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New York State Department of Environmental Conservation  
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ENVIRONMENT

Subject:  
Waste-Stream Inc. Site (Site #6-45-022)  
Potsdam, New York  
Emerging Contaminant Groundwater Sampling Summary Letter

Dear Mr. Ouderkirk:

This letter summarizes the work performed and findings of the October 30, 2018 per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane (i.e., emerging contaminants) groundwater investigation at the Waste-Stream, Inc. (WSI) Site (the site) in Potsdam, New York. The groundwater investigation was performed in response to the New York State Department of Environmental Conservation's (NYSDEC's) request in a May 8, 2018 letter. Arcadis of New York, Inc. (Arcadis) conducted the emerging contaminant groundwater sampling in accordance with the following:

- The NYSDEC-approved August 31, 2018 *Emerging Contaminant Groundwater Sampling Work Plan* (i.e., Work Plan) from Arcadis to the NYSDEC.
- NYSDEC's June 29, 2016 *Collection of Groundwater Samples for Perfluorooctanoic Acid and Perfluorinated Compounds from Monitoring Wells Sample Protocol*.
- NYSDEC's 2018 *Groundwater Sampling for Emerging Contaminants*.

As summarized herein, PFAS compounds were detected at low-level concentrations in groundwater samples collected from each of the three sampled wells. 1,4-dioxane was not detected in any of the groundwater samples.

Relevant background information is presented below, followed by a summary of the groundwater investigation activities and the analytical results.

Date:  
June 27, 2019

Contact:  
Jason Brien

Phone:  
315.671.9114

Email:  
[jason.brien@arcadis.com](mailto:jason.brien@arcadis.com)

Our ref:  
B0031006.0005 #10

## SITE BACKGROUND

The site is located at 147 Outer Maple Street (U.S. Route 11) in the Town and Village of Potsdam, St. Lawrence County, New York and is the location of a former scrap yard. The approximately 27-acre scrap yard property was once occupied by several structures, storage tanks, and scrap processing equipment which have since been mostly removed or demolished.

The WSI property is the former location of a metal recycling and scrap yard business that operated from approximately 1957 until all scrapping operations were ceased in 2018. Site activities conducted on the property included tin press operations, metal shearing, car crushing, and scrap metal processing.

Based on the results of multiple site investigations, polychlorinated biphenyls are the primary constituent of concern (COC) at the site. Additional COCs include inorganics (primarily metals), volatile organic compounds and semi-volatile organic compounds. The potential presence of PFAS and 1,4-dioxane in soil and groundwater at the Site was not evaluated by the previous environmental site investigations and NYSDEC did not identify these compounds as COCs in their June 2011 Record of Decision.

## GROUNDWATER SAMPLING ACTIVITIES

Arcadis' Work Plan and NYSDEC's September 6, 2018 work plan approval letter are included as Attachment A. Arcadis conducted the groundwater sampling on October 30, 2018. Groundwater purging and sampling was performed using the low-flow techniques presented in the Work Plan. Purging and sampling was performed at a rate of approximately 100 to 200 milliliters per minute using a peristaltic pump and high-density polyethylene (HDPE) tubing (separate tubing for each well). Field parameters measured during purging and immediately prior to sampling are presented on the groundwater sampling logs included in Attachment B.

Arcadis collected groundwater samples from monitoring wells MW-201, MW-205, and MW-207. As presented in the Work Plan, a sample was anticipated to be collected at monitoring well MW-203, but the well ran dry during purging. Monitoring well MW-205 was sampled in place of MW-203 based on its relative location and similar screen depth. Quality assurance/quality control (QA/QC) samples, consisting a field duplicate, a matrix spike, matrix spike duplicate sample, and an equipment blank were also collected. The equipment blank was collected by pumping laboratory-supplied "PFAS-free" water through new HDPE tubing using a peristaltic pump with new silicone tubing.

Arcadis submitted groundwater samples (and QA/QC samples) to TestAmerica (TA) for laboratory analysis as follows:

- TA's Sacramento, California laboratory analyzed each of the samples for the 21 PFASs listed in NYSDEC's February 2018 guidance using United States Environmental Protection Agency (EPA) Method 537 with a reporting limit of approximately 2 nanograms per liter (ng/L).
- TA's Amherst, New York laboratory analyzed the samples for 1,4-dioxane using EPA Method 8270 using simulated ion monitoring (SIM) mode low-level detection methods to achieve a reporting limit of approximately 200 ng/L.

TA provided an NYSDEC Analytical Service Protocol Category B data deliverable package to facilitate data validation.

Arcadis discharged wastewater generated by groundwater purging to the ground surface immediately adjacent to each location in accordance with the Work Plan.

## GROUNDWATER SAMPLING RESULTS

Arcadis validated the groundwater analytical results and found the results to be useable as intended. The data validation report and the full laboratory analytical data report are provided in Attachments C and D, respectively. The validated PFAS and 1,4-dioxane groundwater analytical results are presented in Table 1 and on Figure 1.

As indicated in Table 1, PFAS compounds were detected at low-level concentrations in each of the three wells and in the equipment blank. The sum of perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) concentrations detected in groundwater collected from MW-205 and MW-207 slightly exceeds the EPA drinking water health advisory limit of 70 ng/L. The PFAS analytical results are summarized by location below:

- **MW-201** – Total PFAS was detected at an estimated concentration of 15 ng/L in the parent groundwater sample, and an estimated concentration of 16 ng/L in the duplicate sample. The sum of detected PFOA and PFOS concentrations was 11 ng/L (parent) and 12 ng/L (duplicate).
- **MW-205** – Total PFAS was detected at an estimated concentration of 150 ng/L in the groundwater sample collected from this well, and the sum of PFOS and PFOA concentrations was 79 ng/L.
- **MW-207** – Total PFAS was detected at an estimated concentration of 89 ng/L in groundwater sample collected from this well, and the sum of PFOS and PFOA concentrations was 80 ng/L.

1,4-dioxane was not detected at concentrations exceeding the reporting limit in any of the groundwater samples.

## CONCLUSIONS

In accordance with the May 8, 2018 request, the WSI Group has fulfilled its obligation to investigate emerging contaminants on its site. Remedial activities planned at this site include an institutional control in the form of an environmental easement restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) and/or the St. Lawrence County Department of Health. Therefore, the potential for human exposure to constituents in groundwater at the Site continues to be limited. The WSI group proposes no further action for emerging contaminants.

Please do not hesitate to call me at 315.671.9114 if you have any questions or require additional information regarding the emerging contaminant groundwater investigation or the conclusions presented in this report.

Mr. Peter Ouderkirk  
June 27, 2019

Sincerely,

Arcadis of New York, Inc.



Jason Brien, P.E.  
Principal Engineer

Copies:

Kelly Hale, NYSDEC  
Brain Stearns, National Grid  
Steve Beam, National Grid  
Anthony Sheeran, Casella  
Russell Anderson, LEED A.P., Casella Waste Streams, Inc.  
Terry Young, P.E., Arcadis  
L. Carey Healy, Arcadis

Enclosures:

**Table**

- 1 Emerging Contaminant Results

**Figure**

- 1 Emerging Contaminant Analytical Results

**Attachments**

- A Emerging Contaminant Groundwater Sampling Work Plan and NYSDEC Approval
- B Groundwater Sampling Logs
- C Data Validation Report
- D Laboratory Analytical Reports



# TABLE



**Table 1**  
**Emerging Contaminant Results (ng/L)**

**Waste-Stream Inc. Site - Potsdam, New York**  
**Emerging Contaminant Groundwater Sampling Summary Letter**

	Location ID:	Screening Value	MW-201	MW-205	MW-207	Equipment Blank
<b>Semivolatile Organic Compounds</b>						
1,4-Dioxane		460	<200 [ $<190$ ]	<190	<190	<190
<b>Perfluoroalkyl Substances</b>						
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)		--	<20 [ $<20$ ]	<20	3.5 J	<19
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)		--	<20 [ $<20$ ]	<20	<20	<19
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)		--	<20 [ $<20$ ]	<20	<20	<19
N-Methylperfluorooctane Sulfonamidoacetic Acid (MeFOSAA)		--	<20 [ $<20$ ]	<20	<20	<19
Perfluorobutane sulfonic acid (PFBS)		--	<2.0 [ $<2$ ]	3.0	<2.0	<1.9
Perfluorobutanoic acid (PFBA)		--	3.8 [3.4]	15	<2.0 J	<1.9
Perfluorodecanesulfonic acid (PFDS)		--	<2.0 [ $<2$ ]	<2.0	<2.0	<1.9
Perfluorodecanoic acid (PFDA)		--	<2.0 [ $<2$ ]	<2.0	1.4 J	<1.9
Perfluorododecanoic acid (PFDoA)		--	<2.0 [ $<2$ ]	<2.0	<2.0	<1.9
Perfluoroheptanesulfonic Acid (PFHpS)		--	<2.0 [ $<2$ ]	0.49 J	<2.0	<1.9
Perfluoroheptanoic acid (PFHpA)		--	0.34 J [0.36 J]	9.3	<2.0	<1.9
Perfluorohexane sulfonic acid (PFHxS)		--	<2.0 B [ $<2$ B]	16	1.9 J	0.29 JB
Perfluorohexanoic acid (PFHxA)		--	<2.0 [ $<2$ ]	14	<2.0 J	<1.9
Perfluorononanoic acid (PFNA)		--	<2.0 [ $<2$ ]	0.79 J	2.6	<1.9
Perfluorooctane Sulfonamide (FOSA)		--	<2.0 [ $<2$ ]	<2.0	<2.0	<1.9
Perfluorooctanesulfonic acid (PFOS)		--	1.9 J [2.2]	43	69	<1.9
Perfluorooctanoic acid (PFOA)		--	9.2 [9.6]	36	11	<1.9
Perfluoropentanoic acid (PFPeA)		--	<2.0 [ $<2$ ]	13	<2.0 J	<1.9
Perfluorotetradecanoic acid (PFTeA)		--	<2.0 [ $<2$ ]	<2.0	<2.0	<1.9
Perfluorotridecanoic acid (PFTrDA)		--	<2.0 [ $<2$ ]	<2.0	<2.0	<1.9
Perfluoroundecanoic acid (PFUdA)		--	<2.0 [ $<2$ ]	<2.0	<2.0	<1.9
Total PFAS		--	15 J [16 J]	150 J	89 J	0.29 JB
Total PFOA and PFOS		70	11 J [12]	79	80	<1.9

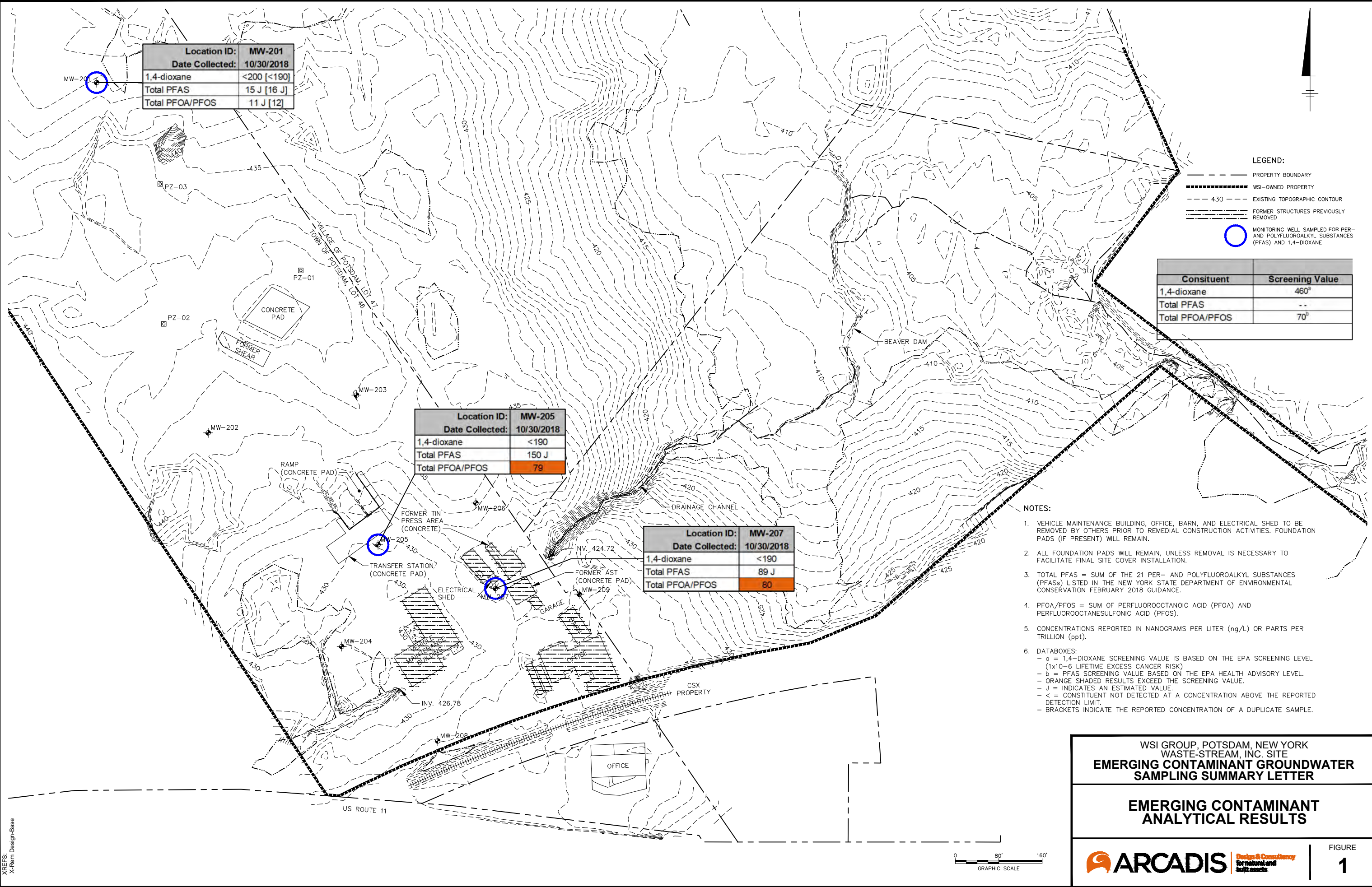
**Notes:**

1. Samples were collected by Arcadis on 10/30/2018.
2. Groundwater samples were analyzed by Test America of Amherst, New York for 1,4-dioxane using United States Environmental Protection Agency (EPA) Method 8270 using simulated ion monitoring mode low level detection methods.
3. Groundwater samples were analyzed by Test America of Burlington, Vermont for the 21 PFASs listed in NYSDEC's April 2018 guidance using United States EPA Method 537.
4. < = Constituent not detected at a concentration above the reported detection limit.
5. J = Indicates an estimated value.
6. B = Compounds found in blank and sample.
7. Brackets indicate the reported concentration of a duplicate sample.
8. Concentrations reported in nanograms per liter (ng/L) or parts per trillion (ppt).
9. Data have been validated.
10. 1,4-dioxane screening value is based on the the EPA screening level ( $1 \times 10^{-6}$  lifetime excess cancer risk).
11. PFOA/PFOS screening value based on the EPA health advisory level.
12. Shaded results exceed the applicable screening values.

**FIGURE**



CITY: SYRACUSE, NY DIV: GROUP: EBC-IMDV DR: B, DECLERIO, L, POSENAUER, PM (Revd) TM: (Opt) LVR: (OH) ON: OFF-REF  
 C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\ANA - NATIONAL GRIDING ENV WSI POTSDAM FORMER SCRAP YARD\2019\B003\006\0005\01-DWG\EGSSSL\_FIG01\_Emerging Contaminant Analytical Results.dwg LAYOUT: 1 SAVED: 4/11/2019 2:53 PM ACADVER: 23.05 (LMS TECH) PAGESETUP: C:\D2B-PDF PLOTSTYLE\TABLE: PLTFULL.CTB PLOTTED: 4/19/2019 2:28 PM BY: POSENAUER, LISA



Location ID:	MW-201
Date Collected:	10/30/2018
1,4-dioxane	<200 [ <b>&lt;190</b> ]
Total PFAS	15 J [16 J]
Total PFOA/PFOS	11 J [12]

Location ID:	MW-205
Date Collected:	10/30/2018
1,4-dioxane	<190
Total PFAS	150 J
Total PFOA/PFOS	79

Location ID:	MW-207
Date Collected:	10/30/2018
1,4-dioxane	<190
Total PFAS	89 J
Total PFOA/PFOS	80

Constituent	Screening Value
1,4-dioxane	460 <sup>a</sup>
Total PFAS	--
Total PFOA/PFOS	70 <sup>b</sup>

- LEGEND:**
- PROPERTY BOUNDARY
  - WSI-OWNED PROPERTY
  - - - 4.30 - - - EXISTING TOPOGRAPHIC CONTOUR
  - FORMER STRUCTURES PREVIOUSLY REMOVED
  - MONITORING WELL SAMPLED FOR PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) AND 1,4-DIOXANE

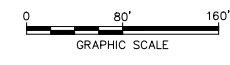
- NOTES:**
- VEHICLE MAINTENANCE BUILDING, OFFICE, BARN, AND ELECTRICAL SHED TO BE REMOVED BY OTHERS PRIOR TO REMEDIAL CONSTRUCTION ACTIVITIES. FOUNDATION PADS (IF PRESENT) WILL REMAIN.
  - ALL FOUNDATION PADS WILL REMAIN, UNLESS REMOVAL IS NECESSARY TO FACILITATE FINAL SITE COVER INSTALLATION.
  - TOTAL PFAS = SUM OF THE 21 PER- AND POLYFLUOROALKYL SUBSTANCES (PFASs) LISTED IN THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION FEBRUARY 2018 GUIDANCE.
  - PFOA/PFOS = SUM OF PERFLUOROCTANOIC ACID (PFOA) AND PERFLUOROCTANESULFONIC ACID (PFOS).
  - CONCENTRATIONS REPORTED IN NANOGRAMS PER LITER (ng/L) OR PARTS PER TRILLION (ppt).
  - DATABOXES:
    - a = 1,4-DIOXANE SCREENING VALUE IS BASED ON THE EPA SCREENING LEVEL (1x10<sup>-6</sup> LIFETIME EXCESS CANCER RISK)
    - b = PFAS SCREENING VALUE BASED ON THE EPA HEALTH ADVISORY LEVEL.
    - ORANGE SHADED RESULTS EXCEED THE SCREENING VALUE.
    - J = INDICATES AN ESTIMATED VALUE.
    - < = CONSTITUENT NOT DETECTED AT A CONCENTRATION ABOVE THE REPORTED DETECTION LIMIT.
    - BRACKETS INDICATE THE REPORTED CONCENTRATION OF A DUPLICATE SAMPLE.

WSI GROUP, POTSDAM, NEW YORK  
 WASTE-STREAM, INC. SITE  
**EMERGING CONTAMINANT GROUNDWATER  
 SAMPLING SUMMARY LETTER**

**EMERGING CONTAMINANT  
 ANALYTICAL RESULTS**

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE  
**1**



# ATTACHMENT A

Emerging Contaminant Groundwater Sampling Work Plan and  
NYSDEC Approval



# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 6

Dulles State Office Building, 317 Washington Street, Watertown, NY 13601-3787

P: (315) 785-2513 | F: (315) 785-2422

www.dec.ny.gov

September 6, 2018

Mr. Jason Brien, P.E.  
Principal Engineer  
ARCADIS of New York, Inc.  
110 West Fayette Street  
Suite 300  
Syracuse, NY 13202

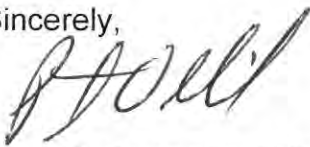
**Re: Waste Stream Inc.  
Site No. HW645022  
Emerging Contaminant Groundwater Sampling Work Plan**

Dear Mr. Brien:

The Department has reviewed the work plan for the above referenced project dated August 31, 2018. Based on our review the work plan is approved. Please provide a schedule when the work will be conducted at your earliest convenience.

Thank you for providing this document for our review. If you have any questions, please let me know.

Sincerely,



Peter S. Ouderkirk, P.E.  
Project Manager

PSO:eb1

ec: Peter Taylor



Department of  
Environmental  
Conservation

Peter Ouderkirk, PE  
New York State Department of Environmental Conservation  
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Watertown, New York 13601-3787

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ENVIRONMENT

Subject:  
Waste Stream, Inc. Site (Site #6-45-022)  
Potsdam, New York  
Emerging Contaminant Groundwater Sampling Work Plan

Dear Mr. Ouderkirk:

On behalf of the Waste-Stream, Inc. (WSI) Group, this work plan presents proposed groundwater sampling activities for 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS) (i.e., emerging contaminants) at the WSI site (the Site) located in Potsdam, New York (Site #6-45-022). The proposed groundwater sampling is in response to a May 8, 2018 New York State Department of Environmental Conservation (NYSDEC) letter, which requests emerging contaminant sampling as a result of having found these compounds in various drinking water supplies across the state. Therefore, while reserving all rights and defenses with regard to the sampling and results, this work plan is presented for NYSDEC's review.

Relevant background information is presented below, followed by precautions for emerging contaminant sampling, details of the proposed groundwater sampling, reporting requirements, and the anticipated schedule for implementing the work.

## Background

The former WSI scrapyard property is located at 147 Outer Maple Street (U.S. Route 11) in the Town and Village of Potsdam, St. Lawrence County, New York. The project area consists of various on-site and off-site areas, but this work plan is specific to the former WSI scrapyard property. The approximately 27 acre scrap yard property was once occupied by several structures, storage tanks, and scrap processing equipment which have since been mostly removed or demolished.

The WSI property is the location of a metal recycling and scrap yard business that has operated since approximately 1957. Site activities conducted on the property included tin press operations, metal shearing, car crushing, and scrap metal processing.

Date:  
August 31, 2018

Contact:  
Jason Brien

Phone:  
315.671.9114

Email:  
Jason.Brien@arcadis.com

Our ref:  
B0031006.0005 #10



Based on the results of multiple site investigations, polychlorinated biphenyls (PCBs) are the primary constituent of concern (COC) at the Site. Additional COCs include inorganics (primarily metals), VOCs and SVOCs. The potential presence of PFAS and 1,4-dioxane in soil and groundwater at the Site was not evaluated by the previous environmental site investigations and not directed to be addressed in the site Record of Decision prepared by NYSDEC.

### Precautions for Emerging Contaminant Sampling

Sampling for emerging contaminants presents unique challenges that require modifications to typical field sampling protocols. These challenges stem from the extremely low detection limits associated with PFAS and 1,4-dioxane analysis and the many potential sources of trace levels of PFAS and 1,4-dioxane. PFAS are found in many commonly used materials considered desirable for other analyte sampling protocols (e.g., Teflon™ tape, and Teflon™-lined pump bladders, and Teflon™-lined sample caps) and in water-resistant field clothing/gear (e.g., GORE-TEX®). Additionally, 1,4-dioxane is found in many commonly used detergents including Liquinox® and Dawn® dish soap. Use of these materials will be avoided during sampling. The proposed modified field sampling protocols for PFAS are presented in *Technical Guidance Instructions - Poly- and Perfluorinated Alkyl Substances Field Sampling Guidance* (Arcadis, 2007) and *Collection of Groundwater Samples for Perfluorooctanoic Acid and Perfluorinated Compounds from Monitoring Wells Sample Protocol* (NYSDEC, 2016), included as Attachments 1 and 2 (respectively) to this letter. These sampling protocols will be further modified for 1,4-dioxane sampling by only using lab-certified PFAS-free deionized water and powdered Alconox for equipment decontamination. Additionally, waste management activities presented in this letter supersede those described in Attachment 1.

### Proposed Emerging Contaminant Groundwater Sampling Activities

The WSI group proposes to collect groundwater samples for PFAS and 1,4-dioxane from existing groundwater monitoring wells MW-201, MW-203, and MW-207. The proposed locations will provide spatial coverage throughout the scrapyards property. MW-201 is located at an upgradient location and the remaining two wells are located immediately within the site operations area. The proposed monitoring well locations are circled in purple on Figure 1.

Prior to collecting soil samples, Arcadis will obtain water level measurements from all existing piezometers/monitoring wells at the Site to evaluate groundwater flow conditions. The depth to water at each monitoring well will be measured to the nearest 0.01 inch from a surveyed mark at the top of each well casing and the water depths will be converted to groundwater elevations based on the top of well casing survey information.

To initiate sampling, the monitoring wells will be purged by low-flow methods until the turbidity level of the purged water is less than 50 nephelometric turbidity units (NTUs) or until all water is removed and the well recovers. Purging/sampling will be performed using a peristaltic pump and high-density polyethylene (HDPE) tubing (separate tubing for each well). Following purging, groundwater quality field parameter measurements (i.e., temperature, turbidity, dissolved oxygen, conductivity, and pH) will be obtained from each well. Field parameters measured immediately prior to sampling will be recorded on a groundwater sampling log included as Attachment 3.

Arcadis will submit the groundwater samples for laboratory analysis in accordance with the protocols presented in the Groundwater Sampling for Emerging Contaminants guidance (NYSDEC 2018);



Attachment 4) included with the NYSDEC's May 8, 2018 letter. Groundwater samples will be submitted to TestAmerica (TA) for laboratory analysis as follows:

- TA's Burlington, Vermont laboratory will analyze samples for the 21 PFASs listed in NYSDEC's February 2018 guidance using United States Environmental Protection Agency (EPA) Method 537 with a reporting limit of 2 nanograms per liter (ng/L).
- TA's Amherst, New York laboratory will analyze the samples for 1,4-dioxane using EPA Method 8270 using simulated ion monitoring (SIM) mode low level detection methods to achieve a reporting limit of approximately 200 ng/L.

QA/QC samples, consisting a field duplicate, a matrix spike, and a matrix spike duplicate sample will be collected and analyzed. An equipment blank will also be collected and submitted for laboratory analysis. The equipment blank will be collected by pumping laboratory-supplied "PFAS-free" water through new HDPE tubing using the peristaltic pump (with new silicone tubing). TA will provide an NYSDEC Analytical Service Protocol (ASP) Category B data deliverable package to facilitate data validation.

Wastewater generated by groundwater purging will be discharged to the ground surface immediately adjacent to each location.

### Groundwater Sampling Report

The WSI Group will prepare a letter report to the NYSDEC summarizing the activities conducted, results obtained and conclusions and recommendations (as appropriate) for the emerging contaminant groundwater sampling activities. Analytical results will be compared to the concentrations presented in the following table:

Analyte	Screening Value	Source
PFAS	70 ng/L	EPA health advisory level
1,4-dioxane	460 ng/L	EPA screening level <sup>1</sup>

Note:

1. Based on a 1x10<sup>-6</sup> lifetime excess cancer risk

The letter report will be supported by the following:

- Data tables presenting the validated analytical results in comparison to the above screening values.
- A figure showing the monitoring well locations and detected analytical results.
- Groundwater sampling logs (attachment).
- The data validation reports and laboratory analytical data reports (on disc).

### Schedule

The WSI Group anticipates conducting the low-flow purging and groundwater sampling within approximately two to four weeks following NYSDEC approval of this work plan. The schedule for fieldwork is subject to change based on weather conditions. As indicated in the groundwater sampling procedure (Attachment 1), waterproof rain gear is not permitted. Therefore, field sampling may be postponed if heavy rainfall is predicted or a persistent rain falls at the Site. Sampling may proceed under a gazebo tent installed over the top of the monitoring well to provide shelter from the rain, provided proper precautions are taken to avoid cross-contamination.

Mr. Peter Ouderkirk, PE  
August 31, 2018

Laboratory analysis of the groundwater samples will be performed on standard turnaround time, with results anticipated approximately 15 business days following sample receipt. Arcadis will validate the laboratory analytical results within approximately four weeks after receiving the Category B deliverables package from TestAmerica. The groundwater sampling report will be submitted to the NYSDEC within approximately three to four weeks following the data validation.

Please do not hesitate to call me at 315-671-9114 if you have any questions or require additional information regarding any aspect of the proposed groundwater sampling.

Sincerely,

Arcadis of New York, Inc.



Jason Brien, P.E.  
Principal Engineer

Copies:

Brian Stearns, National Grid  
Russell Anderson, LEED A.P., Casella Waste Systems, Inc.  
Terry Young, P.E., Arcadis  
L. Carey Healy, Arcadis

Enclosures:

**Figure**

- 1 Proposed Monitoring Wells for Emerging Contaminant Sampling

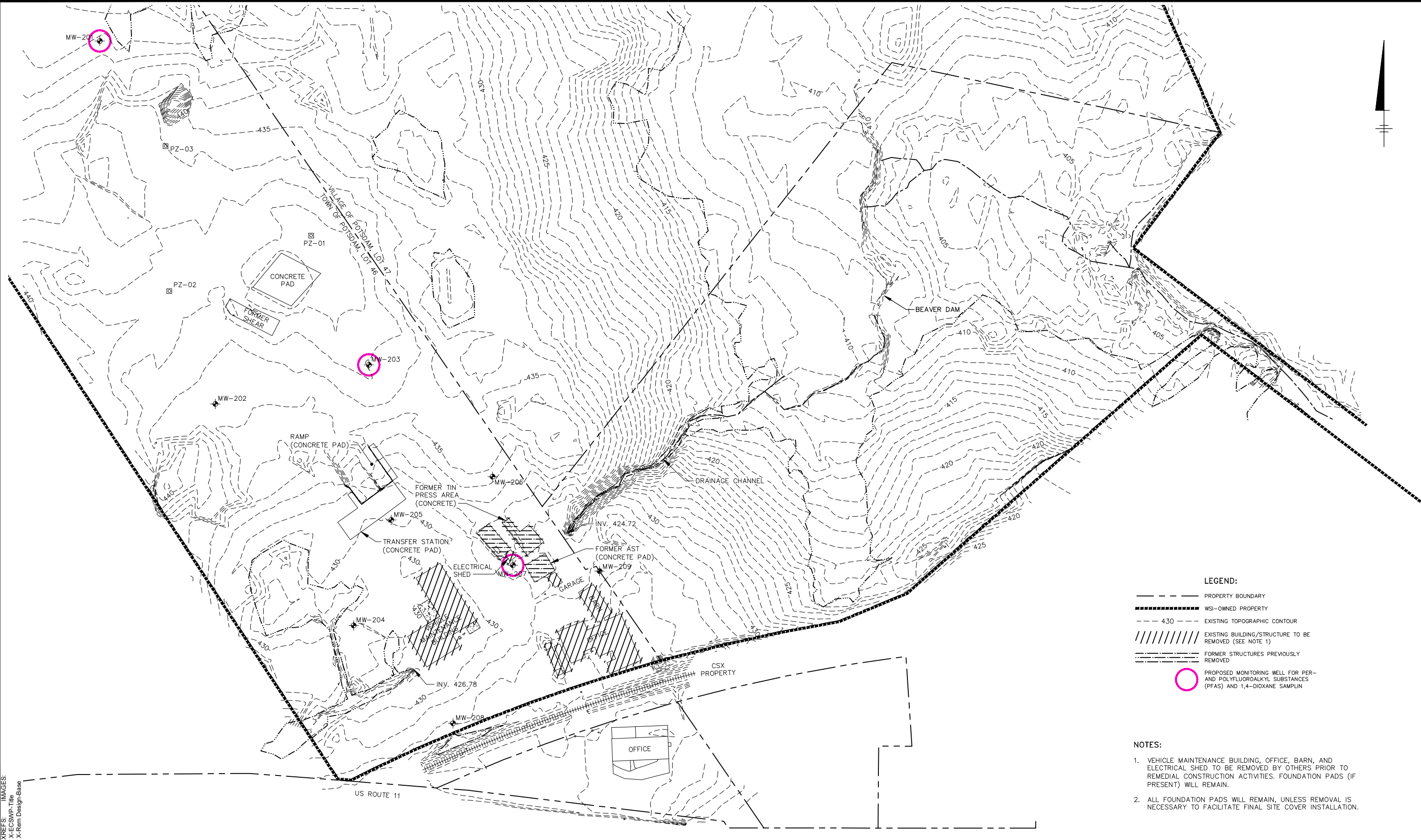
**Attachments**

- 1 Technical Guidance Instructions - Poly- and Perfluorinated Alkyl Substances Field Sampling Guidance
- 2 Collection of Groundwater Samples for Perfluorooctanoic Acid and Perfluorinated Compounds from Monitoring Wells Sample Protocol
- 3 Groundwater Sampling Log
- 4 Groundwater Sampling for Emerging Contaminants

**FIGURE**

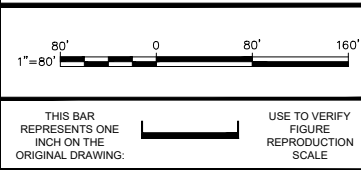


CITY: SYRACUSE, NY DB: B, DECLERCO  
 C:\Users\declerco\OneDrive - ARCADIS\BIM 360 Docs\NATIONAL GRID\WSI Potsdam former Scrap Yard\2018\B0031006.0005\01-DWG\Contaminant Sampling-DWG 1-MW for Emerging Contaminant Sampling.dwg LAYOUT: 1. SAVED: 8/3/2018 9:36 AM. ACADVER: 21.05 (LMS TECH) PAGESETUP: ----  
 PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/3/2018 9:44 AM BY: DECLERCO, BRIAN



- LEGEND:**
- PROPERTY BOUNDARY
  - WSI-OWNED PROPERTY
  - - - - 4.30 EXISTING TOPOGRAPHIC CONTOUR
  - ////// EXISTING BUILDING/STRUCTURE TO BE REMOVED (SEE NOTE 1)
  - FORMER STRUCTURES PREVIOUSLY REMOVED
  - PROPOSED MONITORING WELL FOR PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) AND 1,4-DIOXANE SAMPLIN

- NOTES:**
1. VEHICLE MAINTENANCE BUILDING, OFFICE, BARN, AND ELECTRICAL SHED TO BE REMOVED BY OTHERS PRIOR TO REMEDIAL CONSTRUCTION ACTIVITIES. FOUNDATION PADS (IF PRESENT) WILL REMAIN.
  2. ALL FOUNDATION PADS WILL REMAIN, UNLESS REMOVAL IS NECESSARY TO FACILITATE FINAL SITE COVER INSTALLATION.



No.	Date	Revisions	By	Ckd

Professional Engineer's Name  
**TERRY W. YOUNG**  
 Professional Engineer's No.  
 074847  
 State  
 NY  
 Date Signed  
 Project Mgr.  
 JDB  
 Designed by  
 JRG  
 Drawn by  
 BKD  
 Checked by  
 JDB

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WSI GROUP • POTSDAM, NEW YORK  
 WASTE-STREAM, INC. SITE  
 EMERGING CONTAMINANT SAMPLING WORK PLAN  
**PROPOSED MONITORING WELLS FOR EMERGING CONTAMINANT SAMPLING**

ARCADIS Project No.  
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 ARCADIS  
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# ATTACHMENT 1

Technical Guidance Instructions - Poly- and Perfluorinated Alkyl  
Substances Field Sampling Guidance



# TGI - POLY- AND PERFLUORINATED ALKYL SUBSTANCES (PFAS) FIELD SAMPLING GUIDANCE

Rev #: 0

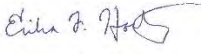
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## VERSION CONTROL

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0	April 27, 2017	All	Initial Release	Erica Kalve Erika Houtz Sue Tauro

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## 1 INTRODUCTION

This document describes general and/or specific procedures, methods, actions, steps, and considerations to be used and observed by Arcadis staff when performing work, tasks, or actions under the scope and relevancy of this document. This document may describe expectations, requirements, guidance, recommendations, and/or instructions pertinent to the service, work task, or activity it covers.

It is the responsibility of the Arcadis Certified Project Manager (CPM) to provide this document to the persons conducting services that fall under the scope and purpose of this procedure, instruction, and/or guidance. The Arcadis CPM will also ensure that the persons conducting the work falling under this document are appropriately trained and familiar with its content. The persons conducting the work under this document are required to meet the minimum competency requirements outlined herein, and inquire to the CPM regarding any questions, misunderstanding, or discrepancy related to the work under this document.

This document is not considered to be all inclusive nor does it apply to any and all projects. It is the CPM's responsibility to determine the proper scope and personnel required for each project. There may be project- and/or client- and/or state-specific requirements that may be more or less stringent than what is described herein. The CPM is responsible for informing Arcadis and/or Subcontractor personnel of omissions and/or deviations from this document that may be required for the project. In turn, project staff are required to inform the CPM if or when there is a deviation or omission from work performed as compared to what is described herein.

In following this document to execute the scope of work for a project, it may be necessary for staff to make professional judgment decisions to meet the project's scope of work based upon site conditions, staffing expertise, state-specific requirements, health and safety concerns, etc. Staff are required to consult with the CPM when or if a deviation or omission from this document is required that has not already been previously approved by the CPM. Upon approval by the CPM, the staff can perform the deviation or omission as confirmed by the CPM.

## 2 SCOPE AND APPLICATION

The purpose of this Technical Guidance Instructions (TGI) is to provide guidance on field sampling to be used for poly-and perfluorinated alkyl substances (PFAS). This protocol was adapted from various sources including Arcadis Australia, Transport Canada, and the U.S Army Corp of Engineers (USACE) Omaha.

Given the extremely low detection limits associated with PFAS analysis and the many potential sources of trace levels of PFAS, field personnel are advised to err on the side of caution by strictly following these protocols, frequently replacing nitrile gloves, and rinsing field equipment to help mitigate the potential for false detections of PFAS. Other specific items related to field sampling for PFAS are discussed in the sections below.

This TGI applies to all Arcadis and subcontractor personnel involved in field sampling for PFAS.

## 3 PERSONNEL QUALIFICATIONS

### 3.1 Sampling Personnel

Field personnel must have current health and safety training, including 40-hour HAZWOPER training, site supervisor training, and site-specific training, as needed. In addition, field personnel will be versed in the other relevant SOPs (e.g., low flow sampling) and will possess the skills and experience necessary to successfully complete the desired field work. The site Health and Safety Plan (HASP) and other documents will identify any other training requirements such as site-specific safety training or access control requirements.

### 3.2 Laboratories

These laboratories may be used to analyze environmental media for PFAS:

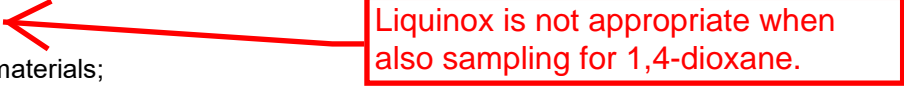
- United States: Test America, SGS, Vista, ALS, RTI, and Eurofins
- Canada: Axys-SGS and Maxxam Laboratories

Other laboratories may be used if they are accredited for PFAS analysis.

## 4 EQUIPMENT LIST

The following equipment and materials must be available for sampling:

- Site plan of sampling locations, relevant work plan (or equivalent), and this TGI;
- Appropriate health and safety equipment, as specified in the site HASP;
- Dedicated plastic sheeting (preferably high-density polyethylene [HDPE]) or other clean surface to prevent sample contact with the ground;
- Conductivity/temperature/pH meter;
- Dissolved oxygen meter, oxidation reduction potential meter, and turbidity meter;
- Depth to water meter;
- If using low-flow groundwater sampling techniques, peristaltic pump (groundwater sampling)/bladder pump (with PFAS free bladder/ HDPE bladder), flow through cell, and accompanying HDPE and silicone tubing;
- Hydrasleeves, if using Hydrasleeves for groundwater sampling;
- Metal trowel for soil samples; specialized soil/sediment sampling equipment as required;
- Brushes for scrubbing sampling equipment;
- Pens, pencils, and/or Sharpies for writing;
- Clipboards, field binders, and field note pages that are not waterproof;

- Labeled sample bottles:
  - Water: HDPE bottles fitted with polypropylene screw cap only; some types of PFAS samples (primarily drinking water) may require preservative, which will be indicated by the laboratory conducting the analysis. The laboratory will specify the sample bottle volume.
  - Soil and sediment: HDPE bottles fitted with polypropylene screw cap only; no preservatives. The laboratory will specify the sample bottle volume.
- If high concentrations of PFAS related to class B firefighting foams are expected, bring 'shaker test' vials;
- Ziploc® bags to hold ice and samples;
- Appropriate blanks (field reagent blanks supplied by the laboratory);
- Appropriate transport bottles (coolers) with ice and appropriate labeling, no blue ice;
- Deionized water for initial decontamination rinsing;
- "PFAS-free" water provided by the laboratory for final decontamination rinsing;
- Methanol, if readily available; especially important for soil sampling;
- Alconox or ~~Liquinox®~~; 
- Packing and shipping materials;
- Groundwater Sampling Log; and
- Chain-of-Custody (COC) Forms.

## 5 CAUTIONS

### 5.1 Food Packaging

Some food packaging may be treated with PFAS-containing chemicals to prevent permeation of oil and water in the food outside of the packaging. To avoid potential food packaging-related PFAS contact:

- Do not bring any food outside of the field vehicles onsite and eat snacks and meals offsite.
- Wash hands after eating.
- Remove any field garments or outer layers prior to eating. Do not put them back on until done eating and hands are washed.

## 5.2 Field Gear

### 5.2.1 Clothing

Many types of clothing are treated with PFAS for stain and water resistance, in particular outdoor performance wear under brand names such as Gore-Tex®. To avoid potential clothing-related PFAS contact:

- Do not wear any outdoor performance wear that is water or stain resistant, or appears to be. Err on the side of caution.
- Wear pre-laundered (multiple washings, i.e. 6+) clothing that is not stain resistant or water proof.
- Natural fabrics such as cotton are preferred. Synthetic fabrics may also be acceptable if there is no indication on the label that the fabric is water and stain resistant.
- Most importantly, avoid contacting your clothing with sampling equipment, bottles, and samples.

### 5.2.2 Personal Protective Equipment

#### Safety Footwear

Some safety footwear has been treated to provide a degree of waterproofing and increased durability, and may represent a source of trace PFAS. For the health and safety of field personnel, footwear must be protected at all times to avoid potential PFAS contamination. To do this:

- Do not touch your safety footwear in the immediate vicinity of the sampling port (i.e., within 10 meters [m]).
- Do not allow gloves used for sampling to come in contact with safety footwear.

#### Nitrile Gloves

- Wear disposable nitrile gloves at all times. Don a new pair of nitrile gloves **before** the following activities at each sample location:
- Decontamination of re-usable sampling equipment;
- Contact with sample bottles or “PFAS-free” water bottles;
- Insertion of anything into the sample ports (e.g., HDPE tubing); and
- Handling of any quality assurance/quality control (QA/QC) samples including field blanks and equipment blanks.

#### **Don a new pair of nitrile gloves after the following activities:**

- Handling of any non-dedicated sampling equipment;
- Contact with contaminated surfaces; or

- When judged necessary by field personnel.

### 5.3 Personal Hygiene

- Shower at night.
- Do not use personal care products after showering such as lotions, makeup, and perfumes, UNLESS medically necessary.
- Use sunscreen and insect repellent ONLY if necessary for health and safety. If they are necessary, apply sunscreen and repellent prior to initiating field sampling. If sunscreen and/or repellent need to be reapplied, ensure a safe distance away from the sampling locations and equipment (i.e., more than 10 m away). Wash hands after application.

### 5.4 Visitors

Visitors to the site are asked to remain at least 10 m from sampling areas.

### 5.5 Rain Events

Special care should be taken when rain is falling at the project site:

- Do not perform field sampling when rain fall is persistent at a consistent rate that saturates the ground (i.e., formation of puddles) because rain gear is not permitted while sampling. Intermittent showers or fog are acceptable conditions to proceed. If rain showers occur; field gear must be removed from the monitoring well location until the rain subsides.
- If project timelines are tight, consider the use of a gazebo tent that can be erected over the top of the monitoring well to provide shelter from the rain. The canopy material is possibly a PFAS-treated surface and should be managed as such; therefore, wear gloves when moving the tent, change them immediately after moving the tent, and avoid further contact with the tent until all sampling activities have been finished and the team is ready to move on to the next site.

## 6 HEALTH AND SAFETY CONSIDERATIONS

- The ability to safely access the surface water sampling locations must be verified before sampling.
- Field activities must be performed in accordance with the site HASP, a copy of which will be present onsite during such activities.
- Safety hazards associated with sampling surface water include fast-moving water, deep water, and steep slopes close to sampling sites. Use extreme caution when approaching sampling sites.
- If thunder or lightning is present, discontinue sampling and take cover until 30 minutes have passed after the last occurrence of thunder or lightning.
- Use caution when removing well caps as well may be under pressure, cap can dislodge forcefully and cause injury.

## 7 PROCEDURE

### 7.1 Field Equipment Cleaning

Field sampling equipment will require cleaning between uses. For groundwater sampling, between uses, decontaminate the flow-through cell and any non-dedicated equipment (i.e., interface probe of depth to water meter) that comes into contact with well water. Trowels and other materials used to sample soil samples will also require decontamination.

After donning a new pair of nitrile gloves:

- Rinse sampling equipment with Alconox or ~~Liquinox®~~ cleaning solution; Scrub equipment with a plastic brush if needed;
- Rinse two times with distilled water or deionized water;
- Rinse one time with “PFAS-free” water or once with methanol, if it is available, and once with “PFAS-free” water; methanol is especially useful for decontaminating soil sampling equipment; and
- Collect all rinsate in a sealed pail for disposal. Do not reuse decontamination solutions between sampling locations.

Liquinox is not appropriate when also sampling for 1,4-dioxane.

Clean all field equipment used at locations that are suspected of containing class B firefighting foam (i.e., those that foam during shaking or are known to be near a class B firefighting foam source zone) using each of the above steps repeated twice.

### 7.2 Borehole/Monitoring Well Development

If a drill rig is being used to drill for soil cores or to install monitoring wells, wear clean nitrile gloves before collecting each continuous soil sample. Additional requirements include the following:

- Verify in writing with the manufacturer that single-use liners used to collect each sample are made of a material that does not contain PFAS;
- Collect soil samples in laboratory-supplied HDPE bottles.
- Store the sample bottles in coolers and keep at a temperature of 0 to 6°C until transported to the laboratory.

#### 7.2.1 Well Condition Survey/ Water Level Monitoring

Using equipment that has been thoroughly decontaminated according to the procedures in Section 7.1, conduct the well condition surveys and water level monitoring:

- Conduct monitoring well inspections and record water levels.
- Use an interface probe to evaluate presence/absence of non-aqueous phase liquid (NAPL).
- Measure the depth to water from the top of the polyvinyl chloride (PVC) riser and the total depth of the well.

- Record information in the field notes.

## 7.2.2 Monitoring Well Development and Purging

Follow these requirements for monitoring well development and purging:

- Do not use Teflon™ tubing for purging or sample collection. HDPE tubing is acceptable.
- Do not re-use materials between wells. Upon completion of use, remove all disposable materials (such as HDPE and/or silicone tubing) and place in heavy duty garbage bags for disposal.
- During development of the well, create sufficient energy to agitate the water column and create flow reversals in the well screen, filter pack and formation to loosen fine-grained materials and draw them into the well. The pumping or bailing action should then draw all drilling fluids and fine-grained material out of the borehole and adjacent formation and then out of the well. Review the Arcadis Monitoring Well Development guidance (Arcadis 2010) for more detailed information.
- Follow the low-flow purge and sampling techniques per the U.S. Protection Agency's (EPA's) guidance document titled *Low Stress (Low Flow) purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells (2010)* and ASTM's standard titled *Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality Investigations (2002)*. Also, available for review is the Arcadis Low-Flow Groundwater Purging and Sampling Procedures for Monitoring Wells (Arcadis 2011).
- To purge the well, if using HDPE tubing and a peristaltic pump, insert the end of the tubing to the approximate depth of the midpoint of the screened section of the monitoring wells. Measure the length of HDPE tubing to be inserted into each monitoring well and pre-cut it to approximate lengths (such as the previously measured arm span of a field technician) to avoid contact with any materials other than the monitoring well and peristaltic pump. Flow rates should be as low as can be reasonably achieved. Collect and appropriately dispose of purge water.
- Silicone tubing should direct the purge water through a flow-through cell for field parameter measurements of pH, conductivity, temperature, dissolved oxygen, and turbidity. Calibrate the instrument in the field prior to use. Decontaminate the instrument and flow-through cell at each monitoring well location before purging.
- Record field parameters in intervals (generally of 3-minute duration) to ensure purge water has cycled through the flow-through cell. Sample the wells after field parameter measurements indicate stabilization, which allows collection of representative formation water (generally acceptable standards are three consecutive pH readings to within  $\pm 0.1$  units, and three consecutive conductivity, temperature and dissolved oxygen measurements to within 3%). Turbidity must be monitored, but does not need to be used as a stabilization indicator of purge completion. Record field parameter measurements at each well. Drawdown should be monitored throughout the purge.
- If wells are suspected to be dewatering throughout the purge (i.e., reduced flow rate/difficulty pumping water or bubbles begin to come through the flow through cell), turn off the pump and allow the water level to recover for ½ hour, followed by sample collection. Document these activities in the field notes.

## 7.3 Sample Collection

Different laboratories may supply sample collection bottles of varying sizes depending on the type of media to be sampled.

### 7.3.1 Sample Containers

- Collect samples in HDPE bottles fitted with an unlined (no Teflon™), polypropylene screw cap.
- Complete bottle labels after the caps have been placed back on each bottle.
- Do not use glass bottles due to potential loss of analyte through adsorption. This is particularly important for aqueous samples.

### 7.3.2 Soil Sampling

#### Before Sample Collection

- Place plastic sheeting (preferably HDPE) adjacent to the sample port for use as a clean work area, if conditions allow. Otherwise, prevent sampling equipment from contacting the ground or other surface that could compromise sample integrity.
- Trowels or drilling equipment that will come into contact with a sample should be decontaminated prior to sample collection, preferably with methanol;
- Don a new set of nitrile gloves. Do not use gloved hands to subsequently handle papers, pens, clothes, etc., before collecting samples.
- Use the HDPE bottles that are supplied by the laboratory. Make sure that the caps remain on the bottle until immediately prior to sample collection.

#### During Sample Collection

- Collect soil samples using a clean stainless steel trowel or with single-use PFAS-free liners;
- Place soil samples in labeled HDPE bottles supplied by the laboratory.
- Collect any necessary duplicates/co-located samples and matrix spikes – verify with laboratory whether they need to be collected in separate sample bottles.
- Note the time on the sample label.

#### After Sample Collection

- Place soil sample bottles in a sealed Ziploc® bag (optional).
- Record the label information and time of sampling in the field notes.
- Place soil sample bottles in coolers that are durable in transportation and keep the temperature between 0 and 6°C until transported to the laboratory. **Do not use blue ice.**



### 7.3.3 Ground water Sampling

#### Before Sample Collection

- Place plastic sheeting (preferably HDPE) adjacent to the sample port for use as a clean work area, if conditions allow. Otherwise, prevent sampling equipment from contacting the ground or other surface that could compromise sample integrity.
- Don a new set of nitrile gloves. Do not use gloved hands to subsequently handle papers, pens, clothes, etc., before collecting samples.
- Use the labeled HDPE bottles that are supplied by the laboratory. Make sure that the caps remain on the bottle until immediately prior to sample collection.
- Measure depth to water and field parameters. Turbidity and the physical appearance of the purged water should be noted on the Groundwater Sampling Log.

#### During Sample Collection

- Start groundwater sample collection upon stabilization of field parameters.
- If low-flow groundwater sampling techniques are being used, disconnect the silicone tubing from the flow-through cell, enabling collection of groundwater samples prior to passing through the cell.
- Hydrasleeves are also considered acceptable for sampling of PFAS in groundwater – consult the project manager to determine which technique should be used. In general, low flow sampling is preferable.
- Collect groundwater samples (to the neck of the bottle, some headspace is acceptable) from the dedicated sampling ports at the center of the well screen. While collecting the sample, make sure the bottle cap remains in the other hand of the sampler, until replaced on the bottle.
- To mitigate cross contamination, collect groundwater samples in a pre-determined order from least impacted to greater impacted based on previous analytical data or knowledge about past activities at the site. If no analytical data are available, samples are to be collected in the following order:
  1. First sample the upgradient well(s).
  2. Next, sample the well located furthest downgradient of the interpreted or known source.
  3. The remaining wells should be progressively sampled in order from downgradient to upgradient, such that the wells closest to the interpreted or known source are sampled last.
- NOTE: If high concentrations of PFAS related to class B firefighting foams are expected in a groundwater sample, collect and shake a small portion of the sample (~10 to 25 mL) on site. If foaming is noted within the sample, document the foaming when samples are submitted for analysis; the 'shaker test' vial can then be disposed. This shaker test provides information about how each of the samples should be handled analytically.
- After collecting the sample, tightly screw on the polypropylene cap (snug, but not too tight). This will minimize leaking or cross contamination of the sample. Most PFAS, including all analytes measured by USEPA Method 537, are not volatile at environmental pH.

- Note the time on the sample label.
- Collect any necessary duplicates and matrix spikes. As the laboratory should be analyzing the entire aqueous sample rather than sub-sampling, separate bottles will be required for these samples.
- Do not rinse PFAS sample bottles during sampling. Do not filter samples.

### After Sample Collection

- Place groundwater sample bottles in a sealed Ziploc® bag (optional).
- Record the label information and time of sampling in the field notes and COC. Note 'shake test' results if appropriate.
- Place groundwater samples in coolers that are durable in transportation and keep the temperature between 0 and 6°C until transported to the laboratory. **Do not use blue ice. Store PFAS samples in a separate cooler from other types of samples.**
- Treat all disposable sampling materials as single use and dispose of them appropriately after sampling at each monitoring well.

### 7.3.4 Sediment Sampling

#### Before Sample Collection

- Place plastic sheeting (preferably HDPE) adjacent to the sample port for use as a clean work area, if conditions allow. Otherwise, prevent sampling equipment from contacting the ground or other surface that could compromise sample integrity.
- Don a new set of nitrile gloves. Do not use gloved hands to subsequently handle papers, pens, clothes, etc., before collecting samples.
- Use the HDPE bottles that are supplied by the laboratory. Make sure that the caps remain on the bottle until immediately prior to sample collection.

#### During Sample Collection

- Where surface water samples and sediment samples are collected at the same location, collect surface water samples first to minimize siltation.
- Collect sediment samples either manually using a stainless-steel trowel or using a petite ponar grab sampler, depending on field conditions at each sampling location during sampling program.
- Collect sediment samples from the upper 10 cm of sediment.
- For a sample to be acceptable overlying, low turbidity water must be present.
- Decant the overlying water and use a stainless-steel trowel to collect only the upper 5 centimeters (cm) of sediment.

- Collect sediment samples directly into laboratory-supplied bottles that are suitable in both material and size.
- Do not overfill the sample bottle.
- Make sure that the sample does not contain vegetation, that the sediment is undisturbed, and that the sampler shows no signs of winnowing or leaking.
- Make sure bottle caps remain in the gloved hand of the sampler until sampling is complete and caps are replaced on the bottle.
- Collect any necessary duplicates and matrix spikes.

### After Sample Collection

- Place sample bottles in a sealed Ziploc® bag (optional).
- Record the label information and time of sampling in the field notes.
- Place samples in coolers that are durable in transportation and keep the temperature between 0 and 6°C until transported to the laboratory. **Do not use blue ice. Store PFAS samples in a separate cooler from other types of samples.**
- Measure surface water pH, conductivity, temperature, and total dissolved solids (TDS) at each location **after** both surface water and sediment sampling is completed.

## 7.3.5 Surface Water Sampling

### Before Sample Collection

- Place plastic sheeting (preferably HDPE) adjacent to the sample port for use as a clean work area, if conditions allow. Otherwise, prevent sampling equipment from contacting the ground or other surface that could compromise sample integrity.
- Don a new set of nitrile gloves. Do not use gloved hands to subsequently handle papers, pens, clothes, etc., before collecting samples.
- Use the HDPE bottles that are supplied by the laboratory. Make sure that the caps remain on the bottle until immediately prior to sample collection.

### During Sample Collection

- Avoid sampling the surface.
- Where surface water samples and sediment samples are collected at the same location, collect surface water samples first to minimize siltation.
- Collect surface water samples directly into laboratory-supplied bottles; wide-mouth bottles may be preferable to narrow mouth bottles for ease of surface water collection.

- Collect any necessary duplicates and matrix spikes. As the laboratory should be analyzing the entire aqueous sample rather than sub-sampling, separate bottles will be required for these samples.
- Make sure bottle caps remain in the gloved hand of the sampler until sampling is complete and caps are replaced on the bottle.

### After Sample Collection

- Place sample bottles in a sealed Ziploc® bag (optional).
- Record the label information and time of sampling in the field notes.
- Place samples in coolers that are durable in transportation and keep the temperature between 0 and 6°C until transported to the laboratory. **Do not use blue ice. Store PFAS samples in a separate cooler from other types of samples.**
- Measure surface water pH, conductivity, temperature, and TDS at each location **after** both surface water and sediment sampling.

## 7.4 Shipping

- If samples cannot be shipped the same day as collected, arrange an appropriate means of keeping the samples cool overnight and maintain the temperature between 0 and 10°C for the first 48 hours after collection, and then between 0 and 6°C thereafter.
- Store samples in appropriate transport bottles (coolers) with ice (Ziploc® bags for use as ice containers) with appropriate labeling. **Do not use blue ice. Store PFAS samples in a separate cooler from other types of samples.**
- Complete the appropriate procedures for COC, handling, packing, and shipping.
- Fill out and check COC Forms against the labels on the sample bottles progressively after each sample is collected.
- Place all disposable sampling materials (such as plastic sheeting, and health and safety equipment) in appropriate containers.
- Ship samples via courier service with priority overnight delivery. Tracking numbers for all shipments should be provided and recorded after they have been sent out to ensure their timely delivery.
- Do not ship samples via Fed Ex for Saturday delivery.

## 8 WASTE MANAGEMENT

All rinsate should be collected in a sealed pail for disposal. Drill cuttings and purge water will be managed as specified in the Field Sampling Plan (FSP) or Work Plan, and according to state and/or federal requirements. PPE and decontaminated fluids will be contained separately and staged at the sampling location. Containers must be labeled at the time of collection. Labels will include date, location(s), site name, city, state, and description of matrix contained (e.g., soil, groundwater, PPE). General guidelines

for investigation derived waste (IDW) handling and storage are set forth in a separate IDW guidance document (Arcadis 2009).

Typical waste characterization procedures include collection of a composite sample of the drill cutting material and a composite sample of the purge water for laboratory analysis. Samples are typically analyzed for disposal toxicity characteristic leaching procedure (TCLP) analysis for metals and VOCs. For PFAS, a simple leach test with neutral pH water may be more indicative of actual risk. Additionally, generators of waste are required to include analysis of other constituents that are reasonably believed to be present including (in this case) PFAS.

Emerging contaminants pose a unique challenge for disposal because acceptance of such waste will be based on the local facility and their permit restrictions. Project teams will be required to identify appropriate facilities based on the facility's legal ability to accept the waste and the team should confirm that the facility is meeting the regulatory requirements for accepting waste containing PFAS. In general, facilities that provide solidification and/or incineration will be likely to meet the necessary requirements to accept PFAS-containing waste. The facility will then provide the definitive laboratory analysis requirements needed to meet their permit requirements for waste classification.

## 9 DATA RECORDING AND MANAGEMENT

### 9.1 Field Notes

Waterproof field books must not be used for field notes. Instead, field notes should be on loose paper on Masonite, plastic, or aluminum clip boards. Other requirements for field notes include:

- Pens, pencils, and Sharpies may be used.
- Keep field notes and writing implements away from samples and sampling materials.
- One person should conduct sampling while another records field notes.
- Do not write on sampling bottles unless they are closed.

### 9.2 Other Project Documentation

- Complete Groundwater Sampling Logs.
- Make sure COC Forms are properly completed. Verify which PFAS analytes (e.g., just PFOS and PFOA, some or all of the 537 list, etc.) are required for analysis and note on the COC.

## 10 QUALITY ASSURANCE

Refer to quality control requirements for the project to ensure that appropriate quality assurance and quality control (QA/QC) samples are collected. When collecting QA/QC samples, the same guidelines apply as when collecting regular samples – specifically that:

- Samples should be collected in laboratory-supplied HDPE bottles;

- Bottle caps must remain in the hand of the sampler until replaced on the bottle;
- Labels must be completed after the caps have been placed back on each bottle; and
- Samples must be stored in appropriate transport bottles (coolers) with ice (Ziploc® bags for use as ice containers) with appropriate labeling. **Do not use blue ice. Store PFAS samples in a separate cooler from other types of samples.**

## 10.1 Equipment Blanks (if relevant)

QA/QC sampling typically includes daily collection of equipment blanks using the laboratory-supplied “PFAS-free” water. For peristaltic pump tubing, laboratory supplied “PFAS-free” water should be poured into a clean HDPE sample bottle and then pumped through new HDPE tubing using the peristaltic pump (with new silicone tubing).

## 10.2 Field Duplicates

QA/QC sampling typically includes the collection of one field duplicate for every 10 or 20 samples collected. Each duplicate sample will be collected immediately after the initial sample of which it is a duplicate into a separate laboratory-provided sample bottle. Do not indicate to the laboratory which sample the duplicate replicates, i.e. it should be given a blind reference on the COC and sample name such as “duplicate”.

## 10.3 Field Blanks

QA/QC sampling for PFAS typically includes the submission of one laboratory supplied reagent field blank per day. The reagent field blank sample is brought to the site in a laboratory-supplied sample bottle. Field staff transfer the laboratory-supplied reagent blank to an empty sample bottle. This reagent field blank should be placed in the same cooler as the other PFAS samples.

## 10.4 Matrix Spikes (optional in some cases)

QA/QC sampling includes submitting a sample to be used as a matrix spike if the project requires it. If a separate sample bottle is required, an additional sample will be collected immediately after the initial sample of which it is a duplicate into a separate laboratory-supplied sample bottle.

## 10.5 Laboratory Analytical QA/QC

- Internal laboratory QA/QC should consist of one laboratory blank and one laboratory control sample (or blank spike) per batch of samples, and additional QA/QCs as indicated by the laboratory QA/QC procedures. Isotope dilution should be used for quantification with isotope-labeled surrogate standards, as available.
- For groundwater and surface water samples, extract the entire groundwater and surface water sample and at least two sampling bottle solvent rinsates for analysis to increase sample accuracy. Avoid sub-sampling an aliquot of the sample bottle.

- Soil samples should be analyzed in their entirety or thoroughly homogenized before extraction and analysis.
- As part of the internal QA/QC, relative percent difference (RPD) should be calculated between samples and corresponding field or laboratory duplicates. The laboratory quality assurance portion of the laboratory certificates should be reviewed to verify that all calculations/recoveries were within acceptable limits as established by the laboratory method.
- In January 2017, the U.S. Department of Defense (DOD) and U.S. Department of Energy (DOE) Quality Systems Manual (QSM) 5.1 was finalized and introduced laboratory guidance for the measurement of PFAS in matrices other than drinking water. This guidance is not a detailed procedural method such as an EPA method, but it does recommend best practices around the analysis of PFAS. Laboratories are not required to comply with QSM 5.1 until 2019, although the recommendations around PFAS analysis are similar to what most laboratories are already implementing. Arcadis recommends that any request for PFAS analysis in groundwater or soil should specifically reference the need to comply with Table B-15 in the QSM 5.1.

## 11 REFERENCES

- Arcadis Australia. 2017. Soil and Concrete Sampling for PFAS. April.
- Arcadis. 2010. Monitoring Well Development, Rev. #2.2. March 22.
- Arcadis. 2009. Investigation-Derived Waste Handling and Storage, Rev. #2. March 6.
- Arcadis. 2011. Low-Flow Groundwater Purging and Sampling Procedures for Monitoring Wells, Rev. #4. February 2.
- ASTM. 2002. ASTM D6771-02 - Standard Practice for Low-Flow Purging and Sampling for Wells and Devices Used for Ground-Water Quality Investigations (Withdrawn 2011). Available at: <https://www.astm.org/Standards/D6771.htm>.
- U.S. Army Corps of Engineers – Omaha District. 2016. Chemistry Requirements – PFAS.
- U.S. Department of Defense (DoD). 2017. Consolidated Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1. In conjunction with the U.S. Department of Energy. January.
- U.S. Environmental Protection Agency. 2009. USEPA Method 537: Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS), version 1.1, September. National Exposure Research Laboratory, Office of Research and Development.
- U.S. Environmental Protection Agency. 2010. Low Stress (Low Flow) purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells. Available at: <https://www.epa.gov/quality/low-stress-low-flow-purging-and-sampling-procedure-collection-groundwater-samples-monitoring>.
- Transport Canada. February 2016, Per- and Polyfluorinated Alkyl Substances (PFAS) Field Sampling Guidance.

# ATTACHMENT 2

Collection of Groundwater Samples for Perfluorooctanoic Acid and Perfluorinated Compounds from Monitoring Wells Sample Protocol





# Collection of Groundwater Samples for Perfluorooctanoic Acid (PFOA) and Perfluorinated Compounds (PFCs) from Monitoring Wells Sample Protocol

**Samples collected using this protocol are intended to be analyzed for perfluorooctanoic acid (PFOA) and other perfluorinated compounds by Modified (Low Level) Test Method 537.**

The procedure used must be consistent with the NYSDEC March 1991 Sampling Guidelines and Protocols [http://www.dec.ny.gov/docs/remediation\\_hudson\\_pdf/sgpsect5.pdf](http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf) with the following materials limitations.

At this time acceptable materials for sampling include: stainless steel, high density polyethylene (HDPE), PVC, silicone, acetate and polypropylene. Equipment blanks should be generated at least daily. Additional materials may be acceptable if pre-approved by NYSDEC. Requests to use alternate equipment should include clean equipment blanks. **NOTE: Grunfos pumps and bladder pumps are known to contain PFC materials (e.g. Teflon™ washers for Grunfos pumps and LDPE bladders for bladder pumps).** All sampling equipment components and sample containers should not come in contact with aluminum foil, low density polyethylene (LDPE), glass or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer. Standard two step decontamination using detergent and clean water rinse will be performed for equipment that does come in contact with PFC materials. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFC materials must be avoided. Many food and drink packaging materials and “plumbers thread seal tape” contain PFCs.

All clothing worn by sampling personnel must have been laundered multiple times. The sampler must wear nitrile gloves while filling and sealing the sample bottles.

Pre-cleaned sample bottles with closures, coolers, ice, sample labels and a chain of custody form will be provided by the laboratory.

1. Fill two pre-cleaned 500 mL HDPE or polypropylene bottle with the sample.
2. Cap the bottles with an acceptable cap and liner closure system.
3. Label the sample bottles.
4. Fill out the chain of custody.
5. Place in a cooler maintained at  $4 \pm 2^{\circ}$  Celsius.

Collect one equipment blank for every sample batch, not to exceed 20 samples.

Collect one field duplicate for every sample batch, not to exceed 20 samples.

Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, not to exceed 20 samples.

Request appropriate data deliverable (Category A or B) and an electronic data deliverable.

# ATTACHMENT 3

## Groundwater Sampling Log



**Sampling Personnel:** \_\_\_\_\_ **Well ID:** \_\_\_\_\_  
**Client / Job Number:** B0031006.0005.00160 **Date:** \_\_\_\_\_  
**Weather:** \_\_\_\_\_ **Time In:** \_\_\_\_\_ **Time Out:** \_\_\_\_\_

Well Information		
Depth to Water:	(feet)	(from MP)
Total Depth:	(feet)	(from MP)
Length of Water Column:	(feet)	
Volume of Water in Well:	(gal)	
Three Well Volumes:	(gal)	

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1" 2" Other:	

Purging Information				
Purging Method:	Bailer	Peristaltic	Waterra	Other:
Tubing/Bailer Material:	Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Waterra	Other:
Duration of Pumping:	(min)			
Average Pumping Rate:	(ml/min)	Water-Quality Meter Type:		
Total Volume Removed:	(gal)	Did well go dry:	Yes	No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9
Volume Purged (gal)									
Rate (mL/min)									
Depth to Water (ft.)									
pH									
Temp. (C)									
Conductivity (mS/cm)									
Dissolved Oxygen (mg/L)									
ORP (mV)									
Turbidity (NTU)									
Notes:									

**Sampling Information**

Analyses	#	Laboratory
Sample ID:	Sample Time:	
MS/MSD:	Yes	No
Duplicate:	Yes	No
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

**Problems / Observations**

# ATTACHMENT 4

Groundwater Sampling for Emerging Contaminants



# Groundwater Sampling for Emerging Contaminants

April 2018

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**Issue:** NYSDEC has committed to analyzing representative groundwater samples at remediation sites for emerging contaminants (1,4-dioxane and PFAS) as described in the below guidance.

## Implementation

NYSDEC project managers will be contacting site owners to schedule sampling for these chemicals. Only groundwater sampling is required. The number of samples required will be similar to the number of samples where “full TAL/TCL sampling” would typically be required in a remedial investigation. If sampling is not feasible (e.g., the site no longer has any monitoring wells in place), sampling may be waived on a site-specific basis after first considering potential sources of these chemicals and whether there are water supplies nearby.

Upon a new site being brought into any program (i.e., SSF, BCP), PFAS and 1,4-dioxane will be incorporated into the investigation of groundwater as part of the standard “full TAL/TCL” sampling. Until an SCO is established for PFAS, soil samples do not need to be analyzed for PFAS unless groundwater contamination is detected. Separate guidance will be developed to address sites where emerging contaminants are found in the groundwater. The analysis currently performed for SVOCs in soil is adequate for evaluation of 1,4-dioxane, which already has an established SCO.

## Analysis and Reporting

Labs should provide a full category B deliverable, and a DUSR should be prepared by a data validator, and the electronic data submission should meet the requirements provided at: <https://www.dec.ny.gov/chemical/62440.html> ,

The work plan should explicitly describe analysis and reporting requirements.

**PFAS sample analysis:** Currently, ELAP does not offer certification for PFAS compounds in matrices other than finished drinking water. However, laboratories analyzing environmental samples (ex. soil, sediments, and groundwater) are required, by DER, to hold ELAP certification for PFOA and PFOS in drinking water by EPA Method 537 or ISO 25101.

Modified EPA Method 537 is the preferred method to use for groundwater samples due to the ability to achieve 2 ng/L (ppt) detection limits. If contract labs or work plans submitted by responsible parties indicate that they are not able to achieve similar reporting limits, the project manager should discuss this with a DER chemist. Note: Reporting limits for PFOA and PFOS should not exceed 2 ng/L.

**PFAS sample reporting:** DER has developed a PFAS target analyte list (below) with the intent of achieving reporting consistency between labs for commonly reportable analytes. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. This list may be updated in the future as new information is learned and as labs develop new capabilities. If lab and/or matrix specific issues are encountered for any particular compounds, the NYSDEC project manager will make case-by-case decisions as to whether particular analytes may be temporarily or permanently discontinued from analysis for each site. Any technical lab issues should be brought to the attention of a NYSDEC chemist.

Some sampling using this full PFAS target analyte list is needed to understand the nature of contamination. It may also be critical to differentiate PFAS compounds associated with a site from other

sources of these chemicals. Like routine refinements to parameter lists based on investigative findings, the full PFAS target analyte list may not be needed for all sampling intended to define the extent of contamination. Project managers may approve a shorter analyte list (e.g., just the UCMR3 list) for some reporting on a case by case basis.

**1,4-Dioxane Analysis and Reporting:** The method detection limit (MDL) for 1,4-dioxane should be no higher than 0.28 µg/l (ppb). ELAP offers certification for both EPA Methods 8260 and 8270. In order to get the appropriate detection limits, the lab would need to run either of these methods in “selective ion monitoring” (SIM) mode. DER is advising the use of method 8270, since this method provides a more robust extraction procedure, uses a larger sample volume, and is less vulnerable to interference from chlorinated solvents (we acknowledge that 8260 has been shown to have a higher recovery in some studies).

### Full PFAS Target Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonates	<b>Perfluorobutanesulfonic acid</b>	<b>PFBS</b>	<b>375-73-5</b>
	<b>Perfluorohexanesulfonic acid</b>	<b>PFHxS</b>	<b>355-46-4</b>
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	<b>Perfluorooctanesulfonic acid</b>	<b>PFOS</b>	<b>1763-23-1</b>
	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluoroalkyl carboxylates	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	<b>Perfluoroheptanoic acid</b>	<b>PFHpA</b>	<b>375-85-9</b>
	<b>Perfluorooctanoic acid</b>	<b>PFOA</b>	<b>335-67-1</b>
	<b>Perfluorononanoic acid</b>	<b>PFNA</b>	<b>375-95-1</b>
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUA/PFUdA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTriA/PFTTrDA	72629-94-8
Perfluorotetradecanoic acid	PFTA/PFTeDA	376-06-7	
Fluorinated Telomer Sulfonates	6:2 Fluorotelomer sulfonate	6:2 FTS	27619-97-2
	8:2 Fluorotelomer sulfonate	8:2 FTS	39108-34-4
Perfluorooctane-sulfonamides	Perfluorooctanesulfonamide	FOSA	754-91-6
Perfluorooctane-sulfonamidoacetic acids	N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	2991-50-6

Bold entries depict the 6 original UCMR3 chemicals

# ATTACHMENT B

## Groundwater Sampling Logs





**GROUNDWATER SAMPLING LOG**

Project No. B0031006.0005.00160

Well ID MW-201

Page 1 of 1  
Date 10/30/18

Project Name/Location WSI Potsdam/ Potsdam, NY

Weather 37°F, cloudy

Measuring Pt. Description Top of inner casing Screen Setting (ft-bmp) 45-14.5' Casing Diameter (in.) 2

Well Material  PVC  SS

Static Water Level (ft-bmp) 4.43' Total Depth (ft-bmp) 13.58' Water Column/ Gallons in Well 9.15' / 1.49 gal.

MP Elevation 2.5' a.g.s Pump Intake (ft-bmp) 9.5' Purge Method: Peristaltic

Sample Method peristaltic

Pump On/Off 1355 Volumes Purged ~1.3 Centrifugal  Submersible  Other

Sample Time: Label 1327 Replicate/ Code No. Dup-1-20181030  
Start 1327 End 1412  
MW-201 ms/msd

PI0=0.0ppm

Sampled by A. Gibson

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
1300	5	150	4.51		6.95	0.64	23.7	1.81	11.8	76.5	Clear	none
1305	10	150	4.65		7.38	0.63	16.5	0.97	10.9	48.5	Clear	none
1310	15	150	4.79		7.41	0.60	10.9	0.48	10.6	35.4	Clear	none
1315	20	150	4.85		7.44	0.60	4.80	0.41	10.1	30.3	Clear	none
1320	25	150	4.89		7.45	0.60	4.56	0.28	10.2	22.8	Clear	none
1325	30	150	4.90		7.44	0.60	4.31	0.31	10.2	24.7	Clear	none

Constituents Sampled	Container	Number	Preservative
<u>PFAS</u>	<u>(2) 250mL poly</u>	<u>2</u>	<u>None</u>
<u>1-4 Dioxane</u>	<u>(2) 1L Amber</u>	<u>2</u>	<u>None</u>

**Well Casing Volumes**

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

**Well Information**

Well Location: <u>NW of PZ-03</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>fair</u>	Well Locked at Departure: <input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No
Completion: <u>Flush Mount / Stick Up (Black)</u>	Key Number To Well: <u>-</u>

AG 10/30/18



**GROUNDWATER SAMPLING LOG**

Project No. B0031006.0005.00160

Well ID MW-205

Date 10/30/18

Project Name/Location WSI Potsdam/ Potsdam, NY

Weather 35°F / overcast

Measuring Pt. Description TOC

Screen Setting (ft-bmp) \_\_\_\_\_

Casing Diameter (in.) 2

Well Material X PVC SS

Static Water Level (ft-bmp) 1.07

Total Depth (ft-bmp) 11.29

Water Column/ Gallons in Well 1.67

MP Elevation \_\_\_\_\_

Pump Intake (ft-bmp) 11.00

Purge Method: Peri pump

Sample Method Peri pump

Pump On/Off 1459/

Volumes Purged 1.0

Centrifugal \_\_\_\_\_  
Submersible \_\_\_\_\_  
Other \_\_\_\_\_

Sample Time: Label MW-205  
Start 1525  
End \_\_\_\_\_

Replicate/ Code No. \_\_\_\_\_

Sampled by Josh Sina

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
1500	01	200	1.30	0	7.14	0.64	96.6	0.50	11.8	34.4	Clear	None
1505	6	200	1.30	0.20	7.13	0.62	60.6	0.31	11.1	26.8	"	"
1510	11	200	1.28	0.40	7.12	0.63	47.9	0.25	11.2	15.2	"	"
1515	16	200	1.29	0.60	7.10	0.63	42.1	0.17	11.3	-20.8	"	"
1520	21	200	1.29	0.80	7.10	0.63	40.1	0.16	11.6	-26.4	"	"
1525	26	200	1.29	1.00	7.11	0.63	36.7	0.16	11.1	-29.1	"	"
1525	SAMPLE											

Constituents Sampled	Container	Number	Preservative
<u>PFAS</u>	<u>(2) 250 mL</u>	<u>2</u>	<u>None</u>
<u>1-4, Dioxane</u>	<u>(2) 1 L Amber</u>	<u>2</u>	<u>None</u>

**Well Casing Volumes**

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

**Well Information**

Well Location: _____	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Needs well mount rebuilt</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: _____

**GROUNDWATER SAMPLING LOG**

Project No. B0031006.0005.00160 Well ID MW-207 Page 1 of       
 Date 10/30/18  
 Project Name/Location WSI Potsdam/ Potsdam, NY Weather 35°F / overcast  
 Measuring Pt. TOC Screen Setting (ft-bmp)      Casing Diameter (in.) 2 Well Material x PVC      SS  
 Static Water Level (ft-bmp) 4.20 Total Depth (ft-bmp) 12.60 Water Column/ Gallons in Well 1.36  
 MP Elevation      Pump Intake (ft-bmp) 12.50 Purge Method: Peri pump Sample Method Peri pump  
 Pump On/Off 1158/1240 Volumes Purged 1.0 Centrifugal      Submersible      Other       
 Sample Time: Label MW-207 Replicate/ Code No.      Other       
 Start 1226 Code No.      Other       
 End      Code No.      Other       
 P10 = 0.0 ppm  
 Sampled by Josh Sinay

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
1200	2	200	4.98	0.0	6.99	0.65	438	1.60	13.2	105.0	Cloudy	None
1205	7	200	5.61	0.20	7.00	0.66	504	1.42	13.5	99.1	"	"
1210	12	160	6.65	0.40	7.00	0.66	320	1.45	13.5	122.1	"	"
1215	17	160	7.29	0.60	7.00	0.66	240	1.41	13.4	124.8	"	"
1220	22	160	8.24	0.75	7.60	0.67	153	1.48	13.8	121.6	Clear	"
1225	27	160	9.10	0.95	7.01	0.66	47.3	1.46	13.7	122.9	"	"
1226	SAMPLE											

Constituents Sampled	Container	Number	Preservative
<u>PFAS</u>	<u>250 mL</u>	<u>(2)</u>	<u>None</u>
<u>1-4, Dioxane</u>	<u>1L amber</u>	<u>(2)</u>	<u>None</u>

**Well Casing Volumes**

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

**Well Information**

Well Location: <u>    </u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Missing 2 screws</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u>N/A</u>

# ATTACHMENT C

Data Validation Report



WSI Scrapyard

# DATA USABILTY SUMMARY REPORT (DUSR)

Potsdam, New York

1,4-Dioxane and Perfluoroalkyl Substances (PFAS) Analyses

SDGs #480-144495-1

Analyses Performed By:

TestAmerica Laboratories, Inc.

Amherst, New York;

And

TestAmerica Laboratories, Inc.

Sacramento, California

Report #31411R

Review Level: Tier III

Project: B0031006.0005.0160

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## DATA USABILITY SUMMARY REPORT

### SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) #480-144495-1 for samples collected in association with the WSI Scrapyard Site in Potsdam, New York. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis	
						1,4-D	PFAS
480-144495-1	MW-207	480-144495-1	Water	10/30/2018		X	X
	MW-201	480-144495-2	Water	10/30/2018		X	X
	MW-205	480-144495-3	Water	10/30/2018		X	X
	DUP-1-20181030	480-144495-4	Water	10/30/2018	MW-201	X	X
	EQUIPMENT BLANK	480-144495-5	Water	10/30/2018		X	X

Note:

1. 1,4-Dioxane analysis was performed by TestAmerica-Buffalo and PFAS analysis was performed by TestAmerica-Sacramento.

## DATA USABILITY SUMMARY REPORT

### ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note:

QA - Quality Assurance

## DATA USABILITY SUMMARY REPORT

### ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 8270D by Selected Ion Monitoring (SIM) and USEPA Method 537 (Modified). Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-2017-002, January 2017 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999, as appropriate); USEPA Method 537; TestAmerica-Sacramento Standard Operating Procedure No. WS-DW-0004, Rev. 1.9, Determination of Selected Perfluorinated Alkyl Acids (PFAA) in Drinking Water by Solid Phase Extraction (SPE) and Analysis by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS), September 2018); and Department of Defense (DoD) Quality Systems Manual (QSM) version 5.1.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound is considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

## DATA USABILITY SUMMARY REPORT

Two facts should be noted by all data users. First, the “R” flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. “R” values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.



## DATA USABILITY SUMMARY REPORT

### 1,4-DIOXANE ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D-SIM	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

#### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

1,4-Dioxane was not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

#### 3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable, and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

#### 4. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

##### 4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

## DATA USABILITY SUMMARY REPORT

### 4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

The initial calibration and continuing calibration verification results were within the specified control limits.

### 5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. 1,4-Dioxane analysis requires that 1,4-dioxane-d8 exhibits a recovery within the laboratory-established acceptance limits.

The 1,4-dioxane-d8 recoveries were within control limits.

### 6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compound associated with 1,4-dioxane exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

### 7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD performed on sample location MW-201 exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

### 8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The RPD between the LCS and LCSD results must be within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries and RPD within the control limits.

### 9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

## DATA USABILITY SUMMARY REPORT

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-201 / DUP-1-20181030	1,4-Dioxane	U	U	0.0%

Note:

AC Acceptable

The difference in the 1,4-dioxane results between the parent sample MW-201 and field duplicate sample DUP-1-20181030 was acceptable.

### 10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

### 11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# DATA USABILITY SUMMARY REPORT

## DATA VALIDATION CHECKLIST FOR 1,4-DIOXANE

1,4-Dioxane: SW-846 8270D-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)</b>					
<b>Tier II Validation</b>					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate Precision (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X
<b>Tier III Validation</b>					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	

## DATA USABILITY SUMMARY REPORT

1,4-Dioxane: SW-846 8270D-SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)</b>					
D. Quantitation transcriptions/calculations		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

## DATA USABILITY SUMMARY REPORT

### PERFLUOROALKYL SUBSTANCES (PFAS) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
USEPA Method 537 (Modified)	Water	14 days from collection to extraction and 28 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

#### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated QA blanks; however, the associated sample results were equal to or greater than the BAL and/or were non-detect. Therefore, sample results equal to or greater than the BAL resulted in the removal of the laboratory qualifier (B). Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
MW-201 DUP-1-20181030	Perfluorohexanesulfonic acid (PFHxS)	Detected sample results <RL and <BAL	"UB" at the RL

Note:

BAL = blank action level

RL = reporting limit

#### 3. Mass Calibration

Mass calibration and system performance were acceptable.

#### 4. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

## DATA USABILITY SUMMARY REPORT

### 4.1 Initial Calibration

The percent relative standard deviation (%RSD) of the response factors (RF) must be less than 20%, or for linear calibration,  $r^2 \geq 0.99$ . Analytes must be within 70-130% of their true value for each calibration standard.

### 4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit of 30%.

All compounds associated with the calibrations were within the specified control limits.

## 5. Isotopically Labelled Standards

### 5.1. Extracted Internal Standard (EIS)/Surrogate Compounds

Labeled standards must be added to all field samples and QC samples prior to extraction. EIS recoveries must be within DoD QSM 5.1 specified limits of 50% to 150%.

Sample locations associated with EIS exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	EIS	Associated Compound	Recovery
MW-207	13C4 PFBA	Perfluorobutanoic acid (PFBA)	< 25% but > 10%
	13C5 PFPeA	Perfluoropentanoic acid (PFPeA)	
	13C2 PFHxA	Perfluorohexanoic acid (PFHxA)	
	13C4 PFHpA	Perfluoroheptanoic acid (PFHpA)	< 50% but > 25%
	13C4 PFOA	Perfluorooctanoic acid (PFOA)	
	13C5 PFNA	Perfluorononanoic acid (PFNA)	
	13C2 PFDA	Perfluorodecanoic acid (PFDA)	
	13C2 PFUnA	Perfluoroundecanoic acid (PFUnA)	
	13C2 PFDoA	Perfluorododecanoic acid (PFDoA)	
	13C2 PFTeDA	Perfluorotetradecanoic acid (PFTeA)	
	13C3 PFBS	Perfluorobutanesulfonic acid (PFBS)	
	18O2 PFHxS	Perfluorohexanesulfonic acid (PFHxS)	
	13C4 PFOS	Perfluorooctanesulfonic acid (PFOS)	
	13C8 FOSA	Perfluorooctanesulfonamide (FOSA)	
	d3-NMeFOSAA	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	
d5-NEtFOSAA	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)		
MW-205	M2-6:2 FTS	6:2 FTS	> 150%

## DATA USABILITY SUMMARY REPORT

The criteria used to evaluate the EIS recoveries are presented in the following table. In the case of a EIS deviation, the sample results associated with the EIS are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> 150%	Non-detect	No Action
	Detect	J
< 50% but > 25%	Non-detect	No Action
	Detect	
< 25% but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

As part of the isotope dilution analysis, the EIS are used for quantitation of the sample results, therefore the calculation of sample concentrations is adjusted for EIS recoveries. The data will not be qualified unless EIS recoveries are less than 25%.

### 5.2. Injection Internal Standards

Injection internal standards must be added to the aliquot of sample dilutions, QC samples, and standards just prior to analysis. Peak areas must be within 50-150% of the area measured in the ICAL midpoint standard. On days when ICAL is not performed, the peak areas must be within 50-150% of the peak area measured in daily initial CCV.

Internal standard responses were within the control limits.

### 6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD less than 30%.

The MS/MSD performed on sample location MW-201 exhibited acceptable recoveries and RPD between the MS/MSD recoveries. The MS/MSD recovery control limits do not apply when the concentration detected in the parent sample exceeds the MS/MSD spike level by a factor of four or greater.

### 7. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

### 8. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent



## DATA USABILITY SUMMARY REPORT

sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-201 / DUP-1-20181030	Perfluorobutanoic acid (PFBA)	3.8	3.4	AC
	Perfluoroheptanoic acid (PFHpA)	0.34 J	0.36 J	AC
	Perfluorooctanoic acid (PFOA)	9.2	9.6	AC
	Perfluorooctanesulfonic acid (PFOS)	1.9 J	2.2	AC

### Notes:

AC      Acceptable

The difference in the results between the parent sample MW-201 and field duplicate sample DUP-1-20181030 were acceptable.

## 9. Compound Identification

PFC analytes are identified by using the compound's ion abundance ratios, signal-to-noise values, and relative retention times.

All identified compounds met method criteria.

## 10. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

# DATA USABILITY SUMMARY REPORT

## DATA VALIDATION CHECKLIST FOR PFAS

PFAS: USEPA Modified 537	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>LIQUID CHROMATOGRAPHY/TANDEM MASS SPECTROMETRY (LC/MS/MS)</b>					
<b>Tier II Validation</b>					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X	X		
B. Field blanks		X	X		
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)		X		X	
Extracted Internal Standards (EIS) %R		X	X		
Injection Internal Standard %R		X		X	
Dilution Factor		X		X	
Moisture Content	X				X
<b>Tier III Validation</b>					
Instrument tune and performance check		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration %Ds		X		X	
Instrument sensitivity check		X		X	
Ion transitions used		X		X	
<b>Compound identification and quantitation</b>					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculations acceptable		X		X	

## DATA USABILITY SUMMARY REPORT

PFAS: USEPA Modified 537	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
<b>LIQUID CHROMATOGRAPHY/TANDEM MASS SPECTROMETRY (LC/MS/MS)</b>					
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

## DATA USABILITY SUMMARY REPORT

## SAMPLE COMPLIANCE REPORT

## DATA USABILITY SUMMARY REPORT

### SAMPLE COMPLIANCE REPORT

Sample Delivery Groups (SDGs)	Sampling Date	Protocol	Sample ID	Matrix	Compliance <sup>1</sup>		Noncompliance
					SVOC	PFAS	
480-144495-1	10/30/2018	USEPA Method 537 Modified and SW-846 8270D-SIM	MW-207	Water	Yes	No	PFAs – EIS recovery
	10/30/2018		MW-201	Water	Yes	No	PFAs – blank contamination
	10/30/2018		MW-205	Water	Yes	Yes	
	10/30/2018		DUP-1-20181030	Water	Yes	No	PFAs – blank contamination
	10/30/2018		EQUIPMENT BLANK	Water	Yes	Yes	

Note:

- 1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

## DATA USABILITY SUMMARY REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: January 11, 2019

PEER REVIEW: Dennis Capria

DATE: January 17, 2019

**CHAIN OF CUSTODY  
CORRECTED SAMPLE ANALYSIS DATA  
SHEETS**



**TestAmerica Buffalo**  
 10 Hazelwood Drive  
 Amherst, NY 14228-2298  
 Phone (716) 691-2600 Fax (716) 691-7991

## Chain of Custody Record



480-144495 COC

<b>Client Information</b> Client Contact: Mr. Lawrence Healy III Company: ARCADIS U.S. Inc. Address: One Lincoln Center 110 West Fayette St, Suite 300 City: Syracuse State, Zip: NY, 13202 Phone: _____ Email: lawrence.healy@arcadis.com Project Name: WSI - Potsdam - GW Analysis RFQ Site: _____	Lab PM: Deyo, Melissa L. E-Mail: melissa.deyo@testamericainc.com Phone: 315-671-9171 Carrier Tracking No(s): _____	COC No: 480-120728-27733 Page: Page 1 of 1 Job #: _____
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Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, T=tissue, A=air)	Analysis Requested		Special Instructions/Note:
					Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	
MW-207	10/30/18	1226		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-201	10/30/18	1327		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MW-201MS / MW-201MSD
MW-205	10/30/18	1525		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
DUP-1-20181030	10/30/18	1600		Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
EQUIPMENT BLANK				Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) _____							

<b>Sample Disposal</b> (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
<b>Special Instructions/QC Requirements:</b> _____	
<b>Empty Kit Relinquished by:</b> _____ Date: _____	<b>Method of Shipment:</b> _____
<b>Relinquished by:</b> Josh Sinay [Signature] Date/Time: 10/30/18 2030 Company: Arcadis	<b>Received by:</b> [Signature] Date/Time: 10/30/18 2030 Company: SVA
<b>Relinquished by:</b> [Signature] Date/Time: 10/31/18 1900 Company: SVA	<b>Received by:</b> [Signature] Date/Time: 11/01/18 1000 Company: _____
<b>Relinquished by:</b> _____ Date/Time: _____ Company: _____	<b>Received by:</b> _____ Date/Time: _____ Company: _____
<b>Custody Seal No.:</b> Δ Yes Δ No <span style="float: right;">A.3</span>	

Cooler Temperature(s) °C and Other Remarks: A.3

Ver: 08/04/2016



# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: MW-207**  
**Date Collected: 10/30/18 12:26**  
**Date Received: 11/01/18 01:00**

**Lab Sample ID: 480-144495-1**  
**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.19	0.096	ug/L		11/02/18 07:56	11/09/18 18:54	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,4-Dioxane-d8	26		15 - 110				11/02/18 07:56	11/09/18 18:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	UJ	2.0	0.35	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluoropentanoic acid (PFPeA)	ND	UJ	2.0	0.49	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorohexanoic acid (PFHxA)	ND	UJ	2.0	0.58	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>11</b>		2.0	0.85	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>Perfluorononanoic acid (PFNA)</b>	<b>2.6</b>		2.0	0.27	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>Perfluorodecanoic acid (PFDA)</b>	<b>1.4</b>	J	2.0	0.31	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>1.9</b>	J B	2.0	0.17	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>69</b>		2.0	0.54	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.35	ng/L		11/09/18 07:44	11/10/18 15:06	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		11/09/18 07:44	11/10/18 15:06	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>6:2 FTS</b>	<b>3.5</b>	J	20	2.0	ng/L		11/09/18 07:44	11/10/18 15:06	1
8:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C4 PFBA	17	*	25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C5 PFPeA	20	*	25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C2 PFHxA	24	*	25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C4 PFHpA	29		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C4 PFOA	31		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C5 PFNA	33		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C2 PFDA	36		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C2 PFUnA	36		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C2 PFDoA	30		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C2 PFTeDA	25		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C3 PFBS	25		25 - 150				11/09/18 07:44	11/10/18 15:06	1
18O2 PFHxS	29		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C4 PFOS	33		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C8 FOSA	35		25 - 150				11/09/18 07:44	11/10/18 15:06	1
d3-NMeFOSAA	43		25 - 150				11/09/18 07:44	11/10/18 15:06	1
d5-NEtFOSAA	37		25 - 150				11/09/18 07:44	11/10/18 15:06	1
M2-6:2 FTS	83		25 - 150				11/09/18 07:44	11/10/18 15:06	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: MW-207**

**Date Collected: 10/30/18 12:26**

**Date Received: 11/01/18 01:00**

**Lab Sample ID: 480-144495-1**

**Matrix: Water**

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	75		25 - 150	11/09/18 07:44	11/10/18 15:06	1

**Client Sample ID: MW-201**

**Date Collected: 10/30/18 13:27**

**Date Received: 11/01/18 01:00**

**Lab Sample ID: 480-144495-2**

**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.098	ug/L		11/02/18 07:56	11/09/18 18:30	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,4-Dioxane-d8	28		15 - 110	11/02/18 07:56	11/09/18 18:30	1			

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Perfluorobutanoic acid (PFBA)</b>	<b>3.8</b>		2.0	0.36	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.50	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.59	ng/L		11/09/18 07:44	11/10/18 15:13	1
<b>Perfluoroheptanoic acid (PFHpA)</b>	<b>0.34</b>	<b>J</b>	2.0	0.25	ng/L		11/09/18 07:44	11/10/18 15:13	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>9.2</b>		2.0	0.86	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.56	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		11/09/18 07:44	11/10/18 15:13	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<del>1.3</del> <b>J B</b>	<b>2.0 UB</b>	2.0	0.17	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		11/09/18 07:44	11/10/18 15:13	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>1.9</b>	<b>J</b>	2.0	0.55	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.33	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.36	ng/L		11/09/18 07:44	11/10/18 15:13	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		11/09/18 07:44	11/10/18 15:13	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		11/09/18 07:44	11/10/18 15:13	1
6:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 15:13	1
8:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 15:13	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFBA	52		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C5 PFPeA	71		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C2 PFHxA	81		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C4 PFHpA	90		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C4 PFOA	93		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C5 PFNA	95		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C2 PFDA	84		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C2 PFUnA	94		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C2 PFDoA	84		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C2 PFTeDA	84		25 - 150	11/09/18 07:44	11/10/18 15:13	1			

TestAmerica Buffalo

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: MW-201**

**Lab Sample ID: 480-144495-2**

**Date Collected: 10/30/18 13:27**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	78		25 - 150	11/09/18 07:44	11/10/18 15:13	1
18O2 PFHxS	93		25 - 150	11/09/18 07:44	11/10/18 15:13	1
13C4 PFOS	94		25 - 150	11/09/18 07:44	11/10/18 15:13	1
13C8 FOSA	90		25 - 150	11/09/18 07:44	11/10/18 15:13	1
d3-NMeFOSAA	75		25 - 150	11/09/18 07:44	11/10/18 15:13	1
d5-NEtFOSAA	76		25 - 150	11/09/18 07:44	11/10/18 15:13	1
M2-6:2 FTS	106		25 - 150	11/09/18 07:44	11/10/18 15:13	1
M2-8:2 FTS	69		25 - 150	11/09/18 07:44	11/10/18 15:13	1

**Client Sample ID: MW-205**

**Lab Sample ID: 480-144495-3**

**Date Collected: 10/30/18 15:25**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

**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		0.19	0.095	ug/L		11/02/18 07:56	11/09/18 19:17	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,4-Dioxane-d8	25		15 - 110	11/02/18 07:56	11/09/18 19:17	1			

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	15		2.0	0.36	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluoropentanoic acid (PFPeA)	13		2.0	0.50	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorohexanoic acid (PFHxA)	14		2.0	0.59	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluoroheptanoic acid (PFHpA)	9.3		2.0	0.26	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorooctanoic acid (PFOA)	36		2.0	0.87	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorononanoic acid (PFNA)	0.79	J	2.0	0.28	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.32	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.56	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.30	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorobutanesulfonic acid (PFBS)	3.0		2.0	0.20	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorohexanesulfonic acid (PFHxS)	16	B	2.0	0.17	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.49	J	2.0	0.19	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorooctanesulfonic acid (PFOS)	43		2.0	0.55	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.33	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.36	ng/L		11/09/18 07:44	11/15/18 02:09	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.2	ng/L		11/09/18 07:44	11/15/18 02:09	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		11/09/18 07:44	11/15/18 02:09	1
6:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/15/18 02:09	1
8:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/15/18 02:09	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFBA	46		25 - 150	11/09/18 07:44	11/15/18 02:09	1			
13C5 PFPeA	58		25 - 150	11/09/18 07:44	11/15/18 02:09	1			

TestAmerica Buffalo

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: MW-205**

**Lab Sample ID: 480-144495-3**

**Date Collected: 10/30/18 15:25**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	68		25 - 150	11/09/18 07:44	11/15/18 02:09	1
13C4 PFHpA	80		25 - 150	11/09/18 07:44	11/15/18 02:09	1
13C4 PFOA	94		25 - 150	11/09/18 07:44	11/15/18 02:09	1
13C5 PFNA	95		25 - 150	11/09/18 07:44	11/15/18 02:09	1
13C2 PFDA	99		25 - 150	11/09/18 07:44	11/15/18 02:09	1
13C2 PFUnA	98		25 - 150	11/09/18 07:44	11/15/18 02:09	1
13C2 PFDaA	88		25 - 150	11/09/18 07:44	11/15/18 02:09	1
13C2 PFTeDA	74		25 - 150	11/09/18 07:44	11/15/18 02:09	1
13C3 PFBS	73		25 - 150	11/09/18 07:44	11/15/18 02:09	1
18O2 PFHxS	92		25 - 150	11/09/18 07:44	11/15/18 02:09	1
13C4 PFOS	100		25 - 150	11/09/18 07:44	11/15/18 02:09	1
13C8 FOSA	93		25 - 150	11/09/18 07:44	11/15/18 02:09	1
d3-NMeFOSAA	93		25 - 150	11/09/18 07:44	11/15/18 02:09	1
d5-NEtFOSAA	90		25 - 150	11/09/18 07:44	11/15/18 02:09	1
M2-6:2 FTS	169 *		25 - 150	11/09/18 07:44	11/15/18 02:09	1
M2-8:2 FTS	115		25 - 150	11/09/18 07:44	11/15/18 02:09	1

**Client Sample ID: DUP-1-20181030**

**Lab Sample ID: 480-144495-4**

**Date Collected: 10/30/18 00:00**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

**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		0.19	0.097	ug/L		11/02/18 07:56	11/09/18 19:41	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	27		15 - 110	11/02/18 07:56	11/09/18 19:41	1

**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		11/09/18 07:44	11/10/18 15:43	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluoroheptanoic acid (PFHpA)	0.36	J	2.0	0.25	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorooctanoic acid (PFOA)	9.6		2.0	0.84	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorododecanoic acid (PFDaA)	ND		2.0	0.55	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorohexanesulfonic acid (PFHxS)	<del>1.5</del> JB	2.0 UB	2.0	0.17	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	0.54	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.35	ng/L		11/09/18 07:44	11/10/18 15:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		11/09/18 07:44	11/10/18 15:43	1

TestAmerica Buffalo

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: DUP-1-20181030**

**Lab Sample ID: 480-144495-4**

**Date Collected: 10/30/18 00:00**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	ND		20	1.9	ng/L		11/09/18 07:44	11/10/18 15:43	1
6:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 15:43	1
8:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 15:43	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	56		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C5 PFPeA	75		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C2 PFHxA	85		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C4 PFHpA	96		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C4 PFOA	96		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C5 PFNA	98		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C2 PFDA	87		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C2 PFUnA	100		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C2 PFDaA	89		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C2 PFTeDA	82		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C3 PFBS	83		25 - 150				11/09/18 07:44	11/10/18 15:43	1
18O2 PFHxS	96		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C4 PFOS	100		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C8 FOSA	94		25 - 150				11/09/18 07:44	11/10/18 15:43	1
d3-NMeFOSAA	85		25 - 150				11/09/18 07:44	11/10/18 15:43	1
d5-NEtFOSAA	77		25 - 150				11/09/18 07:44	11/10/18 15:43	1
M2-6:2 FTS	107		25 - 150				11/09/18 07:44	11/10/18 15:43	1
M2-8:2 FTS	82		25 - 150				11/09/18 07:44	11/10/18 15:43	1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-144495-5**

**Date Collected: 10/30/18 16:00**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

**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		0.19	0.095	ug/L		11/02/18 07:56	11/09/18 20:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	29		15 - 110				11/02/18 07:56	11/09/18 20:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.9	0.34	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.47	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.56	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.82	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorododecanoic acid (PFDaA)	ND		1.9	0.53	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.28	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		11/09/18 07:44	11/10/18 15:51	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>0.29</b>	<b>J B</b>	1.9	0.16	ng/L		11/09/18 07:44	11/10/18 15:51	1

TestAmerica Buffalo

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-144495-5**

**Date Collected: 10/30/18 16:00**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.52	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.34	ng/L		11/09/18 07:44	11/10/18 15:51	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	3.0	ng/L		11/09/18 07:44	11/10/18 15:51	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	1.8	ng/L		11/09/18 07:44	11/10/18 15:51	1
6:2 FTS	ND		19	1.9	ng/L		11/09/18 07:44	11/10/18 15:51	1
8:2 FTS	ND		19	1.9	ng/L		11/09/18 07:44	11/10/18 15:51	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	90		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C5 PFPeA	89		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C2 PFHxA	93		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C4 PFHpA	95		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C4 PFOA	100		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C5 PFNA	95		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C2 PFDA	89		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C2 PFUnA	96		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C2 PFDoA	87		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C2 PFTeDA	94		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C3 PFBS	92		25 - 150				11/09/18 07:44	11/10/18 15:51	1
18O2 PFHxS	99		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C4 PFOS	98		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C8 FOSA	90		25 - 150				11/09/18 07:44	11/10/18 15:51	1
d3-NMeFOSAA	82		25 - 150				11/09/18 07:44	11/10/18 15:51	1
d5-NEtFOSAA	80		25 - 150				11/09/18 07:44	11/10/18 15:51	1
M2-6:2 FTS	79		25 - 150				11/09/18 07:44	11/10/18 15:51	1
M2-8:2 FTS	79		25 - 150				11/09/18 07:44	11/10/18 15:51	1

# ATTACHMENT D

Laboratory Analytical Report





## ANALYTICAL REPORT

Job Number: 480-144495-1

Job Description: WSI - Potsdam - GW Analysis RFQ

Contract Number: TAAT092507-R010110

For:

ARCADIS U.S. Inc  
One Lincoln Center  
110 West Fayette St, Suite 300  
Syracuse, NY 13202

Attention: Mr. Joshua Sinay



Approved for release.  
Mary A Schwartzmyer  
Project Manager I  
11/23/2018 10:00 AM

---

Designee for  
Melissa L Deyo, Project Manager I  
10 Hazelwood Drive, Amherst, NY, 14228-2298  
(716)504-9874  
melissa.deyo@testamericainc.com  
11/23/2018

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

**TestAmerica Laboratories, Inc.**

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**Job Narrative  
480-144495-1**

**Receipt**

The samples were received on 11/1/2018 1:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3° C.

**GC/MS Semi VOA**

Method(s) 8270D SIM ID: The breakdown of 4,4'-DDT in the tuning evaluation exceeded 20%. Breakdown is not a criteria of the method but rather an internal check performed by the laboratory to evaluate the peak shape of 1,4-Dioxane and 1,4-Dioxane-d8. No adverse performance was observed and QC recoveries were in control. The data have been reported. (DFTPP 480-444681/2).

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

**LCMS**

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit for several analytes: MW-207 (480-144495-1). Re-analysis was performed with concurring results. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample. All detection limits are below the lower calibration.

Method(s) 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for M2-6:2 FTS in the following sample: MW-205 (480-144495-3). Re-analysis was performed with concurring results. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

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-207 (480-144495-1) and MW-205 (480-144495-3) in preparation batch 320-258069 were observed to be a yellow color and contain sediment prior to extraction.

Method(s) 3535: The following sample: MW-207 (480-144495-1) in preparation batch 320-258069 was observed to be slightly foamy prior to extraction.

Method(s) 3535: The following sample had non-settleable particulate matter which plugged the solid phase extraction disk. 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: MW-207 (480-144495-1). 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.

# Sample Summary

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

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<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Matrix</b>	<b>Collected</b>	<b>Received</b>
480-144495-1	MW-207	Water	10/30/18 12:26	11/01/18 01:00
480-144495-2	MW-201	Water	10/30/18 13:27	11/01/18 01:00
480-144495-3	MW-205	Water	10/30/18 15:25	11/01/18 01:00
480-144495-4	DUP-1-20181030	Water	10/30/18 00:00	11/01/18 01:00
480-144495-5	EQUIPMENT BLANK	Water	10/30/18 16:00	11/01/18 01:00

# Detection Summary

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

## Client Sample ID: MW-207

## Lab Sample ID: 480-144495-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	11		2.0	0.85	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	2.6		2.0	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.4	J	2.0	0.31	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.9	J B	2.0	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	69		2.0	0.54	ng/L	1		537 (modified)	Total/NA
6:2 FTS	3.5	J	20	2.0	ng/L	1		537 (modified)	Total/NA

## Client Sample ID: MW-201

## Lab Sample ID: 480-144495-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.8		2.0	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.34	J	2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	9.2		2.0	0.86	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.3	J B	2.0	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.9	J	2.0	0.55	ng/L	1		537 (modified)	Total/NA

## Client Sample ID: MW-205

## Lab Sample ID: 480-144495-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	15		2.0	0.36	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	13		2.0	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	14		2.0	0.59	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	9.3		2.0	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	36		2.0	0.87	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.79	J	2.0	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.0		2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	16	B	2.0	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.49	J	2.0	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	43		2.0	0.55	ng/L	1		537 (modified)	Total/NA

## Client Sample ID: DUP-1-20181030

## Lab Sample ID: 480-144495-4

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
Perfluoroheptanoic acid (PFHpA)	0.36	J	2.0	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	9.6		2.0	0.84	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.5	J B	2.0	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	0.54	ng/L	1		537 (modified)	Total/NA

## Client Sample ID: EQUIPMENT BLANK

## Lab Sample ID: 480-144495-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.29	J B	1.9	0.16	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Method Summary

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

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

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**Protocol References:**

EPA = US Environmental Protection Agency

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

**Laboratory References:**

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

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

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: MW-207**  
**Date Collected: 10/30/18 12:26**  
**Date Received: 11/01/18 01:00**

**Lab Sample ID: 480-144495-1**  
**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.19	0.096	ug/L		11/02/18 07:56	11/09/18 18:54	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,4-Dioxane-d8	26		15 - 110				11/02/18 07:56	11/09/18 18:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.35	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>11</b>		2.0	0.85	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>Perfluorononanoic acid (PFNA)</b>	<b>2.6</b>		2.0	0.27	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>Perfluorodecanoic acid (PFDA)</b>	<b>1.4 J</b>		2.0	0.31	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>1.9 J B</b>		2.0	0.17	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>69</b>		2.0	0.54	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		11/09/18 07:44	11/10/18 15:06	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.35	ng/L		11/09/18 07:44	11/10/18 15:06	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		11/09/18 07:44	11/10/18 15:06	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		11/09/18 07:44	11/10/18 15:06	1
<b>6:2 FTS</b>	<b>3.5 J</b>		20	2.0	ng/L		11/09/18 07:44	11/10/18 15:06	1
8:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 15:06	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	17	*	25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C5 PFPeA	20	*	25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C2 PFHxA	24	*	25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C4 PFHpA	29		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C4 PFOA	31		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C5 PFNA	33		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C2 PFDA	36		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C2 PFUnA	36		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C2 PFDoA	30		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C2 PFTeDA	25		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C3 PFBS	25		25 - 150				11/09/18 07:44	11/10/18 15:06	1
18O2 PFHxS	29		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C4 PFOS	33		25 - 150				11/09/18 07:44	11/10/18 15:06	1
13C8 FOSA	35		25 - 150				11/09/18 07:44	11/10/18 15:06	1
d3-NMeFOSAA	43		25 - 150				11/09/18 07:44	11/10/18 15:06	1
d5-NEtFOSAA	37		25 - 150				11/09/18 07:44	11/10/18 15:06	1
M2-6:2 FTS	83		25 - 150				11/09/18 07:44	11/10/18 15:06	1

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: MW-207**

**Date Collected: 10/30/18 12:26**

**Date Received: 11/01/18 01:00**

**Lab Sample ID: 480-144495-1**

**Matrix: Water**

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	75		25 - 150	11/09/18 07:44	11/10/18 15:06	1

**Client Sample ID: MW-201**

**Date Collected: 10/30/18 13:27**

**Date Received: 11/01/18 01:00**

**Lab Sample ID: 480-144495-2**

**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.098	ug/L		11/02/18 07:56	11/09/18 18:30	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,4-Dioxane-d8	28		15 - 110	11/02/18 07:56	11/09/18 18:30	1			

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Perfluorobutanoic acid (PFBA)</b>	<b>3.8</b>		2.0	0.36	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.50	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.59	ng/L		11/09/18 07:44	11/10/18 15:13	1
<b>Perfluoroheptanoic acid (PFHpA)</b>	<b>0.34</b>	<b>J</b>	2.0	0.25	ng/L		11/09/18 07:44	11/10/18 15:13	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>9.2</b>		2.0	0.86	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.56	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		11/09/18 07:44	11/10/18 15:13	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>1.3</b>	<b>J B</b>	2.0	0.17	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		11/09/18 07:44	11/10/18 15:13	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>1.9</b>	<b>J</b>	2.0	0.55	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.33	ng/L		11/09/18 07:44	11/10/18 15:13	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.36	ng/L		11/09/18 07:44	11/10/18 15:13	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		11/09/18 07:44	11/10/18 15:13	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		11/09/18 07:44	11/10/18 15:13	1
6:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 15:13	1
8:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 15:13	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFBA	52		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C5 PFPeA	71		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C2 PFHxA	81		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C4 PFHpA	90		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C4 PFOA	93		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C5 PFNA	95		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C2 PFDA	84		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C2 PFUnA	94		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C2 PFDoA	84		25 - 150	11/09/18 07:44	11/10/18 15:13	1			
13C2 PFTeDA	84		25 - 150	11/09/18 07:44	11/10/18 15:13	1			

TestAmerica Buffalo



# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: MW-201**

**Lab Sample ID: 480-144495-2**

**Date Collected: 10/30/18 13:27**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	78		25 - 150	11/09/18 07:44	11/10/18 15:13	1
18O2 PFHxS	93		25 - 150	11/09/18 07:44	11/10/18 15:13	1
13C4 PFOS	94		25 - 150	11/09/18 07:44	11/10/18 15:13	1
13C8 FOSA	90		25 - 150	11/09/18 07:44	11/10/18 15:13	1
d3-NMeFOSAA	75		25 - 150	11/09/18 07:44	11/10/18 15:13	1
d5-NEtFOSAA	76		25 - 150	11/09/18 07:44	11/10/18 15:13	1
M2-6:2 FTS	106		25 - 150	11/09/18 07:44	11/10/18 15:13	1
M2-8:2 FTS	69		25 - 150	11/09/18 07:44	11/10/18 15:13	1

**Client Sample ID: MW-205**

**Lab Sample ID: 480-144495-3**

**Date Collected: 10/30/18 15:25**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

**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		0.19	0.095	ug/L		11/02/18 07:56	11/09/18 19:17	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
1,4-Dioxane-d8	25		15 - 110	11/02/18 07:56	11/09/18 19:17	1			

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	15		2.0	0.36	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluoropentanoic acid (PFPeA)	13		2.0	0.50	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorohexanoic acid (PFHxA)	14		2.0	0.59	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluoroheptanoic acid (PFHpA)	9.3		2.0	0.26	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorooctanoic acid (PFOA)	36		2.0	0.87	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorononanoic acid (PFNA)	0.79	J	2.0	0.28	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.32	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.56	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.30	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorobutanesulfonic acid (PFBS)	3.0		2.0	0.20	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorohexanesulfonic acid (PFHxS)	16	B	2.0	0.17	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.49	J	2.0	0.19	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorooctanesulfonic acid (PFOS)	43		2.0	0.55	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.33	ng/L		11/09/18 07:44	11/15/18 02:09	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.36	ng/L		11/09/18 07:44	11/15/18 02:09	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.2	ng/L		11/09/18 07:44	11/15/18 02:09	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		11/09/18 07:44	11/15/18 02:09	1
6:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/15/18 02:09	1
8:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/15/18 02:09	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFBA	46		25 - 150	11/09/18 07:44	11/15/18 02:09	1			
13C5 PFPeA	58		25 - 150	11/09/18 07:44	11/15/18 02:09	1			

TestAmerica Buffalo

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: MW-205**

**Lab Sample ID: 480-144495-3**

**Date Collected: 10/30/18 15:25**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>13C2 PFHxA</i>	68		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>13C4 PFHpA</i>	80		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>13C4 PFOA</i>	94		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>13C5 PFNA</i>	95		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>13C2 PFDA</i>	99		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>13C2 PFUnA</i>	98		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>13C2 PFDaA</i>	88		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>13C2 PFTeDA</i>	74		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>13C3 PFBS</i>	73		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>18O2 PFHxS</i>	92		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>13C4 PFOS</i>	100		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>13C8 FOSA</i>	93		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>d3-NMeFOSAA</i>	93		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>d5-NEtFOSAA</i>	90		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>M2-6:2 FTS</i>	169 *		25 - 150	11/09/18 07:44	11/15/18 02:09	1
<i>M2-8:2 FTS</i>	115		25 - 150	11/09/18 07:44	11/15/18 02:09	1

**Client Sample ID: DUP-1-20181030**

**Lab Sample ID: 480-144495-4**

**Date Collected: 10/30/18 00:00**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

**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		0.19	0.097	ug/L		11/02/18 07:56	11/09/18 19:41	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>1,4-Dioxane-d8</i>	27		15 - 110	11/02/18 07:56	11/09/18 19:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Perfluorobutanoic acid (PFBA)</b>	<b>3.4</b>		2.0	0.35	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		11/09/18 07:44	11/10/18 15:43	1
<b>Perfluoroheptanoic acid (PFHpA)</b>	<b>0.36 J</b>		2.0	0.25	ng/L		11/09/18 07:44	11/10/18 15:43	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>9.6</b>		2.0	0.84	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorododecanoic acid (PFDaA)	ND		2.0	0.55	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		11/09/18 07:44	11/10/18 15:43	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>1.5 J B</b>		2.0	0.17	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		11/09/18 07:44	11/10/18 15:43	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>2.2</b>		2.0	0.54	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		11/09/18 07:44	11/10/18 15:43	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.35	ng/L		11/09/18 07:44	11/10/18 15:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		11/09/18 07:44	11/10/18 15:43	1

TestAmerica Buffalo

# Client Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: DUP-1-20181030**

**Lab Sample ID: 480-144495-4**

**Date Collected: 10/30/18 00:00**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	ND		20	1.9	ng/L		11/09/18 07:44	11/10/18 15:43	1
6:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 15:43	1
8:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 15:43	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	56		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C5 PFPeA	75		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C2 PFHxA	85		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C4 PFHpA	96		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C4 PFOA	96		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C5 PFNA	98		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C2 PFDA	87		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C2 PFUnA	100		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C2 PFDaA	89		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C2 PFTeDA	82		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C3 PFBS	83		25 - 150				11/09/18 07:44	11/10/18 15:43	1
18O2 PFHxS	96		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C4 PFOS	100		25 - 150				11/09/18 07:44	11/10/18 15:43	1
13C8 FOSA	94		25 - 150				11/09/18 07:44	11/10/18 15:43	1
d3-NMeFOSAA	85		25 - 150				11/09/18 07:44	11/10/18 15:43	1
d5-NEtFOSAA	77		25 - 150				11/09/18 07:44	11/10/18 15:43	1
M2-6:2 FTS	107		25 - 150				11/09/18 07:44	11/10/18 15:43	1
M2-8:2 FTS	82		25 - 150				11/09/18 07:44	11/10/18 15:43	1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-144495-5**

**Date Collected: 10/30/18 16:00**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

**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		0.19	0.095	ug/L		11/02/18 07:56	11/09/18 20:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	29		15 - 110				11/02/18 07:56	11/09/18 20:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.9	0.34	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.47	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.56	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.82	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorododecanoic acid (PFDaA)	ND		1.9	0.53	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.28	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		11/09/18 07:44	11/10/18 15:51	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>0.29</b>	<b>J B</b>	1.9	0.16	ng/L		11/09/18 07:44	11/10/18 15:51	1

TestAmerica Buffalo

# Client Sample Results

Client: ARCADIS U.S. Inc  
 Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-144495-5**

**Date Collected: 10/30/18 16:00**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.52	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		11/09/18 07:44	11/10/18 15:51	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.34	ng/L		11/09/18 07:44	11/10/18 15:51	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	3.0	ng/L		11/09/18 07:44	11/10/18 15:51	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	1.8	ng/L		11/09/18 07:44	11/10/18 15:51	1
6:2 FTS	ND		19	1.9	ng/L		11/09/18 07:44	11/10/18 15:51	1
8:2 FTS	ND		19	1.9	ng/L		11/09/18 07:44	11/10/18 15:51	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	90		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C5 PFPeA	89		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C2 PFHxA	93		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C4 PFHpA	95		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C4 PFOA	100		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C5 PFNA	95		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C2 PFDA	89		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C2 PFUnA	96		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C2 PFDoA	87		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C2 PFTeDA	94		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C3 PFBS	92		25 - 150				11/09/18 07:44	11/10/18 15:51	1
18O2 PFHxS	99		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C4 PFOS	98		25 - 150				11/09/18 07:44	11/10/18 15:51	1
13C8 FOSA	90		25 - 150				11/09/18 07:44	11/10/18 15:51	1
d3-NMeFOSAA	82		25 - 150				11/09/18 07:44	11/10/18 15:51	1
d5-NEtFOSAA	80		25 - 150				11/09/18 07:44	11/10/18 15:51	1
M2-6:2 FTS	79		25 - 150				11/09/18 07:44	11/10/18 15:51	1
M2-8:2 FTS	79		25 - 150				11/09/18 07:44	11/10/18 15:51	1

# Isotope Dilution Summary

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

## 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)
480-144495-1	MW-207	26
480-144495-2	MW-201	28
480-144495-2 MS	MW-201	31
480-144495-2 MSD	MW-201	33
480-144495-3	MW-205	25
480-144495-4	DUP-1-20181030	27
480-144495-5	EQUIPMENT BLANK	29
LCS 480-443239/2-A	Lab Control Sample	34
MB 480-443239/1-A	Method Blank	32

**Surrogate Legend**

DXE = 1,4-Dioxane-d8

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

Matrix: Water

Prep Type: Total/NA

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFOA (25-150)
480-144495-1	MW-207	17 *	20 *	24 *	29	31	33	36	36
480-144495-2	MW-201	52	71	81	90	93	95	84	94
480-144495-2 MS	MW-201	53	71	85	95	90	89	90	89
480-144495-2 MSD	MW-201	53	72	85	91	95	94	90	84
480-144495-3	MW-205	46	58	68	80	94	95	99	98
480-144495-4	DUP-1-20181030	56	75	85	96	96	98	87	100
480-144495-5	EQUIPMENT BLANK	90	89	93	95	100	95	89	96
LCS 320-258069/2-A	Lab Control Sample	98	96	93	95	98	92	90	96
MB 320-258069/1-A	Method Blank	92	92	91	95	93	94	86	91

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	3C3-PFB: (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	-NMeFOS: (25-150)	-NEtFOS/ (25-150)
480-144495-1	MW-207	30	25	25	29	33	35	43	37
480-144495-2	MW-201	84	84	78	93	94	90	75	76
480-144495-2 MS	MW-201	83	82	84	94	90	93	76	82
480-144495-2 MSD	MW-201	79	74	81	95	94	88	81	76
480-144495-3	MW-205	88	74	73	92	100	93	93	90
480-144495-4	DUP-1-20181030	89	82	83	96	100	94	85	77
480-144495-5	EQUIPMENT BLANK	87	94	92	99	98	90	82	80
LCS 320-258069/2-A	Lab Control Sample	97	96	89	94	100	86	81	81
MB 320-258069/1-A	Method Blank	96	91	81	96	100	87	79	83

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)
480-144495-1	MW-207	83	75
480-144495-2	MW-201	106	69
480-144495-2 MS	MW-201	97	78
480-144495-2 MSD	MW-201	100	80
480-144495-3	MW-205	169 *	115
480-144495-4	DUP-1-20181030	107	82

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# Isotope Dilution Summary

Client: ARCADIS U.S. Inc  
 Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)	
		M262FTS (25-150)	M282FTS (25-150)
480-144495-5	EQUIPMENT BLANK	79	79
LCS 320-258069/2-A	Lab Control Sample	87	76
MB 320-258069/1-A	Method Blank	86	85

### Surrogate Legend

PFBA = 13C4 PFBA  
 PFPeA = 13C5 PFPeA  
 PFHxA = 13C2 PFHxA  
 PFHpA = 13C4 PFHpA  
 PFOA = 13C4 PFOA  
 PFNA = 13C5 PFNA  
 PFDA = 13C2 PFDA  
 PFOA = 13C4 PFOA  
 PFDaA = 13C2 PFDaA  
 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 = M2-6:2 FTS  
 M282FTS = M2-8:2 FTS

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

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

**Lab Sample ID: MB 480-443239/1-A**  
**Matrix: Water**  
**Analysis Batch: 444681**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 443239**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		11/02/18 07:56	11/09/18 16:54	1
Isotope Dilution	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	32		15 - 110				11/02/18 07:56	11/09/18 16:54	1

**Lab Sample ID: LCS 480-443239/2-A**  
**Matrix: Water**  
**Analysis Batch: 444681**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 443239**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	1.00	1.04		ug/L		104	40 - 140
Isotope Dilution	%Recovery	LCS Qualifier	Limits				
1,4-Dioxane-d8	34		15 - 110				

**Lab Sample ID: 480-144495-2 MS**  
**Matrix: Water**  
**Analysis Batch: 444681**

**Client Sample ID: MW-201**  
**Prep Type: Total/NA**  
**Prep Batch: 443239**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
1,4-Dioxane	ND		0.971	1.03		ug/L		106	40 - 140
Isotope Dilution	%Recovery	MS Qualifier	Limits						
1,4-Dioxane-d8	31		15 - 110						

**Lab Sample ID: 480-144495-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 444681**

**Client Sample ID: MW-201**  
**Prep Type: Total/NA**  
**Prep Batch: 443239**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1,4-Dioxane	ND		1.04	1.09		ug/L		105	40 - 140	6	20
Isotope Dilution	%Recovery	MSD Qualifier	Limits								
1,4-Dioxane-d8	33		15 - 110								

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

**Lab Sample ID: MB 320-258069/1-A**  
**Matrix: Water**  
**Analysis Batch: 258354**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 258069**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.35	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		11/09/18 07:44	11/10/18 14:51	1

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

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

**Lab Sample ID: MB 320-258069/1-A**  
**Matrix: Water**  
**Analysis Batch: 258354**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 258069**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.29	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorohexanesulfonic acid (PFHxS)	0.275	J	2.0	0.17	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		11/09/18 07:44	11/10/18 14:51	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.35	ng/L		11/09/18 07:44	11/10/18 14:51	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1	ng/L		11/09/18 07:44	11/10/18 14:51	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9	ng/L		11/09/18 07:44	11/10/18 14:51	1
6:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 14:51	1
8:2 FTS	ND		20	2.0	ng/L		11/09/18 07:44	11/10/18 14:51	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	92		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C5 PFPeA	92		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C2 PFHxA	91		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C4 PFHpA	95		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C4 PFOA	93		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C5 PFNA	94		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C2 PFDA	86		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C2 PFUnA	91		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C2 PFDoA	96		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C2 PFTeDA	91		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C3 PFBS	81		25 - 150	11/09/18 07:44	11/10/18 14:51	1
18O2 PFHxS	96		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C4 PFOS	100		25 - 150	11/09/18 07:44	11/10/18 14:51	1
13C8 FOSA	87		25 - 150	11/09/18 07:44	11/10/18 14:51	1
d3-NMeFOSAA	79		25 - 150	11/09/18 07:44	11/10/18 14:51	1
d5-NEtFOSAA	83		25 - 150	11/09/18 07:44	11/10/18 14:51	1
M2-6:2 FTS	86		25 - 150	11/09/18 07:44	11/10/18 14:51	1
M2-8:2 FTS	85		25 - 150	11/09/18 07:44	11/10/18 14:51	1

**Lab Sample ID: LCS 320-258069/2-A**  
**Matrix: Water**  
**Analysis Batch: 258354**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 258069**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
		Result	Qualifier					
Perfluorobutanoic acid (PFBA)	40.0	38.0		ng/L		95		70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	40.8		ng/L		102		66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	41.0		ng/L		102		66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	39.6		ng/L		99		66 - 126
Perfluorooctanoic acid (PFOA)	40.0	37.8		ng/L		95		64 - 124
Perfluorononanoic acid (PFNA)	40.0	42.2		ng/L		106		68 - 128

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

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

**Lab Sample ID: LCS 320-258069/2-A**

**Matrix: Water**

**Analysis Batch: 258354**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 258069**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorodecanoic acid (PFDA)	40.0	42.2		ng/L		105	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	39.2		ng/L		98	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	32.6		ng/L		81	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	34.7		ng/L		87	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	37.4		ng/L		93	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	38.1		ng/L		108	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.0		ng/L		96	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.6		ng/L		101	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	33.0		ng/L		89	67 - 127
Perfluorodecanesulfonic acid (PFDS)	38.6	39.0		ng/L		101	68 - 128
Perfluorooctanesulfonamide (FOSA)	40.0	41.0		ng/L		103	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	36.9		ng/L		92	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	39.5		ng/L		99	65 - 125
6:2 FTS	37.9	37.3		ng/L		98	66 - 126
8:2 FTS	38.3	42.0		ng/L		109	67 - 127

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	98		25 - 150
13C5 PFPeA	96		25 - 150
13C2 PFHxA	93		25 - 150
13C4 PFHpA	95		25 - 150
13C4 PFOA	98		25 - 150
13C5 PFNA	92		25 - 150
13C2 PFDA	90		25 - 150
13C2 PFUnA	96		25 - 150
13C2 PFDoA	97		25 - 150
13C2 PFTeDA	96		25 - 150
13C3 PFBS	89		25 - 150
18O2 PFHxS	94		25 - 150
13C4 PFOS	100		25 - 150
13C8 FOSA	86		25 - 150
d3-NMeFOSAA	81		25 - 150
d5-NEtFOSAA	81		25 - 150
M2-6:2 FTS	87		25 - 150
M2-8:2 FTS	76		25 - 150

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

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

**Lab Sample ID: 480-144495-2 MS**

**Matrix: Water**

**Analysis Batch: 258354**

**Client Sample ID: MW-201**

**Prep Type: Total/NA**

**Prep Batch: 258069**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Perfluorobutanoic acid (PFBA)	3.8		41.3	44.3		ng/L		98		70 - 130
Perfluoropentanoic acid (PFPeA)	ND		41.3	42.7		ng/L		103		66 - 126
Perfluorohexanoic acid (PFHxA)	ND		41.3	39.6		ng/L		96		66 - 126
Perfluoroheptanoic acid (PFHpA)	0.34	J	41.3	40.4		ng/L		97		66 - 126
Perfluorooctanoic acid (PFOA)	9.2		41.3	52.1		ng/L		104		64 - 124
Perfluorononanoic acid (PFNA)	ND		41.3	43.2		ng/L		104		68 - 128
Perfluorodecanoic acid (PFDA)	ND		41.3	45.5		ng/L		110		69 - 129
Perfluoroundecanoic acid (PFUnA)	ND		41.3	38.7		ng/L		94		60 - 120
Perfluorododecanoic acid (PFDoA)	ND		41.3	36.4		ng/L		88		71 - 131
Perfluorotridecanoic acid (PFTriA)	ND		41.3	39.6		ng/L		96		72 - 132
Perfluorotetradecanoic acid (PFTeA)	ND		41.3	37.9		ng/L		92		68 - 128
Perfluorobutanesulfonic acid (PFBS)	ND		36.5	38.4		ng/L		105		73 - 133
Perfluorohexanesulfonic acid (PFHxS)	1.3	J B	37.6	34.6		ng/L		88		63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	ND		39.3	43.5		ng/L		111		68 - 128
Perfluorooctanesulfonic acid (PFOS)	1.9	J	38.3	39.0		ng/L		97		67 - 127
Perfluorodecanesulfonic acid (PFDS)	ND		39.8	41.0		ng/L		103		68 - 128
Perfluorooctanesulfonamide (FOSA)	ND		41.3	41.4		ng/L		100		70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		41.3	39.9		ng/L		97		67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		41.3	38.7		ng/L		94		65 - 125
6:2 FTS	ND		39.2	35.7		ng/L		91		66 - 126
8:2 FTS	ND		39.6	35.0		ng/L		88		67 - 127

Isotope Dilution	MS	MS	Limits
	%Recovery	Qualifier	
13C4 PFBA	53		25 - 150
13C5 PFPeA	71		25 - 150
13C2 PFHxA	85		25 - 150
13C4 PFHpA	95		25 - 150
13C4 PFOA	90		25 - 150
13C5 PFNA	89		25 - 150
13C2 PFDA	90		25 - 150
13C2 PFUnA	89		25 - 150
13C2 PFDoA	83		25 - 150
13C2 PFTeA	82		25 - 150
13C3 PFBS	84		25 - 150
18O2 PFHxS	94		25 - 150
13C4 PFOS	90		25 - 150
13C8 FOSA	93		25 - 150
d3-NMeFOSAA	76		25 - 150
d5-NEtFOSAA	82		25 - 150

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# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

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

**Lab Sample ID: 480-144495-2 MS**  
**Matrix: Water**  
**Analysis Batch: 258354**

**Client Sample ID: MW-201**  
**Prep Type: Total/NA**  
**Prep Batch: 258069**

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
M2-6:2 FTS	97		25 - 150
M2-8:2 FTS	78		25 - 150

**Lab Sample ID: 480-144495-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 258354**

**Client Sample ID: MW-201**  
**Prep Type: Total/NA**  
**Prep Batch: 258069**

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
Perfluorobutanoic acid (PFBA)	3.8		40.3	43.0		ng/L		97	70 - 130	3	30
Perfluoropentanoic acid (PFPeA)	ND		40.3	41.7		ng/L		103	66 - 126	2	30
Perfluorohexanoic acid (PFHxA)	ND		40.3	39.1		ng/L		97	66 - 126	1	30
Perfluoroheptanoic acid (PFHpA)	0.34	J	40.3	40.8		ng/L		100	66 - 126	1	30
Perfluorooctanoic acid (PFOA)	9.2		40.3	47.4		ng/L		95	64 - 124	9	30
Perfluorononanoic acid (PFNA)	ND		40.3	40.8		ng/L		101	68 - 128	6	30
Perfluorodecanoic acid (PFDA)	ND		40.3	41.5		ng/L		103	69 - 129	9	30
Perfluoroundecanoic acid (PFUnA)	ND		40.3	39.5		ng/L		98	60 - 120	2	30
Perfluorododecanoic acid (PFDoA)	ND		40.3	39.1		ng/L		97	71 - 131	7	30
Perfluorotridecanoic acid (PFTriA)	ND		40.3	38.4		ng/L		95	72 - 132	3	30
Perfluorotetradecanoic acid (PFTeA)	ND		40.3	35.6		ng/L		88	68 - 128	6	30
Perfluorobutanesulfonic acid (PFBS)	ND		35.6	39.8		ng/L		112	73 - 133	4	30
Perfluorohexanesulfonic acid (PFHxS)	1.3	J B	36.7	33.4		ng/L		87	63 - 123	3	30
Perfluoroheptanesulfonic Acid (PFHpS)	ND		38.4	39.9		ng/L		104	68 - 128	9	30
Perfluorooctanesulfonic acid (PFOS)	1.9	J	37.4	37.8		ng/L		96	67 - 127	3	30
Perfluorodecanesulfonic acid (PFDS)	ND		38.9	37.2		ng/L		96	68 - 128	10	30
Perfluorooctanesulfonamide (FOSA)	ND		40.3	43.6		ng/L		108	70 - 130	5	30
N-methylperfluorooctanesulfonamide (NMeFOSAA)	ND		40.3	36.3		ng/L		90	67 - 127	9	30
N-ethylperfluorooctanesulfonamide (NEtFOSAA)	ND		40.3	38.8		ng/L		96	65 - 125	0	30
6:2 FTS	ND		38.2	38.1		ng/L		100	66 - 126	6	30
8:2 FTS	ND		38.6	37.1		ng/L		96	67 - 127	6	30

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
13C4 PFBA	53		25 - 150
13C5 PFPeA	72		25 - 150
13C2 PFHxA	85		25 - 150
13C4 PFHpA	91		25 - 150
13C4 PFOA	95		25 - 150
13C5 PFNA	94		25 - 150
13C2 PFDA	90		25 - 150
13C2 PFUnA	84		25 - 150

# QC Sample Results

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

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

Lab Sample ID: 480-144495-2 MSD

Matrix: Water

Analysis Batch: 258354

Client Sample ID: MW-201

Prep Type: Total/NA

Prep Batch: 258069

<i>Isotope Dilution</i>	<i>MSD MSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>13C2 PFDoA</i>	79		25 - 150
<i>13C2 PFTeDA</i>	74		25 - 150
<i>13C3 PFBS</i>	81		25 - 150
<i>18O2 PFHxS</i>	95		25 - 150
<i>13C4 PFOS</i>	94		25 - 150
<i>13C8 FOSA</i>	88		25 - 150
<i>d3-NMeFOSAA</i>	81		25 - 150
<i>d5-NEtFOSAA</i>	76		25 - 150
<i>M2-6:2 FTS</i>	100		25 - 150
<i>M2-8:2 FTS</i>	80		25 - 150

# Definitions/Glossary

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

## Qualifiers

### LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
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.

## Glossary

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

# QC Association Summary

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

## GC/MS Semi VOA

### Prep Batch: 443239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-144495-1	MW-207	Total/NA	Water	3510C	
480-144495-2	MW-201	Total/NA	Water	3510C	
480-144495-3	MW-205	Total/NA	Water	3510C	
480-144495-4	DUP-1-20181030	Total/NA	Water	3510C	
480-144495-5	EQUIPMENT BLANK	Total/NA	Water	3510C	
MB 480-443239/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-443239/2-A	Lab Control Sample	Total/NA	Water	3510C	
480-144495-2 MS	MW-201	Total/NA	Water	3510C	
480-144495-2 MSD	MW-201	Total/NA	Water	3510C	

### Analysis Batch: 444681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-144495-1	MW-207	Total/NA	Water	8270D SIM ID	443239
480-144495-2	MW-201	Total/NA	Water	8270D SIM ID	443239
480-144495-3	MW-205	Total/NA	Water	8270D SIM ID	443239
480-144495-4	DUP-1-20181030	Total/NA	Water	8270D SIM ID	443239
480-144495-5	EQUIPMENT BLANK	Total/NA	Water	8270D SIM ID	443239
MB 480-443239/1-A	Method Blank	Total/NA	Water	8270D SIM ID	443239
LCS 480-443239/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	443239
480-144495-2 MS	MW-201	Total/NA	Water	8270D SIM ID	443239
480-144495-2 MSD	MW-201	Total/NA	Water	8270D SIM ID	443239

## LCMS

### Prep Batch: 258069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-144495-1	MW-207	Total/NA	Water	3535	
480-144495-2	MW-201	Total/NA	Water	3535	
480-144495-3	MW-205	Total/NA	Water	3535	
480-144495-4	DUP-1-20181030	Total/NA	Water	3535	
480-144495-5	EQUIPMENT BLANK	Total/NA	Water	3535	
MB 320-258069/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-258069/2-A	Lab Control Sample	Total/NA	Water	3535	
480-144495-2 MS	MW-201	Total/NA	Water	3535	
480-144495-2 MSD	MW-201	Total/NA	Water	3535	

### Analysis Batch: 258354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-144495-1	MW-207	Total/NA	Water	537 (modified)	258069
480-144495-2	MW-201	Total/NA	Water	537 (modified)	258069
480-144495-4	DUP-1-20181030	Total/NA	Water	537 (modified)	258069
480-144495-5	EQUIPMENT BLANK	Total/NA	Water	537 (modified)	258069
MB 320-258069/1-A	Method Blank	Total/NA	Water	537 (modified)	258069
LCS 320-258069/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	258069
480-144495-2 MS	MW-201	Total/NA	Water	537 (modified)	258069
480-144495-2 MSD	MW-201	Total/NA	Water	537 (modified)	258069

### Analysis Batch: 259234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-144495-3	MW-205	Total/NA	Water	537 (modified)	258069

TestAmerica Buffalo

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

## Client Sample ID: MW-207

Date Collected: 10/30/18 12:26

Date Received: 11/01/18 01:00

Lab Sample ID: 480-144495-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			443239	11/02/18 07:56	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	444681	11/09/18 18:54	DMR	TAL BUF
Total/NA	Prep	3535			258069	11/09/18 07:44	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	258354	11/10/18 15:06	S1M	TAL SAC

## Client Sample ID: MW-201

Date Collected: 10/30/18 13:27

Date Received: 11/01/18 01:00

Lab Sample ID: 480-144495-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			443239	11/02/18 07:56	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	444681	11/09/18 18:30	DMR	TAL BUF
Total/NA	Prep	3535			258069	11/09/18 07:44	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	258354	11/10/18 15:13	S1M	TAL SAC

## Client Sample ID: MW-205

Date Collected: 10/30/18 15:25

Date Received: 11/01/18 01:00

Lab Sample ID: 480-144495-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			443239	11/02/18 07:56	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	444681	11/09/18 19:17	DMR	TAL BUF
Total/NA	Prep	3535			258069	11/09/18 07:44	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	259234	11/15/18 02:09	S1M	TAL SAC

## Client Sample ID: DUP-1-20181030

Date Collected: 10/30/18 00:00

Date Received: 11/01/18 01:00

Lab Sample ID: 480-144495-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			443239	11/02/18 07:56	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	444681	11/09/18 19:41	DMR	TAL BUF
Total/NA	Prep	3535			258069	11/09/18 07:44	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	258354	11/10/18 15:43	S1M	TAL SAC

## Client Sample ID: EQUIPMENT BLANK

Date Collected: 10/30/18 16:00

Date Received: 11/01/18 01:00

Lab Sample ID: 480-144495-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			443239	11/02/18 07:56	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	444681	11/09/18 20:05	DMR	TAL BUF
Total/NA	Prep	3535			258069	11/09/18 07:44	SK	TAL SAC

TestAmerica Buffalo

# Lab Chronicle

Client: ARCADIS U.S. Inc  
Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 480-144495-5**

**Date Collected: 10/30/18 16:00**

**Matrix: Water**

**Date Received: 11/01/18 01:00**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Analysis	537 (modified)		1	258354	11/10/18 15:51	S1M	TAL SAC

**Laboratory References:**

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

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



# Accreditation/Certification Summary

Client: ARCADIS U.S. Inc  
 Project/Site: WSI - Potsdam - GW Analysis RFQ

TestAmerica Job ID: 480-144495-1

## Laboratory: TestAmerica Buffalo

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

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

## Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD ELAP		L2468	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-19
Kansas	NELAP	7	E-10375	11-30-18
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-18-19
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	03-31-19
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-19
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	12-31-20
Utah	NELAP	8	CA00044	02-28-19
Vermont	State Program	1	VT-4040	04-30-19
Virginia	NELAP	3	460278	03-14-19
Washington	State Program	10	C581	05-05-19
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

# Method 8270D

## SIM-ID

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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.: 480-144495-1

SDG No.: \_\_\_\_\_

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	DXE #
MW-207	480-144495-1	26
MW-201	480-144495-2	28
MW-205	480-144495-3	25
DUP-1-20181030	480-144495-4	27
EQUIPMENT BLANK	480-144495-5	29
	MB 480-443239/1-A	32
	LCS 480-443239/2-A	34
MW-201 MS	480-144495-2 MS	31
MW-201 MSD	480-144495-2 MSD	33

DXE = 1,4-Dioxane-d8

QC LIMITS  
15-110

# Column to be used to flag recovery values

FORM II 8270D SIM ID

FORM III  
GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Matrix: Water Level: Low Lab File ID: U3313148.D

Lab ID: LCS 480-443239/2-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	3.42	34	15-110	

# Column to be used to flag recovery and RPD values

FORM III  
GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: U3313149.D  
 Lab ID: 480-144495-2 MS Client ID: MW-201 MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,4-Dioxane	0.971	ND	1.03	106	40-140	
1,4-Dioxane-d8	9.71	2.8	2.99	31	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.: 480-144495-1

SDG No.: \_\_\_\_\_

Matrix: Water Level: Low Lab File ID: U3313150.D

Lab ID: 480-144495-2 MSD Client ID: MW-201 MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,4-Dioxane	1.04	1.09	105	6	20	40-140	
1,4-Dioxane-d8	10.4	3.46	33			15-110	

# Column to be used to flag recovery and RPD values

FORM IV  
GC/MS SEMI VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: U3313147.D Lab Sample ID: MB 480-443239/1-A  
 Matrix: Water Date Extracted: 11/02/2018 07:56  
 Instrument ID: HP5973U Date Analyzed: 11/09/2018 16:54  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 480-443239/2-A	U3313148.D	11/09/2018 17:18
MW-201 MS	480-144495-2 MS	U3313149.D	11/09/2018 17:42
MW-201 MSD	480-144495-2 MSD	U3313150.D	11/09/2018 18:06
MW-201	480-144495-2	U3313151.D	11/09/2018 18:30
MW-207	480-144495-1	U3313152.D	11/09/2018 18:54
MW-205	480-144495-3	U3313153.D	11/09/2018 19:17
DUP-1-20181030	480-144495-4	U3313154.D	11/09/2018 19:41
EQUIPMENT BLANK	480-144495-5	U3313155.D	11/09/2018 20:05

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

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: U3312592.D DFTPP Injection Date: 10/26/2018  
 Instrument ID: HP5973U DFTPP Injection Time: 17:27  
 Analysis Batch No.: 442039

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10-80% of Base Peak	52.8
68	Less than 2% of mass 69	0.0 (0.0) 1
69	Mass 69 Relative abundance	48.8
70	Less than 2% of mass 69	0.3 (0.6) 1
127	10-80% of Base Peak	52.6
197	Less than 2% of mass 198	0.0
198	Base peak	100.0
199	5-9% of mass 198	7.1
275	10-60% of Base Peak	25.2
365	Greater than 1% of mass 198	3.1
441	present but less than 24% of mass 442	9.3 (16.0) 2
442	Greater than 50% of mass 198	58.1
443	15-24% of mass 442	11.4 (19.6) 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 480-442039/3	U3312593.D	10/26/2018	17:56
	IC 480-442039/4	U3312594.D	10/26/2018	18:20
	ICIS 480-442039/5	U3312595.D	10/26/2018	18:45
	IC 480-442039/6	U3312596.D	10/26/2018	19:08
	IC 480-442039/7	U3312597.D	10/26/2018	19:32
	IC 480-442039/8	U3312598.D	10/26/2018	19:56



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

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: U3313145.D DFTPP Injection Date: 11/09/2018  
 Instrument ID: HP5973U DFTPP Injection Time: 16:02  
 Analysis Batch No.: 444681

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10-80% of Base Peak	57.4
68	Less than 2% of mass 69	0.0 (0.0) 1
69	Mass 69 Relative abundance	52.4
70	Less than 2% of mass 69	0.3 (0.6) 1
127	10-80% of Base Peak	55.3
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	28.0
365	Greater than 1% of mass 198	4.3
441	present but less than 24% of mass 442	12.4 (16.4) 2
442	Greater than 50% of mass 198	75.8
443	15-24% of mass 442	15.2 (20.0) 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 480-444681/3	U3313146.D	11/09/2018	16:30
	MB 480-443239/1-A	U3313147.D	11/09/2018	16:54
	LCS 480-443239/2-A	U3313148.D	11/09/2018	17:18
MW-201 MS	480-144495-2 MS	U3313149.D	11/09/2018	17:42
MW-201 MSD	480-144495-2 MSD	U3313150.D	11/09/2018	18:06
MW-201	480-144495-2	U3313151.D	11/09/2018	18:30
MW-207	480-144495-1	U3313152.D	11/09/2018	18:54
MW-205	480-144495-3	U3313153.D	11/09/2018	19:17
DUP-1-20181030	480-144495-4	U3313154.D	11/09/2018	19:41
EQUIPMENT BLANK	480-144495-5	U3313155.D	11/09/2018	20:05

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

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: ICIS 480-442039/5 Date Analyzed: 10/26/2018 18:45  
 Instrument ID: HP5973U GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm)  
 Lab File ID (Standard): U3312595.D Heated Purge: (Y/N) N  
 Calibration ID: 35206

	DCBd4		AREA #	RT #	AREA #	RT #
	AREA #	RT #				
INITIAL CALIBRATION MID-POINT	769210	5.90				
UPPER LIMIT	1538420	6.40				
LOWER LIMIT	384605	5.40				
LAB SAMPLE ID	CLIENT SAMPLE ID					
CCVIS 480-444681/3		522845	5.69			

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

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCVIS 480-444681/3 Date Analyzed: 11/09/2018 16:30  
 Instrument ID: HP5973U GC Column: RXI-5Sil MS(0.5 ID: 0.25 (mm)  
 Lab File ID (Standard): U3313146.D Heated Purge: (Y/N) N  
 Calibration ID: 35206

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		522845	5.69				
UPPER LIMIT		1045690	6.19				
LOWER LIMIT		261423	5.19				
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 480-443239/1-A		459593	5.69				
LCS 480-443239/2-A		474633	5.69				
480-144495-2 MS	MW-201 MS	456211	5.69				
480-144495-2 MSD	MW-201 MSD	428805	5.69				
480-144495-2	MW-201	452464	5.69				
480-144495-1	MW-207	421434	5.69				
480-144495-3	MW-205	451821	5.69				
480-144495-4	DUP-1-20181030	439521	5.69				
480-144495-5	EQUIPMENT BLANK	451844	5.69				

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

Area Limit = 50%-200% of internal standard area  
 RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-207 Lab Sample ID: 480-144495-1  
 Matrix: Water Lab File ID: U3313152.D  
 Analysis Method: 8270D SIM ID Date Collected: 10/30/2018 12:26  
 Extract. Method: 3510C Date Extracted: 11/02/2018 07:56  
 Sample wt/vol: 1040 (mL) Date Analyzed: 11/09/2018 18:54  
 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.: 444681 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	ND		0.19	0.096

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\20181109-76303.b\U3313152.D  
 Lims ID: 480-144495-B-1-A  
 Client ID: MW-207  
 Sample Type: Client  
 Inject. Date: 09-Nov-2018 18:54:30 ALS Bottle#: 16 Worklist Smp#: 9  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0076303-009  
 Operator ID: DR Instrument ID: HP5973U  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\1\_4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 13-Nov-2018 12:12:47 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0321

First Level Reviewer: richardsd Date: 13-Nov-2018 11:56:36

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
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D 1 1,4-Dioxane-d8	96	2.418	2.357	0.061	92	127182	2.64	26.4	
3 1,4-Dioxane	88		2.394				ND		
* 2 1,4-Dichlorobenzene-d4	152	5.690	5.686	0.004	93	421434	4.00		

Reagents:

MB\_LLIS\_WRK\_00157 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313152.D

Injection Date: 09-Nov-2018 18:54:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-144495-B-1-A

Lab Sample ID: 480-144495-1

Worklist Smp#: 9

Client ID: MW-207

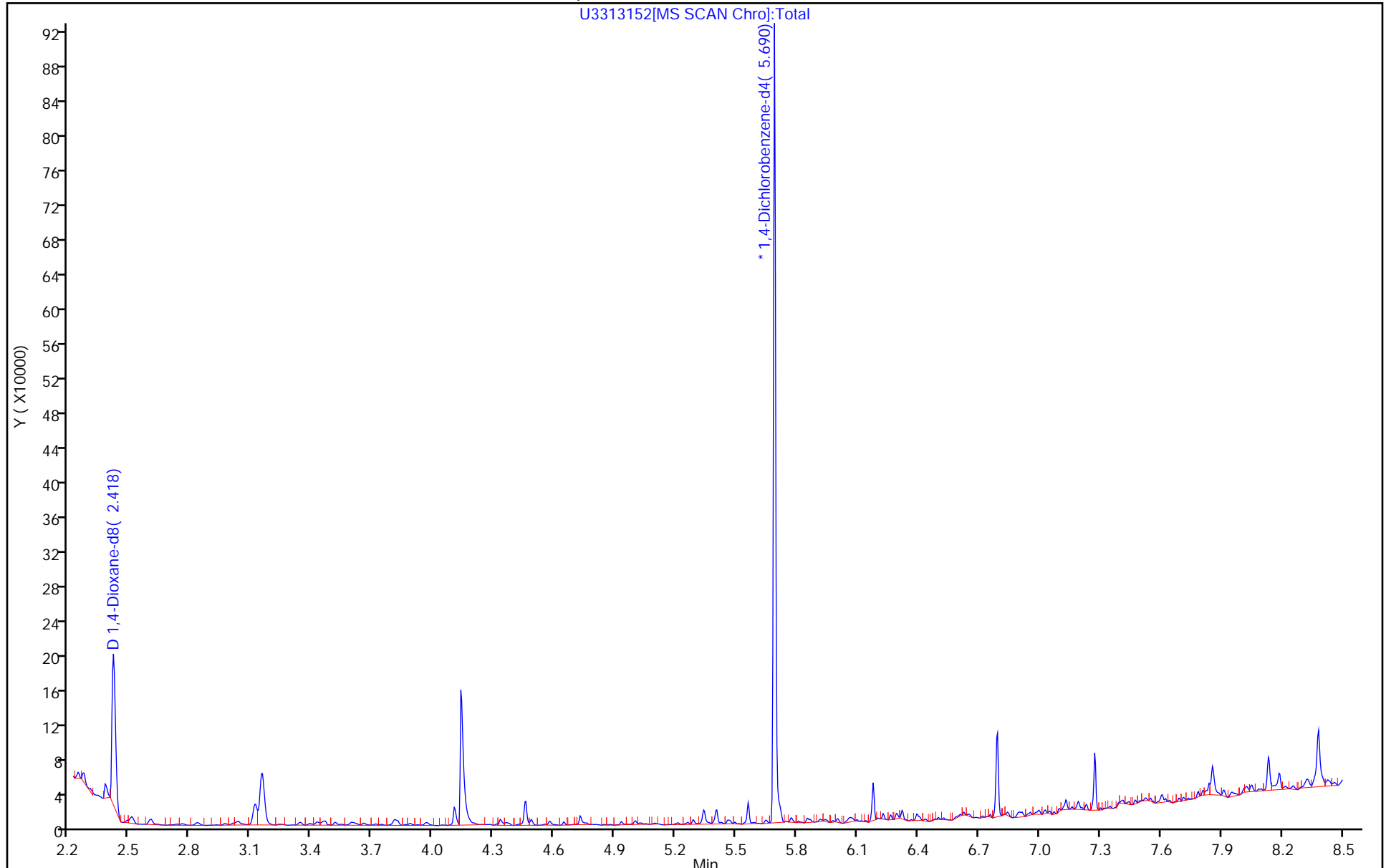
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 16

Method: 1,4\_Dx\_SIM\_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313152.D

Injection Date: 09-Nov-2018 18:54:30

Instrument ID: HP5973U

Lims ID: 480-144495-B-1-A

Lab Sample ID: 480-144495-1

Client ID: MW-207

Operator ID: DR

ALS Bottle#: 16

Worklist Smp#: 9

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

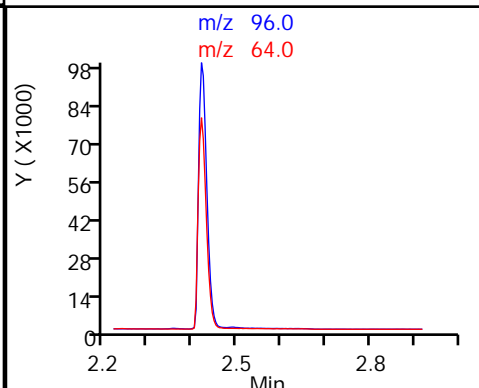
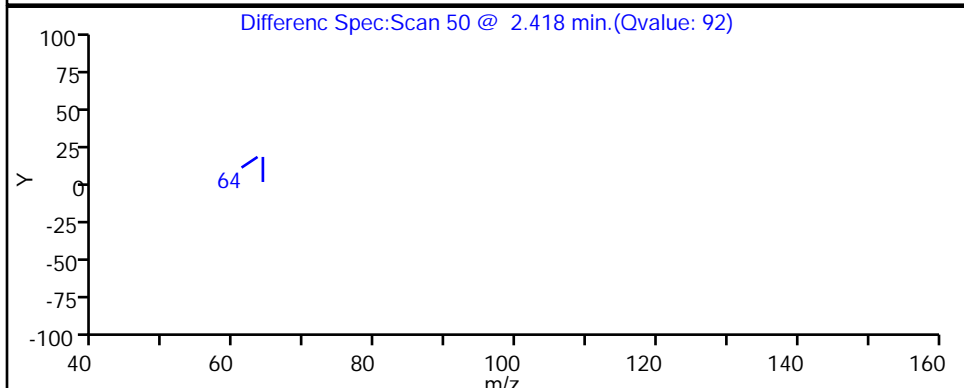
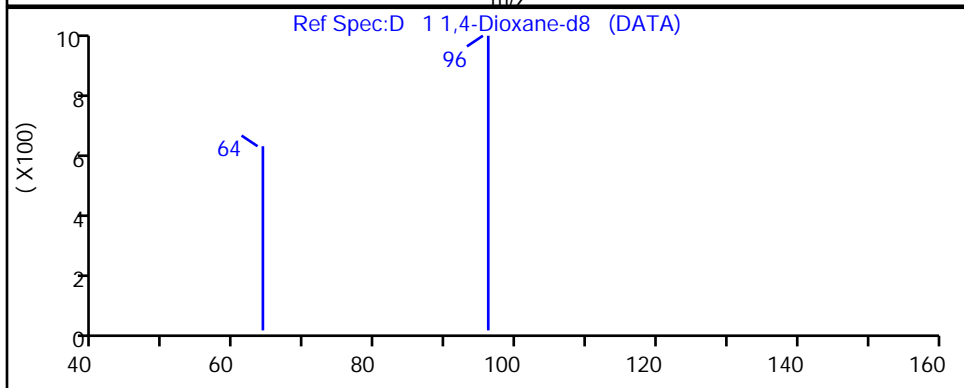
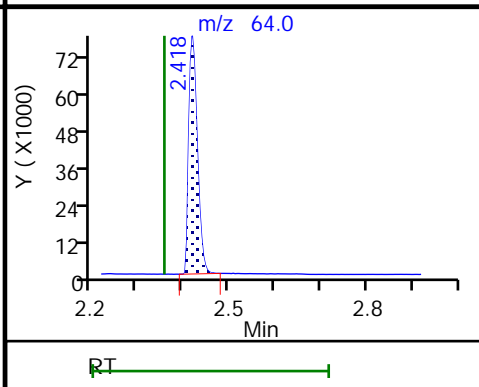
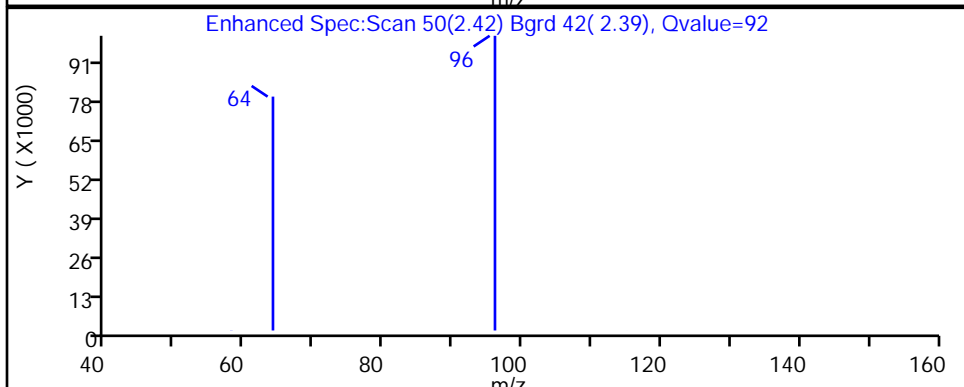
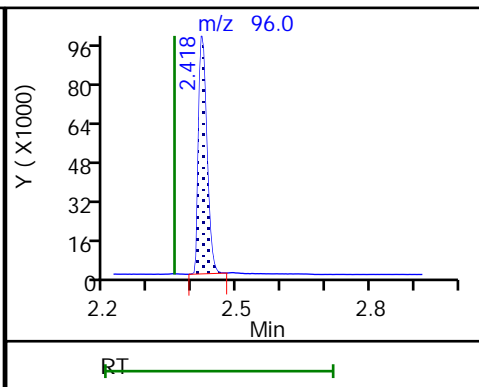
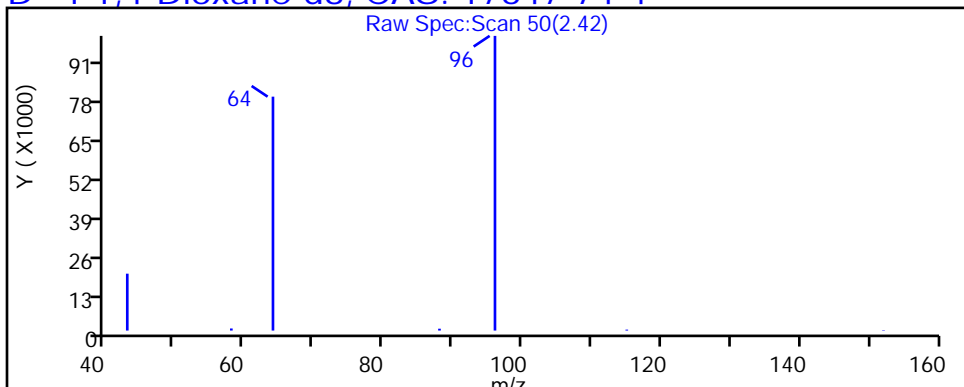
Method: 1,4\_Dx\_SIM\_HP5973U

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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-201 Lab Sample ID: 480-144495-2  
 Matrix: Water Lab File ID: U3313151.D  
 Analysis Method: 8270D SIM ID Date Collected: 10/30/2018 13:27  
 Extract. Method: 3510C Date Extracted: 11/02/2018 07:56  
 Sample wt/vol: 1020 (mL) Date Analyzed: 11/09/2018 18:30  
 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.: 444681 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	ND		0.20	0.098

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\20181109-76303.b\U3313151.D  
 Lims ID: 480-144495-A-2-A  
 Client ID: MW-201  
 Sample Type: Client  
 Inject. Date: 09-Nov-2018 18:30:30 ALS Bottle#: 15 Worklist Smp#: 8  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0076303-008  
 Operator ID: DR Instrument ID: HP5973U  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\1\_4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 13-Nov-2018 12:12:47 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0321

First Level Reviewer: richardsd Date: 13-Nov-2018 11:56:34

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
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D 1 1,4-Dioxane-d8	96	2.426	2.357	0.069	93	147225	2.84	28.4	
3 1,4-Dioxane	88		2.394				ND		
* 2 1,4-Dichlorobenzene-d4	152	5.690	5.686	0.004	94	452464	4.00		

Reagents:

MB\_LLIS\_WRK\_00157 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313151.D

Injection Date: 09-Nov-2018 18:30:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-144495-A-2-A

Lab Sample ID: 480-144495-2

Worklist Smp#: 8

Client ID: MW-201

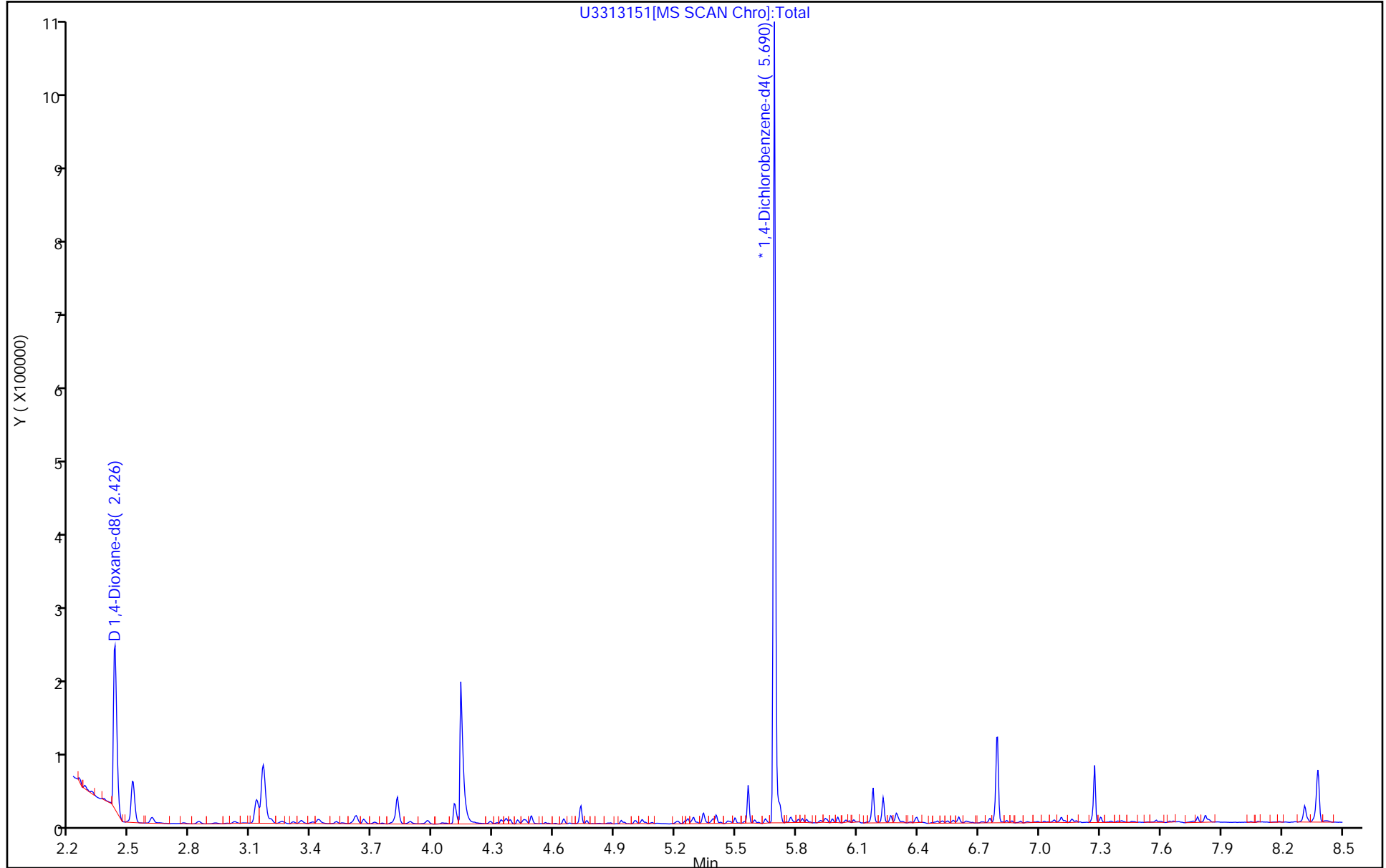
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 15

Method: 1,4\_Dx\_SIM\_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313151.D

Injection Date: 09-Nov-2018 18:30:30

Instrument ID: HP5973U

Lims ID: 480-144495-A-2-A

Lab Sample ID: 480-144495-2

Client ID: MW-201

Operator ID: DR

ALS Bottle#: 15 Worklist Smp#: 8

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

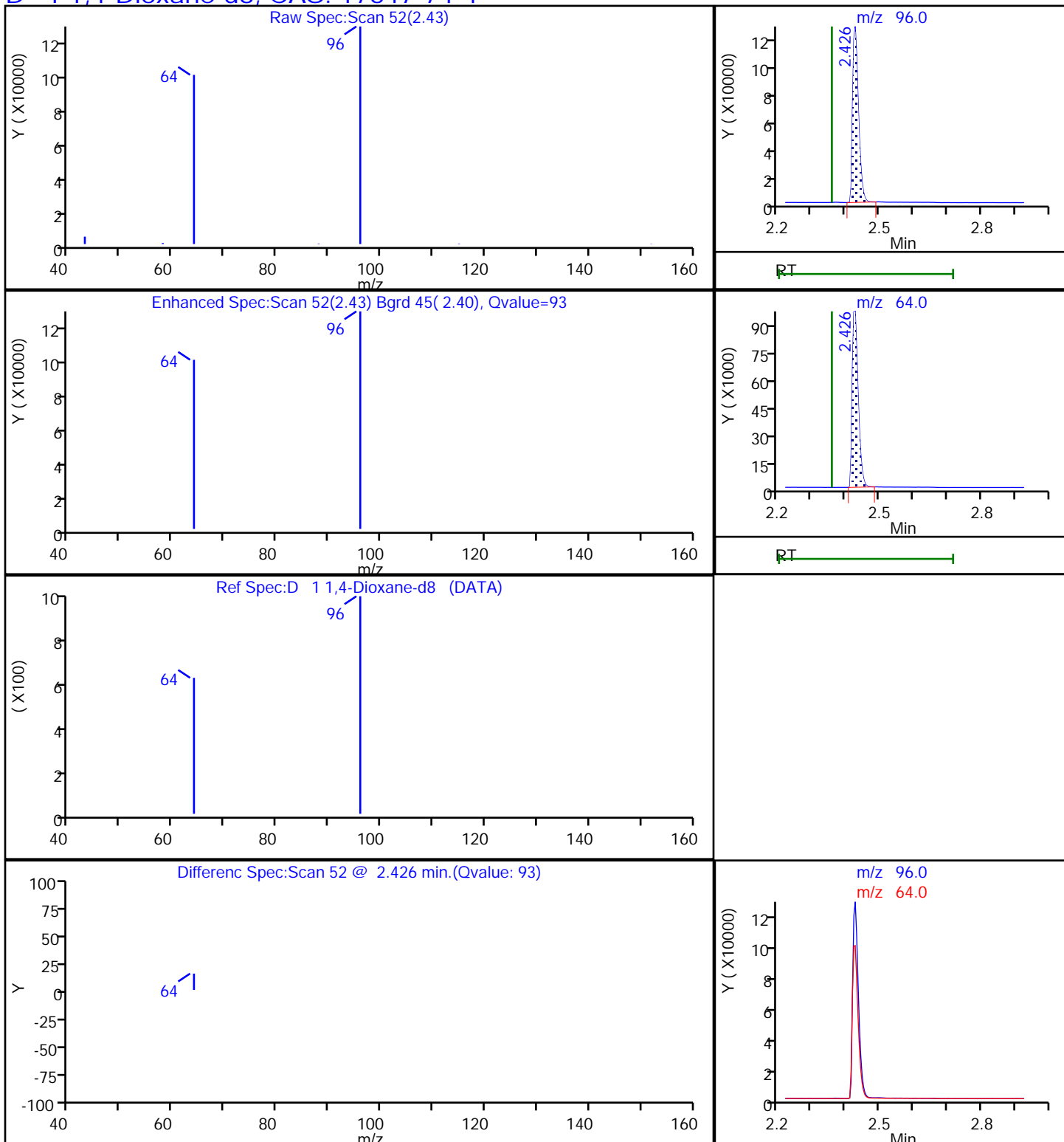
Method: 1,4\_Dx\_SIM\_HP5973U

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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-205 Lab Sample ID: 480-144495-3  
 Matrix: Water Lab File ID: U3313153.D  
 Analysis Method: 8270D SIM ID Date Collected: 10/30/2018 15:25  
 Extract. Method: 3510C Date Extracted: 11/02/2018 07:56  
 Sample wt/vol: 1050 (mL) Date Analyzed: 11/09/2018 19:17  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) Level: (low/med) Low  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 444681 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	ND		0.19	0.095

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	25		15-110

TestAmerica Buffalo  
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313153.D  
 Lims ID: 480-144495-B-3-A  
 Client ID: MW-205  
 Sample Type: Client  
 Inject. Date: 09-Nov-2018 19:17:30 ALS Bottle#: 17 Worklist Smp#: 10  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0076303-010  
 Operator ID: DR Instrument ID: HP5973U  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\1\_4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 13-Nov-2018 12:12:47 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0321

First Level Reviewer: richardsd Date: 13-Nov-2018 11:56:38

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
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D 1 1,4-Dioxane-d8	96	2.422	2.357	0.065	93	130530	2.52	25.2	
3 1,4-Dioxane	88		2.394				ND		
* 2 1,4-Dichlorobenzene-d4	152	5.690	5.686	0.004	93	451821	4.00		

Reagents:

MB\_LLIS\_WRK\_00157 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313153.D

Injection Date: 09-Nov-2018 19:17:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-144495-B-3-A

Lab Sample ID: 480-144495-3

Worklist Smp#: 10

Client ID: MW-205

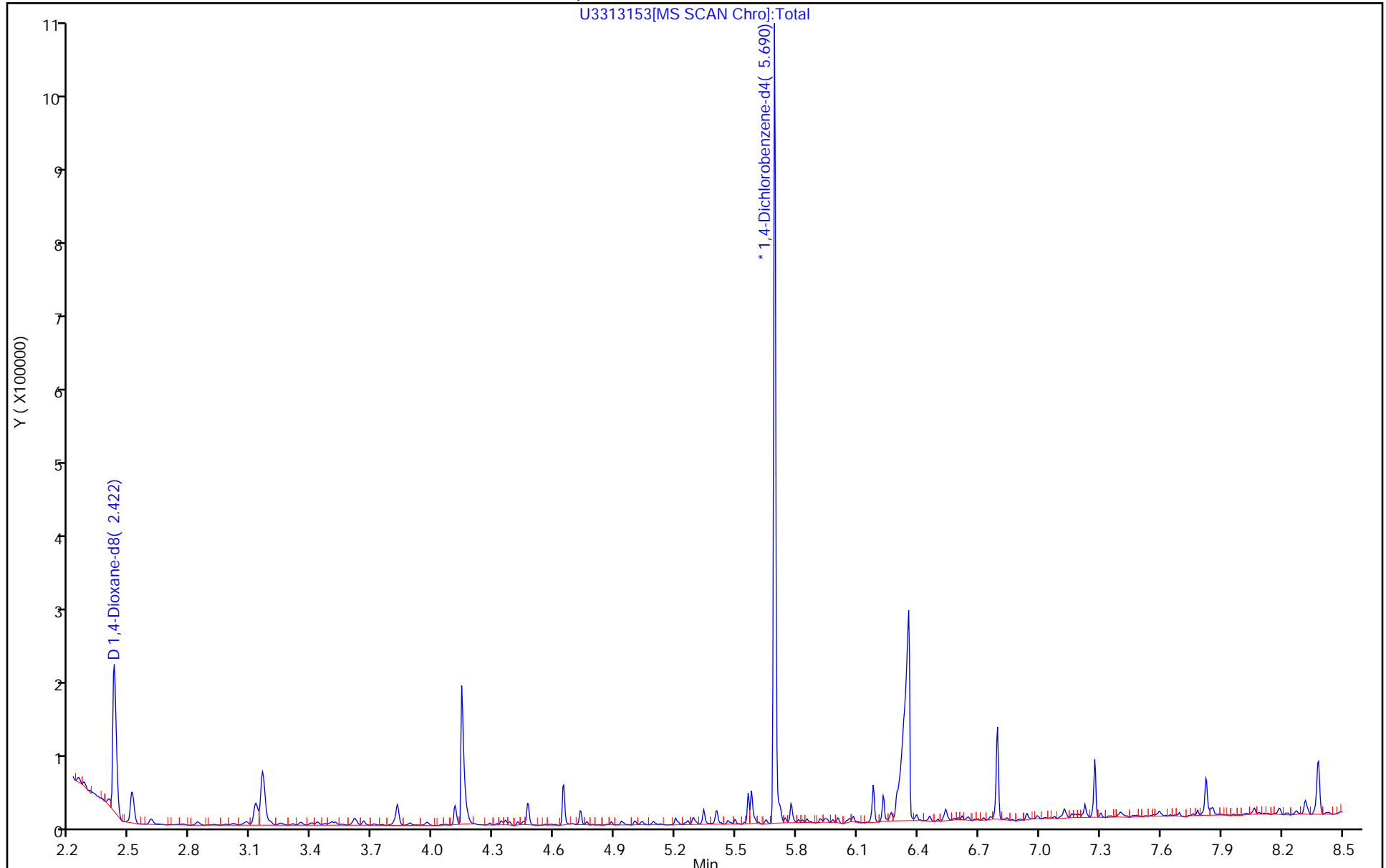
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 17

Method: 1,4\_Dx\_SIM\_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313153.D

Injection Date: 09-Nov-2018 19:17:30

Instrument ID: HP5973U

Lims ID: 480-144495-B-3-A

Lab Sample ID: 480-144495-3

Client ID: MW-205

Operator ID: DR

ALS Bottle#: 17

Worklist Smp#: 10

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

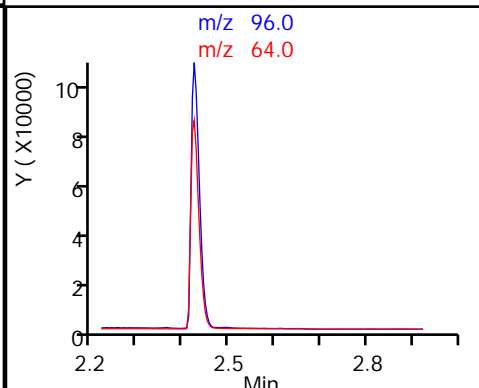
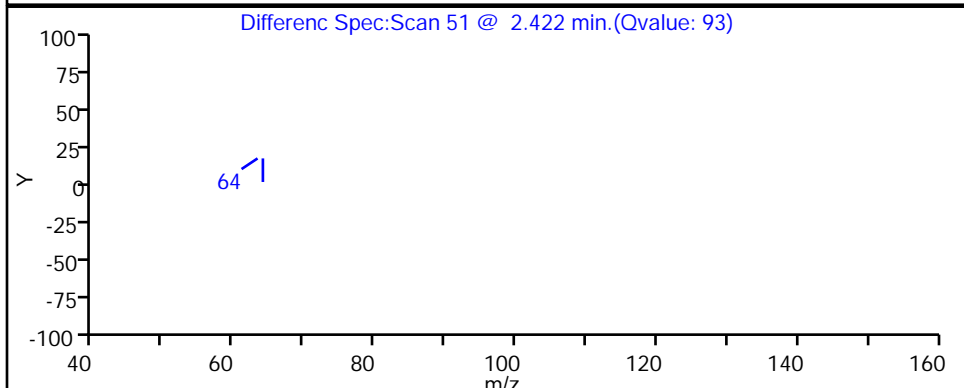
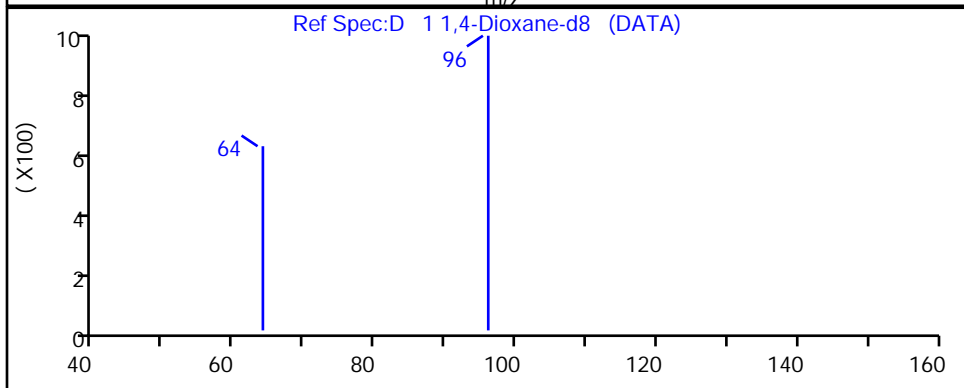
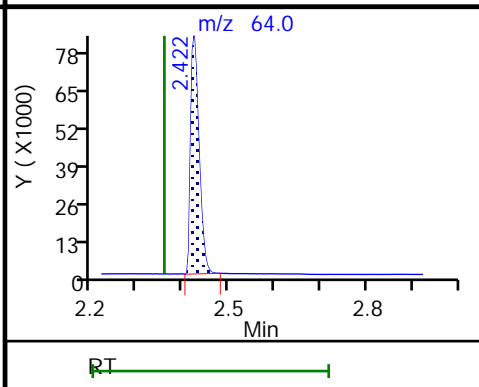
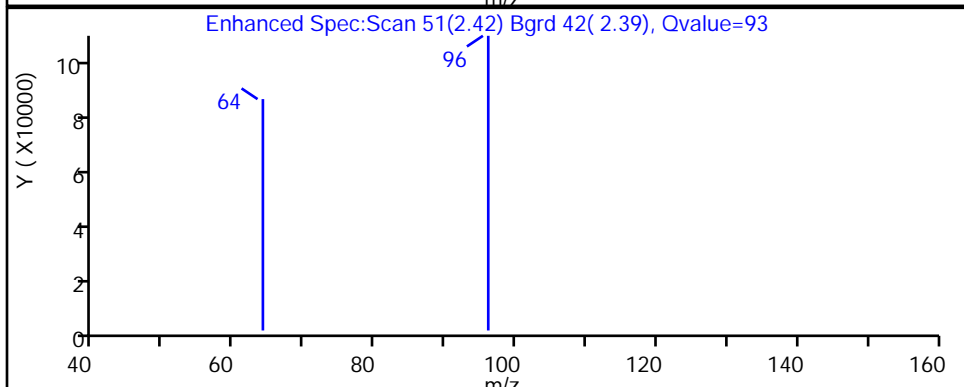
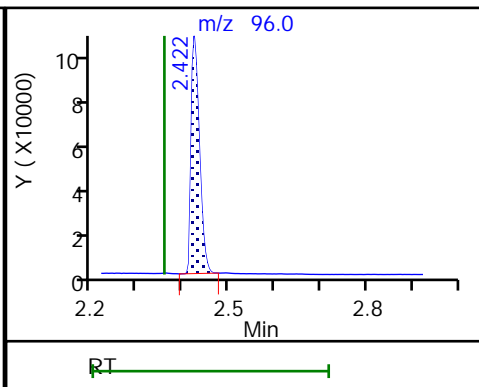
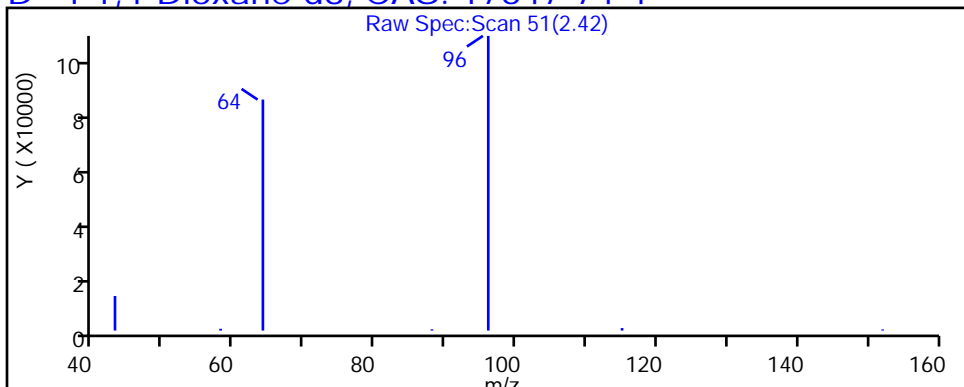
Method: 1,4\_Dx\_SIM\_HP5973U

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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: DUP-1-20181030 Lab Sample ID: 480-144495-4  
 Matrix: Water Lab File ID: U3313154.D  
 Analysis Method: 8270D SIM ID Date Collected: 10/30/2018 00:00  
 Extract. Method: 3510C Date Extracted: 11/02/2018 07:56  
 Sample wt/vol: 1030 (mL) Date Analyzed: 11/09/2018 19:41  
 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.: 444681 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	ND		0.19	0.097

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	27		15-110



TestAmerica Buffalo  
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313154.D  
 Lims ID: 480-144495-A-4-A  
 Client ID: DUP-1-20181030  
 Sample Type: Client  
 Inject. Date: 09-Nov-2018 19:41:30 ALS Bottle#: 18 Worklist Smp#: 11  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0076303-011  
 Operator ID: DR Instrument ID: HP5973U  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\1\_4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 13-Nov-2018 12:12:47 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0321

First Level Reviewer: richardsd Date: 13-Nov-2018 11:56:49

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
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D 1 1,4-Dioxane-d8	96	2.426	2.357	0.069	92	138174	2.75	27.5	
3 1,4-Dioxane	88		2.394				ND		
* 2 1,4-Dichlorobenzene-d4	152	5.694	5.686	0.008	95	439521	4.00		

Reagents:

MB\_LLIS\_WRK\_00157 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313154.D

Injection Date: 09-Nov-2018 19:41:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-144495-A-4-A

Lab Sample ID: 480-144495-4

Worklist Smp#: 11

Client ID: DUP-1-20181030

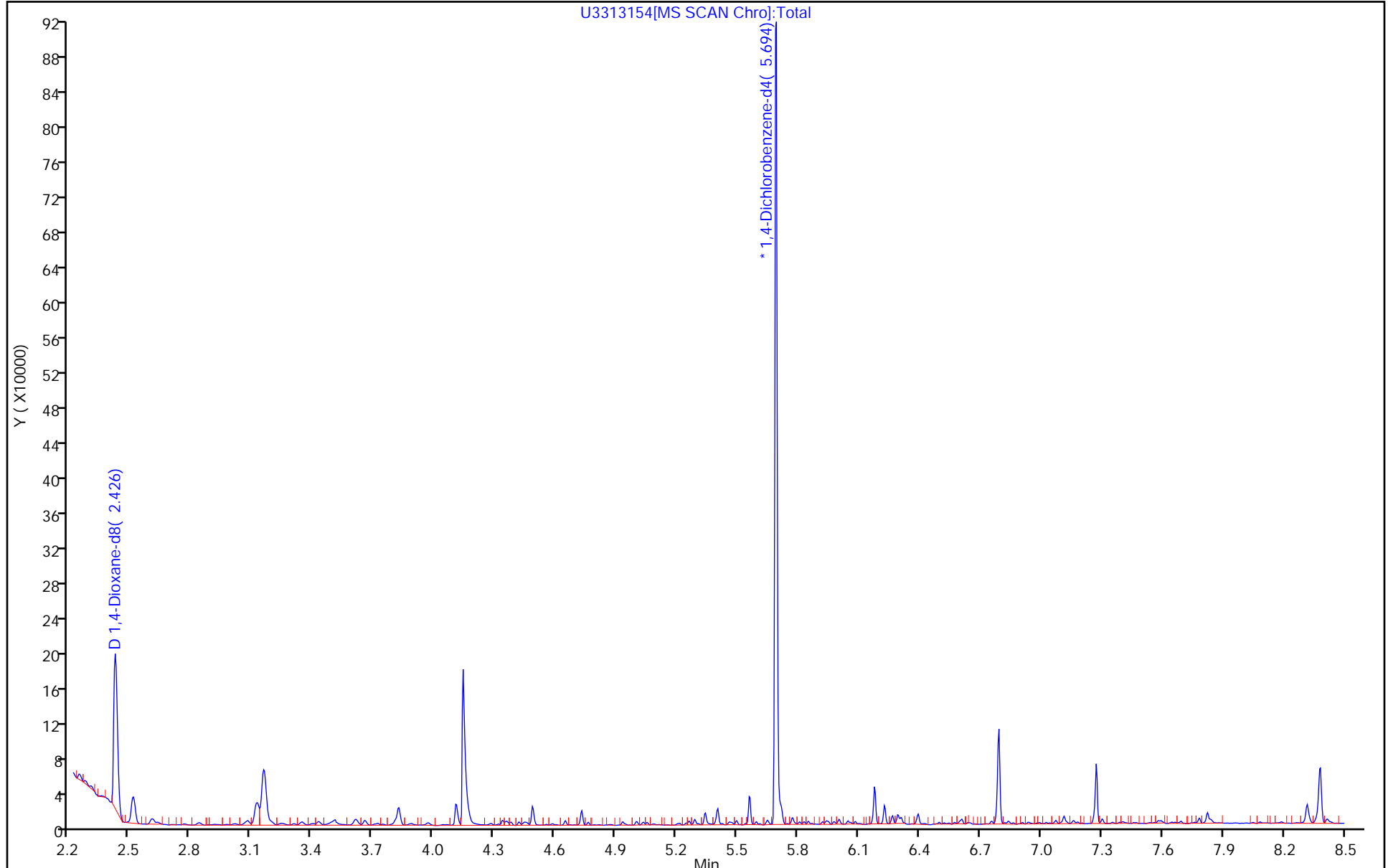
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 18

Method: 1,4\_Dx\_SIM\_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313154.D

Injection Date: 09-Nov-2018 19:41:30

Instrument ID: HP5973U

Lims ID: 480-144495-A-4-A

Lab Sample ID: 480-144495-4

Client ID: DUP-1-20181030

Operator ID: DR

ALS Bottle#: 18

Worklist Smp#: 11

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

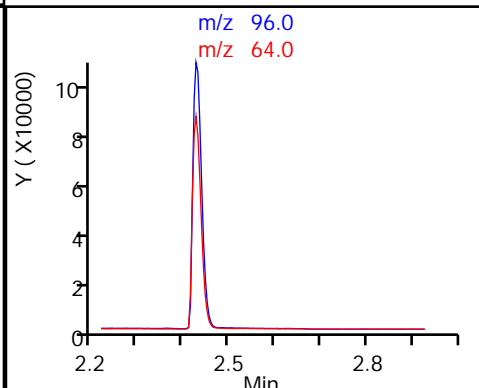
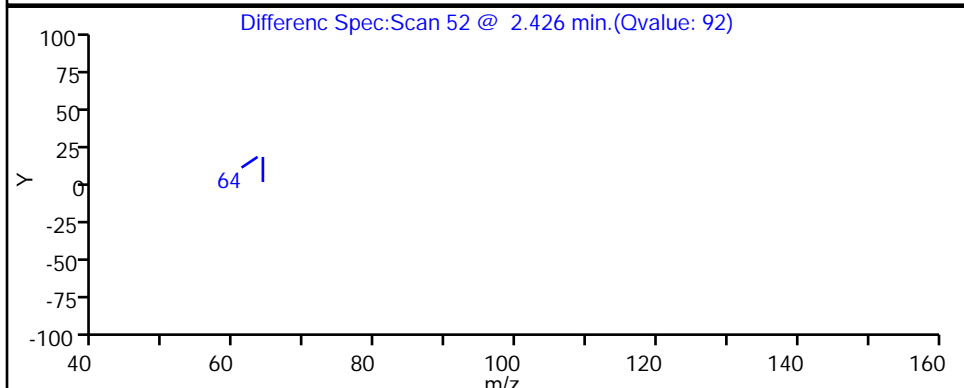
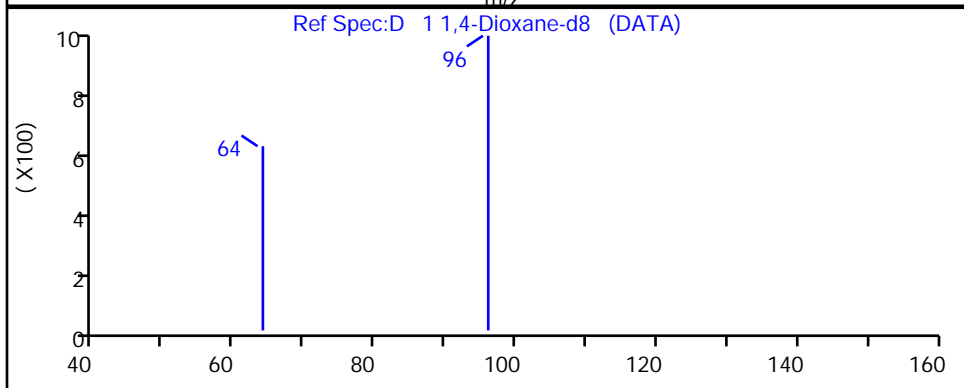
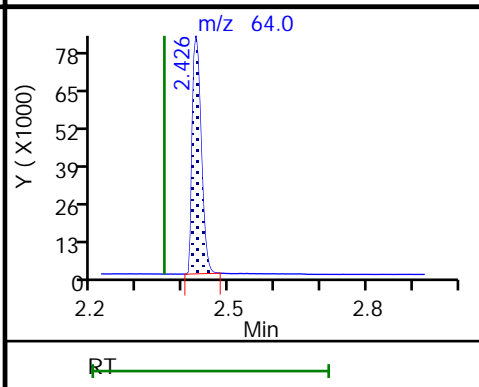
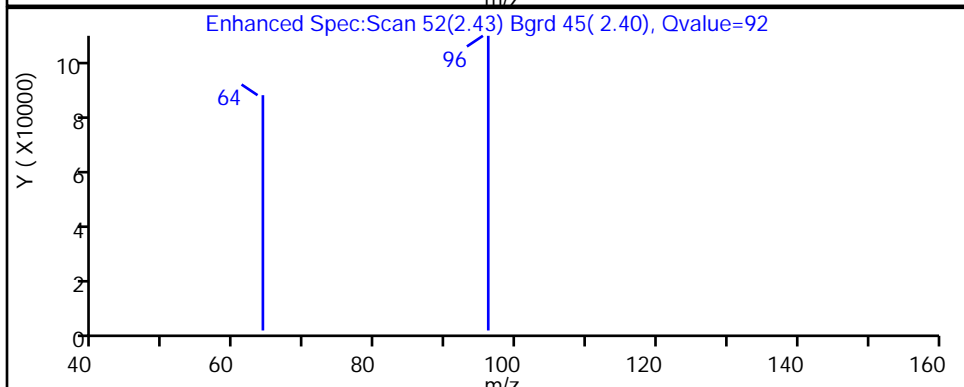
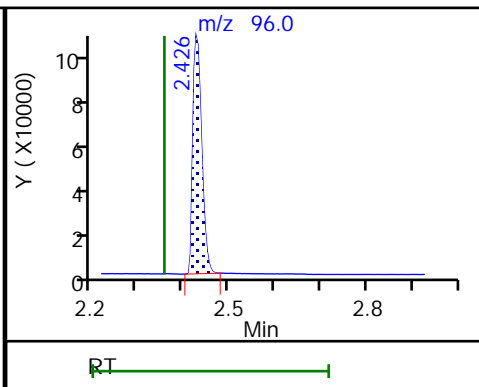
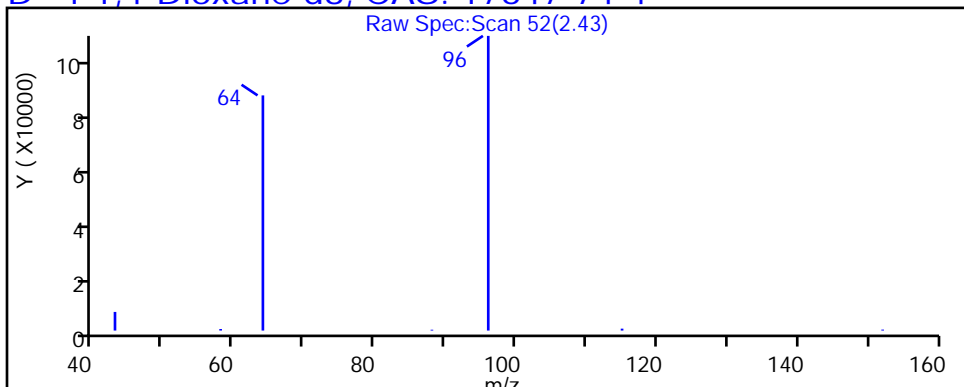
Method: 1,4\_Dx\_SIM\_HP5973U

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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: EQUIPMENT BLANK Lab Sample ID: 480-144495-5  
 Matrix: Water Lab File ID: U3313155.D  
 Analysis Method: 8270D SIM ID Date Collected: 10/30/2018 16:00  
 Extract. Method: 3510C Date Extracted: 11/02/2018 07:56  
 Sample wt/vol: 1050 (mL) Date Analyzed: 11/09/2018 20:05  
 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.: 444681 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	ND		0.19	0.095

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\20181109-76303.b\U3313155.D  
 Lims ID: 480-144495-A-5-A  
 Client ID: EQUIPMENT BLANK  
 Sample Type: Client  
 Inject. Date: 09-Nov-2018 20:05:30 ALS Bottle#: 19 Worklist Smp#: 12  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0076303-012  
 Operator ID: DR Instrument ID: HP5973U  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\1\_4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 13-Nov-2018 12:12:47 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0321

First Level Reviewer: richardsd Date: 13-Nov-2018 11:56:56

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
----------	-----	-----------	---------------	---------------	---	----------	-----------------	------	-------

D 1 1,4-Dioxane-d8	96	2.426	2.357	0.069	93	150650	2.91	29.1	
3 1,4-Dioxane	88		2.394				ND		
* 2 1,4-Dichlorobenzene-d4	152	5.694	5.686	0.008	95	451844	4.00		

Reagents:

MB\_LLIS\_WRK\_00157 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313155.D

Injection Date: 09-Nov-2018 20:05:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-144495-A-5-A

Lab Sample ID: 480-144495-5

Worklist Smp#: 12

Client ID: EQUIPMENT BLANK

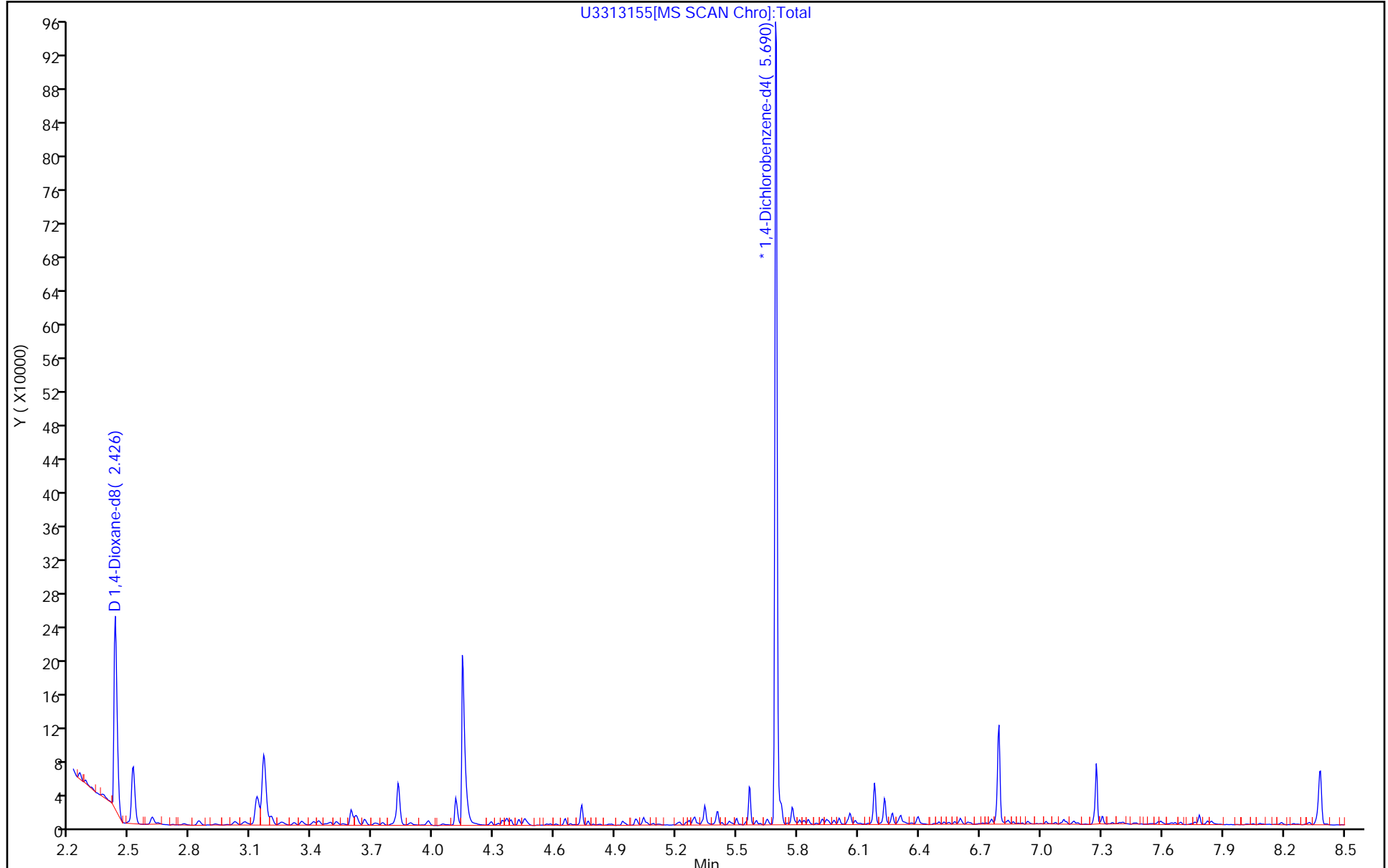
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 19

Method: 1,4\_Dx\_SIM\_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313155.D

Injection Date: 09-Nov-2018 20:05:30

Instrument ID: HP5973U

Lims ID: 480-144495-A-5-A

Lab Sample ID: 480-144495-5

Client ID: EQUIPMENT BLANK

Operator ID: DR

ALS Bottle#: 19

Worklist Smp#: 12

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

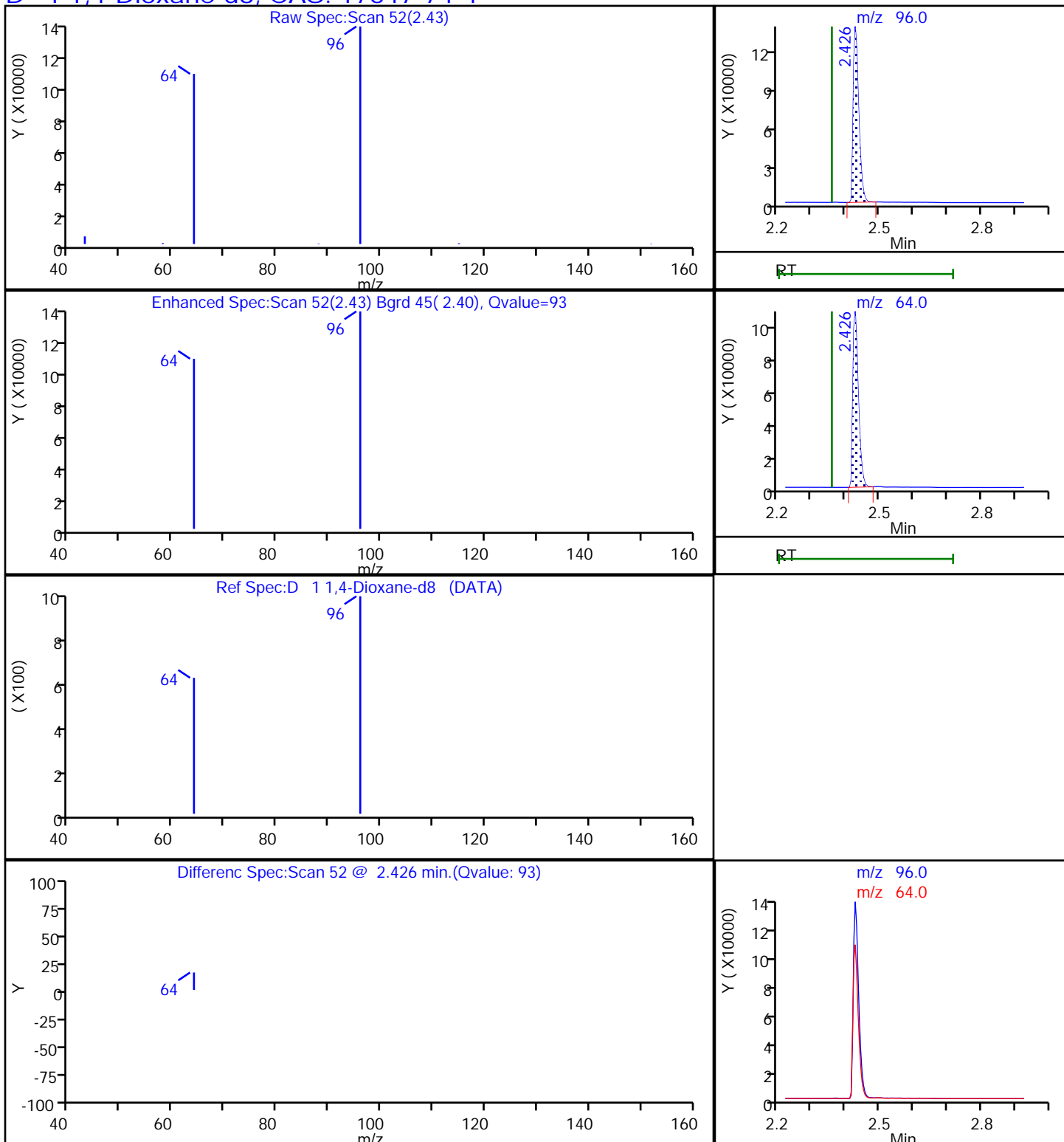
Method: 1,4\_Dx\_SIM\_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

Column:

Detector MS SCAN

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



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

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1 Analy Batch No.: 442039

SDG No.: \_\_\_\_\_

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

Calibration Start Date: 10/26/2018 17:56 Calibration End Date: 10/26/2018 19:56 Calibration ID: 35206

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 480-442039/3	U3312593.D
Level 2	ICIS 480-442039/5	U3312595.D
Level 3	IC 480-442039/6	U3312596.D
Level 4	IC 480-442039/7	U3312597.D
Level 5	IC 480-442039/8	U3312598.D
Level 6	IC 480-442039/4	U3312594.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
1,4-Dioxane	1.0272 1.1181	1.1403	1.1674	1.2020	1.1911	L2ID	-0.040	1.2228			0.0100				1.0000		0.9900
1,4-Dioxane-d8	0.4652 0.4652	0.4519	0.4606	0.4543	0.4501	Ave		0.4579			0.0100	1.5	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.: 480-144495-1 Analy Batch No.: 442039

SDG No.: \_\_\_\_\_

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

Calibration Start Date: 10/26/2018 17:56 Calibration End Date: 10/26/2018 19:56 Calibration ID: 35206

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 480-442039/3	U3312593.D
Level 2	ICIS 480-442039/5	U3312595.D
Level 3	IC 480-442039/6	U3312596.D
Level 4	IC 480-442039/7	U3312597.D
Level 5	IC 480-442039/8	U3312598.D
Level 6	IC 480-442039/4	U3312594.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	25072 47655	59461	107956	146288	154566	0.200 0.400	0.600	0.800	1.00	1.20
1,4-Dioxane-d8	DCBd 4	Ave	244071 426208	521445	924722	1217025	1297680	2.00 4.00	6.00	8.00	10.0	12.0

Curve Type Legend:

Ave = Average ISTD  
L2ID = Linear 1/conc^2 IsoDil

TestAmerica Buffalo  
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312593.D  
 Lims ID: IC - SIM 0.2  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 26-Oct-2018 17:56:30 ALS Bottle#: 3 Worklist Smp#: 3  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: IC - 0.2 SIM  
 Operator ID: DR Instrument ID: HP5973U  
 Sublist: chrom-1,4\_Dx\_SIM\_HP5973U\*sub1  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\1,4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 29-Oct-2018 12:21:16 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0317

First Level Reviewer: richardsd Date: 29-Oct-2018 12:20:34

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	2.691	2.687	0.004	93	244071	2.00	2.03	
3 1,4-Dioxane	88	2.732	2.732	0.000	89	25072	0.2000	0.2008	
* 2 1,4-Dichlorobenzene-d4	152	5.898	5.898	0.000	95	1049327	4.00	4.00	

Reagents:

MB\_1,4SIM\_WRK\_00053 Amount Added: 1.00 Units: mL  
 MB\_LLIS\_WRK\_00156 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312593.D

Injection Date: 26-Oct-2018 17:56:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: IC - SIM 0.2

Worklist Smp#: 3

Client ID:

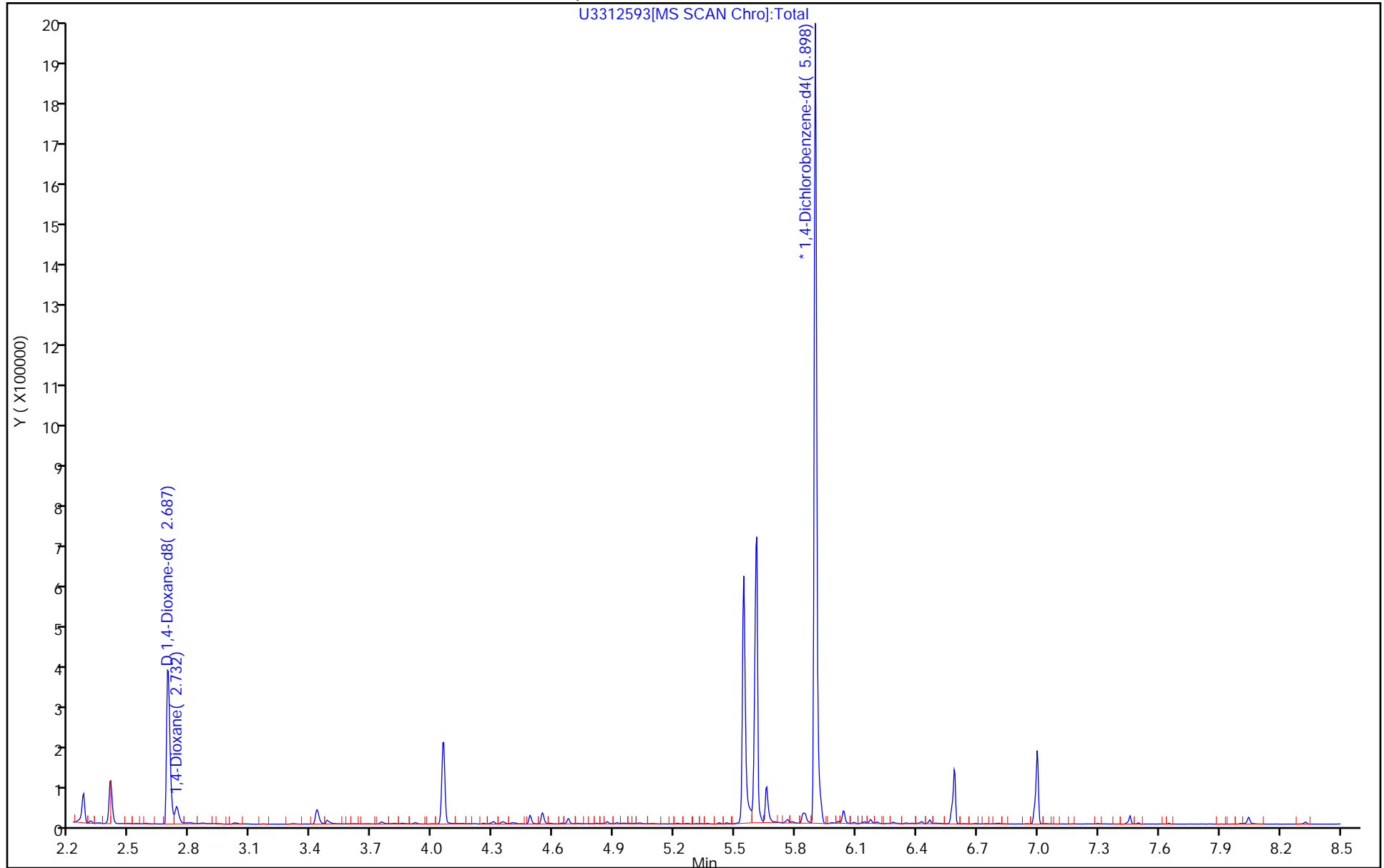
Injection Vol: 1.0 ul

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\20181026-75895.b\U3312594.D  
 Lims ID: IC - SIM 0.4  
 Client ID:  
 Sample Type: IC Calib Level: 2  
 Inject. Date: 26-Oct-2018 18:20:30 ALS Bottle#: 4 Worklist Smp#: 4  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: IC 0.4 SIM  
 Operator ID: DR Instrument ID: HP5973U  
 Sublist: chrom-1,4\_Dx\_SIM\_HP5973U\*sub1  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\1,4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 29-Oct-2018 12:21:17 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0317

First Level Reviewer: richardsd Date: 29-Oct-2018 12:20:20

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	2.687	2.687	0.000	93	426208	4.00	4.06	
3 1,4-Dioxane	88	2.728	2.732	-0.004	88	47655	0.4000	0.3985	
* 2 1,4-Dichlorobenzene-d4	152	5.898	5.898	0.000	95	916170	4.00	4.00	

Reagents:

MB\_1,4SIM\_WRK\_00054 Amount Added: 1.00 Units: mL  
 MB\_LLIS\_WRK\_00156 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312594.D

Injection Date: 26-Oct-2018 18:20:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: IC - SIM 0.4

Worklist Smp#: 4

Client ID:

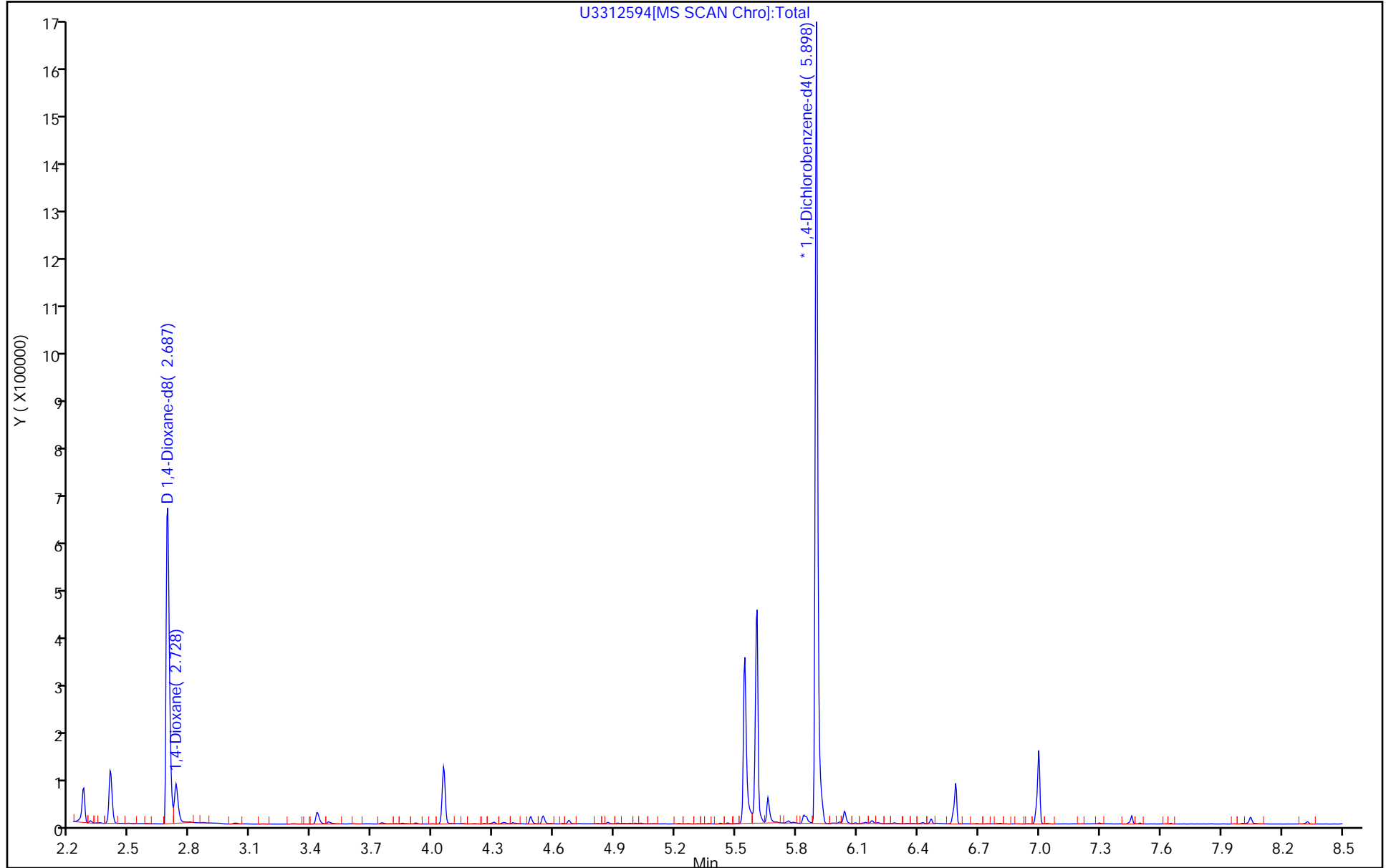
Injection Vol: 1.0 ul

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\20181026-75895.b\U3312595.D  
 Lims ID: ICIS - SIM 0.6  
 Client ID:  
 Sample Type: ICIS Calib Level: 3  
 Inject. Date: 26-Oct-2018 18:45:30 ALS Bottle#: 5 Worklist Smp#: 5  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: ICIS- 0.6 SIM  
 Operator ID: DR Instrument ID: HP5973U  
 Sublist: chrom-1,4\_Dx\_SIM\_HP5973U\*sub1  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\1,4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 29-Oct-2018 12:21:18 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0317

First Level Reviewer: richardsd Date: 29-Oct-2018 12:20:02

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	2.687	2.687	0.000	92	521445	6.00	5.92	
3 1,4-Dioxane	88	2.732	2.732	0.000	90	59461	0.6000	0.5923	
* 2 1,4-Dichlorobenzene-d4	152	5.898	5.898	0.000	96	769210	4.00	4.00	

Reagents:

MB\_1,4SIM\_WRK\_00059 Amount Added: 1.00 Units: mL  
 MB\_LLIS\_WRK\_00156 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312595.D

Injection Date: 26-Oct-2018 18:45:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: ICIS - SIM 0.6

Worklist Smp#: 5

Client ID:

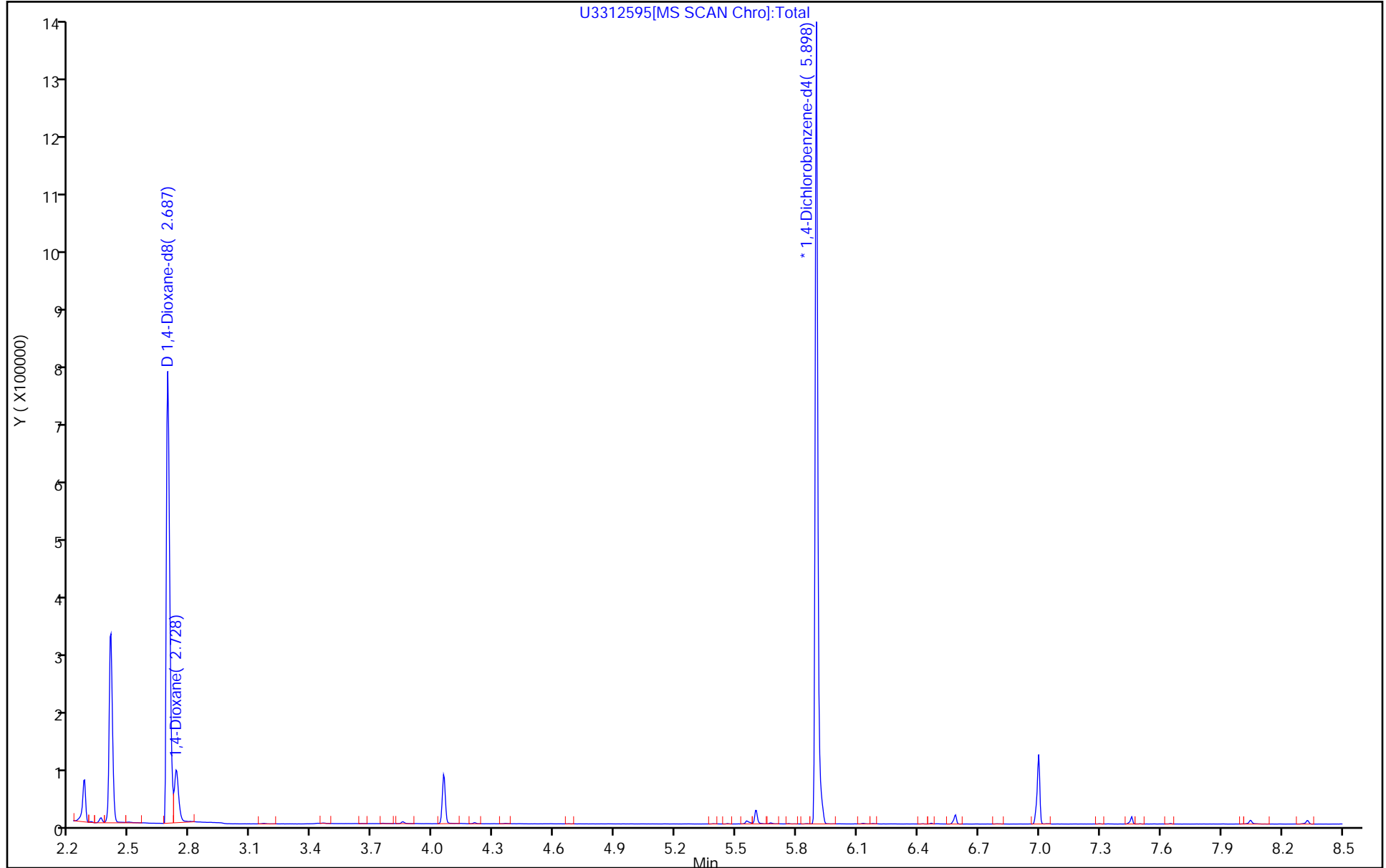
Injection Vol: 1.0 ul

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\20181026-75895.b\U3312596.D  
 Lims ID: IC - SIM 0.8  
 Client ID:  
 Sample Type: IC Calib Level: 4  
 Inject. Date: 26-Oct-2018 19:08:30 ALS Bottle#: 6 Worklist Smp#: 6  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: IC - 0.8 SIM  
 Operator ID: DR Instrument ID: HP5973U  
 Sublist: chrom-1,4\_Dx\_SIM\_HP5973U\*sub1  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\1,4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 29-Oct-2018 12:21:19 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0317

First Level Reviewer: richardsd Date: 29-Oct-2018 12:20:15

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	2.691	2.687	0.004	92	924722	8.00	8.05	
3 1,4-Dioxane	88	2.732	2.732	0.000	90	107956	0.8000	0.7965	
* 2 1,4-Dichlorobenzene-d4	152	5.898	5.898	0.000	95	1003796	4.00	4.00	

Reagents:

MB\_1,4SIM\_WRK\_00056 Amount Added: 1.00 Units: mL  
 MB\_LLIS\_WRK\_00156 Amount Added: 20.00 Units: uL Run Reagent



TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312596.D

Injection Date: 26-Oct-2018 19:08:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: IC - SIM 0.8

Worklist Smp#: 6

Client ID:

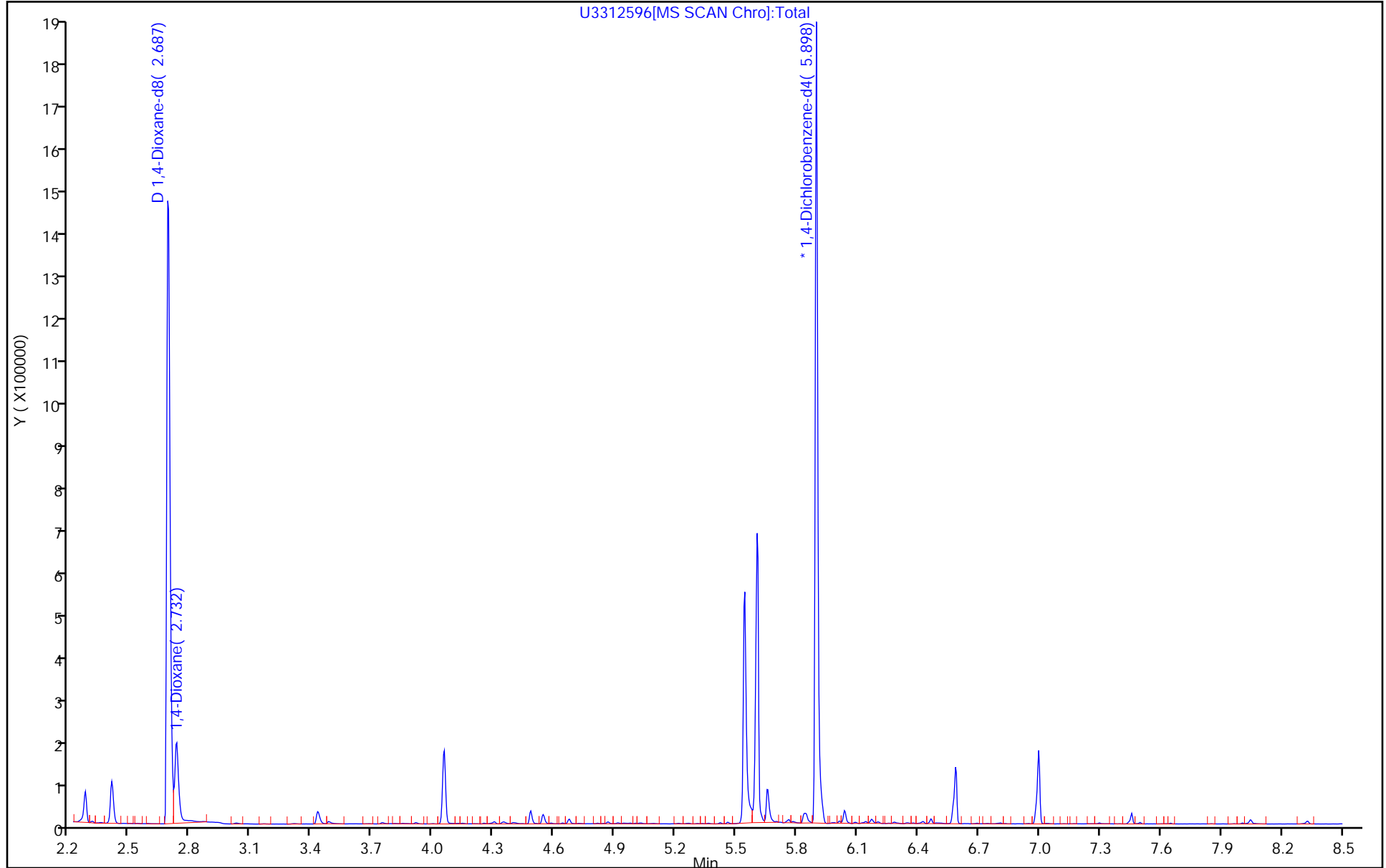
Injection Vol: 1.0 ul

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\20181026-75895.b\U3312597.D  
 Lims ID: IC - SIM 1.0  
 Client ID:  
 Sample Type: IC Calib Level: 5  
 Inject. Date: 26-Oct-2018 19:32:30 ALS Bottle#: 7 Worklist Smp#: 7  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0075895-007  
 Operator ID: DR Instrument ID: HP5973U  
 Sublist: chrom-1,4\_Dx\_SIM\_HP5973U\*sub1  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\1,4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 29-Oct-2018 12:21:20 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0317

First Level Reviewer: richardsd Date: 29-Oct-2018 12:20:14

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	2.687	2.687	0.000	91	1217025	10.0	9.92	
3 1,4-Dioxane	88	2.728	2.732	-0.004	88	146288	1.00	1.02	
* 2 1,4-Dichlorobenzene-d4	152	5.898	5.898	0.000	95	1071553	4.00	4.00	

Reagents:

MB\_1,4SIM\_WRK\_00057 Amount Added: 1.00 Units: mL  
 MB\_LLIS\_WRK\_00156 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312597.D

Injection Date: 26-Oct-2018 19:32:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: IC - SIM 1.0

Worklist Smp#: 7

Client ID:

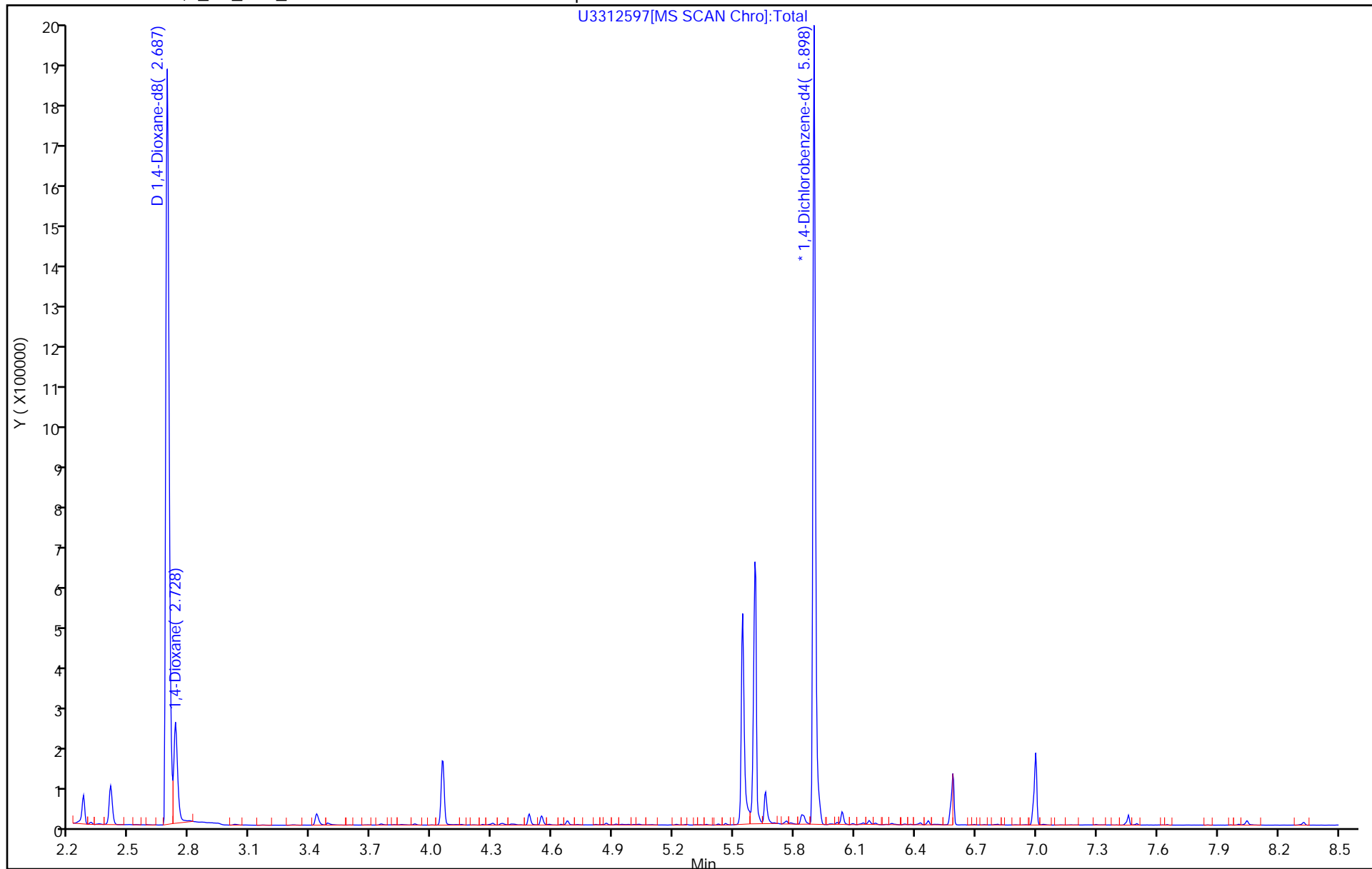
Injection Vol: 1.0 ul

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\20181026-75895.b\U3312598.D  
 Lims ID: IC - SIM 1.2  
 Client ID:  
 Sample Type: IC Calib Level: 6  
 Inject. Date: 26-Oct-2018 19:56:30 ALS Bottle#: 8 Worklist Smp#: 8  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0075895-008  
 Operator ID: DR Instrument ID: HP5973U  
 Sublist: chrom-1,4\_Dx\_SIM\_HP5973U\*sub1  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\1,4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 29-Oct-2018 12:21:21 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0317

First Level Reviewer: richardsd Date: 29-Oct-2018 12:20:12

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.687	2.687	0.000	93	1297680	12.0	11.8	
3 1,4-Dioxane	88	2.728	2.732	-0.004	91	154566	1.20	1.20	
* 2 1,4-Dichlorobenzene-d4	152	5.898	5.898	0.000	96	961134	4.00	4.00	

Reagents:

MB\_1,4SIM\_WRK\_00058 Amount Added: 1.00 Units: mL  
 MB\_LLIS\_WRK\_00156 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D

Injection Date: 26-Oct-2018 19:56:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: IC - SIM 1.2

Worklist Smp#: 8

Client ID:

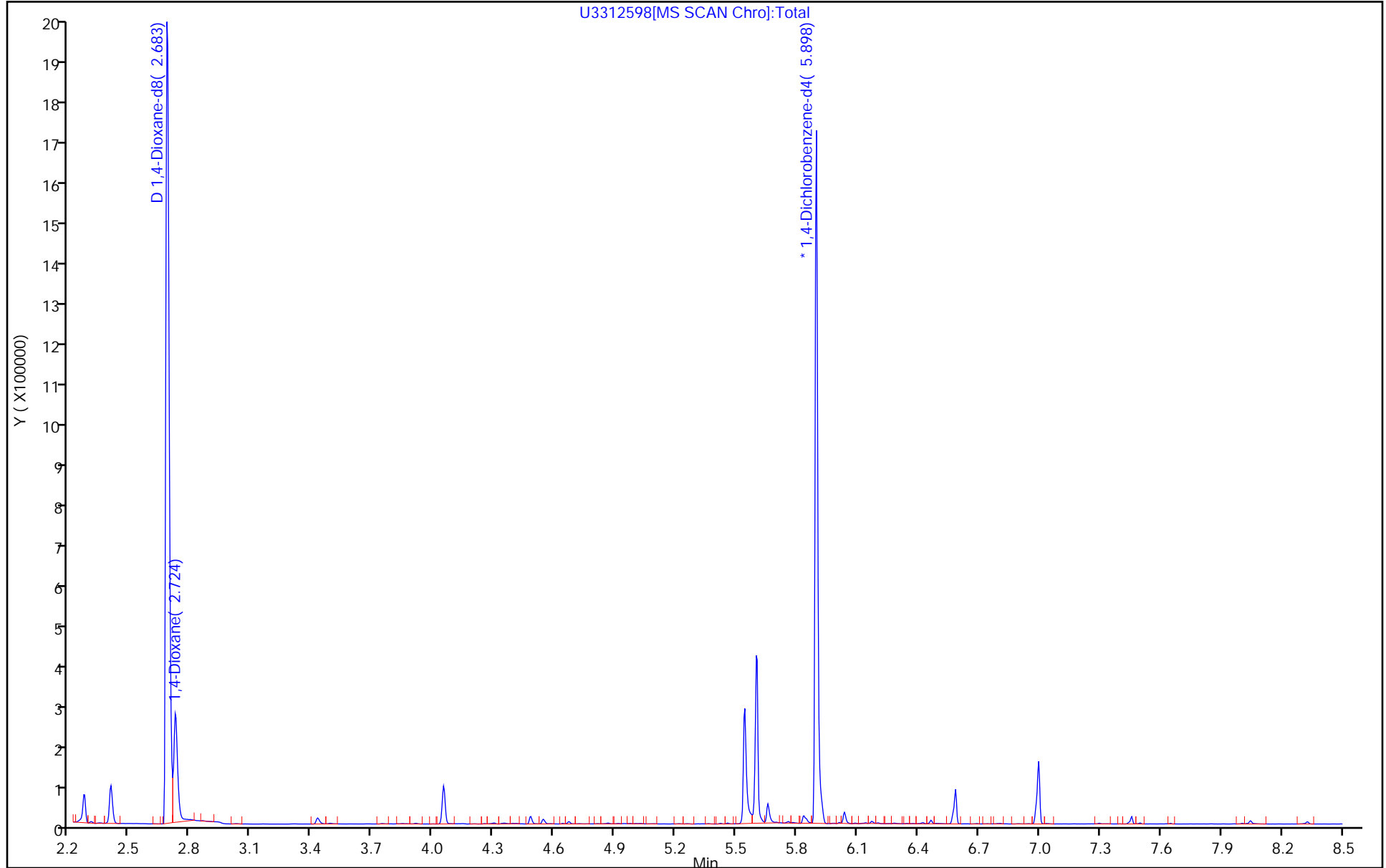
Injection Vol: 1.0 ul

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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVIS 480-444681/3 Calibration Date: 11/09/2018 16:30  
 Instrument ID: HP5973U Calib Start Date: 10/26/2018 17:56  
 GC Column: RXI-5Sil MS(0.5 ID: 0.25 (mm)) Calib End Date: 10/26/2018 19:56  
 Lab File ID: U3313146.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	L2ID		1.156	0.0100	600	600	-0.0	20.0
1,4-Dioxane-d8	Ave	0.4579	0.4545	0.0100	5960	6000	-0.7	20.0

TestAmerica Buffalo  
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313146.D  
 Lims ID: CCVIS  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 09-Nov-2018 16:30:30 ALS Bottle#: 10 Worklist Smp#: 3  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0076303-003  
 Operator ID: DR Instrument ID: HP5973U  
 Sublist: chrom-1,4\_Dx\_SIM\_HP5973U\*sub1  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\1,4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 13-Nov-2018 12:12:47 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0321

First Level Reviewer: richardsd Date: 13-Nov-2018 11:54:41

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	2.353	2.357	-0.004	90	356447	6.00	5.96	
3 1,4-Dioxane	88	2.394	2.394	0.000	88	41192	0.6000	0.5998	
* 2 1,4-Dichlorobenzene-d4	152	5.686	5.686	0.000	93	522845	4.00	4.00	

Reagents:

MB\_1,4SIM\_WRK\_00059 Amount Added: 1.00 Units: mL  
 MB\_LLIS\_WRK\_00157 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313146.D

Injection Date: 09-Nov-2018 16:30:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: CCVIS

Worklist Smp#: 3

Client ID:

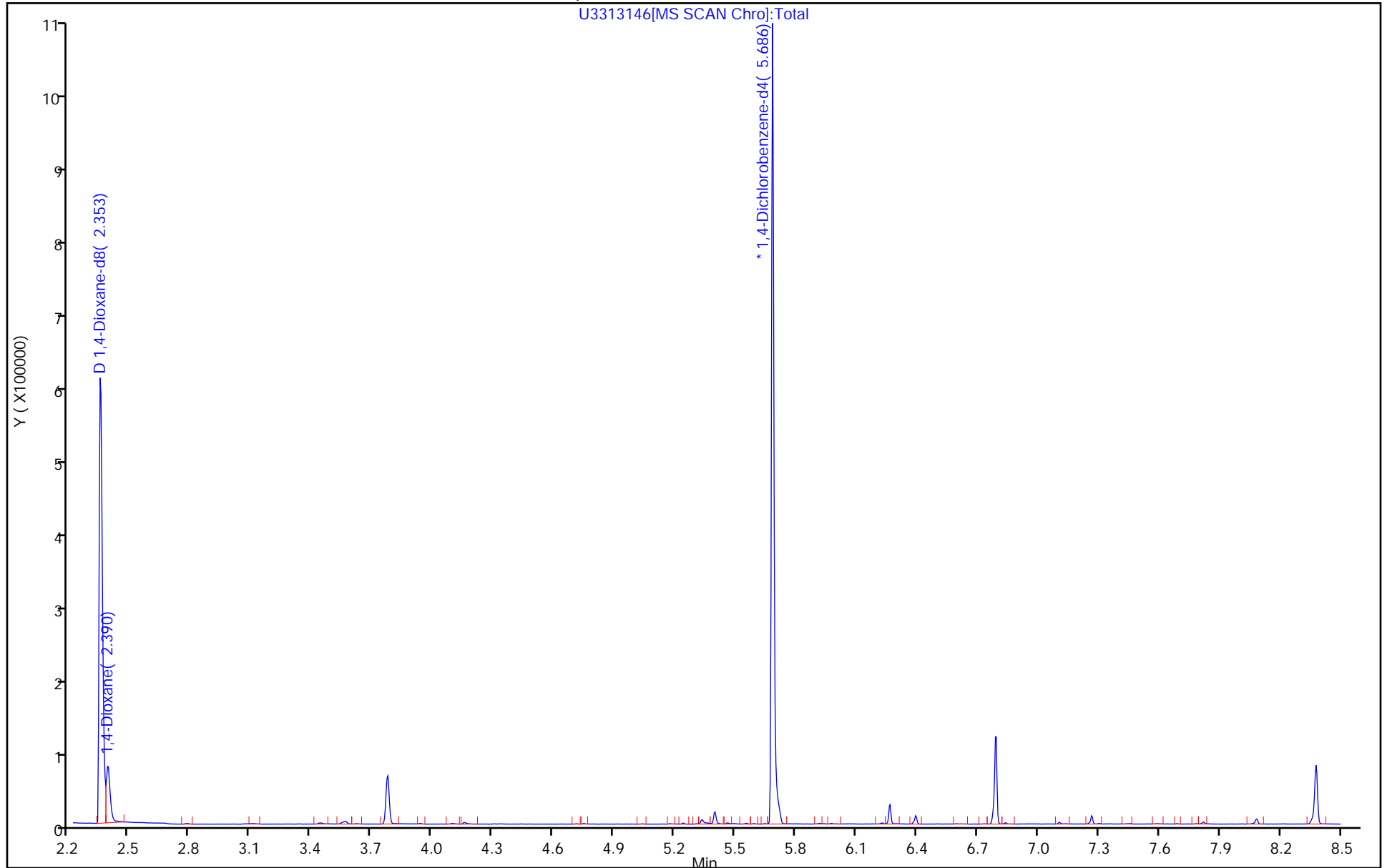
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 10

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\20181026-75895.b\U3312592.D  
 Lims ID: DFTPP  
 Client ID:  
 Sample Type: DFTPP  
 Inject. Date: 26-Oct-2018 17:27:30 ALS Bottle#: 2 Worklist Smp#: 2  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: DFTPP  
 Operator ID: DR Instrument ID: HP5973U  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\1,4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 29-Oct-2018 12:21:34 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: Deconvolution ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0317

First Level Reviewer: richardsd

Date: 29-Oct-2018 12:19:34

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	10.976	10.976	0.000	0	13780			NR
5 4,4'-DDD	235	11.269	11.269	0.000	97	14879			NR
6 4,4'-DDT	235	11.553	11.553	0.000	98	1338498	NR		NR

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

Reagents:

MB\_DFTPP\_WRK\_00343

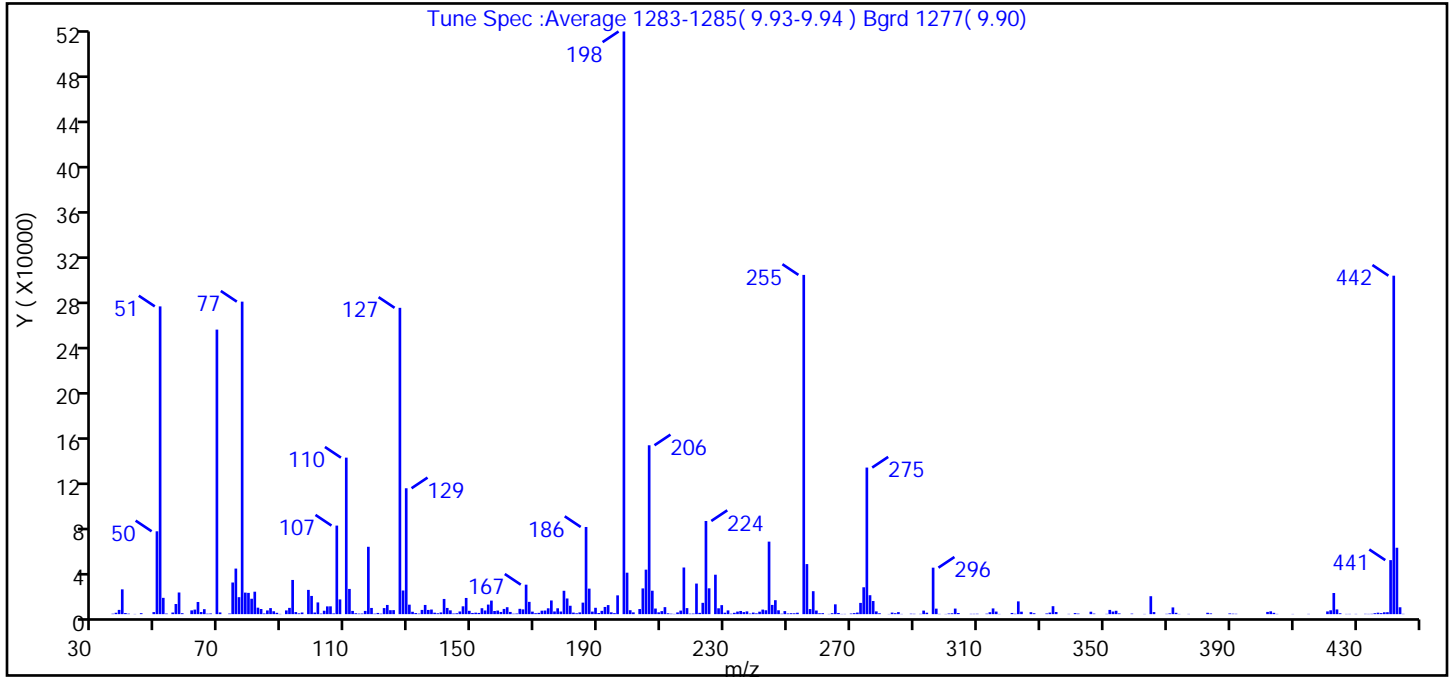
Amount Added: 1.00

Units: mL

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312592.D  
 Injection Date: 26-Oct-2018 17:27:30 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 (172.2)
51	10-80% of the base peak	52.8
68	<2% of mass 69	0.0 (0.0)
69	Present	48.8
70	<2% of mass 69	0.3 (0.6)
127	10-80% of the base peak	52.6
197	<2% of mass 198	0.0
199	5-9% of mass 198	7.1
275	10-60% of the base peak	25.2
365	>1% of mass 198	3.1
441	present but <24% of mass 442	9.3 (16.0)
442	base peak, or >50% of 198	58.1
443	15-24% of mass 442	11.4 (19.6)

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312592.D\1,4\_Dx\_SIM\_HP5973U.rsl\spec  
 Injection Date: 26-Oct-2018 17:27:30  
 Spectrum: Tune Spec :Average 1283-1285( 9.93-9.94 ) Bgrd 1277( 9.90)  
 Base Peak: 198.00  
 Minimum % Base Peak: 0  
 Number of Points: 311

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	391	129.00	112072	209.00	1610	297.00	4906
37.00	1218	130.00	8431	210.00	2699	298.00	218
38.00	3789	131.00	2113	211.00	6236	300.00	171
39.00	22080	132.00	958	212.00	766	301.00	560
40.00	978	133.00	465	213.00	399	302.00	748
41.00	430	134.00	3753	214.00	220	303.00	4952
43.00	178	135.00	8183	215.00	1537	304.00	1016
45.00	854	136.00	3742	216.00	3141	308.00	272
49.00	1817	137.00	4109	217.00	41520	309.00	276
50.00	73752	138.00	1295	218.00	5366	310.00	341
51.00	273984	139.00	790	219.00	421	313.00	427
52.00	14515	140.00	1521	220.00	496	314.00	1707
53.00	510	141.00	13529	221.00	27224	315.00	5101
55.00	1427	142.00	5518	222.00	1148	316.00	2294
56.00	9018	143.00	3390	223.00	10073	317.00	190
57.00	19272	144.00	560	224.00	82936	321.00	1057
58.00	844	145.00	804	225.00	23000	322.00	348
61.00	3355	146.00	2385	227.00	35104	323.00	11375
62.00	4047	147.00	6985	228.00	5206	324.00	2180
63.00	10825	148.00	14417	229.00	8026	327.00	1741
64.00	1873	149.00	2963	230.00	1278	328.00	803
65.00	4427	150.00	1056	231.00	3321	332.00	621
66.00	432	151.00	1307	232.00	394	333.00	1391
67.00	610	152.00	1086	233.00	1194	334.00	7082
69.00	253312	153.00	5277	234.00	2270	335.00	1915
70.00	1518	154.00	3253	235.00	2825	339.00	239
73.00	535	155.00	8509	236.00	1816	341.00	941
74.00	28168	156.00	12059	237.00	2450	342.00	494
75.00	40560	157.00	2785	238.00	513	346.00	2159
76.00	15103	158.00	3165	239.00	1400	347.00	498
77.00	278208	159.00	1959	240.00	718	351.00	248
78.00	19168	160.00	4649	241.00	2188	352.00	3778
79.00	18928	161.00	6170	242.00	4050	353.00	2319

Data File:

\\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312592.D\1\_4\_Dx\_SIM\_HP5973U.rslt\spe

Injection Date:

26-Oct-2018 17:27:30

Spectrum:

Tune Spec :Average 1283-1285( 9.93-9.94 ) Bgrd 1277( 9.90)

Base Peak:

