NAVFAC
Naval Facilities Engineering Command

Off-Base Drinking Water Sample Results, Combined Level 2 and Level 4 Laboratory Report, Electronic Data Deliverable, Data Validation Report, and the Sample Location Figure, SDG 320-32094-1

Naval Air Warfare Center Warminster
Warminster, Pennsylvania

August 2019

N62269_001138
WARMINSTER_NAWC
SSIC 5000-33c

LABORATORY DATA PACKAGE, 320-32094-1, NAS WILLOW GROVE NAWC WARMINSTER PA

10/31/2017

TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

ANALYTICAL REPORT

Job Number: 320-32094-1

Job Description: Warminster: PFAS, NAS JRB Willow Grove

For:
Tetra Tech, Inc.
234 Mall Boulevard
Suite 260
King of Prussia, PA 19406

Attention: Andy Frebowitz

Approved for release.
David R Alltucker
Project Manager I
10/31/2017 5:20 PM

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10/31/2017

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Qualifiers

LCMS

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
Q	One or more quality control criteria failed.
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

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

Job Narrative
320-32094-1

Receipt
The samples were received on 10/3/2017 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.2º C, 2.3º C and 6.0º C.

Receipt Exceptions
The following samples was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): WGNA-100217-RW-0404 (320-32094-22) and WGNA-100217-FRB-0404 (320-32094-23)

LCMS
Method(s) 537: The first level standard from the initial calibration curve is used to evaluate the tune criteria. The instrument mass windows are set at +/- 0.5amu; therefore, detection of the analyte serves as verification that the assigned mass is within +/- 0.5amu of the true value, which meets the DoD/DOE QSM tune criterion.

Method(s) 537: Re-extraction of the following sample was performed outside of the analytical holding time due to very low surrogate recoveries in the initial extraction: NAWC-100217-FRB-125 (320-32094-15).

Method(s) 537: The laboratory control sample (LCS) for preparation batch 320-190676 and analytical batch 320-192192 recovered outside control limits for the following analytes: Perfluorobutanesulfonic acid (PFBS). The associated sample was re-prepared and/or re-analyzed outside holding time. Both sets of data have been reported. There no more sample left to do another re-extraction.

Method(s) 537: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch preparation batch 320-190676 and analytical batch 320-192192 recovered outside control limits for the following analytes: Perfluoroheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA) and Perfluorobutanesulfonic acid (PFBS). There is no more sample left to do another re-extraction.

Method(s) 537: Surrogate recovery for the following sample was outside control limits: (LCS 320-190676/2-A). Re-analysis was performed with concurring results. The second analysis has been reported as there were other QC criteria out in the initial analysis.

Method(s) 537: Surrogate recovery for the following sample was outside control limits: NAWC-100217-FRB-125 (320-32094-15). Re-extraction and re-analysis was performed and the surrogate recovery was good in the re-extraction. Both sets of data have been reported as the holding time was exceeded in the re-extraction The sample was ND for all analytes in both extractions.

Method(s) 537: In the re-extraction prep batch the laboratory control (LCS) sample has low recoveries for one of the surrogate compounds, 13C2 PFHxA, and the target compound Perfluorobutanesulfonic acid (PFBS). Also two other target compounds Perfluorononanoic acid (PFNA) and Perfluoroheptanoic acid (PFHpA) were somewhat low causing the RPD of the LCS and LCSD to be out of control. These low recoveries appear to only affect the LCS. The LCSD has good recoveries for the target compounds and the surrogate compounds. The associated sample has good surrogate recoveries. NAWC-100217-FRB-125 (320-32094-15)

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

Organic Prep
Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-189627.

Method(s) 537: The following samples: NAWC-100217-FRB-125 (320-32094-15) was re-prepared outside of preparation holding time due to very low surrogate recovery.

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-190676.

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

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-32094-1

Client Sample ID: WGNA-100217-RW-0344 — Lab Sample ID: 320-32094-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	31	J M	36	6.1	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	32		18	2.5	ng/L	1		537	Total/NA
Perfluorononanoic acid (PFNA)	34		21	7.1	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	23	J	27	4.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	9.0		8.9	1.7	ng/L	1		537	Total/NA

Client Sample ID: WGNA-100217-FRB-0344 — Lab Sample ID: 320-32094-2

No Detections.

Client Sample ID: NAWC-100217-RW-140 — Lab Sample ID: 320-32094-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	11	J M	38	6.5	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	18	J	19	2.7	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.7	J	9.6	1.8	ng/L	1		537	Total/NA

Client Sample ID: NAWC-100217-FRB-140 — Lab Sample ID: 320-32094-4

No Detections.

Client Sample ID: NAWC-100217-RW-316 — Lab Sample ID: 320-32094-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	44	M	36	6.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	22		18	2.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	34		27	4.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	9.0		8.9	1.7	ng/L	1		537	Total/NA

Client Sample ID: NAWC-100217-FRB-316 — Lab Sample ID: 320-32094-6

No Detections.

Client Sample ID: NAWC-100217-RW-144 — Lab Sample ID: 320-32094-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	22	J M	37	6.2	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	12	J	18	2.6	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.7	J	28	5.0	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.7	J	9.2	1.7	ng/L	1		537	Total/NA

Client Sample ID: NAWC-100217-FRB-144 — Lab Sample ID: 320-32094-8

No Detections.

Client Sample ID: NAWC-100217-RW-151 — Lab Sample ID: 320-32094-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	8.8	J M	37	6.3	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	22		19	2.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	11		9.3	1.8	ng/L	1		537	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-32094-1

Client Sample ID: NAWC-100217-FRB-151 — Lab Sample ID: 320-32094-10

No Detections.

Client Sample ID: WGNA-100217-DUP11 — Lab Sample ID: 320-32094-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	8.9	J M	35	6.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	22		18	2.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.1	J	27	4.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	10		8.9	1.7	ng/L	1		537	Total/NA

Client Sample ID: NAWC-100217-RW-130 — Lab Sample ID: 320-32094-12

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	16	J M	36	6.1	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	6.5	J	18	2.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.5	J	27	5.0	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.6	J	9.0	1.7	ng/L	1		537	Total/NA

Client Sample ID: NAWC-100217-FRB-130 — Lab Sample ID: 320-32094-13

No Detections.

Client Sample ID: NAWC-100217-RW-125 — Lab Sample ID: 320-32094-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	14	J M	35	5.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	16	J	17	2.4	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	15	J	26	4.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.2	J	8.7	1.6	ng/L	1		537	Total/NA

Client Sample ID: NAWC-100217-FRB-125 — Lab Sample ID: 320-32094-15

No Detections.

Client Sample ID: NAWC-100217-RW-139 — Lab Sample ID: 320-32094-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	9.9	J	35	5.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	12	J	17	2.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.0	J	8.7	1.7	ng/L	1		537	Total/NA

Client Sample ID: NAWC-100217-FRB-139 — Lab Sample ID: 320-32094-17

No Detections.

Client Sample ID: WGNA-100217-RW-0500 — Lab Sample ID: 320-32094-18

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	24	J	35	6.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	28		18	2.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.4	J	26	4.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.5	J	8.8	1.7	ng/L	1		537	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-32094-1

Client Sample ID: WGNA-100217-FRB-0500 — Lab Sample ID: 320-32094-19

No Detections.

Client Sample ID: WGNA-100217-RW-0413 — Lab Sample ID: 320-32094-20

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	25	J M	35	6.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	27		18	2.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.6	J	26	4.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.3	J	8.8	1.7	ng/L	1		537	Total/NA

Client Sample ID: WGNA-100217-FRB-0413 — Lab Sample ID: 320-32094-21

No Detections.

Client Sample ID: WGNA-100217-RW-0404 — Lab Sample ID: 320-32094-22

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	24	J M	37	6.3	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	24		19	2.6	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.9	J	28	5.1	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.1	J	9.3	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-100217-FRB-0404 — Lab Sample ID: 320-32094-23

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: WGNA-100217-RW-0344 — Lab Sample ID: 320-32094-1

Date Collected: 10/02/17 08:10 — **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**31**	**J M**	36	6.1	ng/L		10/16/17 14:42	10/20/17 19:33	1
Perfluorooctanoic acid (PFOA)	**32**		18	2.5	ng/L		10/16/17 14:42	10/20/17 19:33	1
Perfluorononanoic acid (PFNA)	**34**		21	7.1	ng/L		10/16/17 14:42	10/20/17 19:33	1
Perfluorohexanesulfonic acid (PFHxS)	**23**	**J**	27	4.9	ng/L		10/16/17 14:42	10/20/17 19:33	1
Perfluoroheptanoic acid (PFHpA)	**9.0**		8.9	1.7	ng/L		10/16/17 14:42	10/20/17 19:33	1
Perfluorobutanesulfonic acid (PFBS)	32	U	80	14	ng/L		10/16/17 14:42	10/20/17 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*78*		*70 - 130*	*10/16/17 14:42*	*10/20/17 19:33*	*1*
13C2 PFDA	*103*		*70 - 130*	*10/16/17 14:42*	*10/20/17 19:33*	*1*

Client Sample ID: WGNA-100217-FRB-0344 — Lab Sample ID: 320-32094-2

Date Collected: 10/02/17 08:05 — **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	37	6.3	ng/L		10/16/17 14:42	10/20/17 19:38	1
Perfluorooctanoic acid (PFOA)	7.4	U M	18	2.6	ng/L		10/16/17 14:42	10/20/17 19:38	1
Perfluorononanoic acid (PFNA)	18	U	22	7.4	ng/L		10/16/17 14:42	10/20/17 19:38	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L		10/16/17 14:42	10/20/17 19:38	1
Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	1.8	ng/L		10/16/17 14:42	10/20/17 19:38	1
Perfluorobutanesulfonic acid (PFBS)	33	U	83	15	ng/L		10/16/17 14:42	10/20/17 19:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*70 - 130*	*10/16/17 14:42*	*10/20/17 19:38*	*1*
13C2 PFDA	*111*		*70 - 130*	*10/16/17 14:42*	*10/20/17 19:38*	*1*

Client Sample ID: NAWC-100217-RW-140 — Lab Sample ID: 320-32094-3

Date Collected: 10/02/17 09:40 — **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**11**	**J M**	38	6.5	ng/L		10/16/17 14:42	10/20/17 19:43	1
Perfluorooctanoic acid (PFOA)	**18**	**J**	19	2.7	ng/L		10/16/17 14:42	10/20/17 19:43	1
Perfluorononanoic acid (PFNA)	19	U	23	7.6	ng/L		10/16/17 14:42	10/20/17 19:43	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	29	5.3	ng/L		10/16/17 14:42	10/20/17 19:43	1
Perfluoroheptanoic acid (PFHpA)	**4.7**	**J**	9.6	1.8	ng/L		10/16/17 14:42	10/20/17 19:43	1
Perfluorobutanesulfonic acid (PFBS)	34	U	86	15	ng/L		10/16/17 14:42	10/20/17 19:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*80*		*70 - 130*	*10/16/17 14:42*	*10/20/17 19:43*	*1*
13C2 PFDA	*99*		*70 - 130*	*10/16/17 14:42*	*10/20/17 19:43*	*1*

Client Sample ID: NAWC-100217-FRB-140 — Lab Sample ID: 320-32094-4

Date Collected: 10/02/17 09:35 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	36	6.2	ng/L		10/16/17 14:42	10/20/17 19:57	1
Perfluorooctanoic acid (PFOA)	7.3	U	18	2.5	ng/L		10/16/17 14:42	10/20/17 19:57	1
Perfluorononanoic acid (PFNA)	18	U	22	7.3	ng/L		10/16/17 14:42	10/20/17 19:57	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	27	5.0	ng/L		10/16/17 14:42	10/20/17 19:57	1
Perfluoroheptanoic acid (PFHpA)	3.6	U	9.1	1.7	ng/L		10/16/17 14:42	10/20/17 19:57	1
Perfluorobutanesulfonic acid (PFBS)	33	U	82	15	ng/L		10/16/17 14:42	10/20/17 19:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*10/16/17 14:42*	*10/20/17 19:57*	*1*
13C2 PFDA	*112*		*70 - 130*	*10/16/17 14:42*	*10/20/17 19:57*	*1*

Client Sample ID: NAWC-100217-RW-316 — Lab Sample ID: 320-32094-5

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

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**44**	**M**	36	6.0	ng/L		10/16/17 14:42	10/20/17 20:02	1
Perfluorooctanoic acid (PFOA)	**22**		18	2.5	ng/L		10/16/17 14:42	10/20/17 20:02	1
Perfluorononanoic acid (PFNA)	18	U	21	7.1	ng/L		10/16/17 14:42	10/20/17 20:02	1
Perfluorohexanesulfonic acid (PFHxS)	**34**		27	4.9	ng/L		10/16/17 14:42	10/20/17 20:02	1
Perfluoroheptanoic acid (PFHpA)	**9.0**		8.9	1.7	ng/L		10/16/17 14:42	10/20/17 20:02	1
Perfluorobutanesulfonic acid (PFBS)	32	U	80	14	ng/L		10/16/17 14:42	10/20/17 20:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*84*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:02*	*1*
13C2 PFDA	*118*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:02*	*1*

Client Sample ID: NAWC-100217-FRB-316 — Lab Sample ID: 320-32094-6

Date Collected: 10/02/17 10:05 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	39	6.6	ng/L		10/16/17 14:42	10/20/17 20:07	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		10/16/17 14:42	10/20/17 20:07	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		10/16/17 14:42	10/20/17 20:07	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		10/16/17 14:42	10/20/17 20:07	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	1.8	ng/L		10/16/17 14:42	10/20/17 20:07	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		10/16/17 14:42	10/20/17 20:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*93*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:07*	*1*
13C2 PFDA	*111*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:07*	*1*

Client Sample ID: NAWC-100217-RW-144 — Lab Sample ID: 320-32094-7

Date Collected: 10/02/17 10:40 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**22**	**J M**	37	6.2	ng/L		10/16/17 14:42	10/20/17 20:21	1
Perfluorooctanoic acid (PFOA)	**12**	**J**	18	2.6	ng/L		10/16/17 14:42	10/20/17 20:21	1
Perfluorononanoic acid (PFNA)	18	U	22	7.3	ng/L		10/16/17 14:42	10/20/17 20:21	1
Perfluorohexanesulfonic acid (PFHxS)	**6.7**	**J**	28	5.0	ng/L		10/16/17 14:42	10/20/17 20:21	1
Perfluoroheptanoic acid (PFHpA)	**3.7**	**J**	9.2	1.7	ng/L		10/16/17 14:42	10/20/17 20:21	1
Perfluorobutanesulfonic acid (PFBS)	33	U	83	15	ng/L		10/16/17 14:42	10/20/17 20:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*79*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:21*	*1*
13C2 PFDA	*107*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:21*	*1*

Client Sample ID: NAWC-100217-FRB-144 — Lab Sample ID: 320-32094-8

Date Collected: 10/02/17 10:35 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	39	6.6	ng/L		10/16/17 14:42	10/20/17 20:26	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		10/16/17 14:42	10/20/17 20:26	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		10/16/17 14:42	10/20/17 20:26	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		10/16/17 14:42	10/20/17 20:26	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	1.8	ng/L		10/16/17 14:42	10/20/17 20:26	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		10/16/17 14:42	10/20/17 20:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:26*	*1*
13C2 PFDA	*107*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:26*	*1*

Client Sample ID: NAWC-100217-RW-151 — Lab Sample ID: 320-32094-9

Date Collected: 10/02/17 11:10 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**8.8**	**J M**	37	6.3	ng/L		10/16/17 14:42	10/20/17 20:30	1
Perfluorooctanoic acid (PFOA)	**22**		19	2.6	ng/L		10/16/17 14:42	10/20/17 20:30	1
Perfluorononanoic acid (PFNA)	19	U	22	7.4	ng/L		10/16/17 14:42	10/20/17 20:30	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L		10/16/17 14:42	10/20/17 20:30	1
Perfluoroheptanoic acid (PFHpA)	**11**		9.3	1.8	ng/L		10/16/17 14:42	10/20/17 20:30	1
Perfluorobutanesulfonic acid (PFBS)	33	U	84	15	ng/L		10/16/17 14:42	10/20/17 20:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*75*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:30*	*1*
13C2 PFDA	*96*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:30*	*1*

Client Sample ID: NAWC-100217-FRB-151 — Lab Sample ID: 320-32094-10

Date Collected: 10/02/17 11:05 — **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	37	6.3	ng/L		10/16/17 14:42	10/20/17 20:35	1
Perfluorooctanoic acid (PFOA)	7.5	U	19	2.6	ng/L		10/16/17 14:42	10/20/17 20:35	1
Perfluorononanoic acid (PFNA)	19	U	22	7.5	ng/L		10/16/17 14:42	10/20/17 20:35	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L		10/16/17 14:42	10/20/17 20:35	1
Perfluoroheptanoic acid (PFHpA)	3.7	U	9.3	1.8	ng/L		10/16/17 14:42	10/20/17 20:35	1
Perfluorobutanesulfonic acid (PFBS)	34	U	84	15	ng/L		10/16/17 14:42	10/20/17 20:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:35*	*1*
13C2 PFDA	*106*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:35*	*1*

Client Sample ID: WGNA-100217-DUP11 — Lab Sample ID: 320-32094-11

Date Collected: 10/02/17 07:00 — **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**8.9**	**J M**	35	6.0	ng/L		10/16/17 14:42	10/20/17 20:40	1
Perfluorooctanoic acid (PFOA)	**22**		18	2.5	ng/L		10/16/17 14:42	10/20/17 20:40	1
Perfluorononanoic acid (PFNA)	18	U	21	7.1	ng/L		10/16/17 14:42	10/20/17 20:40	1
Perfluorohexanesulfonic acid (PFHxS)	**5.1**	**J**	27	4.9	ng/L		10/16/17 14:42	10/20/17 20:40	1
Perfluoroheptanoic acid (PFHpA)	**10**		8.9	1.7	ng/L		10/16/17 14:42	10/20/17 20:40	1
Perfluorobutanesulfonic acid (PFBS)	32	U	80	14	ng/L		10/16/17 14:42	10/20/17 20:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*73*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:40*	*1*
13C2 PFDA	*92*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:40*	*1*

Client Sample ID: NAWC-100217-RW-130 — Lab Sample ID: 320-32094-12

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

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**16**	**J M**	36	6.1	ng/L		10/16/17 14:42	10/20/17 20:45	1
Perfluorooctanoic acid (PFOA)	**6.5**	**J**	18	2.5	ng/L		10/16/17 14:42	10/20/17 20:45	1
Perfluorononanoic acid (PFNA)	18	U	22	7.2	ng/L		10/16/17 14:42	10/20/17 20:45	1
Perfluorohexanesulfonic acid (PFHxS)	**6.5**	**J**	27	5.0	ng/L		10/16/17 14:42	10/20/17 20:45	1
Perfluoroheptanoic acid (PFHpA)	**4.6**	**J**	9.0	1.7	ng/L		10/16/17 14:42	10/20/17 20:45	1
Perfluorobutanesulfonic acid (PFBS)	32	U	81	15	ng/L		10/16/17 14:42	10/20/17 20:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*76*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:45*	*1*
13C2 PFDA	*108*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:45*	*1*

Client Sample ID: NAWC-100217-FRB-130 — Lab Sample ID: 320-32094-13

Date Collected: 10/02/17 14:05 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	14	U	35	6.0	ng/L		10/16/17 14:42	10/20/17 20:49	1
Perfluorooctanoic acid (PFOA)	7.0	U	18	2.5	ng/L		10/16/17 14:42	10/20/17 20:49	1
Perfluorononanoic acid (PFNA)	18	U	21	7.0	ng/L		10/16/17 14:42	10/20/17 20:49	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	26	4.8	ng/L		10/16/17 14:42	10/20/17 20:49	1
Perfluoroheptanoic acid (PFHpA)	3.5	U	8.8	1.7	ng/L		10/16/17 14:42	10/20/17 20:49	1
Perfluorobutanesulfonic acid (PFBS)	32	U	79	14	ng/L		10/16/17 14:42	10/20/17 20:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:49*	*1*
13C2 PFDA	*106*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:49*	*1*

Client Sample ID: NAWC-100217-RW-125 — Lab Sample ID: 320-32094-14

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

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**14**	**J M**	35	5.9	ng/L		10/16/17 14:42	10/20/17 20:54	1
Perfluorooctanoic acid (PFOA)	**16**	**J**	17	2.4	ng/L		10/16/17 14:42	10/20/17 20:54	1
Perfluorononanoic acid (PFNA)	17	U	21	6.9	ng/L		10/16/17 14:42	10/20/17 20:54	1
Perfluorohexanesulfonic acid (PFHxS)	**15**	**J**	26	4.8	ng/L		10/16/17 14:42	10/20/17 20:54	1
Perfluoroheptanoic acid (PFHpA)	**6.2**	**J**	8.7	1.6	ng/L		10/16/17 14:42	10/20/17 20:54	1
Perfluorobutanesulfonic acid (PFBS)	31	U	78	14	ng/L		10/16/17 14:42	10/20/17 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*77*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:54*	*1*
13C2 PFDA	*106*		*70 - 130*	*10/16/17 14:42*	*10/20/17 20:54*	*1*

Client Sample ID: NAWC-100217-FRB-125 — Lab Sample ID: 320-32094-15

Date Collected: 10/02/17 14:05 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	38	6.4	ng/L		10/16/17 14:42	10/20/17 20:59	1
Perfluorooctanoic acid (PFOA)	7.5	U	19	2.6	ng/L		10/16/17 14:42	10/20/17 20:59	1
Perfluorononanoic acid (PFNA)	19	U	23	7.5	ng/L		10/16/17 14:42	10/20/17 20:59	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.2	ng/L		10/16/17 14:42	10/20/17 20:59	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	1.8	ng/L		10/16/17 14:42	10/20/17 20:59	1
Perfluorobutanesulfonic acid (PFBS)	34	U	85	15	ng/L		10/16/17 14:42	10/20/17 20:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*0.9*	*Q*	*70 - 130*	*10/16/17 14:42*	*10/20/17 20:59*	*1*
13C2 PFDA	*3*	*Q*	*70 - 130*	*10/16/17 14:42*	*10/20/17 20:59*	*1*

Method: 537 - Perfluorinated Alkyl Acids (LC/MS) - RE

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U H	40	6.8	ng/L		10/23/17 14:32	10/31/17 15:31	1
Perfluorooctanoic acid (PFOA)	8.0	U H	20	2.8	ng/L		10/23/17 14:32	10/31/17 15:31	1

Client Sample ID: NAWC-100217-FRB-125 — Lab Sample ID: 320-32094-15

Date Collected: 10/02/17 14:05 — **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS) - RE (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	20	U H Q	24	8.0	ng/L		10/23/17 14:32	10/31/17 15:31	1
Perfluorohexanesulfonic acid (PFHxS)	12	U H	30	5.5	ng/L		10/23/17 14:32	10/31/17 15:31	1
Perfluoroheptanoic acid (PFHpA)	4.0	U H Q	10	1.9	ng/L		10/23/17 14:32	10/31/17 15:31	1
Perfluorobutanesulfonic acid (PFBS)	36	U H Q	90	16	ng/L		10/23/17 14:32	10/31/17 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*114*		*70 - 130*	*10/23/17 14:32*	*10/31/17 15:31*	*1*
13C2 PFDA	*118*		*70 - 130*	*10/23/17 14:32*	*10/31/17 15:31*	*1*

Client Sample ID: NAWC-100217-RW-139 — Lab Sample ID: 320-32094-16

Date Collected: 10/02/17 13:10 — **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**9.9**	**J**	35	5.9	ng/L		10/16/17 15:51	10/20/17 23:07	1
Perfluorooctanoic acid (PFOA)	**12**	**J**	17	2.4	ng/L		10/16/17 15:51	10/20/17 23:07	1
Perfluorononanoic acid (PFNA)	17	U	21	7.0	ng/L		10/16/17 15:51	10/20/17 23:07	1
Perfluorohexanesulfonic acid (PFHxS)	10	U	26	4.8	ng/L		10/16/17 15:51	10/20/17 23:07	1
Perfluoroheptanoic acid (PFHpA)	**4.0**	**J**	8.7	1.7	ng/L		10/16/17 15:51	10/20/17 23:07	1
Perfluorobutanesulfonic acid (PFBS)	31	U	79	14	ng/L		10/16/17 15:51	10/20/17 23:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:07*	*1*
13C2 PFDA	*107*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:07*	*1*

Client Sample ID: NAWC-100217-FRB-139 — Lab Sample ID: 320-32094-17

Date Collected: 10/02/17 13:05 — **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	38	6.4	ng/L		10/16/17 15:51	10/20/17 23:12	1
Perfluorooctanoic acid (PFOA)	7.5	U	19	2.6	ng/L		10/16/17 15:51	10/20/17 23:12	1
Perfluorononanoic acid (PFNA)	19	U	23	7.5	ng/L		10/16/17 15:51	10/20/17 23:12	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.2	ng/L		10/16/17 15:51	10/20/17 23:12	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	1.8	ng/L		10/16/17 15:51	10/20/17 23:12	1
Perfluorobutanesulfonic acid (PFBS)	34	U	85	15	ng/L		10/16/17 15:51	10/20/17 23:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*102*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:12*	*1*
13C2 PFDA	*108*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:12*	*1*

Client Sample ID: WGNA-100217-RW-0500 — Lab Sample ID: 320-32094-18

Date Collected: 10/02/17 15:40 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**24**	**J**	35	6.0	ng/L		10/16/17 15:51	10/20/17 23:16	1
Perfluorooctanoic acid (PFOA)	**28**		18	2.5	ng/L		10/16/17 15:51	10/20/17 23:16	1
Perfluorononanoic acid (PFNA)	18	U	21	7.0	ng/L		10/16/17 15:51	10/20/17 23:16	1
Perfluorohexanesulfonic acid (PFHxS)	**8.4**	**J**	26	4.8	ng/L		10/16/17 15:51	10/20/17 23:16	1
Perfluoroheptanoic acid (PFHpA)	**7.5**	**J**	8.8	1.7	ng/L		10/16/17 15:51	10/20/17 23:16	1
Perfluorobutanesulfonic acid (PFBS)	32	U	79	14	ng/L		10/16/17 15:51	10/20/17 23:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*86*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:16*	*1*
13C2 PFDA	*114*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:16*	*1*

Client Sample ID: WGNA-100217-FRB-0500 — Lab Sample ID: 320-32094-19

Date Collected: 10/02/17 15:35 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	38	6.5	ng/L		10/16/17 15:51	10/20/17 23:21	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		10/16/17 15:51	10/20/17 23:21	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		10/16/17 15:51	10/20/17 23:21	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	29	5.3	ng/L		10/16/17 15:51	10/20/17 23:21	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	1.8	ng/L		10/16/17 15:51	10/20/17 23:21	1
Perfluorobutanesulfonic acid (PFBS)	34	U	86	15	ng/L		10/16/17 15:51	10/20/17 23:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*98*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:21*	*1*
13C2 PFDA	*113*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:21*	*1*

Client Sample ID: WGNA-100217-RW-0413 — Lab Sample ID: 320-32094-20

Date Collected: 10/02/17 16:10 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**25**	**J M**	35	6.0	ng/L		10/16/17 15:51	10/20/17 23:26	1
Perfluorooctanoic acid (PFOA)	**27**		18	2.5	ng/L		10/16/17 15:51	10/20/17 23:26	1
Perfluorononanoic acid (PFNA)	18	U	21	7.1	ng/L		10/16/17 15:51	10/20/17 23:26	1
Perfluorohexanesulfonic acid (PFHxS)	**8.6**	**J**	26	4.9	ng/L		10/16/17 15:51	10/20/17 23:26	1
Perfluoroheptanoic acid (PFHpA)	**7.3**	**J**	8.8	1.7	ng/L		10/16/17 15:51	10/20/17 23:26	1
Perfluorobutanesulfonic acid (PFBS)	32	U	79	14	ng/L		10/16/17 15:51	10/20/17 23:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:26*	*1*
13C2 PFDA	*109*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:26*	*1*

Client Sample ID: WGNA-100217-FRB-0413 — Lab Sample ID: 320-32094-21

Date Collected: 10/02/17 16:05 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	37	6.4	ng/L		10/16/17 15:51	10/20/17 23:31	1
Perfluorooctanoic acid (PFOA)	7.5	U	19	2.6	ng/L		10/16/17 15:51	10/20/17 23:31	1
Perfluorononanoic acid (PFNA)	19	U	22	7.5	ng/L		10/16/17 15:51	10/20/17 23:31	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L		10/16/17 15:51	10/20/17 23:31	1
Perfluoroheptanoic acid (PFHpA)	3.7	U	9.4	1.8	ng/L		10/16/17 15:51	10/20/17 23:31	1
Perfluorobutanesulfonic acid (PFBS)	34	U	84	15	ng/L		10/16/17 15:51	10/20/17 23:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*100*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:31*	*1*
13C2 PFDA	*120*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:31*	*1*

Client Sample ID: WGNA-100217-RW-0404 — Lab Sample ID: 320-32094-22

Date Collected: 10/02/17 08:40 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**24**	**J M**	37	6.3	ng/L		10/16/17 15:51	10/20/17 23:35	1
Perfluorooctanoic acid (PFOA)	**24**		19	2.6	ng/L		10/16/17 15:51	10/20/17 23:35	1
Perfluorononanoic acid (PFNA)	19	U	22	7.4	ng/L		10/16/17 15:51	10/20/17 23:35	1
Perfluorohexanesulfonic acid (PFHxS)	**7.9**	**J**	28	5.1	ng/L		10/16/17 15:51	10/20/17 23:35	1
Perfluoroheptanoic acid (PFHpA)	**7.1**	**J**	9.3	1.8	ng/L		10/16/17 15:51	10/20/17 23:35	1
Perfluorobutanesulfonic acid (PFBS)	33	U	84	15	ng/L		10/16/17 15:51	10/20/17 23:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*88*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:35*	*1*
13C2 PFDA	*120*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:35*	*1*

Client Sample ID: WGNA-100217-FRB-0404 — Lab Sample ID: 320-32094-23

Date Collected: 10/02/17 08:35 **Matrix: Water**
Date Received: 10/03/17 10:00

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.6	ng/L		10/16/17 15:51	10/20/17 23:50	1
Perfluorooctanoic acid (PFOA)	7.8	U	20	2.7	ng/L		10/16/17 15:51	10/20/17 23:50	1
Perfluorononanoic acid (PFNA)	20	U	23	7.8	ng/L		10/16/17 15:51	10/20/17 23:50	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		10/16/17 15:51	10/20/17 23:50	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		10/16/17 15:51	10/20/17 23:50	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		10/16/17 15:51	10/20/17 23:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*99*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:50*	*1*
13C2 PFDA	*102*		*70 - 130*	*10/16/17 15:51*	*10/20/17 23:50*	*1*

Default Detection Limits

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-32094-1

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Prep: 537

Analyte	LOQ	DL	Units	Method
Perfluorobutanesulfonic acid (PFBS)	90	16	ng/L	537
Perfluoroheptanoic acid (PFHpA)	10	1.9	ng/L	537
Perfluorohexanesulfonic acid (PFHxS)	30	5.5	ng/L	537
Perfluorononanoic acid (PFNA)	24	8.0	ng/L	537
Perfluorooctanesulfonic acid (PFOS)	40	6.8	ng/L	537
Perfluorooctanoic acid (PFOA)	20	2.8	ng/L	537

Surrogate Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-32094-1

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		3C2 PFHx	3C2 PFDA
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
320-32094-1	WGNA-100217-RW-0344	78	103
320-32094-2	WGNA-100217-FRB-0344	92	111
320-32094-3	NAWC-100217-RW-140	80	99
320-32094-3 MS	NAWC-100217-RW-140	82	109
320-32094-3 MSD	NAWC-100217-RW-140	82	112
320-32094-4	NAWC-100217-FRB-140	90	112
320-32094-5	NAWC-100217-RW-316	84	118
320-32094-6	NAWC-100217-FRB-316	93	111
320-32094-7	NAWC-100217-RW-144	79	107
320-32094-8	NAWC-100217-FRB-144	90	107
320-32094-9	NAWC-100217-RW-151	75	96
320-32094-10	NAWC-100217-FRB-151	90	106
320-32094-11	WGNA-100217-DUP11	73	92
320-32094-12	NAWC-100217-RW-130	76	108
320-32094-13	NAWC-100217-FRB-130	90	106
320-32094-14	NAWC-100217-RW-125	77	106
320-32094-15	NAWC-100217-FRB-125	0.9 Q	3 Q
320-32094-15 - RE	NAWC-100217-FRB-125	114	118
320-32094-16	NAWC-100217-RW-139	81	107
320-32094-17	NAWC-100217-FRB-139	102	108
320-32094-18	WGNA-100217-RW-0500	86	114
320-32094-19	WGNA-100217-FRB-0500	98	113
320-32094-20	WGNA-100217-RW-0413	81	109
320-32094-21	WGNA-100217-FRB-0413	100	120
320-32094-22	WGNA-100217-RW-0404	88	120
320-32094-23	WGNA-100217-FRB-0404	99	102
LCS 320-189591/2-A	Lab Control Sample	97	106
LCS 320-190676/2-A	Lab Control Sample	16 Q	70
LCSD 320-190676/3-A	Lab Control Sample Dup	112	109
LLCS 320-189627/2-A	Lab Control Sample	101	103
LLCSD 320-189627/3-A	Lab Control Sample Dup	92	100
MB 320-189591/1-A	Method Blank	96	114
MB 320-189627/1-A	Method Blank	107	118
MB 320-190676/1-A	Method Blank	106	100

Surrogate Legend

13C2 PFHxA = 13C2 PFHxA
13C2 PFDA = 13C2 PFDA

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 320-189591/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 190441 **Prep Batch: 189591**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		10/16/17 14:42	10/20/17 19:24	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		10/16/17 14:42	10/20/17 19:24	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		10/16/17 14:42	10/20/17 19:24	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		10/16/17 14:42	10/20/17 19:24	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		10/16/17 14:42	10/20/17 19:24	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		10/16/17 14:42	10/20/17 19:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*96*		*70 - 130*	*10/16/17 14:42*	*10/20/17 19:24*	*1*
13C2 PFDA	*114*		*70 - 130*	*10/16/17 14:42*	*10/20/17 19:24*	*1*

Lab Sample ID: LCS 320-189591/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 190441 **Prep Batch: 189591**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	222	205	M	ng/L		92	70 - 130
Perfluorooctanoic acid (PFOA)	111	116		ng/L		105	70 - 130
Perfluorononanoic acid (PFNA)	111	106		ng/L		95	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	167	160		ng/L		96	70 - 130
Perfluoroheptanoic acid (PFHpA)	55.6	60.3		ng/L		109	70 - 130
Perfluorobutanesulfonic acid (PFBS)	500	536		ng/L		107	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*97*		*70 - 130*
13C2 PFDA	*106*		*70 - 130*

Lab Sample ID: 320-32094-3 MS **Client Sample ID: NAWC-100217-RW-140**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 190441 **Prep Batch: 189591**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	11	J M	215	209	M	ng/L		92	70 - 130
Perfluorooctanoic acid (PFOA)	18	J	108	124		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	19	U	108	106		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	11	U	161	149		ng/L		93	70 - 130
Perfluoroheptanoic acid (PFHpA)	4.7	J	53.8	58.5		ng/L		100	70 - 130
Perfluorobutanesulfonic acid (PFBS)	34	U	484	455		ng/L		94	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*82*		*70 - 130*
13C2 PFDA	*109*		*70 - 130*

Method: 537 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: 320-32094-3 MSD **Client Sample ID: NAWC-100217-RW-140**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 190441 **Prep Batch: 189591**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	11	J M	211	210	M	ng/L		95	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	18	J	105	123		ng/L		100	70 - 130	0	30
Perfluorononanoic acid (PFNA)	19	U	105	102		ng/L		97	70 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)	11	U	158	150		ng/L		95	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	4.7	J	52.6	57.7		ng/L		101	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	34	U	474	484		ng/L		102	70 - 130	6	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C2 PFHxA	*82*		*70 - 130*
13C2 PFDA	*112*		*70 - 130*

Lab Sample ID: MB 320-189627/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 190446 **Prep Batch: 189627**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		10/16/17 15:51	10/20/17 22:53	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		10/16/17 15:51	10/20/17 22:53	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		10/16/17 15:51	10/20/17 22:53	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		10/16/17 15:51	10/20/17 22:53	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		10/16/17 15:51	10/20/17 22:53	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		10/16/17 15:51	10/20/17 22:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*107*		*70 - 130*	*10/16/17 15:51*	*10/20/17 22:53*	*1*
13C2 PFDA	*118*		*70 - 130*	*10/16/17 15:51*	*10/20/17 22:53*	*1*

Lab Sample ID: LLCS 320-189627/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 190446 **Prep Batch: 189627**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	40.0	39.2	J M	ng/L		98	50 - 150
Perfluorooctanoic acid (PFOA)	20.0	20.6		ng/L		103	50 - 150
Perfluorononanoic acid (PFNA)	20.0	20.9	J	ng/L		104	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	30.0	32.7		ng/L		109	50 - 150
Perfluoroheptanoic acid (PFHpA)	10.0	11.1		ng/L		111	50 - 150
Perfluorobutanesulfonic acid (PFBS)	90.0	100		ng/L		111	50 - 150

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C2 PFHxA	*101*		*70 - 130*
13C2 PFDA	*103*		*70 - 130*

Method: 537 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCSD 320-189627/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 190446 — **Prep Batch: 189627**

Analyte			Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)			40.0	34.9	J M	ng/L		87	50 - 150	12	50
Perfluorooctanoic acid (PFOA)			20.0	18.7	J	ng/L		94	50 - 150	10	50
Perfluorononanoic acid (PFNA)			20.0	19.2	J	ng/L		96	50 - 150	8	50
Perfluorohexanesulfonic acid (PFHxS)			30.0	27.8	J	ng/L		93	50 - 150	16	50
Perfluoroheptanoic acid (PFHpA)			10.0	10.1		ng/L		101	50 - 150	9	50
Perfluorobutanesulfonic acid (PFBS)			90.0	87.2	J	ng/L		97	50 - 150	14	50

Surrogate	*LLCSD %Recovery*	*LLCSD Qualifier*	*Limits*
13C2 PFHxA	*92*		*70 - 130*
13C2 PFDA	*100*		*70 - 130*

Lab Sample ID: MB 320-190676/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 192192 — **Prep Batch: 190676**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		10/23/17 14:32	10/31/17 15:17	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		10/23/17 14:32	10/31/17 15:17	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		10/23/17 14:32	10/31/17 15:17	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		10/23/17 14:32	10/31/17 15:17	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		10/23/17 14:32	10/31/17 15:17	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		10/23/17 14:32	10/31/17 15:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*106*		*70 - 130*	*10/23/17 14:32*	*10/31/17 15:17*	*1*
13C2 PFDA	*100*		*70 - 130*	*10/23/17 14:32*	*10/31/17 15:17*	*1*

Lab Sample ID: LCS 320-190676/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 192192 — **Prep Batch: 190676**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)			133	133	M	ng/L		99	70 - 130
Perfluorooctanoic acid (PFOA)			66.7	56.6		ng/L		85	70 - 130
Perfluorononanoic acid (PFNA)			66.7	52.1		ng/L		78	70 - 130
Perfluorohexanesulfonic acid (PFHxS)			100	103		ng/L		103	70 - 130
Perfluoroheptanoic acid (PFHpA)			33.3	24.1		ng/L		72	70 - 130
Perfluorobutanesulfonic acid (PFBS)			300	22.9	J Q	ng/L		8	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*16*	*Q*	*70 - 130*
13C2 PFDA	*70*		*70 - 130*

Method: 537 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LCSD 320-190676/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 192192
Prep Batch: 190676

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)			133	134	M	ng/L		100	70 - 130	1	30
Perfluorooctanoic acid (PFOA)			66.7	74.3		ng/L		111	70 - 130	27	30
Perfluorononanoic acid (PFNA)			66.7	71.7	Q	ng/L		107	70 - 130	32	30
Perfluorohexanesulfonic acid (PFHxS)			100	107		ng/L		107	70 - 130	4	30
Perfluoroheptanoic acid (PFHpA)			33.3	38.6	Q	ng/L		116	70 - 130	46	30
Perfluorobutanesulfonic acid (PFBS)			300	308	Q	ng/L		103	70 - 130	172	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*112*		*70 - 130*
13C2 PFDA	*109*		*70 - 130*

LCMS

Prep Batch: 189591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32094-1	WGNA-100217-RW-0344	Total/NA	Water	537	
320-32094-2	WGNA-100217-FRB-0344	Total/NA	Water	537	
320-32094-3	NAWC-100217-RW-140	Total/NA	Water	537	
320-32094-4	NAWC-100217-FRB-140	Total/NA	Water	537	
320-32094-5	NAWC-100217-RW-316	Total/NA	Water	537	
320-32094-6	NAWC-100217-FRB-316	Total/NA	Water	537	
320-32094-7	NAWC-100217-RW-144	Total/NA	Water	537	
320-32094-8	NAWC-100217-FRB-144	Total/NA	Water	537	
320-32094-9	NAWC-100217-RW-151	Total/NA	Water	537	
320-32094-10	NAWC-100217-FRB-151	Total/NA	Water	537	
320-32094-11	WGNA-100217-DUP11	Total/NA	Water	537	
320-32094-12	NAWC-100217-RW-130	Total/NA	Water	537	
320-32094-13	NAWC-100217-FRB-130	Total/NA	Water	537	
320-32094-14	NAWC-100217-RW-125	Total/NA	Water	537	
320-32094-15	NAWC-100217-FRB-125	Total/NA	Water	537	
MB 320-189591/1-A	Method Blank	Total/NA	Water	537	
LCS 320-189591/2-A	Lab Control Sample	Total/NA	Water	537	
320-32094-3 MS	NAWC-100217-RW-140	Total/NA	Water	537	
320-32094-3 MSD	NAWC-100217-RW-140	Total/NA	Water	537	

Prep Batch: 189627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32094-16	NAWC-100217-RW-139	Total/NA	Water	537	
320-32094-17	NAWC-100217-FRB-139	Total/NA	Water	537	
320-32094-18	WGNA-100217-RW-0500	Total/NA	Water	537	
320-32094-19	WGNA-100217-FRB-0500	Total/NA	Water	537	
320-32094-20	WGNA-100217-RW-0413	Total/NA	Water	537	
320-32094-21	WGNA-100217-FRB-0413	Total/NA	Water	537	
320-32094-22	WGNA-100217-RW-0404	Total/NA	Water	537	
320-32094-23	WGNA-100217-FRB-0404	Total/NA	Water	537	
MB 320-189627/1-A	Method Blank	Total/NA	Water	537	
LLCS 320-189627/2-A	Lab Control Sample	Total/NA	Water	537	
LLCSD 320-189627/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Analysis Batch: 190441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32094-1	WGNA-100217-RW-0344	Total/NA	Water	537	189591
320-32094-2	WGNA-100217-FRB-0344	Total/NA	Water	537	189591
320-32094-3	NAWC-100217-RW-140	Total/NA	Water	537	189591
320-32094-4	NAWC-100217-FRB-140	Total/NA	Water	537	189591
320-32094-5	NAWC-100217-RW-316	Total/NA	Water	537	189591
320-32094-6	NAWC-100217-FRB-316	Total/NA	Water	537	189591
MB 320-189591/1-A	Method Blank	Total/NA	Water	537	189591
LCS 320-189591/2-A	Lab Control Sample	Total/NA	Water	537	189591
320-32094-3 MS	NAWC-100217-RW-140	Total/NA	Water	537	189591
320-32094-3 MSD	NAWC-100217-RW-140	Total/NA	Water	537	189591

Analysis Batch: 190442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32094-7	NAWC-100217-RW-144	Total/NA	Water	537	189591
320-32094-8	NAWC-100217-FRB-144	Total/NA	Water	537	189591

LCMS (Continued)

Analysis Batch: 190442 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32094-9	NAWC-100217-RW-151	Total/NA	Water	537	189591
320-32094-10	NAWC-100217-FRB-151	Total/NA	Water	537	189591
320-32094-11	WGNA-100217-DUP11	Total/NA	Water	537	189591
320-32094-12	NAWC-100217-RW-130	Total/NA	Water	537	189591
320-32094-13	NAWC-100217-FRB-130	Total/NA	Water	537	189591
320-32094-14	NAWC-100217-RW-125	Total/NA	Water	537	189591
320-32094-15	NAWC-100217-FRB-125	Total/NA	Water	537	189591

Analysis Batch: 190446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32094-16	NAWC-100217-RW-139	Total/NA	Water	537	189627
320-32094-17	NAWC-100217-FRB-139	Total/NA	Water	537	189627
320-32094-18	WGNA-100217-RW-0500	Total/NA	Water	537	189627
320-32094-19	WGNA-100217-FRB-0500	Total/NA	Water	537	189627
320-32094-20	WGNA-100217-RW-0413	Total/NA	Water	537	189627
320-32094-21	WGNA-100217-FRB-0413	Total/NA	Water	537	189627
320-32094-22	WGNA-100217-RW-0404	Total/NA	Water	537	189627
MB 320-189627/1-A	Method Blank	Total/NA	Water	537	189627
LLCS 320-189627/2-A	Lab Control Sample	Total/NA	Water	537	189627
LLCSD 320-189627/3-A	Lab Control Sample Dup	Total/NA	Water	537	189627

Analysis Batch: 190447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32094-23	WGNA-100217-FRB-0404	Total/NA	Water	537	189627

Prep Batch: 190676

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32094-15 - RE	NAWC-100217-FRB-125	Total/NA	Water	537	
MB 320-190676/1-A	Method Blank	Total/NA	Water	537	
LCS 320-190676/2-A	Lab Control Sample	Total/NA	Water	537	
LCSD 320-190676/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Analysis Batch: 192192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-32094-15 - RE	NAWC-100217-FRB-125	Total/NA	Water	537	190676
MB 320-190676/1-A	Method Blank	Total/NA	Water	537	190676
LCS 320-190676/2-A	Lab Control Sample	Total/NA	Water	537	190676
LCSD 320-190676/3-A	Lab Control Sample Dup	Total/NA	Water	537	190676

Client Sample ID: WGNA-100217-RW-0344 — Lab Sample ID: 320-32094-1

Date Collected: 10/02/17 08:10 — **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190441	10/20/17 19:33	JRB	TAL SAC

Client Sample ID: WGNA-100217-FRB-0344 — Lab Sample ID: 320-32094-2

Date Collected: 10/02/17 08:05 — **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190441	10/20/17 19:38	JRB	TAL SAC

Client Sample ID: NAWC-100217-RW-140 — Lab Sample ID: 320-32094-3

Date Collected: 10/02/17 09:40 — **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190441	10/20/17 19:43	JRB	TAL SAC

Client Sample ID: NAWC-100217-FRB-140 — Lab Sample ID: 320-32094-4

Date Collected: 10/02/17 09:35 — **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190441	10/20/17 19:57	JRB	TAL SAC

Client Sample ID: NAWC-100217-RW-316 — Lab Sample ID: 320-32094-5

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190441	10/20/17 20:02	JRB	TAL SAC

Client Sample ID: NAWC-100217-FRB-316 — Lab Sample ID: 320-32094-6

Date Collected: 10/02/17 10:05 — **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190441	10/20/17 20:07	JRB	TAL SAC

Client Sample ID: NAWC-100217-RW-144 — Lab Sample ID: 320-32094-7

Date Collected: 10/02/17 10:40 — **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190442	10/20/17 20:21	JRB	TAL SAC

Client Sample ID: NAWC-100217-FRB-144 — Lab Sample ID: 320-32094-8

Date Collected: 10/02/17 10:35 — **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190442	10/20/17 20:26	JRB	TAL SAC

Client Sample ID: NAWC-100217-RW-151 — Lab Sample ID: 320-32094-9

Date Collected: 10/02/17 11:10 — **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190442	10/20/17 20:30	JRB	TAL SAC

Client Sample ID: NAWC-100217-FRB-151 — Lab Sample ID: 320-32094-10

Date Collected: 10/02/17 11:05 — **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190442	10/20/17 20:35	JRB	TAL SAC

Client Sample ID: WGNA-100217-DUP11 — Lab Sample ID: 320-32094-11

Date Collected: 10/02/17 07:00 — **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190442	10/20/17 20:40	JRB	TAL SAC

Client Sample ID: NAWC-100217-RW-130 — Lab Sample ID: 320-32094-12

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190442	10/20/17 20:45	JRB	TAL SAC

Client Sample ID: NAWC-100217-FRB-130 Lab Sample ID: 320-32094-13

Date Collected: 10/02/17 14:05 **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190442	10/20/17 20:49	JRB	TAL SAC

Client Sample ID: NAWC-100217-RW-125 Lab Sample ID: 320-32094-14

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190442	10/20/17 20:54	JRB	TAL SAC

Client Sample ID: NAWC-100217-FRB-125 Lab Sample ID: 320-32094-15

Date Collected: 10/02/17 14:05 **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189591	10/16/17 14:42	TWL	TAL SAC
Total/NA	Analysis	537		1	190442	10/20/17 20:59	JRB	TAL SAC
Total/NA	Prep	537	RE		190676	10/23/17 14:32	TWL	TAL SAC
Total/NA	Analysis	537	RE	1	192192	10/31/17 15:31	JRB	TAL SAC

Client Sample ID: NAWC-100217-RW-139 Lab Sample ID: 320-32094-16

Date Collected: 10/02/17 13:10 **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189627	10/16/17 15:51	TWL	TAL SAC
Total/NA	Analysis	537		1	190446	10/20/17 23:07	JRB	TAL SAC

Client Sample ID: NAWC-100217-FRB-139 Lab Sample ID: 320-32094-17

Date Collected: 10/02/17 13:05 **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189627	10/16/17 15:51	TWL	TAL SAC
Total/NA	Analysis	537		1	190446	10/20/17 23:12	JRB	TAL SAC

Client Sample ID: WGNA-100217-RW-0500 Lab Sample ID: 320-32094-18

Date Collected: 10/02/17 15:40 **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189627	10/16/17 15:51	TWL	TAL SAC

Client Sample ID: WGNA-100217-RW-0500 Lab Sample ID: 320-32094-18

Date Collected: 10/02/17 15:40 **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	537		1	190446	10/20/17 23:16	JRB	TAL SAC

Client Sample ID: WGNA-100217-FRB-0500 Lab Sample ID: 320-32094-19

Date Collected: 10/02/17 15:35 **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189627	10/16/17 15:51	TWL	TAL SAC
Total/NA	Analysis	537		1	190446	10/20/17 23:21	JRB	TAL SAC

Client Sample ID: WGNA-100217-RW-0413 Lab Sample ID: 320-32094-20

Date Collected: 10/02/17 16:10 **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189627	10/16/17 15:51	TWL	TAL SAC
Total/NA	Analysis	537		1	190446	10/20/17 23:26	JRB	TAL SAC

Client Sample ID: WGNA-100217-FRB-0413 Lab Sample ID: 320-32094-21

Date Collected: 10/02/17 16:05 **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189627	10/16/17 15:51	TWL	TAL SAC
Total/NA	Analysis	537		1	190446	10/20/17 23:31	JRB	TAL SAC

Client Sample ID: WGNA-100217-RW-0404 Lab Sample ID: 320-32094-22

Date Collected: 10/02/17 08:40 **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189627	10/16/17 15:51	TWL	TAL SAC
Total/NA	Analysis	537		1	190446	10/20/17 23:35	JRB	TAL SAC

Client Sample ID: WGNA-100217-FRB-0404 Lab Sample ID: 320-32094-23

Date Collected: 10/02/17 08:35 **Matrix: Water**
Date Received: 10/03/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			189627	10/16/17 15:51	TWL	TAL SAC
Total/NA	Analysis	537		1	190447	10/20/17 23:50	JRB	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-32094-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Oregon	NELAP	10	4040	01-28-18

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

Analysis Method	Prep Method	Matrix	Analyte
537	537	Water	Perfluorobutanesulfonic acid (PFBS)
537	537	Water	Perfluoroheptanoic acid (PFHpA)
537	537	Water	Perfluorohexanesulfonic acid (PFHxS)
537	537	Water	Perfluorononanoic acid (PFNA)
537	537	Water	Perfluorooctanesulfonic acid (PFOS)
537	537	Water	Perfluorooctanoic acid (PFOA)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-32094-1

Method	Method Description	Protocol	Laboratory
537	Perfluorinated Alkyl Acids (LC/MS)	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-32094-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-32094-1	WGNA-100217-RW-0344	Water	10/02/17 08:10	10/03/17 10:00
320-32094-2	WGNA-100217-FRB-0344	Water	10/02/17 08:05	10/03/17 10:00
320-32094-3	NAWC-100217-RW-140	Water	10/02/17 09:40	10/03/17 10:00
320-32094-4	NAWC-100217-FRB-140	Water	10/02/17 09:35	10/03/17 10:00
320-32094-5	NAWC-100217-RW-316	Water	10/02/17 10:10	10/03/17 10:00
320-32094-6	NAWC-100217-FRB-316	Water	10/02/17 10:05	10/03/17 10:00
320-32094-7	NAWC-100217-RW-144	Water	10/02/17 10:40	10/03/17 10:00
320-32094-8	NAWC-100217-FRB-144	Water	10/02/17 10:35	10/03/17 10:00
320-32094-9	NAWC-100217-RW-151	Water	10/02/17 11:10	10/03/17 10:00
320-32094-10	NAWC-100217-FRB-151	Water	10/02/17 11:05	10/03/17 10:00
320-32094-11	WGNA-100217-DUP11	Water	10/02/17 07:00	10/03/17 10:00
320-32094-12	NAWC-100217-RW-130	Water	10/02/17 14:10	10/03/17 10:00
320-32094-13	NAWC-100217-FRB-130	Water	10/02/17 14:05	10/03/17 10:00
320-32094-14	NAWC-100217-RW-125	Water	10/02/17 14:10	10/03/17 10:00
320-32094-15	NAWC-100217-FRB-125	Water	10/02/17 14:05	10/03/17 10:00
320-32094-16	NAWC-100217-RW-139	Water	10/02/17 13:10	10/03/17 10:00
320-32094-17	NAWC-100217-FRB-139	Water	10/02/17 13:05	10/03/17 10:00
320-32094-18	WGNA-100217-RW-0500	Water	10/02/17 15:40	10/03/17 10:00
320-32094-19	WGNA-100217-FRB-0500	Water	10/02/17 15:35	10/03/17 10:00
320-32094-20	WGNA-100217-RW-0413	Water	10/02/17 16:10	10/03/17 10:00
320-32094-21	WGNA-100217-FRB-0413	Water	10/02/17 16:05	10/03/17 10:00
320-32094-22	WGNA-100217-RW-0404	Water	10/02/17 08:40	10/03/17 10:00
320-32094-23	WGNA-100217-FRB-0404	Water	10/02/17 08:35	10/03/17 10:00

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 185329

Lab Sample ID: IC 320-185329/4 Client Sample ID:

Date Analyzed: 09/20/17 02:56 Lab File ID: 2017.09.19_537ICAL_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Missed Peak	barnettj	09/20/17 10:03

Lab Sample ID: IC 320-185329/5 Client Sample ID:

Date Analyzed: 09/20/17 03:00 Lab File ID: 2017.09.19_537ICAL_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Missed Peak	barnettj	09/20/17 10:04

Lab Sample ID: IC 320-185329/6 Client Sample ID:

Date Analyzed: 09/20/17 03:05 Lab File ID: 2017.09.19_537ICAL_006.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	09/20/17 10:05

Lab Sample ID: IC 320-185329/7 ICISAV Client Sample ID:

Date Analyzed: 09/20/17 03:10 Lab File ID: 2017.09.19_537ICAL_007.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Missed Peak	barnettj	09/20/17 10:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 185329

Lab Sample ID: IC 320-185329/8 Client Sample ID:

Date Analyzed: 09/20/17 03:15 Lab File ID: 2017.09.19_537ICAL_008.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Missed Peak	barnettj	09/20/17 10:06

Lab Sample ID: IC 320-185329/9 Client Sample ID:

Date Analyzed: 09/20/17 03:19 Lab File ID: 2017.09.19_537ICAL_009.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Missed Peak	barnettj	09/20/17 10:07

Lab Sample ID: CCVL 320-185329/11 Client Sample ID:

Date Analyzed: 09/20/17 03:29 Lab File ID: 2017.09.19_537ICAL_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	09/20/17 10:10

Lab Sample ID: ICV 320-185329/13 Client Sample ID:

Date Analyzed: 09/20/17 03:38 Lab File ID: 2017.09.19_537ICAL_013.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Missed Peak	barnettj	09/20/17 10:11

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 190437

Lab Sample ID: CCVL 320-190437/4 Client Sample ID:

Date Analyzed: 10/20/17 17:49 Lab File ID: 2017.10.20_537A_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.13	Missed Peak	barnettj	10/23/17 09:48

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 190441

Lab Sample ID: CCV 320-190441/22 CCVIS Client Sample ID:

Date Analyzed: 10/20/17 19:14 Lab File ID: 2017.10.20_537A_022.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.13	Missed Peak	barnettj	10/23/17 09:58

Lab Sample ID: LCS 320-189591/2-A Client Sample ID:

Date Analyzed: 10/20/17 19:29 Lab File ID: 2017.10.20_537A_025.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.13	Missed Peak	barnettj	10/23/17 09:59

Lab Sample ID: 320-32094-1 Client Sample ID: WGNA-100217-RW-0344

Date Analyzed: 10/20/17 19:33 Lab File ID: 2017.10.20_537A_026.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.13	Missed Peak	barnettj	10/23/17 10:00

Lab Sample ID: 320-32094-2 Client Sample ID: WGNA-100217-FRB-0344

Date Analyzed: 10/20/17 19:38 Lab File ID: 2017.10.20_537A_027.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.89	Baseline	barnettj	10/23/17 10:00

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 190441

Lab Sample ID: 320-32094-3 Client Sample ID: NAWC-100217-RW-140

Date Analyzed: 10/20/17 19:43 Lab File ID: 2017.10.20_537A_028.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.13	Missed Peak	barnettj	10/23/17 10:01

Lab Sample ID: 320-32094-3 MS Client Sample ID: NAWC-100217-RW-140 MS

Date Analyzed: 10/20/17 19:48 Lab File ID: 2017.10.20_537A_029.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.13	Missed Peak	barnettj	10/23/17 10:03

Lab Sample ID: 320-32094-3 MSD Client Sample ID: NAWC-100217-RW-140 MSD

Date Analyzed: 10/20/17 19:52 Lab File ID: 2017.10.20_537A_030.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.13	Missed Peak	barnettj	10/23/17 10:04

Lab Sample ID: 320-32094-5 Client Sample ID: NAWC-100217-RW-316

Date Analyzed: 10/20/17 20:02 Lab File ID: 2017.10.20_537A_032.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.13	Missed Peak	barnettj	10/23/17 10:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 190441

Lab Sample ID: CCV 320-190441/34 CCVIS Client Sample ID:

Date Analyzed: 10/20/17 20:11 Lab File ID: 2017.10.20_537A_034.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.13	Missed Peak	barnettj	10/23/17 10:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 190442

Lab Sample ID: CCV 320-190442/34 CCVIS Client Sample ID:

Date Analyzed: 10/20/17 20:11 Lab File ID: 2017.10.20_537A_034.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.13	Missed Peak	barnettj	10/23/17 10:05

Lab Sample ID: 320-32094-7 Client Sample ID: NAWC-100217-RW-144

Date Analyzed: 10/20/17 20:21 Lab File ID: 2017.10.20_537A_036.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:06

Lab Sample ID: 320-32094-9 Client Sample ID: NAWC-100217-RW-151

Date Analyzed: 10/20/17 20:30 Lab File ID: 2017.10.20_537A_038.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:07

Lab Sample ID: 320-32094-11 Client Sample ID: WGNA-100217-DUP11

Date Analyzed: 10/20/17 20:40 Lab File ID: 2017.10.20_537A_040.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.13	Missed Peak	barnettj	10/23/17 10:08

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 190442

Lab Sample ID: 320-32094-12 Client Sample ID: NAWC-100217-RW-130

Date Analyzed: 10/20/17 20:45 Lab File ID: 2017.10.20_537A_041.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:09

Lab Sample ID: 320-32094-14 Client Sample ID: NAWC-100217-RW-125

Date Analyzed: 10/20/17 20:54 Lab File ID: 2017.10.20_537A_043.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:11

Lab Sample ID: CCV 320-190442/45 CCVIS Client Sample ID:

Date Analyzed: 10/20/17 21:04 Lab File ID: 2017.10.20_537A_045.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:13

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 190446

Lab Sample ID: CCV 320-190446/22 CCVIS Client Sample ID:

Date Analyzed: 10/20/17 22:43 Lab File ID: 2017.10.20_537A_066.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:26

Lab Sample ID: LLCS 320-189627/2-A Client Sample ID:

Date Analyzed: 10/20/17 22:57 Lab File ID: 2017.10.20_537A_069.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:26

Lab Sample ID: LLCSD 320-189627/3-A Client Sample ID:

Date Analyzed: 10/20/17 23:02 Lab File ID: 2017.10.20_537A_070.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:27

Lab Sample ID: 320-32094-20 Client Sample ID: WGNA-100217-RW-0413

Date Analyzed: 10/20/17 23:26 Lab File ID: 2017.10.20_537A_075.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:29

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LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 190446

Lab Sample ID: 320-32094-22 Client Sample ID: WGNA-100217-RW-0404

Date Analyzed: 10/20/17 23:35 Lab File ID: 2017.10.20_537A_077.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:29

Lab Sample ID: CCV 320-190446/34 CCVIS Client Sample ID:

Date Analyzed: 10/20/17 23:40 Lab File ID: 2017.10.20_537A_078.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:30

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 190447

Lab Sample ID: CCV 320-190447/34 CCVIS Client Sample ID:

Date Analyzed: 10/20/17 23:40 Lab File ID: 2017.10.20_537A_078.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:30

Lab Sample ID: CCV 320-190447/37 CCVIS Client Sample ID:

Date Analyzed: 10/20/17 23:54 Lab File ID: 2017.10.20_537A_081.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Missed Peak	barnettj	10/23/17 10:31

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 192162

Lab Sample ID: IC 320-192162/4 Client Sample ID:

Date Analyzed: 10/31/17 11:44 Lab File ID: 2017.10.31_537ICAL_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Assign Peak	phomsopha t	10/31/17 12:20

Lab Sample ID: IC 320-192162/5 Client Sample ID:

Date Analyzed: 10/31/17 11:49 Lab File ID: 2017.10.31_537ICAL_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Assign Peak	phomsopha t	10/31/17 13:18

Lab Sample ID: IC 320-192162/6 Client Sample ID:

Date Analyzed: 10/31/17 11:54 Lab File ID: 2017.10.31_537ICAL_006.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Assign Peak	phomsopha t	10/31/17 13:18

Lab Sample ID: IC 320-192162/7 ICISAV Client Sample ID:

Date Analyzed: 10/31/17 11:58 Lab File ID: 2017.10.31_537ICAL_007.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Assign Peak	phomsopha t	10/31/17 13:19

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 192162

Lab Sample ID: IC 320-192162/8 Client Sample ID:

Date Analyzed: 10/31/17 12:03 Lab File ID: 2017.10.31_537ICAL_008.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.10	Assign Peak	phomsopha t	10/31/17 13:20

Lab Sample ID: CCVL 320-192162/11 Client Sample ID:

Date Analyzed: 10/31/17 12:17 Lab File ID: 2017.10.31_537ICAL_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Missed Peak	barnettj	10/31/17 14:37

Lab Sample ID: ICV 320-192162/16 Client Sample ID:

Date Analyzed: 10/31/17 14:58 Lab File ID: 2017.10.31_537AICAL_003.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Isomers	barnettj	10/31/17 15:08

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 192192

Lab Sample ID: CCV 320-192192/1 CCVIS Client Sample ID:

Date Analyzed: 10/31/17 15:08 Lab File ID: 2017.10.31_537AA_001.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Missed Peak	barnettj	10/31/17 15:51

Lab Sample ID: LCS 320-190676/2-A Client Sample ID:

Date Analyzed: 10/31/17 15:22 Lab File ID: 2017.10.31_537AA_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	10/31/17 15:53

Lab Sample ID: LCSD 320-190676/3-A Client Sample ID:

Date Analyzed: 10/31/17 15:27 Lab File ID: 2017.10.31_537AA_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	10/31/17 15:54

Lab Sample ID: CCV 320-192192/7 CCVIS Client Sample ID:

Date Analyzed: 10/31/17 15:36 Lab File ID: 2017.10.31_537AA_007.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	10/31/17 15:50

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LC537-HSP_00023	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutane Sulfonate	1250.1 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
.LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutane Sulfonate	90 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
..LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutane Sulfonate	2 mg/mL
							Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
...LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
...LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
...LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
...LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
...LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
...LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-ICV_00028	01/05/18	08/02/17	MeOH/H2O, Lot 067374	10 mL	LC537-IS_00045	1000 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
.LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00019	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-ICV_00028	01/05/18	08/02/17	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00046	1000 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
					LC537ICIM_00019	20 uL	Perfluorobutanesulfonic acid (PFBS)	100.119 ng/mL
							Perfluoroheptanoic acid (PFHpA)	9.99613 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	20.0761 ng/mL
							Perfluorononanoic acid (PFNA)	20.1272 ng/mL
							Perfluorooctanoic acid (PFOA)	20.4843 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	19.698 ng/mL
.LC537-SU_00046	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
.LC537ICIM_00019	01/25/18	08/01/17	Methanol, Lot 090285	25 mL	LC537-PFBS2_00008	0.6 mL	Perfluorobutanesulfonic acid (PFBS)	50.0597 ug/mL
					LC537-PFHpA2_00011	0.061 mL	Perfluoroheptanoic acid (PFHpA)	4.99806 ug/mL
					LC537-PFHxS2_00008	0.122 mL	Perfluorohexanesulfonic acid (PFHxS)	10.038 ug/mL
					LC537-PFNA2_00009	0.126 mL	Perfluorononanoic acid (PFNA)	10.0636 ug/mL
					LC537-PFOA2_00010	0.122 mL	Perfluorooctanoic acid (PFOA)	10.2421 ug/mL
					LC537-PFOS2_00010	0.124 mL	Perfluorooctanesulfonic acid (PFOS)	9.849 ug/mL
..LC537-PFBS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	20 mL	LC537_PFBS2_00002	0.0418 g	Perfluorobutanesulfonic acid (PFBS)	2085.82 ug/mL
...LC537_PFBS2_00002	09/08/22	Santa Cruz Biotechnology, Lot F0917			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
..LC537-PFHpA2_00011	01/25/18	07/25/17	Methanol, Lot 09092	31 mL	LC537_PFHpA2_00002	0.0635 g	Perfluoroheptanoic acid (PFHpA)	2048.39 ug/mL
...LC537_PFHpA2_00002	06/13/22	Afla Aesar, Lot 10200390			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	1 g/g
..LC537-PFHxS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537_PFHxS2_00002	0.0475 g	Perfluorohexanesulfonic acid (PFHxS)	2056.98 ug/mL
...LC537_PFHxS2_00002	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA2_00009	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537_PFNA2_00002	0.0421 g	Perfluorononanoic acid (PFNA)	1996.74 ug/mL
...LC537_PFNA2_00002	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.996 g/g
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537_PFOA2_00002	0.0424 g	Perfluorooctanoic acid (PFOA)	2098.8 ug/mL
...LC537_PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g
..LC537-PFOS2_00010	01/25/18	08/01/17	Methanol, Lot 090285	22 mL	LC537_PFOS2_00002	0.0561 g	Perfluorooctanesulfonic acid (PFOS)	1985.68 ug/mL
...LC537_PFOS2_00002	06/14/22	Sigma, Lot BCBQ0108V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g
LC537-IS_00051	03/20/18	09/20/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00006	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCM2PFOA_00006	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-L1_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-MSP_00029	60 uL	Perfluorobutanesulfonic acid (PFBS)	9.0018 ng/mL
							Perfluoroheptanoic acid (PFHpA)	1.00036 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	3.00103 ng/mL
							Perfluorononanoic acid (PFNA)	2.0006 ng/mL
							Perfluorooctanoic acid (PFOA)	2.00191 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	4.00146 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-MSP_00029	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	166.7 uL	Perfluorobutanesulfonic acid (PFBS)	750.15 ng/mL
							Perfluoroheptanoic acid (PFHpA)	83.3637 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	250.086 ng/mL
							Perfluorononanoic acid (PFNA)	166.716 ng/mL
							Perfluorooctanoic acid (PFOA)	166.826 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	333.455 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L2_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	80 uL	Perfluorobutanesulfonic acid (PFBS)	20.0016 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.22277 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	6.66817 ng/mL
							Perfluorononanoic acid (PFNA)	4.44524 ng/mL
							Perfluorooctanoic acid (PFOA)	4.44816 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	8.89106 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L3_00023	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	180 uL	Perfluorobutanesulfonic acid (PFBS)	45.0036 ng/mL
							Perfluoroheptanoic acid (PFHpA)	5.00122 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	15.0034 ng/mL
							Perfluorononanoic acid (PFNA)	10.0018 ng/mL
							Perfluorooctanoic acid (PFOA)	10.0084 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.0049 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L4_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	360 uL	Perfluorobutanesulfonic acid (PFBS)	90.0072 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10.0024 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexanesulfonic acid (PFHxS)	30.0067 ng/mL
							Perfluorononanoic acid (PFNA)	20.0036 ng/mL
							Perfluorooctanoic acid (PFOA)	20.0167 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.0098 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L5_00024	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	540 uL	Perfluorobutanesulfonic acid (PFBS)	135.011 ng/mL
							Perfluoroheptanoic acid (PFHpA)	15.0037 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.0101 ng/mL
							Perfluorononanoic acid (PFNA)	30.0053 ng/mL
							Perfluorooctanoic acid (PFOA)	30.0251 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	60.0146 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L6_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	720 uL	Perfluorobutanesulfonic acid (PFBS)	180.014 ng/mL
							Perfluoroheptanoic acid (PFHpA)	20.0049 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	60.0135 ng/mL
							Perfluorononanoic acid (PFNA)	40.0071 ng/mL
							Perfluorooctanoic acid (PFOA)	40.0334 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	80.0195 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-LSP_00025	02/10/18	08/10/17	Methanol, Lot 090285	20000 uL	LC537SPIM_00023	50 uL	Perfluorobutane Sulfonate	225 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	225 ng/mL
							Perfluoroheptanoic acid (PFHpA)	25.0041 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	75.0109 ng/mL
							Perfluorononanoic acid (PFNA)	50.0049 ng/mL
							Perfluorooctanoic acid (PFOA)	50.0378 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	100.016 ng/mL
.LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutane Sulfonate	90 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
..LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutane Sulfonate	2 mg/mL
							Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
...LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
...LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
...LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
...LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
...LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
...LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-MSP_00026	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	166.7 uL	Perfluorobutane Sulfonate	750.15 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	750.15 ng/mL
							Perfluoroheptanoic acid (PFHpA)	83.3637 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	250.086 ng/mL
							Perfluorononanoic acid (PFNA)	166.716 ng/mL
							Perfluorooctanoic acid (PFOA)	166.826 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	333.455 ng/mL
.LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutane Sulfonate	90 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
..LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutane Sulfonate	2 mg/mL
							Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
...LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
...LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
...LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
...LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
...LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
...LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
.LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-SU_00051	03/20/18	09/20/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
.LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL

Reagent

LC537_PFBS_00002

R: 4/1/15 SPV

SIGMA-ALDRICH®

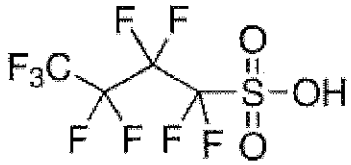
sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:
Nonafluorobutane-1-sulfonic acid - 97%

Product Number:	**562629**
Batch Number:	**MKBP8842V**
Brand:	ALDRICH
CAS Number:	375-73-5
MDL Number:	MFCD01320794
Formula:	C4HF9O3S
Formula Weight:	300.10 g/mol
Storage Temperature:	Store at 2 - 8 °C
Quality Release Date:	11 OCT 2013



PFBS

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
Infrared Spectrum	Conforms to Structure	Conforms
Fluorine NMR Spectrum	Conforms to Structure	Conforms
Purity (Titration by NaOH)	96.5 - 103.5 %	101.6 %

Jamie Gleason

Jamie Gleason, Manager
Quality Control
Milwaukee, Wisconsin US

Reagent

LC537_PFBS2_00002

1:6817 SW

CERTIFICATE OF ANALYSIS

The Power to Question

Catalog Number:	sc-236187
Lot Number:	F0917
Product Name:	Nonafluorobutane-1-sulfonic acid
CAS Number:	375-73-5
Molecular Formula:	$C_4HF_9O_3S$
Molecular Weight:	300.10

Test	Specification	Result
Appearance	Colorless liquid	Complies
Identification (19F-NMR)	Conforms to structure	Complies
Purity (Sodium Hydroxide Titration)	≥ 97%	101.3%
Infrared Spectrum	Conforms to structure	Complies

Reagent

LC537_PFHpA_00002

P: 4/1/15 SRV

SIGMA-ALDRICH®

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Email USA: techserv@sial.com Outside USA: eurtechserv@sial.com

Certificate of Analysis

PFHpA

Product Name:	PERFLUOROHEPTANOIC ACID 99 %
Product Number:	342041
Batch Number:	BCBM2579V
Brand:	Aldrich
CAS Number:	375-85-9
Formula:	$CF_3(CF_2)_5CO_2H$
Formula Weight:	364.06
Quality Release Date:	06 DEC 2013
Recommended Retest Date:	OCT 2018

TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	COLORLESS OR WHITE	WHITE
APPEARANCE (FORM)	LIQUID OR SOLID	SOLID
TITRATION	98.5 - 101.5 %	99.8 %
TITRATION (METHOD)	-	BACK TITRATION
PURITY (GC AREA %)	≥ 98.5 %	99.5 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

Reagent

LC537_PFHpA2_00002

Alfa Aesar

Certificate of analysis

r: 6.13.17 SW

PFHp A

Product No.:	A12092
Product:	Perfluoroheptanoic acid, 98+%
Lot No.:	10200390

Appearance:	White fused solid
Water Content (Karl-Fischer):	0.30%
Melting Point:	32.0-34.3°C
Assay (Aqueous acid-base titration):	99.7%
Identification (FTIR):	Conforms

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Reagent

LC537_PFHxS_00002

R: 4/1/15 SKV

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Email USA: techserv@sial.com Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:	TRIDECAFLUOROHEXANE-1-SULFONIC ACID POTASSIUM SALT >= 98.0 % T
Product Number:	50929
Batch Number:	BCBL3545V
Brand:	Aldrich
CAS Number:	3871-99-6
Formula:	$C_6F_{13}KO_3S$
Formula Weight:	438.20
Quality Release Date:	20 JUN 2013

PFHxS-K

TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO FAINT BEIGE	WHITE
APPEARANCE (FORM)	POWDER OR CRYSTALS	POWDER
TITRATION (ION EXCHANGE)	≥ 98.0 %	99.5 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

$$\text{MW corr} = \frac{(\text{k form}) - (\text{K}) + (\text{H})}{(438.20 - 39.10 + 1.01)} = \frac{}{438.20\ (\text{K form})} = 0.91307\ (\text{anion form})$$

Purity = 90.94 / w/m.w correction

SKV 4/1/15

Reagent

LC537_PFHxS2_00002

n: 6.8.17 SKW

CERTIFICATE OF ANALYSIS

Catalog Number:	sc-237289
Lot Number:	G2516
Product Name:	Tridecafluorohexane-1-sulfonic acid potassium salt
CAS Number:	3871-99-6
Molecular Formula:	$C_6F_{13}KO_3S$
Molecular Weight:	438.20

Test	Specification	Result
Appearance	White to faint beige powder or crystals	White powder
Identification (Infrared Spectrum)	Consistent with structure	Complies
Purity (Titration, Ion Exchange)	≥ 98.0%	100.4%

$PFH_xS\text{-}K$

$C_6F_{13}SO_3K$ 438.201

$C_6F_{13}SO_3H$ 400.111

MW correction = $\frac{400.11}{438.201}$ = 0.91307 $\frac{PFH_xS}{\text{Cas\# } 355\text{-}46\text{-}4}$

Purity & MW correction = 90.9%

This document was produced electronically and is valid without a signature.

Reagent

LC537_PFNA_00002

R: 4/1/15 SKV

Certificate of Analysis

Apr 2, 2015 (JST)

TOKYO CHEMICAL INDUSTRY CO.,LTD.
4-10-1 Nihonbashi-Honcho, Chuo-ku, Tokyo 103-0023 Japan

Chemical Name: Heptadecafluorononanoic Acid		
Product Number: H0843 CAS: 375-95-1	Lot: QN44F	

Tests	Results	Specifications
Purity(GC)	96.3 %	min. 95.0 %
Purity(Neutralization titration)	98.1 %	min. 95.0 %
Melting point	63.3 deg-C	62.0 to 67.0 deg-C

TCI Lot numbers are 4-5 characters in length.
Characters listed after the first 4-5 characters are control numbers for internal purpose only.

Customer service:
TCI AMERICA
Tel: +1-800-423-8616 / +1-503-283-1681
Fax: +1-888-520-1075 / +1-503-283-1987
E-mail: Sales-US@TCIchemicals.com

PFNA

Reagent

LC537_PFNA2_00002

P: 6.14.17 SKV

SIGMA-ALDRICH®

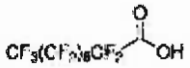
sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:
Perfluorononanoic acid – 97%

Product Number:	**394459**
Batch Number:	**MKCC0699**
Brand:	ALDRICH
CAS Number:	375-95-1
MDL Number:	MFCD00039605
Formula:	C9HF17O2
Formula Weight:	464.08 g/mol
Quality Release Date:	07 DEC 2016



Test	Specification	Result
Appearance (Color)	White to Off-White	White
Appearance (Form)	Powder or Crystals or Crystalline Chunk(s) or Granule or Flakes or Solid	Powder
Infrared Spectrum	Conforms to Structure	Conforms
GC (area %)	≥ 96.5 %	98.2 %

Michael Grady, Manager
Quality Control
Milwaukee, WI US

PFNA

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Reagent

LC537_PFOA_00003

R: 11/30/16 SKV
PFOA

SIGMA-ALDRICH

3050 Spruce Street, Saint Louis, MO 63103 USA
Email USA: techserv@sial.com Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:	PENTADECAFLUOROOCTANOIC ACID analytical standard
Product Number:	33824
Batch Number:	BCBS1198V
Brand:	Sigma-Aldrich
CAS Number:	335-67-1
Formula:	$CF_3(CF_2)_6COOH$
Formula Weight:	414.07
Expiration Date:	OCT 2023
Quality Release Date:	12 MAY 2016

TEST	SPECIFICATION	RESULT
PURITY (HPLC AREA %)	≥ 98.0%	100.0%
IDENTIFICATION (LC-MS)	IDENTITY CONFORMS	CONFORMS

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

Reagent

LC537_PFOA2_00002

Alfa Aesar

Certificate of analysis

R: 6/9/17 SK✓

PFOA

Product No.:	L08862
Product:	Perfluorooctanoic acid, 95%
Lot No.:	10199078

Appearance:	White powder
Water Content (Karl-Fischer):	1.30%
Melting Point:	47.6-54.0°C
Assay (Aqueous acid-base titration):	98.4%
Assay (GC Silyl Deriv):	97.2%

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ThermoFisher SCIENTIFIC

Reagent

LC537_PFOS_00003

r: 11/30/16 SV

PFOS

SIGMA-ALDRICH®

CERTIFICATE OF ANALYSIS

Sigma-Aldrich Laborchemikalien GmbH D-30918 Seelze
Telefon: +49 5137 8238-150

Seelze, 22.04.2014/524107/14/08646

Order-No.:
Customer-No.:

Order-Code:

Quantity:

Production Date: 17.Apr.2014
Expiry Date: 17.Apr.2019

Article/Product: 33829 Batch : SZBE107XV

Heptadecafluorooctanesulfonic acid potassium salt OEKANAL®

Reference Material (RM)

1. General Information

Formula: C8F17KO3S
CAS-No.: [2795-39-3]
Usage : PFOS

Molar mass: 538.22 g/Mole
Recomm. storage temp.: roomtemp.

The estimated uncertainty of a single measurement of the assay can be expected to be 0.5 % relative (confidence level = 95%, n= 6) whereby the assay measurements are calculated by 100% minus found impurities.

2. Batch Analysis

Identity	complying
Assay (LC-MS)	98 %
Date of Analysis	22.Apr.2014

3. Advice and Remarks

- The expiry date is based on the current knowledge and holds only for proper storage conditions in the originally closed flasks/ packages.
- Whenever the container is opened for removal of aliqout portions of the substance, the person handling the substance must assure, that the integrity of the substance is maintained and proper records of all its handlings are kept. Special care has to be taken to avoid any contamination or adulteration of the substance.
- We herewith confirm that the delivery is effected according to the technical delivery conditions agreed.
- Particular properties of the products or the suitability for a particular area of application are not assured.
- We guarantee a proper quality within our General Conditions of Sales.

Sigma-Aldrich Laborchemikalien GmbH
Quality Management SA-LC

Reagent

LC537_PFOS2_00002

V: 6.14.17 SKV

SIGMA-ALDRICH

3050 Spruce Street, Saint Louis, MO 63103 USA
Email USA: techserv@sial.com Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:	HEPTADECAFLUOROOCTANESULFONIC ACID TETRAETHYLAMMONIUM SALT 98 %
Product Number:	365289
Batch Number:	BCBQ0108V
Brand:	Aldrich
CAS Number:	56773-42-3
Formula:	$CF_3(CF_2)_6CF_2SO_3N(C_2H_5)_4$
Formula Weight:	629.37
Quality Release Date:	11 JUN 2015

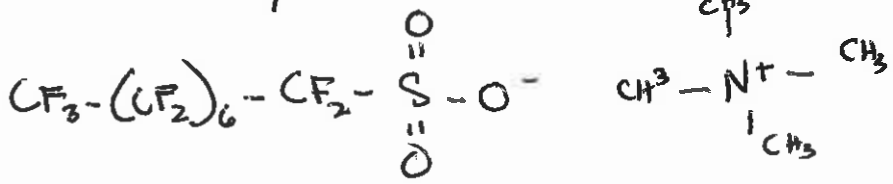
TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	OFF-WHITE
APPEARANCE (FORM)	POWDER OR POWDER WITH CHUNK(S)	POWDER
CARBON CONTENT	29.77 % - 31.29 %	29.97 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

MW correction: $\frac{500.125}{629.37} = 0.7946$

Purity & MW correction = 77.87%



	$C_8F_{17}SO_3^+H$	$C_8H_{20}N$
C = 12.011	96.088	96.088
F = 18.998	322.966	—
S = 32.066	32.066	—
O = 15.999	47.997	—
H = 1.008	1.008	20.160
N = 14.007	—	14.007
	500.125	130.255

Reagent

LCM2PFOA_00006

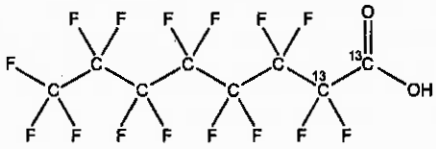
R: SBC 12/21/16

814260
ID: LCM2PFOA_00006
Exp: 02/12/21 Prpd: SBC
13C2-PFOA Stock 50ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0216
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6HF_{15}O_2$	**MOLECULAR WEIGHT:**	416.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	02/12/2016		
EXPIRY DATE: (mm/dd/yyyy)	02/12/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

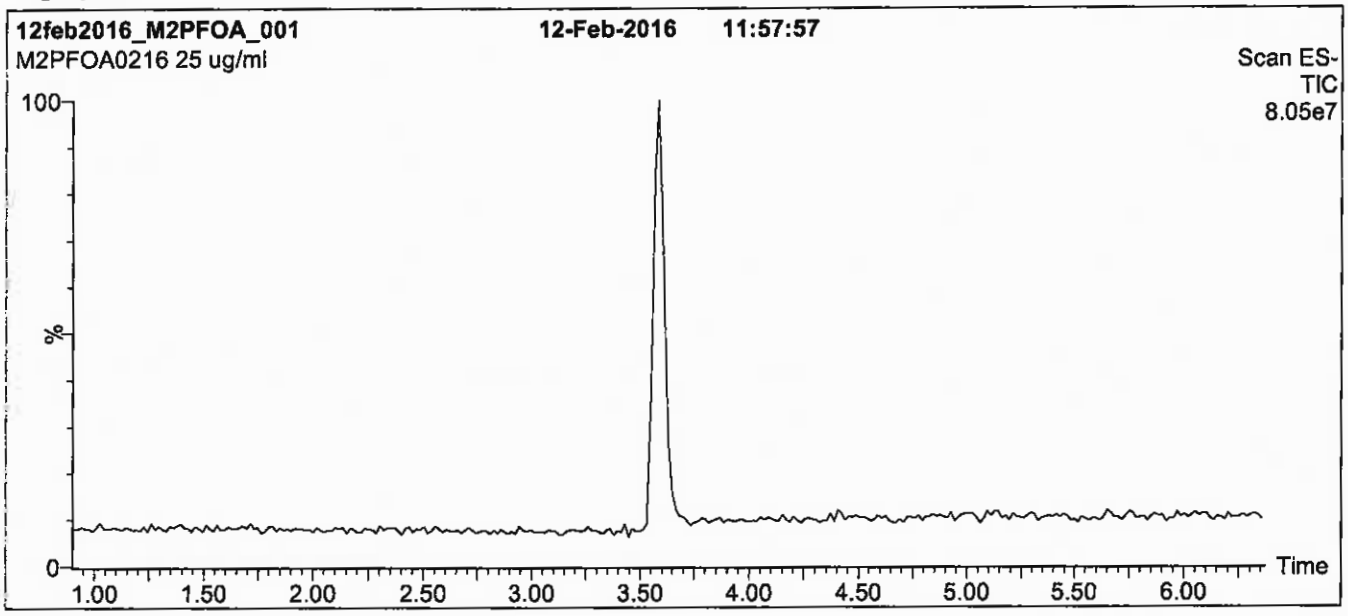
At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

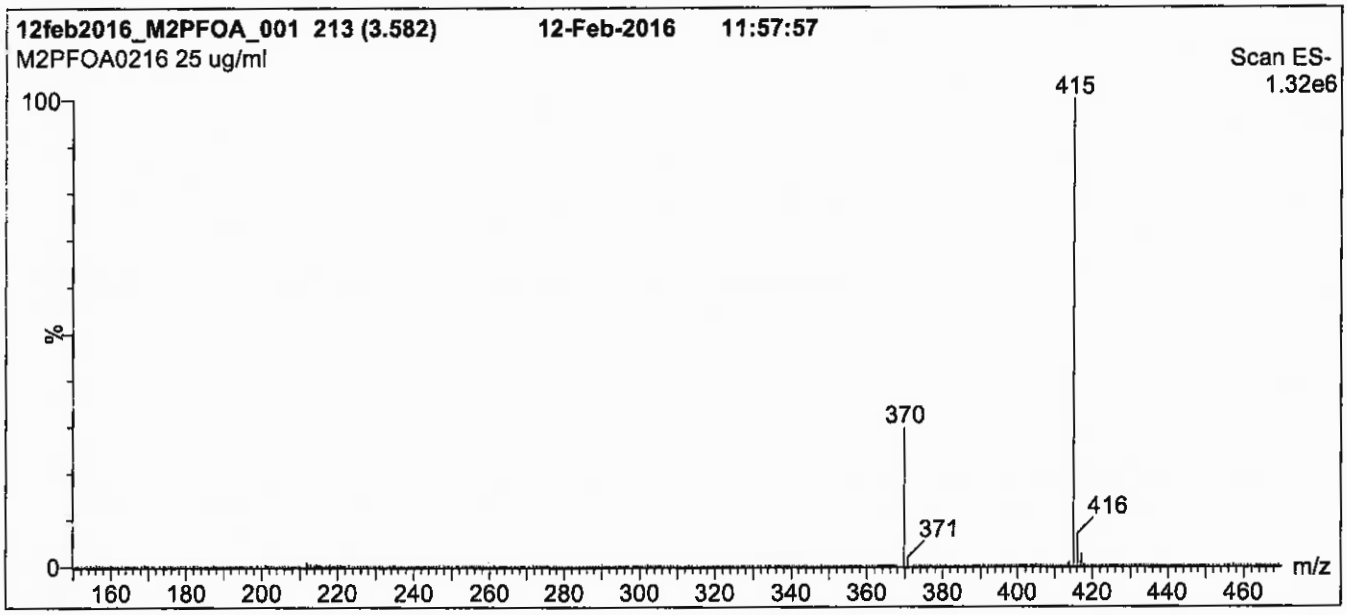
QUALITY MANAGEMENT:

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

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

Figure 1: **M2PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

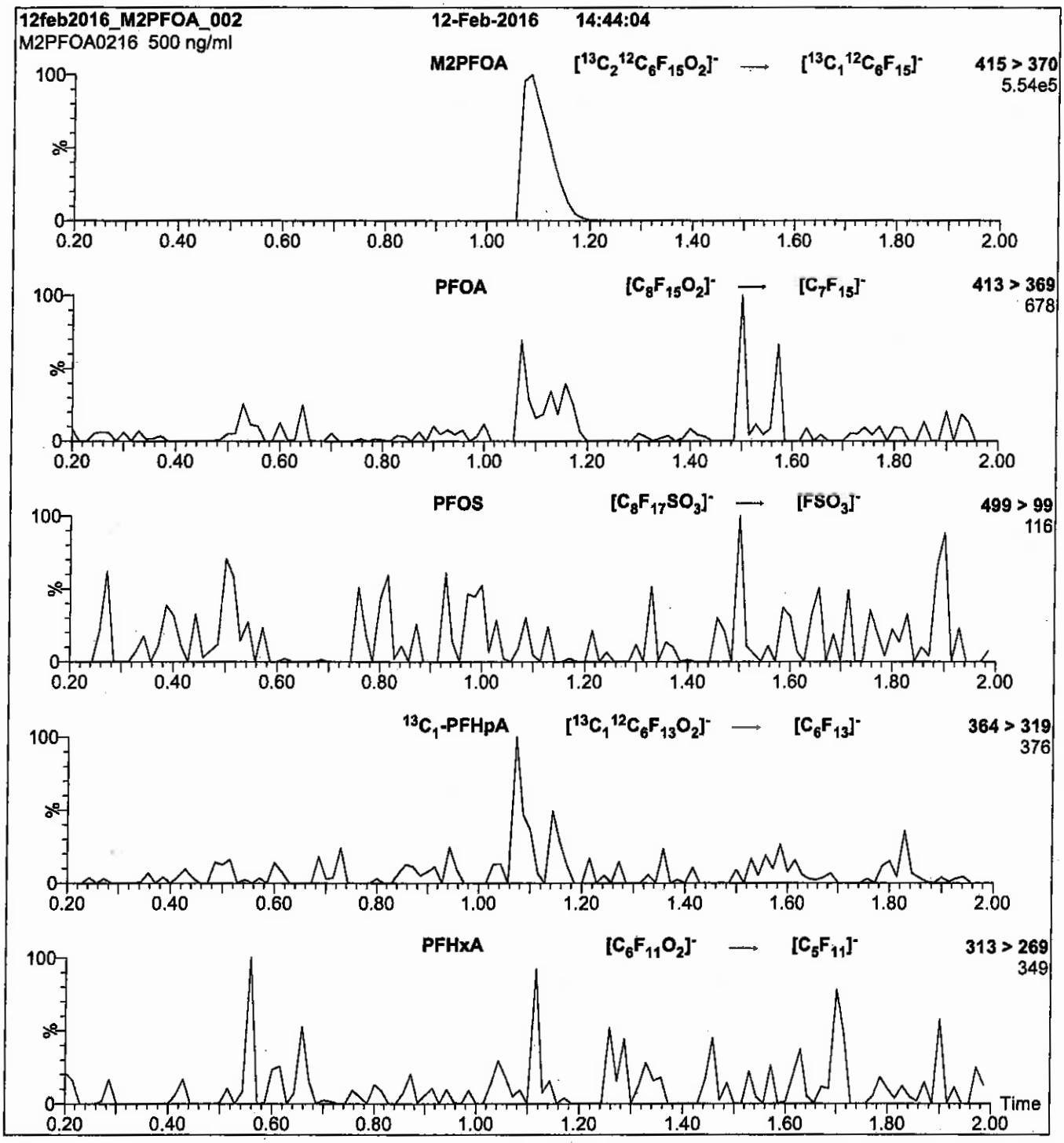
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M2PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2PFOA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

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

Reagent

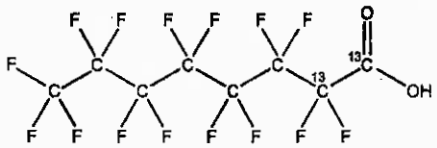
LCM2PFOA_00007

P: 5/6/17 SV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M2PFOA	**LOT NUMBER:**	M2PFOA0216
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6HF_{15}O_2$	**MOLECULAR WEIGHT:**	416.05
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	02/12/2016		
EXPIRY DATE: (mm/dd/yyyy)	02/12/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

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

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

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

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

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QUALITY MANAGEMENT:

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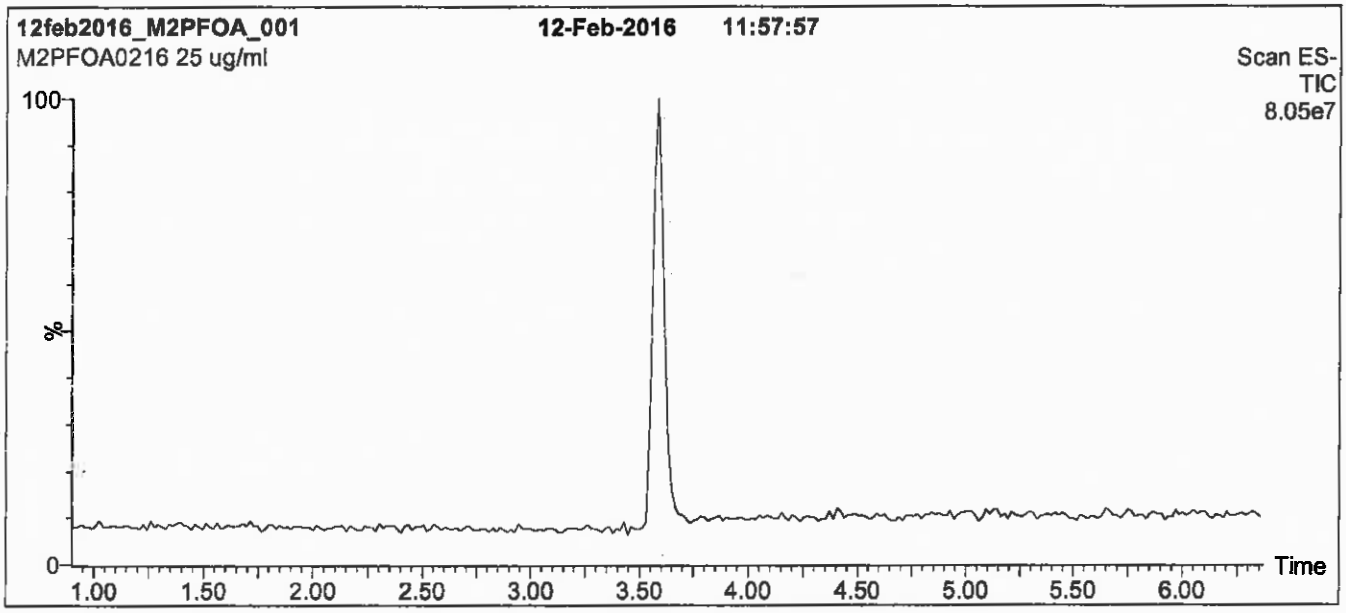
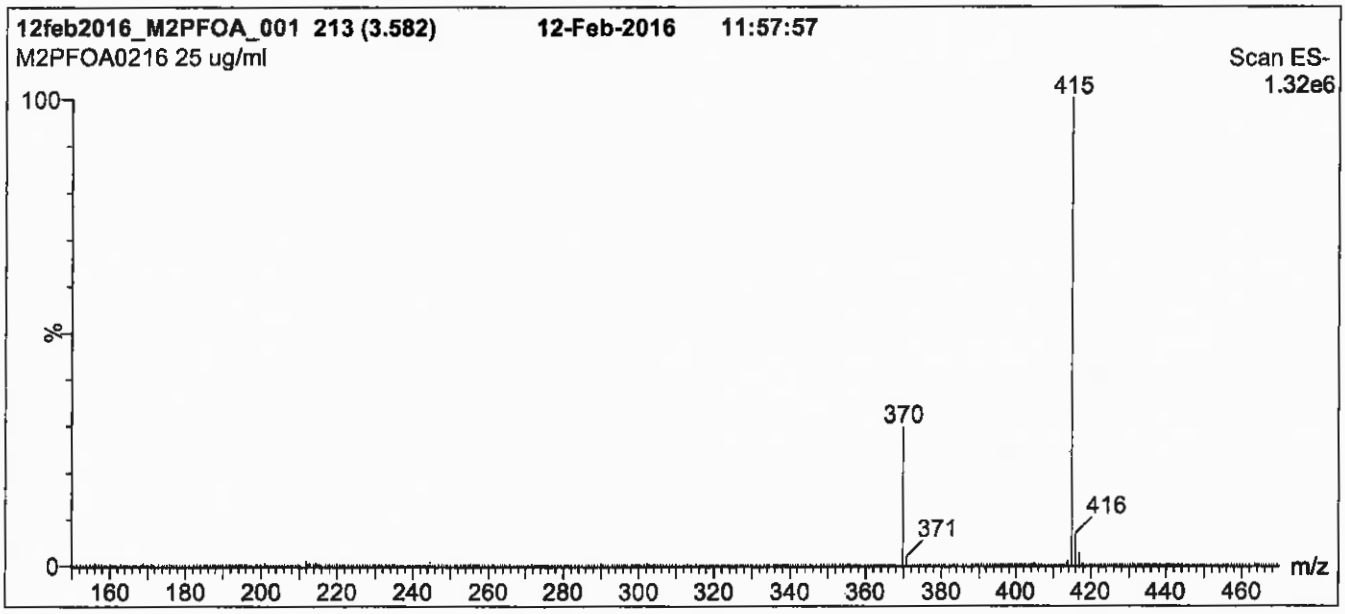
CALA

ANAB ACCREDITED

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

Figure 1: **M2PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

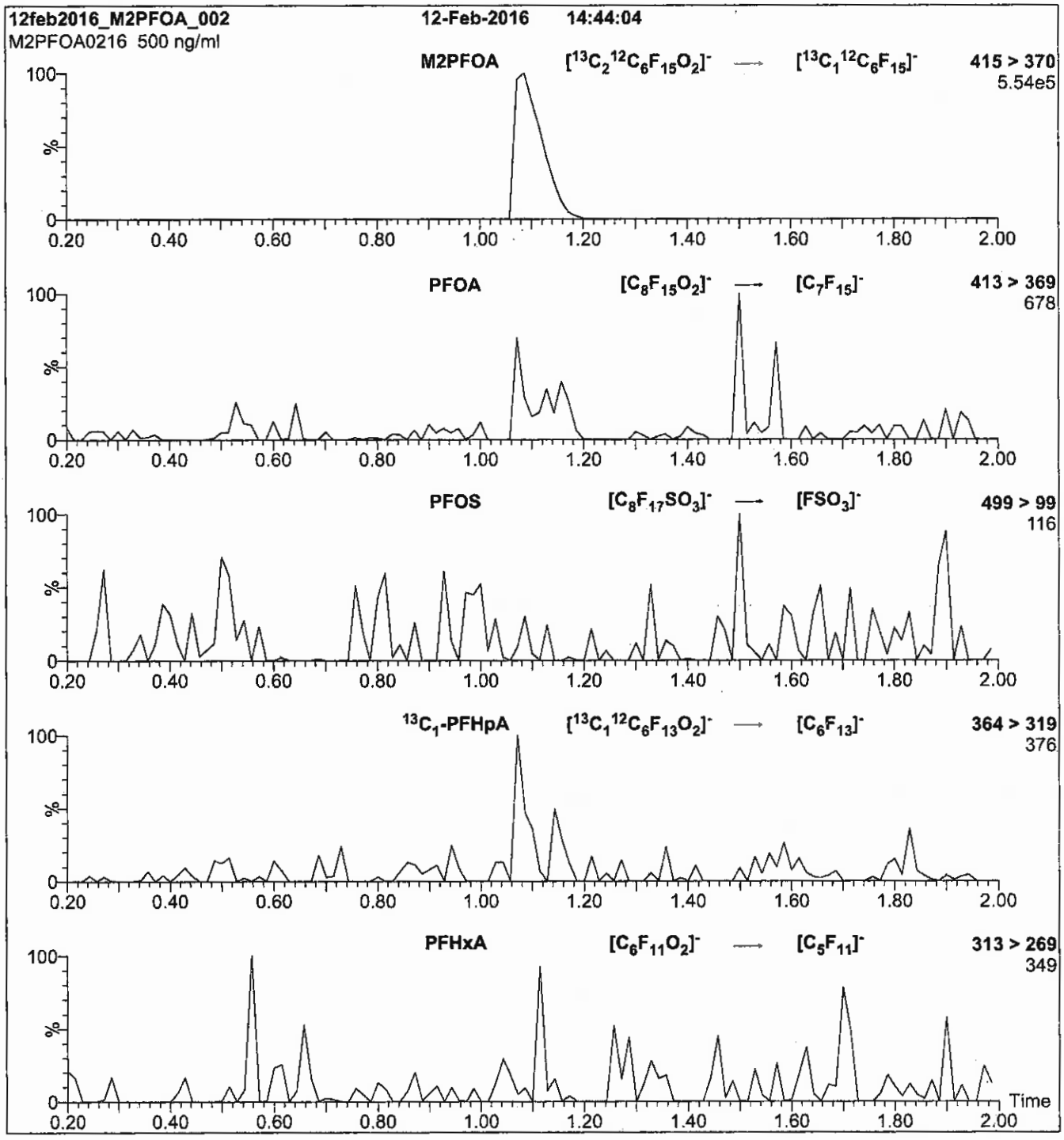
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: **M2PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2PFOA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

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

Reagent

LCMPFDA_00012

R: SBC 12/21/16

814255
ID: LCMPFDA_00012
Exp: 09/30/21 Prpd: SBC
13C2-Perfluorodecanoic a

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFDA	**LOT NUMBER:**	MPFDA0916
COMPOUND:	Perfluoro-*n*-[1,2-$^{13}C_2$]decanoic acid		
STRUCTURE:		**CAS #:**	Not available

MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8HF_{19}O_2$	**MOLECULAR WEIGHT:**	516.07
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	09/30/2016		
EXPIRY DATE: (mm/dd/yyyy)	09/30/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of $^{13}C_1$-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 10/07/2016 (mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

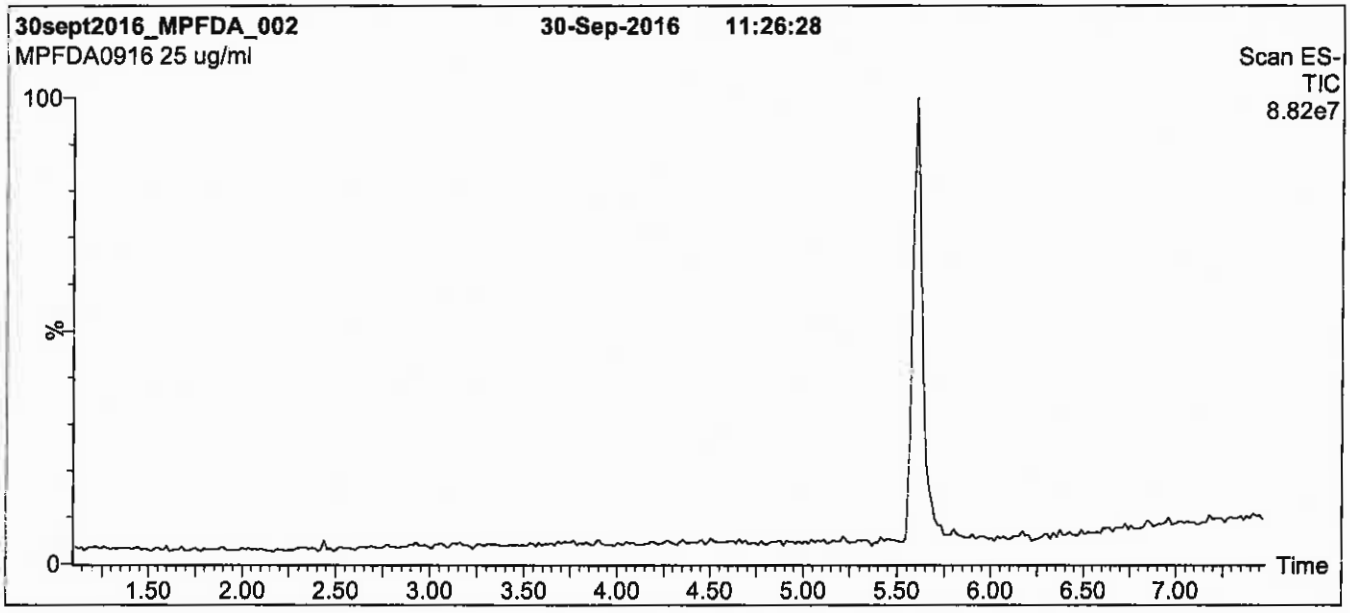
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

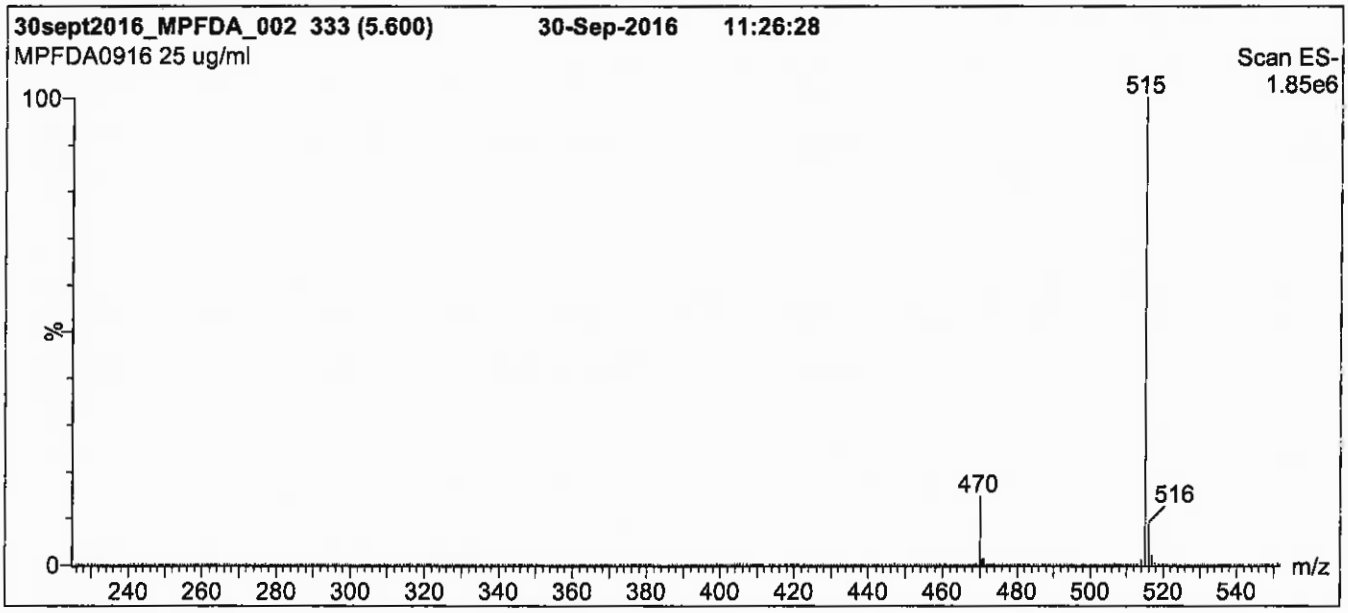
CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

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





Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

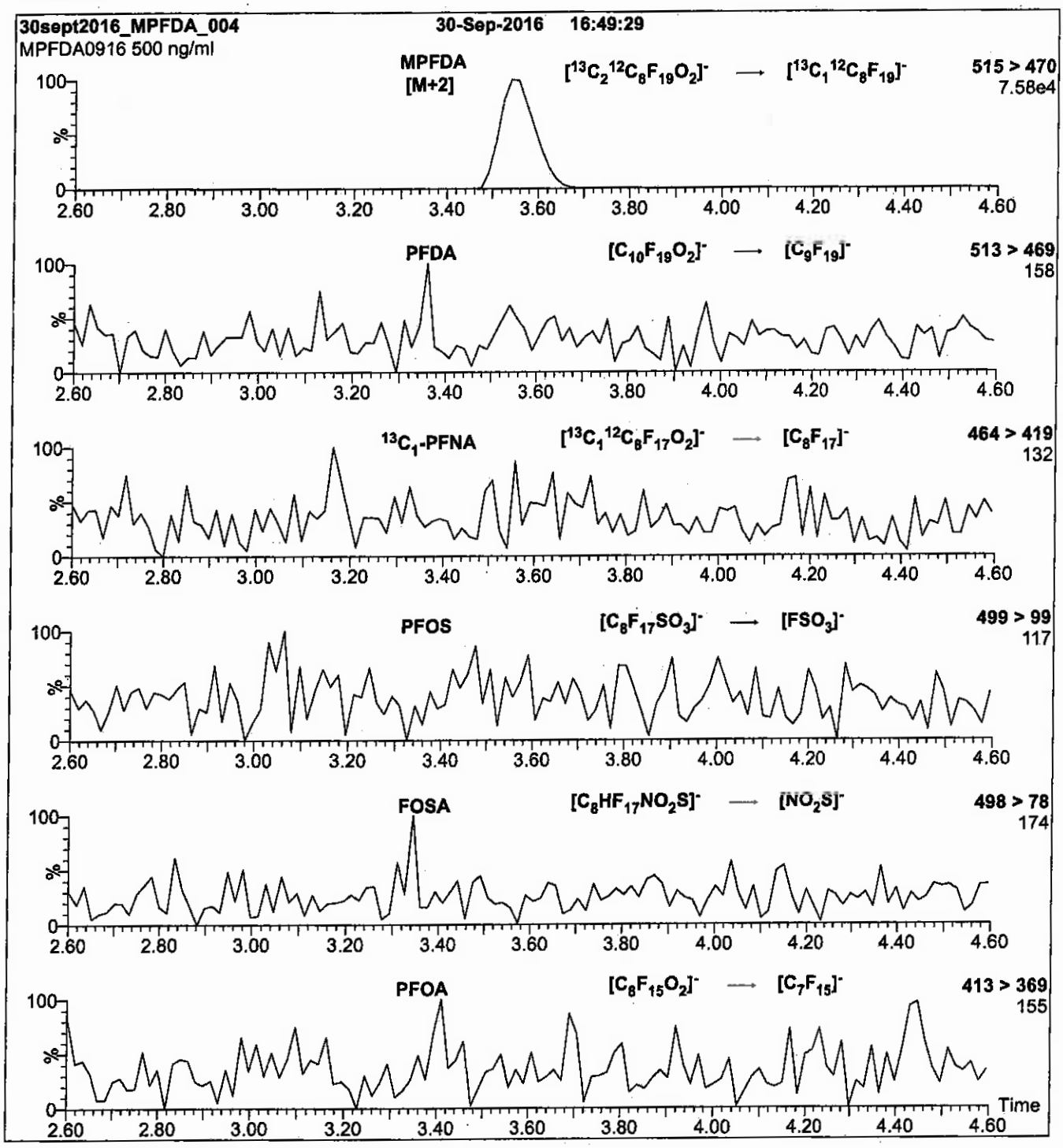
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 13

Reagent

LCMPFHxA_00013

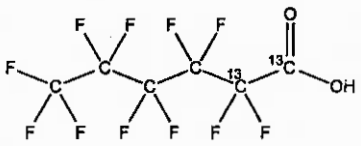
R: SBC 12/21/16

814258
ID: LCMPFHxA_00013
Exp: 04/08/21 Prpd: SBC
13C2-Perfluorohexanoic ac

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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



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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

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

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TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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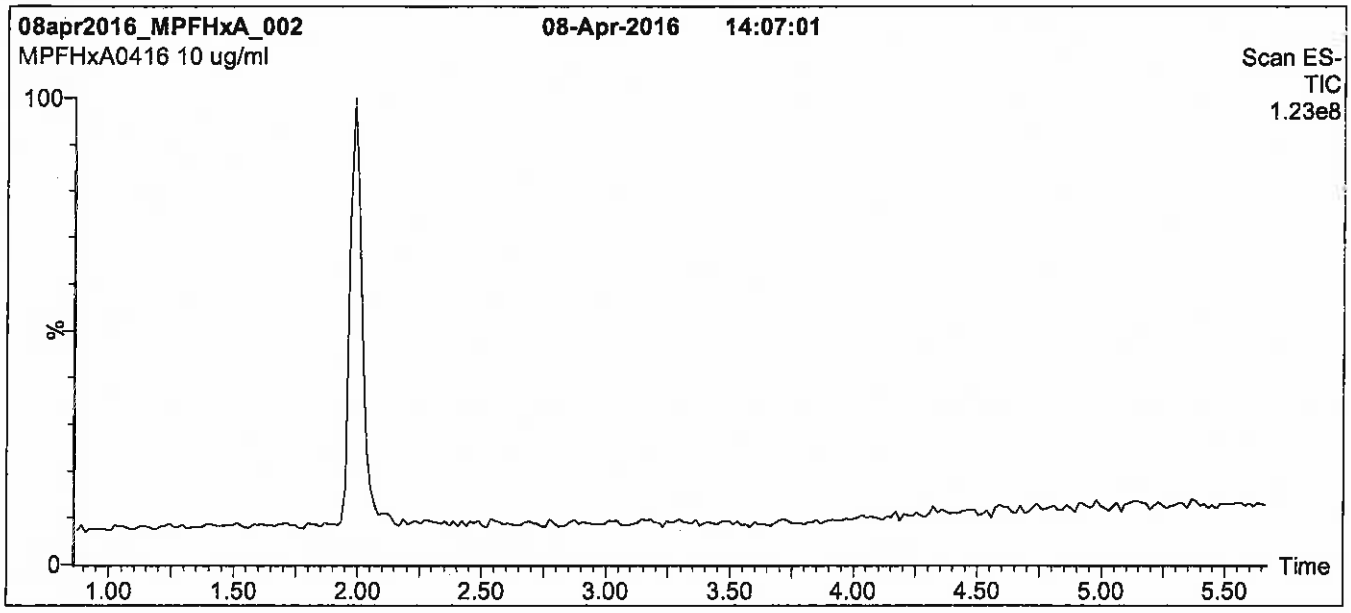
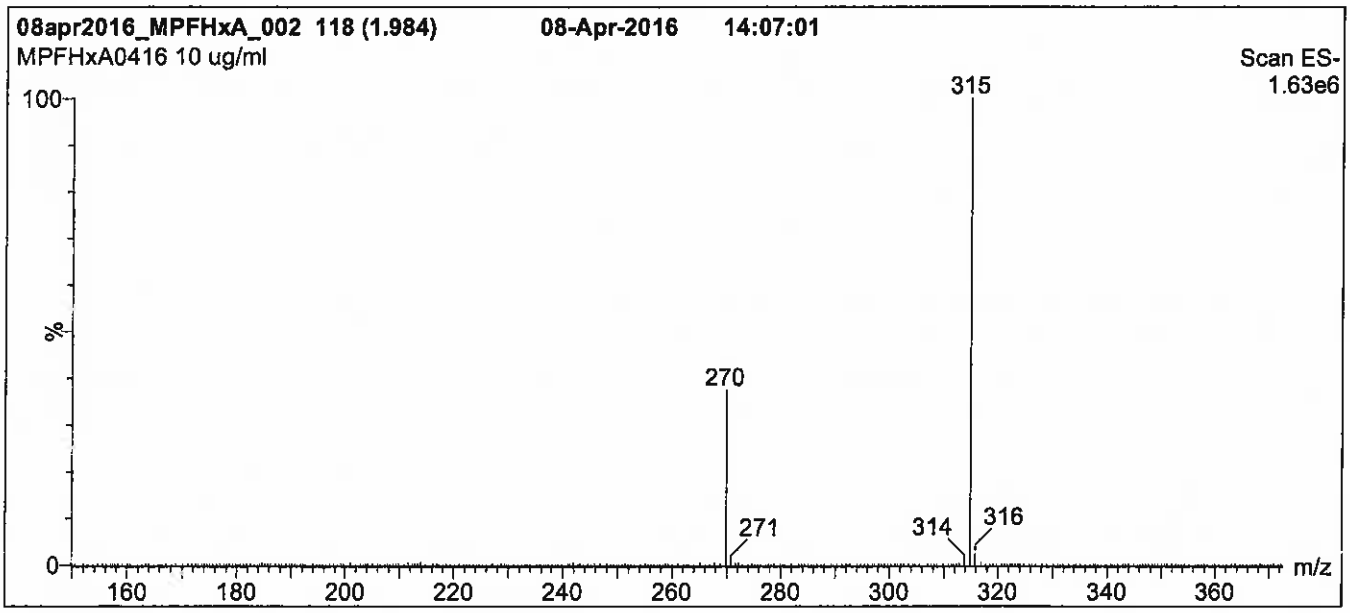
Figure 1: **MPFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

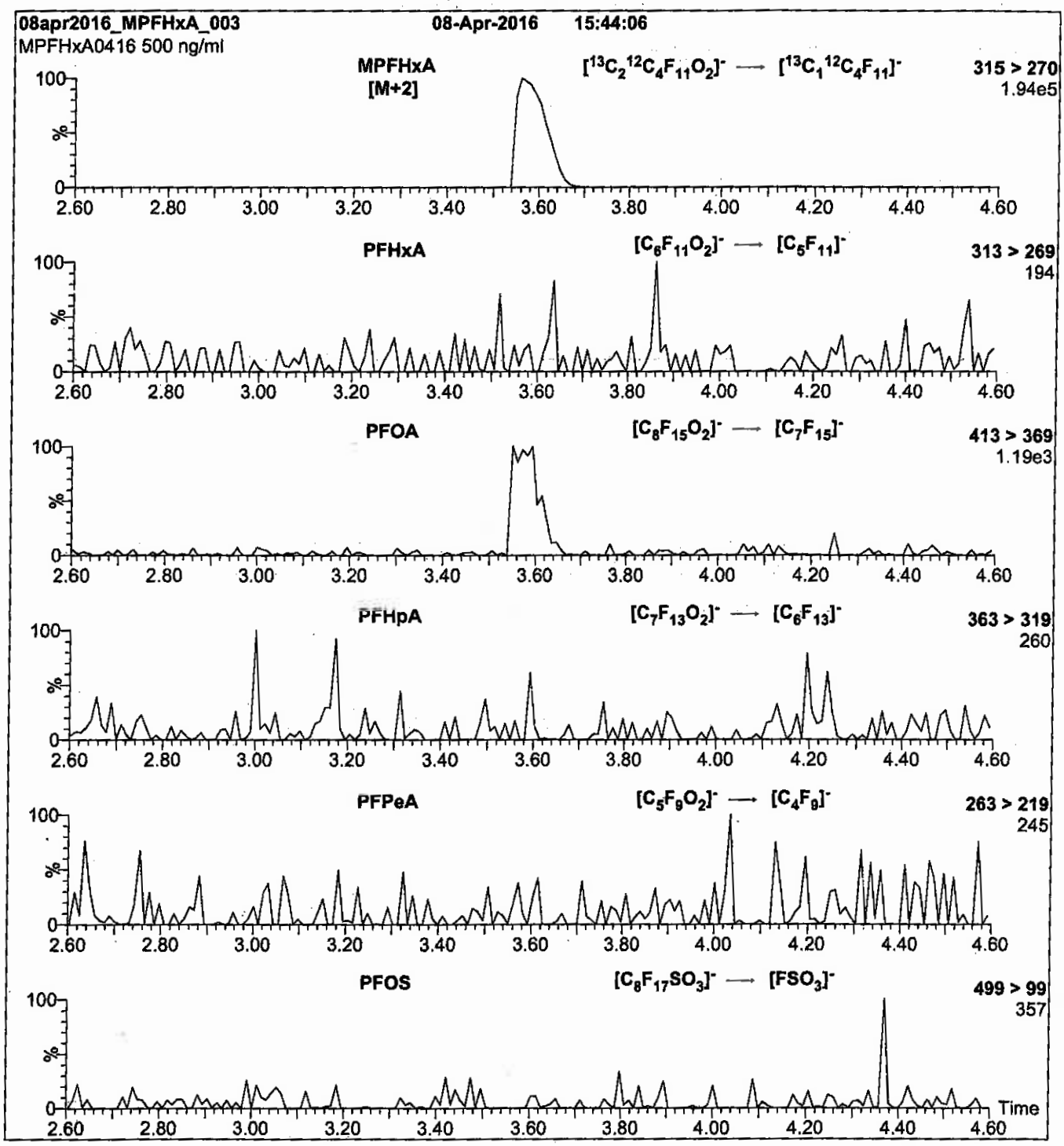
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCMPFHxA_00015

r: 5/6/17 std

WELLINGTON LABORATORIES

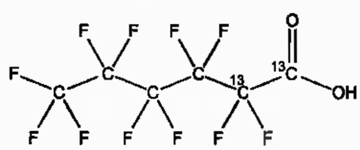
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFHxA

LOT NUMBER: MPFHxA1116

COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA: $^{13}C_2{}^{12}C_4HF_{11}O_2$

MOLECULAR WEIGHT: 316.04

CONCENTRATION: 50 ± 2.5 µg/ml

SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: ≥99% ^{13}C (1,2-$^{13}C_2$)

LAST TESTED: (mm/dd/yyyy) 11/22/2016

EXPIRY DATE: (mm/dd/yyyy) 11/22/2021

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim

Date: 12/13/2016 (mm/dd/yyyy)

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

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CALA

ANAB ACCREDITED

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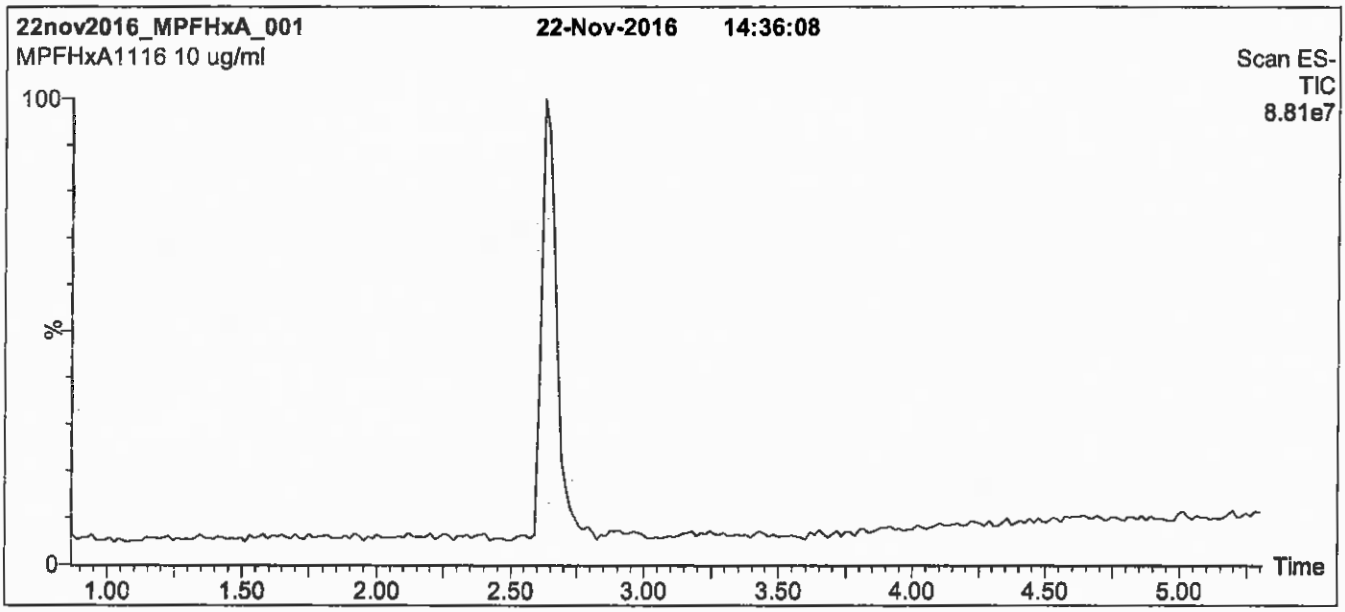
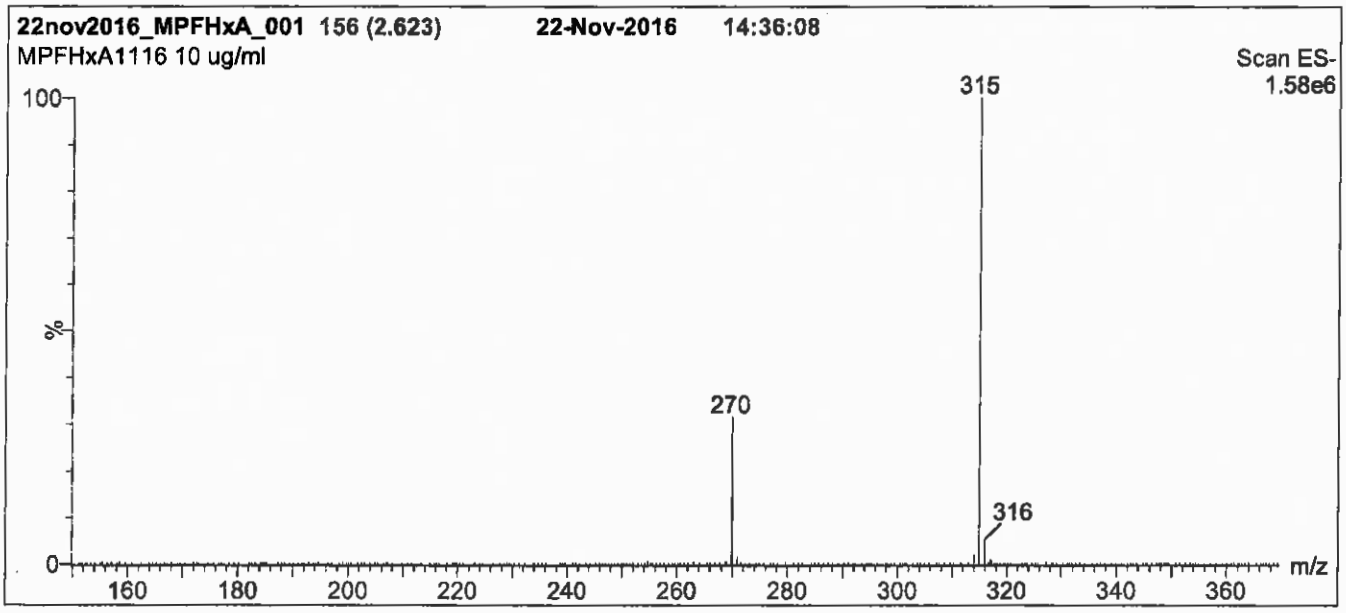
Figure 1: **MPFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions over 0.5 min.
Time: 10 min

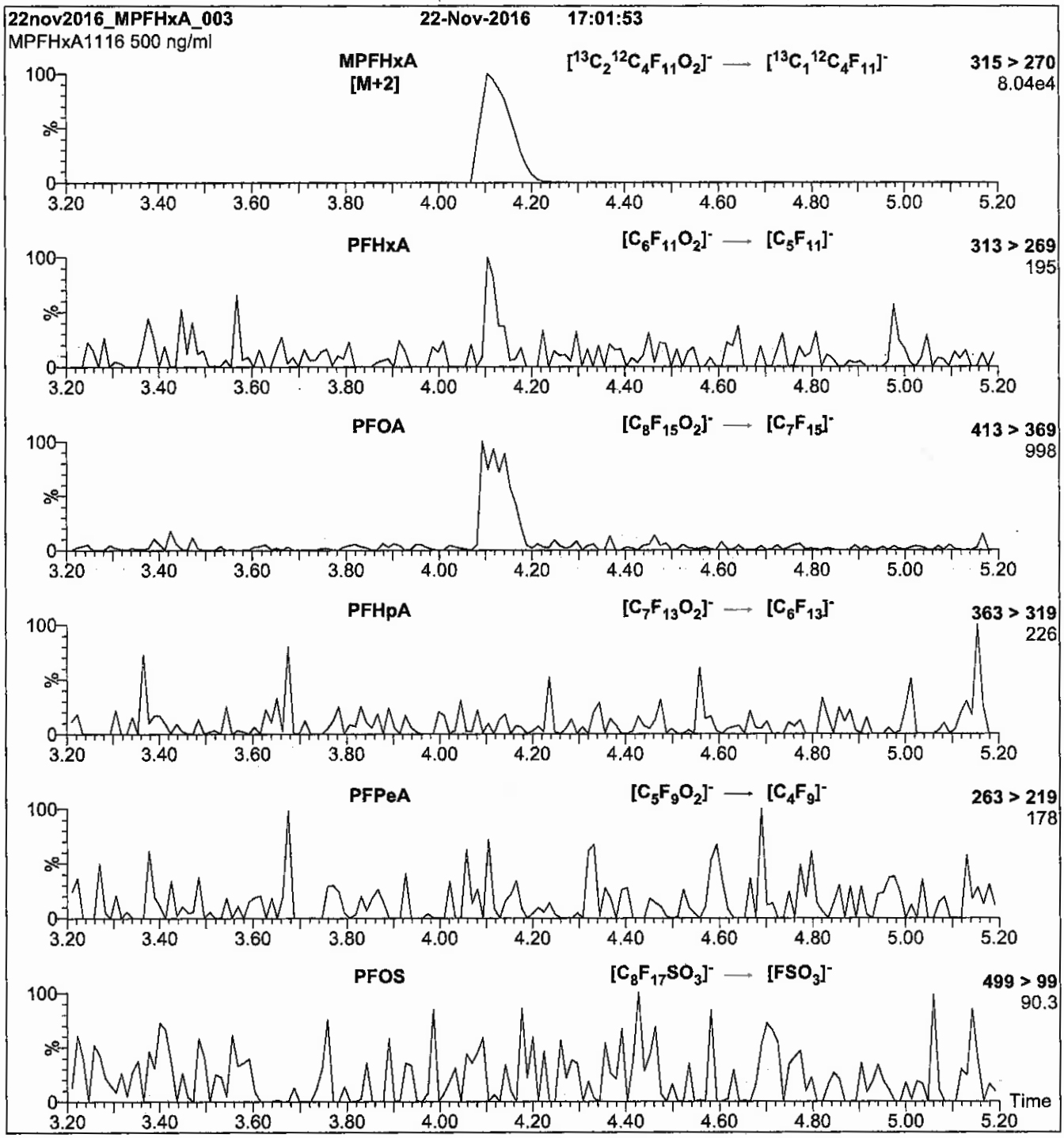
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 10

Reagent

LCMPFOS_00019

R: SBC 12/21/16

814253
ID: LCMPFOS_00019
Exp: 08/03/21 Prpd: SBC
13C4-Perfluorooctanesulfo

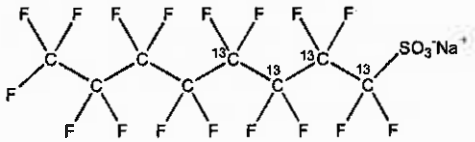
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS0816

COMPOUND: Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate

STRUCTURE: **CAS #:** Not available



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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

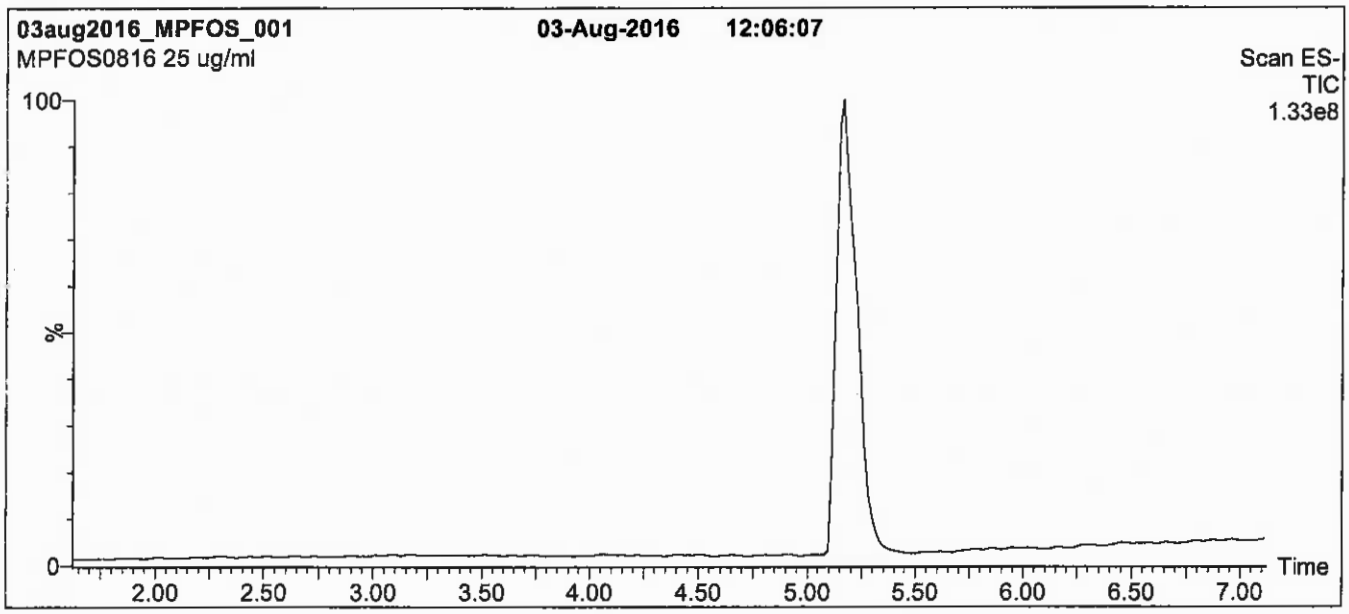
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

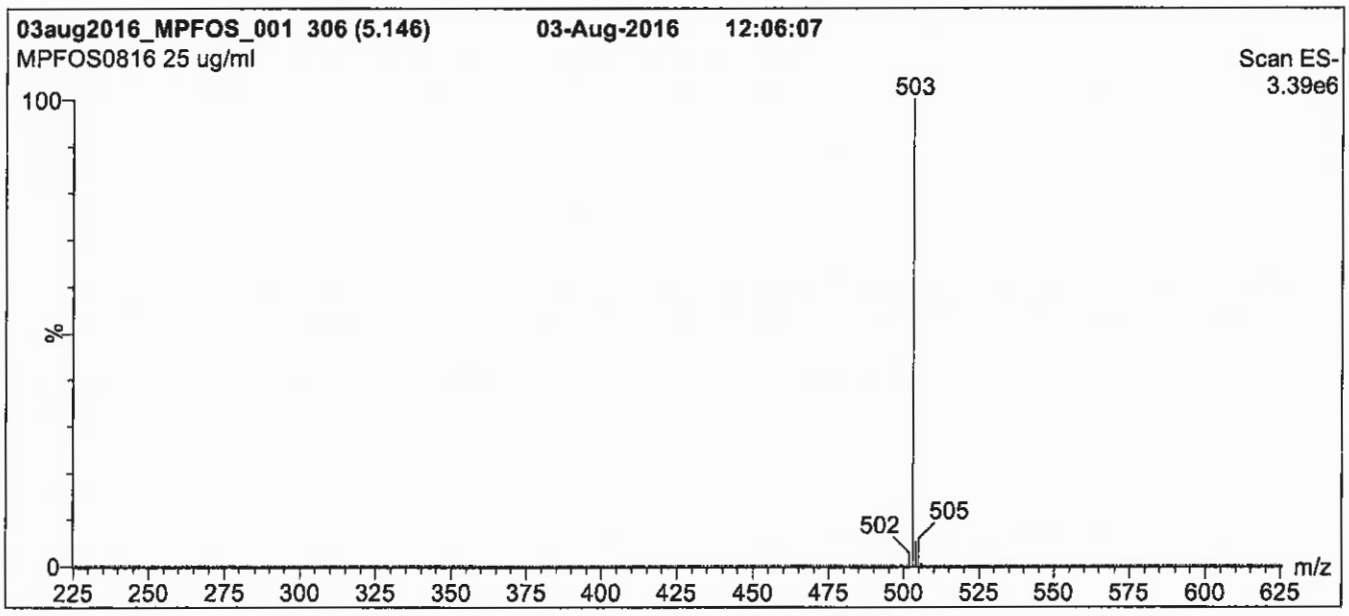
CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

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





Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 45% (80:20 MeOH:ACN) / 55% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

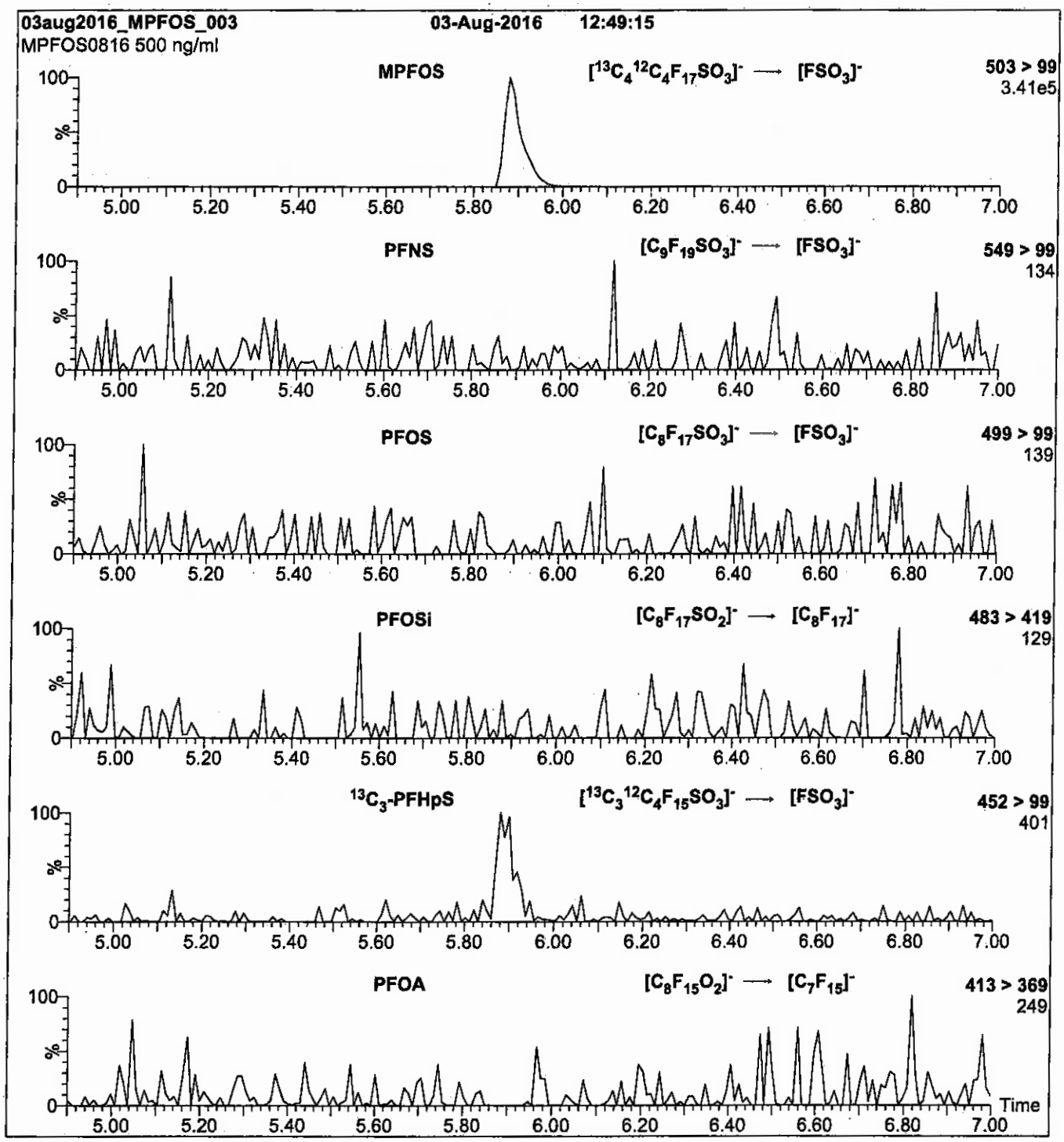
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

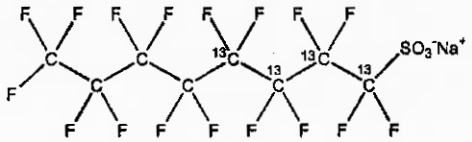
LCMPFOS_00021

r: 5/8/17 SKV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFOS	**LOT NUMBER:**	MPFOS1216
COMPOUND:	Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate		
STRUCTURE:		**CAS #:**	Not available



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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/14/2016 (mm/dd/yyyy)

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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CALA

ANAB ACCREDITED

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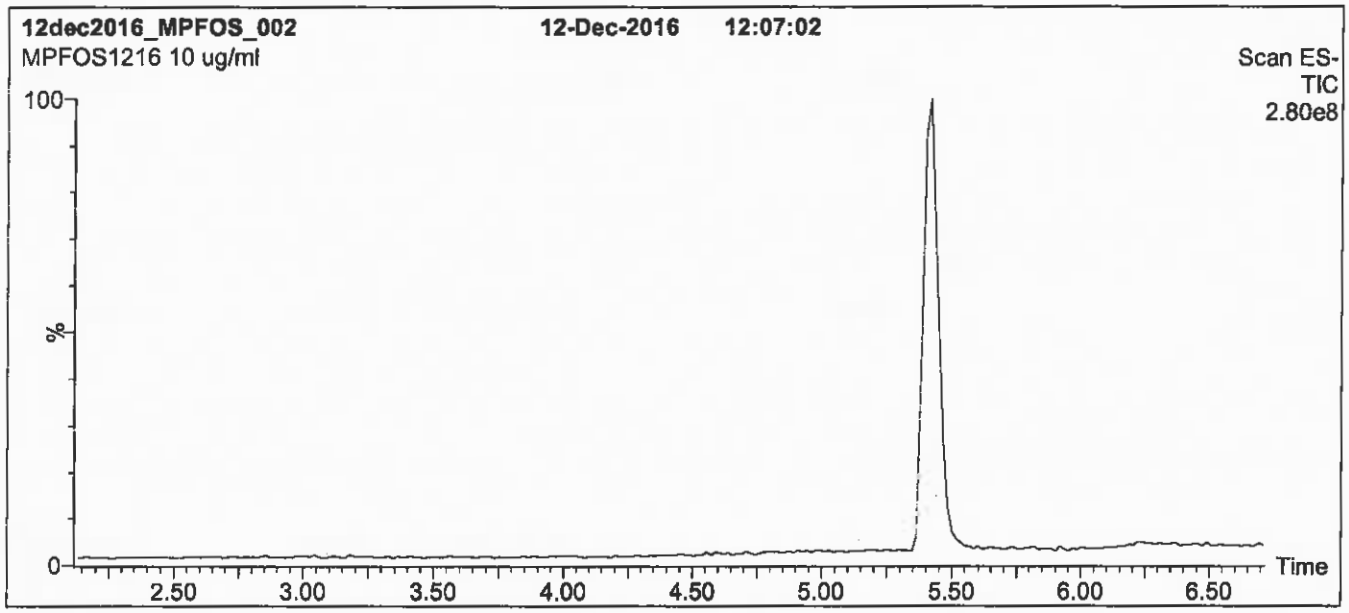

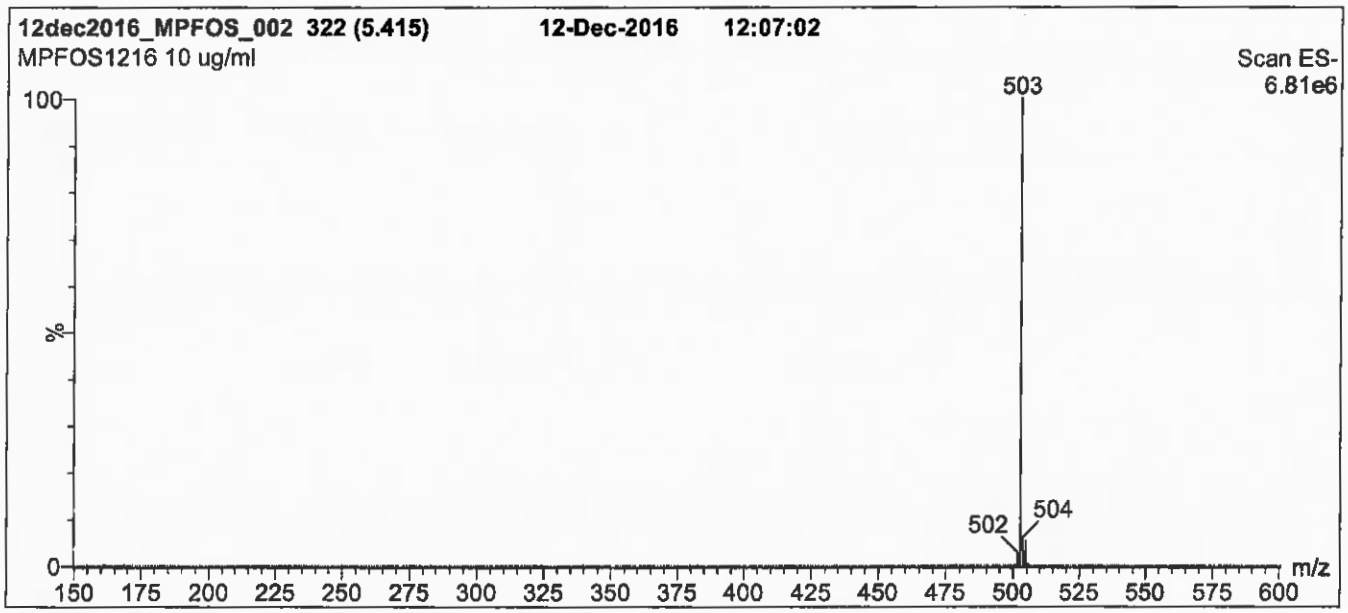

Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 85% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 60.00
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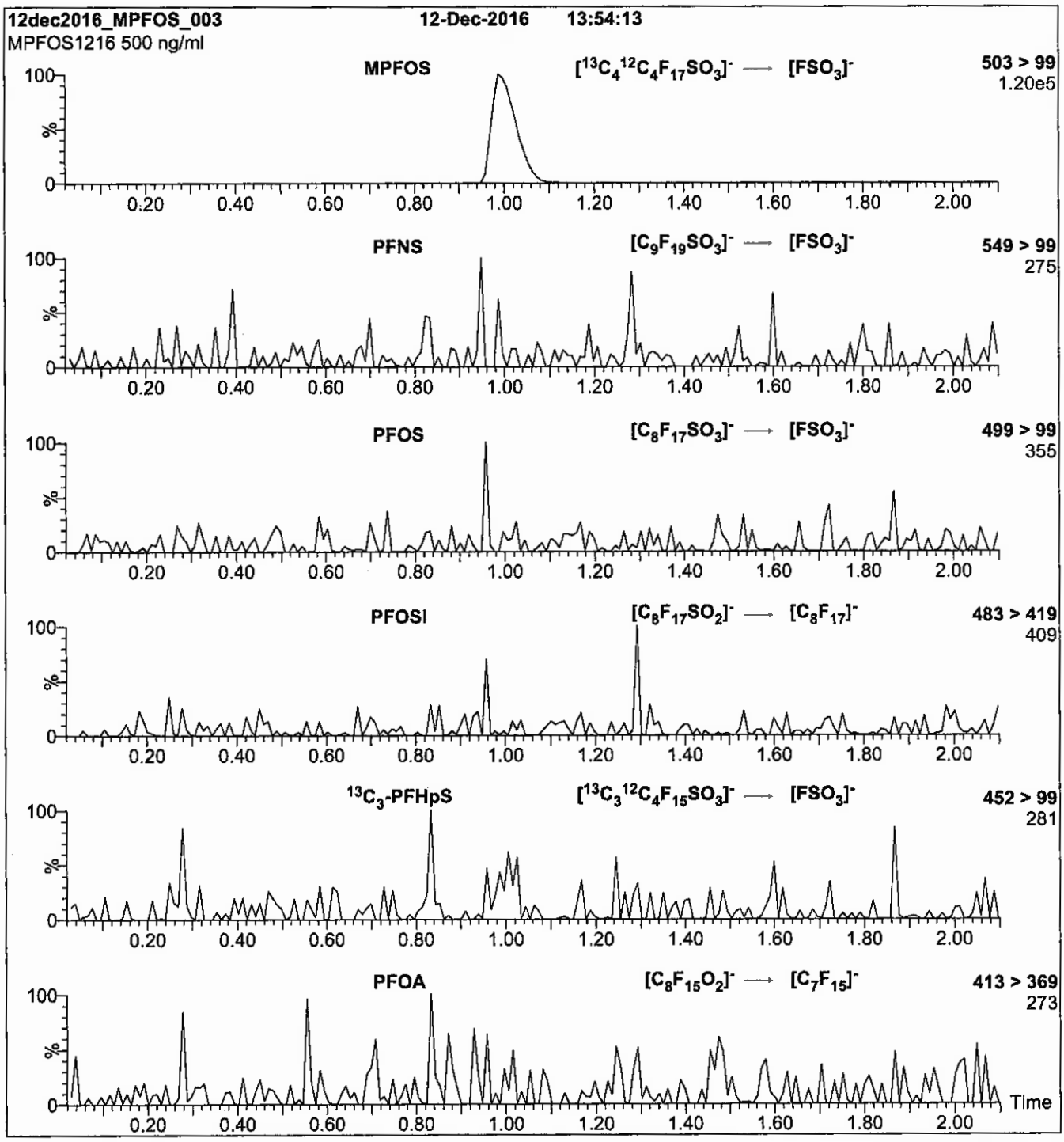

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(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 40

Method 537 DOD

Perfluorinated Alkyl Acids (LC/MS) by Method 537 DOD

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-100217-RW-0344	320-32094-1	78	103
WGNA-100217-FRB-0344	320-32094-2	92	111
NAWC-100217-RW-140	320-32094-3	80	99
NAWC-100217-FRB-140	320-32094-4	90	112
NAWC-100217-RW-316	320-32094-5	84	118
NAWC-100217-FRB-316	320-32094-6	93	111
NAWC-100217-RW-144	320-32094-7	79	107
NAWC-100217-FRB-144	320-32094-8	90	107
NAWC-100217-RW-151	320-32094-9	75	96
NAWC-100217-FRB-151	320-32094-10	90	106
WGNA-100217-DUP11	320-32094-11	73	92
NAWC-100217-RW-130	320-32094-12	76	108
NAWC-100217-FRB-130	320-32094-13	90	106
NAWC-100217-RW-125	320-32094-14	77	106
NAWC-100217-FRB-125	320-32094-15	0.9 Q	3 Q
NAWC-100217-FRB-125 RE	320-32094-15 RE	114	118
NAWC-100217-RW-139	320-32094-16	81	107
NAWC-100217-FRB-139	320-32094-17	102	108
WGNA-100217-RW-0500	320-32094-18	86	114
WGNA-100217-FRB-0500	320-32094-19	98	113
WGNA-100217-RW-0413	320-32094-20	81	109
WGNA-100217-FRB-0413	320-32094-21	100	120
WGNA-100217-RW-0404	320-32094-22	88	120
WGNA-100217-FRB-0404	320-32094-23	99	102
	MB 320-189591/1-A	96	114
	MB 320-189627/1-A	107	118
	MB 320-190676/1-A	106	100

	QC LIMITS
PFHxA = 13C2 PFHxA	70-130
PFDA = 13C2 PFDA	70-130

Column to be used to flag recovery values

FORM II 537

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
	LCS 320-189591/2-A	97	106
	LCS 320-190676/2-A	16 Q	70
	LCSD 320-190676/3-A	112	109
	LLCS 320-189627/2-A	101	103
NAWC-100217-RW-140 MS	320-32094-3 MS	82	109
NAWC-100217-RW-140 MSD	320-32094-3 MSD	82	112
	LLCSD 320-189627/3-A	92	100

	QC LIMITS
PFHxA = 13C2 PFHxA	70-130
PFDA = 13C2 PFDA	70-130

Column to be used to flag recovery values

FORM II 537

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.20_537A_025.d

Lab ID: LCS 320-189591/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	222	205	92	70-130	M
Perfluorooctanoic acid (PFOA)	111	116	105	70-130	
Perfluorononanoic acid (PFNA)	111	106	95	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	160	96	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	60.3	109	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	536	107	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.31_537AA_004.d

Lab ID: LCS 320-190676/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	133	133	99	70-130	M
Perfluorooctanoic acid (PFOA)	66.7	56.6	85	70-130	
Perfluorononanoic acid (PFNA)	66.7	52.1	78	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	103	103	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	24.1	72	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	22.9 J	8	70-130	Q

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.31_537AA_005.d

Lab ID: LCSD 320-190676/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	133	134	100	1	30	70-130	M
Perfluorooctanoic acid (PFOA)	66.7	74.3	111	27	30	70-130	
Perfluorononanoic acid (PFNA)	66.7	71.7	107	32	30	70-130	Q
Perfluorohexanesulfonic acid (PFHxS)	100	107	107	4	30	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	38.6	116	46	30	70-130	Q
Perfluorobutanesulfonic acid (PFBS)	300	308	103	172	30	70-130	Q

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.20_537A_069.d

Lab ID: LLCS 320-189627/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	39.2 J	98	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	20.6	103	50-150	
Perfluorononanoic acid (PFNA)	20.0	20.9 J	104	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	32.7	109	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	11.1	111	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	100	111	50-150	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.20_537A_029.d

Lab ID: 320-32094-3 MS Client ID: NAWC-100217-RW-140 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	215	11 J	209	92	70-130	M
Perfluorooctanoic acid (PFOA)	108	18 J	124	98	70-130	
Perfluorononanoic acid (PFNA)	108	19 U	106	99	70-130	
Perfluorohexanesulfonic acid (PFHxS)	161	11 U	149	93	70-130	
Perfluoroheptanoic acid (PFHpA)	53.8	4.7 J	58.5	100	70-130	
Perfluorobutanesulfonic acid (PFBS)	484	34 U	455	94	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.20_537A_030.d

Lab ID: 320-32094-3 MSD Client ID: NAWC-100217-RW-140 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	211	210	95	1	30	70-130	M
Perfluorooctanoic acid (PFOA)	105	123	100	0	30	70-130	
Perfluorononanoic acid (PFNA)	105	102	97	5	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	158	150	95	1	30	70-130	
Perfluoroheptanoic acid (PFHpA)	52.6	57.7	101	1	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	474	484	102	6	30	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LOW LEVEL CONTROL STANDARD DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.20_537A_070.d

Lab ID: LLCSD 320-189627/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	34.9 J	87	12	50	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	18.7 J	94	10	50	50-150	
Perfluorononanoic acid (PFNA)	20.0	19.2 J	96	8	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	27.8 J	93	16	50	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	10.1	101	9	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	87.2 J	97	14	50	50-150	

Column to be used to flag recovery and RPD values

FORM III 537

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab File ID: 2017.10.20_537A_024.d Lab Sample ID: MB 320-189591/1-A

Matrix: Water Date Extracted: 10/16/2017 14:42

Instrument ID: A8_N Date Analyzed: 10/20/2017 19:24

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-189591/2-A	2017.10.20_537A_025.d	10/20/2017 19:29
WGNA-100217-RW-0344	320-32094-1	2017.10.20_537A_026.d	10/20/2017 19:33
WGNA-100217-FRB-0344	320-32094-2	2017.10.20_537A_027.d	10/20/2017 19:38
NAWC-100217-RW-140	320-32094-3	2017.10.20_537A_028.d	10/20/2017 19:43
NAWC-100217-RW-140 MS	320-32094-3 MS	2017.10.20_537A_029.d	10/20/2017 19:48
NAWC-100217-RW-140 MSD	320-32094-3 MSD	2017.10.20_537A_030.d	10/20/2017 19:52
NAWC-100217-FRB-140	320-32094-4	2017.10.20_537A_031.d	10/20/2017 19:57
NAWC-100217-RW-316	320-32094-5	2017.10.20_537A_032.d	10/20/2017 20:02
NAWC-100217-FRB-316	320-32094-6	2017.10.20_537A_033.d	10/20/2017 20:07
NAWC-100217-RW-144	320-32094-7	2017.10.20_537A_036.d	10/20/2017 20:21
NAWC-100217-FRB-144	320-32094-8	2017.10.20_537A_037.d	10/20/2017 20:26
NAWC-100217-RW-151	320-32094-9	2017.10.20_537A_038.d	10/20/2017 20:30
NAWC-100217-FRB-151	320-32094-10	2017.10.20_537A_039.d	10/20/2017 20:35
WGNA-100217-DUP11	320-32094-11	2017.10.20_537A_040.d	10/20/2017 20:40
NAWC-100217-RW-130	320-32094-12	2017.10.20_537A_041.d	10/20/2017 20:45
NAWC-100217-FRB-130	320-32094-13	2017.10.20_537A_042.d	10/20/2017 20:49
NAWC-100217-RW-125	320-32094-14	2017.10.20_537A_043.d	10/20/2017 20:54
NAWC-100217-FRB-125	320-32094-15	2017.10.20_537A_044.d	10/20/2017 20:59

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab File ID: 2017.10.20_537A_068.d Lab Sample ID: MB 320-189627/1-A

Matrix: Water Date Extracted: 10/16/2017 15:51

Instrument ID: A8_N Date Analyzed: 10/20/2017 22:53

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-189627/2-A	2017.10.20_537A_069.d	10/20/2017 22:57
	LLCSD 320-189627/3-A	2017.10.20_537A_070.d	10/20/2017 23:02
NAWC-100217-RW-139	320-32094-16	2017.10.20_537A_071.d	10/20/2017 23:07
NAWC-100217-FRB-139	320-32094-17	2017.10.20_537A_072.d	10/20/2017 23:12
WGNA-100217-RW-0500	320-32094-18	2017.10.20_537A_073.d	10/20/2017 23:16
WGNA-100217-FRB-0500	320-32094-19	2017.10.20_537A_074.d	10/20/2017 23:21
WGNA-100217-RW-0413	320-32094-20	2017.10.20_537A_075.d	10/20/2017 23:26
WGNA-100217-FRB-0413	320-32094-21	2017.10.20_537A_076.d	10/20/2017 23:31
WGNA-100217-RW-0404	320-32094-22	2017.10.20_537A_077.d	10/20/2017 23:35
WGNA-100217-FRB-0404	320-32094-23	2017.10.20_537A_080.d	10/20/2017 23:50

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab File ID: 2017.10.31_537AA_003.d Lab Sample ID: MB 320-190676/1-A

Matrix: Water Date Extracted: 10/23/2017 14:32

Instrument ID: A8_N Date Analyzed: 10/31/2017 15:17

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-190676/2-A	2017.10.31_537AA_004.d	10/31/2017 15:22
	LCSD 320-190676/3-A	2017.10.31_537AA_005.d	10/31/2017 15:27
NAWC-100217-FRB-125 RE	320-32094-15 RE	2017.10.31_537AA_006.d	10/31/2017 15:31

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 09/20/2017 03:19

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		2116635	1.86	5570738	2.11		
UPPER LIMIT		3174953	2.36	8356107	2.61		
LOWER LIMIT		1058318	1.36	2785369	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-185329/11		2252465	1.85	5723538	2.10		
ICV 320-185329/13		2616480	1.85	7294448	2.10		
CCV 320-190441/22 CCVIS		1845095	1.89	5429717	2.13		
MB 320-189591/1-A		1835352	1.88	5404548	2.13		
LCS 320-189591/2-A		1629839	1.89	4970902	2.13		
320-32094-1	WGNA-100217-RW-0344	1705479	1.88	5157371	2.13		
320-32094-2	WGNA-100217-FRB-0344	1667244	1.89	4977816	2.13		
320-32094-3	NAWC-100217-RW-140	1815761	1.88	5255060	2.12		
320-32094-3 MS	NAWC-100217-RW-140 MS	1788659	1.88	5453174	2.12		
320-32094-3 MSD	NAWC-100217-RW-140 MSD	1803880	1.88	5278202	2.12		
320-32094-4	NAWC-100217-FRB-140	1894760	1.89	5573483	2.13		
320-32094-5	NAWC-100217-RW-316	1825060	1.89	5335570	2.13		
320-32094-6	NAWC-100217-FRB-316	1814445	1.89	5243759	2.13		
CCV 320-190441/34 CCVIS		1971467	1.89	5873467	2.13		
CCV 320-190442/34 CCVIS		1971467	1.89	5873467	2.13		
320-32094-7	NAWC-100217-RW-144	1804941	1.88	5221258	2.12		
320-32094-8	NAWC-100217-FRB-144	1811010	1.88	5298491	2.13		
320-32094-9	NAWC-100217-RW-151	1782598	1.88	5612676	2.12		
320-32094-10	NAWC-100217-FRB-151	1897460	1.88	5605320	2.12		
320-32094-11	WGNA-100217-DUP11	1837587	1.88	5425929	2.13		
320-32094-12	NAWC-100217-RW-130	1935179	1.88	5847749	2.12		
320-32094-13	NAWC-100217-FRB-130	1955473	1.88	5632988	2.12		
320-32094-14	NAWC-100217-RW-125	1910551	1.88	5802887	2.12		
320-32094-15	NAWC-100217-FRB-125	2011771	1.88	5901582	2.12		
CCV 320-190442/45 CCVIS		1708886	1.88	5239449	2.12		
CCV 320-190446/22 CCVIS		1760502	1.88	5237323	2.12		
MB 320-189627/1-A		1745632	1.88	5212882	2.12		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 09/20/2017 03:19

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		2116635	1.86	5570738	2.11		
UPPER LIMIT		3174953	2.36	8356107	2.61		
LOWER LIMIT		1058318	1.36	2785369	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
LLCS 320-189627/2-A		1722743	1.88	4974847	2.12		
LLCSD 320-189627/3-A		1780751	1.88	5432408	2.12		
320-32094-16	NAWC-100217-RW-139	1812675	1.88	5271506	2.12		
320-32094-17	NAWC-100217-FRB-139	1723990	1.87	5226401	2.12		
320-32094-18	WGNA-100217-RW-0500	1788755	1.87	5541228	2.12		
320-32094-19	WGNA-100217-FRB-0500	1800031	1.88	5591744	2.12		
320-32094-20	WGNA-100217-RW-0413	2210955	1.87	6557902	2.12		
320-32094-21	WGNA-100217-FRB-0413	1625538	1.88	5023451	2.12		
320-32094-22	WGNA-100217-RW-0404	1785174	1.87	5598216	2.12		
CCV 320-190446/34 CCVIS		1782156	1.88	5577435	2.12		
CCV 320-190447/34 CCVIS		1782156	1.88	5577435	2.12		
320-32094-23	WGNA-100217-FRB-0404	1742030	1.87	5001896	2.12		
CCV 320-190447/37 CCVIS		1726452	1.87	5170395	2.12		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190441/22 Date Analyzed: 10/20/2017 19:14

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

Lab File ID (Standard): 2017.10.20_537A_022 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1845095	1.89	5429717	2.13		
UPPER LIMIT		2583133	2.39	7601604	2.63		
LOWER LIMIT		1291567	1.39	3800802	1.63		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-189591/1-A		1835352	1.88	5404548	2.13		
LCS 320-189591/2-A		1629839	1.89	4970902	2.13		
320-32094-1	WGNA-100217-RW-0344	1705479	1.88	5157371	2.13		
320-32094-2	WGNA-100217-FRB-0344	1667244	1.89	4977816	2.13		
320-32094-3	NAWC-100217-RW-140	1815761	1.88	5255060	2.12		
320-32094-3 MS	NAWC-100217-RW-140 MS	1788659	1.88	5453174	2.12		
320-32094-3 MSD	NAWC-100217-RW-140 MSD	1803880	1.88	5278202	2.12		
320-32094-4	NAWC-100217-FRB-140	1894760	1.89	5573483	2.13		
320-32094-5	NAWC-100217-RW-316	1825060	1.89	5335570	2.13		
320-32094-6	NAWC-100217-FRB-316	1814445	1.89	5243759	2.13		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190441/34 Date Analyzed: 10/20/2017 20:11

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

Lab File ID (Standard): 2017.10.20_537A_034 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1971467	1.89	5873467	2.13		
UPPER LIMIT		2760054	2.39	8222854	2.63		
LOWER LIMIT		1380027	1.39	4111427	1.63		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-189591/1-A		1835352	1.88	5404548	2.13		
LCS 320-189591/2-A		1629839	1.89	4970902	2.13		
320-32094-1	WGNA-100217-RW-0344	1705479	1.88	5157371	2.13		
320-32094-2	WGNA-100217-FRB-0344	1667244	1.89	4977816	2.13		
320-32094-3	NAWC-100217-RW-140	1815761	1.88	5255060	2.12		
320-32094-3 MS	NAWC-100217-RW-140 MS	1788659	1.88	5453174	2.12		
320-32094-3 MSD	NAWC-100217-RW-140 MSD	1803880	1.88	5278202	2.12		
320-32094-4	NAWC-100217-FRB-140	1894760	1.89	5573483	2.13		
320-32094-5	NAWC-100217-RW-316	1825060	1.89	5335570	2.13		
320-32094-6	NAWC-100217-FRB-316	1814445	1.89	5243759	2.13		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190442/34 Date Analyzed: 10/20/2017 20:11

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

Lab File ID (Standard): 2017.10.20_537A_034 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1971467	1.89	5873467	2.13		
UPPER LIMIT		2760054	2.39	8222854	2.63		
LOWER LIMIT		1380027	1.39	4111427	1.63		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-32094-7	NAWC-100217-RW-144	1804941	1.88	5221258	2.12		
320-32094-8	NAWC-100217-FRB-144	1811010	1.88	5298491	2.13		
320-32094-9	NAWC-100217-RW-151	1782598	1.88	5612676	2.12		
320-32094-10	NAWC-100217-FRB-151	1897460	1.88	5605320	2.12		
320-32094-11	WGNA-100217-DUP11	1837587	1.88	5425929	2.13		
320-32094-12	NAWC-100217-RW-130	1935179	1.88	5847749	2.12		
320-32094-13	NAWC-100217-FRB-130	1955473	1.88	5632988	2.12		
320-32094-14	NAWC-100217-RW-125	1910551	1.88	5802887	2.12		
320-32094-15	NAWC-100217-FRB-125	2011771	1.88	5901582	2.12		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190442/45 Date Analyzed: 10/20/2017 21:04

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

Lab File ID (Standard): 2017.10.20_537A_045 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1708886	1.88	5239449	2.12		
UPPER LIMIT		2392440	2.38	7335229	2.62		
LOWER LIMIT		1196220	1.38	3667614	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-32094-7	NAWC-100217-RW-144	1804941	1.88	5221258	2.12		
320-32094-8	NAWC-100217-FRB-144	1811010	1.88	5298491	2.13		
320-32094-9	NAWC-100217-RW-151	1782598	1.88	5612676	2.12		
320-32094-10	NAWC-100217-FRB-151	1897460	1.88	5605320	2.12		
320-32094-11	WGNA-100217-DUP11	1837587	1.88	5425929	2.13		
320-32094-12	NAWC-100217-RW-130	1935179	1.88	5847749	2.12		
320-32094-13	NAWC-100217-FRB-130	1955473	1.88	5632988	2.12		
320-32094-14	NAWC-100217-RW-125	1910551	1.88	5802887	2.12		
320-32094-15	NAWC-100217-FRB-125	2011771	1.88	5901582	2.12		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190446/22 Date Analyzed: 10/20/2017 22:43

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

Lab File ID (Standard): 2017.10.20_537A_066 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1760502	1.88	5237323	2.12		
UPPER LIMIT		2464703	2.38	7332252	2.62		
LOWER LIMIT		1232351	1.38	3666126	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-189627/1-A		1745632	1.88	5212882	2.12		
LLCS 320-189627/2-A		1722743	1.88	4974847	2.12		
LLCSD 320-189627/3-A		1780751	1.88	5432408	2.12		
320-32094-16	NAWC-100217-RW-139	1812675	1.88	5271506	2.12		
320-32094-17	NAWC-100217-FRB-139	1723990	1.87	5226401	2.12		
320-32094-18	WGNA-100217-RW-0500	1788755	1.87	5541228	2.12		
320-32094-19	WGNA-100217-FRB-0500	1800031	1.88	5591744	2.12		
320-32094-20	WGNA-100217-RW-0413	2210955	1.87	6557902	2.12		
320-32094-21	WGNA-100217-FRB-0413	1625538	1.88	5023451	2.12		
320-32094-22	WGNA-100217-RW-0404	1785174	1.87	5598216	2.12		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190446/34 Date Analyzed: 10/20/2017 23:40

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

Lab File ID (Standard): 2017.10.20_537A_078 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1782156	1.88	5577435	2.12		
UPPER LIMIT		2495018	2.38	7808409	2.62		
LOWER LIMIT		1247509	1.38	3904205	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-189627/1-A		1745632	1.88	5212882	2.12		
LLCS 320-189627/2-A		1722743	1.88	4974847	2.12		
LLCSD 320-189627/3-A		1780751	1.88	5432408	2.12		
320-32094-16	NAWC-100217-RW-139	1812675	1.88	5271506	2.12		
320-32094-17	NAWC-100217-FRB-139	1723990	1.87	5226401	2.12		
320-32094-18	WGNA-100217-RW-0500	1788755	1.87	5541228	2.12		
320-32094-19	WGNA-100217-FRB-0500	1800031	1.88	5591744	2.12		
320-32094-20	WGNA-100217-RW-0413	2210955	1.87	6557902	2.12		
320-32094-21	WGNA-100217-FRB-0413	1625538	1.88	5023451	2.12		
320-32094-22	WGNA-100217-RW-0404	1785174	1.87	5598216	2.12		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190447/34 Date Analyzed: 10/20/2017 23:40

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

Lab File ID (Standard): 2017.10.20_537A_078 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1782156	1.88	5577435	2.12		
UPPER LIMIT		2495018	2.38	7808409	2.62		
LOWER LIMIT		1247509	1.38	3904205	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-32094-23	WGNA-100217-FRB-0404	1742030	1.87	5001896	2.12		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190447/37 Date Analyzed: 10/20/2017 23:54

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

Lab File ID (Standard): 2017.10.20_537A_081 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1726452	1.87	5170395	2.12		
UPPER LIMIT		2417033	2.37	7238553	2.62		
LOWER LIMIT		1208516	1.37	3619277	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-32094-23	WGNA-100217-FRB-0404	1742030	1.87	5001896	2.12		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 10/31/2017 11:44

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 10/31/2017 12:08

Calibration ID: 35621

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		2775806	1.86	6114108	2.11		
UPPER LIMIT		4163709	2.36	9171162	2.61		
LOWER LIMIT		1387903	1.36	3057054	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-192162/11		2865147	1.87	6394781	2.11		
ICV 320-192162/16		2807375	1.87	6562646	2.11		
CCV 320-192192/1 CCVIS		2732515	1.86	6019558	2.11		
MB 320-190676/1-A		2834607	1.86	6395915	2.10		
LCS 320-190676/2-A		2636726	1.86	6136583	2.10		
LCSD 320-190676/3-A		2663186	1.86	6247889	2.10		
320-32094-15 RE	NAWC-100217-FRB-125 RE	2783983	1.86	6582260	2.10		
CCV 320-192192/7 CCVIS		2656671	1.86	5918882	2.10		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-192192/1 Date Analyzed: 10/31/2017 15:08

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

Lab File ID (Standard): 2017.10.31_537AA_00 Heated Purge: (Y/N) N

Calibration ID: 35621

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		2732515	1.86	6019558	2.11		
UPPER LIMIT		3825521	2.36	8427381	2.61		
LOWER LIMIT		1912761	1.36	4213691	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-190676/1-A		2834607	1.86	6395915	2.10		
LCS 320-190676/2-A		2636726	1.86	6136583	2.10		
LCSD 320-190676/3-A		2663186	1.86	6247889	2.10		
320-32094-15 RE	NAWC-100217-FRB-125 RE	2783983	1.86	6582260	2.10		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-192192/7 Date Analyzed: 10/31/2017 15:36

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

Lab File ID (Standard): 2017.10.31_537AA_00 Heated Purge: (Y/N) N

Calibration ID: 35621

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		2656671	1.86	5918882	2.10		
UPPER LIMIT		3719339	2.36	8286435	2.60		
LOWER LIMIT		1859670	1.36	4143217	1.60		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-190676/1-A		2834607	1.86	6395915	2.10		
LCS 320-190676/2-A		2636726	1.86	6136583	2.10		
LCSD 320-190676/3-A		2663186	1.86	6247889	2.10		
320-32094-15 RE	NAWC-100217-FRB-125 RE	2783983	1.86	6582260	2.10		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0344 | Lab Sample ID: 320-32094-1

Matrix: Water | Lab File ID: 2017.10.20_537A_026.d

Analysis Method: 537 | Date Collected: 10/02/2017 08:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 280.2(mL) | Date Analyzed: 10/20/2017 19:33

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J M	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	32		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	34		21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	23	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.0		8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	78		70-130
STL00996	13C2 PFDA	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_026.d
Lims ID: 320-32094-A-1-A
Client ID: WGNA-100217-RW-0344
Sample Type: Client
Inject. Date: 20-Oct-2017 19:33:57 ALS Bottle#: 16 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:00:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	475477	2.19		280	
298.90 > 99.00	1.419	1.402	0.017	1.000	324422		1.47(0.00-0.00)	392	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1566455	7.84		3969	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	1890625	6.42		497	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	405898	2.53		42.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1705479	10.0		3820	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	1404263	8.96		29.1	
413.00 > 169.00	1.882	1.856	0.026	1.000	855101		1.64(0.00-0.00)	1101	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		5157371	28.7		2333	
9 Perfluorononanoic acid									
463.00 > 419.00	2.140	2.116	0.024	1.000	1023291	9.65		28.0	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.132	2.124	0.008	1.000	1467699	8.76		151	M
499.00 > 99.00	2.132	2.124	0.008	1.000	246793		5.95(0.00-0.00)	85.2	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	977366	10.3		4765	

QC Flag Legend

Review Flags

M - Manually Integrated

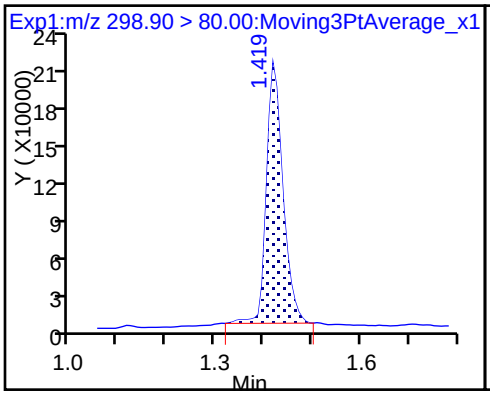
Report Date: 23-Oct-2017 10:34:18 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

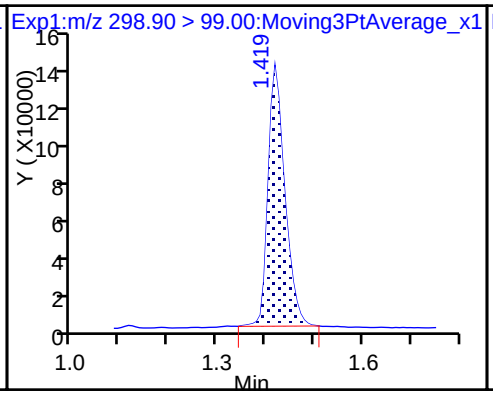
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_026.d

Injection Date:	20-Oct-2017 19:33:57	Instrument ID:	A8_N		
Lims ID:	320-32094-A-1-A	Lab Sample ID:	320-32094-1		
Client ID:	WGNA-100217-RW-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	26
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

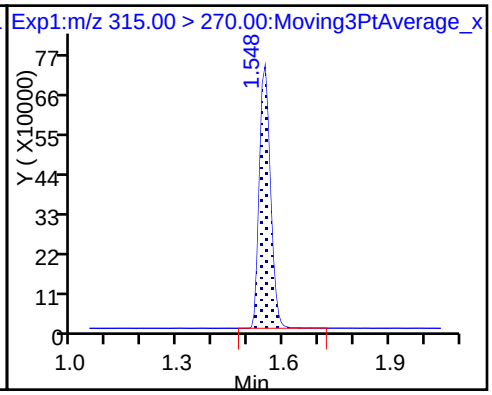
1 Perfluorobutanesulfonic acid



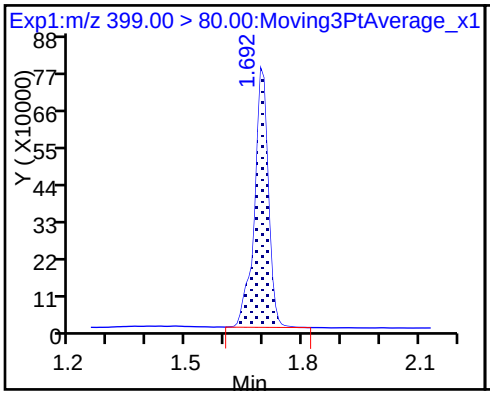
1 Perfluorobutanesulfonic acid



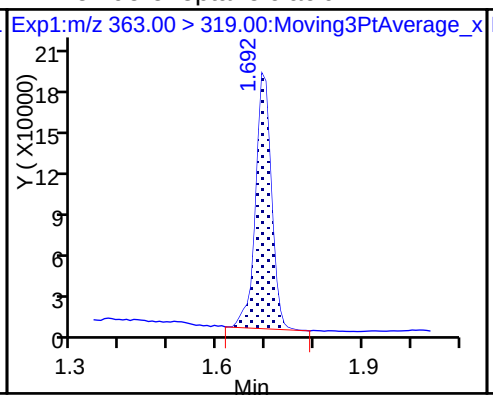
$ 2 13C2 PFHxA



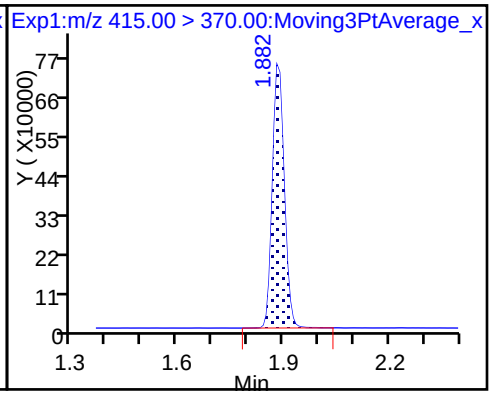
3 Perfluorohexanesulfonic acid



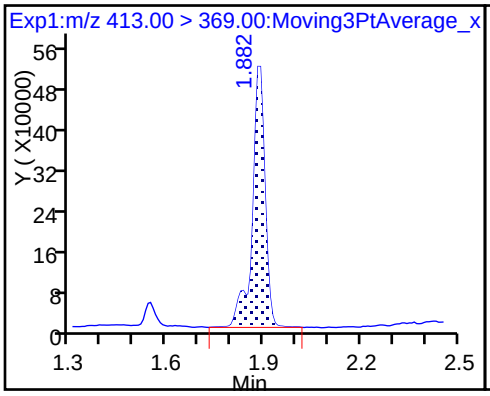
4 Perfluoroheptanoic acid



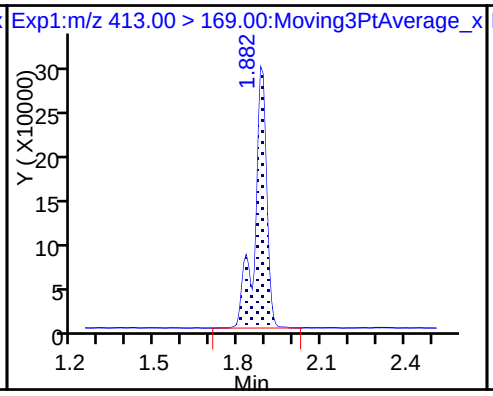
* 6 13C2-PFOA



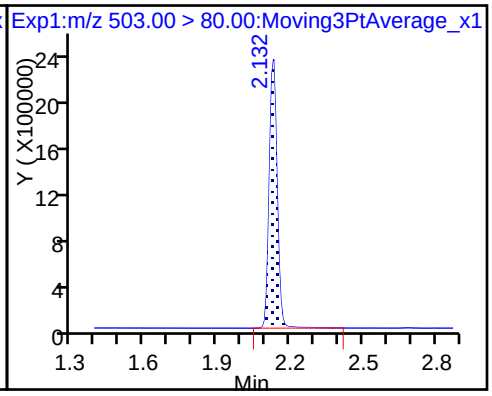
5 Perfluorooctanoic acid



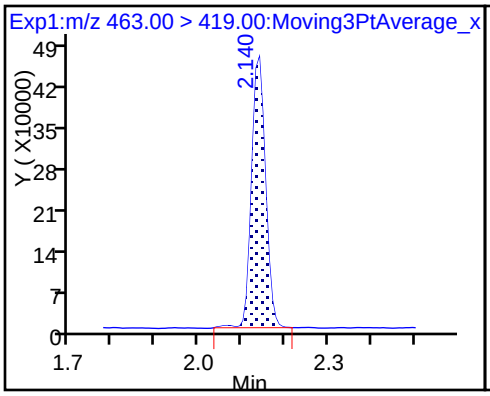
5 Perfluorooctanoic acid



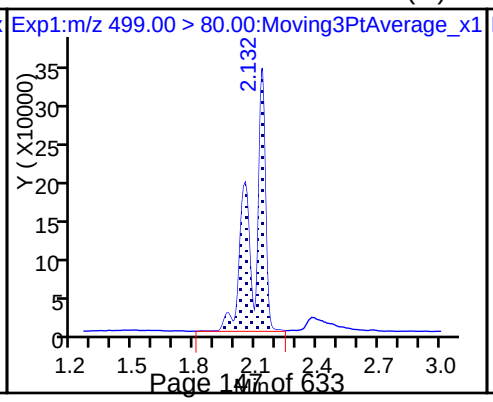
* 7 13C4 PFOS



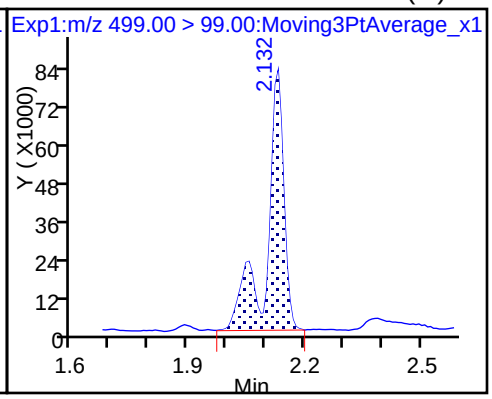
9 Perfluorononanoic acid



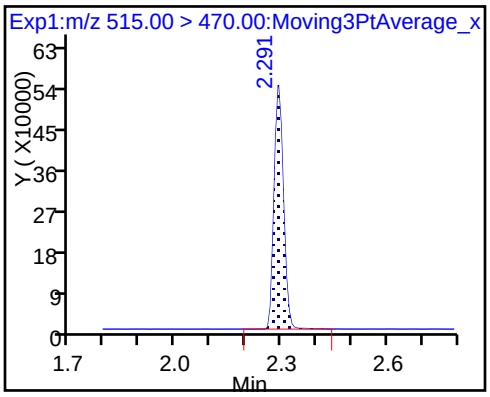
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_026.d				
Lims ID:	320-32094-A-1-A				
Client ID:	WGNA-100217-RW-0344				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 19:33:57	ALS Bottle#:	16	Worklist Smp#:	26
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-1-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:33:58	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:00:26

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.84	78.39
$ 10 13C2 PFDA	10.0	10.3	102.74

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

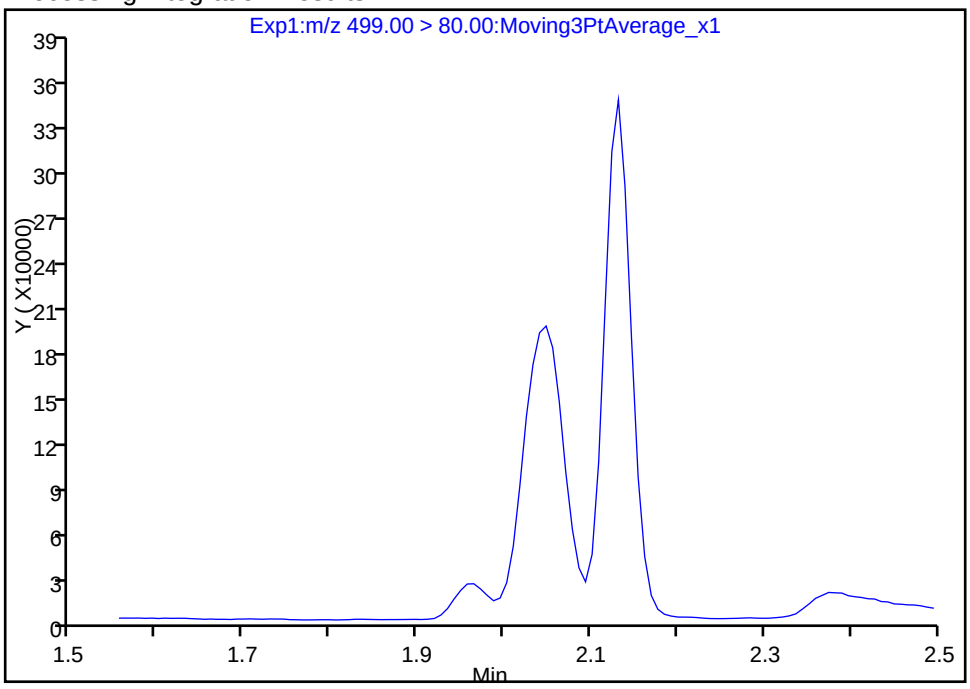
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_026.d				
Injection Date:	20-Oct-2017 19:33:57	Instrument ID:	A8_N		
Lims ID:	320-32094-A-1-A	Lab Sample ID:	320-32094-1		
Client ID:	WGNA-100217-RW-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	26
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

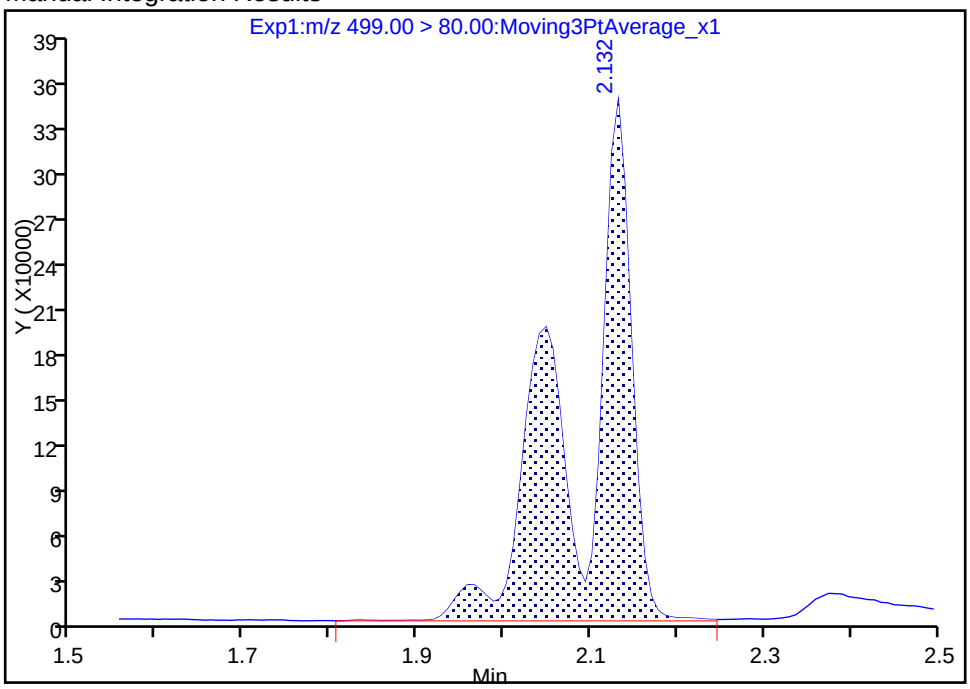
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 1467699
Amount: 8.760151
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 09:59:50
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

