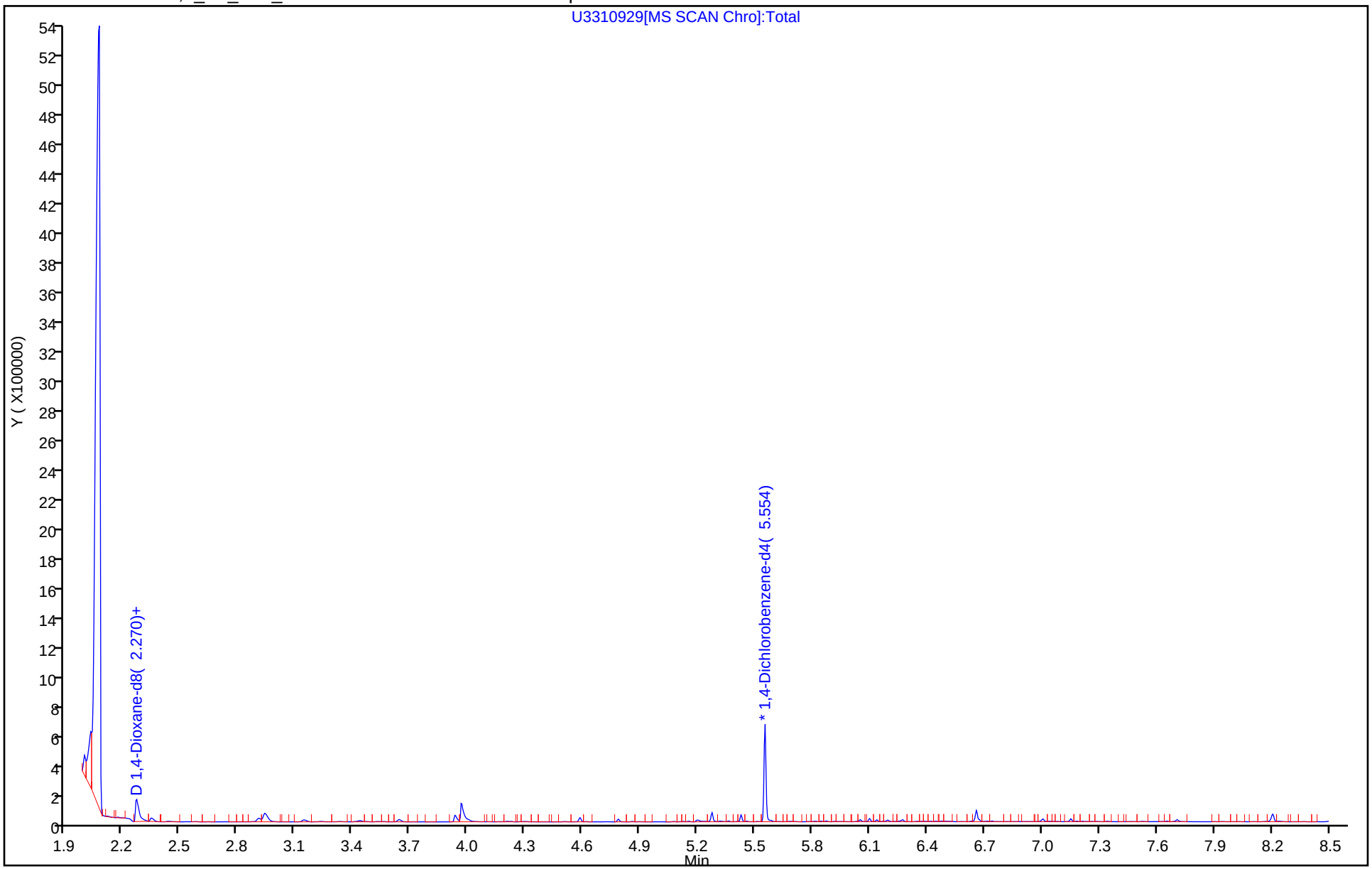
MB_LLIS_WRK_00151 Amount Added: 20.00 Units: uL Run Reagent