198.00

Minimum % Base Peak: 0

Number of Points: 311

m/z	Y	m/z	Y	m/z	Y	m/z	Y
80.00	13715	162.00	1972	243.00	3449	354.00	3004
81.00	19984	163.00	400	244.00	64560	355.00	630
82.00	5760	164.00	564	245.00	8210	359.00	464
83.00	4568	165.00	4736	246.00	12418	363.00	185
84.00	582	166.00	4247	247.00	3441	365.00	15967
85.00	3304	167.00	26240	248.00	380	366.00	1841
86.00	5387	168.00	10937	249.00	2715	370.00	283
87.00	2560	169.00	2239	250.00	598	371.00	681
88.00	1186	170.00	845	251.00	843	372.00	5990
89.00	216	171.00	1144	252.00	758	373.00	1184
91.00	3312	172.00	3076	253.00	1258	374.00	177
92.00	5577	173.00	3211	255.00	302016	377.00	212
93.00	30440	174.00	5197	256.00	44560	383.00	1226
94.00	1829	175.00	12179	257.00	4512	384.00	655
95.00	698	176.00	2388	258.00	20440	390.00	631
96.00	1462	177.00	5222	259.00	3202	391.00	397
98.00	21592	178.00	2329	260.00	781	392.00	316
99.00	16212	179.00	20816	261.00	871	402.00	1990
100.00	1423	180.00	13951	263.00	201	403.00	2510
101.00	10441	181.00	7470	264.00	825	404.00	1177
102.00	498	182.00	1382	265.00	8736	405.00	209
103.00	3036	183.00	789	266.00	1048	410.00	178
104.00	6906	184.00	1560	267.00	182	415.00	221
105.00	6956	185.00	10251	268.00	216	421.00	2417
106.00	635	186.00	77600	270.00	555	422.00	3414
107.00	78840	187.00	22720	271.00	916	423.00	18808
108.00	13100	188.00	2270	272.00	1412	424.00	4203
110.00	139328	189.00	5661	273.00	10006	425.00	797
111.00	22448	190.00	999	274.00	23920	427.00	196
112.00	2881	191.00	2930	275.00	130496	428.00	225
113.00	810	192.00	6394	276.00	16856	430.00	217
114.00	478	193.00	8057	277.00	11689	433.00	284
115.00	543	194.00	1625	278.00	2451	434.00	231
116.00	2878	195.00	898	279.00	784	435.00	303

Report Date: 29-Oct-2018 12:21:35

Chrom Revision: 2.3 12-Oct-2018 08:24:38

Data File:

\\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312592.D\1,4\_Dx\_SIM\_HP5973U.rslt\spe

Injection Date:

26-Oct-2018 17:27:30

Spectrum:

Tune Spec :Average 1283-1285( 9.93-9.94 ) Bgrd 1277( 9.90)

Base Peak:

198.00

Minimum % Base Peak: 0

Number of Points: 311

m/z	Y	m/z	Y	m/z	Y	m/z	Y
117.00	59968	196.00	16728	282.00	166	436.00	853
118.00	5516	198.00	518720	283.00	1392	437.00	1302
119.00	431	199.00	36912	284.00	838	438.00	923
120.00	1075	200.00	3492	285.00	1803	439.00	1640
121.00	430	201.00	1578	286.00	197	440.00	1731
122.00	5393	203.00	4555	289.00	385	441.00	48088
123.00	8186	204.00	22912	290.00	297	442.00	301312
124.00	3527	205.00	39608	292.00	270	443.00	59112
125.00	3576	206.00	150336	293.00	3164	444.00	6127
127.00	272704	207.00	20848	294.00	1287	445.00	263
128.00	21056	208.00	4993	296.00	41376		

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312592.D

Injection Date: 26-Oct-2018 17:27:30

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

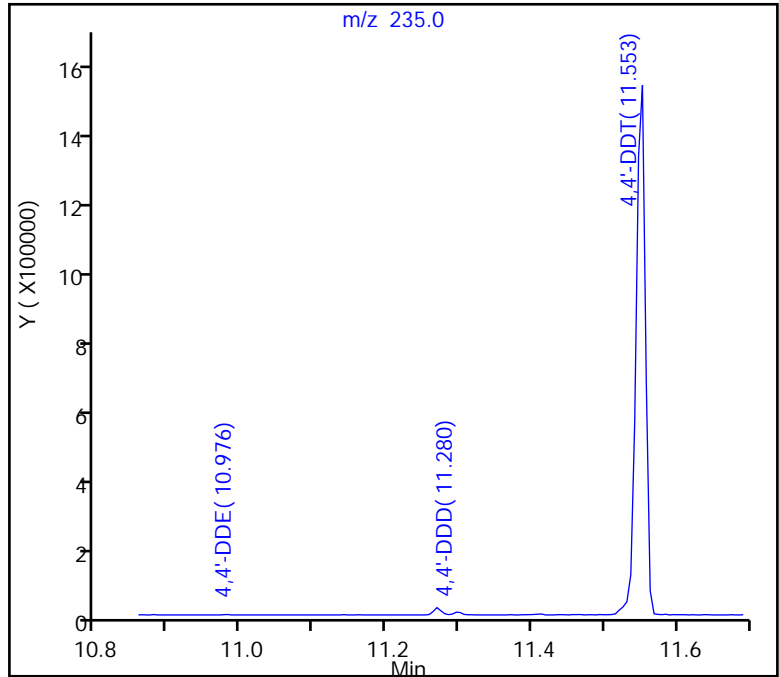
%Breakdown =  
(Area Breakdown Cpnds/  
Total Area Breakdown Cpnds) \* 100

6 4,4'-DDT, Area = 1338498

5 4,4'-DDD, Area = 14879

7 4,4'-DDE, Area = 13780

%Breakdown: 2.10%, Max Limit: 20.00%  
Passed



TestAmerica Buffalo  
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313145.D  
 Lims ID: DFTPP  
 Client ID:  
 Sample Type: DFTPP  
 Inject. Date: 09-Nov-2018 16:02:30 ALS Bottle#: 9 Worklist Smp#: 2  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0076303-002  
 Operator ID: DR Instrument ID: HP5973U  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\1,4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 13-Nov-2018 12:12:46 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: Deconvolution ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0321

First Level Reviewer: richardsd Date: 12-Nov-2018 12:35:51

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		10.965					ND	
5 4,4'-DDD	235	11.045	11.045	0.000	96	209108			NR
6 4,4'-DDT	235	11.307	11.307	0.000	96	730291	NR		NR

QC Flag Legend

Processing Flags

NR - Missing Quant Standard

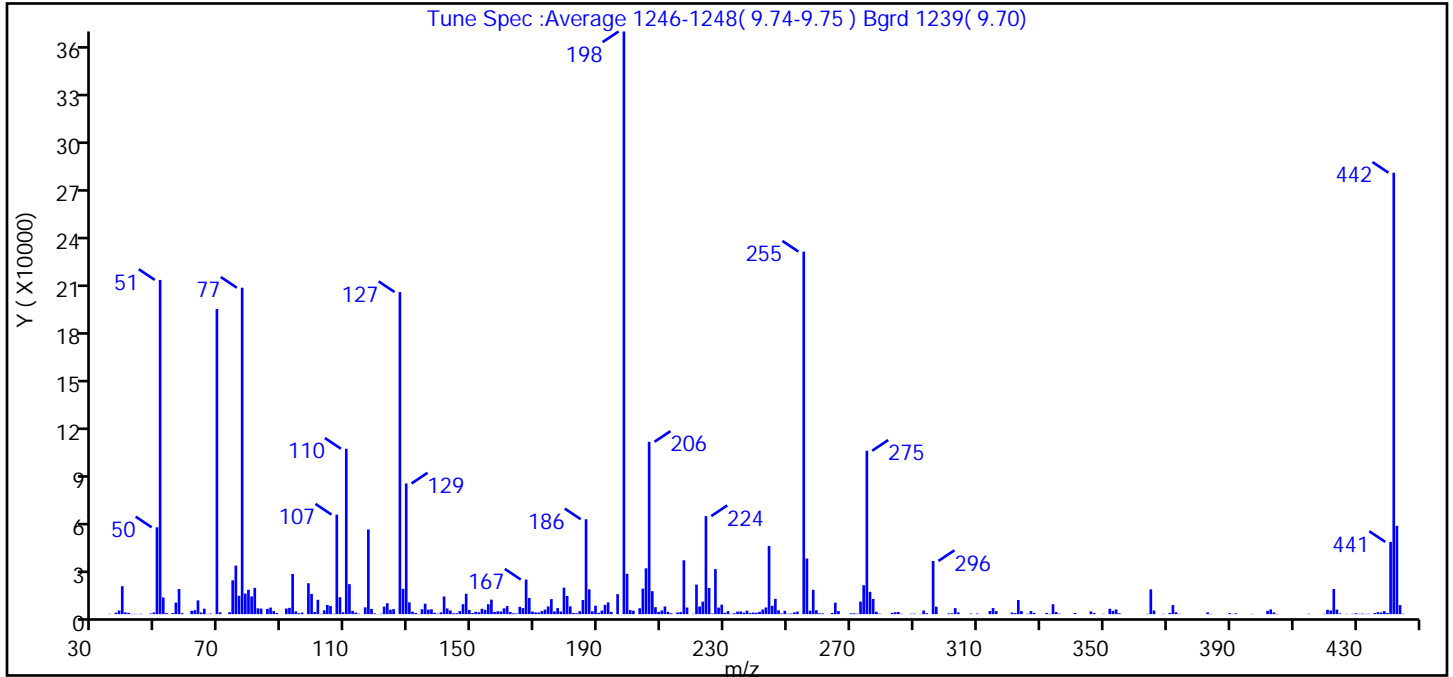
Reagents:

MB\_DFTPP\_WRK\_00343 Amount Added: 1.00 Units: mL

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313145.D  
 Injection Date: 09-Nov-2018 16:02:30 Instrument ID: HP5973U  
 Lims ID: DFTPP  
 Client ID:  
 Operator ID: DR ALS Bottle#: 9 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 (132.0)
51	10-80% of the base peak	57.4
68	<2% of mass 69	0.0 (0.0)
69	Present	52.4
70	<2% of mass 69	0.3 (0.6)
127	10-80% of the base peak	55.3
197	<2% of mass 198	0.0
199	5-9% of mass 198	6.9
275	10-60% of the base peak	28.0
365	>1% of mass 198	4.3
441	present but <24% of mass 442	12.4 (16.4)
442	base peak, or >50% of 198	75.8
443	15-24% of mass 442	15.2 (20.0)



Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313145.D\1,4\_Dx\_SIM\_HP5973U.rsl\spe  
Injection Date: 09-Nov-2018 16:02:30  
Spectrum: Tune Spec :Average 1246-1248( 9.74-9.75 ) Bgrd 1239( 9.70)  
Base Peak: 198.00  
Minimum % Base Peak: 0  
Number of Points: 301

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	194	125.00	3156	205.00	28512	296.00	33080
37.00	945	127.00	200320	206.00	107176	297.00	4622
38.00	2242	128.00	15740	207.00	14266	301.00	494
39.00	17384	129.00	81280	208.00	4331	302.00	520
40.00	1066	130.00	7322	209.00	1375	303.00	3749
41.00	825	131.00	1532	210.00	2307	304.00	1051
42.00	191	132.00	724	211.00	4772	308.00	353
43.00	166	133.00	188	212.00	1449	310.00	352
44.00	108	134.00	3045	213.00	529	314.00	1970
45.00	205	135.00	6517	215.00	1066	315.00	3791
48.00	387	136.00	2801	216.00	1289	316.00	1862
49.00	1024	137.00	3018	217.00	33504	321.00	966
50.00	54024	138.00	838	218.00	4120	322.00	713
51.00	207872	139.00	293	220.00	209	323.00	8808
52.00	10352	140.00	1174	221.00	18344	324.00	1900
53.00	662	141.00	10998	222.00	4781	326.00	256
55.00	673	142.00	3519	223.00	7793	327.00	1893
56.00	7143	143.00	2313	224.00	60984	328.00	789
57.00	15615	144.00	568	225.00	16325	332.00	776
58.00	617	145.00	579	226.00	364	333.00	236
61.00	2081	146.00	1920	227.00	28000	334.00	6164
62.00	2487	147.00	6199	228.00	4093	335.00	1289
63.00	8563	148.00	12670	229.00	5935	336.00	277
64.00	1029	149.00	2593	230.00	841	341.00	768
65.00	3384	150.00	707	231.00	1855	346.00	1690
66.00	194	151.00	1455	232.00	180	347.00	757
67.00	345	152.00	1196	233.00	596	350.00	189
69.00	189760	153.00	3342	234.00	1597	352.00	3351
70.00	1158	154.00	2693	235.00	1702	353.00	2043
73.00	1217	155.00	6140	236.00	945	354.00	2935
74.00	21024	156.00	9046	237.00	2184	355.00	556
75.00	30208	157.00	1397	238.00	778	364.00	209
76.00	11386	158.00	1767	239.00	1001	365.00	15427

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313145.D\1\_4\_Dx\_SIM\_HP5973U.rsl\spe

Injection Date: 09-Nov-2018 16:02:30

Spectrum: Tune Spec :Average 1246-1248( 9.74-9.75 ) Bgrd 1239( 9.70)

Base Peak: 198.00

Minimum % Base Peak: 0

Number of Points: 301

m/z	Y	m/z	Y	m/z	Y	m/z	Y
77.00	203008	159.00	1662	240.00	902	366.00	2288
78.00	12791	160.00	3587	241.00	1435	369.00	223
79.00	15178	161.00	4985	242.00	2818	371.00	764
80.00	11027	162.00	1273	243.00	4131	372.00	5613
81.00	16344	163.00	581	244.00	42384	373.00	1138
82.00	3593	164.00	400	245.00	5207	374.00	177
83.00	3476	165.00	4551	246.00	9497	383.00	1099
85.00	3304	166.00	3753	247.00	2362	384.00	192
86.00	4083	167.00	21504	248.00	410	390.00	616
87.00	1900	168.00	10094	249.00	2096	391.00	187
88.00	677	169.00	1596	250.00	274	392.00	523
91.00	3505	170.00	1109	251.00	397	397.00	167
92.00	3908	171.00	1022	252.00	1091	402.00	2042
93.00	25000	172.00	1963	253.00	1561	403.00	2985
94.00	1734	173.00	2828	255.00	225472	404.00	1049
95.00	592	174.00	4810	256.00	34584	405.00	210
96.00	963	175.00	9329	257.00	2171	415.00	236
98.00	19224	176.00	1714	258.00	15104	420.00	232
99.00	12617	177.00	3771	259.00	2443	421.00	2706
100.00	1323	178.00	1653	260.00	521	422.00	2317
101.00	8917	179.00	16488	261.00	460	423.00	15643
102.00	214	180.00	11297	264.00	711	424.00	2835
103.00	2381	181.00	4828	265.00	7120	425.00	439
104.00	5718	182.00	691	266.00	1848	427.00	176
105.00	5073	183.00	545	270.00	505	429.00	235
106.00	228	184.00	1831	271.00	519	430.00	543
107.00	61912	185.00	8774	272.00	258	431.00	194
108.00	10533	186.00	59024	273.00	7793	432.00	298
109.00	1128	187.00	15422	274.00	18008	433.00	176
110.00	102872	188.00	1736	275.00	101632	434.00	235
111.00	18680	189.00	5243	276.00	13882	436.00	725
112.00	2063	190.00	829	277.00	9482	437.00	1223
113.00	972	191.00	2204	278.00	1517	438.00	1030
114.00	285	192.00	5782	279.00	303	439.00	1854

Report Date: 13-Nov-2018 12:12:46

Chrom Revision: 2.3 12-Oct-2018 08:24:38

Data File:

\\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313145.D\1,4\_Dx\_SIM\_HP5973U.rsl\sp

Injection Date:

09-Nov-2018 16:02:30

Spectrum:

Tune Spec :Average 1246-1248( 9.74-9.75 ) Bgrd 1239( 9.70)

Base Peak:

198.00

Minimum % Base Peak: 0

Number of Points:

301

m/z	Y	m/z	Y	m/z	Y	m/z	Y
116.00	4208	193.00	7277	283.00	835	440.00	722
117.00	52656	194.00	1410	284.00	1199	441.00	44920
118.00	3259	196.00	12449	285.00	1343	442.00	274560
119.00	451	198.00	362368	286.00	215	443.00	54920
120.00	94	199.00	25080	289.00	225	444.00	5603
121.00	262	200.00	2521	290.00	305	445.00	253
122.00	4711	201.00	2133	292.00	204		
123.00	6766	203.00	3662	293.00	2268		
124.00	2748	204.00	15890	294.00	589		

TestAmerica Buffalo

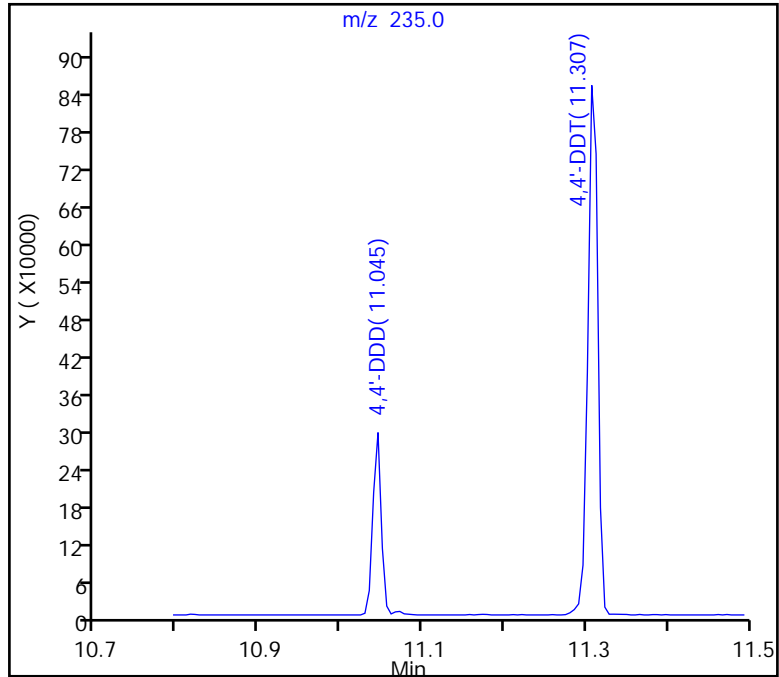
Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313145.D  
Injection Date: 09-Nov-2018 16:02:30 Instrument ID: HP5973U  
Lims ID: DFTPP  
Client ID:  
Operator ID: DR ALS Bottle#: 9 Worklist Smp#: 2  
Injection Vol: 1.0 ul Dil. Factor: 1.0000  
Method: 1,4\_Dx\_SIM\_HP5973U Limit Group: 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 = 730291  
5 4,4'-DDD, Area = 209108  
7 4,4'-DDE, Area = 0

%Breakdown:\* 22.26%, Max Limit: 20.00%  
Failed



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 480-443239/1-A  
 Matrix: Water Lab File ID: U3313147.D  
 Analysis Method: 8270D SIM ID Date Collected: \_\_\_\_\_  
 Extract. Method: 3510C Date Extracted: 11/02/2018 07:56  
 Sample wt/vol: 1000 (mL) Date Analyzed: 11/09/2018 16:54  
 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.: 444681 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	32		15-110

TestAmerica Buffalo  
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313147.D  
 Lims ID: MB 480-443239/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 09-Nov-2018 16:54:30 ALS Bottle#: 11 Worklist Smp#: 4  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0076303-004  
 Operator ID: DR Instrument ID: HP5973U  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\1\_4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 13-Nov-2018 12:12:47 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0321

First Level Reviewer: richardsd Date: 13-Nov-2018 11:54:45

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	2.430	2.357	0.073	92	168648	10.0	3.21	
3 1,4-Dioxane	88		2.394					ND	
* 2 1,4-Dichlorobenzene-d4	152	5.690	5.686	0.004	94	459593	4.00	4.00	

Reagents:

MB\_LLIS\_WRK\_00157 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313147.D

Injection Date: 09-Nov-2018 16:54:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: MB 480-443239/1-A

Worklist Smp#: 4

Client ID:

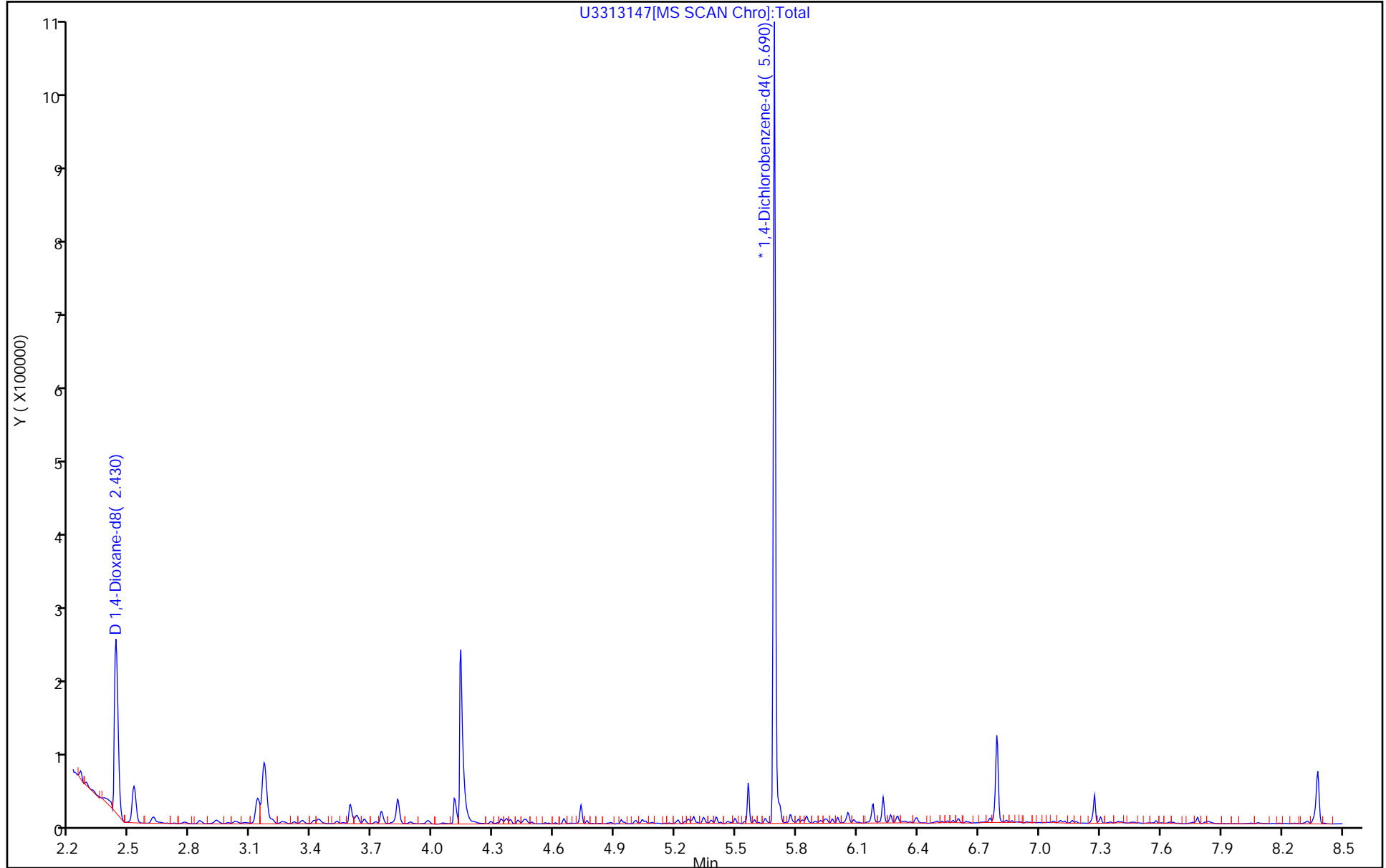
Injection Vol: 1.0 ul

Dil. Factor: 1.0000

ALS Bottle#: 11

Method: 1,4\_Dx\_SIM\_HP5973U

Limit Group: MB - 8270D SIM ID ICAL



TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313147.D

Injection Date: 09-Nov-2018 16:54:30

Instrument ID: HP5973U

Lims ID: MB 480-443239/1-A

Client ID:

Operator ID: DR

ALS Bottle#: 11

Worklist Smp#: 4

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

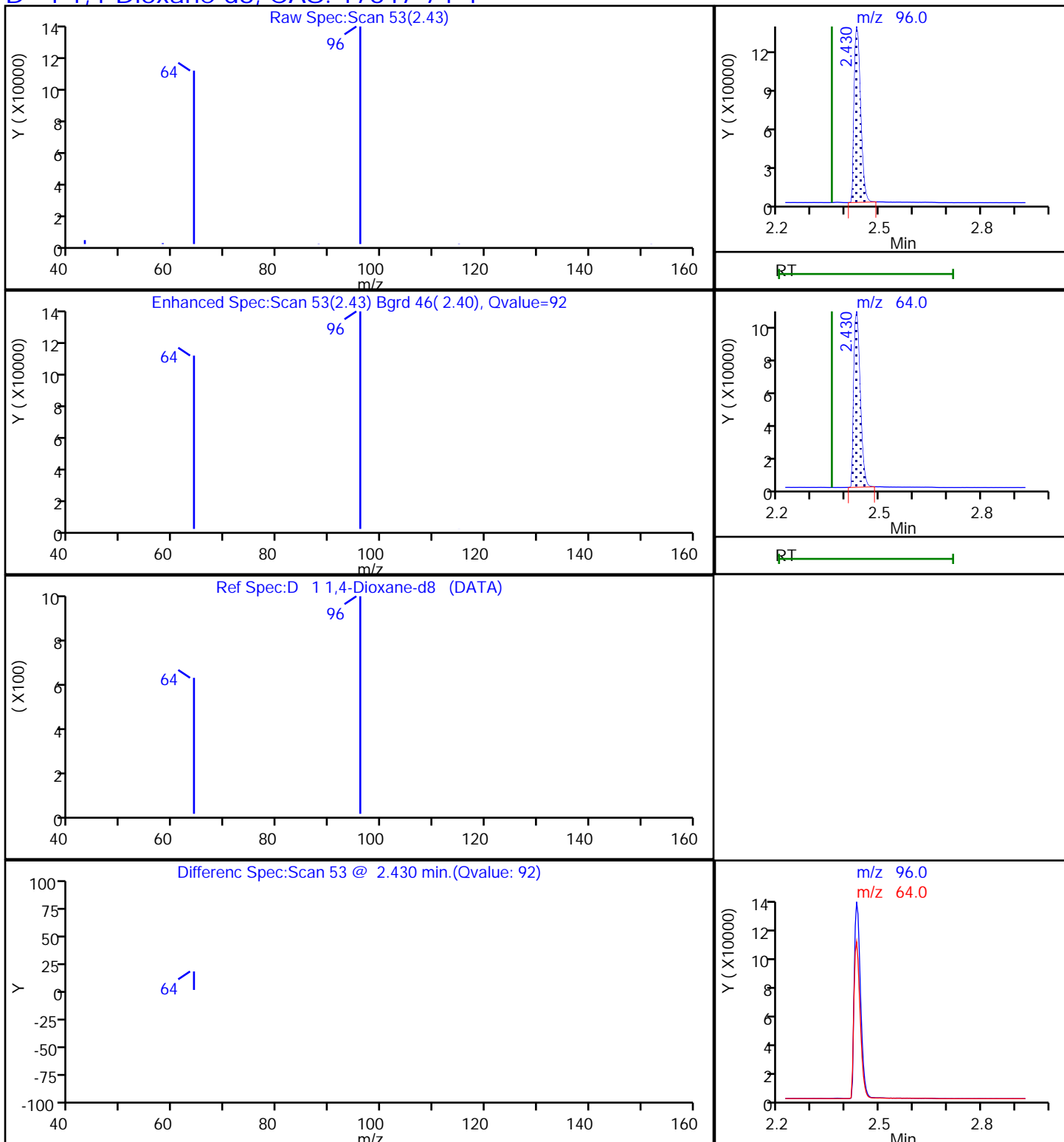
Method: 1,4\_Dx\_SIM\_HP5973U

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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCS 480-443239/2-A  
 Matrix: Water Lab File ID: U3313148.D  
 Analysis Method: 8270D SIM ID Date Collected: \_\_\_\_\_  
 Extract. Method: 3510C Date Extracted: 11/02/2018 07:56  
 Sample wt/vol: 1000 (mL) Date Analyzed: 11/09/2018 17:18  
 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.: 444681 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	34		15-110

TestAmerica Buffalo  
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313148.D  
 Lims ID: LCS 480-443239/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 09-Nov-2018 17:18:30 ALS Bottle#: 12 Worklist Smp#: 5  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0076303-005  
 Operator ID: DR Instrument ID: HP5973U  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\1\_4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 13-Nov-2018 12:12:47 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0321

First Level Reviewer: richardsd Date: 13-Nov-2018 11:54:47

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	2.479	2.357	0.122	91	186078	10.0	3.42	
3 1,4-Dioxane	88	2.520	2.394	0.126	87	23001	1.00	1.04	
* 2 1,4-Dichlorobenzene-d4	152	5.694	5.686	0.008	93	474633	4.00	4.00	

Reagents:

MB\_LLIS\_WRK\_00157 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313148.D

Injection Date: 09-Nov-2018 17:18:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: LCS 480-443239/2-A

Worklist Smp#: 5

Client ID:

Injection Vol: 1.0 ul

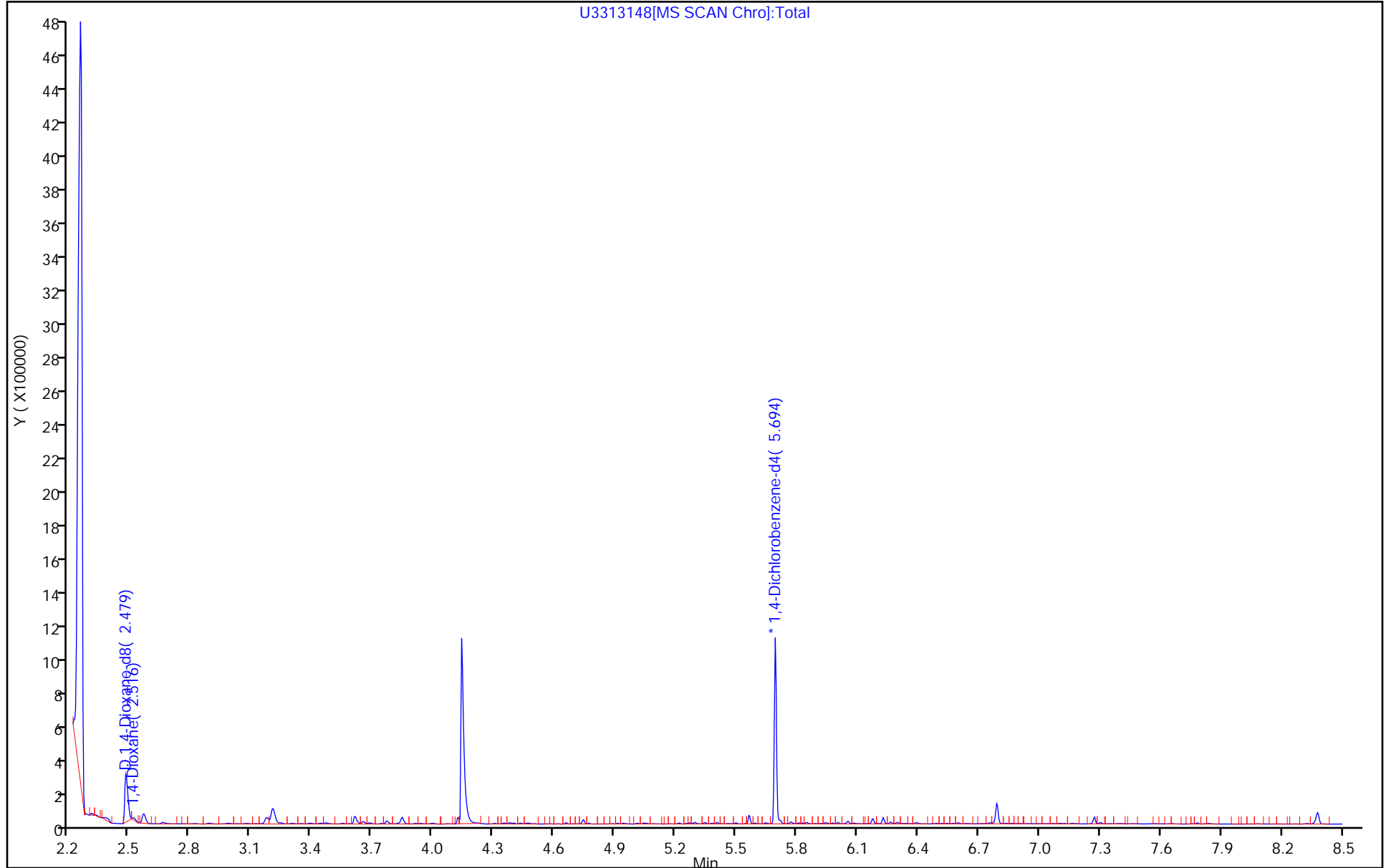
Dil. Factor: 1.0000

ALS Bottle#: 12

Method: 1,4\_Dx\_SIM\_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

U3313148[MS SCAN Chrom]:Total



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-201 MS Lab Sample ID: 480-144495-2 MS  
 Matrix: Water Lab File ID: U3313149.D  
 Analysis Method: 8270D SIM ID Date Collected: 10/30/2018 13:27  
 Extract. Method: 3510C Date Extracted: 11/02/2018 07:56  
 Sample wt/vol: 1030 (mL) Date Analyzed: 11/09/2018 17:42  
 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.: 444681 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	1.03		0.19	0.097

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\20181109-76303.b\U3313149.D  
 Lims ID: 480-144495-B-2-A MS  
 Client ID: MW-201  
 Sample Type: MS  
 Inject. Date: 09-Nov-2018 17:42:30 ALS Bottle#: 13 Worklist Smp#: 6  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0076303-006  
 Operator ID: DR Instrument ID: HP5973U  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\1\_4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 13-Nov-2018 12:12:47 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0321

First Level Reviewer: richardsd Date: 13-Nov-2018 11:54:49

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ng/ul	OnCol Amt ng/ul	Flags
D 1 1,4-Dioxane-d8	96	2.467	2.357	0.110	92	160738	10.0	3.08	
3 1,4-Dioxane	88	2.508	2.394	0.114	89	20198	1.00	1.06	
* 2 1,4-Dichlorobenzene-d4	152	5.694	5.686	0.008	94	456211	4.00	4.00	
7 4,4'-DDE	246		10.965					ND	
5 4,4'-DDD	235		11.045					ND	
6 4,4'-DDT	235		11.307					ND	

Reagents:

MB\_LLIS\_WRK\_00157 Amount Added: 20.00 Units: uL Run Reagent

TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313149.D

Injection Date: 09-Nov-2018 17:42:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-144495-B-2-A MS

Worklist Smp#: 6

Client ID: MW-201

Injection Vol: 1.0 ul

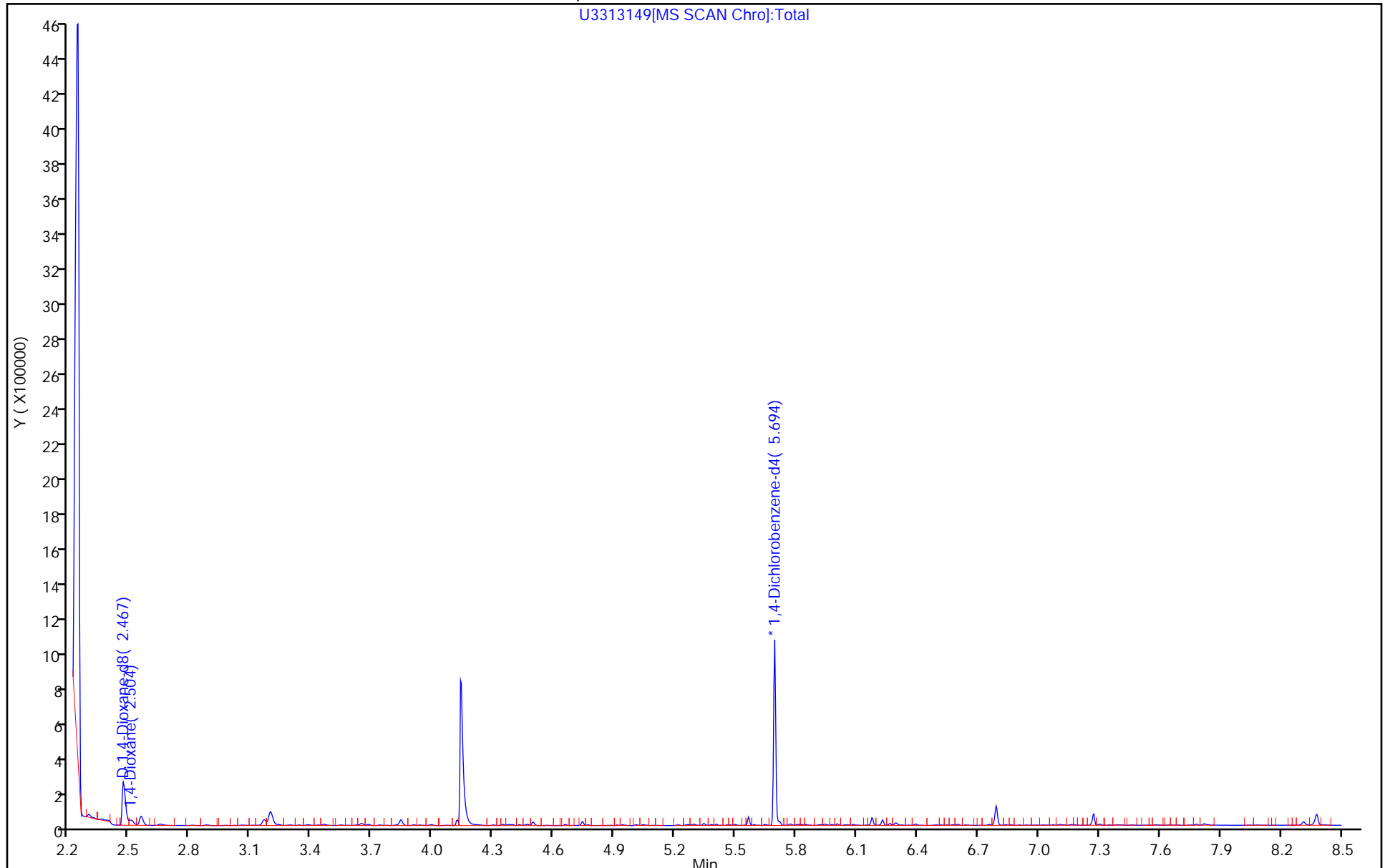
Dil. Factor: 1.0000

ALS Bottle#: 13

Method: 1,4\_Dx\_SIM\_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

U3313149[MS SCAN Chrom]:Total



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-201 MSD Lab Sample ID: 480-144495-2 MSD  
 Matrix: Water Lab File ID: U3313150.D  
 Analysis Method: 8270D SIM ID Date Collected: 10/30/2018 13:27  
 Extract. Method: 3510C Date Extracted: 11/02/2018 07:56  
 Sample wt/vol: 960 (mL) Date Analyzed: 11/09/2018 18:06  
 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.: 444681 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	1.09		0.21	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\20181109-76303.b\U3313150.D  
 Lims ID: 480-144495-B-2-B MSD  
 Client ID: MW-201  
 Sample Type: MSD  
 Inject. Date: 09-Nov-2018 18:06:30 ALS Bottle#: 14 Worklist Smp#: 7  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-0076303-007  
 Operator ID: DR Instrument ID: HP5973U  
 Method: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\1\_4\_Dx\_SIM\_HP5973U.m  
 Limit Group: MB - 8270D SIM ID ICAL  
 Last Update: 13-Nov-2018 12:12:47 Calib Date: 26-Oct-2018 19:56:30  
 Integrator: Picker ID Type: RT Order ID  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20181026-75895.b\U3312598.D  
 Column 1 : Det: MS SCAN  
 Process Host: CTX0321

First Level Reviewer: richardsd Date: 13-Nov-2018 11:56:28

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	2.467	2.357	0.110	92	163248	10.0	3.33	
3 1,4-Dioxane	88	2.508	2.394	0.114	88	20240	1.00	1.05	
* 2 1,4-Dichlorobenzene-d4	152	5.694	5.686	0.008	95	428805	4.00	4.00	
7 4,4'-DDE	246		10.965					ND	
5 4,4'-DDD	235		11.045					ND	
6 4,4'-DDT	235		11.307					ND	

Reagents:

MB\_LLIS\_WRK\_00157 Amount Added: 20.00 Units: uL Run Reagent



TestAmerica Buffalo

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20181109-76303.b\U3313150.D

Injection Date: 09-Nov-2018 18:06:30

Instrument ID: HP5973U

Operator ID: DR

Lims ID: 480-144495-B-2-B MSD

Worklist Smp#: 7

Client ID: MW-201

Injection Vol: 1.0 ul

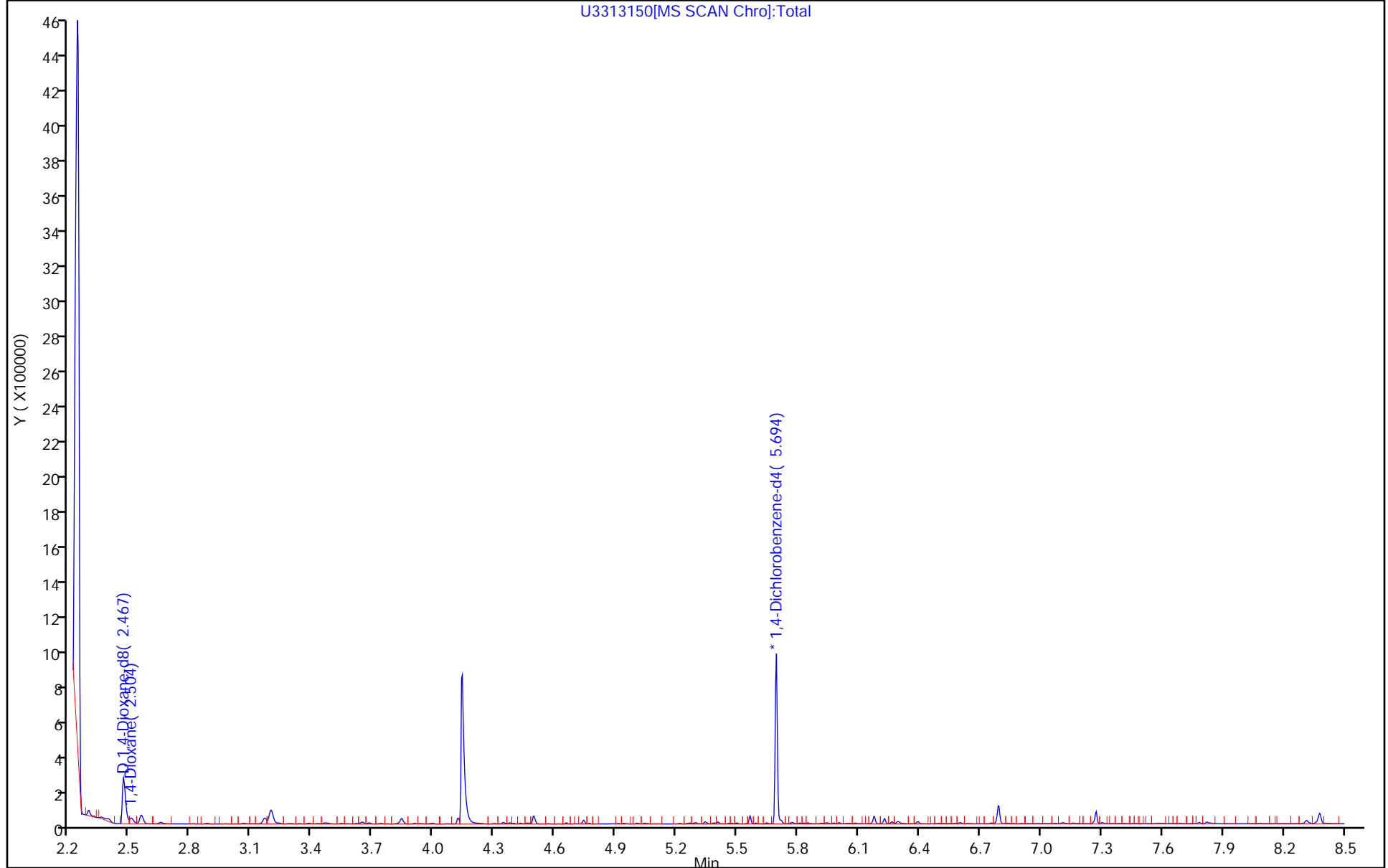
Dil. Factor: 1.0000

ALS Bottle#: 14

Method: 1,4\_Dx\_SIM\_HP5973U

Limit Group: MB - 8270D SIM ID ICAL

U3313150[MS SCAN Chro]:Total



## GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Instrument ID: HP5973U Start Date: 10/26/2018 17:27Analysis Batch Number: 442039 End Date: 10/26/2018 20:20

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
DFTPP 480-442039/2		10/26/2018 17:27	1	U3312592.D	RXI-5Si1 MS(0.5 0.25 (mm))
IC 480-442039/3		10/26/2018 17:56	1	U3312593.D	RXI-5Si1 MS(0.5 0.25 (mm))
IC 480-442039/4		10/26/2018 18:20	1	U3312594.D	RXI-5Si1 MS(0.5 0.25 (mm))
ICIS 480-442039/5		10/26/2018 18:45	1	U3312595.D	RXI-5Si1 MS(0.5 0.25 (mm))
IC 480-442039/6		10/26/2018 19:08	1	U3312596.D	RXI-5Si1 MS(0.5 0.25 (mm))
IC 480-442039/7		10/26/2018 19:32	1	U3312597.D	RXI-5Si1 MS(0.5 0.25 (mm))
IC 480-442039/8		10/26/2018 19:56	1	U3312598.D	RXI-5Si1 MS(0.5 0.25 (mm))
ICV 480-442039/9		10/26/2018 20:20	1		RXI-5Si1 MS(0.5 0.25 (mm))

## GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica BuffaloJob No.: 480-144495-1

SDG No.: \_\_\_\_\_

Instrument ID: HP5973UStart Date: 11/09/2018 16:02Analysis Batch Number: 444681End Date: 11/10/2018 03:14

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
DFTPP 480-444681/2		11/09/2018 16:02	1	U3313145.D	RXI-5Sil MS(0.5 0.25 (mm))
CCVIS 480-444681/3		11/09/2018 16:30	1	U3313146.D	RXI-5Sil MS(0.5 0.25 (mm))
MB 480-443239/1-A		11/09/2018 16:54	1	U3313147.D	RXI-5Sil MS(0.5 0.25 (mm))
LCS 480-443239/2-A		11/09/2018 17:18	1	U3313148.D	RXI-5Sil MS(0.5 0.25 (mm))
480-144495-2 MS		11/09/2018 17:42	1	U3313149.D	RXI-5Sil MS(0.5 0.25 (mm))
480-144495-2 MSD		11/09/2018 18:06	1	U3313150.D	RXI-5Sil MS(0.5 0.25 (mm))
480-144495-2		11/09/2018 18:30	1	U3313151.D	RXI-5Sil MS(0.5 0.25 (mm))
480-144495-1		11/09/2018 18:54	1	U3313152.D	RXI-5Sil MS(0.5 0.25 (mm))
480-144495-3		11/09/2018 19:17	1	U3313153.D	RXI-5Sil MS(0.5 0.25 (mm))
480-144495-4		11/09/2018 19:41	1	U3313154.D	RXI-5Sil MS(0.5 0.25 (mm))
480-144495-5		11/09/2018 20:05	1	U3313155.D	RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/09/2018 20:29	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/09/2018 20:53	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/09/2018 21:16	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/09/2018 21:40	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/09/2018 22:04	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/09/2018 22:28	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/09/2018 22:52	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/09/2018 23:15	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/09/2018 23:39	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/10/2018 00:03	5		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/10/2018 00:27	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/10/2018 00:50	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/10/2018 01:14	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/10/2018 01:38	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/10/2018 02:02	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/10/2018 02:26	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/10/2018 02:50	1		RXI-5Sil MS(0.5 0.25 (mm))
ZZZZZ		11/10/2018 03:14	1		RXI-5Sil MS(0.5 0.25 (mm))

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Batch Number: 443239 Batch Start Date: 11/02/18 07:56 Batch Analyst: Pollock, Jacob M

Batch Method: 3510C Batch End Date: \_\_\_\_\_

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ReceivedpH	FirstAdjustpH	OP_SIM LCS 00005	OP_SimSurr 00011
MB 480-443239/1		3510C, 8270D SIM ID		1000 mL	1 mL	7 SU	<2 SU		1 mL
LCS 480-443239/2		3510C, 8270D SIM ID		1000 mL	1 mL	7 SU	<2 SU	1 mL	1 mL
480-144495-B-2 MS	MW-201	3510C, 8270D SIM ID	T	1030 mL	1 mL	7 SU	<2 SU	1 mL	1 mL
480-144495-B-2 MSD	MW-201	3510C, 8270D SIM ID	T	960 mL	1 mL	7 SU	<2 SU	1 mL	1 mL
480-144495-A-2	MW-201	3510C, 8270D SIM ID	T	1020 mL	1 mL	7 SU	<2 SU		1 mL
480-144495-B-1	MW-207	3510C, 8270D SIM ID	T	1040 mL	1 mL	7 SU	<2 SU		1 mL
480-144495-B-3	MW-205	3510C, 8270D SIM ID	T	1050 mL	1 mL	7 SU	<2 SU		1 mL
480-144495-A-4	DUP-1-20181030	3510C, 8270D SIM ID	T	1030 mL	1 mL	7 SU	<2 SU		1 mL
480-144495-A-5	EQUIPMENT BLANK	3510C, 8270D SIM ID	T	1050 mL	1 mL	6 SU	<2 SU		1 mL

Lab Sample ID	Client Sample ID	Method Chain	Basis	AnalysisComment					
MB 480-443239/1		3510C, 8270D SIM ID							
LCS 480-443239/2		3510C, 8270D SIM ID							
480-144495-B-2 MS	MW-201	3510C, 8270D SIM ID	T						
480-144495-B-2 MSD	MW-201	3510C, 8270D SIM ID	T						
480-144495-A-2	MW-201	3510C, 8270D SIM ID	T	Lost some extract while vialing					
480-144495-B-1	MW-207	3510C, 8270D SIM ID	T	Contains some sediment					
480-144495-B-3	MW-205	3510C, 8270D SIM ID	T						
480-144495-A-4	DUP-1-20181030	3510C, 8270D SIM ID	T						
480-144495-A-5	EQUIPMENT BLANK	3510C, 8270D SIM ID	T						

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

## GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Buffalo Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Batch Number: 443239 Batch Start Date: 11/02/18 07:56 Batch Analyst: Pollock, Jacob MBatch Method: 3510C Batch End Date: \_\_\_\_\_

Batch Notes	
Acid Used for pH Adjustment ID	4970423
Analyst ID - Concentration	JP, SP
Analyst ID - Extraction	JP
Method/Fraction	3510C/8270D_SIM_MS_ID
Na2SO4 ID	4895626
Prep Solvent ID	4975506
Prep Solvent Volume Used	180 mL
Analyst ID - Spike Analyst	JP
Analyst ID - Spike Witness Analyst	JP
Sufficient Volume for Batch QC	Yes
Vial Lot Number	1709111094

Basis	Basis Description
T	Total/NA

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

# Method PFC IDA

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Fluorinated Hydrocarbons by Method  
PFAS IDA

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Matrix: Water Level: Low

GC Column (1): Acquity ID: 2.1 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	M262FTS #	PFOA #
MW-207	480-144495-1	17 *	20 *	25	24 *	29	29	83	31
MW-201	480-144495-2	52	71	78	81	90	93	106	93
MW-205	480-144495-3	46	58	73	68	80	92	169 *	94
DUP-1-20181030	480-144495-4	56	75	83	85	96	96	107	96
EQUIPMENT BLANK	480-144495-5	90	89	92	93	95	99	79	100
	MB 320-258069/1-A	92	92	81	91	95	96	86	93
	LCS 320-258069/2-A	98	96	89	93	95	94	87	98
MW-201 MS	480-144495-2 MS	53	71	84	85	95	94	97	90
MW-201 MSD	480-144495-2 MSD	53	72	81	85	91	95	100	95

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

# Column to be used to flag recovery values

FORM II 537 (modified)

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Matrix: Water Level: Low

GC Column (1): Acquity ID: 2.1 (mm)

Client Sample ID	Lab Sample ID	PFNA #	PFOS #	M282FTS #	PFDA #	PFOSA #	d3NMFOS #	d5NEFOS #	PFUnA #
MW-207	480-144495-1	33	33	75	36	35	43	37	36
MW-201	480-144495-2	95	94	69	84	90	75	76	94
MW-205	480-144495-3	95	100	115	99	93	93	90	98
DUP-1-20181030	480-144495-4	98	100	82	87	94	85	77	100
EQUIPMENT BLANK	480-144495-5	95	98	79	89	90	82	80	96
	MB 320-258069/1-A	94	100	85	86	87	79	83	91
	LCS 320-258069/2-A	92	100	76	90	86	81	81	96
MW-201 MS	480-144495-2 MS	89	90	78	90	93	76	82	89
MW-201 MSD	480-144495-2 MSD	94	94	80	90	88	81	76	84

QC LIMITS

PFNA = 13C5 PFNA	25-150
PFOS = 13C4 PFOS	25-150
M282FTS = M2-8:2 FTS	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.: 480-144495-1

SDG No.: \_\_\_\_\_

Matrix: Water Level: Low

GC Column (1): Acquity ID: 2.1 (mm)

Client Sample ID	Lab Sample ID	PFDa #	PFTDA #
MW-207	480-144495-1	30	25
MW-201	480-144495-2	84	84
MW-205	480-144495-3	88	74
DUP-1-20181030	480-144495-4	89	82
EQUIPMENT BLANK	480-144495-5	87	94
	MB 320-258069/1-A	96	91
	LCS 320-258069/2-A	97	96
MW-201 MS	480-144495-2 MS	83	82
MW-201 MSD	480-144495-2 MSD	79	74

PFDa = 13C2 PFDa  
PFTDA = 13C2 PFTeDA

QC LIMITS  
25-150  
25-150

# Column to be used to flag recovery values

FORM II 537 (modified)

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.11.10LLA\_043.d  
 Lab ID: LCS 320-258069/2-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	40.0	38.0	95	70-130	
Perfluoropentanoic acid (PFPeA)	40.0	40.8	102	66-126	
Perfluorohexanoic acid (PFHxA)	40.0	41.0	102	66-126	
Perfluoroheptanoic acid (PFHpA)	40.0	39.6	99	66-126	
Perfluorooctanoic acid (PFOA)	40.0	37.8	95	64-124	
Perfluorononanoic acid (PFNA)	40.0	42.2	106	68-128	
Perfluorodecanoic acid (PFDA)	40.0	42.2	105	69-129	
Perfluoroundecanoic acid (PFUnA)	40.0	39.2	98	60-120	
Perfluorododecanoic acid (PFDoA)	40.0	32.6	81	71-131	
Perfluorotridecanoic acid (PFTriA)	40.0	34.7	87	72-132	
Perfluorotetradecanoic acid (PFTeA)	40.0	37.4	93	68-128	
Perfluorobutanesulfonic acid (PFBS)	35.4	38.1	108	73-133	
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.0	96	63-123	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.6	101	68-128	
Perfluorooctanesulfonic acid (PFOS)	37.1	33.0	89	67-127	
Perfluorodecanesulfonic acid (PFDS)	38.6	39.0	101	68-128	
Perfluorooctanesulfonamide (FOSA)	40.0	41.0	103	70-130	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	36.9	92	67-127	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	39.5	99	65-125	
6:2 FTS	37.9	37.3	98	66-126	
8:2 FTS	38.3	42.0	109	67-127	
13C4 PFBA	100	98.1	98	25-150	
13C5 PFPeA	100	95.5	96	25-150	
13C2 PFHxA	100	92.7	93	25-150	
13C4 PFHpA	100	94.6	95	25-150	
13C4 PFOA	100	97.9	98	25-150	
13C5 PFNA	100	91.9	92	25-150	
13C2 PFDA	100	90.2	90	25-150	
13C2 PFUnA	100	96.0	96	25-150	
13C2 PFDoA	100	96.8	97	25-150	
13C2 PFTeDA	100	95.8	96	25-150	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.11.10LLA\_043.d  
 Lab ID: LCS 320-258069/2-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
13C3 PFBS	93.0	83.1	89	25-150	
18O2 PFHxS	94.6	89.1	94	25-150	
13C4 PFOS	95.6	95.8	100	25-150	
13C8 FOSA	100	85.9	86	25-150	
d3-NMeFOSAA	100	81.5	81	25-150	
d5-NEtFOSAA	100	81.5	81	25-150	
M2-6:2 FTS	95.0	82.2	87	25-150	
M2-8:2 FTS	95.8	72.8	76	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.: 480-144495-1

SDG No.: \_\_\_\_\_

Matrix: Water Level: Low

Lab File ID: 2018.11.10LLA\_046.d

Lab ID: 480-144495-2 MS

Client ID: MW-201 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	41.3	3.8	44.3	98	70-130	
Perfluoropentanoic acid (PFPeA)	41.3	ND	42.7	103	66-126	
Perfluorohexanoic acid (PFHxA)	41.3	ND	39.6	96	66-126	
Perfluoroheptanoic acid (PFHpA)	41.3	0.34 J	40.4	97	66-126	
Perfluorooctanoic acid (PFOA)	41.3	9.2	52.1	104	64-124	
Perfluorononanoic acid (PFNA)	41.3	ND	43.2	104	68-128	
Perfluorodecanoic acid (PFDA)	41.3	ND	45.5	110	69-129	
Perfluoroundecanoic acid (PFUnA)	41.3	ND	38.7	94	60-120	
Perfluorododecanoic acid (PFDoA)	41.3	ND	36.4	88	71-131	
Perfluorotridecanoic acid (PFTriA)	41.3	ND	39.6	96	72-132	
Perfluorotetradecanoic acid (PFTeA)	41.3	ND	37.9	92	68-128	
Perfluorobutanesulfonic acid (PFBS)	36.5	ND	38.4	105	73-133	
Perfluorohexanesulfonic acid (PFHxS)	37.6	1.3 J	34.6	88	63-123	
Perfluoroheptanesulfonic Acid (PFHpS)	39.3	ND	43.5	111	68-128	
Perfluorooctanesulfonic acid (PFOS)	38.3	1.9 J	39.0	97	67-127	
Perfluorodecanesulfonic acid (PFDS)	39.8	ND	41.0	103	68-128	
Perfluorooctanesulfonamide (FOSA)	41.3	ND	41.4	100	70-130	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	41.3	ND	39.9	97	67-127	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	41.3	ND	38.7	94	65-125	
6:2 FTS	39.2	ND	35.7	91	66-126	
8:2 FTS	39.6	ND	35.0	88	67-127	
13C4 PFBA	103	53	54.2	53	25-150	
13C5 PFPeA	103	72	73.2	71	25-150	
13C2 PFHxA	103	82	88.3	85	25-150	
13C4 PFHpA	103	91	98.6	95	25-150	
13C4 PFOA	103	95	93.0	90	25-150	
13C5 PFNA	103	97	92.4	89	25-150	
13C2 PFDA	103	85	93.4	90	25-150	
13C2 PFUnA	103	96	92.4	89	25-150	
13C2 PFDoA	103	86	86.1	83	25-150	
13C2 PFTeDA	103	85	84.9	82	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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.11.10LLA\_046.d  
 Lab ID: 480-144495-2 MS Client ID: MW-201 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
13C3 PFBS	96.1	74	80.5	84	25-150	
18O2 PFHxS	97.7	89	91.9	94	25-150	
13C4 PFOS	98.8	91	89.0	90	25-150	
13C8 FOSA	103	91	96.4	93	25-150	
d3-NMeFOSAA	103	77	78.3	76	25-150	
d5-NEtFOSAA	103	77	84.7	82	25-150	
M2-6:2 FTS	98.1	100	95.6	97	25-150	
M2-8:2 FTS	99.0	67	76.8	78	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.: 480-144495-1

SDG No.: \_\_\_\_\_

Matrix: Water Level: Low

Lab File ID: 2018.11.10LLA\_047.d

Lab ID: 480-144495-2 MSD

Client ID: MW-201 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorobutanoic acid (PFBA)	40.3	43.0	97	3	30	70-130	
Perfluoropentanoic acid (PFPeA)	40.3	41.7	103	2	30	66-126	
Perfluorohexanoic acid (PFHxA)	40.3	39.1	97	1	30	66-126	
Perfluoroheptanoic acid (PFHpA)	40.3	40.8	100	1	30	66-126	
Perfluorooctanoic acid (PFOA)	40.3	47.4	95	9	30	64-124	
Perfluorononanoic acid (PFNA)	40.3	40.8	101	6	30	68-128	
Perfluorodecanoic acid (PFDA)	40.3	41.5	103	9	30	69-129	
Perfluoroundecanoic acid (PFUnA)	40.3	39.5	98	2	30	60-120	
Perfluorododecanoic acid (PFDoA)	40.3	39.1	97	7	30	71-131	
Perfluorotridecanoic acid (PFTriA)	40.3	38.4	95	3	30	72-132	
Perfluorotetradecanoic acid (PFTeA)	40.3	35.6	88	6	30	68-128	
Perfluorobutanesulfonic acid (PFBS)	35.6	39.8	112	4	30	73-133	
Perfluorohexanesulfonic acid (PFHxS)	36.7	33.4	87	3	30	63-123	
Perfluoroheptanesulfonic Acid (PFHpS)	38.4	39.9	104	9	30	68-128	
Perfluorooctanesulfonic acid (PFOS)	37.4	37.8	96	3	30	67-127	
Perfluorodecanesulfonic acid (PFDS)	38.9	37.2	96	10	30	68-128	
Perfluorooctanesulfonamide (FOSA)	40.3	43.6	108	5	30	70-130	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.3	36.3	90	9	30	67-127	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.3	38.8	96	0	30	65-125	
6:2 FTS	38.2	38.1	100	6	30	66-126	
8:2 FTS	38.6	37.1	96	6	30	67-127	
13C4 PFBA	101	53.0	53			25-150	
13C5 PFPeA	101	72.8	72			25-150	
13C2 PFHxA	101	85.3	85			25-150	
13C4 PFHpA	101	91.3	91			25-150	
13C4 PFOA	101	95.8	95			25-150	
13C5 PFNA	101	95.2	94			25-150	
13C2 PFDA	101	90.9	90			25-150	
13C2 PFUnA	101	84.7	84			25-150	
13C2 PFDoA	101	79.7	79			25-150	
13C2 PFTeDA	101	75.1	74			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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.11.10LLA\_047.d  
 Lab ID: 480-144495-2 MSD Client ID: MW-201 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
13C3 PFBS	93.8	75.9	81			25-150	
18O2 PFHxS	95.4	90.3	95			25-150	
13C4 PFOS	96.4	91.0	94			25-150	
13C8 FOSA	101	88.7	88			25-150	
d3-NMeFOSAA	101	81.5	81			25-150	
d5-NEtFOSAA	101	77.0	76			25-150	
M2-6:2 FTS	95.8	96.1	100			25-150	
M2-8:2 FTS	96.6	77.0	80			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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.11.10LLA\_042.d Lab Sample ID: MB 320-258069/1-A  
 Matrix: Water Date Extracted: 11/09/2018 07:44  
 Instrument ID: A9 Date Analyzed: 11/10/2018 14:51  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-258069/2-A	2018.11.10L LA 043.d	11/10/2018 14:58
MW-207	480-144495-1	2018.11.10L LA 044.d	11/10/2018 15:06
MW-201	480-144495-2	2018.11.10L LA 045.d	11/10/2018 15:13
MW-201 MS	480-144495-2 MS	2018.11.10L LA 046.d	11/10/2018 15:21
MW-201 MSD	480-144495-2 MSD	2018.11.10L LA 047.d	11/10/2018 15:28
DUP-1-20181030	480-144495-4	2018.11.10L LA 049.d	11/10/2018 15:43
EQUIPMENT BLANK	480-144495-5	2018.11.10L LA 050.d	11/10/2018 15:51
MW-205	480-144495-3	2018.11.14L LA 071.d	11/15/2018 02:09



FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: IC 320-255834/5 Date Analyzed: 10/30/2018 13:35  
 Instrument ID: A9 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 2018.10.30ICALA\_005 Heated Purge: (Y/N) N  
 Calibration ID: 41944

	13PFOA					
	AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT	8163503	2.50				
UPPER LIMIT	12245255	2.70				
LOWER LIMIT	4081752	2.30				
LAB SAMPLE ID	CLIENT SAMPLE ID					
ICB 320-255834/9		8227254	2.51			
ICV 320-255834/10		8013101	2.50			
CCV 320-258344/3 CCVIS		7301956	2.54			
CCV 320-259213/3 CCVIS		7992321	2.48			

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  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-258344/3 Date Analyzed: 11/10/2018 10:20  
 Instrument ID: A9 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 2018.11.10LLA\_006.d Heated Purge: (Y/N) N  
 Calibration ID: 41944

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		7301956	2.54				
UPPER LIMIT		10952934	2.74				
LOWER LIMIT		3650978	2.34				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCB 320-258344/1		7534607	2.54				
CCVL 320-258344/2		7298534	2.54				
CCV 320-258354/1		7600397	2.57				
MB 320-258069/1-A		8007162	2.57				
LCS 320-258069/2-A		7798957	2.59				
480-144495-1	MW-207	8149992	2.59				
480-144495-2	MW-201	8249287	2.60				
480-144495-2 MS	MW-201 MS	8017466	2.59				
480-144495-2 MSD	MW-201 MSD	8156117	2.60				
480-144495-4	DUP-1-20181030	7837843	2.59				
480-144495-5	EQUIPMENT BLANK	7874063	2.59				
CCV 320-258354/11		7313423	2.57				

13PFOA = 13C2 PFOA  
 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  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-259213/3 Date Analyzed: 11/14/2018 18:31  
 Instrument ID: A9 GC Column: Acquity ID: 2.1 (mm)  
 Lab File ID (Standard): 2018.11.14LLA\_006.d Heated Purge: (Y/N) N  
 Calibration ID: 41944

	13PFOA					
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	7992321	2.48				
UPPER LIMIT	11988482	2.68				
LOWER LIMIT	3996161	2.28				
LAB SAMPLE ID	CLIENT SAMPLE ID					
CCB 320-259213/1		7752768	2.48			
CCVL 320-259213/2		7717059	2.48			
CCV 320-259234/1		7203267	2.47			
480-144495-3	MW-205	8116484	2.48			
CCV 320-259234/4		7222611	2.47			

13PFOA = 13C2 PFOA  
 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 I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-207 Lab Sample ID: 480-144495-1  
 Matrix: Water Lab File ID: 2018.11.10LLA\_044.d  
 Analysis Method: 537 (modified) Date Collected: 10/30/2018 12:26  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 248.7 (mL) Date Analyzed: 11/10/2018 15:06  
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1  
 Injection Volume: 20 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 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)	11		2.0	0.85
375-95-1	Perfluorononanoic acid (PFNA)	2.6		2.0	0.27
335-76-2	Perfluorodecanoic acid (PFDA)	1.4	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)	ND		2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.9	J B	2.0	0.17
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	69		2.0	0.54
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.35
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	1.9
27619-97-2	6:2 FTS	3.5	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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-207 Lab Sample ID: 480-144495-1  
 Matrix: Water Lab File ID: 2018.11.10LLA\_044.d  
 Analysis Method: 537 (modified) Date Collected: 10/30/2018 12:26  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 248.7 (mL) Date Analyzed: 11/10/2018 15:06  
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1  
 Injection Volume: 20 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	17	*	25-150
STL01893	13C5 PFPeA	20	*	25-150
STL00993	13C2 PFHxA	24	*	25-150
STL01892	13C4 PFHpA	29		25-150
STL00990	13C4 PFOA	31		25-150
STL00995	13C5 PFNA	33		25-150
STL00996	13C2 PFDA	36		25-150
STL00997	13C2 PFUnA	36		25-150
STL00998	13C2 PFDoA	30		25-150
STL02116	13C2 PFTeDA	25		25-150
STL02337	13C3 PFBS	25		25-150
STL00994	18O2 PFHxS	29		25-150
STL00991	13C4 PFOS	33		25-150
STL01056	13C8 FOSA	35		25-150
STL02118	d3-NMeFOSAA	43		25-150
STL02117	d5-NEtFOSAA	37		25-150
STL02279	M2-6:2 FTS	83		25-150
STL02280	M2-8:2 FTS	75		25-150

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_044.d  
 Lims ID: 480-144495-C-1-A  
 Client ID: MW-207  
 Sample Type: Client  
 Inject. Date: 10-Nov-2018 15:06:07 ALS Bottle#: 32 Worklist Smp#: 4  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-144495-c-1-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: A9\Administrator Instrument ID: A9  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 14-Nov-2018 13:11:16 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0303

First Level Reviewer: mongkols Date: 14-Nov-2018 13:11:16

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	1.366	1.352	0.014	0.528	1231885	0.4151	16.6	1315	M
D 3 13C5 PFPeA	267.90	> 223.00	1.629	1.616	0.013	0.630	1406179	0.4978	19.9	256	M
D 47 13C3 PFBS	301.90	> 83.00	1.660	1.651	0.009	0.641	22570	0.5781	24.9	19.3	M
D 7 13C2 PFHxA	315.00	> 270.00	1.902	1.893	0.009	0.735	1818416	0.6106	24.4	929	
D 9 13C4 PFHpA	367.00	> 322.00	2.229	2.216	0.013	0.861	2527646	0.7219	28.9	2555	
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.241	2.225	0.016	1.000	39056	0.0471		1.9	M
	399.00	> 99.00	2.241	2.225	0.016	1.000	15544	2.51(1.90-5.70)		2.1	M
D 11 18O2 PFHxS	403.00	> 84.00	2.241	2.229	0.012	0.866	1555535	0.6829	28.9	2722	
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.573	2.539	0.034	1.006	50407	0.0865		42.0	
D 12 M2-6:2 FTS	429.00	> 81.00	2.558	2.543	0.015	0.988	634572	1.97	83.0	161	
15 Perfluorooctanoic acid	413.00	> 369.00	2.588	2.569	0.019	1.000	299773	0.2786		3.5	M
	413.00	> 169.00	2.588	2.569	0.019	1.000	146176	2.05(1.36-4.08)		63.3	
* 62 13C2 PFOA	415.00	> 370.00	2.588	2.569	0.019		8149992	2.50		6105	
D 14 13C4 PFOA	417.00	> 372.00	2.588	2.573	0.015	1.000	2488402	0.7760	31.0	3159	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
17 Perfluorooctanesulfonic acid										
499.00 > 80.00	2.966	2.945	0.021	1.000	1379071	1.71			330	
499.00 > 99.00	2.966	2.945	0.021	1.000	305923		4.51(2.04-6.12)		379	
20 Perfluorononanoic acid										
463.00 > 419.00	2.966	2.945	0.021	1.000	63278	0.0650			2.2	M
463.00 > 169.00	2.966	2.945	0.021	1.000	16703		3.79(2.68-8.03)		8.1	M
D 18 13C4 PFOS										
503.00 > 80.00	2.966	2.949	0.017	1.146	1790758	0.7776		32.5	742	
D 19 13C5 PFNA										
468.00 > 423.00	2.966	2.949	0.017	1.146	2430882	0.8199		32.8	2421	
D 26 M2-8:2 FTS										
529.00 > 81.00	3.314	3.281	0.033	1.281	71261	1.78		74.5	232	
22 Perfluorooctanesulfonamide										
498.00 > 78.00	3.314	3.295	0.019	1.000	5581	0.004198			9.8	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.330	3.295	0.035	1.000	40169	0.0337			2.7	
513.00 > 169.00	3.314	3.295	0.019	0.995	3555		11.30(7.12-21.35)		3.8	
D 21 13C8 FOSA										
506.00 > 78.00	3.314	3.298	0.016	1.281	1106169	0.8678		34.7	4674	
D 23 13C2 PFDA										
515.00 > 470.00	3.330	3.298	0.032	1.287	2742356	0.8981		35.9	3782	
28 N-methylperfluorooctanesulfonamido										
570.00 > 419.00	3.468	3.451	0.017	1.000	7171	0.0127			5.2	M
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.468	3.452	0.016	1.340	1408541	1.07		42.7	1788	
33 N-ethylperfluorooctanesulfonamidoa										
584.00 > 419.00	3.641	3.622	0.019	1.000	3475	0.009602			12.1	M
D 30 13C2 PFUnA										
565.00 > 520.00	3.641	3.623	0.018	1.407	2292103	0.8988		36.0	4490	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.641	3.623	0.018	1.407	989592	0.9205		36.8	1097	
D 36 13C2 PFDoA										
615.00 > 570.00	3.935	3.918	0.017	1.521	2368330	0.7540		30.2	4123	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.428	4.397	0.031	1.711	1466394	0.6247		25.0	3872	

### QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_044.d

Injection Date: 10-Nov-2018 15:06:07

Instrument ID: A9

Lims ID: 480-144495-C-1-A

Lab Sample ID: 320-144495-1

Client ID: MW-207

Operator ID: A9\Administrator

ALS Bottle#: 32

Worklist Smp#: 4

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

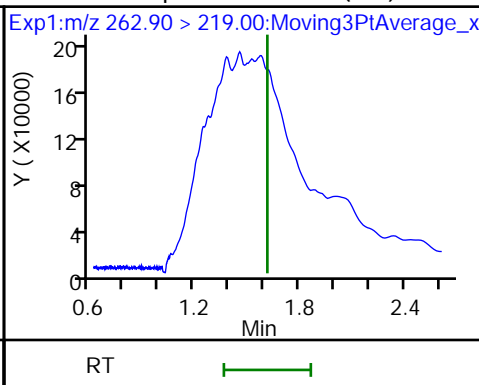
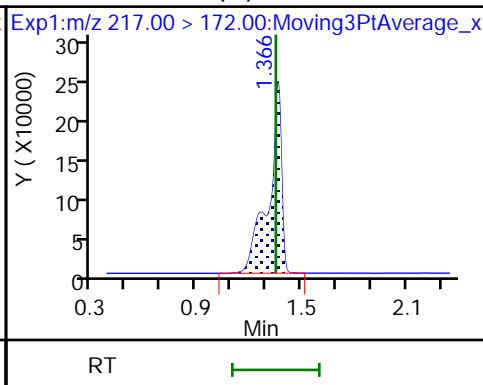
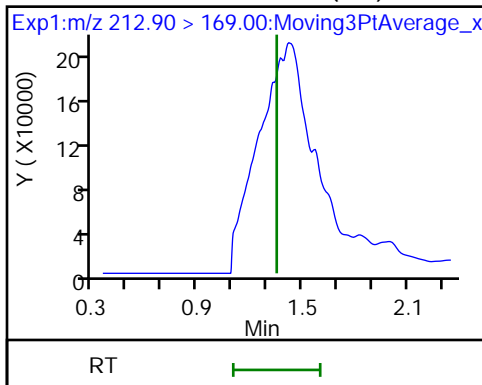
Method: PFAS\_A9

Limit Group: LC PFC ICAL

2 Perfluorobutanoic acid (ND)

D 1 13C4 PFBA (M)

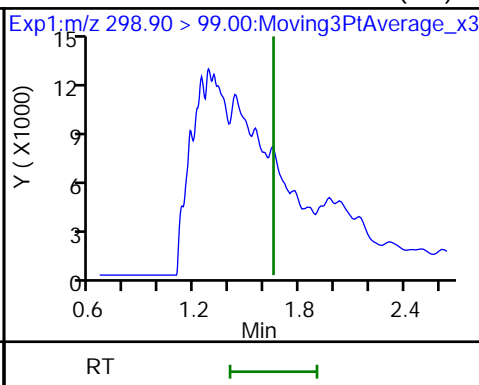
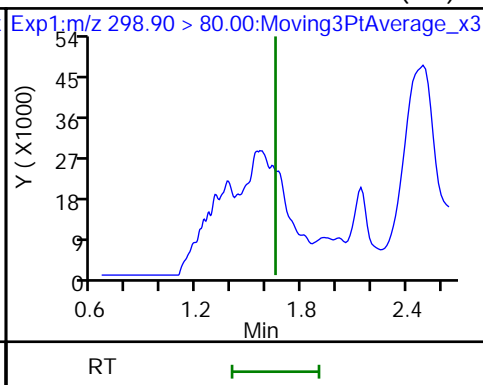
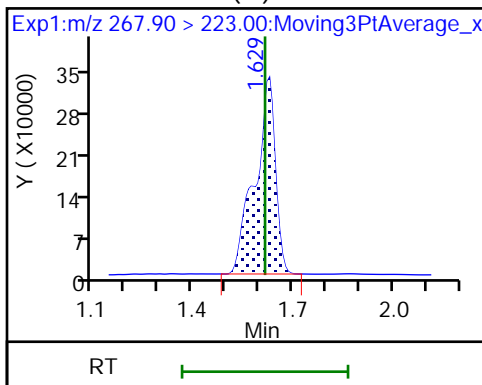
4 Perfluoropentanoic acid (ND)



D 3 13C5 PFPeA (M)

5 Perfluorobutanesulfonic acid (ND)

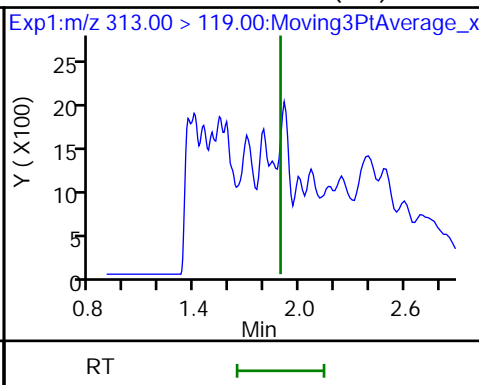
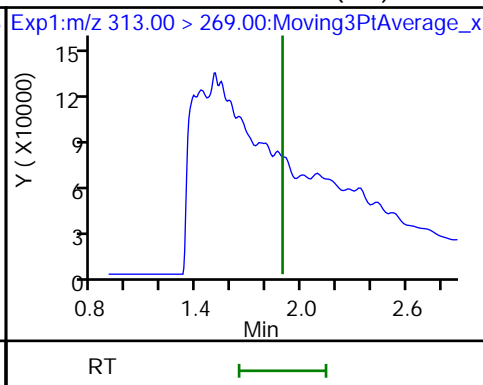
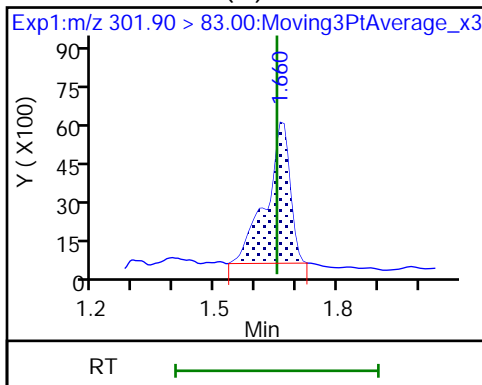
5 Perfluorobutanesulfonic acid (ND)



D 47 13C3 PFBS (M)

6 Perfluorohexanoic acid (ND)

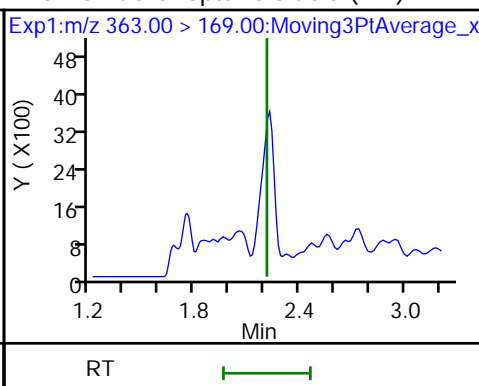
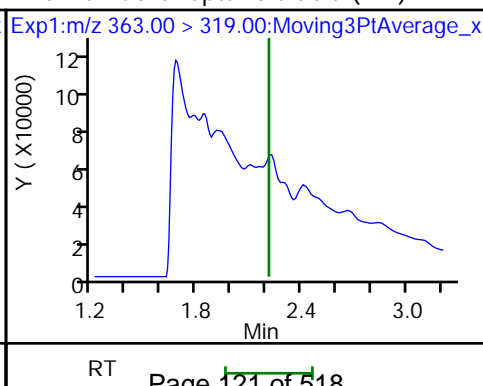
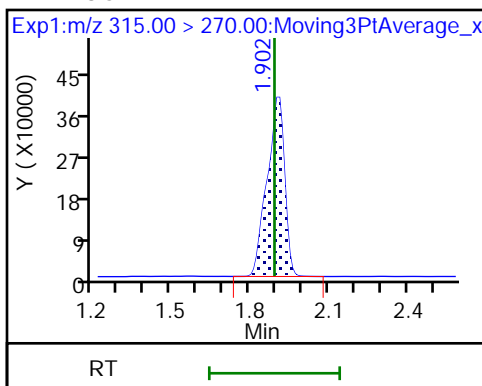
6 Perfluorohexanoic acid (ND)



D 7 13C2 PFHxA

10 Perfluoroheptanoic acid (ND)

10 Perfluoroheptanoic acid (ND)

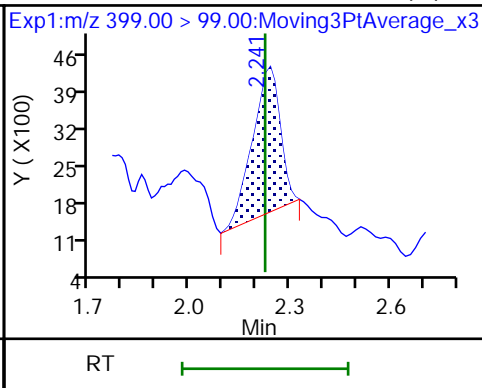
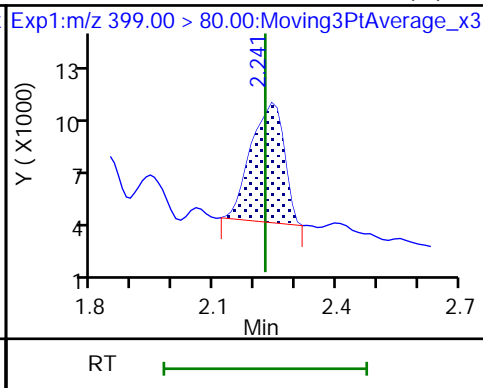
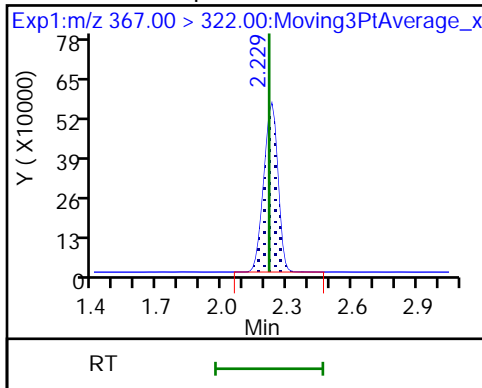




D 9 13C4 PFHpA

8 Perfluorohexanesulfonic acid (M)

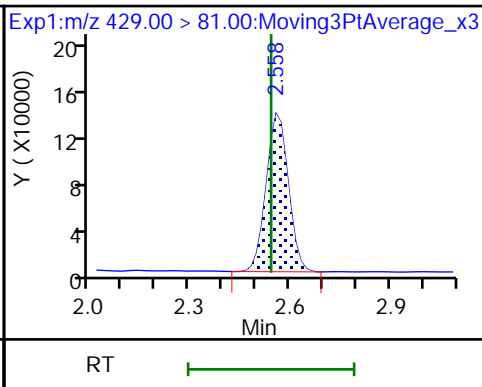
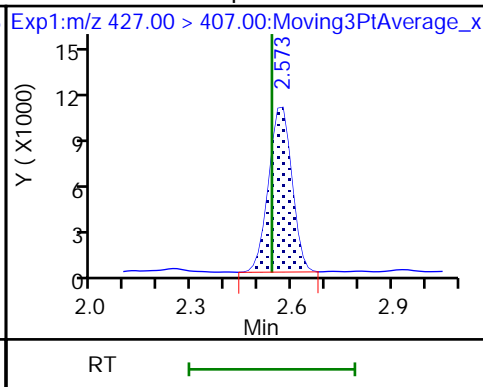
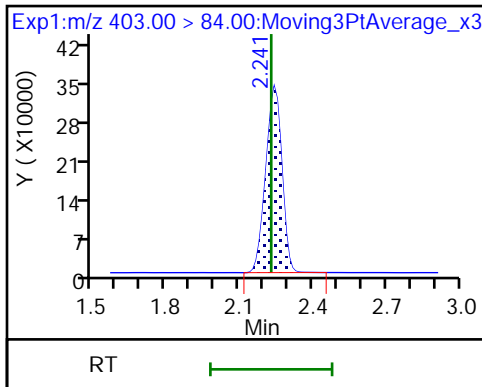
8 Perfluorohexanesulfonic acid (M)



D 11 18O2 PFHxS

13 1H,1H,2H,2H-perfluorooctanesulfonD

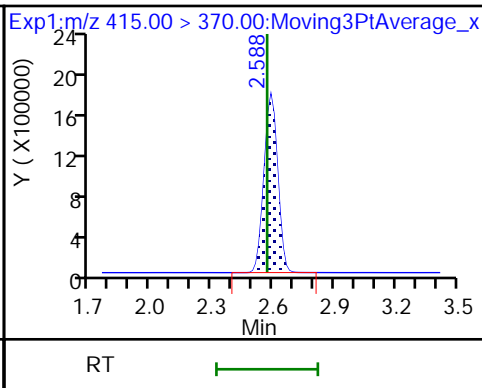
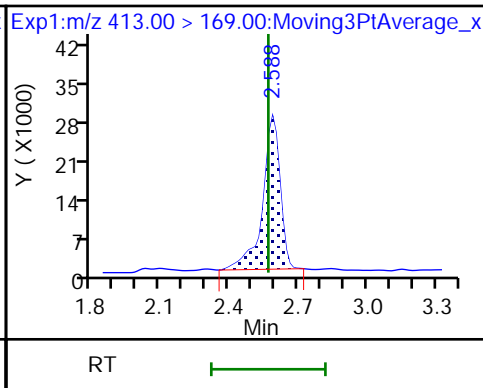
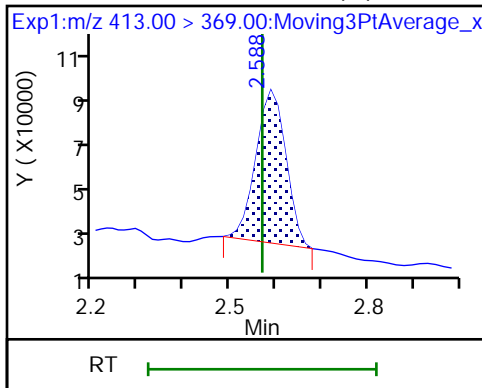
12 M2-6:2 FTS



15 Perfluorooctanoic acid (M)

15 Perfluorooctanoic acid

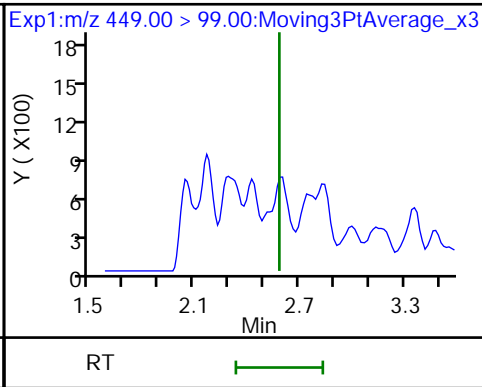
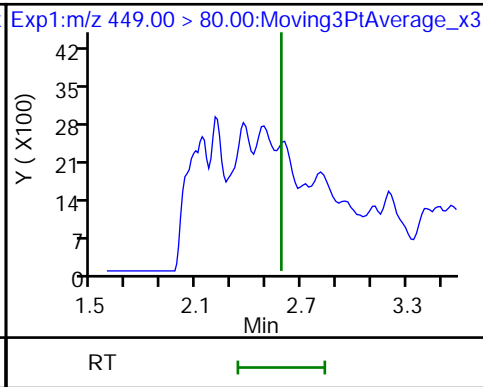
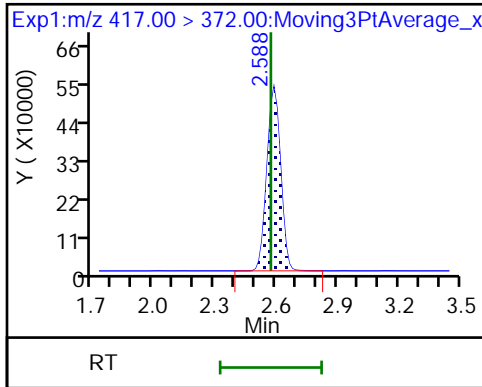
\* 62 13C2 PFOA

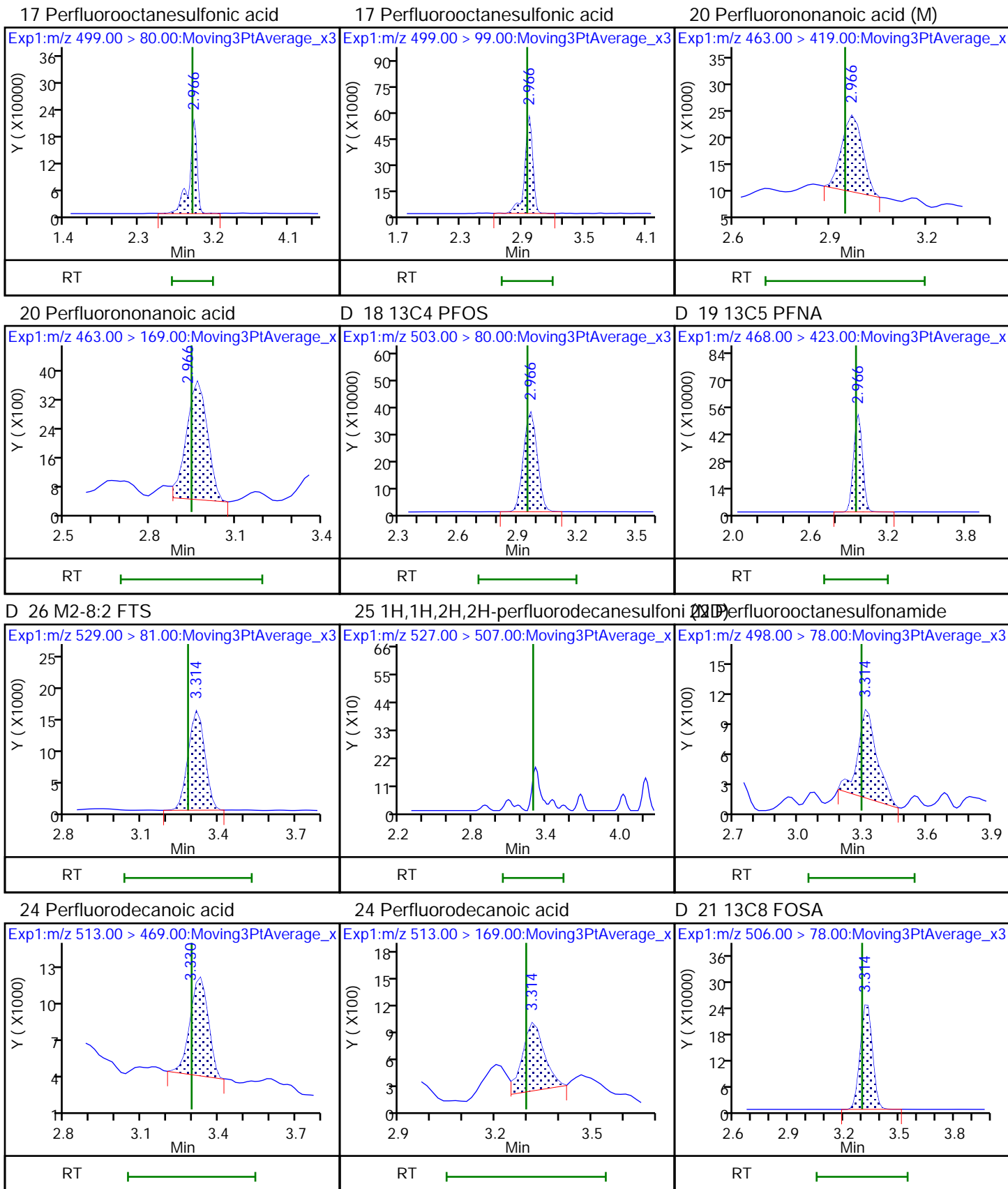


D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid (ND)

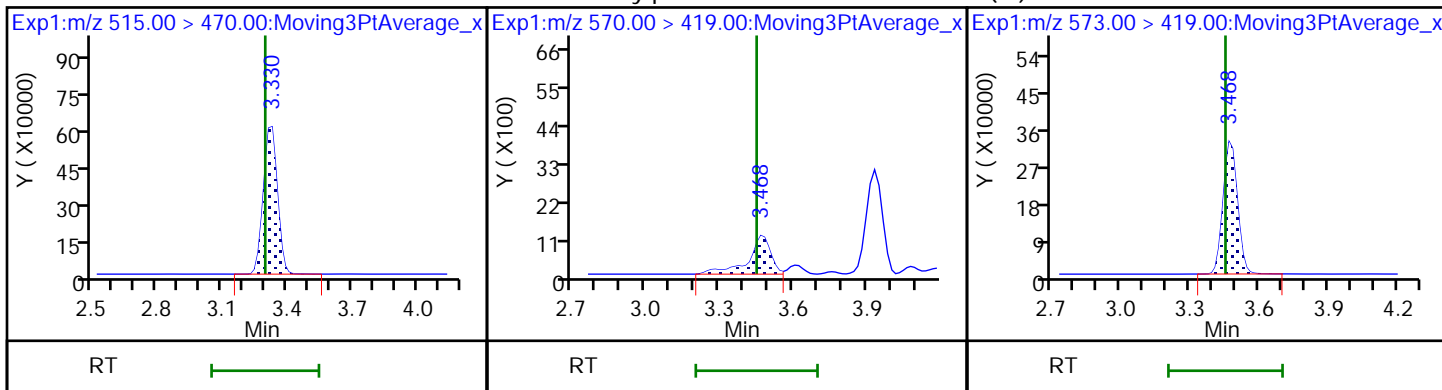
16 Perfluoroheptanesulfonic acid (ND)





D 23 13C2 PFDA

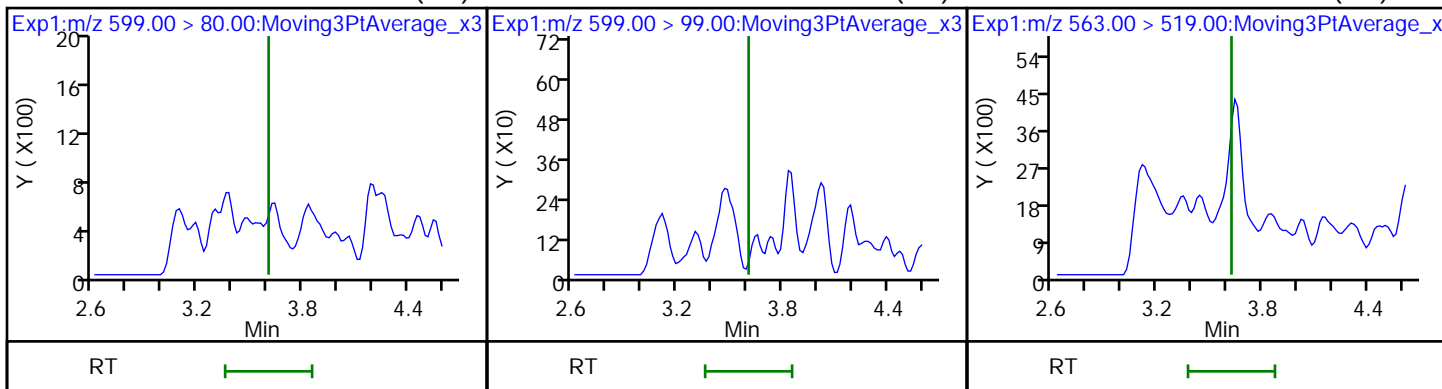
28 N-methylperfluorooctanesulfonamid(D) d3-NMeFOSAA



29 Perfluorodecanesulfonic acid (ND)

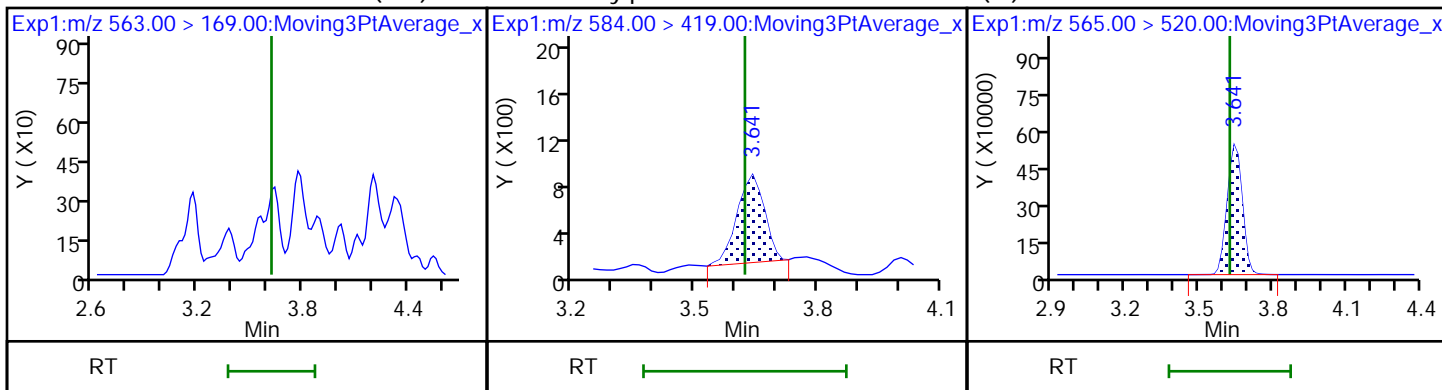
29 Perfluorodecanesulfonic acid (ND)

31 Perfluoroundecanoic acid (ND)



31 Perfluoroundecanoic acid (ND)

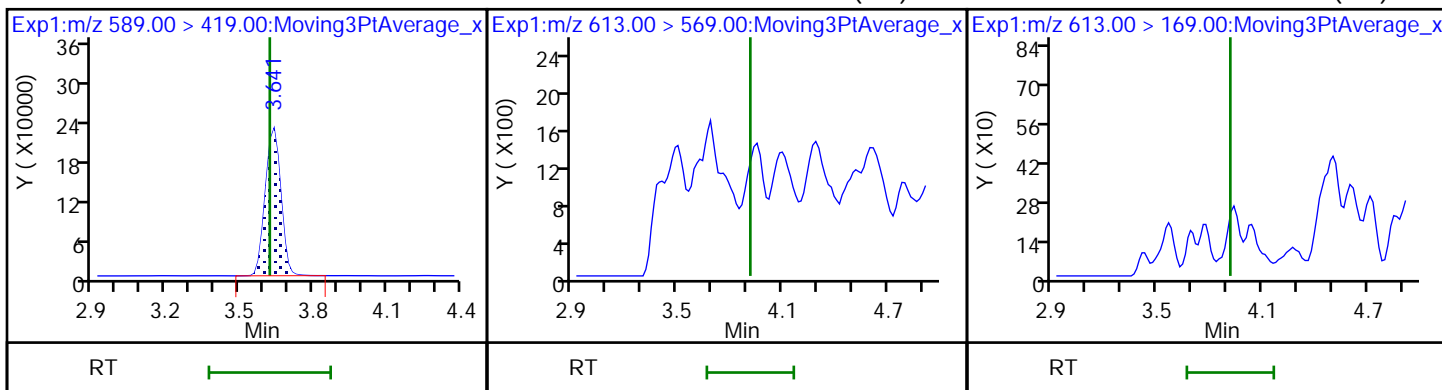
33 N-ethylperfluorooctanesulfonamid(D) 13C2 PFUnA



D 32 d5-NEtFOSAA

37 Perfluorododecanoic acid (ND)

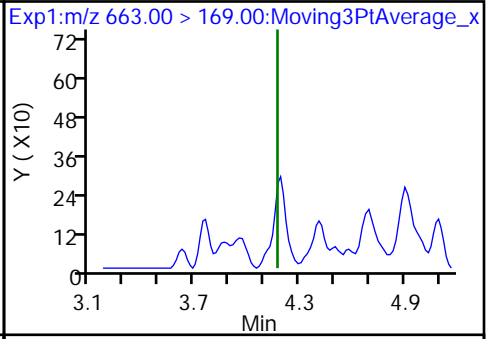
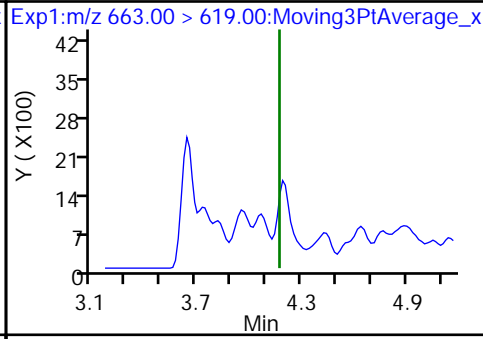
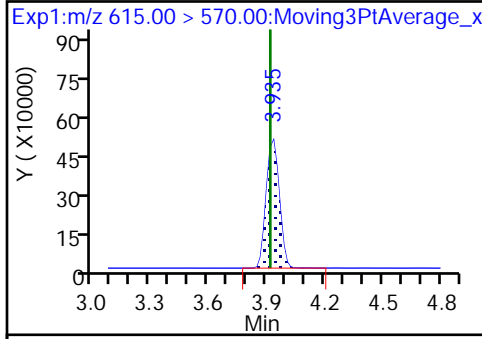
37 Perfluorododecanoic acid (ND)



D 36 13C2 PFDaA

41 Perfluorotridecanoic acid (ND)

41 Perfluorotridecanoic acid (ND)



RT

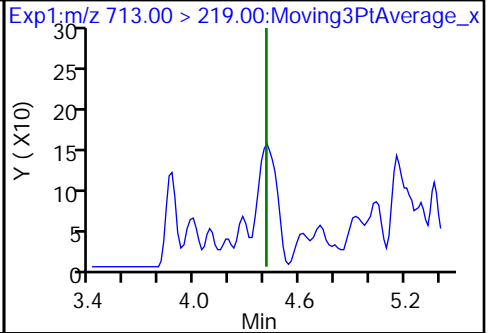
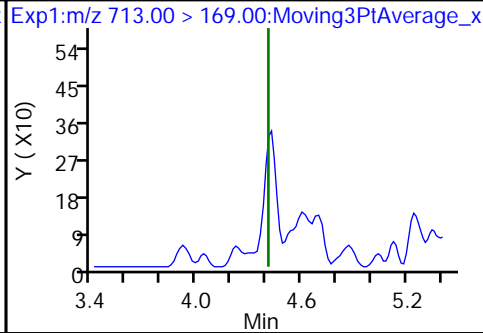
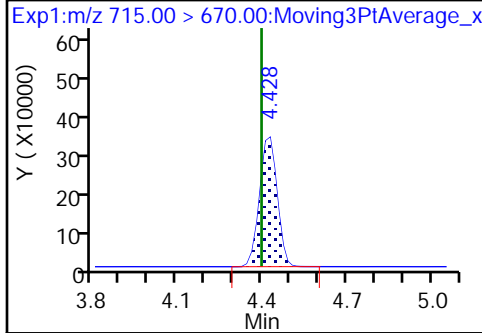
RT

RT

D 43 13C2 PFTeDA

42 Perfluorotetradecanoic acid (ND)

42 Perfluorotetradecanoic acid (ND)



RT

RT

RT

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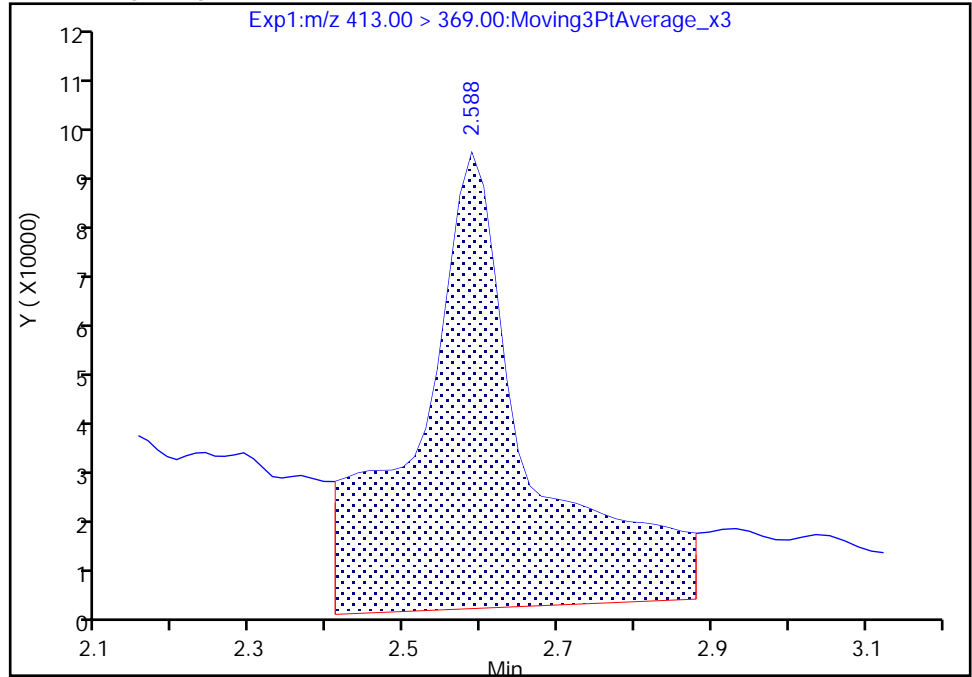
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Injection Date: 10-Nov-2018 15:06:07 Instrument ID: A9  
Lims ID: 480-144495-C-1-A Lab Sample ID: 320-144495-1  
Client ID: MW-207  
Operator ID: A9\Administrator ALS Bottle#: 32 Worklist Smp#: 4  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

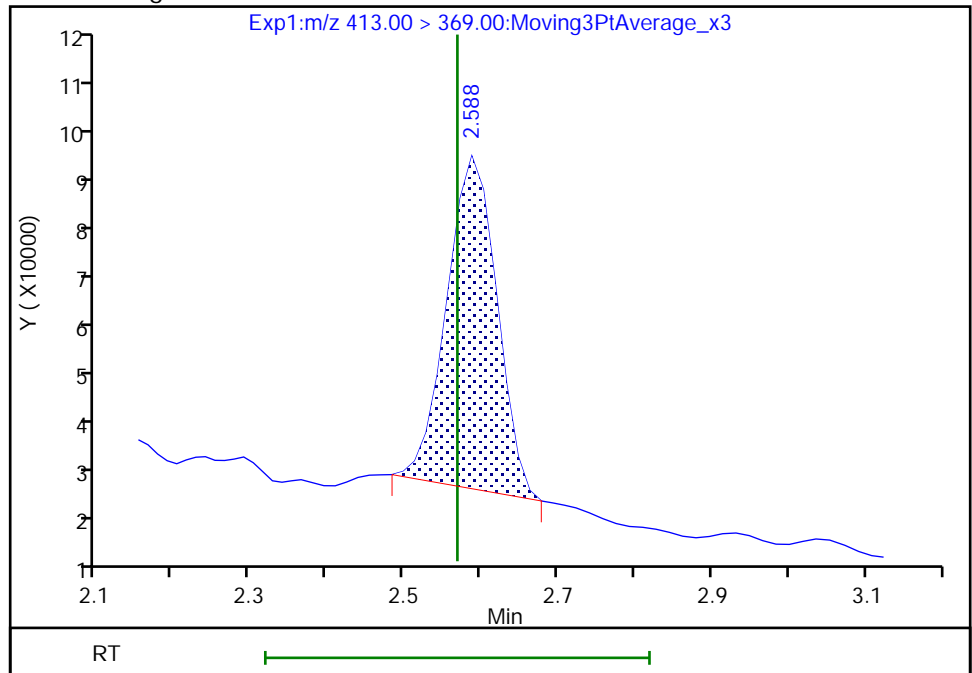
RT: 2.59  
Area: 922862  
Amount: 0.857606  
Amount Units: ng/ml

Processing Integration Results



RT: 2.59  
Area: 299773  
Amount: 0.278576  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 14-Nov-2018 13:10:45  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 126 of 518

TestAmerica Sacramento

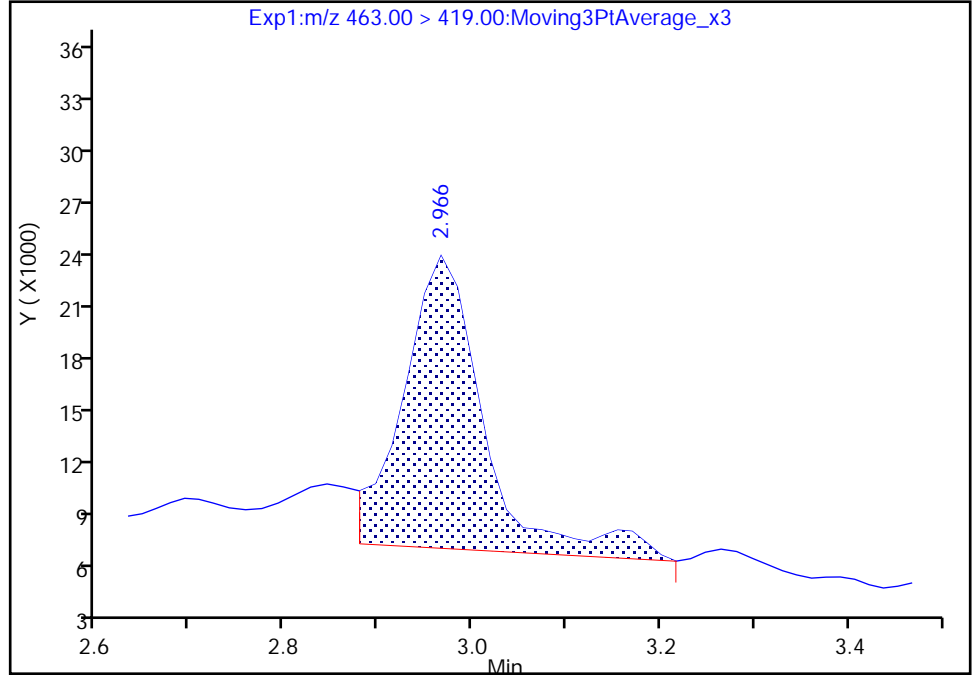
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Injection Date: 10-Nov-2018 15:06:07 Instrument ID: A9  
Lims ID: 480-144495-C-1-A Lab Sample ID: 320-144495-1  
Client ID: MW-207  
Operator ID: A9\Administrator ALS Bottle#: 32 Worklist Smp#: 4  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

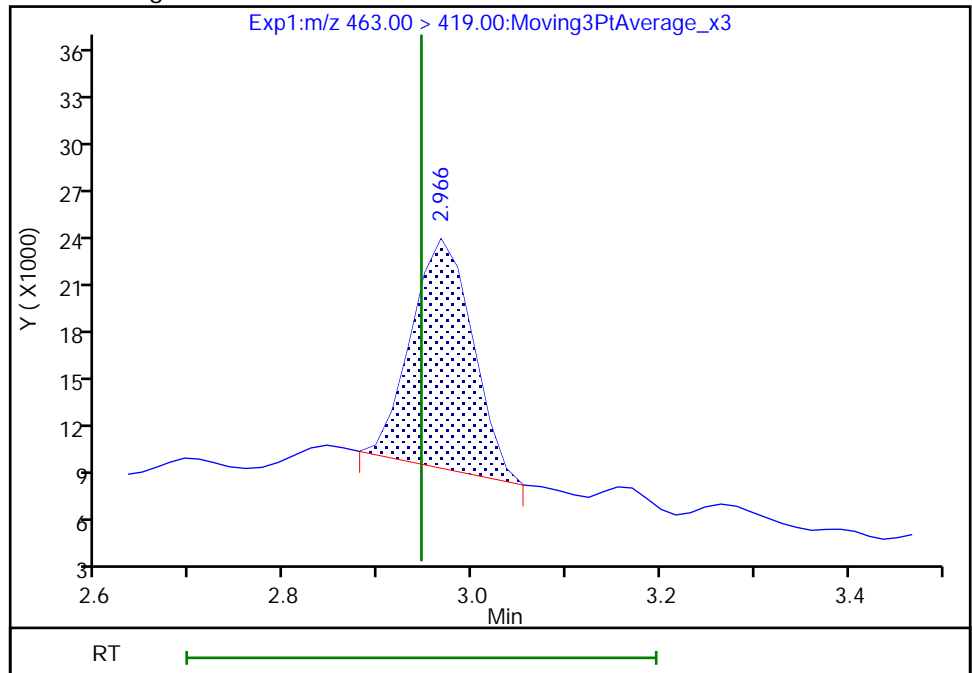
RT: 2.97  
Area: 95790  
Amount: 0.098405  
Amount Units: ng/ml

Processing Integration Results



RT: 2.97  
Area: 63278  
Amount: 0.065006  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

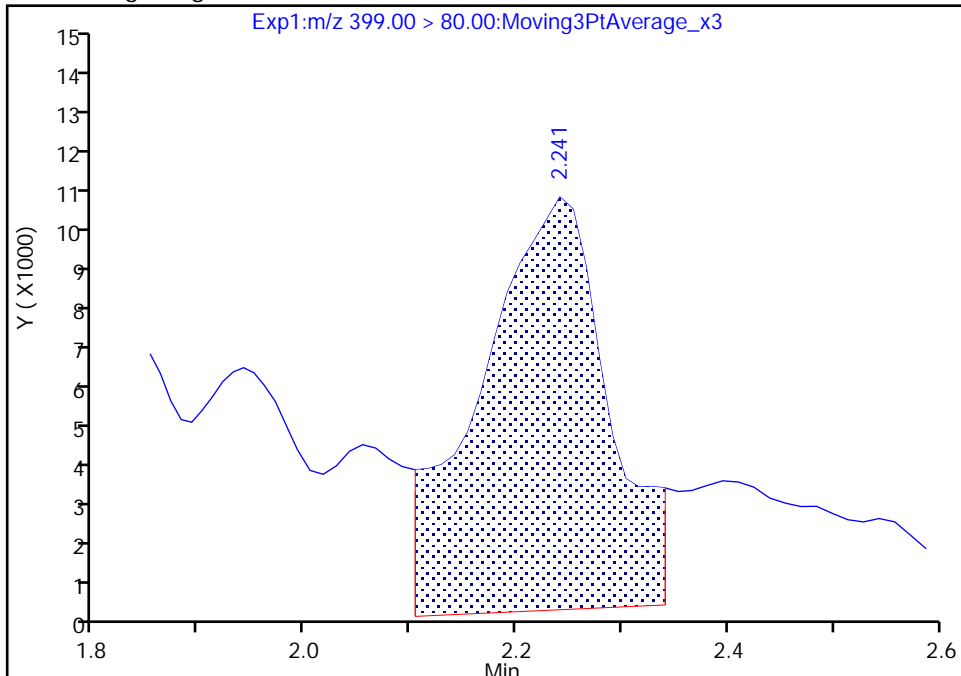
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Injection Date: 10-Nov-2018 15:06:07 Instrument ID: A9  
Lims ID: 480-144495-C-1-A Lab Sample ID: 320-144495-1  
Client ID: MW-207  
Operator ID: A9\Administrator ALS Bottle#: 32 Worklist Smp#: 4  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

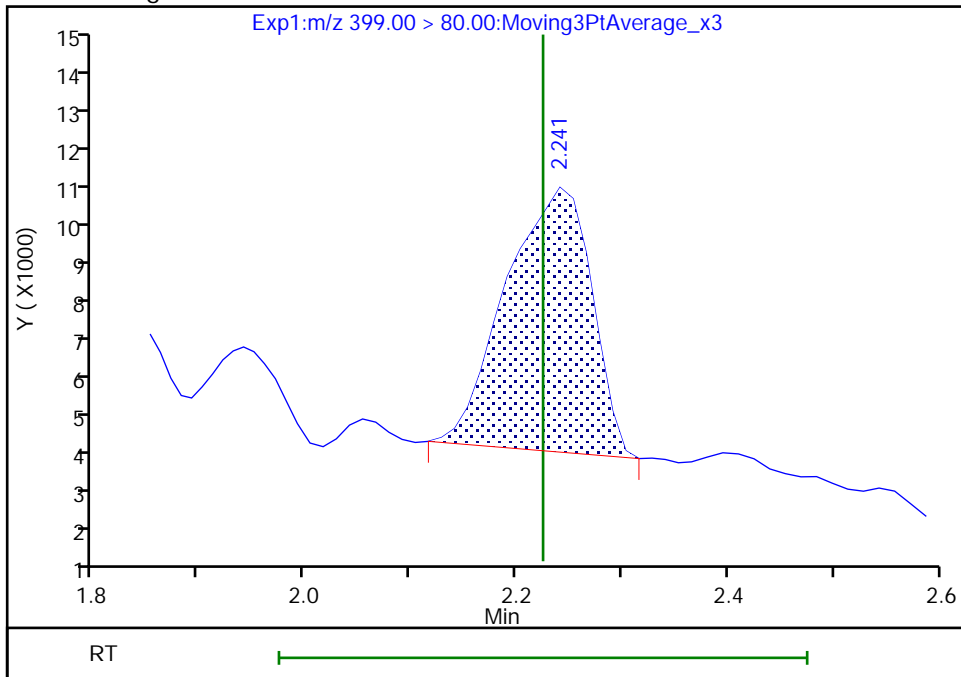
RT: 2.24  
Area: 85378  
Amount: 0.103044  
Amount Units: ng/ml

Processing Integration Results



RT: 2.24  
Area: 39056  
Amount: 0.047137  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

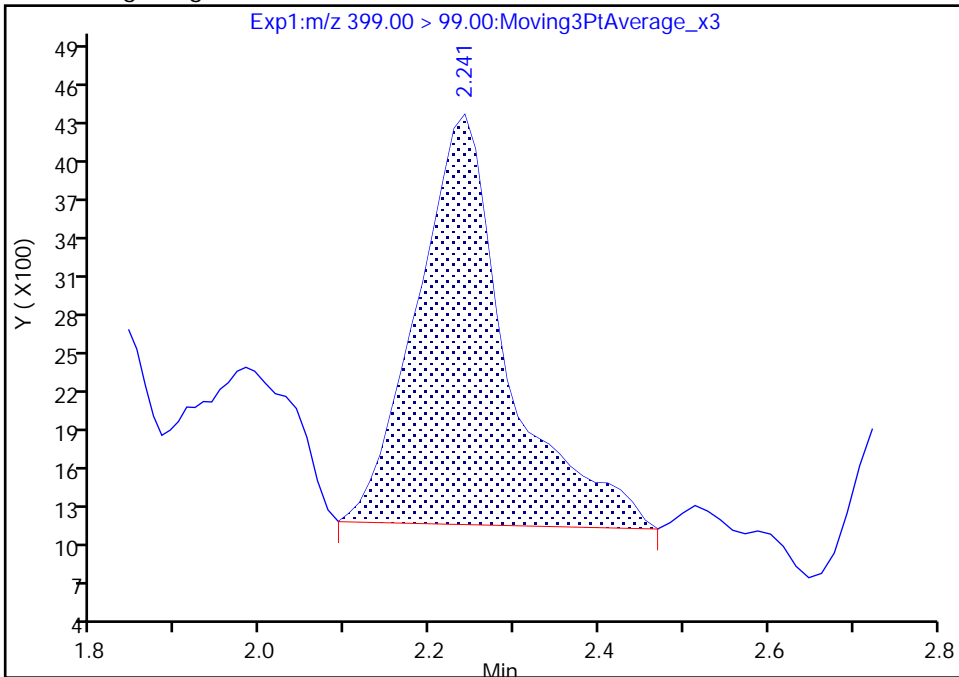
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_044.d  
Injection Date: 10-Nov-2018 15:06:07 Instrument ID: A9  
Lims ID: 480-144495-C-1-A Lab Sample ID: 320-144495-1  
Client ID: MW-207  
Operator ID: A9\Administrator ALS Bottle#: 32 Worklist Smp#: 4  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

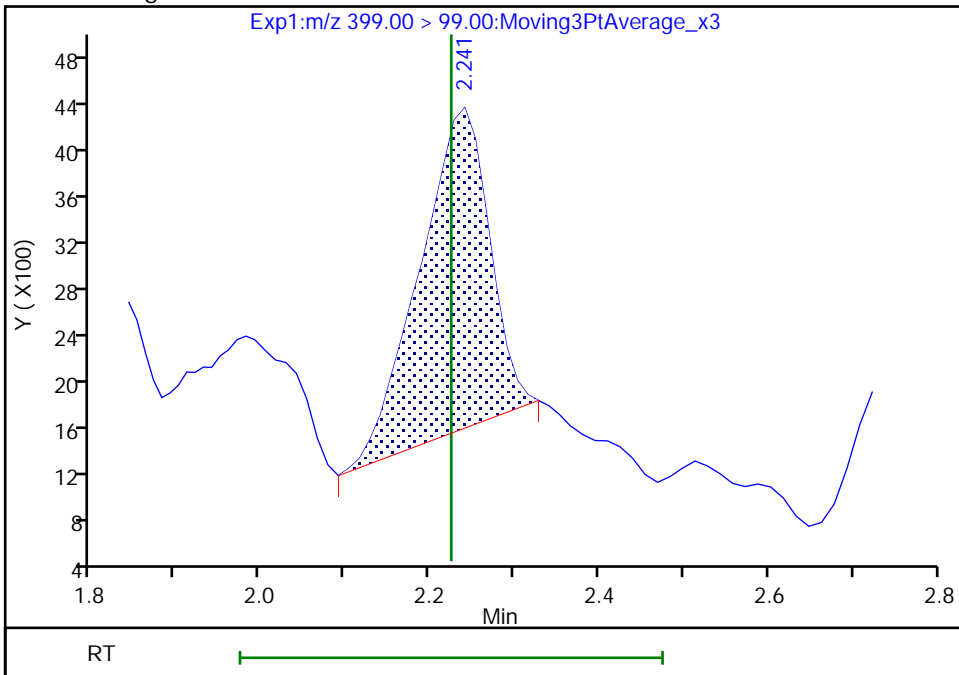
RT: 2.24  
Area: 23247  
Amount: 0.103044  
Amount Units: ng/ml

Processing Integration Results



RT: 2.24  
Area: 15544  
Amount: 0.047137  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 14-Nov-2018 13:10:39

Audit Action: Manually Integrated

Audit Reason: Baseline



TestAmerica Sacramento

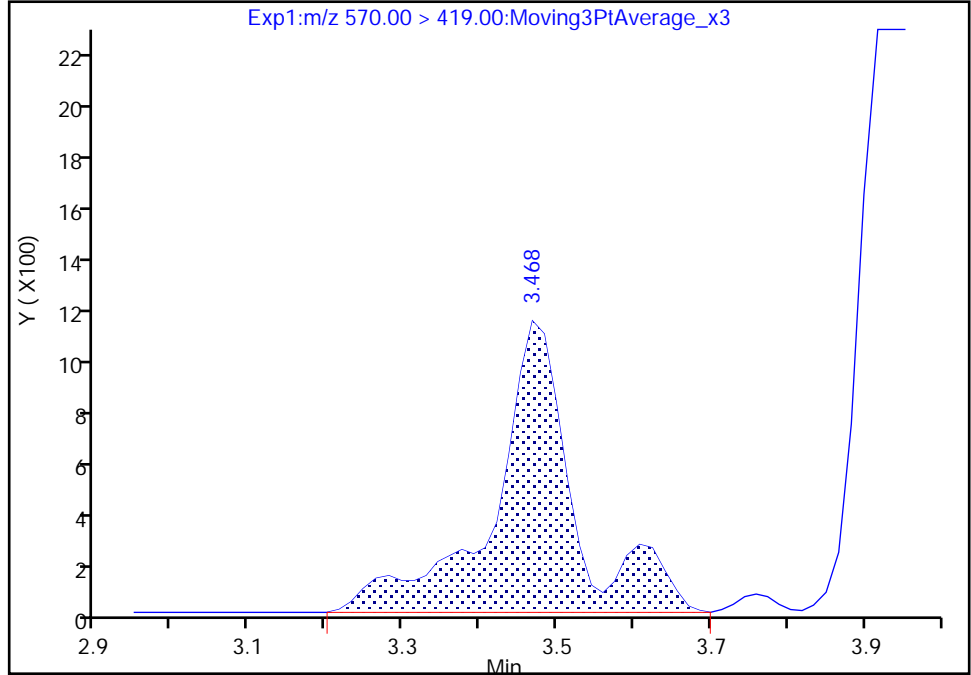
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_044.d  
Injection Date: 10-Nov-2018 15:06:07 Instrument ID: A9  
Lims ID: 480-144495-C-1-A Lab Sample ID: 320-144495-1  
Client ID: MW-207  
Operator ID: A9\Administrator ALS Bottle#: 32 Worklist Smp#: 4  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

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

Signal: 1

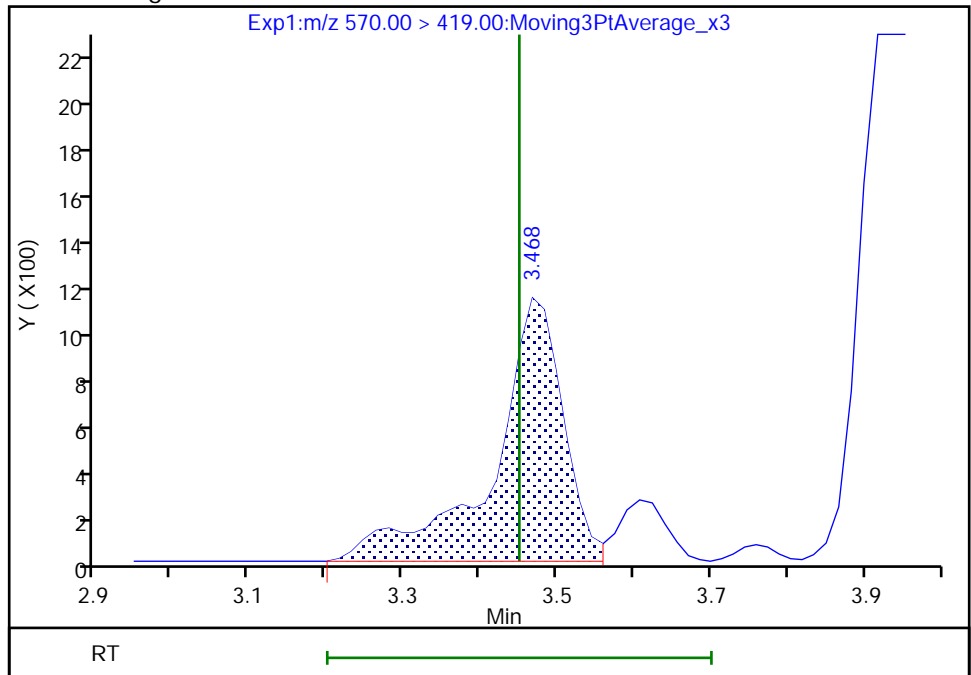
RT: 3.47  
Area: 8295  
Amount: 0.014722  
Amount Units: ng/ml

Processing Integration Results



RT: 3.47  
Area: 7171  
Amount: 0.012727  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

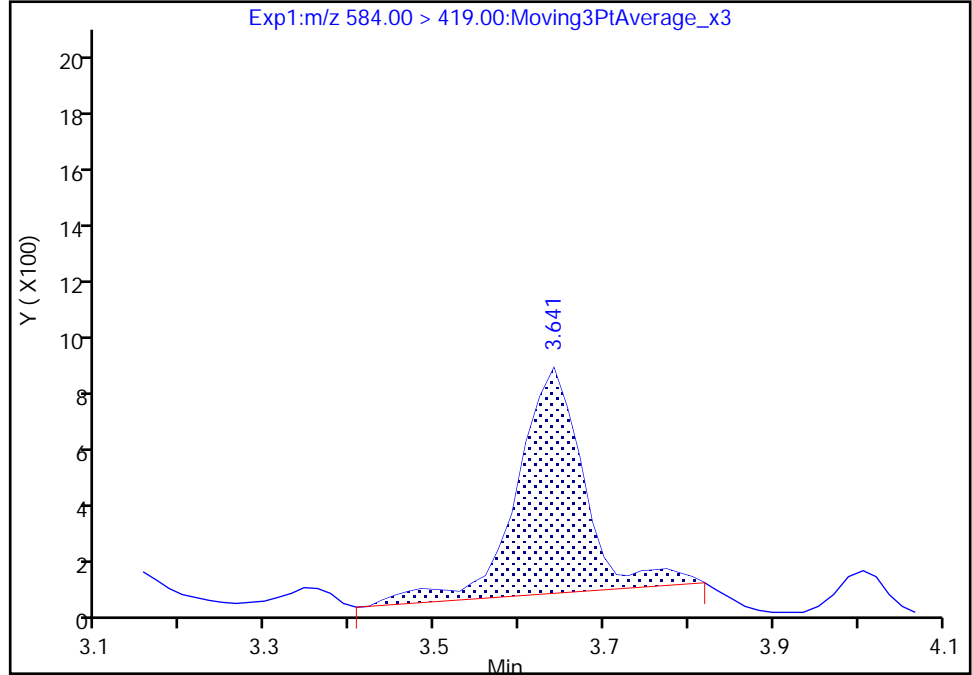
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Injection Date: 10-Nov-2018 15:06:07 Instrument ID: A9  
Lims ID: 480-144495-C-1-A Lab Sample ID: 320-144495-1  
Client ID: MW-207  
Operator ID: A9\Administrator ALS Bottle#: 32 Worklist Smp#: 4  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

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

Signal: 1

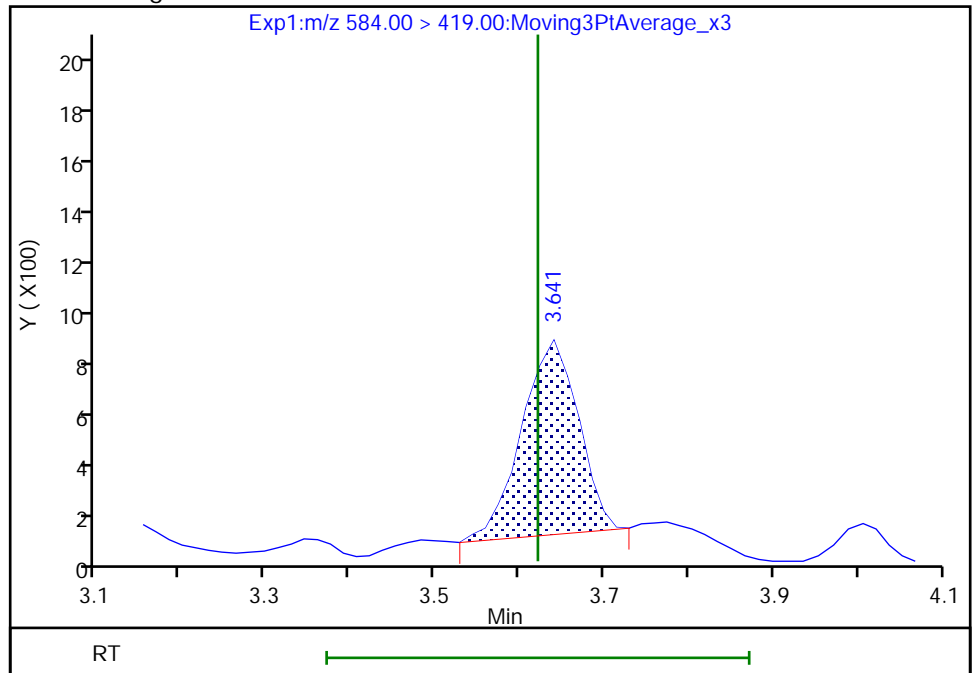
RT: 3.64  
Area: 4344  
Amount: 0.012003  
Amount Units: ng/ml

Processing Integration Results



RT: 3.64  
Area: 3475  
Amount: 0.009602  
Amount Units: ng/ml

Manual Integration Results



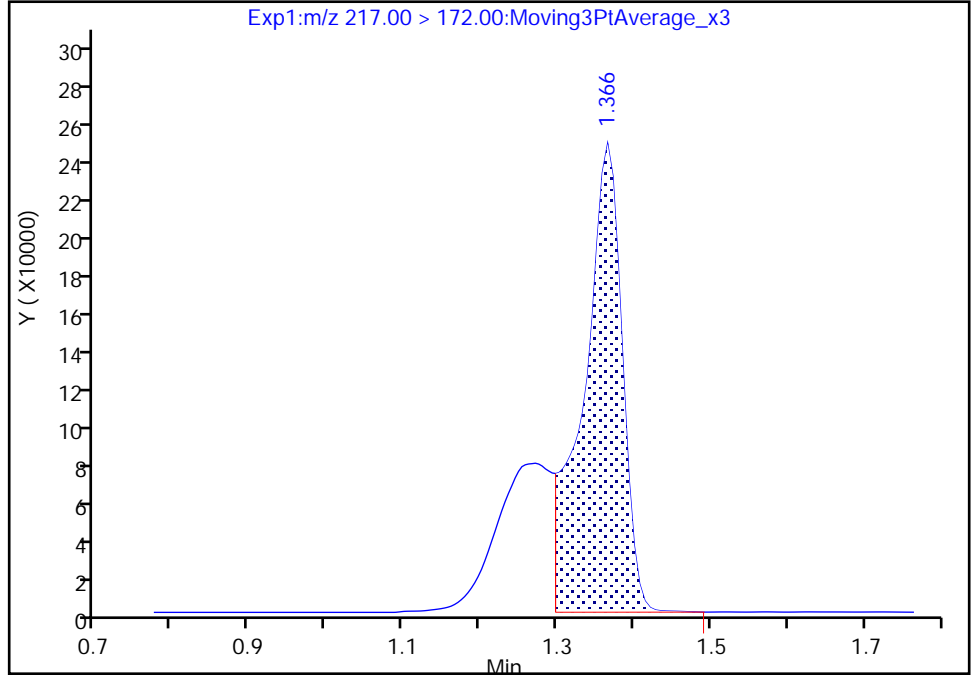
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_044.d  
Injection Date: 10-Nov-2018 15:06:07 Instrument ID: A9  
Lims ID: 480-144495-C-1-A Lab Sample ID: 320-144495-1  
Client ID: MW-207  
Operator ID: A9\Administrator ALS Bottle#: 32 Worklist Smp#: 4  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

D 1 13C4 PFBA, CAS: STL00992  
Signal: 1

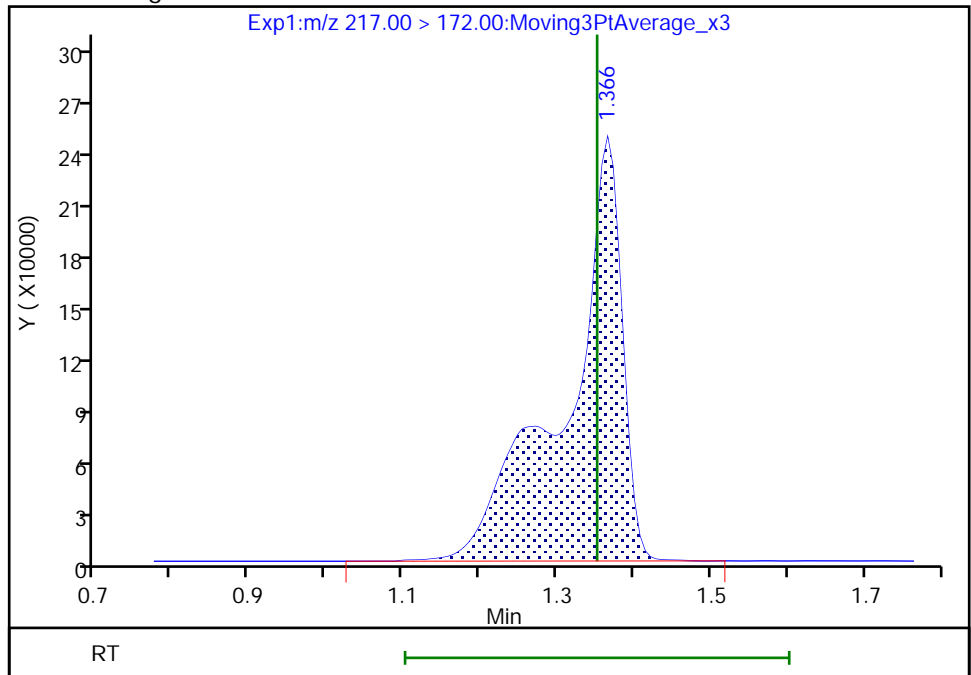
RT: 1.37  
Area: 843553  
Amount: 0.284247  
Amount Units: ng/ml

Processing Integration Results



RT: 1.37  
Area: 1231885  
Amount: 0.415101  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

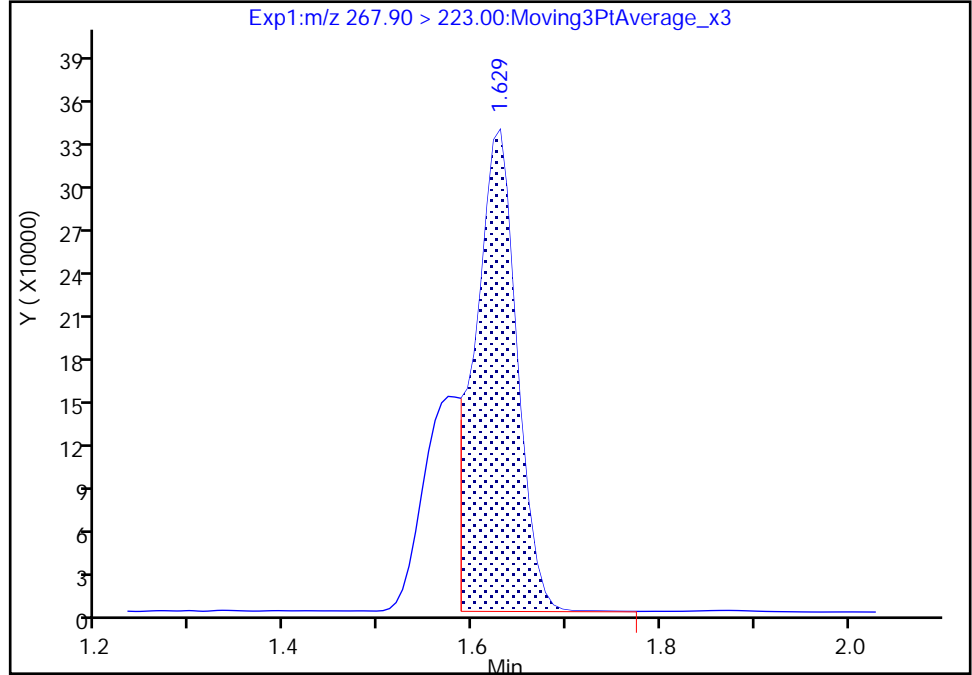
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_044.d  
Injection Date: 10-Nov-2018 15:06:07 Instrument ID: A9  
Lims ID: 480-144495-C-1-A Lab Sample ID: 320-144495-1  
Client ID: MW-207  
Operator ID: A9\Administrator ALS Bottle#: 32 Worklist Smp#: 4  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

D 3 13C5 PFPeA, CAS: STL01893

Signal: 1

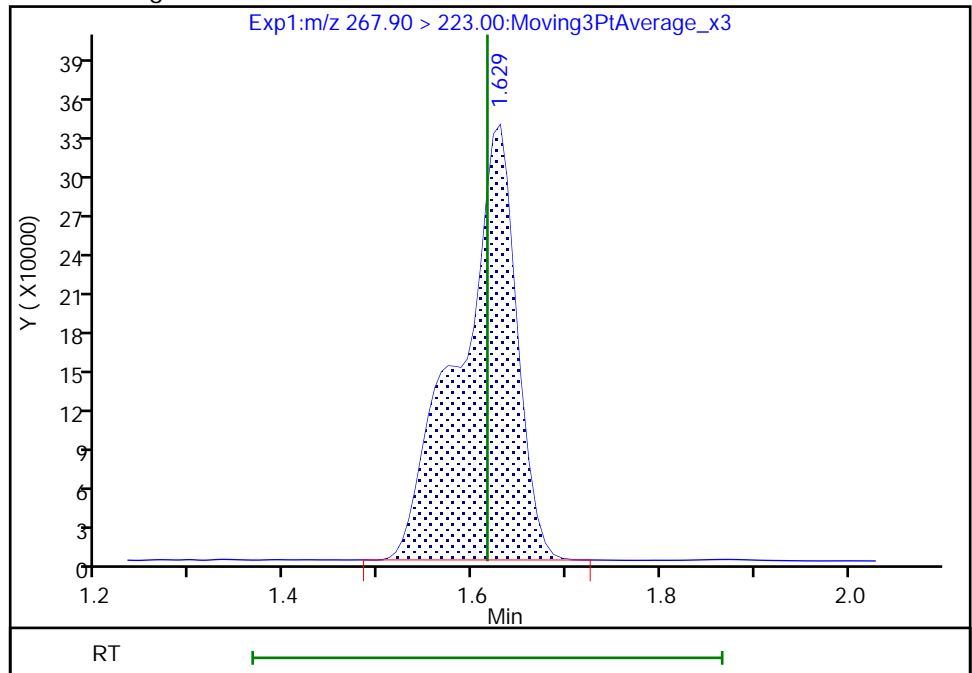
RT: 1.63  
Area: 1014859  
Amount: 0.359286  
Amount Units: ng/ml

Processing Integration Results



RT: 1.63  
Area: 1406179  
Amount: 0.497823  
Amount Units: ng/ml

Manual Integration Results



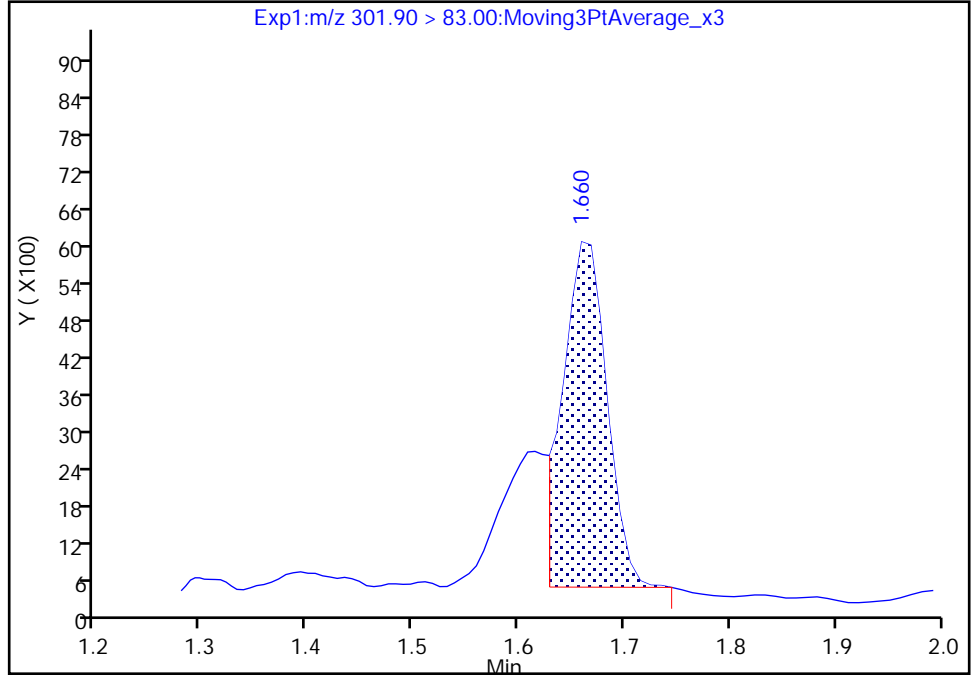
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_044.d  
Injection Date: 10-Nov-2018 15:06:07 Instrument ID: A9  
Lims ID: 480-144495-C-1-A Lab Sample ID: 320-144495-1  
Client ID: MW-207  
Operator ID: A9\Administrator ALS Bottle#: 32 Worklist Smp#: 4  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

**D 47 13C3 PFBS, CAS: STL02337**  
Signal: 1

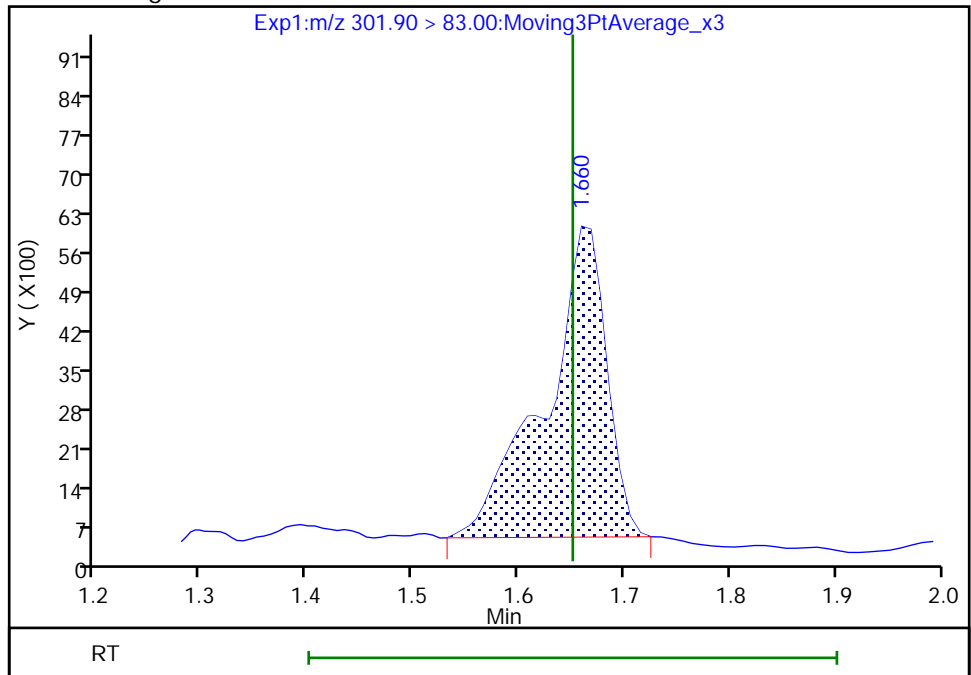
RT: 1.66  
Area: 15997  
Amount: 0.409737  
Amount Units: ng/ml

Processing Integration Results



RT: 1.66  
Area: 22570  
Amount: 0.578094  
Amount Units: ng/ml

Manual Integration Results



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-201 Lab Sample ID: 480-144495-2  
 Matrix: Water Lab File ID: 2018.11.10LLA\_045.d  
 Analysis Method: 537 (modified) Date Collected: 10/30/2018 13:27  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 246.1(mL) Date Analyzed: 11/10/2018 15:13  
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1  
 Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	3.8		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)	0.34	J	2.0	0.25
335-67-1	Perfluorooctanoic acid (PFOA)	9.2		2.0	0.86
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	0.56
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)	ND		2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.3	J B	2.0	0.17
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.9	J	2.0	0.55
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.33
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.36
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic 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: <u>TestAmerica Sacramento</u>	Job No.: <u>480-144495-1</u>
SDG No.: _____	
Client Sample ID: <u>MW-201</u>	Lab Sample ID: <u>480-144495-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.11.10LLA_045.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>10/30/2018 13:27</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>11/09/2018 07:44</u>
Sample wt/vol: <u>246.1 (mL)</u>	Date Analyzed: <u>11/10/2018 15:13</u>
Con. Extract Vol.: <u>10.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>258354</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	52		25-150
STL01893	13C5 PFPeA	71		25-150
STL00993	13C2 PFHxA	81		25-150
STL01892	13C4 PFHpA	90		25-150
STL00990	13C4 PFOA	93		25-150
STL00995	13C5 PFNA	95		25-150
STL00996	13C2 PFDA	84		25-150
STL00997	13C2 PFUnA	94		25-150
STL00998	13C2 PFDoA	84		25-150
STL02116	13C2 PFTeDA	84		25-150
STL02337	13C3 PFBS	78		25-150
STL00994	18O2 PFHxS	93		25-150
STL00991	13C4 PFOS	94		25-150
STL01056	13C8 FOSA	90		25-150
STL02118	d3-NMeFOSAA	75		25-150
STL02117	d5-NEtFOSAA	76		25-150
STL02279	M2-6:2 FTS	106		25-150
STL02280	M2-8:2 FTS	69		25-150

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_045.d  
 Lims ID: 480-144495-C-2-A  
 Client ID: MW-201  
 Sample Type: Client  
 Inject. Date: 10-Nov-2018 15:13:37 ALS Bottle#: 33 Worklist Smp#: 5  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-144495-c-2-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: A9\Administrator Instrument ID: A9  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 14-Nov-2018 13:13:26 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0303

First Level Reviewer: mongkols Date: 14-Nov-2018 13:13:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.90 > 169.00	1.373	1.352	0.021	1.000	135352	0.0924			2.8	M
D 1 13C4 PFBA										
217.00 > 172.00	1.373	1.352	0.021	0.528	3913741	1.30		52.1	4586	
D 3 13C5 PFPeA										
267.90 > 223.00	1.630	1.616	0.014	0.626	5064763	1.77		70.9	2302	
D 47 13C3 PFBS										
301.90 > 83.00	1.669	1.651	0.018	0.641	71883	1.82		78.2	83.8	
D 7 13C2 PFHxA										
315.00 > 270.00	1.912	1.893	0.019	0.735	6078844	2.02		80.7	9035	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.104	1.991	0.113	1.050	3844	0.009145			0.6	M
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.005	1.993	0.012	0.770	632129	1.62		64.9	1347	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.229	2.213	0.016	0.994	27950	0.008291			0.5	
363.00 > 169.00	2.229	2.213	0.016	0.994	7321		3.82(2.17-6.52)		3.8	
D 9 13C4 PFHpA										
367.00 > 322.00	2.241	2.216	0.025	0.861	7945137	2.24		89.7	11338	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.254	2.225	0.029	1.000	87827	0.0327			12.0	
399.00 > 99.00	2.254	2.225	0.029	1.000	19924		4.41(1.90-5.70)		6.5	
D 11 18O2 PFHxS										
403.00 > 84.00	2.254	2.229	0.025	0.866	5047881	2.19		92.6	10915	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.573	2.539	0.034	1.000	1387	0.001838			3.7	M
D 12 M2-6:2 FTS										
429.00 > 81.00	2.573	2.543	0.030	0.988	821276	2.52		106	565	



Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 73 13C8 PFOA										
421.00 > 376.00	2.588	2.558	0.030		9380	0.002726		0.0	26.9	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.603	2.569	0.034	1.000	745466	0.2276			29.6	M
413.00 > 169.00	2.603	2.569	0.034	1.000	308856		2.41(1.36-4.08)		203	M
* 62 13C2 PFOA										
415.00 > 370.00	2.603	2.569	0.034		8249287	2.50			7787	
D 14 13C4 PFOA										
417.00 > 372.00	2.603	2.573	0.030	1.000	7575144	2.33		93.4	8746	
17 Perfluorooctanesulfonic acid										M
499.00 > 80.00	2.845	2.945	-0.100	0.959	112170	0.0476			45.0	M
499.00 > 99.00	2.862	2.945	-0.083	0.965	18606		6.03(2.04-6.12)		28.0	M
D 18 13C4 PFOS										
503.00 > 80.00	2.967	2.949	0.018	1.140	5232845	2.25		93.9	5158	
D 19 13C5 PFNA										
468.00 > 423.00	2.984	2.949	0.035	1.146	7156685	2.38		95.4	7100	
D 26 M2-8:2 FTS										
529.00 > 81.00	3.314	3.281	0.033	1.273	66736	1.65		69.0	223	
22 Perfluorooctanesulfonamide										
498.00 > 78.00	3.330	3.295	0.035	1.000	2806	0.000807			8.8	
D 21 13C8 FOSA										
506.00 > 78.00	3.330	3.298	0.032	1.279	2894764	2.24		89.7	7422	
D 23 13C2 PFDA										
515.00 > 470.00	3.330	3.298	0.032	1.279	6458469	2.09		83.6	9510	
28 N-methylperfluorooctanesulfonamido										M
570.00 > 419.00	3.484	3.451	0.033	1.000	1671	0.001660			0.9	M
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.484	3.452	0.032	1.338	2516815	1.88		75.3	2624	
33 N-ethylperfluorooctanesulfonamidoa										M
584.00 > 419.00	3.657	3.622	0.035	1.004	2920	0.003878			11.1	M
D 30 13C2 PFUnA										
565.00 > 520.00	3.657	3.623	0.034	1.405	6071288	2.35		94.1	4758	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.641	3.623	0.018	1.399	2058789	1.89		75.7	1582	
D 36 13C2 PFDoA										
615.00 > 570.00	3.936	3.918	0.018	1.512	6712314	2.11		84.5	6231	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.428	4.397	0.031	1.701	4997602	2.10		84.1	8184	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.838	4.803	0.035	1.004	43360	0.001699			24.5	
813.00 > 169.00	4.821	4.803	0.018	1.000	9059		4.79(2.77-8.32)		24.9	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.821	4.804	0.017	1.852	4298638	1.82		72.8	6798	

## QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_045.d

Injection Date: 10-Nov-2018 15:13:37

Instrument ID: A9

Lims ID: 480-144495-C-2-A

Lab Sample ID: 320-144495-2

Client ID: MW-201

Operator ID: A9\Administrator

ALS Bottle#: 33

Worklist Smp#: 5

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

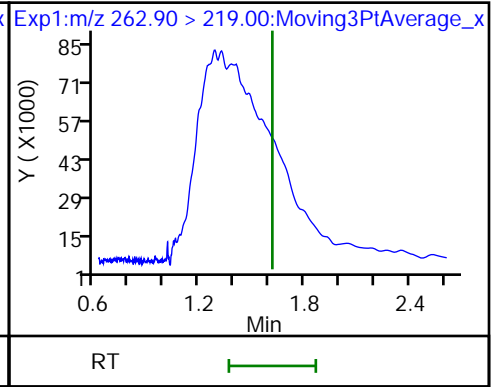
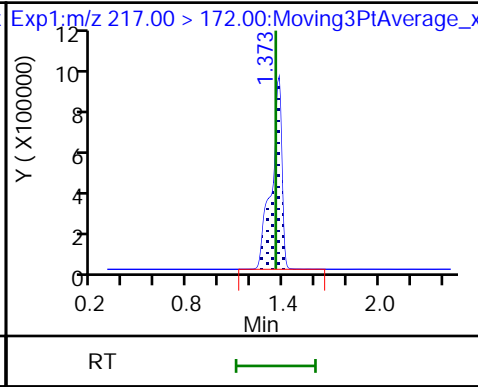
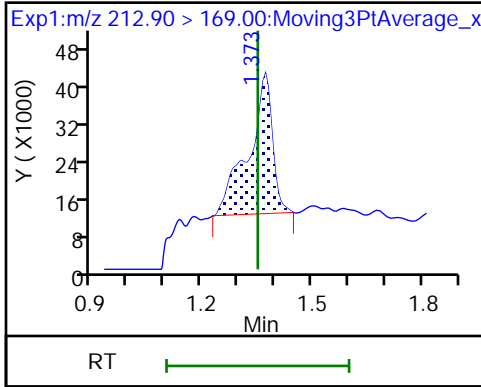
Method: PFAS\_A9

Limit Group: LC PFC ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA

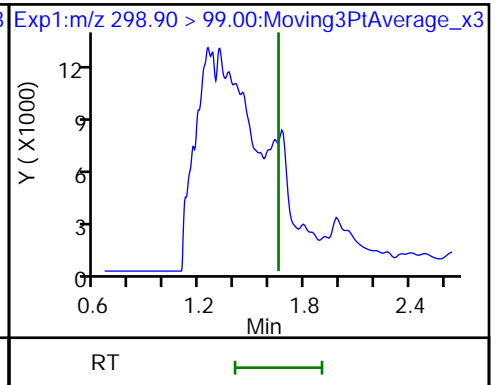
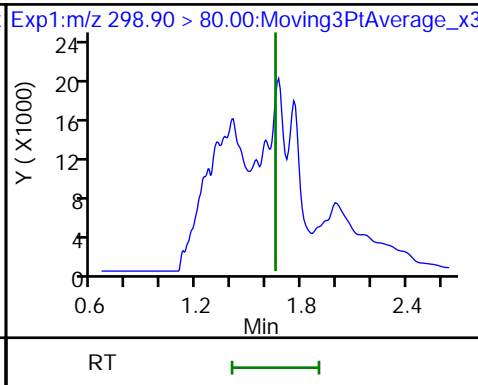
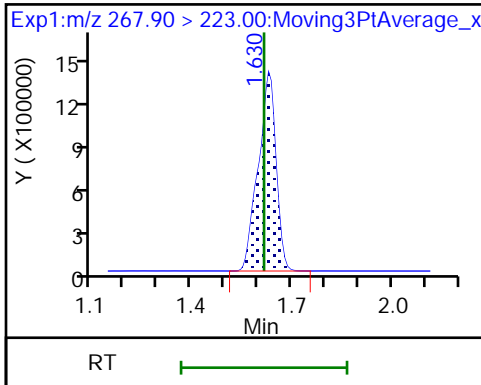
4 Perfluoropentanoic acid (ND)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid (ND)

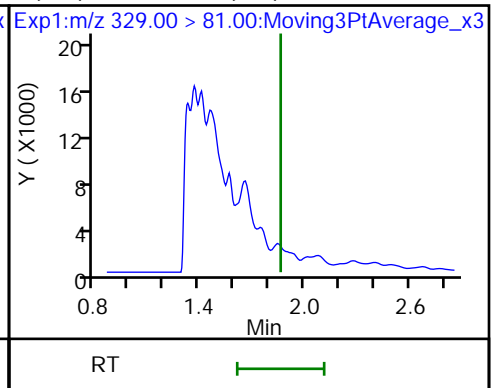
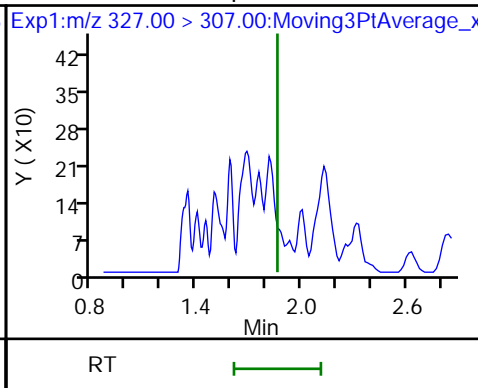
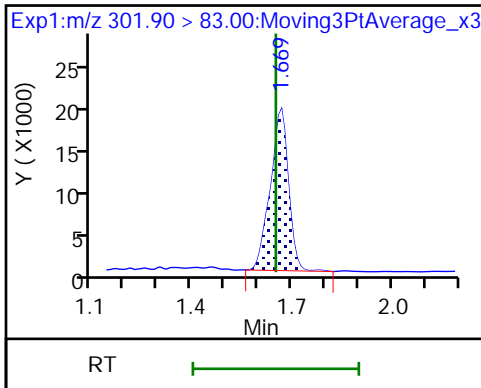
5 Perfluorobutanesulfonic acid (ND)



D 47 13C3 PFBS

61 1H,1H,2H,2H-perfluorohexanesulfonate (ND)

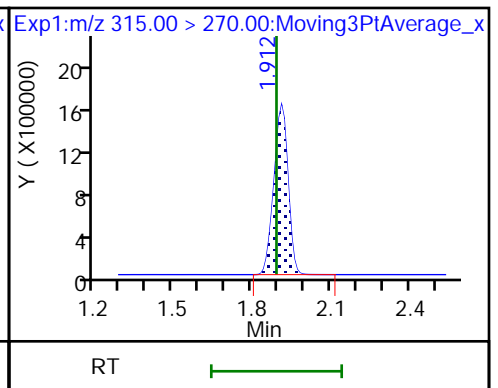
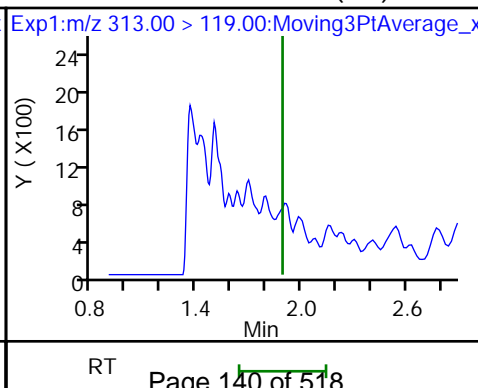
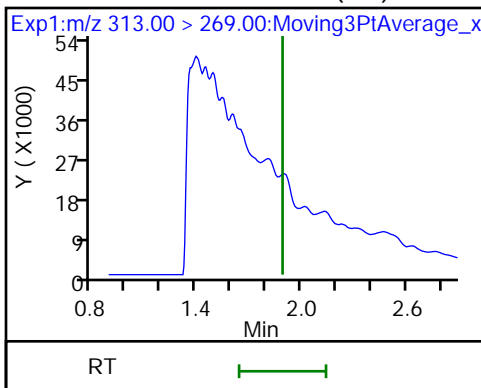
D 10 M2-4:2 FTS (ND)



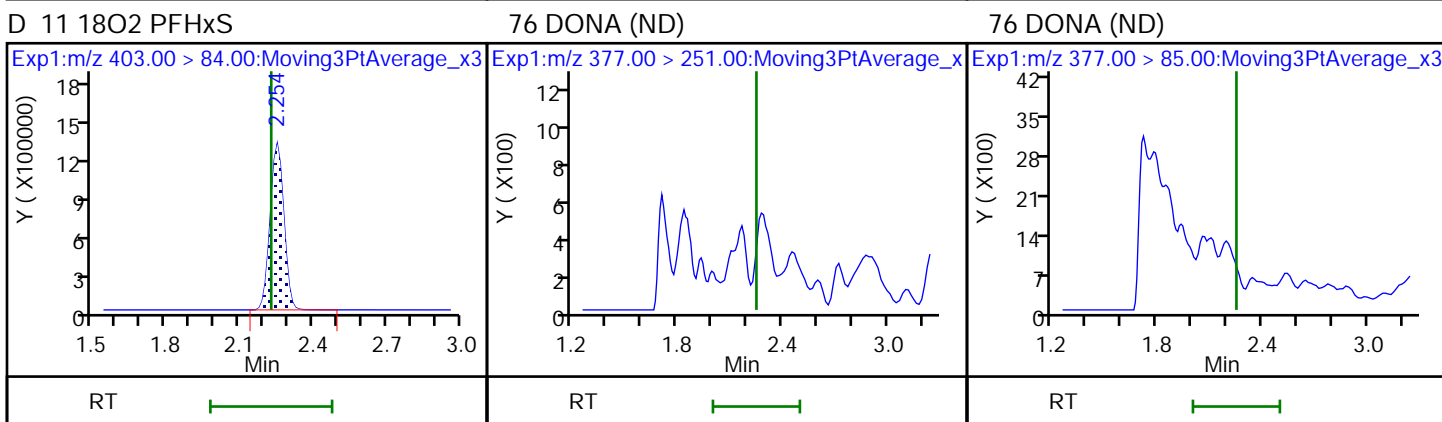
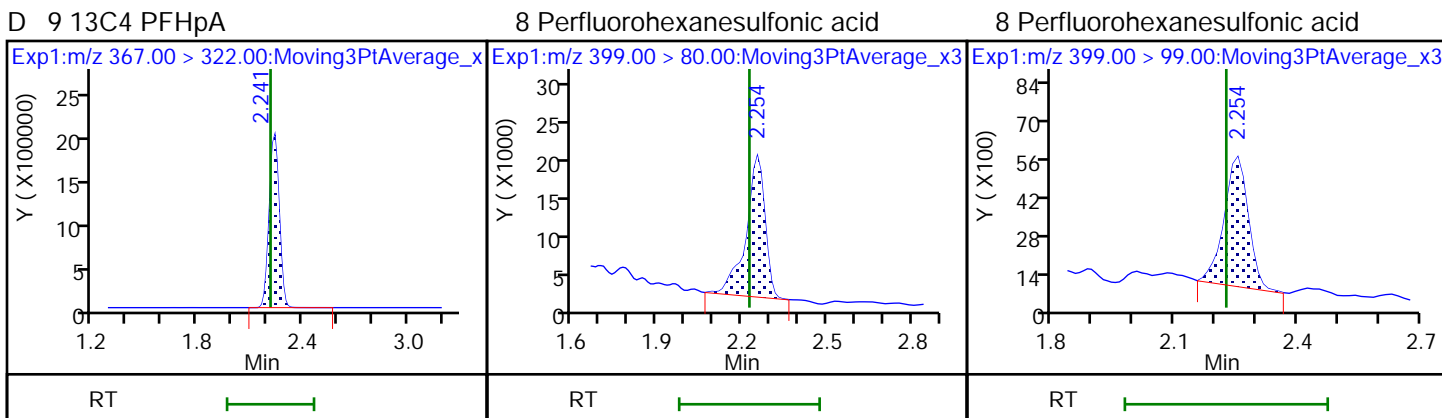
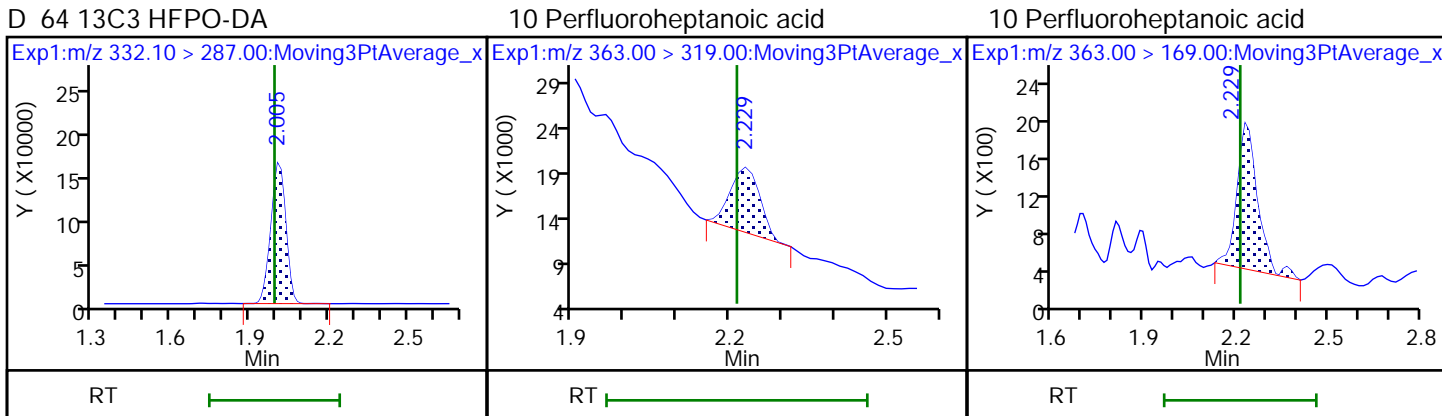
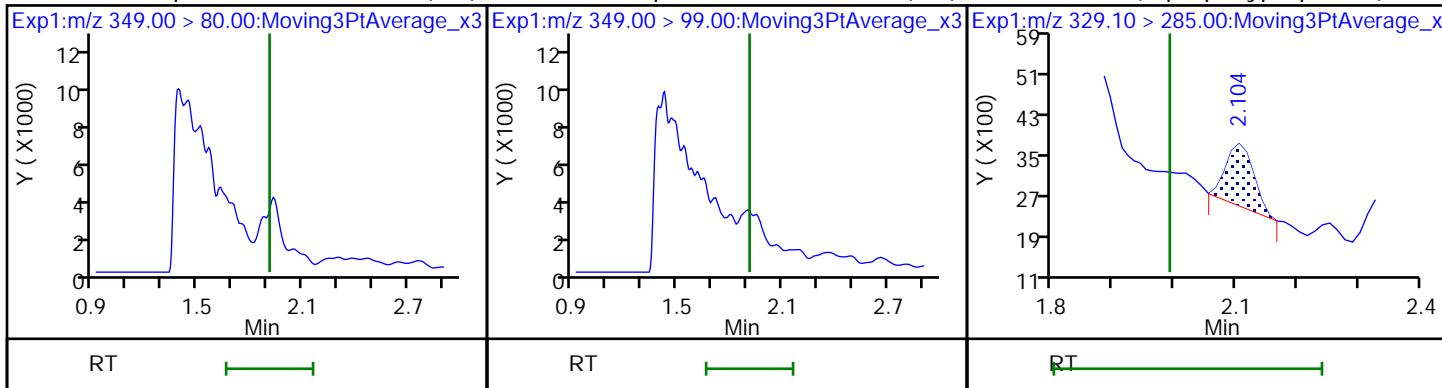
6 Perfluorohexanoic acid (ND)

6 Perfluorohexanoic acid (ND)

D 7 13C2 PFHxA

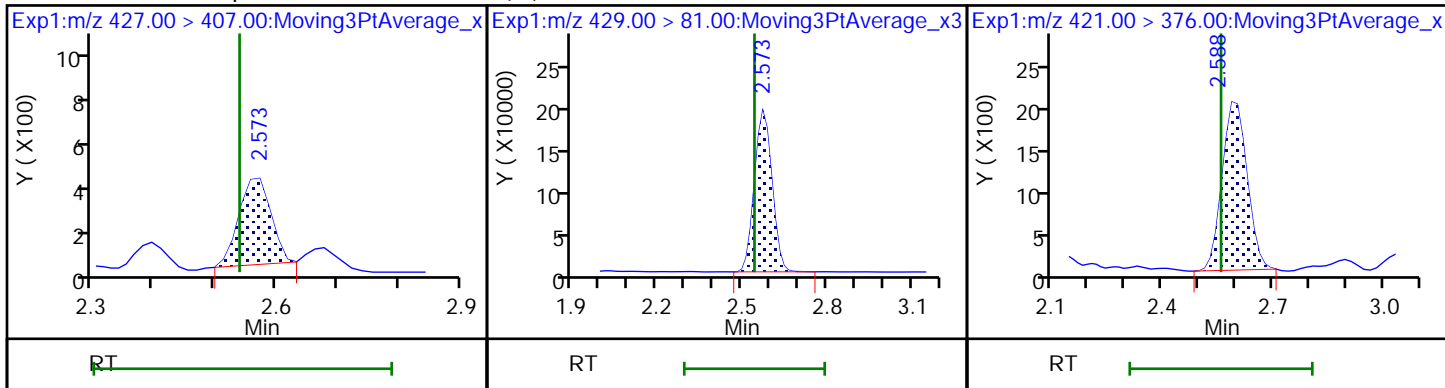


70 Perfluoropentanesulfonic acid (ND) 70 Perfluoropentanesulfonic acid (ND) 67 Perfluoro(2-propoxypropanoic) acid (M)



13 1H,1H,2H,2H-perfluorooctanesulfon(D) M2-6:2 FTS

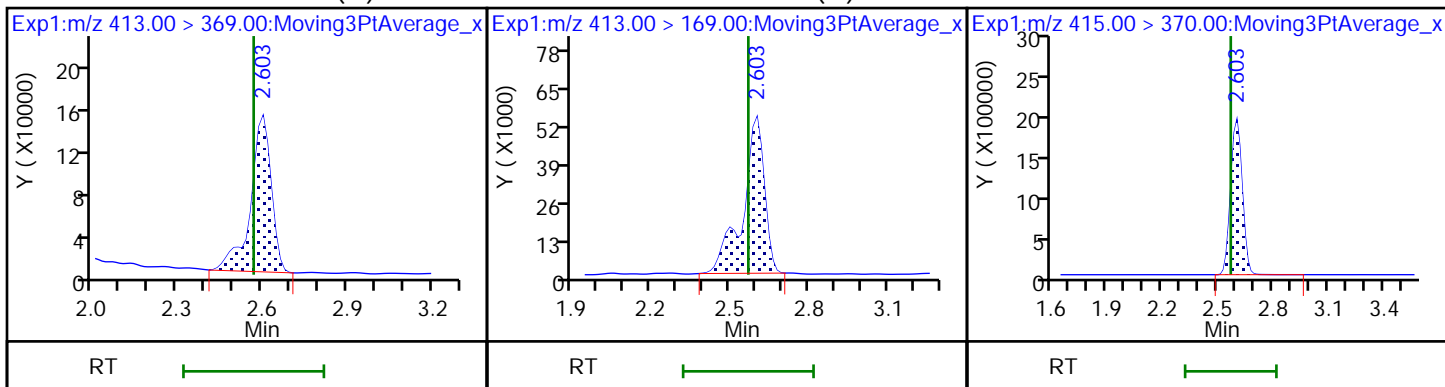
D 73 13C8 PFOA



15 Perfluorooctanoic acid (M)

15 Perfluorooctanoic acid (M)

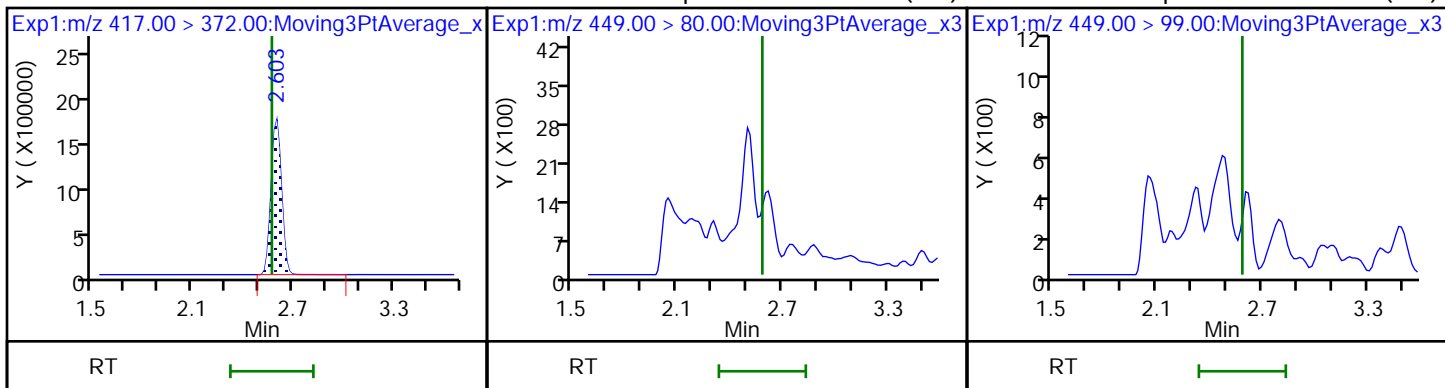
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid (ND)

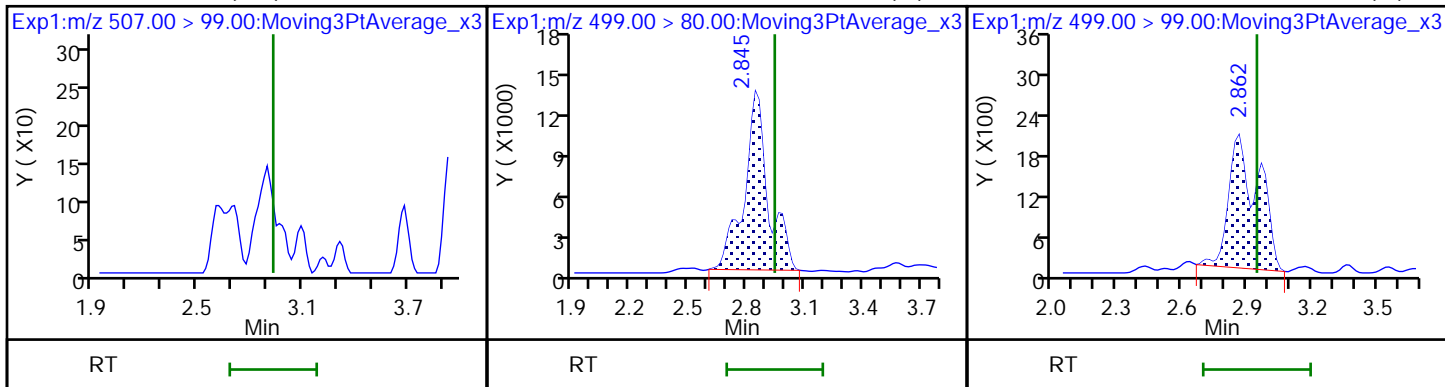
16 Perfluoroheptanesulfonic acid (ND)

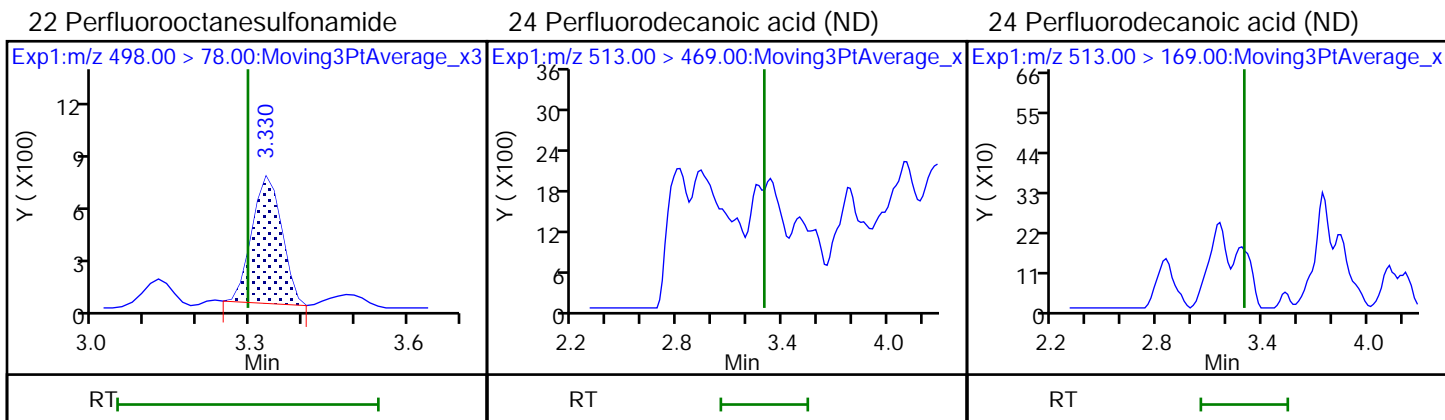
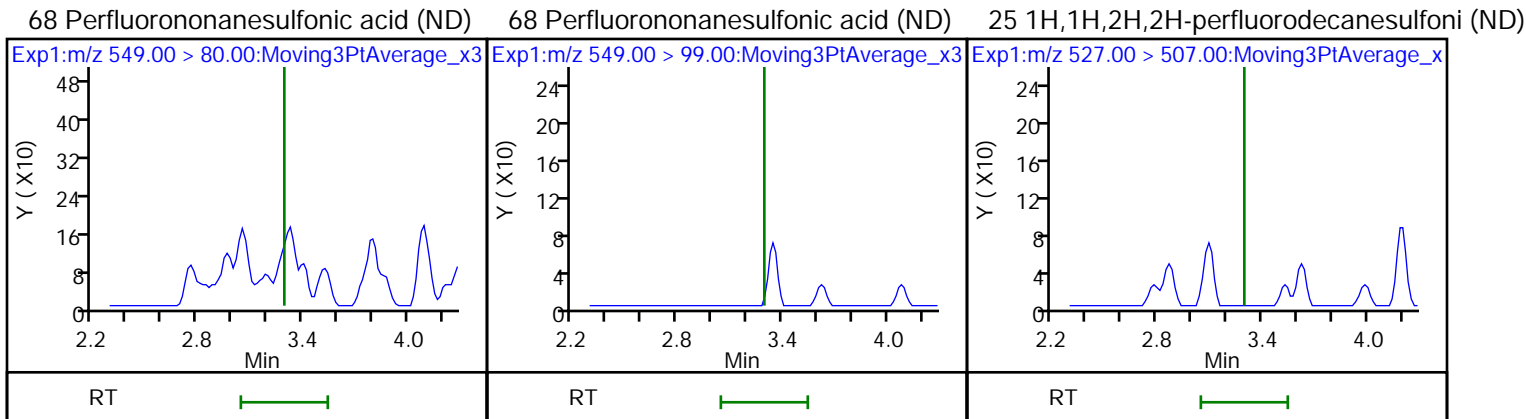
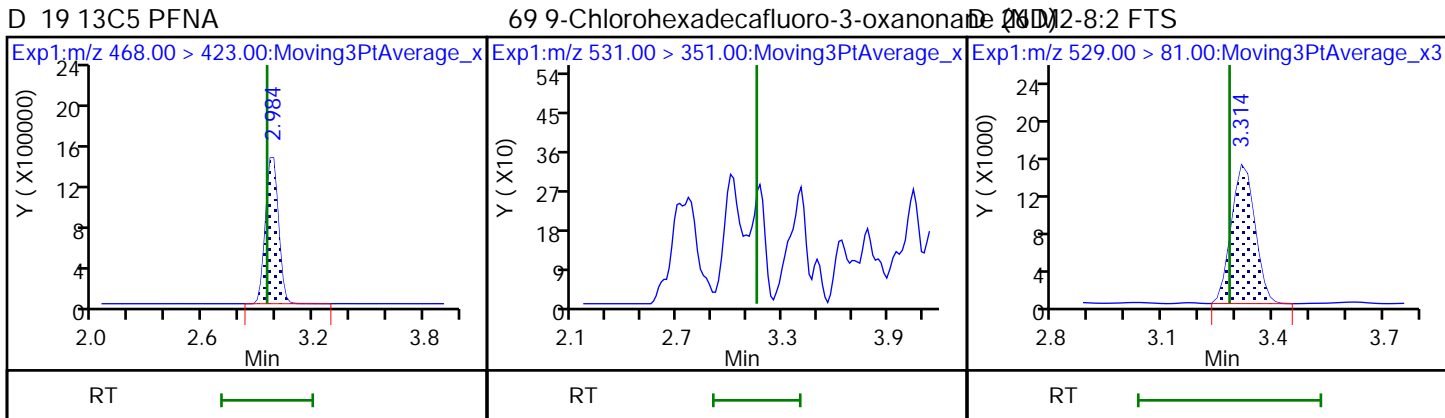
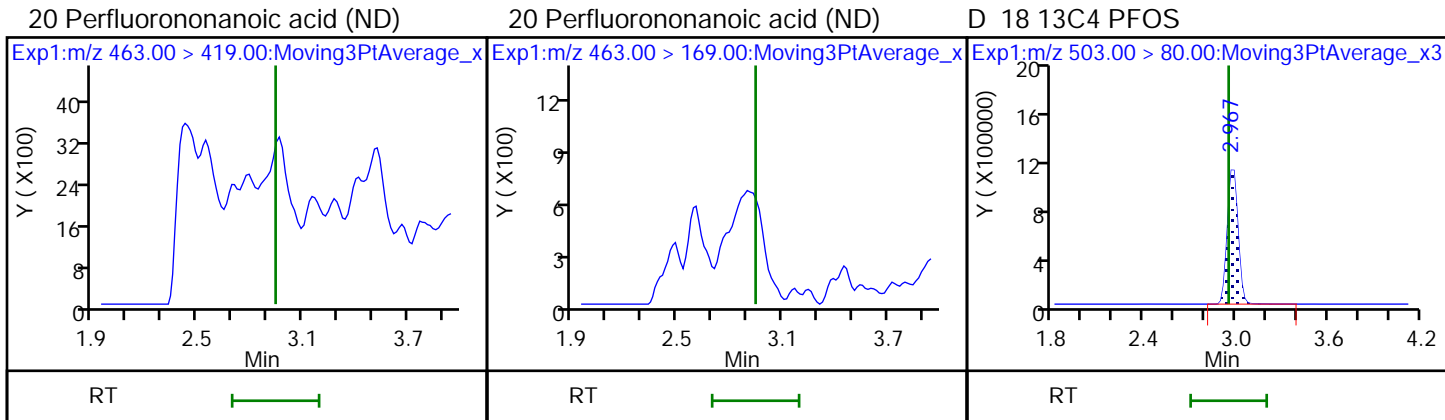


D 72 13C8 PFOS (ND)

17 Perfluorooctanesulfonic acid (M)

17 Perfluorooctanesulfonic acid (M)

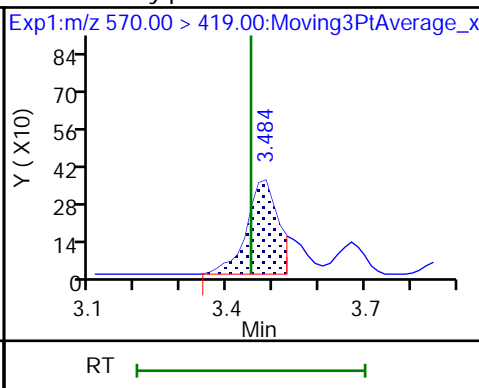
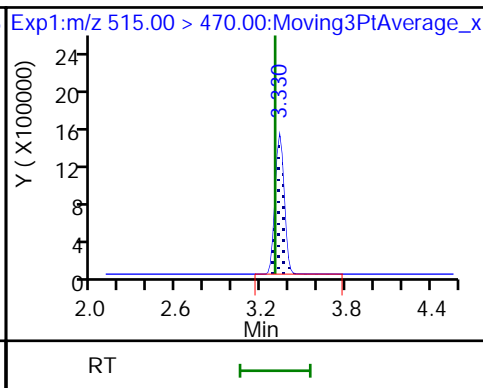
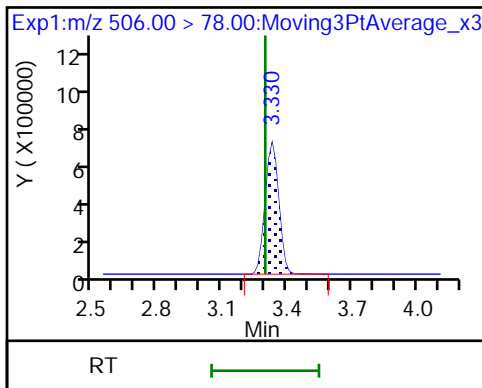




D 21 13C8 FOSA

D 23 13C2 PFDA

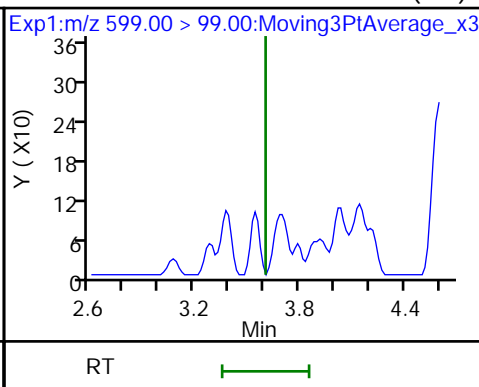
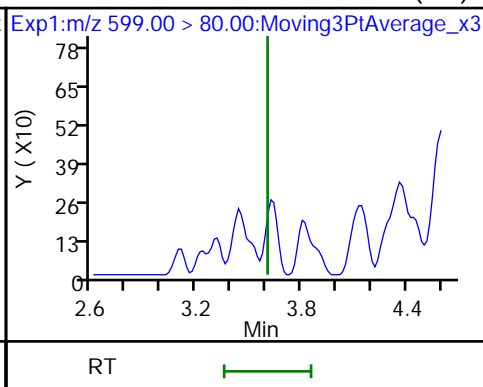
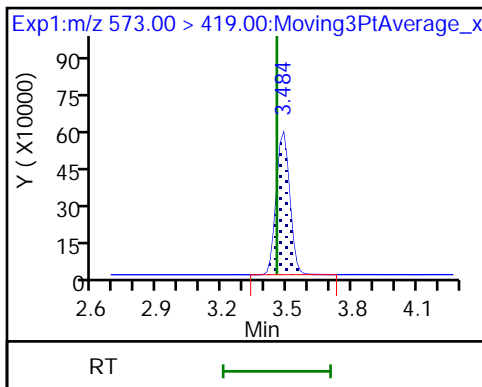
28 N-methylperfluorooctanesulfonamido (M)



D 27 d3-NMeFOSAA

29 Perfluorodecanesulfonic acid (ND)

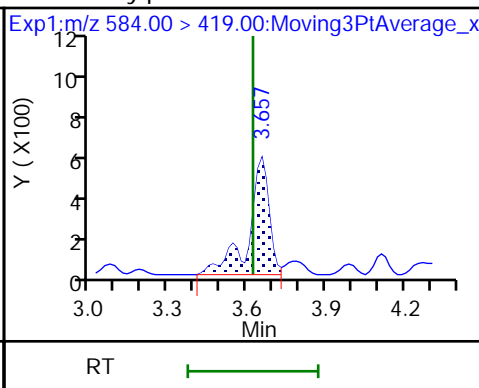
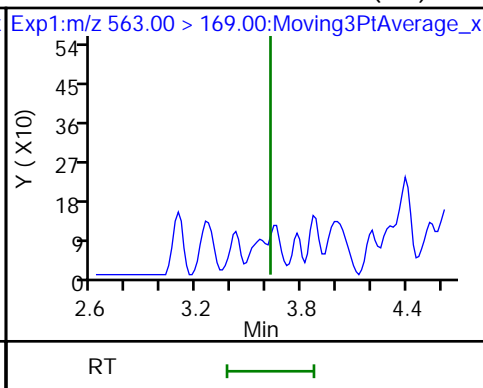
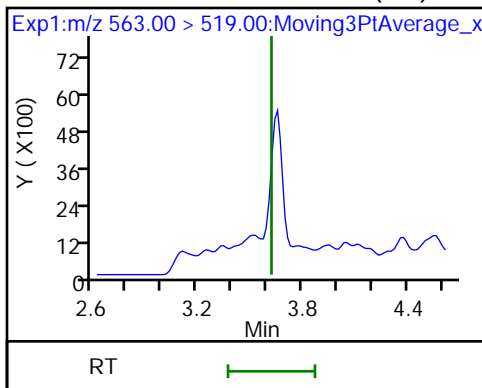
29 Perfluorodecanesulfonic acid (ND)



31 Perfluoroundecanoic acid (ND)

31 Perfluoroundecanoic acid (ND)

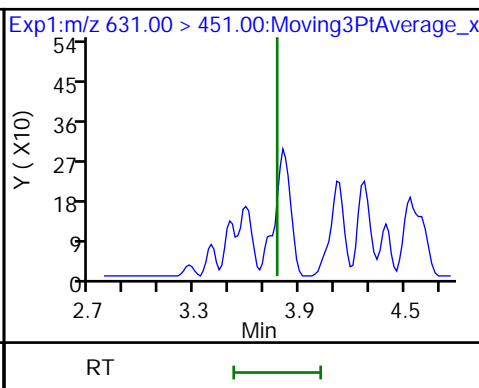
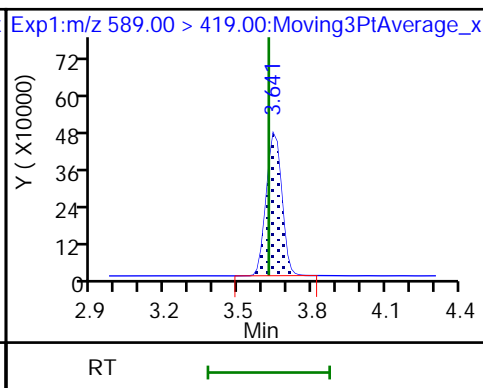
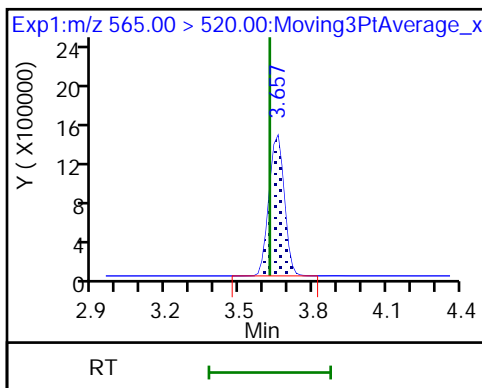
33 N-ethylperfluorooctanesulfonamido (M)

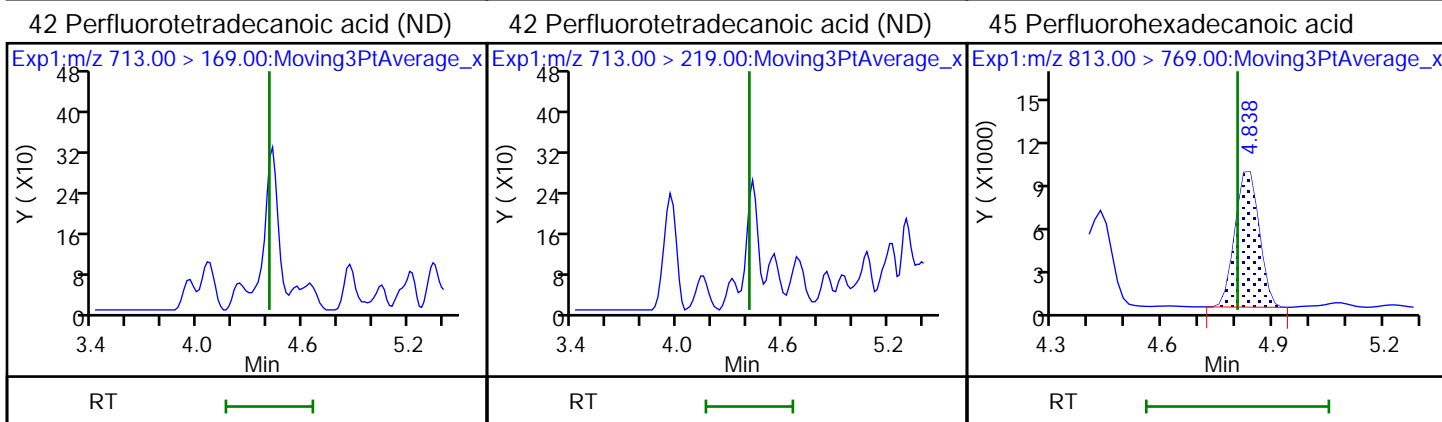
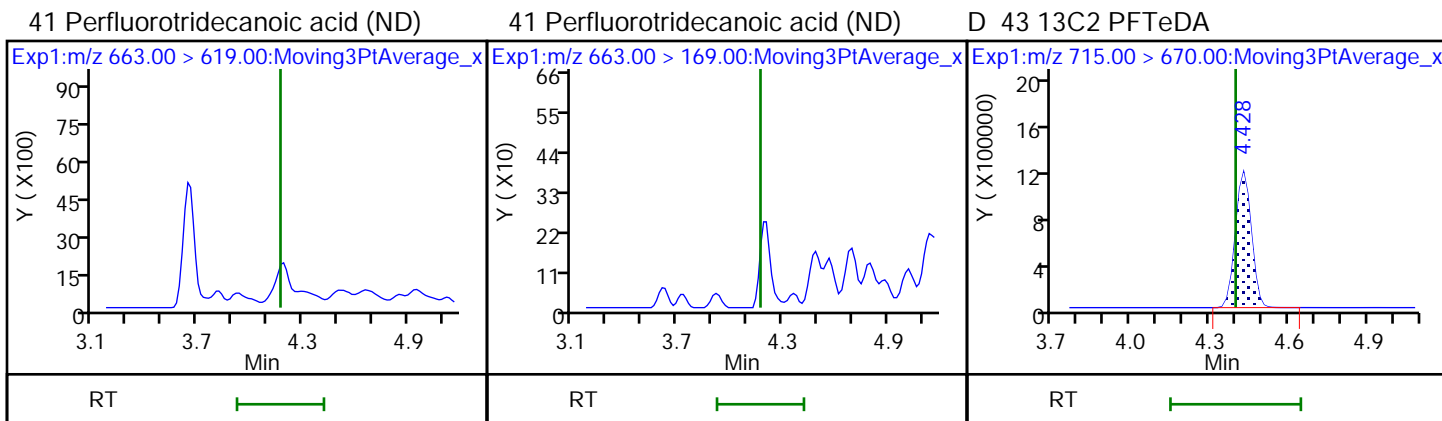
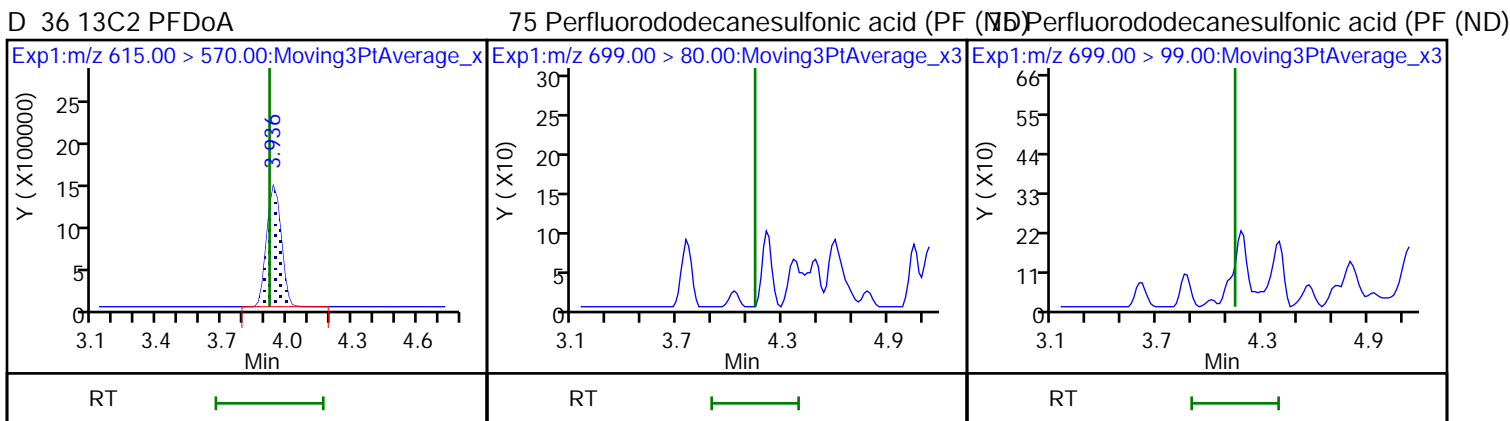
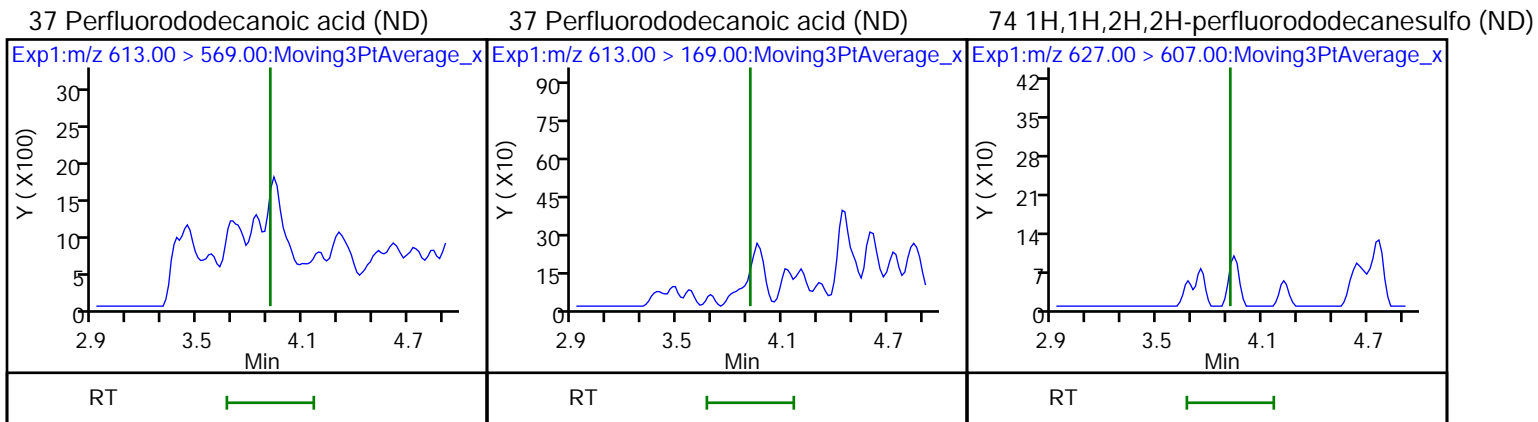


D 30 13C2 PFUnA

D 32 d5-NEtFOSAA

66 11-Chloroeicosafuoro-3-oxaundecan (ND)



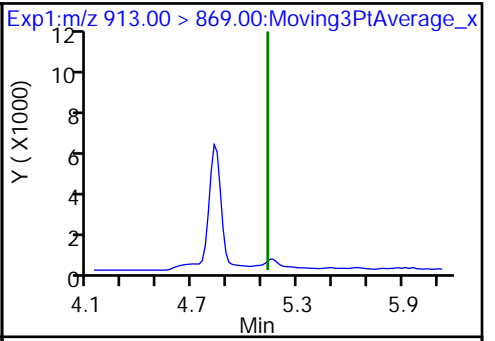
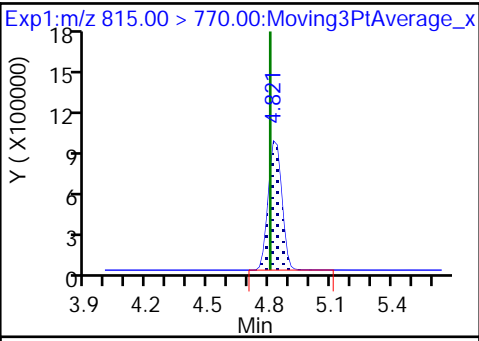
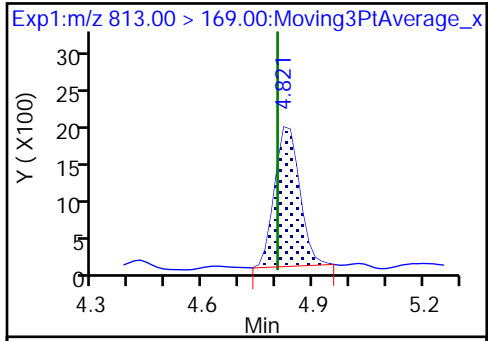




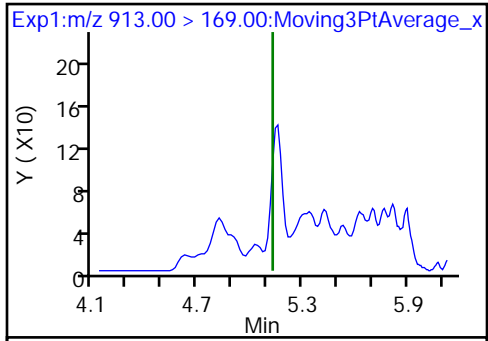
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid (ND)



46 Perfluorooctadecanoic acid (ND)



TestAmerica Sacramento

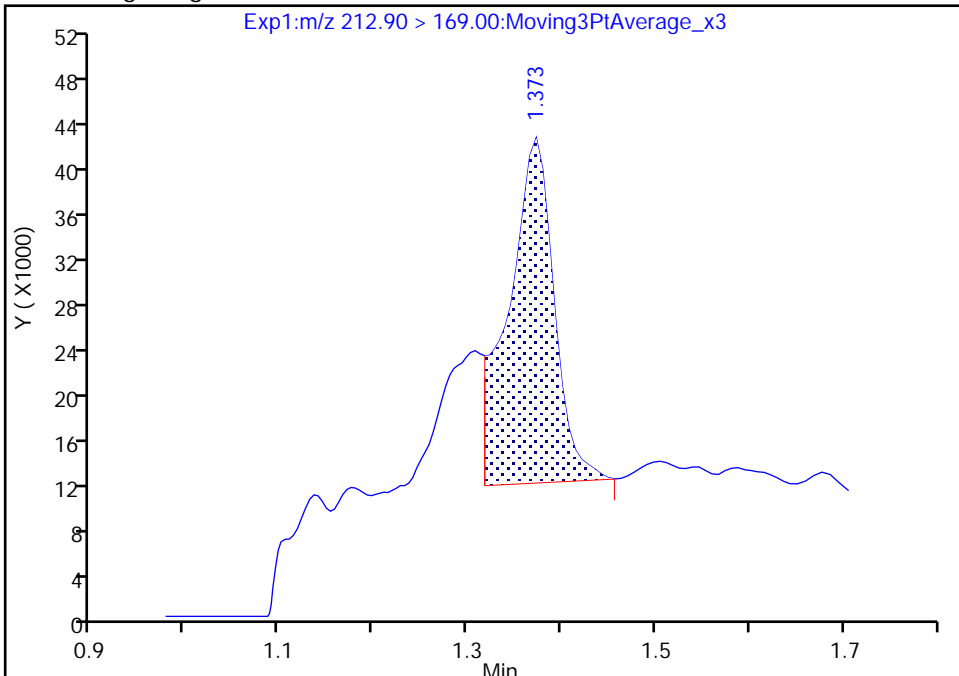
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_045.d  
Injection Date: 10-Nov-2018 15:13:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-A Lab Sample ID: 320-144495-2  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 33 Worklist Smp#: 5  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

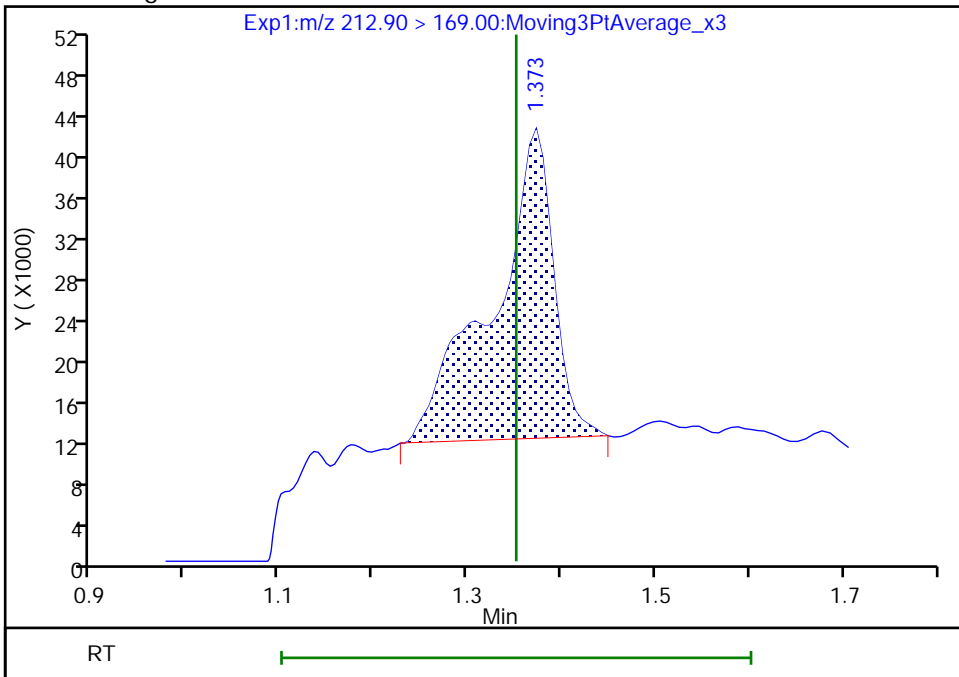
RT: 1.37  
Area: 101679  
Amount: 0.069412  
Amount Units: ng/ml

Processing Integration Results



RT: 1.37  
Area: 135352  
Amount: 0.092399  
Amount Units: ng/ml

Manual Integration Results



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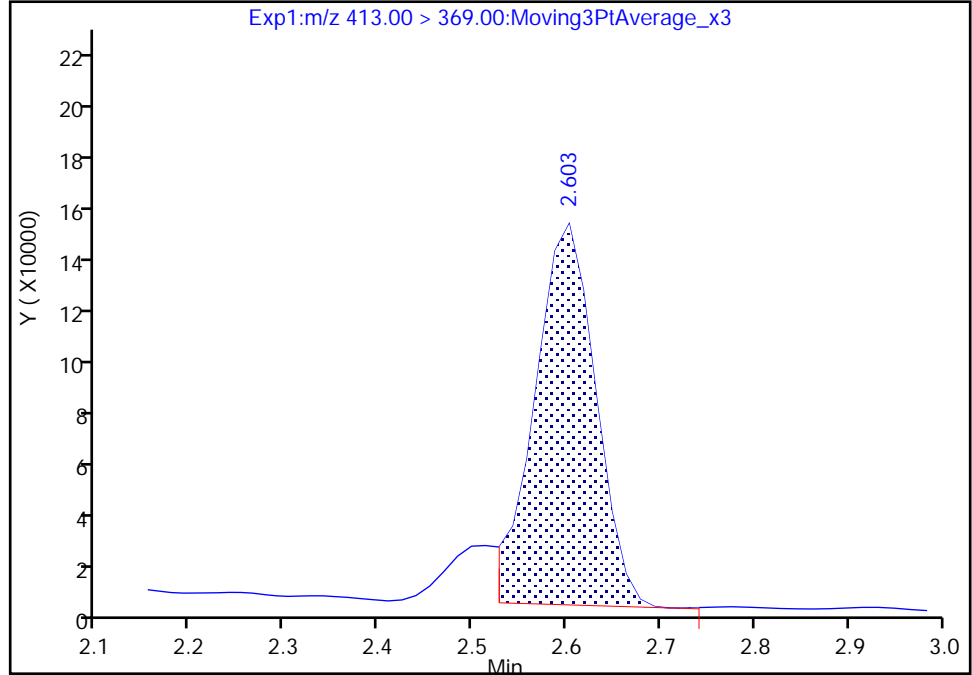
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_045.d  
Injection Date: 10-Nov-2018 15:13:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-A Lab Sample ID: 320-144495-2  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 33 Worklist Smp#: 5  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

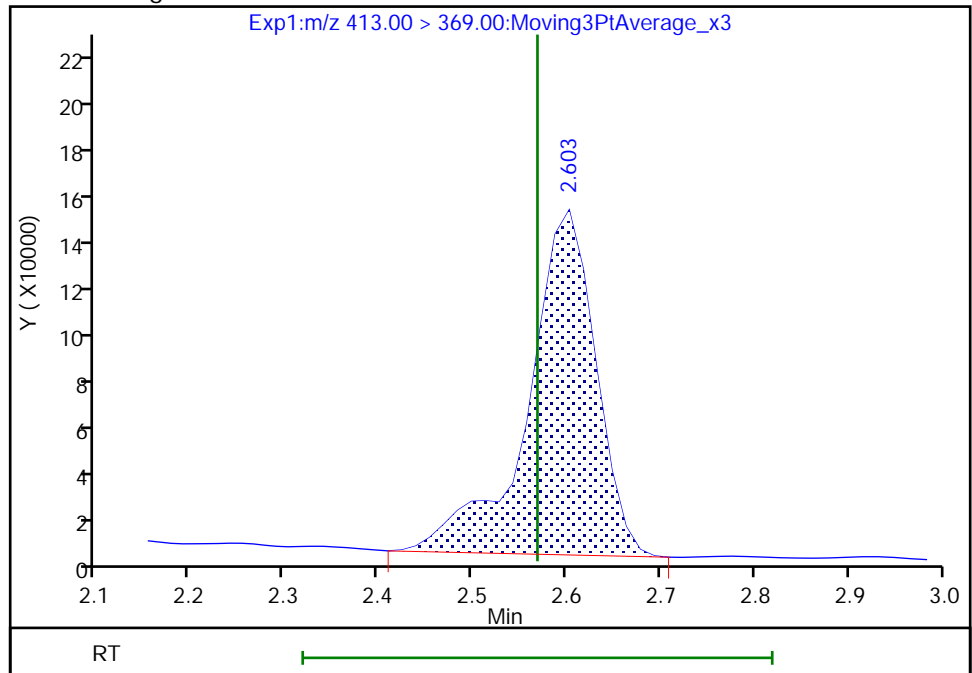
RT: 2.60  
Area: 660580  
Amount: 0.201654  
Amount Units: ng/ml

Processing Integration Results



RT: 2.60  
Area: 745466  
Amount: 0.227567  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

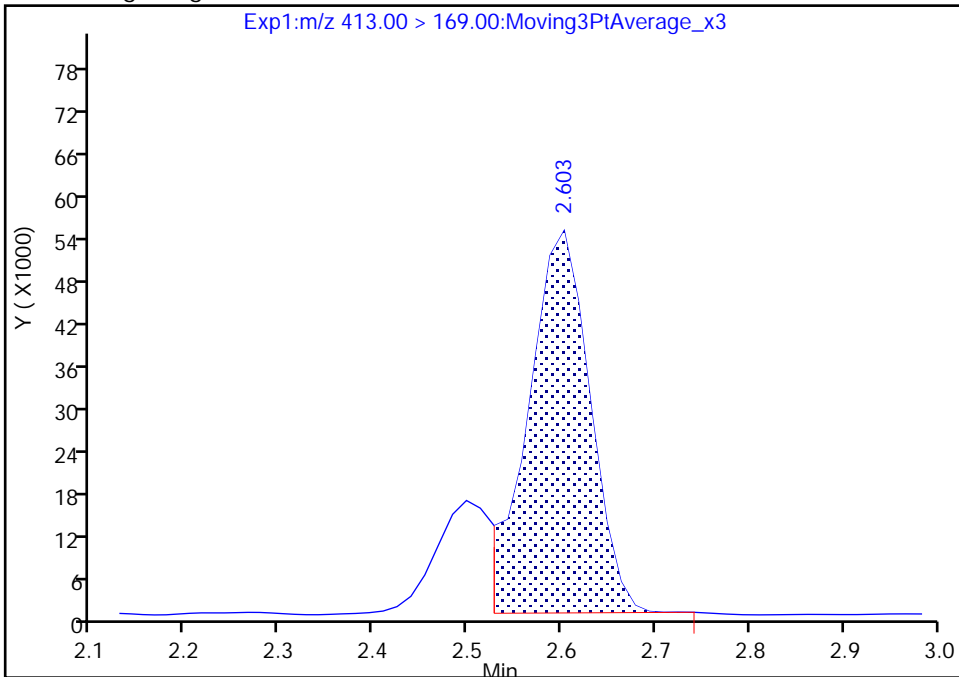
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_045.d  
Injection Date: 10-Nov-2018 15:13:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-A Lab Sample ID: 320-144495-2  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 33 Worklist Smp#: 5  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

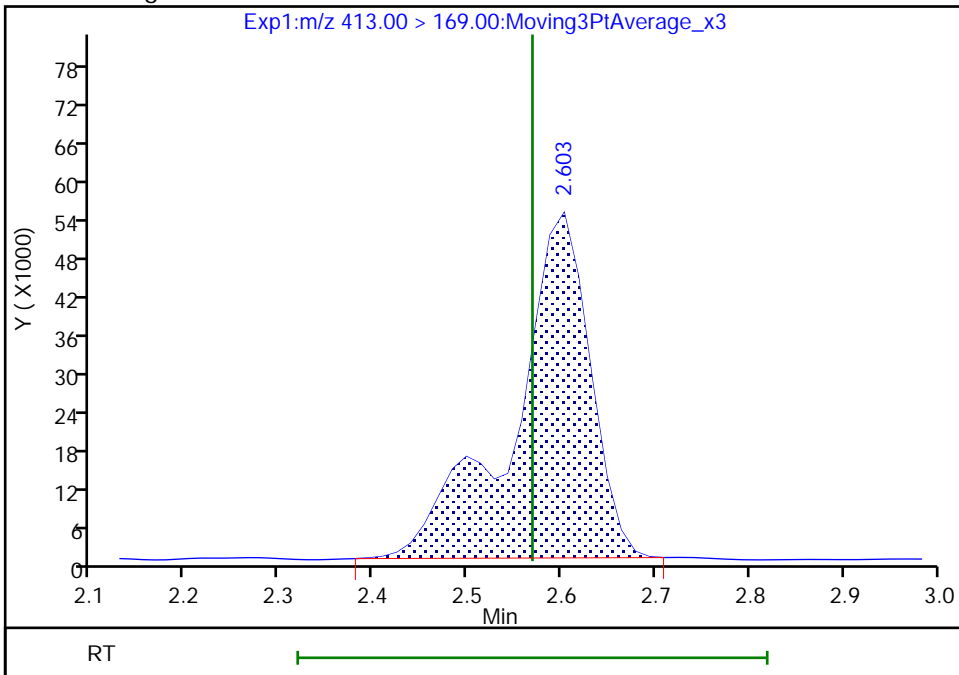
RT: 2.60  
Area: 247080  
Amount: 0.201654  
Amount Units: ng/ml

Processing Integration Results



RT: 2.60  
Area: 308856  
Amount: 0.227567  
Amount Units: ng/ml

Manual Integration Results



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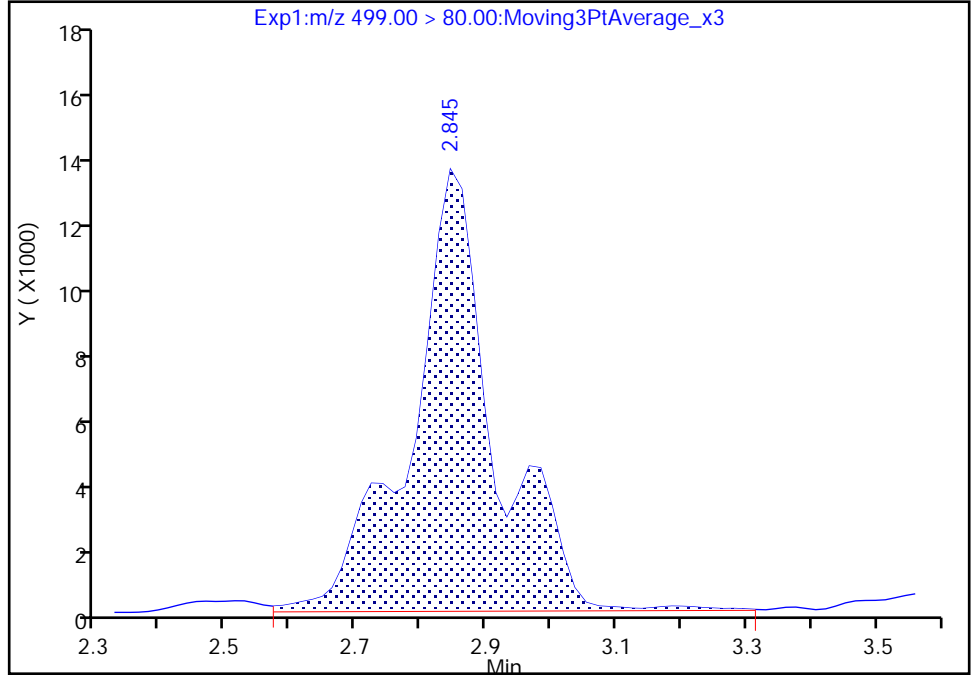
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Lims ID: 480-144495-C-2-A Lab Sample ID: 320-144495-2  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 33 Worklist Smp#: 5  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

17 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

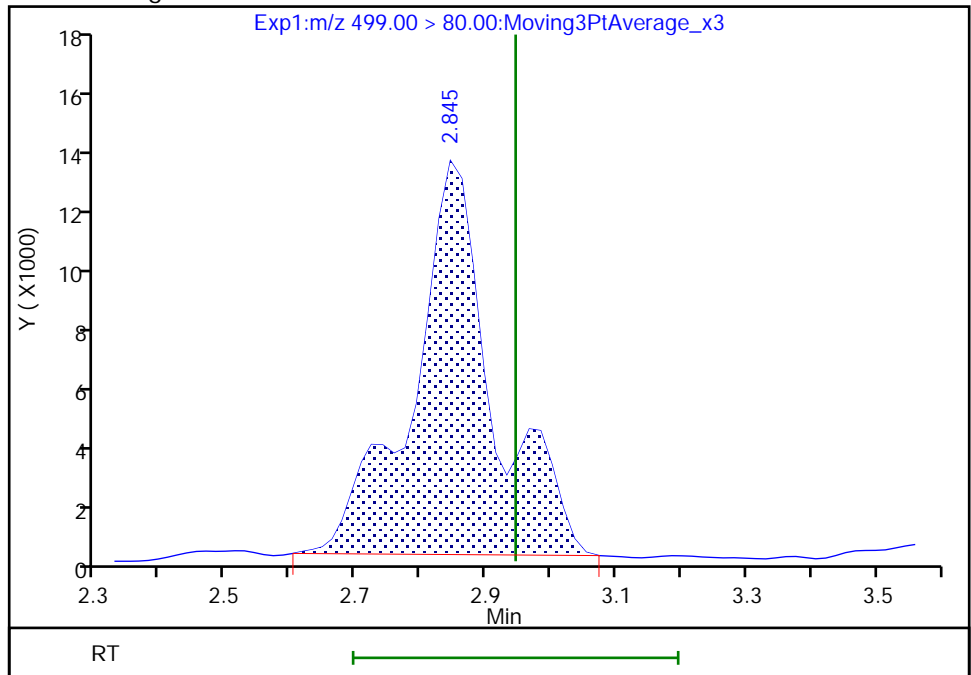
RT: 2.85  
Area: 119203  
Amount: 0.050555  
Amount Units: ng/ml

Processing Integration Results



RT: 2.85  
Area: 112170  
Amount: 0.047572  
Amount Units: ng/ml

Manual Integration Results



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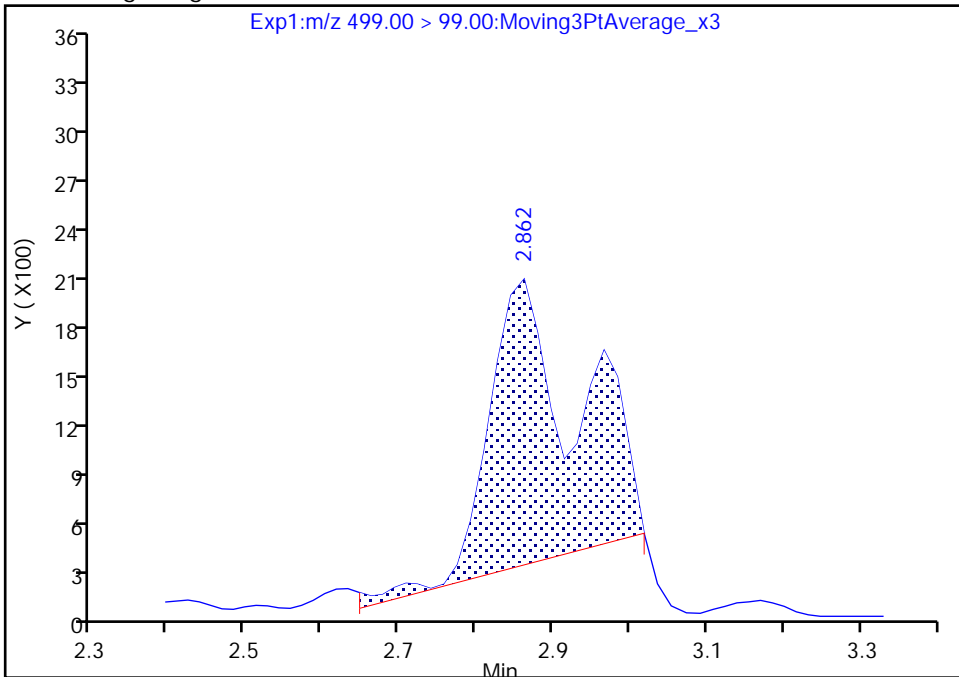
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_045.d  
Injection Date: 10-Nov-2018 15:13:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-A Lab Sample ID: 320-144495-2  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 33 Worklist Smp#: 5  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

17 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

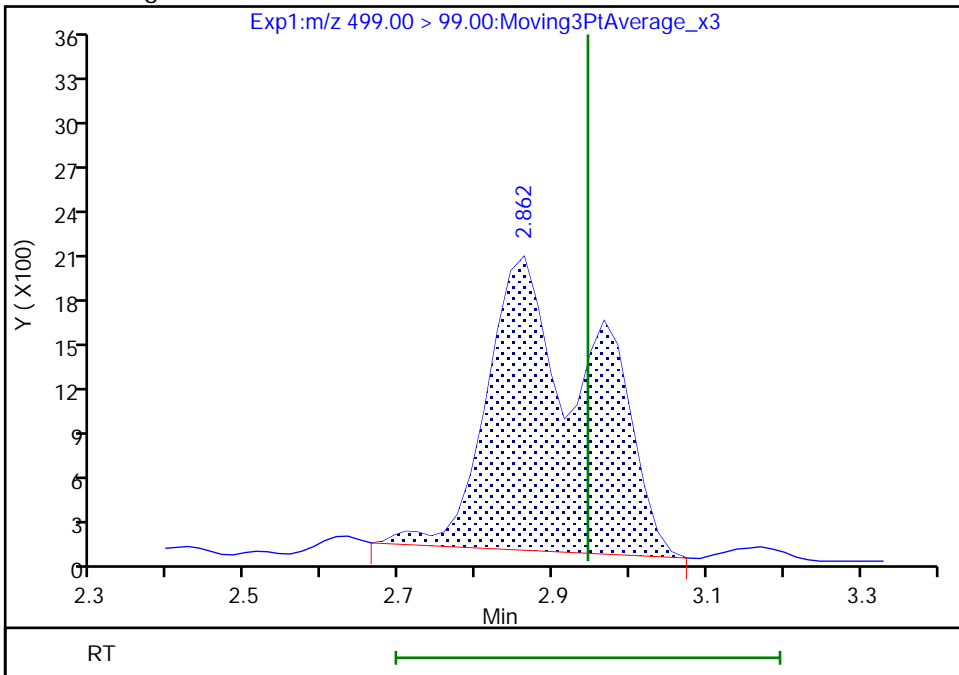
RT: 2.86  
Area: 13835  
Amount: 0.050555  
Amount Units: ng/ml

Processing Integration Results



RT: 2.86  
Area: 18606  
Amount: 0.047572  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

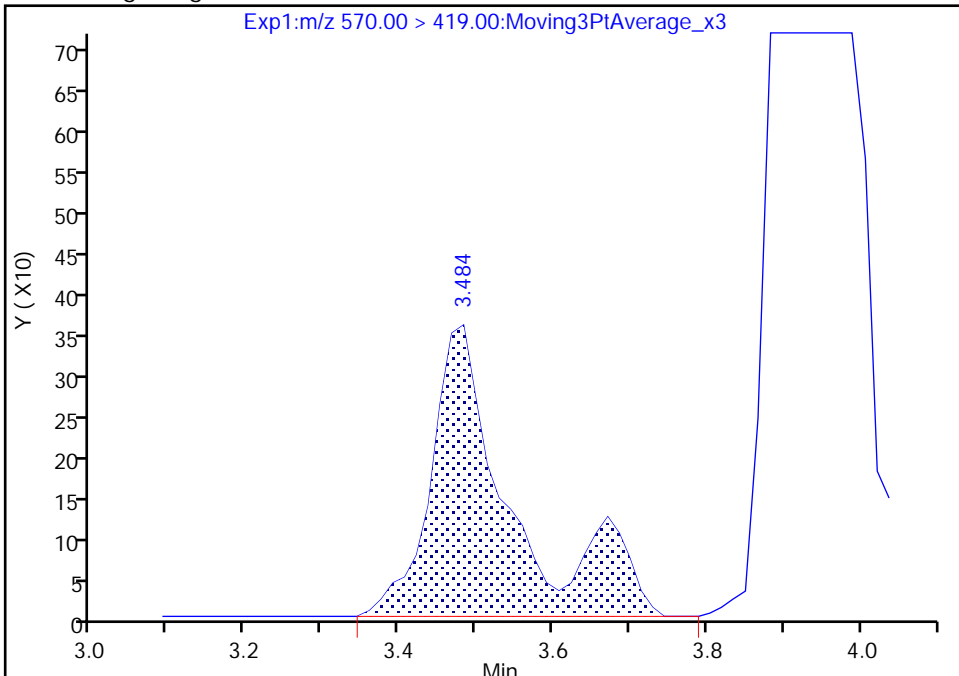
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Injection Date: 10-Nov-2018 15:13:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-A Lab Sample ID: 320-144495-2  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 33 Worklist Smp#: 5  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

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

Signal: 1

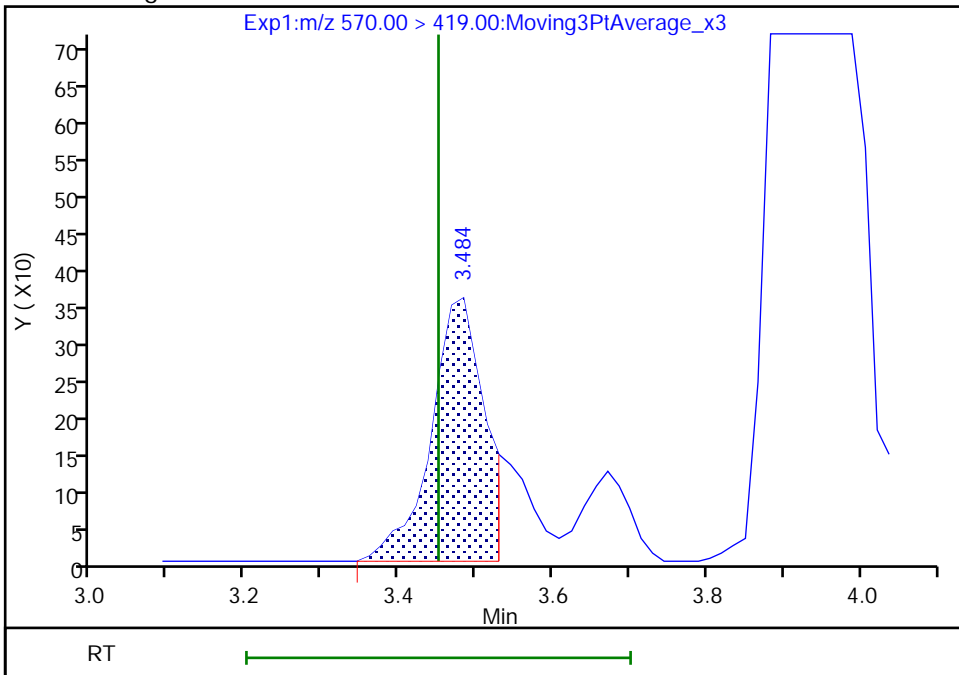
RT: 3.48  
Area: 2597  
Amount: 0.002579  
Amount Units: ng/ml

Processing Integration Results



RT: 3.48  
Area: 1671  
Amount: 0.001660  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

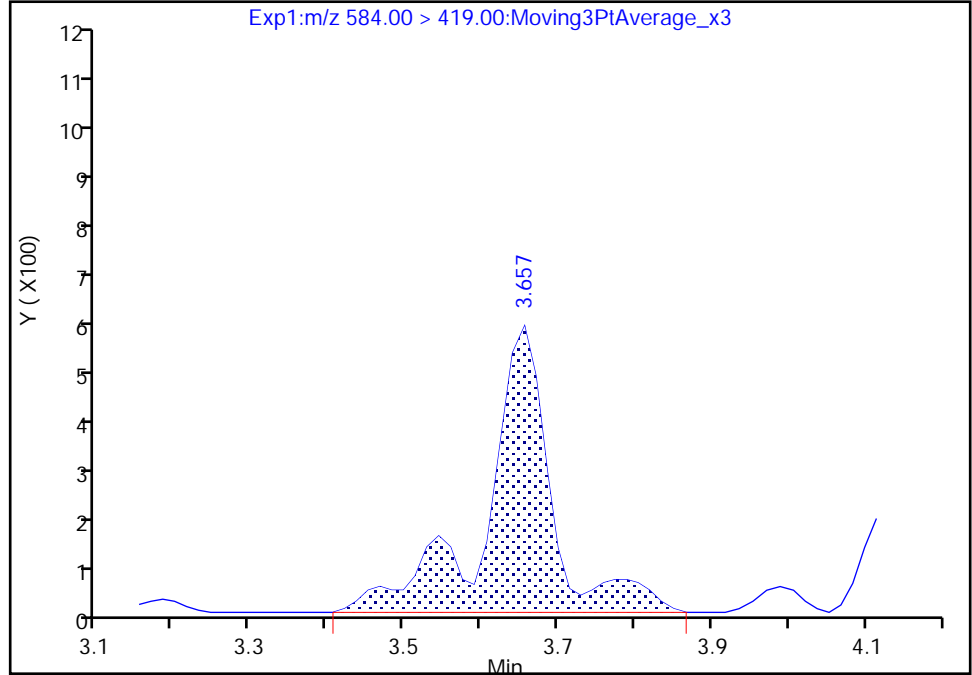
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_045.d  
Injection Date: 10-Nov-2018 15:13:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-A Lab Sample ID: 320-144495-2  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 33 Worklist Smp#: 5  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

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

Signal: 1

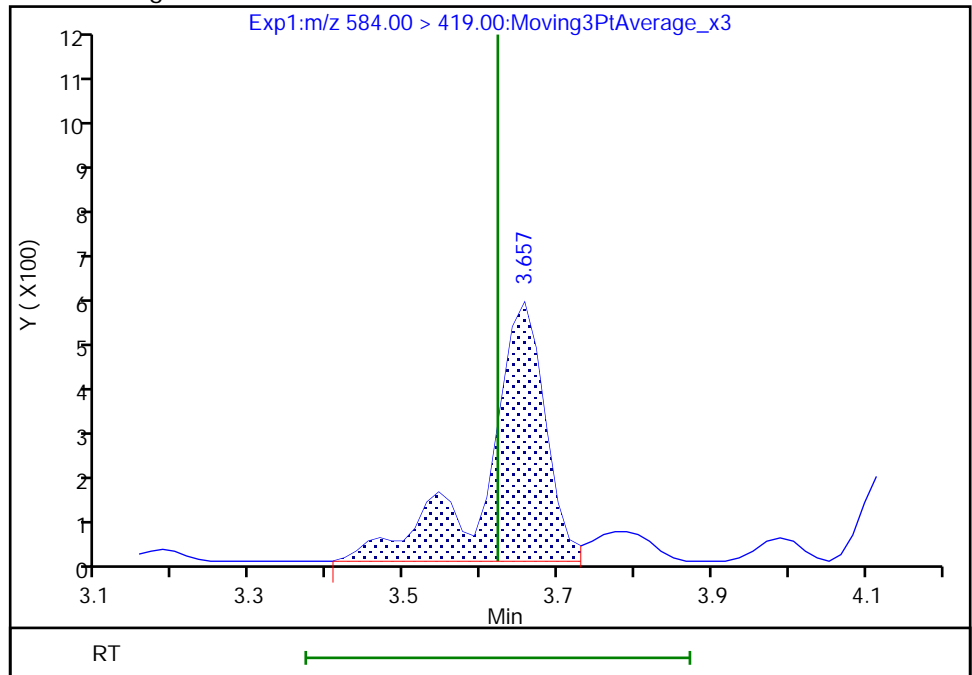
RT: 3.66  
Area: 3247  
Amount: 0.004313  
Amount Units: ng/ml

Processing Integration Results



RT: 3.66  
Area: 2920  
Amount: 0.003878  
Amount Units: ng/ml

Manual Integration Results





TestAmerica Sacramento

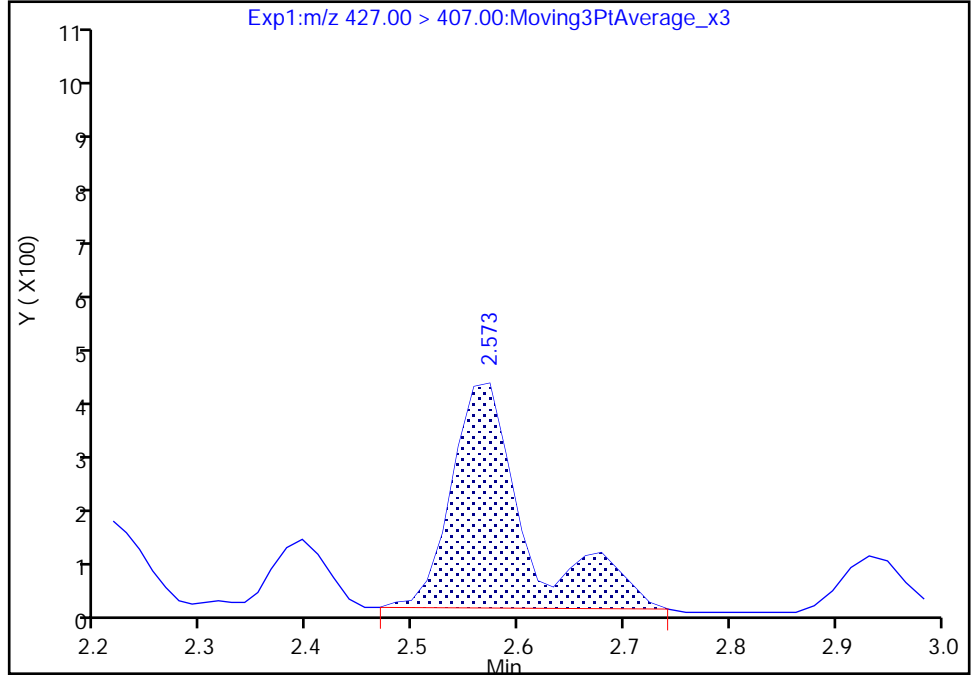
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Injection Date: 10-Nov-2018 15:13:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-A Lab Sample ID: 320-144495-2  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 33 Worklist Smp#: 5  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

13 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:, CAS: 27619-97-2

Signal: 1

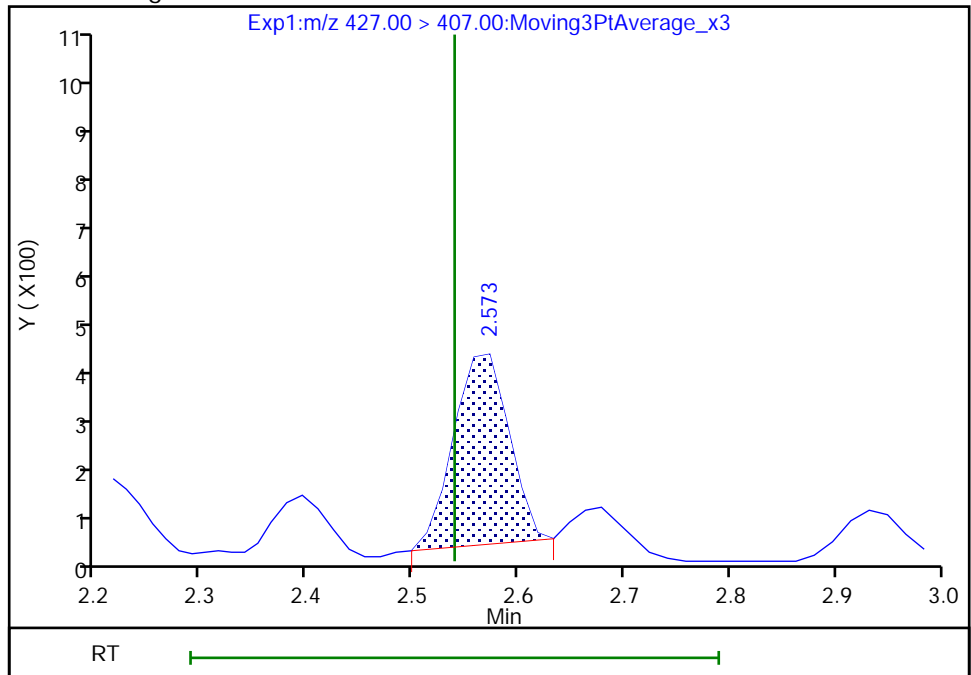
RT: 2.57  
Area: 1976  
Amount: 0.002619  
Amount Units: ng/ml

Processing Integration Results



RT: 2.57  
Area: 1387  
Amount: 0.001838  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 14-Nov-2018 13:12:33

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-205 Lab Sample ID: 480-144495-3  
 Matrix: Water Lab File ID: 2018.11.14LLA\_071.d  
 Analysis Method: 537 (modified) Date Collected: 10/30/2018 15:25  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 244.6 (mL) Date Analyzed: 11/15/2018 02:09  
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1  
 Injection Volume: 20 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 259234 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	15		2.0	0.36
2706-90-3	Perfluoropentanoic acid (PFPeA)	13		2.0	0.50
307-24-4	Perfluorohexanoic acid (PFHxA)	14		2.0	0.59
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.3		2.0	0.26
335-67-1	Perfluorooctanoic acid (PFOA)	36		2.0	0.87
375-95-1	Perfluorononanoic acid (PFNA)	0.79	J	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)	3.0		2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	16	B	2.0	0.17
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.49	J	2.0	0.19
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	43		2.0	0.55
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.33
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.36
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.2
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic 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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-205 Lab Sample ID: 480-144495-3  
 Matrix: Water Lab File ID: 2018.11.14LLA\_071.d  
 Analysis Method: 537 (modified) Date Collected: 10/30/2018 15:25  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 244.6(mL) Date Analyzed: 11/15/2018 02:09  
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1  
 Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 259234 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	46		25-150
STL01893	13C5 PFPeA	58		25-150
STL00993	13C2 PFHxA	68		25-150
STL01892	13C4 PFHpA	80		25-150
STL00990	13C4 PFOA	94		25-150
STL00995	13C5 PFNA	95		25-150
STL00996	13C2 PFDA	99		25-150
STL00997	13C2 PFUnA	98		25-150
STL00998	13C2 PFDoA	88		25-150
STL02116	13C2 PFTeDA	74		25-150
STL02337	13C3 PFBS	73		25-150
STL00994	18O2 PFHxS	92		25-150
STL00991	13C4 PFOS	100		25-150
STL01056	13C8 FOSA	93		25-150
STL02118	d3-NMeFOSAA	93		25-150
STL02117	d5-NEtFOSAA	90		25-150
STL02279	M2-6:2 FTS	169	*	25-150
STL02280	M2-8:2 FTS	115		25-150

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d  
 Lims ID: 480-144495-C-3-A  
 Client ID: MW-205  
 Sample Type: Client  
 Inject. Date: 15-Nov-2018 02:09:25 ALS Bottle#: 47 Worklist Smp#: 3  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-144495-c-3-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: A9\Administrator Instrument ID: A9  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 20-Nov-2018 09:38:47 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0328

First Level Reviewer: mongkols Date: 20-Nov-2018 09:38:47

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	1.308	1.318	-0.010	0.527	3406121	1.15	46.1	2661	
2 Perfluorobutanoic acid										M
212.90 > 169.00	1.308	1.320	-0.012	1.000	477232	0.3743		2.8		M
D 3 13C5 PFPeA	267.90 > 223.00	1.553	1.560	-0.007	0.625	4050467	1.44	57.6	841	
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.553	1.562	-0.009	1.000	502039	0.3095		8.6		M
D 47 13C3 PFBS	301.90 > 83.00	1.588	1.595	-0.007	0.639	65757	1.69	72.7	46.0	
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.588	1.597	-0.009	1.000	217773	0.0746		3.3		M
298.90 > 99.00	1.588	1.597	-0.009	1.000	82975		2.62(1.35-4.05)	3.9		M
D 7 13C2 PFHxA	315.00 > 270.00	1.823	1.824	-0.001	0.734	5053587	1.70	68.2	3401	
6 Perfluorohexanoic acid										M
313.00 > 269.00	1.813	1.826	-0.013	0.995	613541	0.3374		3.5		M
313.00 > 119.00	1.813	1.826	-0.013	0.995	38134		16.09(6.96-20.87)	9.8		M
D 9 13C4 PFHpA	367.00 > 322.00	2.129	2.129	0.0	0.857	7000468	2.01	80.3	5240	
10 Perfluoroheptanoic acid										M
363.00 > 319.00	2.129	2.131	-0.002	1.000	673007	0.2266		5.4		M
363.00 > 169.00	2.129	2.131	-0.002	1.000	154275		4.36(2.17-6.52)	50.3		
D 11 18O2 PFHxS	403.00 > 84.00	2.141	2.141	0.0	0.862	4957484	2.19	92.4	5134	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.141	2.144	-0.003	1.000	1062829	0.4025		33.1		M
399.00 > 99.00	2.141	2.144	-0.003	1.000	296403		3.59(1.90-5.70)	38.0		M

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags	
D 12 M2-6:2 FTS	429.00	> 81.00	2.454	2.454	0.0	0.988	1284399	4.00	169	261	
13 1H,1H,2H,2H-perfluorooctanesulfonyl fluoride	427.00	> 407.00	2.454	2.457	-0.003	1.000	16384	0.0139		15.3	
D 14 13C4 PFOA	417.00	> 372.00	2.483	2.469	0.014	1.000	7520176	2.35	94.2	5501	
* 62 13C2 PFOA	415.00	> 370.00	2.483	2.471	0.012		8116484	2.50		6075	
15 Perfluorooctanoic acid	413.00	> 369.00	2.469	2.486	-0.017	0.994	2866599	0.8815		36.6	M
	413.00	> 169.00	2.483	2.486	-0.003	1.000	1230669		2.33(1.36-4.08)	351	M
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.498	2.486	0.012	0.878	28227	0.0119		2.7	M
	449.00	> 99.00	2.483	2.486	-0.003	0.873	9938		2.84(1.84-5.53)	6.3	M
D 19 13C5 PFNA	468.00	> 423.00	2.844	2.845	-0.001	1.145	6998445	2.37	94.8	4984	
D 18 13C4 PFOS	503.00	> 80.00	2.844	2.845	-0.001	1.145	5462068	2.38	99.7	1359	
20 Perfluorononanoic acid	463.00	> 419.00	2.844	2.850	-0.006	1.000	53816	0.0192		2.6	M
	463.00	> 169.00	2.844	2.850	-0.006	1.000	9101		5.91(2.68-8.03)	3.8	M
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.723	2.850	-0.127	0.957	2604771	1.06		448	
	499.00	> 99.00	2.844	2.850	-0.006	1.000	419774		6.21(2.04-6.12)	292	
D 26 M2-8:2 FTS	529.00	> 81.00	3.185	3.185	0.0	1.282	109841	2.76	115	320	
D 21 13C8 FOSA	506.00	> 78.00	3.200	3.201	-0.001	1.289	2966292	2.34	93.5	3842	
D 23 13C2 PFDA	515.00	> 470.00	3.200	3.201	-0.001	1.289	7494556	2.46	98.6	6216	
24 Perfluorodecanoic acid	513.00	> 469.00	3.185	3.206	-0.021	0.995	9081	0.002791		0.8	M
	513.00	> 169.00	3.216	3.206	0.010	1.005	615		14.77(7.12-21.35)	0.9	M
22 Perfluorooctanesulfonamide	498.00	> 78.00	3.200	3.206	-0.006	1.000	9833	0.002758		10.0	
D 27 d3-NMeFOSAA	573.00	> 419.00	3.345	3.345	0.0	1.347	3072255	2.34	93.5	2637	
28 N-methylperfluorooctanesulfonamide	570.00	> 419.00	3.376	3.350	0.026	1.009	4079	0.003319		1.8	
D 32 d5-NEtFOSAA	589.00	> 419.00	3.514	3.514	0.0	1.415	2414033	2.25	90.2	1337	
D 30 13C2 PFUnA	565.00	> 520.00	3.514	3.514	0.0	1.415	6236677	2.46	98.2	7177	
33 N-ethylperfluorooctanesulfonamide	584.00	> 419.00	3.514	3.518	-0.004	1.000	3034	0.003437		9.0	M
31 Perfluoroundecanoic acid	563.00	> 519.00	3.514	3.518	-0.004	1.000	14225	0.005015		3.0	R
	563.00	> 169.00	3.544	3.518	0.026	1.009	3232		4.40(5.24-15.72)	4.2	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 36 13C2 PFDaA	615.00 > 570.00	3.804	3.819	-0.015	1.532	6842773	2.19	87.5	10480	
D 43 13C2 PFTeDA	715.00 > 670.00	4.309	4.309	0.0	1.735	4342918	1.86	74.3	6025	