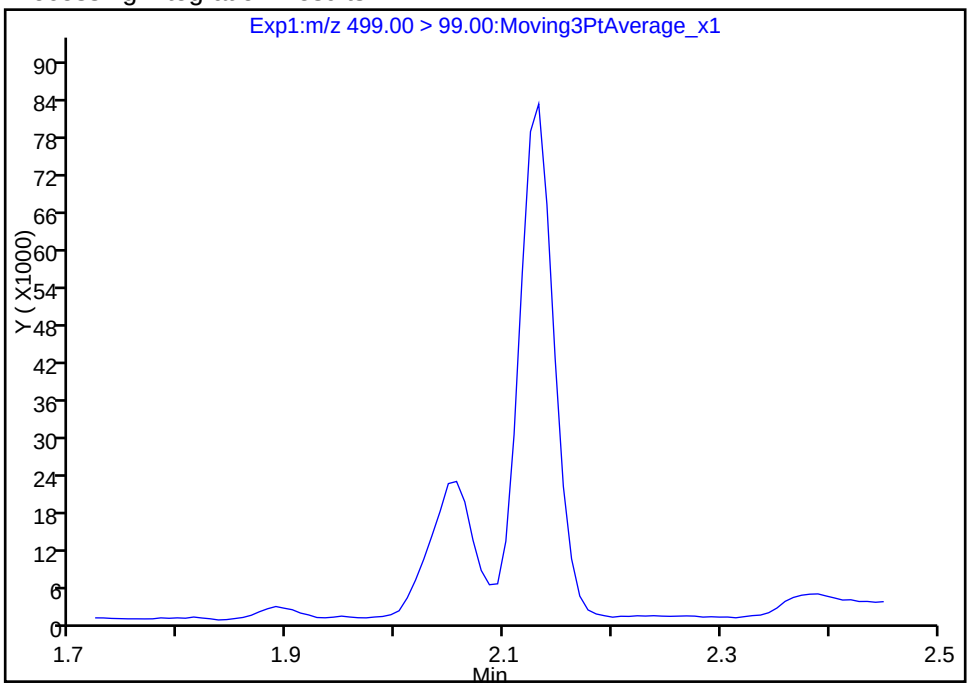
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_026.d				
Injection Date:	20-Oct-2017 19:33:57	Instrument ID:	A8_N		
Lims ID:	320-32094-A-1-A	Lab Sample ID:	320-32094-1		
Client ID:	WGNA-100217-RW-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	26
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

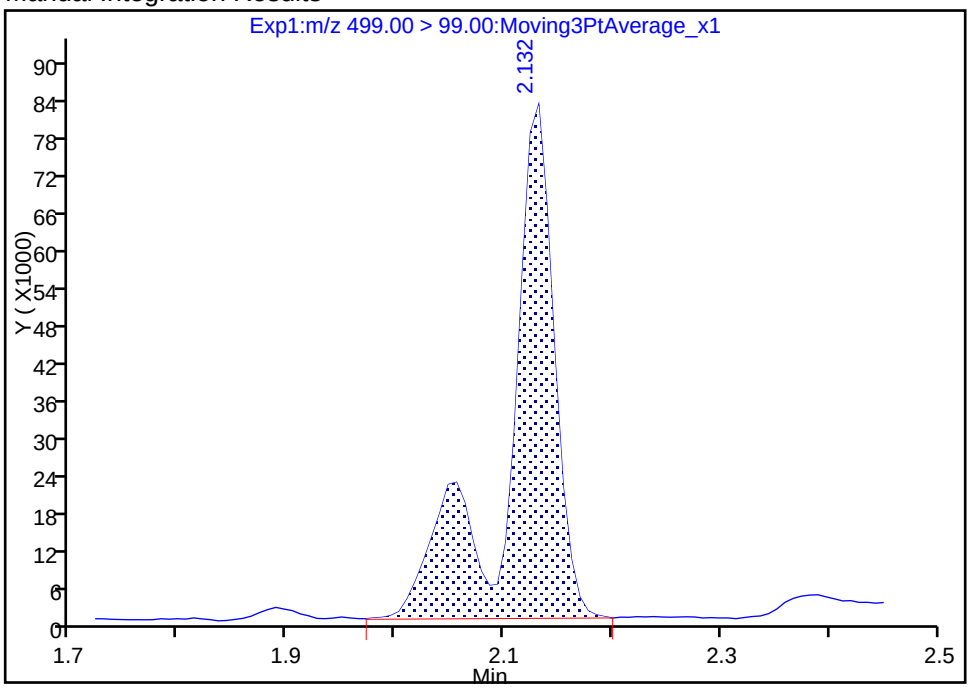
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.13
Area: 246793
Amount: 8.760151
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:00:09
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

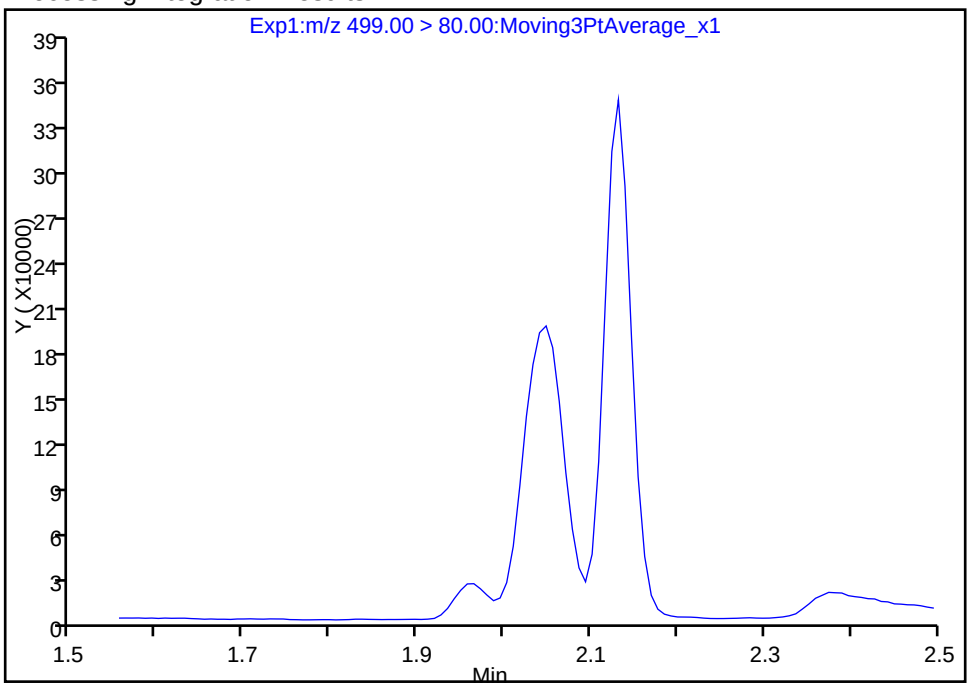
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_026.d				
Injection Date:	20-Oct-2017 19:33:57	Instrument ID:	A8_N		
Lims ID:	320-32094-A-1-A	Lab Sample ID:	320-32094-1		
Client ID:	WGNA-100217-RW-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	26
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

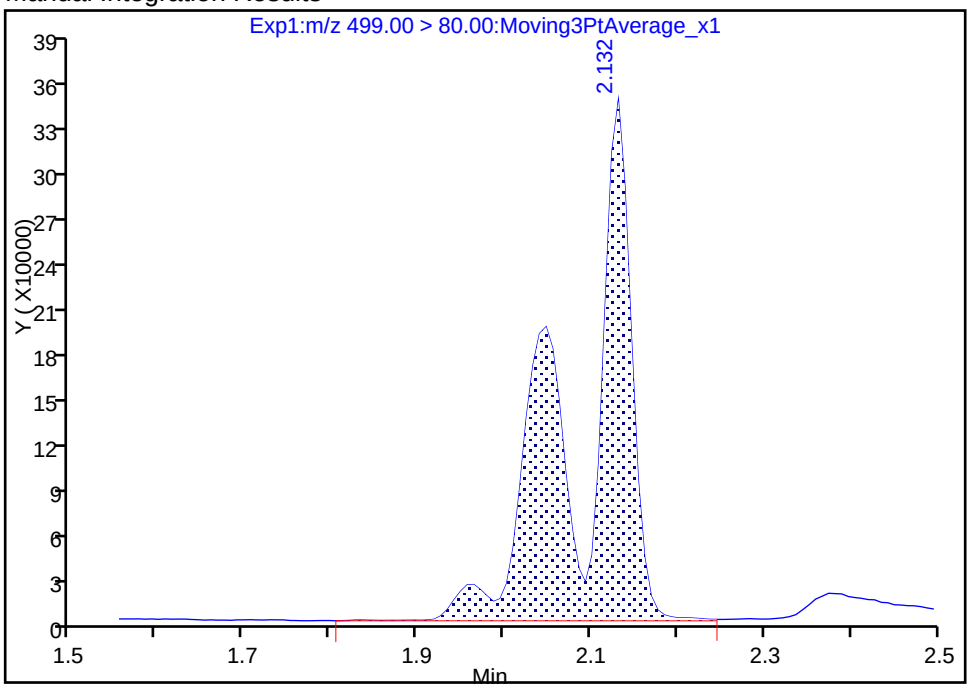
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.13
Area: 1467699
Amount: 8.760151
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:00:09
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0344 Lab Sample ID: 320-32094-2

Matrix: Water Lab File ID: 2017.10.20_537A_027.d

Analysis Method: 537 Date Collected: 10/02/2017 08:05

Extraction Method: 537 Date Extracted: 10/16/2017 14:42

Sample wt/vol: 270.5(mL) Date Analyzed: 10/20/2017 19:38

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

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

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

Analysis Batch No.: 190441 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.4	U M	18	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_027.d
Lims ID: 320-32094-A-2-A
Client ID: WGNA-100217-FRB-0344
Sample Type: Client
Inject. Date: 20-Oct-2017 19:38:41 ALS Bottle#: 17 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:01:11

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1803110	9.23		6509	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.855	0.034		1667244	10.0		5021	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.889	1.856	0.033	1.000	29622	0.1932		0.6	M
413.00 > 169.00	1.889	1.856	0.033	1.000	18260		1.62(0.00-0.00)	34.8	M
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		4977816	28.7		4528	
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1034527	11.1		6629	

QC Flag Legend

Review Flags
M - Manually Integrated

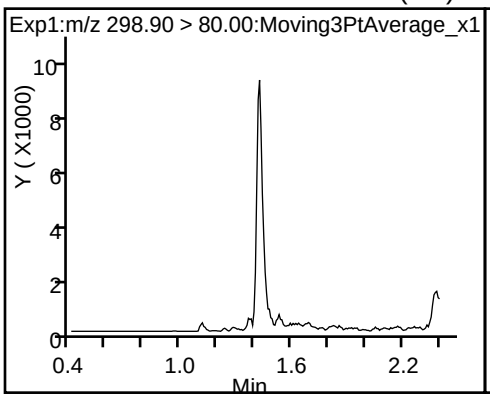
Report Date: 23-Oct-2017 10:34:22 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

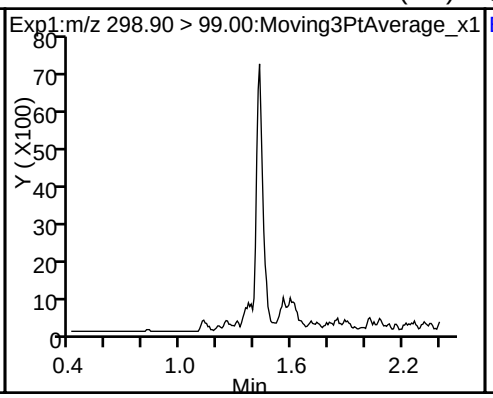
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_027.d

Injection Date:	20-Oct-2017 19:38:41	Instrument ID:	A8_N		
Lims ID:	320-32094-A-2-A	Lab Sample ID:	320-32094-2		
Client ID:	WGNA-100217-FRB-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	17	Worklist Smp#:	27
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

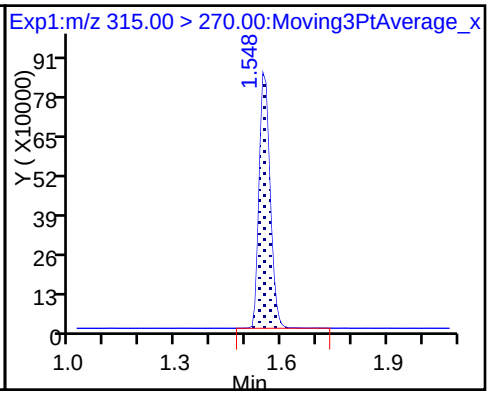
1 Perfluorobutanesulfonic acid (ND)



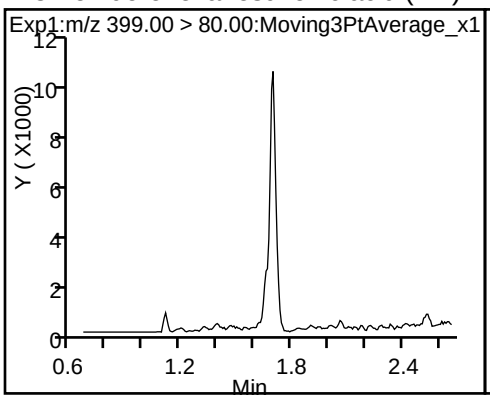
1 Perfluorobutanesulfonic acid (ND)



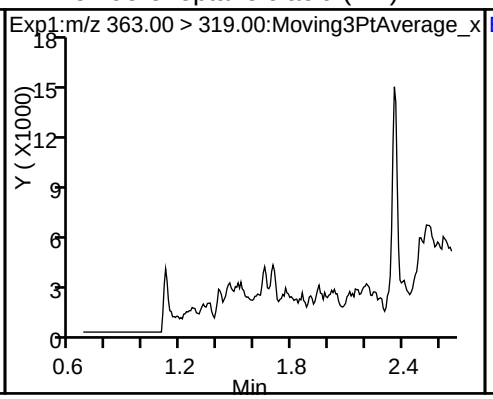
$ 2 13C2 PFHxA



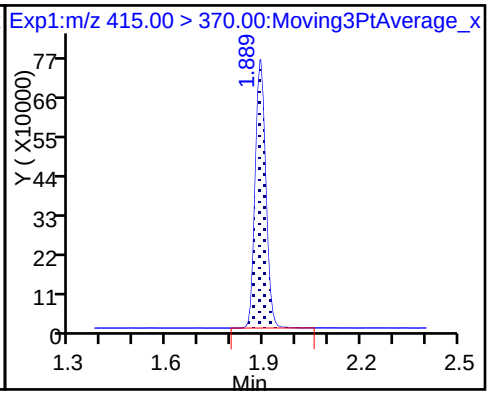
3 Perfluorohexanesulfonic acid (ND)



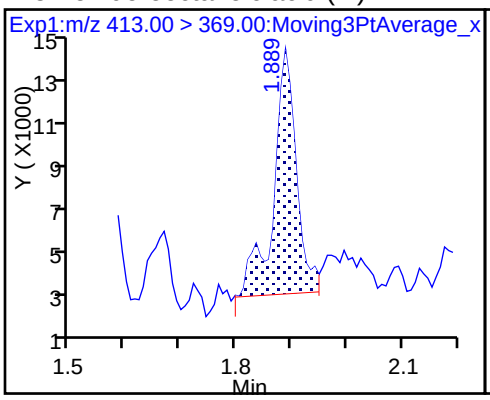
4 Perfluoroheptanoic acid (ND)



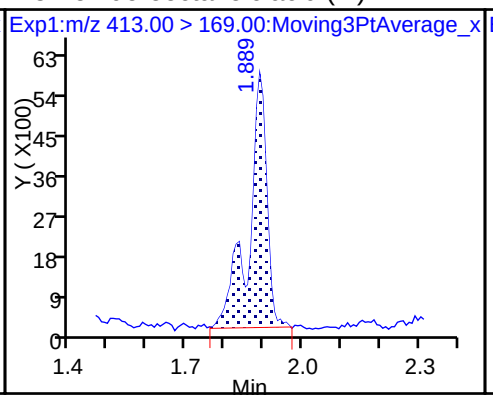
* 6 13C2-PFOA



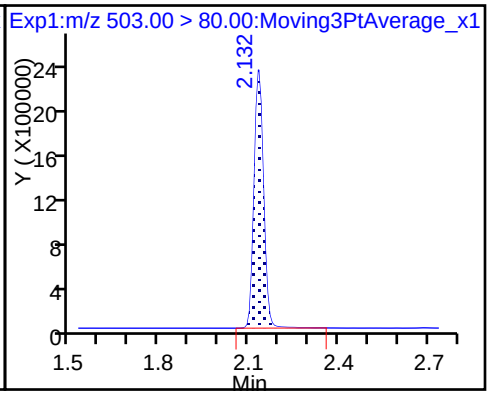
5 Perfluorooctanoic acid (M)



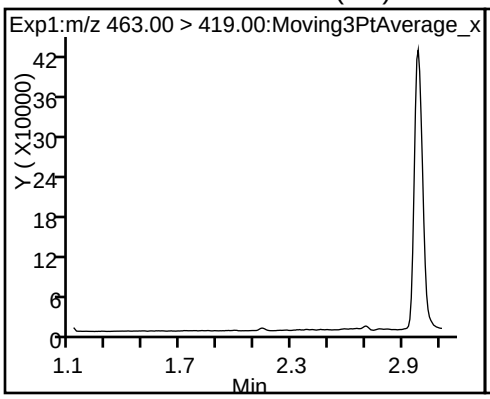
5 Perfluorooctanoic acid (M)



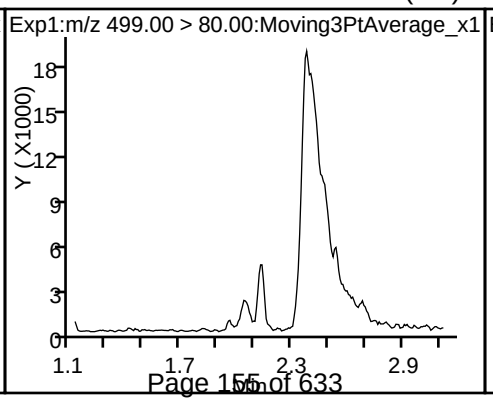
* 7 13C4 PFOS



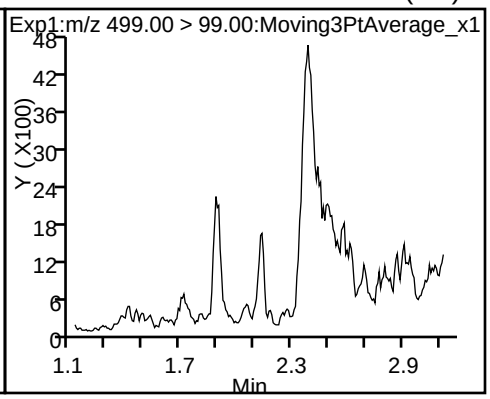
9 Perfluorononanoic acid (ND)



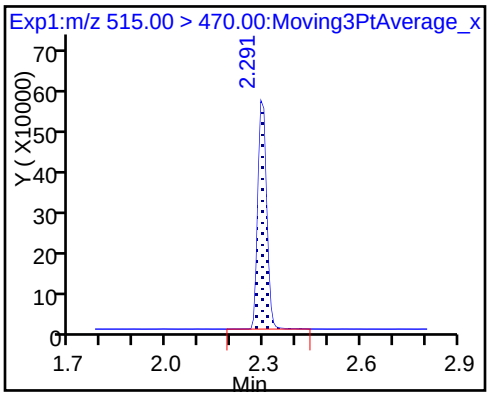
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_027.d				
Lims ID:	320-32094-A-2-A				
Client ID:	WGNA-100217-FRB-0344				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 19:38:41	ALS Bottle#:	17	Worklist Smp#:	27
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-2-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:33:58	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:01:11

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.23	92.30
$ 10 13C2 PFDA	10.0	11.1	111.25

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

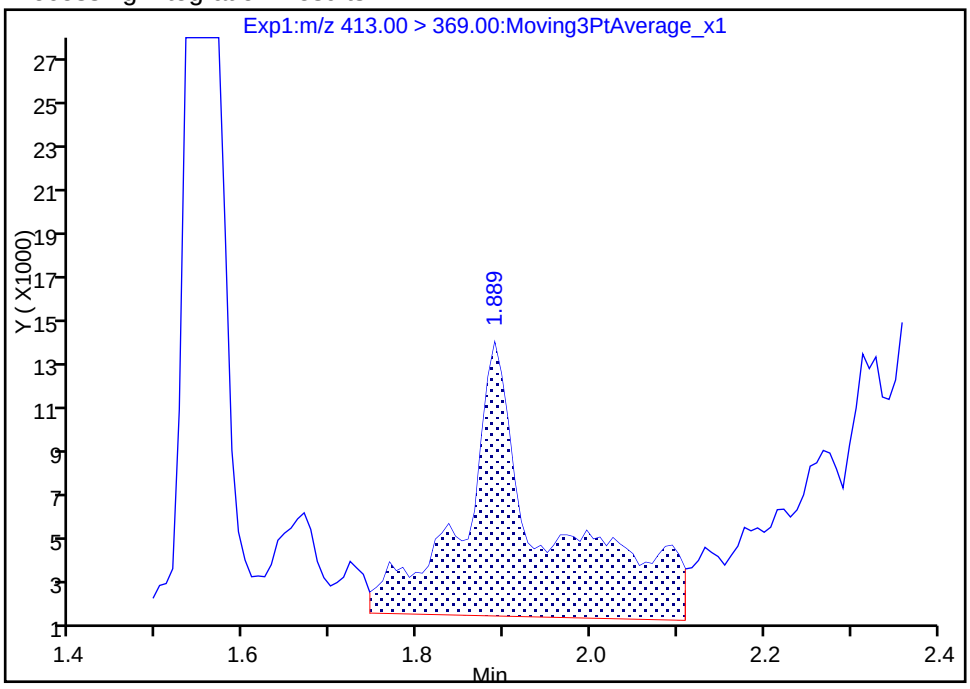
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_027.d				
Injection Date:	20-Oct-2017 19:38:41	Instrument ID:	A8_N		
Lims ID:	320-32094-A-2-A	Lab Sample ID:	320-32094-2		
Client ID:	WGNA-100217-FRB-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	17	Worklist Smp#:	27
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

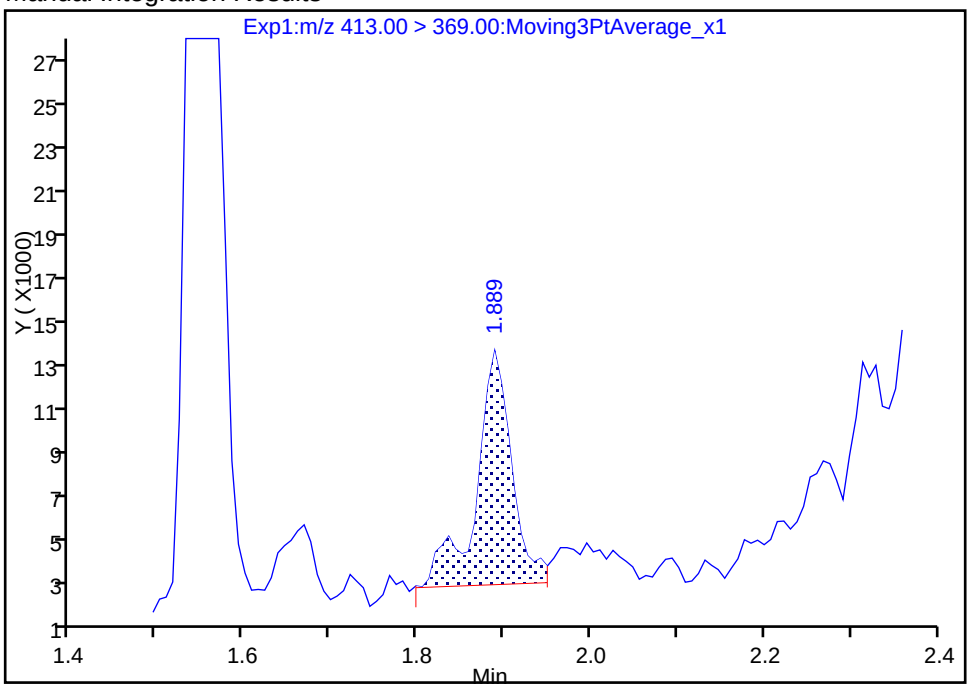
Processing Integration Results

RT: 1.89
Area: 84780
Amount: 0.553052
Amount Units: ng/ml



Manual Integration Results

RT: 1.89
Area: 29622
Amount: 0.193235
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:00:50

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

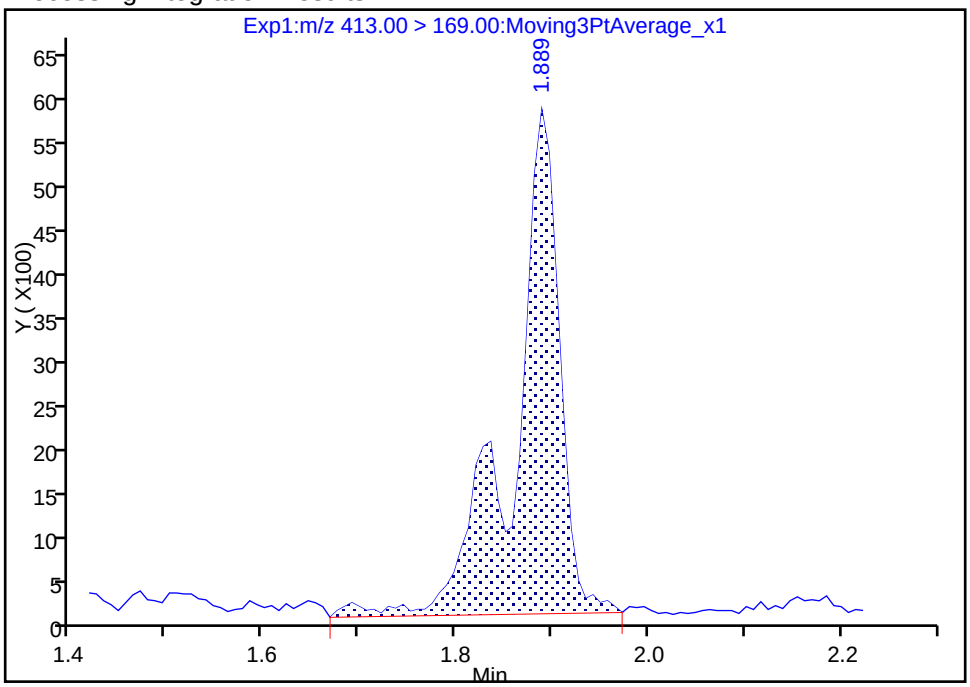
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_027.d				
Injection Date:	20-Oct-2017 19:38:41	Instrument ID:	A8_N		
Lims ID:	320-32094-A-2-A	Lab Sample ID:	320-32094-2		
Client ID:	WGNA-100217-FRB-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	17	Worklist Smp#:	27
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

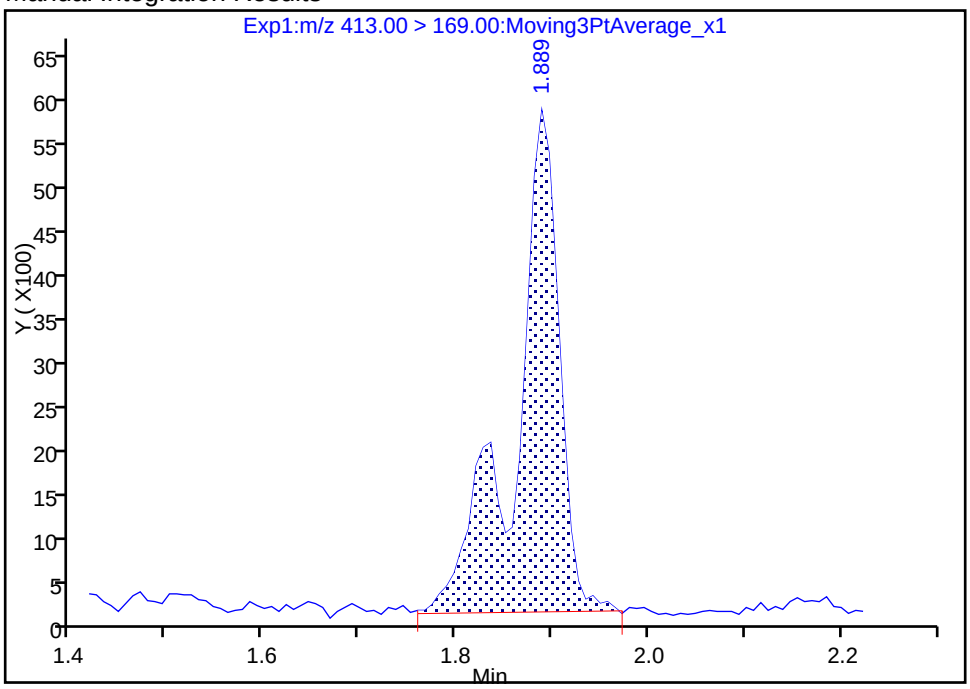
Processing Integration Results

RT: 1.89
Area: 19160
Amount: 0.553052
Amount Units: ng/ml



Manual Integration Results

RT: 1.89
Area: 18260
Amount: 0.193235
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:00:57
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-140 | Lab Sample ID: 320-32094-3

Matrix: Water | Lab File ID: 2017.10.20_537A_028.d

Analysis Method: 537 | Date Collected: 10/02/2017 09:40

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 261.5(mL) | Date Analyzed: 10/20/2017 19:43

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	18	J	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.7	J	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	80		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_028.d
Lims ID: 320-32094-A-3-A
Client ID: NAWC-100217-RW-140
Sample Type: Client
Inject. Date: 20-Oct-2017 19:43:26 ALS Bottle#: 18 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:02:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	230571	1.04		186	
298.90 > 99.00	1.419	1.402	0.017	1.000	148041		1.56(0.00-0.00)	222	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1708344	8.03		4402	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	202652	0.6751		75.4	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	211603	1.24		25.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1815761	10.0		4556	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	791366	4.74		19.2	
413.00 > 169.00	1.882	1.856	0.026	1.000	467257		1.69(0.00-0.00)	833	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5255060	28.7		2977	
9 Perfluorononanoic acid									
463.00 > 419.00	2.140	2.116	0.024	1.000	49908	0.4420		1.3	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.132	2.124	0.008	1.000	491244	2.88		52.8	M
499.00 > 99.00	2.132	2.124	0.008	1.000	75938		6.47(0.00-0.00)	28.3	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1003917	9.91		5818	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 23-Oct-2017 10:34:26 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_028.d

Injection Date: 20-Oct-2017 19:43:26 Instrument ID: A8_N

Lims ID: 320-32094-A-3-A Lab Sample ID: 320-32094-3

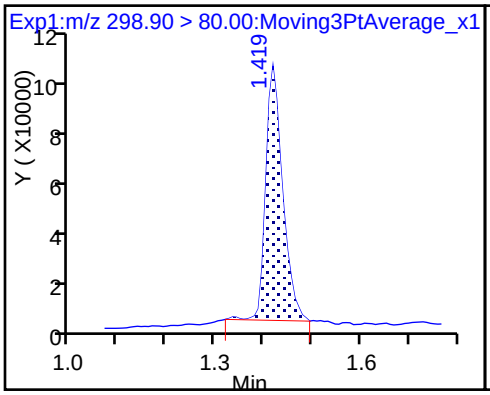
Client ID: NAWC-100217-RW-140

Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 28

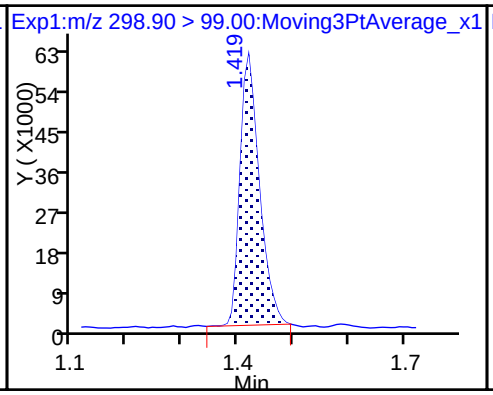
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

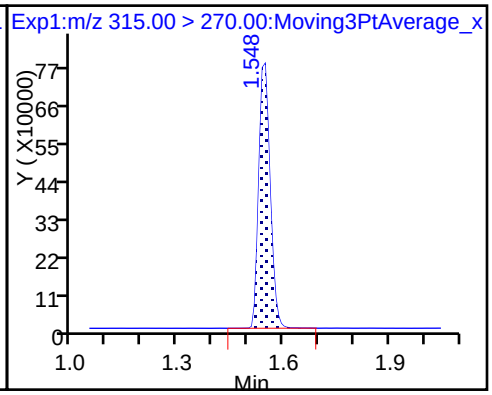
1 Perfluorobutanesulfonic acid



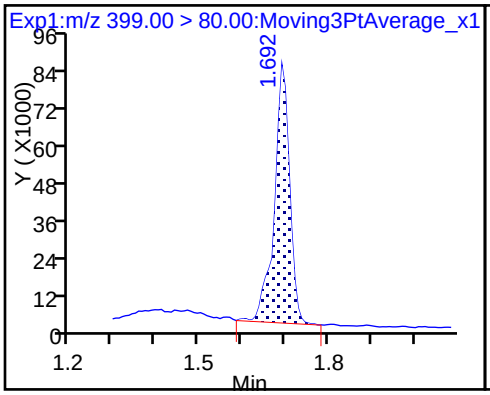
1 Perfluorobutanesulfonic acid



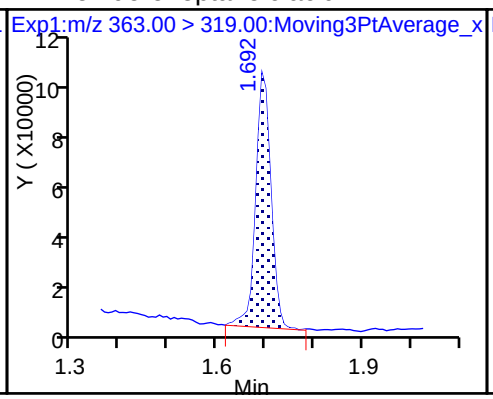
$ 2 13C2 PFHxA



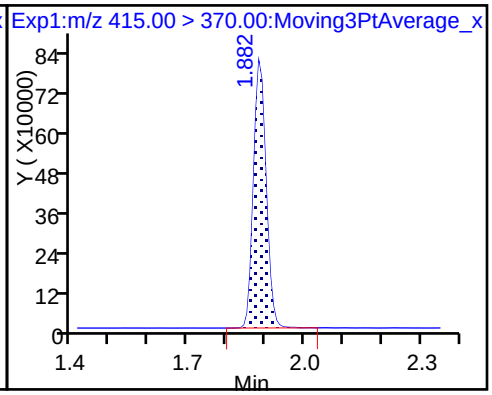
3 Perfluorohexanesulfonic acid



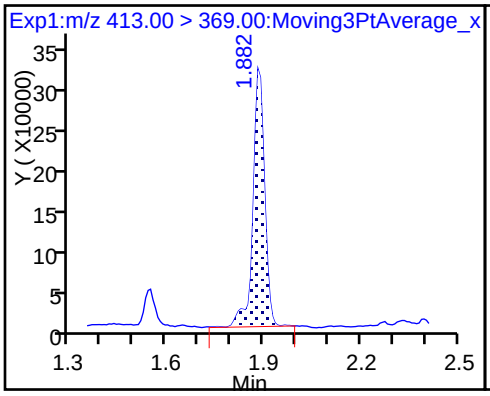
4 Perfluoroheptanoic acid



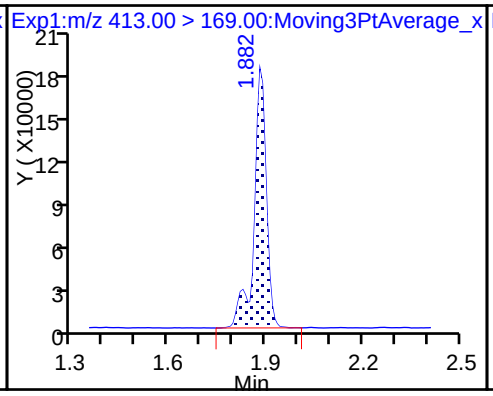
* 6 13C2-PFOA



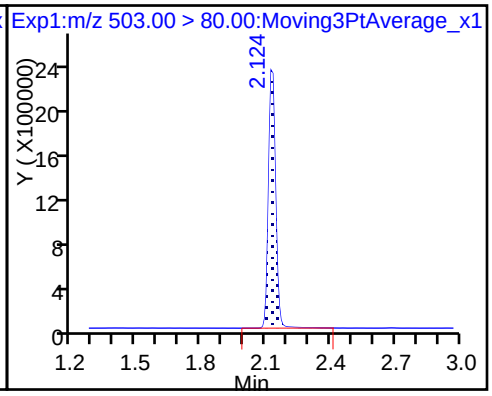
5 Perfluorooctanoic acid



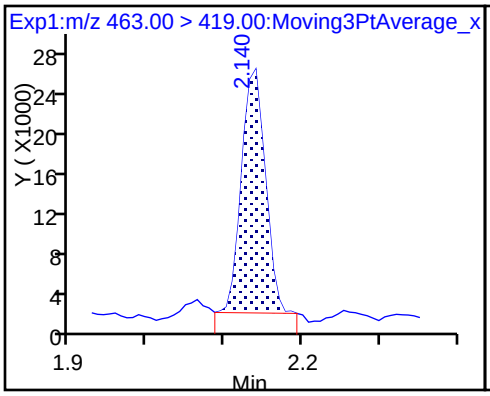
5 Perfluorooctanoic acid



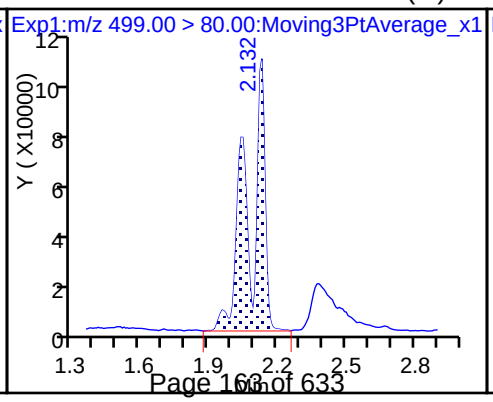
* 7 13C4 PFOS



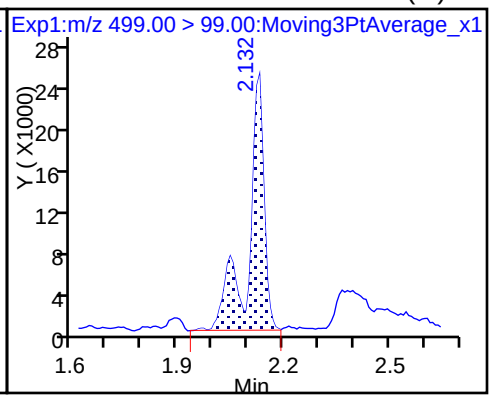
9 Perfluorononanoic acid



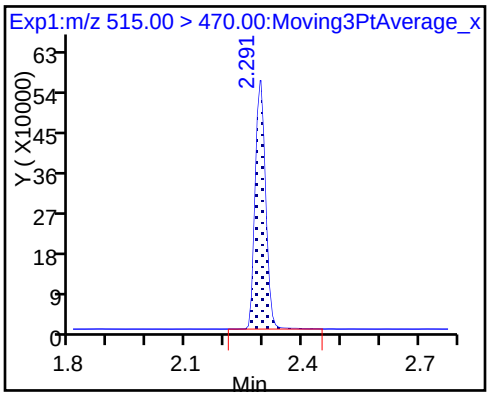
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_028.d				
Lims ID:	320-32094-A-3-A				
Client ID:	NAWC-100217-RW-140				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 19:43:26	ALS Bottle#:	18	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-3-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:33:58	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:02:13

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.03	80.29
$ 10 13C2 PFDA	10.0	9.91	99.12

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

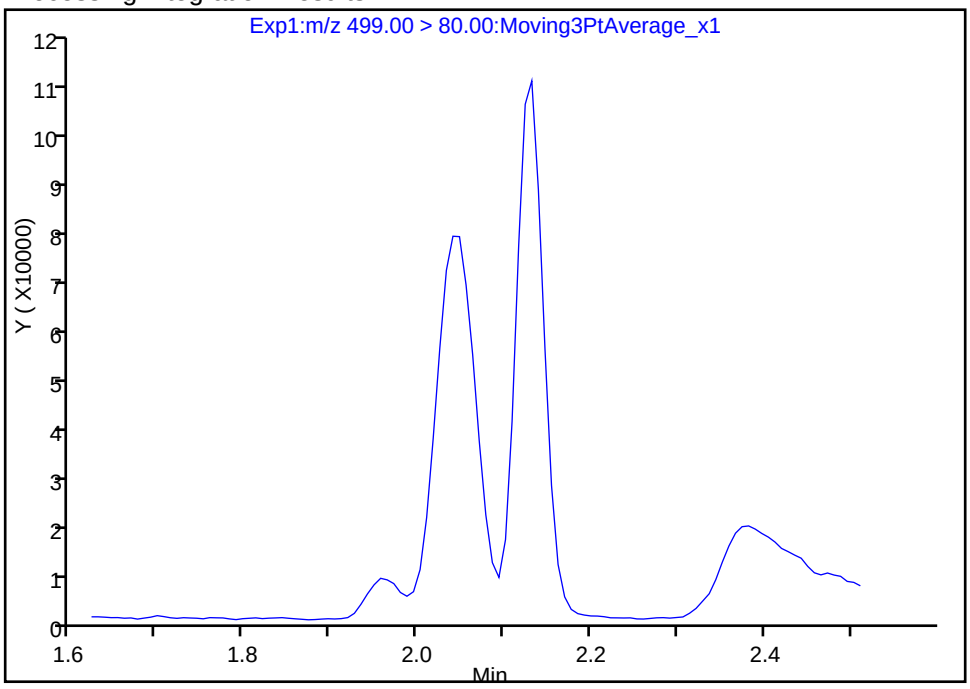
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_028.d				
Injection Date:	20-Oct-2017 19:43:26	Instrument ID:	A8_N		
Lims ID:	320-32094-A-3-A	Lab Sample ID:	320-32094-3		
Client ID:	NAWC-100217-RW-140				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	18	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

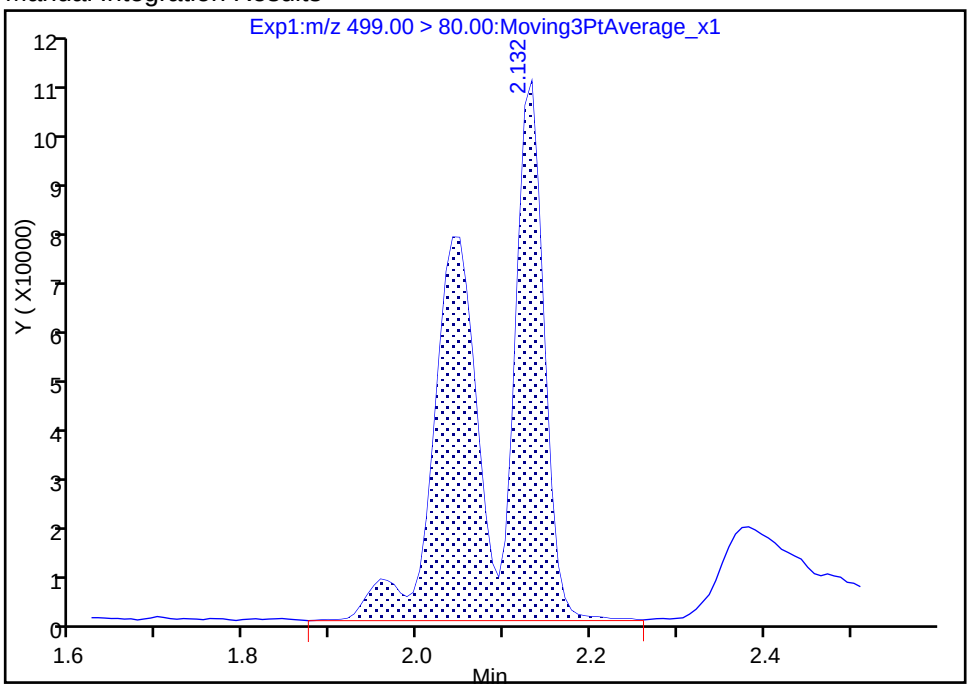
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 491244
Amount: 2.877548
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:01:22
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

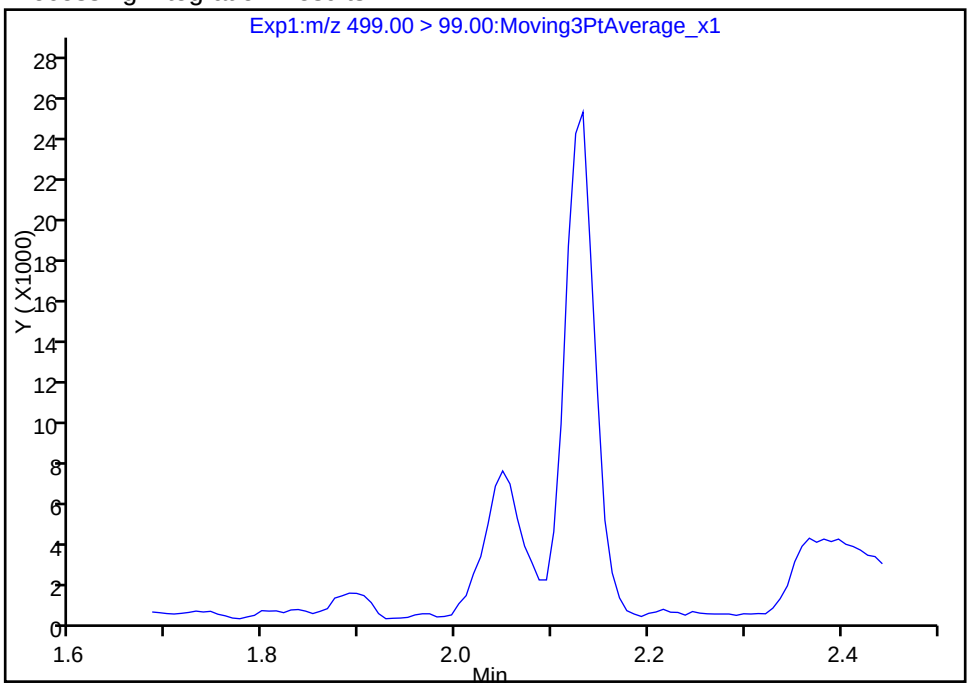
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_028.d				
Injection Date:	20-Oct-2017 19:43:26	Instrument ID:	A8_N		
Lims ID:	320-32094-A-3-A	Lab Sample ID:	320-32094-3		
Client ID:	NAWC-100217-RW-140				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	18	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

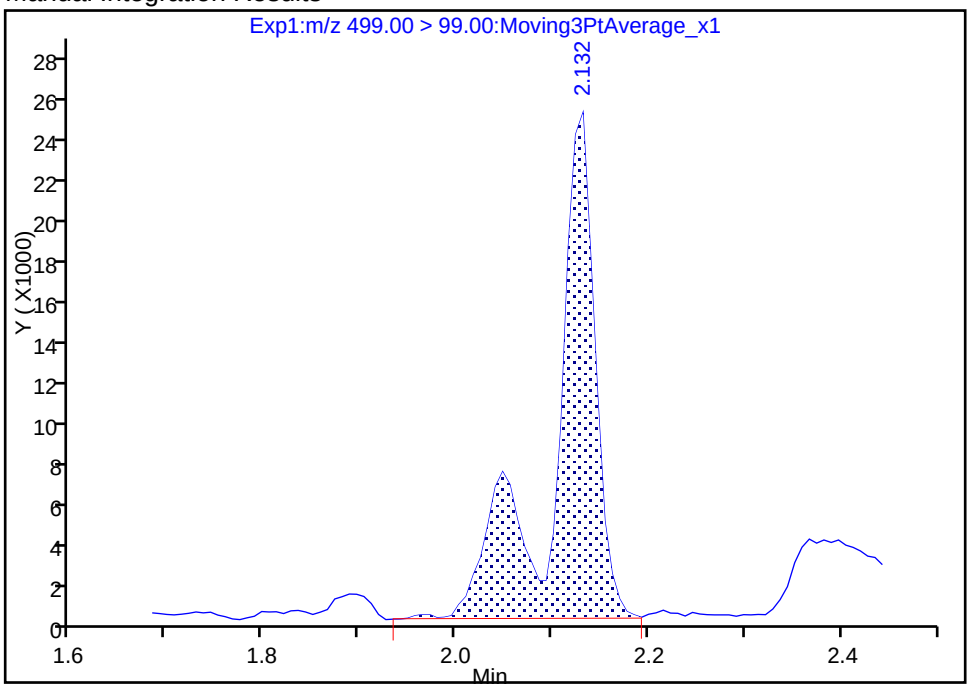
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 75938
Amount: 2.877548
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:01:53
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

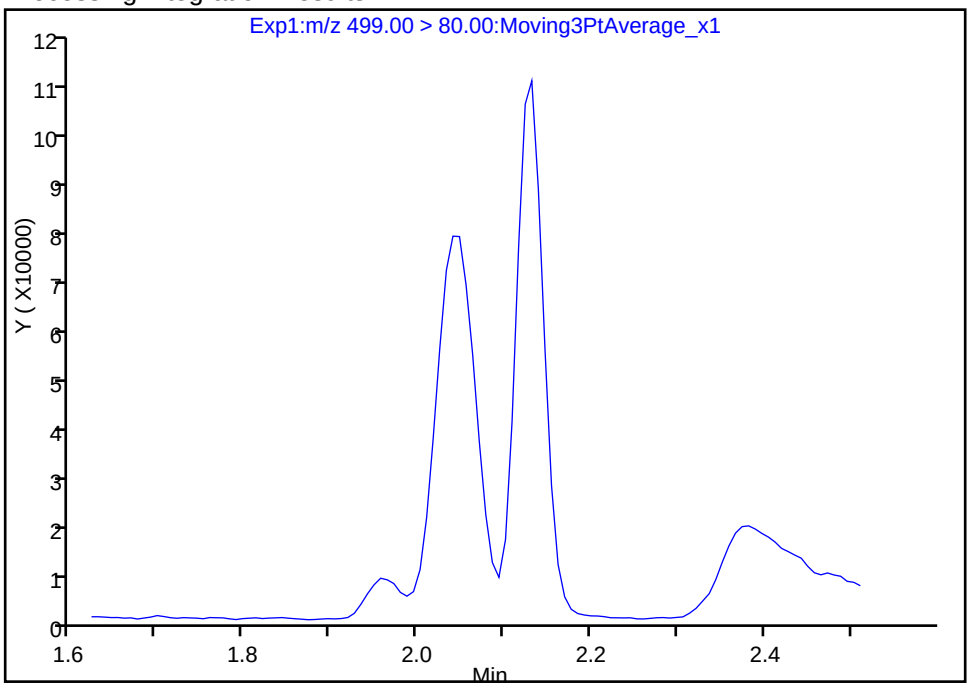
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_028.d				
Injection Date:	20-Oct-2017 19:43:26	Instrument ID:	A8_N		
Lims ID:	320-32094-A-3-A	Lab Sample ID:	320-32094-3		
Client ID:	NAWC-100217-RW-140				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	18	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

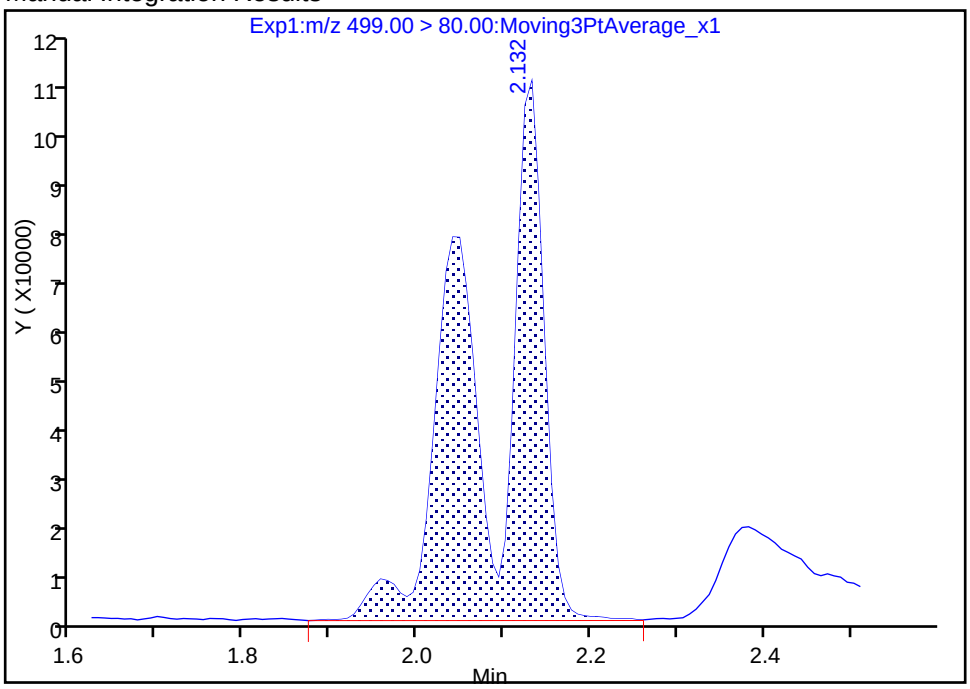
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.13
Area: 491244
Amount: 2.877548
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:01:53
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-140 | Lab Sample ID: 320-32094-4

Matrix: Water | Lab File ID: 2017.10.20_537A_031.d

Analysis Method: 537 | Date Collected: 10/02/2017 09:35

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 275.2(mL) | Date Analyzed: 10/20/2017 19:57

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	36	15	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	7.3	U	18	7.3	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.6	U	9.1	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	82	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	112		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_031.d
Lims ID: 320-32094-A-4-A
Client ID: NAWC-100217-FRB-140
Sample Type: Client
Inject. Date: 20-Oct-2017 19:57:41 ALS Bottle#: 21 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-4-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2007480	9.04		5586	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.855	0.034		1894760	10.0		5250	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		5573483	28.7		5240	
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1179017	11.2		6212	

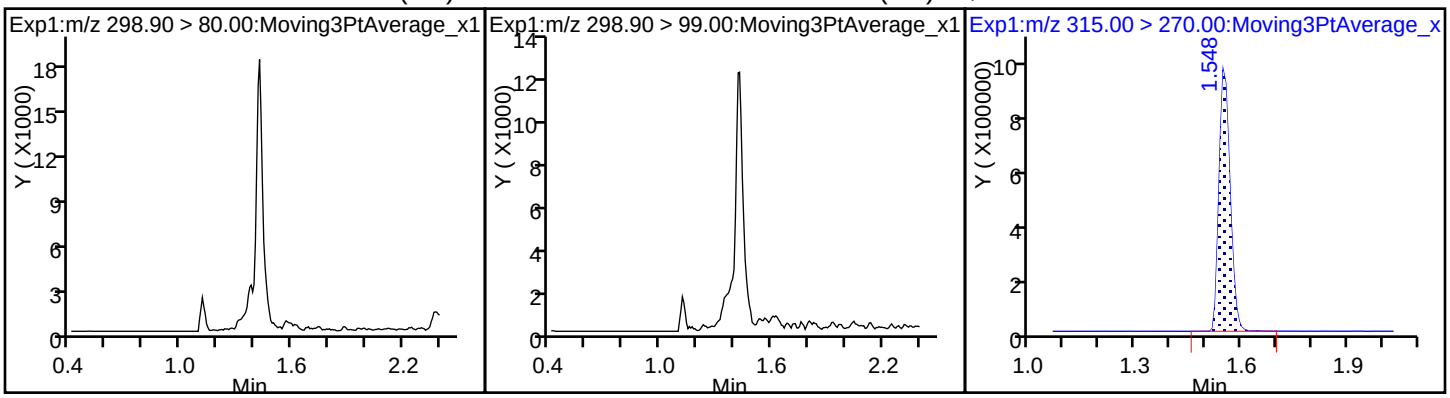
Report Date: 23-Oct-2017 10:34:41 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

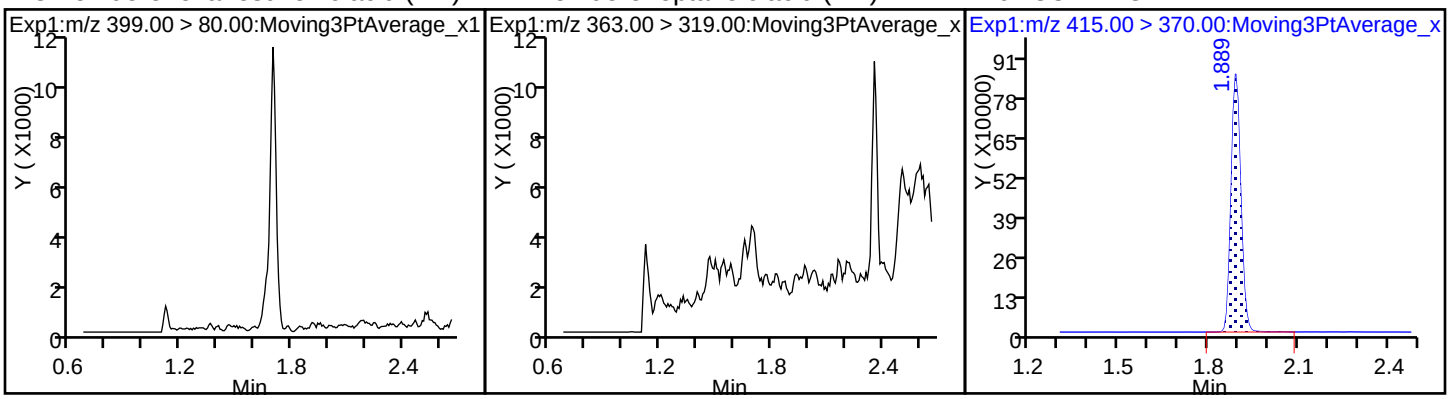
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_031.d

Injection Date:	20-Oct-2017 19:57:41	Instrument ID:	A8_N		
Lims ID:	320-32094-A-4-A	Lab Sample ID:	320-32094-4		
Client ID:	NAWC-100217-FRB-140				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	21	Worklist Smp#:	31
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

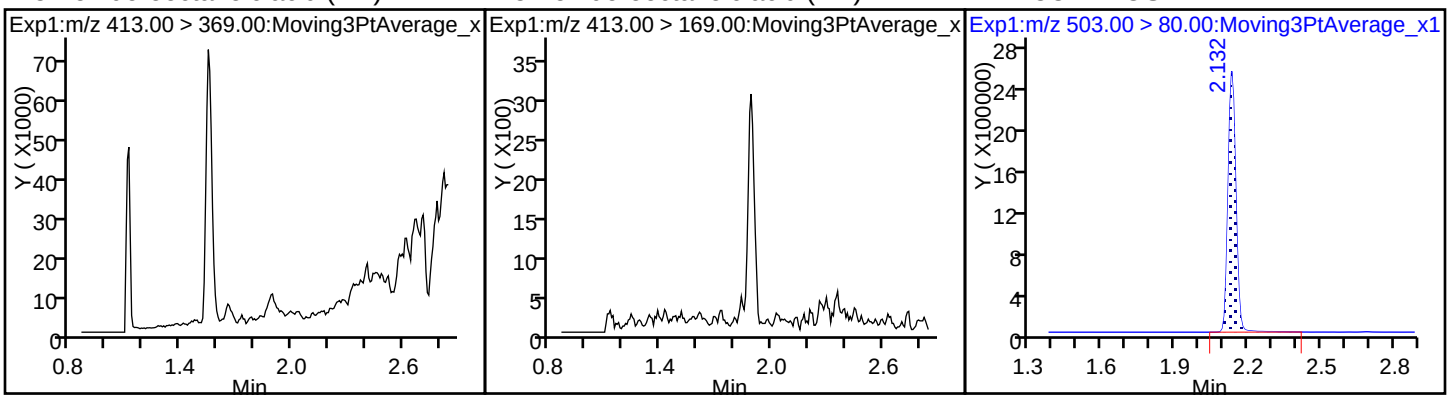
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) $ 2 13C2 PFHxA



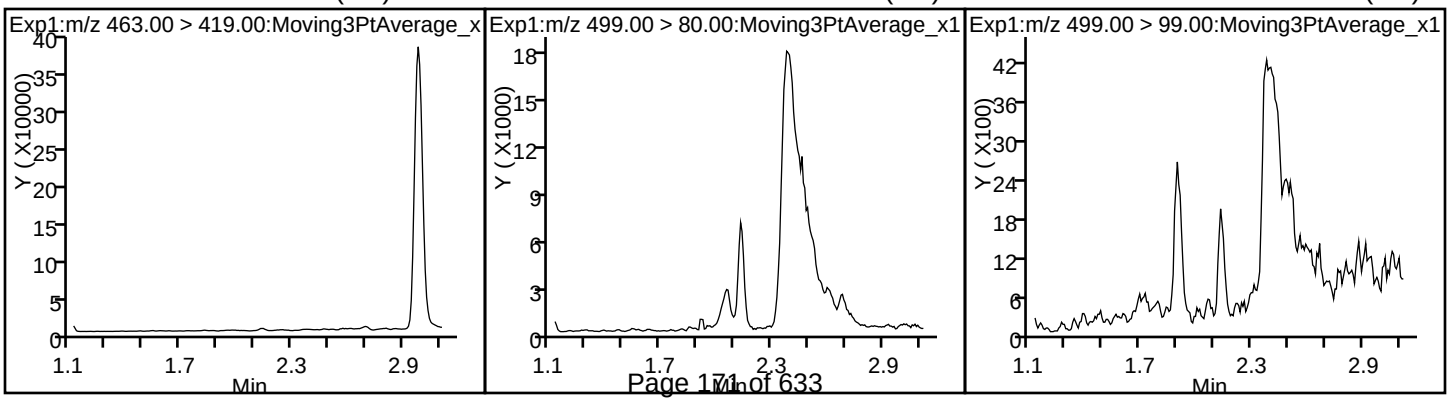
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) * 6 13C2-PFOA



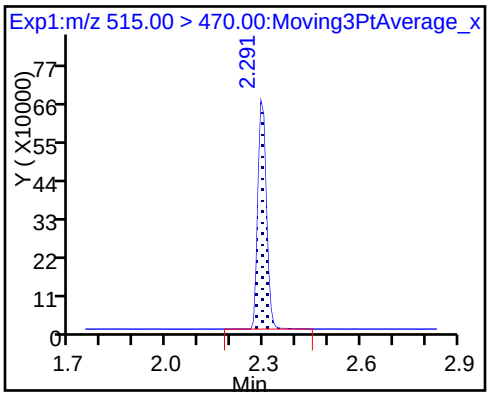
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) * 7 13C4 PFOS



9 Perfluorononanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
77
66
55
44
33
22
11
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_031.d				
Lims ID:	320-32094-A-4-A				
Client ID:	NAWC-100217-FRB-140				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 19:57:41	ALS Bottle#:	21	Worklist Smp#:	31
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-4-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:33:58	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.04	90.42
$ 10 13C2 PFDA	10.0	11.2	111.56

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-316 | Lab Sample ID: 320-32094-5

Matrix: Water | Lab File ID: 2017.10.20_537A_032.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 281.3(mL) | Date Analyzed: 10/20/2017 20:02

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	44	M	36	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	22		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	34		27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.0		8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	118		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_032.d
Lims ID: 320-32094-A-5-A
Client ID: NAWC-100217-RW-316
Sample Type: Client
Inject. Date: 20-Oct-2017 20:02:26 ALS Bottle#: 22 Worklist Smp#: 32
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-5-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:05:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.402	0.024	1.000	357282	1.59		171	
298.90 > 99.00	1.426	1.402	0.024	1.000	250486		1.43(0.00-0.00)	355	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1797535	8.41		3840	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.699	1.668	0.031	1.000	2888905	9.48		967	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.699	1.668	0.031	1.000	435634	2.53		63.3	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.855	0.034		1825060	10.0		3974	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.889	1.856	0.033	1.000	1036721	6.18		25.5	
413.00 > 169.00	1.889	1.856	0.033	1.000	630219		1.65(0.00-0.00)	999	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		5335570	28.7		2219	
9 Perfluorononanoic acid									
463.00 > 419.00	2.140	2.116	0.024	1.000	75115	0.6619		1.8	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.132	2.124	0.008	1.000	2124818	12.3		226	M
499.00 > 99.00	2.132	2.124	0.008	1.000	432968		4.91(0.00-0.00)	154	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1205099	11.8		5340	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 23-Oct-2017 10:34:45 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_032.d

Injection Date: 20-Oct-2017 20:02:26 Instrument ID: A8_N

Lims ID: 320-32094-A-5-A Lab Sample ID: 320-32094-5

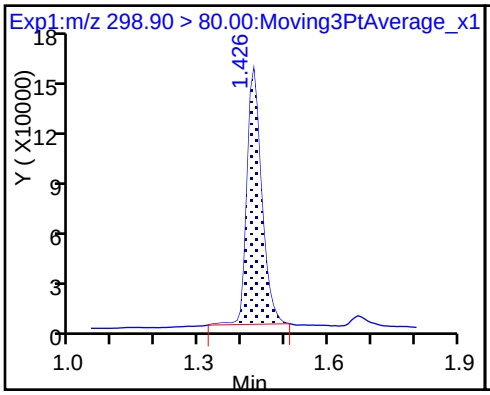
Client ID: NAWC-100217-RW-316

Operator ID: SACINSTLCMS01 ALS Bottle#: 22 Worklist Smp#: 32

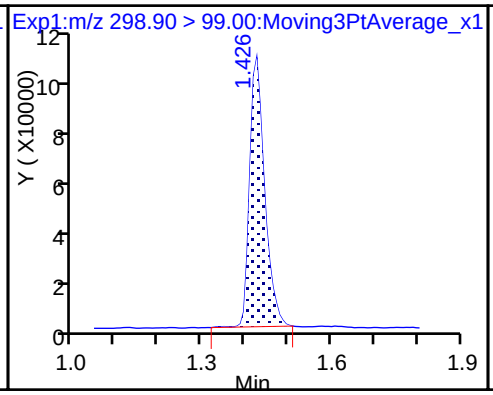
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

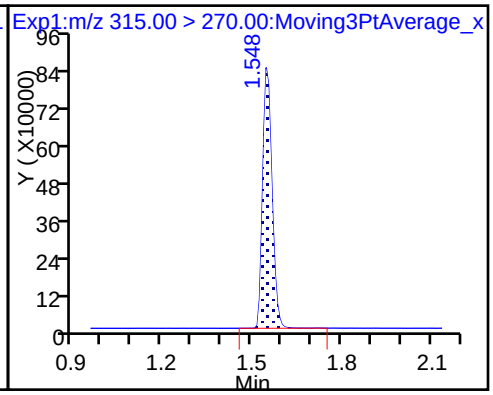
1 Perfluorobutanesulfonic acid



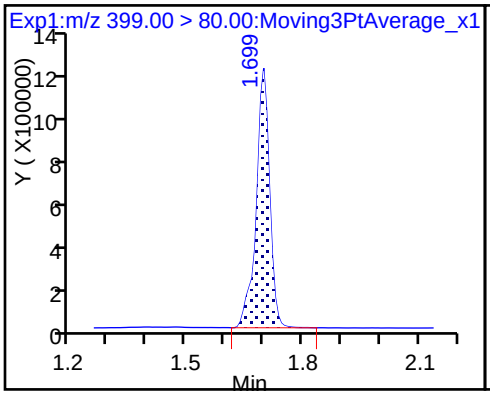
1 Perfluorobutanesulfonic acid



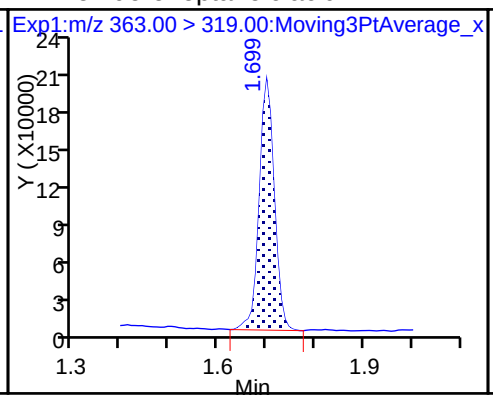
$ 2 13C2 PFHxA



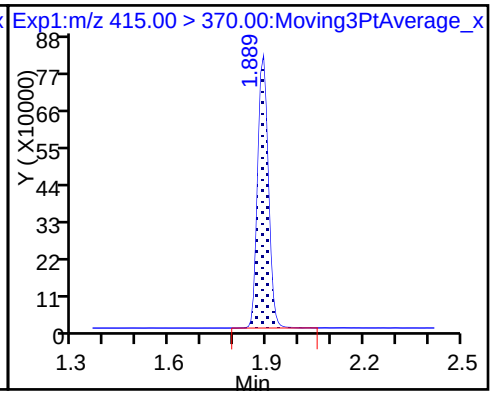
3 Perfluorohexanesulfonic acid



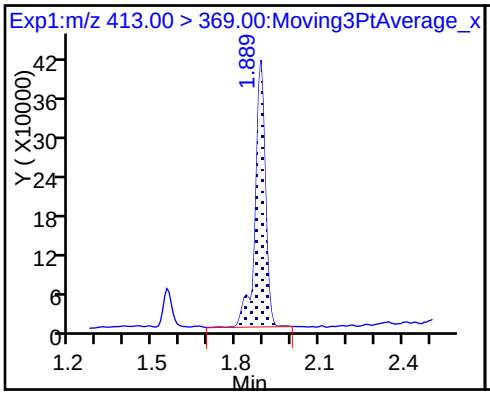
4 Perfluoroheptanoic acid



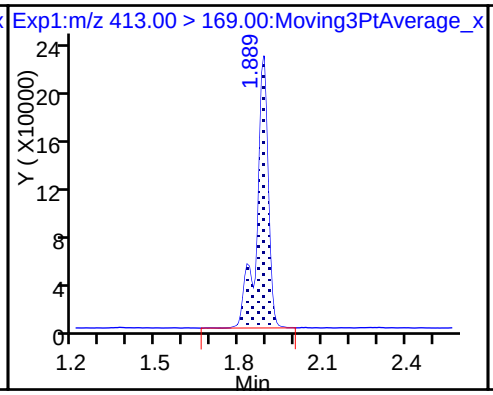
* 6 13C2-PFOA



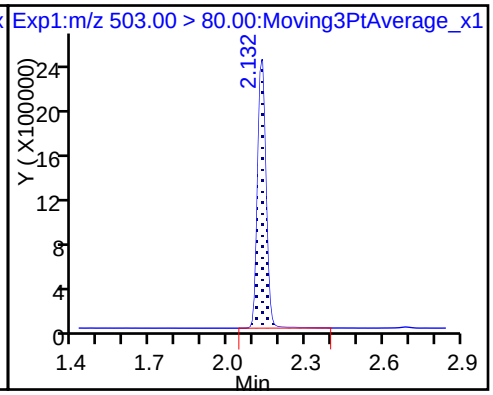
5 Perfluorooctanoic acid



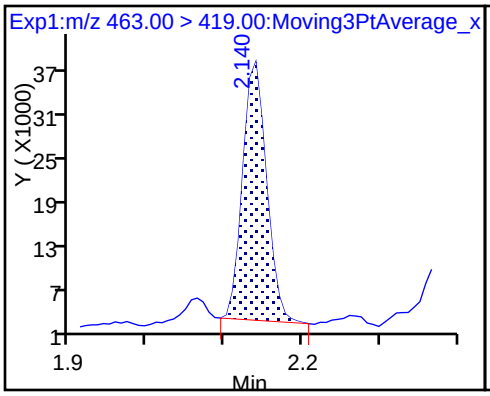
5 Perfluorooctanoic acid



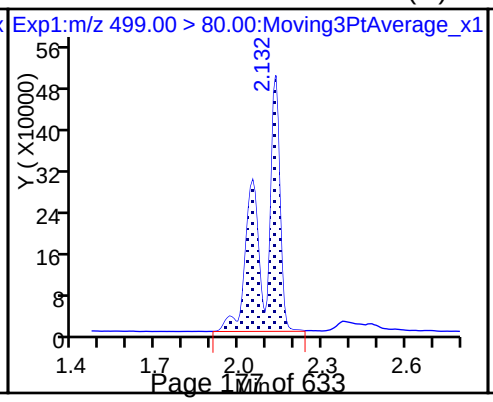
* 7 13C4 PFOS



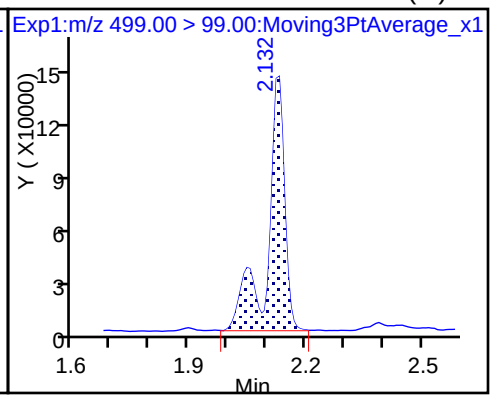
9 Perfluorononanoic acid



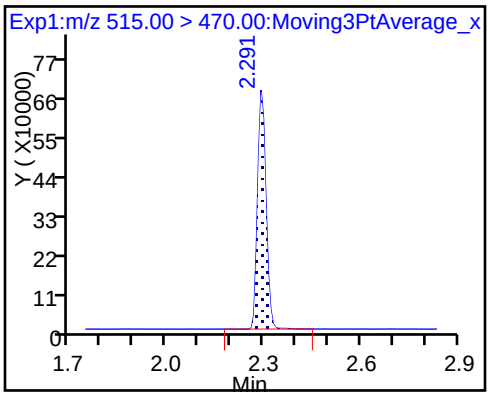
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
77
66
55
44
33
22
11
0
1.7
2.0
2.3
2.6
2.9
Min

Report Date: 23-Oct-2017 10:34:45 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_032.d				
Lims ID:	320-32094-A-5-A				
Client ID:	NAWC-100217-RW-316				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 20:02:26	ALS Bottle#:	22	Worklist Smp#:	32
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-5-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:33:58	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				
First Level Reviewer: barnettj		Date:	23-Oct-2017 10:05:18		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.41	84.05
$ 10 13C2 PFDA	10.0	11.8	118.38

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

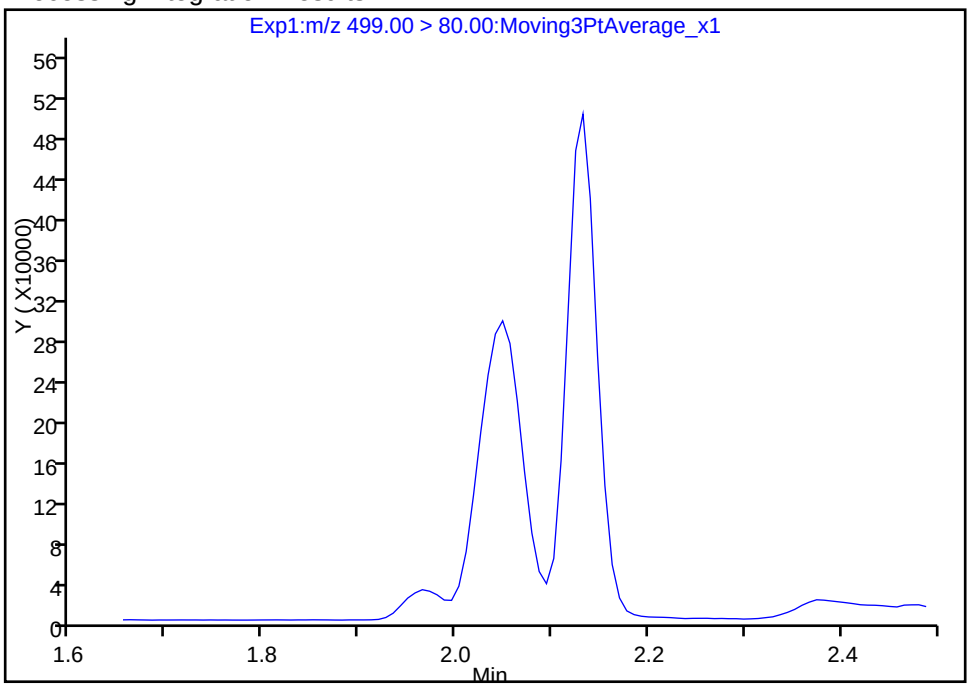
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_032.d				
Injection Date:	20-Oct-2017 20:02:26	Instrument ID:	A8_N		
Lims ID:	320-32094-A-5-A	Lab Sample ID:	320-32094-5		
Client ID:	NAWC-100217-RW-316				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	22	Worklist Smp#:	32
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

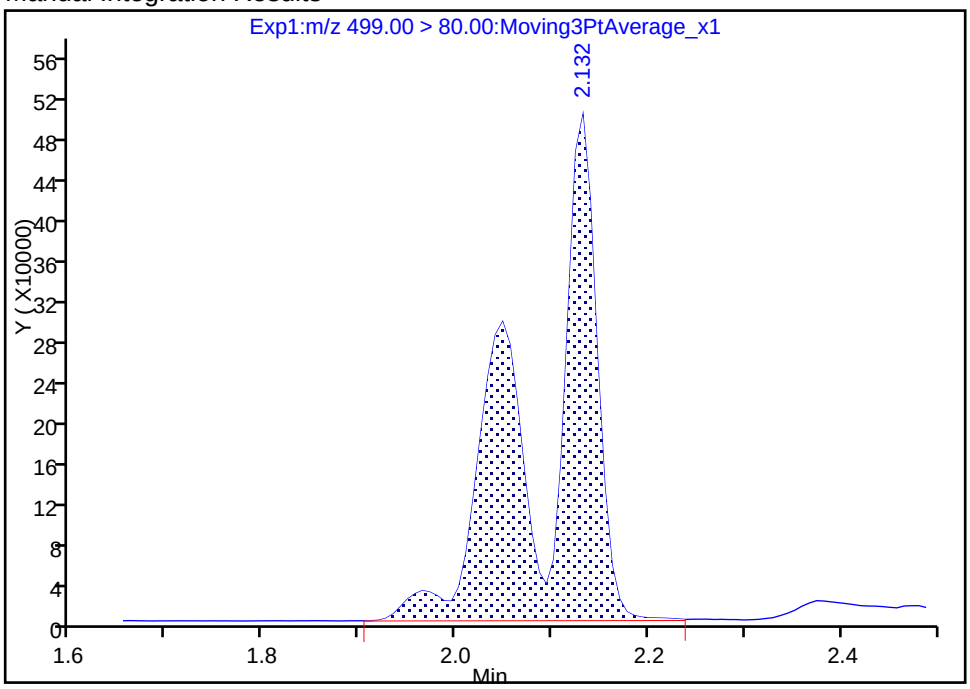
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 2124818
Amount: 12.258685
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:04:42
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

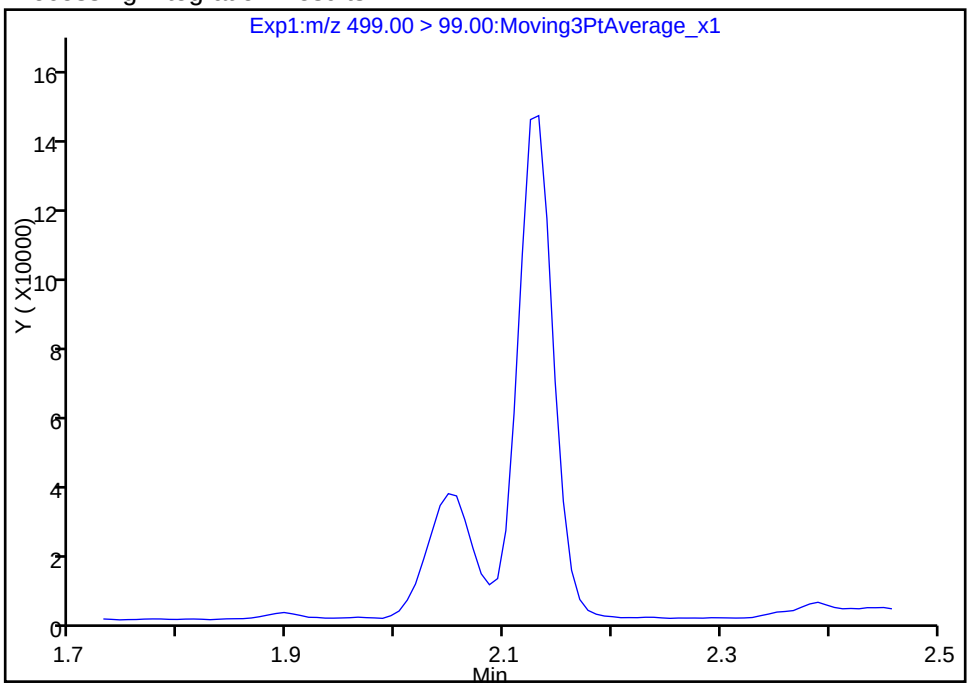
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_032.d				
Injection Date:	20-Oct-2017 20:02:26	Instrument ID:	A8_N		
Lims ID:	320-32094-A-5-A	Lab Sample ID:	320-32094-5		
Client ID:	NAWC-100217-RW-316				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	22	Worklist Smp#:	32
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

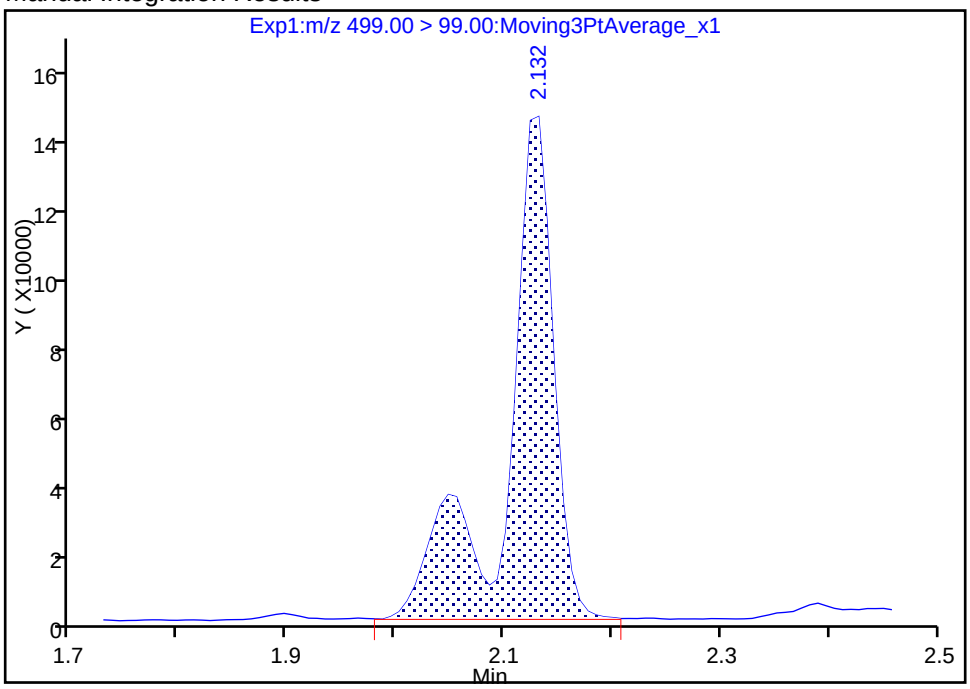
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 432968
Amount: 12.258685
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:05:02
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

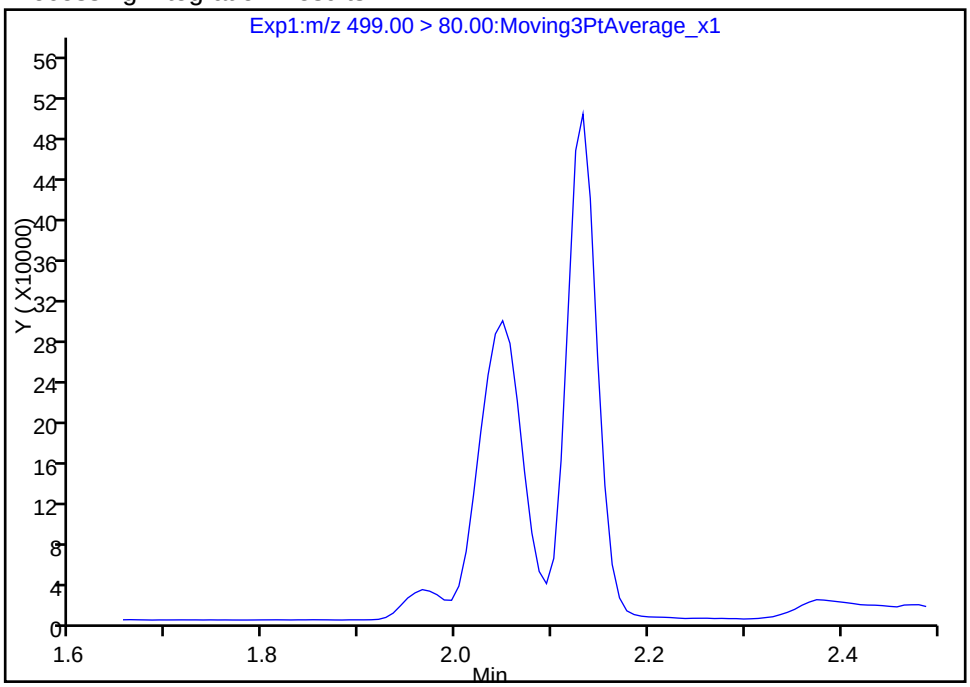
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_032.d				
Injection Date:	20-Oct-2017 20:02:26	Instrument ID:	A8_N		
Lims ID:	320-32094-A-5-A	Lab Sample ID:	320-32094-5		
Client ID:	NAWC-100217-RW-316				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	22	Worklist Smp#:	32
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

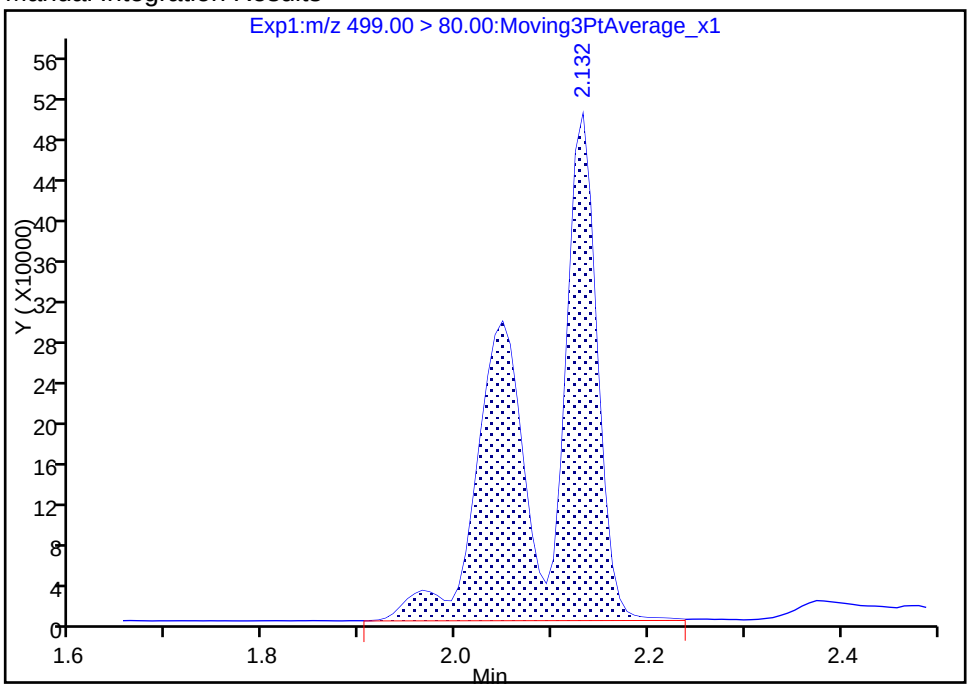
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.13
Area: 2124818
Amount: 12.258685
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:05:02
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-316 | Lab Sample ID: 320-32094-6

Matrix: Water | Lab File ID: 2017.10.20_537A_033.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 258.4(mL) | Date Analyzed: 10/20/2017 20:07

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_033.d
Lims ID: 320-32094-A-6-A
Client ID: NAWC-100217-FRB-316
Sample Type: Client
Inject. Date: 20-Oct-2017 20:07:10 ALS Bottle#: 23 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-6-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1980693	9.32		5833	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.855	0.034		1814445	10.0		5044	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		5243759	28.7		4501	
$ 10 13C2 PFDA									
515.00 > 470.00	2.299	2.282	0.017	1.000	1126172	11.1		5757	

Report Date: 23-Oct-2017 10:34:49 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_033.d

Injection Date: 20-Oct-2017 20:07:10 Instrument ID: A8_N

Lims ID: 320-32094-A-6-A Lab Sample ID: 320-32094-6

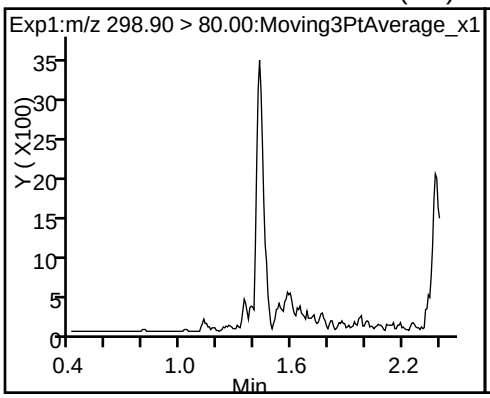
Client ID: NAWC-100217-FRB-316

Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 33

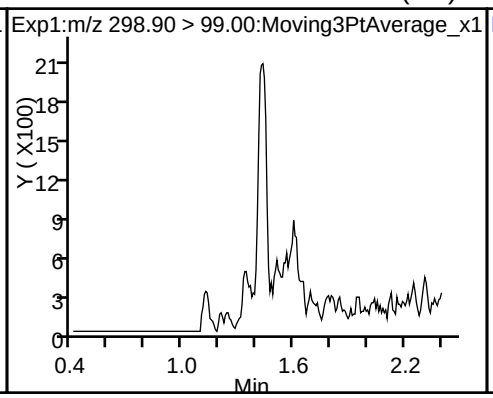
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

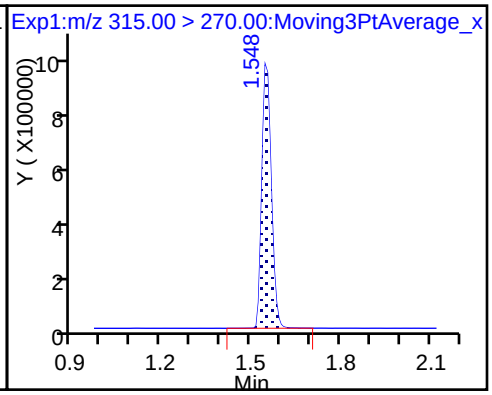
1 Perfluorobutanesulfonic acid (ND)



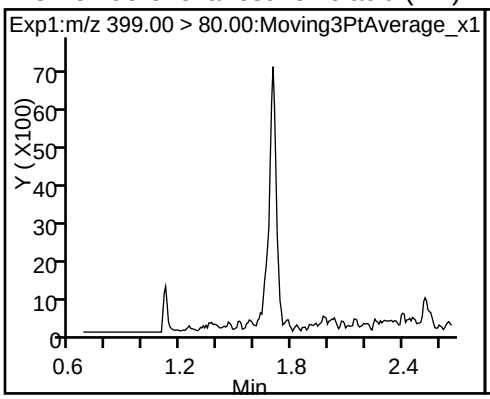
1 Perfluorobutanesulfonic acid (ND)



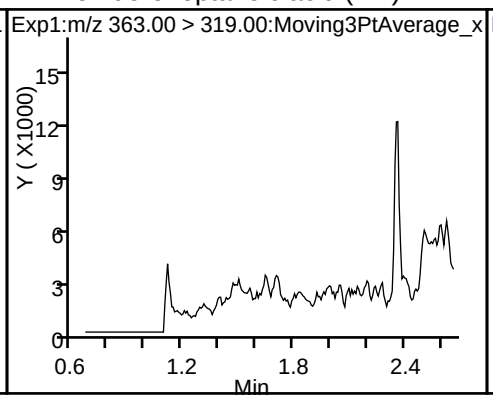
$ 2 13C2 PFHxA



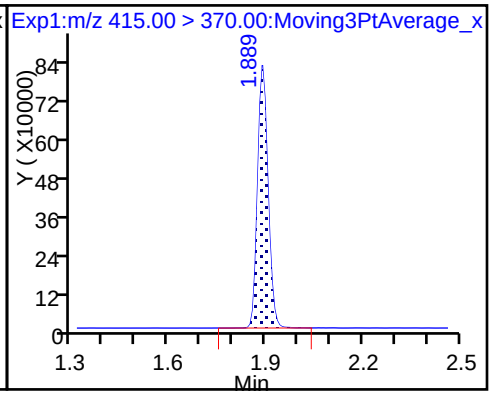
3 Perfluorohexanesulfonic acid (ND)



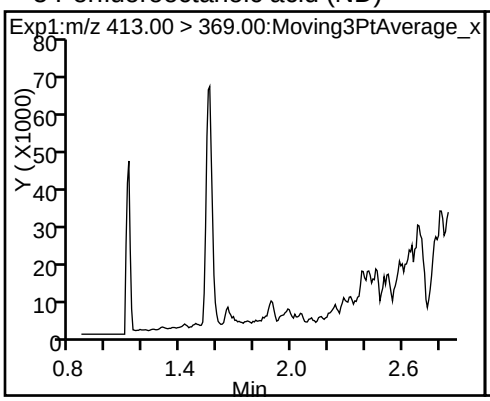
4 Perfluoroheptanoic acid (ND)



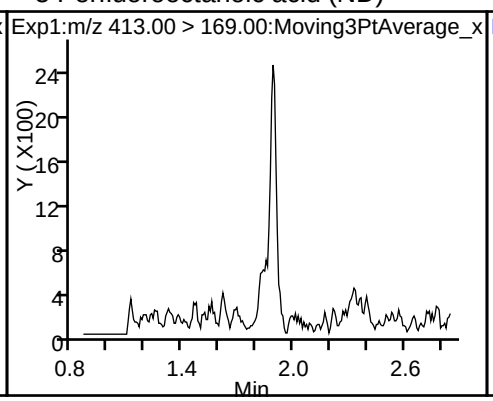
* 6 13C2-PFOA



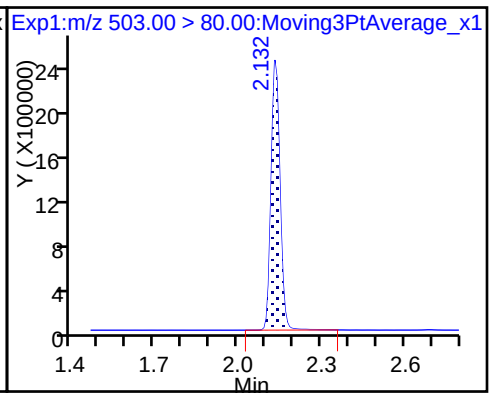
5 Perfluorooctanoic acid (ND)



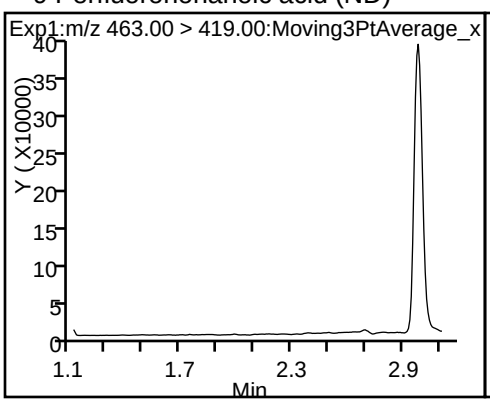
5 Perfluorooctanoic acid (ND)



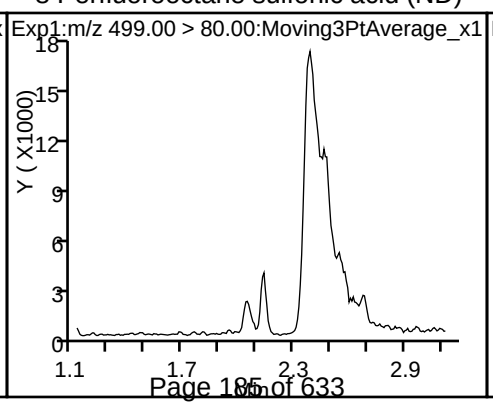
* 7 13C4 PFOS



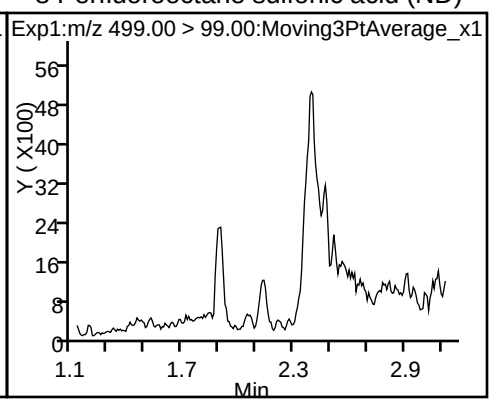
9 Perfluorononanoic acid (ND)



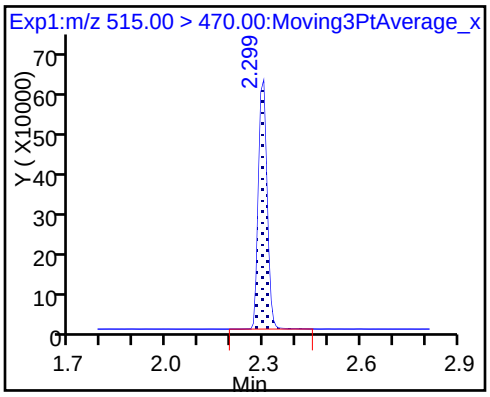
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.299
Y (X10000)
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_033.d				
Lims ID:	320-32094-A-6-A				
Client ID:	NAWC-100217-FRB-316				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 20:07:10	ALS Bottle#:	23	Worklist Smp#:	33
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-6-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:33:58	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.32	93.16
$ 10 13C2 PFDA	10.0	11.1	111.28

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-144 | Lab Sample ID: 320-32094-7

Matrix: Water | Lab File ID: 2017.10.20_537A_036.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:40

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 272.3(mL) | Date Analyzed: 10/20/2017 20:21

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	37	15	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	18	7.3	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.7	J	28	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	J	9.2	3.7	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	79		70-130
STL00996	13C2 PFDA	107		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_036.d
Lims ID: 320-32094-A-7-A
Client ID: NAWC-100217-RW-144
Sample Type: Client
Inject. Date: 20-Oct-2017 20:21:23 ALS Bottle#: 24 Worklist Smp#: 36
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-7-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:34:52 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:06:58

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	357156	1.62		277	
298.90 > 99.00	1.419	1.402	0.017	1.000	240294		1.49(0.00-0.00)	392	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	1676768	7.93		7152	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	544260	1.82		189	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	171091	1.01		20.2	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1804941	10.0		5074	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	551467	3.32		12.8	
413.00 > 169.00	1.882	1.856	0.026	1.000	318294		1.73(0.00-0.00)	596	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5221258	28.7		3011	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.124	0.0	1.000	1013129	5.97		137	M
499.00 > 99.00	2.124	2.124	0.0	1.000	188278		5.38(0.00-0.00)	74.5	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.282	0.002	1.000	1076342	10.7		6429	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 23-Oct-2017 10:35:13 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_036.d

Injection Date: 20-Oct-2017 20:21:23 Instrument ID: A8_N

Lims ID: 320-32094-A-7-A Lab Sample ID: 320-32094-7

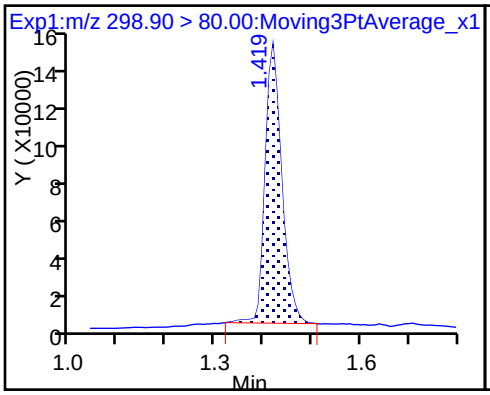
Client ID: NAWC-100217-RW-144

Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 36

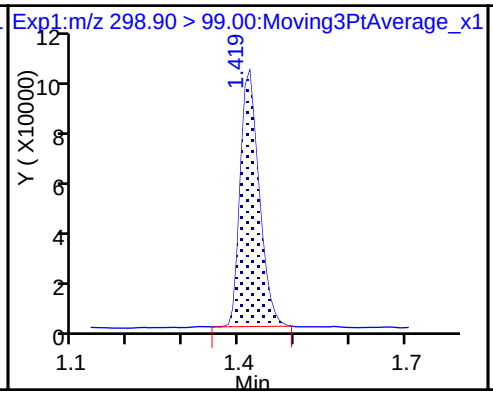
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

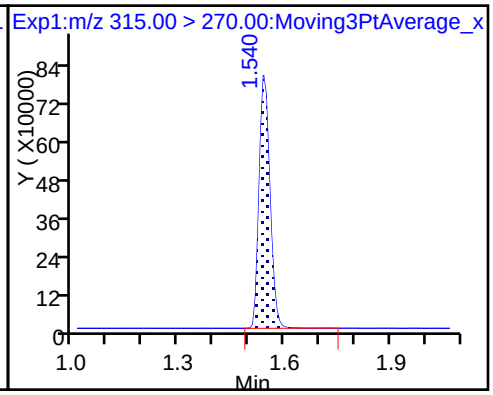
1 Perfluorobutanesulfonic acid



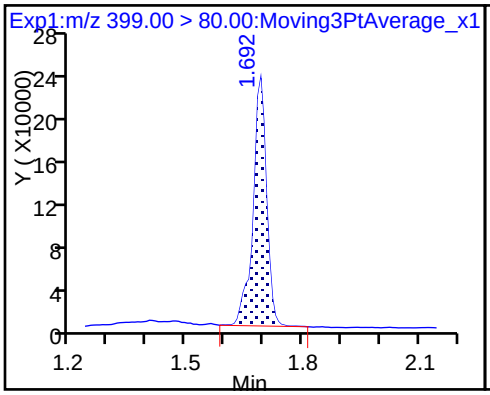
1 Perfluorobutanesulfonic acid



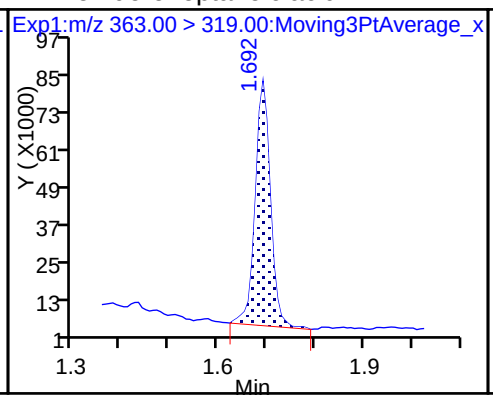
$ 2 13C2 PFHxA



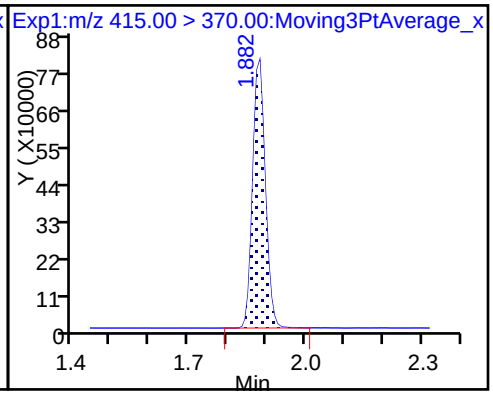
3 Perfluorohexanesulfonic acid



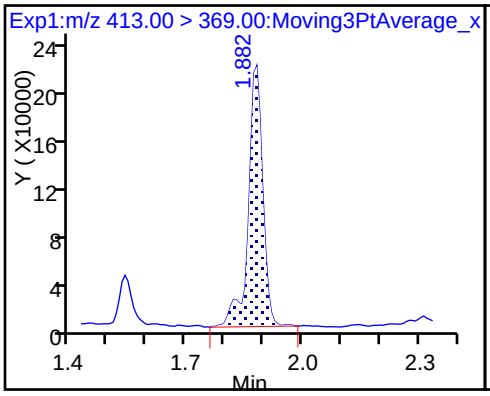
4 Perfluoroheptanoic acid



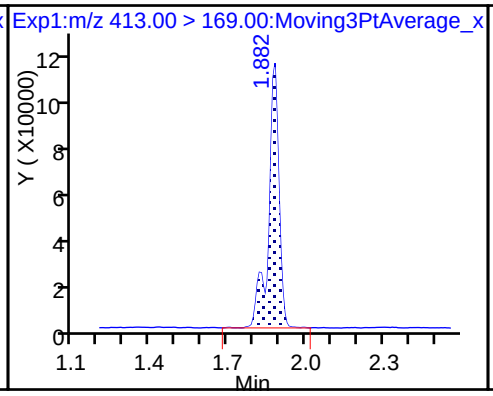
* 6 13C2-PFOA



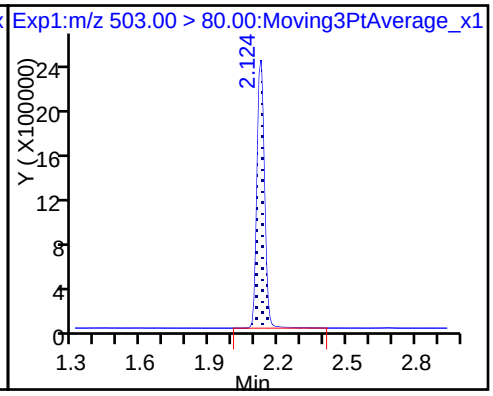
5 Perfluorooctanoic acid



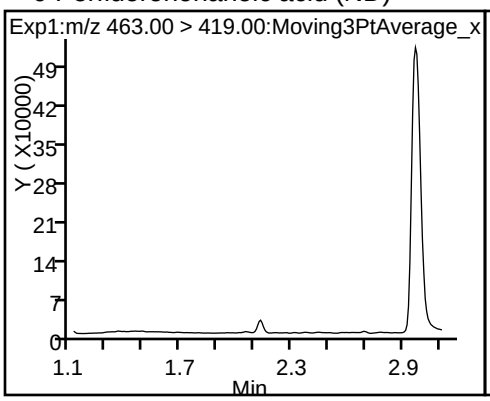
5 Perfluorooctanoic acid



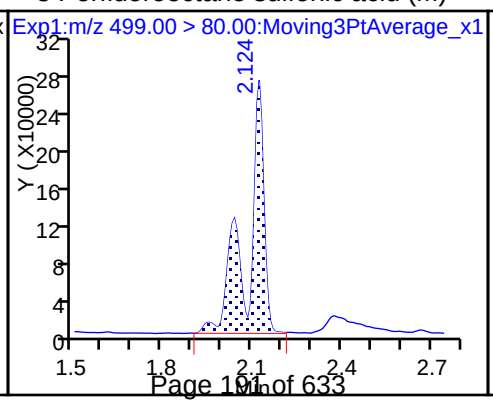
* 7 13C4 PFOS



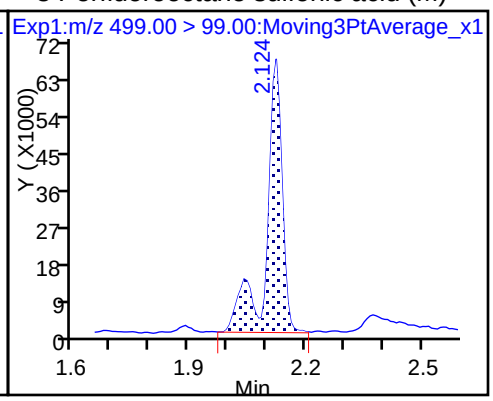
9 Perfluorononanoic acid (ND)



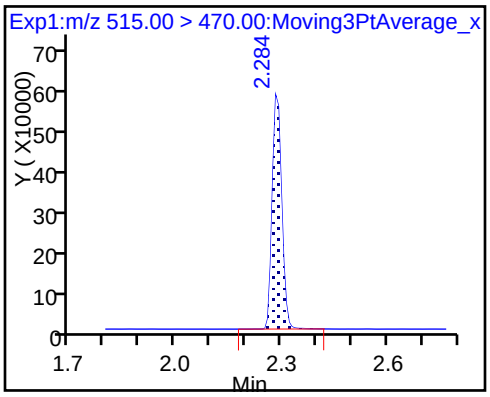
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_036.d				
Lims ID:	320-32094-A-7-A				
Client ID:	NAWC-100217-RW-144				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 20:21:23	ALS Bottle#:	24	Worklist Smp#:	36
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-7-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:34:52	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				
First Level Reviewer: barnettj		Date:	23-Oct-2017 10:06:58		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.93	79.28
$ 10 13C2 PFDA	10.0	10.7	106.91

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

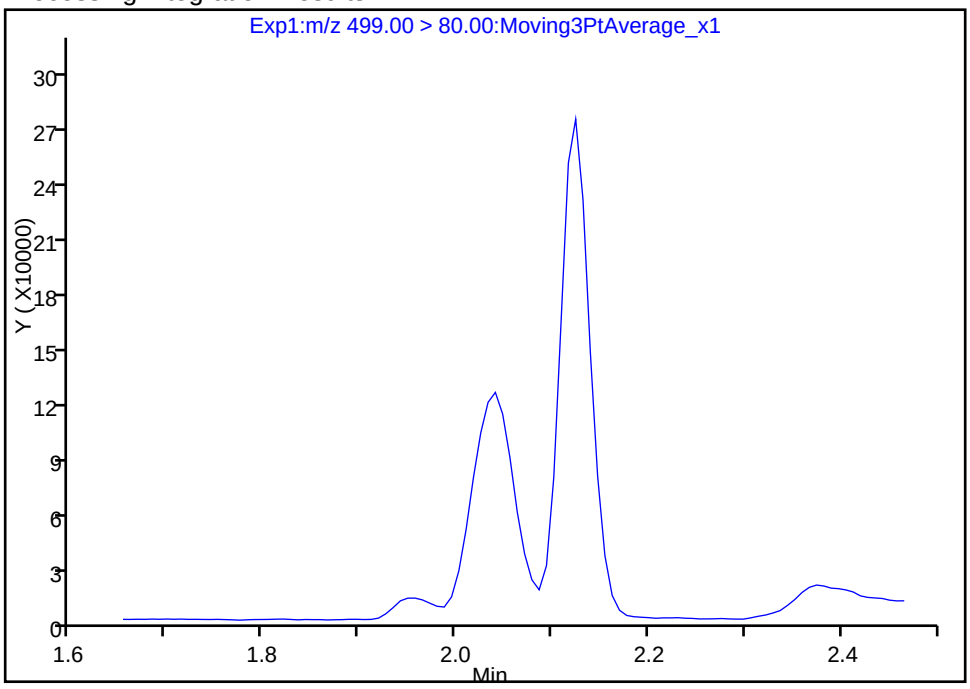
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_036.d				
Injection Date:	20-Oct-2017 20:21:23	Instrument ID:	A8_N		
Lims ID:	320-32094-A-7-A	Lab Sample ID:	320-32094-7		
Client ID:	NAWC-100217-RW-144				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	36
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

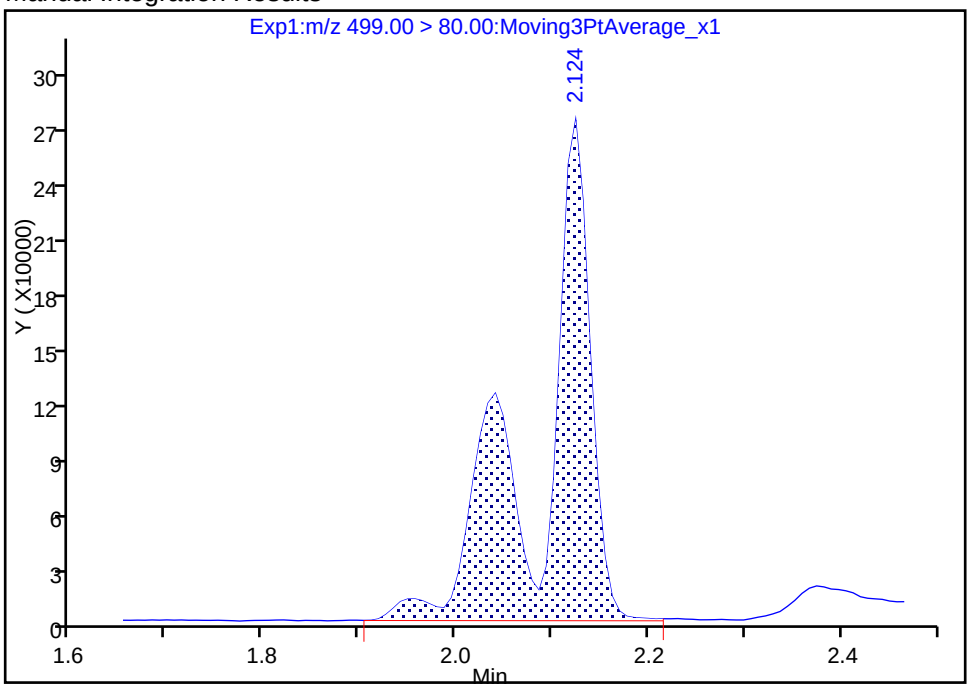
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 1013129
Amount: 5.973001
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:06:20
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

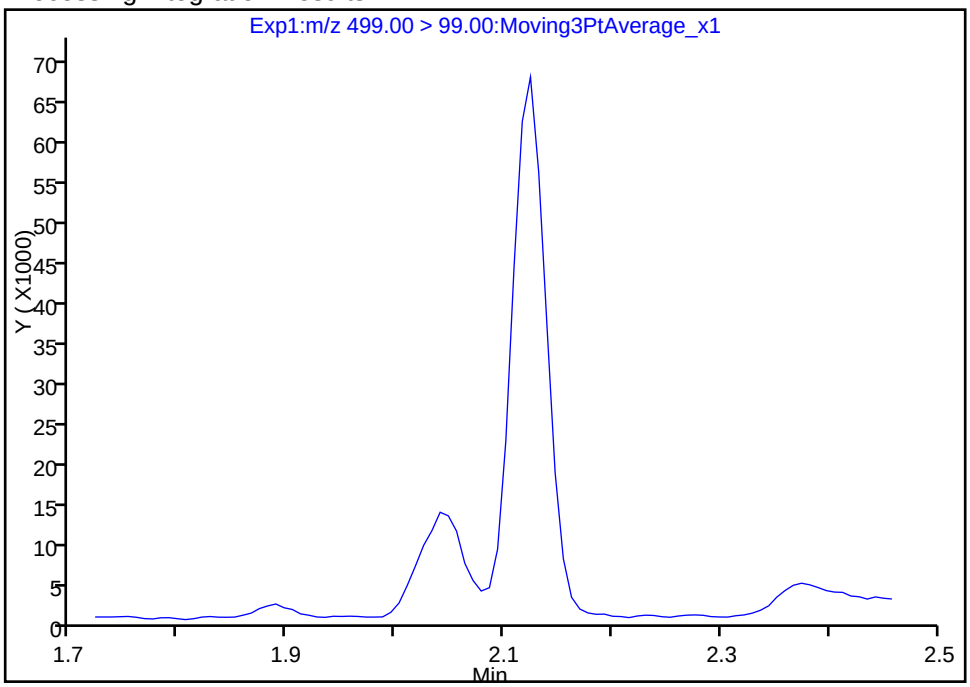
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_036.d				
Injection Date:	20-Oct-2017 20:21:23	Instrument ID:	A8_N		
Lims ID:	320-32094-A-7-A	Lab Sample ID:	320-32094-7		
Client ID:	NAWC-100217-RW-144				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	36
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

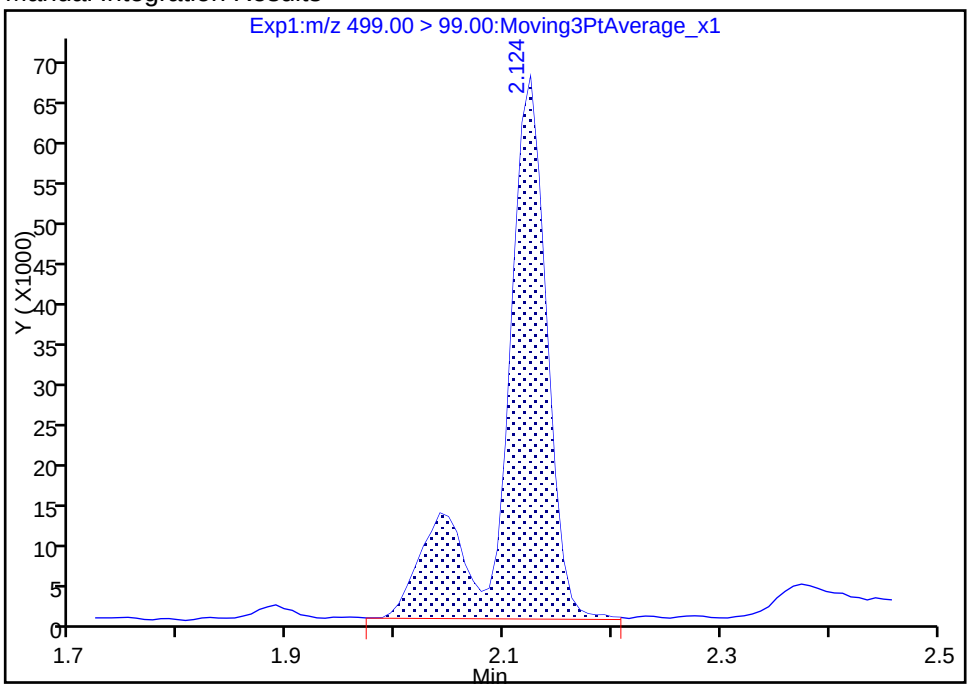
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 188278
Amount: 5.973001
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:06:41
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

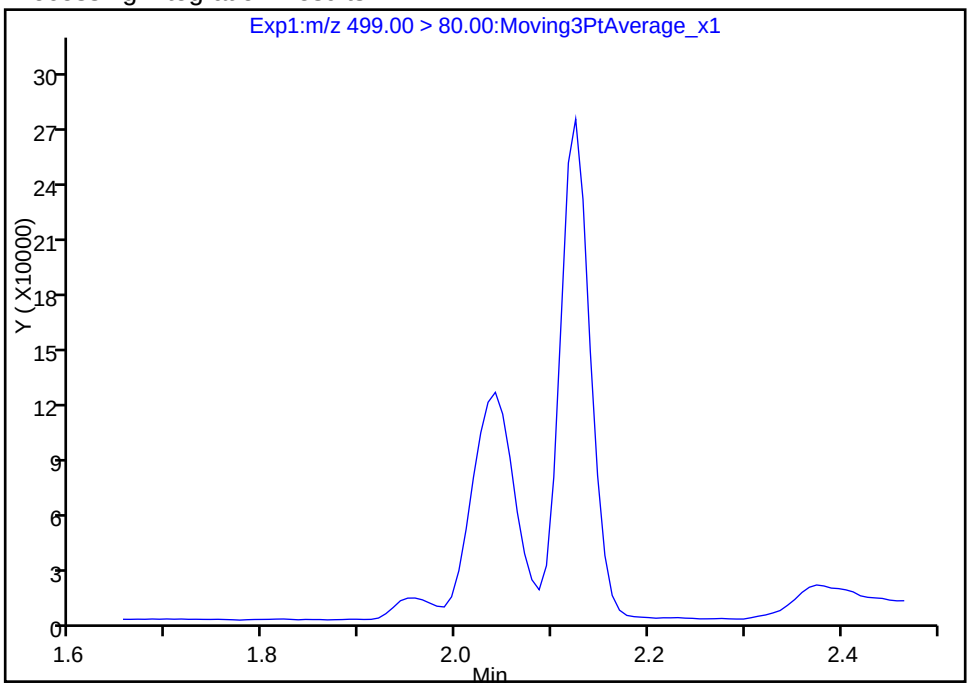
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_036.d				
Injection Date:	20-Oct-2017 20:21:23	Instrument ID:	A8_N		
Lims ID:	320-32094-A-7-A	Lab Sample ID:	320-32094-7		
Client ID:	NAWC-100217-RW-144				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	36
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

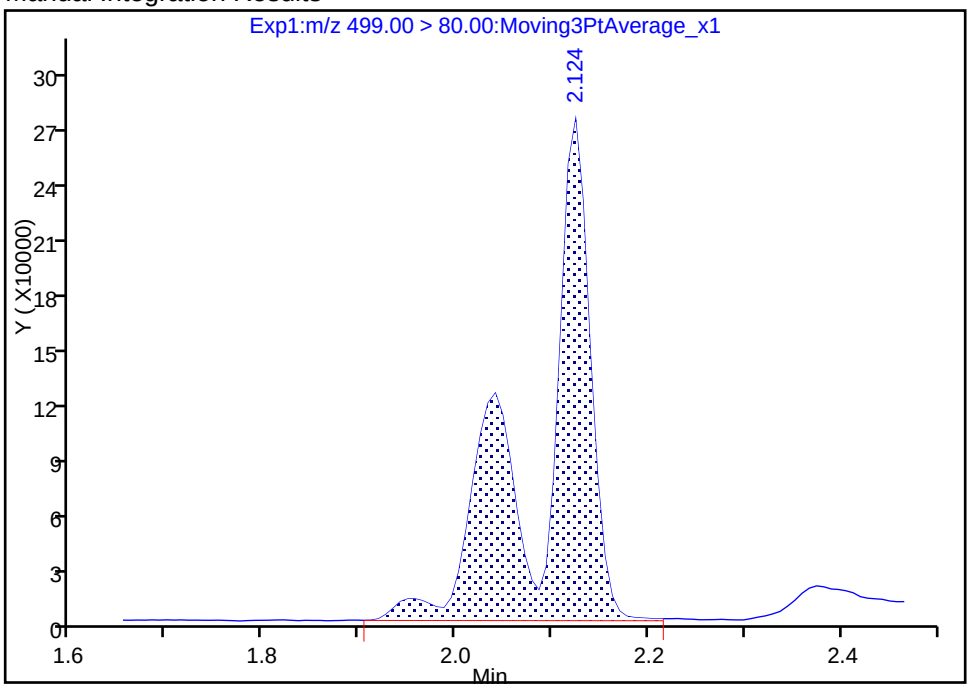
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 1013129
Amount: 5.973001
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:06:41
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-144 | Lab Sample ID: 320-32094-8

Matrix: Water | Lab File ID: 2017.10.20_537A_037.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:35

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 258.7(mL) | Date Analyzed: 10/20/2017 20:26

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	107		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_037.d
Lims ID: 320-32094-A-8-A
Client ID: NAWC-100217-FRB-144
Sample Type: Client
Inject. Date: 20-Oct-2017 20:26:08 ALS Bottle#: 25 Worklist Smp#: 37
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-8-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:34:52 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	1916972	9.03		5987	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1811010	10.0		5187	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		5298491	28.7		4814	
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1075917	10.7		4865	

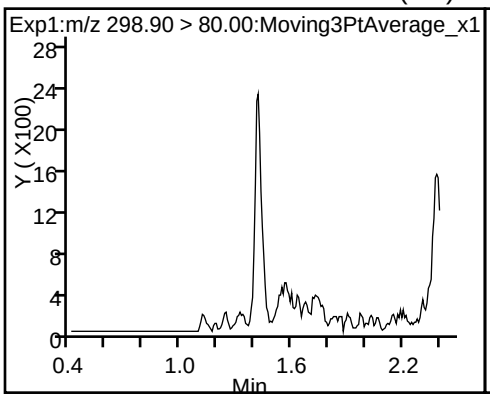
Report Date: 23-Oct-2017 10:35:18 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

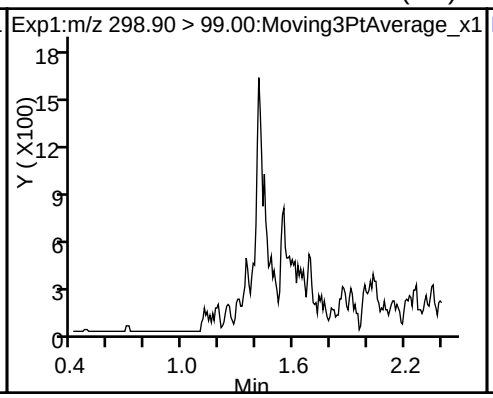
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_037.d

Injection Date:	20-Oct-2017 20:26:08	Instrument ID:	A8_N		
Lims ID:	320-32094-A-8-A	Lab Sample ID:	320-32094-8		
Client ID:	NAWC-100217-FRB-144				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	25	Worklist Smp#:	37
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

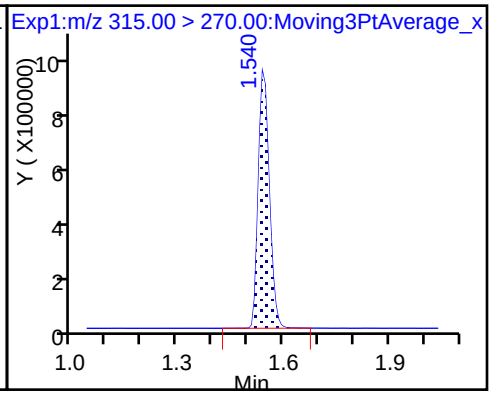
1 Perfluorobutanesulfonic acid (ND)



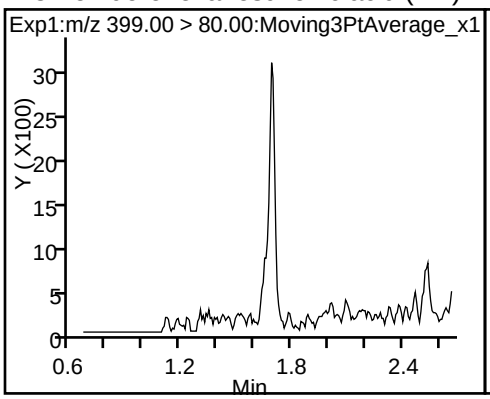
1 Perfluorobutanesulfonic acid (ND)



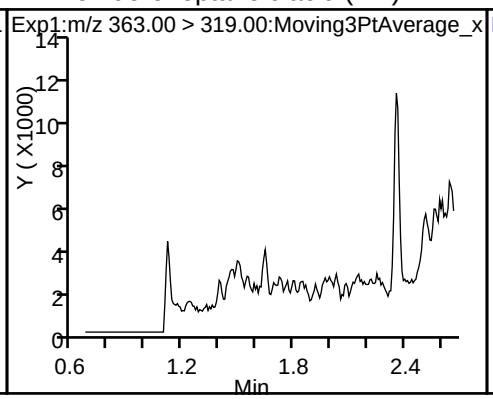
$ 2 13C2 PFHxA



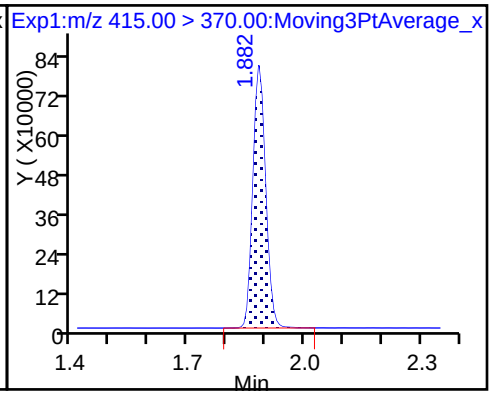
3 Perfluorohexanesulfonic acid (ND)



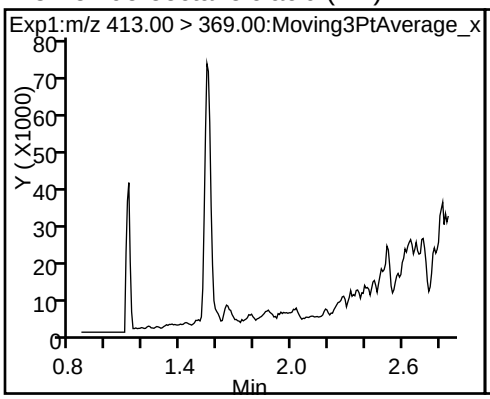
4 Perfluoroheptanoic acid (ND)



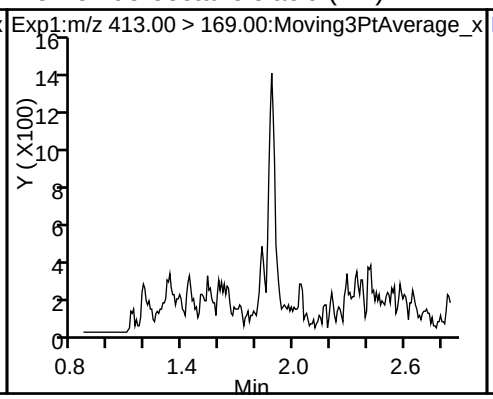
* 6 13C2-PFOA



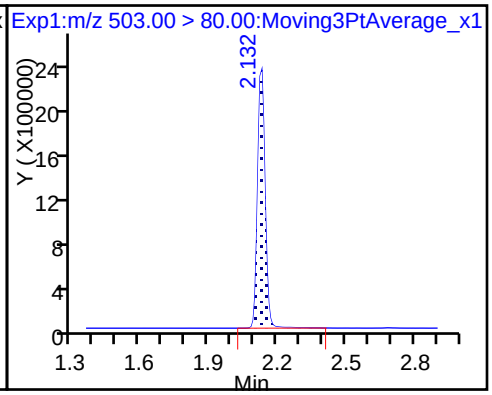
5 Perfluorooctanoic acid (ND)



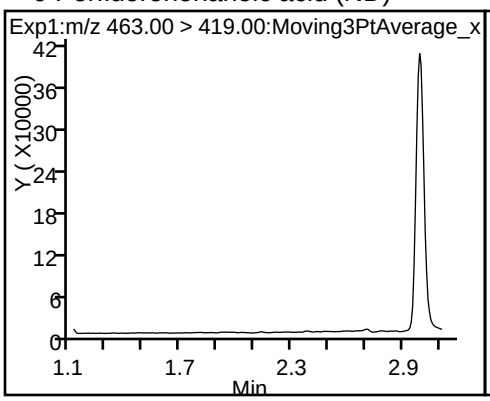
5 Perfluorooctanoic acid (ND)



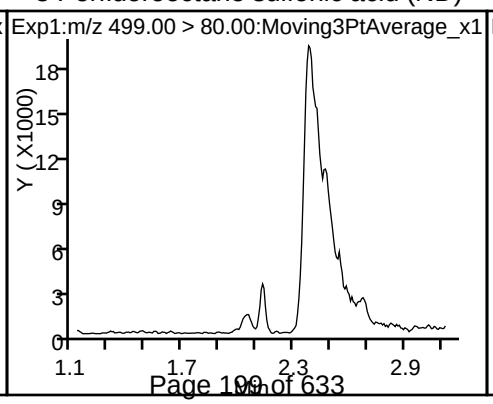
* 7 13C4 PFOS



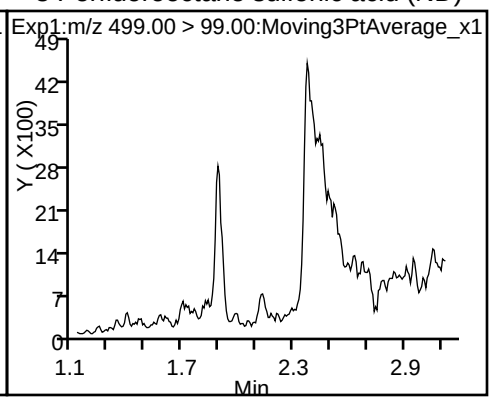
9 Perfluorononanoic acid (ND)



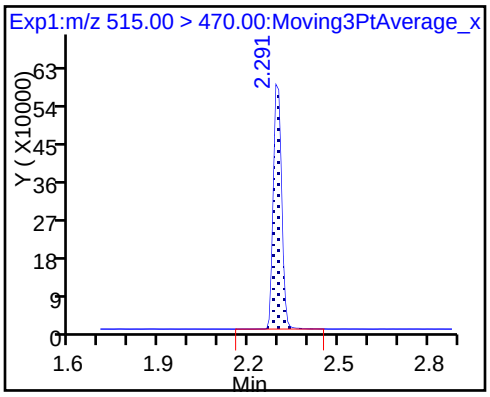
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_037.d				
Lims ID:	320-32094-A-8-A				
Client ID:	NAWC-100217-FRB-144				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 20:26:08	ALS Bottle#:	25	Worklist Smp#:	37
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-8-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:34:52	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.03	90.34
$ 10 13C2 PFDA	10.0	10.7	106.51

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-151 | Lab Sample ID: 320-32094-9

Matrix: Water | Lab File ID: 2017.10.20_537A_038.d

Analysis Method: 537 | Date Collected: 10/02/2017 11:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 269.3(mL) | Date Analyzed: 10/20/2017 20:30

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.8	J M	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	22		19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	11		9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	75		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_038.d
Lims ID: 320-32094-A-9-A
Client ID: NAWC-100217-RW-151
Sample Type: Client
Inject. Date: 20-Oct-2017 20:30:52 ALS Bottle#: 26 Worklist Smp#: 38
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-9-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:34:52 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:08:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	306071	1.29		159	
298.90 > 99.00	1.419	1.402	0.017	1.000	206864		1.48(0.00-0.00)	297	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1574942	7.54		5715	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	433274	1.35		95.4	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	491319	2.93		45.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1782598	10.0		4984	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	982568	5.99		19.8	
413.00 > 169.00	1.882	1.856	0.026	1.000	572574		1.72(0.00-0.00)	829	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5612676	28.7		2377	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.124	0.0	1.000	433344	2.38		36.3	M
499.00 > 99.00	2.124	2.124	0.0	1.000	68602		6.32(0.00-0.00)	19.0	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	956329	9.62		5176	

QC Flag Legend

Review Flags

M - Manually Integrated

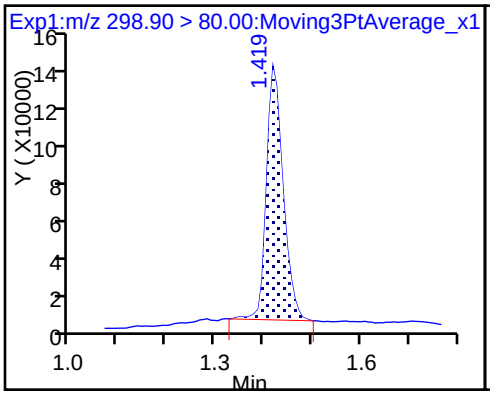
Report Date: 23-Oct-2017 10:35:22 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

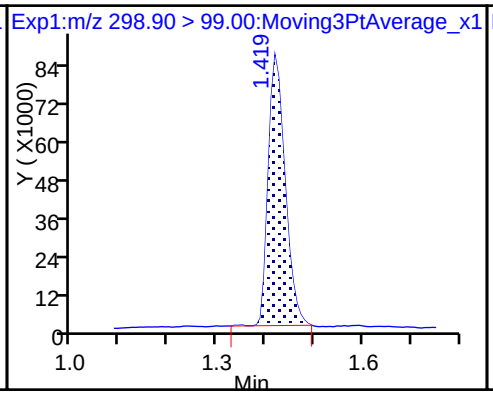
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_038.d

Injection Date:	20-Oct-2017 20:30:52	Instrument ID:	A8_N		
Lims ID:	320-32094-A-9-A	Lab Sample ID:	320-32094-9		
Client ID:	NAWC-100217-RW-151				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	26	Worklist Smp#:	38
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

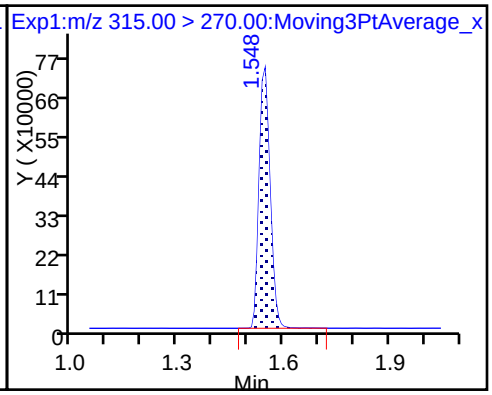
1 Perfluorobutanesulfonic acid



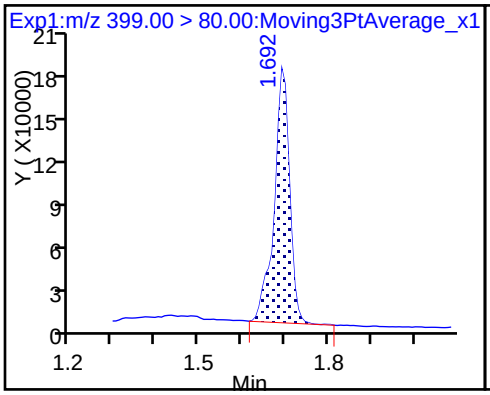
1 Perfluorobutanesulfonic acid



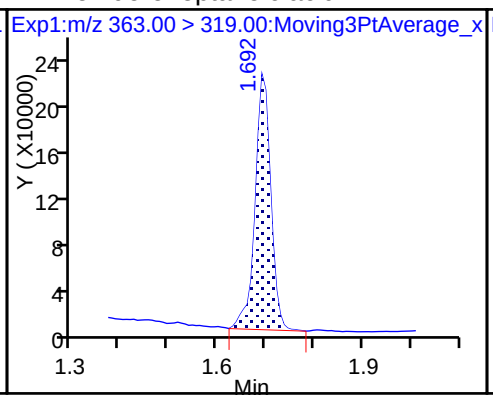
$ 2 13C2 PFHxA



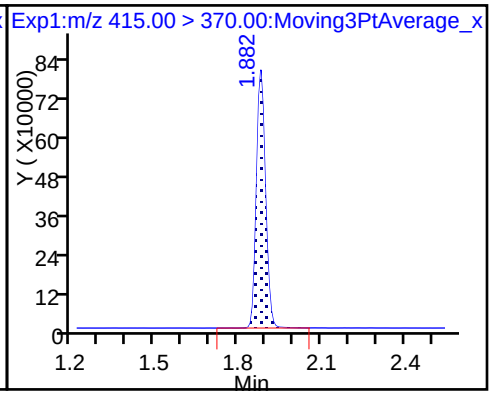
3 Perfluorohexanesulfonic acid



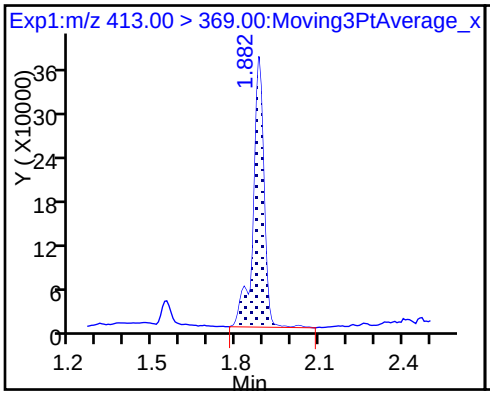
4 Perfluoroheptanoic acid



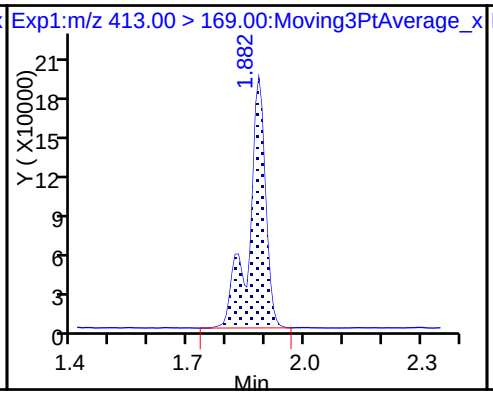
* 6 13C2-PFOA



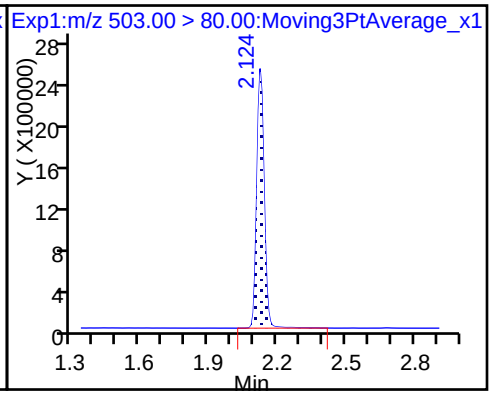
5 Perfluorooctanoic acid



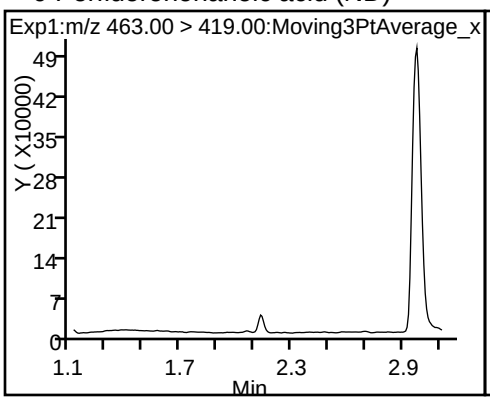
5 Perfluorooctanoic acid



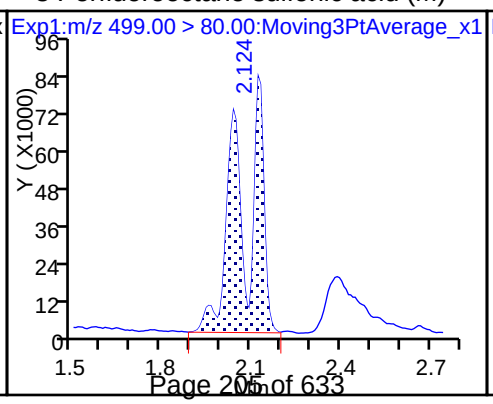
* 7 13C4 PFOS



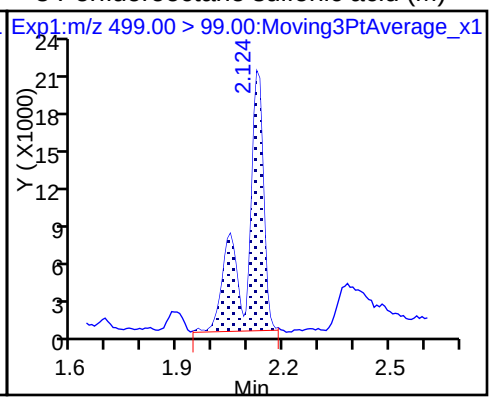
9 Perfluorononanoic acid (ND)



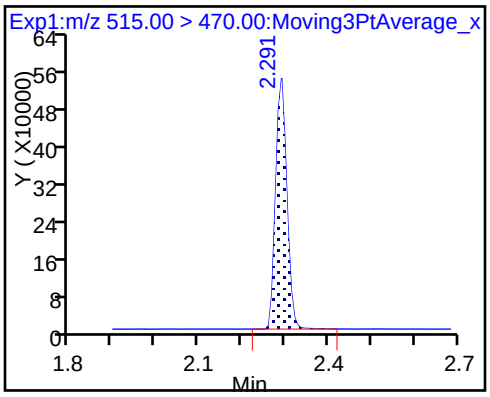
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
64
56
48
40
32
24
16
8
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_038.d				
Lims ID:	320-32094-A-9-A				
Client ID:	NAWC-100217-RW-151				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 20:30:52	ALS Bottle#:	26	Worklist Smp#:	38
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-9-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:34:52	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:08:07

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.54	75.40
$ 10 13C2 PFDA	10.0	9.62	96.18

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

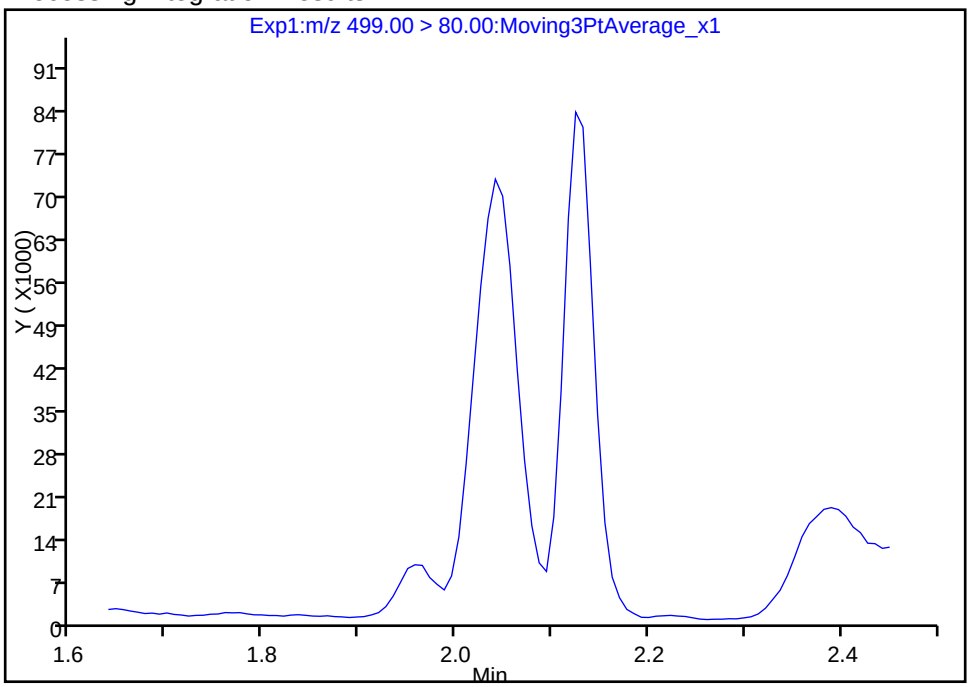
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_038.d				
Injection Date:	20-Oct-2017 20:30:52	Instrument ID:	A8_N		
Lims ID:	320-32094-A-9-A	Lab Sample ID:	320-32094-9		
Client ID:	NAWC-100217-RW-151				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	26	Worklist Smp#:	38
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

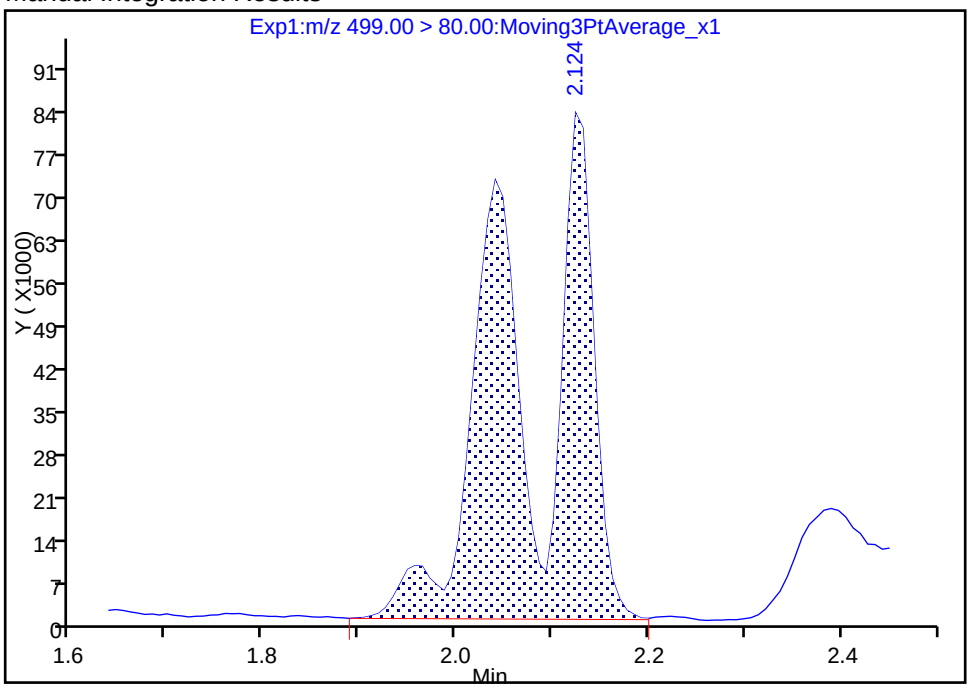
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 433344
Amount: 2.376653
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:07:20
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

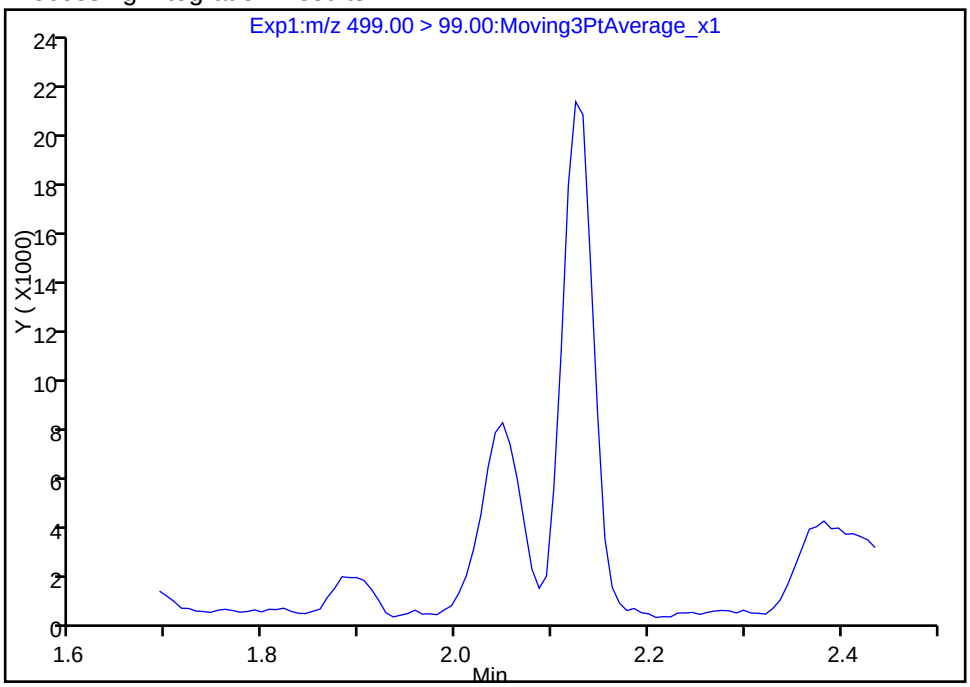
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_038.d				
Injection Date:	20-Oct-2017 20:30:52	Instrument ID:	A8_N		
Lims ID:	320-32094-A-9-A	Lab Sample ID:	320-32094-9		
Client ID:	NAWC-100217-RW-151				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	26	Worklist Smp#:	38
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

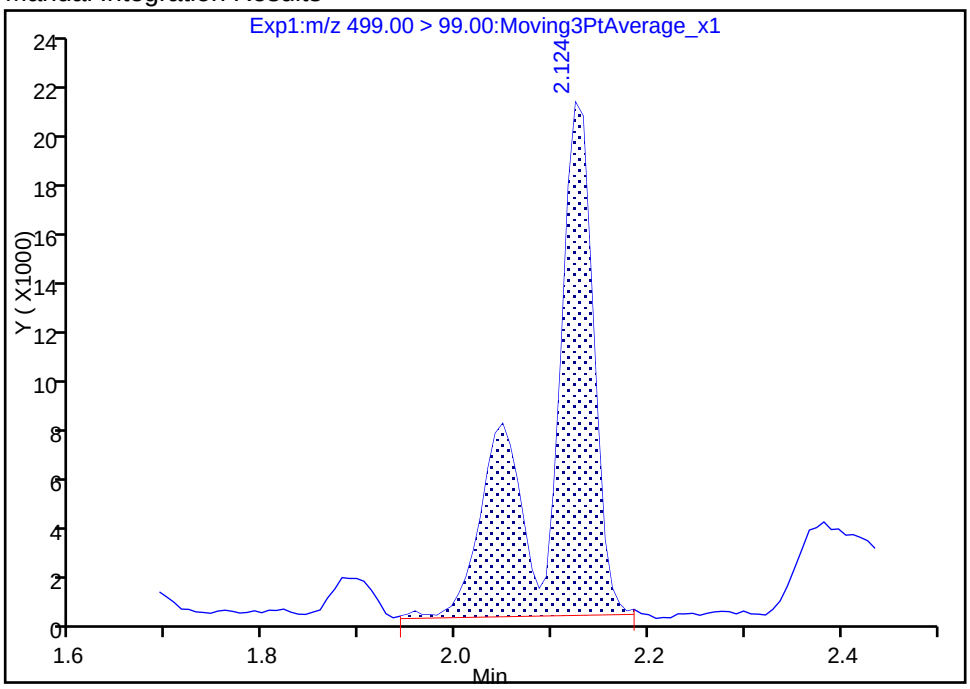
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 68602
Amount: 2.376653
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:07:46
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

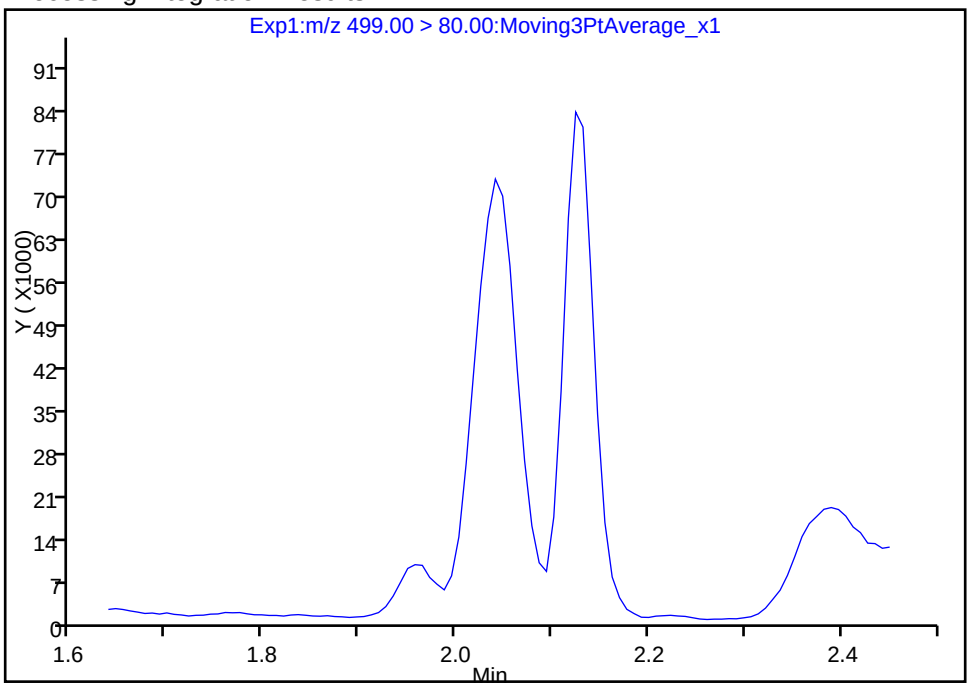
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_038.d				
Injection Date:	20-Oct-2017 20:30:52	Instrument ID:	A8_N		
Lims ID:	320-32094-A-9-A	Lab Sample ID:	320-32094-9		
Client ID:	NAWC-100217-RW-151				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	26	Worklist Smp#:	38
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

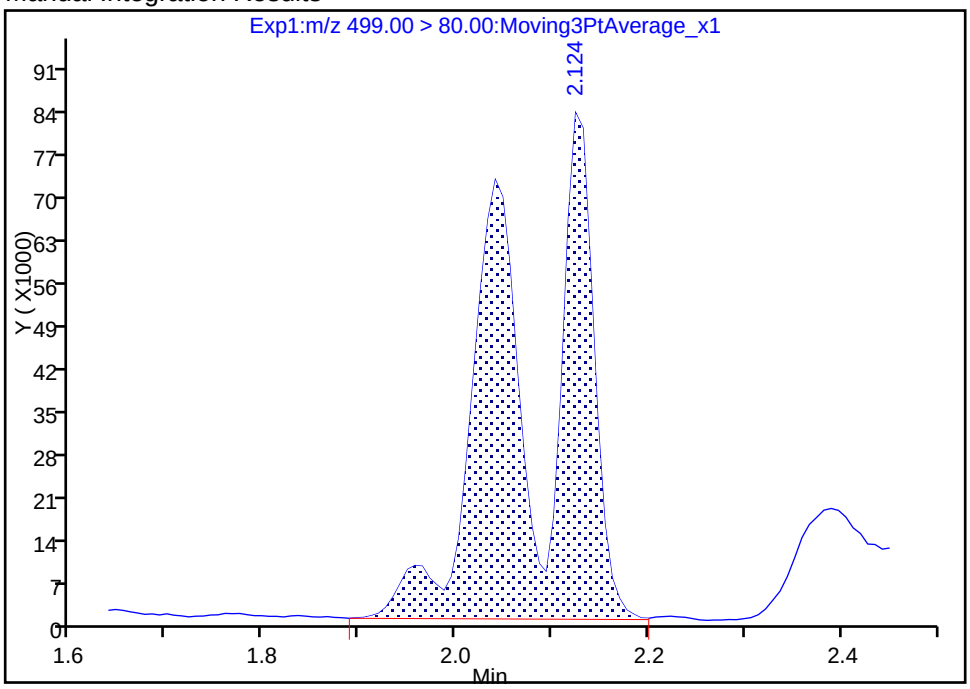
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.12
Area: 433344
Amount: 2.376653
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:07:46
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-151 | Lab Sample ID: 320-32094-10

Matrix: Water | Lab File ID: 2017.10.20_537A_039.d

Analysis Method: 537 | Date Collected: 10/02/2017 11:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 267.8(mL) | Date Analyzed: 10/20/2017 20:35

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_039.d
Lims ID: 320-32094-A-10-A
Client ID: NAWC-100217-FRB-151
Sample Type: Client
Inject. Date: 20-Oct-2017 20:35:37 ALS Bottle#: 27 Worklist Smp#: 39
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-10-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:34:52 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	2000124	9.00		6768	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1897460	10.0		4943	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5605320	28.7		5021	
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1119012	10.6		5738	

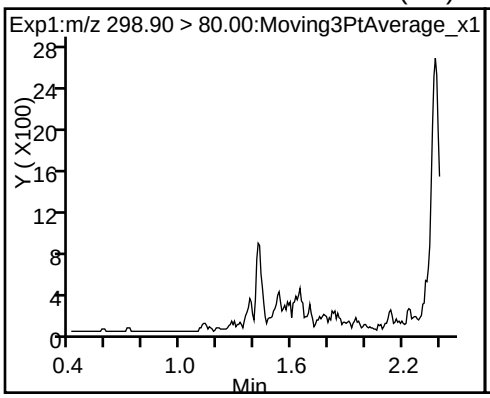
Report Date: 23-Oct-2017 10:35:27 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

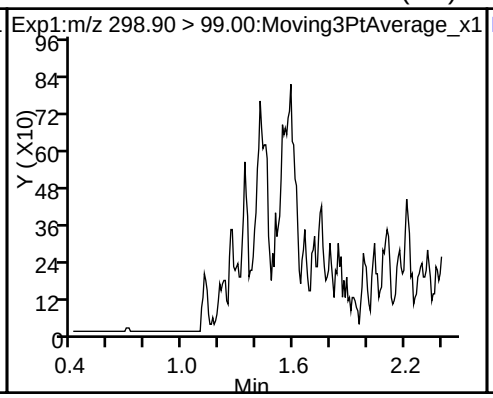
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_039.d

Injection Date:	20-Oct-2017 20:35:37	Instrument ID:	A8_N		
Lims ID:	320-32094-A-10-A	Lab Sample ID:	320-32094-10		
Client ID:	NAWC-100217-FRB-151				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	27	Worklist Smp#:	39
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

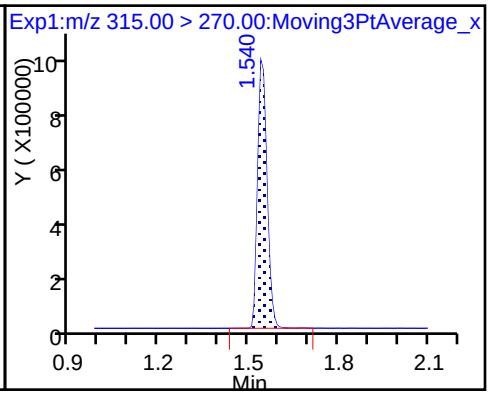
1 Perfluorobutanesulfonic acid (ND)



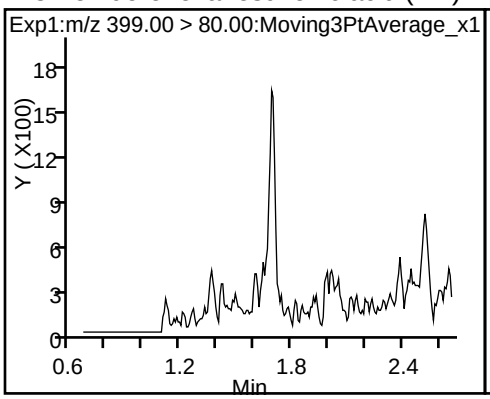
1 Perfluorobutanesulfonic acid (ND)



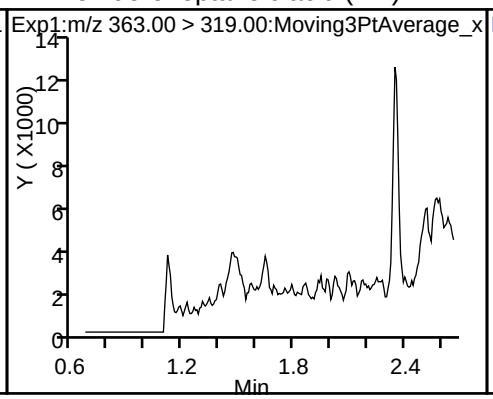
$ 2 13C2 PFHxA



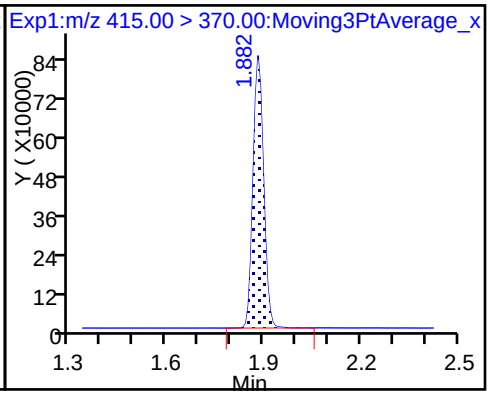
3 Perfluorohexanesulfonic acid (ND)



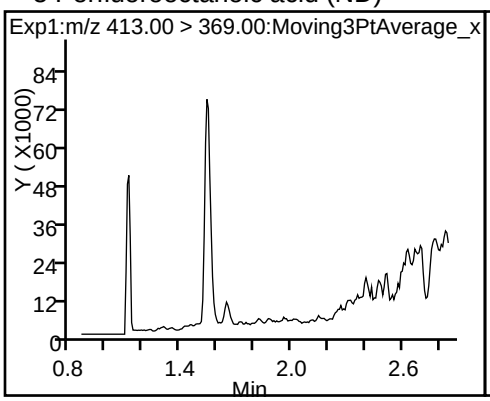
4 Perfluoroheptanoic acid (ND)



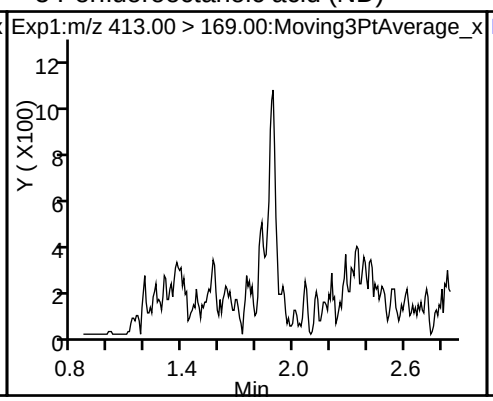
* 6 13C2-PFOA



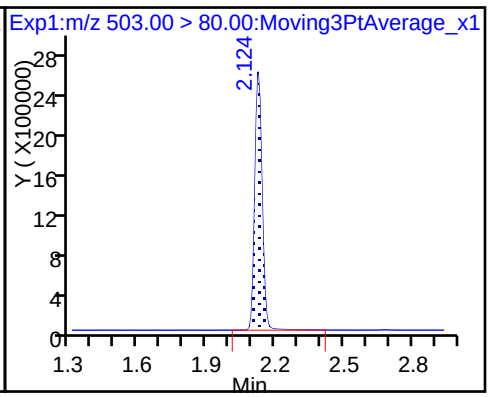
5 Perfluorooctanoic acid (ND)



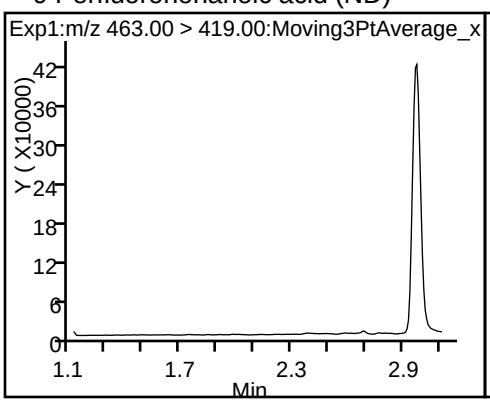
5 Perfluorooctanoic acid (ND)



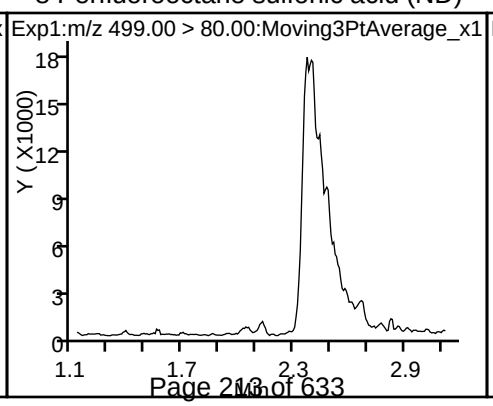
* 7 13C4 PFOS



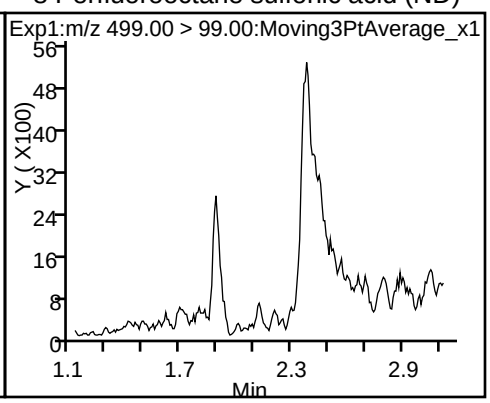
9 Perfluorononanoic acid (ND)



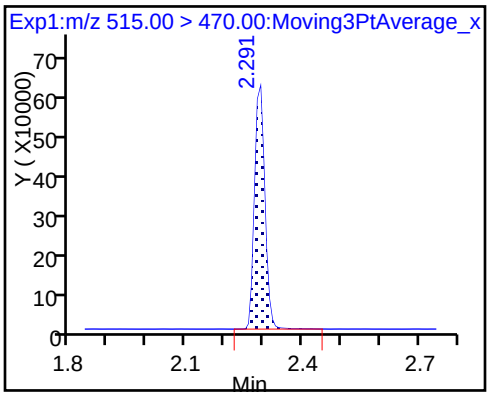
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_039.d				
Lims ID:	320-32094-A-10-A				
Client ID:	NAWC-100217-FRB-151				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 20:35:37	ALS Bottle#:	27	Worklist Smp#:	39
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-10-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:34:52	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.00	89.96
$ 10 13C2 PFDA	10.0	10.6	105.73

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-DUP11 | Lab Sample ID: 320-32094-11

Matrix: Water | Lab File ID: 2017.10.20_537A_040.d

Analysis Method: 537 | Date Collected: 10/02/2017 07:00

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 282(mL) | Date Analyzed: 10/20/2017 20:40

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.9	J M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	22		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.1	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	10		8.9	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	73		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_040.d
Lims ID: 320-32094-A-11-A
Client ID: WGNA-100217-DUP11
Sample Type: Client
Inject. Date: 20-Oct-2017 20:40:21 ALS Bottle#: 28 Worklist Smp#: 40
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-11-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:34:52 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:09:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	305931	1.34		129	
298.90 > 99.00	1.419	1.402	0.017	1.000	199993		1.53(0.00-0.00)	242	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1569586	7.29		3007	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.699	1.668	0.031	1.000	441925	1.43		90.4	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.699	1.668	0.031	1.000	507310	2.93		44.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1837587	10.0		3580	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.889	1.856	0.033	1.000	1037490	6.14		22.2	
413.00 > 169.00	1.889	1.856	0.033	1.000	622585		1.67(0.00-0.00)	744	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		5425929	28.7		1680	
9 Perfluorononanoic acid									
463.00 > 419.00	2.140	2.116	0.024	1.000	66685	0.5836		1.8	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.132	2.124	0.008	1.000	444062	2.52		37.3	M
499.00 > 99.00	2.132	2.124	0.008	1.000	64274		6.91(0.00-0.00)	20.6	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	946555	9.24		3850	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 23-Oct-2017 10:35:31 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_040.d

Injection Date: 20-Oct-2017 20:40:21 Instrument ID: A8_N

Lims ID: 320-32094-A-11-A Lab Sample ID: 320-32094-11

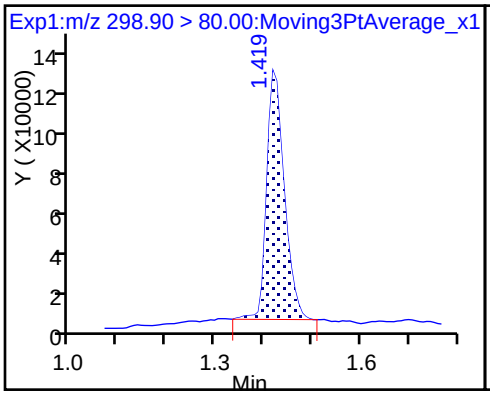
Client ID: WGNA-100217-DUP11

Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 40

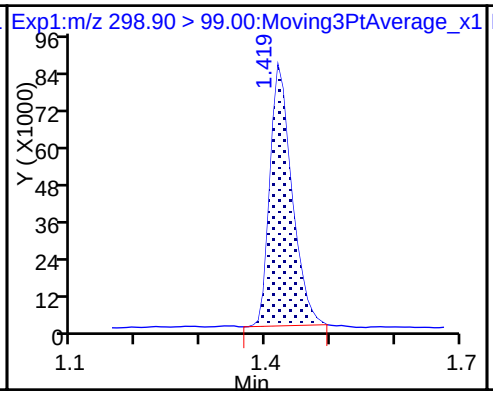
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

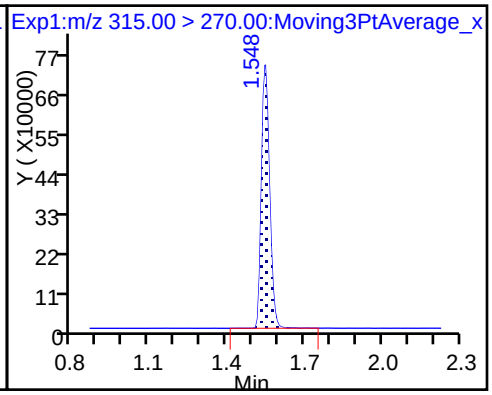
1 Perfluorobutanesulfonic acid



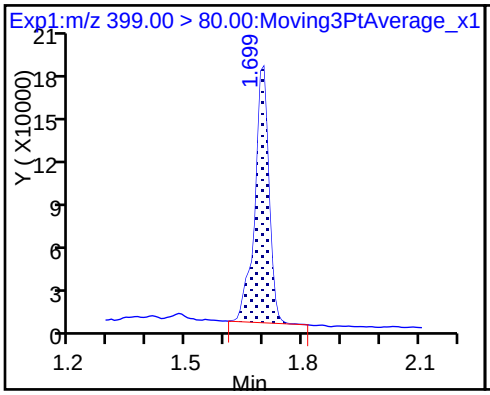
1 Perfluorobutanesulfonic acid



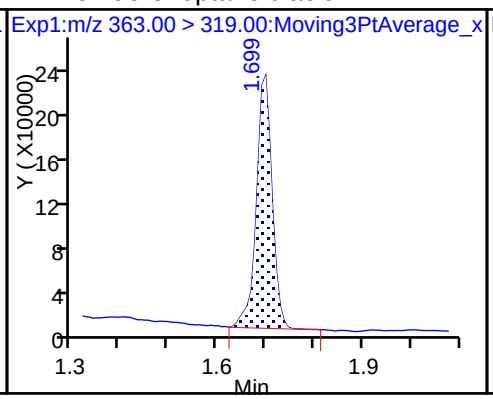
$ 2 13C2 PFHxA



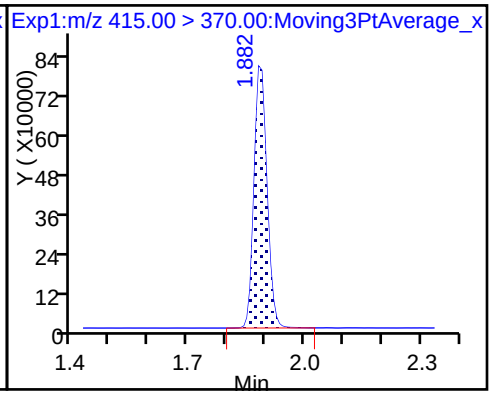
3 Perfluorohexanesulfonic acid



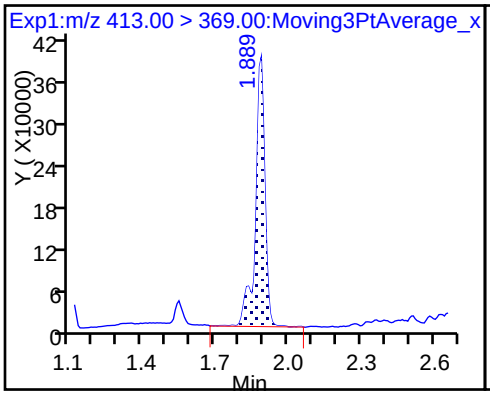
4 Perfluoroheptanoic acid



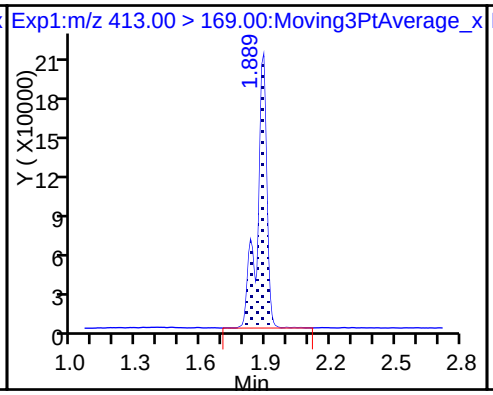
* 6 13C2-PFOA



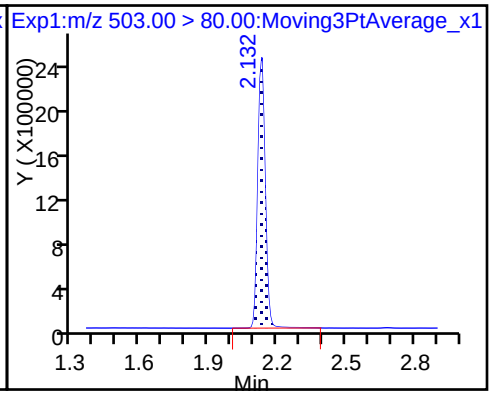
5 Perfluorooctanoic acid



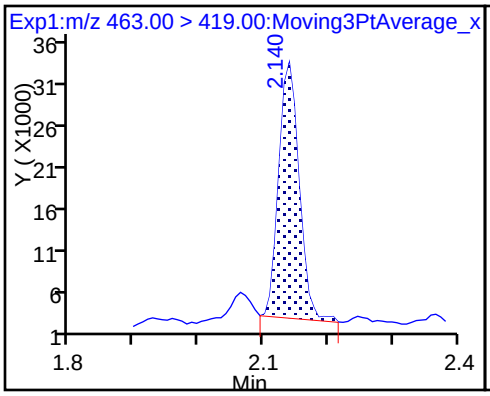
5 Perfluorooctanoic acid



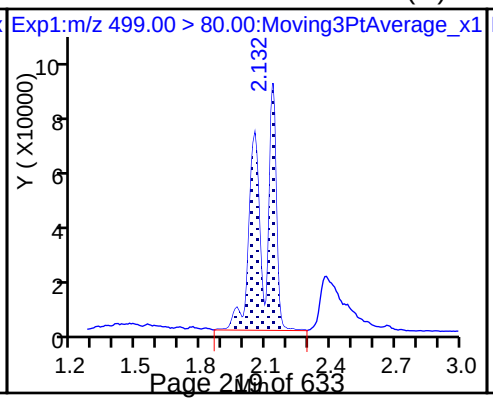
* 7 13C4 PFOS



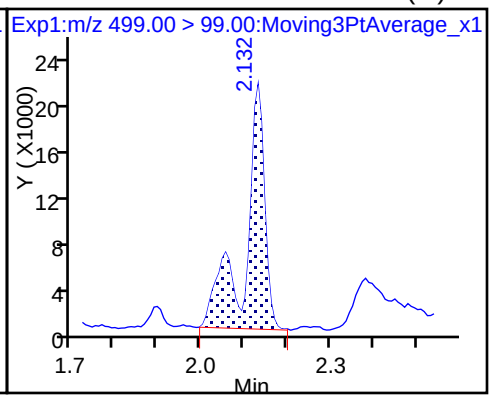
9 Perfluorononanoic acid



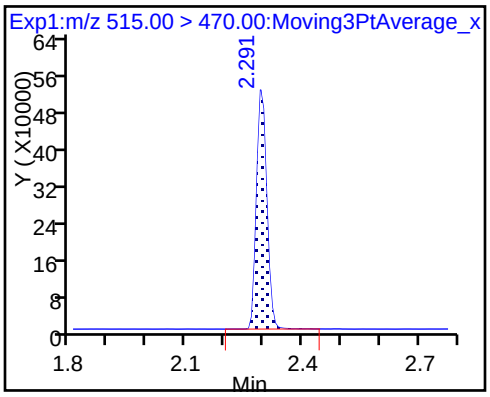
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
64
56
48
40
32
24
16
8
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_040.d				
Lims ID:	320-32094-A-11-A				
Client ID:	WGNA-100217-DUP11				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 20:40:21	ALS Bottle#:	28	Worklist Smp#:	40
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-11-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:34:52	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:09:06

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.29	72.90
$ 10 13C2 PFDA	10.0	9.24	92.35

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

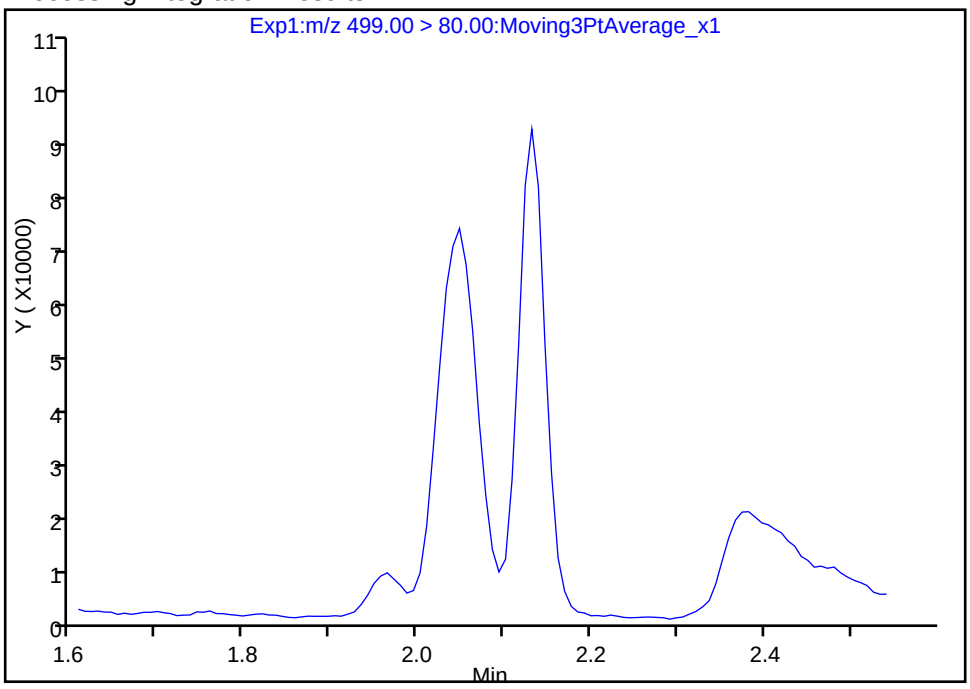
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_040.d				
Injection Date:	20-Oct-2017 20:40:21	Instrument ID:	A8_N		
Lims ID:	320-32094-A-11-A	Lab Sample ID:	320-32094-11		
Client ID:	WGNA-100217-DUP11				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	40
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

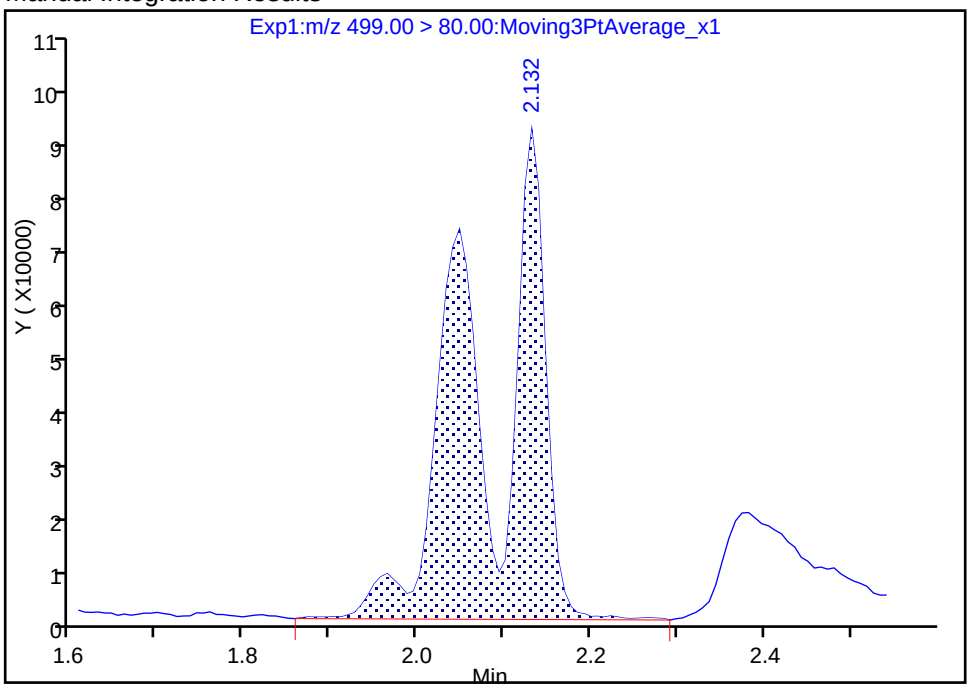
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 444062
Amount: 2.519257
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:08:32
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

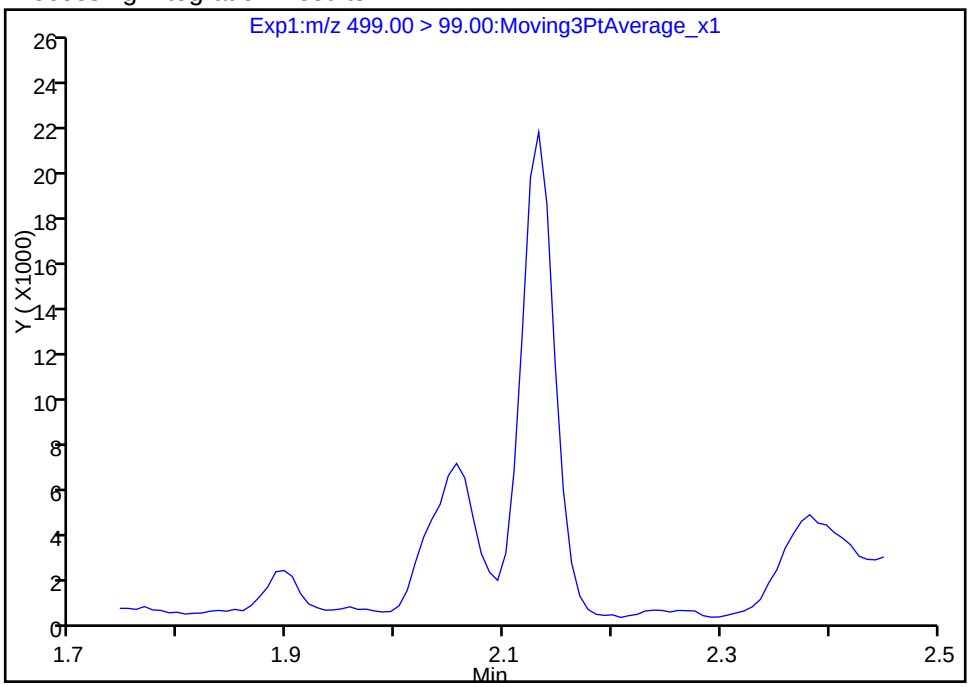
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_040.d				
Injection Date:	20-Oct-2017 20:40:21	Instrument ID:	A8_N		
Lims ID:	320-32094-A-11-A	Lab Sample ID:	320-32094-11		
Client ID:	WGNA-100217-DUP11				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	40
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

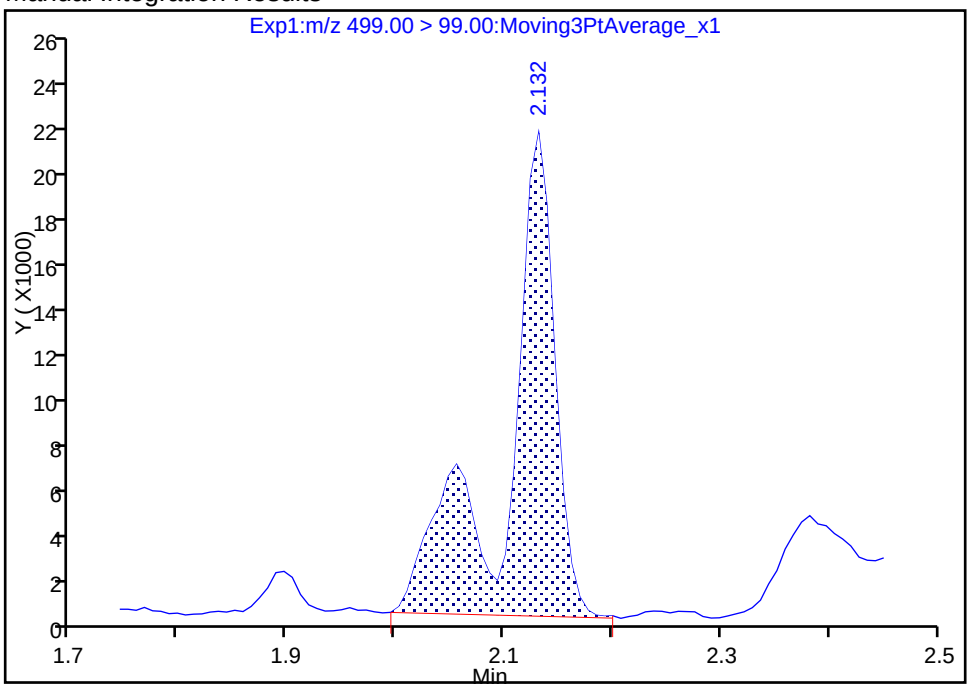
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 64274
Amount: 2.519257
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:08:48
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

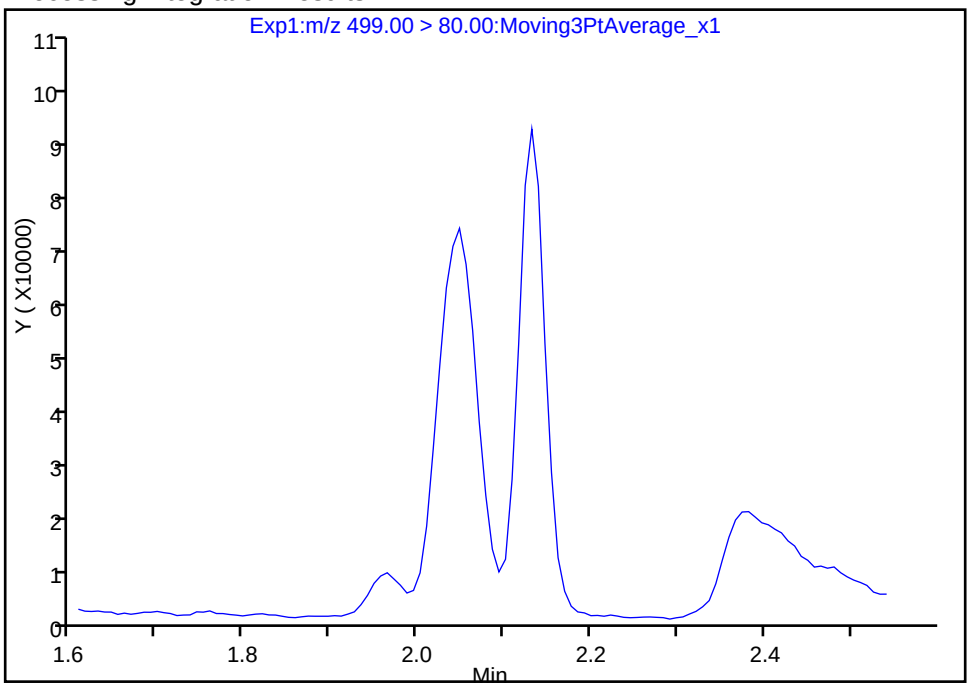
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_040.d				
Injection Date:	20-Oct-2017 20:40:21	Instrument ID:	A8_N		
Lims ID:	320-32094-A-11-A	Lab Sample ID:	320-32094-11		
Client ID:	WGNA-100217-DUP11				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	40
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