Report Date: 27-Aug-2018 11:34:39 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310929.D

Injection Date:	24-Aug-2018 22:33:30	Instrument ID:	HP5973U	Operator ID:	DR
Lims ID:	480-140615-A-6-A MSD			Worklist Smp#:	21
Client ID:	MW-2D				
Injection Vol:	1.0 ul	Dil. Factor:	1.0000	ALS Bottle#:	21
Method:	1,4_Dx_SIM_HP5973U	Limit Group:	MB - 8270D SIM ID ICAL		



Manual Integration/User Assign Peak Report

TestAmerica Buffalo

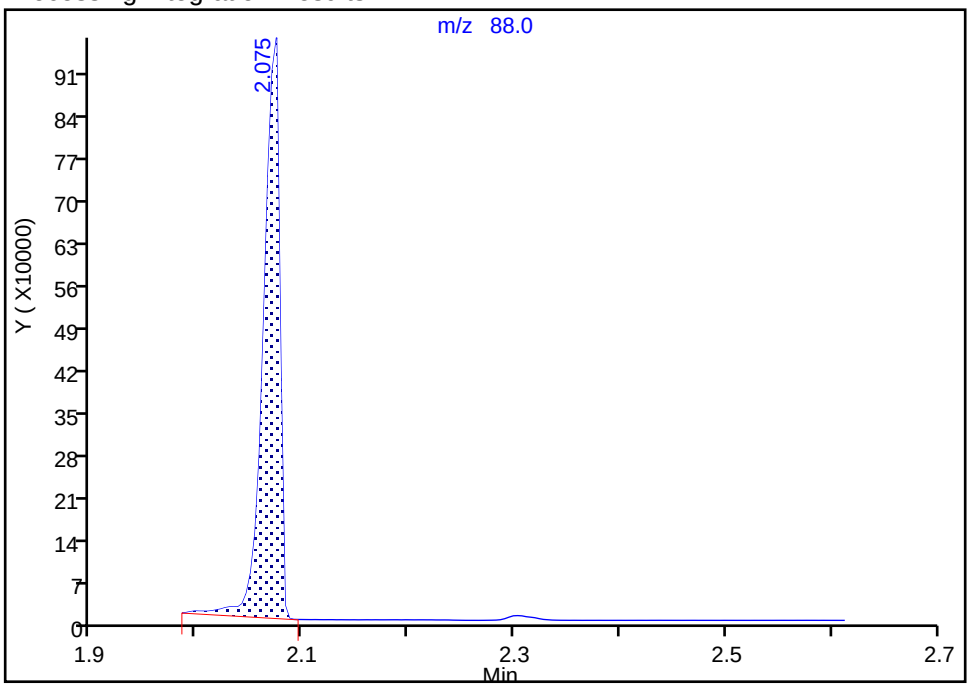
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180824-74162.b\U3310929.D
Injection Date: 24-Aug-2018 22:33:30 Instrument ID: HP5973U
Lims ID: 480-140615-A-6-A MSD
Client ID: MW-2D
Operator ID: DR ALS Bottle#: 21 Worklist Smp#: 21
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Method: 1,4_Dx_SIM_HP5973U Limit Group: MB - 8270D SIM ID ICAL
Column: Detector MS SCAN