**QC Flag Legend**

Processing Flags

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d

Injection Date: 15-Nov-2018 02:09:25

Instrument ID: A9

Lims ID: 480-144495-C-3-A

Lab Sample ID: 320-144495-3

Client ID: MW-205

Operator ID: A9\Administrator

ALS Bottle#: 47

Worklist Smp#: 3

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

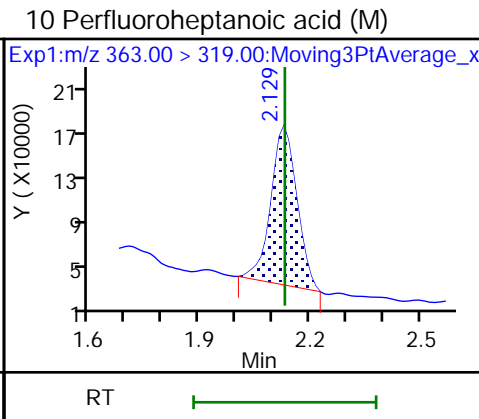
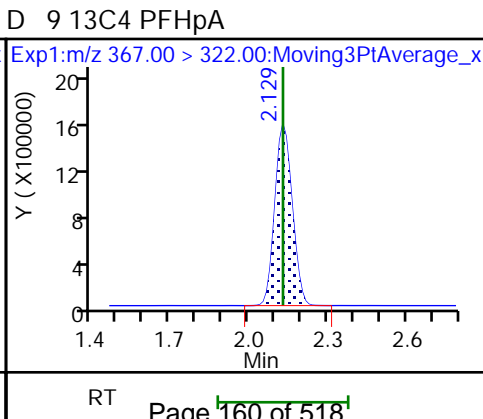
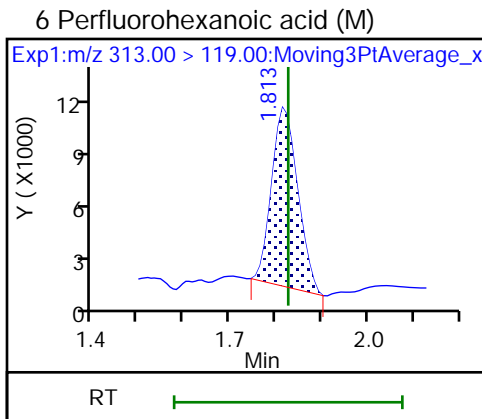
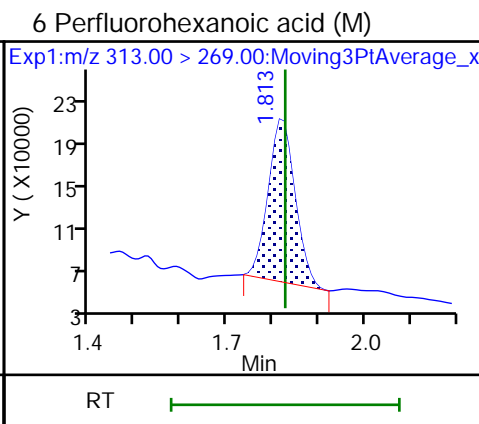
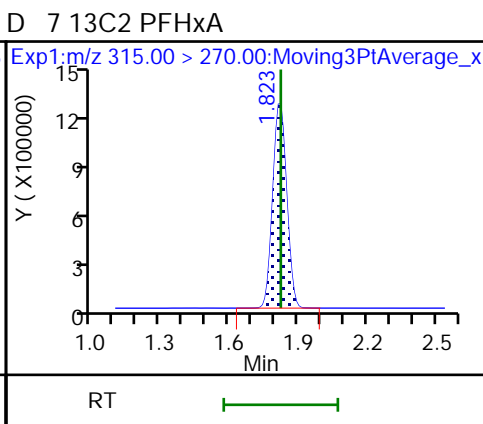
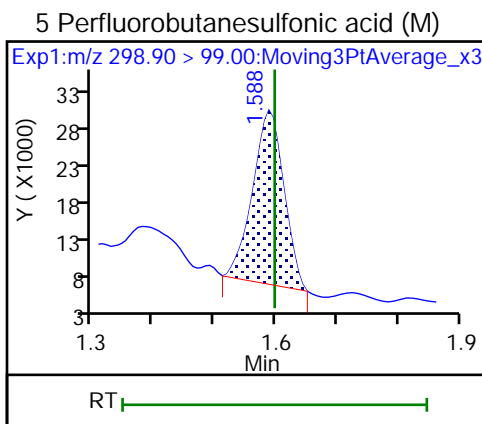
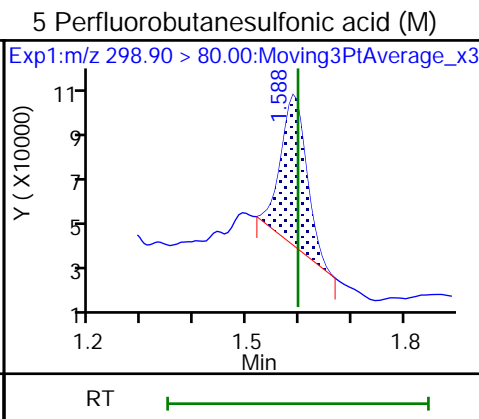
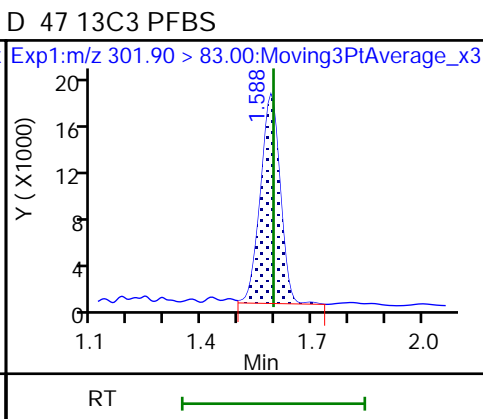
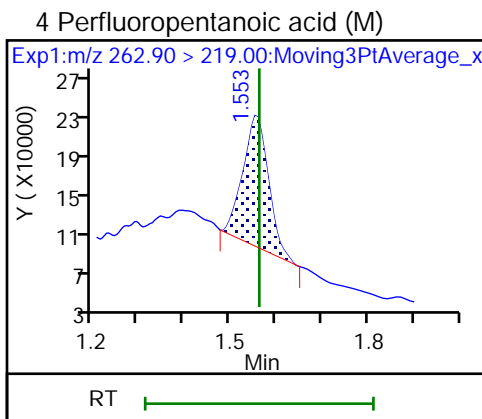
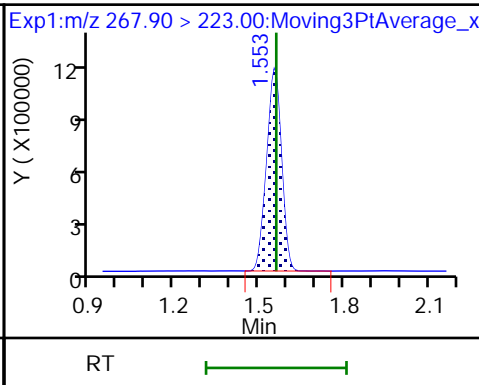
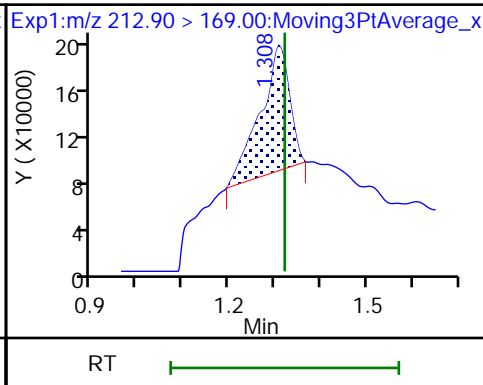
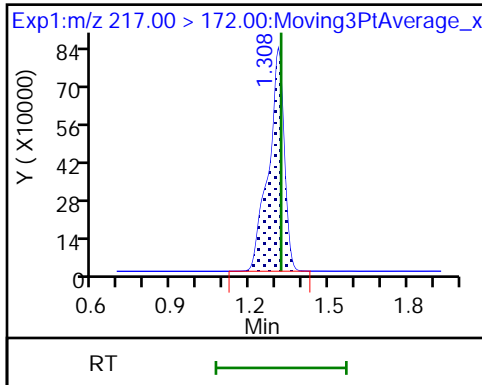
Method: PFAS\_A9

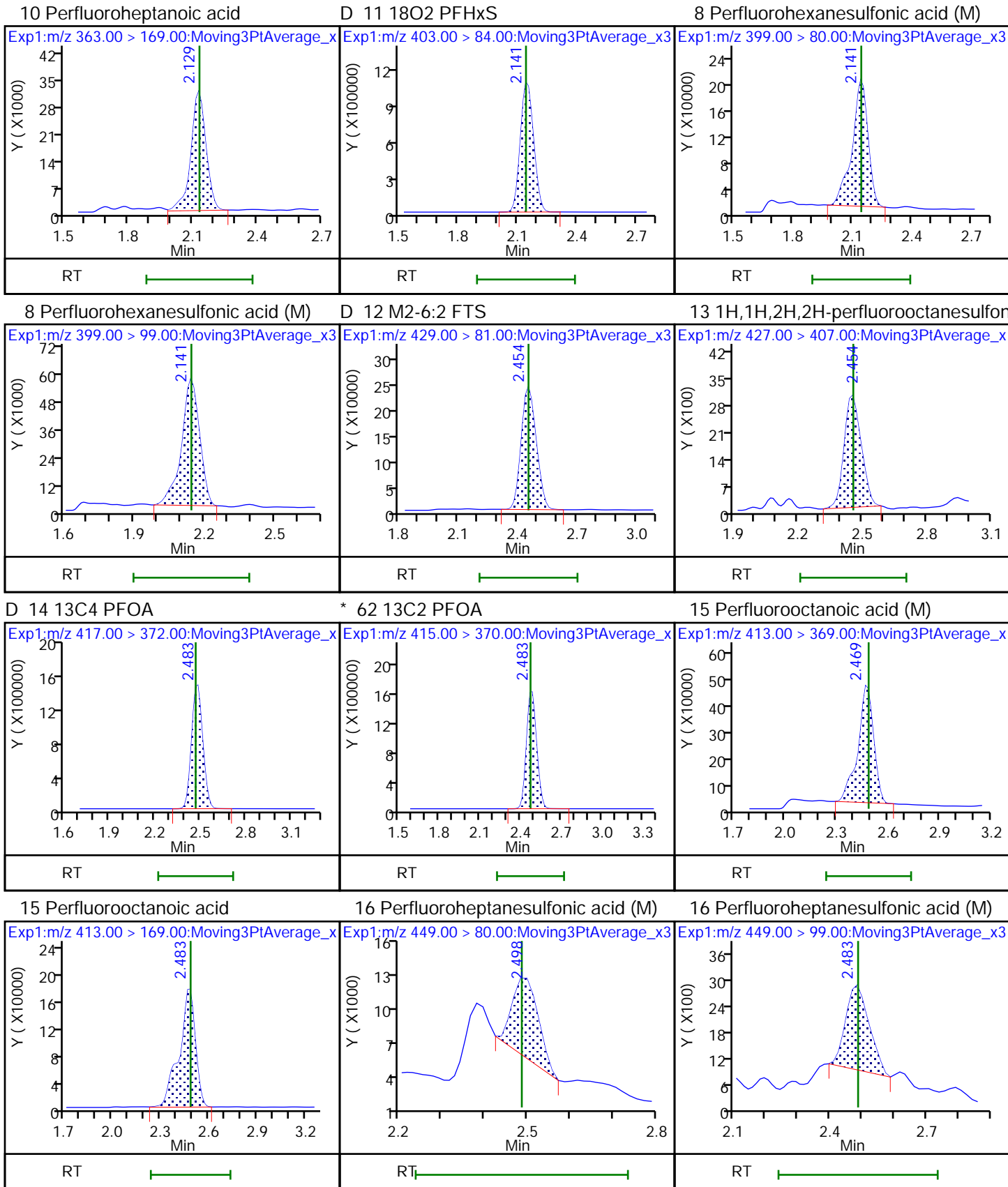
Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid (M)

D 3 13C5 PFPeA



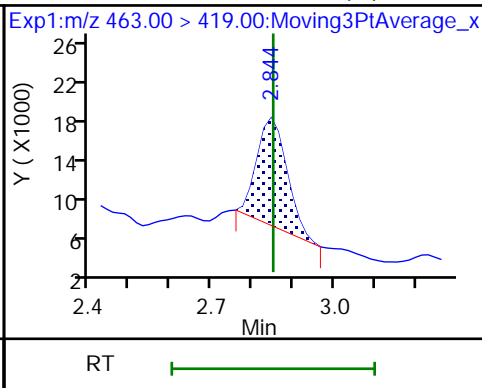
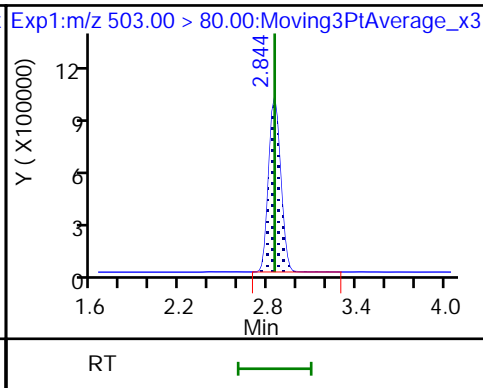
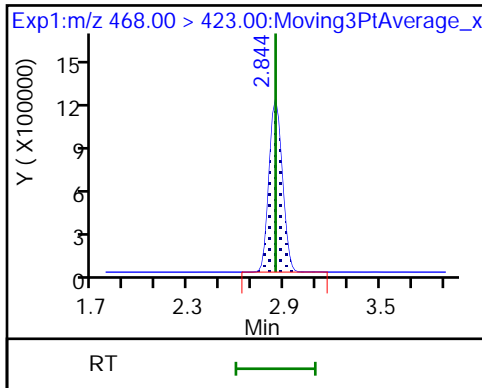




D 19 13C5 PFNA

D 18 13C4 PFOS

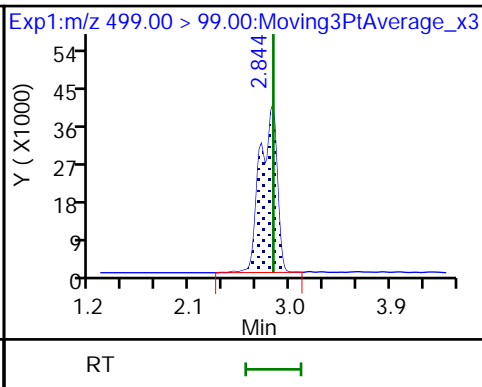
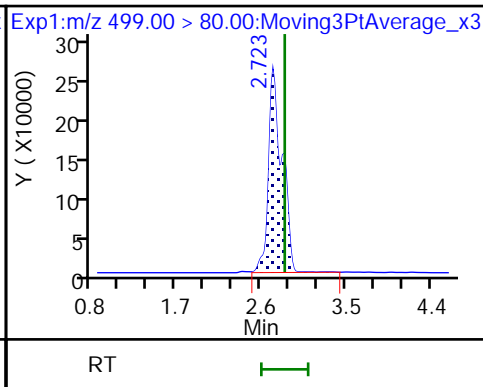
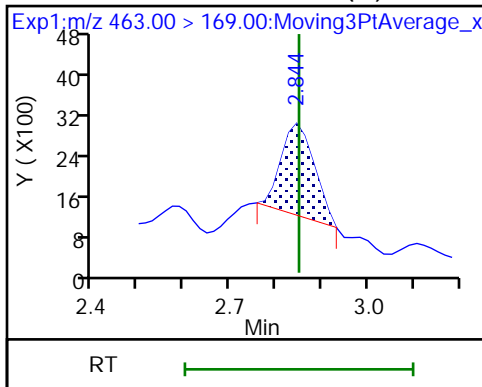
20 Perfluorononanoic acid (M)



20 Perfluorononanoic acid (M)

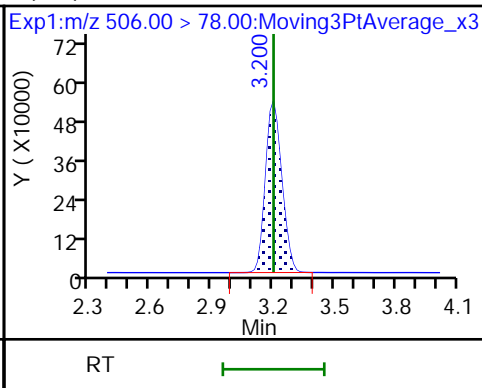
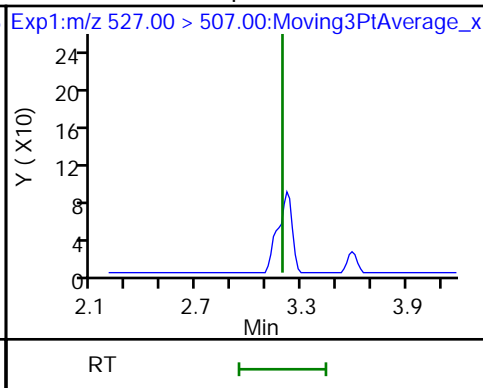
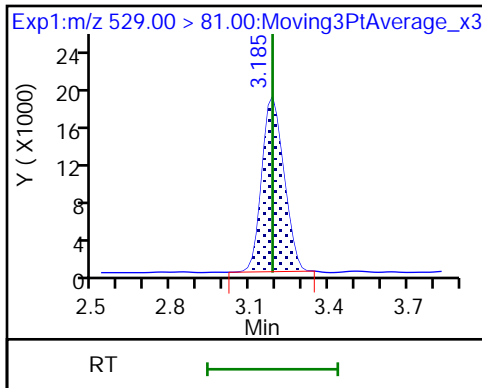
17 Perfluorooctanesulfonic acid

17 Perfluorooctanesulfonic acid



D 26 M2-8:2 FTS

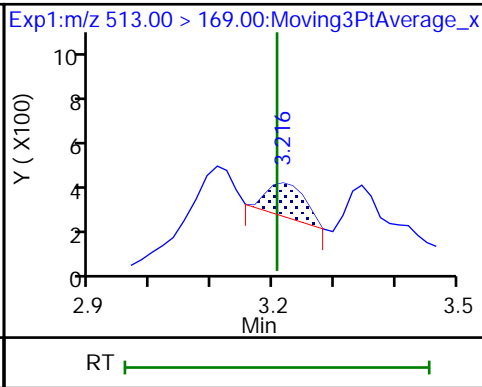
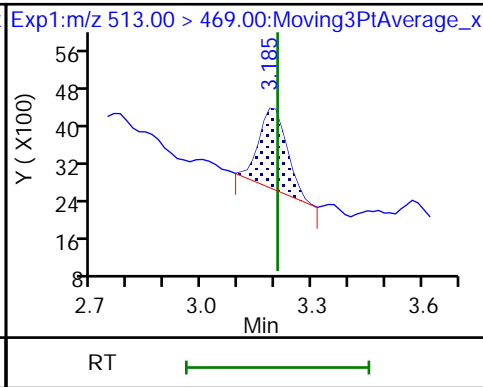
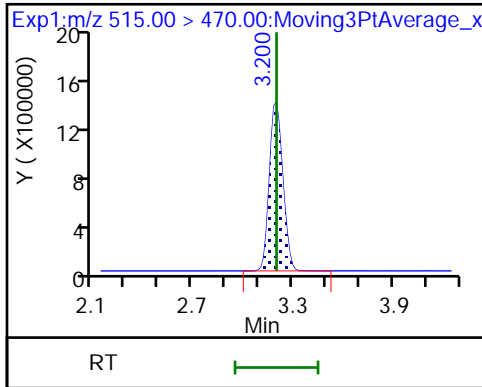
25 1H,1H,2H,2H-perfluorodecanesulfonate (M) 13C8 FOSA

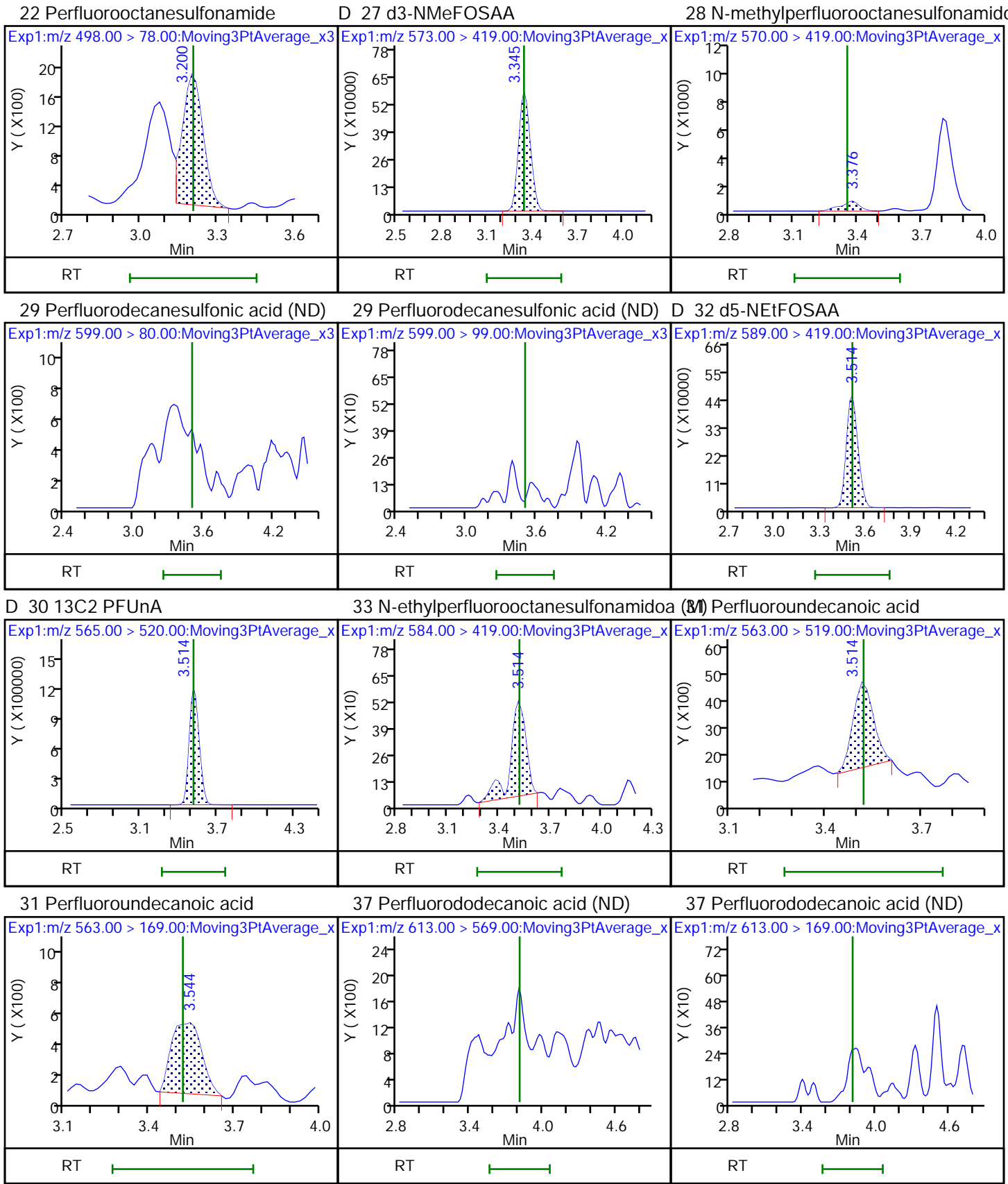


D 23 13C2 PFDA

24 Perfluorodecanoic acid

24 Perfluorodecanoic acid (M)

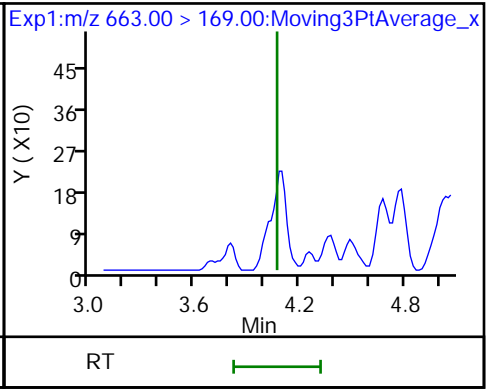
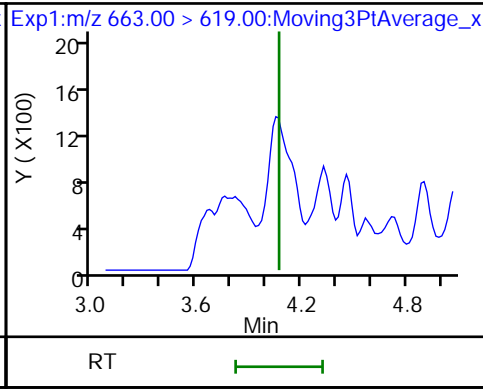
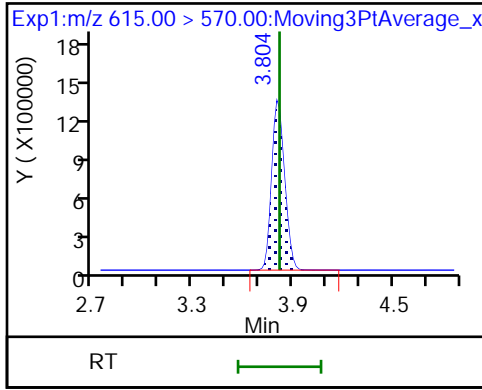




D 36 13C2 PFDoA

41 Perfluorotridecanoic acid (ND)

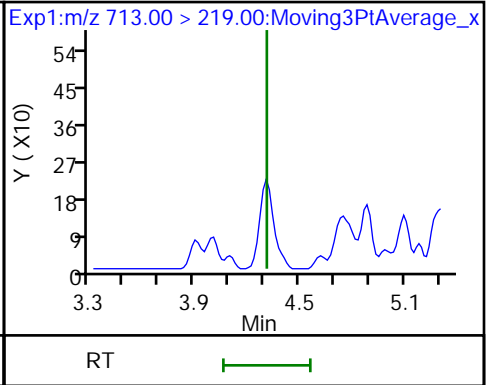
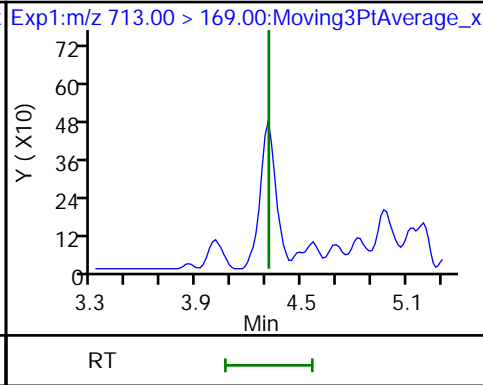
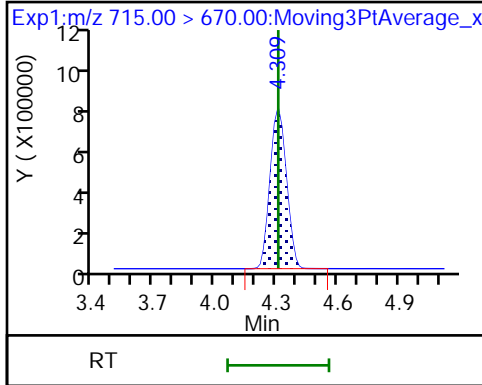
41 Perfluorotridecanoic acid (ND)



D 43 13C2 PFTeDA

42 Perfluorotetradecanoic acid (ND)

42 Perfluorotetradecanoic acid (ND)



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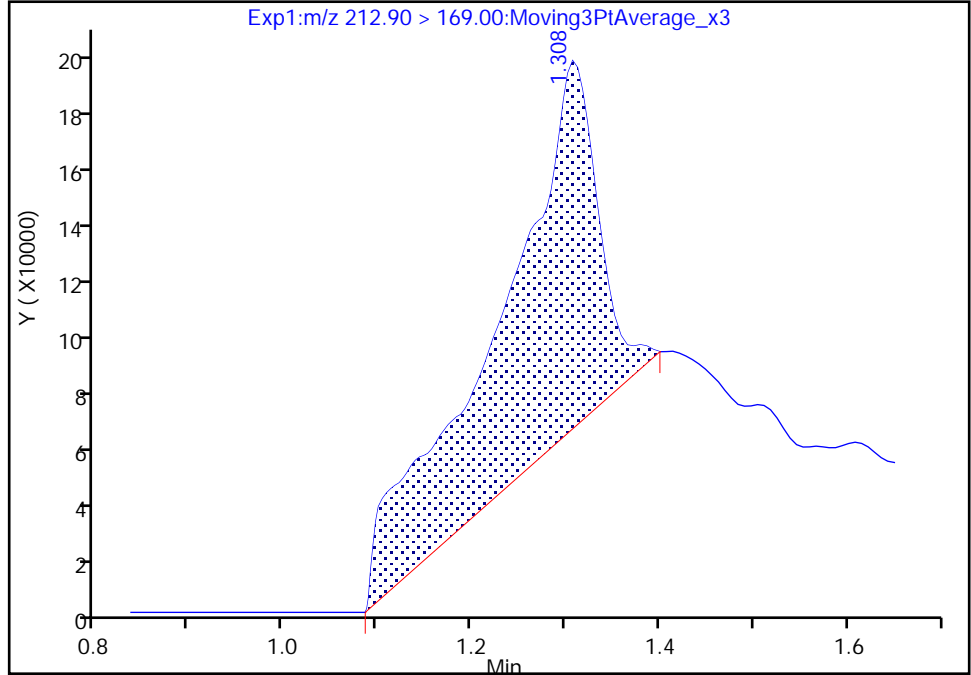
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Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

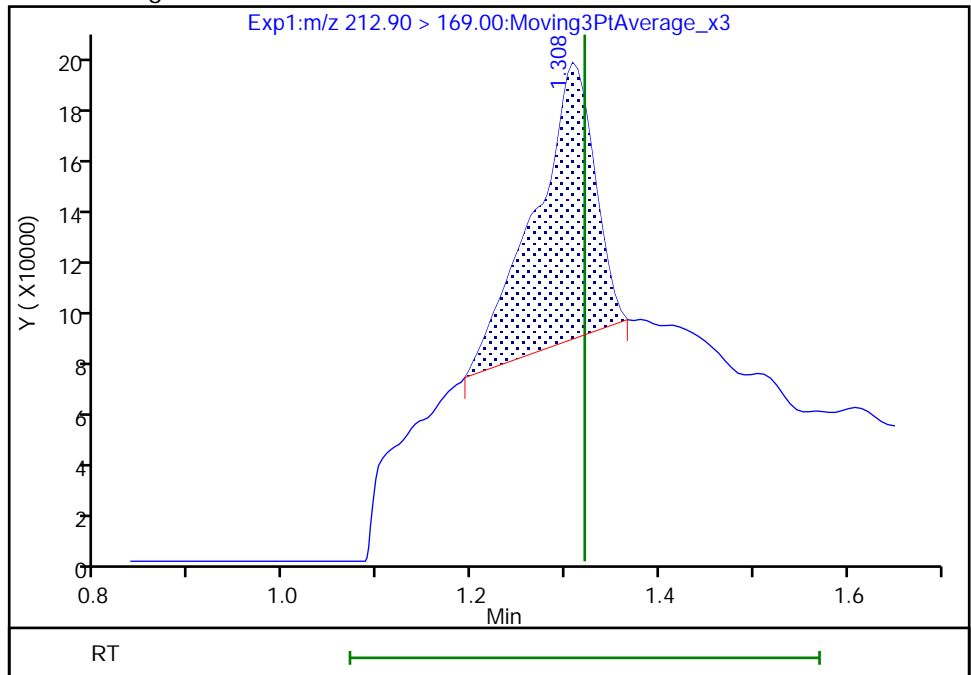
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Area: 985404  
Amount: 0.772948  
Amount Units: ng/ml

Processing Integration Results



RT: 1.31  
Area: 477232  
Amount: 0.374339  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 20-Nov-2018 09:37:27  
Audit Action: Manually Integrated

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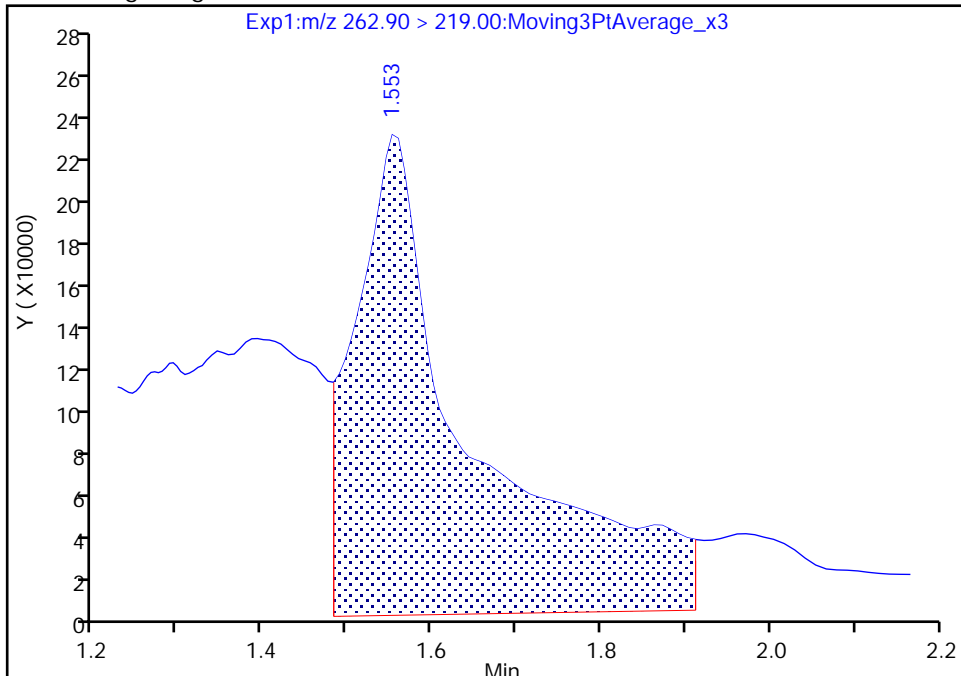
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Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

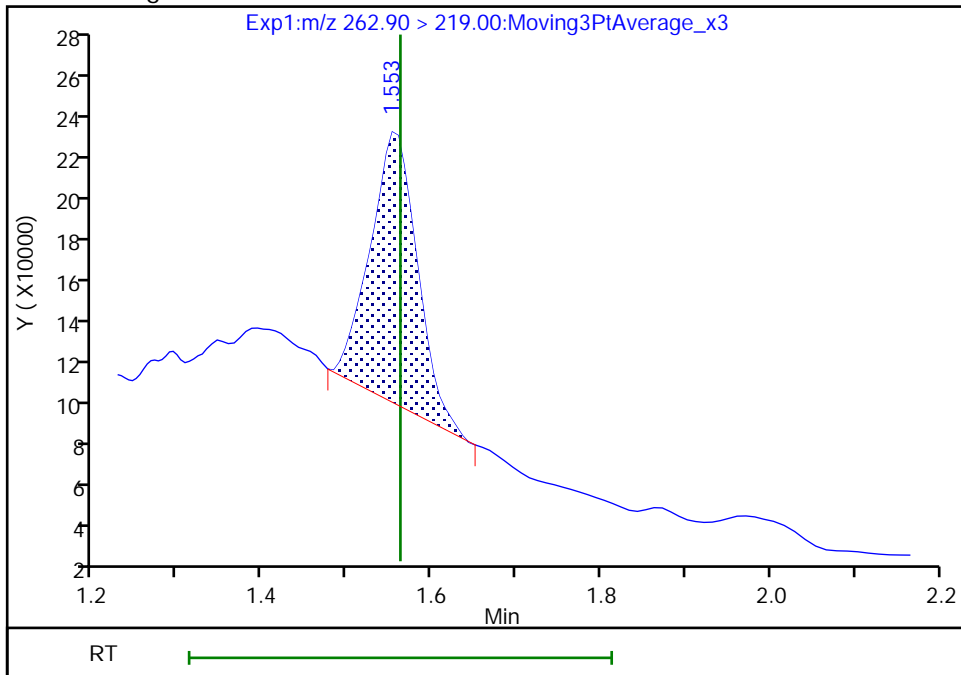
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Amount Units: ng/ml

Processing Integration Results



RT: 1.55  
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Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 20-Nov-2018 09:37:32  
Audit Action: Manually Integrated

TestAmerica Sacramento

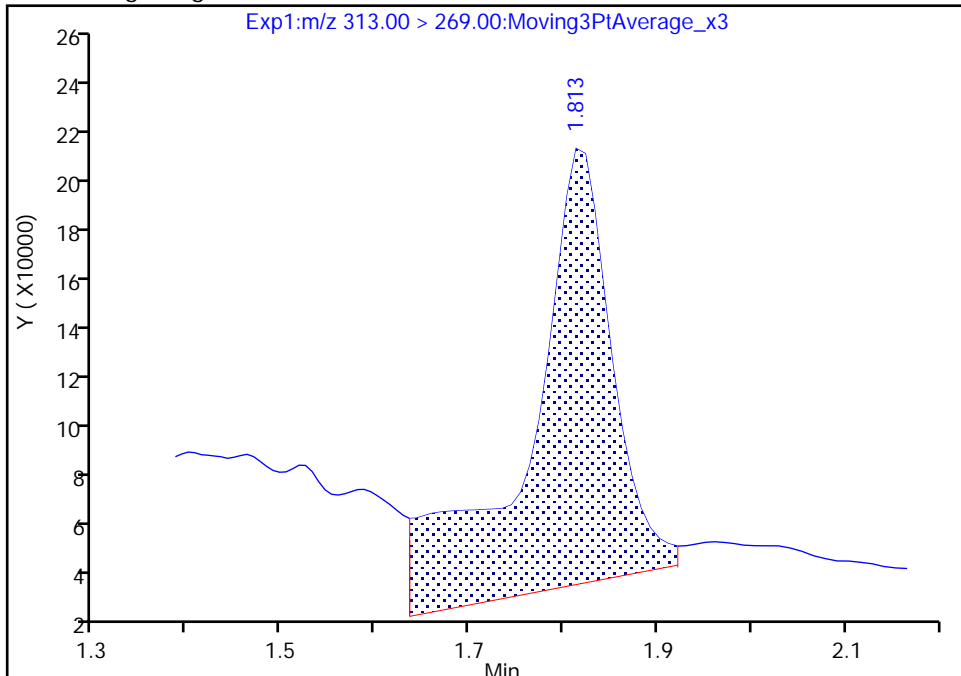
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Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

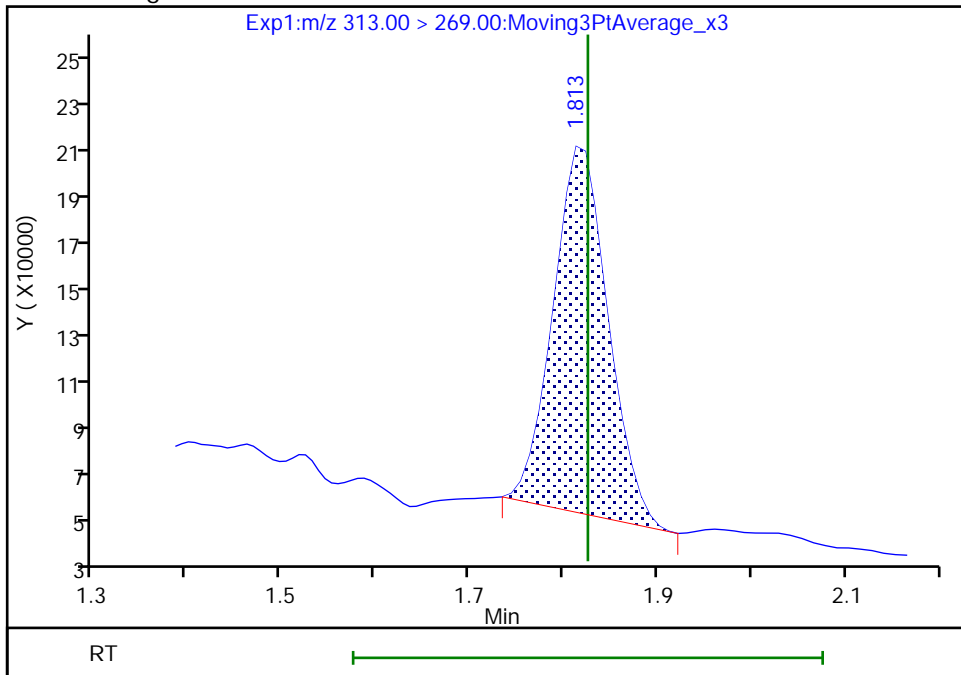
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Amount: 0.597085  
Amount Units: ng/ml

Processing Integration Results



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Amount: 0.337354  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

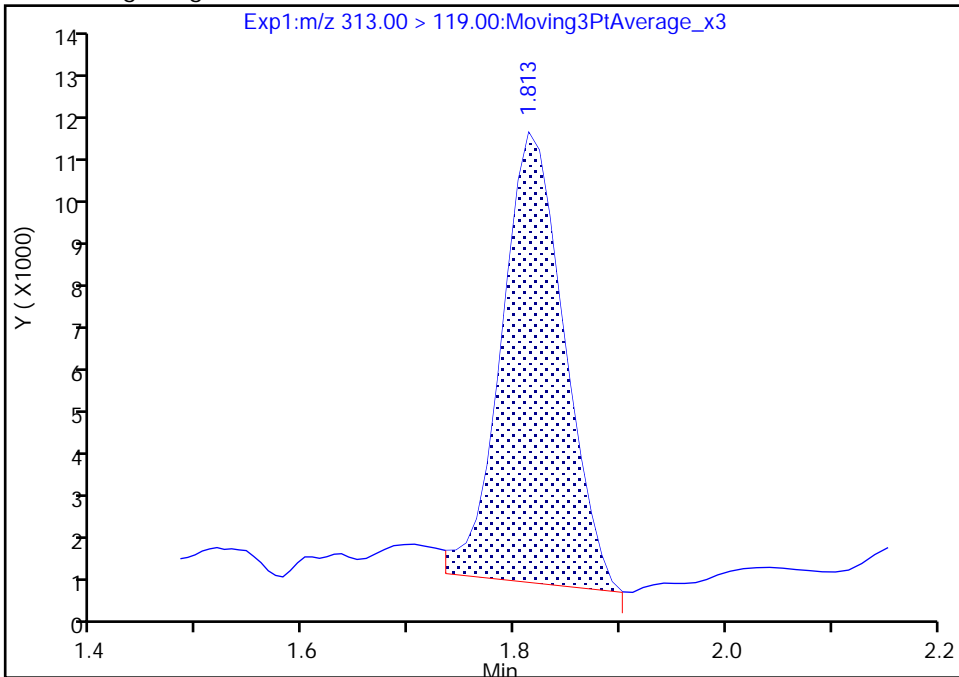
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Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 2

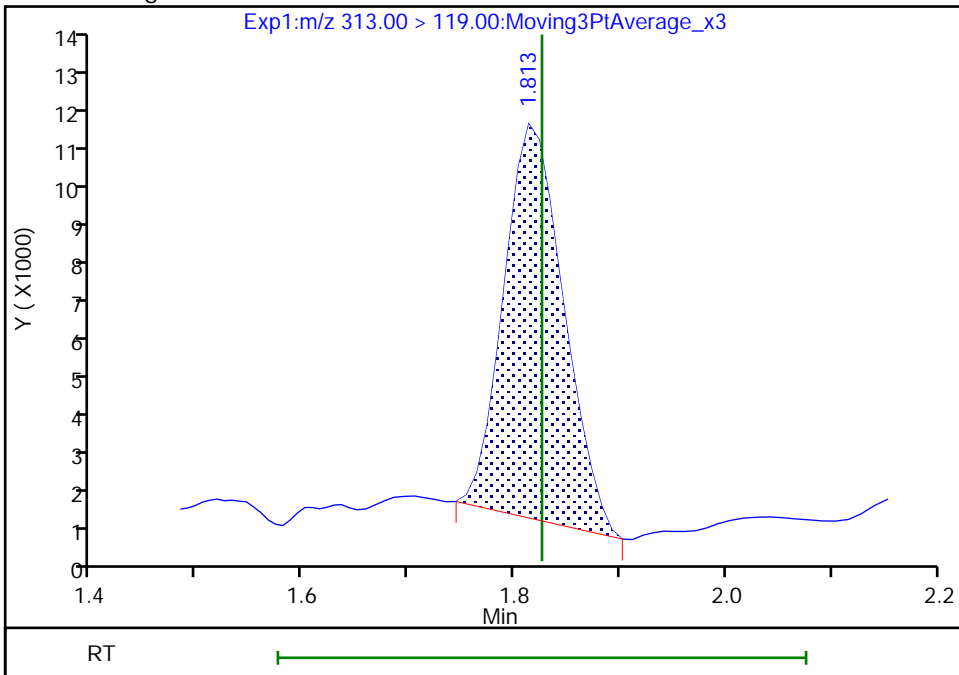
RT: 1.81  
Area: 41048  
Amount: 0.597085  
Amount Units: ng/ml

Processing Integration Results



RT: 1.81  
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Amount: 0.337354  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

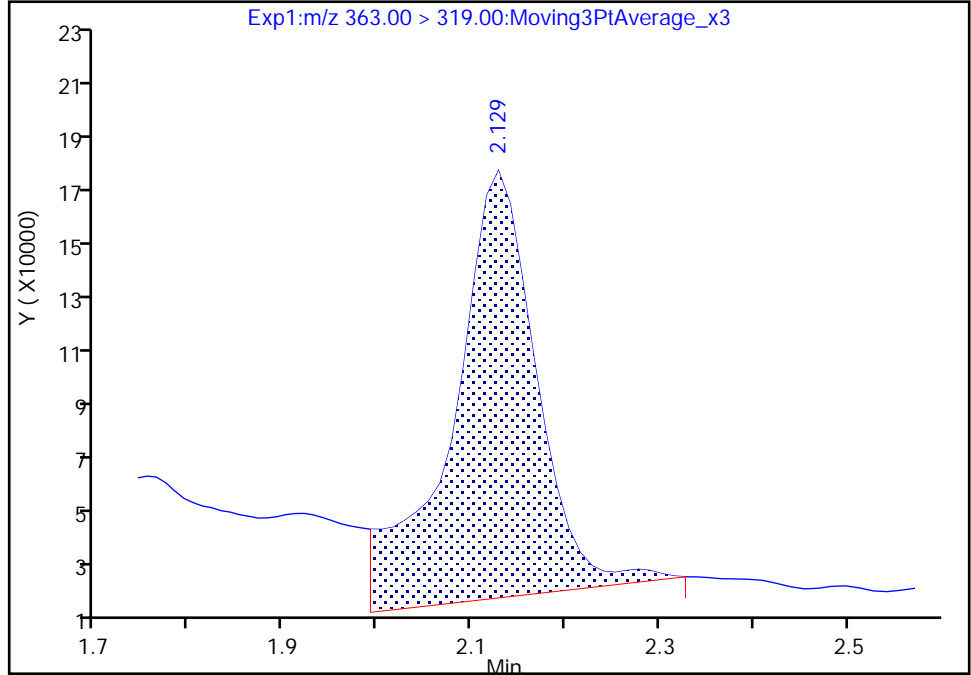
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Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

10 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

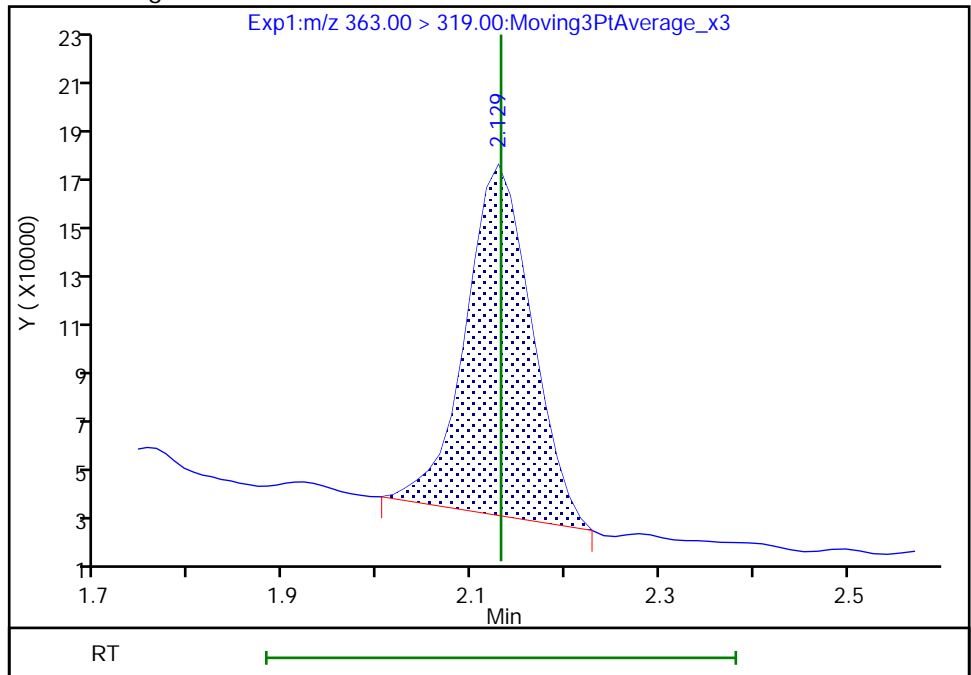
RT: 2.13  
Area: 967340  
Amount: 0.325676  
Amount Units: ng/ml

Processing Integration Results



RT: 2.13  
Area: 673007  
Amount: 0.226582  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 20-Nov-2018 09:37:53  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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TestAmerica Sacramento

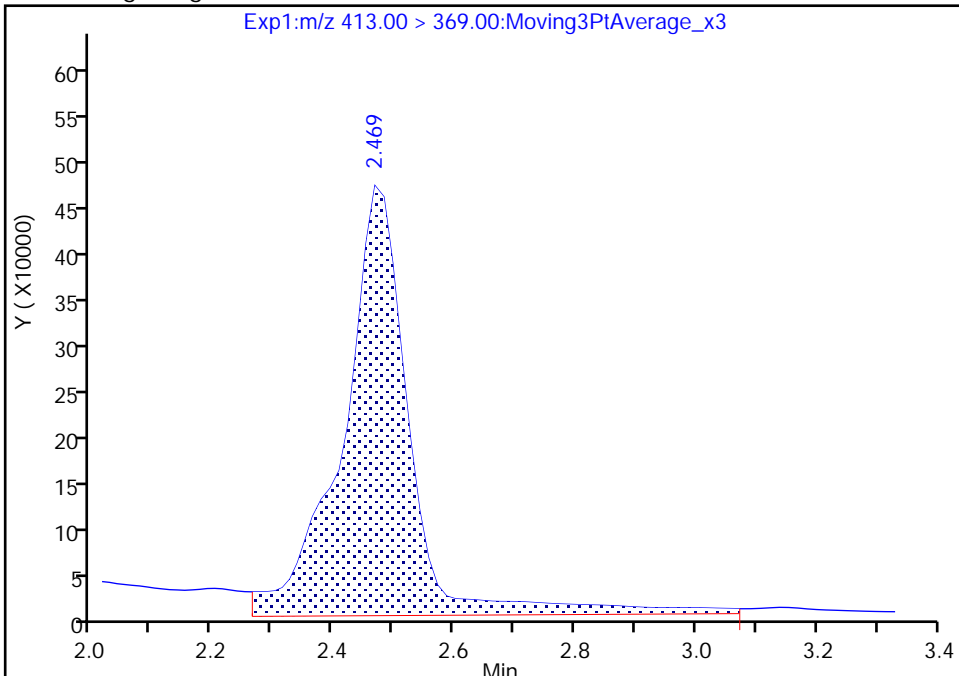
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Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

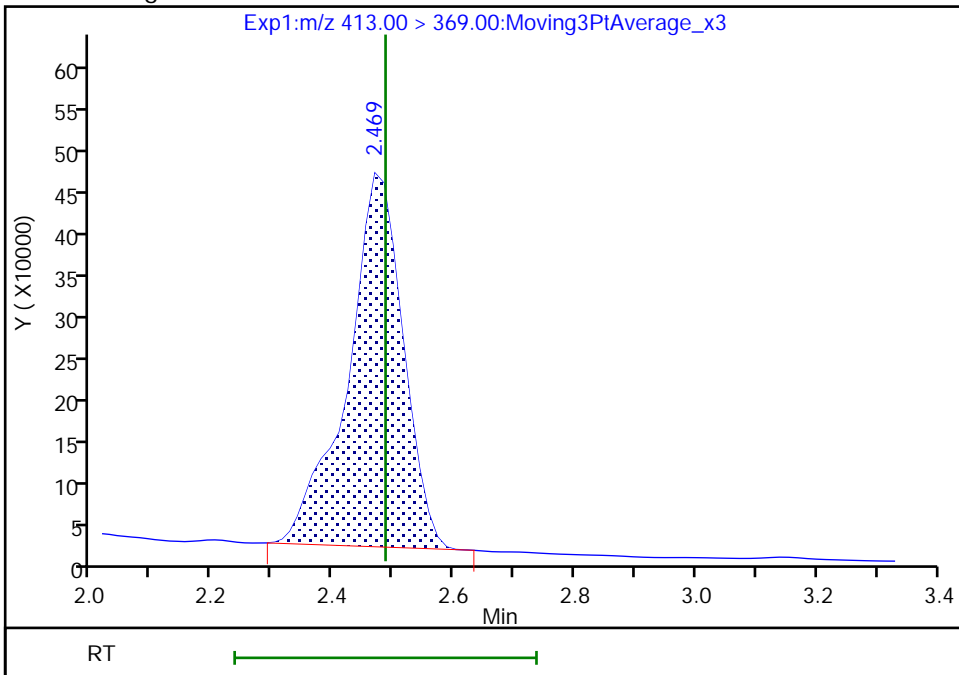
RT: 2.47  
Area: 3618793  
Amount: 1.112775  
Amount Units: ng/ml

Processing Integration Results



RT: 2.47  
Area: 2866599  
Amount: 0.881476  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

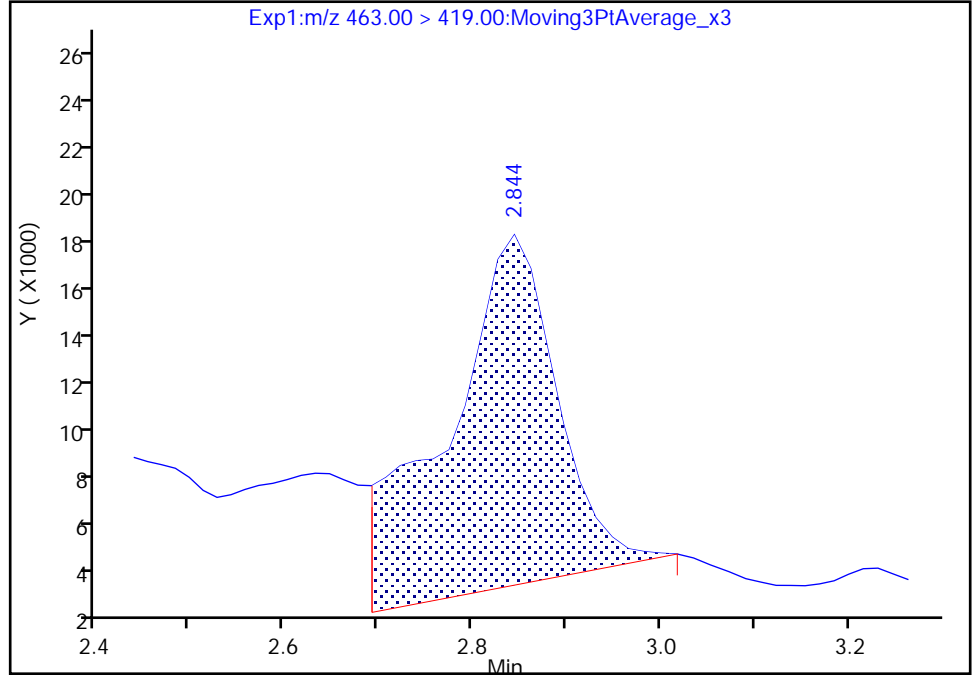
Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d  
Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

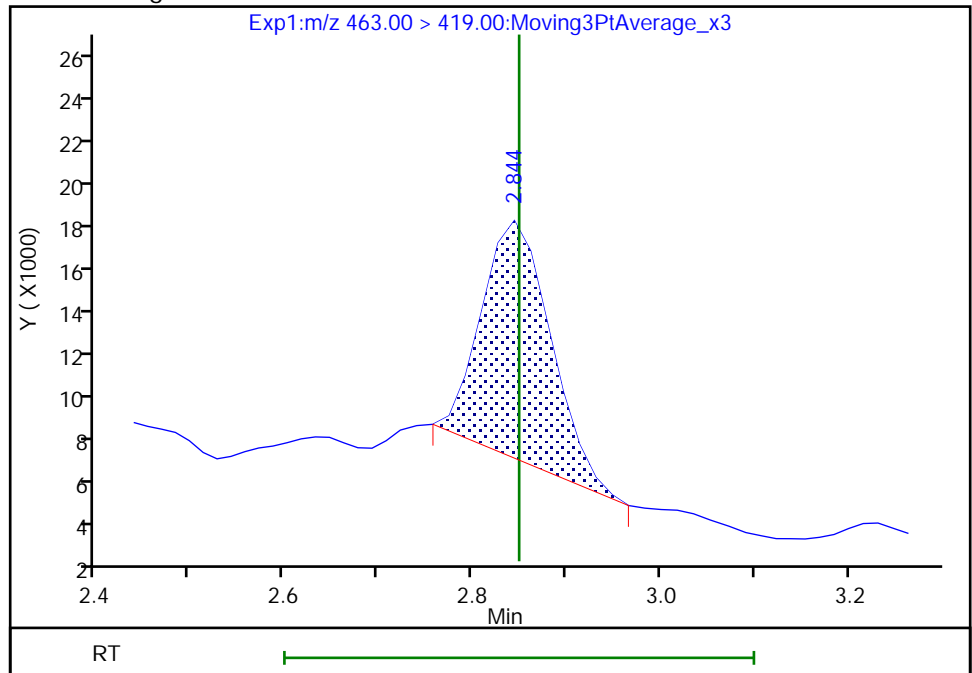
RT: 2.84  
Area: 115315  
Amount: 0.041148  
Amount Units: ng/ml

Processing Integration Results



RT: 2.84  
Area: 53816  
Amount: 0.019203  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 20-Nov-2018 09:38:21  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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TestAmerica Sacramento

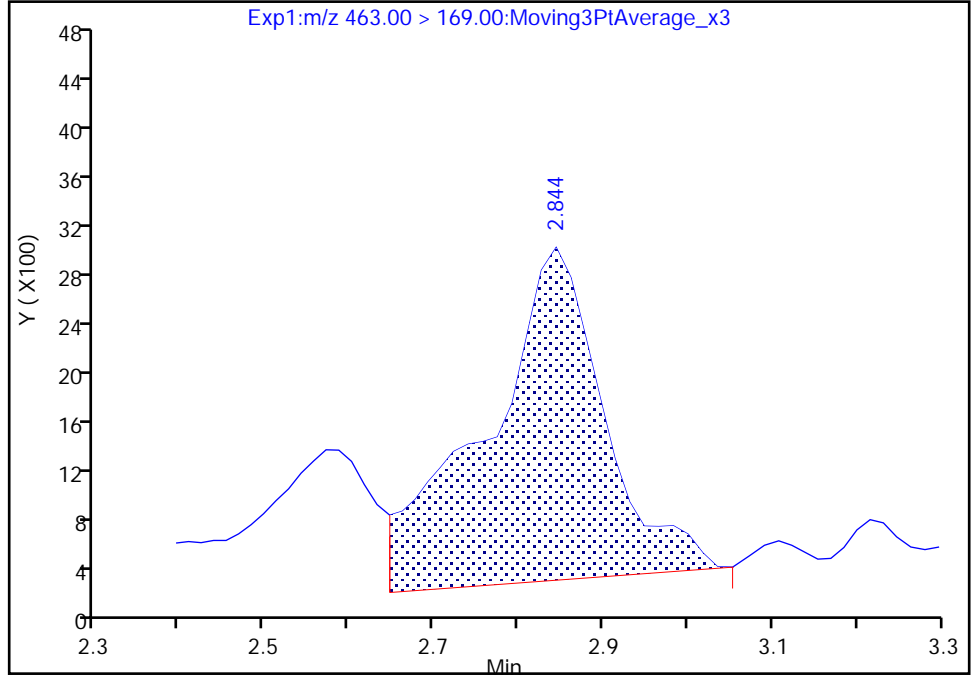
Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d  
Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 2

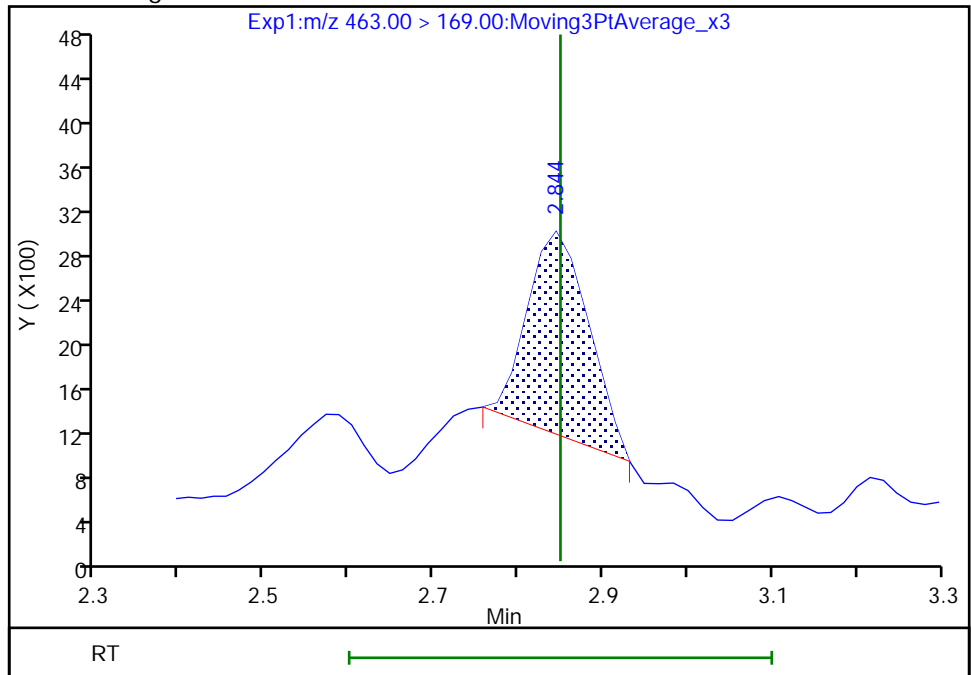
RT: 2.84  
Area: 26255  
Amount: 0.041148  
Amount Units: ng/ml

Processing Integration Results



RT: 2.84  
Area: 9101  
Amount: 0.019203  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 20-Nov-2018 09:38:23

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

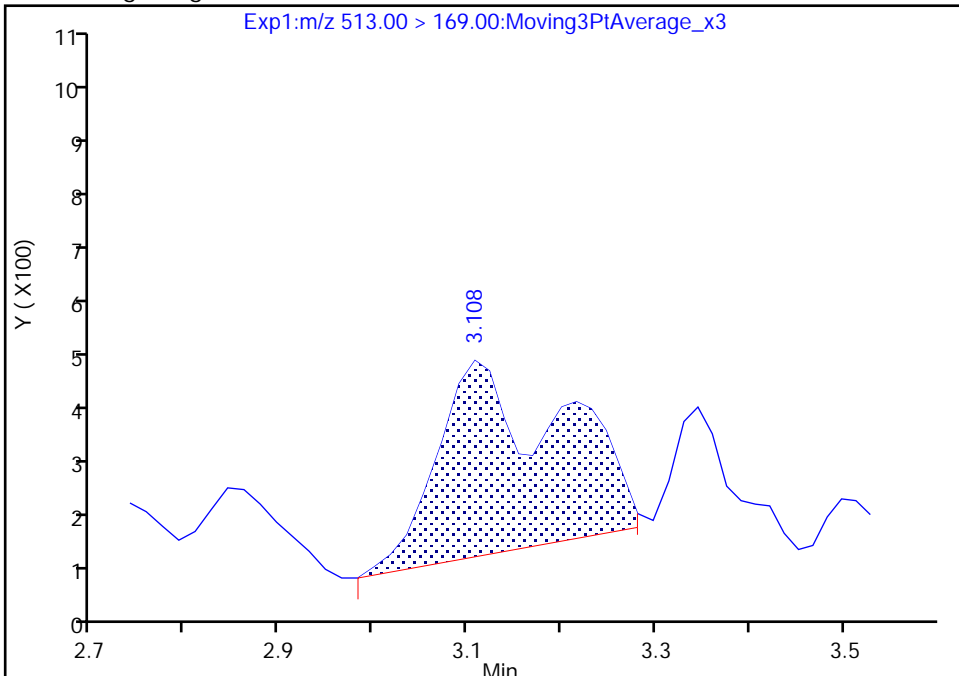
Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d  
Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

24 Perfluorodecanoic acid, CAS: 335-76-2

Signal: 2

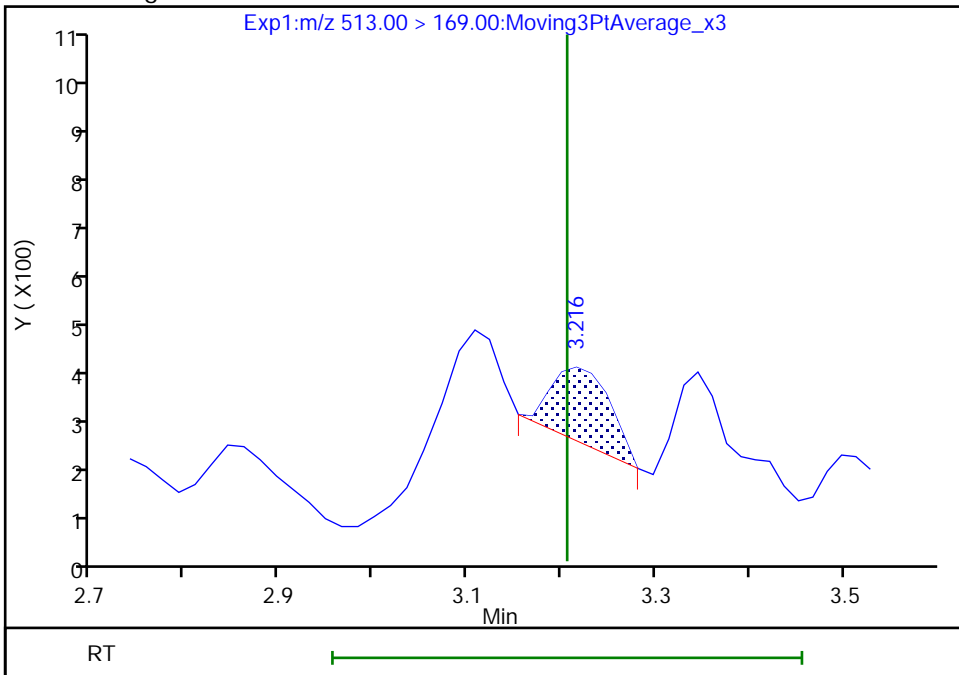
RT: 3.11  
Area: 3034  
Amount: 0.002791  
Amount Units: ng/ml

Processing Integration Results



RT: 3.22  
Area: 615  
Amount: 0.002791  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 20-Nov-2018 09:38:32  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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TestAmerica Sacramento

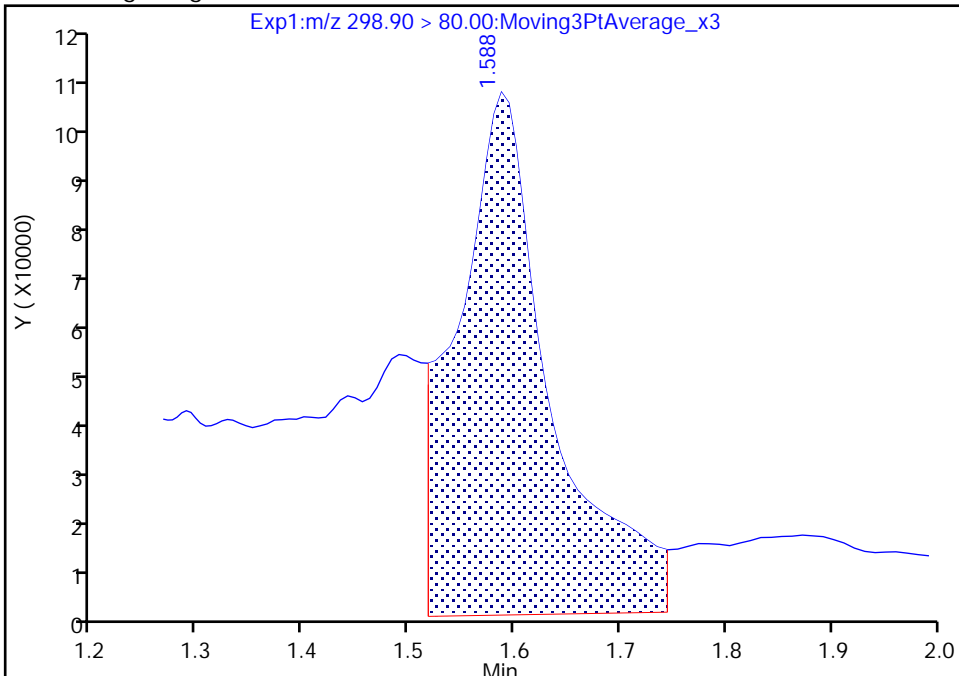
Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d  
Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

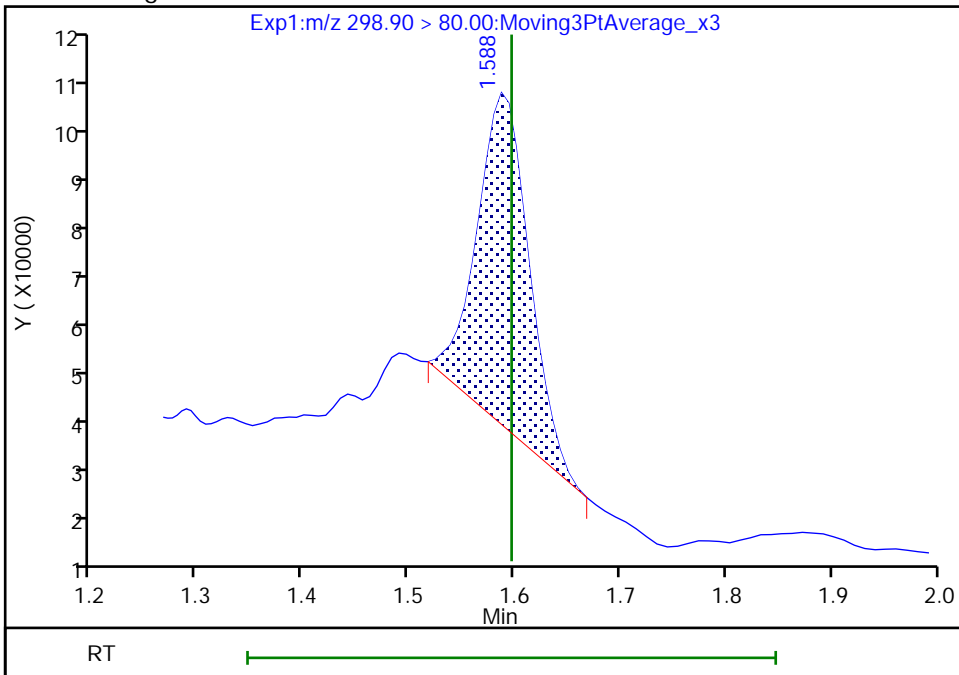
RT: 1.59  
Area: 607224  
Amount: 0.207920  
Amount Units: ng/ml

Processing Integration Results



RT: 1.59  
Area: 217773  
Amount: 0.074568  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

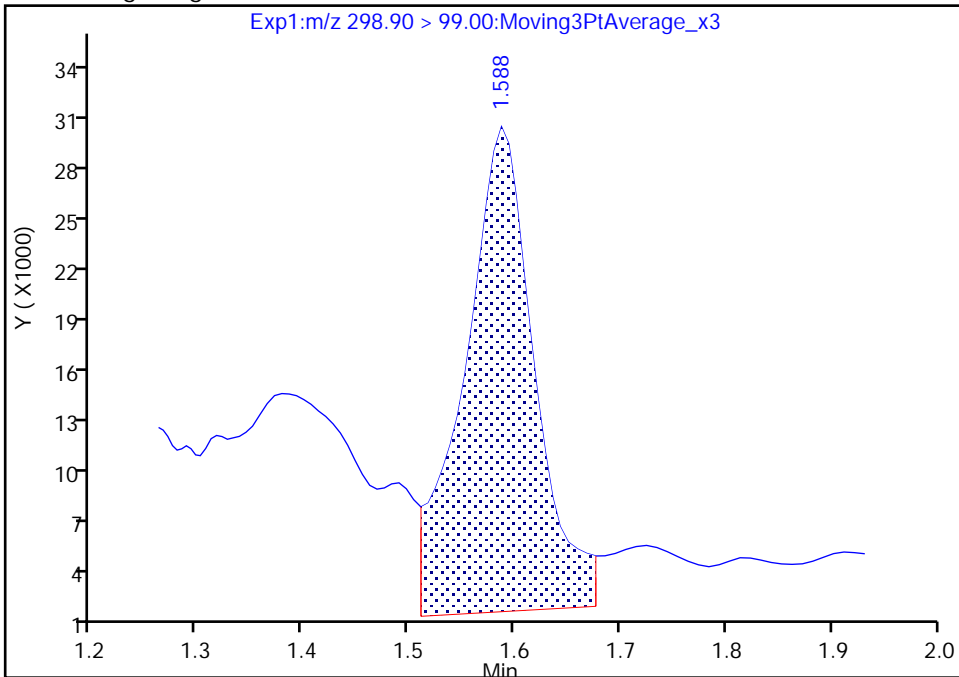
Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d  
Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

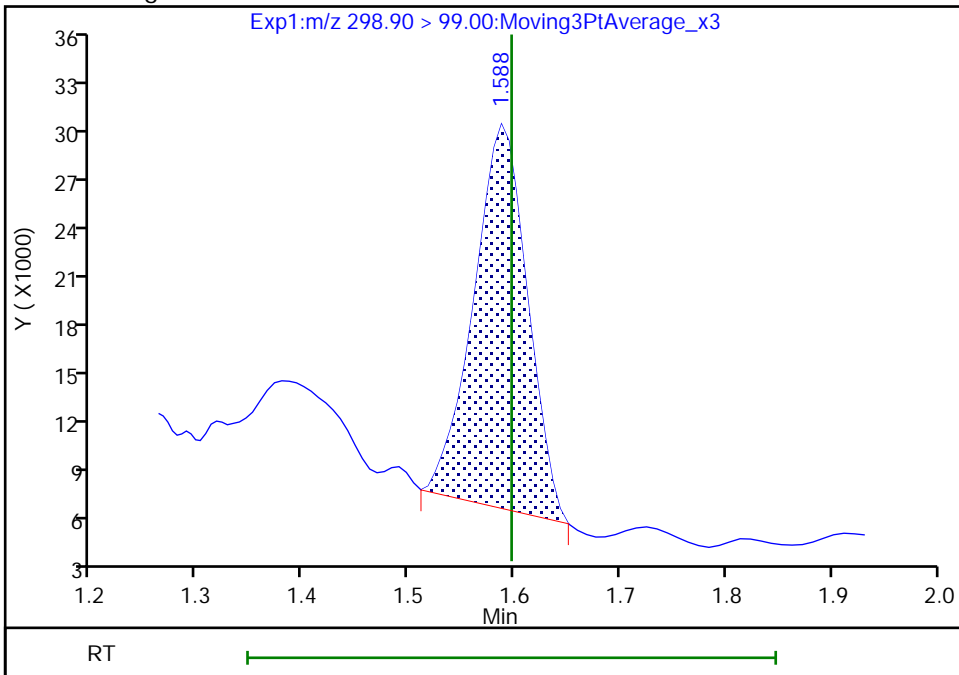
RT: 1.59  
Area: 131313  
Amount: 0.207920  
Amount Units: ng/ml

Processing Integration Results



RT: 1.59  
Area: 82975  
Amount: 0.074568  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

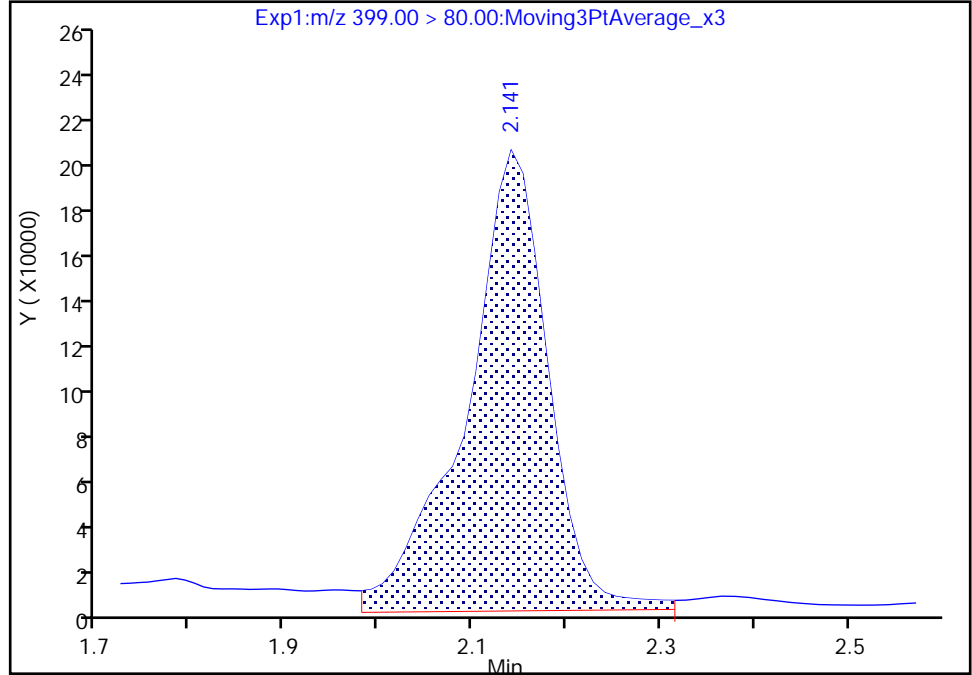
Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d  
Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

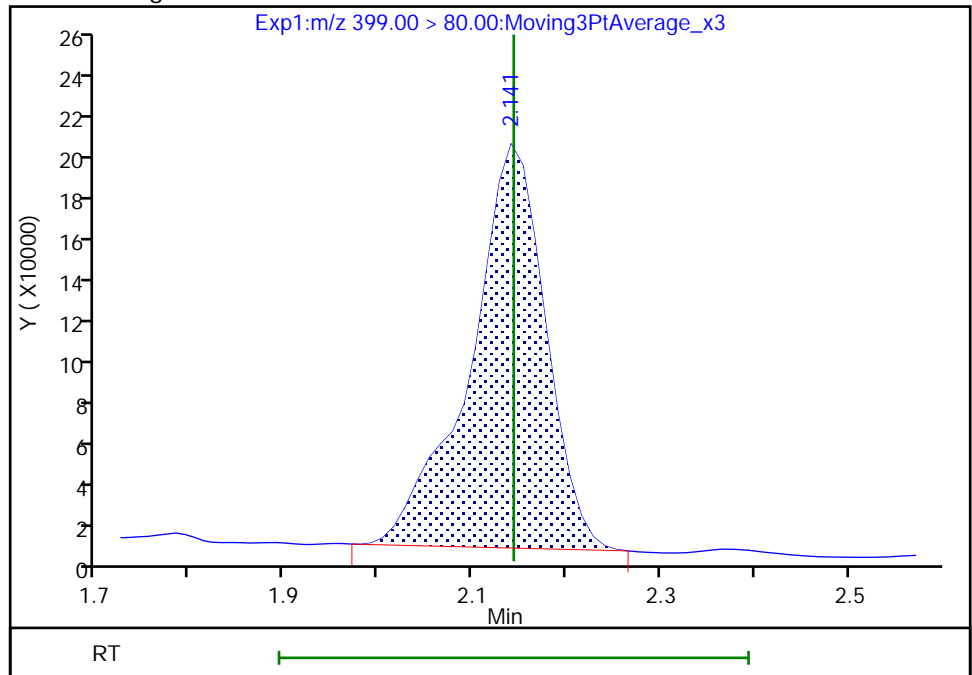
RT: 2.14  
Area: 1196767  
Amount: 0.453215  
Amount Units: ng/ml

Processing Integration Results



RT: 2.14  
Area: 1062829  
Amount: 0.402492  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

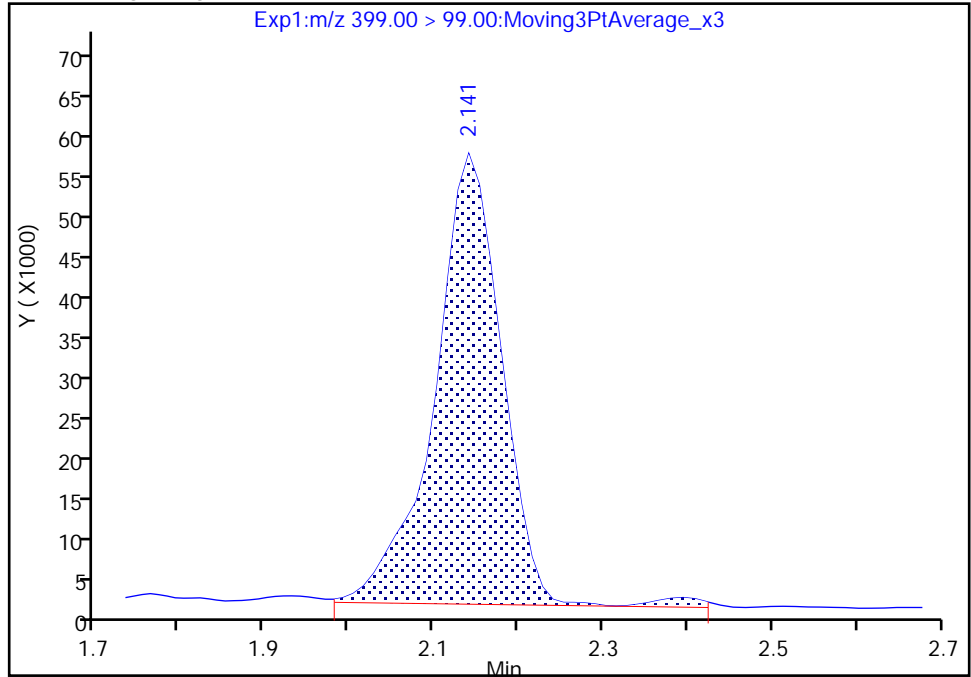
Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d  
Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

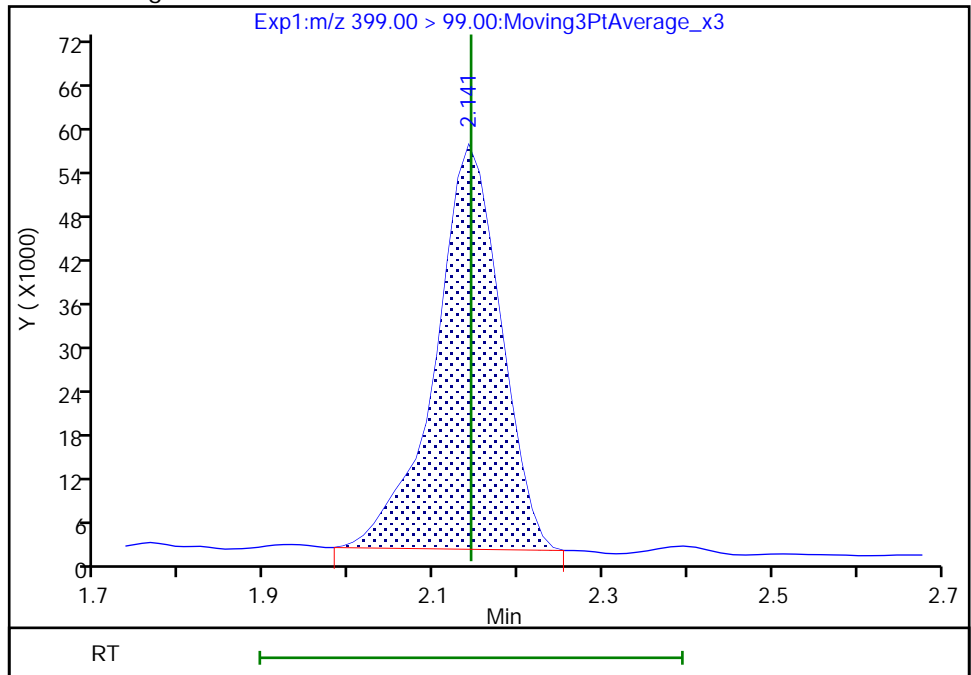
RT: 2.14  
Area: 307931  
Amount: 0.453215  
Amount Units: ng/ml

Processing Integration Results



RT: 2.14  
Area: 296403  
Amount: 0.402492  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 20-Nov-2018 09:38:01

Audit Action: Manually Integrated

Audit Reason: Baseline



TestAmerica Sacramento

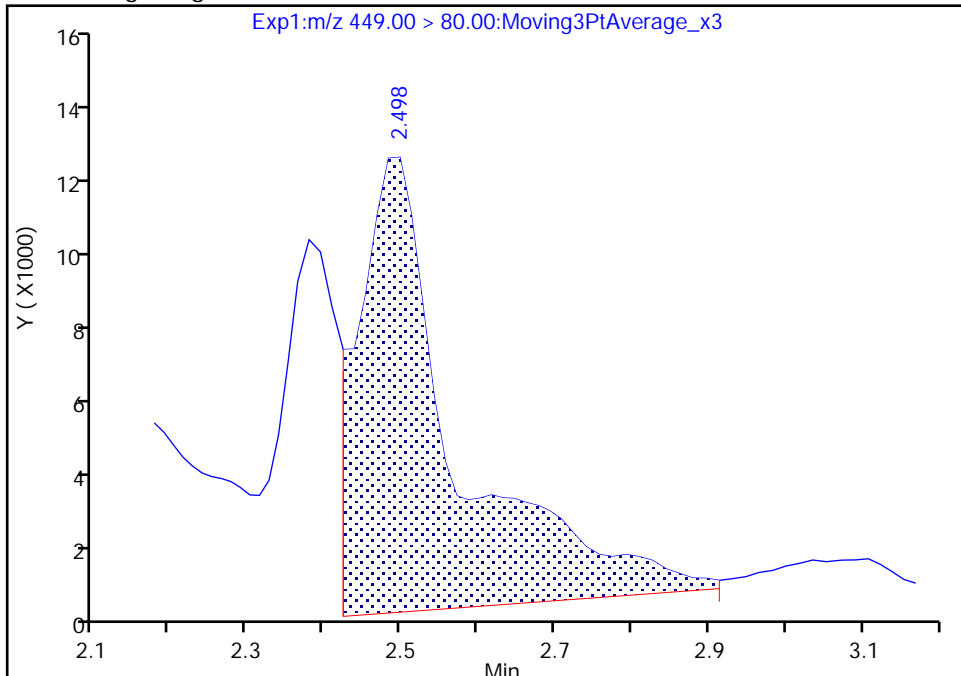
Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d  
Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

16 Perfluoroheptanesulfonic acid, CAS: 375-92-8

Signal: 1

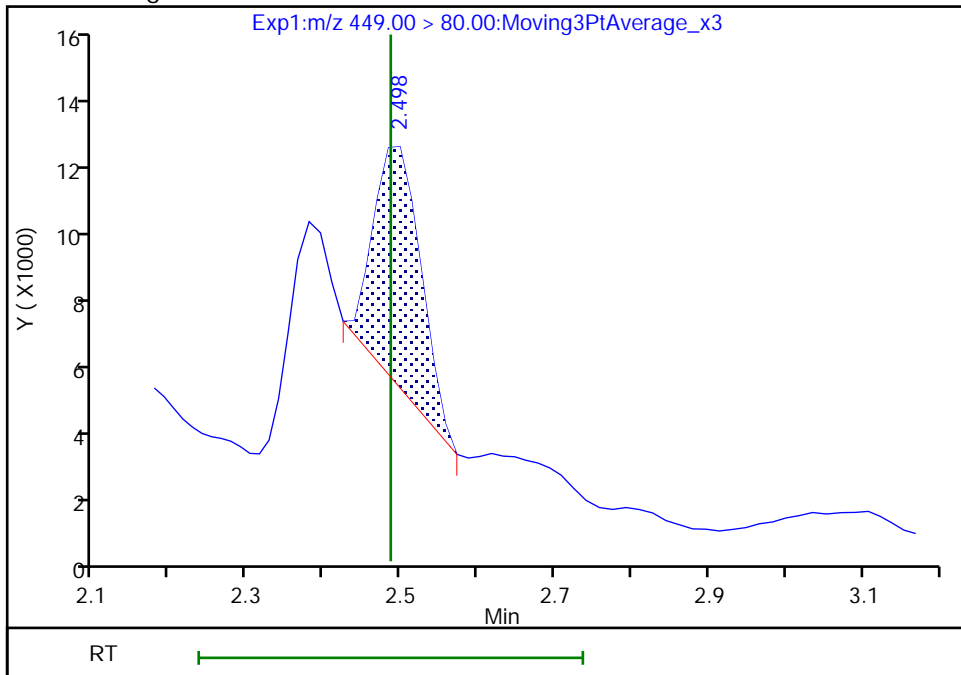
RT: 2.50  
Area: 102923  
Amount: 0.043262  
Amount Units: ng/ml

Processing Integration Results



RT: 2.50  
Area: 28227  
Amount: 0.011865  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 20-Nov-2018 09:38:12  
Audit Action: Manually Integrated

TestAmerica Sacramento

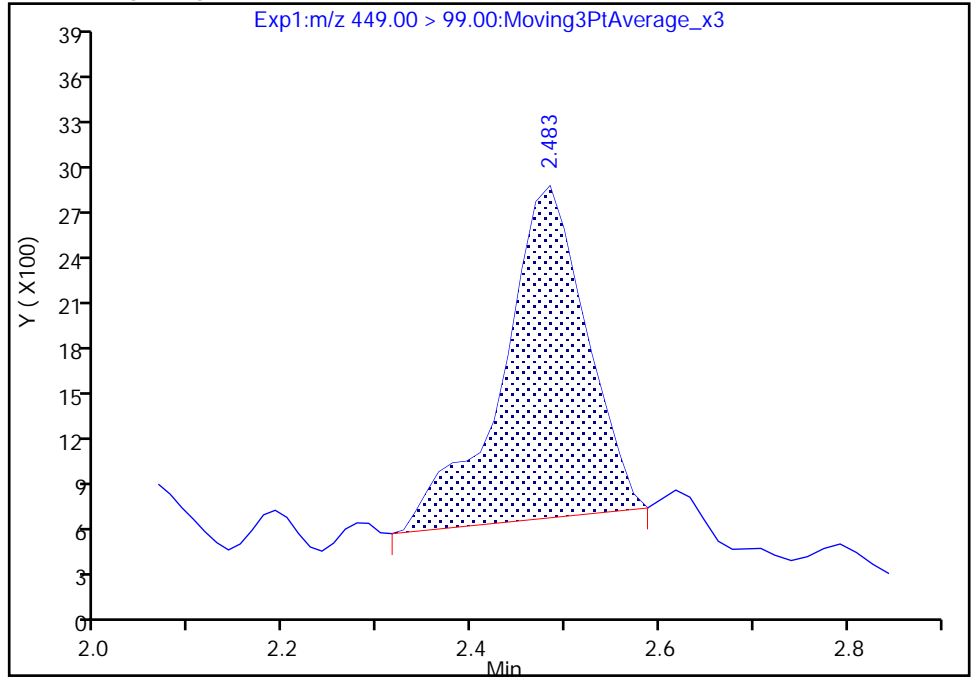
Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d  
Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

16 Perfluoroheptanesulfonic acid, CAS: 375-92-8

Signal: 2

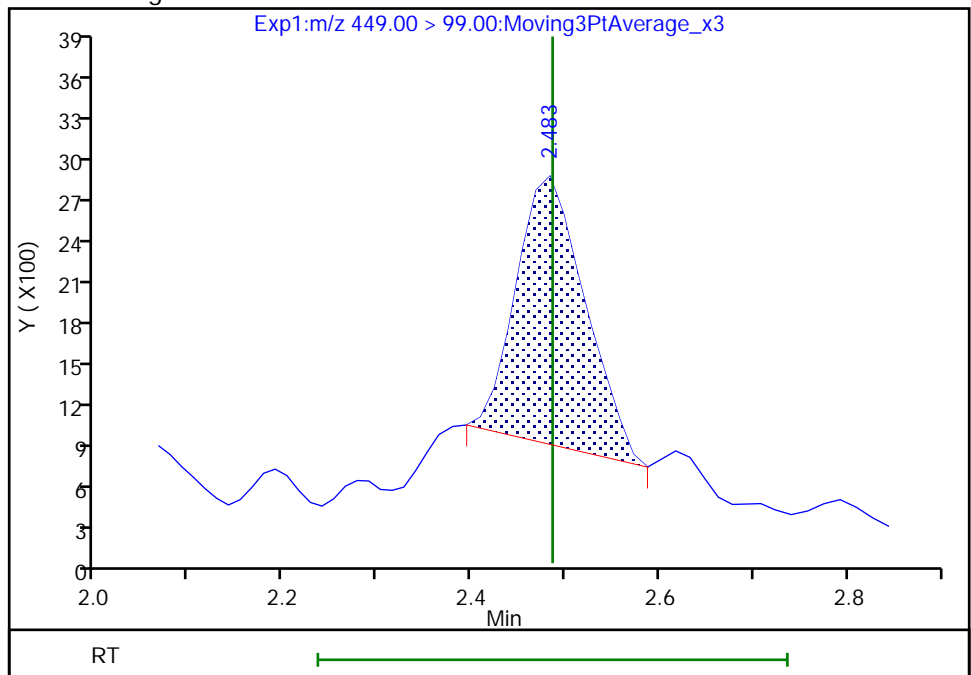
RT: 2.48  
Area: 13573  
Amount: 0.043262  
Amount Units: ng/ml

Processing Integration Results



RT: 2.48  
Area: 9938  
Amount: 0.011865  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 20-Nov-2018 09:38:16

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

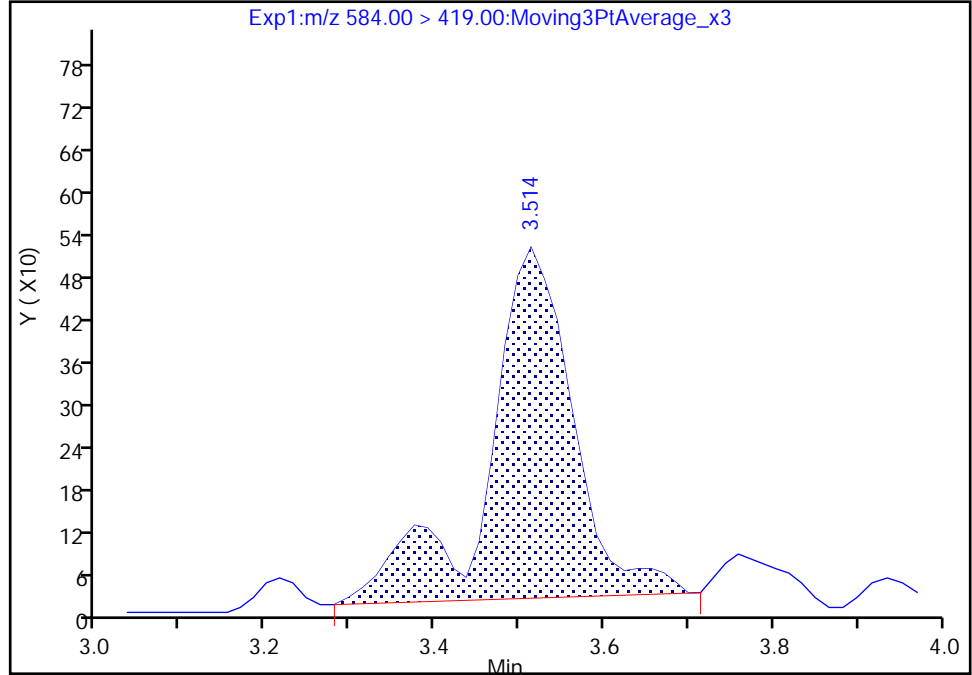
Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_071.d  
Injection Date: 15-Nov-2018 02:09:25 Instrument ID: A9  
Lims ID: 480-144495-C-3-A Lab Sample ID: 320-144495-3  
Client ID: MW-205  
Operator ID: A9\Administrator ALS Bottle#: 47 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

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

Signal: 1

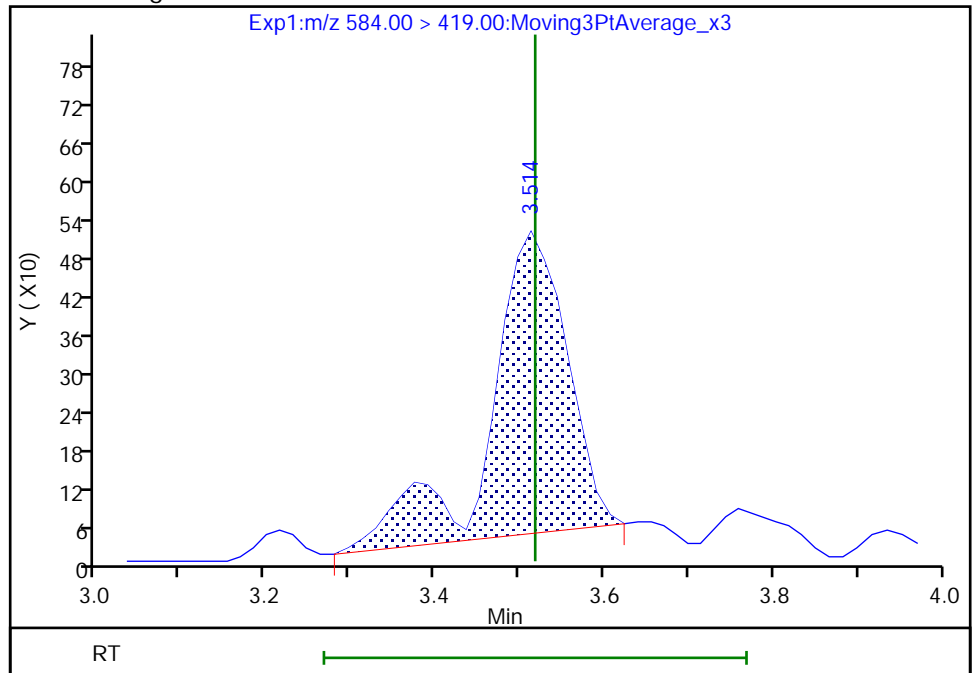
RT: 3.51  
Area: 3515  
Amount: 0.003982  
Amount Units: ng/ml

Processing Integration Results



RT: 3.51  
Area: 3034  
Amount: 0.003437  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 20-Nov-2018 09:38:39  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: DUP-1-20181030 Lab Sample ID: 480-144495-4  
 Matrix: Water Lab File ID: 2018.11.10LLA\_049.d  
 Analysis Method: 537 (modified) Date Collected: 10/30/2018 00:00  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 251.6(mL) Date Analyzed: 11/10/2018 15:43  
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1  
 Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 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)	ND		2.0	0.49
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.36	J	2.0	0.25
335-67-1	Perfluorooctanoic acid (PFOA)	9.6		2.0	0.84
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)	ND		2.0	0.29
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.5	J B	2.0	0.17
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	0.54
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.35
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic 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: <u>TestAmerica Sacramento</u>	Job No.: <u>480-144495-1</u>
SDG No.: _____	
Client Sample ID: <u>DUP-1-20181030</u>	Lab Sample ID: <u>480-144495-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.11.10LLA_049.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>10/30/2018 00:00</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>11/09/2018 07:44</u>
Sample wt/vol: <u>251.6 (mL)</u>	Date Analyzed: <u>11/10/2018 15:43</u>
Con. Extract Vol.: <u>10.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>258354</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	56		25-150
STL01893	13C5 PFPeA	75		25-150
STL00993	13C2 PFHxA	85		25-150
STL01892	13C4 PFHpA	96		25-150
STL00990	13C4 PFOA	96		25-150
STL00995	13C5 PFNA	98		25-150
STL00996	13C2 PFDA	87		25-150
STL00997	13C2 PFUnA	100		25-150
STL00998	13C2 PFDoA	89		25-150
STL02116	13C2 PFTeDA	82		25-150
STL02337	13C3 PFBS	83		25-150
STL00994	18O2 PFHxS	96		25-150
STL00991	13C4 PFOS	100		25-150
STL01056	13C8 FOSA	94		25-150
STL02118	d3-NMeFOSAA	85		25-150
STL02117	d5-NEtFOSAA	77		25-150
STL02279	M2-6:2 FTS	107		25-150
STL02280	M2-8:2 FTS	82		25-150

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_049.d  
 Lims ID: 480-144495-C-4-A  
 Client ID: DUP-1-20181030  
 Sample Type: Client  
 Inject. Date: 10-Nov-2018 15:43:36 ALS Bottle#: 37 Worklist Smp#: 9  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-144495-c-4-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: A9\Administrator Instrument ID: A9  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 14-Nov-2018 13:31:53 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0303

First Level Reviewer: mongkols Date: 14-Nov-2018 13:31:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										M
212.90 > 169.00	1.366	1.352	0.014	1.000	128606	0.0863			2.9	M
D 1 13C4 PFBA										
217.00 > 172.00	1.366	1.352	0.014	0.528	3981024	1.39		55.8	4402	
D 3 13C5 PFPeA										
267.90 > 223.00	1.622	1.616	0.006	0.627	5091598	1.87		75.0	2093	
D 47 13C3 PFBS										
301.90 > 83.00	1.660	1.651	0.009	0.641	72234	1.92		82.7	77.0	
D 7 13C2 PFHxA										
315.00 > 270.00	1.902	1.893	0.009	0.735	6121764	2.14		85.5	6760	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.229	2.213	0.015	1.000	30853	0.008972			0.6	
363.00 > 169.00	2.229	2.213	0.015	1.000	8246		3.74(2.17-6.52)		5.4	
D 9 13C4 PFHpA										
367.00 > 322.00	2.229	2.216	0.012	0.861	8104505	2.41		96.3	10309	
8 Perfluorohexanesulfonic acid										M
399.00 > 80.00	2.241	2.225	0.016	1.000	101765	0.0383			13.7	
399.00 > 99.00	2.241	2.225	0.016	1.000	28679		3.55(1.90-5.70)		8.6	M
D 11 18O2 PFHxS										
403.00 > 84.00	2.241	2.229	0.012	0.866	4991383	2.28		96.3	13176	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.572	2.539	0.033	1.006	5593	0.007732			9.5	
D 12 M2-6:2 FTS										
429.00 > 81.00	2.558	2.543	0.015	0.988	787378	2.54		107	554	
15 Perfluorooctanoic acid										M
413.00 > 369.00	2.588	2.569	0.019	1.000	779442	0.2424			30.8	
413.00 > 169.00	2.588	2.569	0.019	1.000	322102		2.42(1.36-4.08)		196	M
* 62 13C2 PFOA										
415.00 > 370.00	2.588	2.569	0.019		7837843	2.50			9309	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA	417.00 > 372.00	2.588	2.573	0.015	1.000	7436792	2.41	96.5	7649	
17 Perfluorooctanesulfonic acid										M
499.00 > 80.00	2.845	2.945	-0.100	0.959	128968	0.0541		43.3		M
499.00 > 99.00	2.966	2.945	0.021	1.000	17182		7.51(2.04-6.12)	18.4		
D 18 13C4 PFOS	503.00 > 80.00	2.966	2.949	0.017	1.146	5285601	2.39	99.9	3606	
D 19 13C5 PFNA	468.00 > 423.00	2.966	2.949	0.017	1.146	6954225	2.44	97.6	6601	
D 26 M2-8:2 FTS	529.00 > 81.00	3.314	3.281	0.033	1.281	75783	1.97	82.4	342	
D 21 13C8 FOSA	506.00 > 78.00	3.314	3.298	0.016	1.281	2876978	2.35	93.9	6152	
D 23 13C2 PFDA	515.00 > 470.00	3.314	3.298	0.016	1.281	6357791	2.17	86.6	5513	
28 N-methylperfluorooctanesulfonamido										
570.00 > 419.00	3.468	3.451	0.017	1.000	3244	0.003008		1.3		
D 27 d3-NMeFOSAA	573.00 > 419.00	3.468	3.452	0.016	1.340	2696252	2.12	85.0	2795	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.640	3.622	0.018	1.000	18287	0.006546		3.9		
563.00 > 169.00	3.640	3.622	0.018	1.000	2597		7.04(5.24-15.72)	10.4		
33 N-ethylperfluorooctanesulfonamidoa										M
584.00 > 419.00	3.624	3.622	0.002	0.995	2693	0.003713		7.2		M
D 30 13C2 PFUnA	565.00 > 520.00	3.640	3.623	0.017	1.407	6142112	2.50	100	7965	
D 32 d5-NEtFOSAA	589.00 > 419.00	3.640	3.623	0.017	1.407	1983067	1.92	76.7	1650	
D 36 13C2 PFDoA	615.00 > 570.00	3.935	3.918	0.017	1.521	6719231	2.22	89.0	7691	
D 43 13C2 PFTeDA	715.00 > 670.00	4.412	4.397	0.015	1.705	4612494	2.04	81.7	8056	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.427	4.410	0.017	1.004	1692	0.005016		5.8		
713.00 > 219.00	4.427	4.410	0.017	1.004	1041		1.63(0.70-2.09)	3.2		

### QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_049.d

Injection Date: 10-Nov-2018 15:43:36

Instrument ID: A9

Lims ID: 480-144495-C-4-A

Lab Sample ID: 320-144495-4

Client ID: DUP-1-20181030

Operator ID: A9\Administrator

ALS Bottle#: 37

Worklist Smp#: 9

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

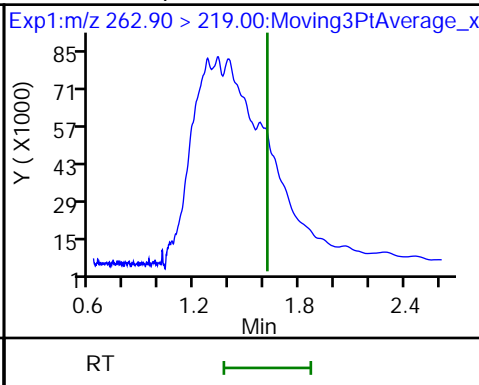
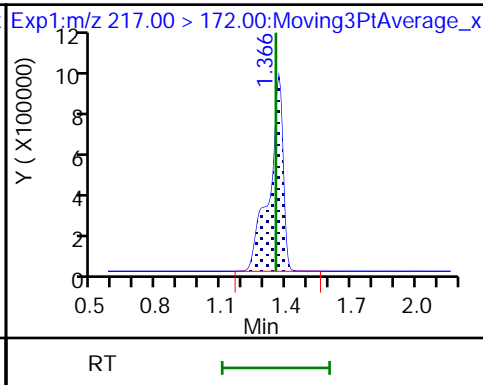
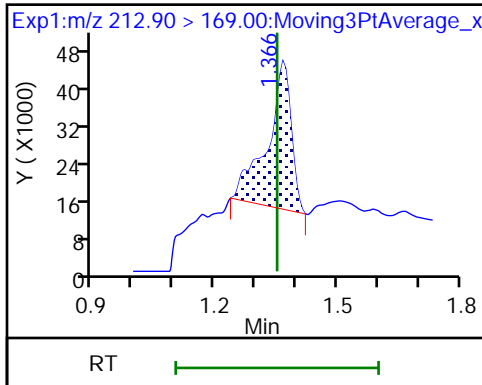
Method: PFAS\_A9

Limit Group: LC PFC ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA

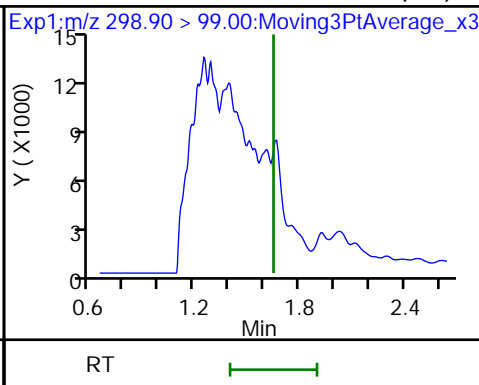
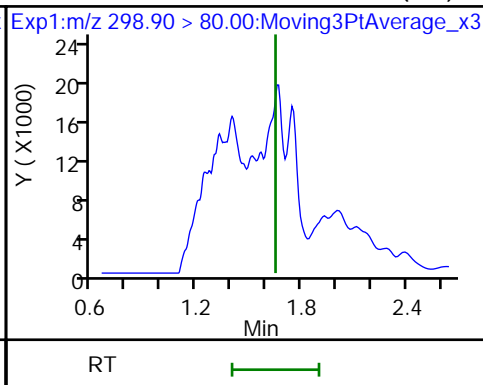
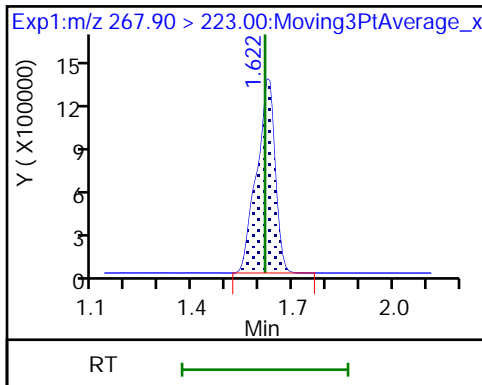
4 Perfluoropentanoic acid (ND)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid (ND)

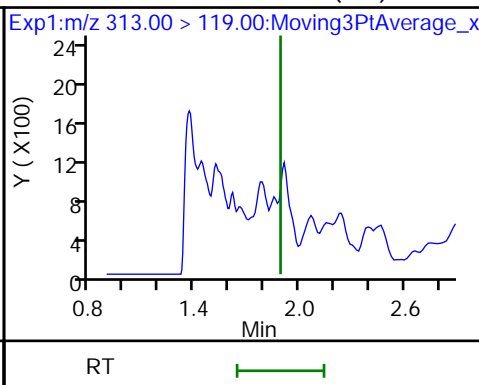
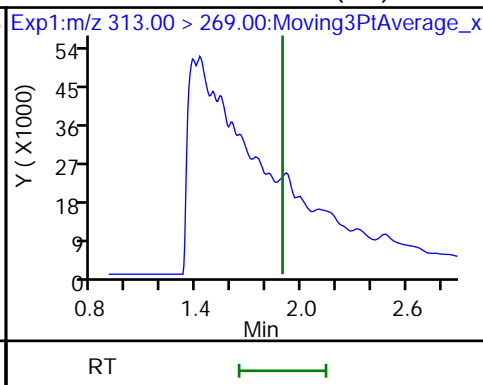
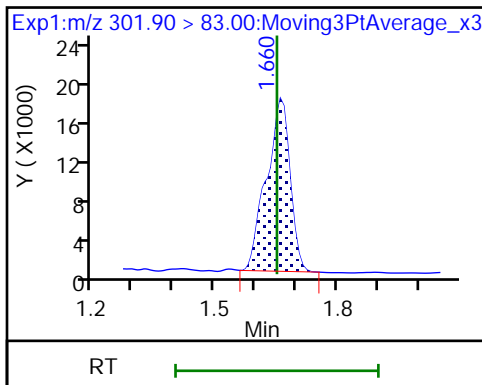
5 Perfluorobutanesulfonic acid (ND)



D 47 13C3 PFBS

6 Perfluorohexanoic acid (ND)

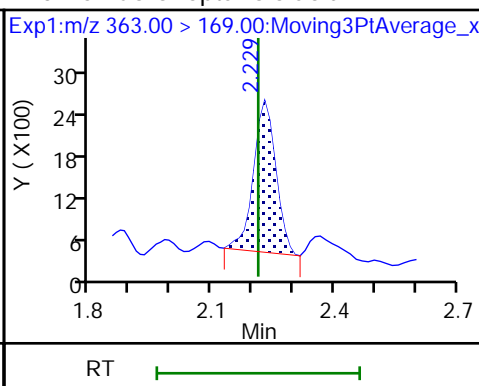
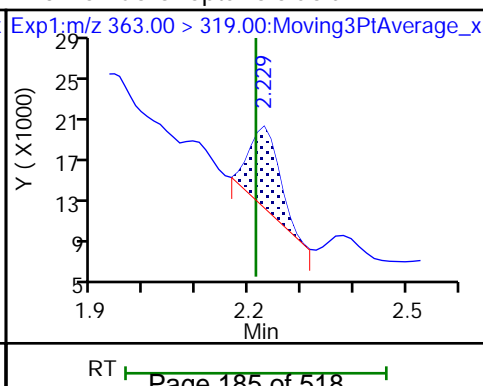
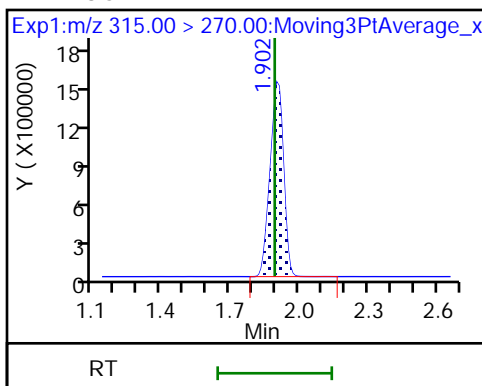
6 Perfluorohexanoic acid (ND)



D 7 13C2 PFHxA

10 Perfluoroheptanoic acid

10 Perfluoroheptanoic acid

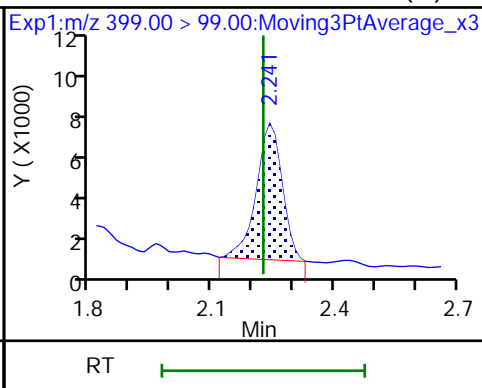
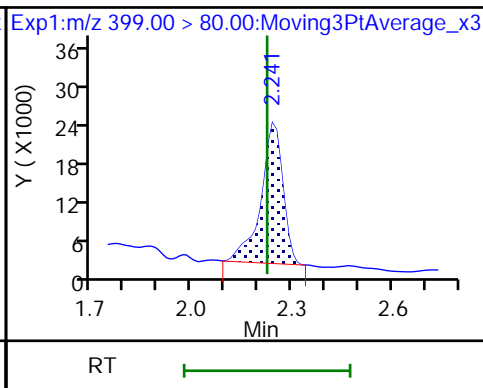
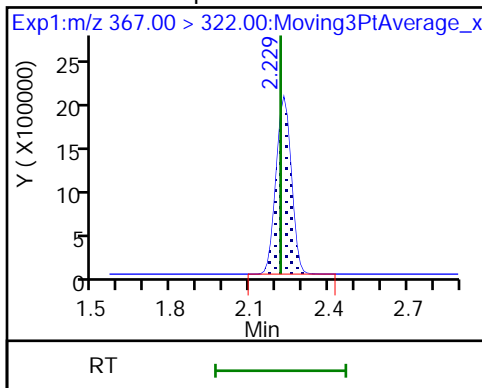




D 9 13C4 PFHpA

8 Perfluorohexanesulfonic acid

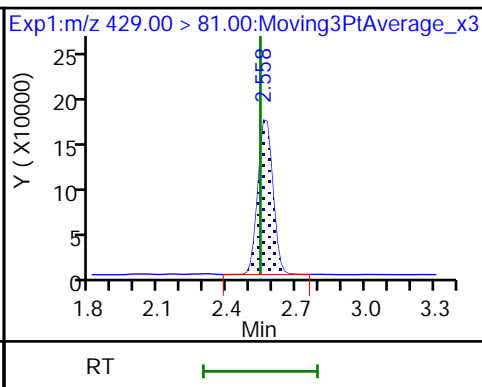
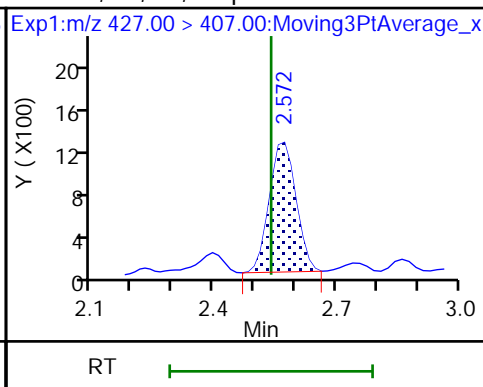
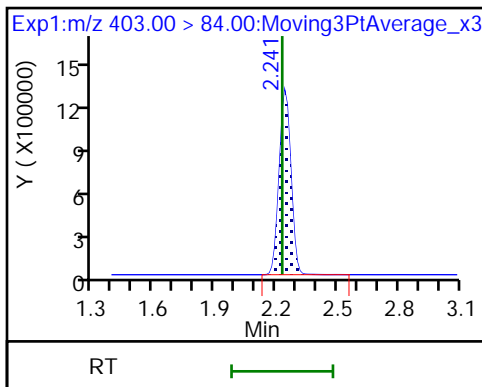
8 Perfluorohexanesulfonic acid (M)



D 11 18O2 PFHxS

13 1H,1H,2H,2H-perfluorooctanesulfonD

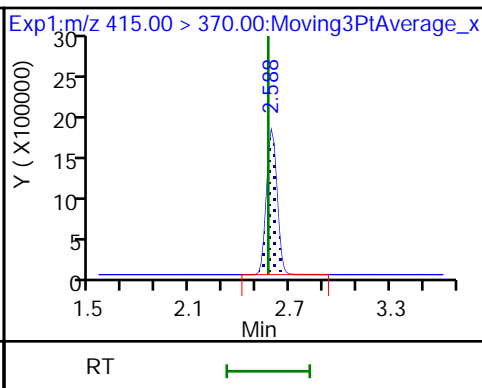
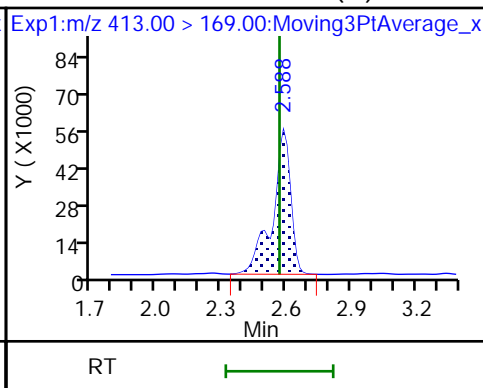
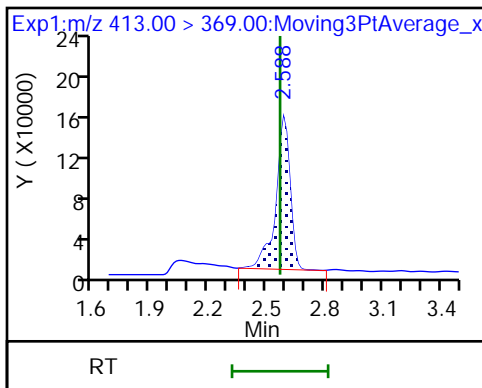
12 M2-6:2 FTS



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid (M)

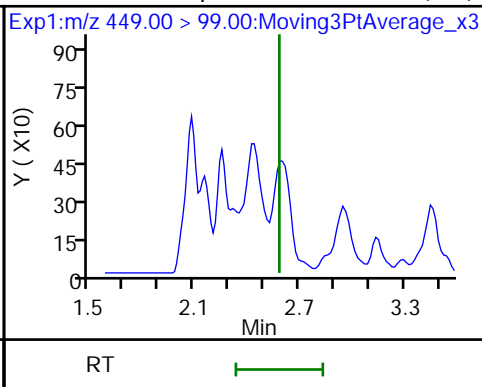
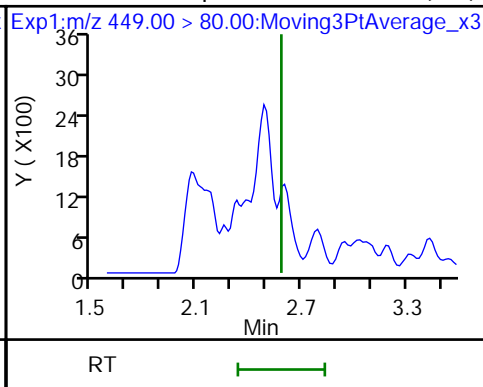
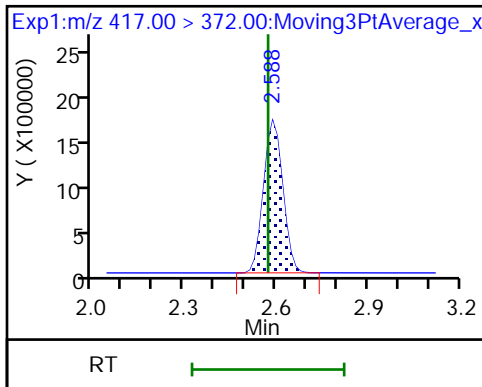
\* 62 13C2 PFOA

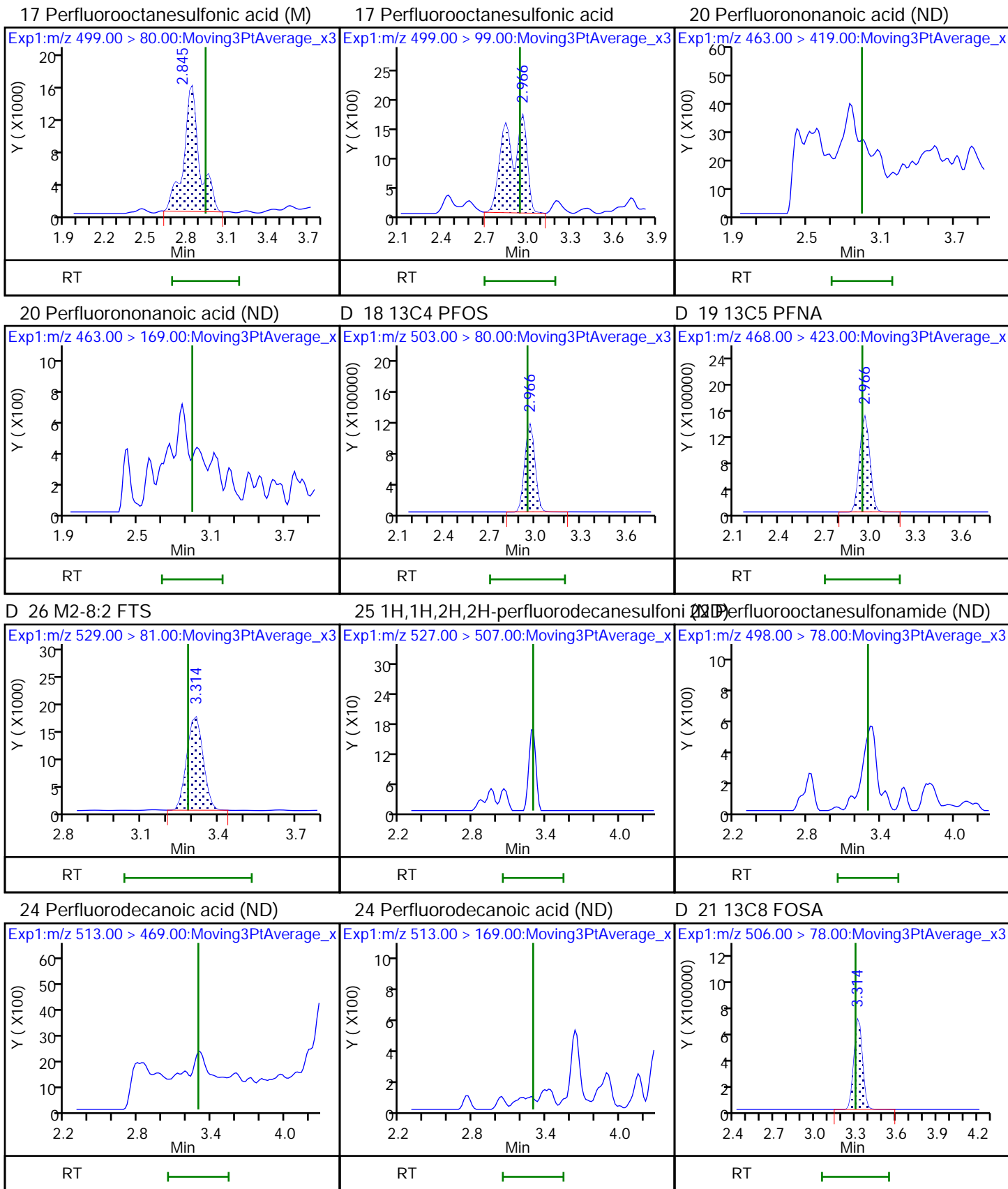


D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid (ND)

16 Perfluoroheptanesulfonic acid (ND)

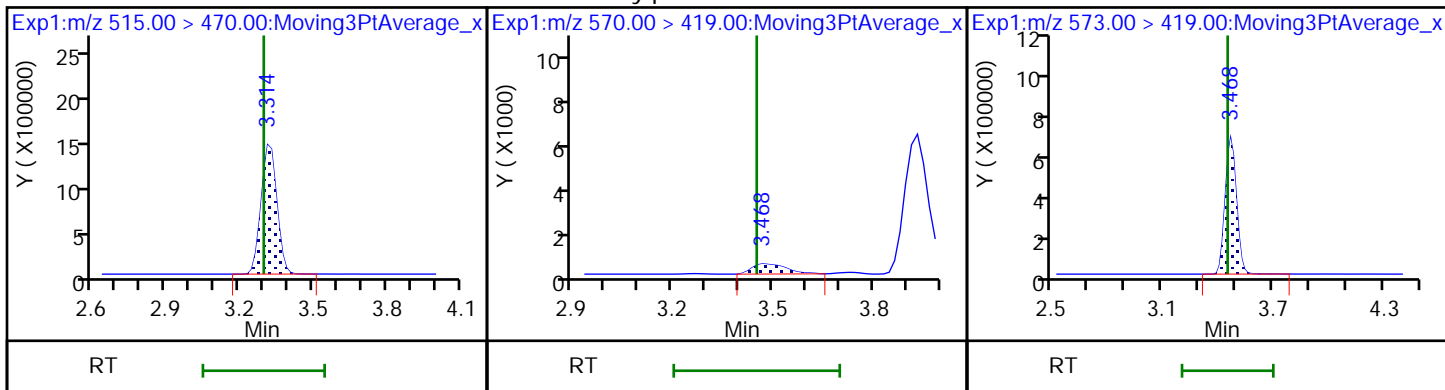




D 23 13C2 PFDA

28 N-methylperfluorooctanesulfonamid

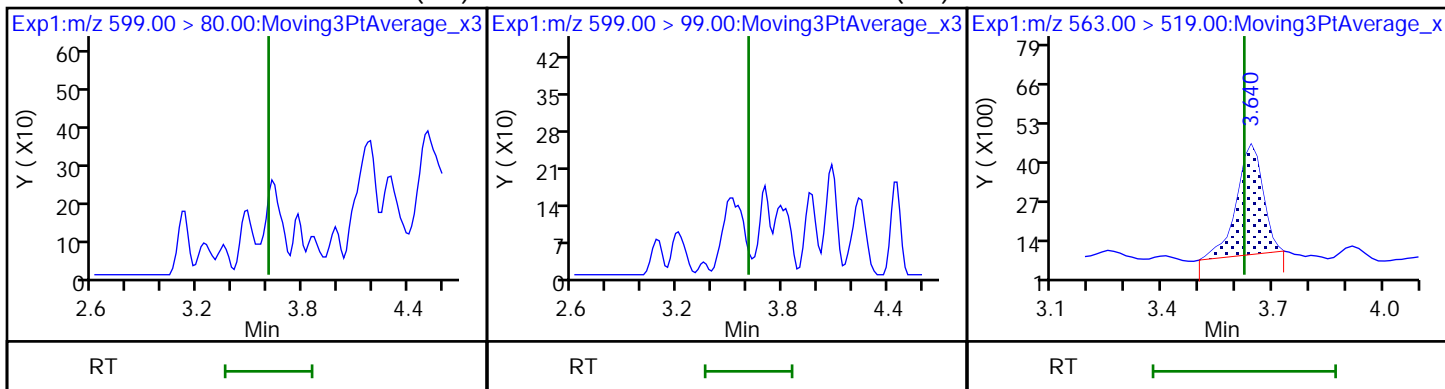
D 27 d3-NMeFOSAA



29 Perfluorodecanesulfonic acid (ND)

29 Perfluorodecanesulfonic acid (ND)

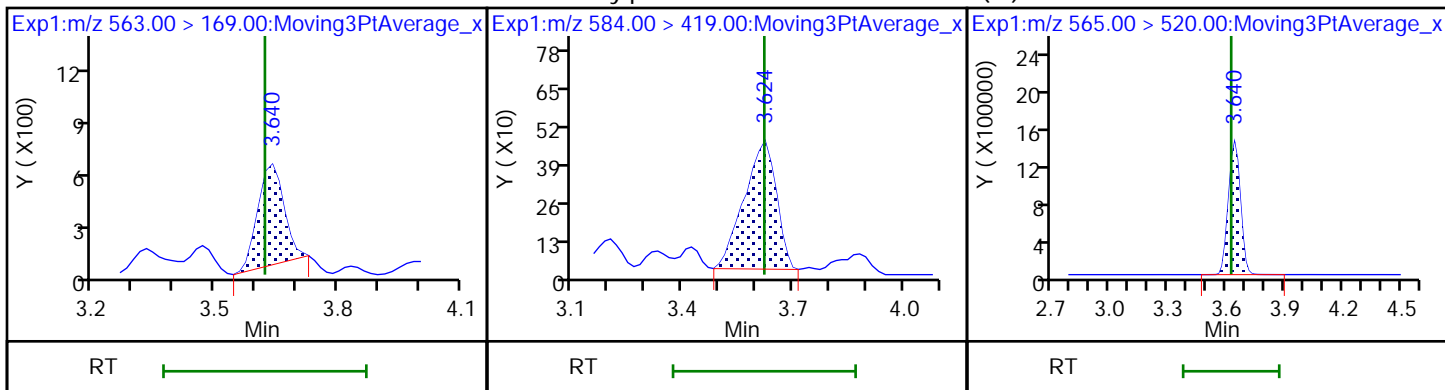
31 Perfluoroundecanoic acid



31 Perfluoroundecanoic acid

33 N-ethylperfluorooctanesulfonamid

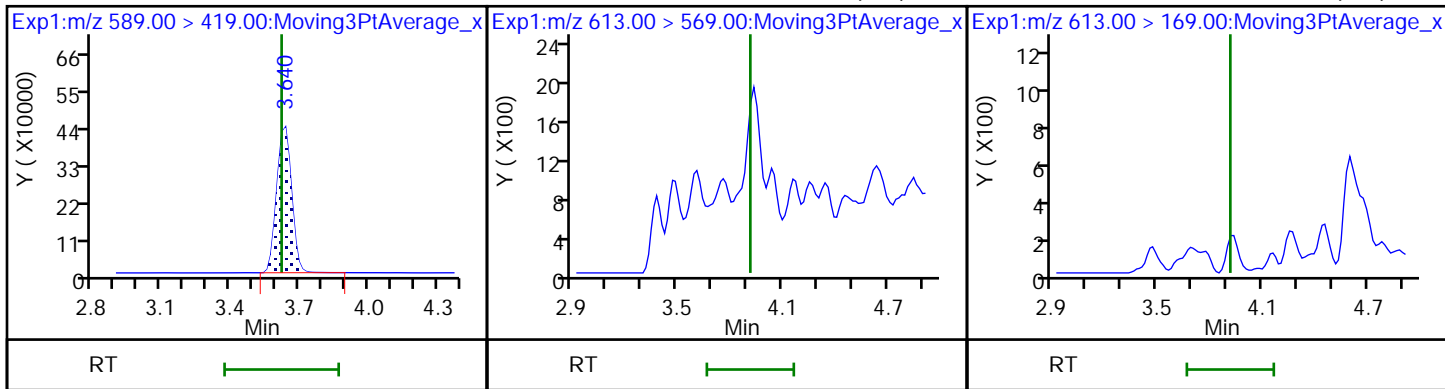
D 30 13C2 PFUnA



D 32 d5-NEtFOSAA

37 Perfluorododecanoic acid (ND)

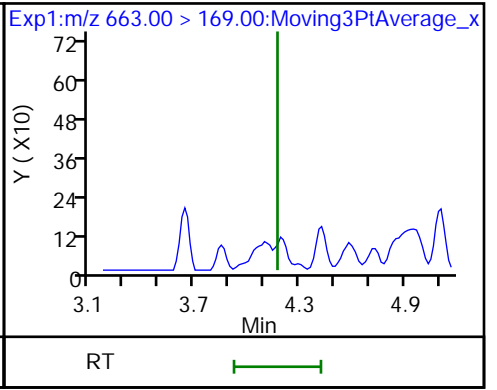
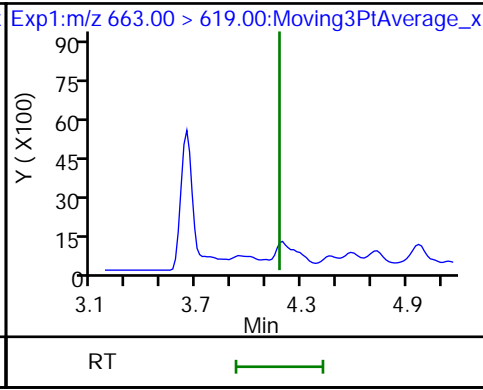
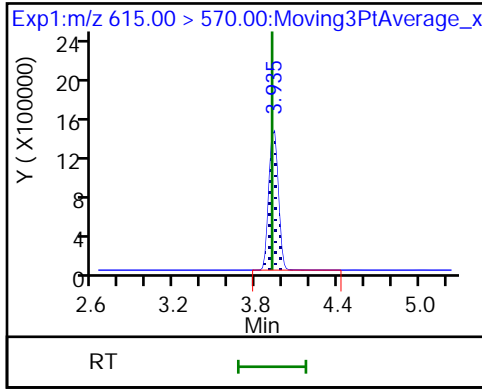
37 Perfluorododecanoic acid (ND)



D 36 13C2 PFDaA

41 Perfluorotridecanoic acid (ND)

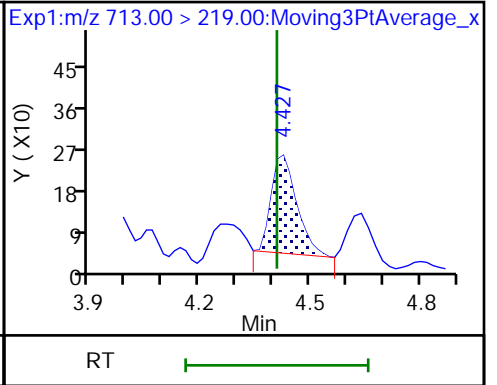
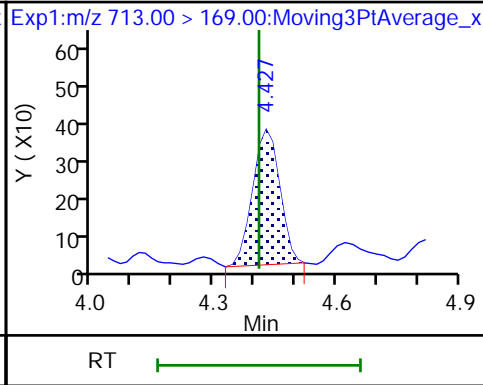
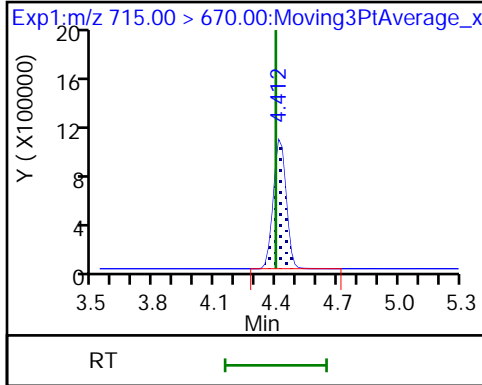
41 Perfluorotridecanoic acid (ND)



D 43 13C2 PFTeDA

42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid



TestAmerica Sacramento

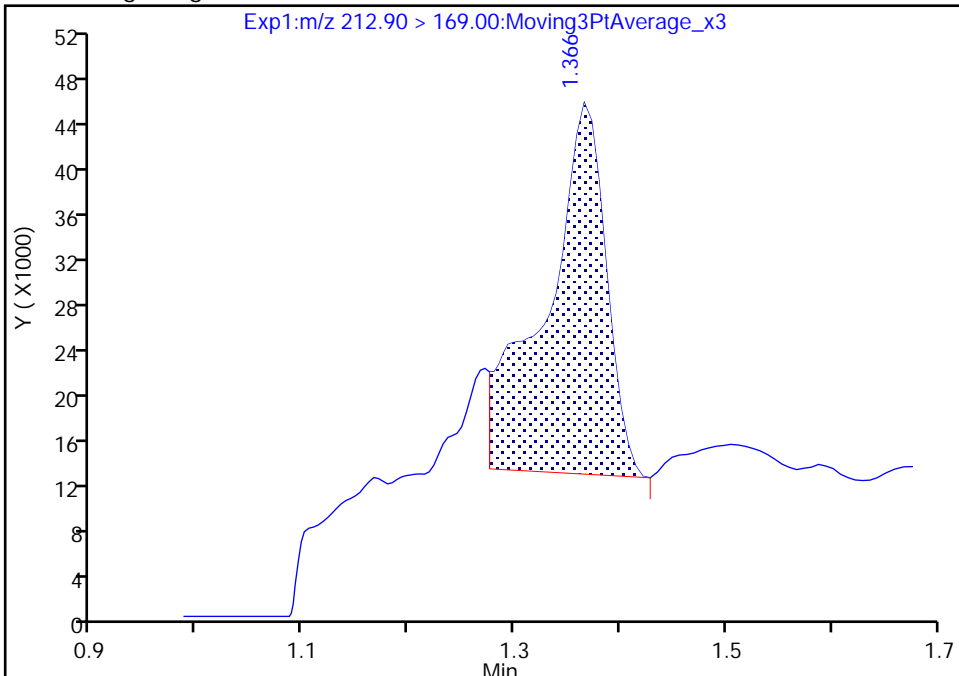
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Injection Date: 10-Nov-2018 15:43:36 Instrument ID: A9  
Lims ID: 480-144495-C-4-A Lab Sample ID: 320-144495-4  
Client ID: DUP-1-20181030  
Operator ID: A9\Administrator ALS Bottle#: 37 Worklist Smp#: 9  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

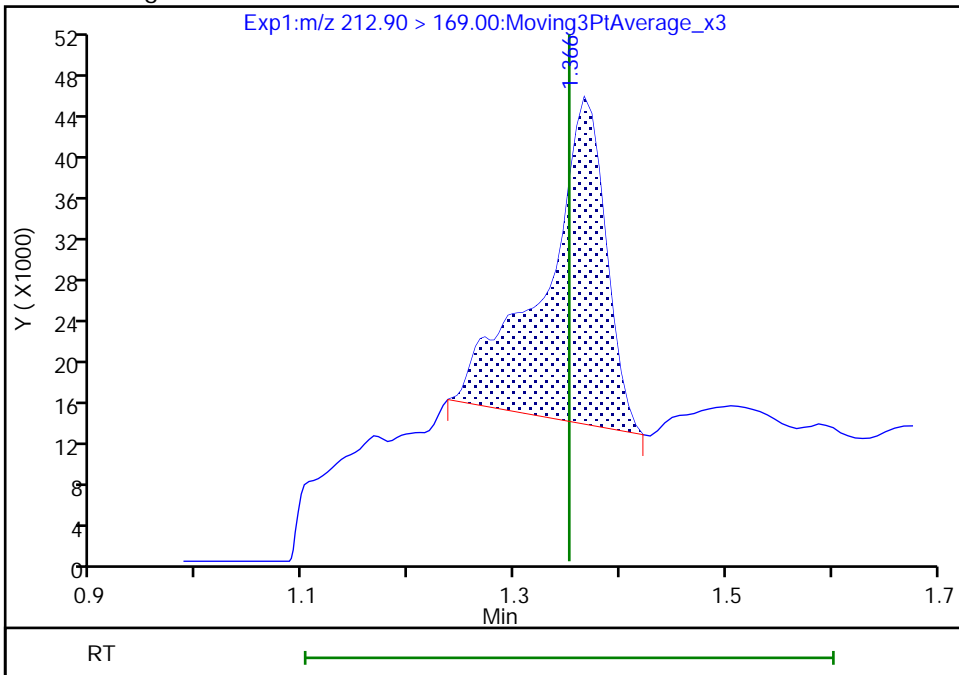
RT: 1.37  
Area: 129769  
Amount: 0.087091  
Amount Units: ng/ml

Processing Integration Results



RT: 1.37  
Area: 128606  
Amount: 0.086310  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 14-Nov-2018 13:31:10  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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TestAmerica Sacramento

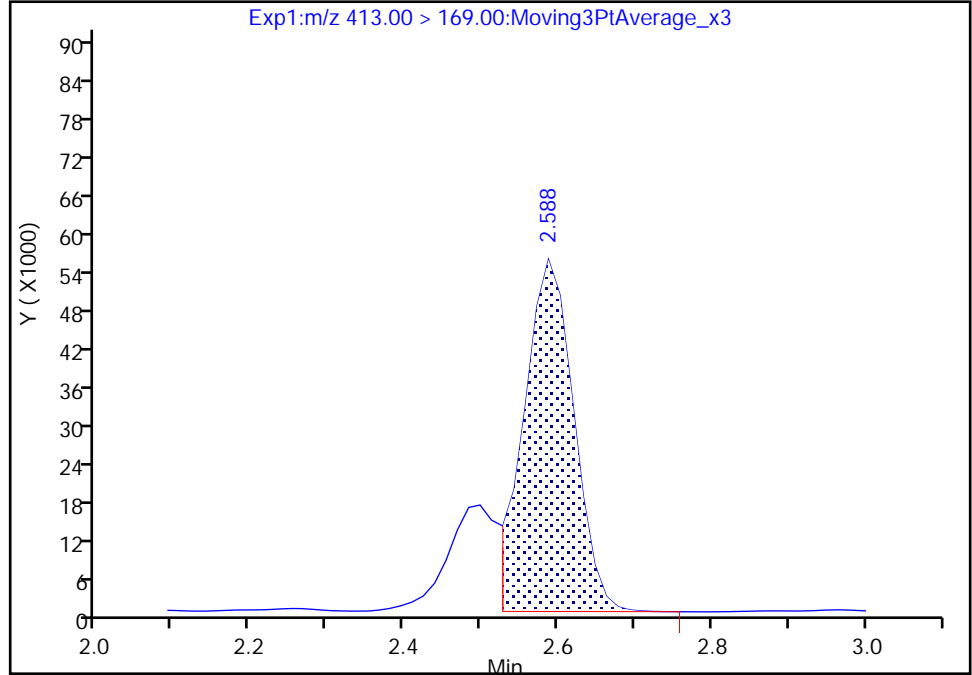
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_049.d  
Injection Date: 10-Nov-2018 15:43:36 Instrument ID: A9  
Lims ID: 480-144495-C-4-A Lab Sample ID: 320-144495-4  
Client ID: DUP-1-20181030  
Operator ID: A9\Administrator ALS Bottle#: 37 Worklist Smp#: 9  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

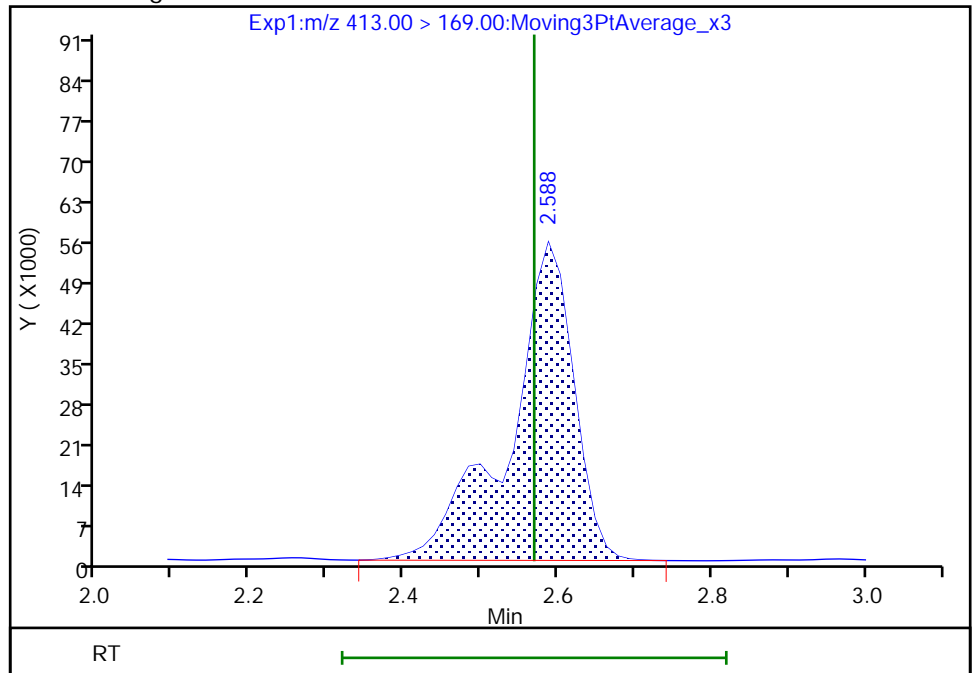
RT: 2.59  
Area: 247243  
Amount: 0.242365  
Amount Units: ng/ml

Processing Integration Results



RT: 2.59  
Area: 322102  
Amount: 0.242365  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 14-Nov-2018 13:31:28  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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TestAmerica Sacramento

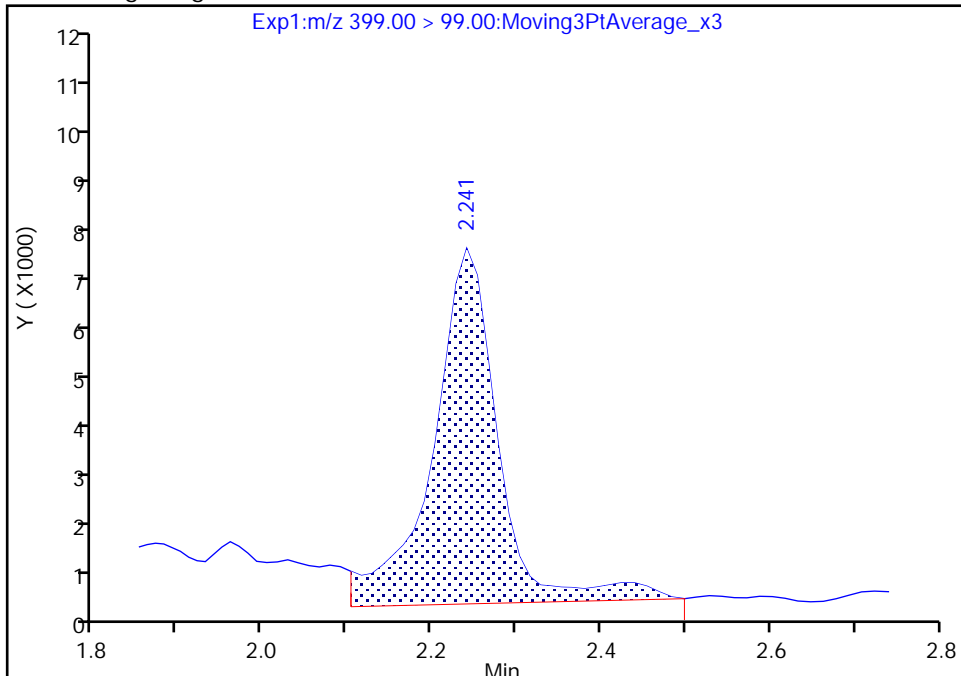
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Injection Date: 10-Nov-2018 15:43:36 Instrument ID: A9  
Lims ID: 480-144495-C-4-A Lab Sample ID: 320-144495-4  
Client ID: DUP-1-20181030  
Operator ID: A9\Administrator ALS Bottle#: 37 Worklist Smp#: 9  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 2

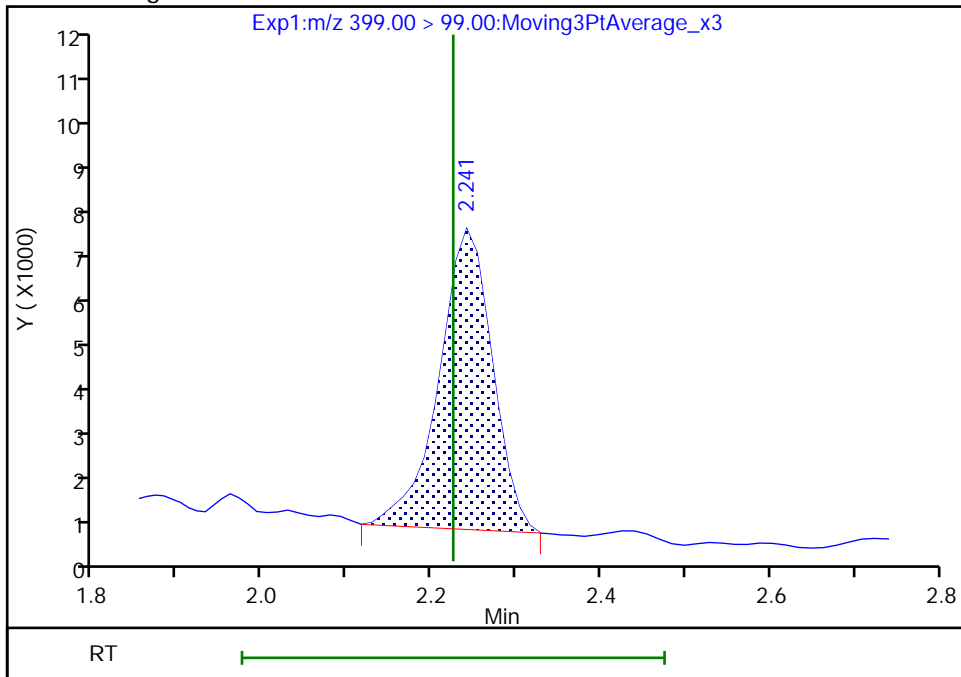
RT: 2.24  
Area: 37652  
Amount: 0.038277  
Amount Units: ng/ml

Processing Integration Results



RT: 2.24  
Area: 28679  
Amount: 0.038277  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 14-Nov-2018 13:31:23  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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TestAmerica Sacramento

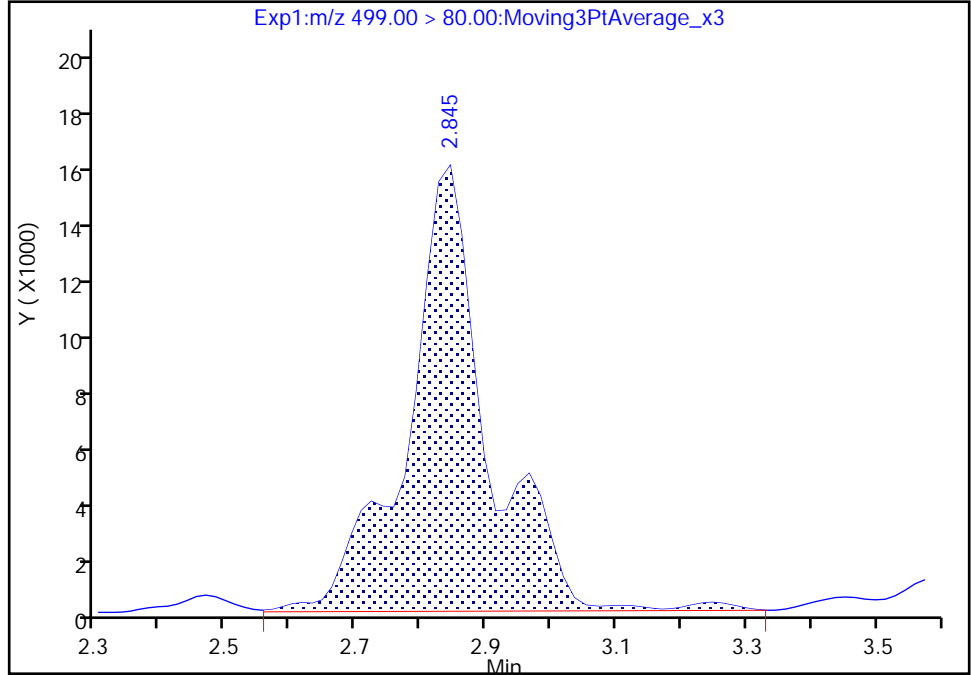
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Injection Date: 10-Nov-2018 15:43:36 Instrument ID: A9  
Lims ID: 480-144495-C-4-A Lab Sample ID: 320-144495-4  
Client ID: DUP-1-20181030  
Operator ID: A9\Administrator ALS Bottle#: 37 Worklist Smp#: 9  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

17 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

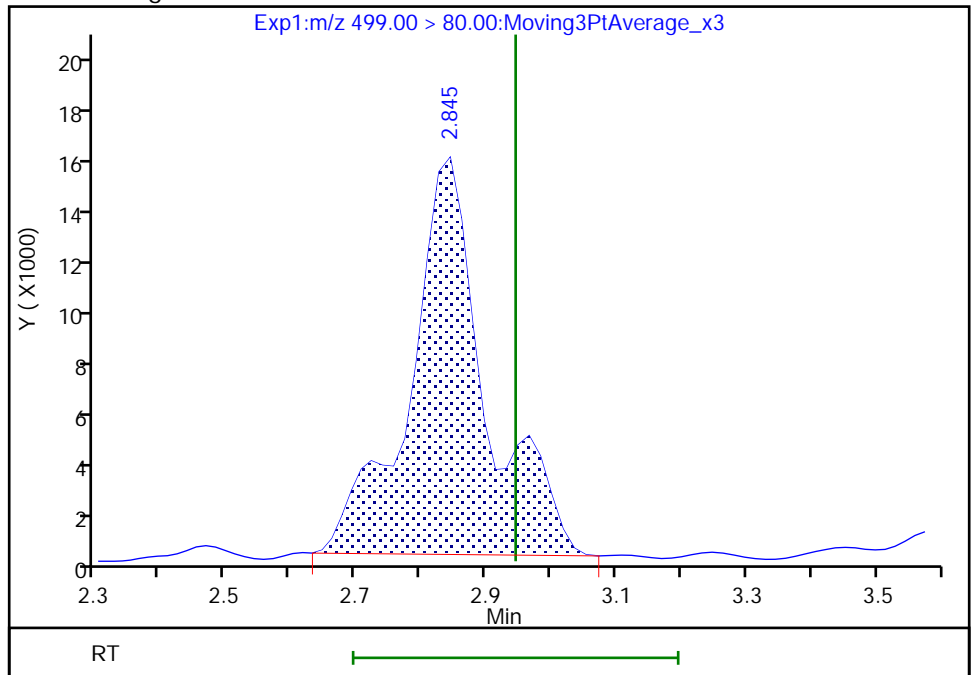
RT: 2.84  
Area: 138158  
Amount: 0.058009  
Amount Units: ng/ml

Processing Integration Results



RT: 2.84  
Area: 128968  
Amount: 0.054150  
Amount Units: ng/ml

Manual Integration Results





TestAmerica Sacramento

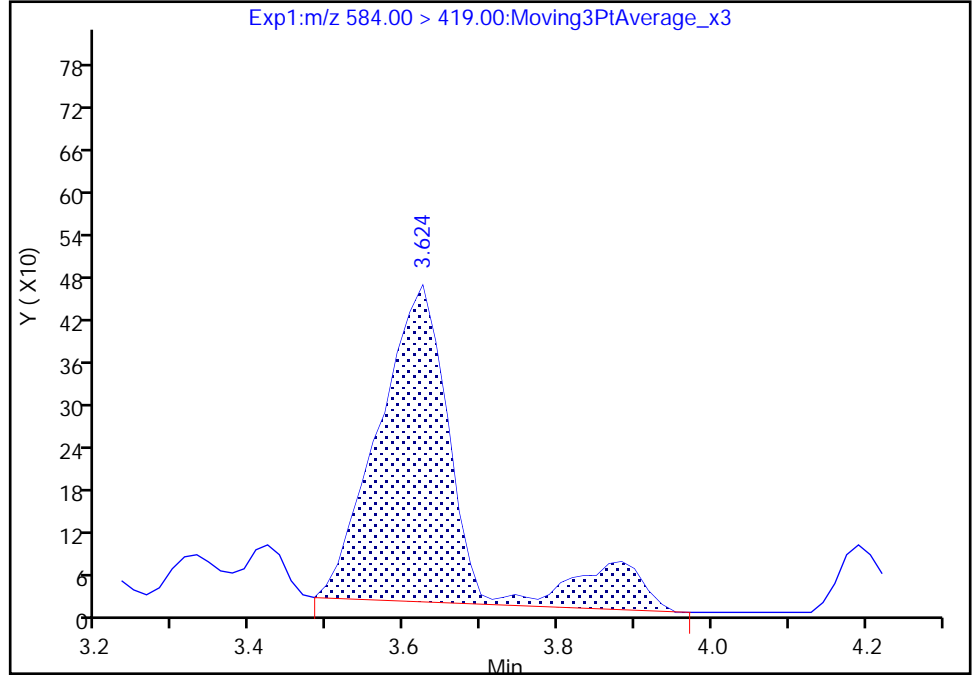
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_049.d  
Injection Date: 10-Nov-2018 15:43:36 Instrument ID: A9  
Lims ID: 480-144495-C-4-A Lab Sample ID: 320-144495-4  
Client ID: DUP-1-20181030  
Operator ID: A9\Administrator ALS Bottle#: 37 Worklist Smp#: 9  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

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

Signal: 1

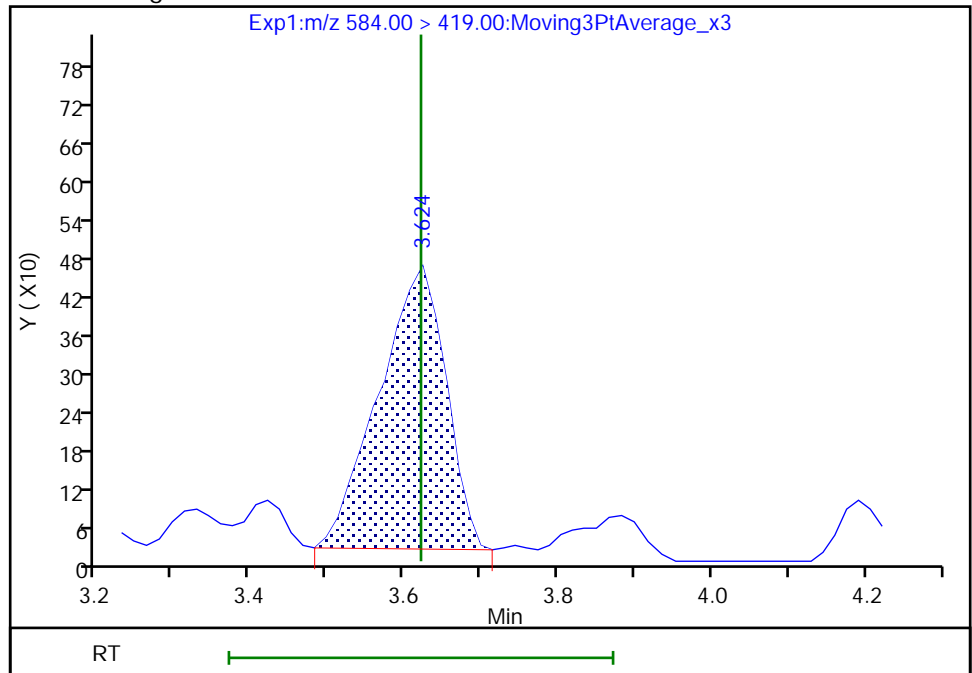
RT: 3.62  
Area: 3192  
Amount: 0.004401  
Amount Units: ng/ml

Processing Integration Results



RT: 3.62  
Area: 2693  
Amount: 0.003713  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 14-Nov-2018 13:31:45  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: EQUIPMENT BLANK Lab Sample ID: 480-144495-5  
 Matrix: Water Lab File ID: 2018.11.10LLA\_050.d  
 Analysis Method: 537 (modified) Date Collected: 10/30/2018 16:00  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 257.9(mL) Date Analyzed: 11/10/2018 15:51  
 Con. Extract Vol.: 10.00(mL) Dilution Factor: 1  
 Injection Volume: 20(uL) GC Column: Acquity ID: 2.1(mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		1.9	0.34
2706-90-3	Perfluoropentanoic acid (PFPeA)	ND		1.9	0.47
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		1.9	0.56
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24
335-67-1	Perfluorooctanoic acid (PFOA)	ND		1.9	0.82
375-95-1	Perfluorononanoic acid (PFNA)	ND		1.9	0.26
335-76-2	Perfluorodecanoic acid (PFDA)	ND		1.9	0.30
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.28
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.29	J B	1.9	0.16
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.52
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.34
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19	3.0
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19	1.8
27619-97-2	6:2 FTS	ND		19	1.9
39108-34-4	8:2 FTS	ND		19	1.9

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>480-144495-1</u>
SDG No.: _____	
Client Sample ID: <u>EQUIPMENT BLANK</u>	Lab Sample ID: <u>480-144495-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.11.10LLA_050.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>10/30/2018 16:00</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>11/09/2018 07:44</u>
Sample wt/vol: <u>257.9(mL)</u>	Date Analyzed: <u>11/10/2018 15:51</u>
Con. Extract Vol.: <u>10.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20(uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>258354</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	90		25-150
STL01893	13C5 PFPeA	89		25-150
STL00993	13C2 PFHxA	93		25-150
STL01892	13C4 PFHpA	95		25-150
STL00990	13C4 PFOA	100		25-150
STL00995	13C5 PFNA	95		25-150
STL00996	13C2 PFDA	89		25-150
STL00997	13C2 PFUnA	96		25-150
STL00998	13C2 PFDoA	87		25-150
STL02116	13C2 PFTeDA	94		25-150
STL02337	13C3 PFBS	92		25-150
STL00994	18O2 PFHxS	99		25-150
STL00991	13C4 PFOS	98		25-150
STL01056	13C8 FOSA	90		25-150
STL02118	d3-NMeFOSAA	82		25-150
STL02117	d5-NEtFOSAA	80		25-150
STL02279	M2-6:2 FTS	79		25-150
STL02280	M2-8:2 FTS	79		25-150

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_050.d  
 Lims ID: 480-144495-C-5-A  
 Client ID: EQUIPMENT BLANK  
 Sample Type: Client  
 Inject. Date: 10-Nov-2018 15:51:09 ALS Bottle#: 38 Worklist Smp#: 10  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-144495-c-5-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: A9\Administrator Instrument ID: A9  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 16-Nov-2018 15:35:19 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0307

First Level Reviewer: westendorfc Date: 16-Nov-2018 15:35:19

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	1.359	1.352	0.007	0.525	6466231	2.26	90.2	5448	
D 3 13C5 PFPeA	267.90 > 223.00	1.623	1.616	0.007	0.627	6072985	2.23	89.0	6920	
D 47 13C3 PFBS	301.90 > 83.00	1.660	1.651	0.009	0.641	80807	2.14	92.1	244	M M
D 7 13C2 PFHxA	315.00 > 270.00	1.902	1.893	0.009	0.735	6685009	2.32	92.9	10569	
D 9 13C4 PFHpA	367.00 > 322.00	2.216	2.216	0.0	0.856	7999121	2.36	94.6	10217	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.241	2.228	0.013	1.000	20293	0.007414		34.4	
	399.00 > 99.00	2.253	2.228	0.025	1.006	5454	3.72(1.90-5.70)		3.8	
D 11 18O2 PFHxS	403.00 > 84.00	2.241	2.229	0.012	0.866	5138456	2.33	98.7	8447	
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00 > 407.00	2.543	2.543	0.0	0.994	3599	0.006700		7.4	
D 12 M2-6:2 FTS	429.00 > 81.00	2.558	2.543	0.015	0.988	584687	1.88	79.1	1031	
15 Perfluorooctanoic acid	413.00 > 369.00	2.588	2.572	0.016	1.000	18576	0.005563		1.7	
	413.00 > 169.00	2.588	2.572	0.016	1.000	4682	3.97(1.36-4.08)		4.5	
* 62 13C2 PFOA	415.00 > 370.00	2.588	2.572	0.016		7874063	2.50		9296	
D 14 13C4 PFOA	417.00 > 372.00	2.588	2.573	0.015	1.000	7721438	2.49	99.7	7757	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
17 Perfluorooctanesulfonic acid										M
499.00 > 80.00	2.949	2.949	0.0	0.994	6980	0.002981			3.3	M
499.00 > 99.00	2.949	2.949	0.0	0.994	3383		2.06(2.04-6.12)		8.5	M
D 18 13C4 PFOS										
503.00 > 80.00	2.966	2.949	0.017	1.146	5195814	2.34		97.7	4784	
D 19 13C5 PFNA										
468.00 > 423.00	2.966	2.949	0.017	1.146	6768401	2.36		94.5	5801	
D 26 M2-8:2 FTS										
529.00 > 81.00	3.298	3.281	0.017	1.274	72818	1.89		78.8	321	
22 Perfluorooctanesulfonamide										
498.00 > 78.00	3.298	3.298	0.0	0.995	2209	0.000667			5.3	
D 21 13C8 FOSA										
506.00 > 78.00	3.314	3.298	0.016	1.281	2755766	2.24		89.5	5784	
D 23 13C2 PFDA										
515.00 > 470.00	3.314	3.298	0.016	1.281	6556448	2.22		88.9	6418	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.468	3.452	0.016	1.340	2610018	2.05		81.9	2352	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.624	3.623	0.001	1.400	2088213	2.01		80.4	1542	
D 30 13C2 PFUnA										
565.00 > 520.00	3.640	3.623	0.017	1.407	5924383	2.40		96.2	9950	
33 N-ethylperfluorooctanesulfonamidoa										M
584.00 > 419.00	3.624	3.624	0.0	1.000	2821	0.003694			7.5	M
D 36 13C2 PFDaA										
615.00 > 570.00	3.917	3.918	-0.001	1.514	6622356	2.18		87.3	6429	
42 Perfluorotetradecanoic acid										R
713.00 > 169.00	4.412	4.396	0.016	1.000	2724	0.007019			16.0	R
713.00 > 219.00	4.412	4.396	0.016	1.000	1024		2.66(0.70-2.09)		4.1	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.412	4.397	0.015	1.705	5306143	2.34		93.6	6345	

### QC Flag Legend

#### Processing Flags

R - Failed Signal Ratio Test

#### Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_050.d

Injection Date: 10-Nov-2018 15:51:09

Instrument ID: A9

Lims ID: 480-144495-C-5-A

Lab Sample ID: 320-144495-5

Client ID: EQUIPMENT BLANK

Operator ID: A9\Administrator

ALS Bottle#: 38

Worklist Smp#: 10

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

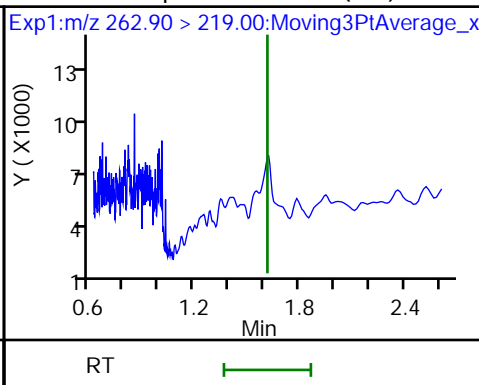
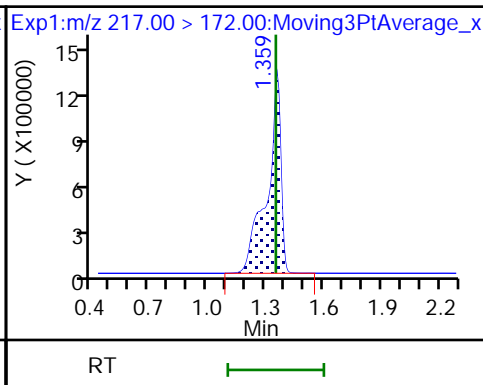
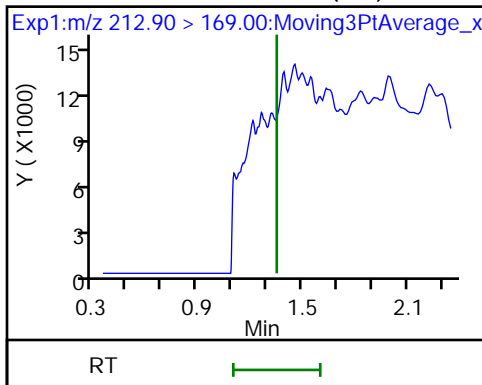
Method: PFAS\_A9

Limit Group: LC PFC ICAL

2 Perfluorobutanoic acid (ND)

D 1 13C4 PFBA

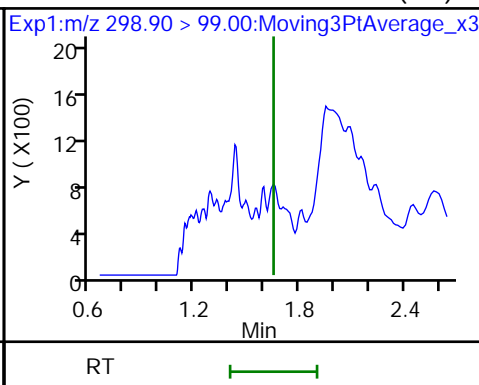
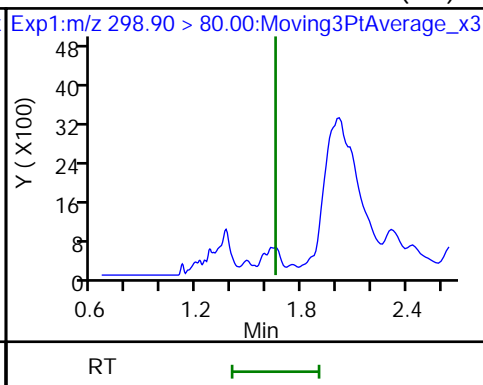
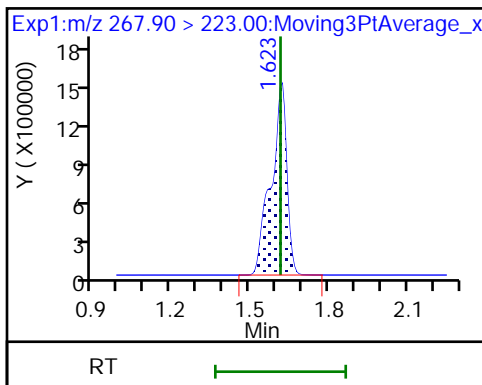
4 Perfluoropentanoic acid (ND)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid (ND)

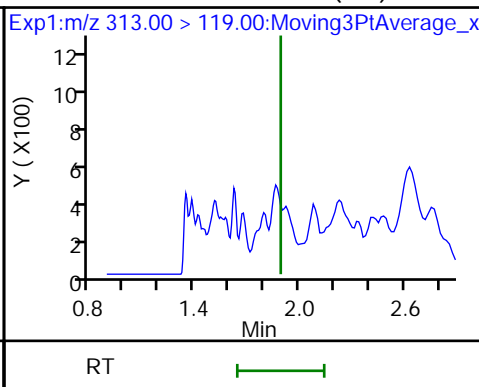
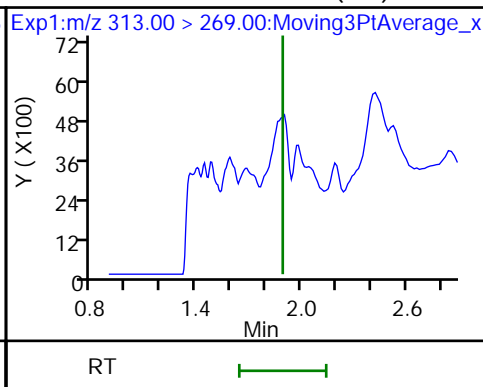
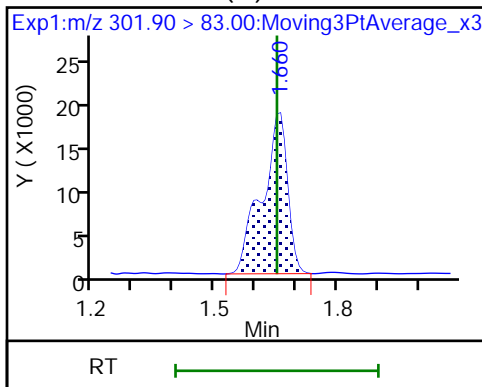
5 Perfluorobutanesulfonic acid (ND)



D 47 13C3 PFBS (M)

6 Perfluorohexanoic acid (ND)

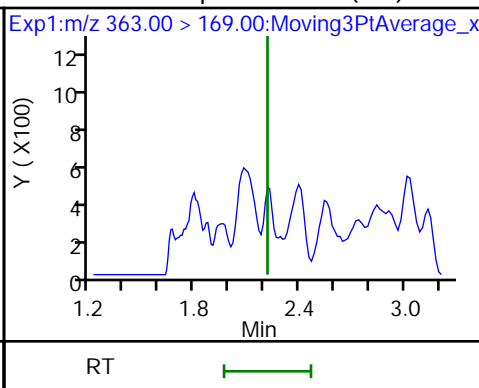
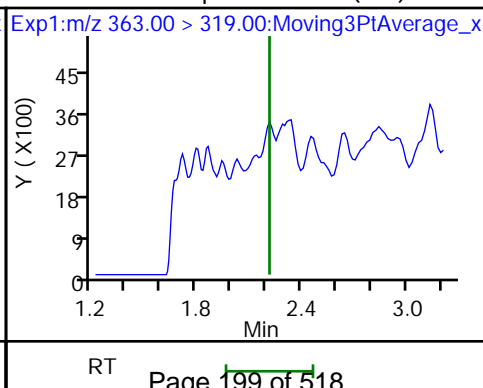
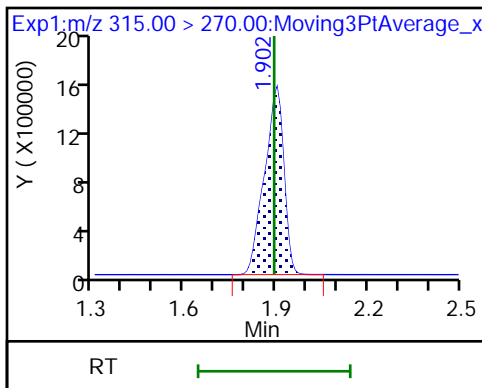
6 Perfluorohexanoic acid (ND)



D 7 13C2 PFHxA

10 Perfluoroheptanoic acid (ND)

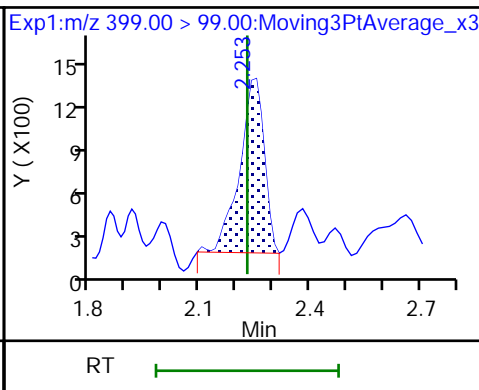
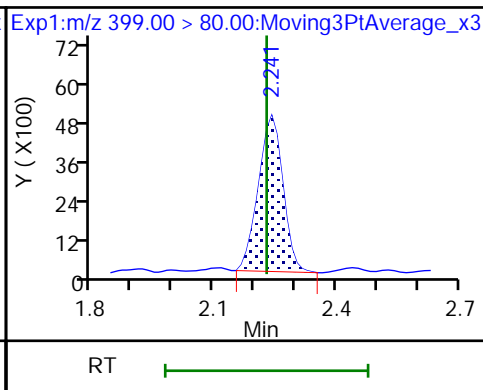
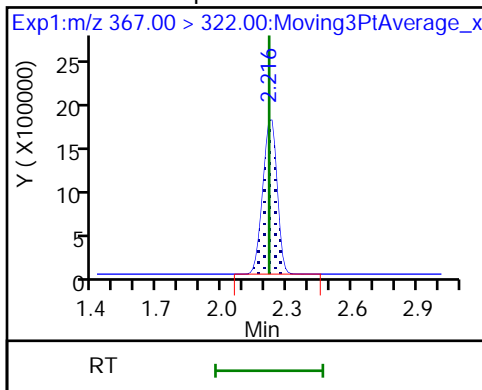
10 Perfluoroheptanoic acid (ND)



D 9 13C4 PFHpA

8 Perfluorohexanesulfonic acid

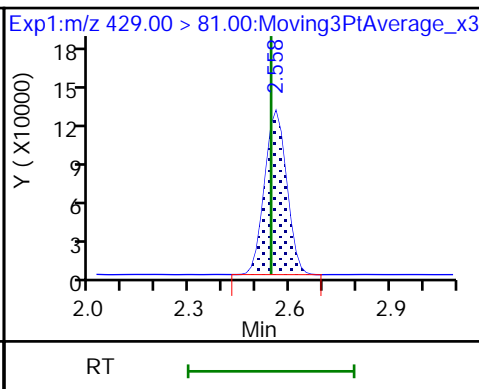
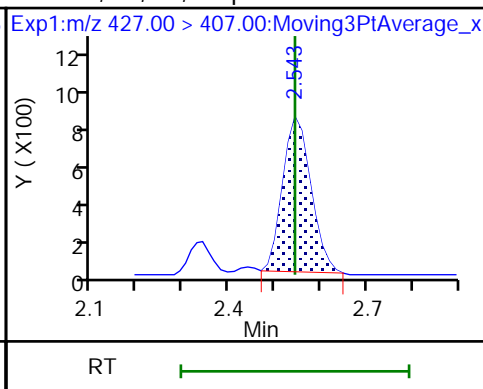
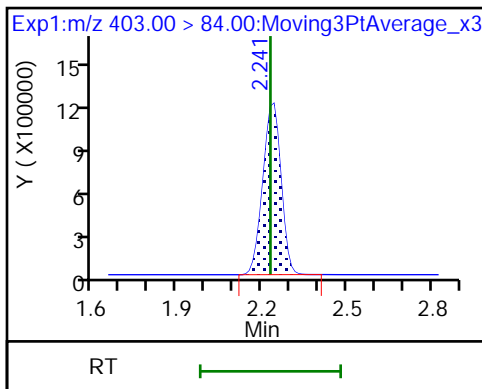
8 Perfluorohexanesulfonic acid



D 11 18O2 PFHxS

13 1H,1H,2H,2H-perfluorooctanesulfonD

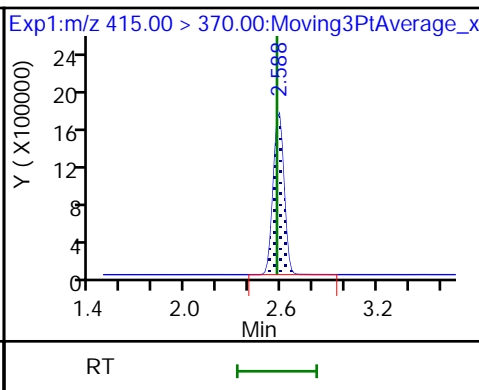
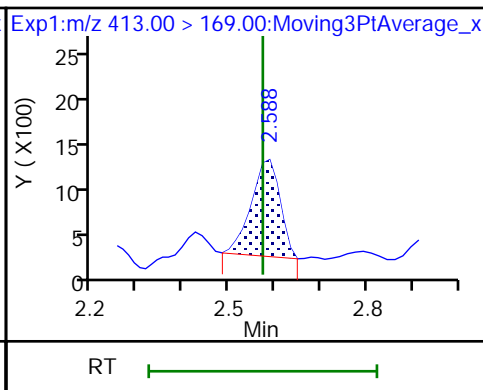
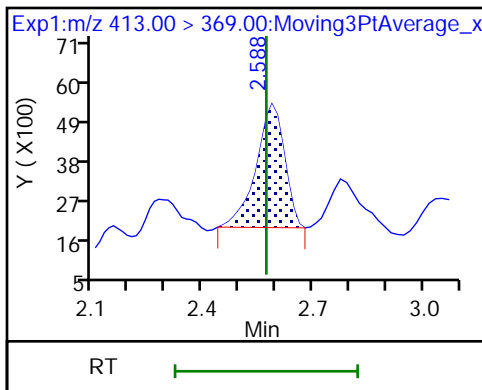
12 M2-6:2 FTS



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

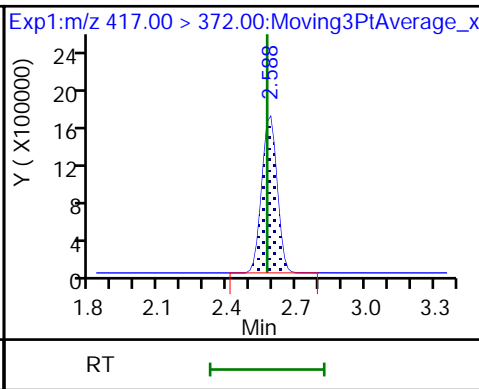
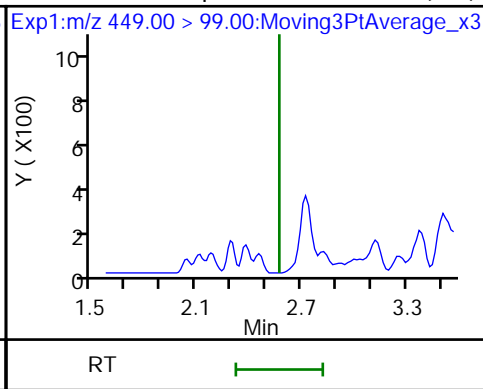
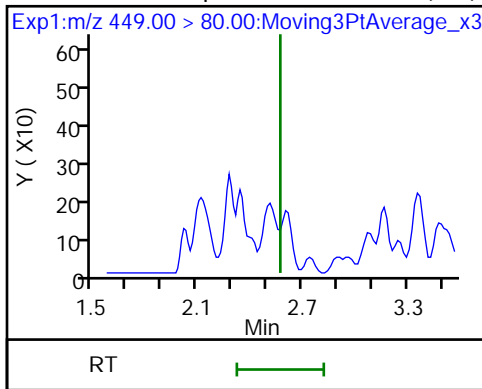
\* 62 13C2 PFOA

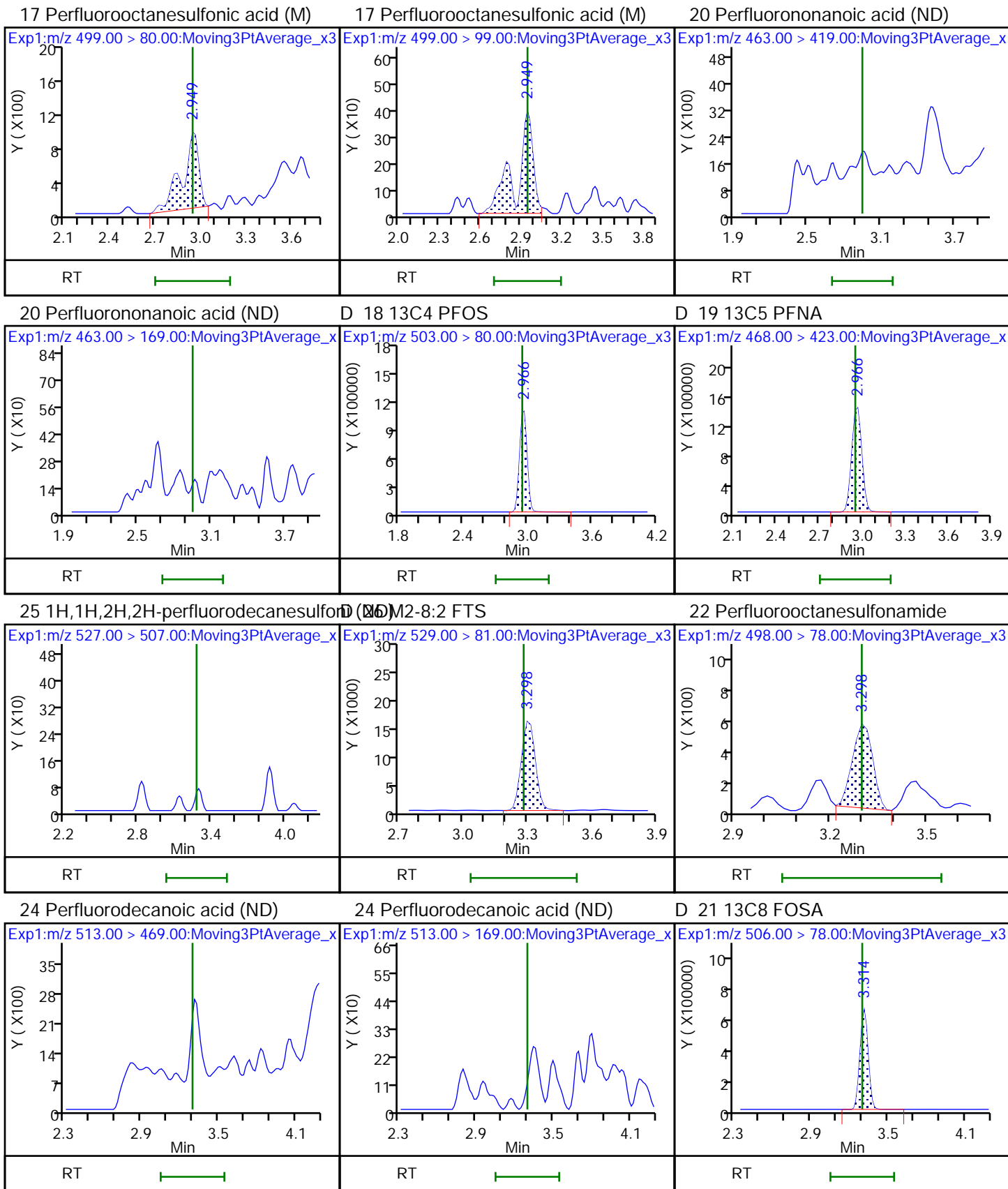


16 Perfluoroheptanesulfonic acid (ND)

16 Perfluoroheptanesulfonic acid (ND)

D 14 13C4 PFOA



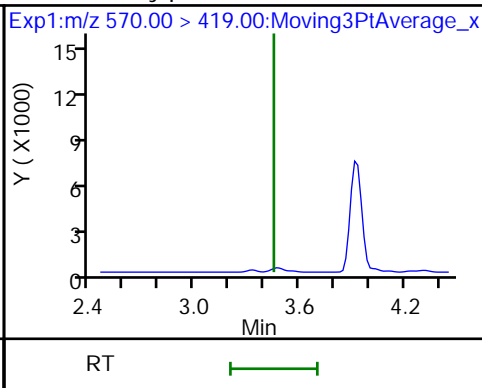
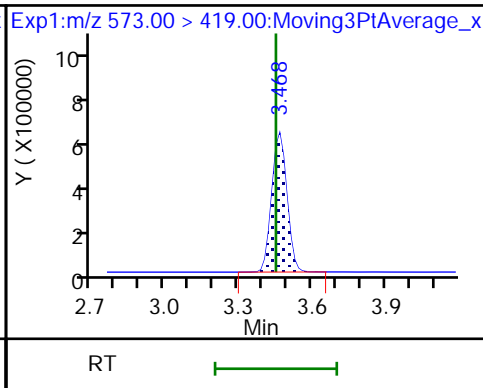
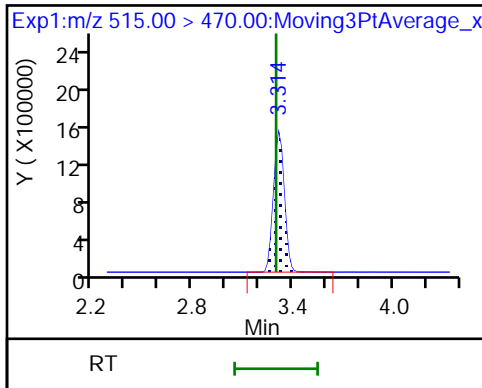




D 23 13C2 PFDA

D 27 d3-NMeFOSAA

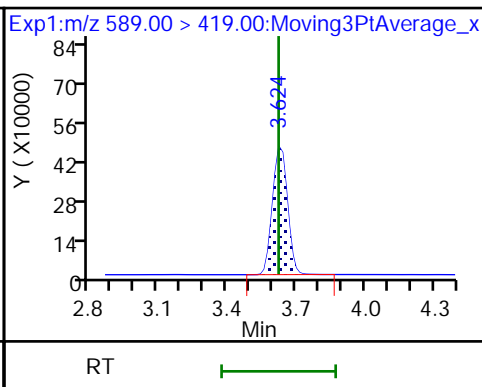
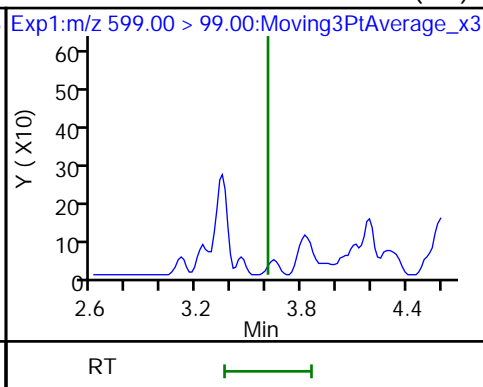
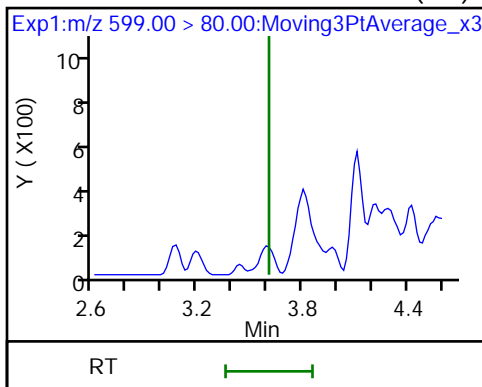
28 N-methylperfluorooctanesulfonamido (ND)



29 Perfluorodecanesulfonic acid (ND)

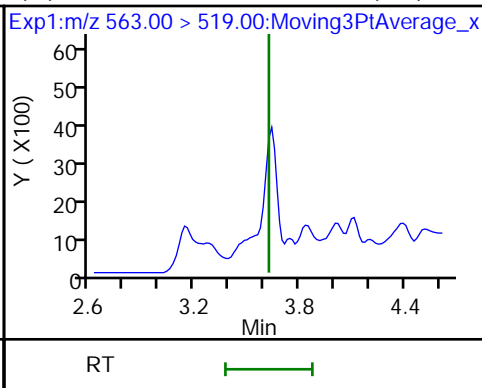
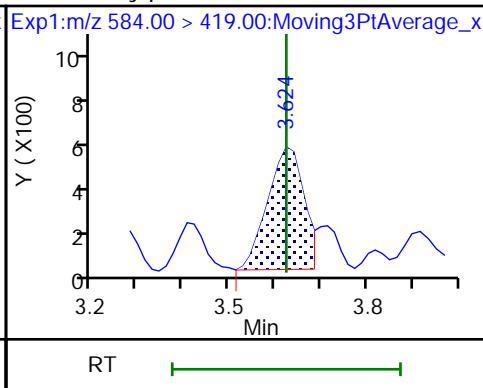
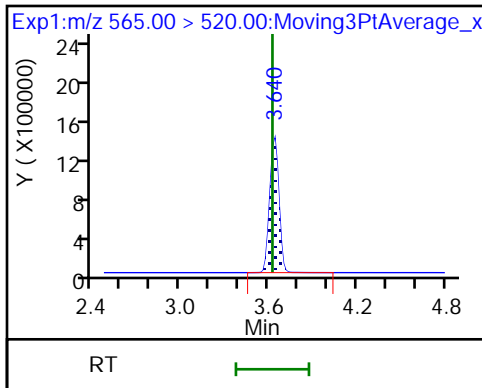
29 Perfluorodecanesulfonic acid (ND)

D 32 d5-NEtFOSAA



D 30 13C2 PFUnA

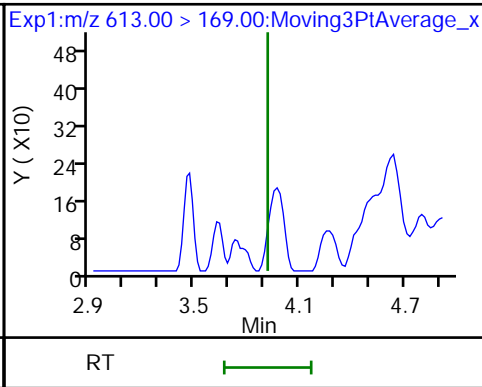
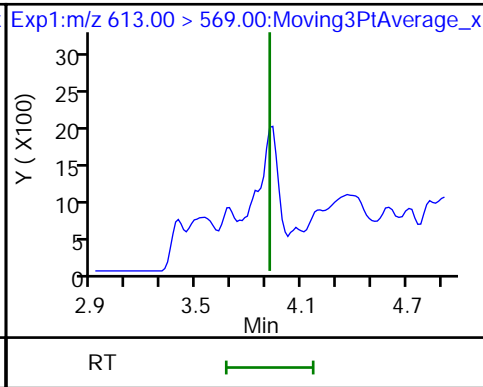
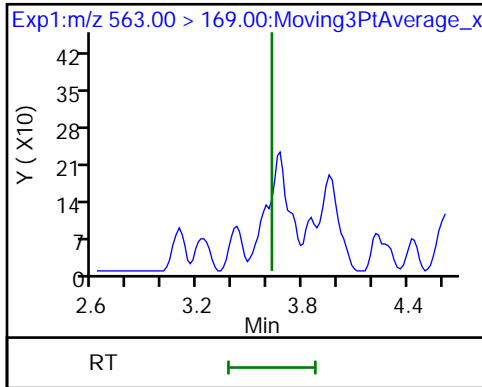
33 N-ethylperfluorooctanesulfonamidoa (M) Perfluoroundecanoic acid (ND)



31 Perfluoroundecanoic acid (ND)

37 Perfluorododecanoic acid (ND)

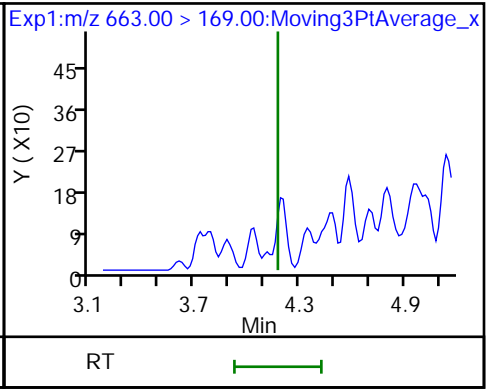
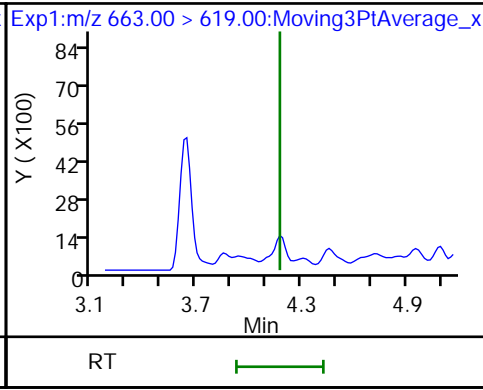
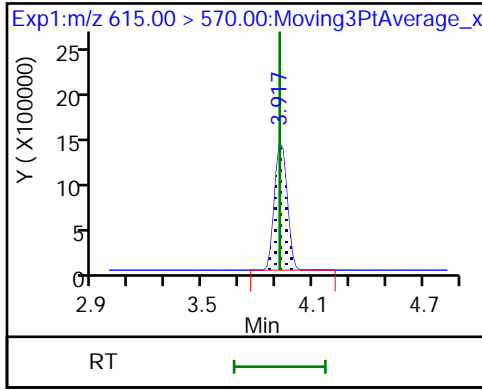
37 Perfluorododecanoic acid (ND)



D 36 13C2 PFDaA

41 Perfluorotridecanoic acid (ND)

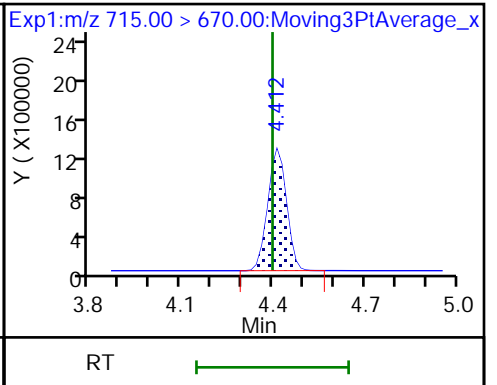
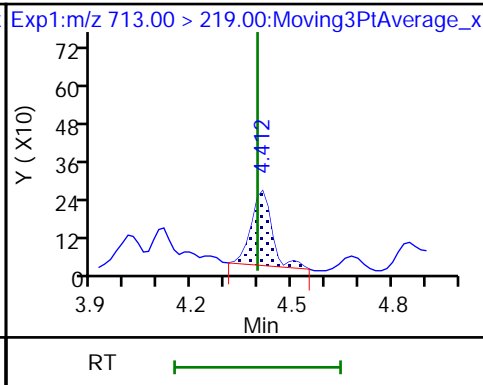
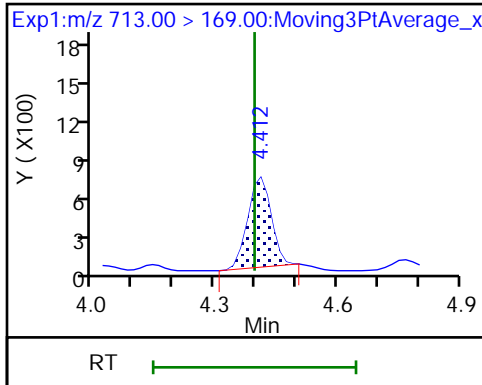
41 Perfluorotridecanoic acid (ND)



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

D 43 13C2 PFTeDA



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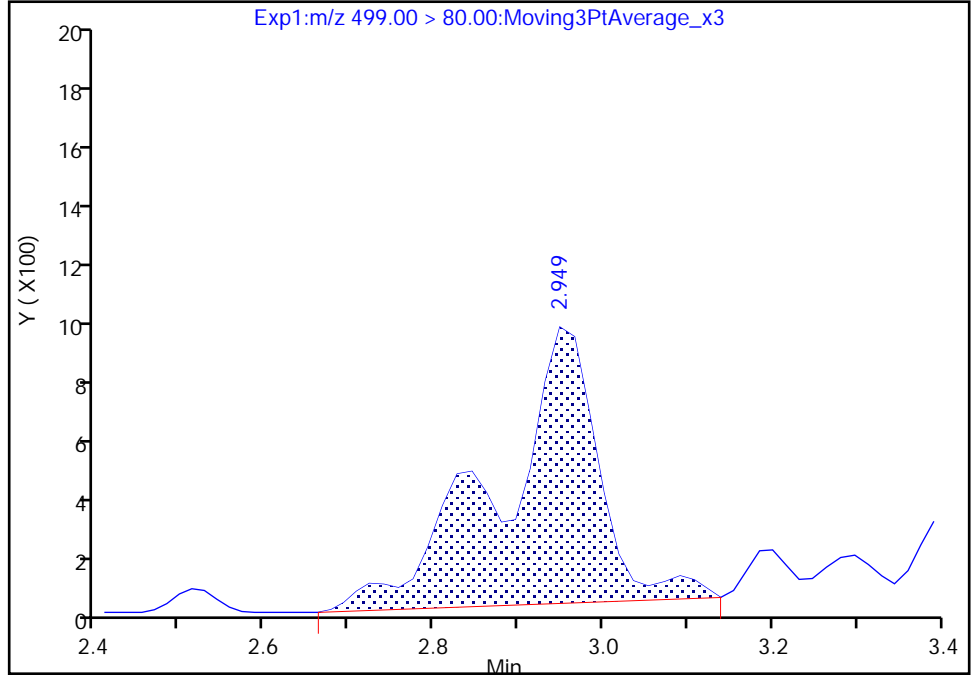
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Injection Date: 10-Nov-2018 15:51:09 Instrument ID: A9  
Lims ID: 480-144495-C-5-A Lab Sample ID: 320-144495-5  
Client ID: EQUIPMENT BLANK  
Operator ID: A9\Administrator ALS Bottle#: 38 Worklist Smp#: 10  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

17 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

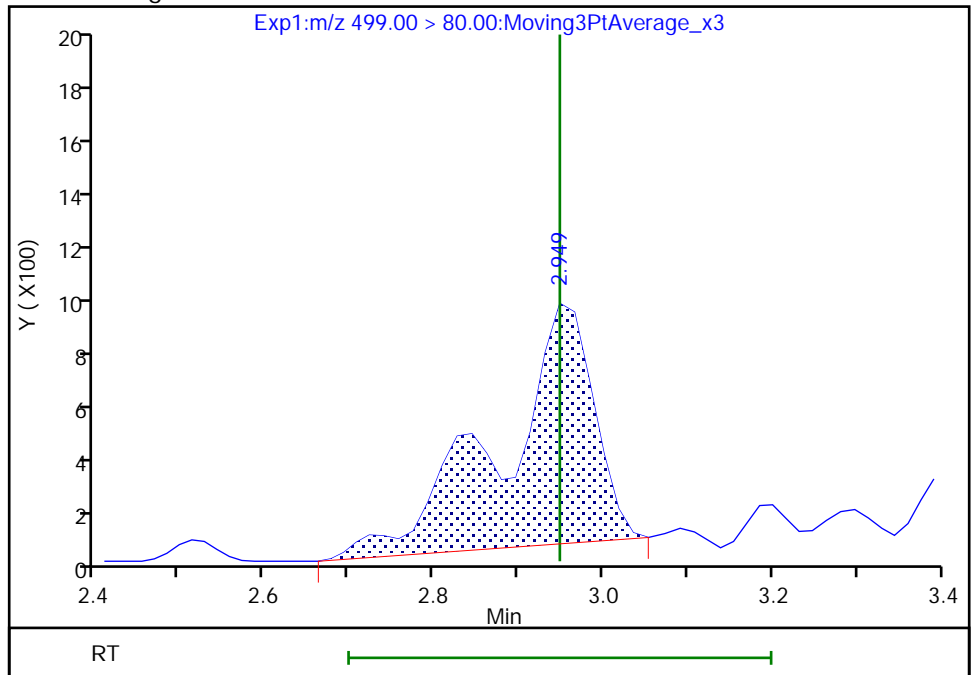
RT: 2.95  
Area: 7816  
Amount: 0.003338  
Amount Units: ng/ml

Processing Integration Results



RT: 2.95  
Area: 6980  
Amount: 0.002981  
Amount Units: ng/ml

Manual Integration Results



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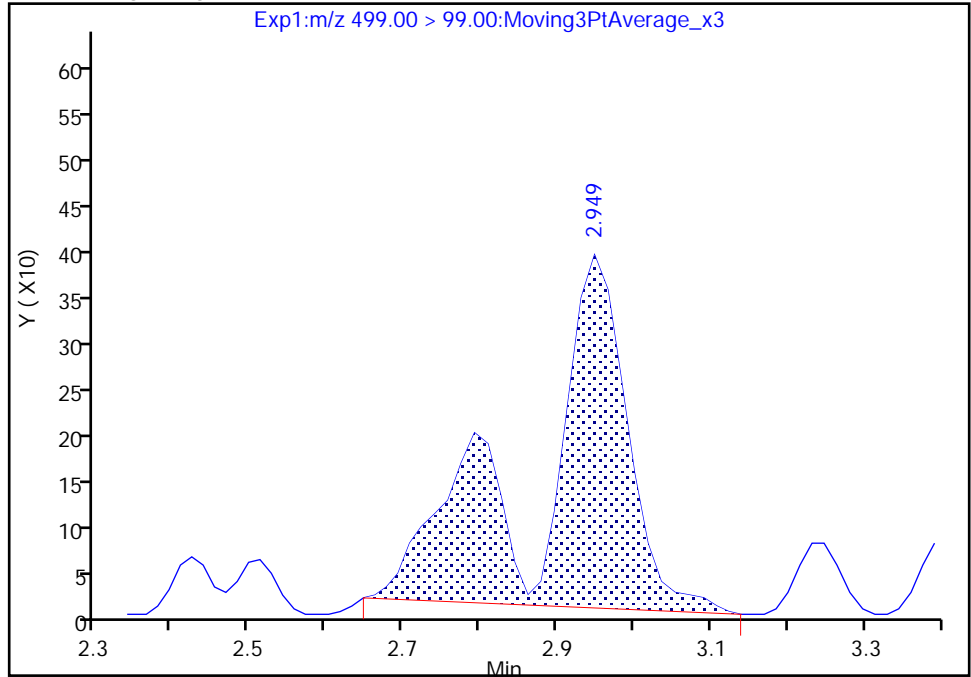
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Lims ID: 480-144495-C-5-A Lab Sample ID: 320-144495-5  
Client ID: EQUIPMENT BLANK  
Operator ID: A9\Administrator ALS Bottle#: 38 Worklist Smp#: 10  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

17 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

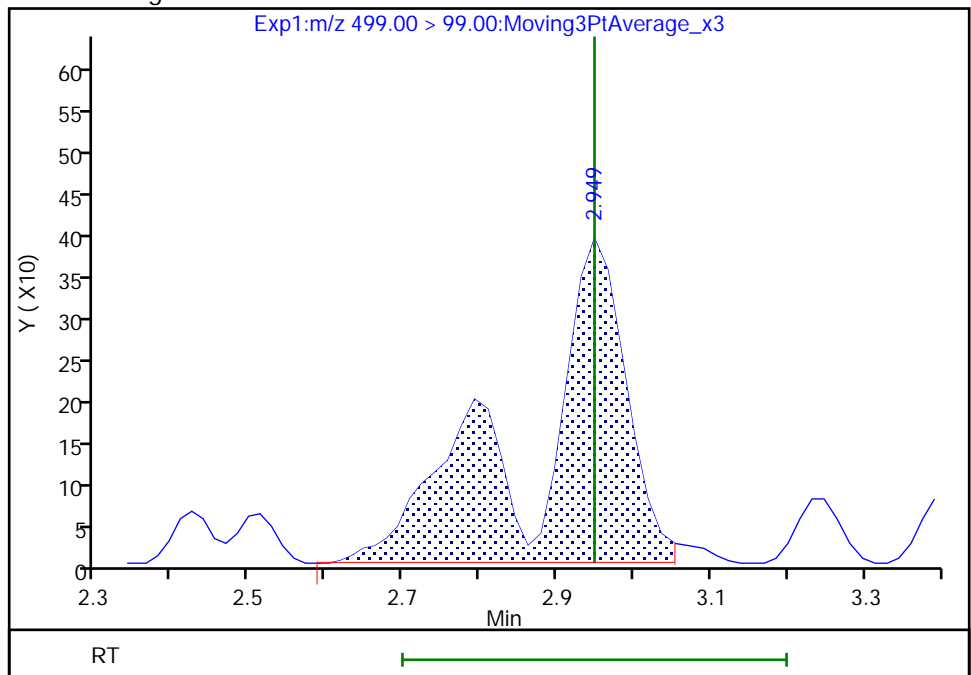
RT: 2.95  
Area: 3194  
Amount: 0.003338  
Amount Units: ng/ml

Processing Integration Results



RT: 2.95  
Area: 3383  
Amount: 0.002981  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

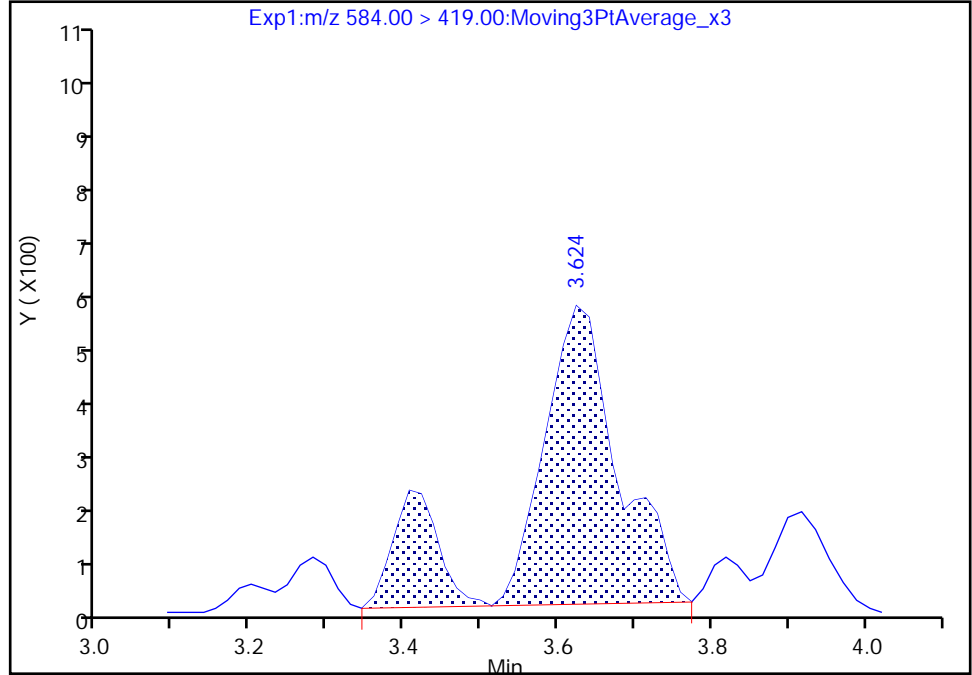
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Injection Date: 10-Nov-2018 15:51:09 Instrument ID: A9  
Lims ID: 480-144495-C-5-A Lab Sample ID: 320-144495-5  
Client ID: EQUIPMENT BLANK  
Operator ID: A9\Administrator ALS Bottle#: 38 Worklist Smp#: 10  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

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

Signal: 1

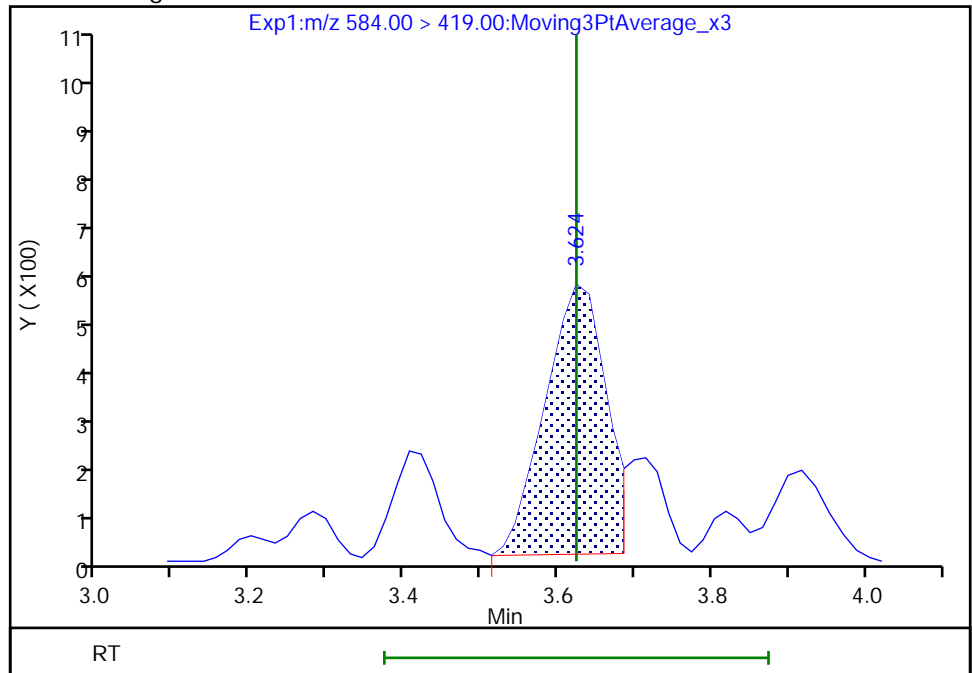
RT: 3.62  
Area: 4258  
Amount: 0.005576  
Amount Units: ng/ml

Processing Integration Results



RT: 3.62  
Area: 2821  
Amount: 0.003694  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

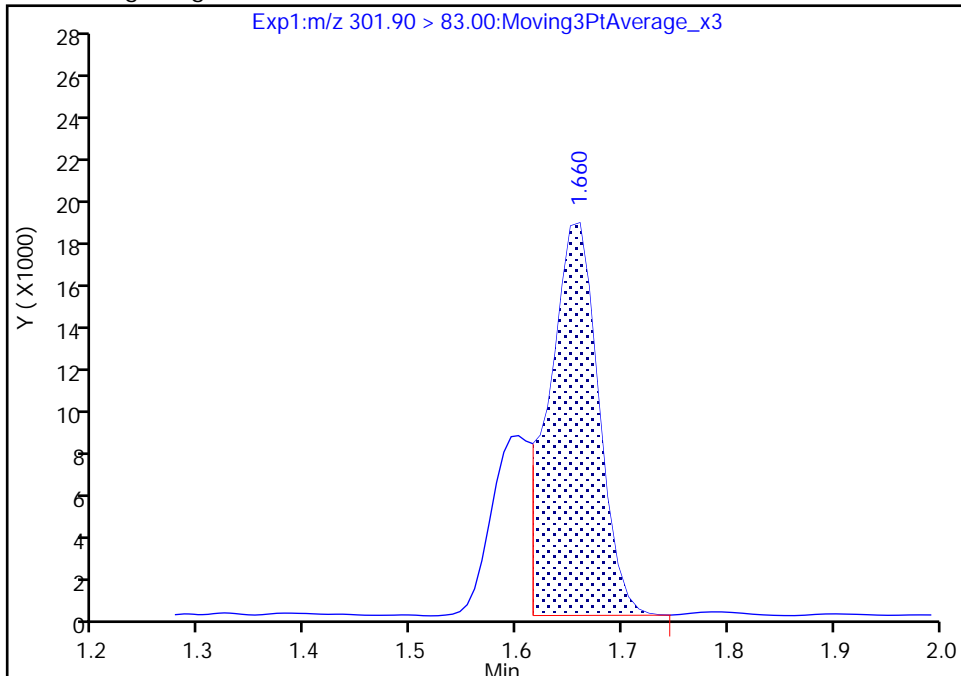
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Injection Date: 10-Nov-2018 15:51:09 Instrument ID: A9  
Lims ID: 480-144495-C-5-A Lab Sample ID: 320-144495-5  
Client ID: EQUIPMENT BLANK  
Operator ID: A9\Administrator ALS Bottle#: 38 Worklist Smp#: 10  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

D 47 13C3 PFBS, CAS: STL02337

Signal: 1

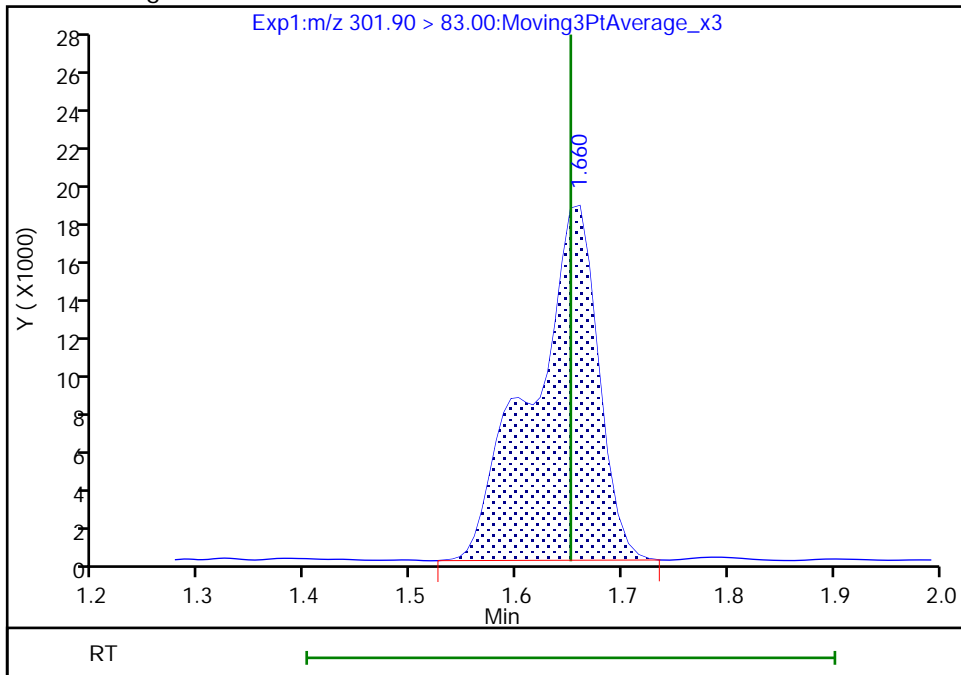
RT: 1.66  
Area: 59084  
Amount: 1.566371  
Amount Units: ng/ml

Processing Integration Results



RT: 1.66  
Area: 80807  
Amount: 2.142268  
Amount Units: ng/ml

Manual Integration Results



FORM VI  
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA  
RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1 Analy Batch No.: 255834

SDG No.: \_\_\_\_\_

Instrument ID: A9 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/30/2018 13:12 Calibration End Date: 10/30/2018 13:57 Calibration ID: 41944

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-255834/2	2018.10.30ICALA_002.d
Level 2	IC 320-255834/3	2018.10.30ICALA_003.d
Level 3	IC 320-255834/4	2018.10.30ICALA_004.d
Level 4	IC 320-255834/5	2018.10.30ICALA_005.d
Level 5	IC 320-255834/6	2018.10.30ICALA_006.d
Level 6	IC 320-255834/7	2018.10.30ICALA_007.d
Level 7	IC 320-255834/8	2018.10.30ICALA_008.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7				RT WINDOW	AVG RT
Perfluorobutanoic acid (PFBA)	1.323	1.327	1.323	1.323	1.328	1.323	1.319				1.074 - 1.574	1.324
Perfluoropentanoic acid (PFPeA)	1.572	1.579	1.572	1.572	1.579	1.572	1.565				1.323 - 1.823	1.573
Perfluorobutanesulfonic acid (PFBS)	1.607	1.614	1.607	1.607	1.607	1.607	1.600				1.357 - 1.857	1.607
4:2 FTS	1.805	1.805	1.805	1.805	1.814	1.805	1.797				1.555 - 2.055	1.805
Perfluorohexanoic acid (PFHxA)	1.839	1.838	1.839	1.830	1.839	1.839	1.830				1.586 - 2.086	1.836
Perfluoropentanesulfonic acid (PFPeS)	1.865	1.864	1.855	1.855	1.865	1.855	1.855				1.609 - 2.109	1.859
HFPO-DA (GenX)	1.925	1.935	1.925	1.925	1.935	1.925	1.925				1.678 - 2.178	1.928
Perfluoroheptanoic acid (PFHpA)	2.150	2.149	2.150	2.150	2.150	2.150	2.140				1.898 - 2.398	2.148
Perfluorohexanesulfonic acid (PFHxS)	2.170	2.170	2.160	2.160	2.170	2.160	2.160				1.914 - 2.414	2.164
DONA	2.191	2.201	2.191	2.191	2.201	2.191	2.191				1.944 - 2.444	2.194
6:2 FTS	2.491	2.491	2.478	2.478	2.478	2.478	2.478				2.232 - 2.732	2.482
Perfluorooctanoic acid (PFOA)	2.504	2.504	2.504	2.504	2.504	2.504	2.504				2.254 - 2.754	2.504
Perfluoroheptanesulfonic Acid (PFHpS)	2.517	2.517	2.518	2.504	2.517	2.518	2.504				2.264 - 2.764	2.514
Perfluorooctanesulfonic acid (PFOS)	2.877	2.877	2.878	2.878	2.877	2.878	2.878				2.627 - 3.127	2.878
Perfluorononanoic acid (PFNA)	2.877	2.893	2.878	2.878	2.877	2.878	2.878				2.630 - 3.130	2.880
F-53B Major	3.098	3.098	3.098	3.080	3.080	3.098	3.080				2.841 - 3.341	3.090
Perfluorooctanesulfonamide (FOSA)	3.224	3.224	3.224	3.207	3.224	3.224	3.207				2.969 - 3.469	3.219
8:2 FTS	3.224	3.241	3.224	3.224	3.224	3.224	3.224				2.976 - 3.476	3.226
Perfluorononanesulfonic acid (PFNS)	3.224	3.241	3.224	3.224	3.224	3.224	3.224				2.976 - 3.476	3.226
Perfluorodecanoic acid (PFDA)	3.241	3.241	3.241	3.241	3.241	3.241	3.241				2.991 - 3.491	3.241
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.399	3.399	3.400	3.400	3.399	3.400	3.400				3.149 - 3.649	3.400
Perfluorodecanesulfonic acid (PFDS)	3.556	3.555	3.556	3.542	3.556	3.556	3.541				3.302 - 3.802	3.552
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	3.570	3.570	3.570	3.556	3.570	3.570	3.556				3.316 - 3.816	3.566
Perfluoroundecanoic acid (PFUnA)	3.570	3.570	3.570	3.570	3.570	3.570	3.570				3.320 - 3.820	3.570
F-53B Minor	3.728	3.728	3.728	3.728	3.728	3.728	3.728				3.478 - 3.978	3.728
Perfluorododecanoic acid (PFDoA)	3.869	3.869	3.855	3.854	3.854	3.869	3.854				3.611 - 4.111	3.861
10:2 FTS	3.869	3.869	3.869	3.854	3.869	3.869	3.854				3.615 - 4.115	3.865
Perfluorododecanesulfonic acid (PFDoS)	4.106	4.105	4.106	4.089	4.106	4.106	4.089				3.851 - 4.351	4.101
Perfluorotridecanoic acid (PFTriA)	4.122	4.138	4.122	4.122	4.122	4.122	4.122				3.875 - 4.375	4.124
Perfluorotetradecanoic acid (PFTeA)	4.373	4.372	4.357	4.357	4.357	4.373	4.357				4.114 - 4.614	4.364
Perfluoro-n-hexadecanoic acid (PFHxDA)	+++++	4.784	4.784	4.769	4.784	4.784	+++++				4.530 - 5.030	4.781
Perfluoro-n-octadecanoic acid (PFODA)	5.125	5.141	5.125	5.125	5.125	5.125	5.125				4.877 - 5.377	5.127

FORM VI  
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA  
RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1 Analy Batch No.: 255834  
 SDG No.: \_\_\_\_\_  
 Instrument ID: A9 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N  
 Calibration Start Date: 10/30/2018 13:12 Calibration End Date: 10/30/2018 13:57 Calibration ID: 41944

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7				RT WINDOW	AVG RT
13C4 PFBA	1.323	1.327	1.323	1.319	1.328	1.323	1.319				1.073 - 1.573	1.323
13C5 PFPeA	1.572	1.572	1.572	1.572	1.572	1.572	1.565				1.321 - 1.821	1.571
13C3 PFBS	1.600	1.606	1.600	1.600	1.607	1.607	1.600				1.353 - 1.853	1.603
M2-4:2 FTS	1.805	1.805	1.805	1.805	1.805	1.805	1.797				1.554 - 2.054	1.804
13C2 PFHxA	1.839	1.838	1.839	1.830	1.839	1.839	1.830				1.586 - 2.086	1.836
13C3 HFPO-DA	1.925	1.935	1.925	1.925	1.935	1.925	1.925				1.678 - 2.178	1.928
13C4 PFHpA	2.150	2.149	2.150	2.150	2.150	2.150	2.140				1.898 - 2.398	2.148
18O2 PFHxS	2.170	2.170	2.160	2.160	2.170	2.160	2.160				1.914 - 2.414	2.164
M2-6:2 FTS	2.478	2.478	2.478	2.478	2.478	2.478	2.478				2.228 - 2.728	2.478
13C8 PFOA	2.504	2.504	2.504	2.491	2.504	2.504	2.491				2.251 - 2.751	2.500
13C4 PFOA	2.504	2.504	2.504	2.504	2.504	2.504	2.504				2.254 - 2.754	2.504
13C4 PFOS	2.877	2.877	2.878	2.878	2.877	2.878	2.878				2.627 - 3.127	2.878
13C5 PFNA	2.877	2.877	2.878	2.878	2.877	2.878	2.878				2.627 - 3.127	2.878
13C8 PFOS	2.877	2.877	2.878	2.878	2.877	2.878	2.878				2.627 - 3.127	2.878
13C8 FOSA	3.224	3.224	3.224	3.207	3.207	3.224	3.207				2.967 - 3.467	3.217
M2-8:2 FTS	3.224	3.241	3.224	3.224	3.224	3.224	3.224				2.976 - 3.476	3.226
13C2 PFDA	3.241	3.241	3.241	3.241	3.241	3.241	3.241				2.991 - 3.491	3.241
d3-NMeFOSAA	3.399	3.399	3.400	3.383	3.383	3.400	3.383				3.142 - 3.642	3.392
d5-NEtFOSAA	3.556	3.570	3.556	3.556	3.556	3.556	3.556				3.308 - 3.808	3.558
13C2 PFUnA	3.570	3.570	3.570	3.556	3.570	3.570	3.570				3.318 - 3.818	3.568
13C2 PFDoA	3.869	3.869	3.855	3.854	3.854	3.854	3.854				3.609 - 4.109	3.858
13C2 PFTeDA	4.373	4.372	4.357	4.357	4.357	4.373	4.357				4.114 - 4.614	4.364
13C2 PFHxDA	4.784	4.784	4.784	4.769	4.784	4.784	4.769				4.530 - 5.030	4.780



FORM VI  
 LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA  
 CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1 Analy Batch No.: 255834

SDG No.: \_\_\_\_\_

Instrument ID: A9 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/30/2018 13:12 Calibration End Date: 10/30/2018 13:57 Calibration ID: 41944

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-255834/2	2018.10.30ICALA_002.d
Level 2	IC 320-255834/3	2018.10.30ICALA_003.d
Level 3	IC 320-255834/4	2018.10.30ICALA_004.d
Level 4	IC 320-255834/5	2018.10.30ICALA_005.d
Level 5	IC 320-255834/6	2018.10.30ICALA_006.d
Level 6	IC 320-255834/7	2018.10.30ICALA_007.d
Level 7	IC 320-255834/8	2018.10.30ICALA_008.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R <sup>2</sup> OR COD	#	MIN R <sup>2</sup> OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4		B	M1	M2								
13C8 PFOA	3463371 3297012	3482711 3545571	3540463 3237673	3518168	Ave		3440709.65			3.6			50.0			
13C8 PFOS	488549 478843	514667 490012	497777 467079	521280	Ave		494029.528			3.9			50.0			

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

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Sacramento

Job No.: 480-144495-1

Analy Batch No.: 255834

SDG No.: \_\_\_\_\_

Instrument ID: A9

GC Column: Acquity ID: 2.1(mm)

Heated Purge: (Y/N) N

Calibration Start Date: 10/30/2018 13:12

Calibration End Date: 10/30/2018 13:57

Calibration ID: 41944

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Perfluorobutanoic acid (PFBA)	0.8865 0.9532	0.9512 0.8800	0.9433	0.9586	0.9773	AveID		0.9357			4.0		35.0				
Perfluoropentanoic acid (PFPeA)	1.1338 0.9403	1.0102 0.8909	1.0181	0.9871	1.0271	AveID		1.0011			7.6		35.0				
Perfluorobutanesulfonic acid (PFBS)	112.04 98.621	107.32 92.319	97.591	110.25	104.68	AveID		103.26			7.0		50.0				
4:2 FTS	21.757 20.115	22.323 18.952	20.116	20.685	19.899	AveID		20.550			5.6		50.0				
Perfluorohexanoic acid (PFHxA)	0.9492 0.8413	1.0111 0.7697	0.8923	0.9074	0.9269	AveID		0.8997			8.6		35.0				
Perfluoropentanesulfonic acid (PFPeS)	48.749 48.358	45.565 44.950	47.503	51.092	48.698	AveID		47.845			4.4		50.0				
HFPO-DA (GenX)	1.8372 1.6721	1.4972 1.5827	1.6183	1.5600	1.8696	AveID		1.6625			8.5		35.0				
Perfluoroheptanoic acid (PFHpA)	1.2113 0.9674	1.0693 0.8707	1.1146	1.1166	1.0754	AveID		1.0607			10.5		35.0				
Perfluorohexanesulfonic acid (PFHxS)	1.5367 1.1897	1.3869 1.1337	1.1384	1.2043	1.2283	AveID		1.2597			11.8		35.0				
DONA	2.8473 2.4729	2.9238 2.1826	2.8784	2.9940	2.7237	AveID		2.7175			10.7		50.0				
6:2 FTS	2.3915 2.1109	2.3082 2.0493	2.2399	2.0761	2.0983	AveID		2.1820			6.0		35.0				
Perfluorooctanoic acid (PFOA)	1.3059 0.9454	1.1844 0.8244	1.1873	1.0947	1.0256	AveID		1.0811			15.1		35.0				
Perfluoroheptanesulfonic Acid (PFHpS)	0.9940 1.0274	1.0895 0.9780	1.0702	1.0998	1.0281	AveID		1.0410			4.5		50.0				
Perfluorooctanesulfonic acid (PFOS)	1.1030 1.0886	1.0668 1.0360	1.0342	1.1649	1.0450	AveID		1.0769			4.3		35.0				
Perfluorononanoic acid (PFNA)	1.0058 0.9593	1.0430 0.8658	1.0871	1.0186	1.0282	AveID		1.0011			7.1		35.0				
F-53B Major	1.0201 1.1260	1.0927 1.0682	1.0553	1.1847	1.2074	AveID		1.1078			6.2		50.0				
Perfluorooctanesulfonamide (FOSA)	2.9875 2.7995	3.2501 2.5727	3.1923	3.2190	3.0111	AveID		3.0046			8.3		35.0				
8:2 FTS	14.260 15.518	13.091 14.709	13.091	14.680	14.587	AveID		14.277			6.3		35.0				
Perfluorononanesulfonic acid (PFNS)	0.5695 0.6218	0.6295 0.5628	0.6252	0.6613	0.6244	AveID		0.6135			5.7		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.: 480-144495-1 Analy Batch No.: 255834  
 SDG No.: \_\_\_\_\_  
 Instrument ID: A9 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N  
 Calibration Start Date: 10/30/2018 13:12 Calibration End Date: 10/30/2018 13:57 Calibration ID: 41944

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R <sup>2</sup> OR COD	#	MIN R <sup>2</sup> OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
Perfluorodecanoic acid (PFDA)	1.1711 0.9708	1.1851 0.9510	1.1120	1.0961	1.1128	AveID		1.0855			8.4		35.0				
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	1.0825 0.9853	0.9531 0.9672	1.0121	1.0001	1.0002	AveID		1.0001			4.2		35.0				
Perfluorodecanesulfonic acid (PFDS)	0.8197 0.9027	0.9162 0.7951	0.9052	0.8434	0.8758	AveID		0.8654			5.4		50.0				
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.8100 0.9315	0.9219 0.9375	0.9254	0.9245	0.9489	AveID		0.9143			5.1		35.0				
Perfluoroundecanoic acid (PFUnA)	1.3990 1.0002	1.2856 0.8689	1.1686	1.1625	1.0741	AveID		1.1370			15.5		35.0				
F-53B Minor	1.4246 1.2751	1.5859 1.1182	1.4733	1.5084	1.3209	AveID		1.3866			11.5		50.0				
Perfluorododecanoic acid (PFDoA)	1.1654 0.8990	1.0275 0.7820	1.1472	1.0695	1.0310	AveID		1.0174			13.4		35.0				
10:2 FTS	10.862 10.986	8.1600 10.878	8.7944	9.8768	11.228	AveID		10.112			11.9		50.0				
Perfluorododecanesulfonic acid (PFDoS)	0.0879 0.1019	0.0993 0.1009	0.0876	0.1015	0.0953	AveID		0.0963			6.5		50.0				
Perfluorotridecanoic acid (PFTriA)	0.8962 0.7411	0.8540 0.6160	0.9271	0.8730	0.8154	AveID		0.8175			13.1		50.0				
Perfluorotetradecanoic acid (PFTeA)	0.2180 0.1623	0.2183 0.1684	0.1686	0.1820	0.1622	AveID		0.1828			13.7		50.0				
Perfluoro-n-hexadecanoic acid (PFHxDA)	++++ 0.9067	1.3741 ++++	0.9989	0.9450	0.8892	L2ID	0.0237	0.9015						1.0000		0.9900	
Perfluoro-n-octadecanoic acid (PFODA)	0.5044 0.5263	0.4870 0.4628	0.4749	0.5071	0.4992	AveID		0.4945			4.3		50.0				
13C4 PFBA	0.8689 0.9279	0.9157 0.9614	0.9165	0.8851	0.8969	Ave		0.9103			3.3		50.0				
13C5 PFPeA	0.8296 0.9000	0.8760 0.8815	0.8626	0.8651	0.8504	Ave		0.8665			2.6		50.0				
13C3 PFBS	0.0111 0.0124	0.0121 0.0123	0.0125	0.0113	0.0120	Ave		0.0120			4.6		50.0				
M2-4:2 FTS	0.0916 0.0975	0.0992 0.0937	0.1008	0.0922	0.0983	Ave		0.0962			3.8		50.0				
13C2 PFHxA	0.8852 0.9485	0.9012 0.9448	0.9318	0.8829	0.9005	Ave		0.9136			3.0		50.0				
13C3 HFPO-DA	0.1173 0.1187	0.1199 0.1296	0.1150	0.1233	0.1026	Ave		0.1181			7.0		50.0				
13C4 PFHpA	1.0397 1.1061	1.1027 1.0636	1.1119	1.0252	1.0690	Ave		1.0740			3.2		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.: 480-144495-1 Analy Batch No.: 255834

SDG No.: \_\_\_\_\_

Instrument ID: A9 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/30/2018 13:12 Calibration End Date: 10/30/2018 13:57 Calibration ID: 41944

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7															
18O2 PFHxS	0.6877 0.7254	0.6816 0.7069	0.7362	0.6763	0.6771	Ave		0.6988			3.5		50.0				
M2-6:2 FTS	0.0948 0.1032	0.1029 0.0961	0.1014	0.0976	0.0956	Ave		0.0988			3.6		50.0				
13C4 PFOA	0.9680 0.9898	1.0313 0.9703	0.9733	0.9604	0.9926	Ave		0.9837			2.4		50.0				
13C4 PFOS	0.7125 0.7011	0.6993 0.6935	0.7336	0.6899	0.7148	Ave		0.7064			2.1		50.0				
13C5 PFNA	0.9336 0.8844	0.9251 0.8888	0.9097	0.9435	0.8814	Ave		0.9095			2.8		50.0				
13C8 FOSA	0.3871 0.3920	0.4049 0.3724	0.3903	0.3905	0.4000	Ave		0.3910			2.6		50.0				
M2-8:2 FTS	0.0127 0.0113	0.0140 0.0107	0.0138	0.0117	0.0115	Ave		0.0122			10.6		50.0				
13C2 PFDA	0.9310 0.9208	1.0129 0.8558	0.9719	0.9308	0.9335	Ave		0.9367			5.1		50.0				
d3-NMeFOSAA	0.3746 0.4108	0.4320 0.4125	0.3909	0.4123	0.4013	Ave		0.4049			4.5		50.0				
d5-NEtFOSAA	0.3530 0.3168	0.3492 0.2973	0.3520	0.3272	0.3128	Ave		0.3298			6.7		50.0				
13C2 PFUnA	0.7766 0.7867	0.8249 0.7450	0.8041	0.7690	0.7698	Ave		0.7823			3.3		50.0				
13C2 PFDoA	0.9480 0.9677	1.0005 0.9944	0.9579	0.9419	0.9340	Ave		0.9635			2.7		50.0				
13C2 PFTeDA	0.7212 0.7282	0.7214 0.7125	0.6780	0.7153	0.7635	Ave		0.7200			3.5		50.0				
13C2 PFHxDA	0.6609 0.7178	0.7302 0.7524	0.7210	0.7230	0.7025	Ave		0.7154			4.0		50.0				

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

FORM VI  
 LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA  
 RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1 Analy Batch No.: 255834

SDG No.: \_\_\_\_\_

Instrument ID: A9 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/30/2018 13:12 Calibration End Date: 10/30/2018 13:57 Calibration ID: 41944

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-255834/2	2018.10.30ICALA_002.d
Level 2	IC 320-255834/3	2018.10.30ICALA_003.d
Level 3	IC 320-255834/4	2018.10.30ICALA_004.d
Level 4	IC 320-255834/5	2018.10.30ICALA_005.d
Level 5	IC 320-255834/6	2018.10.30ICALA_006.d
Level 6	IC 320-255834/7	2018.10.30ICALA_007.d
Level 7	IC 320-255834/8	2018.10.30ICALA_008.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C8 PFOA	Ave	8476601 8677785	8523934 7924204	8665283	8610715	8069436	2.45 2.45	2.45 2.45	2.45	2.45	2.45
13C8 PFOS	Ave	1167633 1171128	1230054 1116319	1189687	1245859	1144434	2.39 2.39	2.39 2.39	2.39	2.39	2.39

Curve Type Legend:

Ave = Average

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

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1 Analy Batch No.: 255834

SDG No.: \_\_\_\_\_

Instrument ID: A9 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/30/2018 13:12 Calibration End Date: 10/30/2018 13:57 Calibration ID: 41944

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-255834/2	2018.10.30ICALA_002.d
Level 2	IC 320-255834/3	2018.10.30ICALA_003.d
Level 3	IC 320-255834/4	2018.10.30ICALA_004.d
Level 4	IC 320-255834/5	2018.10.30ICALA_005.d
Level 5	IC 320-255834/6	2018.10.30ICALA_006.d
Level 6	IC 320-255834/7	2018.10.30ICALA_007.d
Level 7	IC 320-255834/8	2018.10.30ICALA_008.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7				LVL 6	LVL 7			
Perfluorobutanoic acid (PFBA)		AveID	63699 14536769	137562 26118757	700086	2770322	6935084	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanoic acid (PFPeA)		AveID	77788 13910441	139761 24242637	711130	2788574	6910293	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorobutanesulfonic acid (PFBS)		AveID	90908 17754525	182019 31022231	875621	3599778	8813587	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
4:2 FTS		AveID	18652 3826151	40003 6728832	190700	713550	1770078	0.0234 4.67	0.0467 9.34	0.234	0.934	2.34
Perfluorohexanoic acid (PFHxA)		AveID	69481 13116869	143915 22451312	673371	2615815	6603393	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanesulfonic acid (PFPeS)		AveID	41971 9237581	82003 16027538	452249	1770049	4350475	0.0235 4.69	0.0469 9.38	0.235	0.938	2.35
HFPO-DA (GenX)		AveID	17818 3262119	28359 6332723	150748	628181	1517762	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanoic acid (PFHpA)		AveID	104145 17588052	186215 28591245	1003607	3737932	9095717	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid (PFHxS)		AveID	79526 12909524	135870 22514172	617668	2420284	5988235	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
DONA		AveID	158028 26844361	304181 44019792	1610812	6353925	14510088	0.0236 4.71	0.0471 9.42	0.236	0.942	2.36
6:2 FTS		AveID	17771 3393467	35556 5762757	174352	627518	1504047	0.0237 4.74	0.0474 9.48	0.237	0.948	2.37
Perfluorooctanoic acid (PFOA)		AveID	104643 15396289	193091 24719818	936788	3436748	8061840	0.0250 5.01	0.0501 10.0	0.250	1.00	2.50
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	55753 11271034	114547 19934173	605272	2358852	5535119	0.0238 4.76	0.0476 9.52	0.238	0.952	2.38
Perfluorooctanesulfonic acid (PFOS)		AveID	60306 11641776	109342 20584711	570169	2435322	5484091	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32
Perfluorononanoic acid (PFNA)		AveID	77652 13944627	152381 23756934	800817	3138021	7169818	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50

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

Lab Name: TestAmerica Sacramento

Job No.: 480-144495-1

Analy Batch No.: 255834

SDG No.: \_\_\_\_\_

Instrument ID: A9

GC Column: Acquity

ID: 2.1 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 10/30/2018 13:12

Calibration End Date: 10/30/2018 13:57

Calibration ID: 41944

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	56016 12093836	112471 21315966	584281	2487534	6364125	0.0233 4.66	0.0466 9.32	0.233	0.932	2.33
Perfluorooctanesulfonamide (FOSA)		AveID	95634 18036052	207817 29580681	1009046	4105177	9528139	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
8:2 FTS		AveID	14369 2752003	27693 4634743	140552	538370	1276920	0.0240 4.79	0.0479 9.58	0.240	0.958	2.40
Perfluorononanesulfonic acid (PFNS)		AveID	32210 6878433	66744 11567897	356556	1430137	3390136	0.0240 4.80	0.0480 9.60	0.240	0.960	2.40
Perfluorodecanoic acid (PFDA)		AveID	90162 14692738	189575 25123980	875209	3331267	8218144	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)		AveID	33534 6652620	65035 12317657	320374	1346384	3175990	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanesulfonic acid (PFDS)		AveID	46555 10027931	97541 16411334	518365	1831725	4774486	0.0241 4.82	0.0482 9.64	0.241	0.964	2.41
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)		AveID	23647 4850297	50850 8605918	263775	987763	2348124	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroundecanoic acid (PFUnA)		AveID	89842 12933591	167491 19985454	760964	2919106	6541446	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
F-53B Minor		AveID	79065 13842083	164988 22552443	824463	3201198	7036758	0.0236 4.71	0.0471 9.42	0.236	0.942	2.36
Perfluorododecanoic acid (PFDoA)		AveID	91368 14298498	162362 24007518	889955	3289422	7618201	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
10:2 FTS		AveID	11013 1960545	17370 3448893	95016	364481	989043	0.0241 4.82	0.0482 9.64	0.241	0.964	2.41
Perfluorododecanesulfonic acid (PFDoS)		AveID	5012 1136910	10616 2091110	50383	221273	521826	0.0242 4.84	0.0484 9.68	0.242	0.968	2.42
Perfluorotridecanoic acid (PFTriA)		AveID	70257 11788226	134935 18912174	719231	2684945	6025241	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotetradecanoic acid (PFTeA)		AveID	13001 1942558	24878 3705066	92576	425136	979697	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-hexadecanoic acid (PFHxDA)		L2ID	++++ 10698193	158462 ++++	583218	2230933	4941811	++++ 5.00	0.0500 ++++	0.250	1.00	2.50
Perfluoro-n-octadecanoic acid (PFODA)		AveID	27565 6209643	56154 10749622	277253	1197202	2774364	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C4 PFBA	13PF OA	Ave	7185608 7625617	7230801 7420348	7421636	7225198	7096057	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C5 PFPeA	13PF OA	Ave	6860597 7396747	6917794 6803099	6985179	7062557	6728064	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3 PFBS	13PF OA	Ave	85362 94698	89218 88380	94392	85872	88574	2.33 2.33	2.33 2.33	2.33	2.33	2.33
M2-4:2 FTS	13PF OA	Ave	707347 748516	731492 675449	762392	702950	726046	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.: 480-144495-1 Analy Batch No.: 255834

SDG No.: \_\_\_\_\_

Instrument ID: A9 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/30/2018 13:12 Calibration End Date: 10/30/2018 13:57 Calibration ID: 41944

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	7319913 7795361	7116724 7292358	7546229	7207236	7124163	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3 HFPO-DA	13PF OA	Ave	969846 975432	947049 1000289	931505	1006689	811818	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4 PFHpA	13PF OA	Ave	8598024 9090699	8707536 8209283	9004593	8369358	8457730	2.50 2.50	2.50 2.50	2.50	2.50	2.50
18O2 PFHxS	13PF OA	Ave	5379790 5640005	5091979 5161381	5640195	5223113	5068038	2.37 2.37	2.37 2.37	2.37	2.37	2.37
M2-6:2 FTS	13PF OA	Ave	744658 805491	771843 704483	780038	757242	718321	2.38 2.38	2.38 2.38	2.38	2.38	2.38
13C4 PFOA	13PF OA	Ave	8005125 8134347	8143608 7488473	7882113	7840609	7852766	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4 PFOS	13PF OA	Ave	5632640 5508335	5279158 5117088	5679290	5384373	5406507	2.39 2.39	2.39 2.39	2.39	2.39	2.39
13C5 PFNA	13PF OA	Ave	7720308 7268142	7305198 6859744	7366826	7702032	6973212	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C8 FOSA	13PF OA	Ave	3201088 3221281	3197106 2874497	3160835	3188250	3164375	2.50 2.50	2.50 2.50	2.50	2.50	2.50
M2-8:2 FTS	13PF OA	Ave	100761 88674	105771 78772	107369	91683	87541	2.40 2.40	2.40 2.40	2.40	2.40	2.40
13C2 PFDA	13PF OA	Ave	7699079 7567635	7998581 6604968	7870335	7598205	7385145	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d3-NMeFOSAA	13PF OA	Ave	3097827 3376031	3411732 3183764	3165312	3365714	3175263	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d5-NEtFOSAA	13PF OA	Ave	2919486 2603455	2757818 2294813	2850484	2670966	2474486	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFUnA	13PF OA	Ave	6421843 6465285	6514241 5750238	6511694	6277796	6090025	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFDoA	13PF OA	Ave	7839780 7952822	7900454 7675120	7757539	7689053	7389170	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFTeDA	13PF OA	Ave	5964438 5984835	5697043 5499047	5490624	5839511	6040135	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFHxDA	13PF OA	Ave	5465421 5899292	5765824 5807381	5838380	5901989	5557826	2.50 2.50	2.50 2.50	2.50	2.50	2.50