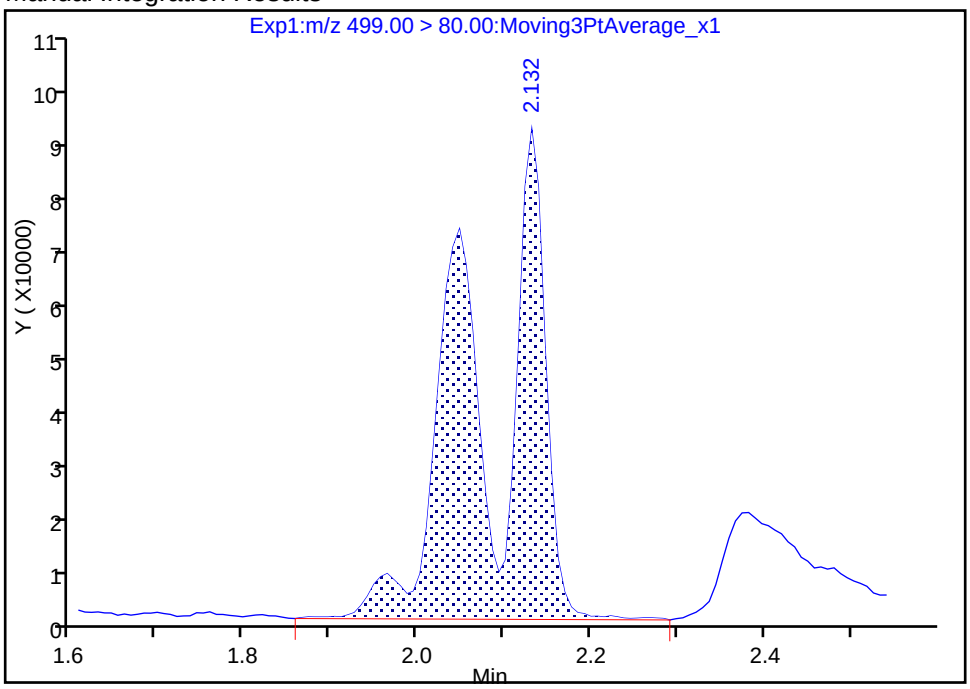
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 444062
Amount: 2.519257
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:08:48
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-130 | Lab Sample ID: 320-32094-12

Matrix: Water | Lab File ID: 2017.10.20_537A_041.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 277.2(mL) | Date Analyzed: 10/20/2017 20:45

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J M	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	6.5	J	18	7.2	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.5	J	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.6	J	9.0	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	81	32	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	76		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_041.d
Lims ID: 320-32094-A-12-A
Client ID: NAWC-100217-RW-130
Sample Type: Client
Inject. Date: 20-Oct-2017 20:45:05 ALS Bottle#: 29 Worklist Smp#: 41
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-12-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:34:52 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:11:16

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	293325	1.19		209	
298.90 > 99.00	1.419	1.402	0.017	1.000	201327		1.46(0.00-0.00)	315	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	1722649	7.60		4064	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	597363	1.79		205	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	231487	1.27		25.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1935179	10.0		4071	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	318889	1.79		13.7	
413.00 > 169.00	1.882	1.856	0.026	1.000	389714		0.82(0.00-0.00)	716	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5847749	28.7		2727	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.124	0.0	1.000	839676	4.42		96.3	M
499.00 > 99.00	2.124	2.124	0.0	1.000	151828		5.53(0.00-0.00)	54.7	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1163636	10.8		5721	

QC Flag Legend

Review Flags

M - Manually Integrated

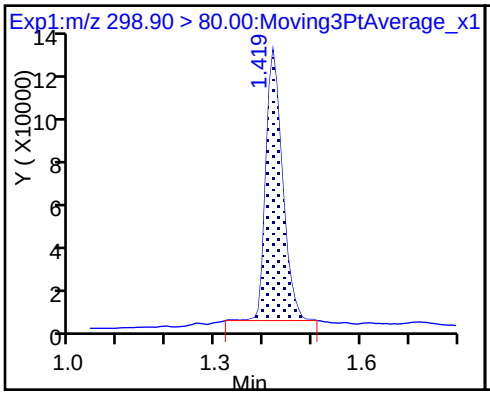
Report Date: 23-Oct-2017 10:35:36 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

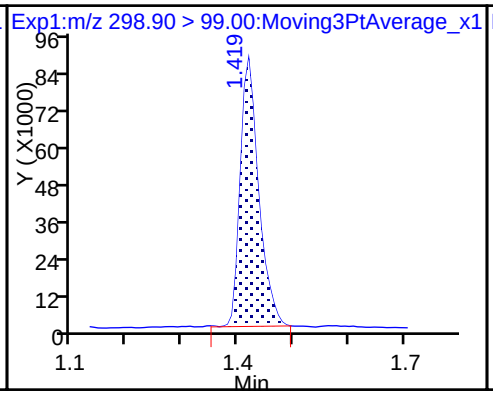
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_041.d

Injection Date:	20-Oct-2017 20:45:05	Instrument ID:	A8_N		
Lims ID:	320-32094-A-12-A	Lab Sample ID:	320-32094-12		
Client ID:	NAWC-100217-RW-130				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	41
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

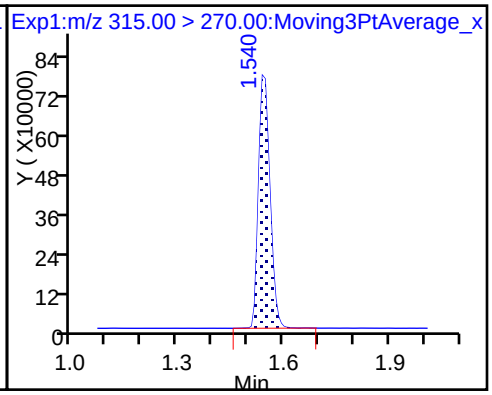
1 Perfluorobutanesulfonic acid



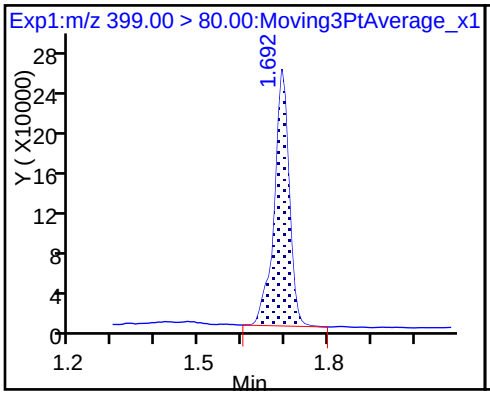
1 Perfluorobutanesulfonic acid



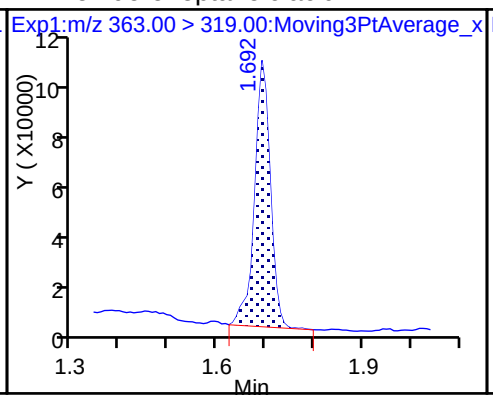
$ 2 13C2 PFHxA



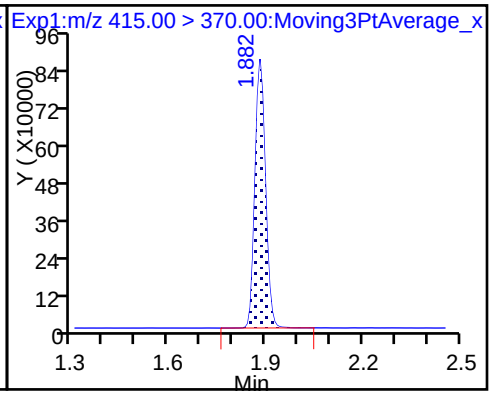
3 Perfluorohexanesulfonic acid



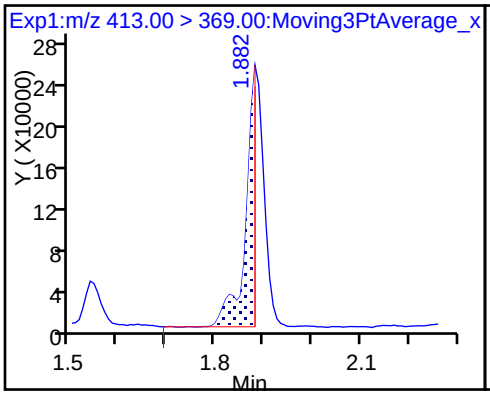
4 Perfluoroheptanoic acid



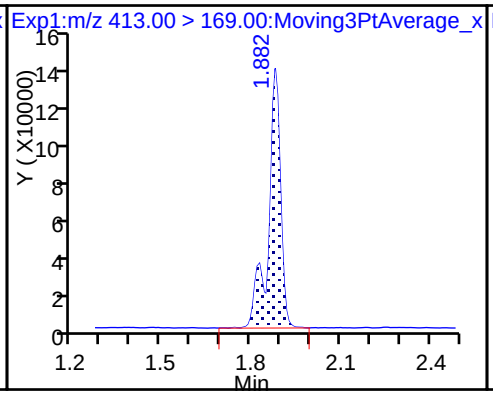
* 6 13C2-PFOA



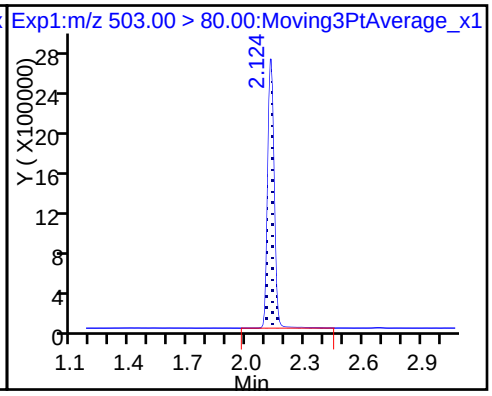
5 Perfluorooctanoic acid



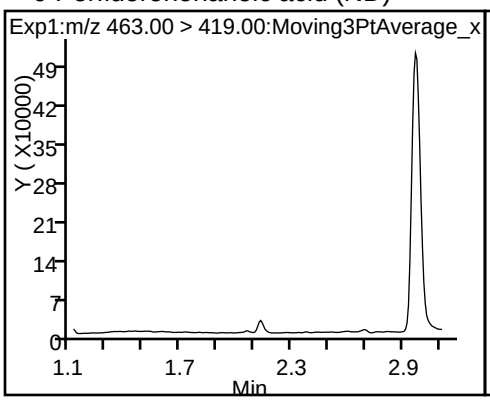
5 Perfluorooctanoic acid



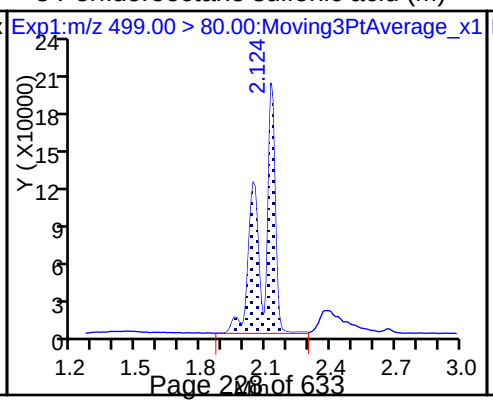
* 7 13C4 PFOS



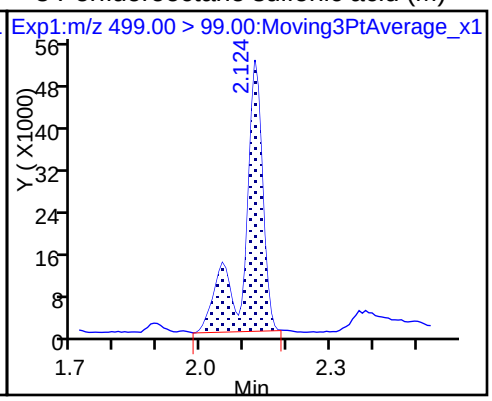
9 Perfluorononanoic acid (ND)



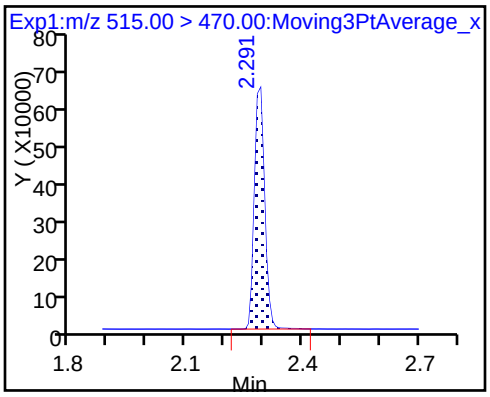
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
80
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_041.d				
Lims ID:	320-32094-A-12-A				
Client ID:	NAWC-100217-RW-130				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 20:45:05	ALS Bottle#:	29	Worklist Smp#:	41
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-12-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:34:52	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:11:16

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.60	75.97
$ 10 13C2 PFDA	10.0	10.8	107.80

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

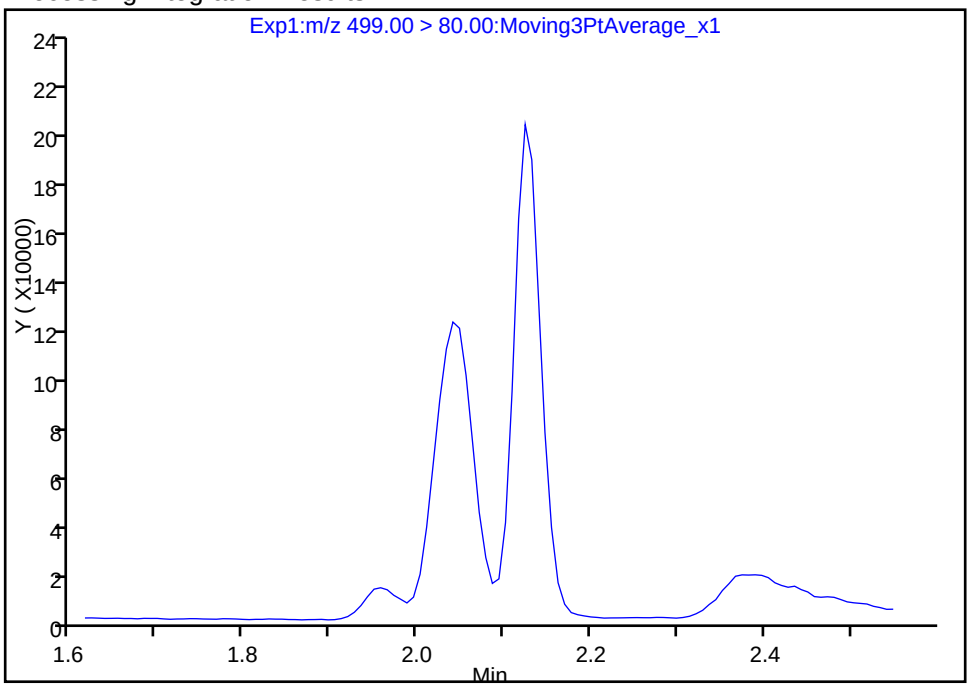
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_041.d				
Injection Date:	20-Oct-2017 20:45:05	Instrument ID:	A8_N		
Lims ID:	320-32094-A-12-A	Lab Sample ID:	320-32094-12		
Client ID:	NAWC-100217-RW-130				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	41
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

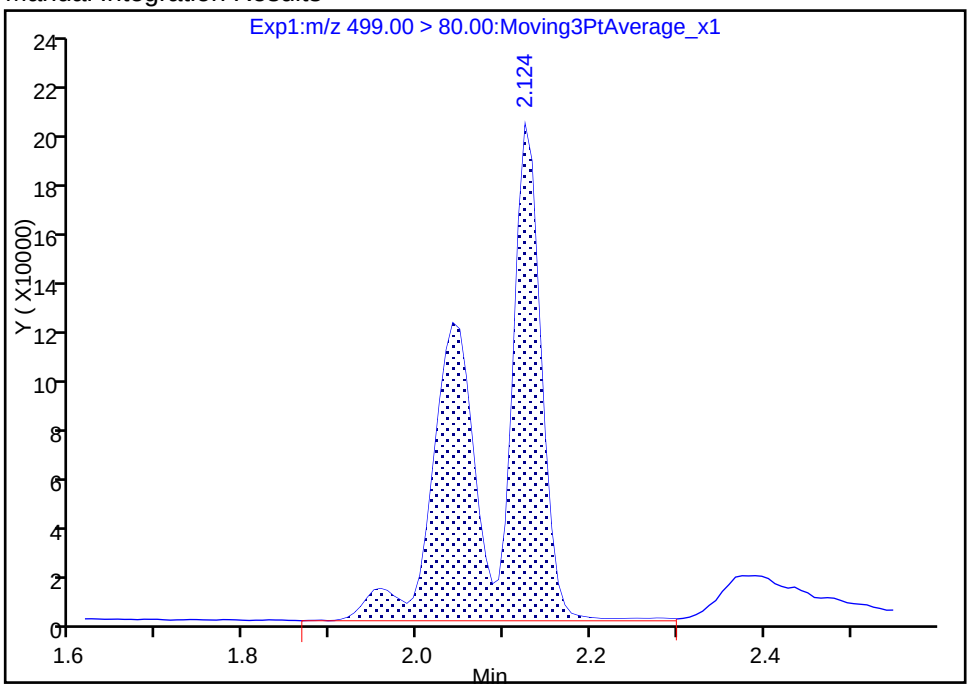
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 839676
Amount: 4.420038
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:09:16
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

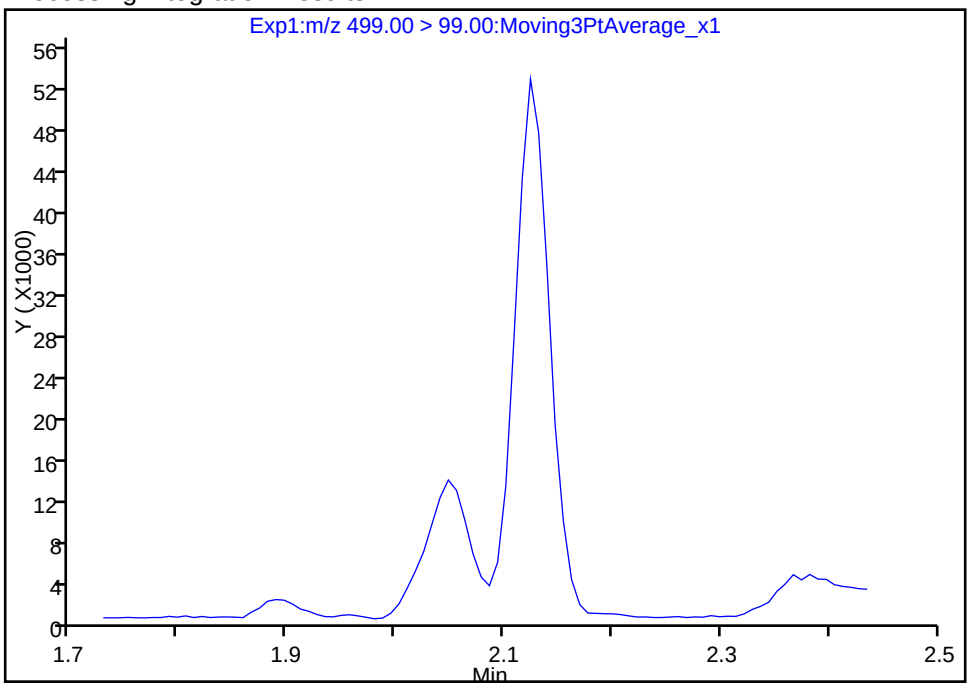
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_041.d				
Injection Date:	20-Oct-2017 20:45:05	Instrument ID:	A8_N		
Lims ID:	320-32094-A-12-A	Lab Sample ID:	320-32094-12		
Client ID:	NAWC-100217-RW-130				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	41
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

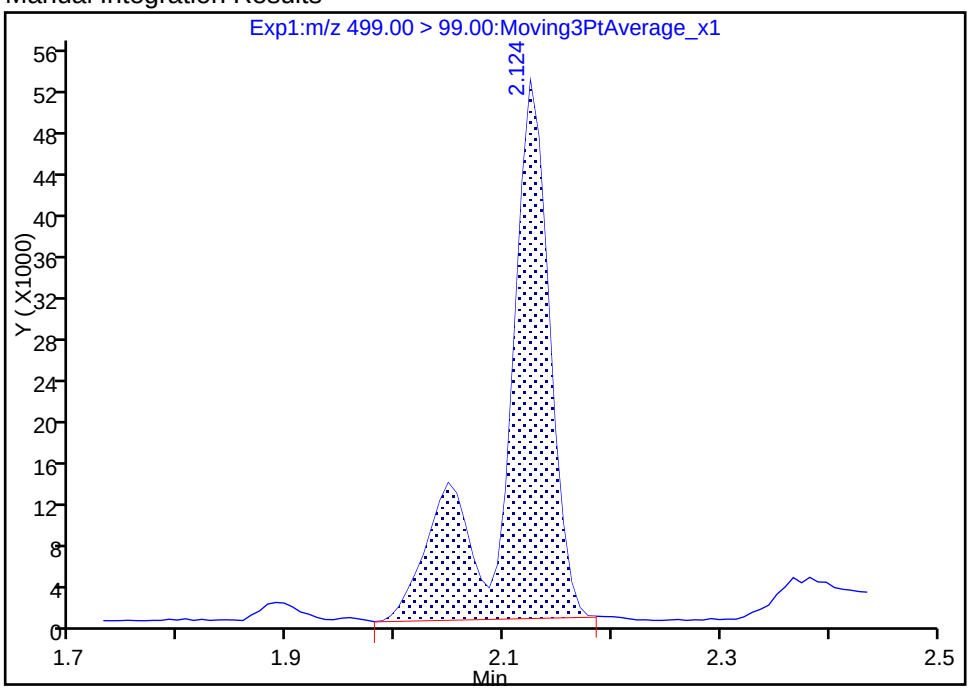
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 151828
Amount: 4.420038
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:09:30
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

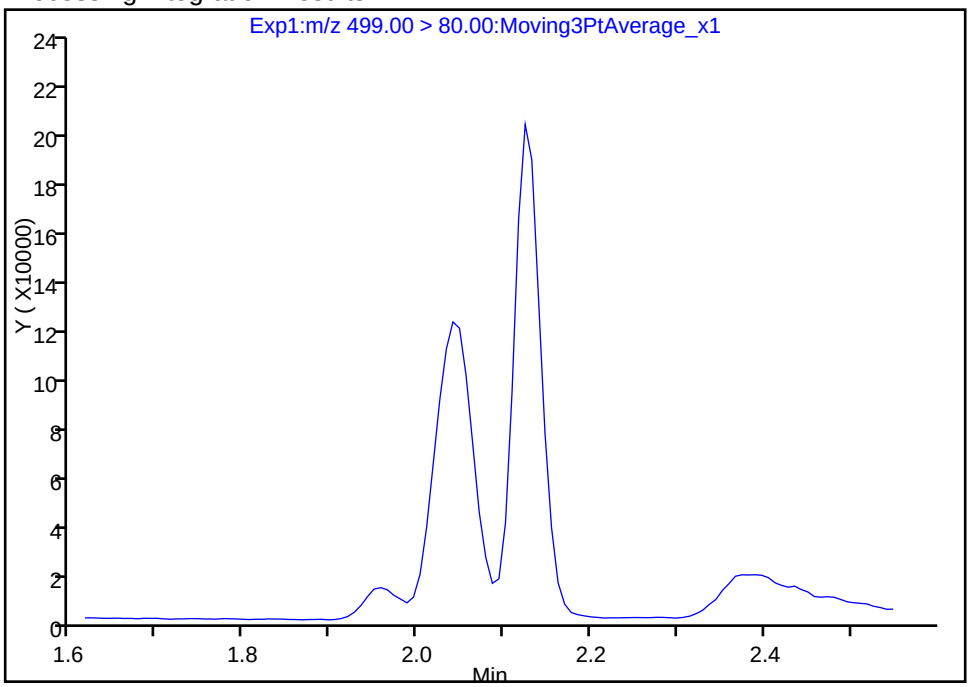
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_041.d				
Injection Date:	20-Oct-2017 20:45:05	Instrument ID:	A8_N		
Lims ID:	320-32094-A-12-A	Lab Sample ID:	320-32094-12		
Client ID:	NAWC-100217-RW-130				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	41
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

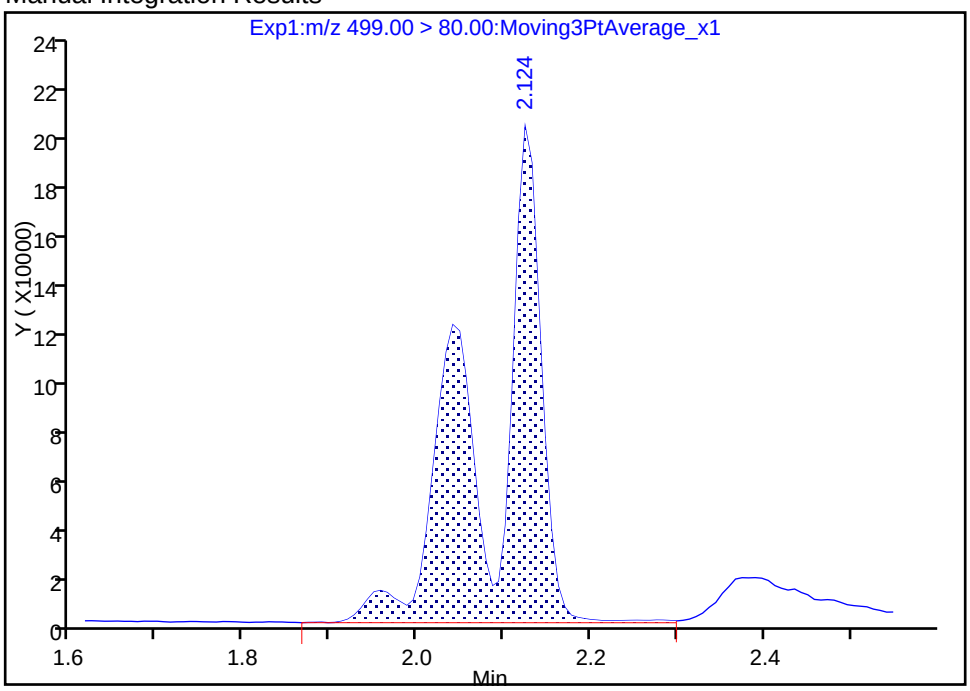
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.12
Area: 839676
Amount: 4.420038
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:09:30
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-130 | Lab Sample ID: 320-32094-13

Matrix: Water | Lab File ID: 2017.10.20_537A_042.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 285.2(mL) | Date Analyzed: 10/20/2017 20:49

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	U	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	7.0	U	18	7.0	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	26	11	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.5	U	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_042.d
Lims ID: 320-32094-A-13-A
Client ID: NAWC-100217-FRB-130
Sample Type: Client
Inject. Date: 20-Oct-2017 20:49:50 ALS Bottle#: 30 Worklist Smp#: 42
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-13-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:34:52 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2056165	8.97		5308	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1955473	10.0		4906	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5632988	28.7		5105	
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1158427	10.6		5629	

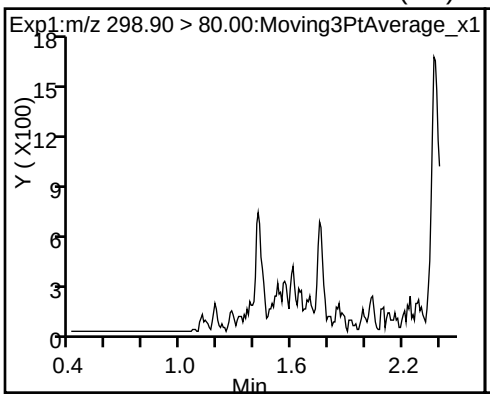
Report Date: 23-Oct-2017 10:35:40 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

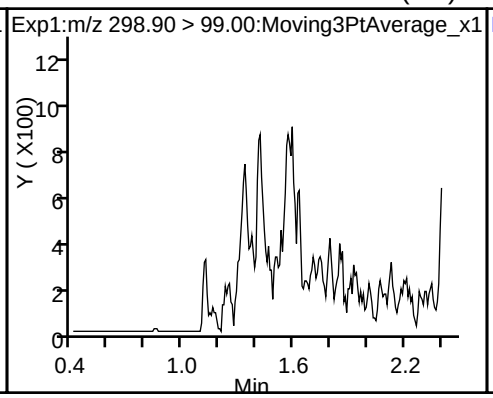
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_042.d

Injection Date:	20-Oct-2017 20:49:50	Instrument ID:	A8_N		
Lims ID:	320-32094-A-13-A	Lab Sample ID:	320-32094-13		
Client ID:	NAWC-100217-FRB-130				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	30	Worklist Smp#:	42
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

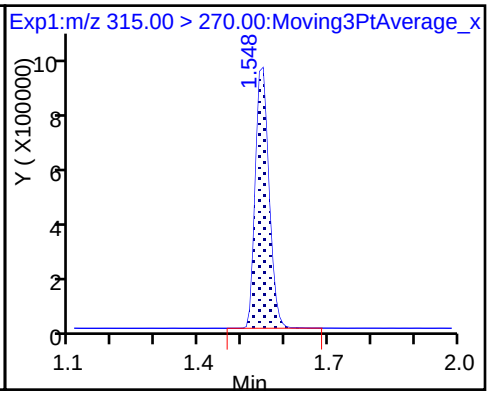
1 Perfluorobutanesulfonic acid (ND)



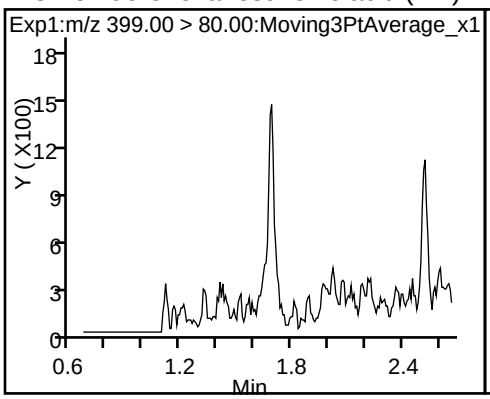
1 Perfluorobutanesulfonic acid (ND)



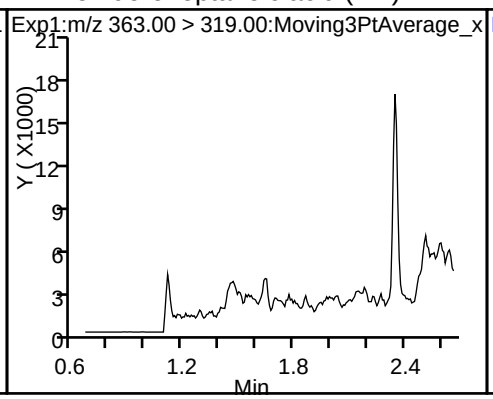
$ 2 13C2 PFHxA



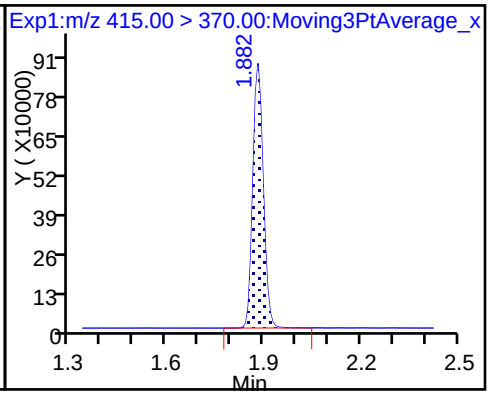
3 Perfluorohexanesulfonic acid (ND)



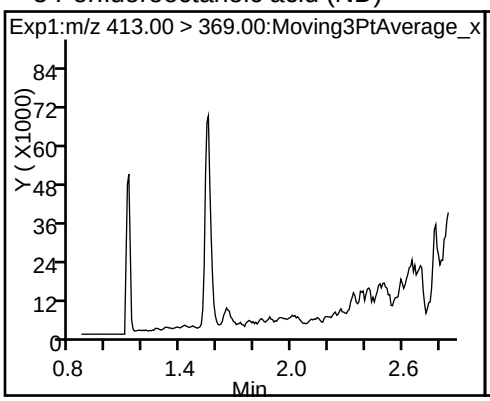
4 Perfluoroheptanoic acid (ND)



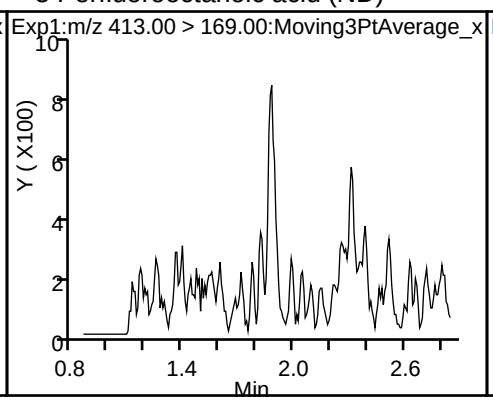
* 6 13C2-PFOA



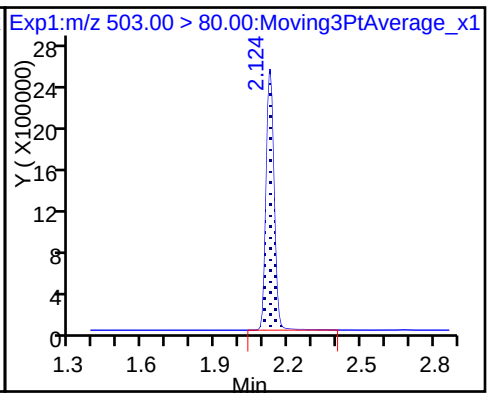
5 Perfluorooctanoic acid (ND)



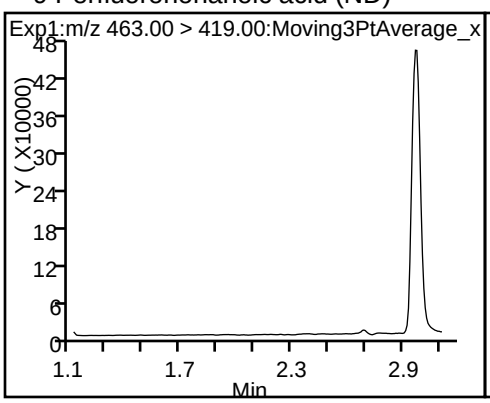
5 Perfluorooctanoic acid (ND)



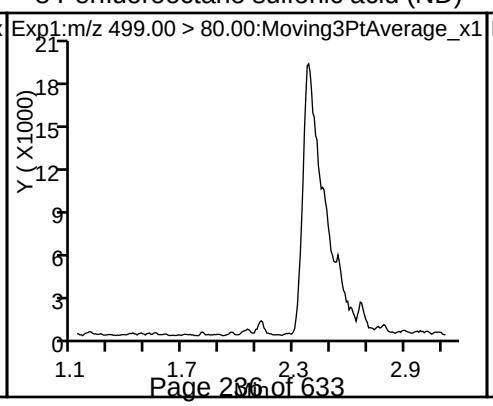
* 7 13C4 PFOS



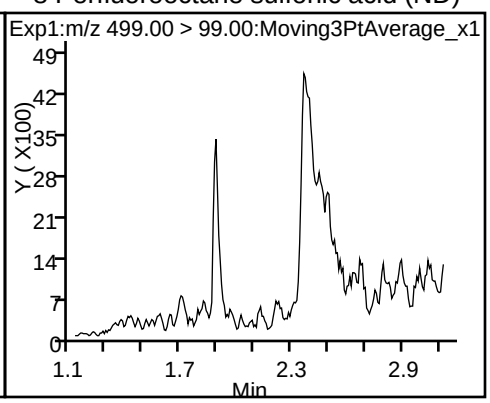
9 Perfluorononanoic acid (ND)



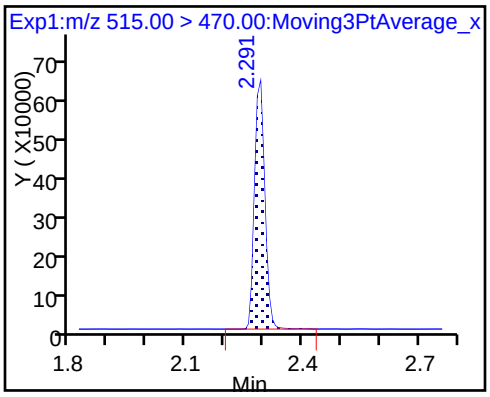
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_042.d				
Lims ID:	320-32094-A-13-A				
Client ID:	NAWC-100217-FRB-130				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 20:49:50	ALS Bottle#:	30	Worklist Smp#:	42
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-13-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:34:52	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.97	89.74
$ 10 13C2 PFDA	10.0	10.6	106.21

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-125 | Lab Sample ID: 320-32094-14

Matrix: Water | Lab File ID: 2017.10.20_537A_043.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 288.3(mL) | Date Analyzed: 10/20/2017 20:54

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J M	35	14	5.9
335-67-1	Perfluorooctanoic acid (PFOA)	16	J	17	6.9	2.4
375-95-1	Perfluorononanoic acid (PFNA)	17	U	21	17	6.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	26	10	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.2	J	8.7	3.5	1.6
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31	U	78	31	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	77		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_043.d
Lims ID: 320-32094-A-14-A
Client ID: NAWC-100217-RW-125
Sample Type: Client
Inject. Date: 20-Oct-2017 20:54:34 ALS Bottle#: 31 Worklist Smp#: 43
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-14-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:34:52 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:11:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	213556	0.8719		169	
298.90 > 99.00	1.419	1.402	0.017	1.000	153020		1.40(0.00-0.00)	240	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1720303	7.68		4458	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	1390293	4.19		461	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	319672	1.78		33.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1910551	10.0		4474	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	795371	4.53		17.3	
413.00 > 169.00	1.882	1.856	0.026	1.000	475613		1.67(0.00-0.00)	809	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5802887	28.7		3065	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.124	0.0	1.000	752995	3.99		76.8	M
499.00 > 99.00	2.124	2.124	0.0	1.000	133824		5.63(0.00-0.00)	42.3	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1134196	10.6		5961	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 23-Oct-2017 10:35:46 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_043.d

Injection Date: 20-Oct-2017 20:54:34 Instrument ID: A8_N

Lims ID: 320-32094-A-14-A Lab Sample ID: 320-32094-14

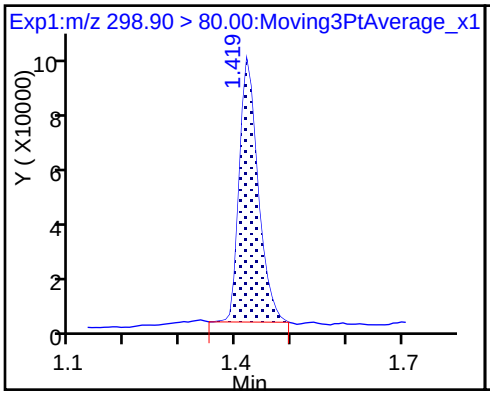
Client ID: NAWC-100217-RW-125

Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 43

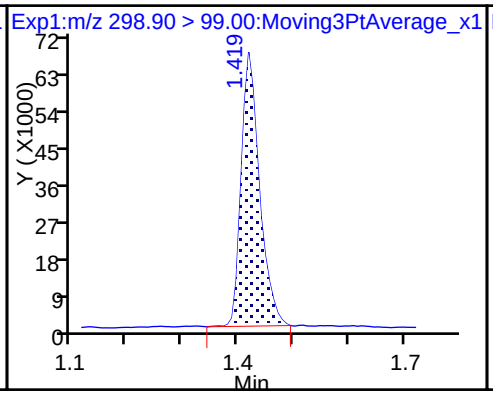
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

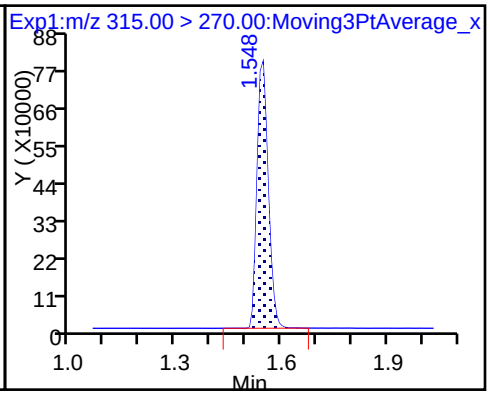
1 Perfluorobutanesulfonic acid



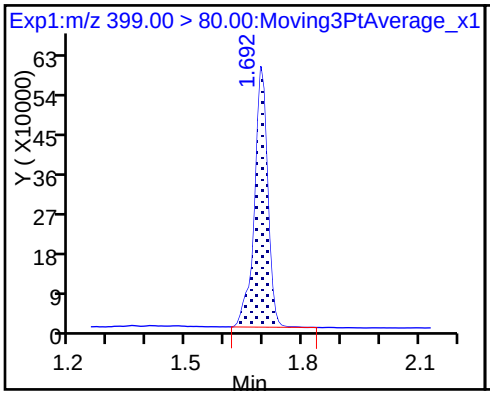
1 Perfluorobutanesulfonic acid



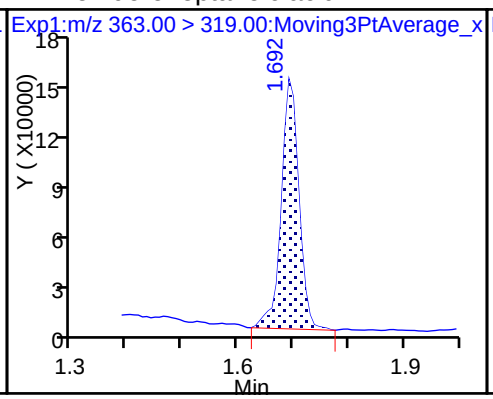
$ 2 13C2 PFHxA



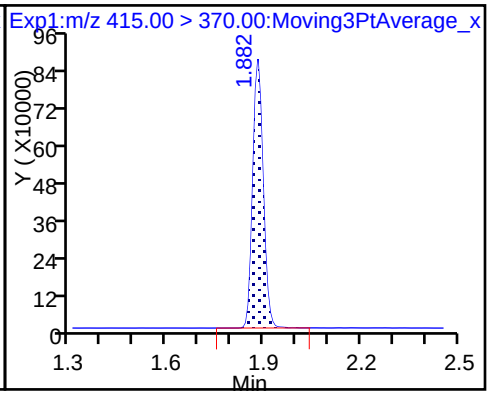
3 Perfluorohexanesulfonic acid



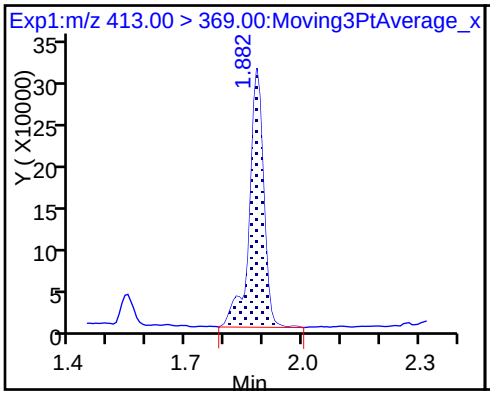
4 Perfluoroheptanoic acid



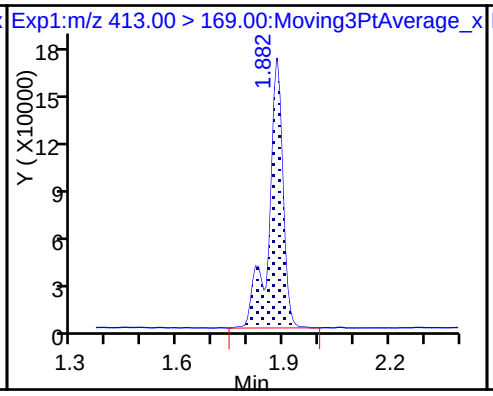
* 6 13C2-PFOA



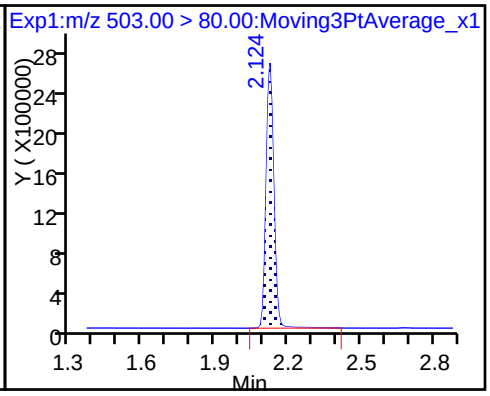
5 Perfluorooctanoic acid



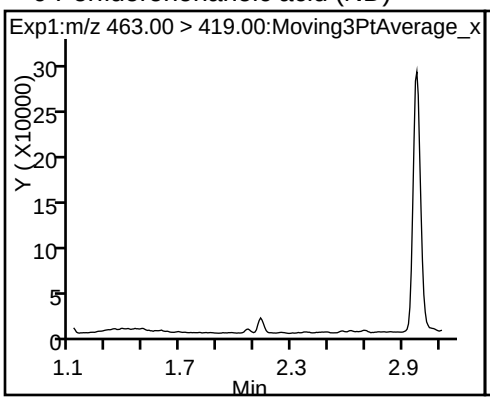
5 Perfluorooctanoic acid



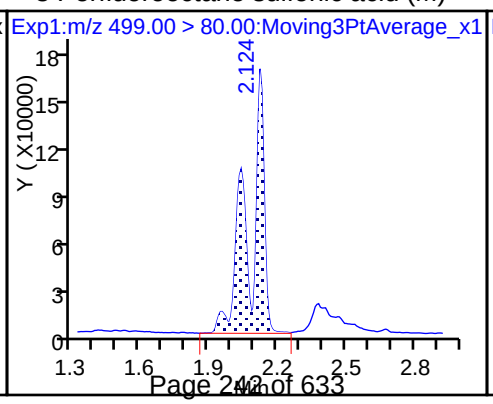
* 7 13C4 PFOS



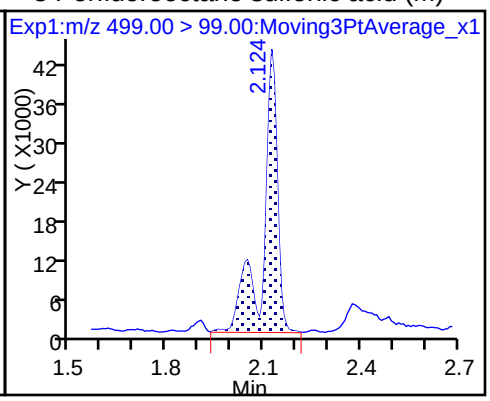
9 Perfluorononanoic acid (ND)



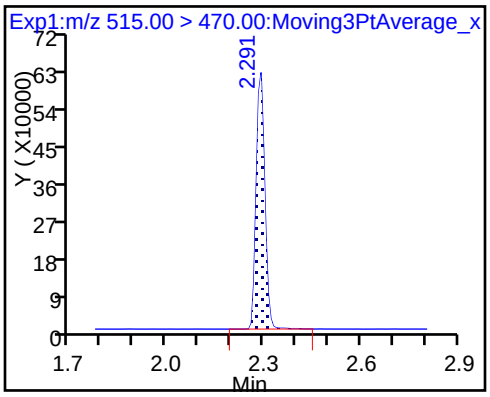
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
72
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
2.9
Min

Report Date: 23-Oct-2017 10:35:46 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_043.d				
Lims ID:	320-32094-A-14-A				
Client ID:	NAWC-100217-RW-125				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 20:54:34	ALS Bottle#:	31	Worklist Smp#:	43
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-14-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:34:52	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:11:49

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.68	76.84
$ 10 13C2 PFDA	10.0	10.6	106.43

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

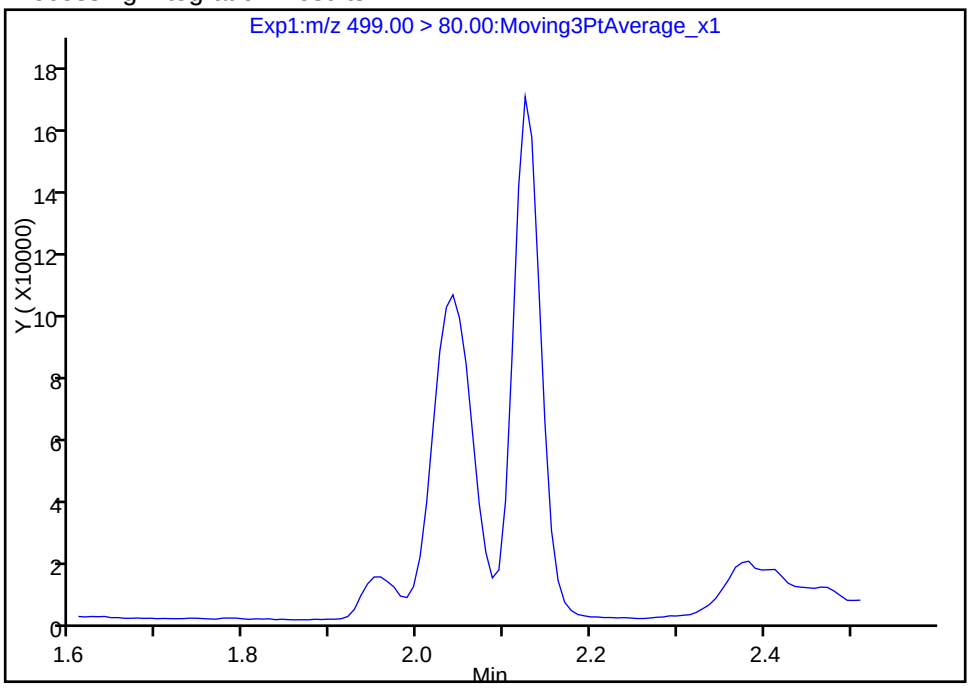
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_043.d				
Injection Date:	20-Oct-2017 20:54:34	Instrument ID:	A8_N		
Lims ID:	320-32094-A-14-A	Lab Sample ID:	320-32094-14		
Client ID:	NAWC-100217-RW-125				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	43
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

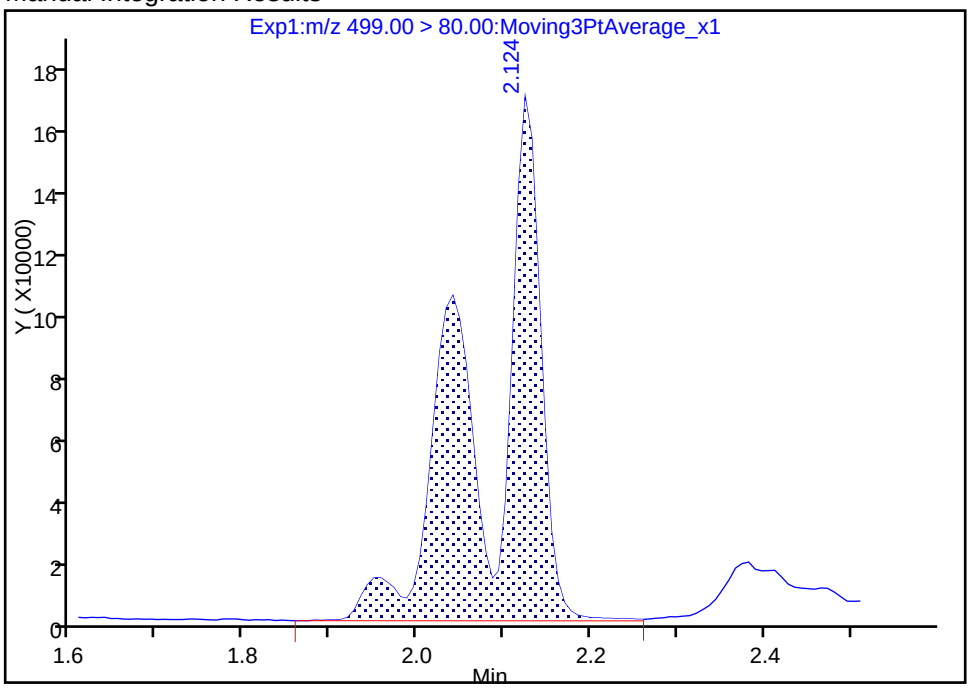
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 752995
Amount: 3.994394
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:11:26
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

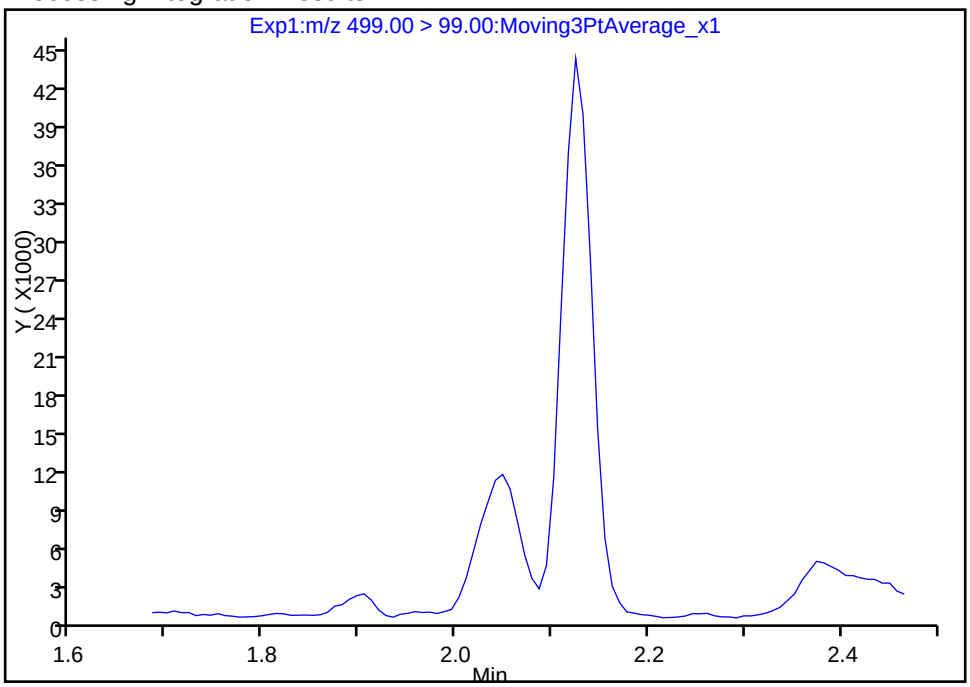
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_043.d				
Injection Date:	20-Oct-2017 20:54:34	Instrument ID:	A8_N		
Lims ID:	320-32094-A-14-A	Lab Sample ID:	320-32094-14		
Client ID:	NAWC-100217-RW-125				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	43
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

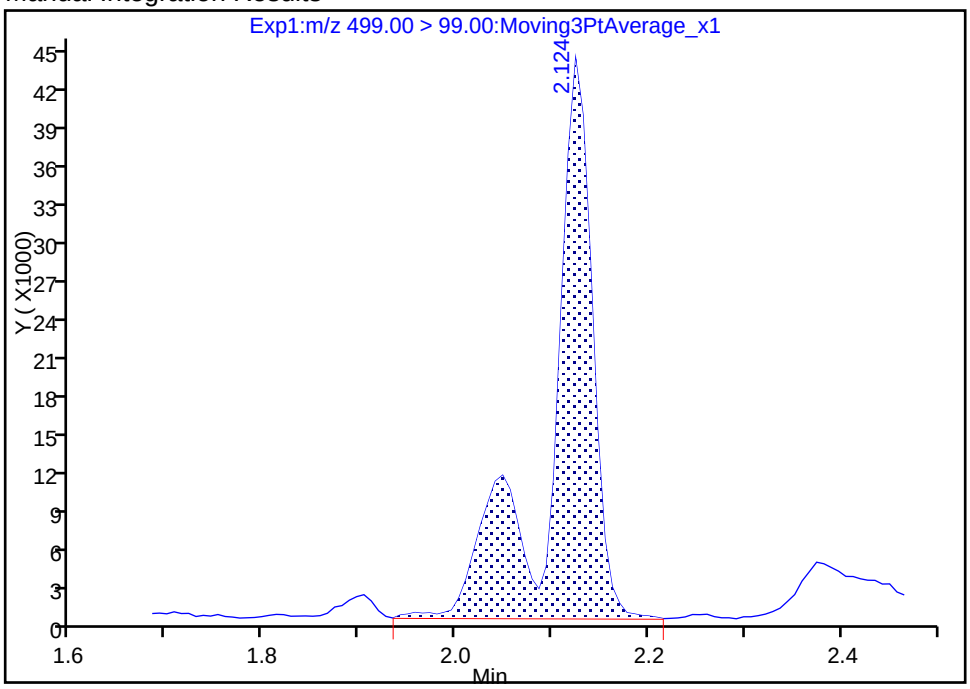
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.12
Area: 133824
Amount: 3.994394
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:11:43
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

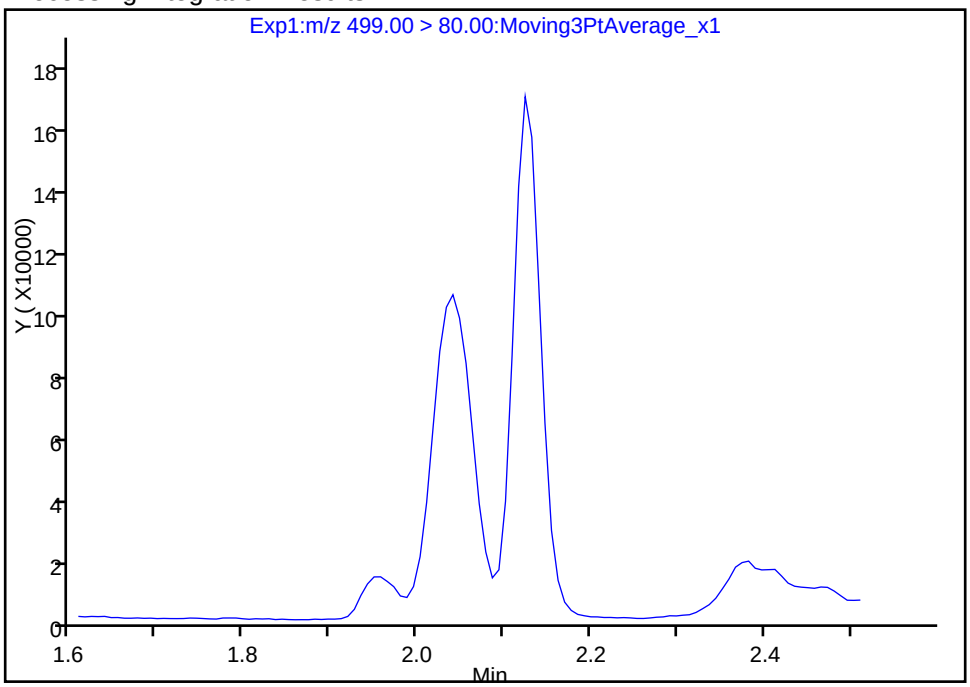
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_043.d				
Injection Date:	20-Oct-2017 20:54:34	Instrument ID:	A8_N		
Lims ID:	320-32094-A-14-A	Lab Sample ID:	320-32094-14		
Client ID:	NAWC-100217-RW-125				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	43
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

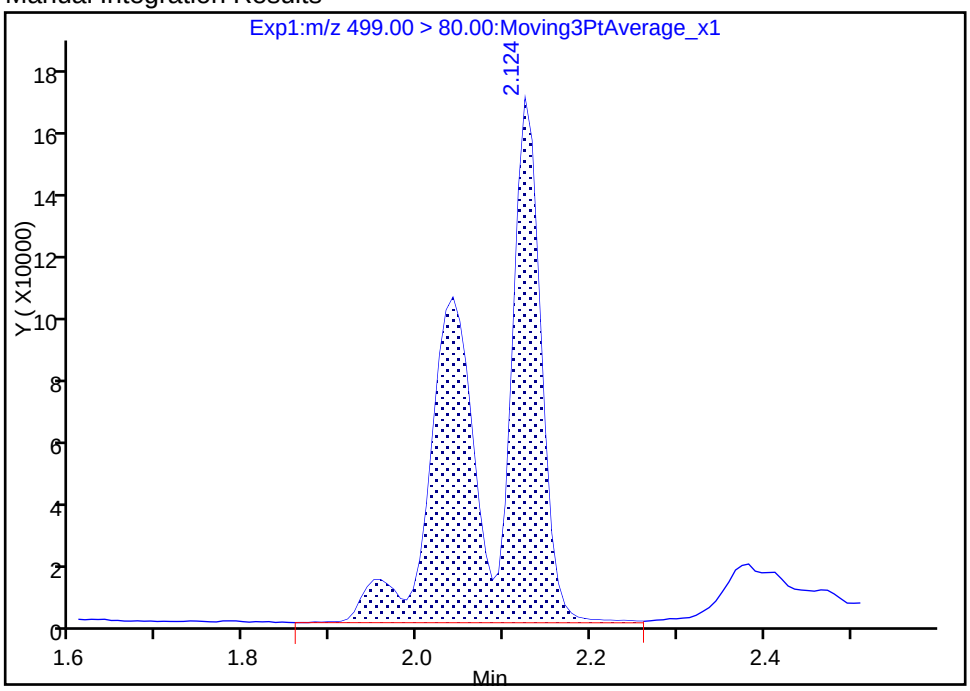
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.12
Area: 752995
Amount: 3.994394
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:11:43
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-125 | Lab Sample ID: 320-32094-15

Matrix: Water | Lab File ID: 2017.10.20_537A_044.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 266.2(mL) | Date Analyzed: 10/20/2017 20:59

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	0.9	Q	70-130
STL00996	13C2 PFDA	3	Q	70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_044.d
Lims ID: 320-32094-A-15-A
Client ID: NAWC-100217-FRB-125
Sample Type: Client
Inject. Date: 20-Oct-2017 20:59:18 ALS Bottle#: 32 Worklist Smp#: 44
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-15-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:34:52 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:12:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	21035	0.0892		131	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		2011771	10.0		3954	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5901582	28.7		3575	
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	36758	0.3276		281	

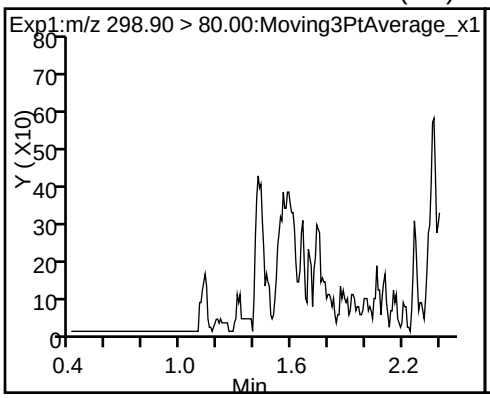
Report Date: 23-Oct-2017 10:35:52 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

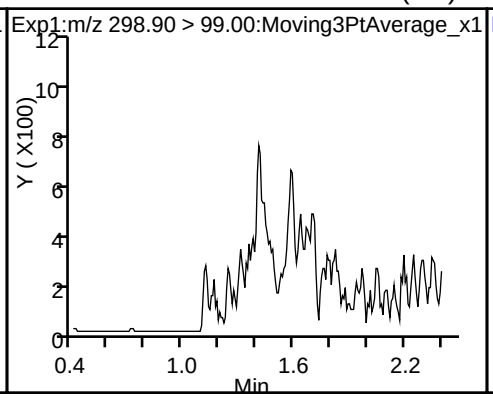
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_044.d

Injection Date:	20-Oct-2017 20:59:18	Instrument ID:	A8_N		
Lims ID:	320-32094-A-15-A	Lab Sample ID:	320-32094-15		
Client ID:	NAWC-100217-FRB-125				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	44
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

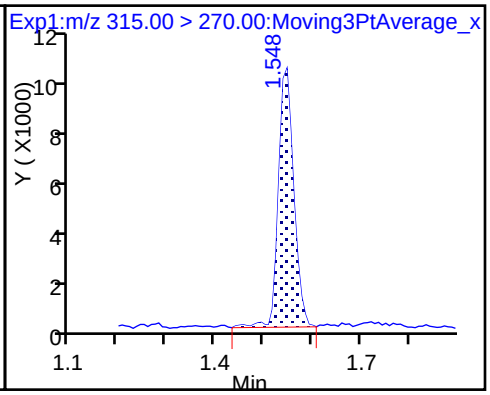
1 Perfluorobutanesulfonic acid (ND)



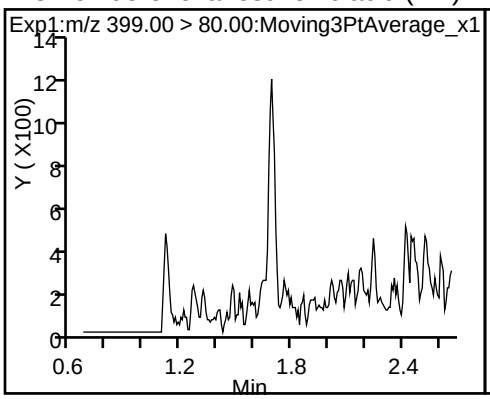
1 Perfluorobutanesulfonic acid (ND)



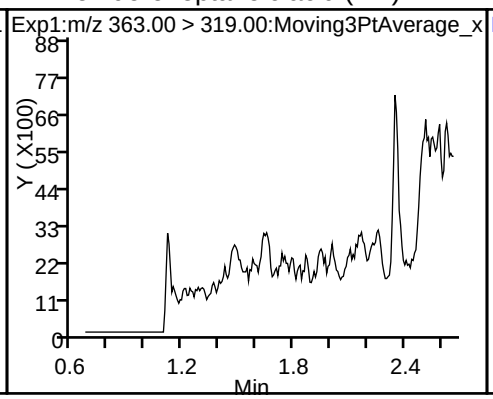
$ 2 13C2 PFHxA



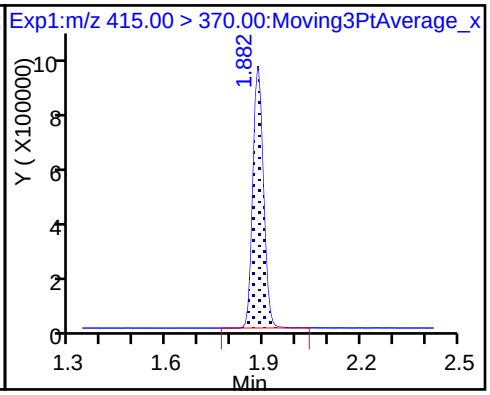
3 Perfluorohexanesulfonic acid (ND)



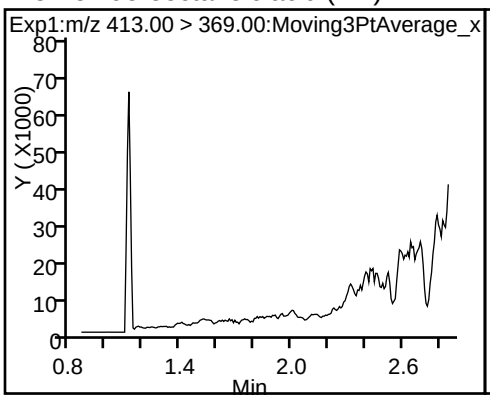
4 Perfluoroheptanoic acid (ND)



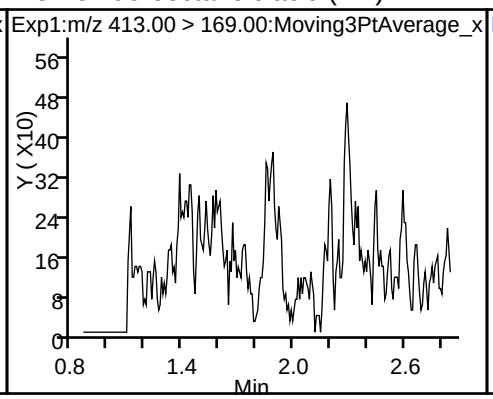
* 6 13C2-PFOA



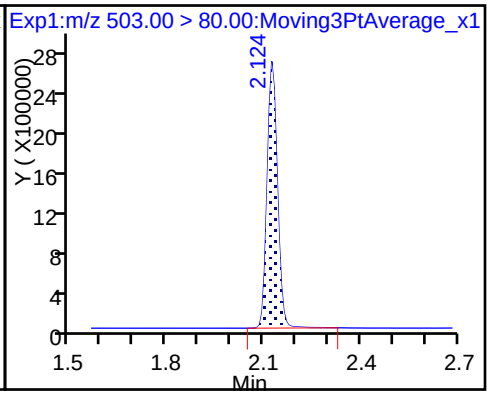
5 Perfluorooctanoic acid (ND)



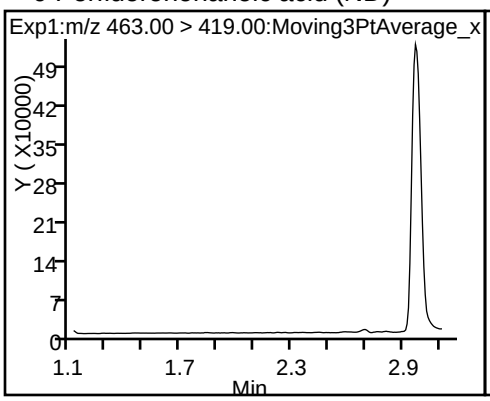
5 Perfluorooctanoic acid (ND)



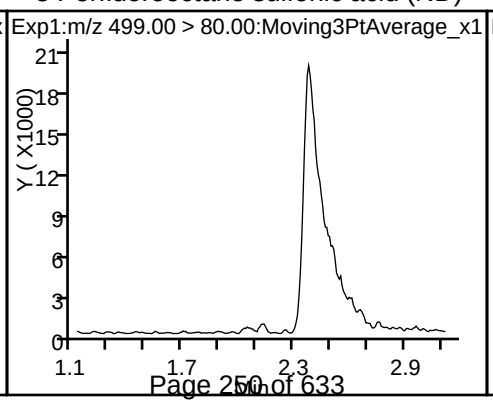
* 7 13C4 PFOS



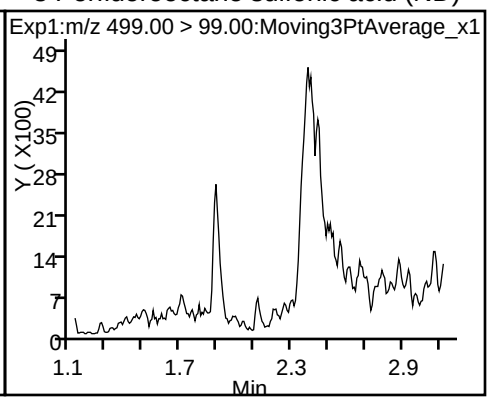
9 Perfluorononanoic acid (ND)



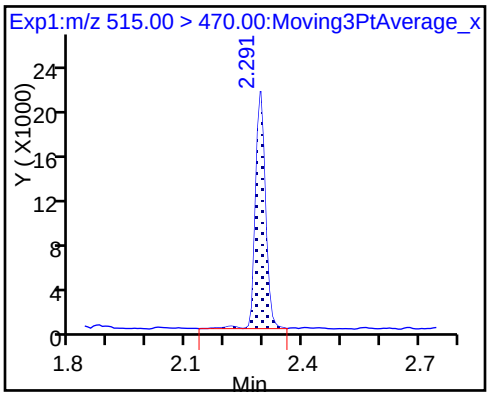
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X1000)
24
20
16
12
8
4
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_044.d				
Lims ID:	320-32094-A-15-A				
Client ID:	NAWC-100217-FRB-125				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 20:59:18	ALS Bottle#:	32	Worklist Smp#:	44
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-15-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 10:34:52	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:12:34

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	0.0892	0.89
$ 10 13C2 PFDA	10.0	0.3276	3.28

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-125 RE | Lab Sample ID: 320-32094-15 RE

Matrix: Water | Lab File ID: 2017.10.31_537AA_006.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:05

Extraction Method: 537 | Date Extracted: 10/23/2017 14:32

Sample wt/vol: 250.5(mL) | Date Analyzed: 10/31/2017 15:31

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 192192 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*16*	*U H*	*40*	16	*6.8*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*8.0*	*U H*	*20*	8.0	*2.8*
375-95-1	*Perfluorononanoic acid (PFNA)*	*20*	*U H Q*	*24*	20	*8.0*
355-46-4	*Perfluorohexanesulfonic acid (PFHxS)*	*12*	*U H*	*30*	12	*5.5*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*4.0*	*U H Q*	*10*	4.0	*1.9*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*36*	*U H Q*	*90*	36	*16*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	114		70-130
STL00996	13C2 PFDA	118		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_006.d
Lims ID: 320-32094-B-15-A
Client ID: NAWC-100217-FRB-125
Sample Type: Client
Inject. Date: 31-Oct-2017 15:31:55 ALS Bottle#: 4 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-b-15-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 16:08:54 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 31-Oct-2017 15:56:31

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.528	0.005	1.000	3574739	11.4		5622	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.863	-0.004		2783983	10.0		3815	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.864	-0.005	1.000	35726	0.1380		2.0	
413.00 > 169.00	1.859	1.864	-0.005	1.000	23800		1.50(0.00-0.00)	2.5	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.107	-0.005		6582260	28.7		5369	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2666554	11.8		8350	

Report Date: 31-Oct-2017 16:09:03 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_006.d

Injection Date: 31-Oct-2017 15:31:55 Instrument ID: A8_N

Lims ID: 320-32094-B-15-A Lab Sample ID: 320-32094-15

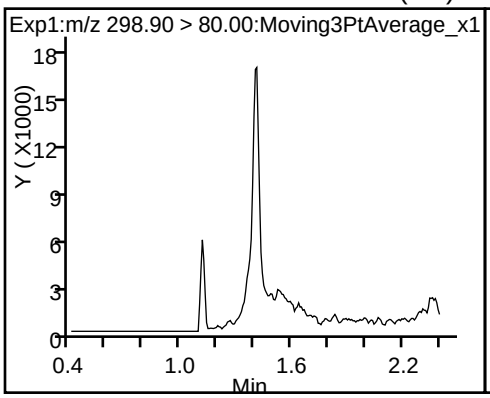
Client ID: NAWC-100217-FRB-125

Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 6

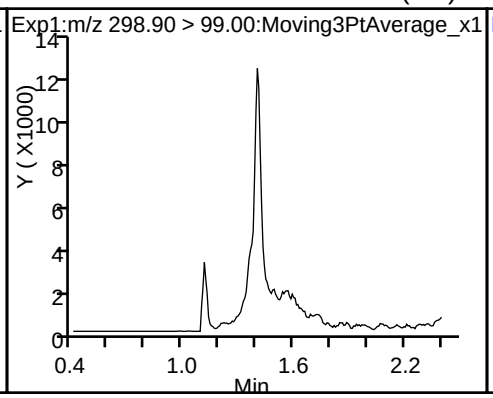
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

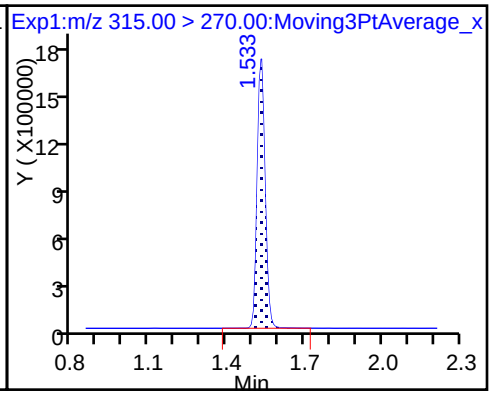
1 Perfluorobutanesulfonic acid (ND)



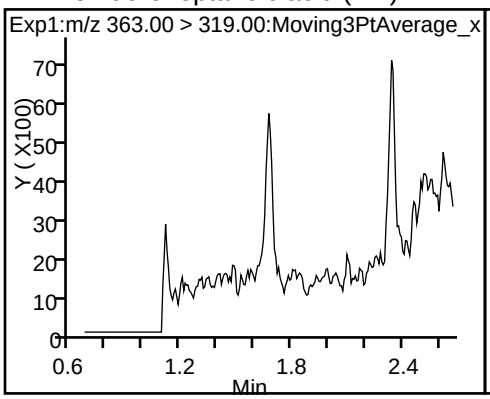
1 Perfluorobutanesulfonic acid (ND)



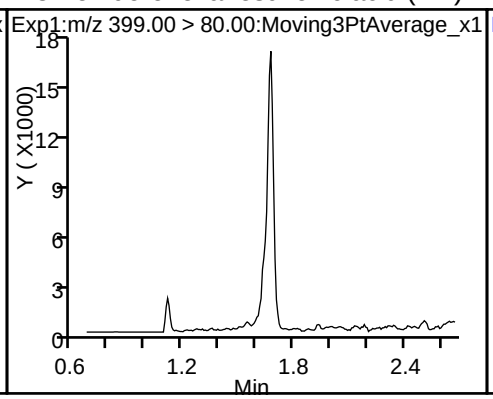
$ 2 13C2 PFHxA



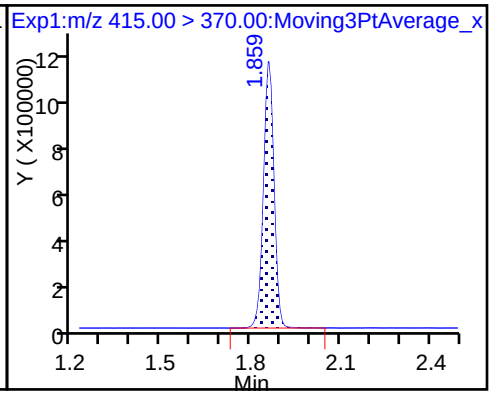
4 Perfluoroheptanoic acid (ND)



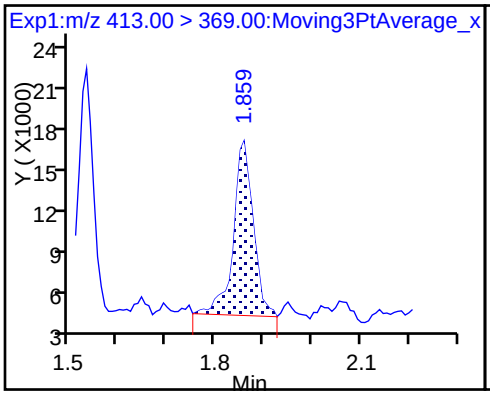
3 Perfluorohexanesulfonic acid (ND)



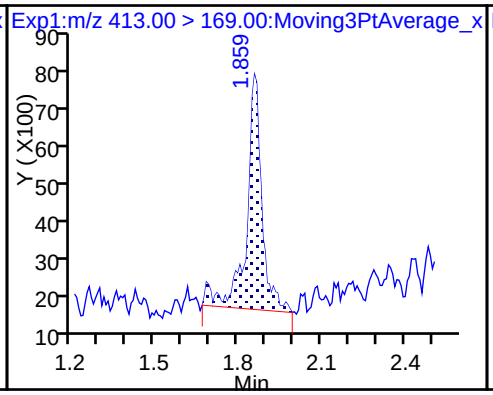
* 6 13C2-PFOA



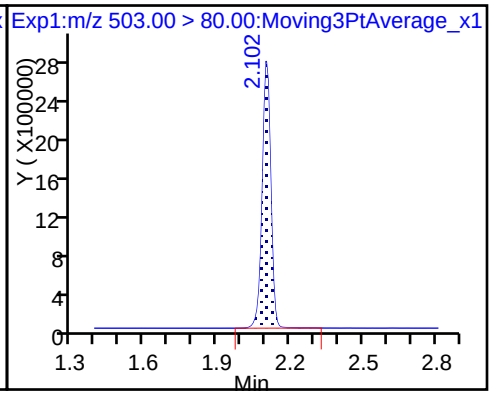
5 Perfluorooctanoic acid



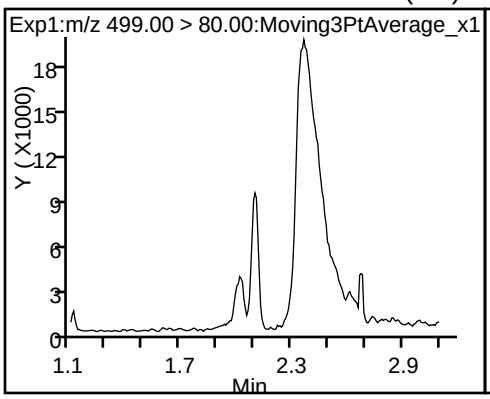
5 Perfluorooctanoic acid



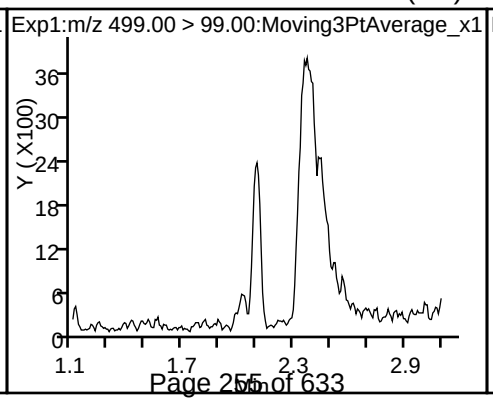
* 7 13C4 PFOS



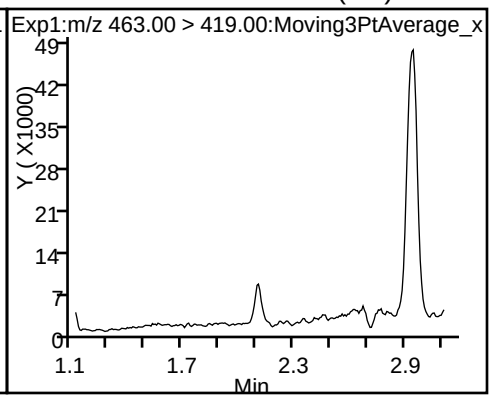
8 Perfluorooctane sulfonic acid (ND)



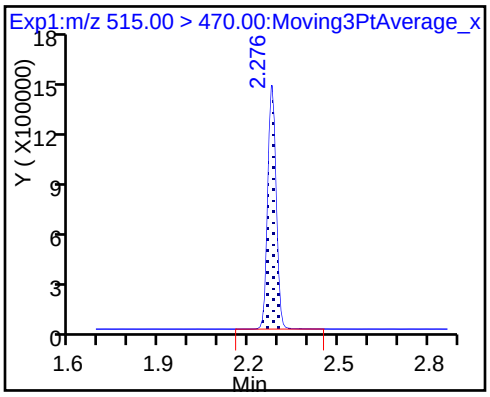
8 Perfluorooctane sulfonic acid (ND)



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
18
15
12
9
6
3
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_006.d
Lims ID: 320-32094-B-15-A
Client ID: NAWC-100217-FRB-125
Sample Type: Client
Inject. Date: 31-Oct-2017 15:31:55 ALS Bottle#: 4 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-b-15-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 16:08:54 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 31-Oct-2017 15:56:31

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	11.4	113.78
$ 10 13C2 PFDA	10.0	11.8	118.34

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-139 | Lab Sample ID: 320-32094-16

Matrix: Water | Lab File ID: 2017.10.20_537A_071.d

Analysis Method: 537 | Date Collected: 10/02/2017 13:10

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 286(mL) | Date Analyzed: 10/20/2017 23:07

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.9	J	35	14	5.9
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	17	7.0	2.4
375-95-1	Perfluorononanoic acid (PFNA)	17	U	21	17	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	10	U	26	10	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	J	8.7	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31	U	79	31	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	81		70-130
STL00996	13C2 PFDA	107		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_071.d
Lims ID: 320-32094-A-16-A
Client ID: NAWC-100217-RW-139
Sample Type: Client
Inject. Date: 20-Oct-2017 23:07:17 ALS Bottle#: 4 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-16-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:28:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	438788	1.98		371	
298.90 > 99.00	1.419	1.402	0.017	1.000	291776		1.50(0.00-0.00)	426	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1720430	8.10		6008	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	158062	0.5249		60.6	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	196079	1.15		22.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1812675	10.0		5088	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	577576	3.47		14.4	
413.00 > 169.00	1.882	1.856	0.026	1.000	334600		1.73(0.00-0.00)	738	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5271506	28.7		3123	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.116	0.016	1.000	79343	0.7039		2.4	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.124	2.117	0.007	1.000	486748	2.84		58.1	
499.00 > 99.00	2.124	2.117	0.007	1.000	85391		5.70(0.00-0.00)	32.3	
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1086337	10.7		6217	

Report Date: 23-Oct-2017 11:00:25 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_071.d

Injection Date: 20-Oct-2017 23:07:17 Instrument ID: A8_N

Lims ID: 320-32094-A-16-A Lab Sample ID: 320-32094-16

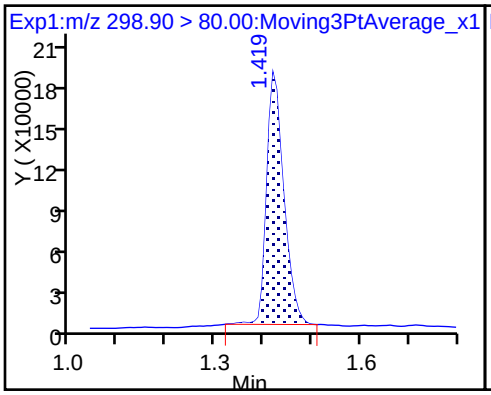
Client ID: NAWC-100217-RW-139

Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 27

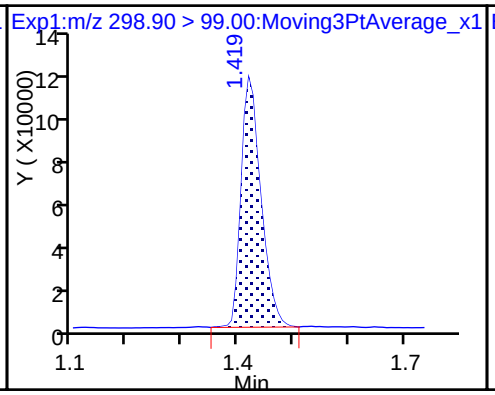
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

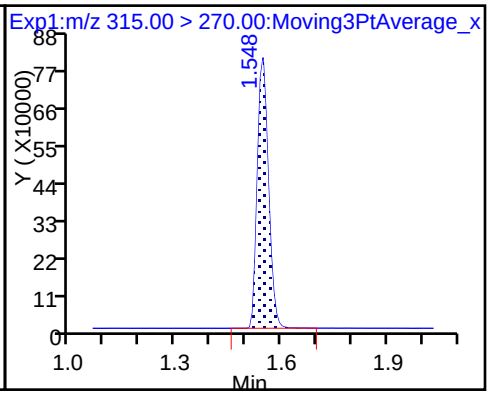
1 Perfluorobutanesulfonic acid



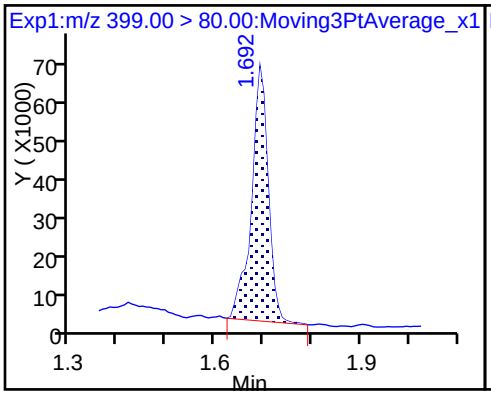
1 Perfluorobutanesulfonic acid



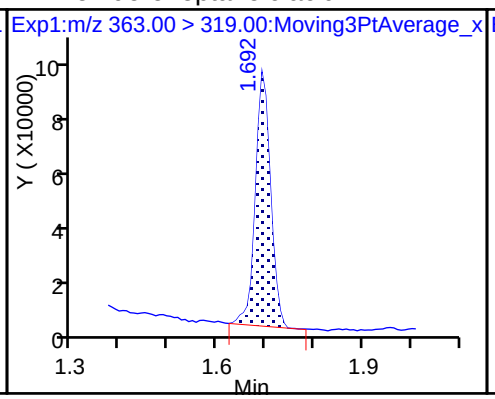
$ 2 13C2 PFHxA



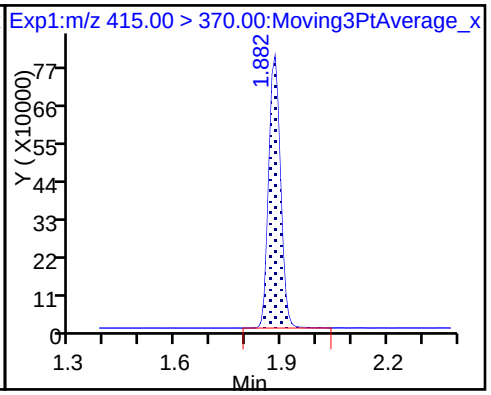
3 Perfluorohexanesulfonic acid



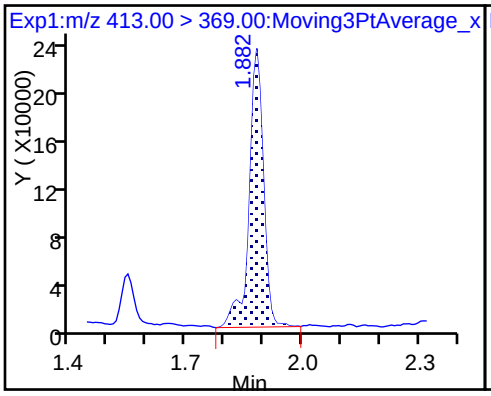
4 Perfluoroheptanoic acid



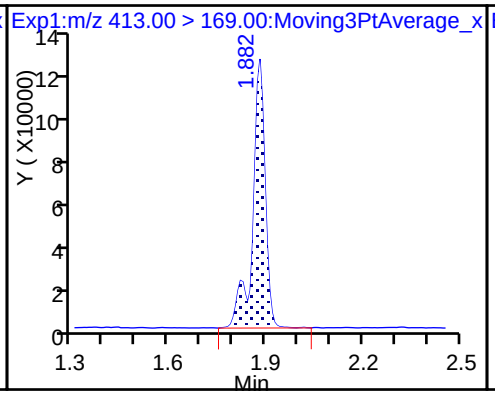
* 6 13C2-PFOA



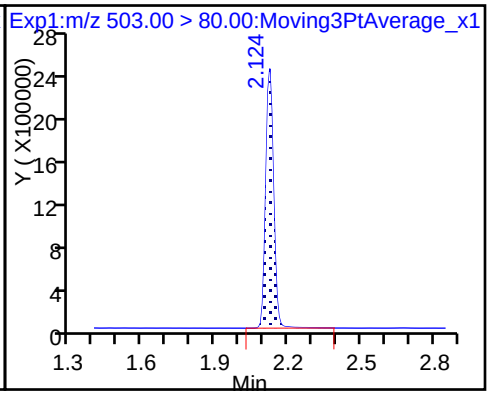
5 Perfluorooctanoic acid



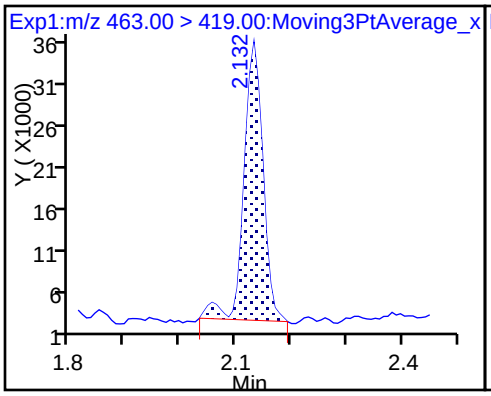
5 Perfluorooctanoic acid



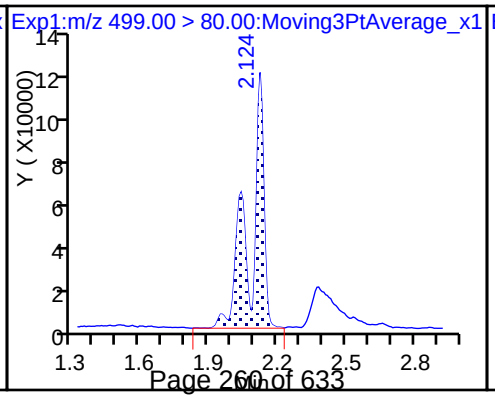
* 7 13C4 PFOS



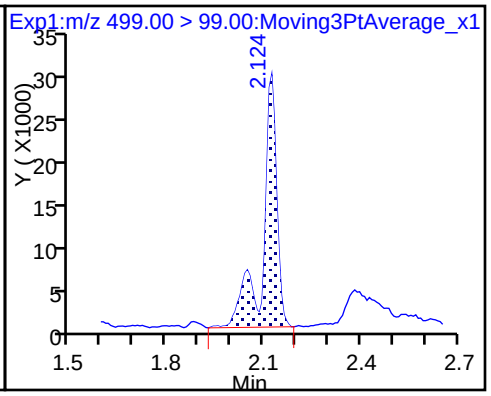
9 Perfluorononanoic acid



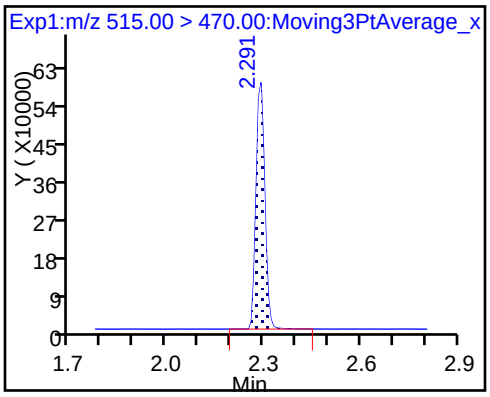
8 Perfluorooctane sulfonic acid



8 Perfluorooctane sulfonic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_071.d				
Lims ID:	320-32094-A-16-A				
Client ID:	NAWC-100217-RW-139				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 23:07:17	ALS Bottle#:	4	Worklist Smp#:	27
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-16-a				
Misc. Info.:	Plate: 1 Rack: 5				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 11:00:05	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:28:23

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.10	81.00
$ 10 13C2 PFDA	10.0	10.7	107.45

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-139 | Lab Sample ID: 320-32094-17

Matrix: Water | Lab File ID: 2017.10.20_537A_072.d

Analysis Method: 537 | Date Collected: 10/02/2017 13:05

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 265.8(mL) | Date Analyzed: 10/20/2017 23:12

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_072.d
Lims ID: 320-32094-A-17-A
Client ID: NAWC-100217-FRB-139
Sample Type: Client
Inject. Date: 20-Oct-2017 23:12:03 ALS Bottle#: 5 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-17-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	2052644	10.2		8091	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.855	0.019		1723990	10.0		5640	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5226401	28.7		5147	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.282	0.002	1.000	1036067	10.8		5217	

Report Date: 23-Oct-2017 11:00:28 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_072.d

Injection Date: 20-Oct-2017 23:12:03 Instrument ID: A8_N

Lims ID: 320-32094-A-17-A Lab Sample ID: 320-32094-17

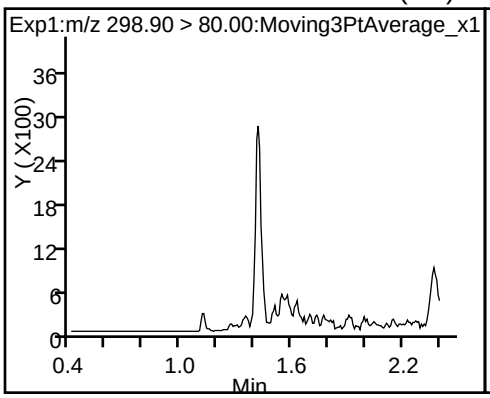
Client ID: NAWC-100217-FRB-139

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 28

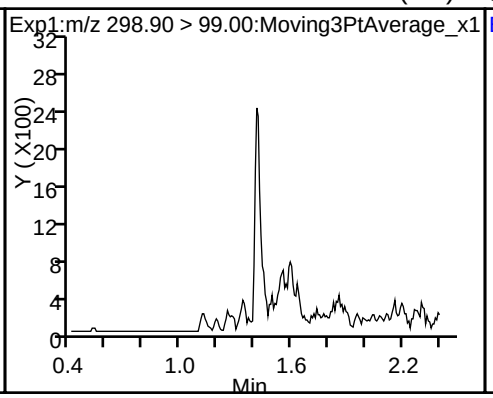
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

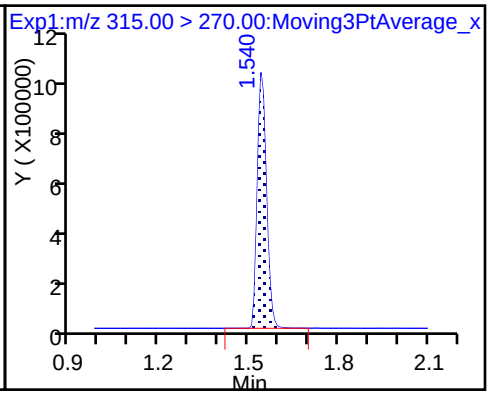
1 Perfluorobutanesulfonic acid (ND)



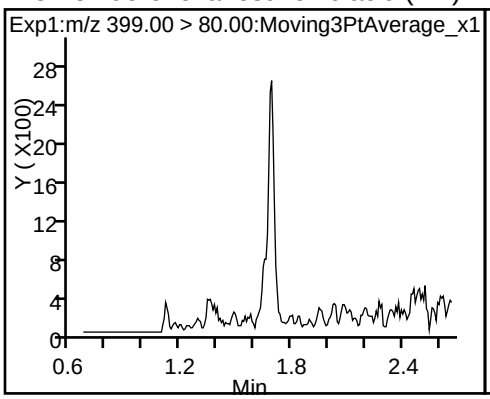
1 Perfluorobutanesulfonic acid (ND)



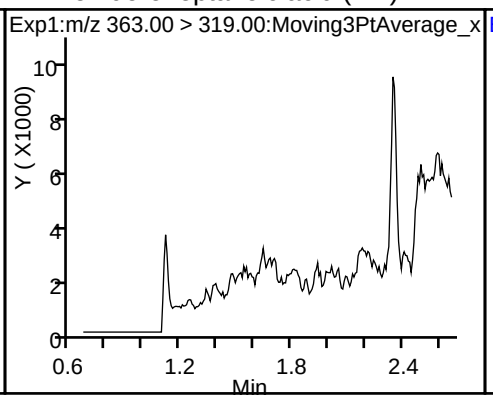
$ 2 13C2 PFHxA



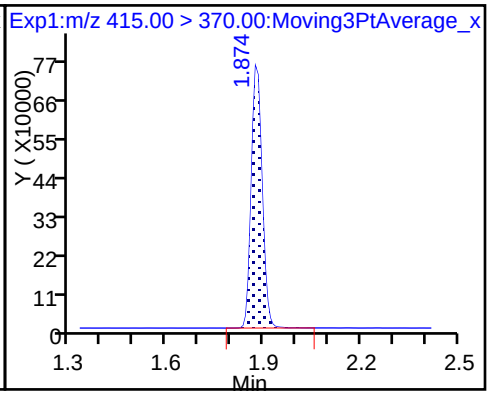
3 Perfluorohexanesulfonic acid (ND)



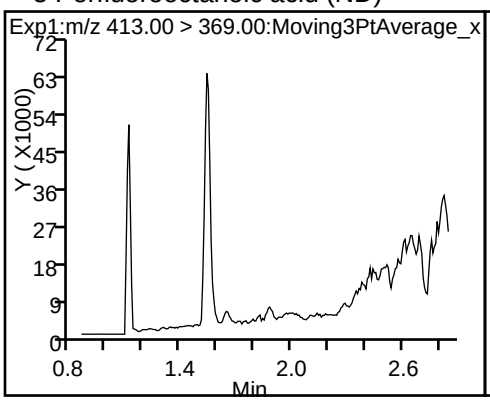
4 Perfluoroheptanoic acid (ND)



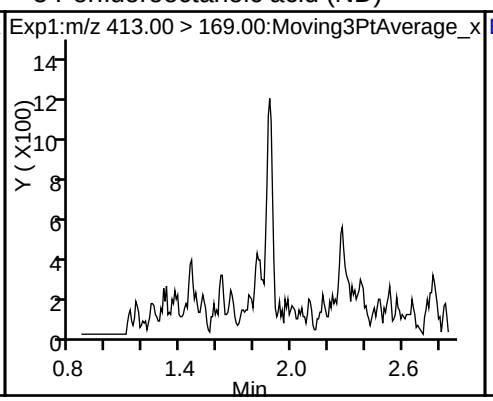
* 6 13C2-PFOA



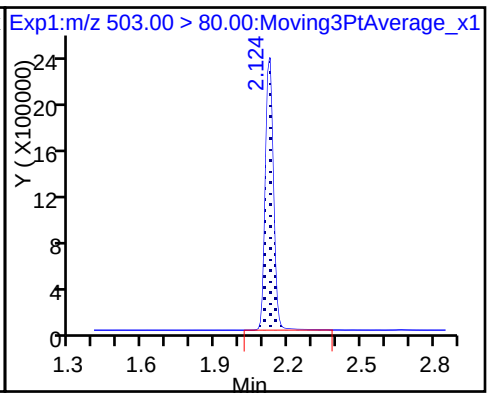
5 Perfluorooctanoic acid (ND)



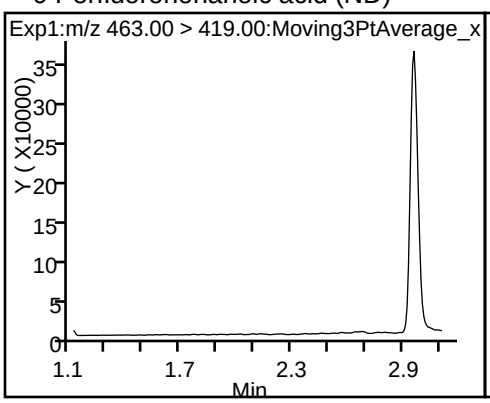
5 Perfluorooctanoic acid (ND)



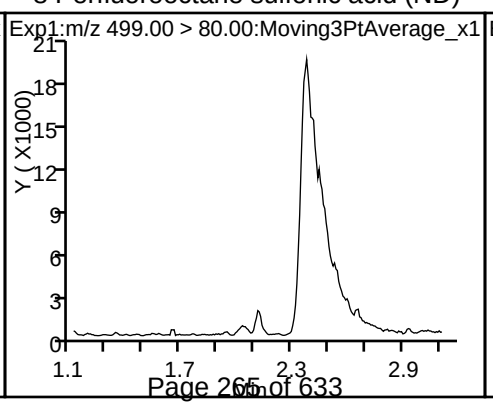
* 7 13C4 PFOS



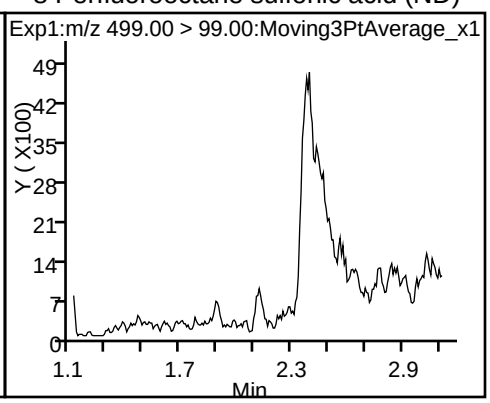
9 Perfluorononanoic acid (ND)



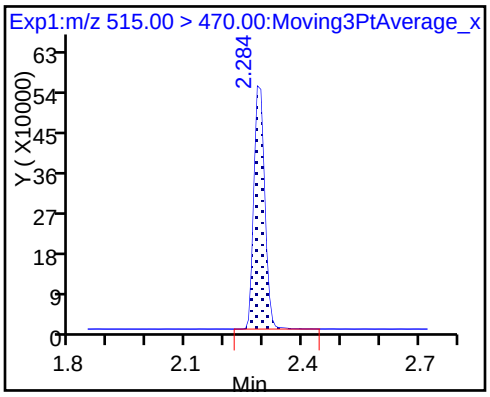
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
63
54
45
36
27
18
9
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_072.d				
Lims ID:	320-32094-A-17-A				
Client ID:	NAWC-100217-FRB-139				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 23:12:03	ALS Bottle#:	5	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-17-a				
Misc. Info.:	Plate: 1 Rack: 5				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 11:00:05	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.2	101.61
$ 10 13C2 PFDA	10.0	10.8	107.74

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0500 | Lab Sample ID: 320-32094-18

Matrix: Water | Lab File ID: 2017.10.20_537A_073.d

Analysis Method: 537 | Date Collected: 10/02/2017 15:40

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 285.5(mL) | Date Analyzed: 10/20/2017 23:16

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	24	J	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	28		18	7.0	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.4	J	26	11	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.5	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	114		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_073.d
Lims ID: 320-32094-A-18-A
Client ID: WGNA-100217-RW-0500
Sample Type: Client
Inject. Date: 20-Oct-2017 23:16:48 ALS Bottle#: 6 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-18-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:28:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	641114	2.75		308	
298.90 > 99.00	1.419	1.402	0.017	1.000	449528		1.43(0.00-0.00)	665	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	1800606	8.59		5339	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	760909	2.40		201	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	359317	2.13		38.0	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.855	0.019		1788755	10.0		4344	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	1305815	7.94		32.7	
413.00 > 169.00	1.874	1.856	0.018	0.996	776964		1.68(0.00-0.00)	1421	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5541228	28.7		2464	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.116	0.016	1.000	99276	0.8925		3.6	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.124	2.117	0.007	1.000	1250485	6.95		121	
499.00 > 99.00	2.117	2.117	0.0	0.996	222247		5.63(0.00-0.00)	80.4	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.282	0.002	1.000	1132525	11.4		5849	

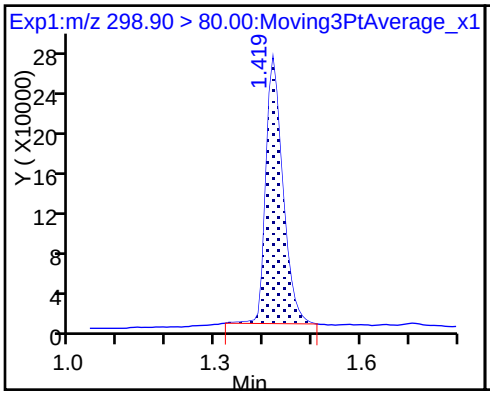
Report Date: 23-Oct-2017 11:00:31 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

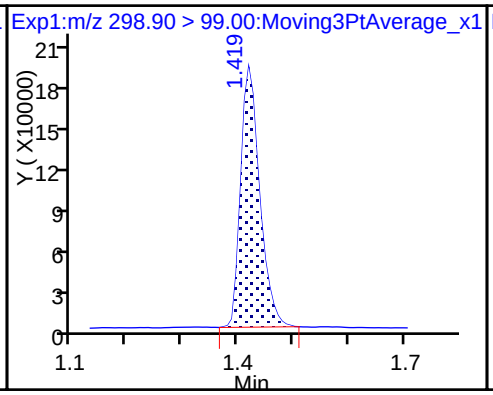
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_073.d

Injection Date:	20-Oct-2017 23:16:48	Instrument ID:	A8_N		
Lims ID:	320-32094-A-18-A	Lab Sample ID:	320-32094-18		
Client ID:	WGNA-100217-RW-0500				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	6	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

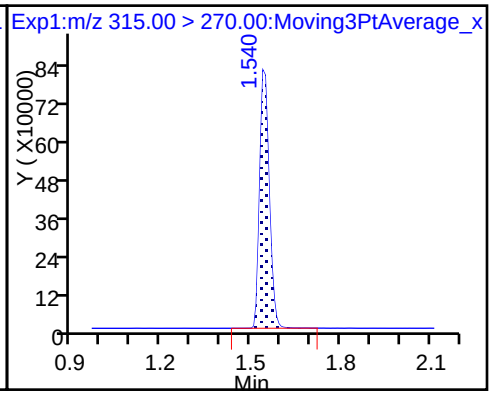
1 Perfluorobutanesulfonic acid



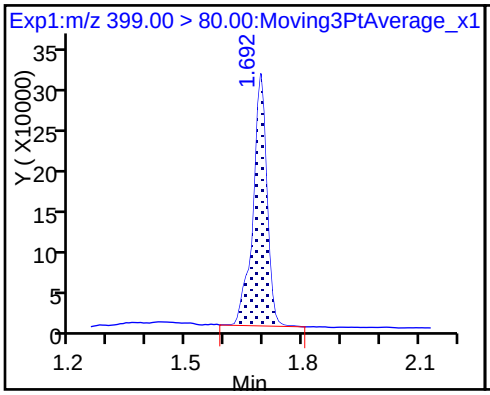
1 Perfluorobutanesulfonic acid



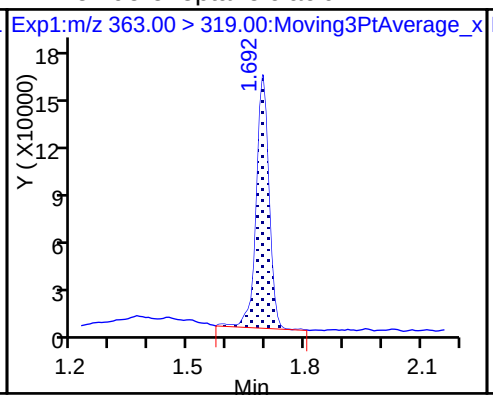
$ 2 13C2 PFHxA



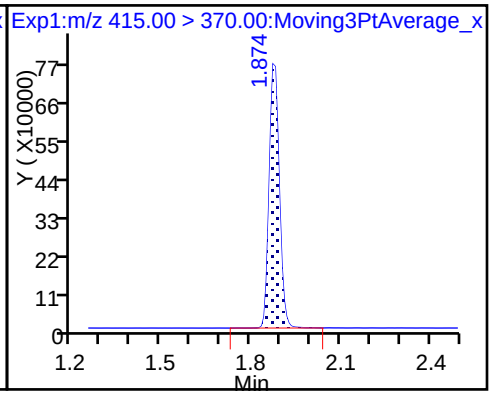
3 Perfluorohexanesulfonic acid



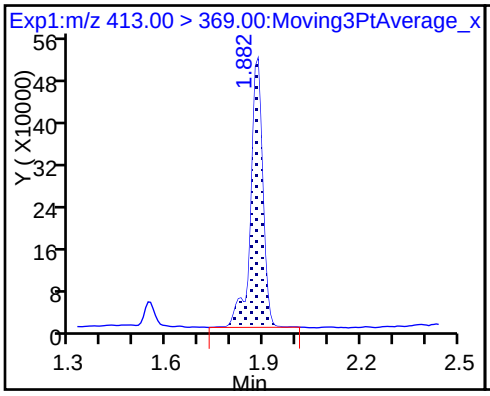
4 Perfluoroheptanoic acid



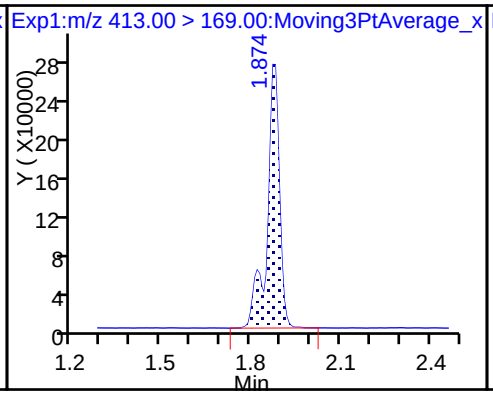
* 6 13C2-PFOA



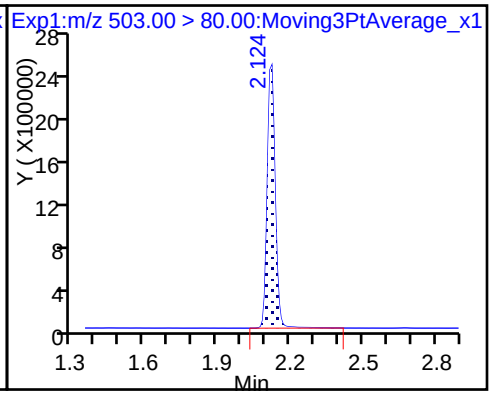
5 Perfluorooctanoic acid



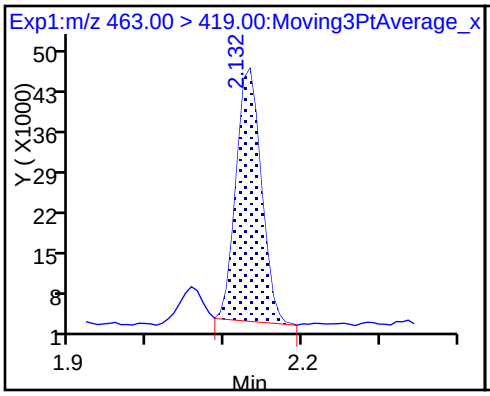
5 Perfluorooctanoic acid



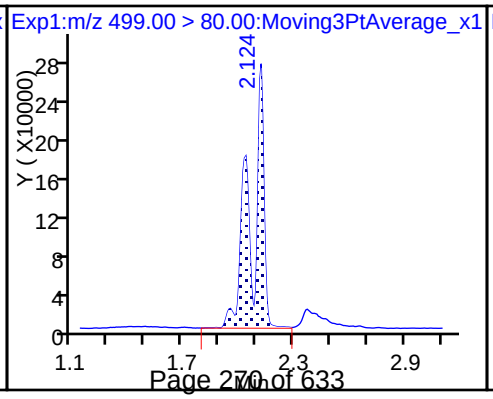
* 7 13C4 PFOS



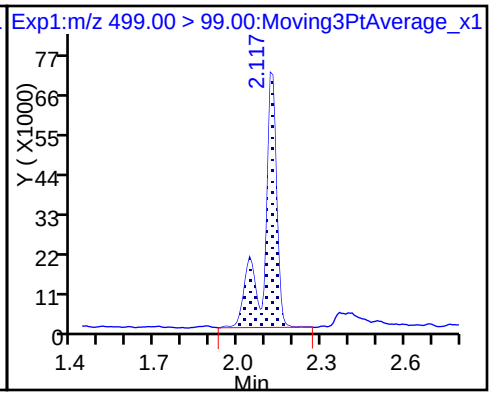
9 Perfluorononanoic acid



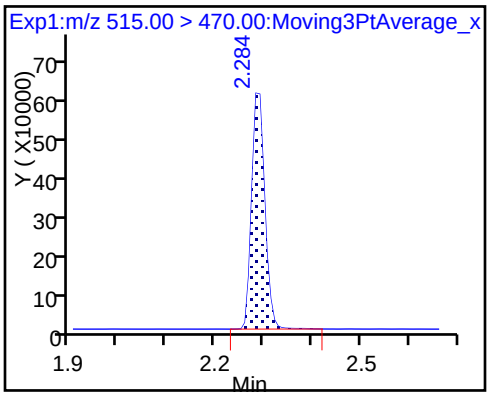
8 Perfluorooctane sulfonic acid



8 Perfluorooctane sulfonic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
70
60
50
40
30
20
10
0
1.9
2.2
2.5
Min

Report Date: 23-Oct-2017 11:00:31 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_073.d				
Lims ID:	320-32094-A-18-A				
Client ID:	WGNA-100217-RW-0500				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 23:16:48	ALS Bottle#:	6	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-18-a				
Misc. Info.:	Plate: 1 Rack: 5				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 11:00:05	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:28:51

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.59	85.91
$ 10 13C2 PFDA	10.0	11.4	113.51

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0500 | Lab Sample ID: 320-32094-19

Matrix: Water | Lab File ID: 2017.10.20_537A_074.d

Analysis Method: 537 | Date Collected: 10/02/2017 15:35

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 260.9(mL) | Date Analyzed: 10/20/2017 23:21

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	113		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_074.d
Lims ID: 320-32094-A-19-A
Client ID: WGNA-100217-FRB-0500
Sample Type: Client
Inject. Date: 20-Oct-2017 23:21:32 ALS Bottle#: 7 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-19-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2068027	9.80		4026	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1800031	10.0		3711	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5591744	28.7		3326	
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1137494	11.3		4371	

Report Date: 23-Oct-2017 11:00:33 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_074.d

Injection Date: 20-Oct-2017 23:21:32 Instrument ID: A8_N

Lims ID: 320-32094-A-19-A Lab Sample ID: 320-32094-19

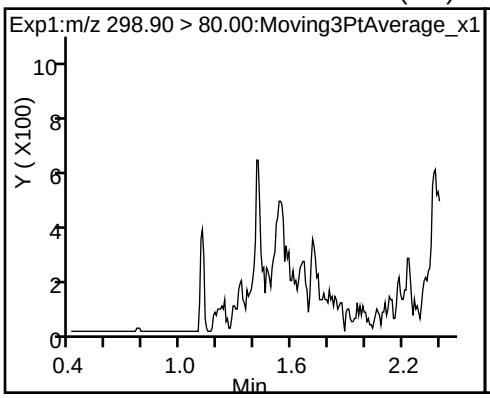
Client ID: WGNA-100217-FRB-0500

Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 30

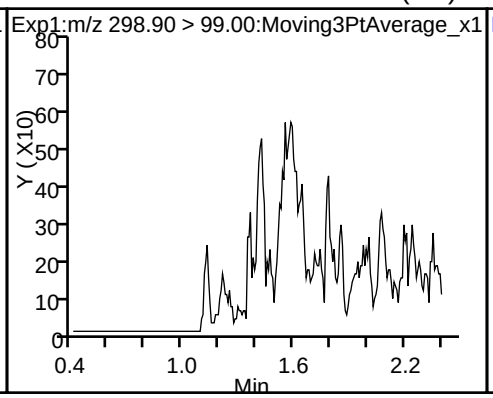
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

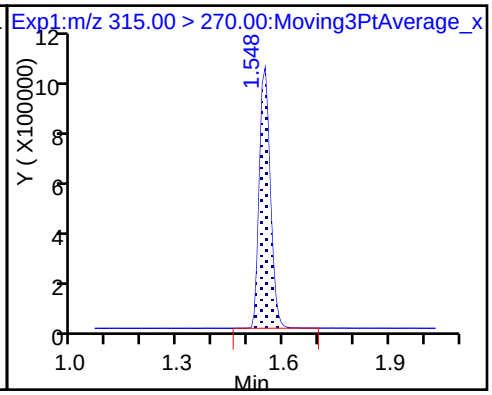
1 Perfluorobutanesulfonic acid (ND)



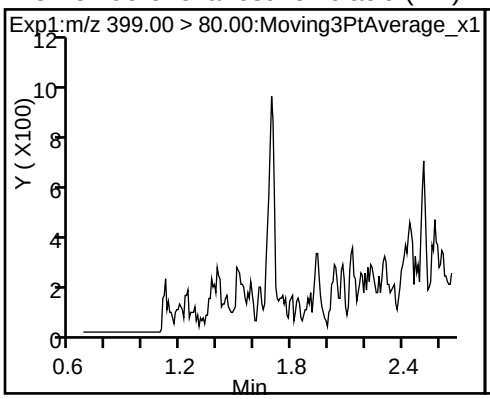
1 Perfluorobutanesulfonic acid (ND)



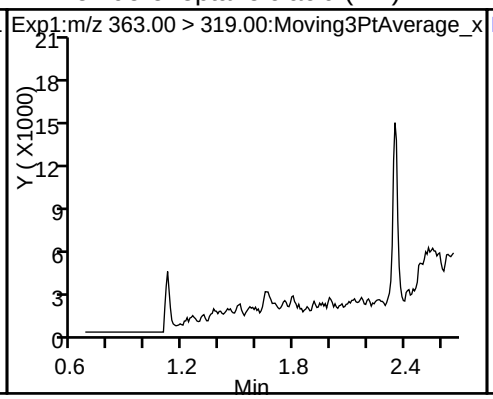
$ 2 13C2 PFHxA



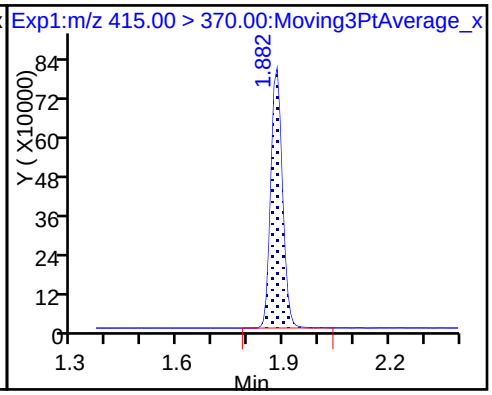
3 Perfluorohexanesulfonic acid (ND)



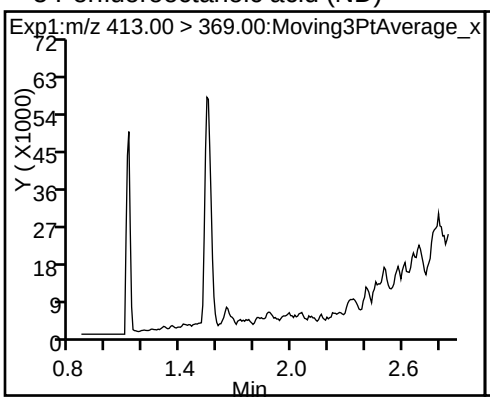
4 Perfluoroheptanoic acid (ND)



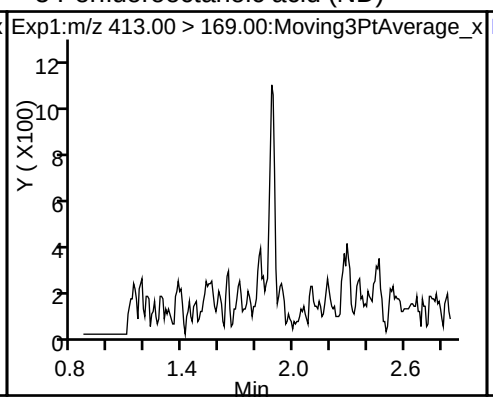
* 6 13C2-PFOA



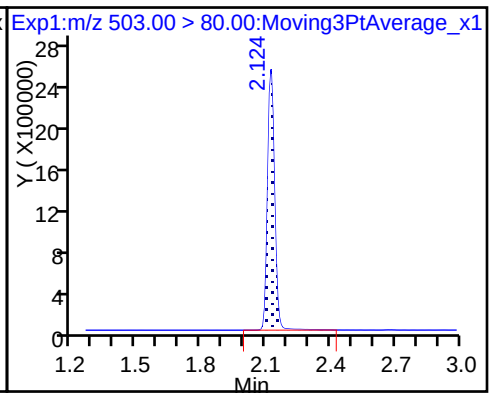
5 Perfluorooctanoic acid (ND)



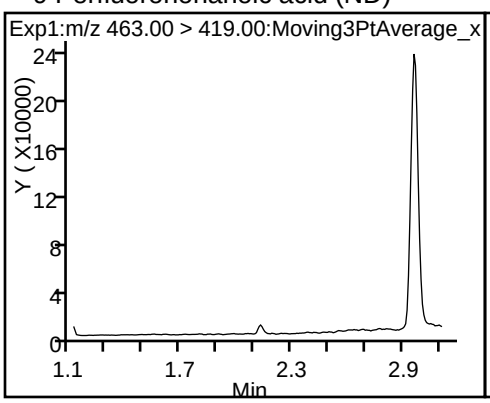
5 Perfluorooctanoic acid (ND)



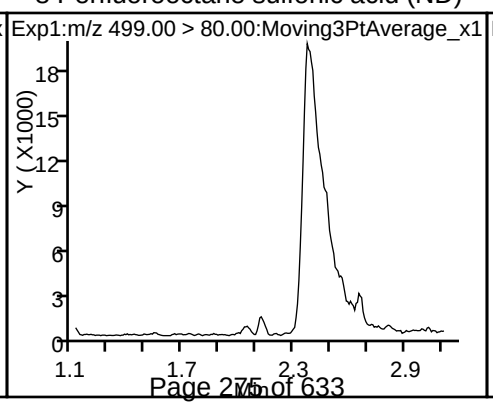
* 7 13C4 PFOS



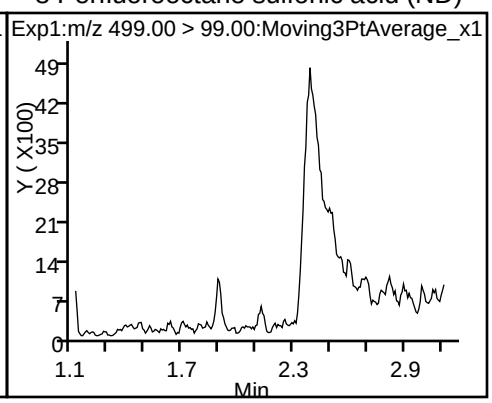
9 Perfluorononanoic acid (ND)



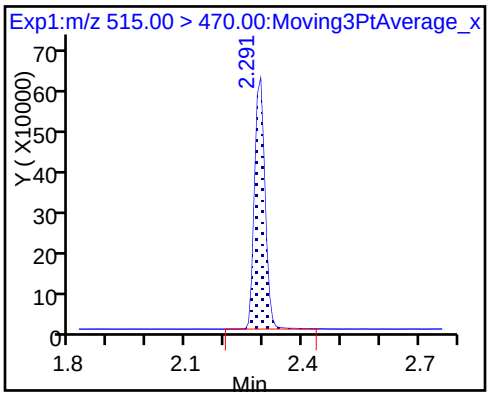
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
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Y (X10000)
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60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_074.d				
Lims ID:	320-32094-A-19-A				
Client ID:	WGNA-100217-FRB-0500				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 23:21:32	ALS Bottle#:	7	Worklist Smp#:	30
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-19-a				
Misc. Info.:	Plate: 1 Rack: 5				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 11:00:05	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.80	98.05
$ 10 13C2 PFDA	10.0	11.3	113.30

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0413 | Lab Sample ID: 320-32094-20

Matrix: Water | Lab File ID: 2017.10.20_537A_075.d

Analysis Method: 537 | Date Collected: 10/02/2017 16:10

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 283.1(mL) | Date Analyzed: 10/20/2017 23:26

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	27		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.6	J	26	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.3	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	81		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_075.d
Lims ID: 320-32094-A-20-A
Client ID: WGNA-100217-RW-0413
Sample Type: Client
Inject. Date: 20-Oct-2017 23:26:18 ALS Bottle#: 8 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-20-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:29:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.411	1.402	0.009	1.000	780344	2.83		271	
298.90 > 99.00	1.411	1.402	0.009	1.000	546490		1.43(0.00-0.00)	678	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	2110919	8.15		4373	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.668	0.016	1.000	907502	2.42		211	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.668	0.016	1.000	428856	2.06		41.3	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.855	0.019		2210955	10.0		3889	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.874	1.856	0.018	1.000	1578986	7.77		43.8	
413.00 > 169.00	1.874	1.856	0.018	1.000	962340		1.64(0.00-0.00)	1467	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		6557902	28.7		2114	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.116	0.008	1.000	106606	0.7754		3.2	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.117	0.007	1.000	1516282	7.12		127	M
499.00 > 99.00	2.124	2.117	0.007	1.000	246144		6.16(0.00-0.00)	83.7	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1347023	10.9		5000	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 23-Oct-2017 11:00:38 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_075.d

Injection Date: 20-Oct-2017 23:26:18 Instrument ID: A8_N

Lims ID: 320-32094-A-20-A Lab Sample ID: 320-32094-20

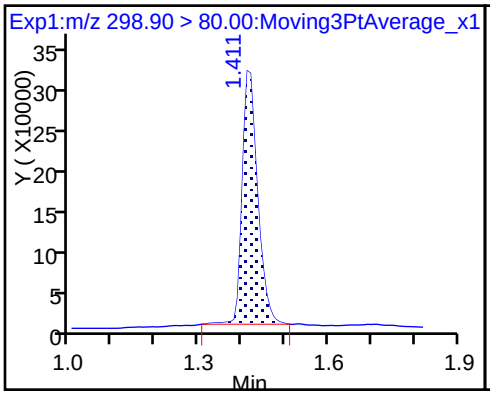
Client ID: WGNA-100217-RW-0413

Operator ID: SACINSTLCMS01 ALS Bottle#: 8 Worklist Smp#: 31

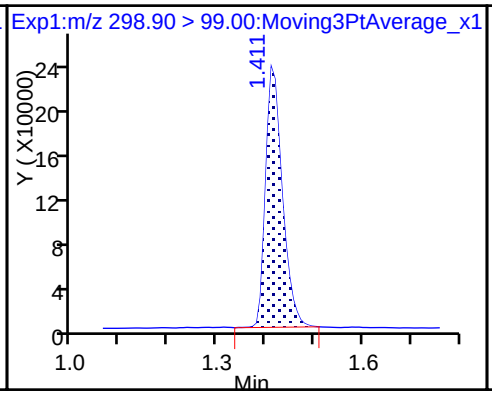
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

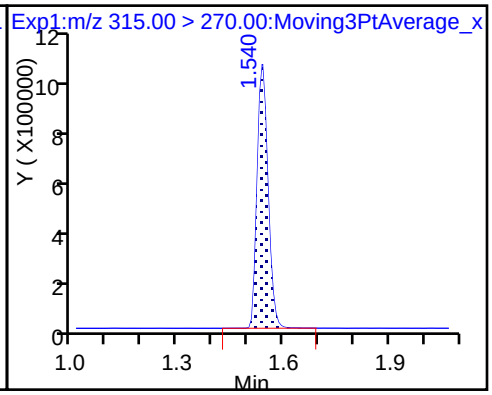
1 Perfluorobutanesulfonic acid



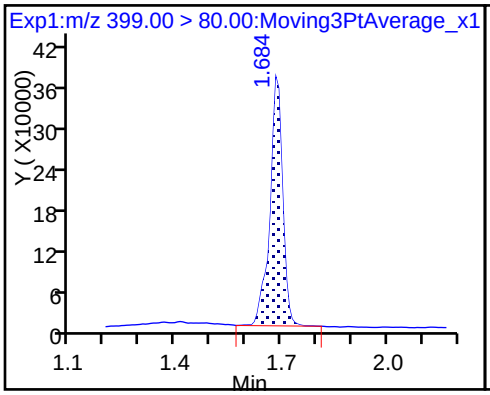
1 Perfluorobutanesulfonic acid



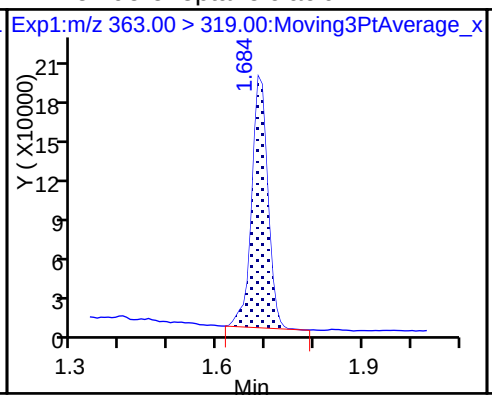
$ 2 13C2 PFHxA



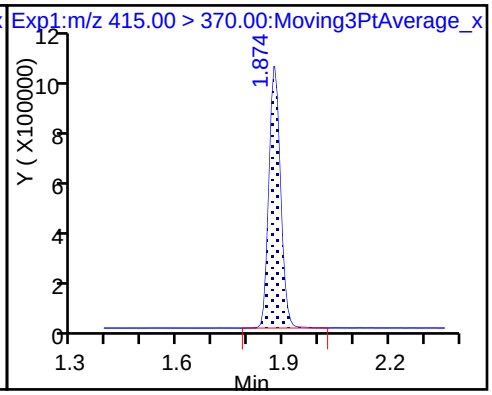
3 Perfluorohexanesulfonic acid



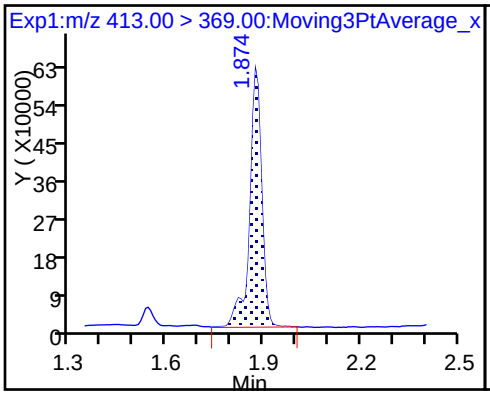
4 Perfluoroheptanoic acid



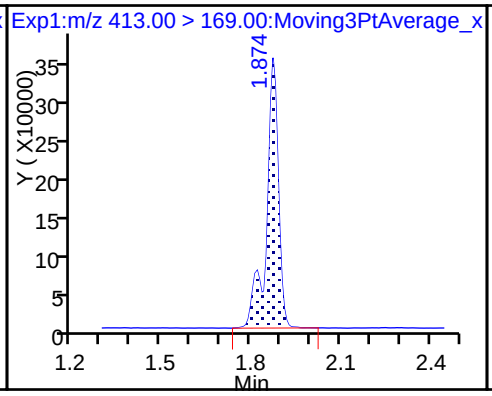
* 6 13C2-PFOA



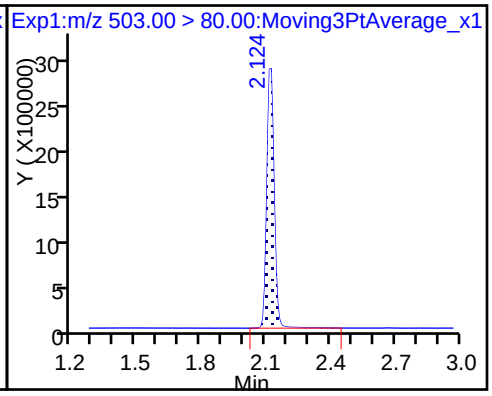
5 Perfluorooctanoic acid



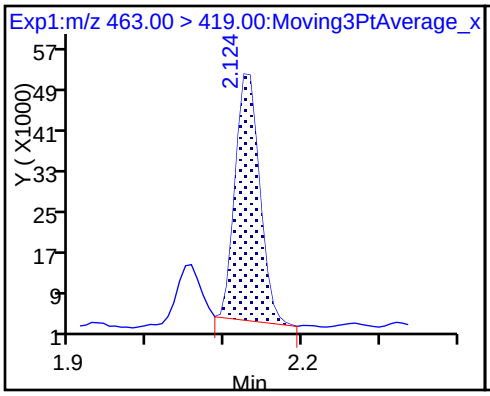
5 Perfluorooctanoic acid



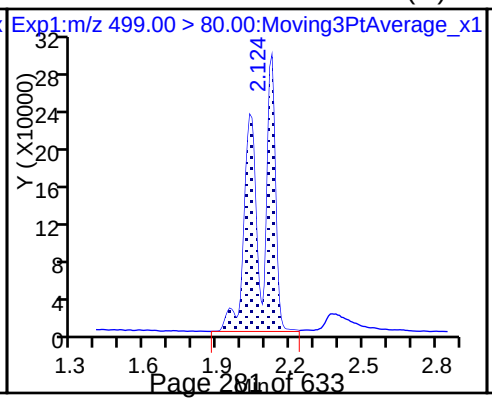
* 7 13C4 PFOS



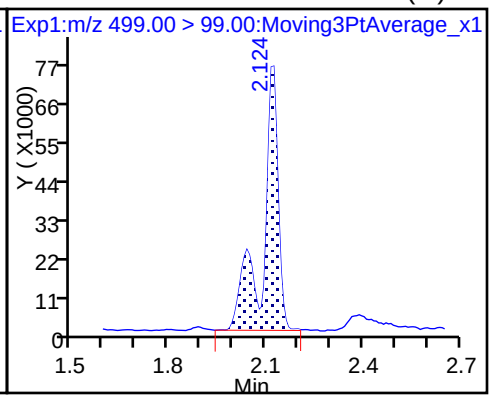
9 Perfluorononanoic acid



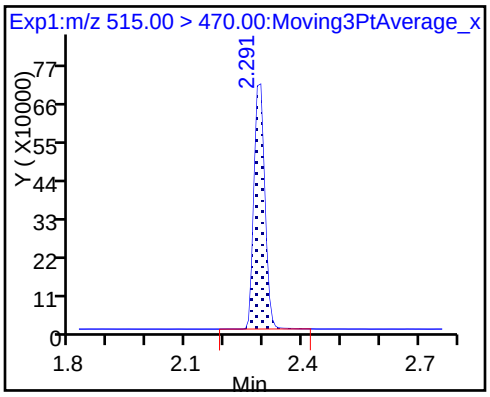
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
77
66
55
44
33
22
11
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_075.d				
Lims ID:	320-32094-A-20-A				
Client ID:	WGNA-100217-RW-0413				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 23:26:18	ALS Bottle#:	8	Worklist Smp#:	31
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-20-a				
Misc. Info.:	Plate: 1 Rack: 5				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 11:00:05	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:29:32

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.15	81.48
$ 10 13C2 PFDA	10.0	10.9	109.23

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

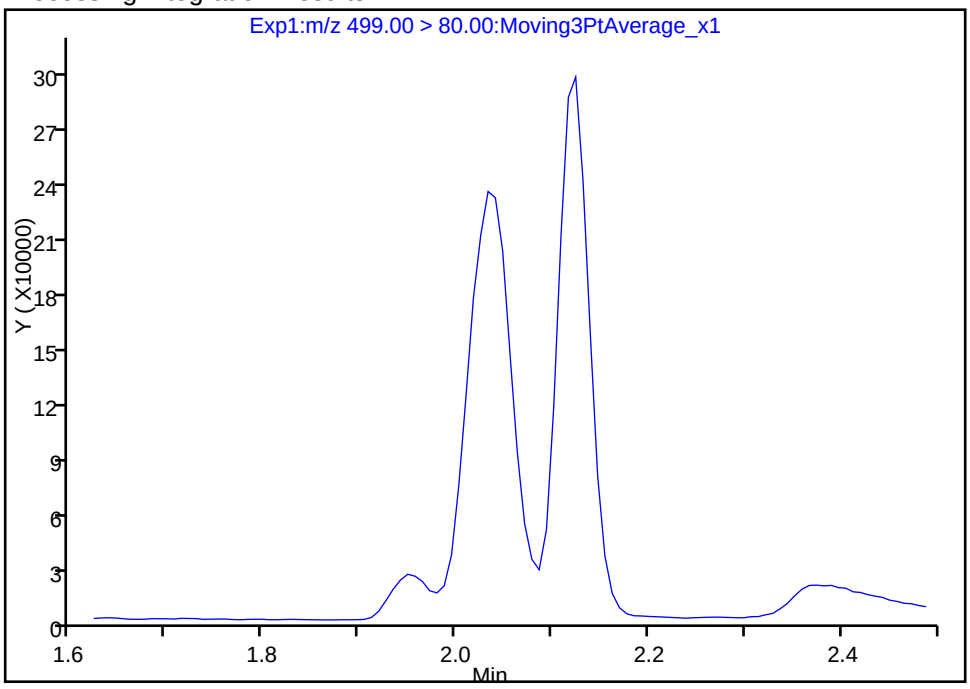
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_075.d				
Injection Date:	20-Oct-2017 23:26:18	Instrument ID:	A8_N		
Lims ID:	320-32094-A-20-A	Lab Sample ID:	320-32094-20		
Client ID:	WGNA-100217-RW-0413				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	8	Worklist Smp#:	31
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

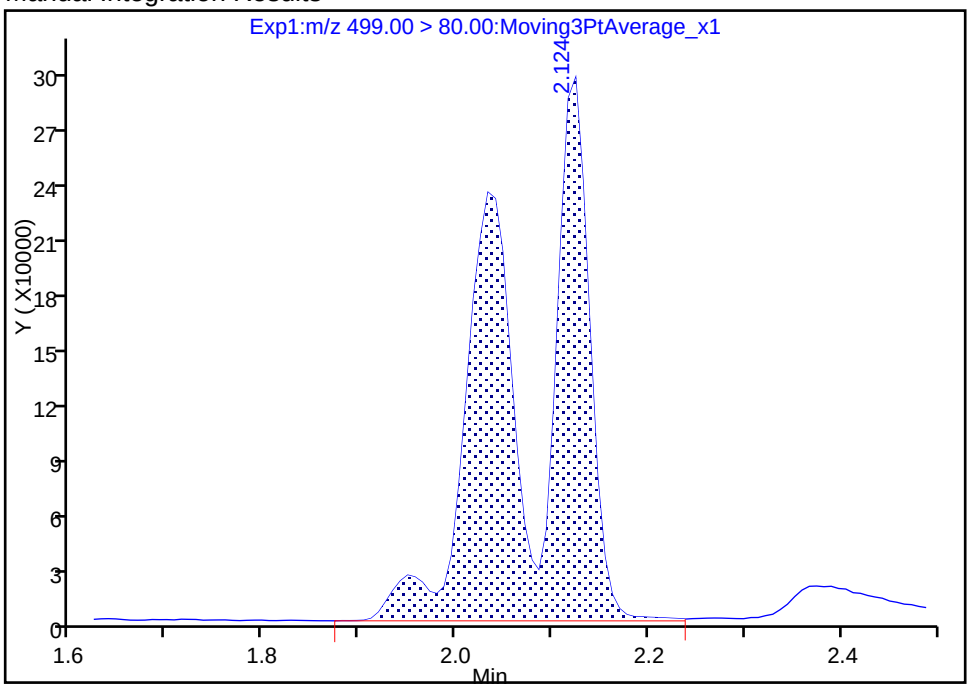
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 1516282
Amount: 7.117345
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:29:01
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

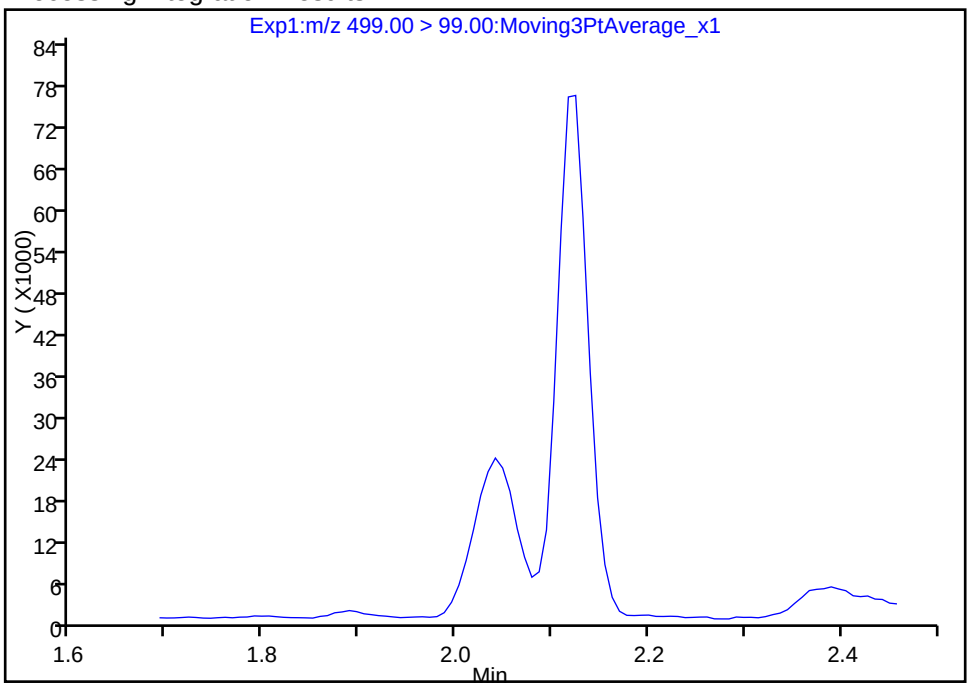
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_075.d				
Injection Date:	20-Oct-2017 23:26:18	Instrument ID:	A8_N		
Lims ID:	320-32094-A-20-A	Lab Sample ID:	320-32094-20		
Client ID:	WGNA-100217-RW-0413				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	8	Worklist Smp#:	31
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

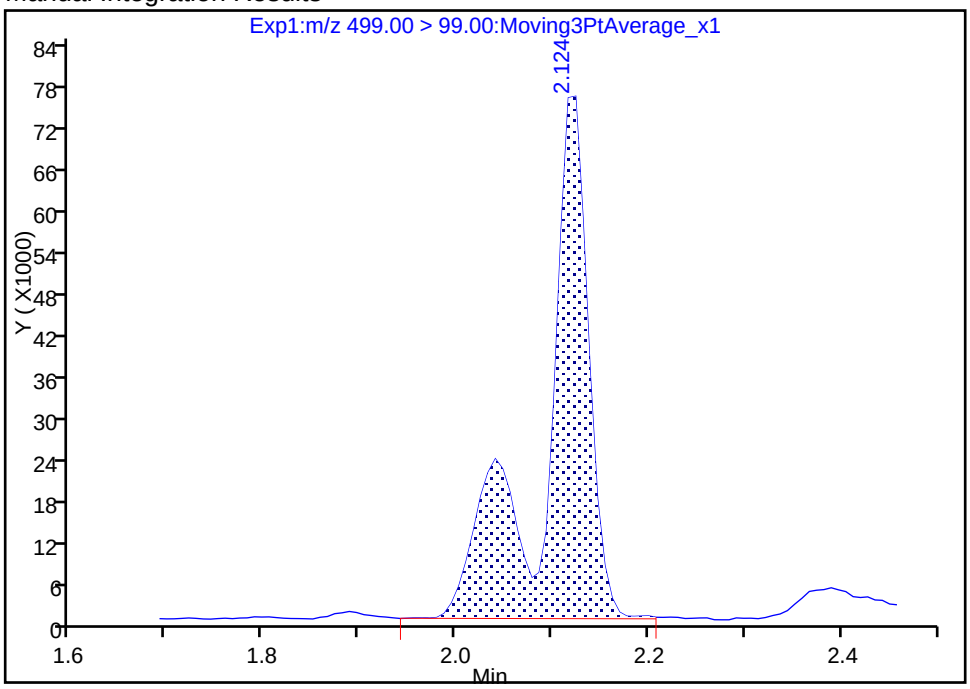
Not Detected
Expected RT: 2.12

Processing Integration Results



RT: 2.12
Area: 246144
Amount: 7.117345
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 23-Oct-2017 10:29:16
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

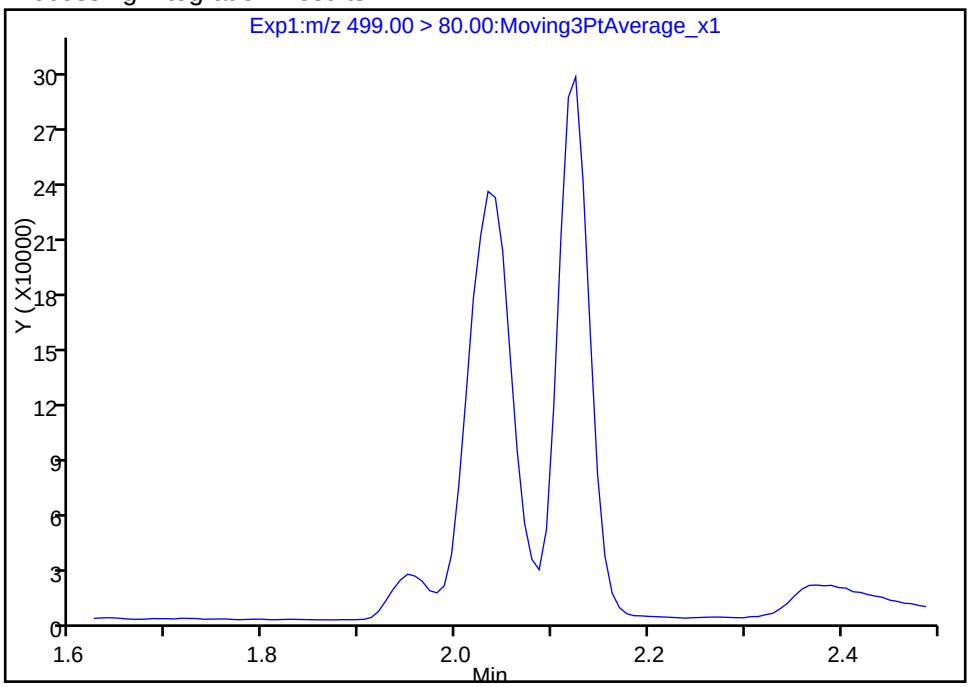
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_075.d				
Injection Date:	20-Oct-2017 23:26:18	Instrument ID:	A8_N		
Lims ID:	320-32094-A-20-A	Lab Sample ID:	320-32094-20		
Client ID:	WGNA-100217-RW-0413				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	8	Worklist Smp#:	31
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

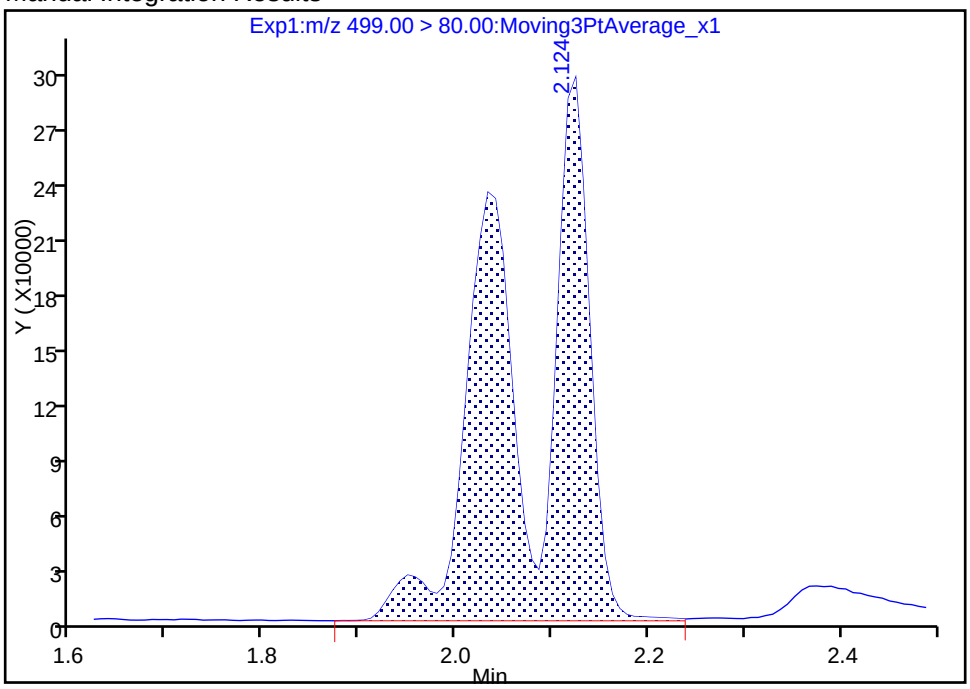
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.12
Area: 1516282
Amount: 7.117345
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:29:16
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0413 | Lab Sample ID: 320-32094-21

Matrix: Water | Lab File ID: 2017.10.20_537A_076.d

Analysis Method: 537 | Date Collected: 10/02/2017 16:05

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 267(mL) | Date Analyzed: 10/20/2017 23:31

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.4	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	120		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_076.d
Lims ID: 320-32094-A-21-A
Client ID: WGNA-100217-FRB-0413
Sample Type: Client
Inject. Date: 20-Oct-2017 23:31:03 ALS Bottle#: 9 Worklist Smp#: 32
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-21-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	1898597	9.97		6034	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1625538	10.0		4117	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5023451	28.7		3540	
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1091028	12.0		5037	

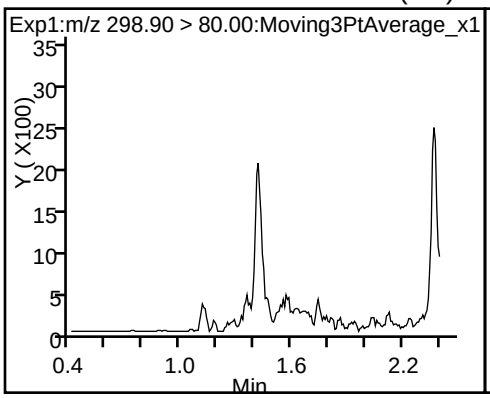
Report Date: 23-Oct-2017 11:00:41 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

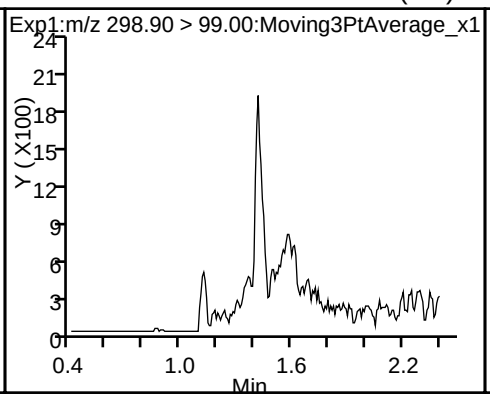
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_076.d

Injection Date:	20-Oct-2017 23:31:03	Instrument ID:	A8_N		
Lims ID:	320-32094-A-21-A	Lab Sample ID:	320-32094-21		
Client ID:	WGNA-100217-FRB-0413				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	9	Worklist Smp#:	32
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

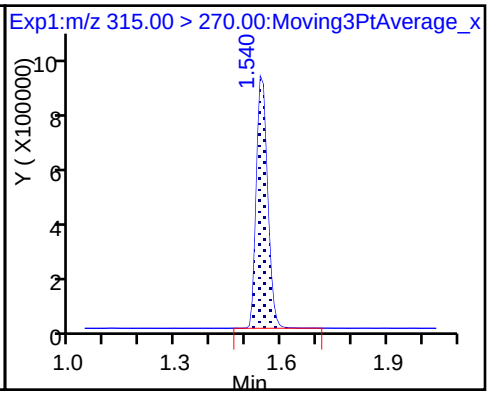
1 Perfluorobutanesulfonic acid (ND)



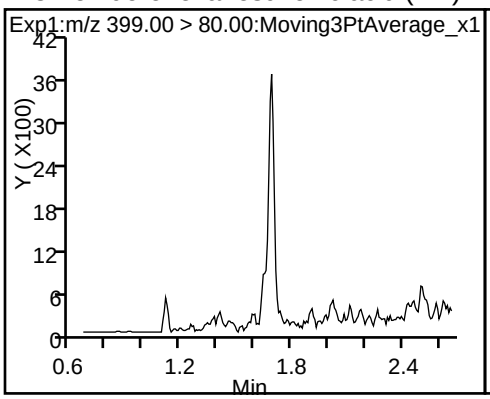
1 Perfluorobutanesulfonic acid (ND)



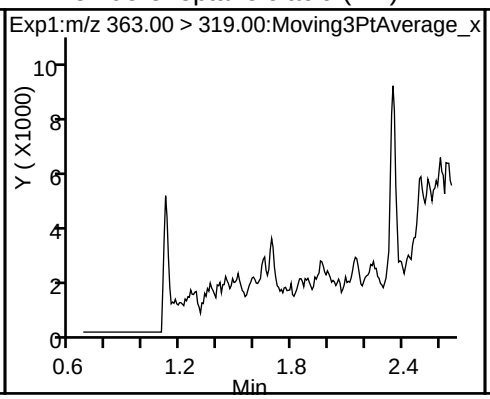
$ 2 13C2 PFHxA



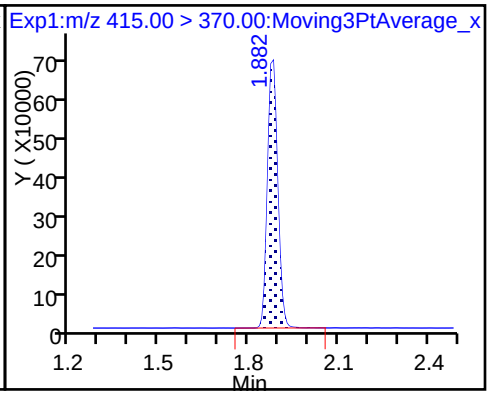
3 Perfluorohexanesulfonic acid (ND)



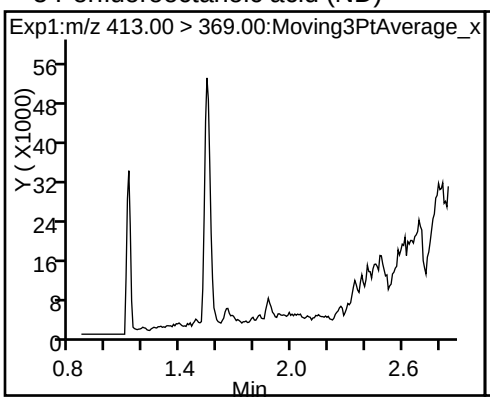
4 Perfluoroheptanoic acid (ND)



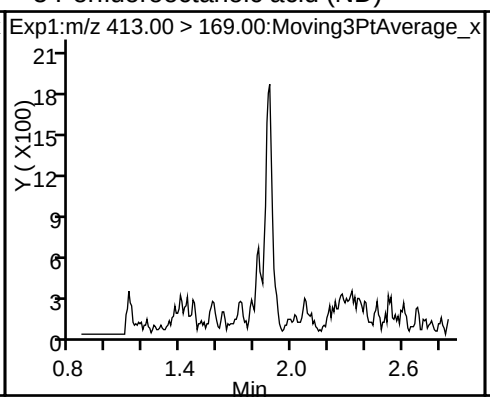
* 6 13C2-PFOA



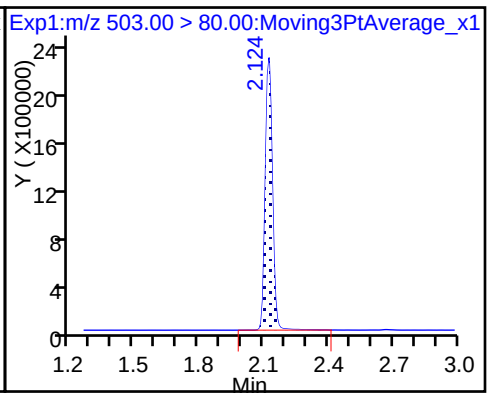
5 Perfluorooctanoic acid (ND)



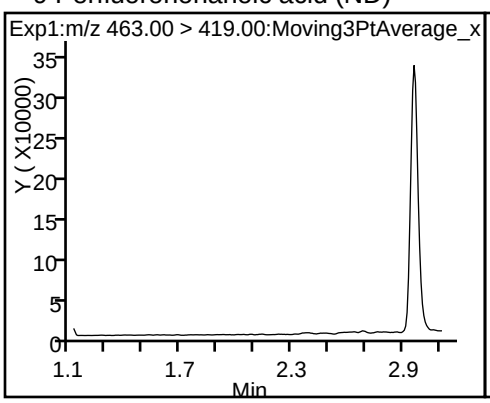
5 Perfluorooctanoic acid (ND)



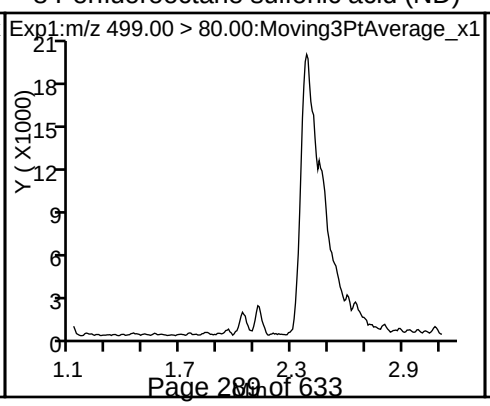
* 7 13C4 PFOS



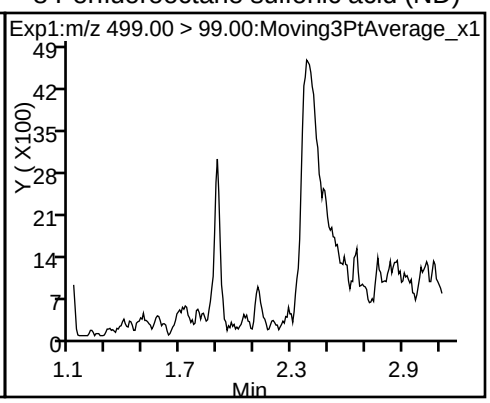
9 Perfluorononanoic acid (ND)



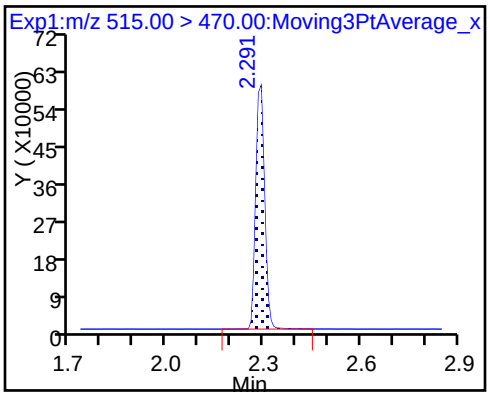
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
72
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_076.d				
Lims ID:	320-32094-A-21-A				
Client ID:	WGNA-100217-FRB-0413				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 23:31:03	ALS Bottle#:	9	Worklist Smp#:	32
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-21-a				
Misc. Info.:	Plate: 1 Rack: 5				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 11:00:05	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.97	99.68
$ 10 13C2 PFDA	10.0	12.0	120.33

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0404 | Lab Sample ID: 320-32094-22

Matrix: Water | Lab File ID: 2017.10.20_537A_077.d

Analysis Method: 537 | Date Collected: 10/02/2017 08:40

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 269.3(mL) | Date Analyzed: 10/20/2017 23:35

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	24	J M	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	24		19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.9	J	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.1	J	9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	88		70-130
STL00996	13C2 PFDA	120		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_077.d
Lims ID: 320-32094-A-22-A
Client ID: WGNA-100217-RW-0404
Sample Type: Client
Inject. Date: 20-Oct-2017 23:35:48 ALS Bottle#: 10 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-22-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:30:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	373676	1.58		123	
298.90 > 99.00	1.419	1.402	0.017	1.000	243984		1.53(0.00-0.00)	348	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	1834490	8.77		5385	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	677404	2.12		140	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	319442	1.90		31.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.855	0.019		1785174	10.0		4475	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.874	1.856	0.018	1.000	1077247	6.56		23.5	
413.00 > 169.00	1.874	1.856	0.018	1.000	607754		1.77(0.00-0.00)	1151	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5598216	28.7		2145	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.116	0.016	1.000	76885	0.6926		2.5	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.117	0.007	1.000	1157355	6.36		106	M
499.00 > 99.00	2.124	2.117	0.007	1.000	196285		5.90(0.00-0.00)	67.8	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.282	0.002	1.000	1190820	12.0		6208	

QC Flag Legend

Review Flags

M - Manually Integrated

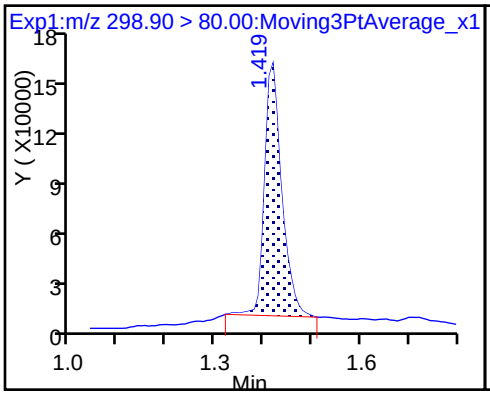
Report Date: 23-Oct-2017 11:00:43 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

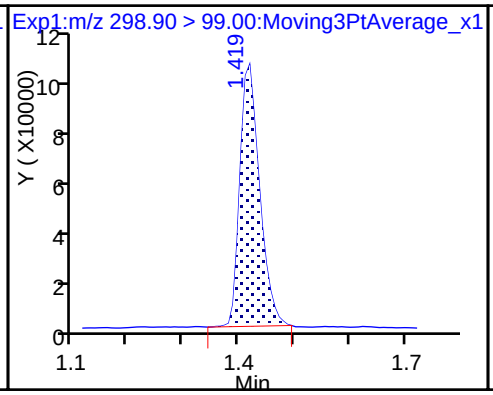
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_077.d

Injection Date:	20-Oct-2017 23:35:48	Instrument ID:	A8_N		
Lims ID:	320-32094-A-22-A	Lab Sample ID:	320-32094-22		
Client ID:	WGNA-100217-RW-0404				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	33
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

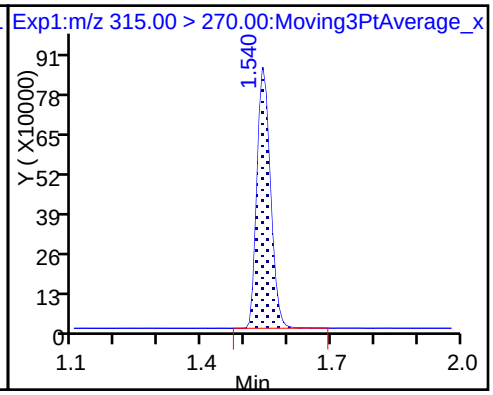
1 Perfluorobutanesulfonic acid



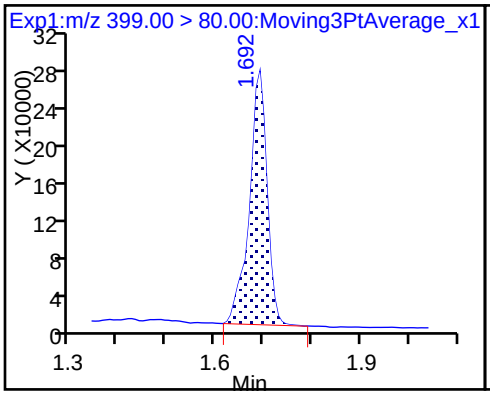
1 Perfluorobutanesulfonic acid



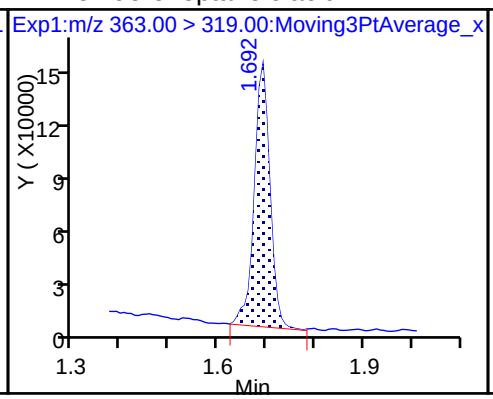
$ 2 13C2 PFHxA



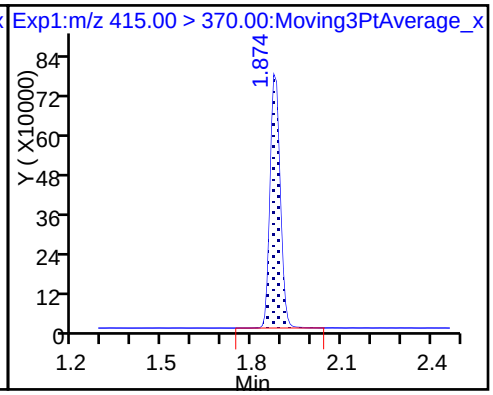
3 Perfluorohexanesulfonic acid



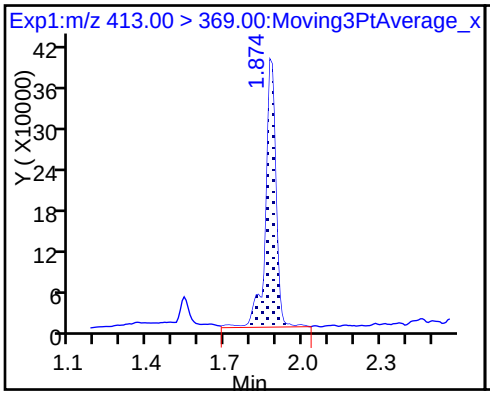
4 Perfluoroheptanoic acid



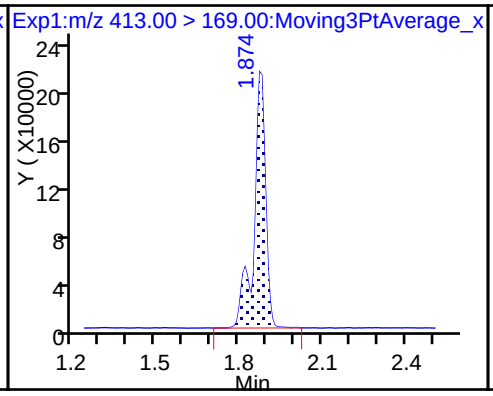
* 6 13C2-PFOA



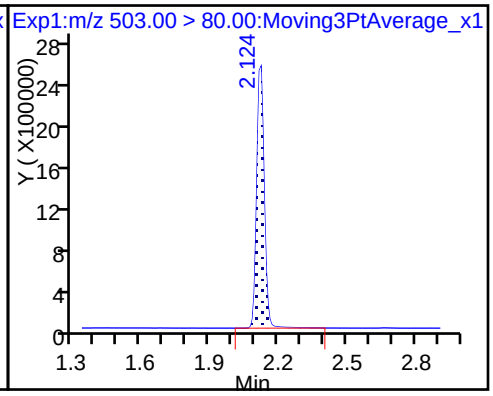
5 Perfluorooctanoic acid



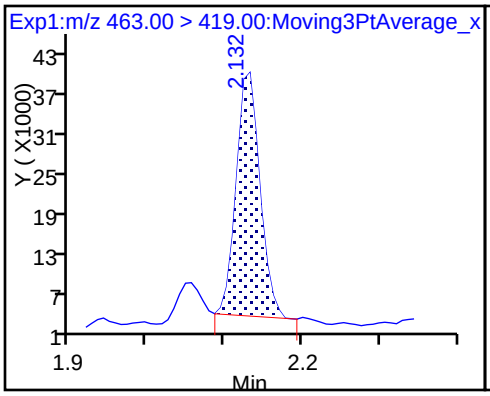
5 Perfluorooctanoic acid



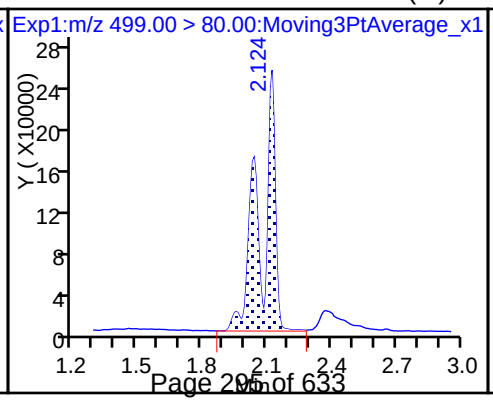
* 7 13C4 PFOS



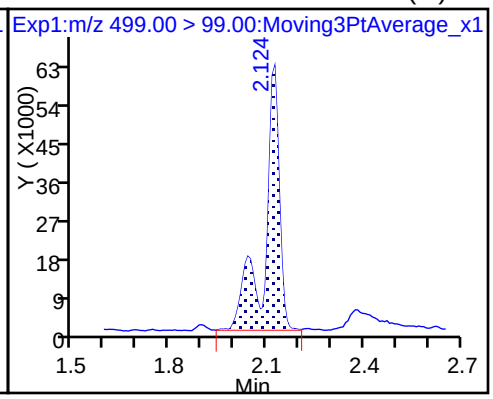
9 Perfluorononanoic acid



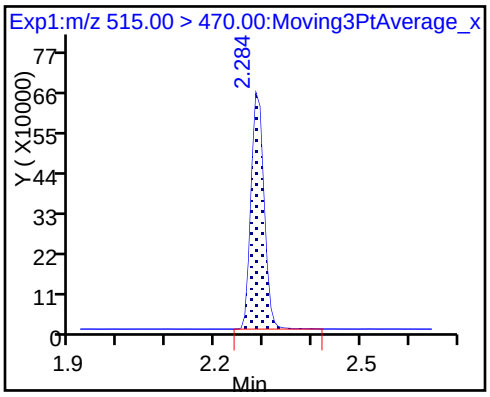
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
77
66
55
44
33
22
11
0
1.9
2.2
2.5
Min

Report Date: 23-Oct-2017 11:00:43 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_077.d				
Lims ID:	320-32094-A-22-A				
Client ID:	WGNA-100217-RW-0404				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 23:35:48	ALS Bottle#:	10	Worklist Smp#:	33
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-22-a				
Misc. Info.:	Plate: 1 Rack: 5				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 11:00:05	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

First Level Reviewer: barnettj Date: 23-Oct-2017 10:30:13

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.77	87.70
$ 10 13C2 PFDA	10.0	12.0	119.59

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

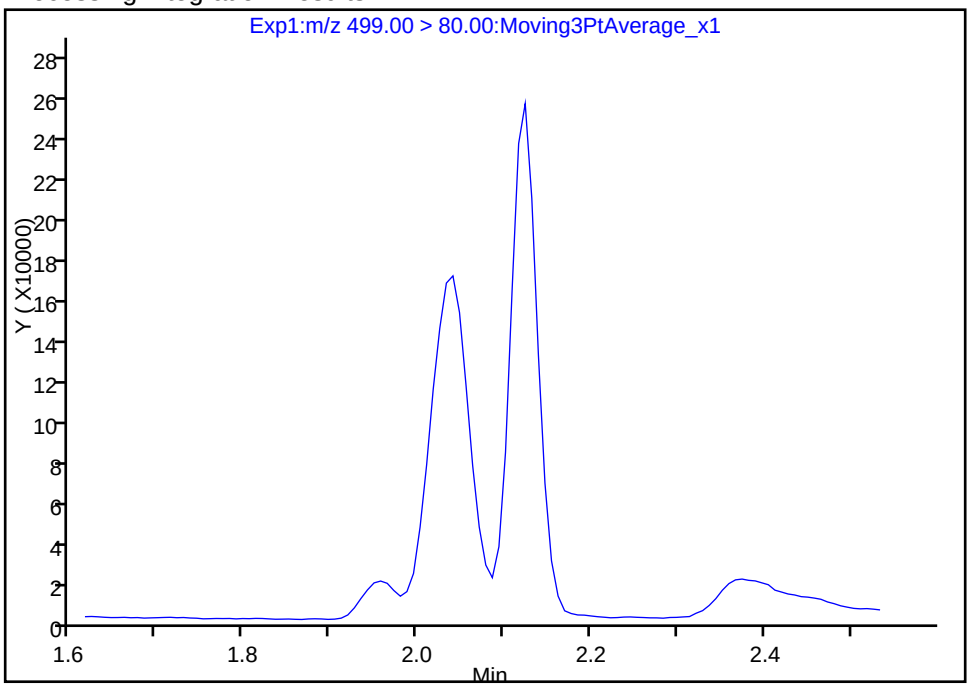
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_077.d				
Injection Date:	20-Oct-2017 23:35:48	Instrument ID:	A8_N		
Lims ID:	320-32094-A-22-A	Lab Sample ID:	320-32094-22		
Client ID:	WGNA-100217-RW-0404				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	33
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

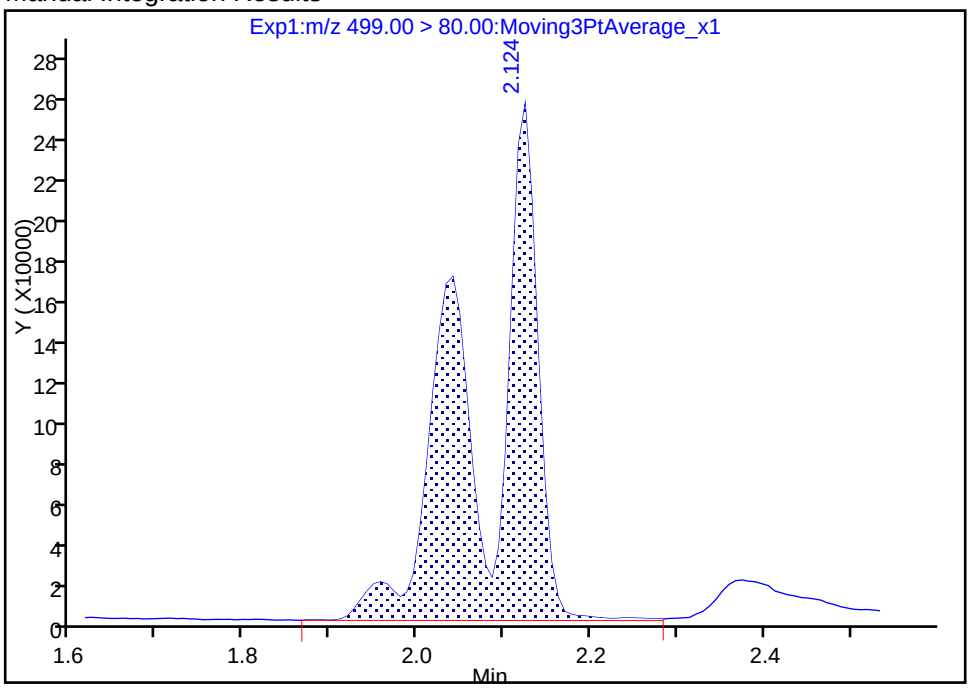
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 1157355
Amount: 6.363850
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:29:45
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

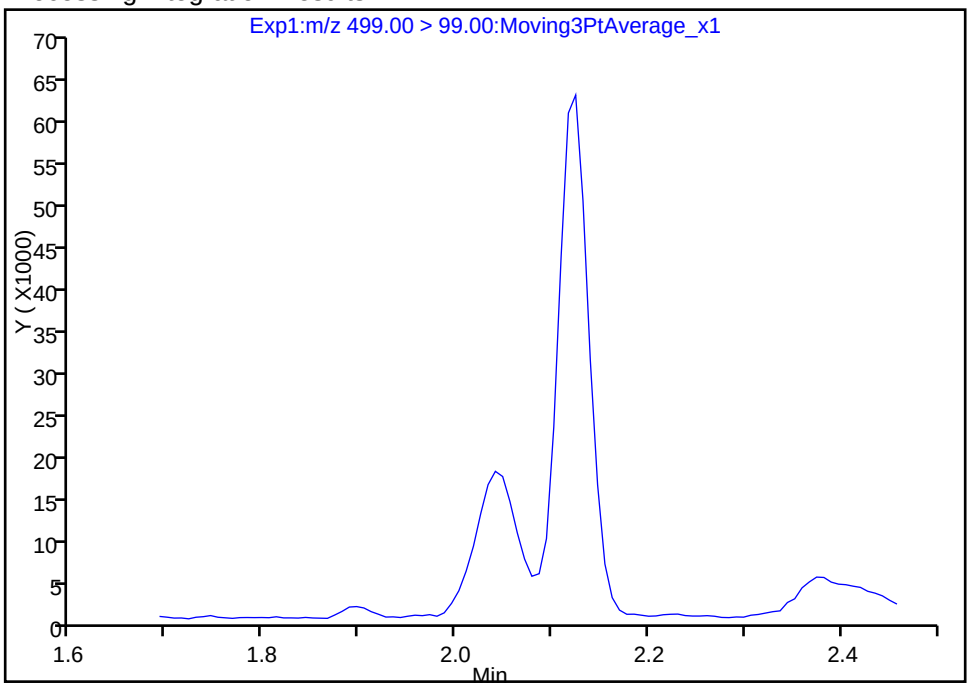
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_077.d				
Injection Date:	20-Oct-2017 23:35:48	Instrument ID:	A8_N		
Lims ID:	320-32094-A-22-A	Lab Sample ID:	320-32094-22		
Client ID:	WGNA-100217-RW-0404				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	33
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

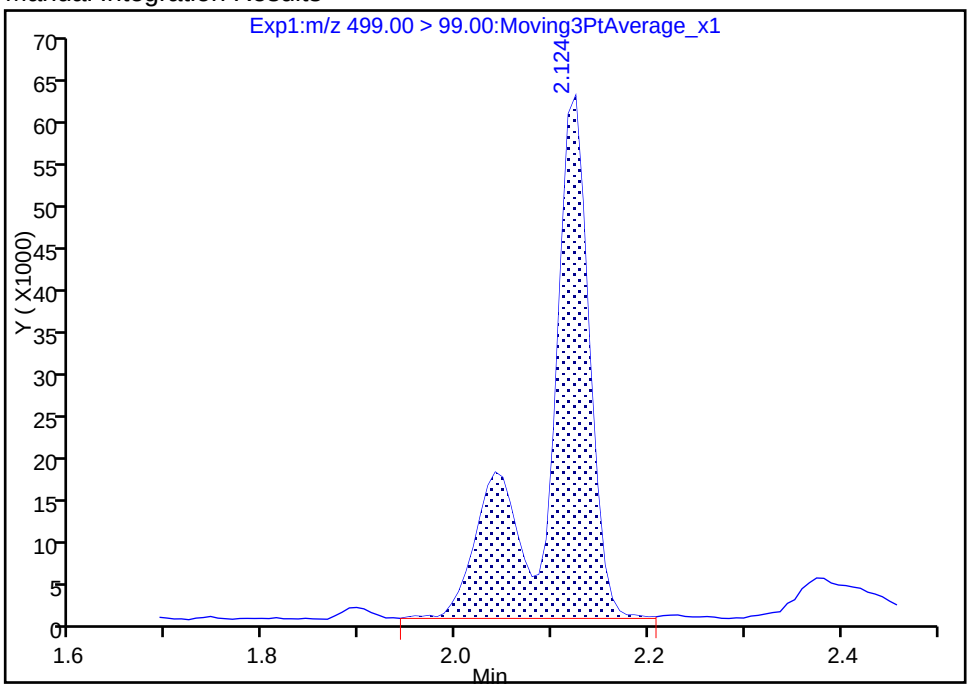
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 196285
Amount: 6.363850
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:29:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

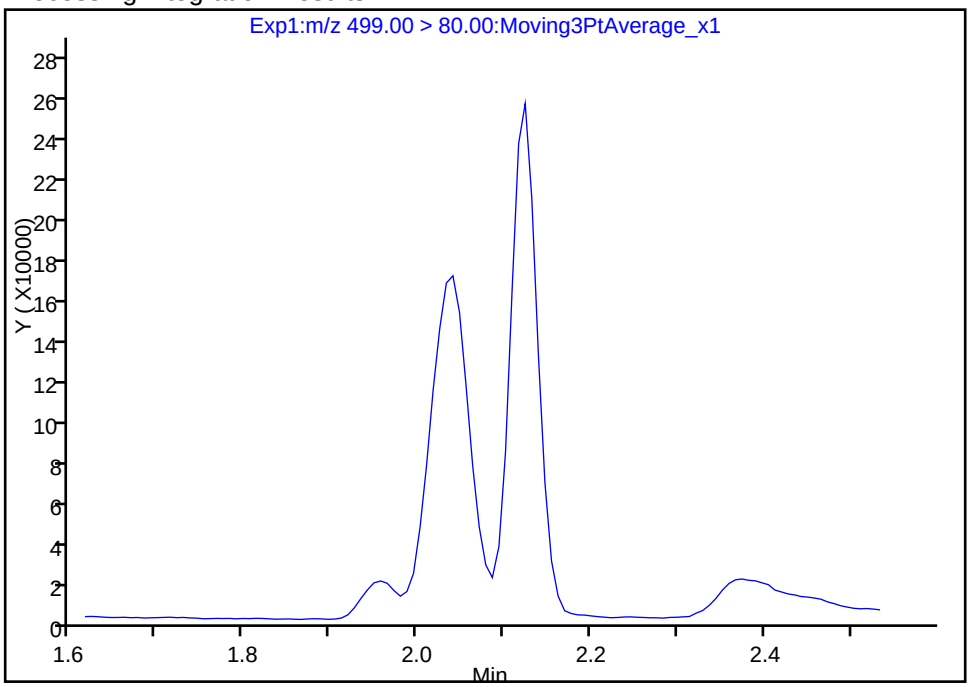
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_077.d				
Injection Date:	20-Oct-2017 23:35:48	Instrument ID:	A8_N		
Lims ID:	320-32094-A-22-A	Lab Sample ID:	320-32094-22		
Client ID:	WGNA-100217-RW-0404				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	33
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

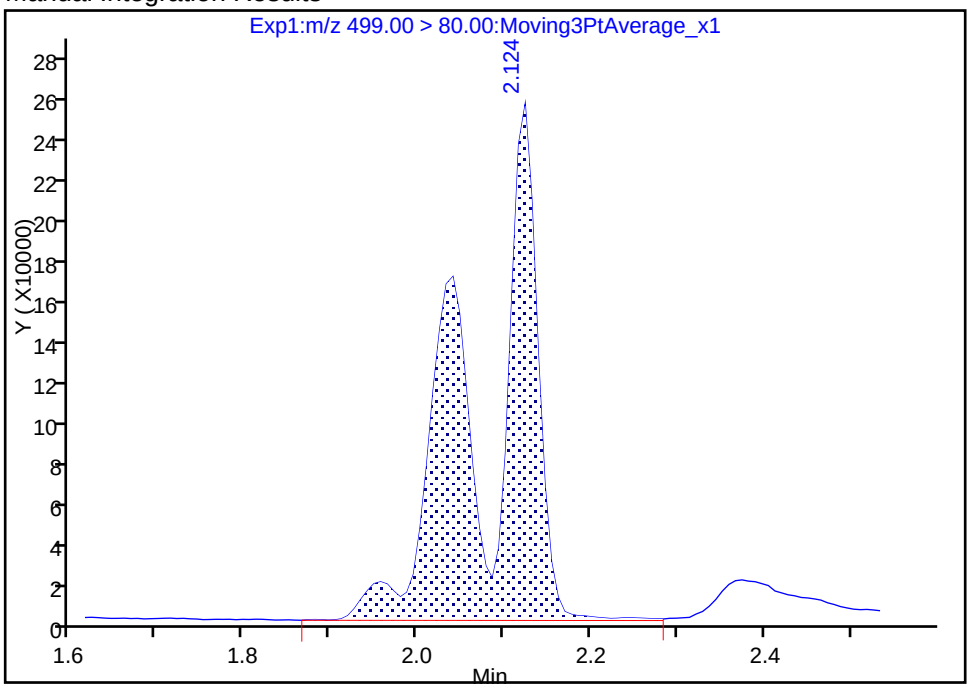
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 1157355
Amount: 6.363850
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:29:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0404 | Lab Sample ID: 320-32094-23

Matrix: Water | Lab File ID: 2017.10.20_537A_080.d

Analysis Method: 537 | Date Collected: 10/02/2017 08:35

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 256.4(mL) | Date Analyzed: 10/20/2017 23:50

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190447 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_080.d
Lims ID: 320-32094-A-23-A
Client ID: WGNA-100217-FRB-0404
Sample Type: Client
Inject. Date: 20-Oct-2017 23:50:03 ALS Bottle#: 11 Worklist Smp#: 36
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-23-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:45 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	2015444	9.87		8398	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.855	0.019		1742030	10.0		5330	
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.108	0.009		5001896	28.7		4146	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.282	0.002	1.000	995214	10.2		5374	

Report Date: 23-Oct-2017 11:00:53 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_080.d

Injection Date: 20-Oct-2017 23:50:03 Instrument ID: A8_N

Lims ID: 320-32094-A-23-A Lab Sample ID: 320-32094-23

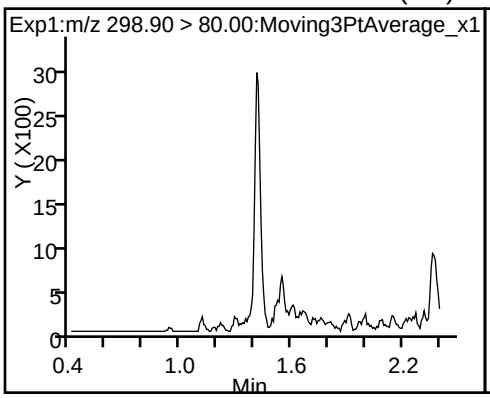
Client ID: WGNA-100217-FRB-0404

Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 36

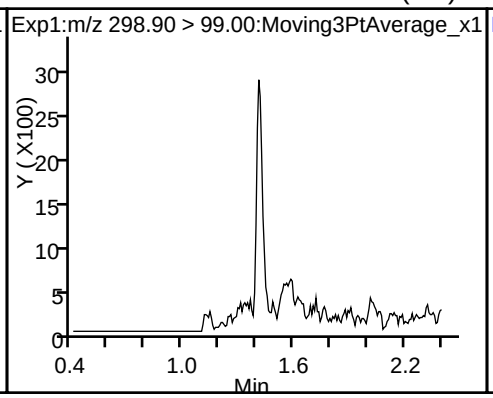
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

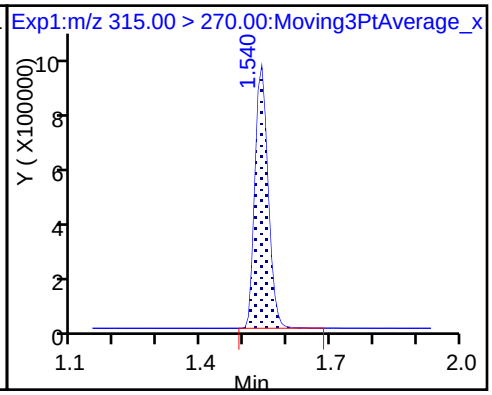
1 Perfluorobutanesulfonic acid (ND)



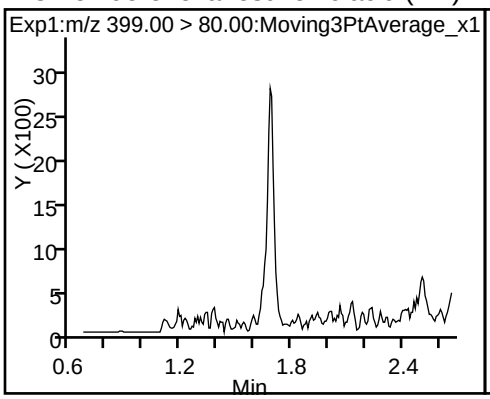
1 Perfluorobutanesulfonic acid (ND)