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

Signal: 1

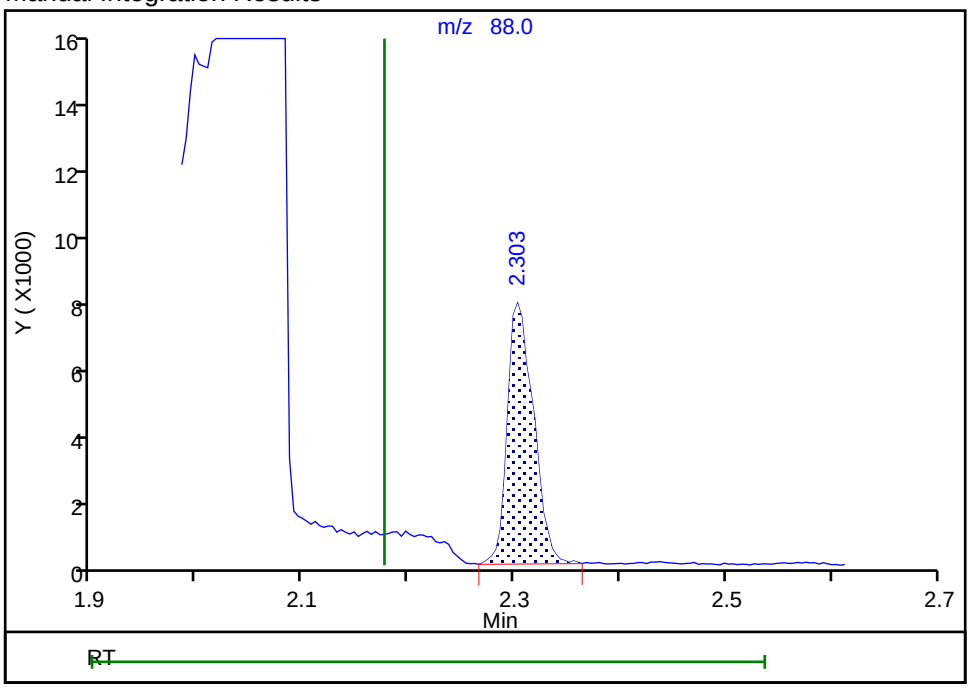
Processing Integration Results

RT: 2.07
Area: 1021339
Amount: 81.644142
Amount Units: ng/ul



Manual Integration Results

RT: 2.30
Area: 13389
Amount: 1.092150
Amount Units: ng/ul



Reviewer: richardsd, 27-Aug-2018 11:21:04
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Instrument ID: HP5973U Start Date: 07/11/2018 18:14

Analysis Batch Number: 424045 End Date: 07/12/2018 05:09

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
DFTPP 480-424045/2		07/11/2018 18:14	1	U3309386.D	RXI-5Sil MS(0.5 0.25(mm)
IC 480-424045/3		07/11/2018 18:42	1	U3309387.D	RXI-5Sil MS(0.5 0.25(mm)
IC 480-424045/4		07/11/2018 19:06	1	U3309388.D	RXI-5Sil MS(0.5 0.25(mm)
ICIS 480-424045/5		07/11/2018 19:30	1	U3309389.D	RXI-5Sil MS(0.5 0.25(mm)
IC 480-424045/6		07/11/2018 19:54	1	U3309390.D	RXI-5Sil MS(0.5 0.25(mm)
IC 480-424045/7		07/11/2018 20:18	1	U3309391.D	RXI-5Sil MS(0.5 0.25(mm)
IC 480-424045/8		07/11/2018 20:42	1	U3309392.D	RXI-5Sil MS(0.5 0.25(mm)
ICV 480-424045/9		07/11/2018 21:06	1	U3309393.D	RXI-5Sil MS(0.5 0.25(mm)
CCVIS 480-424045/10		07/11/2018 21:30	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/11/2018 21:55	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/11/2018 22:19	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/11/2018 22:44	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/11/2018 23:08	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/11/2018 23:33	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/11/2018 23:57	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 00:22	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 00:46	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 01:10	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 01:35	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 01:58	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 02:22	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 02:46	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 03:10	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 03:34	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 03:58	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 04:22	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 04:45	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		07/12/2018 05:09	1		RXI-5Sil MS(0.5 0.25(mm)

8270D SIM ID

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Instrument ID: HP5973U Start Date: 08/24/2018 15:00