Curve Type Legend:

Ave = Average ISTD  
AveID = Average isotope dilution  
L2ID = Linear 1/conc^2 IsoDil



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_002.d  
 Lims ID: IC L1 Full  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 30-Oct-2018 13:12:49 ALS Bottle#: 10 Worklist Smp#: 2  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CAL STD1  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 30-Oct-2018 15:07:49 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d

Column 1 : Det: EXP1  
 Process Host: CTX0318

First Level Reviewer: roycea Date: 30-Oct-2018 14:12:32

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	1.323	1.323	0.0	0.528	7185608	2.39	95.5	11761	
2 Perfluorobutanoic acid										M
212.90 > 169.00	1.323	1.324	-0.001	1.000	63699	0.0237		94.7	4.0	M
D 3 13C5 PFPeA	267.90 > 223.00	1.572	1.571	0.001	0.628	6860597	2.39	95.7	12499	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.572	1.573	-0.001	1.000	77788	0.0283		113	8.5	
D 47 13C3 PFBS	301.90 > 83.00	1.600	1.603	-0.003	0.639	85362	2.15	92.7	400	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.607	1.607	0.0	1.004	90908	0.0240		109	48.8	
298.90 > 99.00	1.607	1.607	0.0	1.004	32119		2.83(1.35-4.05)	109	18.1	
D 60 M2-4:2 FTS	329.00 > 81.00	1.805	1.804	0.001	0.721	707347	2.22	95.2	719	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.805	1.805	0.0	1.128	18652	0.0247		106	189	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.839	1.836	0.003	1.000	69481	0.0264		106	16.7	
313.00 > 119.00	1.839	1.836	0.003	1.000	6093		11.40(6.96-20.87)	106	18.5	
D 7 13C2 PFHxA	315.00 > 270.00	1.839	1.836	0.003	0.734	7319913	2.42	96.9	16795	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.865	1.859	0.005	1.165	41971	0.0239		102	125	
349.00 > 99.00	1.865	1.859	0.005	1.165	19895		2.11(1.15-3.45)	102	49.6	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.925	1.928	-0.003	0.769	969846	2.48	99.3	4037	

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	1.925	1.928	-0.003	1.000	17818	0.0276	111	16.1	
D 9 13C4 PFHpA	367.00	> 322.00	2.150	2.148	0.002	0.858	8598024	2.42	96.8	12791	
10 Perfluoroheptanoic acid	363.00	> 319.00	2.150	2.148	0.002	1.000	104145	0.0285	114	28.0	
	363.00	> 169.00	2.140	2.148	-0.008	0.995	21521	4.84(2.17-6.52)	114	76.2	
D 11 18O2 PFHxS	403.00	> 84.00	2.170	2.164	0.006	0.867	5379790	2.33	98.4	8165	
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.170	2.164	0.006	1.000	79526	0.0278	122	90.4	
	399.00	> 99.00	2.160	2.164	-0.004	0.995	24910	3.19(1.90-5.70)	122	38.3	
76 DONA	377.00	> 251.00	2.191	2.194	-0.003	0.761	158028	0.0247	105	749	
	377.00	> 85.00	2.191	2.194	-0.003	0.761	64102	2.47(1.13-3.39)	105	158	
D 12 M2-6:2 FTS	429.00	> 81.00	2.478	2.478	0.0	0.990	744658	2.28	95.9	1078	
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.491	2.482	0.009	1.005	17771	0.0260	110	31.6	
D 73 13C8 PFOA	421.00	> 376.00	2.504	2.501	0.003		8476601	2.46	101	8840	
15 Perfluorooctanoic acid	413.00	> 369.00	2.504	2.504	0.0	1.000	104643	0.0302	121	12.7	M
	413.00	> 169.00	2.504	2.504	0.0	1.000	39299	2.66(1.36-4.08)	121	109	M
* 62 13C2 PFOA	415.00	> 370.00	2.504	2.504	0.0		8269614	2.50		8202	
D 14 13C4 PFOA	417.00	> 372.00	2.504	2.504	0.0	1.000	8005125	2.46	98.4	6672	
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.517	2.514	0.003	0.875	55753	0.0227	95.5	90.4	
	449.00	> 99.00	2.517	2.514	0.003	0.875	12117	4.60(1.84-5.53)	95.5	57.9	
D 72 13C8 PFOS	507.00	> 99.00	2.877	2.877	0.0		1167633	2.36	98.9	4185	
D 18 13C4 PFOS	503.00	> 80.00	2.877	2.877	0.0	1.149	5632640	2.41	101	4123	
D 19 13C5 PFNA	468.00	> 423.00	2.877	2.877	0.0	1.149	7720308	2.57	103	7548	
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.877	2.877	0.0	1.000	60306	0.0238	102	27.7	
	499.00	> 99.00	2.877	2.877	0.0	1.000	15803	3.82(2.04-6.12)	102	56.3	
20 Perfluorononanoic acid	463.00	> 419.00	2.877	2.880	-0.003	1.000	77652	0.0251	100	6.3	M
	463.00	> 169.00	2.877	2.880	-0.003	1.000	10831	7.17(2.68-8.03)	100	33.8	M
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.098	3.091	0.007	1.077	56016	0.0215	92.1	62.7	
D 21 13C8 FOSA	506.00	> 78.00	3.224	3.217	0.007	1.287	3201088	2.47	99.0	4675	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags		
22 Perfluorooctanesulfonamide	498.00	> 78.00	3.224	3.219	0.005	1.000	95634	0.0249	99.4	193		
D 26 M2-8:2 FTS	529.00	> 81.00	3.224	3.226	-0.002	1.287	100761	2.49	104	375		
25 1H,1H,2H,2H-perfluorodecanesulfoni	527.00	> 507.00	3.224	3.226	-0.002	1.000	14369	0.0239	99.9	110		
68 Perfluorononanesulfonic acid	549.00	> 80.00	3.224	3.226	-0.002	1.120	32210	0.0223	92.8	138		
	549.00	> 99.00	3.224	3.226	-0.002	1.120	7487		4.30(3.02-9.05)	92.8	59.4	
24 Perfluorodecanoic acid	513.00	> 469.00	3.241	3.241	0.0	1.000	90162	0.0270	108	19.5		
	513.00	> 169.00	3.241	3.241	0.0	1.000	8547		10.55(7.12-21.35)	108	15.5	
D 23 13C2 PFDA	515.00	> 470.00	3.241	3.241	0.0	1.294	7699079	2.48	99.4	7749		
D 27 d3-NMeFOSAA	573.00	> 419.00	3.399	3.392	0.007	1.357	3097827	2.31	92.5	4881		
28 N-methylperfluorooctanesulfonamido	570.00	> 419.00	3.399	3.399	0.0	1.000	33534	0.0271	108	10.9	M	
											M	
29 Perfluorodecanesulfonic acid	599.00	> 80.00	3.556	3.552	0.004	1.236	46555	0.0228	94.7	68.6		
	599.00	> 99.00	3.556	3.552	0.004	1.236	8148		5.71(2.14-6.43)	94.7	28.6	
D 32 d5-NEtFOSAA	589.00	> 419.00	3.556	3.558	-0.002	1.420	2919486	2.68	107	3541		
33 N-ethylperfluorooctanesulfonamidoa	584.00	> 419.00	3.570	3.566	0.004	1.004	23647	0.0221	88.6	58.6	M	
											M	
D 30 13C2 PFUnA	565.00	> 520.00	3.570	3.568	0.002	1.426	6421843	2.48	99.3	6577		
31 Perfluoroundecanoic acid	563.00	> 519.00	3.570	3.570	0.0	1.000	89842	0.0308	123	31.2		
	563.00	> 169.00	3.570	3.570	0.0	1.000	8276		10.86(5.24-15.72)	123	36.5	
35 MeFOSA	512.00	> 169.00	3.712	3.724	-0.012		14977	NC		104		
66 11-Chloroeicosafuoro-3-oxaundecan	631.00	> 451.00	3.728	3.728	0.0	1.296	79065	0.0242	103	498		
D 36 13C2 PFDaA	615.00	> 570.00	3.869	3.859	0.010	1.545	7839780	2.46	98.4	10531		
37 Perfluorododecanoic acid	613.00	> 569.00	3.869	3.861	0.008	1.000	91368	0.0286	115	35.3		
	613.00	> 169.00	3.869	3.861	0.008	1.000	8580		10.65(4.68-14.05)	115	13.1	
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00	> 607.00	3.869	3.865	0.004	1.200	11013	0.0259	107	22.1	M	
											M	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	3.912	3.912	0.0		14997	NC		76.7		
75 Perfluorododecanesulfonic acid (PF	699.00	> 80.00	4.106	4.101	0.005	1.427	5012	0.0221	91.2	17.8	M	
	699.00	> 99.00	4.106	4.101	0.005	1.427	7990		0.63(0.28-0.83)	91.2	26.0	M

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	4.122	4.125	-0.003	1.065	70257	0.0274		110	60.3	
663.00 > 169.00	4.122	4.125	-0.003	1.065	12101		5.81(3.09-9.27)	110	47.6	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.373	4.364	0.009	1.000	13001	0.0298		119	52.7	
713.00 > 219.00	4.373	4.364	0.009	1.000	8517		1.53(0.70-2.09)	119	24.7	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.373	4.364	0.009	1.746	5964438	2.50		100	10549	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.784	4.780	0.004	1.000	112559	0.0308		123	271	
813.00 > 169.00	4.784	4.780	0.004	1.000	21447		5.25(2.77-8.32)	123	63.0	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.784	4.780	0.004	1.910	5465421	2.31		92.4	10787	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.125	5.127	-0.002	1.071	27565	0.0255		102	73.6	
913.00 > 169.00	5.125	5.127	-0.002	1.071	4826		5.71(2.55-7.64)	102	27.4	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

**Reagents:**

LCPFC\_LL1\_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_002.d

Injection Date: 30-Oct-2018 13:12:49

Instrument ID: A9

Lims ID: IC L1 Full

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 10

Worklist Smp#: 2

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

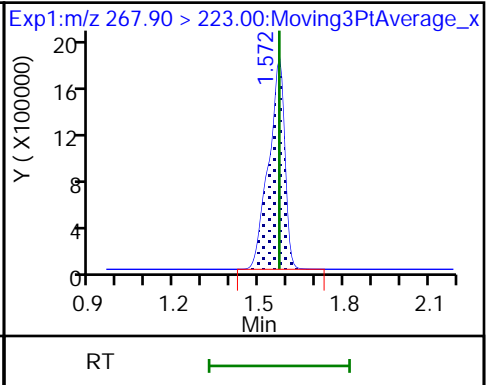
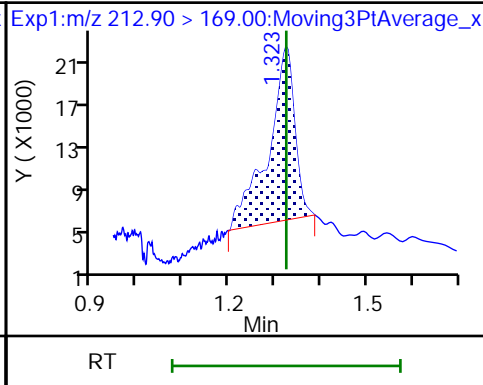
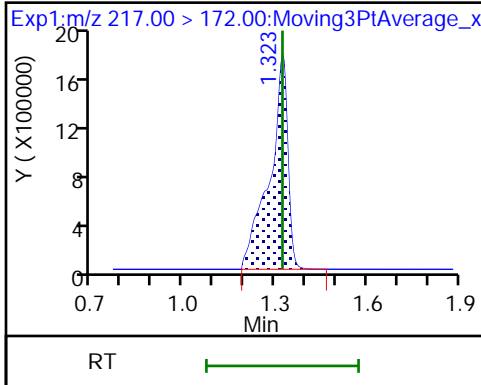
Method: PFAS\_A9

Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid (M)

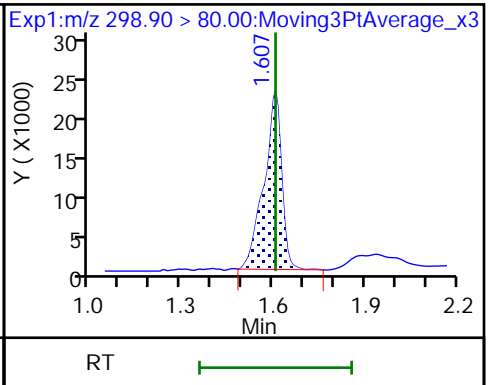
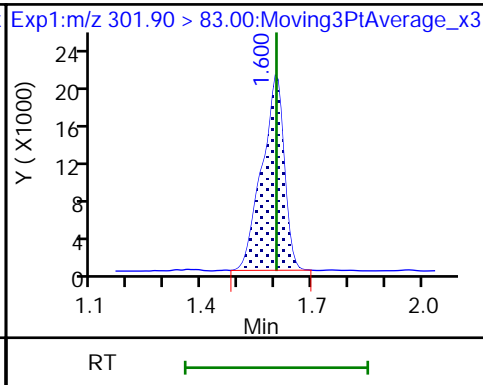
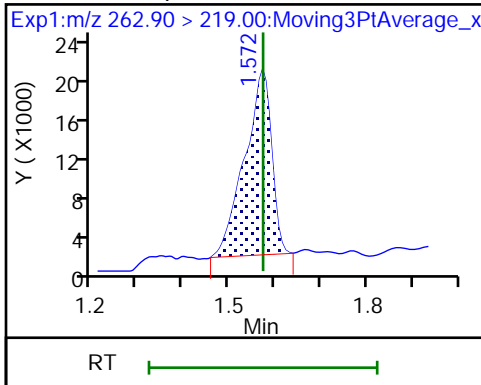
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 47 13C3 PFBS

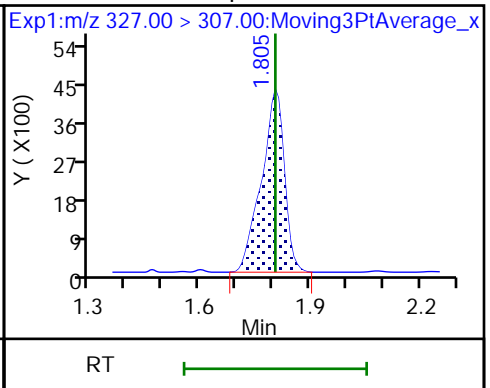
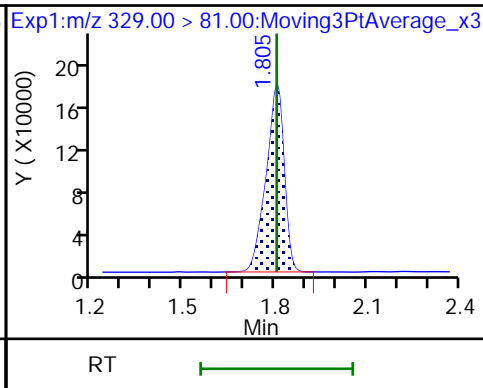
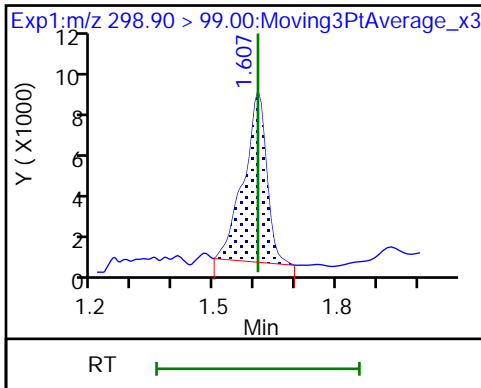
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

D 60 M2-4:2 FTS

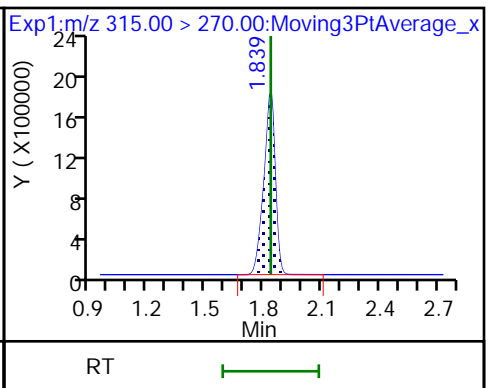
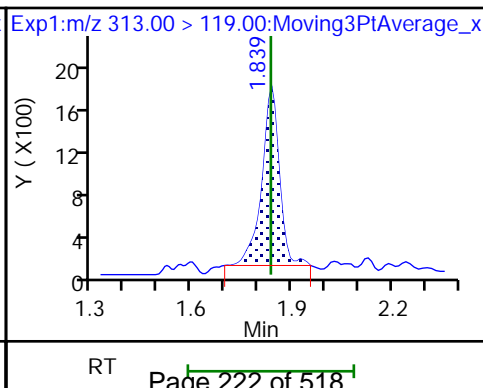
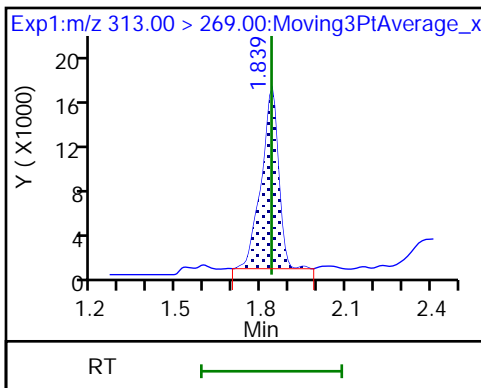
61 1H,1H,2H,2H-perfluorohexanesulfoni

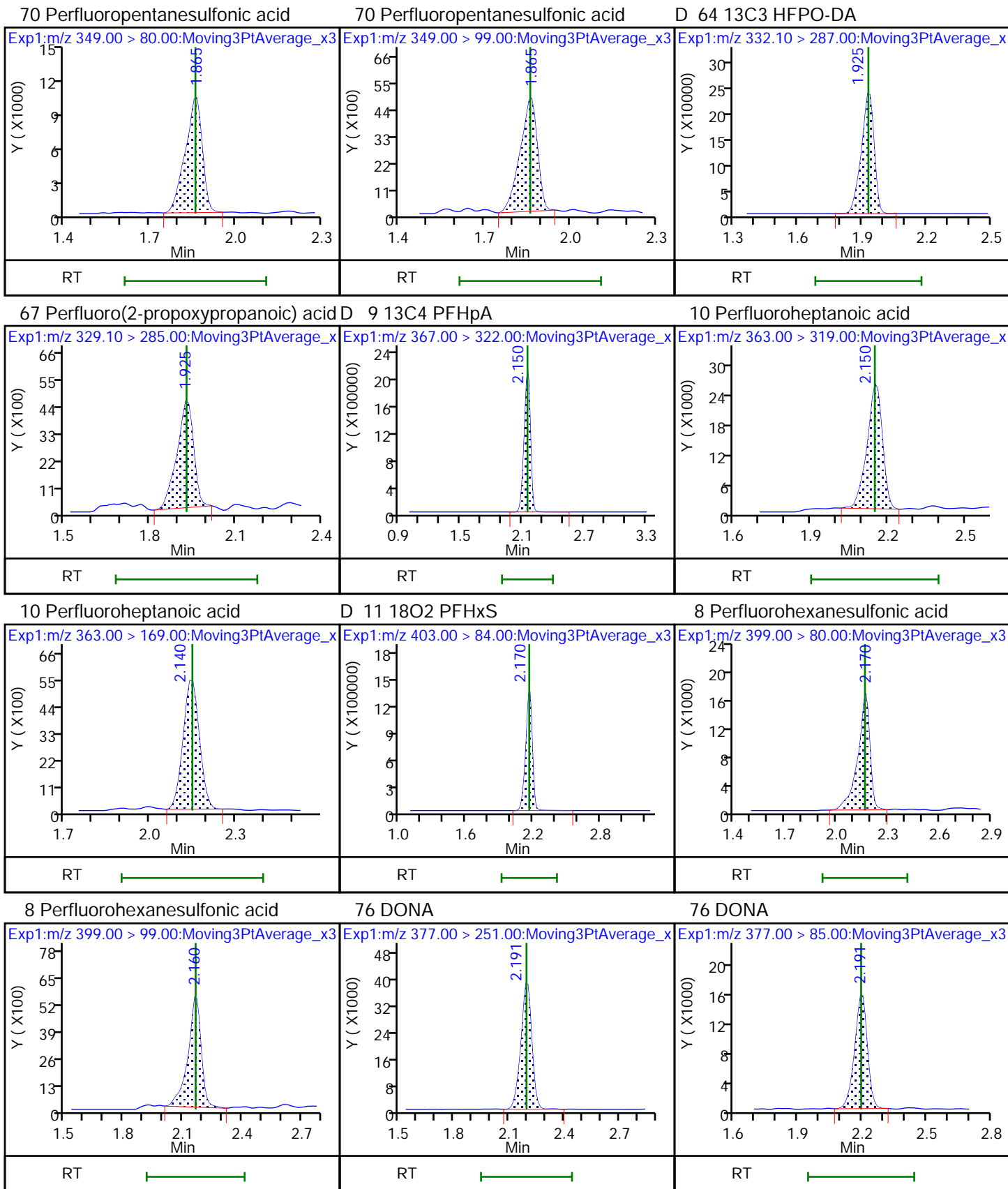


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

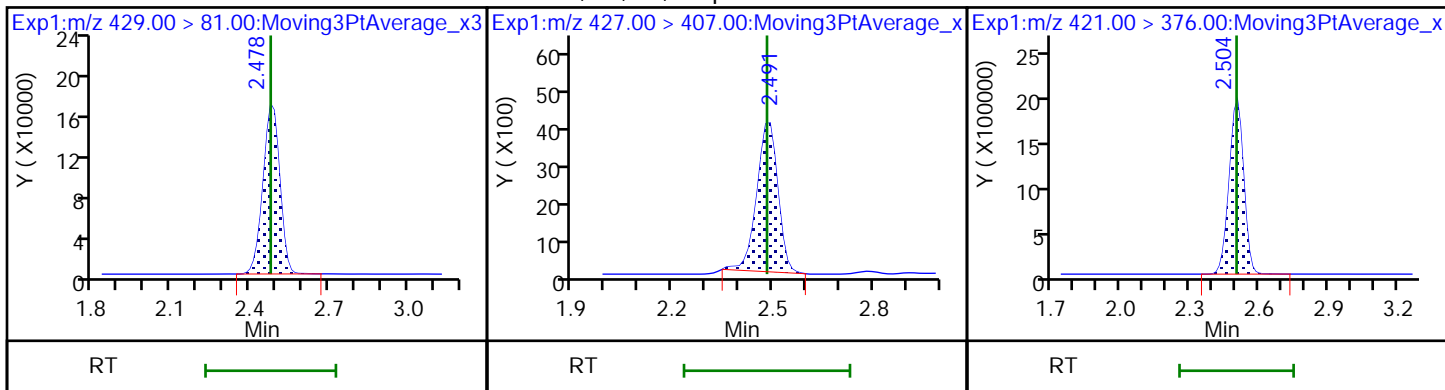
D 7 13C2 PFHxA





D 12 M2-6:2 FTS

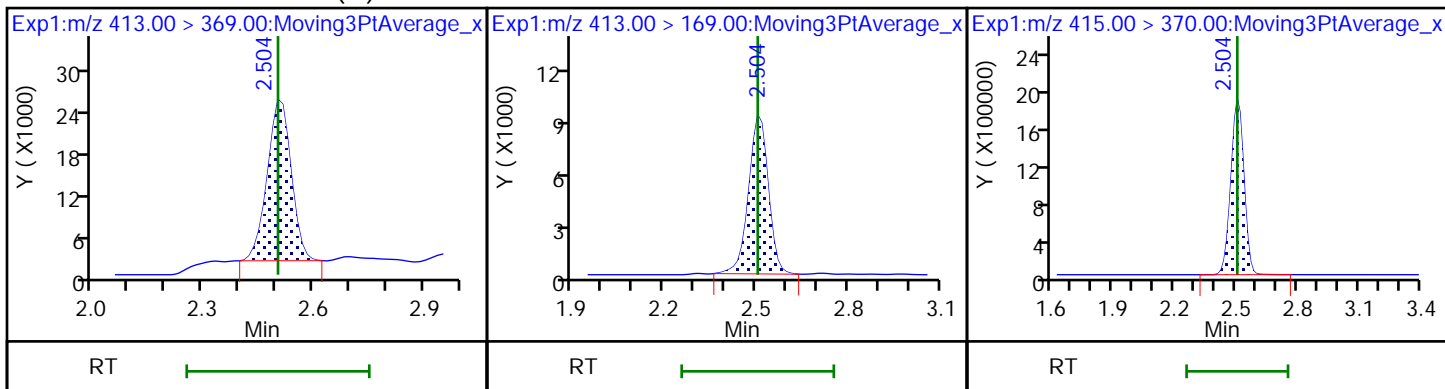
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



15 Perfluorooctanoic acid (M)

15 Perfluorooctanoic acid

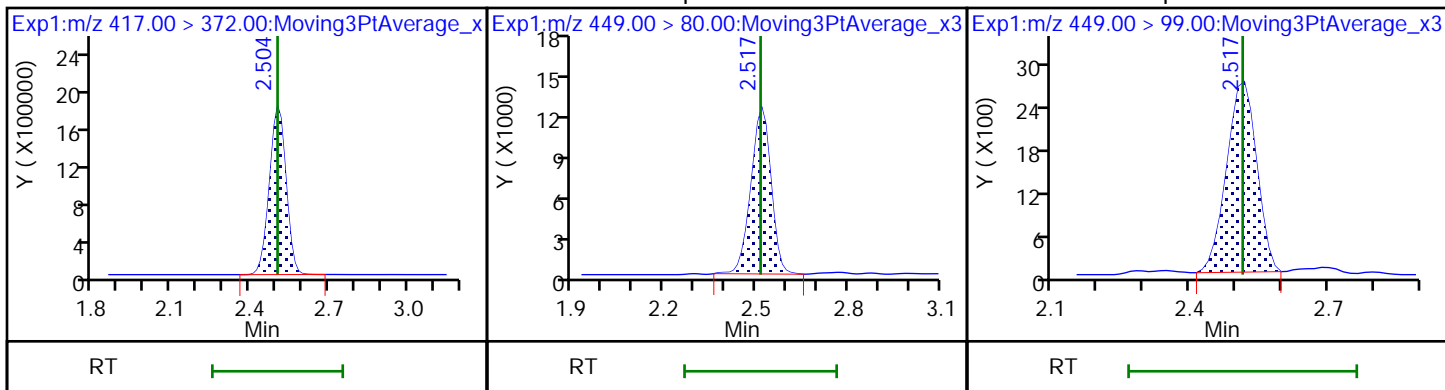
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

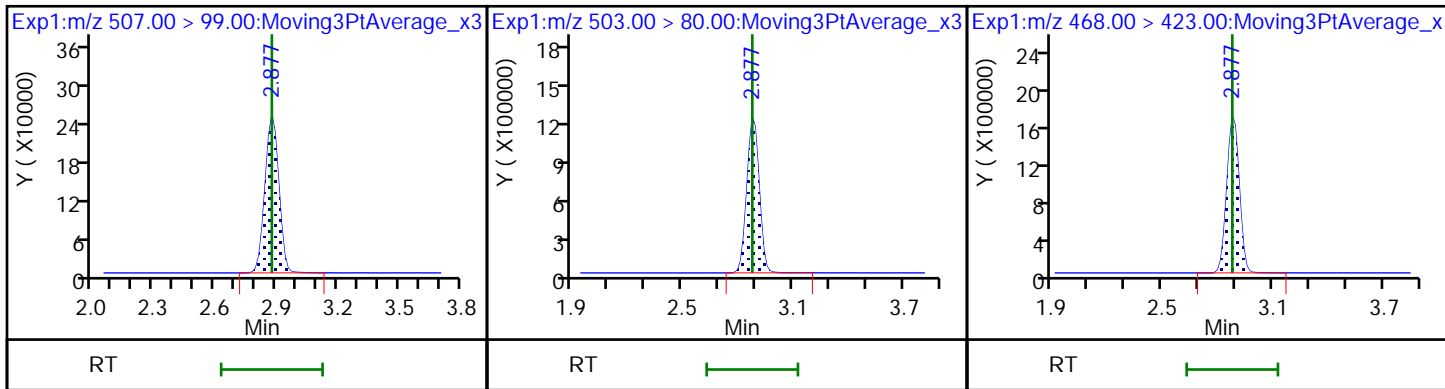
16 Perfluoroheptanesulfonic acid

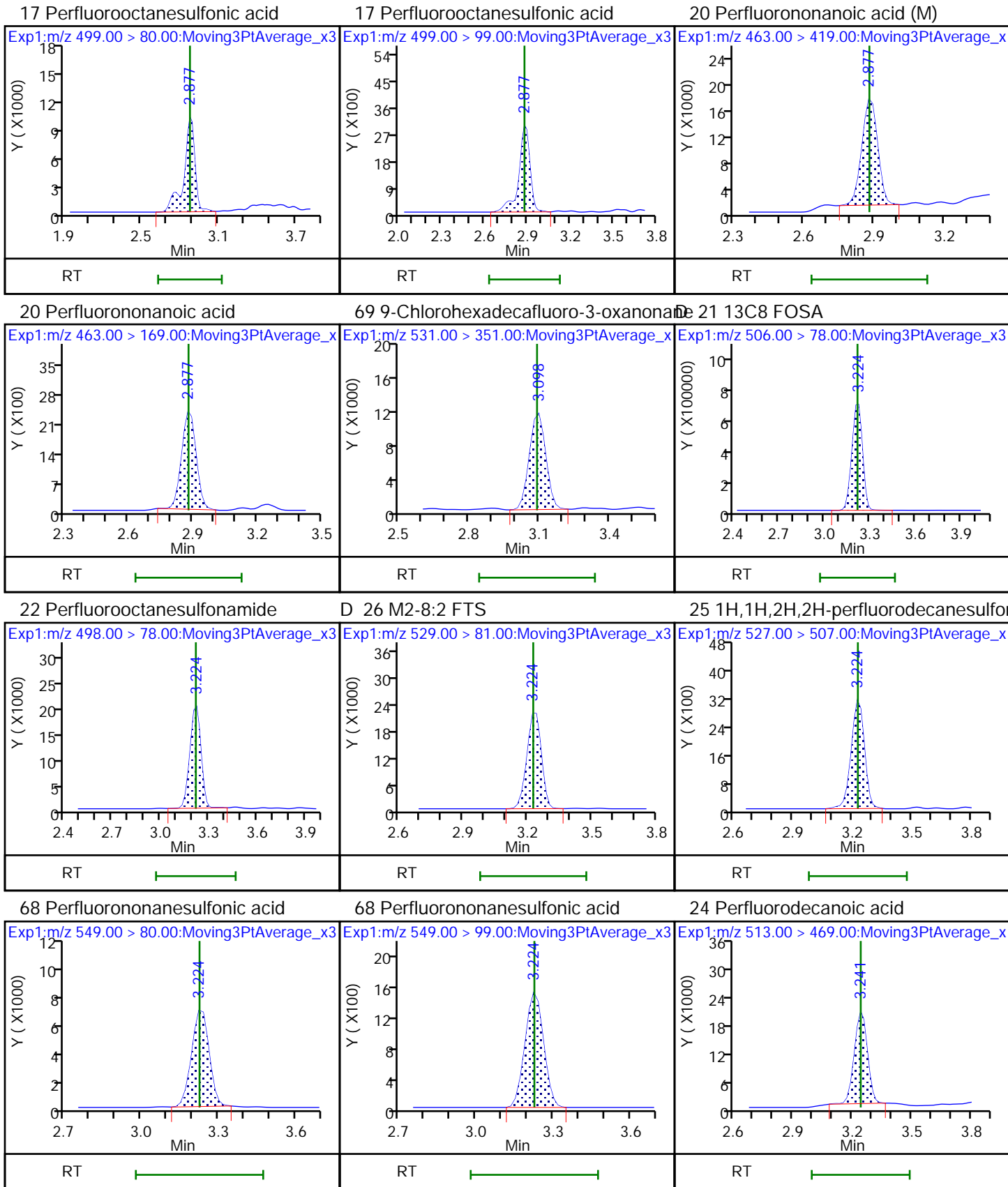


D 72 13C8 PFOS

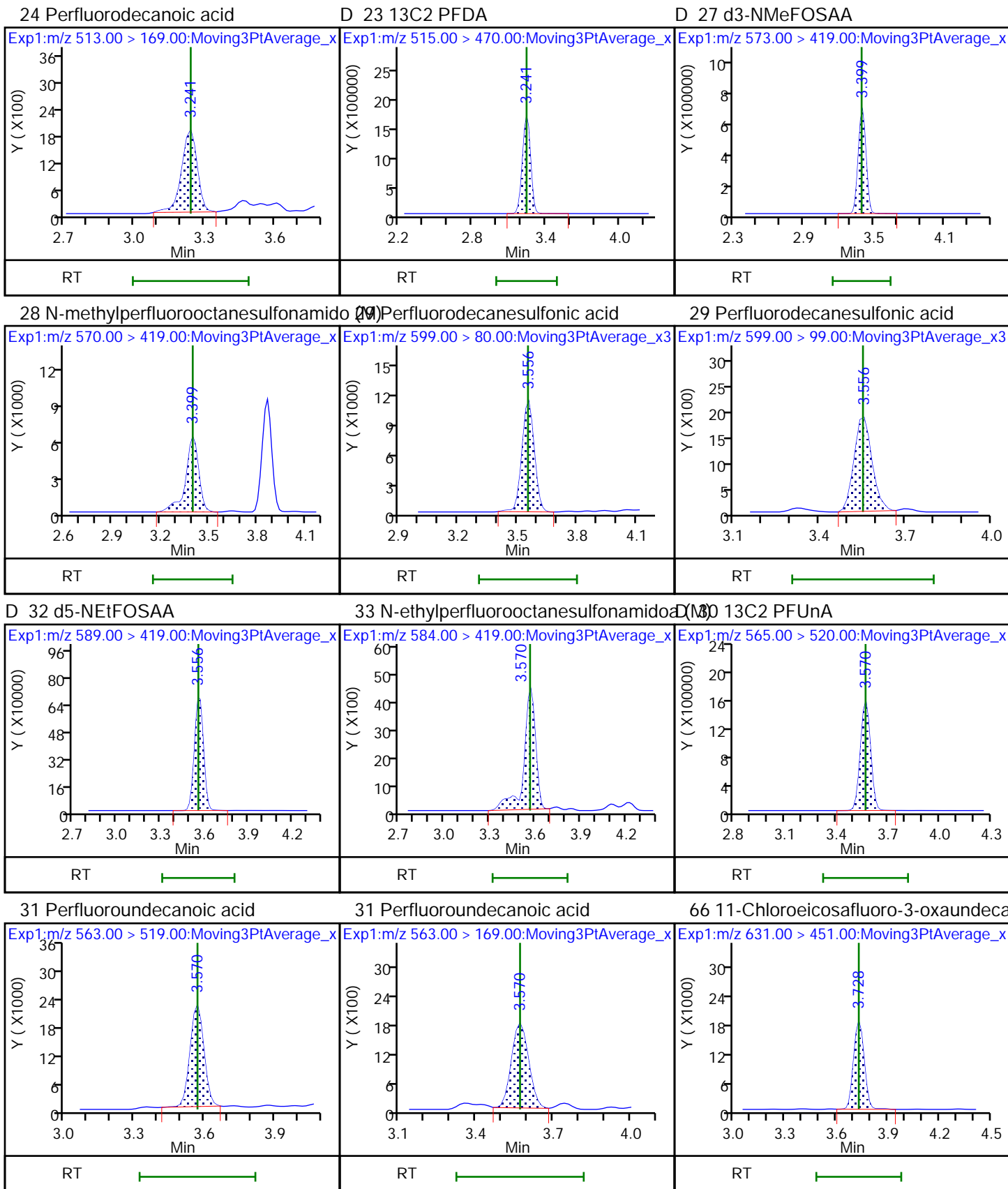
D 18 13C4 PFOS

D 19 13C5 PFNA





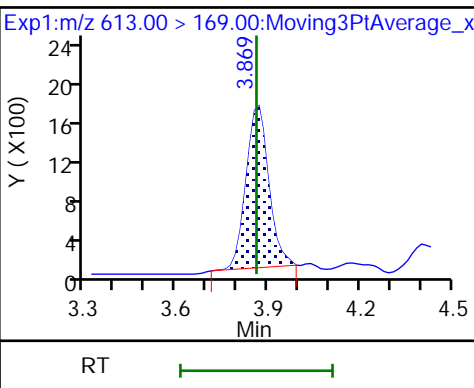
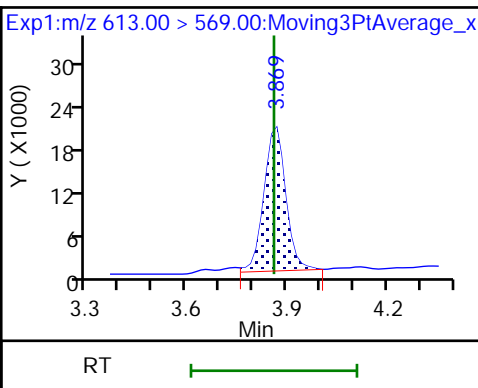
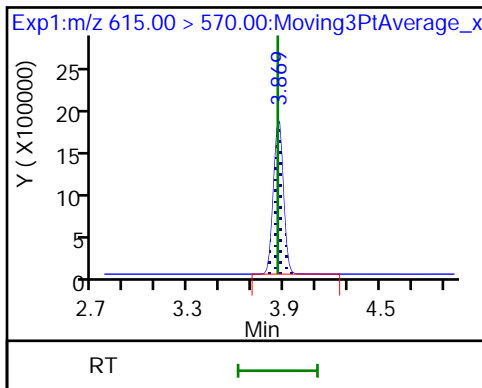




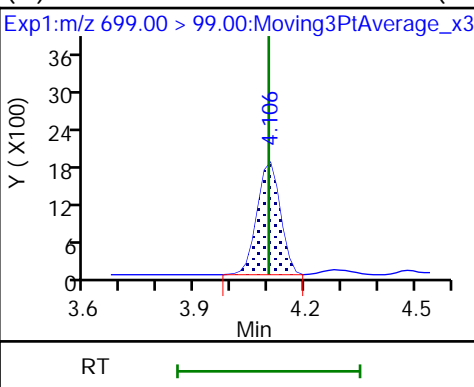
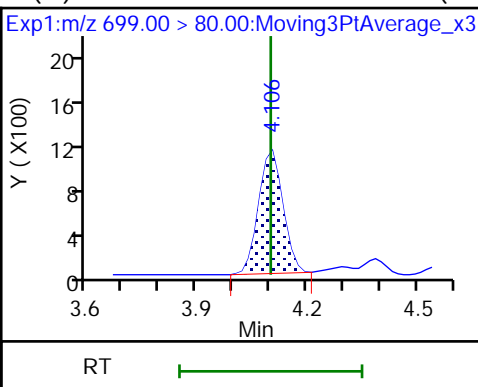
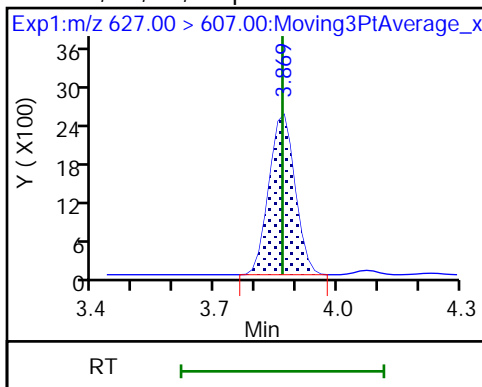
D 36 13C2 PFDaA

37 Perfluorododecanoic acid

37 Perfluorododecanoic acid



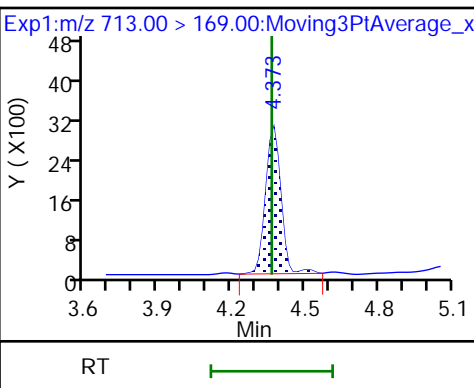
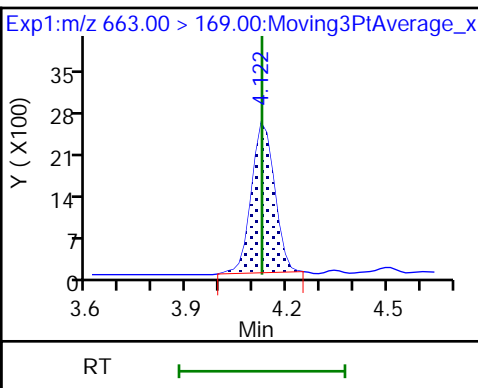
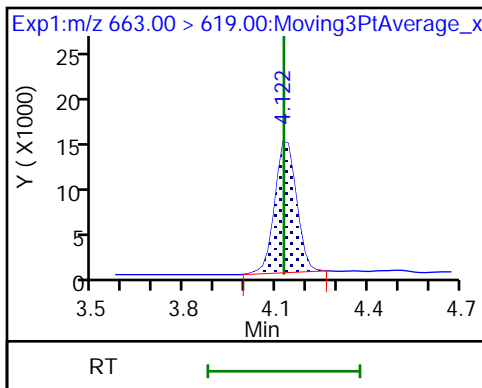
74 1H,1H,2H,2H-perfluorododecanesulfonic acid (PF) (M) 75 Perfluorododecanesulfonic acid (PF) (M) 76 Perfluorododecanesulfonic acid (PF) (M)



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

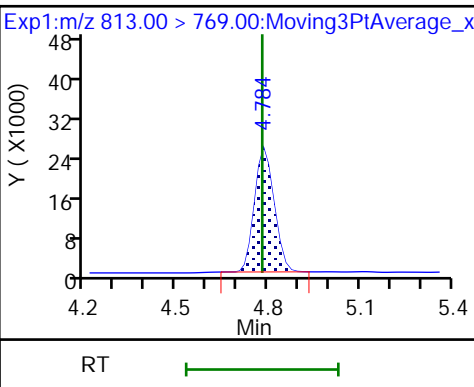
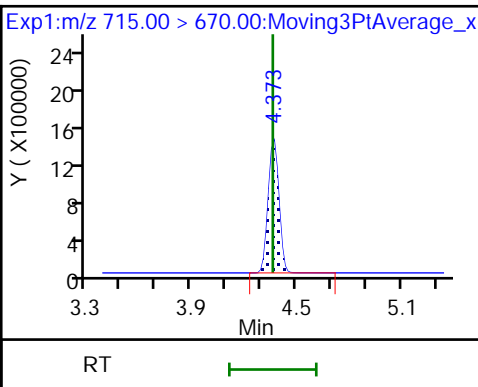
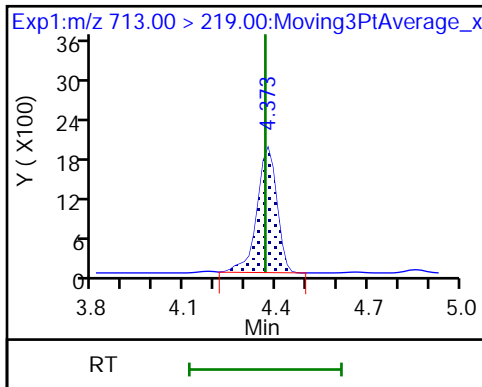
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

D 43 13C2 PFTeDA

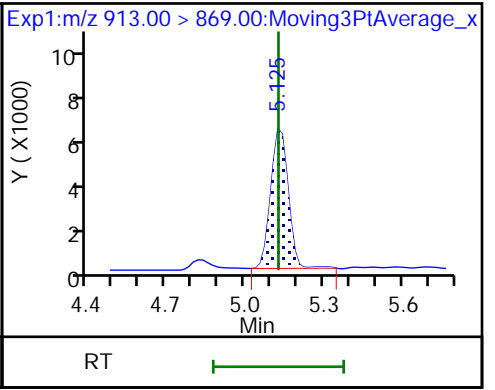
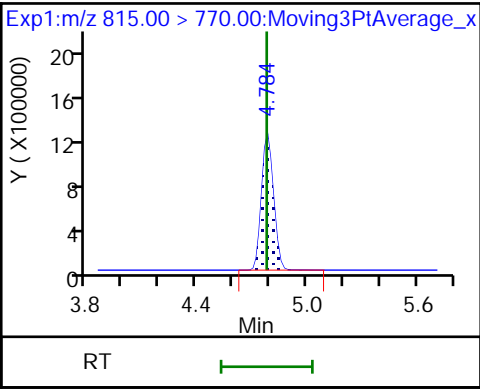
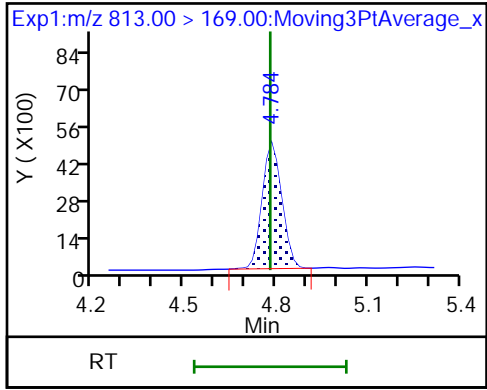
45 Perfluorohexadecanoic acid



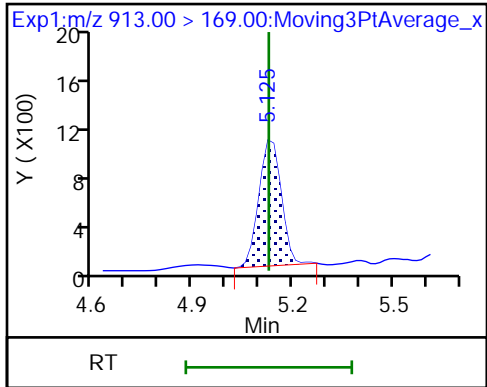
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

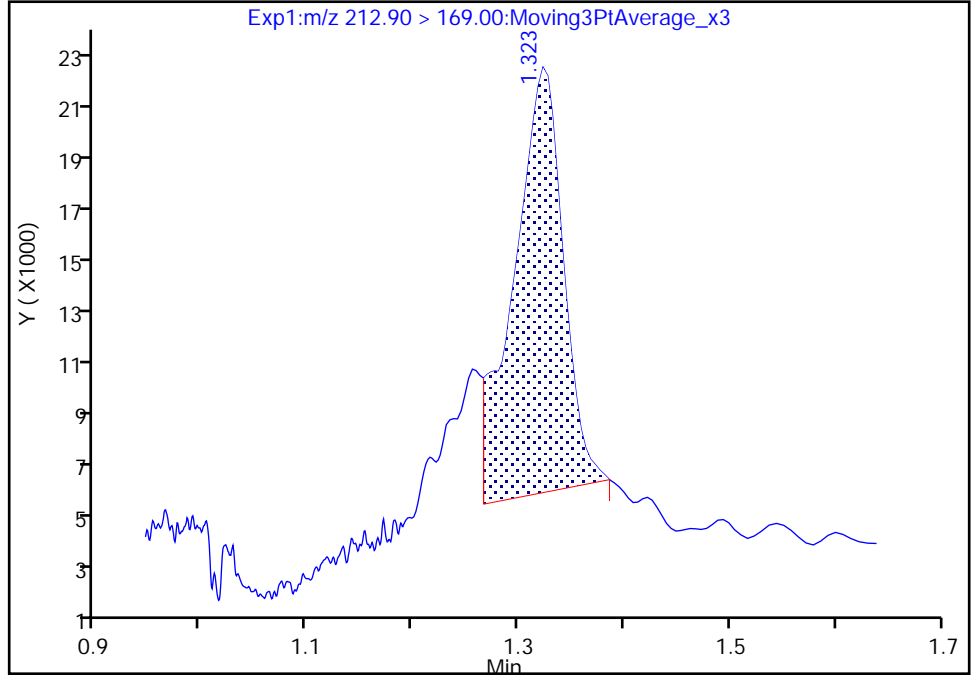
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Injection Date: 30-Oct-2018 13:12:49 Instrument ID: A9  
Lims ID: IC L1 Full  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 10 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

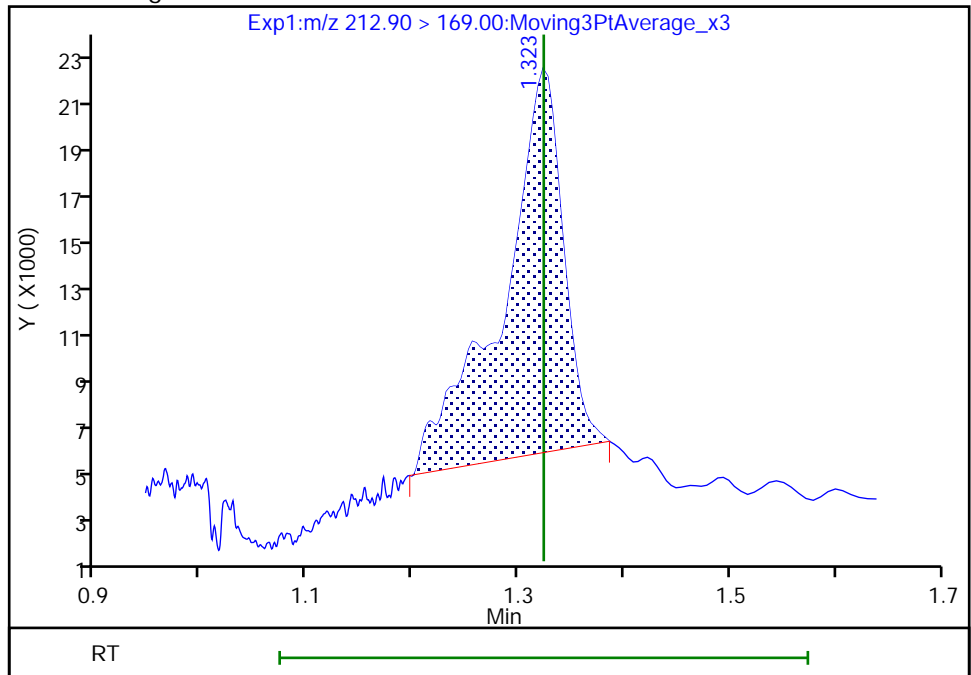
RT: 1.32  
Area: 51738  
Amount: 0.019645  
Amount Units: ng/ml

Processing Integration Results



RT: 1.32  
Area: 63699  
Amount: 0.023685  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:33:34  
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

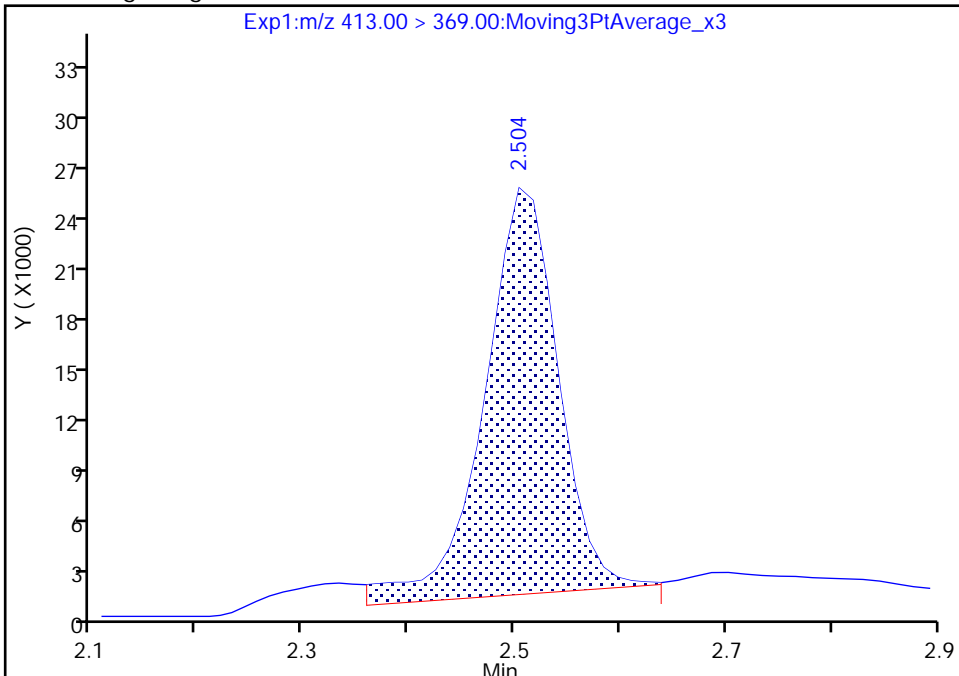
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Lims ID: IC L1 Full  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 10 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

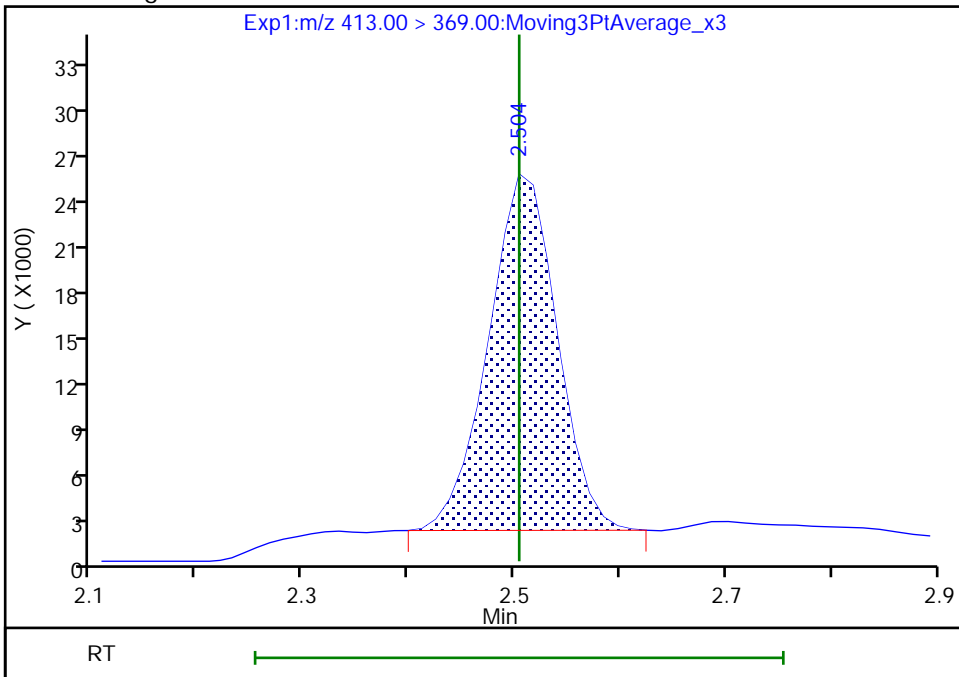
RT: 2.50  
Area: 117004  
Amount: 0.032768  
Amount Units: ng/ml

Processing Integration Results



RT: 2.50  
Area: 104643  
Amount: 0.030228  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:33:48  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 230 of 518

TestAmerica Sacramento

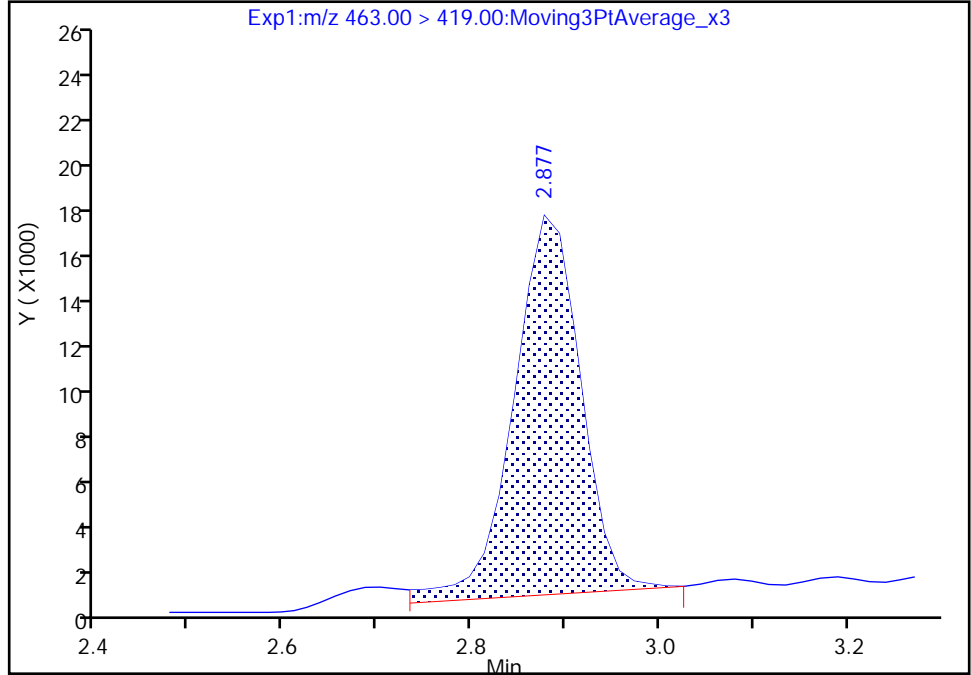
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Lims ID: IC L1 Full  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 10 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

20 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

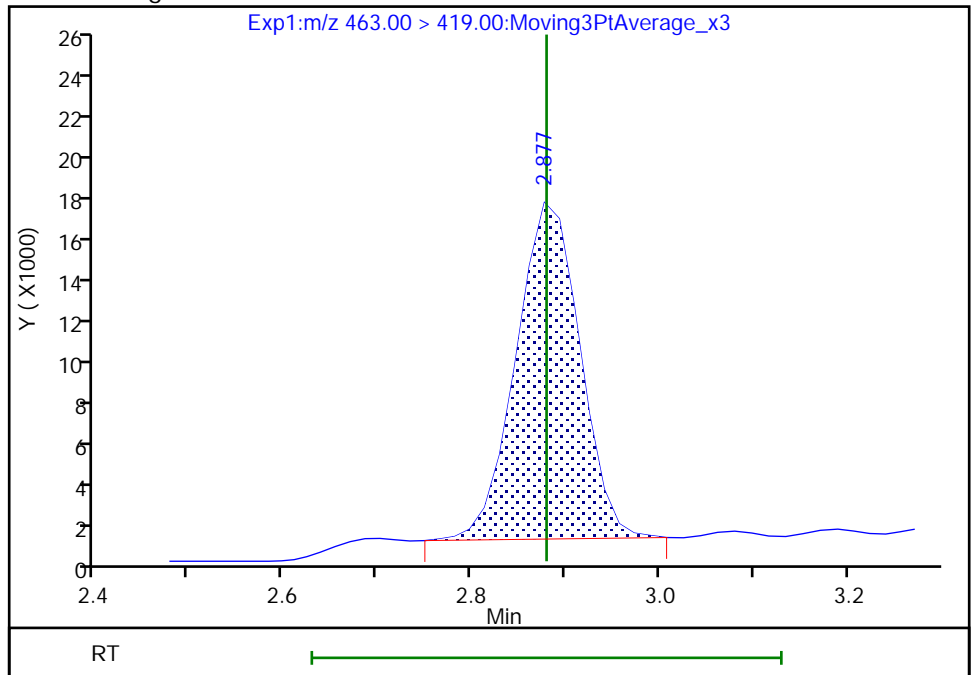
RT: 2.88  
Area: 82981  
Amount: 0.026580  
Amount Units: ng/ml

Processing Integration Results



RT: 2.88  
Area: 77652  
Amount: 0.025118  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:33:59  
Audit Action: Manually Integrated

TestAmerica Sacramento

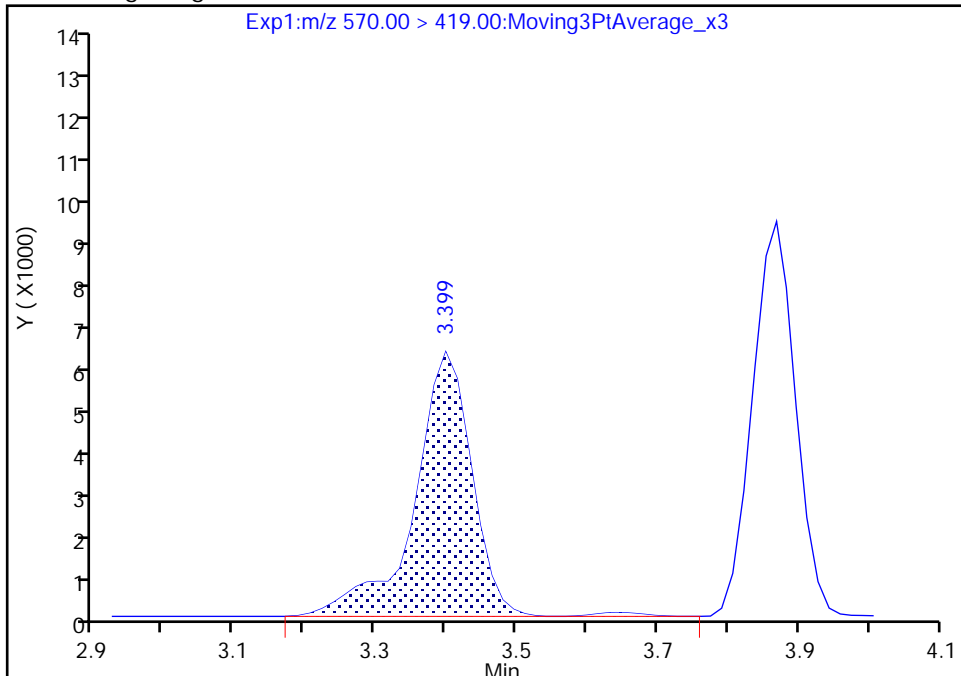
Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_002.d  
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Lims ID: IC L1 Full  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 10 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

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

Signal: 1

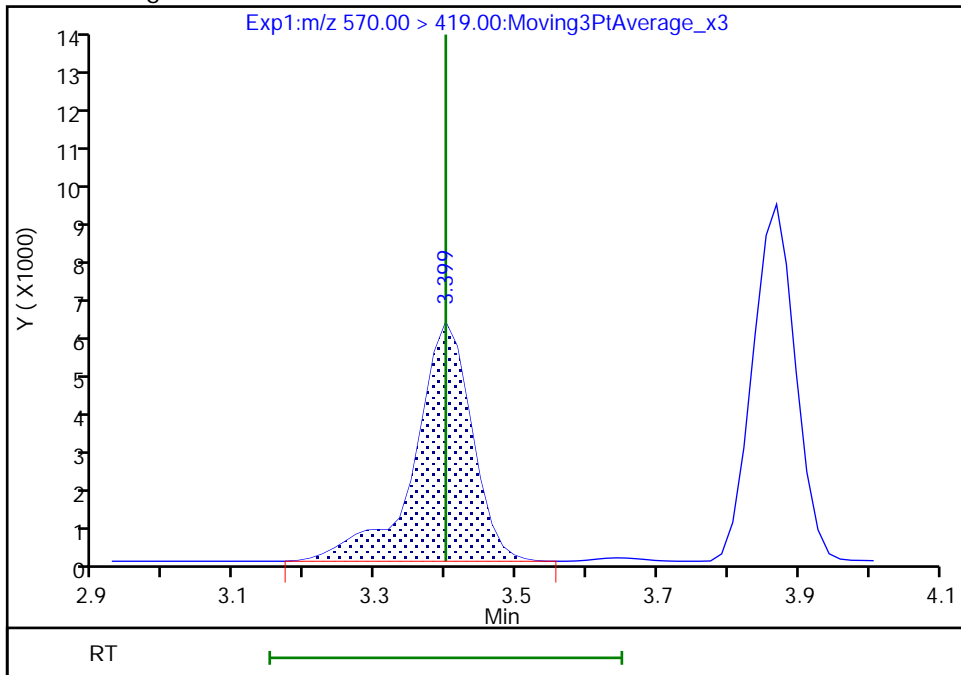
RT: 3.40  
Area: 33917  
Amount: 0.027321  
Amount Units: ng/ml

Processing Integration Results



RT: 3.40  
Area: 33534  
Amount: 0.027060  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:34:33  
Audit Action: Manually Integrated

TestAmerica Sacramento

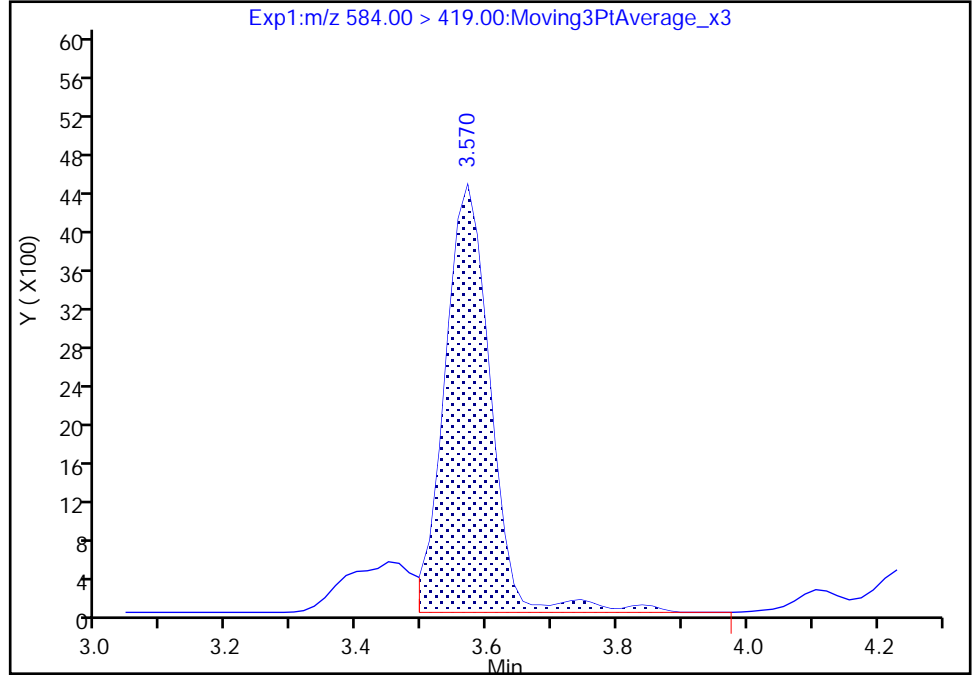
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Injection Date: 30-Oct-2018 13:12:49 Instrument ID: A9  
Lims ID: IC L1 Full  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 10 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

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

Signal: 1

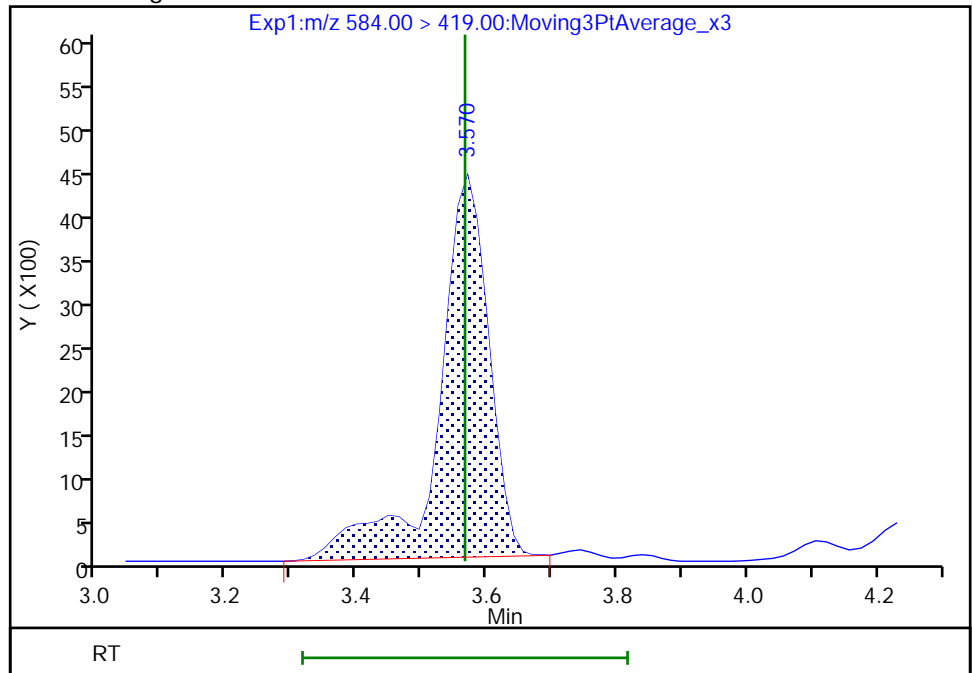
RT: 3.57  
Area: 21569  
Amount: 0.020429  
Amount Units: ng/ml

Processing Integration Results



RT: 3.57  
Area: 23647  
Amount: 0.022148  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:34:43  
Audit Action: Manually Integrated

Audit Reason: Isomers



TestAmerica Sacramento

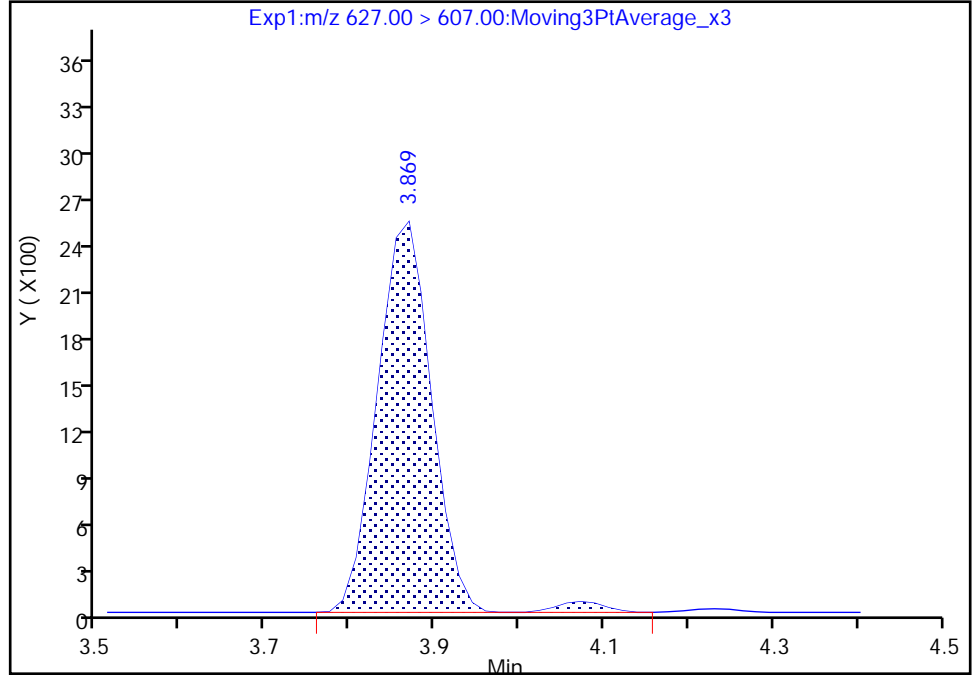
Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_002.d  
Injection Date: 30-Oct-2018 13:12:49 Instrument ID: A9  
Lims ID: IC L1 Full  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 10 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

74 1H,1H,2H,2H-perfluorododecanesulfonic acid (, CAS: 120226-60-0

Signal: 1

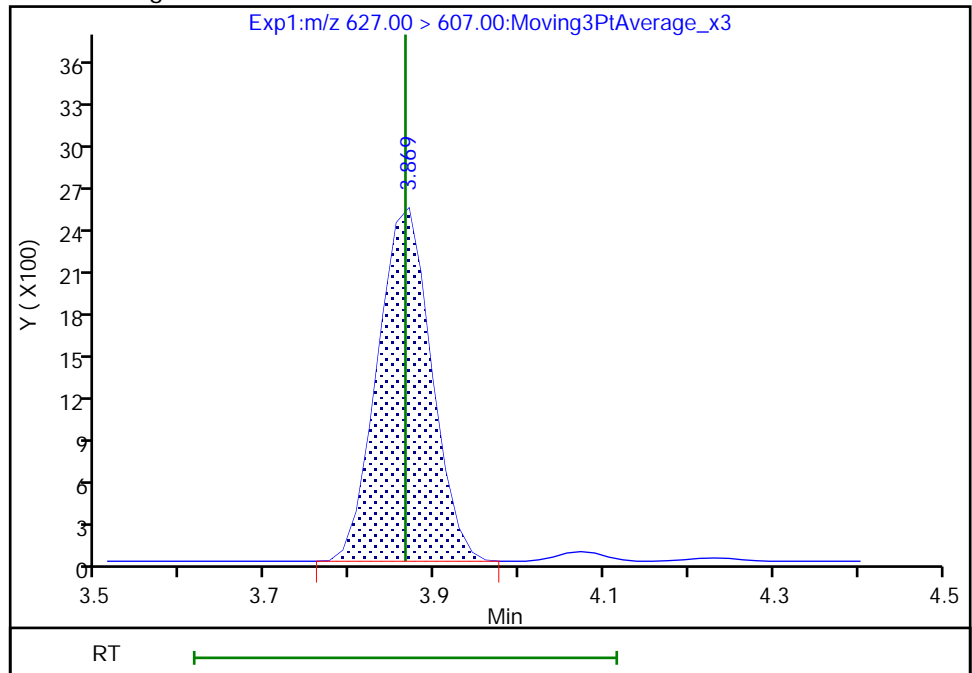
RT: 3.87  
Area: 11274  
Amount: 0.026404  
Amount Units: ng/ml

Processing Integration Results



RT: 3.87  
Area: 11013  
Amount: 0.025887  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:35:01  
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

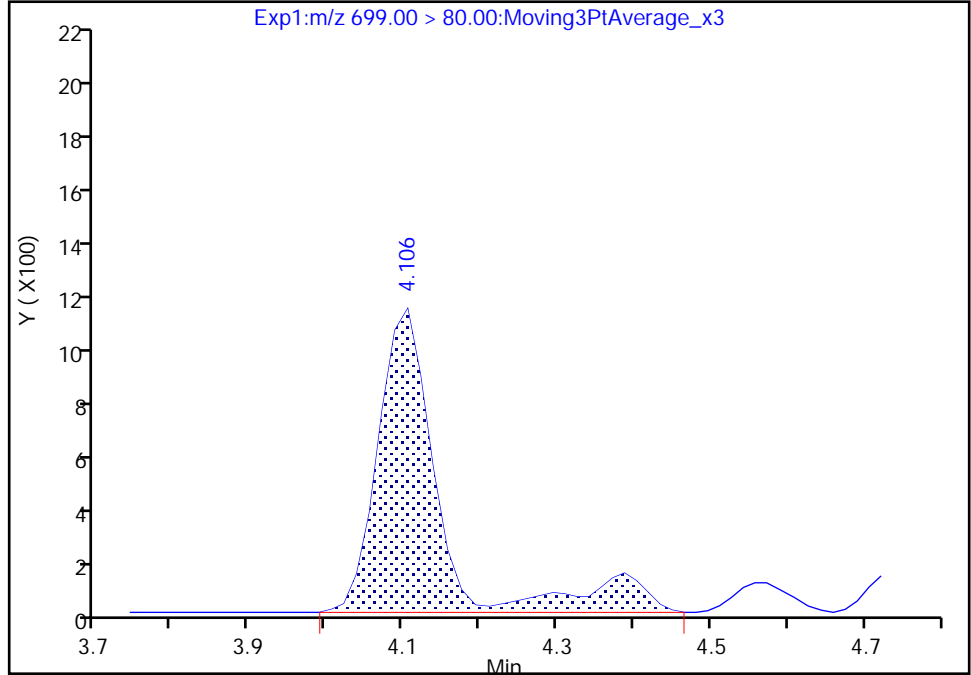
Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_002.d  
Injection Date: 30-Oct-2018 13:12:49 Instrument ID: A9  
Lims ID: IC L1 Full  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 10 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

75 Perfluorododecanesulfonic acid (PFDoS), CAS: 79780-39-5

Signal: 1

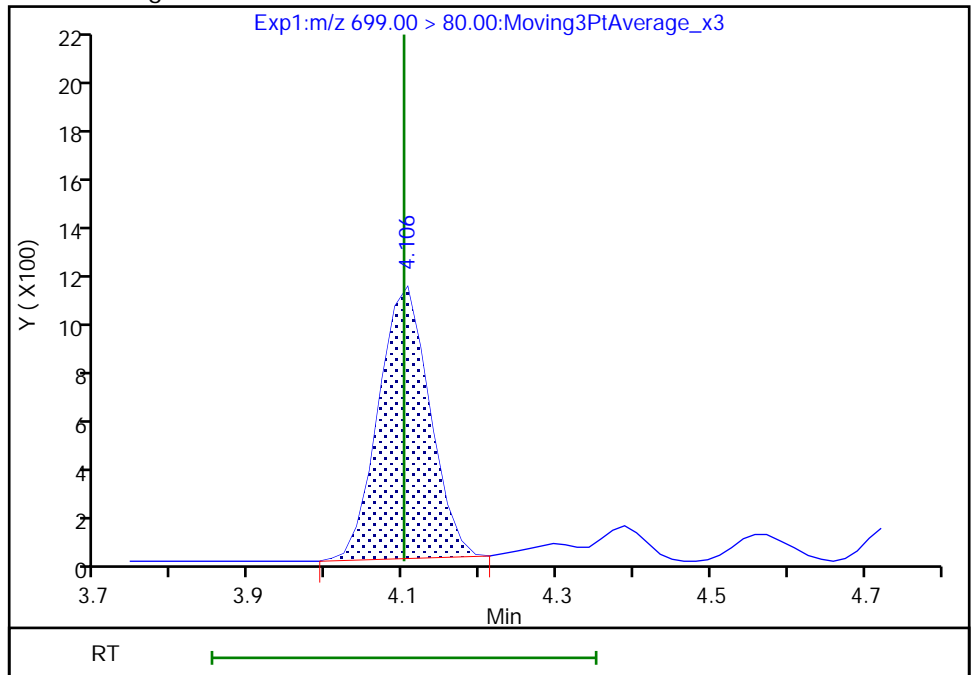
RT: 4.11  
Area: 6108  
Amount: 0.026156  
Amount Units: ng/ml

Processing Integration Results



RT: 4.11  
Area: 5012  
Amount: 0.022074  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:35:10  
Audit Action: Manually Integrated

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_003.d

Lims ID: IC L2 Full

Client ID:

Sample Type: IC Calib Level: 2

Inject. Date: 30-Oct-2018 13:20:21 ALS Bottle#: 11 Worklist Smp#: 3

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Sample Info: CAL STD2

Misc. Info.: Plate: 1 Rack: 1

Operator ID: A9\Administrator Instrument ID: A9

Sublist: chrom-PFAS\_A9\*sub5

Method: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\PFAS\_A9.m

Limit Group: LC PFC ICAL

Last Update: 30-Oct-2018 15:08:03 Calib Date: 30-Oct-2018 13:57:50

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration

Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d

Column 1 : Det: EXP1

Process Host: CTX0318

First Level Reviewer: roycea Date: 30-Oct-2018 14:13:23

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	1.327	1.323	0.004	0.530	7230801	2.51	101	12776	
2 Perfluorobutanoic acid										M
212.90 > 169.00	1.327	1.324	0.003	1.000	137562	0.0508		102	9.3	M
D 3 13C5 PFPeA	267.90 > 223.00	1.572	1.571	0.001	0.628	6917794	2.53	101	10227	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.579	1.573	0.006	1.004	139761	0.0505		101	15.7	
D 47 13C3 PFBS	301.90 > 83.00	1.606	1.603	0.003	0.642	89218	2.36	101	405	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.614	1.607	0.007	1.005	182019	0.0459		104	88.7	
298.90 > 99.00	1.606	1.607	-0.001	1.000	61223		2.97(1.35-4.05)	104	31.7	
D 60 M2-4:2 FTS	329.00 > 81.00	1.805	1.804	0.001	0.721	731492	2.41	103	755	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.805	1.805	0.0	1.124	40003	0.0507		109	433	
6 Perfluorohexanoic acid										M
313.00 > 269.00	1.838	1.836	0.002	1.000	143915	0.0562		112	31.3	
313.00 > 119.00	1.838	1.836	0.002	1.000	10128		14.21(6.96-20.87)	112	27.3	M
D 7 13C2 PFHxA	315.00 > 270.00	1.838	1.836	0.002	0.734	7116724	2.47	98.7	12840	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.864	1.859	0.005	1.160	82003	0.0447		95.2	231	
349.00 > 99.00	1.864	1.859	0.005	1.160	37268		2.20(1.15-3.45)	95.2	89.0	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.935	1.928	0.007	0.773	947049	2.54	102	4650	

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	1.935	1.928	0.007	1.000	28359	0.0450	90.1	26.9	
D 9 13C4 PFHpA	367.00	> 322.00	2.149	2.148	0.001	0.858	8707536	2.57	103	11304	
10 Perfluoroheptanoic acid	363.00	> 319.00	2.149	2.148	0.001	1.000	186215	0.0504	101	52.7	
	363.00	> 169.00	2.149	2.148	0.001	1.000	43419		4.29(2.17-6.52)	101	117
D 11 18O2 PFHxS	403.00	> 84.00	2.170	2.164	0.006	0.867	5091979	2.31	97.5	4807	
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.170	2.164	0.006	1.000	135870	0.0501	110	173	
	399.00	> 99.00	2.170	2.164	0.006	1.000	41858		3.25(1.90-5.70)	110	59.8
76 DONA	377.00	> 251.00	2.201	2.194	0.007	0.765	304181	0.0507	108	1352	
	377.00	> 85.00	2.201	2.194	0.007	0.765	129371		2.35(1.13-3.39)	108	287
D 12 M2-6:2 FTS	429.00	> 81.00	2.478	2.478	0.0	0.990	771843	2.47	104	1131	
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.491	2.482	0.009	1.005	35556	0.0501	106	49.0	
D 73 13C8 PFOA	421.00	> 376.00	2.504	2.501	0.003		8523934	2.48	101	11873	
15 Perfluorooctanoic acid	413.00	> 369.00	2.504	2.504	0.0	1.000	193091	0.0548	110	24.6	M
	413.00	> 169.00	2.504	2.504	0.0	1.000	69751		2.77(1.36-4.08)	110	163
* 62 13C2 PFOA	415.00	> 370.00	2.504	2.504	0.0		7896676	2.50		7287	
D 14 13C4 PFOA	417.00	> 372.00	2.504	2.504	0.0	1.000	8143608	2.62	105	9713	
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.517	2.514	0.003	0.875	114547	0.0498	105	231	
	449.00	> 99.00	2.517	2.514	0.003	0.875	21804		5.25(1.84-5.53)	105	96.5
D 72 13C8 PFOS	507.00	> 99.00	2.877	2.877	0.0		1230054	2.49	104	4758	
D 18 13C4 PFOS	503.00	> 80.00	2.877	2.877	0.0	1.149	5279158	2.37	99.0	3945	
D 19 13C5 PFNA	468.00	> 423.00	2.877	2.877	0.0	1.149	7305198	2.54	102	8116	
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.877	2.877	0.0	1.000	109342	0.0460	99.1	41.7	M
	499.00	> 99.00	2.893	2.877	0.016	1.006	27968		3.91(2.04-6.12)	99.1	85.1
20 Perfluorononanoic acid	463.00	> 419.00	2.893	2.880	0.013	1.006	152381	0.0521	104	11.0	
	463.00	> 169.00	2.893	2.880	0.013	1.006	23275		6.55(2.68-8.03)	104	73.2
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.098	3.091	0.007	1.077	112471	0.0460	98.6	121	
D 21 13C8 FOSA	506.00	> 78.00	3.224	3.217	0.007	1.287	3197106	2.59	104	6139	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags		
22 Perfluorooctanesulfonamide	498.00	> 78.00	3.224	3.219	0.005	1.000	207817	0.0541	108	434		
D 26 M2-8:2 FTS	529.00	> 81.00	3.241	3.226	0.015	1.294	105771	2.73	114	452		
25 1H,1H,2H,2H-perfluorodecanesulfoni	527.00	> 507.00	3.241	3.226	0.015	1.000	27693	0.0439	91.7	290		
68 Perfluorononanesulfonic acid	549.00	> 80.00	3.241	3.226	0.015	1.126	66744	0.0493	103	238		
	549.00	> 99.00	3.241	3.226	0.015	1.126	10224		6.53(3.02-9.05)	103	307	
24 Perfluorodecanoic acid	513.00	> 469.00	3.241	3.241	0.0	1.000	189575	0.0546	109	37.1		
	513.00	> 169.00	3.241	3.241	0.0	1.000	13398		14.15(7.12-21.35)	109	29.7	
D 23 13C2 PFDA	515.00	> 470.00	3.241	3.241	0.0	1.294	7998581	2.70	108	9402		
D 27 d3-NMeFOSAA	573.00	> 419.00	3.399	3.392	0.007	1.357	3411732	2.67	107	4330		
28 N-methylperfluorooctanesulfonamido	570.00	> 419.00	3.399	3.399	0.0	1.000	65035	0.0477	95.3	20.2		
29 Perfluorodecanesulfonic acid	599.00	> 80.00	3.555	3.552	0.003	1.236	97541	0.0510	106	163		
	599.00	> 99.00	3.555	3.552	0.003	1.236	22551		4.33(2.14-6.43)	106	77.9	
D 32 d5-NEtFOSAA	589.00	> 419.00	3.570	3.558	0.012	1.426	2757818	2.65	106	3862		
33 N-ethylperfluorooctanesulfonamidoa	584.00	> 419.00	3.570	3.566	0.004	1.000	50850	0.0504	101	247		
D 30 13C2 PFUnA	565.00	> 520.00	3.570	3.568	0.002	1.426	6514241	2.64	105	7940		
31 Perfluoroundecanoic acid	563.00	> 519.00	3.570	3.570	0.0	1.000	167491	0.0565	113	55.8	R	
	563.00	> 169.00	3.570	3.570	0.0	1.000	8203		20.42(5.24-15.72)	113	41.1	R
35 MeFOSA	512.00	> 169.00	3.728	3.724	0.004		34033	NC		149		
66 11-Chloroeicosafuoro-3-oxaundecan	631.00	> 451.00	3.728	3.728	0.0	1.296	164988	0.0539	114	824		
D 36 13C2 PFDaA	615.00	> 570.00	3.869	3.859	0.010	1.545	7900454	2.60	104	11130		
37 Perfluorododecanoic acid	613.00	> 569.00	3.869	3.861	0.008	1.000	162362	0.0505	101	77.2		
	613.00	> 169.00	3.869	3.861	0.008	1.000	16791		9.67(4.68-14.05)	101	36.7	
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00	> 607.00	3.869	3.865	0.004	1.194	17370	0.0389	80.7	26.4		
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	3.912	3.912	0.0		43300	NC		206		
75 Perfluorododecanesulfonic acid (PF	699.00	> 80.00	4.105	4.101	0.004	1.427	10616	0.0499	103	50.0		
	699.00	> 99.00	4.105	4.101	0.004	1.427	18211		0.58(0.28-0.83)	103	51.4	

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	4.138	4.125	0.013	1.070	134935	0.0522		104	146	
663.00 > 169.00	4.138	4.125	0.013	1.070	25185		5.36(3.09-9.27)	104	79.9	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.372	4.364	0.008	1.000	24878	0.0597		119	92.7	
713.00 > 219.00	4.372	4.364	0.008	1.000	14708		1.69(0.70-2.09)	119	46.3	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.372	4.364	0.008	1.746	5697043	2.50		100	7990	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.784	4.780	0.004	1.000	158462	0.0499		99.9	310	
813.00 > 169.00	4.784	4.780	0.004	1.000	33761		4.69(2.77-8.32)	99.9	112	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.784	4.780	0.004	1.910	5765824	2.55		102	13057	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.141	5.127	0.014	1.075	56154	0.0492		98.5	155	
913.00 > 169.00	5.124	5.127	-0.003	1.071	11160		5.03(2.55-7.64)	98.5	74.9	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

R - Failed Signal Ratio Test

Review Flags

M - Manually Integrated

**Reagents:**

LCPFC\_LL2\_00009

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_003.d

Injection Date: 30-Oct-2018 13:20:21

Instrument ID: A9

Lims ID: IC L2 Full

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 11

Worklist Smp#: 3

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

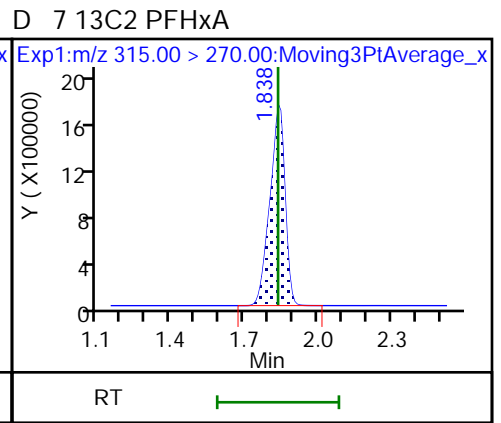
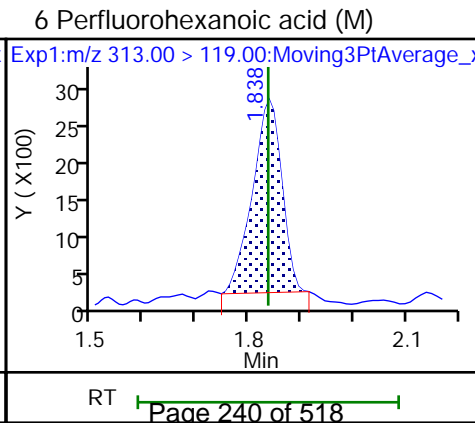
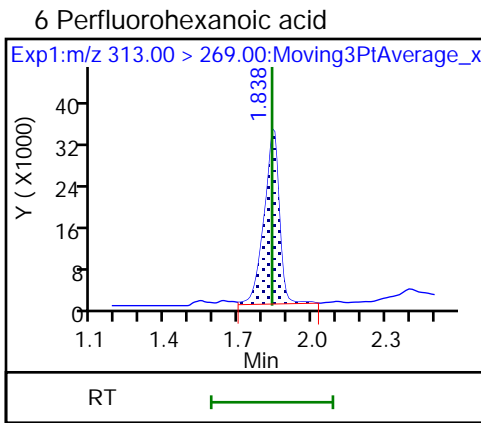
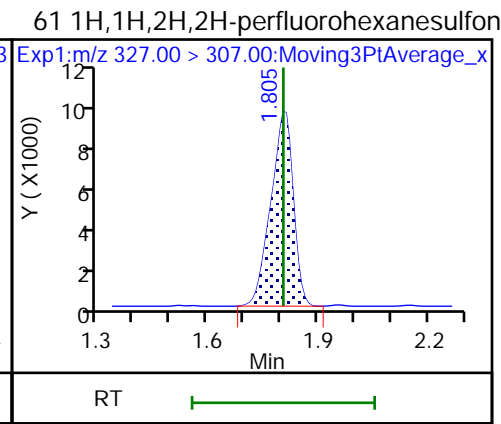
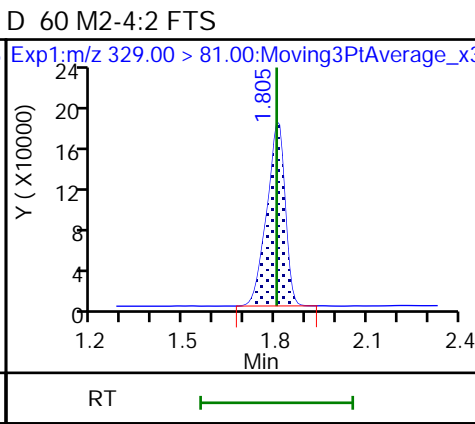
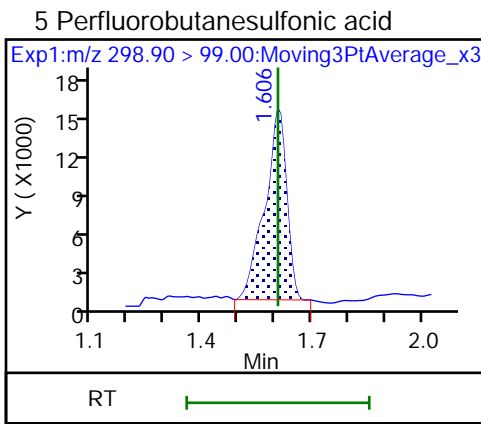
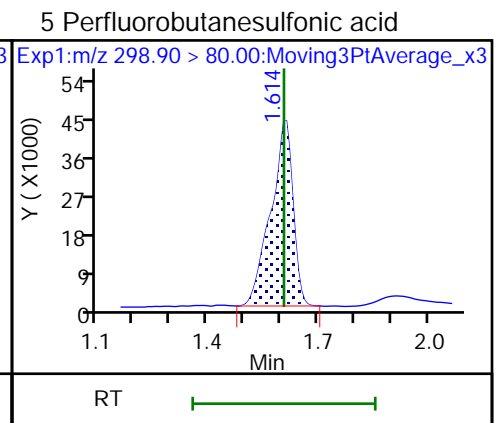
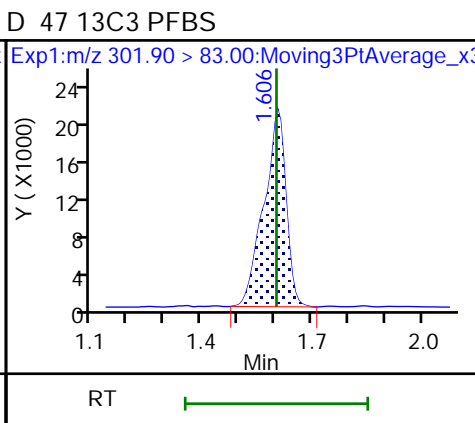
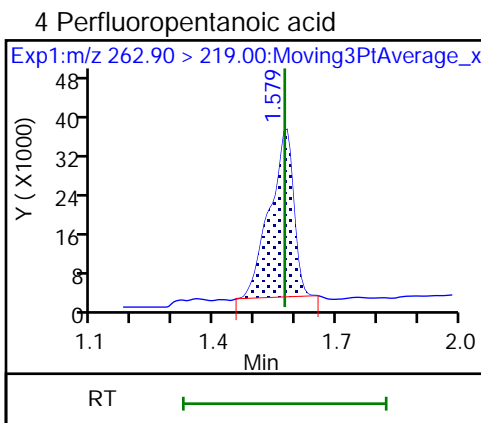
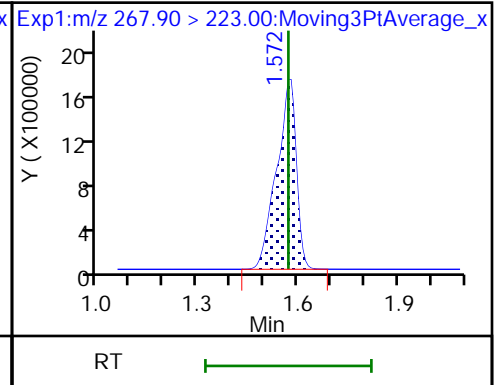
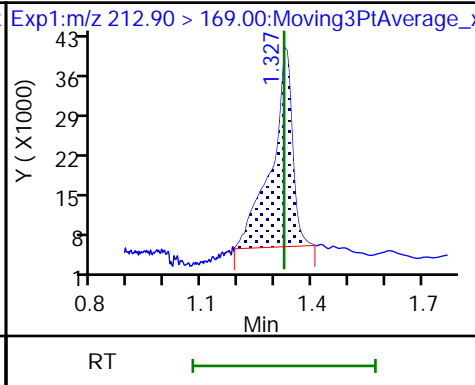
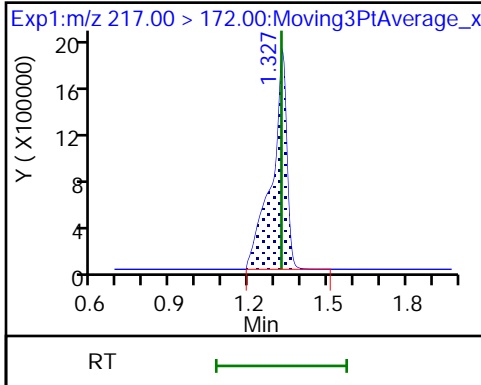
Method: PFAS\_A9

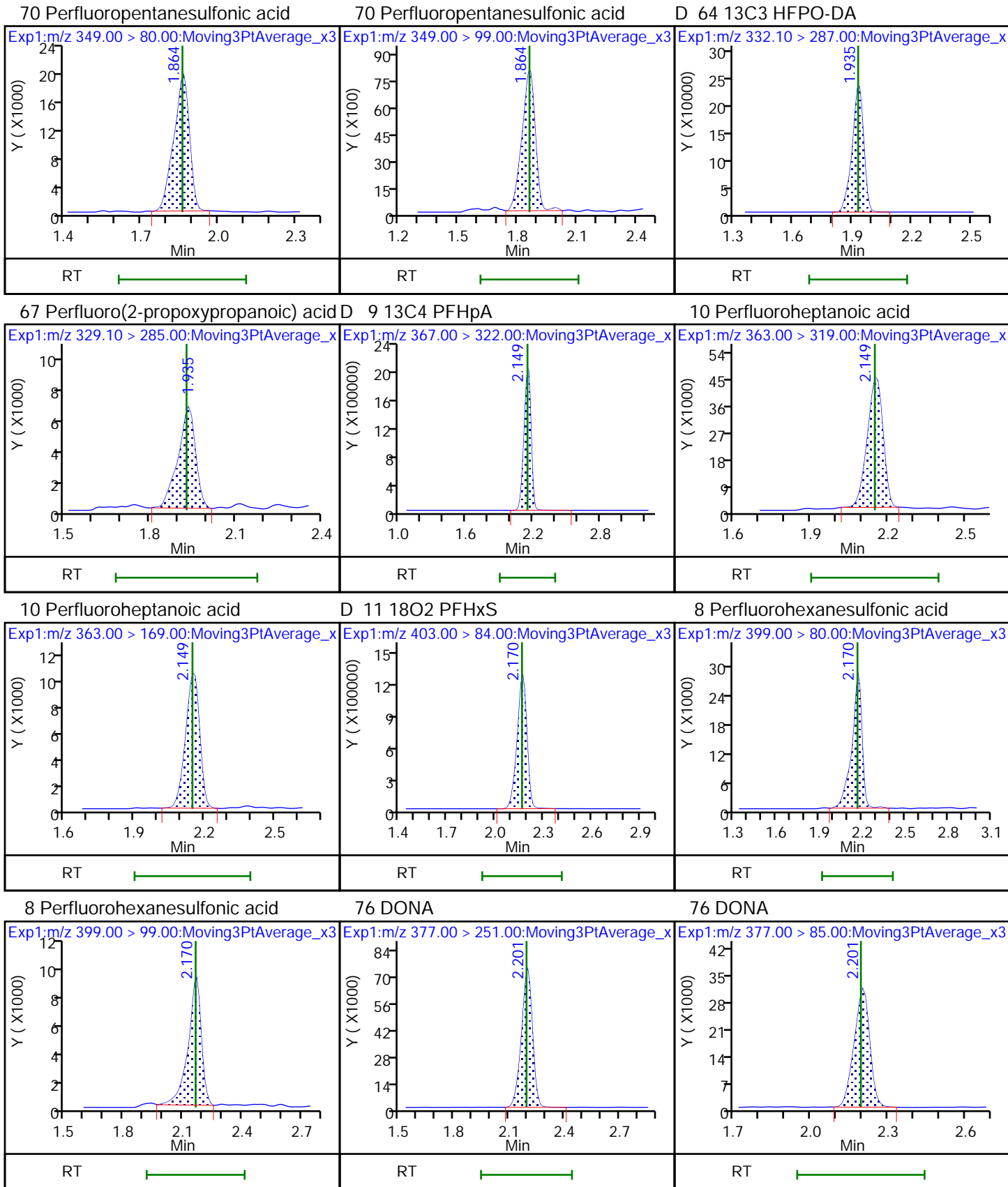
Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid (M)

D 3 13C5 PFPeA

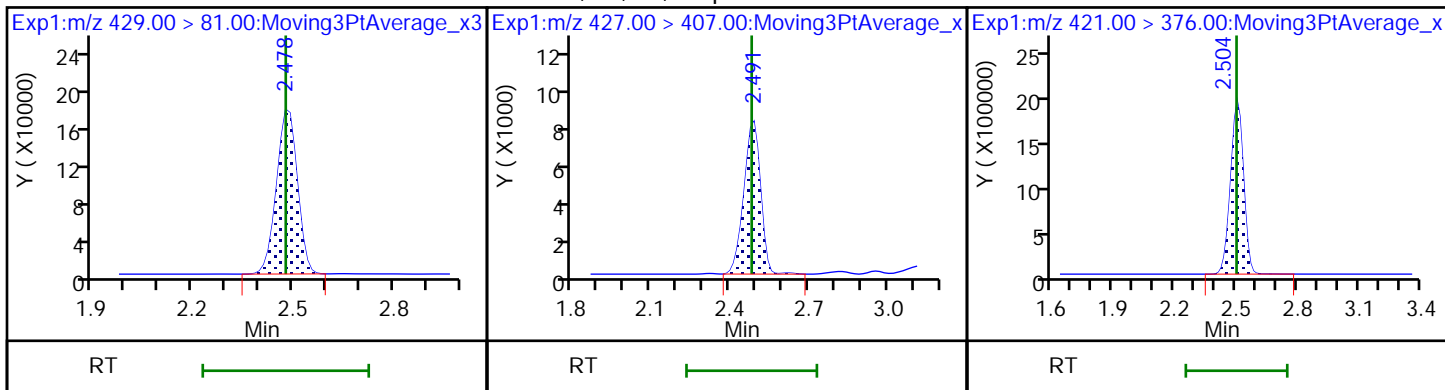






D 12 M2-6:2 FTS

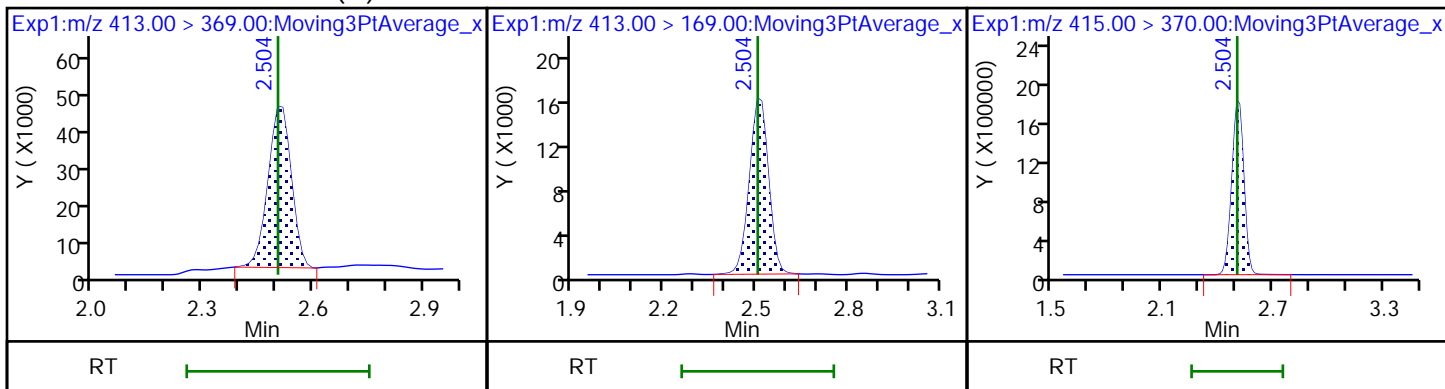
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



15 Perfluorooctanoic acid (M)

15 Perfluorooctanoic acid

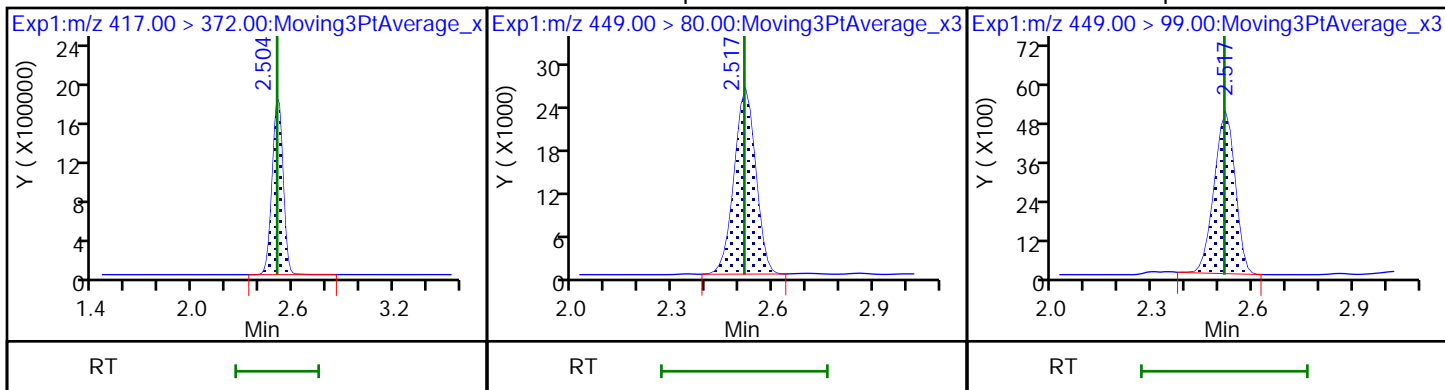
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

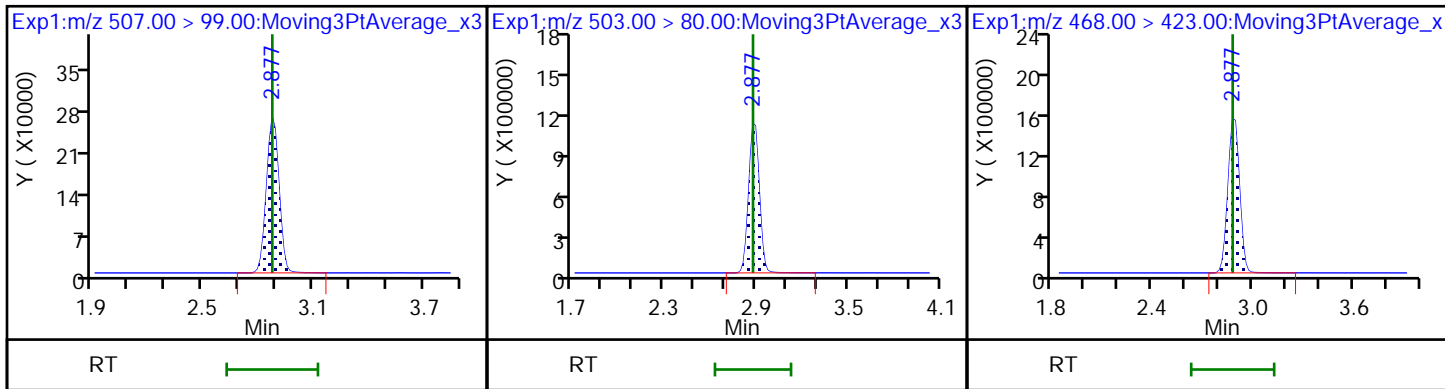
16 Perfluoroheptanesulfonic acid

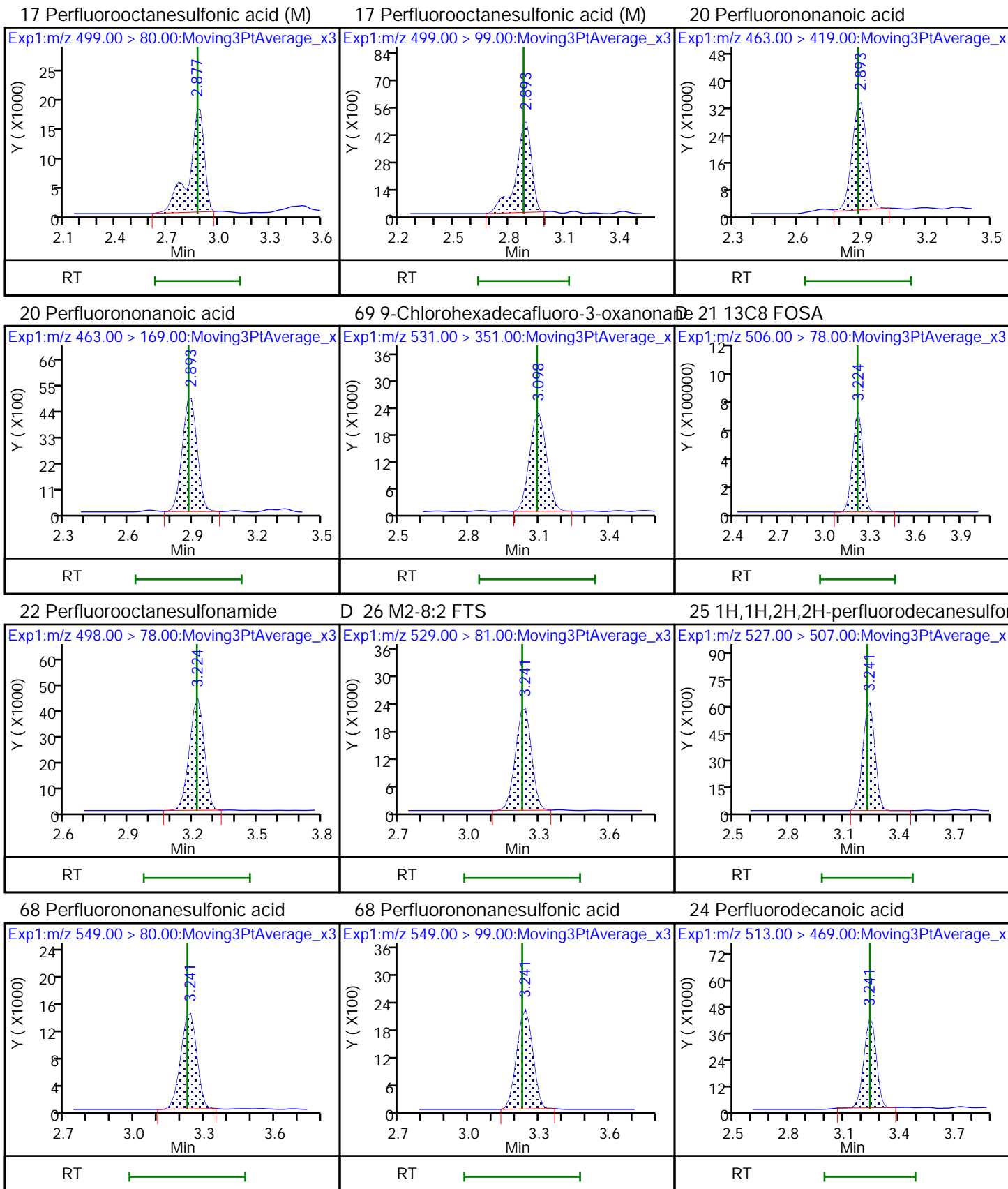


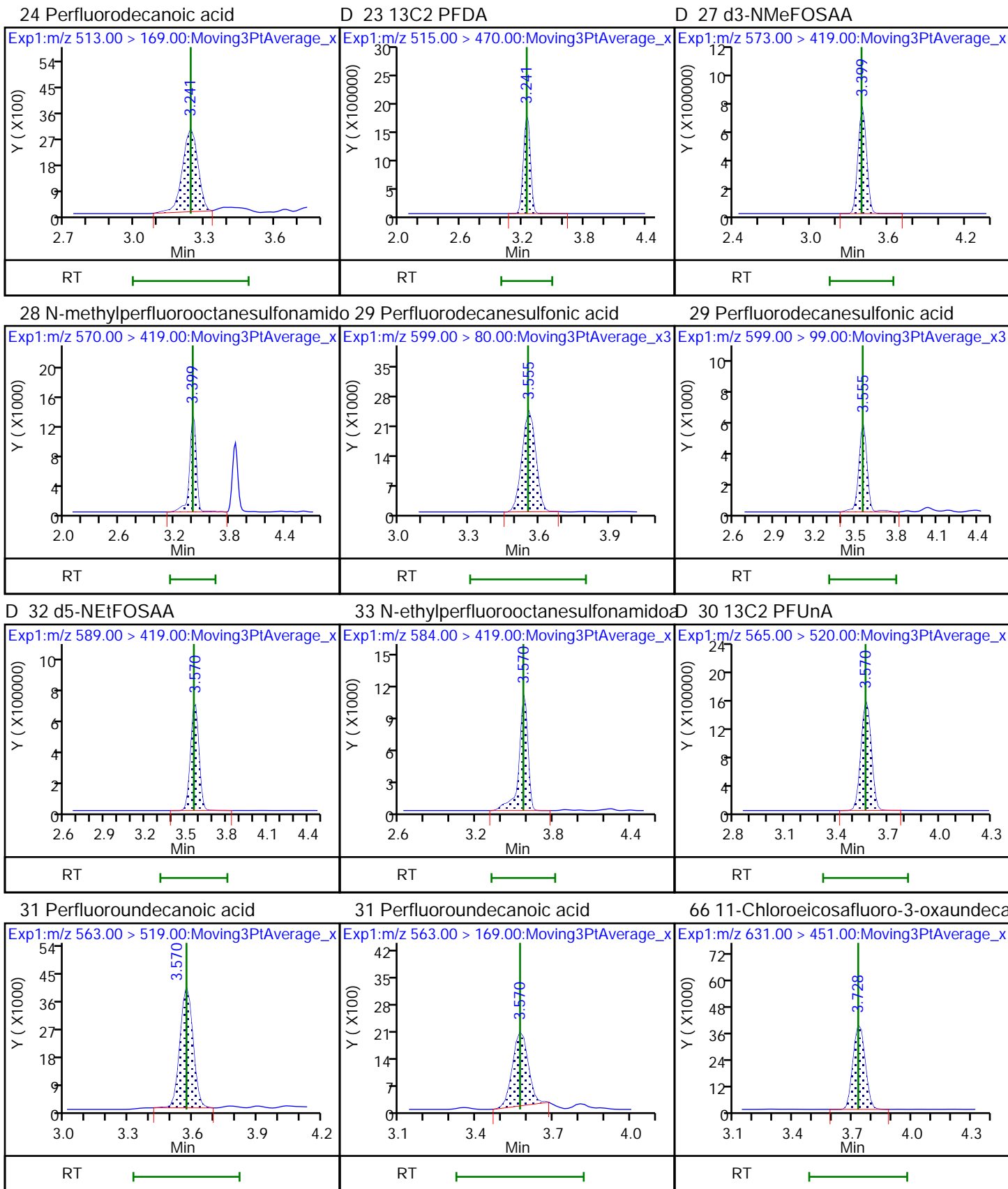
D 72 13C8 PFOS

D 18 13C4 PFOS

D 19 13C5 PFNA



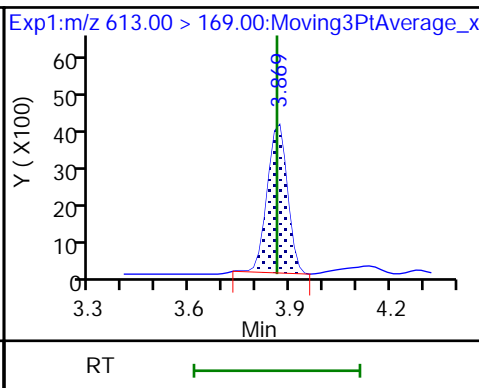
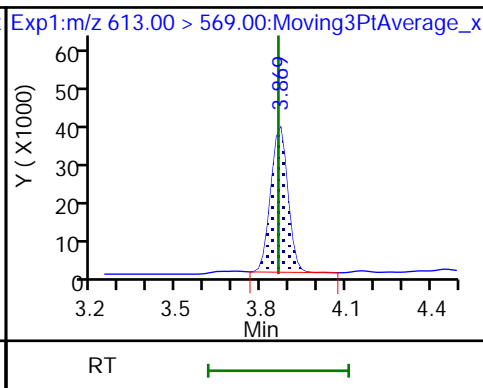
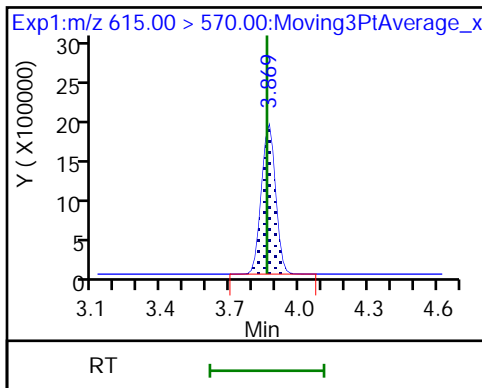




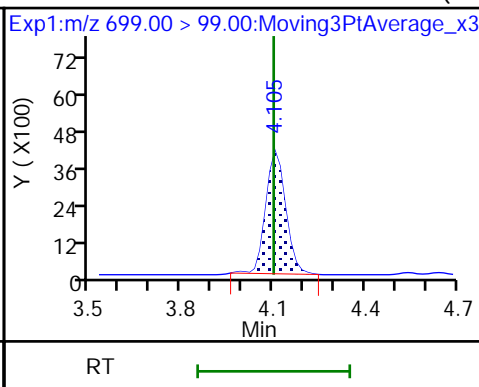
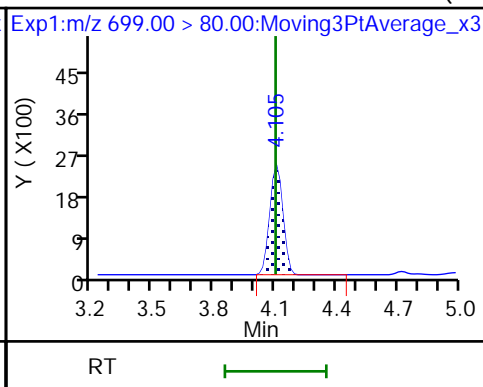
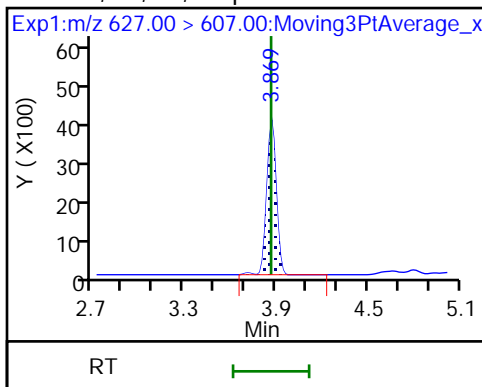
D 36 13C2 PFDaA

37 Perfluorododecanoic acid

37 Perfluorododecanoic acid



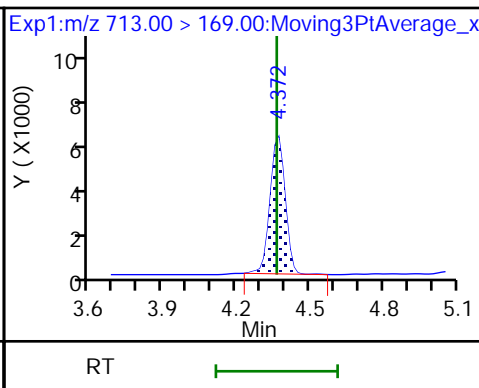
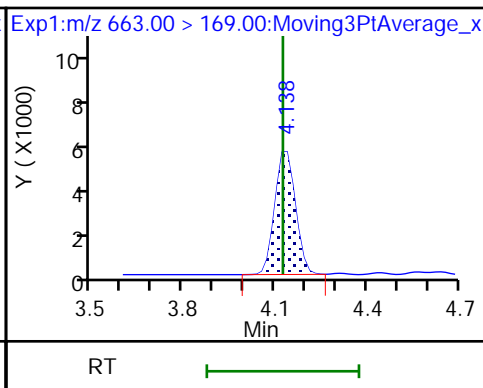
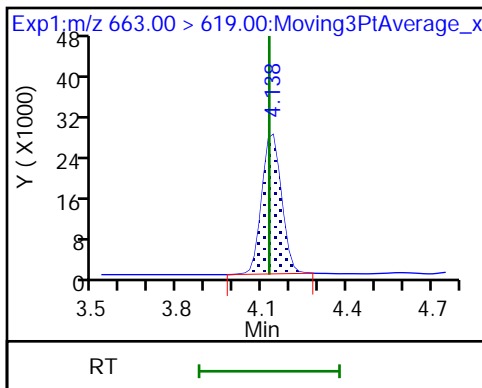
74 1H,1H,2H,2H-perfluorododecanesulfonate 75 Perfluorododecanesulfonic acid (PF



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

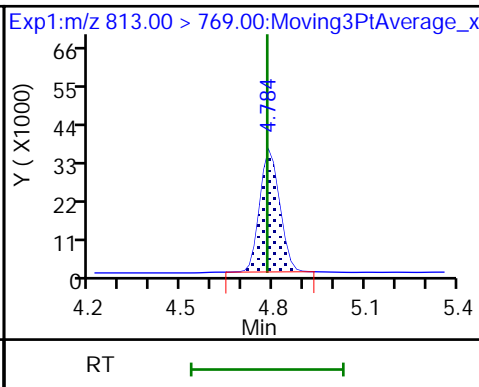
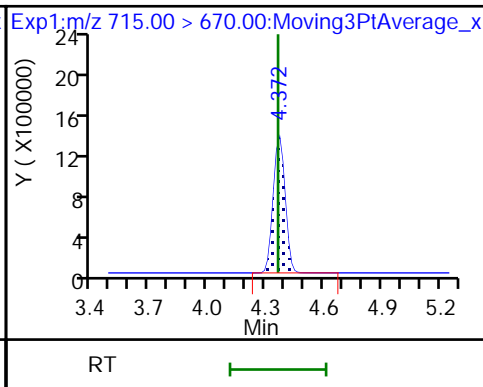
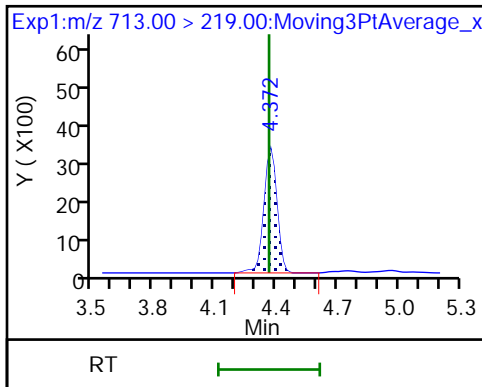
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

D 43 13C2 PFTeDA

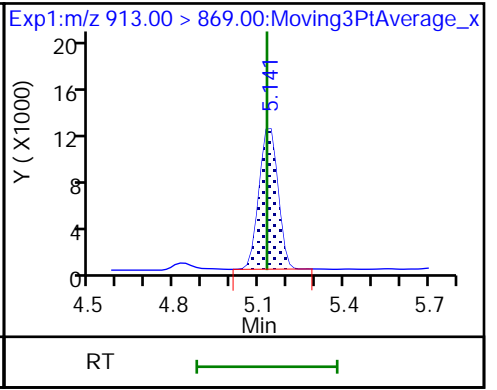
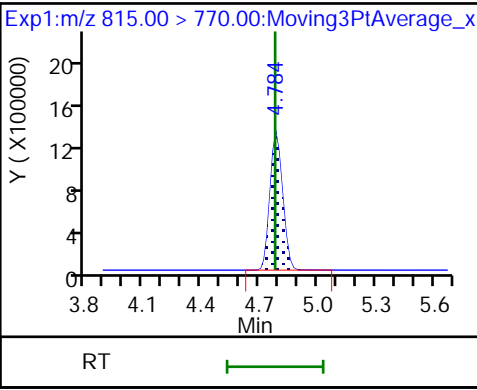
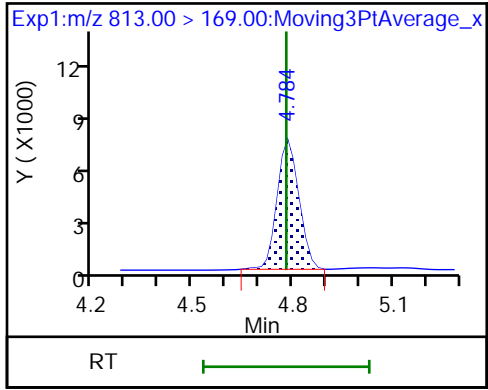
45 Perfluorohexadecanoic acid



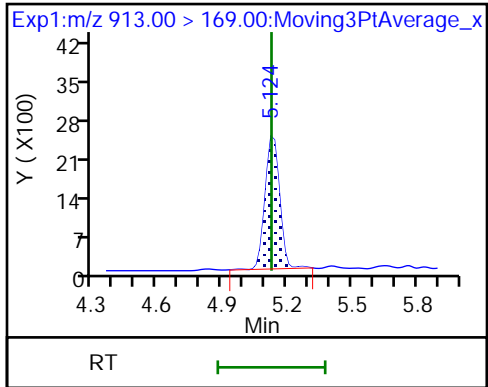
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



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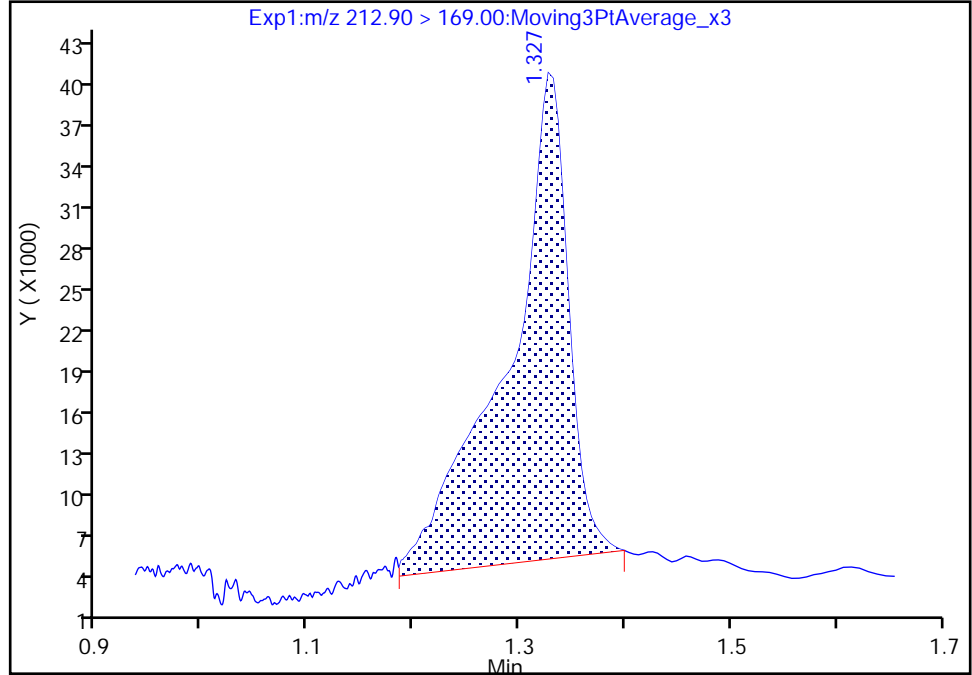
Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_003.d  
Injection Date: 30-Oct-2018 13:20:21 Instrument ID: A9  
Lims ID: IC L2 Full  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 11 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

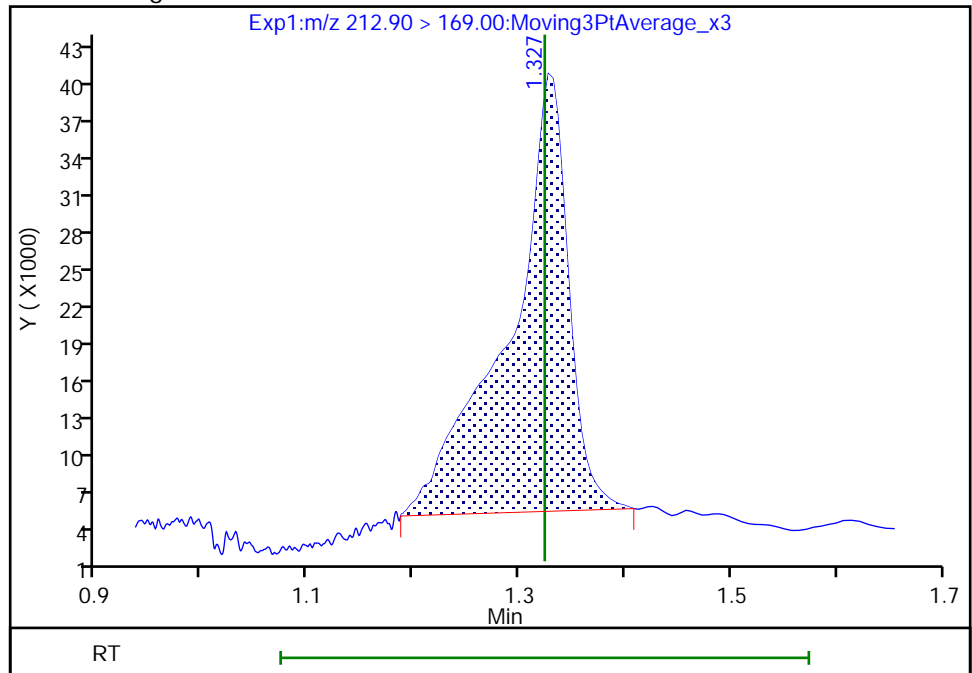
RT: 1.33  
Area: 141971  
Amount: 0.052215  
Amount Units: ng/ml

Processing Integration Results



RT: 1.33  
Area: 137562  
Amount: 0.050829  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:38:24  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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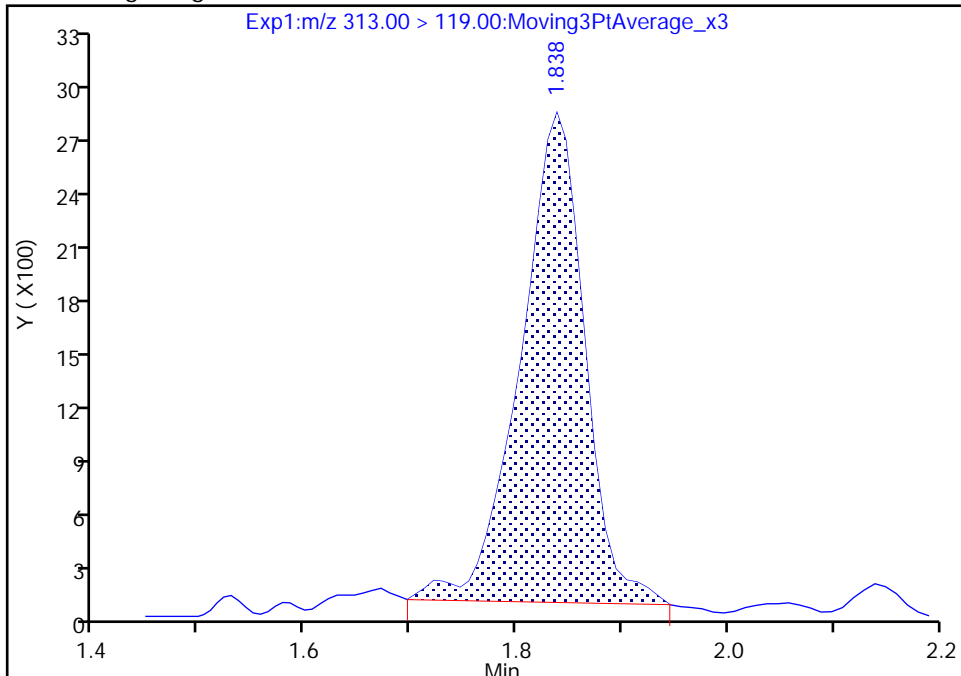
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Injection Date: 30-Oct-2018 13:20:21 Instrument ID: A9  
Lims ID: IC L2 Full  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 11 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 2

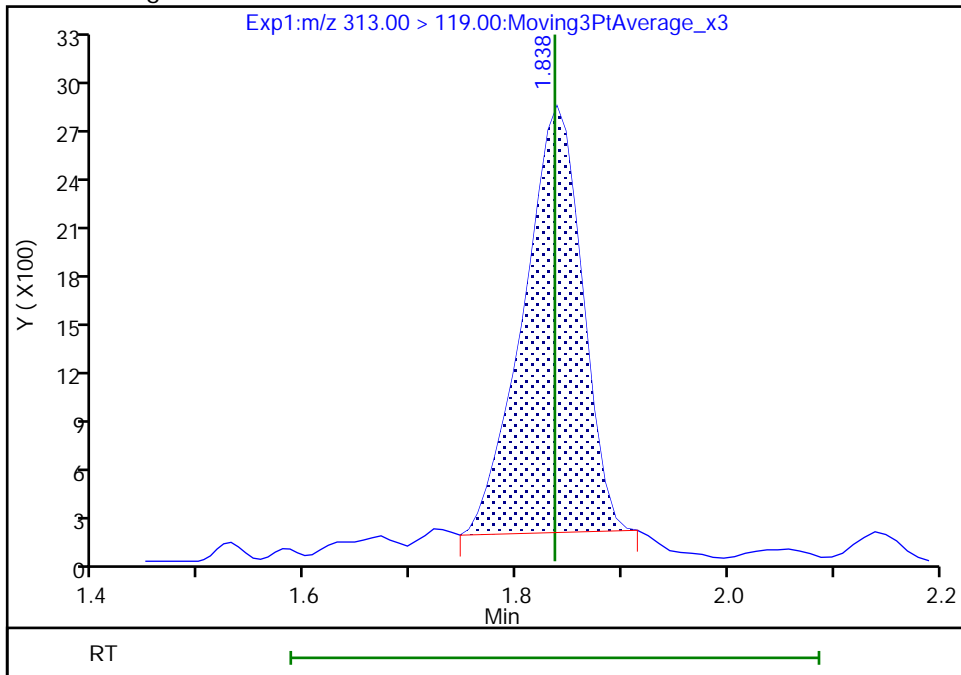
RT: 1.84  
Area: 11442  
Amount: 0.056191  
Amount Units: ng/ml

Processing Integration Results



RT: 1.84  
Area: 10128  
Amount: 0.056191  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:38:37  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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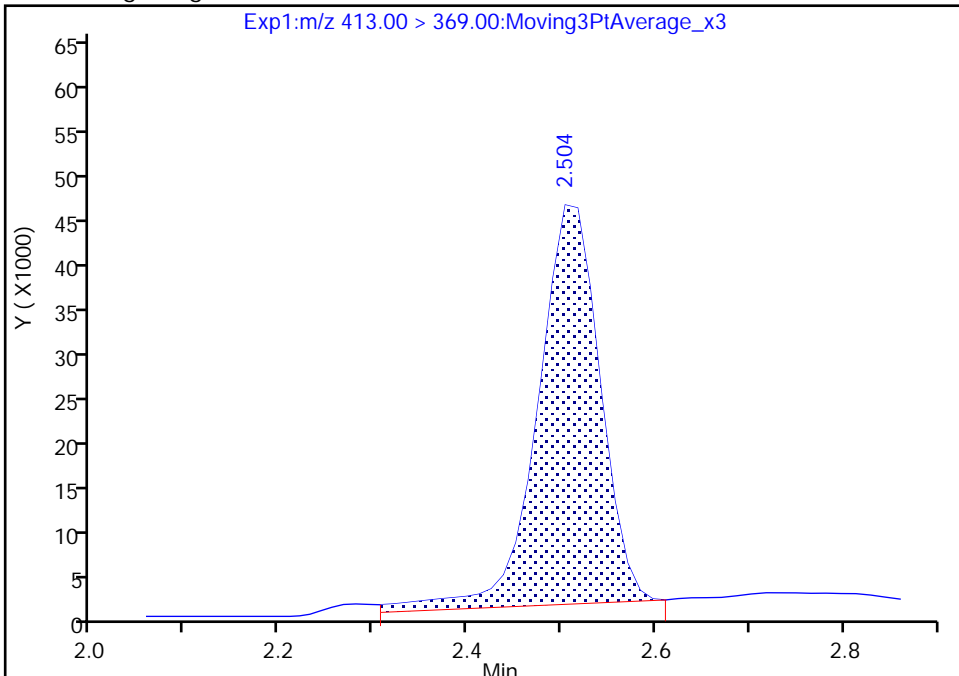
Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_003.d  
Injection Date: 30-Oct-2018 13:20:21 Instrument ID: A9  
Lims ID: IC L2 Full  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 11 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

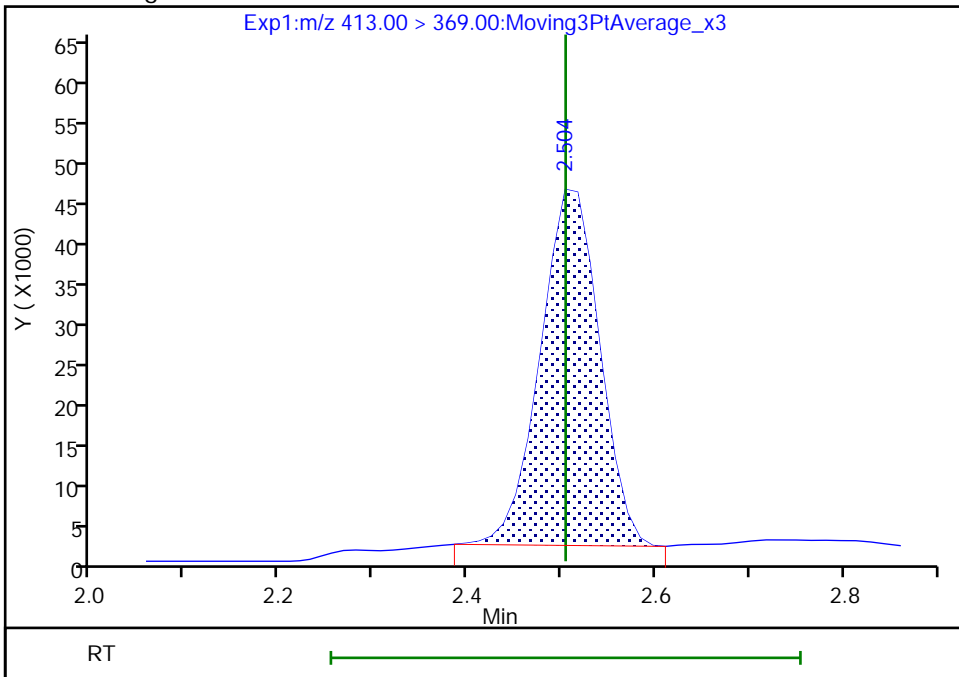
RT: 2.50  
Area: 206749  
Amount: 0.058065  
Amount Units: ng/ml

Processing Integration Results



RT: 2.50  
Area: 193091  
Amount: 0.054830  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:38:51  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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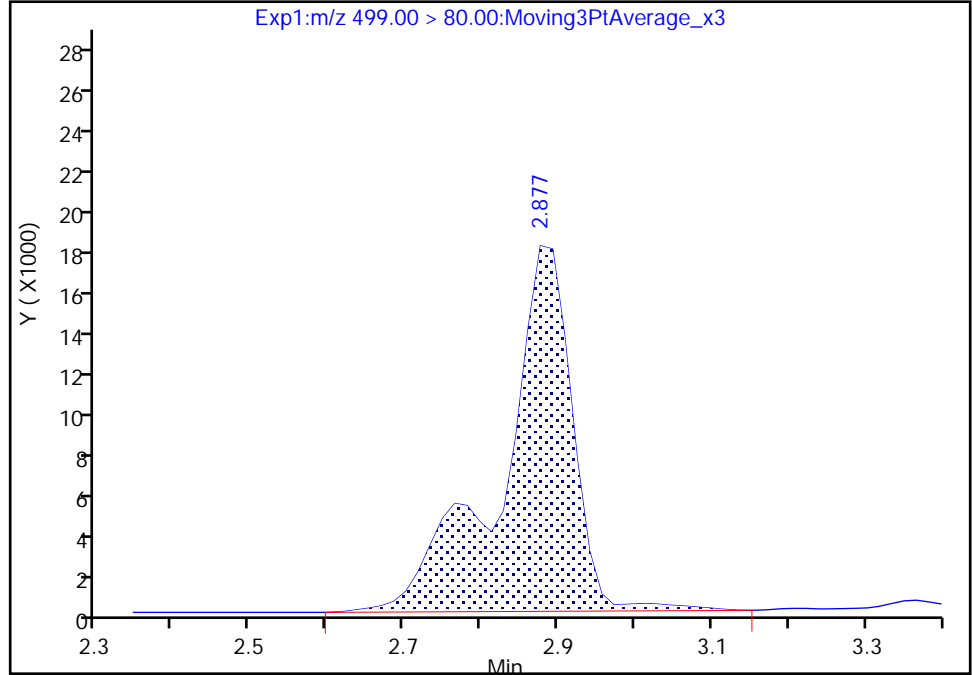
Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_003.d  
Injection Date: 30-Oct-2018 13:20:21 Instrument ID: A9  
Lims ID: IC L2 Full  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 11 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

17 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

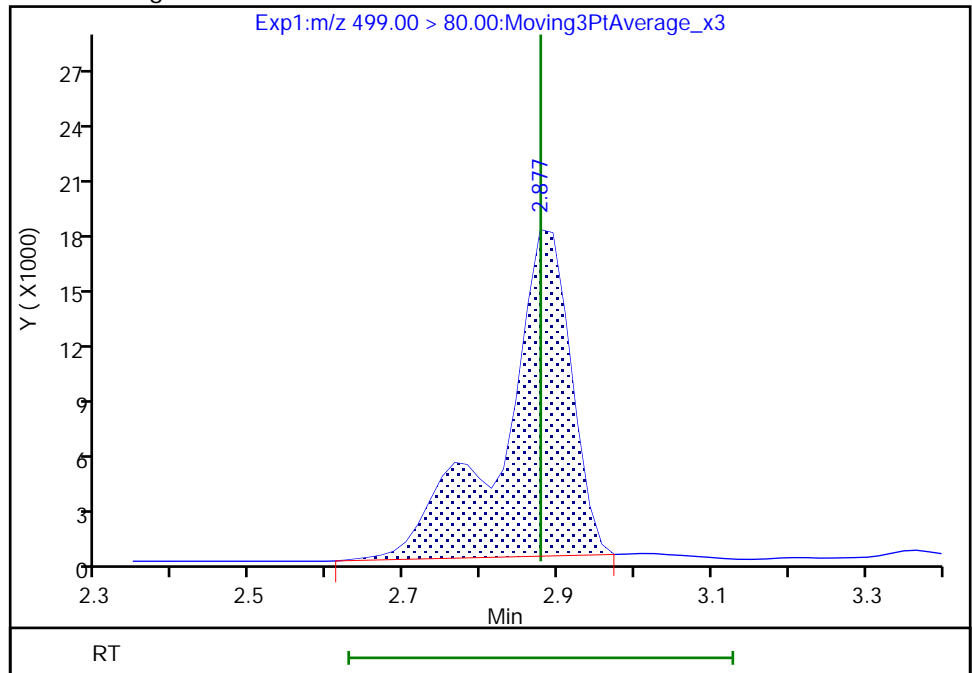
RT: 2.88  
Area: 114874  
Amount: 0.047948  
Amount Units: ng/ml

Processing Integration Results



RT: 2.88  
Area: 109342  
Amount: 0.045966  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:39:01  
Audit Action: Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_003.d

Injection Date: 30-Oct-2018 13:20:21 Instrument ID: A9

Lims ID: IC L2 Full

Client ID:

Operator ID: A9\Administrator ALS Bottle#: 11 Worklist Smp#: 3

Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: PFAS\_A9 Limit Group: LC PFC ICAL

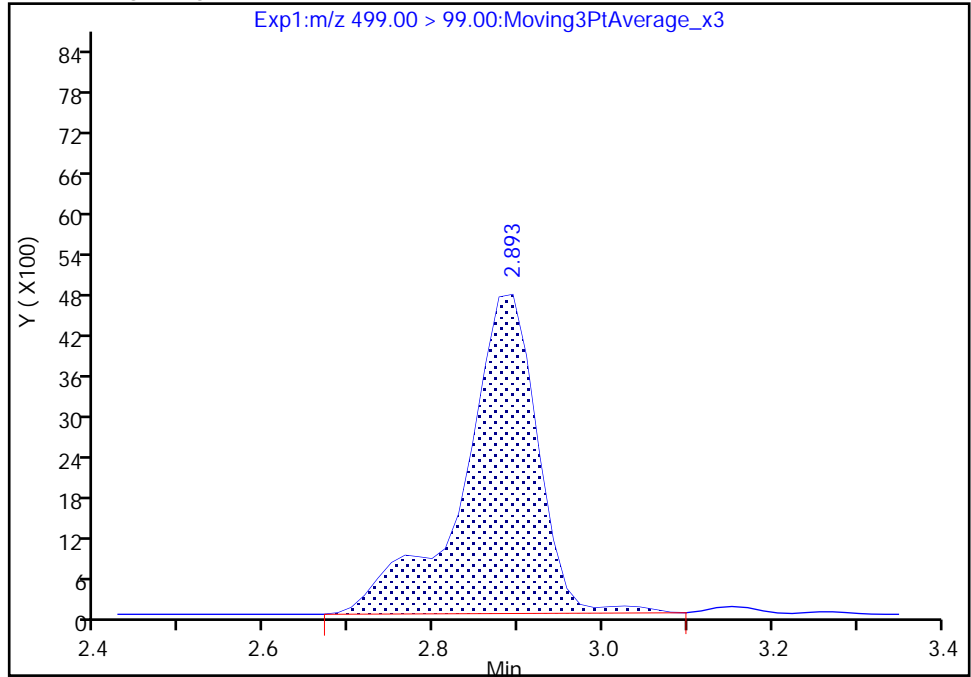
Column: Detector EXP1

17 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

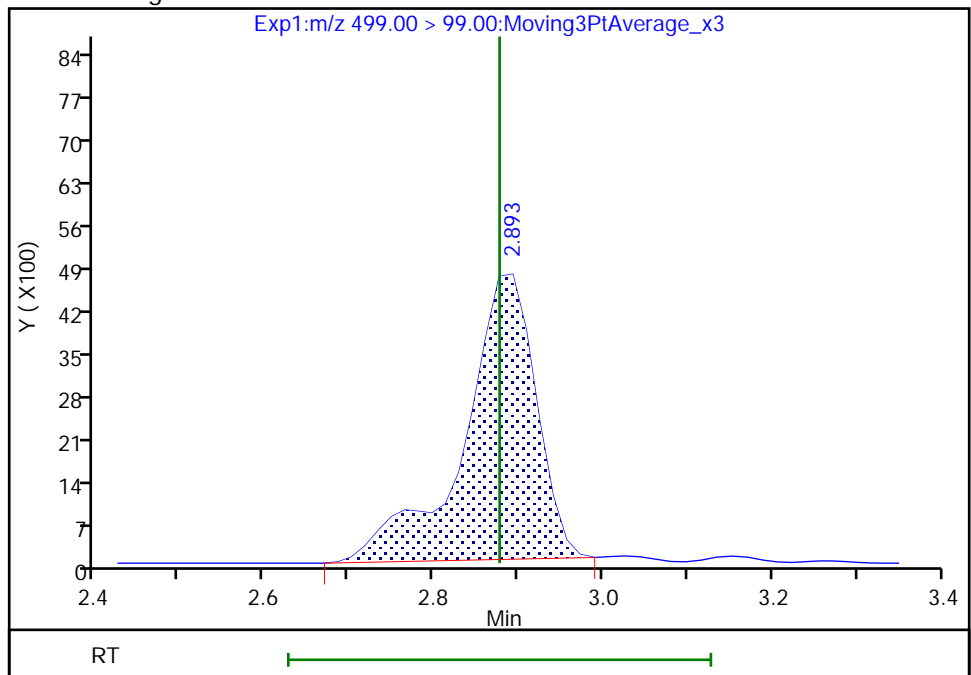
RT: 2.89  
Area: 29098  
Amount: 0.047948  
Amount Units: ng/ml

Processing Integration Results



RT: 2.89  
Area: 27968  
Amount: 0.045966  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 30-Oct-2018 14:39:08

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_004.d  
 Lims ID: IC L3 Full  
 Client ID:  
 Sample Type: IC Calib Level: 3  
 Inject. Date: 30-Oct-2018 13:27:52 ALS Bottle#: 12 Worklist Smp#: 4  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CAL STD3  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5

Method: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 30-Oct-2018 15:08:13 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d

Column 1 : Det: EXP1  
 Process Host: CTX0318

First Level Reviewer: roycea Date: 30-Oct-2018 14:40:49

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	1.323	1.323	0.0	0.528	7421636	2.52	101	14431	
2 Perfluorobutanoic acid	212.90 > 169.00	1.323	1.324	-0.001	1.000	700086	0.2520	101	46.0	
D 3 13C5 PFPeA	267.90 > 223.00	1.572	1.571	0.001	0.628	6985179	2.49	99.6	13655	
4 Perfluoropentanoic acid	262.90 > 219.00	1.572	1.573	-0.001	1.000	711130	0.2542	102	78.5	
D 47 13C3 PFBS	301.90 > 83.00	1.600	1.603	-0.003	0.639	94392	2.43	105	530	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.607	1.607	0.0	1.004	875621	0.2089	94.5	416	
	298.90 > 99.00	1.607	1.607	0.0	1.004	312689	2.80(1.35-4.05)	94.5	176	
D 60 M2-4:2 FTS	329.00 > 81.00	1.805	1.804	0.001	0.721	762392	2.45	105	867	
61 1H,1H,2H,2H-perfluorohexanesulfoni	327.00 > 307.00	1.805	1.805	0.0	1.128	190700	0.2286	97.9	1531	
6 Perfluorohexanoic acid	313.00 > 269.00	1.839	1.836	0.003	1.000	673371	0.2480	99.2	155	
	313.00 > 119.00	1.839	1.836	0.003	1.000	52640	12.79(6.96-20.87)	99.2	147	
D 7 13C2 PFHxA	315.00 > 270.00	1.839	1.836	0.003	0.734	7546229	2.55	102	10324	
70 Perfluoropentanesulfonic acid	349.00 > 80.00	1.855	1.859	-0.004	1.160	452249	0.2328	99.3	1314	
	349.00 > 99.00	1.855	1.859	-0.004	1.160	209687	2.16(1.15-3.45)	99.3	493	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.925	1.928	-0.003	0.769	931505	2.44	97.4	3333	

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	1.925	1.928	-0.003	1.000	150748	0.2434	97.3	140
D 9 13C4 PFHpA	367.00	> 322.00	2.150	2.148	0.002	0.858	9004593	2.59	104	11634
10 Perfluoroheptanoic acid	363.00	> 319.00	2.150	2.148	0.002	1.000	1003607	0.2627	105	278
	363.00	> 169.00	2.150	2.148	0.002	1.000	210553	4.77(2.17-6.52)	105	727
D 11 18O2 PFHxS	403.00	> 84.00	2.160	2.164	-0.004	0.863	5640195	2.49	105	7625
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.160	2.164	-0.004	1.000	617668	0.2056	90.4	595
	399.00	> 99.00	2.160	2.164	-0.004	1.000	169801	3.64(1.90-5.70)	90.4	247
76 DONA	377.00	> 251.00	2.191	2.194	-0.003	0.761	1610812	0.2494	106	4932
	377.00	> 85.00	2.191	2.194	-0.003	0.761	677905	2.38(1.13-3.39)	106	1400
D 12 M2-6:2 FTS	429.00	> 81.00	2.478	2.478	0.0	0.990	780038	2.44	103	1563
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.478	2.482	-0.004	1.000	174352	0.2433	103	336
D 73 13C8 PFOA	421.00	> 376.00	2.504	2.501	0.003		8665283	2.52	103	9844
15 Perfluorooctanoic acid	413.00	> 369.00	2.504	2.504	0.0	1.000	936788	0.2748	110	115
	413.00	> 169.00	2.504	2.504	0.0	1.000	327138	2.86(1.36-4.08)	110	655
* 62 13C2 PFOA	415.00	> 370.00	2.504	2.504	0.0		8098148	2.50		8764
D 14 13C4 PFOA	417.00	> 372.00	2.504	2.504	0.0	1.000	7882113	2.47	98.9	8010
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.518	2.514	0.004	0.875	605272	0.2447	103	735
	449.00	> 99.00	2.518	2.514	0.004	0.875	135478	4.47(1.84-5.53)	103	613
D 72 13C8 PFOS	507.00	> 99.00	2.878	2.877	0.001		1189687	2.41	101	3708
D 18 13C4 PFOS	503.00	> 80.00	2.878	2.877	0.001	1.149	5679290	2.48	104	4012
D 19 13C5 PFNA	468.00	> 423.00	2.878	2.877	0.001	1.149	7366826	2.50	100	7343
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.878	2.877	0.001	1.000	570169	0.2228	96.0	177
	499.00	> 99.00	2.878	2.877	0.001	1.000	129513	4.40(2.04-6.12)	96.0	513
20 Perfluorononanoic acid	463.00	> 419.00	2.878	2.880	-0.002	1.000	800817	0.2715	109	51.0
	463.00	> 169.00	2.878	2.880	-0.002	1.000	146792	5.46(2.68-8.03)	109	649
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.098	3.091	0.007	1.077	584281	0.2220	95.3	576
D 21 13C8 FOSA	506.00	> 78.00	3.224	3.217	0.007	1.287	3160835	2.50	99.8	4883

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
22 Perfluorooctanesulfonamide	498.00	> 78.00	3.224	3.219	0.005	1.000	1009046	0.2656	106	1319
D 26 M2-8:2 FTS	529.00	> 81.00	3.224	3.226	-0.002	1.287	107369	2.71	113	446
25 1H,1H,2H,2H-perfluorodecanesulfoni	527.00	> 507.00	3.224	3.226	-0.002	1.000	140552	0.2196	91.7	930
68 Perfluorononanesulfonic acid	549.00	> 80.00	3.224	3.226	-0.002	1.120	356556	0.2446	102	1269
	549.00	> 99.00	3.224	3.226	-0.002	1.120	64396	5.54(3.02-9.05)	102	562
24 Perfluorodecanoic acid	513.00	> 469.00	3.241	3.241	0.0	1.000	875209	0.2561	102	176
	513.00	> 169.00	3.241	3.241	0.0	1.000	59551	14.70(7.12-21.35)	102	116
D 23 13C2 PFDA	515.00	> 470.00	3.241	3.241	0.0	1.294	7870335	2.59	104	6400
D 27 d3-NMeFOSAA	573.00	> 419.00	3.400	3.392	0.008	1.357	3165312	2.41	96.5	4632
28 N-methylperfluorooctanesulfonamido	570.00	> 419.00	3.400	3.399	0.001	1.000	320374	0.2530	101	106
29 Perfluorodecanesulfonic acid	599.00	> 80.00	3.556	3.552	0.004	1.236	518365	0.2521	105	658
	599.00	> 99.00	3.556	3.552	0.004	1.236	105825	4.90(2.14-6.43)	105	745
D 32 d5-NEtFOSAA	589.00	> 419.00	3.556	3.558	-0.002	1.420	2850484	2.67	107	4038
33 N-ethylperfluorooctanesulfonamidoa	584.00	> 419.00	3.570	3.566	0.004	1.004	263775	0.2530	101	718
D 30 13C2 PFUnA	565.00	> 520.00	3.570	3.568	0.002	1.426	6511694	2.57	103	7227
31 Perfluoroundecanoic acid	563.00	> 519.00	3.570	3.570	0.0	1.000	760964	0.2570	103	240
	563.00	> 169.00	3.570	3.570	0.0	1.000	58179	13.08(5.24-15.72)	103	343
35 MeFOSA	512.00	> 169.00	3.728	3.724	0.004		183549	NC		702
66 11-Chloroeicosafuoro-3-oxaundecan	631.00	> 451.00	3.728	3.728	0.0	1.296	824463	0.2502	106	2100
D 36 13C2 PFDoA	615.00	> 570.00	3.855	3.859	-0.004	1.539	7757539	2.49	99.4	8735
37 Perfluorododecanoic acid	613.00	> 569.00	3.855	3.861	-0.006	1.000	889955	0.2819	113	380
	613.00	> 169.00	3.855	3.861	-0.006	1.000	90031	9.88(4.68-14.05)	113	182
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00	> 607.00	3.869	3.865	0.004	1.200	95016	0.2096	87.0	203
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	3.912	3.912	0.0		195597	NC		1342
75 Perfluorododecanesulfonic acid (PF	699.00	> 80.00	4.106	4.101	0.005	1.427	50383	0.2201	90.9	245
	699.00	> 99.00	4.106	4.101	0.005	1.427	100846	0.50(0.28-0.83)	90.9	418

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	4.122	4.125	-0.003	1.069	719231	0.2835		113	629	
663.00 > 169.00	4.122	4.125	-0.003	1.069	115085		6.25(3.09-9.27)	113	359	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.357	4.364	-0.007	1.000	92576	0.2305		92.2	352	
713.00 > 219.00	4.357	4.364	-0.007	1.000	71060		1.30(0.70-2.09)	92.2	275	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.357	4.364	-0.007	1.740	5490624	2.35		94.2	9377	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.784	4.780	0.004	1.000	583218	0.2507		100	1005	
813.00 > 169.00	4.784	4.780	0.004	1.000	107247		5.44(2.77-8.32)	100	269	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.784	4.780	0.004	1.910	5838380	2.52		101	11976	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.125	5.127	-0.002	1.071	277253	0.2401		96.0	762	
913.00 > 169.00	5.125	5.127	-0.002	1.071	54814		5.06(2.55-7.64)	96.0	393	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL3\_00009

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_004.d

Injection Date: 30-Oct-2018 13:27:52

Instrument ID: A9

Lims ID: IC L3 Full

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 12

Worklist Smp#: 4

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

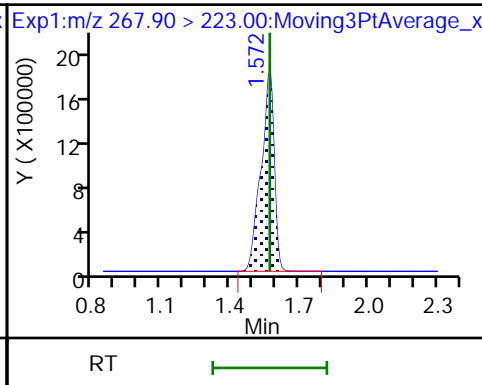
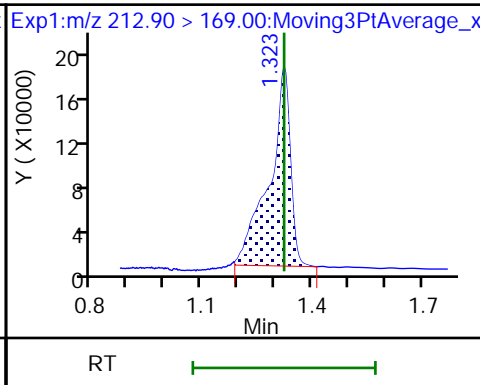
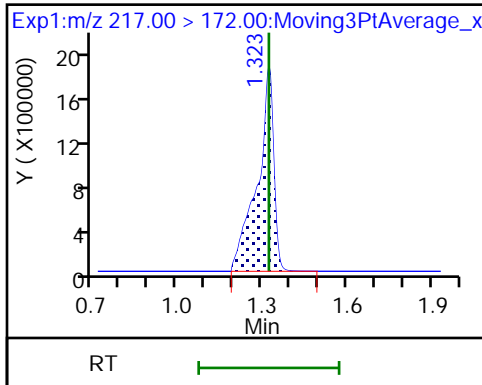
Method: PFAS\_A9

Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

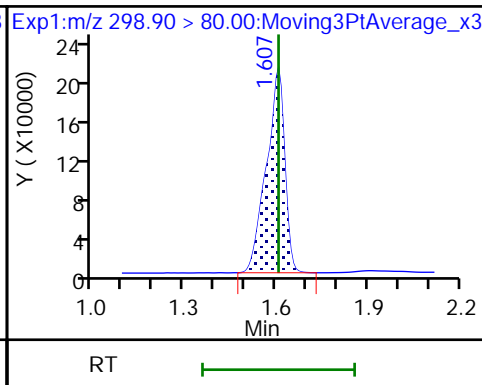
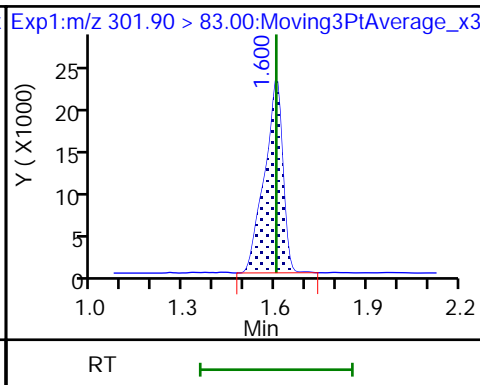
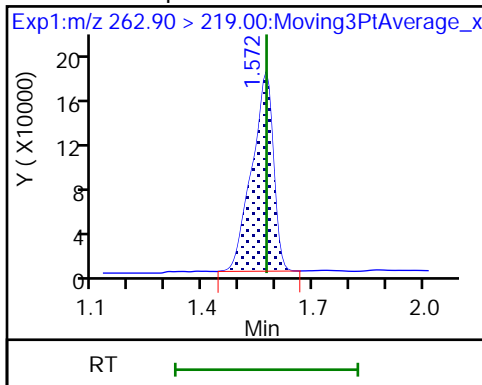
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 47 13C3 PFBS

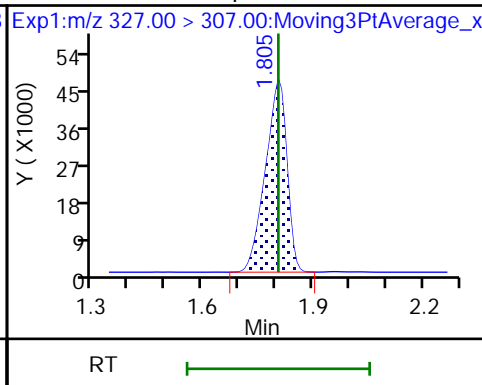
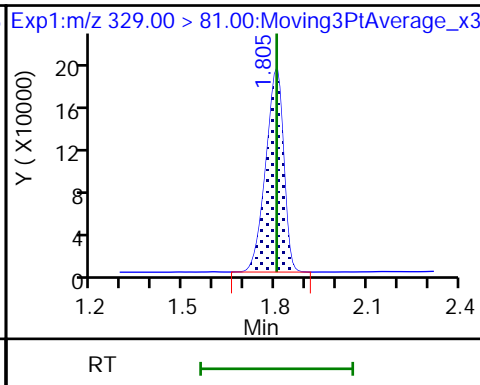
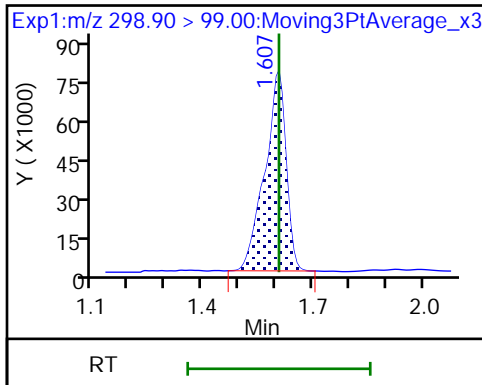
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

D 60 M2-4:2 FTS

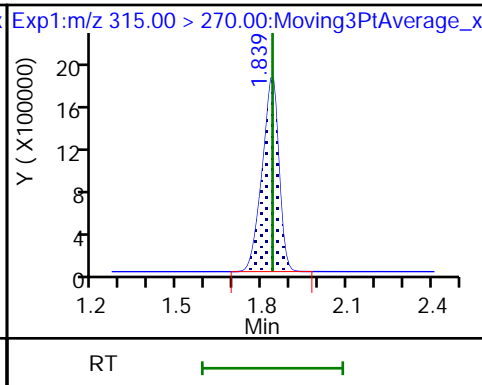
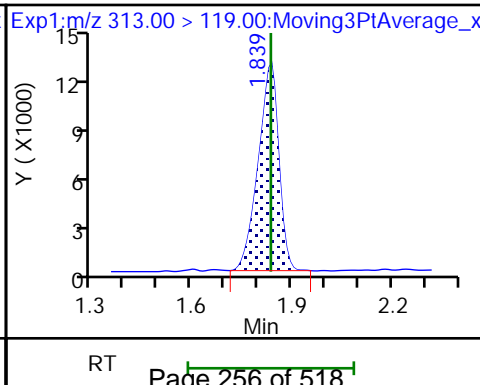
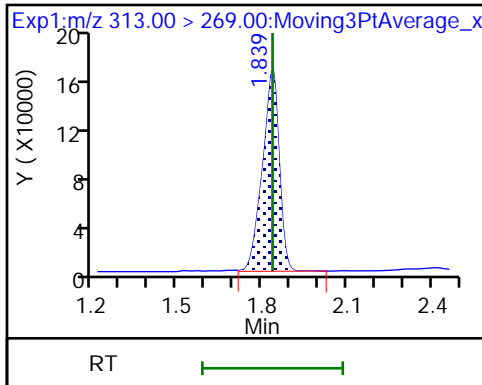
61 1H,1H,2H,2H-perfluorohexanesulfoni

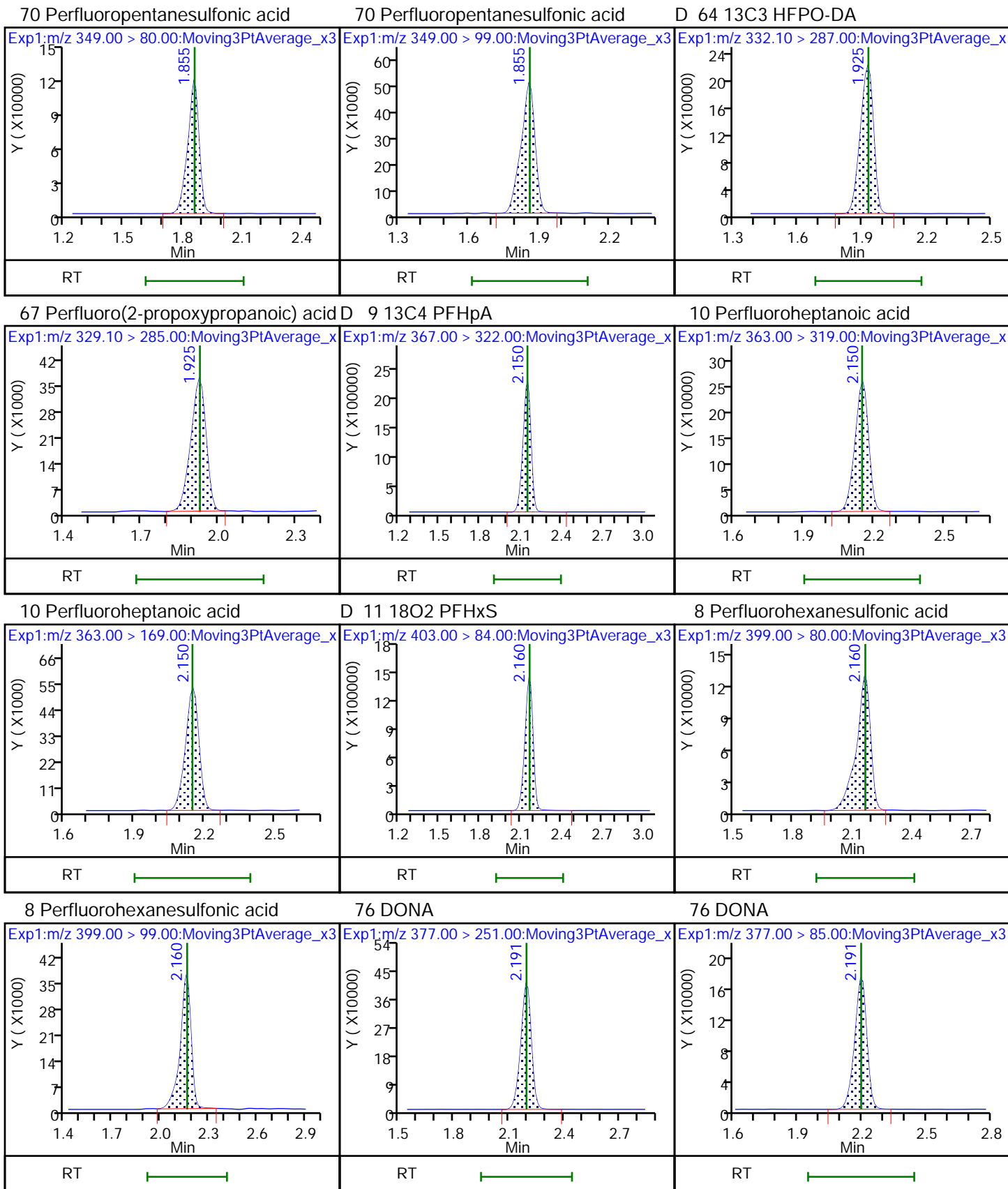


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

D 7 13C2 PFHxA

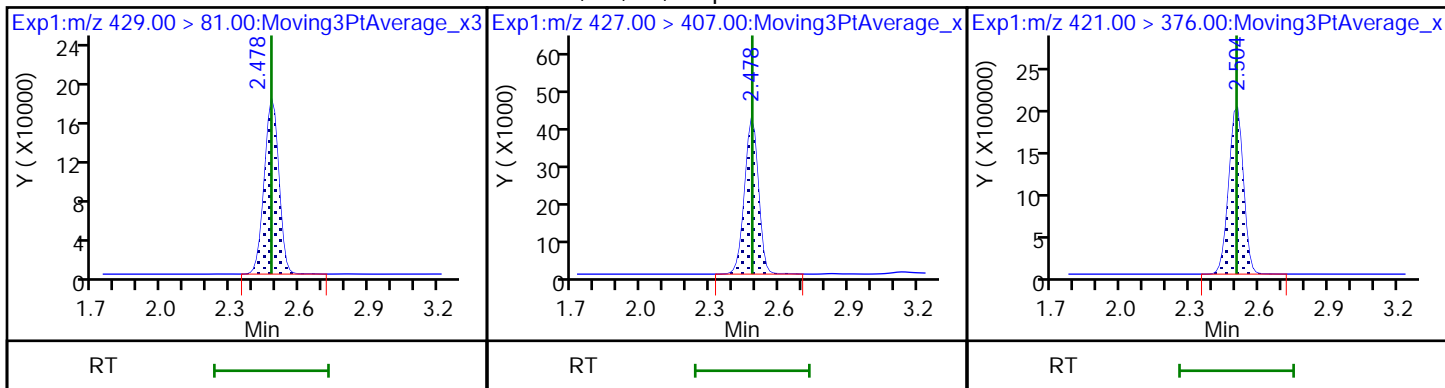






D 12 M2-6:2 FTS

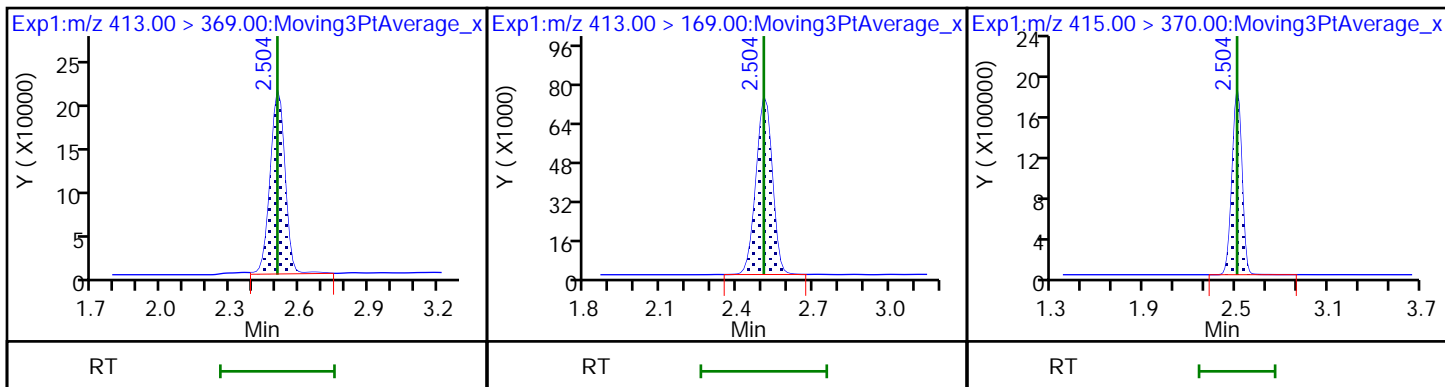
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

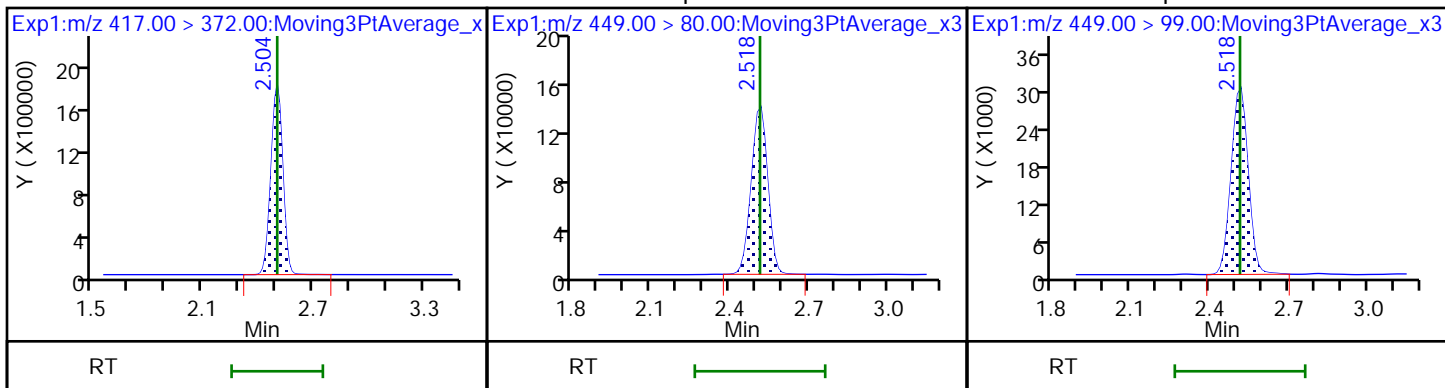
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

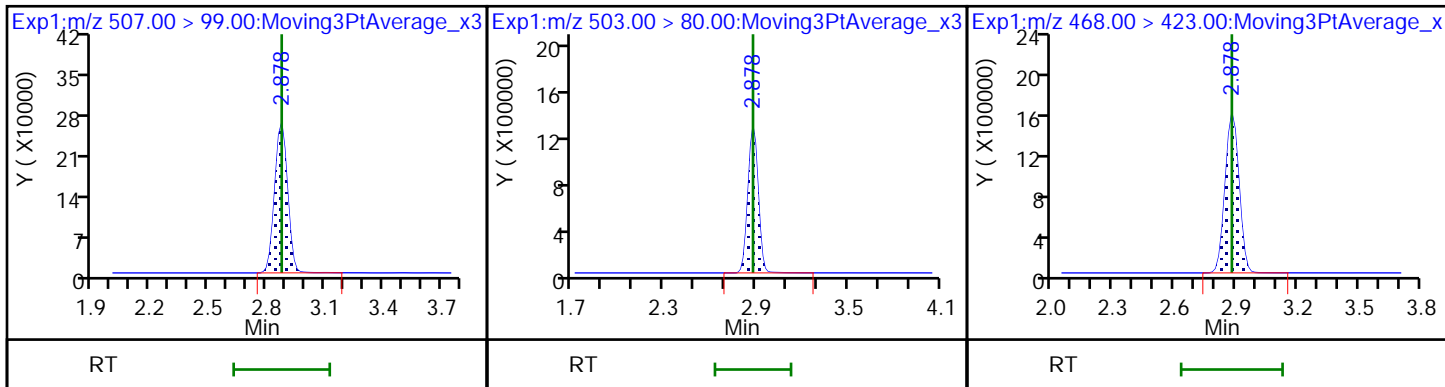
16 Perfluoroheptanesulfonic acid

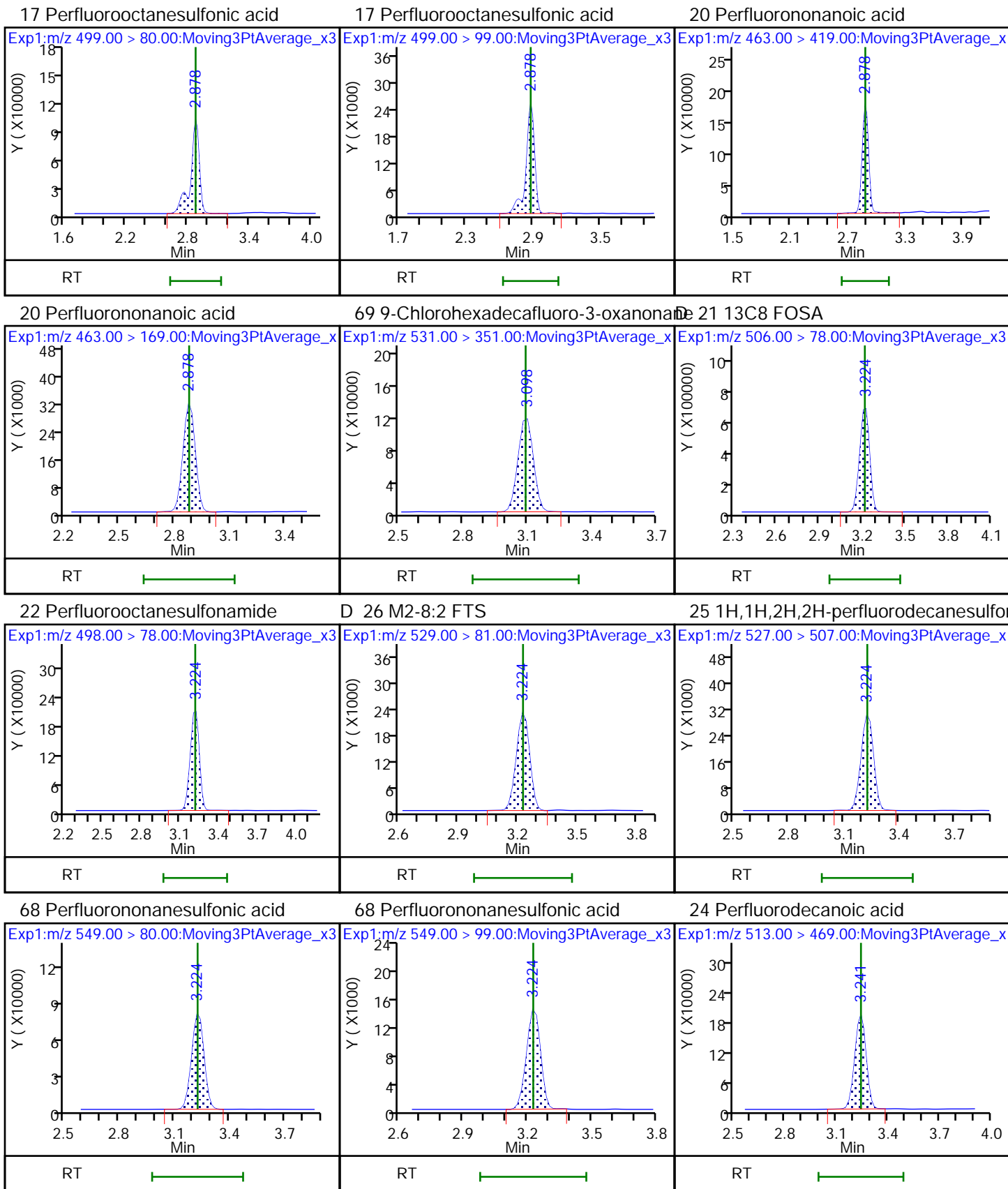


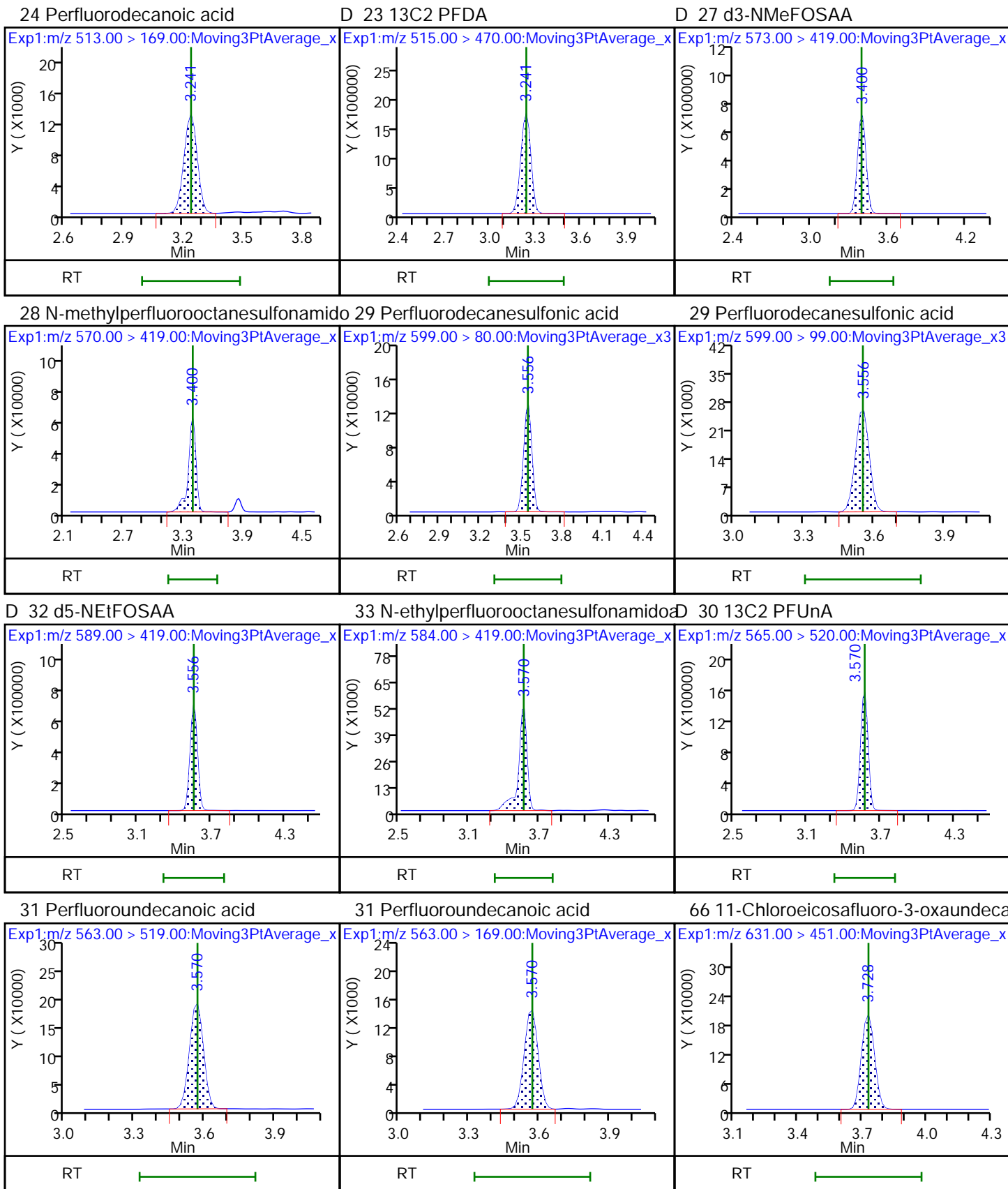
D 72 13C8 PFOS

D 18 13C4 PFOS

D 19 13C5 PFNA



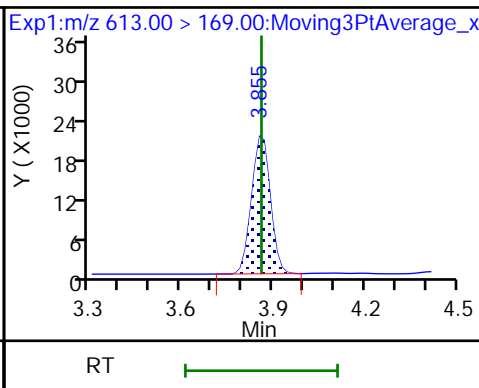
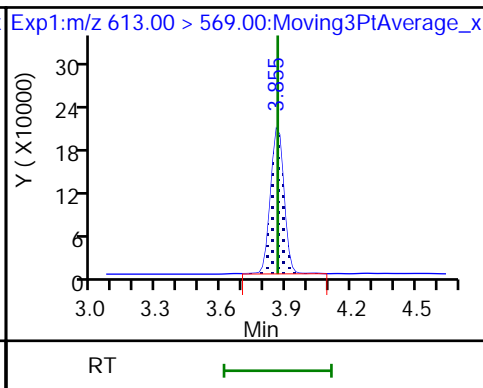
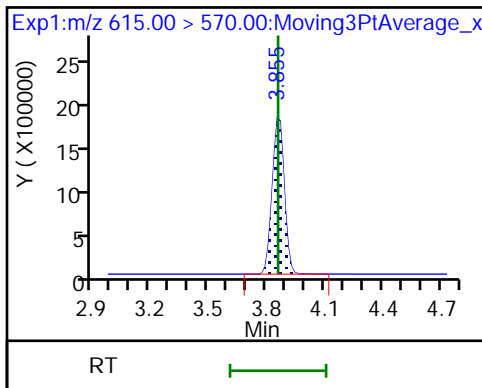




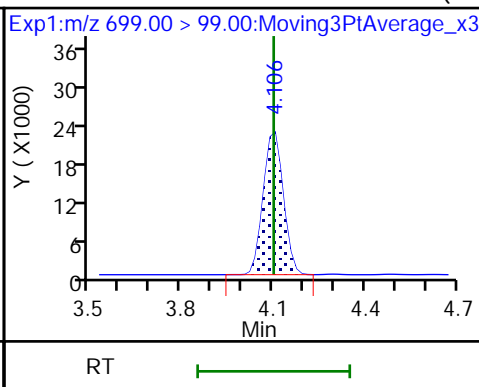
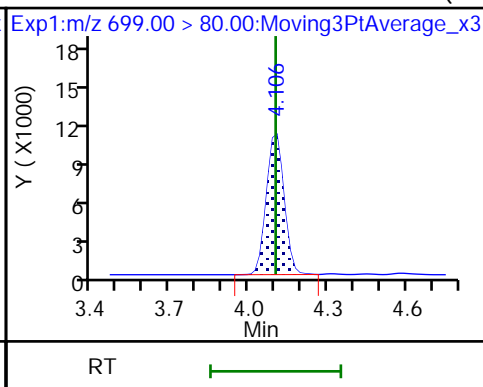
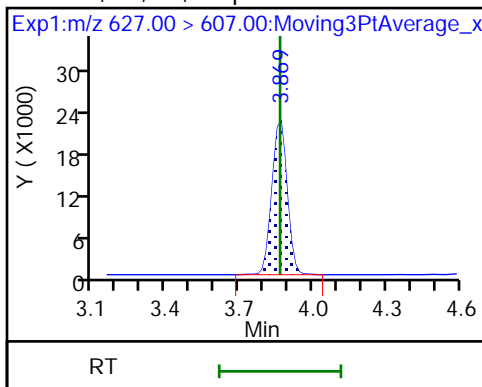
D 36 13C2 PFDaA

37 Perfluorododecanoic acid

37 Perfluorododecanoic acid



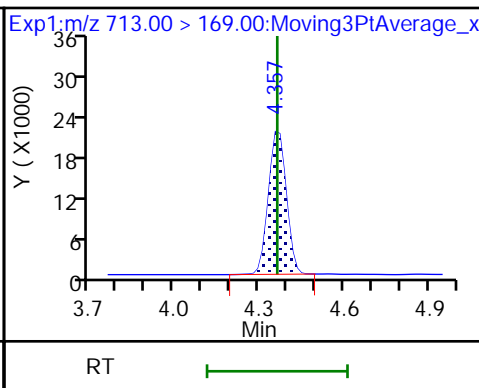
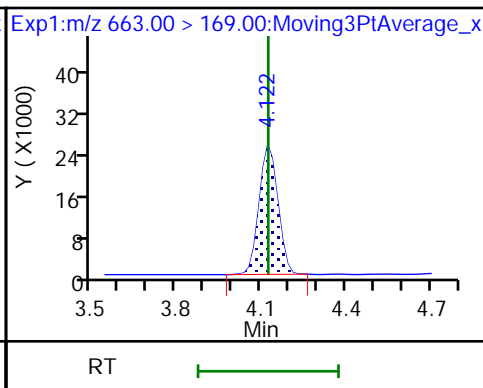
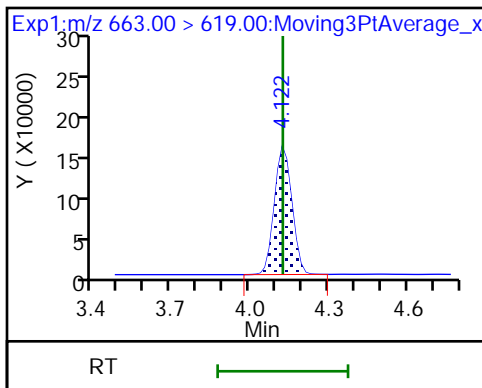
74 1H,1H,2H,2H-perfluorododecanesulfonate 75 Perfluorododecanesulfonic acid (PF) 75 Perfluorododecanesulfonic acid (PF)



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

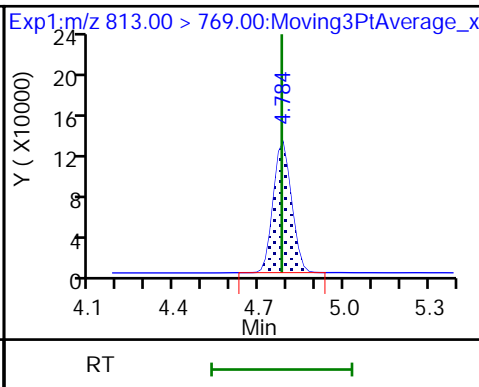
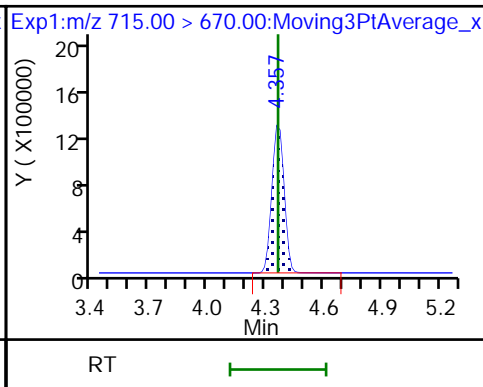
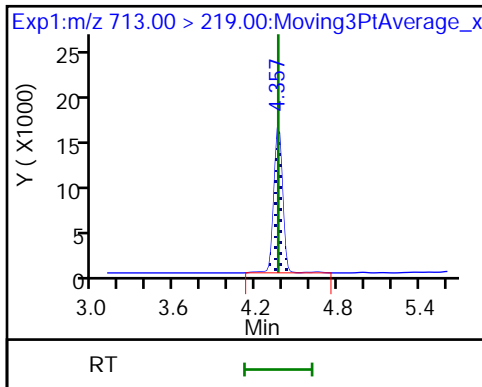
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

D 43 13C2 PFTeDA

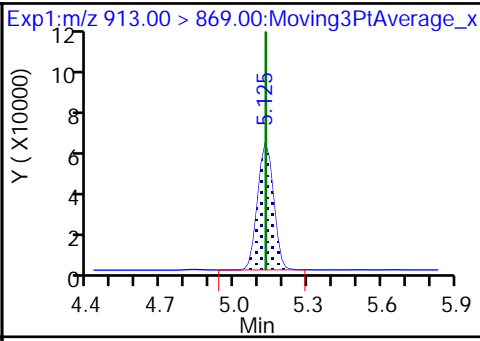
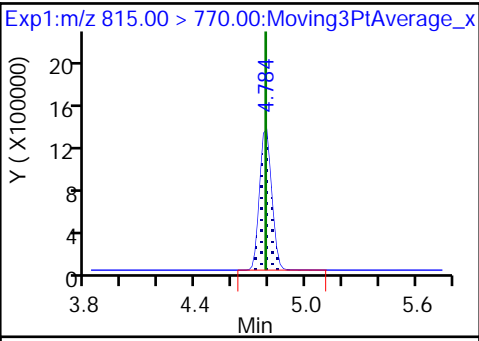
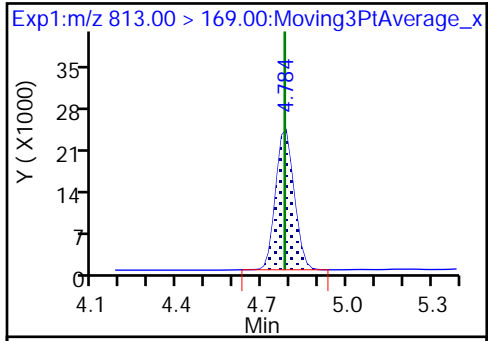
45 Perfluorohexadecanoic acid



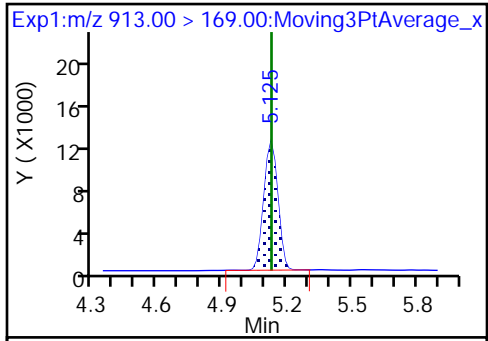
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_005.d  
 Lims ID: IC L4 Full  
 Client ID:  
 Sample Type: ICIS Calib Level: 4  
 Inject. Date: 30-Oct-2018 13:35:22 ALS Bottle#: 13 Worklist Smp#: 5  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CAL STD4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 30-Oct-2018 15:08:21 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last Ical File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d

Column 1 : Det: EXP1  
 Process Host: CTX0318

First Level Reviewer: roycea Date: 30-Oct-2018 14:37:39

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.319	1.323	-0.004	0.527	7225198	2.43	97.2	15494	
2 Perfluorobutanoic acid	212.90 > 169.00	1.323	1.324	-0.001	1.003	2770322	1.02	102	185	
D 3 13C5 PFPeA	267.90 > 223.00	1.572	1.571	0.001	0.628	7062557	2.50	99.8	9553	
4 Perfluoropentanoic acid	262.90 > 219.00	1.572	1.573	-0.001	1.000	2788574	0.9861	98.6	311	
D 47 13C3 PFBS	301.90 > 83.00	1.600	1.603	-0.003	0.639	85872	2.20	94.4	385	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.607	1.607	0.0	1.004	3599778	0.9439	107	1597	
	298.90 > 99.00	1.600	1.607	-0.007	1.000	1240024	2.90(1.35-4.05)	107	624	
D 60 M2-4:2 FTS	329.00 > 81.00	1.805	1.804	0.001	0.721	702950	2.24	95.9	855	
61 1H,1H,2H,2H-perfluorohexanesulfoni	327.00 > 307.00	1.805	1.805	0.0	1.128	713550	0.9401	101	5955	
6 Perfluorohexanoic acid	313.00 > 269.00	1.830	1.836	-0.006	1.000	2615815	1.01	101	604	
	313.00 > 119.00	1.830	1.836	-0.006	1.000	196555	13.31(6.96-20.87)	101	512	
D 7 13C2 PFHxA	315.00 > 270.00	1.830	1.836	-0.006	0.731	7207236	2.42	96.6	14086	
70 Perfluoropentanesulfonic acid	349.00 > 80.00	1.855	1.859	-0.004	1.160	1770049	1.00	107	3929	
	349.00 > 99.00	1.855	1.859	-0.004	1.160	815148	2.17(1.15-3.45)	107	1566	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.925	1.928	-0.003	0.769	1006689	2.61	104	4793	

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	1.925	1.928	-0.003	1.000	628181	0.9384	93.8	525
D 9 13C4 PFHpA	367.00	> 322.00	2.150	2.148	0.002	0.858	8369358	2.39	95.5	11413
10 Perfluoroheptanoic acid	363.00	> 319.00	2.150	2.148	0.002	1.000	3737932	1.05	105	996
	363.00	> 169.00	2.150	2.148	0.002	1.000	815941	4.58(2.17-6.52)	105	2033
D 11 18O2 PFHxS	403.00	> 84.00	2.160	2.164	-0.004	0.863	5223113	2.29	96.8	7916
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.160	2.164	-0.004	1.000	2420284	0.8699	95.6	1913
	399.00	> 99.00	2.160	2.164	-0.004	1.000	666953	3.63(1.90-5.70)	95.6	823
76 DONA	377.00	> 251.00	2.191	2.194	-0.003	0.761	6353925	1.04	110	9116
	377.00	> 85.00	2.191	2.194	-0.003	0.761	2657968	2.39(1.13-3.39)	110	4064
D 12 M2-6:2 FTS	429.00	> 81.00	2.478	2.478	0.0	0.990	757242	2.35	98.8	1131
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.478	2.482	-0.004	1.000	627518	0.9020	95.1	1034
D 73 13C8 PFOA	421.00	> 376.00	2.491	2.501	-0.010		8610715	2.50	102	9591
15 Perfluorooctanoic acid	413.00	> 369.00	2.504	2.504	0.0	1.000	3436748	1.01	101	459
	413.00	> 169.00	2.504	2.504	0.0	1.000	1230692	2.79(1.36-4.08)	101	2034
* 62 13C2 PFOA	415.00	> 370.00	2.504	2.504	0.0		8163503	2.50		8411
D 14 13C4 PFOA	417.00	> 372.00	2.504	2.504	0.0	1.000	7840609	2.44	97.6	9460
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.504	2.514	-0.010	0.870	2358852	1.01	106	2205
	449.00	> 99.00	2.504	2.514	-0.010	0.870	569127	4.14(1.84-5.53)	106	1750
D 72 13C8 PFOS	507.00	> 99.00	2.878	2.877	0.001		1245859	2.52	106	3961
D 18 13C4 PFOS	503.00	> 80.00	2.878	2.877	0.001	1.149	5384373	2.33	97.7	4069
D 19 13C5 PFNA	468.00	> 423.00	2.878	2.877	0.001	1.149	7702032	2.59	104	8635
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.878	2.877	0.001	1.000	2435322	1.00	108	775
	499.00	> 99.00	2.878	2.877	0.001	1.000	508953	4.78(2.04-6.12)	108	1415
20 Perfluorononanoic acid	463.00	> 419.00	2.878	2.880	-0.002	1.000	3138021	1.02	102	214
	463.00	> 169.00	2.878	2.880	-0.002	1.000	586140	5.35(2.68-8.03)	102	1797
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.080	3.091	-0.011	1.070	2487534	1.00	107	1894
D 21 13C8 FOSA	506.00	> 78.00	3.207	3.217	-0.010	1.280	3188250	2.50	99.9	6891

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
22 Perfluorooctanesulfonamide	498.00	> 78.00	3.207	3.219	-0.012	1.000	4105177	1.07	107	4332
D 26 M2-8:2 FTS	529.00	> 81.00	3.224	3.226	-0.002	1.287	91683	2.29	95.7	394
25 1H,1H,2H,2H-perfluorodecanesulfoni	527.00	> 507.00	3.224	3.226	-0.002	1.000	538370	0.9851	103	2789
68 Perfluorononanesulfonic acid	549.00	> 80.00	3.224	3.226	-0.002	1.120	1430137	1.03	108	3030
	549.00	> 99.00	3.224	3.226	-0.002	1.120	218929	6.53(3.02-9.05)	108	1386
24 Perfluorodecanoic acid	513.00	> 469.00	3.241	3.241	0.0	1.000	3331267	1.01	101	593
	513.00	> 169.00	3.241	3.241	0.0	1.000	234867	14.18(7.12-21.35)	101	280
D 23 13C2 PFDA	515.00	> 470.00	3.241	3.241	0.0	1.294	7598205	2.48	99.4	7920
D 27 d3-NMeFOSAA	573.00	> 419.00	3.383	3.392	-0.009	1.351	3365714	2.55	102	4323
28 N-methylperfluorooctanesulfonamido	570.00	> 419.00	3.400	3.399	0.001	1.005	1346384	1.00	100	458
29 Perfluorodecanesulfonic acid	599.00	> 80.00	3.542	3.552	-0.010	1.231	1831725	0.9395	97.5	2183
	599.00	> 99.00	3.542	3.552	-0.010	1.231	429378	4.27(2.14-6.43)	97.5	1285
D 32 d5-NEtFOSAA	589.00	> 419.00	3.556	3.558	-0.002	1.420	2670966	2.48	99.2	4123
33 N-ethylperfluorooctanesulfonamidoa	584.00	> 419.00	3.556	3.566	-0.010	1.000	987763	1.01	101	2796
D 30 13C2 PFUnA	565.00	> 520.00	3.556	3.568	-0.012	1.420	6277796	2.46	98.3	10332
31 Perfluoroundecanoic acid	563.00	> 519.00	3.570	3.570	0.0	1.004	2919106	1.02	102	791
	563.00	> 169.00	3.570	3.570	0.0	1.004	217685	13.41(5.24-15.72)	102	1087
35 MeFOSA	512.00	> 169.00	3.712	3.724	-0.012		723251	NC		1785
66 11-Chloroeicosafuoro-3-oxaundecan	631.00	> 451.00	3.728	3.728	0.0	1.296	3201198	1.02	109	6571
D 36 13C2 PFDoA	615.00	> 570.00	3.854	3.859	-0.005	1.539	7689053	2.44	97.8	9636
37 Perfluorododecanoic acid	613.00	> 569.00	3.854	3.861	-0.007	1.000	3289422	1.05	105	1188
	613.00	> 169.00	3.854	3.861	-0.007	1.000	343902	9.56(4.68-14.05)	105	742
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00	> 607.00	3.854	3.865	-0.011	1.196	364481	0.9416	97.7	848
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	3.912	3.912	0.0		798393	NC		2485
75 Perfluorododecanesulfonic acid (PF	699.00	> 80.00	4.089	4.101	-0.012	1.421	221273	1.02	105	894
	699.00	> 99.00	4.089	4.101	-0.012	1.421	410858	0.54(0.28-0.83)	105	1348



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	4.122	4.125	-0.003	1.069	2684945	1.07		107	1979	
663.00 > 169.00	4.122	4.125	-0.003	1.069	456392		5.88(3.09-9.27)	107	1276	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.357	4.364	-0.007	1.000	425136	1.00		99.5	1803	
713.00 > 219.00	4.357	4.364	-0.007	1.000	284209		1.50(0.70-2.09)	99.5	1191	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.357	4.364	-0.007	1.740	5839511	2.48		99.3	9125	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.769	4.780	-0.011	1.000	2230933	1.02		102	3694	
813.00 > 169.00	4.769	4.780	-0.011	1.000	407295		5.48(2.77-8.32)	102	1042	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.769	4.780	-0.011	1.904	5901989	2.53		101	10892	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.125	5.127	-0.002	1.075	1197202	1.03		103	2758	
913.00 > 169.00	5.125	5.127	-0.002	1.075	234000		5.12(2.55-7.64)	103	1485	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL4\_00009

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_005.d

Injection Date: 30-Oct-2018 13:35:22

Instrument ID: A9

Lims ID: IC L4 Full

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 13

Worklist Smp#: 5

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

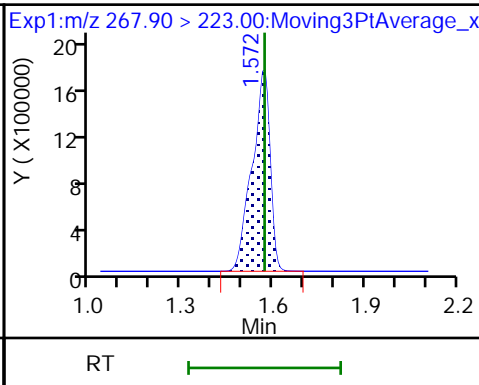
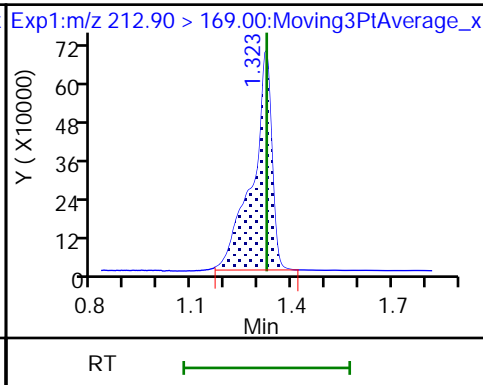
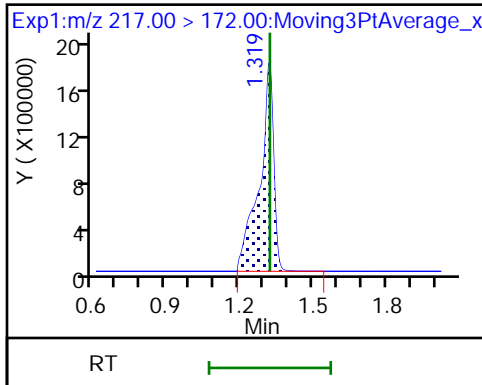
Method: PFAS\_A9

Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

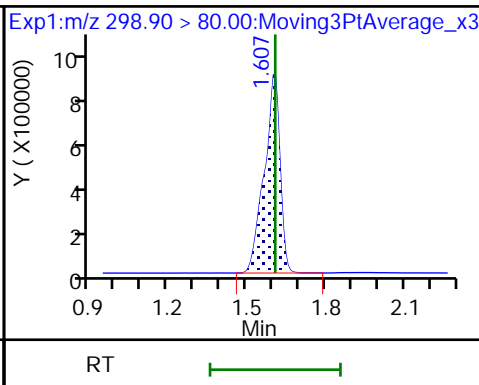
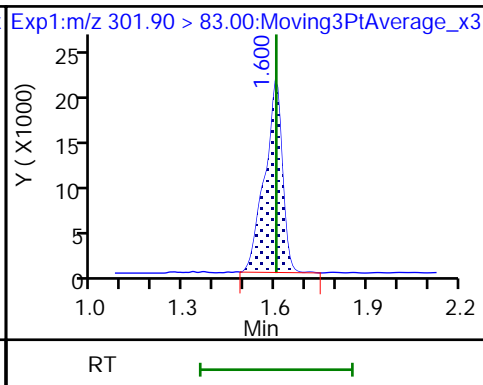
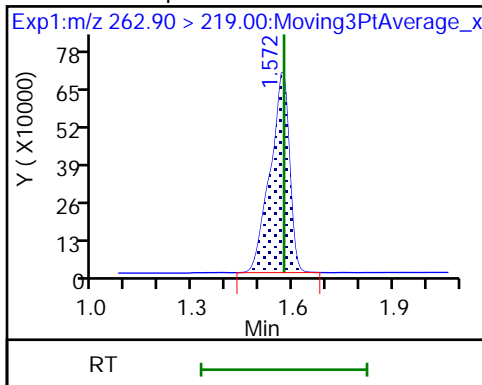
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 47 13C3 PFBS

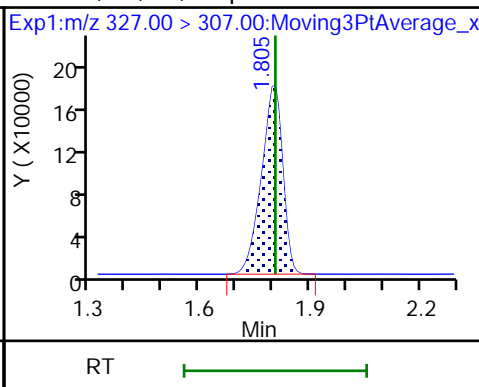
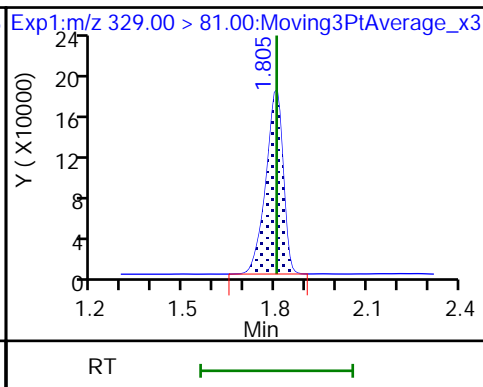
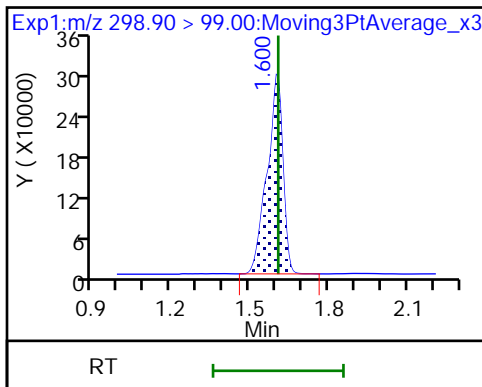
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

D 60 M2-4:2 FTS

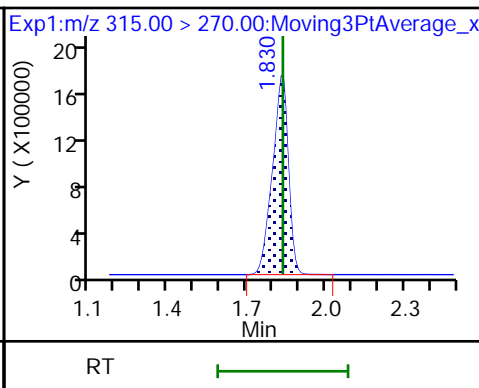
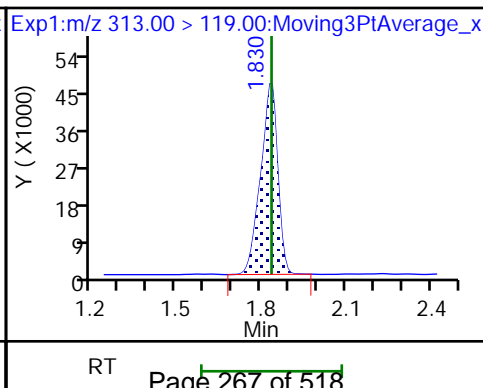
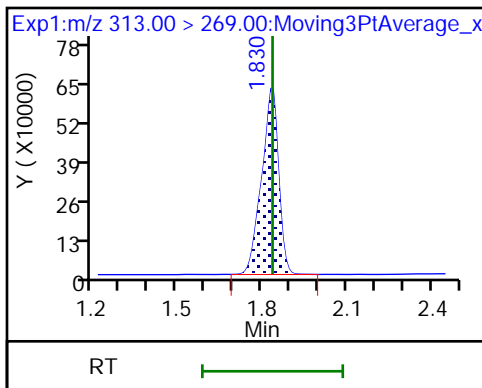
61 1H,1H,2H,2H-perfluorohexanesulfoni

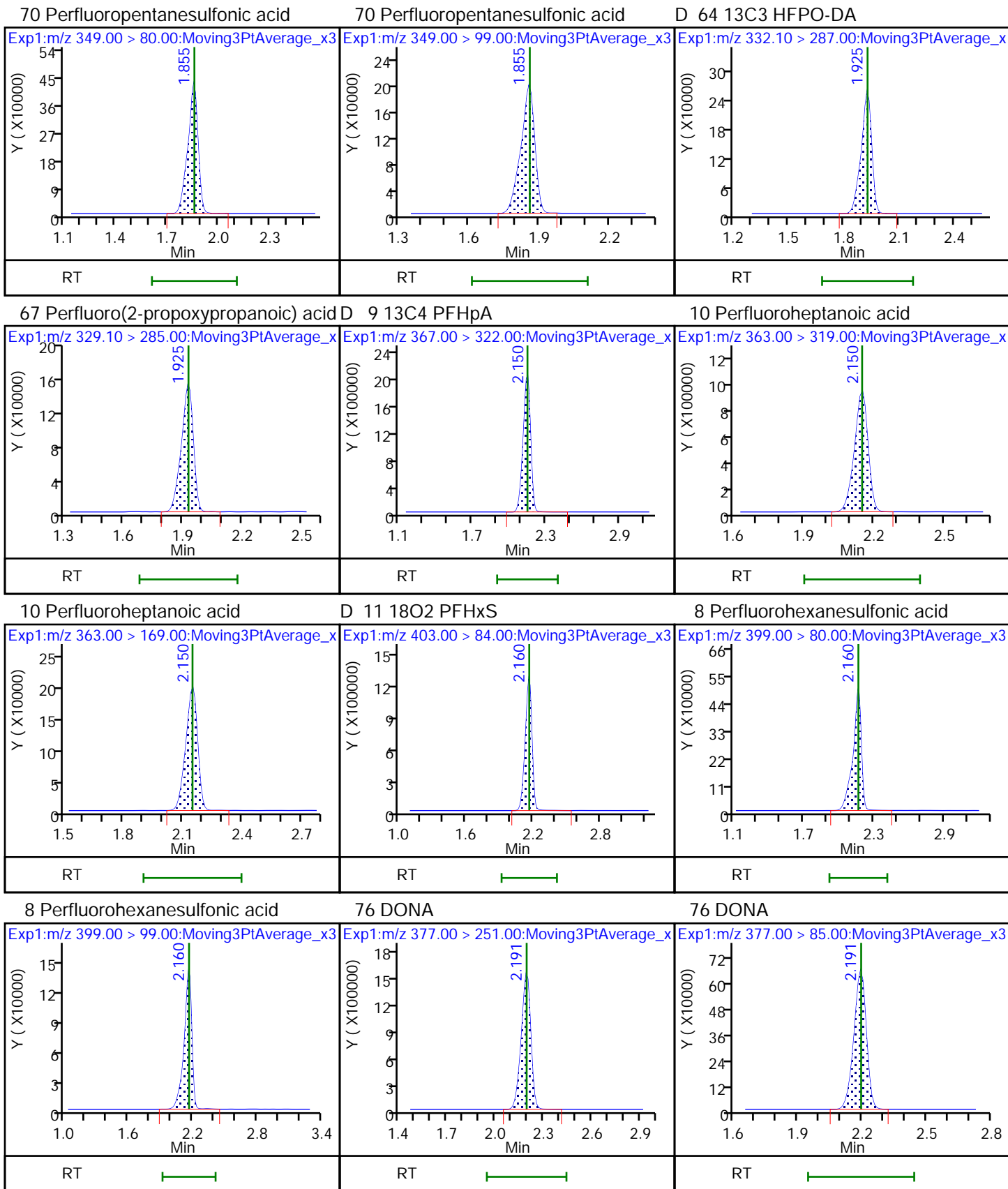


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

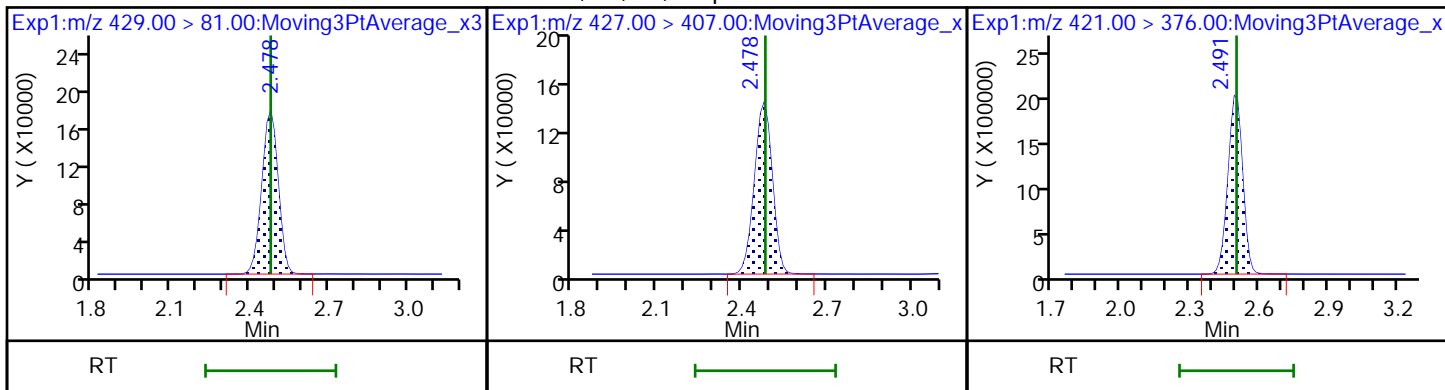
D 7 13C2 PFHxA





D 12 M2-6:2 FTS

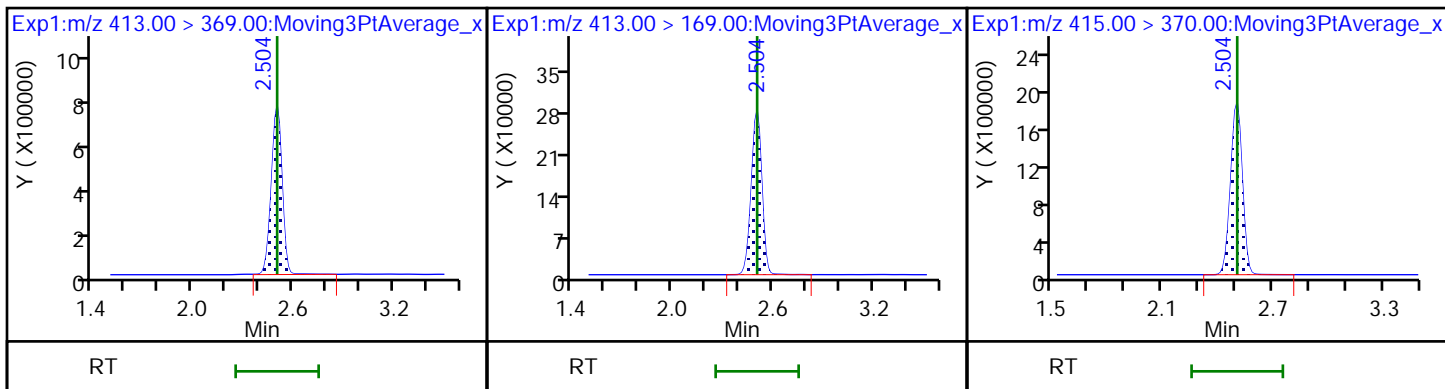
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

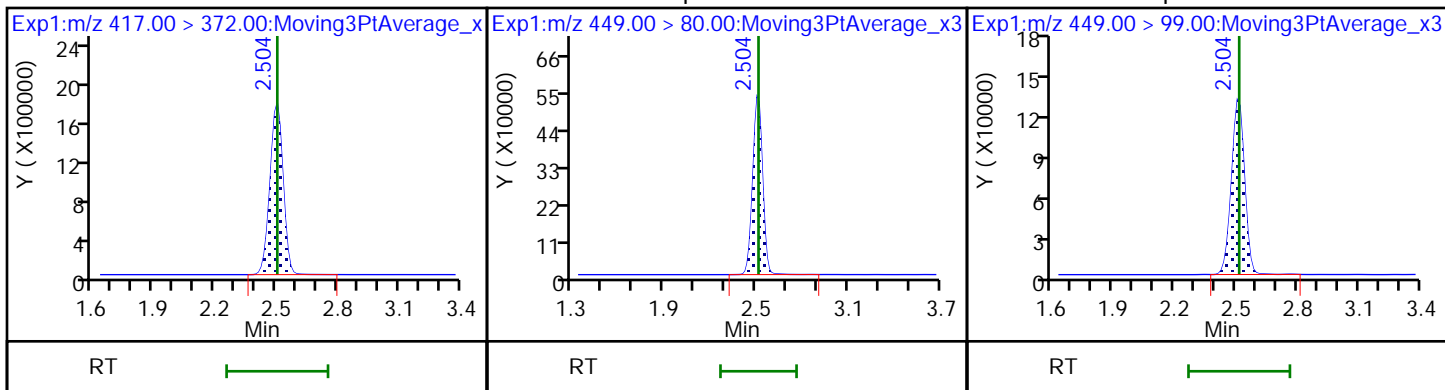
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

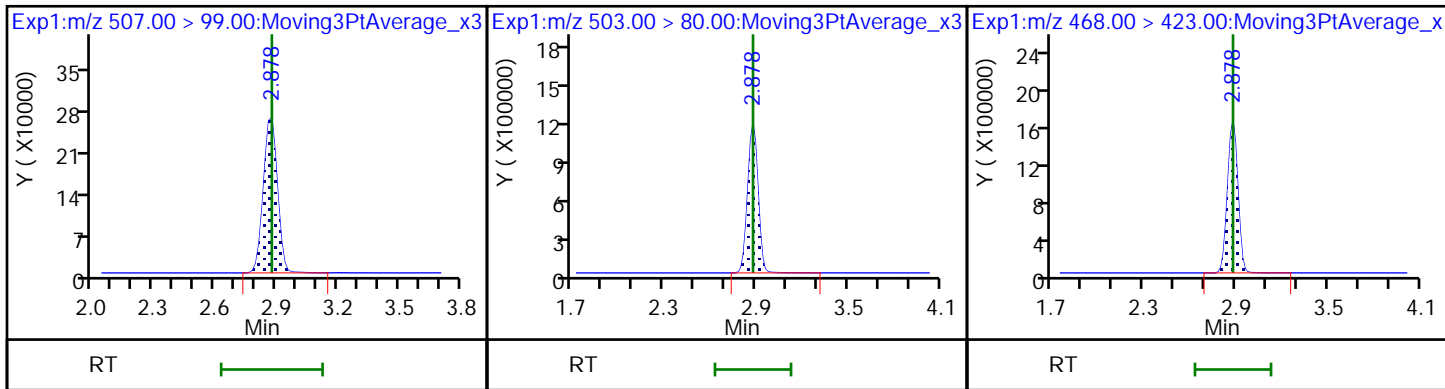
16 Perfluoroheptanesulfonic acid

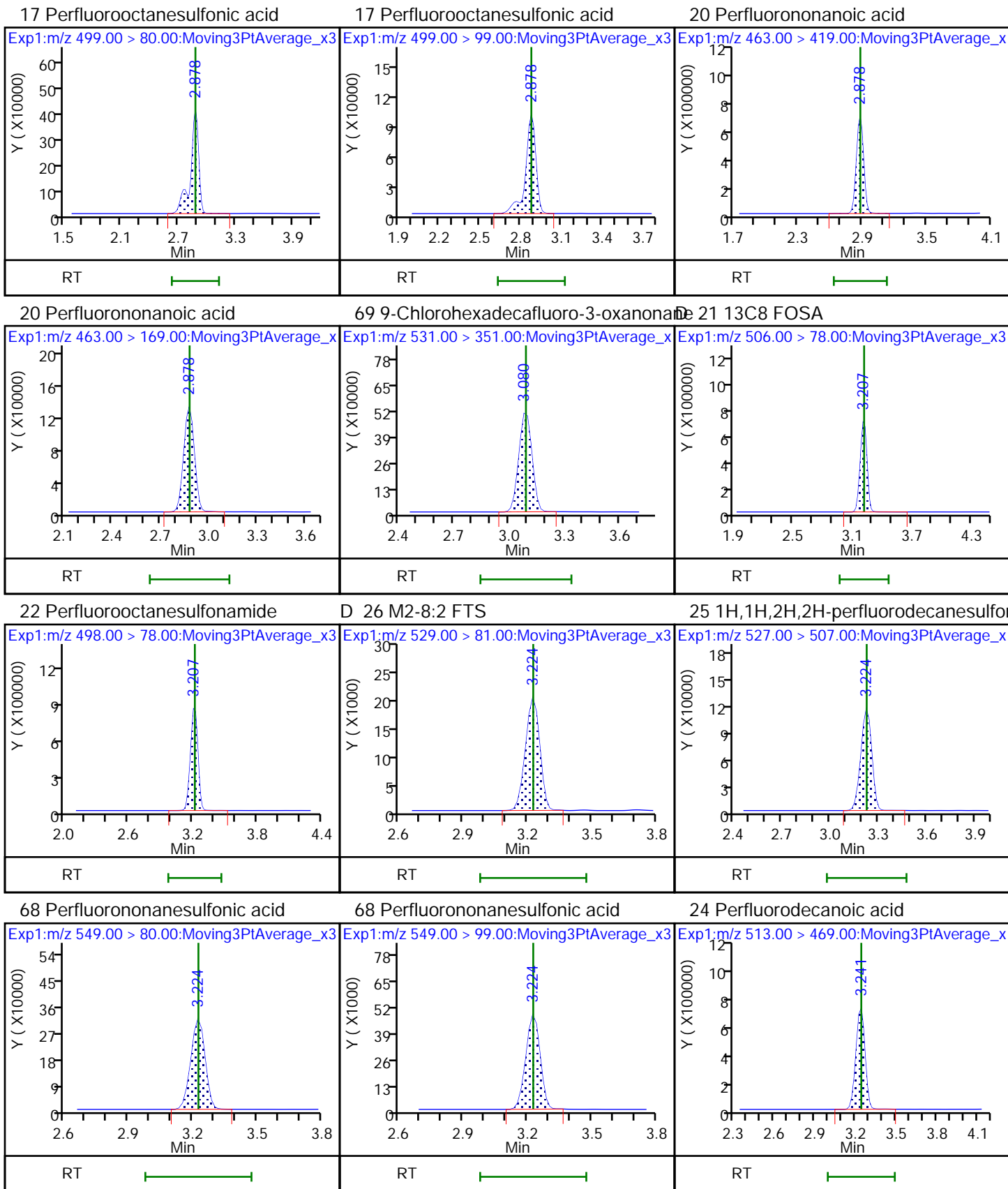


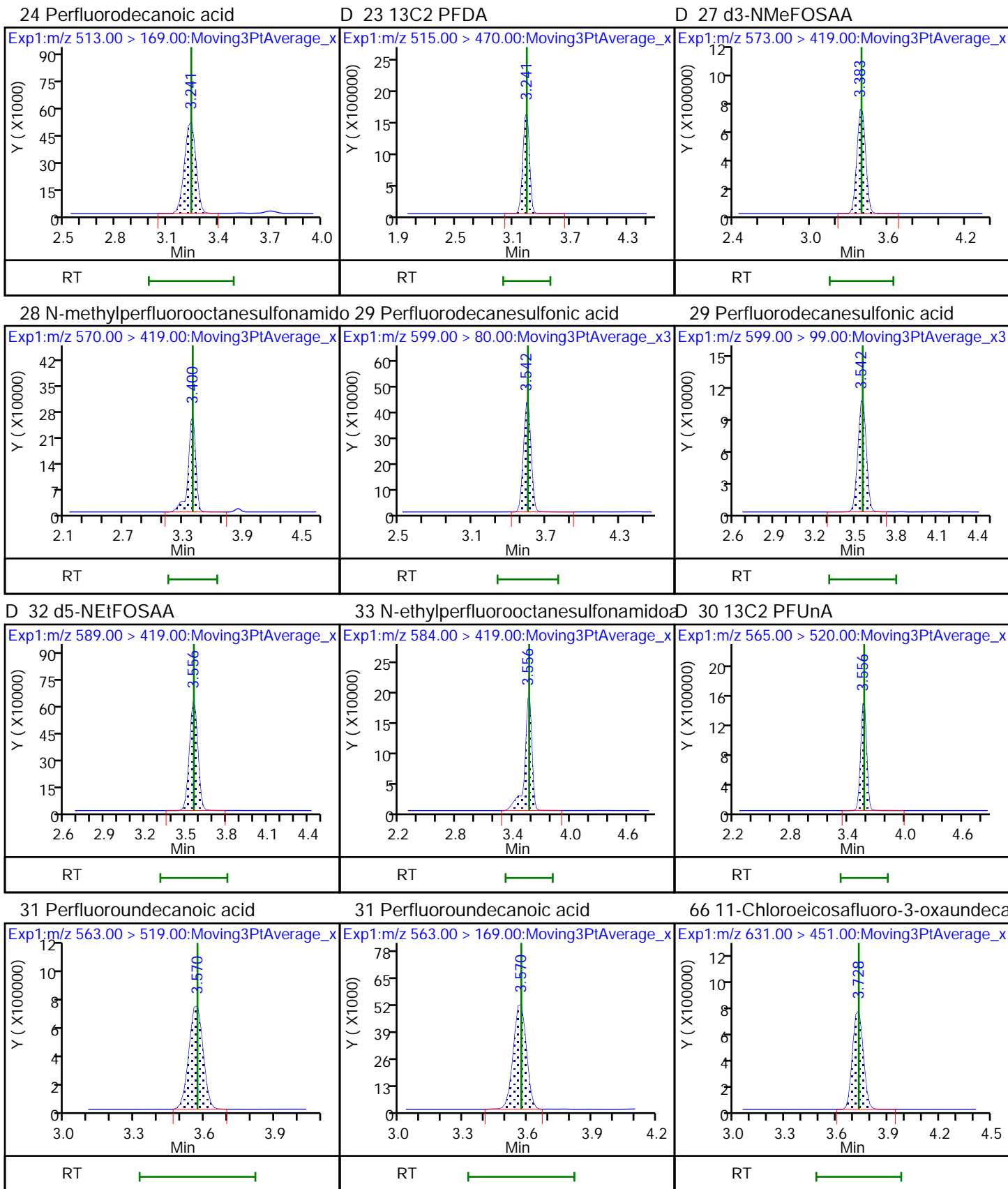
D 72 13C8 PFOS

D 18 13C4 PFOS

D 19 13C5 PFNA



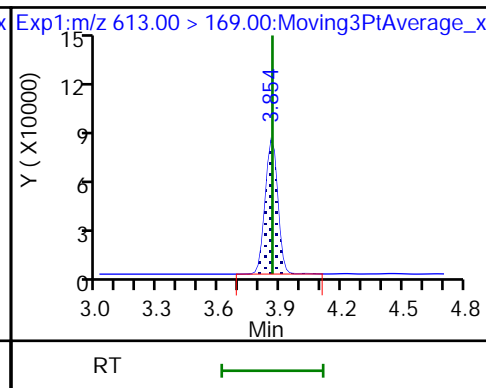
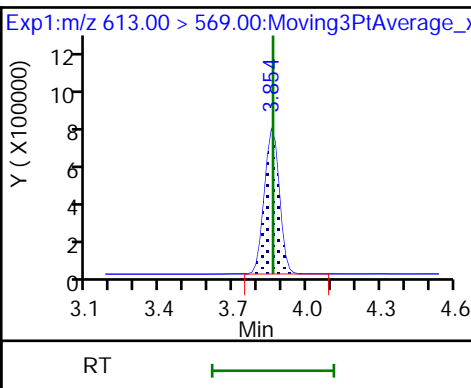
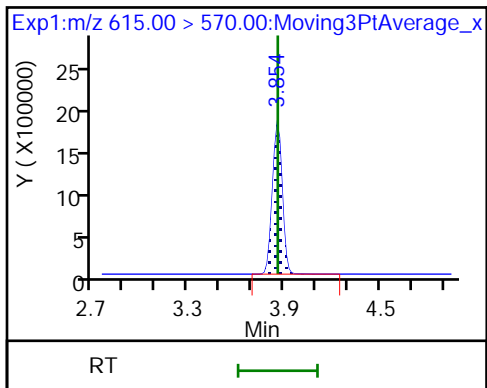




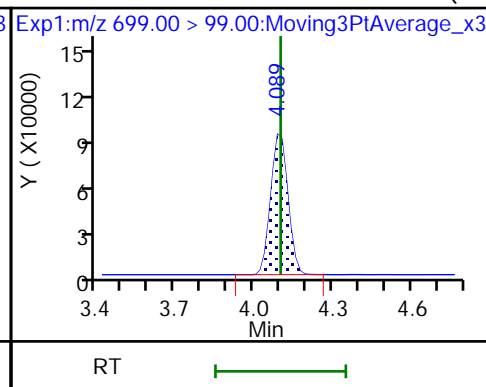
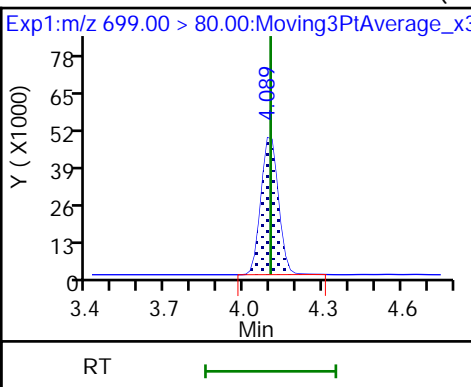
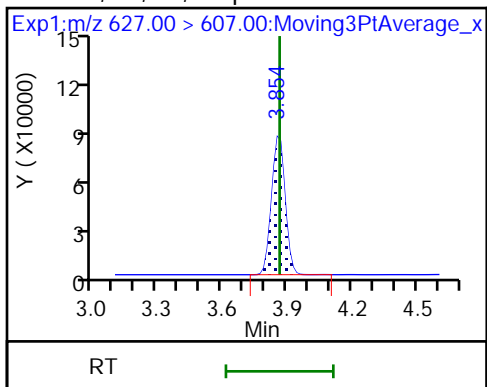
D 36 13C2 PFDaA

37 Perfluorododecanoic acid

37 Perfluorododecanoic acid



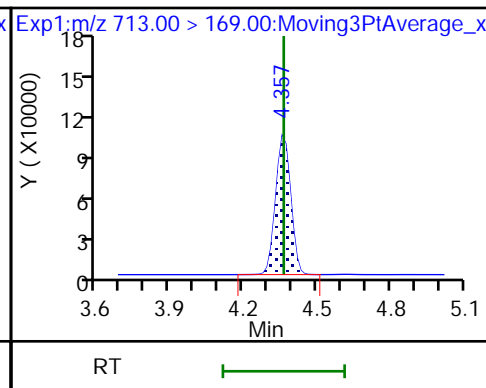
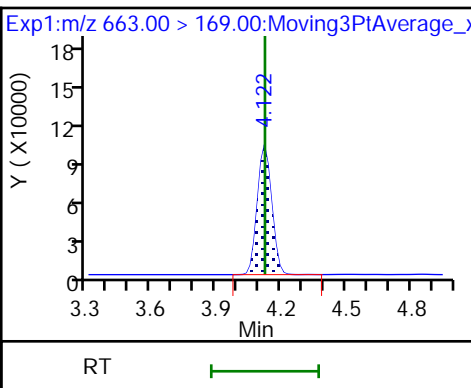
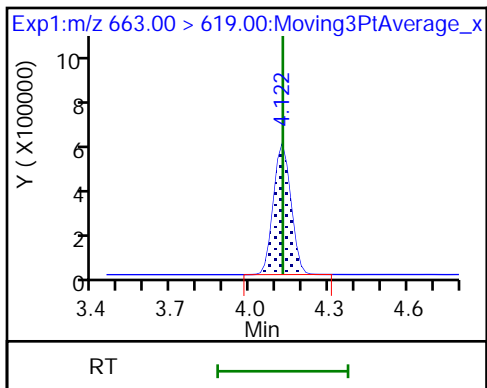
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41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

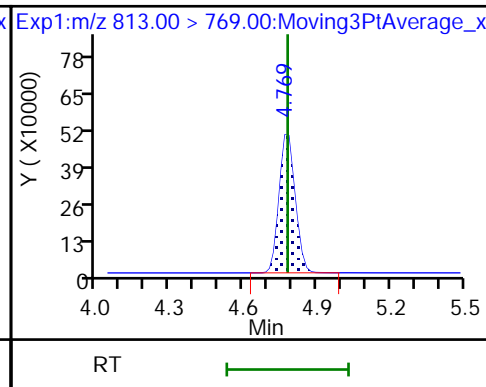
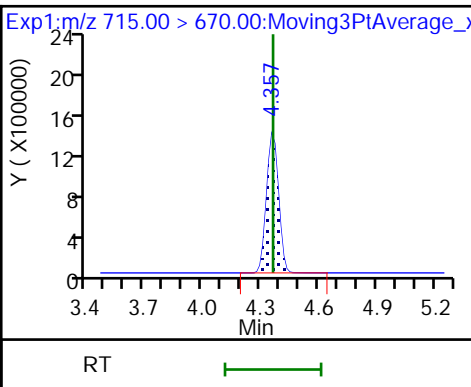
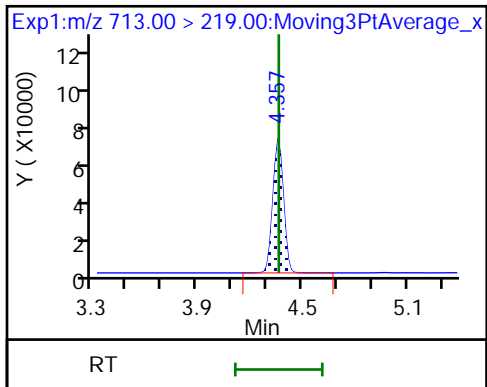
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

D 43 13C2 PFTeDA

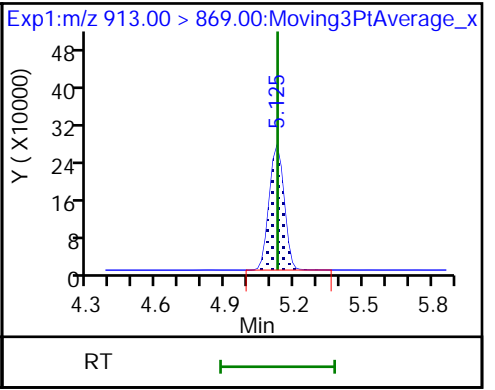
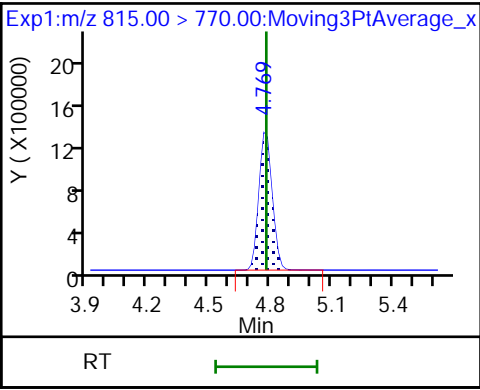
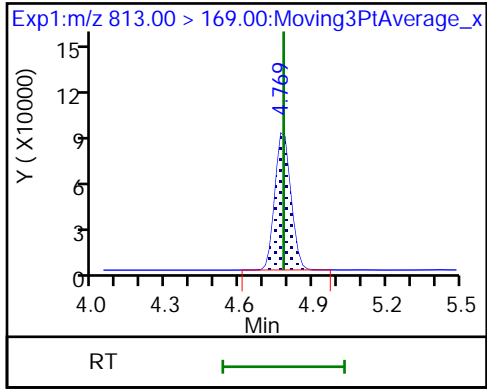
45 Perfluorohexadecanoic acid



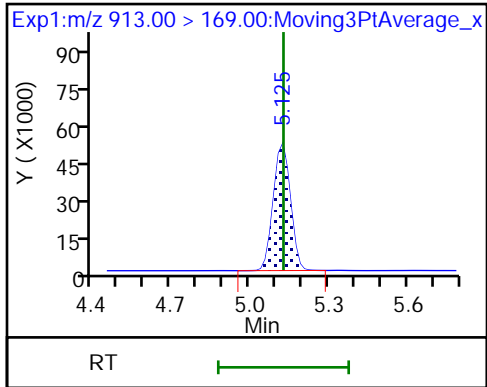
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid





TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_006.d  
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 Client ID:  
 Sample Type: IC Calib Level: 5  
 Inject. Date: 30-Oct-2018 13:42:50 ALS Bottle#: 14 Worklist Smp#: 6  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CAL STD5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 30-Oct-2018 15:08:28 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d

Column 1 : Det: EXP1  
 Process Host: CTX0318

First Level Reviewer: roycea Date: 30-Oct-2018 14:44:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.328	1.323	0.005	0.530	7096057	2.46	98.5	13340	
2 Perfluorobutanoic acid	212.90 > 169.00	1.328	1.324	0.004	1.000	6935084	2.61	104	448	
D 3 13C5 PFPeA	267.90 > 223.00	1.572	1.571	0.001	0.628	6728064	2.45	98.1	10658	
4 Perfluoropentanoic acid	262.90 > 219.00	1.579	1.573	0.006	1.004	6910293	2.56	103	723	
D 47 13C3 PFBS	301.90 > 83.00	1.607	1.603	0.004	0.642	88574	2.34	101	382	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.607	1.607	0.0	1.000	8813587	2.24	101	3348	
	298.90 > 99.00	1.607	1.607	0.0	1.000	3084113	2.86(1.35-4.05)	101	1464	
D 60 M2-4:2 FTS	329.00 > 81.00	1.805	1.804	0.001	0.721	726046	2.39	102	805	
61 1H,1H,2H,2H-perfluorohexanesulfoni	327.00 > 307.00	1.814	1.805	0.009	1.129	1770078	2.26	96.8	7462	
6 Perfluorohexanoic acid	313.00 > 269.00	1.839	1.836	0.003	1.000	6603393	2.58	103	1408	
	313.00 > 119.00	1.839	1.836	0.003	1.000	479882	13.76(6.96-20.87)	103	1478	
D 7 13C2 PFHxA	315.00 > 270.00	1.839	1.836	0.003	0.734	7124163	2.46	98.6	11800	
70 Perfluoropentanesulfonic acid	349.00 > 80.00	1.865	1.859	0.006	1.160	4350475	2.39	102	5669	
	349.00 > 99.00	1.865	1.859	0.006	1.160	2022101	2.15(1.15-3.45)	102	3392	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.935	1.928	0.007	0.773	811818	2.17	86.9	3564	

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	1.935	1.928	0.007	1.000	1517762	2.81	112	1260
D 9 13C4 PFHpA	367.00	> 322.00	2.150	2.148	0.002	0.858	8457730	2.49	99.5	10271
10 Perfluoroheptanoic acid	363.00	> 319.00	2.150	2.148	0.002	1.000	9095717	2.53	101	1989
	363.00	> 169.00	2.150	2.148	0.002	1.000	1981726	4.59(2.17-6.52)	101	4509
D 11 18O2 PFHxS	403.00	> 84.00	2.170	2.164	0.006	0.867	5068038	2.29	96.9	5870
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.170	2.164	0.006	1.000	5988235	2.22	97.5	3542
	399.00	> 99.00	2.170	2.164	0.006	1.000	1619653	3.70(1.90-5.70)	97.5	1628
76 DONA	377.00	> 251.00	2.201	2.194	0.007	0.765	14510088	2.36	100	13157
	377.00	> 85.00	2.201	2.194	0.007	0.765	6805149	2.13(1.13-3.39)	100	8971
D 12 M2-6:2 FTS	429.00	> 81.00	2.478	2.478	0.0	0.990	718321	2.30	96.7	1180
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.478	2.482	-0.004	1.000	1504047	2.28	96.2	2446
D 73 13C8 PFOA	421.00	> 376.00	2.504	2.501	0.003		8069436	2.35	95.8	8750
15 Perfluorooctanoic acid	413.00	> 369.00	2.504	2.504	0.0	1.000	8061840	2.37	94.9	915
	413.00	> 169.00	2.504	2.504	0.0	1.000	2917072	2.76(1.36-4.08)	94.9	3573
* 62 13C2 PFOA	415.00	> 370.00	2.504	2.504	0.0		7911622	2.50		6704
D 14 13C4 PFOA	417.00	> 372.00	2.504	2.504	0.0	1.000	7852766	2.52	101	8052
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.517	2.514	0.003	0.875	5535119	2.35	98.8	3593
	449.00	> 99.00	2.517	2.514	0.003	0.875	1378689	4.01(1.84-5.53)	98.8	3101
D 72 13C8 PFOS	507.00	> 99.00	2.877	2.877	0.0		1144434	2.32	96.9	2983
D 18 13C4 PFOS	503.00	> 80.00	2.877	2.877	0.0	1.149	5406507	2.42	101	4175
D 19 13C5 PFNA	468.00	> 423.00	2.877	2.877	0.0	1.149	6973212	2.42	96.9	7195
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.877	2.877	0.0	1.000	5484091	2.25	97.0	1440
	499.00	> 99.00	2.877	2.877	0.0	1.000	1333379	4.11(2.04-6.12)	97.0	3648
20 Perfluorononanoic acid	463.00	> 419.00	2.877	2.880	-0.003	1.000	7169818	2.57	103	493
	463.00	> 169.00	2.877	2.880	-0.003	1.000	1349849	5.31(2.68-8.03)	103	3745
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.080	3.091	-0.011	1.070	6364125	2.54	109	3438
D 21 13C8 FOSA	506.00	> 78.00	3.207	3.217	-0.010	1.281	3164375	2.56	102	4819