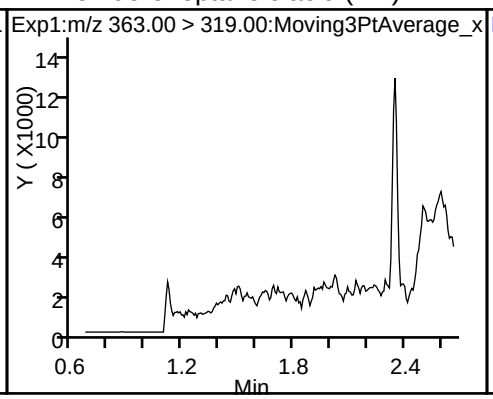
$ 2 13C2 PFHxA



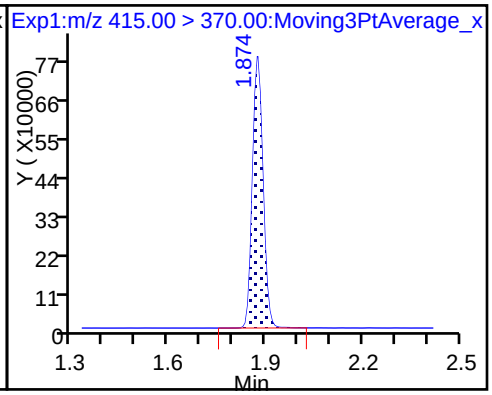
3 Perfluorohexanesulfonic acid (ND)



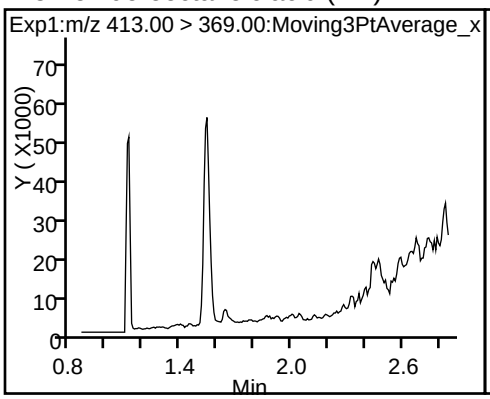
4 Perfluoroheptanoic acid (ND)



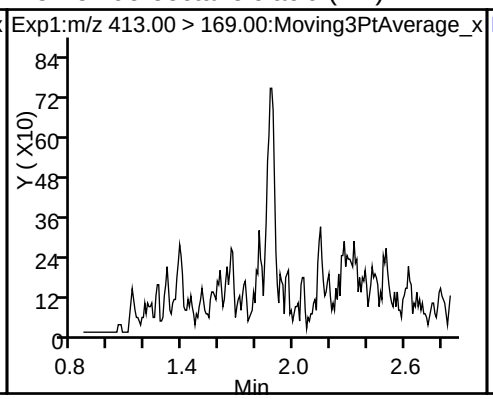
* 6 13C2-PFOA



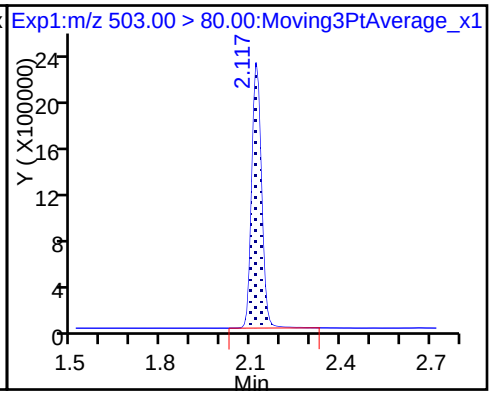
5 Perfluorooctanoic acid (ND)



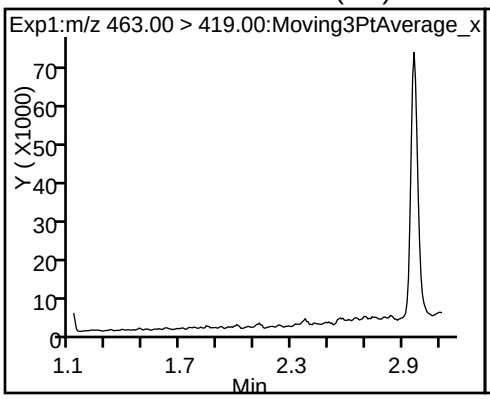
5 Perfluorooctanoic acid (ND)



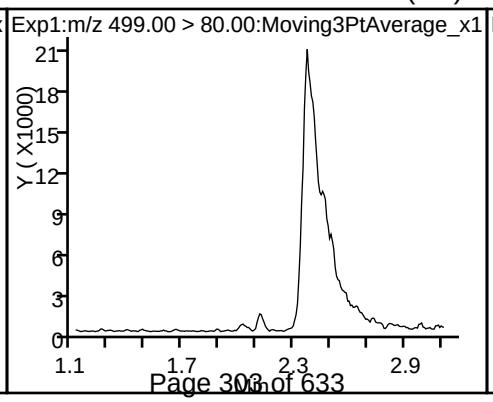
* 7 13C4 PFOS



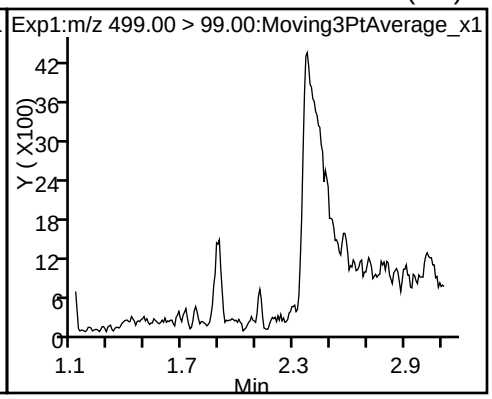
9 Perfluorononanoic acid (ND)



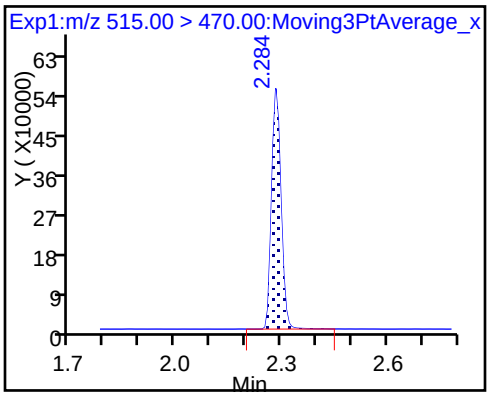
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_080.d				
Lims ID:	320-32094-A-23-A				
Client ID:	WGNA-100217-FRB-0404				
Sample Type:	Client				
Inject. Date:	20-Oct-2017 23:50:03	ALS Bottle#:	11	Worklist Smp#:	36
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-32094-a-23-a				
Misc. Info.:	Plate: 1 Rack: 5				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	23-Oct-2017 11:00:45	Calib Date:	20-Sep-2017 03:19:48		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK012				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.87	98.74
$ 10 13C2 PFDA	10.0	10.2	102.42

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 185329

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/20/2017 02:56 Calibration End Date: 09/20/2017 03:19 Calibration ID: 34457

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-185329/4	2017.09.19_537ICAL_004.d
Level 2	IC 320-185329/5	2017.09.19_537ICAL_005.d
Level 3	IC 320-185329/6	2017.09.19_537ICAL_006.d
Level 4	IC 320-185329/7	2017.09.19_537ICAL_007.d
Level 5	IC 320-185329/8	2017.09.19_537ICAL_008.d
Level 6	IC 320-185329/9	2017.09.19_537ICAL_009.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								
Perfluorobutanesulfonic acid (PFBS)	1.1549 0.7675	1.2218	1.1299	0.9825	0.8671	QuaF		1.2127	-0.002495						1.0000		0.9600
Perfluoroheptanoic acid (PFHpA)	0.9156 0.9157	1.0104	0.9599	0.9323	0.9167	Ave		0.9418				4.0		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.6240 1.5024	1.7562	1.6778	1.6725	1.5962	Ave		1.6382				5.3		30.0			
Perfluorooctanoic acid (PFOA)	0.8827 0.9310	0.9355	0.9297	0.9101	0.9278	Ave		0.9195				2.2		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8786 0.9472	0.9205	0.9514	0.9450	0.9475	Ave		0.9317				3.0		30.0			
Perfluorononanoic acid (PFNA)	0.6171 0.6192	0.6458	0.6231	0.6183	0.6076	Ave		0.6218				2.1		30.0			
13C2 PFHxA	1.1170 1.2085	1.1856	1.1778	1.1659	1.1757	Ave		1.1718				2.6		30.0			
13C2 PFDA	0.5262 0.5719	0.5663	0.5603	0.5520	0.5699	Ave		0.5578				3.1		30.0			

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

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 185329

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/20/2017 02:56 Calibration End Date: 09/20/2017 03:19 Calibration ID: 34457

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-185329/4	2017.09.19_537ICAL_004.d
Level 2	IC 320-185329/5	2017.09.19_537ICAL_005.d
Level 3	IC 320-185329/6	2017.09.19_537ICAL_006.d
Level 4	IC 320-185329/7	2017.09.19_537ICAL_007.d
Level 5	IC 320-185329/8	2017.09.19_537ICAL_008.d
Level 6	IC 320-185329/9	2017.09.19_537ICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	2072419 26277877	5031340	9714039	16708415	22246597	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PFOA	Ave	202553 3731330	492336	996370	1954380	2871658	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	971572 17148552	2411042	4809005	9481986	13653533	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PFOA	Ave	390753 7591950	912252	1931186	3817782	5816384	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	700862 14414630	1684976	3635963	7143258	10806665	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PFOA	Ave	273016 5046017	629304	1293375	2592159	3806555	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PFOA	Ave	2470192 2461679	2599092	2444565	2443470	2454801	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PFOA	Ave	1163662 1164862	1241510	1162968	1156914	1189895	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 185329

SDG No.:

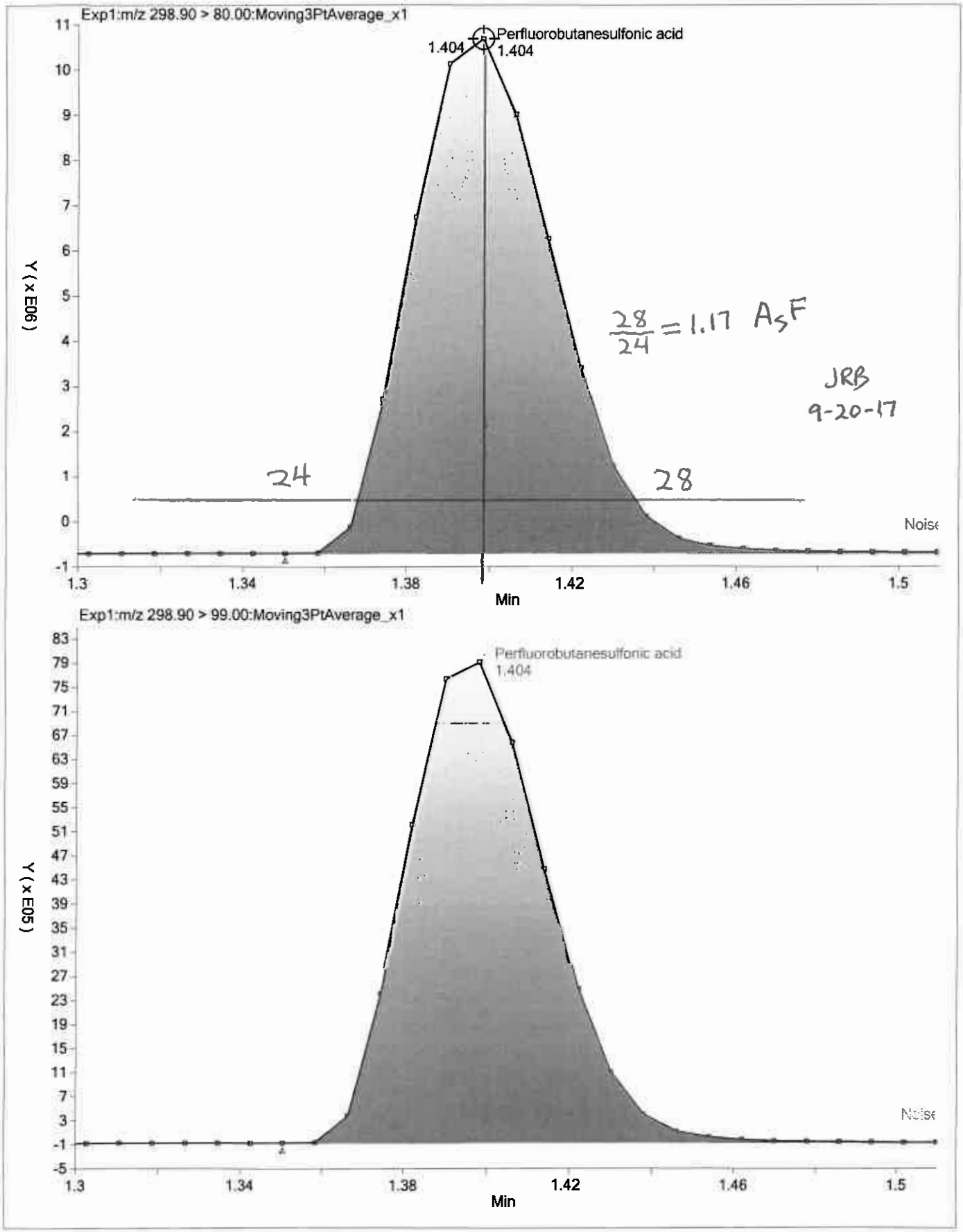
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/20/2017 02:56 Calibration End Date: 09/20/2017 03:19 Calibration ID: 34457

Calibration Files:

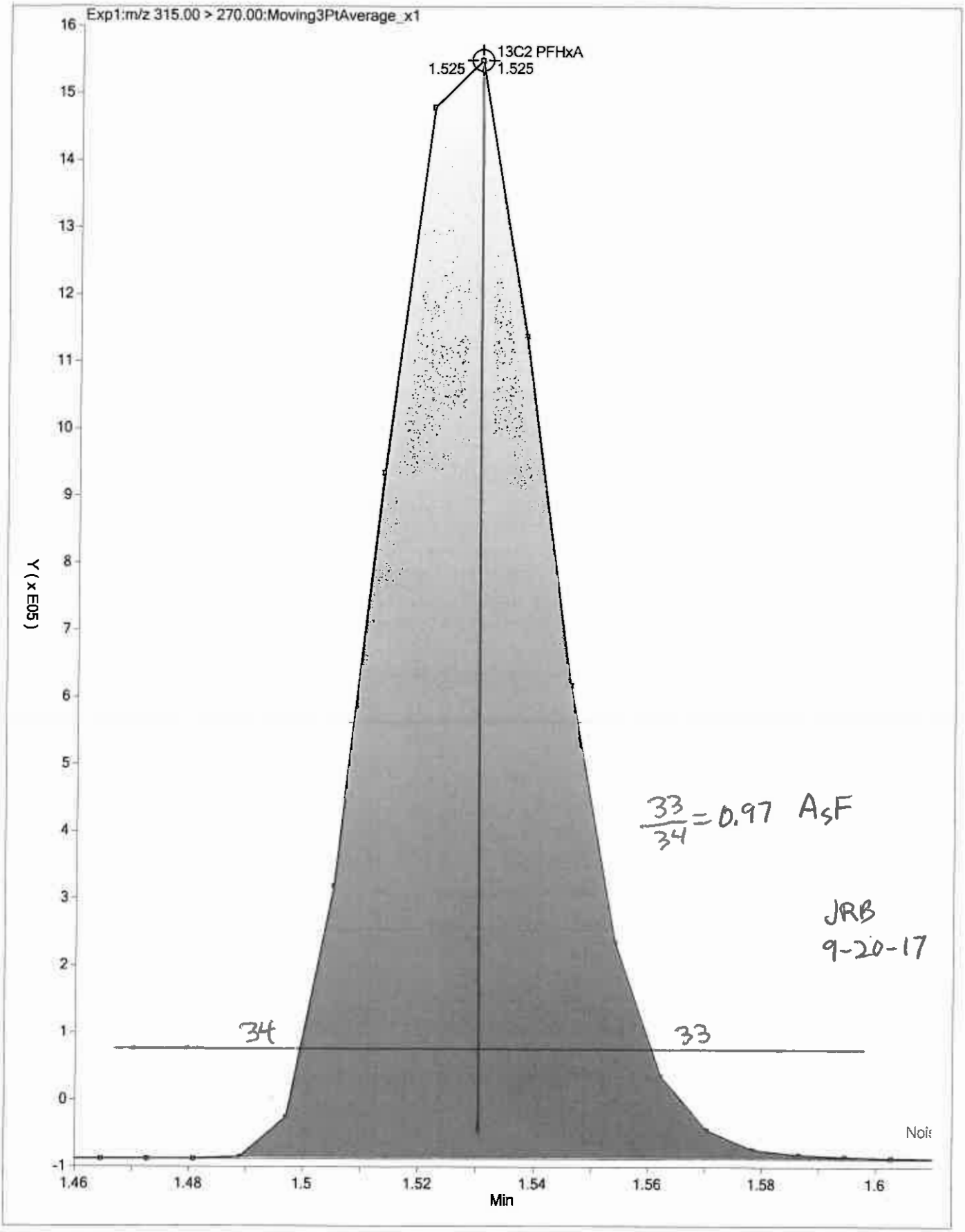
LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-185329/4	2017.09.19_537ICAL_004.d
Level 2	IC 320-185329/5	2017.09.19_537ICAL_005.d
Level 3	IC 320-185329/6	2017.09.19_537ICAL_006.d
Level 4	IC 320-185329/7	2017.09.19_537ICAL_007.d
Level 5	IC 320-185329/8	2017.09.19_537ICAL_008.d
Level 6	IC 320-185329/9	2017.09.19_537ICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-3.0	5.3	3.0	-0.7	-1.6	1.3	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	-2.8	7.3	1.9	-1.0	-2.7	-2.8	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-0.9	7.2	2.4	2.1	-2.6	-8.3	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	-4.0	1.7	1.1	-1.0	0.9	1.3	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-5.7	-1.2	2.1	1.4	1.7	1.7	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-0.8	3.8	0.2	-0.6	-2.3	-0.4	50	30	30	30	30	30
13C2 PFHxA	-4.7	1.2	0.5	-0.5	0.3	3.1	30	30	30	30	30	30
13C2 PFDA	-5.7	1.5	0.5	-1.0	2.2	2.5	30	30	30	30	30	30



$\frac{28}{24} = 1.17$ A_SF

JRB
9-20-17


Exp1:m/z 315.00 > 270.00:Moving3PtAverage_x1
13C2 PFHxA
1.525
1.525
Y (x E05)
Min
34
33
$\frac{33}{34} = 0.97$ ASF
JRB
9-20-17

TestAmerica Laboratories
Istd/Surrogate Recovery Report

Worklist Name: 19SEP2017_537_ICAL Worklist Num: 48154
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b
Limit Group: LC 537 ICAL
Analysis Type: SemiVOA
Inj Volume: 2.00 Inj Vol Units: ul

Lims Batch: 185329
CCV IS Mode: Select Ical Level, Cal Level: 3
Non-Cal IS Mode: Last Ccal Sample

$ 2 13C2 PFHxA
$ 10 13C2 PFDA

Lab ID Inj Date	$ 2	$ 10	* 6 13C2-PFOA	* 7 13C4 PFOS
IS Std			1939425 1.94	5718230 2.17
#1 RB 20-Sep-2017 02:41:50			1.86 2065918 106.5	2.11 5411709 94.6
#2 RB 20-Sep-2017 02:46:34			1.85 2077017 107.1	2.11 5614007 98.2
IS Std			2075481 1.85	5478893 2.10
#3 RB 20-Sep-2017 02:51:19			1.85 1999632 96.3	2.11 5340682 97.5
IS Std				
#4 IC L1 20-Sep-2017 02:56:02	1.53 95.33	2.28 94.34	1.85 2211369> 100.0*	2.11 5717338> 100.0*
#5 IC L2 20-Sep-2017 03:00:47	1.53 101.20	2.28 101.50	1.86 2192240> 99.1*	2.11 5904759> 103.3*
#6 IC L3 20-Sep-2017 03:05:32	1.52 100.50	2.28 100.50	1.85 2075481> 93.9*	2.10 5478893> 95.8*
#7 IC L4 20-Sep-2017 03:10:16	1.53 99.50	2.28 98.97	1.86 2095801> 94.8*	2.11 5418565> 94.8*
#8 IC L5 20-Sep-2017 03:15:01	1.53 100.30	2.28 102.20	1.86 2087979> 94.4*	2.11 5450221> 95.3*
#9 IC L6 20-Sep-2017 03:19:48	1.53 103.10	2.28 102.50	1.85 2036942> 92.1*	2.11 5454650> 95.4*
IS Std			2075481 1.85	5478893 2.10
#10 RB 20-Sep-2017 03:24:33			1.85 2085152 100.5	2.10 5726961 104.5
IS Std			2095801 1.86	5418565 2.11
#11 CCVL 20-Sep-2017 03:29:17	1.52 97.20	2.28 102.10	1.85 2252465 107.5	2.10 5723538 105.6
IS Std			2252465 1.85	5723538 2.10
#12 RB 20-Sep-2017 03:34:02			1.85 2077507 92.2	2.10 5580721 97.5
IS Std			2095801 1.86	5418565 2.11
#13 ICV 20-Sep-2017 03:38:46	1.53 99.40	2.28 103.60	1.85 2616480 124.8	2.10 7294448 134.6
IS Std			1963439 1.85	5207540 2.11
#14 RB 20-Sep-2017 03:43:31			1.85 1963439 100.0	2.11 5207540 100.0

13C2-PFOA

$$RPD = \frac{2211369 - 2036942}{\frac{2211369 + 2036942}{2}} = 8.2$$

13C4-PFOS

$$RPD = \frac{5904759 - 5418565}{\frac{5904759 + 5418565}{2}} = 8.6$$

JRB
9-20-17

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_004.d
Lims ID: IC L1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 20-Sep-2017 02:56:02 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L1_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 20-Sep-2017 10:35:29 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK008

First Level Reviewer: barnettj Date: 20-Sep-2017 10:03:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.402	0.002	1.000	2072419	8.73		6405	
298.90 > 99.00	1.404	1.402	0.002	1.000	1455019		1.42(0.00-0.00)	3941	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.524	0.001	1.000	2470192	9.53		11139	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.669	1.668	0.001	1.000	971572	2.98		3003	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.669	1.668	0.001	1.000	202553	0.9726		61.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.855	-0.004		2211369	10.0		9755	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.856	0.003	1.000	390753	1.92		17.1	
413.00 > 169.00	1.859	1.856	0.003	1.000	208681		1.87(0.00-0.00)	858	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.108	0.001		5717338	28.7		8554	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	700862	3.77		668	M
499.00 > 99.00	2.109	2.109	0.0	1.000	152073		4.61(0.00-0.00)	192	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	273016	1.99		41.2	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.282	0.002	1.000	1163662	9.43		9791	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L1_00020 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2017 10:35:29 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_004.d

Injection Date: 20-Sep-2017 02:56:02 Instrument ID: A8_N

Lims ID: IC L1

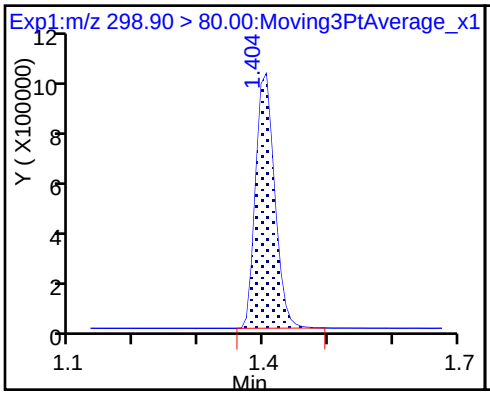
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4

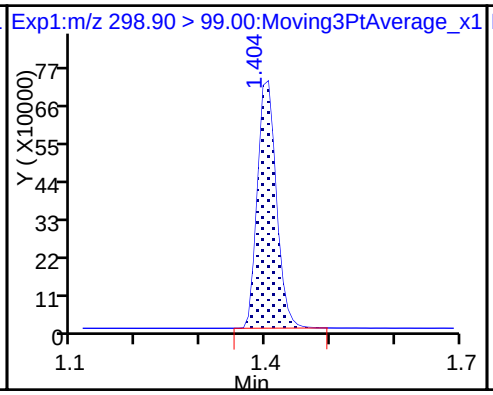
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

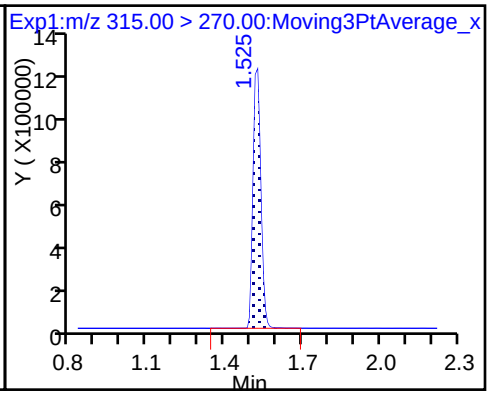
1 Perfluorobutanesulfonic acid



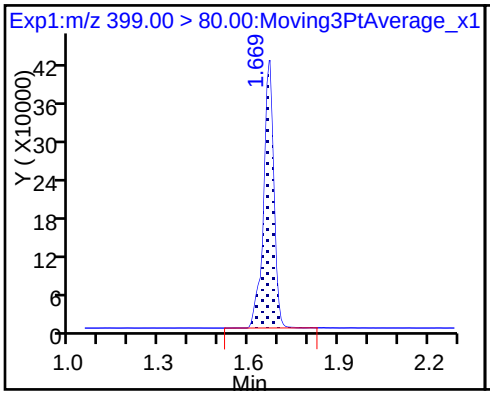
1 Perfluorobutanesulfonic acid



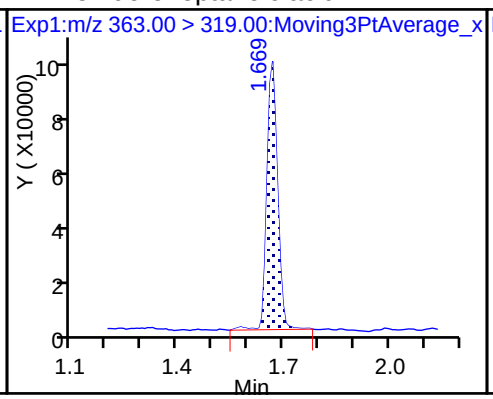
$ 2 13C2 PFHxA



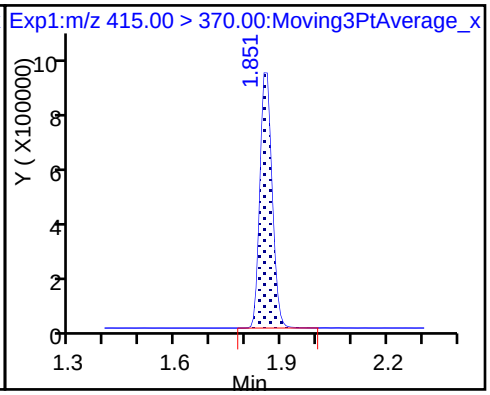
3 Perfluorohexanesulfonic acid



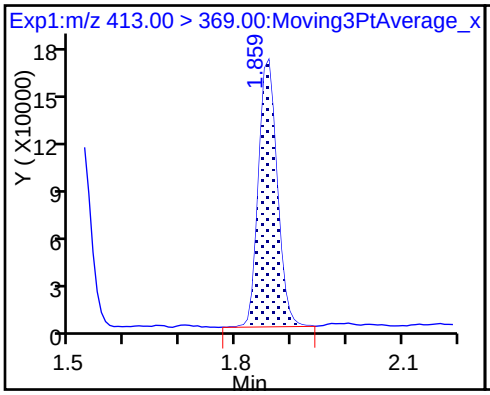
4 Perfluoroheptanoic acid



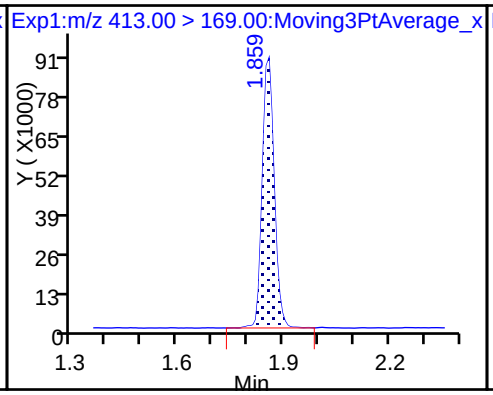
* 6 13C2-PFOA



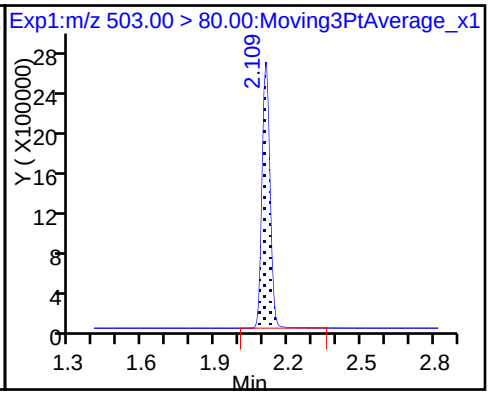
5 Perfluorooctanoic acid



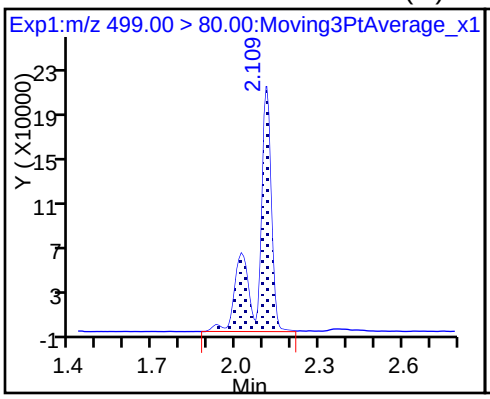
5 Perfluorooctanoic acid



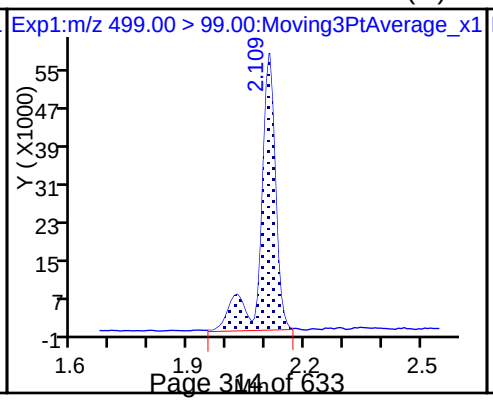
* 7 13C4 PFOS



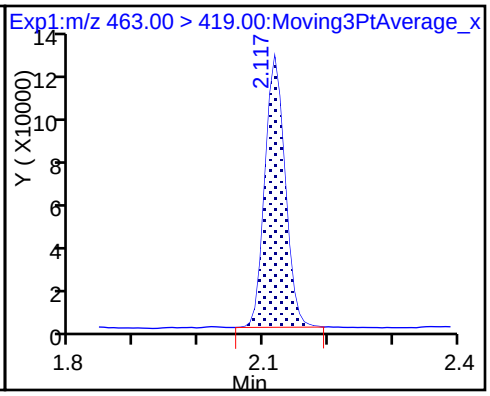
8 Perfluorooctane sulfonic acid (M)



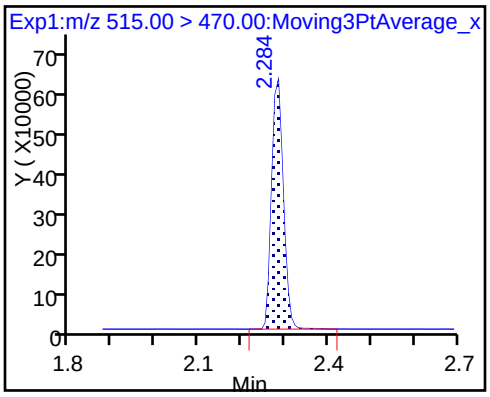
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

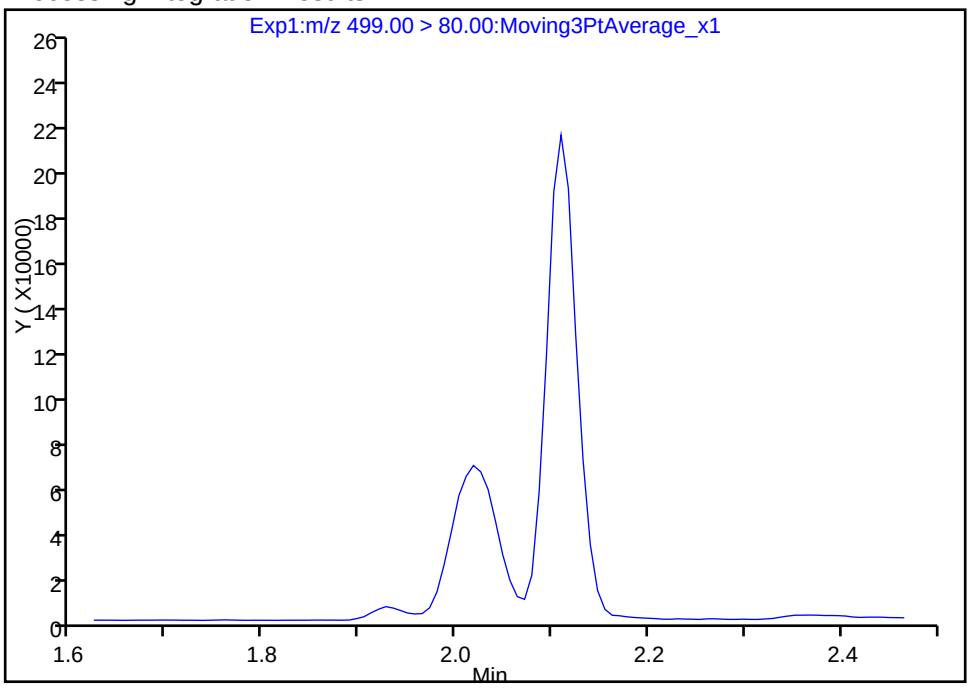
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_004.d
Injection Date: 20-Sep-2017 02:56:02 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

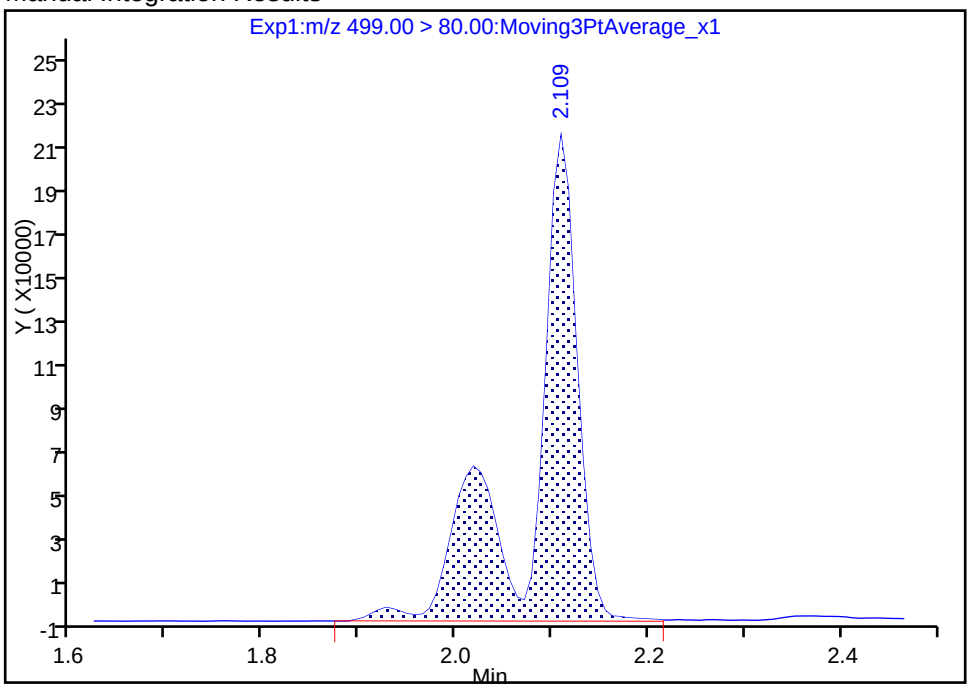
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 700862
Amount: 3.773476
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:02:54
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

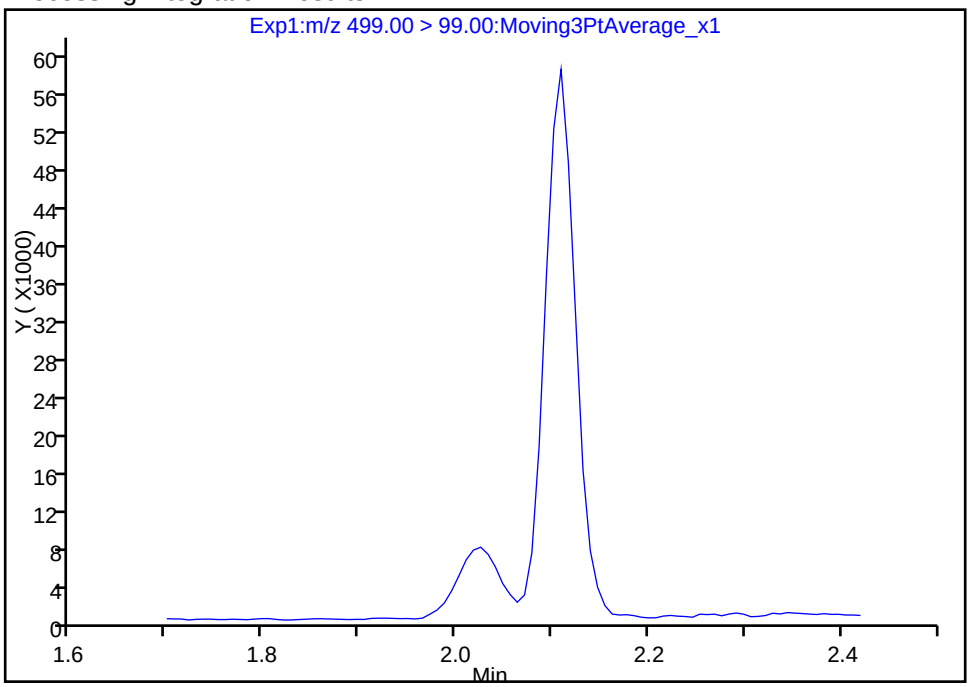
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_004.d
Injection Date: 20-Sep-2017 02:56:02 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

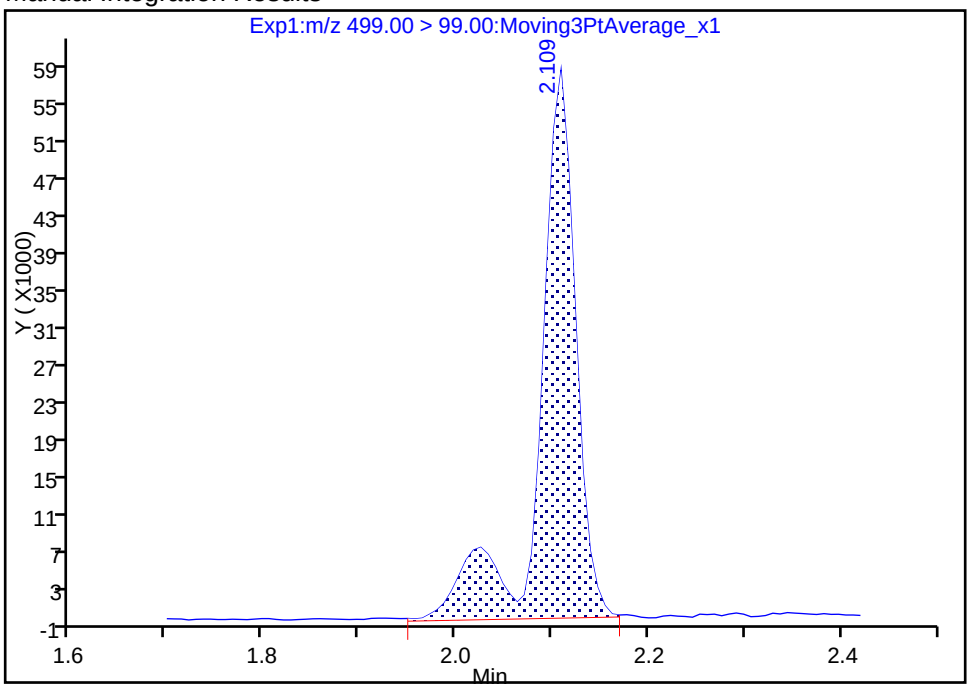
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 152073
Amount: 3.773476
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:03:37
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

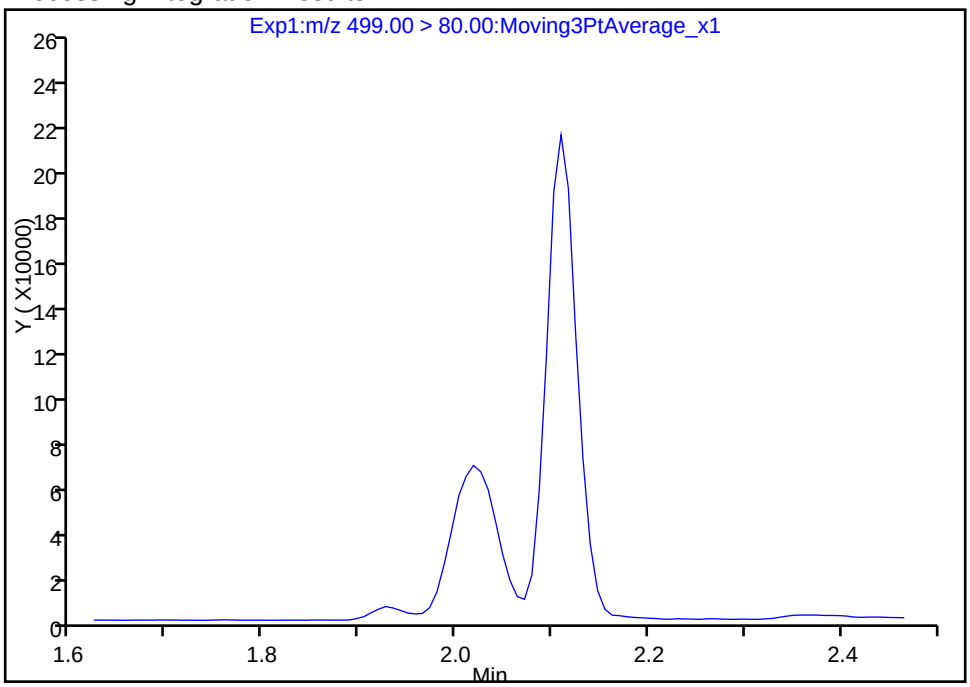
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_004.d
Injection Date: 20-Sep-2017 02:56:02 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

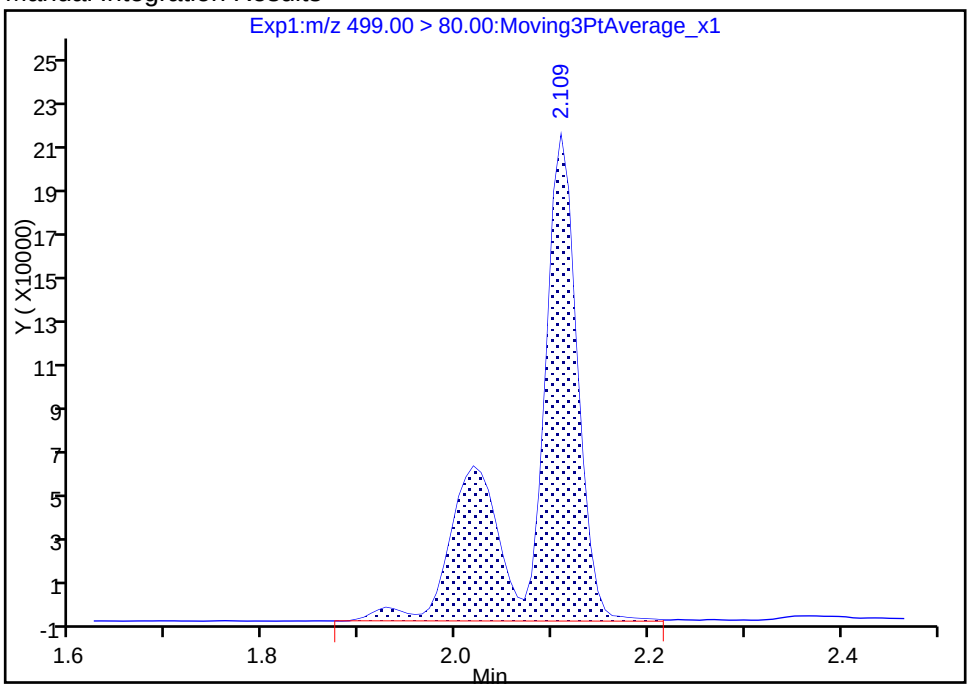
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 700862
Amount: 3.773476
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:03:36
Audit Action: Manually Integrated Audit Reason: Missed Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_005.d
Lims ID: IC L2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 20-Sep-2017 03:00:47 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L2_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 20-Sep-2017 10:35:30 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK008

First Level Reviewer: barnettj Date: 20-Sep-2017 10:04:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.402	0.002	1.000	5031340	21.1		7563	
298.90 > 99.00	1.404	1.402	0.002	1.000	3464667		1.45(0.00-0.00)	5263	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.524	0.001	1.000	2599092	10.1		7997	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.669	1.668	0.001	1.000	492336	2.38		155	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.669	1.668	0.001	1.000	2411042	7.15		4372	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.855	0.004		2192240	10.0		6795	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.856	0.003	1.000	912252	4.53		39.5	
413.00 > 169.00	1.859	1.856	0.003	1.000	481504		1.89(0.00-0.00)	1816	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.108	0.001		5904759	28.7		8529	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	1684976	8.78		1115	M
499.00 > 99.00	2.109	2.109	0.0	1.000	369952		4.55(0.00-0.00)	447	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	629304	4.62		87.1	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.282	0.002	1.000	1241510	10.2		10447	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00020 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2017 10:35:30 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_005.d

Injection Date: 20-Sep-2017 03:00:47 Instrument ID: A8_N

Lims ID: IC L2

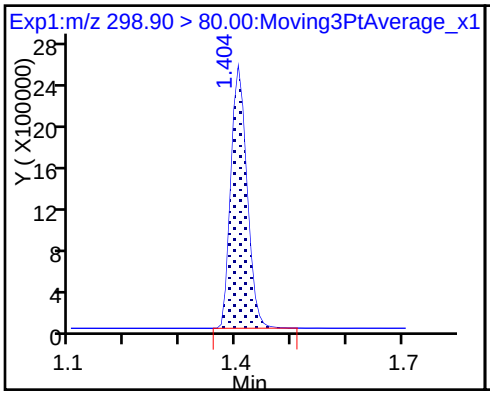
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5

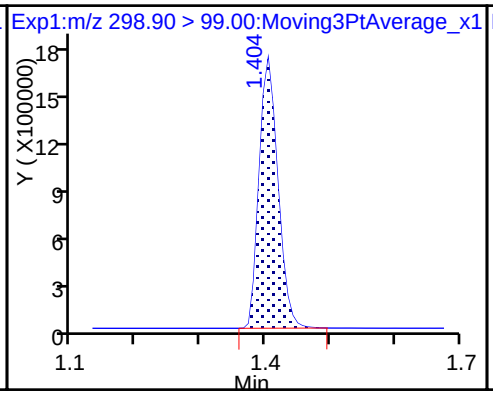
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

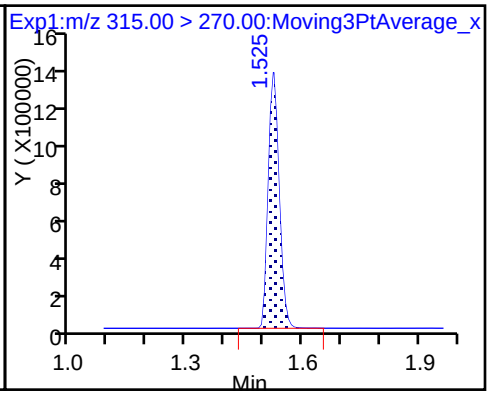
1 Perfluorobutanesulfonic acid



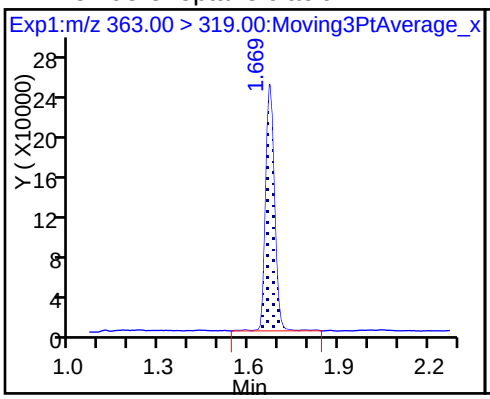
1 Perfluorobutanesulfonic acid



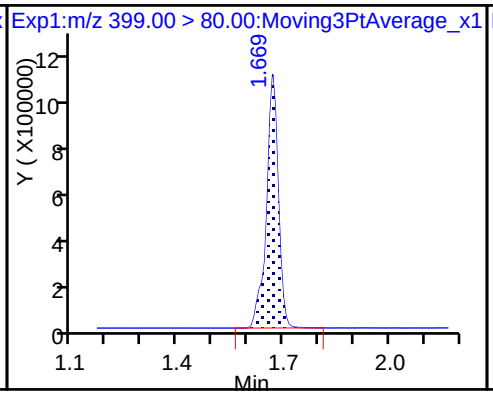
$ 2 13C2 PFHxA



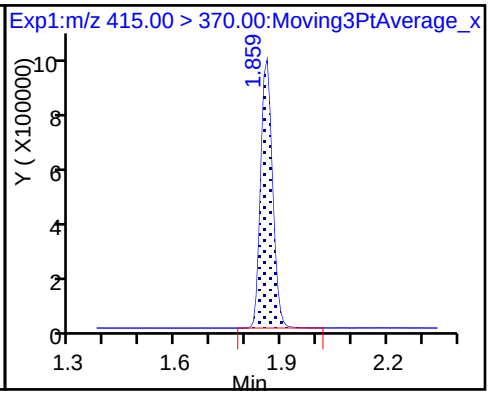
4 Perfluoroheptanoic acid



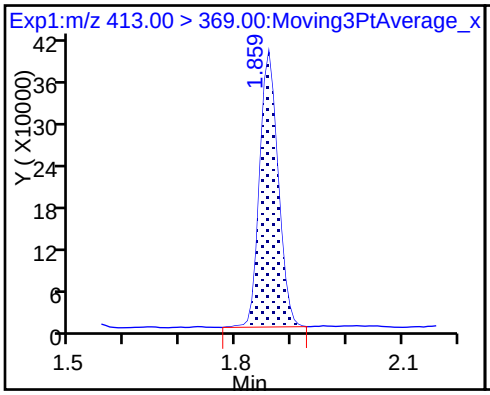
3 Perfluorohexanesulfonic acid



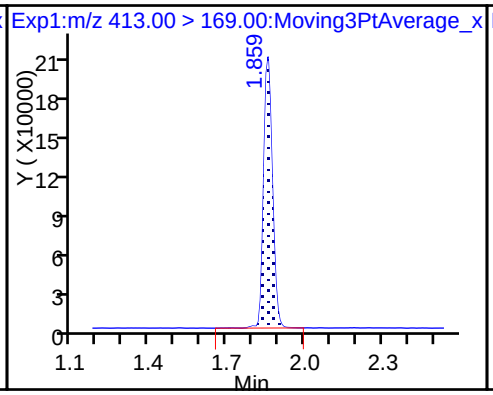
* 6 13C2-PFOA



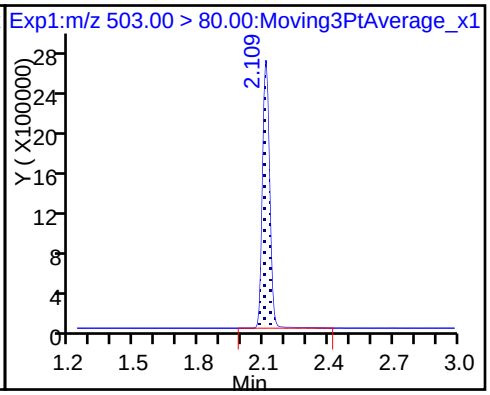
5 Perfluorooctanoic acid



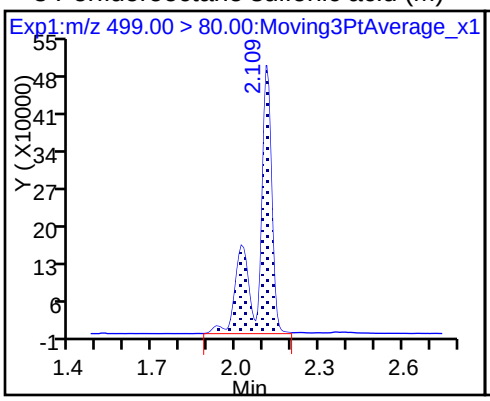
5 Perfluorooctanoic acid



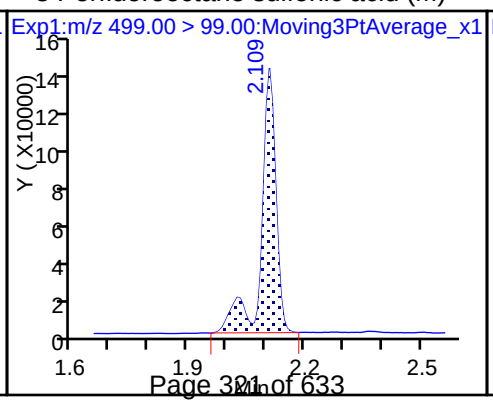
* 7 13C4 PFOS



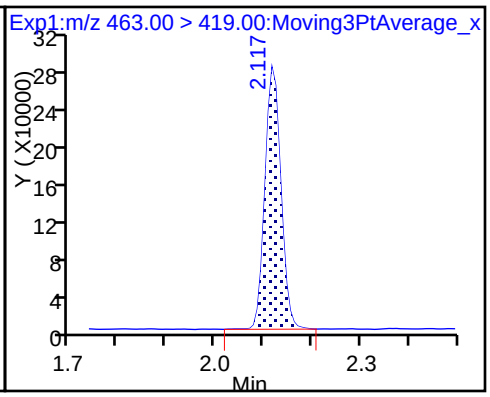
8 Perfluorooctane sulfonic acid (M)



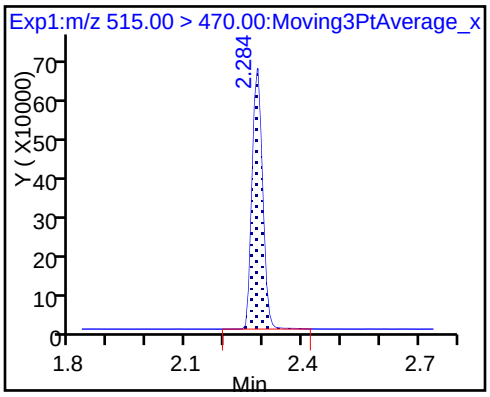
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

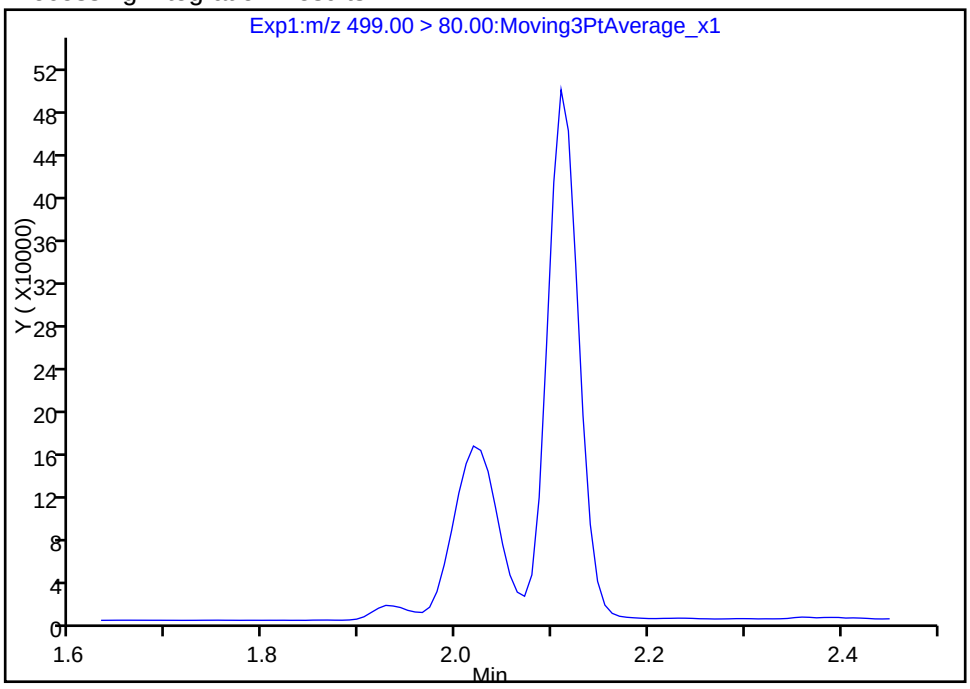
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_005.d
Injection Date: 20-Sep-2017 03:00:47 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

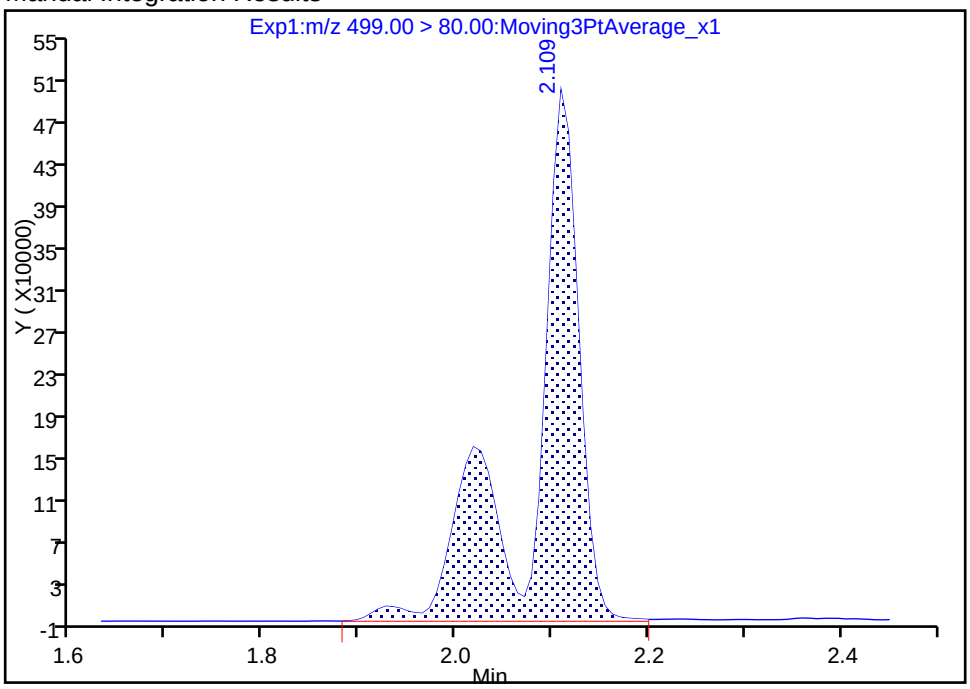
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 1684976
Amount: 8.784044
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:04:03
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

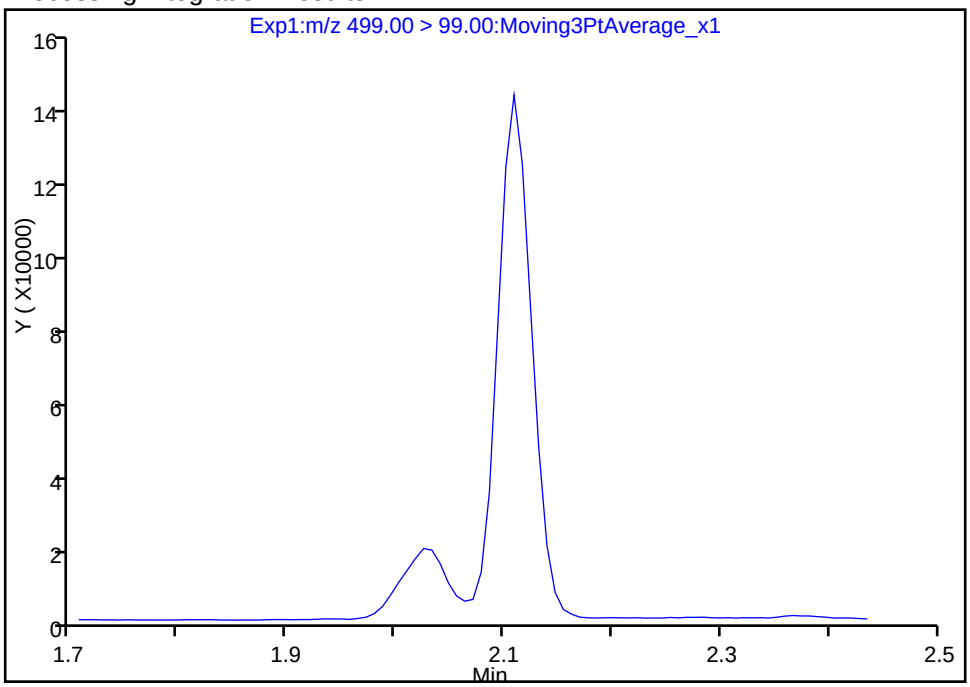
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_005.d
Injection Date: 20-Sep-2017 03:00:47 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

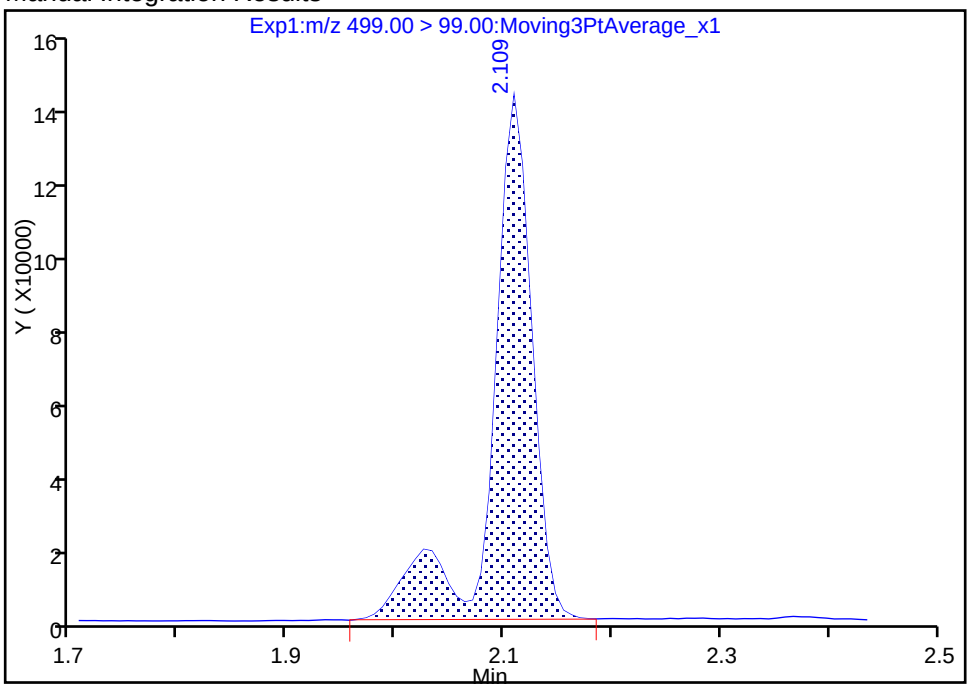
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 369952
Amount: 8.784044
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:04:48
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

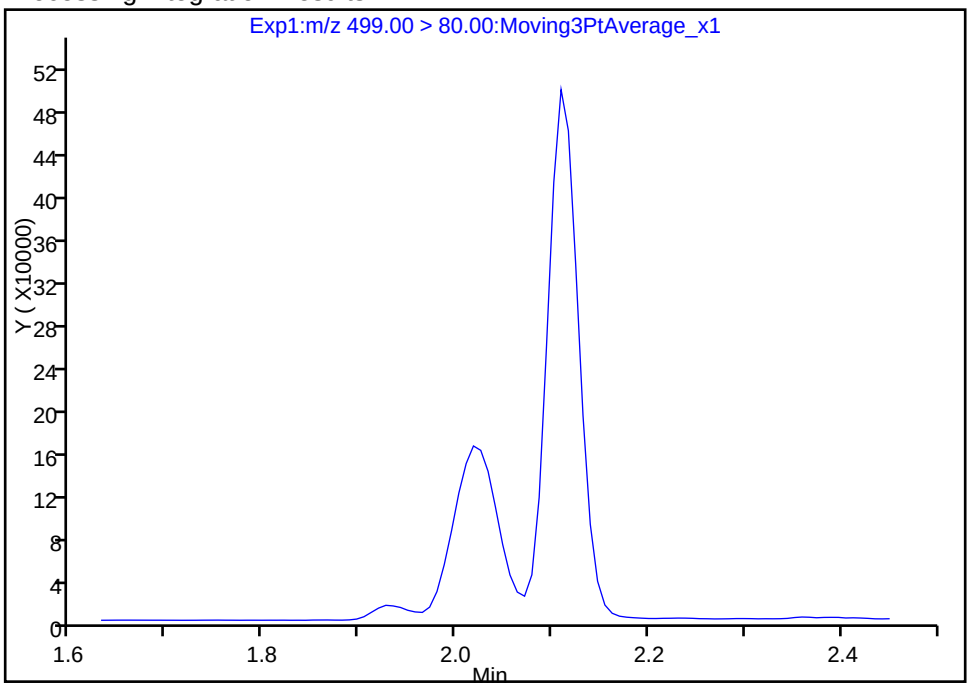
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_005.d
Injection Date: 20-Sep-2017 03:00:47 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

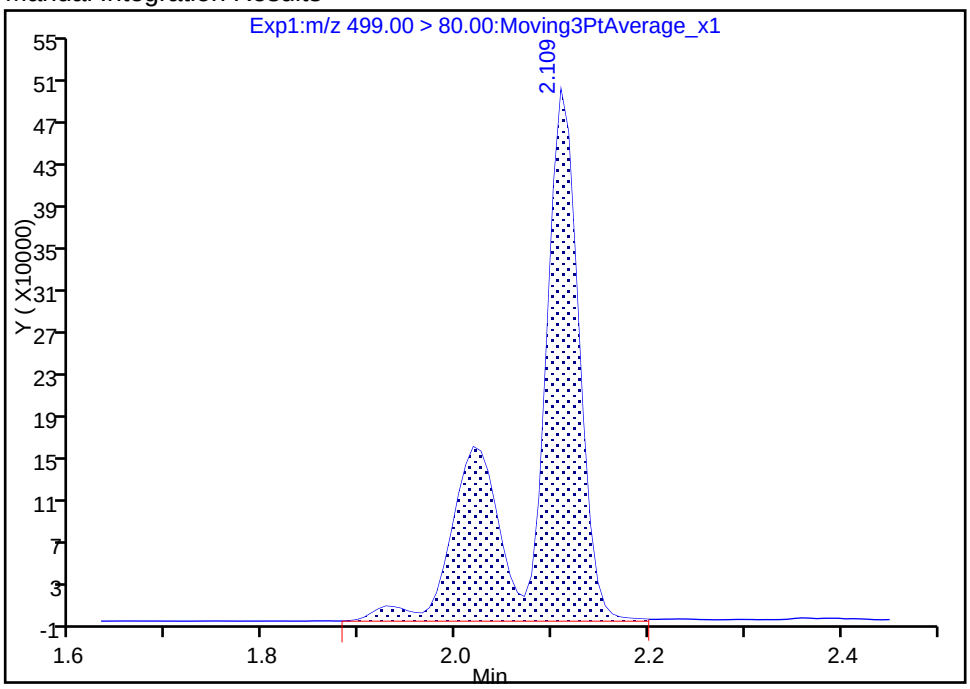
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 1684976
Amount: 8.784044
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:04:48
Audit Action: Manually Integrated Audit Reason: Missed Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_006.d
Lims ID: IC L3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 20-Sep-2017 03:05:32 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L3_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 20-Sep-2017 10:35:31 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK008

First Level Reviewer: barnettj Date: 20-Sep-2017 10:05:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.396	1.402	-0.006	1.000	9714039	46.3		7320	
298.90 > 99.00	1.396	1.402	-0.006	1.000	6860395		1.42(0.00-0.00)	6049	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.517	1.524	-0.007	1.000	2444565	10.1		7634	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.662	1.668	-0.006	1.000	4809005	15.4		5113	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.662	1.668	-0.006	1.000	996370	5.10		304	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.855	-0.004		2075481	10.0		7307	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.851	1.856	-0.005	1.000	1931186	10.1		80.1	
413.00 > 169.00	1.851	1.856	-0.005	1.000	1010441		1.91(0.00-0.00)	3393	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.108	-0.006		5478893	28.7		7009	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.109	-0.007	1.000	3635963	20.4		4871	M
499.00 > 99.00	2.102	2.109	-0.007	1.000	723199		5.03(0.00-0.00)	729	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.116	-0.007	1.000	1293375	10.0		234	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.282	-0.006	1.000	1162968	10.0		8493	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2017 10:35:31 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_006.d

Injection Date: 20-Sep-2017 03:05:32 Instrument ID: A8_N

Lims ID: IC L3

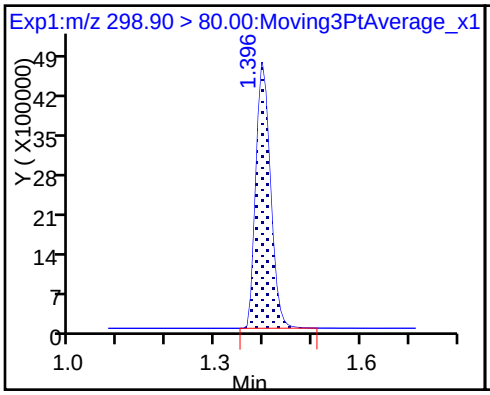
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6

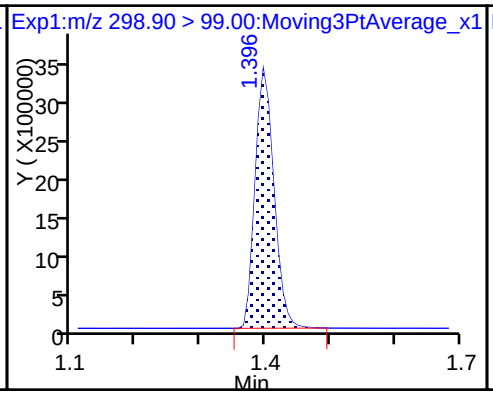
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

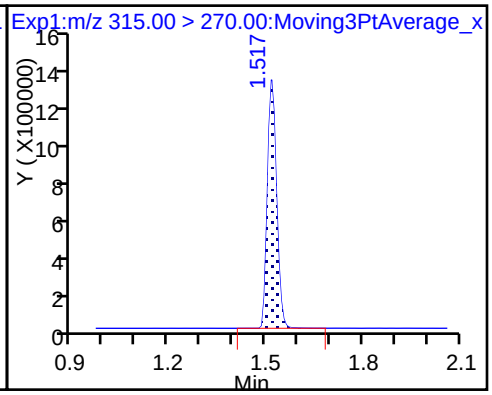
1 Perfluorobutanesulfonic acid



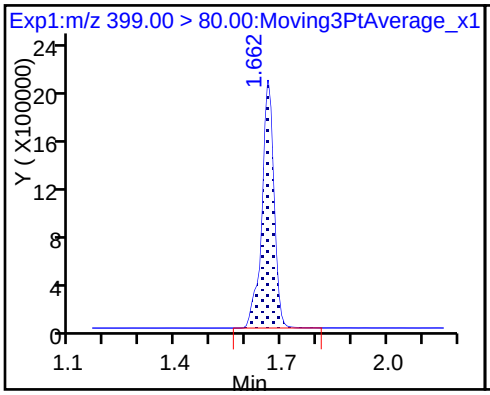
1 Perfluorobutanesulfonic acid



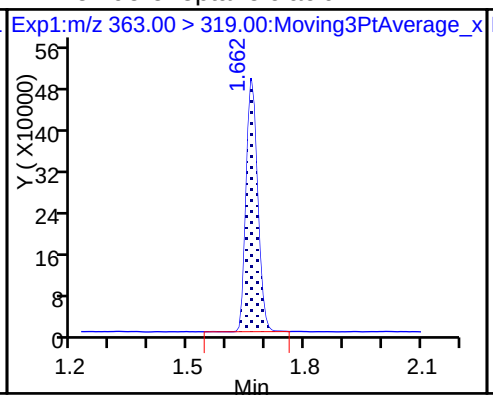
$ 2 13C2 PFHxA



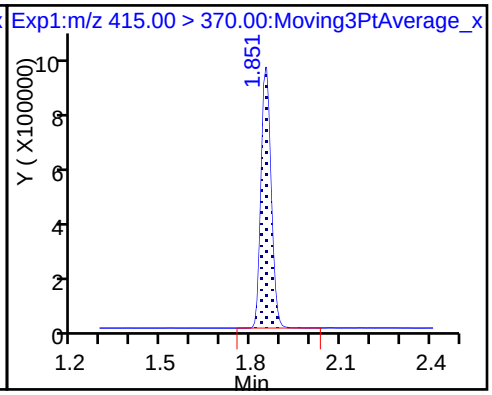
3 Perfluorohexanesulfonic acid



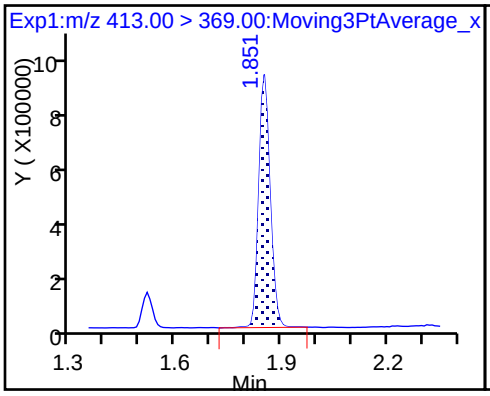
4 Perfluoroheptanoic acid



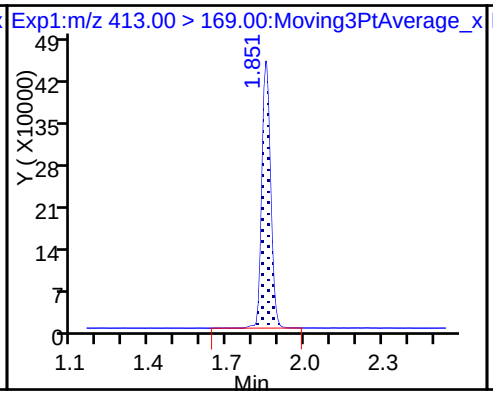
* 6 13C2-PFOA



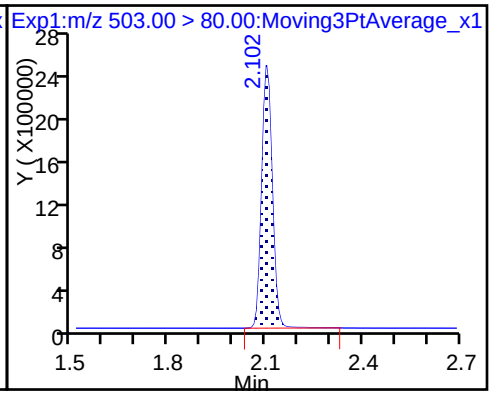
5 Perfluorooctanoic acid



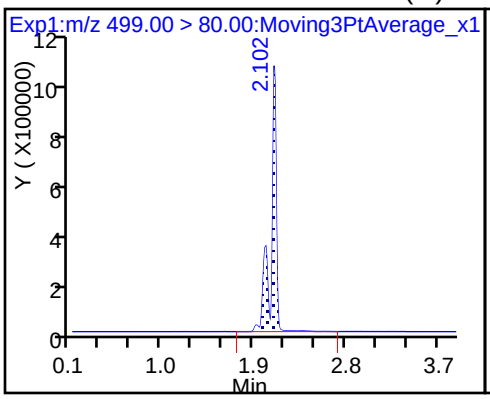
5 Perfluorooctanoic acid



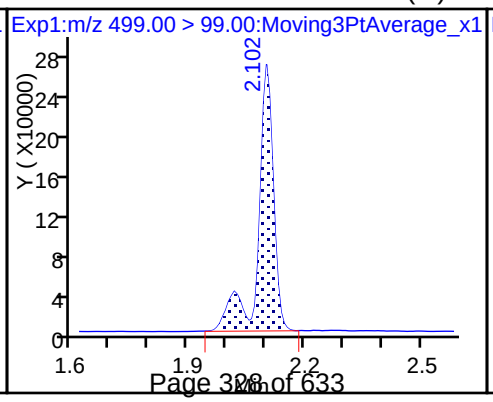
* 7 13C4 PFOS



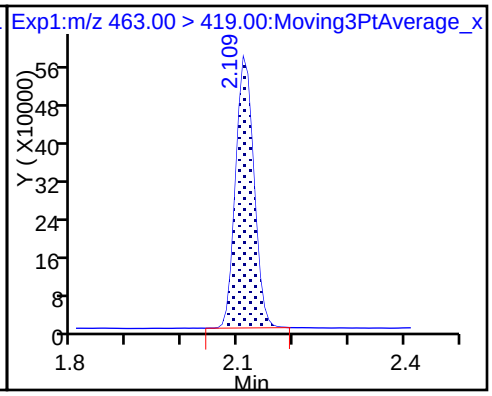
8 Perfluorooctane sulfonic acid (M)



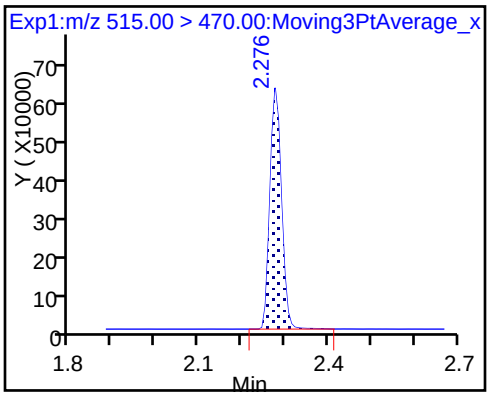
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

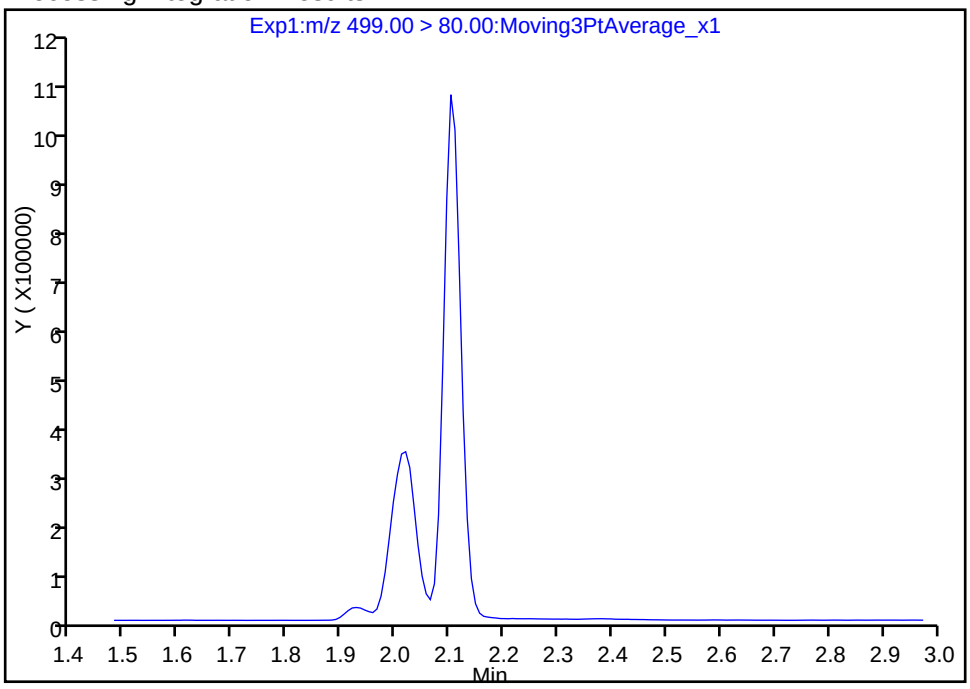
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_006.d
Injection Date: 20-Sep-2017 03:05:32 Instrument ID: A8_N
Lims ID: IC L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

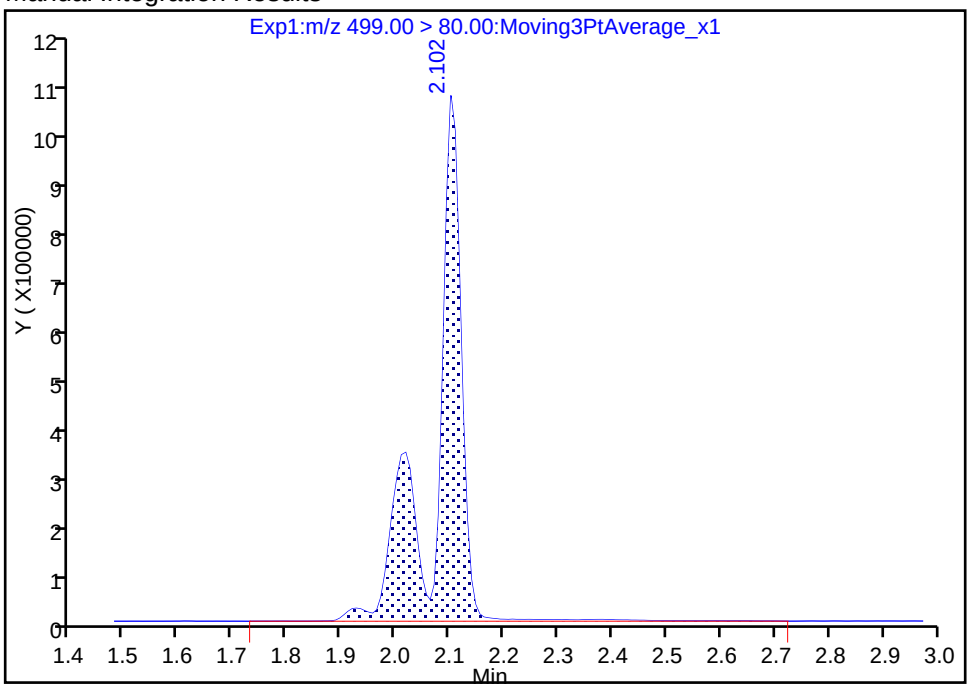
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 3635963
Amount: 20.428176
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:05:06
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

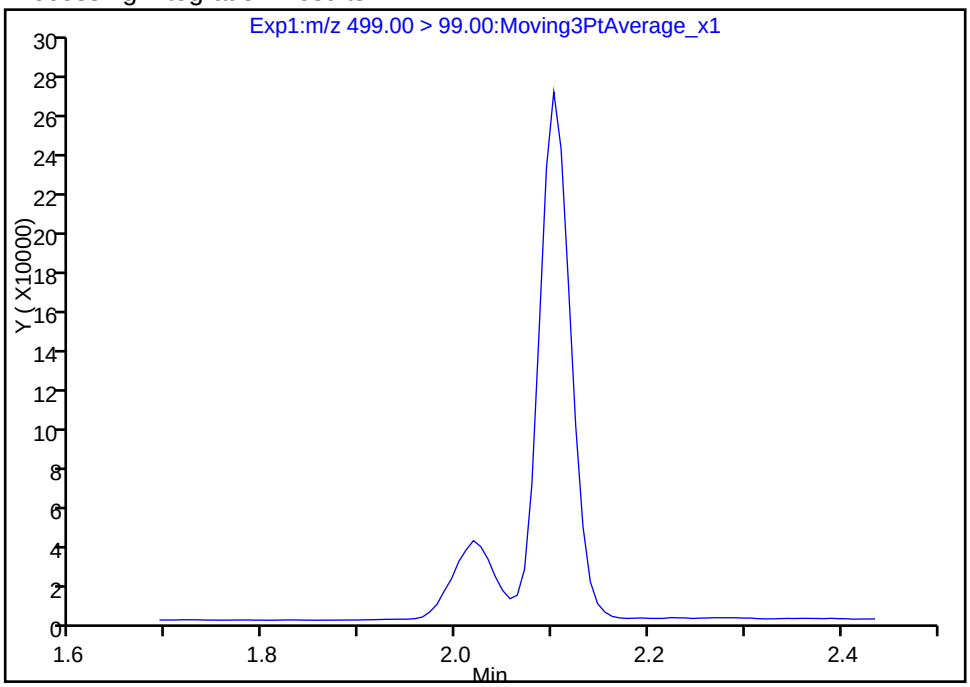
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_006.d
Injection Date: 20-Sep-2017 03:05:32 Instrument ID: A8_N
Lims ID: IC L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

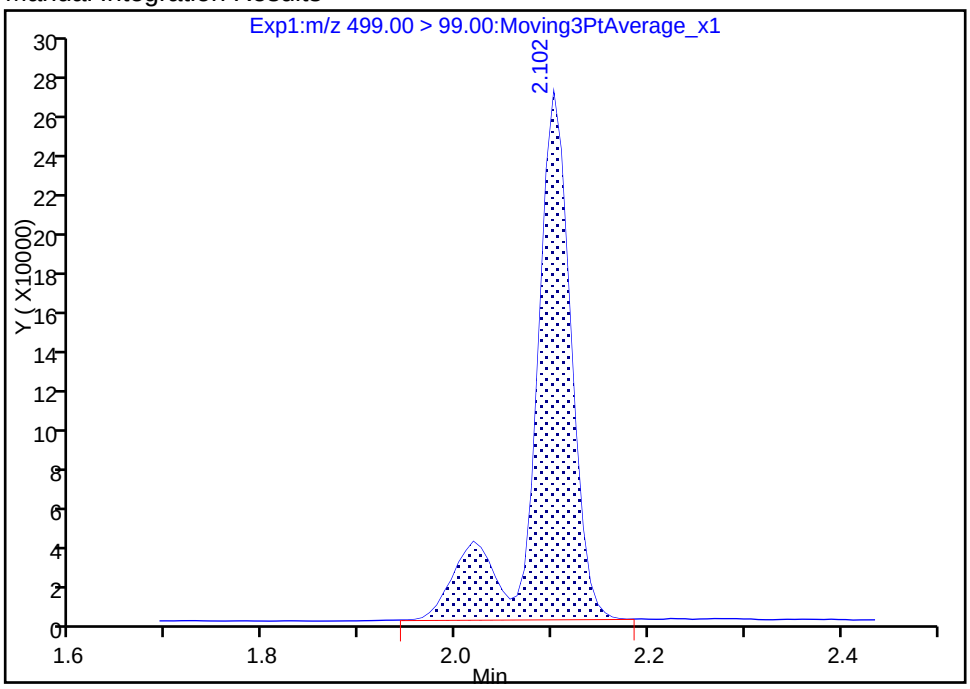
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 723199
Amount: 20.428176
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:05:21
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

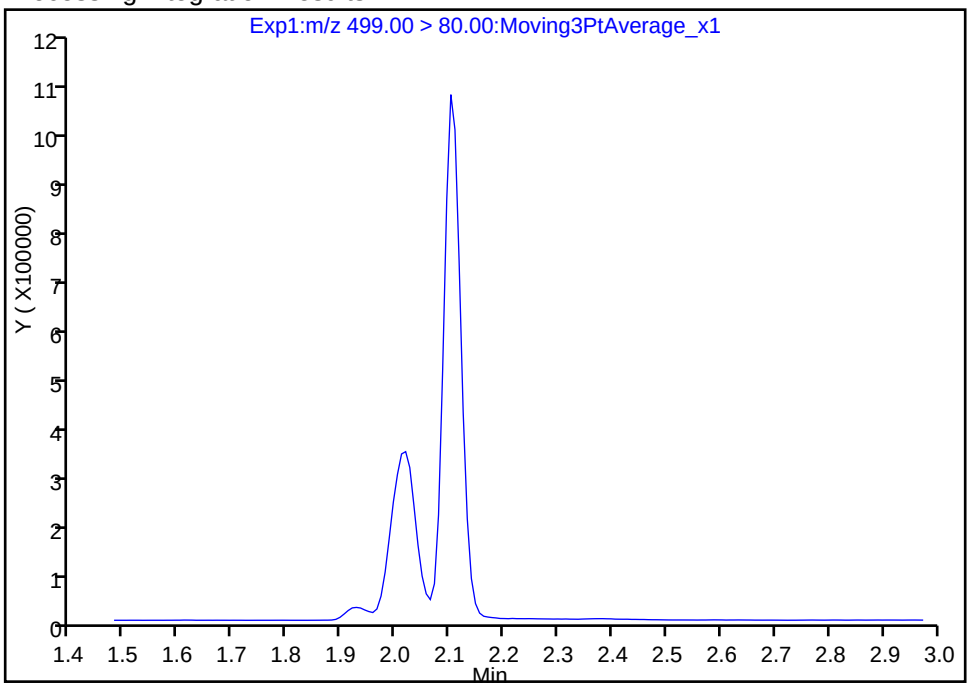
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_006.d
Injection Date: 20-Sep-2017 03:05:32 Instrument ID: A8_N
Lims ID: IC L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

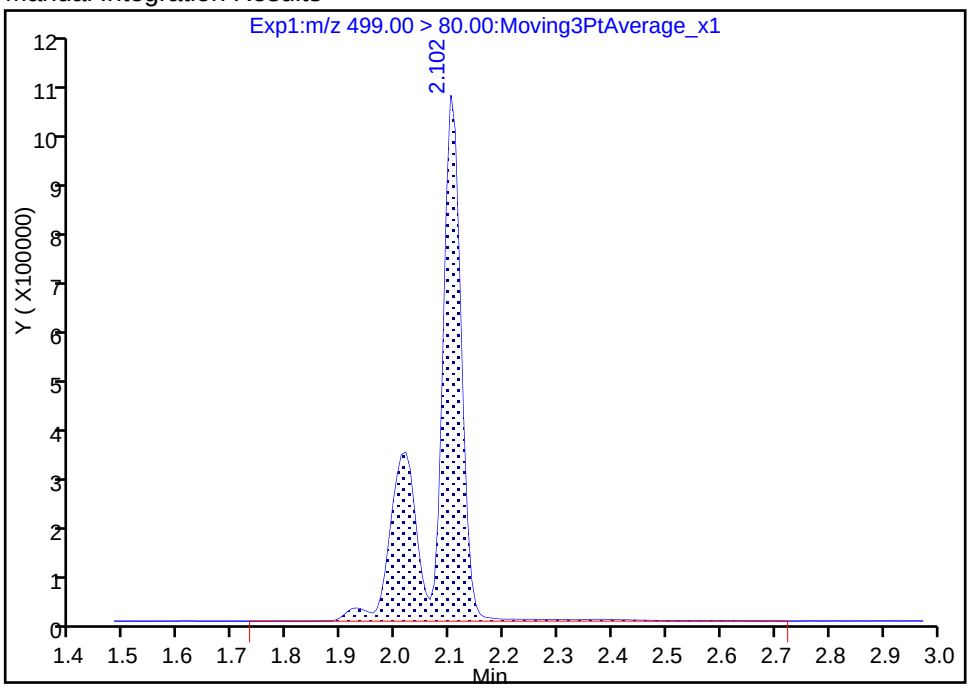
Processing Integration Results

Not Detected
Expected RT: 2.11



Manual Integration Results

RT: 2.10
Area: 3635963
Amount: 20.428176
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:05:21
Audit Action: Manually Integrated Audit Reason: Missed Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_007.d
Lims ID: IC L4
Client ID:
Sample Type: ICISAV Calib Level: 4
Inject. Date: 20-Sep-2017 03:10:16 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L4_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 20-Sep-2017 10:35:32 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK008

First Level Reviewer: barnettj Date: 20-Sep-2017 10:06:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.402	0.002	1.000	16708415	89.3		6528	
298.90 > 99.00	1.404	1.402	0.002	1.000	12155594		1.37(0.00-0.00)	6466	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.524	0.001	1.000	2443470	9.95		7571	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.669	1.668	0.001	1.000	1954380	9.90		573	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.669	1.668	0.001	1.000	9481986	30.6		5903	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.855	0.004		2095801	10.0		7193	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.856	0.003	1.000	3817782	19.8		156	
413.00 > 169.00	1.859	1.856	0.003	1.000	2029912		1.88(0.00-0.00)	6086	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.108	0.001		5418565	28.7		8070	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	7143258	40.6		5401	M
499.00 > 99.00	2.109	2.109	0.0	1.000	1480190		4.83(0.00-0.00)	1160	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	2592159	19.9		433	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.282	0.002	1.000	1156914	9.90		8203	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L4_00020 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2017 10:35:32 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_007.d

Injection Date: 20-Sep-2017 03:10:16 Instrument ID: A8_N

Lims ID: IC L4

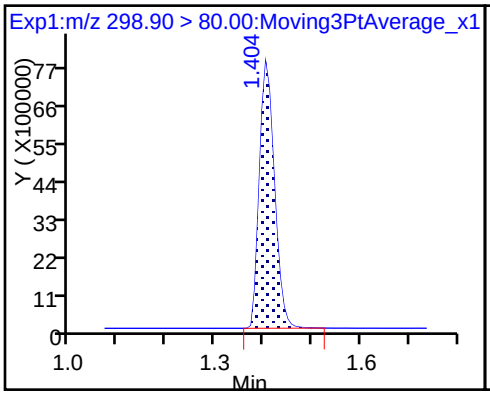
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7

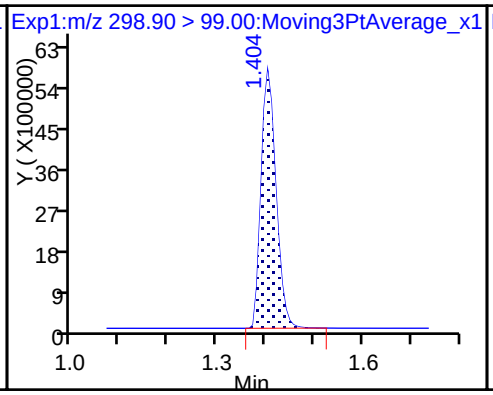
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

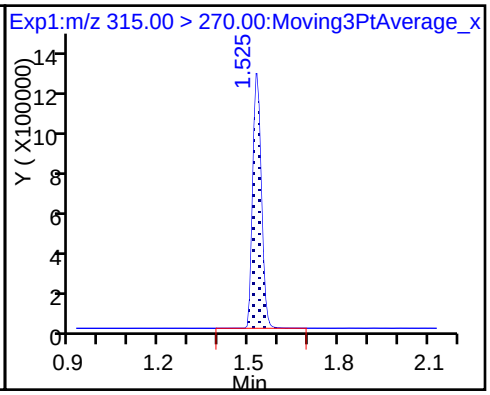
1 Perfluorobutanesulfonic acid



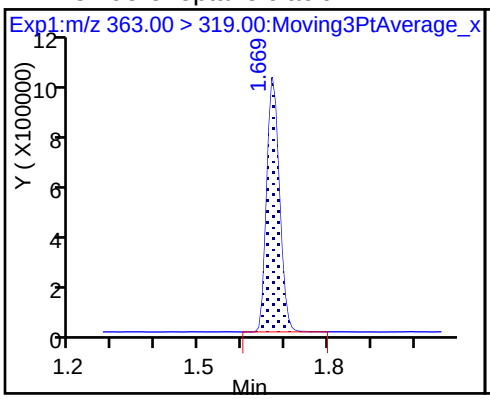
1 Perfluorobutanesulfonic acid



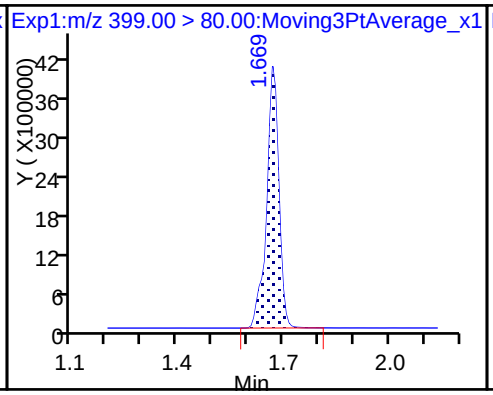
$ 2 13C2 PFHxA



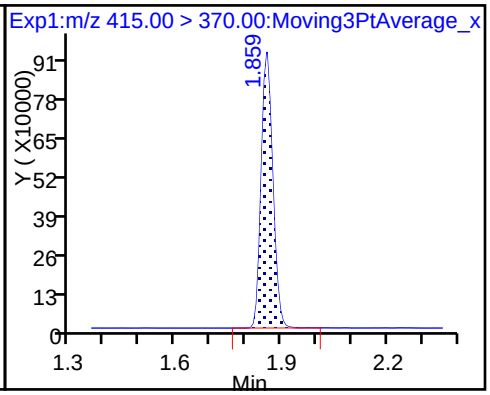
4 Perfluoroheptanoic acid



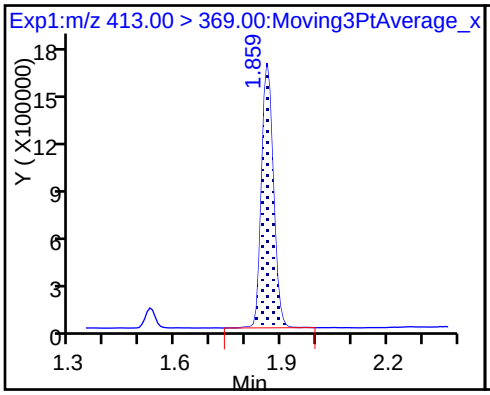
3 Perfluorohexanesulfonic acid



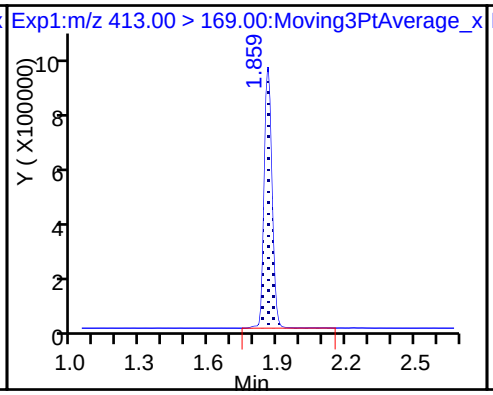
* 6 13C2-PFOA



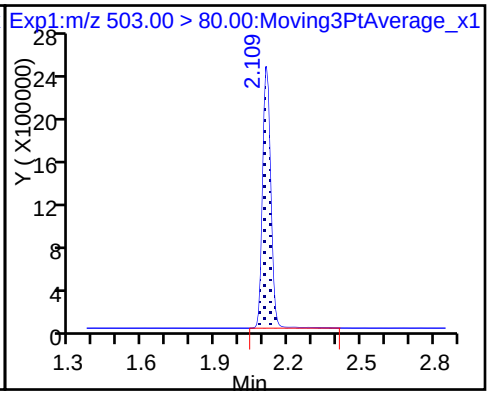
5 Perfluorooctanoic acid



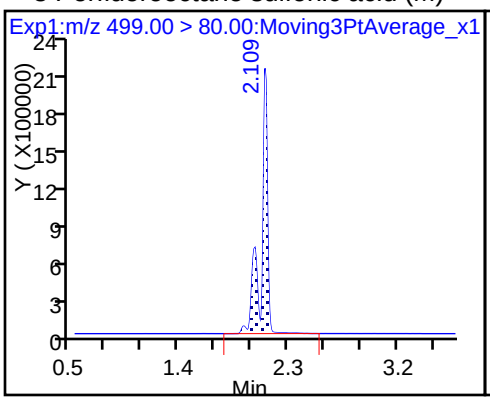
5 Perfluorooctanoic acid



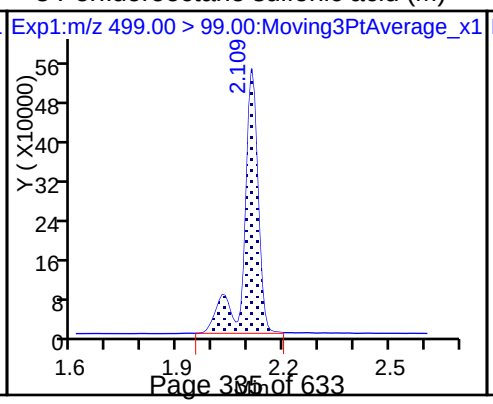
* 7 13C4 PFOS



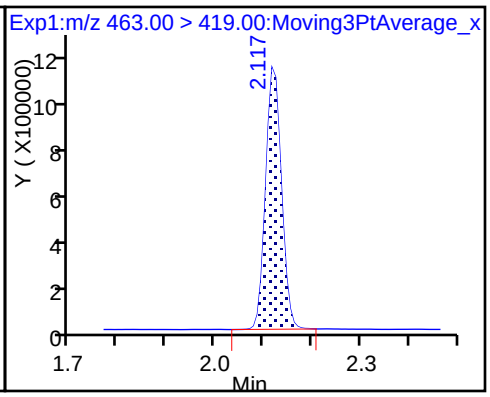
8 Perfluorooctane sulfonic acid (M)



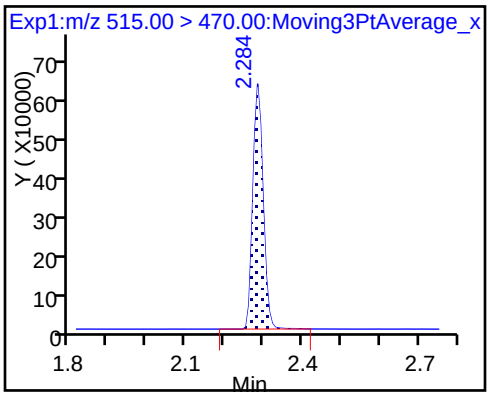
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

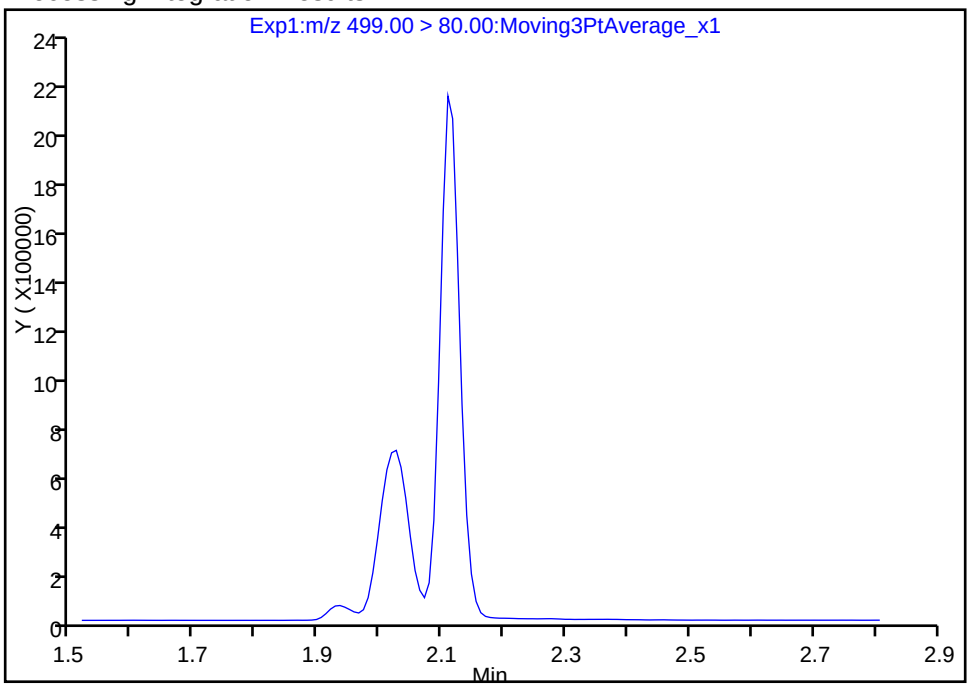
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_007.d
Injection Date: 20-Sep-2017 03:10:16 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

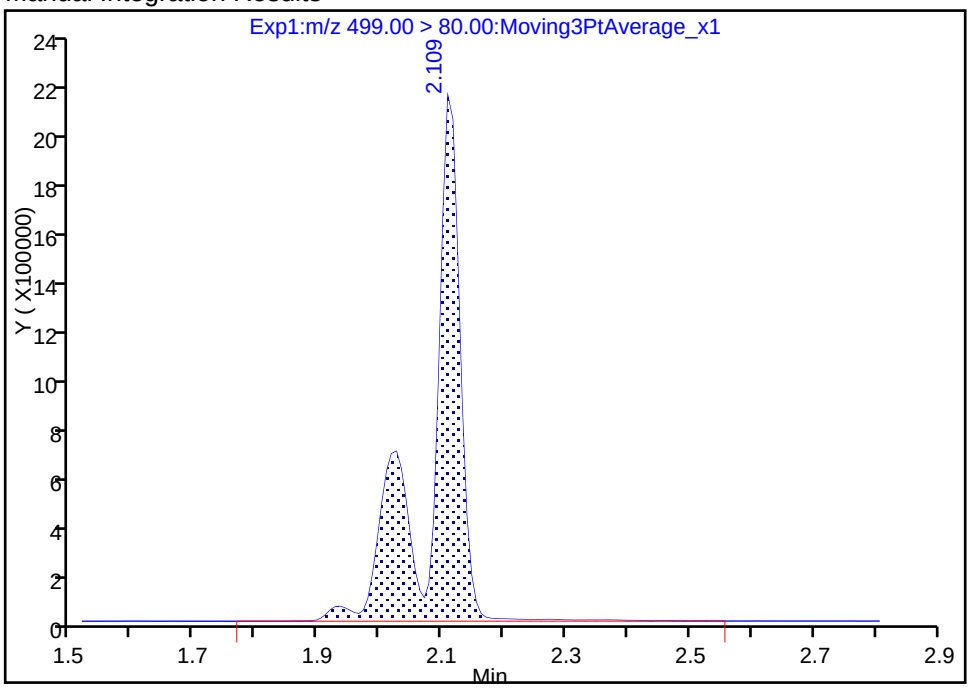
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 7143258
Amount: 40.580278
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:05:35
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

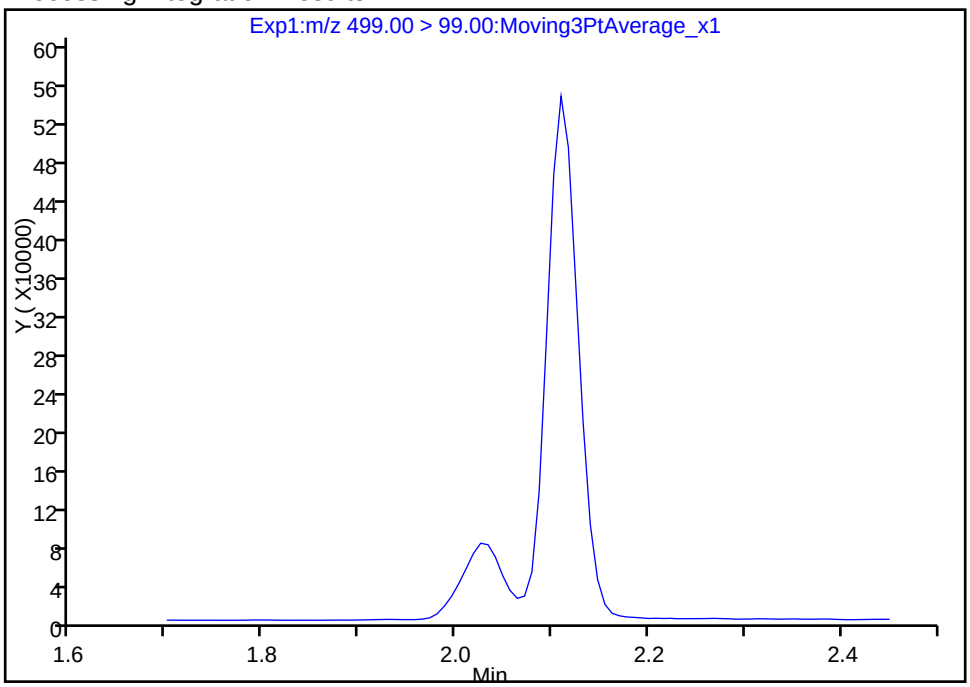
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_007.d
Injection Date: 20-Sep-2017 03:10:16 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

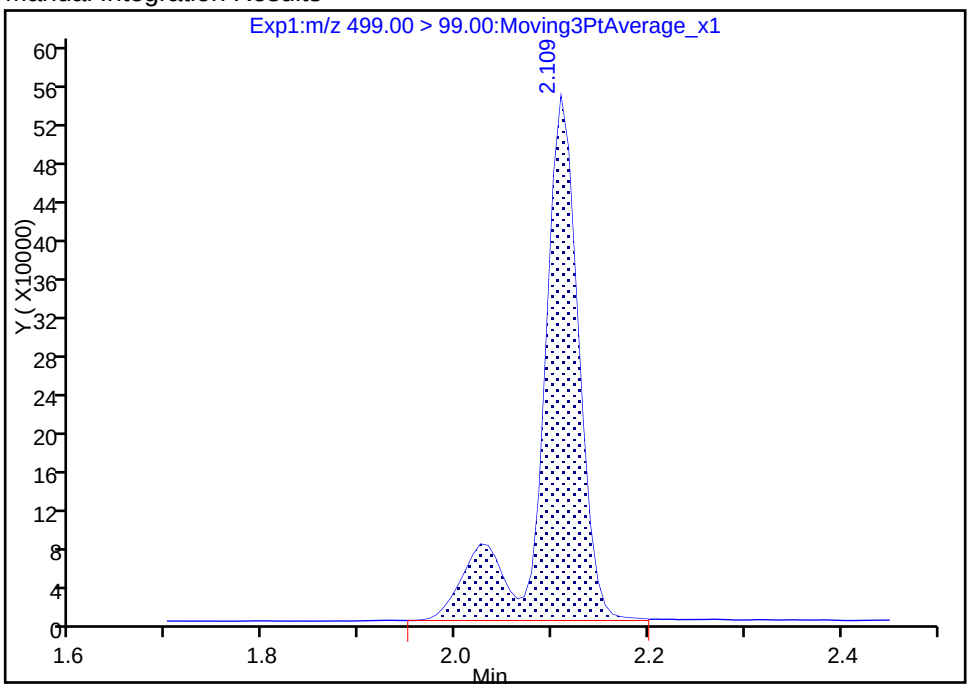
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 1480190
Amount: 40.580278
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:05:50
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

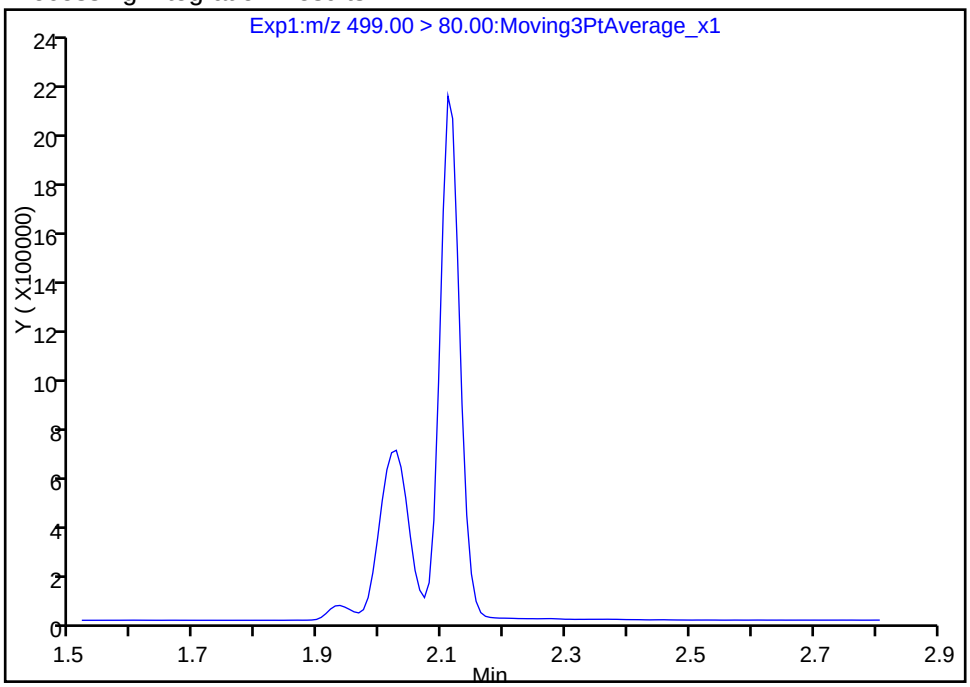
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_007.d
Injection Date: 20-Sep-2017 03:10:16 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

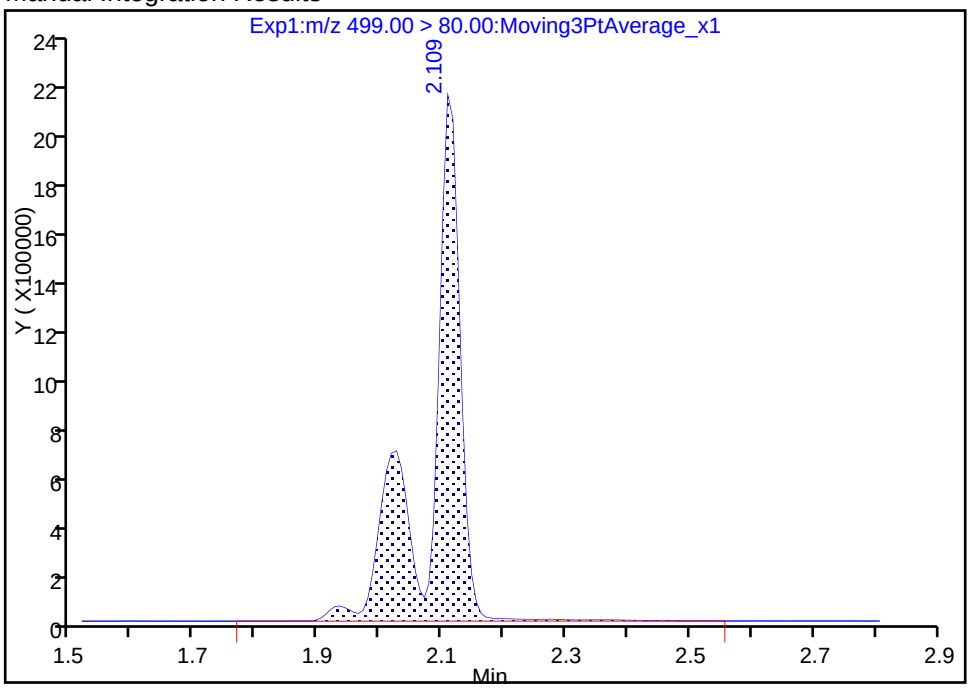
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 7143258
Amount: 40.580278
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:05:50
Audit Action: Manually Integrated Audit Reason: Missed Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_008.d
Lims ID: IC L5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 20-Sep-2017 03:15:01 ALS Bottle#: 5 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L5_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 20-Sep-2017 10:35:33 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK008

First Level Reviewer: barnettj Date: 20-Sep-2017 10:06:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.402	0.002	1.000	22246597	132.8		7166	
298.90 > 99.00	1.404	1.402	0.002	1.000	16593473		1.34(0.00-0.00)	7174	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.524	0.001	1.000	2454801	10.0		9700	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.669	1.668	0.001	1.000	13653533	43.9		6726	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.669	1.668	0.001	1.000	2871658	14.6		836	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.855	0.004		2087979	10.0		8636	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.856	0.003	1.000	5816384	30.3		226	
413.00 > 169.00	1.859	1.856	0.003	1.000	3025635		1.92(0.00-0.00)	7093	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.108	0.001		5450221	28.7		7142	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	10806665	61.0		6680	M
499.00 > 99.00	2.109	2.109	0.0	1.000	2283151		4.73(0.00-0.00)	1726	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	3806555	29.3		645	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.282	0.002	1.000	1189895	10.2		10440	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2017 10:35:33 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_008.d

Injection Date: 20-Sep-2017 03:15:01 Instrument ID: A8_N

Lims ID: IC L5

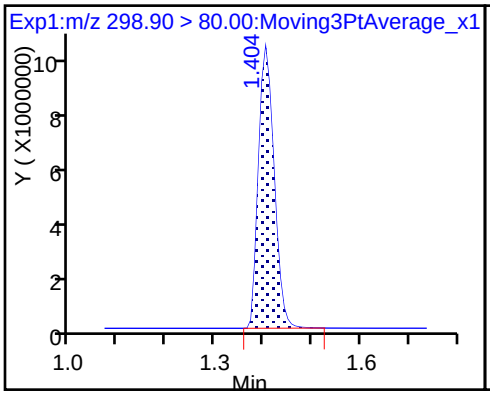
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 8

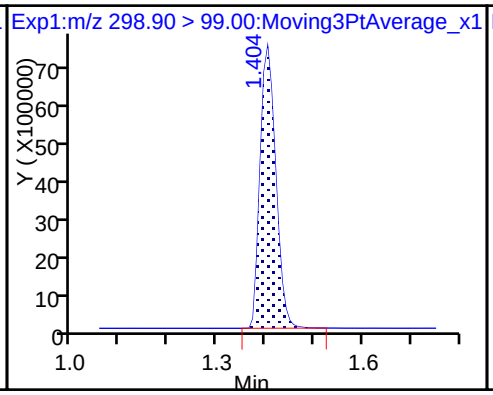
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

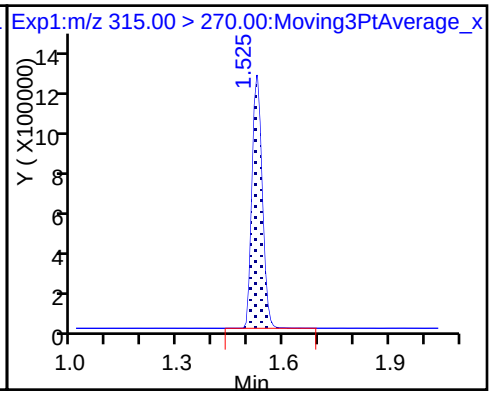
1 Perfluorobutanesulfonic acid



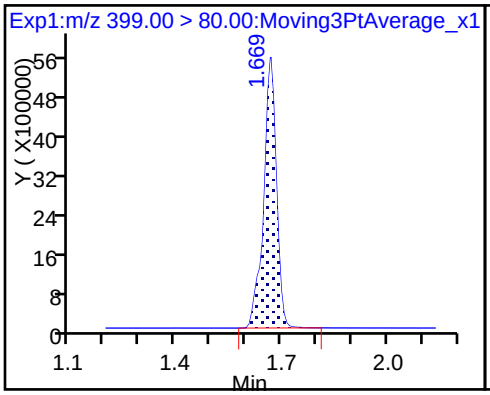
1 Perfluorobutanesulfonic acid



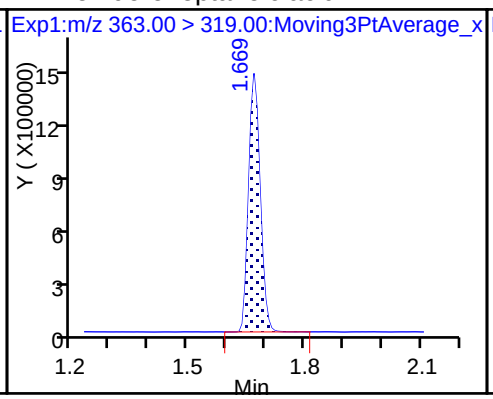
$ 2 13C2 PFHxA



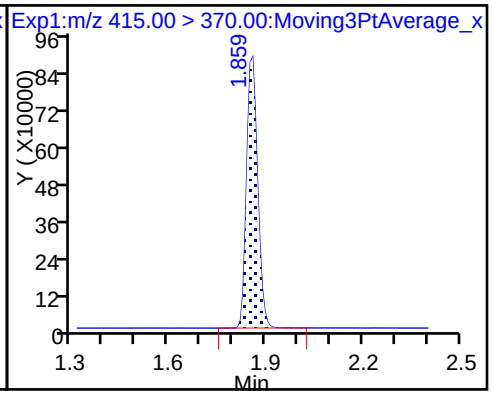
3 Perfluorohexanesulfonic acid



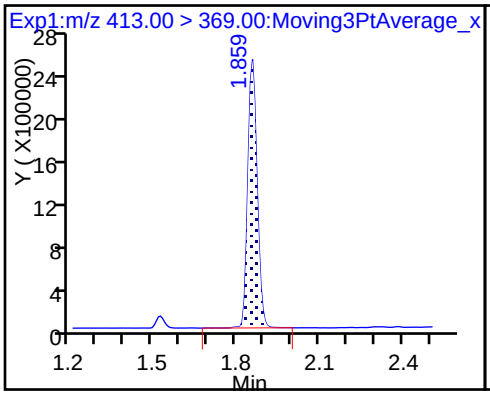
4 Perfluoroheptanoic acid



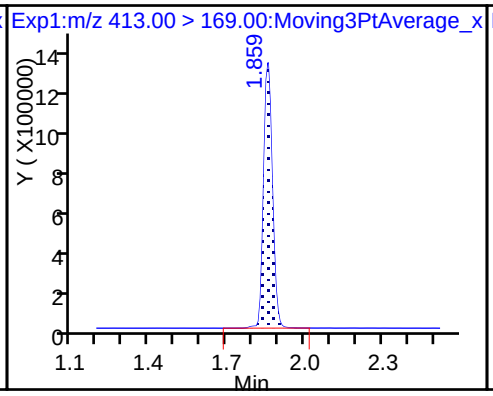
* 6 13C2-PFOA



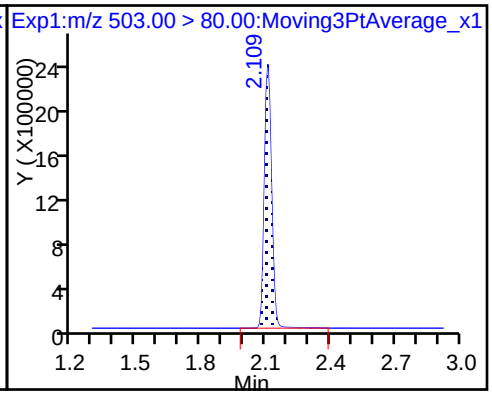
5 Perfluorooctanoic acid



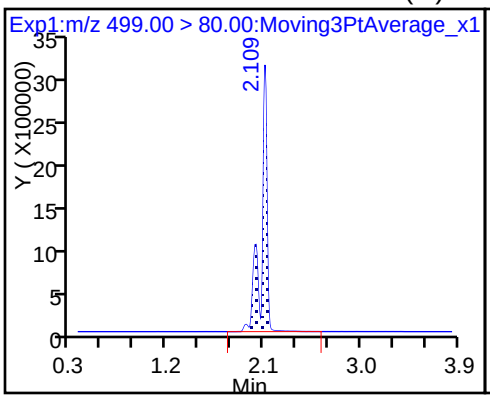
5 Perfluorooctanoic acid



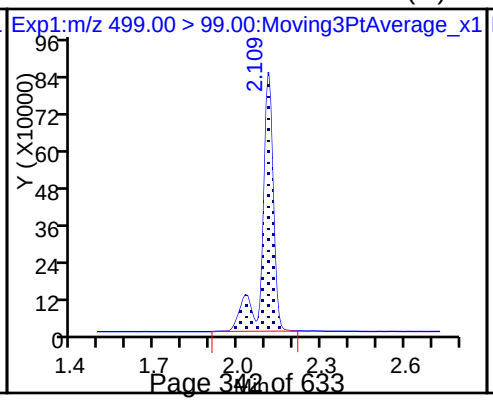
* 7 13C4 PFOS



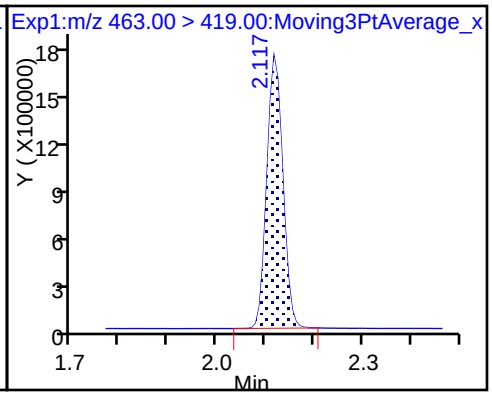
8 Perfluorooctane sulfonic acid (M)



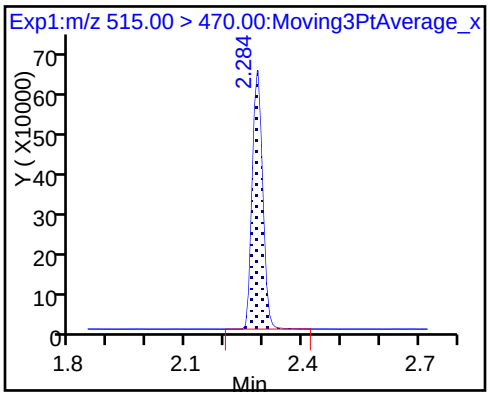
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

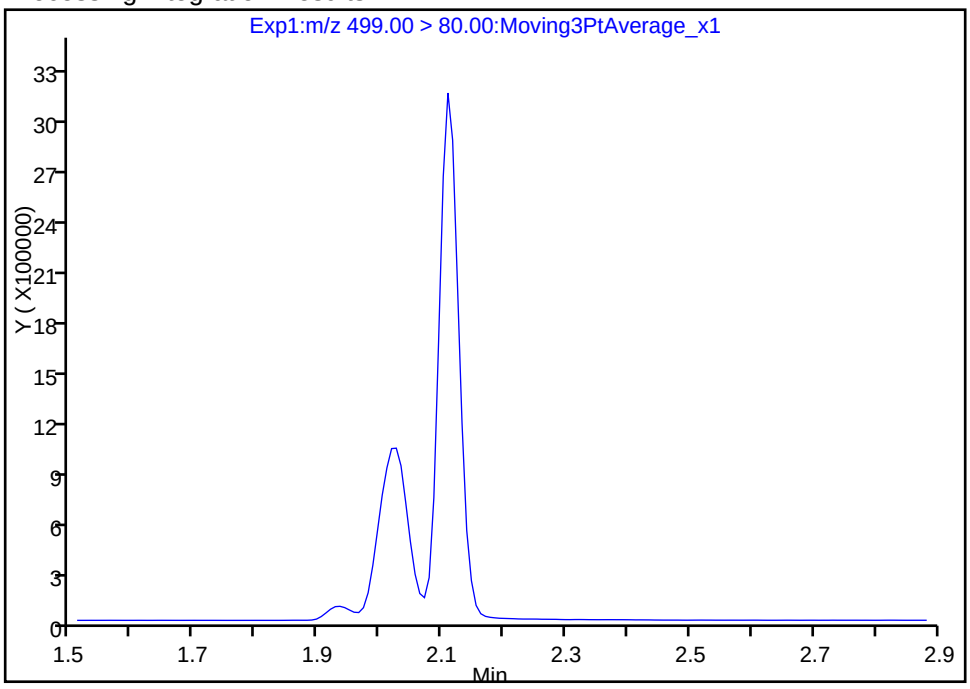
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_008.d
Injection Date: 20-Sep-2017 03:15:01 Instrument ID: A8_N
Lims ID: IC L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

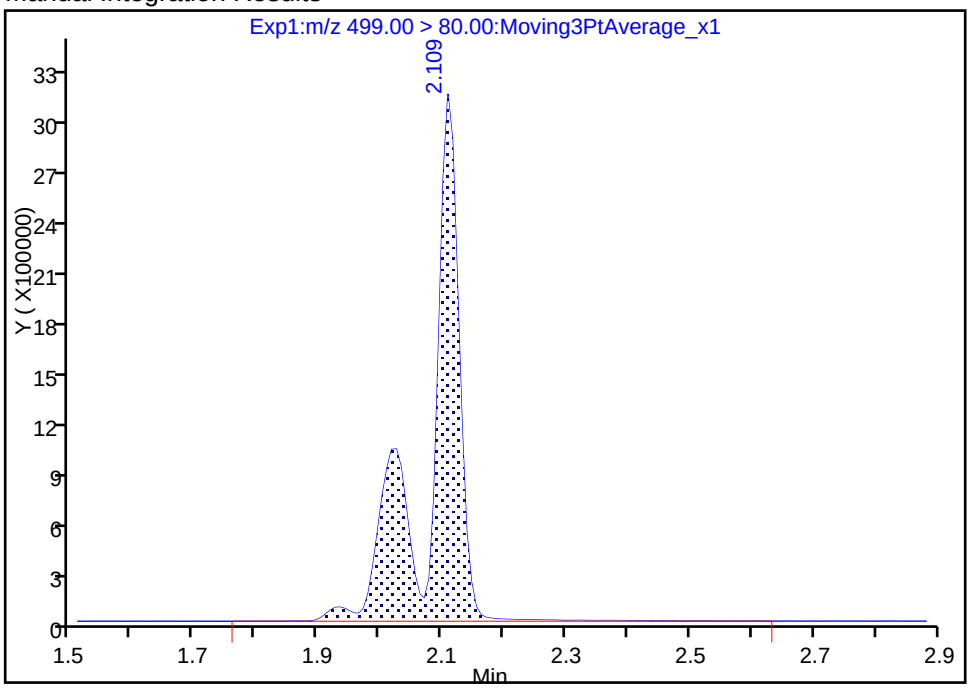
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 10806665
Amount: 61.035224
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:06:19
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

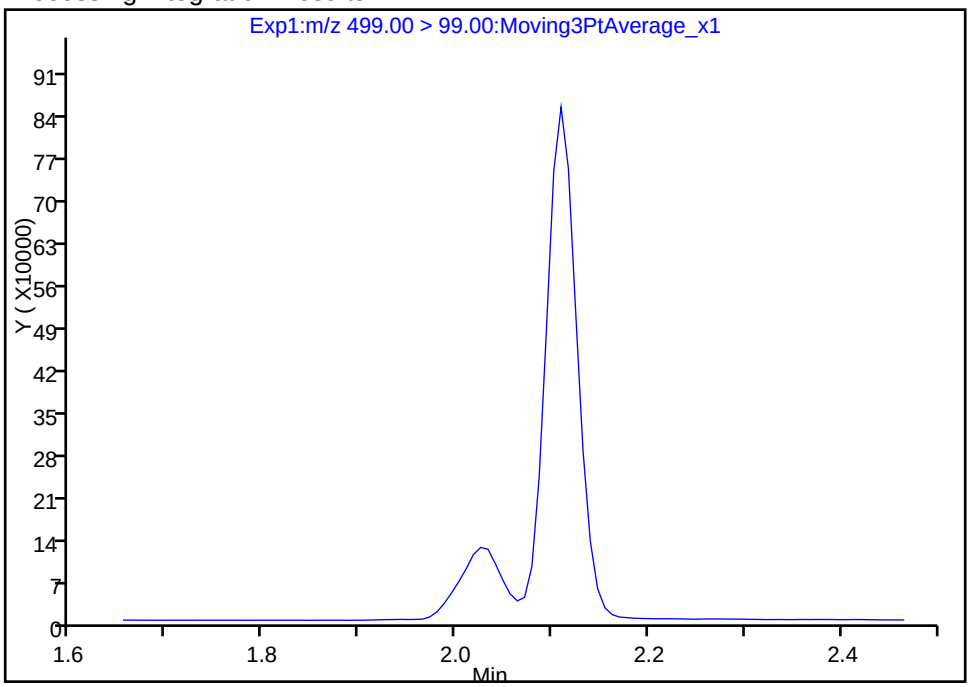
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_008.d
Injection Date: 20-Sep-2017 03:15:01 Instrument ID: A8_N
Lims ID: IC L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

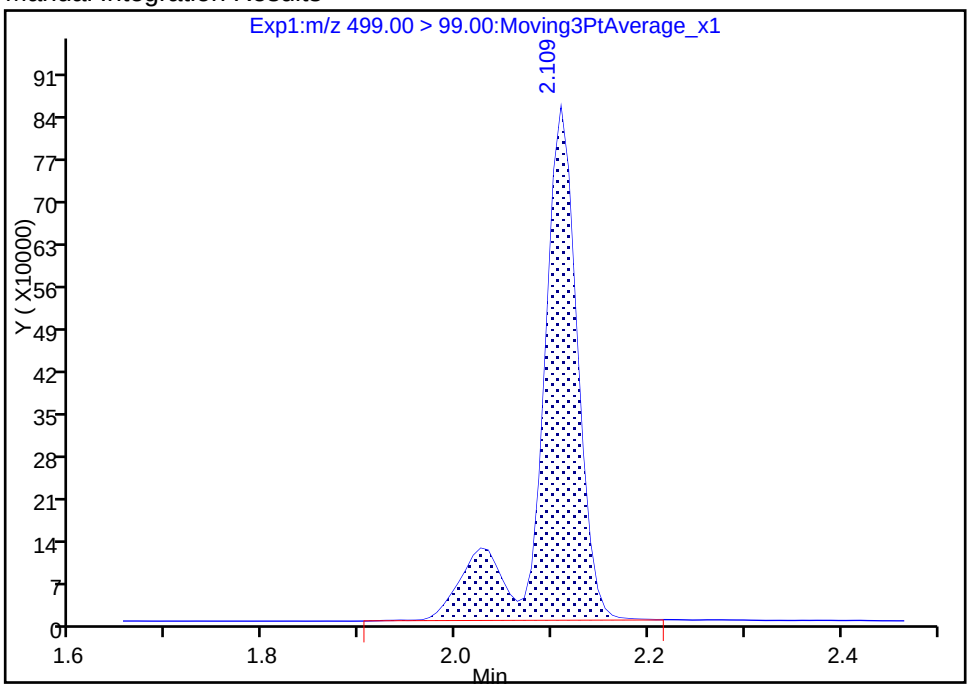
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 2283151
Amount: 61.035224
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:06:32
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

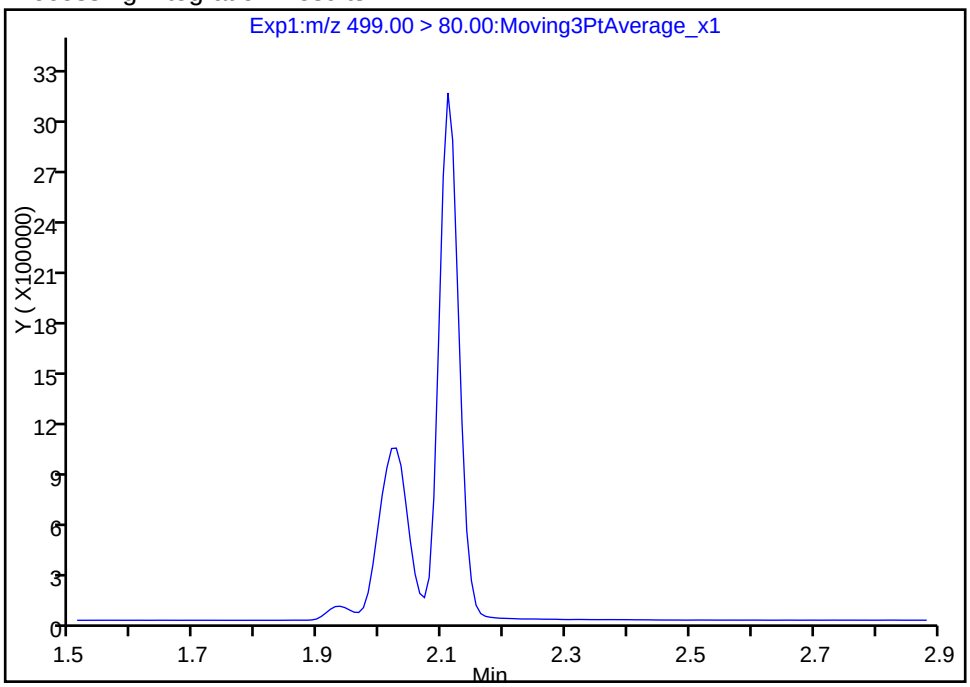
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_008.d
Injection Date: 20-Sep-2017 03:15:01 Instrument ID: A8_N
Lims ID: IC L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

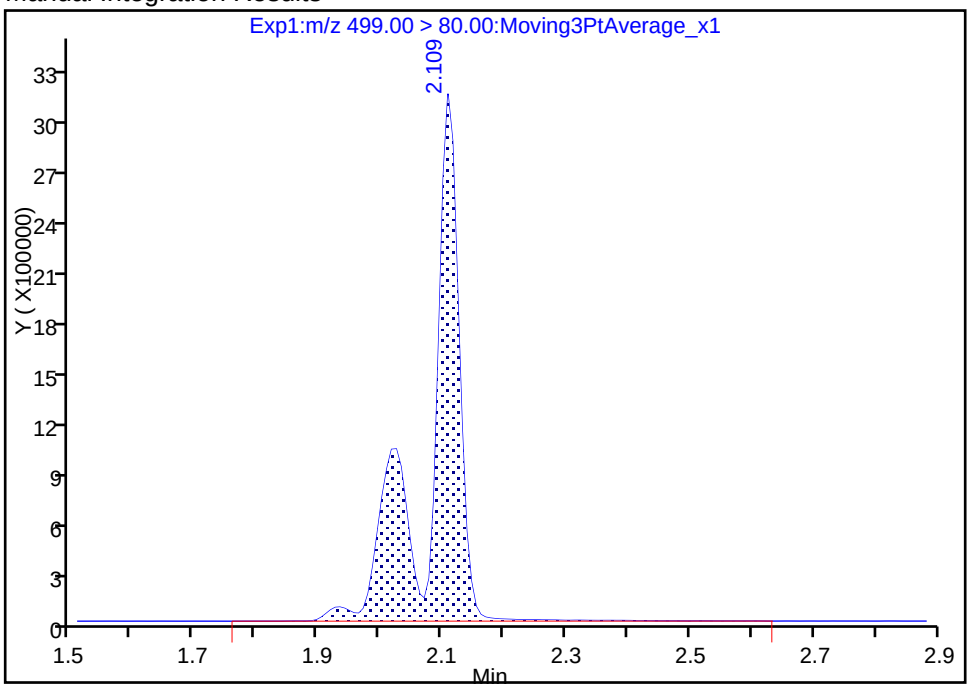
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 10806665
Amount: 61.035224
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:06:32
Audit Action: Manually Integrated Audit Reason: Missed Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d
Lims ID: IC L6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 20-Sep-2017 03:19:48 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L6_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 20-Sep-2017 10:35:34 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK008

First Level Reviewer: barnettj Date: 20-Sep-2017 10:07:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.402	0.002	1.000	26277877	182.3		5148	
298.90 > 99.00	1.404	1.402	0.002	1.000	20065753		1.31(0.00-0.00)	5796	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.524	0.001	1.000	2461679	10.3		8448	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.669	1.668	0.001	1.000	3731330	19.5		999	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.669	1.668	0.001	1.000	17148552	55.0		5562	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.855	-0.004		2036942	10.0		7709	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.851	1.856	-0.005	1.000	7591950	40.5		298	
413.00 > 169.00	1.851	1.856	-0.005	1.000	4055944		1.87(0.00-0.00)	6840	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.108	0.001		5454650	28.7		5153	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	14414630	81.3		7141	M
499.00 > 99.00	2.102	2.109	-0.007	0.996	3087448		4.67(0.00-0.00)	1891	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	5046017	39.8		666	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.282	0.002	1.000	1164862	10.3		8578	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L6_00020 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2017 10:35:34 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Injection Date: 20-Sep-2017 03:19:48 Instrument ID: A8_N

Lims ID: IC L6

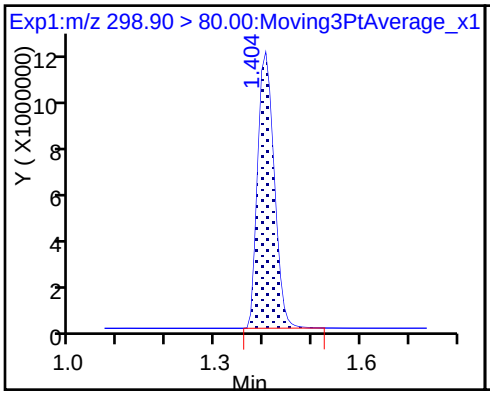
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9

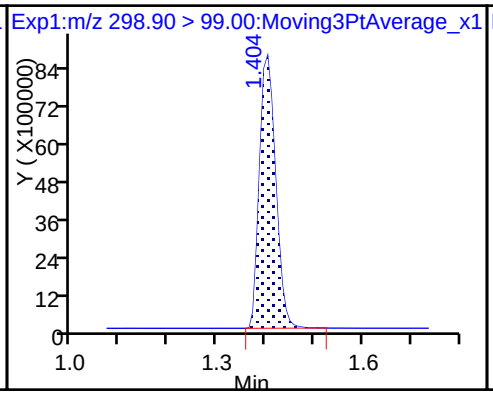
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

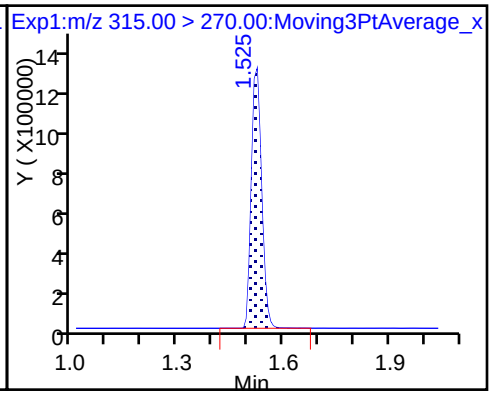
1 Perfluorobutanesulfonic acid



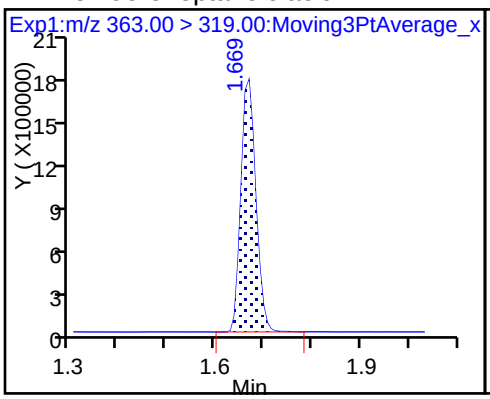
1 Perfluorobutanesulfonic acid



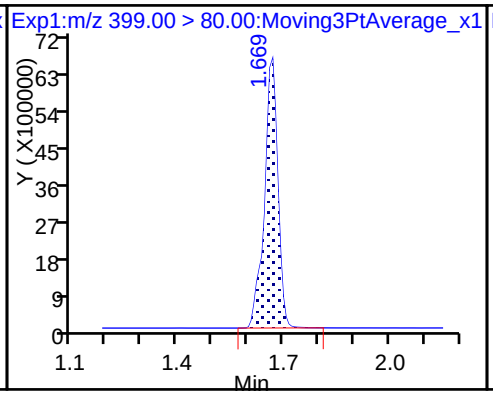
$ 2 13C2 PFHxA



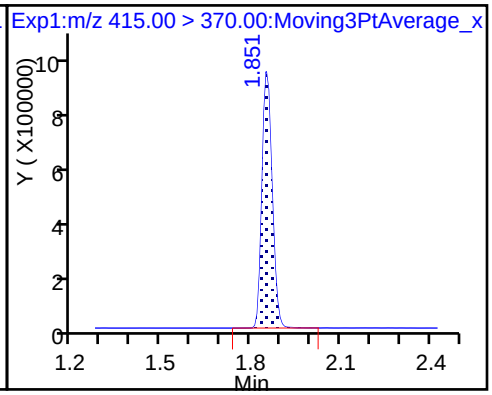
4 Perfluoroheptanoic acid



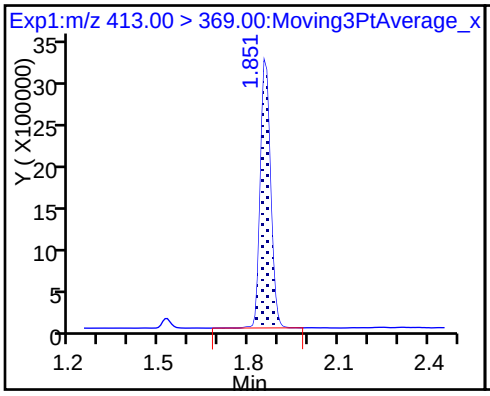
3 Perfluorohexanesulfonic acid



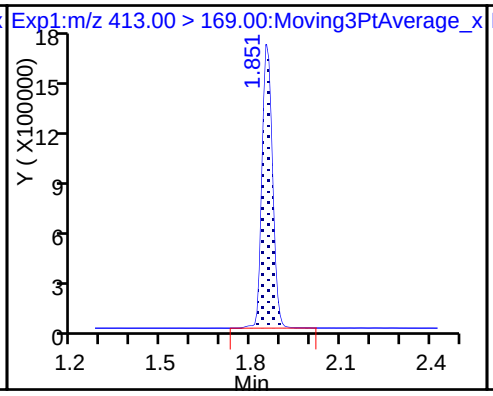
* 6 13C2-PFOA



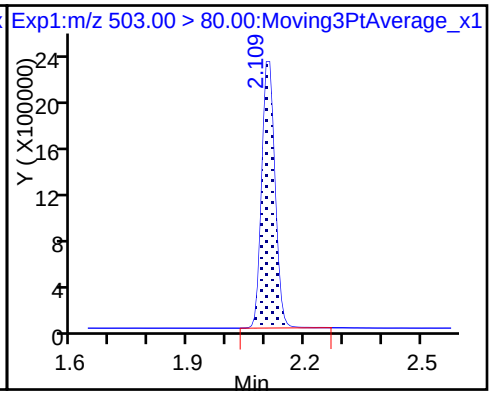
5 Perfluorooctanoic acid



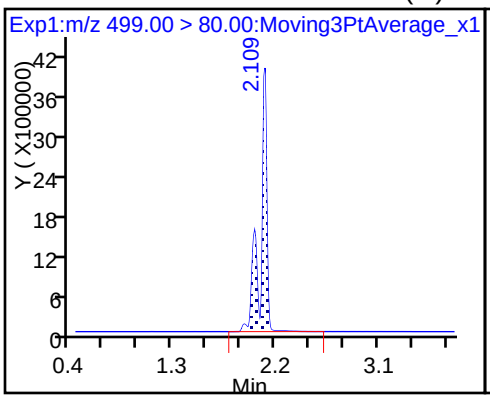
5 Perfluorooctanoic acid



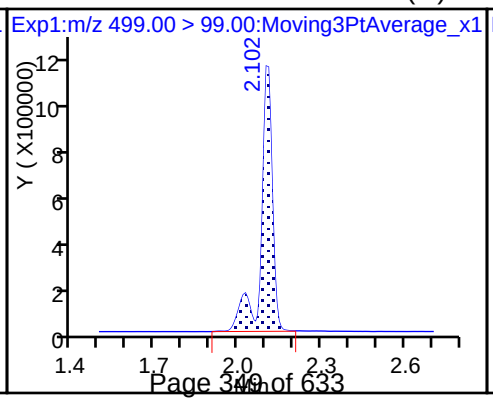
* 7 13C4 PFOS



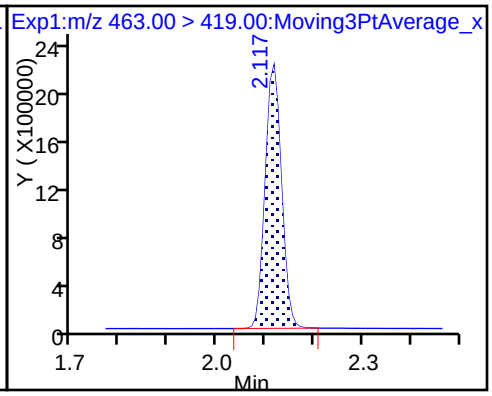
8 Perfluorooctane sulfonic acid (M)



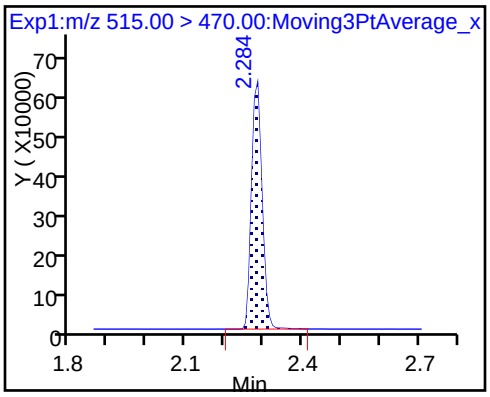
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

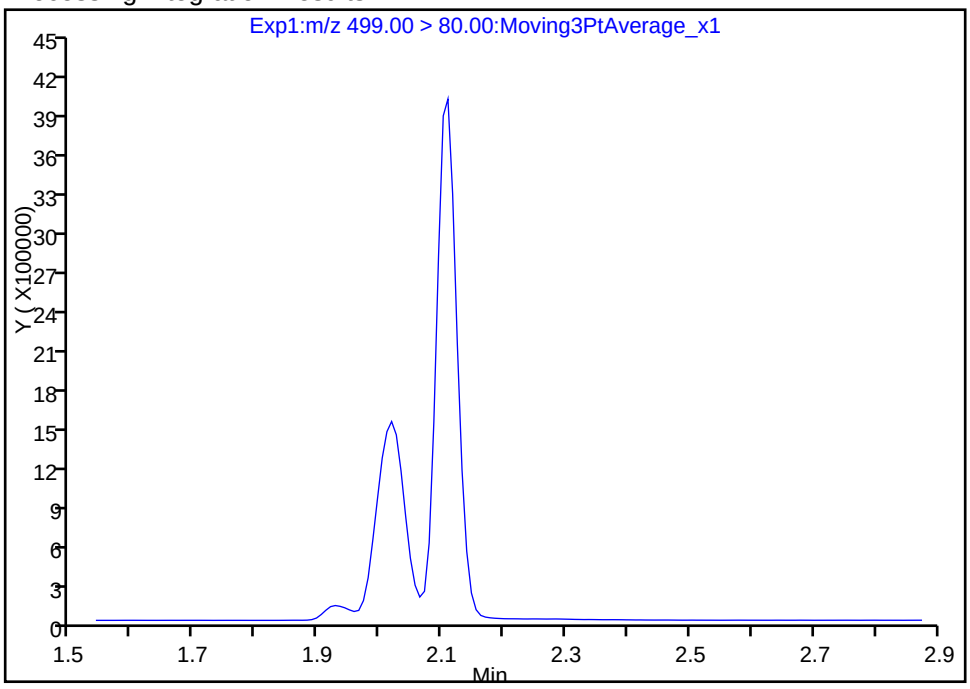
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d
Injection Date: 20-Sep-2017 03:19:48 Instrument ID: A8_N
Lims ID: IC L6
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

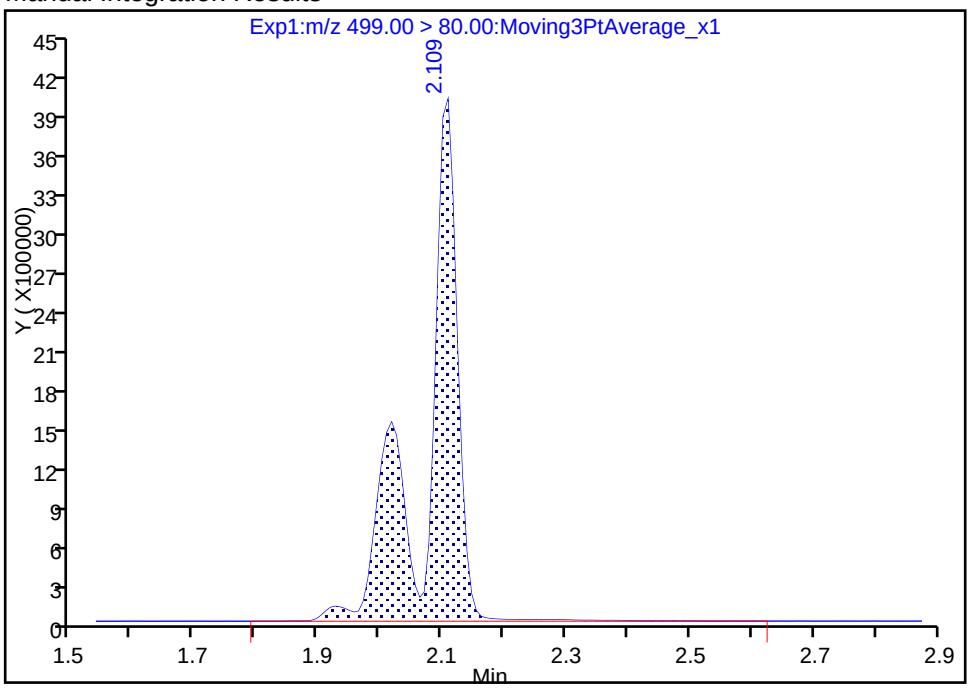
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 14414630
Amount: 81.346632
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:06:49
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

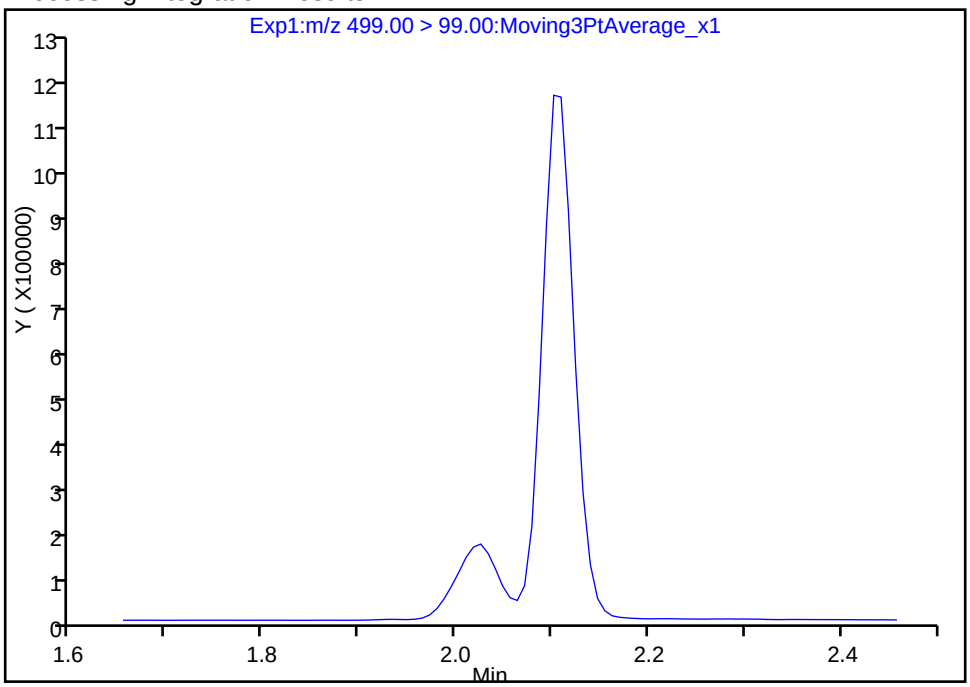
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d
Injection Date: 20-Sep-2017 03:19:48 Instrument ID: A8_N
Lims ID: IC L6
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

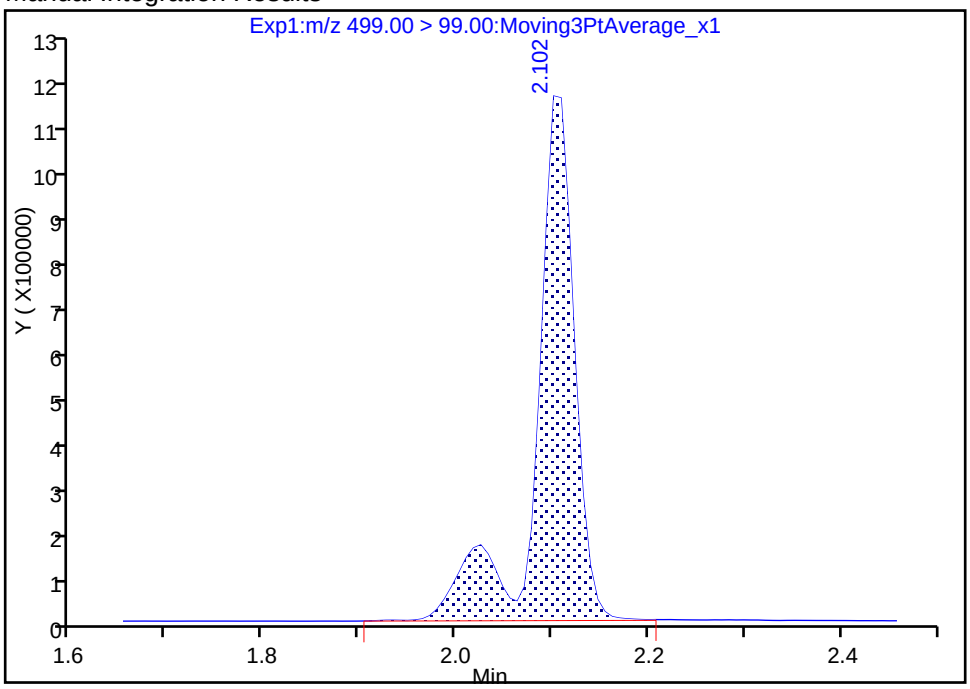
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 3087448
Amount: 81.346632
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:07:12
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

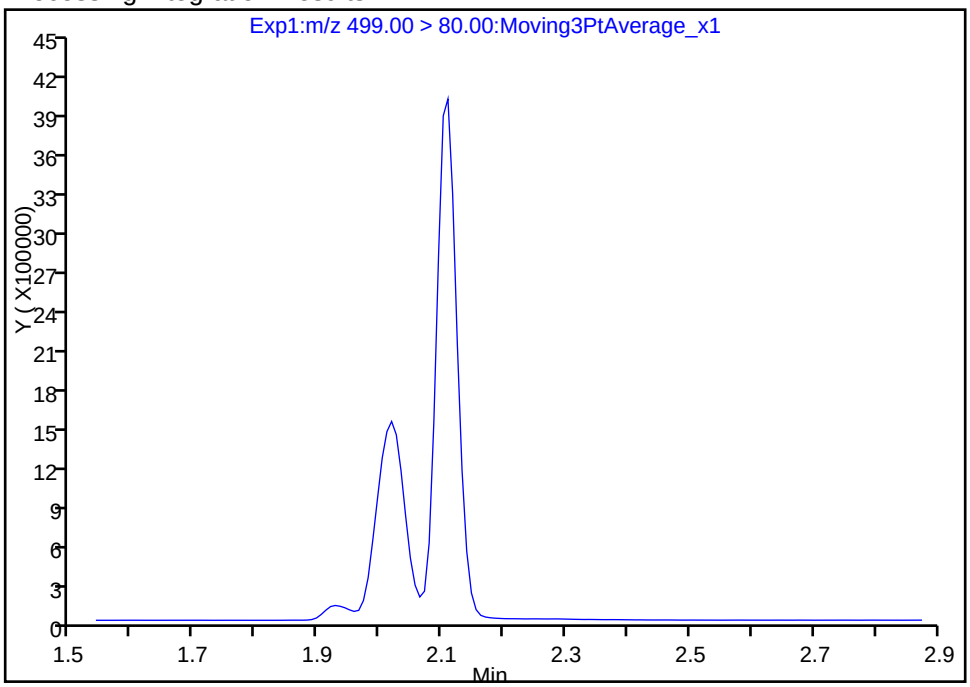
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d
Injection Date: 20-Sep-2017 03:19:48 Instrument ID: A8_N
Lims ID: IC L6
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

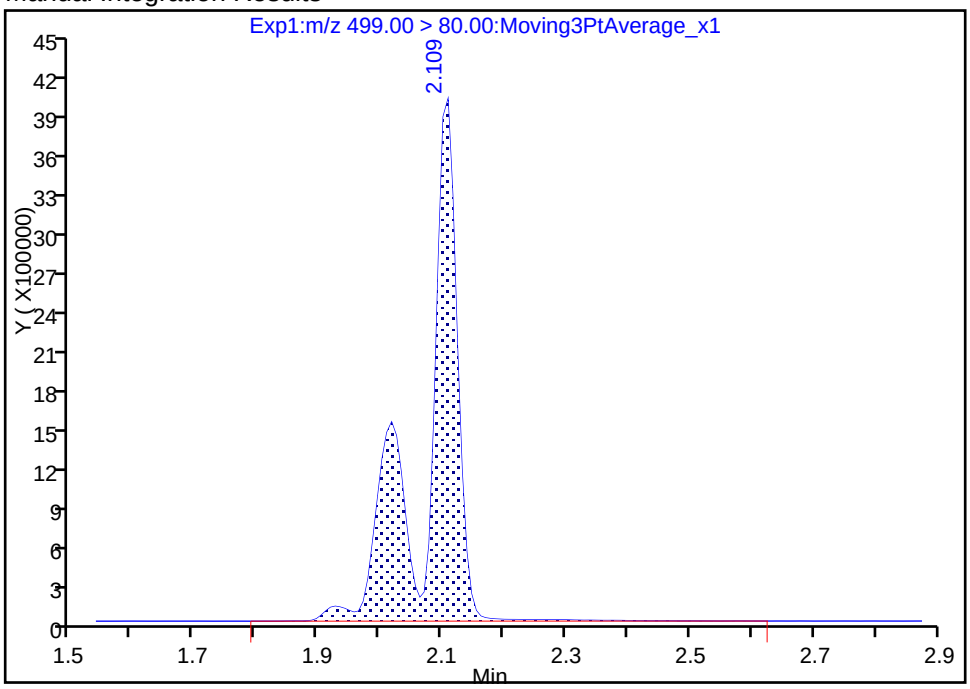
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 14414630
Amount: 81.346632
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:07:12
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 192162

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/31/2017 11:44 Calibration End Date: 10/31/2017 12:08 Calibration ID: 35621

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192162/4	2017.10.31_537ICAL_004.d
Level 2	IC 320-192162/5	2017.10.31_537ICAL_005.d
Level 3	IC 320-192162/6	2017.10.31_537ICAL_006.d
Level 4	IC 320-192162/7	2017.10.31_537ICAL_007.d
Level 5	IC 320-192162/8	2017.10.31_537ICAL_008.d
Level 6	IC 320-192162/9	2017.10.31_537ICAL_009.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								
Perfluorobutanesulfonic acid (PFBS)	1.0555 0.7230	1.1099	1.0105	0.8851	0.8003	QuaF		1.0703	-0.001949						0.9990		0.9600
Perfluoroheptanoic acid (PFHpA)	0.9747 0.9495	0.9317	0.9152	0.9490	0.9245	Ave		0.9408				2.3		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.6000 1.5277	1.6916	1.7164	1.6515	1.5848	Ave		1.6287				4.4		30.0			
Perfluorooctanoic acid (PFOA)	0.9001 0.9319	0.9648	0.9220	0.9359	0.9258	Ave		0.9301				2.3		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8822 0.9438	0.9288	0.9148	0.9474	0.9527	Ave		0.9283				2.9		30.0			
Perfluorononanoic acid (PFNA)	0.6310 0.6692	0.6490	0.6407	0.6829	0.6432	Ave		0.6527				3.0		30.0			
13C2 PFHxA	1.1162 1.1576	1.0680	1.0953	1.1948	1.1392	Ave		1.1285				4.0		30.0			
13C2 PFDA	0.7945 0.8580	0.7675	0.7780	0.8355	0.8229	Ave		0.8094				4.3		30.0			

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

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 192162

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/31/2017 11:44 Calibration End Date: 10/31/2017 12:08 Calibration ID: 35621

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192162/4	2017.10.31_537ICAL_004.d
Level 2	IC 320-192162/5	2017.10.31_537ICAL_005.d
Level 3	IC 320-192162/6	2017.10.31_537ICAL_006.d
Level 4	IC 320-192162/7	2017.10.31_537ICAL_007.d
Level 5	IC 320-192162/8	2017.10.31_537ICAL_008.d
Level 6	IC 320-192162/9	2017.10.31_537ICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	2055386 27165476	4905442	9915456	16876130	21956734	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PFOA	Ave	275477 5107421	614703	1311091	2526779	3670615	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	1038660 19137035	2492517	5615014	10497872	14494918	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PFOA	Ave	509095 10031020	1273846	2643153	4986613	7356038	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	763610 15763683	1824729	3990091	8030345	11617530	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PFOA	Ave	356641 7198655	856305	1835636	3636277	5107150	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PFOA	Ave	3153457 3112456	3170056	3137333	3180555	3014571	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PFOA	Ave	2244762 2306925	2277991	2228390	2223928	2177702	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 192162

SDG No.:

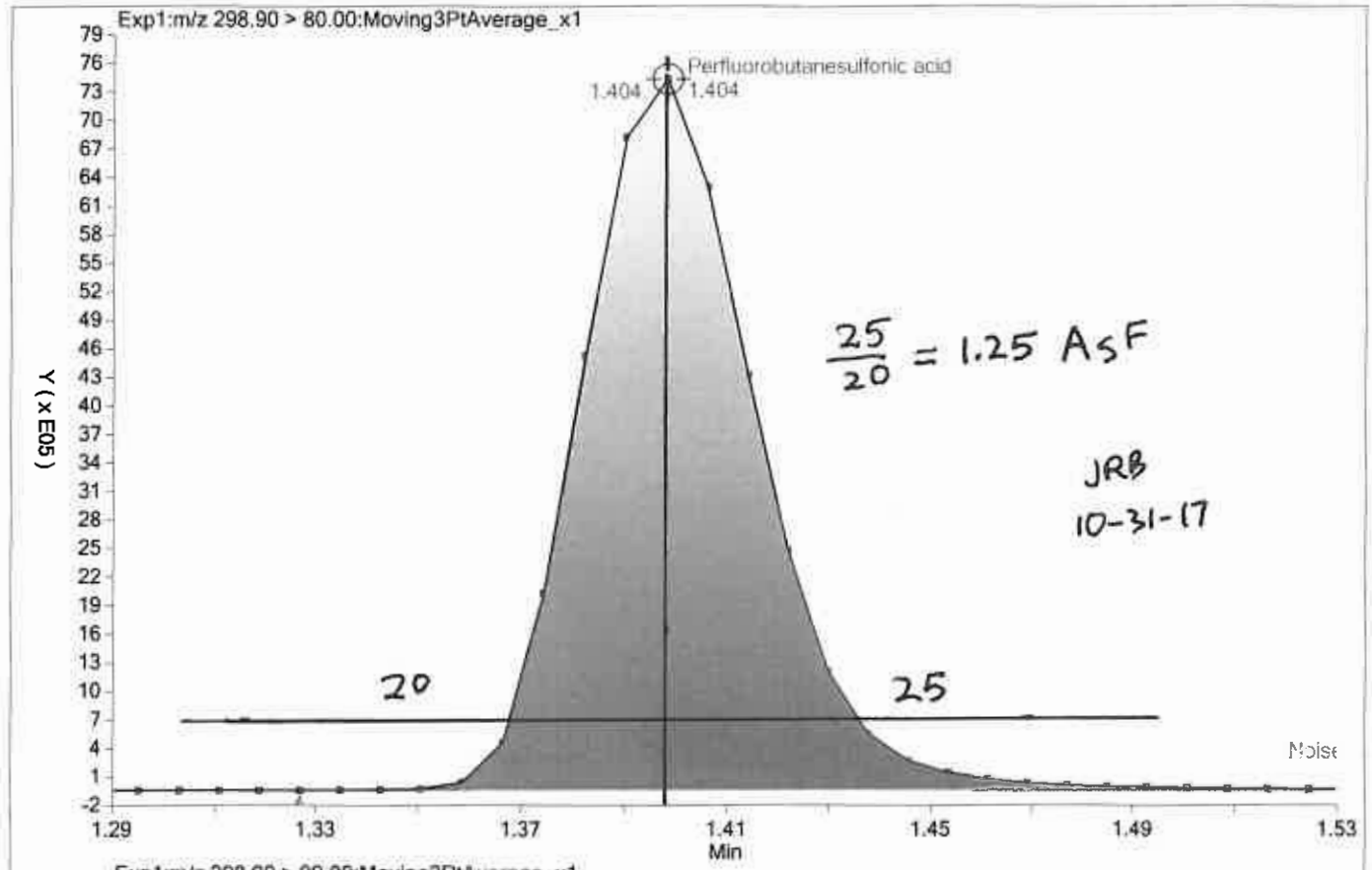
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/31/2017 11:44 Calibration End Date: 10/31/2017 12:08 Calibration ID: 35621

Calibration Files:

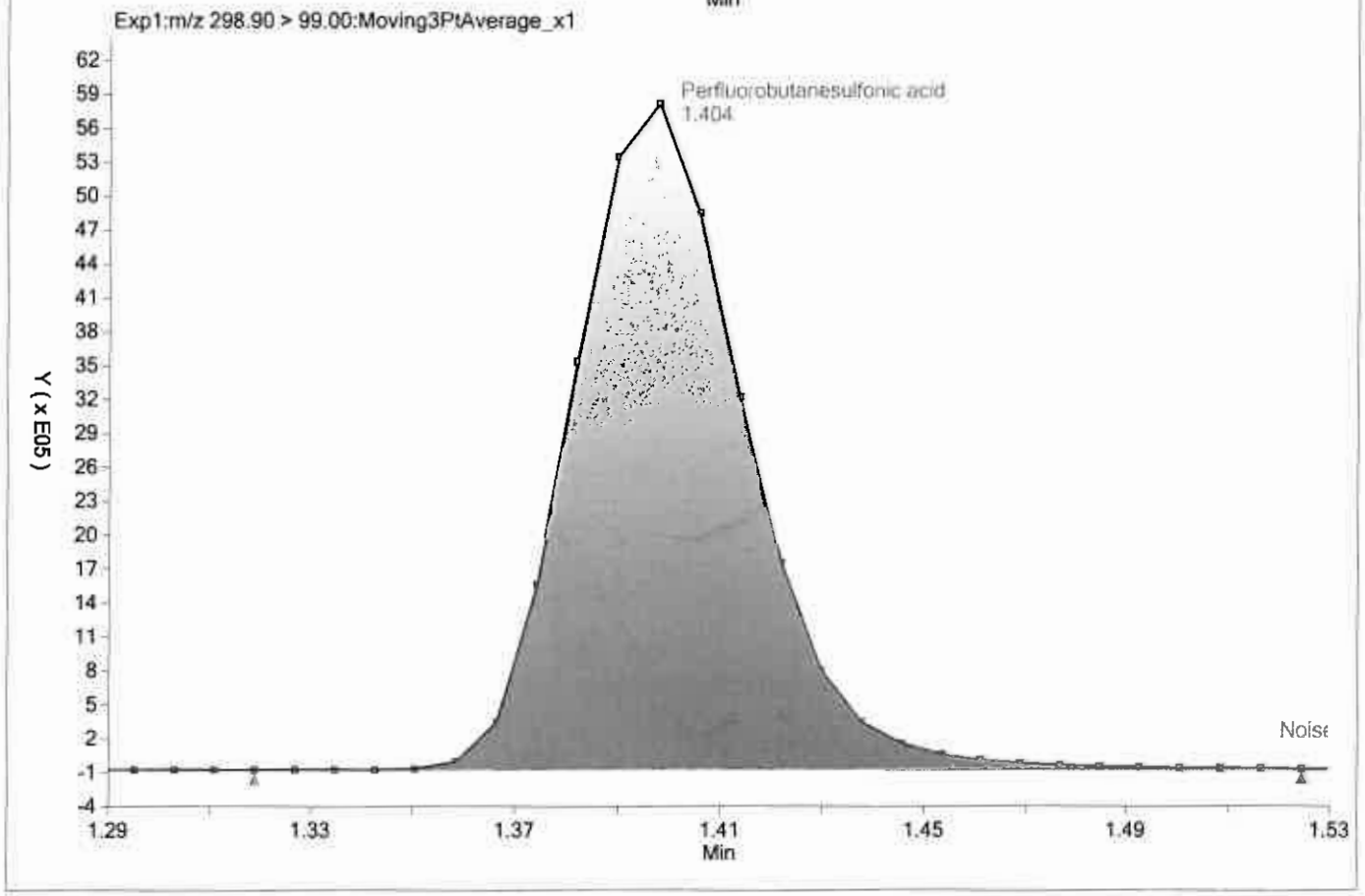
LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192162/4	2017.10.31_537ICAL_004.d
Level 2	IC 320-192162/5	2017.10.31_537ICAL_005.d
Level 3	IC 320-192162/6	2017.10.31_537ICAL_006.d
Level 4	IC 320-192162/7	2017.10.31_537ICAL_007.d
Level 5	IC 320-192162/8	2017.10.31_537ICAL_008.d
Level 6	IC 320-192162/9	2017.10.31_537ICAL_009.d

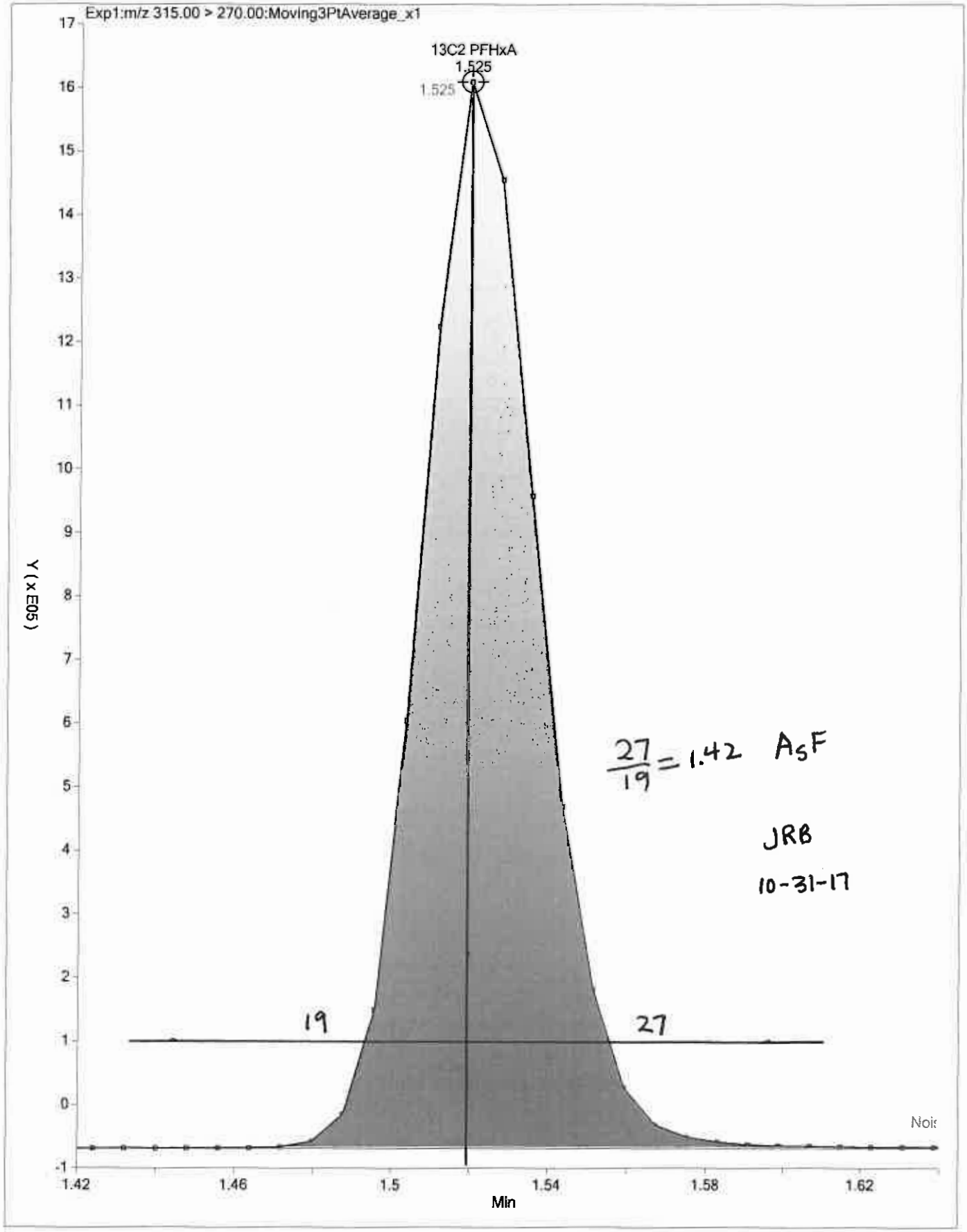
ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	0.3	7.9	3.1	-1.4	-1.2	1.0	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	3.6	-1.0	-2.7	0.9	-1.7	0.9	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-1.8	3.9	5.4	1.4	-2.7	-6.2	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	-3.2	3.7	-0.9	0.6	-0.5	0.2	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-5.0	0.1	-1.5	2.1	2.6	1.7	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-3.3	-0.6	-1.8	4.6	-1.5	2.5	50	30	30	30	30	30
13C2 PFHxA	-1.1	-5.4	-2.9	5.9	0.9	2.6	30	30	30	30	30	30
13C2 PFDA	-1.8	-5.2	-3.9	3.2	1.7	6.0	30	30	30	30	30	30



$\frac{25}{20} = 1.25$ AsF

JRB
10-31-17




Exp1:m/z 315.00 > 270.00:Moving3PtAverage_x1
13C2 PFHxA
1.525
1.525
Y (x E05)
Min
1.42
1.46
1.5
1.54
1.58
1.62
19
27
27/19 = 1.42 AsF
JRB
10-31-17

TestAmerica Laboratories
Istd/Surrogate Recovery Report

Worklist Name: 31OCT2017_537_ICAL Worklist Num: 49808
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b
Limit Group: LC 537 ICAL
Analysis Type: SemiVOA
Inj Volume: 2.00 Inj Vol Units: ul

Lims Batch: 192162
CCV IS Mode: Select Ical Level, Cal Level: 3
Non-Cal IS Mode: Last Ccal Sample

$ 2 13C2 PFHxA
$ 10 13C2 PFDA

Lab ID Inj Date	$ 2	$ 10	* 6 13C2-PFOA	* 7 13C4 PFOS
IS Std			2075481 1.85	5478893 2.10
# 1 RB 31-Oct-2017 11:30:30			1.88 2827290 136.2	2.12 6263224 114.3
# 2 RB 31-Oct-2017 11:35:15			1.87 2445339 117.8	2.11 5641209 103.0
# 3 RB 31-Oct-2017 11:39:58			1.87 2657492 128.0	2.12 5954650 108.7
IS Std				
# 4 IC L1 31-Oct-2017 11:44:43	1.53 98.91	2.28 98.17	1.86 2825241> 100.0*	2.10 6203989> 100.0*
# 5 IC L2 31-Oct-2017 11:49:28	1.53 94.64	2.28 94.82	1.87 2968175> 105.1*	2.11 6337478> 102.2*
# 6 IC L3 31-Oct-2017 11:54:13	1.53 97.06	2.28 96.12	1.87 2864400> 101.4*	2.11 6253426> 100.8*
# 7 IC L4 31-Oct-2017 11:58:57	1.53 105.90	2.28 103.20	1.86 2661913> 94.2*	2.11 6075693> 97.9*
# 8 IC L5 31-Oct-2017 12:03:42	1.53 100.90	2.28 101.70	1.86 2646287> 93.7*	2.10 5827765> 93.9*
# 9 IC L6 31-Oct-2017 12:08:27	1.53 102.60	2.28 106.00	1.87 2688817> 95.2*	2.11 5986294> 96.5*

13C2-PFOA

$$RPD = \frac{2968175 - 2646287}{\left(\frac{2968175 + 2646287}{2}\right)} (100) = 11.5$$

13C4-PFOS

$$RPD = \frac{6337478 - 5827765}{\left(\frac{6337478 + 5827765}{2}\right)} (100) = 8.4$$

JRB
10-31-17

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_004.d
Lims ID: IC L1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 31-Oct-2017 11:44:43 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L1_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 15:26:02 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: phomsophat Date: 31-Oct-2017 13:17:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.405	-0.001	1.000	2055386	9.03		938	
298.90 > 99.00	1.404	1.405	-0.001	1.000	1477718		1.39(0.00-0.00)	1790	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.528	-0.003	1.000	3153457	9.89		3952	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	275477	1.04		57.1	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.678	-0.001	1.000	1038660	2.95		1502	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.863	-0.004		2825241	10.0		2716	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.864	0.002	1.000	509095	1.94		15.6	
413.00 > 169.00	1.859	1.864	-0.005	0.996	289513		1.76(0.00-0.00)	17.1	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.107	-0.005		6203989	28.7		4696	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	763610	3.80		116	M
499.00 > 99.00	2.102	2.109	-0.007	0.996	158418		4.82(0.00-0.00)	135	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	356641	1.93		83.2	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2244762	9.82		5730	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L1_00020 Amount Added: 1.00 Units: mL

Report Date: 31-Oct-2017 15:26:02 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_004.d

Injection Date: 31-Oct-2017 11:44:43 Instrument ID: A8_N

Lims ID: IC L1

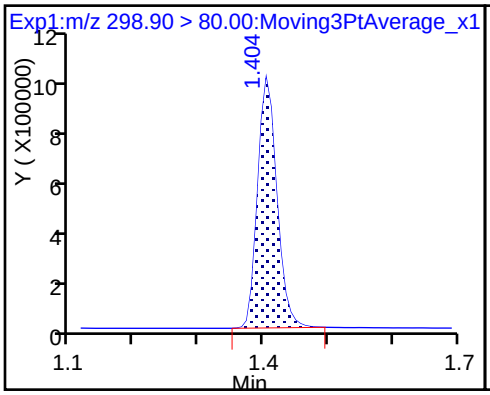
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4

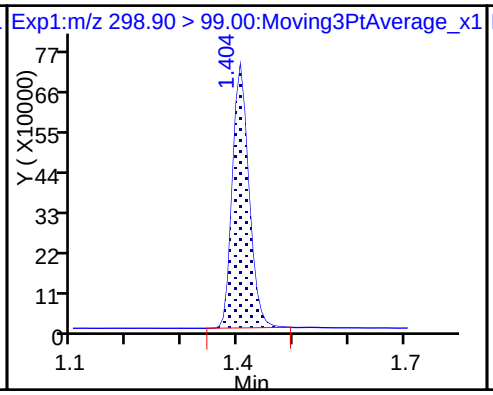
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

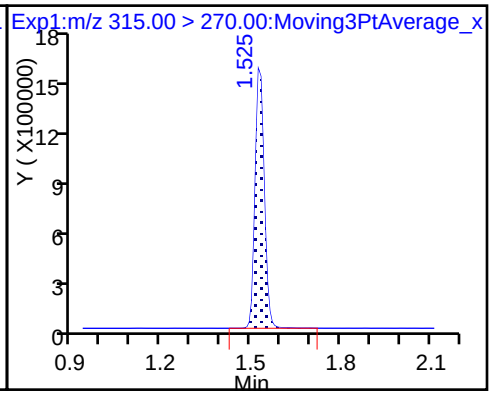
1 Perfluorobutanesulfonic acid



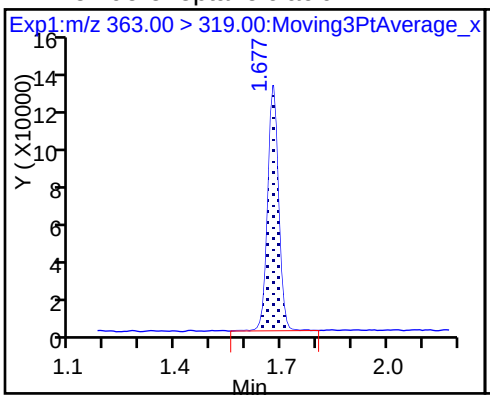
1 Perfluorobutanesulfonic acid



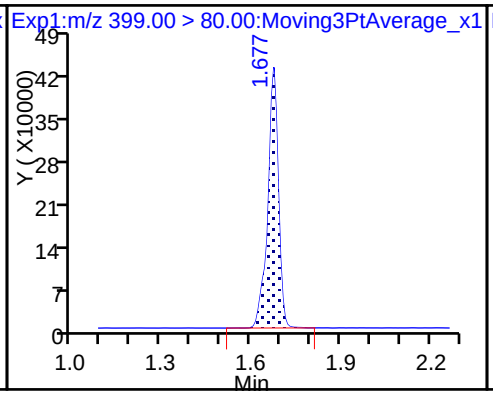
$ 2 13C2 PFHxA



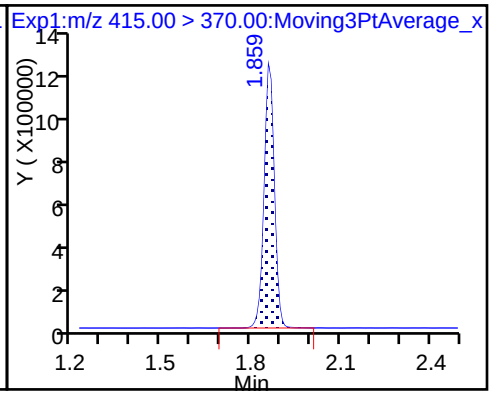
4 Perfluoroheptanoic acid



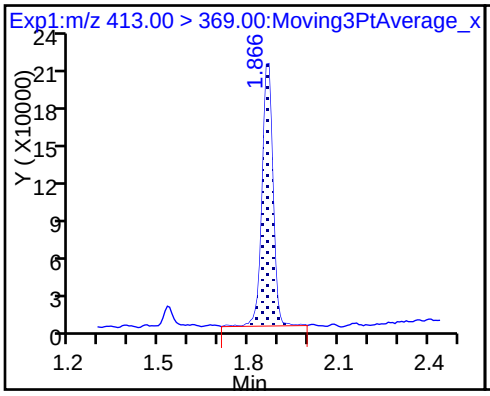
3 Perfluorohexanesulfonic acid



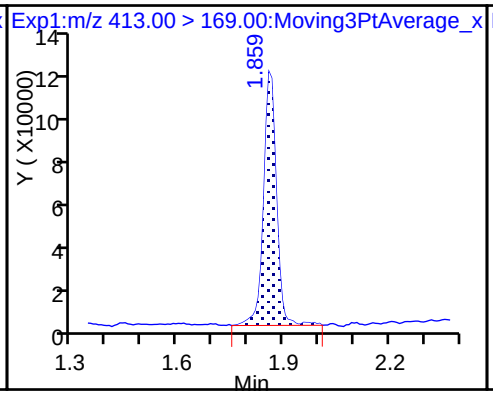
* 6 13C2-PFOA



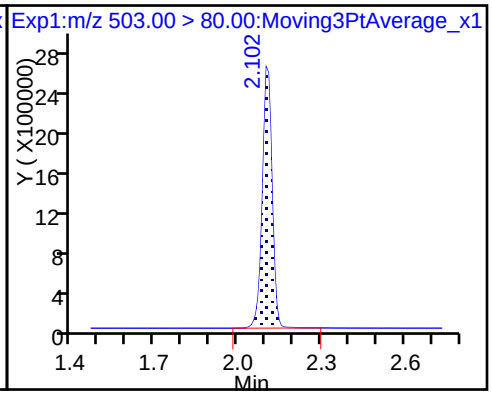
5 Perfluorooctanoic acid



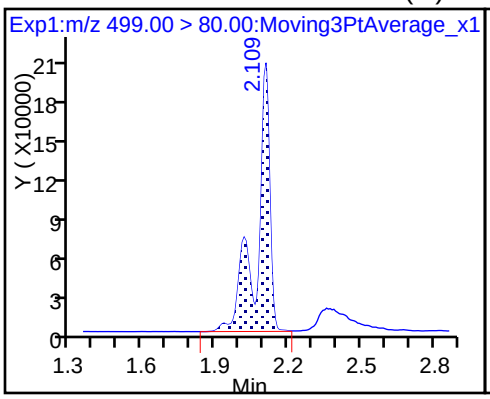
5 Perfluorooctanoic acid



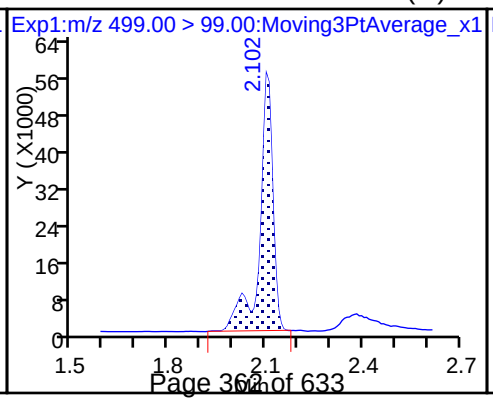
* 7 13C4 PFOS



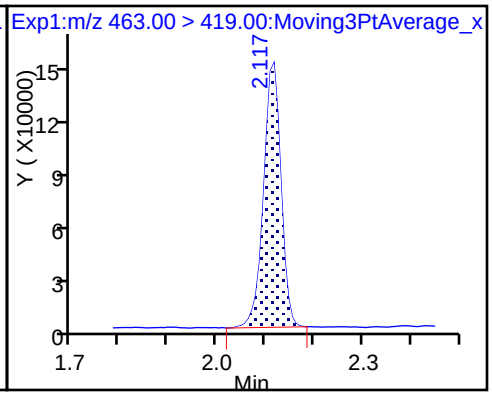
8 Perfluorooctane sulfonic acid (M)