Analysis Batch Number: 431347 End Date: 08/25/2018 02:06

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
DFTPP 480-431347/2		08/24/2018 15:00	1	U3310910.D	RXI-5Sil MS(0.5 0.25(mm)
CCVIS 480-431347/3		08/24/2018 15:28	1	U3310911.D	RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 15:52	10		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 16:16	5		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 16:40	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 17:04	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 17:28	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 17:52	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 18:15	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 18:38	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 19:02	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 19:25	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 19:49	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 20:12	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 20:35	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 20:59	1		RXI-5Sil MS(0.5 0.25(mm)
MB 480-430511/1-A		08/24/2018 21:22	1	U3310926.D	RXI-5Sil MS(0.5 0.25(mm)
LCS 480-430511/2-A		08/24/2018 21:46	1	U3310927.D	RXI-5Sil MS(0.5 0.25(mm)
480-140615-6 MS		08/24/2018 22:09	1	U3310928.D	RXI-5Sil MS(0.5 0.25(mm)
480-140615-6 MSD		08/24/2018 22:33	1	U3310929.D	RXI-5Sil MS(0.5 0.25(mm)
480-140615-6		08/24/2018 22:57	1	U3310930.D	RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 23:21	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/24/2018 23:45	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 00:09	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 00:32	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 00:56	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 01:19	1		RXI-5Sil MS(0.5 0.25(mm)
480-140615-1		08/25/2018 01:43	1	U3310937.D	RXI-5Sil MS(0.5 0.25(mm)
480-140615-2		08/25/2018 02:06	1	U3310938.D	RXI-5Sil MS(0.5 0.25(mm)

8270D SIM ID

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Instrument ID: HP5973U Start Date: 08/25/2018 02:53

Analysis Batch Number: 431348 End Date: 08/25/2018 13:51

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
DFTPP 480-431348/2		08/25/2018 02:53	1	U3310940.D	RXI-5Sil MS(0.5 0.25(mm)
CCVIS 480-431348/3		08/25/2018 03:21	1	U3310941.D	RXI-5Sil MS(0.5 0.25(mm)
480-140615-3		08/25/2018 03:44	1	U3310942.D	RXI-5Sil MS(0.5 0.25(mm)
480-140615-4		08/25/2018 04:07	1	U3310943.D	RXI-5Sil MS(0.5 0.25(mm)
480-140615-5		08/25/2018 04:31	5	U3310944.D	RXI-5Sil MS(0.5 0.25(mm)
480-140615-8		08/25/2018 04:54	1	U3310945.D	RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 05:17	1		RXI-5Sil MS(0.5 0.25(mm)
480-140615-7		08/25/2018 05:41	1	U3310947.D	RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 06:04	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 06:28	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 06:51	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 07:14	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 07:38	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 08:01	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 08:24	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 08:48	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 09:11	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 09:34	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 09:58	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 10:21	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 10:44	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 11:08	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 11:31	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 11:54	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 12:18	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 12:41	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 13:05	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 13:28	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/25/2018 13:51	1		RXI-5Sil MS(0.5 0.25(mm)

8270D SIM ID

GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Instrument ID: HP5973U Start Date: 08/27/2018 13:24

Analysis Batch Number: 431595 End Date: 08/27/2018 16:39

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
DFTPP 480-431595/2		08/27/2018 13:24	1	U3310984.D	RXI-5Sil MS(0.5 0.25(mm)
CCVIS 480-431595/3		08/27/2018 13:52	1	U3310985.D	RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/27/2018 14:15	5		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/27/2018 14:39	5		RXI-5Sil MS(0.5 0.25(mm)
480-140615-9		08/27/2018 15:02	5	U3310988.D	RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/27/2018 15:26	20		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/27/2018 15:50	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/27/2018 16:14	1		RXI-5Sil MS(0.5 0.25(mm)
ZZZZZ		08/27/2018 16:39	1		RXI-5Sil MS(0.5 0.25(mm)

8270D SIM ID

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Batch Number: 430511 Batch Start Date: 08/20/18 14:25 Batch Analyst: Gruning, Anton T