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
22 Perfluorooctanesulfonamide	498.00 > 78.00	3.224	3.219	0.005	1.005	9528139	2.51	100	5957	
D 26 M2-8:2 FTS	529.00 > 81.00	3.224	3.226	-0.002	1.287	87541	2.26	94.3	549	
25 1H,1H,2H,2H-perfluorodecanesulfoni	527.00 > 507.00	3.224	3.226	-0.002	1.000	1276920	2.45	102	6003	
68 Perfluorononanesulfonic acid	549.00 > 80.00	3.224	3.226	-0.002	1.120	3390136	2.44	102	4410	
549.00 > 99.00	3.224	3.226	-0.002	1.120	553807	6.12(3.02-9.05)	102	3025		
24 Perfluorodecanoic acid	513.00 > 469.00	3.241	3.241	0.0	1.000	8218144	2.56	103	1279	
513.00 > 169.00	3.241	3.241	0.0	1.000	546145	15.05(7.12-21.35)	103	407		
D 23 13C2 PFDA	515.00 > 470.00	3.241	3.241	0.0	1.294	7385145	2.49	99.7	6468	
D 27 d3-NMeFOSAA	573.00 > 419.00	3.383	3.392	-0.009	1.351	3175263	2.48	99.1	4556	
28 N-methylperfluorooctanesulfonamido	570.00 > 419.00	3.399	3.399	0.0	1.005	3175990	2.50	100	1037	
29 Perfluorodecanesulfonic acid	599.00 > 80.00	3.556	3.552	0.004	1.236	4774486	2.44	101	3676	
599.00 > 99.00	3.556	3.552	0.004	1.236	966121	4.94(2.14-6.43)	101	2738		
D 32 d5-NEtFOSAA	589.00 > 419.00	3.556	3.558	-0.002	1.420	2474486	2.37	94.8	2973	
33 N-ethylperfluorooctanesulfonamidoa	584.00 > 419.00	3.570	3.566	0.004	1.004	2348124	2.59	104	4211	
D 30 13C2 PFUnA	565.00 > 520.00	3.570	3.568	0.002	1.426	6090025	2.46	98.4	9250	
31 Perfluoroundecanoic acid	563.00 > 519.00	3.570	3.570	0.0	1.000	6541446	2.36	94.5	1719	
563.00 > 169.00	3.570	3.570	0.0	1.000	544277	12.02(5.24-15.72)	94.5	2146		
35 MeFOSA	512.00 > 169.00	3.728	3.724	0.004		1842581	NC		4316	
66 11-Chloroeicosafuoro-3-oxaundecan	631.00 > 451.00	3.728	3.728	0.0	1.296	7036758	2.24	95.3	9725	
D 36 13C2 PFDoA	615.00 > 570.00	3.854	3.859	-0.005	1.539	7389170	2.42	96.9	10802	
37 Perfluorododecanoic acid	613.00 > 569.00	3.854	3.861	-0.007	1.000	7618201	2.53	101	2372	
613.00 > 169.00	3.854	3.861	-0.007	1.000	869449	8.76(4.68-14.05)	101	1249		
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00 > 607.00	3.869	3.865	0.004	1.200	989043	2.68	111	2180	
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	3.912	3.912	0.0		1952472	NC		3798	
75 Perfluorododecanesulfonic acid (PF	699.00 > 80.00	4.106	4.101	0.005	1.427	521826	2.39	98.9	2164	
699.00 > 99.00	4.106	4.101	0.005	1.427	977782	0.53(0.28-0.83)	98.9	2617		

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	4.122	4.125	-0.003	1.069	6025241	2.49		99.7	3585	
663.00 > 169.00	4.122	4.125	-0.003	1.069	1031783		5.84(3.09-9.27)	99.7	3430	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.357	4.364	-0.007	1.000	979697	2.22		88.7	3175	
713.00 > 219.00	4.357	4.364	-0.007	1.000	713446		1.37(0.70-2.09)	88.7	2142	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.357	4.364	-0.007	1.740	6040135	2.65		106	8237	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.784	4.780	0.004	1.000	4941811	2.44		97.6	5621	
813.00 > 169.00	4.784	4.780	0.004	1.000	911676		5.42(2.77-8.32)	97.6	2309	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.784	4.780	0.004	1.910	5557826	2.45		98.2	13785	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.125	5.127	-0.002	1.071	2774364	2.52		101	5259	
913.00 > 169.00	5.125	5.127	-0.002	1.071	537476		5.16(2.55-7.64)	101	2105	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL5\_00009

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_006.d

Injection Date: 30-Oct-2018 13:42:50

Instrument ID: A9

Lims ID: IC L5 Full

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 14

Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

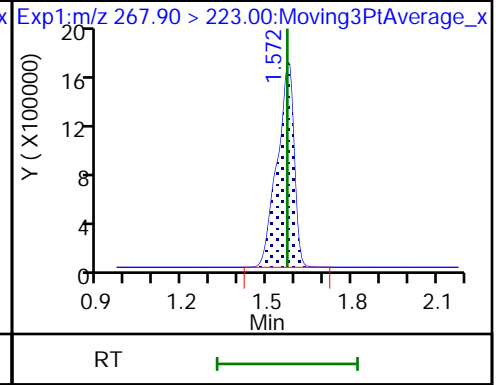
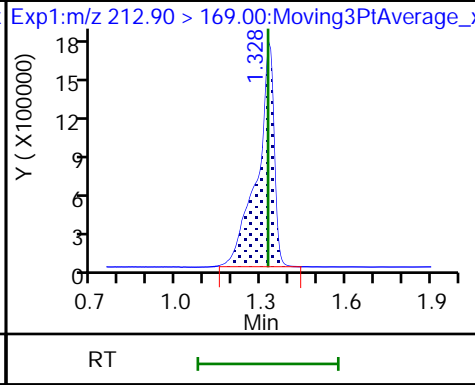
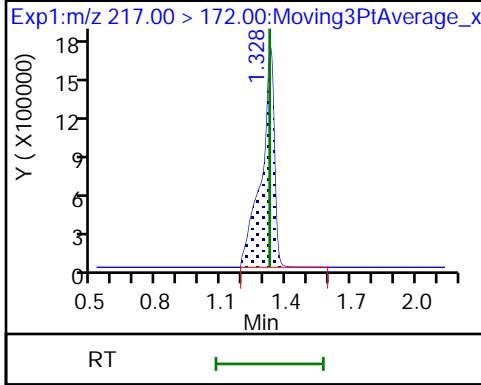
Method: PFAS\_A9

Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

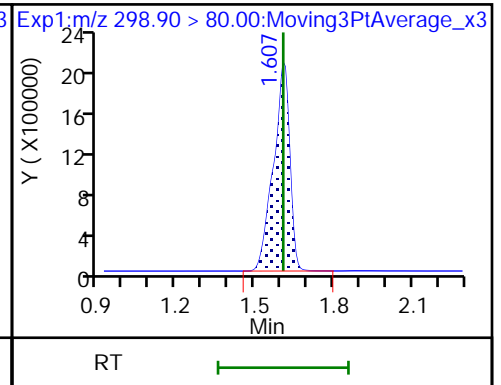
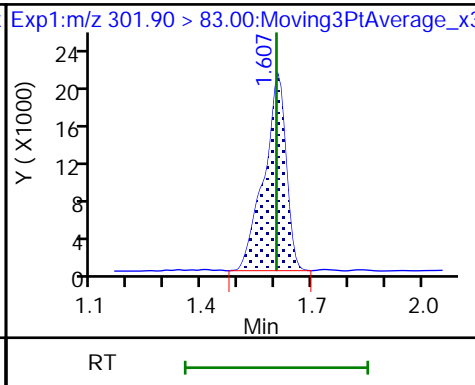
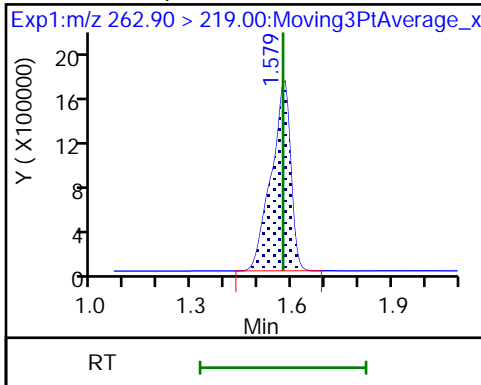
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 47 13C3 PFBS

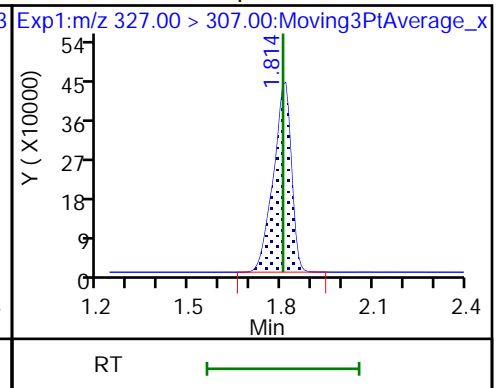
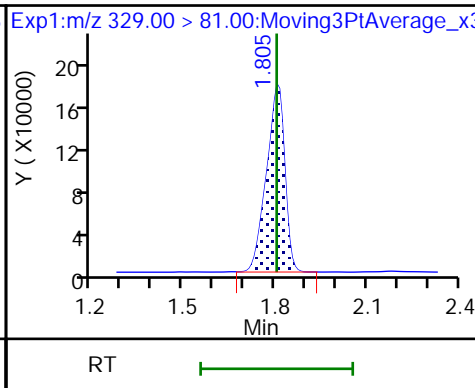
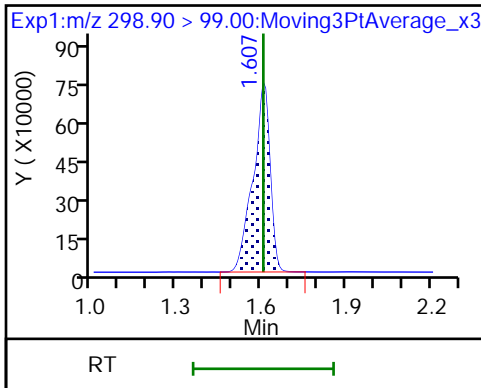
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

D 60 M2-4:2 FTS

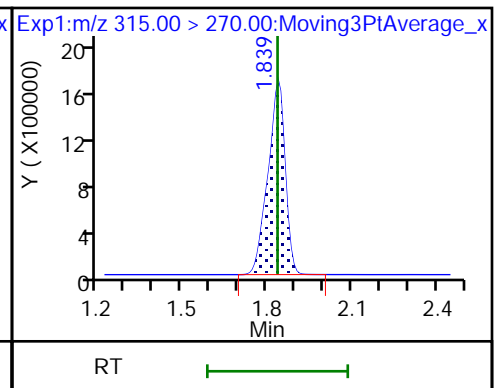
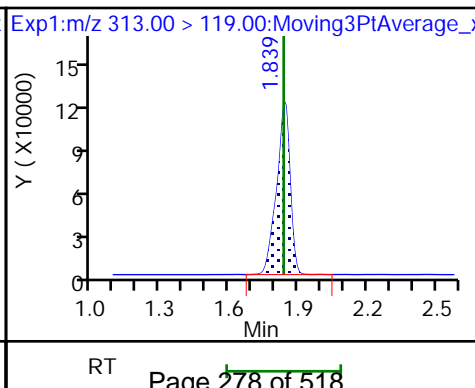
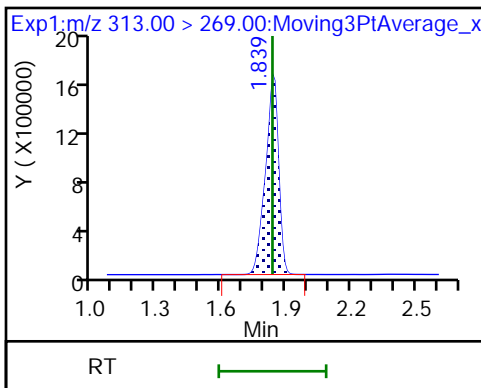
61 1H,1H,2H,2H-perfluorohexanesulfoni

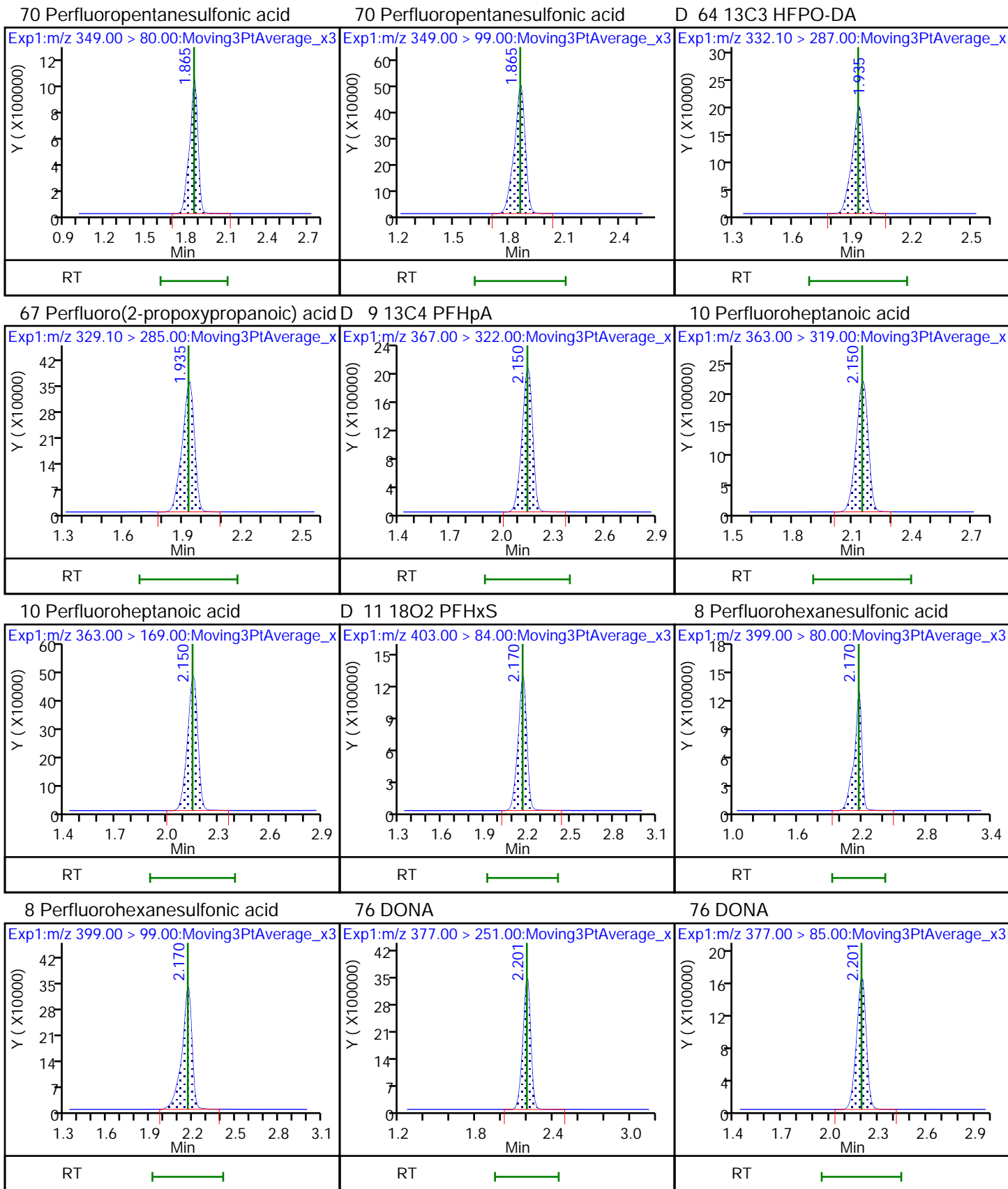


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

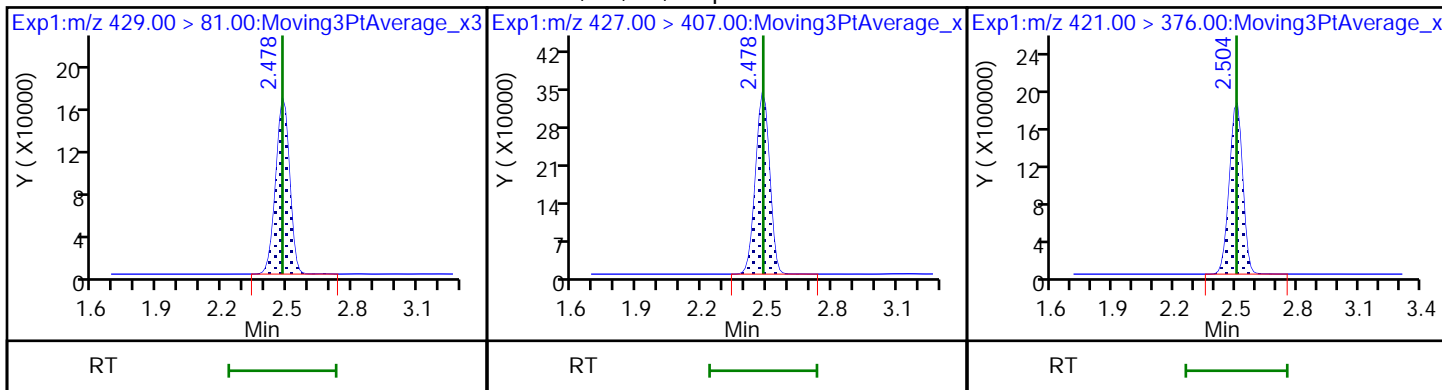
D 7 13C2 PFHxA





D 12 M2-6:2 FTS

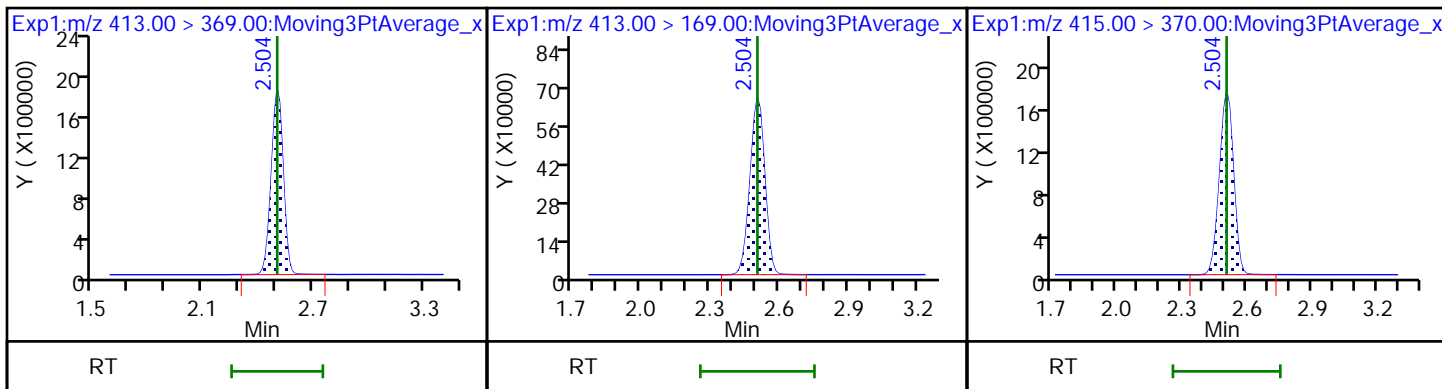
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

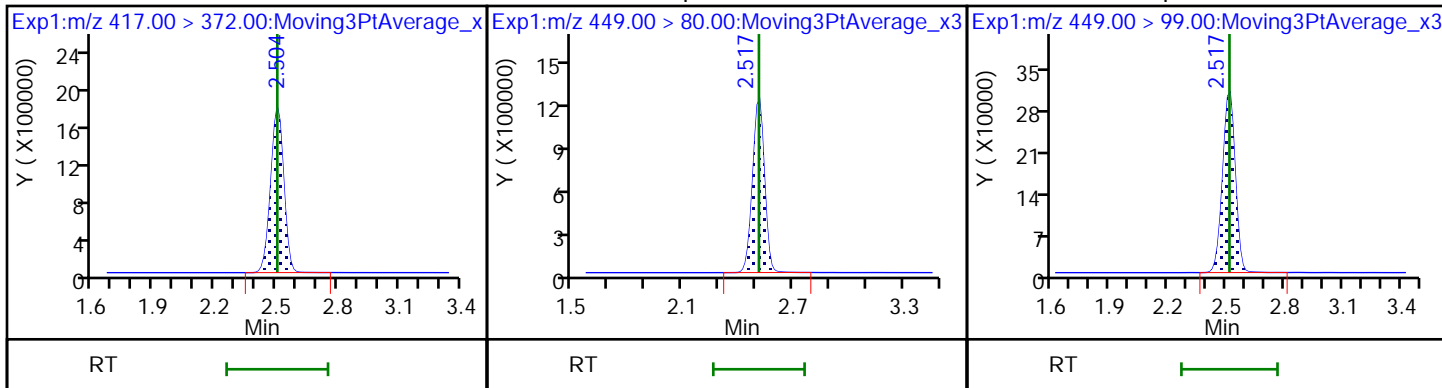
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

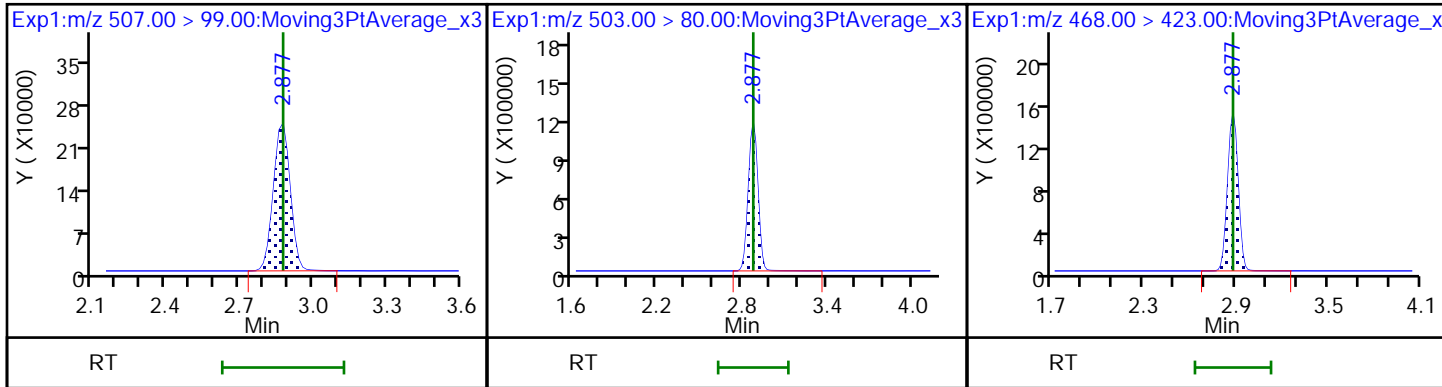
16 Perfluoroheptanesulfonic acid

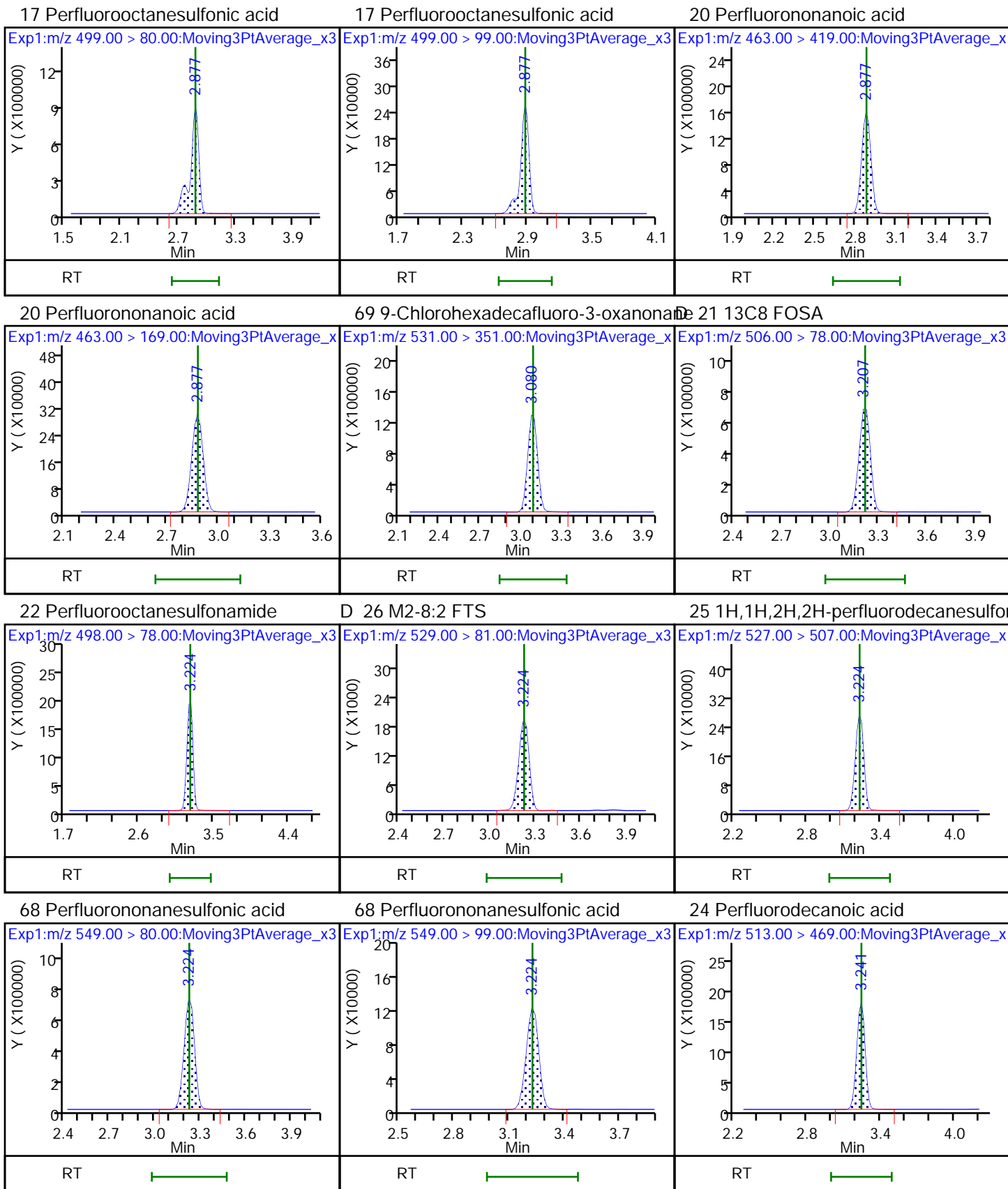


D 72 13C8 PFOS

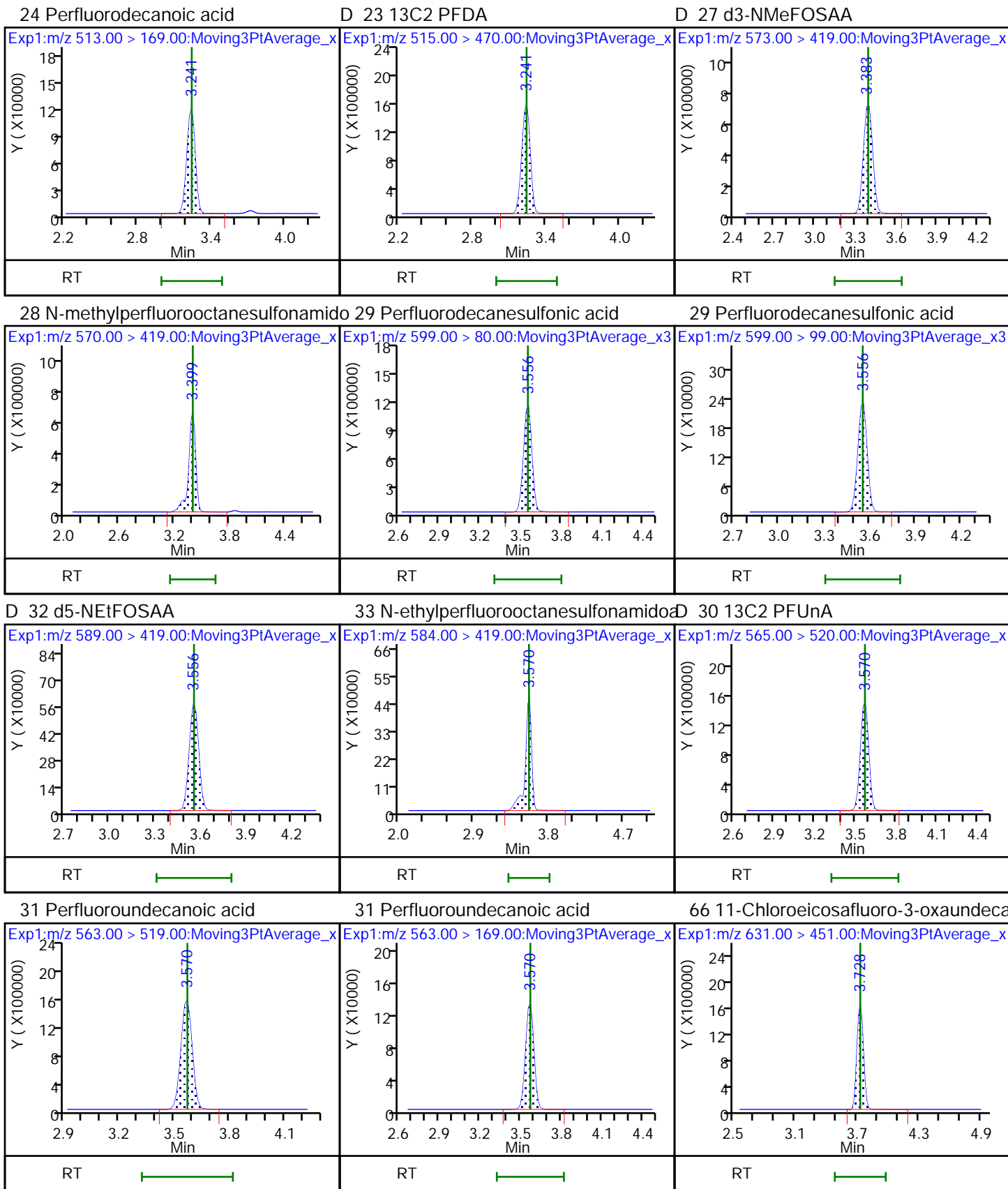
D 18 13C4 PFOS

D 19 13C5 PFNA





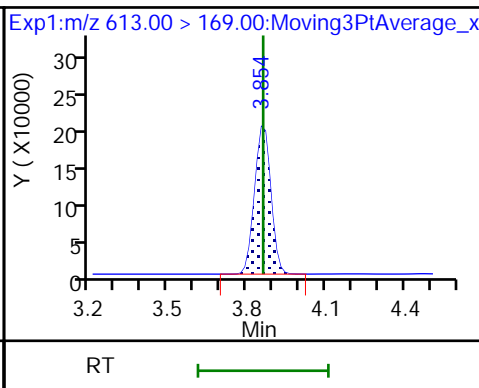
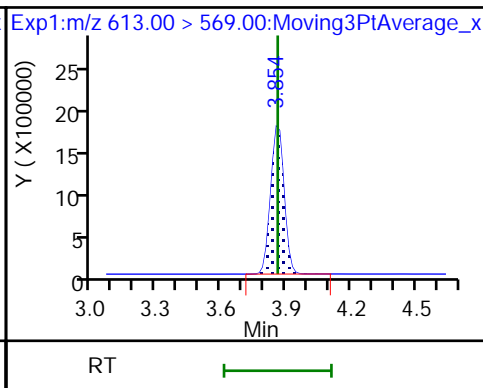
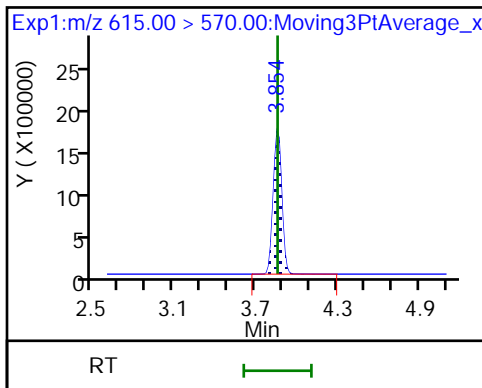




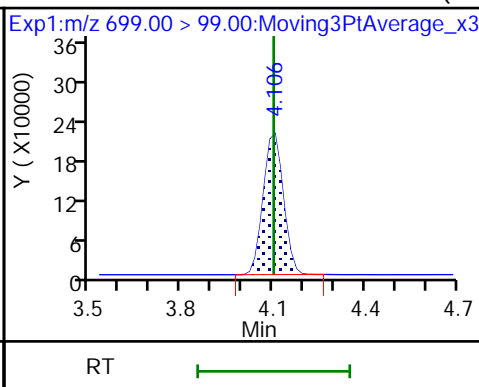
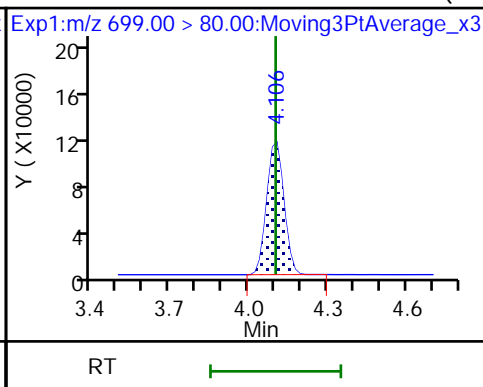
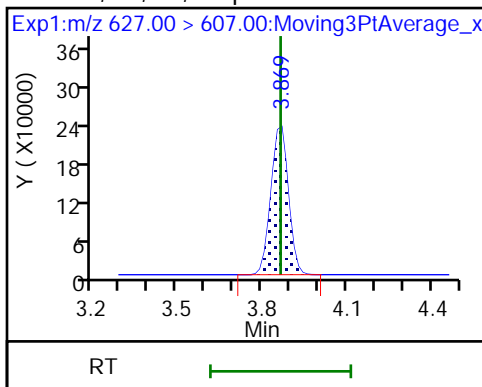
D 36 13C2 PFDaA

37 Perfluorododecanoic acid

37 Perfluorododecanoic acid



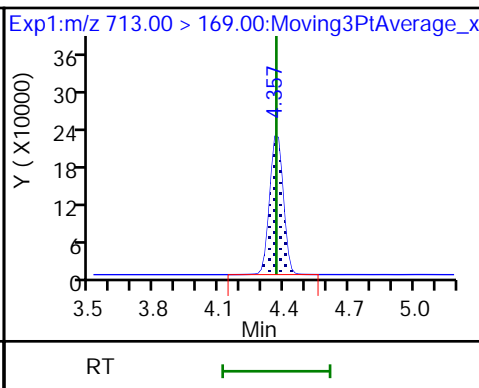
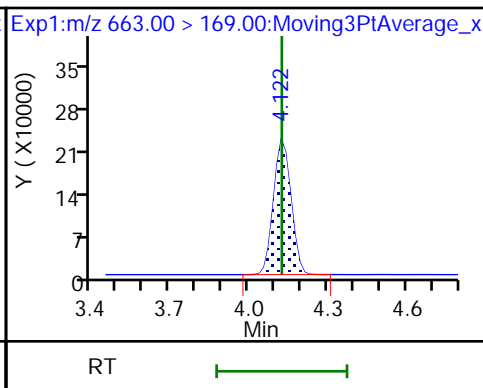
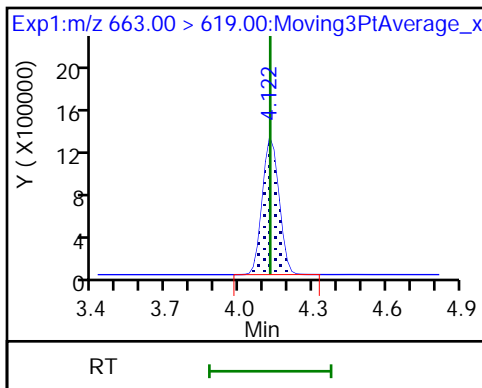
74 1H,1H,2H,2H-perfluorododecanesulfonate 75 Perfluorododecanesulfonic acid (PF) 75 Perfluorododecanesulfonic acid (PF)



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

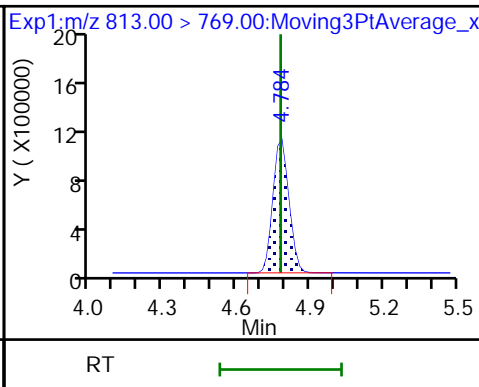
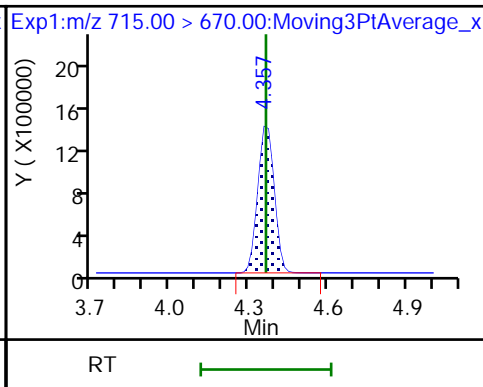
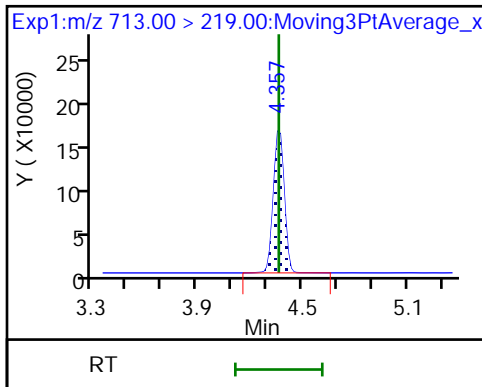
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

D 43 13C2 PFTeDA

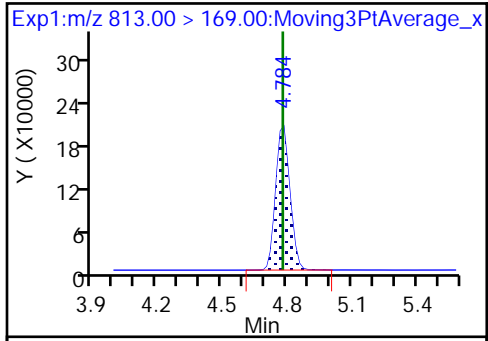
45 Perfluorohexadecanoic acid



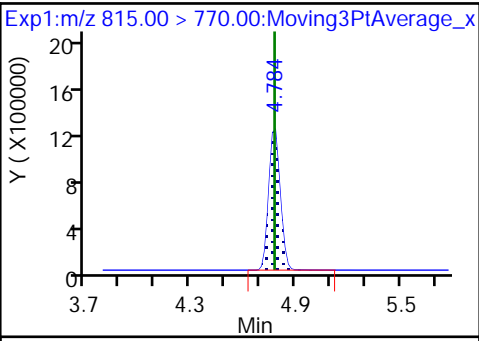
45 Perfluorohexadecanoic acid

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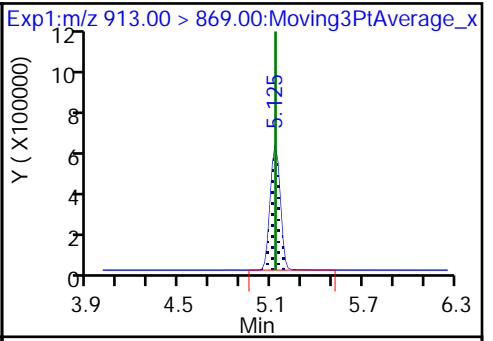
46 Perfluorooctadecanoic acid



RT



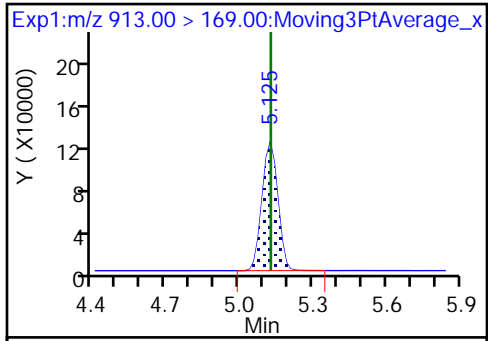
RT



RT



46 Perfluorooctadecanoic acid



RT



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_007.d  
 Lims ID: IC L6 Full  
 Client ID:  
 Sample Type: IC Calib Level: 6  
 Inject. Date: 30-Oct-2018 13:50:20 ALS Bottle#: 15 Worklist Smp#: 7  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CAL STD6  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 30-Oct-2018 15:08:37 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d

Column 1 : Det: EXP1  
 Process Host: CTX0318

First Level Reviewer: roycea Date: 30-Oct-2018 14:45:32

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	1.323	1.323	0.0	0.528	7625617	2.55	102	15193	
2 Perfluorobutanoic acid	212.90 > 169.00	1.323	1.324	-0.001	1.000	14536769	5.09	102	789	
D 3 13C5 PFPeA	267.90 > 223.00	1.572	1.571	0.001	0.628	7396747	2.60	104	12456	
4 Perfluoropentanoic acid	262.90 > 219.00	1.572	1.573	-0.001	1.000	13910441	4.70	93.9	1454	
D 47 13C3 PFBS	301.90 > 83.00	1.607	1.603	0.004	0.642	94698	2.41	103	471	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.607	1.607	0.0	1.000	17754525	4.22	95.5	6015	
	298.90 > 99.00	1.607	1.607	0.0	1.000	6710342	2.65(1.35-4.05)	95.5	3249	
D 60 M2-4:2 FTS	329.00 > 81.00	1.805	1.804	0.001	0.721	748516	2.37	101	1036	
61 1H,1H,2H,2H-perfluorohexanesulfoni	327.00 > 307.00	1.805	1.805	0.0	1.123	3826151	4.57	97.9	15597	
6 Perfluorohexanoic acid	313.00 > 269.00	1.839	1.836	0.003	1.000	13116869	4.68	93.5	2594	
	313.00 > 119.00	1.839	1.836	0.003	1.000	1046166	12.54(6.96-20.87)	93.5	2426	
D 7 13C2 PFHxA	315.00 > 270.00	1.839	1.836	0.003	0.734	7795361	2.60	104	19654	
70 Perfluoropentanesulfonic acid	349.00 > 80.00	1.855	1.859	-0.004	1.155	9237581	4.74	101	8417	
	349.00 > 99.00	1.865	1.859	0.006	1.160	4428064	2.09(1.15-3.45)	101	5975	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.925	1.928	-0.003	0.769	975432	2.51	101	4347	

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	1.925	1.928	-0.003	1.000	3262119	5.03	101	2514
D 9 13C4 PFHpA	367.00	> 322.00	2.150	2.148	0.002	0.858	9090699	2.57	103	14089
10 Perfluoroheptanoic acid	363.00	> 319.00	2.150	2.148	0.002	1.000	17588052	4.56	91.2	3374
	363.00	> 169.00	2.150	2.148	0.002	1.000	4320471	4.07(2.17-6.52)	91.2	7270
D 11 18O2 PFHxS	403.00	> 84.00	2.160	2.164	-0.004	0.863	5640005	2.46	104	6306
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.160	2.164	-0.004	1.000	12909524	4.30	94.4	4435
	399.00	> 99.00	2.160	2.164	-0.004	1.000	3508220	3.68(1.90-5.70)	94.4	3859
76 DONA	377.00	> 251.00	2.191	2.194	-0.003	0.761	26844361	4.29	91.0	17630
	377.00	> 85.00	2.191	2.194	-0.003	0.761	13142538	2.04(1.13-3.39)	91.0	14561
D 12 M2-6:2 FTS	429.00	> 81.00	2.478	2.478	0.0	0.990	805491	2.48	104	1648
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.478	2.482	-0.004	1.000	3393467	4.59	96.7	4627
D 73 13C8 PFOA	421.00	> 376.00	2.504	2.501	0.003		8677785	2.52	103	12390
15 Perfluorooctanoic acid	413.00	> 369.00	2.504	2.504	0.0	1.000	15396289	4.38	87.5	1664
	413.00	> 169.00	2.504	2.504	0.0	1.000	6080012	2.53(1.36-4.08)	87.5	7137
* 62 13C2 PFOA	415.00	> 370.00	2.504	2.504	0.0		8218514	2.50		7976
D 14 13C4 PFOA	417.00	> 372.00	2.504	2.504	0.0	1.000	8134347	2.52	101	9658
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.518	2.514	0.004	0.875	11271034	4.70	98.7	4597
	449.00	> 99.00	2.518	2.514	0.004	0.875	2909055	3.87(1.84-5.53)	98.7	4283
D 72 13C8 PFOS	507.00	> 99.00	2.878	2.877	0.001		1171128	2.37	99.2	3380
D 18 13C4 PFOS	503.00	> 80.00	2.878	2.877	0.001	1.149	5508335	2.37	99.2	4758
D 19 13C5 PFNA	468.00	> 423.00	2.878	2.877	0.001	1.149	7268142	2.43	97.2	6950
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.878	2.877	0.001	1.000	11641776	4.69	101	4146
	499.00	> 99.00	2.878	2.877	0.001	1.000	2831269	4.11(2.04-6.12)	101	3325
20 Perfluorononanoic acid	463.00	> 419.00	2.878	2.880	-0.002	1.000	13944627	4.79	95.8	917
	463.00	> 169.00	2.878	2.880	-0.002	1.000	2850644	4.89(2.68-8.03)	95.8	5796
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.098	3.091	0.007	1.077	12093836	4.74	102	4449
D 21 13C8 FOSA	506.00	> 78.00	3.224	3.217	0.007	1.287	3221281	2.51	100	4263

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
22 Perfluorooctanesulfonamide	498.00 > 78.00	3.224	3.219	0.005	1.000	18036052	4.66	93.2	5402	
D 26 M2-8:2 FTS	529.00 > 81.00	3.224	3.226	-0.002	1.287	88674	2.20	92.0	439	
25 1H,1H,2H,2H-perfluorodecanesulfoni	527.00 > 507.00	3.224	3.226	-0.002	1.000	2752003	5.21	109	7593	
68 Perfluorononanesulfonic acid	549.00 > 80.00	3.224	3.226	-0.002	1.120	6878433	4.86	101	6040	
	549.00 > 99.00	3.224	3.226	-0.002	1.120	1151048		5.98(3.02-9.05)	101	3599
24 Perfluorodecanoic acid	513.00 > 469.00	3.241	3.241	0.0	1.000	14692738	4.47	89.4	1933	
	513.00 > 169.00	3.241	3.241	0.0	1.000	1144871		12.83(7.12-21.35)	89.4	549
D 23 13C2 PFDA	515.00 > 470.00	3.241	3.241	0.0	1.294	7567635	2.46	98.3	8007	
D 27 d3-NMeFOSAA	573.00 > 419.00	3.400	3.392	0.008	1.357	3376031	2.54	101	4692	
28 N-methylperfluorooctanesulfonamido	570.00 > 419.00	3.400	3.399	0.001	1.000	6652620	4.93	98.5	1839	
29 Perfluorodecanesulfonic acid	599.00 > 80.00	3.556	3.552	0.004	1.236	10027931	5.03	104	6403	
	599.00 > 99.00	3.556	3.552	0.004	1.236	2164244		4.63(2.14-6.43)	104	4069
D 32 d5-NEtFOSAA	589.00 > 419.00	3.556	3.558	-0.002	1.420	2603455	2.40	96.1	4637	
33 N-ethylperfluorooctanesulfonamidoa	584.00 > 419.00	3.570	3.566	0.004	1.004	4850297	5.09	102	7176	
D 30 13C2 PFUnA	565.00 > 520.00	3.570	3.568	0.002	1.426	6465285	2.51	101	10824	
31 Perfluoroundecanoic acid	563.00 > 519.00	3.570	3.570	0.0	1.000	12933591	4.40	88.0	2957	
	563.00 > 169.00	3.570	3.570	0.0	1.000	1123709		11.51(5.24-15.72)	88.0	3359
35 MeFOSA	512.00 > 169.00	3.728	3.724	0.004		3856756	NC		3403	
66 11-Chloroeicosafuoro-3-oxaundecan	631.00 > 451.00	3.728	3.728	0.0	1.296	13842083	4.33	92.0	7836	
D 36 13C2 PFDoA	615.00 > 570.00	3.854	3.859	-0.005	1.539	7952822	2.51	100	10156	
37 Perfluorododecanoic acid	613.00 > 569.00	3.869	3.861	0.008	1.004	14298498	4.42	88.4	3592	
	613.00 > 169.00	3.854	3.861	-0.007	1.000	1759344		8.13(4.68-14.05)	88.4	2501
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00 > 607.00	3.869	3.865	0.004	1.200	1960545	5.24	109	2950	
39 N-ethylperfluoro-1-octanesulfonami	526.00 > 169.00	3.912	3.912	0.0		4191806	NC		5253	
75 Perfluorododecanesulfonic acid (PF	699.00 > 80.00	4.106	4.101	0.005	1.427	1136910	5.12	106	3423	
	699.00 > 99.00	4.106	4.101	0.005	1.427	2165299		0.53(0.28-0.83)	106	6071

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	4.122	4.125	-0.003	1.069	11788226	4.53		90.7	6499	
663.00 > 169.00	4.122	4.125	-0.003	1.069	2239518		5.26(3.09-9.27)	90.7	5466	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.373	4.364	0.009	1.000	1942558	4.44		88.8	5168	
713.00 > 219.00	4.373	4.364	0.009	1.000	1357900		1.43(0.70-2.09)	88.8	4662	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.373	4.364	0.009	1.746	5984835	2.53		101	8326	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.784	4.780	0.004	1.000	10698193	5.00		100	9809	
813.00 > 169.00	4.784	4.780	0.004	1.000	2135265		5.01(2.77-8.32)	100	4186	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.784	4.780	0.004	1.910	5899292	2.51		100	11981	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.125	5.127	-0.002	1.071	6209643	5.32		106	7552	
913.00 > 169.00	5.125	5.127	-0.002	1.071	1291956		4.81(2.55-7.64)	106	5082	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL6\_00010

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_007.d

Injection Date: 30-Oct-2018 13:50:20

Instrument ID: A9

Lims ID: IC L6 Full

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 15

Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

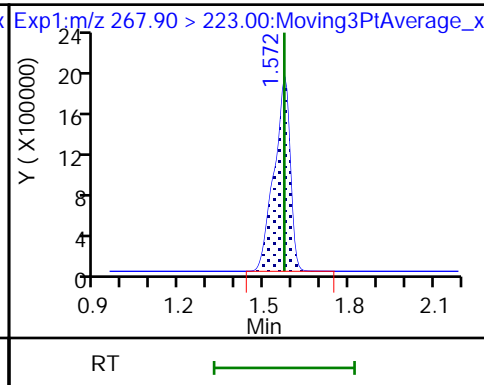
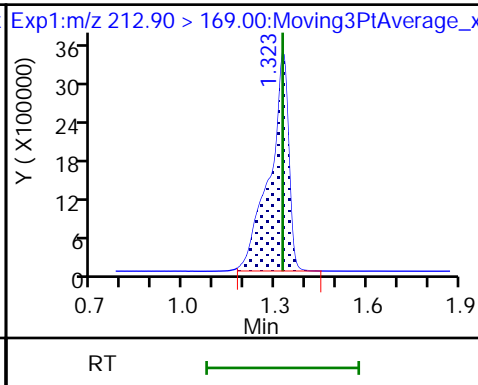
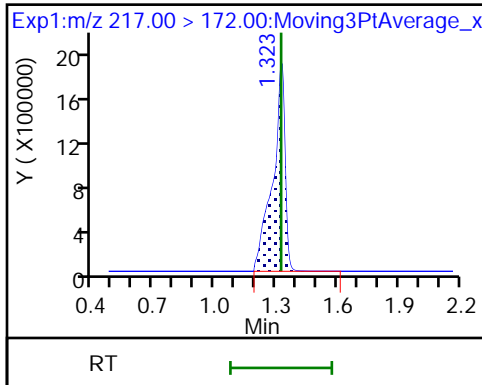
Method: PFAS\_A9

Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

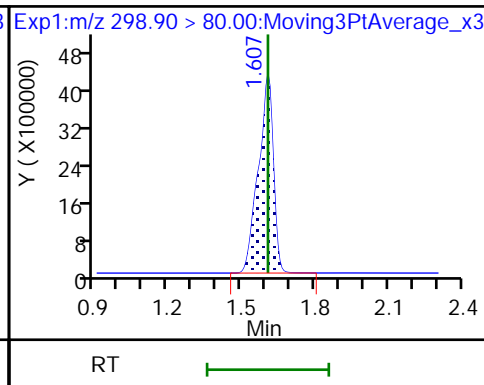
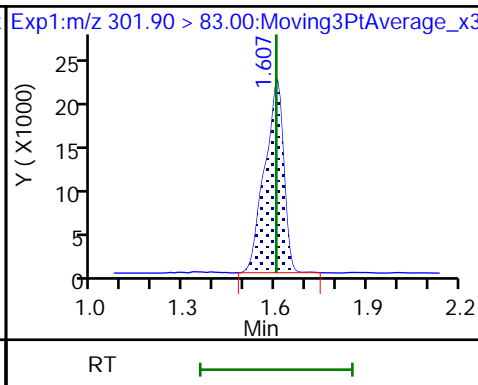
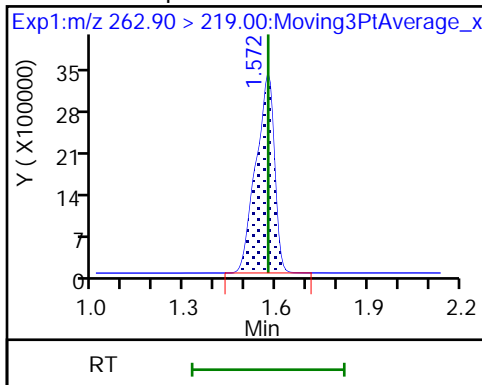
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 47 13C3 PFBS

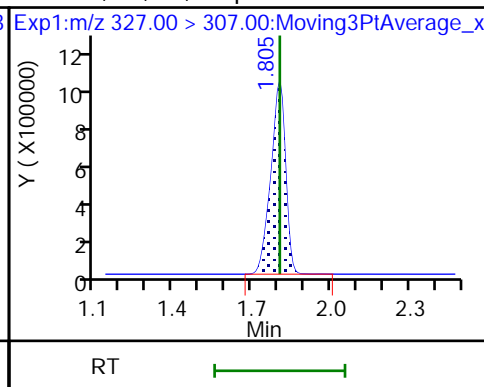
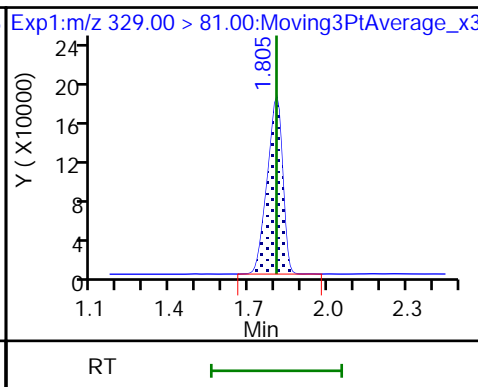
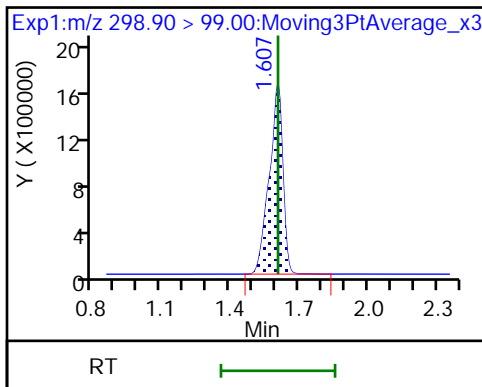
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

D 60 M2-4:2 FTS

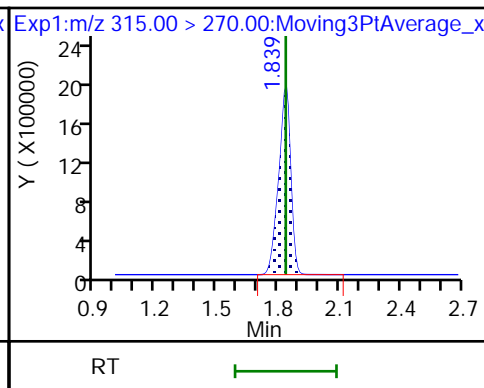
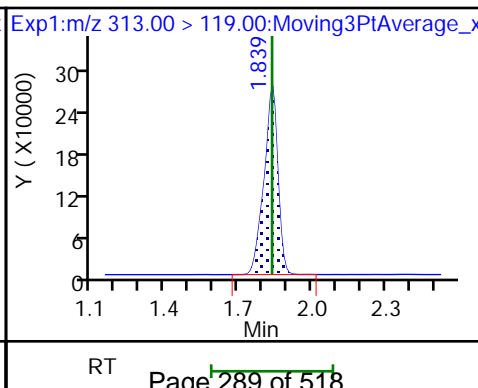
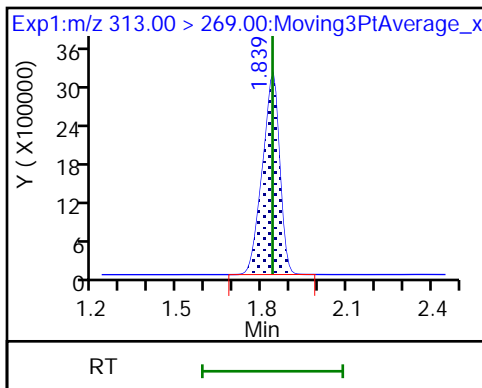
61 1H,1H,2H,2H-perfluorohexanesulfoni



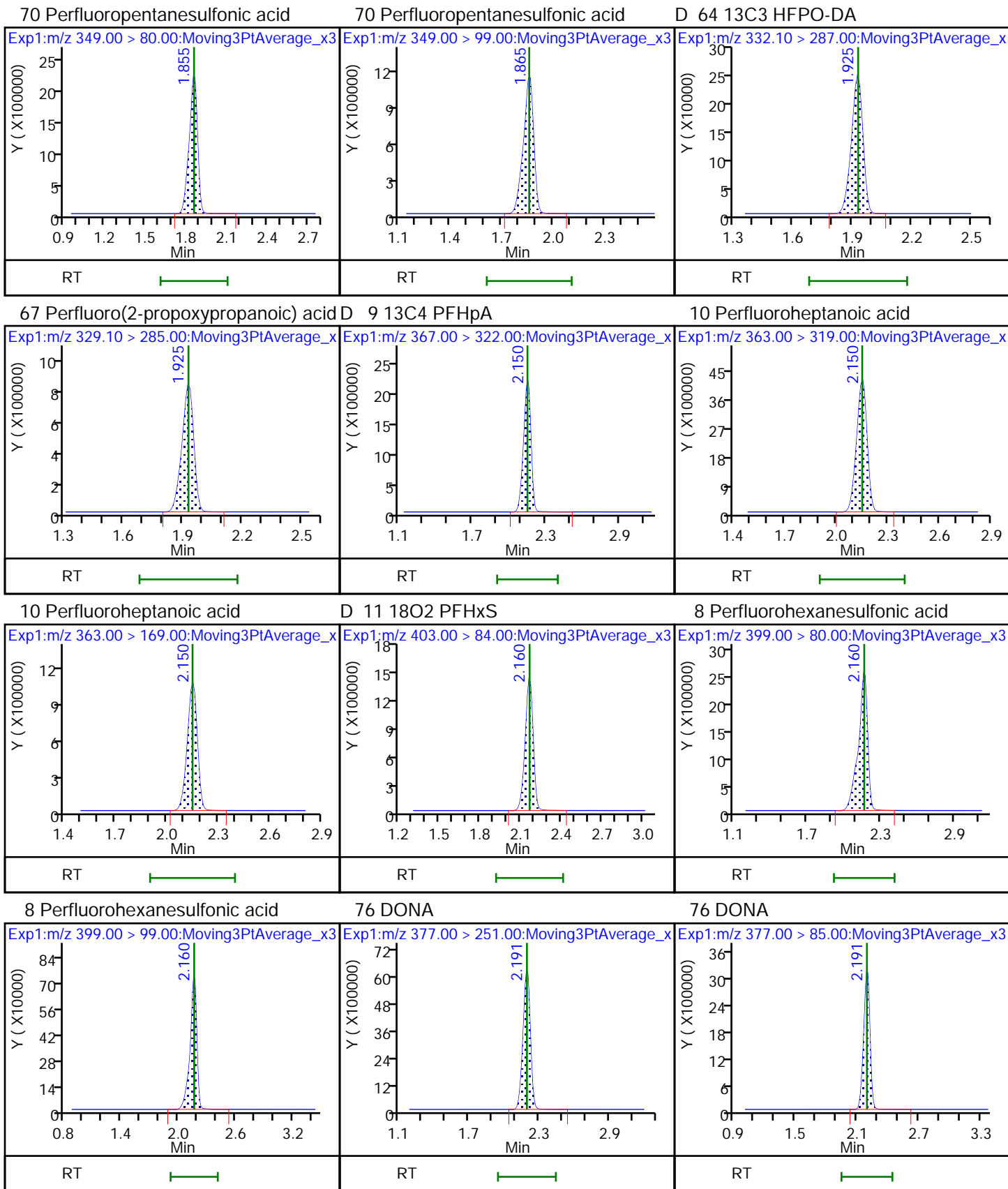
6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

D 7 13C2 PFHxA

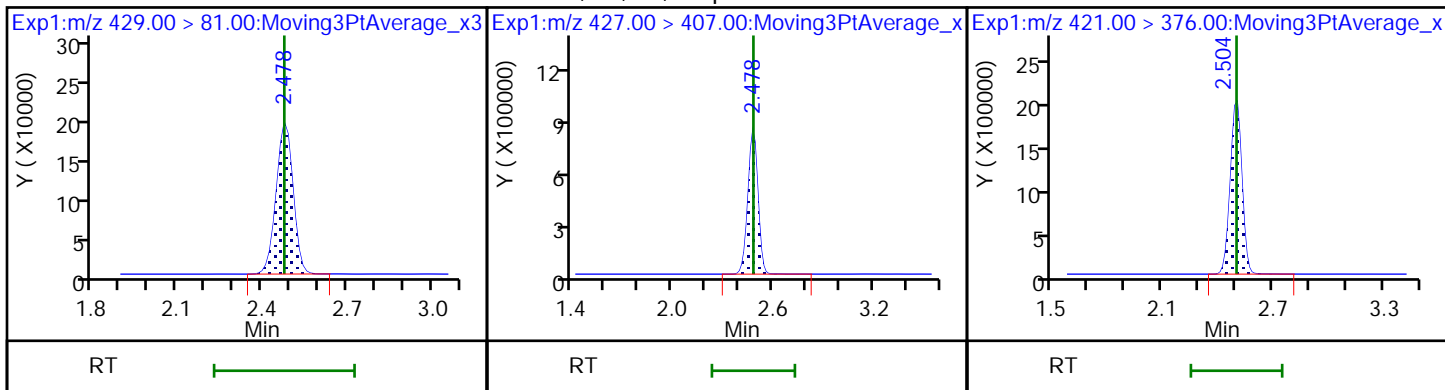






D 12 M2-6:2 FTS

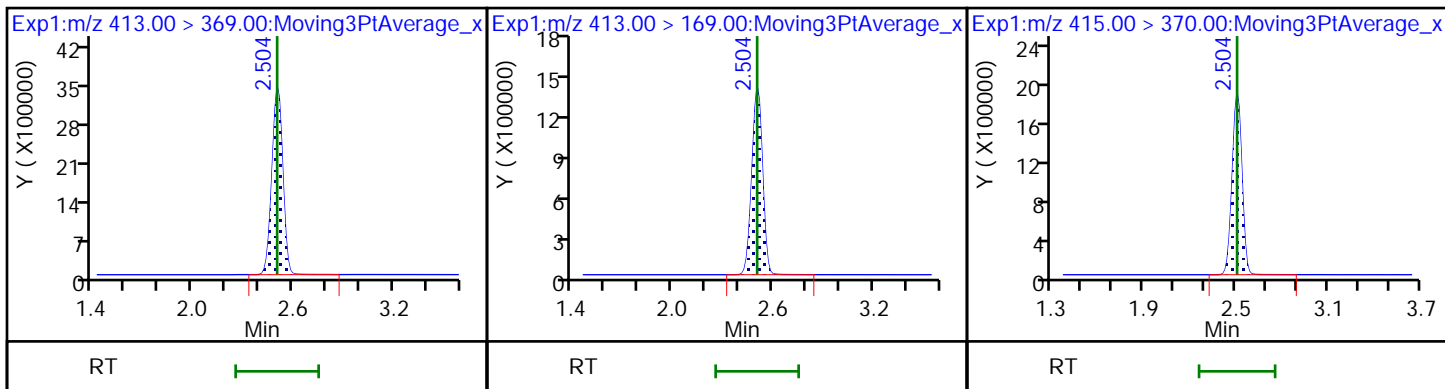
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

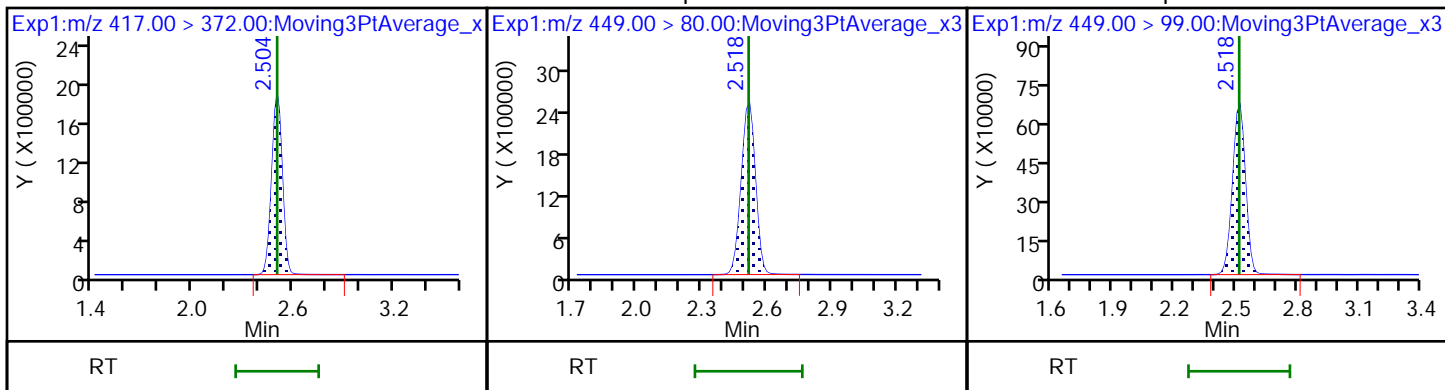
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

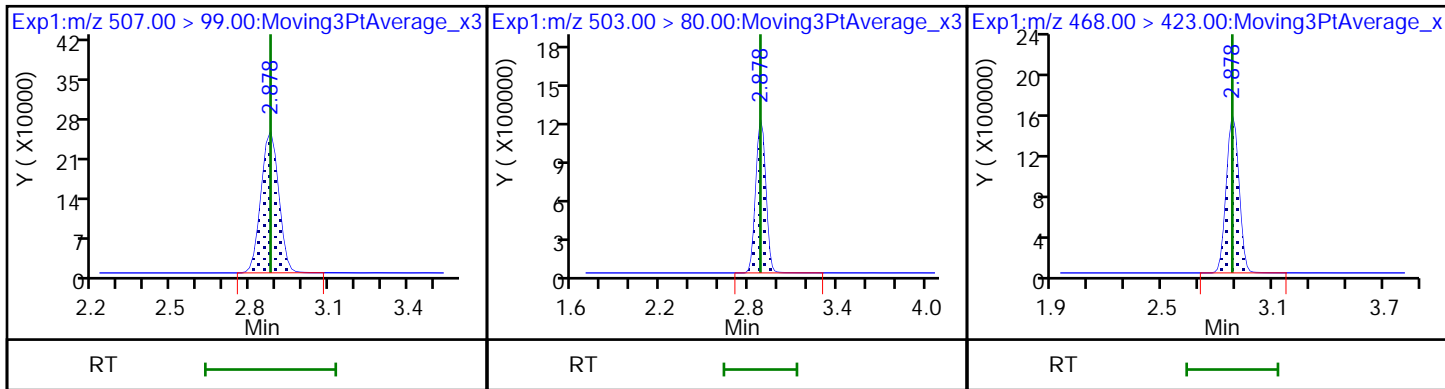
16 Perfluoroheptanesulfonic acid

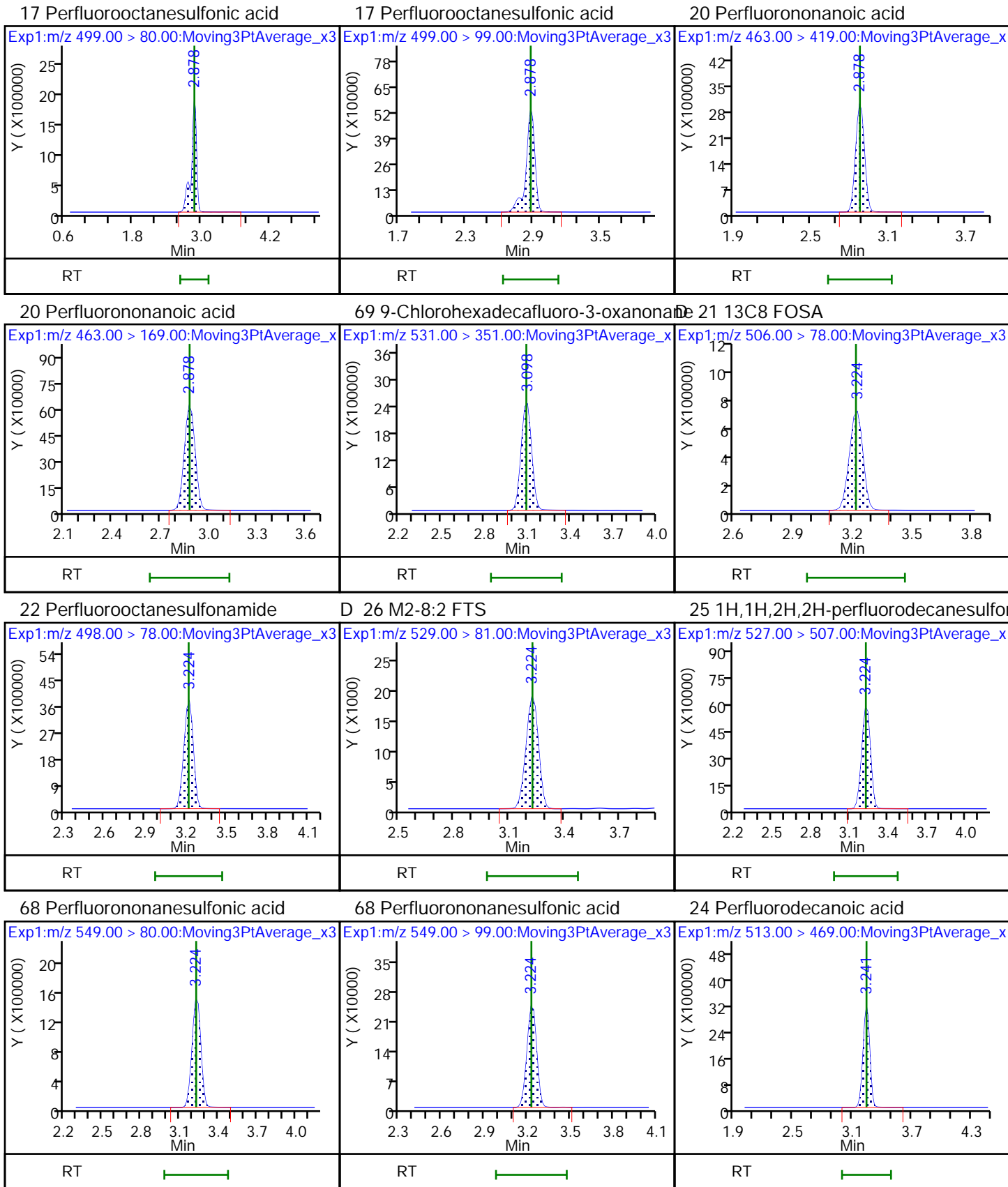


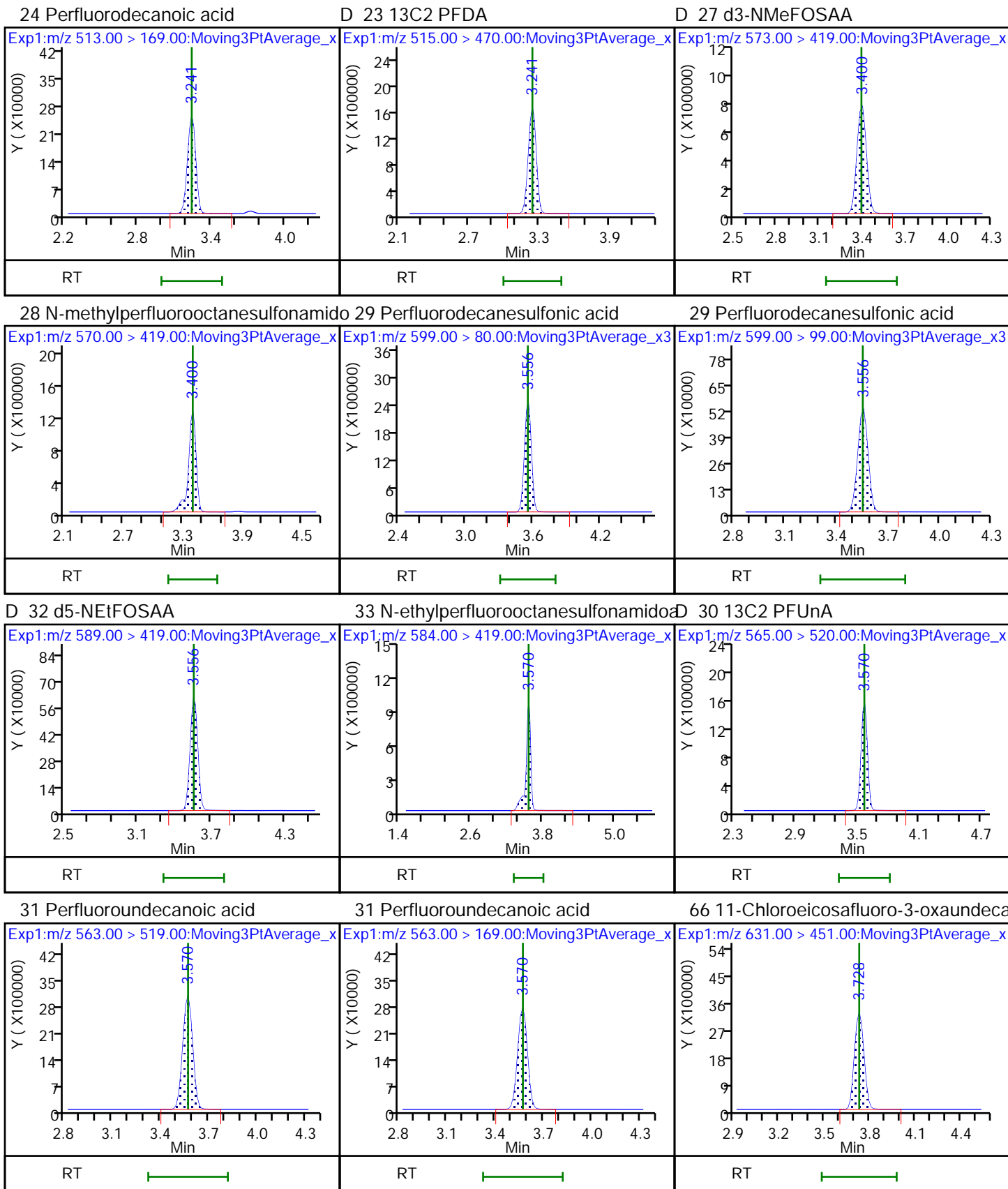
D 72 13C8 PFOS

D 18 13C4 PFOS

D 19 13C5 PFNA



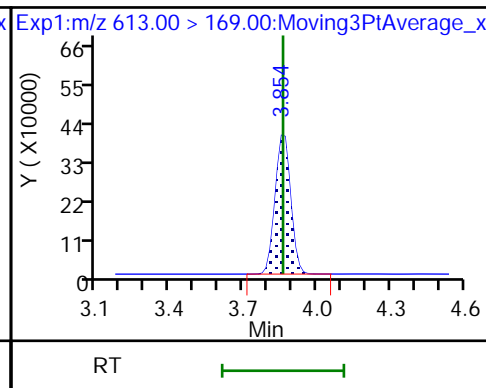
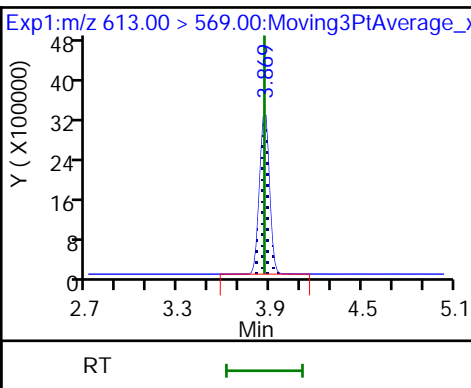
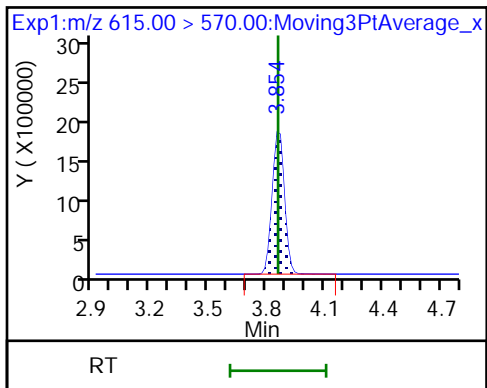




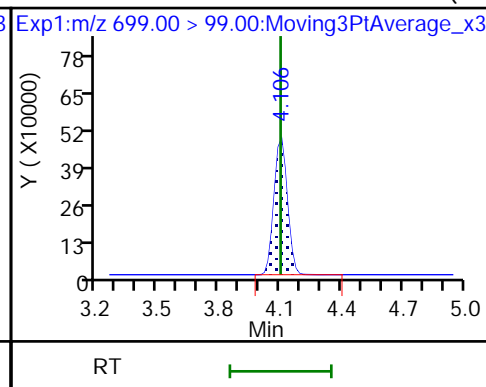
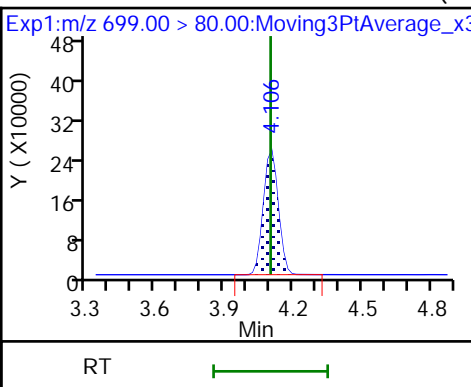
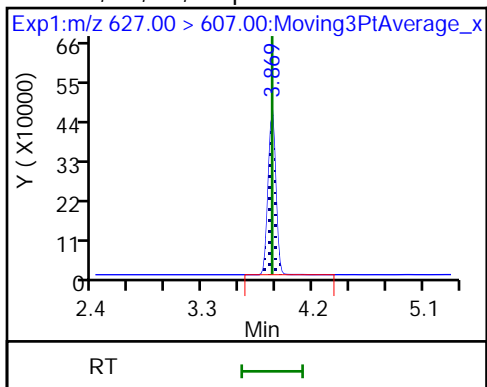
D 36 13C2 PFDaA

37 Perfluorododecanoic acid

37 Perfluorododecanoic acid



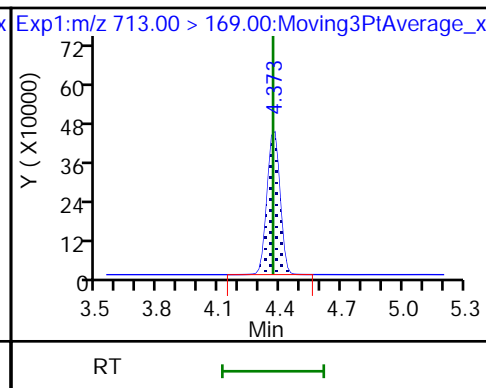
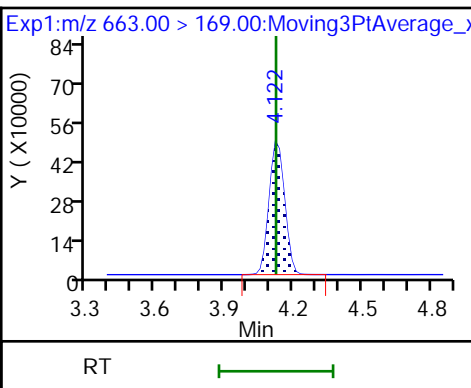
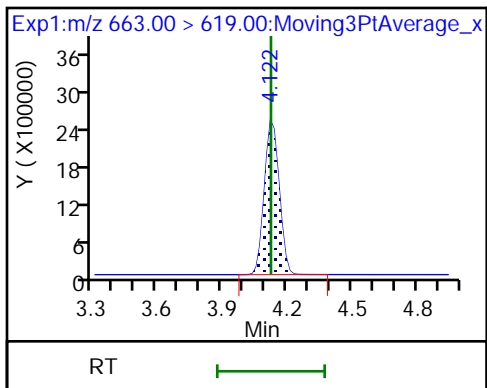
74 1H,1H,2H,2H-perfluorododecanesulfonate 75 Perfluorododecanesulfonic acid (PF) 75 Perfluorododecanesulfonic acid (PF)



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

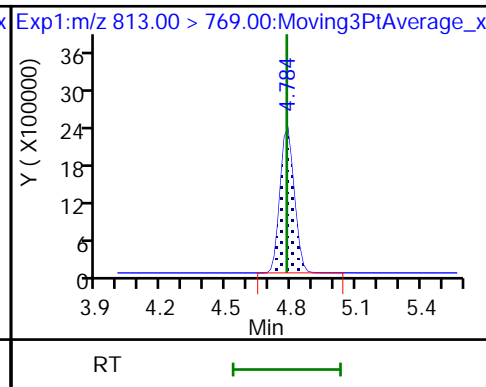
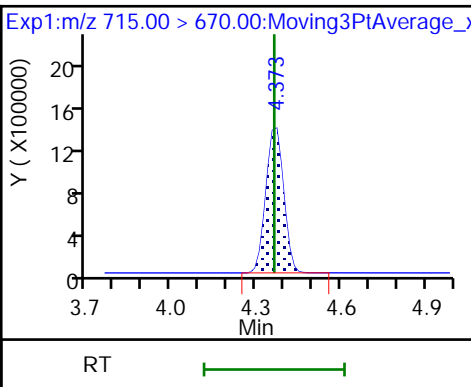
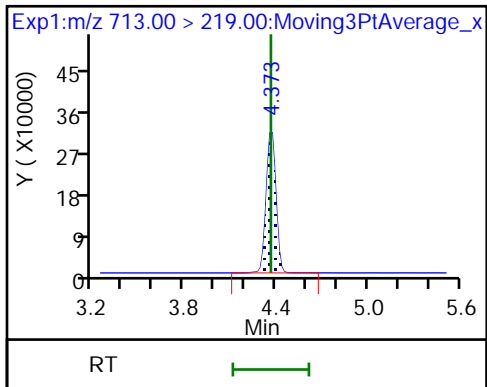
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

D 43 13C2 PFTeDA

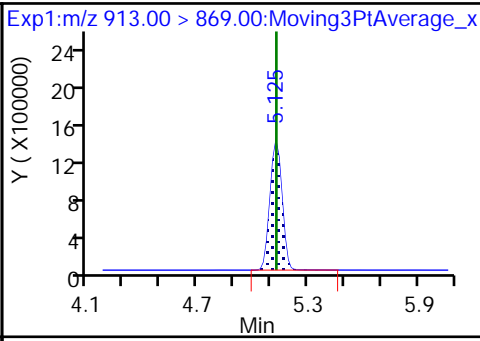
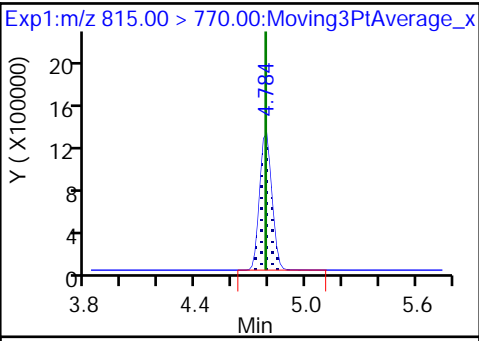
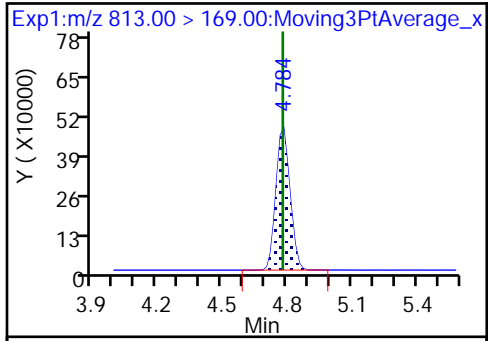
45 Perfluorohexadecanoic acid



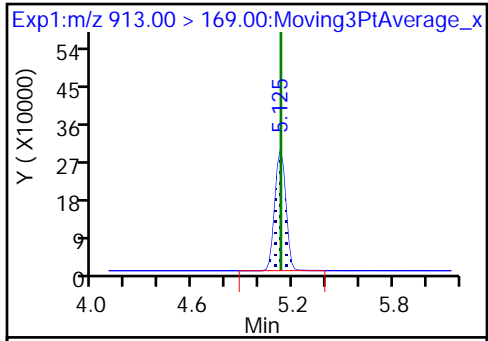
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Lims ID: IC L7 Full  
 Client ID:  
 Sample Type: IC Calib Level: 7  
 Inject. Date: 30-Oct-2018 13:57:50 ALS Bottle#: 16 Worklist Smp#: 8  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CAL STD7  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 30-Oct-2018 15:08:44 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d

Column 1 : Det: EXP1  
 Process Host: CTX0318

First Level Reviewer: roycea Date: 30-Oct-2018 14:46:34

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	1.319	1.323	-0.004	0.527	7420348	2.64	106	13917	
2 Perfluorobutanoic acid	212.90 > 169.00	1.319	1.324	-0.005	1.000	26118757	9.40	94.0	1457	
D 3 13C5 PFPeA	267.90 > 223.00	1.565	1.571	-0.006	0.625	6803099	2.54	102	10573	
4 Perfluoropentanoic acid	262.90 > 219.00	1.565	1.573	-0.008	1.000	24242637	8.90	89.0	2261	
D 47 13C3 PFBS	301.90 > 83.00	1.600	1.603	-0.003	0.639	88380	2.39	103	542	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.600	1.607	-0.007	1.000	31022231	7.90	89.4	8278	
	298.90 > 99.00	1.600	1.607	-0.007	1.000	12524798	2.48(1.35-4.05)	89.4	5408	
D 60 M2-4:2 FTS	329.00 > 81.00	1.797	1.804	-0.007	0.718	675449	2.27	97.4	760	
61 1H,1H,2H,2H-perfluorohexanesulfoni	327.00 > 307.00	1.797	1.805	-0.008	1.123	6728832	8.61	92.2	18722	
6 Perfluorohexanoic acid	313.00 > 269.00	1.830	1.836	-0.006	1.000	22451312	8.55	85.5	3907	
	313.00 > 119.00	1.830	1.836	-0.006	1.000	1942616	11.56(6.96-20.87)	85.5	3423	
D 7 13C2 PFHxA	315.00 > 270.00	1.830	1.836	-0.006	0.731	7292358	2.59	103	17877	
70 Perfluoropentanesulfonic acid	349.00 > 80.00	1.855	1.859	-0.004	1.160	16027538	8.81	93.9	11891	
	349.00 > 99.00	1.855	1.859	-0.004	1.160	8265650	1.94(1.15-3.45)	93.9	6888	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.925	1.928	-0.003	0.769	1000289	2.74	110	3943	

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	1.925	1.928	-0.003	1.000	6332723	9.52	95.2	4953	
D 9 13C4 PFHpA	367.00	> 322.00	2.140	2.148	-0.008	0.854	8209283	2.48	99.0	15448	
10 Perfluoroheptanoic acid	363.00	> 319.00	2.140	2.148	-0.008	1.000	28591245	8.21	82.1	3999	
	363.00	> 169.00	2.140	2.148	-0.008	1.000	7970989		3.59(2.17-6.52)	82.1	10879
D 11 18O2 PFHxS	403.00	> 84.00	2.160	2.164	-0.004	0.863	5161381	2.39	101	8324	
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.160	2.164	-0.004	1.000	22514172	8.19	90.0	5819	
	399.00	> 99.00	2.160	2.164	-0.004	1.000	6910135		3.26(1.90-5.70)	90.0	3940
76 DONA	377.00	> 251.00	2.191	2.194	-0.003	0.761	44019792	7.57	80.3	23051	
	377.00	> 85.00	2.191	2.194	-0.003	0.761	24016879		1.83(1.13-3.39)	80.3	14481
D 12 M2-6:2 FTS	429.00	> 81.00	2.478	2.478	0.0	0.990	704483	2.31	97.3	1366	
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.478	2.482	-0.004	1.000	5762757	8.90	93.9	6174	
D 73 13C8 PFOA	421.00	> 376.00	2.491	2.501	-0.010		7924204	2.30	94.1	12322	
15 Perfluorooctanoic acid	413.00	> 369.00	2.504	2.504	0.0	1.000	24719818	7.63	76.3	2201	
	413.00	> 169.00	2.504	2.504	0.0	1.000	10963798		2.25(1.36-4.08)	76.3	7930
* 62 13C2 PFOA	415.00	> 370.00	2.504	2.504	0.0		7718059	2.50		10184	
D 14 13C4 PFOA	417.00	> 372.00	2.504	2.504	0.0	1.000	7488473	2.47	98.6	10314	
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.504	2.514	-0.010	0.870	19934173	8.94	93.9	4680	
	449.00	> 99.00	2.504	2.514	-0.010	0.870	5509730		3.62(1.84-5.53)	93.9	7852
D 72 13C8 PFOS	507.00	> 99.00	2.878	2.877	0.001		1116319	2.26	94.5	3225	
D 18 13C4 PFOS	503.00	> 80.00	2.878	2.877	0.001	1.149	5117088	2.35	98.2	3899	
D 19 13C5 PFNA	468.00	> 423.00	2.878	2.877	0.001	1.149	6859744	2.44	97.7	7004	
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.878	2.877	0.001	1.000	20584711	8.93	96.2	4341	
	499.00	> 99.00	2.878	2.877	0.001	1.000	5462179		3.77(2.04-6.12)	96.2	4411
20 Perfluorononanoic acid	463.00	> 419.00	2.878	2.880	-0.002	1.000	23756934	8.65	86.5	1304	
	463.00	> 169.00	2.878	2.880	-0.002	1.000	5159376		4.60(2.68-8.03)	86.5	5882
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.080	3.091	-0.011	1.070	21315966	8.99	96.4	4607	
D 21 13C8 FOSA	506.00	> 78.00	3.207	3.217	-0.010	1.280	2874497	2.38	95.2	4518	



Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
22 Perfluorooctanesulfonamide	498.00	> 78.00	3.207	3.219	-0.012	1.000	29580681	8.56	85.6	5202
D 26 M2-8:2 FTS	529.00	> 81.00	3.224	3.226	-0.002	1.287	78772	2.08	87.0	283
25 1H,1H,2H,2H-perfluorodecanesulfoni	527.00	> 507.00	3.224	3.226	-0.002	1.000	4634743	9.87	103	7323
68 Perfluorononanesulfonic acid	549.00	> 80.00	3.224	3.226	-0.002	1.120	11567897	8.81	91.7	5051
	549.00	> 99.00	3.224	3.226	-0.002	1.120	2031868	5.69(3.02-9.05)	91.7	3463
24 Perfluorodecanoic acid	513.00	> 469.00	3.241	3.241	0.0	1.000	25123980	8.76	87.6	2712
	513.00	> 169.00	3.241	3.241	0.0	1.000	2190345	11.47(7.12-21.35)	87.6	584
D 23 13C2 PFDA	515.00	> 470.00	3.241	3.241	0.0	1.294	6604968	2.28	91.4	6298
D 27 d3-NMeFOSAA	573.00	> 419.00	3.383	3.392	-0.009	1.351	3183764	2.55	102	4586
28 N-methylperfluorooctanesulfonamido	570.00	> 419.00	3.400	3.399	0.001	1.005	12317657	9.67	96.7	2680
29 Perfluorodecanesulfonic acid	599.00	> 80.00	3.541	3.552	-0.011	1.231	16411334	8.86	91.9	5298
	599.00	> 99.00	3.541	3.552	-0.011	1.231	3929895	4.18(2.14-6.43)	91.9	5596
D 32 d5-NEtFOSAA	589.00	> 419.00	3.556	3.558	-0.002	1.420	2294813	2.25	90.2	3961
33 N-ethylperfluorooctanesulfonamidoa	584.00	> 419.00	3.556	3.566	-0.010	1.000	8605918	10.3	103	6817
D 30 13C2 PFUnA	565.00	> 520.00	3.570	3.568	0.002	1.426	5750238	2.38	95.2	9377
31 Perfluoroundecanoic acid	563.00	> 519.00	3.570	3.570	0.0	1.000	19985454	7.64	76.4	3363
	563.00	> 169.00	3.570	3.570	0.0	1.000	2048599	9.76(5.24-15.72)	76.4	4880
35 MeFOSA	512.00	> 169.00	3.728	3.724	0.004		7044541	NC		4363
66 11-Chloroeicosafuoro-3-oxaundecan	631.00	> 451.00	3.728	3.728	0.0	1.296	22552443	7.60	80.6	7084
D 36 13C2 PFDaA	615.00	> 570.00	3.854	3.859	-0.005	1.539	7675120	2.58	103	9071
37 Perfluorododecanoic acid	613.00	> 569.00	3.854	3.861	-0.007	1.000	24007518	7.69	76.9	5093
	613.00	> 169.00	3.854	3.861	-0.007	1.000	3584267	6.70(4.68-14.05)	76.9	4679
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00	> 607.00	3.854	3.865	-0.011	1.196	3448893	10.4	108	4156
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	3.912	3.912	0.0		7719048	NC		5453
75 Perfluorododecanesulfonic acid (PF	699.00	> 80.00	4.089	4.101	-0.012	1.421	2091110	10.1	105	5261
	699.00	> 99.00	4.089	4.101	-0.012	1.421	3980084	0.53(0.28-0.83)	105	5808

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	4.122	4.125	-0.003	1.069	18912174	7.54		75.4	6810	
663.00 > 169.00	4.122	4.125	-0.003	1.069	3882213		4.87(3.09-9.27)	75.4	6221	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.357	4.364	-0.007	1.000	3705066	9.21		92.1	9397	
713.00 > 219.00	4.357	4.364	-0.007	1.000	2643931		1.40(0.70-2.09)	92.1	9741	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.357	4.364	-0.007	1.740	5499047	2.47		99.0	11144	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.769	4.780	-0.011	1.000	16448922	7.83		78.3	11394	
813.00 > 169.00	4.769	4.780	-0.011	1.000	3969694		4.14(2.77-8.32)	78.3	8413	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.769	4.780	-0.011	1.904	5807381	2.63		105	14018	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.125	5.127	-0.002	1.075	10749622	9.36		93.6	10899	
913.00 > 169.00	5.125	5.127	-0.002	1.075	2318686		4.64(2.55-7.64)	93.6	5648	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL7\_00009

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d

Injection Date: 30-Oct-2018 13:57:50

Instrument ID: A9

Lims ID: IC L7 Full

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 16

Worklist Smp#: 8

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

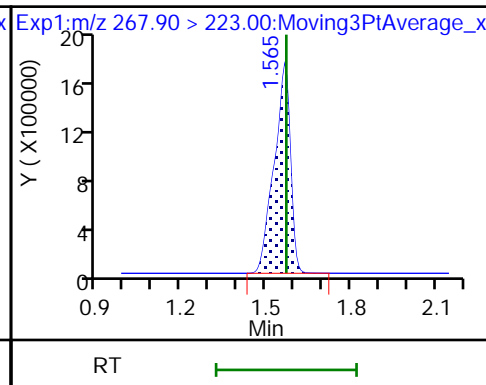
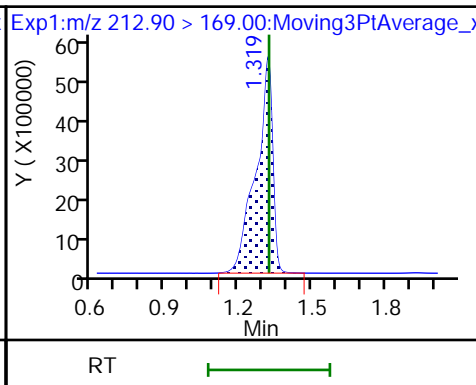
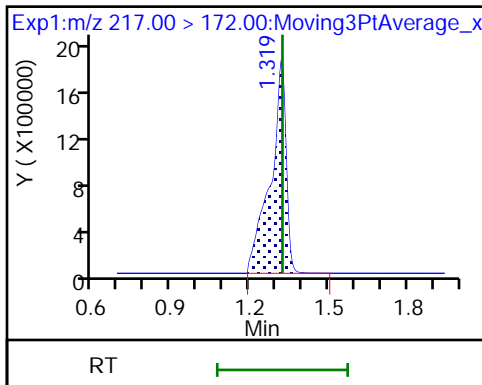
Method: PFAS\_A9

Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

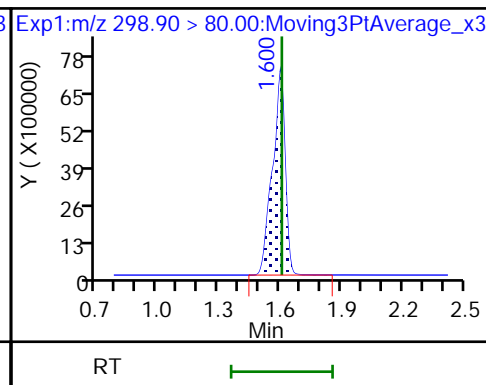
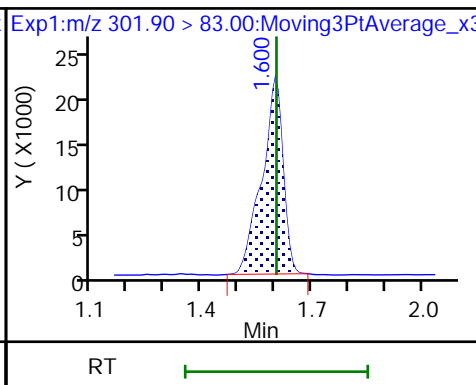
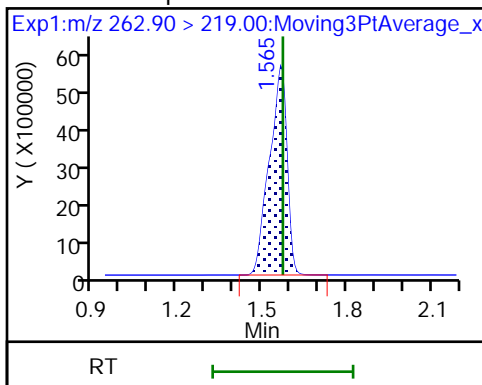
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 47 13C3 PFBS

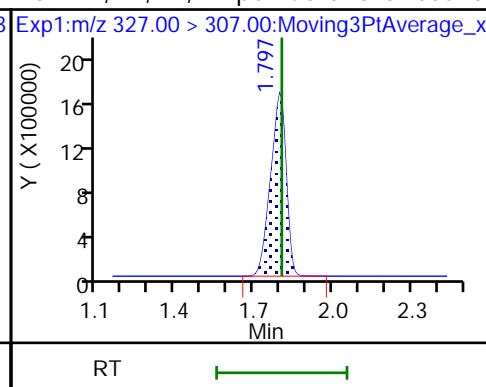
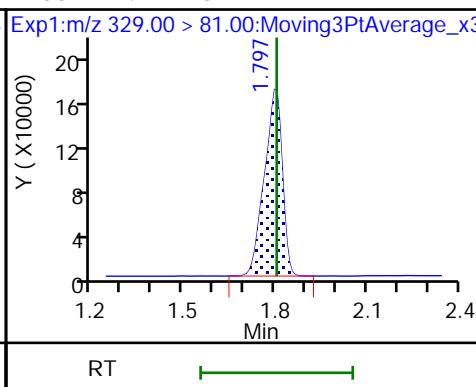
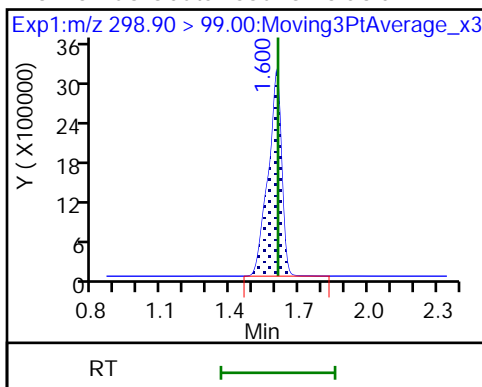
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

D 60 M2-4:2 FTS

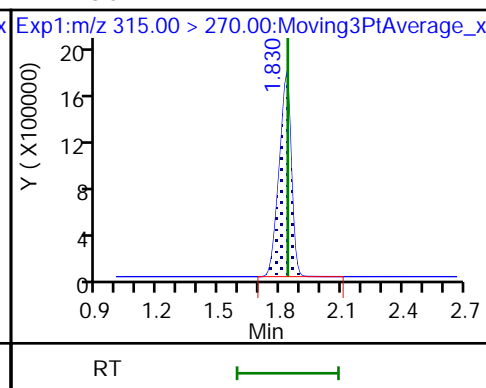
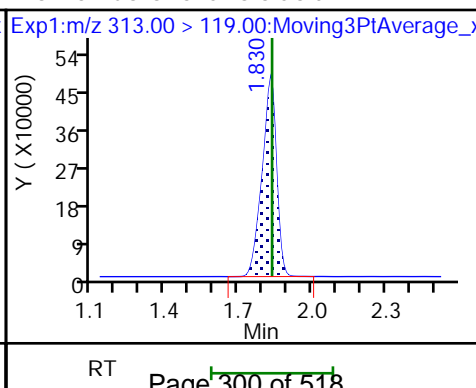
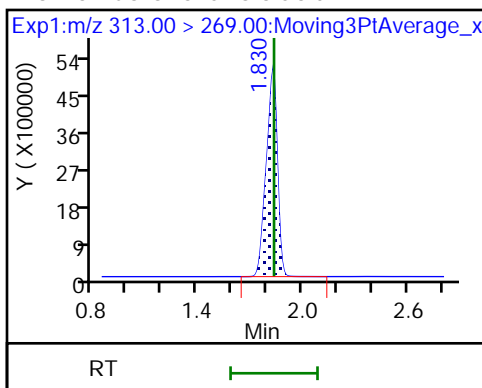
61 1H,1H,2H,2H-perfluorohexanesulfoni

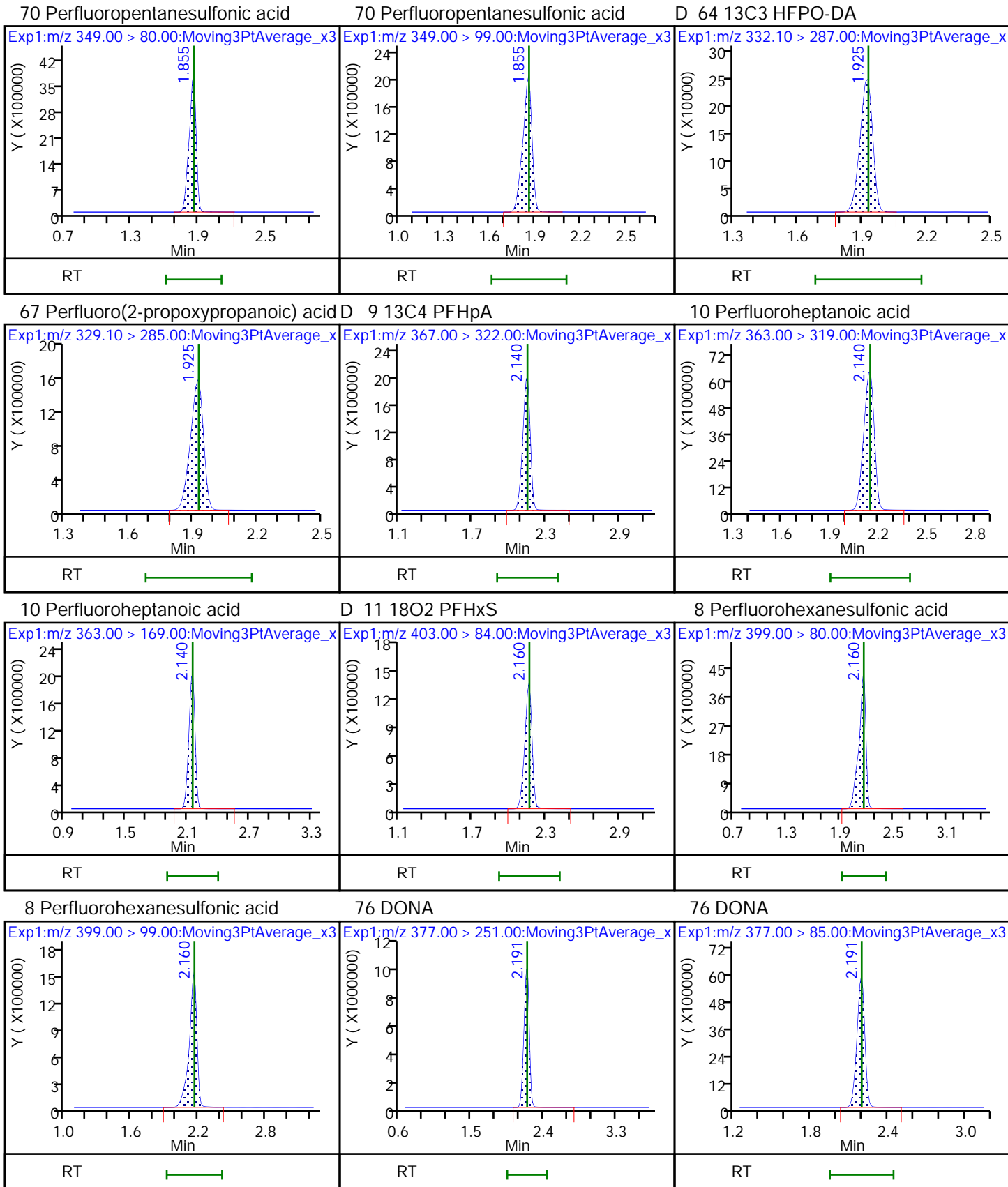


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

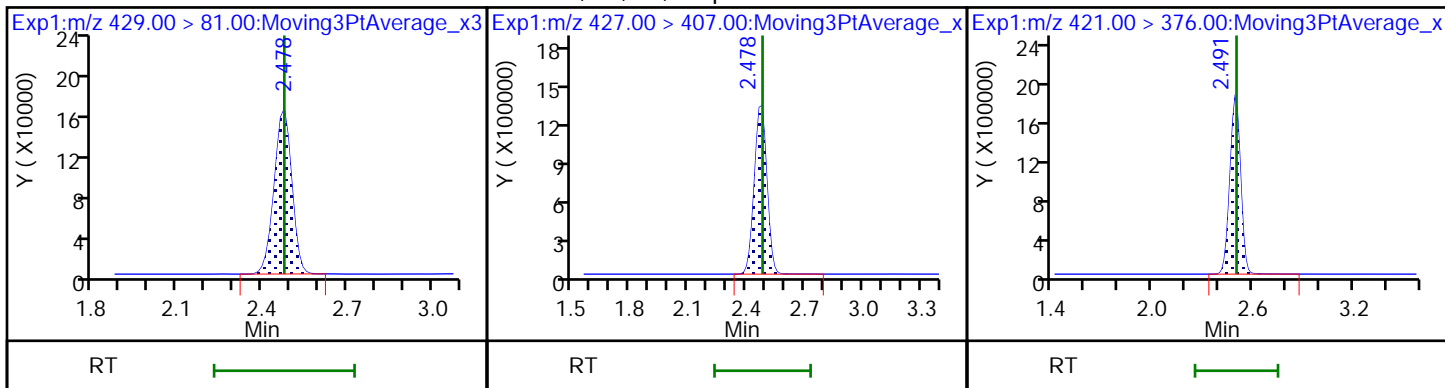
D 7 13C2 PFHxA





D 12 M2-6:2 FTS

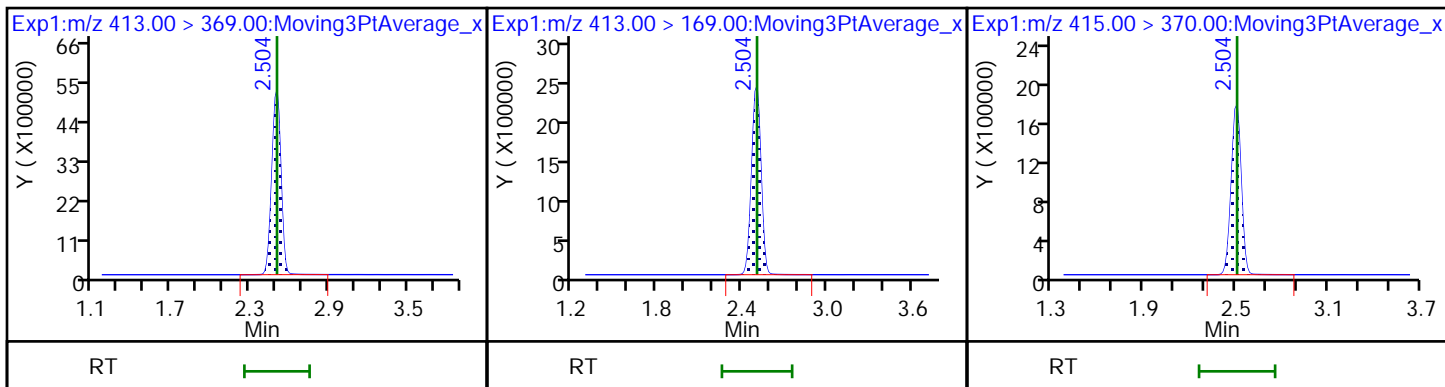
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

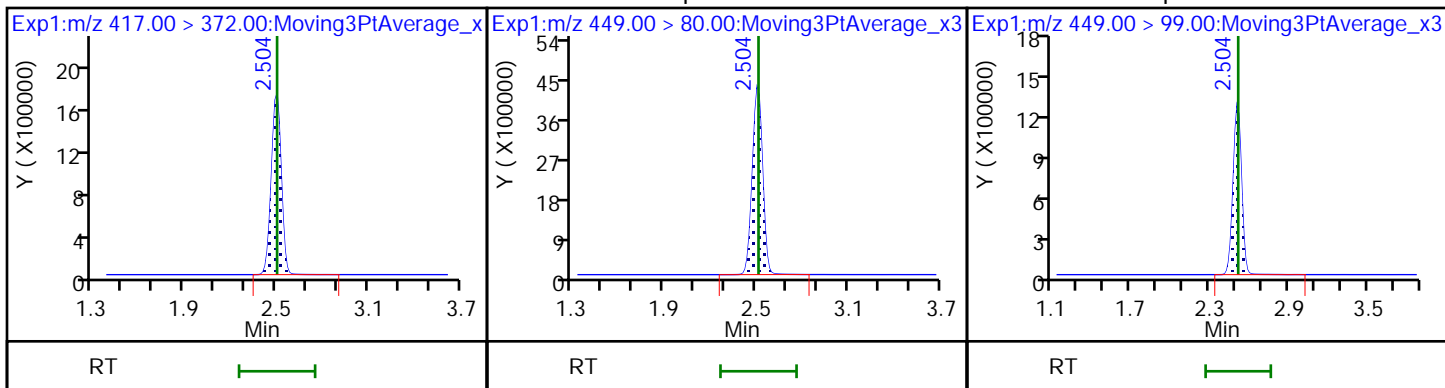
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

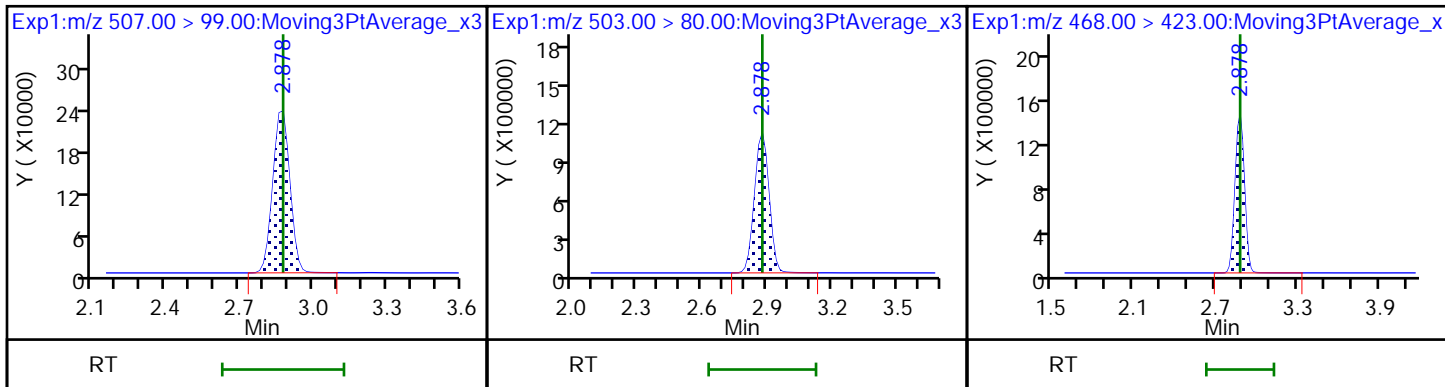
16 Perfluoroheptanesulfonic acid

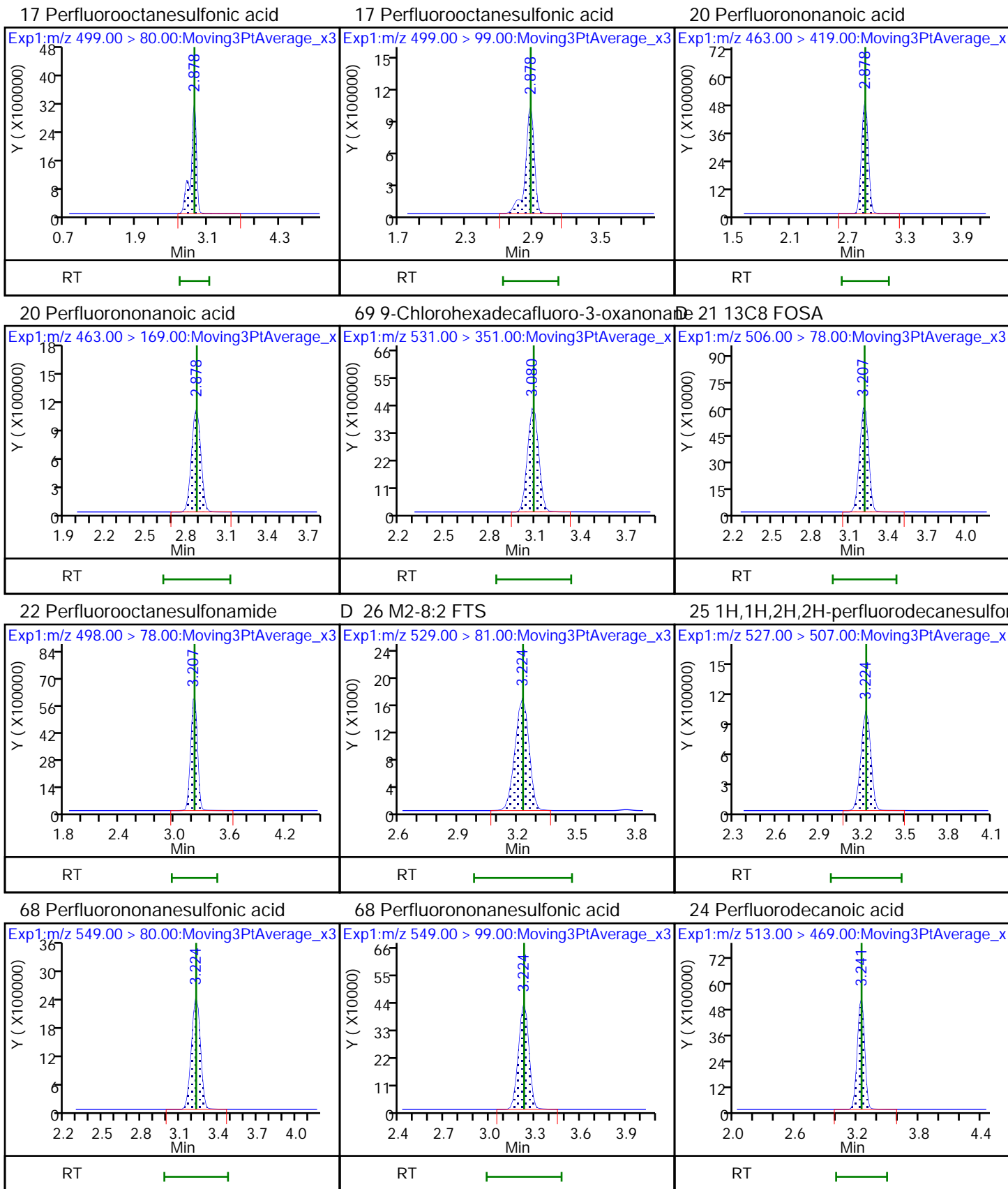


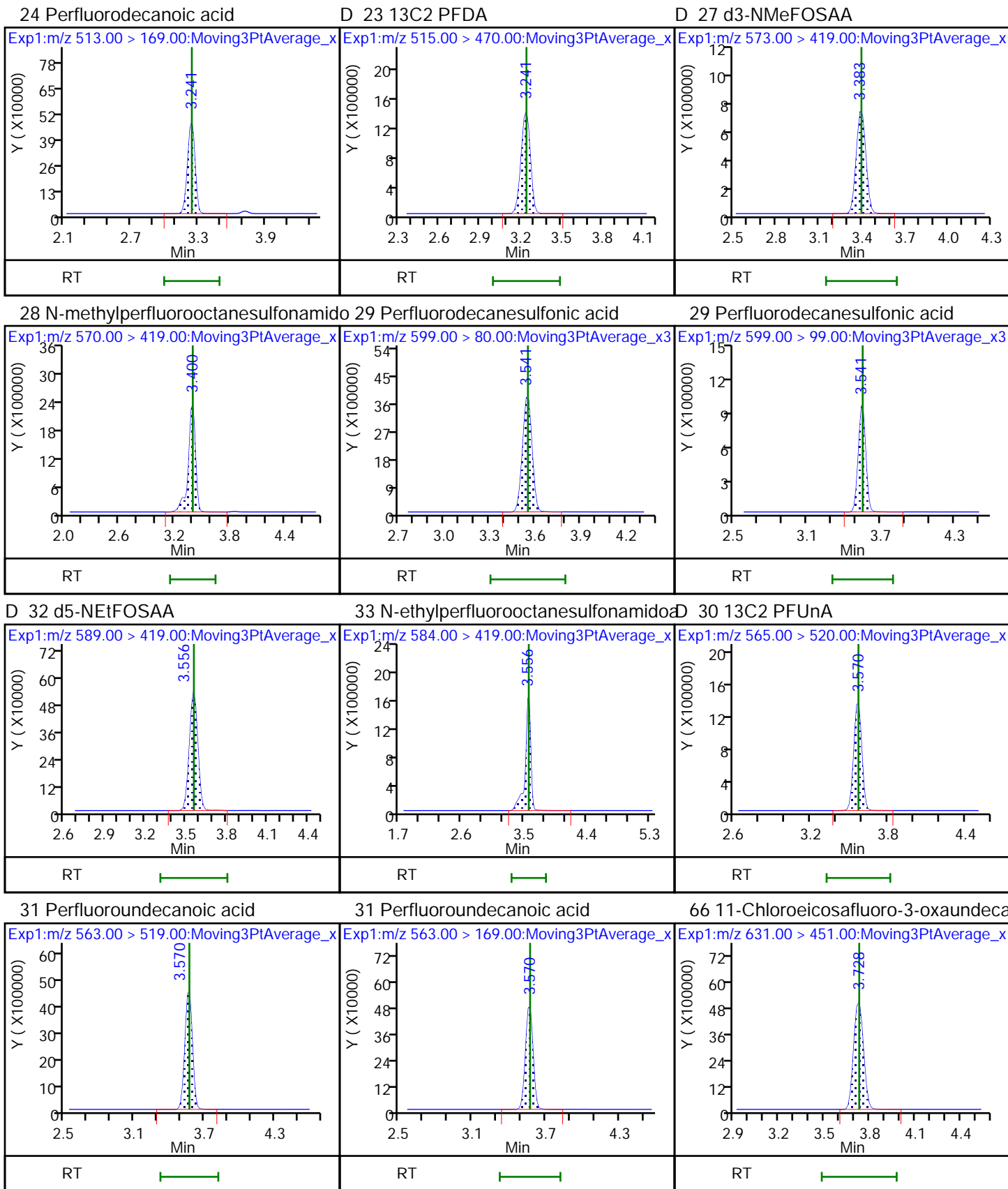
D 72 13C8 PFOS

D 18 13C4 PFOS

D 19 13C5 PFNA



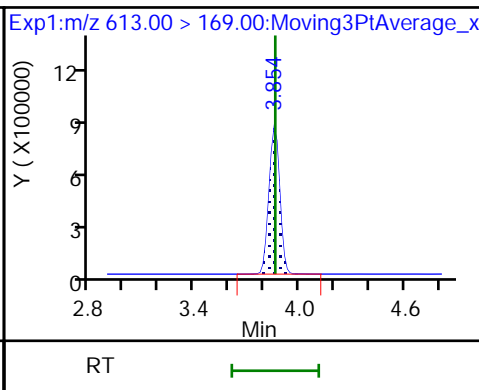
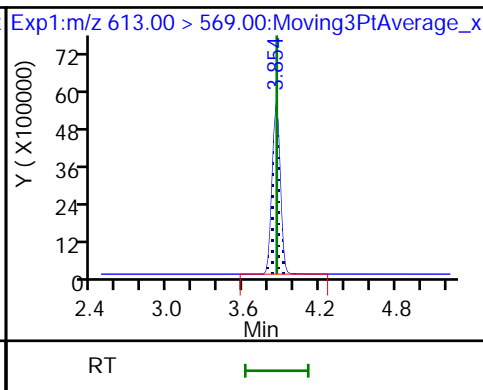
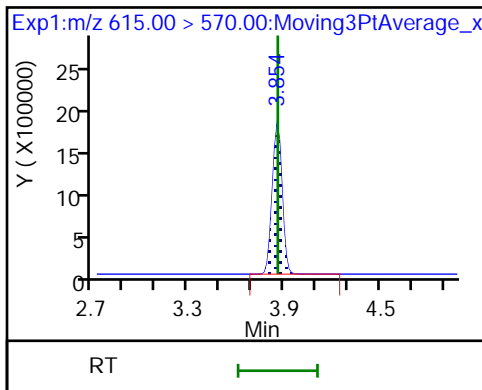




D 36 13C2 PFDaA

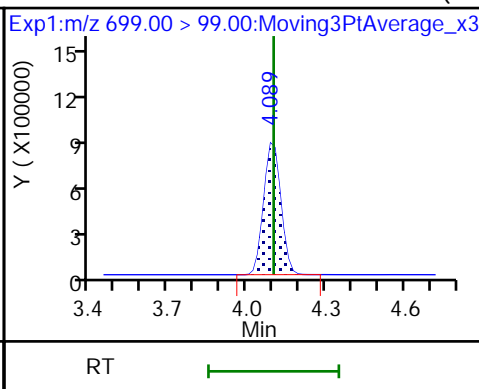
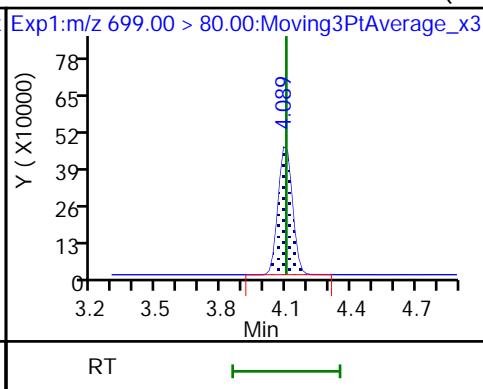
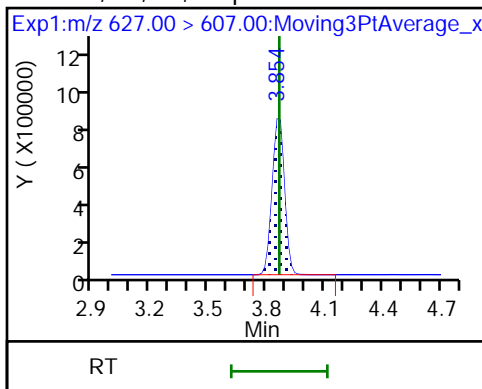
37 Perfluorododecanoic acid

37 Perfluorododecanoic acid



74 1H,1H,2H,2H-perfluorododecanesulfonate

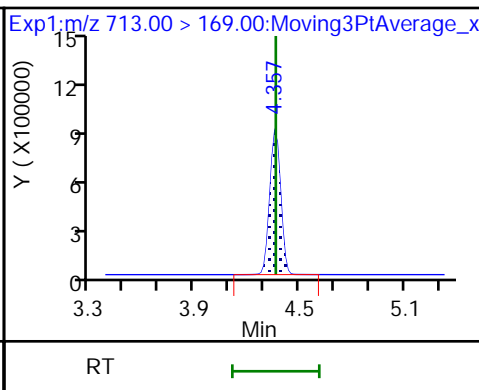
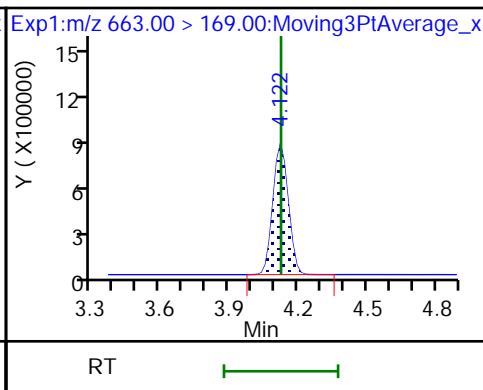
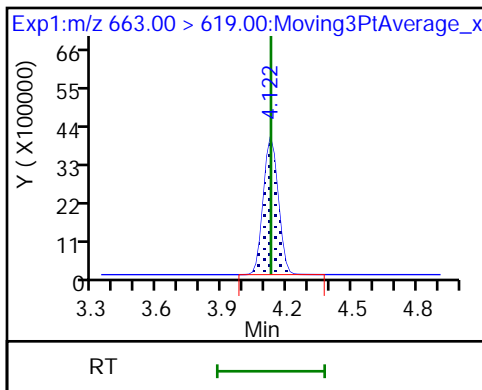
75 Perfluorododecanesulfonic acid (PF



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

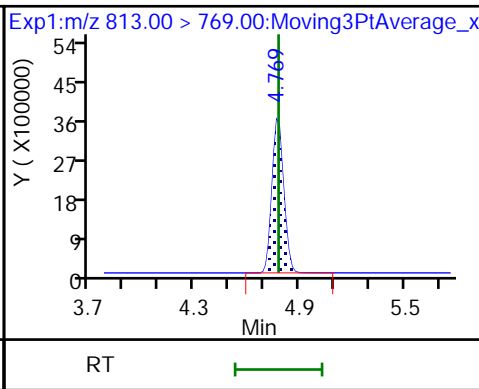
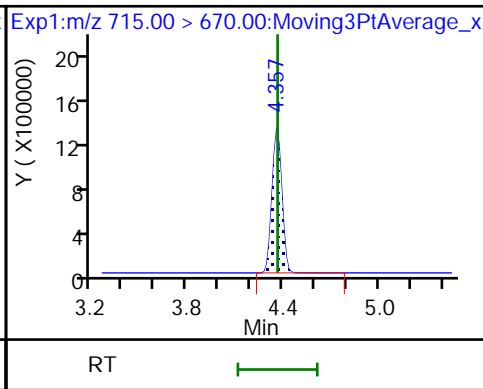
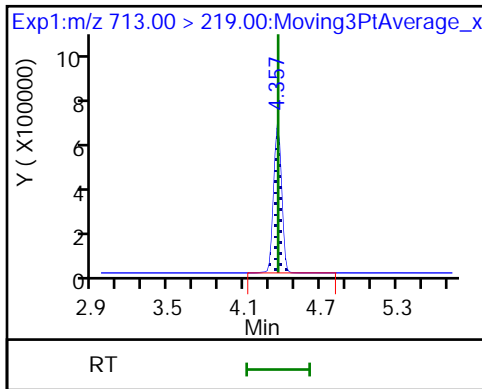
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

D 43 13C2 PFTeDA

45 Perfluorohexadecanoic acid

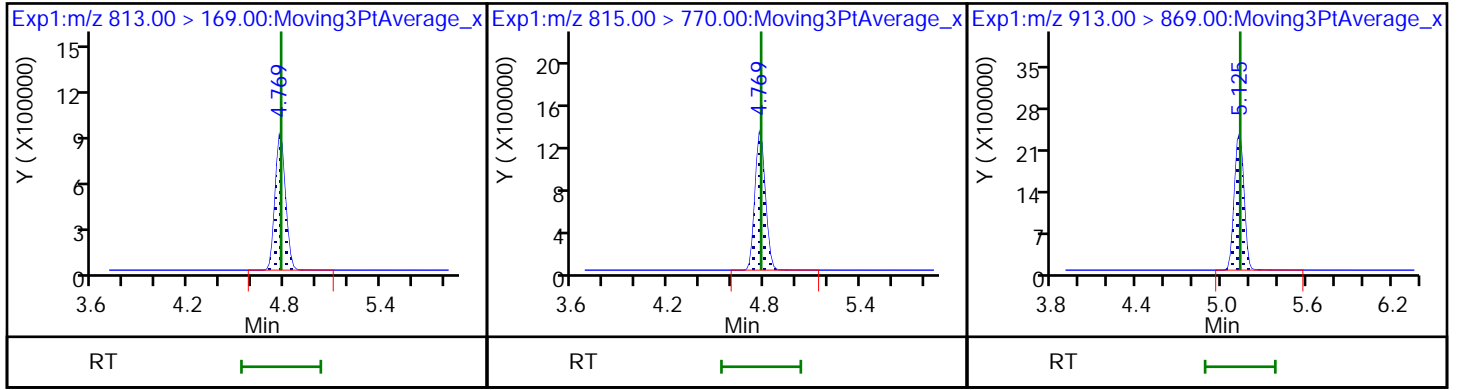




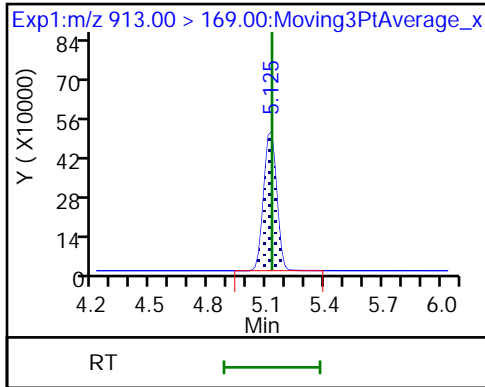
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: ICV 320-255834/10 Calibration Date: 10/30/2018 14:12  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.10.30ICALA\_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	0.9357	0.9559		2.55	2.50	2.2	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.001	1.016		2.54	2.50	1.5	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	103.3	106.9		2.29	2.21	3.5	50.0
4:2 FTS	AveID	20.55	20.14		2.29	2.34	-2.0	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8997	0.9050		2.51	2.50	0.6	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	47.84	49.08		2.41	2.35	2.6	50.0
HFPO-DA (GenX)	AveID	1.662	1.730		2.60	2.50	4.0	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.061	1.084		2.55	2.50	2.2	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.260	1.195		2.16	2.28	-5.2	40.0
DONA	AveID	2.718	2.715		2.35	2.36	-0.1	50.0
6:2 FTS	AveID	2.182	2.161		2.35	2.38	-1.0	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.081	1.012		2.34	2.50	-6.4	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.041	1.079		2.46	2.38	3.7	50.0
Perfluorononanoic acid (PFNA)	AveID	1.001	1.066		2.66	2.50	6.5	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.077	1.023		2.20	2.31	-5.0	40.0
F-53B Major	AveID	1.108	1.124		2.37	2.33	1.5	50.0
8:2 FTS	AveID	14.28	13.08		2.20	2.40	-8.4	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.6135	0.6081		2.38	2.40	-0.9	50.0
Perfluorooctanesulfonamide (FOSA)	AveID	3.005	2.983		2.48	2.50	-0.7	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.086	1.085		2.50	2.50	-0.0	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.000	1.150		2.88	2.50	15.0	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.8654	0.8929		2.49	2.41	3.2	50.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9143	1.022		2.79	2.50	11.8	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.137	1.042		2.29	2.50	-8.4	40.0
F-53B Minor	AveID	1.387	1.454		2.47	2.36	4.8	50.0
10:2 FTS	AveID	10.11	9.662		2.30	2.41	-4.5	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.017	1.054		2.59	2.50	3.6	40.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.0963	0.1009		2.53	2.42	4.7	50.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8175	0.7974		2.44	2.50	-2.5	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1828	0.1625		2.22	2.50	-11.1	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9301		2.55	2.50	2.1	50.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: ICV 320-255834/10 Calibration Date: 10/30/2018 14:12  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.10.30ICALA\_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.4945	0.5175		2.62	2.50	4.7	50.0
13C4 PFBA	Ave	0.9103	0.8956		2.46	2.50	-1.6	50.0
13C5 PFPeA	Ave	0.8665	0.8702		2.51	2.50	0.4	50.0
13C3 PFBS	Ave	0.0120	0.0117		2.28	2.33	-2.1	50.0
M2-4:2 FTS	Ave	0.0962	0.0949		2.30	2.34	-1.4	50.0
13C2 PFHxA	Ave	0.9136	0.8922		2.44	2.50	-2.3	50.0
13C3 HFPO-DA	Ave	0.1181	0.1053		2.23	2.50	-10.8	50.0
13C4 PFHpA	Ave	1.074	1.077		2.51	2.50	0.3	50.0
18O2 PFHxS	Ave	0.6988	0.6901		2.34	2.37	-1.2	50.0
M2-6:2 FTS	Ave	0.0988	0.0958		2.30	2.38	-3.0	40.0
13C4 PFOA	Ave	0.9837	0.9874		2.51	2.50	0.4	50.0
13C8 PFOA	Ave	3440710	3383861		2.41	2.45	-1.7	50.0
13C4 PFOS	Ave	0.7064	0.7121		2.41	2.39	0.8	50.0
13C5 PFNA	Ave	0.9095	0.8539		2.35	2.50	-6.1	50.0
13C8 PFOS	Ave	494030	477022		2.31	2.39	-3.4	50.0
13C8 FOSA	Ave	0.3910	0.4001		2.56	2.50	2.3	50.0
M2-8:2 FTS	Ave	0.0122	0.0124		2.42	2.40	1.0	40.0
13C2 PFDA	Ave	0.9367	0.8982		2.40	2.50	-4.1	50.0
d3-NMeFOSAA	Ave	0.4049	0.3854		2.38	2.50	-4.8	50.0
d5-NEtFOSAA	Ave	0.3298	0.3261		2.47	2.50	-1.1	50.0
13C2 PFUnA	Ave	0.7823	0.7763		2.48	2.50	-0.8	50.0
13C2 PFDoA	Ave	0.9635	0.9483		2.46	2.50	-1.6	50.0
13C2 PFTeDA	Ave	0.7200	0.7249		2.52	2.50	0.7	50.0
13C2 PFHxDA	Ave	0.7154	0.7074		2.47	2.50	-1.1	50.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_010.d  
 Lims ID: ICV Full  
 Client ID:  
 Sample Type: ICV  
 Inject. Date: 30-Oct-2018 14:12:50 ALS Bottle#: 17 Worklist Smp#: 10  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: ICV  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist:

Method: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 30-Oct-2018 15:06:28 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d

Column 1 : Det: EXP1  
 Process Host: CTX0318

First Level Reviewer: roycea Date: 30-Oct-2018 14:56:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
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D 1 13C4 PFBA	217.00 > 172.00	1.323	1.323	0.0	0.528	7176600	2.46	98.4	15651	
2 Perfluorobutanoic acid	212.90 > 169.00	1.328	1.324	0.004	1.003	6860194	2.55		369	
D 3 13C5 PFPeA	267.90 > 223.00	1.572	1.571	0.001	0.628	6973023	2.51	100	10814	
4 Perfluoropentanoic acid	262.90 > 219.00	1.572	1.573	-0.001	1.000	7083759	2.54		738	
D 47 13C3 PFBS	301.90 > 83.00	1.607	1.603	0.004	0.642	87417	2.28	97.9	424	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.607	1.607	0.0	1.000	8894419	2.29		3199	
	298.90 > 99.00	1.607	1.607	0.0	1.000	3122663		2.85(1.35-4.05)	1549	
D 60 M2-4:2 FTS	329.00 > 81.00	1.805	1.804	0.001	0.721	709942	2.30	98.6	744	
61 1H,1H,2H,2H-perfluorohexanesulfoni	327.00 > 307.00	1.805	1.805	0.0	1.123	1770192	2.29		8809	
6 Perfluorohexanoic acid	313.00 > 269.00	1.839	1.836	0.003	1.000	6469774	2.51		1322	
	313.00 > 119.00	1.839	1.836	0.003	1.000	493366		13.11(6.96-20.87)	1221	
D 7 13C2 PFHxA	315.00 > 270.00	1.839	1.836	0.003	0.734	7149285	2.44	97.7	13561	
70 Perfluoropentanesulfonic acid	349.00 > 80.00	1.865	1.859	0.006	1.160	4336162	2.41		5915	
	349.00 > 99.00	1.865	1.859	0.006	1.160	2006834		2.16(1.15-3.45)	3231	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.935	1.928	0.007	0.773	843564	2.23	89.2	3641	

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	1.935	1.928	0.007	1.000	1459011	2.60		1147
D 9 13C4 PFHpA	367.00	> 322.00	2.150	2.148	0.002	0.858	8631575	2.51		100 7356
10 Perfluoroheptanoic acid	363.00	> 319.00	2.150	2.148	0.002	1.000	9355670	2.55		2000
	363.00	> 169.00	2.150	2.148	0.002	1.000	2051430		4.56(2.17-6.52)	3852
D 11 18O2 PFHxS	403.00	> 84.00	2.170	2.164	0.006	0.867	5230856	2.34		98.8 7241
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.170	2.164	0.006	1.000	6024840	2.16		3171
	399.00	> 99.00	2.160	2.164	-0.004	0.995	1677678		3.59(1.90-5.70)	1416
76 DONA	377.00	> 251.00	2.191	2.194	-0.003	0.761	14590474	2.35		15141
	377.00	> 85.00	2.191	2.194	-0.003	0.761	6848476		2.13(1.13-3.39)	10825
D 12 M2-6:2 FTS	429.00	> 81.00	2.478	2.478	0.0	0.990	729157	2.30		97.0 1320
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.478	2.482	-0.004	1.000	1575477	2.35		2094
D 73 13C8 PFOA	421.00	> 376.00	2.504	2.501	0.003		8281999	2.41		98.3 9995
15 Perfluorooctanoic acid	413.00	> 369.00	2.504	2.504	0.0	1.000	8003897	2.34		968
	413.00	> 169.00	2.504	2.504	0.0	1.000	3083496		2.60(1.36-4.08)	4719
* 62 13C2 PFOA	415.00	> 370.00	2.504	2.504	0.0		8013101	2.50		11540
D 14 13C4 PFOA	417.00	> 372.00	2.504	2.504	0.0	1.000	7912161	2.51		100 7743
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.518	2.514	0.004	0.875	5850054	2.46		3732
	449.00	> 99.00	2.518	2.514	0.004	0.875	1397418		4.19(1.84-5.53)	3075
D 72 13C8 PFOS	507.00	> 99.00	2.878	2.877	0.001		1140082	2.31		96.6 3643
D 18 13C4 PFOS	503.00	> 80.00	2.878	2.877	0.001	1.149	5454852	2.41		101 4090
D 19 13C5 PFNA	468.00	> 423.00	2.878	2.877	0.001	1.149	6842558	2.35		93.9 6084
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.878	2.877	0.001	1.000	5404500	2.20		1174
	499.00	> 99.00	2.878	2.877	0.001	1.000	1341957		4.03(2.04-6.12)	2330
20 Perfluorononanoic acid	463.00	> 419.00	2.878	2.880	-0.002	1.000	7295359	2.66		456
	463.00	> 169.00	2.878	2.880	-0.002	1.000	1335295		5.46(2.68-8.03)	2837
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.080	3.091	-0.011	1.070	5979811	2.37		2601
D 21 13C8 FOSA	506.00	> 78.00	3.224	3.217	0.007	1.287	3205791	2.56		102 4710

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
22 Perfluorooctanesulfonamide	498.00 > 78.00	3.224	3.219	0.005	1.000	9561996	2.48		5171	
D 26 M2-8:2 FTS	529.00 > 81.00	3.224	3.226	-0.002	1.287	94931	2.42	101	463	
25 1H,1H,2H,2H-perfluorodecanesulfoni	527.00 > 507.00	3.224	3.226	-0.002	1.000	1244250	2.20		3828	
68 Perfluorononanesulfonic acid	549.00 > 80.00	3.224	3.226	-0.002	1.120	3331065	2.38		3990	
549.00 > 99.00	3.224	3.226	-0.002	1.120	601673		5.54(3.02-9.05)		3877	
24 Perfluorodecanoic acid	513.00 > 469.00	3.241	3.241	0.0	1.000	7807802	2.50		1227	
513.00 > 169.00	3.241	3.241	0.0	1.000	537287		14.53(7.12-21.35)		1410	
D 23 13C2 PFDA	515.00 > 470.00	3.241	3.241	0.0	1.294	7197428	2.40	95.9	7146	
D 27 d3-NMeFOSAA	573.00 > 419.00	3.399	3.392	0.007	1.357	3088149	2.38	95.2	3833	
28 N-methylperfluorooctanesulfonamido	570.00 > 419.00	3.399	3.399	0.0	1.000	3552086	2.88		1275	
29 Perfluorodecanesulfonic acid	599.00 > 80.00	3.541	3.552	-0.011	1.231	4916507	2.49		3614	
599.00 > 99.00	3.556	3.552	0.004	1.236	1040104		4.73(2.14-6.43)		2890	
D 32 d5-NEtFOSAA	589.00 > 419.00	3.556	3.558	-0.002	1.420	2613240	2.47	98.9	3755	
33 N-ethylperfluorooctanesulfonamidoa	584.00 > 419.00	3.570	3.566	0.004	1.004	2669909	2.79		6248	
D 30 13C2 PFUnA	565.00 > 520.00	3.570	3.568	0.002	1.426	6220476	2.48	99.2	6141	
31 Perfluoroundecanoic acid	563.00 > 519.00	3.570	3.570	0.0	1.000	6481117	2.29		1564	
563.00 > 169.00	3.570	3.570	0.0	1.000	528252		12.27(5.24-15.72)		2165	
66 11-Chloroeicosafuoro-3-oxaundecan	631.00 > 451.00	3.728	3.728	0.0	1.296	7813677	2.47		7145	
D 36 13C2 PFDaA	615.00 > 570.00	3.854	3.859	-0.005	1.539	7598929	2.46	98.4	8815	
37 Perfluorododecanoic acid	613.00 > 569.00	3.854	3.861	-0.007	1.000	8009187	2.59		2438	
613.00 > 169.00	3.854	3.861	-0.007	1.000	856769		9.35(4.68-14.05)		1905	
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00 > 607.00	3.854	3.865	-0.011	1.196	922967	2.30		1253	
75 Perfluorododecanesulfonic acid (PF	699.00 > 80.00	4.089	4.101	-0.012	1.421	557196	2.53		3374	
699.00 > 99.00	4.089	4.101	-0.012	1.421	1020755		0.55(0.28-0.83)		3235	
41 Perfluorotridecanoic acid	663.00 > 619.00	4.122	4.125	-0.003	1.069	6059296	2.44		3918	
663.00 > 169.00	4.122	4.125	-0.003	1.069	1052269		5.76(3.09-9.27)		3203	
42 Perfluorotetradecanoic acid	713.00 > 169.00	4.357	4.364	-0.007	1.000	943930	2.22		2989	
713.00 > 219.00	4.357	4.364	-0.007	1.000	638691		1.48(0.70-2.09)		4553	

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	4.357	4.364	-0.007	1.740	5809017	2.52		101	10499	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.769	4.780	-0.011	1.000	5271824	2.55			6488	
813.00 > 169.00	4.769	4.780	-0.011	1.000	1027836		5.13(2.77-8.32)		3153	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.769	4.780	-0.011	1.904	5668298	2.47		98.9	14508	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.125	5.127	-0.002	1.075	2933459	2.62			4212	
913.00 > 169.00	5.125	5.127	-0.002	1.075	613383		4.78(2.55-7.64)		3043	

Reagents:

LCPFCIC\_FULL\_00016

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_010.d

Injection Date: 30-Oct-2018 14:12:50

Instrument ID: A9

Lims ID: ICV Full

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 17

Worklist Smp#: 10

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

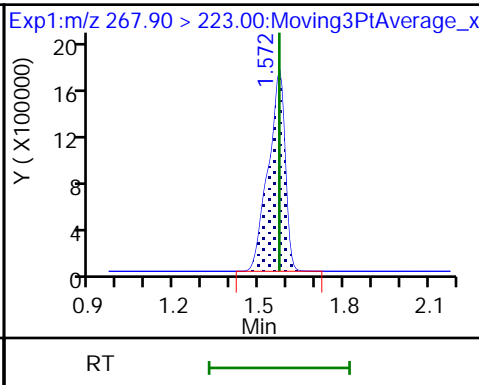
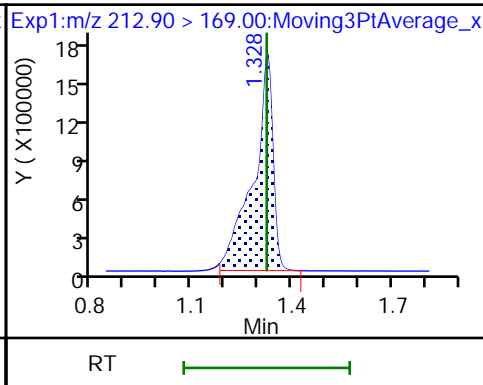
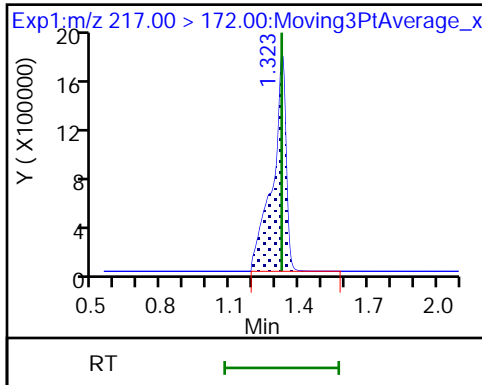
Method: PFAS\_A9

Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

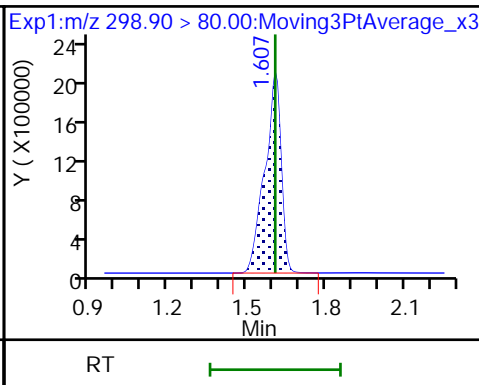
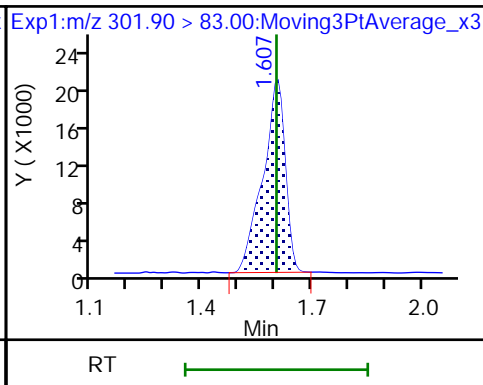
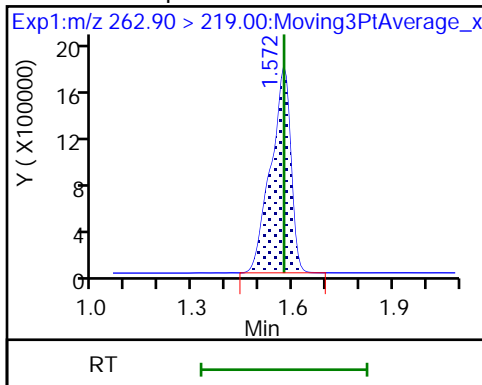
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 47 13C3 PFBS

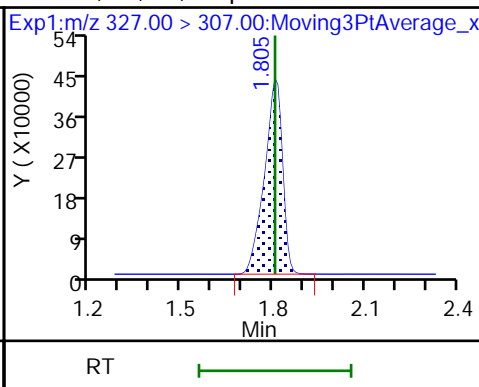
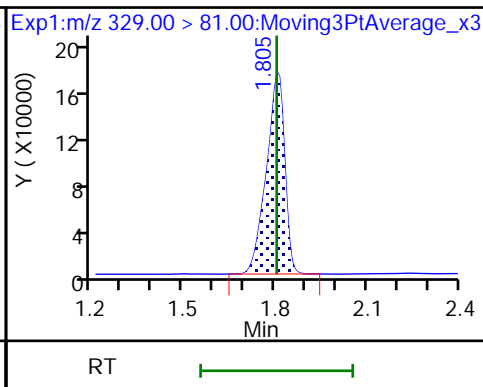
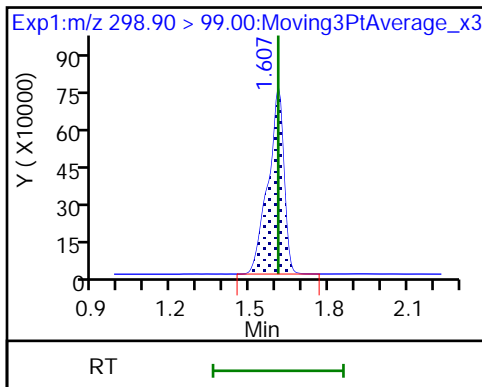
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

D 60 M2-4:2 FTS

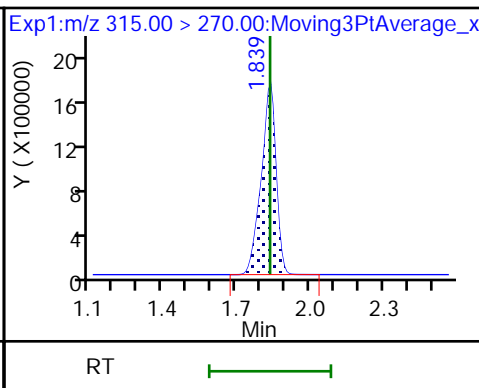
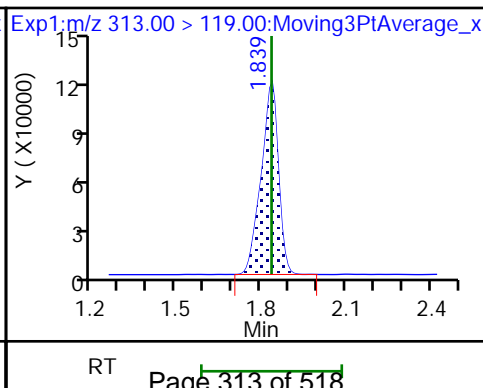
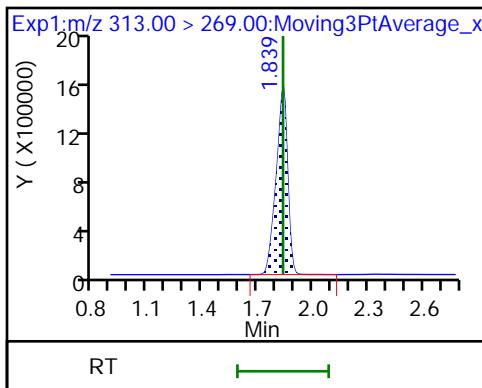
61 1H,1H,2H,2H-perfluorohexanesulfoni



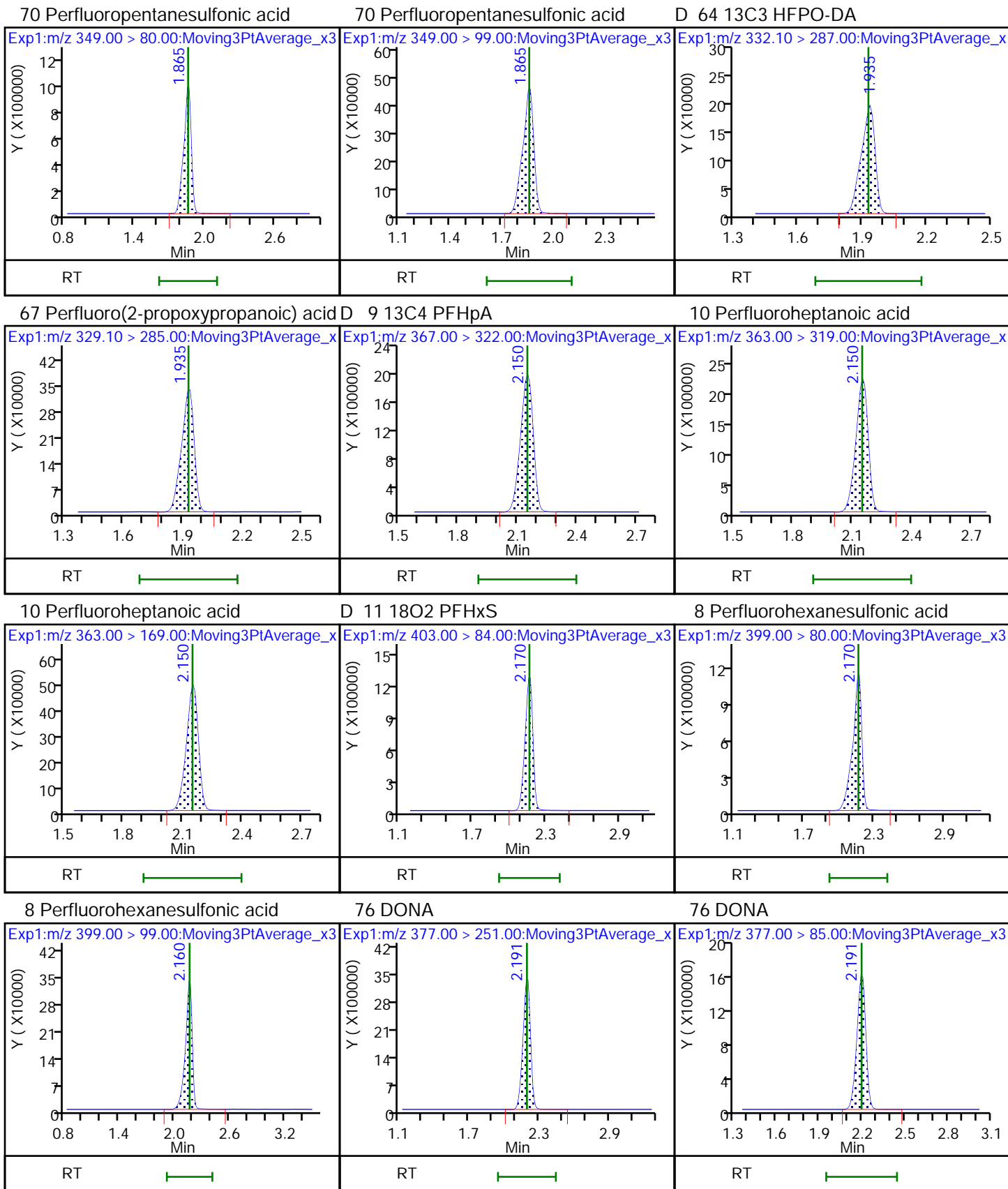
6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

D 7 13C2 PFHxA

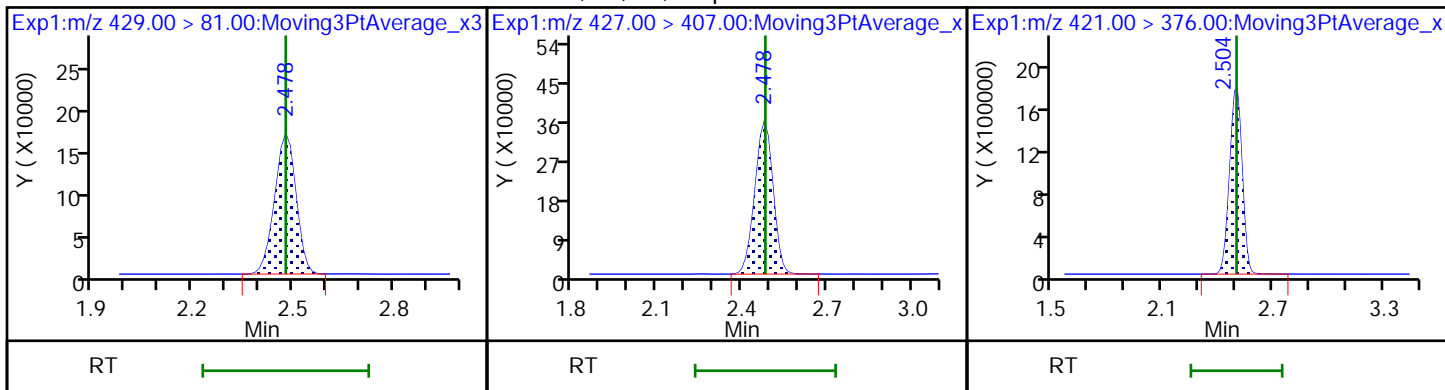






D 12 M2-6:2 FTS

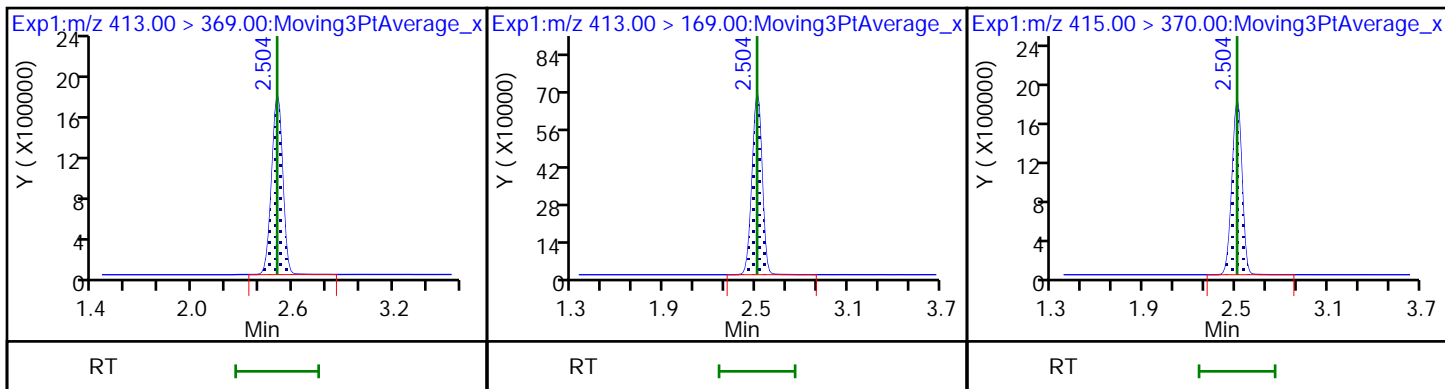
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

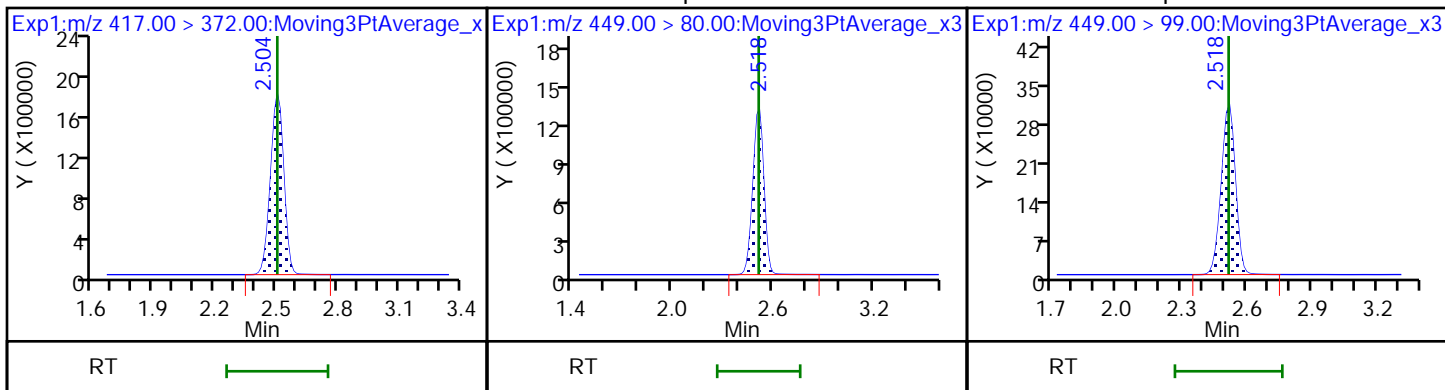
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

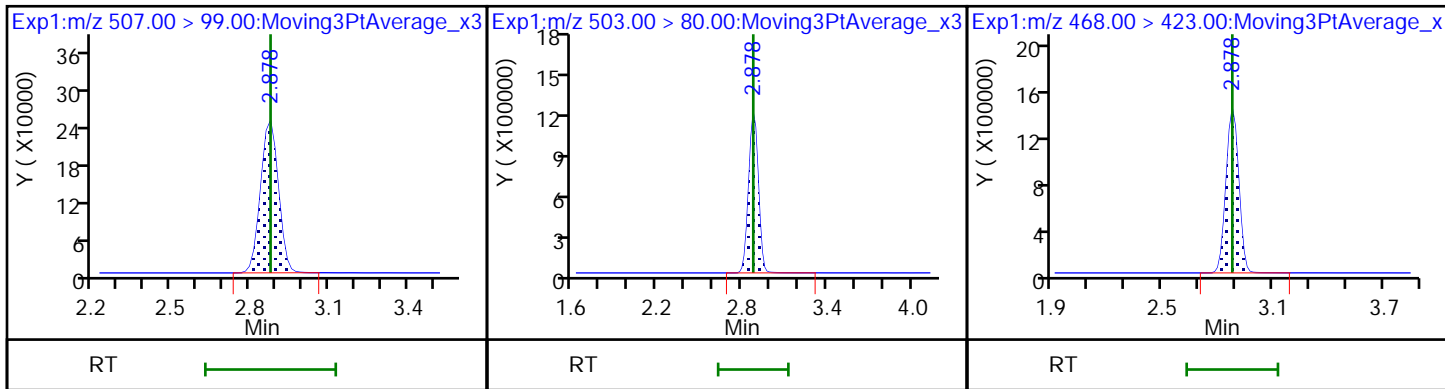
16 Perfluoroheptanesulfonic acid

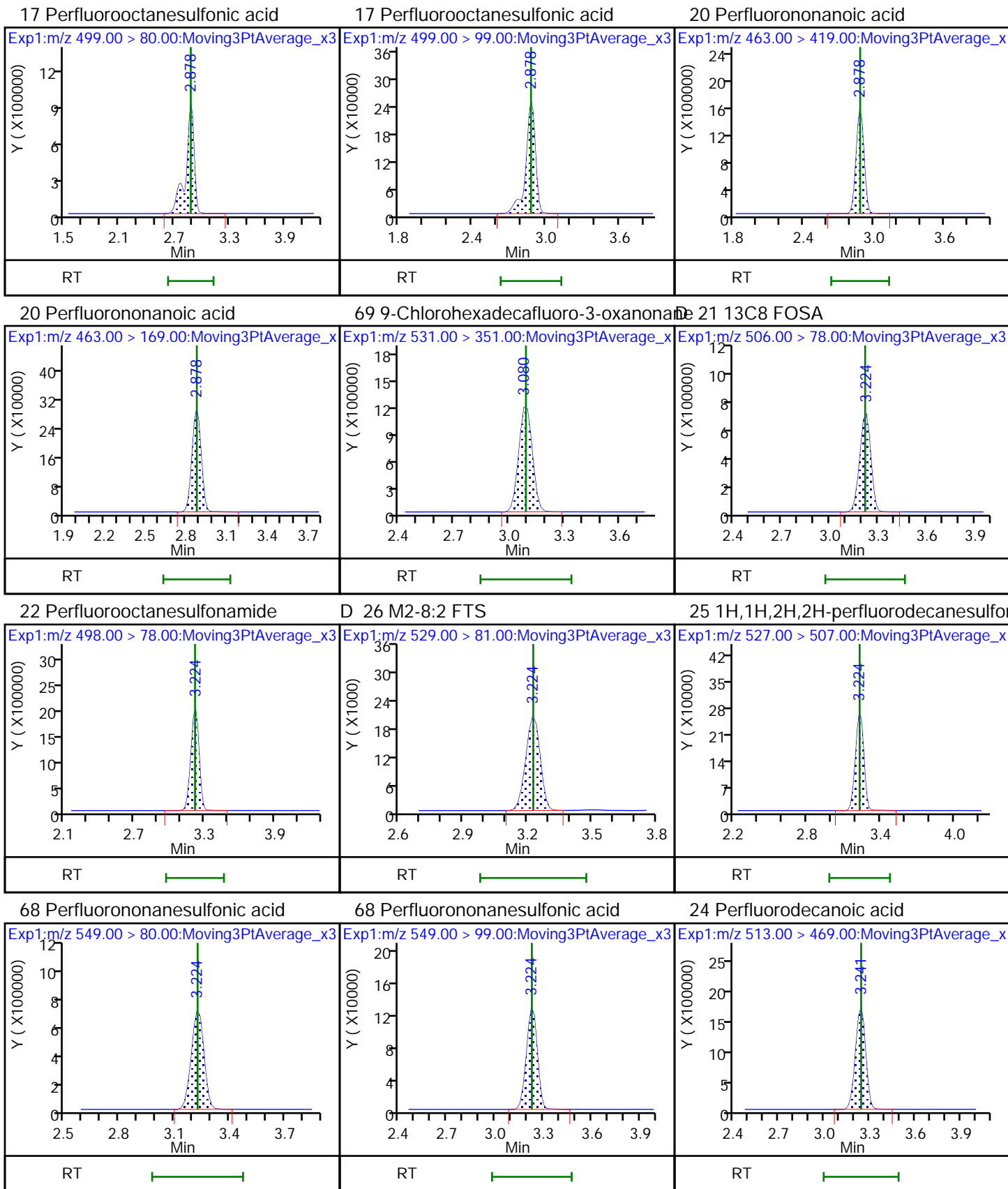


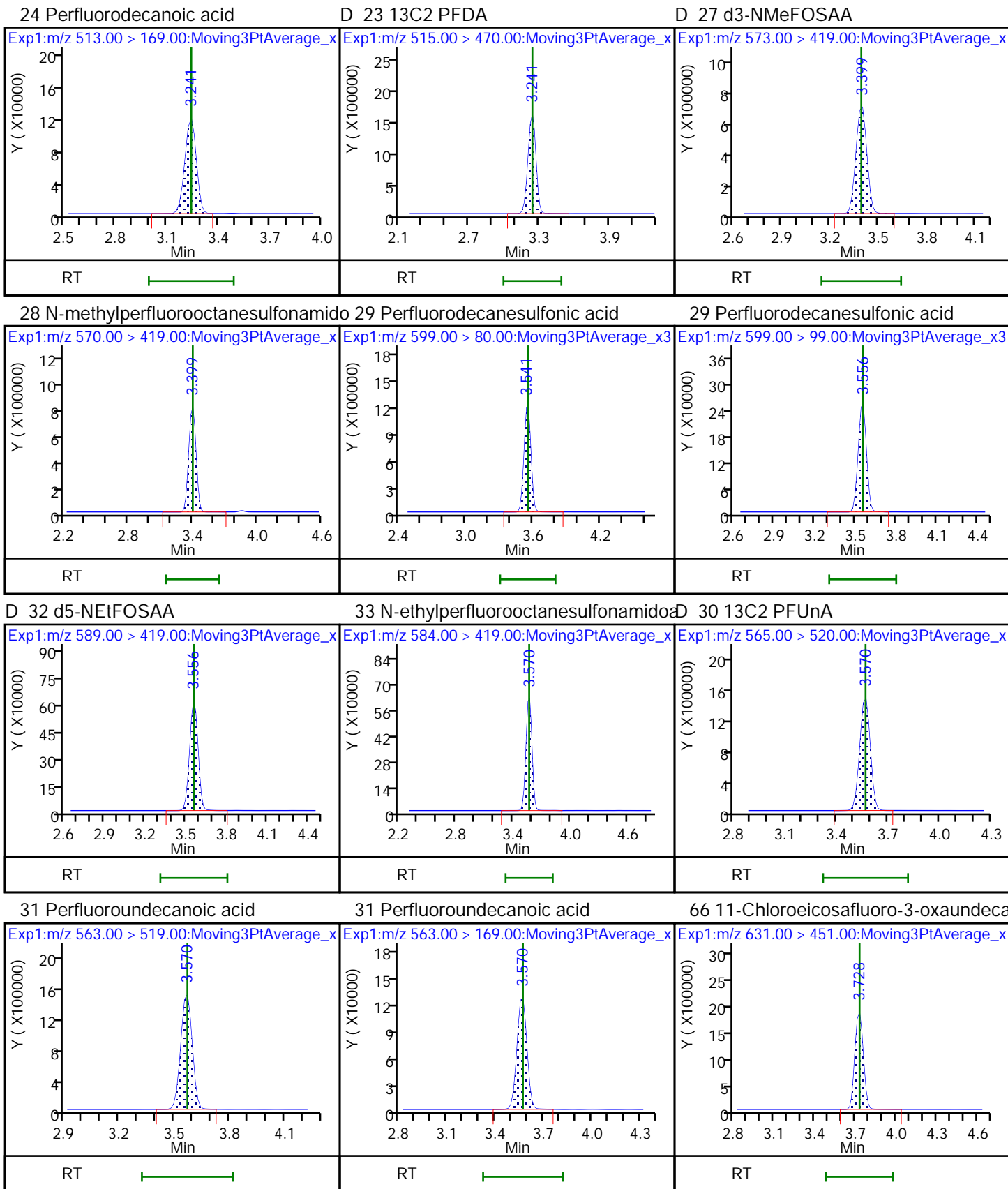
D 72 13C8 PFOS

D 18 13C4 PFOS

D 19 13C5 PFNA



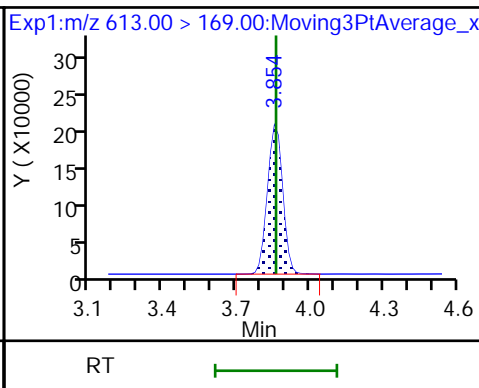
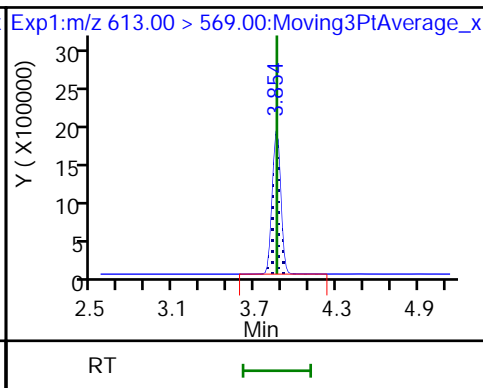
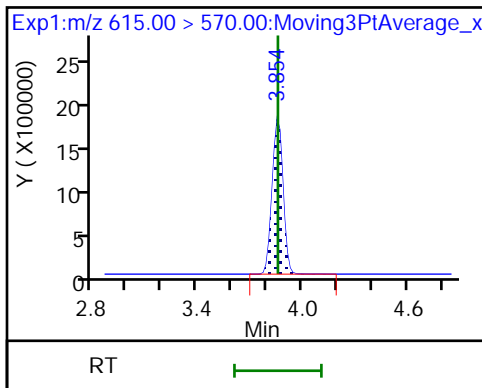




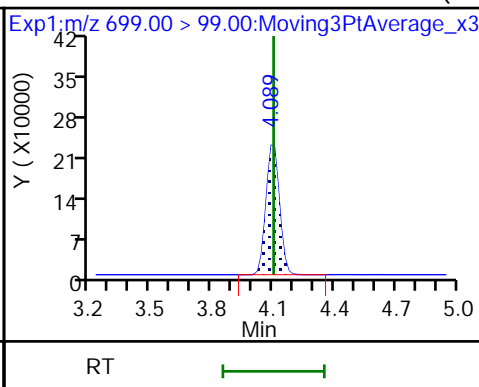
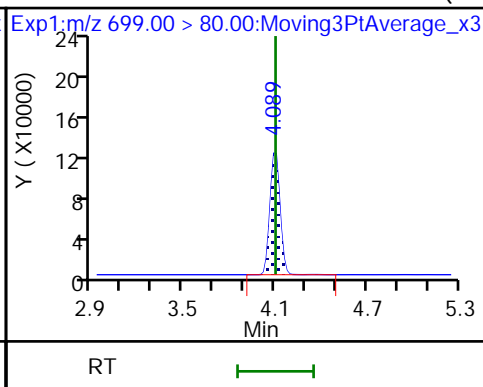
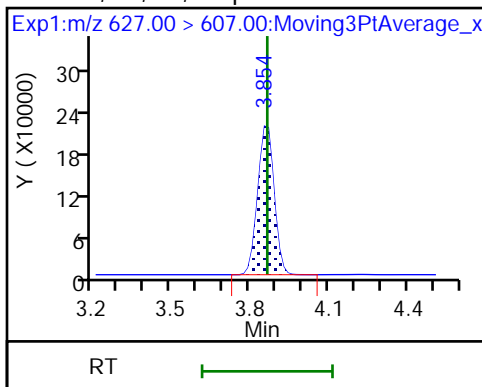
D 36 13C2 PFDaA

37 Perfluorododecanoic acid

37 Perfluorododecanoic acid



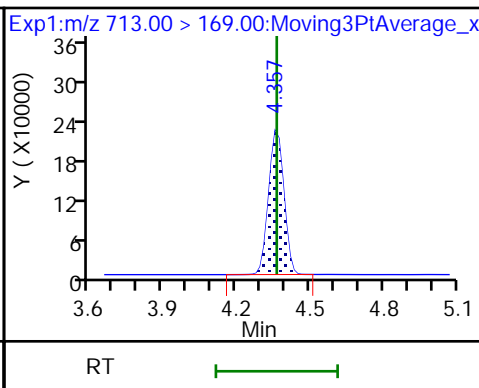
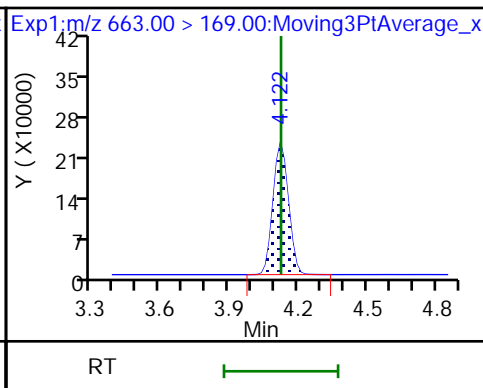
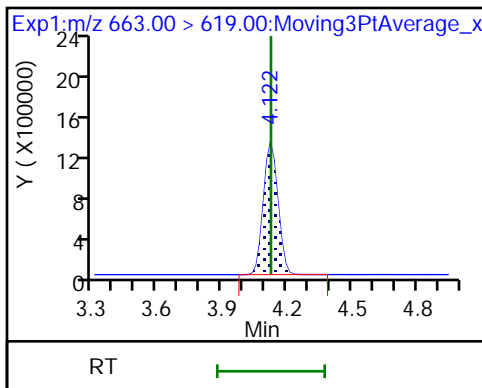
74 1H,1H,2H,2H-perfluorododecanesulfonate 75 Perfluorododecanesulfonic acid (PF



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

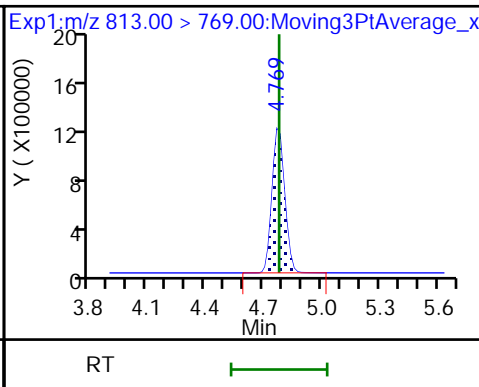
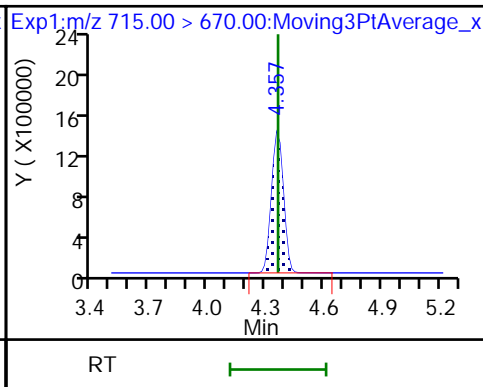
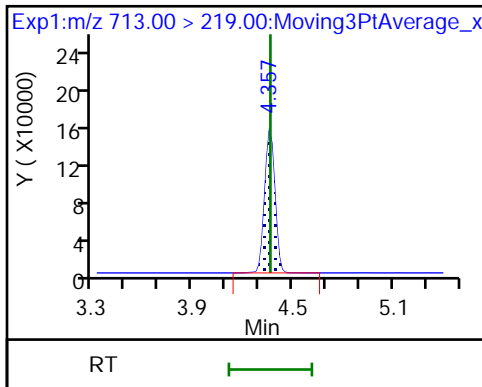
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

D 43 13C2 PFTeDA

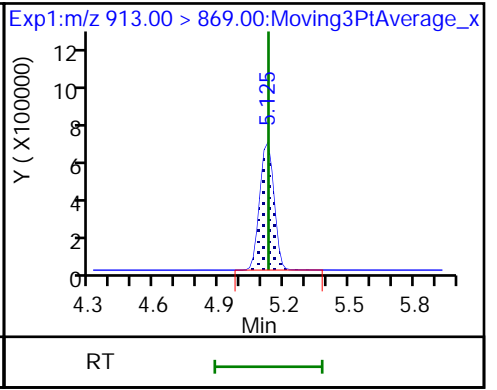
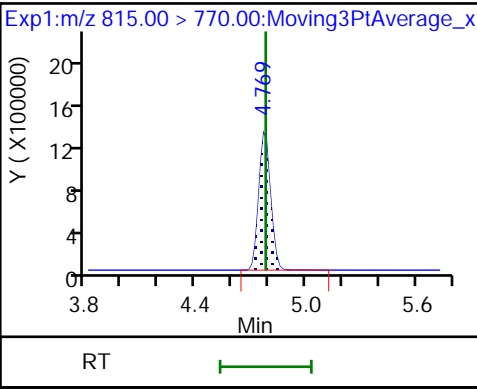
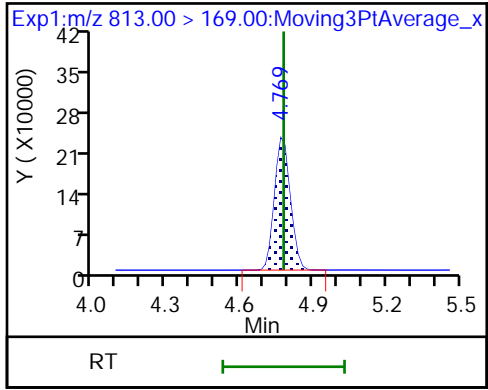
45 Perfluorohexadecanoic acid



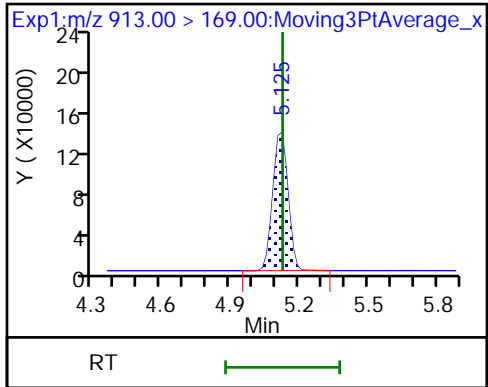
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-258344/2 Calibration Date: 11/10/2018 10:12  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.10LLA\_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	0.9357	0.8503		0.0454	0.0500	-9.1	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.001	1.016		0.0508	0.0500	1.5	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	103.3	100.9		0.0432	0.0442	-2.3	50.0
4:2 FTS	AveID	20.55	17.29		0.393	0.467	-15.9	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8997	0.8973		0.0499	0.0500	-0.3	50.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	47.84	46.01		0.0451	0.0469	-3.8	50.0
HFPO-DA (GenX)	AveID	1.662	2.246		0.0676	0.0500	35.1	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.061	1.112		0.0524	0.0500	4.9	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.260	1.219		0.0440	0.0455	-3.2	50.0
DONA	AveID	2.718	2.576		0.0447	0.0471	-5.2	50.0
6:2 FTS	AveID	2.182	1.925		0.418	0.474	-11.8	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.081	1.161		0.0537	0.0501	7.3	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.041	0.9512		0.0435	0.0476	-8.6	50.0
Perfluorononanoic acid (PFNA)	AveID	1.001	1.055		0.0527	0.0500	5.3	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.077	0.9401		0.0405	0.0464	-12.7	50.0
F-53B Major	AveID	1.108	1.054		0.0444	0.0466	-4.8	50.0
8:2 FTS	AveID	14.28	14.33		0.481	0.479	0.4	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.086	1.041		0.0479	0.0500	-4.1	50.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.6135	0.5417		0.0424	0.0480	-11.7	50.0
Perfluorooctanesulfonamide (FOSA)	AveID	3.005	2.931		0.0488	0.0500	-2.5	50.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.000	0.9021		0.451	0.500	-9.8	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.8654	0.8408		0.0468	0.0482	-2.8	50.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9143	0.9200		0.503	0.500	0.6	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.137	1.211		0.0532	0.0500	6.5	50.0
F-53B Minor	AveID	1.387	1.314		0.0446	0.0471	-5.3	50.0
10:2 FTS	AveID	10.11	8.009		0.0382	0.0482	-20.8	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.017	1.085		0.0533	0.0500	6.7	50.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.0963	0.0979		0.0492	0.0484	1.6	50.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8175	0.8785		0.0537	0.0500	7.5	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1828	0.2032		0.0556	0.0500	11.1	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.356		0.0489	0.0500	-2.1	50.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-258344/2 Calibration Date: 11/10/2018 10:12  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.10LLA\_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.4945	0.5908		0.0597	0.0500	19.5	50.0
13C4 PFBA	Ave	0.9103	0.9351		2.57	2.50	2.7	50.0
13C5 PFPeA	Ave	0.8665	0.8564		2.47	2.50	-1.2	50.0
13C3 PFBS	Ave	0.0120	0.0119		2.31	2.33	-0.6	50.0
M2-4:2 FTS	Ave	0.0962	0.0726		1.76	2.34	-24.5	50.0
13C2 PFHxA	Ave	0.9136	0.9008		2.47	2.50	-1.4	50.0
13C3 HFPO-DA	Ave	0.1181	0.1136		2.41	2.50	-3.8	50.0
13C4 PFHpA	Ave	1.074	1.060		2.47	2.50	-1.3	50.0
18O2 PFHxS	Ave	0.6988	0.7227		2.45	2.37	3.4	50.0
M2-6:2 FTS	Ave	0.0988	0.0882		2.12	2.38	-10.8	50.0
13C8 PFOA	Ave	3440710	2502353		1.78	2.45	-27.3	50.0
13C4 PFOA	Ave	0.9837	0.9565		2.43	2.50	-2.8	50.0
13C4 PFOS	Ave	0.7064	0.7574		2.56	2.39	7.2	50.0
13C5 PFNA	Ave	0.9095	0.8357		2.30	2.50	-8.1	50.0
13C8 PFOS	Ave	494030	452816		2.19	2.39	-8.3	50.0
13C2 PFDA	Ave	0.9367	0.8969		2.39	2.50	-4.2	50.0
13C8 FOSA	Ave	0.3910	0.3818		2.44	2.50	-2.4	50.0
M2-8:2 FTS	Ave	0.0122	0.0110		2.15	2.40	-10.4	50.0
d3-NMeFOSAA	Ave	0.4049	0.2908		1.80	2.50	-28.2	50.0
13C2 PFUnA	Ave	0.7823	0.7726		2.47	2.50	-1.2	50.0
d5-NEtFOSAA	Ave	0.3298	0.2793		2.12	2.50	-15.3	50.0
13C2 PFDoA	Ave	0.9635	0.8931		2.32	2.50	-7.3	50.0
13C2 PFTeDA	Ave	0.7200	0.6645		2.31	2.50	-7.7	50.0
13C2 PFHxDA	Ave	0.7154	0.7011		2.45	2.50	-2.0	50.0



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67483.b\2018.11.10LLA\_005.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 10-Nov-2018 10:12:53 ALS Bottle#: 21 Worklist Smp#: 2  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub6  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67483.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 13-Nov-2018 07:56:14 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0319

First Level Reviewer: ruangyotsakuld Date: 13-Nov-2018 07:56:14

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	1.346	1.346	0.0	0.529	6824598	2.57	103	5526	
2 Perfluorobutanoic acid										M
212.90 > 169.00	1.346	1.352	-0.006	1.000	116060	0.0454		90.9	2.3	M
D 3 13C5 PFPeA	267.90 > 223.00	1.602	1.602	0.0	0.630	6250205	2.47	98.8	5614	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.602	1.608	-0.006	1.000	127028	0.0508		102	4.1	
D 47 13C3 PFBS	301.90 > 83.00	1.636	1.636	0.0	0.643	80776	2.31	99.4	168	M
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.636	1.643	-0.007	1.000	154984	0.0432		97.7	54.6	
298.90 > 99.00	1.636	1.643	-0.007	1.000	57454		2.70(1.35-4.05)		17.8	M
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.843	1.843	0.0	1.126	280461	0.3928		84.1	1446	
D 60 M2-4:2 FTS	329.00 > 81.00	1.843	1.843	0.0	0.725	495169	1.76	75.5	406	
D 7 13C2 PFHxA	315.00 > 270.00	1.873	1.873	0.0	0.736	6574525	2.47	98.6	7052	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.873	1.883	-0.010	1.000	117991	0.0499		99.7	6.8	
313.00 > 119.00	1.873	1.883	-0.010	1.000	11841		9.96(6.96-20.87)		7.0	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.902	1.902	0.0	1.162	74962	0.0451		96.2	137	
349.00 > 99.00	1.902	1.902	0.0	1.162	42343		1.77(1.15-3.45)		24.5	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.972	1.961	0.011	0.775	829194	2.41	96.2	2141	

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	1.972	1.972	0.0	1.000	37250	0.0676	135	9.7
10 Perfluoroheptanoic acid	363.00	> 319.00	2.191	2.191	0.0	1.000	172173	0.0524	105	12.3
	363.00	> 169.00	2.191	2.191	0.0	1.000	37553	4.58(2.17-6.52)		16.3
D 9 13C4 PFHpA	367.00	> 322.00	2.191	2.191	0.0	0.862	7739522	2.47	98.7	6772
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.204	2.204	0.0	1.000	117021	0.0440	96.8	99.4
	399.00	> 99.00	2.204	2.204	0.0	1.000	44256	2.64(1.90-5.70)		24.0
D 11 18O2 PFHxS	403.00	> 84.00	2.204	2.204	0.0	0.867	4989938	2.45	103	4879
76 DONA	377.00	> 251.00	2.229	2.241	-0.013	0.765	268310	0.0447	94.8	435
	377.00	> 85.00	2.241	2.241	0.0	0.769	117009	2.29(1.13-3.39)		73.1
D 12 M2-6:2 FTS	429.00	> 81.00	2.513	2.514	-0.001	0.988	611206	2.12	89.2	807
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.513	2.528	-0.015	1.000	234861	0.4182	88.2	528
D 73 13C8 PFOA	421.00	> 376.00	2.528	2.528	0.0		6124509	1.78	72.7	8829
* 62 13C2 PFOA	415.00	> 370.00	2.543	2.543	0.0		7298534	2.50		5249
15 Perfluorooctanoic acid	413.00	> 369.00	2.543	2.543	0.0	1.000	162201	0.0537	107	15.4
	413.00	> 169.00	2.543	2.543	0.0	1.000	62755	2.58(1.36-4.08)		38.4
D 14 13C4 PFOA	417.00	> 372.00	2.543	2.543	0.0	1.000	6981265	2.43	97.2	5330
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.558	2.558	0.0	0.878	100112	0.0435	91.4	180
	449.00	> 99.00	2.558	2.558	0.0	0.878	26038	3.84(1.84-5.53)		49.5
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.914	2.914	0.0	1.000	96445	0.0405	87.3	65.6
	499.00	> 99.00	2.914	2.914	0.0	1.000	24683	3.91(2.04-6.12)		72.8
20 Perfluorononanoic acid	463.00	> 419.00	2.914	2.914	0.0	1.000	128645	0.0527	105	16.3
	463.00	> 169.00	2.914	2.914	0.0	1.000	19737	6.52(2.68-8.03)		12.4
D 72 13C8 PFOS	507.00	> 99.00	2.914	2.914	0.0		1082231	2.19	91.7	2284
D 18 13C4 PFOS	503.00	> 80.00	2.914	2.914	0.0	1.146	5284490	2.56	107	4362
D 19 13C5 PFNA	468.00	> 423.00	2.914	2.914	0.0	1.146	6099111	2.30	91.9	5668
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.124	3.124	0.0	1.072	108636	0.0444	95.2	129
68 Perfluorononanesulfonic acid	549.00	> 80.00	3.264	3.264	0.0	1.120	57491	0.0424	88.3	224
	549.00	> 99.00	3.248	3.264	-0.016	1.114	9517	6.04(3.02-9.05)		101

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	3.264	3.264	0.0	1.000	220004	0.4809	100	1265
D 26 M2-8:2 FTS	529.00	> 81.00	3.264	3.265	-0.001	1.284	76753	2.15	89.6	308
D 23 13C2 PFDA	515.00	> 470.00	3.264	3.265	-0.001	1.284	6546206	2.39	95.8	5449
D 21 13C8 FOSA	506.00	> 78.00	3.264	3.265	-0.001	1.284	2786779	2.44	97.6	6405
24 Perfluorodecanoic acid	513.00	> 469.00	3.264	3.281	-0.017	1.000	136234	0.0479	95.9	21.5
	513.00	> 169.00	3.264	3.281	-0.017	1.000	10941	12.45(7.12-21.35)		16.8
22 Perfluorooctanesulfonamide	498.00	> 78.00	3.264	3.281	-0.017	1.000	163346	0.0488	97.5	387
28 N-methylperfluorooctanesulfonamido	570.00	> 419.00	3.422	3.422	0.0	1.000	382925	0.4510	90.2	187
D 27 d3-NMeFOSAA	573.00	> 419.00	3.422	3.422	0.0	1.346	2122470	1.80	71.8	2416
29 Perfluorodecanesulfonic acid	599.00	> 80.00	3.575	3.575	0.0	1.227	89608	0.0468	97.2	126
	599.00	> 99.00	3.575	3.575	0.0	1.227	21125	4.24(2.14-6.43)		68.3
31 Perfluoroundecanoic acid	563.00	> 519.00	3.591	3.591	0.0	1.000	136525	0.0532	106	41.6
	563.00	> 169.00	3.591	3.591	0.0	1.000	10230	13.35(5.24-15.72)		28.4
33 N-ethylperfluorooctanesulfonamidoa	584.00	> 419.00	3.591	3.591	0.0	1.000	375000	0.5031	101	691
D 30 13C2 PFUnA	565.00	> 520.00	3.591	3.591	0.0	1.412	5639122	2.47	98.8	6213
D 32 d5-NEtFOSAA	589.00	> 419.00	3.591	3.591	0.0	1.412	2038080	2.12	84.7	1464
66 11-Chloroeicosafuoro-3-oxaundecan	631.00	> 451.00	3.744	3.759	-0.015	1.285	136793	0.0446	94.7	256
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00	> 607.00	3.883	3.883	0.0	1.189	12372	0.0382	79.2	46.4
37 Perfluorododecanoic acid	613.00	> 569.00	3.883	3.883	0.0	1.000	141504	0.0533	107	47.5
	613.00	> 169.00	3.883	3.883	0.0	1.000	13876	10.20(4.68-14.05)		30.6
D 36 13C2 PFDoA	615.00	> 570.00	3.883	3.883	0.0	1.527	6518211	2.32	92.7	7249
75 Perfluorododecanesulfonic acid (PF	699.00	> 80.00	4.114	4.114	0.0	1.412	10472	0.0492	102	57.2
	699.00	> 99.00	4.114	4.114	0.0	1.412	18692	0.56(0.28-0.83)		69.7
41 Perfluorotridecanoic acid	663.00	> 619.00	4.145	4.145	0.0	1.067	114529	0.0537	107	68.2
	663.00	> 169.00	4.145	4.145	0.0	1.067	17917	6.39(3.09-9.27)		39.4
42 Perfluorotetradecanoic acid	713.00	> 169.00	4.381	4.381	0.0	1.000	19711	0.0556	111	57.4
	713.00	> 219.00	4.381	4.381	0.0	1.000	13317	1.48(0.70-2.09)		50.1

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	4.381	4.381	0.0	1.723	4849686	2.31	92.3	8160	
D 44 13C2 PFHxDA	815.00 > 770.00	4.786	4.786	0.0	1.882	5116869	2.45	98.0	7446	
45 Perfluorohexadecanoic acid	813.00 > 769.00	4.786	4.786	0.0	1.000	138795	0.0489	97.9	87.6	
	813.00 > 169.00	4.786	4.786	0.0	1.000	27711		5.01(2.77-8.32)	71.2	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.114	5.114	0.0	1.068	60464	0.0597	119	71.1	
	913.00 > 169.00	5.114	5.114	0.0	1.068	13547		4.46(2.55-7.64)	134	

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LCPFC\_LLCCVL\_00001

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67483.b\2018.11.10LLA\_005.d

Injection Date: 10-Nov-2018 10:12:53

Instrument ID: A9

Lims ID: CCVL

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 21

Worklist Smp#: 2

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

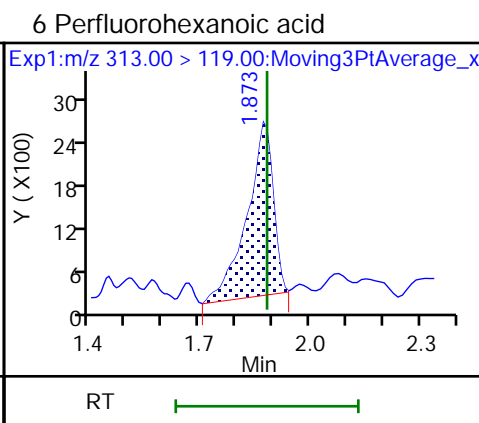
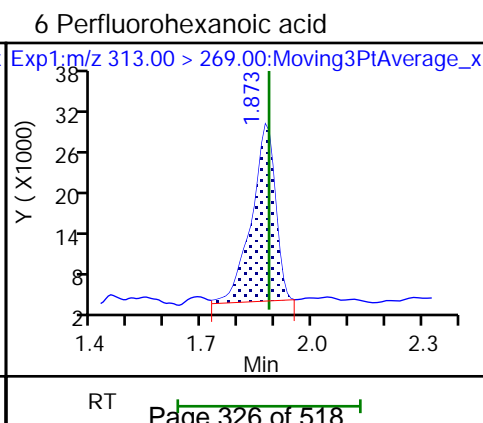
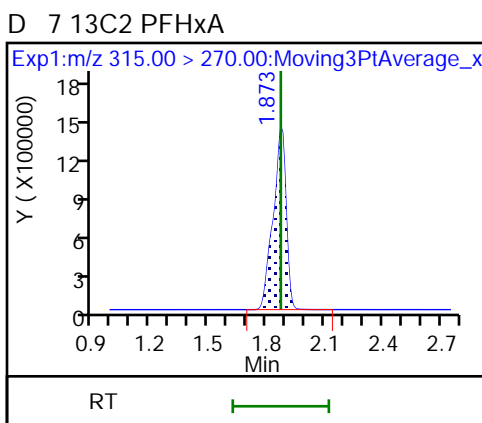
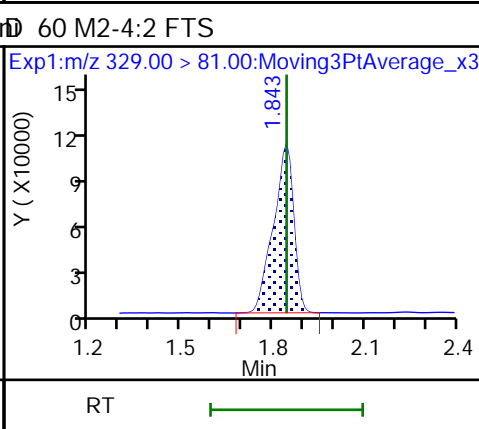
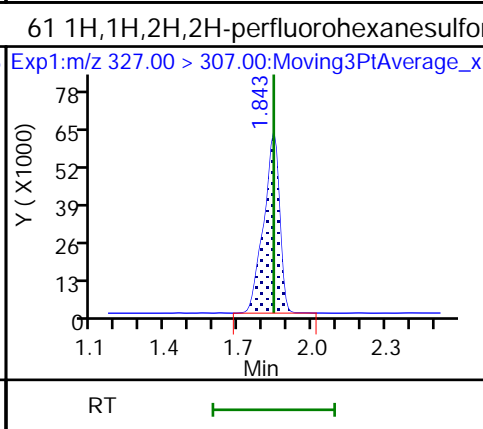
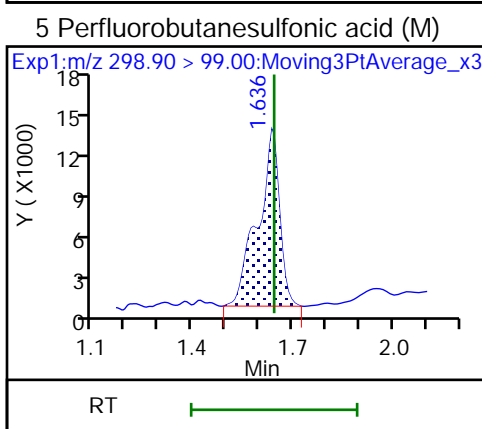
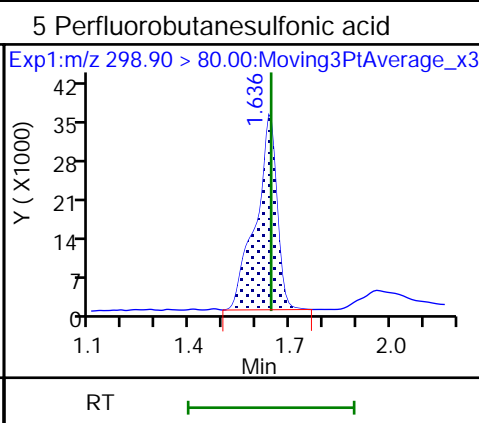
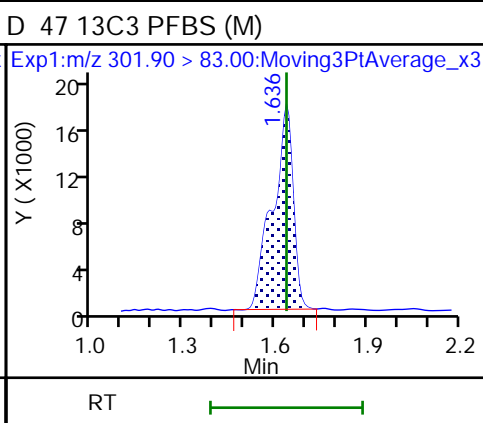
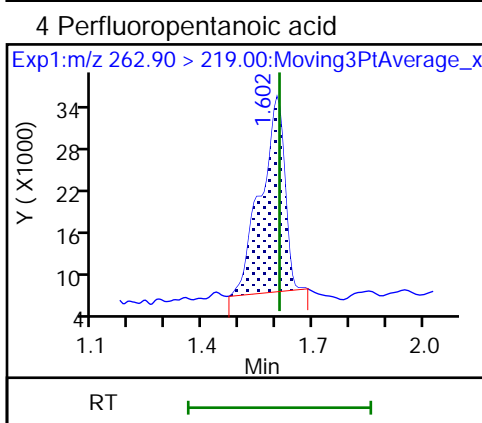
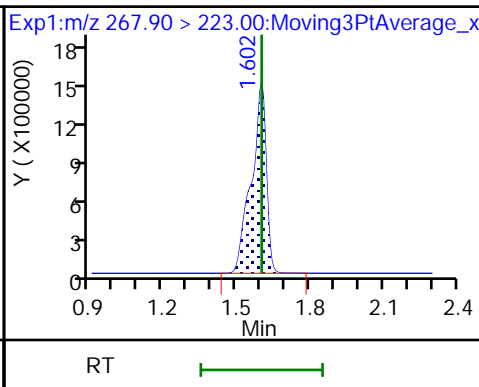
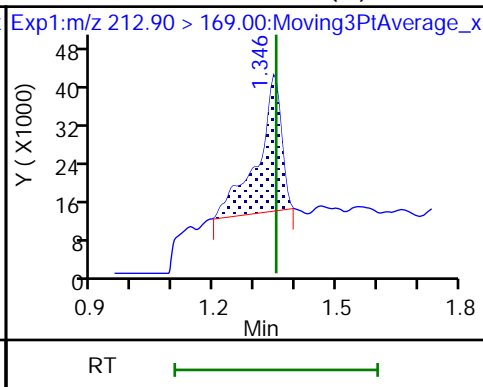
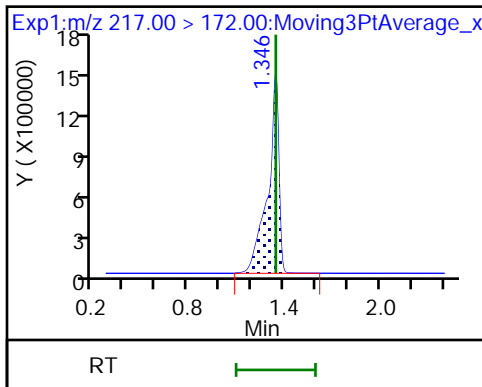
Method: PFAS\_A9

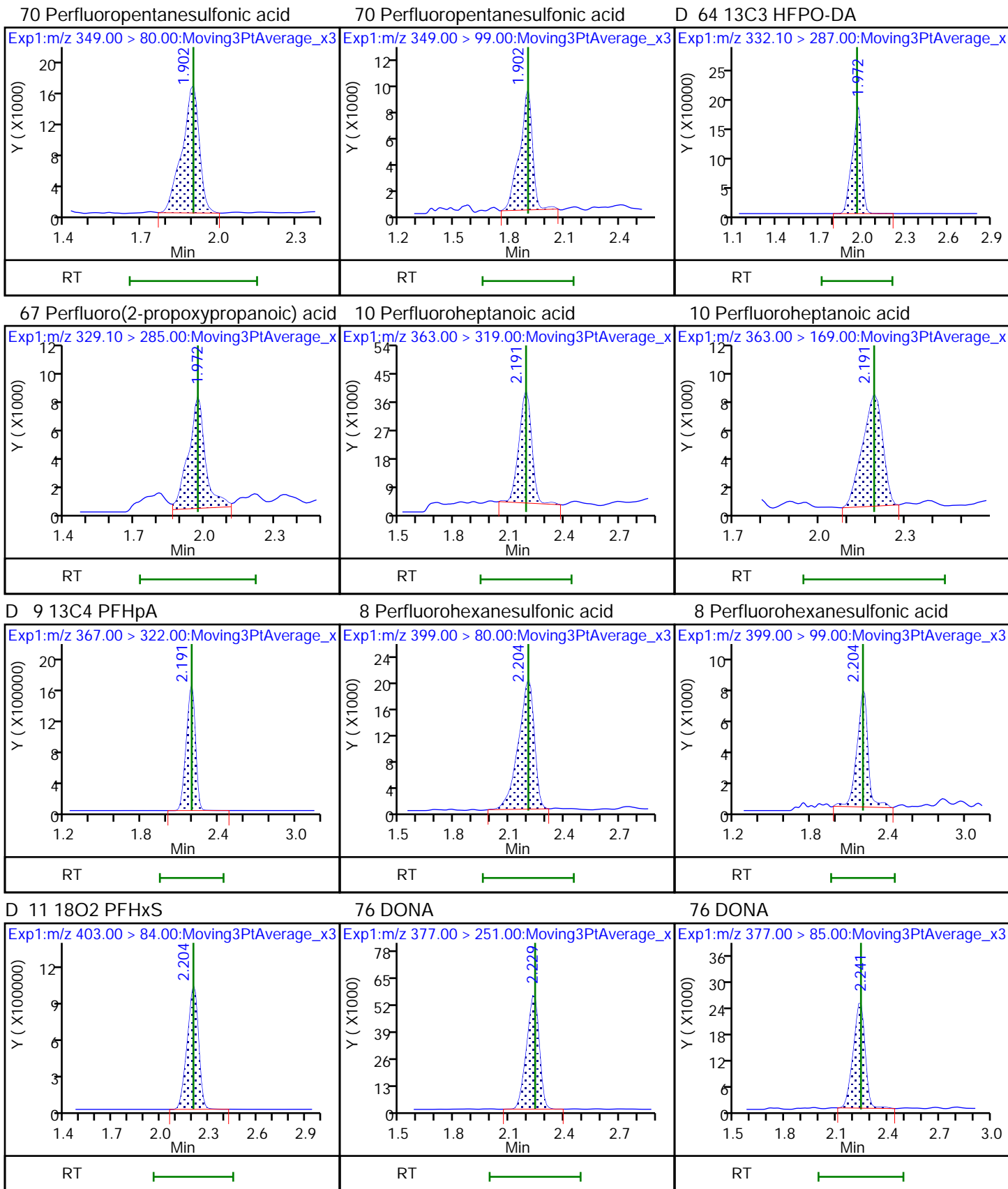
Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid (M)

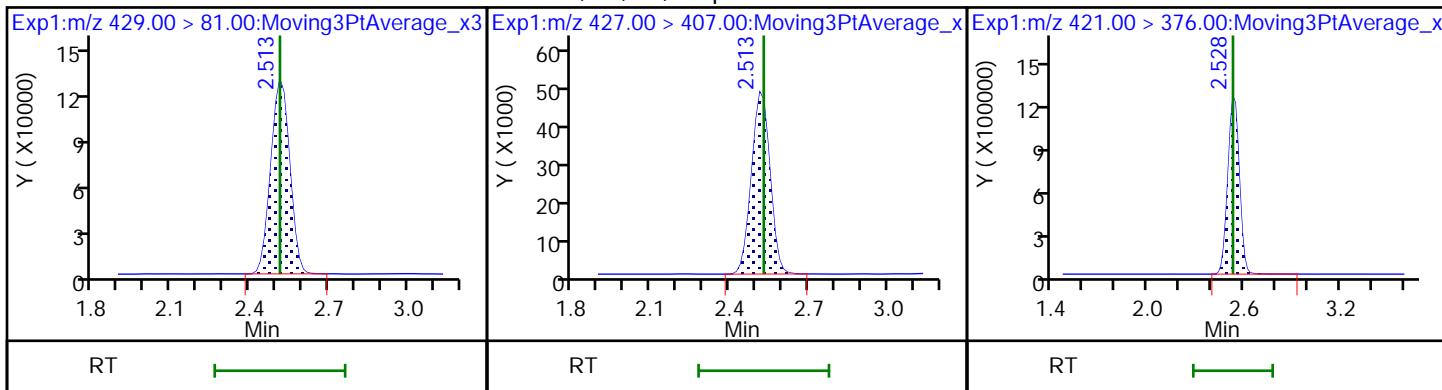
D 3 13C5 PFPeA





D 12 M2-6:2 FTS

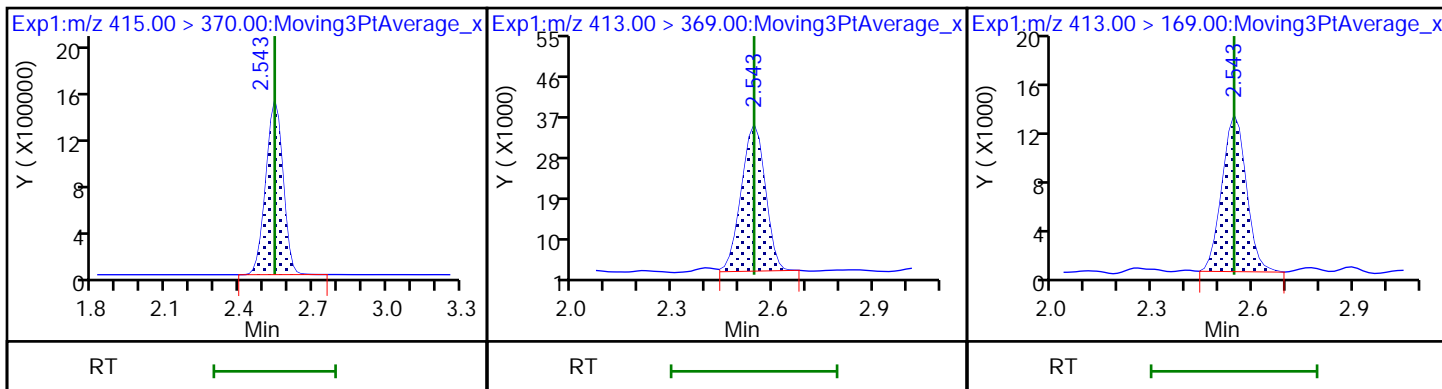
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



\* 62 13C2 PFOA

15 Perfluorooctanoic acid

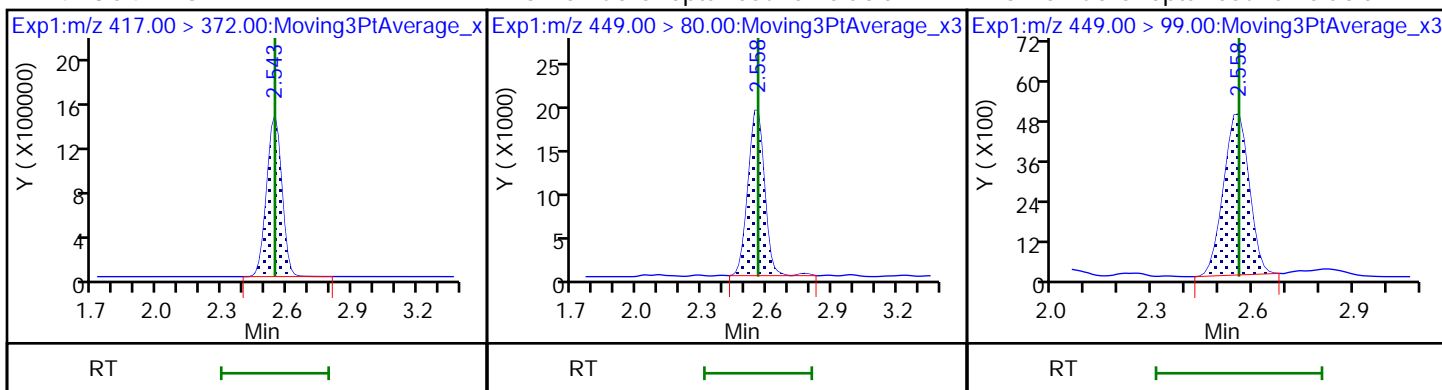
15 Perfluorooctanoic acid



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

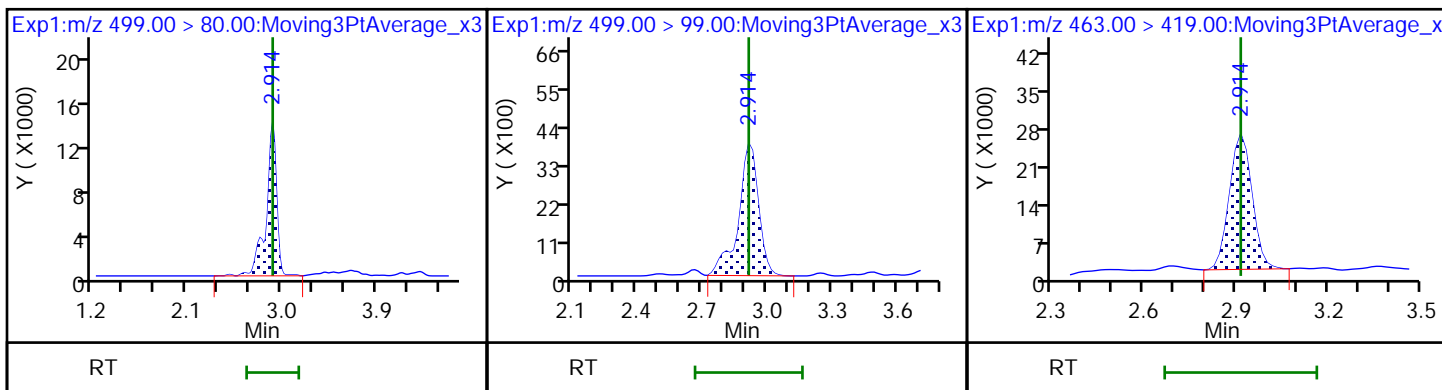
16 Perfluoroheptanesulfonic acid

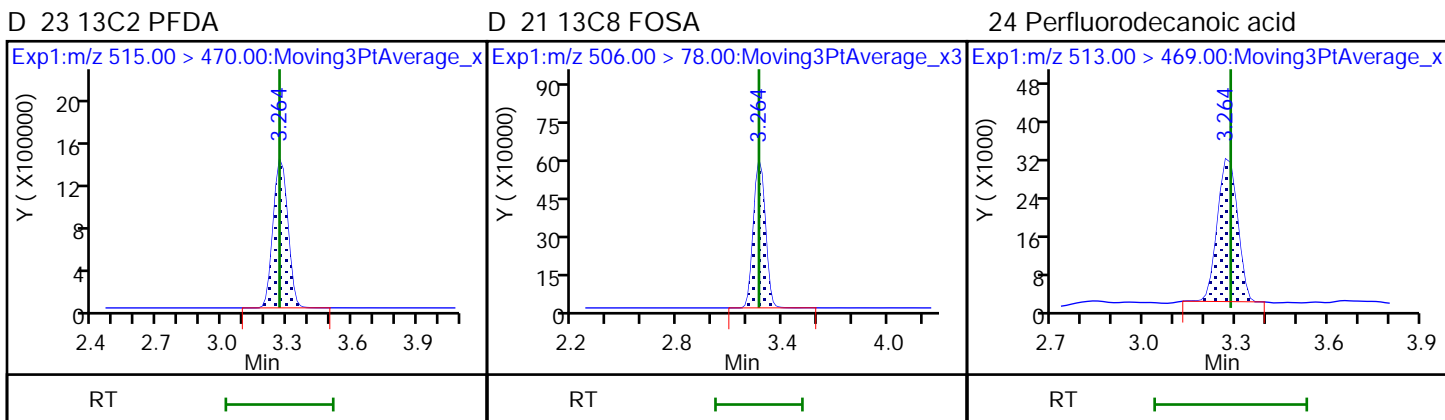
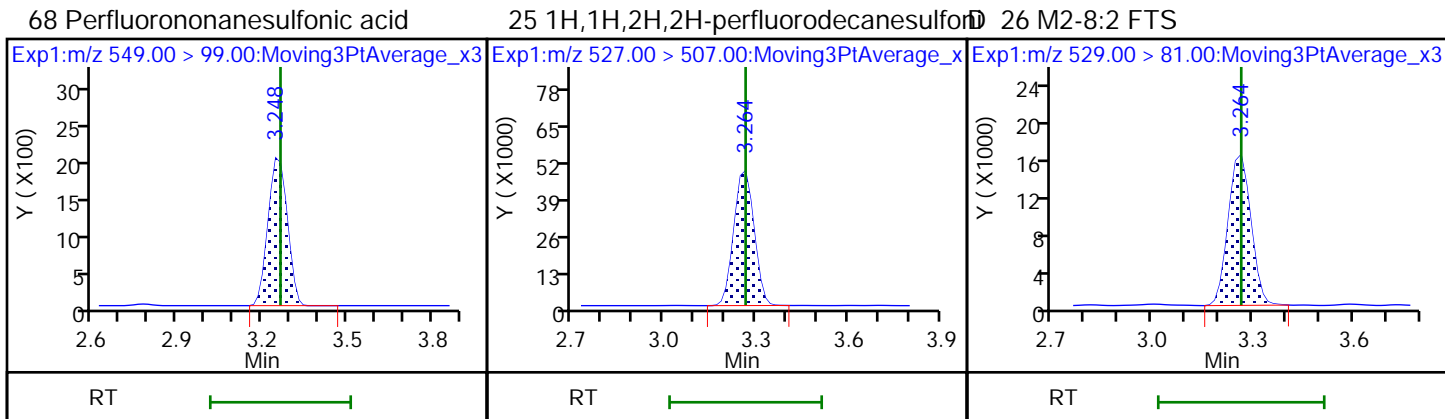
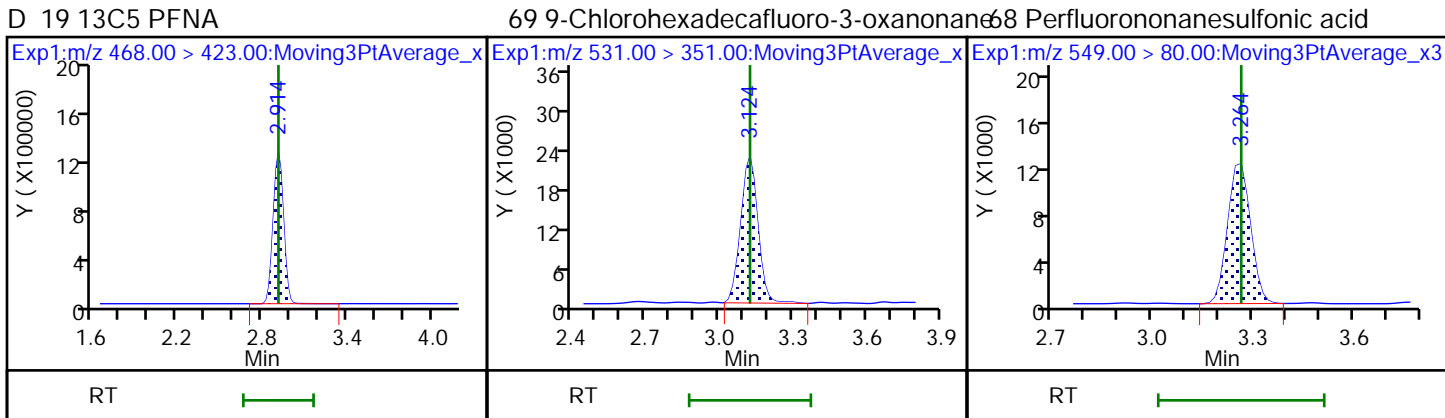
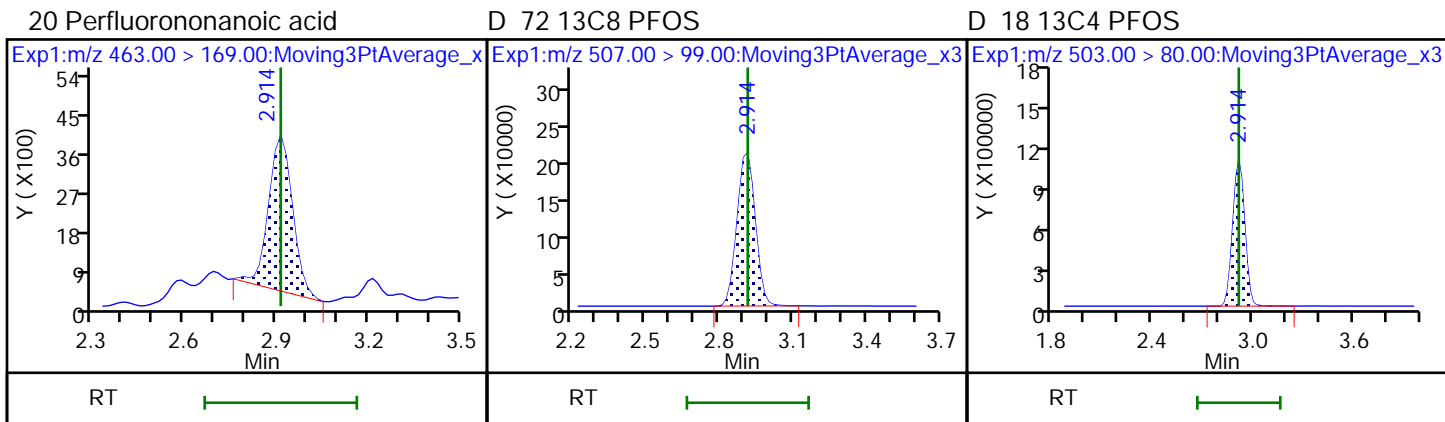


17 Perfluorooctanesulfonic acid

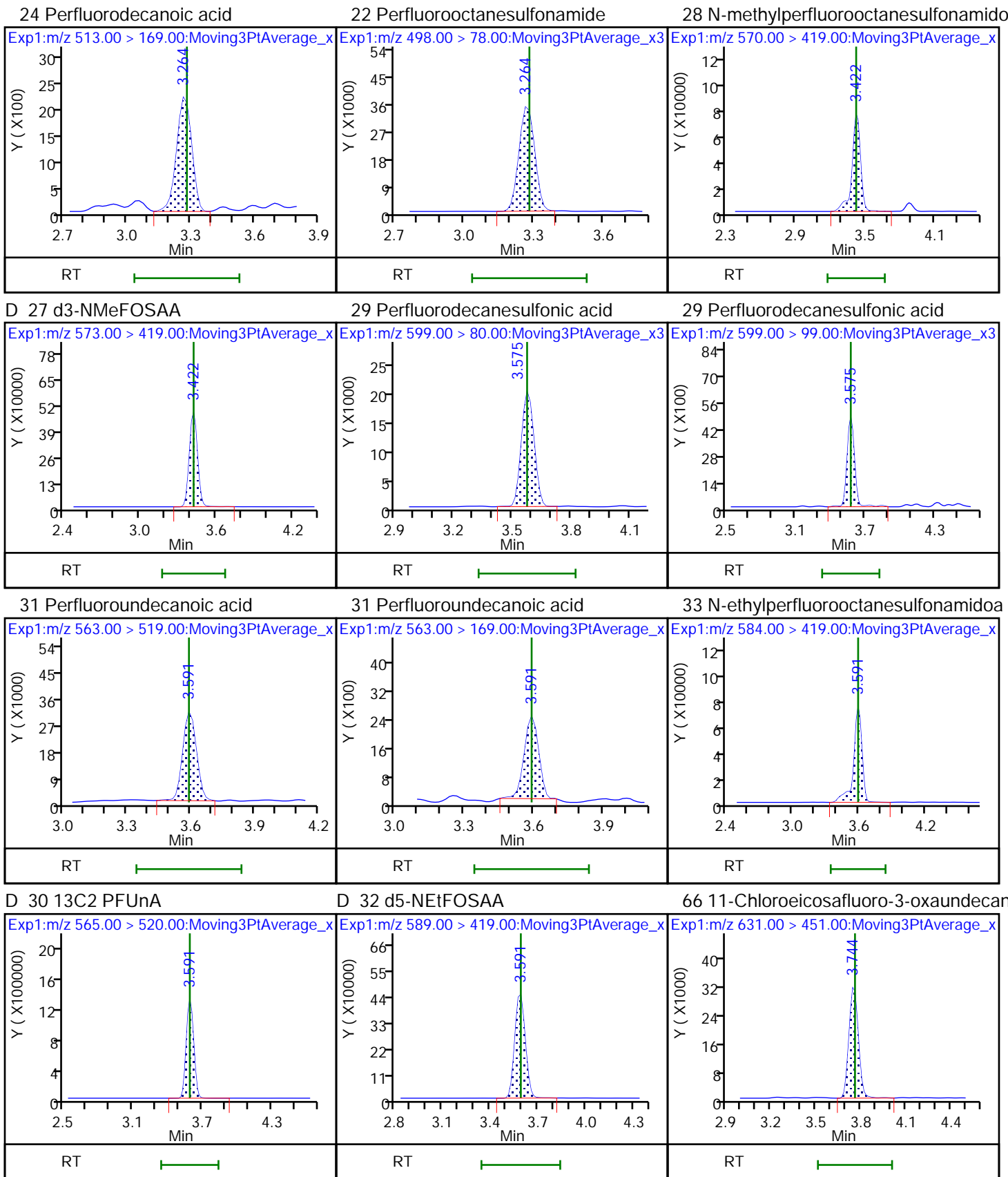
17 Perfluorooctanesulfonic acid

20 Perfluorononanoic acid



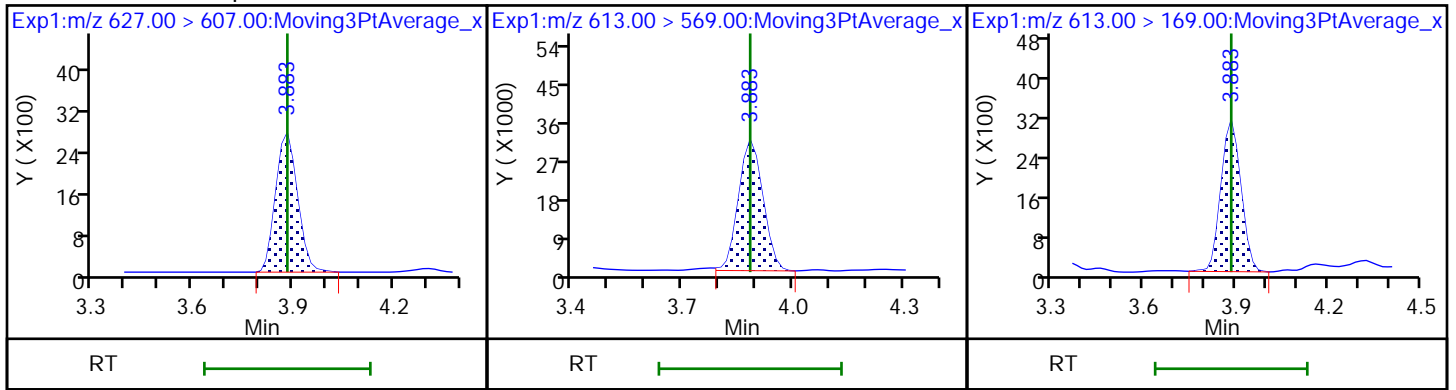






74 1H,1H,2H,2H-perfluorododecanesulfo37 Perfluorododecanoic acid

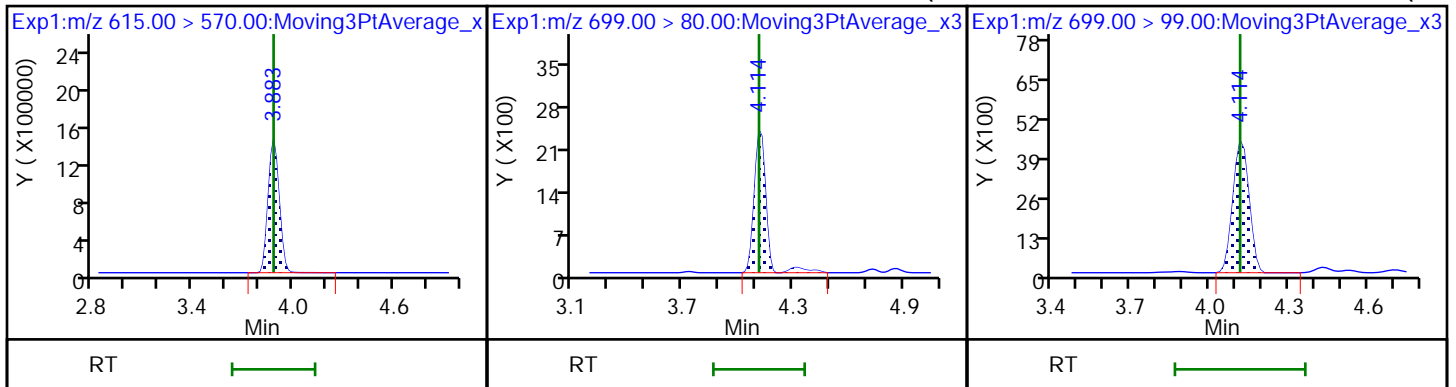
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

75 Perfluorododecanesulfonic acid (PF

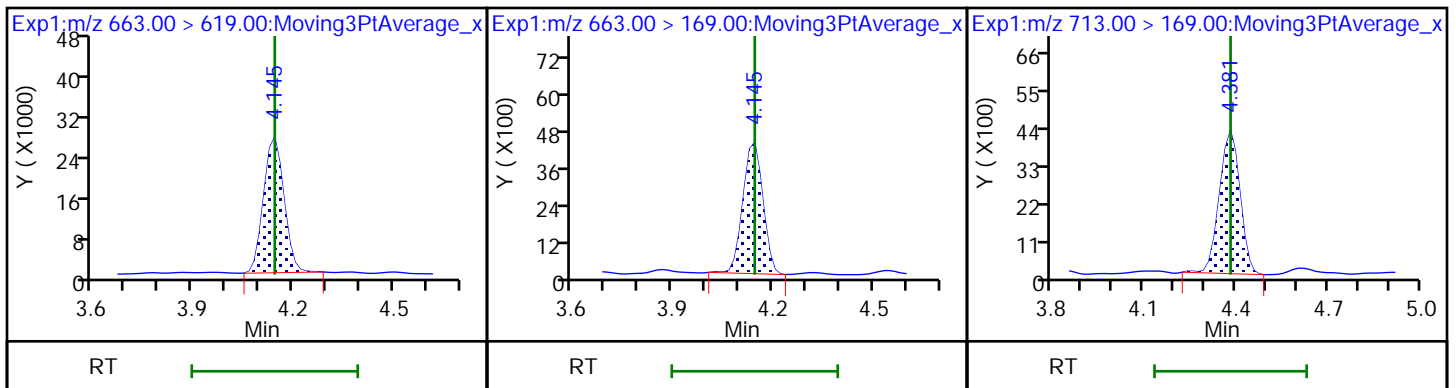
75 Perfluorododecanesulfonic acid (PF



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

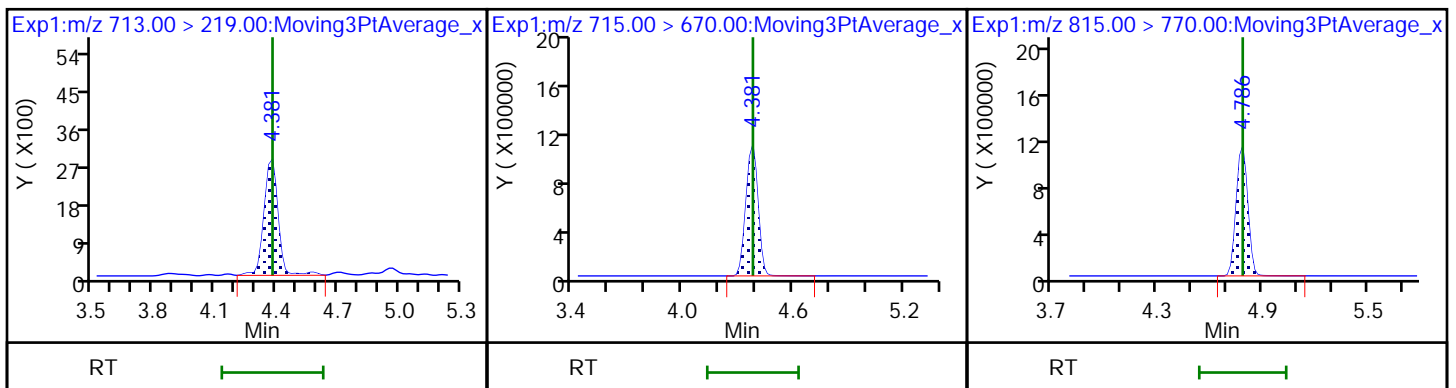
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

D 43 13C2 PFTeDA

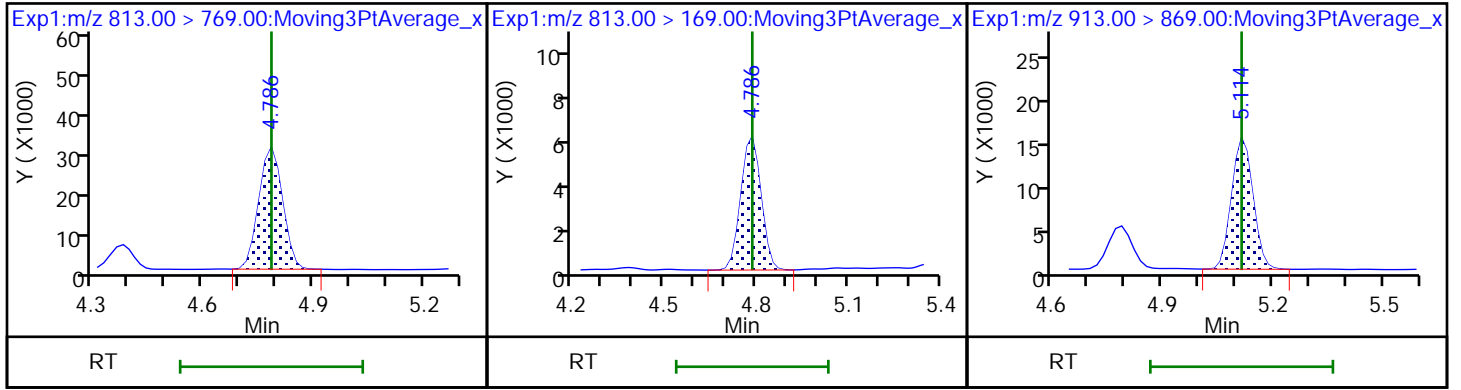
D 44 13C2 PFHxDA



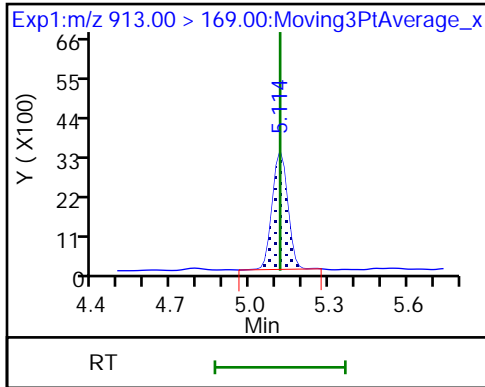
45 Perfluorohexadecanoic acid

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

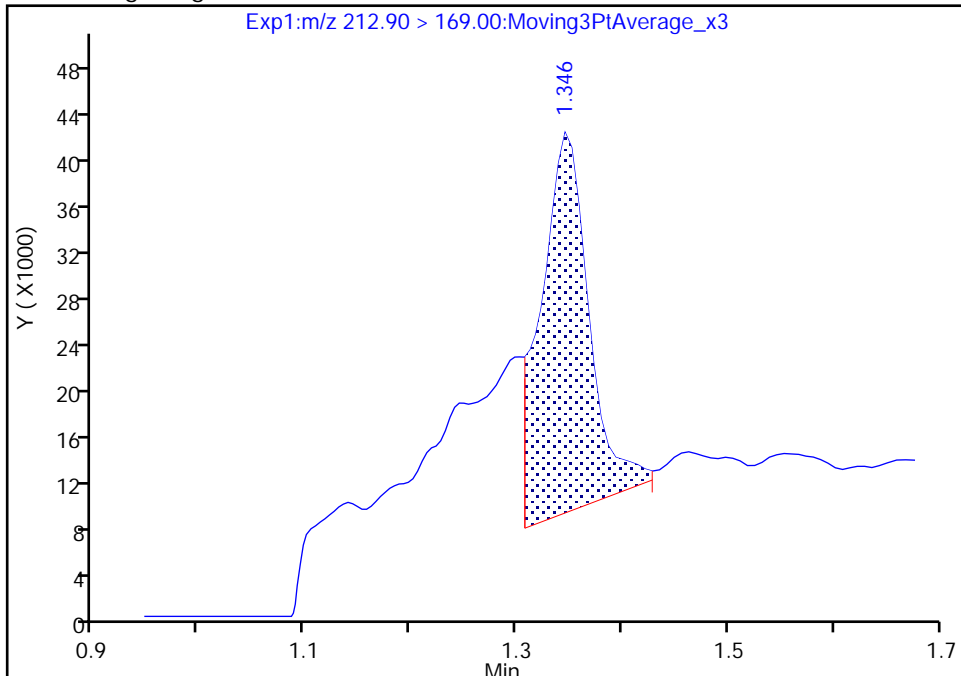
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Injection Date: 10-Nov-2018 10:12:53 Instrument ID: A9  
Lims ID: CCVL  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

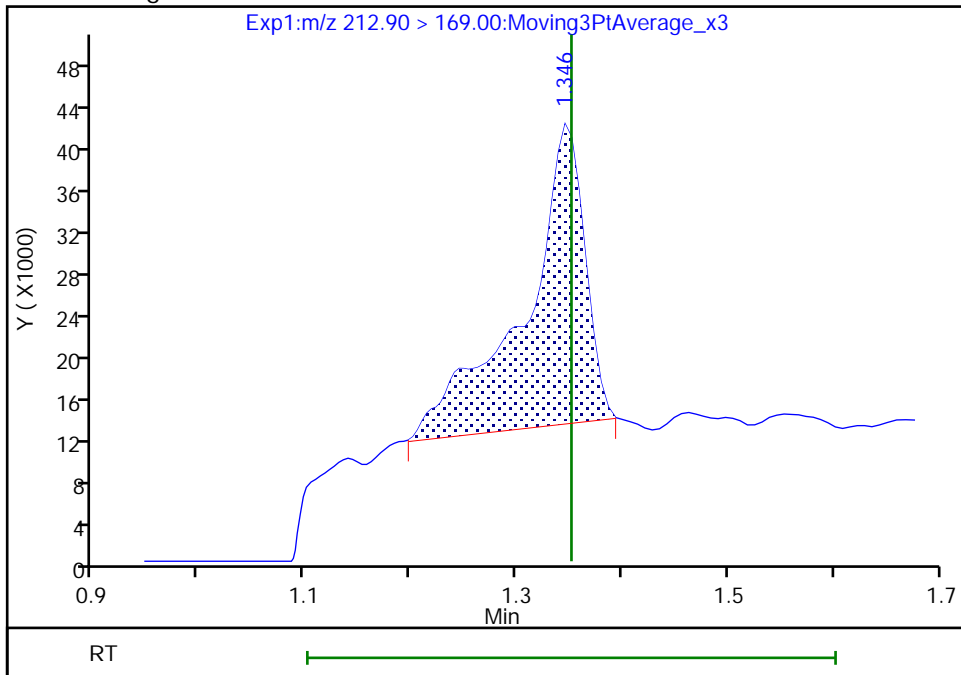
RT: 1.35  
Area: 103368  
Amount: 0.040467  
Amount Units: ng/ml

Processing Integration Results



RT: 1.35  
Area: 116060  
Amount: 0.045436  
Amount Units: ng/ml

Manual Integration Results



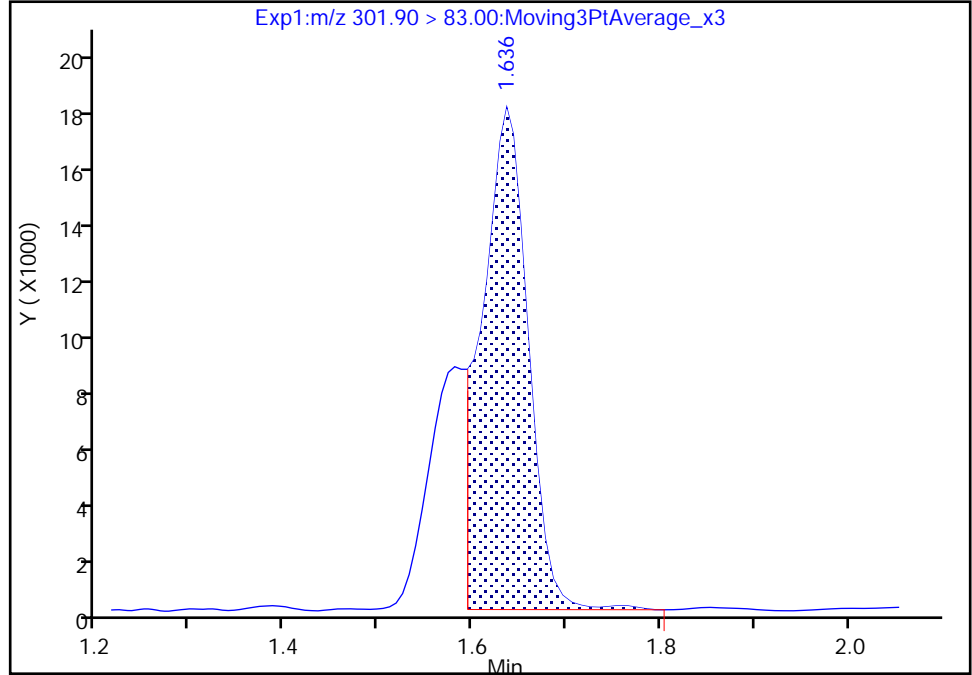
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67483.b\2018.11.10LLA\_005.d  
Injection Date: 10-Nov-2018 10:12:53 Instrument ID: A9  
Lims ID: CCVL  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

**D 47 13C3 PFBS, CAS: STL02337**  
Signal: 1

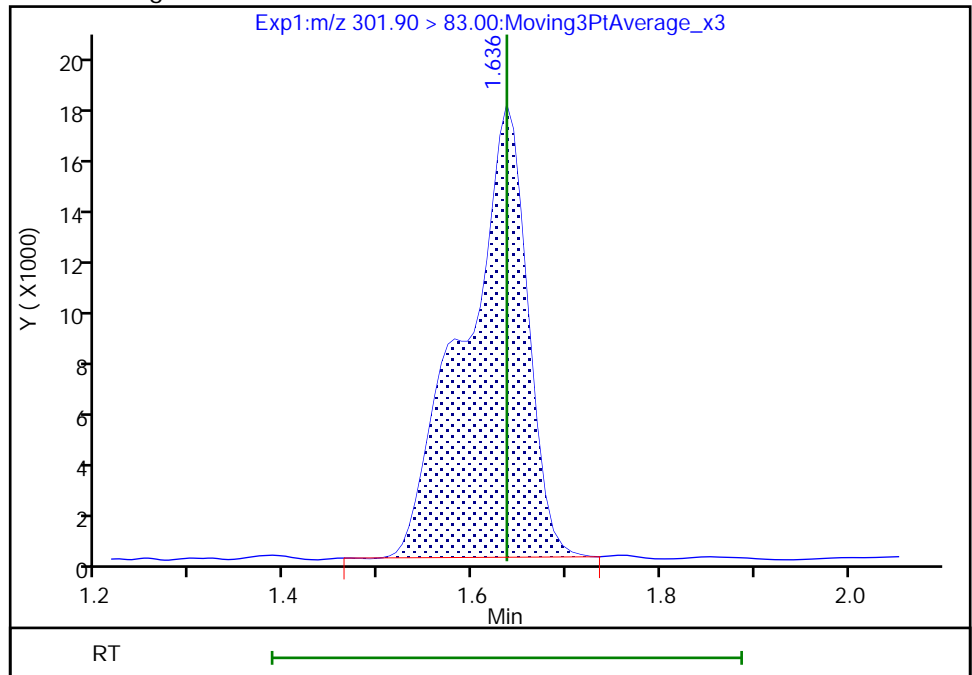
RT: 1.64  
Area: 58576  
Amount: 1.675359  
Amount Units: ng/ml

Processing Integration Results



RT: 1.64  
Area: 80776  
Amount: 2.310311  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 10-Nov-2018 11:15:43  
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

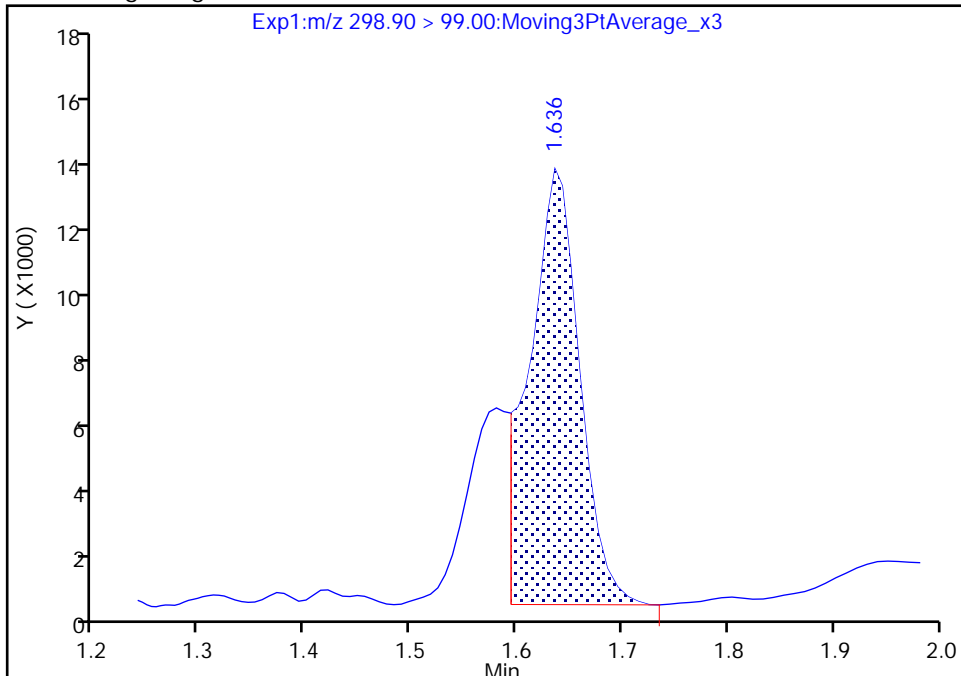
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Lims ID: CCVL  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