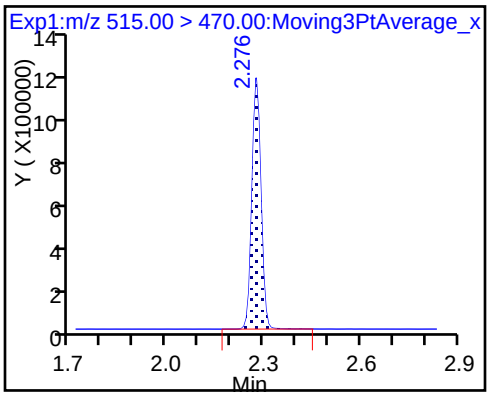
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
14
12
10
8
6
4
2
0
1.7
2.0
2.3
2.6
2.9
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

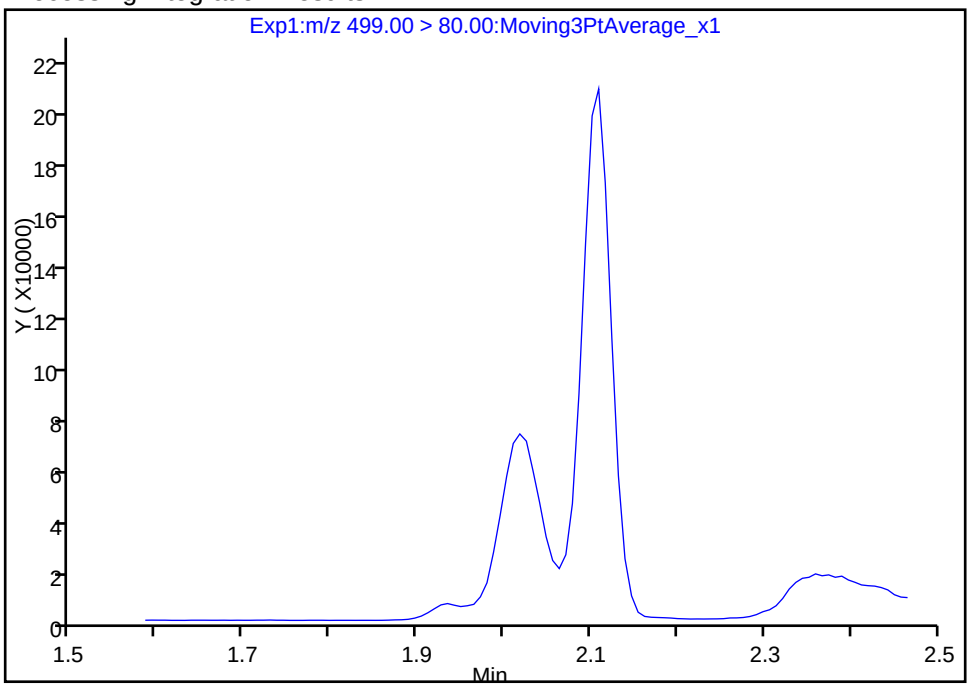
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_004.d				
Injection Date:	31-Oct-2017 11:44:43	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

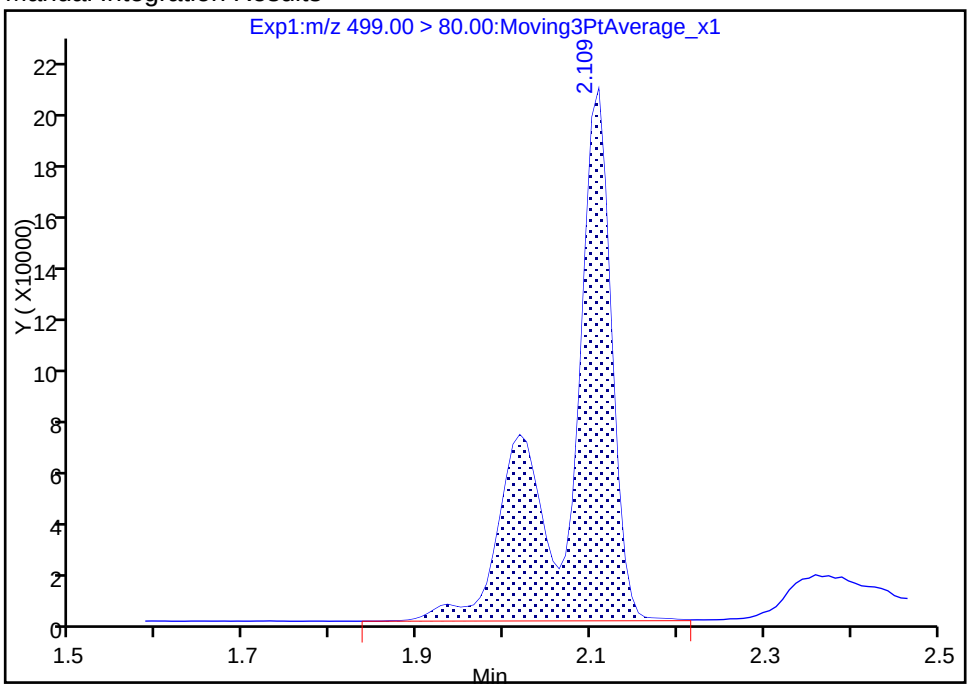
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 763610
Amount: 3.802819
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 12:19:42
Audit Action: Assigned Compound ID Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

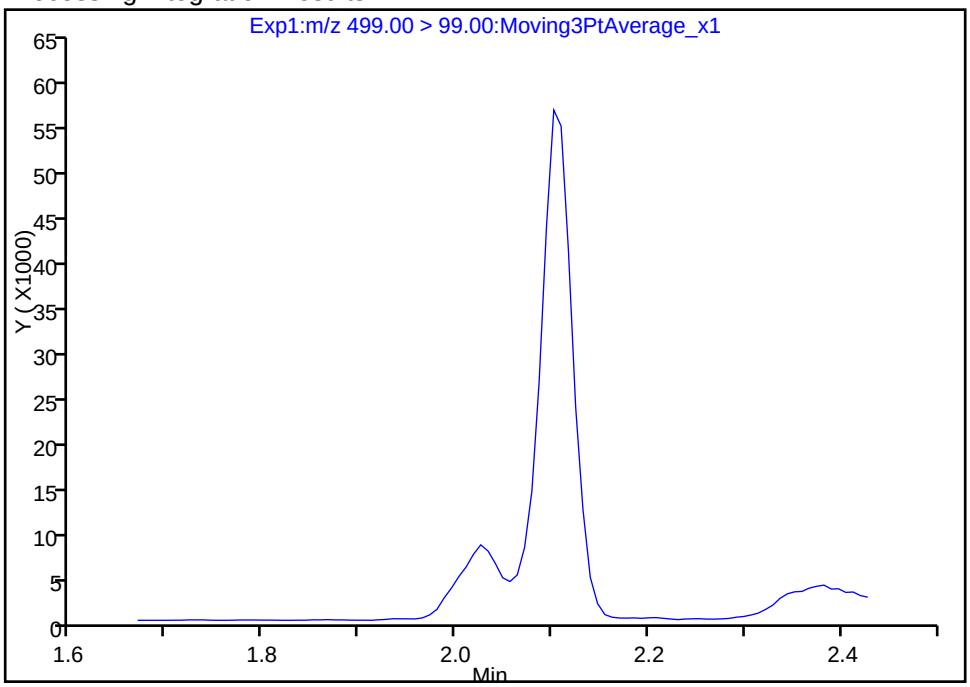
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_004.d
Injection Date: 31-Oct-2017 11:44:43 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

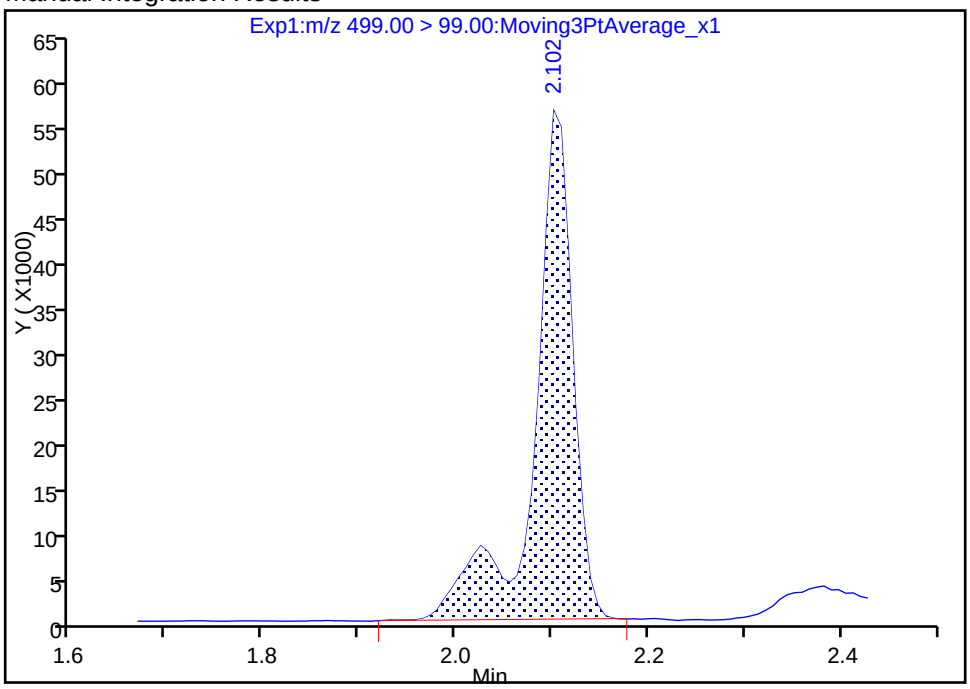
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 158418
Amount: 3.802819
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 12:20:04
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

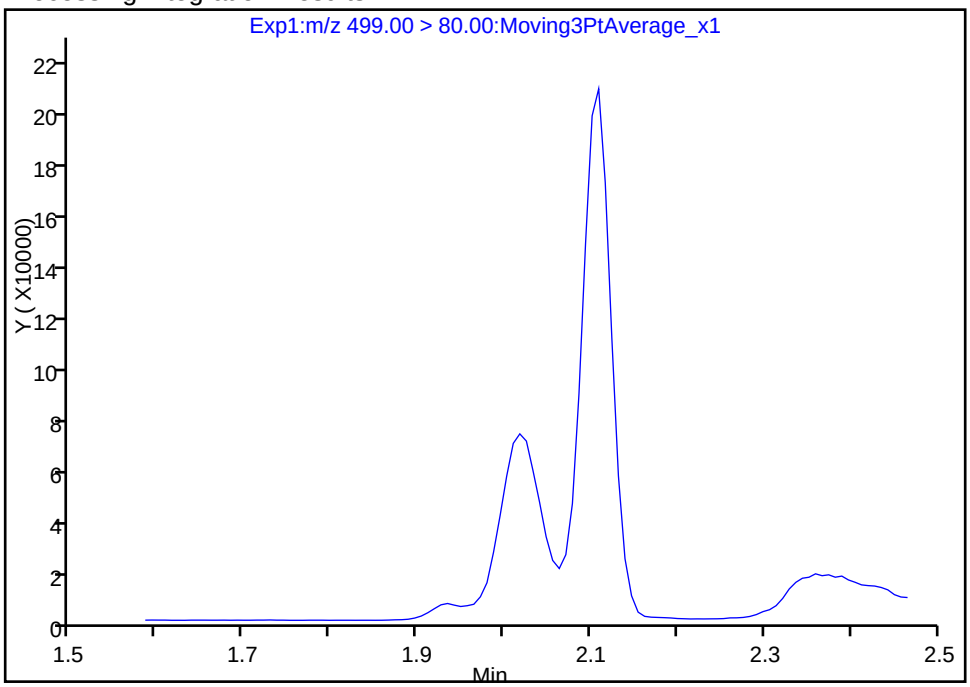
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_004.d
Injection Date: 31-Oct-2017 11:44:43 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

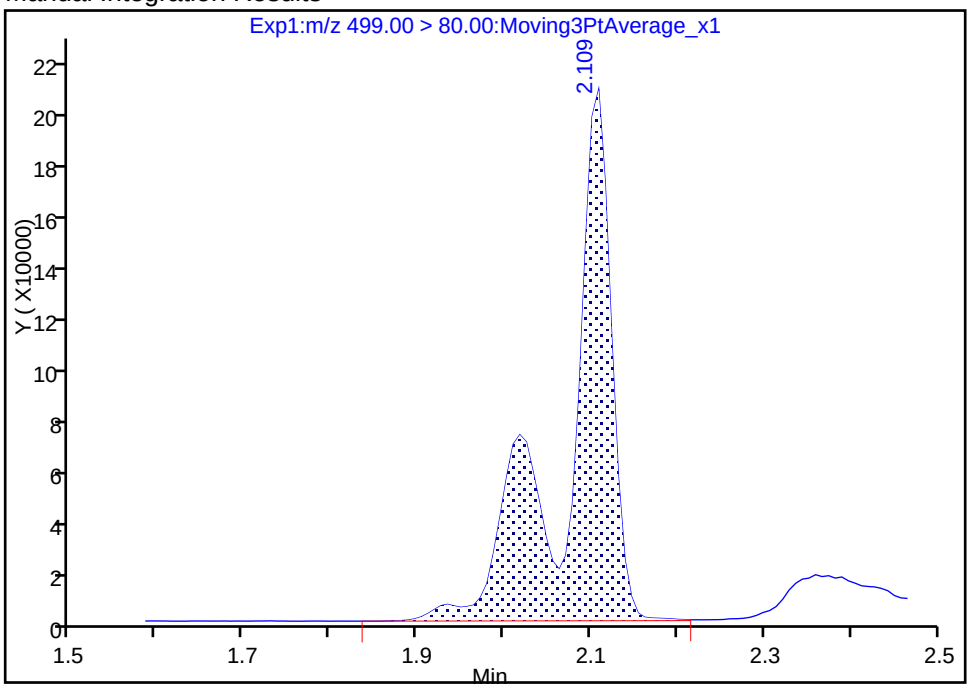
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 763610
Amount: 3.802819
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 12:20:04
Audit Action: Manually Integrated Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_005.d
Lims ID: IC L2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 31-Oct-2017 11:49:28 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L2_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 15:26:03 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: phomsophat Date: 31-Oct-2017 13:18:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.405	-0.001	1.000	4905442	21.6		1994	
298.90 > 99.00	1.404	1.405	-0.001	1.000	3389563		1.45(0.00-0.00)	3096	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.528	-0.003	1.000	3170056	9.46		3619	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	614703	2.20		120	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.678	-0.001	1.000	2492517	6.93		2875	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.863	0.003		2968175	10.0		2970	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.864	0.002	1.000	1273846	4.61		38.8	
413.00 > 169.00	1.866	1.864	0.002	1.000	684504		1.86(0.00-0.00)	40.5	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.107	0.002		6337478	28.7		4510	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	1824729	8.90		289	M
499.00 > 99.00	2.109	2.109	0.0	1.000	388629		4.70(0.00-0.00)	336	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	856305	4.42		193	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2277991	9.48		5288	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00020 Amount Added: 1.00 Units: mL

Report Date: 31-Oct-2017 15:26:03 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_005.d

Injection Date: 31-Oct-2017 11:49:28 Instrument ID: A8_N

Lims ID: IC L2

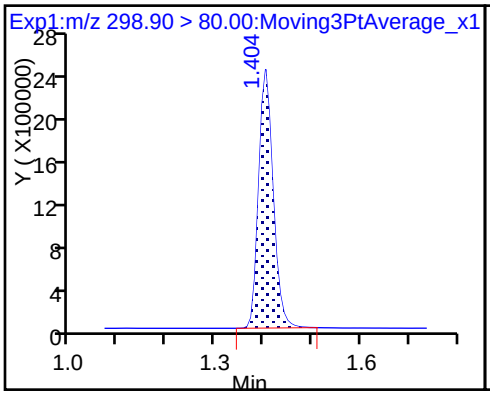
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5

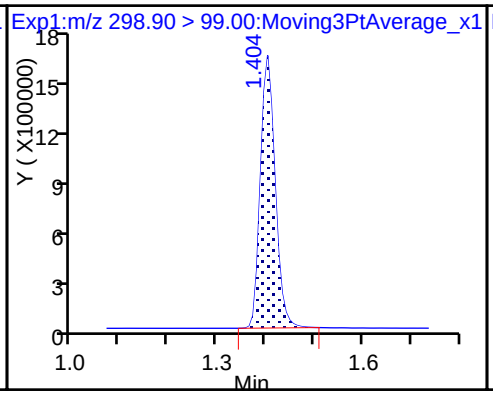
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

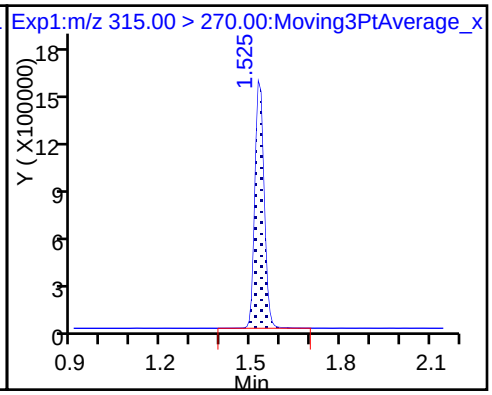
1 Perfluorobutanesulfonic acid



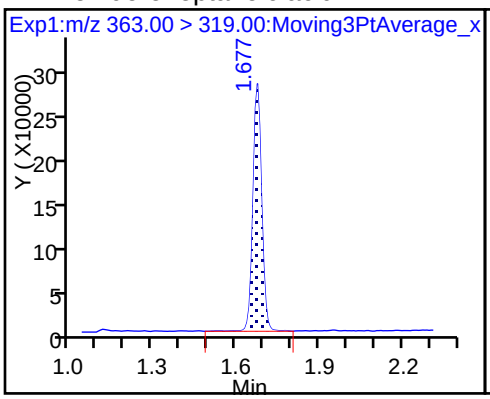
1 Perfluorobutanesulfonic acid



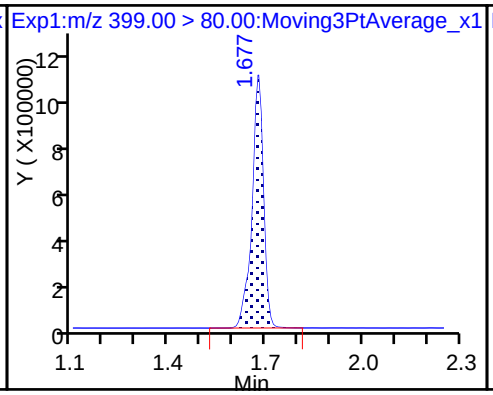
$ 2 13C2 PFHxA



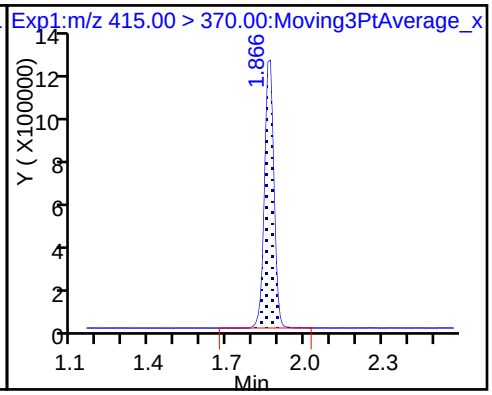
4 Perfluoroheptanoic acid



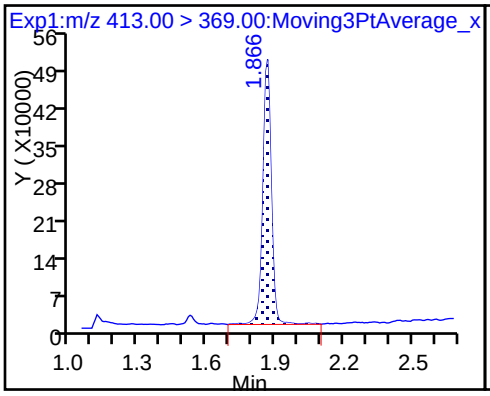
3 Perfluorohexanesulfonic acid



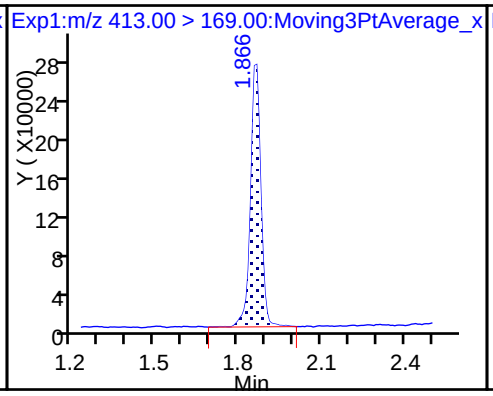
* 6 13C2-PFOA



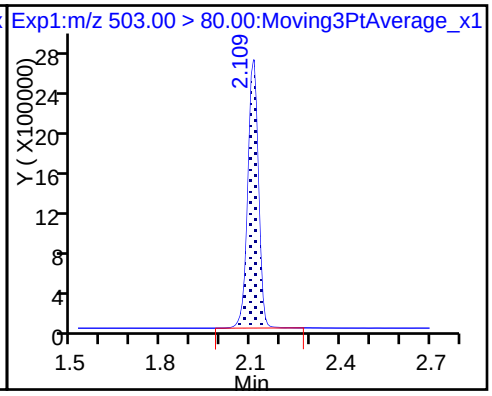
5 Perfluorooctanoic acid



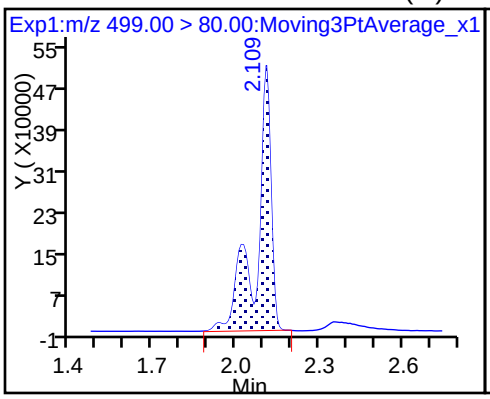
5 Perfluorooctanoic acid



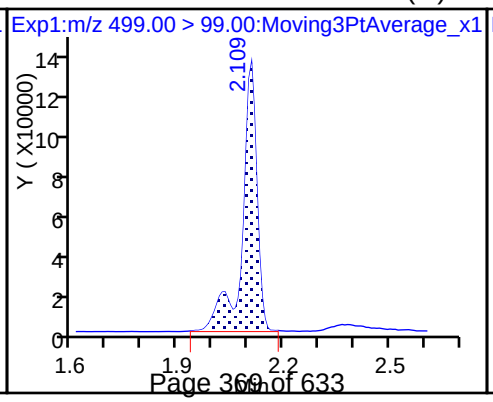
* 7 13C4 PFOS



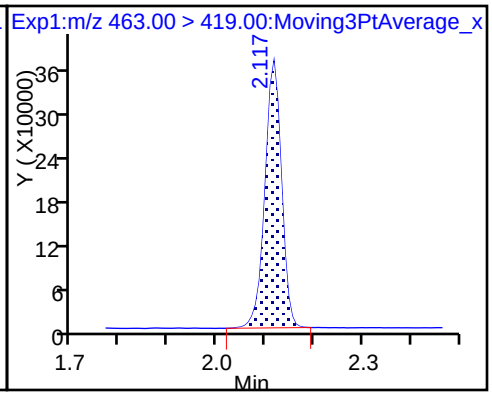
8 Perfluorooctane sulfonic acid (M)



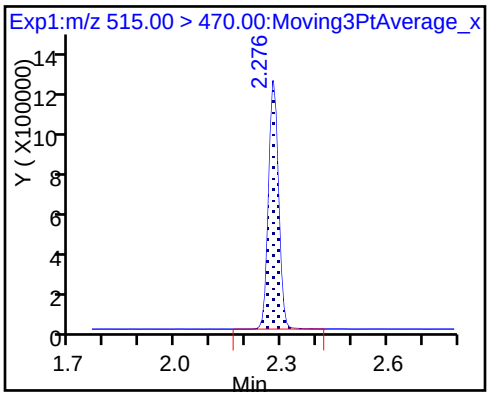
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
14
12
10
8
6
4
2
0
1.7
2.0
2.3
2.6
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

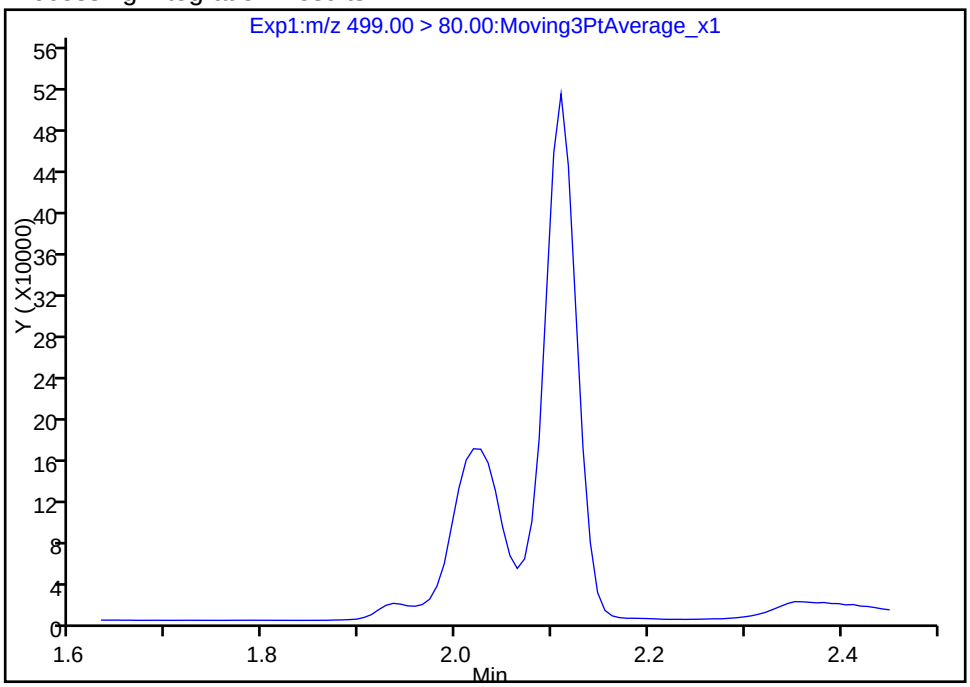
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_005.d
Injection Date: 31-Oct-2017 11:49:28 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

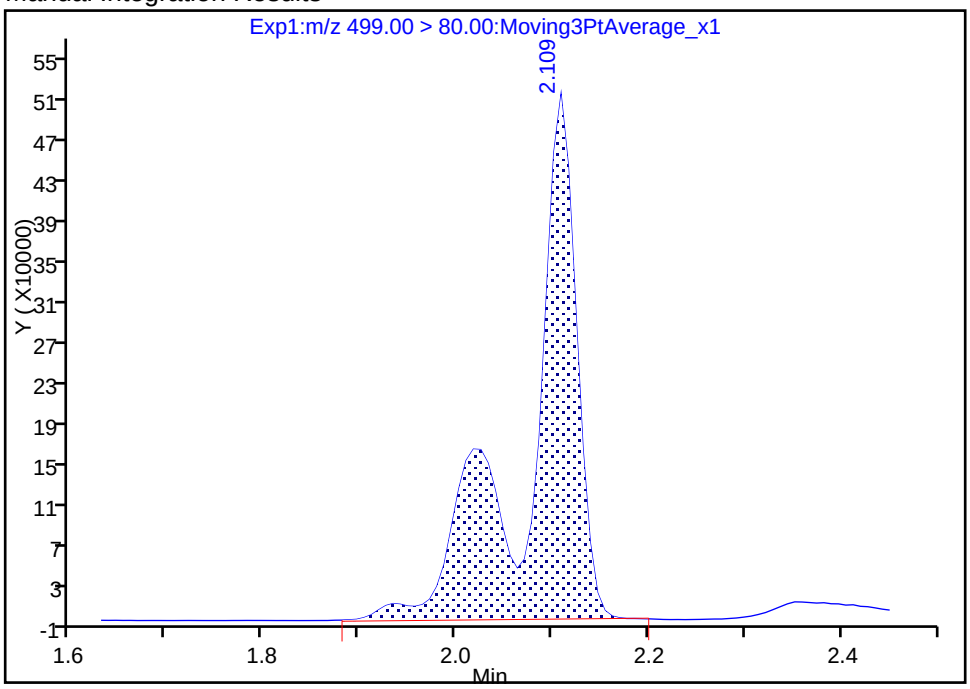
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 1824729
Amount: 8.895840
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:18:03
Audit Action: Assigned Compound ID Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

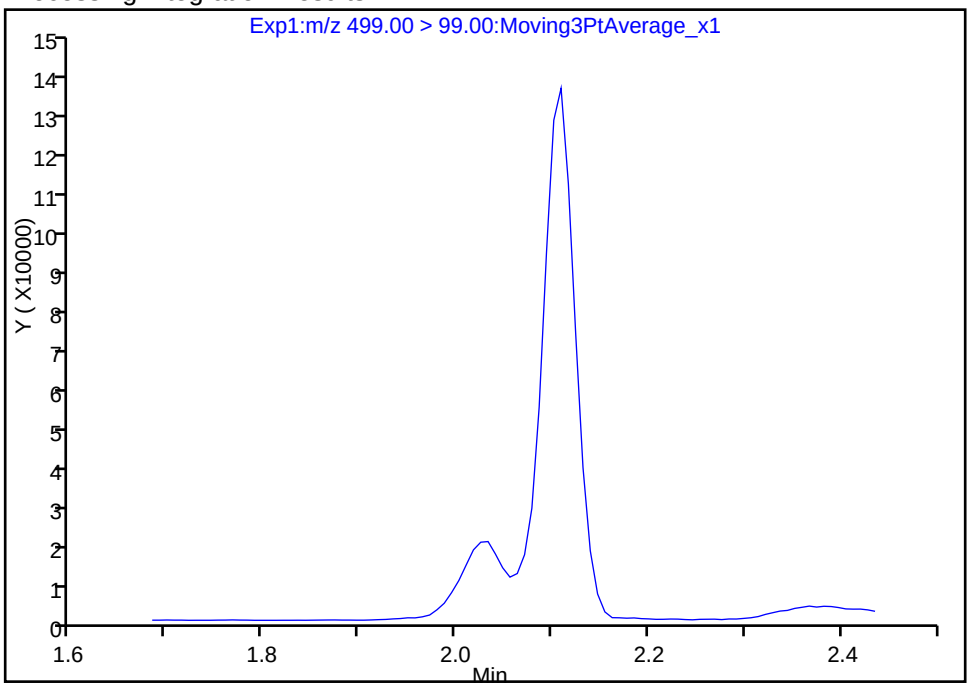
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_005.d
Injection Date: 31-Oct-2017 11:49:28 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

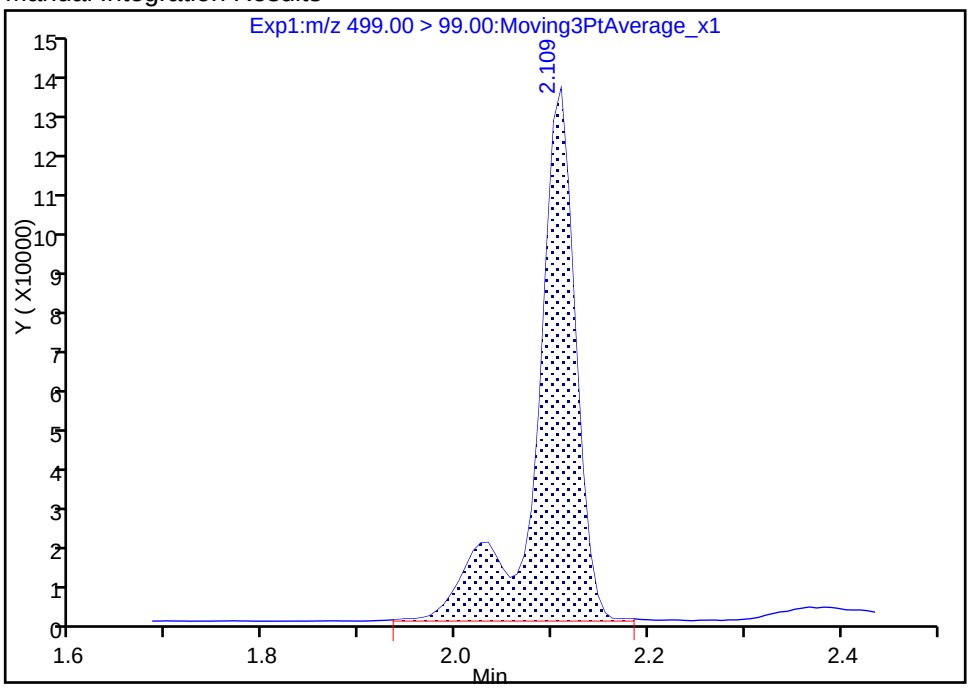
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 388629
Amount: 8.895840
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:18:07
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

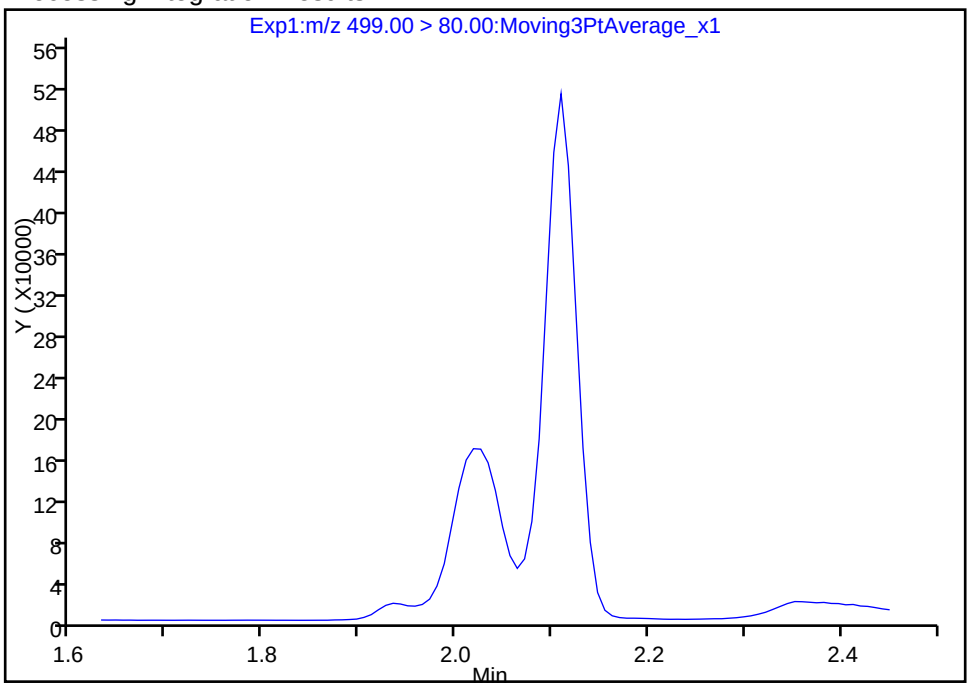
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_005.d
Injection Date: 31-Oct-2017 11:49:28 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

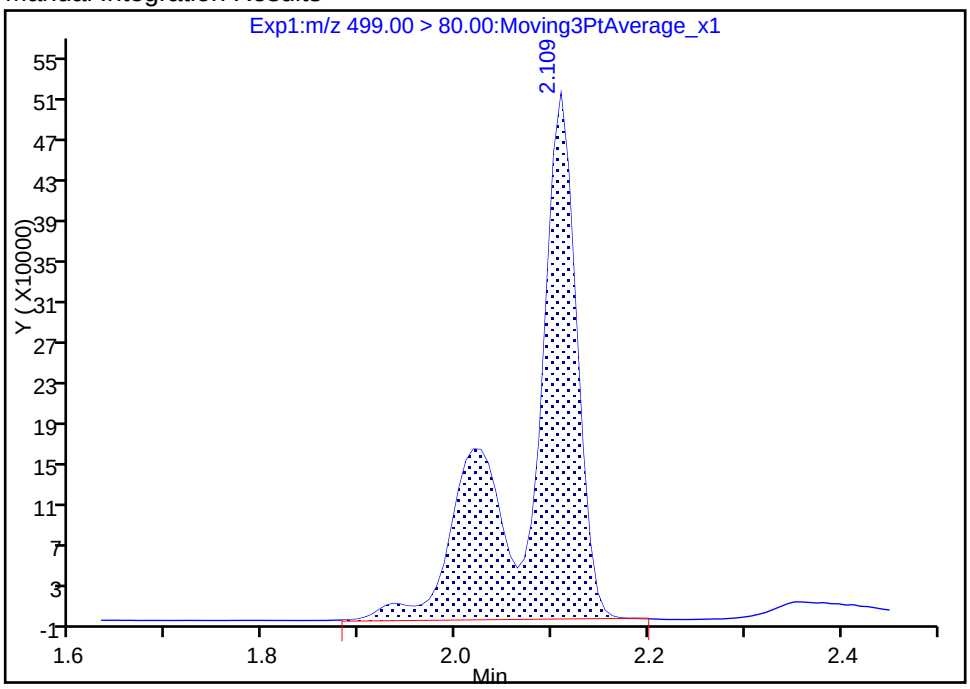
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 1824729
Amount: 8.895840
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:18:15
Audit Action: Manually Integrated Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_006.d
Lims ID: IC L3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 31-Oct-2017 11:54:13 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L3_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 15:26:04 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: phomsophat Date: 31-Oct-2017 13:19:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.405	-0.001	1.000	9915456	46.4		2784	
298.90 > 99.00	1.404	1.405	-0.001	1.000	7375640		1.34(0.00-0.00)	4222	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.528	0.005	1.000	3137333	9.71		3516	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	1311091	4.87		257	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.678	-0.001	1.000	5615014	15.8		4292	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.863	0.003		2864400	10.0		2870	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.864	0.002	1.000	2643153	9.92		83.8	
413.00 > 169.00	1.866	1.864	0.002	1.000	1411735		1.87(0.00-0.00)	90.1	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.107	0.002		6253426	28.7		4891	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	3990091	19.7		546	M
499.00 > 99.00	2.109	2.109	0.0	1.000	831932		4.80(0.00-0.00)	594	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	1835636	9.82		397	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2228390	9.61		5084	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

Report Date: 31-Oct-2017 15:26:04 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_006.d

Injection Date: 31-Oct-2017 11:54:13 Instrument ID: A8_N

Lims ID: IC L3

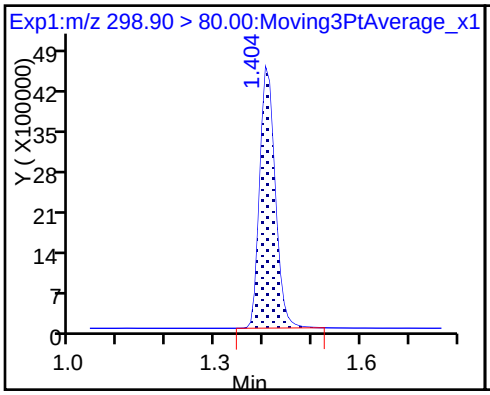
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6

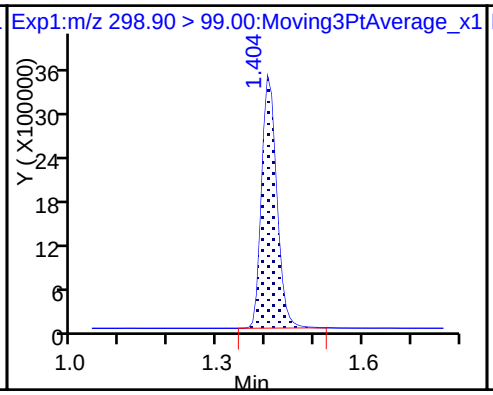
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

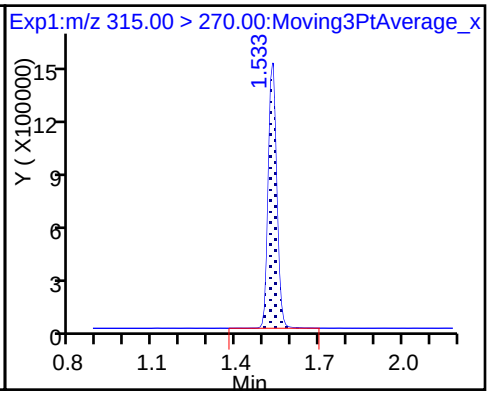
1 Perfluorobutanesulfonic acid



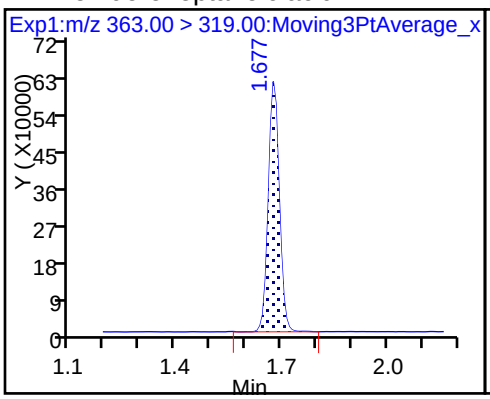
1 Perfluorobutanesulfonic acid



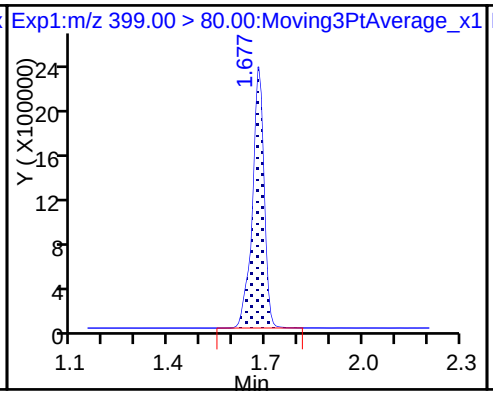
$ 2 13C2 PFHxA



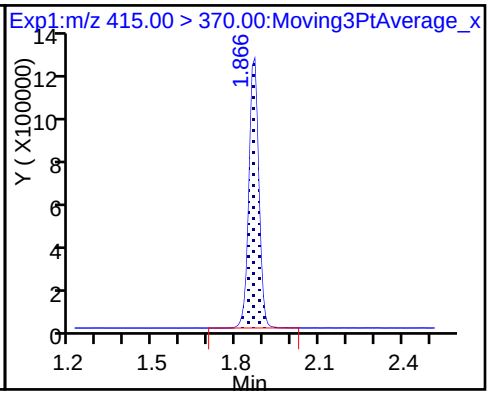
4 Perfluoroheptanoic acid



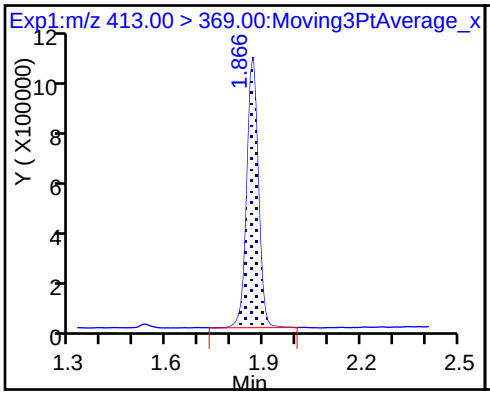
3 Perfluorohexanesulfonic acid



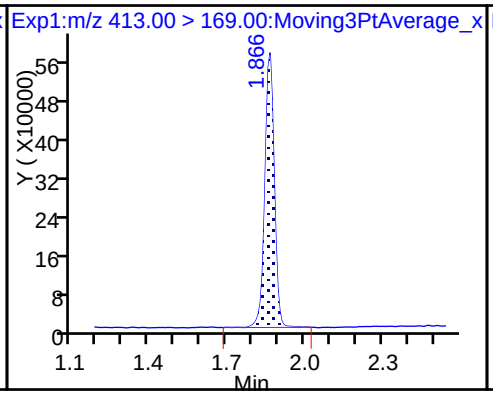
* 6 13C2-PFOA



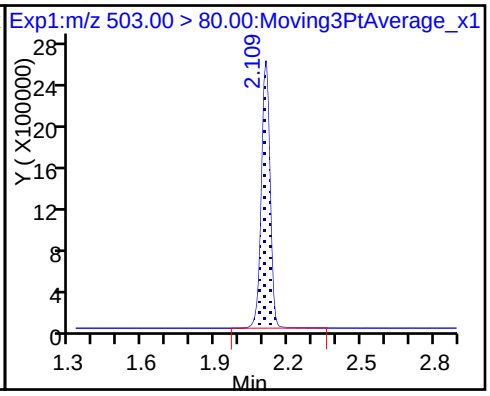
5 Perfluorooctanoic acid



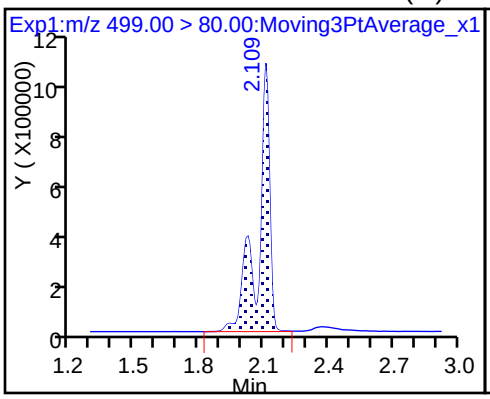
5 Perfluorooctanoic acid



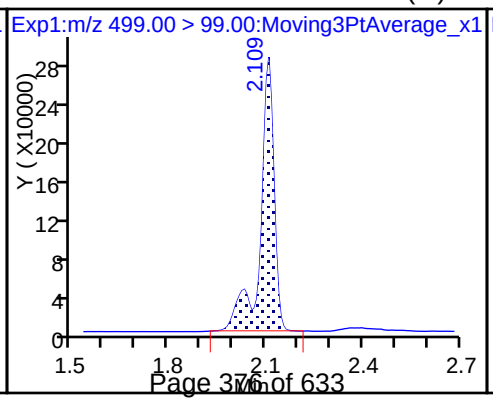
* 7 13C4 PFOS



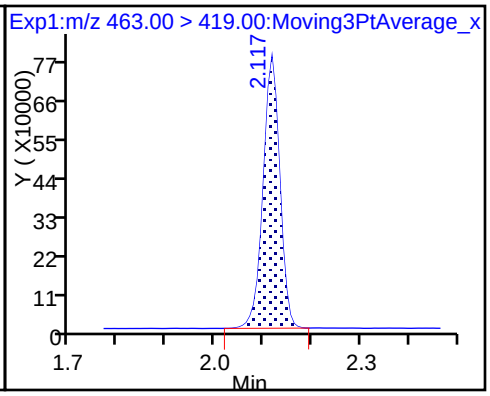
8 Perfluorooctane sulfonic acid (M)



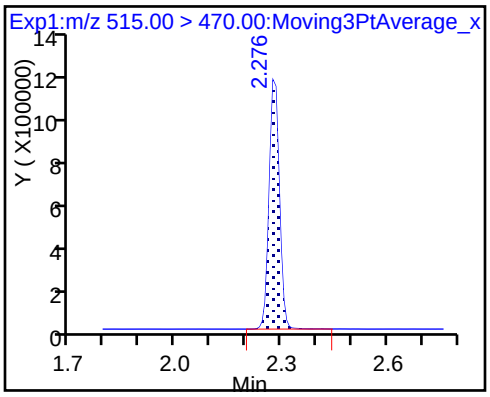
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
14
12
10
8
6
4
2
0
1.7
2.0
2.3
2.6
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

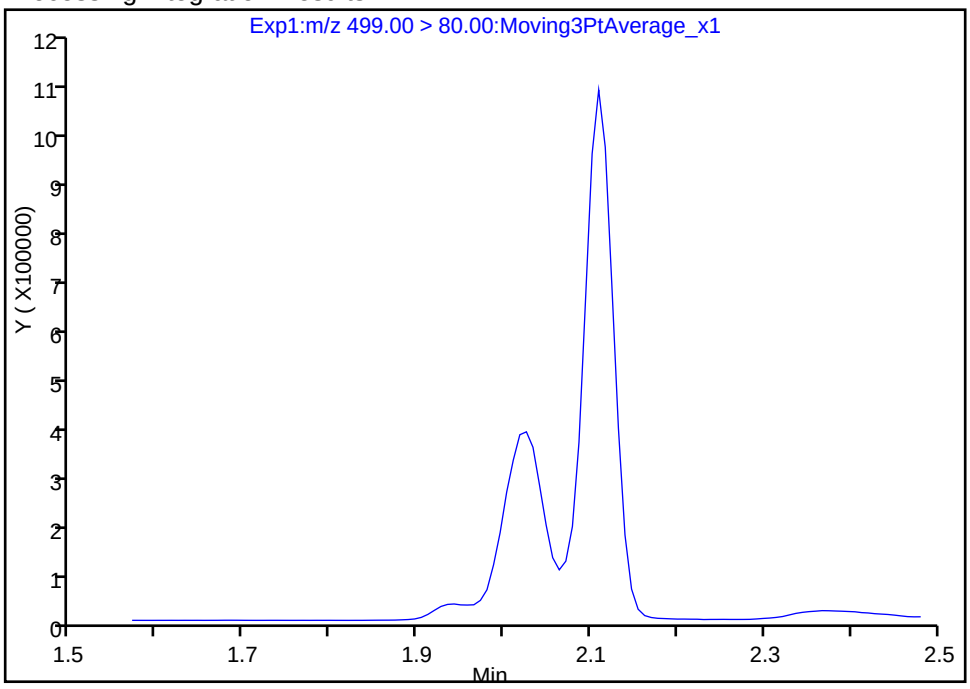
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_006.d
Injection Date: 31-Oct-2017 11:54:13 Instrument ID: A8_N
Lims ID: IC L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

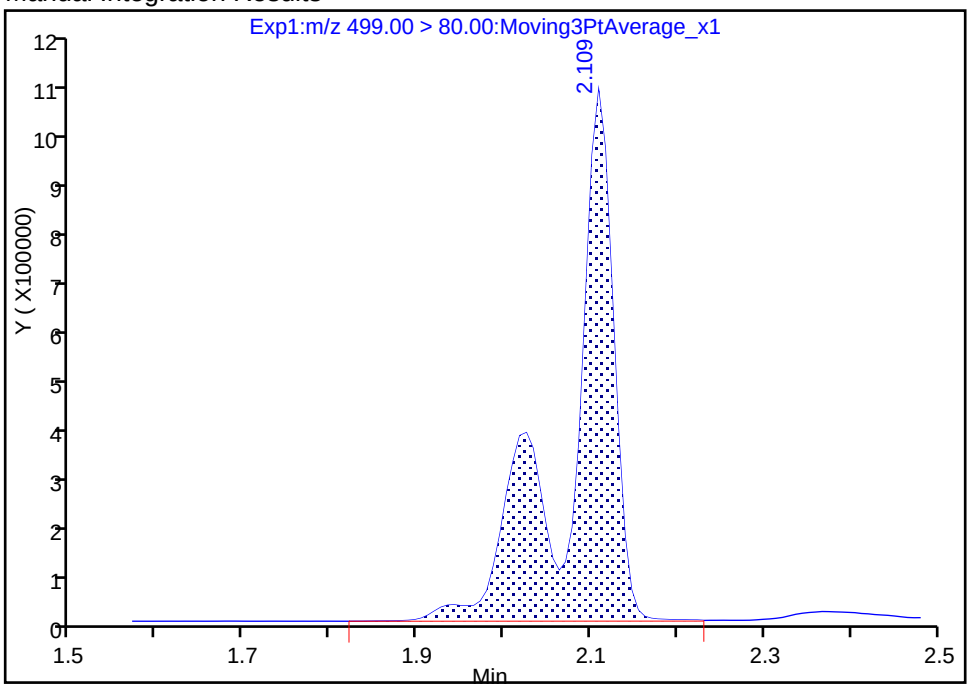
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 3990091
Amount: 19.713777
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:18:39
Audit Action: Assigned Compound ID Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

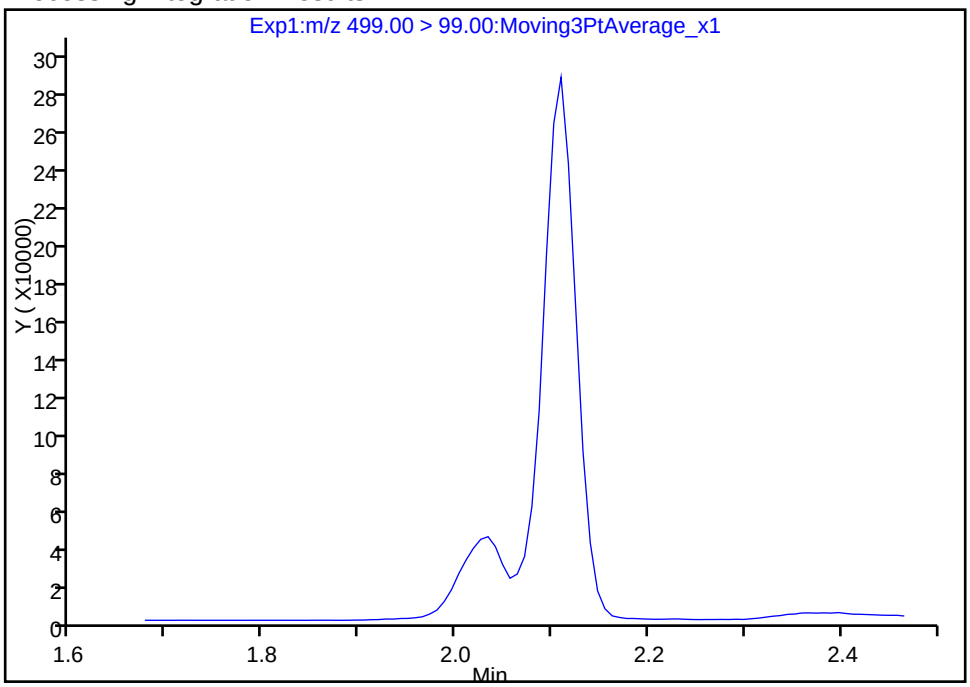
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_006.d
Injection Date: 31-Oct-2017 11:54:13 Instrument ID: A8_N
Lims ID: IC L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

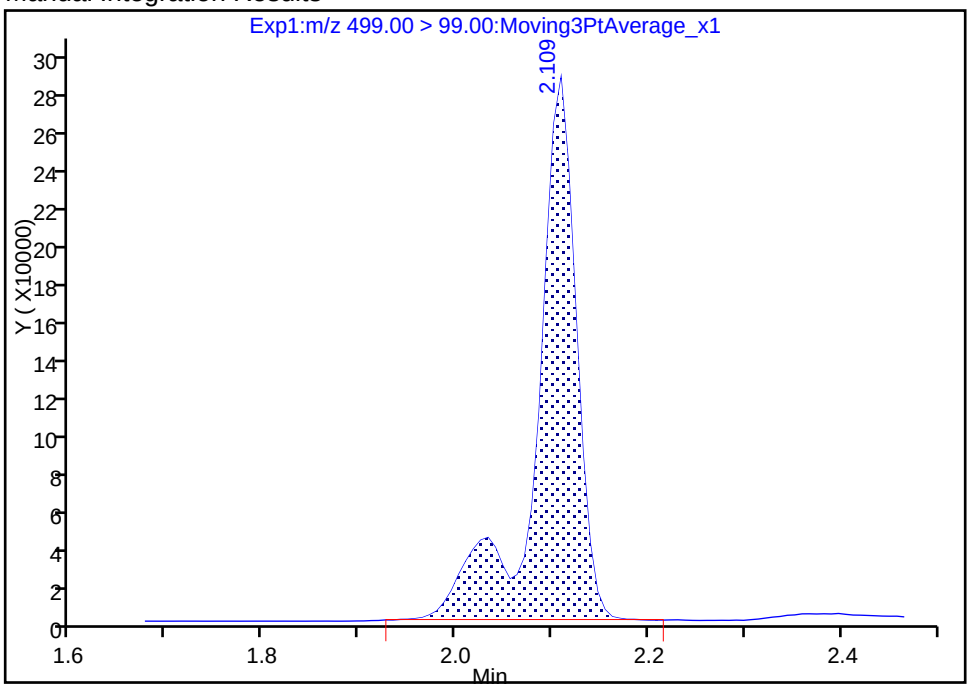
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 831932
Amount: 19.713777
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:18:53
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

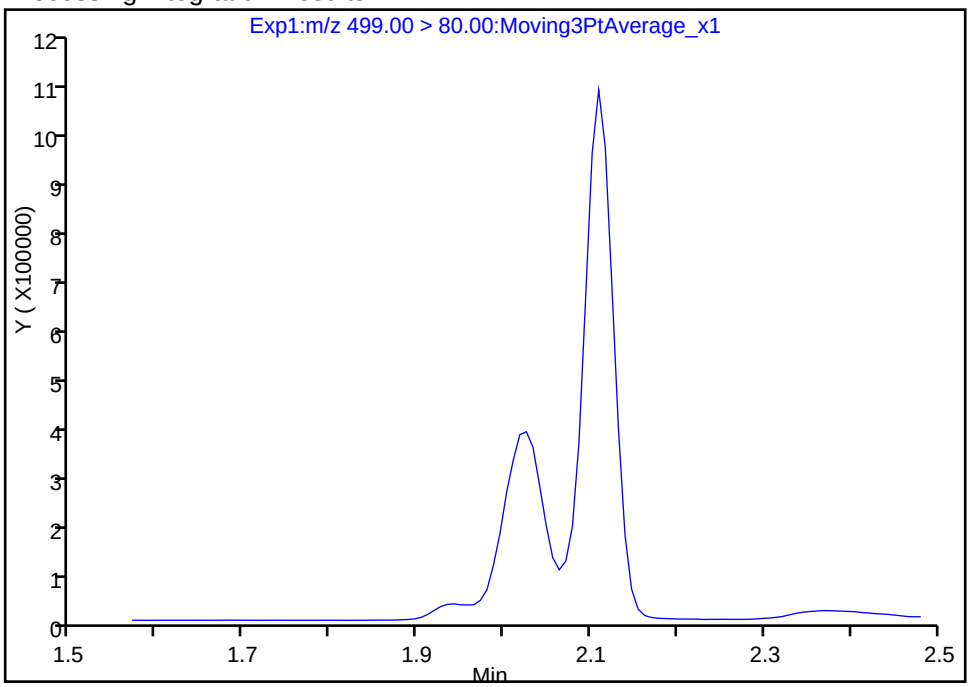
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_006.d
Injection Date: 31-Oct-2017 11:54:13 Instrument ID: A8_N
Lims ID: IC L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

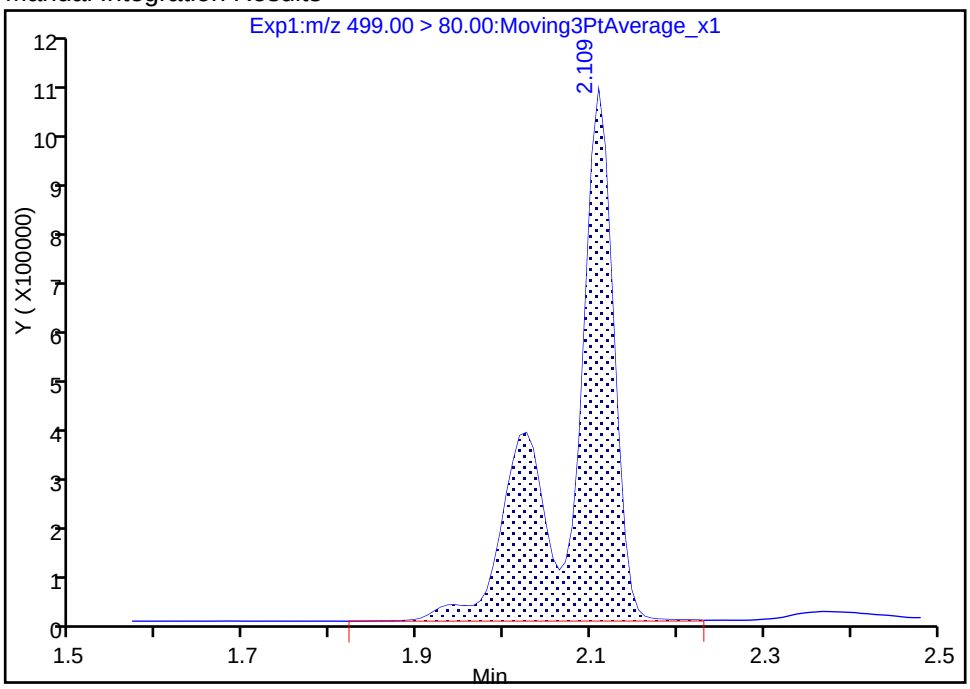
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 3990091
Amount: 19.713777
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:18:53
Audit Action: Manually Integrated Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_007.d
Lims ID: IC L4
Client ID:
Sample Type: ICISAV Calib Level: 4
Inject. Date: 31-Oct-2017 11:58:57 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L4_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 15:26:05 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: phomsophat Date: 31-Oct-2017 13:19:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.405	-0.001	1.000	16876130	88.8		2843	
298.90 > 99.00	1.404	1.405	-0.001	1.000	12859332		1.31(0.00-0.00)	3659	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.528	-0.003	1.000	3180555	10.6		3583	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	2526779	10.1		485	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.678	-0.001	1.000	10497872	30.4		4311	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.863	-0.004		2661913	10.0		2517	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.864	-0.005	1.000	4986613	20.1		156	
413.00 > 169.00	1.859	1.864	-0.005	1.000	2700868		1.85(0.00-0.00)	194	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.107	0.002		6075693	28.7		4017	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	8030345	40.8		2995	M
499.00 > 99.00	2.109	2.109	0.0	1.000	1667728		4.82(0.00-0.00)	1040	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	3636277	20.9		740	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2223928	10.3		4842	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L4_00020 Amount Added: 1.00 Units: mL

Report Date: 31-Oct-2017 15:26:05 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_007.d

Injection Date: 31-Oct-2017 11:58:57 Instrument ID: A8_N

Lims ID: IC L4

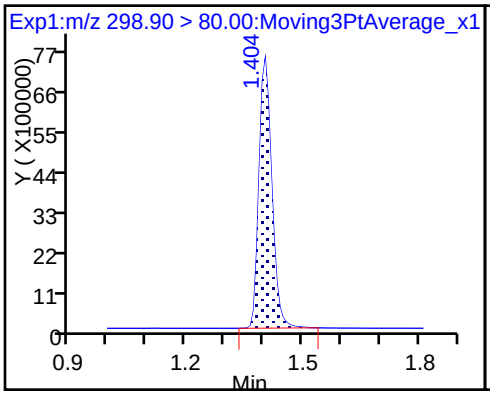
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7

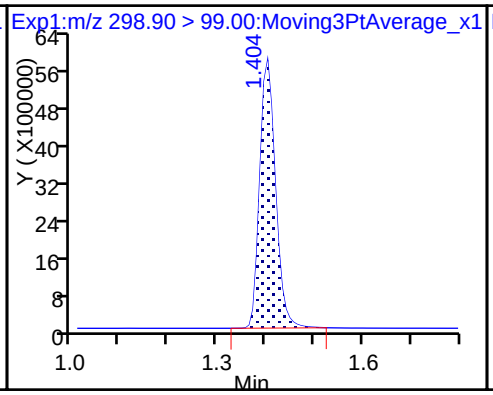
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

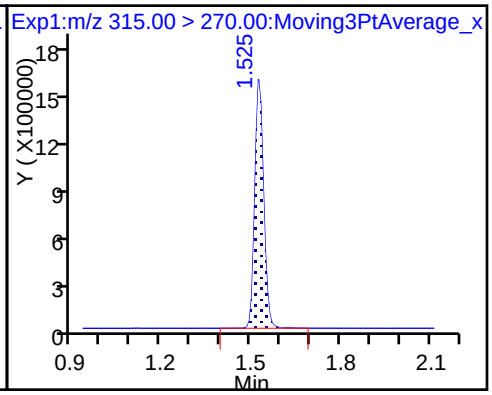
1 Perfluorobutanesulfonic acid



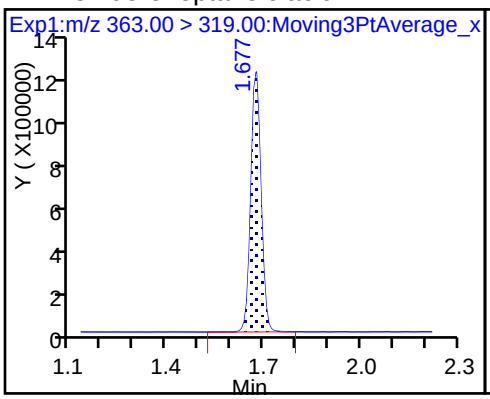
1 Perfluorobutanesulfonic acid



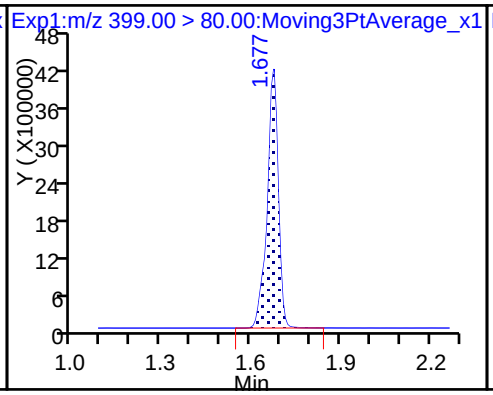
$ 2 13C2 PFHxA



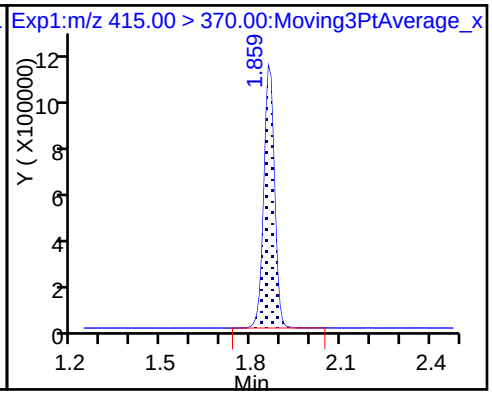
4 Perfluoroheptanoic acid



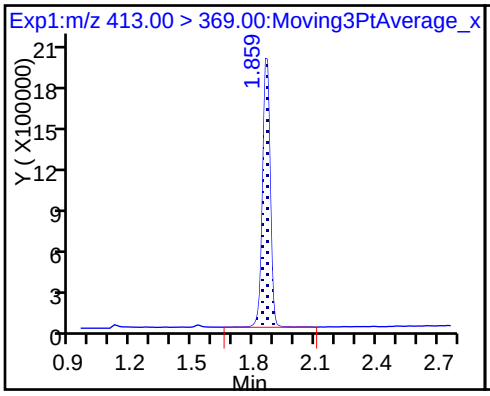
3 Perfluorohexanesulfonic acid



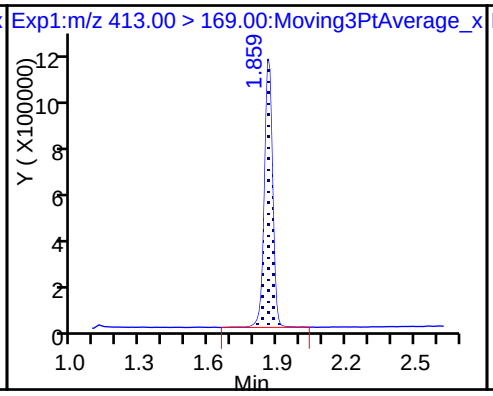
* 6 13C2-PFOA



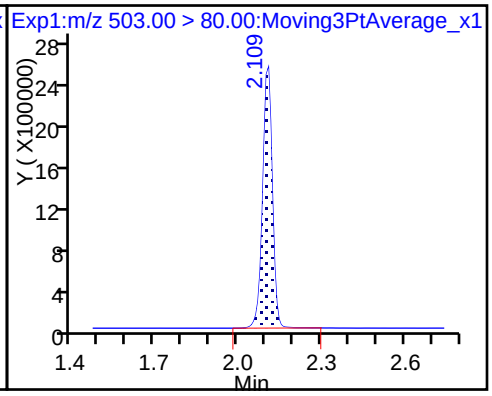
5 Perfluorooctanoic acid



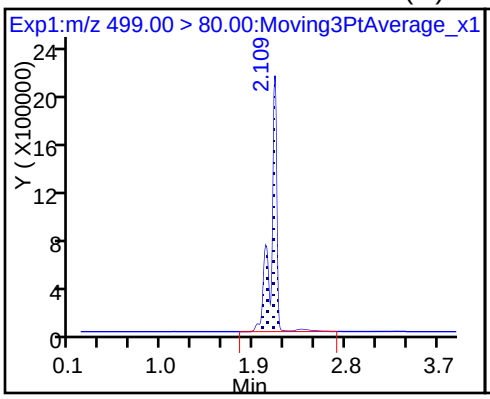
5 Perfluorooctanoic acid



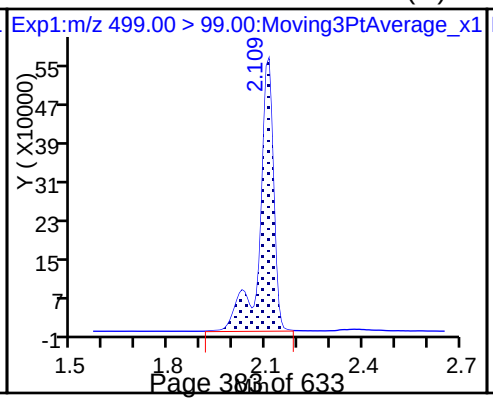
* 7 13C4 PFOS



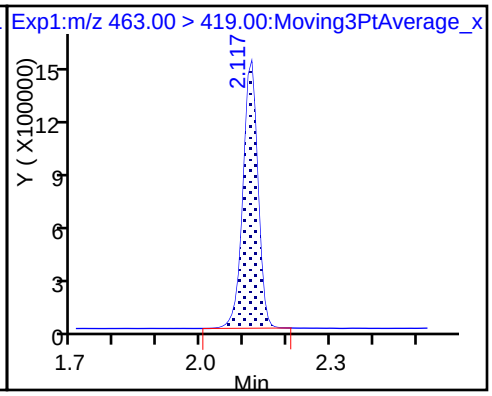
8 Perfluorooctane sulfonic acid (M)



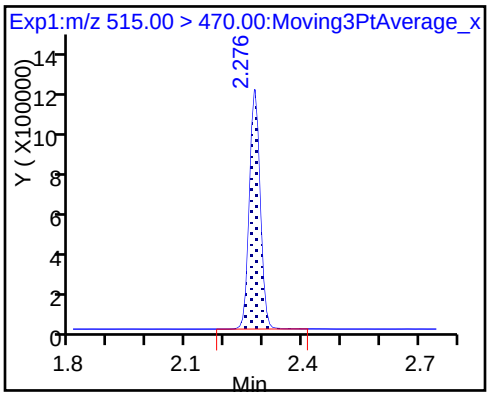
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
14
12
10
8
6
4
2
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

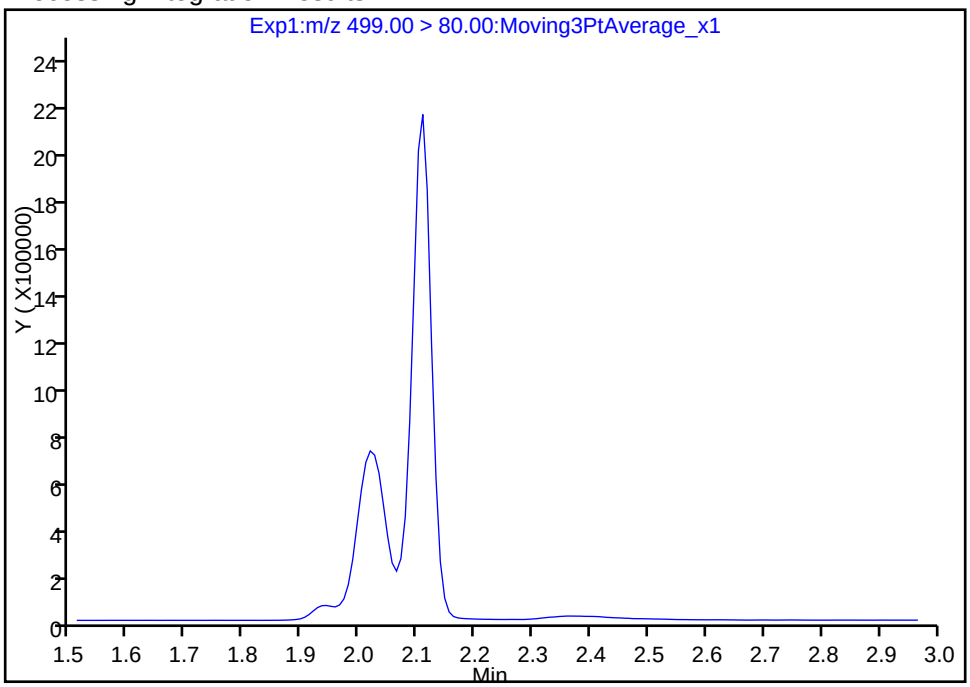
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_007.d				
Injection Date:	31-Oct-2017 11:58:57	Instrument ID:	A8_N		
Lims ID:	IC L4				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	4	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

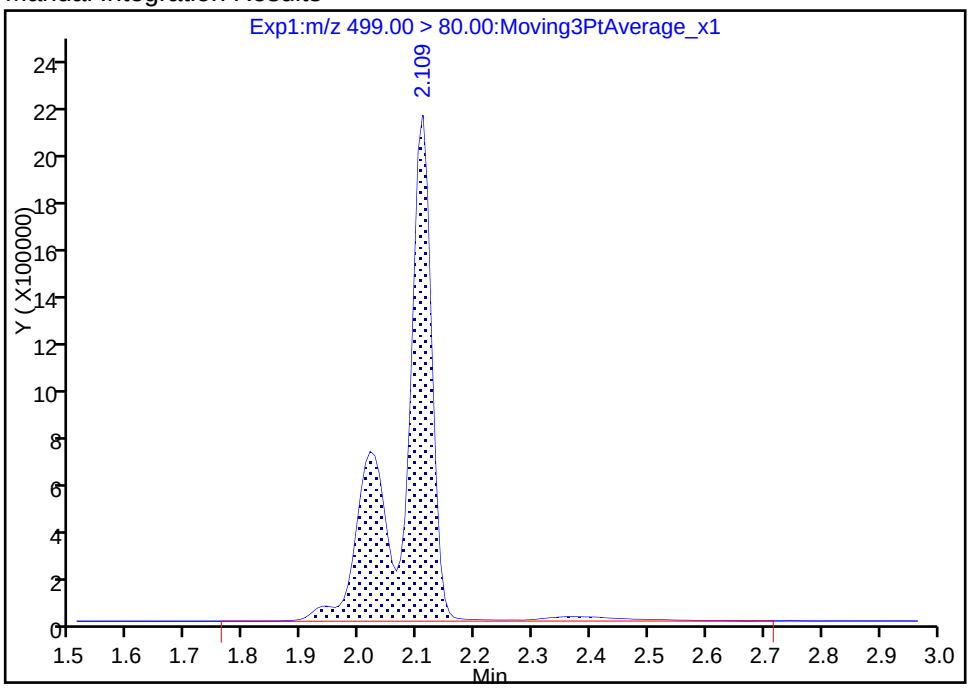
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 8030345
Amount: 40.836023
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:19:34
Audit Action: Assigned Compound ID Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

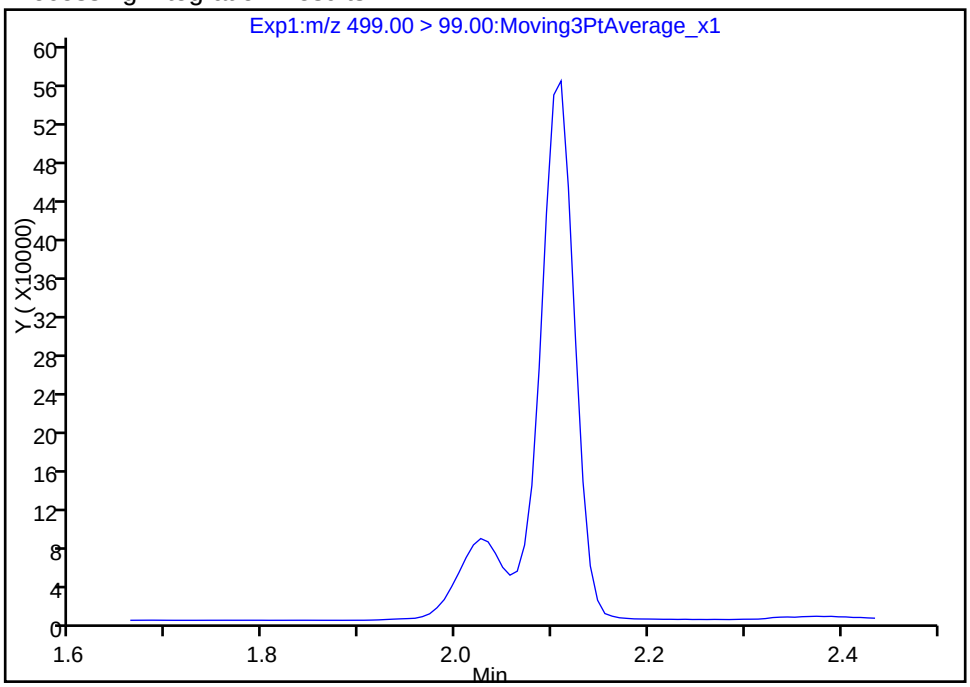
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_007.d
Injection Date: 31-Oct-2017 11:58:57 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

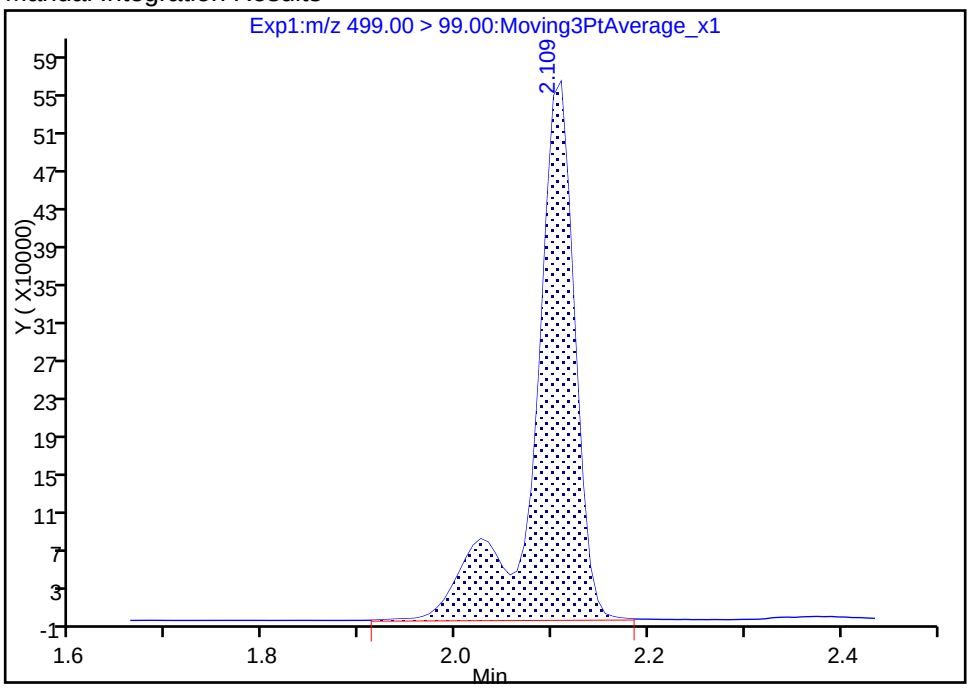
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 1667728
Amount: 40.836023
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:19:43
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

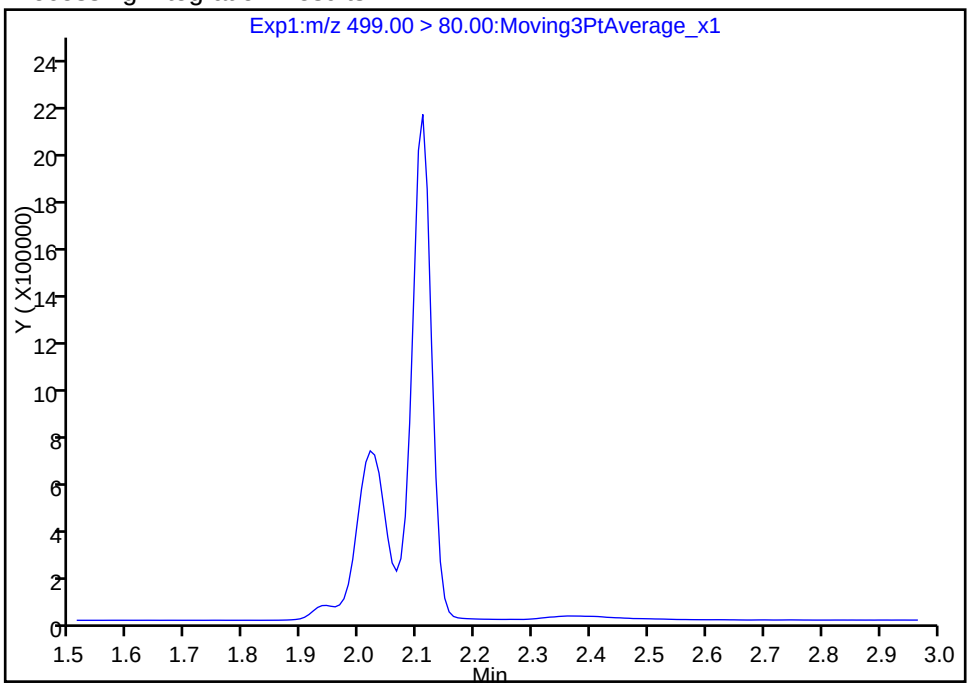
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_007.d
Injection Date: 31-Oct-2017 11:58:57 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

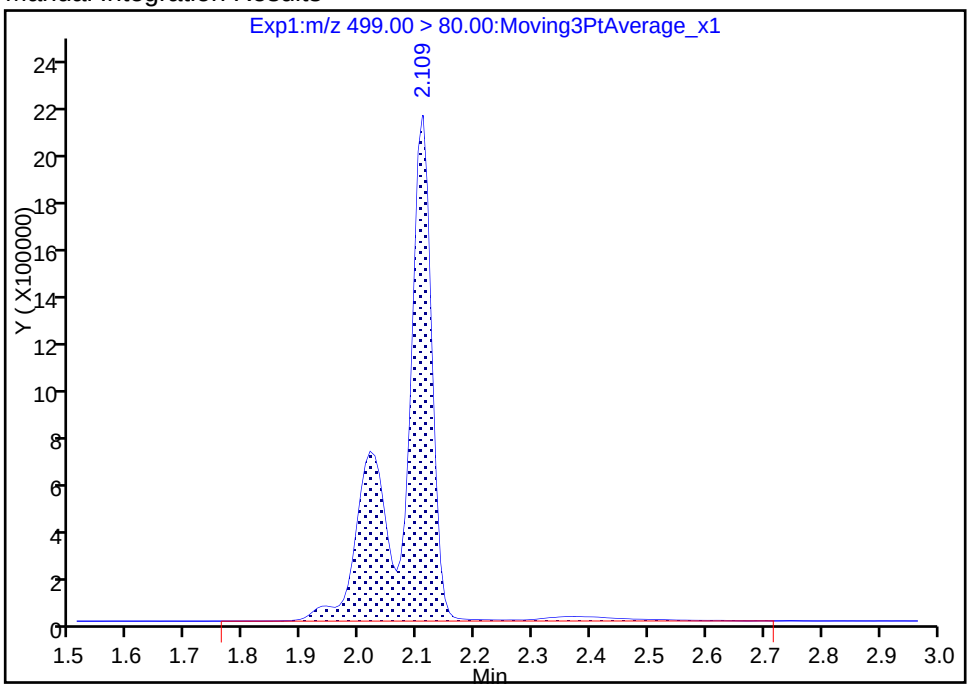
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 8030345
Amount: 40.836023
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:19:43
Audit Action: Manually Integrated Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_008.d
Lims ID: IC L5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 31-Oct-2017 12:03:42 ALS Bottle#: 5 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L5_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 15:26:06 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 31-Oct-2017 15:25:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.405	-0.001	1.000	21956734	133.3		2615	
298.90 > 99.00	1.404	1.405	-0.001	1.000	17051539		1.29(0.00-0.00)	3328	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.528	-0.003	1.000	3014571	10.1		3152	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	3670615	14.7		668	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.678	-0.001	1.000	14494918	43.8		4061	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.863	-0.004		2646287	10.0		2621	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.864	-0.005	1.000	7356038	29.9		245	
413.00 > 169.00	1.859	1.864	-0.005	1.000	3978749		1.85(0.00-0.00)	284	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.107	-0.005		5827765	28.7		4187	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.109	-0.007	1.000	11617530	61.6		3284	M
499.00 > 99.00	2.102	2.109	-0.007	1.000	2399643		4.84(0.00-0.00)	1360	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.116	-0.007	1.000	5107150	29.6		883	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2177702	10.2		5529	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 31-Oct-2017 15:26:06 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_008.d

Injection Date: 31-Oct-2017 12:03:42 Instrument ID: A8_N

Lims ID: IC L5

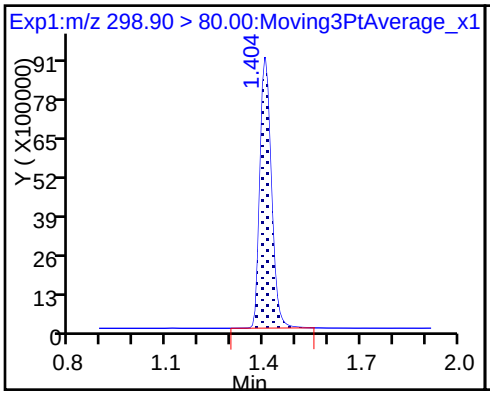
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 8

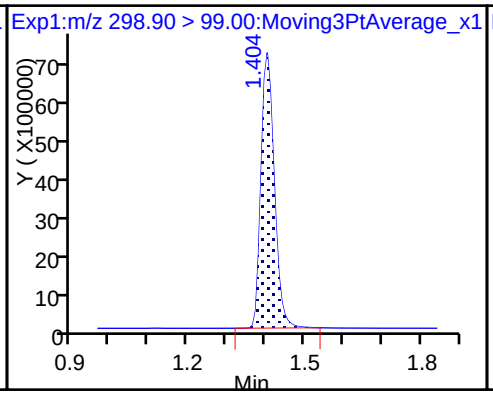
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

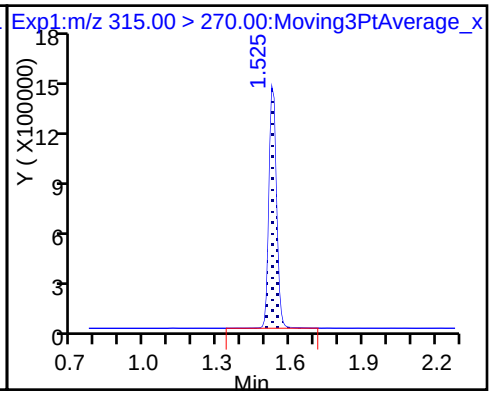
1 Perfluorobutanesulfonic acid



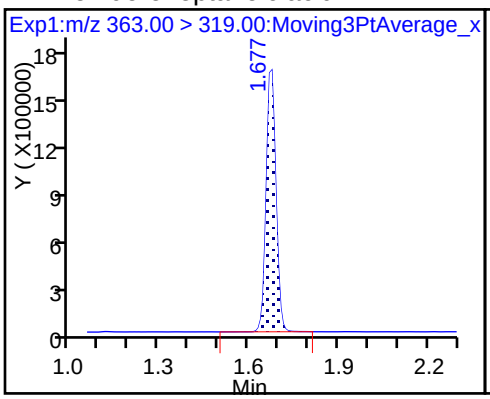
1 Perfluorobutanesulfonic acid



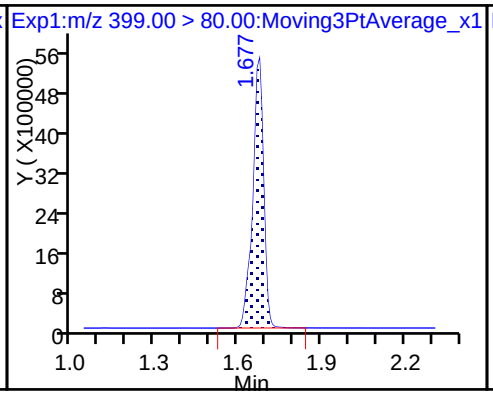
$ 2 13C2 PFHxA



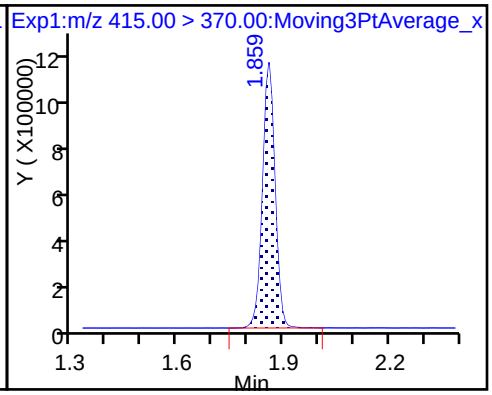
4 Perfluoroheptanoic acid



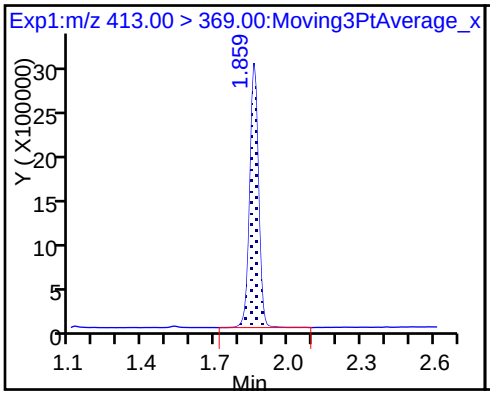
3 Perfluorohexanesulfonic acid



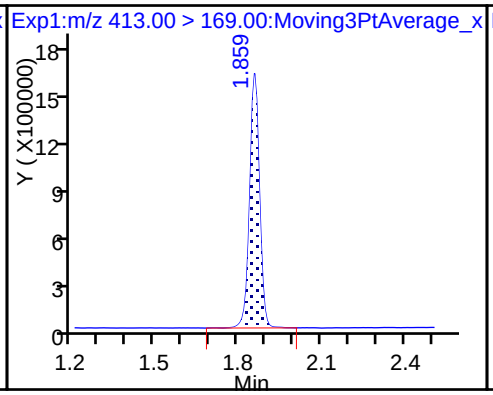
* 6 13C2-PFOA



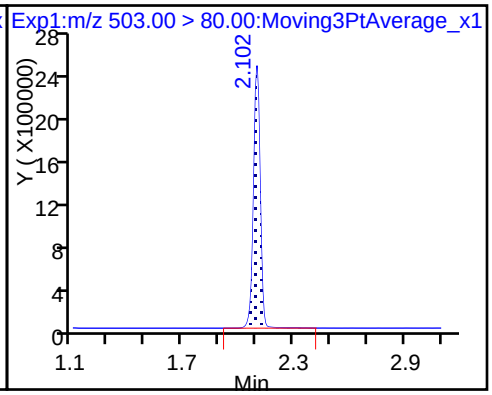
5 Perfluorooctanoic acid



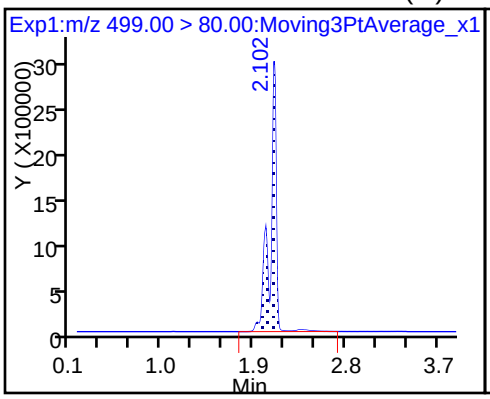
5 Perfluorooctanoic acid



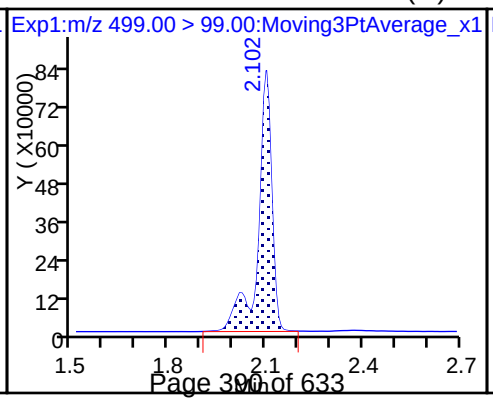
* 7 13C4 PFOS



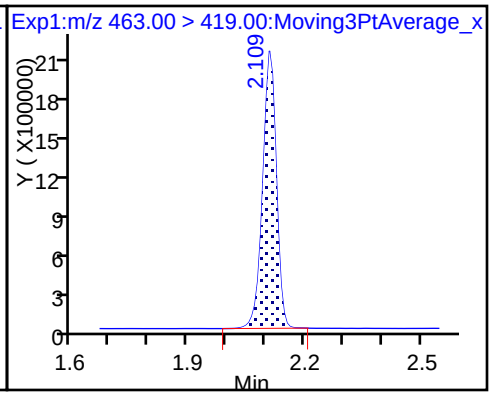
8 Perfluorooctane sulfonic acid (M)



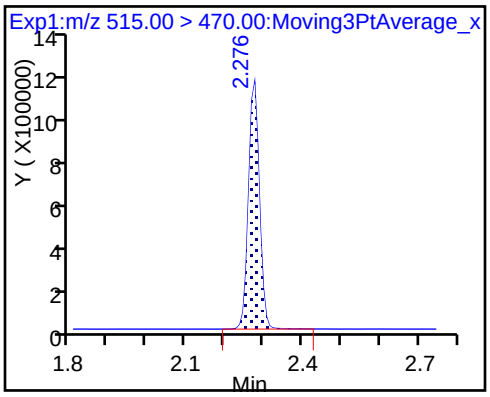
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
14
12
10
8
6
4
2
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

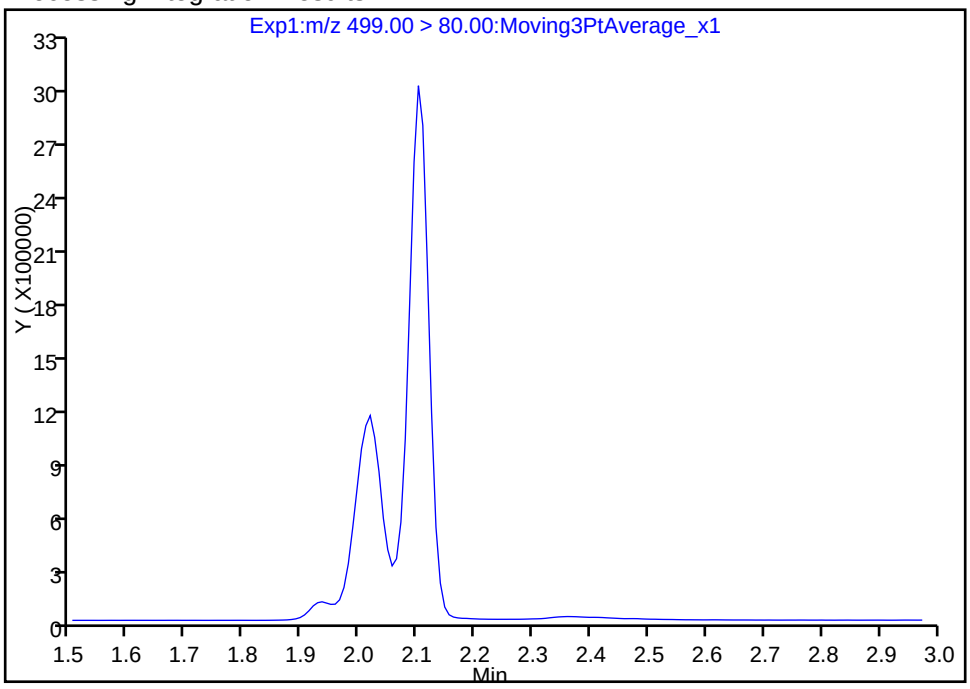
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_008.d
Injection Date: 31-Oct-2017 12:03:42 Instrument ID: A8_N
Lims ID: IC L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

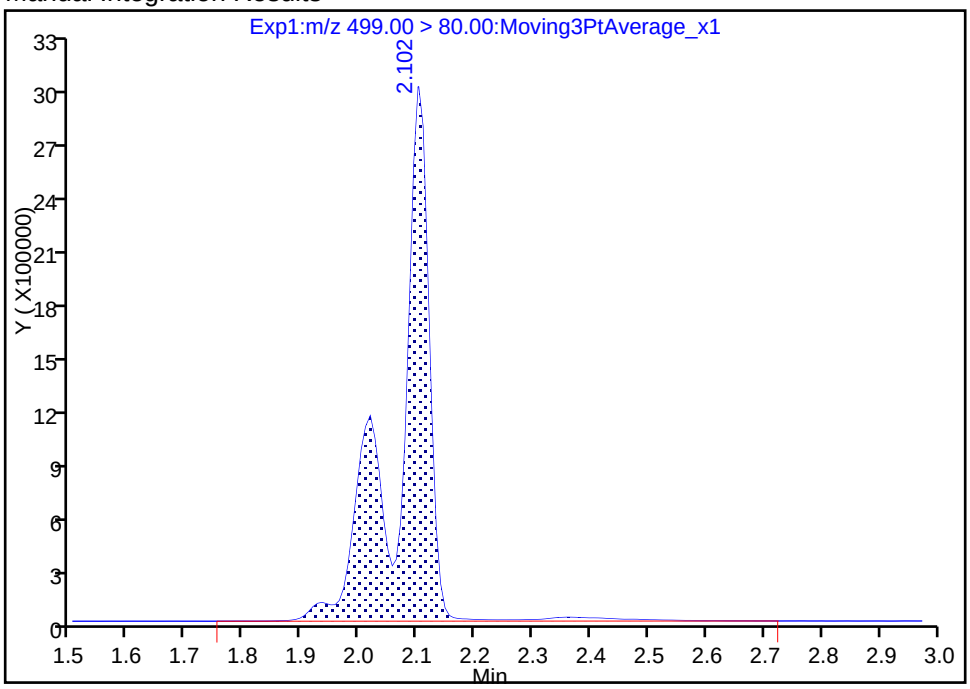
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 11617530
Amount: 61.590940
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:20:08
Audit Action: Assigned Compound ID Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

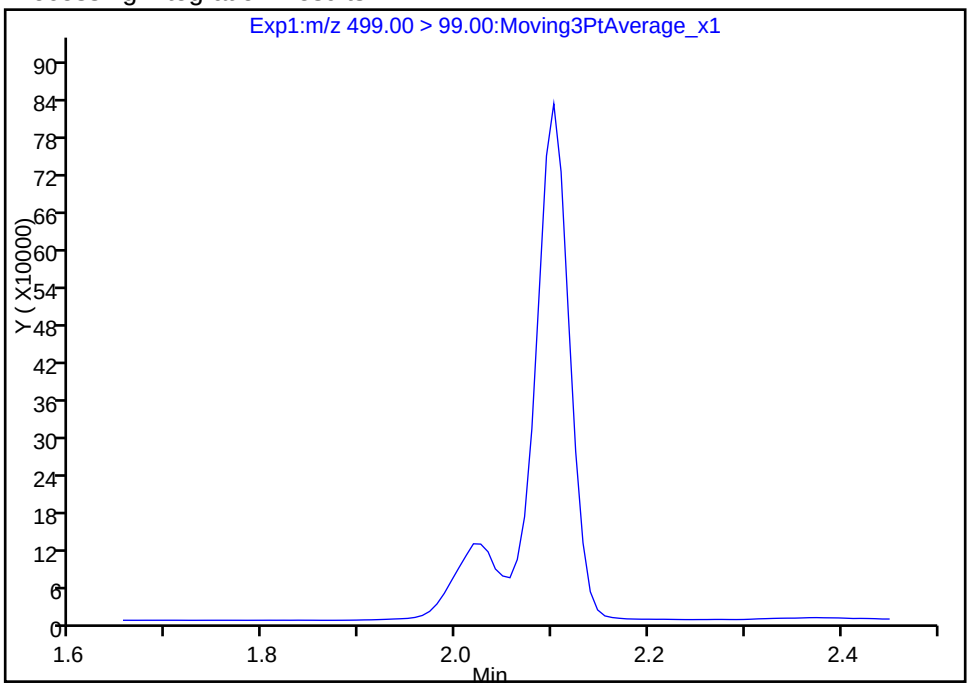
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_008.d
Injection Date: 31-Oct-2017 12:03:42 Instrument ID: A8_N
Lims ID: IC L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

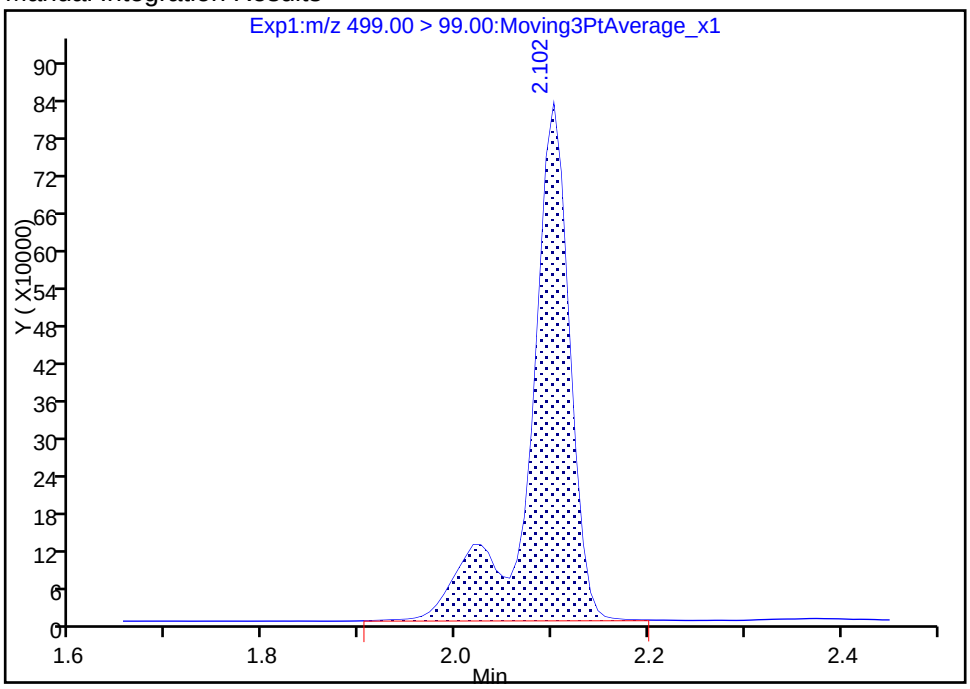
Processing Integration Results

Not Detected
Expected RT: 2.11



Manual Integration Results

RT: 2.10
Area: 2399643
Amount: 61.590940
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:20:16
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

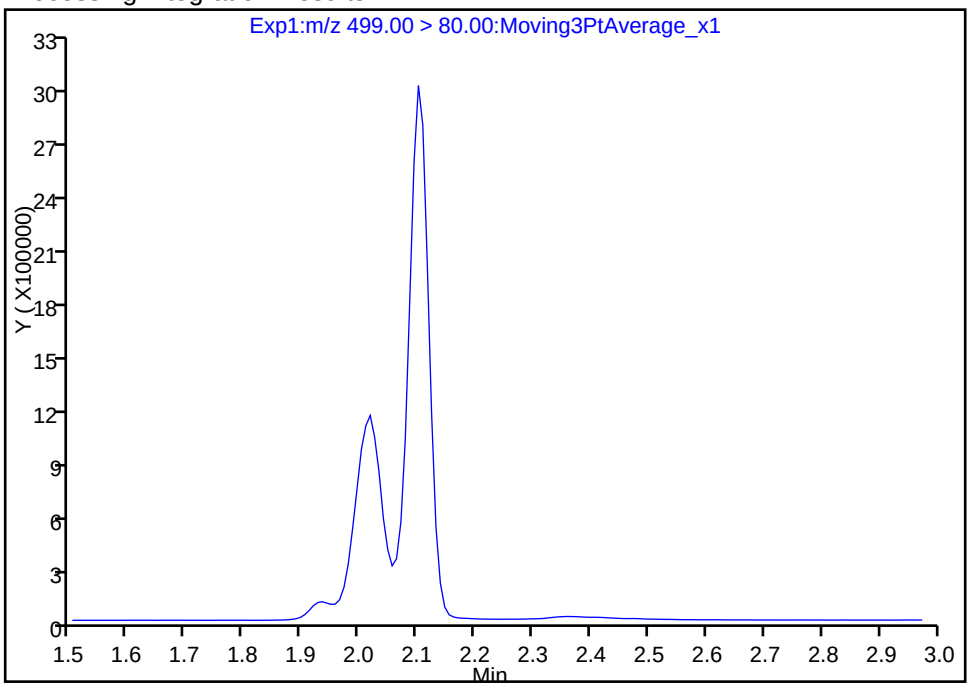
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_008.d
Injection Date: 31-Oct-2017 12:03:42 Instrument ID: A8_N
Lims ID: IC L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

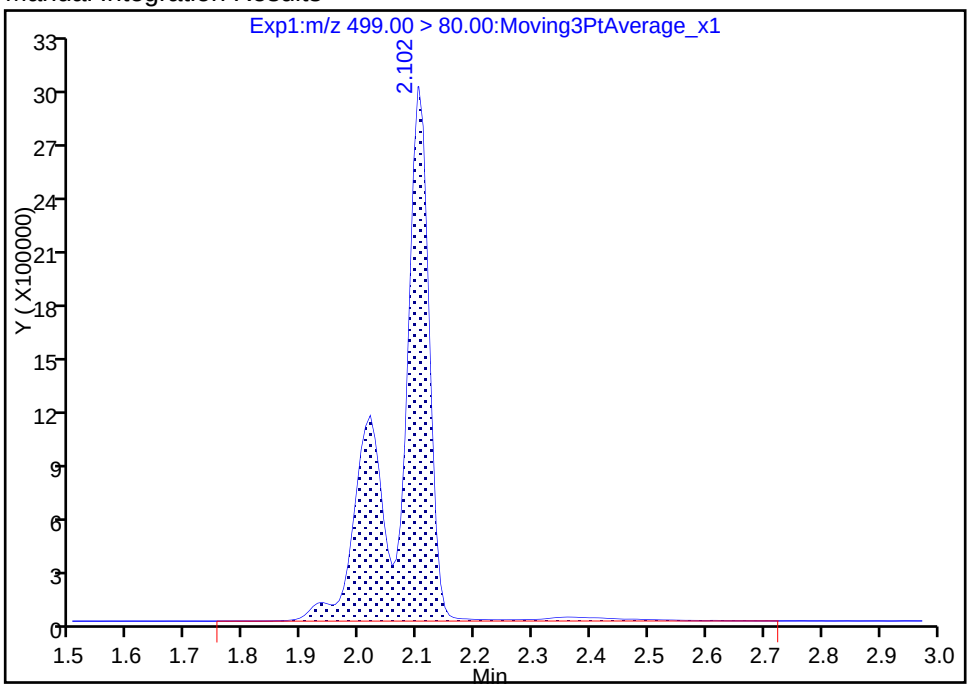
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 11617530
Amount: 61.590940
Amount Units: ng/ml



Reviewer: phomsophat, 31-Oct-2017 13:20:16
Audit Action: Manually Integrated Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d
Lims ID: IC L6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 31-Oct-2017 12:08:27 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: L6_537
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 15:26:07 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: phomsophat Date: 31-Oct-2017 13:22:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.411	1.405	0.006	1.000	27165476	181.8		2852	
298.90 > 99.00	1.411	1.405	0.006	1.000	20927026		1.30(0.00-0.00)	3478	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.528	0.005	1.000	3112456	10.3		3699	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	5107421	20.2		924	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.678	0.006	1.000	19137035	56.3		4304	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.863	0.003		2688817	10.0		2801	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.864	0.002	1.000	10031020	40.1		364	
413.00 > 169.00	1.866	1.864	0.002	1.000	5458522		1.84(0.00-0.00)	401	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.107	0.002		5986294	28.7		4032	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.109	2.109	0.0	1.000	15763683	81.4		1273	
499.00 > 99.00	2.109	2.109	0.0	1.000	3417607		4.61(0.00-0.00)	1767	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	7198655	41.0		1257	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.277	0.007	1.000	2306925	10.6		5660	

Reagents:

LC537-L6_00020 Amount Added: 1.00 Units: mL

Report Date: 31-Oct-2017 15:26:07 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Injection Date: 31-Oct-2017 12:08:27 Instrument ID: A8_N

Lims ID: IC L6

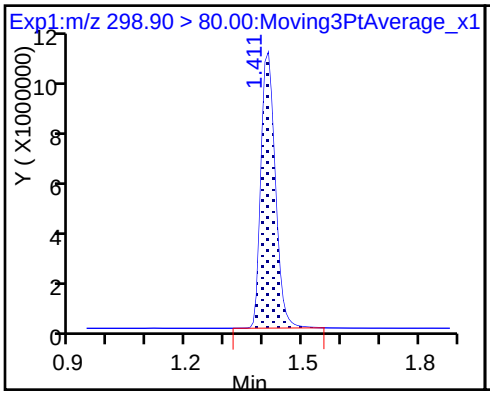
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9

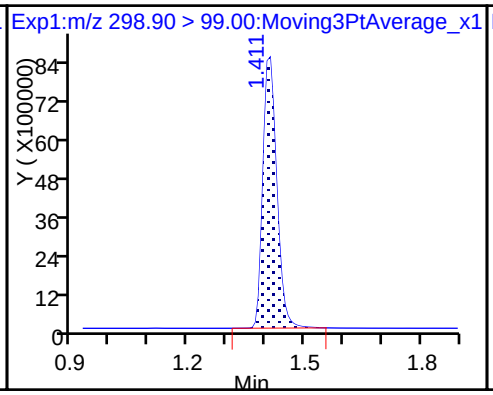
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

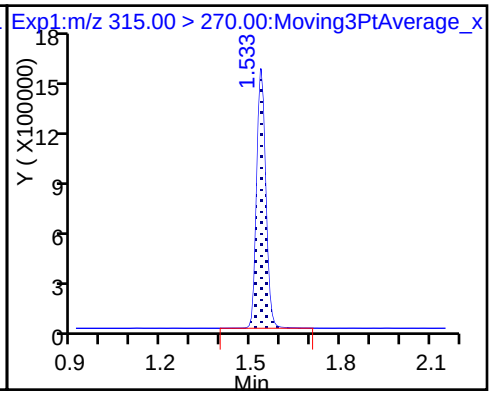
1 Perfluorobutanesulfonic acid



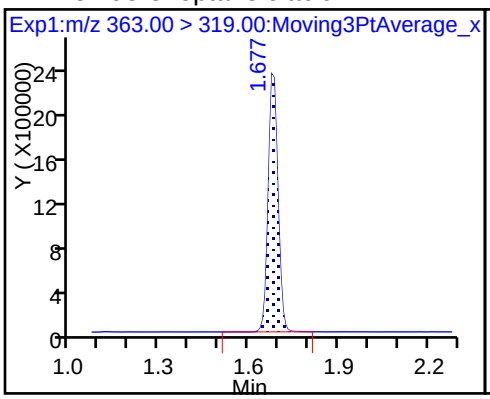
1 Perfluorobutanesulfonic acid



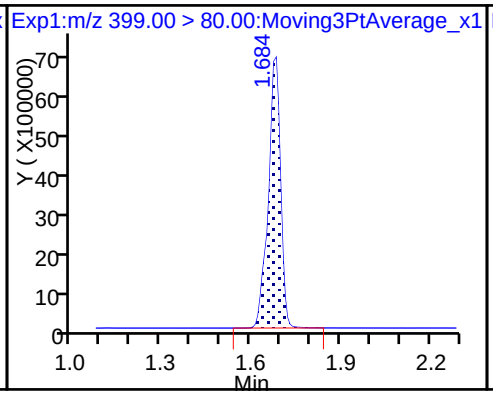
$ 2 13C2 PFHxA



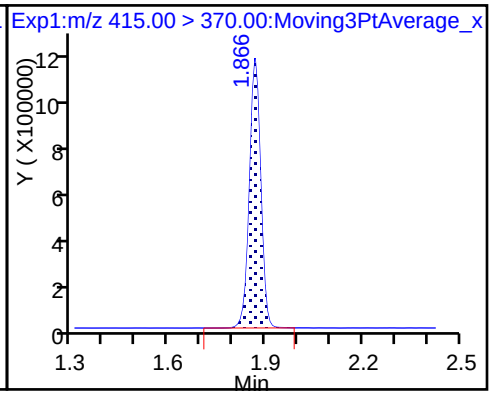
4 Perfluoroheptanoic acid



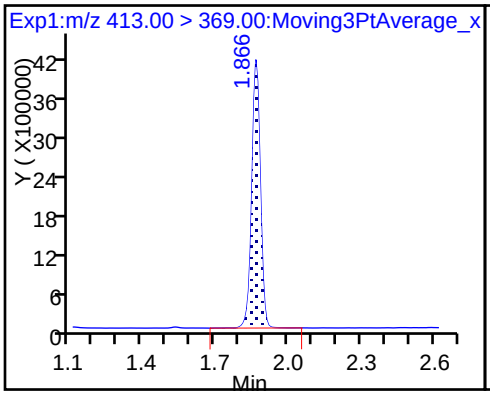
3 Perfluorohexanesulfonic acid



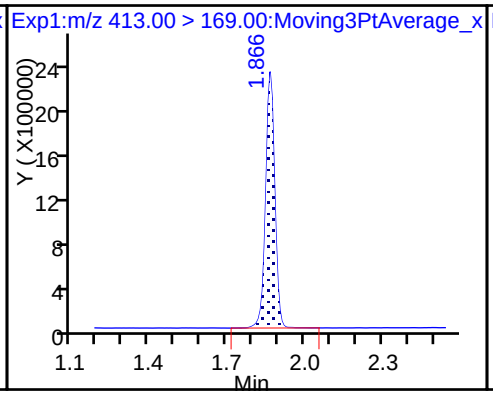
* 6 13C2-PFOA



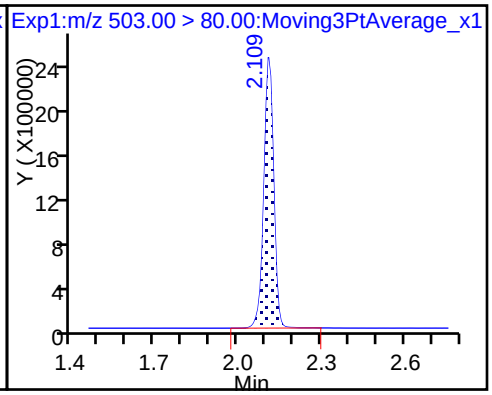
5 Perfluorooctanoic acid



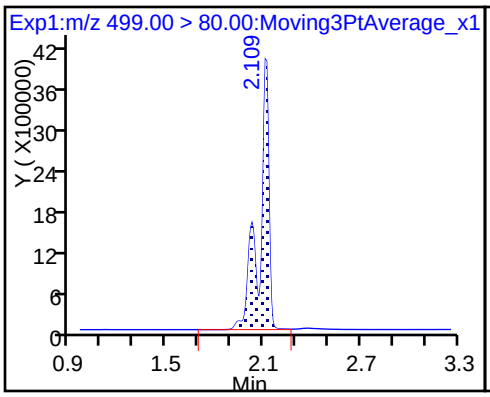
5 Perfluorooctanoic acid



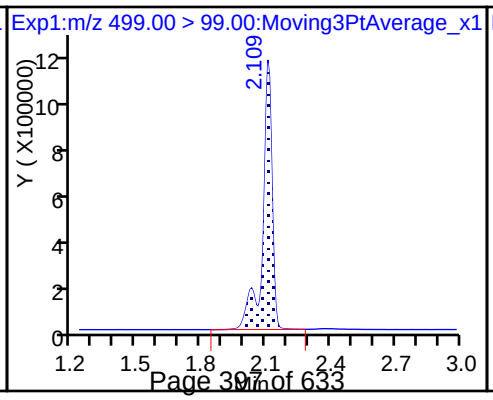
* 7 13C4 PFOS



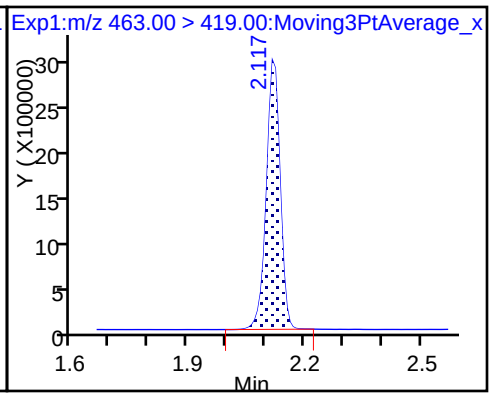
8 Perfluorooctane sulfonic acid



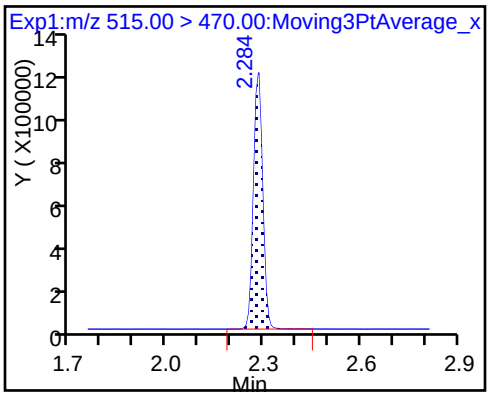
8 Perfluorooctane sulfonic acid



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X100000)
14
12
10
8
6
4
2
0
1.7
2.0
2.3
2.6
2.9
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCVL 320-185329/11 Calibration Date: 09/20/2017 03:29

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.09.19_537ICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.235		21.3	20.0	6.5	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9779		2.31	2.22	3.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.762		7.17	6.67	7.6	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9059		4.38	4.45	-1.5	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9490		9.06	8.89	1.9	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6352		4.54	4.45	2.2	50.0
13C2 PFHxA	Ave	1.172	1.139		9.72	10.0	-2.8	30.0
13C2 PFDA	Ave	0.5578	0.5694		10.2	10.0	2.1	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_011.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 20-Sep-2017 03:29:17 ALS Bottle#: 2 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L2
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 20-Sep-2017 10:35:36 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK008

First Level Reviewer: barnettj Date: 20-Sep-2017 10:10:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.396	1.402	-0.006	1.000	4928523	21.3		8745	
298.90 > 99.00	1.396	1.402	-0.006	1.000	3609505		1.37(0.00-0.00)	6187	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.517	1.524	-0.007	1.000	2565324	9.72		10005	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.662	1.668	-0.006	1.000	2344621	7.17		4423	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.662	1.668	-0.006	1.000	489617	2.31		144	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.855	-0.004		2252465	10.0		8774	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.851	1.856	-0.005	1.000	907626	4.38		34.8	
413.00 > 169.00	1.851	1.856	-0.005	1.000	489379		1.85(0.00-0.00)	2088	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.108	-0.006		5723538	28.7		6648	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.109	-0.007	1.000	1683920	9.06		2776	M
499.00 > 99.00	2.102	2.109	-0.007	1.000	342465		4.92(0.00-0.00)	388	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.116	-0.007	1.000	636035	4.54		88.8	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.282	-0.006	1.000	1282617	10.2		10770	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00020 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2017 10:35:36 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_011.d

Injection Date: 20-Sep-2017 03:29:17 Instrument ID: A8_N

Lims ID: CCVL

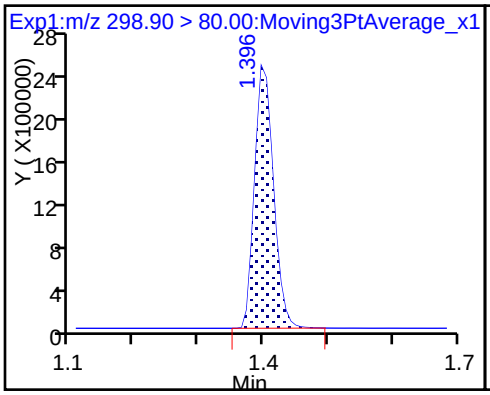
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11

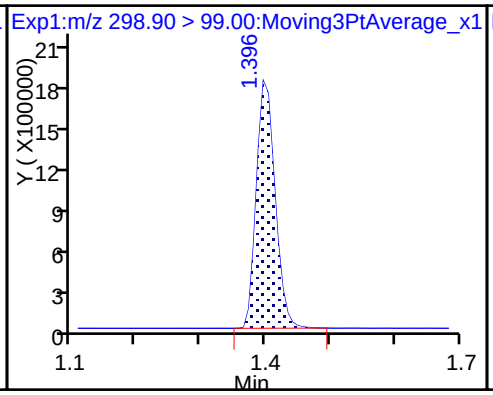
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

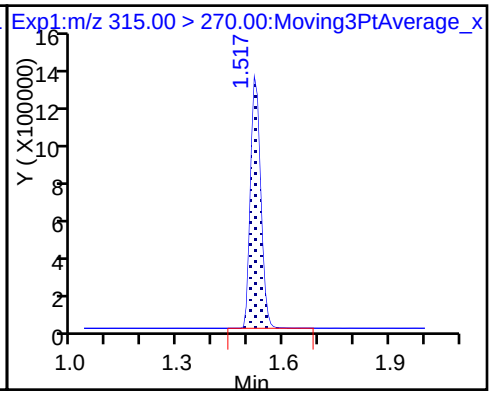
1 Perfluorobutanesulfonic acid



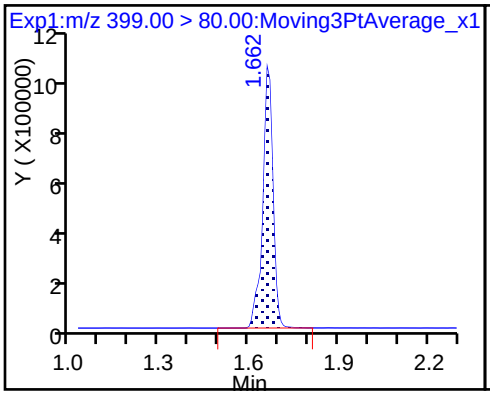
1 Perfluorobutanesulfonic acid



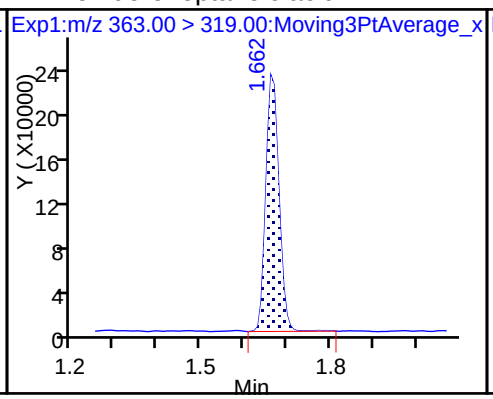
$ 2 13C2 PFHxA



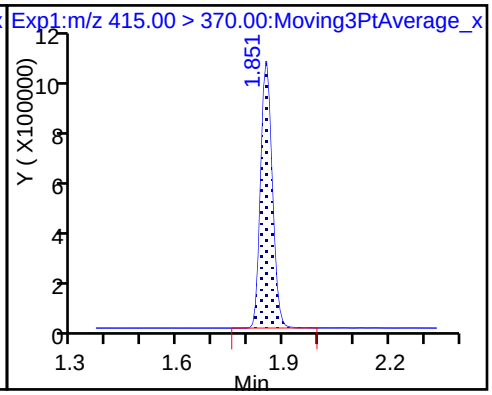
3 Perfluorohexanesulfonic acid



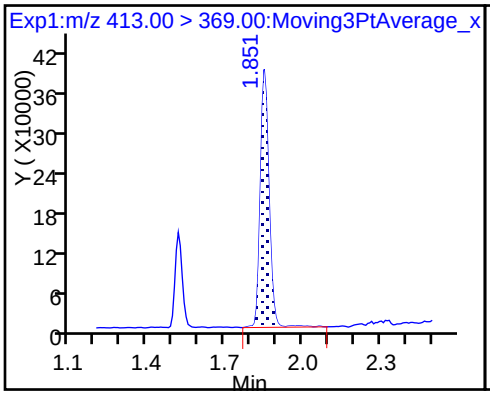
4 Perfluoroheptanoic acid



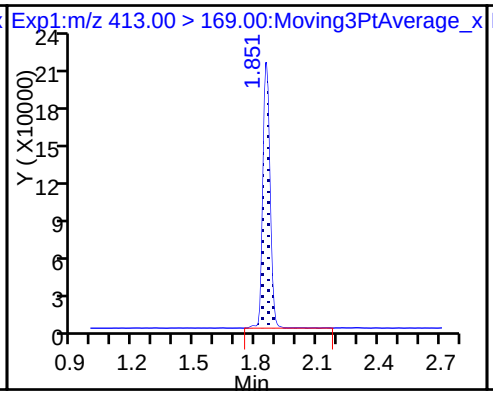
* 6 13C2-PFOA



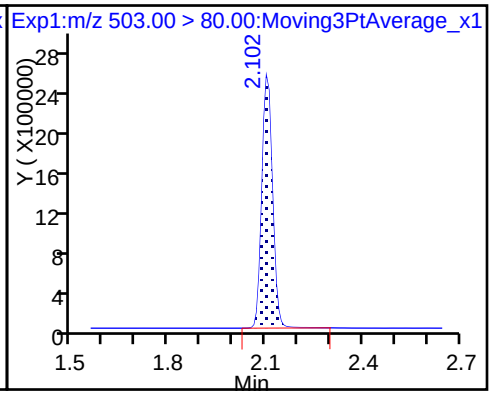
5 Perfluorooctanoic acid



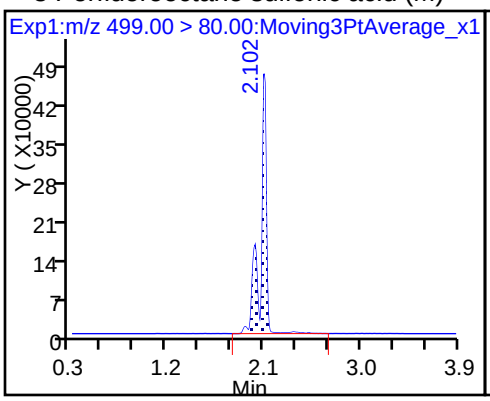
5 Perfluorooctanoic acid



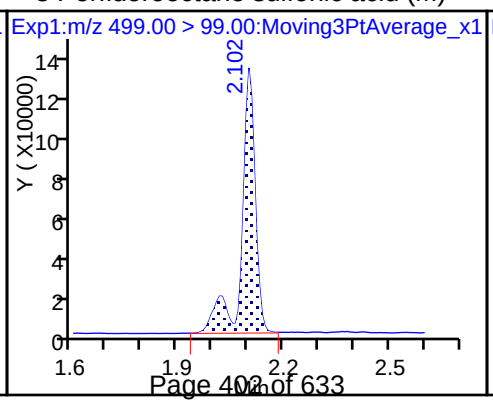
* 7 13C4 PFOS



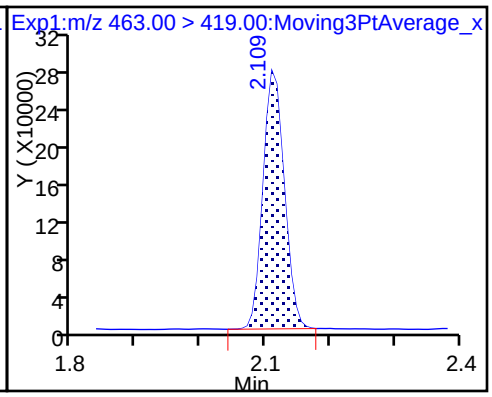
8 Perfluorooctane sulfonic acid (M)



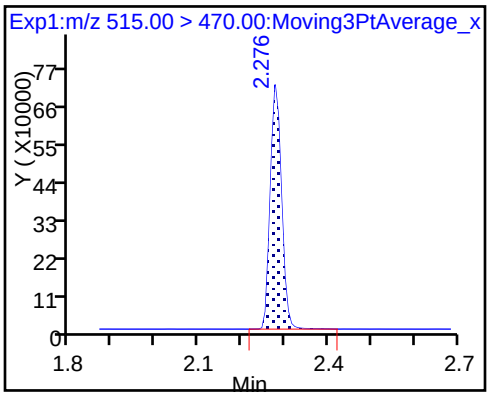
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
77
66
55
44
33
22
11
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

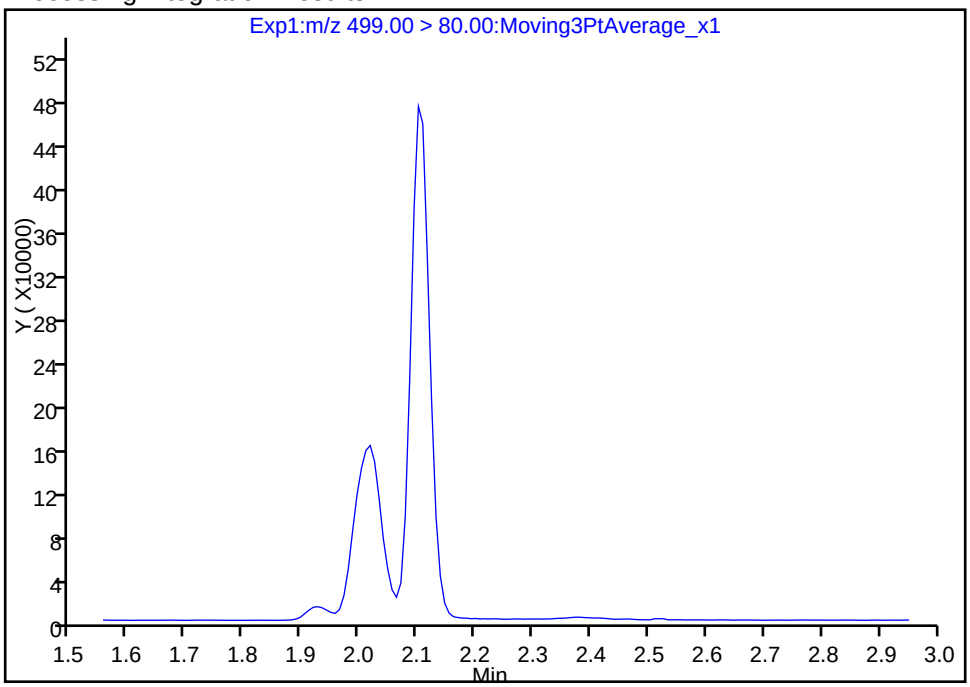
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_011.d
Injection Date: 20-Sep-2017 03:29:17 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

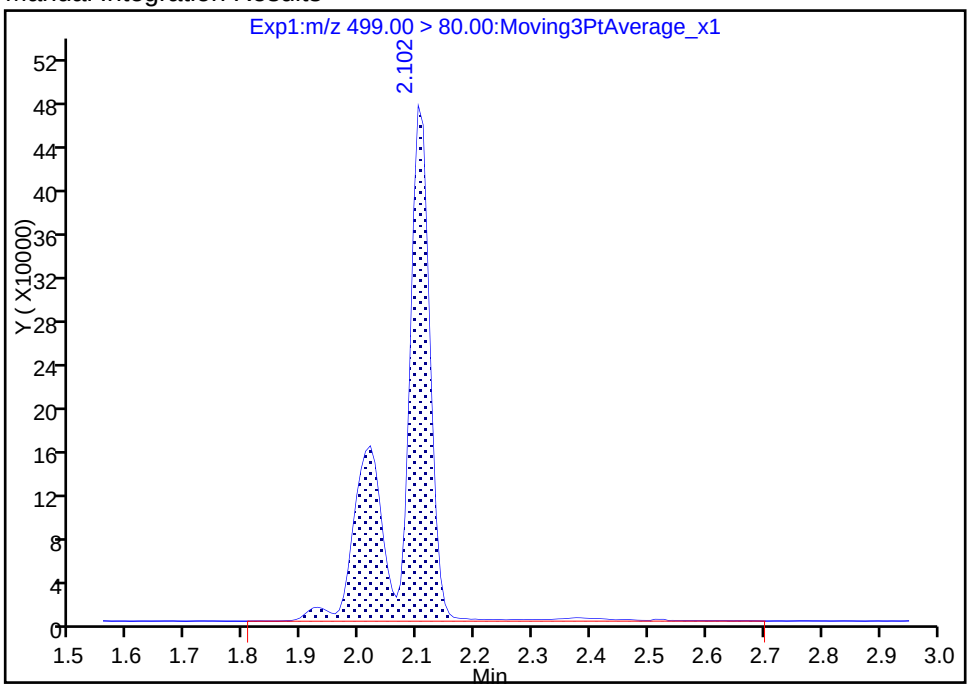
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 1683920
Amount: 9.056489
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:10:03
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

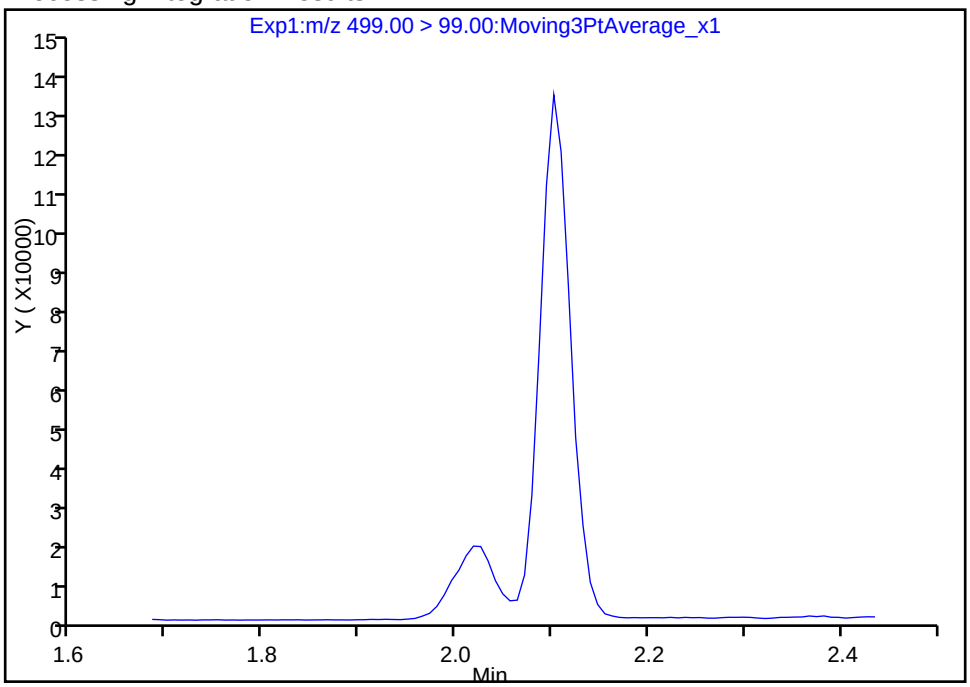
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_011.d
Injection Date: 20-Sep-2017 03:29:17 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

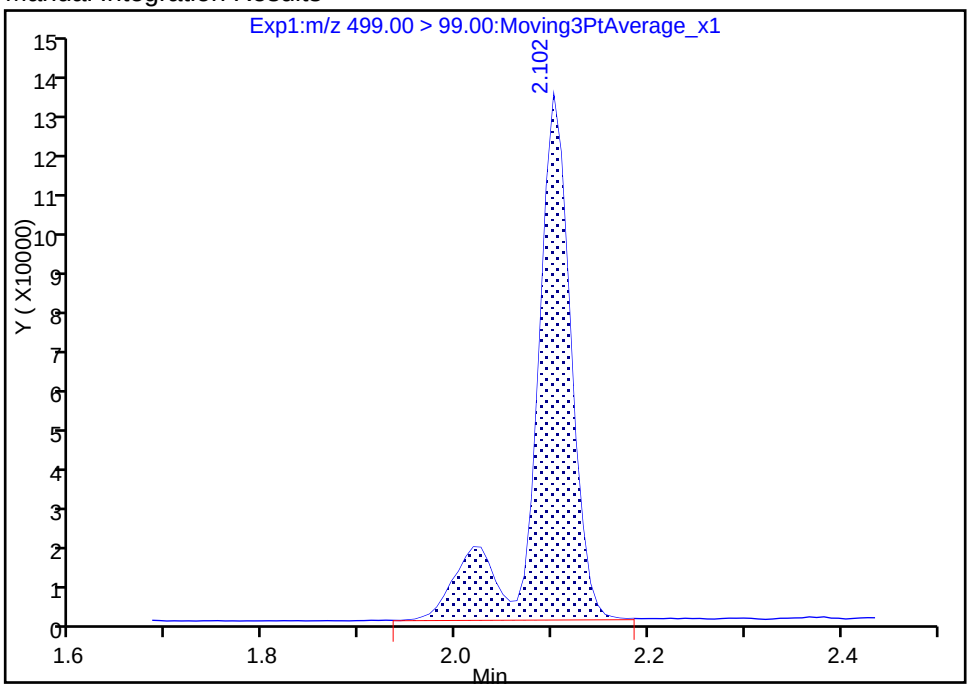
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 342465
Amount: 9.056489
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:10:20
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

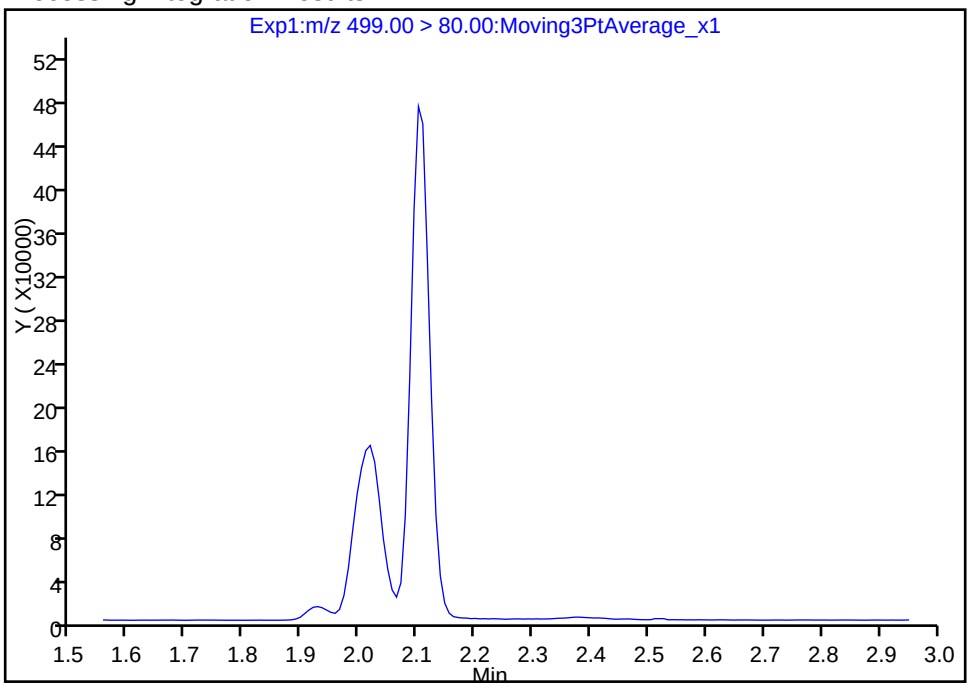
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_011.d
Injection Date: 20-Sep-2017 03:29:17 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

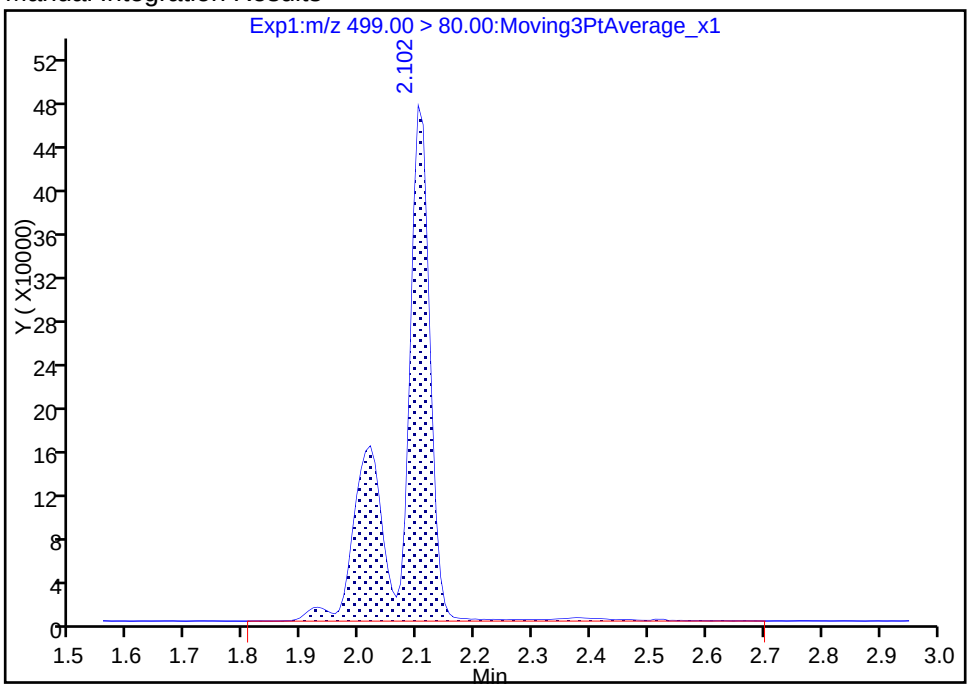
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 1683920
Amount: 9.056489
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:10:20
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: ICV 320-185329/13 Calibration Date: 09/20/2017 03:38

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.09.19_537ICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9069		92.5	100	-7.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9703		10.3	10.0	3.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.860		22.8	20.1	13.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9535		21.2	20.5	3.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	1.134		24.0	19.7	21.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.7173		23.2	20.1	15.3	30.0
13C2 PFHxA	Ave	1.172	1.165		9.94	10.0	-0.6	30.0
13C2 PFDA	Ave	0.5578	0.5781		10.4	10.0	3.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_013.d
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 20-Sep-2017 03:38:46 ALS Bottle#: 7 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: ICV
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 20-Sep-2017 10:35:38 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK008

First Level Reviewer: barnettj Date: 20-Sep-2017 10:35:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.402	0.002	1.000	23093305	92.5		5826	
298.90 > 99.00	1.404	1.402	0.002	1.000	17724893		1.30(0.00-0.00)	6513	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.524	0.001	1.000	3047368	9.94		9351	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.669	1.668	0.001	1.000	9496803	22.8		6818	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.669	1.668	0.001	1.000	2537716	10.3		696	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.855	-0.004		2616480	10.0		7926	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.851	1.856	-0.005	1.000	5110686	21.2		193	
413.00 > 169.00	1.851	1.856	-0.005	1.000	2741837		1.86(0.00-0.00)	6488	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.108	-0.006		7294448	28.7		6378	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	5683706	24.0		5285	M
499.00 > 99.00	2.102	2.109	-0.007	0.996	1038148		5.47(0.00-0.00)	913	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	3777210	23.2		739	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.282	-0.006	1.000	1512622	10.4		11751	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-ICV_00028 Amount Added: 1.00 Units: mL

Report Date: 20-Sep-2017 10:35:38 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_013.d

Injection Date: 20-Sep-2017 03:38:46 Instrument ID: A8_N

Lims ID: ICV

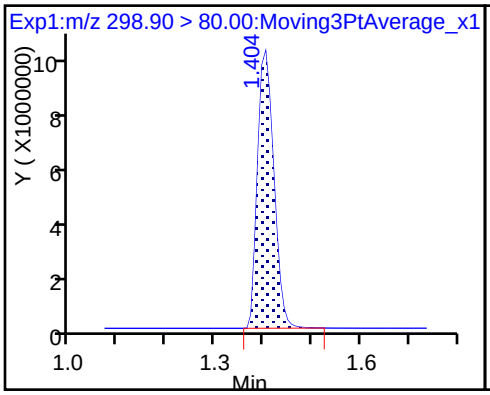
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 13

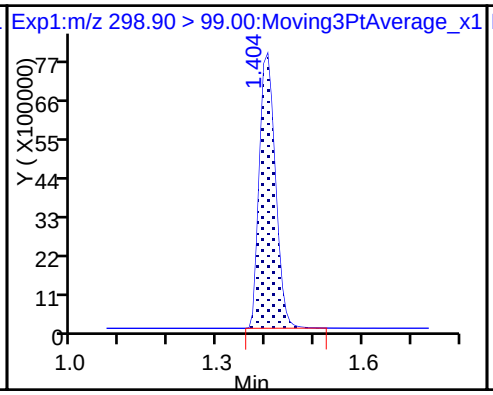
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

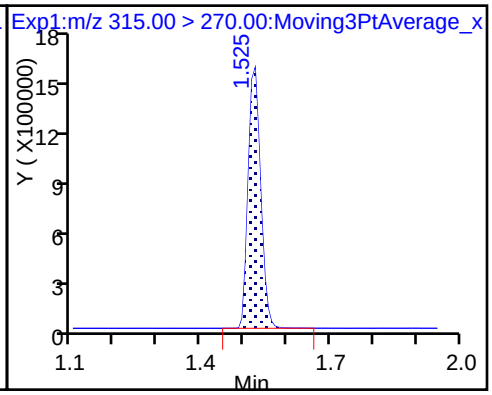
1 Perfluorobutanesulfonic acid



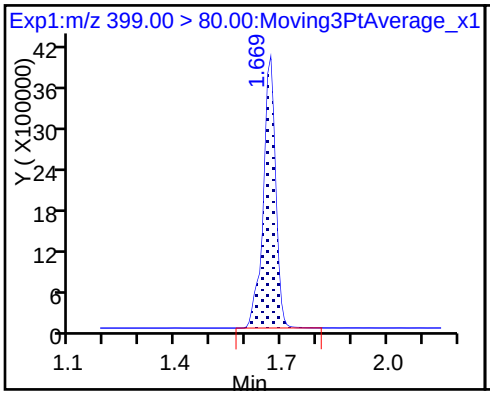
1 Perfluorobutanesulfonic acid



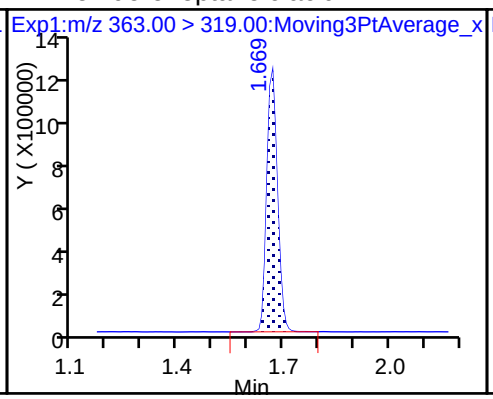
$ 2 13C2 PFHxA



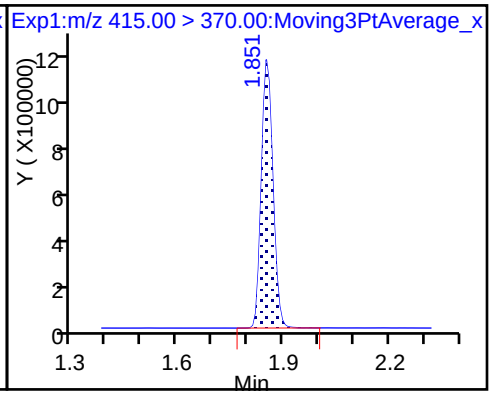
3 Perfluorohexanesulfonic acid



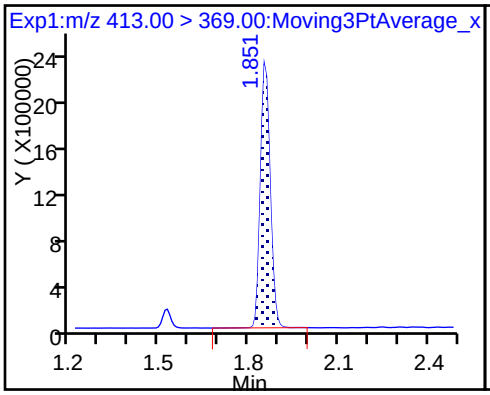
4 Perfluoroheptanoic acid



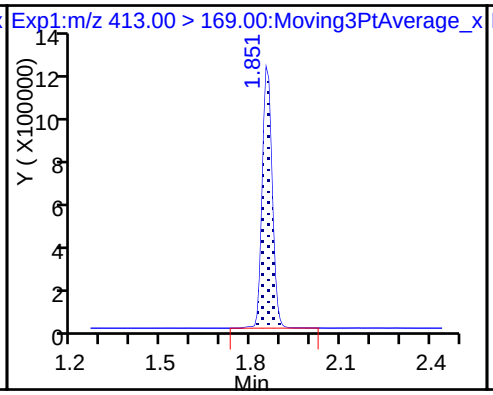
* 6 13C2-PFOA



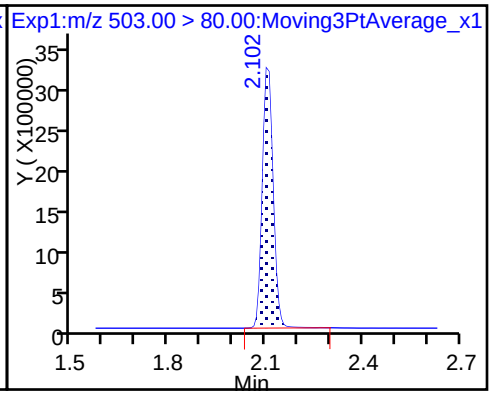
5 Perfluorooctanoic acid



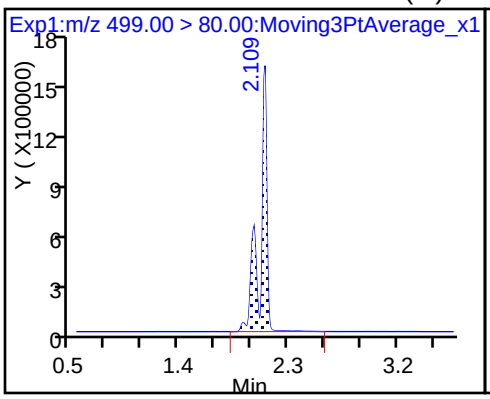
5 Perfluorooctanoic acid



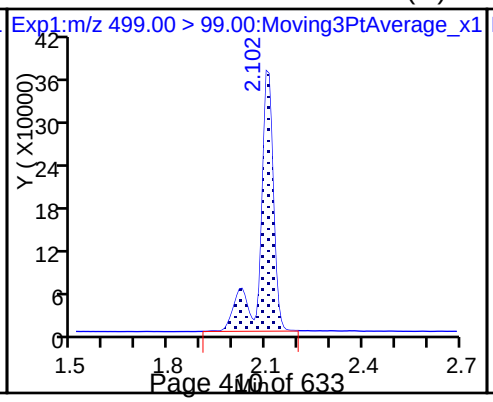
* 7 13C4 PFOS



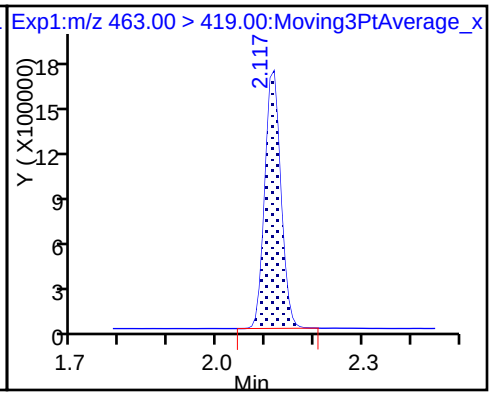
8 Perfluorooctane sulfonic acid (M)



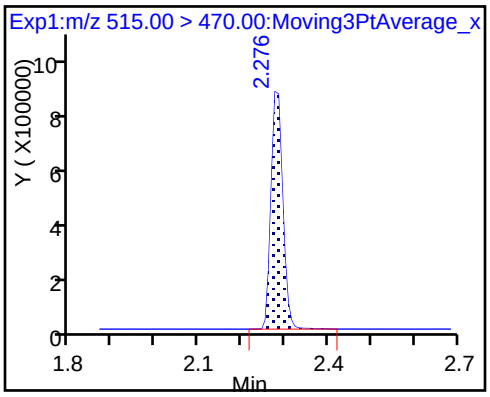
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
10
8
6
4
2
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

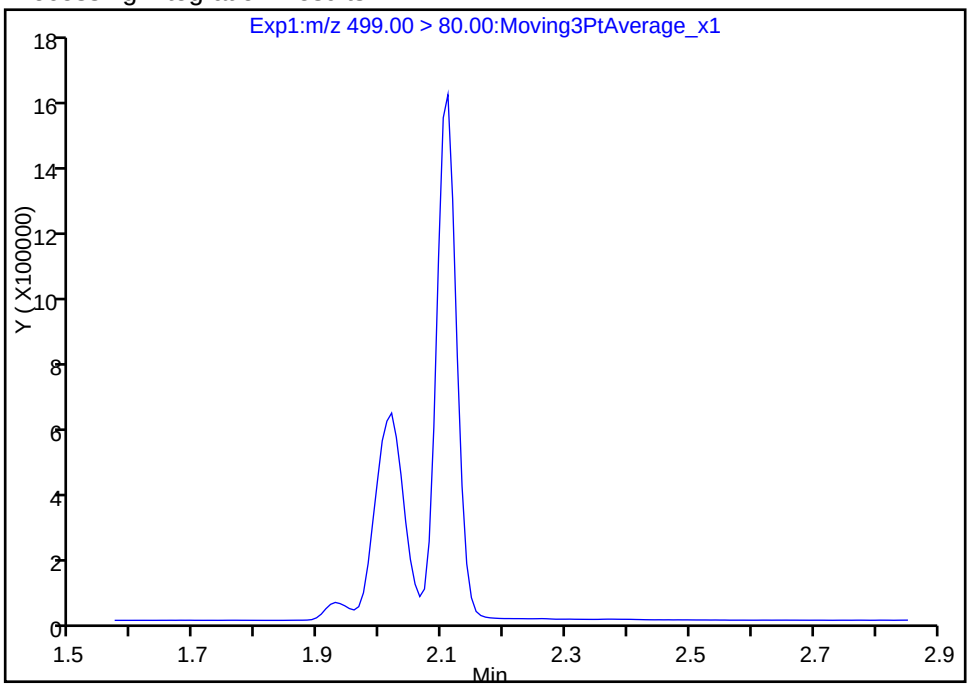
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_013.d
Injection Date: 20-Sep-2017 03:38:46 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

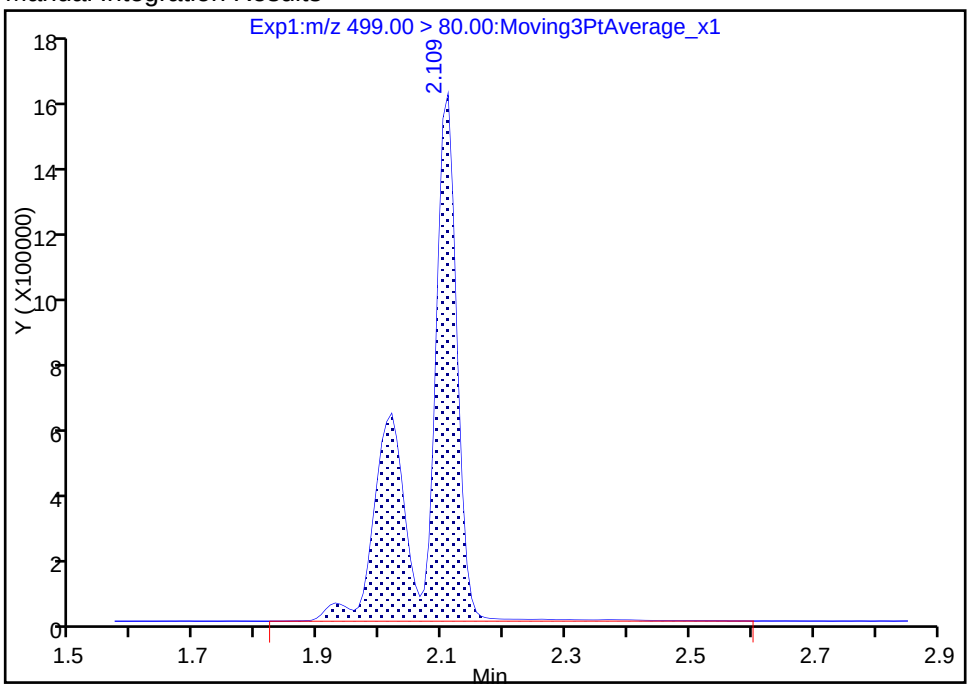
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 5683706
Amount: 23.985133
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:10:51
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

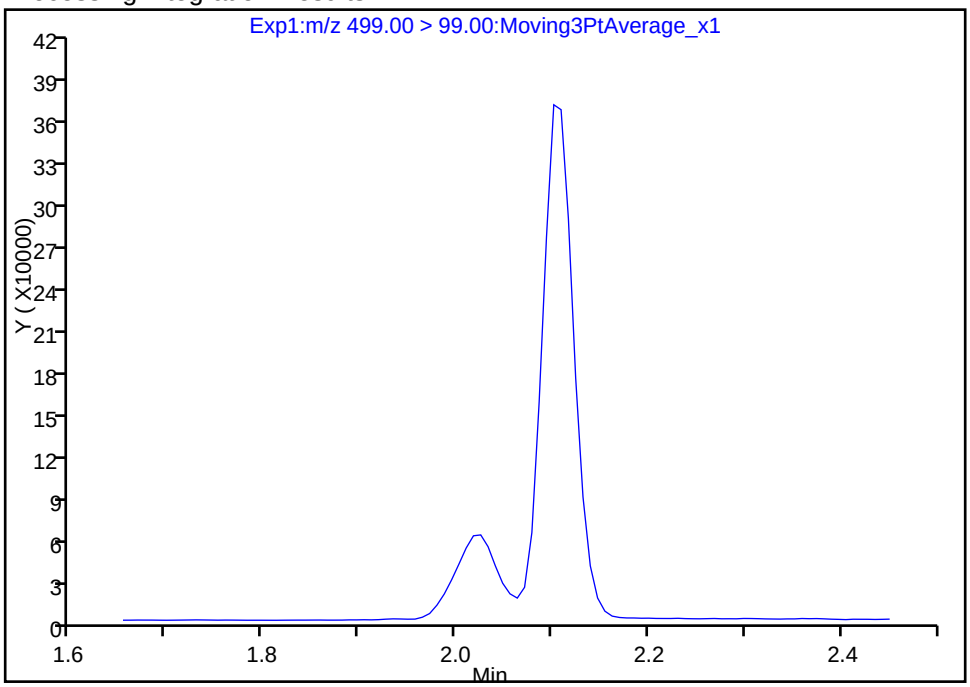
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_013.d
Injection Date: 20-Sep-2017 03:38:46 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

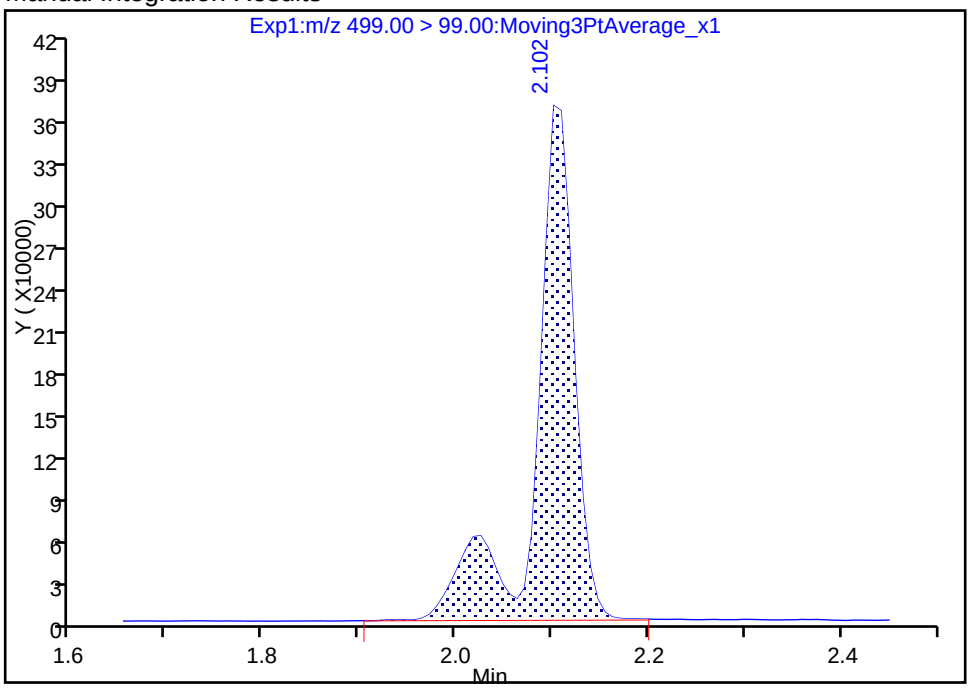
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 1038148
Amount: 23.985133
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:11:07
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

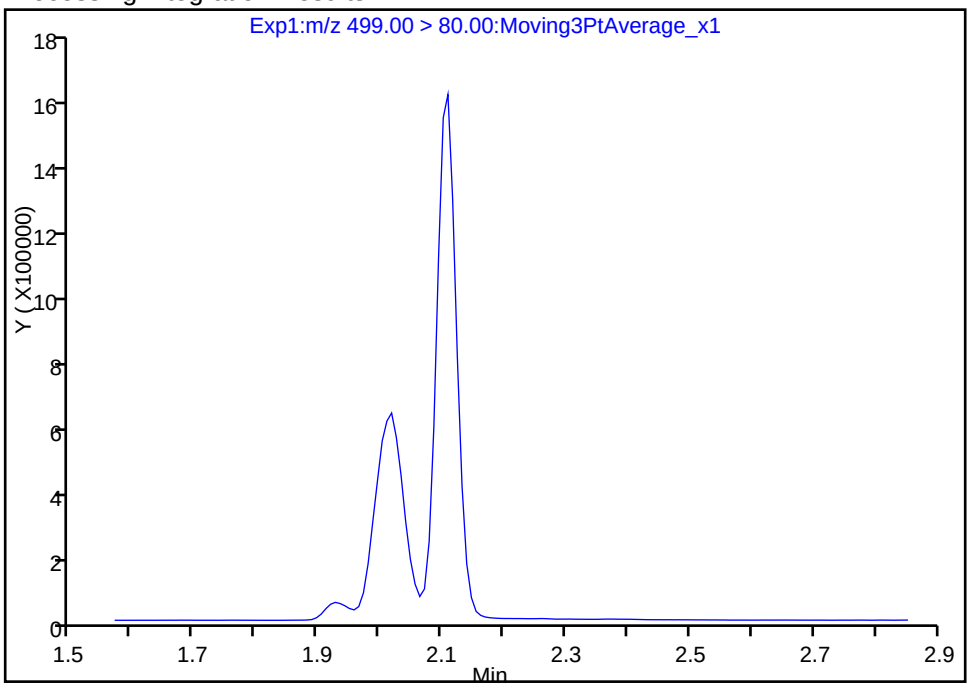
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_013.d
Injection Date: 20-Sep-2017 03:38:46 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

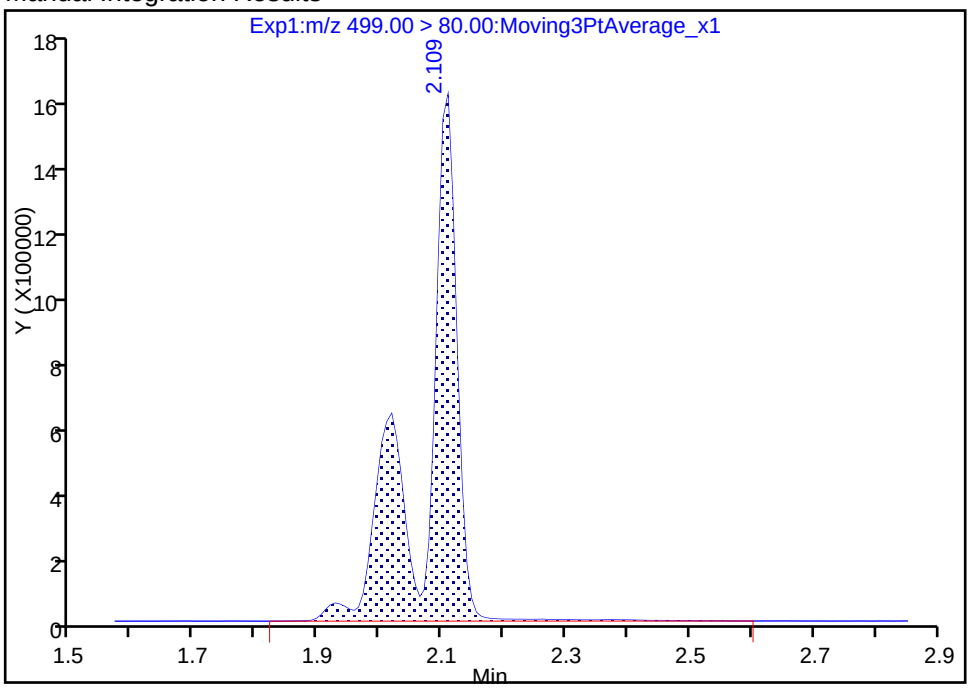
Processing Integration Results

Not Detected
Expected RT: 2.11



Manual Integration Results

RT: 2.11
Area: 5683706
Amount: 23.985133
Amount Units: ng/ml



Reviewer: barnettj, 20-Sep-2017 10:11:07
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCVL 320-190437/4 Calibration Date: 10/20/2017 17:49

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.204		20.7	20.0	3.7	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9757		2.30	2.22	3.6	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.732		7.05	6.67	5.7	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.8825		4.27	4.45	-4.0	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.8839		8.44	8.89	-5.1	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.5891		4.21	4.45	-5.3	50.0
13C2 PFHxA	Ave	1.172	1.198		10.2	10.0	2.3	30.0
13C2 PFDA	Ave	0.5578	0.5295		9.49	10.0	-5.1	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_004.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 20-Oct-2017 17:49:29 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L2
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:31:56 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 09:48:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	5070957	20.7		4777	
298.90 > 99.00	1.419	1.402	0.017	1.000	3633713		1.40(0.00-0.00)	3821	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2508619	10.2		5691	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	2433028	7.05		2476	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	454065	2.30		82.8	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.855	0.034		2093728	10.0		5031	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.889	1.856	0.033	1.000	821870	4.27		20.4	
413.00 > 169.00	1.889	1.856	0.033	1.000	451090		1.82(0.00-0.00)	1105	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		6041408	28.7		6161	
9 Perfluorononanoic acid									
463.00 > 419.00	2.140	2.116	0.024	1.000	548282	4.21		60.2	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.132	2.124	0.008	1.000	1655520	8.44		294	M
499.00 > 99.00	2.132	2.124	0.008	1.000	343625		4.82(0.00-0.00)	163	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1108549	9.49		4499	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00020 Amount Added: 1.00 Units: mL

Report Date: 23-Oct-2017 10:31:59 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_004.d

Injection Date: 20-Oct-2017 17:49:29 Instrument ID: A8_N

Lims ID: CCVL

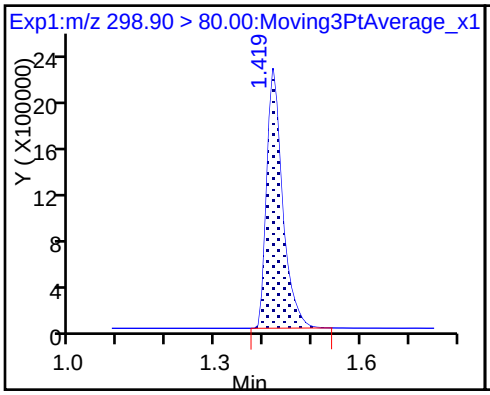
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4

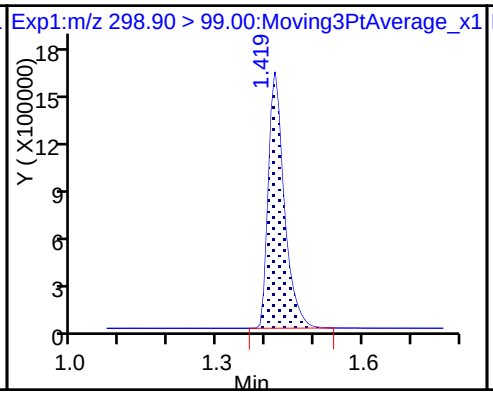
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

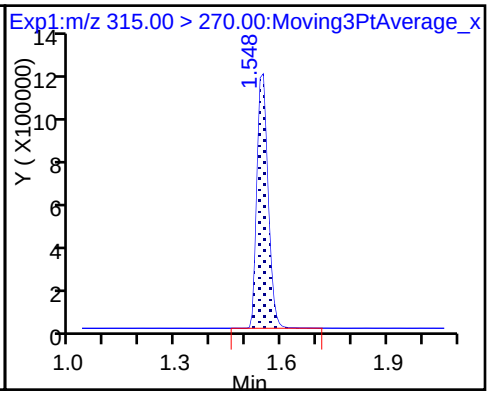
1 Perfluorobutanesulfonic acid



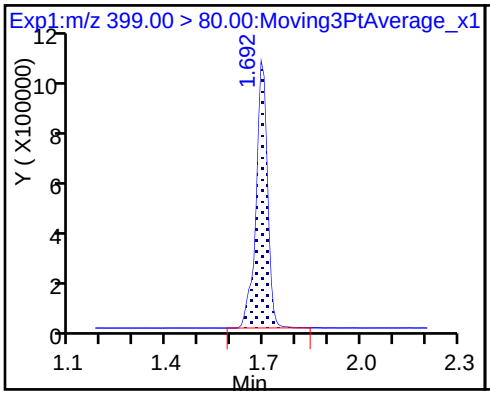
1 Perfluorobutanesulfonic acid



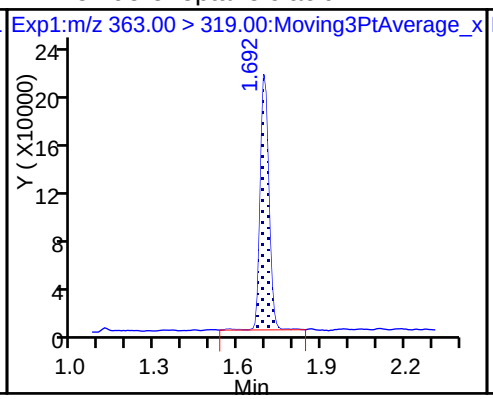
$ 2 13C2 PFHxA



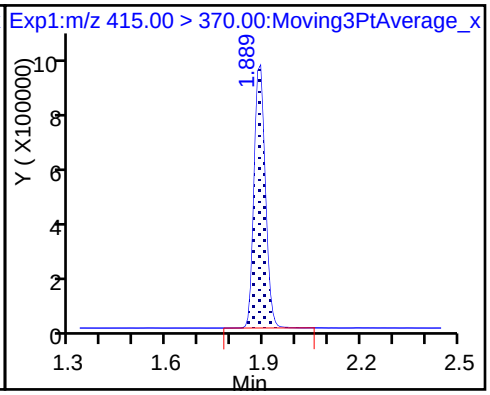
3 Perfluorohexanesulfonic acid



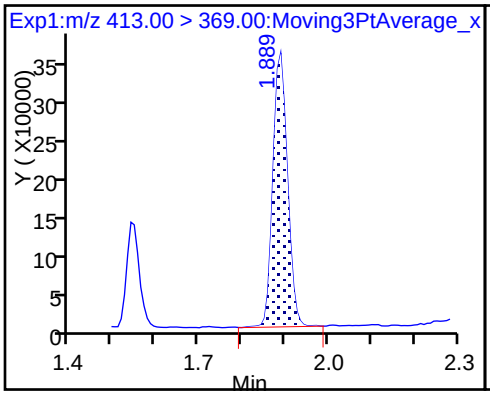
4 Perfluoroheptanoic acid



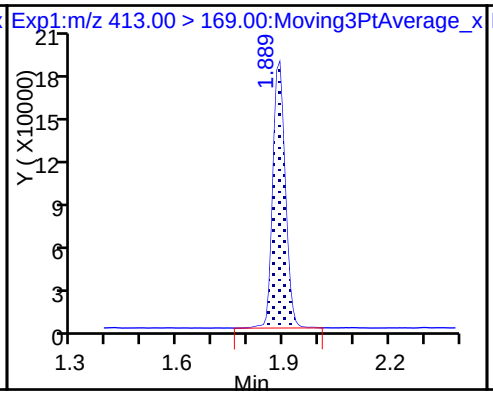
* 6 13C2-PFOA



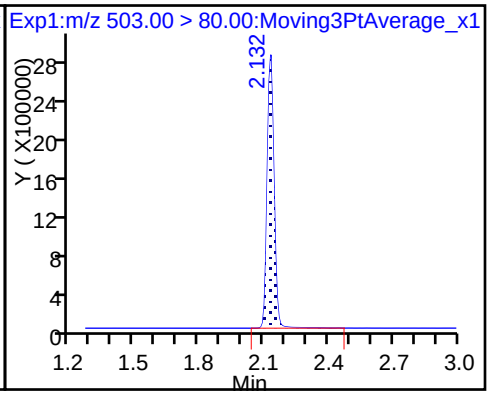
5 Perfluorooctanoic acid



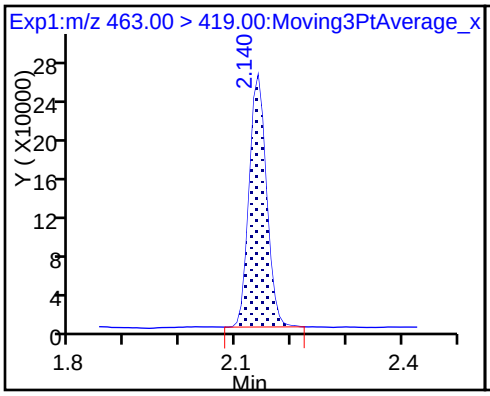
5 Perfluorooctanoic acid



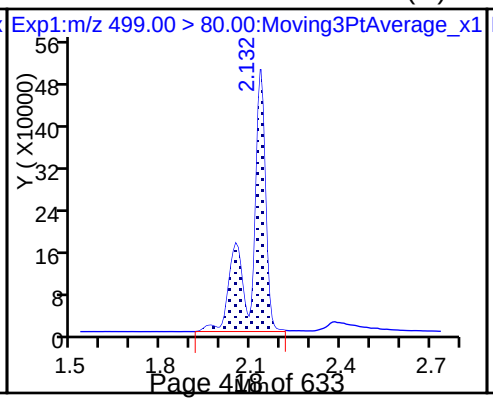
* 7 13C4 PFOS



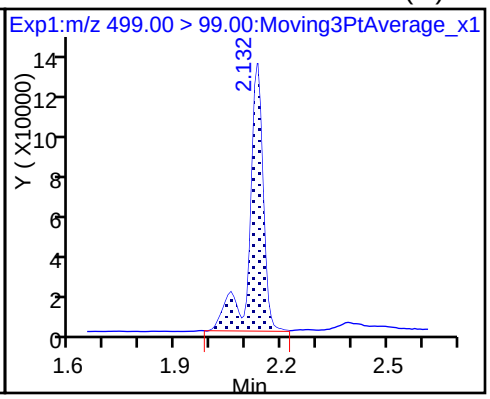
9 Perfluorononanoic acid



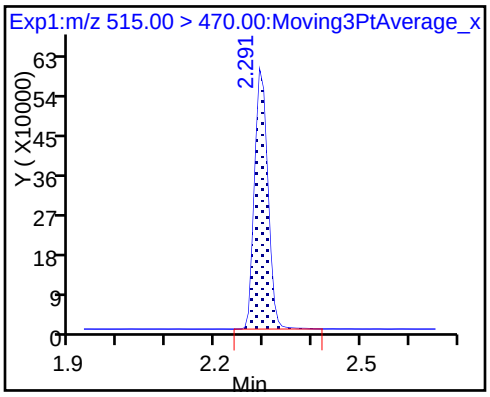
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.9
2.2
2.5
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

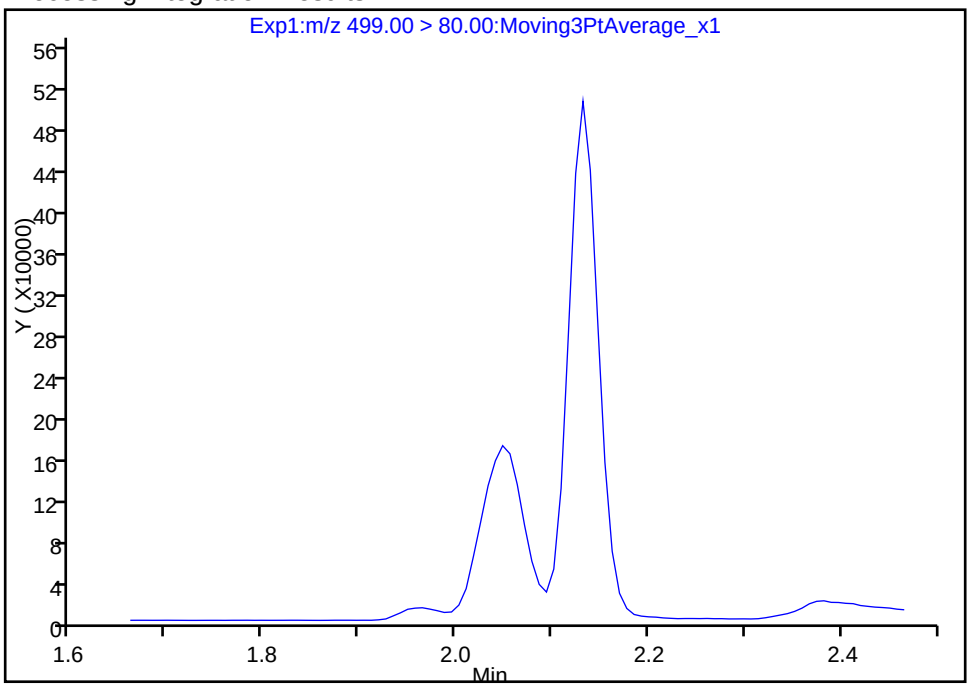
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_004.d
Injection Date: 20-Oct-2017 17:49:29 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

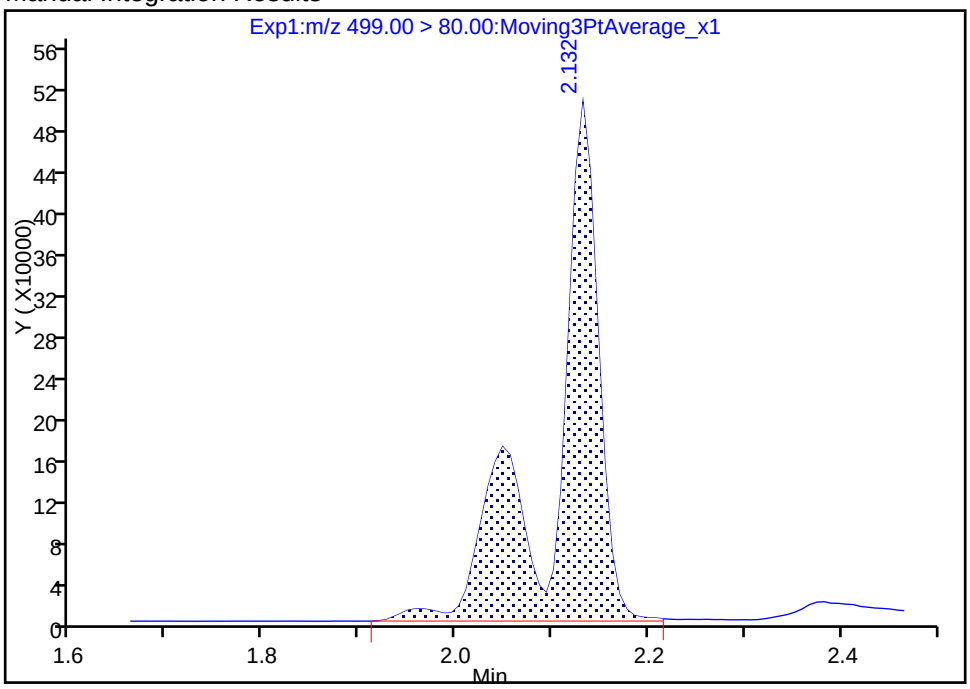
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 1655520
Amount: 8.435275
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 09:47:53
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

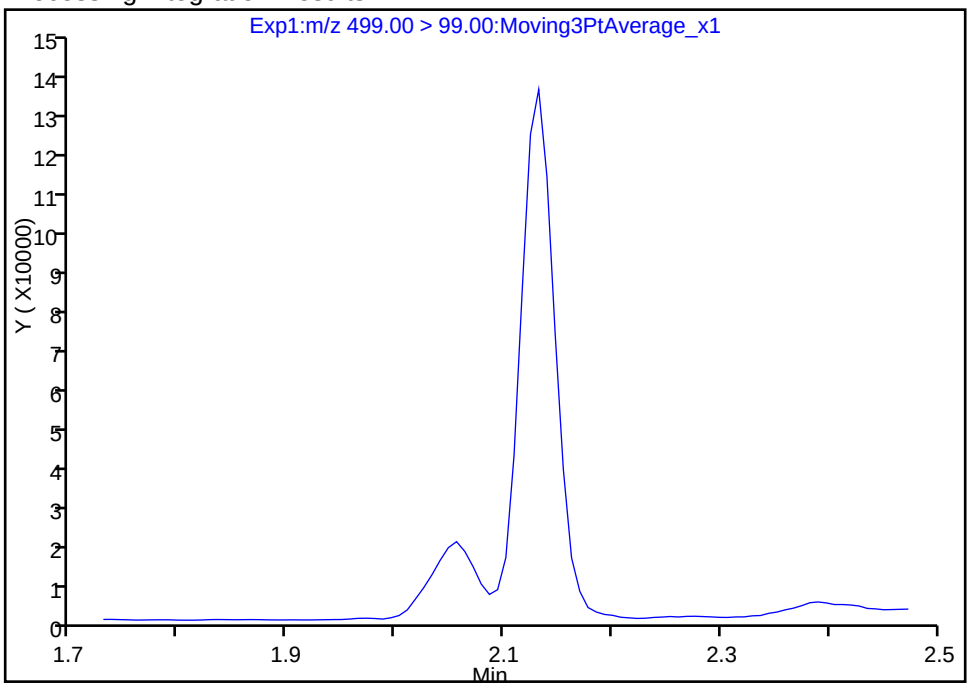
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_004.d
Injection Date: 20-Oct-2017 17:49:29 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

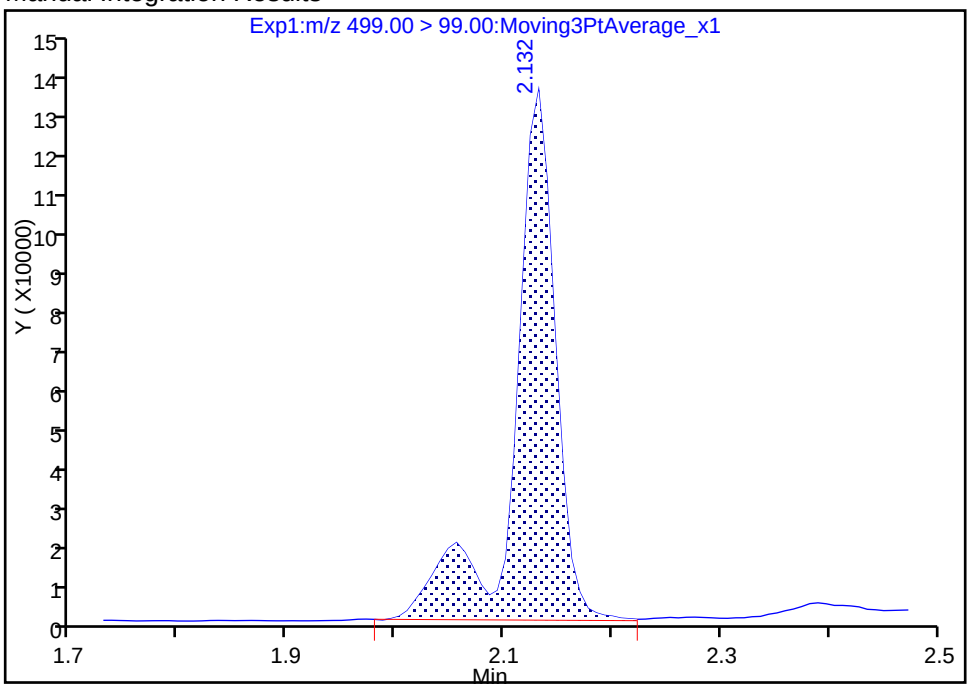
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 343625
Amount: 8.435275
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 09:48:15
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

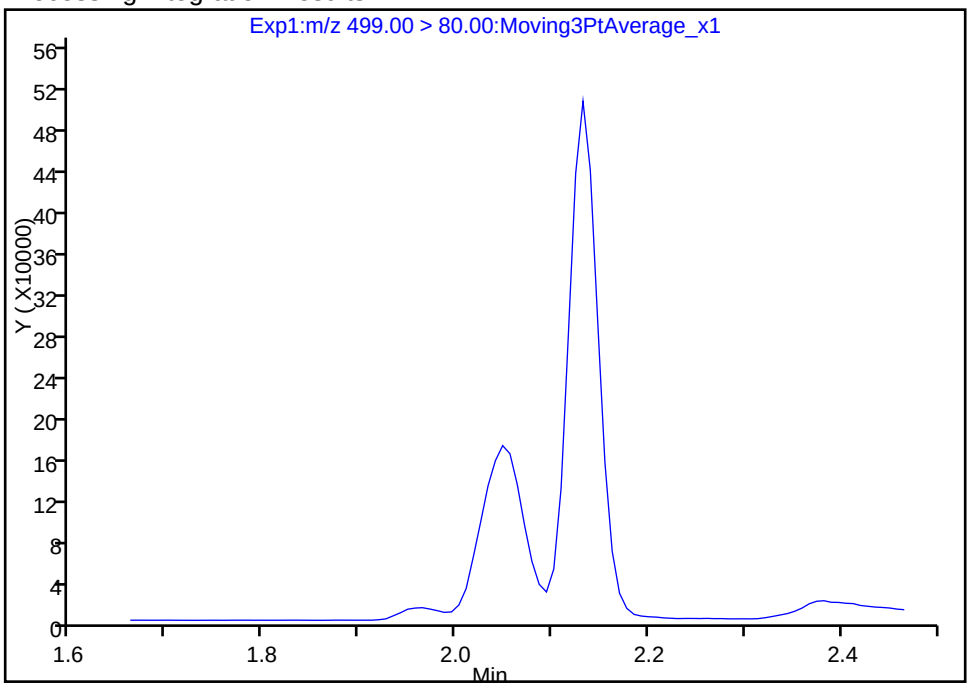
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_004.d
Injection Date: 20-Oct-2017 17:49:29 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

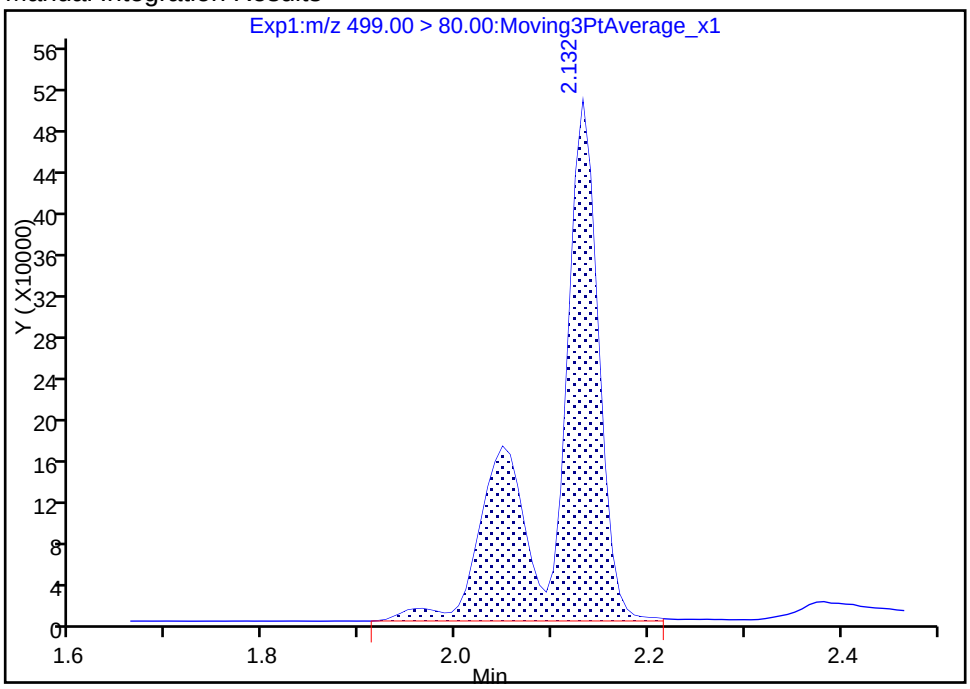
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 1655520
Amount: 8.435275
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 09:48:15
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190441/22 Calibration Date: 10/20/2017 19:14