Batch Method: 3510C Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ReceivedpH	FirstAdjustpH	OP_SIM_LCS 00004	OP_SimSurr 00007
MB 480-430511/1		3510C, 8270D SIM ID		1000 mL	1 mL	7 SU	<2 SU		1 mL
LCS 480-430511/2		3510C, 8270D SIM ID		1000 mL	1 mL	7 SU	<2 SU	1 mL	1 mL
480-140615-B-6 MS	MW-2D	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU	1 mL	1 mL
480-140615-A-6 MSD	MW-2D	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU	1 mL	1 mL
480-140615-B-6	MW-2D	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU		1 mL
480-140615-B-1	MW-9S	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU		1 mL
480-140615-B-2	MW-9D	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU		1 mL
480-140615-A-3	MW-4S	3510C, 8270D SIM ID	T	100 mL	1 mL	7 SU	<2 SU		1 mL
480-140615-A-4	MW-4D	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU		1 mL
480-140615-B-5	MW-2S	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU		1 mL
480-140615-B-8	EB-01	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU		1 mL
480-140615-A-9	MH-01	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU		1 mL
480-140615-B-7	DUP-01	3510C, 8270D SIM ID	T	100 mL	1 mL	7 SU	<2 SU		1 mL

Lab Sample ID	Client Sample ID	Method Chain	Basis	AnalysisComment					
MB 480-430511/1		3510C, 8270D SIM ID							
LCS 480-430511/2		3510C, 8270D SIM ID							
480-140615-B-6 MS	MW-2D	3510C, 8270D SIM ID	T						
480-140615-A-6 MSD	MW-2D	3510C, 8270D SIM ID	T						
480-140615-B-6	MW-2D	3510C, 8270D SIM ID	T						
480-140615-B-1	MW-9S	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.

8270D SIM ID

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Buffalo Job No.: 480-140615-1

SDG No.:

Batch Number: 430511 Batch Start Date: 08/20/18 14:25 Batch Analyst: Gruning, Anton T

Batch Method: 3510C Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	AnalysisComment					
480-140615-B-2	MW-9D	3510C, 8270D SIM ID	T						
480-140615-A-3	MW-4S	3510C, 8270D SIM ID	T	Dark matrix					
480-140615-A-4	MW-4D	3510C, 8270D SIM ID	T						
480-140615-B-5	MW-2S	3510C, 8270D SIM ID	T						
480-140615-B-8	EB-01	3510C, 8270D SIM ID	T						
480-140615-A-9	MH-01	3510C, 8270D SIM ID	T						
480-140615-B-7	DUP-01	3510C, 8270D SIM ID	T	Cloudy matrix					

Batch Notes	
Acid Used for pH Adjustment ID	4825878
Analyst ID - Concentration	AG
Analyst ID - Extraction	AG
Method/Fraction	3510C/8270D_SIM_MS_ID
Na2SO4 ID	4791972
Prep Solvent ID	4822327
Prep Solvent Volume Used	180 mL
Analyst ID - Spike Analyst	AG
Analyst ID - Spike Witness Analyst	AG
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.

8270D SIM ID

Shipping and Receiving Documents

Transfers	Released By	Date/Time	Received By	Date/Time
1	[illegible]	8/16/18 18:05	[illegible]	8/16/18
2				
3				

Comments: 0900 #1

480-140615 COC

Cooler Temperature on Receipt °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 7061798 **Workorder Name:** TAYLORS LANE 8/15 **Results Requested By:** 9/7/2018

Report / Invoice To	Subcontract To
Jennifer Aracri Pace Analytical Melville 575 Broad Hollow Road Melville, NY 11747 Phone (631)694-3040 Email: jennifer.aracri@pacelabs.com	Test America-Buffalo 10 Hazelwood Drive Amherst, NY 14228

P.O. 7061798JSA

State of Sample Origin: NY

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Requested Analysis: 1,4 Dioxane by 8270 SIM	LAB USE ONLY
1	MW-9S	8/15/2018 10:15	7061798001	Water		X	
2	MW-9D	8/15/2018 10:20	7061798002	Water		X	
3	MW-4S	8/15/2018 13:20	7061798003	Water		X	
4	MW-4D	8/15/2018 13:10	7061798004	Water		X	
5	MW-2S	8/15/2018 11:45	7061798005	Water		X	
6	MW-2D	8/15/2018 12:00	7061798006	Water		X	
7	DUP-01	8/15/2018 13:15	7061798007	Water		X	
8	EB-01	8/15/2018 14:20	7061798008	Water		X	
9	MH-01	8/15/2018 14:00	7061798009	Water		X	
10							
11							
12							