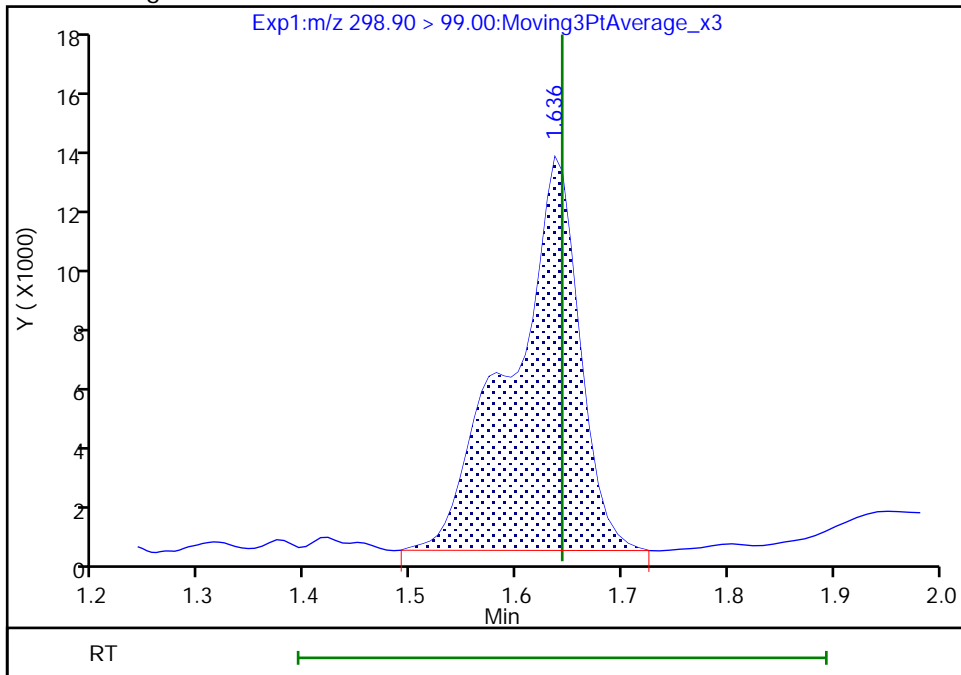
RT: 1.64  
Area: 41545  
Amount: 0.043201  
Amount Units: ng/ml

Processing Integration Results



RT: 1.64  
Area: 57454  
Amount: 0.043201  
Amount Units: ng/ml

Manual Integration Results



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-258344/3 Calibration Date: 11/10/2018 10:20  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.10LLA\_006.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9357	0.9749		1.04	1.00	4.2	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.001	1.015		1.01	1.00	1.4	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	103.3	110.5		0.946	0.884	7.0	50.0
4:2 FTS	AveID	20.55	15.76		0.716	0.934	-23.3	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8997	0.8861		0.985	1.00	-1.5	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	47.84	51.70		1.01	0.938	8.1	50.0
HFPO-DA (GenX)	AveID	1.662	1.716		1.03	1.00	3.2	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.061	1.106		1.04	1.00	4.3	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.260	1.148		0.829	0.910	-8.8	40.0
DONA	AveID	2.718	2.792		0.968	0.942	2.7	50.0
6:2 FTS	AveID	2.182	2.219		0.964	0.948	1.7	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.081	1.088		1.01	1.00	0.7	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.041	1.114		1.02	0.952	7.0	50.0
Perfluorononanoic acid (PFNA)	AveID	1.001	1.026		1.02	1.00	2.5	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.077	1.086		0.936	0.928	0.8	40.0
F-53B Major	AveID	1.108	1.183		0.995	0.932	6.8	50.0
8:2 FTS	AveID	14.28	13.05		0.876	0.958	-8.6	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.6135	0.6112		0.956	0.960	-0.4	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.086	1.256		1.16	1.00	15.7	40.0
Perfluorooctanesulfonamide (FOSA)	AveID	3.005	3.153		1.05	1.00	4.9	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.000	0.9814		0.981	1.00	-1.9	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.8654	0.9255		1.03	0.964	6.9	50.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9143	0.9584		1.05	1.00	4.8	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.137	1.138		1.00	1.00	0.1	40.0
F-53B Minor	AveID	1.387	1.453		0.987	0.942	4.8	50.0
10:2 FTS	AveID	10.11	8.518		0.812	0.964	-15.8	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.017	0.9810		0.964	1.00	-3.6	40.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.0963	0.0857		0.861	0.968	-11.0	50.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8175	0.7370		0.902	1.00	-9.8	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1828	0.1879		1.03	1.00	2.7	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.006		1.09	1.00	9.0	50.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-258344/3 Calibration Date: 11/10/2018 10:20  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.10LLA\_006.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.4945	0.5916		1.20	1.00	19.6	50.0
13C4 PFBA	Ave	0.9103	0.9372		2.57	2.50	3.0	50.0
13C5 PFPeA	Ave	0.8665	0.8447		2.44	2.50	-2.5	50.0
13C3 PFBS	Ave	0.0120	0.0122		2.37	2.33	2.1	50.0
M2-4:2 FTS	Ave	0.0962	0.0766		1.86	2.34	-20.4	50.0
13C2 PFHxA	Ave	0.9136	0.8938		2.45	2.50	-2.2	50.0
13C3 HFPO-DA	Ave	0.1181	0.1124		2.38	2.50	-4.8	50.0
13C4 PFHpA	Ave	1.074	1.074		2.50	2.50	-0.0	50.0
18O2 PFHxS	Ave	0.6988	0.7579		2.57	2.37	8.5	50.0
M2-6:2 FTS	Ave	0.0988	0.0829		1.99	2.38	-16.1	40.0
13C4 PFOA	Ave	0.9837	0.999		2.54	2.50	1.5	50.0
13C8 PFOA	Ave	3440710	2524065		1.80	2.45	-26.6	50.0
13C4 PFOS	Ave	0.7064	0.7530		2.55	2.39	6.6	50.0
13C5 PFNA	Ave	0.9095	0.8951		2.46	2.50	-1.6	50.0
13C8 PFOS	Ave	494030	501055		2.42	2.39	1.4	50.0
13C8 FOSA	Ave	0.3910	0.4039		2.58	2.50	3.3	50.0
M2-8:2 FTS	Ave	0.0122	0.0116		2.27	2.40	-5.2	40.0
13C2 PFDA	Ave	0.9367	0.8559		2.28	2.50	-8.6	50.0
d3-NMeFOSAA	Ave	0.4049	0.2985		1.84	2.50	-26.3	50.0
13C2 PFUnA	Ave	0.7823	0.7700		2.46	2.50	-1.6	50.0
d5-NEtFOSAA	Ave	0.3298	0.2562		1.94	2.50	-22.3	50.0
13C2 PFDoA	Ave	0.9635	0.9588		2.49	2.50	-0.5	50.0
13C2 PFTeDA	Ave	0.7200	0.6342		2.20	2.50	-11.9	50.0
13C2 PFHxDA	Ave	0.7154	0.6670		2.33	2.50	-6.8	50.0



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67483.b\2018.11.10LLA\_006.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 10-Nov-2018 10:20:24 ALS Bottle#: 13 Worklist Smp#: 3  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67483.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 13-Nov-2018 07:58:07 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0319

First Level Reviewer: ruangyotsakuld Date: 13-Nov-2018 07:58:07

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	1.352	1.346	0.006	0.532	6843540	2.57	103	4724	
2 Perfluorobutanoic acid	212.90 > 169.00	1.352	1.352	0.0	1.000	2668633	1.04	104	43.4	
D 3 13C5 PFPeA	267.90 > 223.00	1.602	1.602	0.0	0.630	6167874	2.44	97.5	4731	
4 Perfluoropentanoic acid	262.90 > 219.00	1.608	1.608	0.0	1.004	2503272	1.01	101	80.4	
D 47 13C3 PFBS	301.90 > 83.00	1.643	1.636	0.007	0.646	83000	2.37	102	207	M
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.643	1.643	0.0	1.000	3487049	0.9460	107	1083	M
	298.90 > 99.00	1.643	1.643	0.0	1.000	1203319	2.90(1.35-4.05)		368	M
61 1H,1H,2H,2H-perfluorohexanesulfoni	327.00 > 307.00	1.843	1.843	0.0	1.122	525370	0.7162	76.7	2710	
D 60 M2-4:2 FTS	329.00 > 81.00	1.843	1.843	0.0	0.725	522312	1.86	79.6	430	
D 7 13C2 PFHxA	315.00 > 270.00	1.883	1.873	0.010	0.740	6526278	2.45	97.8	6320	
6 Perfluorohexanoic acid	313.00 > 269.00	1.883	1.883	0.0	1.000	2313252	0.9849	98.5	123	
	313.00 > 119.00	1.883	1.883	0.0	1.000	172123	13.44(6.96-20.87)		104	
70 Perfluoropentanesulfonic acid	349.00 > 80.00	1.902	1.902	0.0	1.158	1731143	1.01	108	2389	
	349.00 > 99.00	1.902	1.902	0.0	1.158	778024	2.23(1.15-3.45)		433	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.972	1.961	0.011	0.775	820891	2.38	95.2	2853	

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	1.972	1.972	0.0	1.000	563584	1.03	103	167
10 Perfluoroheptanoic acid	363.00	> 319.00	2.191	2.191	0.0	1.000	3468643	1.04	104	233
	363.00	> 169.00	2.191	2.191	0.0	1.000	719656	4.82(2.17-6.52)		368
D 9 13C4 PFHpA	367.00	> 322.00	2.191	2.191	0.0	0.862	7839472	2.50	100.0	5428
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.204	2.204	0.0	1.000	2312975	0.8295	91.2	1711
	399.00	> 99.00	2.204	2.204	0.0	1.000	646830	3.58(1.90-5.70)		298
D 11 18O2 PFHxS	403.00	> 84.00	2.204	2.204	0.0	0.867	5235102	2.57	108	5949
76 DONA	377.00	> 251.00	2.241	2.241	0.0	0.769	5783762	0.9677	103	5337
	377.00	> 85.00	2.241	2.241	0.0	0.769	2541750	2.28(1.13-3.39)		1462
D 12 M2-6:2 FTS	429.00	> 81.00	2.528	2.514	0.014	0.994	575175	1.99	83.9	661
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.528	2.528	0.0	1.000	509361	0.9639	102	1072
D 73 13C8 PFOA	421.00	> 376.00	2.543	2.528	0.015		6177649	1.80	73.4	7575
* 62 13C2 PFOA	415.00	> 370.00	2.543	2.543	0.0		7301956	2.50		5405
15 Perfluorooctanoic acid	413.00	> 369.00	2.543	2.543	0.0	1.000	3177618	1.01	101	275
	413.00	> 169.00	2.543	2.543	0.0	1.000	1136667	2.80(1.36-4.08)		801
D 14 13C4 PFOA	417.00	> 372.00	2.543	2.543	0.0	1.000	7292155	2.54	102	5044
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.558	2.558	0.0	0.878	2332360	1.02	107	2893
	449.00	> 99.00	2.558	2.558	0.0	0.878	567375	4.11(1.84-5.53)		1282
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.914	2.914	0.0	1.000	2215708	0.9355	101	1238
	499.00	> 99.00	2.914	2.914	0.0	1.000	517195	4.28(2.04-6.12)		975
20 Perfluorononanoic acid	463.00	> 419.00	2.914	2.914	0.0	1.000	2681525	1.02	102	302
	463.00	> 169.00	2.914	2.914	0.0	1.000	526525	5.09(2.68-8.03)		405
D 72 13C8 PFOS	507.00	> 99.00	2.914	2.914	0.0		1197522	2.42	101	2404
D 18 13C4 PFOS	503.00	> 80.00	2.914	2.914	0.0	1.146	5256210	2.55	107	5292
D 19 13C5 PFNA	468.00	> 423.00	2.914	2.914	0.0	1.146	6536020	2.46	98.4	5260
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.124	3.124	0.0	1.072	2424245	1.00	107	1968
68 Perfluorononanesulfonic acid	549.00	> 80.00	3.264	3.264	0.0	1.120	1290495	0.9565	99.6	3883
	549.00	> 99.00	3.264	3.264	0.0	1.120	211775	6.09(3.02-9.05)		1346

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	3.264	3.264	0.0	1.000	424158	0.8760	91.4	2298	
D 26 M2-8:2 FTS	529.00	> 81.00	3.264	3.265	-0.001	1.284	81230	2.27	94.8	365	
D 23 13C2 PFDA	515.00	> 470.00	3.281	3.265	0.016	1.290	6249861	2.28	91.4	5106	
D 21 13C8 FOSA	506.00	> 78.00	3.264	3.265	-0.001	1.284	2949047	2.58	103	6199	
24 Perfluorodecanoic acid	513.00	> 469.00	3.281	3.281	0.0	1.000	3138841	1.16	116	468	
	513.00	> 169.00	3.281	3.281	0.0	1.000	197593	15.89(7.12-21.35)		208	
22 Perfluorooctanesulfonamide	498.00	> 78.00	3.281	3.281	0.0	1.005	3719504	1.05	105	4287	
28 N-methylperfluorooctanesulfonamido	570.00	> 419.00	3.422	3.422	0.0	1.000	855694	0.9813	98.1	336	M
D 27 d3-NMeFOSAA	573.00	> 419.00	3.422	3.422	0.0	1.346	2179898	1.84	73.7	1905	M
29 Perfluorodecanesulfonic acid	599.00	> 80.00	3.575	3.575	0.0	1.227	1962112	1.03	107	1811	
	599.00	> 99.00	3.575	3.575	0.0	1.227	400383	4.90(2.14-6.43)		1136	
31 Perfluoroundecanoic acid	563.00	> 519.00	3.591	3.591	0.0	1.000	2559876	1.00	100	691	
	563.00	> 169.00	3.591	3.591	0.0	1.000	201432	12.71(5.24-15.72)		528	
33 N-ethylperfluorooctanesulfonamidoa	584.00	> 419.00	3.591	3.591	0.0	1.000	717279	1.05	105	1467	
D 30 13C2 PFUnA	565.00	> 520.00	3.591	3.591	0.0	1.412	5622227	2.46	98.4	6515	
D 32 d5-NEtFOSAA	589.00	> 419.00	3.591	3.591	0.0	1.412	1870985	1.94	77.7	1444	
66 11-Chloroeicosafuoro-3-oxaundecan	631.00	> 451.00	3.759	3.759	0.0	1.290	3009406	0.9868	105	2544	
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00	> 607.00	3.883	3.883	0.0	1.189	278493	0.8120	84.2	985	
37 Perfluorododecanoic acid	613.00	> 569.00	3.883	3.883	0.0	1.000	2747021	0.9642	96.4	828	
	613.00	> 169.00	3.883	3.883	0.0	1.000	329805	8.33(4.68-14.05)		646	
D 36 13C2 PFDaA	615.00	> 570.00	3.883	3.883	0.0	1.527	7000728	2.49	99.5	6347	
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	3.971	3.971	0.0		690029	NC		539	
75 Perfluorododecanesulfonic acid (PF	699.00	> 80.00	4.114	4.114	0.0	1.412	182506	0.8614	89.0	1563	
	699.00	> 99.00	4.114	4.114	0.0	1.412	361802	0.50(0.28-0.83)		1035	
41 Perfluorotridecanoic acid	663.00	> 619.00	4.145	4.145	0.0	1.067	2063892	0.9015	90.2	965	
	663.00	> 169.00	4.145	4.145	0.0	1.067	385879	5.35(3.09-9.27)		772	

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	4.381	4.381	0.0	1.000	348009	1.03		103	911	
713.00 > 219.00	4.381	4.381	0.0	1.000	242587		1.43(0.70-2.09)		674	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.381	4.381	0.0	1.723	4631100	2.20		88.1	6773	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.786	4.786	0.0	1.882	4870494	2.33		93.2	6419	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.786	4.786	0.0	1.000	1960824	1.09		109	1131	
813.00 > 169.00	4.786	4.786	0.0	1.000	345591		5.67(2.77-8.32)		910	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.114	5.114	0.0	1.068	1152633	1.20		120	1259	
913.00 > 169.00	5.114	5.114	0.0	1.068	254142		4.54(2.55-7.64)		1579	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

**Reagents:**

LCPFC\_LL4\_00009

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67483.b\2018.11.10LLA\_006.d

Injection Date: 10-Nov-2018 10:20:24

Instrument ID: A9

Lims ID: CCV L4

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 13

Worklist Smp#: 3

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

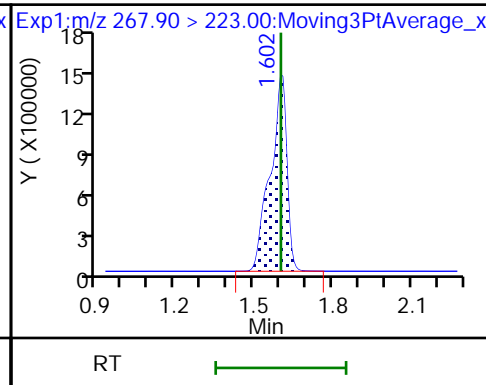
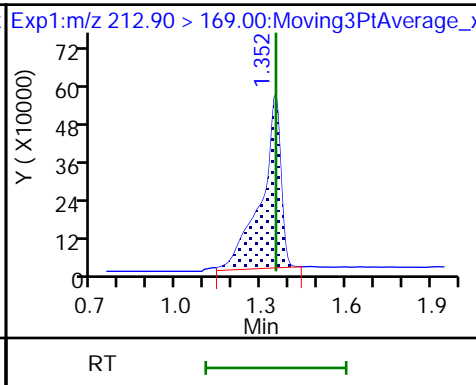
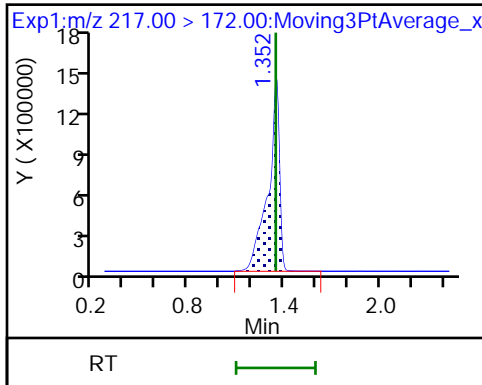
Method: PFAS\_A9

Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

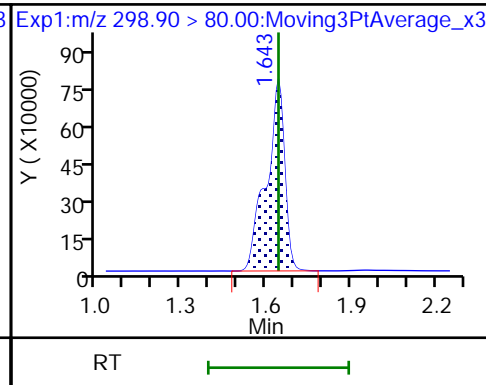
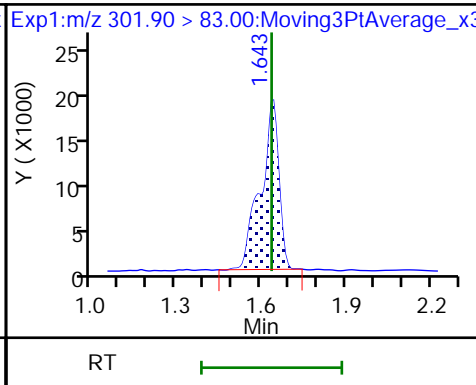
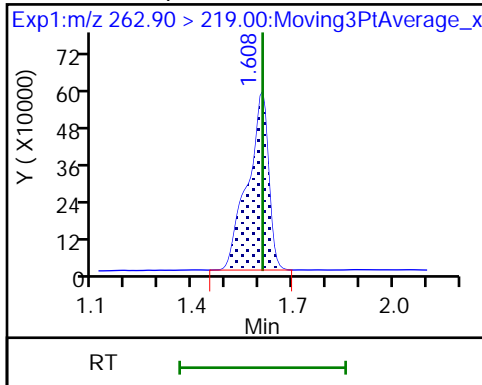
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 47 13C3 PFBS (M)

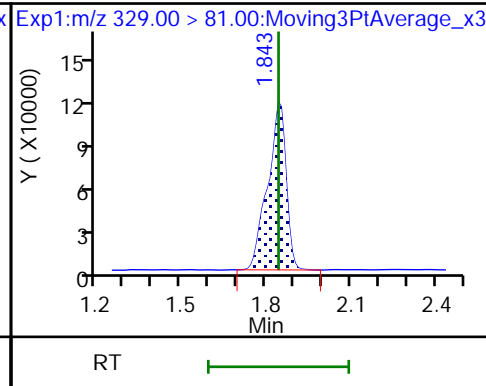
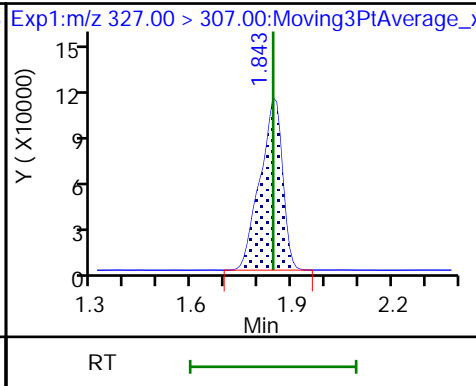
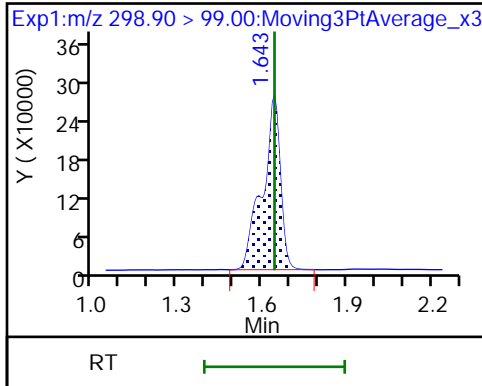
5 Perfluorobutanesulfonic acid (M)



5 Perfluorobutanesulfonic acid (M)

61 1H,1H,2H,2H-perfluorohexanesulfonate

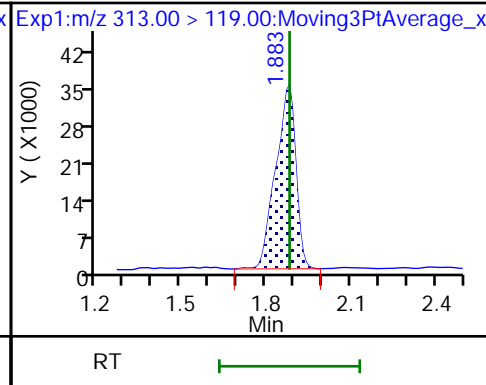
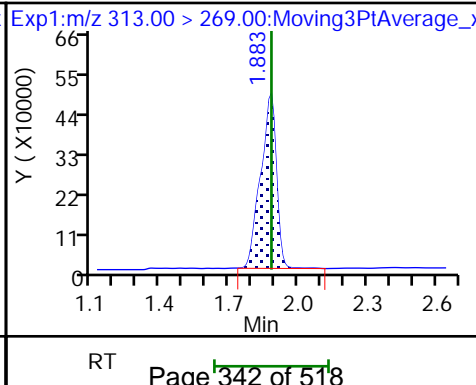
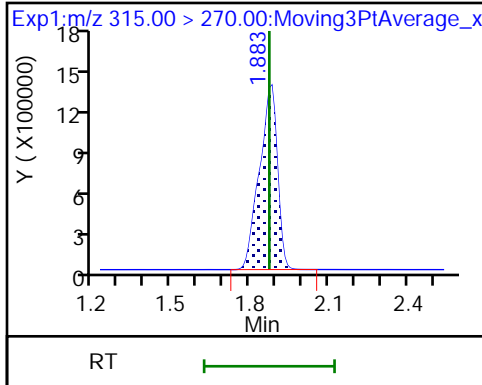
D 60 M2-4:2 FTS

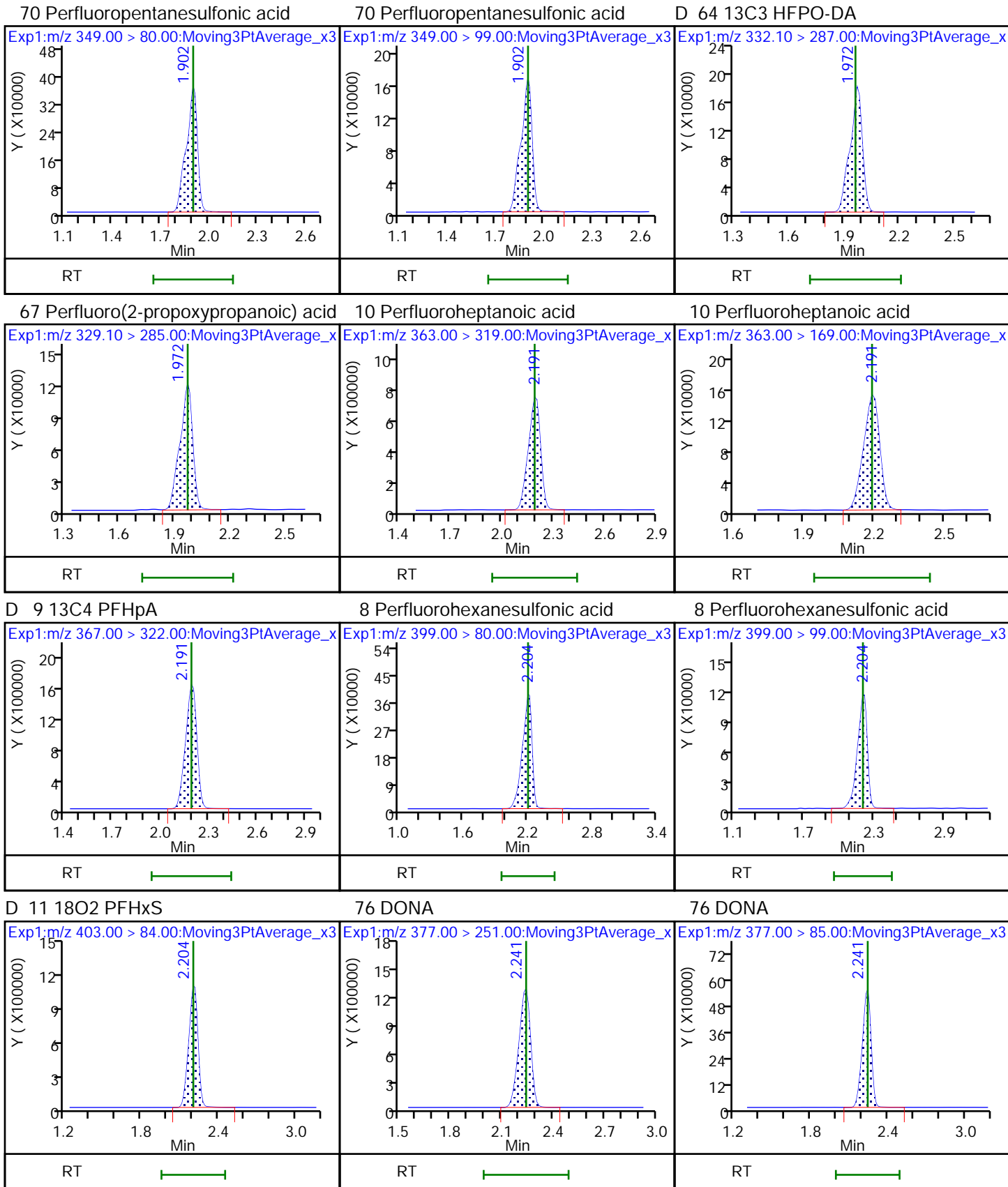


D 7 13C2 PFHxA

6 Perfluorohexanoic acid

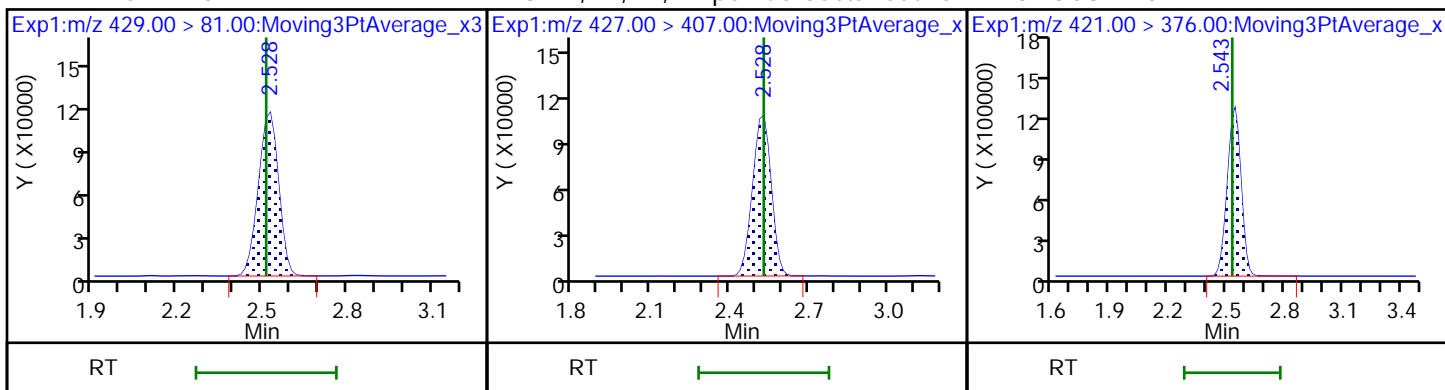
6 Perfluorohexanoic acid





D 12 M2-6:2 FTS

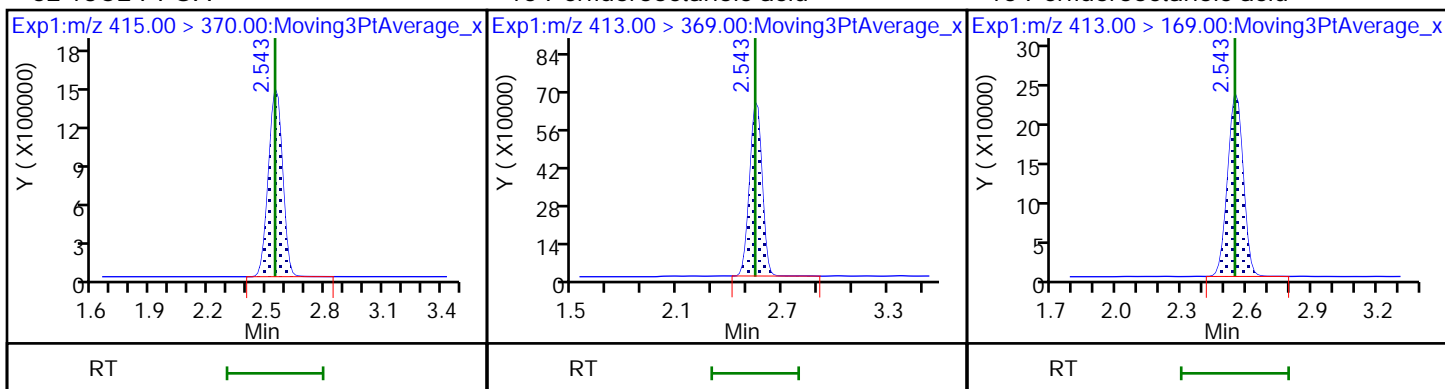
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



\* 62 13C2 PFOA

15 Perfluorooctanoic acid

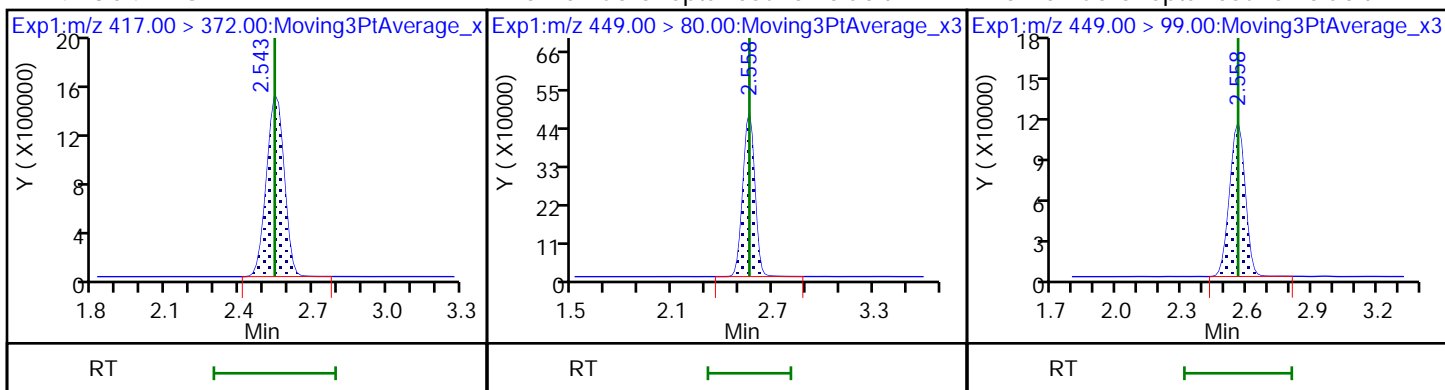
15 Perfluorooctanoic acid



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

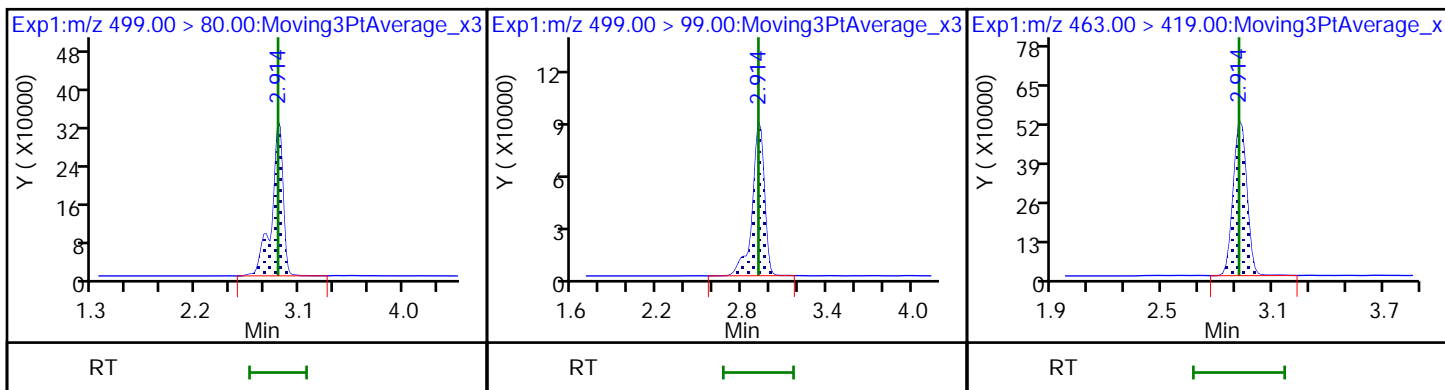
16 Perfluoroheptanesulfonic acid

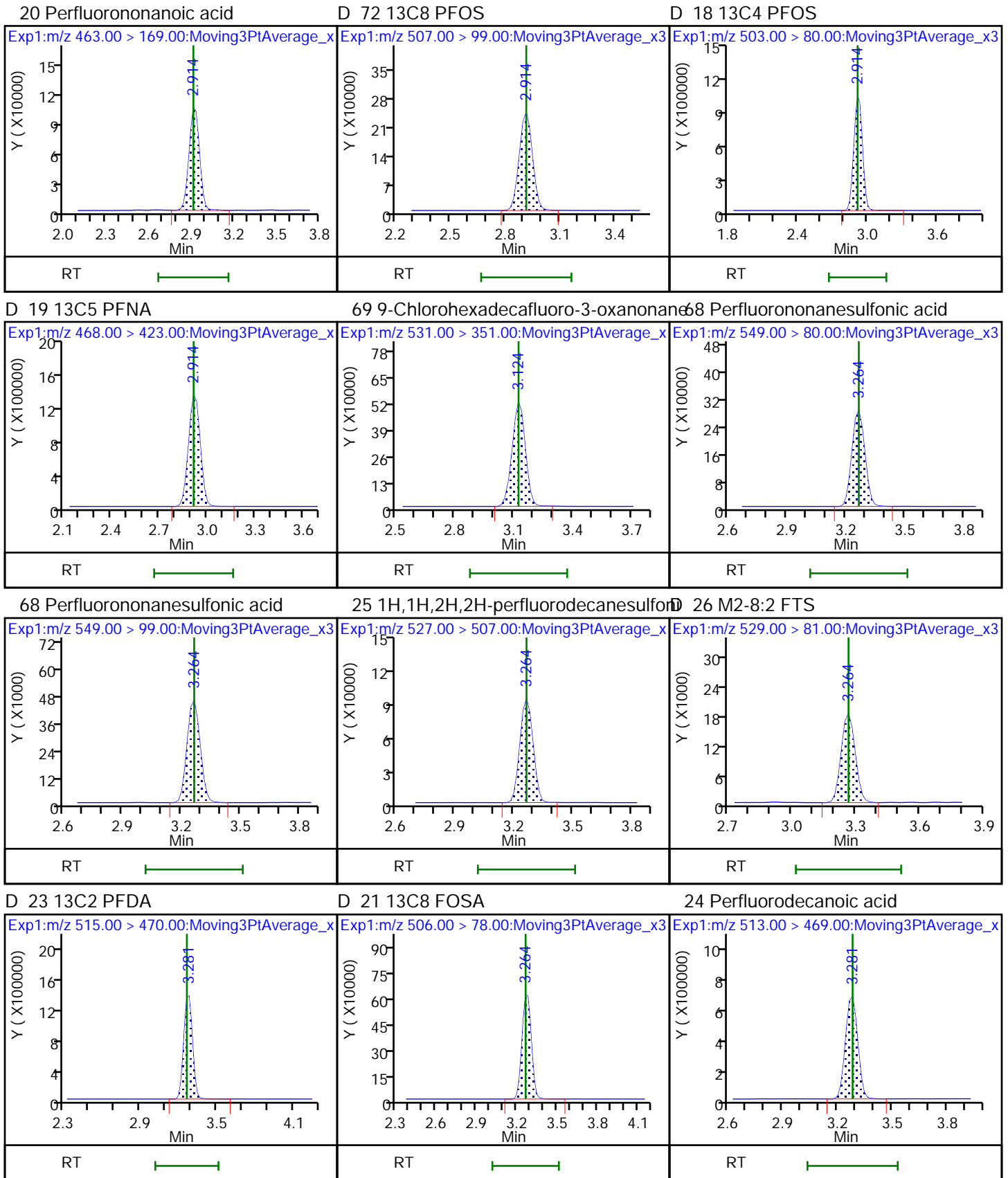


17 Perfluorooctanesulfonic acid

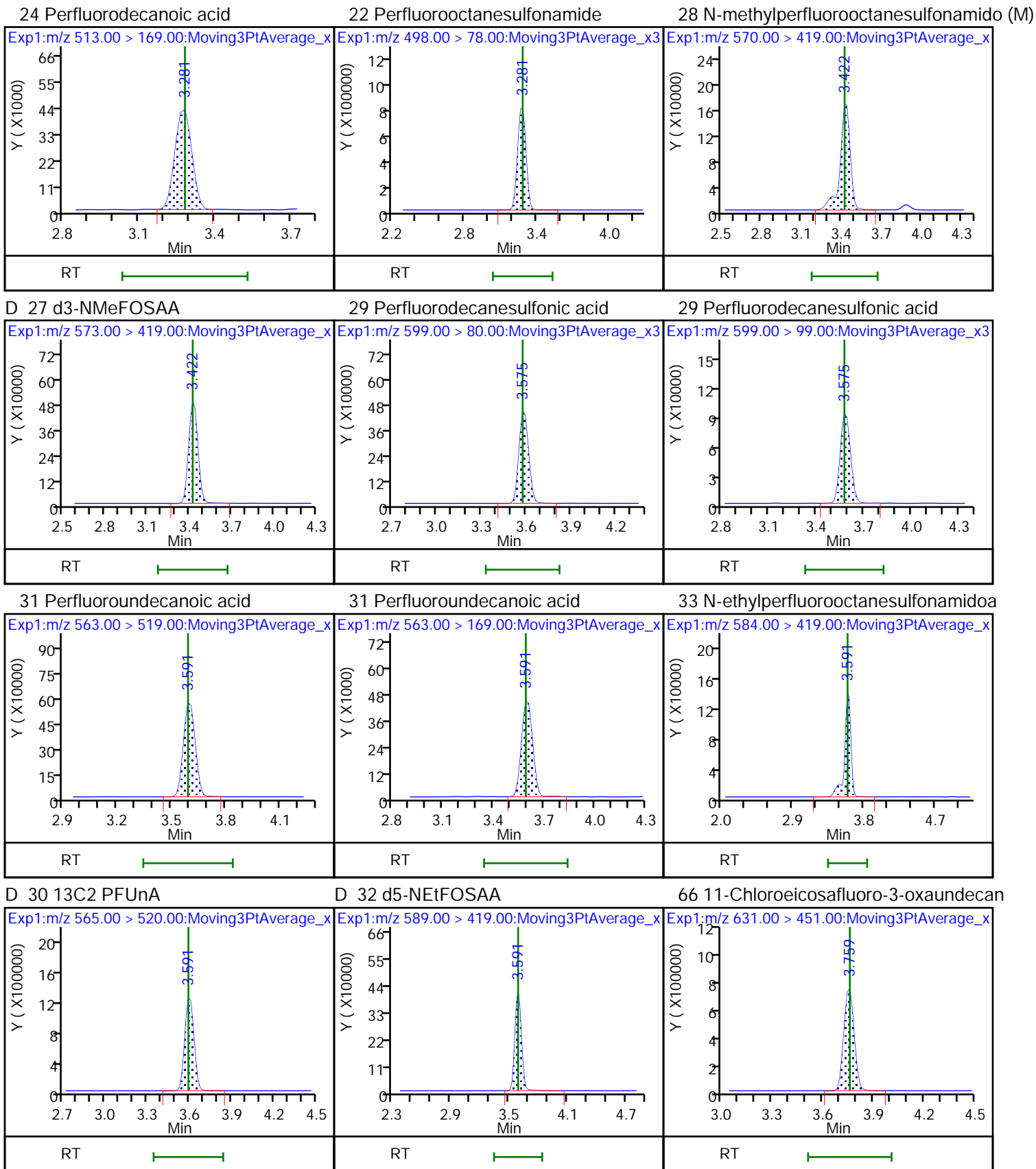
17 Perfluorooctanesulfonic acid

20 Perfluorononanoic acid



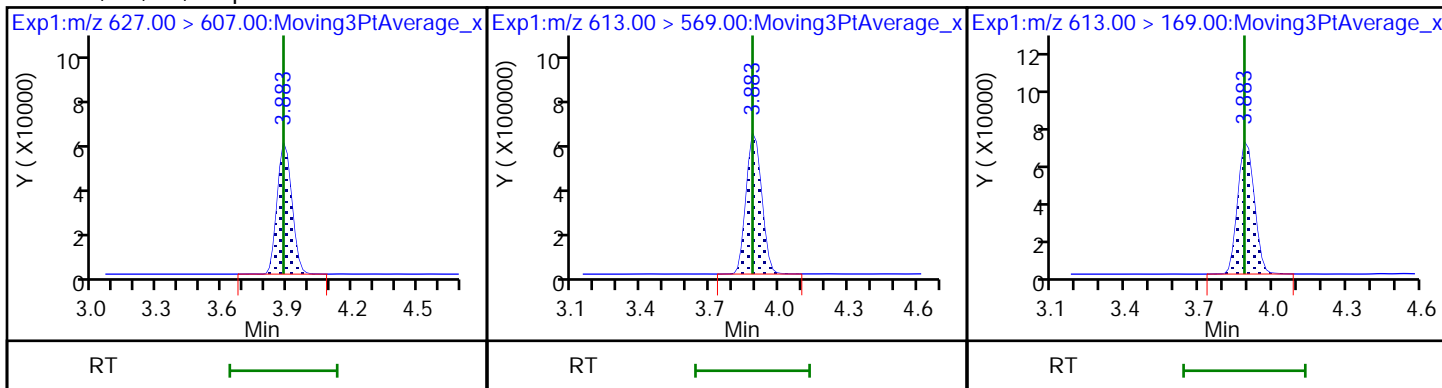






74 1H,1H,2H,2H-perfluorododecanesulfo37 Perfluorododecanoic acid

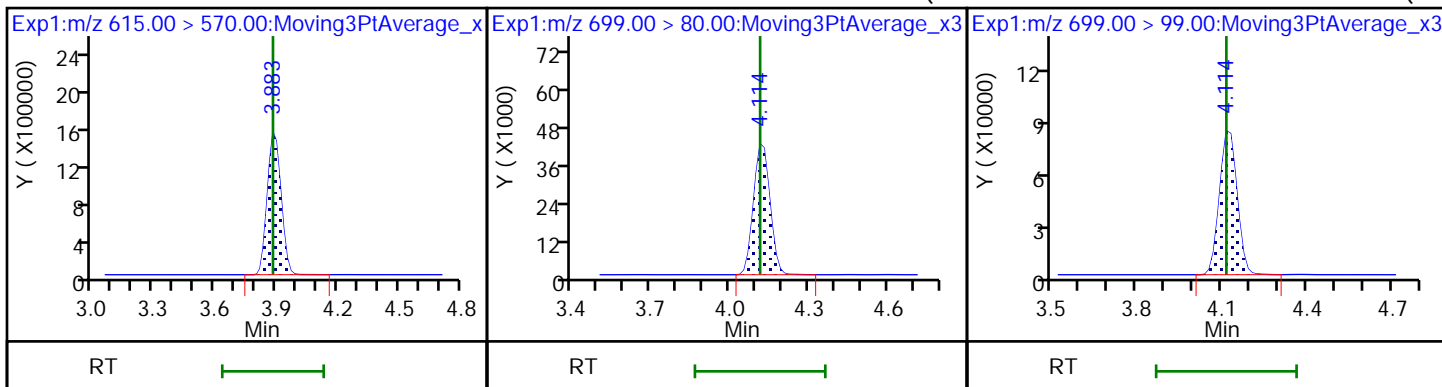
37 Perfluorododecanoic acid



D 36 13C2 PFDaA

75 Perfluorododecanesulfonic acid (PF

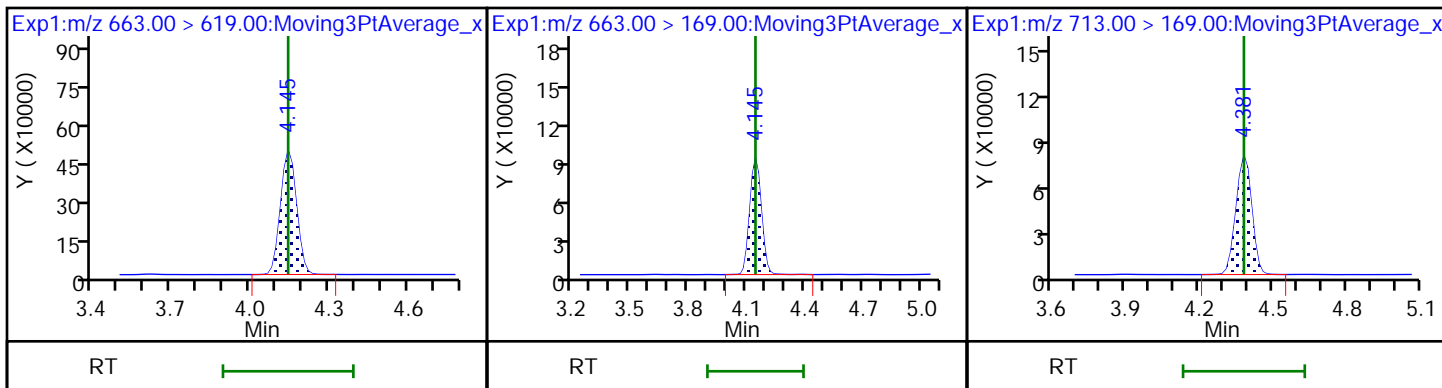
75 Perfluorododecanesulfonic acid (PF



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

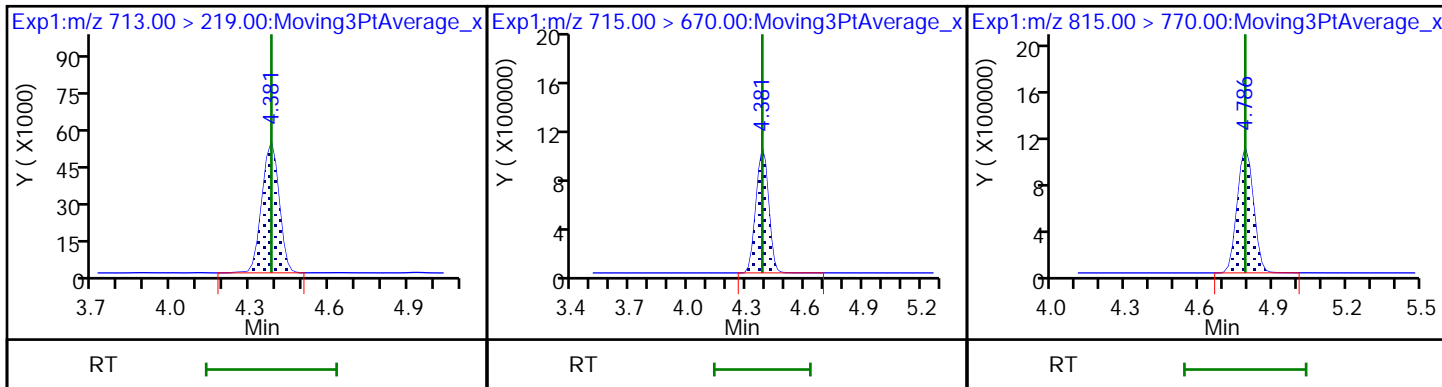
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

D 43 13C2 PFTeDA

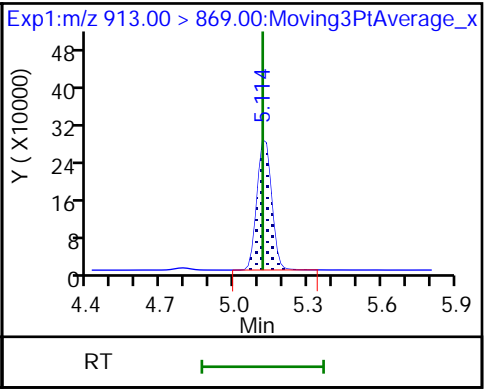
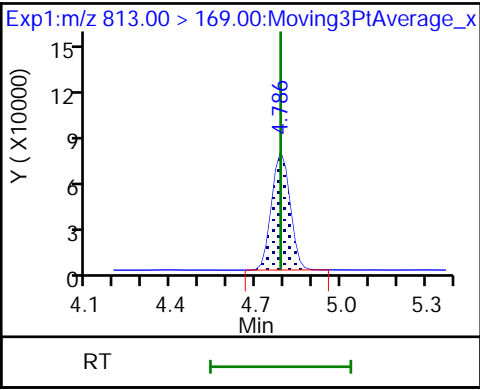
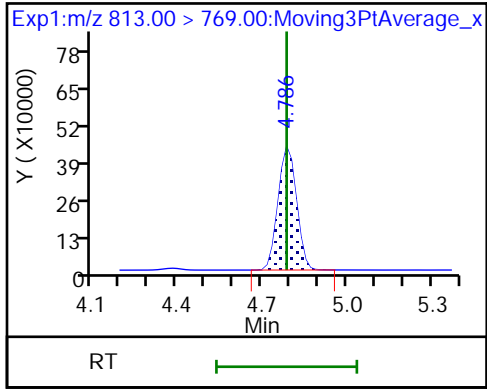
D 44 13C2 PFHxDA



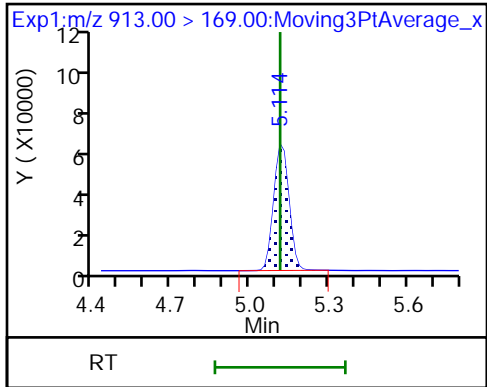
45 Perfluorohexadecanoic acid

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

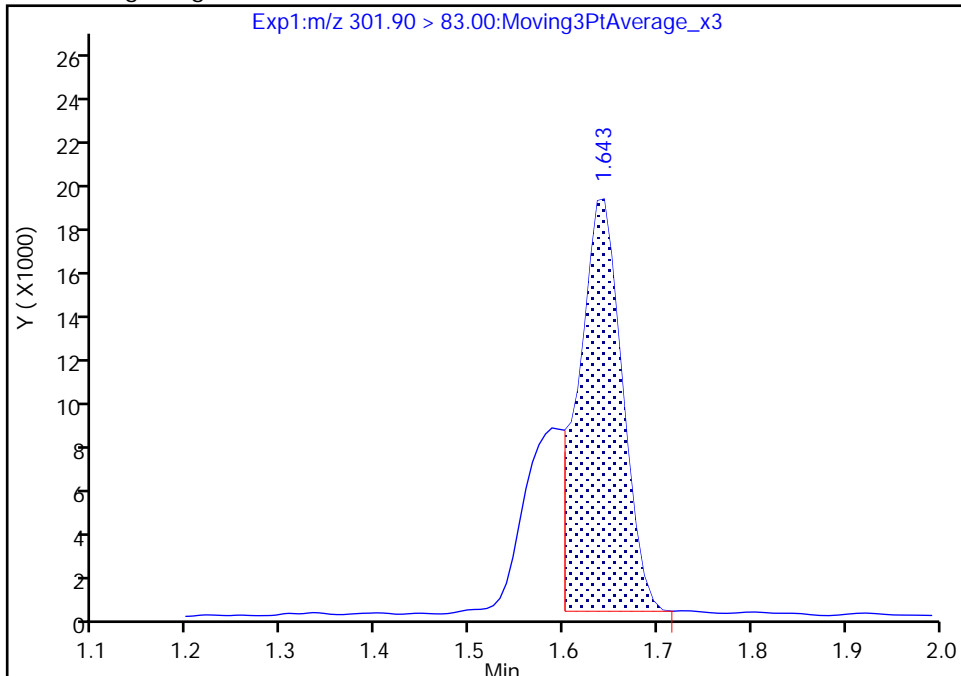
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67483.b\2018.11.10LLA\_006.d  
Injection Date: 10-Nov-2018 10:20:24 Instrument ID: A9  
Lims ID: CCV L4  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 13 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

D 47 13C3 PFBS, CAS: STL02337

Signal: 1

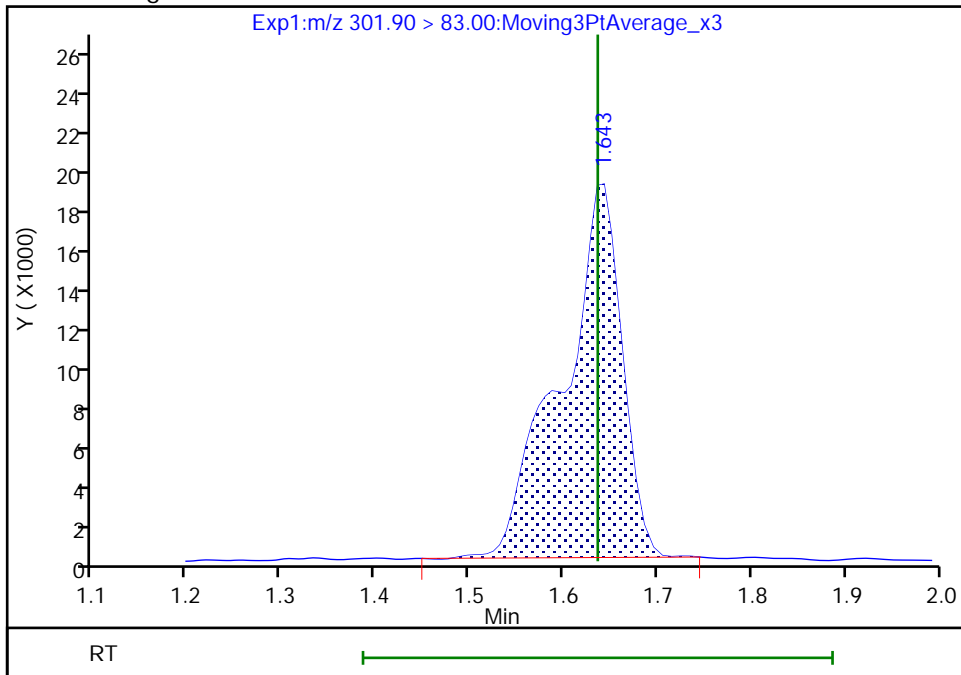
RT: 1.64  
Area: 58478  
Amount: 1.671772  
Amount Units: ng/ml

Processing Integration Results



RT: 1.64  
Area: 83000  
Amount: 2.372808  
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 10-Nov-2018 11:16:26  
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration  
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TestAmerica Sacramento

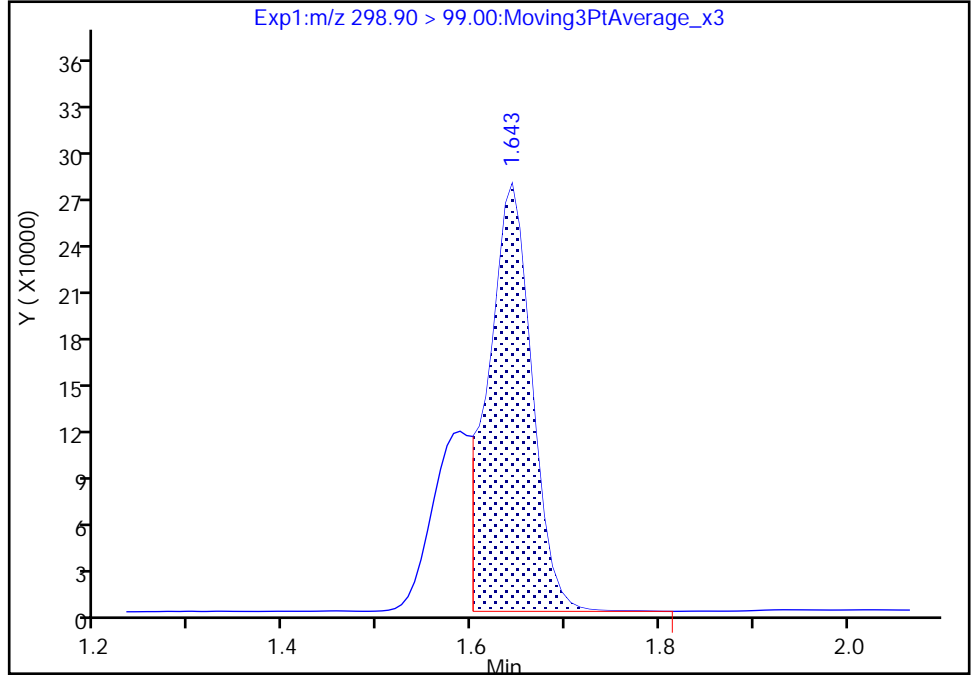
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67483.b\2018.11.10LLA\_006.d  
Injection Date: 10-Nov-2018 10:20:24 Instrument ID: A9  
Lims ID: CCV L4  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 13 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

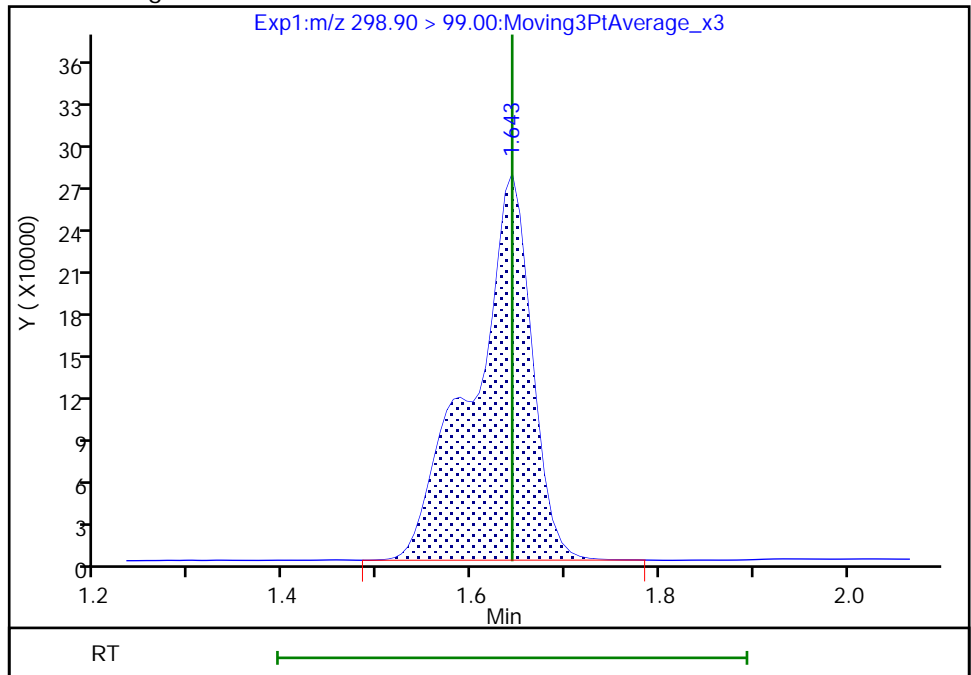
RT: 1.64  
Area: 874160  
Amount: 0.729417  
Amount Units: ng/ml

Processing Integration Results



RT: 1.64  
Area: 1203319  
Amount: 0.945951  
Amount Units: ng/ml

Manual Integration Results



Reviewer: ruangyotsakuld, 13-Nov-2018 07:57:23

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

TestAmerica Sacramento

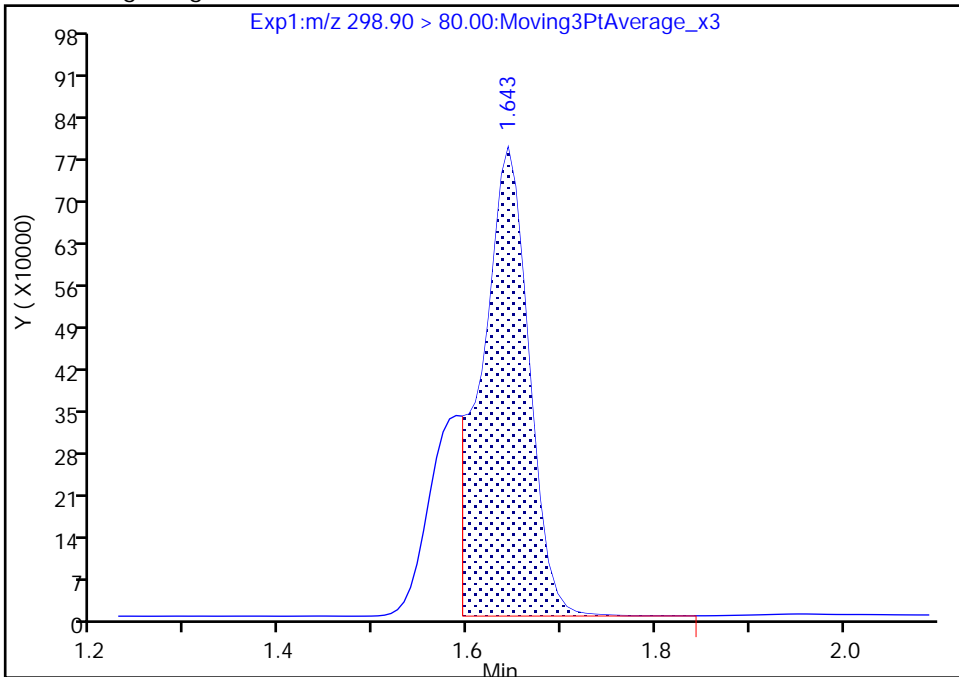
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67483.b\2018.11.10LLA\_006.d  
Injection Date: 10-Nov-2018 10:20:24 Instrument ID: A9  
Lims ID: CCV L4  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 13 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

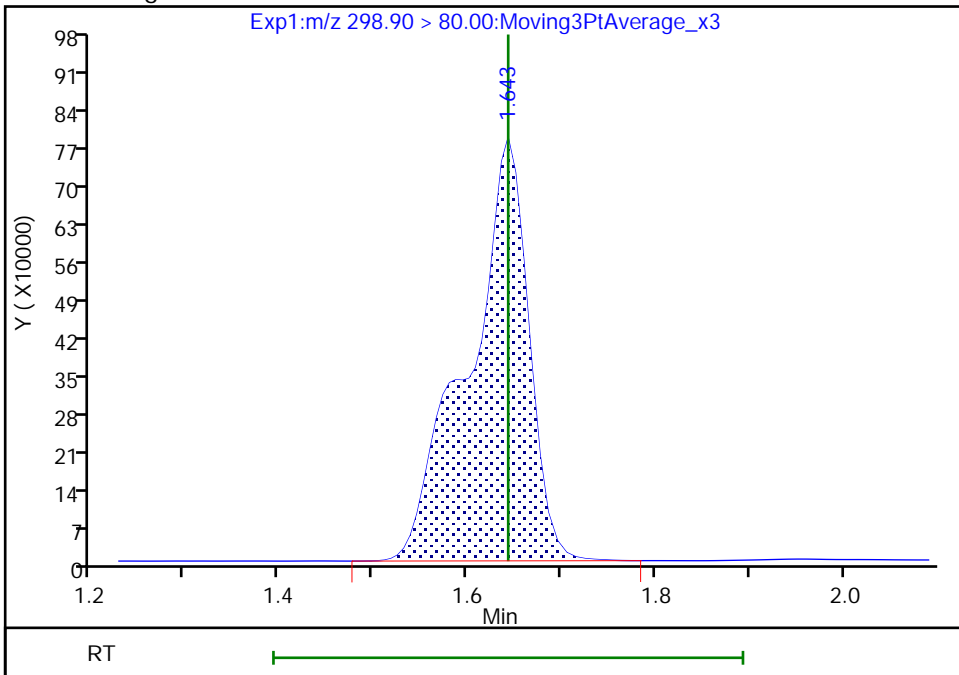
RT: 1.64  
Area: 2688842  
Amount: 0.729417  
Amount Units: ng/ml

Processing Integration Results



RT: 1.64  
Area: 3487049  
Amount: 0.945951  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

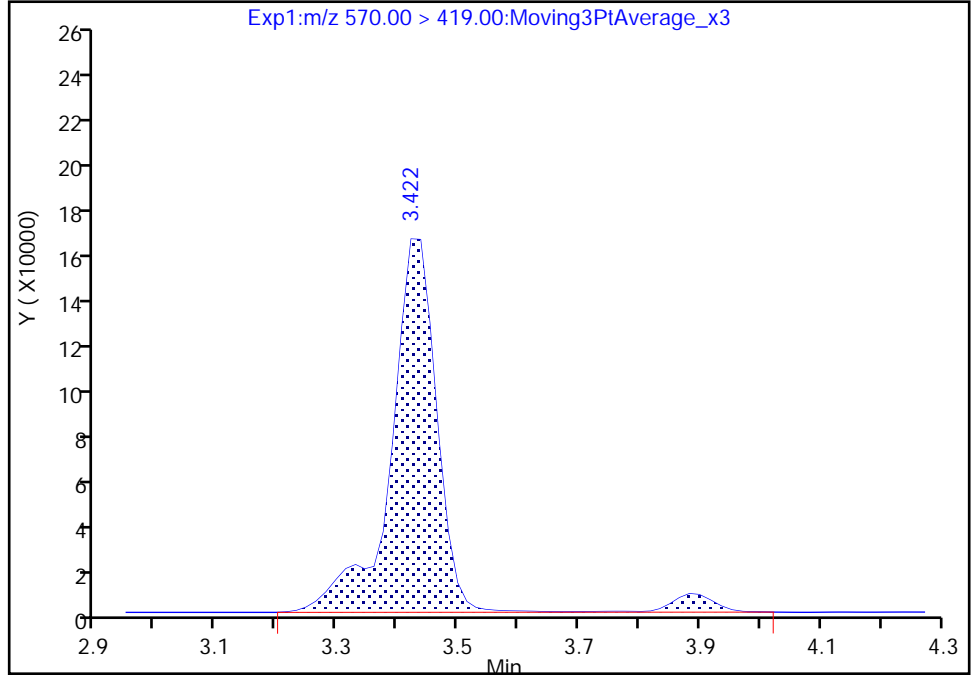
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67483.b\2018.11.10LLA\_006.d  
Injection Date: 10-Nov-2018 10:20:24 Instrument ID: A9  
Lims ID: CCV L4  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 13 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

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

Signal: 1

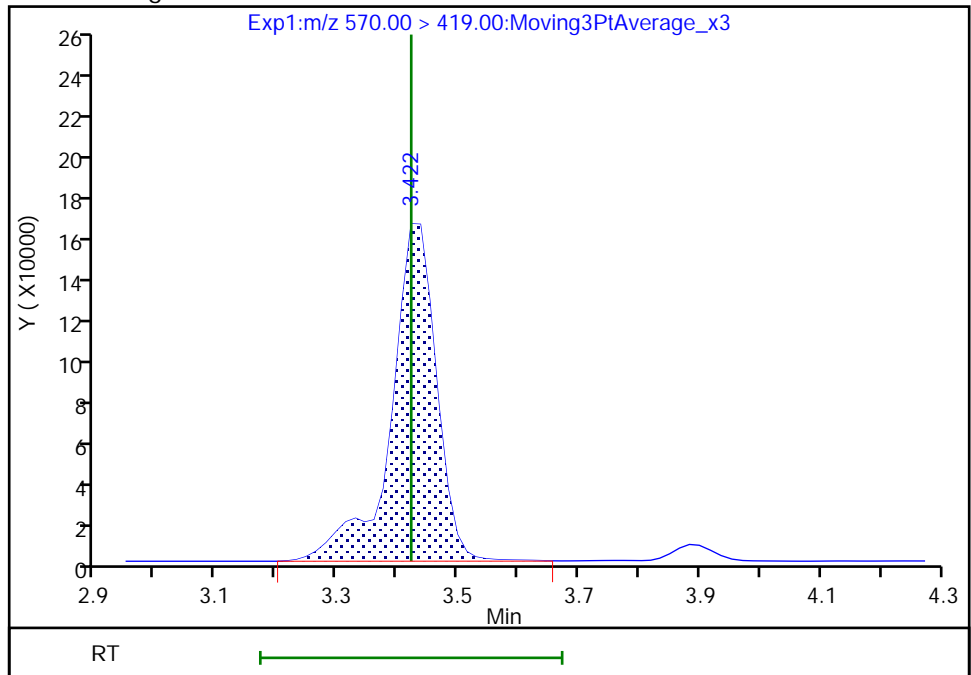
RT: 3.42  
Area: 894671  
Amount: 1.025967  
Amount Units: ng/ml

Processing Integration Results



RT: 3.42  
Area: 855694  
Amount: 0.981270  
Amount Units: ng/ml

Manual Integration Results



Reviewer: ruangyotsakuld, 13-Nov-2018 07:57:47

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-258354/1 Calibration Date: 11/10/2018 14:43  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.10LLA\_041.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9357	0.9662		1.03	1.00	3.3	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.001	0.9761		0.975	1.00	-2.5	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	103.3	107.4		0.919	0.884	4.0	50.0
4:2 FTS	AveID	20.55	16.73		0.760	0.934	-18.6	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8997	0.8692		0.966	1.00	-3.4	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	47.84	49.30		0.966	0.938	3.0	50.0
HFPO-DA (GenX)	AveID	1.662	1.952		1.17	1.00	17.4	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.061	1.018		0.960	1.00	-4.0	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.260	1.196		0.864	0.910	-5.1	40.0
DONA	AveID	2.718	2.824		0.979	0.942	3.9	50.0
6:2 FTS	AveID	2.182	2.233		0.970	0.948	2.3	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.081	1.101		1.02	1.00	1.9	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.041	1.089		0.996	0.952	4.6	50.0
Perfluorononanoic acid (PFNA)	AveID	1.001	1.003		1.00	1.00	0.1	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.077	1.057		0.911	0.928	-1.9	40.0
F-53B Major	AveID	1.108	1.249		1.05	0.932	12.8	50.0
8:2 FTS	AveID	14.28	12.97		0.871	0.958	-9.1	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.086	1.095		1.01	1.00	0.8	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.6135	0.6152		0.963	0.960	0.3	50.0
Perfluorooctanesulfonamide (FOSA)	AveID	3.005	3.033		1.01	1.00	1.0	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.000	1.067		1.07	1.00	6.7	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.8654	0.9328		1.04	0.964	7.8	50.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9143	0.9143		1.00	1.00	0.0	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.137	1.134		0.998	1.00	-0.2	40.0
F-53B Minor	AveID	1.387	1.475		1.00	0.942	6.4	50.0
10:2 FTS	AveID	10.11	9.307		0.887	0.964	-8.0	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.017	0.9776		0.961	1.00	-3.9	40.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.0963	0.0983		0.987	0.968	2.0	50.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8175	0.8720		1.07	1.00	6.7	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1828	0.1686		0.922	1.00	-7.8	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9837		1.06	1.00	6.5	50.0



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-258354/1 Calibration Date: 11/10/2018 14:43  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.10LLA\_041.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.4945	0.6139		1.24	1.00	24.1	50.0
13C4 PFBA	Ave	0.9103	0.9414		2.59	2.50	3.4	50.0
13C5 PFPeA	Ave	0.8665	0.8551		2.47	2.50	-1.3	50.0
13C3 PFBS	Ave	0.0120	0.0119		2.31	2.33	-0.6	50.0
M2-4:2 FTS	Ave	0.0962	0.0809		1.97	2.34	-15.8	50.0
13C2 PFHxA	Ave	0.9136	0.8718		2.39	2.50	-4.6	50.0
13C3 HFPO-DA	Ave	0.1181	0.1009		2.14	2.50	-14.5	50.0
13C4 PFHpA	Ave	1.074	1.130		2.63	2.50	5.2	50.0
18O2 PFHxS	Ave	0.6988	0.6961		2.36	2.37	-0.4	50.0
M2-6:2 FTS	Ave	0.0988	0.0816		1.96	2.38	-17.4	40.0
13C8 PFOA	Ave	3440710	2516440		1.79	2.45	-26.9	50.0
13C4 PFOA	Ave	0.9837	0.998		2.54	2.50	1.4	50.0
13C8 PFOS	Ave	494030	465357		2.25	2.39	-5.8	50.0
13C4 PFOS	Ave	0.7064	0.7039		2.38	2.39	-0.3	50.0
13C5 PFNA	Ave	0.9095	0.8763		2.41	2.50	-3.6	50.0
13C2 PFDA	Ave	0.9367	0.8902		2.38	2.50	-5.0	50.0
13C8 FOSA	Ave	0.3910	0.3962		2.53	2.50	1.3	50.0
M2-8:2 FTS	Ave	0.0122	0.0114		2.23	2.40	-6.9	40.0
d3-NMeFOSAA	Ave	0.4049	0.3154		1.95	2.50	-22.1	50.0
13C2 PFUnA	Ave	0.7823	0.7804		2.49	2.50	-0.2	50.0
d5-NEtFOSAA	Ave	0.3298	0.2923		2.22	2.50	-11.4	50.0
13C2 PFDoA	Ave	0.9635	0.9025		2.34	2.50	-6.3	50.0
13C2 PFTeDA	Ave	0.7200	0.6781		2.35	2.50	-5.8	50.0
13C2 PFHxDA	Ave	0.7154	0.6515		2.28	2.50	-8.9	50.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_041.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 10-Nov-2018 14:43:31 ALS Bottle#: 13 Worklist Smp#: 1  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 14-Nov-2018 13:01:08 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d

Column 1 : Det: EXP1  
 Process Host: CTX0303

First Level Reviewer: mongkols Date: 14-Nov-2018 13:01:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.90 > 169.00	1.352	1.352	0.0	1.000	2765075	1.03		103	56.4	
D 1 13C4 PFBA										
217.00 > 172.00	1.352	1.352	0.0	0.526	7154908	2.59		103	7122	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.615	1.615	0.0	1.004	2537395	0.9751		97.5	113	
D 3 13C5 PFPeA										
267.90 > 223.00	1.608	1.616	-0.008	0.626	6498877	2.47		98.7	7077	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.651	1.651	0.0	1.000	3434141	0.9193		104	1132	
298.90 > 99.00	1.651	1.651	0.0	1.000	1222863		2.81(1.35-4.05)		420	
D 47 13C3 PFBS										
301.90 > 83.00	1.651	1.651	0.0	0.643	84112	2.31		99.4	249	M
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.862	1.862	0.0	1.128	565317	0.7604		81.4	2467	
D 60 M2-4:2 FTS										
329.00 > 81.00	1.862	1.863	-0.001	0.725	574560	1.97		84.2	656	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.891	1.891	0.0	1.000	2303737	0.9661		96.6	148	
313.00 > 119.00	1.891	1.891	0.0	1.000	175763		13.11(6.96-20.87)		139	
D 7 13C2 PFHxA										
315.00 > 270.00	1.891	1.893	-0.002	0.736	6626020	2.39		95.4	8166	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.911	1.911	0.0	1.158	1672799	0.9664		103	2820	
349.00 > 99.00	1.911	1.911	0.0	1.158	781382		2.14(1.15-3.45)		491	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	1.991	1.991	0.0	1.000	598869	1.17		117	189	

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	1.991	1.993	-0.002	0.775	767087	2.14		85.5	1687	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.213	2.213	0.0	1.000	3497955	0.9598		96.0	305	
363.00 > 169.00	2.213	2.213	0.0	1.000	787278		4.44(2.17-6.52)		548	
D 9 13C4 PFHpA										
367.00 > 322.00	2.213	2.216	-0.003	0.861	8589298	2.63		105	8124	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.225	2.225	0.0	1.000	2303068	0.8639		94.9	2249	
399.00 > 99.00	2.225	2.225	0.0	1.000	638891		3.60(1.90-5.70)		346	
D 11 18O2 PFHxS										
403.00 > 84.00	2.225	2.229	-0.004	0.866	5004821	2.36		99.6	5052	
76 DONA										
377.00 > 251.00	2.250	2.250	0.0	0.764	5693145	0.9789		104	5747	
377.00 > 85.00	2.250	2.250	0.0	0.764	2425342		2.35(1.13-3.39)		1471	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.539	2.539	0.0	1.000	524859	0.9702		102	872	
D 12 M2-6:2 FTS										
429.00 > 81.00	2.539	2.543	-0.004	0.988	588837	1.96		82.6	1013	
D 73 13C8 PFOA										
421.00 > 376.00	2.554	2.558	-0.004		6158987	1.79		73.1	7738	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.569	2.569	0.0	1.000	3343951	1.02		102	335	
413.00 > 169.00	2.569	2.569	0.0	1.000	1099912		3.04(1.36-4.08)		795	
* 62 13C2 PFOA										
415.00 > 370.00	2.569	2.569	0.0		7600397	2.50			6971	
D 14 13C4 PFOA										
417.00 > 372.00	2.569	2.573	-0.004	1.000	7584400	2.54		101	7534	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.584	2.584	0.0	0.877	2219280	1.00		105	3598	
449.00 > 99.00	2.569	2.584	-0.015	0.872	534880		4.15(1.84-5.53)		999	
D 72 13C8 PFOS										
507.00 > 99.00	2.928	2.932	-0.004		1112203	2.25		94.2	2791	
17 Perfluorooctanesulfonic acid										
499.00 > 80.00	2.945	2.945	0.0	1.000	2098760	0.9107		98.1	1191	
499.00 > 99.00	2.945	2.945	0.0	1.000	479877		4.37(2.04-6.12)		994	
20 Perfluorononanoic acid										
463.00 > 419.00	2.945	2.945	0.0	1.000	2670855	1.00		100	317	
463.00 > 169.00	2.945	2.945	0.0	1.000	512124		5.22(2.68-8.03)		591	
D 18 13C4 PFOS										
503.00 > 80.00	2.945	2.949	-0.004	1.147	5114690	2.38		99.7	5932	
D 19 13C5 PFNA										
468.00 > 423.00	2.945	2.949	-0.004	1.147	6660335	2.41		96.4	5001	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.152	3.152	0.0	1.070	2491522	1.05		113	2370	
D 26 M2-8:2 FTS										
529.00 > 81.00	3.295	3.281	0.014	1.283	82999	2.23		93.1	368	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.295	3.295	0.0	1.119	1263891	0.9627		100	2516	
549.00 > 99.00	3.295	3.295	0.0	1.119	198494		6.37(3.02-9.05)		593	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.295	3.295	0.0	1.000	430744	0.8706		90.9	2938	
22 Perfluorooctanesulfonamide										
498.00 > 78.00	3.295	3.295	0.0	1.000	3653095	1.01		101	5037	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.295	3.295	0.0	1.000	2962703	1.01		101	467	
513.00 > 169.00	3.295	3.295	0.0	1.000	192674		15.38(7.12-21.35)		319	
D 21 13C8 FOSA										
506.00 > 78.00	3.295	3.298	-0.003	1.283	3010975	2.53		101	5028	
D 23 13C2 PFDA										
515.00 > 470.00	3.295	3.298	-0.003	1.283	6765983	2.38		95.0	5359	
28 N-methylperfluorooctanesulfonamido										
570.00 > 419.00	3.451	3.451	0.0	1.000	1022943	1.07		107	479	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.451	3.452	-0.001	1.343	2397411	1.95		77.9	2198	
29 Perfluorodecanesulfonic acid										
599.00 > 80.00	3.605	3.605	0.0	1.224	1924421	1.04		108	2355	
599.00 > 99.00	3.605	3.605	0.0	1.224	383907		5.01(2.14-6.43)		1141	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.622	3.622	0.0	1.000	2691360	1.00		99.8	746	
563.00 > 169.00	3.622	3.622	0.0	1.000	182577		14.74(5.24-15.72)		484	
33 N-ethylperfluorooctanesulfonamidoa										
584.00 > 419.00	3.622	3.622	0.0	1.000	812435	1.00		100	1549	
D 30 13C2 PFUnA										
565.00 > 520.00	3.622	3.623	-0.001	1.410	5931580	2.49		99.8	6217	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.622	3.623	-0.001	1.410	2221503	2.22		88.6	1582	
66 11-Chloroeicosafuoro-3-oxaundecan										
631.00 > 451.00	3.772	3.772	0.0	1.281	2973305	1.00		106	4802	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.915	3.915	0.0	1.000	2682417	0.9609		96.1	772	
613.00 > 169.00	3.915	3.915	0.0	1.000	321010		8.36(4.68-14.05)		674	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.915	3.915	0.0	1.188	310936	0.8873		92.0	958	
D 36 13C2 PFDaA										
615.00 > 570.00	3.915	3.918	-0.003	1.524	6859570	2.34		93.7	6823	
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.004	4.004	0.0		647955	NC			430	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.143	4.143	0.0	1.406	203570	0.9874		102	947	
699.00 > 99.00	4.143	4.143	0.0	1.406	372586		0.55(0.28-0.83)		1532	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.173	4.173	0.0	1.066	2392572	1.07		107	1020	
663.00 > 169.00	4.173	4.173	0.0	1.066	419802		5.70(3.09-9.27)		981	

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	4.410	4.397	0.013	1.716	5153472	2.35		94.2	7592	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.410	4.410	0.0	1.000	347568	0.9222		92.2	1122	
713.00 > 219.00	4.394	4.410	-0.016	0.996	240016		1.45(0.70-2.09)		803	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.803	4.803	0.0	1.000	1948337	1.06		106	926	
813.00 > 169.00	4.803	4.803	0.0	1.000	345757		5.63(2.77-8.32)		909	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.803	4.804	-0.001	1.870	4951388	2.28		91.1	6330	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.129	5.129	0.0	1.068	1215873	1.24		124	1114	
913.00 > 169.00	5.129	5.129	0.0	1.068	259407		4.69(2.55-7.64)		1651	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

**Reagents:**

LCPFC\_LL4\_00009

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_041.d

Injection Date: 10-Nov-2018 14:43:31

Instrument ID: A9

Lims ID: CCV L4

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 13

Worklist Smp#: 1

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

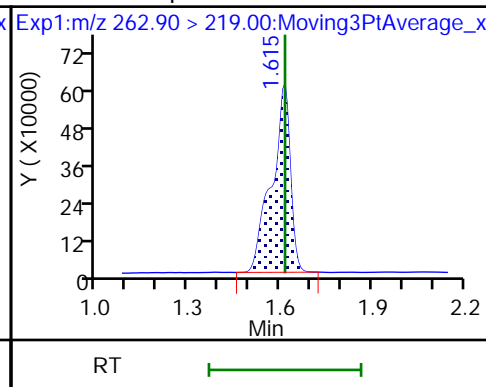
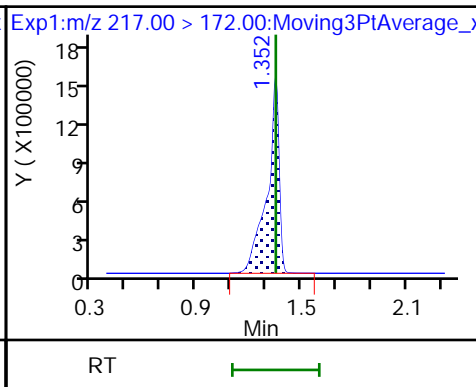
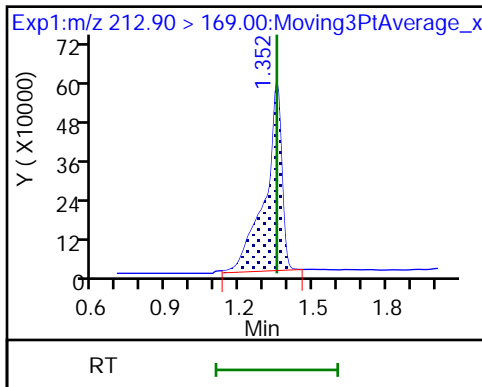
Method: PFAS\_A9

Limit Group: LC PFC ICAL

2 Perfluorobutanoic acid

D 1 13C4 PFBA

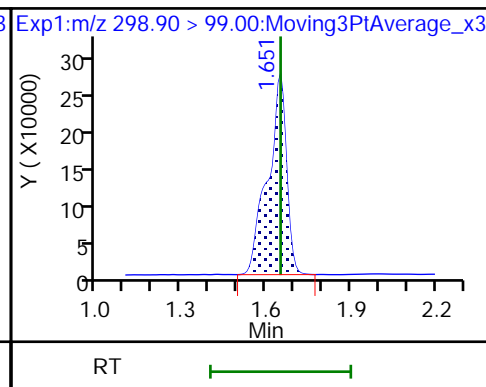
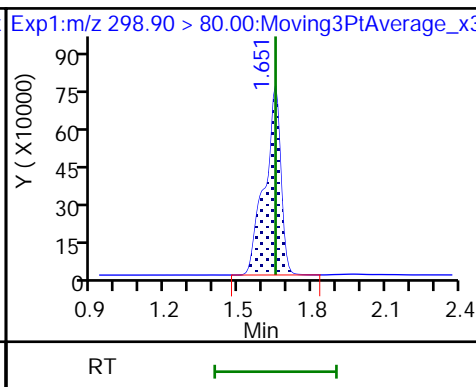
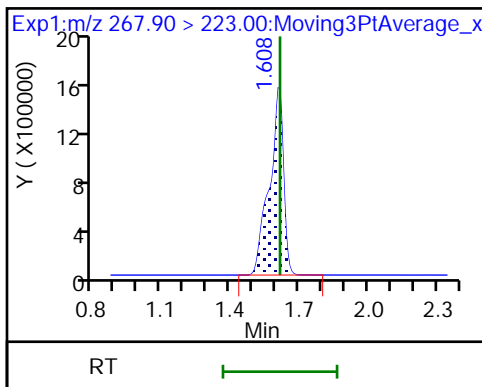
4 Perfluoropentanoic acid



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid

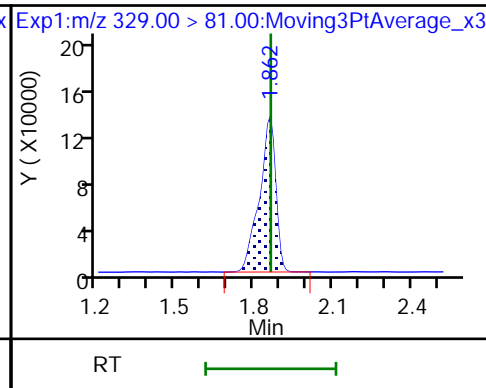
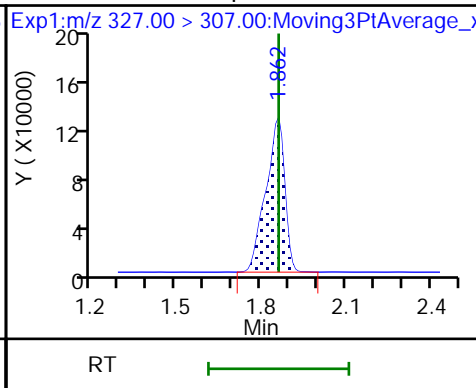
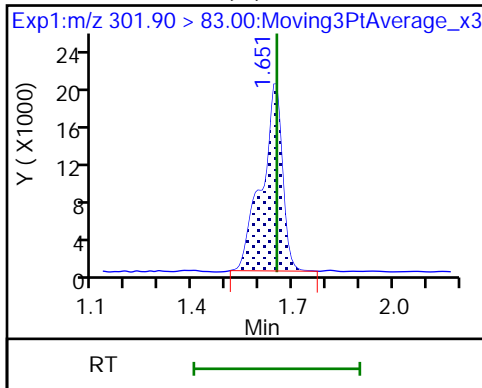
5 Perfluorobutanesulfonic acid



D 47 13C3 PFBS (M)

61 1H,1H,2H,2H-perfluorohexanesulfonate

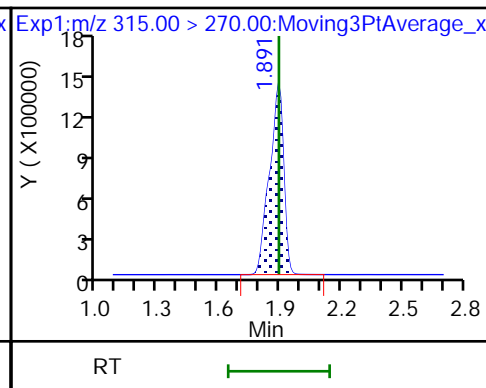
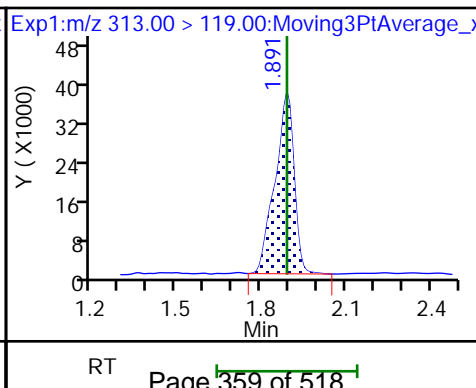
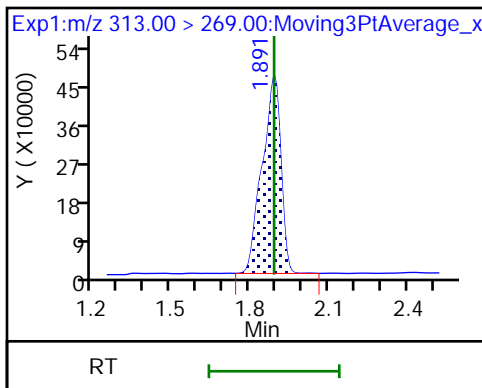
D 60 M2-4:2 FTS

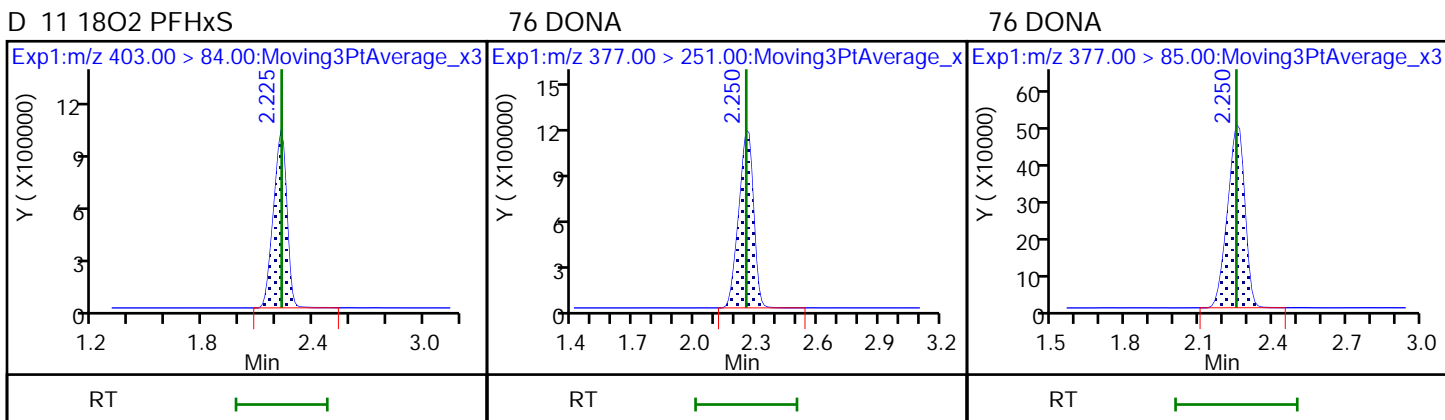
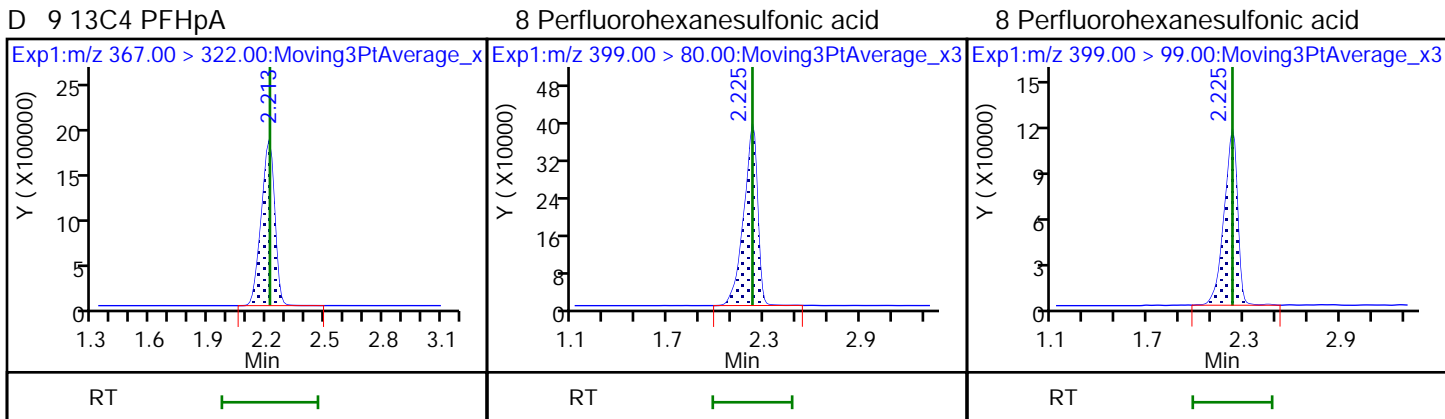
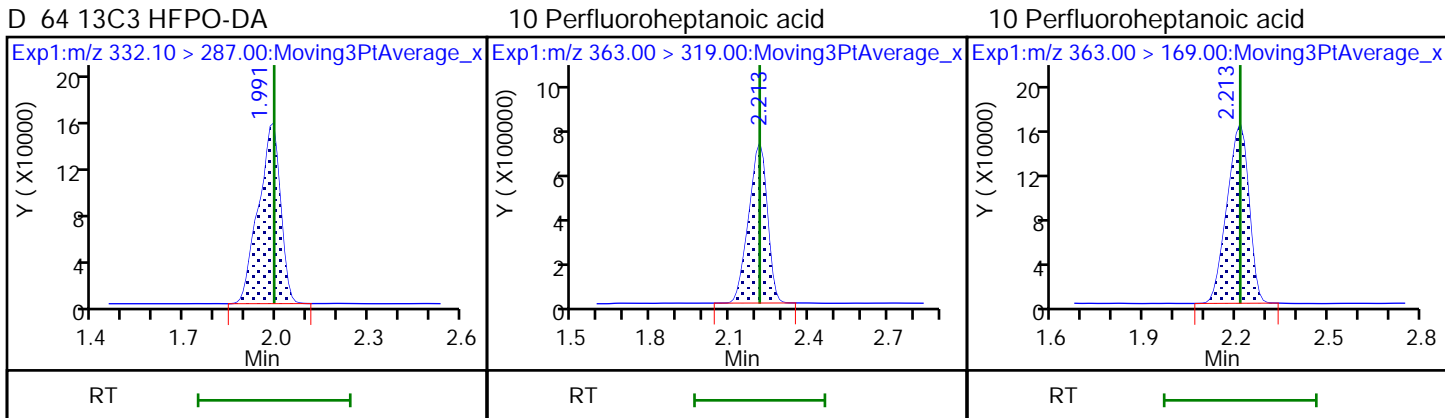
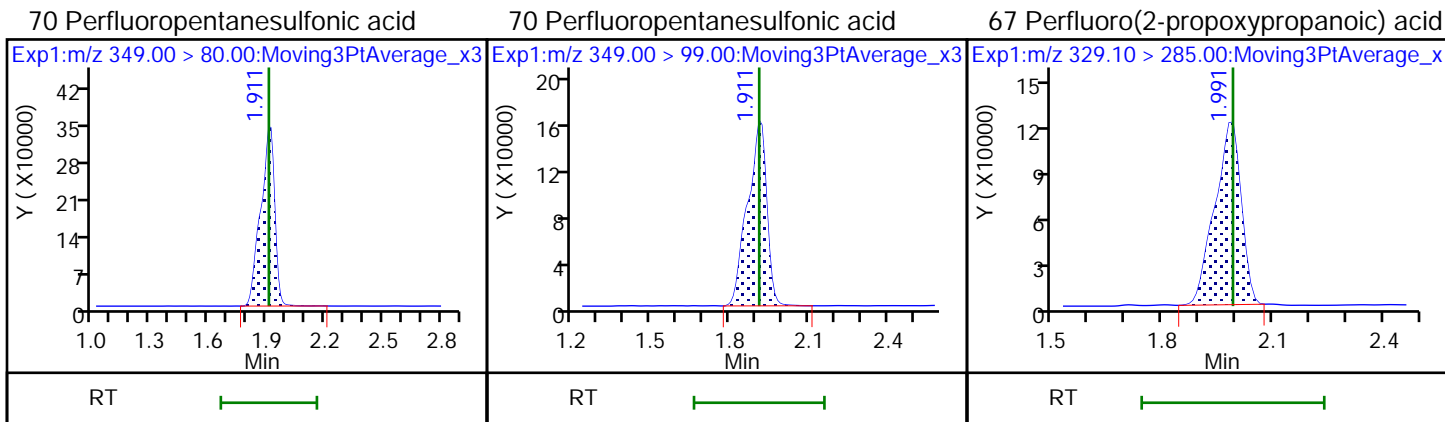


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

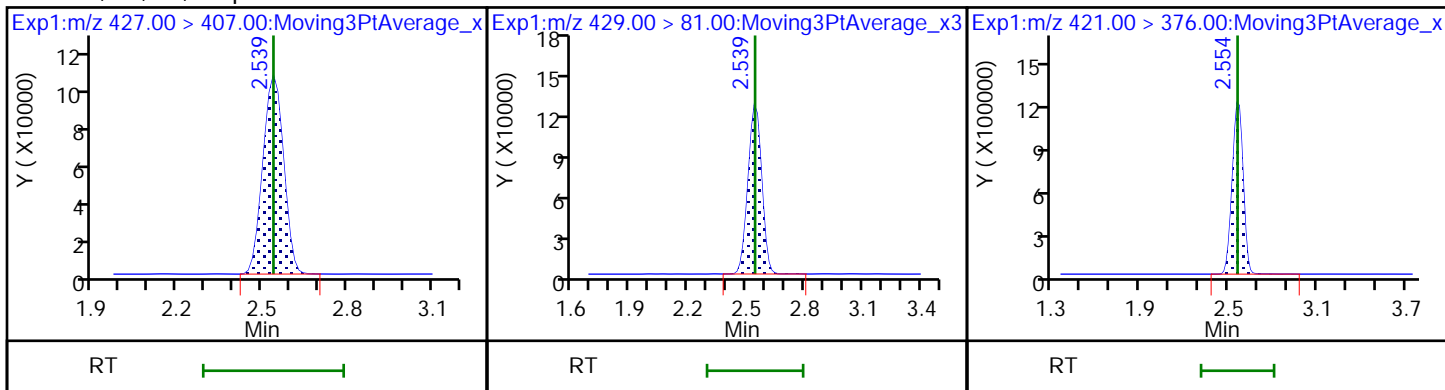
D 7 13C2 PFHxA





13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2 FTS

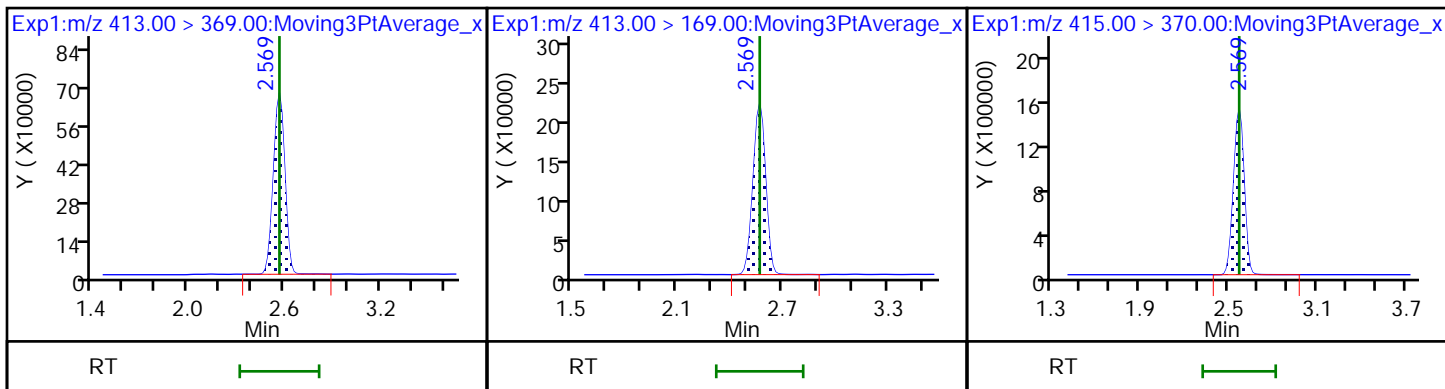
D 73 13C8 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

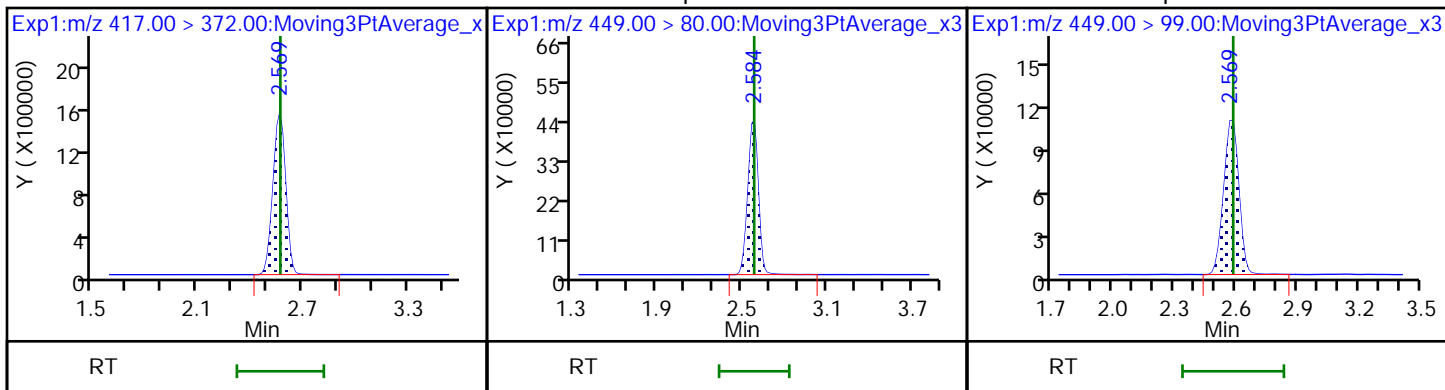
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

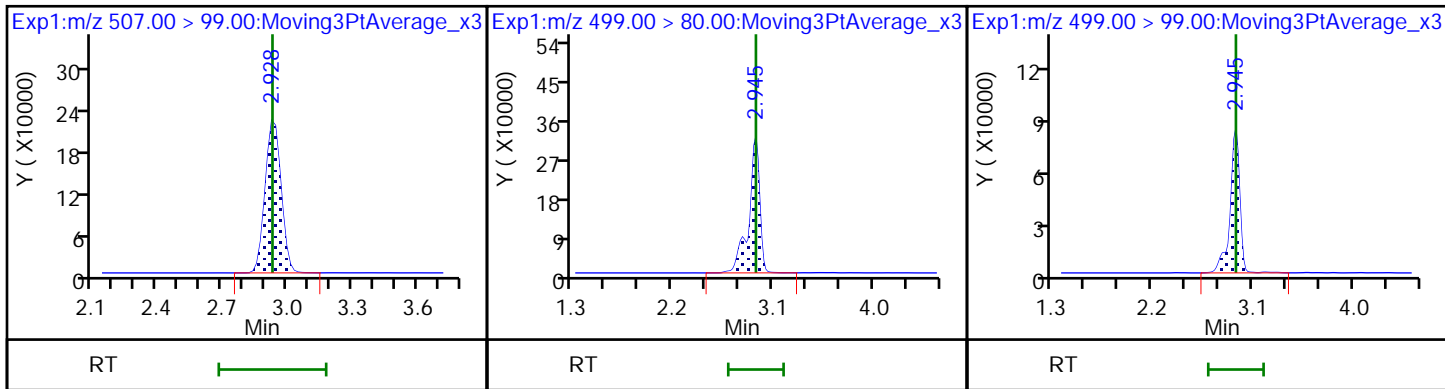
16 Perfluoroheptanesulfonic acid



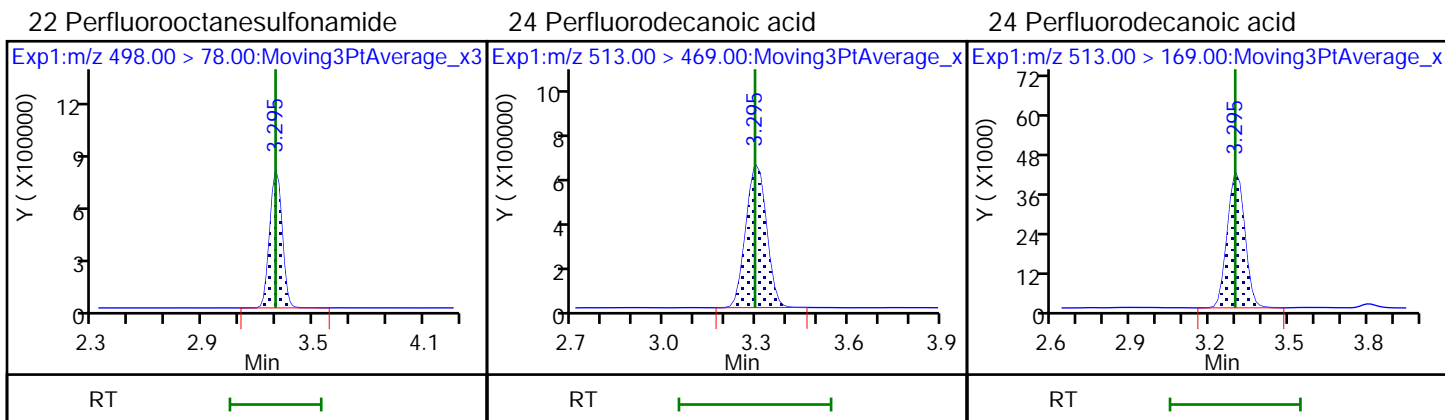
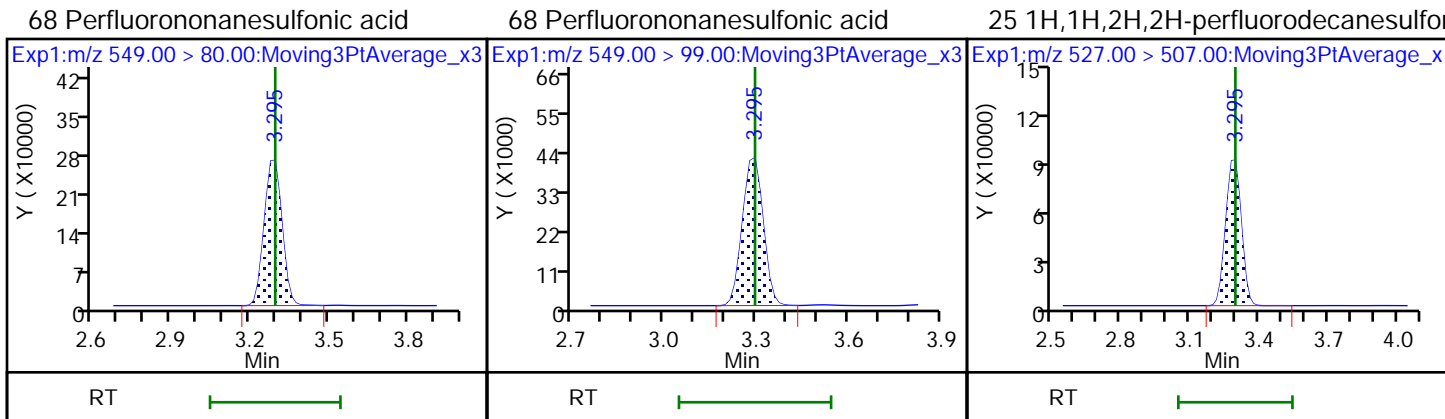
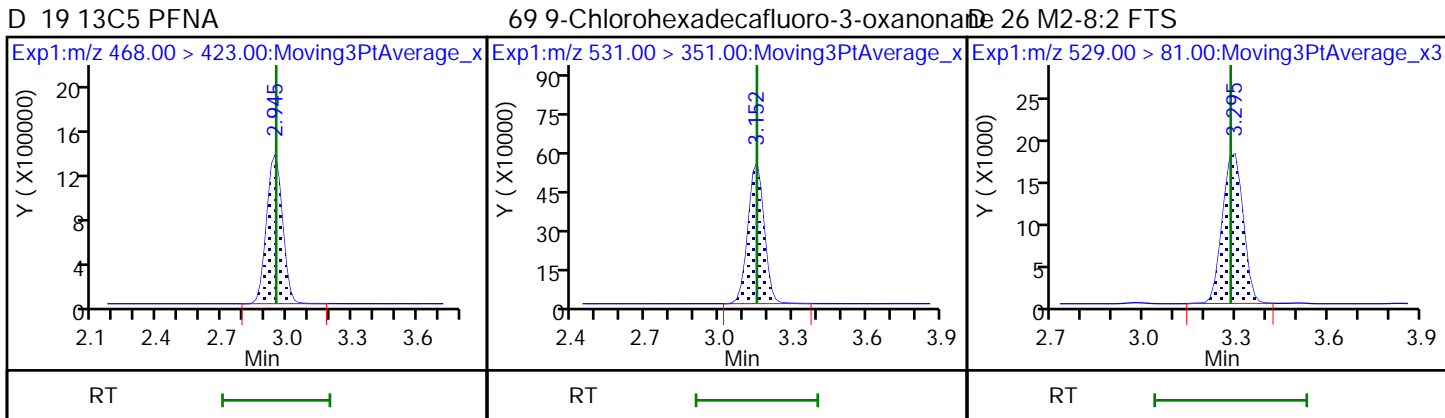
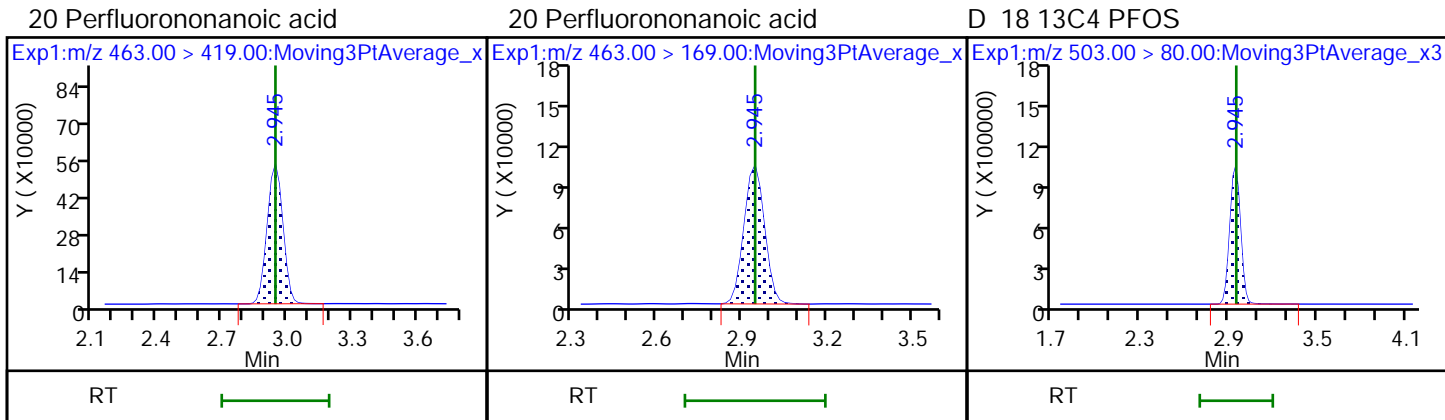
D 72 13C8 PFOS

17 Perfluorooctanesulfonic acid

17 Perfluorooctanesulfonic acid



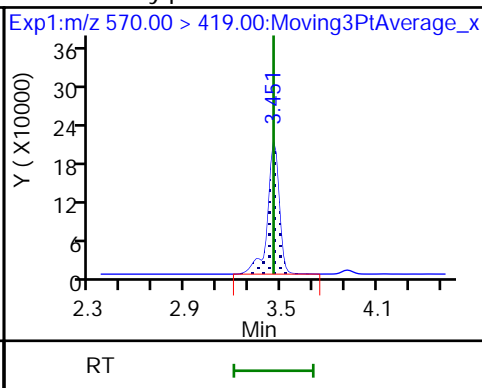
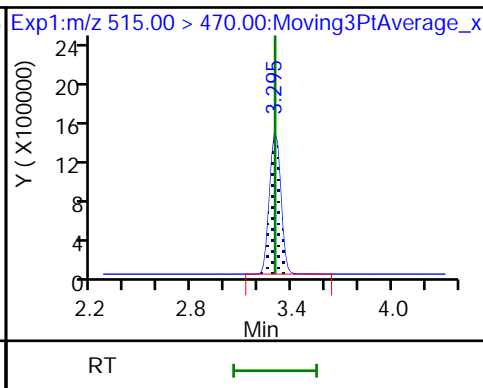
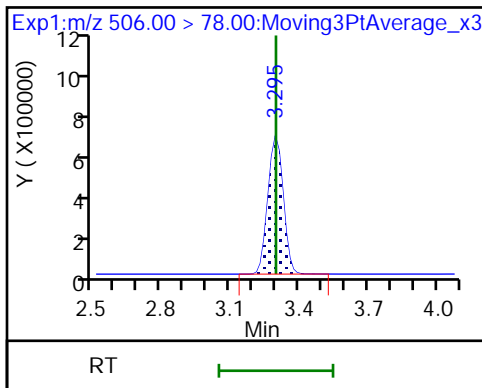




D 21 13C8 FOSA

D 23 13C2 PFDA

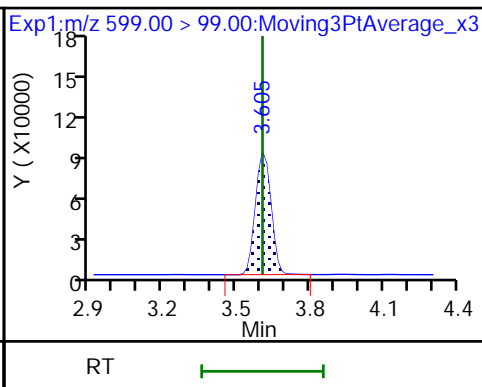
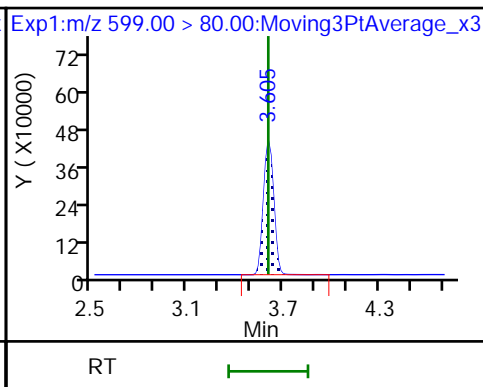
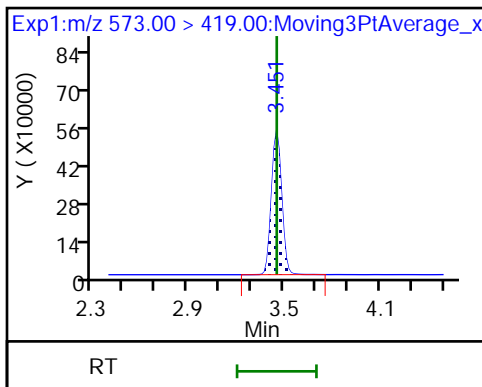
28 N-methylperfluorooctanesulfonamido



D 27 d3-NMeFOSAA

29 Perfluorodecanesulfonic acid

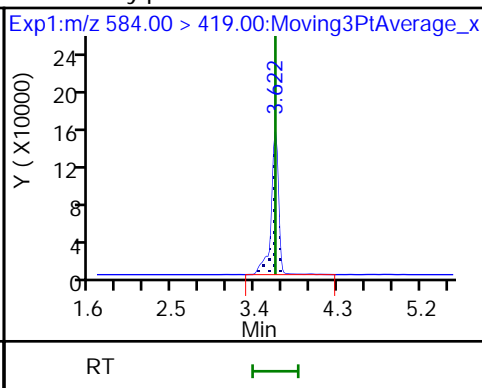
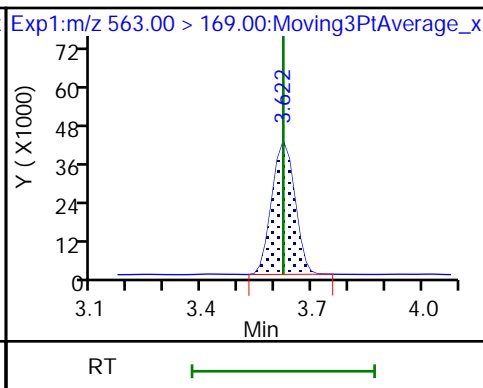
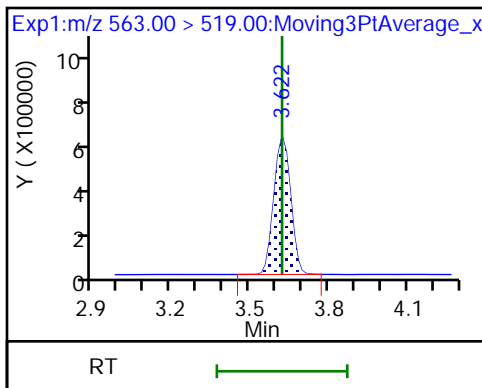
29 Perfluorodecanesulfonic acid



31 Perfluoroundecanoic acid

31 Perfluoroundecanoic acid

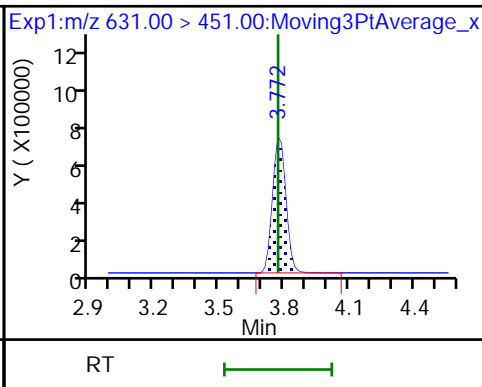
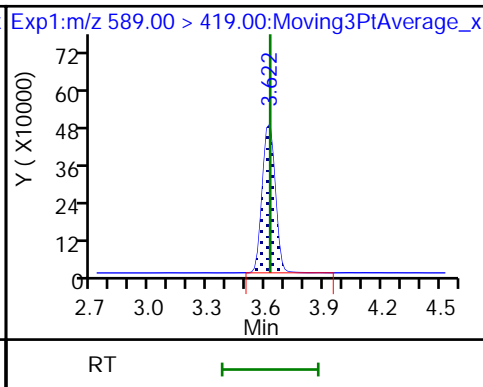
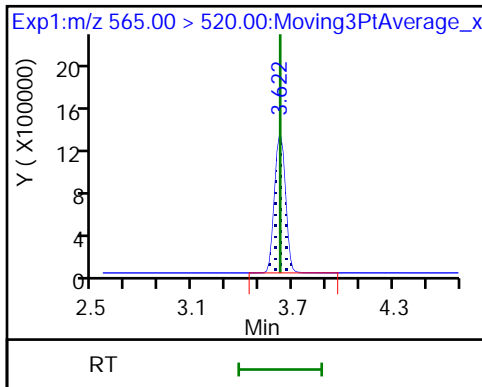
33 N-ethylperfluorooctanesulfonamido

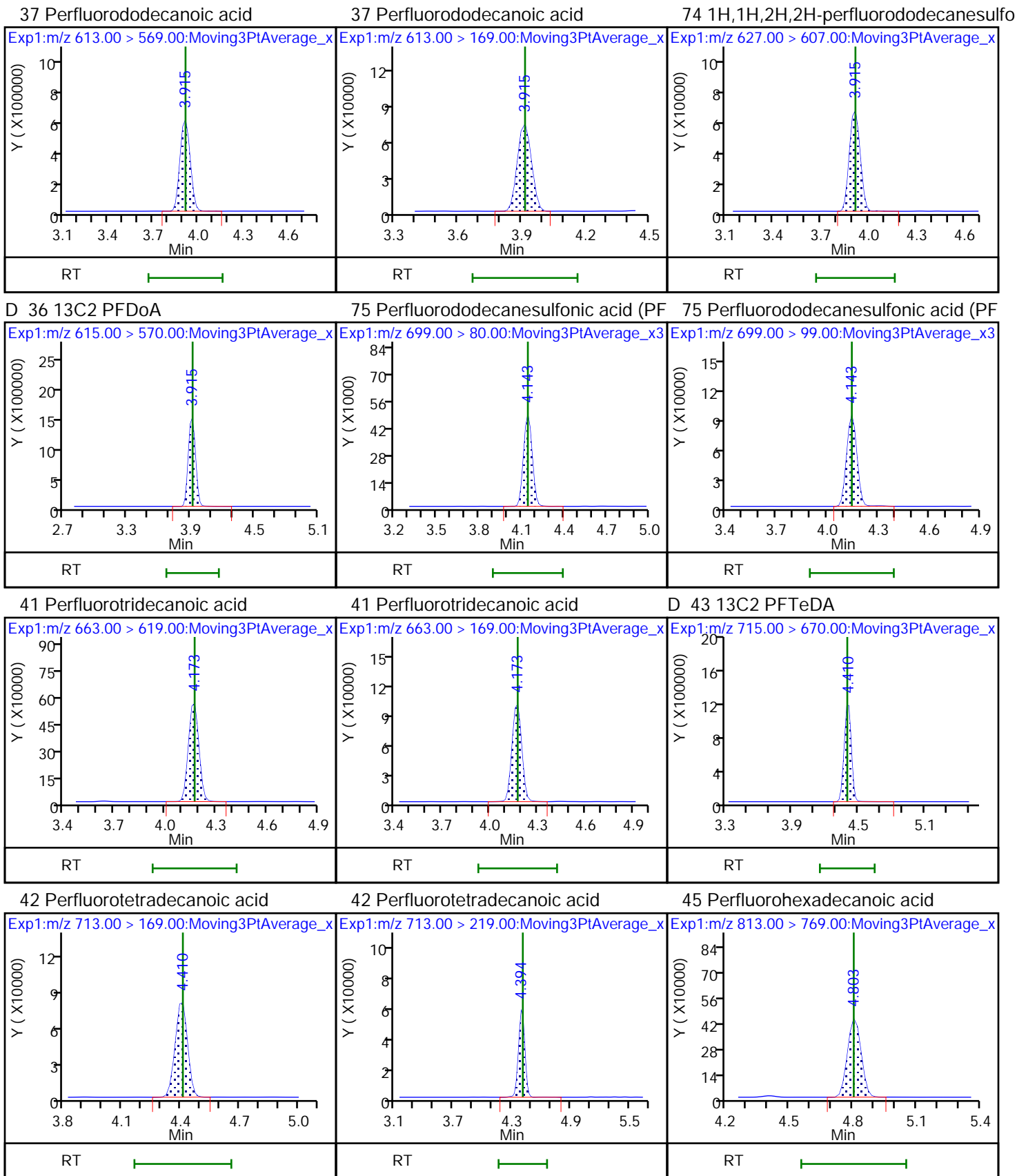


D 30 13C2 PFUnA

D 32 d5-NEtFOSAA

66 11-Chloroeicosafuoro-3-oxaundecan

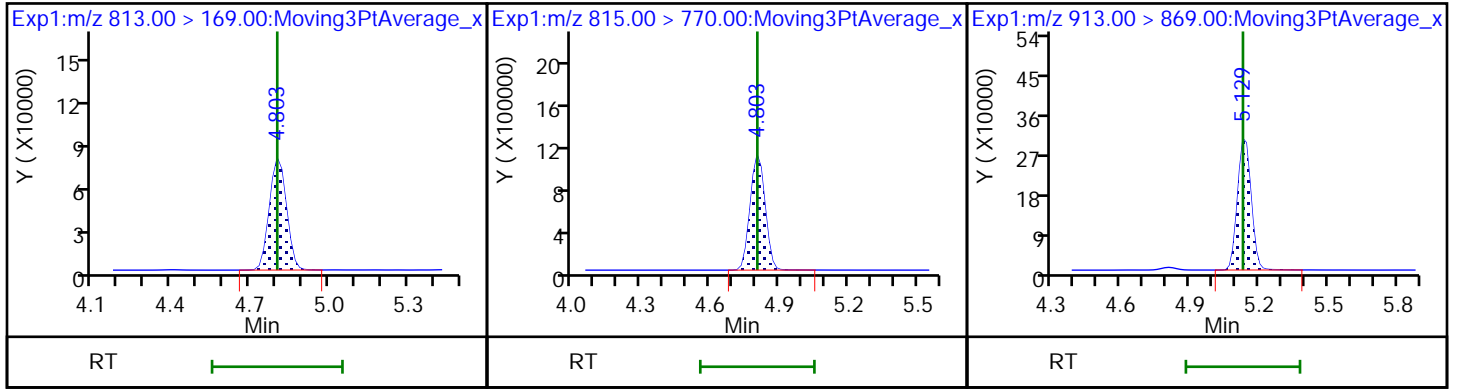




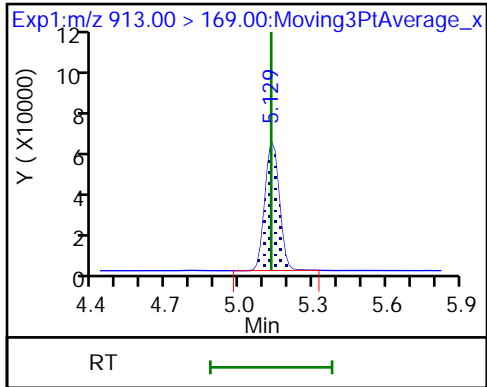
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

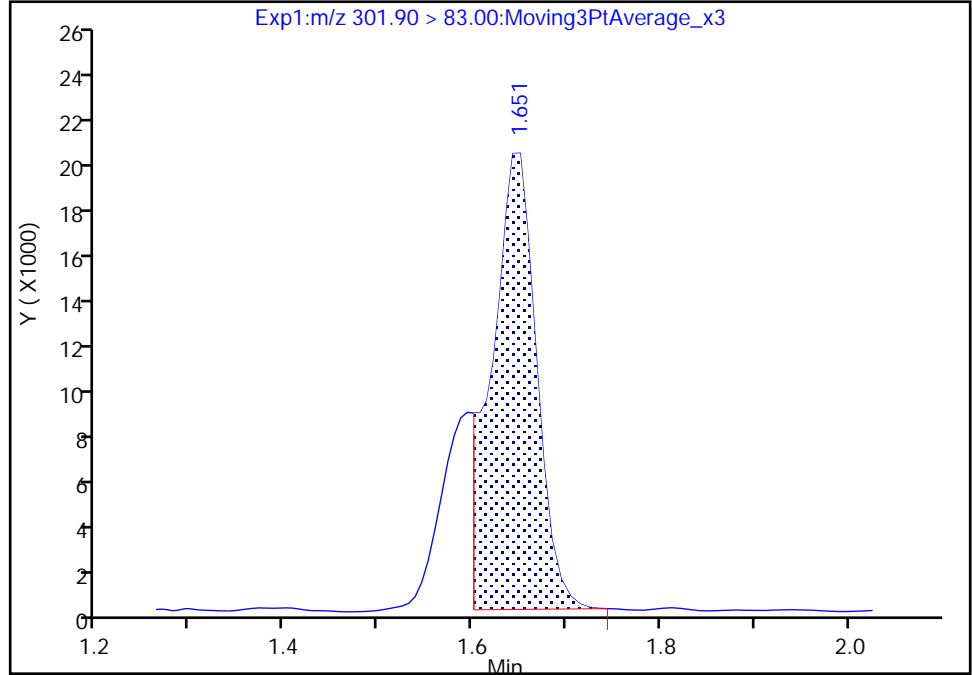
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Injection Date: 10-Nov-2018 14:43:31 Instrument ID: A9  
Lims ID: CCV L4  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 13 Worklist Smp#: 1  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

D 47 13C3 PFBS, CAS: STL02337

Signal: 1

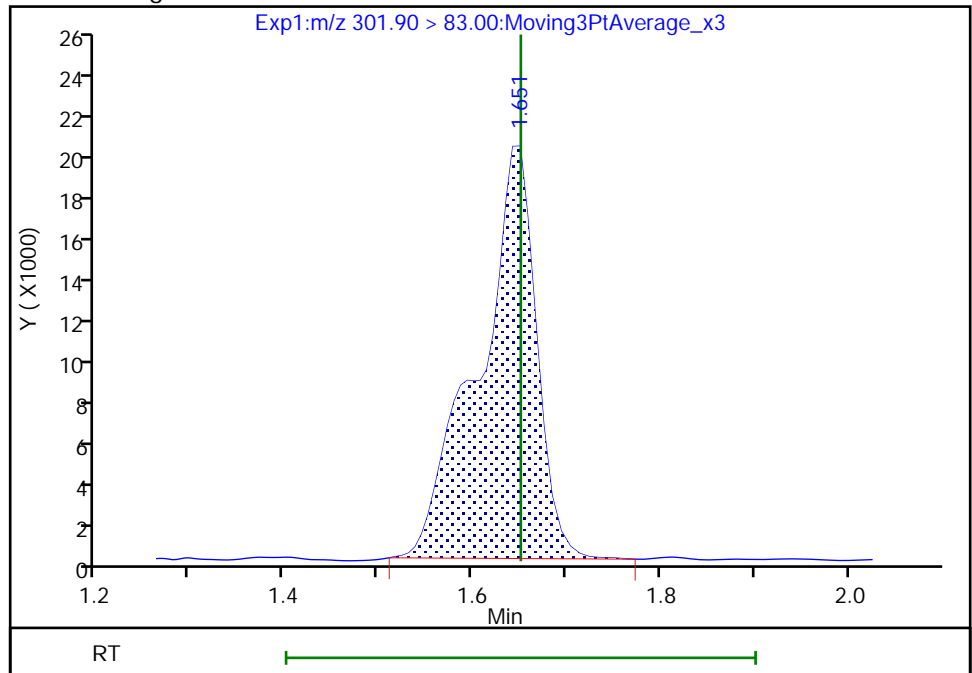
RT: 1.65  
Area: 64360  
Amount: 1.767679  
Amount Units: ng/ml

Processing Integration Results



RT: 1.65  
Area: 84112  
Amount: 2.310178  
Amount Units: ng/ml

Manual Integration Results



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-258354/11 Calibration Date: 11/10/2018 15:58  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.10LLA\_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	0.9357	0.9634		2.57	2.50	3.0	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.001	1.015		2.54	2.50	1.4	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	103.3	108.0		2.31	2.21	4.6	50.0
4:2 FTS	AveID	20.55	15.87		1.80	2.34	-22.7	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8997	0.9343		2.60	2.50	3.9	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	47.84	48.11		2.36	2.35	0.5	50.0
HFPO-DA (GenX)	AveID	1.662	1.881		2.83	2.50	13.1	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.061	1.055		2.49	2.50	-0.6	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.260	1.245		2.25	2.28	-1.2	40.0
DONA	AveID	2.718	2.847		2.47	2.36	4.8	50.0
6:2 FTS	AveID	2.182	2.196		2.39	2.37	0.6	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.041	1.099		2.51	2.38	5.5	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.081	1.023		2.37	2.50	-5.4	40.0
Perfluorononanoic acid (PFNA)	AveID	1.001	1.041		2.60	2.50	4.0	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.077	1.118		2.41	2.32	3.8	40.0
F-53B Major	AveID	1.108	1.224		2.57	2.33	10.5	50.0
8:2 FTS	AveID	14.28	14.21		2.38	2.40	-0.5	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.086	1.112		2.56	2.50	2.4	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.6135	0.6205		2.43	2.40	1.1	50.0
Perfluorooctanesulfonamide (FOSA)	AveID	3.005	2.921		2.43	2.50	-2.8	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.000	1.028		2.57	2.50	2.8	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.8654	0.9077		2.53	2.41	4.9	50.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9143	0.8289		2.27	2.50	-9.3	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.137	1.077		2.37	2.50	-5.3	40.0
F-53B Minor	AveID	1.387	1.502		2.55	2.36	8.3	50.0
10:2 FTS	AveID	10.11	9.948		2.37	2.41	-1.6	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.017	1.041		2.56	2.50	2.3	40.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.0963	0.1065		2.68	2.42	10.5	50.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8175	0.8662		2.65	2.50	5.9	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1828	0.1522		2.08	2.50	-16.8	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9752		2.68	2.50	7.1	50.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-258354/11 Calibration Date: 11/10/2018 15:58  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.10LLA\_051.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.4945	0.6929		3.50	2.50	40.1	50.0
13C4 PFBA	Ave	0.9103	0.9375		2.57	2.50	3.0	50.0
13C5 PFPeA	Ave	0.8665	0.8450		2.44	2.50	-2.5	50.0
13C3 PFBS	Ave	0.0120	0.0120		2.34	2.33	0.5	50.0
M2-4:2 FTS	Ave	0.0962	0.0745		1.81	2.34	-22.5	50.0
13C2 PFHxA	Ave	0.9136	0.8838		2.42	2.50	-3.3	50.0
13C3 HFPO-DA	Ave	0.1181	0.1023		2.17	2.50	-13.4	50.0
13C4 PFHpA	Ave	1.074	1.095		2.55	2.50	1.9	50.0
18O2 PFHxS	Ave	0.6988	0.6901		2.34	2.37	-1.2	50.0
M2-6:2 FTS	Ave	0.0988	0.0821		1.97	2.38	-16.9	40.0
13C8 PFOA	Ave	3440710	2543966		1.81	2.45	-26.1	50.0
13C4 PFOA	Ave	0.9837	1.049		2.67	2.50	6.6	50.0
13C8 PFOS	Ave	494030	441321		2.14	2.39	-10.7	50.0
13C4 PFOS	Ave	0.7064	0.7065		2.39	2.39	0.0	50.0
13C5 PFNA	Ave	0.9095	0.8600		2.36	2.50	-5.4	50.0
13C2 PFDA	Ave	0.9367	0.9309		2.48	2.50	-0.6	50.0
13C8 FOSA	Ave	0.3910	0.4040		2.58	2.50	3.3	50.0
M2-8:2 FTS	Ave	0.0122	0.0103		2.01	2.40	-16.0	40.0
d3-NMeFOSAA	Ave	0.4049	0.3391		2.09	2.50	-16.3	50.0
13C2 PFUnA	Ave	0.7823	0.8121		2.60	2.50	3.8	50.0
d5-NEtFOSAA	Ave	0.3298	0.3032		2.30	2.50	-8.1	50.0
13C2 PFDoA	Ave	0.9635	0.8999		2.34	2.50	-6.6	50.0
13C2 PFTeDA	Ave	0.7200	0.7485		2.60	2.50	4.0	50.0
13C2 PFHxDA	Ave	0.7154	0.6666		2.33	2.50	-6.8	50.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_051.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 10-Nov-2018 15:58:42 ALS Bottle#: 14 Worklist Smp#: 11  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 14-Nov-2018 13:34:59 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0303

First Level Reviewer: mongkols Date: 14-Nov-2018 13:34:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.90 > 169.00	1.359	1.352	0.007	1.000	6605589	2.57		103	124	
D 1 13C4 PFBA										
217.00 > 172.00	1.359	1.352	0.007	0.528	6856485	2.57		103	5890	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.615	1.615	0.0	1.000	6273863	2.54		101	283	
D 3 13C5 PFPeA										
267.90 > 223.00	1.615	1.616	-0.001	0.628	6179840	2.44		97.5	5962	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.651	1.651	0.0	1.000	8404992	2.31		105	2383	M
298.90 > 99.00	1.651	1.651	0.0	1.000	2905061		2.89(1.35-4.05)		959	M
D 47 13C3 PFBS										
301.90 > 83.00	1.651	1.651	0.0	0.642	81864	2.34		101	245	M
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.863	1.862	0.001	1.128	1305159	1.80		77.3	6768	
D 60 M2-4:2 FTS										
329.00 > 81.00	1.863	1.863	0.0	0.724	508872	1.81		77.5	569	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.902	1.891	0.011	1.005	6038937	2.60		104	399	
313.00 > 119.00	1.892	1.891	0.001	1.000	431799		13.99(6.96-20.87)		366	
D 7 13C2 PFHxA										
315.00 > 270.00	1.892	1.893	-0.001	0.736	6463296	2.42		96.7	8020	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.922	1.911	0.011	1.164	3972036	2.36		101	5107	
349.00 > 99.00	1.922	1.911	0.011	1.164	1903162		2.09(1.15-3.45)		1432	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	1.992	1.991	0.001	1.000	1406948	2.83		113	458	



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	1.992	1.993	-0.001	0.775	748101	2.17		86.6	3074	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.216	2.213	0.003	1.000	8443522	2.49		99.4	668	
363.00 > 169.00	2.216	2.213	0.003	1.000	1808439		4.67(2.17-6.52)		1361	
D 9 13C4 PFHpA										
367.00 > 322.00	2.216	2.216	0.0	0.861	8005362	2.55		102	8157	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.228	2.225	0.003	1.000	5718506	2.25		98.8	3409	
399.00 > 99.00	2.228	2.225	0.003	1.000	1536043		3.72(1.90-5.70)		855	
D 11 18O2 PFHxS										
403.00 > 84.00	2.228	2.229	-0.001	0.866	4774696	2.34		98.8	8008	
76 DONA										
377.00 > 251.00	2.253	2.250	0.003	0.764	13856664	2.47		105	10490	
377.00 > 85.00	2.253	2.250	0.003	0.764	6349343		2.18(1.13-3.39)		3636	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.543	2.539	0.004	1.000	1249853	2.39		101	2060	
D 12 M2-6:2 FTS										
429.00 > 81.00	2.543	2.543	0.0	0.989	570319	1.97		83.1	855	
D 73 13C8 PFOA										
421.00 > 376.00	2.557	2.558	-0.001		6226356	1.81		73.9	6776	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.572	2.569	0.003	1.000	7856455	2.37		94.6	791	
413.00 > 169.00	2.572	2.569	0.003	1.000	2839437		2.77(1.36-4.08)		2102	
* 62 13C2 PFOA										
415.00 > 370.00	2.572	2.569	0.003		7313423	2.50			6796	
D 14 13C4 PFOA										
417.00 > 372.00	2.572	2.573	-0.001	1.000	7671737	2.67		107	7142	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.572	2.584	-0.012	0.872	5403549	2.51		106	4361	
449.00 > 99.00	2.572	2.584	-0.012	0.872	1263486		4.28(1.84-5.53)		2372	
D 72 13C8 PFOS										
507.00 > 99.00	2.931	2.932	-0.001		1054758	2.14		89.3	2423	
17 Perfluorooctanesulfonic acid										
499.00 > 80.00	2.949	2.945	0.004	1.000	5359295	2.41		104	2347	
499.00 > 99.00	2.949	2.945	0.004	1.000	1211711		4.42(2.04-6.12)		1943	
20 Perfluorononanoic acid										
463.00 > 419.00	2.949	2.945	0.004	1.000	6545476	2.60		104	697	
463.00 > 169.00	2.949	2.945	0.004	1.000	1193402		5.48(2.68-8.03)		1540	
D 18 13C4 PFOS										
503.00 > 80.00	2.949	2.949	0.0	1.146	4939706	2.39		100	4152	
D 19 13C5 PFNA										
468.00 > 423.00	2.949	2.949	0.0	1.146	6289344	2.36		94.6	3793	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.154	3.152	0.002	1.070	5892783	2.57		110	3498	
D 26 M2-8:2 FTS										
529.00 > 81.00	3.298	3.281	0.017	1.282	72102	2.01		84.0	356	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.298	3.295	0.003	1.118	3077747	2.43		101	3445	
549.00 > 99.00	3.298	3.295	0.003	1.118	496598		6.20(3.02-9.05)		2958	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.298	3.295	0.003	1.000	1024360	2.38		99.5	4324	
22 Perfluorooctanesulfonamide										
498.00 > 78.00	3.298	3.295	0.003	1.000	8630268	2.43		97.2	6402	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.298	3.295	0.003	1.000	7569976	2.56		102	1086	
513.00 > 169.00	3.298	3.295	0.003	1.000	517681		14.62(7.12-21.35)		349	
D 21 13C8 FOSA										
506.00 > 78.00	3.298	3.298	0.0	1.282	2954363	2.58		103	4572	
D 23 13C2 PFDA										
515.00 > 470.00	3.298	3.298	0.0	1.282	6807796	2.48		99.4	4508	
28 N-methylperfluorooctanesulfonamido										
570.00 > 419.00	3.452	3.451	0.001	1.000	2549065	2.57		103	865	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.452	3.452	0.0	1.342	2479915	2.09		83.7	2628	
29 Perfluorodecanesulfonic acid										
599.00 > 80.00	3.607	3.605	0.002	1.223	4521367	2.53		105	3745	
599.00 > 99.00	3.607	3.605	0.002	1.223	950019		4.76(2.14-6.43)		2506	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.624	3.622	0.002	1.000	6396307	2.37		94.7	1470	
563.00 > 169.00	3.624	3.622	0.002	1.000	496845		12.87(5.24-15.72)		1018	
33 N-ethylperfluorooctanesulfonamidoa										
584.00 > 419.00	3.624	3.622	0.002	1.000	1838057	2.27		90.7	2549	
D 30 13C2 PFUnA										
565.00 > 520.00	3.624	3.623	0.001	1.409	5939408	2.60		104	5664	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.624	3.623	0.001	1.409	2217473	2.30		91.9	1734	
66 11-Chloroeicosafuoro-3-oxaundecan										
631.00 > 451.00	3.774	3.772	0.002	1.280	7312396	2.55		108	6843	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.917	3.915	0.002	1.000	6848386	2.56		102	1619	
613.00 > 169.00	3.917	3.915	0.002	1.000	708386		9.67(4.68-14.05)		1333	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.917	3.915	0.002	1.188	721733	2.37		98.4	1808	
D 36 13C2 PFDaA										
615.00 > 570.00	3.917	3.918	-0.001	1.523	6581341	2.34		93.4	6198	
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	4.006	4.004	0.002		1817807	NC			659	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.145	4.143	0.002	1.406	532688	2.68		111	2201	
699.00 > 99.00	4.145	4.143	0.002	1.406	948021		0.56(0.28-0.83)		2961	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.176	4.173	0.003	1.066	5700404	2.65		106	1918	
663.00 > 169.00	4.176	4.173	0.003	1.066	970473		5.87(3.09-9.27)		1730	

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	4.412	4.397	0.015	1.715	5473916	2.60		104	6779	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.412	4.410	0.002	1.000	832844	2.08		83.2	2992	
713.00 > 219.00	4.396	4.410	-0.014	0.996	592423		1.41(0.70-2.09)		1643	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.803	4.803	0.0	1.000	4754103	2.68		107	1890	
813.00 > 169.00	4.803	4.803	0.0	1.000	859601		5.53(2.77-8.32)		1896	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.803	4.804	-0.001	1.867	4875131	2.33		93.2	5945	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.143	5.129	0.014	1.071	3377792	3.50		140	2184	
913.00 > 169.00	5.129	5.129	-0.001	1.068	670429		5.04(2.55-7.64)		2901	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

**Reagents:**

LCPFC\_LL5\_00009

Amount Added: 1.00

Units: mL

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_051.d

Injection Date: 10-Nov-2018 15:58:42

Instrument ID: A9

Lims ID: CCV L5

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 14

Worklist Smp#: 11

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

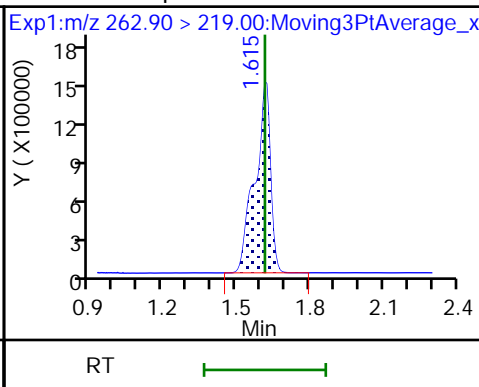
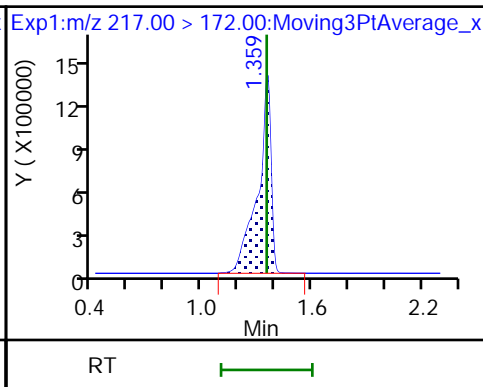
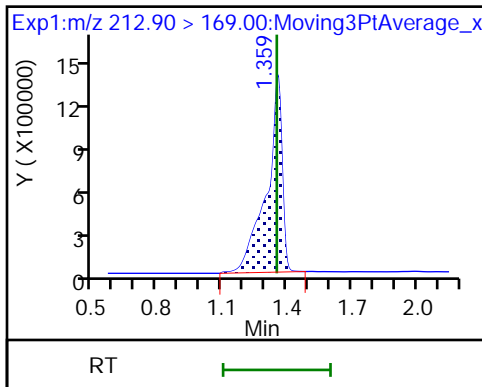
Method: PFAS\_A9

Limit Group: LC PFC ICAL

2 Perfluorobutanoic acid

D 1 13C4 PFBA

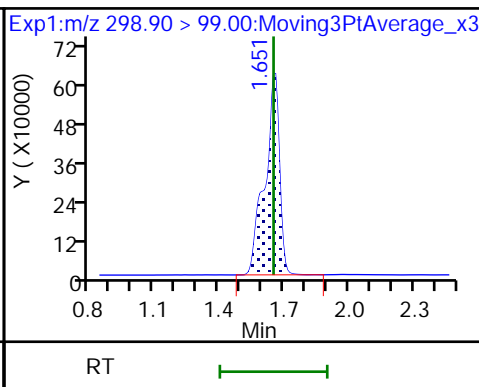
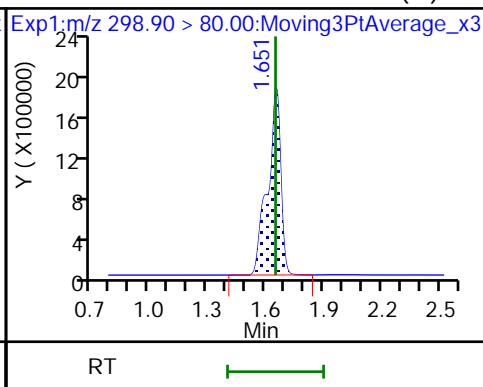
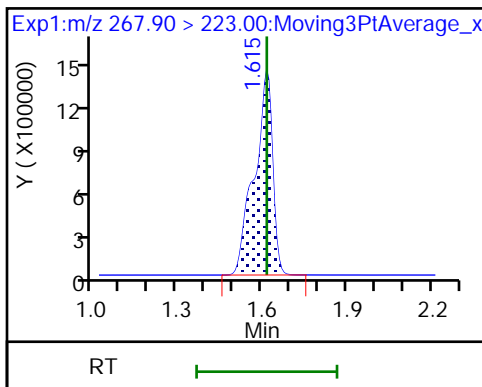
4 Perfluoropentanoic acid



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid (M)

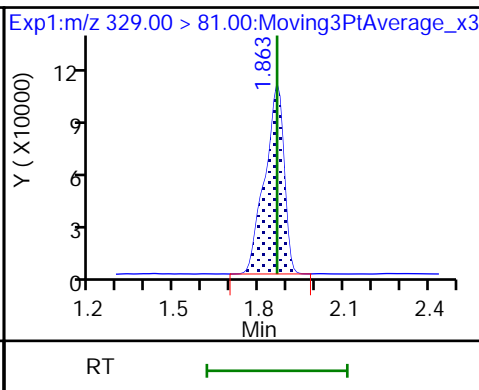
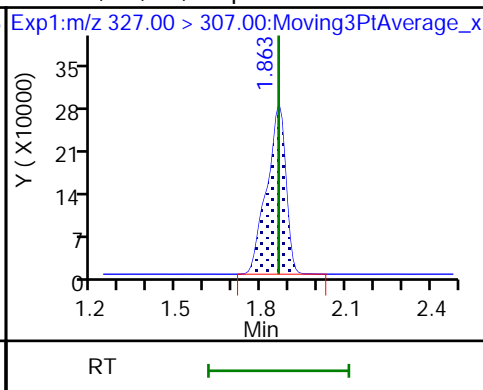
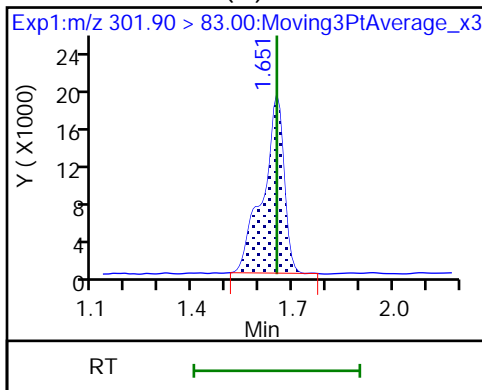
5 Perfluorobutanesulfonic acid



D 47 13C3 PFBS (M)

61 1H,1H,2H,2H-perfluorohexanesulfonate

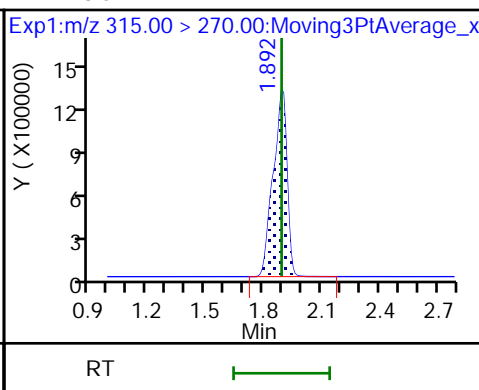
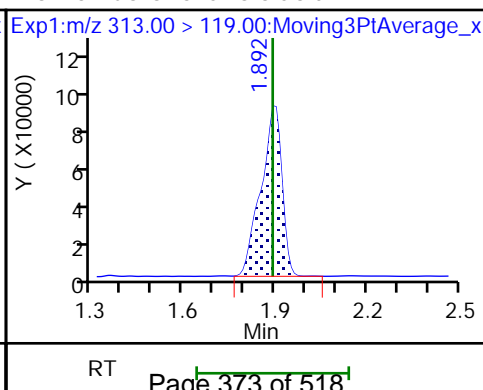
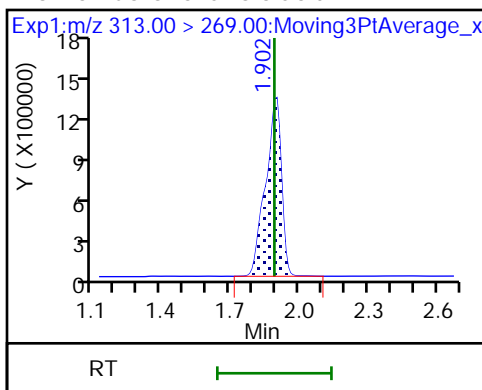
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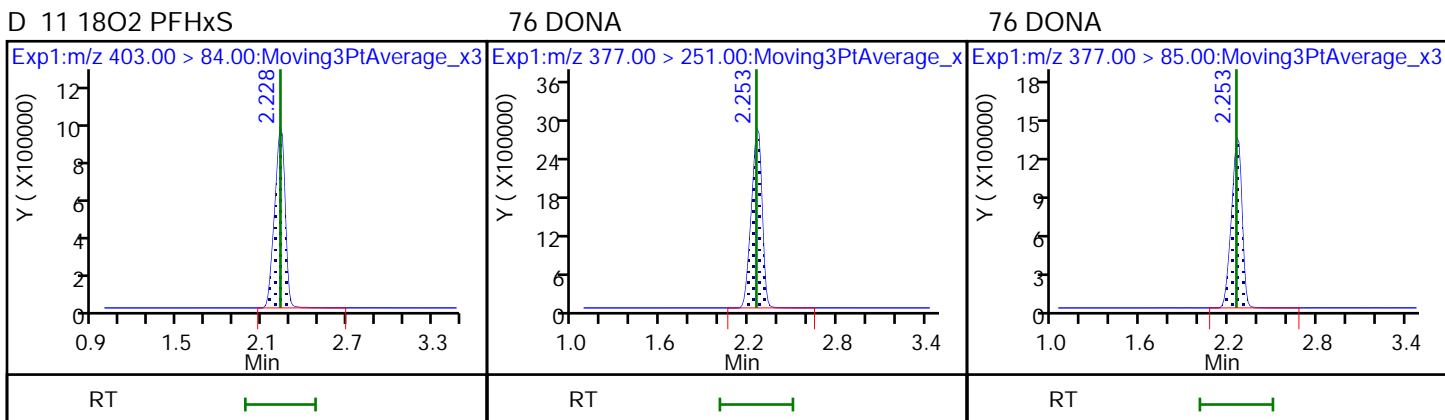
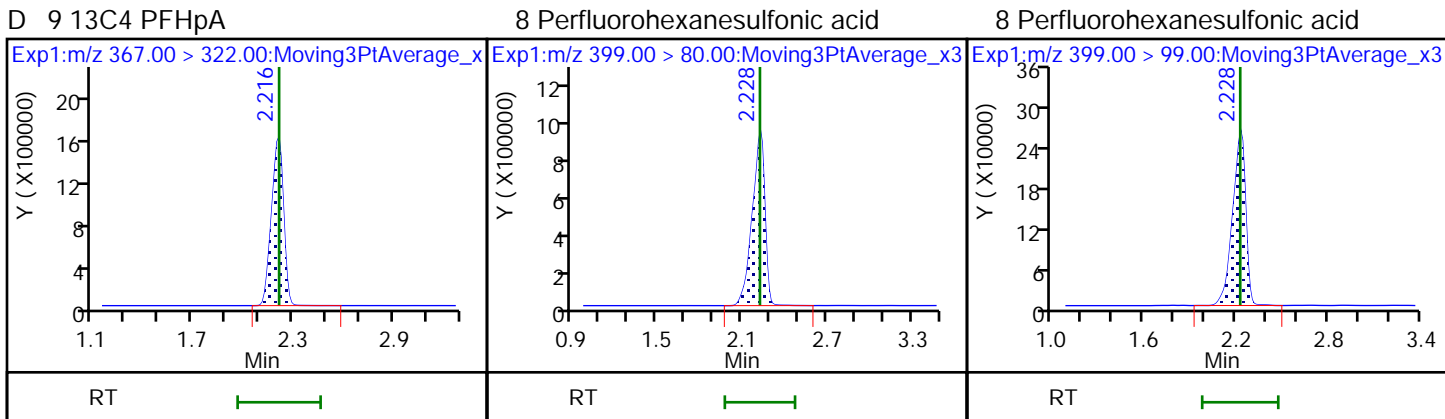
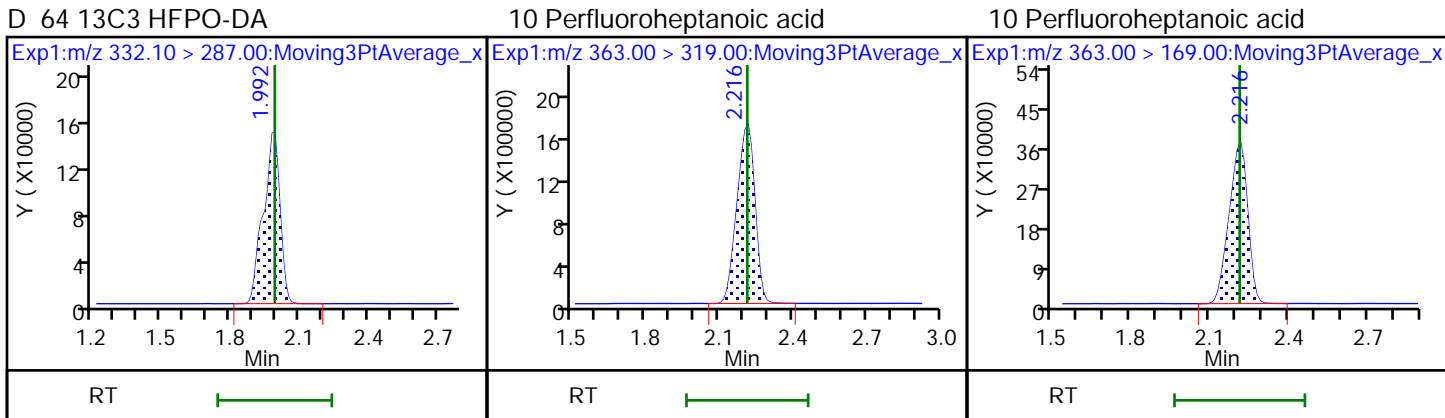
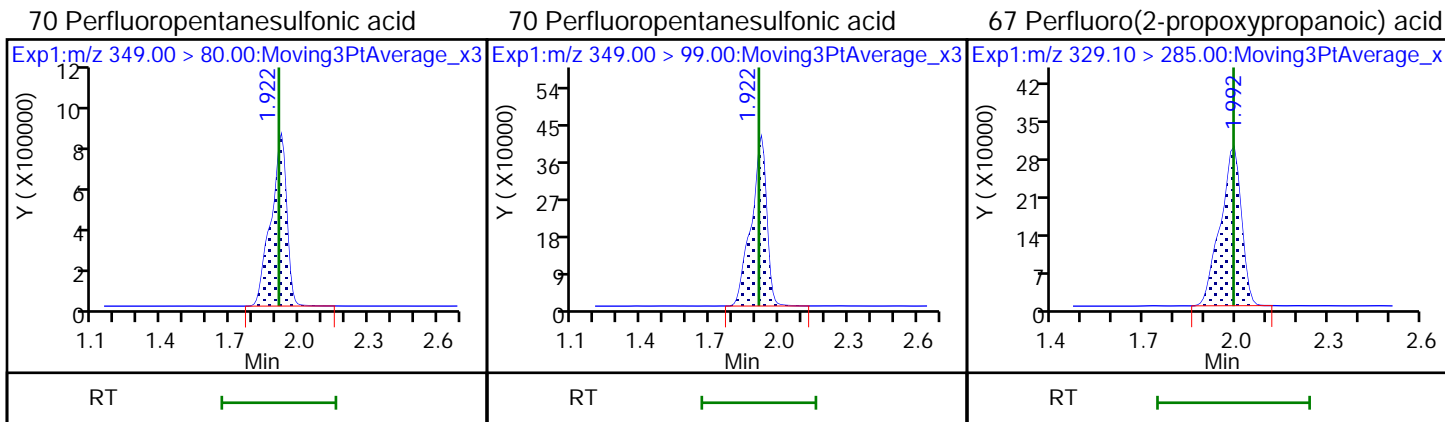


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

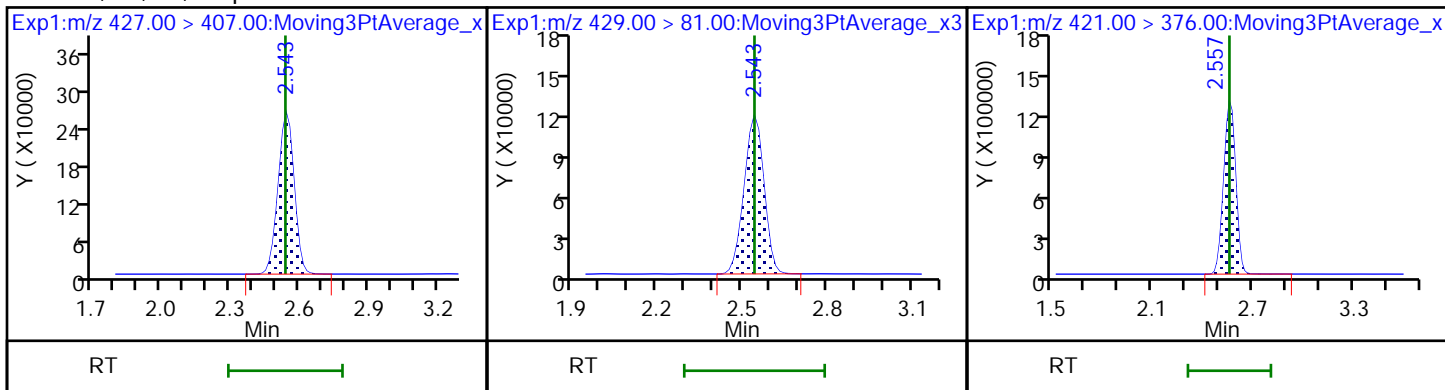
D 7 13C2 PFHxA





13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2 FTS

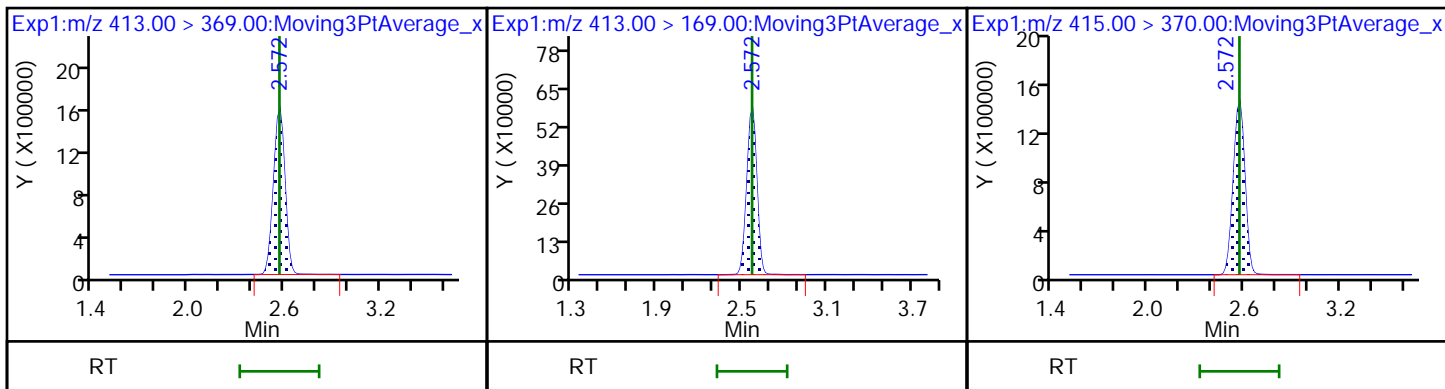
D 73 13C8 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

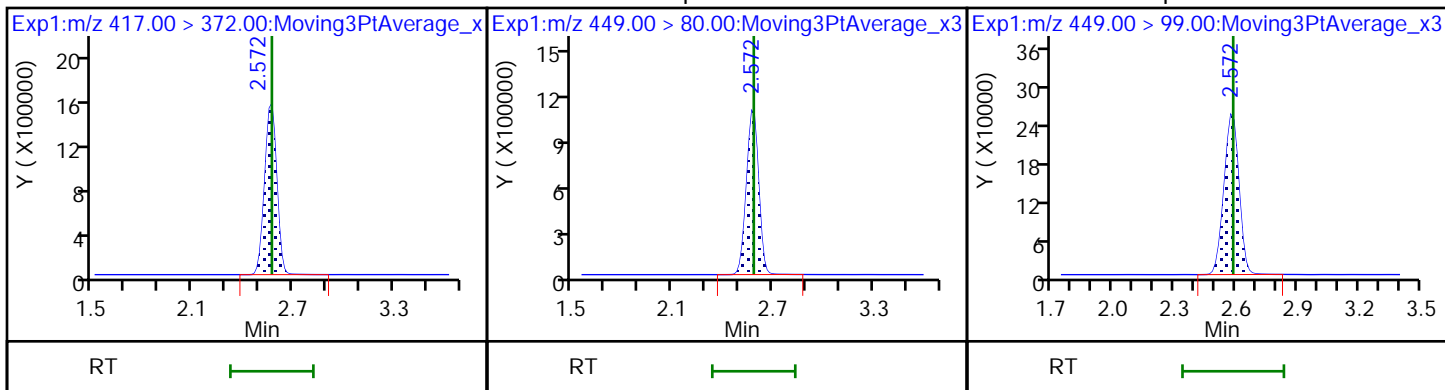
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

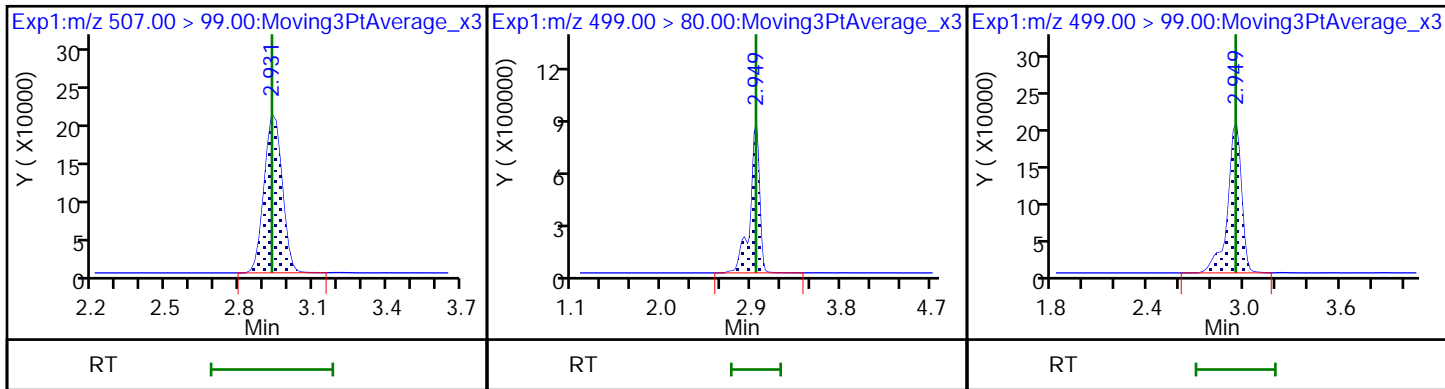
16 Perfluoroheptanesulfonic acid

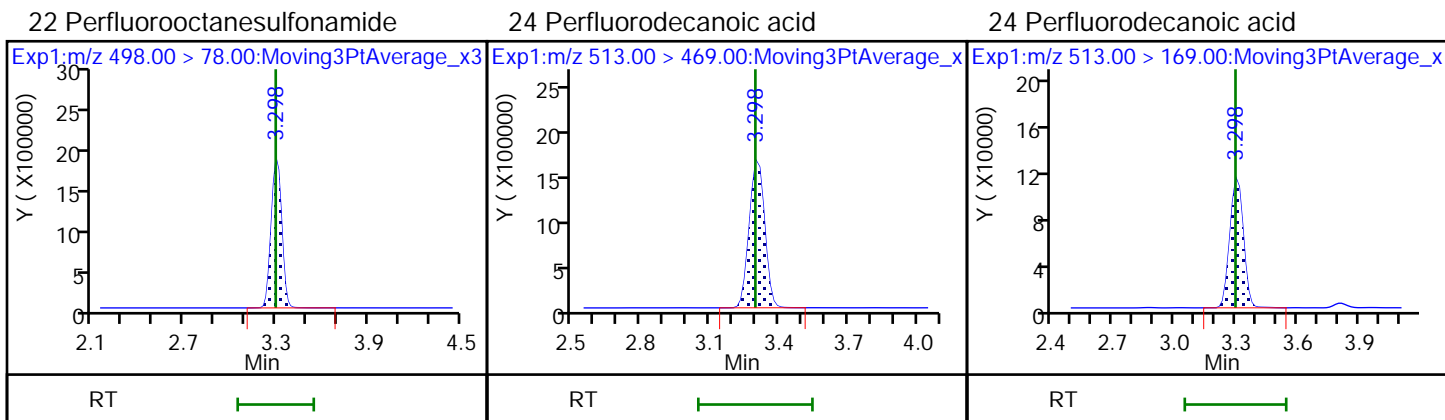
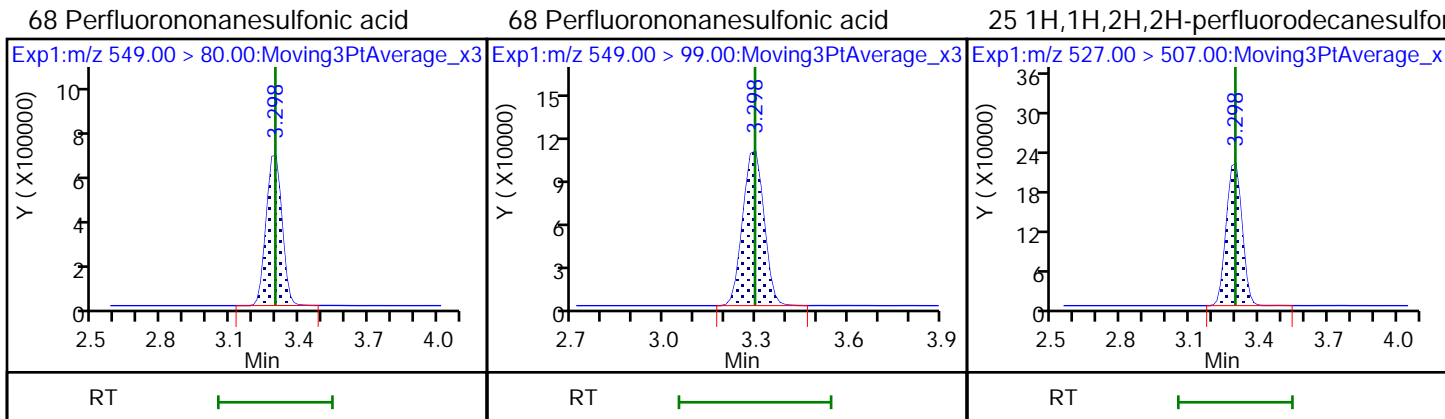
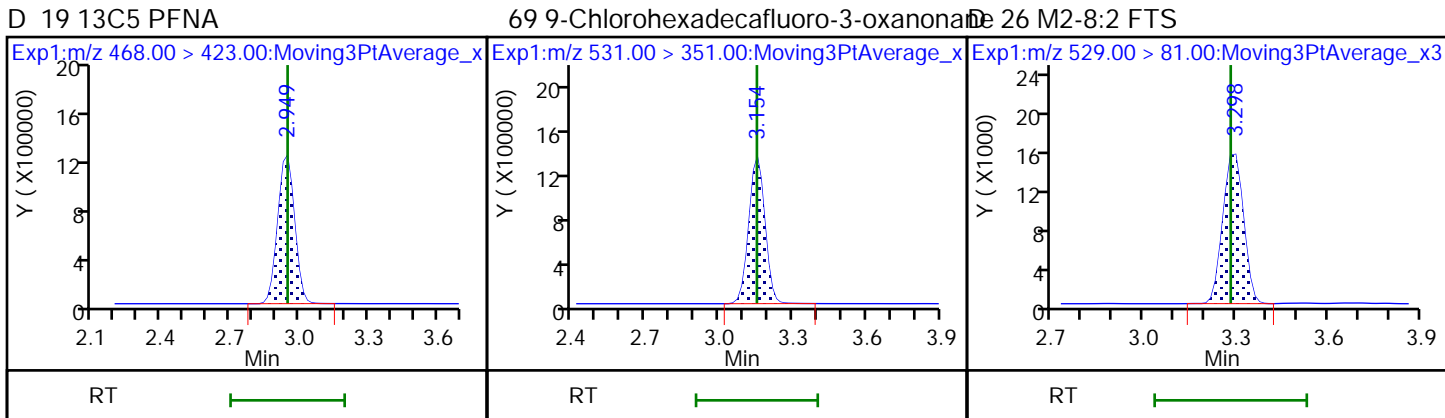
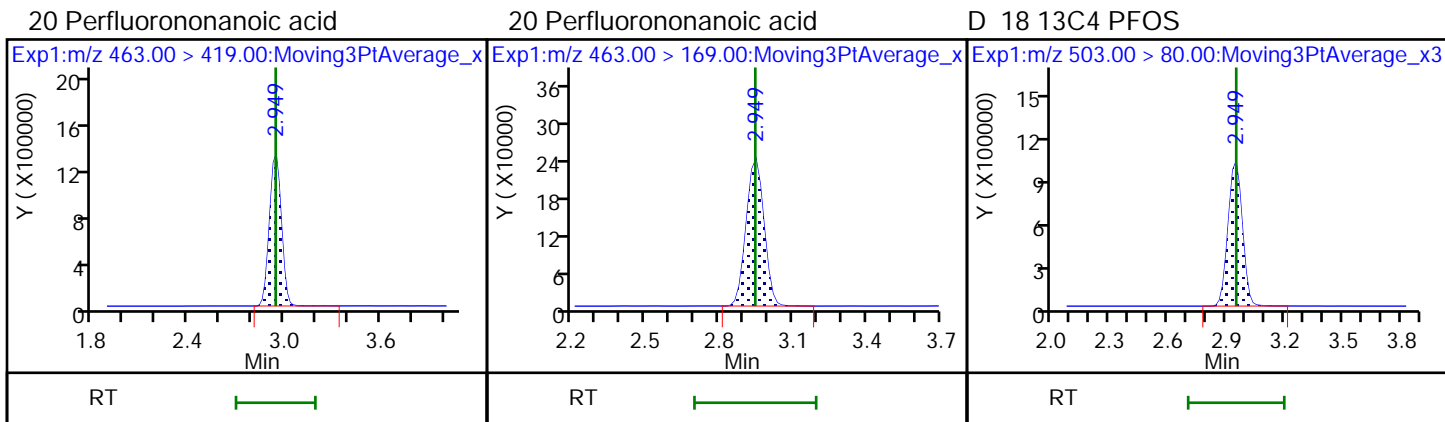


D 72 13C8 PFOS

17 Perfluorooctanesulfonic acid

17 Perfluorooctanesulfonic acid

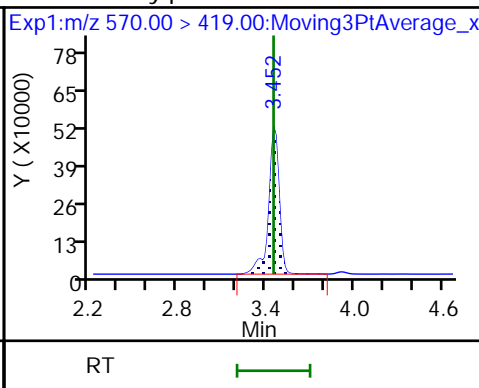
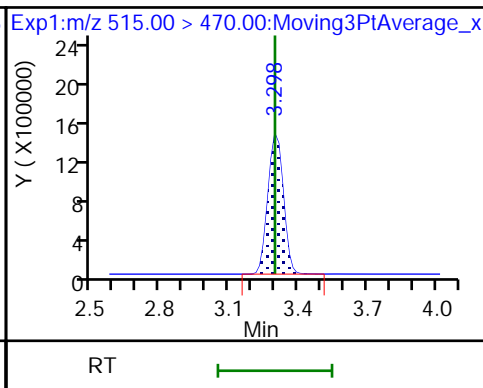
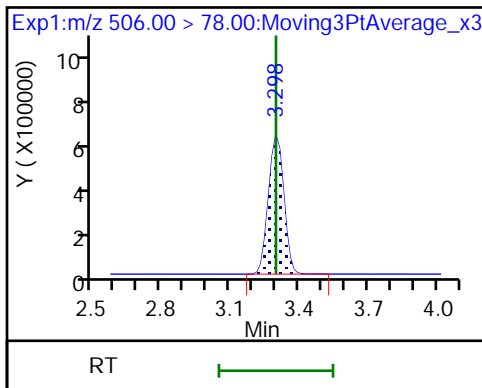




D 21 13C8 FOSA

D 23 13C2 PFDA

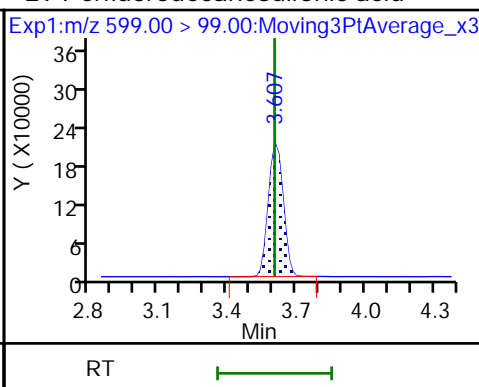
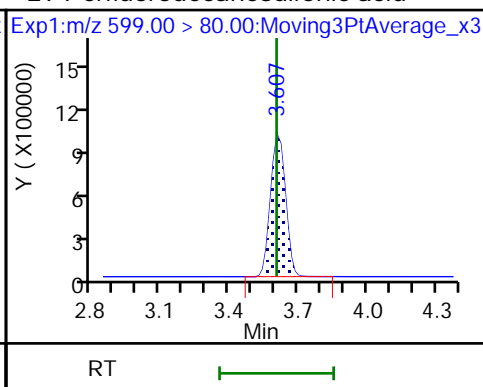
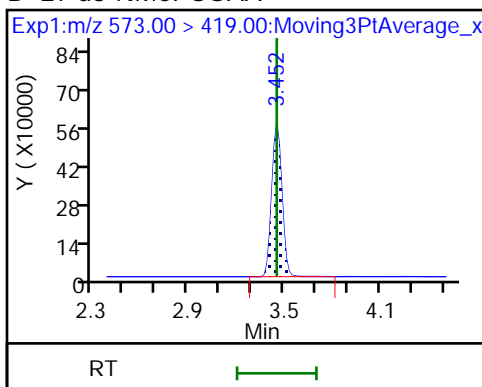
28 N-methylperfluorooctanesulfonamido



D 27 d3-NMeFOSAA

29 Perfluorodecanesulfonic acid

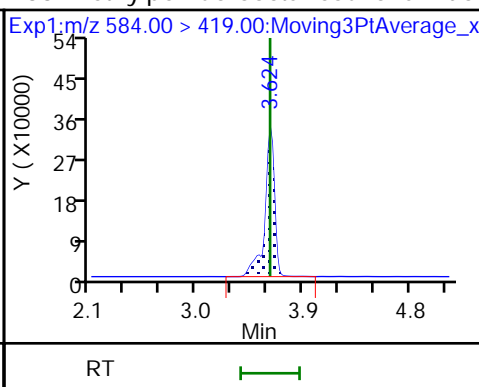
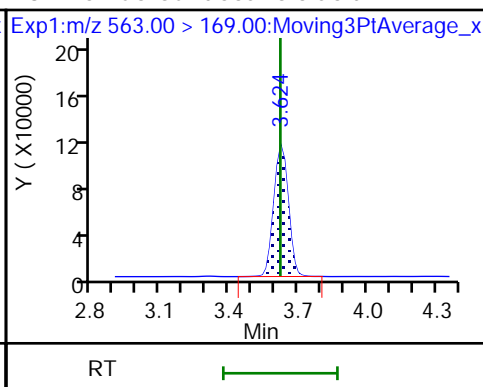
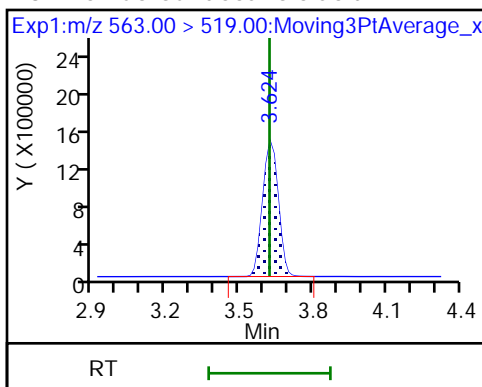
29 Perfluorodecanesulfonic acid



31 Perfluoroundecanoic acid

31 Perfluoroundecanoic acid

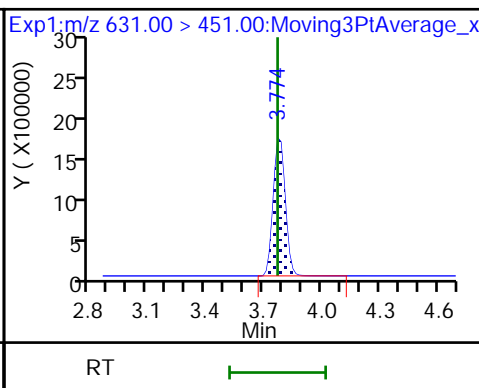
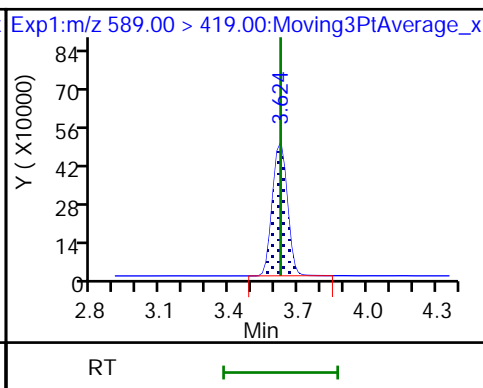
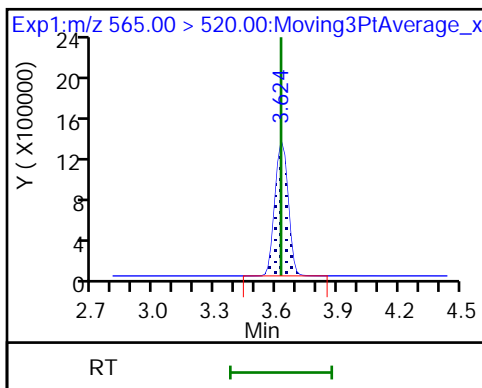
33 N-ethylperfluorooctanesulfonamido



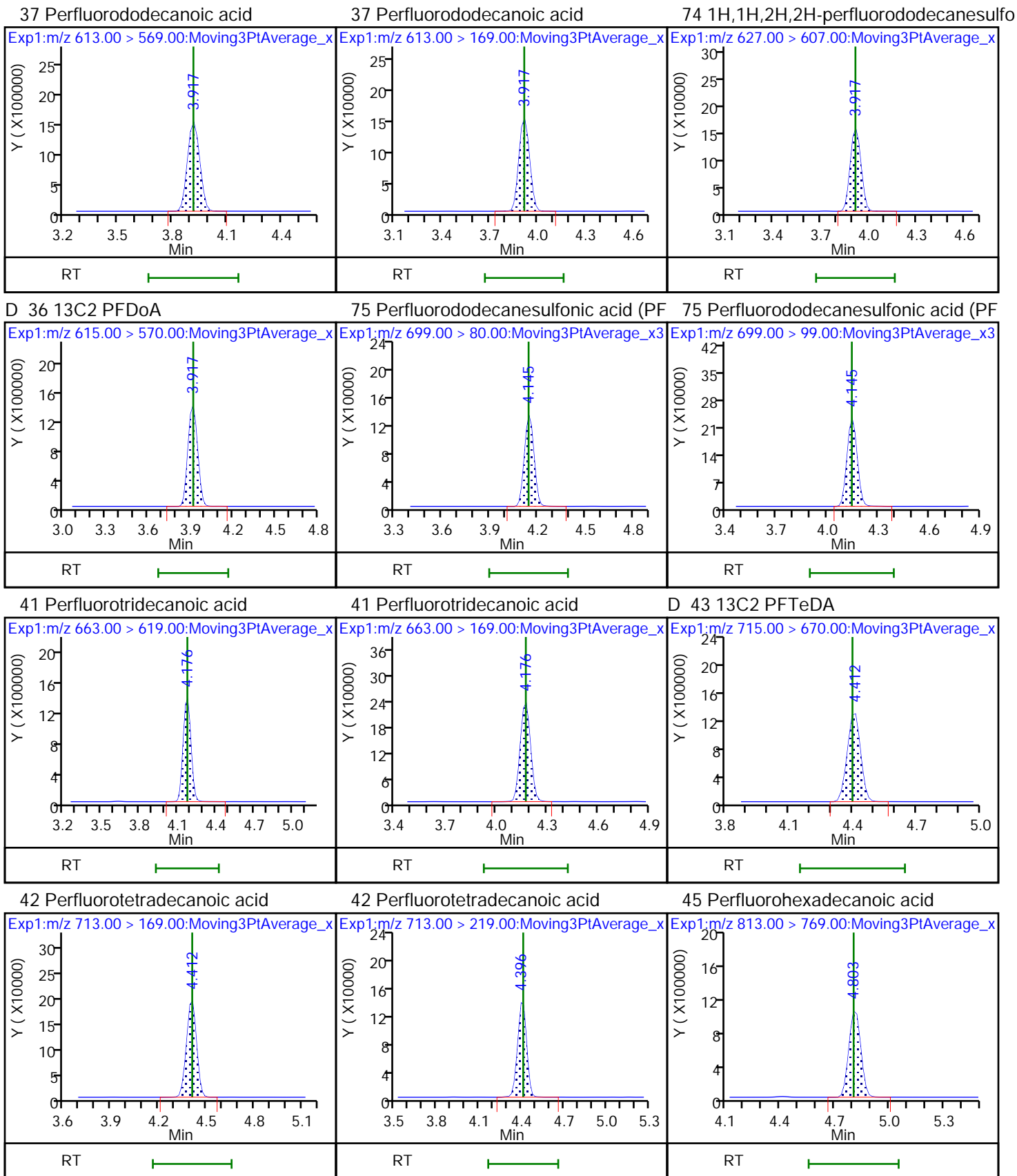
D 30 13C2 PFUnA

D 32 d5-NEtFOSAA

66 11-Chloroeicosafuoro-3-oxaundecan



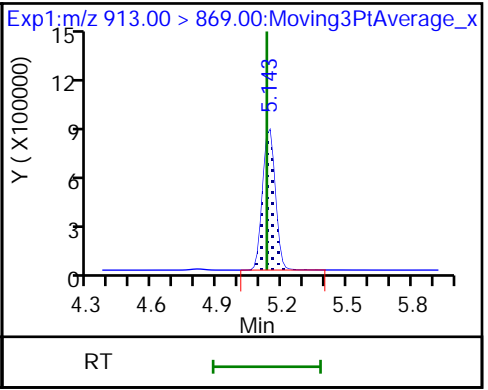
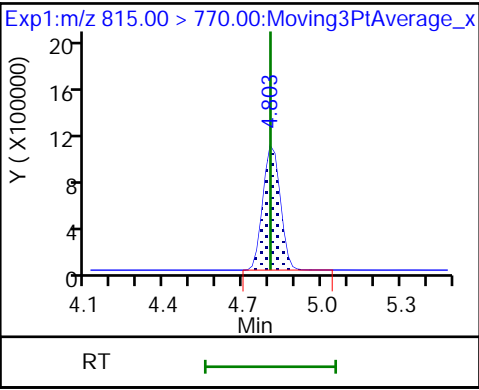
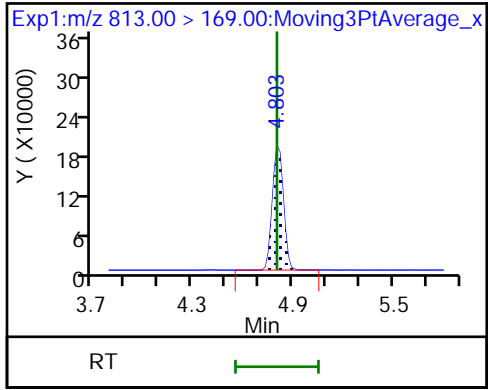




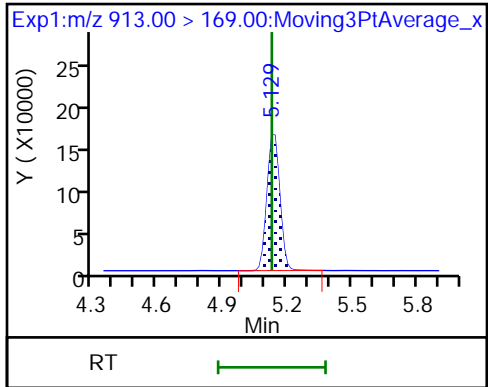
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

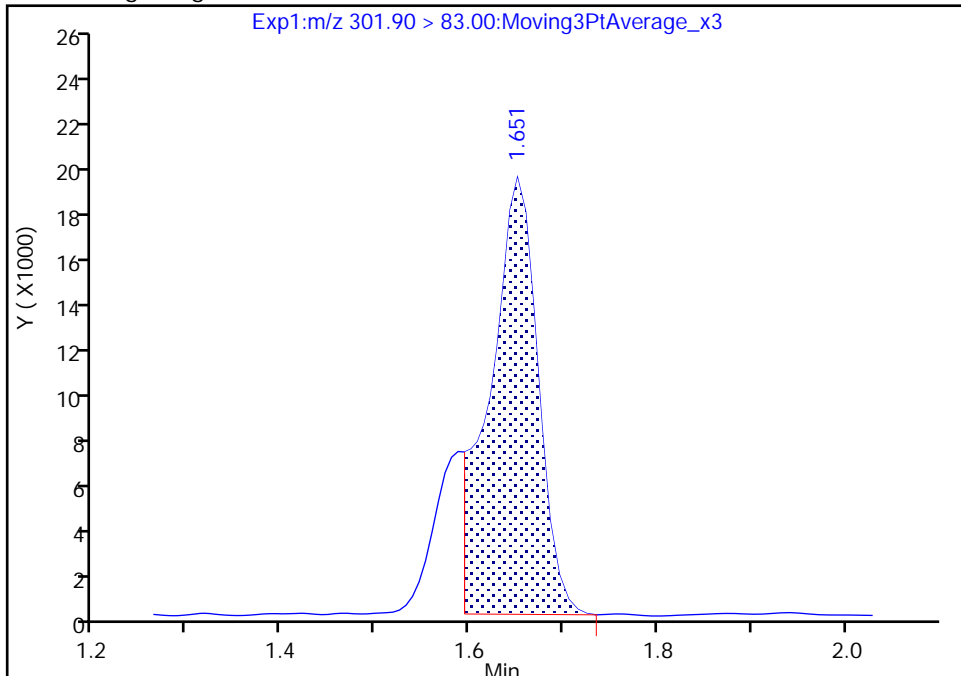
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_051.d  
Injection Date: 10-Nov-2018 15:58:42 Instrument ID: A9  
Lims ID: CCV L5  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 14 Worklist Smp#: 11  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

D 47 13C3 PFBS, CAS: STL02337

Signal: 1

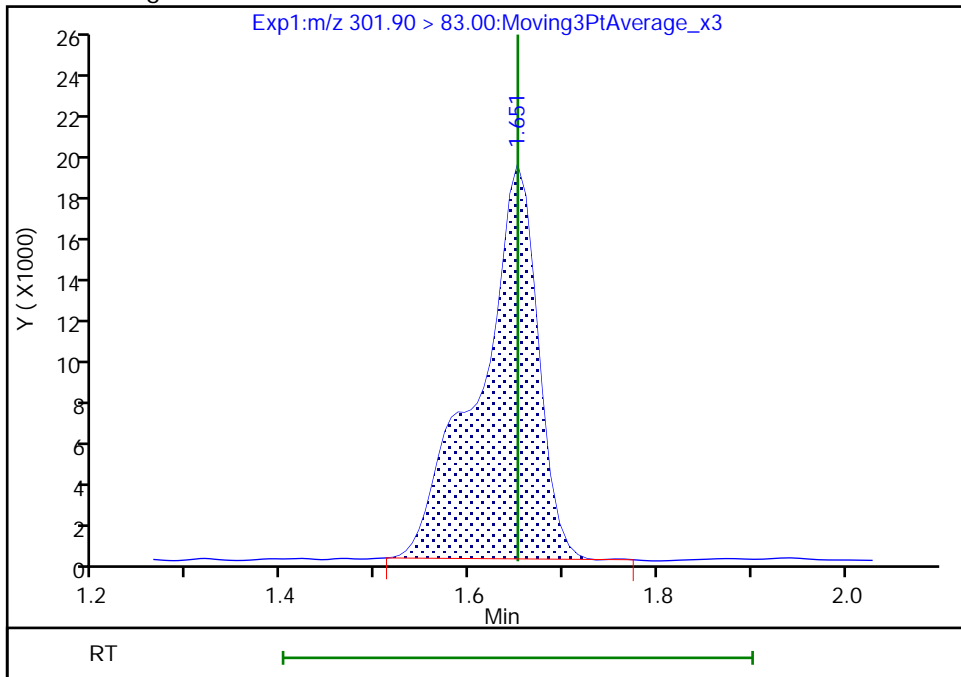
RT: 1.65  
Area: 66865  
Amount: 1.908543  
Amount Units: ng/ml

Processing Integration Results



RT: 1.65  
Area: 81864  
Amount: 2.336663  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

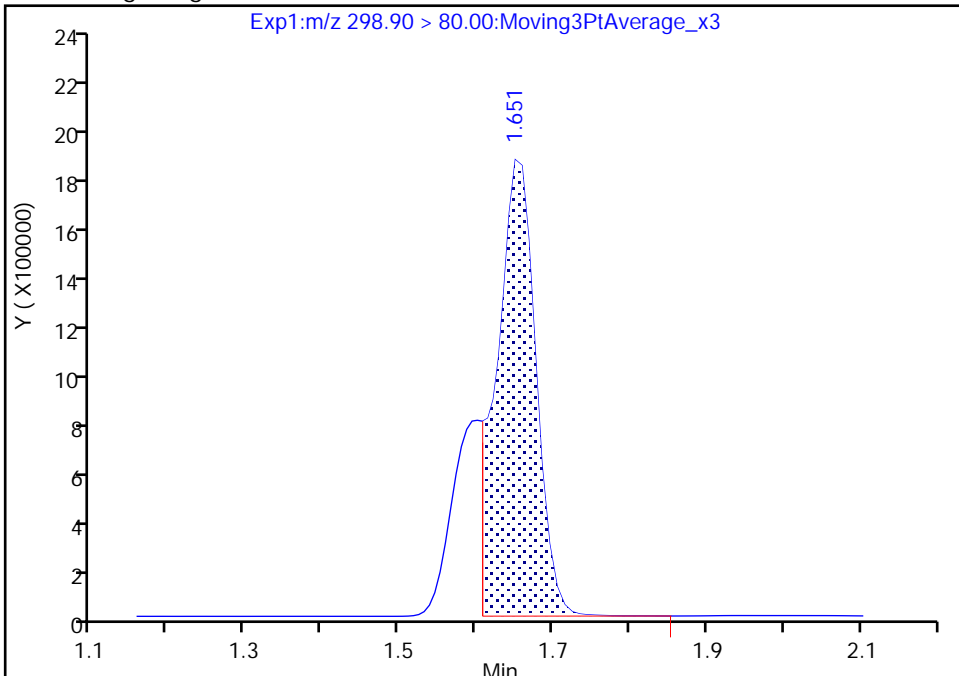
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_051.d  
Injection Date: 10-Nov-2018 15:58:42 Instrument ID: A9  
Lims ID: CCV L5  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 14 Worklist Smp#: 11  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

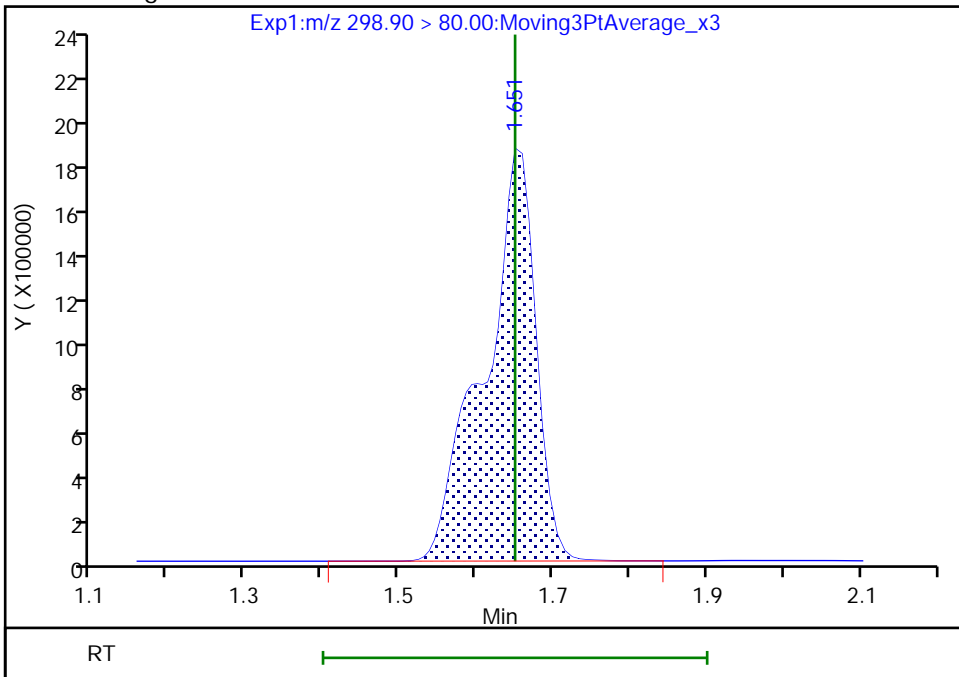
RT: 1.65  
Area: 6326509  
Amount: 1.740043  
Amount Units: ng/ml

Processing Integration Results



RT: 1.65  
Area: 8404992  
Amount: 2.311709  
Amount Units: ng/ml

Manual Integration Results



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-259213/2 Calibration Date: 11/14/2018 18:23  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.14LLA\_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	0.9357	0.9339		0.0499	0.0500	-0.2	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.001	1.042		0.0520	0.0500	4.1	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	103.3	96.47		0.0413	0.0442	-6.6	50.0
4:2 FTS	AveID	20.55	16.43		0.373	0.467	-20.0	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8997	0.9252		0.0514	0.0500	2.8	50.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	47.84	47.36		0.0464	0.0469	-1.0	50.0
HFPO-DA (GenX)	AveID	1.662	1.517		0.0456	0.0500	-8.7	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.061	1.071		0.0505	0.0500	1.0	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.260	1.389		0.0502	0.0455	10.3	50.0
DONA	AveID	2.718	2.593		0.0449	0.0471	-4.6	50.0
6:2 FTS	AveID	2.182	2.269		0.493	0.474	4.0	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.041	0.9902		0.0453	0.0476	-4.9	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.081	1.094		0.0506	0.0501	1.2	50.0
Perfluorononanoic acid (PFNA)	AveID	1.001	0.9245		0.0462	0.0500	-7.7	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.077	0.9681		0.0417	0.0464	-10.1	50.0
F-53B Major	AveID	1.108	1.077		0.0453	0.0466	-2.7	50.0
8:2 FTS	AveID	14.28	14.01		0.470	0.479	-1.9	50.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.6135	0.5550		0.0434	0.0480	-9.5	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.086	0.9677		0.0446	0.0500	-10.9	50.0
Perfluorooctanesulfonamide (FOSA)	AveID	3.005	2.999		0.0499	0.0500	-0.2	50.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.000	0.9341		0.467	0.500	-6.6	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.8654	0.7041		0.0392	0.0482	-18.6	50.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9143	0.9465		0.518	0.500	3.5	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.137	1.136		0.0499	0.0500	-0.1	50.0
F-53B Minor	AveID	1.387	1.260		0.0428	0.0471	-9.1	50.0
10:2 FTS	AveID	10.11	10.19		0.0486	0.0482	0.8	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.017	0.9737		0.0479	0.0500	-4.3	50.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.0963	0.0910		0.0457	0.0484	-5.6	50.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8175	0.8605		0.0526	0.0500	5.3	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1828	0.1403		0.0384	0.0500	-23.3	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		1.347		0.0484	0.0500	-3.1	50.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-259213/2 Calibration Date: 11/14/2018 18:23  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.14LLA\_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.4945	0.6617		0.0669	0.0500	33.8	50.0
13C4 PFBA	Ave	0.9103	0.8791		2.41	2.50	-3.4	50.0
13C5 PFPeA	Ave	0.8665	0.8221		2.37	2.50	-5.1	50.0
13C3 PFBS	Ave	0.0120	0.0113		2.19	2.33	-5.6	50.0
M2-4:2 FTS	Ave	0.0962	0.0713		1.73	2.34	-25.9	50.0
13C2 PFHxA	Ave	0.9136	0.8691		2.38	2.50	-4.9	50.0
13C3 HFPO-DA	Ave	0.1181	0.1123		2.38	2.50	-4.9	50.0
13C4 PFHpA	Ave	1.074	1.027		2.39	2.50	-4.4	50.0
18O2 PFHxS	Ave	0.6988	0.6685		2.26	2.37	-4.3	50.0
M2-6:2 FTS	Ave	0.0988	0.0879		2.11	2.38	-11.1	50.0
13C8 PFOA	Ave	3440710	2661383		1.89	2.45	-22.7	50.0
13C4 PFOA	Ave	0.9837	0.9837		2.50	2.50	0.0	50.0
13C4 PFOS	Ave	0.7064	0.7496		2.54	2.39	6.1	50.0
13C5 PFNA	Ave	0.9095	0.9148		2.51	2.50	0.6	50.0
13C8 PFOS	Ave	494030	483390		2.34	2.39	-2.2	50.0
M2-8:2 FTS	Ave	0.0122	0.0105		2.04	2.40	-14.7	50.0
13C2 PFDA	Ave	0.9367	0.997		2.66	2.50	6.4	50.0
13C8 FOSA	Ave	0.3910	0.3760		2.40	2.50	-3.9	50.0
d3-NMeFOSAA	Ave	0.4049	0.3499		2.16	2.50	-13.6	50.0
d5-NEtFOSAA	Ave	0.3298	0.3086		2.34	2.50	-6.4	50.0
13C2 PFUnA	Ave	0.7823	0.8407		2.69	2.50	7.5	50.0
13C2 PFDoA	Ave	0.9635	0.9435		2.45	2.50	-2.1	50.0
13C2 PFTeDA	Ave	0.7200	0.7671		2.66	2.50	6.5	50.0
13C2 PFHxDA	Ave	0.7154	0.7195		2.51	2.50	0.6	50.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67709.b\2018.11.14LLA\_005.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 14-Nov-2018 18:23:38 ALS Bottle#: 21 Worklist Smp#: 2  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub6  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181114-67709.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 15-Nov-2018 12:16:07 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0319

First Level Reviewer: mongkols Date: 15-Nov-2018 12:16:07

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	1.313	1.313	0.0	0.529	6783965	2.41	96.6	5835	
2 Perfluorobutanoic acid										M
212.90 > 169.00	1.313	1.313	0.0	1.000	126711	0.0499		99.8	2.7	M
D 3 13C5 PFPeA	267.90 > 223.00	1.560	1.560	0.0	0.628	6344135	2.37	94.9	5538	
4 Perfluoropentanoic acid	262.90 > 219.00	1.560	1.560	0.0	1.000	132184	0.0520	104	5.6	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.595	1.595	0.0	1.000	148791	0.0413	93.4	47.3	
298.90 > 99.00	1.595	1.595	0.0	1.000	54311		2.74(1.35-4.05)		17.3	
D 47 13C3 PFBS	301.90 > 83.00	1.595	1.595	0.0	0.642	81130	2.19	94.4	239	
61 1H,1H,2H,2H-perfluorohexanesulfoni	327.00 > 307.00	1.794	1.794	0.0	1.125	267803	0.3735	80.0	1549	
D 60 M2-4:2 FTS	329.00 > 81.00	1.794	1.794	0.0	0.722	513646	1.73	74.1	424	
6 Perfluorohexanoic acid	313.00 > 269.00	1.824	1.823	0.001	1.000	124103	0.0514	103	9.0	
313.00 > 119.00	1.824	1.823	0.001	1.000	9927		12.50(6.96-20.87)		7.7	
D 7 13C2 PFHxA	315.00 > 270.00	1.824	1.824	0.0	0.734	6706518	2.38	95.1	7659	
70 Perfluoropentanesulfonic acid	349.00 > 80.00	1.843	1.843	0.0	1.156	77513	0.0464	99.0	148	
349.00 > 99.00	1.843	1.843	0.0	1.156	37782		2.05(1.15-3.45)		25.3	
67 Perfluoro(2-propoxypropanoic) acid	329.10 > 285.00	1.903	1.912	-0.010	0.995	26289	0.0456	91.3	8.4	

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	1.912	1.912	0.0	0.770	866338	2.38		95.1	2227	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.129	2.129	0.0	1.000	169826	0.0505		101	15.1	
363.00 > 169.00	2.129	2.129	0.0	1.000	37927		4.48(2.17-6.52)		35.0	
D 9 13C4 PFHpA										
367.00 > 322.00	2.129	2.141	-0.012	0.857	7927332	2.39		95.6	6000	
D 11 18O2 PFHxS										
403.00 > 84.00	2.142	2.154	-0.012	0.862	4880055	2.26		95.7	6980	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.142	2.154	-0.012	1.000	130397	0.0502		110	121	
399.00 > 99.00	2.142	2.154	-0.012	1.000	35023		3.72(1.90-5.70)		20.7	
76 DONA										
377.00 > 251.00	2.167	2.179	-0.012	0.762	282612	0.0449		95.4	457	
377.00 > 85.00	2.167	2.179	-0.012	0.762	118529		2.38(1.13-3.39)		97.7	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.454	2.454	0.0	1.000	291693	0.4929		104	323	
D 12 M2-6:2 FTS										
429.00 > 81.00	2.454	2.469	-0.015	0.988	644086	2.11		88.9	924	
D 73 13C8 PFOA										
421.00 > 376.00	2.469	2.484	-0.015		6513736	1.89		77.3	7661	
D 14 13C4 PFOA										
417.00 > 372.00	2.484	2.484	0.0	1.000	7591077	2.50		100	4583	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.484	2.484	0.0	1.000	166256	0.0506		101	14.2	
413.00 > 169.00	2.484	2.484	0.0	1.000	64961		2.56(1.36-4.08)		52.3	
* 62 13C2 PFOA										
415.00 > 370.00	2.484	2.484	0.0		7717059	2.50			5547	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.484	2.484	0.0	0.873	109053	0.0453		95.1	207	
449.00 > 99.00	2.484	2.484	0.0	0.873	29467		3.70(1.84-5.53)		80.5	
20 Perfluorononanoic acid										
463.00 > 419.00	2.845	2.845	0.0	1.000	130530	0.0462		92.3	12.2	
463.00 > 169.00	2.845	2.845	0.0	1.000	22942		5.69(2.68-8.03)		37.7	
17 Perfluorooctanesulfonic acid										
499.00 > 80.00	2.845	2.845	0.0	1.000	103928	0.0417		89.9	44.4	M
499.00 > 99.00	2.845	2.845	0.0	1.000	30520		3.41(2.04-6.12)		63.5	M
D 19 13C5 PFNA										
468.00 > 423.00	2.845	2.845	0.0	1.145	7059504	2.51		101	4762	
D 18 13C4 PFOS										
503.00 > 80.00	2.845	2.845	0.0	1.145	5529800	2.54		106	2973	
D 72 13C8 PFOS										
507.00 > 99.00	2.845	2.845	0.0		1155303	2.34		97.8	2800	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.054	3.054	0.0	1.073	116173	0.0453		97.3	157	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.185	3.185	0.0	1.120	61635	0.0434		90.5	217	
549.00 > 99.00	3.201	3.185	0.016	1.125	10278		6.00(3.02-9.05)		76.0	



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	3.185	3.185	0.0	1.000	216443	0.4701	98.1	1180
D 26 M2-8:2 FTS	529.00	> 81.00	3.185	3.185	0.0	1.282	77236	2.04	85.3	318
22 Perfluorooctanesulfonamide	498.00	> 78.00	3.201	3.201	0.0	1.000	174037	0.0499	99.8	444
24 Perfluorodecanoic acid	513.00	> 469.00	3.201	3.201	0.0	1.000	148845	0.0446	89.1	20.5
	513.00	> 169.00	3.201	3.201	0.0	1.000	10426		14.28(7.12-21.35)	21.5
D 23 13C2 PFDA	515.00	> 470.00	3.201	3.201	0.0	1.289	7690666	2.66	106	5431
D 21 13C8 FOSA	506.00	> 78.00	3.201	3.217	-0.016	1.289	2901321	2.40	96.1	4472
28 N-methylperfluorooctanesulfonamido	570.00	> 419.00	3.361	3.360	0.001	1.005	504525	0.4670	93.4	191
D 27 d3-NMeFOSAA	573.00	> 419.00	3.345	3.361	-0.016	1.347	2700520	2.16	86.4	2257
29 Perfluorodecanesulfonic acid	599.00	> 80.00	3.514	3.513	0.001	1.235	78523	0.0392	81.4	91.3
	599.00	> 99.00	3.514	3.513	0.001	1.235	20410		3.85(2.14-6.43)	75.4
33 N-ethylperfluorooctanesulfonamidoa	584.00	> 419.00	3.529	3.529	0.0	1.004	450826	0.5176	104	827
31 Perfluoroundecanoic acid	563.00	> 519.00	3.529	3.529	0.0	1.000	147356	0.0499	99.9	31.1
	563.00	> 169.00	3.529	3.529	0.0	1.000	10478		14.06(5.24-15.72)	24.9
D 32 d5-NEtFOSAA	589.00	> 419.00	3.514	3.529	-0.015	1.415	2381661	2.34	93.6	1593
D 30 13C2 PFUnA	565.00	> 520.00	3.529	3.529	0.0	1.421	6487886	2.69	107	4967
66 11-Chloroeicosafuoro-3-oxaundecan	631.00	> 451.00	3.686	3.685	0.001	1.296	137306	0.0428	90.9	282
37 Perfluorododecanoic acid	613.00	> 569.00	3.819	3.819	0.0	1.000	141784	0.0479	95.7	31.7
	613.00	> 169.00	3.819	3.819	0.0	1.000	15913		8.91(4.68-14.05)	33.2
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00	> 607.00	3.819	3.819	0.0	1.199	15842	0.0486	101	48.7
D 36 13C2 PFDoA	615.00	> 570.00	3.819	3.819	0.0	1.537	7281004	2.45	97.9	5499
75 Perfluorododecanesulfonic acid (PF	699.00	> 80.00	4.053	4.053	0.0	1.424	10190	0.0457	94.4	45.2
	699.00	> 99.00	4.053	4.053	0.0	1.424	18833		0.54(0.28-0.83)	56.3
41 Perfluorotridecanoic acid	663.00	> 619.00	4.068	4.083	-0.015	1.065	125306	0.0526	105	51.5
	663.00	> 169.00	4.068	4.083	-0.015	1.065	23587		5.31(3.09-9.27)	53.0
42 Perfluorotetradecanoic acid	713.00	> 169.00	4.309	4.309	0.0	1.000	16611	0.0384	76.7	51.5
	713.00	> 219.00	4.309	4.309	0.0	1.000	15088		1.10(0.70-2.09)	43.9

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	4.309	4.327	-0.018	1.735	5919600	2.66		107	7502	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.719	4.718	0.001	1.000	149593	0.0484		96.9	60.2	
813.00 > 169.00	4.719	4.718	0.001	1.000	26132		5.72(2.77-8.32)		73.6	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.719	4.736	-0.017	1.900	5552541	2.51		101	7296	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.056	5.056	0.0	1.072	73479	0.0669		134	51.6	
913.00 > 169.00	5.056	5.056	0.0	1.072	15767		4.66(2.55-7.64)		143	

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LCPFC\_LLCCVL\_00001

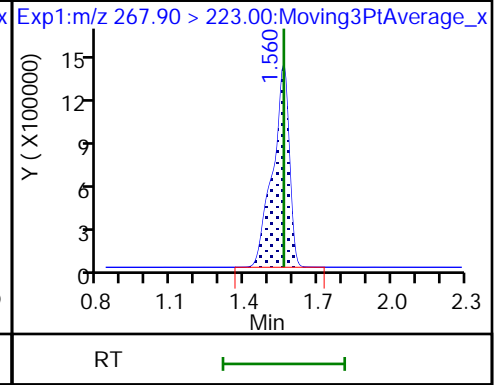
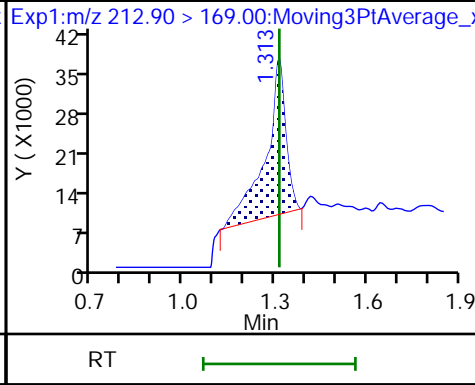
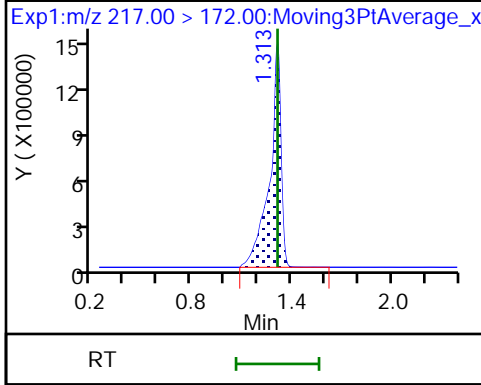
Amount Added: 1.00

Units: mL

D 1 13C4 PFBA

2 Perfluorobutanoic acid (M)

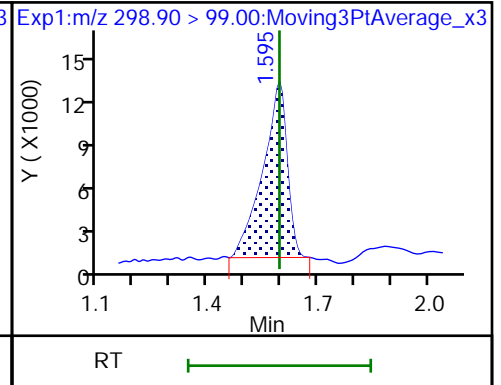
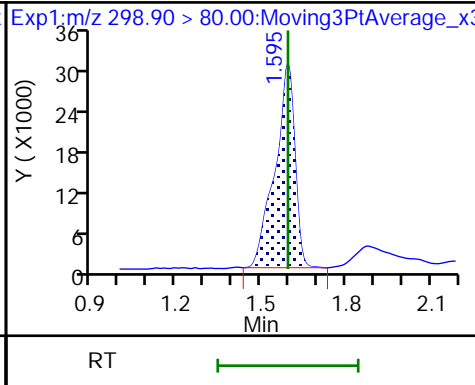
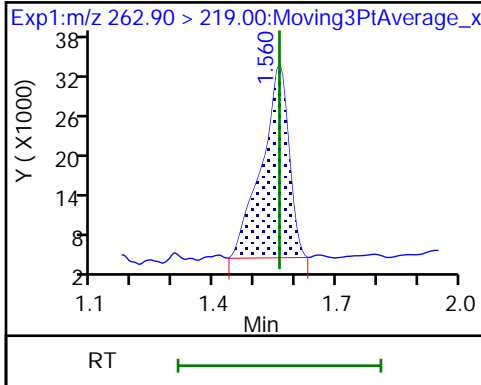
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

5 Perfluorobutanesulfonic acid

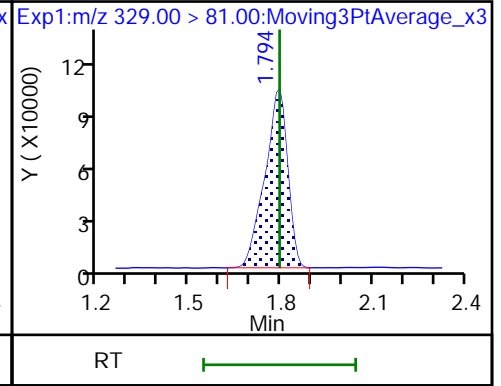
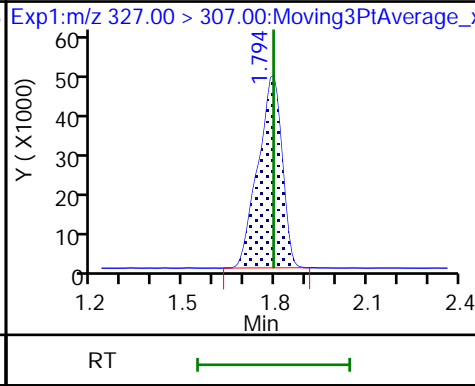
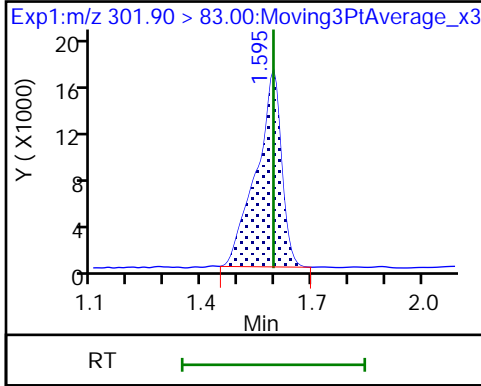
5 Perfluorobutanesulfonic acid



D 47 13C3 PFBS

61 1H,1H,2H,2H-perfluorohexanesulfonate

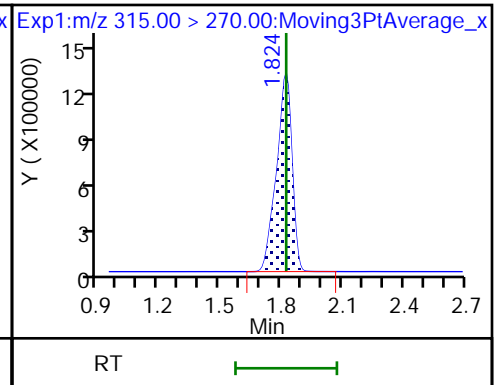
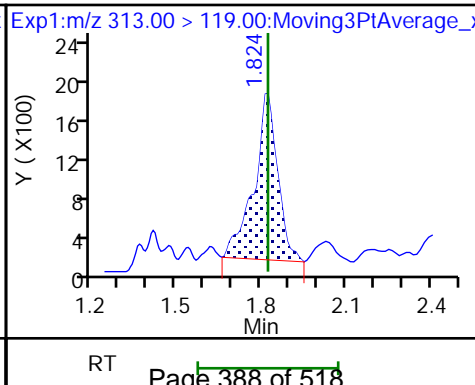
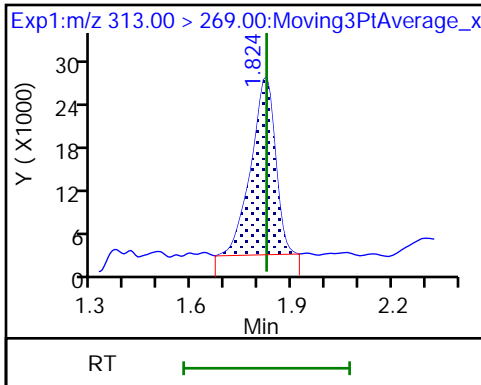
D 60 M2-4:2 FTS

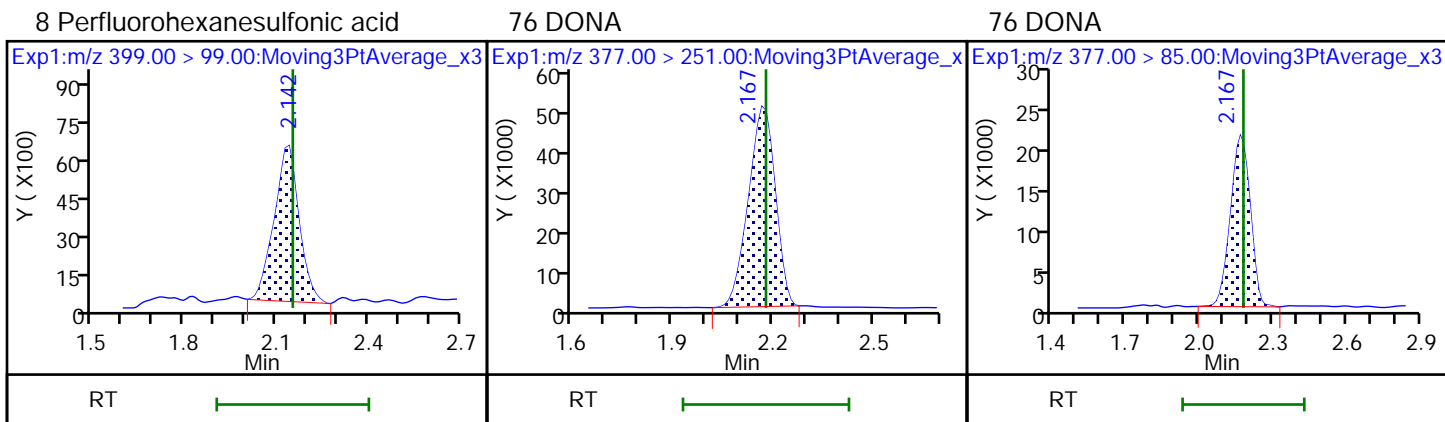
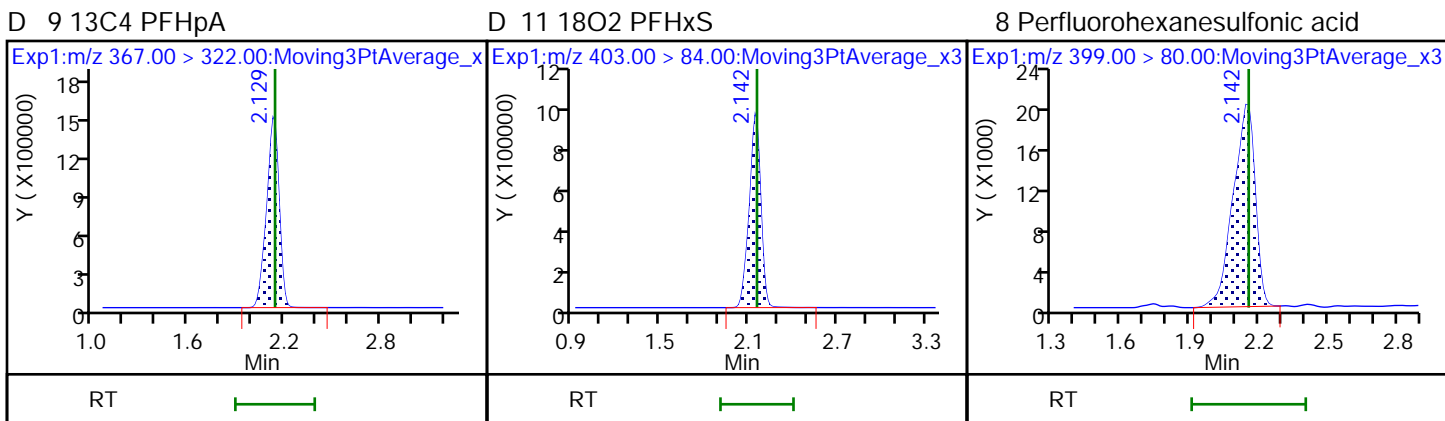
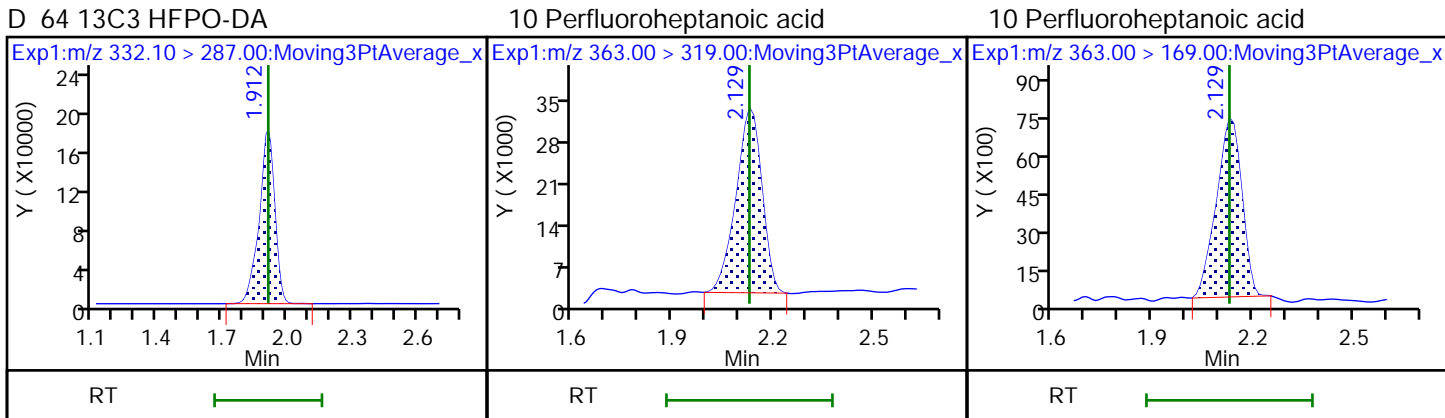
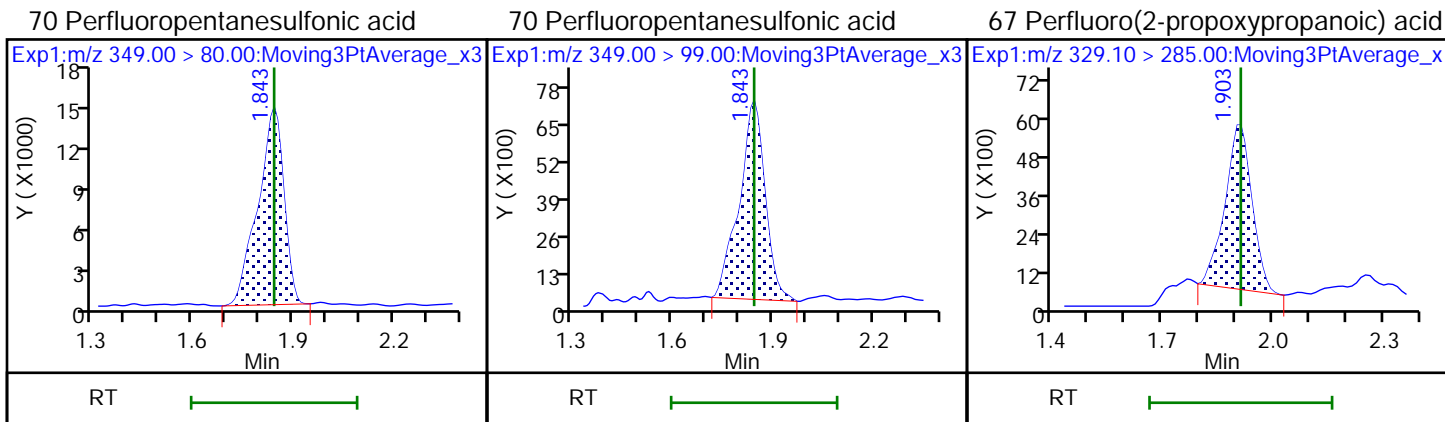


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

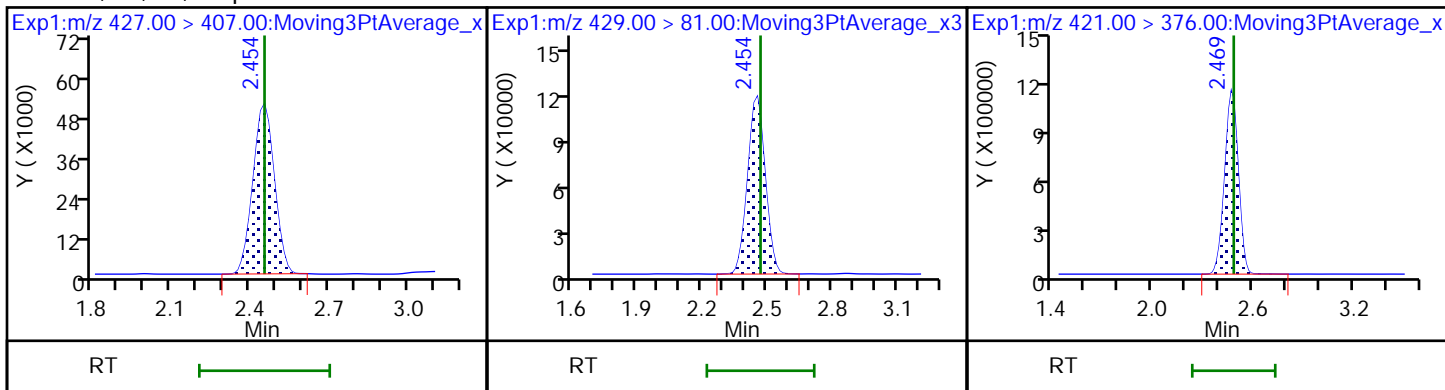
D 7 13C2 PFHxA





13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2 FTS

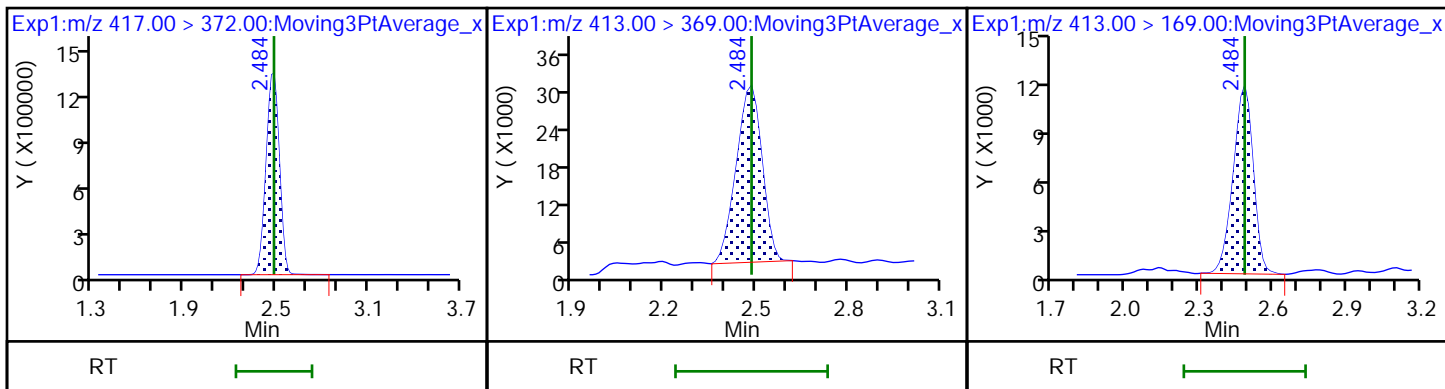
D 73 13C8 PFOA



D 14 13C4 PFOA

15 Perfluorooctanoic acid

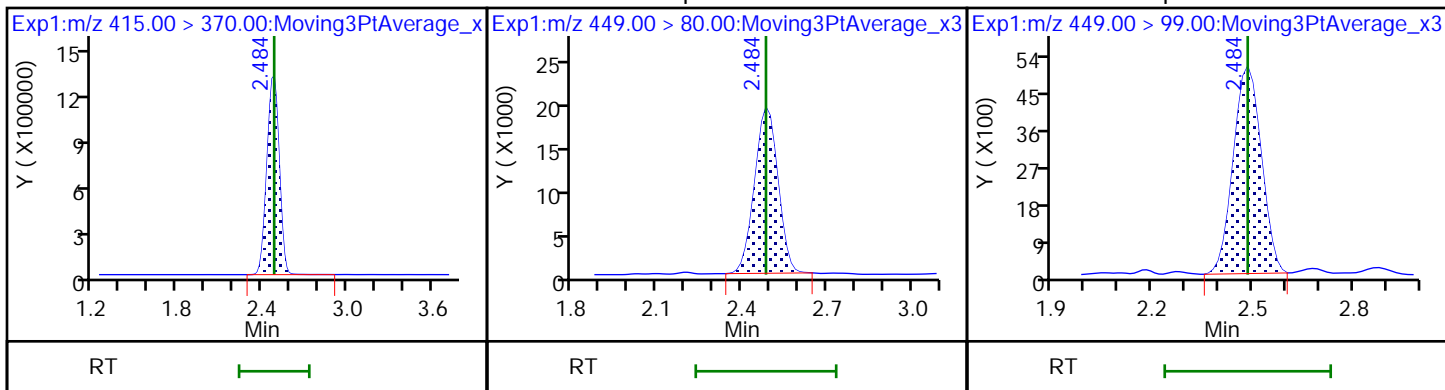
15 Perfluorooctanoic acid



\* 62 13C2 PFOA

16 Perfluoroheptanesulfonic acid

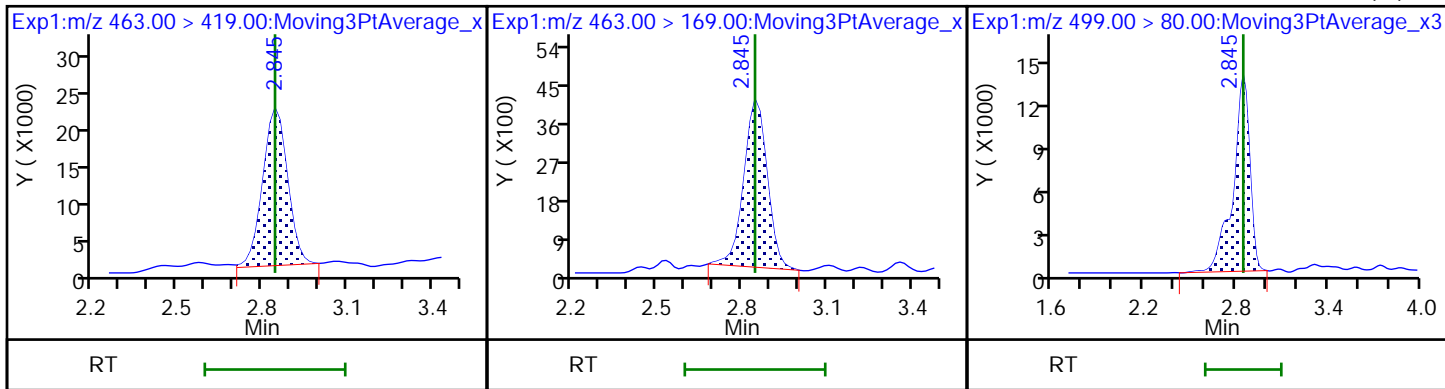
16 Perfluoroheptanesulfonic acid

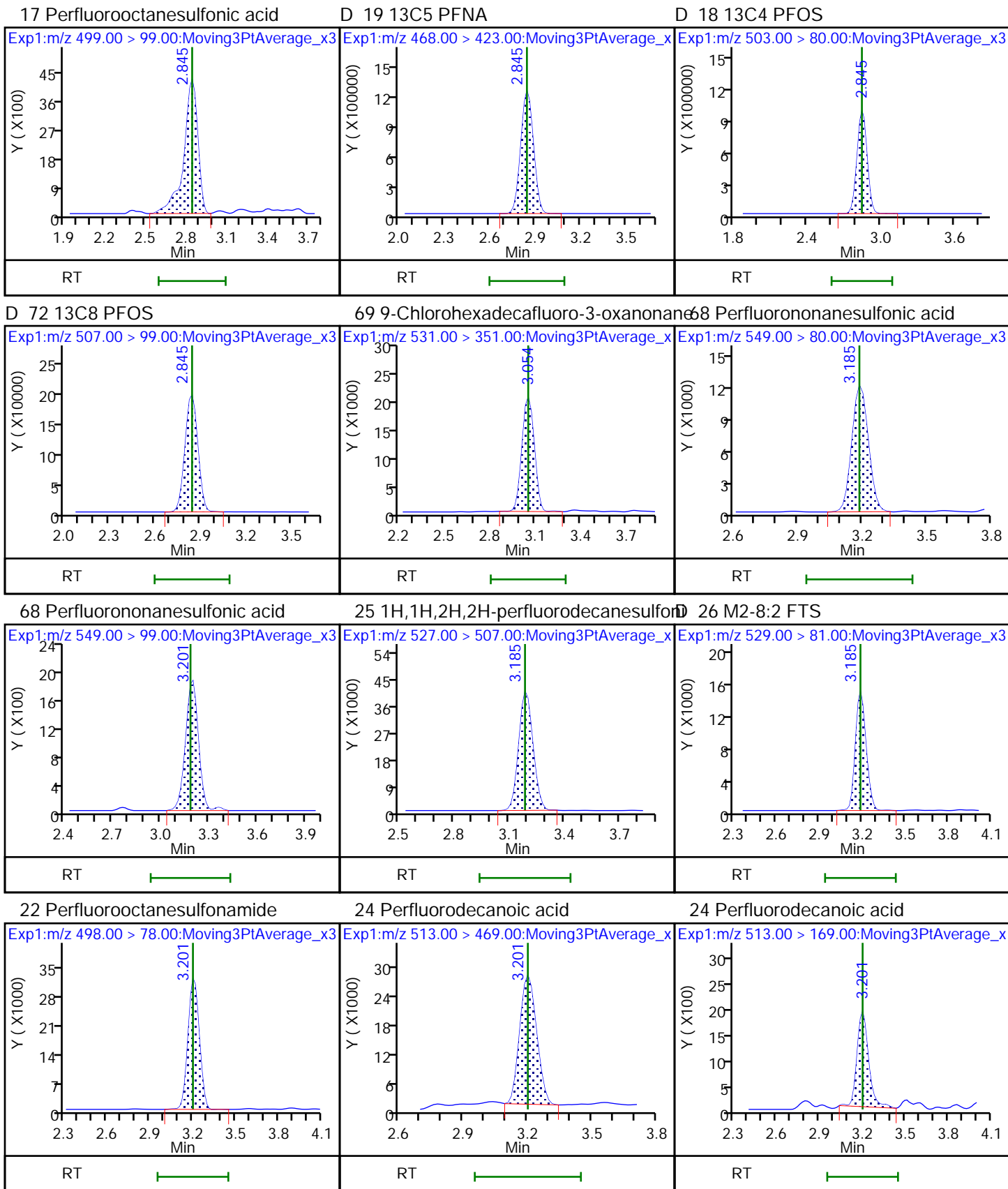


20 Perfluorononanoic acid

20 Perfluorononanoic acid

17 Perfluorooctanesulfonic acid (M)

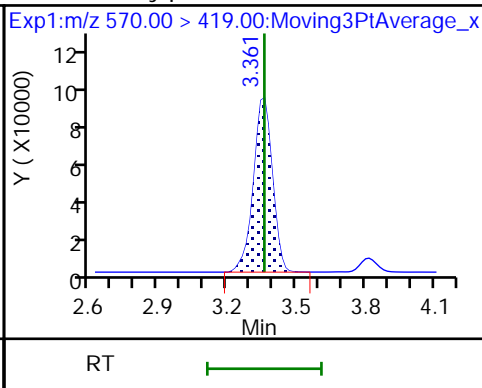
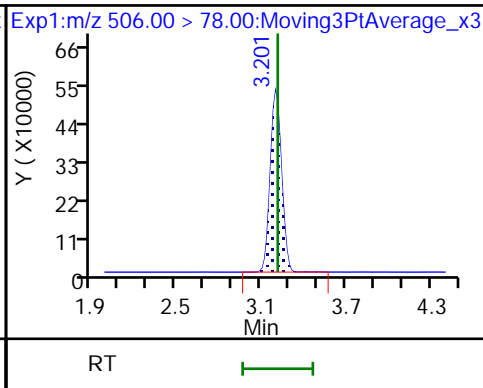
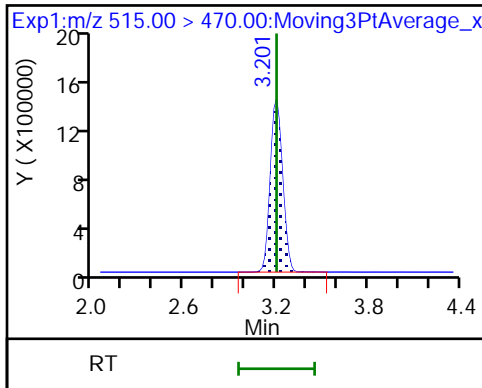




D 23 13C2 PFDA

D 21 13C8 FOSA

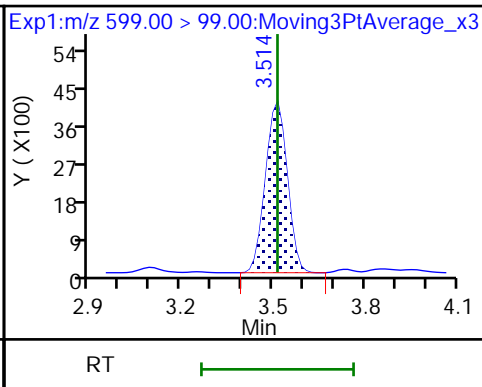
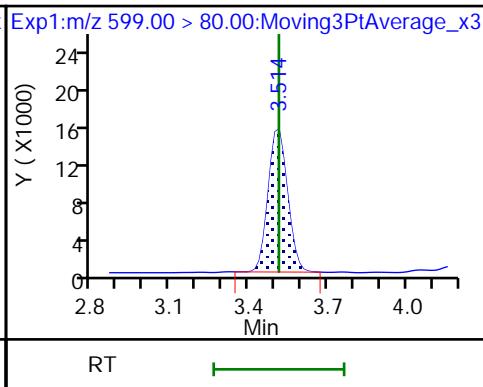
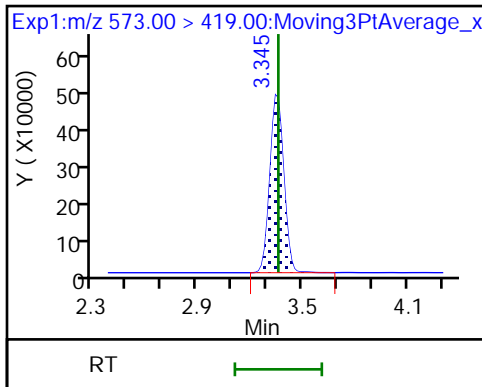
28 N-methylperfluorooctanesulfonamido



D 27 d3-NMeFOSAA

29 Perfluorodecanesulfonic acid

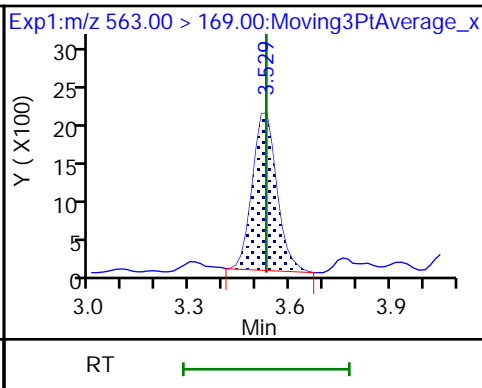
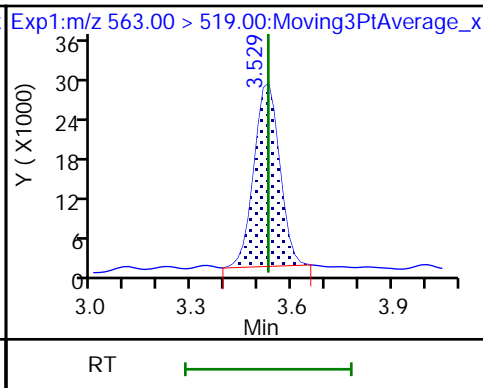
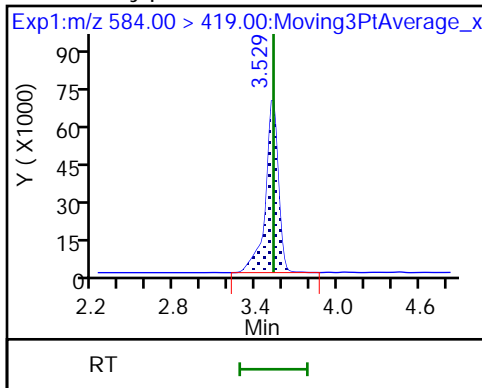
29 Perfluorodecanesulfonic acid