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9165		146	135	7.9	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9447		15.1	15.0	0.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.601		44.0	45.0	-2.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9282		30.3	30.0	1.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9367		60.3	60.0	0.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6043		29.2	30.0	-2.8	30.0
13C2 PFHxA	Ave	1.172	1.250		10.7	10.0	6.7	30.0
13C2 PFDA	Ave	0.5578	0.5522		9.90	10.0	-1.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_022.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 20-Oct-2017 19:14:58 ALS Bottle#: 5 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 09:58:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.402	0.024	1.000	23425496	145.7		4253	
298.90 > 99.00	1.426	1.402	0.024	1.000	17709810		1.32(0.00-0.00)	4494	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2306660	10.7		6900	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.699	1.668	0.031	1.000	13641631	44.0		4478	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.699	1.668	0.031	1.000	2615149	15.1		492	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.855	0.034		1845095	10.0		4992	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.889	1.856	0.033	1.000	5142392	30.3		121	
413.00 > 169.00	1.889	1.856	0.033	1.000	2796342		1.84(0.00-0.00)	4083	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		5429717	28.7		5532	
9 Perfluorononanoic acid									
463.00 > 419.00	2.140	2.116	0.024	1.000	3345549	29.2		340	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.132	2.124	0.008	1.000	10642342	60.3		1250	M
499.00 > 99.00	2.132	2.124	0.008	1.000	2266778		4.69(0.00-0.00)	821	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1018835	9.90		4896	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 23-Oct-2017 10:34:00 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_022.d

Injection Date: 20-Oct-2017 19:14:58 Instrument ID: A8_N

Lims ID: CCV L5

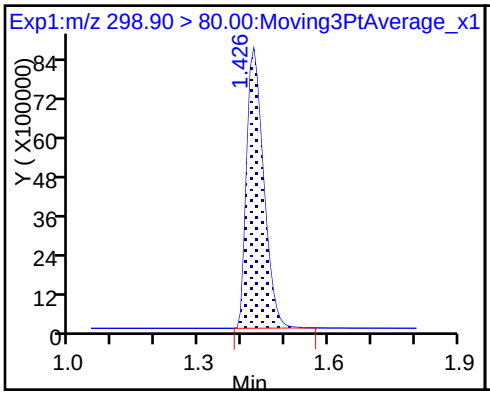
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 22

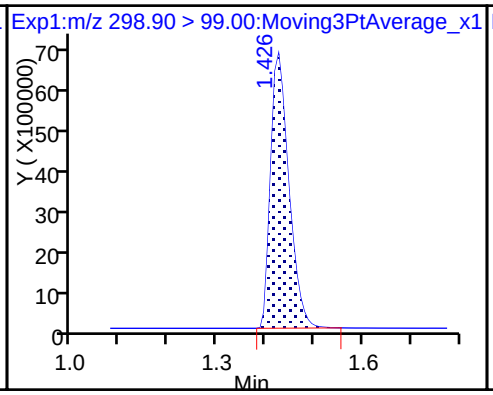
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

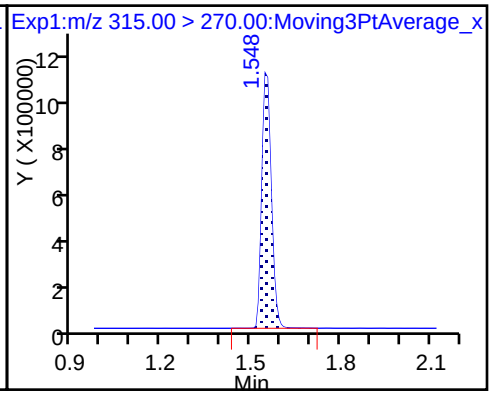
1 Perfluorobutanesulfonic acid



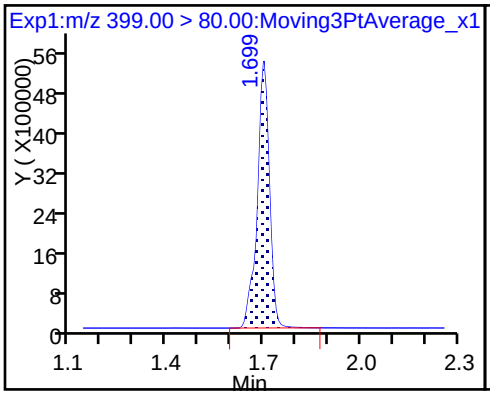
1 Perfluorobutanesulfonic acid



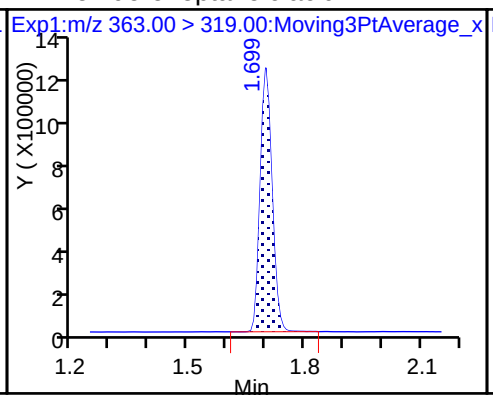
$ 2 13C2 PFHxA



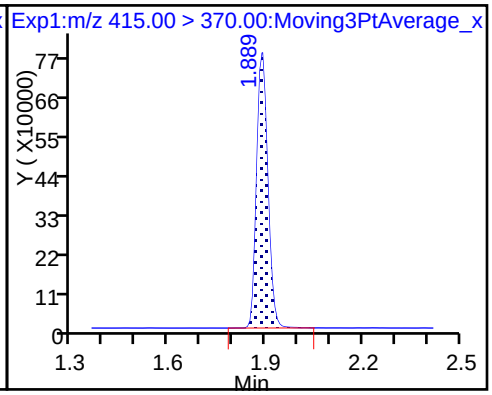
3 Perfluorohexanesulfonic acid



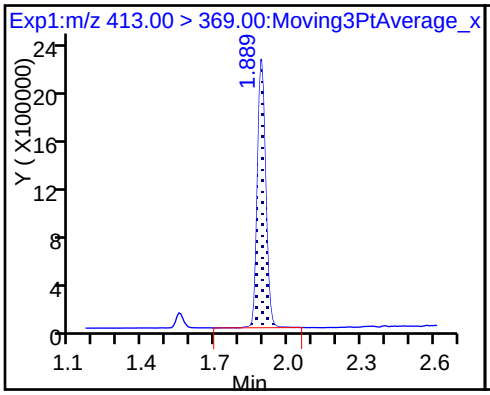
4 Perfluoroheptanoic acid



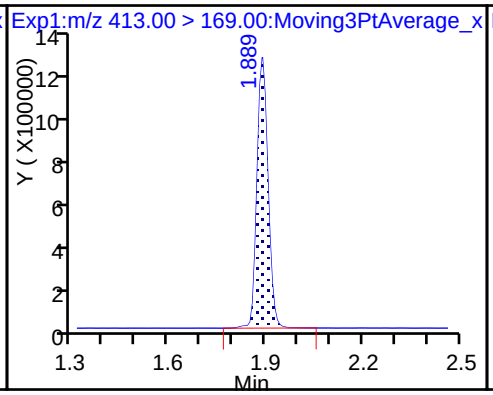
* 6 13C2-PFOA



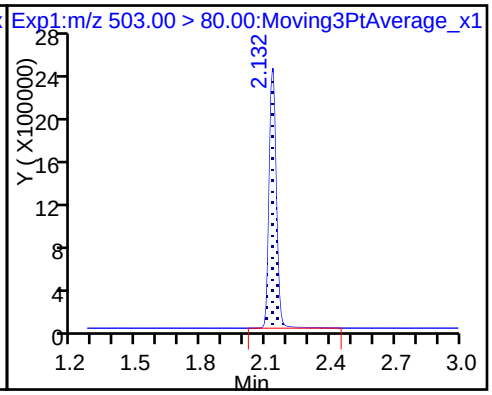
5 Perfluorooctanoic acid



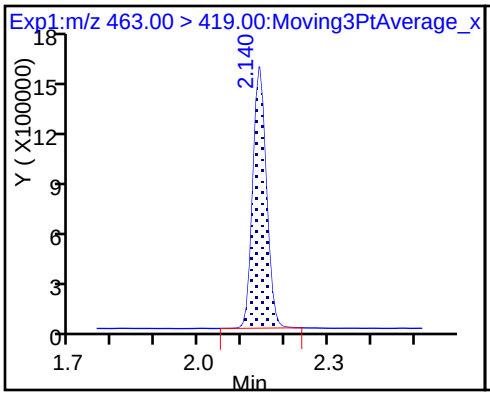
5 Perfluorooctanoic acid



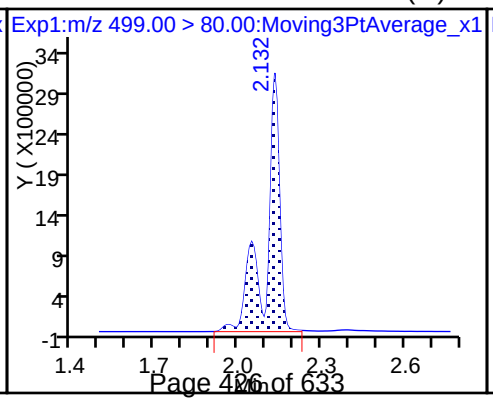
* 7 13C4 PFOS



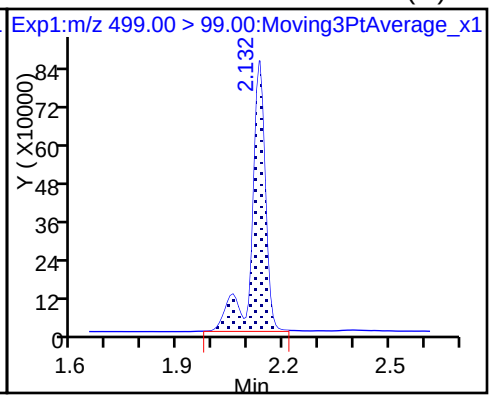
9 Perfluorononanoic acid



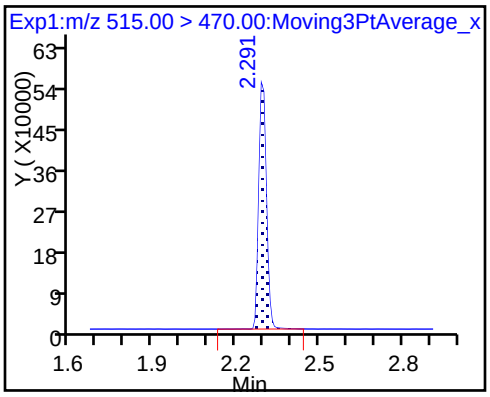
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.6
1.9
2.2
2.5
2.8
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

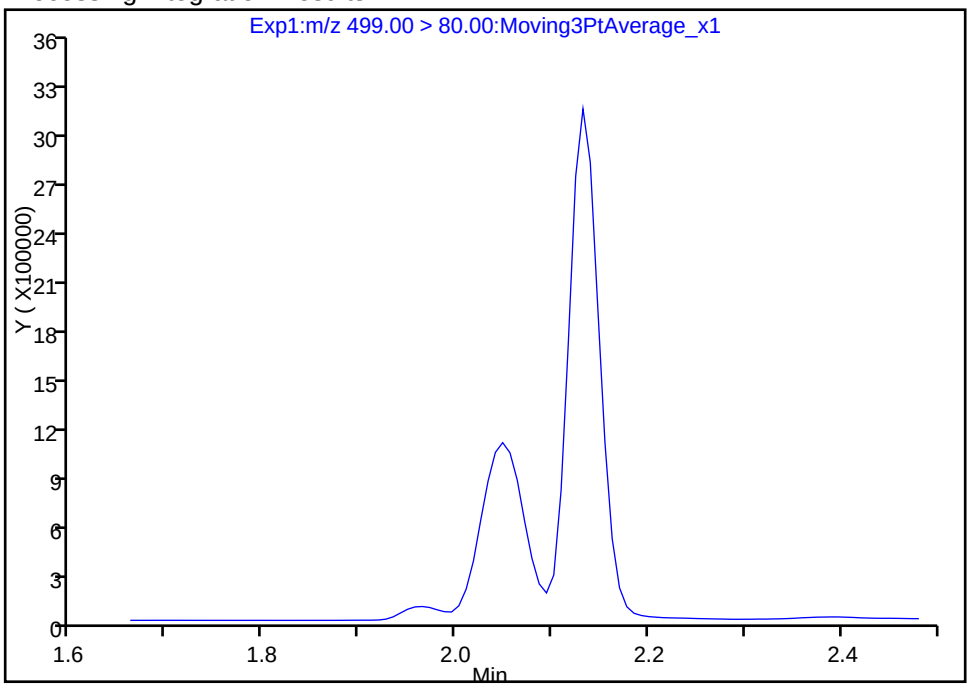
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_022.d
Injection Date: 20-Oct-2017 19:14:58 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

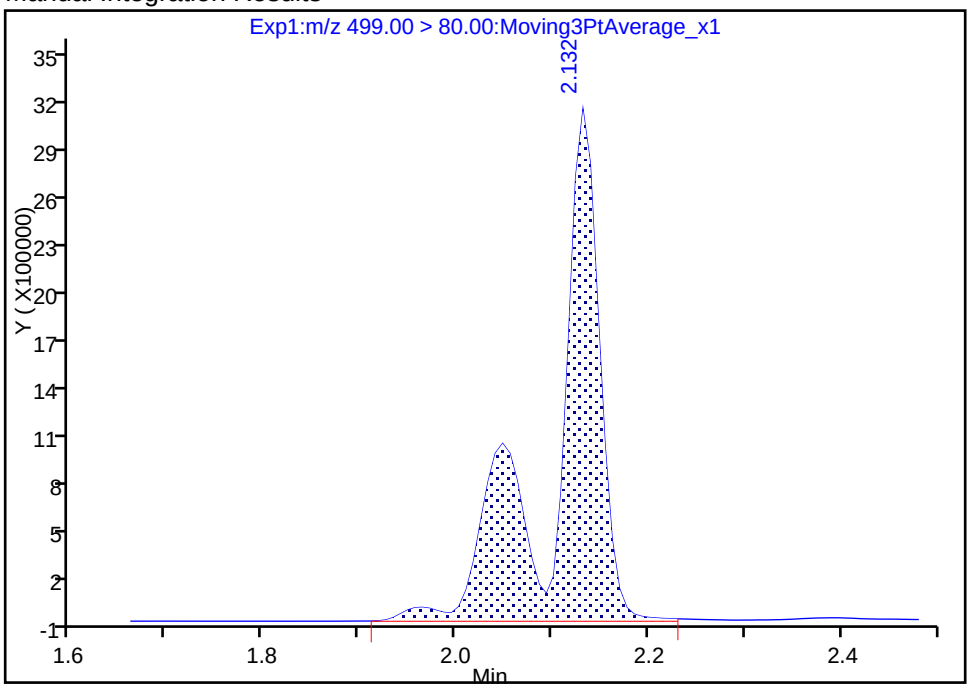
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 10642342
Amount: 60.334120
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 09:57:57
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

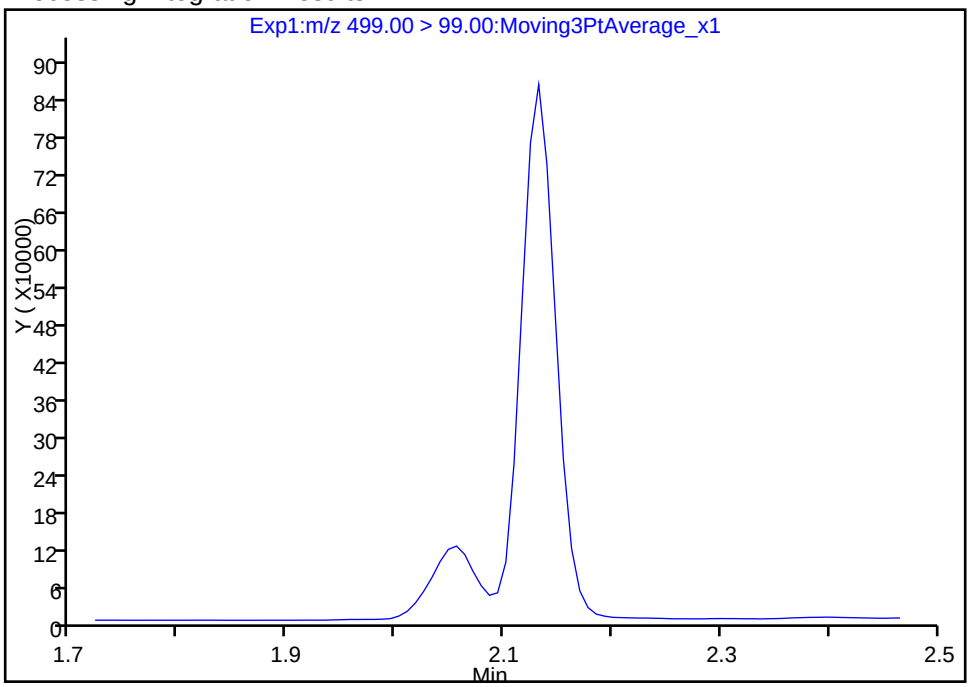
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_022.d
Injection Date: 20-Oct-2017 19:14:58 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

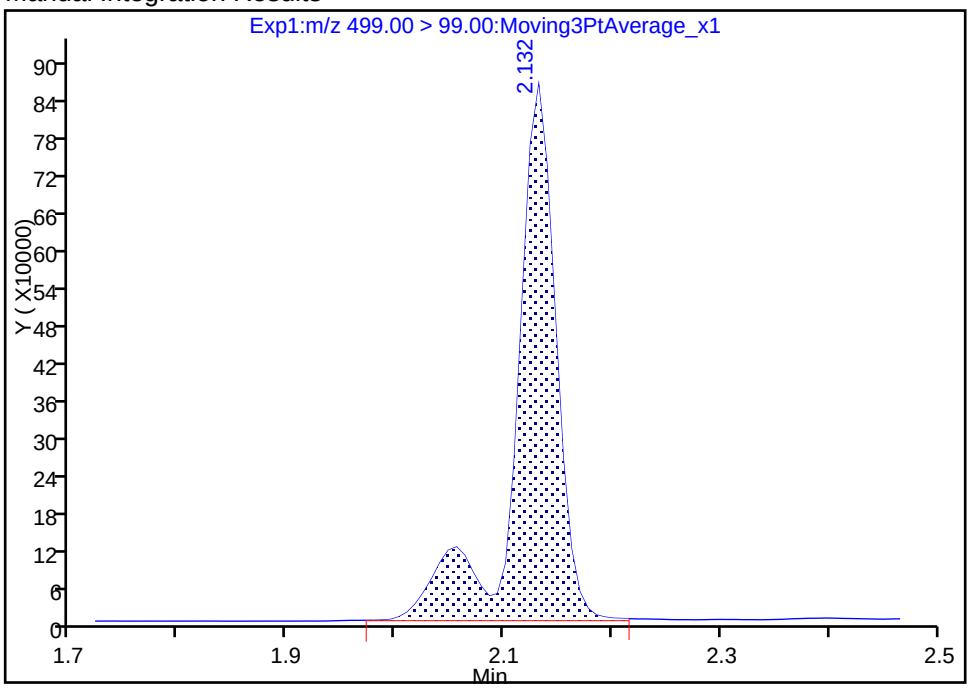
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.13
Area: 2266778
Amount: 60.334120
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 09:58:25
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

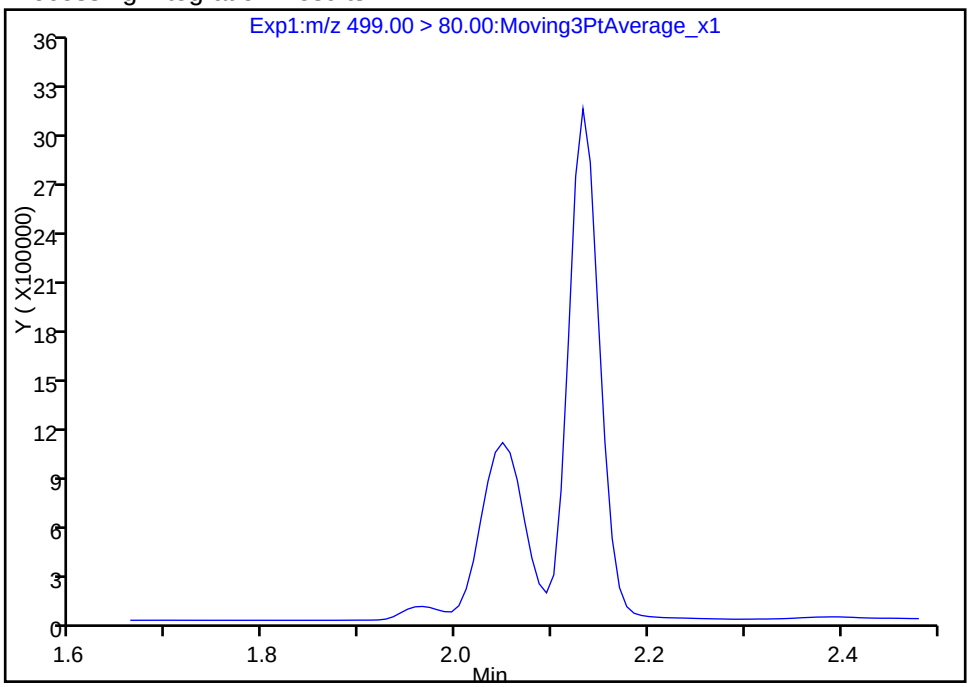
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_022.d
Injection Date: 20-Oct-2017 19:14:58 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

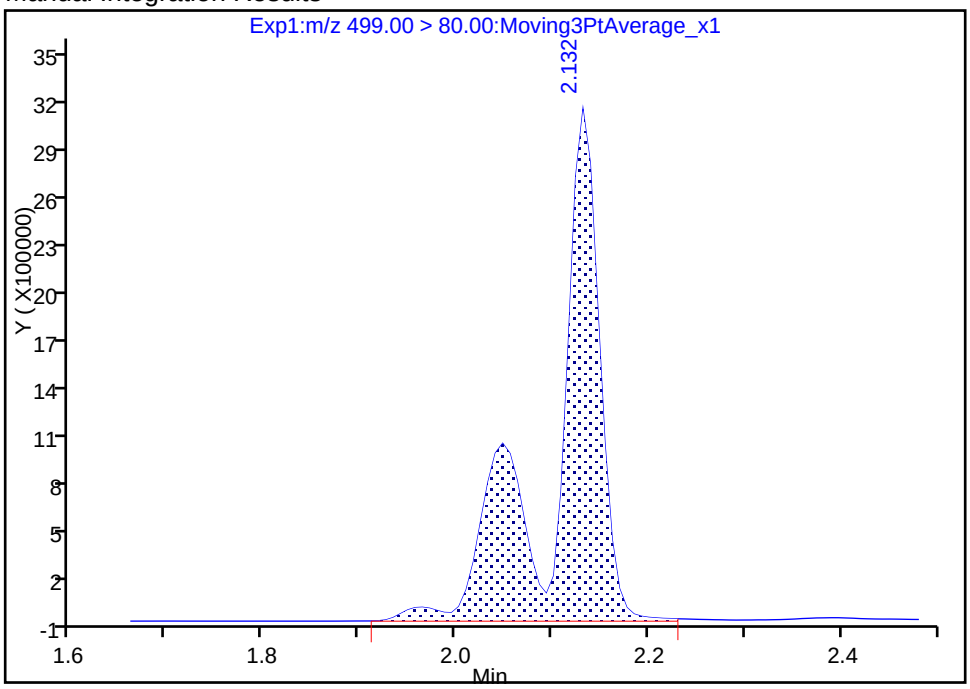
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 10642342
Amount: 60.334120
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 09:58:25
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190441/34 Calibration Date: 10/20/2017 20:11

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.172		48.3	45.0	7.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	1.006		5.34	5.00	6.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.743		16.0	15.0	6.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9233		10.1	10.0	0.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9358		20.1	20.0	0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6357		10.2	10.0	2.2	30.0
13C2 PFHxA	Ave	1.172	1.267		10.8	10.0	8.1	30.0
13C2 PFDA	Ave	0.5578	0.5843		10.5	10.0	4.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190442/34 Calibration Date: 10/20/2017 20:11

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.172		48.3	45.0	7.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	1.006		5.34	5.00	6.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.743		16.0	15.0	6.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9233		10.1	10.0	0.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9358		20.1	20.0	0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6357		10.2	10.0	2.2	30.0
13C2 PFHxA	Ave	1.172	1.267		10.8	10.0	8.1	30.0
13C2 PFDA	Ave	0.5578	0.5843		10.5	10.0	4.8	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_034.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 20-Oct-2017 20:11:55 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L3
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:34:52 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:06:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.402	0.024	1.000	10804716	48.3		5479	
298.90 > 99.00	1.426	1.402	0.024	1.000	7584567		1.42(0.00-0.00)	4904	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2498085	10.8		7556	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.699	1.668	0.031	1.000	5356900	16.0		3892	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.699	1.668	0.031	1.000	992192	5.34		194	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.855	0.034		1971467	10.0		5529	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.889	1.856	0.033	1.000	1821789	10.1		41.0	
413.00 > 169.00	1.889	1.856	0.033	1.000	991442		1.84(0.00-0.00)	2551	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		5873467	28.7		6256	
9 Perfluorononanoic acid									
463.00 > 419.00	2.140	2.116	0.024	1.000	1253508	10.2		119	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.132	2.124	0.008	1.000	3833844	20.1		651	M
499.00 > 99.00	2.132	2.124	0.008	1.000	800879		4.79(0.00-0.00)	374	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1151961	10.5		5337	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_034.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 20-Oct-2017 20:11:55 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L3
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:34:52 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:06:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.402	0.024	1.000	10804716	48.3		5479	
298.90 > 99.00	1.426	1.402	0.024	1.000	7584567		1.42(0.00-0.00)	4904	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2498085	10.8		7556	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.699	1.668	0.031	1.000	5356900	16.0		3892	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.699	1.668	0.031	1.000	992192	5.34		194	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.855	0.034		1971467	10.0		5529	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.889	1.856	0.033	1.000	1821789	10.1		41.0	
413.00 > 169.00	1.889	1.856	0.033	1.000	991442		1.84(0.00-0.00)	2551	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		5873467	28.7		6256	
9 Perfluorononanoic acid									
463.00 > 419.00	2.140	2.116	0.024	1.000	1253508	10.2		119	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.132	2.124	0.008	1.000	3833844	20.1		651	M
499.00 > 99.00	2.132	2.124	0.008	1.000	800879		4.79(0.00-0.00)	374	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1151961	10.5		5337	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

Report Date: 23-Oct-2017 10:34:52 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_034.d

Injection Date: 20-Oct-2017 20:11:55 Instrument ID: A8_N

Lims ID: CCV L3

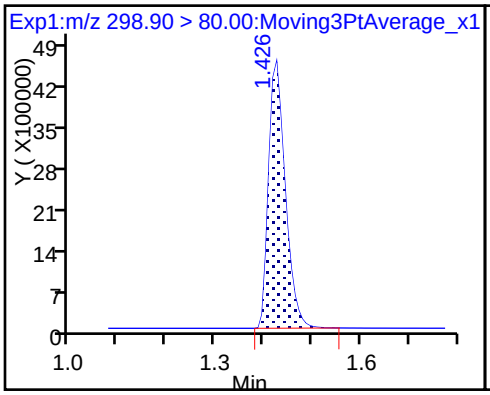
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34

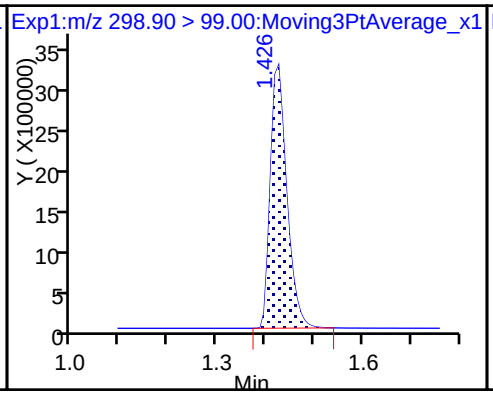
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

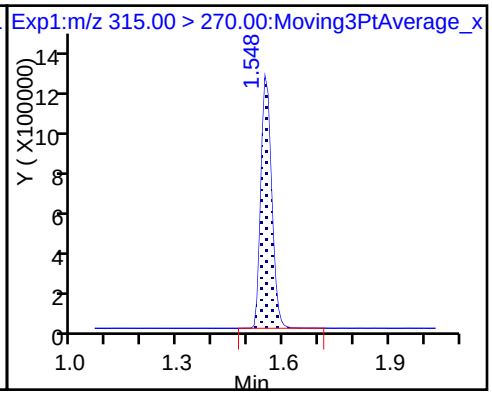
1 Perfluorobutanesulfonic acid



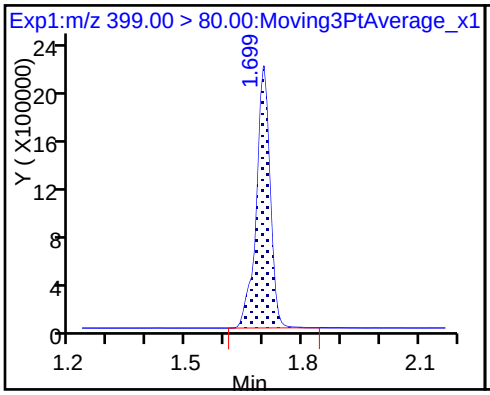
1 Perfluorobutanesulfonic acid



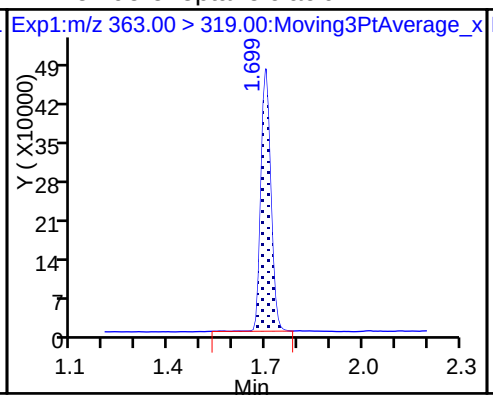
$ 2 13C2 PFHxA



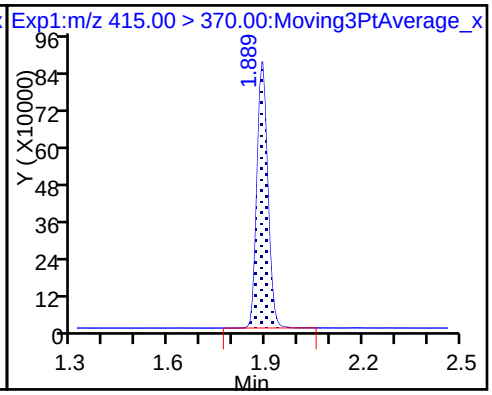
3 Perfluorohexanesulfonic acid



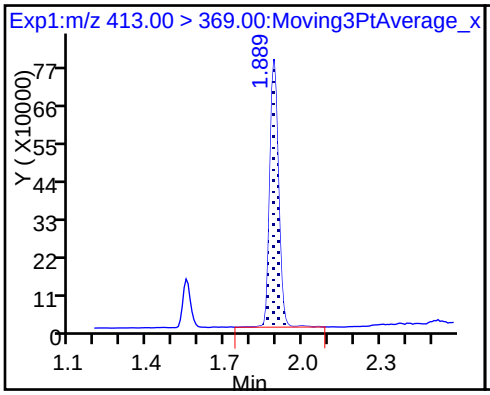
4 Perfluoroheptanoic acid



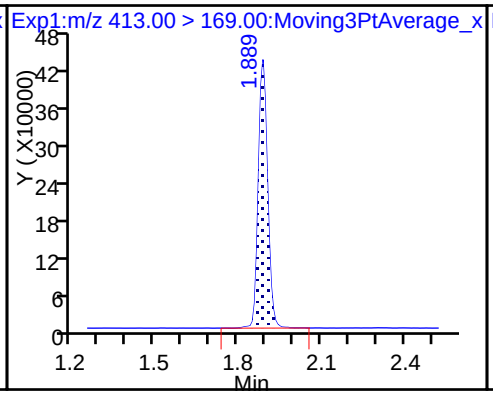
* 6 13C2-PFOA



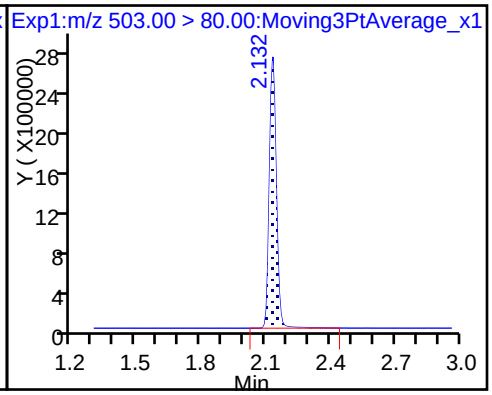
5 Perfluorooctanoic acid



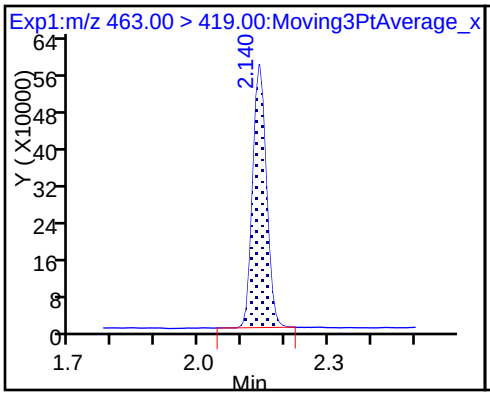
5 Perfluorooctanoic acid



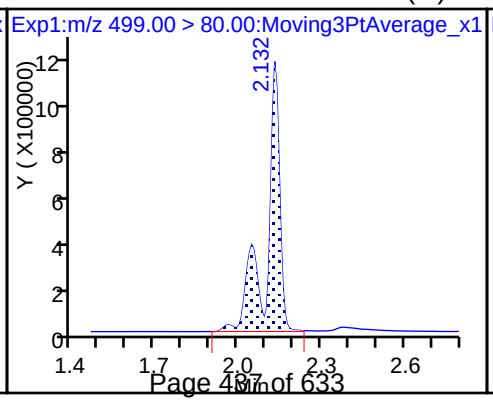
* 7 13C4 PFOS



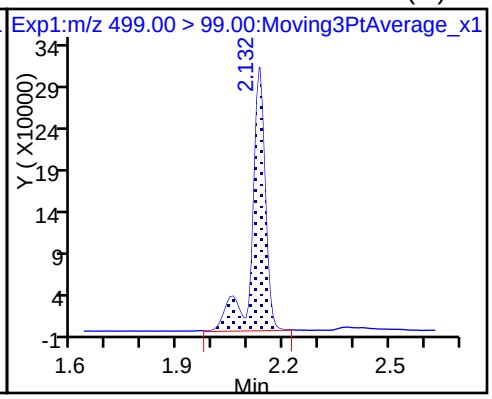
9 Perfluorononanoic acid



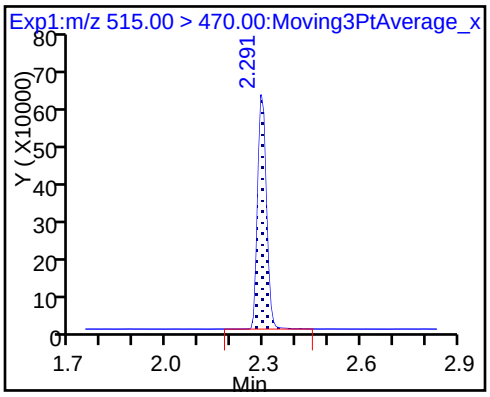
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
80
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
2.9
Min

Report Date: 23-Oct-2017 10:34:53 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_034.d

Injection Date: 20-Oct-2017 20:11:55 Instrument ID: A8_N

Lims ID: CCV L3

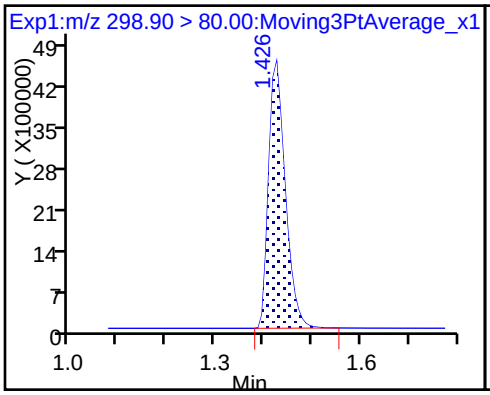
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34

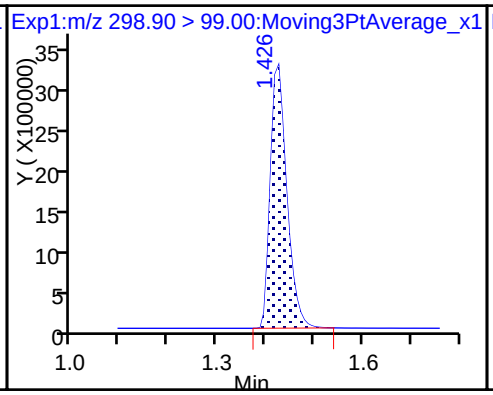
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

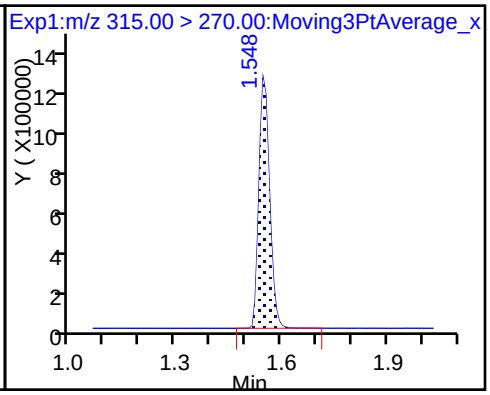
1 Perfluorobutanesulfonic acid



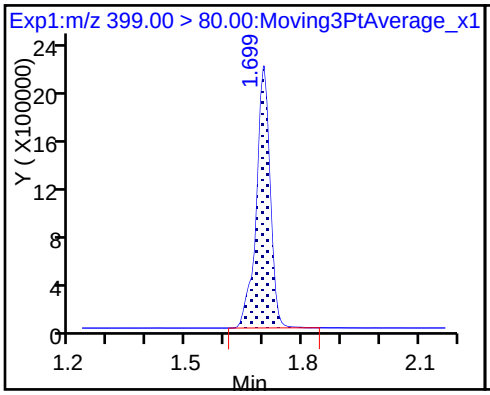
1 Perfluorobutanesulfonic acid



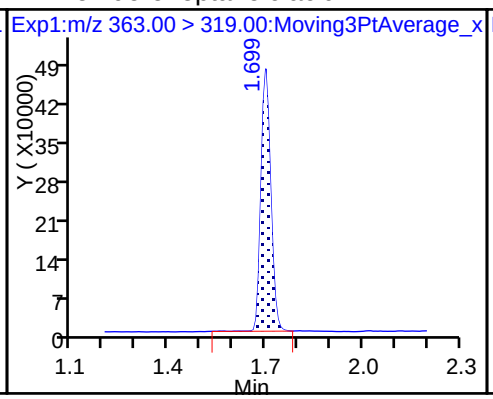
$ 2 13C2 PFHxA



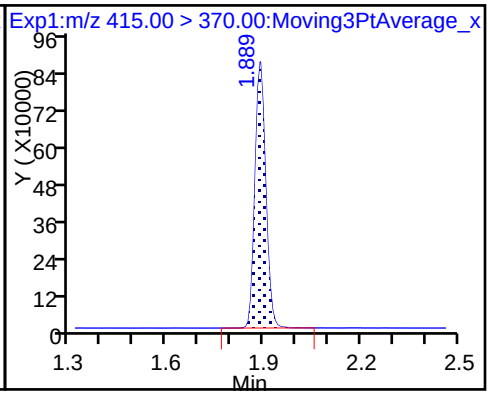
3 Perfluorohexanesulfonic acid



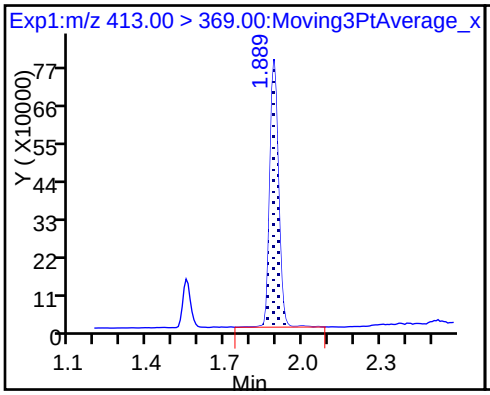
4 Perfluoroheptanoic acid



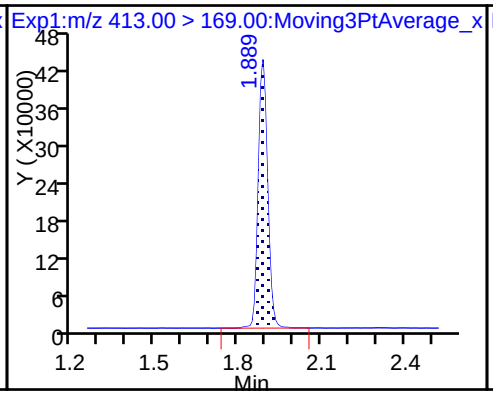
* 6 13C2-PFOA



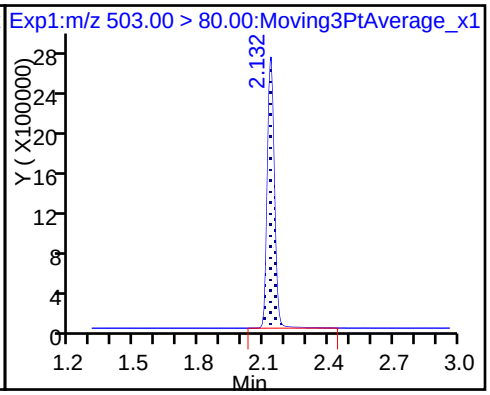
5 Perfluorooctanoic acid



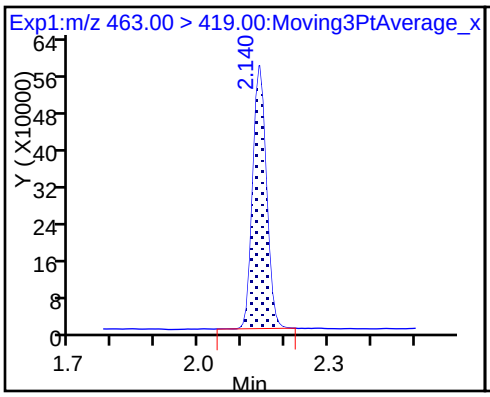
5 Perfluorooctanoic acid



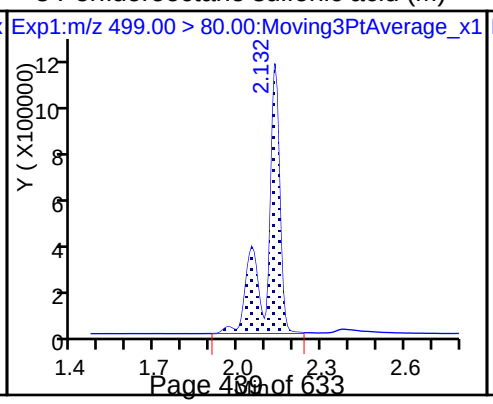
* 7 13C4 PFOS



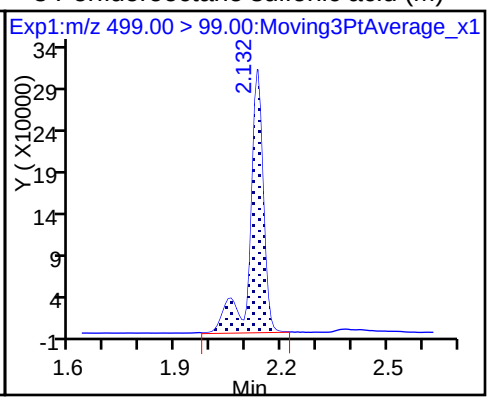
9 Perfluorononanoic acid



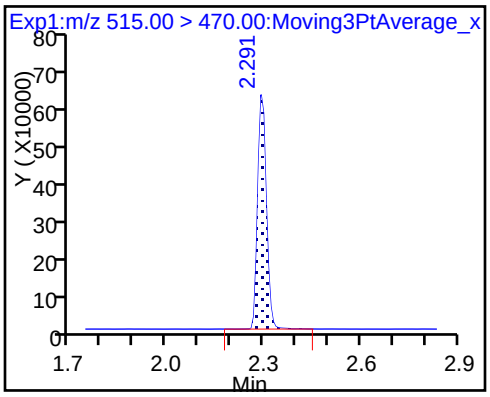
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
80
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
2.9
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

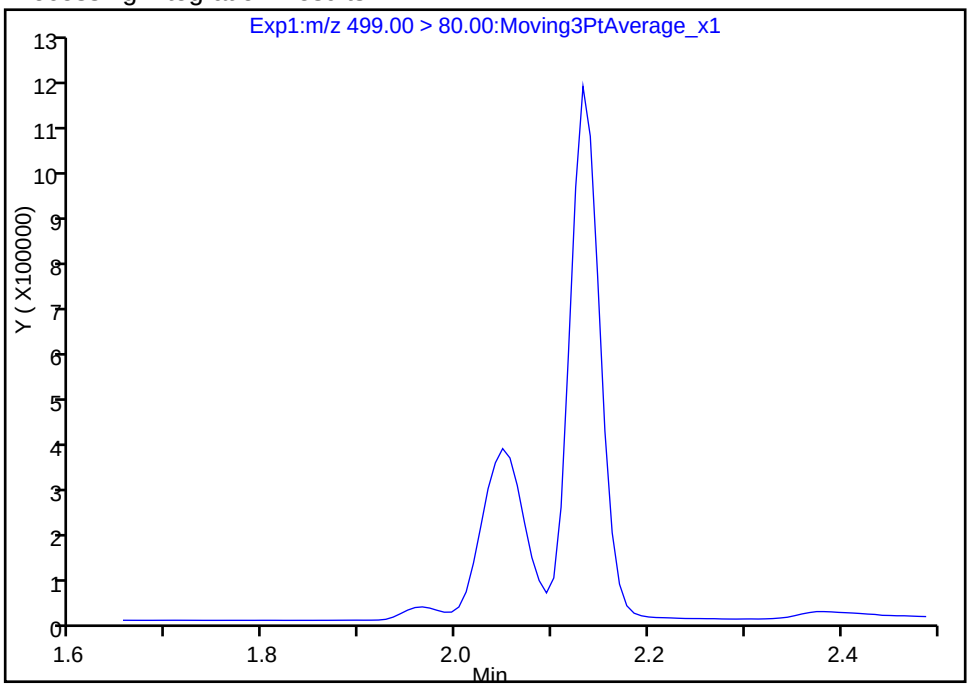
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_034.d				
Injection Date:	20-Oct-2017 20:11:55	Instrument ID:	A8_N		
Lims ID:	CCV L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	34
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

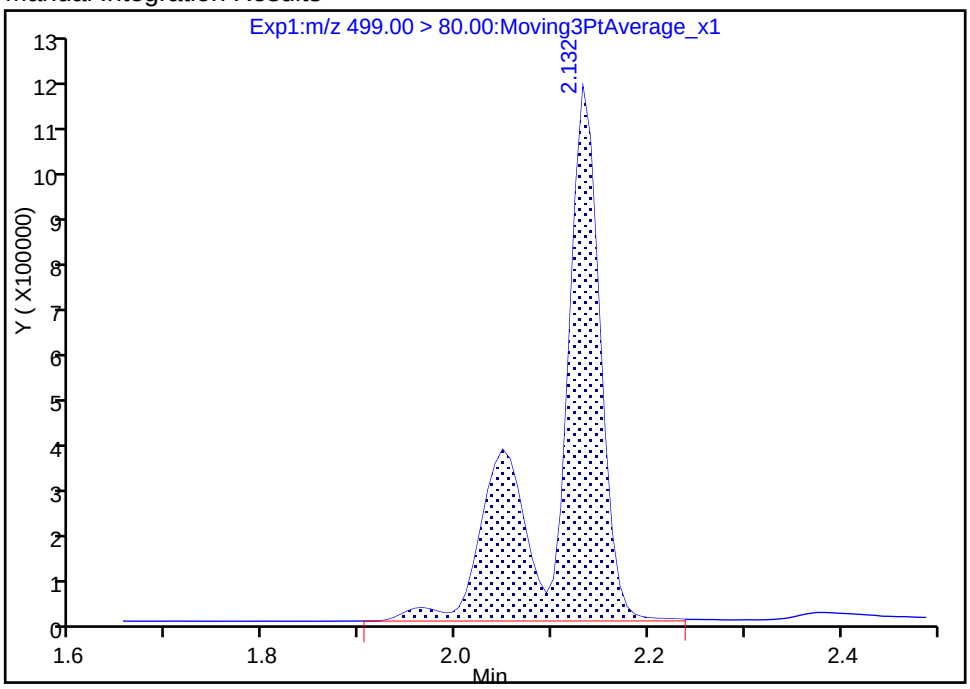
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 3833844
Amount: 20.092911
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:05:35
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

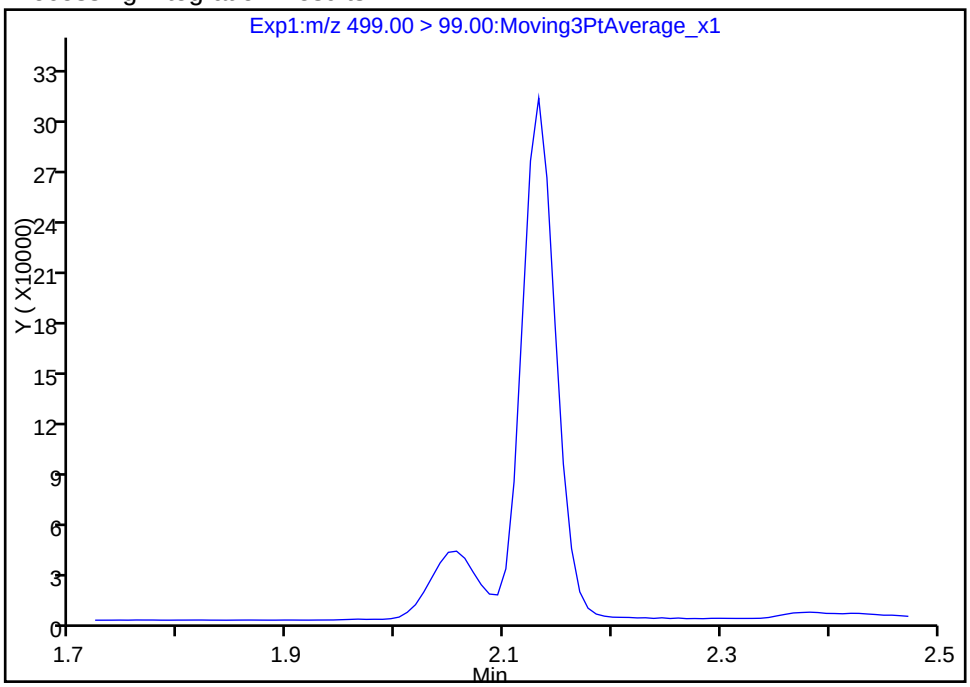
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_034.d
Injection Date: 20-Oct-2017 20:11:55 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

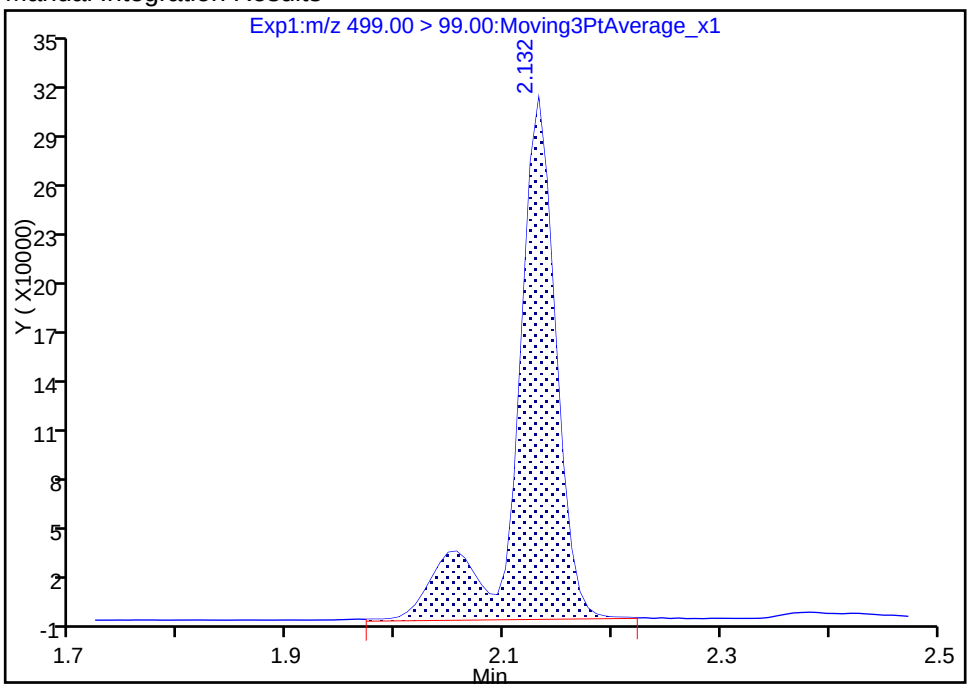
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 800879
Amount: 20.092911
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:05:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

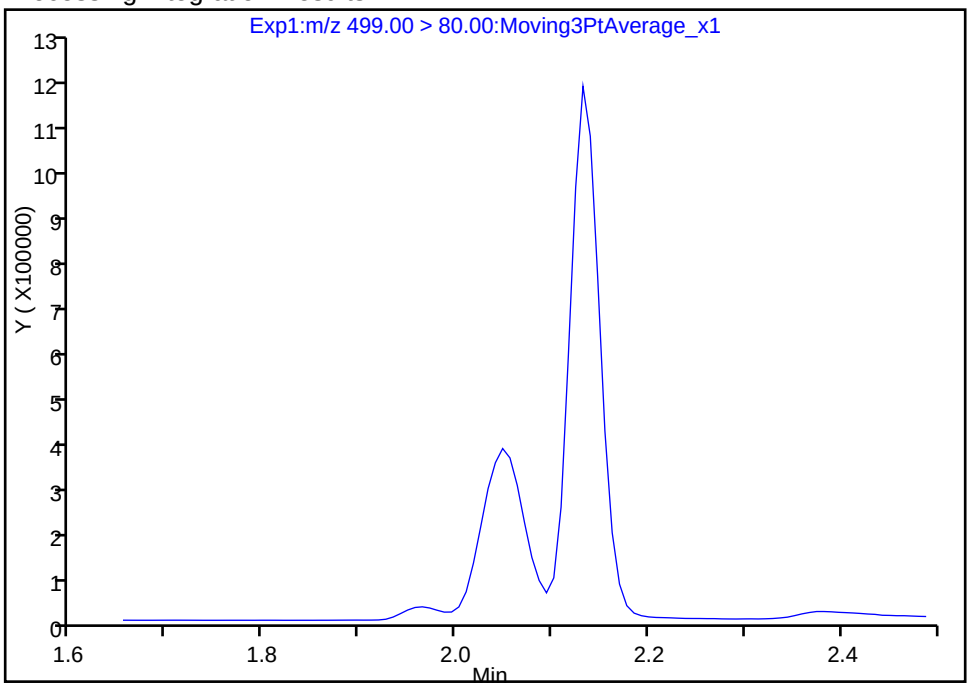
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_034.d
Injection Date: 20-Oct-2017 20:11:55 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

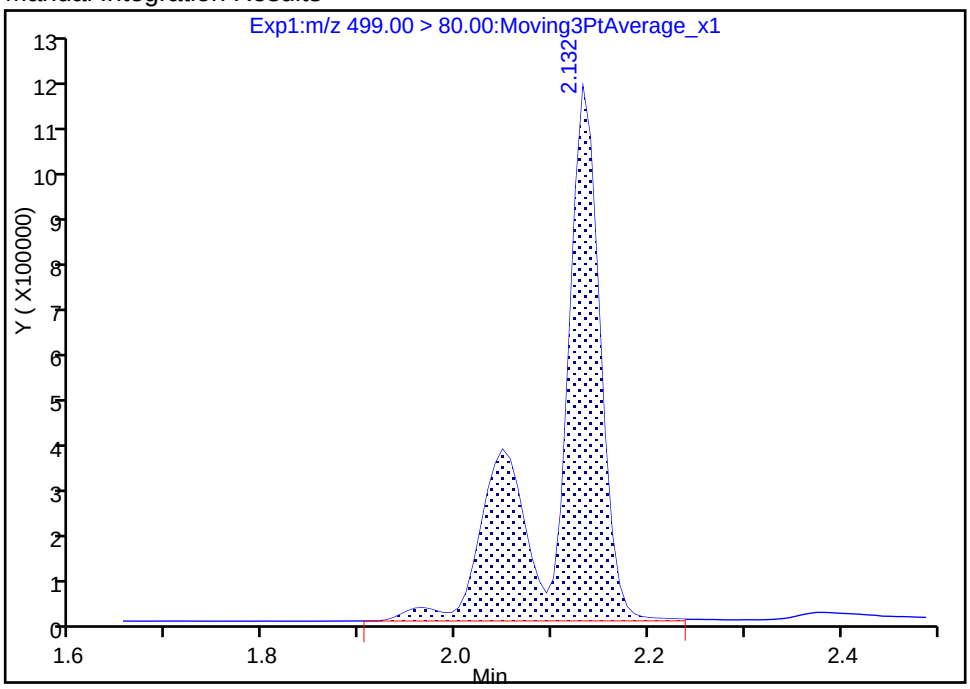
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 3833844
Amount: 20.092911
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:05:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

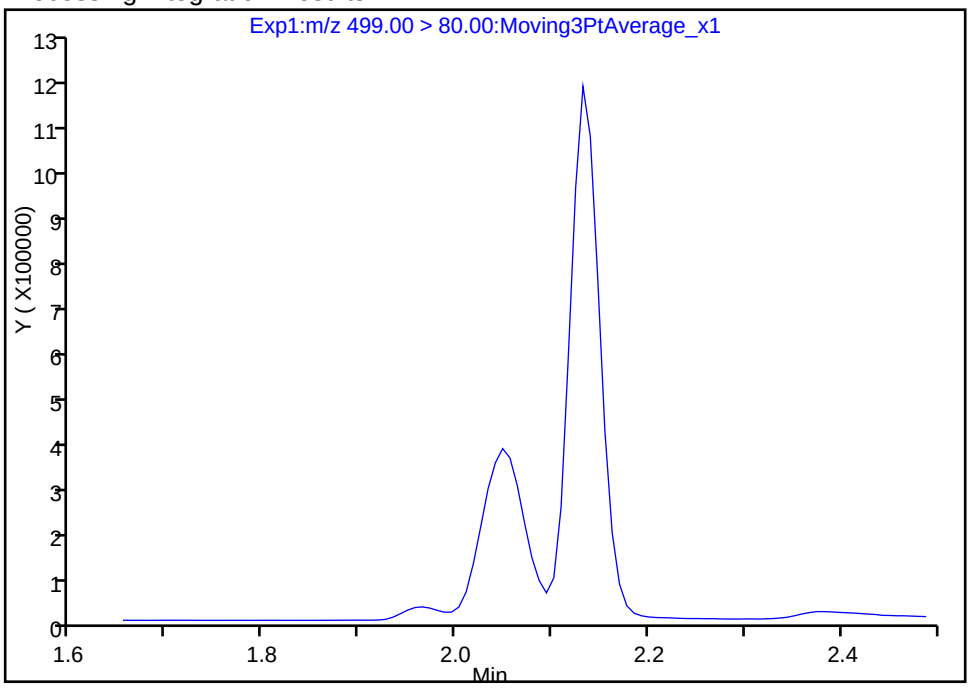
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_034.d
Injection Date: 20-Oct-2017 20:11:55 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

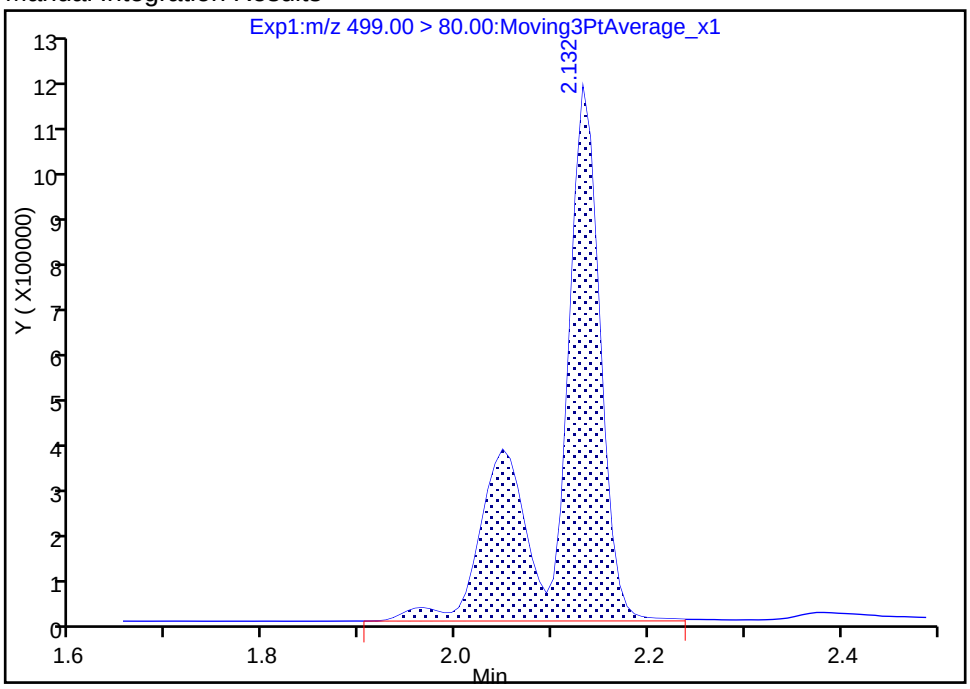
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 3833844
Amount: 20.092911
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:05:35
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

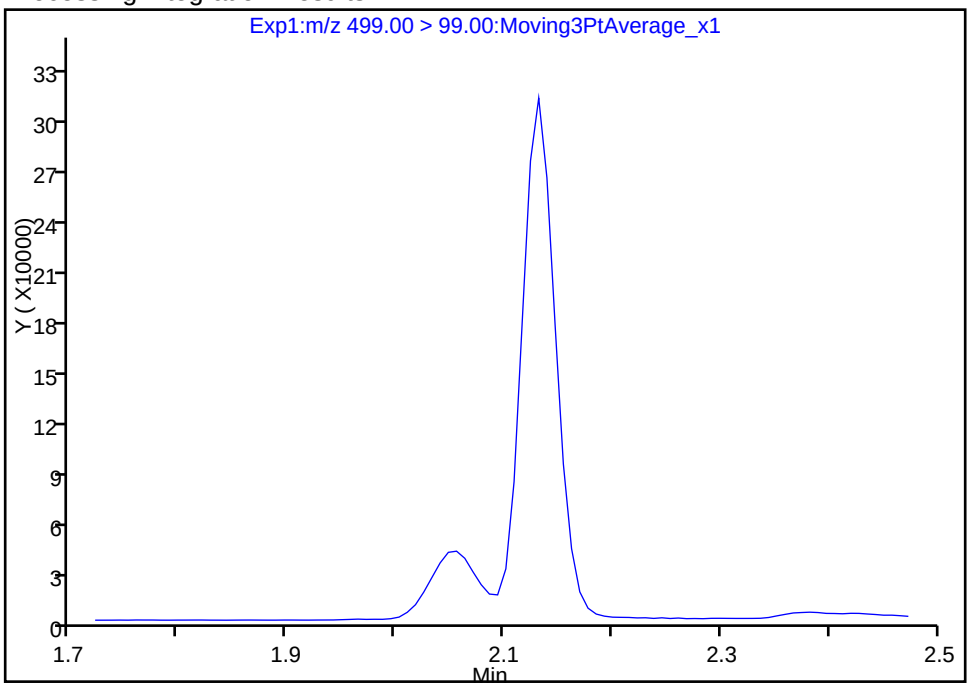
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_034.d
Injection Date: 20-Oct-2017 20:11:55 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

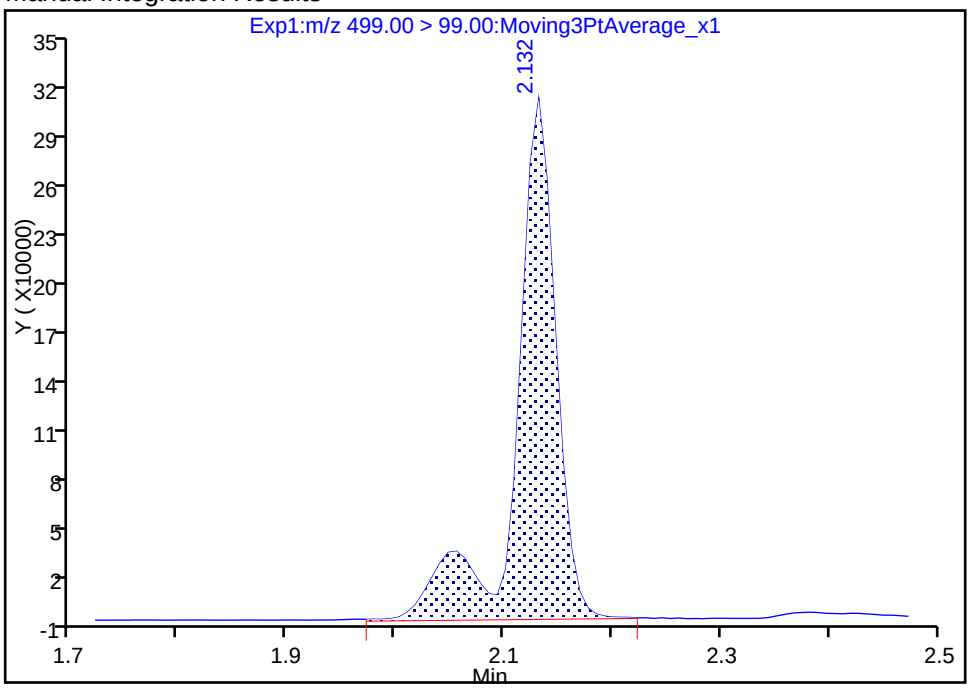
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.13
Area: 800879
Amount: 20.092911
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:05:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

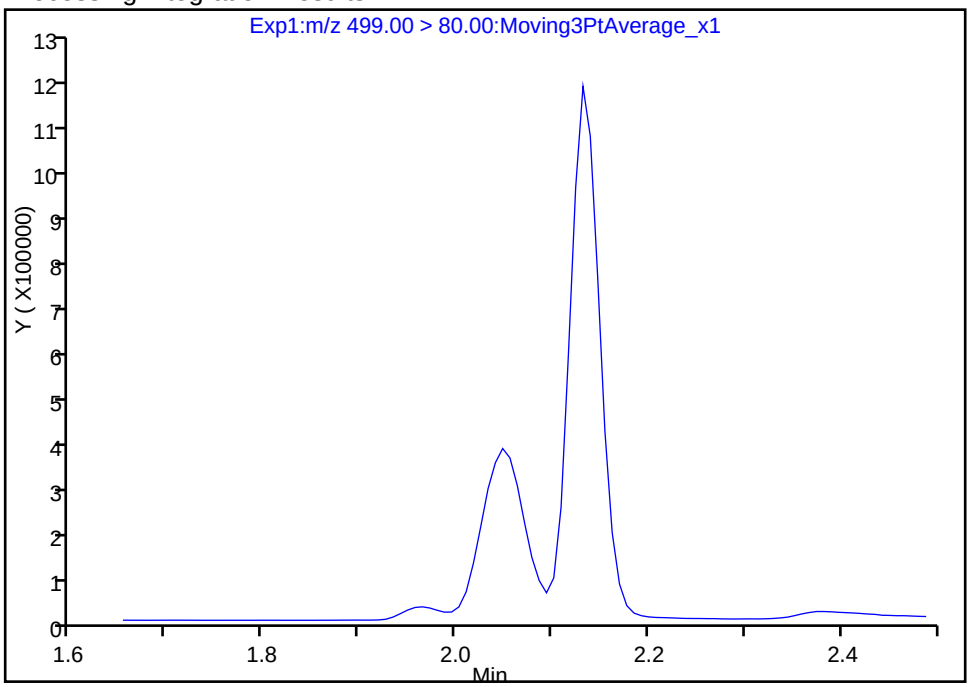
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_034.d
Injection Date: 20-Oct-2017 20:11:55 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

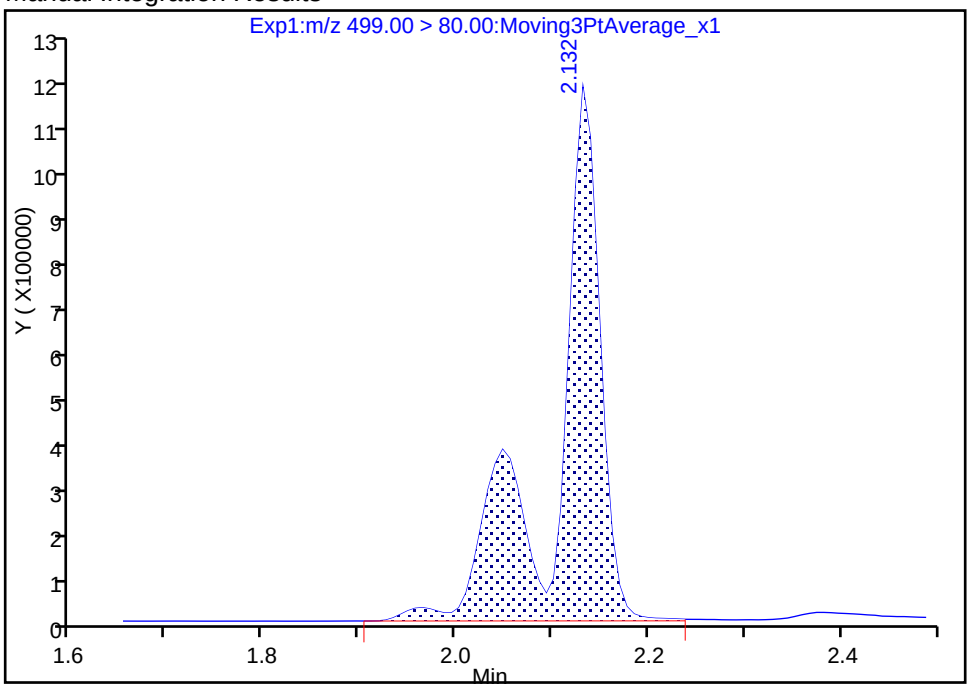
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 3833844
Amount: 20.092911
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:05:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190442/45 Calibration Date: 10/20/2017 21:04

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_045.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9552		157	135	16.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	1.016		16.2	15.0	7.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.614		44.4	45.0	-1.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9447		30.8	30.0	2.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9465		61.0	60.0	1.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6327		30.5	30.0	1.7	30.0
13C2 PFHxA	Ave	1.172	1.324		11.3	10.0	13.0	30.0
13C2 PFDA	Ave	0.5578	0.5802		10.4	10.0	4.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_045.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 20-Oct-2017 21:04:03 ALS Bottle#: 5 Worklist Smp#: 45
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:35:56 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:13:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	23558615	157.1		2917	
298.90 > 99.00	1.419	1.402	0.017	1.000	17672964		1.33(0.00-0.00)	3190	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2261934	11.3		6447	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	13274669	44.4		3321	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	2604028	16.2		474	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1708886	10.0		3700	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	4846989	30.8		113	
413.00 > 169.00	1.882	1.856	0.026	1.000	2578787		1.88(0.00-0.00)	3754	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5239449	28.7		4348	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.116	0.016	1.000	3244144	30.5		276	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.124	0.0	1.000	10377145	61.0		3772	M
499.00 > 99.00	2.124	2.124	0.0	1.000	2082729		4.98(0.00-0.00)	712	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	991552	10.4		5015	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 23-Oct-2017 10:35:57 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_045.d

Injection Date: 20-Oct-2017 21:04:03 Instrument ID: A8_N

Lims ID: CCV L5

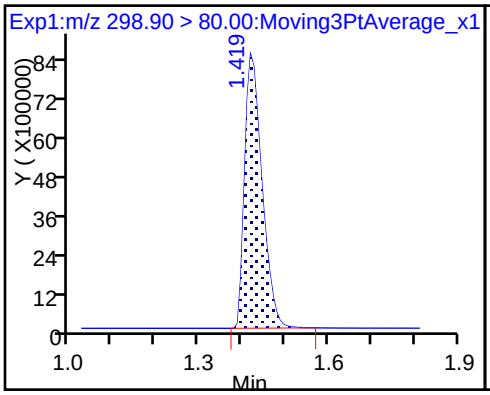
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 45

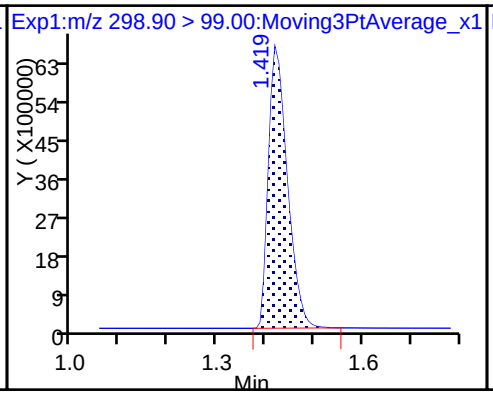
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

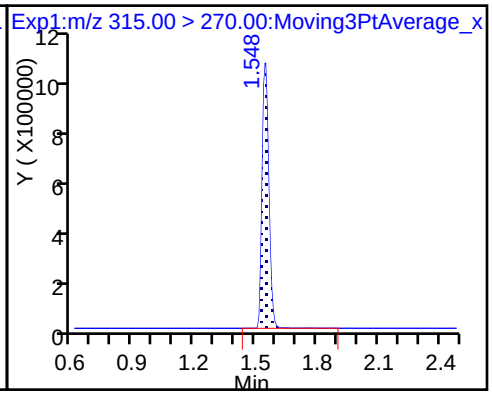
1 Perfluorobutanesulfonic acid



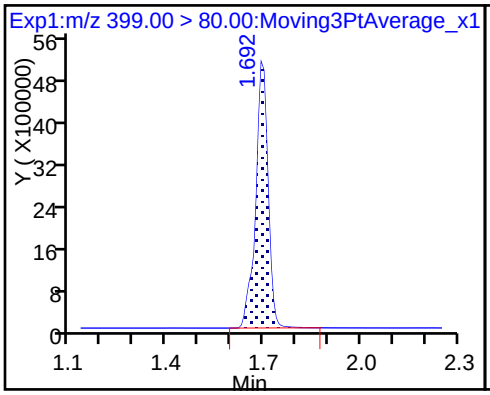
1 Perfluorobutanesulfonic acid



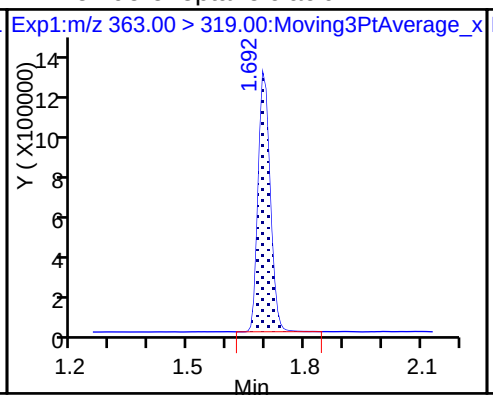
$ 2 13C2 PFHxA



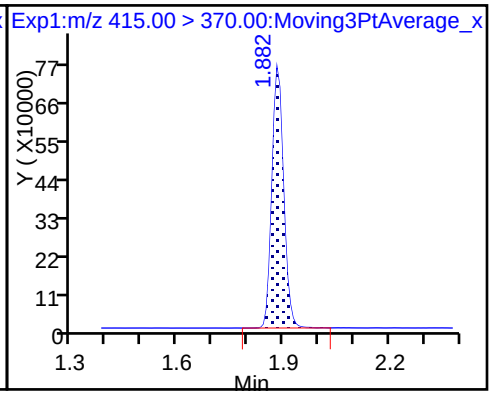
3 Perfluorohexanesulfonic acid



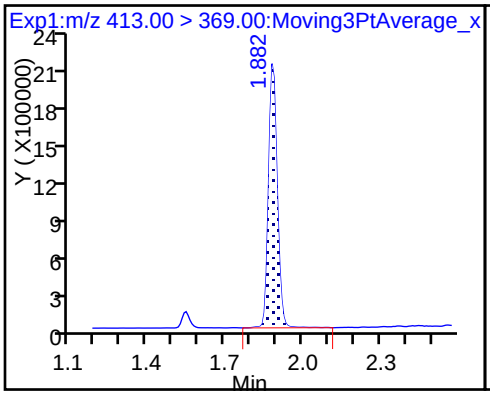
4 Perfluoroheptanoic acid



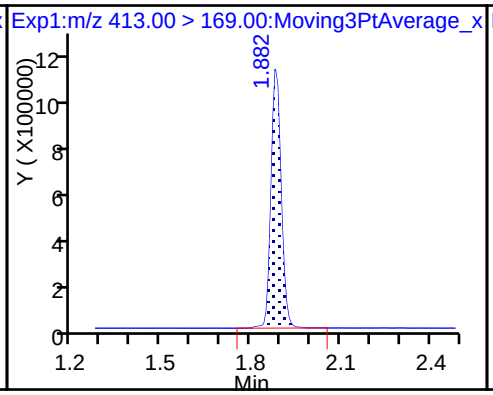
* 6 13C2-PFOA



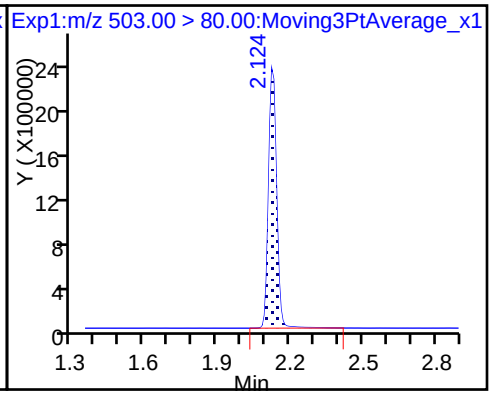
5 Perfluorooctanoic acid



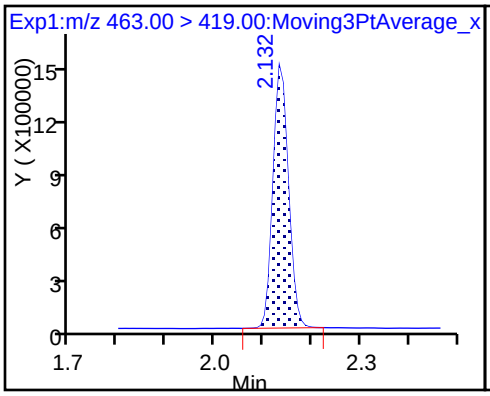
5 Perfluorooctanoic acid



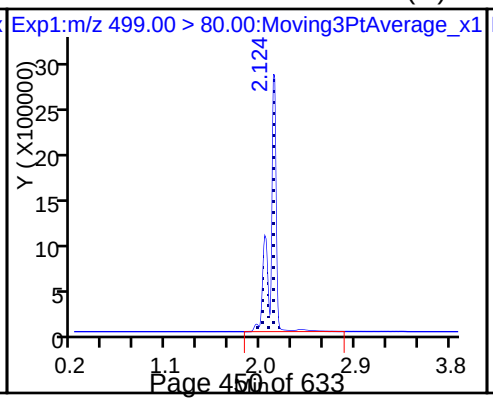
* 7 13C4 PFOS



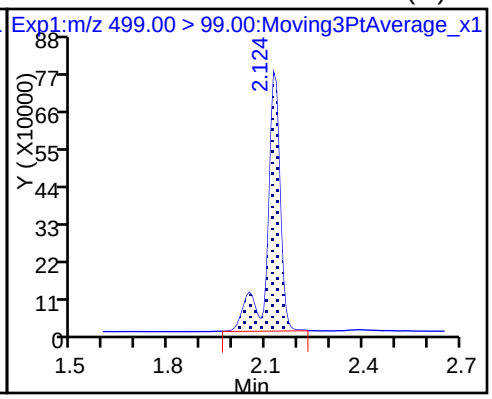
9 Perfluorononanoic acid



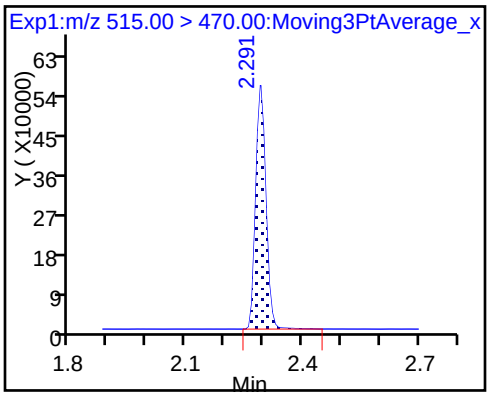
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

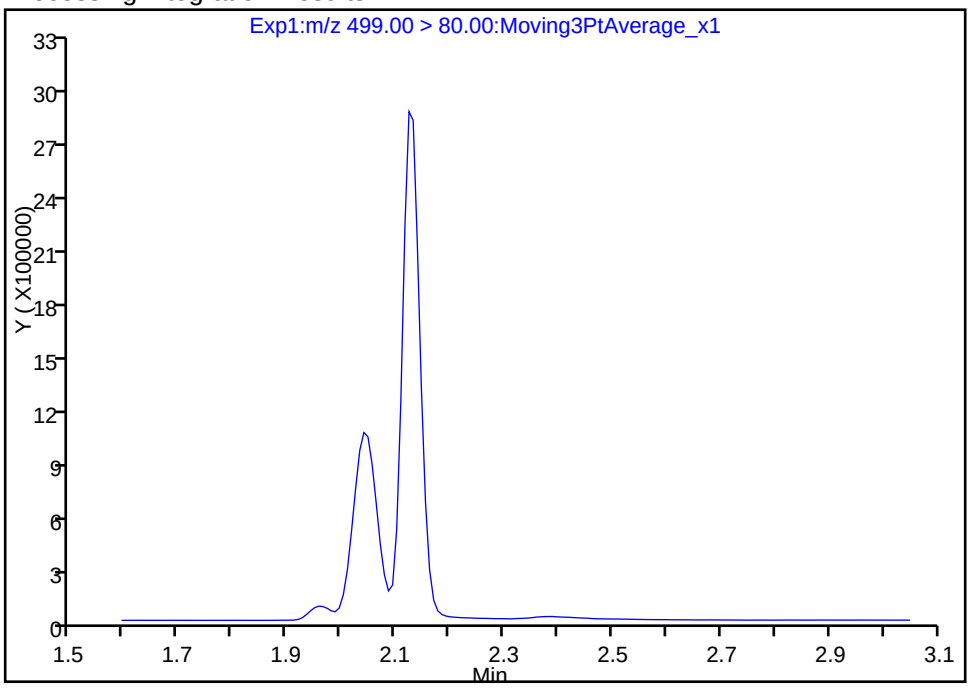
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_045.d
Injection Date: 20-Oct-2017 21:04:03 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 45
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

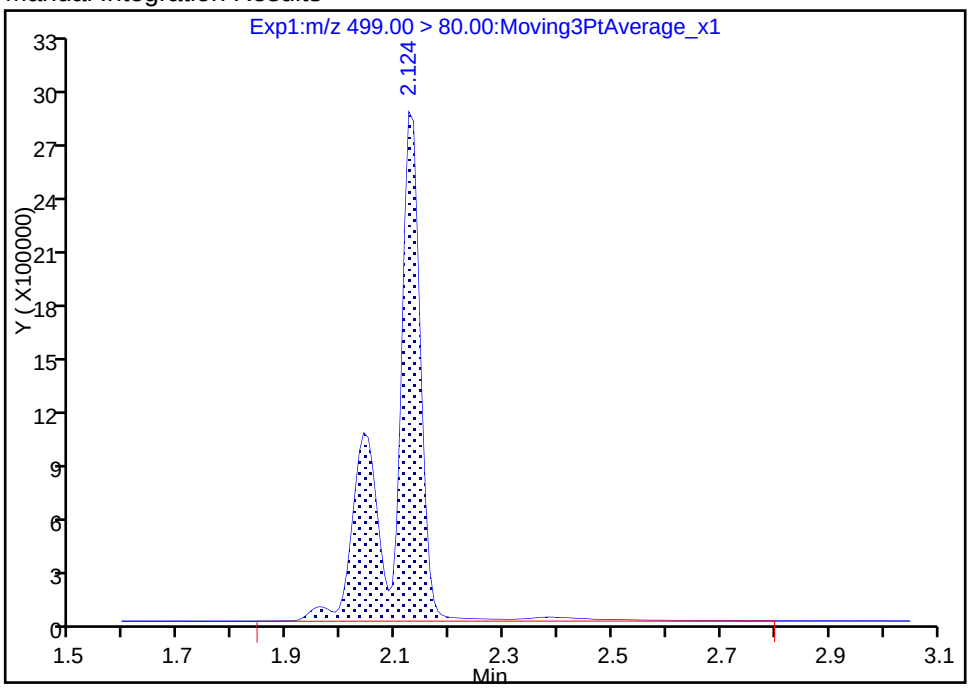
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 10377145
Amount: 60.967057
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:13:22
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

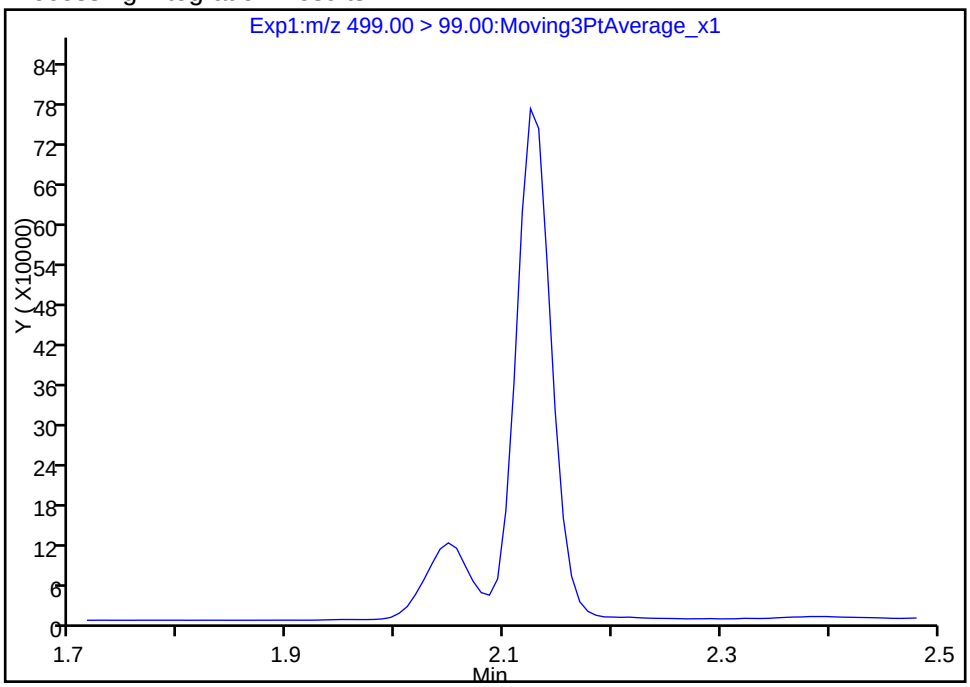
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_045.d
Injection Date: 20-Oct-2017 21:04:03 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 45
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

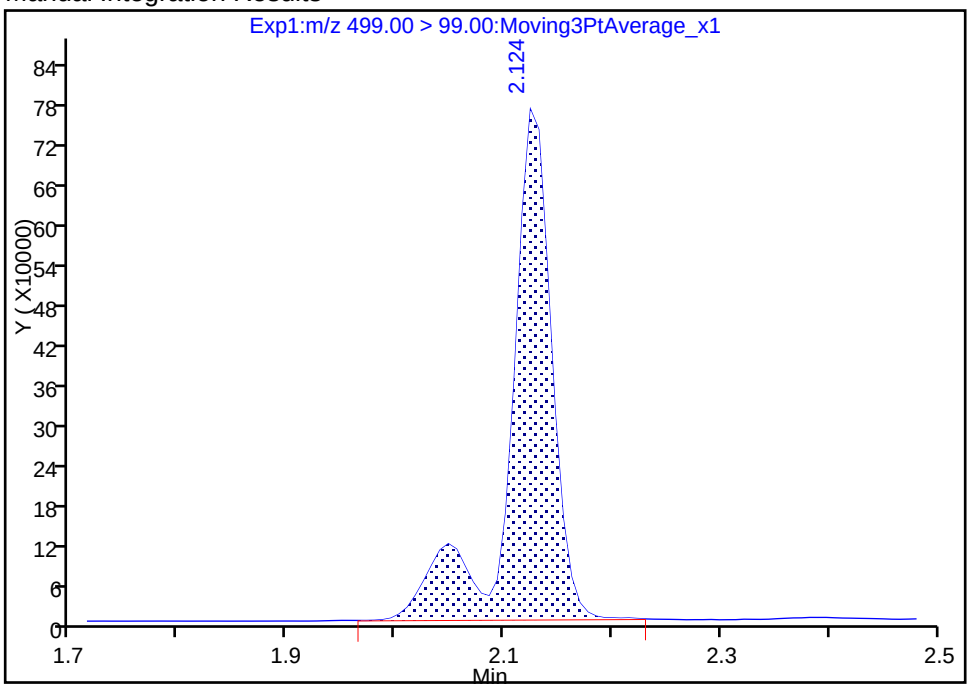
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 2082729
Amount: 60.967057
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:13:37
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

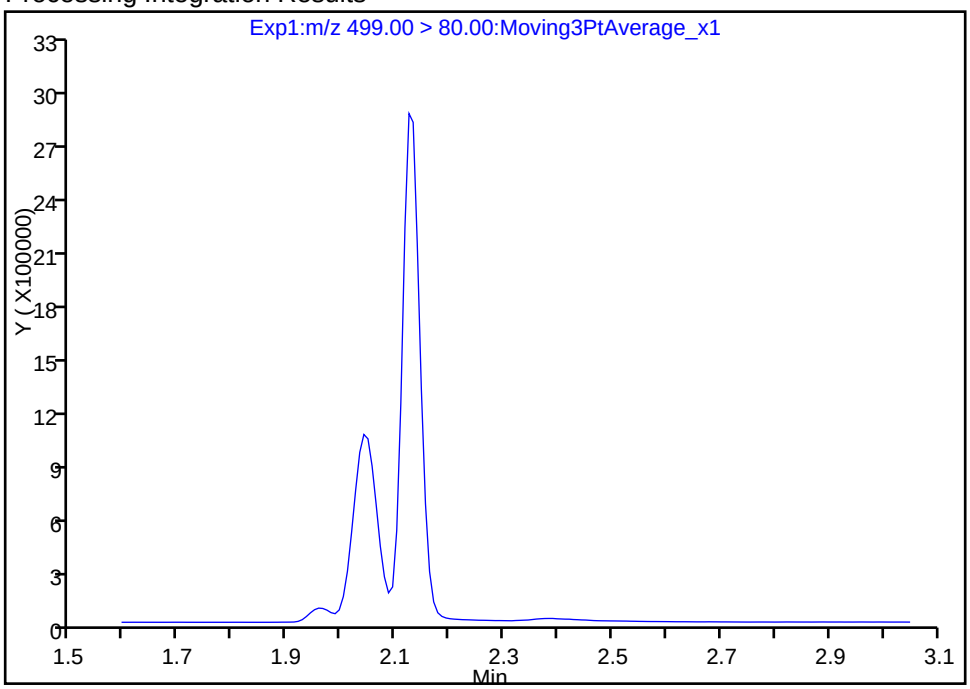
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_045.d
Injection Date: 20-Oct-2017 21:04:03 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 45
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

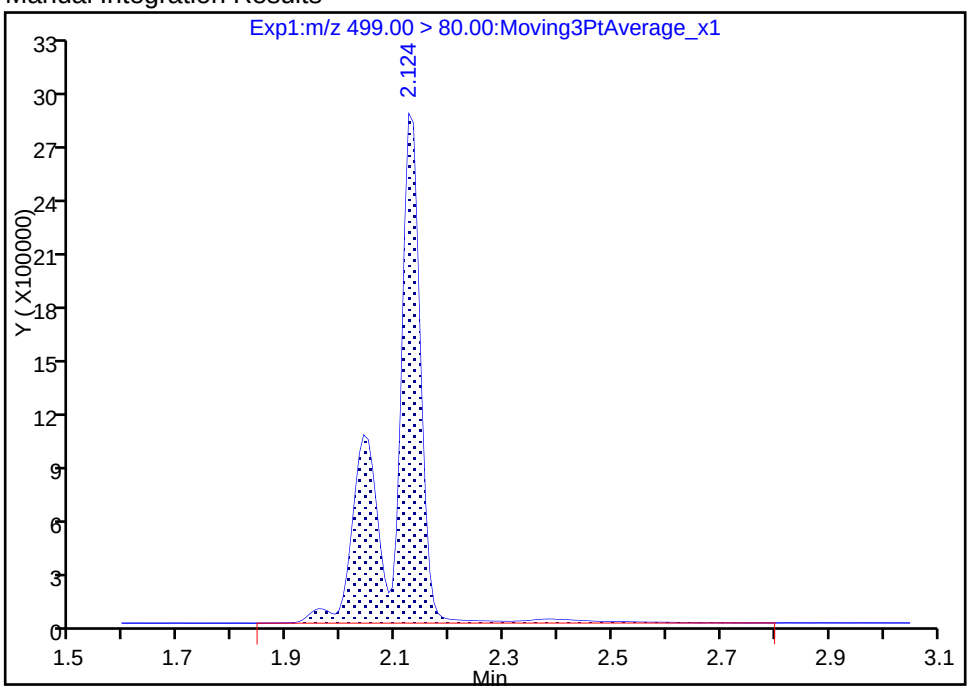
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 10377145
Amount: 60.967057
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:13:37
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190446/22 Calibration Date: 10/20/2017 22:43

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_066.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9420		153	135	13.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9682		15.4	15.0	2.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.613		44.3	45.0	-1.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9144		29.9	30.0	-0.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9355		60.3	60.0	0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6209		30.0	30.0	-0.2	30.0
13C2 PFHxA	Ave	1.172	1.297		11.1	10.0	10.7	30.0
13C2 PFDA	Ave	0.5578	0.5872		10.5	10.0	5.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_066.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 20-Oct-2017 22:43:34 ALS Bottle#: 5 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:59:54 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:26:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	23224835	153.1		4717	
298.90 > 99.00	1.419	1.402	0.017	1.000	17769061		1.31(0.00-0.00)	5192	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2283522	11.1		8583	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	13261562	44.3		5144	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	2557474	15.4		455	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1760502	10.0		6197	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	4833616	29.9		108	
413.00 > 169.00	1.882	1.856	0.026	1.000	2670092		1.81(0.00-0.00)	5205	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5237323	28.7		5672	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.116	0.016	1.000	3279638	30.0		313	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.117	0.007	1.000	10252303	60.3		1229	M
499.00 > 99.00	2.124	2.117	0.007	1.000	2135921		4.80(0.00-0.00)	755	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1033688	10.5		5587	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 23-Oct-2017 10:59:55 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_066.d

Injection Date: 20-Oct-2017 22:43:34 Instrument ID: A8_N

Lims ID: CCV L5

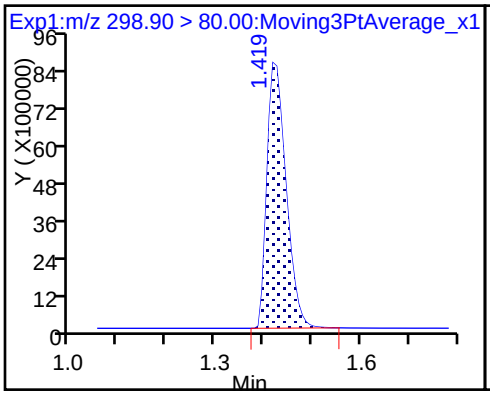
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 22

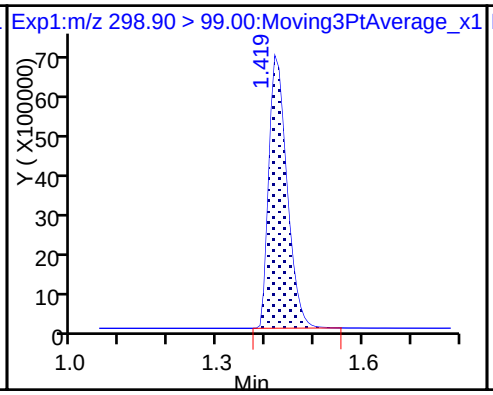
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

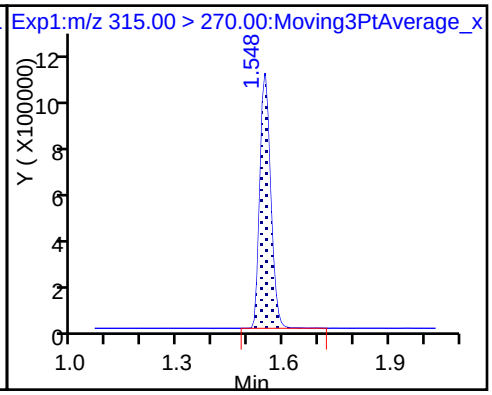
1 Perfluorobutanesulfonic acid



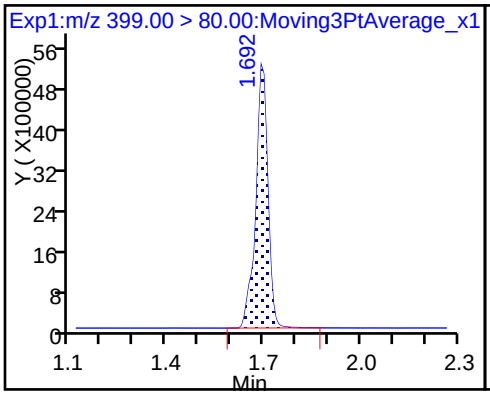
1 Perfluorobutanesulfonic acid



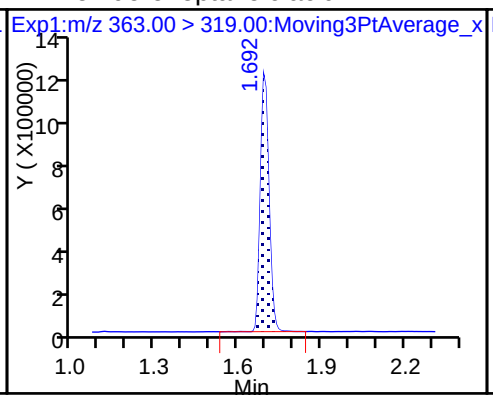
$ 2 13C2 PFHxA



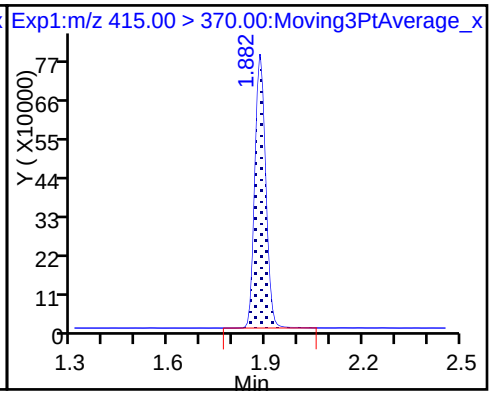
3 Perfluorohexanesulfonic acid



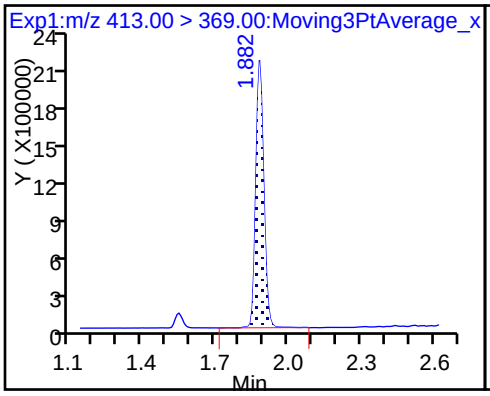
4 Perfluoroheptanoic acid



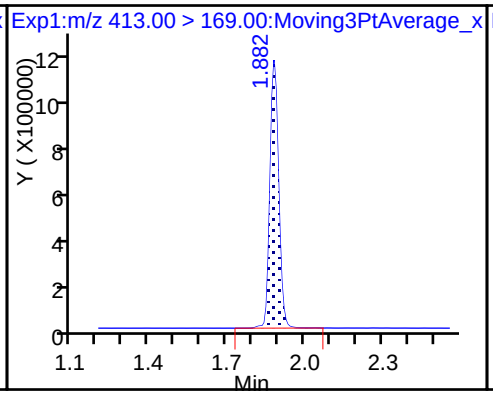
* 6 13C2-PFOA



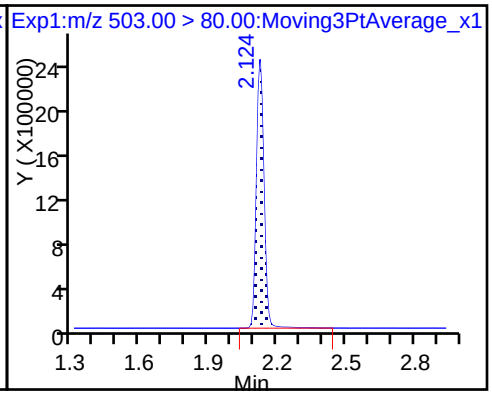
5 Perfluorooctanoic acid



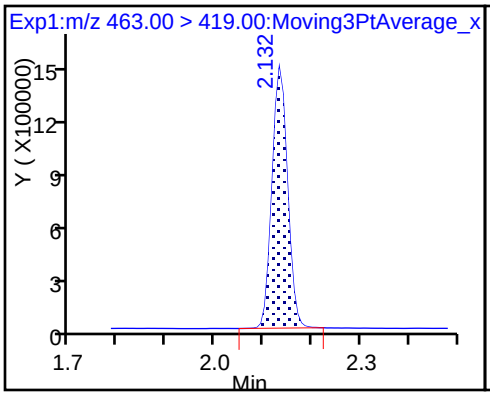
5 Perfluorooctanoic acid



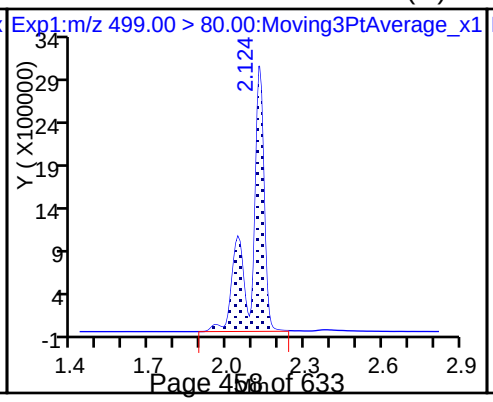
* 7 13C4 PFOS



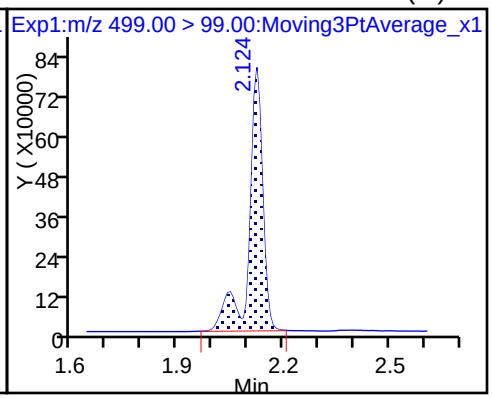
9 Perfluorononanoic acid



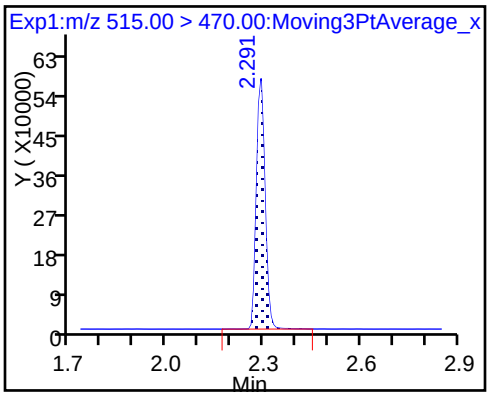
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
2.9
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

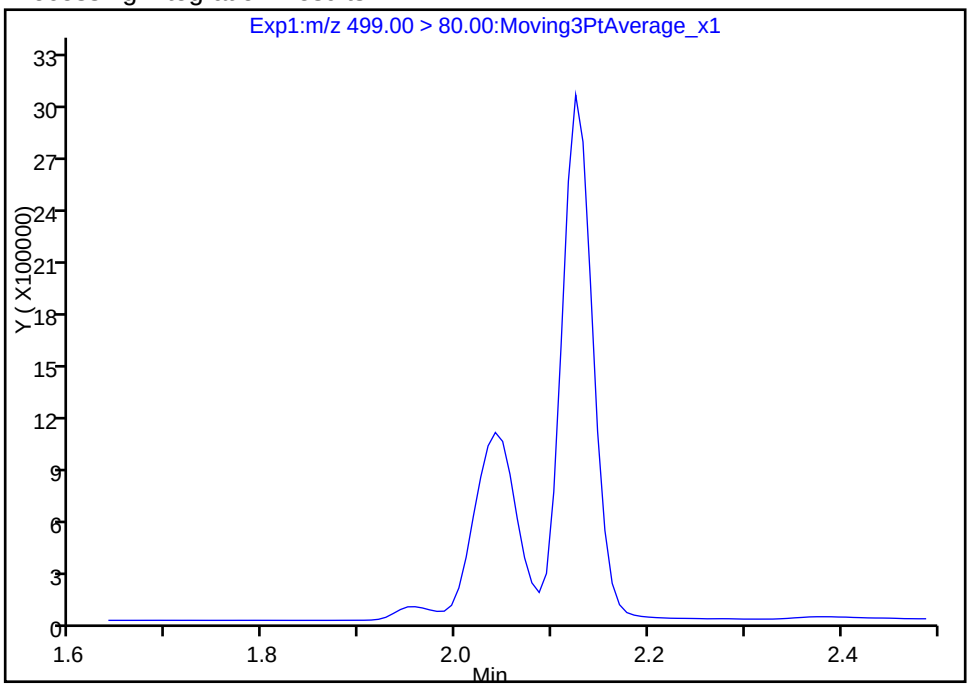
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_066.d
Injection Date: 20-Oct-2017 22:43:34 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

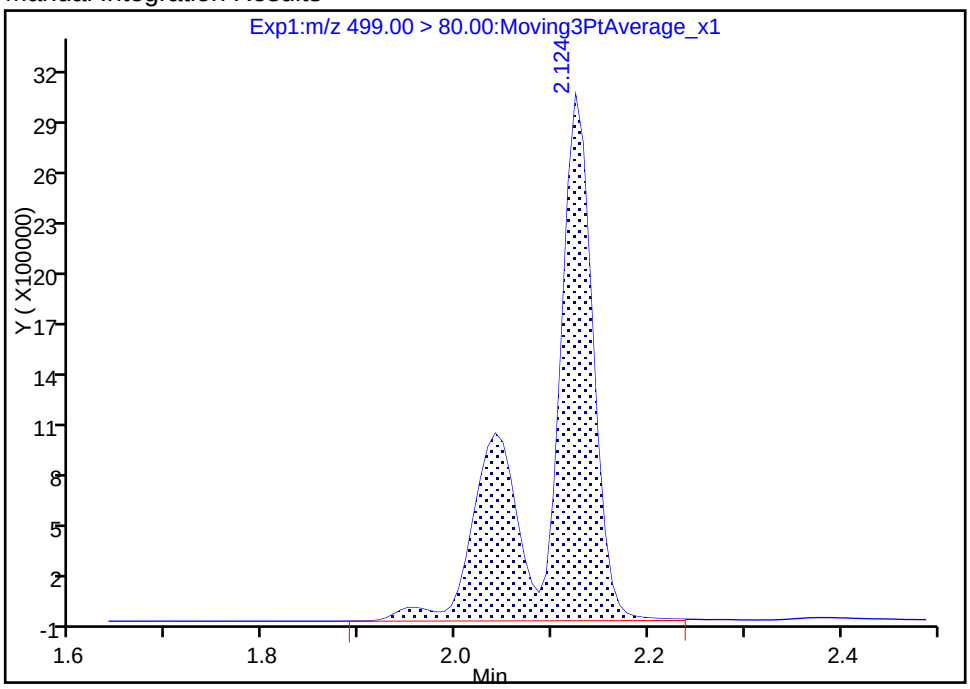
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 10252303
Amount: 60.258045
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:25:54
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

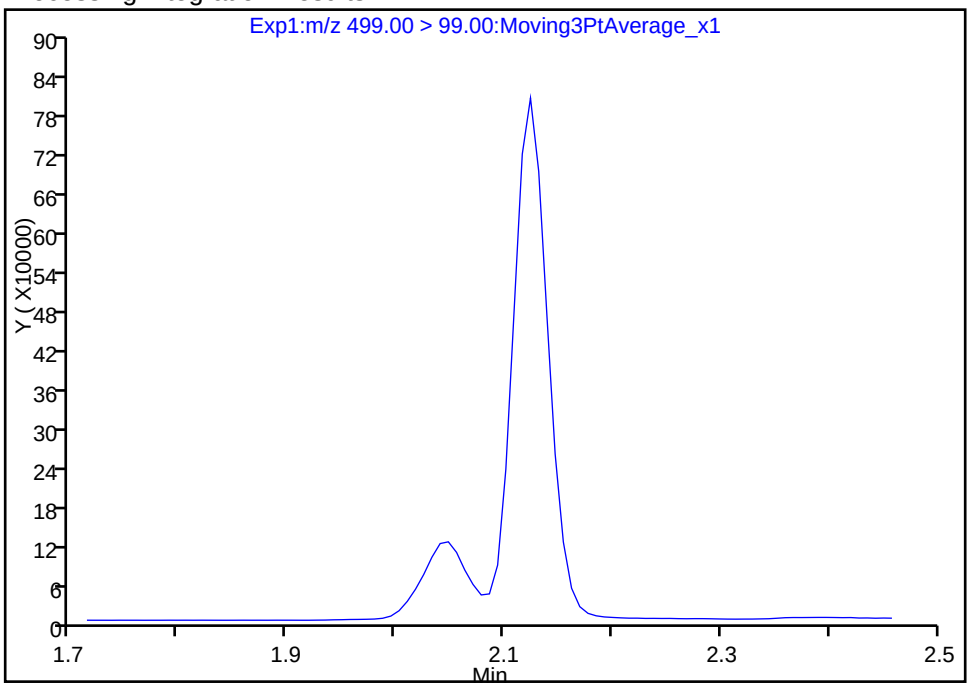
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_066.d
Injection Date: 20-Oct-2017 22:43:34 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

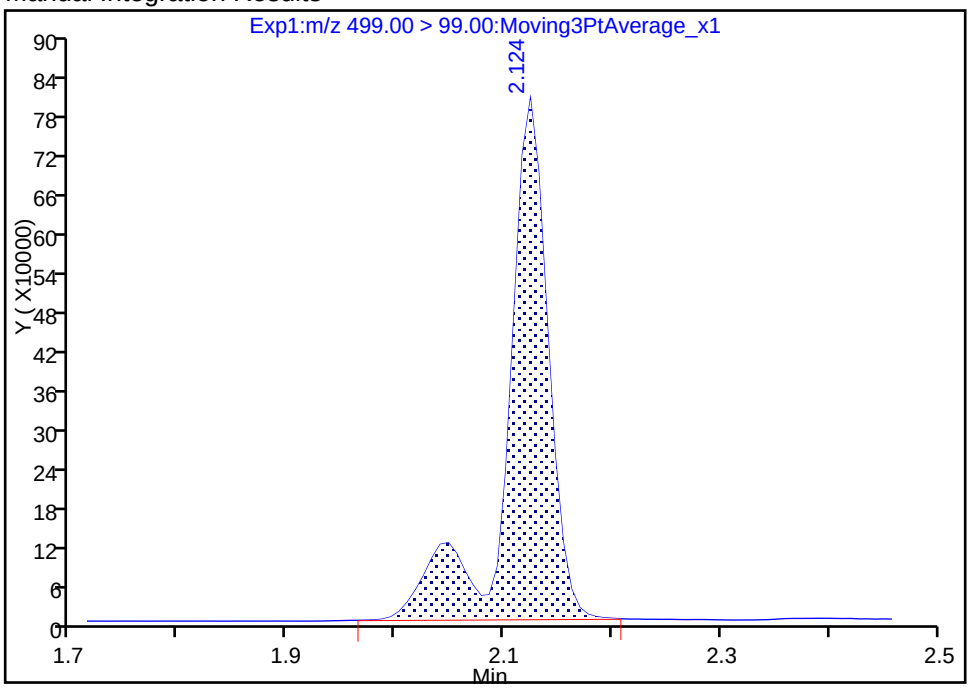
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 2135921
Amount: 60.258045
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:26:13
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

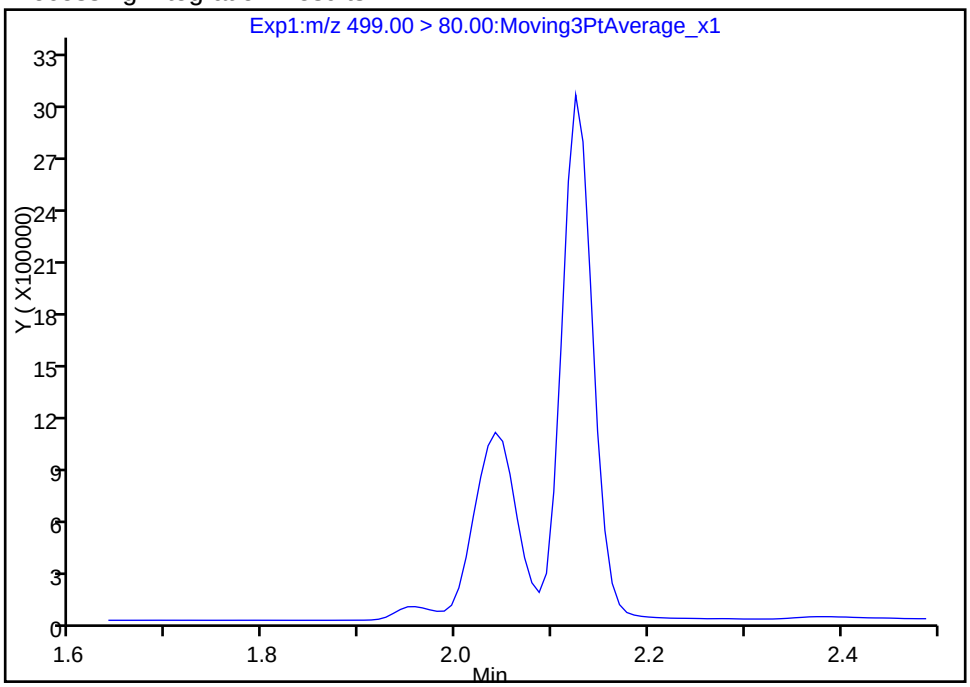
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_066.d
Injection Date: 20-Oct-2017 22:43:34 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

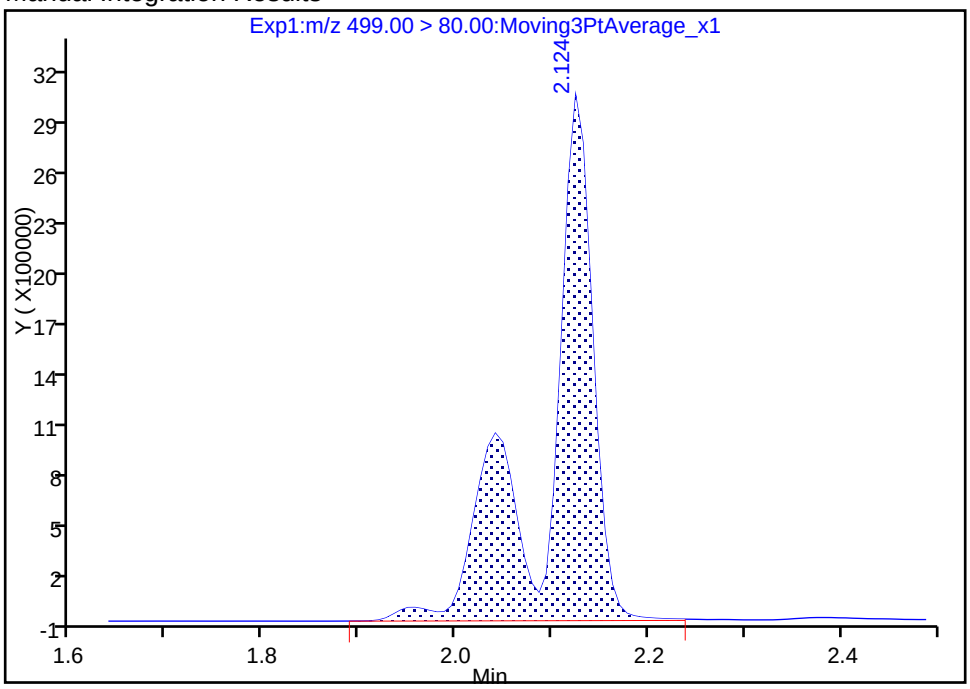
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 10252303
Amount: 60.258045
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:26:13
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190446/34 Calibration Date: 10/20/2017 23:40

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_078.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.155		47.5	45.0	5.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.709		15.7	15.0	4.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	1.003		5.33	5.00	6.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9119		9.93	10.0	-0.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9090		19.5	20.0	-2.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6257		10.1	10.0	0.6	30.0
13C2 PFHxA	Ave	1.172	1.270		10.8	10.0	8.4	30.0
13C2 PFDA	Ave	0.5578	0.5721		10.3	10.0	2.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190447/34 Calibration Date: 10/20/2017 23:40

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_078.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.155		47.5	45.0	5.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.709		15.7	15.0	4.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	1.003		5.33	5.00	6.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9119		9.93	10.0	-0.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9090		19.5	20.0	-2.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6257		10.1	10.0	0.6	30.0
13C2 PFHxA	Ave	1.172	1.270		10.8	10.0	8.4	30.0
13C2 PFDA	Ave	0.5578	0.5721		10.3	10.0	2.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_078.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 20-Oct-2017 23:40:34 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L3
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:45 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:30:56

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.402	0.024	1.000	10107833	47.5		4385	
298.90 > 99.00	1.419	1.402	0.017	0.995	7246266		1.39(0.00-0.00)	3945	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2264219	10.8		7458	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	4986532	15.7		3413	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.699	1.668	0.031	1.000	894087	5.33		155	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1782156	10.0		4779	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	1626488	9.93		41.2	
413.00 > 169.00	1.882	1.856	0.026	1.000	864373		1.88(0.00-0.00)	2255	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5577435	28.7		6030	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.116	0.016	1.000	1115213	10.1		110	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.117	0.007	1.000	3536465	19.5		544	M
499.00 > 99.00	2.124	2.117	0.007	1.000	730391		4.84(0.00-0.00)	311	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1019570	10.3		4562	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_078.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 20-Oct-2017 23:40:34 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L3
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:45 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:30:56

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.402	0.024	1.000	10107833	47.5		4385	
298.90 > 99.00	1.419	1.402	0.017	0.995	7246266		1.39(0.00-0.00)	3945	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2264219	10.8		7458	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	4986532	15.7		3413	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.699	1.668	0.031	1.000	894087	5.33		155	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1782156	10.0		4779	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	1626488	9.93		41.2	
413.00 > 169.00	1.882	1.856	0.026	1.000	864373		1.88(0.00-0.00)	2255	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5577435	28.7		6030	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.116	0.016	1.000	1115213	10.1		110	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.117	0.007	1.000	3536465	19.5		544	M
499.00 > 99.00	2.124	2.117	0.007	1.000	730391		4.84(0.00-0.00)	311	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1019570	10.3		4562	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

Report Date: 23-Oct-2017 11:00:45 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_078.d

Injection Date: 20-Oct-2017 23:40:34 Instrument ID: A8_N

Lims ID: CCV L3

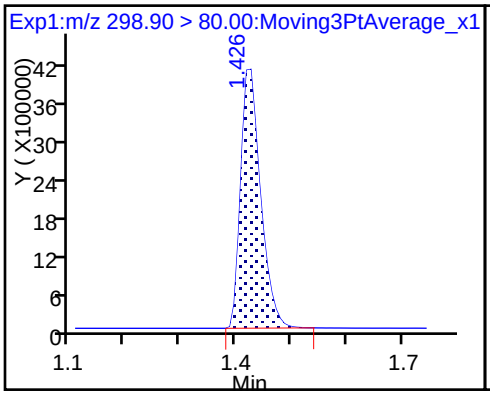
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34

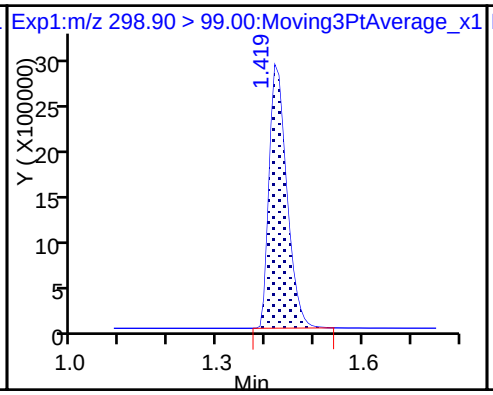
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

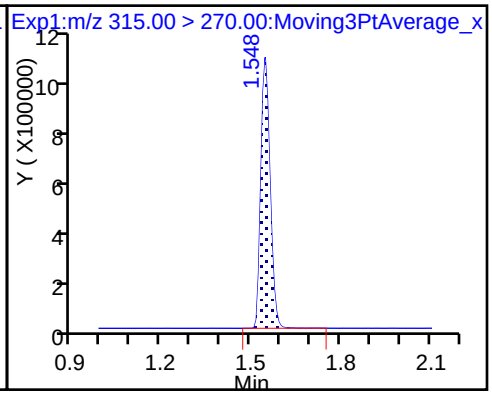
1 Perfluorobutanesulfonic acid



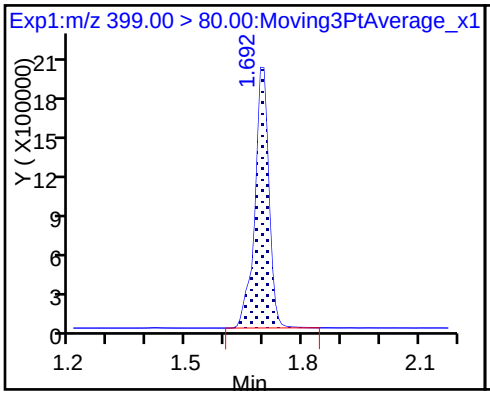
1 Perfluorobutanesulfonic acid



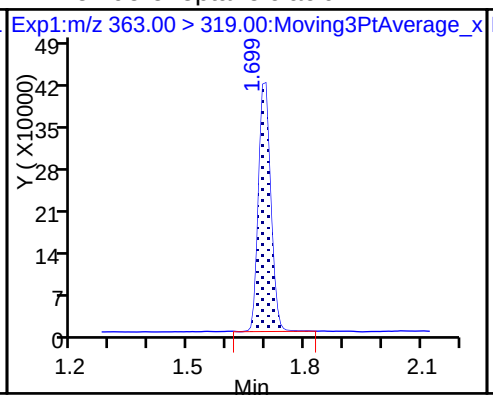
$ 2 13C2 PFHxA



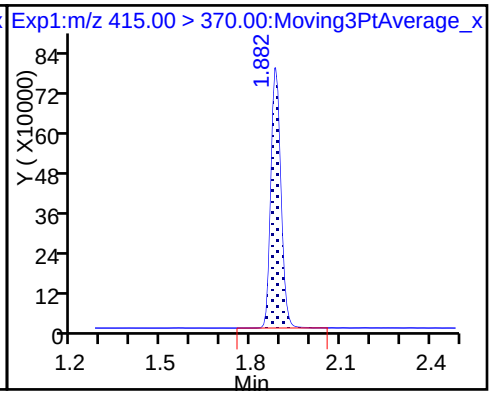
3 Perfluorohexanesulfonic acid



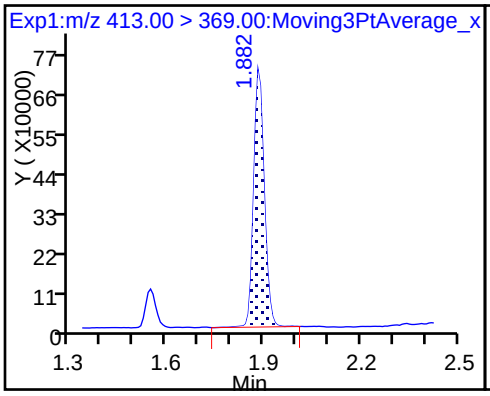
4 Perfluoroheptanoic acid



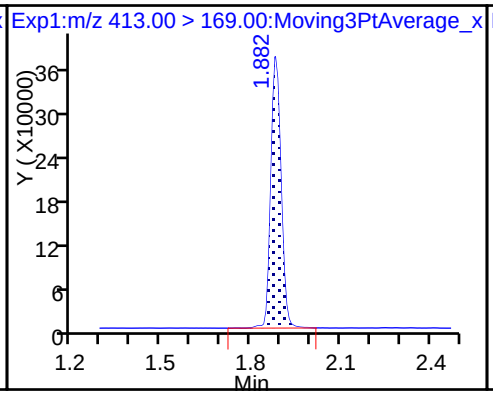
* 6 13C2-PFOA



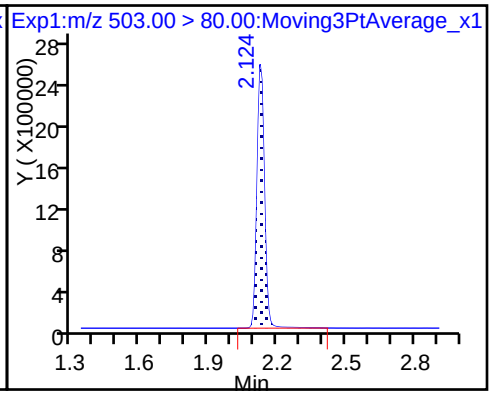
5 Perfluorooctanoic acid



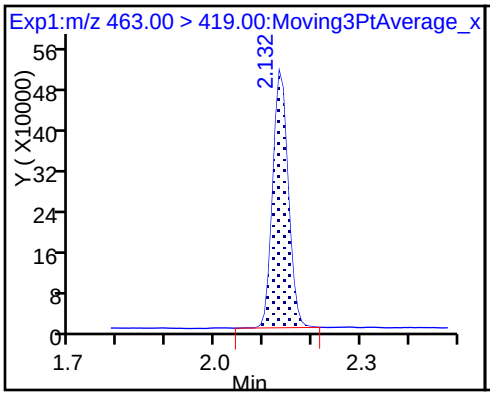
5 Perfluorooctanoic acid



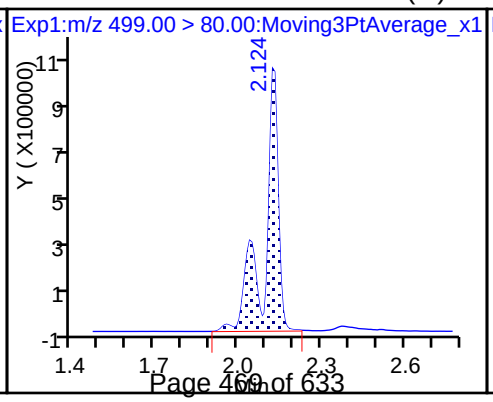
* 7 13C4 PFOS



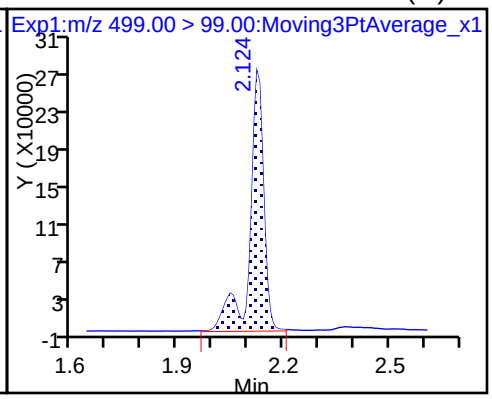
9 Perfluorononanoic acid



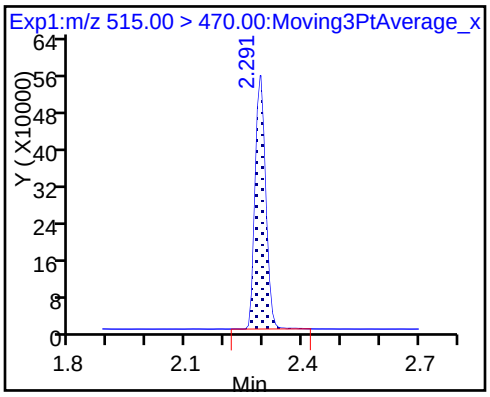
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA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2.291
Y (X10000)
64
56
48
40
32
24
16
8
0
1.8
2.1
2.4
2.7
Min

Report Date: 23-Oct-2017 11:00:46 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_078.d

Injection Date: 20-Oct-2017 23:40:34 Instrument ID: A8_N

Lims ID: CCV L3

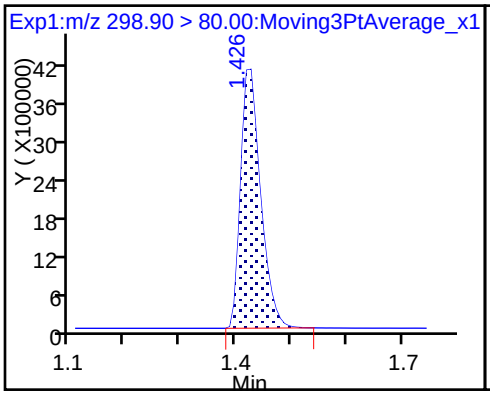
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34

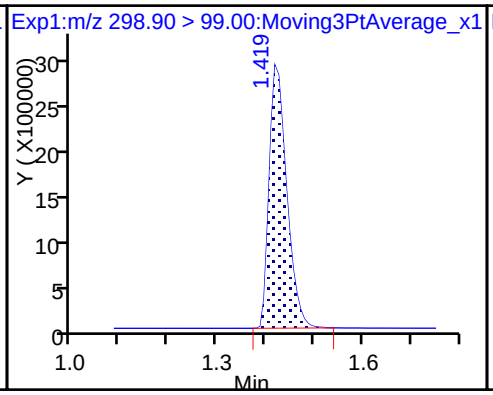
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

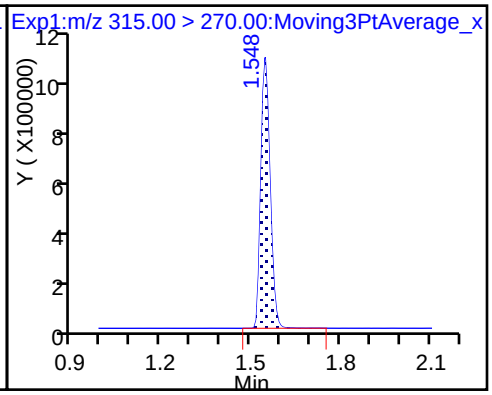
1 Perfluorobutanesulfonic acid



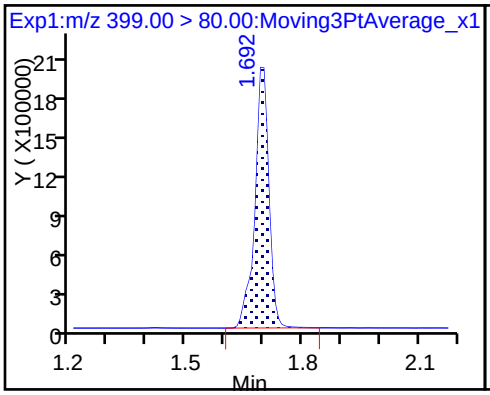
1 Perfluorobutanesulfonic acid



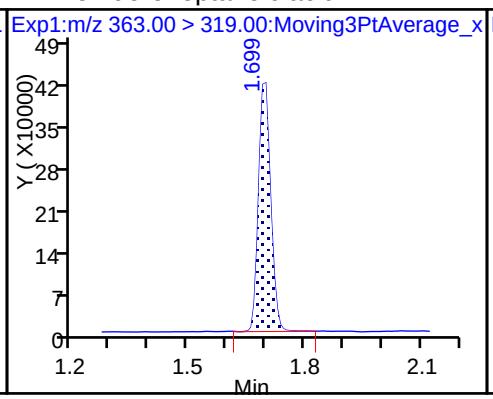
$ 2 13C2 PFHxA



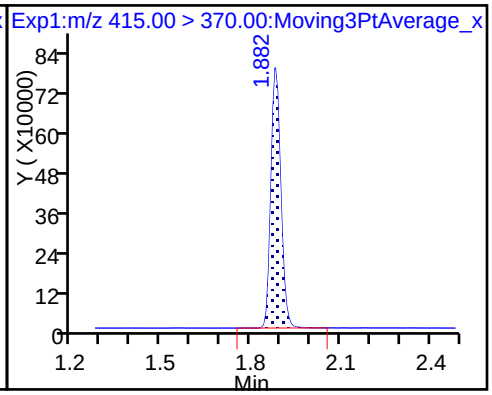
3 Perfluorohexanesulfonic acid



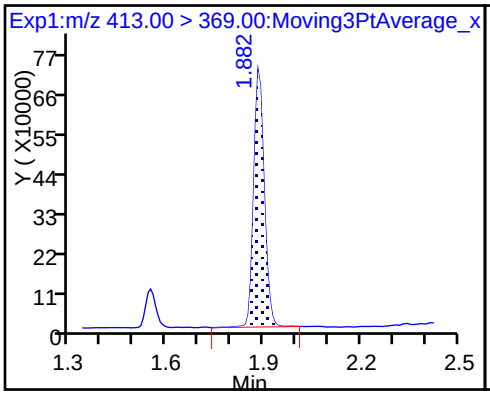
4 Perfluoroheptanoic acid



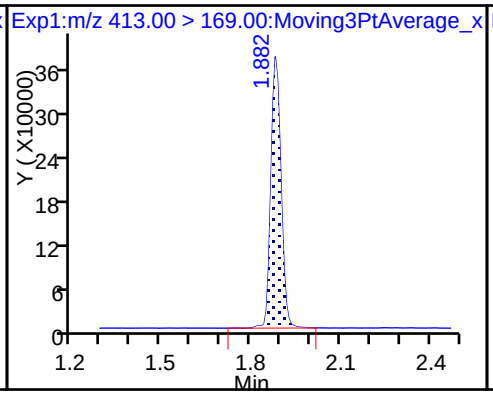
* 6 13C2-PFOA



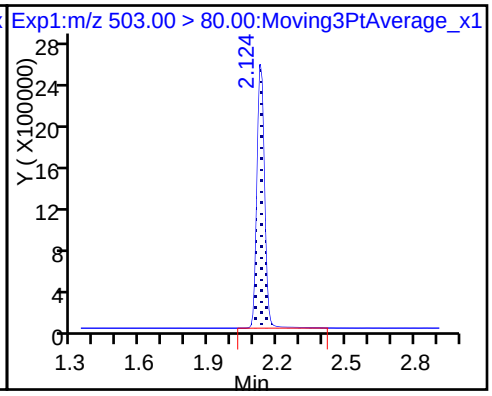
5 Perfluorooctanoic acid



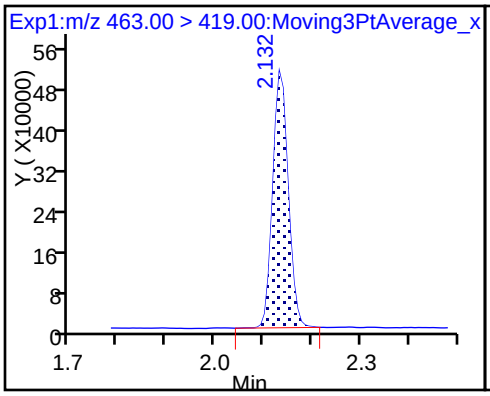
5 Perfluorooctanoic acid



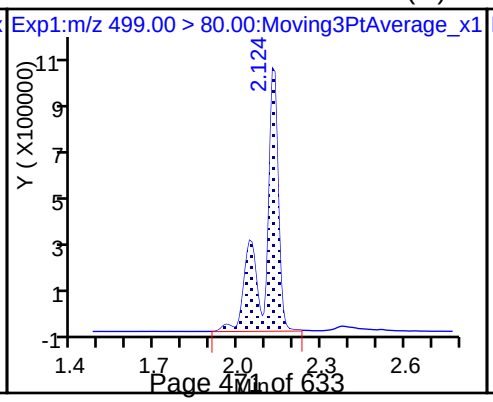
* 7 13C4 PFOS



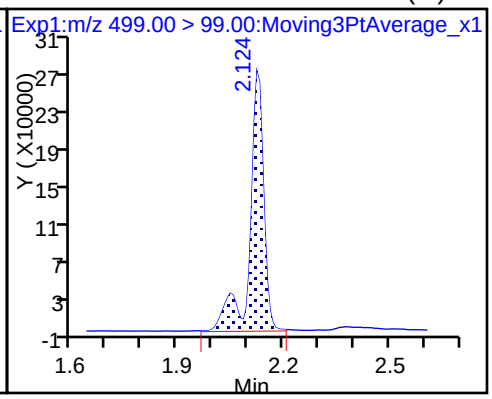
9 Perfluorononanoic acid



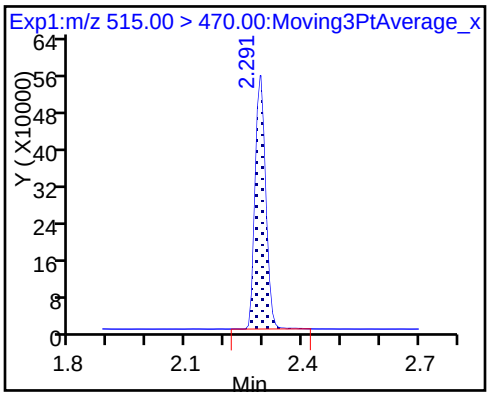
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
64
56
48
40
32
24
16
8
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento

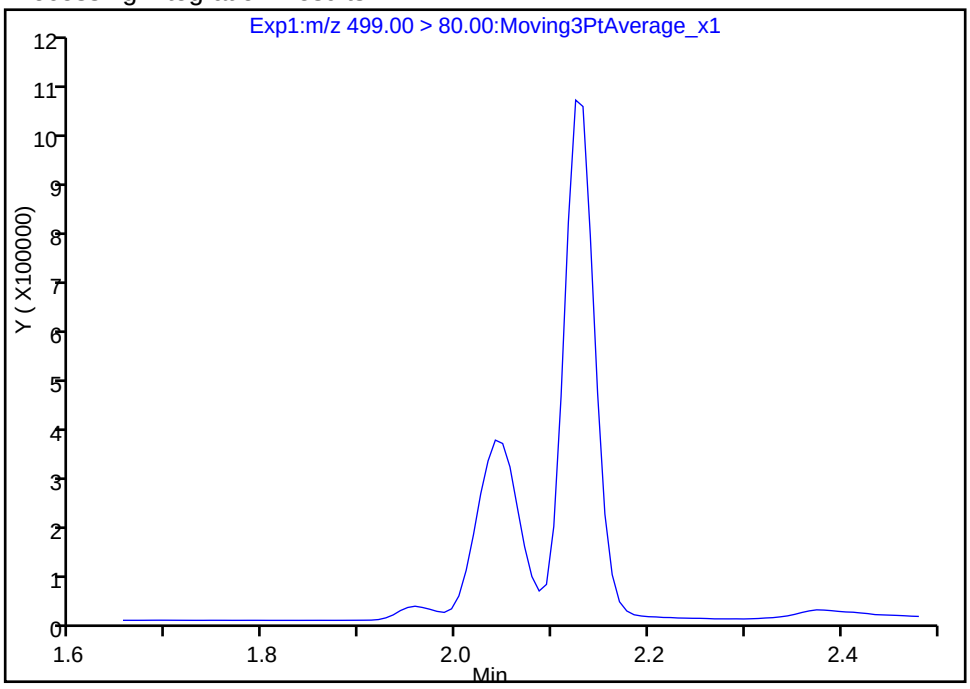
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_078.d
Injection Date: 20-Oct-2017 23:40:34 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

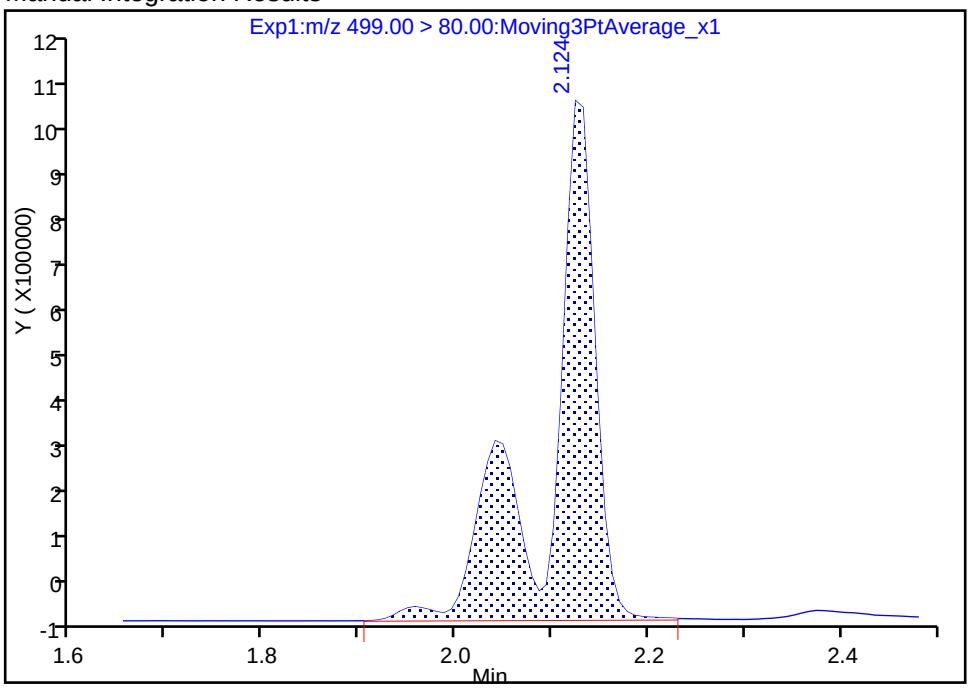
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 3536465
Amount: 19.518112
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:30:22
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

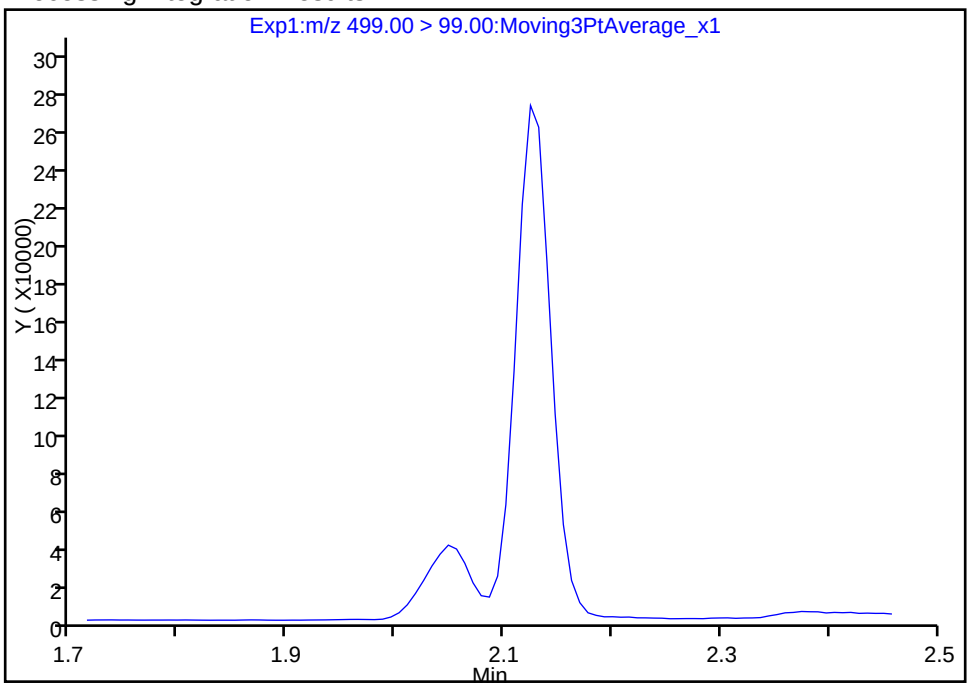
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_078.d
Injection Date: 20-Oct-2017 23:40:34 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

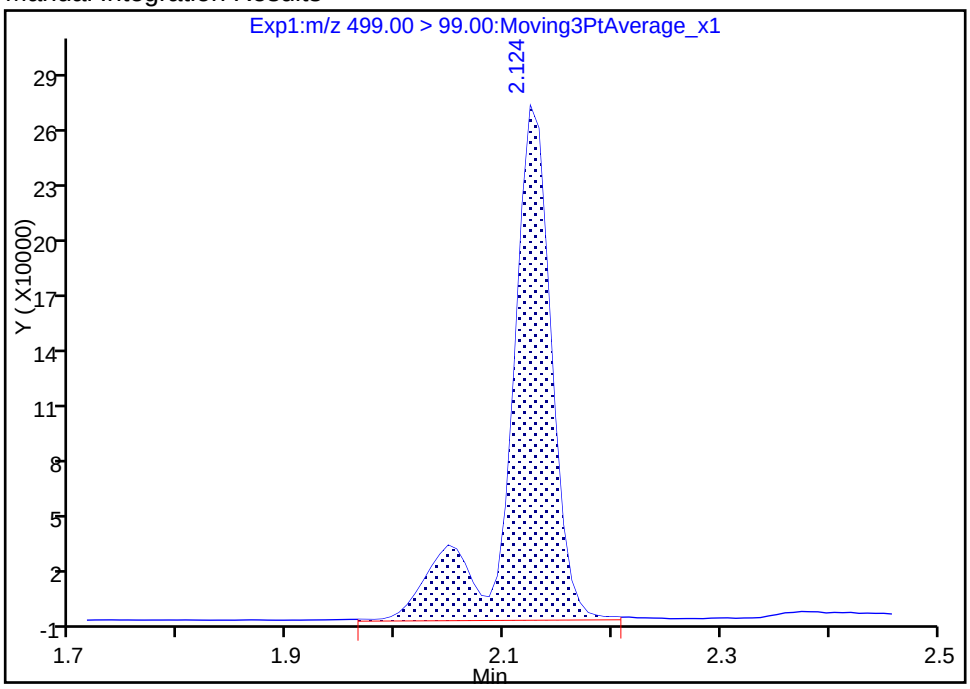
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 730391
Amount: 19.518112
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:30:47
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

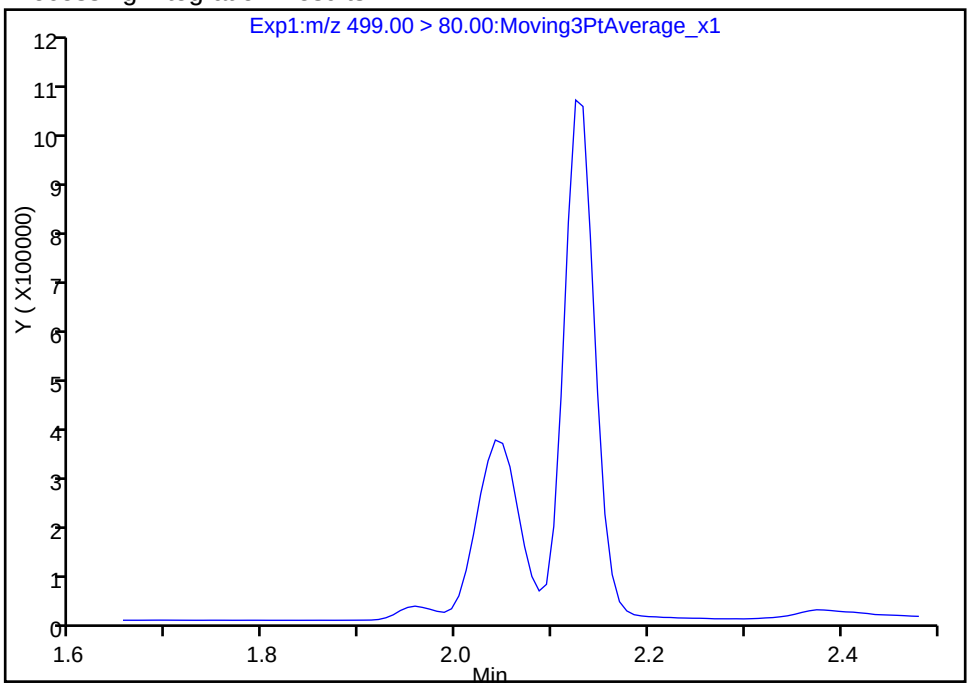
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_078.d
Injection Date: 20-Oct-2017 23:40:34 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

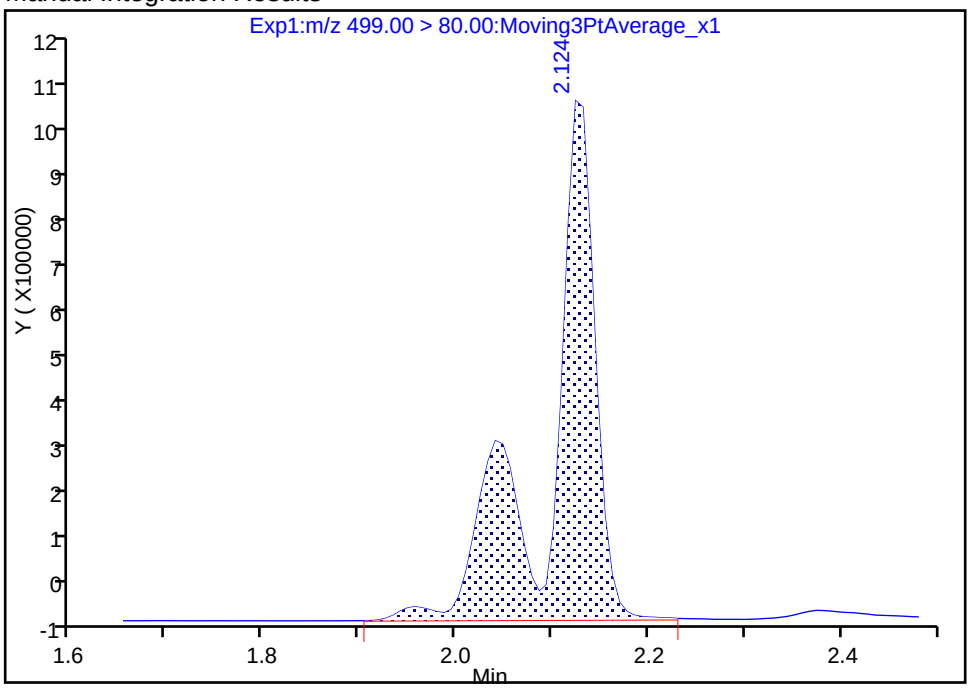
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 3536465
Amount: 19.518112
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:30:47
Audit Action: Manually Integrated Audit Reason: Missed Peak

TestAmerica Sacramento

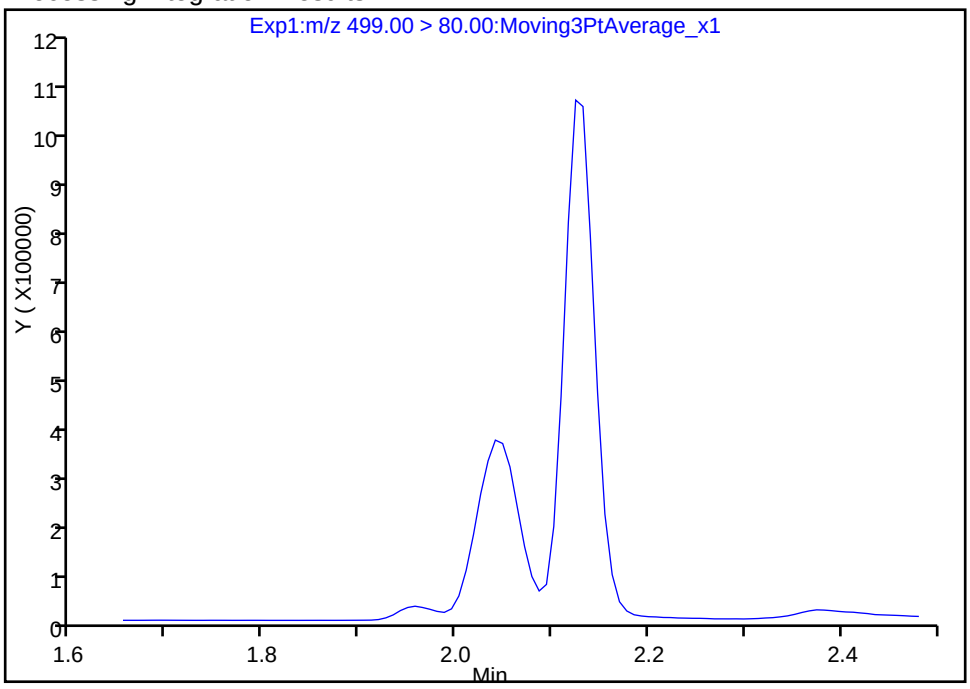
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_078.d
Injection Date: 20-Oct-2017 23:40:34 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

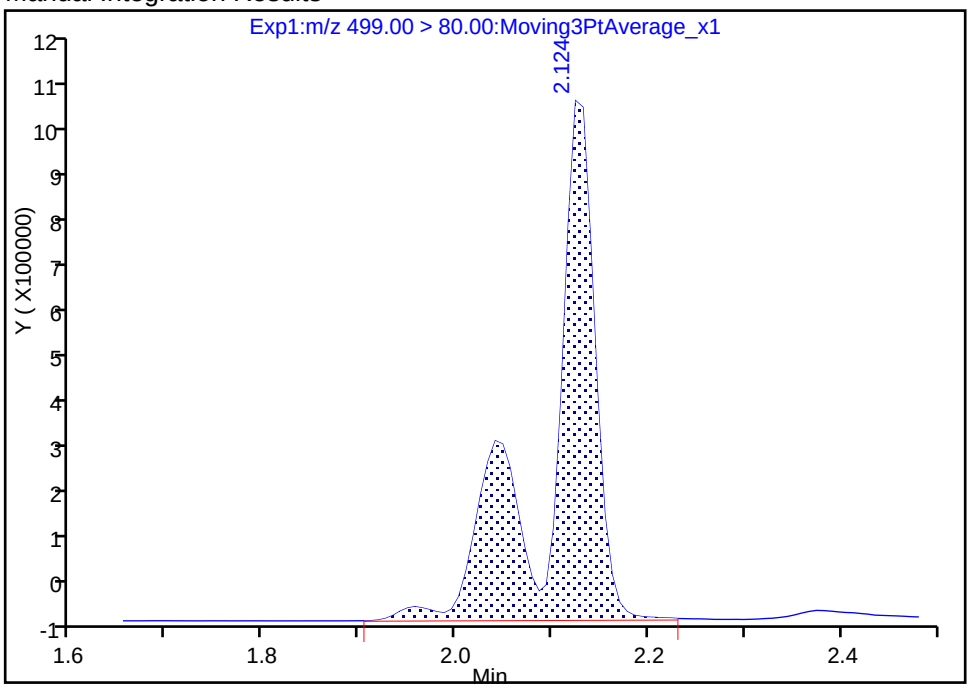
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 3536465
Amount: 19.518112
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:30:22
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

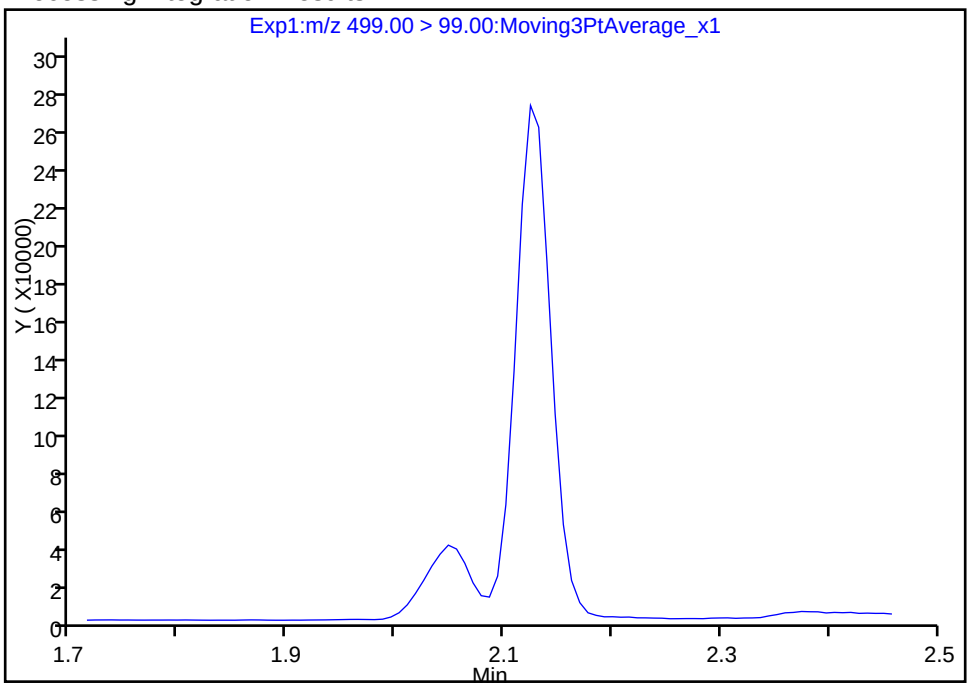
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_078.d
Injection Date: 20-Oct-2017 23:40:34 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

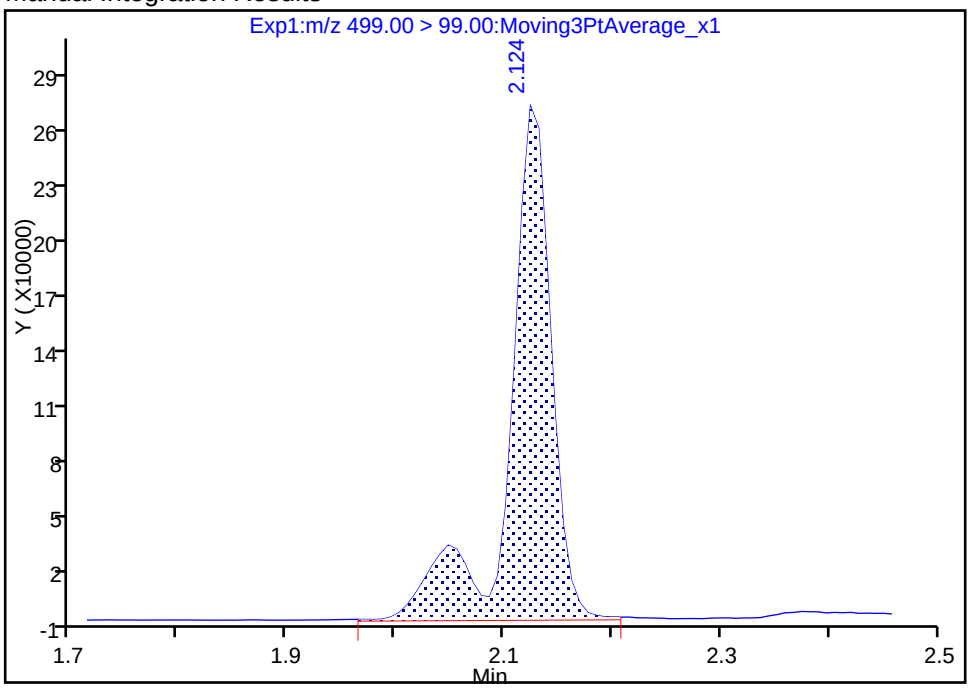
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 730391
Amount: 19.518112
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:30:47
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

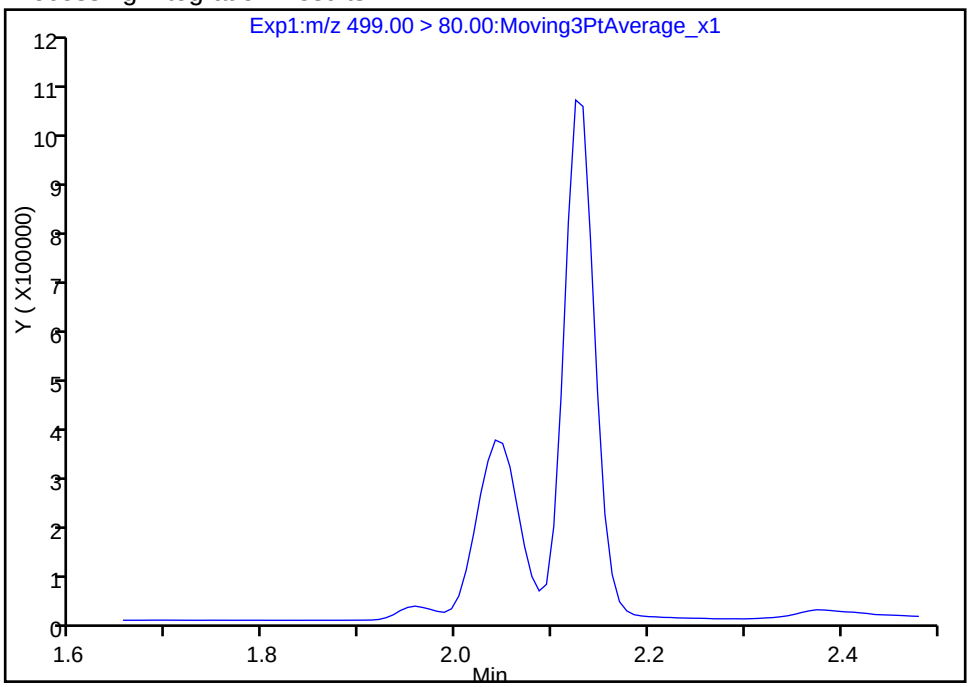
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_078.d
Injection Date: 20-Oct-2017 23:40:34 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

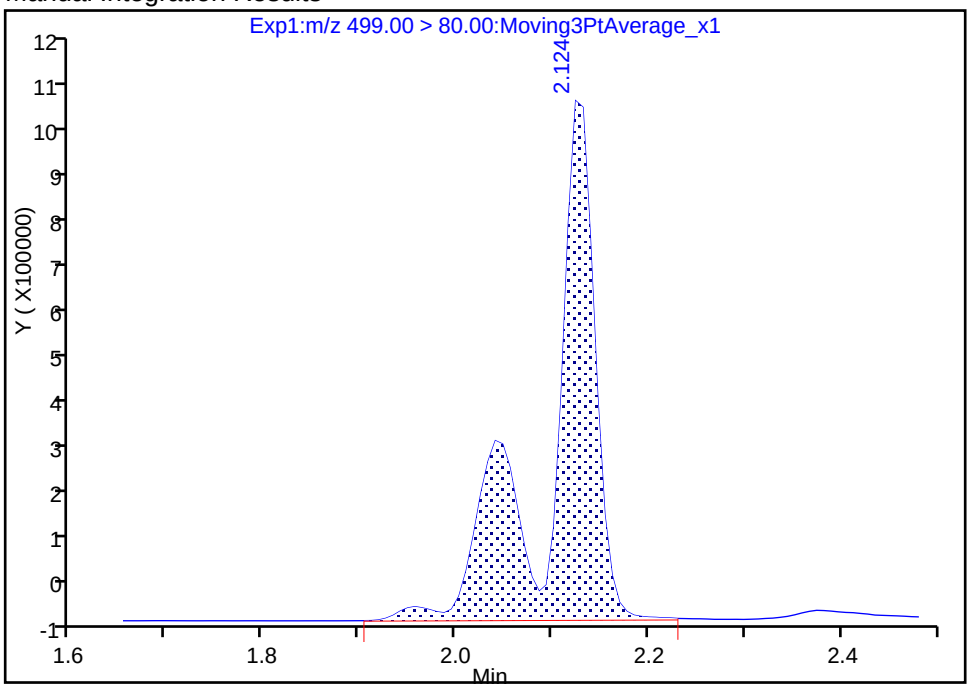
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 3536465
Amount: 19.518112
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:30:47
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190447/37 Calibration Date: 10/20/2017 23:54

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_081.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9558		157	135	16.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9744		15.5	15.0	3.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.608		44.2	45.0	-1.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9171		29.9	30.0	-0.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9279		59.8	60.0	-0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6283		30.3	30.0	1.0	30.0
13C2 PFHxA	Ave	1.172	1.276		10.9	10.0	8.9	30.0
13C2 PFDA	Ave	0.5578	0.5799		10.4	10.0	4.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_081.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 20-Oct-2017 23:54:47 ALS Bottle#: 5 Worklist Smp#: 37
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:55 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:31:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	23264659	157.3		3263	
298.90 > 99.00	1.419	1.402	0.017	1.000	17549786		1.33(0.00-0.00)	3599	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	2203097	10.9		6205	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	13048659	44.2		3537	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	2524060	15.5		442	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.855	0.019		1726452	10.0		4382	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.874	1.856	0.018	1.000	4754104	29.9		115	
413.00 > 169.00	1.874	1.856	0.018	1.000	2601077		1.83(0.00-0.00)	4269	
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.108	0.009		5170395	28.7		4588	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.116	0.008	1.000	3254912	30.3		337	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.117	2.117	0.0	1.000	10039255	59.8		1021	M
499.00 > 99.00	2.117	2.117	0.0	1.000	2102416		4.78(0.00-0.00)	777	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.282	0.002	1.000	1001122	10.4		4881	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 23-Oct-2017 11:00:55 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_081.d

Injection Date: 20-Oct-2017 23:54:47 Instrument ID: A8_N

Lims ID: CCV L5

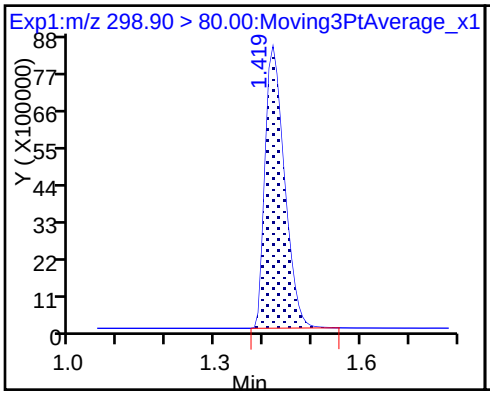
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 37

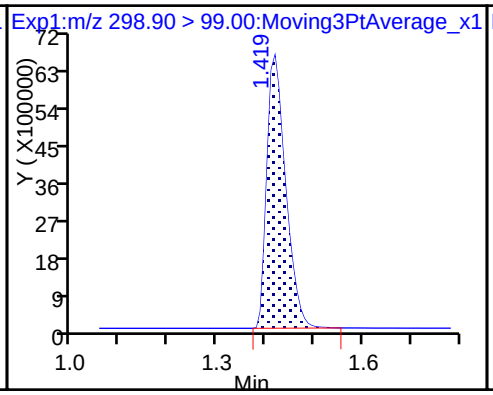
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

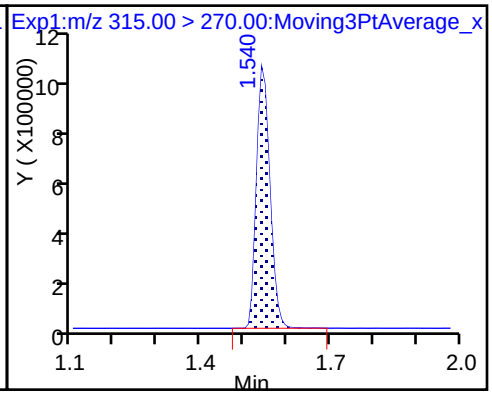
1 Perfluorobutanesulfonic acid



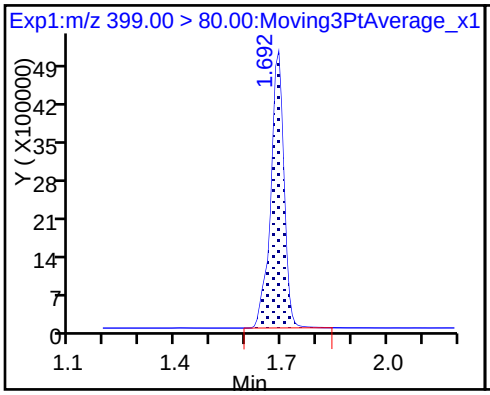
1 Perfluorobutanesulfonic acid



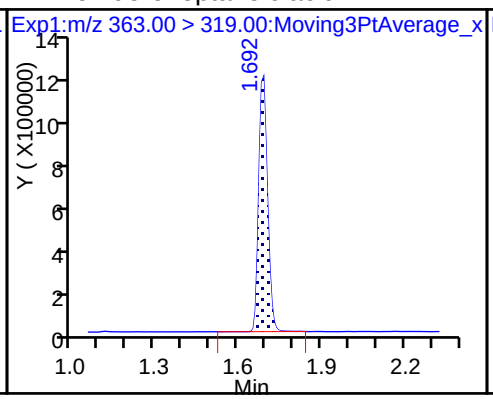
$ 2 13C2 PFHxA



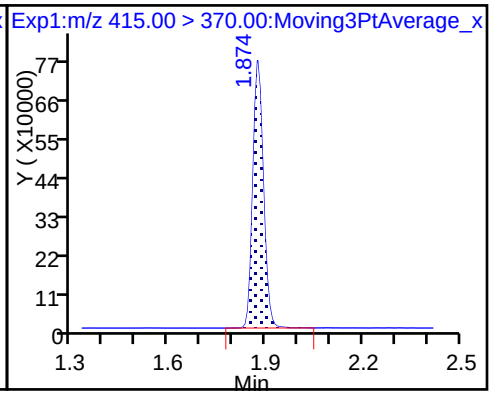
3 Perfluorohexanesulfonic acid



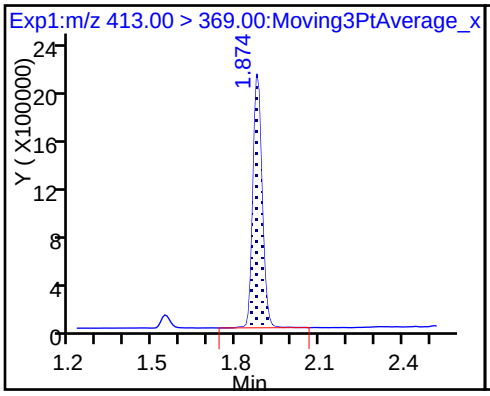
4 Perfluoroheptanoic acid



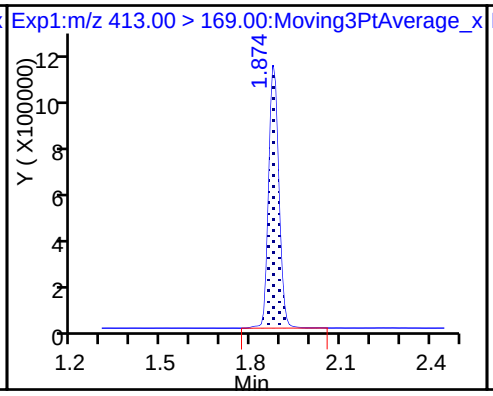
* 6 13C2-PFOA



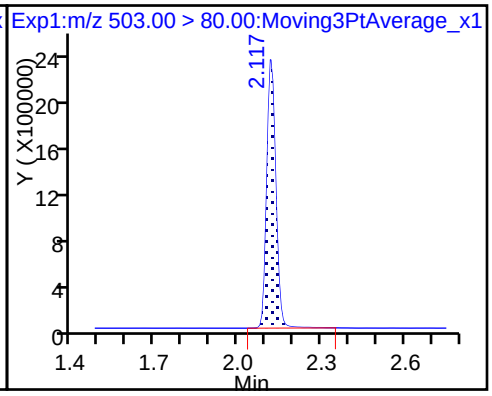
5 Perfluorooctanoic acid



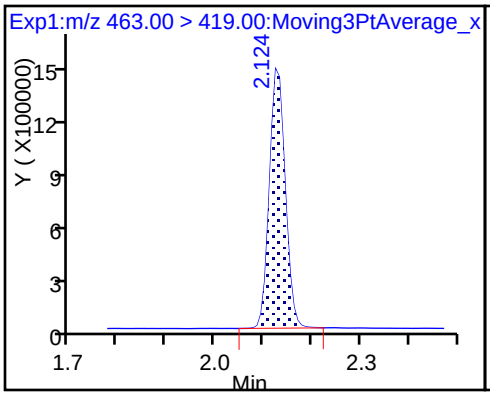
5 Perfluorooctanoic acid



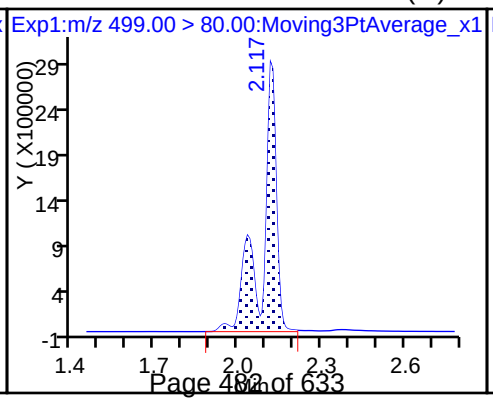
* 7 13C4 PFOS



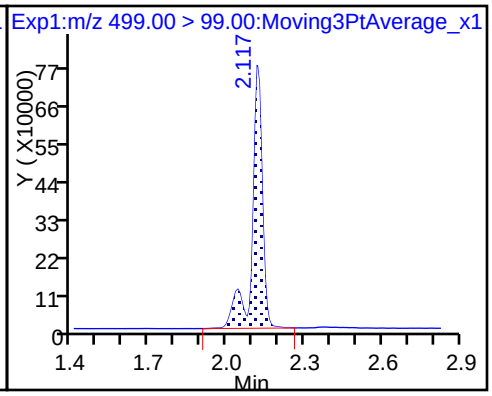
9 Perfluorononanoic acid



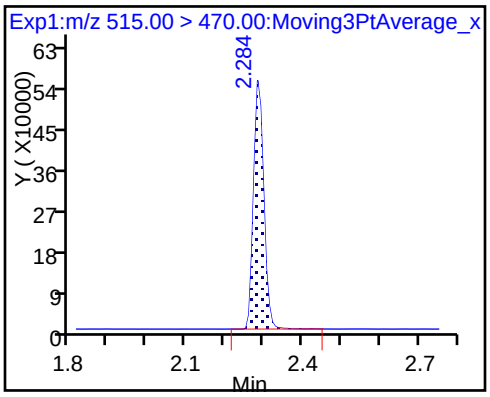
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
63
54
45
36
27
18
9
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

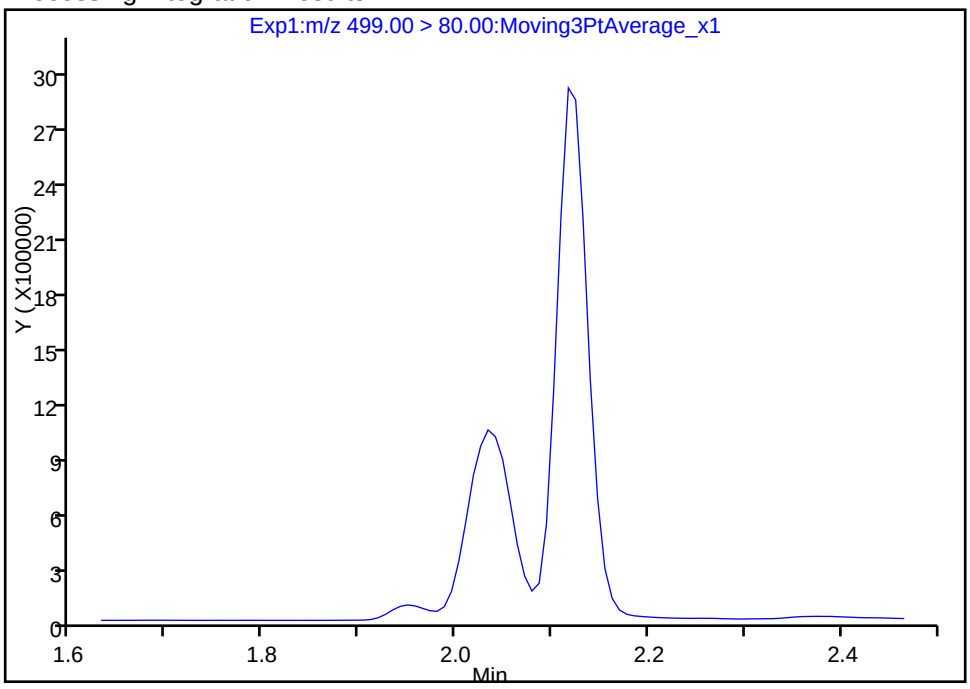
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_081.d
Injection Date: 20-Oct-2017 23:54:47 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 37
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

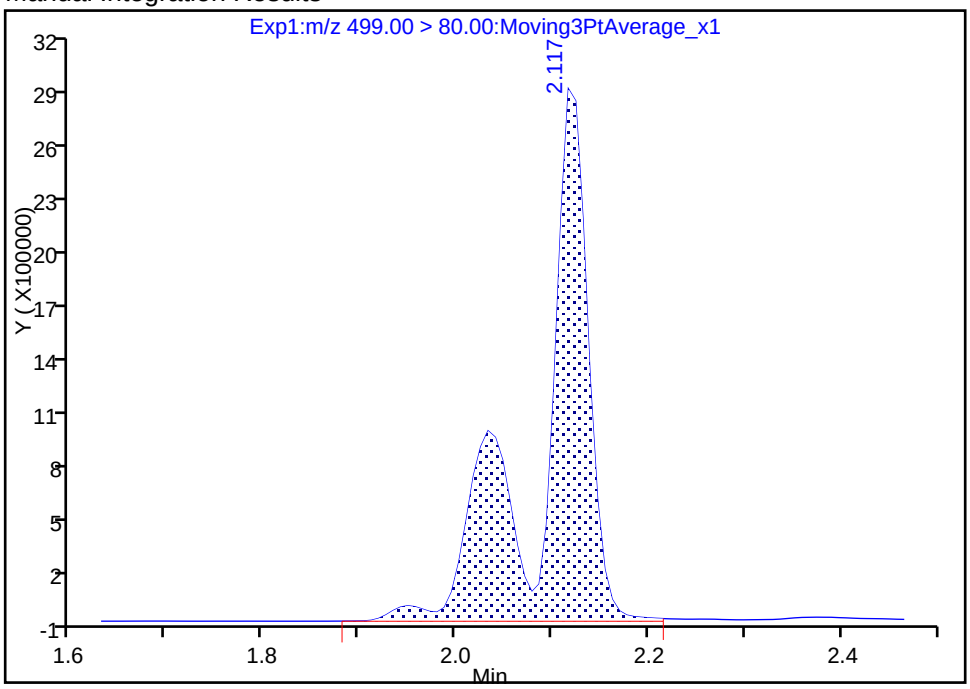
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 10039255
Amount: 59.769652
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:31:14
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

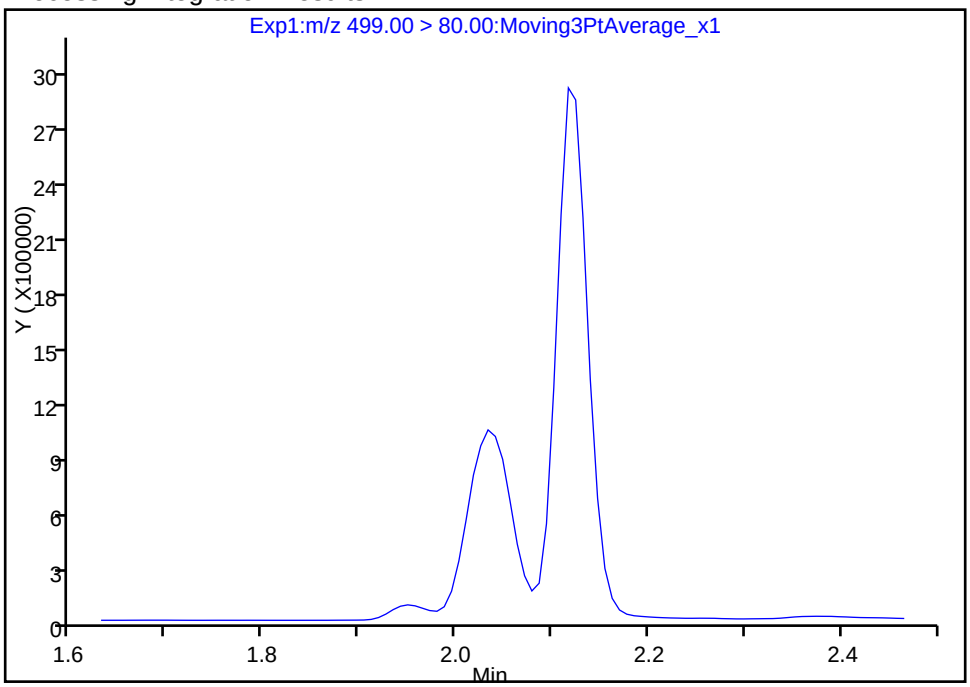
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_081.d
Injection Date: 20-Oct-2017 23:54:47 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 37
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

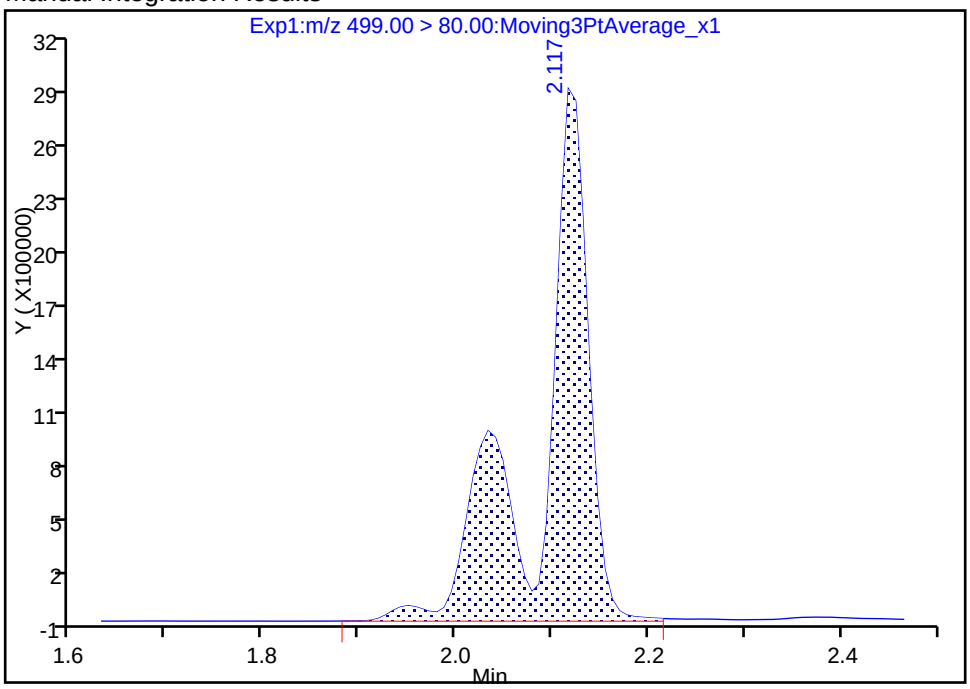
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.12
Area: 10039255
Amount: 59.769652
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:31:26
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCVL 320-192162/11 Calibration Date: 10/31/2017 12:17

Instrument ID: A8_N Calib Start Date: 10/31/2017 11:44

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 10/31/2017 12:08

Lab File ID: 2017.10.31_537ICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.102		21.4	20.0	7.2	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9408	0.9641		2.28	2.22	2.5	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.629	1.689		6.92	6.67	3.7	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9301	0.9239		4.42	4.45	-0.7	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9283	0.9317		8.92	8.89	0.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6527	0.6672		4.54	4.45	2.2	50.0
13C2 PFHxA	Ave	1.129	1.083		9.59	10.0	-4.1	30.0
13C2 PFDA	Ave	0.8094	0.8119		10.0	10.0	0.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_011.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 31-Oct-2017 12:17:57 ALS Bottle#: 2 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L2
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 15:26:08 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 31-Oct-2017 14:37:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.405	-0.001	1.000	4914906	21.4		1706	
298.90 > 99.00	1.404	1.405	-0.001	1.000	3545641		1.39(0.00-0.00)	2817	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.528	0.005	1.000	3102038	9.59		3913	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	614012	2.28		130	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.678	-0.001	1.000	2511290	6.92		2640	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.863	0.003		2865147	10.0		2953	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.864	0.002	1.000	1177501	4.42		44.8	
413.00 > 169.00	1.866	1.864	0.002	1.000	624441		1.89(0.00-0.00)	49.3	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.107	0.002		6394781	28.7		4537	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	1847034	8.92		264	M
499.00 > 99.00	2.109	2.109	0.0	1.000	381259		4.84(0.00-0.00)	311	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	849819	4.54		183	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2326112	10.0		5726	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00020 Amount Added: 1.00 Units: mL

Report Date: 31-Oct-2017 15:26:09 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_011.d

Injection Date: 31-Oct-2017 12:17:57 Instrument ID: A8_N

Lims ID: CCVL

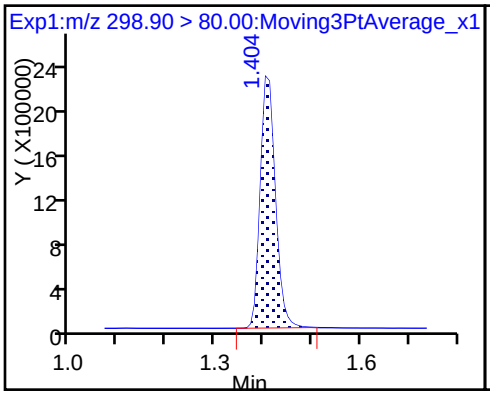
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11

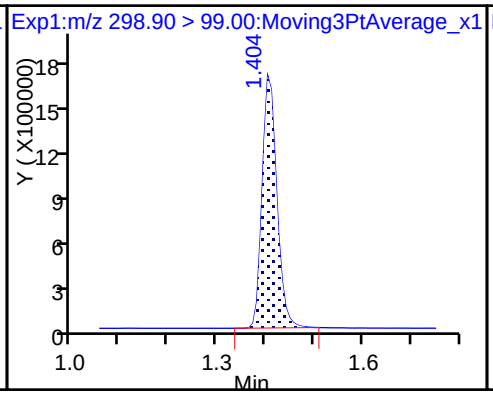
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