Thursday, August 16, 2018 3:18:40 PM

FMT-ALL-C-002rev.00 24March2009

#1 3, 4, 3, 1, 2, 9

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	[illegible]	8/17/18 18:00	[illegible]	8/18/18	0900 #1
2					
3					

480-140615 COC

Cooler Temperature on Receipt °C	Custody Seal Y or N	Received on Ice Y or N	Samples Intact Y or N

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 7061798 **Workorder Name:** TAYLORS LANE 8/15 **Results Requested By:** 9/7/2018

Report / Invoice To	Subcontract To
Jennifer Aracri Pace Analytical Melville 575 Broad Hollow Road Melville, NY 11747 Phone (631)694-3040 Email: jennifer.aracri@pacelabs.com	Test America-Buffalo 10 Hazelwood Drive Amherst, NY 14228 P.O. 7061798JSA

State of Sample Origin: NY

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved						Requested Analysis: 1,4 Dioxane by 8270 SIM												LAB USE ONLY
1	MW-9S	8/15/2018 10:15	7061798001	Water							X												
2	MW-9D	8/15/2018 10:20	7061798002	Water							X												
3	MW-4S	8/15/2018 13:20	7061798003	Water							X												
4	MW-4D	8/15/2018 13:10	7061798004	Water							X												
5	MW-2S	8/15/2018 11:45	7061798005	Water							X												
6	MW-2D	8/15/2018 12:00	7061798006	Water							X												
7	DUP-01	8/15/2018 13:15	7061798007	Water							X												
8	EB-01	8/15/2018 14:20	7061798008	Water							X												
9	MH-01	8/15/2018 14:00	7061798009	Water							X												
10																							
11																							
12																							

#1 3, 4, 3, 1, 2, 9

WO#:7061798

7061798

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Required Client Information:	Required Project Information:	Section C Invoice Information:
Company: Zion Environmental, LLC	Report To: Nichols, Brian	Attention:
Address: 134 Kelly Hill Road	Copy To:	Company Name:
Otisville, NY 10963		Address:
Email:	Purchase Order #:	Pace Quote:
Phone: Fax:	Project Name: Taylors Lane	Pace Project Manager: jennifer.aracri@pacelabs.com,
Requested Due Date:	Project #:	Pace Profile #: 7400

Regulatory Agency	State / Location
	NY

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	1,4 Dioxane by 8270 SIM	PFAS EPA method 537	Residual Chlorine (Y/N)	
1	MW-9S	WT	G	8/15/19	1015				4	X								Y	2	2		001
2	MW-9D	WT	G	8/15/19	1030				4	X								Y	2	2		002
3	MW-4S	WT	G	8/15/19	1320				4	X								Y	2	2		003
4	MW-4D	WT	G	8/15/19	1310				4	X								Y	2	2		004
5	MW-2S	WT	G	8/15/19	1145				4	X								Y	2	2		005
6	MW-2D	WT	G	8/15/19	1200				4	X								Y	2	2		006
7	Dup-01	WT	G	8/15/19	1315				4	X								Y	2	2		007
8	MS	WT	G	8/15/19	1203				4	X								Y	2	2		006 ~~008~~
9	MSD	WT	G	8/15/19	1206				4	X								Y	2	2		↓ ~~009~~
10	EB-01	WT	G	8/15/19	1420				4	X								Y	2	2		008 ~~010~~
11	MH-01	WT	G	8/15/19	1400				4	X								Y	2	2		009 ~~011~~
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Sub to TA Buffalo	Brian	8/15/19	~~1600~~	Danielle Wallace / Ewallace	8/16/19	1030	2.1 Y N Y
1,4 Dioxane by EPA method 8270 SIM					08/16/18	0900	
PFAS by EPA method 537							