33 N-ethylperfluorooctanesulfonamidoa

31 Perfluoroundecanoic acid

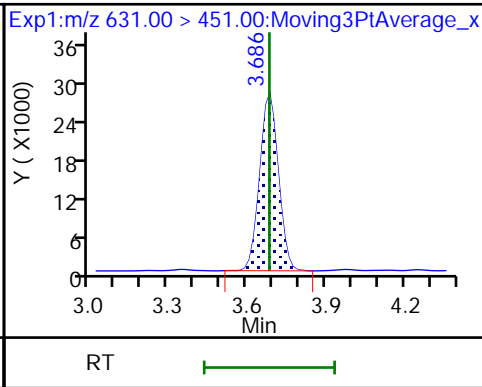
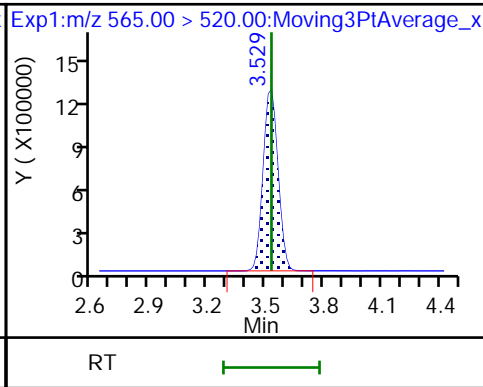
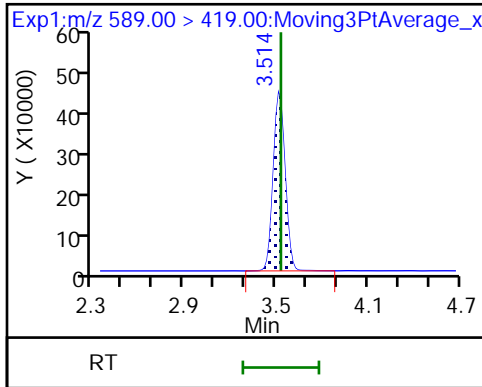
31 Perfluoroundecanoic acid

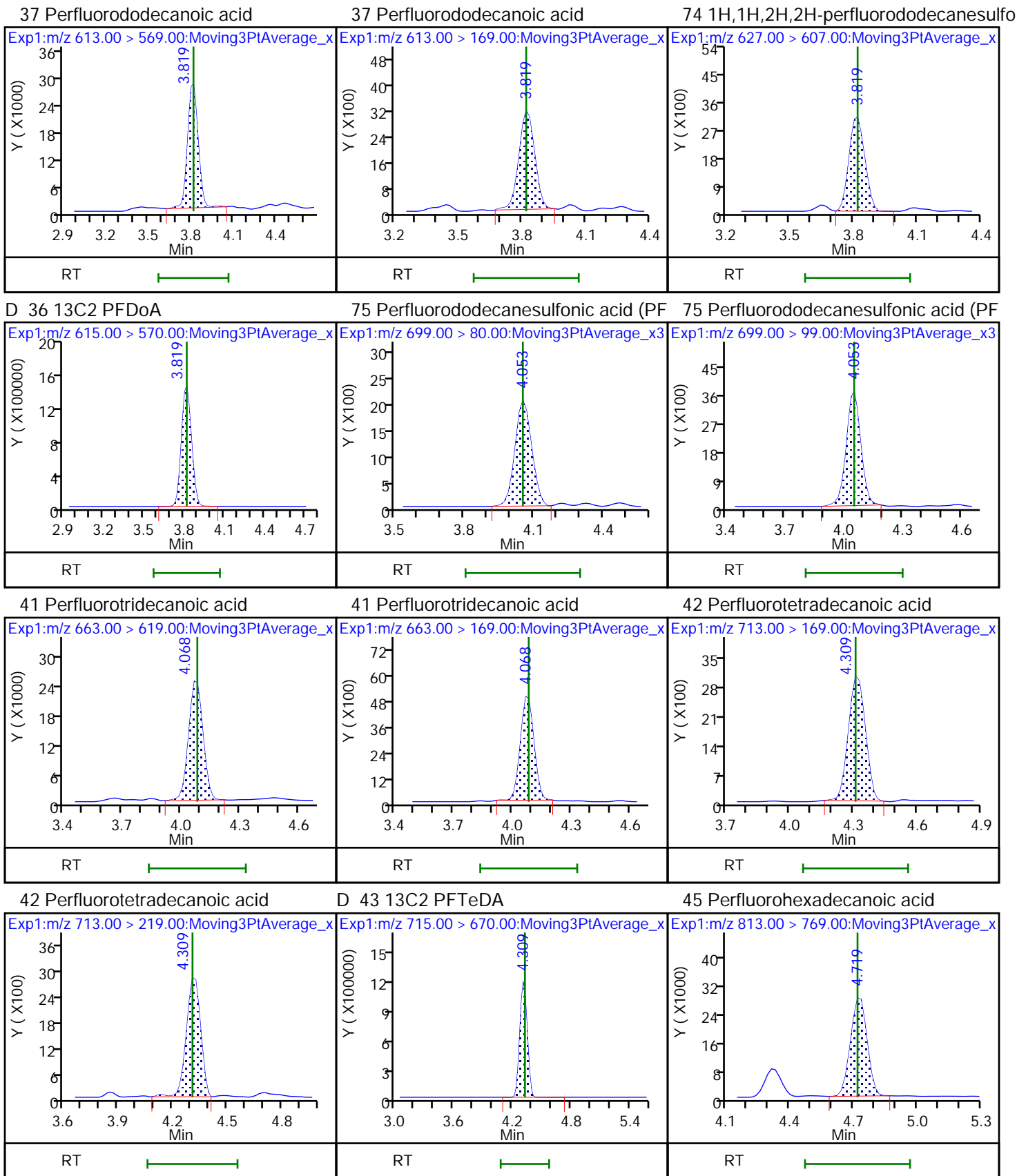


D 32 d5-NEtFOSAA

D 30 13C2 PFUnA

66 11-Chloroeicosafuoro-3-oxaundecan



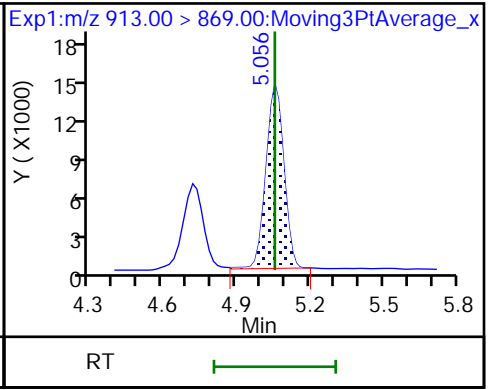
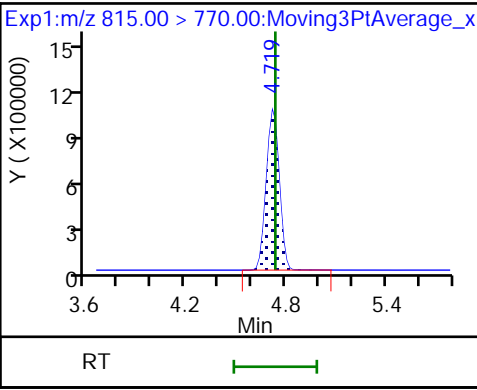
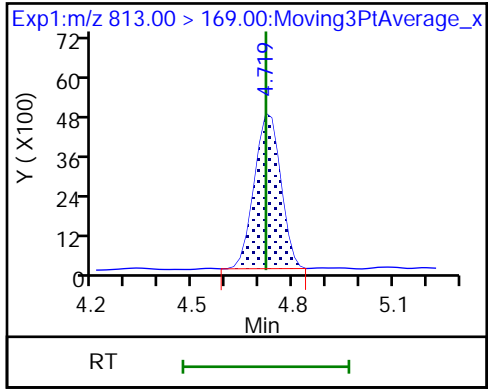




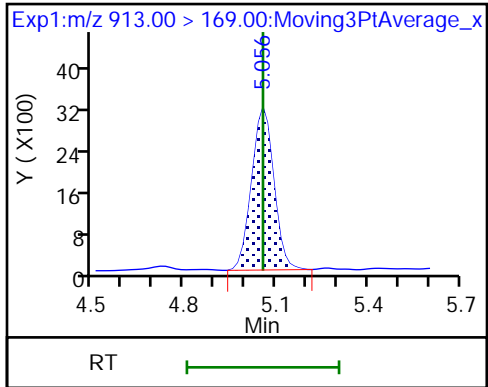
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

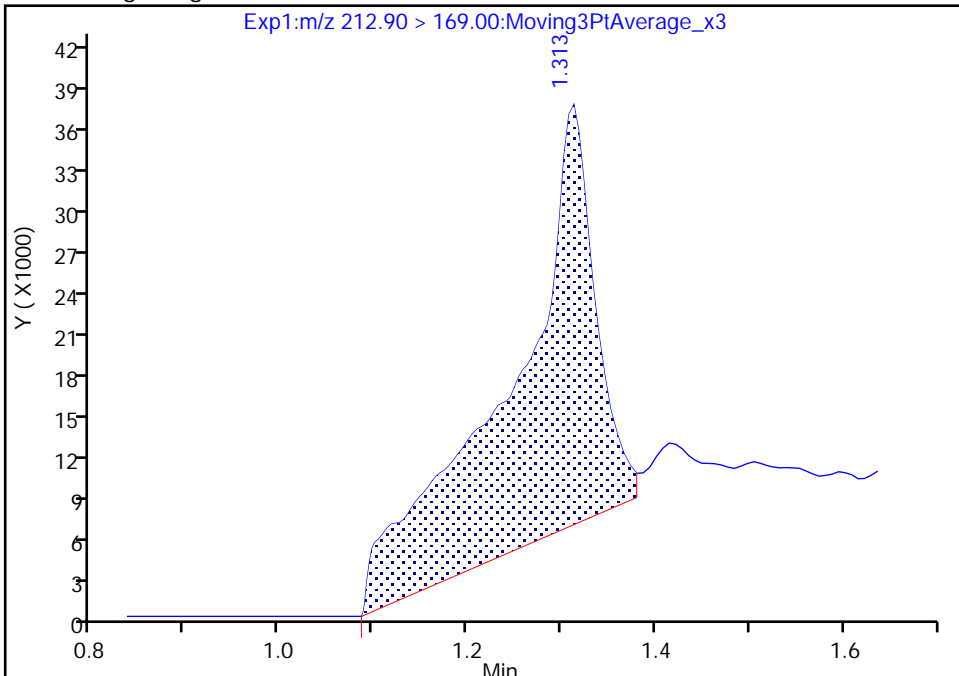
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Injection Date: 14-Nov-2018 18:23:38 Instrument ID: A9  
Lims ID: CCVL  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

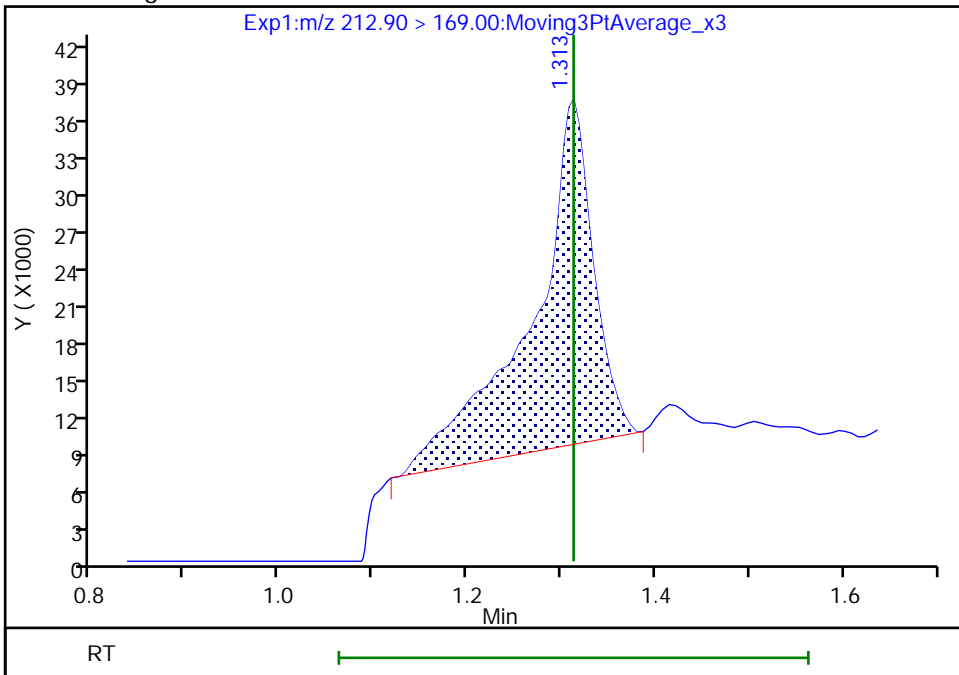
RT: 1.31  
Area: 193218  
Amount: 0.076096  
Amount Units: ng/ml

Processing Integration Results



RT: 1.31  
Area: 126711  
Amount: 0.049903  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

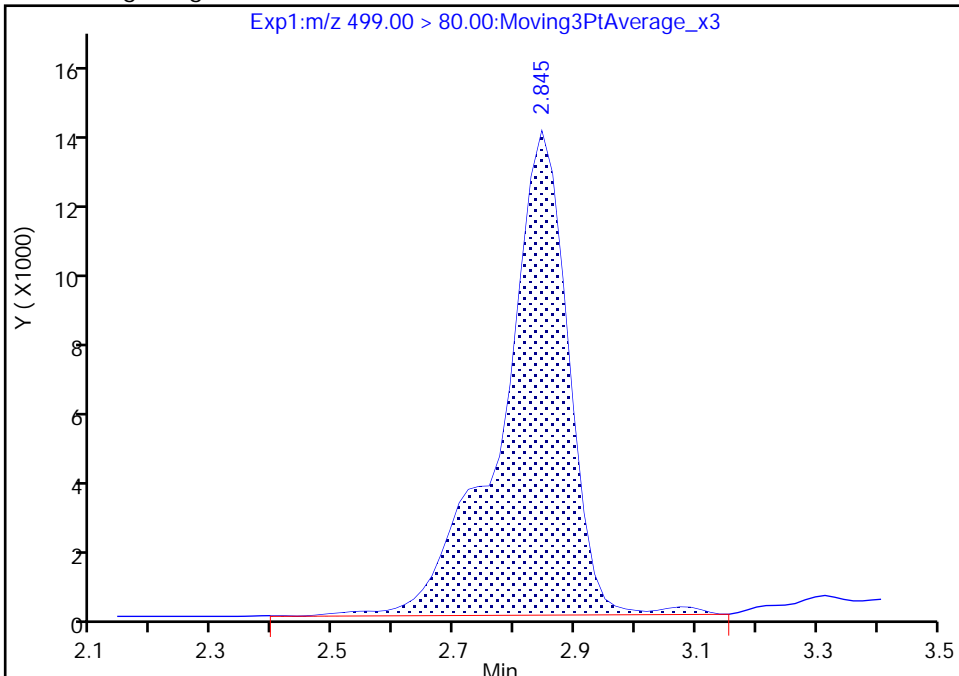
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Injection Date: 14-Nov-2018 18:23:38 Instrument ID: A9  
Lims ID: CCVL  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

17 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

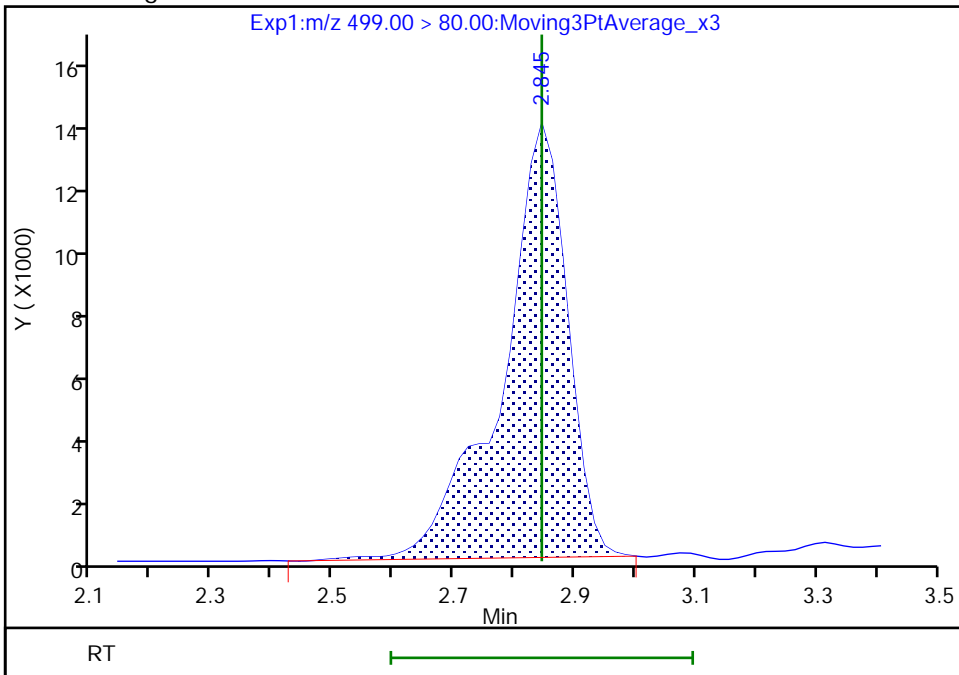
RT: 2.85  
Area: 107171  
Amount: 0.043011  
Amount Units: ng/ml

Processing Integration Results



RT: 2.85  
Area: 103928  
Amount: 0.041709  
Amount Units: ng/ml

Manual Integration Results



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-259213/3 Calibration Date: 11/14/2018 18:31  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.14LLA\_006.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9357	0.9572		1.02	1.00	2.3	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.001	0.9898		0.989	1.00	-1.1	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	103.3	112.7		0.965	0.884	9.2	50.0
4:2 FTS	AveID	20.55	17.42		0.792	0.934	-15.2	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8997	0.9021		1.00	1.00	0.3	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	47.84	51.10		1.00	0.938	6.8	50.0
HFPO-DA (GenX)	AveID	1.662	1.484		0.893	1.00	-10.7	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.061	1.159		1.09	1.00	9.2	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.260	1.246		0.900	0.910	-1.1	40.0
DONA	AveID	2.718	3.186		1.10	0.942	17.2	50.0
6:2 FTS	AveID	2.182	2.119		0.920	0.948	-2.9	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.041	1.165		1.07	0.952	11.9	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.081	1.030		0.954	1.00	-4.7	40.0
Perfluorononanoic acid (PFNA)	AveID	1.001	0.9640		0.963	1.00	-3.7	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.077	1.113		0.959	0.928	3.4	40.0
F-53B Major	AveID	1.108	1.260		1.06	0.932	13.7	50.0
8:2 FTS	AveID	14.28	12.68		0.851	0.958	-11.2	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.6135	0.7187		1.12	0.960	17.2	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.086	1.139		1.05	1.00	4.9	40.0
Perfluorooctanesulfonamide (FOSA)	AveID	3.005	3.329		1.11	1.00	10.8	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.000	0.8591		0.859	1.00	-14.1	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.8654	0.9042		1.01	0.964	4.5	50.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9143	0.9365		1.02	1.00	2.4	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.137	1.095		0.963	1.00	-3.7	40.0
F-53B Minor	AveID	1.387	1.710		1.16	0.942	23.3	50.0
10:2 FTS	AveID	10.11	9.226		0.880	0.964	-8.8	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.017	0.996		0.979	1.00	-2.1	40.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.0963	0.1062		1.07	0.968	10.3	50.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8175	0.7516		0.919	1.00	-8.1	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1828	0.1583		0.866	1.00	-13.4	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9279		1.00	1.00	0.3	50.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-259213/3 Calibration Date: 11/14/2018 18:31  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.14LLA\_006.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.4945	0.6165		1.25	1.00	24.7	50.0
13C4 PFBA	Ave	0.9103	0.8651		2.38	2.50	-5.0	50.0
13C5 PFPeA	Ave	0.8665	0.8150		2.35	2.50	-5.9	50.0
13C3 PFBS	Ave	0.0120	0.0107		2.09	2.33	-10.3	50.0
M2-4:2 FTS	Ave	0.0962	0.0704		1.71	2.34	-26.8	50.0
13C2 PFHxA	Ave	0.9136	0.8687		2.38	2.50	-4.9	50.0
13C3 HFPO-DA	Ave	0.1181	0.1211		2.56	2.50	2.6	50.0
13C4 PFHpA	Ave	1.074	1.034		2.41	2.50	-3.7	50.0
18O2 PFHxS	Ave	0.6988	0.6455		2.18	2.37	-7.6	50.0
M2-6:2 FTS	Ave	0.0988	0.0788		1.90	2.38	-20.2	40.0
13C8 PFOA	Ave	3440710	2771643		1.97	2.45	-19.4	50.0
13C4 PFOA	Ave	0.9837	1.013		2.57	2.50	3.0	50.0
13C4 PFOS	Ave	0.7064	0.6586		2.23	2.39	-6.8	50.0
13C5 PFNA	Ave	0.9095	0.9040		2.48	2.50	-0.6	50.0
13C8 PFOS	Ave	494030	469566		2.27	2.39	-5.0	50.0
M2-8:2 FTS	Ave	0.0122	0.0117		2.29	2.40	-4.3	40.0
13C2 PFDA	Ave	0.9367	0.9348		2.50	2.50	-0.2	50.0
13C8 FOSA	Ave	0.3910	0.3712		2.37	2.50	-5.1	50.0
d3-NMeFOSAA	Ave	0.4049	0.3813		2.35	2.50	-5.8	50.0
d5-NEtFOSAA	Ave	0.3298	0.3144		2.38	2.50	-4.6	50.0
13C2 PFUnA	Ave	0.7823	0.7816		2.50	2.50	-0.0	50.0
13C2 PFDoA	Ave	0.9635	0.998		2.59	2.50	3.6	50.0
13C2 PFTeDA	Ave	0.7200	0.7102		2.47	2.50	-1.4	50.0
13C2 PFHxDA	Ave	0.7154	0.6992		2.44	2.50	-2.3	50.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67709.b\2018.11.14LLA\_006.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 14-Nov-2018 18:31:08 ALS Bottle#: 13 Worklist Smp#: 3  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181114-67709.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 15-Nov-2018 12:17:12 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d

Column 1 : Det: EXP1  
 Process Host: CTX0319

First Level Reviewer: mongkols Date: 15-Nov-2018 12:17:12

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	1.313	1.313	0.0	0.529	6913924	2.38	95.0	5514	
2 Perfluorobutanoic acid	212.90 > 169.00	1.313	1.313	0.0	1.000	2647181	1.02	102	49.2	
D 3 13C5 PFPeA	267.90 > 223.00	1.560	1.560	0.0	0.628	6513357	2.35	94.1	5366	
4 Perfluoropentanoic acid	262.90 > 219.00	1.560	1.560	0.0	1.000	2578666	0.9887	98.9	97.4	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.595	1.595	0.0	1.000	3422761	0.9652	109	1003	
	298.90 > 99.00	1.595	1.595	0.0	1.000	1156843	2.96(1.35-4.05)		319	
D 47 13C3 PFBS	301.90 > 83.00	1.595	1.595	0.0	0.642	79849	2.09	89.7	272	
61 1H,1H,2H,2H-perfluorohexanesulfoni	327.00 > 307.00	1.794	1.794	0.0	1.125	558649	0.7916	84.8	3579	
D 60 M2-4:2 FTS	329.00 > 81.00	1.794	1.794	0.0	0.722	525345	1.71	73.2	468	
6 Perfluorohexanoic acid	313.00 > 269.00	1.823	1.823	0.0	1.000	2505250	1.00	100	175	
	313.00 > 119.00	1.823	1.823	0.0	1.000	183923	13.62(6.96-20.87)		168	
D 7 13C2 PFHxA	315.00 > 270.00	1.823	1.824	-0.001	0.734	6943053	2.38	95.1	6466	
70 Perfluoropentanesulfonic acid	349.00 > 80.00	1.843	1.843	0.0	1.156	1646237	1.00	107	2804	
	349.00 > 99.00	1.843	1.843	0.0	1.156	773327	2.13(1.15-3.45)		514	
67 Perfluoro(2-propoxypropanoic) acid	329.10 > 285.00	1.912	1.912	0.0	1.000	574535	0.8927	89.3	213	

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	1.912	1.912	0.0	0.770	967822	2.56		103	2553	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.129	2.129	0.0	1.000	3832351	1.09		109	310	
363.00 > 169.00	2.129	2.129	0.0	1.000	836018		4.58(2.17-6.52)		686	
D 9 13C4 PFHpA										
367.00 > 322.00	2.129	2.141	-0.012	0.857	8267967	2.41		96.3	5598	
D 11 18O2 PFHxS										
403.00 > 84.00	2.141	2.154	-0.013	0.862	4880607	2.18		92.4	4847	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.154	2.154	0.0	1.006	2339772	0.9000		98.9	1820	
399.00 > 99.00	2.141	2.154	-0.013	1.000	645069		3.63(1.90-5.70)		320	
76 DONA										
377.00 > 251.00	2.179	2.179	0.0	0.766	6319499	1.10		117	6086	
377.00 > 85.00	2.179	2.179	0.0	0.766	2667537		2.37(1.13-3.39)		2111	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.454	2.454	0.0	1.000	506151	0.9205		97.1	782	
D 12 M2-6:2 FTS										
429.00 > 81.00	2.454	2.469	-0.015	0.988	598505	1.90		79.8	1175	
D 73 13C8 PFOA										
421.00 > 376.00	2.469	2.484	-0.015		6783596	1.97		80.6	7464	
D 14 13C4 PFOA										
417.00 > 372.00	2.484	2.484	0.0	1.000	8093723	2.57		103	5611	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.484	2.484	0.0	1.000	3338301	0.9538		95.3	267	
413.00 > 169.00	2.484	2.484	0.0	1.000	1175082		2.84(1.36-4.08)		935	
* 62 13C2 PFOA										
415.00 > 370.00	2.484	2.484	0.0		7992321	2.50			3904	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.484	2.484	0.0	0.873	2334845	1.07		112	2322	
449.00 > 99.00	2.484	2.484	0.0	0.873	551813		4.23(1.84-5.53)		1179	
20 Perfluorononanoic acid										
463.00 > 419.00	2.845	2.845	0.0	1.000	2786005	0.9629		96.3	222	
463.00 > 169.00	2.845	2.845	0.0	1.000	536486		5.19(2.68-8.03)		555	
17 Perfluorooctanesulfonic acid										
499.00 > 80.00	2.845	2.845	0.0	1.000	2175089	0.9592		103	640	
499.00 > 99.00	2.845	2.845	0.0	1.000	494387		4.40(2.04-6.12)		824	
D 19 13C5 PFNA										
468.00 > 423.00	2.845	2.845	0.0	1.145	7225105	2.48		99.4	4075	
D 18 13C4 PFOS										
503.00 > 80.00	2.845	2.845	0.0	1.145	5032387	2.23		93.2	3567	
D 72 13C8 PFOS										
507.00 > 99.00	2.845	2.845	0.0		1122262	2.27		95.0	2802	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.054	3.054	0.0	1.073	2471818	1.06		114	1599	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.185	3.185	0.0	1.120	1452788	1.12		117	3082	
549.00 > 99.00	3.185	3.185	0.0	1.120	237213		6.12(3.02-9.05)		2062	

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	3.185	3.185	0.0	1.000	455145	0.8508	88.8	2385
D 26 M2-8:2 FTS	529.00	> 81.00	3.185	3.185	0.0	1.282	89743	2.29	95.7	385
22 Perfluorooctanesulfonamide	498.00	> 78.00	3.201	3.201	0.0	1.000	3950164	1.11	111	2611
24 Perfluorodecanoic acid	513.00	> 469.00	3.201	3.201	0.0	1.000	3402922	1.05	105	430
	513.00	> 169.00	3.201	3.201	0.0	1.000	208947	16.29(7.12-21.35)		203
D 23 13C2 PFDA	515.00	> 470.00	3.201	3.201	0.0	1.289	7471400	2.50	99.8	5065
D 21 13C8 FOSA	506.00	> 78.00	3.201	3.217	-0.016	1.289	2966648	2.37	94.9	3899
28 N-methylperfluorooctanesulfonamido	570.00	> 419.00	3.360	3.360	0.0	1.005	1047153	0.8591	85.9	380
D 27 d3-NMeFOSAA	573.00	> 419.00	3.345	3.361	-0.016	1.347	3047113	2.35	94.2	2036
29 Perfluorodecanesulfonic acid	599.00	> 80.00	3.513	3.513	0.0	1.235	1835238	1.01	104	1575
	599.00	> 99.00	3.513	3.513	0.0	1.235	398187	4.61(2.14-6.43)		1122
33 N-ethylperfluorooctanesulfonamidoa	584.00	> 419.00	3.529	3.529	0.0	1.004	941325	1.02	102	2718
31 Perfluoroundecanoic acid	563.00	> 519.00	3.529	3.529	0.0	1.000	2736705	0.9633	96.3	519
	563.00	> 169.00	3.529	3.529	0.0	1.000	209138	13.09(5.24-15.72)		547
D 32 d5-NEtFOSAA	589.00	> 419.00	3.513	3.529	-0.016	1.414	2513027	2.38	95.4	1799
D 30 13C2 PFUnA	565.00	> 520.00	3.529	3.529	0.0	1.421	6246951	2.50	99.9	5594
66 11-Chloroeicosafuoro-3-oxaundecan	631.00	> 451.00	3.685	3.685	0.0	1.295	3391035	1.16	123	4052
37 Perfluorododecanoic acid	613.00	> 569.00	3.819	3.819	0.0	1.000	3178287	0.9792	97.9	631
	613.00	> 169.00	3.804	3.819	-0.015	0.996	317399	10.01(4.68-14.05)		488
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00	> 607.00	3.819	3.819	0.0	1.199	333265	0.8795	91.2	892
D 36 13C2 PFDoA	615.00	> 570.00	3.819	3.819	0.0	1.537	7976161	2.59	104	6140
39 N-ethylperfluoro-1-octanesulfonami	526.00	> 169.00	3.899	3.899	0.0		716445	NC		357
75 Perfluorododecanesulfonic acid (PF	699.00	> 80.00	4.053	4.053	0.0	1.424	216515	1.07	110	898
	699.00	> 99.00	4.053	4.053	0.0	1.424	396726	0.55(0.28-0.83)		1043
41 Perfluorotridecanoic acid	663.00	> 619.00	4.083	4.083	0.0	1.069	2397877	0.9193	91.9	944
	663.00	> 169.00	4.083	4.083	0.0	1.069	391242	6.13(3.09-9.27)		975



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	4.309	4.309	0.0	1.000	359305	0.8656		86.6	891	
713.00 > 219.00	4.309	4.309	0.0	1.000	245614		1.46(0.70-2.09)		643	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.309	4.327	-0.018	1.735	5675884	2.47		98.6	6456	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.718	4.718	0.0	1.000	2074002	1.00		100	739	
813.00 > 169.00	4.718	4.718	0.0	1.000	357178		5.81(2.77-8.32)		761	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.718	4.736	-0.018	1.900	5588105	2.44		97.7	6323	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.056	5.056	0.0	1.072	1377966	1.25		125	880	
913.00 > 169.00	5.056	5.056	0.0	1.072	288076		4.78(2.55-7.64)		1657	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL4\_00009

Amount Added: 1.00

Units: mL

Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67709.b\2018.11.14LLA\_006.d

Injection Date: 14-Nov-2018 18:31:08

Instrument ID: A9

Lims ID: CCV L4

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 13

Worklist Smp#: 3

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

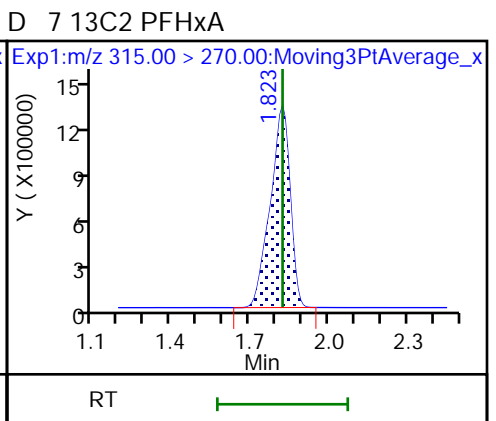
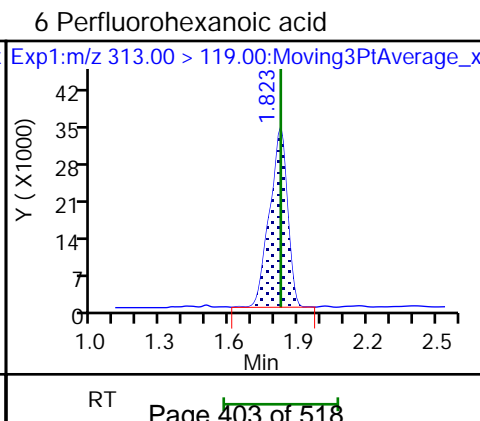
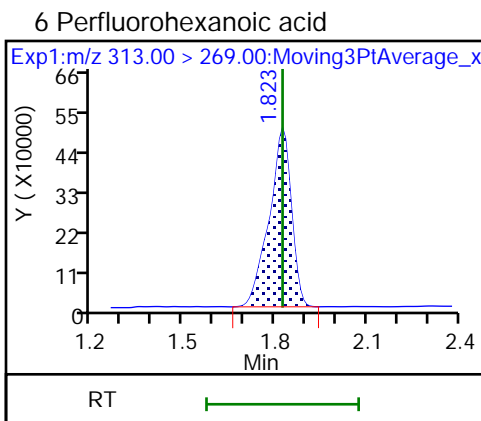
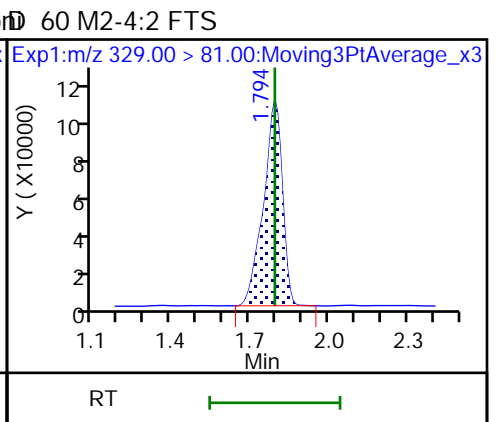
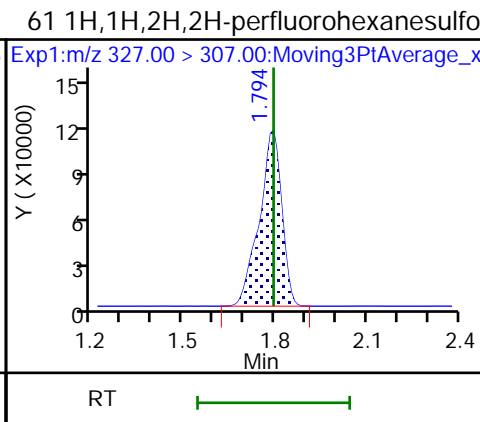
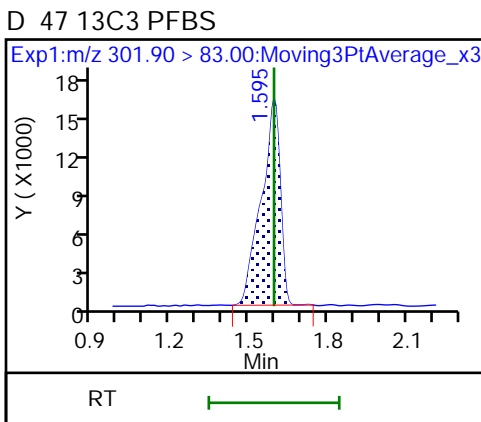
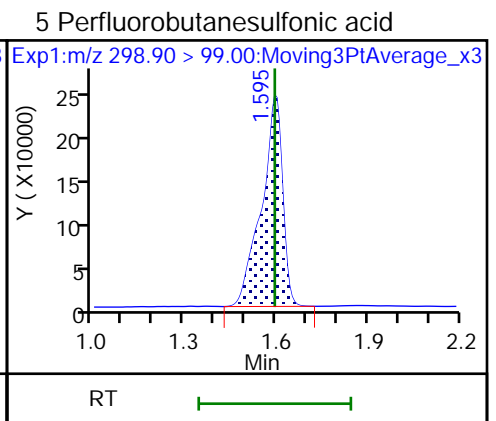
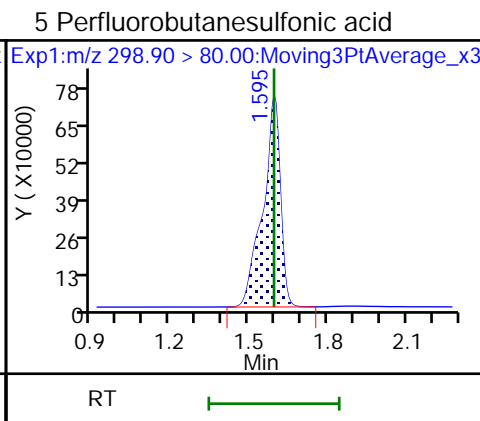
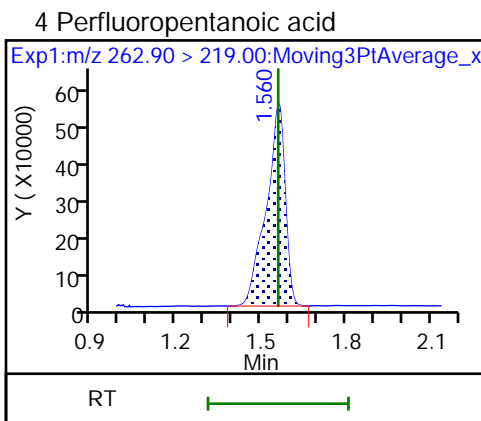
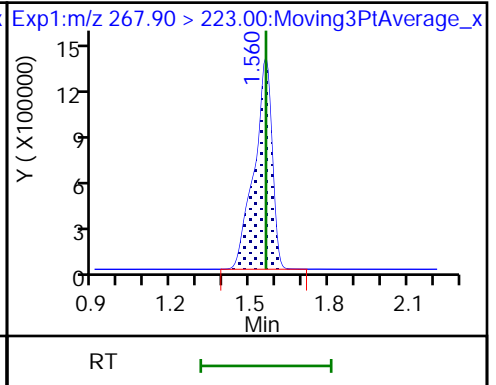
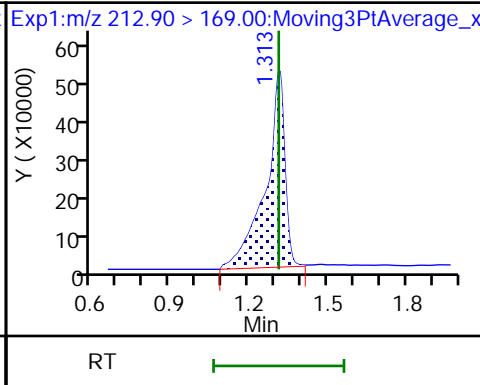
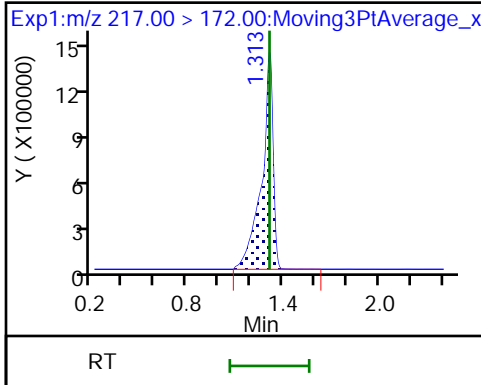
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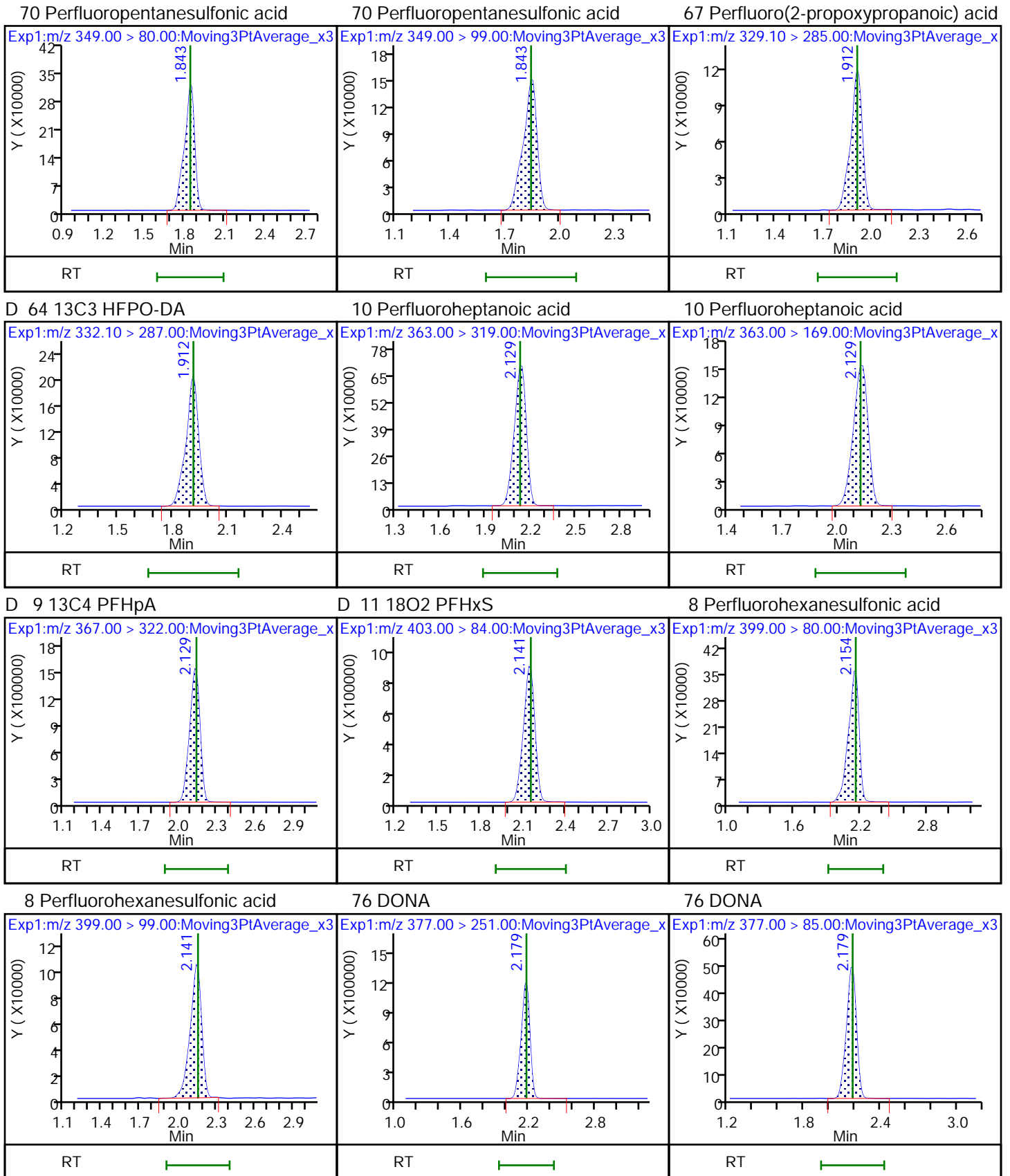
Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

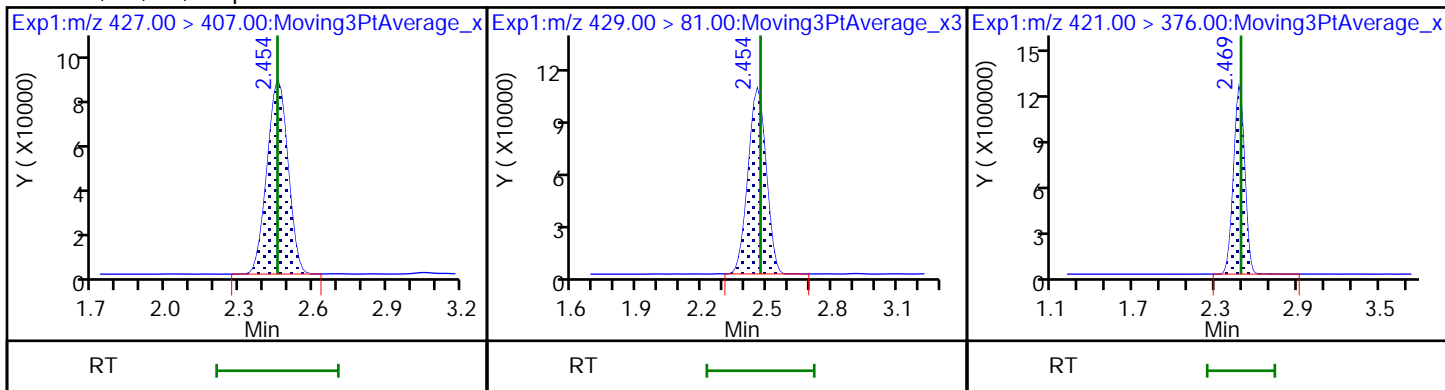
D 3 13C5 PFPeA





13 1H,1H,2H,2H-perfluorooctanesulfoD 12 M2-6:2 FTS

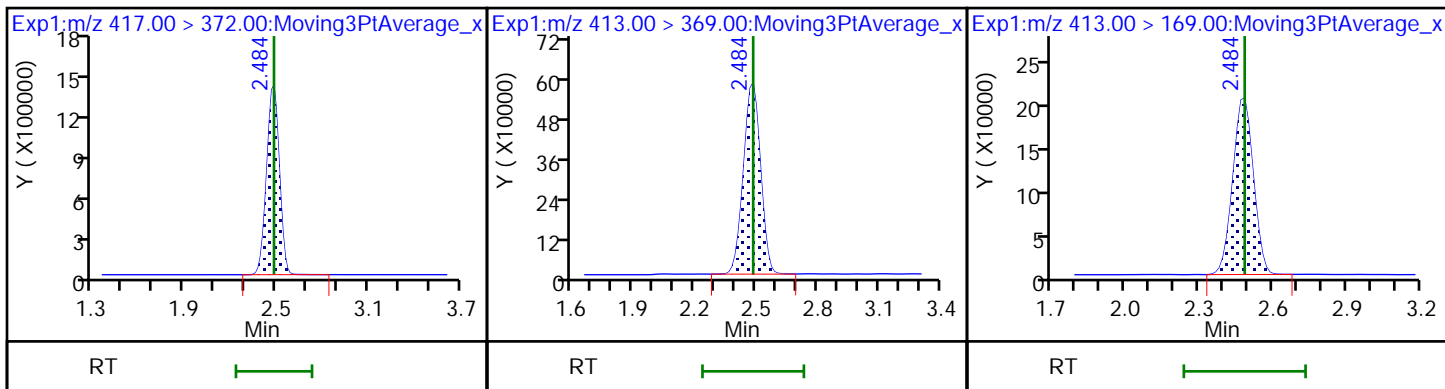
D 73 13C8 PFOA



D 14 13C4 PFOA

15 Perfluorooctanoic acid

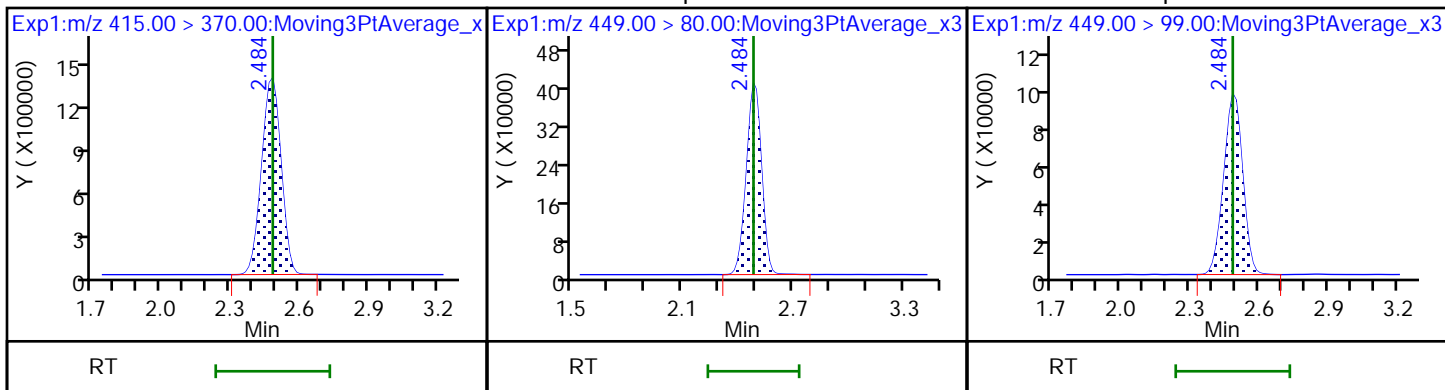
15 Perfluorooctanoic acid



\* 62 13C2 PFOA

16 Perfluoroheptanesulfonic acid

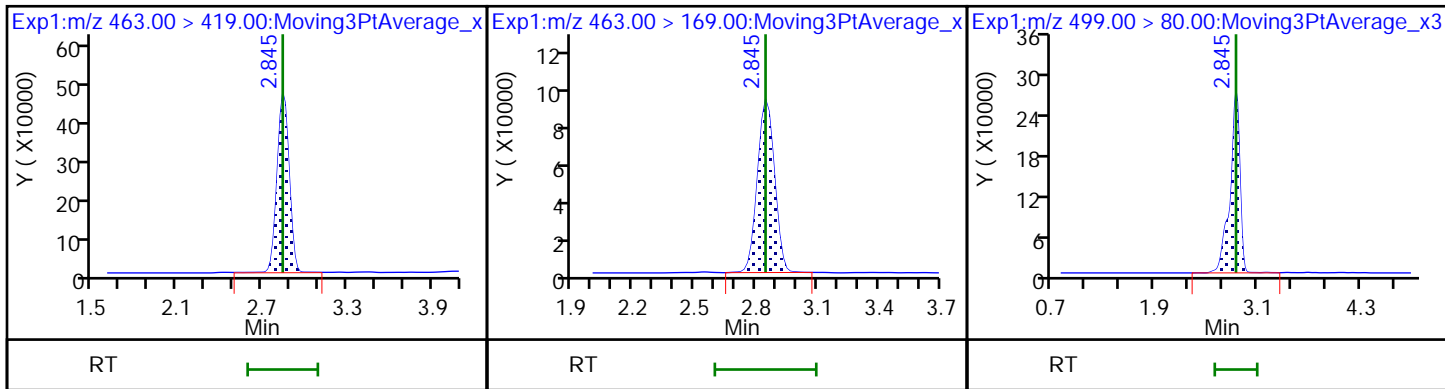
16 Perfluoroheptanesulfonic acid

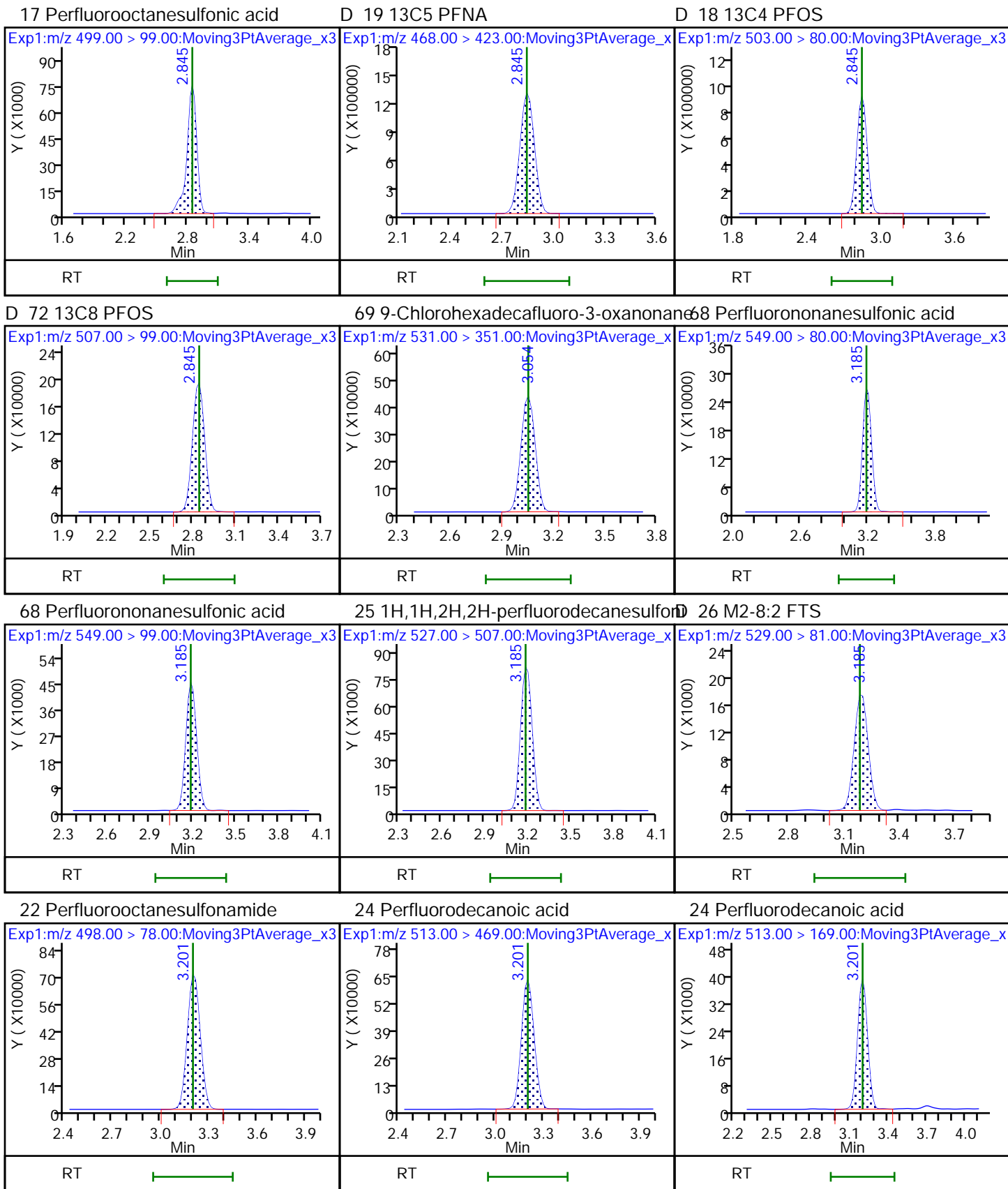


20 Perfluorononanoic acid

20 Perfluorononanoic acid

17 Perfluorooctanesulfonic acid

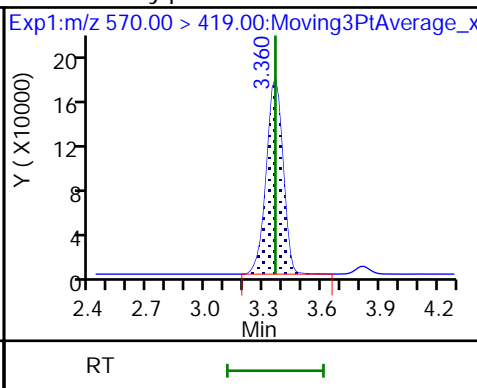
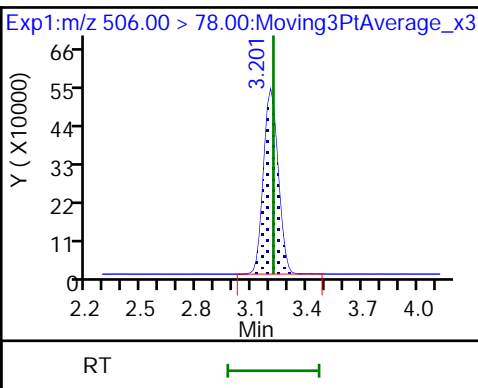
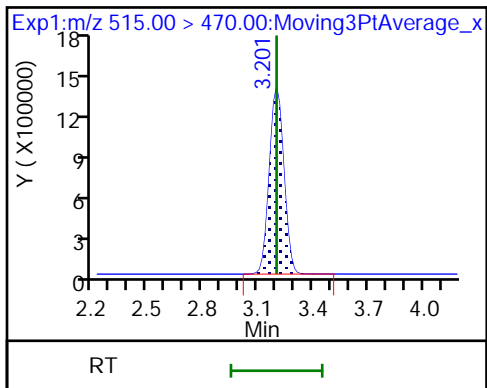




D 23 13C2 PFDA

D 21 13C8 FOSA

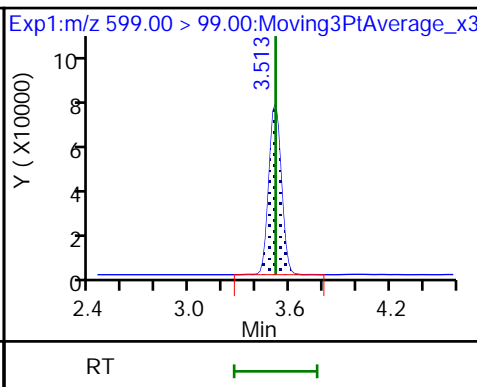
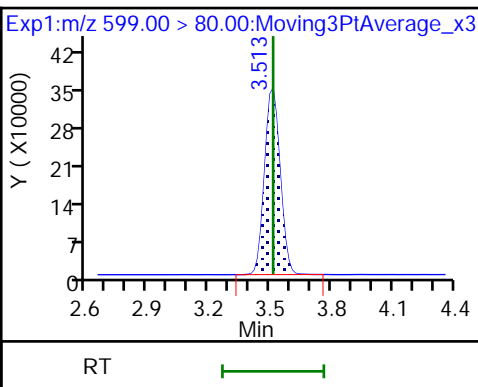
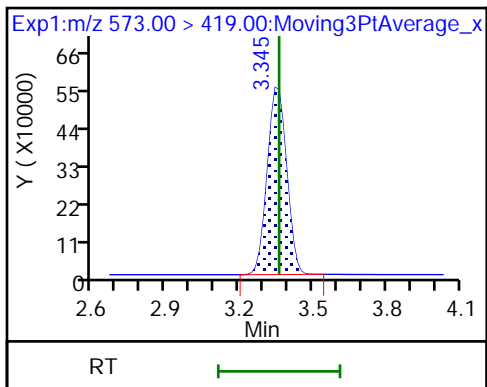
28 N-methylperfluorooctanesulfonamido



D 27 d3-NMeFOSAA

29 Perfluorodecanesulfonic acid

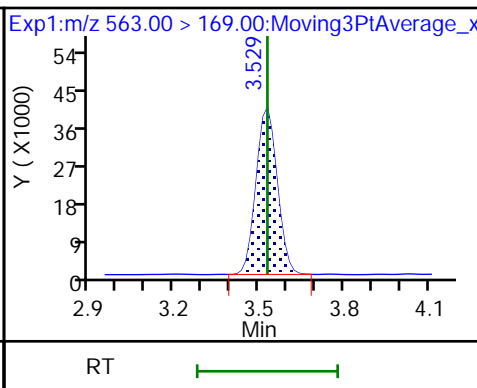
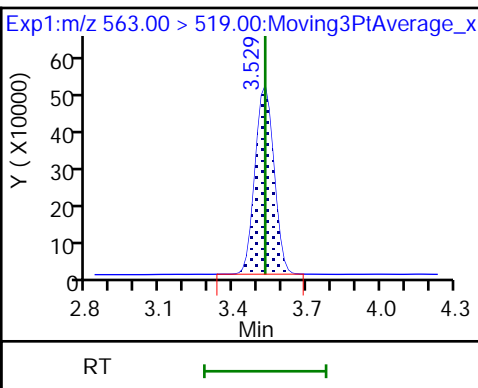
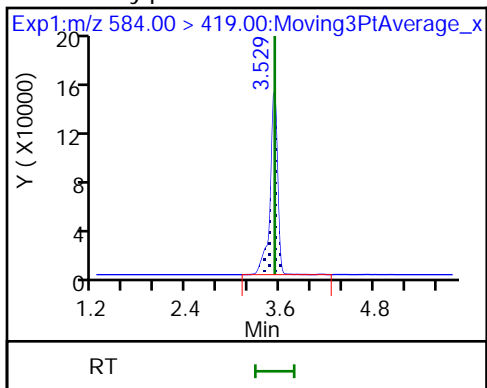
29 Perfluorodecanesulfonic acid



33 N-ethylperfluorooctanesulfonamidoa

31 Perfluoroundecanoic acid

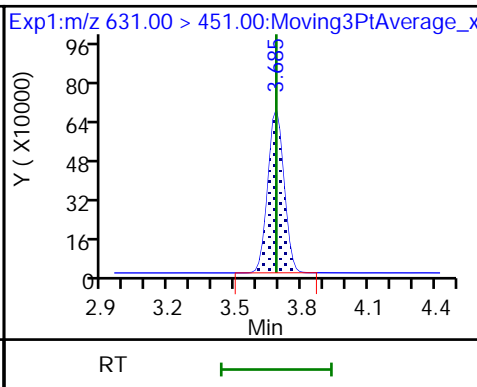
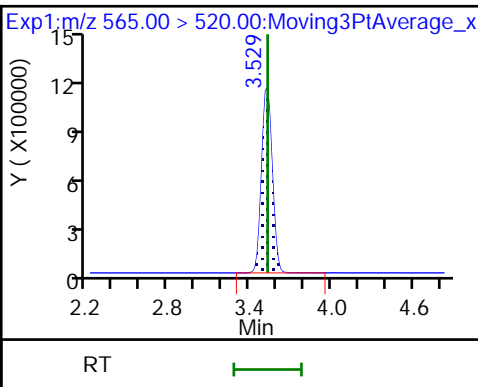
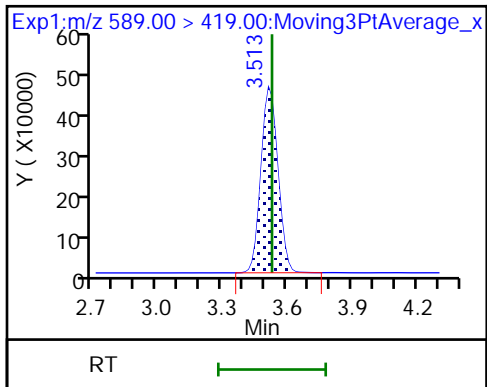
31 Perfluoroundecanoic acid

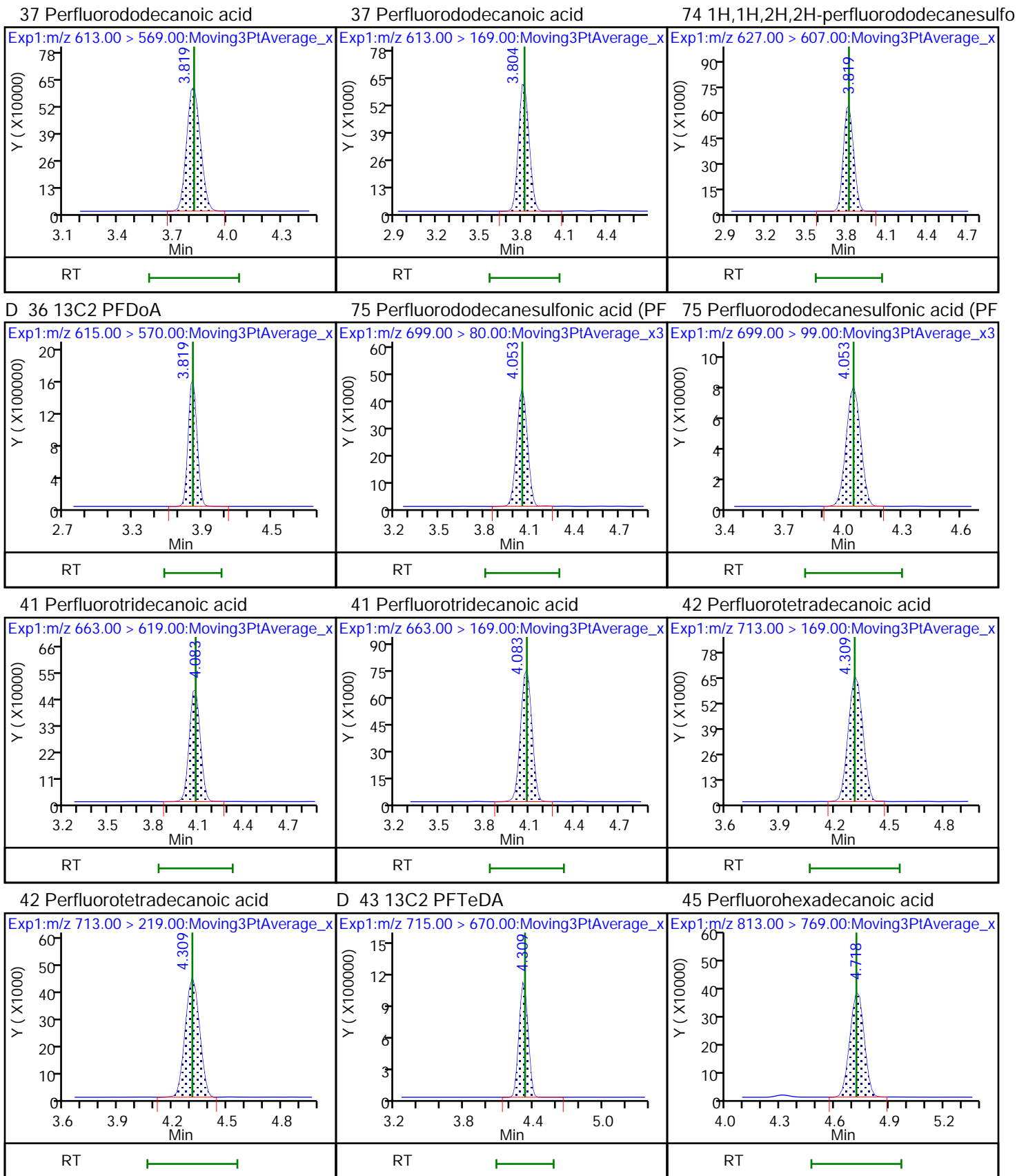


D 32 d5-NEtFOSAA

D 30 13C2 PFUnA

66 11-Chloroeicosafuoro-3-oxaundecan

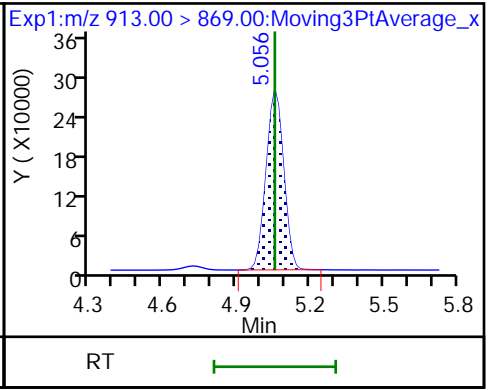
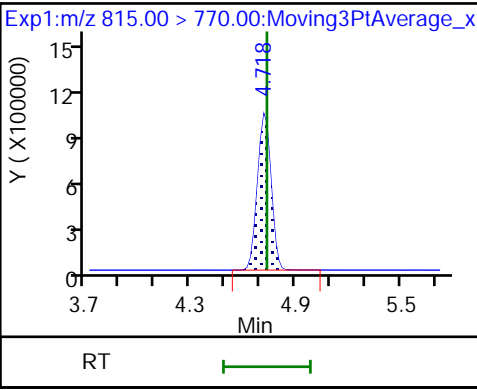
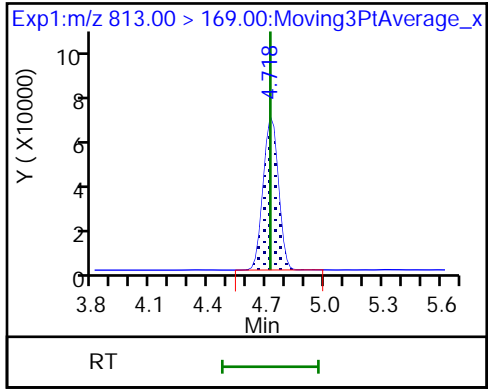




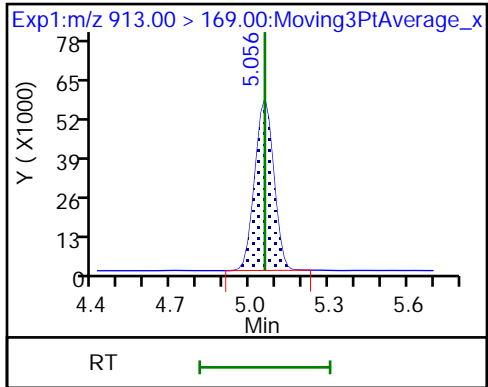
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-259234/1 Calibration Date: 11/15/2018 01:54  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.14LLA\_069.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9357	0.9686		2.59	2.50	3.5	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.001	1.003		2.51	2.50	0.2	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	103.3	111.1		2.38	2.21	7.6	50.0
4:2 FTS	AveID	20.55	16.13		1.83	2.34	-21.5	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8997	0.8927		2.48	2.50	-0.8	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	47.84	50.90		2.49	2.35	6.4	50.0
HFPO-DA (GenX)	AveID	1.662	1.614		2.43	2.50	-2.9	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.061	1.081		2.55	2.50	1.9	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.260	1.146		2.07	2.28	-9.0	40.0
DONA	AveID	2.718	2.890		2.50	2.36	6.3	50.0
6:2 FTS	AveID	2.182	2.183		2.37	2.37	0.0	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.081	1.061		2.46	2.50	-1.8	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.041	1.149		2.63	2.38	10.4	50.0
Perfluorononanoic acid (PFNA)	AveID	1.001	0.9638		2.41	2.50	-3.7	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.077	1.138		2.45	2.32	5.7	40.0
F-53B Major	AveID	1.108	1.142		2.40	2.33	3.1	50.0
8:2 FTS	AveID	14.28	14.31		2.40	2.40	0.3	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.086	1.126		2.59	2.50	3.7	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.6135	0.6761		2.64	2.40	10.2	50.0
Perfluorooctanesulfonamide (FOSA)	AveID	3.005	3.091		2.57	2.50	2.9	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.000	0.8897		2.22	2.50	-11.0	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.8654	0.9062		2.52	2.41	4.7	50.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9143	0.9139		2.50	2.50	-0.0	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.137	1.146		2.52	2.50	0.8	40.0
F-53B Minor	AveID	1.387	1.511		2.57	2.36	8.9	50.0
10:2 FTS	AveID	10.11	9.070		2.16	2.41	-10.3	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.017	1.005		2.47	2.50	-1.3	40.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.0963	0.1097		2.76	2.42	13.9	50.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8175	0.7733		2.36	2.50	-5.4	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1828	0.1581		2.16	2.50	-13.5	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9154		2.51	2.50	0.5	50.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-259234/1 Calibration Date: 11/15/2018 01:54  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.14LLA\_069.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.4945	0.6675		3.37	2.50	35.0	50.0
13C4 PFBA	Ave	0.9103	0.9048		2.48	2.50	-0.6	50.0
13C5 PFPeA	Ave	0.8665	0.8309		2.40	2.50	-4.1	50.0
13C3 PFBS	Ave	0.0120	0.0112		2.16	2.33	-6.9	50.0
M2-4:2 FTS	Ave	0.0962	0.0706		1.71	2.34	-26.6	50.0
13C2 PFHxA	Ave	0.9136	0.8770		2.40	2.50	-4.0	50.0
13C3 HFPO-DA	Ave	0.1181	0.1223		2.59	2.50	3.5	50.0
13C4 PFHpA	Ave	1.074	1.039		2.42	2.50	-3.3	50.0
18O2 PFHxS	Ave	0.6988	0.7388		2.50	2.37	5.7	50.0
M2-6:2 FTS	Ave	0.0988	0.0763		1.84	2.38	-22.7	40.0
13C4 PFOA	Ave	0.9837	1.009		2.56	2.50	2.5	50.0
13C8 PFOA	Ave	3440710	2512319		1.79	2.45	-27.0	50.0
13C8 PFOS	Ave	494030	434344		2.10	2.39	-12.1	50.0
13C4 PFOS	Ave	0.7064	0.6807		2.30	2.39	-3.6	50.0
13C5 PFNA	Ave	0.9095	0.9009		2.48	2.50	-0.9	50.0
13C2 PFDA	Ave	0.9367	0.9346		2.49	2.50	-0.2	50.0
M2-8:2 FTS	Ave	0.0122	0.0101		1.97	2.40	-17.6	40.0
13C8 FOSA	Ave	0.3910	0.3850		2.46	2.50	-1.6	50.0
d3-NMeFOSAA	Ave	0.4049	0.3365		2.08	2.50	-16.9	50.0
13C2 PFUnA	Ave	0.7823	0.7925		2.53	2.50	1.3	50.0
d5-NEtFOSAA	Ave	0.3298	0.2743		2.08	2.50	-16.8	50.0
13C2 PFDoA	Ave	0.9635	0.9712		2.52	2.50	0.8	50.0
13C2 PFTeDA	Ave	0.7200	0.6684		2.32	2.50	-7.2	50.0
13C2 PFHxDA	Ave	0.7154	0.6932		2.42	2.50	-3.1	50.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_069.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 15-Nov-2018 01:54:22 ALS Bottle#: 14 Worklist Smp#: 1  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 20-Nov-2018 09:28:01 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0328

First Level Reviewer: mongkols Date: 20-Nov-2018 09:28:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.313	1.318	-0.005	0.532	6517396	2.48	99.4	3905	
2 Perfluorobutanoic acid	212.90 > 169.00	1.313	1.320	-0.007	1.000	6312489	2.59	104	87.8	
D 3 13C5 PFPeA	267.90 > 223.00	1.553	1.560	-0.007	0.629	5985314	2.40	95.9	4232	
4 Perfluoropentanoic acid	262.90 > 219.00	1.560	1.562	-0.002	1.004	6005674	2.51	100	170	
D 47 13C3 PFBS	301.90 > 83.00	1.588	1.595	-0.007	0.643	74681	2.16	93.1	147	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.595	1.597	-0.002	1.004	7884974	2.38	108	1895	
	298.90 > 99.00	1.595	1.597	-0.002	1.004	2693852		2.93(1.35-4.05)	618	
D 60 M2-4:2 FTS	329.00 > 81.00	1.794	1.794	0.0	0.727	474750	1.71	73.4	351	
61 1H,1H,2H,2H-perfluorohexanesulfoni	327.00 > 307.00	1.784	1.796	-0.012	1.124	1209922	1.83	78.5	5061	
D 7 13C2 PFHxA	315.00 > 270.00	1.814	1.824	-0.010	0.735	6317097	2.40	96.0	5402	
6 Perfluorohexanoic acid	313.00 > 269.00	1.814	1.826	-0.012	1.000	5639421	2.48	99.2	268	
	313.00 > 119.00	1.814	1.826	-0.012	1.000	420515		13.41(6.96-20.87)	233	
70 Perfluoropentanesulfonic acid	349.00 > 80.00	1.843	1.846	-0.003	1.161	3833700	2.49	106	2952	
	349.00 > 99.00	1.843	1.846	-0.003	1.161	1791949		2.14(1.15-3.45)	746	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.902	1.912	-0.010	0.770	880607	2.59	104	2234	

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	1.902	1.914	-0.012	1.000	1421424	2.43	97.1	362
D 9 13C4 PFHpA	367.00	> 322.00	2.129	2.129	0.0	0.862	7483816	2.42	96.7	5294
10 Perfluoroheptanoic acid	363.00	> 319.00	2.129	2.131	-0.002	1.000	8091367	2.55	102	443
	363.00	> 169.00	2.129	2.131	-0.002	1.000	1759297	4.60(2.17-6.52)		890
D 11 18O2 PFHxS	403.00	> 84.00	2.141	2.141	0.0	0.867	5034207	2.50	106	7958
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.141	2.144	-0.003	1.000	5550732	2.07	91.0	3284
	399.00	> 99.00	2.141	2.144	-0.003	1.000	1583718	3.50(1.90-5.70)		485
76 DONA	377.00	> 251.00	2.166	2.169	-0.003	0.761	13346199	2.50	106	5655
	377.00	> 85.00	2.166	2.169	-0.003	0.761	5877709	2.27(1.13-3.39)		2369
D 12 M2-6:2 FTS	429.00	> 81.00	2.439	2.454	-0.015	0.988	522389	1.84	77.3	719
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.454	2.457	-0.003	1.006	1138201	2.37	100	1346
D 73 13C8 PFOA	421.00	> 376.00	2.469	2.469	0.0		6148901	1.79	73.0	4615
D 14 13C4 PFOA	417.00	> 372.00	2.469	2.469	0.0	1.000	7265040	2.56	103	4736
* 62 13C2 PFOA	415.00	> 370.00	2.469	2.471	-0.002		7203267	2.50		4515
15 Perfluorooctanoic acid	413.00	> 369.00	2.469	2.486	-0.017	1.000	7718273	2.46	98.2	556
	413.00	> 169.00	2.469	2.486	-0.017	1.000	2696677	2.86(1.36-4.08)		1176
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.484	2.486	-0.002	0.873	5363270	2.63	110	3356
	449.00	> 99.00	2.484	2.486	-0.002	0.873	1254471	4.28(1.84-5.53)		1631
D 72 13C8 PFOS	507.00	> 99.00	2.827	2.845	-0.018		1038083	2.10	87.9	2315
D 19 13C5 PFNA	468.00	> 423.00	2.845	2.845	0.0	1.152	6489031	2.48	99.1	4375
D 18 13C4 PFOS	503.00	> 80.00	2.845	2.845	0.0	1.152	4687336	2.30	96.4	3480
20 Perfluorononanoic acid	463.00	> 419.00	2.845	2.850	-0.005	1.000	6254329	2.41	96.3	536
	463.00	> 169.00	2.845	2.850	-0.005	1.000	1157894	5.40(2.68-8.03)		816
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.845	2.850	-0.005	1.000	5179286	2.45	106	1787
	499.00	> 99.00	2.845	2.850	-0.005	1.000	1213088	4.27(2.04-6.12)		1205
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.036	3.061	-0.025	1.067	5216989	2.40	103	2495
D 26 M2-8:2 FTS	529.00	> 81.00	3.185	3.185	0.0	1.290	69656	1.97	82.4	248

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.185	3.191	-0.006	1.120	3182111	2.64		110	2973	
549.00 > 99.00	3.185	3.191	-0.006	1.120	520322		6.12(3.02-9.05)		1529	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.185	3.191	-0.006	1.000	997088	2.40		100	2580	
D 21 13C8 FOSA										
506.00 > 78.00	3.201	3.201	0.0	1.296	2772878	2.46		98.4	4906	
D 23 13C2 PFDA										
515.00 > 470.00	3.185	3.201	-0.016	1.290	6732293	2.49		99.8	3703	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.185	3.206	-0.021	1.000	7579461	2.59		104	864	
513.00 > 169.00	3.185	3.206	-0.021	1.000	526694		14.39(7.12-21.35)		264	
22 Perfluorooctanesulfonamide										
498.00 > 78.00	3.201	3.206	-0.005	1.000	8569596	2.57		103	4173	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.345	3.345	0.0	1.355	2424025	2.08		83.1	1978	
28 N-methylperfluorooctanesulfonamido										
570.00 > 419.00	3.345	3.350	-0.005	1.000	2156626	2.22		89.0	679	
29 Perfluorodecanesulfonic acid										
599.00 > 80.00	3.499	3.503	-0.004	1.230	4283294	2.52		105	3165	
599.00 > 99.00	3.499	3.503	-0.004	1.230	921317		4.65(2.14-6.43)		1557	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.514	3.514	0.0	1.423	1975503	2.08		83.2	1071	
D 30 13C2 PFUnA										
565.00 > 520.00	3.514	3.514	0.0	1.423	5708771	2.53		101	3652	
33 N-ethylperfluorooctanesulfonamidoa										
584.00 > 419.00	3.514	3.518	-0.004	1.000	1805416	2.50		100.0	1592	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.514	3.518	-0.004	1.000	6545070	2.52		101	1136	
563.00 > 169.00	3.514	3.518	-0.004	1.000	493200		13.27(5.24-15.72)		903	
66 11-Chloroeicosafuoro-3-oxaundecan										
631.00 > 451.00	3.671	3.690	-0.019	1.290	6976701	2.57		109	3902	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.804	3.808	-0.004	1.000	7027526	2.47		98.7	1443	
613.00 > 169.00	3.804	3.808	-0.004	1.000	777152		9.04(4.68-14.05)		1461	
D 36 13C2 PFDaA										
615.00 > 570.00	3.804	3.819	-0.015	1.541	6995722	2.52		101	6577	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.804	3.823	-0.019	1.194	635713	2.16		89.7	1453	
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	3.899	3.904	-0.005		1690139	NC			466	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.052	4.056	-0.004	1.424	520600	2.76		114	2372	
699.00 > 99.00	4.037	4.056	-0.019	1.419	944018		0.55(0.28-0.83)		2420	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.068	4.071	-0.003	1.069	5409680	2.36		94.6	1738	
663.00 > 169.00	4.068	4.071	-0.003	1.069	872183		6.20(3.09-9.27)		1314	

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	4.309	4.309	0.0	1.745	4814351	2.32		92.8	5644	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.309	4.312	-0.003	1.000	761262	2.16		86.5	1540	
713.00 > 219.00	4.309	4.312	-0.003	1.000	565104		1.35(0.70-2.09)		1098	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.718	4.718	0.0	1.911	4993255	2.42		96.9	5663	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.718	4.736	-0.018	1.000	4570741	2.51		100	1937	
813.00 > 169.00	4.718	4.736	-0.018	1.000	787205		5.81(2.77-8.32)		1538	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.056	5.056	0.0	1.072	3333045	3.37		135	2316	
913.00 > 169.00	5.056	5.056	0.0	1.072	660946		5.04(2.55-7.64)		2640	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL5\_00009

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_069.d

Injection Date: 15-Nov-2018 01:54:22

Instrument ID: A9

Lims ID: CCV L5

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 14

Worklist Smp#: 1

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

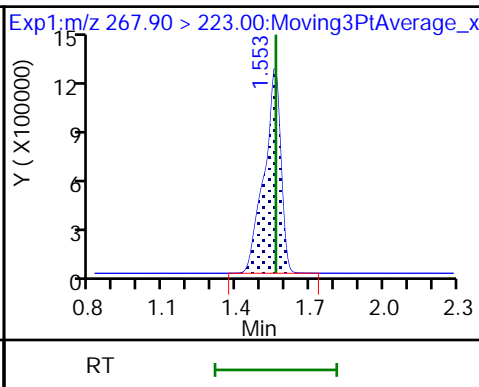
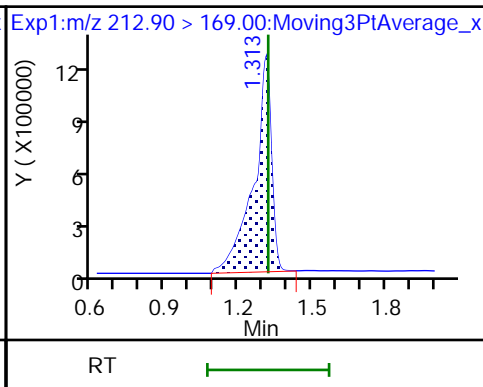
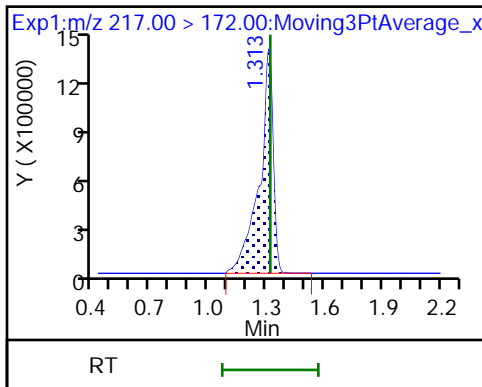
Method: PFAS\_A9

Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid

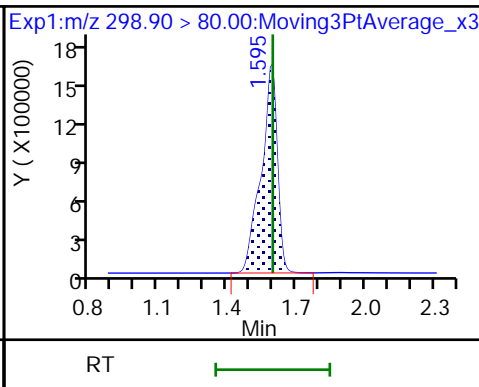
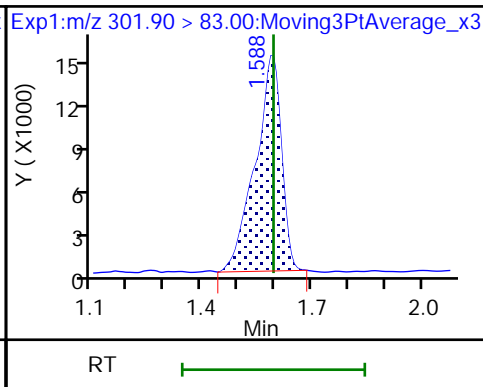
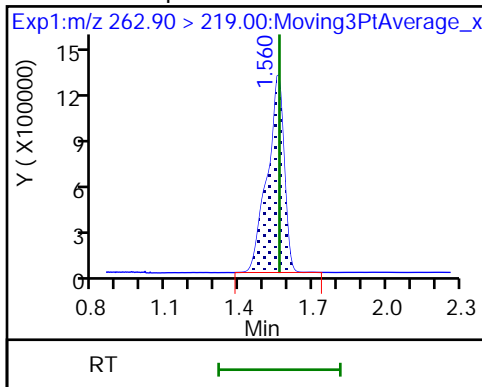
D 3 13C5 PFPeA



4 Perfluoropentanoic acid

D 47 13C3 PFBS

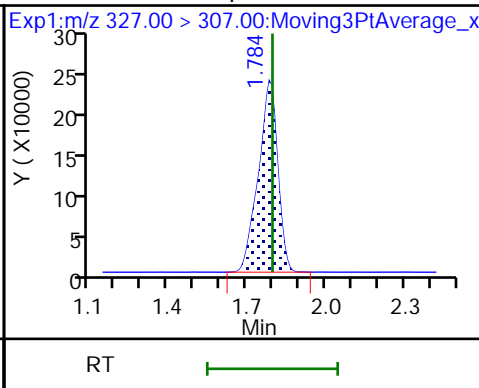
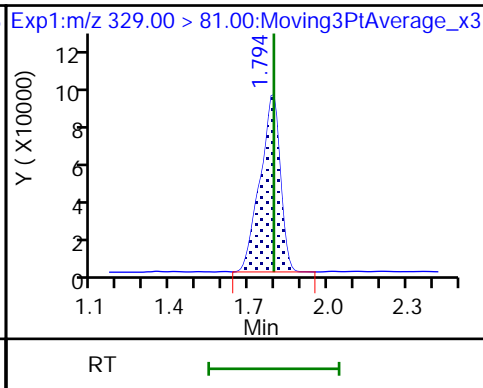
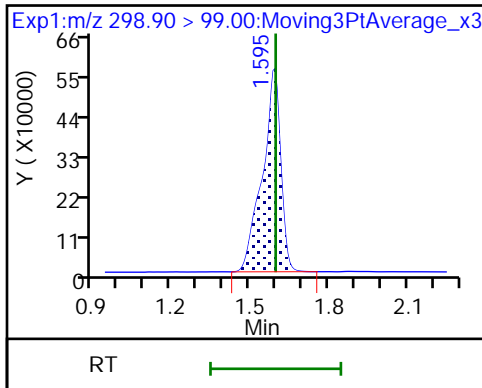
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

D 60 M2-4:2 FTS

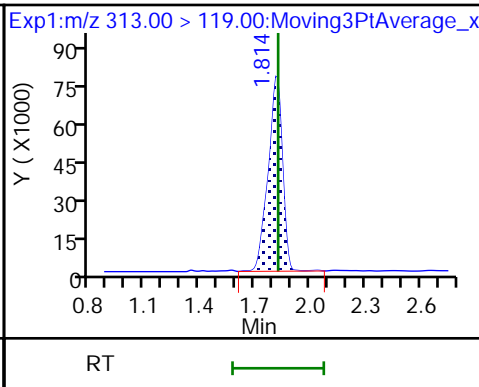
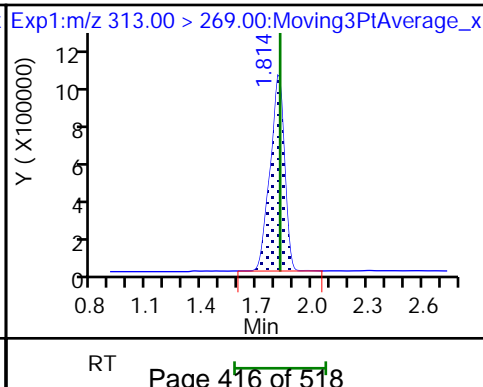
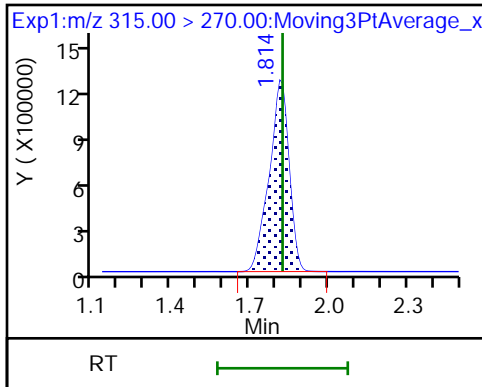
61 1H,1H,2H,2H-perfluorohexanesulfoni

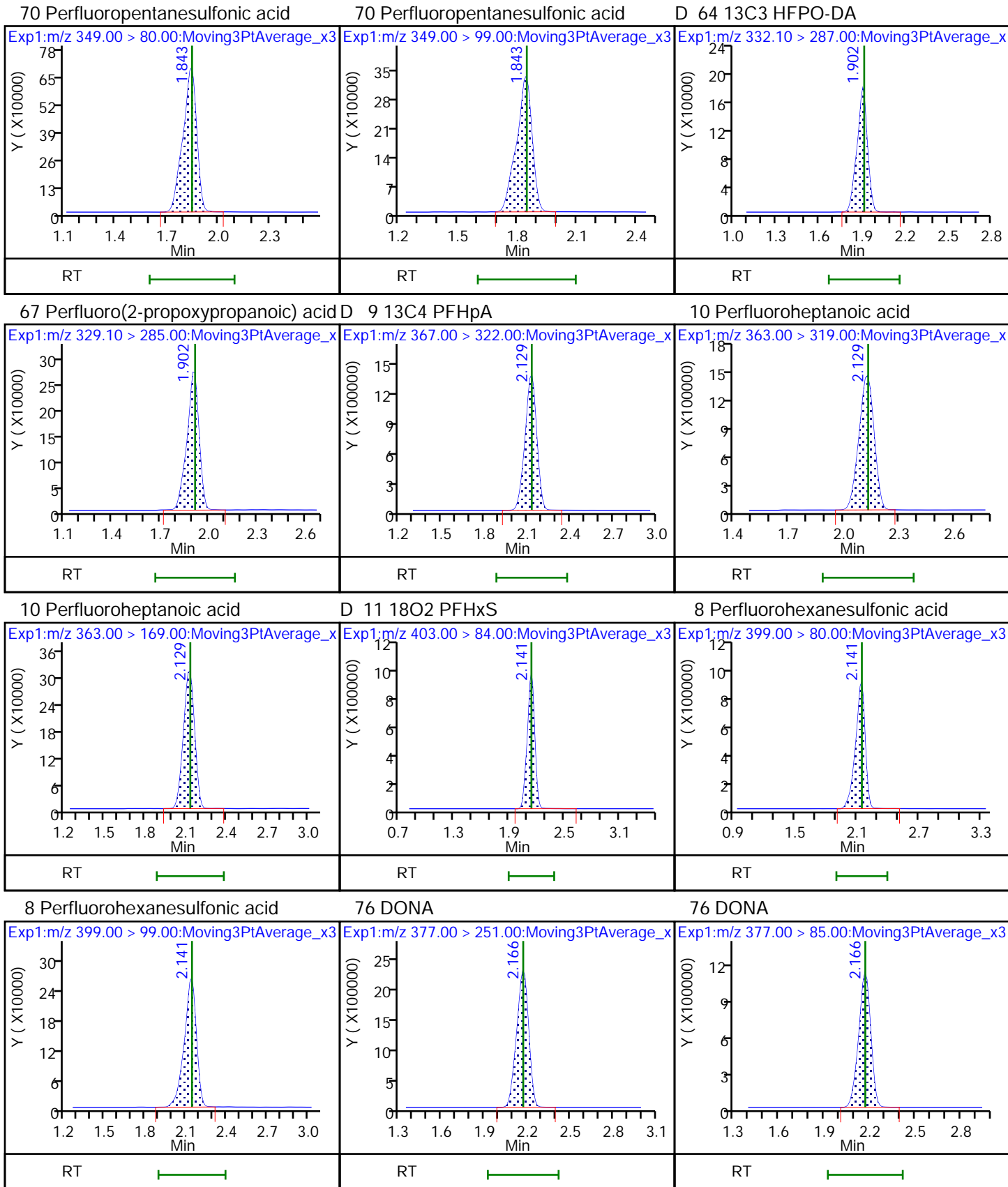


D 7 13C2 PFHxA

6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

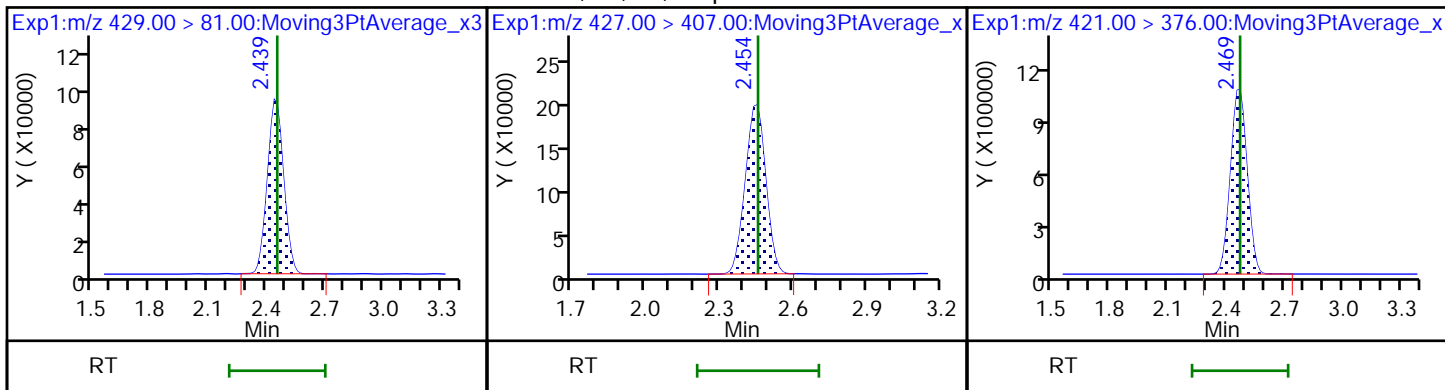






D 12 M2-6:2 FTS

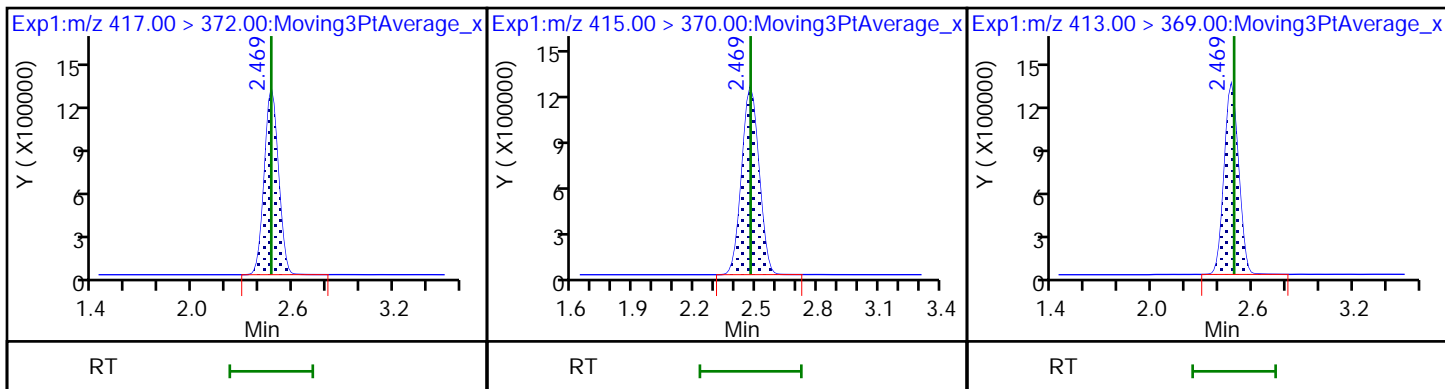
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



D 14 13C4 PFOA

\* 62 13C2 PFOA

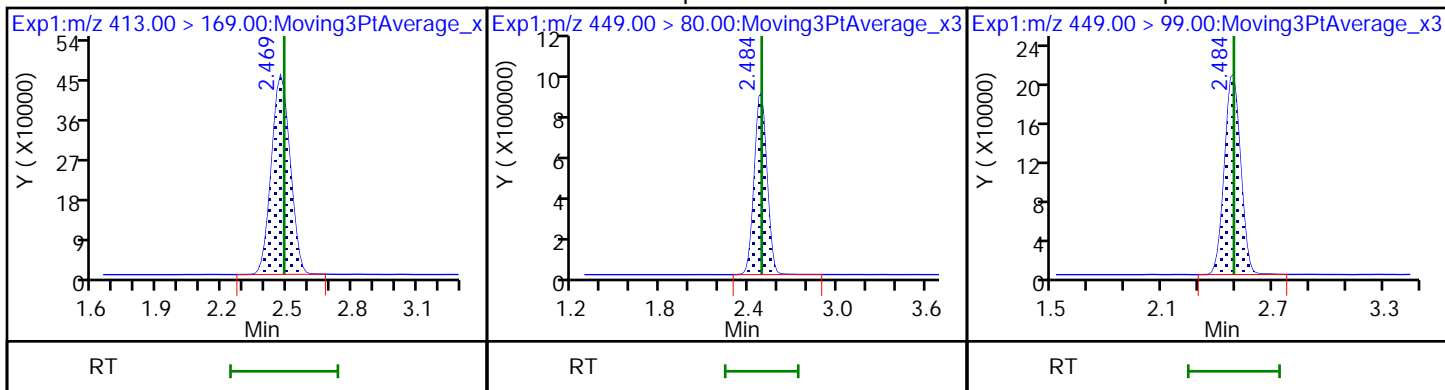
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

16 Perfluoroheptanesulfonic acid

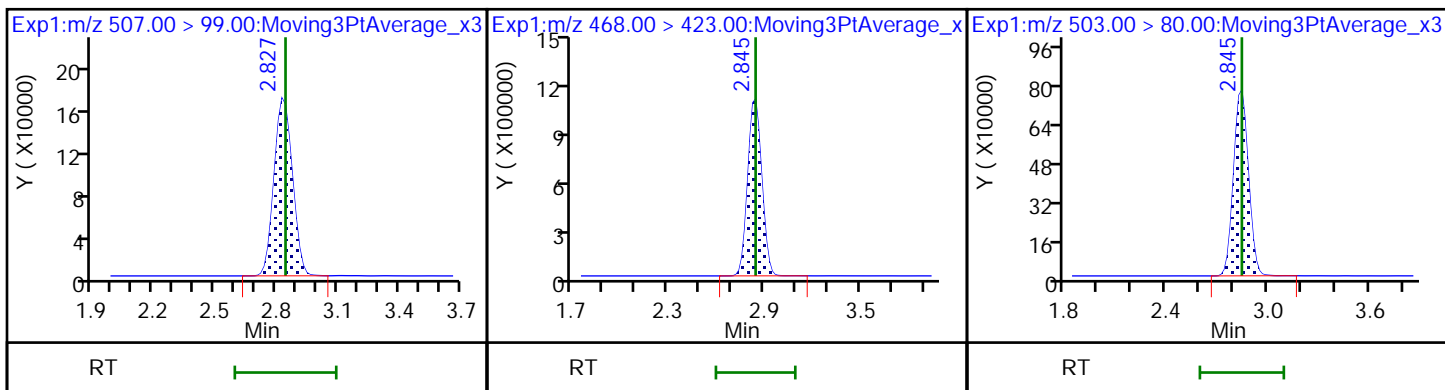
16 Perfluoroheptanesulfonic acid

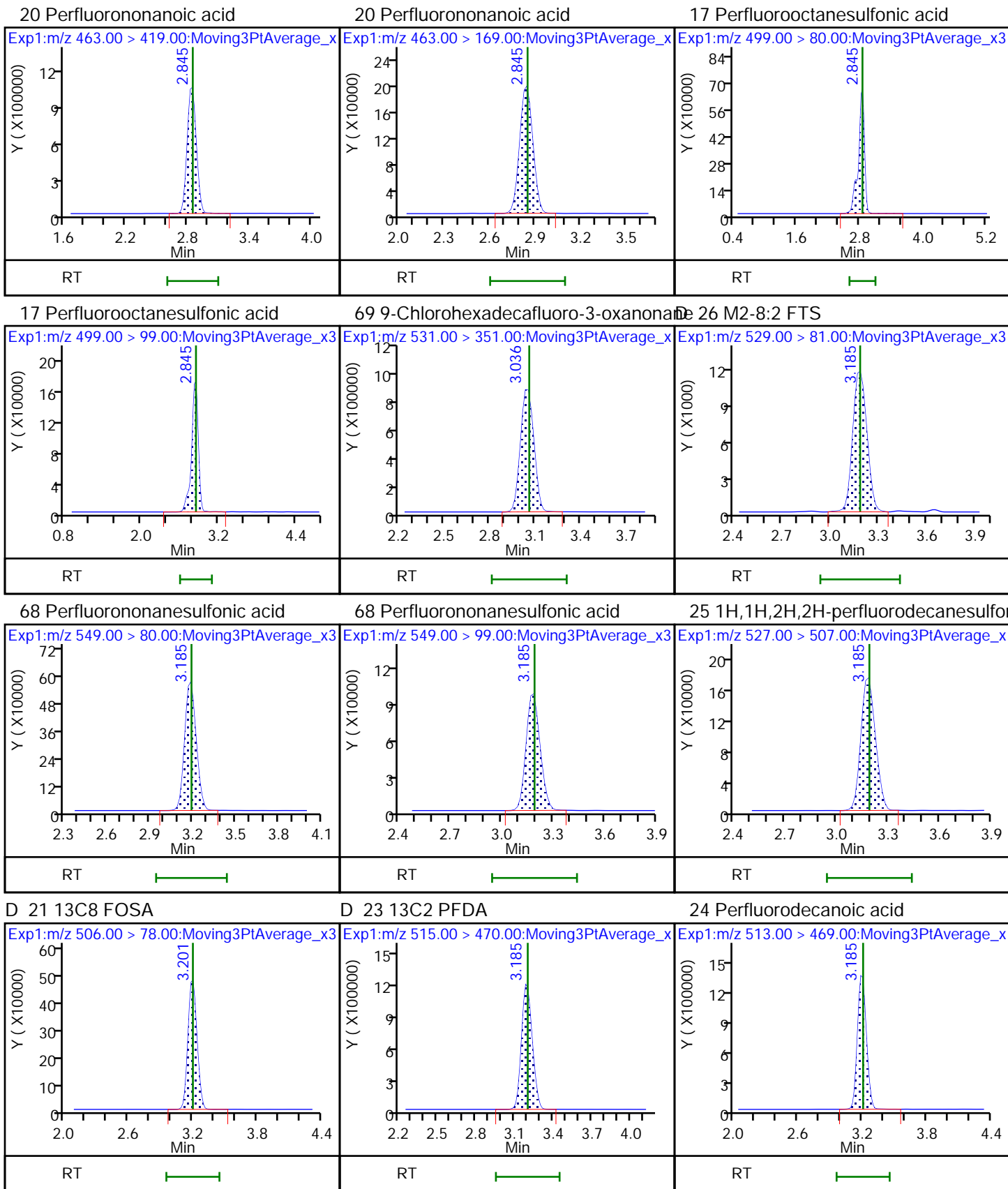


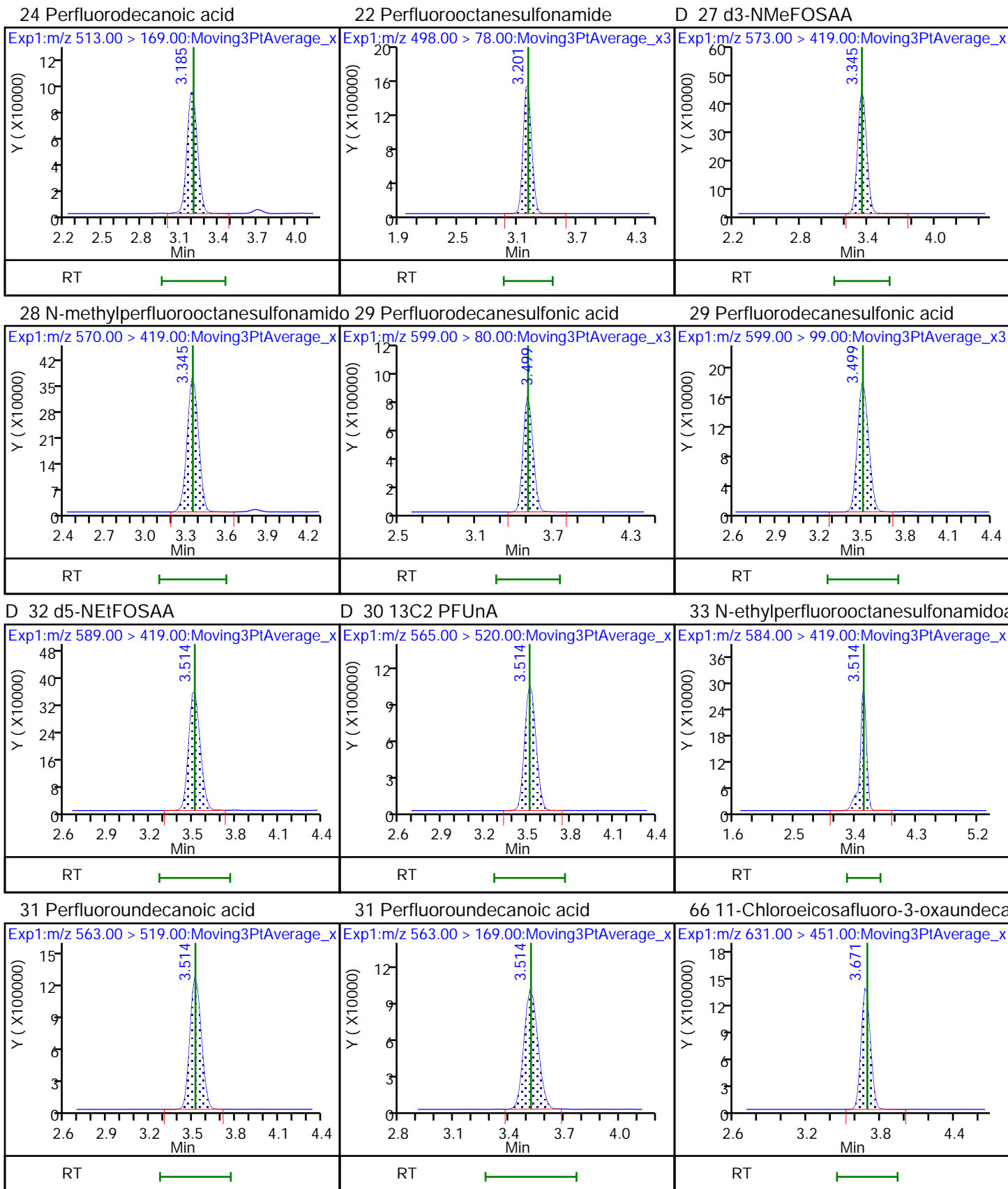
D 72 13C8 PFOS

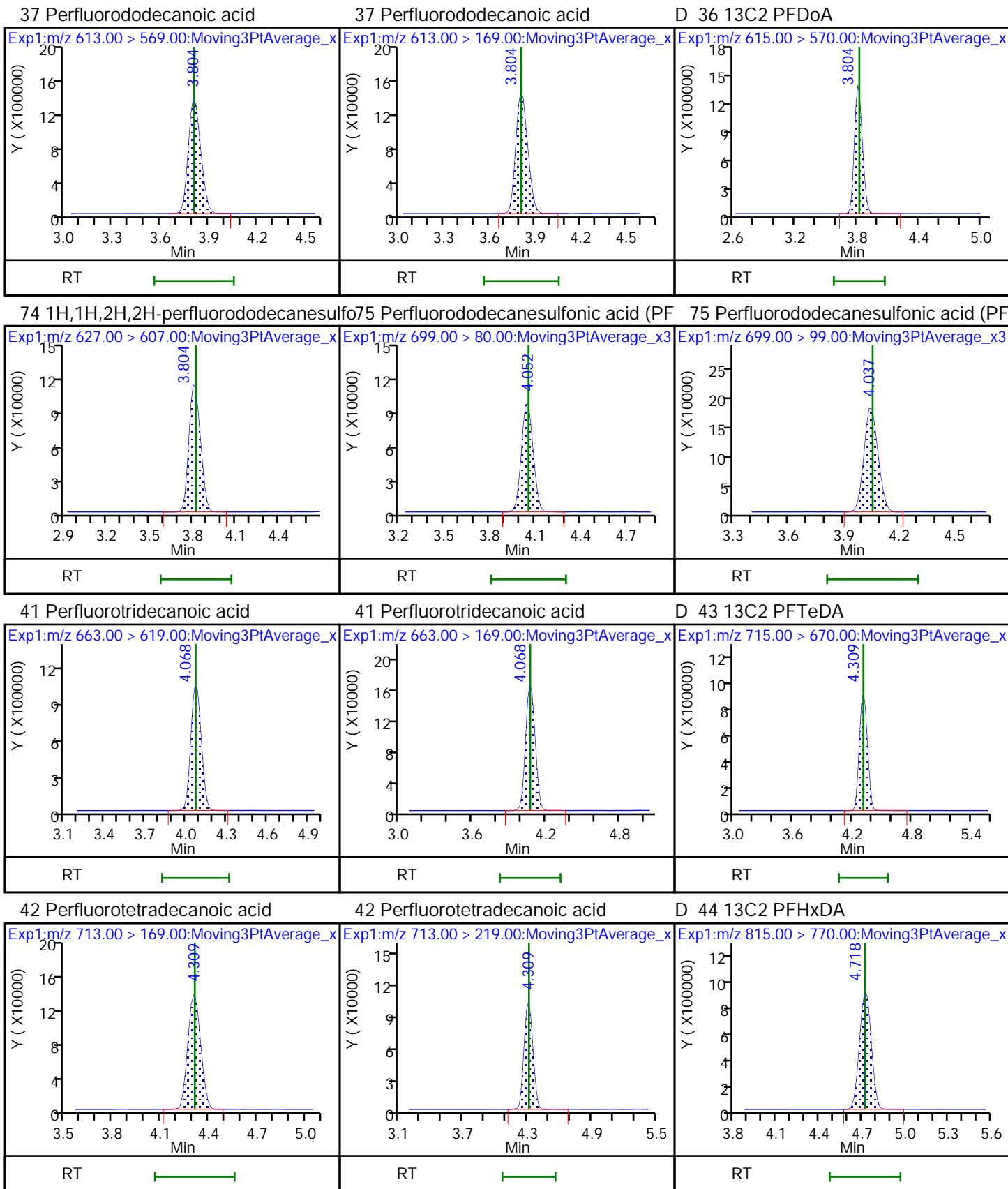
D 19 13C5 PFNA

D 18 13C4 PFOS





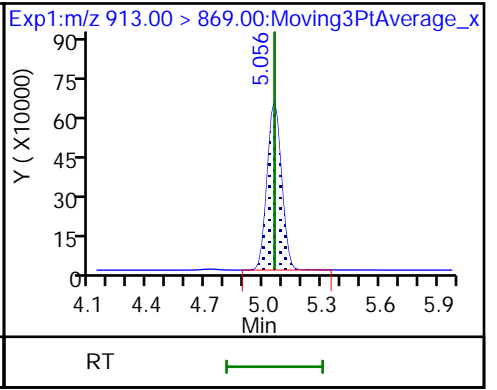
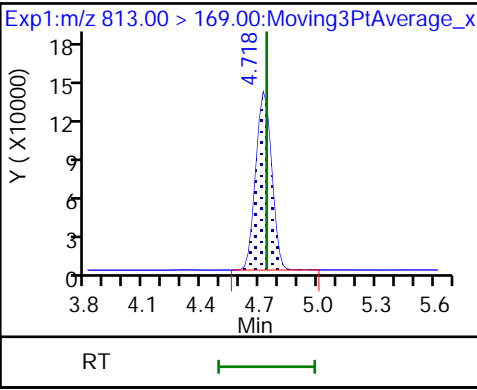
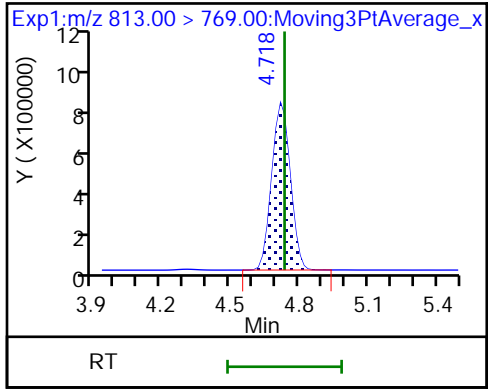




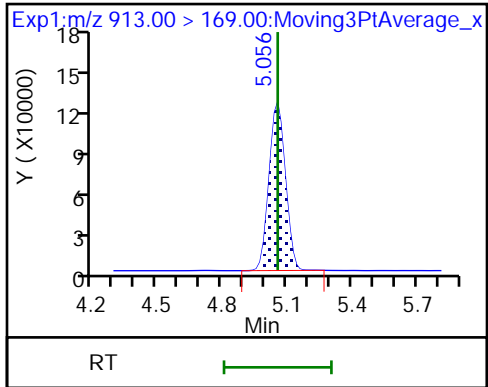
45 Perfluorohexadecanoic acid

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-259234/4 Calibration Date: 11/15/2018 02:16  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.14LLA\_072.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	0.9357	0.9399		1.00	1.00	0.4	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.001	1.001		1.00	1.00	0.0	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	103.3	107.5		0.920	0.884	4.1	50.0
4:2 FTS	AveID	20.55	15.89		0.722	0.934	-22.7	50.0
Perfluorohexanoic acid (PFHxA)	AveID	0.8997	0.9013		1.00	1.00	0.2	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	47.84	52.14		1.02	0.938	9.0	50.0
HFPO-DA (GenX)	AveID	1.662	1.618		0.973	1.00	-2.7	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.061	1.040		0.980	1.00	-2.0	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.260	1.166		0.842	0.910	-7.5	40.0
DONA	AveID	2.718	2.822		0.978	0.942	3.9	50.0
6:2 FTS	AveID	2.182	2.274		0.988	0.948	4.2	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.041	1.049		0.959	0.952	0.8	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.081	1.069		0.990	1.00	-1.1	40.0
Perfluorononanoic acid (PFNA)	AveID	1.001	1.021		1.02	1.00	2.0	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.077	1.060		0.914	0.928	-1.5	40.0
F-53B Major	AveID	1.108	1.141		0.960	0.932	3.0	50.0
8:2 FTS	AveID	14.28	15.02		1.01	0.958	5.2	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.6135	0.5669		0.887	0.960	-7.6	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.086	1.122		1.03	1.00	3.4	40.0
Perfluorooctanesulfonamide (FOSA)	AveID	3.005	3.297		1.10	1.00	9.7	40.0
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	AveID	1.000	0.9112		0.911	1.00	-8.9	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.8654	0.8338		0.929	0.964	-3.7	50.0
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	AveID	0.9143	0.9197		1.01	1.00	0.6	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	1.137	1.220		1.07	1.00	7.3	40.0
F-53B Minor	AveID	1.387	1.473		1.00	0.942	6.3	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.017	0.9495		0.933	1.00	-6.7	40.0
10:2 FTS	AveID	10.11	10.44		0.995	0.964	3.2	50.0
Perfluorododecanesulfonic acid (PFDoS)	AveID	0.0963	0.1005		1.01	0.968	4.3	50.0
Perfluorotridecanoic acid (PFTriA)	AveID	0.8175	0.8170		0.999	1.00	-0.0	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.1828	0.1562		0.854	1.00	-14.6	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L2ID		0.9777		1.06	1.00	5.8	50.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-259234/4 Calibration Date: 11/15/2018 02:16  
 Instrument ID: A9 Calib Start Date: 10/30/2018 13:12  
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 10/30/2018 13:57  
 Lab File ID: 2018.11.14LLA\_072.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	0.4945	0.6788		1.37	1.00	37.3	50.0
13C4 PFBA	Ave	0.9103	0.9421		2.59	2.50	3.5	50.0
13C5 PFPeA	Ave	0.8665	0.8466		2.44	2.50	-2.3	50.0
13C3 PFBS	Ave	0.0120	0.0120		2.34	2.33	0.6	50.0
M2-4:2 FTS	Ave	0.0962	0.0758		1.84	2.34	-21.2	50.0
13C2 PFHxA	Ave	0.9136	0.9059		2.48	2.50	-0.8	50.0
13C3 HFPO-DA	Ave	0.1181	0.1277		2.70	2.50	8.1	50.0
13C4 PFHpA	Ave	1.074	1.114		2.59	2.50	3.7	50.0
18O2 PFHxS	Ave	0.6988	0.7388		2.50	2.37	5.7	50.0
M2-6:2 FTS	Ave	0.0988	0.0763		1.84	2.38	-22.7	40.0
13C8 PFOA	Ave	3440710	2607745		1.85	2.45	-24.2	50.0
13C4 PFOA	Ave	0.9837	1.011		2.57	2.50	2.8	50.0
13C4 PFOS	Ave	0.7064	0.7669		2.59	2.39	8.6	50.0
13C5 PFNA	Ave	0.9095	0.9124		2.51	2.50	0.3	50.0
13C8 PFOS	Ave	494030	488546		2.36	2.39	-1.1	50.0
13C2 PFDA	Ave	0.9367	0.9789		2.61	2.50	4.5	50.0
M2-8:2 FTS	Ave	0.0122	0.0100		1.96	2.40	-18.1	40.0
13C8 FOSA	Ave	0.3910	0.4019		2.57	2.50	2.8	50.0
d3-NMeFOSAA	Ave	0.4049	0.3291		2.03	2.50	-18.7	50.0
13C2 PFUnA	Ave	0.7823	0.7823		2.50	2.50	0.0	50.0
d5-NEtFOSAA	Ave	0.3298	0.2849		2.16	2.50	-13.6	50.0
13C2 PFDoA	Ave	0.9635	1.005		2.61	2.50	4.3	50.0
13C2 PFTeDA	Ave	0.7200	0.7058		2.45	2.50	-2.0	50.0
13C2 PFHxDA	Ave	0.7154	0.6951		2.43	2.50	-2.8	50.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_072.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 15-Nov-2018 02:16:57 ALS Bottle#: 13 Worklist Smp#: 4  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: A9\Administrator Instrument ID: A9  
 Sublist: chrom-PFAS\_A9\*sub5  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 20-Nov-2018 09:39:25 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0328

First Level Reviewer: mongkols Date: 20-Nov-2018 09:39:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA	217.00 > 172.00	1.315	1.318	-0.003	0.532	6804478	2.59	103	4057	
2 Perfluorobutanoic acid										M
212.90 > 169.00	1.320	1.320	0.0	1.004	2558076	1.00		100	38.4	M
D 3 13C5 PFPeA	267.90 > 223.00	1.562	1.560	0.002	0.632	6114542	2.44	97.7	4226	
4 Perfluoropentanoic acid	262.90 > 219.00	1.562	1.562	0.0	1.000	2449464	1.00	100	65.7	
D 47 13C3 PFBS	301.90 > 83.00	1.597	1.595	0.002	0.646	80905	2.34	101	164	
5 Perfluorobutanesulfonic acid	298.90 > 80.00	1.597	1.597	0.0	1.000	3306578	0.9202	104	878	
298.90 > 99.00	1.597	1.597	0.0	1.000	1138429		2.90(1.35-4.05)		283	
D 60 M2-4:2 FTS	329.00 > 81.00	1.796	1.794	0.002	0.727	511562	1.84	78.8	453	
61 1H,1H,2H,2H-perfluorohexanesulfoni	327.00 > 307.00	1.796	1.796	0.0	1.125	516423	0.7222	77.3	2391	
D 7 13C2 PFHxA	315.00 > 270.00	1.826	1.824	0.002	0.739	6542788	2.48	99.2	5005	
6 Perfluorohexanoic acid	313.00 > 269.00	1.826	1.826	0.0	1.000	2358747	1.00	100	107	
313.00 > 119.00	1.826	1.826	0.0	1.000	178243		13.23(6.96-20.87)		98.6	
70 Perfluoropentanesulfonic acid	349.00 > 80.00	1.846	1.846	0.0	1.156	1701812	1.02	109	2612	
349.00 > 99.00	1.846	1.846	0.0	1.156	777275		2.19(1.15-3.45)		359	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.914	1.912	0.002	0.775	922013	2.70	108	2043	



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	1.914	1.914	0.0	1.000	596852	0.9735	97.3	154
D 9 13C4 PFHpA	367.00	> 322.00	2.131	2.129	0.002	0.862	8047009	2.59	104	5177
10 Perfluoroheptanoic acid	363.00	> 319.00	2.131	2.131	0.0	1.000	3346646	0.9802	98.0	196
	363.00	> 169.00	2.131	2.131	0.0	1.000	749241	4.47(2.17-6.52)		378
D 11 18O2 PFHxS	403.00	> 84.00	2.156	2.141	0.015	0.872	5047731	2.50	106	4515
8 Perfluorohexanesulfonic acid	399.00	> 80.00	2.144	2.144	0.0	0.994	2263882	0.8420	92.5	1685
	399.00	> 99.00	2.144	2.144	0.0	0.994	630958	3.59(1.90-5.70)		218
76 DONA	377.00	> 251.00	2.169	2.169	0.0	0.761	5890528	0.9783	104	4987
	377.00	> 85.00	2.169	2.169	0.0	0.761	2409296	2.44(1.13-3.39)		1071
D 12 M2-6:2 FTS	429.00	> 81.00	2.457	2.454	0.003	0.994	523741	1.84	77.3	606
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00	> 407.00	2.457	2.457	0.0	1.000	475336	0.9878	104	768
D 73 13C8 PFOA	421.00	> 376.00	2.471	2.469	0.002		6382457	1.85	75.8	5852
D 14 13C4 PFOA	417.00	> 372.00	2.486	2.469	0.017	1.006	7302473	2.57	103	5503
* 62 13C2 PFOA	415.00	> 370.00	2.471	2.471	0.0		7222611	2.50		4456
15 Perfluorooctanoic acid	413.00	> 369.00	2.486	2.486	0.0	1.000	3125859	0.9899	98.9	212
	413.00	> 169.00	2.471	2.486	-0.015	0.994	1163662	2.69(1.36-4.08)		651
16 Perfluoroheptanesulfonic acid	449.00	> 80.00	2.486	2.486	0.0	0.873	2212310	0.9592	101	2265
	449.00	> 99.00	2.486	2.486	0.0	0.873	554747	3.99(1.84-5.53)		896
D 72 13C8 PFOS	507.00	> 99.00	2.850	2.845	0.005		1167625	2.36	98.9	2899
D 19 13C5 PFNA	468.00	> 423.00	2.850	2.845	0.005	1.153	6589641	2.51	100	3558
D 18 13C4 PFOS	503.00	> 80.00	2.850	2.845	0.005	1.153	5295249	2.59	109	4608
20 Perfluorononanoic acid	463.00	> 419.00	2.850	2.850	0.0	1.000	2691586	1.02	102	240
	463.00	> 169.00	2.850	2.850	0.0	1.000	490981	5.48(2.68-8.03)		393
17 Perfluorooctanesulfonic acid	499.00	> 80.00	2.850	2.850	0.0	1.000	2179960	0.9136	98.5	838
	499.00	> 99.00	2.850	2.850	0.0	1.000	486742	4.48(2.04-6.12)		612
69 9-Chlorohexadecafluoro-3-oxanonane	531.00	> 351.00	3.061	3.061	0.0	1.074	2355541	0.9597	103	1532
D 26 M2-8:2 FTS	529.00	> 81.00	3.191	3.185	0.006	1.291	69408	1.96	81.9	237

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.191	3.191	0.0	1.120	1205735	0.8871		92.4	2215	
549.00 > 99.00	3.191	3.191	0.0	1.120	199325		6.05(3.02-9.05)		1032	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.191	3.191	0.0	1.000	416959	1.01		105	2141	
D 21 13C8 FOSA										
506.00 > 78.00	3.206	3.201	0.005	1.297	2902499	2.57		103	3288	
D 23 13C2 PFDA										
515.00 > 470.00	3.191	3.201	-0.010	1.291	7070519	2.61		105	4265	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.206	3.206	0.0	1.005	3173787	1.03		103	359	
513.00 > 169.00	3.206	3.206	0.0	1.005	216101		14.69(7.12-21.35)		176	
22 Perfluorooctanesulfonamide										
498.00 > 78.00	3.206	3.206	0.0	1.000	3827930	1.10		110	2984	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.350	3.345	0.005	1.356	2376696	2.03		81.3	1951	
28 N-methylperfluorooctanesulfonamido										
570.00 > 419.00	3.350	3.350	0.0	1.000	866295	0.9112		91.1	322	
29 Perfluorodecanesulfonic acid										
599.00 > 80.00	3.503	3.503	0.0	1.229	1780794	0.9287		96.3	1634	
599.00 > 99.00	3.503	3.503	0.0	1.229	373736		4.76(2.14-6.43)		1112	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.518	3.514	0.004	1.424	2057618	2.16		86.4	1268	
D 30 13C2 PFUnA										
565.00 > 520.00	3.518	3.514	0.004	1.424	5650396	2.50		100	4433	
33 N-ethylperfluorooctanesulfonamidoa										
584.00 > 419.00	3.518	3.518	0.0	1.000	756978	1.01		101	1878	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.518	3.518	0.0	1.000	2758076	1.07		107	515	
563.00 > 169.00	3.518	3.518	0.0	1.000	211326		13.05(5.24-15.72)		412	
66 11-Chloroeicosafuoro-3-oxaundecan										
631.00 > 451.00	3.690	3.690	0.0	1.295	3075003	1.00		106	2520	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.808	3.808	0.0	1.000	2757736	0.9333		93.3	589	
613.00 > 169.00	3.808	3.808	0.0	1.000	319291		8.64(4.68-14.05)		386	
D 36 13C2 PFDaA										
615.00 > 570.00	3.808	3.819	-0.011	1.541	7261049	2.61		104	5696	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.823	3.823	0.0	1.198	291614	1.00		103	896	
39 N-ethylperfluoro-1-octanesulfonami										
526.00 > 169.00	3.904	3.904	0.0		721582	NC			510	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.056	4.056	0.0	1.423	215557	1.01		104	1184	
699.00 > 99.00	4.056	4.056	0.0	1.423	374465		0.58(0.28-0.83)		1229	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.071	4.071	0.0	1.069	2372955	1.00		99.9	901	
663.00 > 169.00	4.071	4.071	0.0	1.069	388422		6.11(3.09-9.27)		793	

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	4.312	4.309	0.003	1.745	5097339	2.45		98.0	5807	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.312	4.312	0.0	1.000	318468	0.8543		85.4	840	
713.00 > 219.00	4.312	4.312	0.0	1.000	239674		1.33(0.70-2.09)		520	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.736	4.718	0.018	1.916	5020546	2.43		97.2	6333	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.736	4.736	0.0	1.000	1963464	1.06		106	883	
813.00 > 169.00	4.736	4.736	0.0	1.000	338014		5.81(2.77-8.32)		802	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.056	5.056	0.0	1.068	1363235	1.37		137	1120	
913.00 > 169.00	5.056	5.056	0.0	1.068	282668		4.82(2.55-7.64)		1637	

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

**Reagents:**

LCPFC\_LL4\_00009

Amount Added: 1.00

Units: mL

Data File: \\ChromNA\Sacramento\ChromData\A9\20181114-67716.b\2018.11.14LLA\_072.d

Injection Date: 15-Nov-2018 02:16:57

Instrument ID: A9

Lims ID: CCV L4

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 13

Worklist Smp#: 4

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

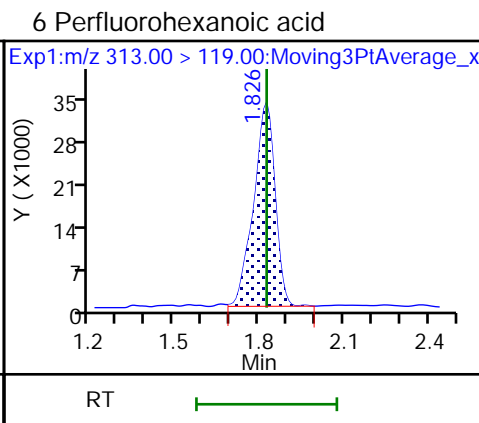
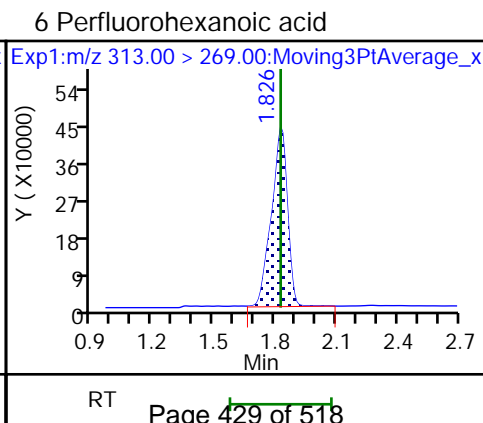
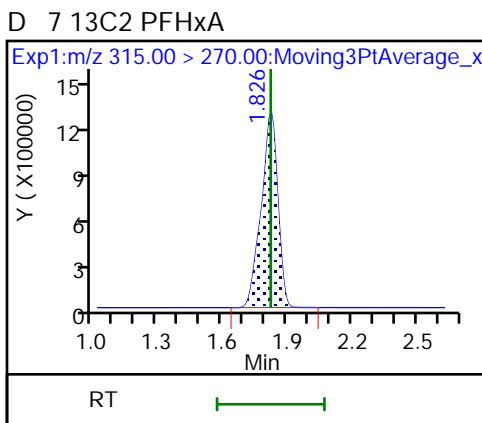
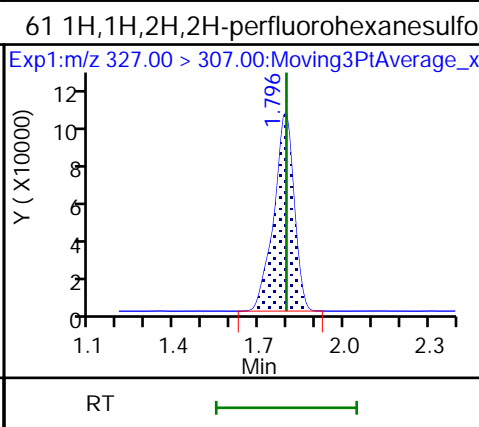
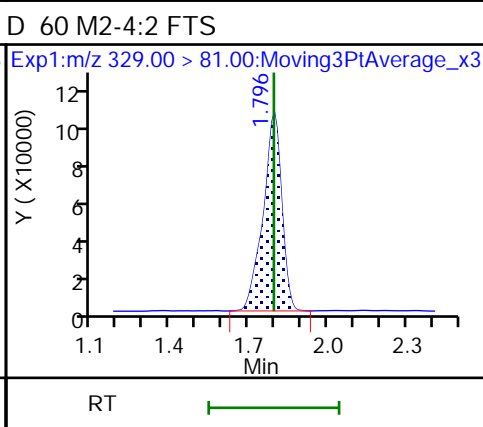
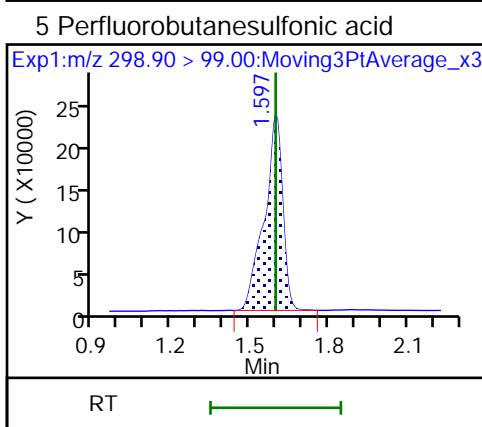
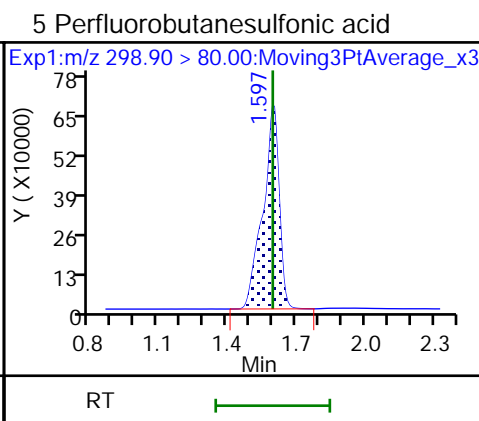
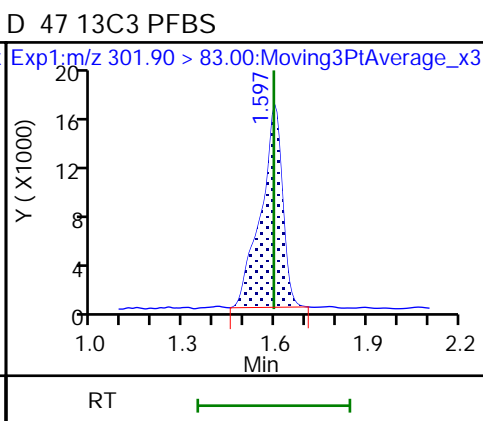
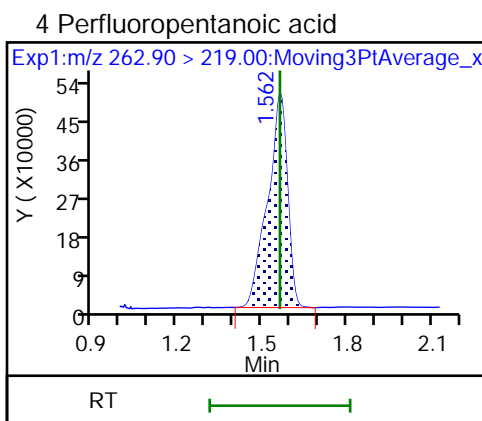
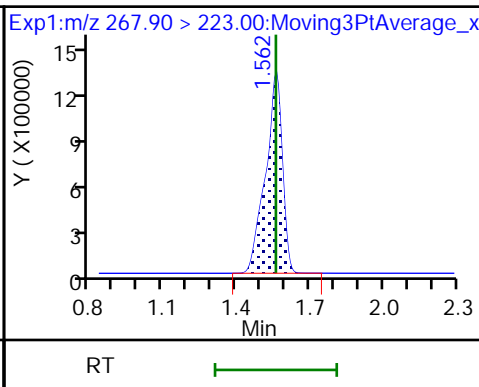
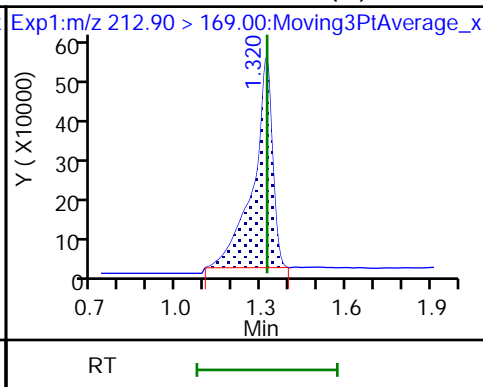
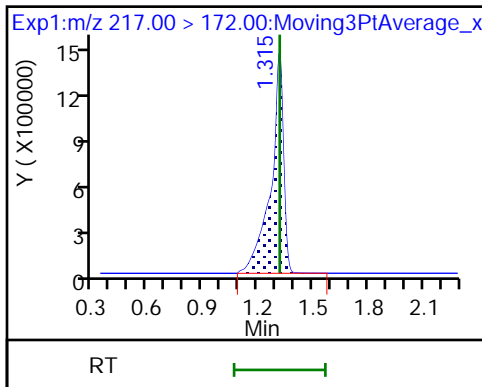
Method: PFAS\_A9

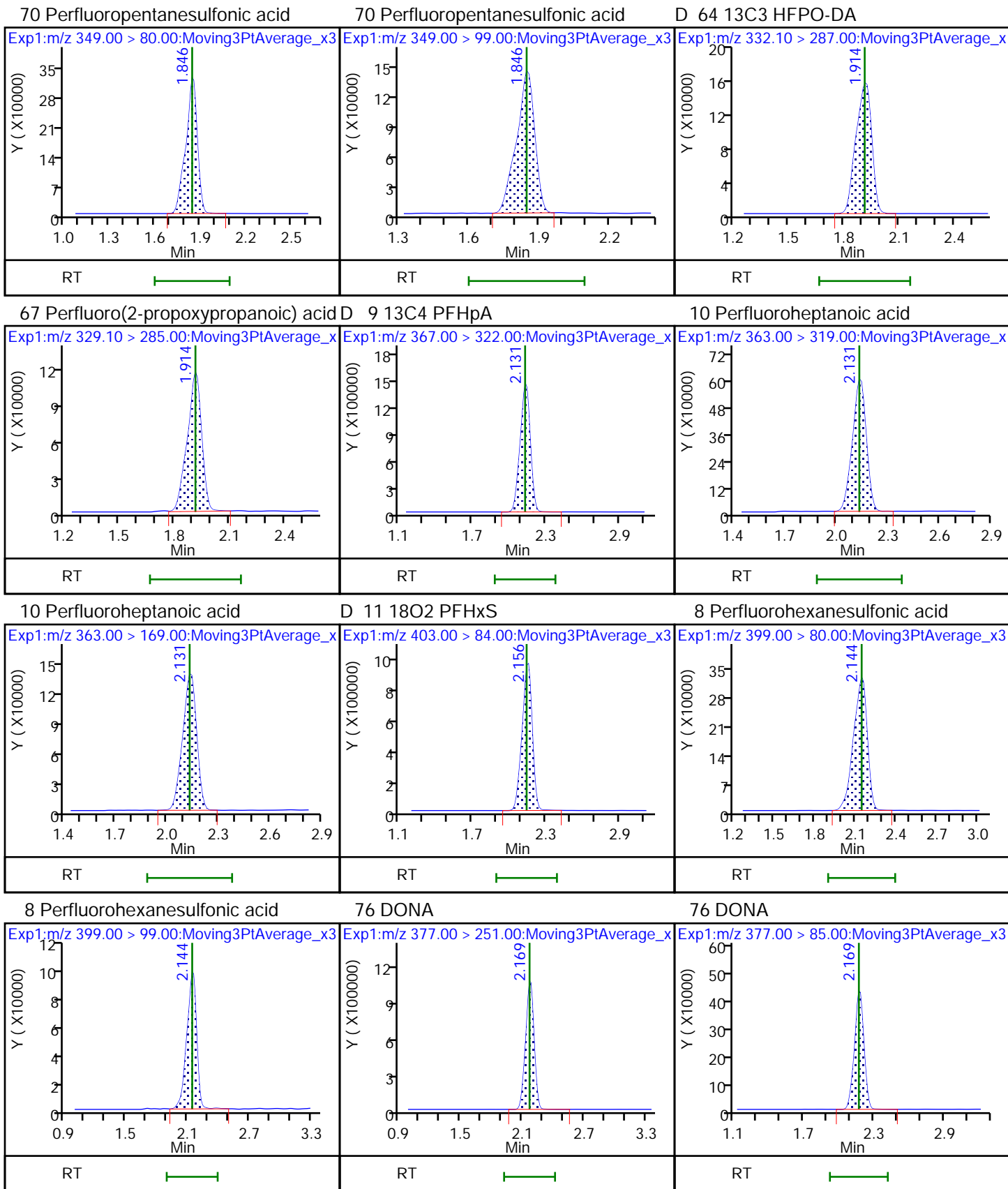
Limit Group: LC PFC ICAL

D 1 13C4 PFBA

2 Perfluorobutanoic acid (M)

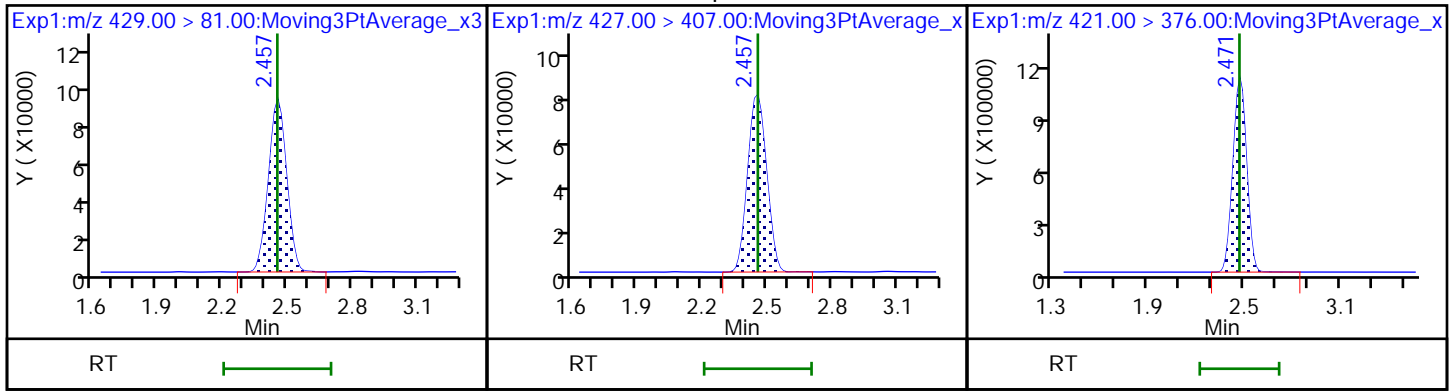
D 3 13C5 PFPeA





D 12 M2-6:2 FTS

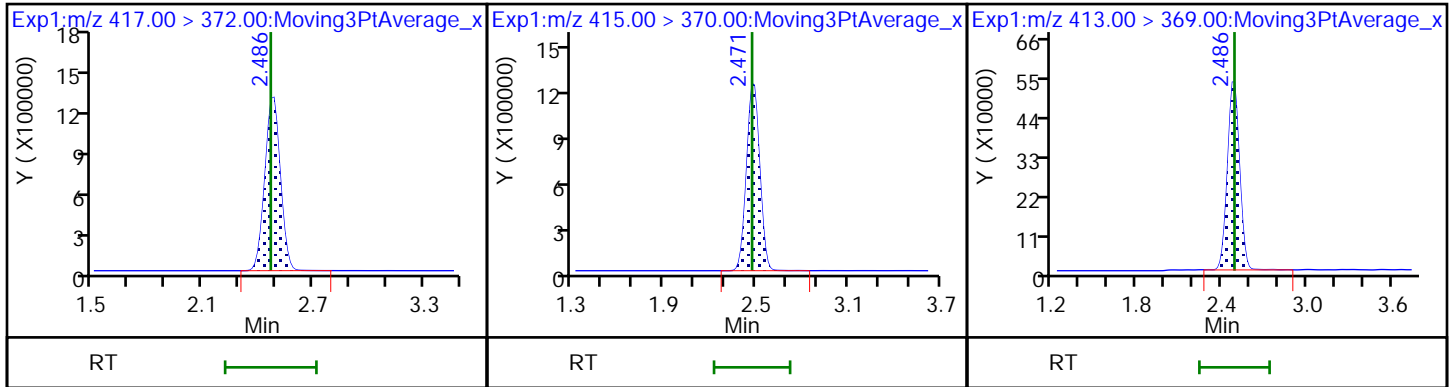
13 1H,1H,2H,2H-perfluorooctanesulfonD 73 13C8 PFOA



D 14 13C4 PFOA

\* 62 13C2 PFOA

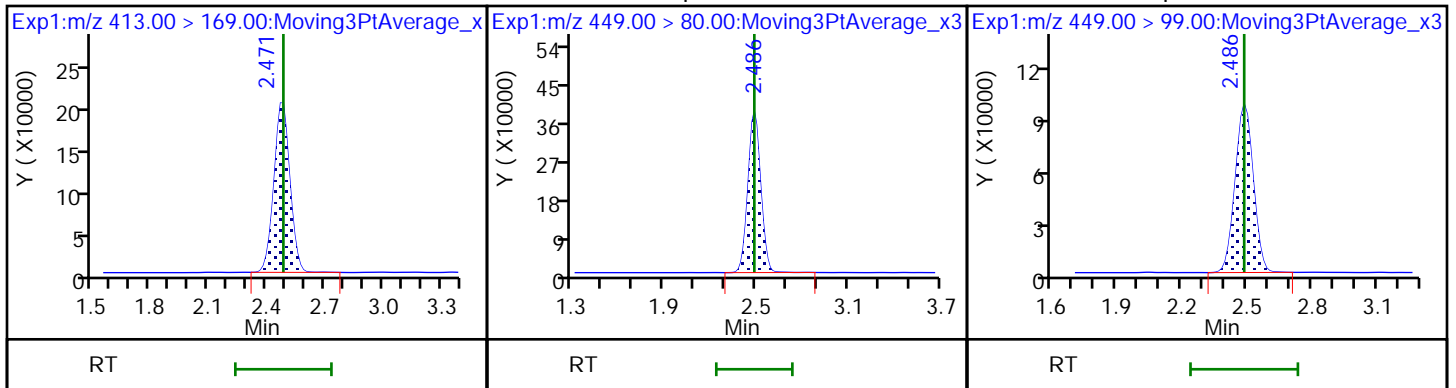
15 Perfluorooctanoic acid



15 Perfluorooctanoic acid

16 Perfluoroheptanesulfonic acid

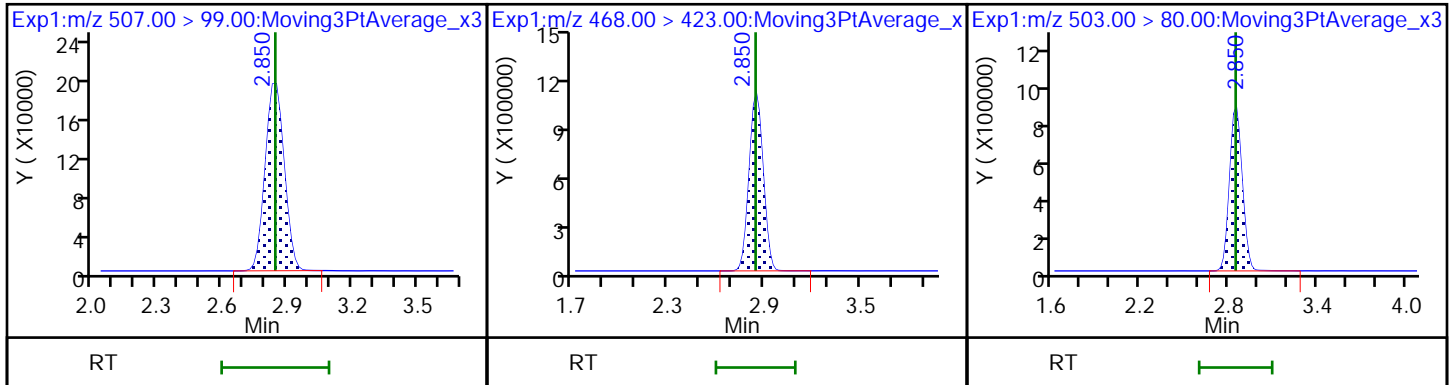
16 Perfluoroheptanesulfonic acid

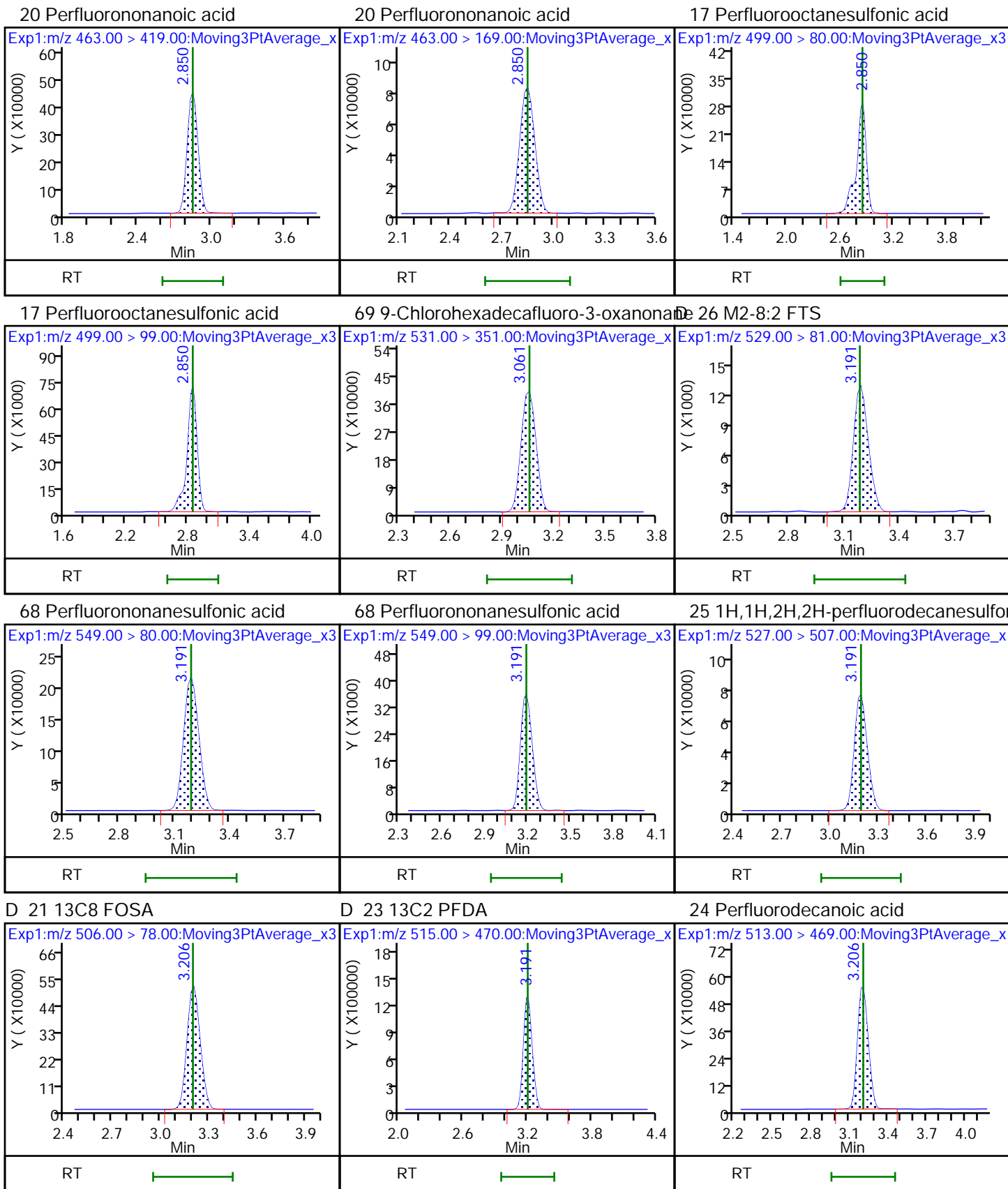


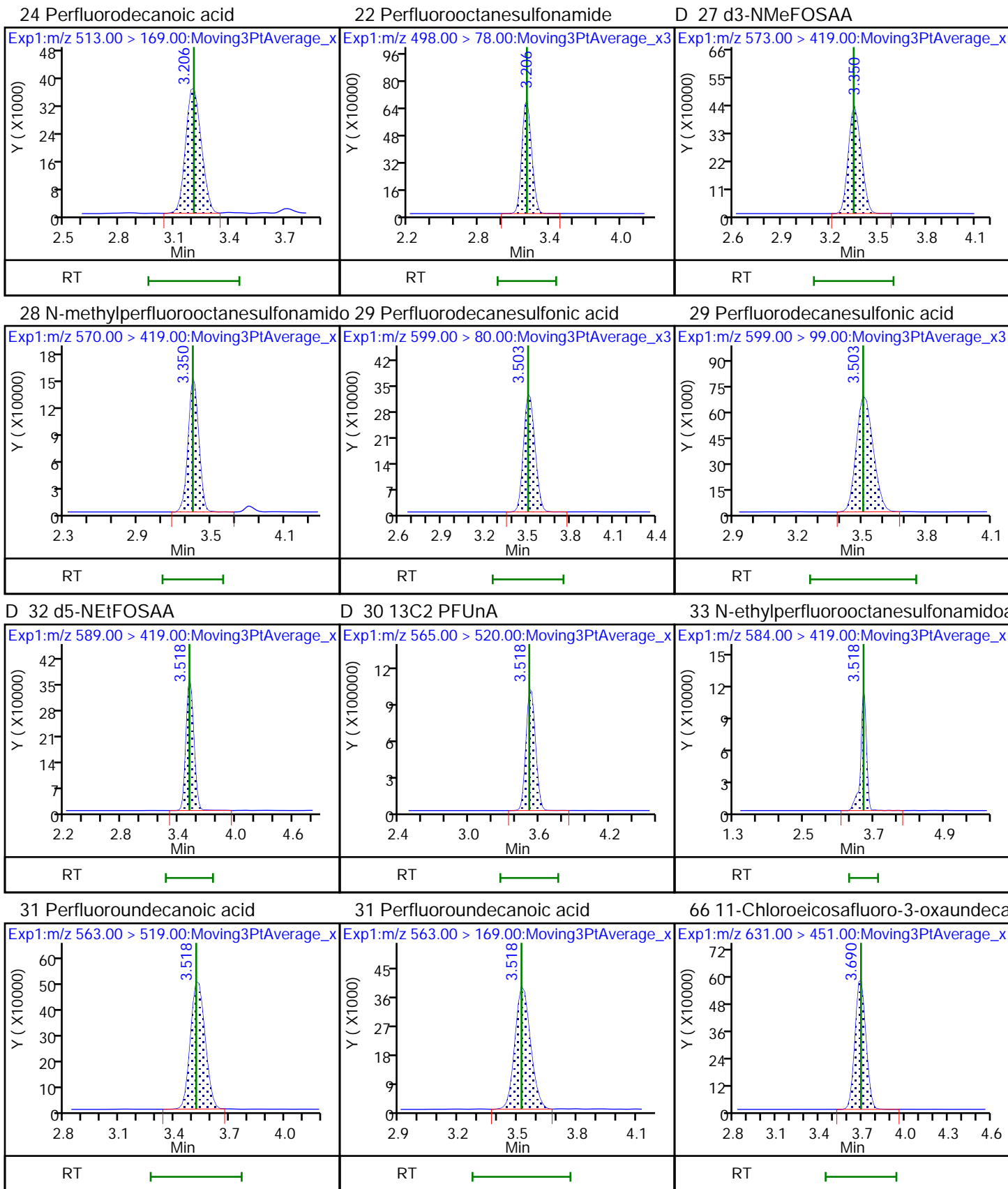
D 72 13C8 PFOS

D 19 13C5 PFNA

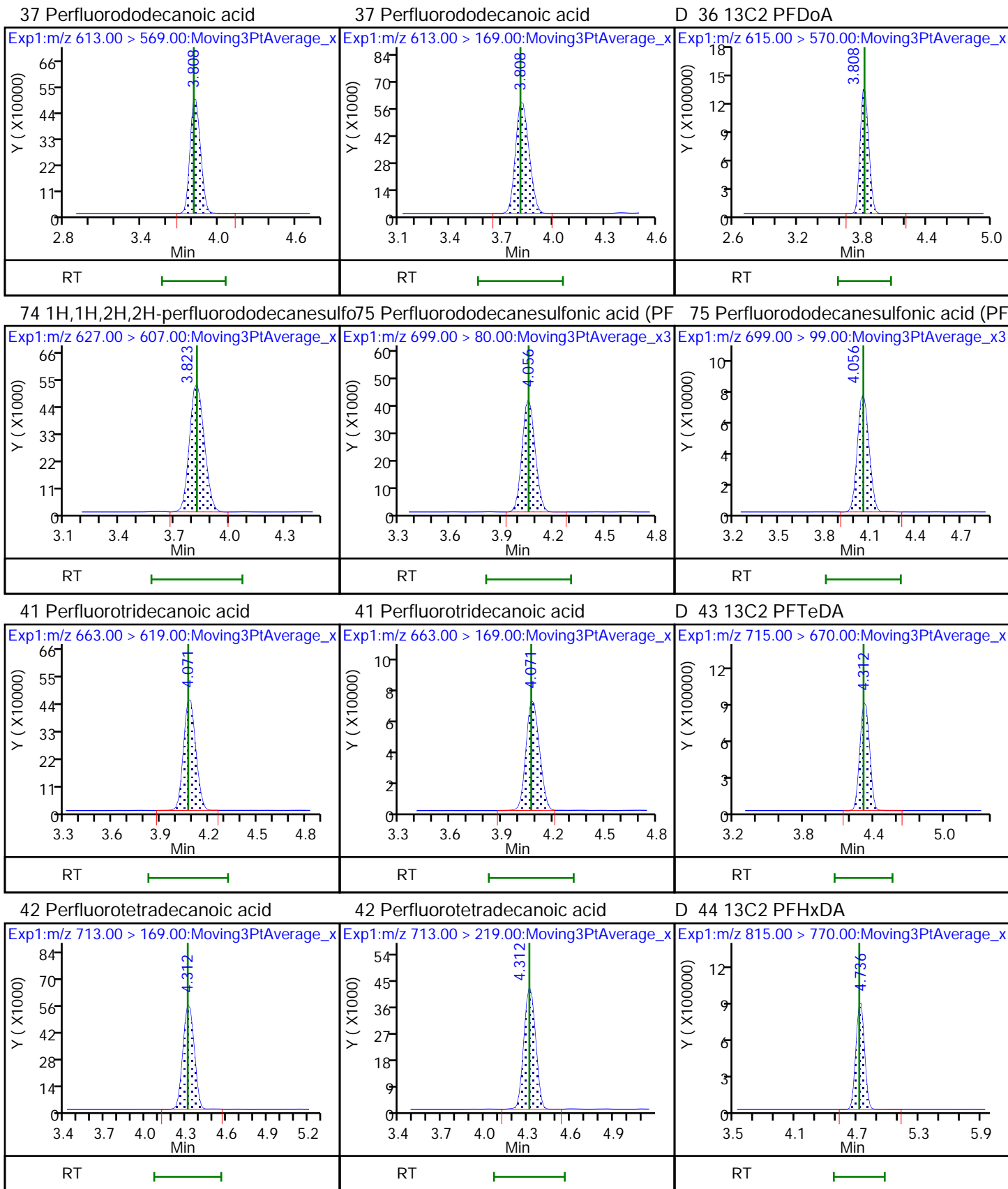
D 18 13C4 PFOS







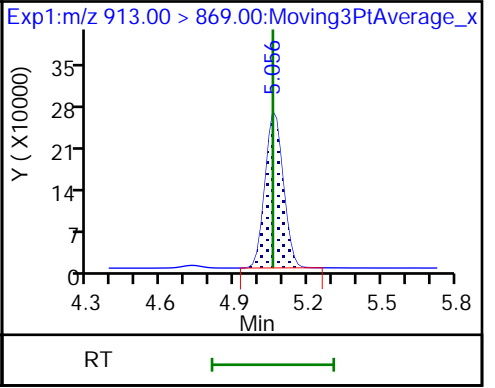
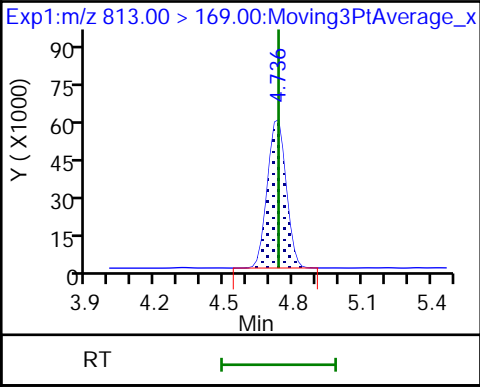
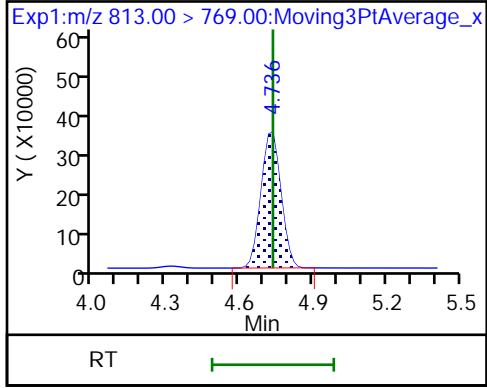




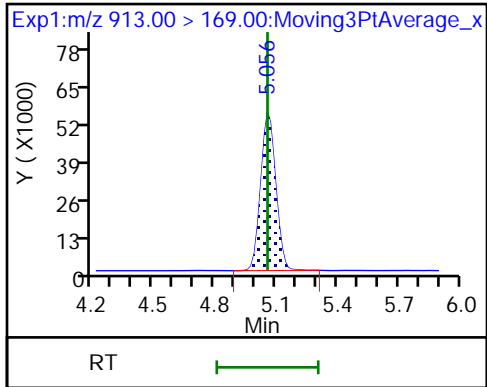
45 Perfluorohexadecanoic acid

45 Perfluorohexadecanoic acid

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

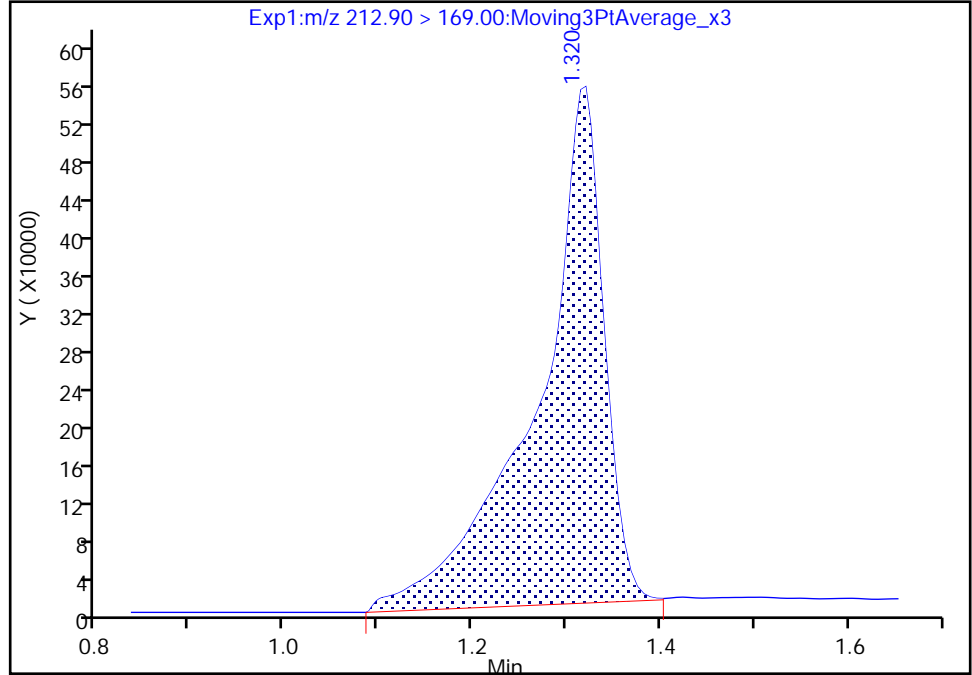
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Injection Date: 15-Nov-2018 02:16:57 Instrument ID: A9  
Lims ID: CCV L4  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 13 Worklist Smp#: 4  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

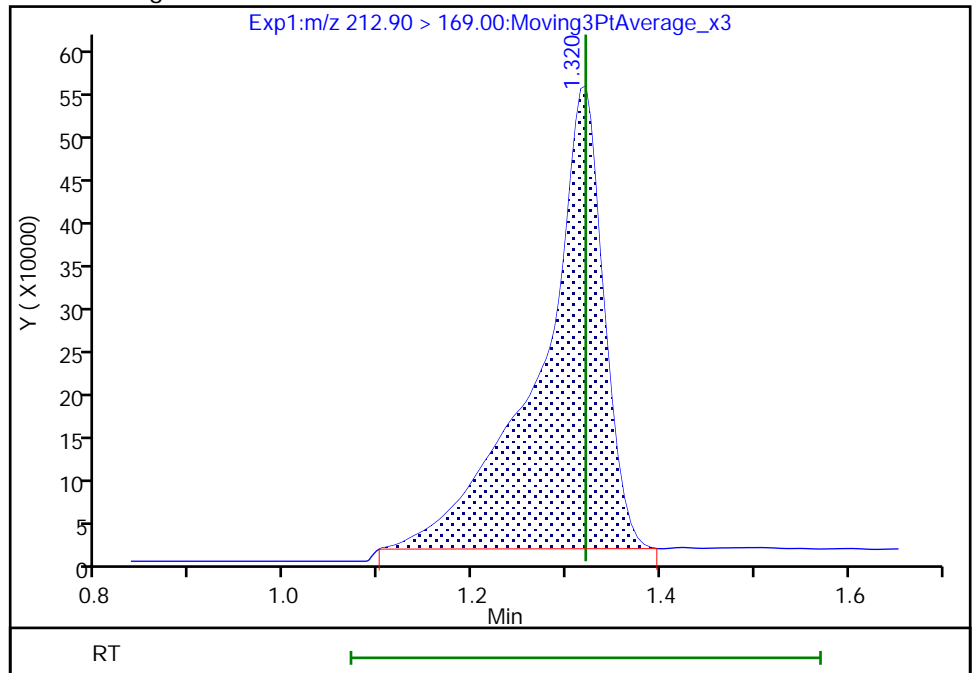
RT: 1.32  
Area: 2700749  
Amount: 1.060439  
Amount Units: ng/ml

Processing Integration Results



RT: 1.32  
Area: 2558076  
Amount: 1.004419  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 20-Nov-2018 09:39:12  
Audit Action: Manually Integrated

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 320-258069/1-A  
 Matrix: Water Lab File ID: 2018.11.10LLA\_042.d  
 Analysis Method: 537 (modified) Date Collected: \_\_\_\_\_  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 250.00 (mL) Date Analyzed: 11/10/2018 14:51  
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1  
 Injection Volume: 20 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 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)	ND		2.0	0.29
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.275	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	Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.35
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	3.1
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic 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.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 320-258069/1-A  
 Matrix: Water Lab File ID: 2018.11.10LLA\_042.d  
 Analysis Method: 537 (modified) Date Collected: \_\_\_\_\_  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 250.00 (mL) Date Analyzed: 11/10/2018 14:51  
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1  
 Injection Volume: 20 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	92		25-150
STL01893	13C5 PFPeA	92		25-150
STL00993	13C2 PFHxA	91		25-150
STL01892	13C4 PFHpA	95		25-150
STL00990	13C4 PFOA	93		25-150
STL00995	13C5 PFNA	94		25-150
STL00996	13C2 PFDA	86		25-150
STL00997	13C2 PFUnA	91		25-150
STL00998	13C2 PFDoA	96		25-150
STL02116	13C2 PFTeDA	91		25-150
STL02337	13C3 PFBS	81		25-150
STL00994	18O2 PFHxS	96		25-150
STL00991	13C4 PFOS	100		25-150
STL01056	13C8 FOSA	87		25-150
STL02118	d3-NMeFOSAA	79		25-150
STL02117	d5-NEtFOSAA	83		25-150
STL02279	M2-6:2 FTS	86		25-150
STL02280	M2-8:2 FTS	85		25-150

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_042.d  
 Lims ID: MB 320-258069/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 10-Nov-2018 14:51:01 ALS Bottle#: 30 Worklist Smp#: 2  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-258069/1-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: A9\Administrator Instrument ID: A9  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 14-Nov-2018 13:02:33 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0303

First Level Reviewer: mongkols Date: 14-Nov-2018 13:02:33

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	1.360	1.352	0.008	0.528	6733017	2.31	92.4	6823	
D 3 13C5 PFPeA	267.90 > 223.00	1.616	1.616	0.0	0.628	6370052	2.30	91.8	7353	M
D 47 13C3 PFBS	301.90 > 83.00	1.652	1.651	0.001	0.642	72252	1.88	81.0	216	M
D 7 13C2 PFHxA	315.00 > 270.00	1.903	1.893	0.010	0.739	6660338	2.28	91.1	9952	
D 64 13C3 HFPO-DA	332.10 > 287.00	1.993	1.993	0.0	0.775	786761	2.08	83.2	3103	
D 9 13C4 PFHpA	367.00 > 322.00	2.217	2.216	0.001	0.861	8209757	2.39	95.5	9123	
8 Perfluorohexanesulfonic acid	399.00 > 80.00	2.242	2.225	0.017	1.006	18555	0.006877		30.7	
	399.00 > 99.00	2.229	2.225	0.004	1.000	7161	2.59(1.90-5.70)		5.2	
D 11 18O2 PFHxS	403.00 > 84.00	2.229	2.229	0.0	0.866	5065491	2.26	95.7	11010	
13 1H,1H,2H,2H-perfluorooctanesulfoni	427.00 > 407.00	2.558	2.539	0.019	1.006	2991	0.005045		6.1	
D 12 M2-6:2 FTS	429.00 > 81.00	2.544	2.543	0.001	0.989	645259	2.04	85.9	1044	
D 73 13C8 PFOA	421.00 > 376.00	2.573	2.558	0.015		12620	0.003668	0.0	44.2	
15 Perfluorooctanoic acid	413.00 > 369.00	2.558	2.569	-0.011	0.994	25023	0.007932		2.1	
	413.00 > 169.00	2.573	2.569	0.004	1.000	7625	3.28(1.36-4.08)		7.8	
* 62 13C2 PFOA	415.00 > 370.00	2.573	2.569	0.004		8007162	2.50		8532	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 14 13C4 PFOA										
417.00 > 372.00	2.573	2.573	0.0	1.000	7295213	2.32		92.6	6577	
17 Perfluorooctanesulfonic acid										
499.00 > 80.00	2.950	2.945	0.005	1.000	6842	0.002808			5.0	M
499.00 > 99.00	2.967	2.945	0.022	1.006	2187		3.13(2.04-6.12)		5.7	M
D 18 13C4 PFOS										
503.00 > 80.00	2.950	2.949	0.001	1.146	5408290	2.39		100	5557	
D 19 13C5 PFNA										
468.00 > 423.00	2.950	2.949	0.001	1.146	6824421	2.34		93.7	6565	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.155	3.152	0.003	1.070	1520	0.000606			2.3	
D 26 M2-8:2 FTS										
529.00 > 81.00	3.299	3.281	0.018	1.282	79611	2.03		84.7	395	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.299	3.295	0.004	1.000	1295	0.002729			9.0	
22 Perfluorooctanesulfonamide										
498.00 > 78.00	3.299	3.295	0.004	0.995	2940	0.000896			8.0	
24 Perfluorodecanoic acid										
513.00 > 469.00	3.299	3.295	0.004	0.995	10633	0.003806			1.8	
513.00 > 169.00	3.315	3.295	0.020	1.000	1026		10.36(7.12-21.35)		2.4	
D 21 13C8 FOSA										
506.00 > 78.00	3.315	3.298	0.017	1.288	2730383	2.18		87.2	6422	
D 23 13C2 PFDA										
515.00 > 470.00	3.315	3.298	0.017	1.288	6433250	2.14		85.8	5975	
28 N-methylperfluorooctanesulfonamido										
570.00 > 419.00	3.469	3.451	0.018	1.004	5920	0.005796			2.9	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.453	3.452	0.001	1.342	2553115	1.97		78.7	2545	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.641	3.622	0.019	1.005	16885	0.006502			4.3	
563.00 > 169.00	3.641	3.622	0.019	1.005	1666		10.14(5.24-15.72)		5.0	
33 N-ethylperfluorooctanesulfonamidoa										
584.00 > 419.00	3.641	3.622	0.019	1.005	5275	0.006550			13.9	
D 30 13C2 PFUnA										
565.00 > 520.00	3.625	3.623	0.002	1.409	5709980	2.28		91.2	6184	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.625	3.623	0.002	1.409	2202186	2.09		83.4	1908	
66 11-Chloroeicosafuoro-3-oxaundecan										
631.00 > 451.00	3.790	3.772	0.018	1.285	2648	0.000844			6.4	
D 36 13C2 PFDaA										
615.00 > 570.00	3.918	3.918	0.0	1.523	7396462	2.40		95.9	9330	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.413	4.397	0.016	1.715	5225718	2.27		90.6	9183	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.413	4.410	0.003	1.000	2458	0.006431			10.9	
713.00 > 219.00	4.397	4.410	-0.013	0.996	3367		0.73(0.70-2.09)		9.8	

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	4.804	4.803	0.001	1.000	52912	0.003423			27.2	
813.00 > 169.00	4.804	4.803	0.001	1.000	9882		5.35(2.77-8.32)		28.3	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.804	4.804	0.0	1.867	4940968	2.16		86.3	6316	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.144	5.129	0.015	1.071	4513	0.004618			4.2	
913.00 > 169.00	5.144	5.129	0.015	1.071	1183		3.81(2.55-7.64)		9.8	

**QC Flag Legend**

Review Flags

M - Manually Integrated



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_042.d

Injection Date: 10-Nov-2018 14:51:01

Instrument ID: A9

Lims ID: MB 320-258069/1-A

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 30

Worklist Smp#: 2

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

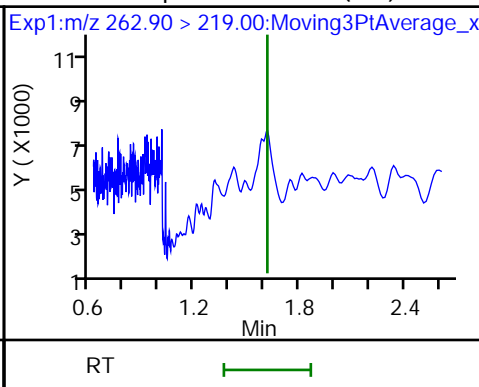
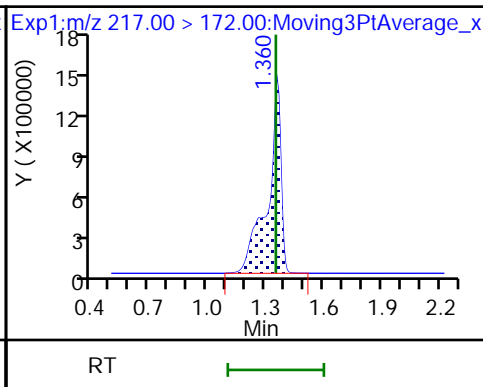
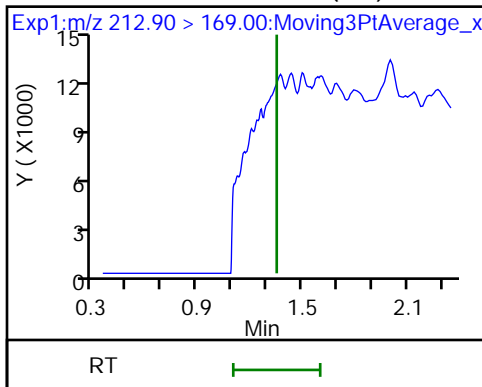
Method: PFAS\_A9

Limit Group: LC PFC ICAL

2 Perfluorobutanoic acid (ND)

D 1 13C4 PFBA

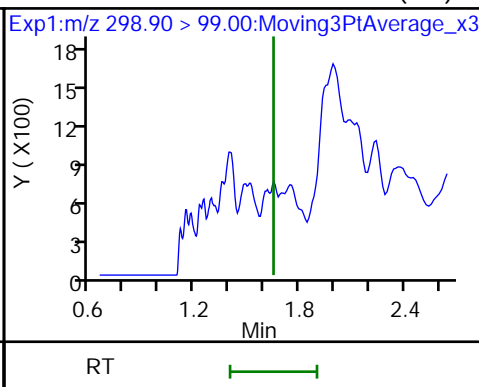
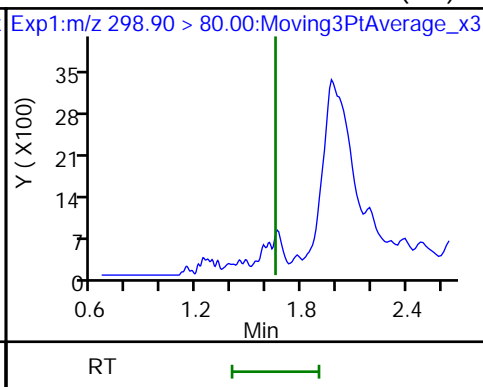
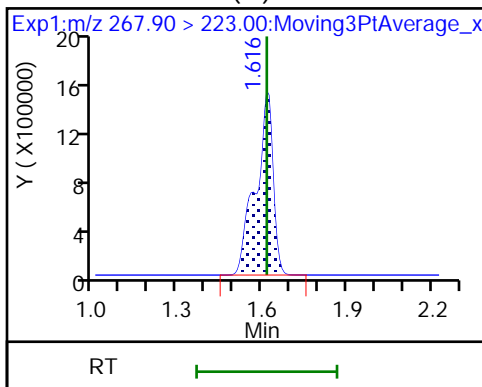
4 Perfluoropentanoic acid (ND)



D 3 13C5 PFPeA (M)

5 Perfluorobutanesulfonic acid (ND)

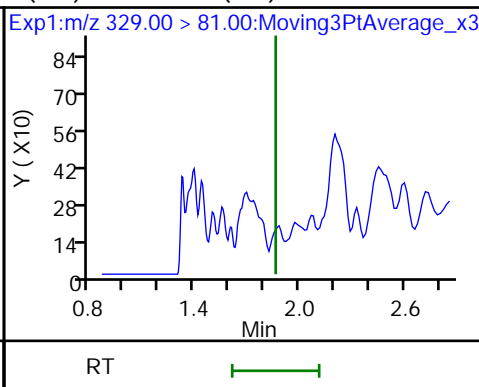
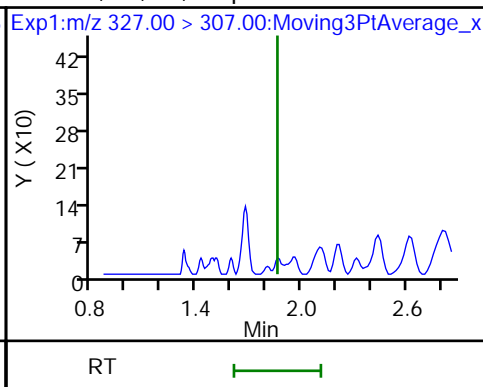
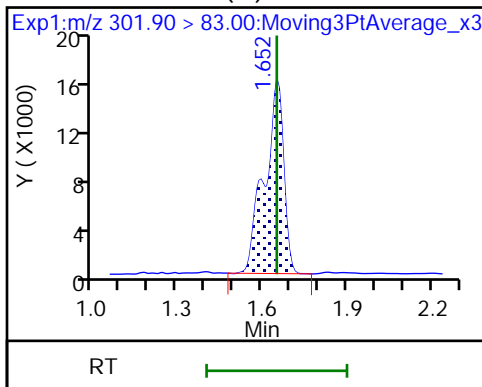
5 Perfluorobutanesulfonic acid (ND)



D 47 13C3 PFBS (M)

61 1H,1H,2H,2H-perfluorohexanesulfonic acid (ND)

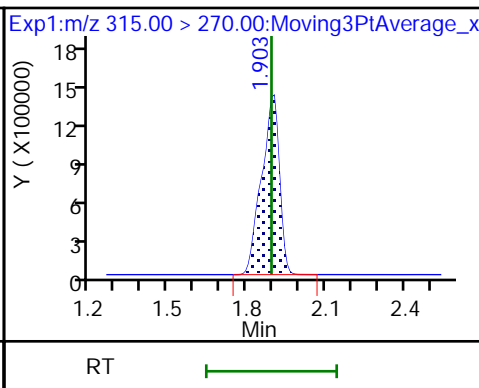
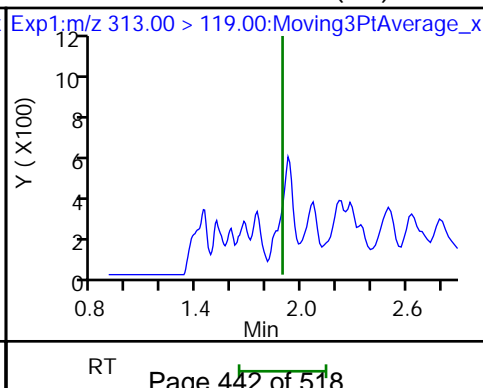
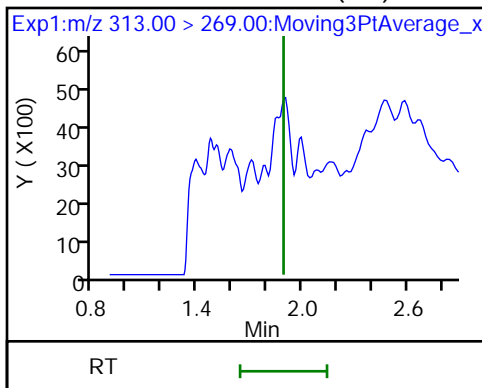
D 10 M2-4:2 FTS (ND)



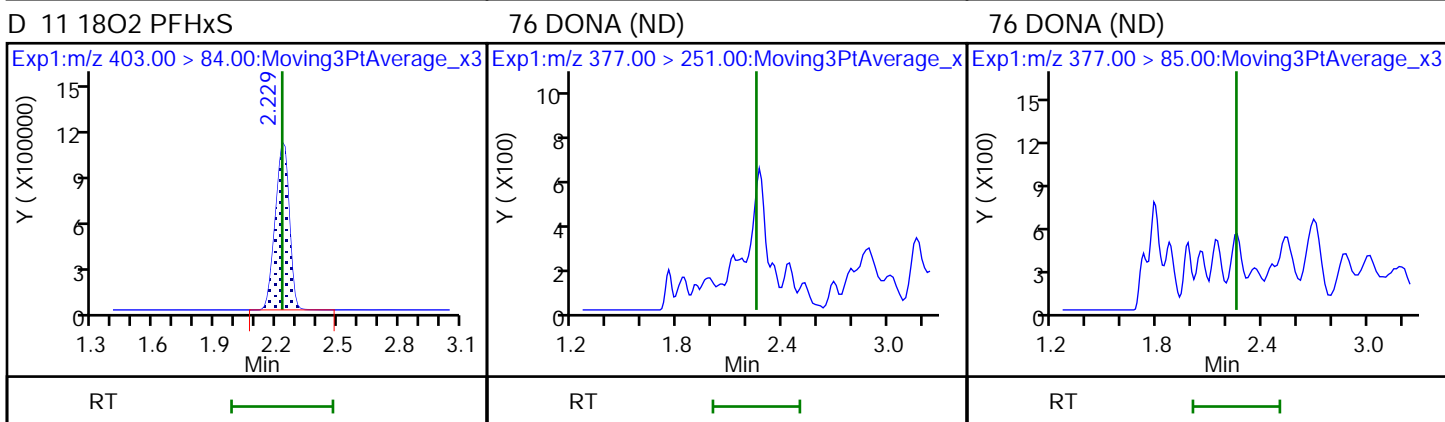
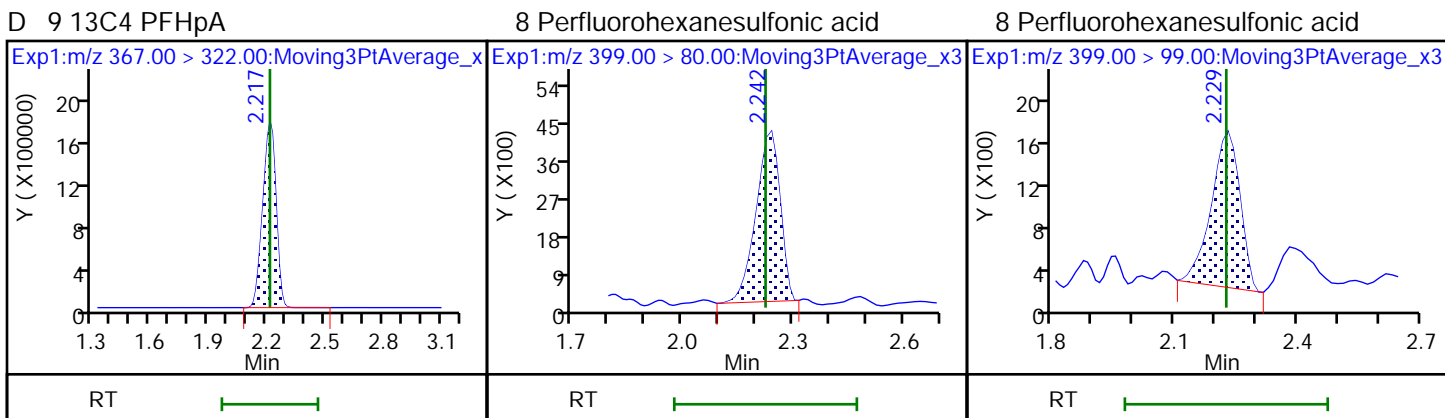
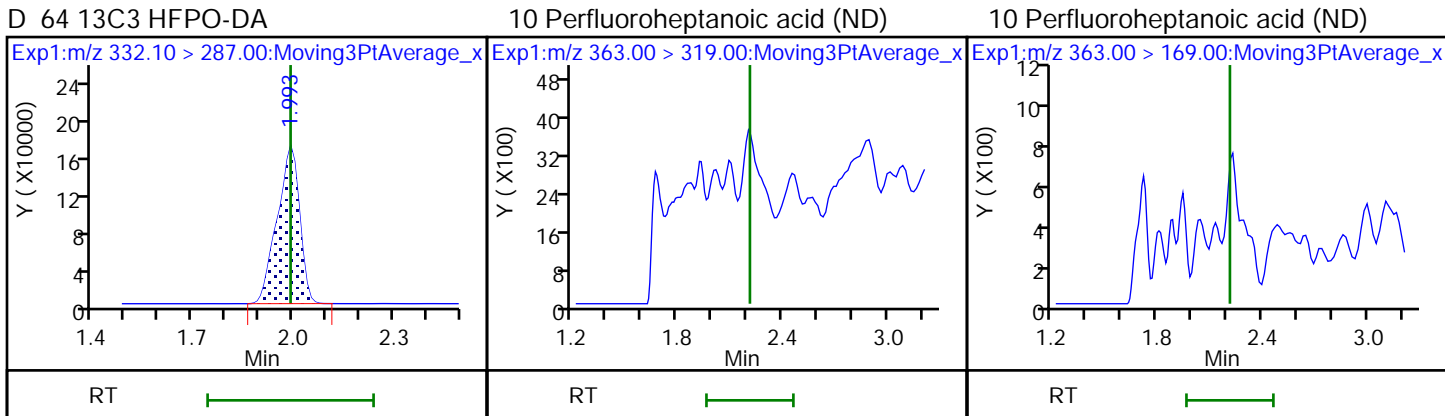
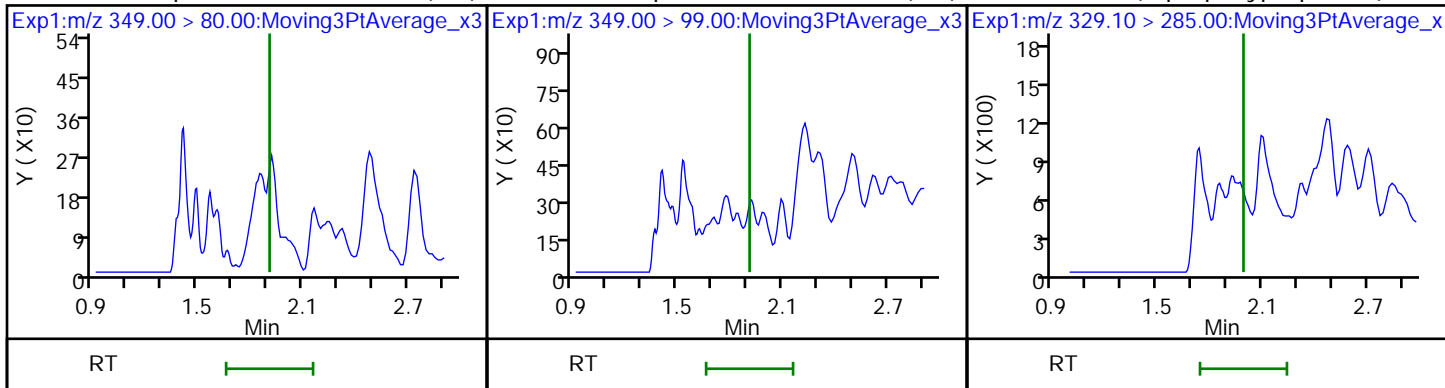
6 Perfluorohexanoic acid (ND)

6 Perfluorohexanoic acid (ND)

D 7 13C2 PFHxA

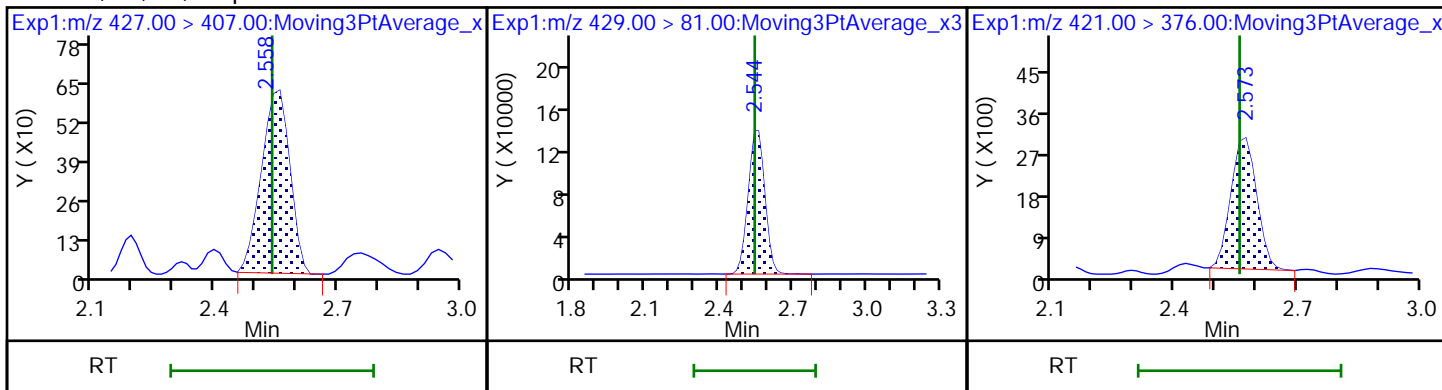


70 Perfluoropentanesulfonic acid (ND) 70 Perfluoropentanesulfonic acid (ND) 67 Perfluoro(2-propoxypropanoic) acid (ND)



13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2 FTS

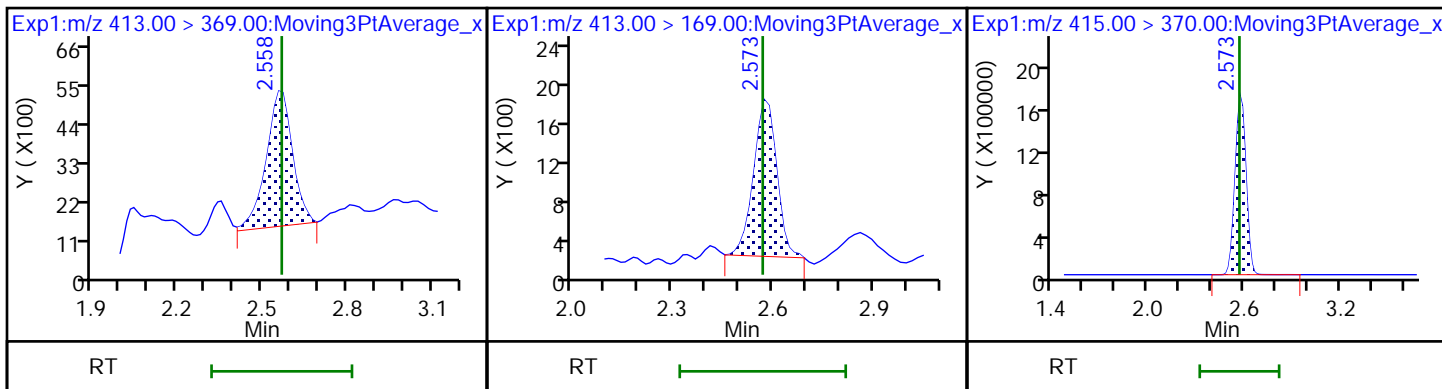
D 73 13C8 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

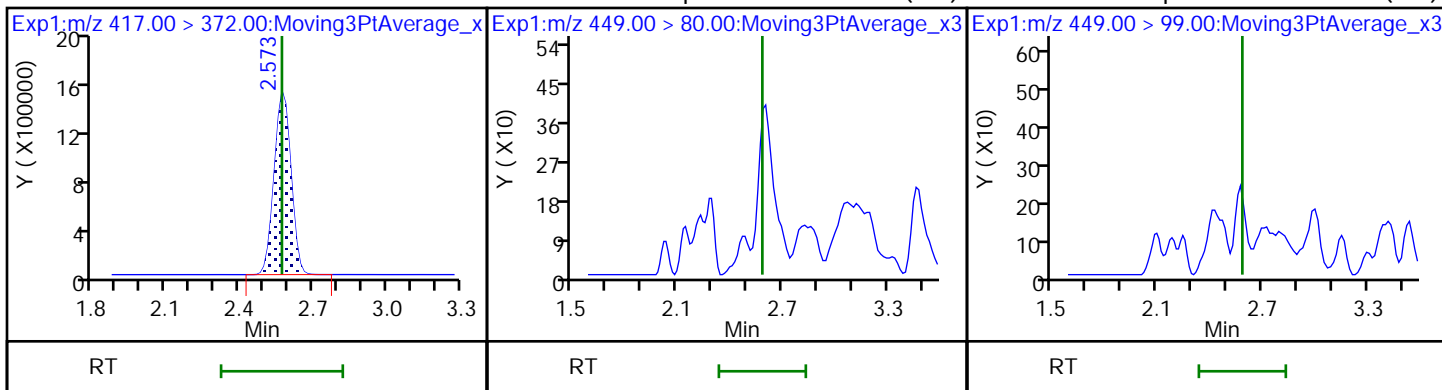
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid (ND)

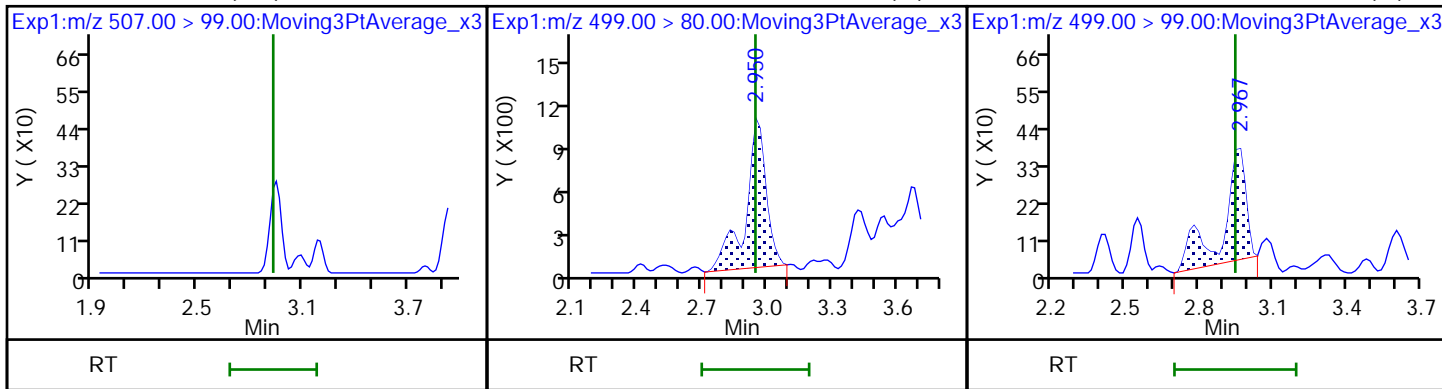
16 Perfluoroheptanesulfonic acid (ND)

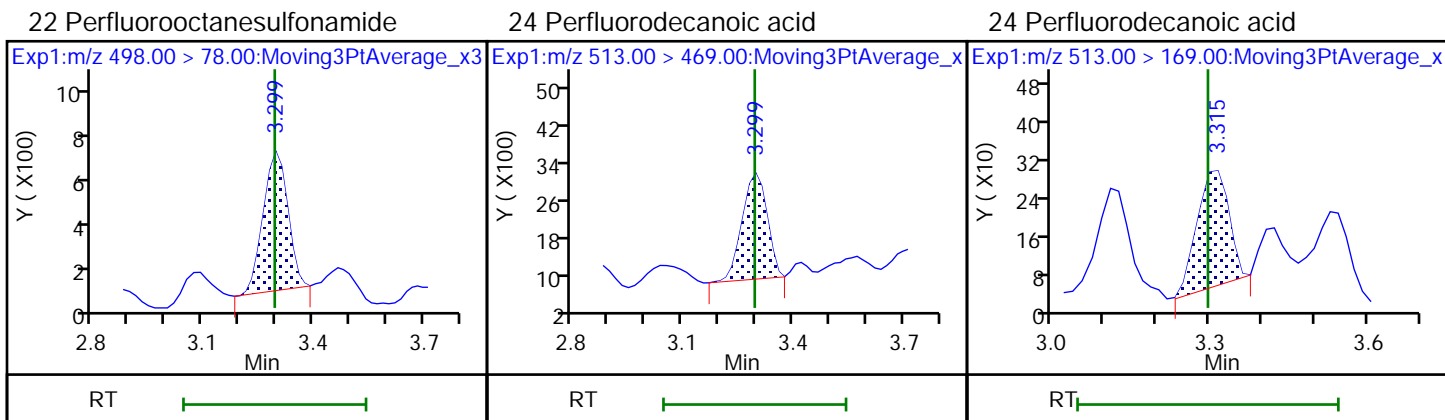
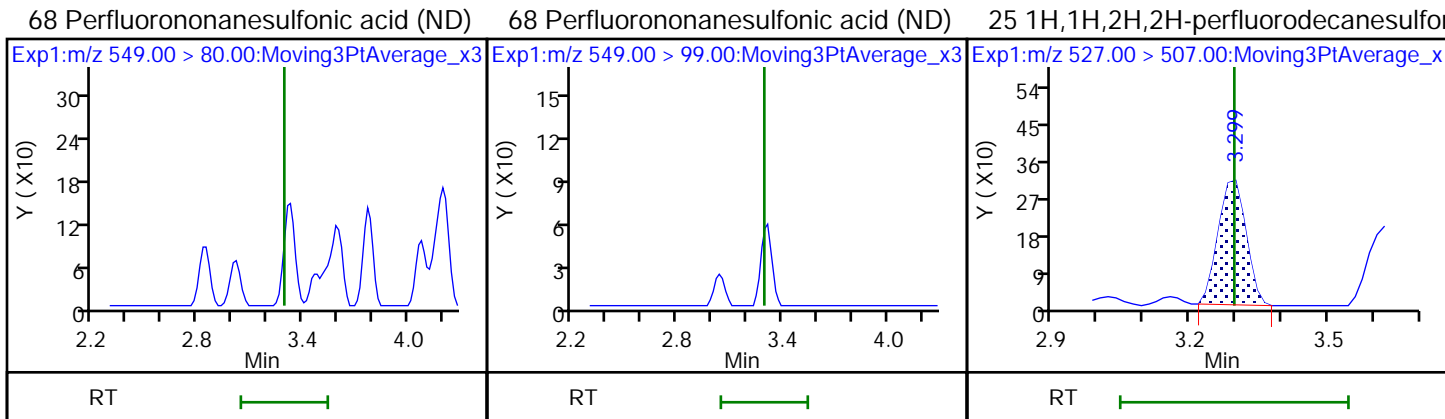
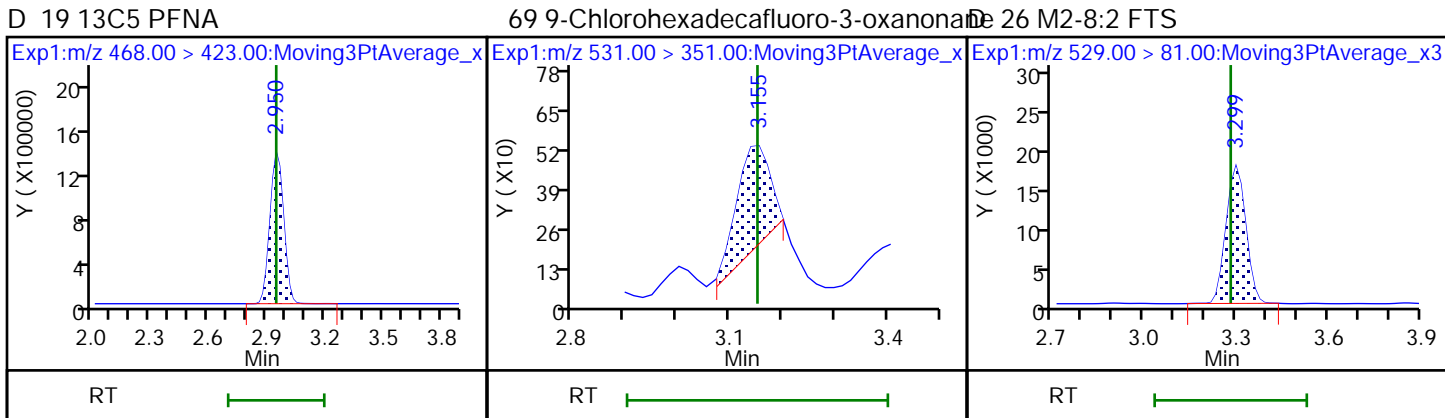
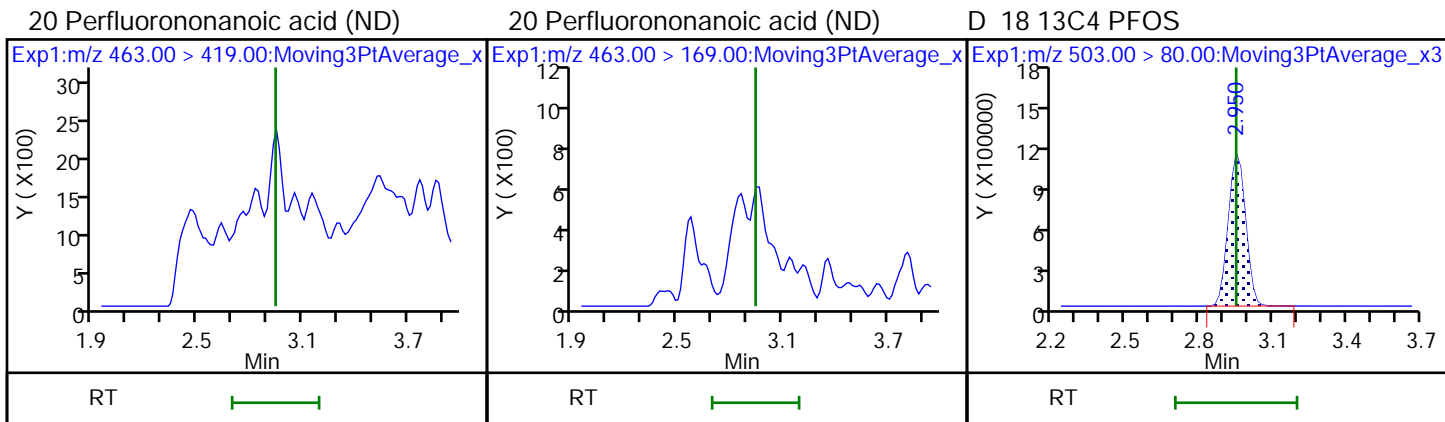


D 72 13C8 PFOS (ND)

17 Perfluorooctanesulfonic acid (M)

17 Perfluorooctanesulfonic acid (M)

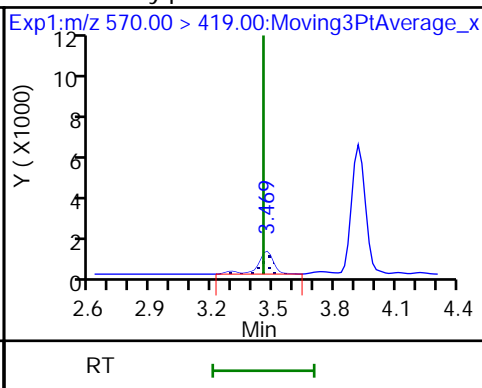
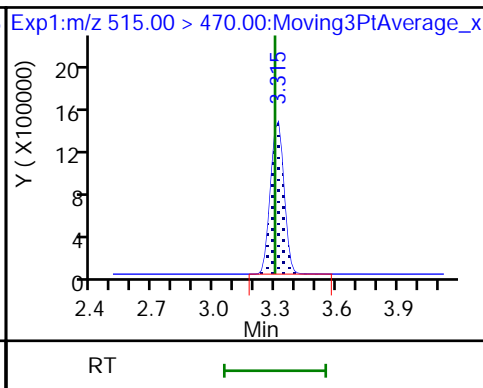
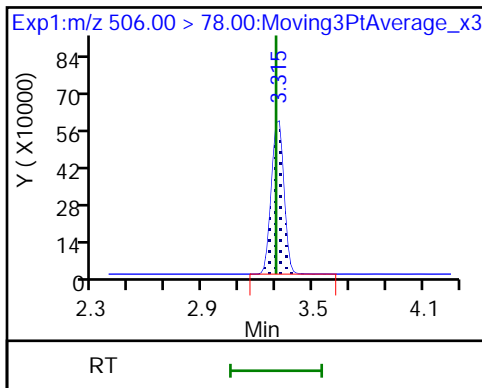




D 21 13C8 FOSA

D 23 13C2 PFDA

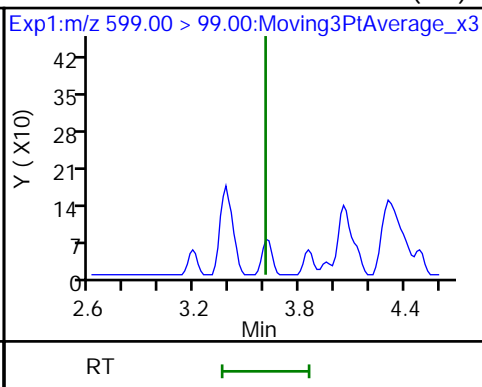
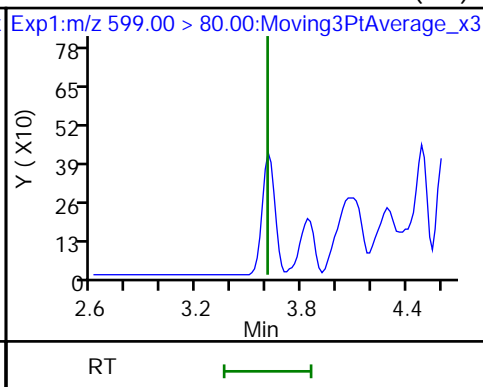
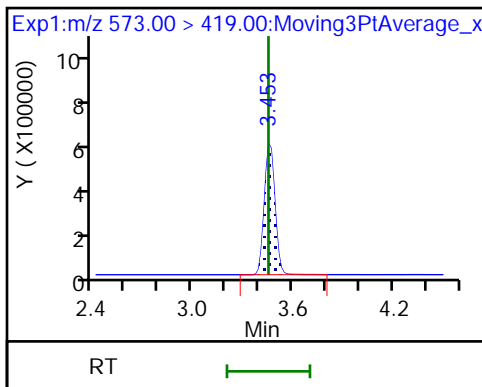
28 N-methylperfluorooctanesulfonamido



D 27 d3-NMeFOSAA

29 Perfluorodecanesulfonic acid (ND)

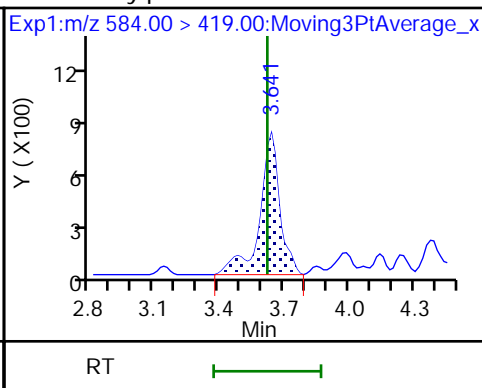
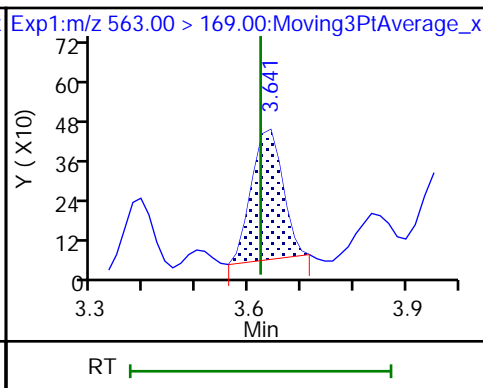
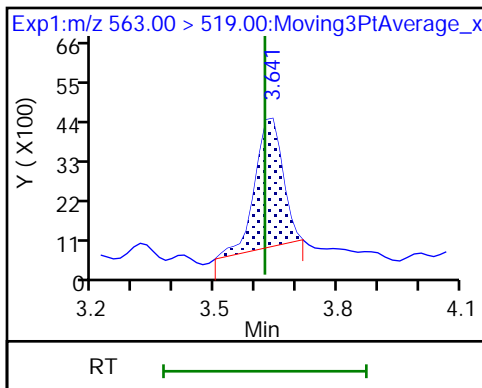
29 Perfluorodecanesulfonic acid (ND)



31 Perfluoroundecanoic acid

31 Perfluoroundecanoic acid

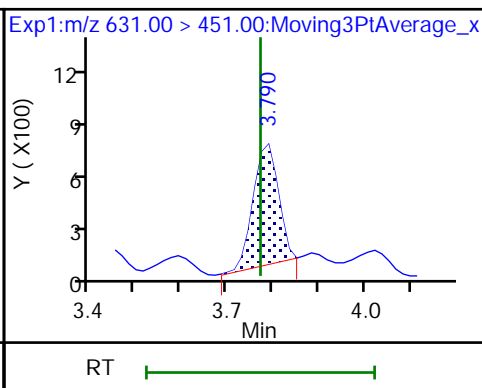
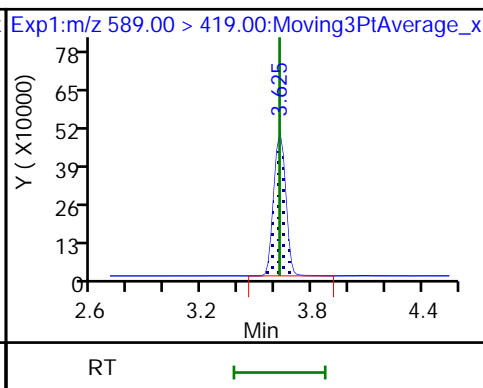
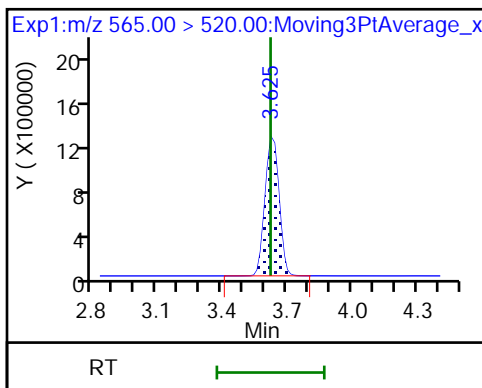
33 N-ethylperfluorooctanesulfonamido

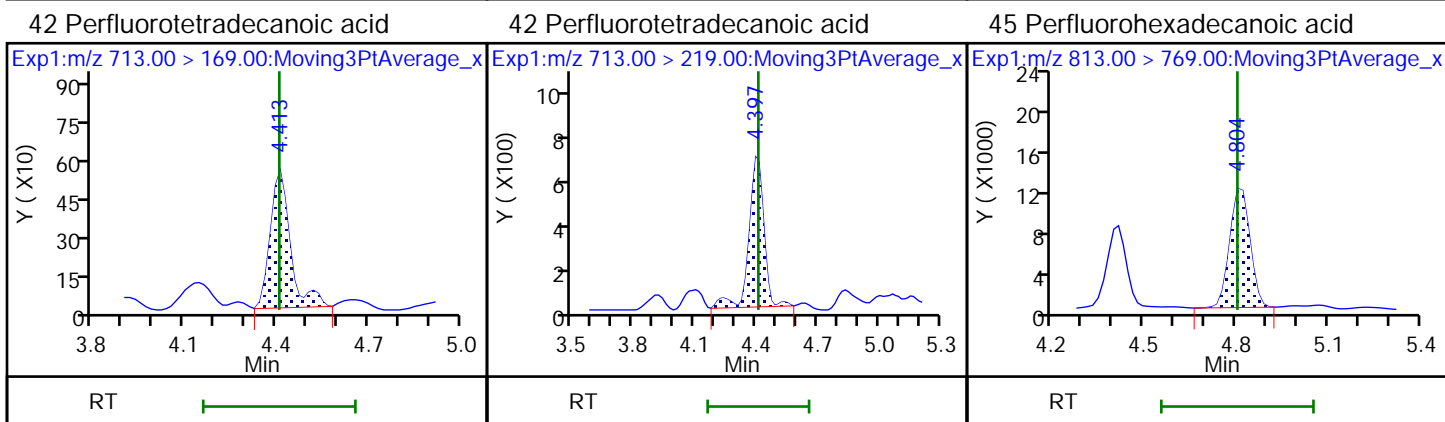
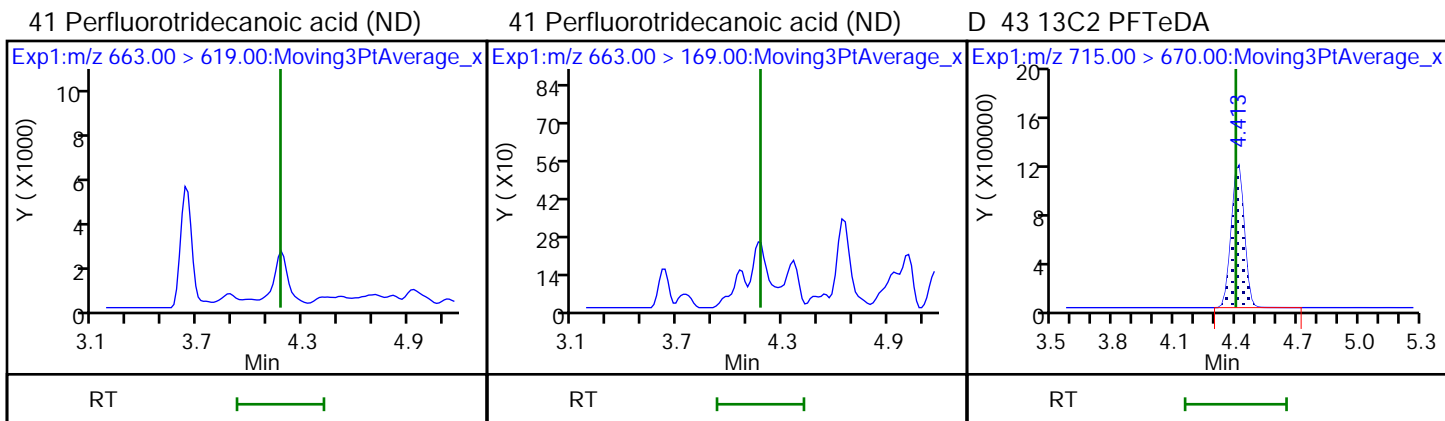
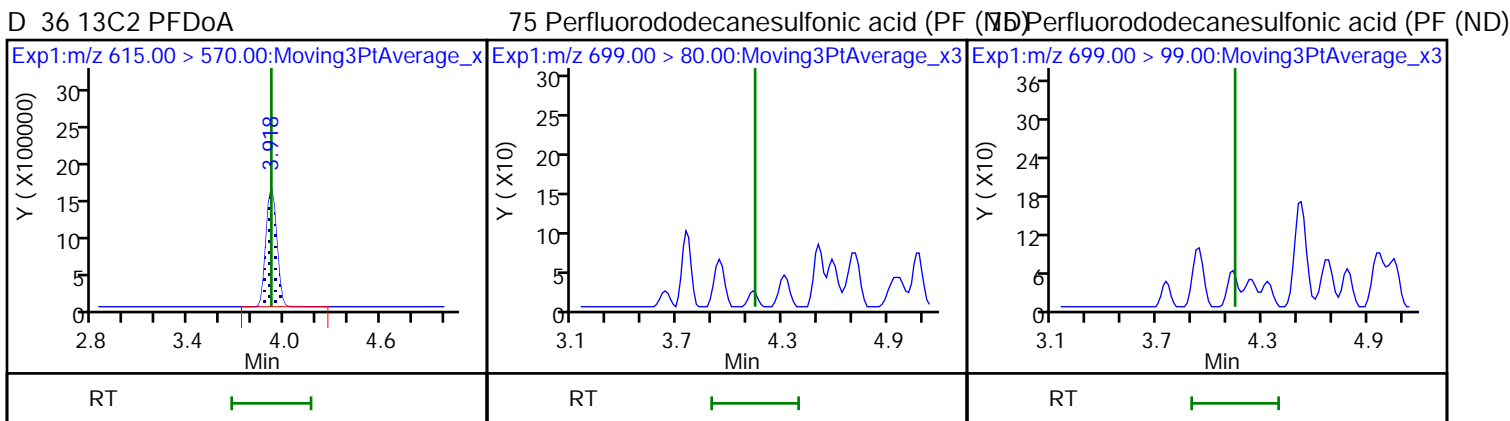
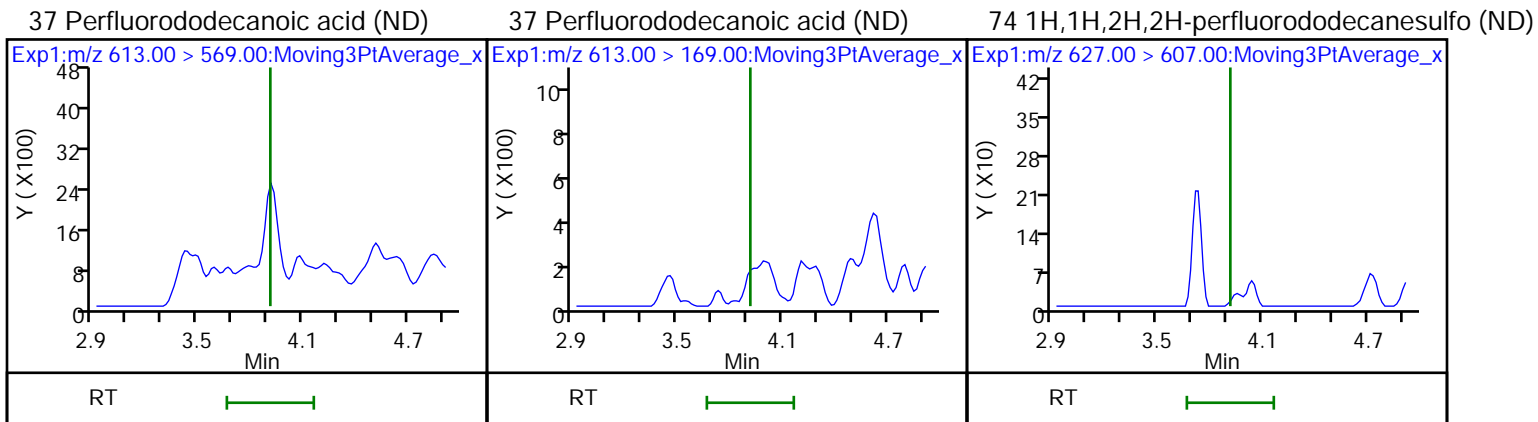


D 30 13C2 PFUnA

D 32 d5-NEtFOSAA

66 11-Chloroeicosafuoro-3-oxaundecan

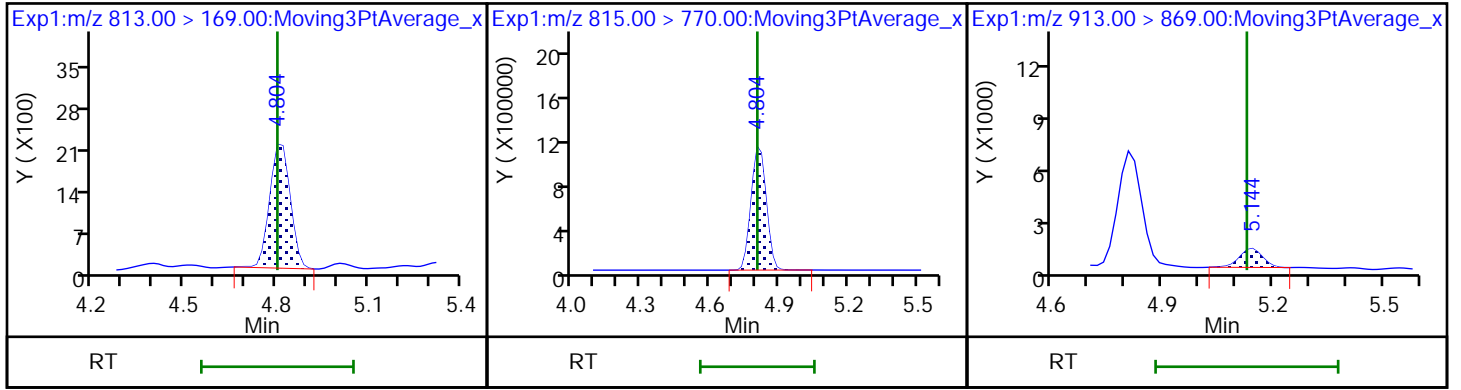




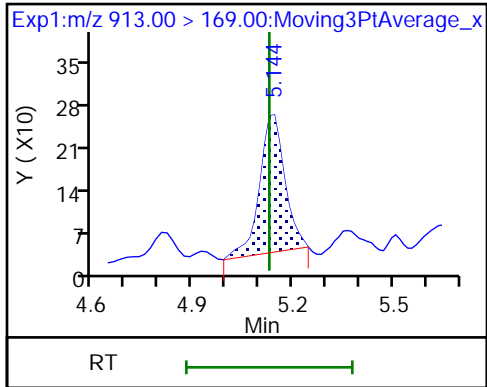
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

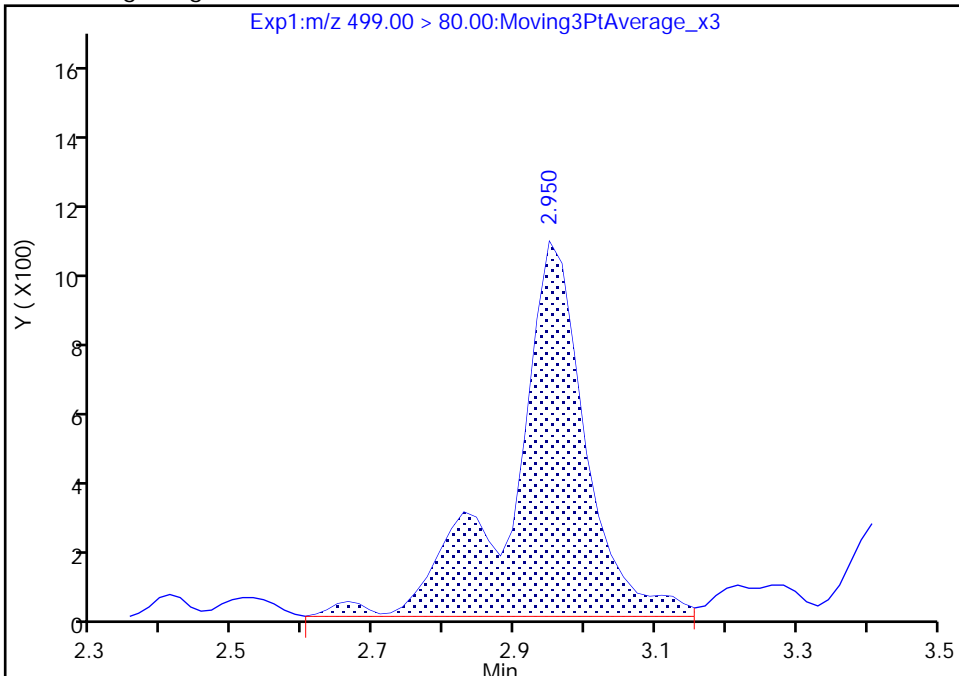
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Injection Date: 10-Nov-2018 14:51:01 Instrument ID: A9  
Lims ID: MB 320-258069/1-A  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 30 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

17 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 1

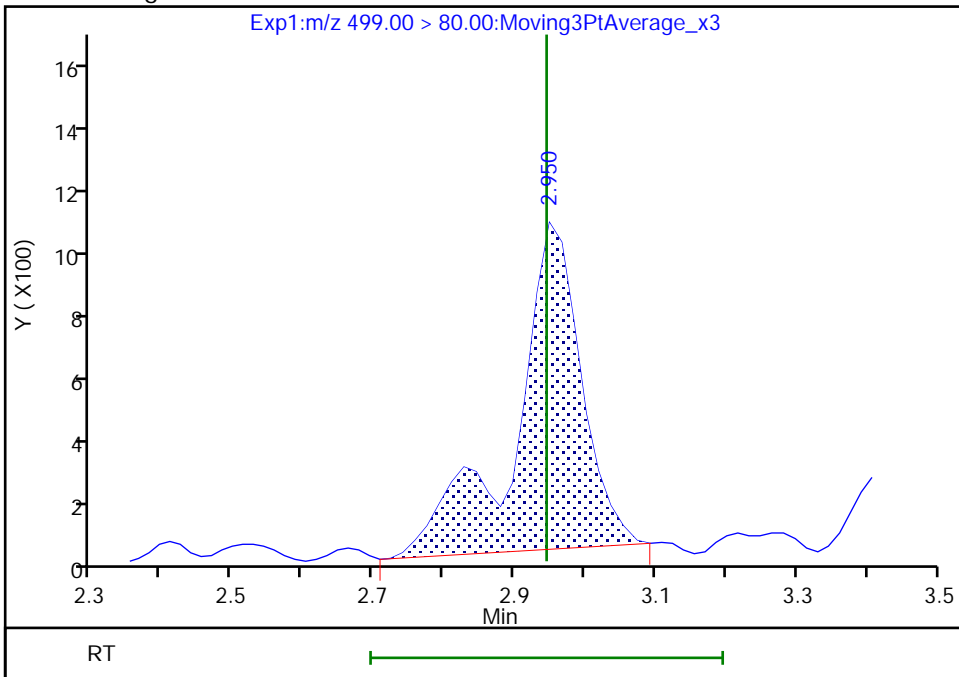
RT: 2.95  
Area: 7894  
Amount: 0.003239  
Amount Units: ng/ml

Processing Integration Results



RT: 2.95  
Area: 6842  
Amount: 0.002808  
Amount Units: ng/ml

Manual Integration Results





TestAmerica Sacramento

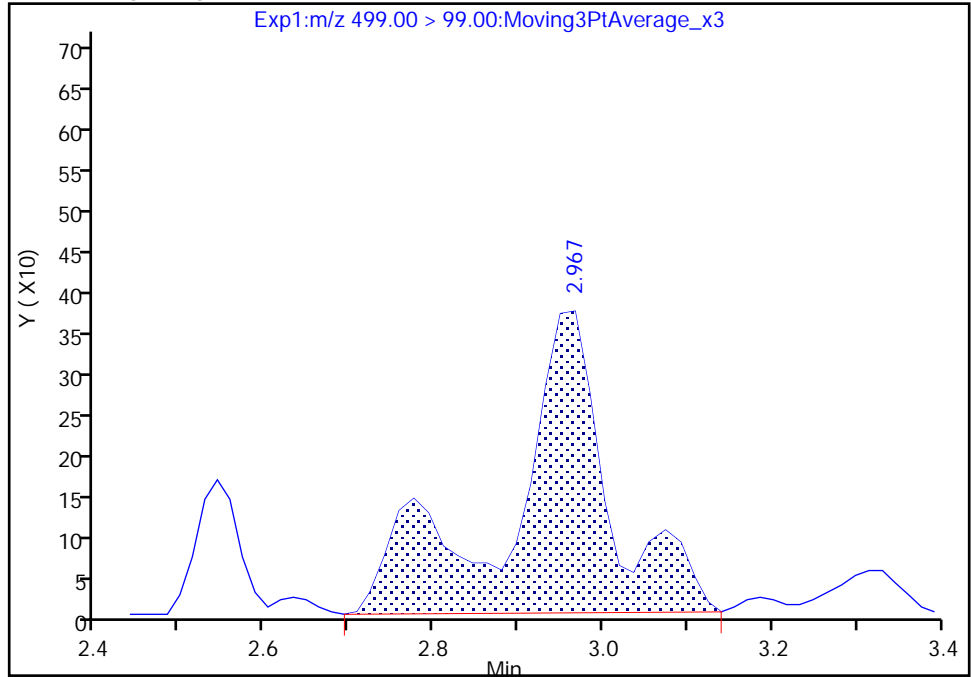
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Injection Date: 10-Nov-2018 14:51:01 Instrument ID: A9  
Lims ID: MB 320-258069/1-A  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 30 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

17 Perfluorooctanesulfonic acid, CAS: 1763-23-1

Signal: 2

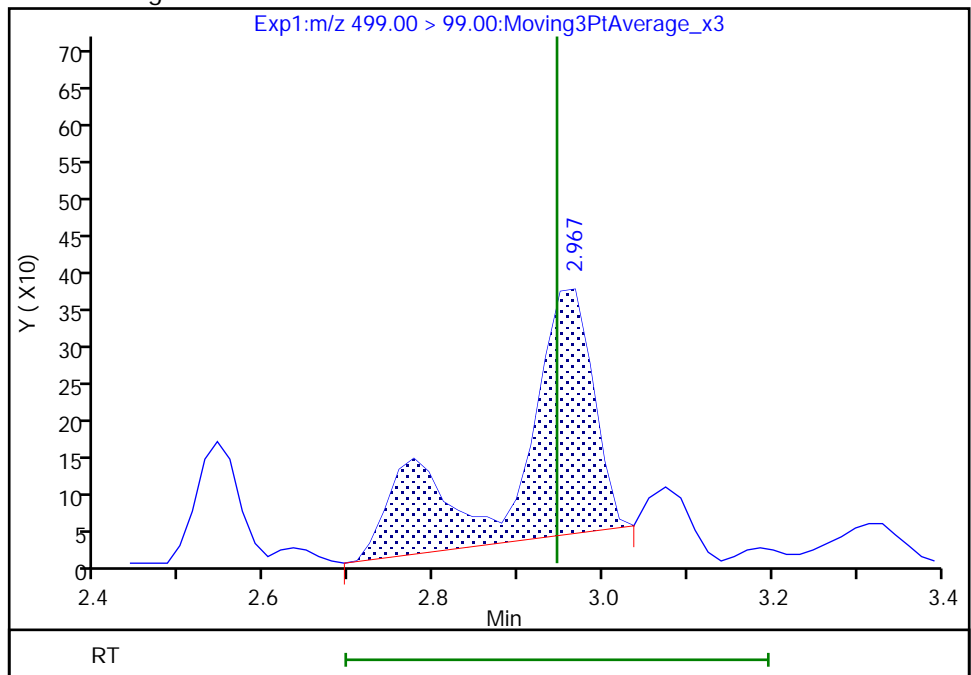
RT: 2.97  
Area: 3069  
Amount: 0.003239  
Amount Units: ng/ml

Processing Integration Results



RT: 2.97  
Area: 2187  
Amount: 0.002808  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 14-Nov-2018 13:02:22

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

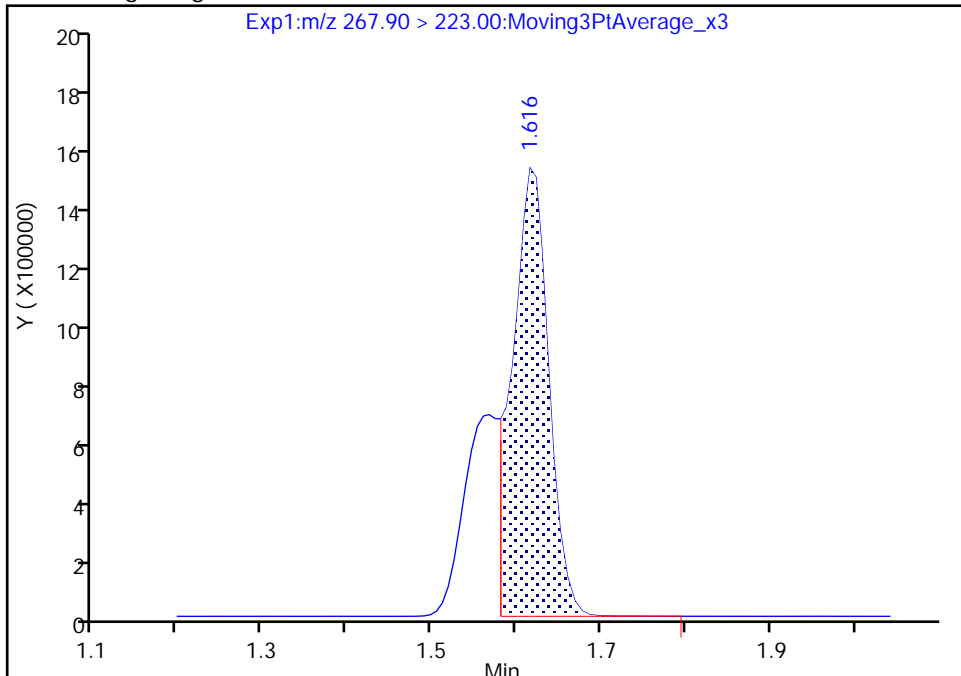
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_042.d  
Injection Date: 10-Nov-2018 14:51:01 Instrument ID: A9  
Lims ID: MB 320-258069/1-A  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 30 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

D 3 13C5 PFPeA, CAS: STL01893

Signal: 1

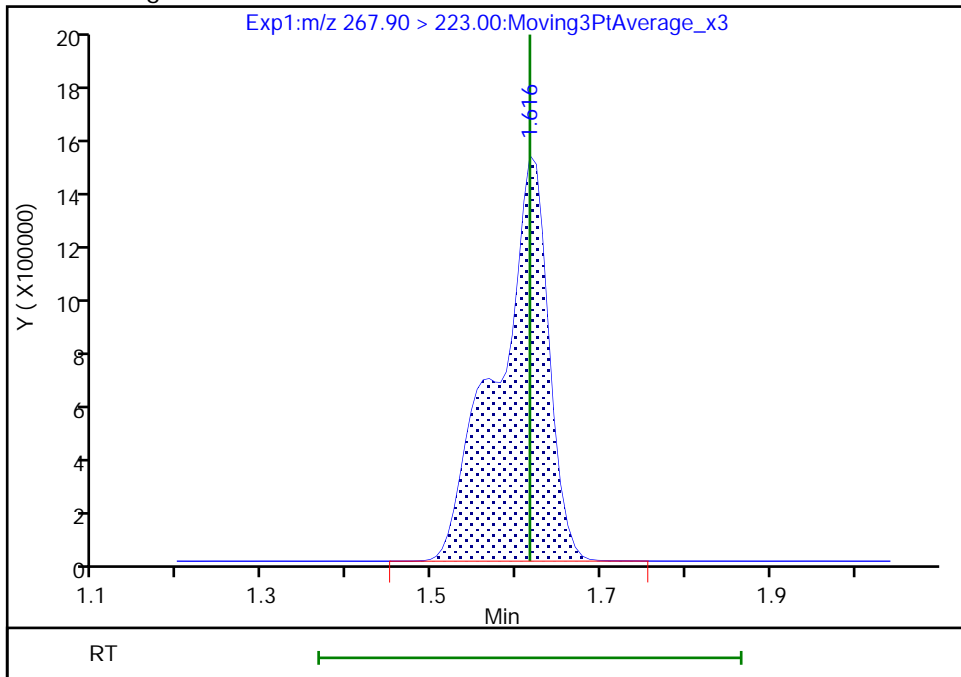
RT: 1.62  
Area: 4424160  
Amount: 1.594203  
Amount Units: ng/ml

Processing Integration Results



RT: 1.62  
Area: 6370052  
Amount: 2.295386  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 14-Nov-2018 13:01:42  
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration  
Page 451 of 518

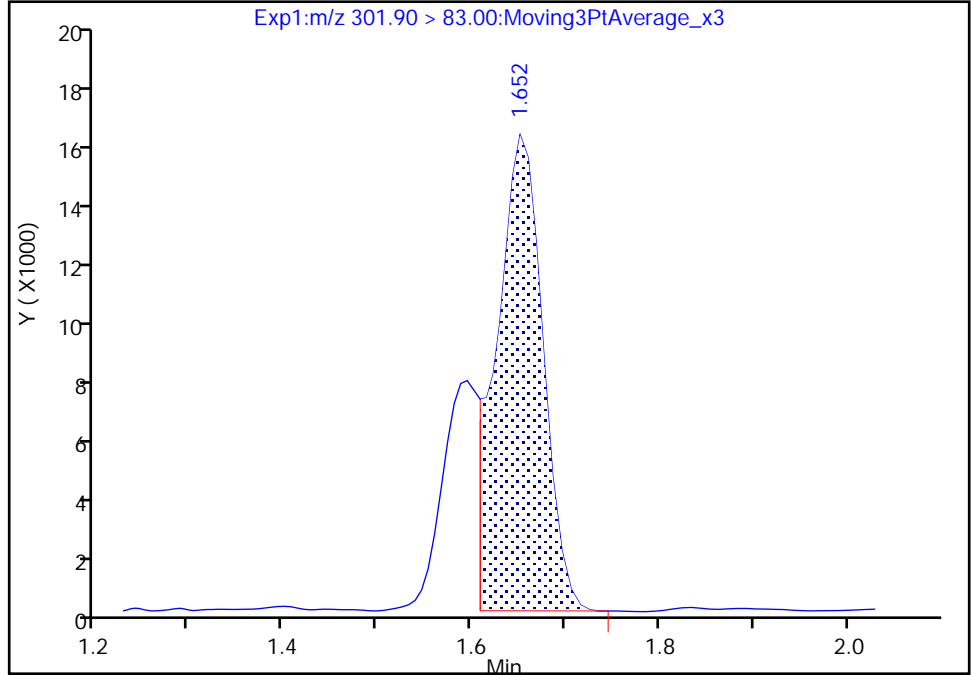
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_042.d  
Injection Date: 10-Nov-2018 14:51:01 Instrument ID: A9  
Lims ID: MB 320-258069/1-A  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 30 Worklist Smp#: 2  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

**D 47 13C3 PFBS, CAS: STL02337**  
Signal: 1

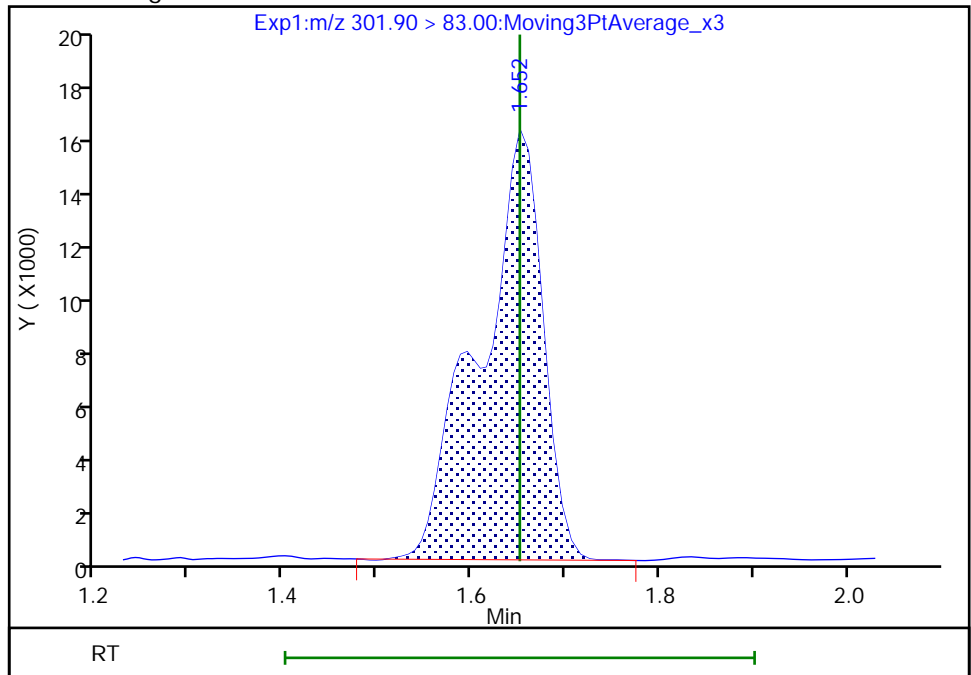
RT: 1.65  
Area: 52664  
Amount: 1.372963  
Amount Units: ng/ml

Processing Integration Results



RT: 1.65  
Area: 72252  
Amount: 1.883627  
Amount Units: ng/ml

Manual Integration Results



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCS 320-258069/2-A  
 Matrix: Water Lab File ID: 2018.11.10LLA\_043.d  
 Analysis Method: 537 (modified) Date Collected: \_\_\_\_\_  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 250.00 (mL) Date Analyzed: 11/10/2018 14:58  
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1  
 Injection Volume: 20 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	38.0		2.0	0.35
2706-90-3	Perfluoropentanoic acid (PFPeA)	40.8		2.0	0.49
307-24-4	Perfluorohexanoic acid (PFHxA)	41.0		2.0	0.58
375-85-9	Perfluoroheptanoic acid (PFHpA)	39.6		2.0	0.25
335-67-1	Perfluorooctanoic acid (PFOA)	37.8		2.0	0.85
375-95-1	Perfluorononanoic acid (PFNA)	42.2		2.0	0.27
335-76-2	Perfluorodecanoic acid (PFDA)	42.2		2.0	0.31
2058-94-8	Perfluoroundecanoic acid (PFUnA)	39.2		2.0	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	32.6		2.0	0.55
72629-94-8	Perfluorotridecanoic acid (PFTriA)	34.7		2.0	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	37.4		2.0	0.29
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38.1		2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	35.0		2.0	0.17
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	38.6		2.0	0.19
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	33.0		2.0	0.54
335-77-3	Perfluorodecanesulfonic acid (PFDS)	39.0		2.0	0.32
754-91-6	Perfluorooctanesulfonamide (FOSA)	41.0		2.0	0.35
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	36.9		20	3.1
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	39.5		20	1.9
27619-97-2	6:2 FTS	37.3		20	2.0
39108-34-4	8:2 FTS	42.0		20	2.0

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCS 320-258069/2-A  
 Matrix: Water Lab File ID: 2018.11.10LLA\_043.d  
 Analysis Method: 537 (modified) Date Collected: \_\_\_\_\_  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 250.00 (mL) Date Analyzed: 11/10/2018 14:58  
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1  
 Injection Volume: 20 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	98		25-150
STL01893	13C5 PFPeA	96		25-150
STL00993	13C2 PFHxA	93		25-150
STL01892	13C4 PFHpA	95		25-150
STL00990	13C4 PFOA	98		25-150
STL00995	13C5 PFNA	92		25-150
STL00996	13C2 PFDA	90		25-150
STL00997	13C2 PFUnA	96		25-150
STL00998	13C2 PFDoA	97		25-150
STL02116	13C2 PFTeDA	96		25-150
STL02337	13C3 PFBS	89		25-150
STL00994	18O2 PFHxS	94		25-150
STL00991	13C4 PFOS	100		25-150
STL01056	13C8 FOSA	86		25-150
STL02118	d3-NMeFOSAA	81		25-150
STL02117	d5-NEtFOSAA	81		25-150
STL02279	M2-6:2 FTS	87		25-150
STL02280	M2-8:2 FTS	76		25-150

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_043.d  
 Lims ID: LCS 320-258069/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 10-Nov-2018 14:58:33 ALS Bottle#: 31 Worklist Smp#: 3  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: lcs 320-258069/2-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: A9\Administrator Instrument ID: A9  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 14-Nov-2018 13:09:22 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0303

First Level Reviewer: mongkols Date: 14-Nov-2018 13:09:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.90 > 169.00	1.366	1.352	0.014	1.005	2475880	0.9493		94.9	48.7	M
D 1 13C4 PFBA										
217.00 > 172.00	1.359	1.352	0.007	0.525	6967869	2.45		98.1	7695	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.622	1.615	0.007	1.000	2633677	1.02		102	108	M
D 3 13C5 PFPeA										
267.90 > 223.00	1.622	1.616	0.006	0.627	6455738	2.39		95.5	6599	M
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.660	1.651	0.009	1.000	3284938	0.9531		108	1241	M
298.90 > 99.00	1.660	1.651	0.009	1.000	1145376		2.87(1.35-4.05)		393	M
D 47 13C3 PFBS										
301.90 > 83.00	1.660	1.651	0.009	0.641	77605	2.08		89.3	196	M
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.873	1.862	0.011	1.128	558146	0.8137		87.1	3266	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.902	1.891	0.011	1.000	2434892	1.02		102	180	
313.00 > 119.00	1.902	1.891	0.011	1.000	184196		13.22(6.96-20.87)		184	
D 7 13C2 PFHxA										
315.00 > 270.00	1.902	1.893	0.009	0.735	6604793	2.32		92.7	11440	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.922	1.911	0.011	1.158	1570175	0.9832		105	3948	
349.00 > 99.00	1.932	1.911	0.021	1.164	763083		2.06(1.15-3.45)		615	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	1.992	1.991	0.001	1.000	522988	0.9625		96.3	165	
D 64 13C3 HFPO-DA										
332.10 > 287.00	1.992	1.993	-0.001	0.770	817082	2.22		88.7	2497	