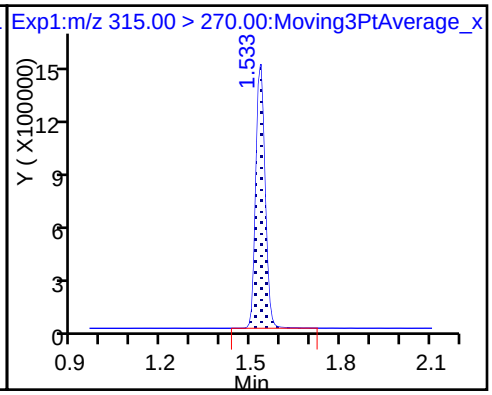
1 Perfluorobutanesulfonic acid



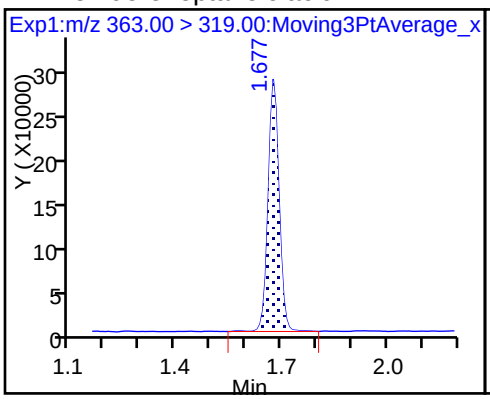
1 Perfluorobutanesulfonic acid



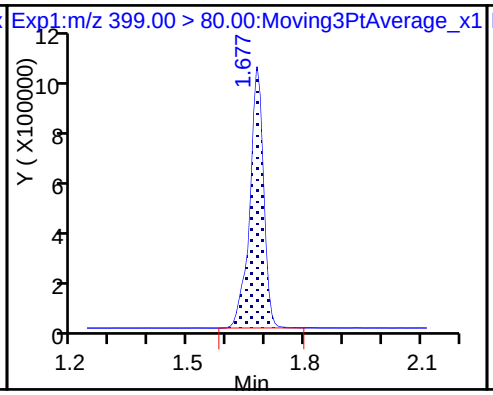
$ 2 13C2 PFHxA



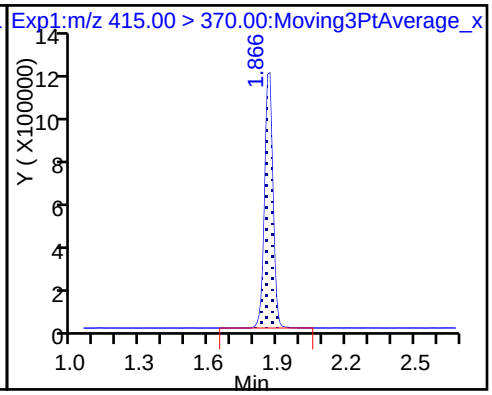
4 Perfluoroheptanoic acid



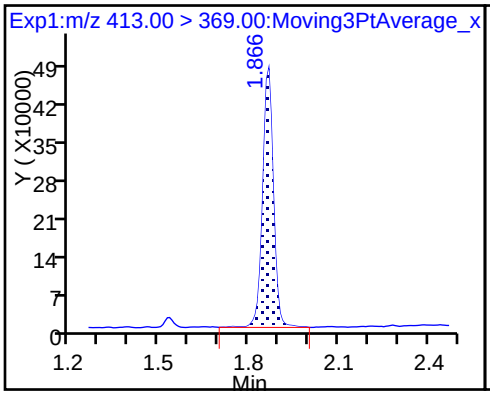
3 Perfluorohexanesulfonic acid



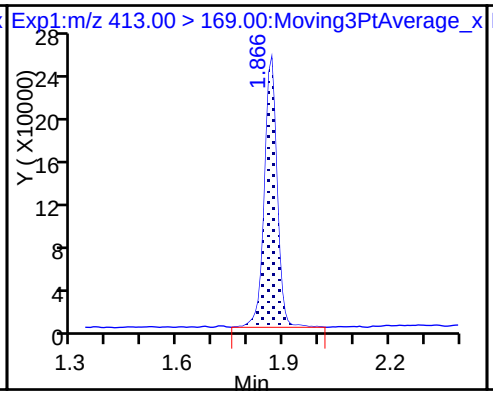
* 6 13C2-PFOA



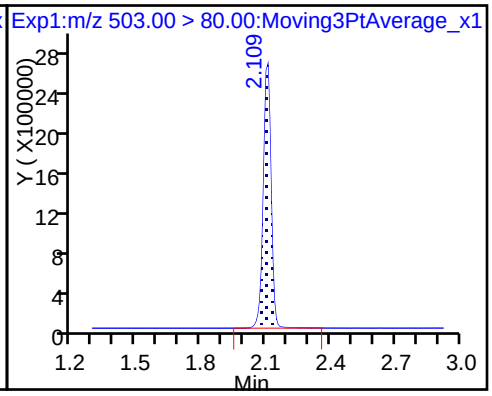
5 Perfluorooctanoic acid



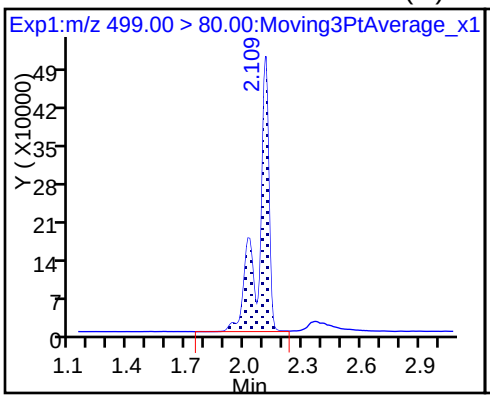
5 Perfluorooctanoic acid



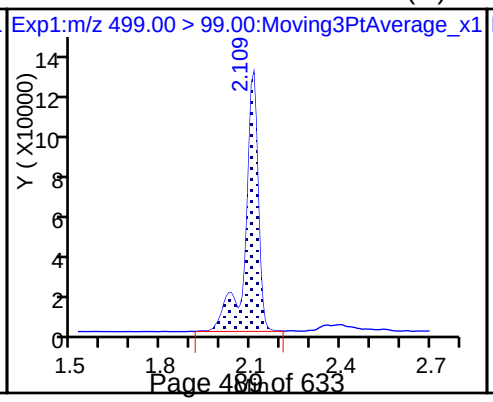
* 7 13C4 PFOS



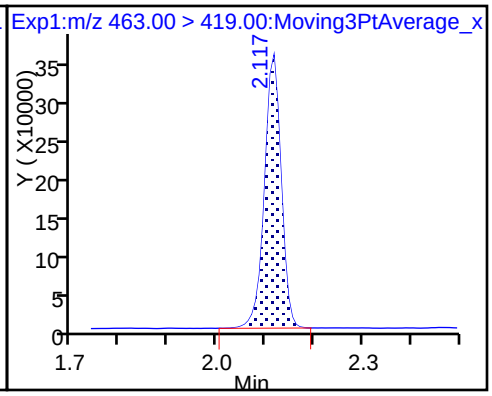
8 Perfluorooctane sulfonic acid (M)



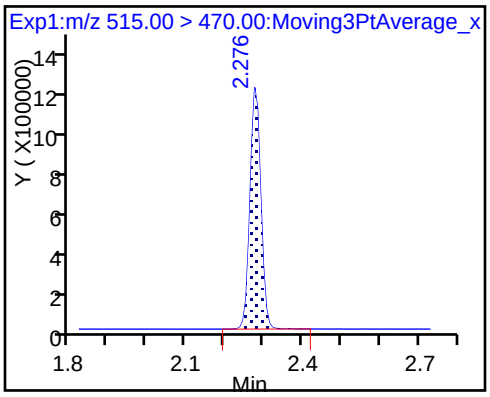
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
14
12
10
8
6
4
2
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

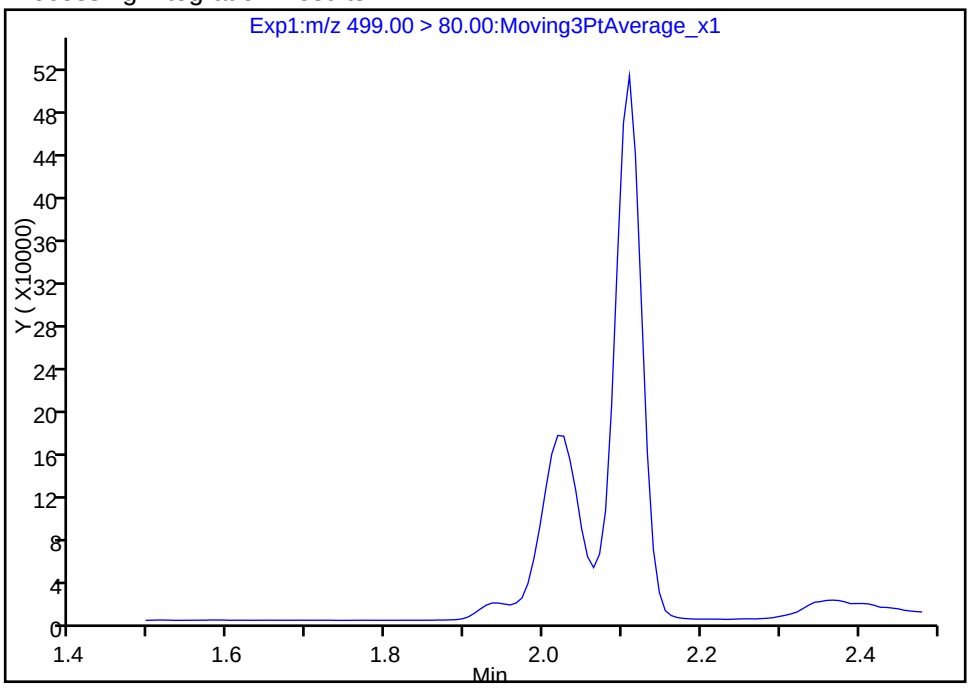
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_011.d
Injection Date: 31-Oct-2017 12:17:57 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

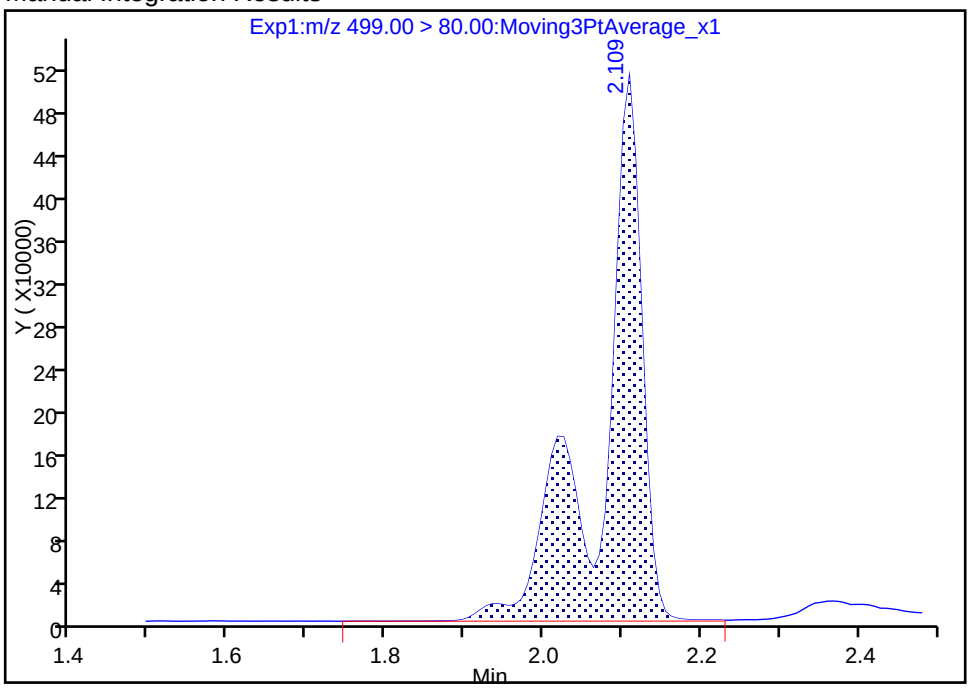
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 1847034
Amount: 8.923891
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 14:36:47
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

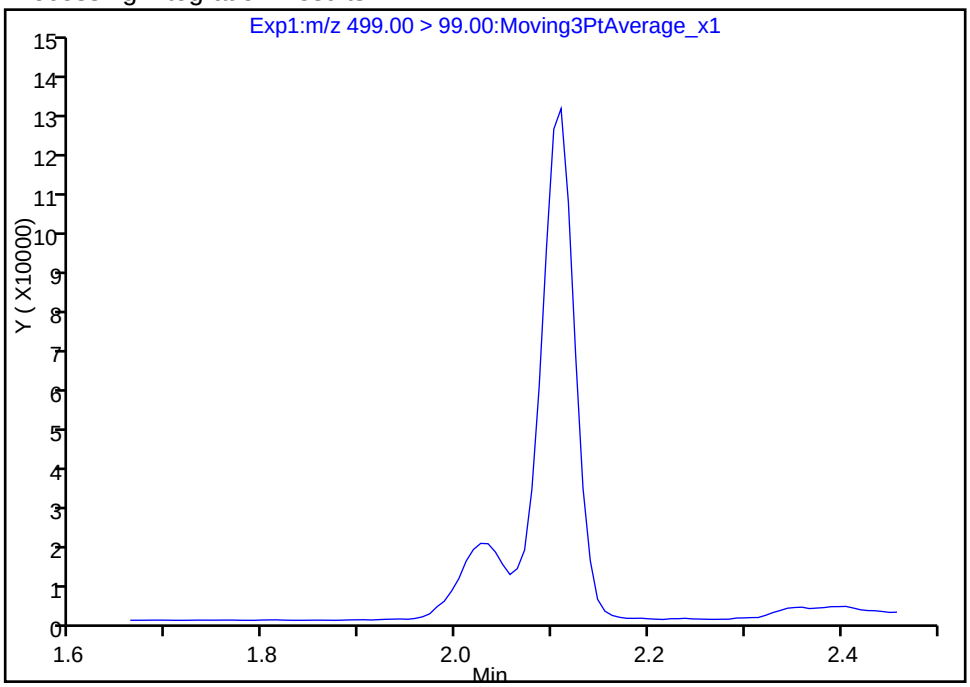
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_011.d
Injection Date: 31-Oct-2017 12:17:57 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

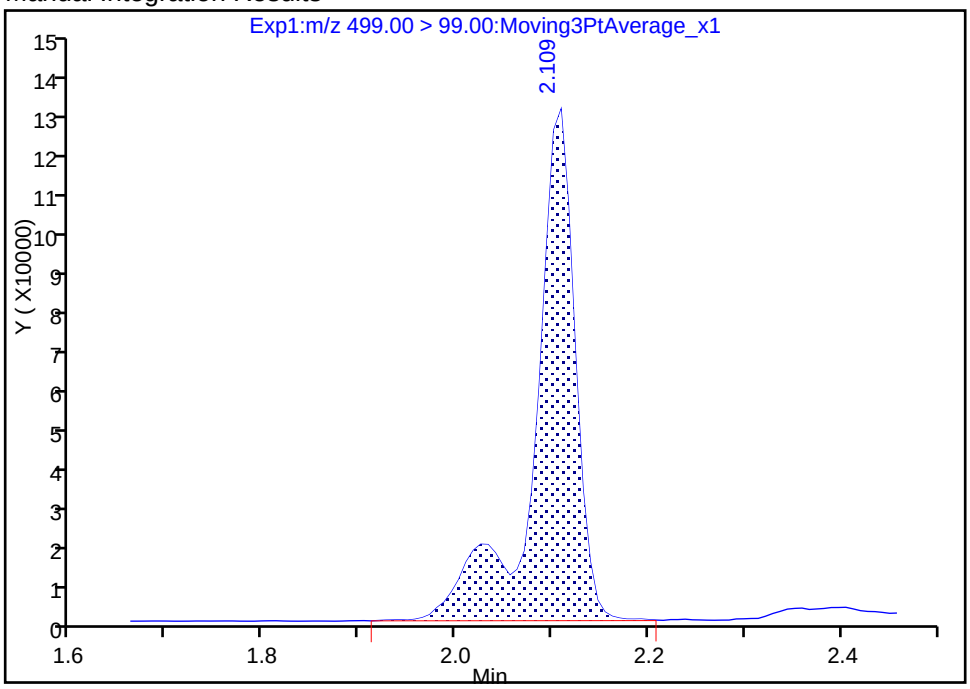
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 381259
Amount: 8.923891
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 14:37:04
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

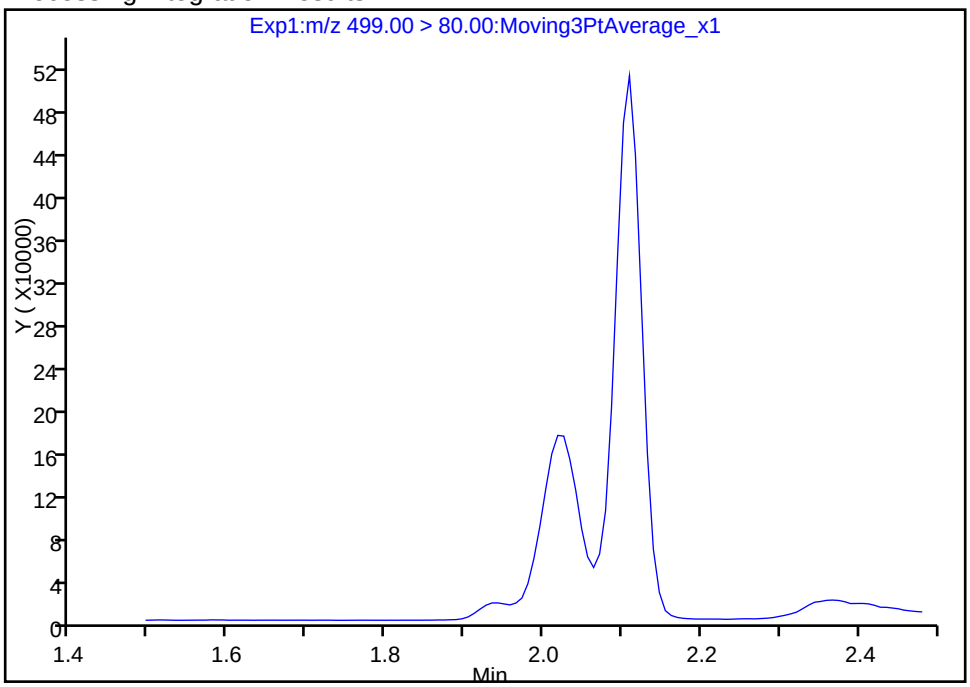
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_011.d
Injection Date: 31-Oct-2017 12:17:57 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

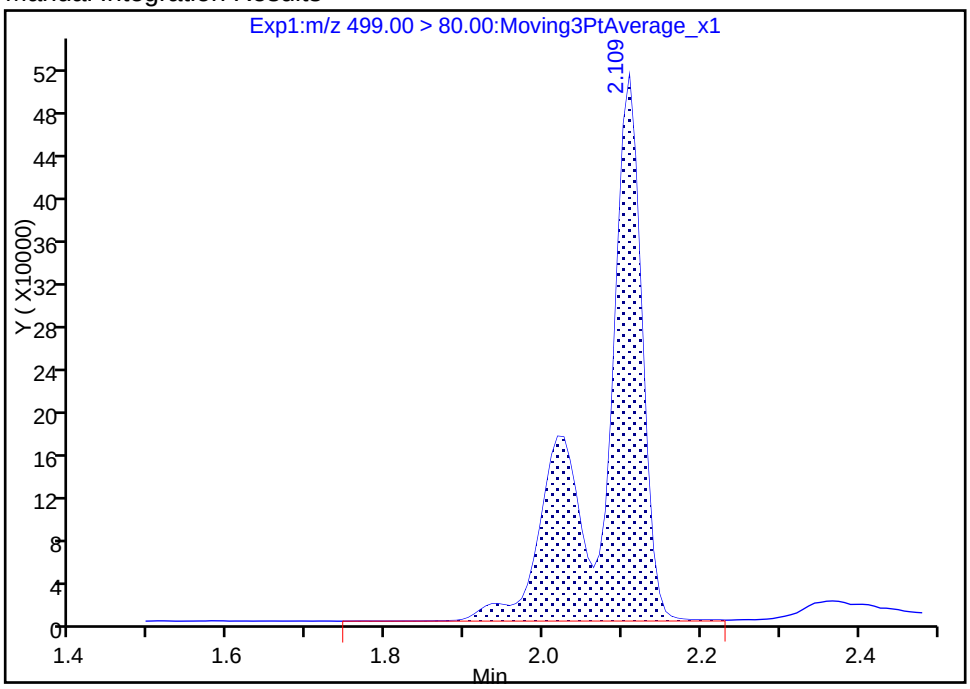
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 1847034
Amount: 8.923891
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 14:37:04
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: ICV 320-192162/16 Calibration Date: 10/31/2017 14:58

Instrument ID: A8_N Calib Start Date: 10/31/2017 11:44

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 10/31/2017 12:08

Lab File ID: 2017.10.31_537AICAL_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.7489		82.4	100	-17.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9408	0.8366		8.89	10.0	-11.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.629	1.474		18.2	20.1	-9.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9301	0.8041		17.7	20.5	-13.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9283	0.8488		18.0	19.7	-8.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6527	0.6148		19.0	20.1	-5.8	30.0
13C2 PFHxA	Ave	1.129	1.069		9.47	10.0	-5.3	30.0
13C2 PFDA	Ave	0.8094	0.7781		9.61	10.0	-3.9	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537AICAL_003.d
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 31-Oct-2017 14:58:42 ALS Bottle#: 7 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: ICV
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 15:26:10 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 31-Oct-2017 15:13:20

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.411	1.405	0.006	1.000	17157551	82.4		3502	
298.90 > 99.00	1.411	1.405	0.006	1.000	12954498		1.32(0.00-0.00)	4512	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.528	0.005	1.000	3000464	9.47		5827	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	2347598	8.89		509	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.678	-0.001	1.000	6771103	18.2		4918	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.863	0.003		2807375	10.0		3695	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.864	0.002	1.000	4624349	17.7		288	
413.00 > 169.00	1.866	1.864	0.002	1.000	2450141		1.89(0.00-0.00)	377	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.107	0.002		6562646	28.7		4663	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	3825846	18.0		529	M
499.00 > 99.00	2.109	2.109	0.0	1.000	748921		5.11(0.00-0.00)	558	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	3473716	19.0		695	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2184301	9.61		6529	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-ICV_00028 Amount Added: 1.00 Units: mL

Report Date: 31-Oct-2017 15:26:11 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537AICAL_003.d

Injection Date: 31-Oct-2017 14:58:42 Instrument ID: A8_N

Lims ID: ICV

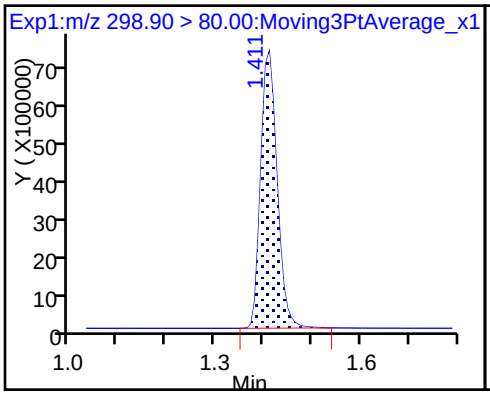
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 16

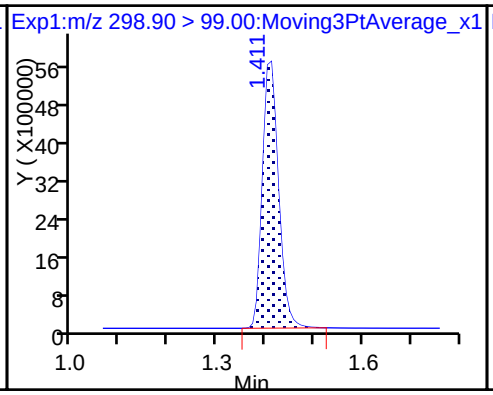
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

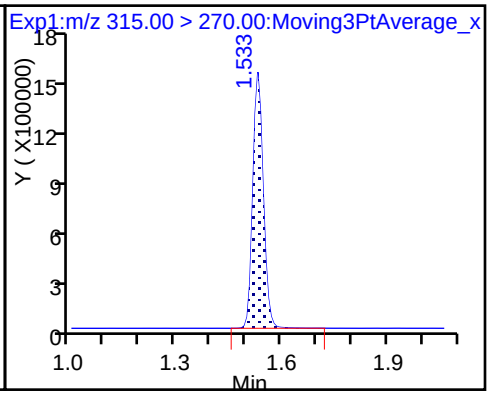
1 Perfluorobutanesulfonic acid



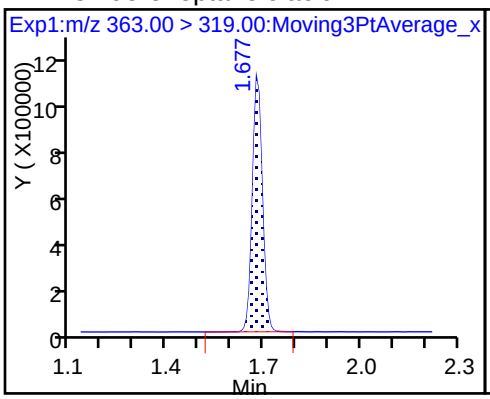
1 Perfluorobutanesulfonic acid



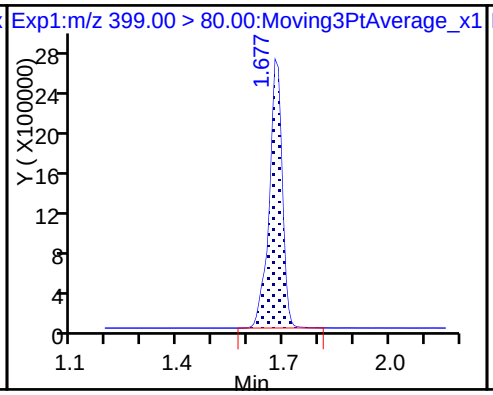
$ 2 13C2 PFHxA



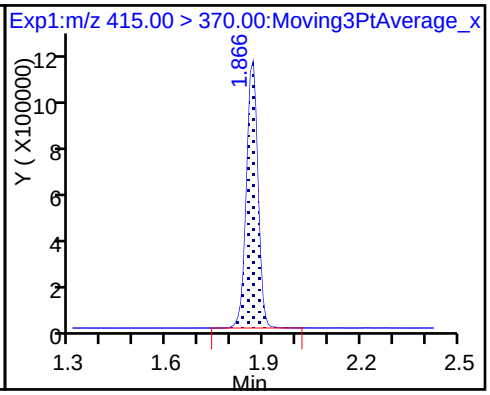
4 Perfluoroheptanoic acid



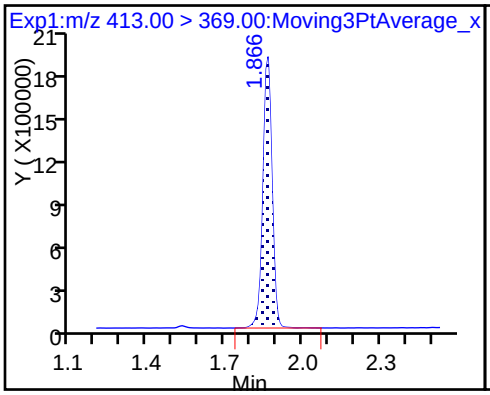
3 Perfluorohexanesulfonic acid



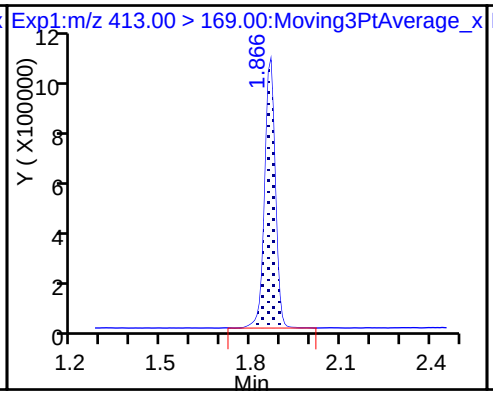
* 6 13C2-PFOA



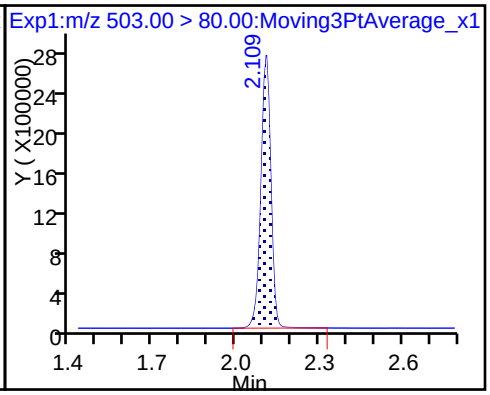
5 Perfluorooctanoic acid



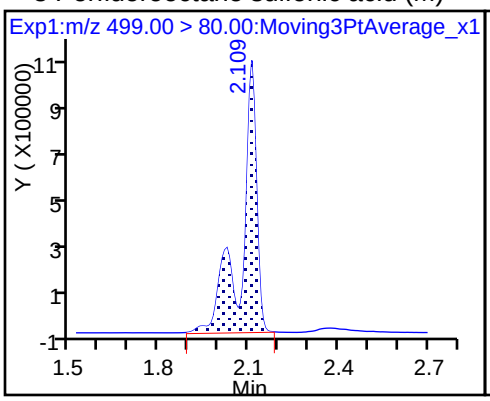
5 Perfluorooctanoic acid



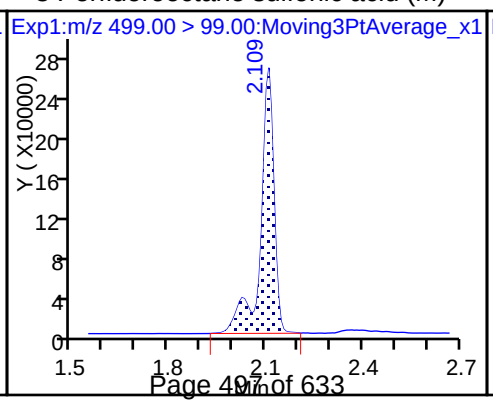
* 7 13C4 PFOS



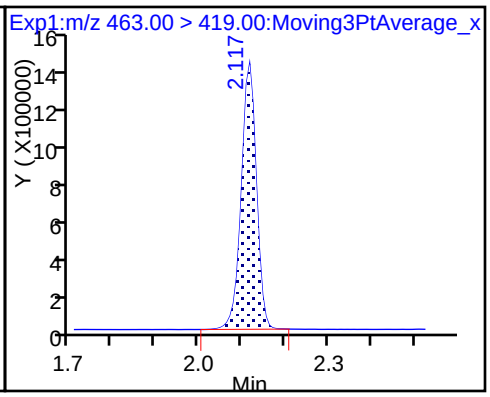
8 Perfluorooctane sulfonic acid (M)



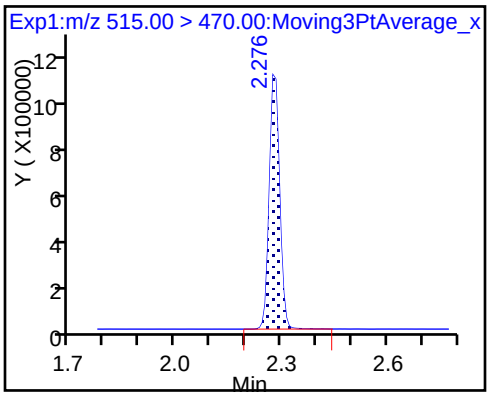
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
12
10
8
6
4
2
0
1.7
2.0
2.3
2.6
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

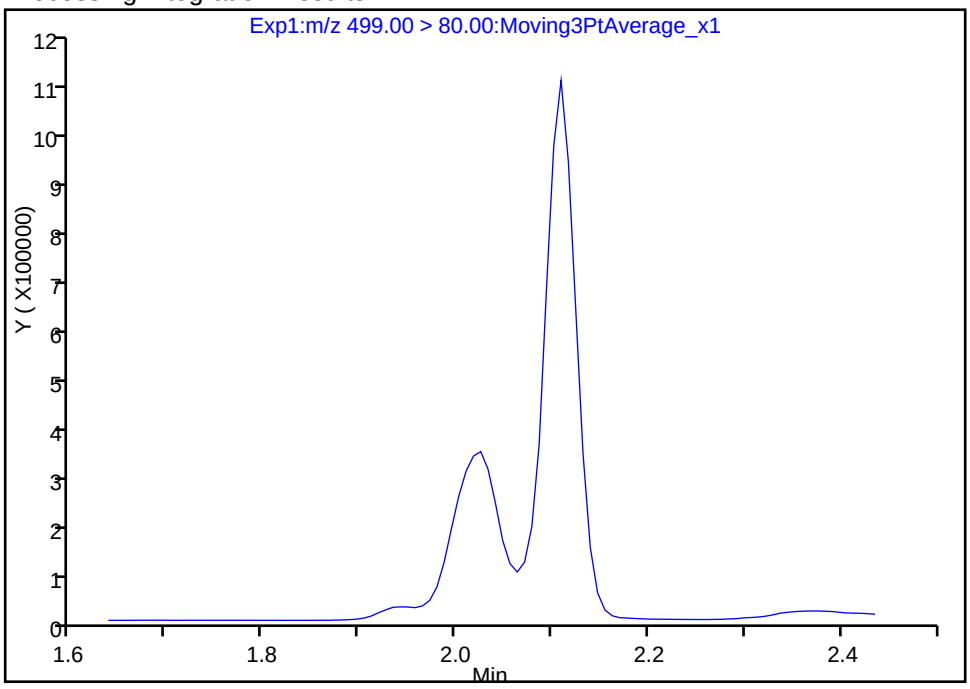
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537AICAL_003.d
Injection Date: 31-Oct-2017 14:58:42 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

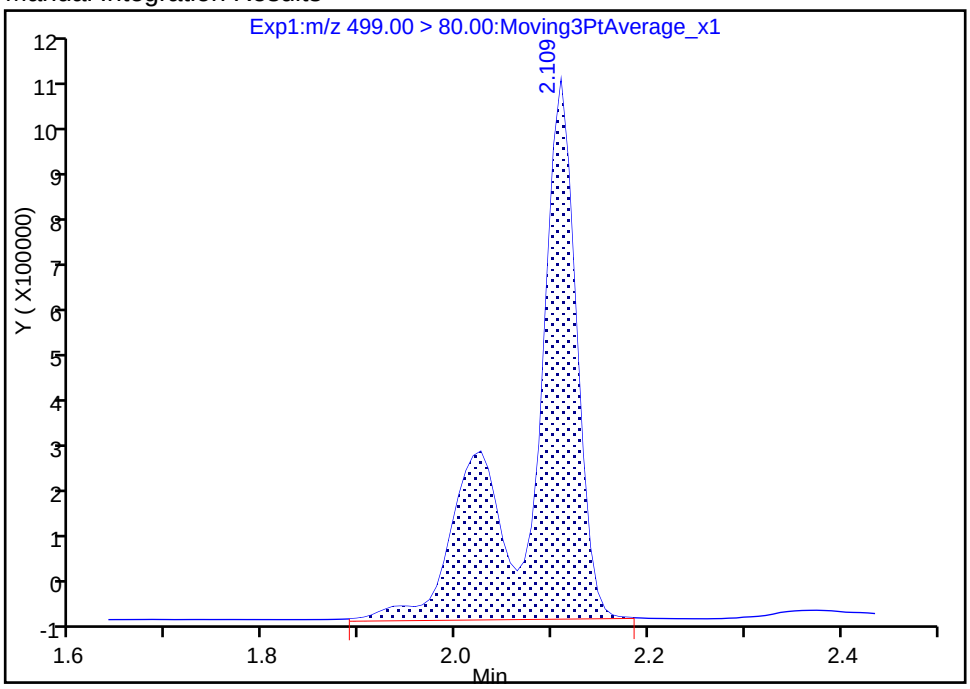
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 3825846
Amount: 18.011653
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:07:46
Audit Action: Assigned Compound ID Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

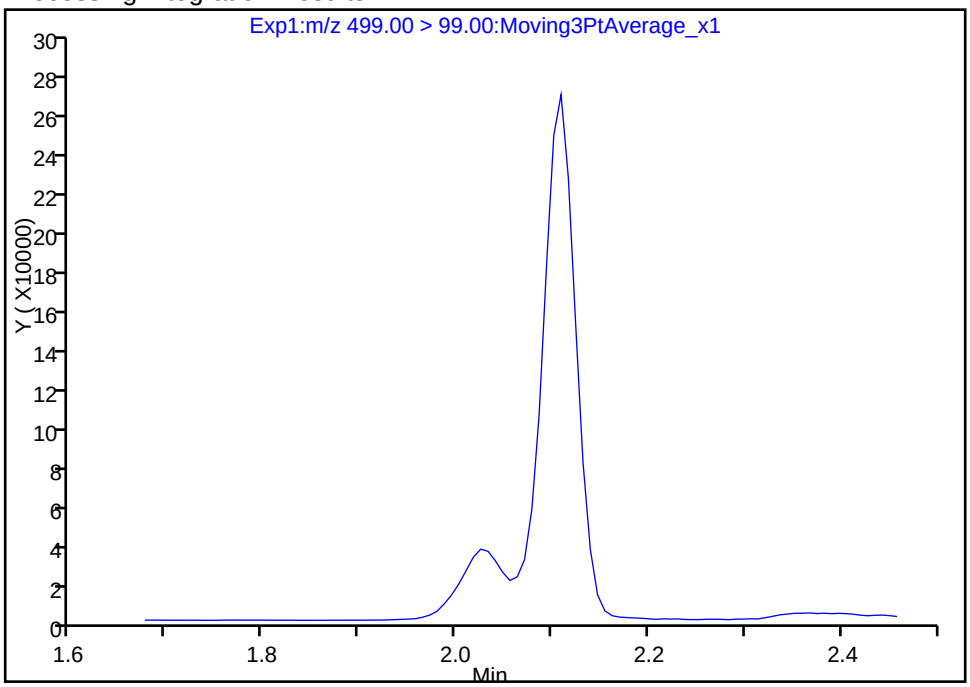
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537AICAL_003.d
Injection Date: 31-Oct-2017 14:58:42 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

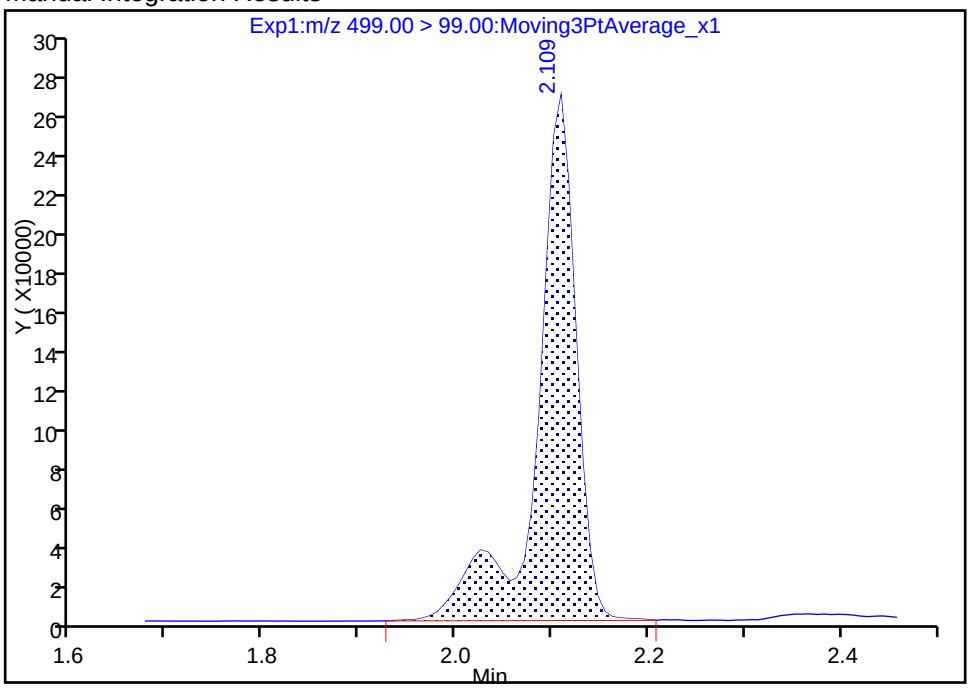
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 748921
Amount: 18.011653
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:08:57
Audit Action: Manually Integrated Audit Reason: Isomers

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

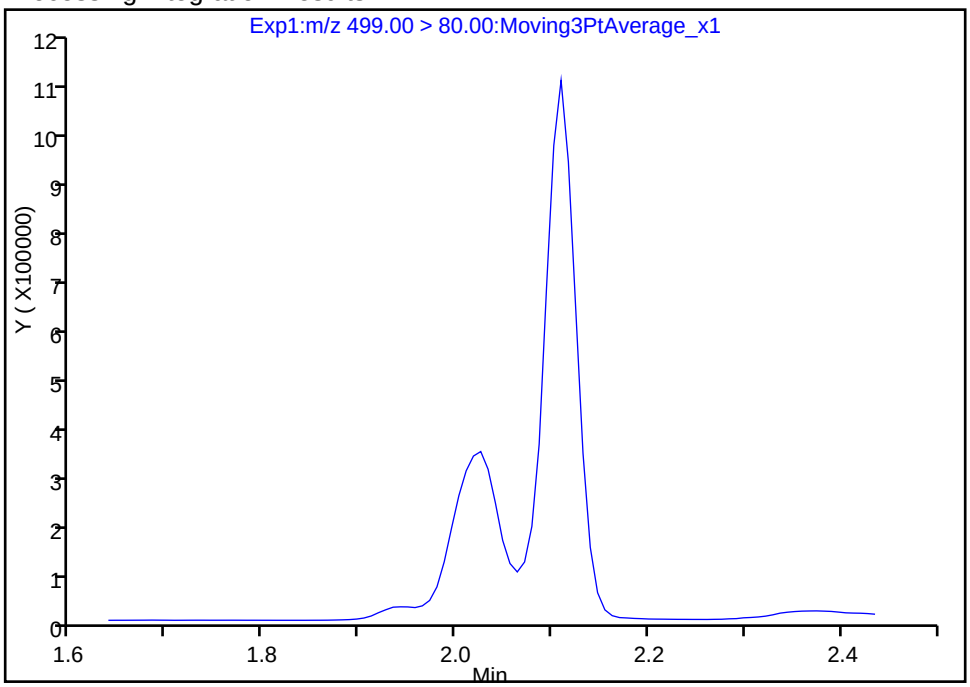
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537AICAL_003.d
Injection Date: 31-Oct-2017 14:58:42 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

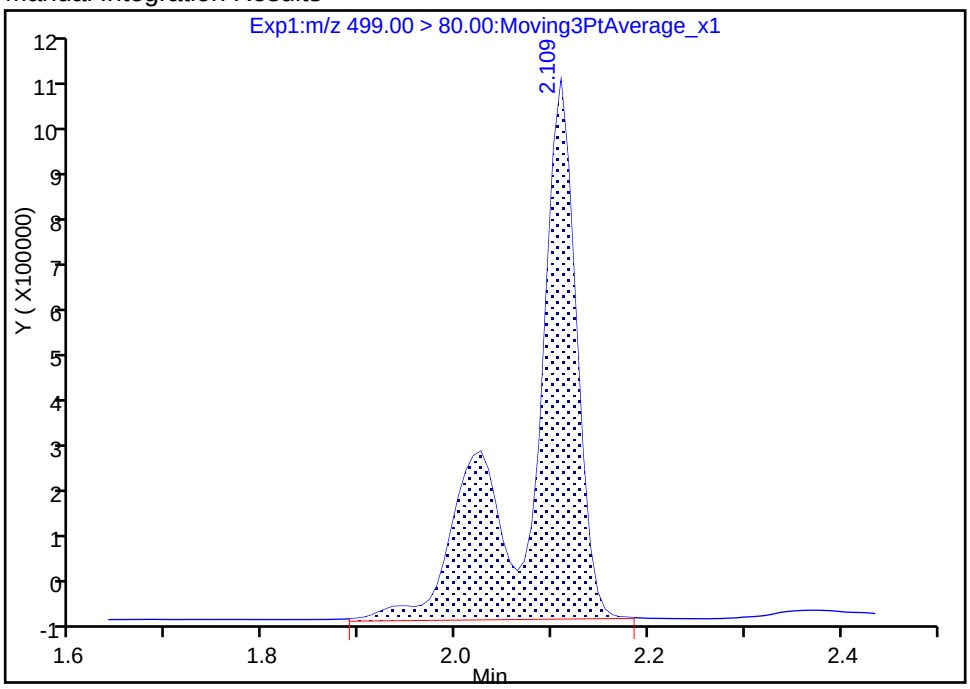
Processing Integration Results

Not Detected
Expected RT: 2.11



Manual Integration Results

RT: 2.11
Area: 3825846
Amount: 18.011653
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:08:57
Audit Action: Manually Integrated Audit Reason: Isomers

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-192192/1 Calibration Date: 10/31/2017 15:08

Instrument ID: A8_N Calib Start Date: 10/31/2017 11:44

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 10/31/2017 12:08

Lab File ID: 2017.10.31_537AA_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.7866		130	135	-3.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9408	0.9285		14.8	15.0	-1.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.629	1.595		44.1	45.0	-2.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9301	0.8979		29.0	30.0	-3.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9283	0.9524		61.6	60.0	2.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6527	0.6519		30.0	30.0	-0.1	30.0
13C2 PFHxA	Ave	1.129	1.167		10.3	10.0	3.4	30.0
13C2 PFDA	Ave	0.8094	0.8471		10.5	10.0	4.7	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_001.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 31-Oct-2017 15:08:11 ALS Bottle#: 5 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 16:08:54 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 31-Oct-2017 15:51:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.405	-0.001	1.000	22288488	130.0		2892	
298.90 > 99.00	1.404	1.405	-0.001	1.000	17334705		1.29(0.00-0.00)	3729	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.528	0.005	1.000	3187568	10.3		5437	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	3806686	14.8		806	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.678	-0.001	1.000	15066501	44.1		4702	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.863	-0.004		2732515	10.0		3187	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.864	0.002	1.000	7366488	29.0		450	
413.00 > 169.00	1.866	1.864	0.002	1.000	4027767		1.83(0.00-0.00)	618	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.107	0.002		6019558	28.7		4129	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.109	2.109	0.0	1.000	11997178	61.6		1252	M
499.00 > 99.00	2.109	2.109	0.0	1.000	2447632		4.90(0.00-0.00)	1295	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.116	0.001	1.000	5344529	30.0		967	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2314670	10.5		6852	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 31-Oct-2017 16:08:54 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_001.d

Injection Date: 31-Oct-2017 15:08:11 Instrument ID: A8_N

Lims ID: CCV L5

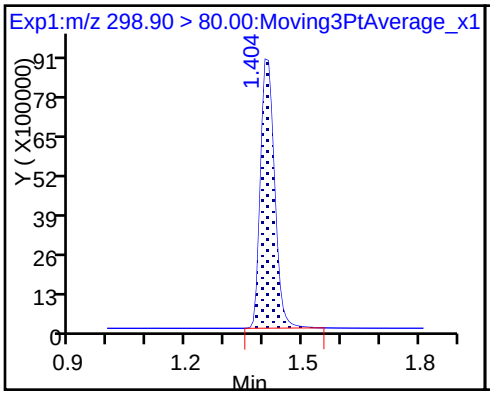
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1

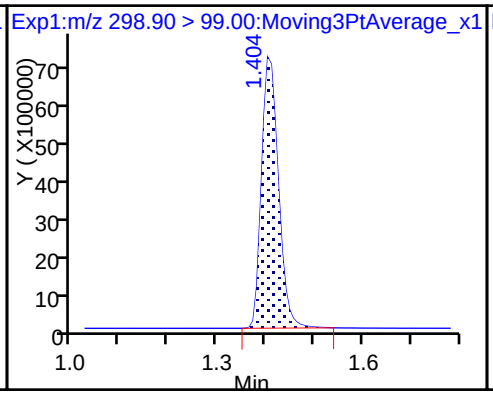
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

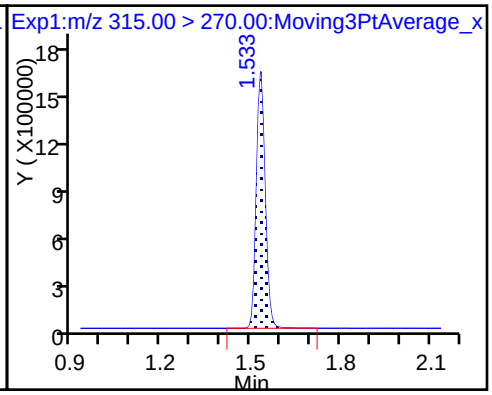
1 Perfluorobutanesulfonic acid



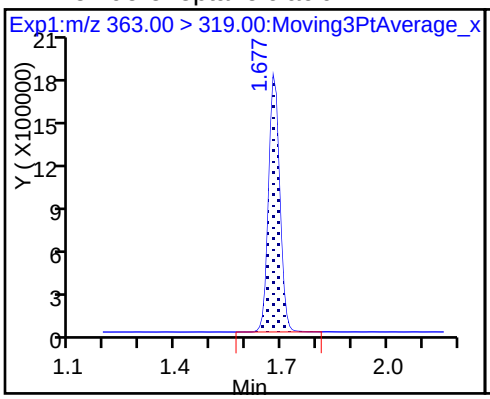
1 Perfluorobutanesulfonic acid



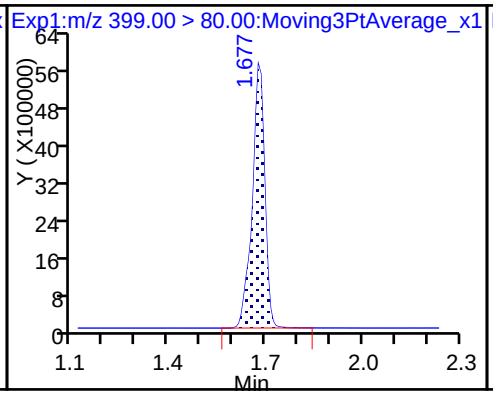
$ 2 13C2 PFHxA



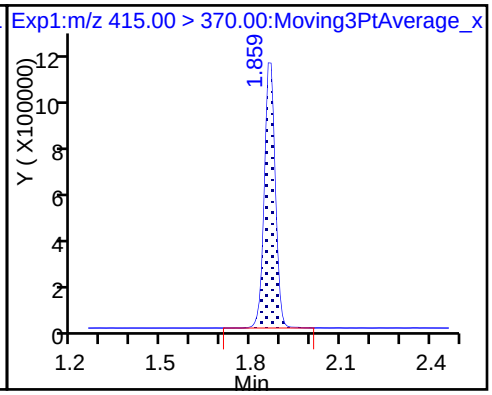
4 Perfluoroheptanoic acid



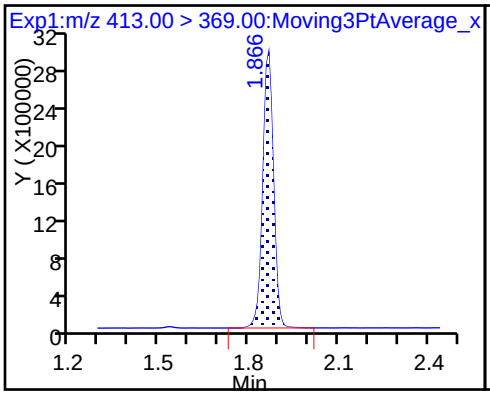
3 Perfluorohexanesulfonic acid



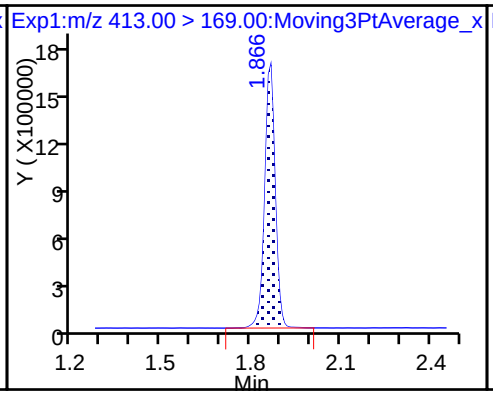
* 6 13C2-PFOA



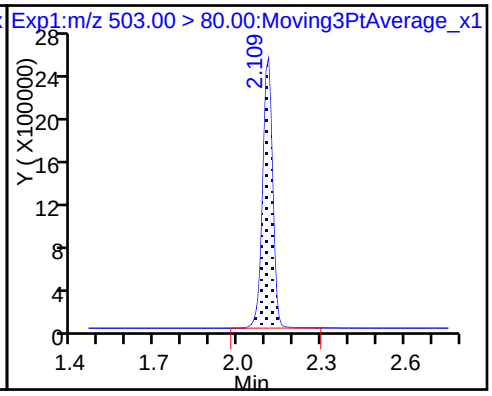
5 Perfluorooctanoic acid



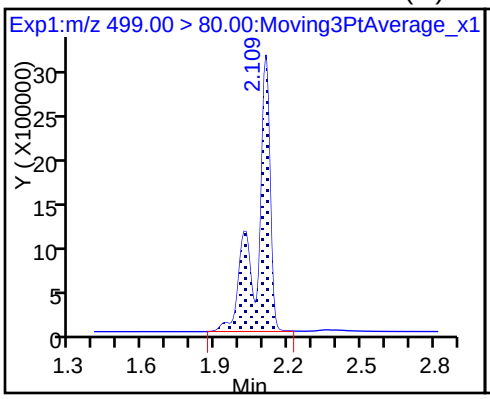
5 Perfluorooctanoic acid



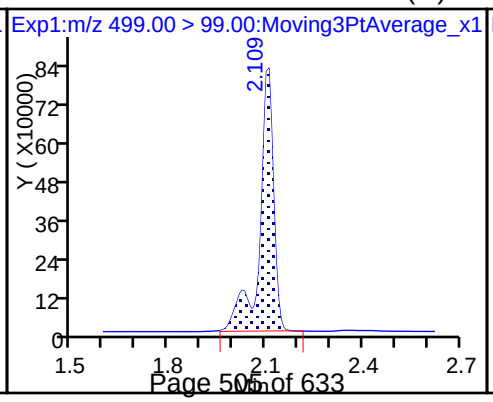
* 7 13C4 PFOS



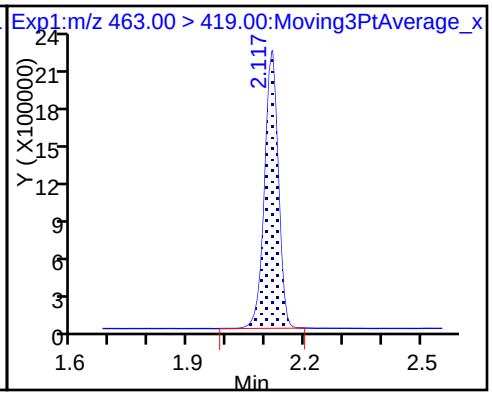
8 Perfluorooctane sulfonic acid (M)



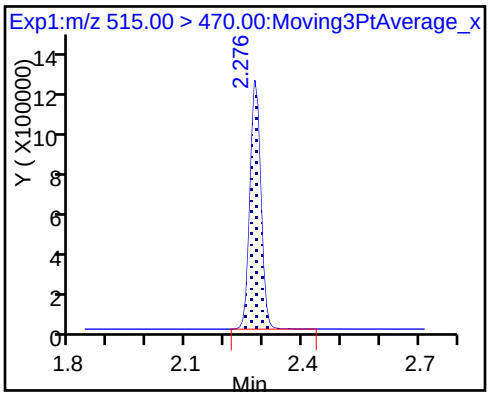
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
14
12
10
8
6
4
2
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

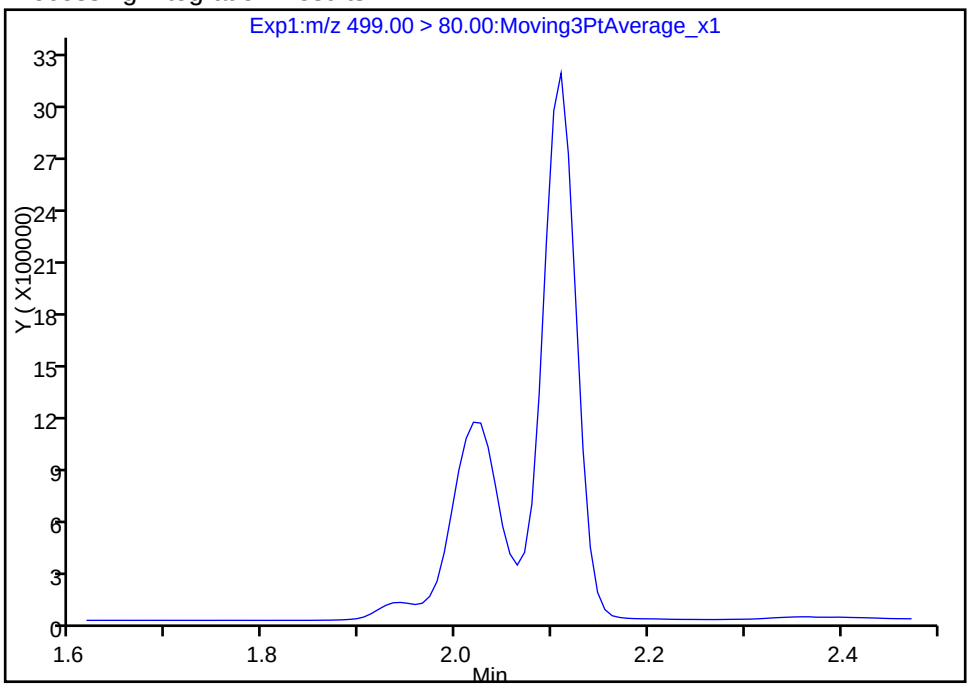
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_001.d
Injection Date: 31-Oct-2017 15:08:11 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

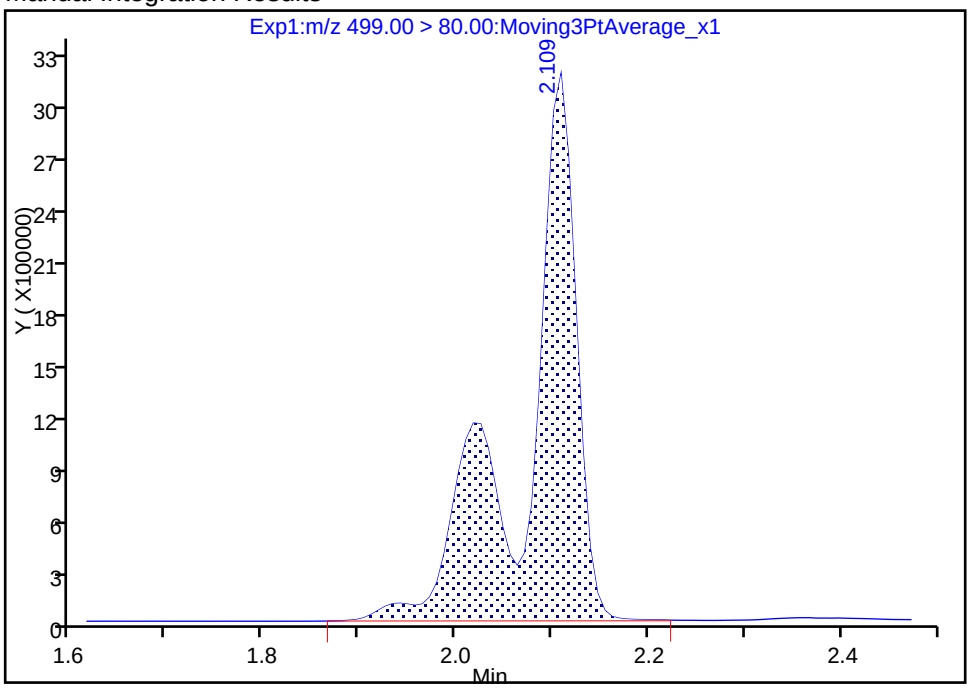
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 11997178
Amount: 61.577146
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:51:20
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

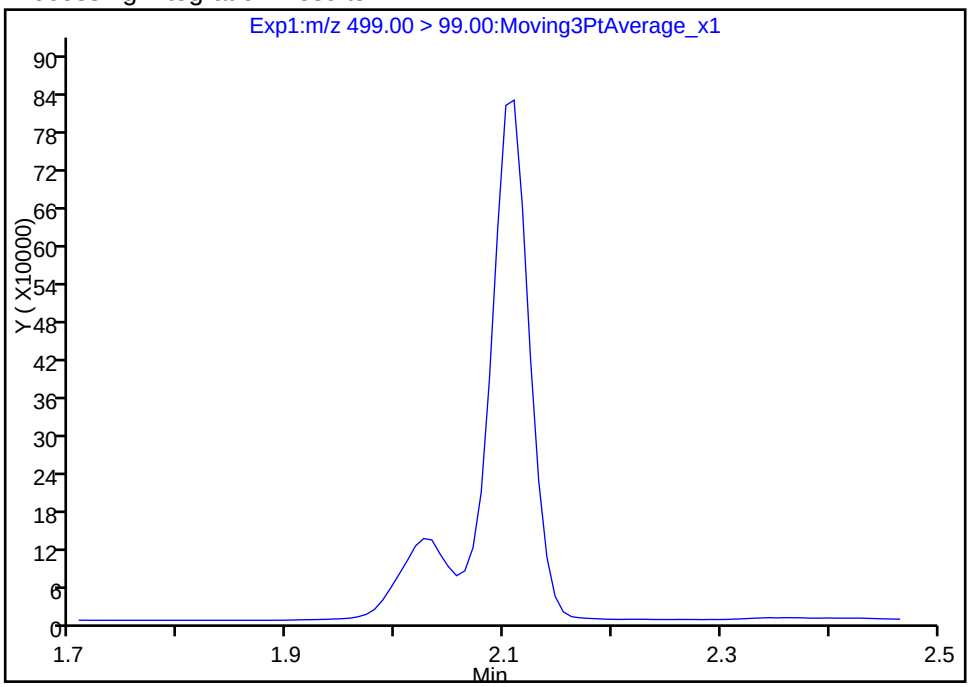
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_001.d
Injection Date: 31-Oct-2017 15:08:11 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

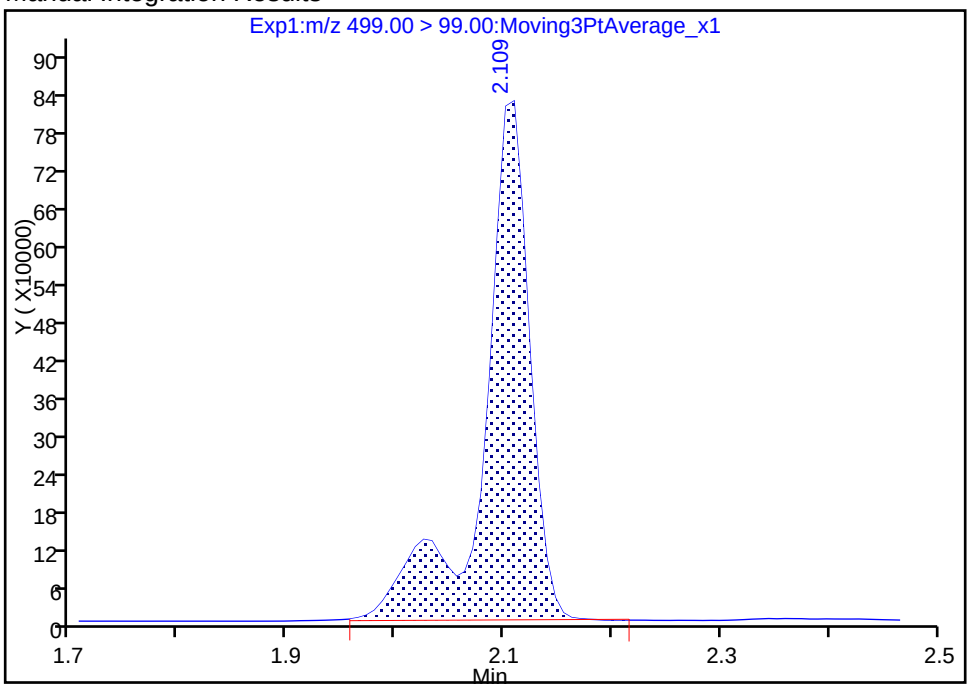
Processing Integration Results

Not Detected
Expected RT: 2.11



Manual Integration Results

RT: 2.11
Area: 2447632
Amount: 61.577146
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:51:40
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

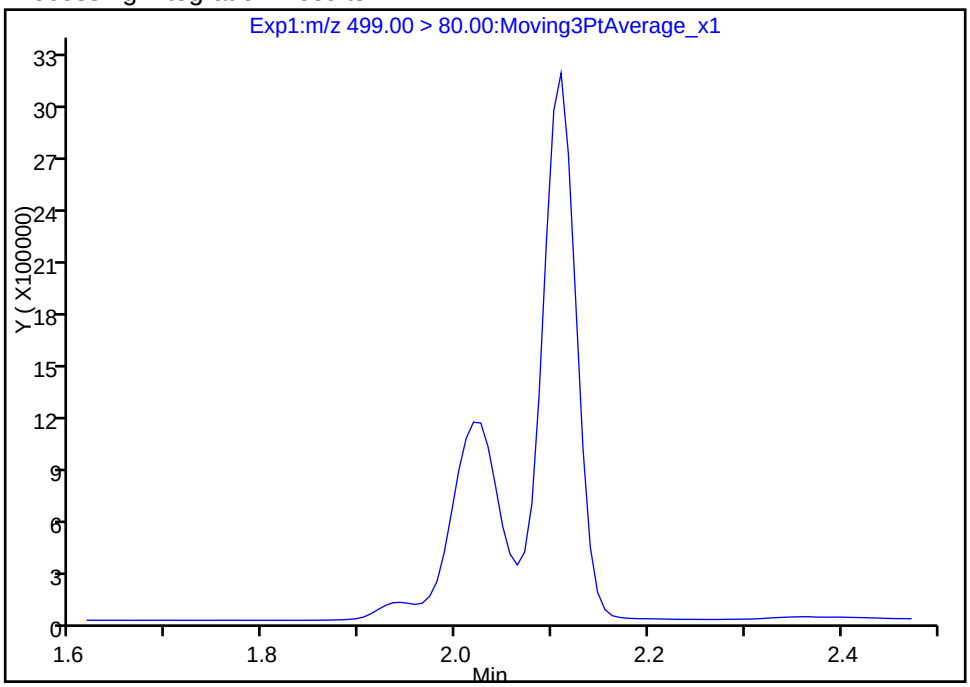
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_001.d
Injection Date: 31-Oct-2017 15:08:11 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

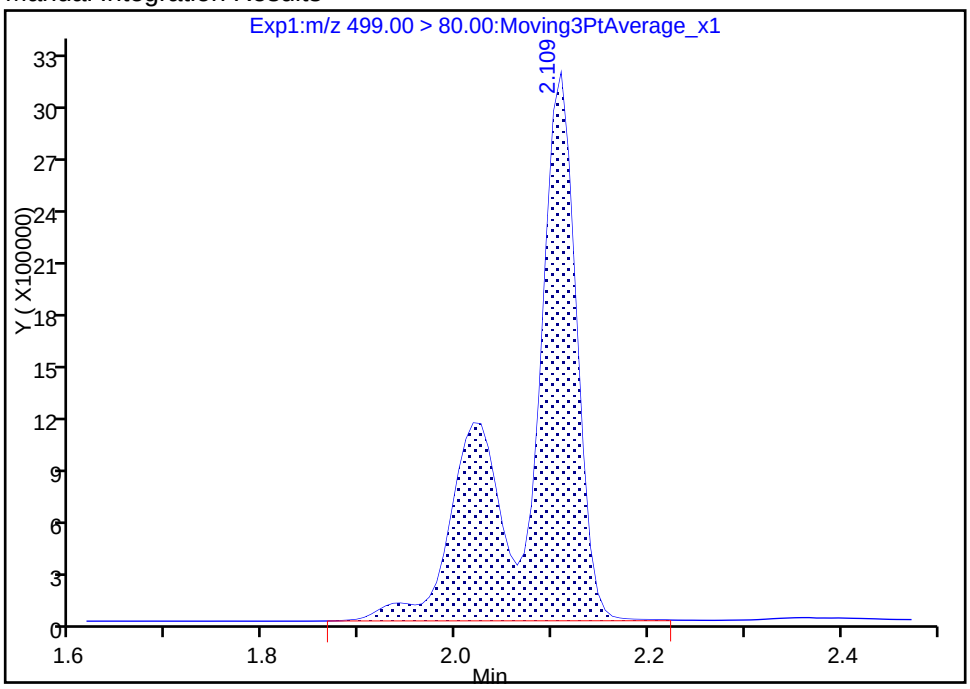
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 11997178
Amount: 61.577146
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:51:40
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-192192/7 Calibration Date: 10/31/2017 15:36

Instrument ID: A8_N Calib Start Date: 10/31/2017 11:44

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 10/31/2017 12:08

Lab File ID: 2017.10.31_537AA_007.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.006		46.2	45.0	2.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9408	0.9370		4.98	5.00	-0.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.629	1.717		15.8	15.0	5.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9301	0.9030		9.72	10.0	-2.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9283	0.9328		20.1	20.0	0.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6527	0.6618		10.1	10.0	1.4	30.0
13C2 PFHxA	Ave	1.129	1.135		10.1	10.0	0.6	30.0
13C2 PFDA	Ave	0.8094	0.8126		10.0	10.0	0.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_007.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 31-Oct-2017 15:36:40 ALS Bottle#: 3 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L3
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 16:09:05 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 31-Oct-2017 15:51:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.405	-0.001	1.000	9343115	46.2		2374	
298.90 > 99.00	1.404	1.405	-0.001	1.000	7028027		1.33(0.00-0.00)	3728	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.528	-0.003	1.000	3015565	10.1		4262	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	1244995	4.98		264	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.678	-0.001	1.000	5316635	15.8		3695	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.863	-0.004		2656671	10.0		3402	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.864	-0.005	1.000	2400889	9.72		158	
413.00 > 169.00	1.859	1.864	-0.005	1.000	1283258		1.87(0.00-0.00)	208	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.107	-0.005		5918882	28.7		4357	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.109	-0.007	1.000	3851240	20.1		547	M
499.00 > 99.00	2.102	2.109	-0.007	1.000	799896		4.81(0.00-0.00)	592	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.116	-0.007	1.000	1758376	10.1		331	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2158889	10.0		6025	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

Report Date: 31-Oct-2017 16:09:05 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_007.d

Injection Date: 31-Oct-2017 15:36:40 Instrument ID: A8_N

Lims ID: CCV L3

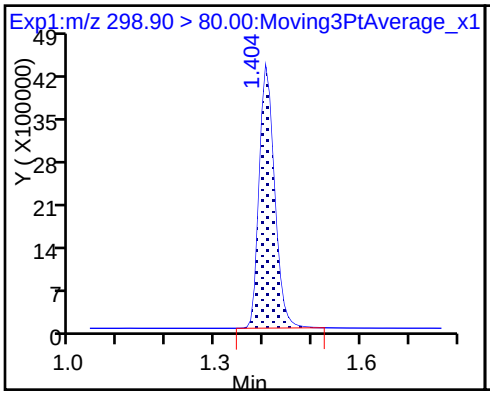
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 7

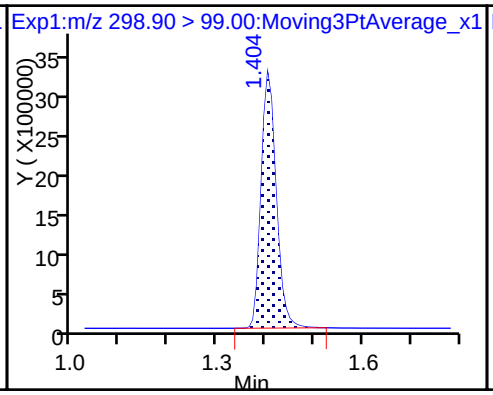
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

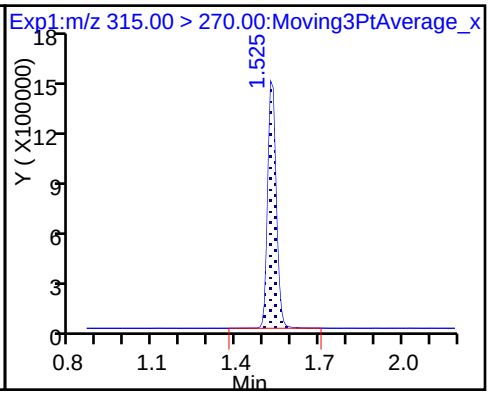
1 Perfluorobutanesulfonic acid



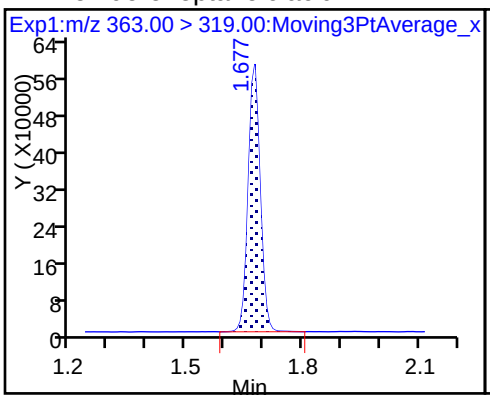
1 Perfluorobutanesulfonic acid



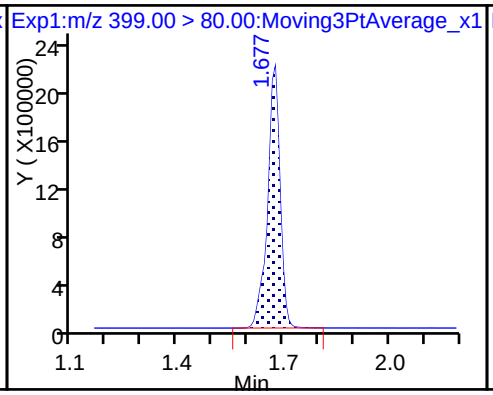
$ 2 13C2 PFHxA



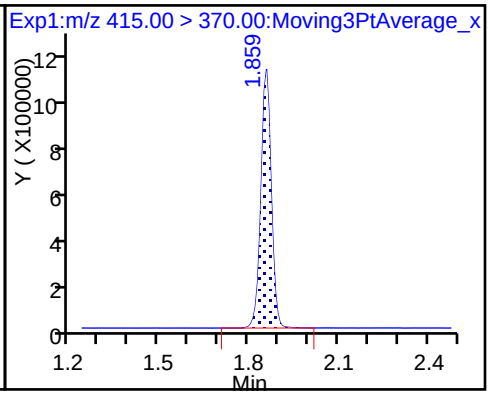
4 Perfluoroheptanoic acid



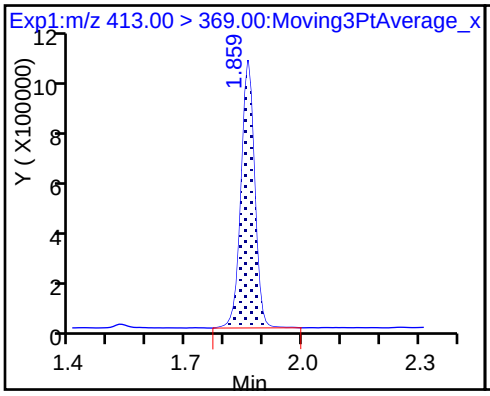
3 Perfluorohexanesulfonic acid



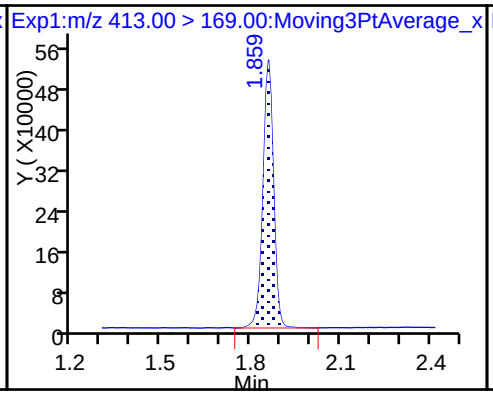
* 6 13C2-PFOA



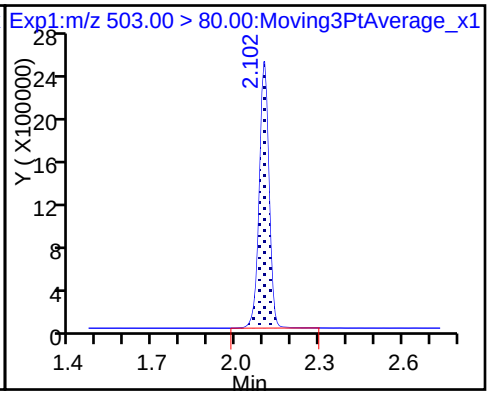
5 Perfluorooctanoic acid



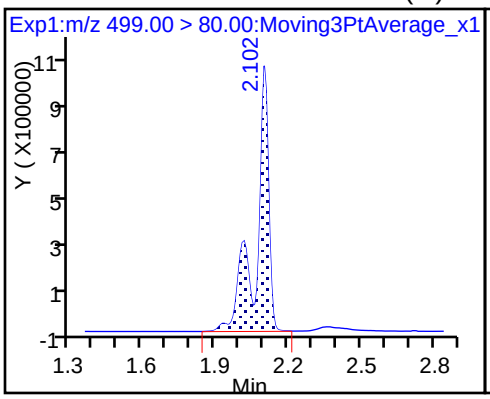
5 Perfluorooctanoic acid



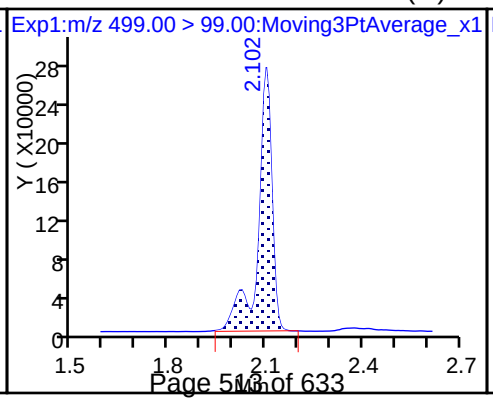
* 7 13C4 PFOS



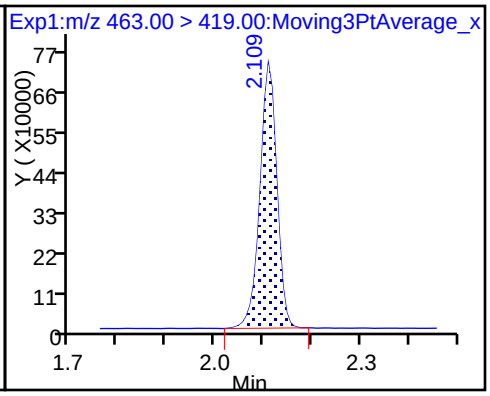
8 Perfluorooctane sulfonic acid (M)



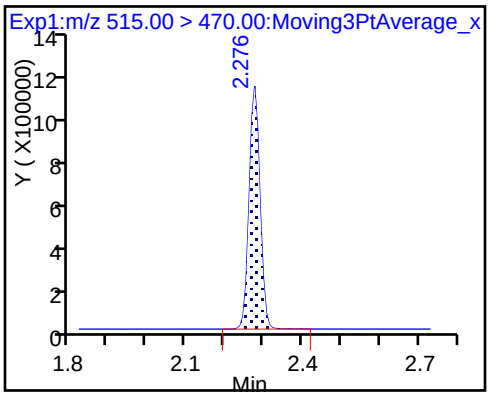
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
14
12
10
8
6
4
2
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

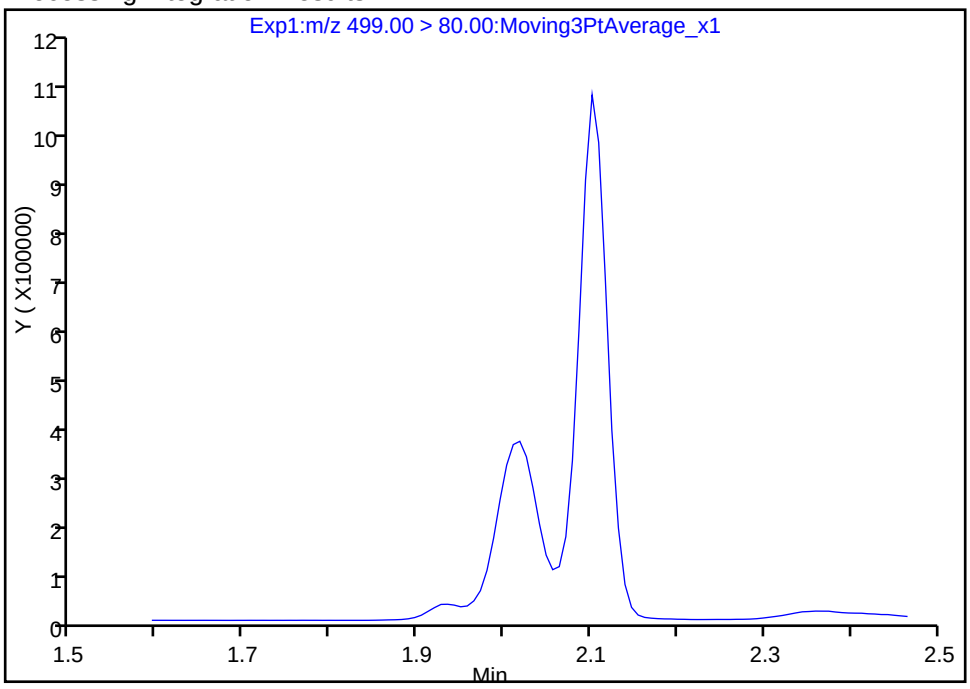
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_007.d
Injection Date: 31-Oct-2017 15:36:40 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

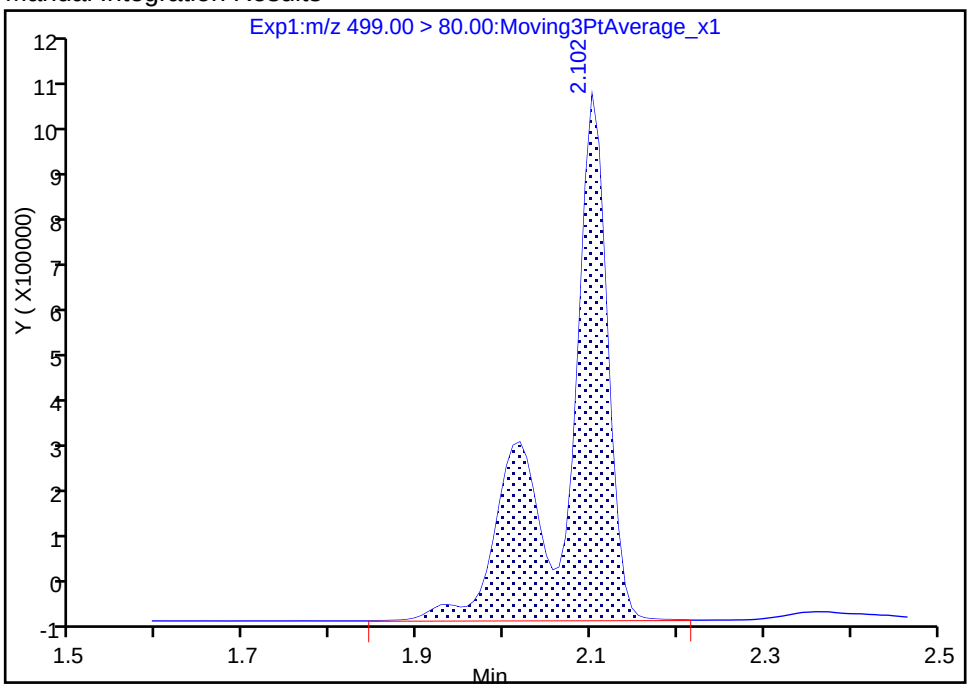
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 3851240
Amount: 20.103236
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:50:39
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

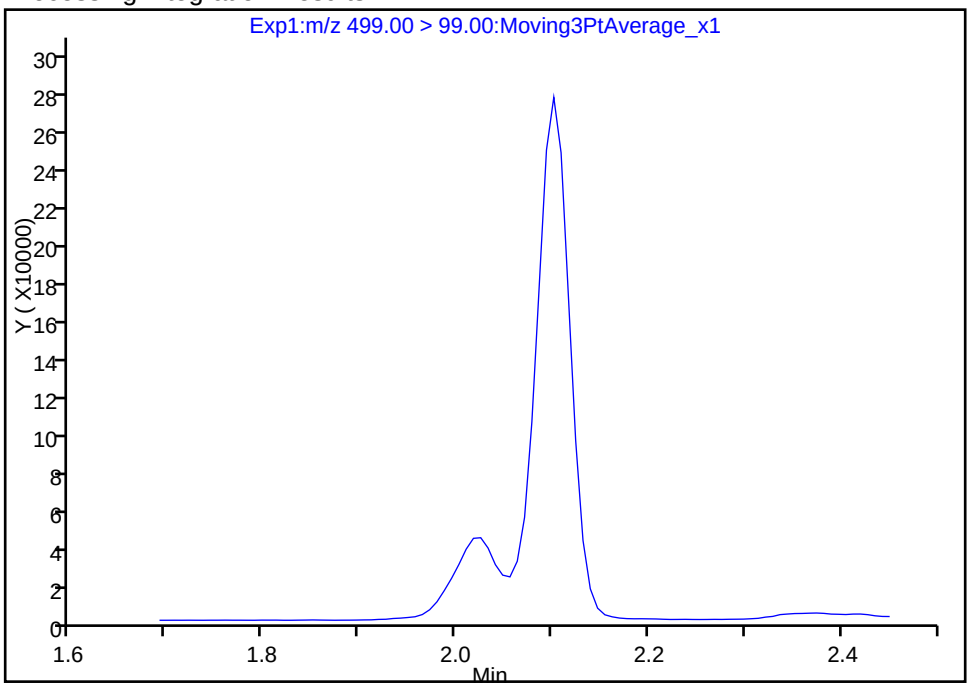
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_007.d
Injection Date: 31-Oct-2017 15:36:40 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

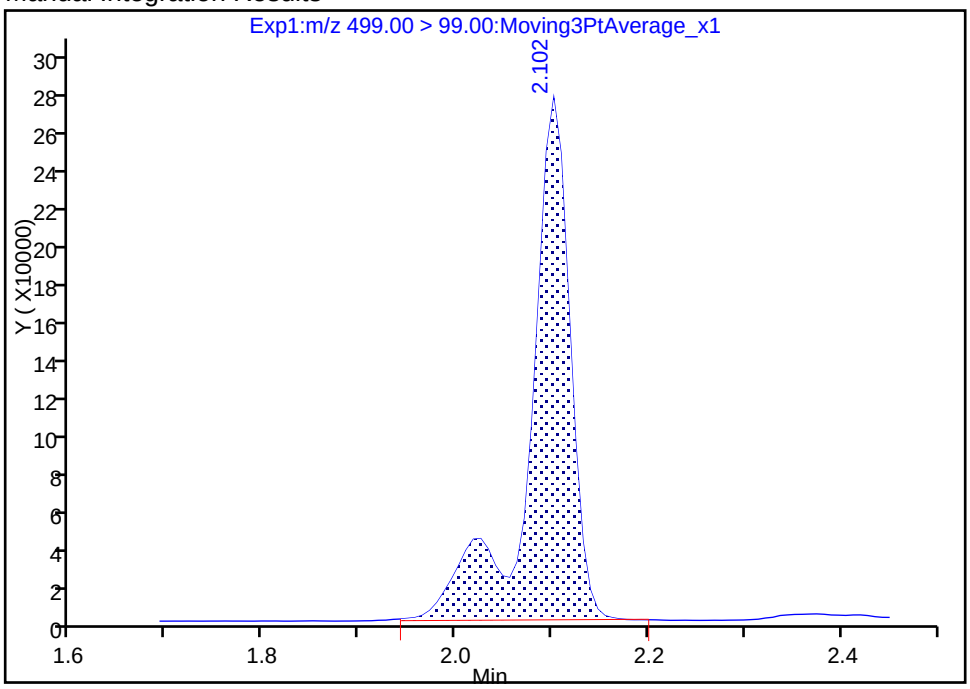
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 799896
Amount: 20.103236
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:50:59
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

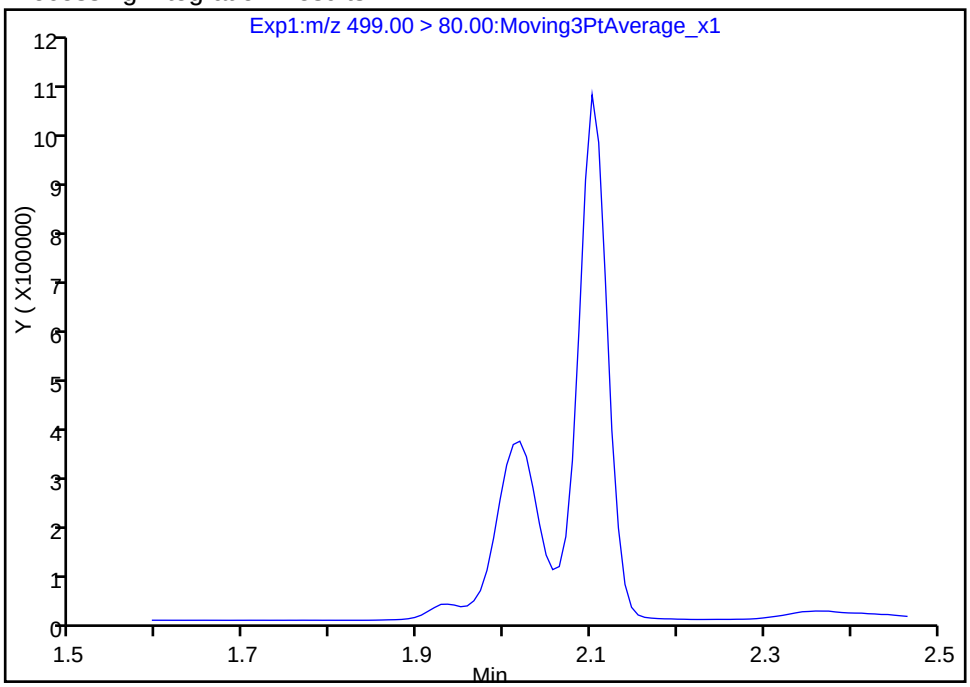
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_007.d
Injection Date: 31-Oct-2017 15:36:40 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

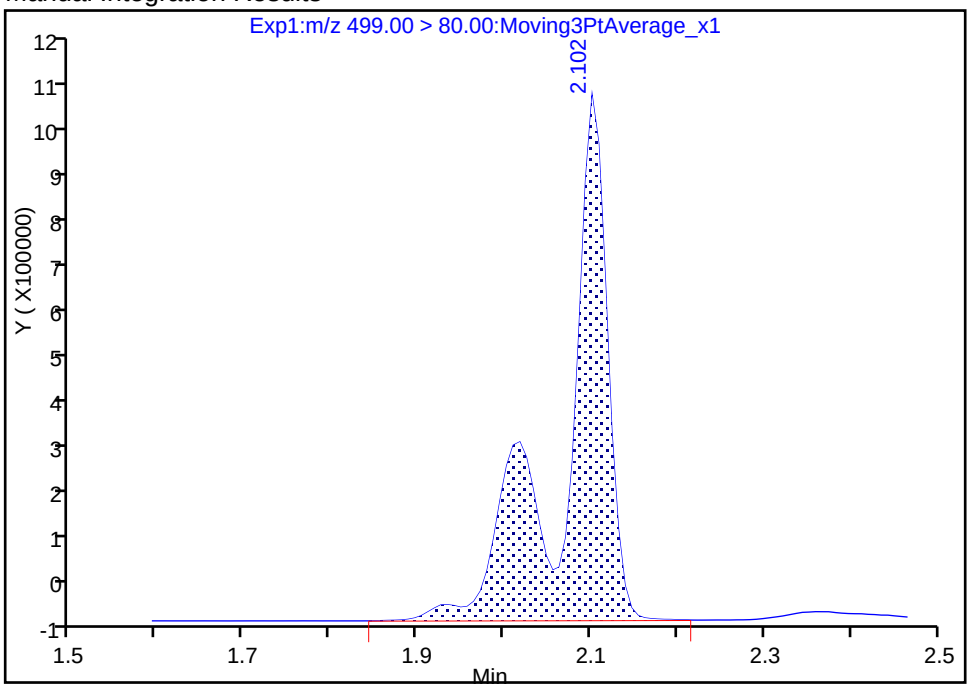
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 3851240
Amount: 20.103236
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:50:59
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-189591/1-A

Matrix: Water | Lab File ID: 2017.10.20_537A_024.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 250(mL) | Date Analyzed: 10/20/2017 19:24

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	114		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_024.d
Lims ID: MB 320-189591/1-A
Client ID:
Sample Type: MB
Inject. Date: 20-Oct-2017 19:24:27 ALS Bottle#: 14 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-189591/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2073975	9.64		5072	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1835352	10.0		4851	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		5404548	28.7		4324	
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1168749	11.4		6252	

Report Date: 23-Oct-2017 10:34:09 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_024.d

Injection Date: 20-Oct-2017 19:24:27 Instrument ID: A8_N

Lims ID: MB 320-189591/1-A

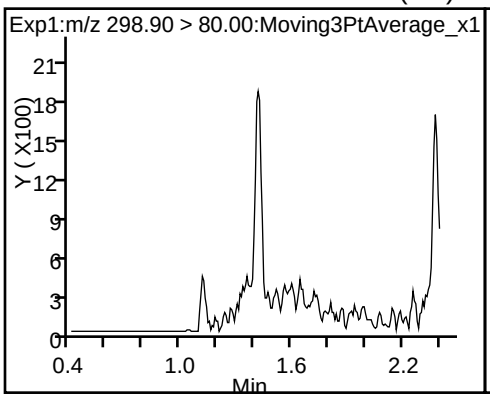
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 24

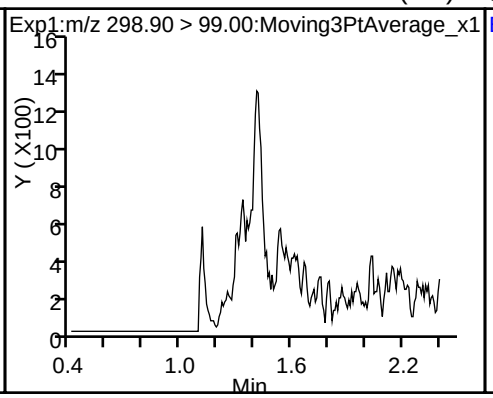
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

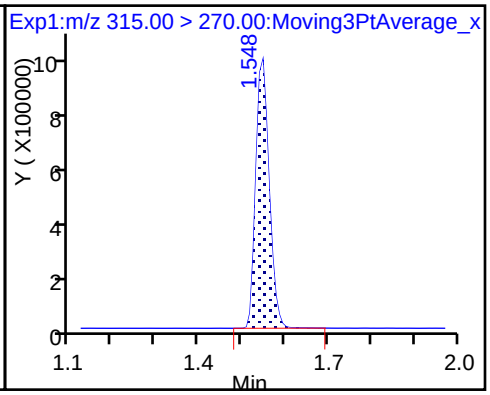
1 Perfluorobutanesulfonic acid (ND)



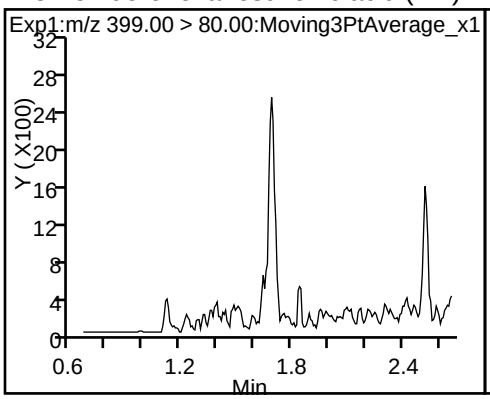
1 Perfluorobutanesulfonic acid (ND)



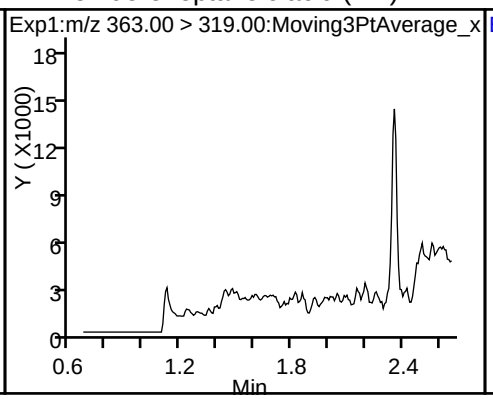
$ 2 13C2 PFHxA



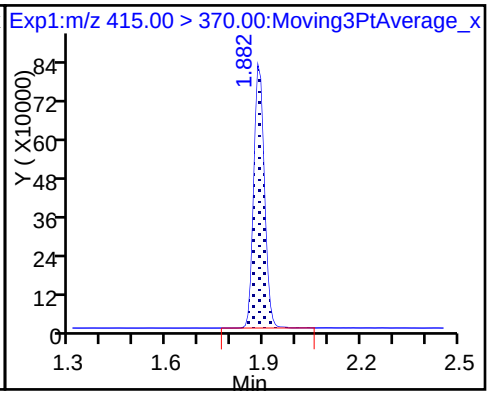
3 Perfluorohexanesulfonic acid (ND)



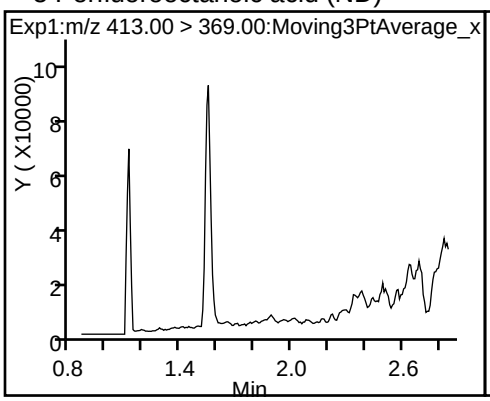
4 Perfluoroheptanoic acid (ND)



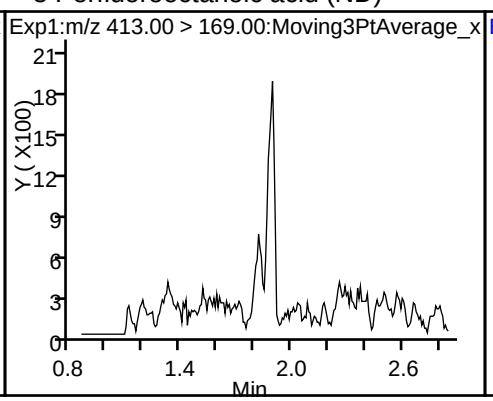
* 6 13C2-PFOA



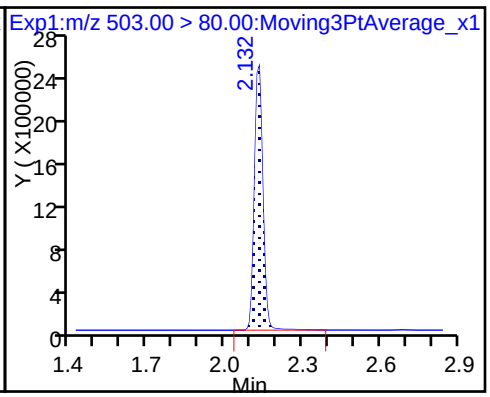
5 Perfluorooctanoic acid (ND)



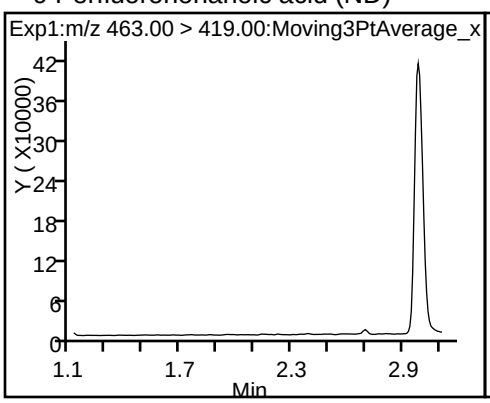
5 Perfluorooctanoic acid (ND)



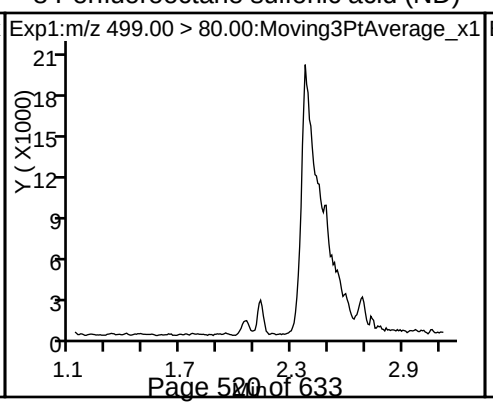
* 7 13C4 PFOS



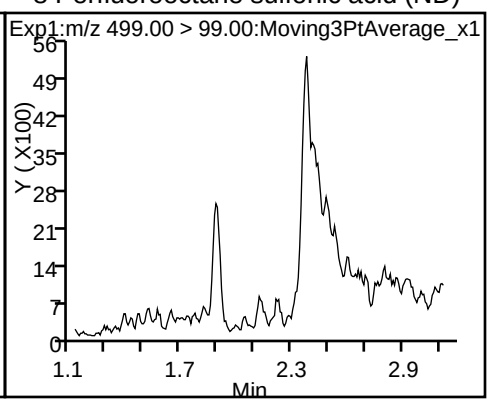
9 Perfluorononanoic acid (ND)



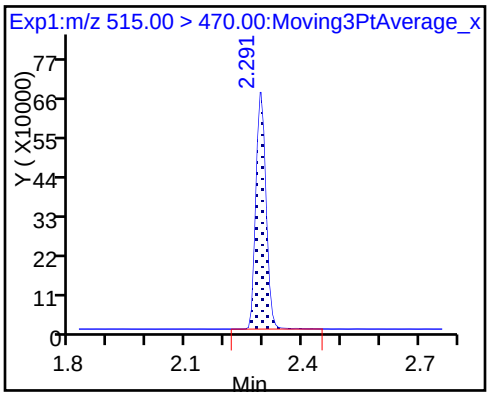
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
77
66
55
44
33
22
11
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_024.d
Lims ID: MB 320-189591/1-A
Client ID:
Sample Type: MB
Inject. Date: 20-Oct-2017 19:24:27 ALS Bottle#: 14 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-189591/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.64	96.44
$ 10 13C2 PFDA	10.0	11.4	114.17

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-189627/1-A

Matrix: Water | Lab File ID: 2017.10.20_537A_068.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 250(mL) | Date Analyzed: 10/20/2017 22:53

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	118		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_068.d
Lims ID: MB 320-189627/1-A
Client ID:
Sample Type: MB
Inject. Date: 20-Oct-2017 22:53:03 ALS Bottle#: 1 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-189627/1-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.524	0.016	1.000	2183509	10.7		5443	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1745632	10.0		3633	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5212882	28.7		4197	
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1152429	11.8		5388	

Report Date: 23-Oct-2017 11:00:13 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_068.d

Injection Date: 20-Oct-2017 22:53:03 Instrument ID: A8_N

Lims ID: MB 320-189627/1-A

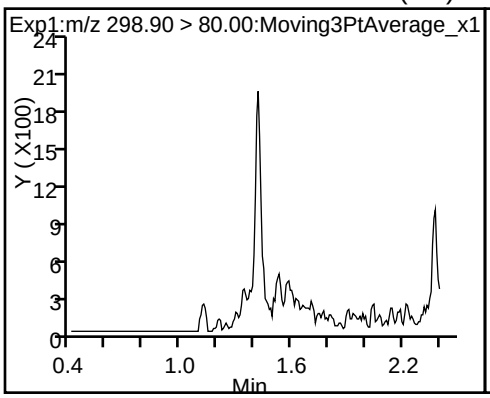
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 24

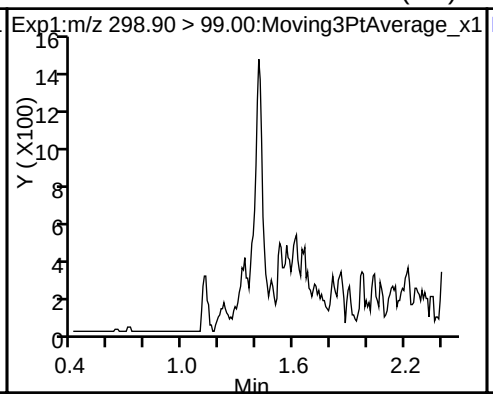
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

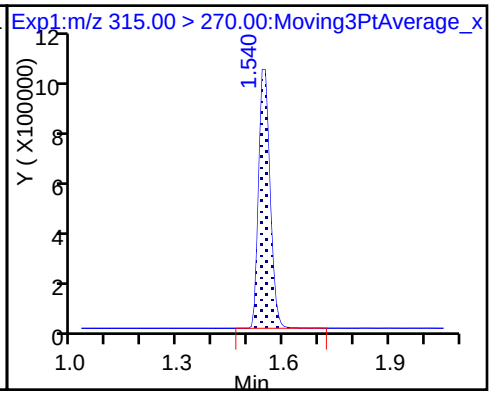
1 Perfluorobutanesulfonic acid (ND)



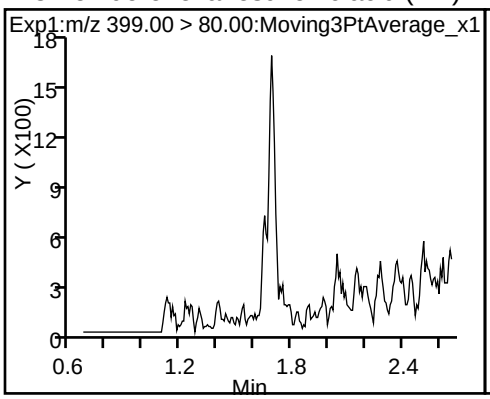
1 Perfluorobutanesulfonic acid (ND)



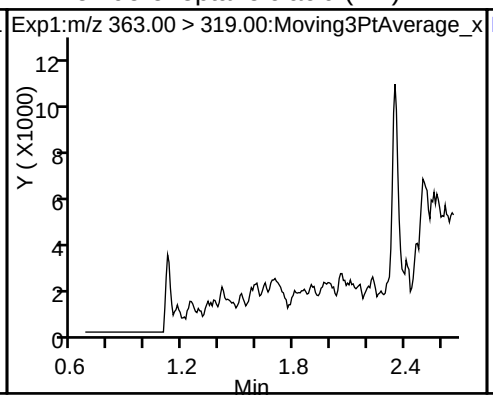
$ 2 13C2 PFHxA



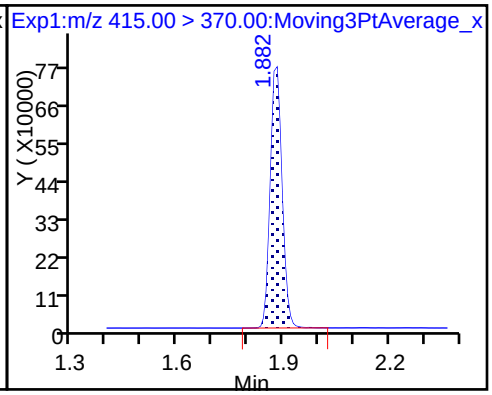
3 Perfluorohexanesulfonic acid (ND)



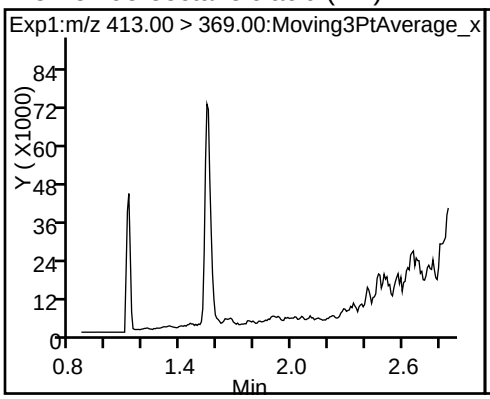
4 Perfluoroheptanoic acid (ND)



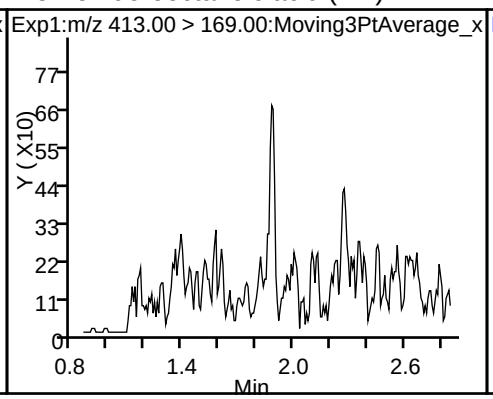
* 6 13C2-PFOA



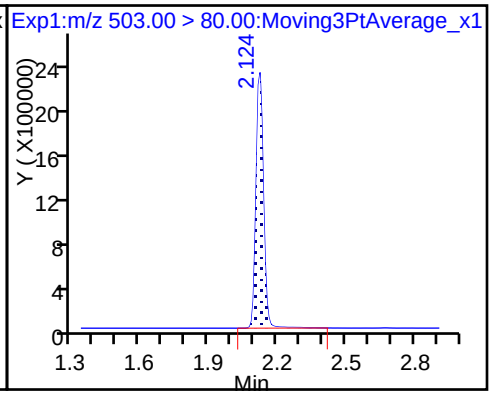
5 Perfluorooctanoic acid (ND)



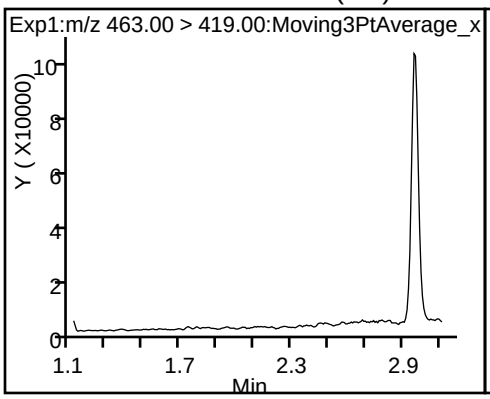
5 Perfluorooctanoic acid (ND)



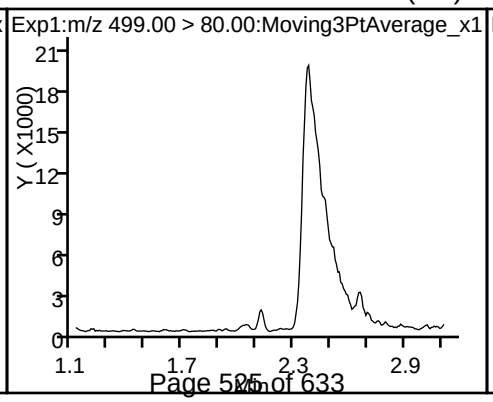
* 7 13C4 PFOS



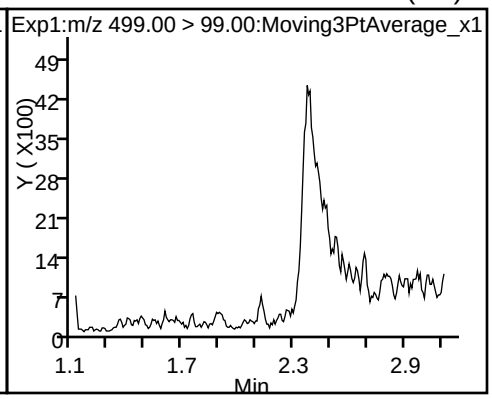
9 Perfluorononanoic acid (ND)



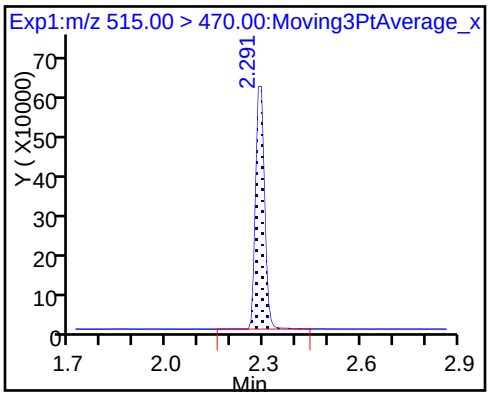
8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_068.d
Lims ID: MB 320-189627/1-A
Client ID:
Sample Type: MB
Inject. Date: 20-Oct-2017 22:53:03 ALS Bottle#: 1 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-189627/1-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.7	106.75
$ 10 13C2 PFDA	10.0	11.8	118.36

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-190676/1-A

Matrix: Water | Lab File ID: 2017.10.31_537AA_003.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 10/23/2017 14:32

Sample wt/vol: 250(mL) | Date Analyzed: 10/31/2017 15:17

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 192192 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	106		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_003.d
Lims ID: MB 320-190676/1-A
Client ID:
Sample Type: MB
Inject. Date: 31-Oct-2017 15:17:41 ALS Bottle#: 1 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-190676/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 16:08:54 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.528	-0.003	1.000	3393035	10.6		4713	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.863	-0.004		2834607	10.0		3451	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.107	-0.005		6395915	28.7		3924	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2300016	10.0		6510	

Report Date: 31-Oct-2017 16:08:57 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_003.d

Injection Date: 31-Oct-2017 15:17:41 Instrument ID: A8_N

Lims ID: MB 320-190676/1-A

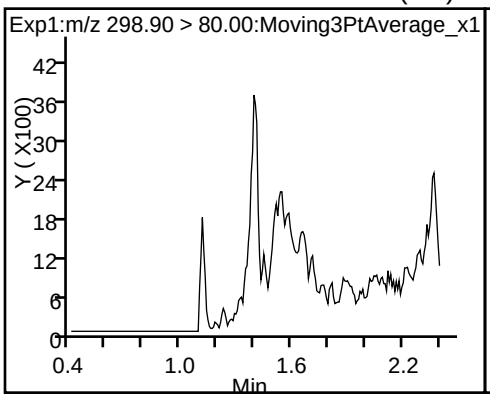
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 3

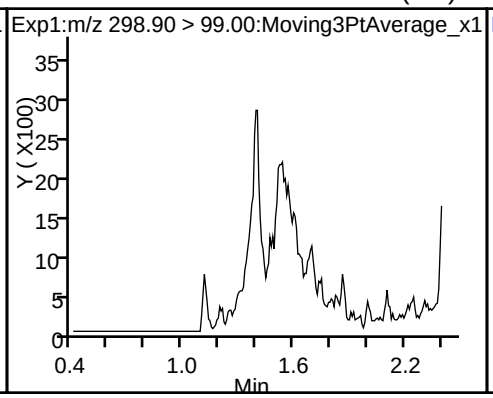
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

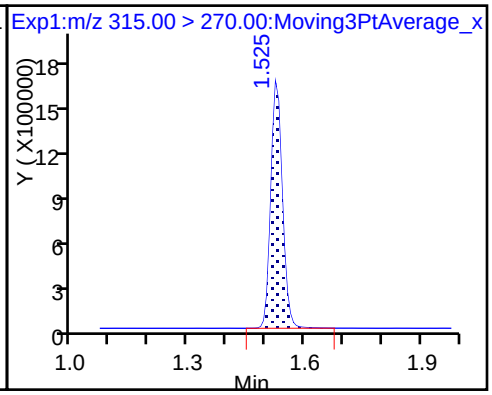
1 Perfluorobutanesulfonic acid (ND)



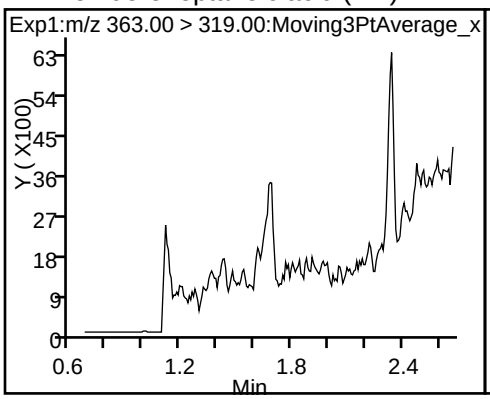
1 Perfluorobutanesulfonic acid (ND)



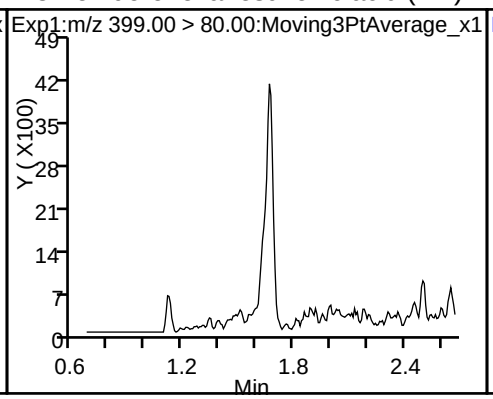
$ 2 13C2 PFHxA



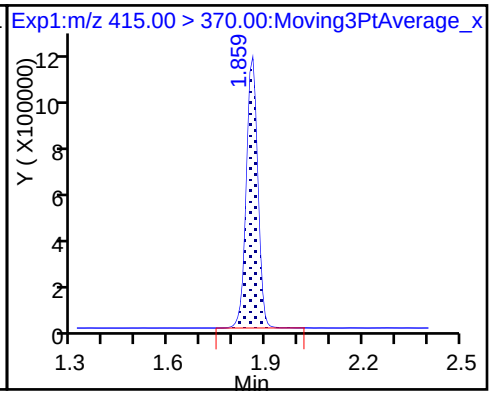
4 Perfluoroheptanoic acid (ND)



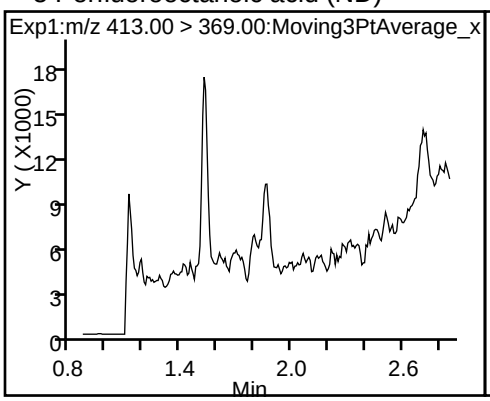
3 Perfluorohexanesulfonic acid (ND)



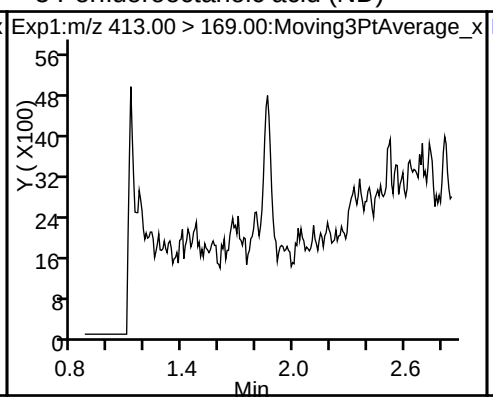
* 6 13C2-PFOA



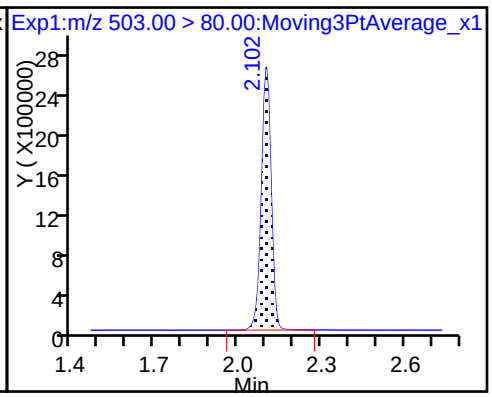
5 Perfluorooctanoic acid (ND)



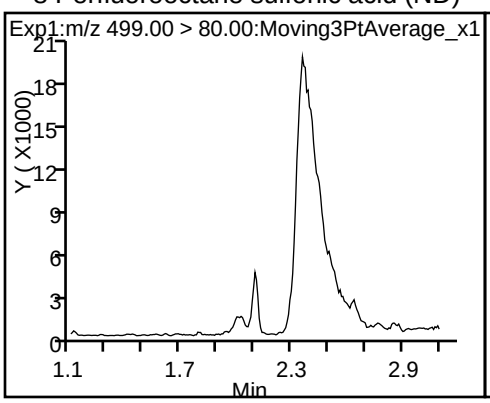
5 Perfluorooctanoic acid (ND)



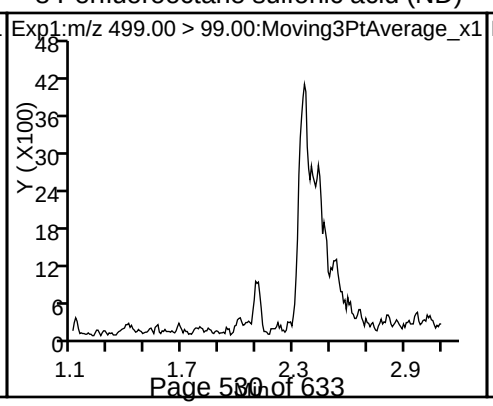
* 7 13C4 PFOS



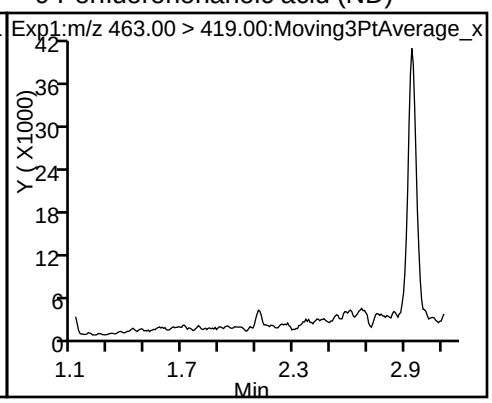
8 Perfluorooctane sulfonic acid (ND)



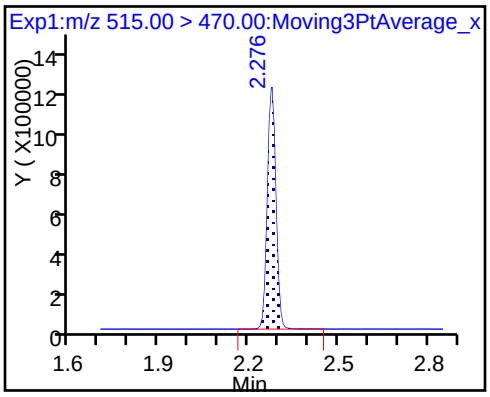
8 Perfluorooctane sulfonic acid (ND)



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
14
12
10
8
6
4
2
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_003.d
Lims ID: MB 320-190676/1-A
Client ID:
Sample Type: MB
Inject. Date: 31-Oct-2017 15:17:41 ALS Bottle#: 1 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-190676/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 16:08:54 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.6	106.07
$ 10 13C2 PFDA	10.0	10.0	100.25

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 320-189591/2-A

Matrix: Water | Lab File ID: 2017.10.20_537A_025.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 250(mL) | Date Analyzed: 10/20/2017 19:29

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	205	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	116		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	106		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	160		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	60.3		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	536		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_025.d
Lims ID: LCS 320-189591/2-A
Client ID:
Sample Type: LCS
Inject. Date: 20-Oct-2017 19:29:11 ALS Bottle#: 15 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-189591/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 09:59:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.402	0.024	1.000	20396286	133.9		4449	
298.90 > 99.00	1.426	1.402	0.024	1.000	15293549		1.33(0.00-0.00)	4597	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1857048	9.72		6983	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.699	1.668	0.031	1.000	11361466	40.0		4669	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.699	1.668	0.031	1.000	2314063	15.1		421	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.855	0.034		1629839	10.0		5157	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.889	1.856	0.033	1.000	4358073	29.1		102	
413.00 > 169.00	1.889	1.856	0.033	1.000	2336363		1.87(0.00-0.00)	4303	
* 7 13C4 PFOS									
503.00 > 80.00	2.132	2.108	0.024		4970902	28.7		4511	
9 Perfluorononanoic acid									
463.00 > 419.00	2.140	2.116	0.024	1.000	2674569	26.4		146	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.132	2.124	0.008	1.000	8277311	51.3		1131	M
499.00 > 99.00	2.132	2.124	0.008	1.000	1687977		4.90(0.00-0.00)	643	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	966571	10.6		5122	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 23-Oct-2017 10:34:14 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_025.d

Injection Date: 20-Oct-2017 19:29:11 Instrument ID: A8_N

Lims ID: LCS 320-189591/2-A

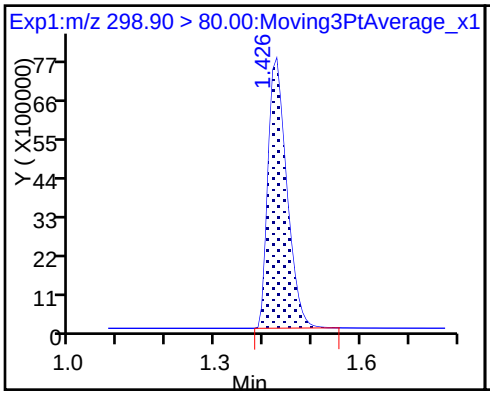
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 25

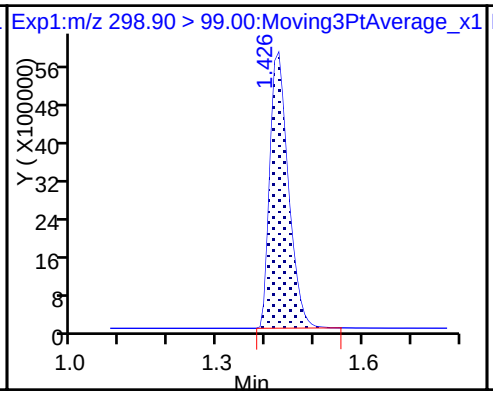
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

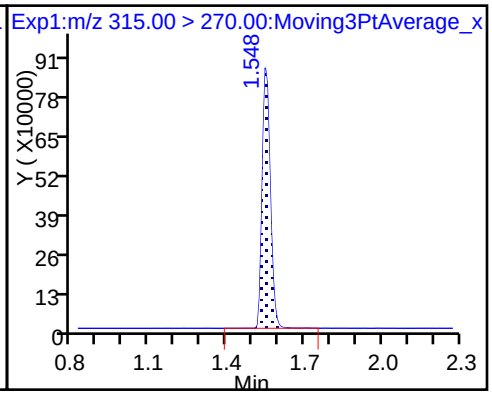
1 Perfluorobutanesulfonic acid



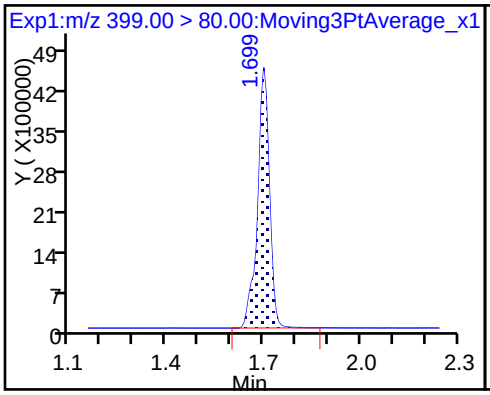
1 Perfluorobutanesulfonic acid



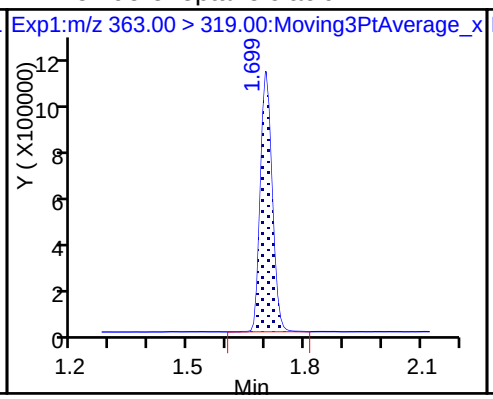
$ 2 13C2 PFHxA



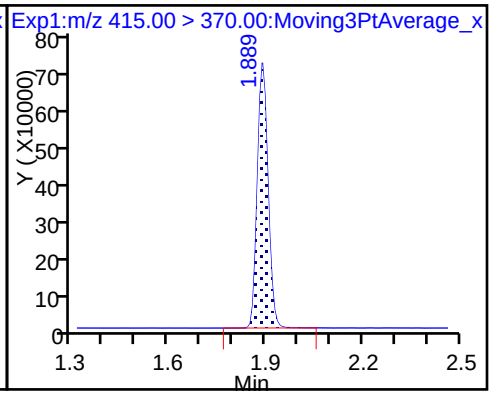
3 Perfluorohexanesulfonic acid



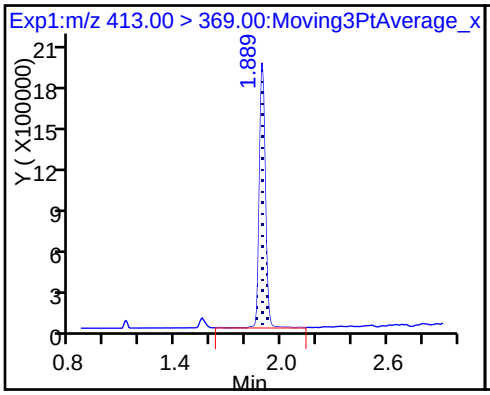
4 Perfluoroheptanoic acid



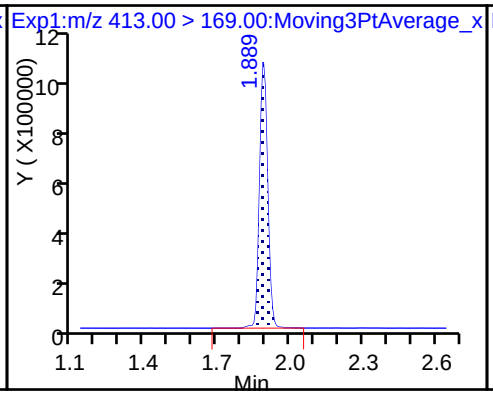
* 6 13C2-PFOA



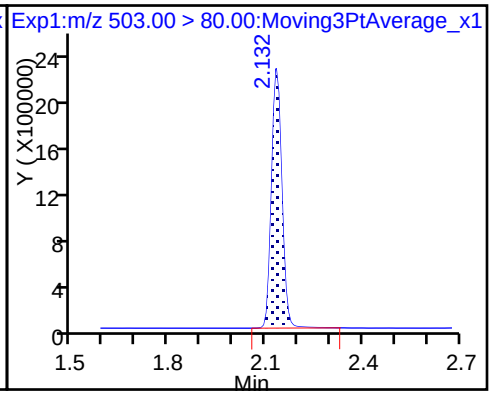
5 Perfluorooctanoic acid



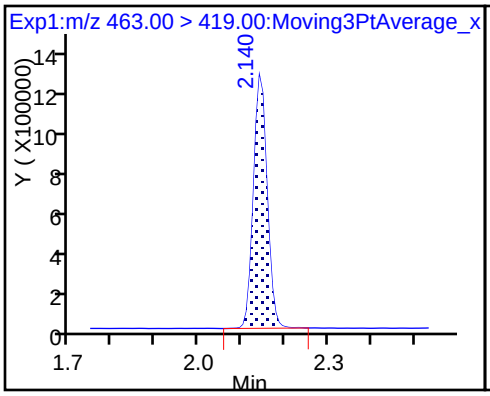
5 Perfluorooctanoic acid



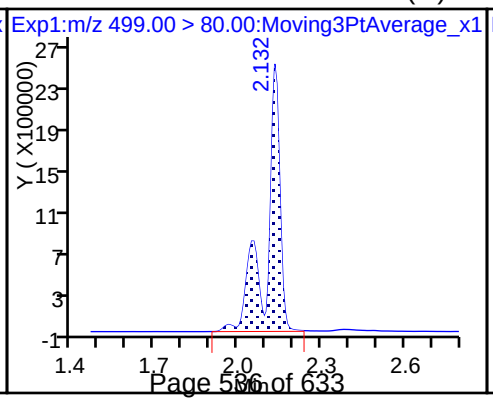
* 7 13C4 PFOS



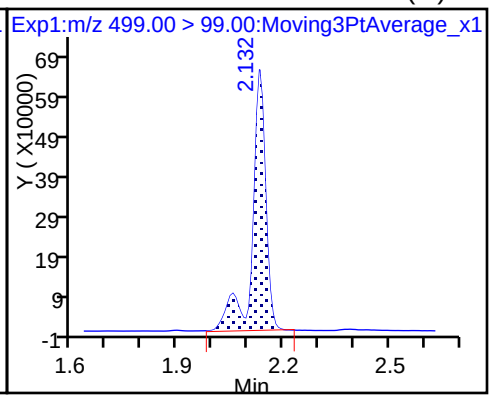
9 Perfluorononanoic acid



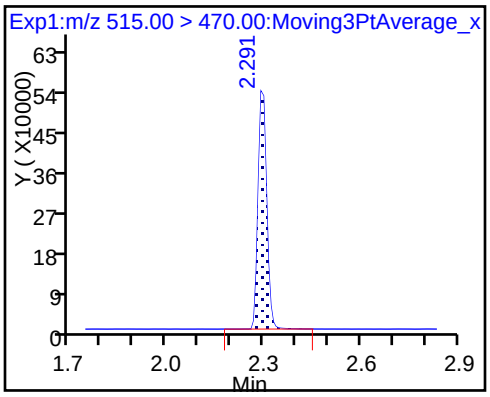
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_025.d
Lims ID: LCS 320-189591/2-A
Client ID:
Sample Type: LCS
Inject. Date: 20-Oct-2017 19:29:11 ALS Bottle#: 15 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-189591/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 09:59:43

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.72	97.24
$ 10 13C2 PFDA	10.0	10.6	106.32

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

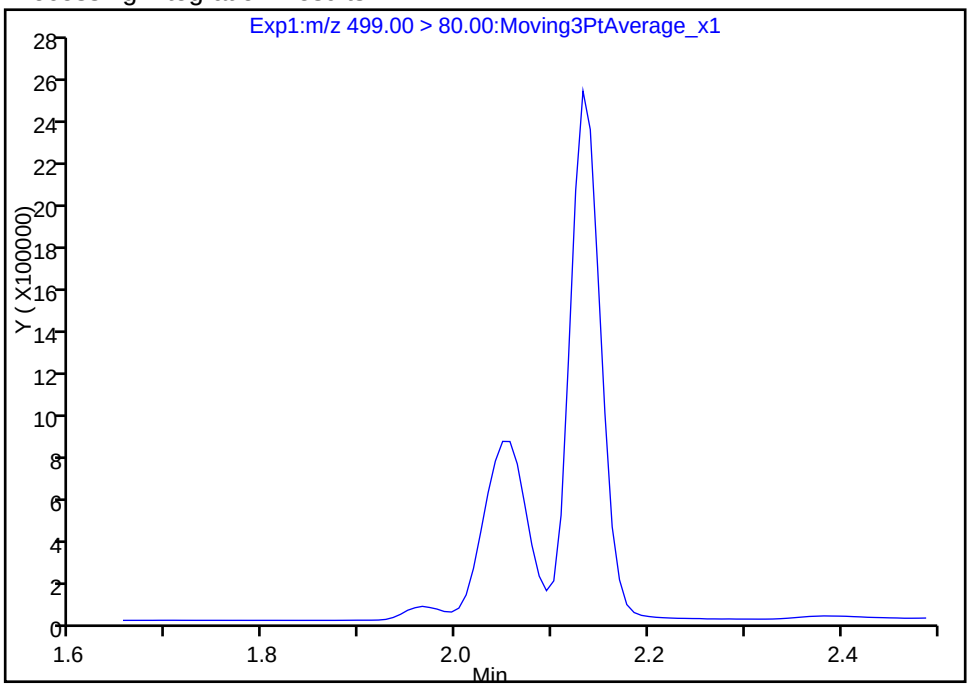
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_025.d
Injection Date: 20-Oct-2017 19:29:11 Instrument ID: A8_N
Lims ID: LCS 320-189591/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

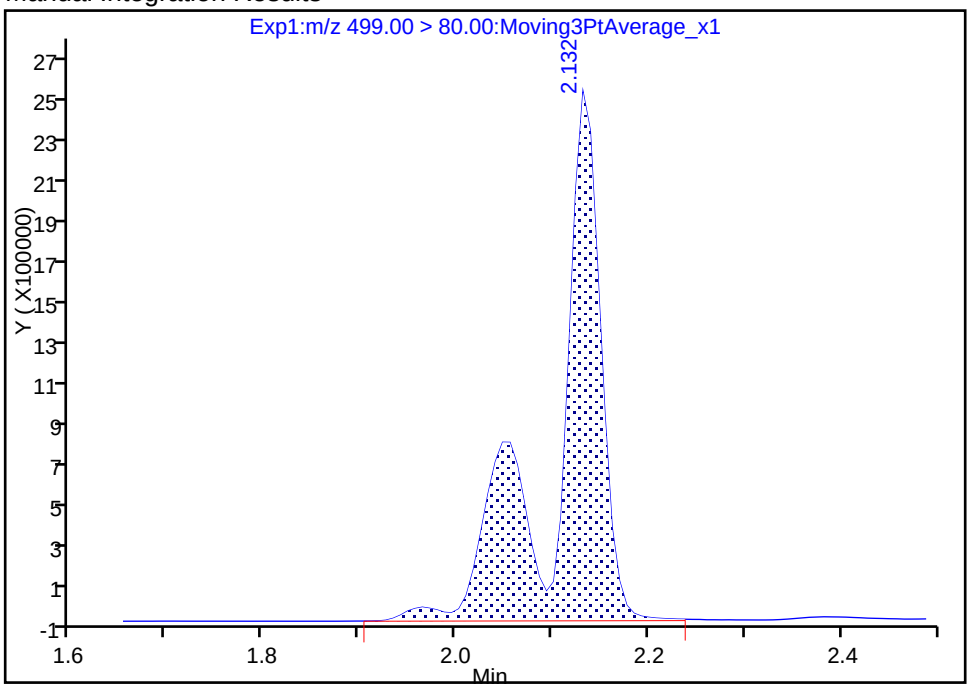
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 8277311
Amount: 51.257455
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 09:58:50
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

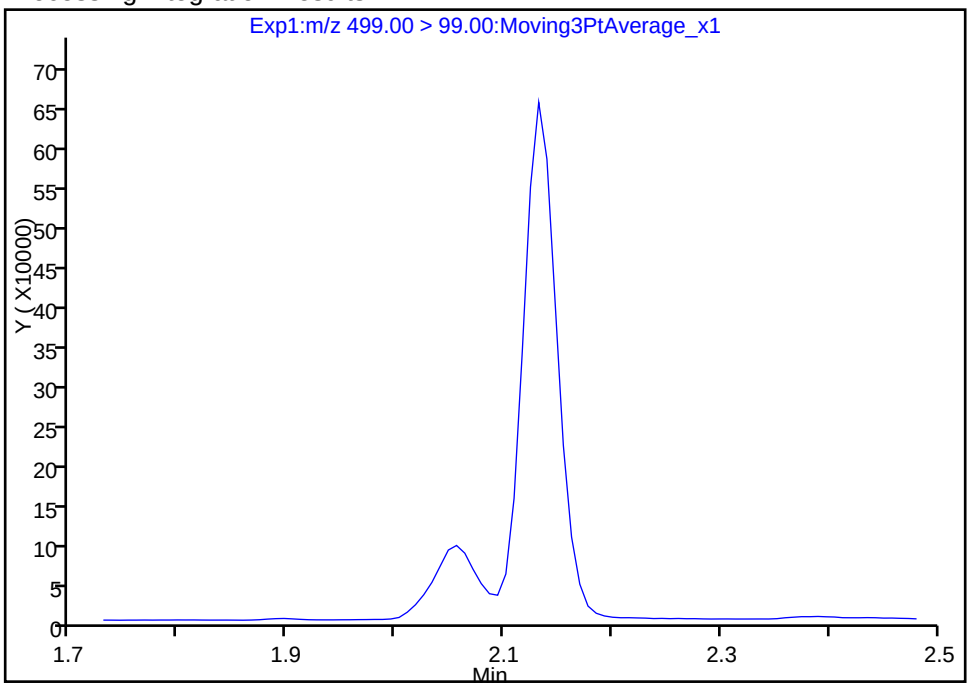
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_025.d
Injection Date: 20-Oct-2017 19:29:11 Instrument ID: A8_N
Lims ID: LCS 320-189591/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

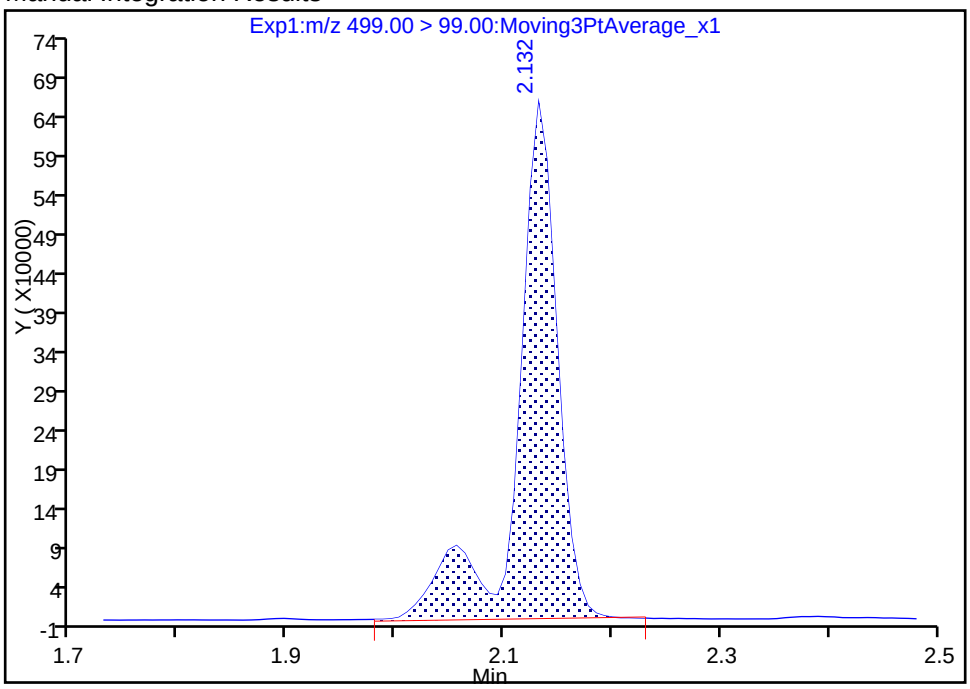
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 1687977
Amount: 51.257455
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 09:59:20
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

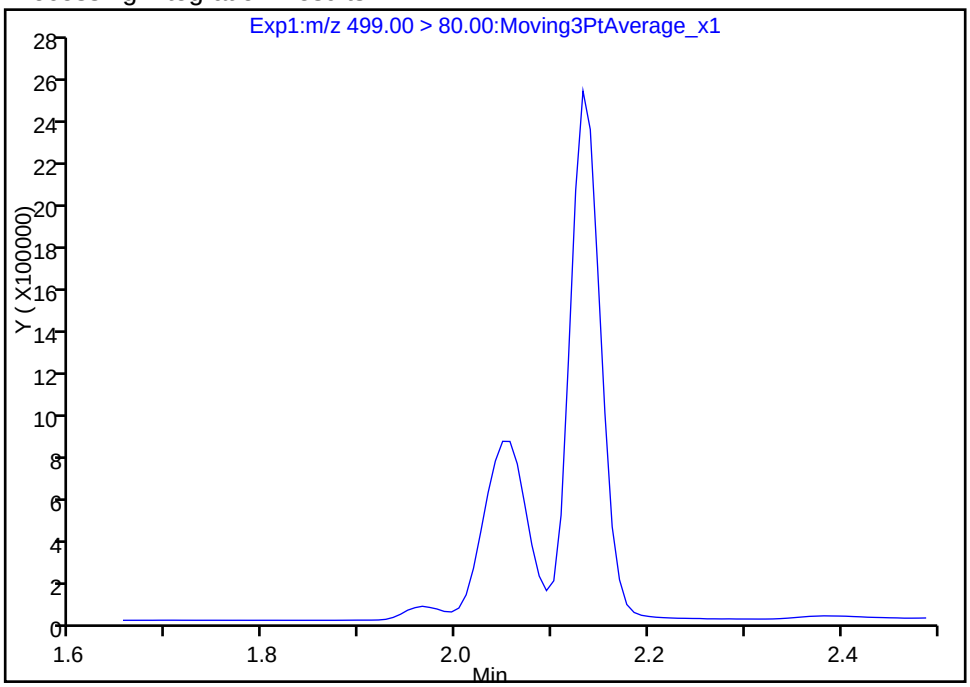
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_025.d
Injection Date: 20-Oct-2017 19:29:11 Instrument ID: A8_N
Lims ID: LCS 320-189591/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

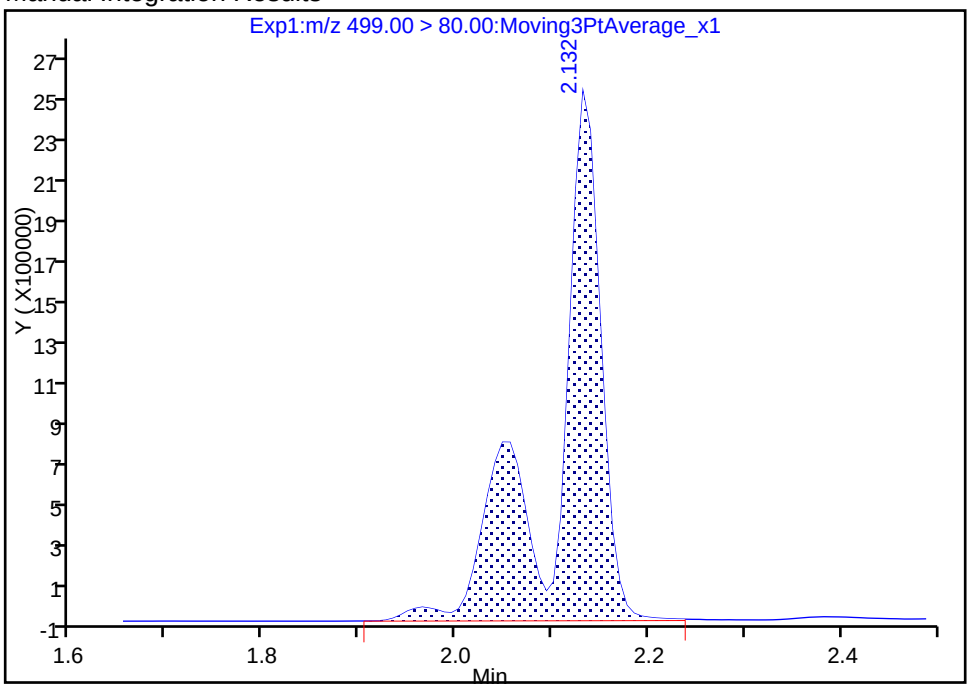
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.13
Area: 8277311
Amount: 51.257455
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 09:59:20
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 320-190676/2-A

Matrix: Water | Lab File ID: 2017.10.31_537AA_004.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 10/23/2017 14:32

Sample wt/vol: 250(mL) | Date Analyzed: 10/31/2017 15:22

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 192192 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	133	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	56.6		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	52.1		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	103		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	24.1		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	22.9	J Q	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	16	Q	70-130
STL00996	13C2 PFDA	70		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_004.d
Lims ID: LCS 320-190676/2-A
Client ID:
Sample Type: LCS
Inject. Date: 31-Oct-2017 15:22:26 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-190676/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 16:08:54 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 31-Oct-2017 15:54:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.405	-0.001	1.000	1295230	5.72		600	
298.90 > 99.00	1.404	1.405	-0.001	1.000	936706		1.38(0.00-0.00)	991	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.528	0.005	1.000	461403	1.55		1233	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	1496697	6.03		342	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.678	-0.001	1.000	8986835	25.8		4308	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.863	-0.004		2636726	10.0		3694	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.864	-0.005	1.000	3472888	14.2		230	
413.00 > 169.00	1.859	1.864	-0.005	1.000	1922555		1.81(0.00-0.00)	322	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.107	-0.005		6136583	28.7		4341	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.109	-0.007	1.000	6587645	33.2		789	M
499.00 > 99.00	2.102	2.109	-0.007	1.000	1348805		4.88(0.00-0.00)	891	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.116	-0.007	1.000	2243555	13.0		422	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	1497712	7.02		4722	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 31-Oct-2017 16:08:58 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_004.d

Injection Date: 31-Oct-2017 15:22:26 Instrument ID: A8_N

Lims ID: LCS 320-190676/2-A

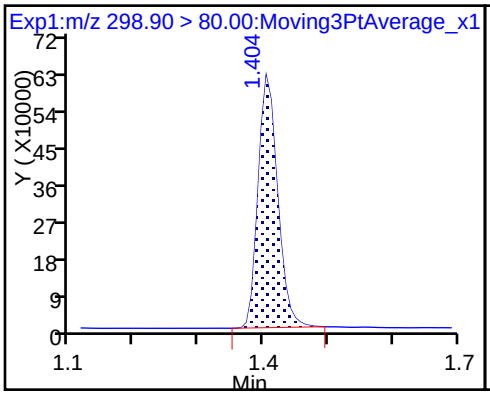
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4

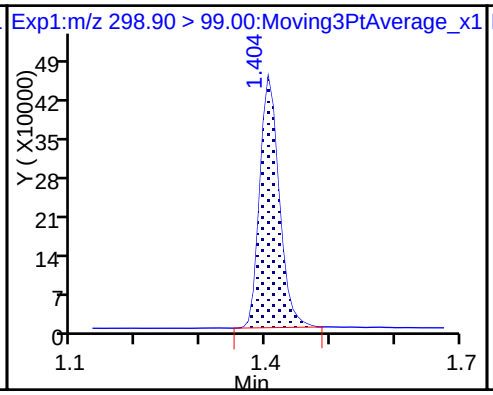
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

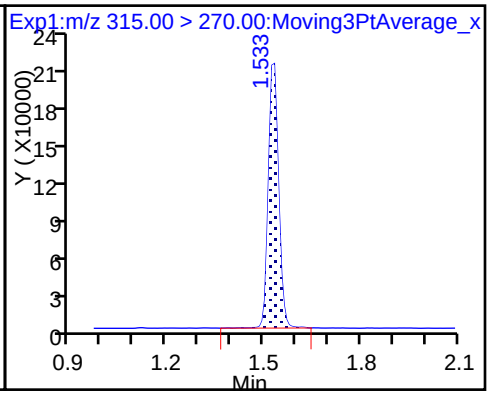
1 Perfluorobutanesulfonic acid



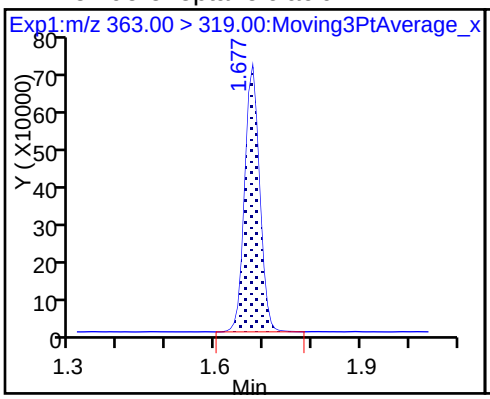
1 Perfluorobutanesulfonic acid



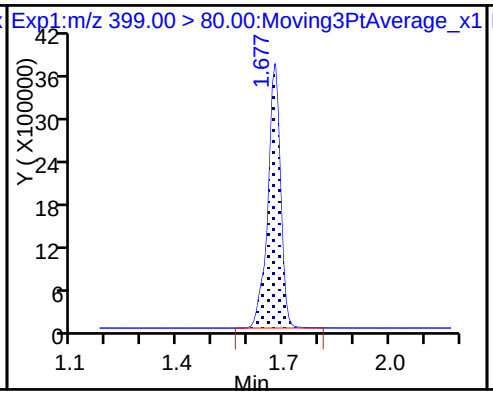
$ 2 13C2 PFHxA



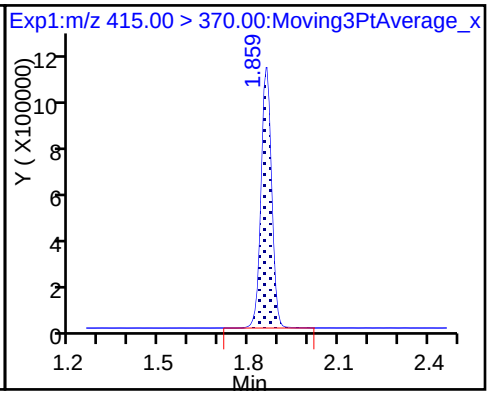
4 Perfluoroheptanoic acid



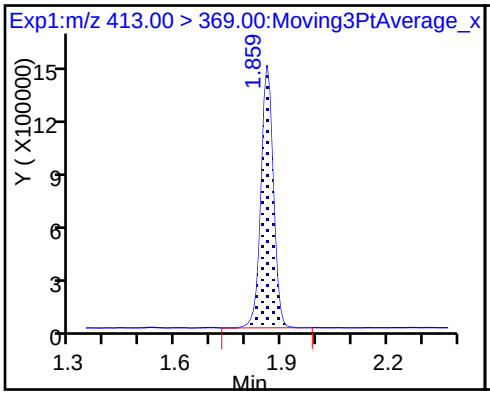
3 Perfluorohexanesulfonic acid



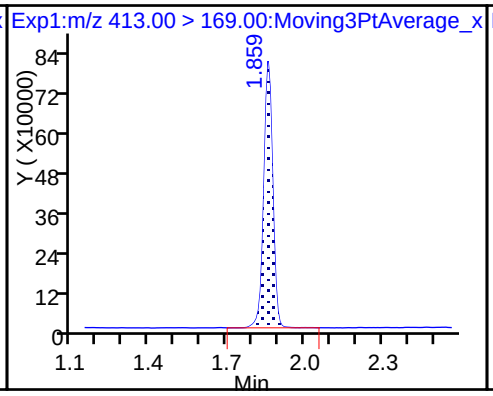
* 6 13C2-PFOA



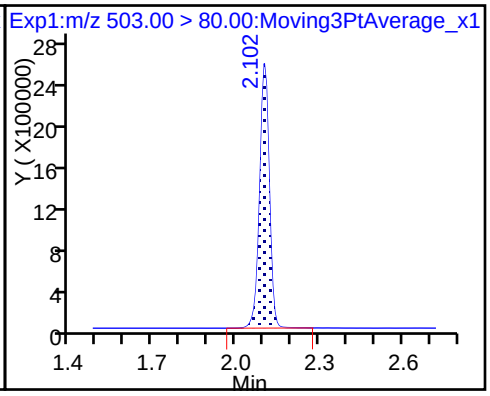
5 Perfluorooctanoic acid



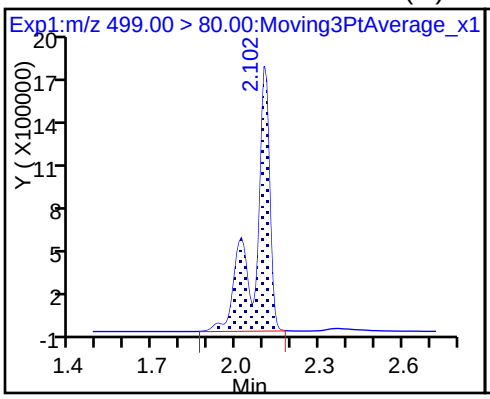
5 Perfluorooctanoic acid



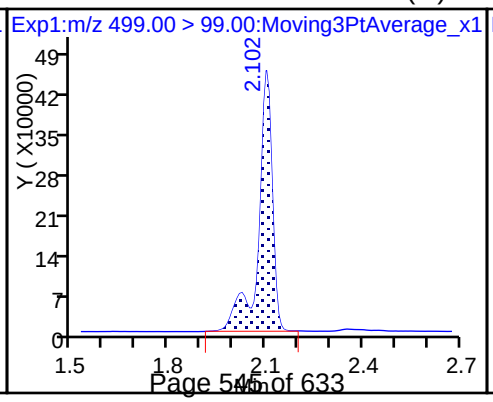
* 7 13C4 PFOS



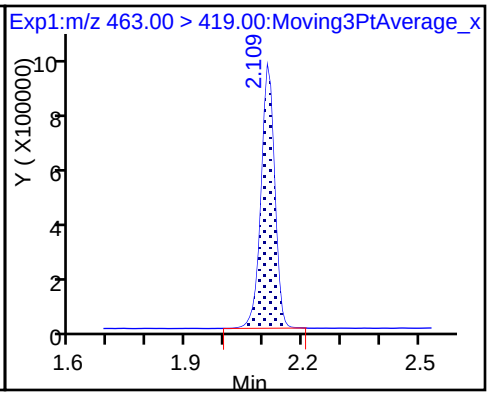
8 Perfluorooctane sulfonic acid (M)



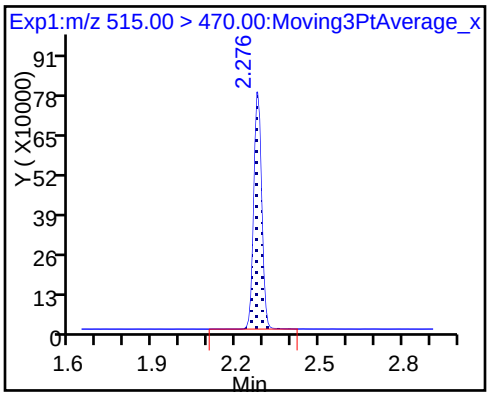
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
91
78
65
52
39
26
13
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_004.d
Lims ID: LCS 320-190676/2-A
Client ID:
Sample Type: LCS
Inject. Date: 31-Oct-2017 15:22:26 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-190676/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 16:08:54 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 31-Oct-2017 15:54:07

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	1.55	15.51
$ 10 13C2 PFDA	10.0	7.02	70.18

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

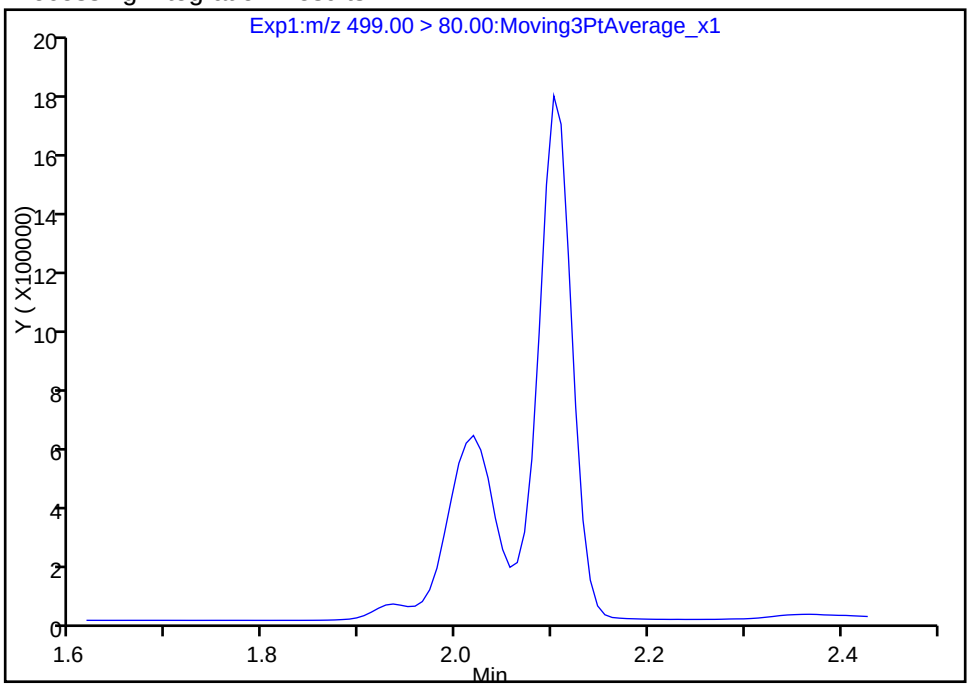
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_004.d
Injection Date: 31-Oct-2017 15:22:26 Instrument ID: A8_N
Lims ID: LCS 320-190676/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

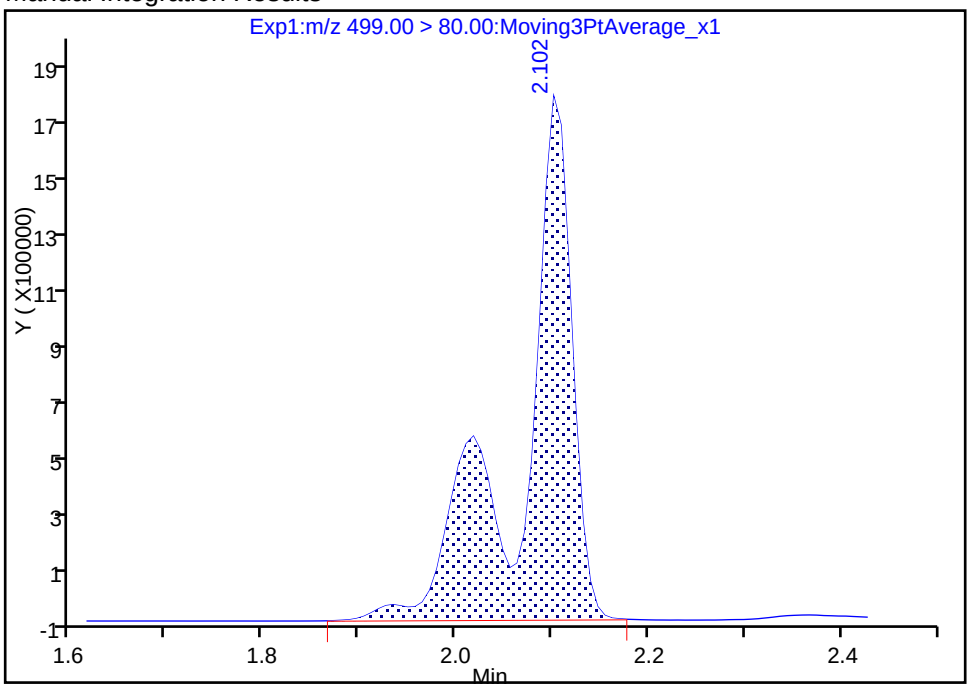
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 6587645
Amount: 33.167187
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:53:06
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

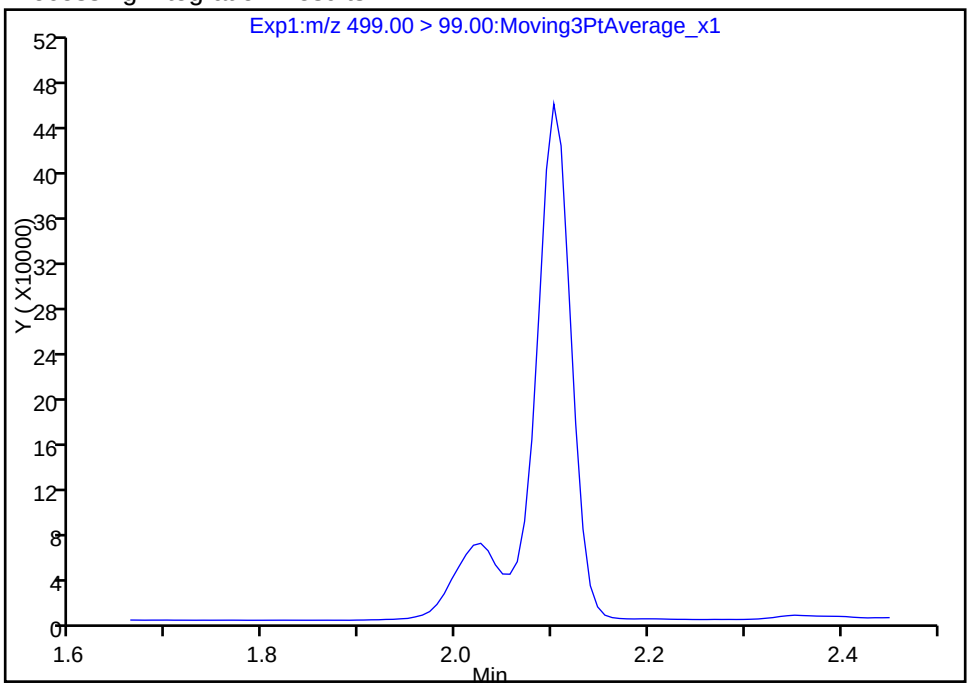
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_004.d
Injection Date: 31-Oct-2017 15:22:26 Instrument ID: A8_N
Lims ID: LCS 320-190676/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

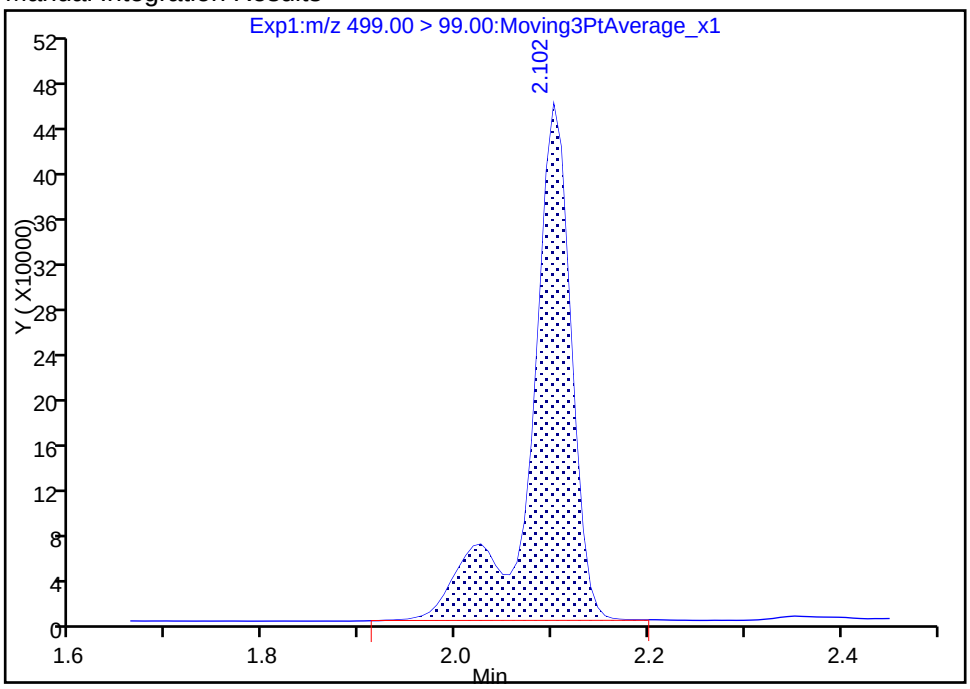
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 1348805
Amount: 33.167187
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:53:27
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

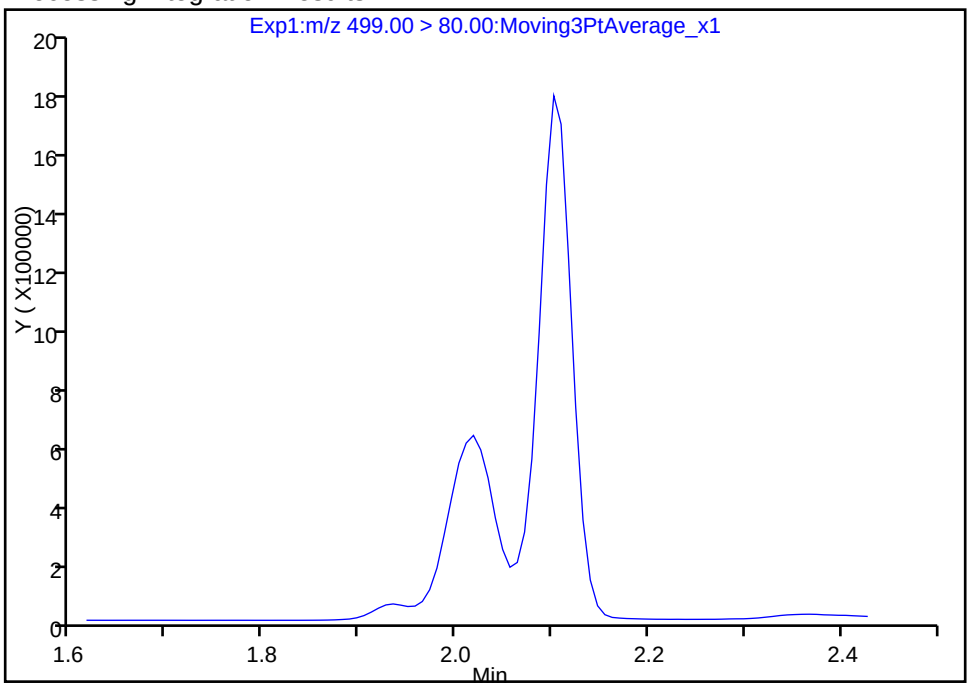
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_004.d
Injection Date: 31-Oct-2017 15:22:26 Instrument ID: A8_N
Lims ID: LCS 320-190676/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

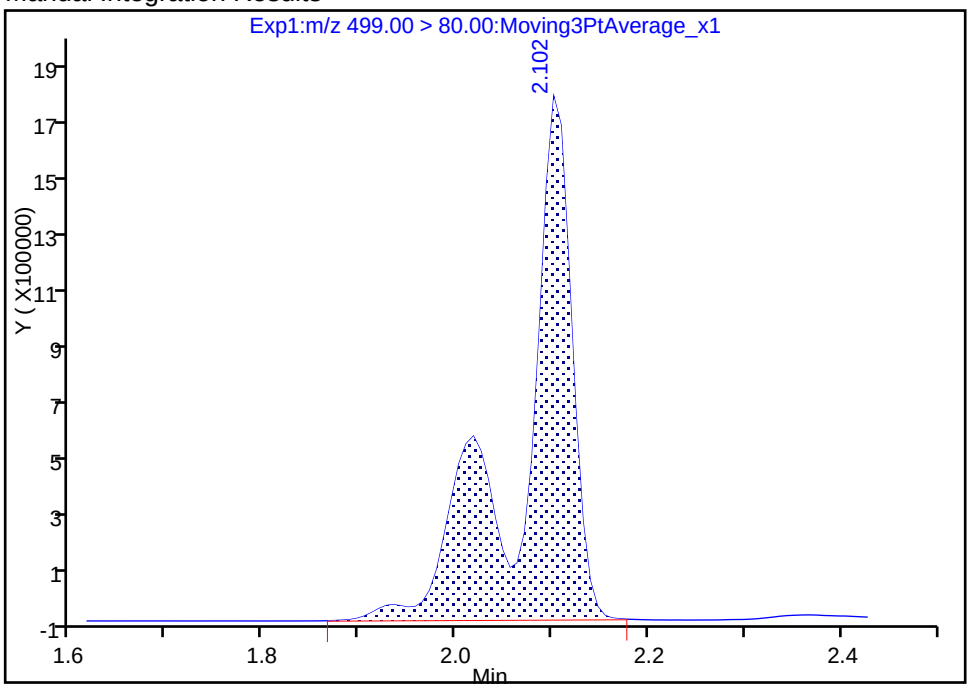
Processing Integration Results

Not Detected
Expected RT: 2.11



Manual Integration Results

RT: 2.10
Area: 6587645
Amount: 33.167187
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:53:38
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCSD 320-190676/3-A

Matrix: Water | Lab File ID: 2017.10.31_537AA_005.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 10/23/2017 14:32

Sample wt/vol: 250(mL) | Date Analyzed: 10/31/2017 15:27

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 192192 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	134	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	74.3		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	71.7	Q	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	107		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	38.6	Q	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	308	Q	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_005.d
Lims ID: LCSD 320-190676/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 31-Oct-2017 15:27:10 ALS Bottle#: 3 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-190676/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 16:08:54 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 31-Oct-2017 15:54:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.411	1.405	0.006	1.000	15439385	77.0		2913	
298.90 > 99.00	1.404	1.405	-0.001	0.995	11601030		1.33(0.00-0.00)	3611	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.528	0.005	1.000	3358619	11.2		5221	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.677	0.0	1.000	2414852	9.64		531	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.678	-0.001	1.000	9532859	26.9		4728	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.863	-0.004		2663186	10.0		3471	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.864	-0.005	1.000	4598304	18.6		290	
413.00 > 169.00	1.859	1.864	-0.005	1.000	2381656		1.93(0.00-0.00)	379	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.107	-0.005		6247889	28.7		4693	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.109	-0.007	1.000	6753188	33.4		765	M
499.00 > 99.00	2.102	2.109	-0.007	1.000	1398395		4.83(0.00-0.00)	994	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.116	-0.007	1.000	3113902	17.9		467	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.277	-0.001	1.000	2353494	10.9		6475	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 31-Oct-2017 16:09:01 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_005.d

Injection Date: 31-Oct-2017 15:27:10 Instrument ID: A8_N

Lims ID: LCSD 320-190676/3-A

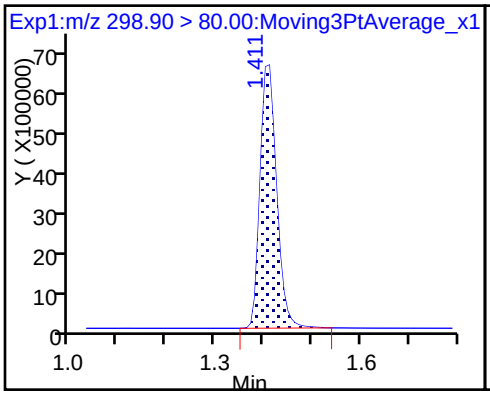
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 5

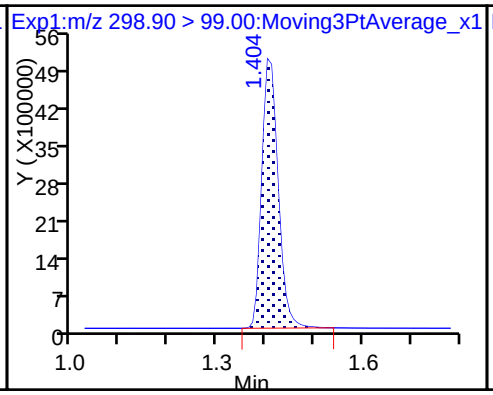
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

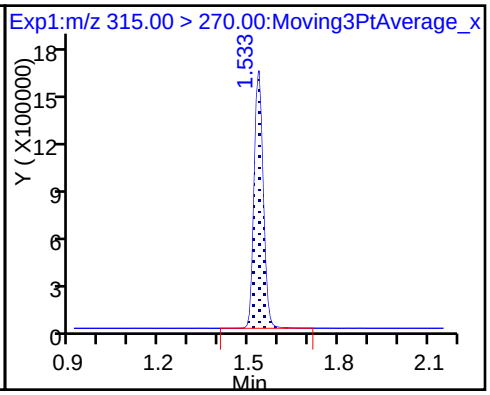
1 Perfluorobutanesulfonic acid



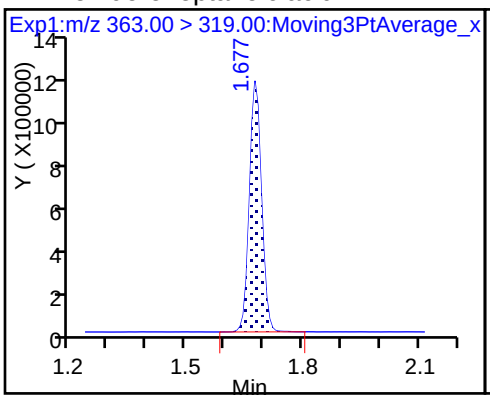
1 Perfluorobutanesulfonic acid



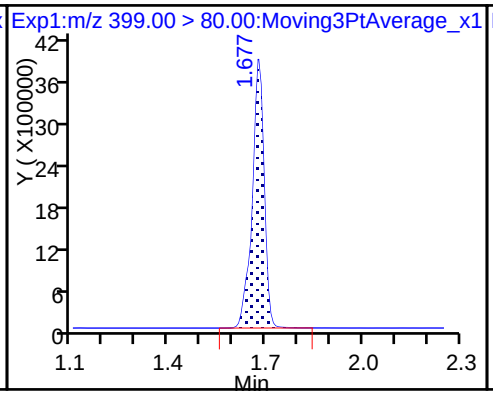
$ 2 13C2 PFHxA



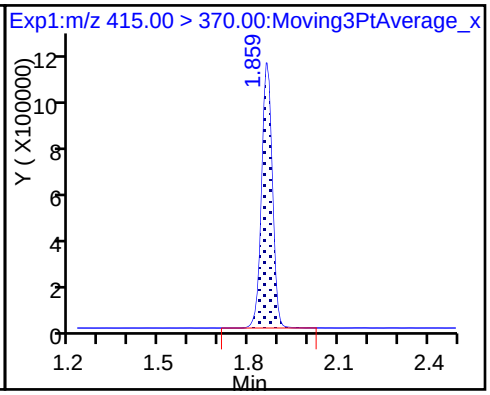
4 Perfluoroheptanoic acid



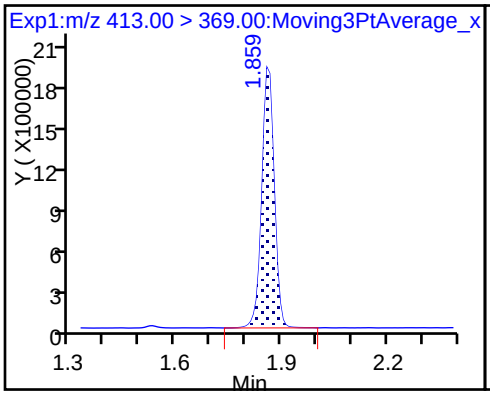
3 Perfluorohexanesulfonic acid



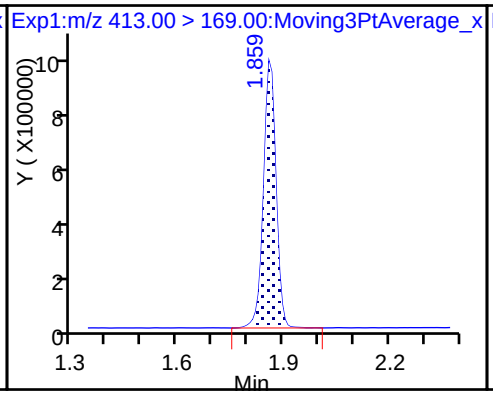
* 6 13C2-PFOA



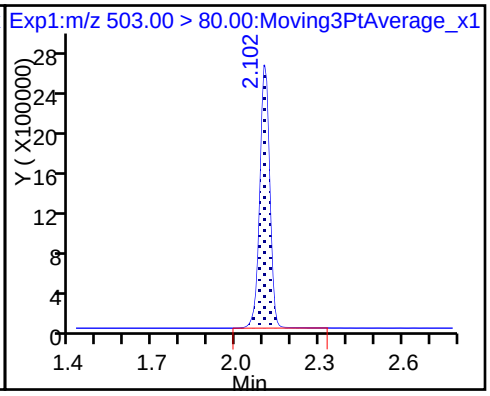
5 Perfluorooctanoic acid



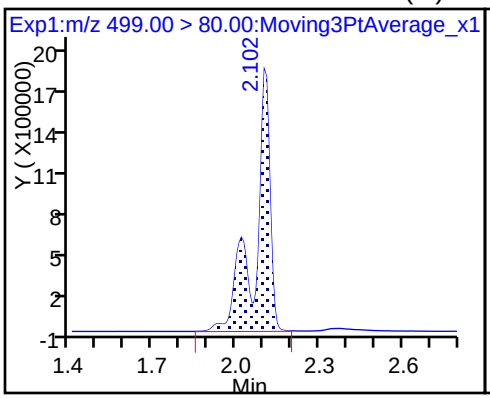
5 Perfluorooctanoic acid



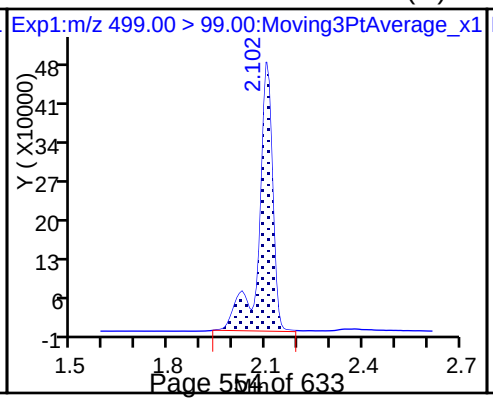
* 7 13C4 PFOS



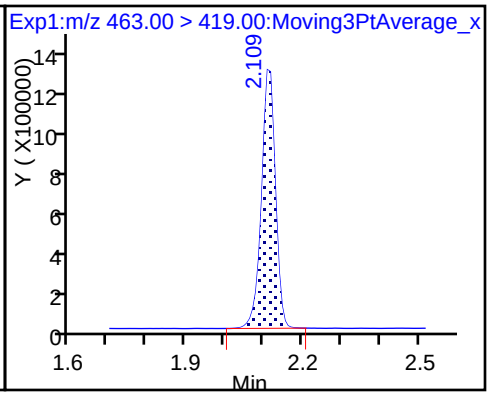
8 Perfluorooctane sulfonic acid (M)



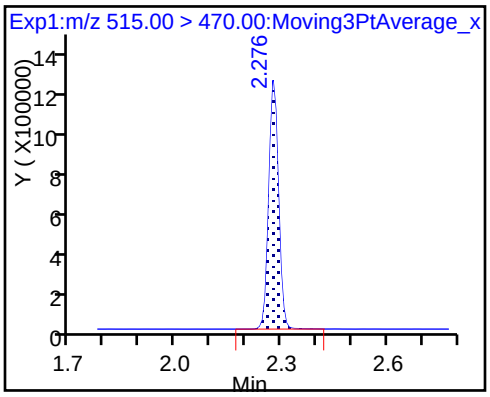
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X100000)
14
12
10
8
6
4
2
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_005.d
Lims ID: LCSD 320-190676/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 31-Oct-2017 15:27:10 ALS Bottle#: 3 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-190676/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 31-Oct-2017 16:08:54 Calib Date: 31-Oct-2017 12:08:27
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171031-49808.b\2017.10.31_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK004

First Level Reviewer: barnettj Date: 31-Oct-2017 15:54:47

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	11.2	111.75
$ 10 13C2 PFDA	10.0	10.9	109.18

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

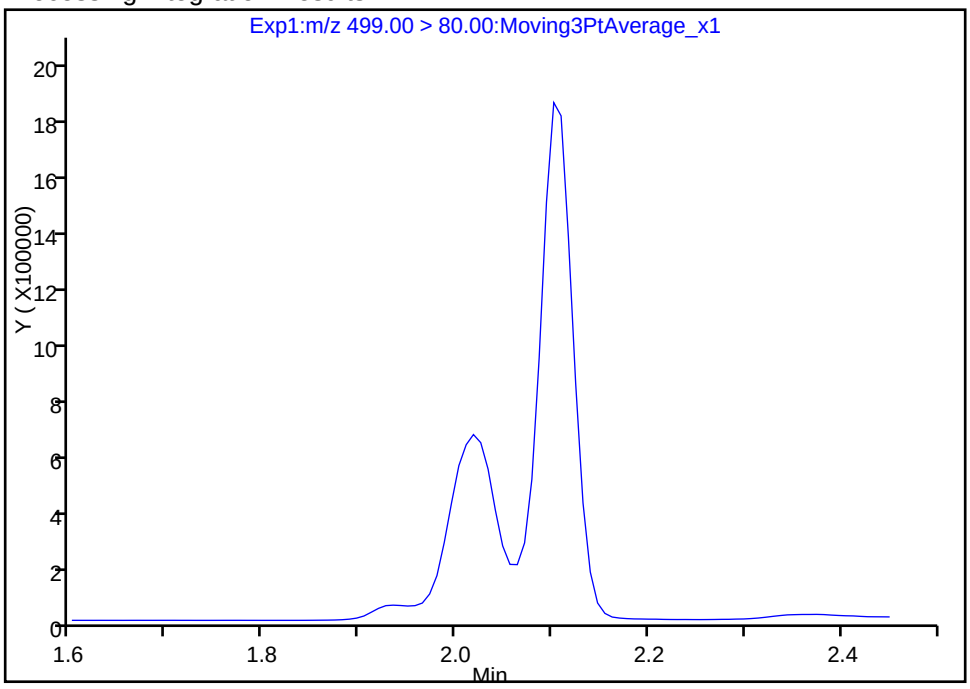
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_005.d
Injection Date: 31-Oct-2017 15:27:10 Instrument ID: A8_N
Lims ID: LCSD 320-190676/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

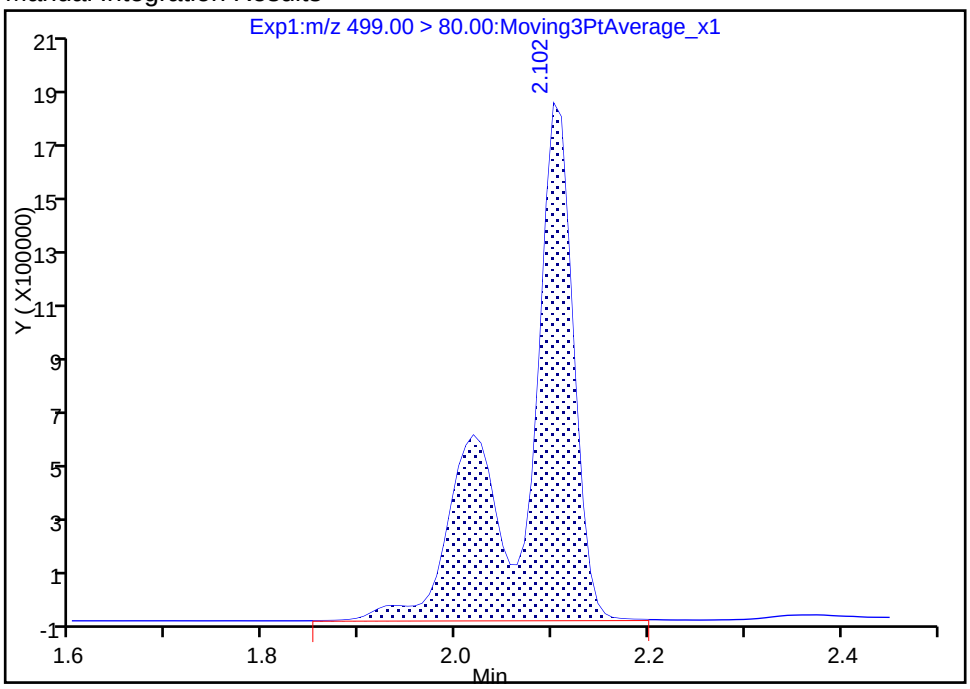
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 6753188
Amount: 33.394934
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:54:14
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

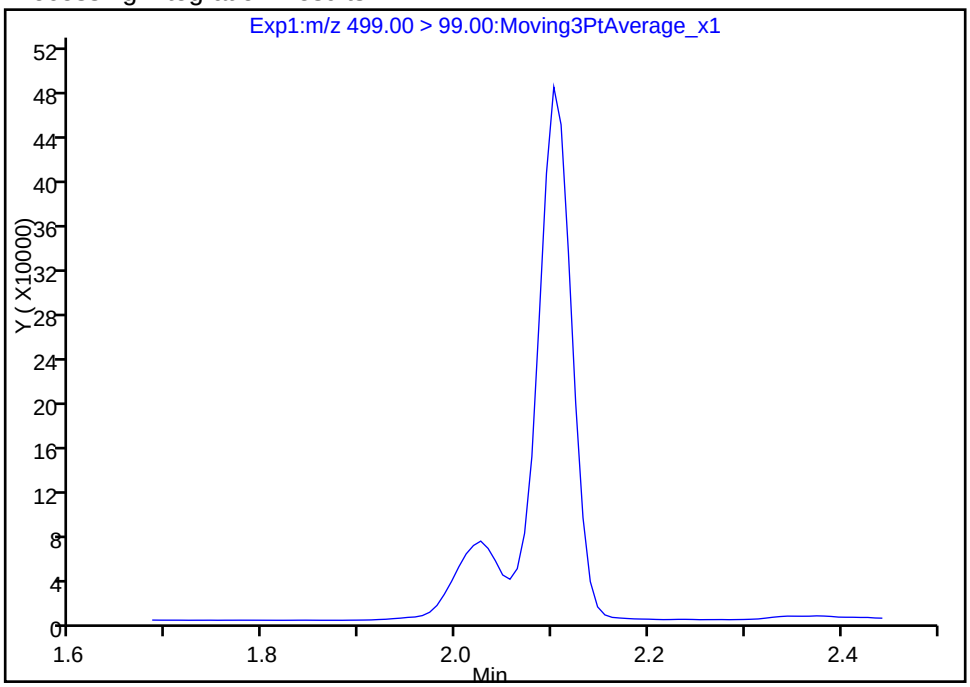
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_005.d
Injection Date: 31-Oct-2017 15:27:10 Instrument ID: A8_N
Lims ID: LCSD 320-190676/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

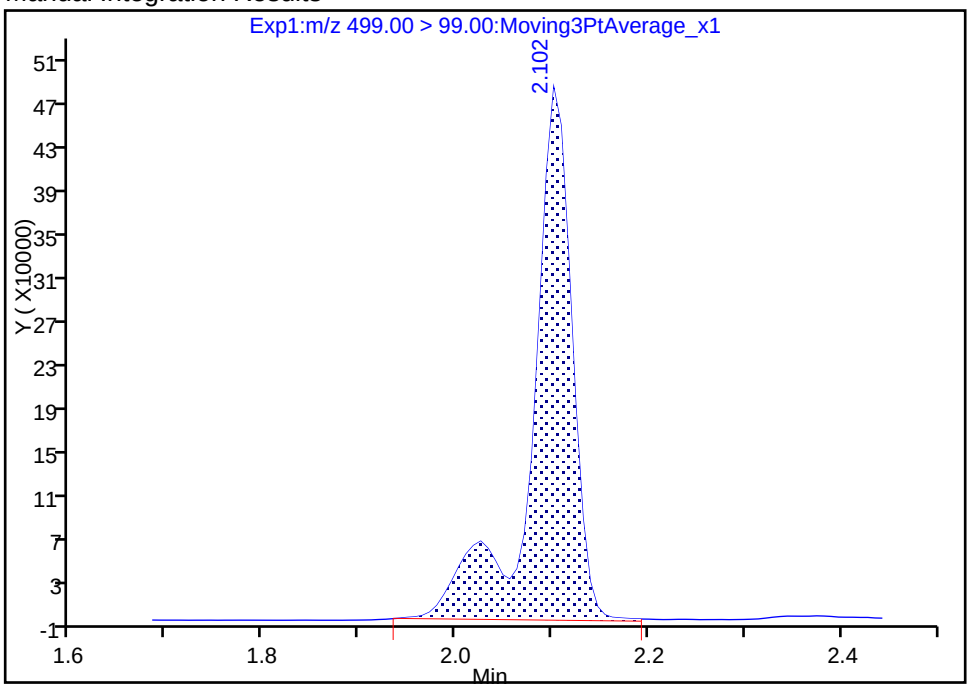
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 1398395
Amount: 33.394934
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:54:40
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