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brian Nichols / Wayne Keller

SIGNATURE of SAMPLER: DATE Signed: 8/15/19

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
#1 3.4	3.1	2.9	

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08/31/2018

Note: 1,4 Dioxane method detection limits should not exceed 0.28 ng/L (ppb)

-> Reporting limits for PFAS should not exceed 2 ng/L (ppt)

Login Sample Receipt Checklist

Client: Pace Analytical Services, LLC

Job Number: 480-140615-1

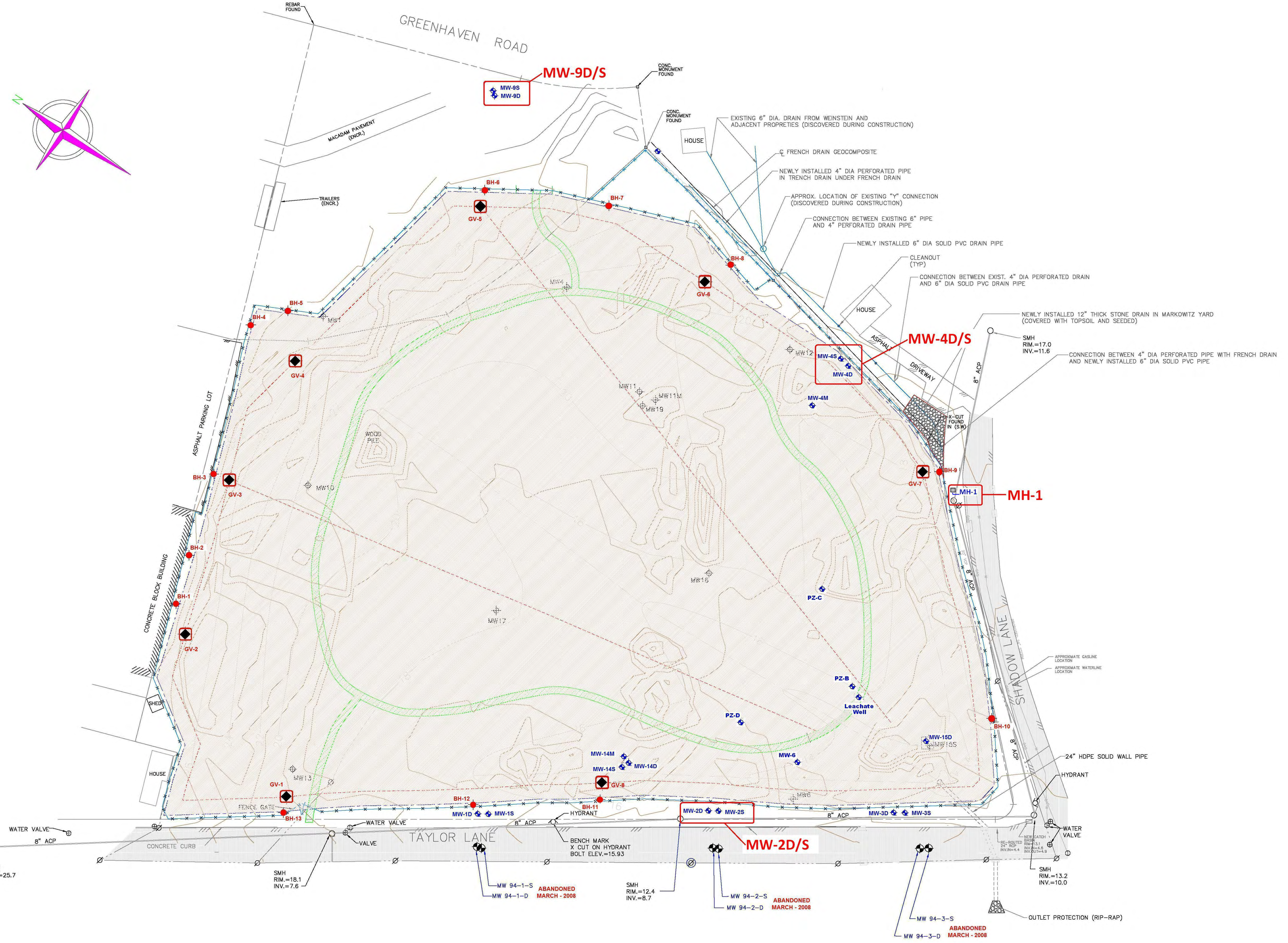
Login Number: 140615
List Number: 1
Creator: Harper, Marcus D