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	2.228	2.213	0.015	1.006	3328627	0.99		99.0	303	
363.00 > 169.00	2.228	2.213	0.015	1.006	684353		4.86(2.17-6.52)		556	
D 9 13C4 PFHpA										
367.00 > 322.00	2.216	2.216	0.0	0.856	7920536	2.36		94.6	10194	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.241	2.225	0.016	1.000	2263465	0.8750		96.2	2247	
399.00 > 99.00	2.228	2.225	0.003	0.994	641554		3.53(1.90-5.70)		402	
D 11 18O2 PFHxS										
403.00 > 84.00	2.241	2.229	0.012	0.866	4856623	2.23		94.2	9296	
76 DONA										
377.00 > 251.00	2.266	2.250	0.016	0.764	5699205	0.9492		101	6678	
377.00 > 85.00	2.266	2.250	0.016	0.764	2415652		2.36(1.13-3.39)		1579	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.558	2.539	0.019	1.000	542549	0.9320		98.3	1068	
D 12 M2-6:2 FTS										
429.00 > 81.00	2.558	2.543	0.015	0.988	633618	2.06		86.6	1285	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.587	2.569	0.018	1.006	3070036	0.9456		94.6	347	
413.00 > 169.00	2.572	2.569	0.003	1.000	1124380		2.73(1.36-4.08)		1121	
* 62 13C2 PFOA										
415.00 > 370.00	2.587	2.569	0.018		7798957	2.50			8245	
D 14 13C4 PFOA										
417.00 > 372.00	2.572	2.573	-0.001	0.994	7507513	2.45		97.9	9236	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.587	2.584	0.003	0.872	2219436	0.9650		101	3901	
449.00 > 99.00	2.587	2.584	0.003	0.872	564871		3.93(1.84-5.53)		1415	
17 Perfluorooctanesulfonic acid										
499.00 > 80.00	2.949	2.945	0.004	0.994	1962479	0.8248		88.9	885	
499.00 > 99.00	2.949	2.945	0.004	0.994	459911		4.27(2.04-6.12)		1054	
20 Perfluorononanoic acid										
463.00 > 419.00	2.966	2.945	0.021	1.006	2757601	1.06		106	331	
463.00 > 169.00	2.966	2.945	0.021	1.006	470285		5.86(2.68-8.03)		627	
D 18 13C4 PFOS										
503.00 > 80.00	2.966	2.949	0.017	1.146	5280411	2.40		100	6433	
D 19 13C5 PFNA										
468.00 > 423.00	2.949	2.949	0.0	1.140	6520222	2.30		91.9	5642	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.170	3.152	0.018	1.069	2342926	0.9573		103	2434	
D 26 M2-8:2 FTS										
529.00 > 81.00	3.298	3.281	0.017	1.275	69515	1.82		76.0	403	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.298	3.295	0.003	1.112	1288914	0.9509		99.1	3604	
549.00 > 99.00	3.298	3.295	0.003	1.112	206600		6.24(3.02-9.05)		876	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.298	3.295	0.003	1.000	434621	1.05		109	1937	
22 Perfluorooctanesulfonamide										
498.00 > 78.00	3.314	3.295	0.019	1.000	3226467	1.03		103	3179	

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	3.314	3.295	0.019	1.000	3016608	1.05		105	495	
513.00 > 169.00	3.314	3.295	0.019	1.000	203366		14.83(7.12-21.35)		464	
D 21 13C8 FOSA										
506.00 > 78.00	3.314	3.298	0.016	1.281	2618531	2.15		85.9	5089	
D 23 13C2 PFDA										
515.00 > 470.00	3.314	3.298	0.016	1.281	6585789	2.25		90.2	7146	
28 N-methylperfluorooctanesulfonamido										
570.00 > 419.00	3.468	3.451	0.017	1.000	950588	0.9234		92.3	445	
D 27 d3-NMeFOSAA										
573.00 > 419.00	3.468	3.452	0.016	1.340	2573341	2.04		81.5	2246	
29 Perfluorodecanesulfonic acid										
599.00 > 80.00	3.624	3.605	0.019	1.222	1864773	0.9753		101	1710	
599.00 > 99.00	3.624	3.605	0.019	1.222	380544		4.90(2.14-6.43)		1103	
31 Perfluoroundecanoic acid										
563.00 > 519.00	3.640	3.622	0.018	1.000	2607681	0.9791		97.9	653	
563.00 > 169.00	3.640	3.622	0.018	1.000	175178		14.89(5.24-15.72)		488	
33 N-ethylperfluorooctanesulfonamidoa										
584.00 > 419.00	3.640	3.622	0.018	1.005	756765	0.9875		98.8	1368	
D 30 13C2 PFUnA										
565.00 > 520.00	3.640	3.623	0.017	1.407	5856286	2.40		96.0	8925	
D 32 d5-NEtFOSAA										
589.00 > 419.00	3.624	3.623	0.001	1.401	2095512	2.04		81.5	1866	
66 11-Chloroeicosafuoro-3-oxaundecan										
631.00 > 451.00	3.789	3.772	0.017	1.277	3276105	1.07		114	4868	
37 Perfluorododecanoic acid										
613.00 > 569.00	3.917	3.915	0.002	1.000	2412043	0.8150		81.5	714	
613.00 > 169.00	3.917	3.915	0.002	1.000	267982		9.00(4.68-14.05)		463	
74 1H,1H,2H,2H-perfluorododecanesulfo										
627.00 > 607.00	3.917	3.915	0.002	1.188	302197	1.03		107	987	
D 36 13C2 PFDaA										
615.00 > 570.00	3.917	3.918	-0.001	1.514	7272799	2.42		96.8	6351	
75 Perfluorododecanesulfonic acid (PF										
699.00 > 80.00	4.160	4.143	0.017	1.403	192940	0.9064		93.6	875	
699.00 > 99.00	4.160	4.143	0.017	1.403	345778		0.56(0.28-0.83)		990	
41 Perfluorotridecanoic acid										
663.00 > 619.00	4.176	4.173	0.003	1.066	2060639	0.8664		86.6	688	
663.00 > 169.00	4.176	4.173	0.003	1.066	364664		5.65(3.09-9.27)		849	
D 43 13C2 PFTeDA										
715.00 > 670.00	4.412	4.397	0.015	1.705	5380291	2.40		95.8	6976	
42 Perfluorotetradecanoic acid										
713.00 > 169.00	4.412	4.410	0.002	1.000	367680	0.9344		93.4	1230	
713.00 > 219.00	4.412	4.410	0.002	1.000	251419		1.46(0.70-2.09)		748	
45 Perfluorohexadecanoic acid										
813.00 > 769.00	4.820	4.803	0.017	1.000	1747366	0.9816		98.2	789	
813.00 > 169.00	4.820	4.803	0.017	1.000	329185		5.31(2.77-8.32)		812	
D 44 13C2 PFHxDA										
815.00 > 770.00	4.820	4.804	0.016	1.863	4807624	2.15		86.2	7226	



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	5.143	5.129	0.014	1.067	1178118	1.24		124	977	
913.00 > 169.00	5.143	5.129	0.014	1.067	244002		4.83(2.55-7.64)		1965	

**QC Flag Legend**

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_043.d

Injection Date: 10-Nov-2018 14:58:33

Instrument ID: A9

Lims ID: LCS 320-258069/2-A

Client ID:

Operator ID: A9\Administrator

ALS Bottle#: 31

Worklist Smp#: 3

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

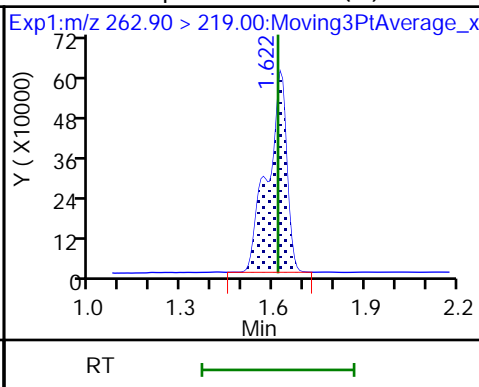
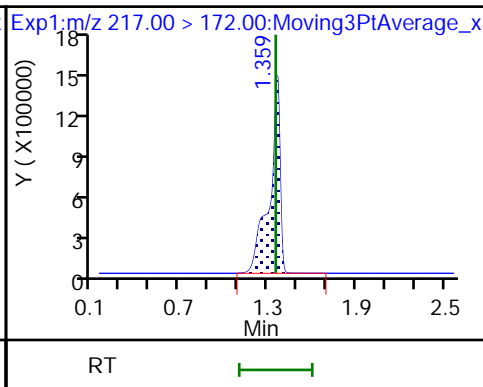
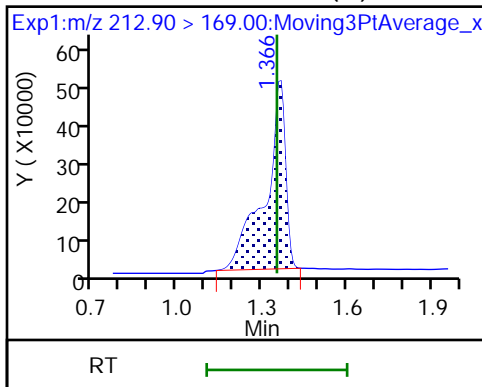
Method: PFAS\_A9

Limit Group: LC PFC ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA

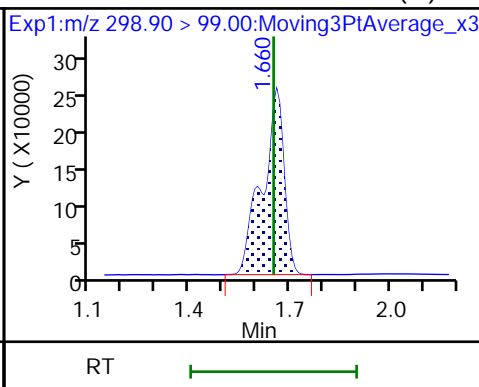
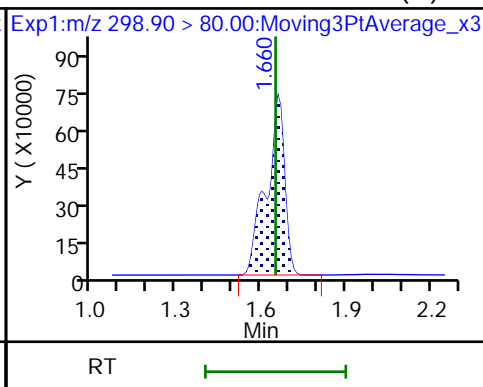
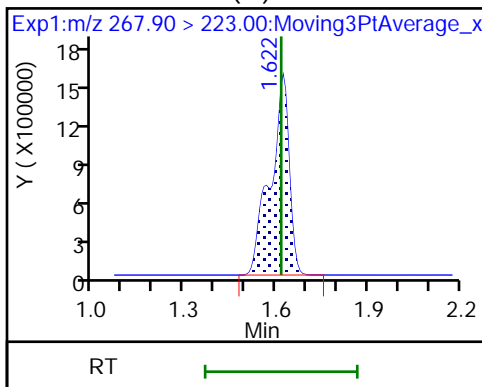
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA (M)

5 Perfluorobutanesulfonic acid (M)

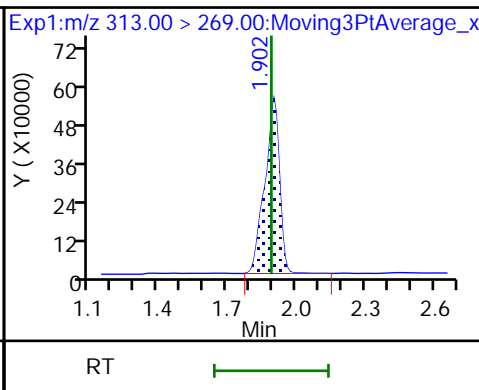
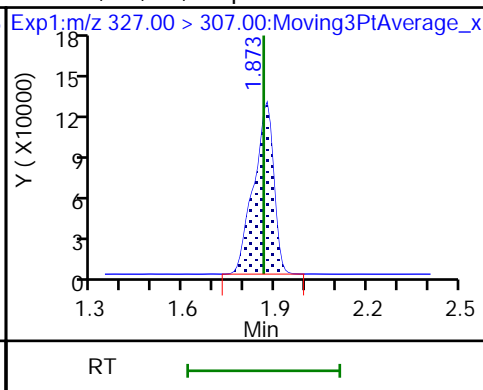
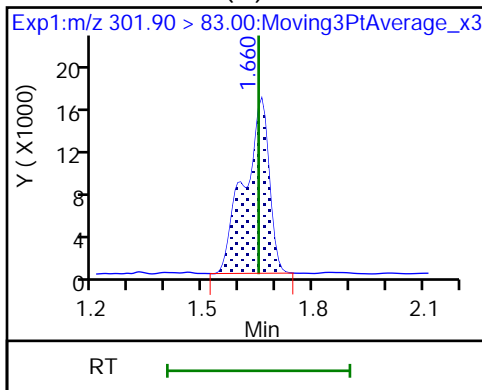
5 Perfluorobutanesulfonic acid (M)



D 47 13C3 PFBS (M)

61 1H,1H,2H,2H-perfluorohexanesulfoni

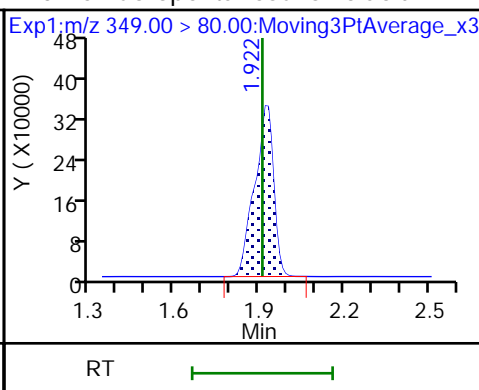
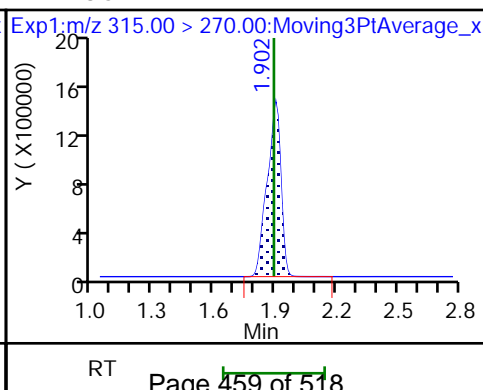
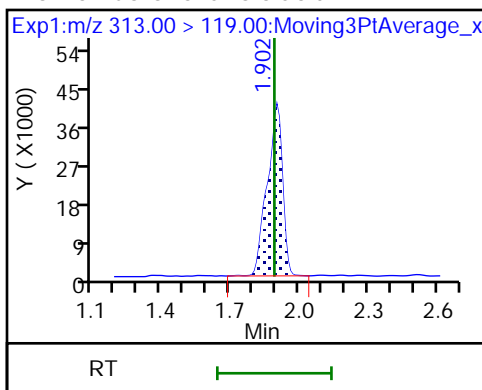
6 Perfluorohexanoic acid



6 Perfluorohexanoic acid

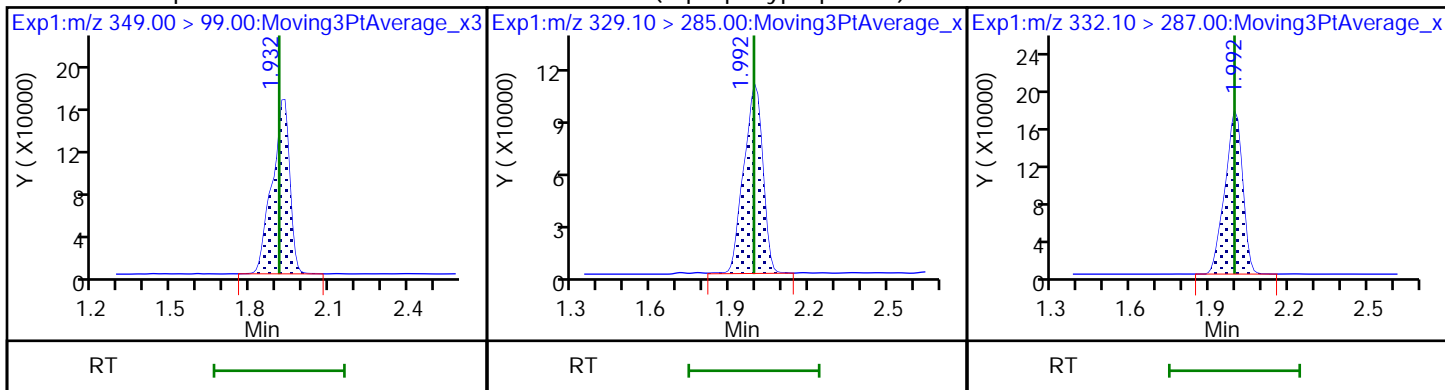
D 7 13C2 PFHxA

70 Perfluoropentanesulfonic acid



70 Perfluoropentanesulfonic acid

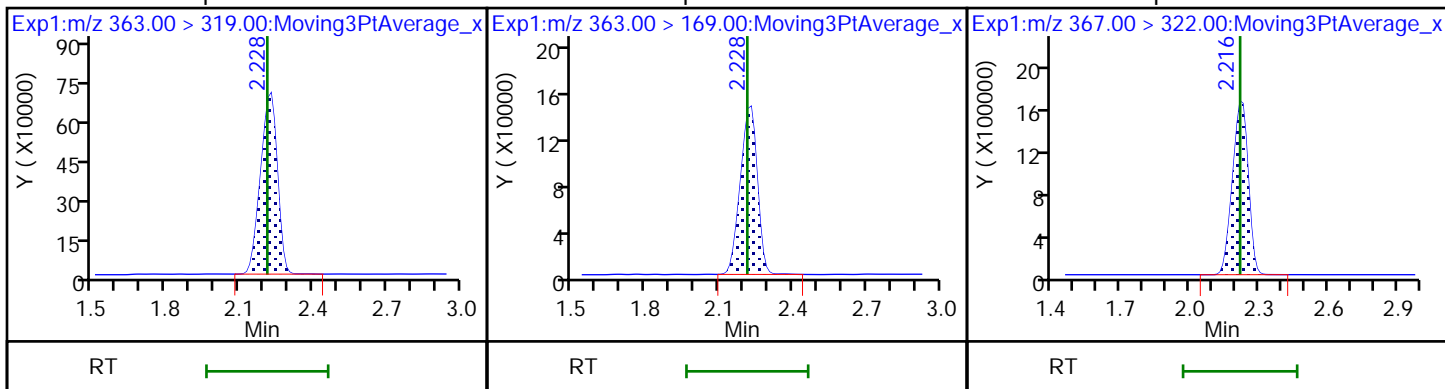
67 Perfluoro(2-propoxypropanoic) acid D 64 13C3 HFPO-DA



10 Perfluoroheptanoic acid

10 Perfluoroheptanoic acid

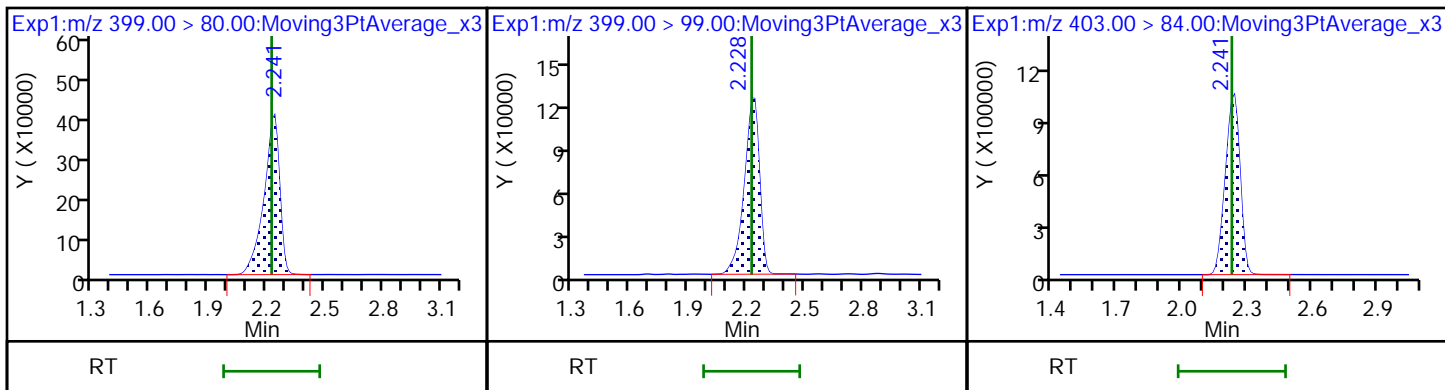
D 9 13C4 PFHpA



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

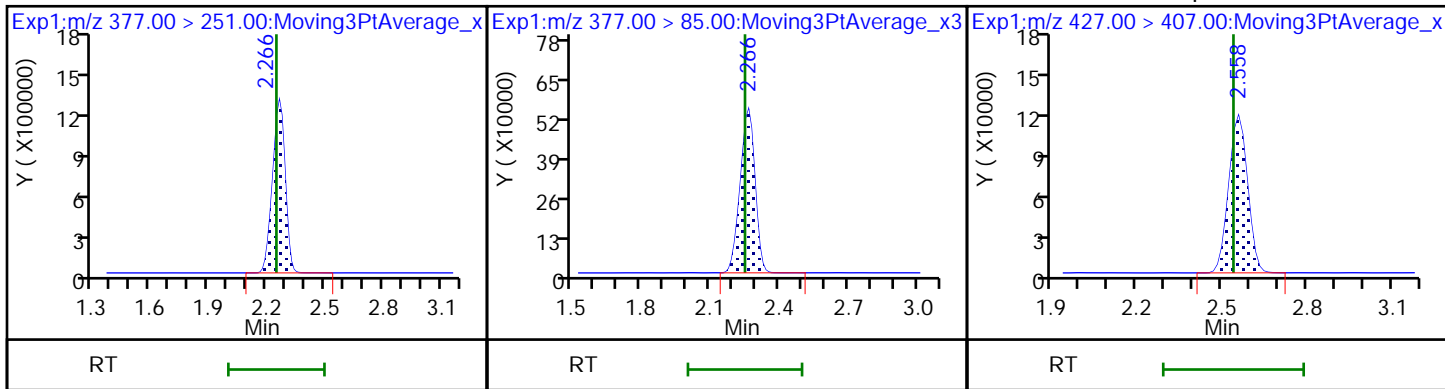
D 11 18O2 PFHxS



76 DONA

76 DONA

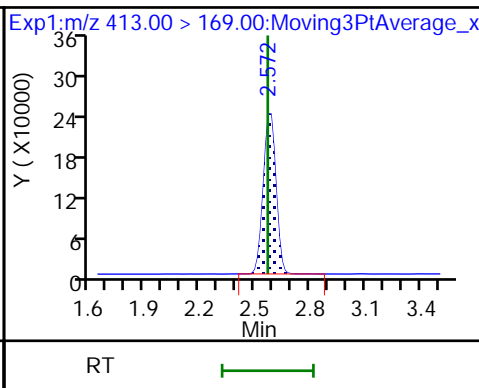
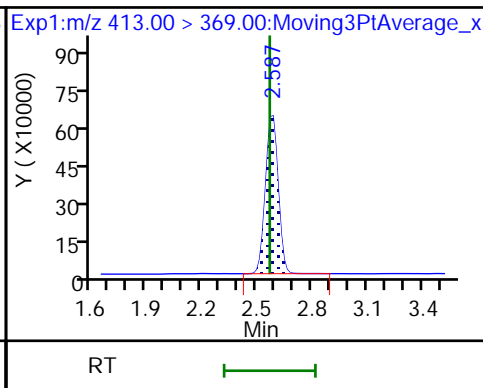
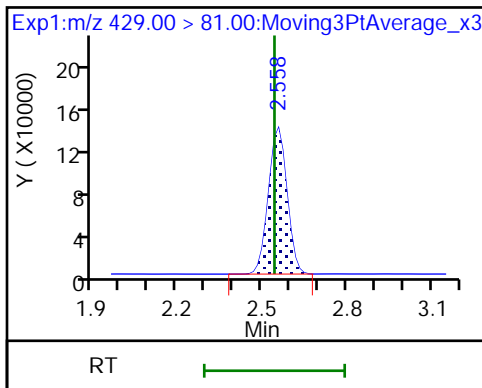
13 1H,1H,2H,2H-perfluorooctanesulfoni



D 12 M2-6:2 FTS

15 Perfluorooctanoic acid

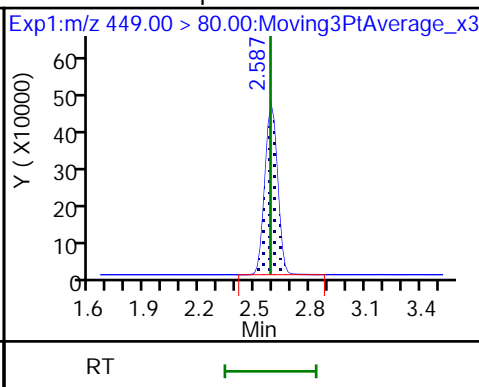
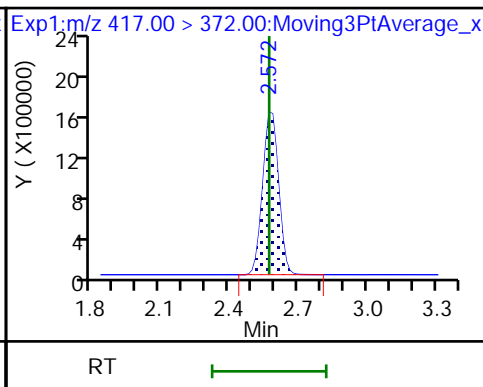
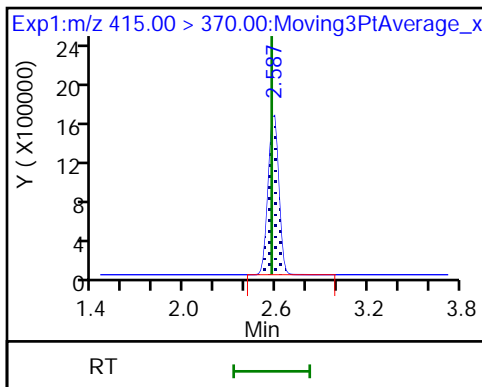
15 Perfluorooctanoic acid



\* 62 13C2 PFOA

D 14 13C4 PFOA

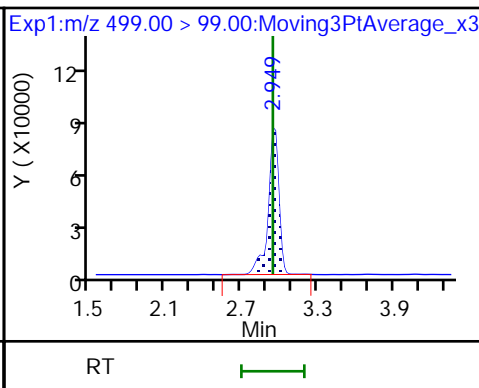
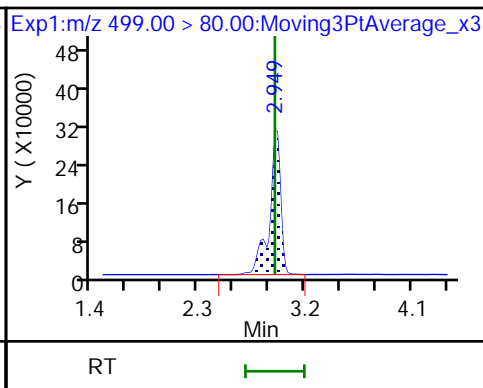
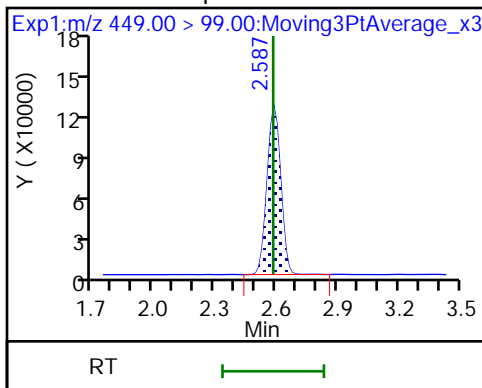
16 Perfluoroheptanesulfonic acid



16 Perfluoroheptanesulfonic acid

17 Perfluorooctanesulfonic acid

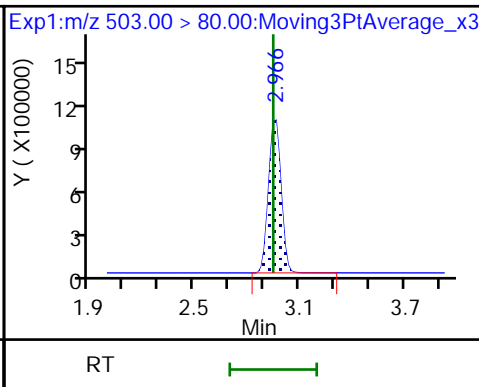
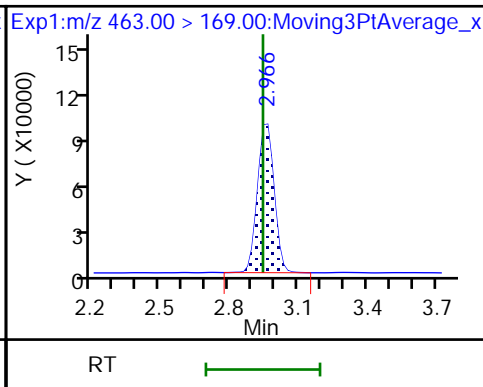
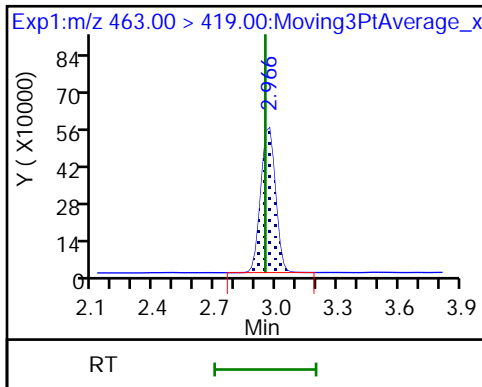
17 Perfluorooctanesulfonic acid



20 Perfluorononanoic acid

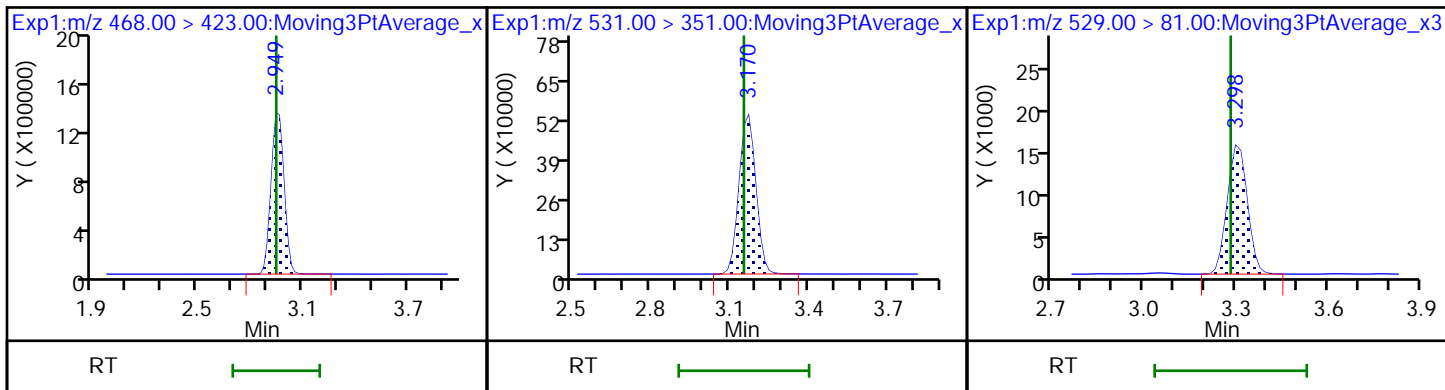
20 Perfluorononanoic acid

D 18 13C4 PFOS



D 19 13C5 PFNA

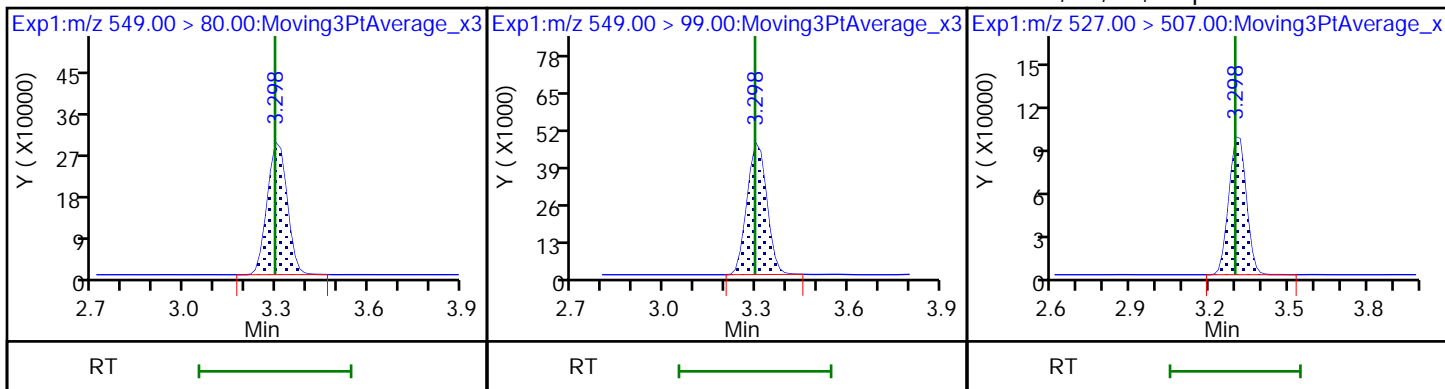
69 9-Chlorohexadecafluoro-3-oxanonadiene 26 M2-8:2 FTS



68 Perfluorononanesulfonic acid

68 Perfluorononanesulfonic acid

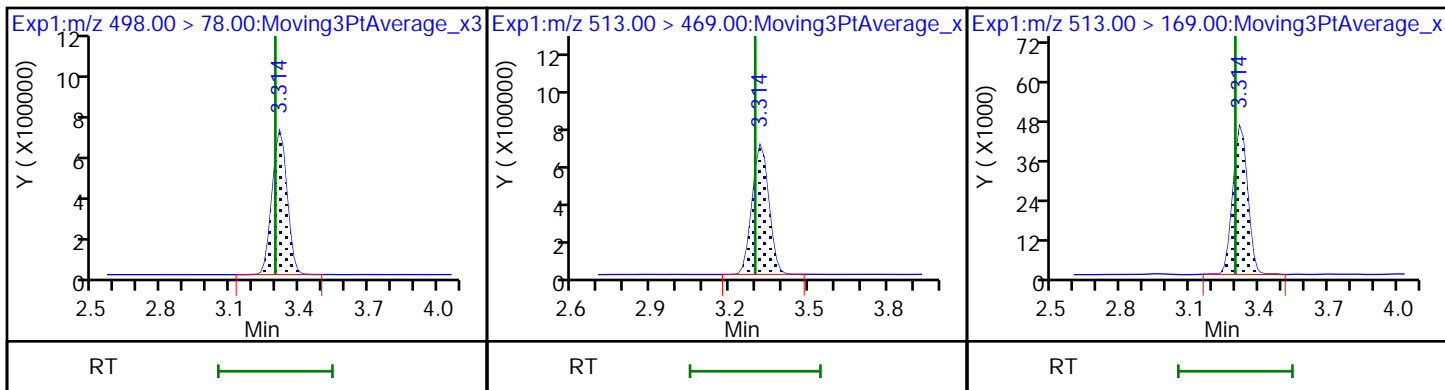
25 1H,1H,2H,2H-perfluorodecanesulfoni



22 Perfluorooctanesulfonamide

24 Perfluorodecanoic acid

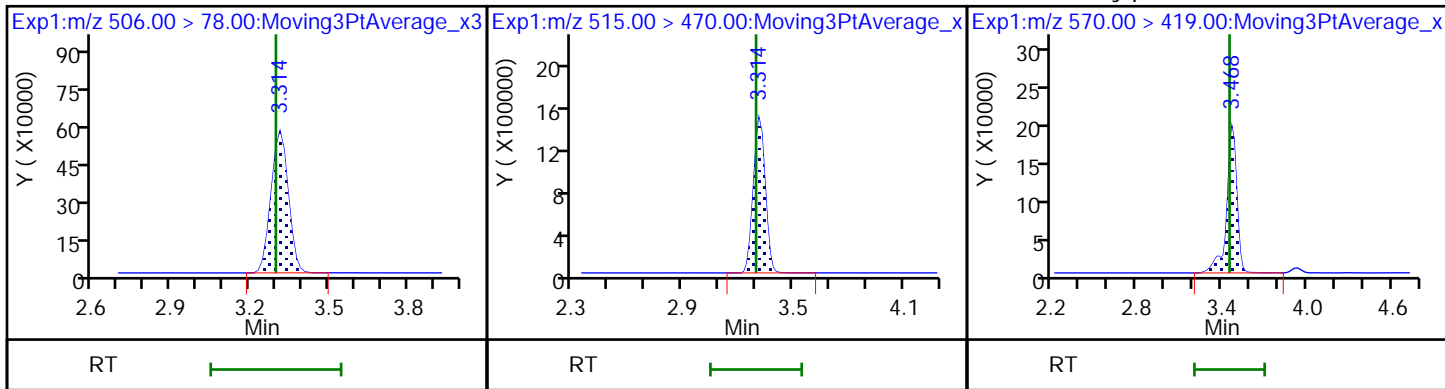
24 Perfluorodecanoic acid



D 21 13C8 FOSA

D 23 13C2 PFDA

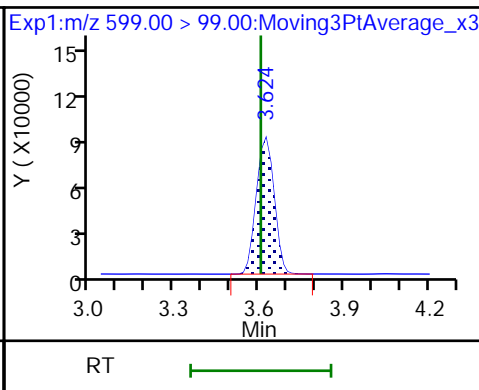
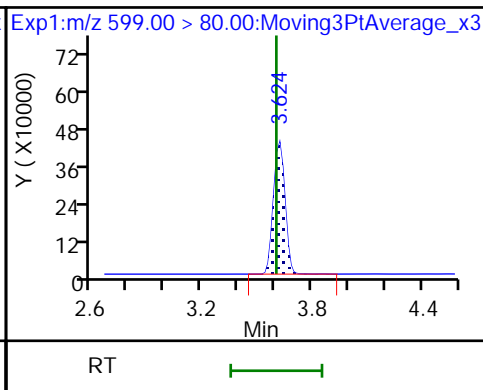
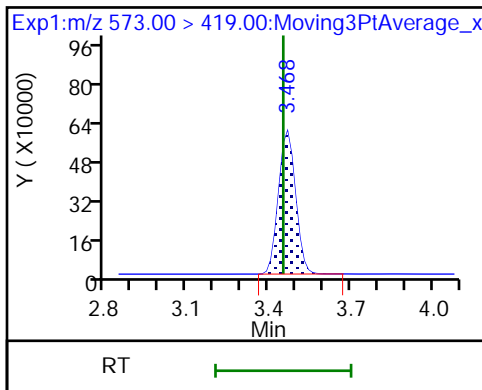
28 N-methylperfluorooctanesulfonamido



D 27 d3-NMeFOSAA

29 Perfluorodecanesulfonic acid

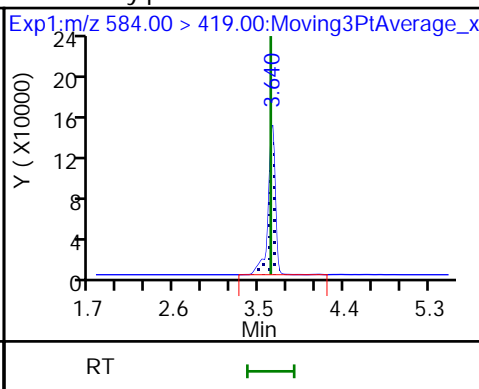
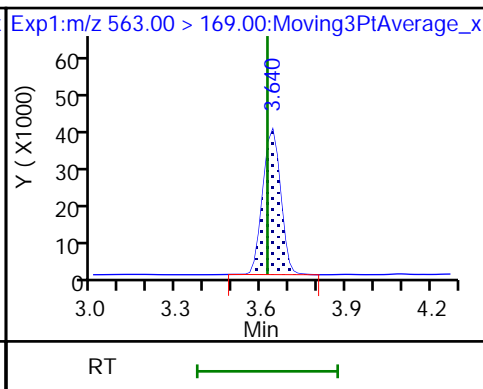
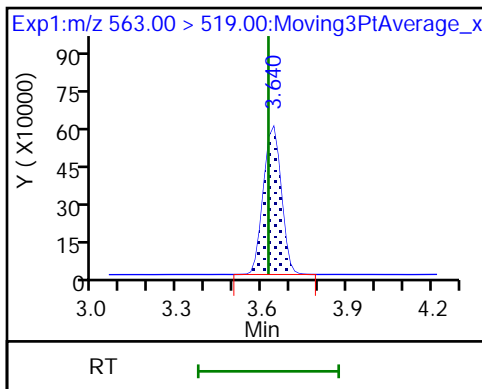
29 Perfluorodecanesulfonic acid



31 Perfluoroundecanoic acid

31 Perfluoroundecanoic acid

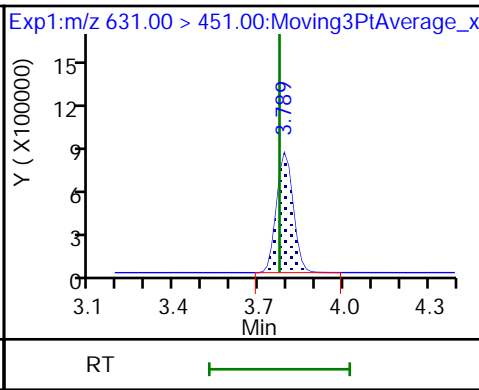
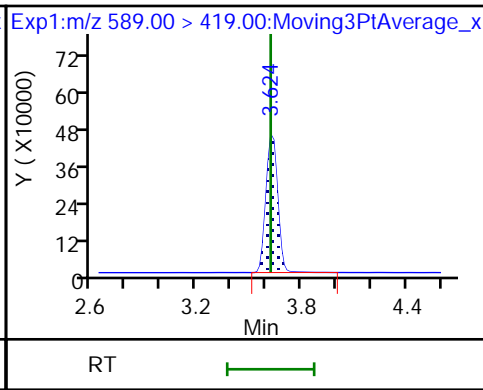
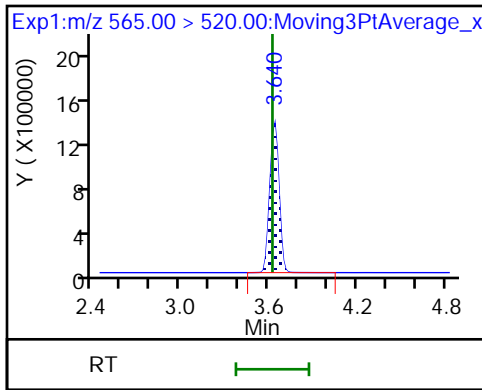
33 N-ethylperfluorooctanesulfonamidoa



D 30 13C2 PFUnA

D 32 d5-NEtFOSAA

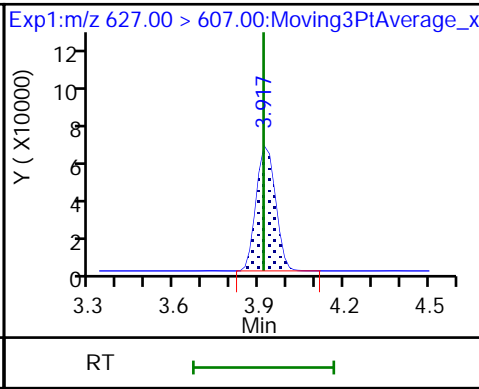
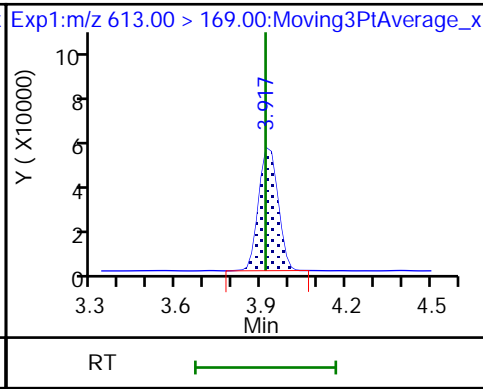
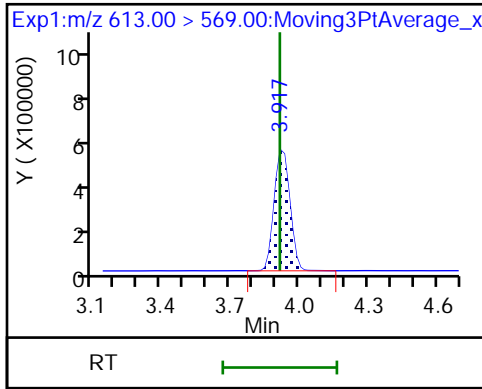
66 11-Chloroeicosafuoro-3-oxaundecan



37 Perfluorododecanoic acid

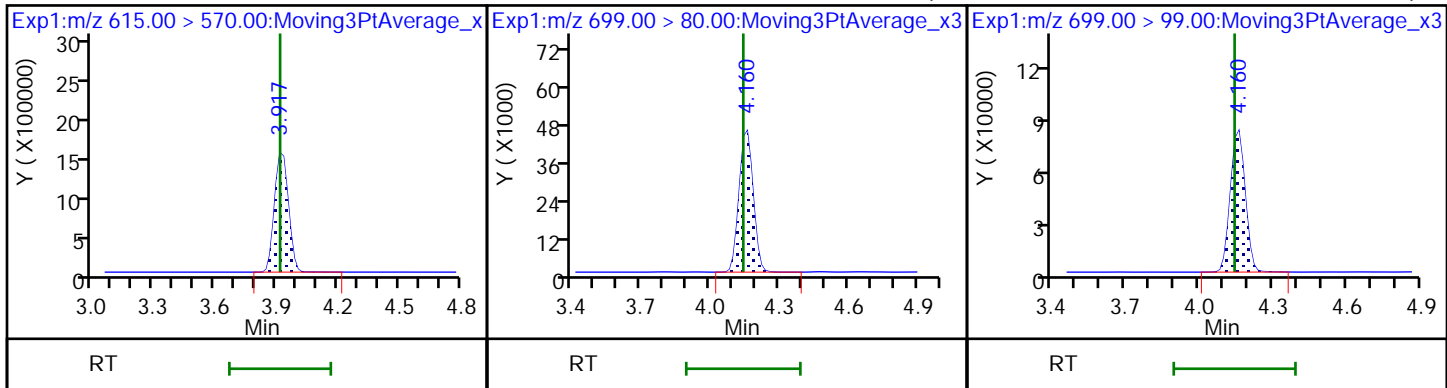
37 Perfluorododecanoic acid

74 1H,1H,2H,2H-perfluorododecanesulfo



D 36 13C2 PFDaA

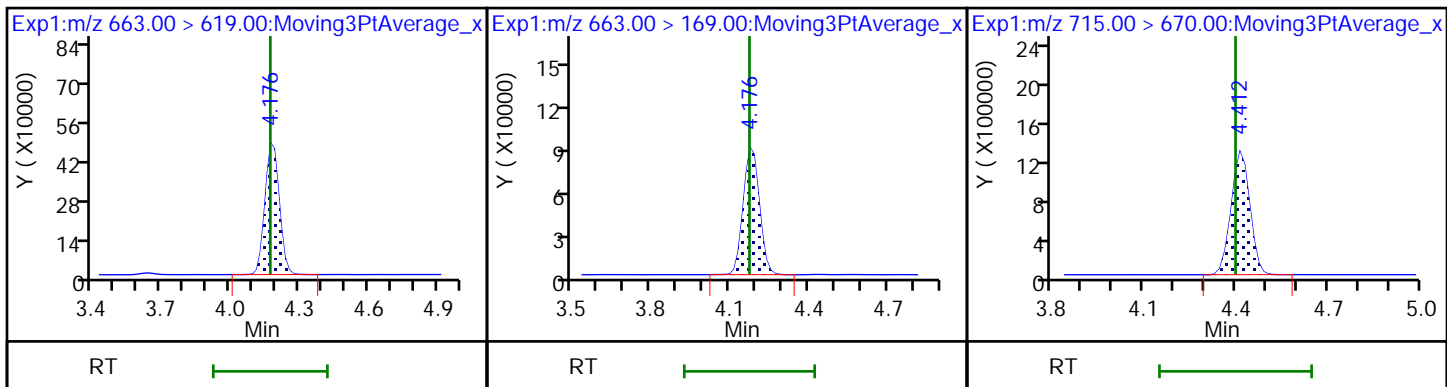
75 Perfluorododecanesulfonic acid (PF 75 Perfluorododecanesulfonic acid (PF



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

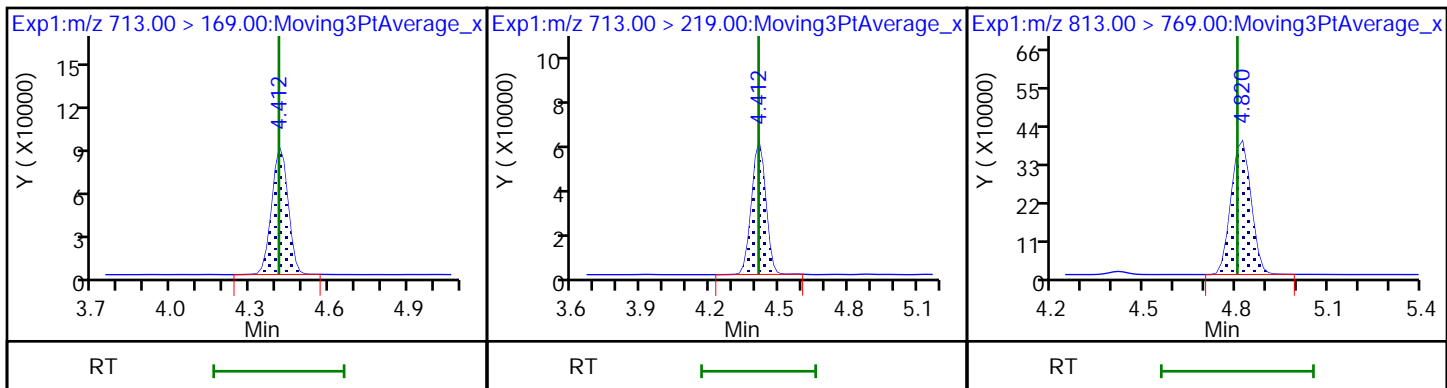
D 43 13C2 PFTeDA



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

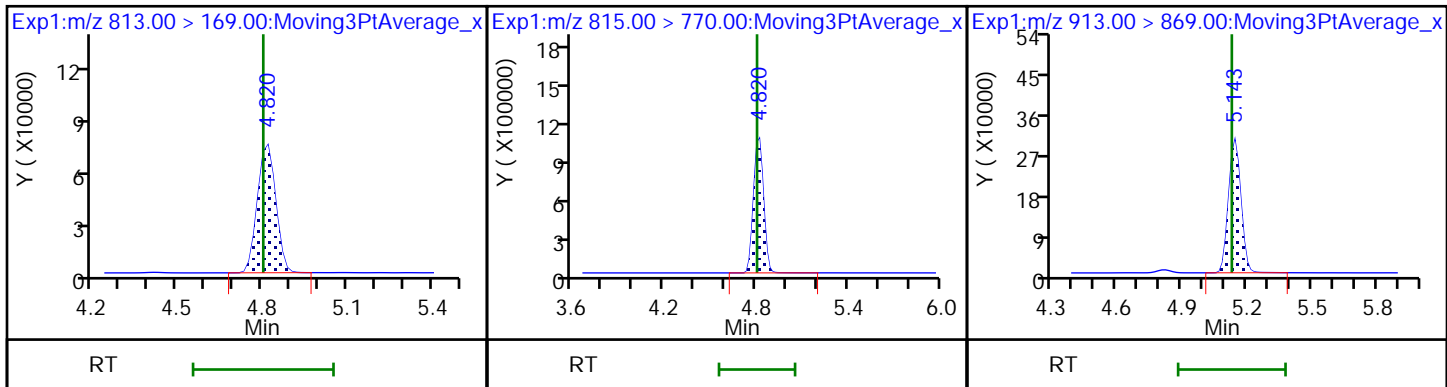
45 Perfluorohexadecanoic acid



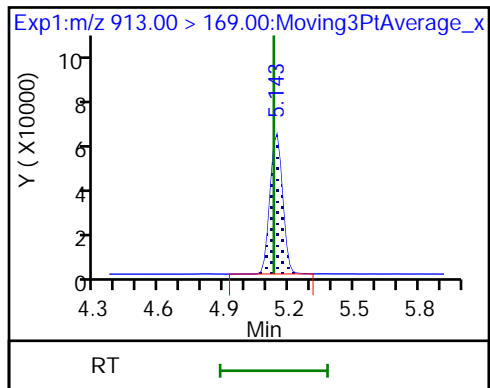
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid





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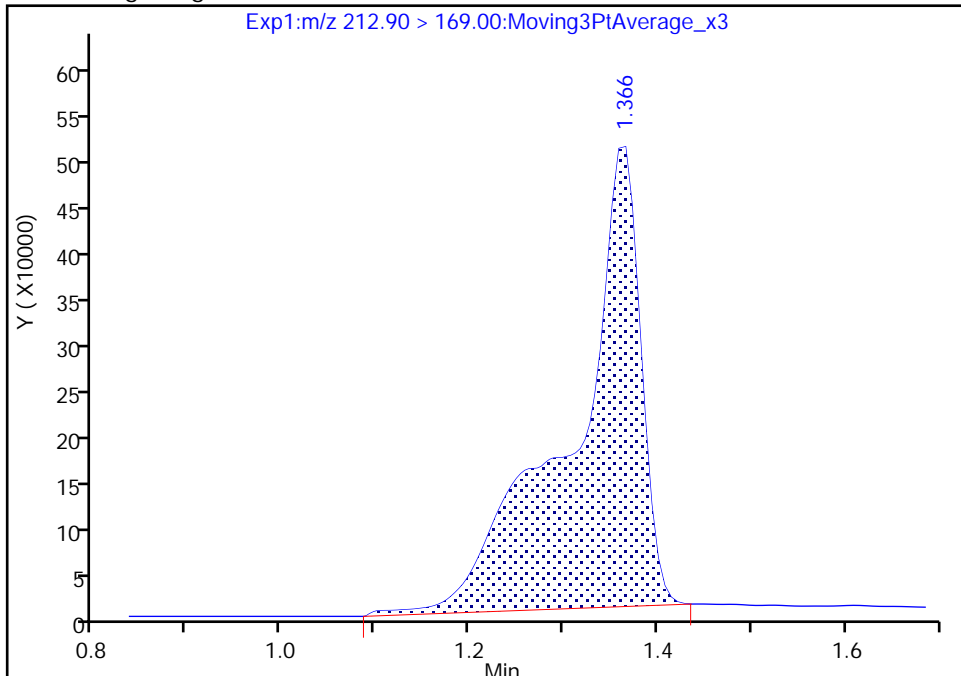
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_043.d  
Injection Date: 10-Nov-2018 14:58:33 Instrument ID: A9  
Lims ID: LCS 320-258069/2-A  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 31 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

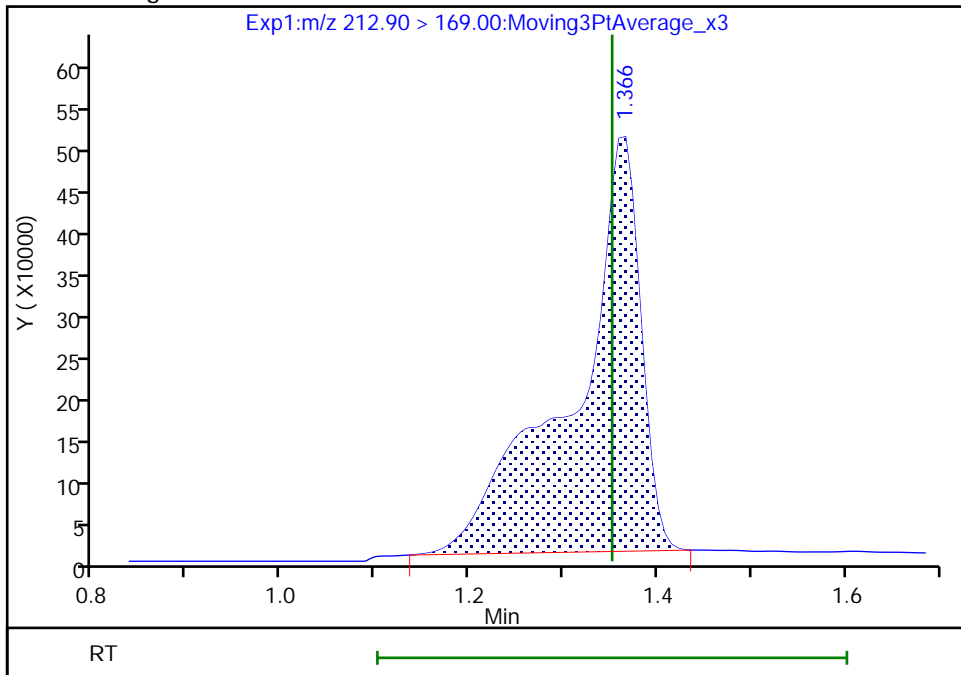
RT: 1.37  
Area: 2539177  
Amount: 0.973619  
Amount Units: ng/ml

Processing Integration Results



RT: 1.37  
Area: 2475880  
Amount: 0.949349  
Amount Units: ng/ml

Manual Integration Results



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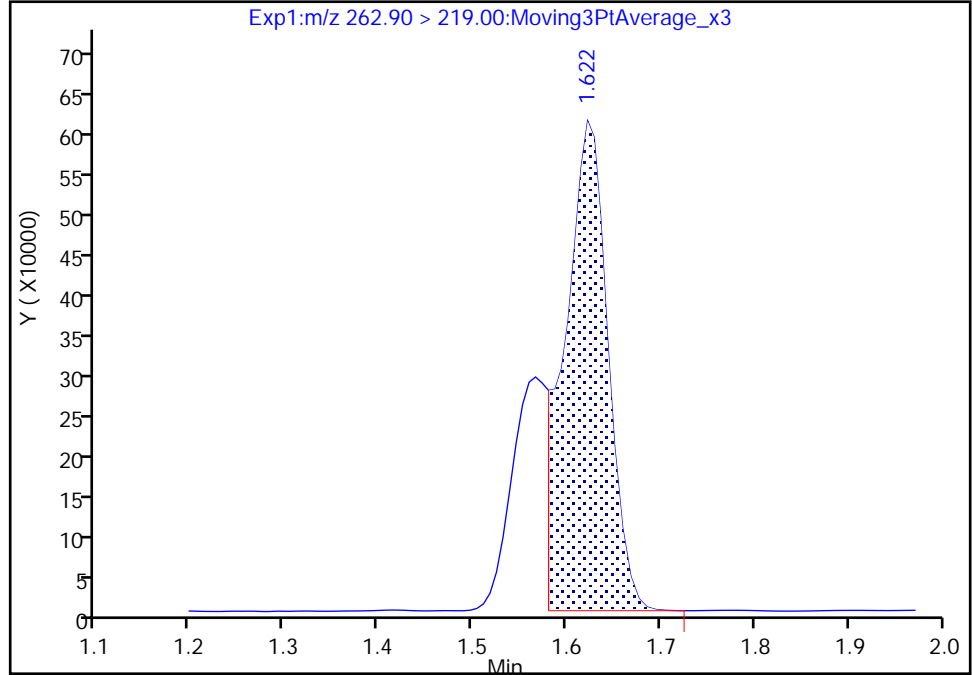
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_043.d  
Injection Date: 10-Nov-2018 14:58:33 Instrument ID: A9  
Lims ID: LCS 320-258069/2-A  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 31 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

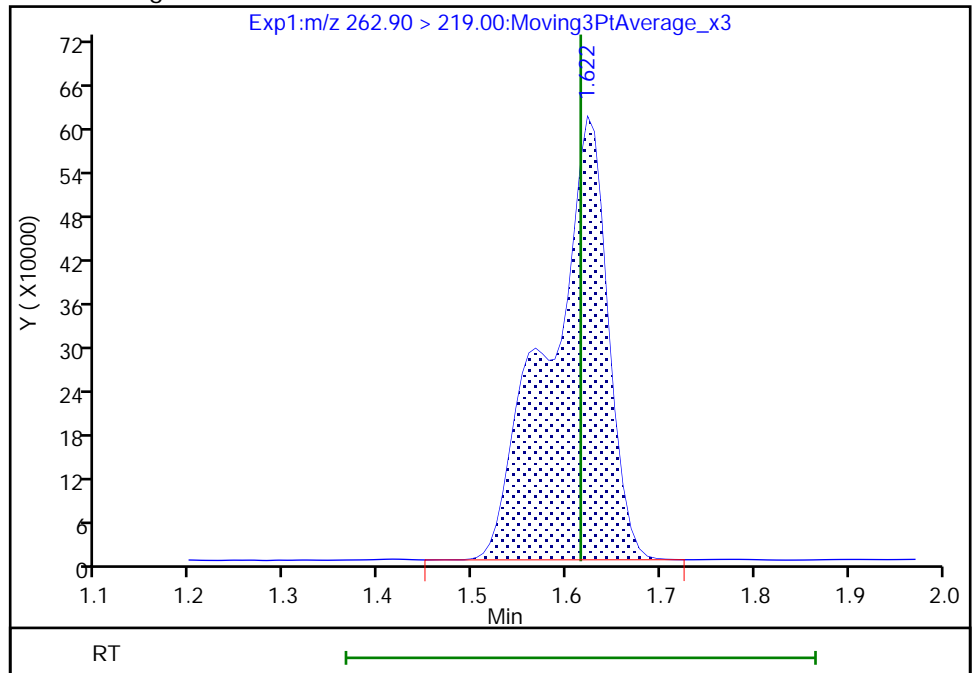
RT: 1.62  
Area: 1895771  
Amount: 0.733366  
Amount Units: ng/ml

Processing Integration Results



RT: 1.62  
Area: 2633677  
Amount: 1.018820  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

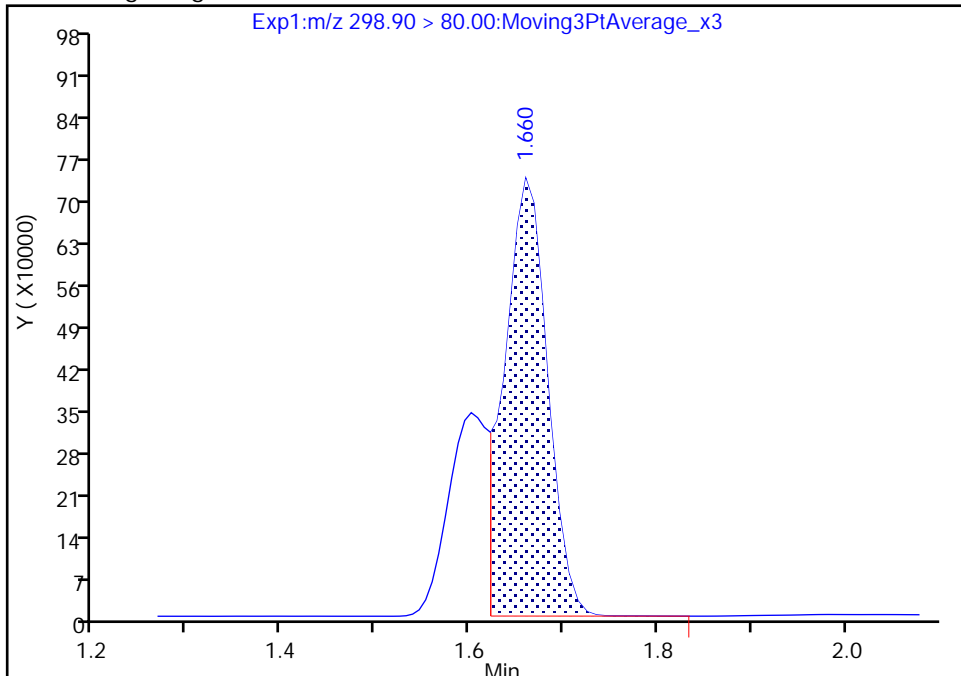
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_043.d  
Injection Date: 10-Nov-2018 14:58:33 Instrument ID: A9  
Lims ID: LCS 320-258069/2-A  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 31 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

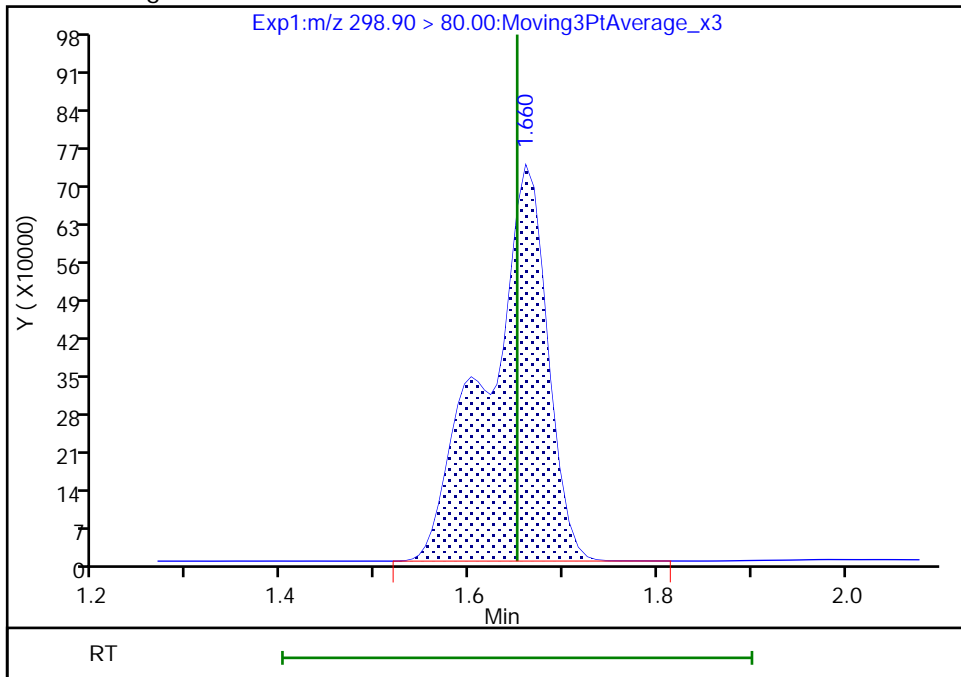
RT: 1.66  
Area: 2298819  
Amount: 0.666966  
Amount Units: ng/ml

Processing Integration Results



RT: 1.66  
Area: 3284938  
Amount: 0.953073  
Amount Units: ng/ml

Manual Integration Results



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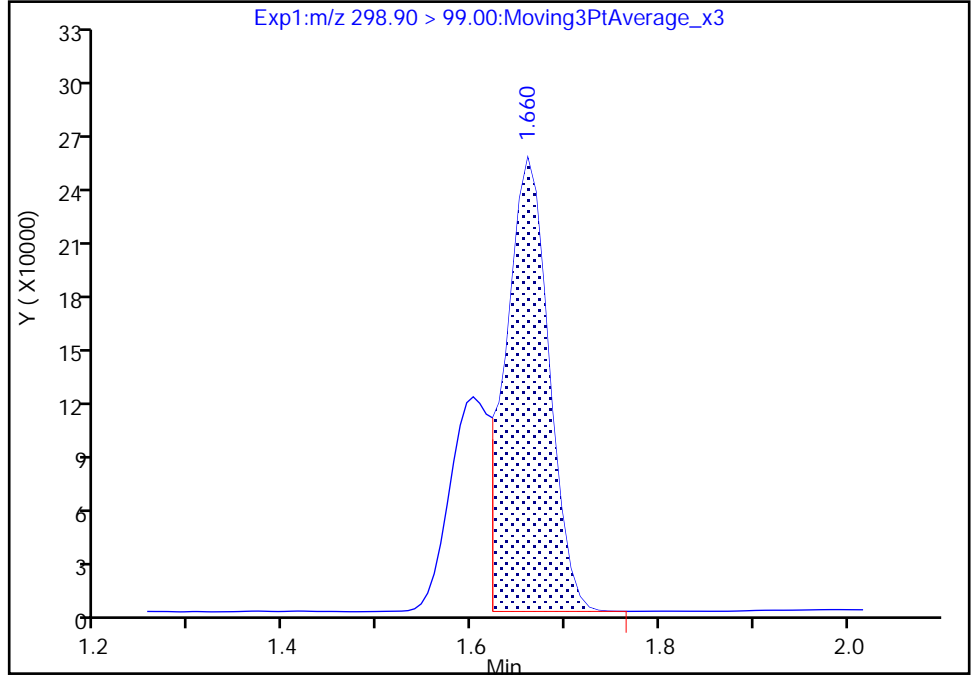
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_043.d  
Injection Date: 10-Nov-2018 14:58:33 Instrument ID: A9  
Lims ID: LCS 320-258069/2-A  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 31 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

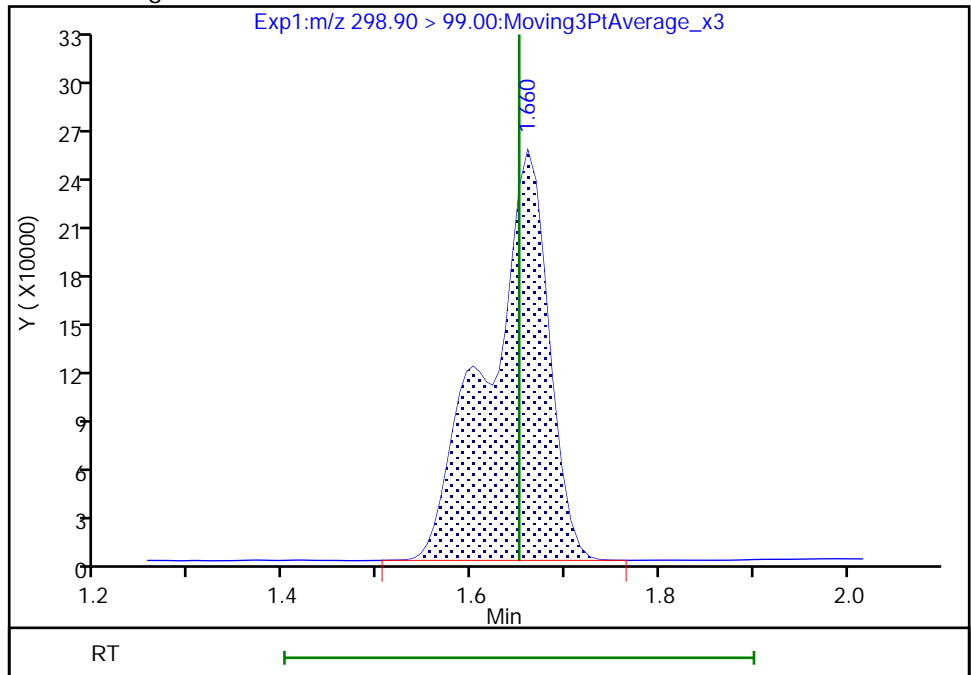
RT: 1.66  
Area: 795394  
Amount: 0.666966  
Amount Units: ng/ml

Processing Integration Results



RT: 1.66  
Area: 1145376  
Amount: 0.953073  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

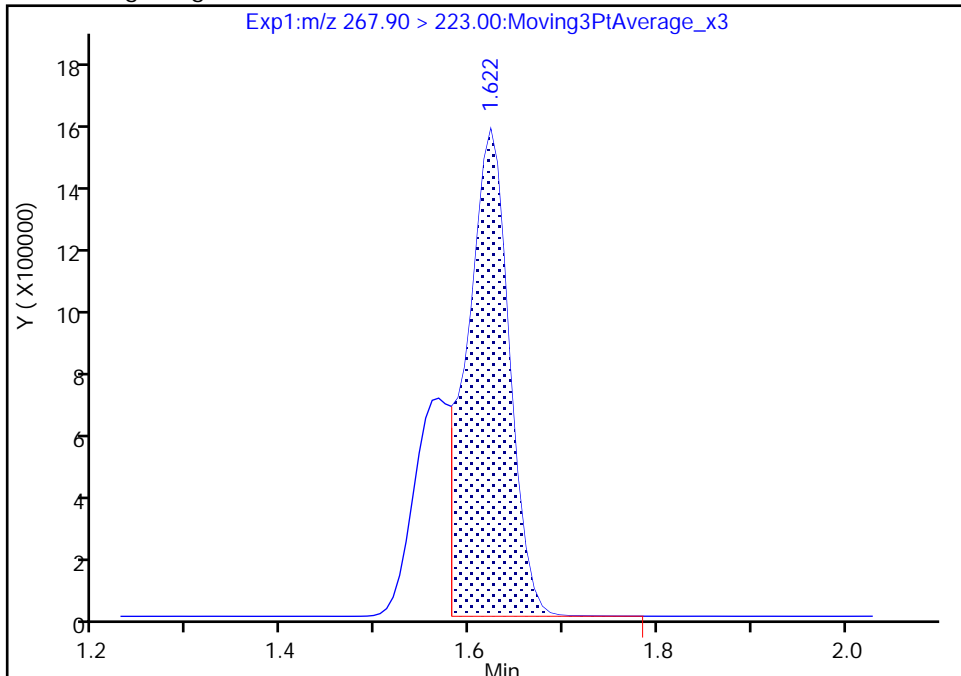
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_043.d  
Injection Date: 10-Nov-2018 14:58:33 Instrument ID: A9  
Lims ID: LCS 320-258069/2-A  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 31 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

D 3 13C5 PFPeA, CAS: STL01893

Signal: 1

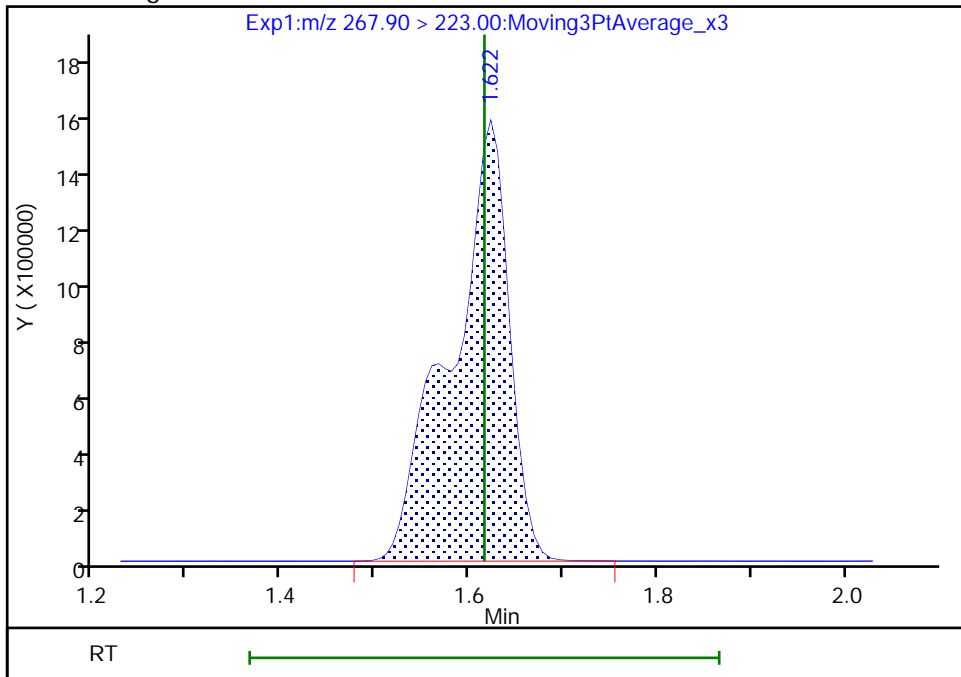
RT: 1.62  
Area: 4670769  
Amount: 1.727998  
Amount Units: ng/ml

Processing Integration Results



RT: 1.62  
Area: 6455738  
Amount: 2.388365  
Amount Units: ng/ml

Manual Integration Results



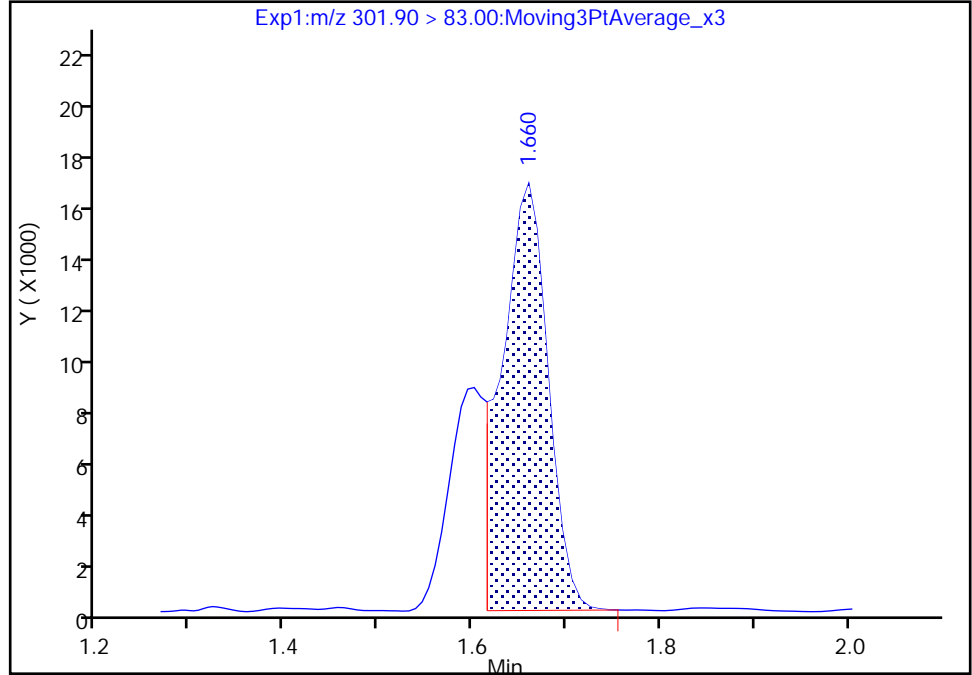
TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_043.d  
Injection Date: 10-Nov-2018 14:58:33 Instrument ID: A9  
Lims ID: LCS 320-258069/2-A  
Client ID:  
Operator ID: A9\Administrator ALS Bottle#: 31 Worklist Smp#: 3  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

**D 47 13C3 PFBS, CAS: STL02337**  
Signal: 1

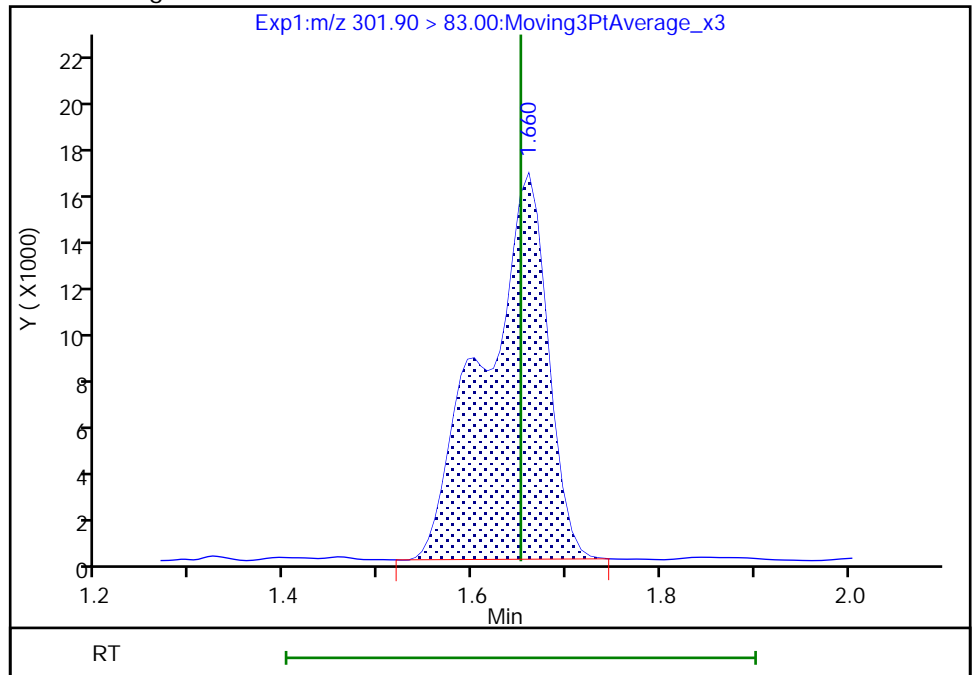
RT: 1.66  
Area: 55033  
Amount: 1.473026  
Amount Units: ng/ml

Processing Integration Results



RT: 1.66  
Area: 77605  
Amount: 2.077193  
Amount Units: ng/ml

Manual Integration Results



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-201 MS Lab Sample ID: 480-144495-2 MS  
 Matrix: Water Lab File ID: 2018.11.10LLA\_046.d  
 Analysis Method: 537 (modified) Date Collected: 10/30/2018 13:27  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 242 (mL) Date Analyzed: 11/10/2018 15:21  
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1  
 Injection Volume: 20 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	44.3		2.1	0.36
2706-90-3	Perfluoropentanoic acid (PFPeA)	42.7		2.1	0.51
307-24-4	Perfluorohexanoic acid (PFHxA)	39.6		2.1	0.60
375-85-9	Perfluoroheptanoic acid (PFHpA)	40.4		2.1	0.26
335-67-1	Perfluorooctanoic acid (PFOA)	52.1		2.1	0.88
375-95-1	Perfluorononanoic acid (PFNA)	43.2		2.1	0.28
335-76-2	Perfluorodecanoic acid (PFDA)	45.5		2.1	0.32
2058-94-8	Perfluoroundecanoic acid (PFUnA)	38.7		2.1	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	36.4		2.1	0.57
72629-94-8	Perfluorotridecanoic acid (PFTriA)	39.6		2.1	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	37.9		2.1	0.30
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38.4		2.1	0.21
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	34.6		2.1	0.18
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	43.5		2.1	0.20
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	39.0		2.1	0.56
335-77-3	Perfluorodecanesulfonic acid (PFDS)	41.0		2.1	0.33
754-91-6	Perfluorooctanesulfonamide (FOSA)	41.4		2.1	0.36
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	39.9		21	3.2
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	38.7		21	2.0
27619-97-2	6:2 FTS	35.7		21	2.1
39108-34-4	8:2 FTS	35.0		21	2.1

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>480-144495-1</u>
SDG No.: _____	
Client Sample ID: <u>MW-201 MS</u>	Lab Sample ID: <u>480-144495-2 MS</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.11.10LLA_046.d</u>
Analysis Method: <u>537 (modified)</u>	Date Collected: <u>10/30/2018 13:27</u>
Extraction Method: <u>3535</u>	Date Extracted: <u>11/09/2018 07:44</u>
Sample wt/vol: <u>242 (mL)</u>	Date Analyzed: <u>11/10/2018 15:21</u>
Con. Extract Vol.: <u>10.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>20 (uL)</u>	GC Column: <u>Acquity</u> ID: <u>2.1 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>258354</u>	Units: <u>ng/L</u>

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	53		25-150
STL01893	13C5 PFPeA	71		25-150
STL00993	13C2 PFHxA	85		25-150
STL01892	13C4 PFHpA	95		25-150
STL00990	13C4 PFOA	90		25-150
STL00995	13C5 PFNA	89		25-150
STL00996	13C2 PFDA	90		25-150
STL00997	13C2 PFUnA	89		25-150
STL00998	13C2 PFDoA	83		25-150
STL02116	13C2 PFTeDA	82		25-150
STL02337	13C3 PFBS	84		25-150
STL00994	18O2 PFHxS	94		25-150
STL00991	13C4 PFOS	90		25-150
STL01056	13C8 FOSA	93		25-150
STL02118	d3-NMeFOSAA	76		25-150
STL02117	d5-NEtFOSAA	82		25-150
STL02279	M2-6:2 FTS	97		25-150
STL02280	M2-8:2 FTS	78		25-150



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_046.d  
 Lims ID: 480-144495-C-2-B MS  
 Client ID: MW-201  
 Sample Type: MS  
 Inject. Date: 10-Nov-2018 15:21:06 ALS Bottle#: 34 Worklist Smp#: 6  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-144495-c-2-b ms  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: A9\Administrator Instrument ID: A9  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 14-Nov-2018 13:15:43 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0303

First Level Reviewer: mongkols Date: 14-Nov-2018 13:15:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.90 > 169.00	1.367	1.352	0.015	1.000	1537973	1.07		107	35.3	M
D 1 13C4 PFBA										
217.00 > 172.00	1.367	1.352	0.015	0.528	3832408	1.31		52.5	5552	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.624	1.615	0.009	1.000	2038400	1.03		103	69.8	M
D 3 13C5 PFPeA										
267.90 > 223.00	1.624	1.616	0.008	0.627	4925032	1.77		70.9	2432	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.661	1.651	0.010	1.000	3085011	0.9288		105	144	
298.90 > 99.00	1.661	1.651	0.010	1.000	1077265		2.86(1.35-4.05)		63.5	
D 47 13C3 PFBS										
301.90 > 83.00	1.661	1.651	0.010	0.642	74787	1.95		83.8	87.5	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.874	1.862	0.012	1.128	1056879	1.60		171	3109	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.913	1.891	0.022	1.005	2161589	0.9594		95.9	31.4	
313.00 > 119.00	1.913	1.891	0.022	1.005	166017		13.02(6.96-20.87)		78.3	
D 7 13C2 PFHxA										
315.00 > 270.00	1.904	1.893	0.011	0.735	6260682	2.14		85.5	7990	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.933	1.911	0.022	1.164	1664878	1.08		115	186	
349.00 > 99.00	1.933	1.911	0.022	1.164	742597		2.24(1.15-3.45)		85.0	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.006	1.991	0.015	1.000	485997	1.04		104	72.9	M
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.006	1.993	0.013	0.775	704929	1.86		74.5	1826	

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	2.230	2.213	0.017	1.000	3410080	0.9779		97.8	62.6	
363.00 > 169.00	2.230	2.213	0.017	1.000	732427		4.66(2.17-6.52)		477	
D 9 13C4 PFHpA										
367.00 > 322.00	2.230	2.216	0.014	0.861	8218960	2.39		95.4	13390	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.255	2.225	0.030	1.000	2219694	0.8364		91.9	285	M
399.00 > 99.00	2.255	2.225	0.030	1.000	664990		3.34(1.90-5.70)		208	M
D 11 18O2 PFHxS										
403.00 > 84.00	2.255	2.229	0.026	0.871	4982545	2.22		94.0	12236	
76 DONA										
377.00 > 251.00	2.280	2.250	0.030	0.768	5294112	0.9543		101	5918	
377.00 > 85.00	2.280	2.250	0.030	0.768	2469216		2.14(1.13-3.39)		813	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.574	2.539	0.035	1.000	582203	0.8647		91.2	996	
D 12 M2-6:2 FTS										
429.00 > 81.00	2.574	2.543	0.031	0.994	732812	2.31		97.4	546	
D 73 13C8 PFOA										
421.00 > 376.00	2.589	2.558	0.031		8046	0.002338		0.0	25.5	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.604	2.569	0.035	1.000	3871852	1.26		126	171	M
413.00 > 169.00	2.604	2.569	0.035	1.000	1404201		2.76(1.36-4.08)		1092	M
* 62 13C2 PFOA										
415.00 > 370.00	2.589	2.569	0.020		8017466	2.50			7763	
D 14 13C4 PFOA										
417.00 > 372.00	2.604	2.573	0.031	1.006	7101377	2.25		90.0	8430	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.604	2.584	0.020	0.878	2236771	1.05		111	1037	
449.00 > 99.00	2.604	2.584	0.020	0.878	534045		4.19(1.84-5.53)		638	
17 Perfluorooctanesulfonic acid										
499.00 > 80.00	2.968	2.945	0.023	1.000	2077157	0.9448		102	881	
499.00 > 99.00	2.968	2.945	0.023	1.000	464440		4.47(2.04-6.12)		871	
20 Perfluorononanoic acid										
463.00 > 419.00	2.968	2.945	0.023	1.000	2727961	1.04		104	258	
463.00 > 169.00	2.968	2.945	0.023	1.000	535424		5.09(2.68-8.03)		629	
D 18 13C4 PFOS										
503.00 > 80.00	2.968	2.949	0.019	1.146	4879229	2.15		90.1	4981	
D 19 13C5 PFNA										
468.00 > 423.00	2.968	2.949	0.019	1.146	6521615	2.24		89.4	6446	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.171	3.152	0.019	1.069	1961484	0.8673		93.1	1953	
D 26 M2-8:2 FTS										
529.00 > 81.00	3.315	3.281	0.034	1.281	72951	1.86		77.6	309	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.315	3.295	0.020	1.117	1204452	0.9617		100	2891	
549.00 > 99.00	3.315	3.295	0.020	1.117	185091		6.51(3.02-9.05)		1350	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.315	3.295	0.020	1.000	368482	0.8474		88.5	2546	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
22 Perfluorooctanesulfonamide	498.00 > 78.00	3.331	3.295	0.036	1.000	3520051	1.00	100	4416	
24 Perfluorodecanoic acid	513.00 > 469.00	3.331	3.295	0.036	1.000	3250450	1.10	110	468	
	513.00 > 169.00	3.331	3.295	0.036	1.000	197030	16.50(7.12-21.35)		516	
D 21 13C8 FOSA	506.00 > 78.00	3.331	3.298	0.033	1.287	2925036	2.33	93.3	5965	
D 23 13C2 PFDA	515.00 > 470.00	3.331	3.298	0.033	1.287	6791107	2.26	90.4	8071	
28 N-methylperfluorooctanesulfonamido	570.00 > 419.00	3.485	3.451	0.033	1.000	950125	0.9658	96.6	430	
D 27 d3-NMeFOSAA	573.00 > 419.00	3.485	3.452	0.032	1.346	2459275	1.89	75.8	2239	
29 Perfluorodecanesulfonic acid	599.00 > 80.00	3.642	3.605	0.037	1.227	1751788	0.99	103	1621	
	599.00 > 99.00	3.642	3.605	0.037	1.227	318956	5.49(2.14-6.43)		894	
31 Perfluoroundecanoic acid	563.00 > 519.00	3.657	3.622	0.035	1.004	2393161	0.9377	93.8	579	
	563.00 > 169.00	3.657	3.622	0.035	1.004	167440	14.29(5.24-15.72)		439	
33 N-ethylperfluorooctanesulfonamidoa	584.00 > 419.00	3.642	3.622	0.020	1.000	742183	0.9359	93.6	990	
D 30 13C2 PFUnA	565.00 > 520.00	3.642	3.623	0.019	1.407	5611450	2.24	89.5	8255	
D 32 d5-NEtFOSAA	589.00 > 419.00	3.642	3.623	0.019	1.407	2168423	2.05	82.0	1765	
66 11-Chloroeicosafuoro-3-oxaundecan	631.00 > 451.00	3.805	3.772	0.033	1.282	2526092	0.8924	94.7	5059	
37 Perfluorododecanoic acid	613.00 > 569.00	3.937	3.915	0.022	1.000	2309175	0.8815	88.1	609	
	613.00 > 169.00	3.937	3.915	0.022	1.000	259251	8.91(4.68-14.05)		411	
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00 > 607.00	3.937	3.915	0.022	1.187	287389	0.9331	96.8	977	
D 36 13C2 PFDaA	615.00 > 570.00	3.937	3.918	0.019	1.521	6437380	2.08	83.3	7930	
75 Perfluorododecanesulfonic acid (PF	699.00 > 80.00	4.162	4.143	0.019	1.402	184580	0.9385	96.9	665	
	699.00 > 99.00	4.162	4.143	0.019	1.402	321078	0.57(0.28-0.83)		950	
41 Perfluorotridecanoic acid	663.00 > 619.00	4.192	4.173	0.019	1.065	2018178	0.9587	95.9	670	
	663.00 > 169.00	4.192	4.173	0.019	1.065	343260	5.88(3.09-9.27)		776	
D 43 13C2 PFTeDA	715.00 > 670.00	4.429	4.397	0.032	1.711	4747043	2.06	82.2	8351	
42 Perfluorotetradecanoic acid	713.00 > 169.00	4.429	4.410	0.019	1.000	318079	0.9162	91.6	1058	
	713.00 > 219.00	4.413	4.410	0.003	0.996	224283	1.42(0.70-2.09)		877	
45 Perfluorohexadecanoic acid	813.00 > 769.00	4.821	4.803	0.018	1.000	1160367	0.9397	94.0	661	
	813.00 > 169.00	4.821	4.803	0.018	1.000	214694	5.40(2.77-8.32)		643	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 44 13C2 PFHxDA	815.00 > 770.00	4.821	4.804	0.017	1.862	3331248	1.45	58.1	6217	
46 Perfluorooctadecanoic acid	913.00 > 869.00	5.145	5.129	0.016	1.067	598367	0.9081	90.8	660	
	913.00 > 169.00	5.145	5.129	0.016	1.067	123518	4.84(2.55-7.64)		1105	

**QC Flag Legend**

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_046.d

Injection Date: 10-Nov-2018 15:21:06 Instrument ID: A9

Lims ID: 480-144495-C-2-B MS

Client ID: MW-201

Operator ID: A9\Administrator

ALS Bottle#: 34 Worklist Smp#: 6

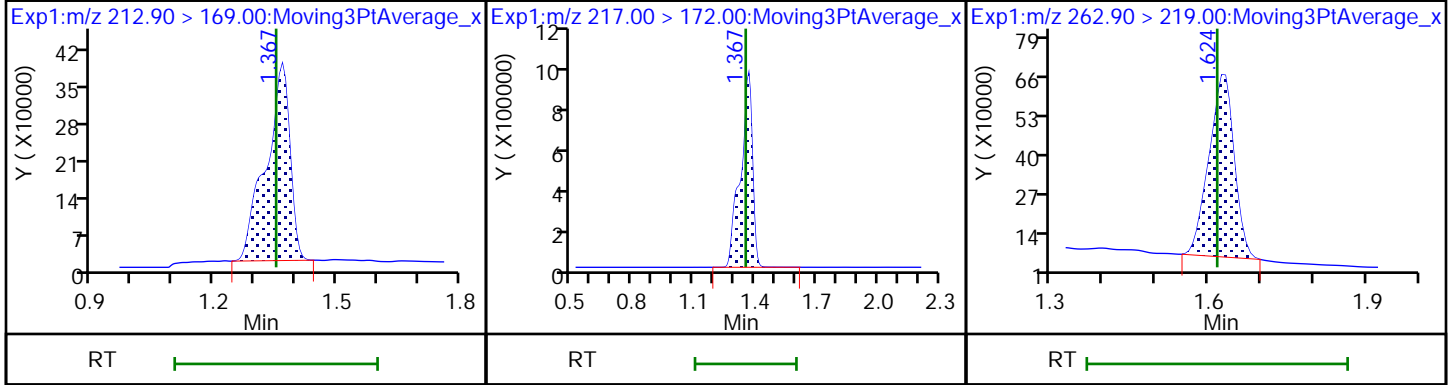
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: PFAS\_A9 Limit Group: LC PFC ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA

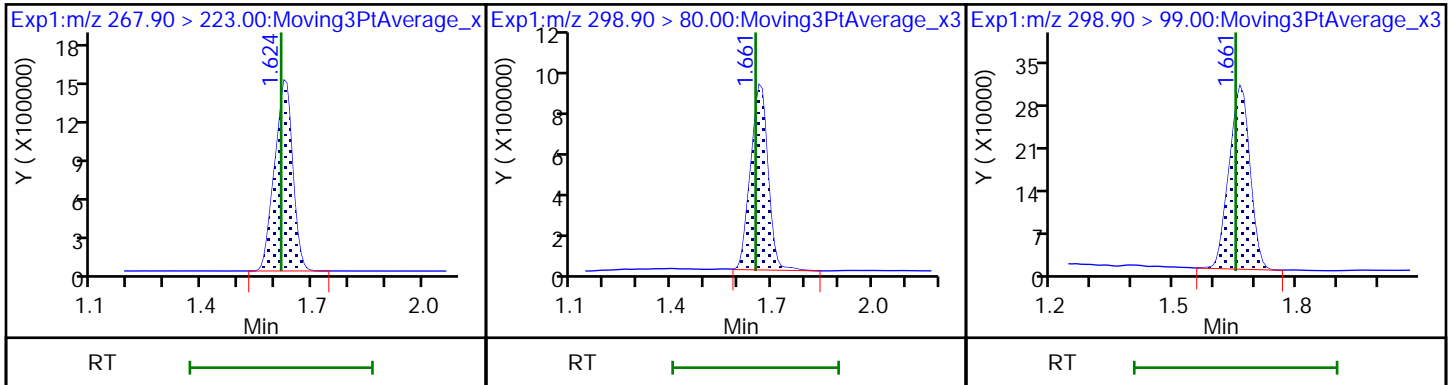
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid

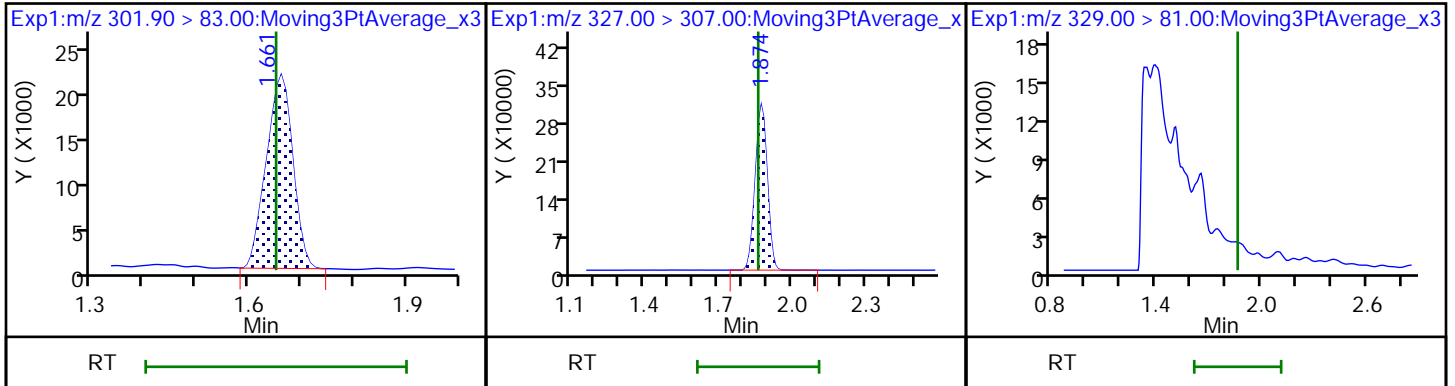
5 Perfluorobutanesulfonic acid



D 47 13C3 PFBS

61 1H,1H,2H,2H-perfluorohexanesulfonate

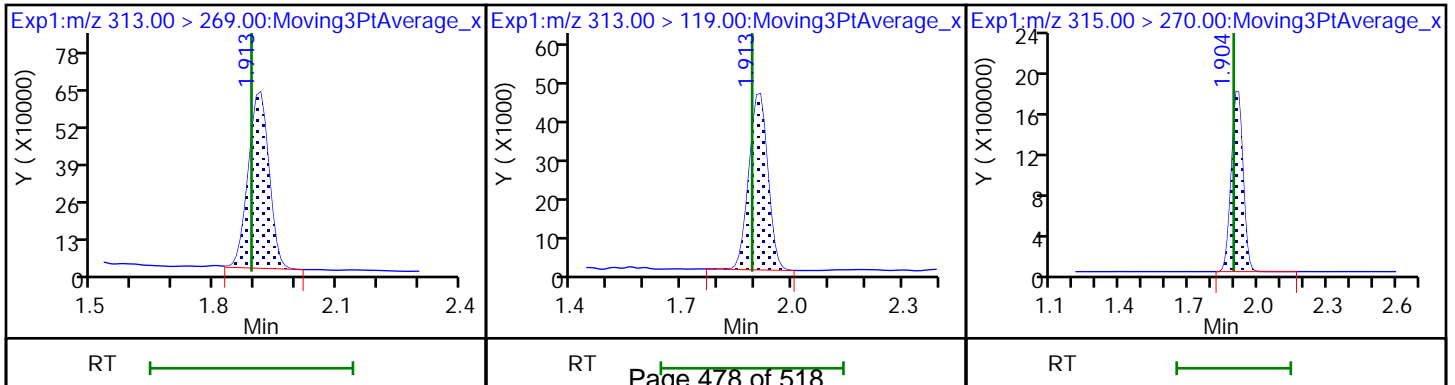
D 60 M2-4:2 FTS (ND)

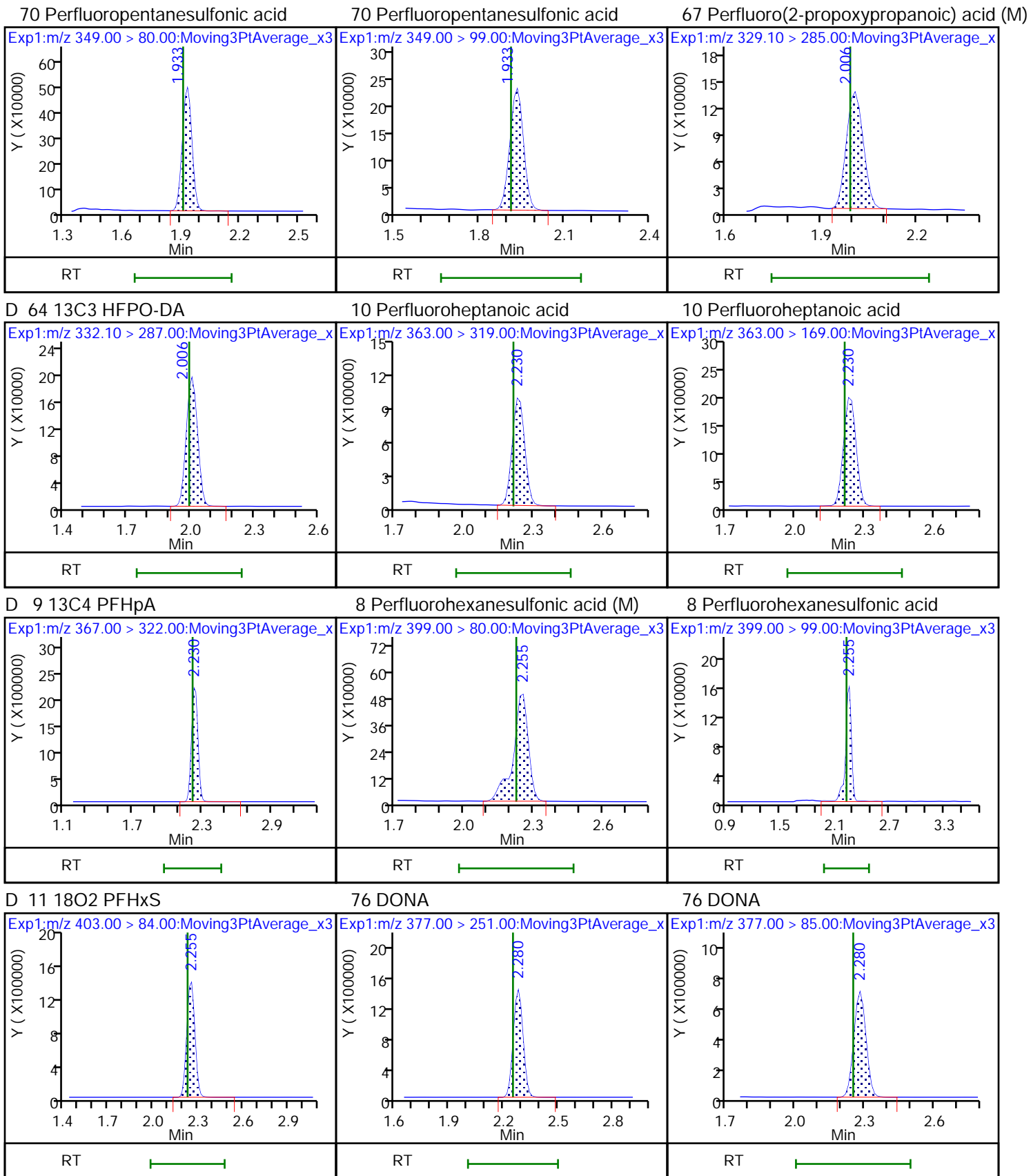


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

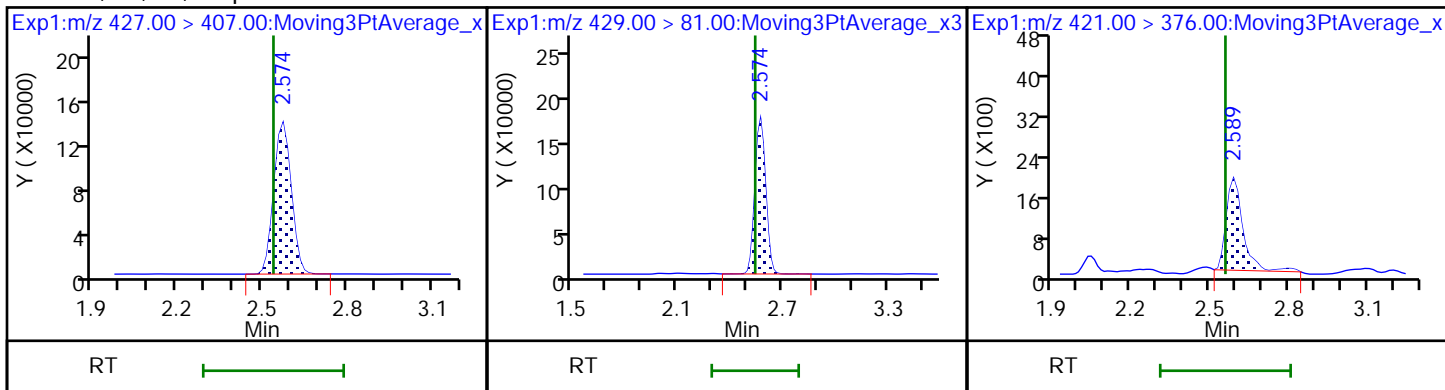
D 7 13C2 PFHxA





13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2 FTS

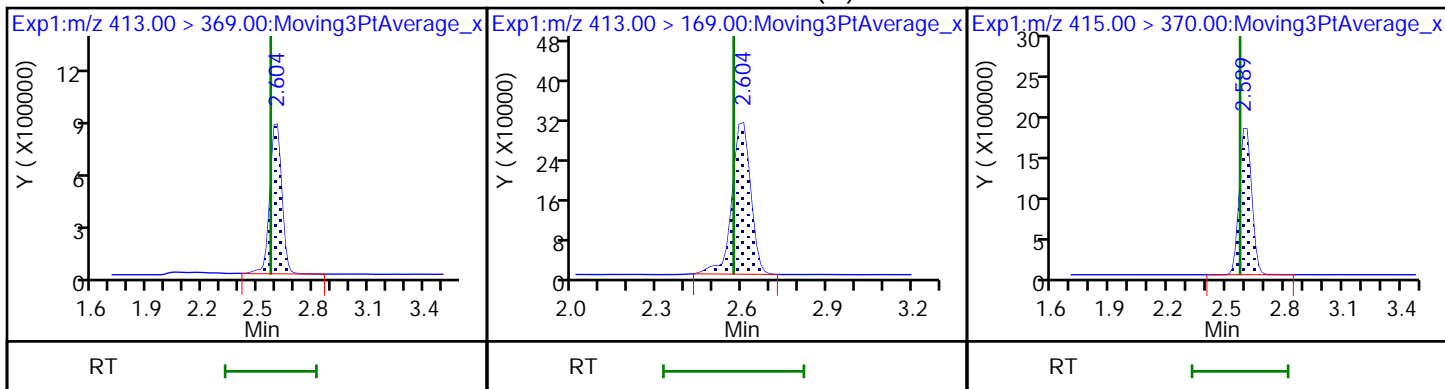
D 73 13C8 PFOA



15 Perfluorooctanoic acid

15 Perfluorooctanoic acid (M)

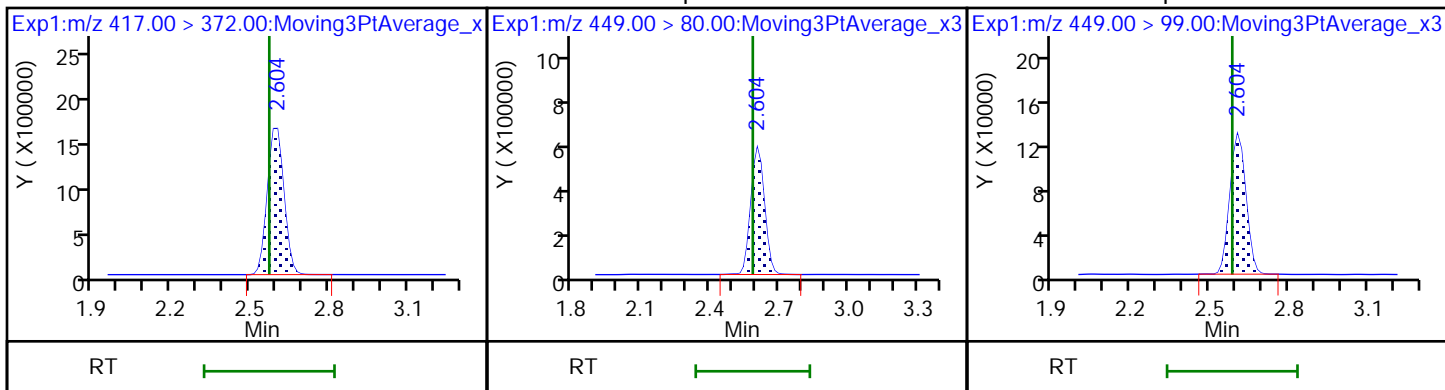
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

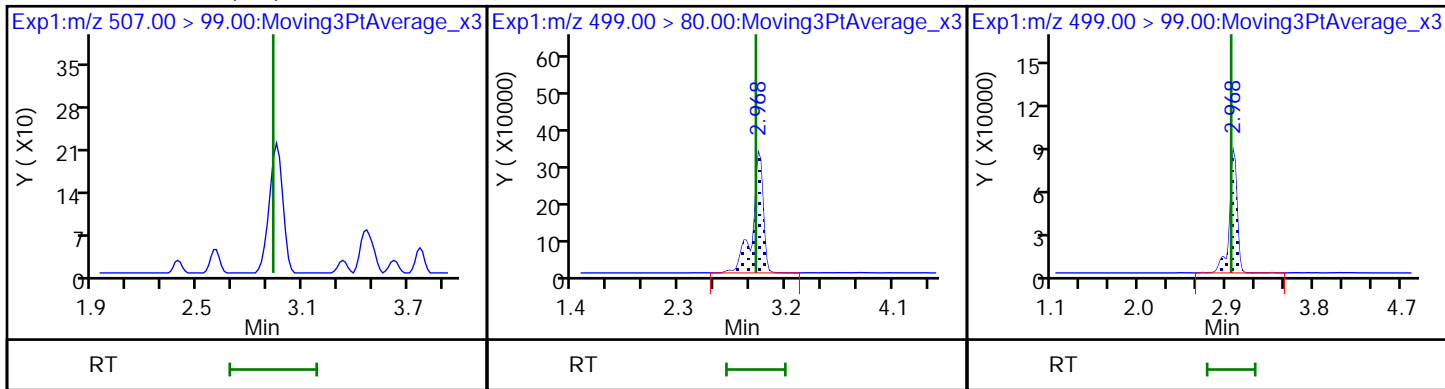
16 Perfluoroheptanesulfonic acid

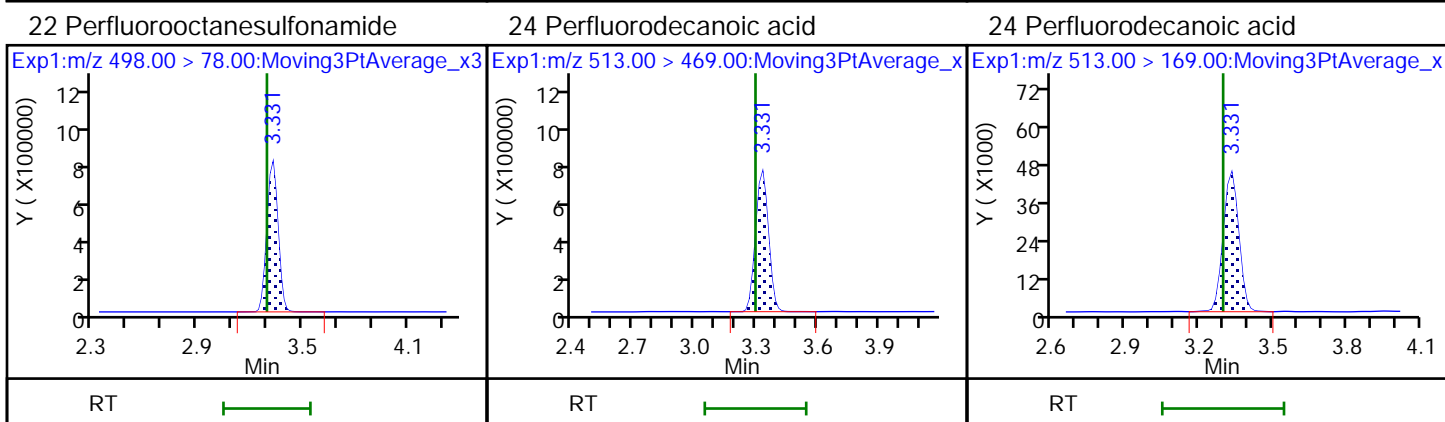
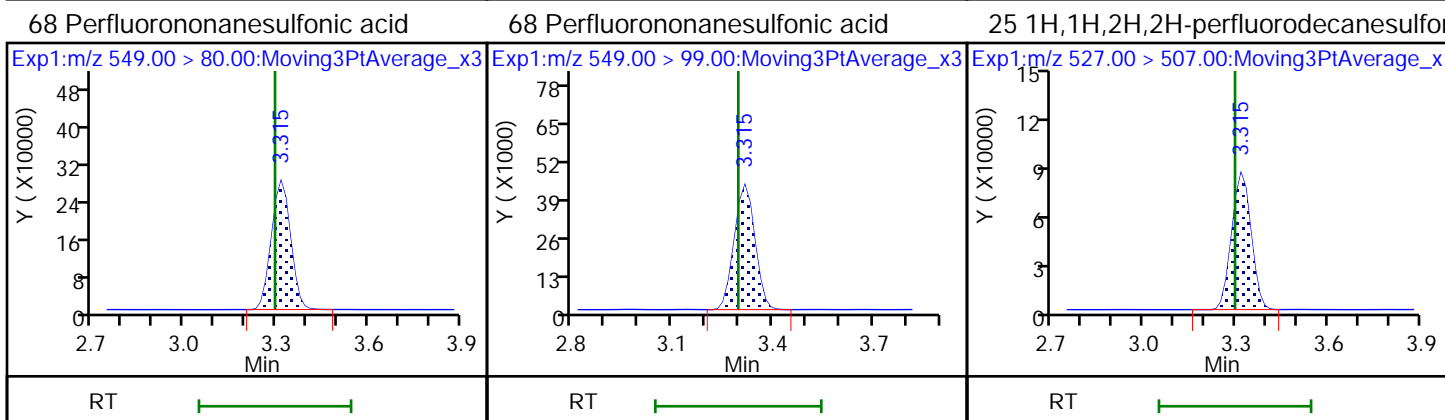
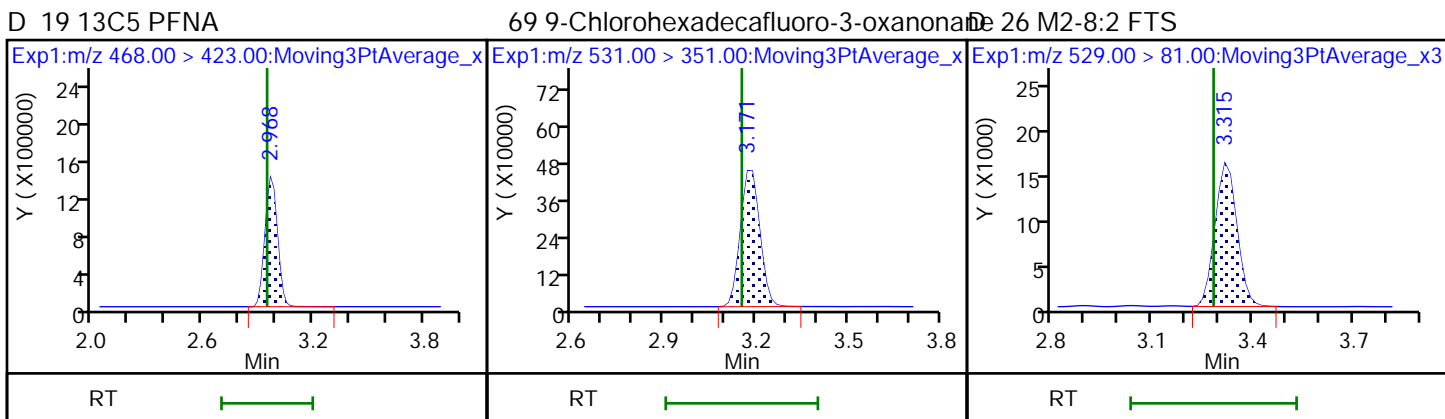
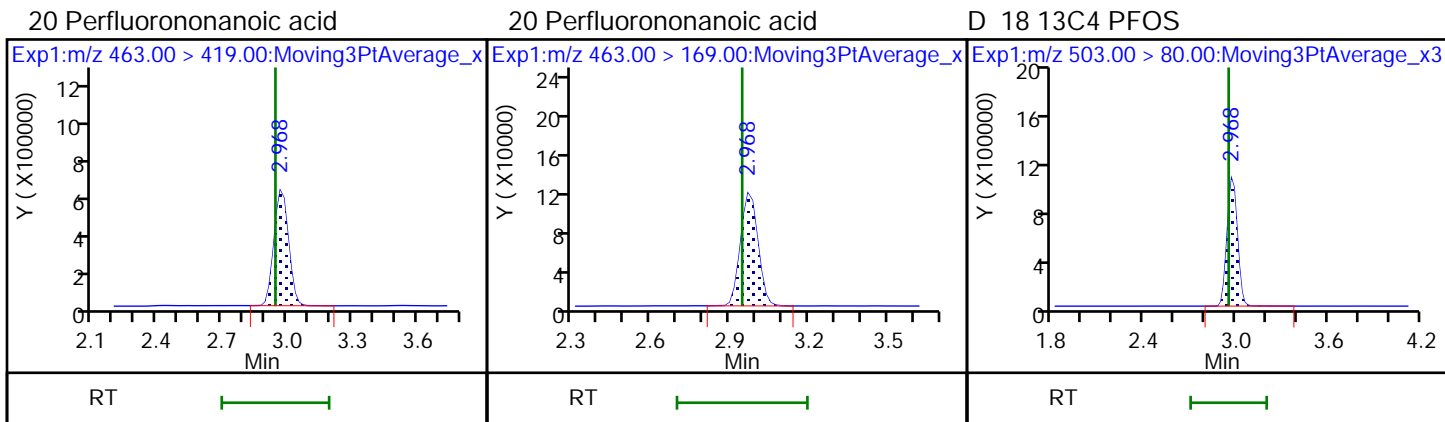


D 72 13C8 PFOS (ND)

17 Perfluorooctanesulfonic acid

17 Perfluorooctanesulfonic acid



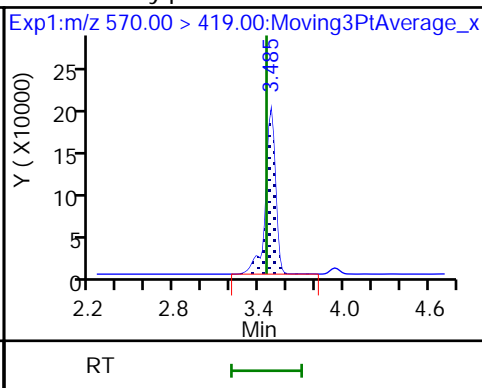
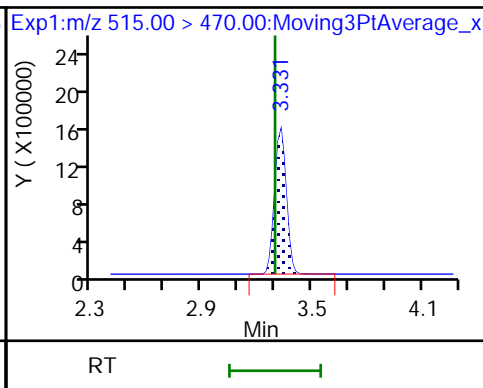
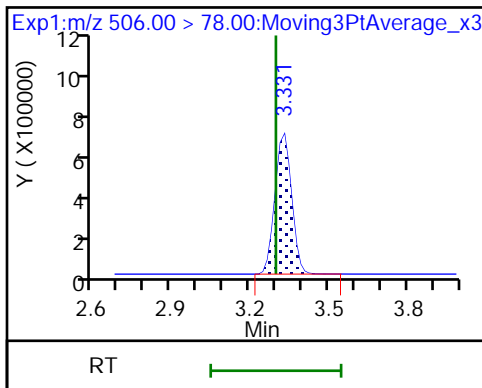




D 21 13C8 FOSA

D 23 13C2 PFDA

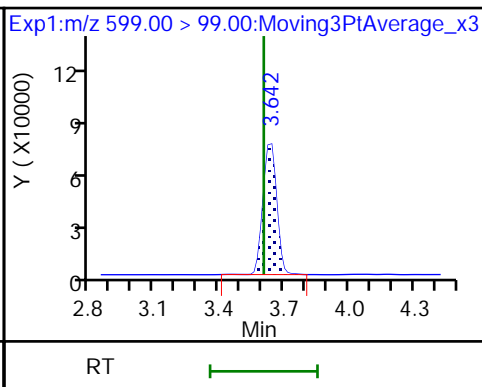
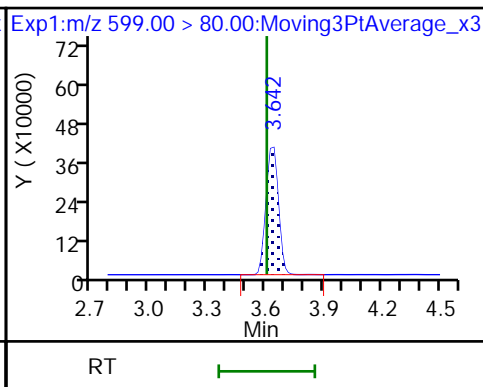
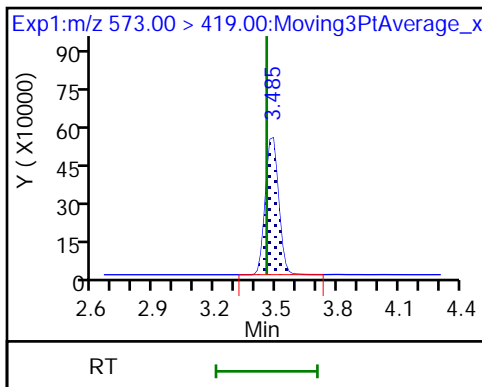
28 N-methylperfluorooctanesulfonamido



D 27 d3-NMeFOSAA

29 Perfluorodecanesulfonic acid

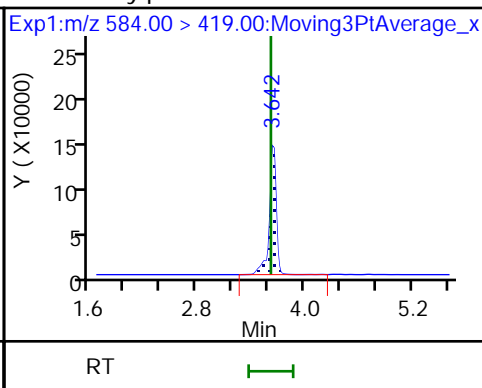
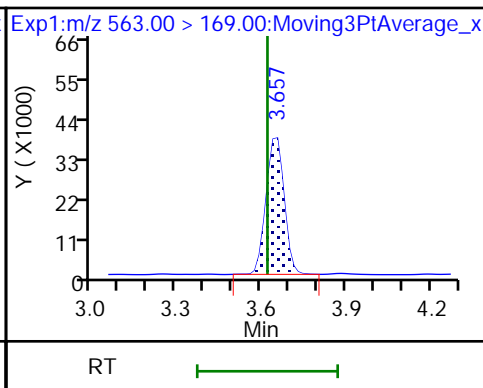
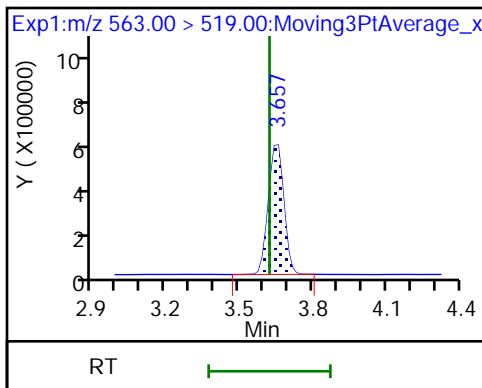
29 Perfluorodecanesulfonic acid



31 Perfluoroundecanoic acid

31 Perfluoroundecanoic acid

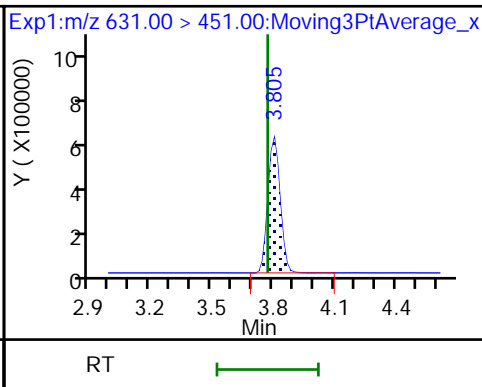
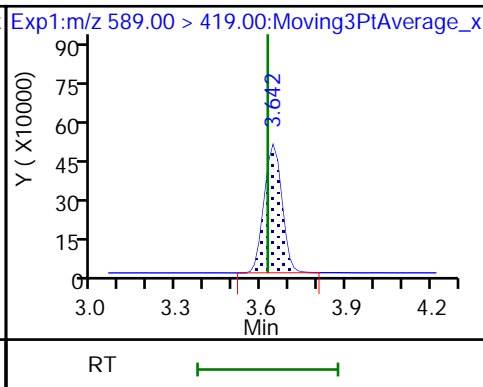
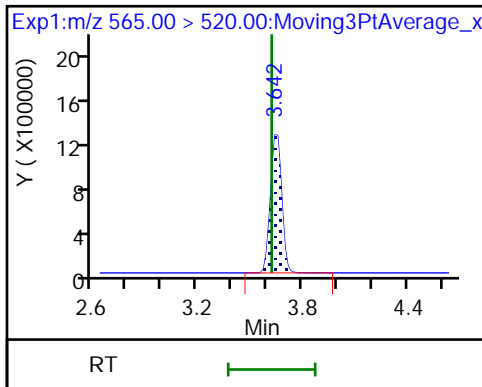
33 N-ethylperfluorooctanesulfonamido

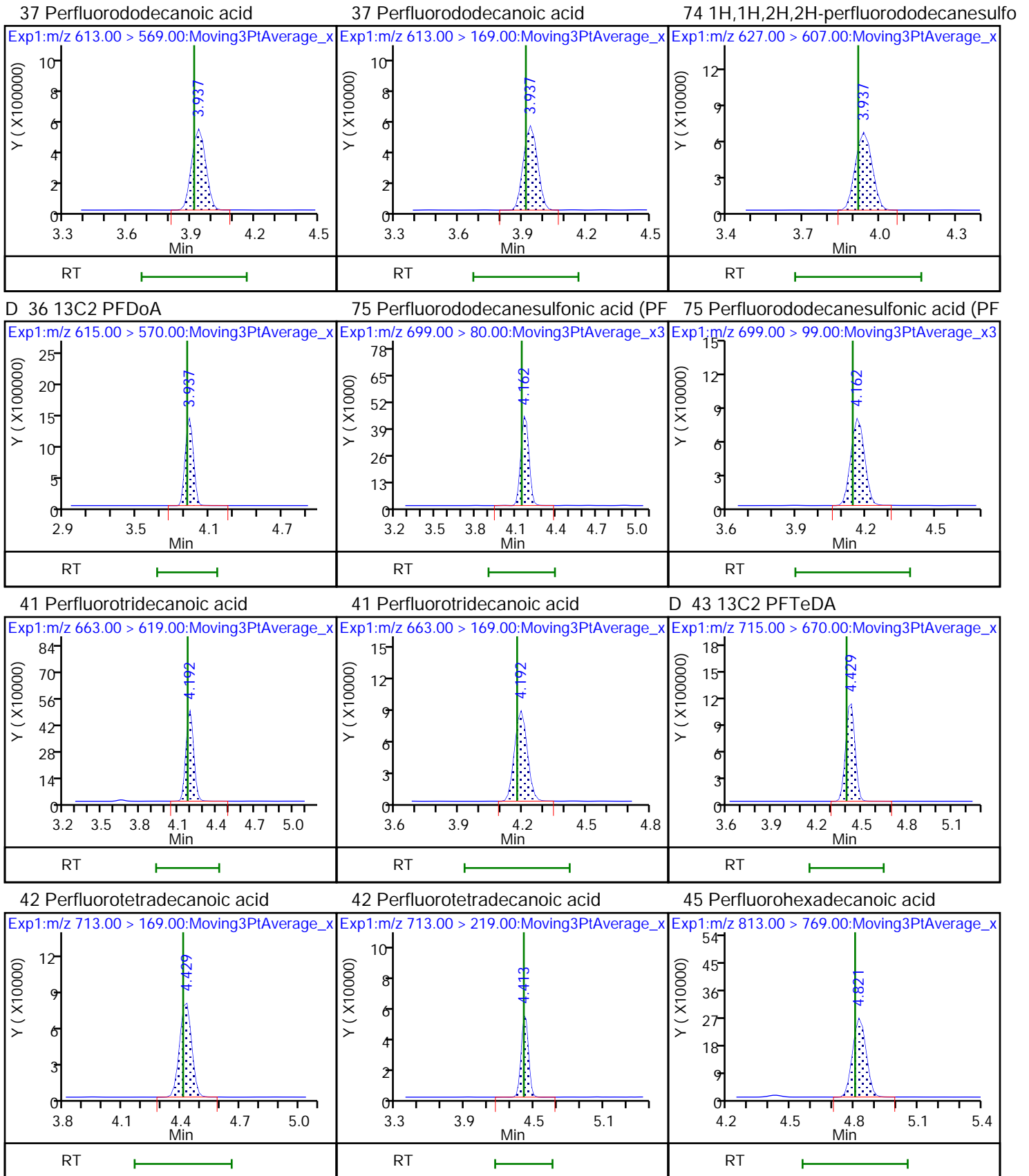


D 30 13C2 PFUnA

D 32 d5-NEtFOSAA

66 11-Chloroeicosafuoro-3-oxaundecan

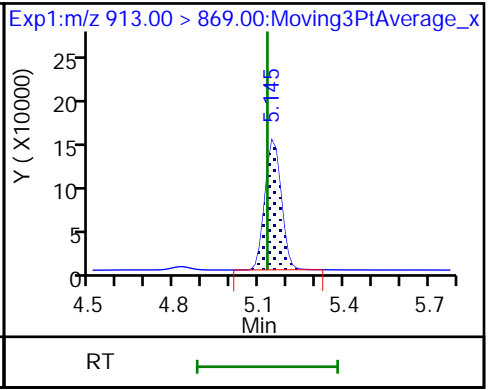
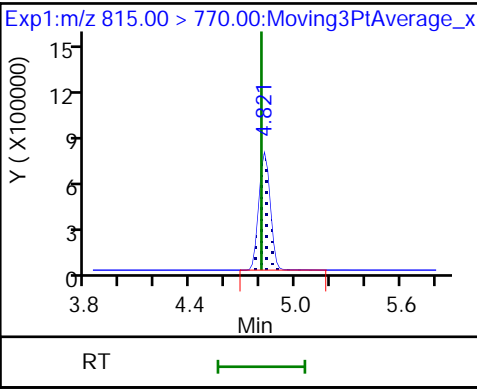
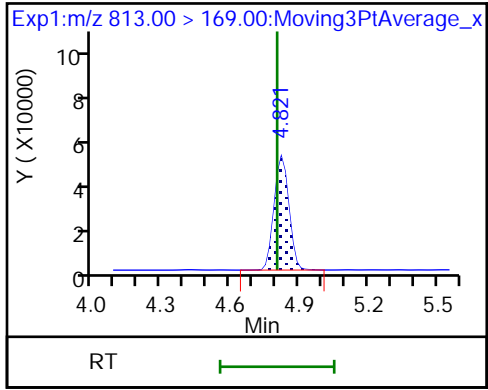




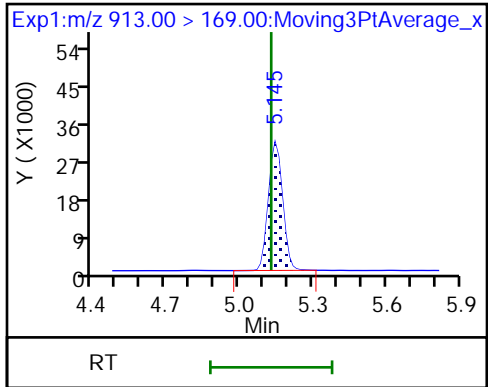
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

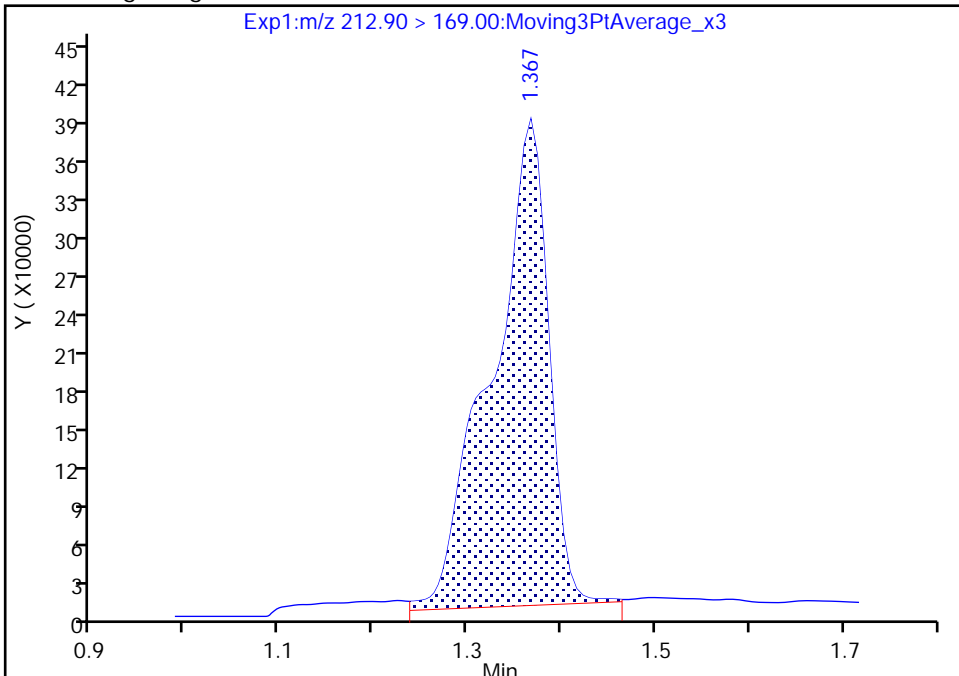
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Injection Date: 10-Nov-2018 15:21:06 Instrument ID: A9  
Lims ID: 480-144495-C-2-B MS  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 34 Worklist Smp#: 6  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

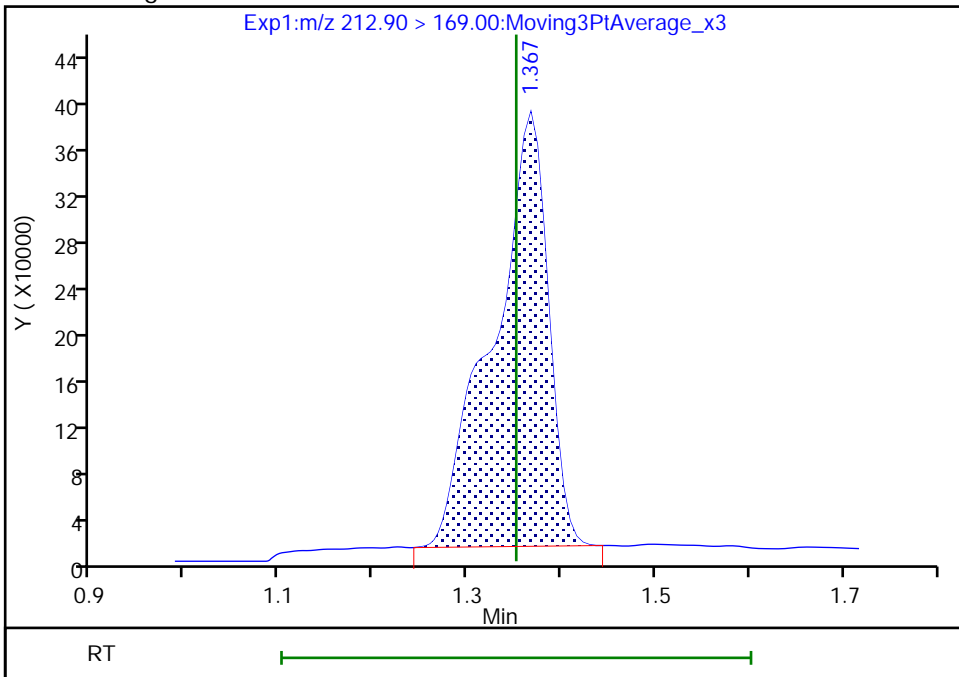
RT: 1.37  
Area: 1602295  
Amount: 1.117035  
Amount Units: ng/ml

Processing Integration Results



RT: 1.37  
Area: 1537973  
Amount: 1.072193  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 14-Nov-2018 13:14:47  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 485 of 518

TestAmerica Sacramento

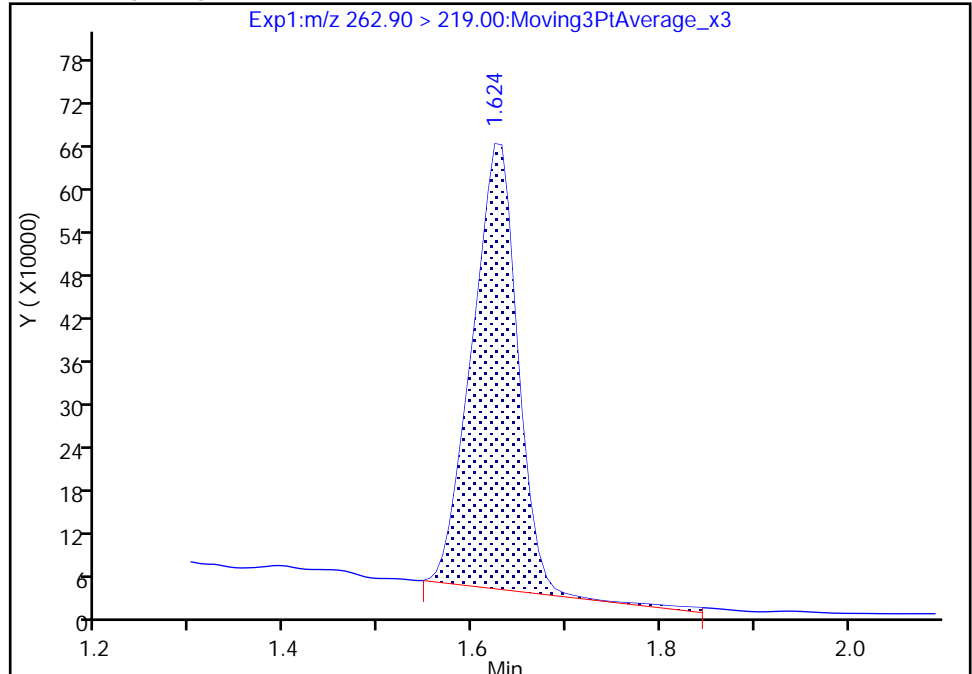
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Injection Date: 10-Nov-2018 15:21:06 Instrument ID: A9  
Lims ID: 480-144495-C-2-B MS  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 34 Worklist Smp#: 6  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

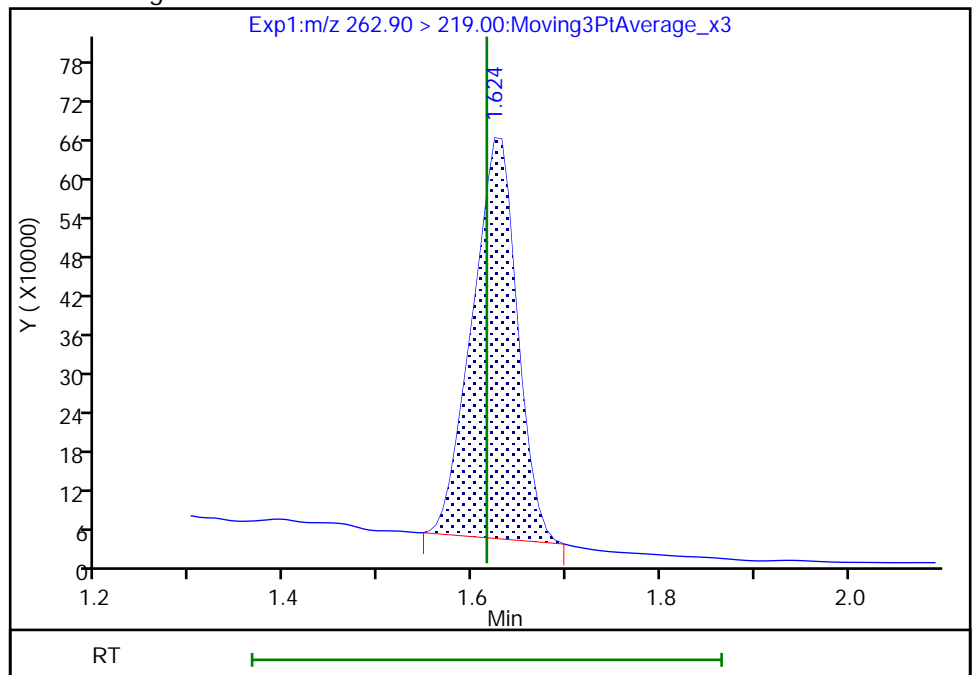
RT: 1.62  
Area: 2086931  
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Amount Units: ng/ml

Processing Integration Results



RT: 1.62  
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Amount: 1.033620  
Amount Units: ng/ml

Manual Integration Results



Reviewer: mongkols, 14-Nov-2018 13:14:52  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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TestAmerica Sacramento

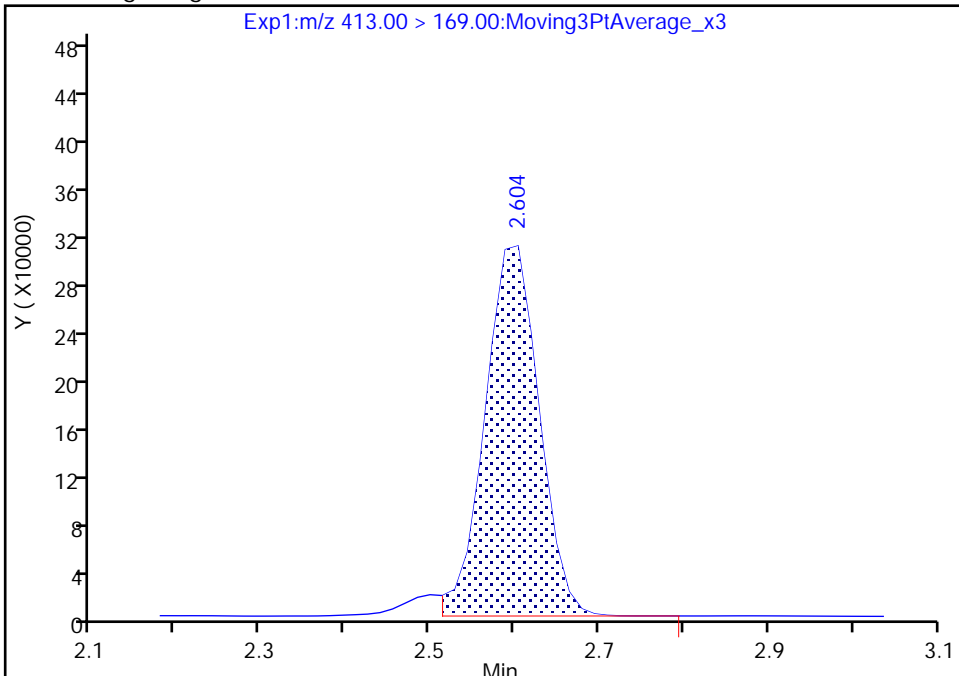
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Injection Date: 10-Nov-2018 15:21:06 Instrument ID: A9  
Lims ID: 480-144495-C-2-B MS  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 34 Worklist Smp#: 6  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

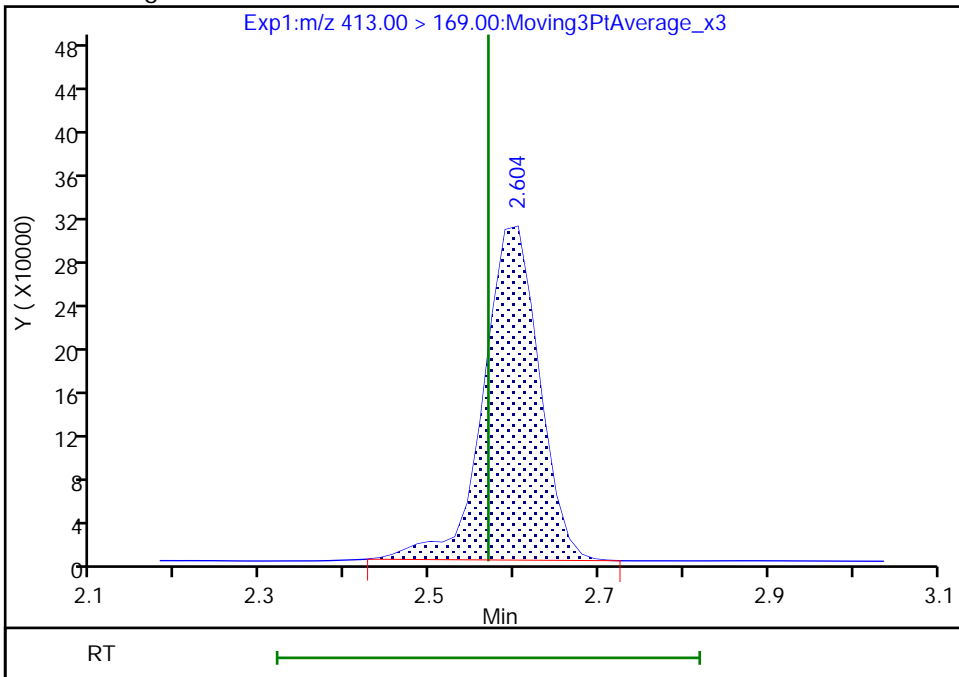
RT: 2.60  
Area: 1365099  
Amount: 1.260804  
Amount Units: ng/ml

Processing Integration Results



RT: 2.60  
Area: 1404201  
Amount: 1.260804  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

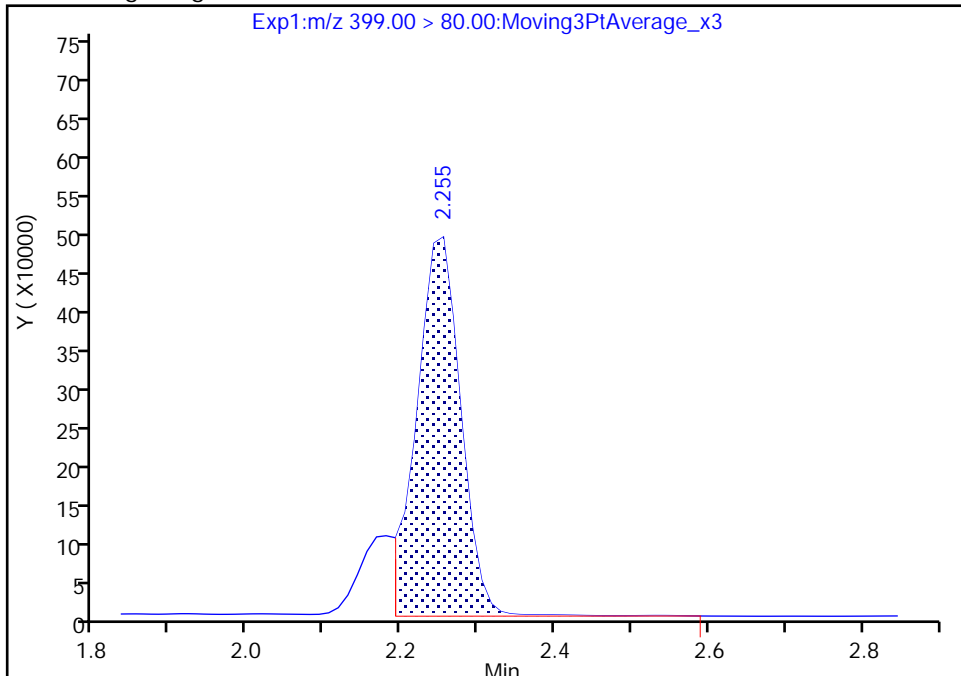
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Injection Date: 10-Nov-2018 15:21:06 Instrument ID: A9  
Lims ID: 480-144495-C-2-B MS  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 34 Worklist Smp#: 6  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

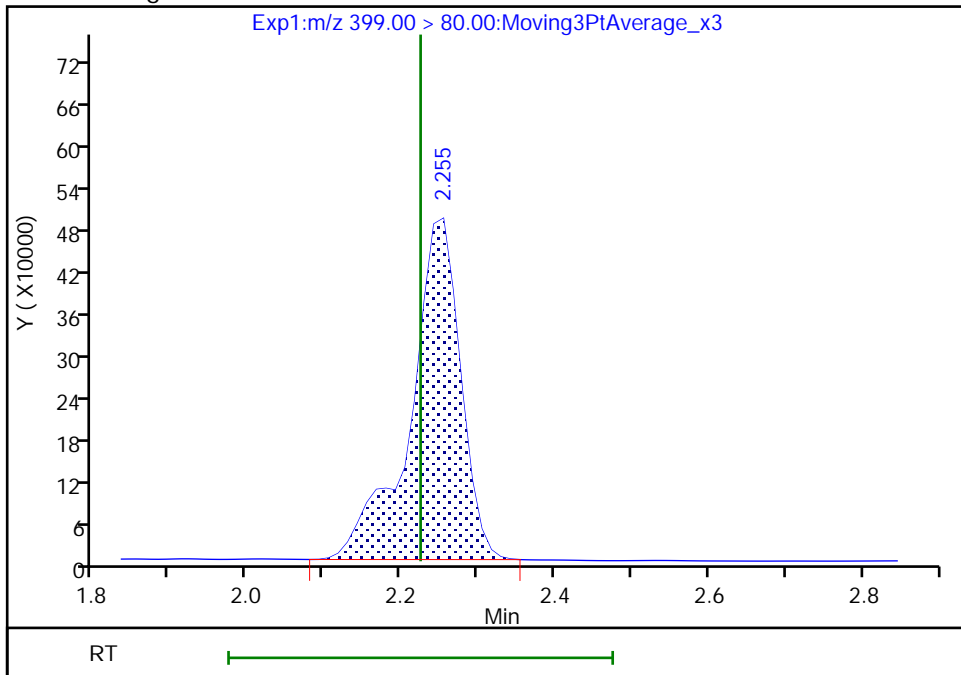
RT: 2.25  
Area: 1937062  
Amount: 0.729874  
Amount Units: ng/ml

Processing Integration Results



RT: 2.25  
Area: 2219694  
Amount: 0.836368  
Amount Units: ng/ml

Manual Integration Results



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-201 MSD Lab Sample ID: 480-144495-2 MSD  
 Matrix: Water Lab File ID: 2018.11.10LLA\_047.d  
 Analysis Method: 537 (modified) Date Collected: 10/30/2018 13:27  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 248 (mL) Date Analyzed: 11/10/2018 15:28  
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1  
 Injection Volume: 20 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	43.0		2.0	0.35
2706-90-3	Perfluoropentanoic acid (PFPeA)	41.7		2.0	0.49
307-24-4	Perfluorohexanoic acid (PFHxA)	39.1		2.0	0.58
375-85-9	Perfluoroheptanoic acid (PFHpA)	40.8		2.0	0.25
335-67-1	Perfluorooctanoic acid (PFOA)	47.4		2.0	0.86
375-95-1	Perfluorononanoic acid (PFNA)	40.8		2.0	0.27
335-76-2	Perfluorodecanoic acid (PFDA)	41.5		2.0	0.31
2058-94-8	Perfluoroundecanoic acid (PFUnA)	39.5		2.0	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	39.1		2.0	0.55
72629-94-8	Perfluorotridecanoic acid (PFTriA)	38.4		2.0	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	35.6		2.0	0.29
375-73-5	Perfluorobutanesulfonic acid (PFBS)	39.8		2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	33.4		2.0	0.17
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	39.9		2.0	0.19
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	37.8		2.0	0.54
335-77-3	Perfluorodecanesulfonic acid (PFDS)	37.2		2.0	0.32
754-91-6	Perfluorooctanesulfonamide (FOSA)	43.6		2.0	0.35
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	36.3		20	3.1
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	38.8		20	1.9
27619-97-2	6:2 FTS	38.1		20	2.0
39108-34-4	8:2 FTS	37.1		20	2.0



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: MW-201 MSD Lab Sample ID: 480-144495-2 MSD  
 Matrix: Water Lab File ID: 2018.11.10LLA\_047.d  
 Analysis Method: 537 (modified) Date Collected: 10/30/2018 13:27  
 Extraction Method: 3535 Date Extracted: 11/09/2018 07:44  
 Sample wt/vol: 248 (mL) Date Analyzed: 11/10/2018 15:28  
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1  
 Injection Volume: 20 (uL) GC Column: Acquity ID: 2.1 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 258354 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00992	13C4 PFBA	53		25-150
STL01893	13C5 PFPeA	72		25-150
STL00993	13C2 PFHxA	85		25-150
STL01892	13C4 PFHpA	91		25-150
STL00990	13C4 PFOA	95		25-150
STL00995	13C5 PFNA	94		25-150
STL00996	13C2 PFDA	90		25-150
STL00997	13C2 PFUnA	84		25-150
STL00998	13C2 PFDoA	79		25-150
STL02116	13C2 PFTeDA	74		25-150
STL02337	13C3 PFBS	81		25-150
STL00994	18O2 PFHxS	95		25-150
STL00991	13C4 PFOS	94		25-150
STL01056	13C8 FOSA	88		25-150
STL02118	d3-NMeFOSAA	81		25-150
STL02117	d5-NEtFOSAA	76		25-150
STL02279	M2-6:2 FTS	100		25-150
STL02280	M2-8:2 FTS	80		25-150

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_047.d  
 Lims ID: 480-144495-C-2-C MSD  
 Client ID: MW-201  
 Sample Type: MSD  
 Inject. Date: 10-Nov-2018 15:28:37 ALS Bottle#: 35 Worklist Smp#: 7  
 Injection Vol: 20.0 ul Dil. Factor: 1.0000  
 Sample Info: 480-144495-c-2-c msd  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: A9\Administrator Instrument ID: A9  
 Method: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\PFAS\_A9.m  
 Limit Group: LC PFC ICAL  
 Last Update: 14-Nov-2018 13:17:04 Calib Date: 30-Oct-2018 13:57:50  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A9\20181030-66806.b\2018.10.30ICALA\_008.d  
 Column 1 : Det: EXP1  
 Process Host: CTX0303

First Level Reviewer: mongkols Date: 14-Nov-2018 13:17:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
2 Perfluorobutanoic acid										
212.90 > 169.00	1.373	1.352	0.021	1.000	1558000	1.07		107	35.0	M
D 1 13C4 PFBA										
217.00 > 172.00	1.373	1.352	0.021	0.527	3907030	1.32		52.6	5283	
4 Perfluoropentanoic acid										
262.90 > 219.00	1.636	1.615	0.021	1.000	2111737	1.03		103	66.5	M
D 3 13C5 PFPeA										
267.90 > 223.00	1.636	1.616	0.020	0.628	5101441	1.80		72.2	2338	
5 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.668	1.651	0.017	1.000	3221689	0.9862		112	145	M
298.90 > 99.00	1.668	1.651	0.017	1.000	1160520		2.78(1.35-4.05)		62.2	M
D 47 13C3 PFBS										
301.90 > 83.00	1.668	1.651	0.017	0.641	73555	1.88		81.0	89.2	
61 1H,1H,2H,2H-perfluorohexanesulfoni										
327.00 > 307.00	1.882	1.862	0.020	1.128	1119735	1.72		184	3295	
6 Perfluorohexanoic acid										
313.00 > 269.00	1.912	1.891	0.021	1.000	2198508	0.9689		96.9	31.3	M
313.00 > 119.00	1.922	1.891	0.031	1.005	160770		13.67(6.96-20.87)		71.9	
D 7 13C2 PFHxA										
315.00 > 270.00	1.912	1.893	0.019	0.734	6304979	2.12		84.6	9198	
70 Perfluoropentanesulfonic acid										
349.00 > 80.00	1.941	1.911	0.030	1.164	1684556	1.11		119	173	
349.00 > 99.00	1.941	1.911	0.030	1.164	793730		2.12(1.15-3.45)		79.8	
67 Perfluoro(2-propoxypropanoic) acid										
329.10 > 285.00	2.017	1.991	0.026	1.000	482785	1.03		103	70.3	M
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.017	1.993	0.024	0.775	702090	1.82		72.9	1285	

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	2.241	2.213	0.028	1.000	3410410	1.01		101	59.1	
363.00 > 169.00	2.241	2.213	0.028	1.000	785550		4.34(2.17-6.52)		532	
D 9 13C4 PFHpA										
367.00 > 322.00	2.241	2.216	0.025	0.861	7937148	2.27		90.6	9603	
8 Perfluorohexanesulfonic acid										
399.00 > 80.00	2.253	2.225	0.028	1.000	2252396	0.8281		91.0	296	M
399.00 > 99.00	2.253	2.225	0.028	1.000	667260		3.38(1.90-5.70)		215	M
D 11 18O2 PFHxS										
403.00 > 84.00	2.253	2.229	0.024	0.865	5106274	2.24		94.7	11056	
76 DONA										
377.00 > 251.00	2.291	2.250	0.040	0.767	5445596	0.9208		97.7	6518	
377.00 > 85.00	2.291	2.250	0.040	0.767	2544239		2.14(1.13-3.39)		734	
13 1H,1H,2H,2H-perfluorooctanesulfoni										
427.00 > 407.00	2.573	2.539	0.034	1.000	666516	0.9448		99.7	1428	
D 12 M2-6:2 FTS										
429.00 > 81.00	2.573	2.543	0.030	0.988	767849	2.38		100	522	
D 73 13C8 PFOA										
421.00 > 376.00	2.589	2.558	0.030		9850	0.002863		0.0	37.9	
15 Perfluorooctanoic acid										
413.00 > 369.00	2.604	2.569	0.035	1.000	3879135	1.18		118	173	M
413.00 > 169.00	2.604	2.569	0.035	1.000	1491389		2.60(1.36-4.08)		990	M
* 62 13C2 PFOA										
415.00 > 370.00	2.604	2.569	0.035		8156117	2.50			8946	
D 14 13C4 PFOA										
417.00 > 372.00	2.604	2.573	0.031	1.000	7623318	2.38		95.0	9146	
16 Perfluoroheptanesulfonic acid										
449.00 > 80.00	2.619	2.584	0.035	0.877	2243357	0.99		104	1008	
449.00 > 99.00	2.619	2.584	0.035	0.877	558431		4.02(1.84-5.53)		744	
17 Perfluorooctanesulfonic acid										
499.00 > 80.00	2.985	2.945	0.040	1.000	2195079	0.9366		101	809	
499.00 > 99.00	2.985	2.945	0.040	1.000	501009		4.38(2.04-6.12)		937	
20 Perfluorononanoic acid										
463.00 > 419.00	2.985	2.945	0.040	1.000	2839511	1.01		101	286	
463.00 > 169.00	2.985	2.945	0.040	1.000	495054		5.74(2.68-8.03)		484	
D 18 13C4 PFOS										
503.00 > 80.00	2.985	2.949	0.036	1.146	5201208	2.26		94.4	3648	
D 19 13C5 PFNA										
468.00 > 423.00	2.985	2.949	0.036	1.146	7005666	2.36		94.4	7752	
69 9-Chlorohexadecafluoro-3-oxanonane										
531.00 > 351.00	3.186	3.152	0.034	1.068	2259886	0.9374		101	2263	
D 26 M2-8:2 FTS										
529.00 > 81.00	3.315	3.281	0.034	1.273	76280	1.91		79.7	312	
68 Perfluorononanesulfonic acid										
549.00 > 80.00	3.315	3.295	0.020	1.111	1170594	0.8768		91.3	3033	
549.00 > 99.00	3.315	3.295	0.020	1.111	193286		6.06(3.02-9.05)		1673	
25 1H,1H,2H,2H-perfluorodecanesulfoni										
527.00 > 507.00	3.331	3.295	0.036	1.005	418857	0.9212		96.2	2252	

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
22 Perfluorooctanesulfonamide	498.00	> 78.00	3.331	3.295	0.036	1.000	3644182	1.08	108	4430
24 Perfluorodecanoic acid	513.00	> 469.00	3.331	3.295	0.036	1.000	3077285	1.03	103	420
	513.00	> 169.00	3.331	3.295	0.036	1.000	195753	15.72(7.12-21.35)		455
D 21 13C8 FOSA	506.00	> 78.00	3.331	3.298	0.033	1.279	2807393	2.20	88.0	6143
D 23 13C2 PFDA	515.00	> 470.00	3.331	3.298	0.033	1.279	6888962	2.25	90.2	5841
28 N-methylperfluorooctanesulfonamido	570.00	> 419.00	3.484	3.451	0.033	1.000	961715	0.9003	90.0	477
D 27 d3-NMeFOSAA	573.00	> 419.00	3.484	3.452	0.032	1.338	2670428	2.02	80.9	2353
29 Perfluorodecanesulfonic acid	599.00	> 80.00	3.641	3.605	0.036	1.220	1737420	0.9225	95.7	1671
	599.00	> 99.00	3.641	3.605	0.036	1.220	363727	4.78(2.14-6.43)		1592
31 Perfluoroundecanoic acid	563.00	> 519.00	3.657	3.622	0.035	1.000	2389031	0.9796	98.0	602
	563.00	> 169.00	3.657	3.622	0.035	1.000	181568	13.16(5.24-15.72)		505
33 N-ethylperfluorooctanesulfonamidoa	584.00	> 419.00	3.657	3.622	0.035	1.004	723211	0.9632	96.3	1297
D 30 13C2 PFUnA	565.00	> 520.00	3.657	3.623	0.034	1.405	5362528	2.10	84.0	8569
D 32 d5-NEtFOSAA	589.00	> 419.00	3.641	3.623	0.018	1.399	2053087	1.91	76.3	2149
66 11-Chloroeicosafuoro-3-oxaundecan	631.00	> 451.00	3.805	3.772	0.033	1.275	2737004	0.9070	96.3	4036
37 Perfluorododecanoic acid	613.00	> 569.00	3.936	3.915	0.021	1.000	2451929	0.9701	97.0	601
	613.00	> 169.00	3.936	3.915	0.021	1.000	245084	10.00(4.68-14.05)		449
74 1H,1H,2H,2H-perfluorododecanesulfo	627.00	> 607.00	3.936	3.915	0.021	1.187	286241	0.8888	92.2	1270
D 36 13C2 PFDaA	615.00	> 570.00	3.936	3.918	0.018	1.512	6210699	1.98	79.0	5257
75 Perfluorododecanesulfonic acid (PF	699.00	> 80.00	4.177	4.143	0.034	1.399	175534	0.8372	86.5	808
	699.00	> 99.00	4.177	4.143	0.034	1.399	303641	0.58(0.28-0.83)		1075
41 Perfluorotridecanoic acid	663.00	> 619.00	4.192	4.173	0.019	1.065	1936504	0.9535	95.3	700
	663.00	> 169.00	4.192	4.173	0.019	1.065	315739	6.13(3.09-9.27)		557
D 43 13C2 PFTeDA	715.00	> 670.00	4.428	4.397	0.031	1.701	4374595	1.86	74.5	6619
42 Perfluorotetradecanoic acid	713.00	> 169.00	4.428	4.410	0.018	1.000	282353	0.8825	88.3	1037
	713.00	> 219.00	4.428	4.410	0.018	1.000	207120	1.36(0.70-2.09)		576
45 Perfluorohexadecanoic acid	813.00	> 769.00	4.838	4.803	0.035	1.004	918941	1.00	99.6	503
	813.00	> 169.00	4.838	4.803	0.035	1.004	160445	5.73(2.77-8.32)		466

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 44 13C2 PFHxDA										
815.00 > 770.00	4.821	4.804	0.017	1.852	2493147	1.07		42.7	4675	
46 Perfluorooctadecanoic acid										
913.00 > 869.00	5.159	5.129	0.030	1.070	323711	0.6564		65.6	490	
913.00 > 169.00	5.159	5.129	0.030	1.070	66964		4.83(2.55-7.64)		592	

**QC Flag Legend**

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_047.d

Injection Date: 10-Nov-2018 15:28:37 Instrument ID: A9

Lims ID: 480-144495-C-2-C MSD

Client ID: MW-201

Operator ID: A9\Administrator

ALS Bottle#: 35 Worklist Smp#: 7

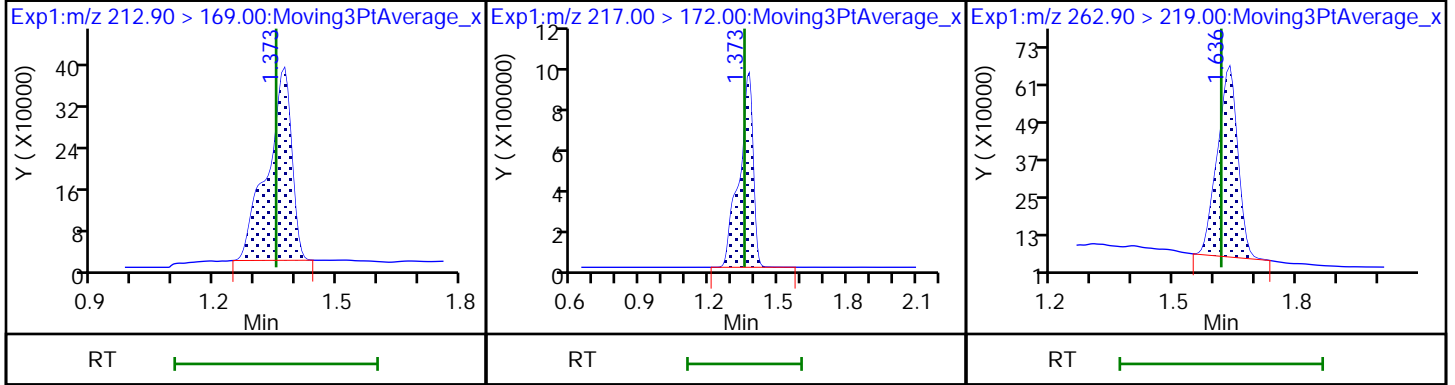
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: PFAS\_A9 Limit Group: LC PFC ICAL

2 Perfluorobutanoic acid (M)

D 1 13C4 PFBA

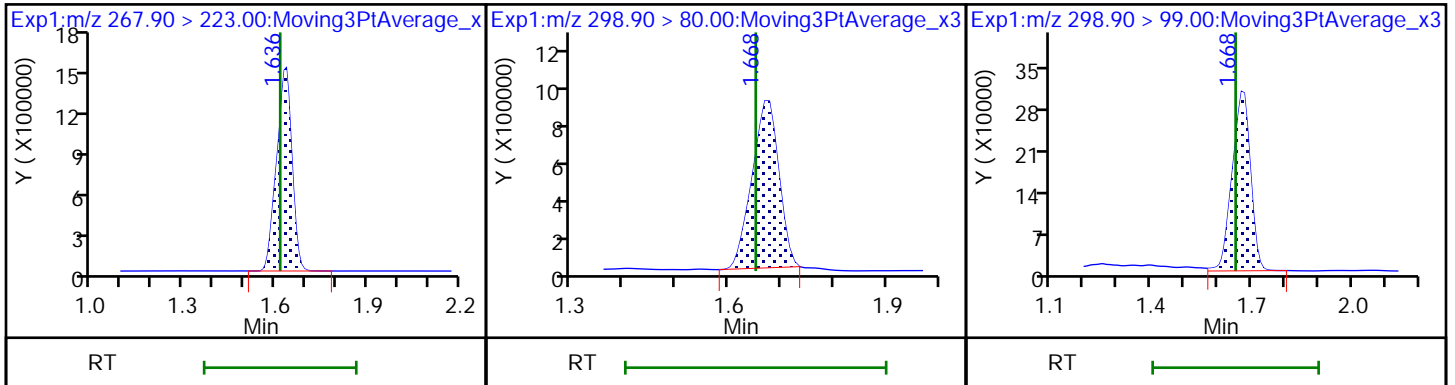
4 Perfluoropentanoic acid (M)



D 3 13C5 PFPeA

5 Perfluorobutanesulfonic acid (M)

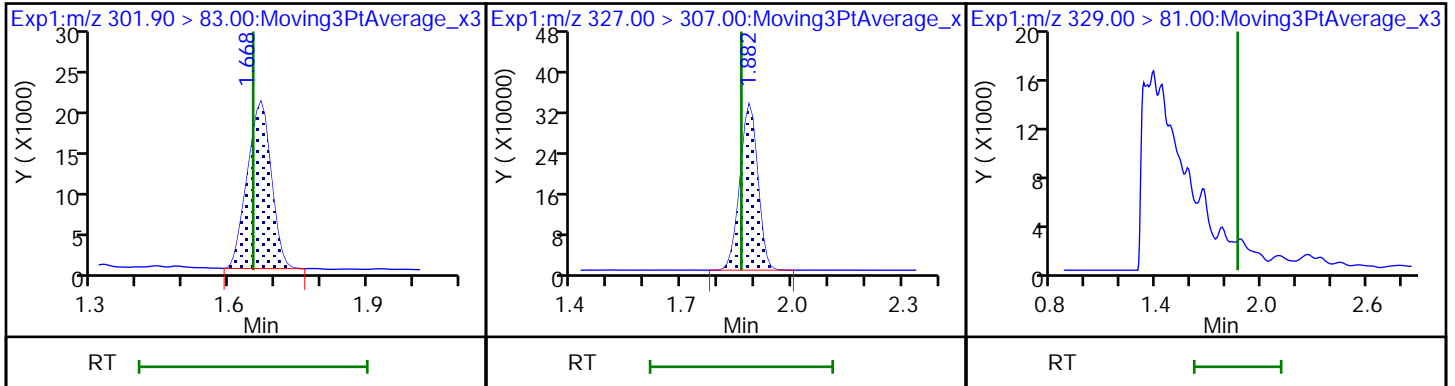
5 Perfluorobutanesulfonic acid



D 47 13C3 PFBS

61 1H,1H,2H,2H-perfluorohexanesulfonate

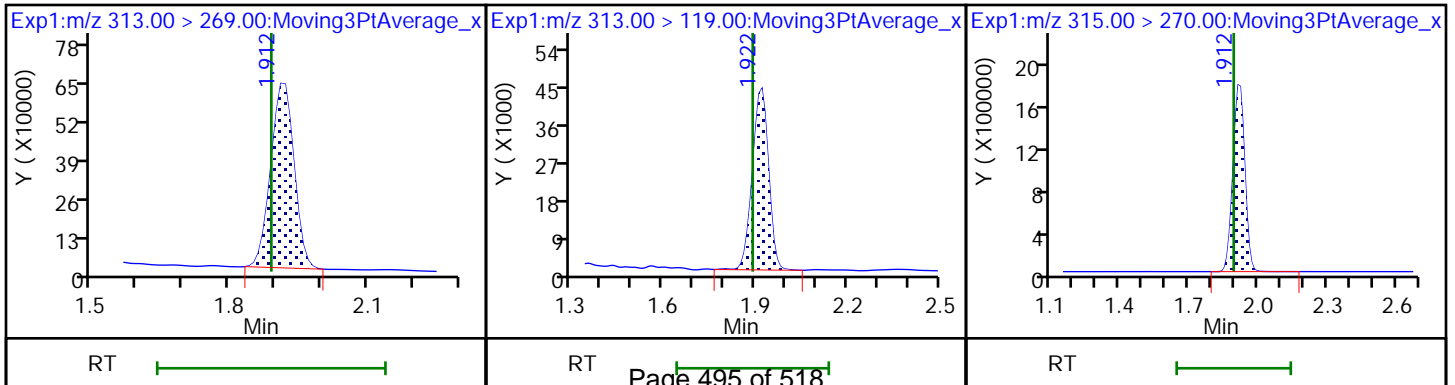
D 60 M2-4:2 FTS (ND)

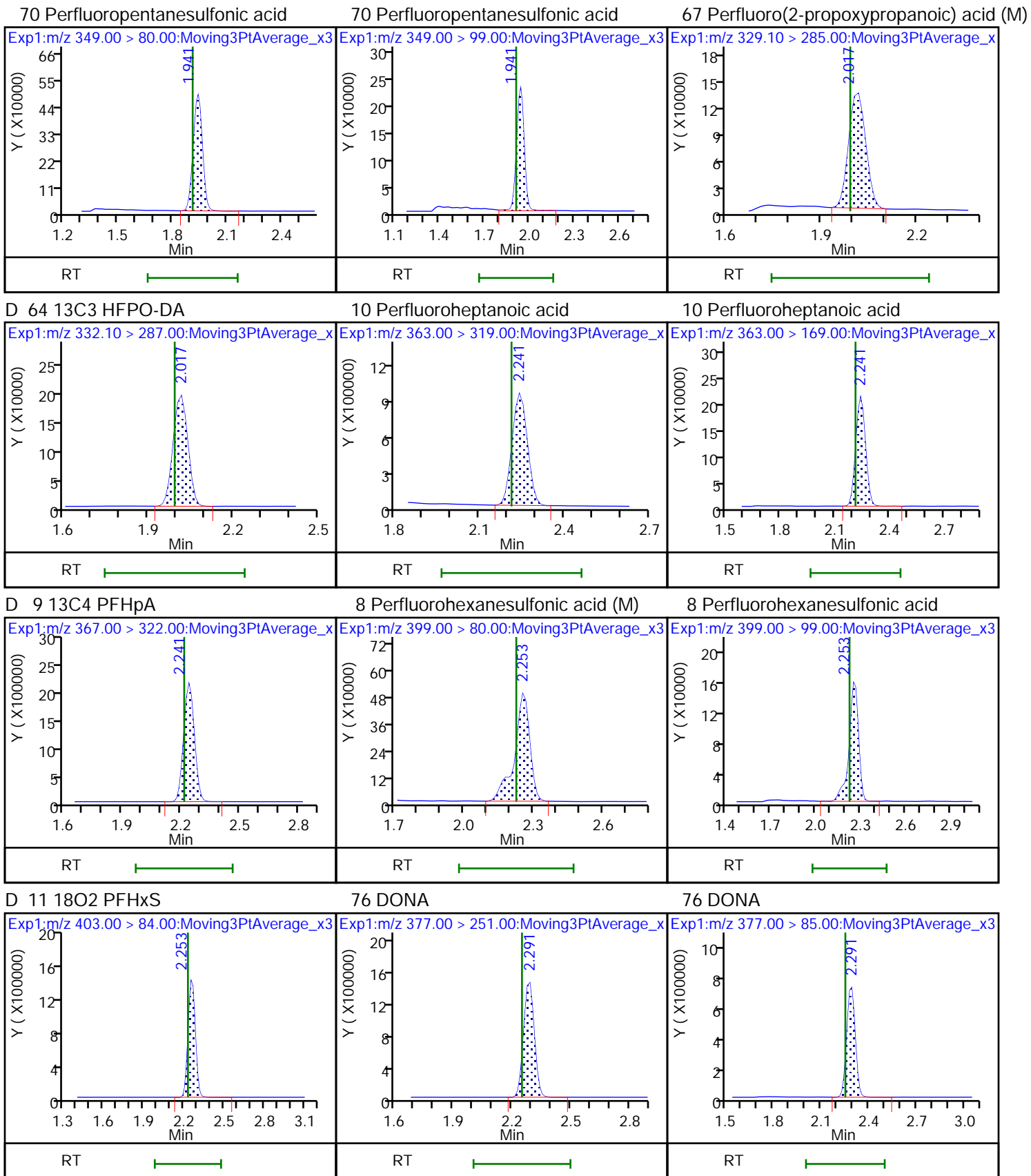


6 Perfluorohexanoic acid (M)

6 Perfluorohexanoic acid

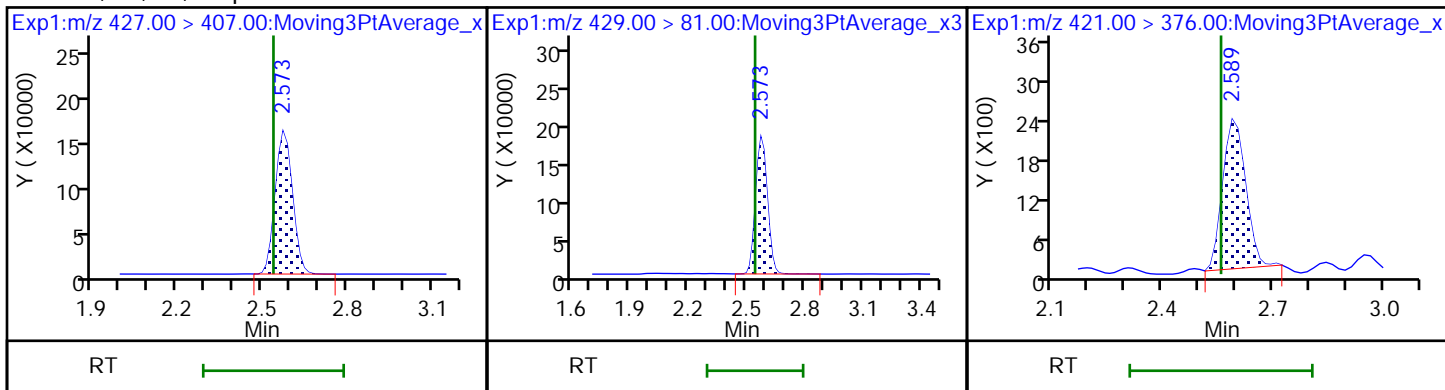
D 7 13C2 PFHxA





13 1H,1H,2H,2H-perfluorooctanesulfonD 12 M2-6:2 FTS

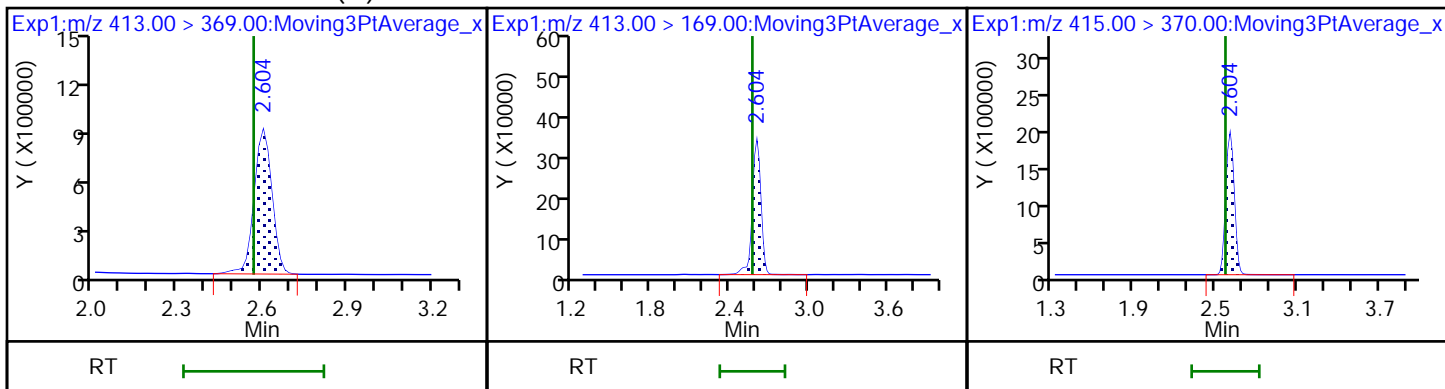
D 73 13C8 PFOA



15 Perfluorooctanoic acid (M)

15 Perfluorooctanoic acid

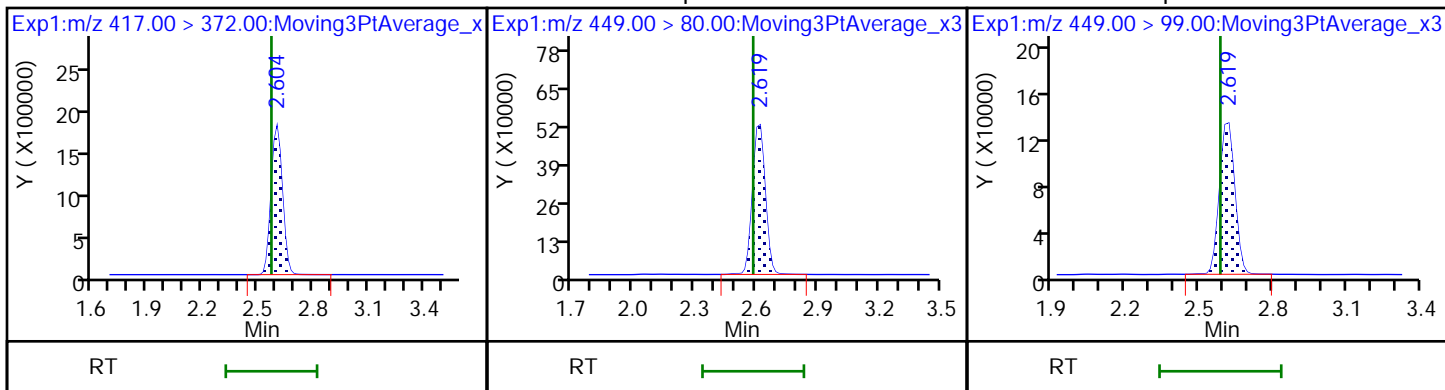
\* 62 13C2 PFOA



D 14 13C4 PFOA

16 Perfluoroheptanesulfonic acid

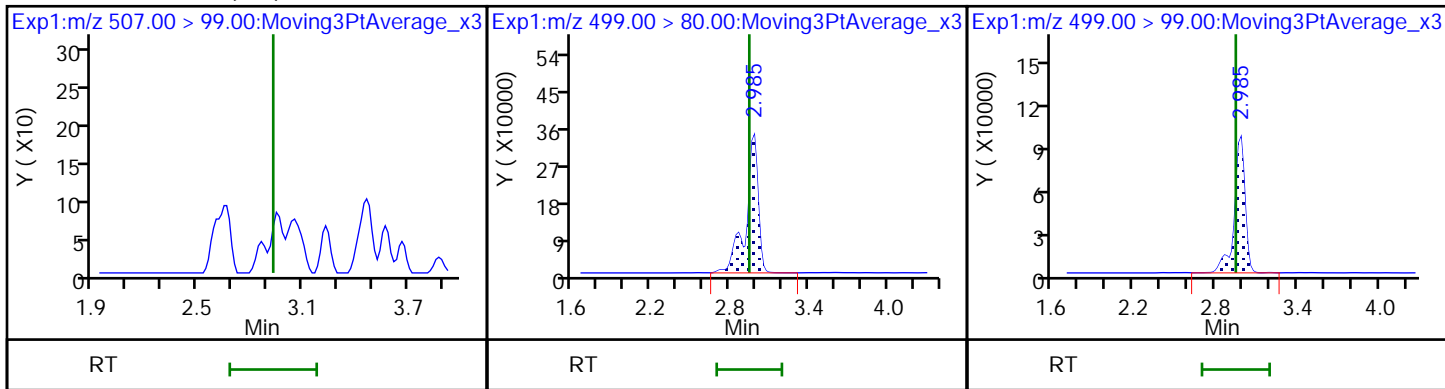
16 Perfluoroheptanesulfonic acid



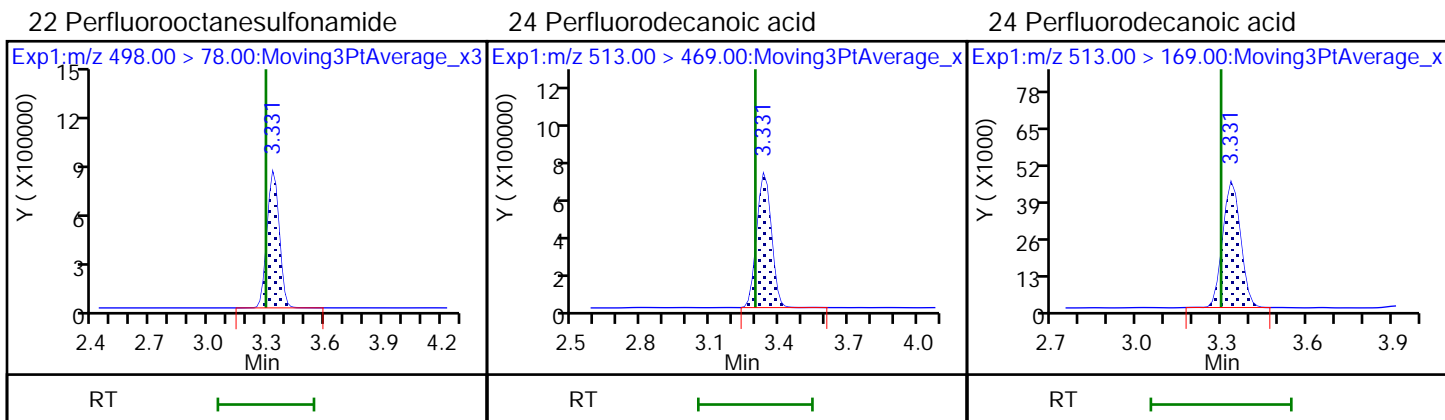
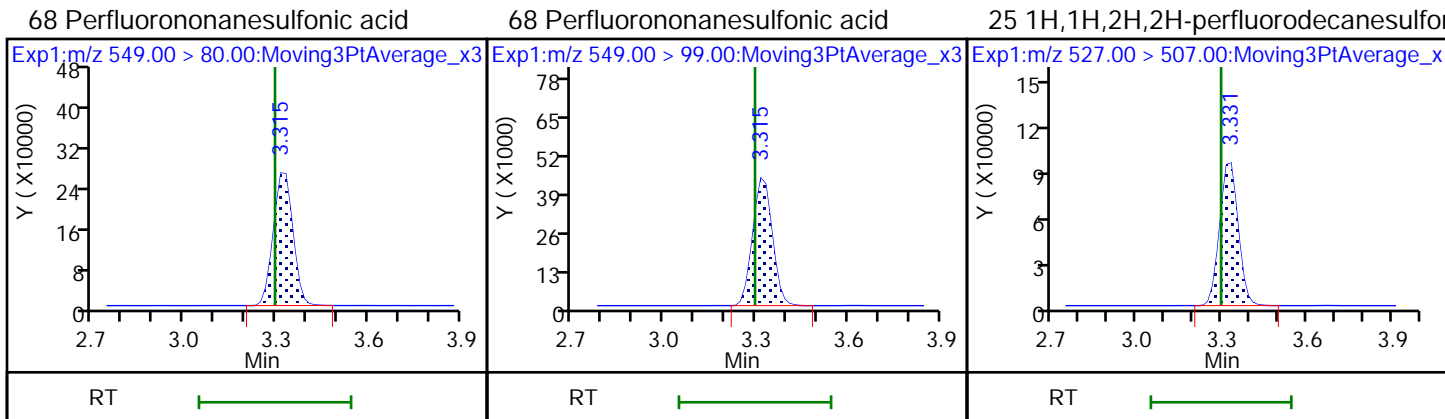
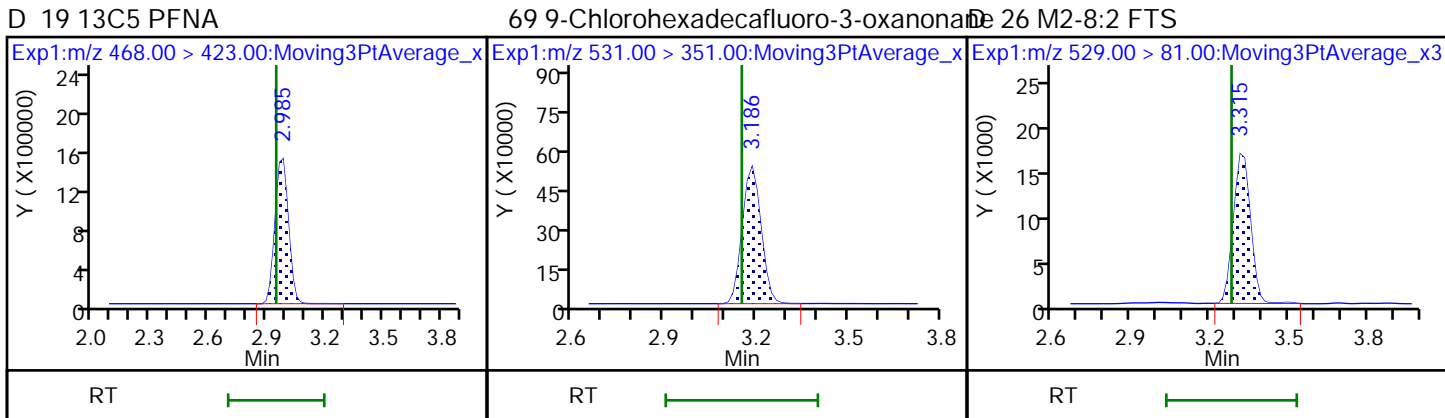
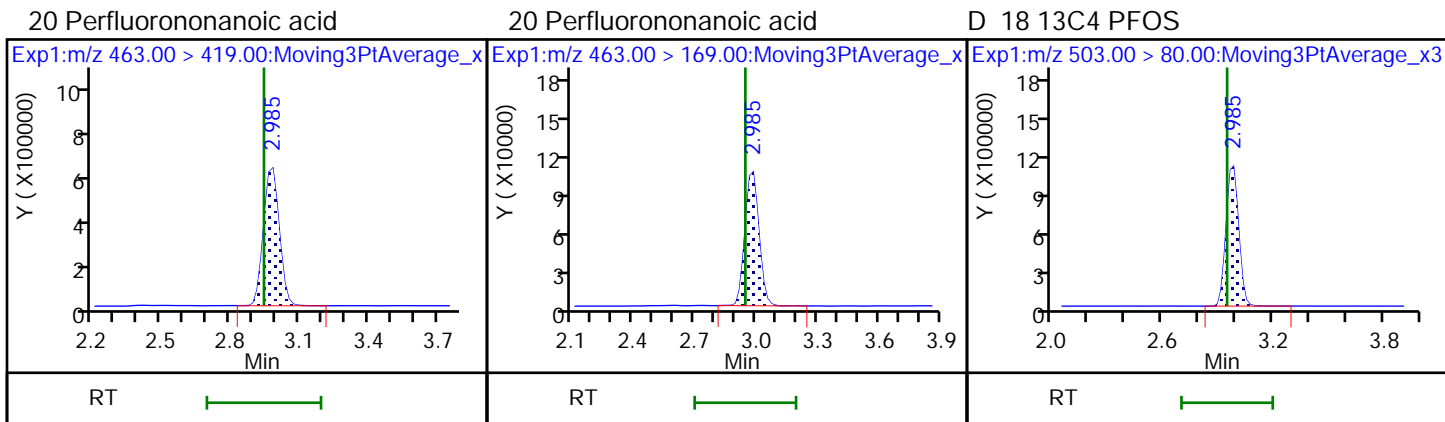
D 72 13C8 PFOS (ND)

17 Perfluorooctanesulfonic acid

17 Perfluorooctanesulfonic acid



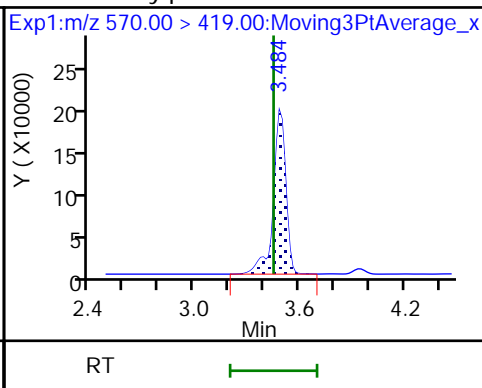
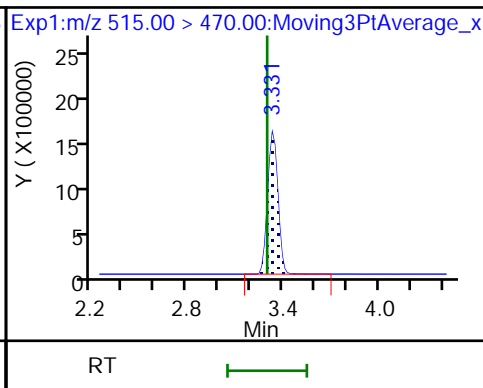
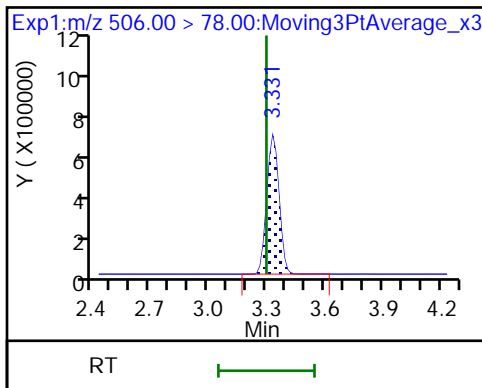




D 21 13C8 FOSA

D 23 13C2 PFDA

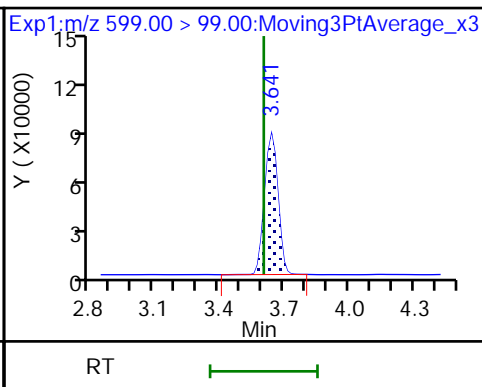
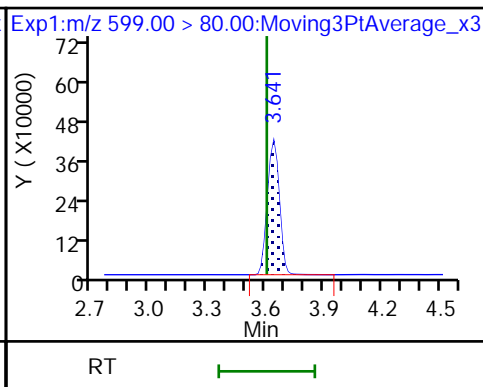
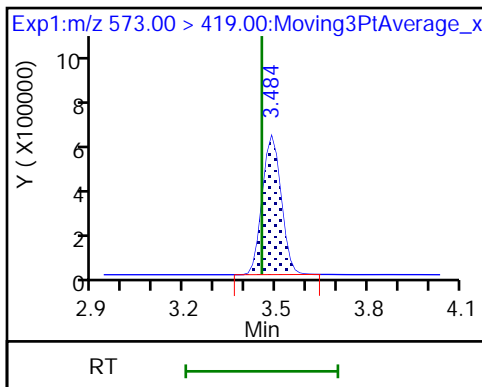
28 N-methylperfluorooctanesulfonamido



D 27 d3-NMeFOSAA

29 Perfluorodecanesulfonic acid

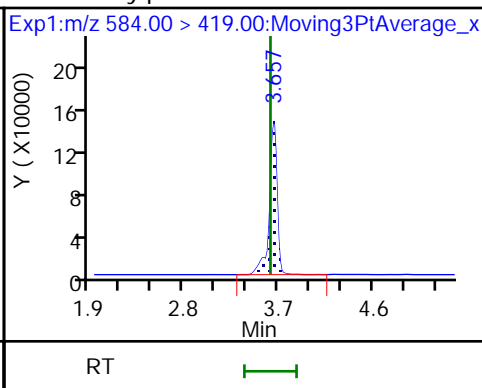
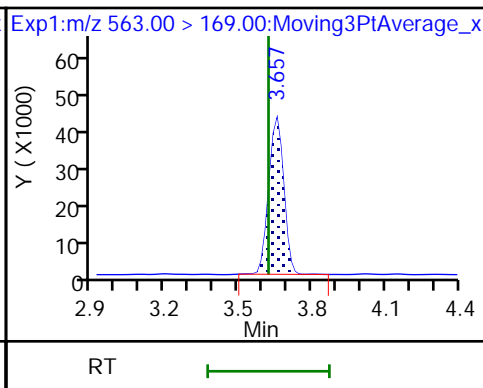
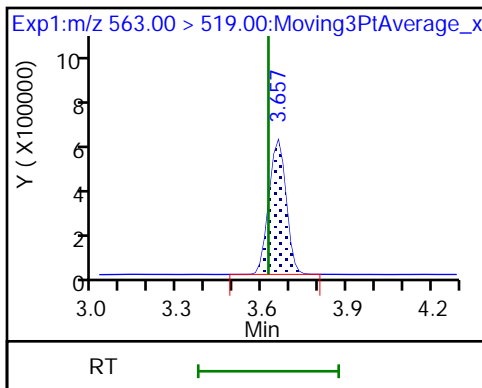
29 Perfluorodecanesulfonic acid



31 Perfluoroundecanoic acid

31 Perfluoroundecanoic acid

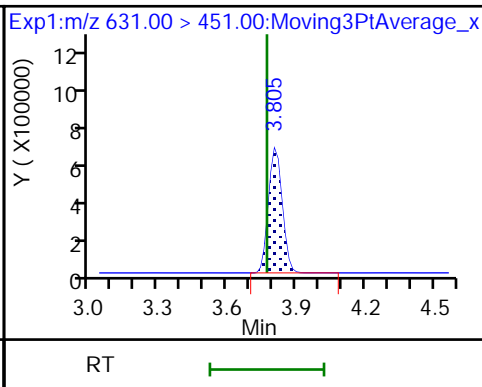
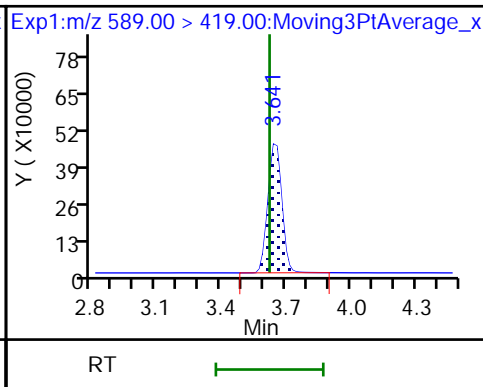
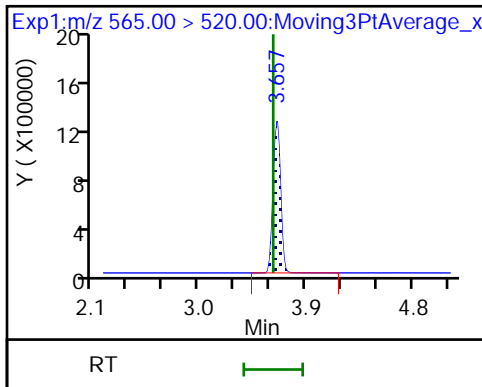
33 N-ethylperfluorooctanesulfonamido

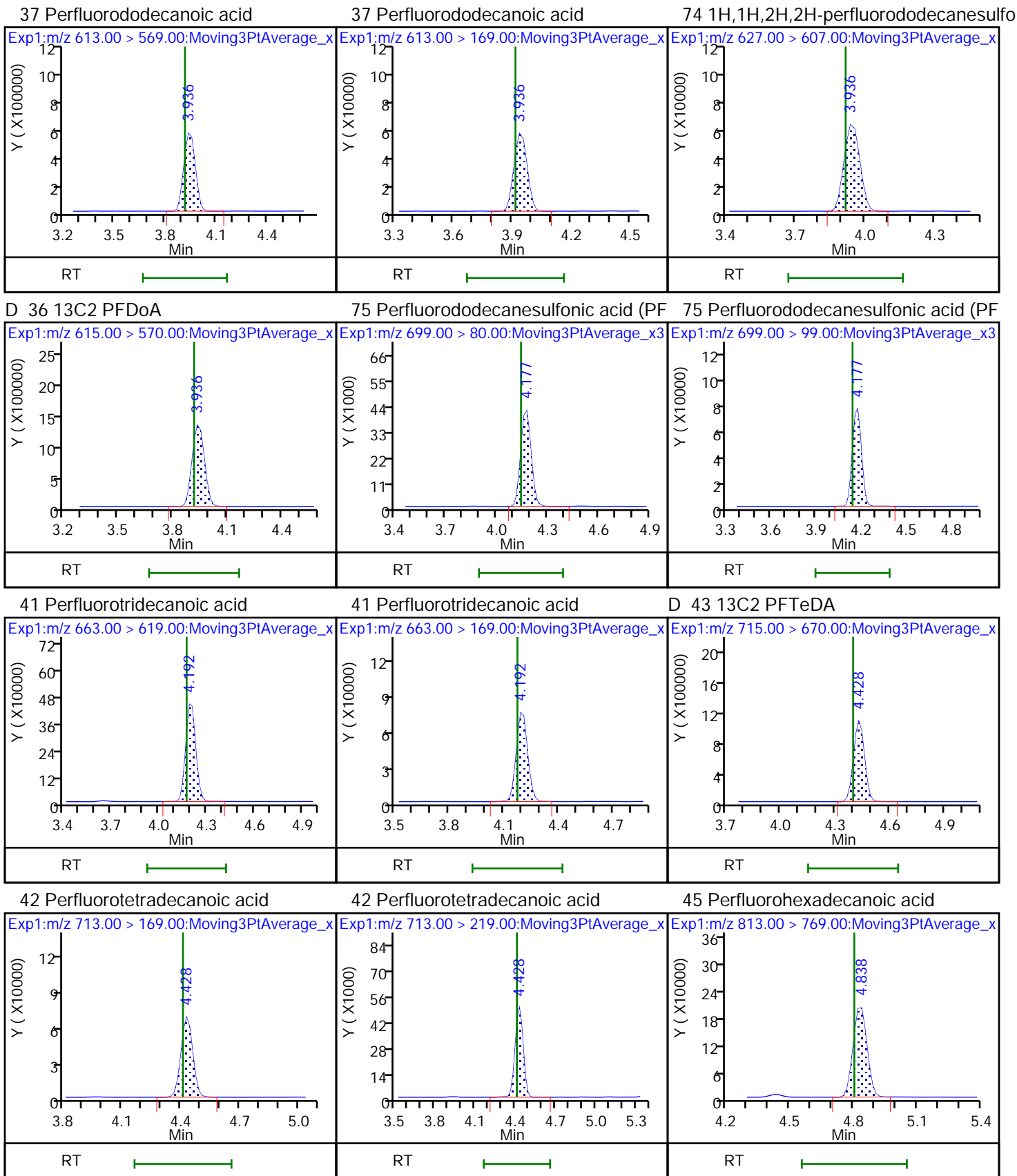


D 30 13C2 PUnA

D 32 d5-NEtFOSAA

66 11-Chloroeicosafuoro-3-oxaundecan

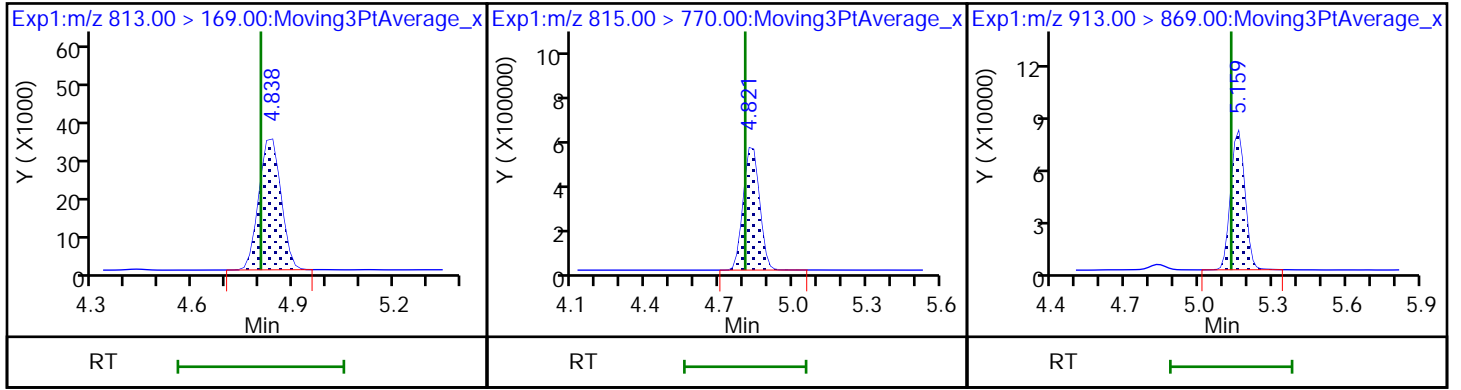




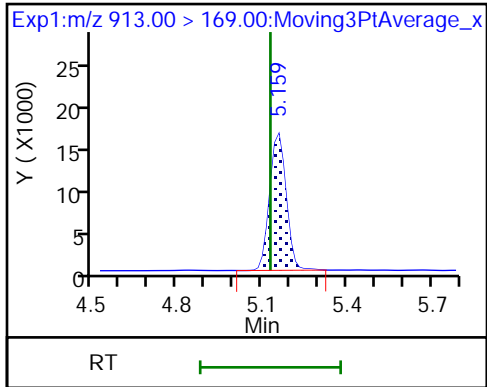
45 Perfluorohexadecanoic acid

D 44 13C2 PFHxDA

46 Perfluorooctadecanoic acid



46 Perfluorooctadecanoic acid



TestAmerica Sacramento

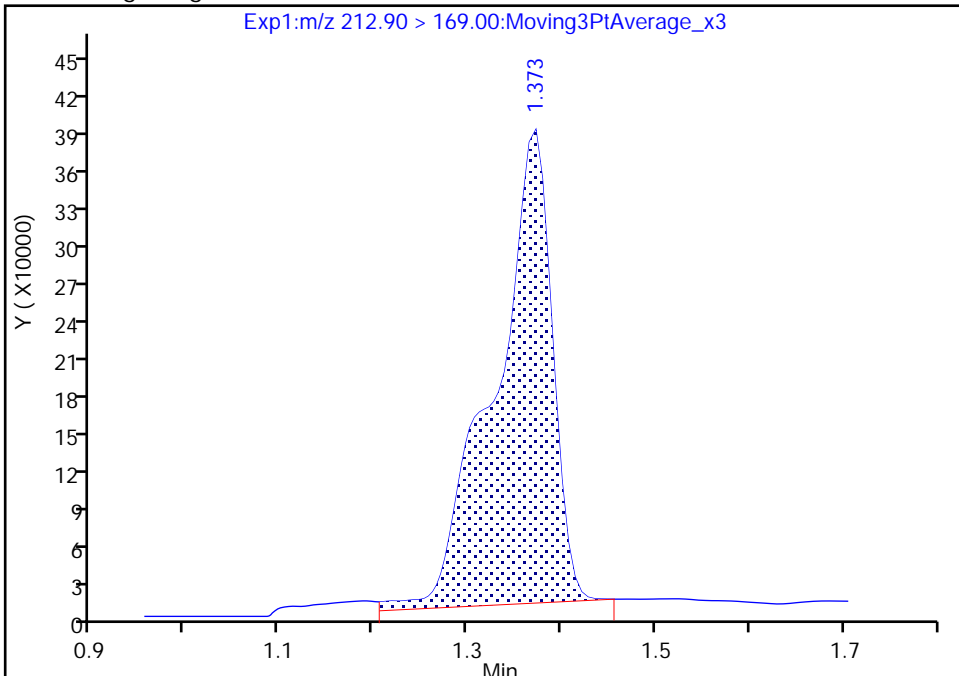
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Injection Date: 10-Nov-2018 15:28:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-C MSD  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 35 Worklist Smp#: 7  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

2 Perfluorobutanoic acid, CAS: 375-22-4

Signal: 1

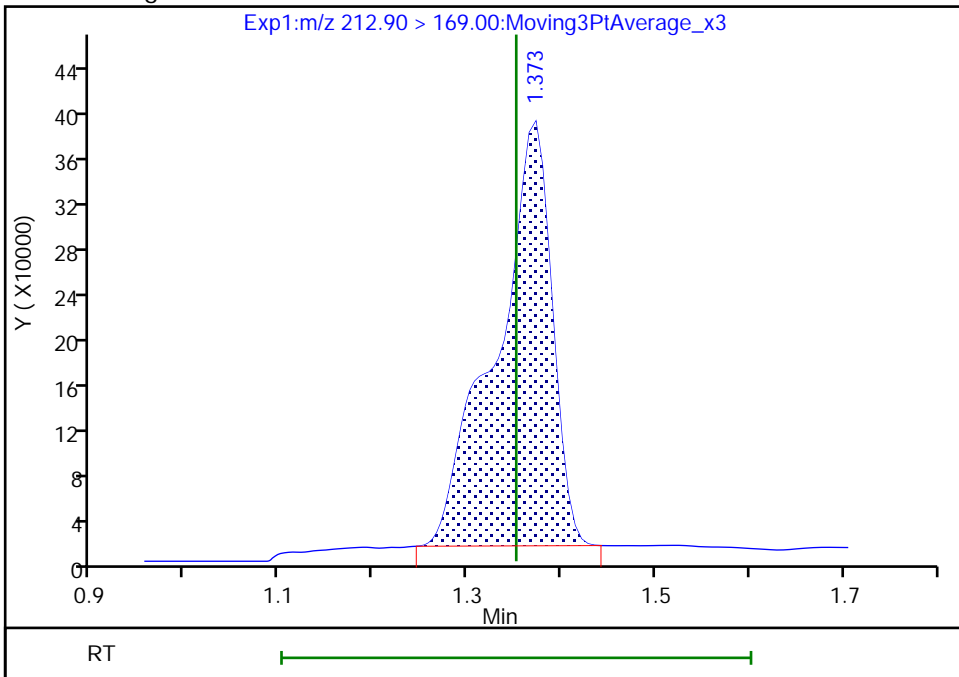
RT: 1.37  
Area: 1622776  
Amount: 1.109706  
Amount Units: ng/ml

Processing Integration Results



RT: 1.37  
Area: 1558000  
Amount: 1.065410  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

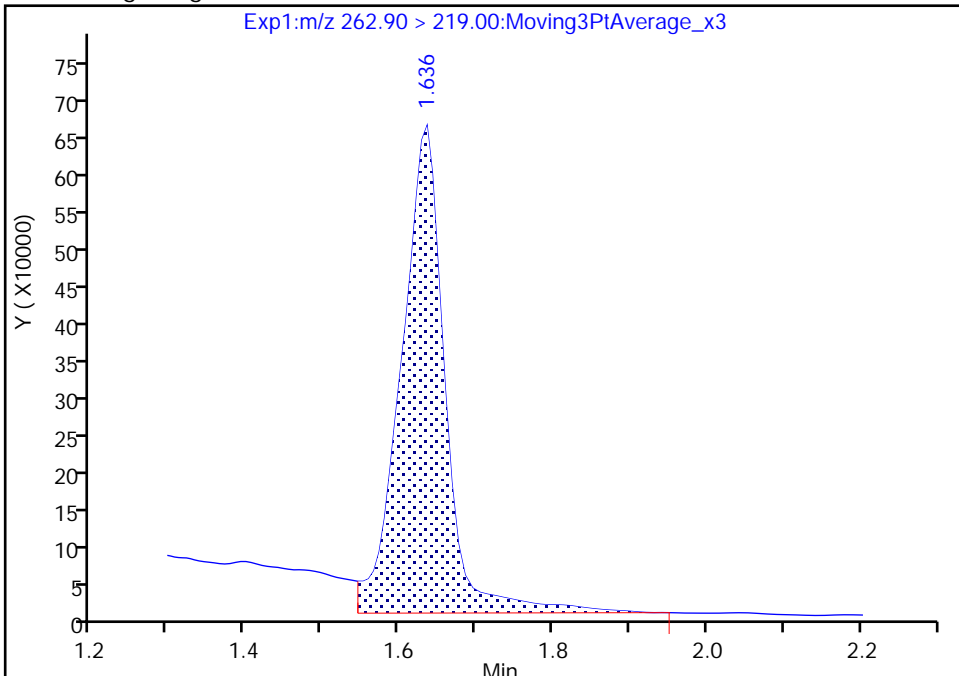
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_047.d  
Injection Date: 10-Nov-2018 15:28:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-C MSD  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 35 Worklist Smp#: 7  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

4 Perfluoropentanoic acid, CAS: 2706-90-3

Signal: 1

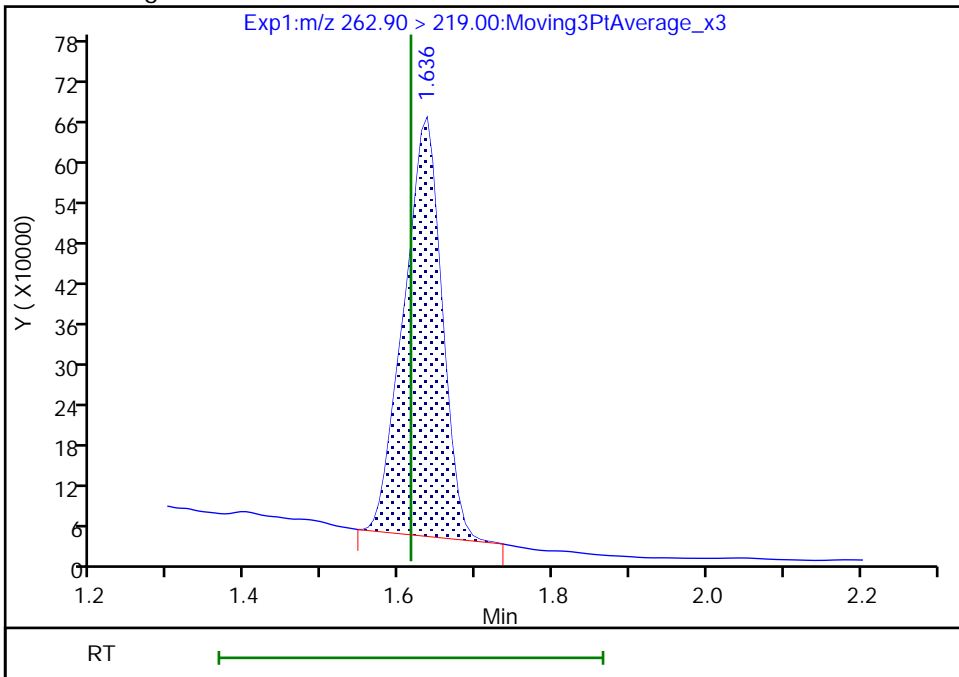
RT: 1.64  
Area: 2564754  
Amount: 1.255549  
Amount Units: ng/ml

Processing Integration Results



RT: 1.64  
Area: 2111737  
Amount: 1.033779  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

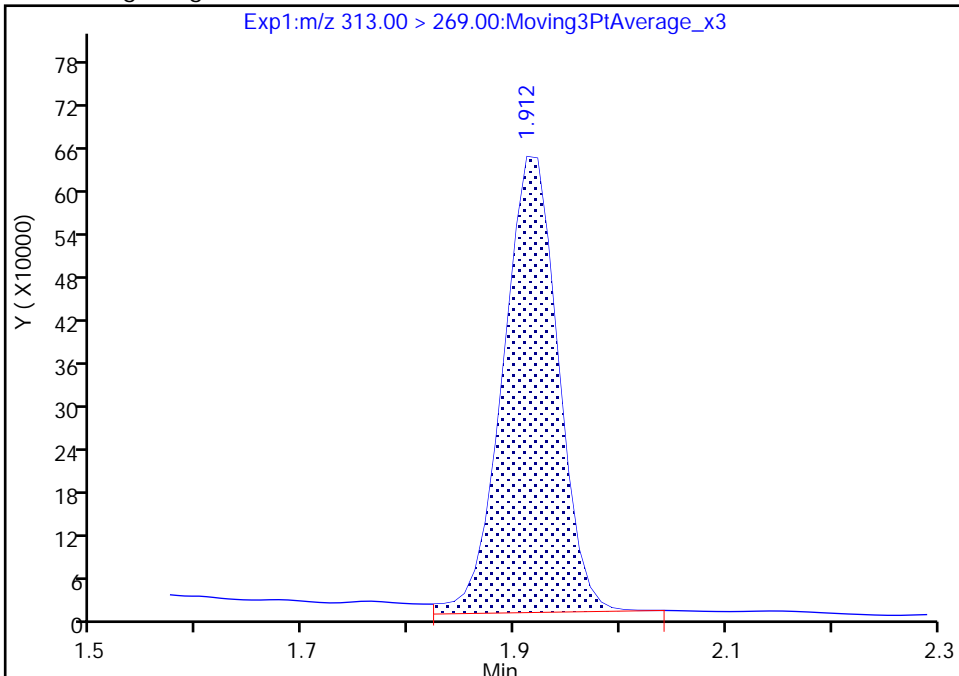
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_047.d  
Injection Date: 10-Nov-2018 15:28:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-C MSD  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 35 Worklist Smp#: 7  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

6 Perfluorohexanoic acid, CAS: 307-24-4

Signal: 1

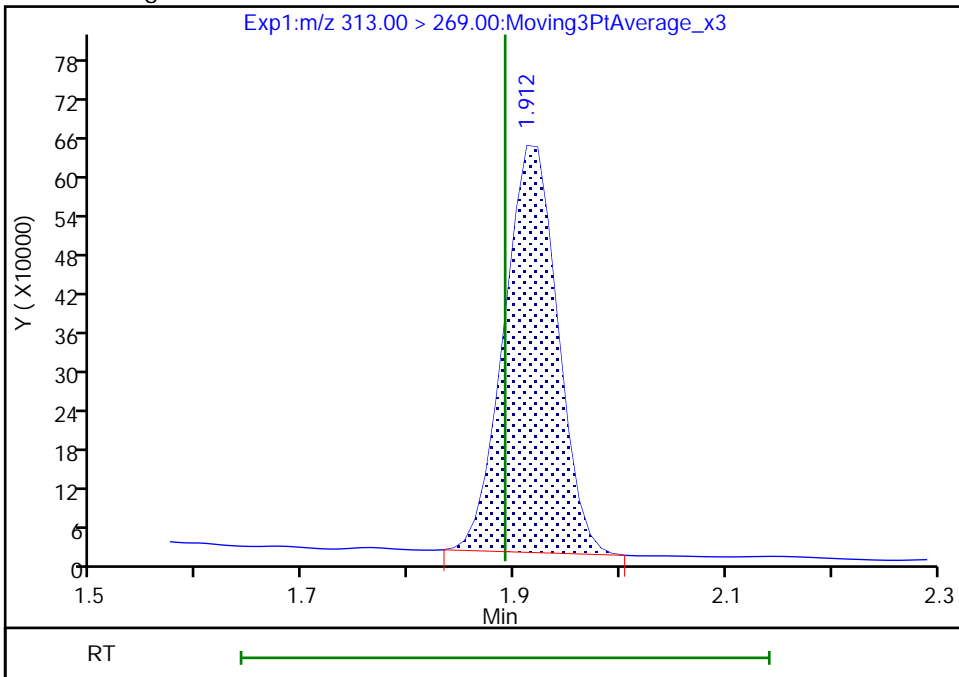
RT: 1.91  
Area: 2289257  
Amount: 1.008911  
Amount Units: ng/ml

Processing Integration Results



RT: 1.91  
Area: 2198508  
Amount: 0.968916  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

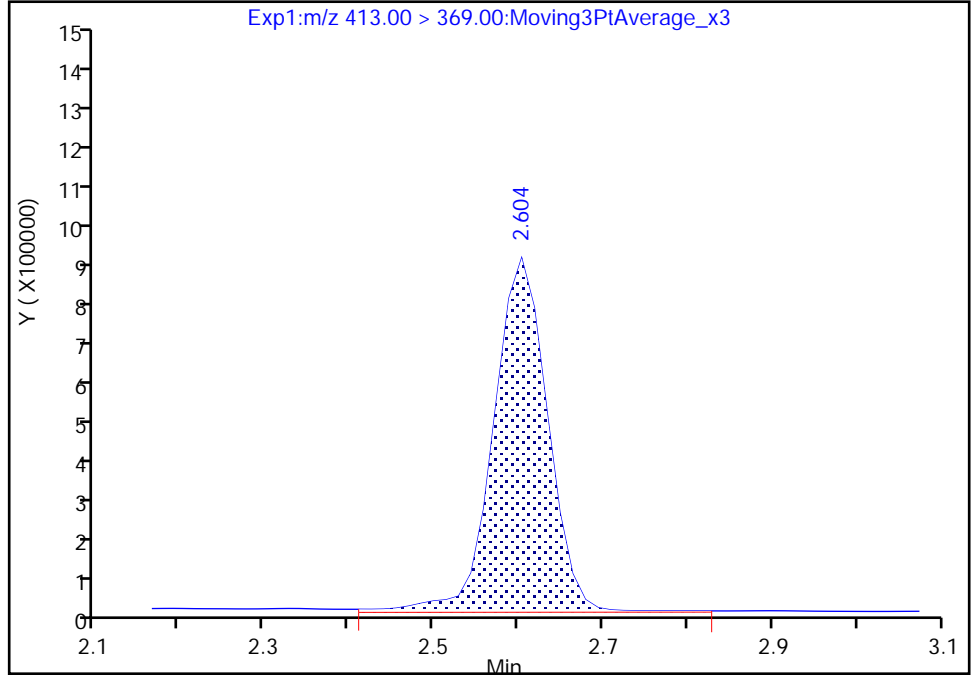
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_047.d  
Injection Date: 10-Nov-2018 15:28:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-C MSD  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 35 Worklist Smp#: 7  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

15 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

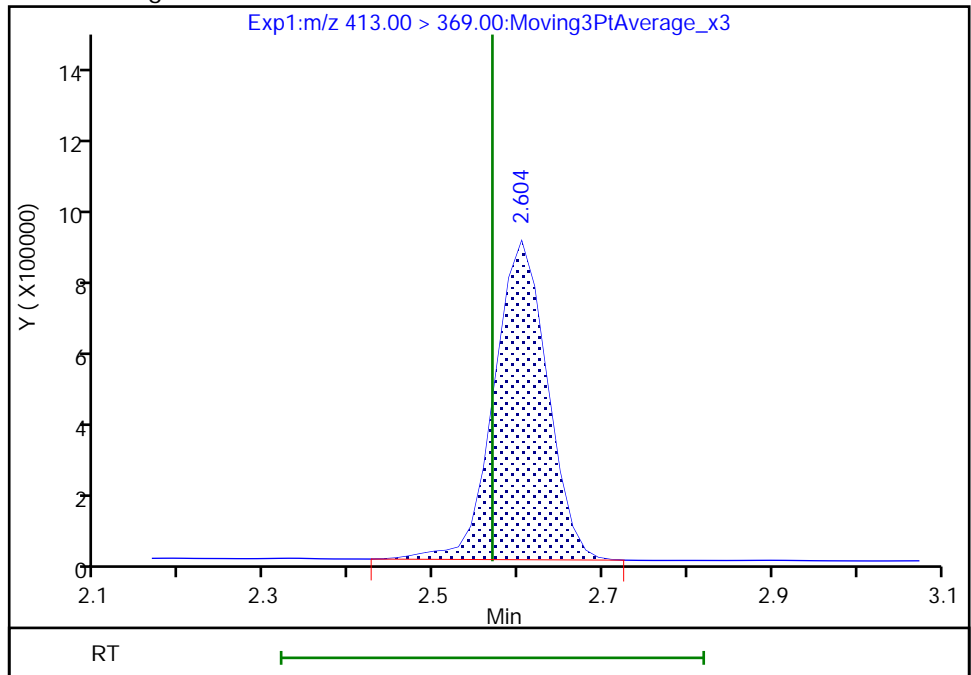
RT: 2.60  
Area: 4011954  
Amount: 1.216980  
Amount Units: ng/ml

Processing Integration Results



RT: 2.60  
Area: 3879135  
Amount: 1.176691  
Amount Units: ng/ml

Manual Integration Results





TestAmerica Sacramento

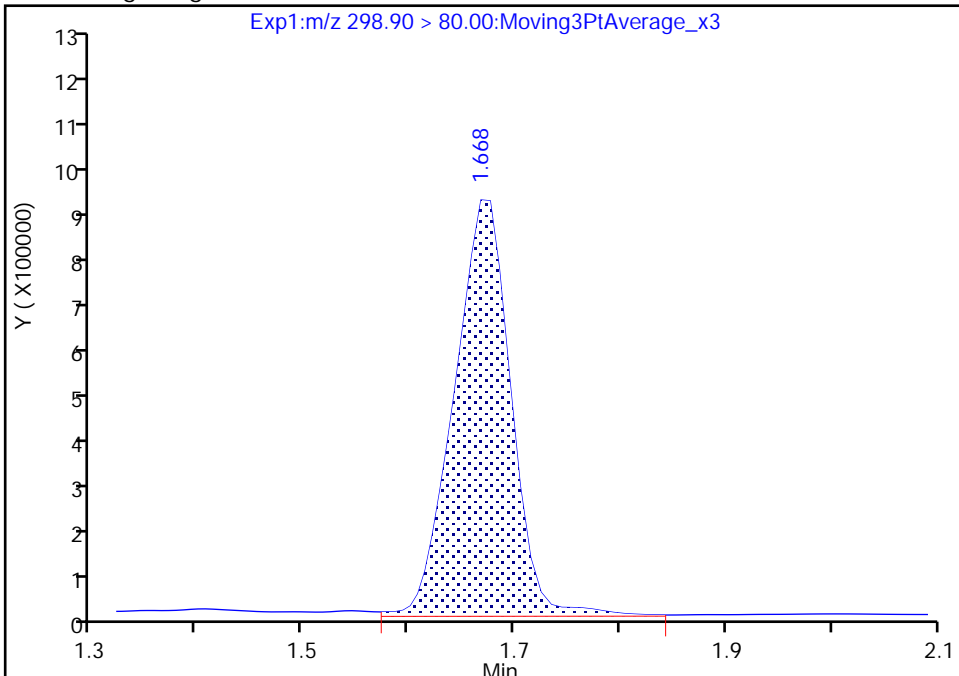
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_047.d  
Injection Date: 10-Nov-2018 15:28:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-C MSD  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 35 Worklist Smp#: 7  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

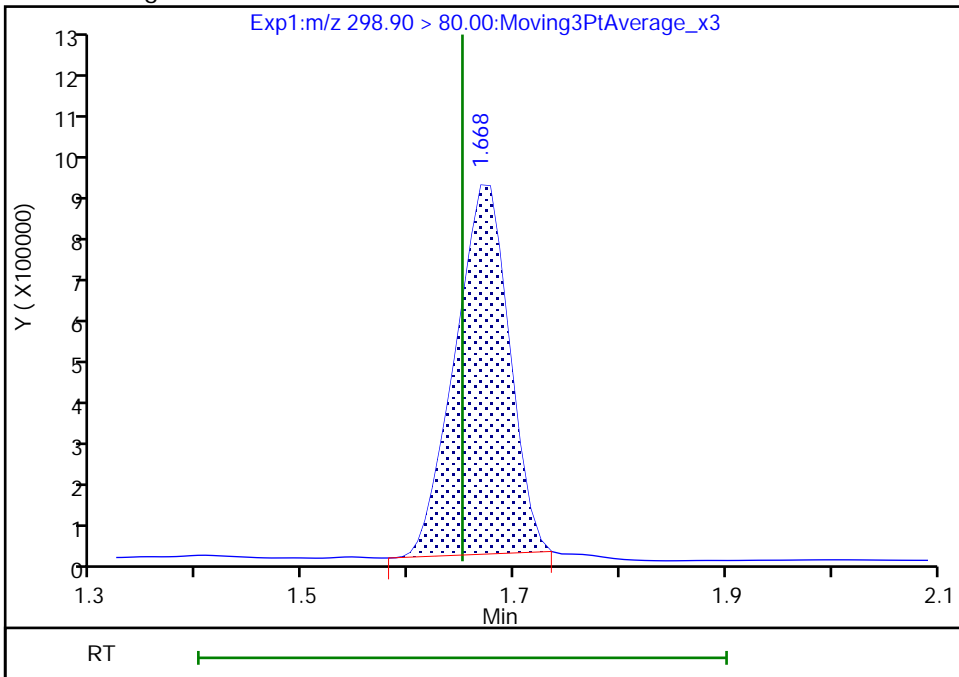
RT: 1.67  
Area: 3463210  
Amount: 1.060121  
Amount Units: ng/ml

Processing Integration Results



RT: 1.67  
Area: 3221689  
Amount: 0.986189  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

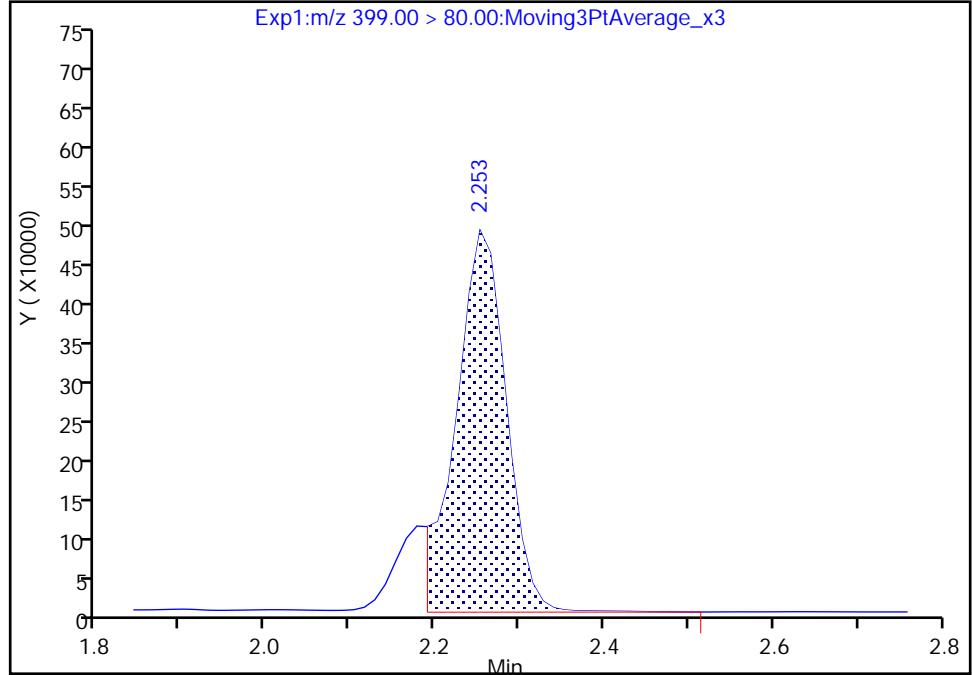
Data File: \\ChromNA\Sacramento\ChromData\A9\20181110-67486.b\2018.11.10LLA\_047.d  
Injection Date: 10-Nov-2018 15:28:37 Instrument ID: A9  
Lims ID: 480-144495-C-2-C MSD  
Client ID: MW-201  
Operator ID: A9\Administrator ALS Bottle#: 35 Worklist Smp#: 7  
Injection Vol: 20.0 ul Dil. Factor: 1.0000  
Method: PFAS\_A9 Limit Group: LC PFC ICAL  
Column: Detector EXP1

8 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

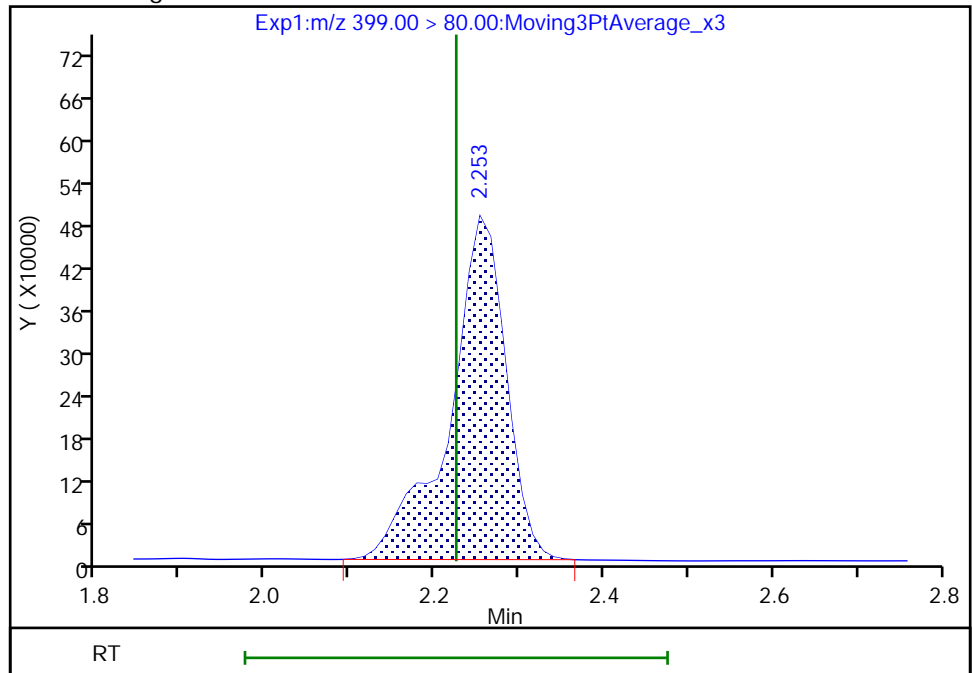
RT: 2.25  
Area: 2003879  
Amount: 0.736755  
Amount Units: ng/ml

Processing Integration Results



RT: 2.25  
Area: 2252396  
Amount: 0.828126  
Amount Units: ng/ml

Manual Integration Results



LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Instrument ID: A9 Start Date: 10/30/2018 13:12

Analysis Batch Number: 255834 End Date: 10/30/2018 14:12

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-255834/2		10/30/2018 13:12	1	2018.10.30ICALA002.d	Acquity 2.1(mm)
IC 320-255834/3		10/30/2018 13:20	1	2018.10.30ICALA003.d	Acquity 2.1(mm)
IC 320-255834/4		10/30/2018 13:27	1	2018.10.30ICALA004.d	Acquity 2.1(mm)
IC 320-255834/5 ICIS		10/30/2018 13:35	1	2018.10.30ICALA005.d	Acquity 2.1(mm)
IC 320-255834/6		10/30/2018 13:42	1	2018.10.30ICALA006.d	Acquity 2.1(mm)
IC 320-255834/7		10/30/2018 13:50	1	2018.10.30ICALA007.d	Acquity 2.1(mm)
IC 320-255834/8		10/30/2018 13:57	1	2018.10.30ICALA008.d	Acquity 2.1(mm)
ICB 320-255834/9		10/30/2018 14:05	1	2018.10.30ICALA009.d	Acquity 2.1(mm)
ICV 320-255834/10		10/30/2018 14:12	1	2018.10.30ICALA010.d	Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Instrument ID: A9 Start Date: 11/10/2018 10:05

Analysis Batch Number: 258344 End Date: 11/10/2018 11:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCB 320-258344/1		11/10/2018 10:05	1	2018.11.10LLA_004.d	Acquity 2.1(mm)
CCVL 320-258344/2		11/10/2018 10:12	1	2018.11.10LLA_005.d	Acquity 2.1(mm)
CCV 320-258344/3 CCVIS		11/10/2018 10:20	1	2018.11.10LLA_006.d	Acquity 2.1(mm)
ZZZZZ		11/10/2018 10:27	1		Acquity 2.1(mm)
ZZZZZ		11/10/2018 10:35	100		Acquity 2.1(mm)
ZZZZZ		11/10/2018 10:42	100		Acquity 2.1(mm)
ZZZZZ		11/10/2018 10:50	1		Acquity 2.1(mm)
ZZZZZ		11/10/2018 10:57	1		Acquity 2.1(mm)
CCV 320-258344/9		11/10/2018 11:05	1		Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Instrument ID: A9 Start Date: 11/10/2018 14:43

Analysis Batch Number: 258354 End Date: 11/10/2018 16:36

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-258354/1		11/10/2018 14:43	1	2018.11.10LLA_0 41.d	Acquity 2.1(mm)
MB 320-258069/1-A		11/10/2018 14:51	1	2018.11.10LLA_0 42.d	Acquity 2.1(mm)
LCS 320-258069/2-A		11/10/2018 14:58	1	2018.11.10LLA_0 43.d	Acquity 2.1(mm)
480-144495-1		11/10/2018 15:06	1	2018.11.10LLA_0 44.d	Acquity 2.1(mm)
480-144495-2		11/10/2018 15:13	1	2018.11.10LLA_0 45.d	Acquity 2.1(mm)
480-144495-2 MS		11/10/2018 15:21	1	2018.11.10LLA_0 46.d	Acquity 2.1(mm)
480-144495-2 MSD		11/10/2018 15:28	1	2018.11.10LLA_0 47.d	Acquity 2.1(mm)
ZZZZZ		11/10/2018 15:36	1		Acquity 2.1(mm)
480-144495-4		11/10/2018 15:43	1	2018.11.10LLA_0 49.d	Acquity 2.1(mm)
480-144495-5		11/10/2018 15:51	1	2018.11.10LLA_0 50.d	Acquity 2.1(mm)
CCV 320-258354/11		11/10/2018 15:58	1	2018.11.10LLA_0 51.d	Acquity 2.1(mm)
ZZZZZ		11/10/2018 16:06	100		Acquity 2.1(mm)
ZZZZZ		11/10/2018 16:13	100		Acquity 2.1(mm)
ZZZZZ		11/10/2018 16:28	1		Acquity 2.1(mm)
CCV 320-258354/16		11/10/2018 16:36	1		Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Instrument ID: A9 Start Date: 11/14/2018 18:16

Analysis Batch Number: 259213 End Date: 11/14/2018 19:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCB 320-259213/1		11/14/2018 18:16	1	2018.11.14LLA_004.d	Acquity 2.1(mm)
CCVL 320-259213/2		11/14/2018 18:23	1	2018.11.14LLA_005.d	Acquity 2.1(mm)
CCV 320-259213/3 CCVIS		11/14/2018 18:31	1	2018.11.14LLA_006.d	Acquity 2.1(mm)
ZZZZZ		11/14/2018 18:38	1		Acquity 2.1(mm)
ZZZZZ		11/14/2018 18:46	1		Acquity 2.1(mm)
ZZZZZ		11/14/2018 18:53	1		Acquity 2.1(mm)
ZZZZZ		11/14/2018 19:01	5		Acquity 2.1(mm)
ZZZZZ		11/14/2018 19:08	1		Acquity 2.1(mm)
ZZZZZ		11/14/2018 19:16	5		Acquity 2.1(mm)
ZZZZZ		11/14/2018 19:23	1		Acquity 2.1(mm)
CCV 320-259213/11		11/14/2018 19:31	1		Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Instrument ID: A9 Start Date: 11/15/2018 01:54

Analysis Batch Number: 259234 End Date: 11/15/2018 02:16

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-259234/1		11/15/2018 01:54	1	2018.11.14LLA_069.d	Acquity 2.1(mm)
ZZZZZ		11/15/2018 02:01	1		Acquity 2.1(mm)
480-144495-3		11/15/2018 02:09	1	2018.11.14LLA_071.d	Acquity 2.1(mm)
CCV 320-259234/4		11/15/2018 02:16	1	2018.11.14LLA_072.d	Acquity 2.1(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 480-144495-1

SDG No.: \_\_\_\_\_

Batch Number: 258069 Batch Start Date: 11/09/18 07:43 Batch Analyst: Kouchari, Shamiran

Batch Method: 3535 Batch End Date: 11/09/18 10:35

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC ALL_SU 00132	LCPFC-IS 00109
MB 320-258069/1		3535, 537 (modified)				250.00 mL	10.00 mL	500 uL	500 uL
LCS 320-258069/2		3535, 537 (modified)				250.00 mL	10.00 mL	500 uL	500 uL
480-144495-C-1	MW-207	3535, 537 (modified)	T	278.74 g	30.07 g	248.7 mL	10.00 mL	500 uL	500 uL
480-144495-C-2	MW-201	3535, 537 (modified)	T	277.65 g	31.52 g	246.1 mL	10.00 mL	500 uL	500 uL
480-144495-C-2 MS	MW-201	3535, 537 (modified)	T	273.25 g	31.24 g	242 mL	10.00 mL	500 uL	500 uL
480-144495-C-2 MSD	MW-201	3535, 537 (modified)	T	279.10 g	31.12 g	248 mL	10.00 mL	500 uL	500 uL
480-144495-C-3	MW-205	3535, 537 (modified)	T	276.95 g	32.40 g	244.6 mL	10.00 mL	500 uL	500 uL
480-144495-C-4	DUP-1-20181030	3535, 537 (modified)	T	281.98 g	30.36 g	251.6 mL	10.00 mL	500 uL	500 uL
480-144495-C-5	EQUIPMENT BLANK	3535, 537 (modified)	T	286.59 g	28.69 g	257.9 mL	10.00 mL	500 uL	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFCSP 00199	AnalysisComment				
MB 320-258069/1		3535, 537 (modified)							
LCS 320-258069/2		3535, 537 (modified)		500 uL					
480-144495-C-1	MW-207	3535, 537 (modified)	T		161.26g weight remaining.				
480-144495-C-2	MW-201	3535, 537 (modified)	T						
480-144495-C-2 MS	MW-201	3535, 537 (modified)	T	500 uL					
480-144495-C-2 MSD	MW-201	3535, 537 (modified)	T	500 uL					
480-144495-C-3	MW-205	3535, 537 (modified)	T						
480-144495-C-4	DUP-1-20181030	3535, 537 (modified)	T						
480-144495-C-5	EQUIPMENT BLANK	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.: 480-144495-1

SDG No.: \_\_\_\_\_

Batch Number: 258069 Batch Start Date: 11/09/18 07:43 Batch Analyst: Kouchari, Shamiran

Batch Method: 3535 Batch End Date: 11/09/18 10:35

Batch Notes	
Balance ID	QA-070
Batch Comment	Client labels Match TA labels, SKD 11/09/18
First End time	11/09/2018 10:35
H2O ID	11/06/18
Hexane ID	1423832
Manifold ID	R, I
Methanol ID	1430699
Sodium Hydroxide ID	1425249
Pipette/Syringe/Dispenser ID	I46162G
Analyst ID - Reagent Drop	SKD
Analyst ID - IS Reagent Drop	SKD
Analyst ID - IS Reagent Drop Witness	MNV
Solvent Lot #	1425790
Solvent Name	0.3% NH4OH/MeOH
SPE Cartridge Lot ID	004338233A
SPE Cartridge Type	WAX 500mg
First Start time	11/09/2018 07:38

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.

# Subcontract Data

# Shipping and Receiving Documents

**TestAmerica Buffalo**  
 10 Hazelwood Drive  
 Amherst, NY 14228-2298  
 Phone (716) 691-2600 Fax (716) 691-7991

### Chain of Custody Record



480-144495 COC

**Client Information**  
 Client Contact: Mr. Lawrence Healy III  
 Company: ARCADIS U.S. Inc  
 Address: One Lincoln Center 110 West Fayette St, Suite 300  
 City: Syracuse  
 State, Zip: NY, 13202  
 Phone: [blank]  
 Email: lawrence.healy@arcadis.com  
 Project Name: WSI - Potsdam - GW Analysis RFQ  
 Site: [blank]

**Sampler:** J. Sinay / A. Gibson  
 Lab PM: Deyo, Melissa L  
 Phone: 315-671-9171  
 E-Mail: melissa.deyo@testamericainc.com

COC No: 480-120728-27733  
 Page: Page 1 of 1  
 Job #: [blank]

**Due Date Requested:** [blank]  
**TAT Requested (days):** [blank]

**PO #:** [blank]  
**WO #:** [blank]

**Purchase Order Requested:** [blank]

**Project #:** 48019081  
**ISSOW#:** [blank]

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, T=tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC, IDA - PFAS, Standard List (21 analytes)	8270D, SIM, MS, ID - 1,4 Dioxane	Total Number of Containers	Special Instructions/Note:
MW-207	10/30/18	1226		Water	X	N	N	N		
MW-201	10/30/18	1327		Water	Y	2	2	2		MW-201 MS / MW-201 MSD
MW-205	10/30/18	1525		Water	2	2	2	2		
DUP-1-20181030	10/30/18	1600		Water	2	2	2	2		
EQUIPMENT BLANK				Water						
				Water						
				Water						

**Possible Hazard Identification**  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological

**Deliverable Requested:** I, II, III, IV, Other (specify) [blank]

**Empty Kit Relinquished by:** [blank] Date: [blank]

**Relinquished by:** Josh Sinay [Signature] Date/Time: 10/30/18 2030 Company: Arcadis

**Relinquished by:** [Signature] Date/Time: 10/31/18 1900 Company: [blank]

**Relinquished by:** [Signature] Date/Time: [blank] Company: [blank]

**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

**Special Instructions/QC Requirements:** [blank]

**Method of Shipment:** [blank]

**Received by:** [Signature] Date/Time: 10/30/18 2030 Company: SVA

**Received by:** [Signature] Date/Time: 11/01/18 Company: [blank]

**Received by:** [Signature] Date/Time: [blank] Company: [blank]

**Cooler Temperature(s) °C and Other Remarks:** A.3

# Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 480-144495-1

**Login Number: 144495**  
**List Number: 1**  
**Creator: Wallace, Cameron**

**List Source: TestAmerica Buffalo**

<b>Question</b>	<b>Answer</b>	<b>Comment</b>
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.	N/A	
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	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	