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	PACE
Samples received within 48 hours of sampling.	False	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Attachment 5

Figure 1



LEGEND

SMH	=	SANITARY SEWER MANHOLE
CB	=	CATCH BASIN
FI	=	FLAT GRATE
RCP	=	REINFORCED CONCRETE PIPE
ACP	=	ASBESTOS CEMENT PIPE
CMP	=	CORRUGATED METAL PIPE
VCP	=	VITRIFIED CLAY PIPE
SP	=	STEEL PIPE
MW-1S	=	MONITORING WELL
S.W.	=	STONE WALL
	=	VEGETATIVE DEBRIS PILE
U.P.	=	UTILITY POLE
	=	PROPERTY LINE
15	=	SHALLOW GROUNDWATER CONTOUR
	=	GAS VENTING PIPE
	=	CONTOUR
	=	LIMIT OF FINAL COVER
	=	GAS VENT
	=	MONITRORING WELL ABANDONED (TYP)
	=	BAR HOLE PUNCH (TYP)
	=	FENCE AROUNG GAS/MONITORING WELL (TYP)
	=	FINAL COVER AREA
	=	WALK TRAIL

NOTES:

1. NORTH REFERENCE IS BASED ON FILE MAP #3107.
2. BOUNDARY INFORMATION SHOWN HEREON IS AS TAKEN FROM A FIELD SURVEY PERFORMED BY WEHRAN ENGINEERING IN APRIL OF 1994.
3. TOPOGRAPHIC IMFORMATION SHOWN HEREON IS BASED UPON A GROUND SURVEY PERFORMED BY CONTRACTOR'S LINE & GRADE SOUTH OF BEDFORD HILLS NEW YORK, DATED OCT. 24, 1995 (REVISED MAY 6, 1996)
4. VERTICAL DATUM BASED ON U.S.G.S. MEAN SEA LEVEL DATUM OF 1929.
5. EASEMENTS OR RIGHT-OF-WAYS ON, OR UNDER THE LANDS, AND NOT VISIBLE, ARE NOT SHOWN.
6. GRID COORDINATES SHOWN HEREON ARE BASED UPON NEW YORK STATE PLANE COORDINATE SYSTEM.
7. FINAL COVER DRAINAGE PIPES LIE ALONG THE SAME ALIGNMENT AS THE TRIANGULAR DRAINAGE CHANNELS.
8. DRAINAGE INFORMATION FOR WEINSTEIN PROPERTY OBTAINED FROM OWNER AND FIELD VERIFIED BY MEASUREMENTS FROM EXISTING FEATURES.

MAP REFERENCE :

1. "REVISED MAP OF FIRST ADDITION TO GREENHAVEN", AS FILED ON 2/5/27. IN WESTCHESTER COUNTY CLERK'S OFFICE AS MAP #3107.
2. "MAP #4204", AS FILED ON 11/16/35. IN WESTCHESTER COUNTY CLERK'S OFFICE.

0 40 80
SCALE IN FEET

1" 1/2" 0" 1"

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
1	3/26/11	ADDED CONTOURS AND NEW BORDER	BN	BN	TP	AC

DATE OF ISSUE 3/27/2011 — DWN BY BN — DES BY BN — CHK BY TP — APP BY AC

ZION ENVIRONMENTAL, LLC.

VILLAGE OF MAMARONECK
TAYLOR'S LANE COMPOST SITE
TOWN OF RYE, WESTCHESTER, NEW YORK
SITE MAP

FIGURE 1
PROJECT NO. 14-PSA-001