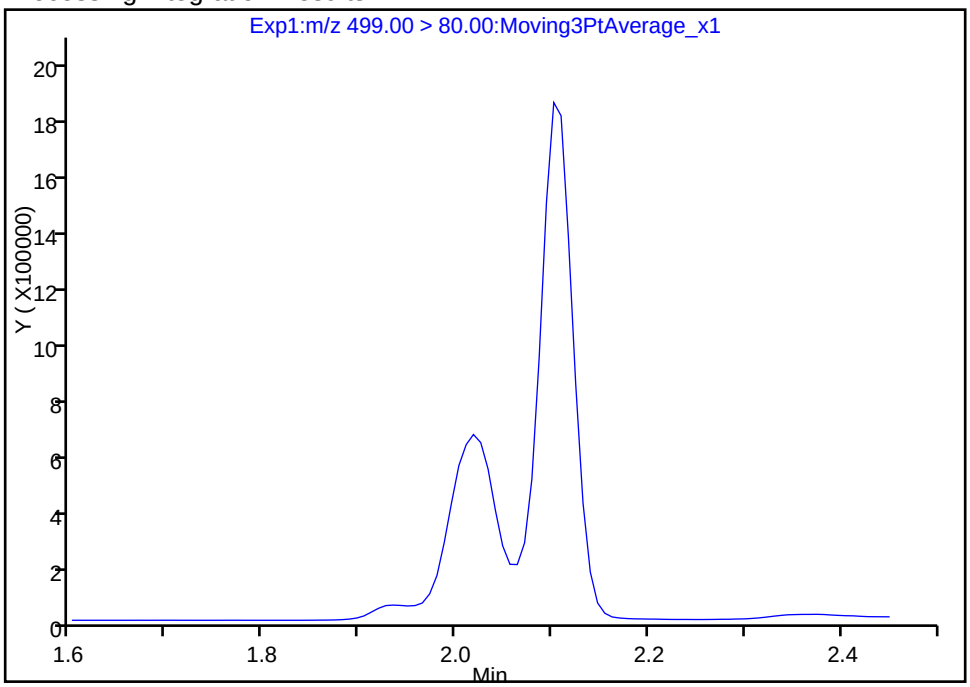
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b\2017.10.31_537AA_005.d
Injection Date: 31-Oct-2017 15:27:10 Instrument ID: A8_N
Lims ID: LCSD 320-190676/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

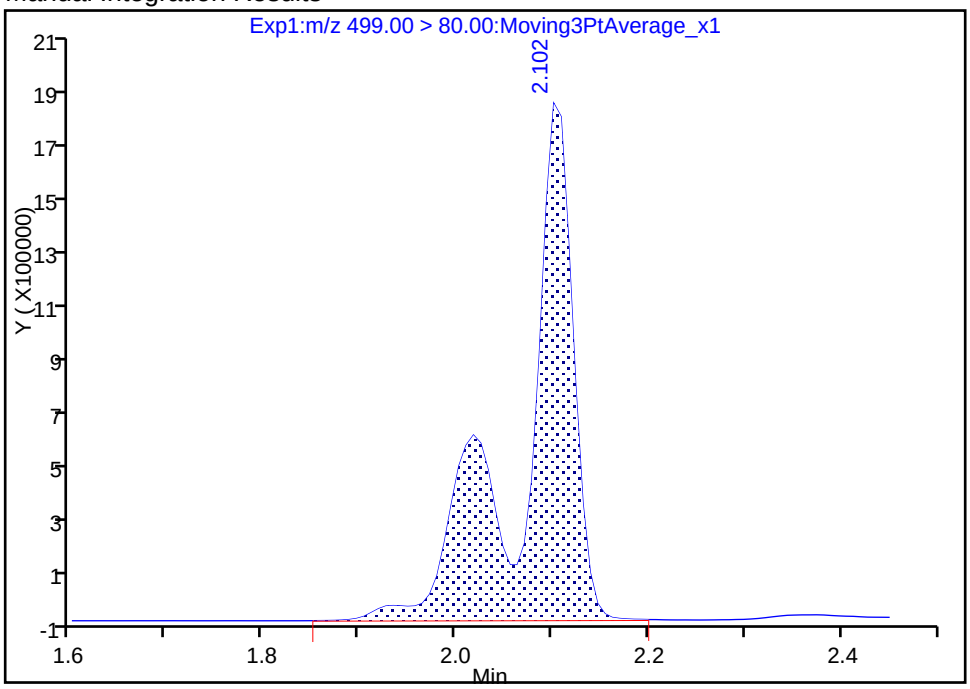
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 6753188
Amount: 33.394934
Amount Units: ng/ml



Reviewer: barnettj, 31-Oct-2017 15:54:40
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: | Lab Sample ID: LLCS 320-189627/2-A

Matrix: Water | Lab File ID: 2017.10.20_537A_069.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 250(mL) | Date Analyzed: 10/20/2017 22:57

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	39.2	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	20.6		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20.9	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	32.7		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	11.1		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	100		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_069.d
Lims ID: LLCS 320-189627/2-A
Client ID:
Sample Type: LLCS
Inject. Date: 20-Oct-2017 22:57:48 ALS Bottle#: 2 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcs 320-189627/2-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:27:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	4987751	25.0		4303	
298.90 > 99.00	1.419	1.402	0.017	1.000	3396880		1.47(0.00-0.00)	3168	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	2042585	10.1		6645	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.699	1.668	0.031	1.000	2323598	8.18		2458	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	450469	2.78		80.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1722743	10.0		4316	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	817137	5.16		23.2	
413.00 > 169.00	1.882	1.856	0.026	1.000	454862		1.80(0.00-0.00)	1375	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		4974847	28.7		4807	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.116	0.016	1.000	558710	5.22		67.0	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.117	0.007	1.000	1582076	9.79		232	M
499.00 > 99.00	2.124	2.117	0.007	1.000	330962		4.78(0.00-0.00)	162	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	985372	10.3		5217	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 23-Oct-2017 11:00:16 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_069.d

Injection Date: 20-Oct-2017 22:57:48 Instrument ID: A8_N

Lims ID: LLCS 320-189627/2-A

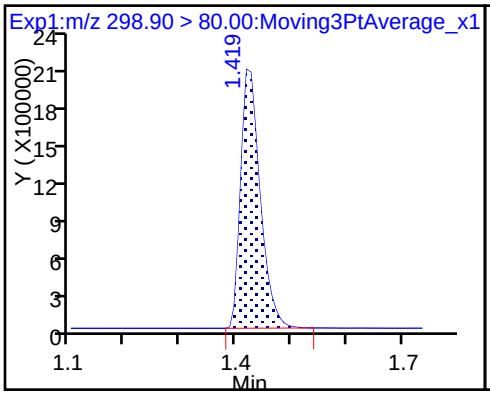
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 25

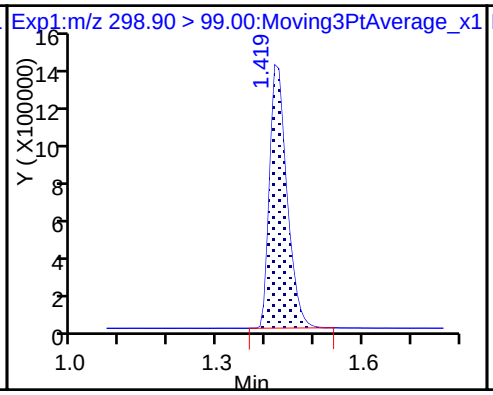
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

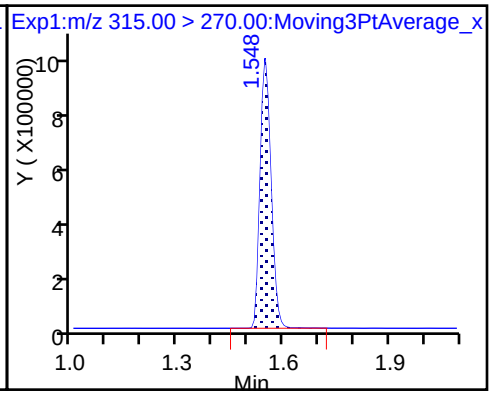
1 Perfluorobutanesulfonic acid



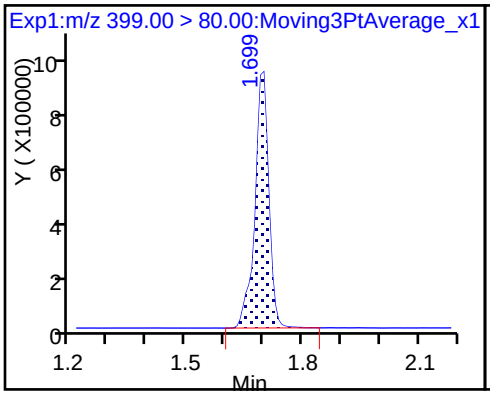
1 Perfluorobutanesulfonic acid



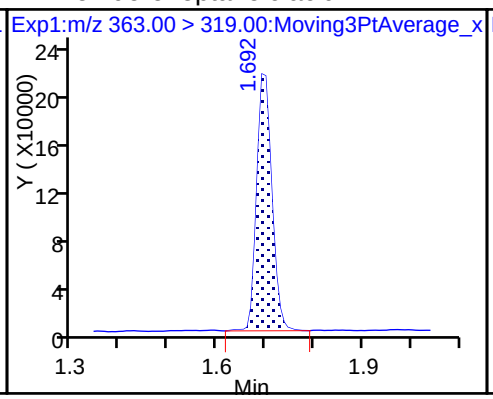
$ 2 13C2 PFHxA



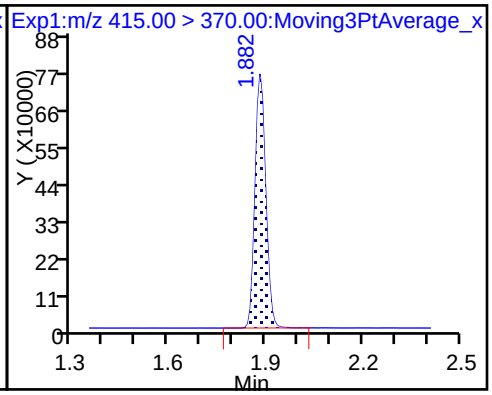
3 Perfluorohexanesulfonic acid



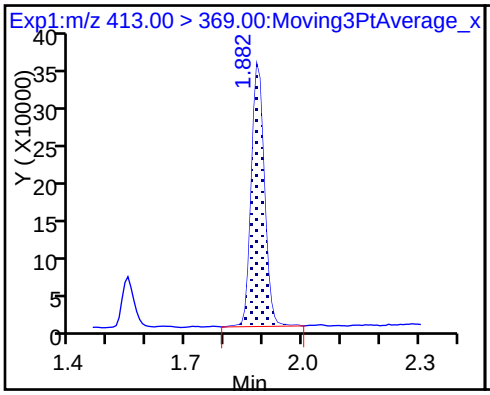
4 Perfluoroheptanoic acid



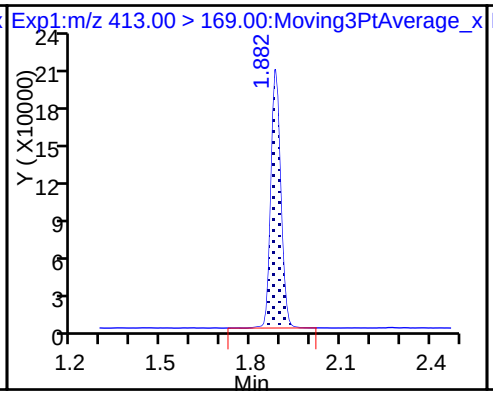
* 6 13C2-PFOA



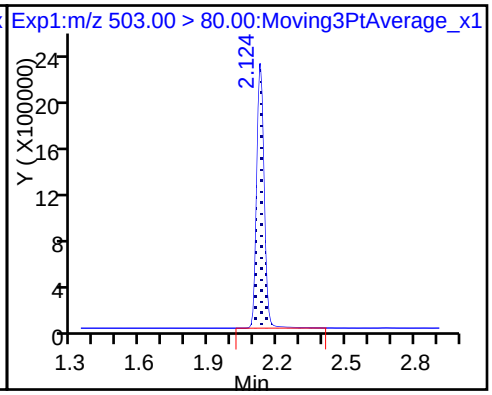
5 Perfluorooctanoic acid



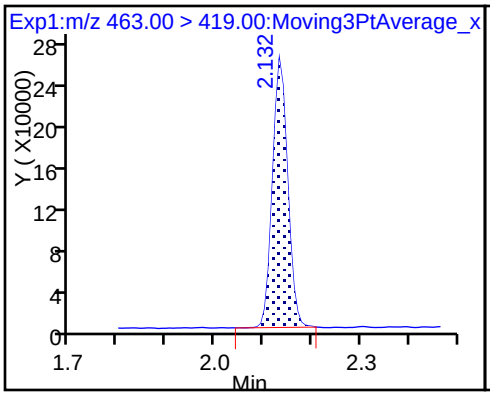
5 Perfluorooctanoic acid



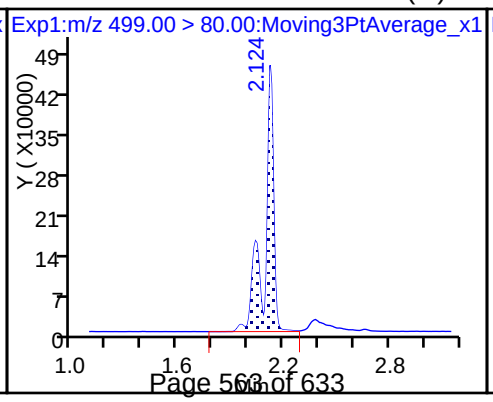
* 7 13C4 PFOS



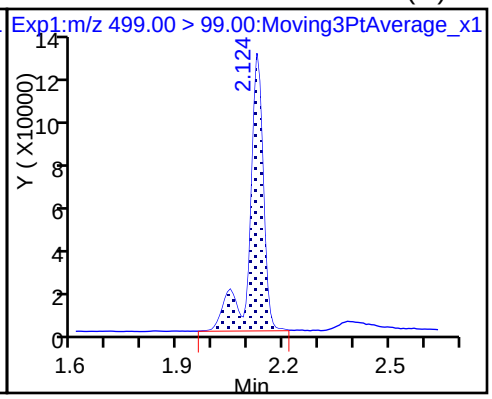
9 Perfluorononanoic acid



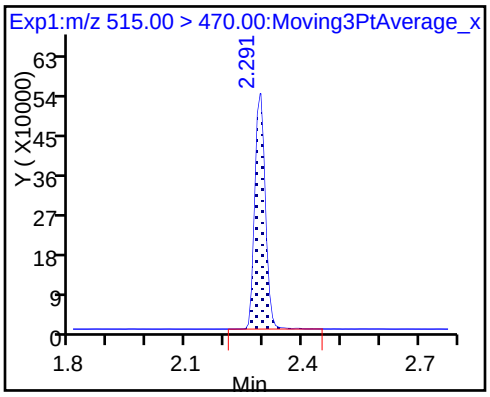
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_069.d
Lims ID: LLCS 320-189627/2-A
Client ID:
Sample Type: LLCS
Inject. Date: 20-Oct-2017 22:57:48 ALS Bottle#: 2 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcs 320-189627/2-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:27:19

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.1	101.19
$ 10 13C2 PFDA	10.0	10.3	102.55

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

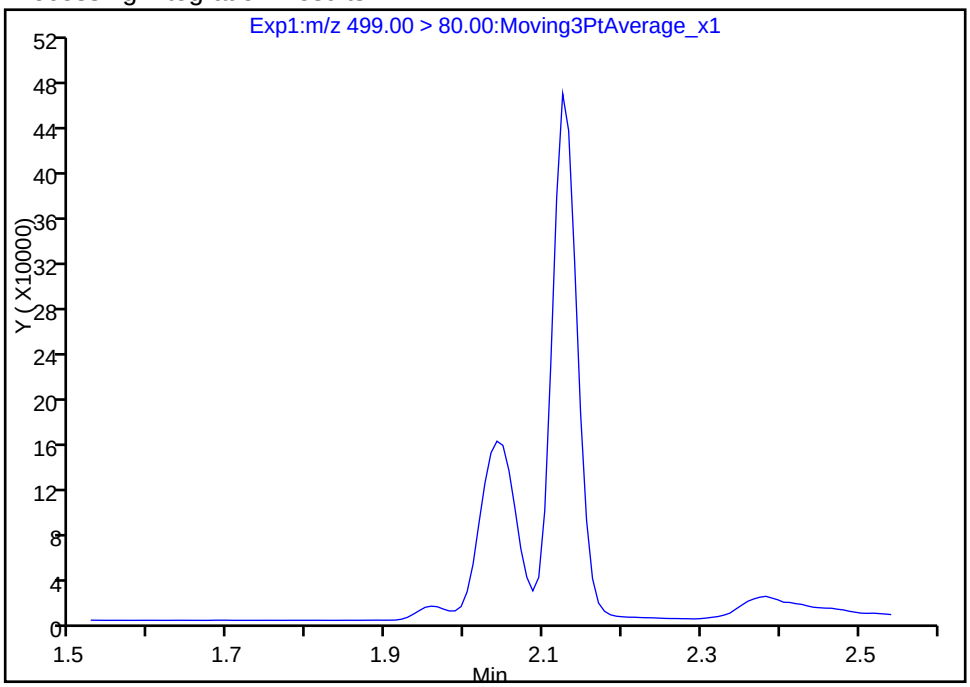
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_069.d
Injection Date: 20-Oct-2017 22:57:48 Instrument ID: A8_N
Lims ID: LLCS 320-189627/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

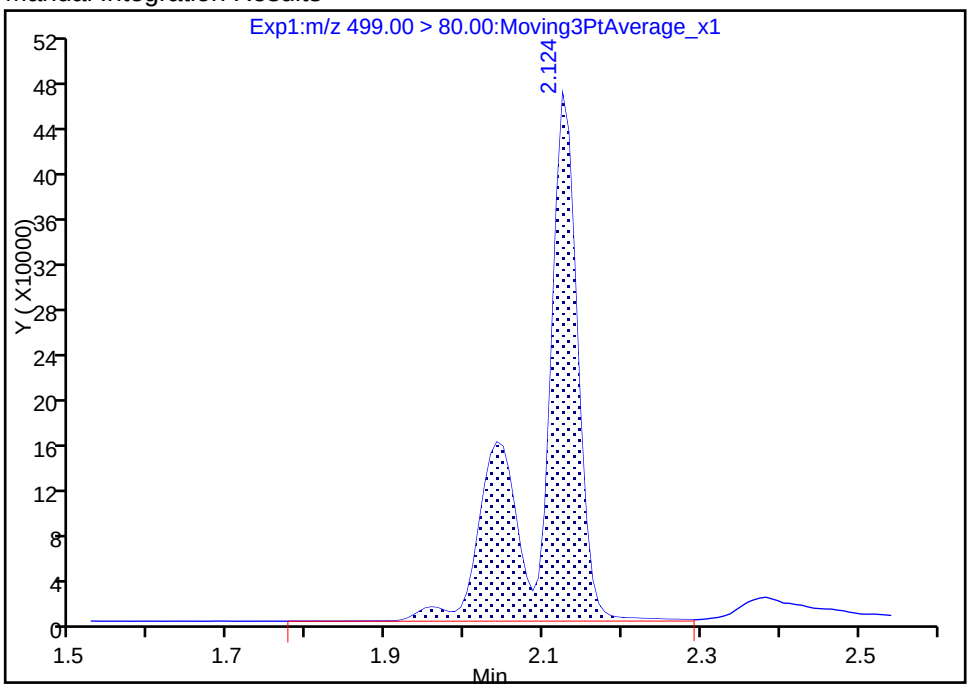
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 1582076
Amount: 9.789276
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:26:35
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

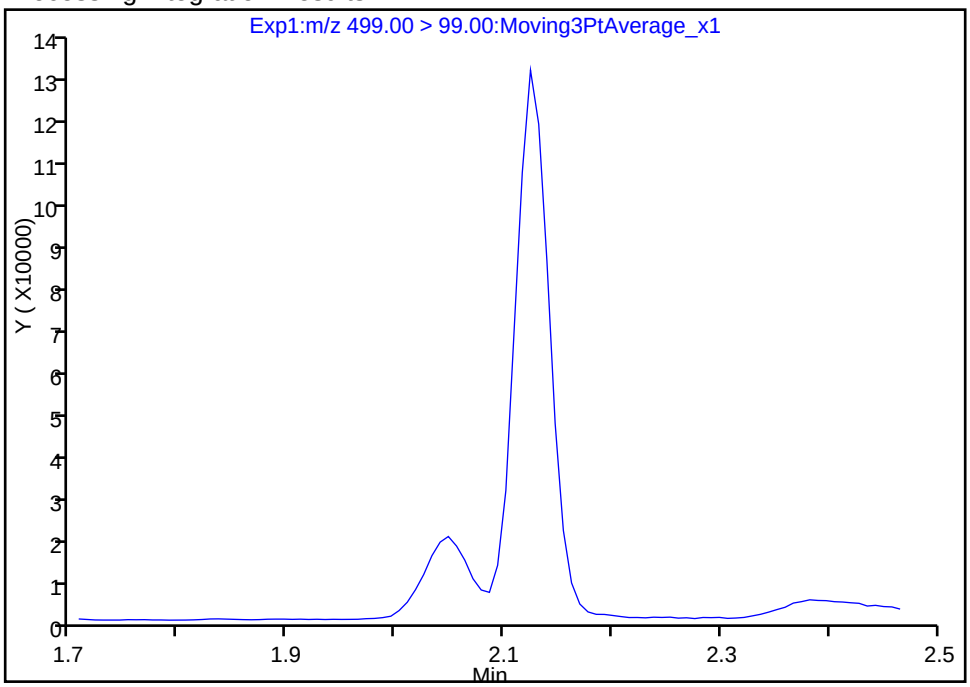
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_069.d
Injection Date: 20-Oct-2017 22:57:48 Instrument ID: A8_N
Lims ID: LLCS 320-189627/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

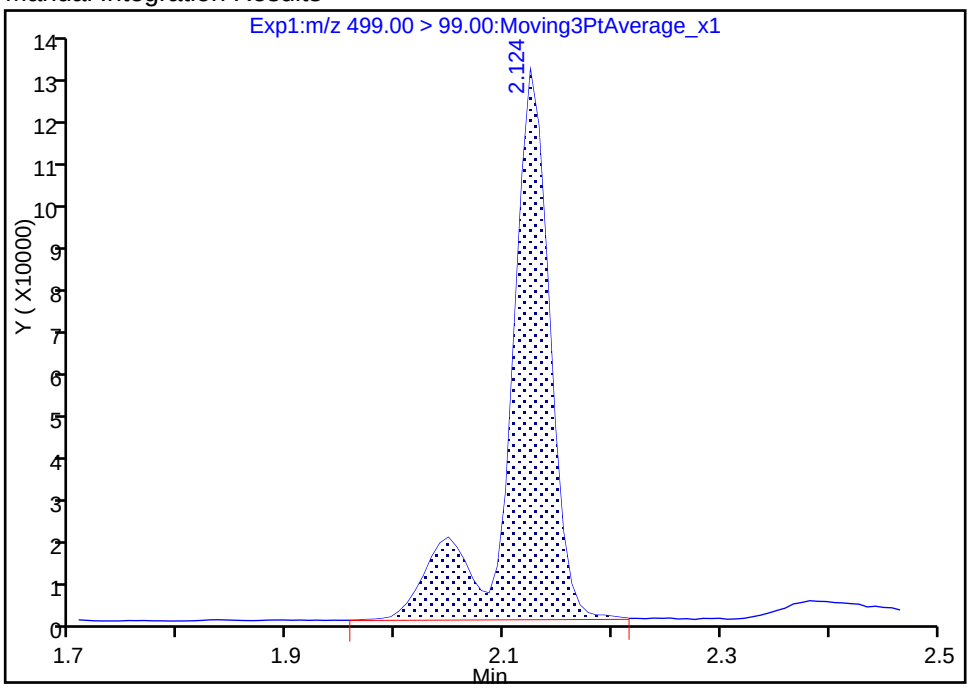
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 330962
Amount: 9.789276
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:26:57
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

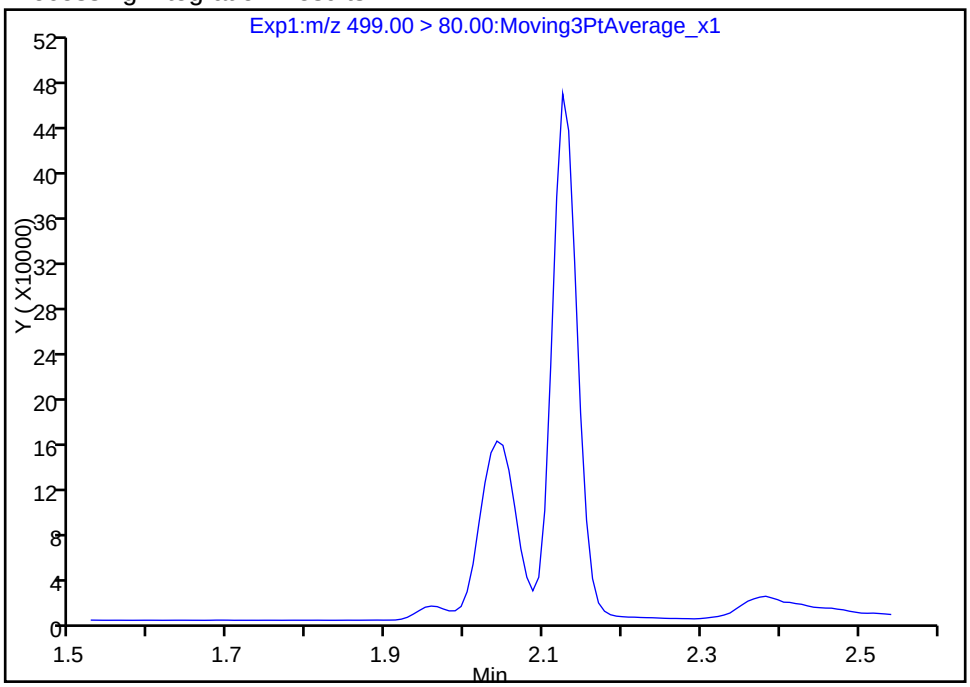
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_069.d
Injection Date: 20-Oct-2017 22:57:48 Instrument ID: A8_N
Lims ID: LLCS 320-189627/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

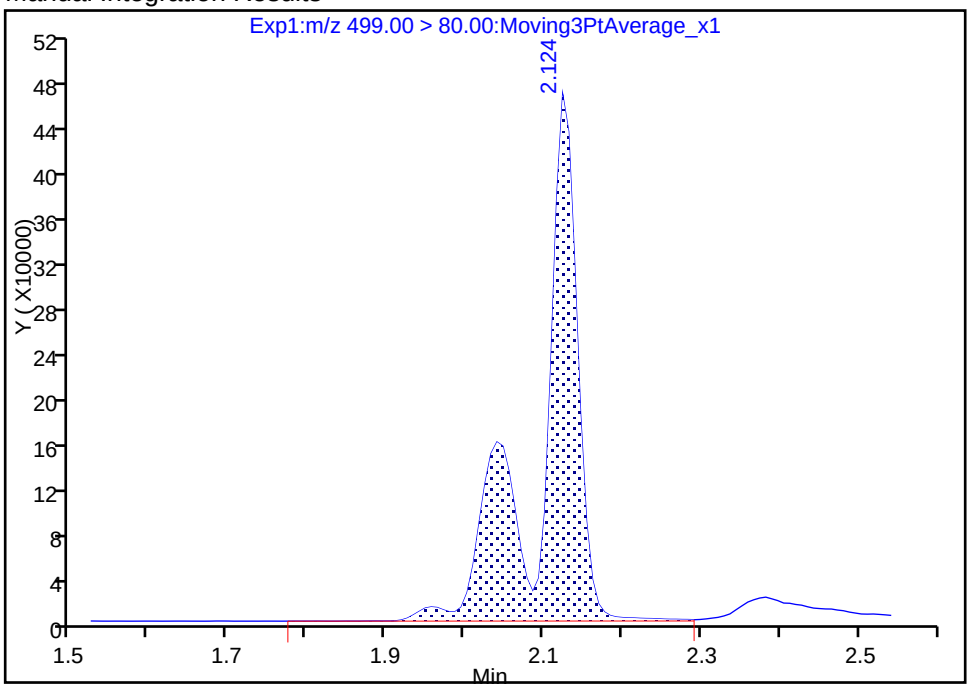
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 1582076
Amount: 9.789276
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:26:57
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: | Lab Sample ID: LLCSD 320-189627/3-A

Matrix: Water | Lab File ID: 2017.10.20_537A_070.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 250(mL) | Date Analyzed: 10/20/2017 23:02

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34.9	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	18.7	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	19.2	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	27.8	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	10.1		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	87.2	J	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_070.d
Lims ID: LLCSD 320-189627/3-A
Client ID:
Sample Type: LLCSD
Inject. Date: 20-Oct-2017 23:02:32 ALS Bottle#: 3 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcsd 320-189627/3-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:28:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	4781691	21.8		3808	
298.90 > 99.00	1.419	1.402	0.017	1.000	3429757		1.39(0.00-0.00)	3084	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1923465	9.22		6024	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	2155031	6.94		2547	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	424029	2.53		74.1	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1780751	10.0		4912	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	766591	4.68		21.6	
413.00 > 169.00	1.882	1.856	0.026	1.000	408970		1.87(0.00-0.00)	1242	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5432408	28.7		5258	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.116	0.016	1.000	531331	4.80		34.0	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.124	2.117	0.007	1.000	1537938	8.71		250	M
499.00 > 99.00	2.124	2.117	0.007	1.000	324715		4.74(0.00-0.00)	152	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	996959	10.0		5464	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 23-Oct-2017 11:00:20 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_070.d

Injection Date: 20-Oct-2017 23:02:32 Instrument ID: A8_N

Lims ID: LLCSD 320-189627/3-A

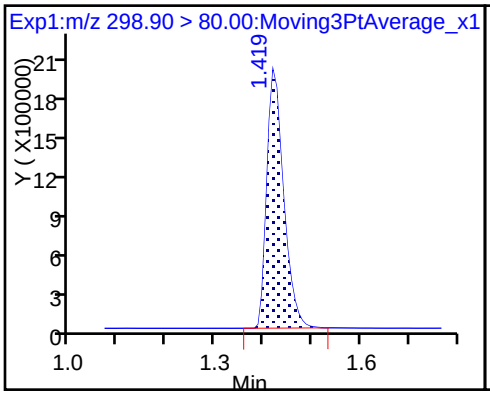
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 26

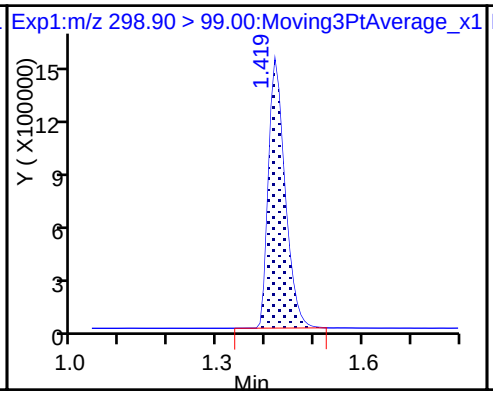
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

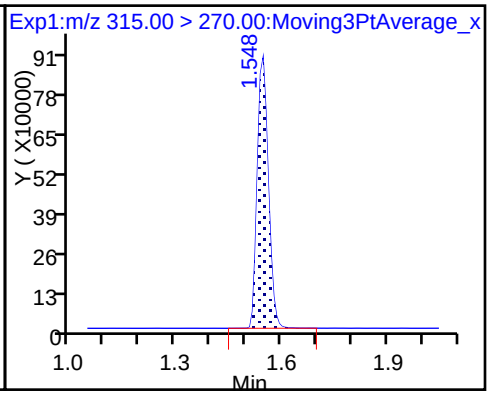
1 Perfluorobutanesulfonic acid



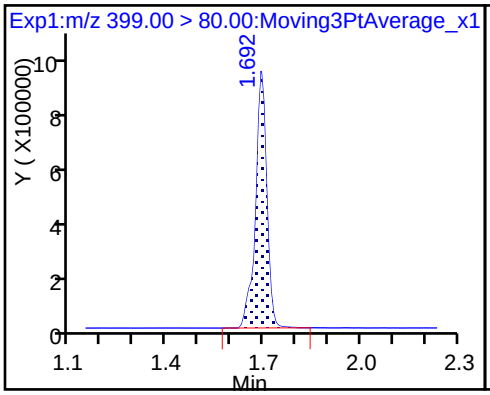
1 Perfluorobutanesulfonic acid



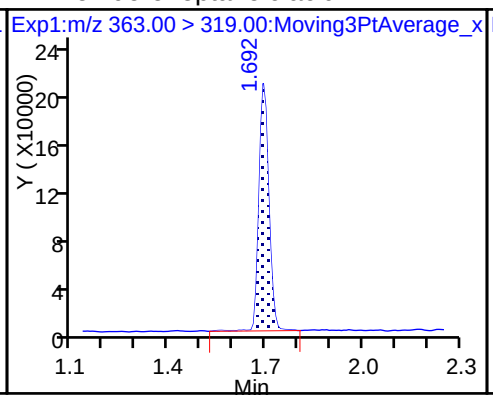
$ 2 13C2 PFHxA



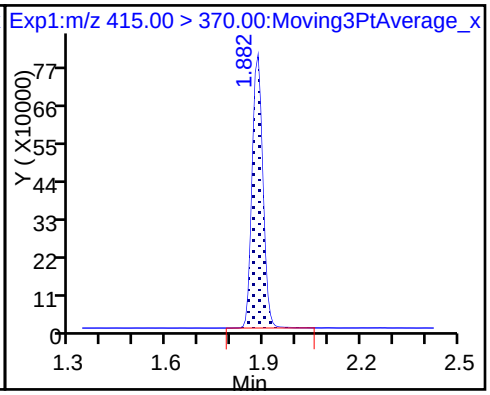
3 Perfluorohexanesulfonic acid



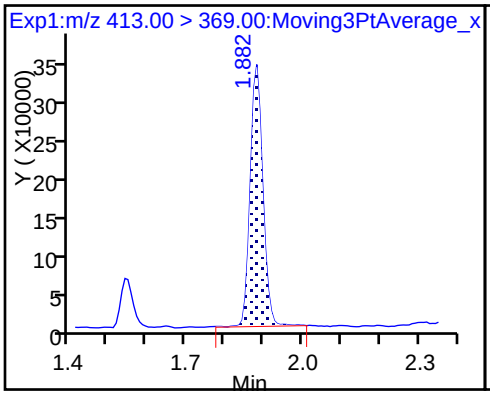
4 Perfluoroheptanoic acid



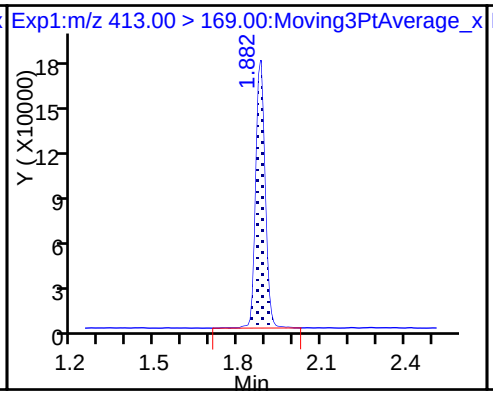
* 6 13C2-PFOA



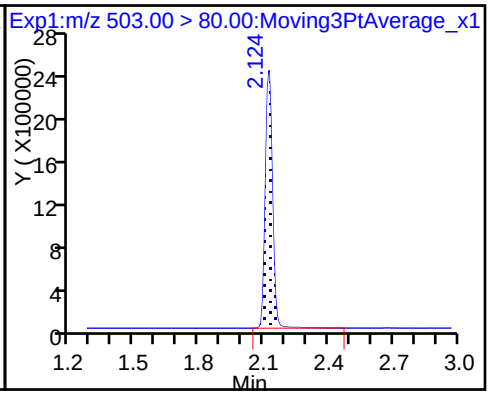
5 Perfluorooctanoic acid



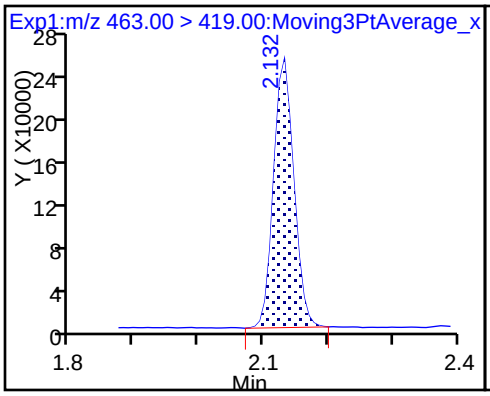
5 Perfluorooctanoic acid



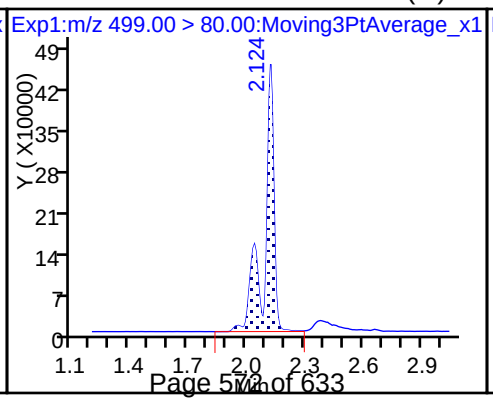
* 7 13C4 PFOS



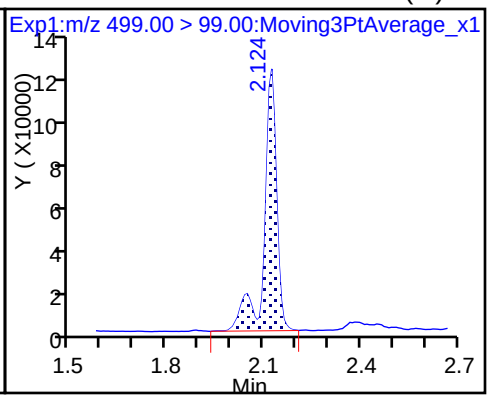
9 Perfluorononanoic acid



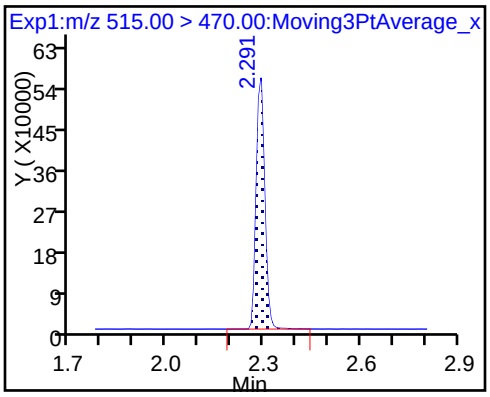
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_070.d
Lims ID: LLCSD 320-189627/3-A
Client ID:
Sample Type: LLCSD
Inject. Date: 20-Oct-2017 23:02:32 ALS Bottle#: 3 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcsd 320-189627/3-a
Misc. Info.: Plate: 1 Rack: 5
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 11:00:05 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:28:01

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.22	92.18
$ 10 13C2 PFDA	10.0	10.0	100.37

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

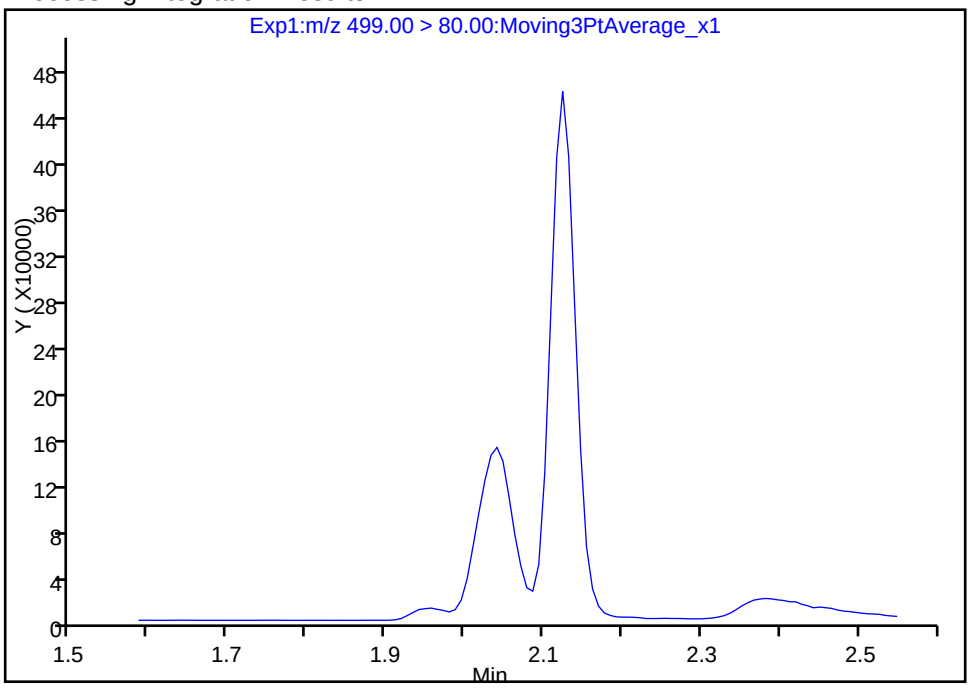
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_070.d
Injection Date: 20-Oct-2017 23:02:32 Instrument ID: A8_N
Lims ID: LLCSD 320-189627/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

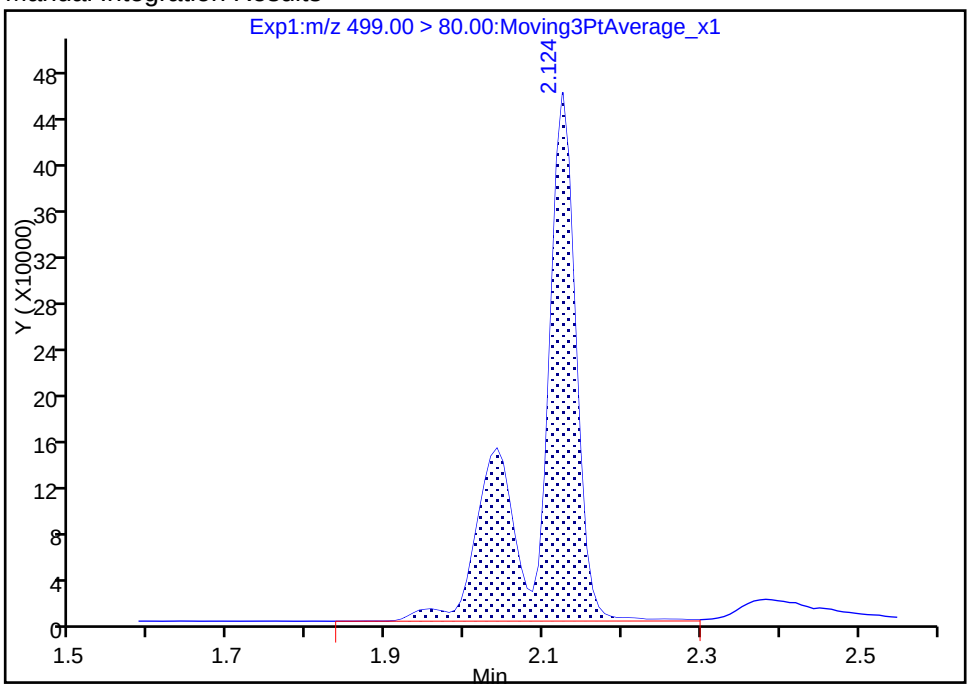
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 1537938
Amount: 8.714639
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:27:26
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

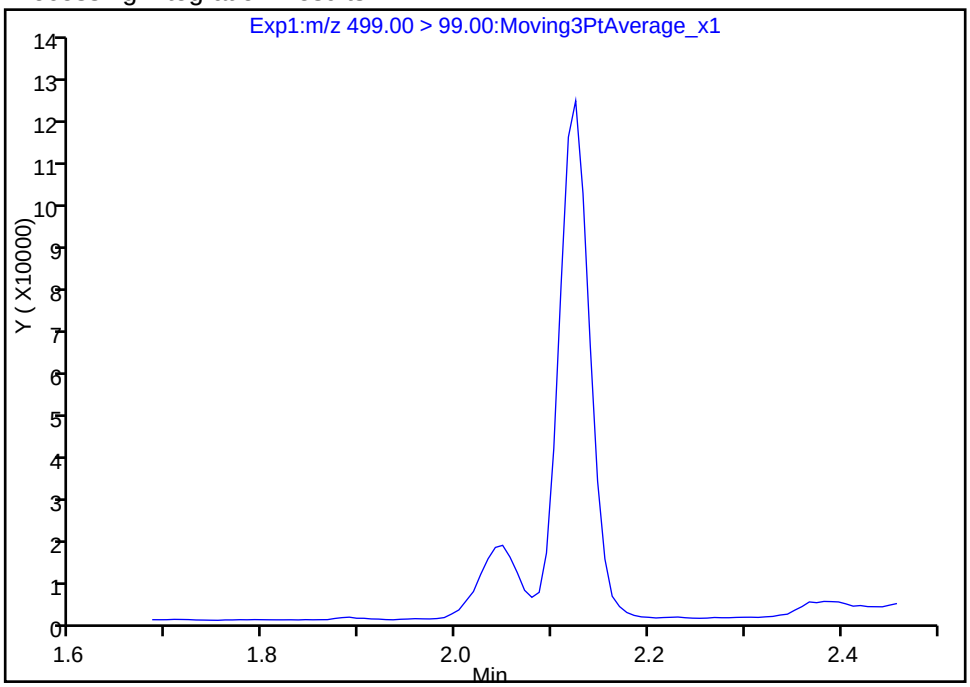
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_070.d
Injection Date: 20-Oct-2017 23:02:32 Instrument ID: A8_N
Lims ID: LLCSD 320-189627/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

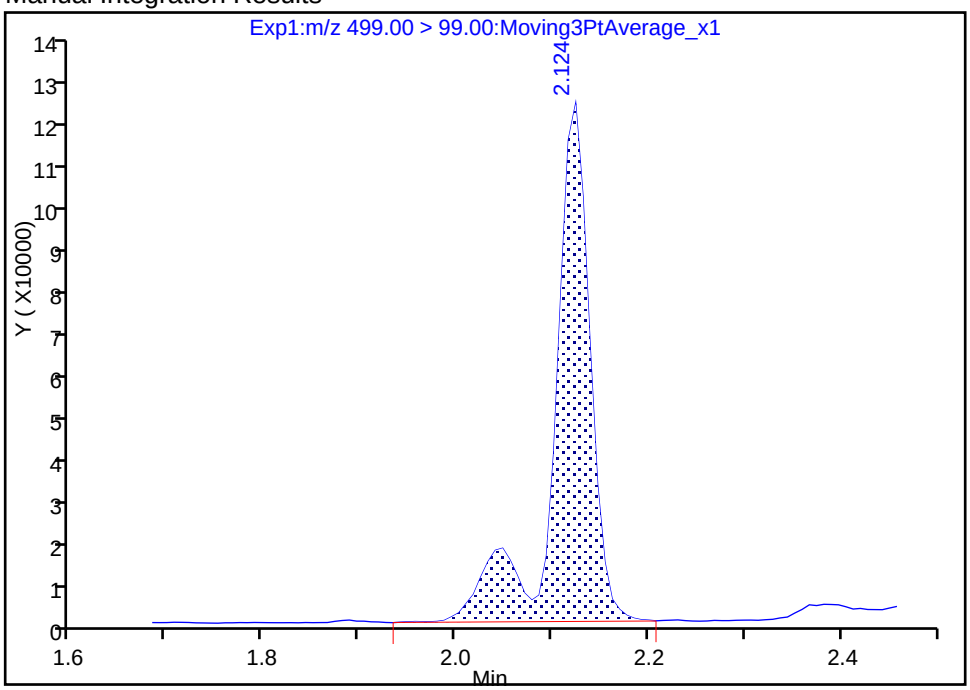
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 324715
Amount: 8.714639
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:27:42
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

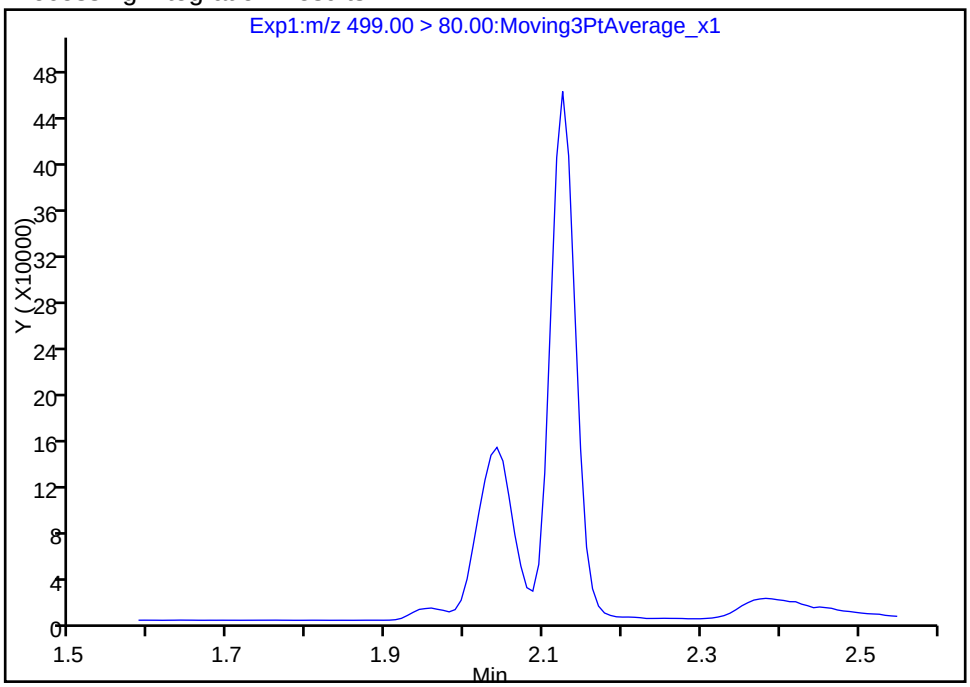
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49420.b\2017.10.20_537A_070.d
Injection Date: 20-Oct-2017 23:02:32 Instrument ID: A8_N
Lims ID: LLCSD 320-189627/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

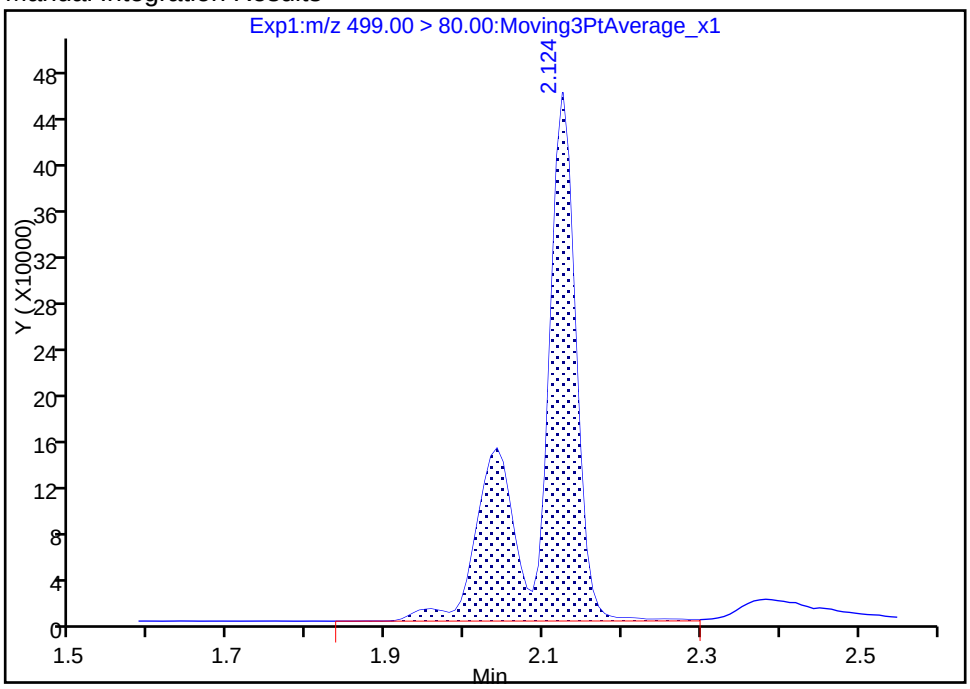
Not Detected
Expected RT: 2.12

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 1537938
Amount: 8.714639
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:27:42
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-140 MS | Lab Sample ID: 320-32094-3 MS

Matrix: Water | Lab File ID: 2017.10.20_537A_029.d

Analysis Method: 537 | Date Collected: 10/02/2017 09:40

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 258.3(mL) | Date Analyzed: 10/20/2017 19:48

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	209	M	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	124		19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	106		23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	149		29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	58.5		9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	455		87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	82		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_029.d
Lims ID: 320-32094-A-3-B MS
Client ID: NAWC-100217-RW-140
Sample Type: MS
Inject. Date: 20-Oct-2017 19:48:10 ALS Bottle#: 19 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-3-b ms
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:03:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	20549727	117.5		2859	
298.90 > 99.00	1.419	1.402	0.017	1.000	15258774		1.35(0.00-0.00)	3310	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1723862	8.23		4319	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	12011449	38.6		2268	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	2547328	15.1		313	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1788659	10.0		4188	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.889	1.856	0.033	1.000	5249105	31.9		131	
413.00 > 169.00	1.882	1.856	0.026	0.996	2948720		1.78(0.00-0.00)	3858	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5453174	28.7		2977	
9 Perfluorononanoic acid									
463.00 > 419.00	2.140	2.116	0.024	1.000	3055010	27.5		74.4	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.132	2.124	0.008	1.000	9541305	53.9		955	M
499.00 > 99.00	2.132	2.124	0.008	1.000	1919975		4.97(0.00-0.00)	612	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1083499	10.9		6284	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 23-Oct-2017 10:34:30 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_029.d

Injection Date: 20-Oct-2017 19:48:10 Instrument ID: A8_N

Lims ID: 320-32094-A-3-B MS

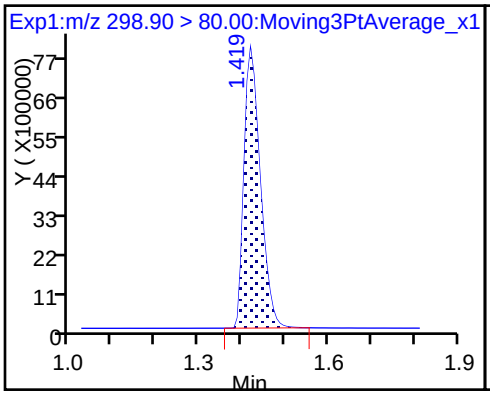
Client ID: NAWC-100217-RW-140

Operator ID: SACINSTLCMS01 ALS Bottle#: 19 Worklist Smp#: 29

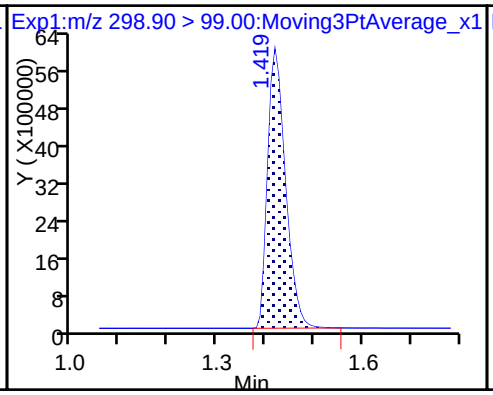
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

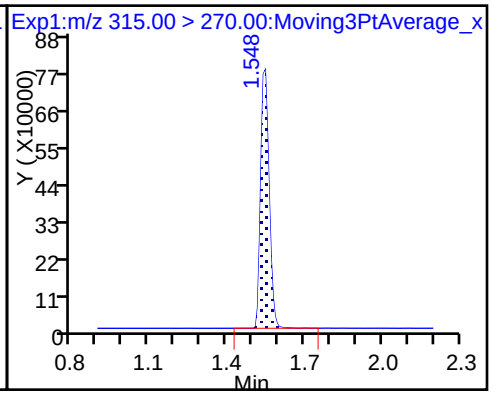
1 Perfluorobutanesulfonic acid



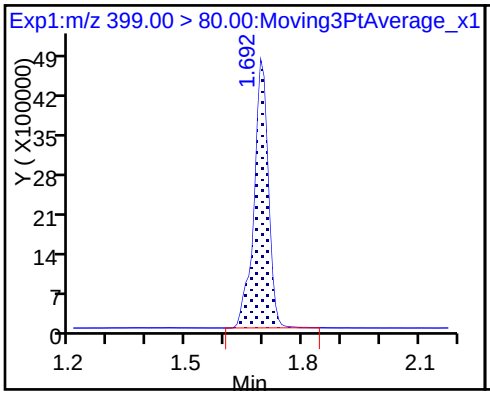
1 Perfluorobutanesulfonic acid



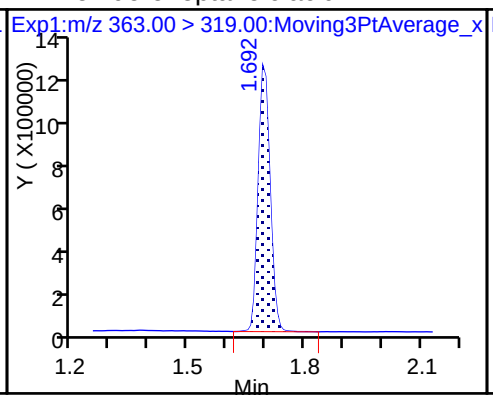
$ 2 13C2 PFHxA



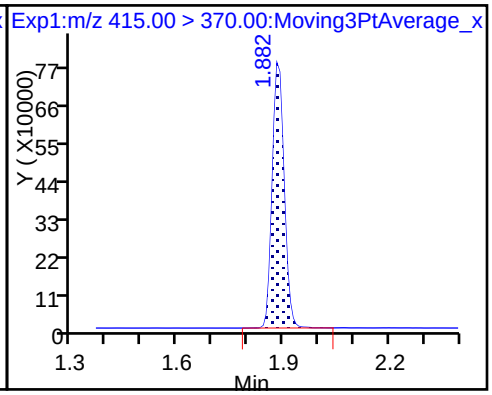
3 Perfluorohexanesulfonic acid



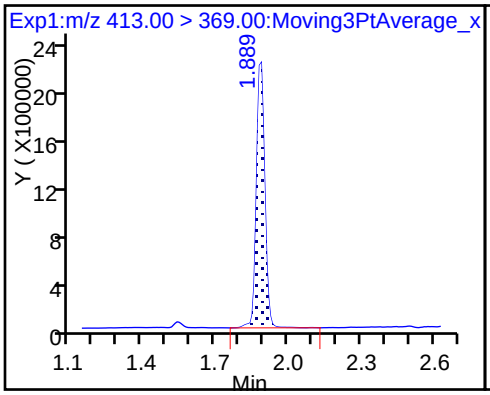
4 Perfluoroheptanoic acid



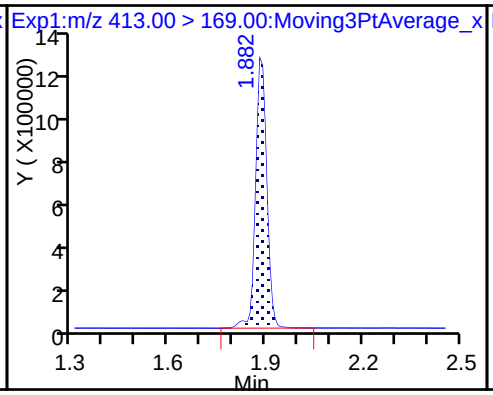
* 6 13C2-PFOA



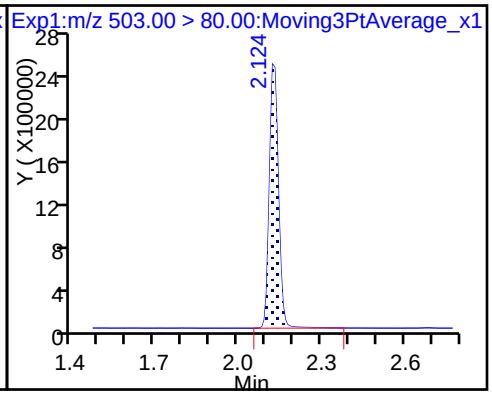
5 Perfluorooctanoic acid



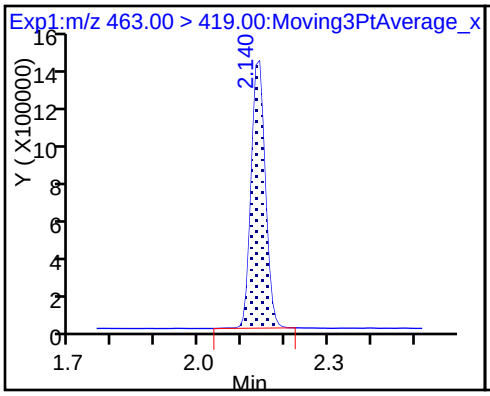
5 Perfluorooctanoic acid



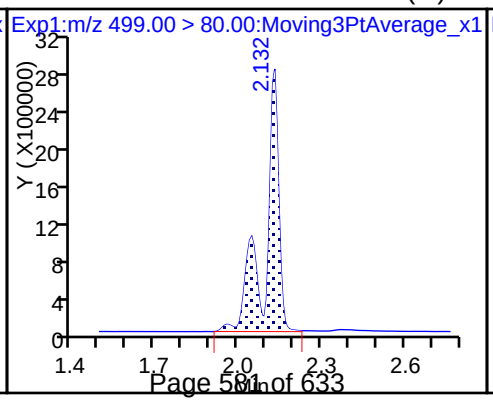
* 7 13C4 PFOS



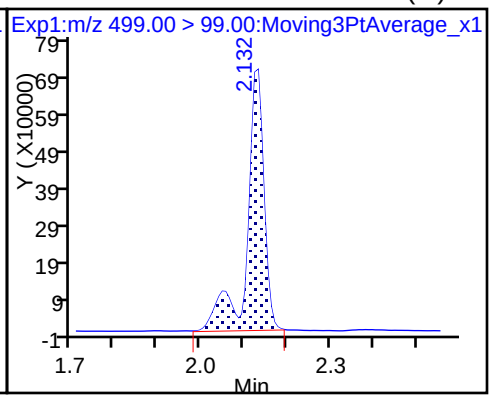
9 Perfluorononanoic acid



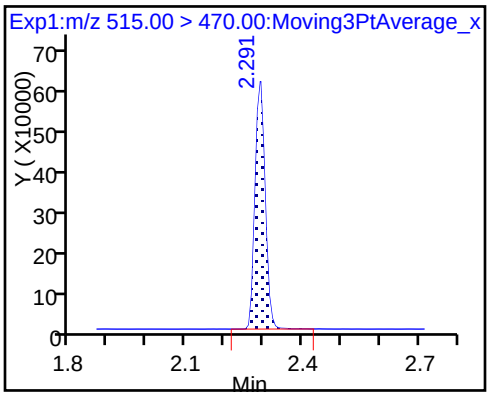
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_029.d
Lims ID: 320-32094-A-3-B MS
Client ID: NAWC-100217-RW-140
Sample Type: MS
Inject. Date: 20-Oct-2017 19:48:10 ALS Bottle#: 19 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-3-b ms
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:03:34

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.23	82.25
$ 10 13C2 PFDA	10.0	10.9	108.60

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_029.d				
Injection Date:	20-Oct-2017 19:48:10	Instrument ID:	A8_N		
Lims ID:	320-32094-A-3-B MS				
Client ID:	NAWC-100217-RW-140				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	19	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

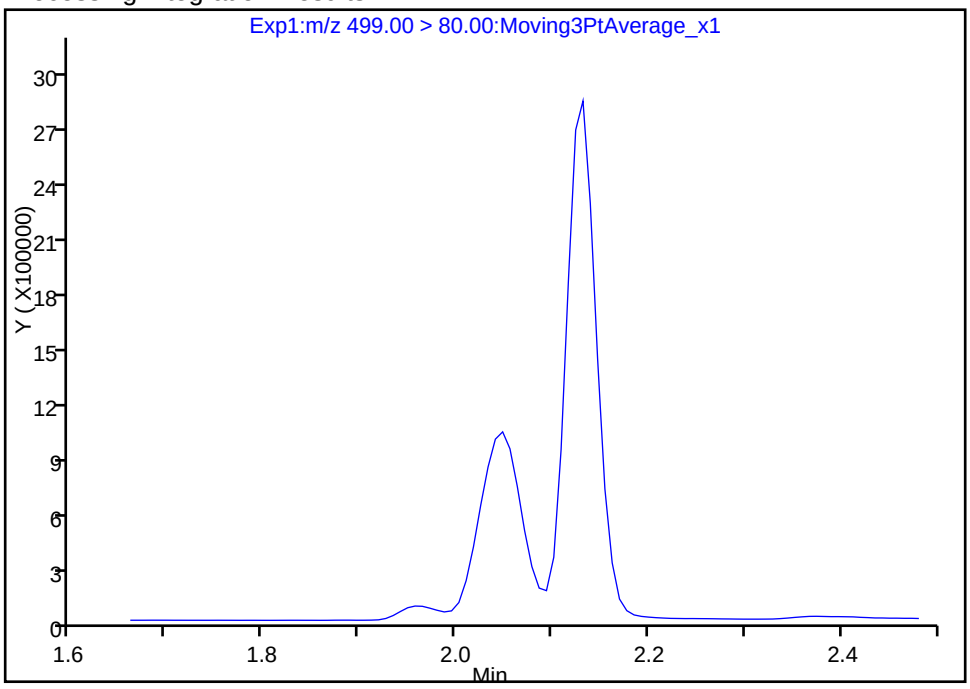
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

Processing Integration Results

Not Detected

Expected RT: 2.12



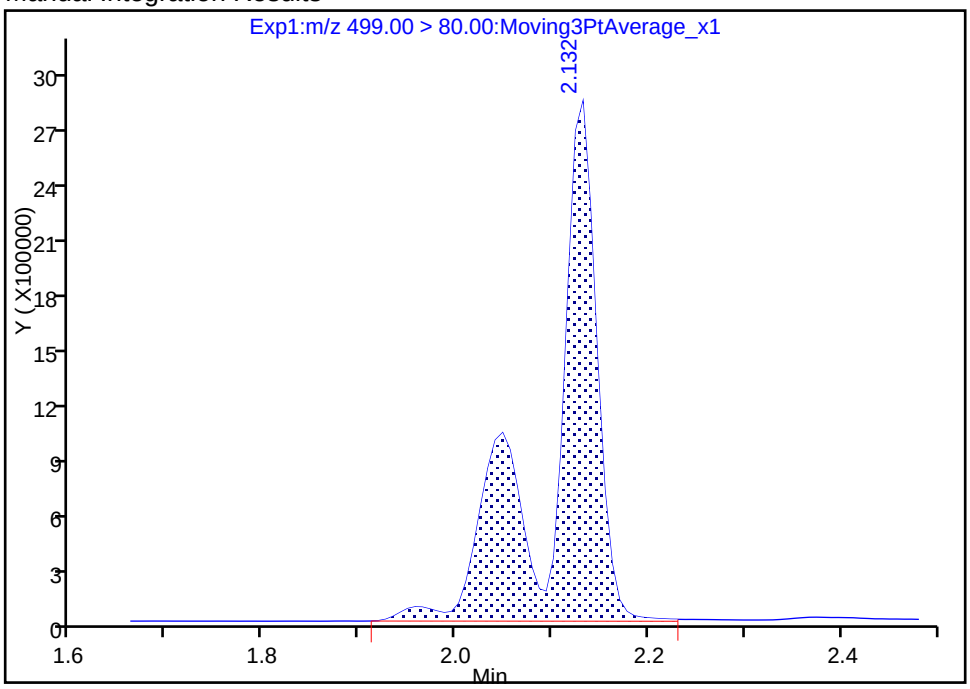
Manual Integration Results

RT: 2.13

Area: 9541305

Amount: 53.859385

Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:02:34

Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

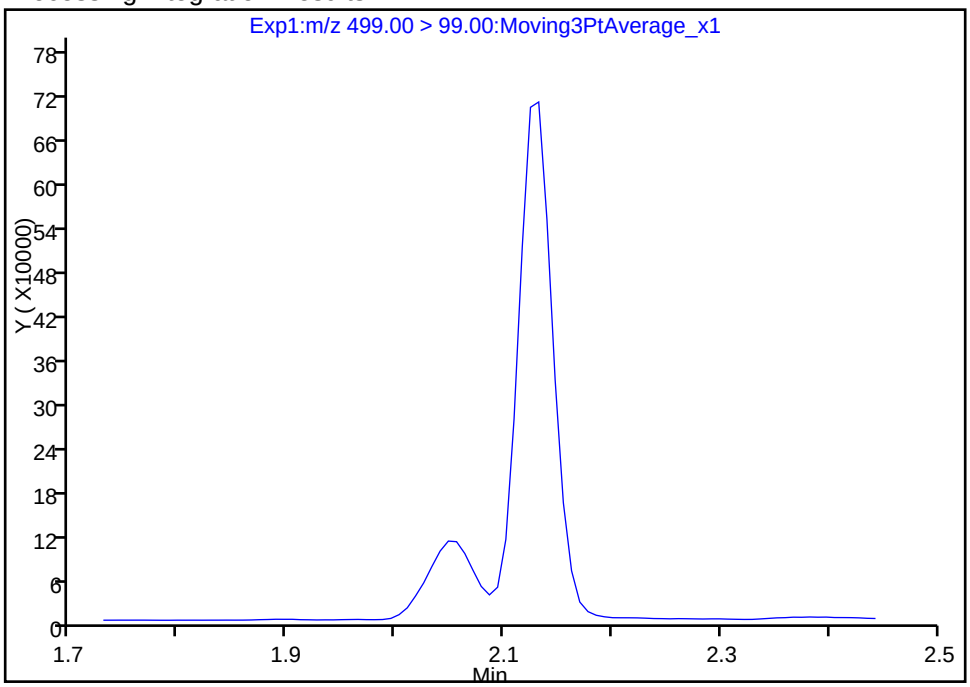
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_029.d				
Injection Date:	20-Oct-2017 19:48:10	Instrument ID:	A8_N		
Lims ID:	320-32094-A-3-B MS				
Client ID:	NAWC-100217-RW-140				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	19	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

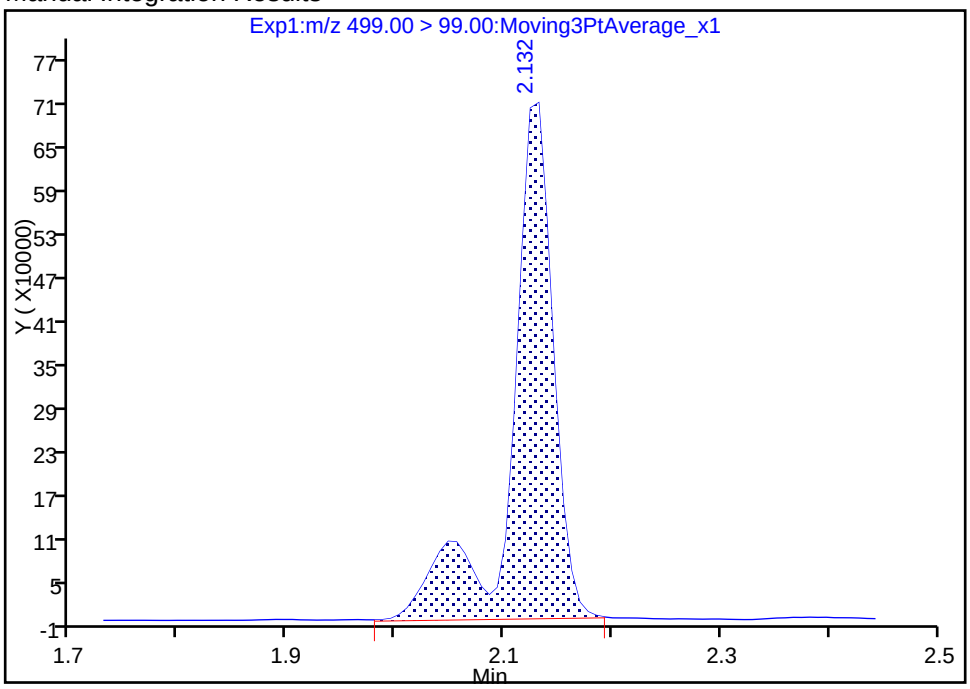
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.13
Area: 1919975
Amount: 53.859385
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:03:17
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

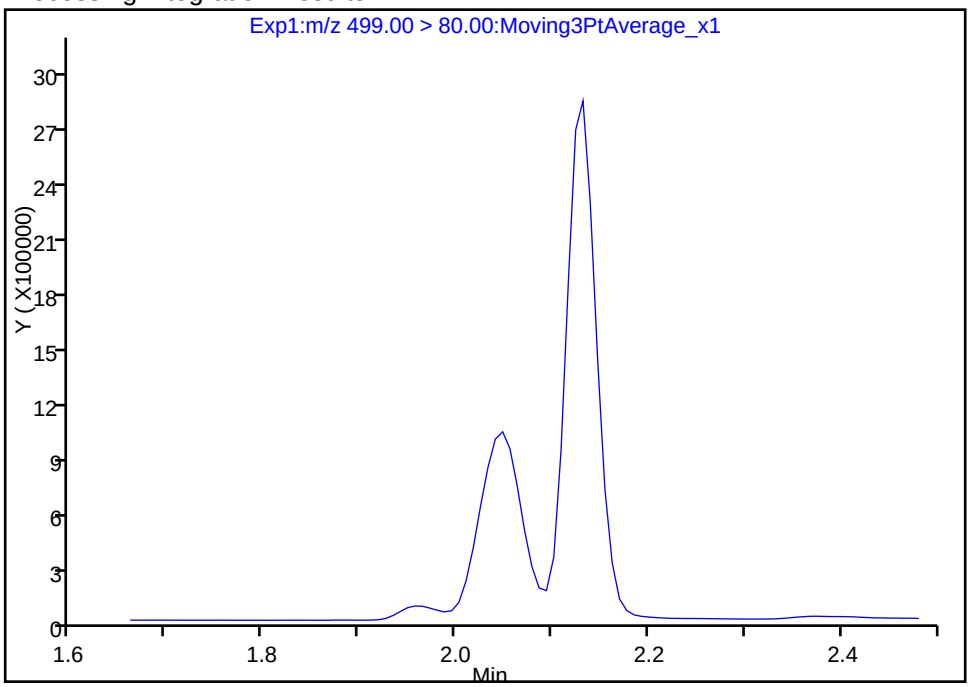
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_029.d				
Injection Date:	20-Oct-2017 19:48:10	Instrument ID:	A8_N		
Lims ID:	320-32094-A-3-B MS				
Client ID:	NAWC-100217-RW-140				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	19	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

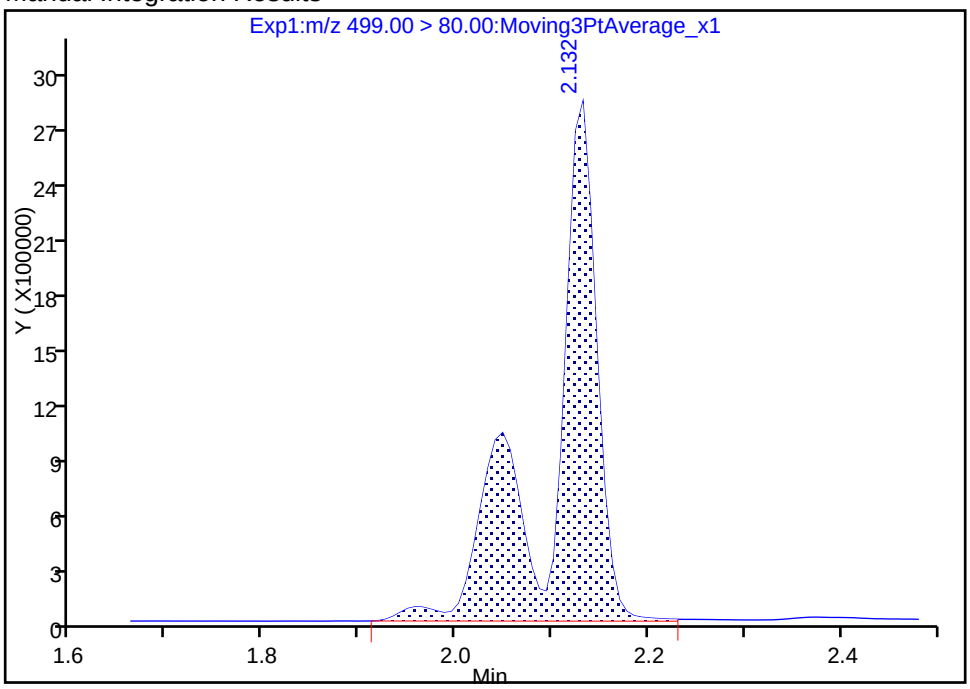
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.13
Area: 9541305
Amount: 53.859385
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:03:17
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-140 MSD Lab Sample ID: 320-32094-3 MSD

Matrix: Water Lab File ID: 2017.10.20_537A_030.d

Analysis Method: 537 Date Collected: 10/02/2017 09:40

Extraction Method: 537 Date Extracted: 10/16/2017 14:42

Sample wt/vol: 263.9(mL) Date Analyzed: 10/20/2017 19:52

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

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

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

Analysis Batch No.: 190441 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	210	M	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	123		19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	102		23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	150		28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	57.7		9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	484		85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	82		70-130
STL00996	13C2 PFDA	112		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_030.d
Lims ID: 320-32094-A-3-C MSD
Client ID: NAWC-100217-RW-140
Sample Type: MSD
Inject. Date: 20-Oct-2017 19:52:55 ALS Bottle#: 20 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-3-c msd
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:04:27

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.402	0.017	1.000	21004683	127.6		3472	
298.90 > 99.00	1.419	1.402	0.017	1.000	15721055		1.34(0.00-0.00)	4038	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.524	0.024	1.000	1740882	8.24		5332	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.668	0.024	1.000	11943019	39.6		2359	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.668	0.024	1.000	2587919	15.2		306	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.855	0.027		1803880	10.0		4803	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.856	0.026	1.000	5394016	32.5		124	
413.00 > 169.00	1.882	1.856	0.026	1.000	2955049		1.83(0.00-0.00)	4336	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.108	0.016		5278202	28.7		3060	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.116	0.016	1.000	3007624	26.8		68.8	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.132	2.124	0.008	1.000	9519887	55.5		993	M
499.00 > 99.00	2.124	2.124	0.0	0.996	1952204		4.88(0.00-0.00)	641	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.291	2.282	0.009	1.000	1121964	11.2		6781	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 23-Oct-2017 10:34:36 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_030.d

Injection Date: 20-Oct-2017 19:52:55 Instrument ID: A8_N

Lims ID: 320-32094-A-3-C MSD

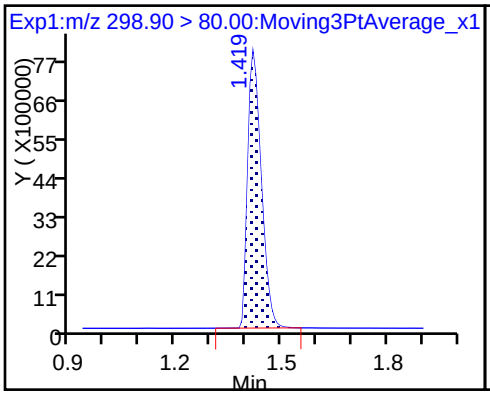
Client ID: NAWC-100217-RW-140

Operator ID: SACINSTLCMS01 ALS Bottle#: 20 Worklist Smp#: 30

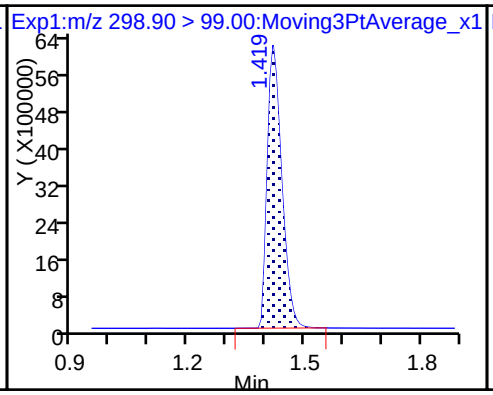
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

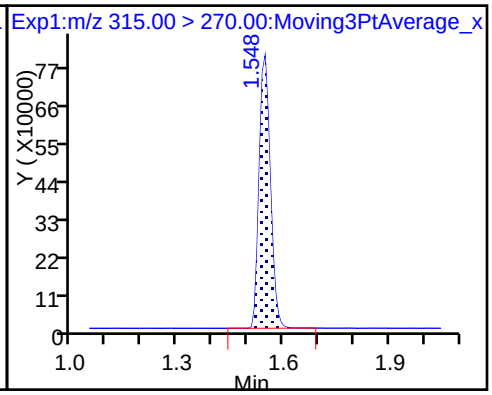
1 Perfluorobutanesulfonic acid



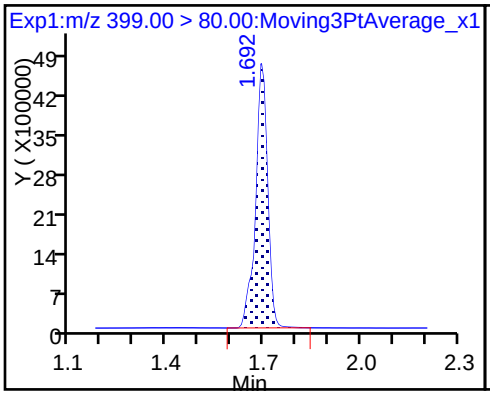
1 Perfluorobutanesulfonic acid



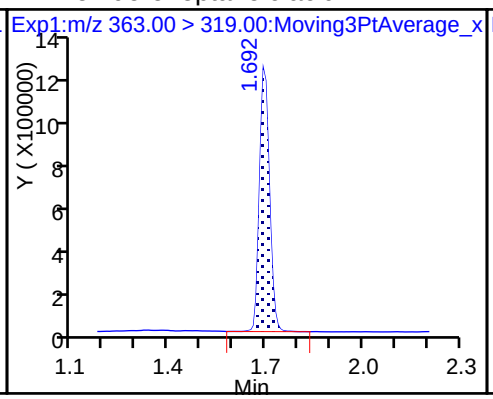
$ 2 13C2 PFHxA



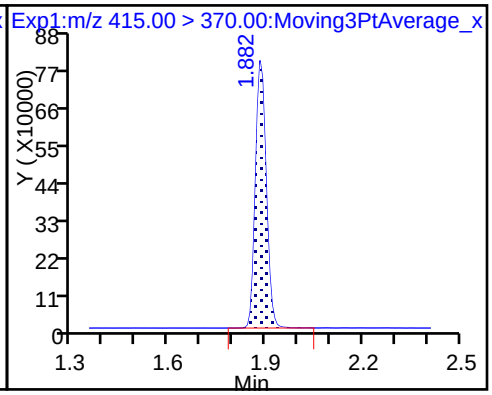
3 Perfluorohexanesulfonic acid



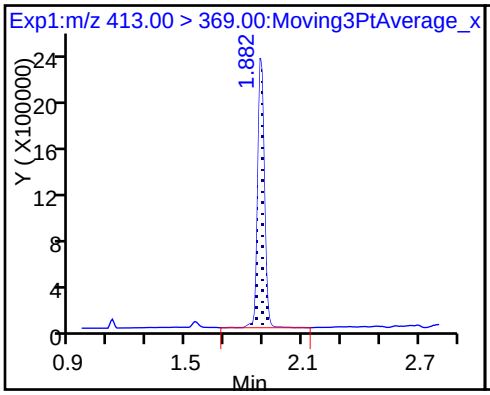
4 Perfluoroheptanoic acid



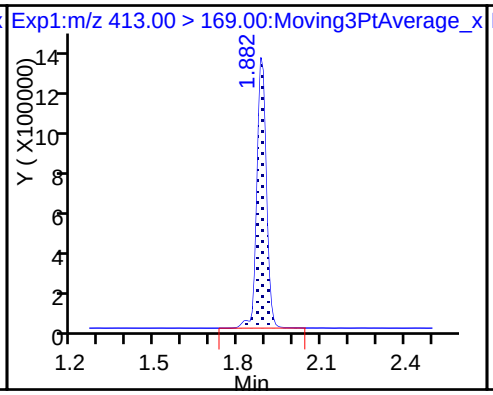
* 6 13C2-PFOA



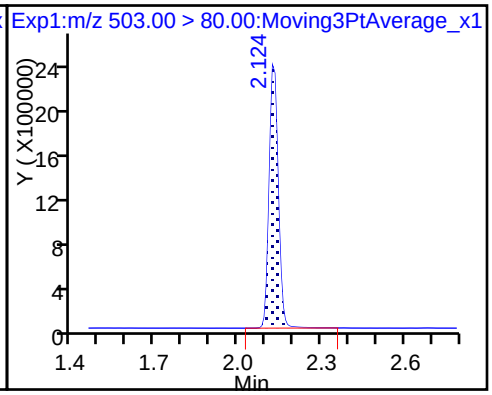
5 Perfluorooctanoic acid



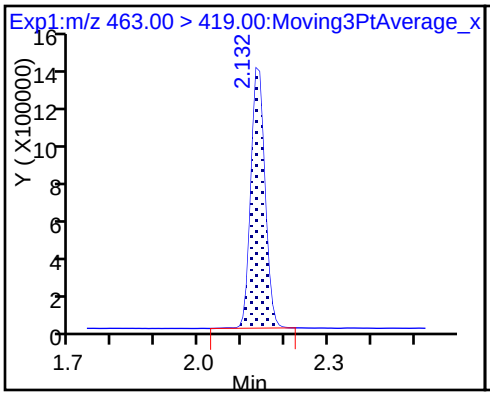
5 Perfluorooctanoic acid



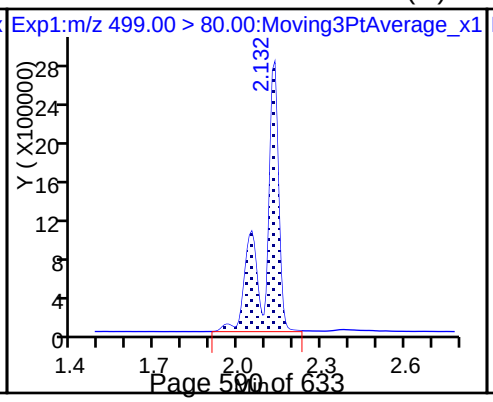
* 7 13C4 PFOS



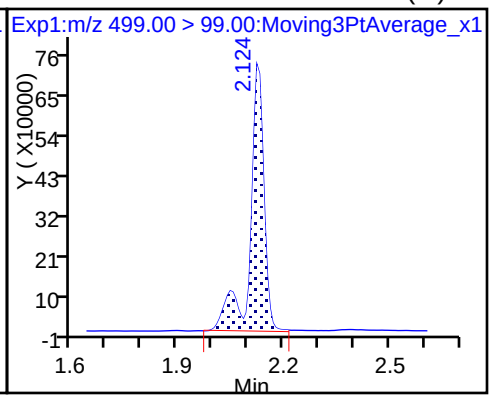
9 Perfluorononanoic acid



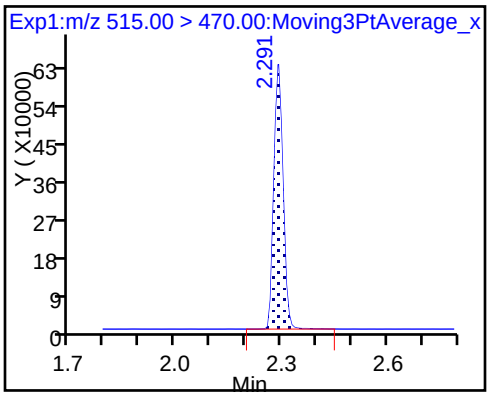
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.291
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_030.d
Lims ID: 320-32094-A-3-C MSD
Client ID: NAWC-100217-RW-140
Sample Type: MSD
Inject. Date: 20-Oct-2017 19:52:55 ALS Bottle#: 20 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-32094-a-3-c msd
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 23-Oct-2017 10:33:58 Calib Date: 20-Sep-2017 03:19:48
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170919-48154.b\2017.09.19_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK012

First Level Reviewer: barnettj Date: 23-Oct-2017 10:04:27

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.24	82.36
$ 10 13C2 PFDA	10.0	11.2	111.51

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

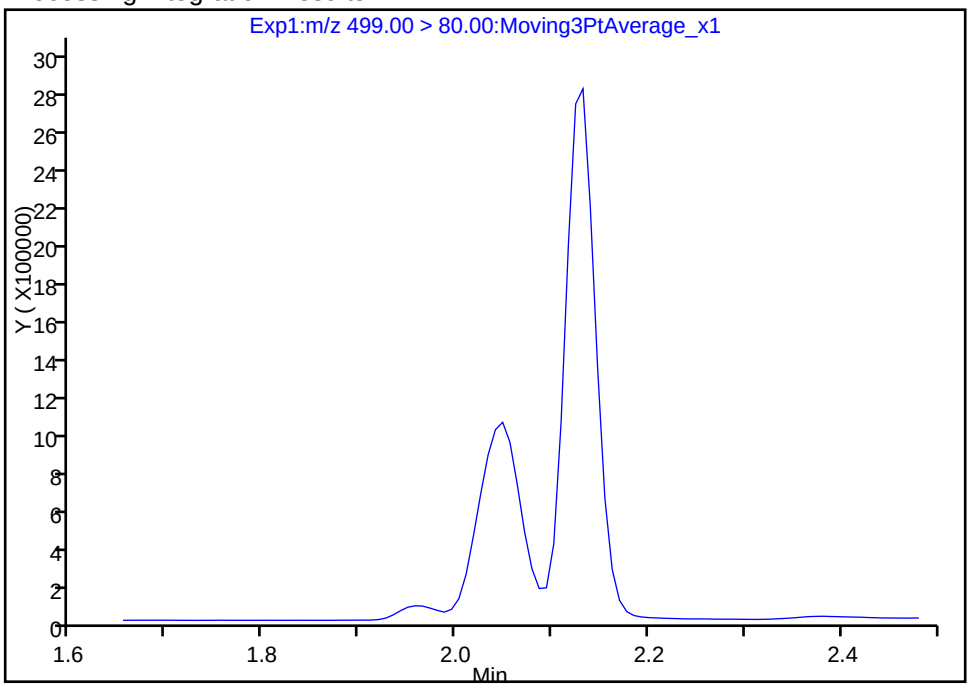
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_030.d				
Injection Date:	20-Oct-2017 19:52:55	Instrument ID:	A8_N		
Lims ID:	320-32094-A-3-C MSD				
Client ID:	NAWC-100217-RW-140				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	20	Worklist Smp#:	30
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

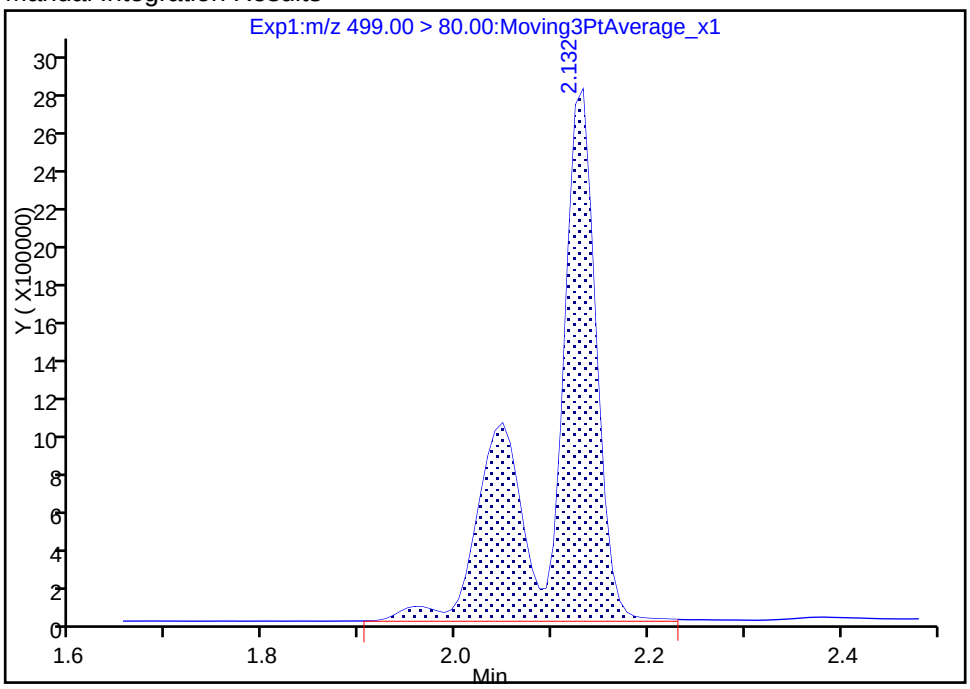
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.13
Area: 9519887
Amount: 55.519910
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:03:47
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

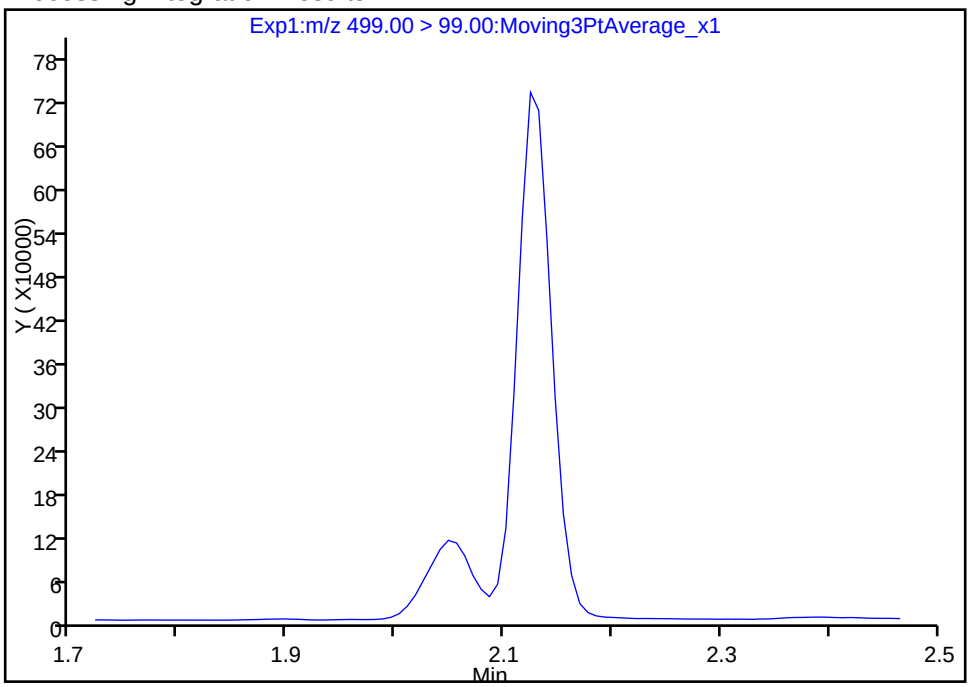
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_030.d
Injection Date: 20-Oct-2017 19:52:55 Instrument ID: A8_N
Lims ID: 320-32094-A-3-C MSD
Client ID: NAWC-100217-RW-140
Operator ID: SACINSTLCMS01 ALS Bottle#: 20 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

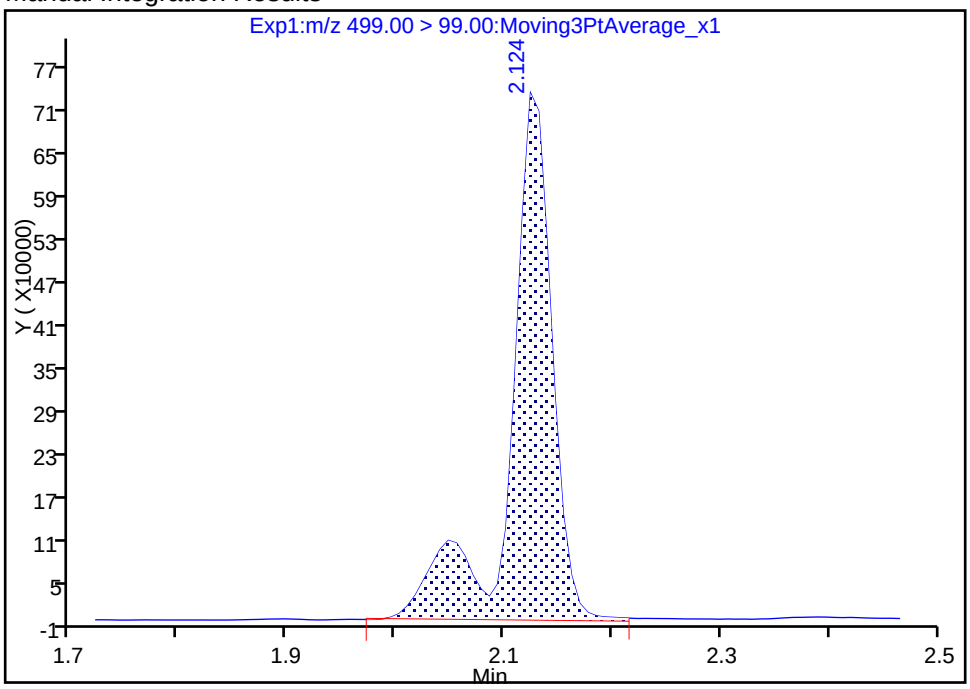
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.12
Area: 1952204
Amount: 55.519910
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:04:10
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

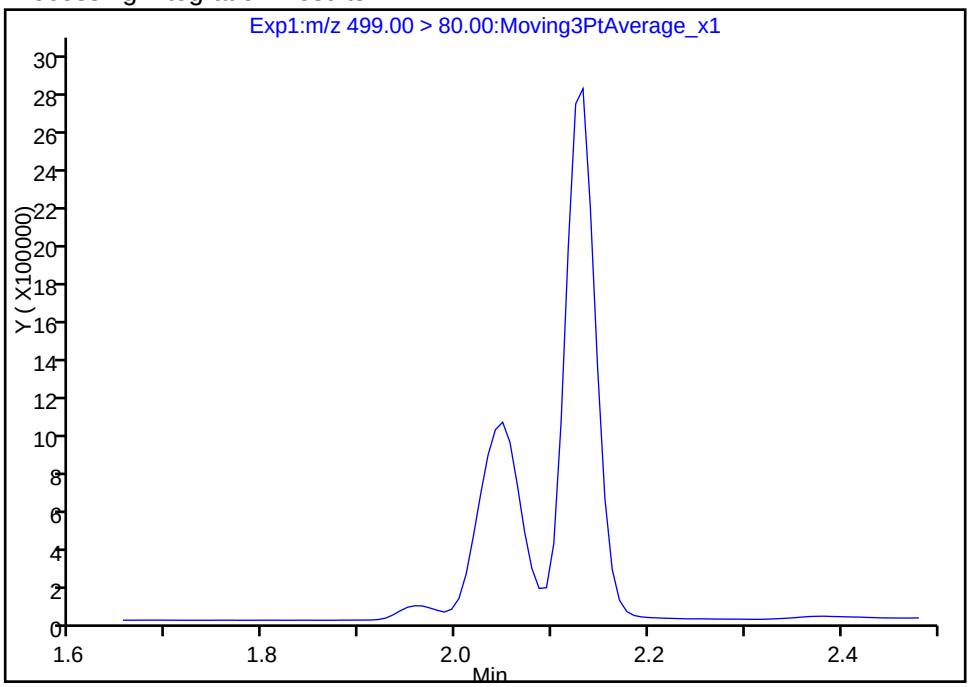
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b\2017.10.20_537A_030.d				
Injection Date:	20-Oct-2017 19:52:55	Instrument ID:	A8_N		
Lims ID:	320-32094-A-3-C MSD				
Client ID:	NAWC-100217-RW-140				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	20	Worklist Smp#:	30
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

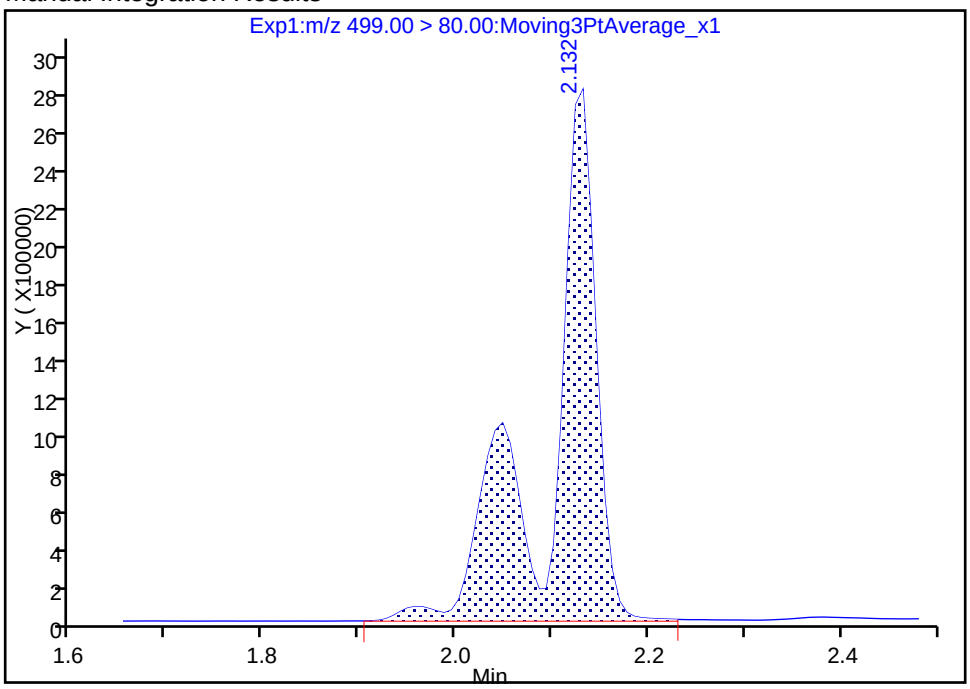
Processing Integration Results

Not Detected
Expected RT: 2.12



Manual Integration Results

RT: 2.13
Area: 9519887
Amount: 55.519910
Amount Units: ng/ml



Reviewer: barnettj, 23-Oct-2017 10:04:10
Audit Action: Manually Integrated Audit Reason: Missed Peak

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 09/20/2017 02:56

Analysis Batch Number: 185329 End Date: 09/20/2017 03:38

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-185329/4		09/20/2017 02:56	1	2017.09.19_537I CAL 004.d	GeminiC18 3x100 3(mm)
IC 320-185329/5		09/20/2017 03:00	1	2017.09.19_537I CAL 005.d	GeminiC18 3x100 3(mm)
IC 320-185329/6		09/20/2017 03:05	1	2017.09.19_537I CAL 006.d	GeminiC18 3x100 3(mm)
IC 320-185329/7 ICISAV		09/20/2017 03:10	1	2017.09.19_537I CAL 007.d	GeminiC18 3x100 3(mm)
IC 320-185329/8		09/20/2017 03:15	1	2017.09.19_537I CAL 008.d	GeminiC18 3x100 3(mm)
IC 320-185329/9		09/20/2017 03:19	1	2017.09.19_537I CAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		09/20/2017 03:24	1		GeminiC18 3x100 3(mm)
CCVL 320-185329/11		09/20/2017 03:29	1	2017.09.19_537I CAL 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		09/20/2017 03:34	1		GeminiC18 3x100 3(mm)
ICV 320-185329/13		09/20/2017 03:38	1	2017.09.19_537I CAL 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/20/2017 17:49

Analysis Batch Number: 190437 End Date: 10/20/2017 17:49

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-190437/4		10/20/2017 17:49	1	2017.10.20_537A_004.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/20/2017 19:14

Analysis Batch Number: 190441 End Date: 10/20/2017 20:11

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-190441/22 CCVIS		10/20/2017 19:14	1	2017.10.20_537A 022.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/20/2017 19:19	1		GeminiC18 3x100 3(mm)
MB 320-189591/1-A		10/20/2017 19:24	1	2017.10.20_537A 024.d	GeminiC18 3x100 3(mm)
LCS 320-189591/2-A		10/20/2017 19:29	1	2017.10.20_537A 025.d	GeminiC18 3x100 3(mm)
320-32094-1		10/20/2017 19:33	1	2017.10.20_537A 026.d	GeminiC18 3x100 3(mm)
320-32094-2		10/20/2017 19:38	1	2017.10.20_537A 027.d	GeminiC18 3x100 3(mm)
320-32094-3		10/20/2017 19:43	1	2017.10.20_537A 028.d	GeminiC18 3x100 3(mm)
320-32094-3 MS		10/20/2017 19:48	1	2017.10.20_537A 029.d	GeminiC18 3x100 3(mm)
320-32094-3 MSD		10/20/2017 19:52	1	2017.10.20_537A 030.d	GeminiC18 3x100 3(mm)
320-32094-4		10/20/2017 19:57	1	2017.10.20_537A 031.d	GeminiC18 3x100 3(mm)
320-32094-5		10/20/2017 20:02	1	2017.10.20_537A 032.d	GeminiC18 3x100 3(mm)
320-32094-6		10/20/2017 20:07	1	2017.10.20_537A 033.d	GeminiC18 3x100 3(mm)
CCV 320-190441/34 CCVIS		10/20/2017 20:11	1	2017.10.20_537A 034.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/20/2017 20:11

Analysis Batch Number: 190442 End Date: 10/20/2017 21:04

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-190442/34 CCVIS		10/20/2017 20:11	1	2017.10.20_537A_034.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/20/2017 20:16	1		GeminiC18 3x100 3(mm)
320-32094-7		10/20/2017 20:21	1	2017.10.20_537A_036.d	GeminiC18 3x100 3(mm)
320-32094-8		10/20/2017 20:26	1	2017.10.20_537A_037.d	GeminiC18 3x100 3(mm)
320-32094-9		10/20/2017 20:30	1	2017.10.20_537A_038.d	GeminiC18 3x100 3(mm)
320-32094-10		10/20/2017 20:35	1	2017.10.20_537A_039.d	GeminiC18 3x100 3(mm)
320-32094-11		10/20/2017 20:40	1	2017.10.20_537A_040.d	GeminiC18 3x100 3(mm)
320-32094-12		10/20/2017 20:45	1	2017.10.20_537A_041.d	GeminiC18 3x100 3(mm)
320-32094-13		10/20/2017 20:49	1	2017.10.20_537A_042.d	GeminiC18 3x100 3(mm)
320-32094-14		10/20/2017 20:54	1	2017.10.20_537A_043.d	GeminiC18 3x100 3(mm)
320-32094-15		10/20/2017 20:59	1	2017.10.20_537A_044.d	GeminiC18 3x100 3(mm)
CCV 320-190442/45 CCVIS		10/20/2017 21:04	1	2017.10.20_537A_045.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/20/2017 22:43

Analysis Batch Number: 190446 End Date: 10/20/2017 23:40

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-190446/22 CCVIS		10/20/2017 22:43	1	2017.10.20_537A 066.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/20/2017 22:48	1		GeminiC18 3x100 3(mm)
MB 320-189627/1-A		10/20/2017 22:53	1	2017.10.20_537A 068.d	GeminiC18 3x100 3(mm)
LLCS 320-189627/2-A		10/20/2017 22:57	1	2017.10.20_537A 069.d	GeminiC18 3x100 3(mm)
LLCSD 320-189627/3-A		10/20/2017 23:02	1	2017.10.20_537A 070.d	GeminiC18 3x100 3(mm)
320-32094-16		10/20/2017 23:07	1	2017.10.20_537A 071.d	GeminiC18 3x100 3(mm)
320-32094-17		10/20/2017 23:12	1	2017.10.20_537A 072.d	GeminiC18 3x100 3(mm)
320-32094-18		10/20/2017 23:16	1	2017.10.20_537A 073.d	GeminiC18 3x100 3(mm)
320-32094-19		10/20/2017 23:21	1	2017.10.20_537A 074.d	GeminiC18 3x100 3(mm)
320-32094-20		10/20/2017 23:26	1	2017.10.20_537A 075.d	GeminiC18 3x100 3(mm)
320-32094-21		10/20/2017 23:31	1	2017.10.20_537A 076.d	GeminiC18 3x100 3(mm)
320-32094-22		10/20/2017 23:35	1	2017.10.20_537A 077.d	GeminiC18 3x100 3(mm)
CCV 320-190446/34 CCVIS		10/20/2017 23:40	1	2017.10.20_537A 078.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/20/2017 23:40

Analysis Batch Number: 190447 End Date: 10/20/2017 23:54

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-190447/34 CCVIS		10/20/2017 23:40	1	2017.10.20_537A_078.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/20/2017 23:45	1		GeminiC18 3x100 3(mm)
320-32094-23		10/20/2017 23:50	1	2017.10.20_537A_080.d	GeminiC18 3x100 3(mm)
CCV 320-190447/37 CCVIS		10/20/2017 23:54	1	2017.10.20_537A_081.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/31/2017 11:44

Analysis Batch Number: 192162 End Date: 10/31/2017 14:58

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-192162/4		10/31/2017 11:44	1	2017.10.31_537ICAL_004.d	GeminiC18 3x100 3(mm)
IC 320-192162/5		10/31/2017 11:49	1	2017.10.31_537ICAL_005.d	GeminiC18 3x100 3(mm)
IC 320-192162/6		10/31/2017 11:54	1	2017.10.31_537ICAL_006.d	GeminiC18 3x100 3(mm)
IC 320-192162/7 ICISAV		10/31/2017 11:58	1	2017.10.31_537ICAL_007.d	GeminiC18 3x100 3(mm)
IC 320-192162/8		10/31/2017 12:03	1	2017.10.31_537ICAL_008.d	GeminiC18 3x100 3(mm)
IC 320-192162/9		10/31/2017 12:08	1	2017.10.31_537ICAL_009.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/31/2017 12:13	1		GeminiC18 3x100 3(mm)
CCVL 320-192162/11		10/31/2017 12:17	1	2017.10.31_537ICAL_011.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/31/2017 14:53	1		GeminiC18 3x100 3(mm)
ICV 320-192162/16		10/31/2017 14:58	1	2017.10.31_537AICAL_003.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/31/2017 15:08

Analysis Batch Number: 192192 End Date: 10/31/2017 15:36

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-192192/1 CCVIS		10/31/2017 15:08	1	2017.10.31_537AA 001.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/31/2017 15:12	1		GeminiC18 3x100 3(mm)
MB 320-190676/1-A		10/31/2017 15:17	1	2017.10.31_537AA 003.d	GeminiC18 3x100 3(mm)
LCS 320-190676/2-A		10/31/2017 15:22	1	2017.10.31_537AA 004.d	GeminiC18 3x100 3(mm)
LCSD 320-190676/3-A		10/31/2017 15:27	1	2017.10.31_537AA 005.d	GeminiC18 3x100 3(mm)
320-32094-15 RE		10/31/2017 15:31	1	2017.10.31_537AA 006.d	GeminiC18 3x100 3(mm)
CCV 320-192192/7 CCVIS		10/31/2017 15:36	1	2017.10.31_537AA 007.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 189591 Batch Start Date: 10/16/17 14:39 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/18/17 18:29

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00023
MB 320-189591/1		537, 537				250 mL	1.00 mL	7 SU	
LCS 320-189591/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-32094-A-1	WGNA-100217-RW-0344	537, 537	T	307.76 g	27.61 g	280.2 mL	1.00 mL	7 SU	
320-32094-A-2	WGNA-100217-FRB-0344	537, 537	T	298.45 g	27.94 g	270.5 mL	1.00 mL	7 SU	
320-32094-A-3	NAWC-100217-RW-140	537, 537	T	289.75 g	28.25 g	261.5 mL	1.00 mL	7 SU	
320-32094-A-3 MS	NAWC-100217-RW-140	537, 537	T	285.43 g	27.16 g	258.3 mL	1.00 mL	7 SU	100 uL
320-32094-A-3 MSD	NAWC-100217-RW-140	537, 537	T	291.68 g	27.83 g	263.9 mL	1.00 mL	7 SU	100 uL
320-32094-A-4	NAWC-100217-FRB-140	537, 537	T	302.74 g	27.54 g	275.2 mL	1.00 mL	7 SU	
320-32094-A-5	NAWC-100217-RW-316	537, 537	T	308.62 g	27.34 g	281.3 mL	1.00 mL	7 SU	
320-32094-A-6	NAWC-100217-FRB-316	537, 537	T	285.74 g	27.34 g	258.4 mL	1.00 mL	7 SU	
320-32094-A-7	NAWC-100217-RW-144	537, 537	T	299.88 g	27.59 g	272.3 mL	1.00 mL	7 SU	
320-32094-A-8	NAWC-100217-FRB-144	537, 537	T	285.55 g	26.86 g	258.7 mL	1.00 mL	7 SU	
320-32094-A-9	NAWC-100217-RW-151	537, 537	T	296.80 g	27.55 g	269.3 mL	1.00 mL	7 SU	
320-32094-A-10	NAWC-100217-FRB-151	537, 537	T	295.19 g	27.41 g	267.8 mL	1.00 mL	7 SU	
320-32094-A-11	WGNA-100217-DUP11	537, 537	T	309.54 g	27.57 g	282 mL	1.00 mL	7 SU	
320-32094-A-12	NAWC-100217-RW-130	537, 537	T	304.48 g	27.33 g	277.2 mL	1.00 mL	7 SU	
320-32094-A-13	NAWC-100217-FRB-130	537, 537	T	312.01 g	26.85 g	285.2 mL	1.00 mL	7 SU	
320-32094-A-14	NAWC-100217-RW-125	537, 537	T	315.45 g	27.20 g	288.3 mL	1.00 mL	7 SU	
320-32094-A-15	NAWC-100217-FRB-125	537, 537	T	293.33 g	27.10 g	266.2 mL	1.00 mL	7 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00051	LC537-SU 00051	AnalysisComment			
MB 320-189591/1		537, 537		100 uL	100 uL	Chlorine ND			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 189591 Batch Start Date: 10/16/17 14:39 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/18/17 18:29

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00051	LC537-SU 00051	AnalysisComment			
LCS 320-189591/2		537, 537		100 uL	100 uL	Chlorine ND			
320-32094-A-1	WGNA-100217-RW-0344	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-2	WGNA-100217-FRB-0344	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-3	NAWC-100217-RW-140	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-3 MS	NAWC-100217-RW-140	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-3 MSD	NAWC-100217-RW-140	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-4	NAWC-100217-FRB-140	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-5	NAWC-100217-RW-316	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-6	NAWC-100217-FRB-316	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-7	NAWC-100217-RW-144	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-8	NAWC-100217-FRB-144	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-9	NAWC-100217-RW-151	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-10	NAWC-100217-FRB-151	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-11	WGNA-100217-DUP11	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-12	NAWC-100217-RW-130	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-13	NAWC-100217-FRB-130	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-14	NAWC-100217-RW-125	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-15	NAWC-100217-FRB-125	537, 537	T	100 uL	100 uL	Chlorine ND			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 189591 Batch Start Date: 10/16/17 14:39 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/18/17 18:29

Batch Notes	
Analyst ID - Aliquot Step	ABH
Analyst ID - Concentration	CCB/ABH
Analyst ID - Final Volume Step	ABH
Internal Standard ID#	1041860
Manifold ID	1,3
Methanol ID	1052423
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	ABH
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	TWL
SPE Cartridge ID	6357081-09
Trizma ID	SLBR4303V
Reagent Water ID	10/12/17

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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 189627 Batch Start Date: 10/16/17 15:50 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/19/17 21:53

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00051
MB 320-189627/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCS 320-189627/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCSD 320-189627/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-32094-A-16	NAWC-100217-RW-139	537, 537	T	313.64 g	27.67 g	286 mL	1.00 mL	7 SU	100 uL
320-32094-A-17	NAWC-100217-FRB-139	537, 537	T	293.11 g	27.28 g	265.8 mL	1.00 mL	7 SU	100 uL
320-32094-A-18	WGNA-100217-RW-0500	537, 537	T	312.83 g	27.38 g	285.5 mL	1.00 mL	7 SU	100 uL
320-32094-A-19	WGNA-100217-FRB-0500	537, 537	T	288.20 g	27.29 g	260.9 mL	1.00 mL	7 SU	100 uL
320-32094-A-20	WGNA-100217-RW-0413	537, 537	T	310.96 g	27.87 g	283.1 mL	1.00 mL	7 SU	100 uL
320-32094-A-21	WGNA-100217-FRB-0413	537, 537	T	294.33 g	27.37 g	267 mL	1.00 mL	7 SU	100 uL
320-32094-A-22	WGNA-100217-RW-0404	537, 537	T	296.85 g	27.60 g	269.3 mL	1.00 mL	7 SU	100 uL
320-32094-A-23	WGNA-100217-FRB-0404	537, 537	T	283.75 g	27.40 g	256.4 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00025	LC537-SU 00051	AnalysisComment			
MB 320-189627/1		537, 537			100 uL	Chlorine ND			
LLCS 320-189627/2		537, 537		100 uL	100 uL	Chlorine ND			
LLCSD 320-189627/3		537, 537		100 uL	100 uL	Chlorine ND			
320-32094-A-16	NAWC-100217-RW-139	537, 537	T		100 uL	Chlorine ND			
320-32094-A-17	NAWC-100217-FRB-139	537, 537	T		100 uL	Chlorine ND			
320-32094-A-18	WGNA-100217-RW-0500	537, 537	T		100 uL	Chlorine ND			
320-32094-A-19	WGNA-100217-FRB-0500	537, 537	T		100 uL	Chlorine ND			
320-32094-A-20	WGNA-100217-RW-0413	537, 537	T		100 uL	Chlorine ND			
320-32094-A-21	WGNA-100217-FRB-0413	537, 537	T		100 uL	Chlorine ND			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 189627 Batch Start Date: 10/16/17 15:50 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/19/17 21:53

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00025	LC537-SU 00051	AnalysisComment			
320-32094-A-22	WGNA-100217-RW-0404	537, 537	T		100 uL	Chlorine ND			
320-32094-A-23	WGNA-100217-FRB-0404	537, 537	T		100 uL	Chlorine ND			

Batch Notes	
Analyst ID - Aliquot Step	TQN
Analyst ID - Concentration	ABH/TQN
Analyst ID - Final Volume Step	TQN
Internal Standard ID#	1041860
Manifold ID	1,3
Methanol ID	1052423
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	TQN
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	TWL
SPE Cartridge ID	6357081-09
Trizma ID	SLBR4303V
Reagent Water ID	10/12/17

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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 190676 Batch Start Date: 10/23/17 14:30 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/25/17 20:40

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00051
MB 320-190676/1		537, 537				250 mL	1.00 mL		100 uL
LCS 320-190676/2		537, 537				250 mL	1.00 mL		100 uL
LCSD 320-190676/3		537, 537				250 mL	1.00 mL		100 uL
320-32094-B-15	NAWC-100217-FRB-125	537, 537	T	277.64 g	27.18 g	250.5 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00026	LC537-SU 00049	AnalysisComment			
MB 320-190676/1		537, 537			100 uL				
LCS 320-190676/2		537, 537		100 uL	100 uL				
LCSD 320-190676/3		537, 537		100 uL	100 uL				
320-32094-B-15	NAWC-100217-FRB-125	537, 537	T		100 uL	Chlorine ND			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 190676 Batch Start Date: 10/23/17 14:30 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/25/17 20:40

Batch Notes	
Analyst ID - Aliquot Step	TQN
Analyst ID - Concentration	CCB/TQN
Analyst ID - Final Volume Step	TQN
Internal Standard ID#	1041860
Manifold ID	3
Methanol ID	1061681
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	TQN
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - TA Reagent Drop	JER
Analyst ID - TA Reagent Drop Witness	TWL
SPE Cartridge ID	6357081-09
Trizma ID	SLBR4303V
Reagent Water ID	10/19/17

Basis	Basis Description
T	Total/NA

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Method 537 CCV/Data Review Checklist

A8

Job No: 32094 Instrument ID & Date: 10-20-17 ICAL Batch: 185329

Extraction Batch: 189591 189627 Worklist #: 49419 49420 TALS Batch: 190441, 190442 190446, 190447

Review Items	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2
Initial Calibration				
1. Is ICAL verified and locked in Chrom & TALS?	✓			✓
2. Is ICV properly linked in TALS?	✓			✓
Continuing Calibration				
1. **Low-range CCV injected at start of analytical run?** CCV injected after every 10 samples and at the end of the analytical run and alternated between Low-range, Mid-range and High-range?	✓			✓
2. If sequence was not after an ICAL was a low and mid range CCV injected at the start of the analytical run?	✓			✓
3. Native compounds and surrogates in control? Low-range within ±50% of true value Mid and High-range within ±30% of true value	✓			✓
4. Internal Standard areas in control? Areas ≥ 50% of average area of the ICal and 70-140% of the most recent CCV.	✓			✓
Client Samples & QC Sample Results				
1. Were preparation and analysis done within holding times?	✓			✓
2. Are Chromatograms reviewed and spectra verified?	✓			✓
3. Are positive results within calibration range?	✓			✓
4. Dilutions due to target cpds? ___ Dilutions due to non-targets? ___			✓	
5. All target compounds in MB < 1/3 RL ? **(Requires NCM if "no.")**	✓			✓
6. Are target constituents in LCS/LCSD within method control limits?	✓			✓
7. Internal Standard areas in control for all samples and QC reported? ±50% from the average area of the ICAL and 70-140% of the most recent CCV	✓			✓
8. Do results (e.g., dilutions/trip blanks) make sense?	✓			✓
9. Are MS/MSD recoveries and RPDs within method control limits?	✓			✓
10. Are all QC samples properly linked in TALS?	✓			✓
11. All manual integrations appropriate and completely documented?	✓			✓
12. Are nonconformances documented as NCMs?			✓	
13. Are all Chrom graphics uploaded?	✓			✓

1st Level Reviewer / Date: JRB 10-23-17 2nd Level Reviewer / Date: MWJeff 10/24/2017

NCM # and Comments: _____

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Method 537 ICAL Checklist

A8

Instrument ID & Date: 9-20-17 Worklist#: 48154

ICAL Batch: 185329, 185330 Calibration ID number: 34457

Review Items	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2
Initial Calibration				
1. Mass calibration, as needed, verified by full scan of PFC stock standard. All PFC ions used for quantitation are within 0.3 m/z of true mass?	✓			✓
2. Responses increase with increasing concentration?	✓			✓
3. Fit used (circle): (Average) Linear (1/x²)Linear (Quadratic) (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average $R^2 \geq 0.990$ for Linear $R^2 \geq 0.990$ for Quadratic **NOTE: "Force through Zero" must be used and weighted if needed**	✓			✓
5. If quadratic fit used the curve does not "bend over".	✓			✓
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be ≤ 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks?.(0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2nd source) ± 30% of true value?	✓			✓
11. Is ICV (2nd source) internal standards ±50% of average area of the ICAL?	✓			✓
12. ICal locked in Chrom and uploaded to TALS?	✓			
13. ICal locked in TALS and scanned?				✓

1st Level Reviewer / Date: MWuf for JRB 9/22/2017

2nd Level Reviewer / Date: MWuf 9/22/2017

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 20OCT2017_537A Worklist Number: 49419
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20171021-49419.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 190436	LC 537 ICAL Raw Batch: 190437
# 1 RINSE	# 1 RINSE	
# 2 RINSE	# 2 RINSE	
# 3 RINSE	# 3 RINSE	
# 4 CCVL	# 4 CCVL	# 4 CCVL
# 5 CCV L5	# 5 CCV L5	
# 6 RB	# 6 RB	
# 7 MB 320-189802/1-A	# 7 MB 320-189802/1-A	
# 8 LCS 320-189802/2-A	# 8 LCS 320-189802/2-A	
# 9 LCSD 320-189802/3-A	# 9 LCSD 320-189802/3-A	
#10 320-32450-A-1-A	#10 320-32450-A-1-A	
#11 320-32450-A-2-A	#11 320-32450-A-2-A	
#12 320-32450-A-3-A	#12 320-32450-A-3-A	
#13 320-32450-A-4-A	#13 320-32450-A-4-A	
#14 320-32450-A-4-B MS	#14 320-32450-A-4-B MS	
#15 320-32450-A-4-C MSD	#15 320-32450-A-4-C MSD	
#16 320-32450-A-5-A	#16 320-32450-A-5-A	
#17 CCV L3	#17 CCV L3	

QC Batch: 2	LC 537 CS ICAL Raw Batch: 190438	LC 537 ICAL Raw Batch: 190439
#17 CCV L3	#17 CCV L3	
#18 RB	#18 RB	
#19 320-32450-A-6-A	#19 320-32450-A-6-A	
#20 320-32450-A-7-A	#20 320-32450-A-7-A	
#21 320-32450-A-8-A	#21 320-32450-A-8-A	
#22 CCV L5	#22 CCV L5	#22 CCV L5

QC Batch: 3	LC 537 CS ICAL Raw Batch: 190440	LC 537 ICAL Raw Batch: 190441
#22 CCV L5	#22 CCV L5	#22 CCV L5
#23 RB		#23 RB
#24 MB 320-189591/1-A		#24 MB 320-189591/1-A
#25 LCS 320-189591/2-A		#25 LCS 320-189591/2-A
#26 320-32094-A-1-A		#26 320-32094-A-1-A
#27 320-32094-A-2-A		#27 320-32094-A-2-A
#28 320-32094-A-3-A		#28 320-32094-A-3-A
#29 320-32094-A-3-B MS		#29 320-32094-A-3-B MS
#30 320-32094-A-3-C MSD		#30 320-32094-A-3-C MSD
#31 320-32094-A-4-A		#31 320-32094-A-4-A
#32 320-32094-A-5-A		#32 320-32094-A-5-A
#33 320-32094-A-6-A		#33 320-32094-A-6-A
#34 CCV L3		#34 CCV L3

QC Batch: 4	LC 537 ICAL Raw Batch: 190442
#34 CCV L3	#34 CCV L3
#35 RB	#35 RB
#36 320-32094-A-7-A	#36 320-32094-A-7-A
#37 320-32094-A-8-A	#37 320-32094-A-8-A
#38 320-32094-A-9-A	#38 320-32094-A-9-A

QC Batch: 4	LC 537 ICAL Raw Batch: 190442
#39 320-32094-A-10-A	#39 320-32094-A-10-A
#40 320-32094-A-11-A	#40 320-32094-A-11-A
#41 320-32094-A-12-A	#41 320-32094-A-12-A
#42 320-32094-A-13-A	#42 320-32094-A-13-A
#43 320-32094-A-14-A	#43 320-32094-A-14-A
#44 320-32094-A-15-A	#44 320-32094-A-15-A
#45 CCV L5	#45 CCV L5
#46 RB	#46 RB

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Aqueous Extraction Analysis Sheet

08 10/20/17

(To Accompany Samples to Instruments)

Batch Number: 320-189591 Analyst: Long, Tyrel W Batch Open: 10/16/2017 2:39:00PM

Method Code: 320-537_Prep-320 Batch End: 10/18/2017 6:29:00PM

Extraction of Perfluorinated Alkyl Acids

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB-320-189591/1 N/A	N/A		250 mL 1.00 mL	7			N/A	N/A	N/A	Chlorine ND	MB 320-189591/1-A
2	LCS-320-189591/2 N/A	N/A		250 mL 1.00 mL	7			N/A	N/A	N/A	Chlorine ND	LCS 320-189591/2-A
3	320-32094-A-1 (537_DOD5)	N/A (320-32094-1)	307.76 g 27.61 g	280.2 mL 1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-1-A
4	320-32094-A-2 (537_DOD5)	N/A (320-32094-1)	298.45 g 27.94 g	270.5 mL 1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-2-A
5	320-32094-A-3 (537_DOD5)	N/A (320-32094-1)	289.75 g 28.25 g	261.5 mL 1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-3-A
6	320-32094-A-3~MS (537_DOD5)	N/A (320-32094-1)	285.43 g 27.16 g	258.3 mL 1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-3-B MS
7	320-32094-A-3~MSD (537_DOD5)	N/A (320-32094-1)	291.68 g 27.83 g	263.9 mL 1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-3-C MSD
8	320-32094-A-4 (537_DOD5)	N/A (320-32094-1)	302.74 g 27.54 g	275.2 mL 1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-4-A
9	320-32094-A-5 (537_DOD5)	N/A (320-32094-1)	308.62 g 27.34 g	281.3 mL 1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-5-A
10	320-32094-A-6 (537_DOD5)	N/A (320-32094-1)	285.74 g 27.34 g	258.4 mL 1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-6-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-189591 Analyst: Long, Tyrel W Batch Open: 10/16/2017 2:39:00PM

Method Code: 320-537_Prep-320 Batch End:

11	320-32094-A-7 (537_DOD5)	N/A (320-32094-1)	299.88 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
12	320-32094-A-8 (537_DOD5)	N/A (320-32094-1)	285.55 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
13	320-32094-A-9 (537_DOD5)	N/A (320-32094-1)	296.80 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
14	320-32094-A-10 (537_DOD5)	N/A (320-32094-1)	295.19 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
15	320-32094-A-11 (537_DOD5)	N/A (320-32094-1)	309.54 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
16	320-32094-A-12 (537_DOD5)	N/A (320-32094-1)	304.48 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
17	320-32094-A-13 (537_DOD5)	N/A (320-32094-1)	312.01 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
18	320-32094-A-14 (537_DOD5)	N/A (320-32094-1)	315.45 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
19	320-32094-A-15 (537_DOD5)	N/A (320-32094-1)	293.33 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-189591 Analyst: Long, Tyrel W Batch Open: 10/16/2017 2:39:00PM

Method Code: 320-537_Prep-320 Batch End:

Batch Notes

Manifold ID	1,3
Trizma ID	SLBR4303V
SPE Cartridge ID	6357081-09
Methanol ID	1052423
Reagent Water ID	10/12/17
Internal Standard ID#	LC537 - IS-00151 1041860
Pipette ID	H14930F
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	ABH
Analyst ID - Concentration	CCB /ABH
Analyst ID - Aliquot Step	ABH
Analyst ID - Final Volume Step	~~CC~~ ABH 10/18/17 /ABH
Batch Comment	IS: JER BD: CCB/ABH FV: ABH AL: ABH

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-189591 Analyst: Long, Tyrel W Batch Open: 10/16/2017 2:39:00PM

Method Code: 320-537_Prep-320 Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-189591/1	LC537-SU_00051	100 uL	1.00 mL	VPM 10/16/17	TMZ 10/16/17
LCS 320-189591/2	LC537-HSP_00023	100 uL	1.00 mL		
LCS 320-189591/2	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-1	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-2	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-3	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-3 MS	LC537-HSP_00023	100 uL	1.00 mL		
320-32094-A-3 MS	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-3 MSD	LC537-HSP_00023	100 uL	1.00 mL		
320-32094-A-3 MSD	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-4	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-5	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-6	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-7	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-8	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-9	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-10	LC537-SU_00051	100 uL	1.00 mL		
320-32094-A-11	LC537-SU_00051	100 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-189591 Analyst: Long, Tyrel W Batch Open: 10/16/2017 2:39:00PM

Method Code: 320-537_Prep-320 Batch End:

320-32094-A-12	LC537-SU_00051	100 uL	1.00 mL	VPM 10/16/17	TWZ 10/16/17
320-32094-A-13	LC537-SU_00051	100 uL	1.00 mL	↓	↓
320-32094-A-14	LC537-SU_00051	100 uL	1.00 mL	↓	↓
320-32094-A-15	LC537-SU_00051	100 uL	1.00 mL	↓	↓

Other Reagents:

Reagent	Amount/Units	Lot#:
1041860	100µL of LC537-IS-00051 @ 0.1-0.2868	Exp: 3/20/18
Spiked: [signature] 10/18/17	Witness: ABH 10/18/17	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s): 189591 Test: 537 Prep

Earliest Holding Time: 10/16/17

Sample List Tab	1st Level Reviewer	2nd Level Reviewer
Samples identified to the correct method	✓	✓
All necessary NCMs filed (including holding time)	NA	NA
Method/sample/login/QAS checked and correct	✓	✓
Worksheet Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All samples properly preserved	✓	✓
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and Cl Check)	✓	✓
The pH is transcribed correctly in TALS	✓	✓
All additional information transcribed into TALS is correct and raw data is attached	✓	✓
Comments are transcribed correctly in TALS	✓	✓
Reagents Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All necessary reagents not expired and entered into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Batch Information	**1st Level Reviewer**	**2nd Level Reviewer**
Date and time accurate and entered into TALS correctly	✓	✓
All necessary 'batch information' complete and entered into TALS correctly	✓	✓

1st Level Reviewer: ABH Date: 10/18/17

2nd Level Reviewer: VPM Date: 10/18/17

Comments:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Method 537 CCV/Data Review Checklist

AB

Job No: 32094 Instrument ID & Date: 10-31-17 ICAL Batch: 192162

Extraction Batch: 190676 Worklist #: 49815 TALS Batch: 192192 (190442)

Review Items	— Level 1 — Yes	No	N/A	Level 2
Initial Calibration				
1. Is ICAL verified and locked in Chrom & TALS?	✓			✓
2. Is ICV properly linked in TALS?	✓			✓
Continuing Calibration				
1. **Low-range CCV injected at start of analytical run?** CCV injected after every 10 samples and at the end of the analytical run and alternated between Low-range, Mid-range and High-range?	✓			✓
2. If sequence was not after an ICAL was a low and mid range CCV injected at the start of the analytical run?			✓	
3. Native compounds and surrogates in control? Low-range within ±50% of true value Mid and High-range within ±30% of true value	✓			✓
4. Internal Standard areas in control? Areas ≥ 50% of average area of the ICal and 70-140% of the most recent CCV.	✓			✓
Client Samples & QC Sample Results				
1. Were preparation and analysis done within holding times? NCM	✓			✓
2. Are Chromatograms reviewed and spectra verified?	✓			✓
3. Are positive results within calibration range?	✓			✓
4. Dilutions due to target cpds? ____ Dilutions due to non-targets? ____			✓	
5. All target compounds in MB < 1/3 RL ? **(Requires NCM if "no.")**	✓			✓
6. Are target constituents in LCS/LCSD within method control limits? NCM	✓			✓
7. Internal Standard areas in control for all samples and QC reported? ±50% from the average area of the ICAL and 70-140% of the most recent CCV	✓			✓
8. Do results (e.g., dilutions/trip blanks) make sense?	✓			✓
9. Are MS/MSD recoveries and RPDs within method control limits?			✓	
10. Are all QC samples properly linked in TALS?	✓			✓
11. All manual integrations appropriate and completely documented?	✓			✓
12. Are nonconformances documented as NCMs?	✓			✓
13. Are all Chrom graphics uploaded?	✓			✓

1st Level Reviewer / Date: JRB 10-31-17 2nd Level Reviewer / Date: [signature] 10/31/2017

NCM # and Comments: 105831, 105832, 105833, ~~105384~~ 105834, 105835, 105836

JRB 10-31-17

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Method 537 ICAL Checklist

A8

Instrument ID & Date: 10-31-17 Worklist#: 49808

ICAL Batch: 192162, 192163 Calibration ID number: 35621, 35622

Review Items	--- Level 1 --- Yes	No	N/A	Level 2
Initial Calibration				
1. Mass calibration, as needed, verified by full scan of PFC stock standard. All PFC ions used for quantitation are within 0.3 m/z of true mass?	✓			✓
2. Responses increase with increasing concentration?	✓			✓
3. Fit used (circle): (Average) Linear (1/x²)Linear (Quadratic) (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average $R^2 \geq 0.990$ for Linear $R^2 \geq 0.990$ for Quadratic **NOTE: "Force through Zero" must be used and weighted if needed**	✓			✓
5. If quadratic fit used the curve does not "bend over".	✓			✓
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be < 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks?.(0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2nd source) ± 30% of true value?	✓			✓
11. Is ICV (2nd source) internal standards ±50% of average area of the ICAL?	✓			✓
12. ICal locked in Chrom and uploaded to TALS?	✓			
13. ICal locked in TALS and scanned?				✓

1st Level Reviewer / Date: JRB 10-31-17 2nd Level Reviewer / Date: MWolf 11/3/2017

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 31OCT2017_537A Worklist Number: 49815
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20171031-49815.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 192192	LC 537 CS ICAL Raw Batch: 192193
# 1 CCV L5	# 1 CCV L5	# 1 CCV L5
# 2 RB	# 2 RB	# 2 RB
# 3 MB 320-190676/1-A	# 3 MB 320-190676/1-A	
# 4 LCS 320-190676/2-A	# 4 LCS 320-190676/2-A	
# 5 LCSD 320-190676/3-A	# 5 LCSD 320-190676/3-A	
# 6 320-32094-B-15-A	# 6 320-32094-B-15-A	
# 7 CCV L3	# 7 CCV L3	# 7 CCV L3

QC Batch: 2	LC 537 ICAL Raw Batch: 192194	LC 537 CS ICAL Raw Batch: 192195
# 7 CCV L3	# 7 CCV L3	# 7 CCV L3
# 8 RB	# 8 RB	# 8 RB
# 9 MB 320-190576/1-A		# 9 MB 320-190576/1-A
#10 LLCS 320-190576/2-A		#10 LLCS 320-190576/2-A
#11 LLCSD 320-190576/3-A		#11 LLCSD 320-190576/3-A
#12 320-32428-A-1-A		#12 320-32428-A-1-A
#13 320-32428-A-1-B LMS		#13 320-32428-A-1-B LMS
#14 320-32428-A-1-C LMSD		#14 320-32428-A-1-C LMSD
#15 320-32428-A-2-A		#15 320-32428-A-2-A
#16 320-32428-A-3-A		#16 320-32428-A-3-A
#17 320-32428-A-4-A		#17 320-32428-A-4-A
#18 320-32428-A-5-A		#18 320-32428-A-5-A
#19 CCV L5	#19 CCV L5	#19 CCV L5

QC Batch: 3	LC 537 ICAL Raw Batch: 192196	LC 537 CS ICAL Raw Batch: 192197
#19 CCV L5	#19 CCV L5	#19 CCV L5
#20 RB	#20 RB	#20 RB
#21 MB 320-189829/1-A	#21 MB 320-189829/1-A	
#22 LCS 320-189829/2-A	#22 LCS 320-189829/2-A	
#23 LCSD 320-189829/3-A	#23 LCSD 320-189829/3-A	
#24 590-7251-A-1-A	#24 590-7251-A-1-A	
#25 590-7251-A-2-A	#25 590-7251-A-2-A	
#26 CCV L3	#26 CCV L3	#26 CCV L3
#27 RB	#27 RB	#27 RB

57

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

RX

AB 10/26/17
AB 10/31/17

Batch Number: 320-190676

Analyst: Long, Tyrel W

Batch Open: 10/23/2017 2:30:00PM

Method Code: 320-537_Prep-320

Batch End: 10/25/2017 8:40:00PM

Extraction of Perfluorinated Alkyl Acids

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB~320-190676/1 N/A	N/A		250 mL 1.00 mL				N/A	N/A	N/A		MB 320-190676/1-A
2	LCS~320-190676/2 N/A	N/A		250 mL 1.00 mL				N/A	N/A	N/A		LCS 320-190676/2-A
3	LCSD~320-190676/3 N/A	N/A		250 mL 1.00 mL				N/A	N/A	N/A		LCSD 320-190676/3-A
4	320-32094-B-15 (537_DOD5)	N/A (320-32094-1)	277.64 g 27.18 g	250.5 mL 1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-B-15-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-190676 Analyst: Long, Tyrel W Batch Open: 10/23/2017 2:30:00PM

Method Code: 320-537_Prep-320 Batch End: 10/25/2017 8:40:00PM

Batch Notes

Manifold ID	3
Trizma ID	SLBR4303V
SPE Cartridge ID	6357081-09
Methanol ID	1061681
Reagent Water ID	10/19/17
Internal Standard ID#	1041860
Pipette ID	H14930F
Analyst ID - TA Reagent Drop	JER
Analyst ID - TA Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - IS Reagent Drop	TQN
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - Concentration	CCB/TQN
Analyst ID - Aliquot Step	TQN
Analyst ID - Final Volume Step	TQN
Batch Comment	N/A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-190676 Analyst: Long, Tyrel W Batch Open: 10/23/2017 2:30:00PM

Method Code: 320-537_Prep-320 Batch End:

Comments

320-32094-B-15

Rework Comments: Very low surrogate recovery.

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-190676 Analyst: Long, Tyrel W Batch Open: 10/23/2017 2:30:00PM

Method Code: 320-537_Prep-320 Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-190676/1	LC537-SU_00049	100 uL	1.00 mL	10/23/17	TWZ 10/23/17
LCS 320-190676/2	LC537-MSP_00026	100 uL	1.00 mL		
LCS 320-190676/2	LC537-SU_00049	100 uL	1.00 mL		
LCSD 320-190676/3	LC537-MSP_00026	100 uL	1.00 mL		
LCSD 320-190676/3	LC537-SU_00049	100 uL	1.00 mL		
320-32094-B-15	LC537-SU_00049	100 uL	1.00 mL		

Other Reagents:

Reagent	Amount/Units	Lot#:
IS: 1041860	vol: 100µL	
Spiker: TWZ 10/25/17	witness: TWZ 10/25/17	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-190793 Analyst: Branscum, Cassie Batch Open: 10/24/2017 10:03:00AM

Method Code: 320-537_Prep-320 Batch End:

Other Reagents:

Reagent	Amount/Units	Lot#:
IS: 104 1860		
spiker: TBM 10/25/17	witness: TWT 10/25/17	

TestAmerica
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Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s) 190676 Test 537_Prep

Earliest Holding Time 10/16/17

Batch Information	1st Level Reviewer	2nd Level Reviewer
Date and time accurate and entered into TALS correctly	✓	✓
All necessary batch information complete and entered into TALS correctly	✓	✓
BD, FV, and AL initials are transcribed into the batch comment	✓	✓
Sample List Tab	1st Level Reviewer	2nd Level Reviewer
Samples identified to the correct method	✓	✓
Holding time violation NCM filed	✓	✓
MS/MSD or MS/DU NCM filed	✓	✓
NCM for any anomalies filed	N/A	NA
All NCMs include method code, matrix, and prep batch	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	1st Level Reviewer	2nd Level Reviewer
All samples properly preserved	✓	✓
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	✓	✓
The pH is transcribed properly in TALS	✓	✓
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	1st Level Reviewer	2nd Level Reviewer
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: TQN Date: 10/25/17

2nd Level Reviewer: VPM Date: 10/25/17

Comments:

Shipping and Receiving Documents

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Andy Frebowitz	Site Contact: Mary Kay Bond	Date: 10/2/2017	COC No:
TetraTech	Tel/Fax: 610.382.1170	Lab Contact: Dave Alltucker	Carrier: FedEx	1 of 1 COCs
234 Mall Boulevard Suite 260	Analysis Turnaround Time			Sampler: Mary Kay Bond
King of Prussia, PA 19406	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
610-382-1174	TAT if different from Below 21			Walk-in Client:
610-491-9688	☐ 2 weeks			Lab Sampling:
Project Name: WE04	☐ 1 week			
Site: WE04	☐ 2 days			Job / SDG No.:
P O # 1132358 (through EarthToxics)	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	EPA 537_DOD5	Sample Specific Notes:
WGNA-100217-RW-0344	10/2/2017	8:10	G	DW	2	N	N	Y	
WGNA-100217-FRB-0344	10/2/2017	8:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-100217-RW-140	10/2/2017	9:40	G	DW	6	N	N	Y	MS/MSD
NAWC-100217-FRB-140	10/2/2017	9:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-100217-RW-316	10/2/2017	10:10	G	DW	2	N	N	Y	
NAWC-100217-FRB-316	10/2/2017	10:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-100217-RW-144	10/2/2017	10:40	G	DW	2	N	N	Y	
NAWC-100217-FRB-144	10/2/2017	10:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-100217-RW-151	10/2/2017	11:10	G	DW	2	N	N	Y	
NAWC-100217-FRB-151	10/2/2017	11:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-100217-DUP11	10/2/2017	7:00	G	DW	2	N	N	Y	Duplicate
NAWC-100217-RW-130	10/2/2017	14:10	G	DW	2	N	N	Y	
NAWC-100217-FRB-130	10/2/2017	14:05	G	DW	2	N	N	Y	Field Reagent Blank

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other: Trizma

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

FedEx Tracking: 7703 8510 6703

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 6.0 3.2 3.3	Corr'd: ~	Therm ID No.: AR-2
Relinquished by: Mary K Bond	Company: Tetra Tech	Date/Time: 10/2/2017 18:00	Received by:	Company: TAus	Date/Time: 10/03/17 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Andy Frebowitz	Site Contact: Mary Kay Bond	Date: 10/2/2017	COC No:
TetraTech	Tel/Fax: 610.382.1170	Lab Contact: Dave Alltucker	Carrier: FedEx	2 of 2 COCs
234 Mall Boulevard Suite 260	Analysis Turnaround Time			Sampler: Mary Kay Bond
King of Prussia, PA 19406	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
610-382-1174	TAT if different from Below 21			Walk-in Client:
610-491-9688	☐ 2 weeks			Lab Sampling:
Project Name: WE04	☐ 1 week			
Site: WE04	☐ 2 days			Job / SDG No.:
P O # 1132358 (through EarthToxics)	☐ 1 day			

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	EPA 537 UCMR3	Sample Specific Notes:
1	NAWC-100217-RW-125	10/2/2017	14:10	G	DW	2	N	N	Y	
2	NAWC-100217-FRB-125	10/2/2017	14:05	G	DW	2	N	N	Y	Field Reagent Blank
	NAWC-100217-RW-139	10/2/2017	13:10	G	DW	2	N	N	Y	
	NAWC-100217-FRB-139	10/2/2017	13:05	G	DW	2	N	N	Y	Field Reagent Blank
	WGNA-100217-RW-0500	10/2/2017	15:40	G	DW	2	N	N	Y	
	WGNA-100217-FRB-0500	10/2/2017	15:35	G	DW	2	N	N	Y	Field Reagent Blank
	WGNA-100217-RW-0413	10/2/2017	16:10	G	DW	2	N	N	Y	
	WGNA-100217-FRB-0413	10/2/2017	16:05	G	DW	2	N	N	Y	Field Reagent Blank
	rec'd WGNA-100217-RW-0404		10-2	840						
	" " FRB-404			835						
1	labeled @ 1440									
2	" " 1435		10-5-17							

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

Possible Hazard Identification:
Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

FedEx Tracking: 7703 8510 6703

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 6.0 2.2 2.3 Corr'd: — | Therm ID No.: AK-2

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Mary K Bond	Tetra Tech	10/2/2017 18:00		TAS	10/03/17 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-32094-1

Login Number: 32094
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

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

"WGNA-100217-RW-0344","537","RES","320-32094-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","31","ng/L","J M","6.1","DL","","TRG","","","36","LOQ","YES","-99","","280.2","1.00","14",""
"WGNA-100217-RW-0344","537","RES","320-32094-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","32","ng/L","","2.5","DL","","TRG","","","18","LOQ","YES","-99","","280.2","1.00","7.1",""
"WGNA-100217-RW-0344","537","RES","320-32094-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","23","ng/L","J","4.9","DL","","TRG","","","27","LOQ","YES","-99","","280.2","1.00","11",""
"WGNA-100217-RW-0344","537","RES","320-32094-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","32","ng/L","U","14","DL","","TRG","","","80","LOQ","YES","-99","","280.2","1.00","32",""
"WGNA-100217-RW-0344","537","RES","320-32094-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","9.0","ng/L","","1.7","DL","","TRG","","","8.9","LOQ","YES","-99","","280.2","1.00","3.6",""
"WGNA-100217-RW-0344","537","RES","320-32094-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","34","ng/L","","7.1","DL","","TRG","","","21","LOQ","YES","-99","","280.2","1.00","18",""
"WGNA-100217-RW-0344","537","RES","320-32094-1","TALSAC","STL00993","13C2 PFHxA","28","ng/L","","-99","DL","","SURR","78","","-99","LOQ","YES","35.7","","280.2","1.00","0",""
"WGNA-100217-RW-0344","537","RES","320-32094-1","TALSAC","STL00996","13C2 PFDA","37","ng/L","","-99","DL","","SURR","103","","-99","LOQ","YES","35.7","","280.2","1.00","0",""
"NAWC-100217-FRB-151","537","RES","320-32094-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","U","6.3","DL","","TRG","","","37","LOQ","YES","-99","","267.8","1.00","15",""
"NAWC-100217-FRB-151","537","RES","320-32094-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.5","ng/L","U","2.6","DL","","TRG","","","19","LOQ","YES","-99","","267.8","1.00","7.5",""
"NAWC-100217-FRB-151","537","RES","320-32094-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","11","ng/L","U","5.1","DL","","TRG","","","28","LOQ","YES","-99","","267.8","1.00","11",""
"NAWC-100217-FRB-151","537","RES","320-32094-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","34","ng/L","U","15","DL","","TRG","","","84","LOQ","YES","-99","","267.8","1.00","34",""
"NAWC-100217-FRB-151","537","RES","320-32094-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","3.7","ng/L","U","1.8","DL","","TRG","","","9.3","LOQ","YES","-99","","267.8","1.00","3.7",""
"NAWC-100217-FRB-151","537","RES","320-32094-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","19","ng/L","U","7.5","DL","","TRG","","","22","LOQ","YES","-99","","267.8","1.00","19",""
"NAWC-100217-FRB-151","537","RES","320-32094-10","TALSAC","STL00993","13C2 PFHxA","34","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","37.3","","267.8","1.00","0",""
"NAWC-100217-FRB-151","537","RES","320-32094-10","TALSAC","STL00996","13C2 PFDA","39","ng/L","","-99","DL","","SURR","106","","-99","LOQ","YES","37.3","","267.8","1.00","0",""
"WGNA-100217-DUP11","537","RES","320-32094-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","8.9","ng/L","J M","6.0","DL","","TRG","","","35","LOQ","YES","-99","","282","1.00","14",""
"WGNA-100217-DUP11","537","RES","320-32094-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","22","ng/L","","2.5","DL","","TRG","","","18","LOQ","YES","-99","","282","1.00","7.1",""
"WGNA-100217-DUP11","537","RES","320-32094-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","5.1","ng/L","J","4.9","DL","","TRG","","","27","LOQ","YES","-99","","282","1.00","11",""
"WGNA-100217-DUP11","537","RES","320-32094-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","32","ng/L","U","14","DL","","TRG","","","80","LOQ","YES","-99","","282","1.00","32",""
"WGNA-100217-DUP11","537","RES","320-32094-11","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","10","ng/L","","1.7","DL","","TRG","","","8.9","LOQ","YES","-99","","282","1.00","3.5",""
"WGNA-100217-DUP11","537","RES","320-32094-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","18","ng/L","U","7.1","DL","","TRG","","","21","LOQ","YES","-99","","282","1.00","18",""
"WGNA-100217-DUP11","537","RES","320-32094-11","TALSAC","STL00993","13C2 PFHxA","26","ng/L","","-99","DL","","SURR","73","","-99","LOQ","YES","35.5","","282","1.00","0",""
"WGNA-100217-DUP11","537","RES","320-32094-11","TALSAC","STL00996","13C2 PFDA","33","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","35.5","","282","1.00","0",""
"NAWC-100217-RW-130","537","RES","320-32094-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","J M","6.1","DL","","TRG","","","36","LOQ","YES","-99","","277.2","1.00","14",""
"NAWC-100217-RW-130","537","RES","320-32094-12","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","6.5","ng/L","J","2.5","DL","","TRG","","","18","LOQ","YES","-99","","277.2","1.00","7.2",""
"NAWC-100217-RW-130","537","RES","320-32094-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS)","6.5","ng/L","J","5.0","DL","","TRG","","","27","LOQ","YES","-99","","277.2","1.00","11",""
"NAWC-100217-RW-130","537","RES","320-32094-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","32","ng/L","U","15","DL","","TRG","","","81","LOQ","YES","-99","","277.2","1.00","32",""
"NAWC-100217-RW-130","537","RES","320-32094-12","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.6","ng/L","J","1.7","DL","","TRG","","","9.0","LOQ","YES","-99","","277.2","1.00","3.6",""
"NAWC-100217-RW-130","537","RES","320-32094-12","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.2","DL","","TRG","","","22","LOQ","YES","-99","","277.2","1.00","18",""
"NAWC-100217-RW-130","537","RES","320-32094-12","TALSAC","STL00993","13C2
PFHxA","27","ng/L","","-99","DL","","SURR","76","","-99","LOQ","YES","36.1","","277.2","1.00","0",""
"NAWC-100217-RW-130","537","RES","320-32094-12","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","108","","-99","LOQ","YES","36.1","","277.2","1.00","0",""
"NAWC-100217-FRB-130","537","RES","320-32094-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","14","ng/L","U","6.0","DL","","TRG","","","35","LOQ","YES","-99","","285.2","1.00","14",""
"NAWC-100217-FRB-130","537","RES","320-32094-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.0","ng/L","U","2.5","DL","","TRG","","","18","LOQ","YES","-99","","285.2","1.00","7.0",""
"NAWC-100217-FRB-130","537","RES","320-32094-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","4.8","DL","","TRG","","","26","LOQ","YES","-99","","285.2","1.00","11",""
"NAWC-100217-FRB-130","537","RES","320-32094-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","32","ng/L","U","14","DL","","TRG","","","79","LOQ","YES","-99","","285.2","1.00","32",""
"NAWC-100217-FRB-130","537","RES","320-32094-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.5","ng/L","U","1.7","DL","","TRG","","","8.8","LOQ","YES","-99","","285.2","1.00","3.5",""
"NAWC-100217-FRB-130","537","RES","320-32094-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.0","DL","","TRG","","","21","LOQ","YES","-99","","285.2","1.00","18",""
"NAWC-100217-FRB-130","537","RES","320-32094-13","TALSAC","STL00993","13C2
PFHxA","31","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","35.1","","285.2","1.00","0",""
"NAWC-100217-FRB-130","537","RES","320-32094-13","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURR","106","","-99","LOQ","YES","35.1","","285.2","1.00","0",""
"NAWC-100217-RW-125","537","RES","320-32094-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","14","ng/L","J M","5.9","DL","","TRG","","","35","LOQ","YES","-99","","288.3","1.00","14",""
"NAWC-100217-RW-125","537","RES","320-32094-14","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","16","ng/L","J","2.4","DL","","TRG","","","17","LOQ","YES","-99","","288.3","1.00","6.9",""
"NAWC-100217-RW-125","537","RES","320-32094-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","15","ng/L","J","4.8","DL","","TRG","","","26","LOQ","YES","-99","","288.3","1.00","10",""
"NAWC-100217-RW-125","537","RES","320-32094-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","31","ng/L","U","14","DL","","TRG","","","78","LOQ","YES","-99","","288.3","1.00","31",""
"NAWC-100217-RW-125","537","RES","320-32094-14","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.2","ng/L","J","1.6","DL","","TRG","","","8.7","LOQ","YES","-99","","288.3","1.00","3.5",""
"NAWC-100217-RW-125","537","RES","320-32094-14","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","17","ng/L","U","6.9","DL","","TRG","","","21","LOQ","YES","-99","","288.3","1.00","17",""
"NAWC-100217-RW-125","537","RES","320-32094-14","TALSAC","STL00993","13C2
PFHxA","27","ng/L","","-99","DL","","SURR","77","","-99","LOQ","YES","34.7","","288.3","1.00","0",""
"NAWC-100217-RW-125","537","RES","320-32094-14","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURR","106","","-99","LOQ","YES","34.7","","288.3","1.00","0",""
"NAWC-100217-FRB-125","537","RE","320-32094-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U H","6.8","DL","","TRG","","","40","LOQ","NO","-99","","250.5","1.00","16",""
"NAWC-100217-FRB-125","537","RE","320-32094-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U H","2.8","DL","","TRG","","","20","LOQ","NO","-99","","250.5","1.00","8.0",""
"NAWC-100217-FRB-125","537","RE","320-32094-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U H","5.5","DL","","TRG","","","30","LOQ","NO","-99","","250.5","1.00","12",""
"NAWC-100217-FRB-125","537","RE","320-32094-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U H Q","16","DL","","TRG","","","90","LOQ","NO","-99","","250.5","1.00","36",""
"NAWC-100217-FRB-125","537","RE","320-32094-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U H Q","1.9","DL","","TRG","","","10","LOQ","NO","-99","","250.5","1.00","4.0",""
"NAWC-100217-FRB-125","537","RE","320-32094-15","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA)","20","ng/L","U H Q","8.0","DL","","TRG","","","24","LOQ","NO","-99","","250.5","1.00","20",""
"NAWC-100217-FRB-125","537","RE","320-32094-15","TALSAC","STL00993","13C2
PFHxA","45","ng/L","","-99","DL","","SURR","114","","-99","LOQ","YES","39.9","","250.5","1.00","0",""
"NAWC-100217-FRB-125","537","RE","320-32094-15","TALSAC","STL00996","13C2
PFDA","47","ng/L","","-99","DL","","SURR","118","","-99","LOQ","YES","39.9","","250.5","1.00","0",""
"NAWC-100217-FRB-125","537","RES","320-32094-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.4","DL","","TRG","","","38","LOQ","YES","-99","","266.2","1.00","15",""
"NAWC-100217-FRB-125","537","RES","320-32094-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.5","ng/L","U","2.6","DL","","TRG","","","19","LOQ","YES","-99","","266.2","1.00","7.5",""
"NAWC-100217-FRB-125","537","RES","320-32094-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.2","DL","","TRG","","","28","LOQ","YES","-99","","266.2","1.00","11",""
"NAWC-100217-FRB-125","537","RES","320-32094-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","TRG","","","85","LOQ","YES","-99","","266.2","1.00","34",""
"NAWC-100217-FRB-125","537","RES","320-32094-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.8","ng/L","U","1.8","DL","","TRG","","","9.4","LOQ","YES","-99","","266.2","1.00","3.8",""
"NAWC-100217-FRB-125","537","RES","320-32094-15","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.5","DL","","TRG","","","23","LOQ","YES","-99","","266.2","1.00","19",""
"NAWC-100217-FRB-125","537","RES","320-32094-15","TALSAC","STL00993","13C2
PFHxA","0.34","ng/L","Q","-99","DL","","SURR","0.9","","-99","LOQ","YES","37.6","","266.2","1.00","0",""
"NAWC-100217-FRB-125","537","RES","320-32094-15","TALSAC","STL00996","13C2
PFDA","1.2","ng/L","Q","-99","DL","","SURR","3","","-99","LOQ","YES","37.6","","266.2","1.00","0",""
"NAWC-100217-RW-139","537","RES","320-32094-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","9.9","ng/L","J","5.9","DL","","TRG","","","35","LOQ","YES","-99","","286","1.00","14",""
"NAWC-100217-RW-139","537","RES","320-32094-16","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","12","ng/L","J","2.4","DL","","TRG","","","17","LOQ","YES","-99","","286","1.00","7.0",""
"NAWC-100217-RW-139","537","RES","320-32094-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","10","ng/L","U","4.8","DL","","TRG","","","26","LOQ","YES","-99","","286","1.00","10",""
"NAWC-100217-RW-139","537","RES","320-32094-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","31","ng/L","U","14","DL","","TRG","","","79","LOQ","YES","-99","","286","1.00","31",""
"NAWC-100217-RW-139","537","RES","320-32094-16","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","J","1.7","DL","","TRG","","","8.7","LOQ","YES","-99","","286","1.00","3.5",""
"NAWC-100217-RW-139","537","RES","320-32094-16","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","17","ng/L","U","7.0","DL","","TRG","","","21","LOQ","YES","-99","","286","1.00","17",""
"NAWC-100217-RW-139","537","RES","320-32094-16","TALSAC","STL00993","13C2
PFHxA","28","ng/L","","-99","DL","","SURR","81","","-99","LOQ","YES","35.0","","286","1.00","0",""
"NAWC-100217-RW-139","537","RES","320-32094-16","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURR","107","","-99","LOQ","YES","35.0","","286","1.00","0",""
"NAWC-100217-FRB-139","537","RES","320-32094-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.4","DL","","TRG","","","38","LOQ","YES","-99","","265.8","1.00","15",""
"NAWC-100217-FRB-139","537","RES","320-32094-17","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.5","ng/L","U","2.6","DL","","TRG","","","19","LOQ","YES","-99","","265.8","1.00","7.5",""
"NAWC-100217-FRB-139","537","RES","320-32094-17","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.2","DL","","TRG","","","28","LOQ","YES","-99","","265.8","1.00","11",""
"NAWC-100217-FRB-139","537","RES","320-32094-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","TRG","","","85","LOQ","YES","-99","","265.8","1.00","34",""
"NAWC-100217-FRB-139","537","RES","320-32094-17","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.8","ng/L","U","1.8","DL","","TRG","","","9.4","LOQ","YES","-99","","265.8","1.00","3.8",""
"NAWC-100217-FRB-139","537","RES","320-32094-17","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.5","DL","","TRG","","","23","LOQ","YES","-99","","265.8","1.00","19",""
"NAWC-100217-FRB-139","537","RES","320-32094-17","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","37.6","","265.8","1.00","0",""
"NAWC-100217-FRB-139","537","RES","320-32094-17","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURR","108","","-99","LOQ","YES","37.6","","265.8","1.00","0",""
"WGNA-100217-RW-0500","537","RES","320-32094-18","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS)","24","ng/L","J","6.0","DL","","TRG","","","35","LOQ","YES","-99","","285.5","1.00","14",""
"WGNA-100217-RW-0500","537","RES","320-32094-18","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","28","ng/L","","2.5","DL","","TRG","","","18","LOQ","YES","-99","","285.5","1.00","7.0",""
"WGNA-100217-RW-0500","537","RES","320-32094-18","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","8.4","ng/L","J","4.8","DL","","TRG","","","26","LOQ","YES","-99","","285.5","1.00","11",""
"WGNA-100217-RW-0500","537","RES","320-32094-18","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","32","ng/L","U","14","DL","","TRG","","","79","LOQ","YES","-99","","285.5","1.00","32",""
"WGNA-100217-RW-0500","537","RES","320-32094-18","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","7.5","ng/L","J","1.7","DL","","TRG","","","8.8","LOQ","YES","-99","","285.5","1.00","3.5",""
"WGNA-100217-RW-0500","537","RES","320-32094-18","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.0","DL","","TRG","","","21","LOQ","YES","-99","","285.5","1.00","18",""
"WGNA-100217-RW-0500","537","RES","320-32094-18","TALSAC","STL00993","13C2
PFHxA","30","ng/L","","-99","DL","","SURR","86","","-99","LOQ","YES","35.0","","285.5","1.00","0",""
"WGNA-100217-RW-0500","537","RES","320-32094-18","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURR","114","","-99","LOQ","YES","35.0","","285.5","1.00","0",""
"WGNA-100217-FRB-0500","537","RES","320-32094-19","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.5","DL","","TRG","","","38","LOQ","YES","-99","","260.9","1.00","15",""
"WGNA-100217-FRB-0500","537","RES","320-32094-19","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","260.9","1.00","7.7",""
"WGNA-100217-FRB-0500","537","RES","320-32094-19","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","260.9","1.00","11",""
"WGNA-100217-FRB-0500","537","RES","320-32094-19","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","TRG","","","86","LOQ","YES","-99","","260.9","1.00","34",""
"WGNA-100217-FRB-0500","537","RES","320-32094-19","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.8","ng/L","U","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","260.9","1.00","3.8",""
"WGNA-100217-FRB-0500","537","RES","320-32094-19","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","260.9","1.00","19",""
"WGNA-100217-FRB-0500","537","RES","320-32094-19","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","38.3","","260.9","1.00","0",""
"WGNA-100217-FRB-0500","537","RES","320-32094-19","TALSAC","STL00996","13C2
PFDA","43","ng/L","","-99","DL","","SURR","113","","-99","LOQ","YES","38.3","","260.9","1.00","0",""
"WGNA-100217-FRB-0344","537","RES","320-32094-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.3","DL","","TRG","","","37","LOQ","YES","-99","","270.5","1.00","15",""
"WGNA-100217-FRB-0344","537","RES","320-32094-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.4","ng/L","U M","2.6","DL","","TRG","","","18","LOQ","YES","-99","","270.5","1.00","7.4",""
"WGNA-100217-FRB-0344","537","RES","320-32094-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.1","DL","","TRG","","","28","LOQ","YES","-99","","270.5","1.00","11",""
"WGNA-100217-FRB-0344","537","RES","320-32094-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","33","ng/L","U","15","DL","","TRG","","","83","LOQ","YES","-99","","270.5","1.00","33",""
"WGNA-100217-FRB-0344","537","RES","320-32094-2","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.7","ng/L","U","1.8","DL","","TRG","","","9.2","LOQ","YES","-99","","270.5","1.00","3.7",""
"WGNA-100217-FRB-0344","537","RES","320-32094-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.4","DL","","TRG","","","22","LOQ","YES","-99","","270.5","1.00","18",""
"WGNA-100217-FRB-0344","537","RES","320-32094-2","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","37.0","","270.5","1.00","0",""
"WGNA-100217-FRB-0344","537","RES","320-32094-2","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURR","111","","-99","LOQ","YES","37.0","","270.5","1.00","0",""
"WGNA-100217-RW-0413","537","RES","320-32094-20","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","25","ng/L","J M","6.0","DL","","TRG","","","35","LOQ","YES","-99","","283.1","1.00","14",""
"WGNA-100217-RW-0413","537","RES","320-32094-20","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","27","ng/L","","2.5","DL","","TRG","","","18","LOQ","YES","-99","","283.1","1.00","7.1",""
"WGNA-100217-RW-0413","537","RES","320-32094-20","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","8.6","ng/L","J","4.9","DL","","TRG","","","26","LOQ","YES","-99","","283.1","1.00","11",""
"WGNA-100217-RW-0413","537","RES","320-32094-20","TALSAC","375-73-5","Perfluorobutanesulfonic acid

(PFBS)","32","ng/L","U","14","DL","","TRG","","","79","LOQ","YES","-99","","283.1","1.00","32",""
"WGNA-100217-RW-0413","537","RES","320-32094-20","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","7.3","ng/L","J","1.7","DL","","TRG","","","8.8","LOQ","YES","-99","","283.1","1.00","3.5",""
"WGNA-100217-RW-0413","537","RES","320-32094-20","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.1","DL","","TRG","","","21","LOQ","YES","-99","","283.1","1.00","18",""
"WGNA-100217-RW-0413","537","RES","320-32094-20","TALSAC","STL00993","13C2
PFHxA","29","ng/L","","-99","DL","","SURR","81","","-99","LOQ","YES","35.3","","283.1","1.00","0",""
"WGNA-100217-RW-0413","537","RES","320-32094-20","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","35.3","","283.1","1.00","0",""
"WGNA-100217-FRB-0413","537","RES","320-32094-21","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.4","DL","","TRG","","","37","LOQ","YES","-99","","267","1.00","15",""
"WGNA-100217-FRB-0413","537","RES","320-32094-21","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.5","ng/L","U","2.6","DL","","TRG","","","19","LOQ","YES","-99","","267","1.00","7.5",""
"WGNA-100217-FRB-0413","537","RES","320-32094-21","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.1","DL","","TRG","","","28","LOQ","YES","-99","","267","1.00","11",""
"WGNA-100217-FRB-0413","537","RES","320-32094-21","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","TRG","","","84","LOQ","YES","-99","","267","1.00","34",""
"WGNA-100217-FRB-0413","537","RES","320-32094-21","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.7","ng/L","U","1.8","DL","","TRG","","","9.4","LOQ","YES","-99","","267","1.00","3.7",""
"WGNA-100217-FRB-0413","537","RES","320-32094-21","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.5","DL","","TRG","","","22","LOQ","YES","-99","","267","1.00","19",""
"WGNA-100217-FRB-0413","537","RES","320-32094-21","TALSAC","STL00993","13C2
PFHxA","37","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","37.5","","267","1.00","0",""
"WGNA-100217-FRB-0413","537","RES","320-32094-21","TALSAC","STL00996","13C2
PFDA","45","ng/L","","-99","DL","","SURR","120","","-99","LOQ","YES","37.5","","267","1.00","0",""
"WGNA-100217-RW-0404","537","RES","320-32094-22","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","24","ng/L","J M","6.3","DL","","TRG","","","37","LOQ","YES","-99","","269.3","1.00","15",""
"WGNA-100217-RW-0404","537","RES","320-32094-22","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","24","ng/L","","2.6","DL","","TRG","","","19","LOQ","YES","-99","","269.3","1.00","7.4",""
"WGNA-100217-RW-0404","537","RES","320-32094-22","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","7.9","ng/L","J","5.1","DL","","TRG","","","28","LOQ","YES","-99","","269.3","1.00","11",""
"WGNA-100217-RW-0404","537","RES","320-32094-22","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","33","ng/L","U","15","DL","","TRG","","","84","LOQ","YES","-99","","269.3","1.00","33",""
"WGNA-100217-RW-0404","537","RES","320-32094-22","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","7.1","ng/L","J","1.8","DL","","TRG","","","9.3","LOQ","YES","-99","","269.3","1.00","3.7",""
"WGNA-100217-RW-0404","537","RES","320-32094-22","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.4","DL","","TRG","","","22","LOQ","YES","-99","","269.3","1.00","19",""
"WGNA-100217-RW-0404","537","RES","320-32094-22","TALSAC","STL00993","13C2
PFHxA","33","ng/L","","-99","DL","","SURR","88","","-99","LOQ","YES","37.1","","269.3","1.00","0",""
"WGNA-100217-RW-0404","537","RES","320-32094-22","TALSAC","STL00996","13C2
PFDA","44","ng/L","","-99","DL","","SURR","120","","-99","LOQ","YES","37.1","","269.3","1.00","0",""
"WGNA-100217-FRB-0404","537","RES","320-32094-23","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","256.4","1.00","16",""
"WGNA-100217-FRB-0404","537","RES","320-32094-23","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.8","ng/L","U","2.7","DL","","TRG","","","20","LOQ","YES","-99","","256.4","1.00","7.8",""
"WGNA-100217-FRB-0404","537","RES","320-32094-23","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","256.4","1.00","12",""
"WGNA-100217-FRB-0404","537","RES","320-32094-23","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","256.4","1.00","35",""
"WGNA-100217-FRB-0404","537","RES","320-32094-23","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","256.4","1.00","3.9",""
"WGNA-100217-FRB-0404","537","RES","320-32094-23","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","256.4","1.00","20",""
"WGNA-100217-FRB-0404","537","RES","320-32094-23","TALSAC","STL00993","13C2

PFHxA","39","ng/L","","-99","DL","","SURR","99","","-99","LOQ","YES","39.0","","256.4","1.00","0",""
"WGNA-100217-FRB-0404","537","RES","320-32094-23","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","39.0","","256.4","1.00","0",""
"NAWC-100217-RW-140","537","RES","320-32094-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","11","ng/L","J M","6.5","DL","","TRG","","","38","LOQ","YES","-99","","261.5","1.00","15",""
"NAWC-100217-RW-140","537","RES","320-32094-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","18","ng/L","J","2.7","DL","","TRG","","","19","LOQ","YES","-99","","261.5","1.00","7.6",""
"NAWC-100217-RW-140","537","RES","320-32094-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","261.5","1.00","11",""
"NAWC-100217-RW-140","537","RES","320-32094-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","TRG","","","86","LOQ","YES","-99","","261.5","1.00","34",""
"NAWC-100217-RW-140","537","RES","320-32094-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.7","ng/L","J","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","261.5","1.00","3.8",""
"NAWC-100217-RW-140","537","RES","320-32094-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.6","DL","","TRG","","","23","LOQ","YES","-99","","261.5","1.00","19",""
"NAWC-100217-RW-140","537","RES","320-32094-3","TALSAC","STL00993","13C2
PFHxA","31","ng/L","","-99","DL","","SURR","80","","-99","LOQ","YES","38.2","","261.5","1.00","0",""
"NAWC-100217-RW-140","537","RES","320-32094-3","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURR","99","","-99","LOQ","YES","38.2","","261.5","1.00","0",""
"NAWC-100217-RW-140MS","537","RES","320-32094-3MS","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","209","ng/L","M","6.6","DL","","SPK","92","","39","LOQ","YES","215","NAWC-100217-RW-
140","258.3","1.00","15",""
"NAWC-100217-RW-140MS","537","RES","320-32094-3MS","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","124","ng/L","","2.7","DL","","SPK","98","","19","LOQ","YES","108","NAWC-100217-RW-
140","258.3","1.00","7.7",""
"NAWC-100217-RW-140MS","537","RES","320-32094-3MS","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","149","ng/L","","5.3","DL","","SPK","93","","29","LOQ","YES","161","NAWC-100217-RW-
140","258.3","1.00","12",""
"NAWC-100217-RW-140MS","537","RES","320-32094-3MS","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","455","ng/L","","16","DL","","SPK","94","","87","LOQ","YES","484","NAWC-100217-RW-
140","258.3","1.00","35",""
"NAWC-100217-RW-140MS","537","RES","320-32094-3MS","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","58.5","ng/L","","1.8","DL","","SPK","100","","9.7","LOQ","YES","53.8","NAWC-100217-RW-
140","258.3","1.00","3.9",""
"NAWC-100217-RW-140MS","537","RES","320-32094-3MS","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","106","ng/L","","7.7","DL","","SPK","99","","23","LOQ","YES","108","NAWC-100217-RW-
140","258.3","1.00","19",""
"NAWC-100217-RW-140MS","537","RES","320-32094-3MS","TALSAC","STL00993","13C2
PFHxA","31.8","ng/L","","-99","DL","","SURR","82","","-99","LOQ","YES","38.7","NAWC-100217-RW-
140","258.3","1.00","0",""
"NAWC-100217-RW-140MS","537","RES","320-32094-3MS","TALSAC","STL00996","13C2
PFDA","42.0","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","38.7","NAWC-100217-RW-
140","258.3","1.00","0",""
"NAWC-100217-RW-140MSD","537","RES","320-32094-3MSD","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","210","ng/L","M","6.4","DL","","SPK","95","1","38","LOQ","YES","211","NAWC-100217-RW-
140","263.9","1.00","15",""
"NAWC-100217-RW-140MSD","537","RES","320-32094-3MSD","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","123","ng/L","","2.7","DL","","SPK","100","0","19","LOQ","YES","105","NAWC-100217-RW-
140","263.9","1.00","7.6",""
"NAWC-100217-RW-140MSD","537","RES","320-32094-3MSD","TALSAC","355-46-4","Perfluorohexanesulfonic
acid (PFHxS)","150","ng/L","","5.2","DL","","SPK","95","1","28","LOQ","YES","158","NAWC-100217-RW-
140","263.9","1.00","11",""
"NAWC-100217-RW-140MSD","537","RES","320-32094-3MSD","TALSAC","375-73-5","Perfluorobutanesulfonic
acid (PFBS)","484","ng/L","","15","DL","","SPK","102","6","85","LOQ","YES","474","NAWC-100217-RW-

140","263.9","1.00","34",""
"NAWC-100217-RW-140MSD","537","RES","320-32094-3MSD","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","57.7","ng/L","","1.8","DL","","SPK","101","1","9.5","LOQ","YES","52.6","NAWC-100217-RW-140","263.9","1.00","3.8",""
"NAWC-100217-RW-140MSD","537","RES","320-32094-3MSD","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","102","ng/L","","7.6","DL","","SPK","97","5","23","LOQ","YES","105","NAWC-100217-RW-140","263.9","1.00","19",""
"NAWC-100217-RW-140MSD","537","RES","320-32094-3MSD","TALSAC","STL00993","13C2 PFHxA","31.2","ng/L","","-99","DL","","SURR","82","","-99","LOQ","YES","37.9","NAWC-100217-RW-140","263.9","1.00","0",""
"NAWC-100217-RW-140MSD","537","RES","320-32094-3MSD","TALSAC","STL00996","13C2 PFDA","42.3","ng/L","","-99","DL","","SURR","112","","-99","LOQ","YES","37.9","NAWC-100217-RW-140","263.9","1.00","0",""
"NAWC-100217-FRB-140","537","RES","320-32094-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","U","6.2","DL","","TRG","","","36","LOQ","YES","-99","","275.2","1.00","15",""
"NAWC-100217-FRB-140","537","RES","320-32094-4","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.3","ng/L","U","2.5","DL","","TRG","","","18","LOQ","YES","-99","","275.2","1.00","7.3",""
"NAWC-100217-FRB-140","537","RES","320-32094-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","11","ng/L","U","5.0","DL","","TRG","","","27","LOQ","YES","-99","","275.2","1.00","11",""
"NAWC-100217-FRB-140","537","RES","320-32094-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","33","ng/L","U","15","DL","","TRG","","","82","LOQ","YES","-99","","275.2","1.00","33",""
"NAWC-100217-FRB-140","537","RES","320-32094-4","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","3.6","ng/L","U","1.7","DL","","TRG","","","9.1","LOQ","YES","-99","","275.2","1.00","3.6",""
"NAWC-100217-FRB-140","537","RES","320-32094-4","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","18","ng/L","U","7.3","DL","","TRG","","","22","LOQ","YES","-99","","275.2","1.00","18",""
"NAWC-100217-FRB-140","537","RES","320-32094-4","TALSAC","STL00993","13C2 PFHxA","33","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","36.3","","275.2","1.00","0",""
"NAWC-100217-FRB-140","537","RES","320-32094-4","TALSAC","STL00996","13C2 PFDA","41","ng/L","","-99","DL","","SURR","112","","-99","LOQ","YES","36.3","","275.2","1.00","0",""
"NAWC-100217-RW-316","537","RES","320-32094-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","44","ng/L","M","6.0","DL","","TRG","","","36","LOQ","YES","-99","","281.3","1.00","14",""
"NAWC-100217-RW-316","537","RES","320-32094-5","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","22","ng/L","","2.5","DL","","TRG","","","18","LOQ","YES","-99","","281.3","1.00","7.1",""
"NAWC-100217-RW-316","537","RES","320-32094-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","34","ng/L","","4.9","DL","","TRG","","","27","LOQ","YES","-99","","281.3","1.00","11",""
"NAWC-100217-RW-316","537","RES","320-32094-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","32","ng/L","U","14","DL","","TRG","","","80","LOQ","YES","-99","","281.3","1.00","32",""
"NAWC-100217-RW-316","537","RES","320-32094-5","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","9.0","ng/L","","1.7","DL","","TRG","","","8.9","LOQ","YES","-99","","281.3","1.00","3.6",""
"NAWC-100217-RW-316","537","RES","320-32094-5","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","18","ng/L","U","7.1","DL","","TRG","","","21","LOQ","YES","-99","","281.3","1.00","18",""
"NAWC-100217-RW-316","537","RES","320-32094-5","TALSAC","STL00993","13C2 PFHxA","30","ng/L","","-99","DL","","SURR","84","","-99","LOQ","YES","35.5","","281.3","1.00","0",""
"NAWC-100217-RW-316","537","RES","320-32094-5","TALSAC","STL00996","13C2 PFDA","42","ng/L","","-99","DL","","SURR","118","","-99","LOQ","YES","35.5","","281.3","1.00","0",""
"NAWC-100217-FRB-316","537","RES","320-32094-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","258.4","1.00","15",""
"NAWC-100217-FRB-316","537","RES","320-32094-6","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","258.4","1.00","7.7",""
"NAWC-100217-FRB-316","537","RES","320-32094-6","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","258.4","1.00","12",""
"NAWC-100217-FRB-316","537","RES","320-32094-6","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","258.4","1.00","35",""
"NAWC-100217-FRB-316","537","RES","320-32094-6","TALSAC","375-85-9","Perfluoroheptanoic acid

(PFHpA)","3.9","ng/L","U","1.8","DL","","TRG","","","9.7","LOQ","YES","-99","","258.4","1.00","3.9",""
"NAWC-100217-FRB-316","537","RES","320-32094-6","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","258.4","1.00","19",""
"NAWC-100217-FRB-316","537","RES","320-32094-6","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","38.7","","258.4","1.00","0",""
"NAWC-100217-FRB-316","537","RES","320-32094-6","TALSAC","STL00996","13C2
PFDA","43","ng/L","","-99","DL","","SURR","111","","-99","LOQ","YES","38.7","","258.4","1.00","0",""
"NAWC-100217-RW-144","537","RES","320-32094-7","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","22","ng/L","J M","6.2","DL","","TRG","","","37","LOQ","YES","-99","","272.3","1.00","15",""
"NAWC-100217-RW-144","537","RES","320-32094-7","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","12","ng/L","J","2.6","DL","","TRG","","","18","LOQ","YES","-99","","272.3","1.00","7.3",""
"NAWC-100217-RW-144","537","RES","320-32094-7","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","6.7","ng/L","J","5.0","DL","","TRG","","","28","LOQ","YES","-99","","272.3","1.00","11",""
"NAWC-100217-RW-144","537","RES","320-32094-7","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","33","ng/L","U","15","DL","","TRG","","","83","LOQ","YES","-99","","272.3","1.00","33",""
"NAWC-100217-RW-144","537","RES","320-32094-7","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.7","ng/L","J","1.7","DL","","TRG","","","9.2","LOQ","YES","-99","","272.3","1.00","3.7",""
"NAWC-100217-RW-144","537","RES","320-32094-7","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.3","DL","","TRG","","","22","LOQ","YES","-99","","272.3","1.00","18",""
"NAWC-100217-RW-144","537","RES","320-32094-7","TALSAC","STL00993","13C2
PFHxA","29","ng/L","","-99","DL","","SURR","79","","-99","LOQ","YES","36.7","","272.3","1.00","0",""
"NAWC-100217-RW-144","537","RES","320-32094-7","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","107","","-99","LOQ","YES","36.7","","272.3","1.00","0",""
"NAWC-100217-FRB-144","537","RES","320-32094-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","258.7","1.00","15",""
"NAWC-100217-FRB-144","537","RES","320-32094-8","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","258.7","1.00","7.7",""
"NAWC-100217-FRB-144","537","RES","320-32094-8","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","258.7","1.00","12",""
"NAWC-100217-FRB-144","537","RES","320-32094-8","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","258.7","1.00","35",""
"NAWC-100217-FRB-144","537","RES","320-32094-8","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.8","DL","","TRG","","","9.7","LOQ","YES","-99","","258.7","1.00","3.9",""
"NAWC-100217-FRB-144","537","RES","320-32094-8","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","258.7","1.00","19",""
"NAWC-100217-FRB-144","537","RES","320-32094-8","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","38.7","","258.7","1.00","0",""
"NAWC-100217-FRB-144","537","RES","320-32094-8","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURR","107","","-99","LOQ","YES","38.7","","258.7","1.00","0",""
"NAWC-100217-RW-151","537","RES","320-32094-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","8.8","ng/L","J M","6.3","DL","","TRG","","","37","LOQ","YES","-99","","269.3","1.00","15",""
"NAWC-100217-RW-151","537","RES","320-32094-9","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","22","ng/L","","2.6","DL","","TRG","","","19","LOQ","YES","-99","","269.3","1.00","7.4",""
"NAWC-100217-RW-151","537","RES","320-32094-9","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.1","DL","","TRG","","","28","LOQ","YES","-99","","269.3","1.00","11",""
"NAWC-100217-RW-151","537","RES","320-32094-9","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","33","ng/L","U","15","DL","","TRG","","","84","LOQ","YES","-99","","269.3","1.00","33",""
"NAWC-100217-RW-151","537","RES","320-32094-9","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","11","ng/L","","1.8","DL","","TRG","","","9.3","LOQ","YES","-99","","269.3","1.00","3.7",""
"NAWC-100217-RW-151","537","RES","320-32094-9","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.4","DL","","TRG","","","22","LOQ","YES","-99","","269.3","1.00","19",""
"NAWC-100217-RW-151","537","RES","320-32094-9","TALSAC","STL00993","13C2
PFHxA","28","ng/L","","-99","DL","","SURR","75","","-99","LOQ","YES","37.1","","269.3","1.00","0",""
"NAWC-100217-RW-151","537","RES","320-32094-9","TALSAC","STL00996","13C2

PFDA","36","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","37.1","","269.3","1.00","0",""
"LCS 320-189591/2-A","537","RES","LCS 320-189591/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","205","ng/L","M","6.8","DL","","SPK","92","","40","LOQ","YES","222","","250","1.00","16",""
"LCS 320-189591/2-A","537","RES","LCS 320-189591/2-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","116","ng/L","","2.8","DL","","SPK","105","","20","LOQ","YES","111","","250","1.00","8.0",""
"LCS 320-189591/2-A","537","RES","LCS 320-189591/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","160","ng/L","","5.5","DL","","SPK","96","","30","LOQ","YES","167","","250","1.00","12",""
"LCS 320-189591/2-A","537","RES","LCS 320-189591/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","536","ng/L","","16","DL","","SPK","107","","90","LOQ","YES","500","","250","1.00","36",""
"LCS 320-189591/2-A","537","RES","LCS 320-189591/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","60.3","ng/L","","1.9","DL","","SPK","109","","10","LOQ","YES","55.6","","250","1.00","4.0",""
"LCS 320-189591/2-A","537","RES","LCS 320-189591/2-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","106","ng/L","","8.0","DL","","SPK","95","","24","LOQ","YES","111","","250","1.00","20",""
"LCS 320-189591/2-A","537","RES","LCS 320-189591/2-A","TALSAC","STL00993","13C2 PFHxA","38.9","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LCS 320-189591/2-A","537","RES","LCS 320-189591/2-A","TALSAC","STL00996","13C2 PFDA","42.5","ng/L","","-99","DL","","SURR","106","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LCS 320-190676/2-A","537","RES","LCS 320-190676/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","133","ng/L","M","6.8","DL","","SPK","99","","40","LOQ","YES","133","","250","1.00","16",""
"LCS 320-190676/2-A","537","RES","LCS 320-190676/2-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","56.6","ng/L","","2.8","DL","","SPK","85","","20","LOQ","YES","66.7","","250","1.00","8.0",""
"LCS 320-190676/2-A","537","RES","LCS 320-190676/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","103","ng/L","","5.5","DL","","SPK","103","","30","LOQ","YES","100","","250","1.00","12",""
"LCS 320-190676/2-A","537","RES","LCS 320-190676/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","22.9","ng/L","J Q","16","DL","","SPK","8","","90","LOQ","YES","300","","250","1.00","36",""
"LCS 320-190676/2-A","537","RES","LCS 320-190676/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","24.1","ng/L","","1.9","DL","","SPK","72","","10","LOQ","YES","33.3","","250","1.00","4.0",""
"LCS 320-190676/2-A","537","RES","LCS 320-190676/2-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","52.1","ng/L","","8.0","DL","","SPK","78","","24","LOQ","YES","66.7","","250","1.00","20",""
"LCS 320-190676/2-A","537","RES","LCS 320-190676/2-A","TALSAC","STL00993","13C2 PFHxA","6.20","ng/L","Q","-99","DL","","SURR","16","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LCS 320-190676/2-A","537","RES","LCS 320-190676/2-A","TALSAC","STL00996","13C2 PFDA","28.1","ng/L","","-99","DL","","SURR","70","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LCSD 320-190676/3-A","537","RES","LCSD 320-190676/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","134","ng/L","M","6.8","DL","","SPK","100","1","40","LOQ","YES","133","LCS 320-190676/2-A","250","1.00","16",""
"LCSD 320-190676/3-A","537","RES","LCSD 320-190676/3-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","74.3","ng/L","","2.8","DL","","SPK","111","27","20","LOQ","YES","66.7","LCS 320-190676/2-A","250","1.00","8.0",""
"LCSD 320-190676/3-A","537","RES","LCSD 320-190676/3-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","107","ng/L","","5.5","DL","","SPK","107","4","30","LOQ","YES","100","LCS 320-190676/2-A","250","1.00","12",""
"LCSD 320-190676/3-A","537","RES","LCSD 320-190676/3-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","308","ng/L","Q","16","DL","","SPK","103","172","90","LOQ","YES","300","LCS 320-190676/2-A","250","1.00","36",""
"LCSD 320-190676/3-A","537","RES","LCSD 320-190676/3-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","38.6","ng/L","Q","1.9","DL","","SPK","116","46","10","LOQ","YES","33.3","LCS 320-190676/2-A","250","1.00","4.0",""
"LCSD 320-190676/3-A","537","RES","LCSD 320-190676/3-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","71.7","ng/L","Q","8.0","DL","","SPK","107","32","24","LOQ","YES","66.7","LCS 320-190676/2-A","250","1.00","20",""
"LCSD 320-190676/3-A","537","RES","LCSD 320-190676/3-A","TALSAC","STL00993","13C2 PFHxA","44.7","ng/L","","-99","DL","","SURR","112","","-99","LOQ","YES","40.0","LCS 320-190676/2-A","250","1.00","0",""

"LCSD 320-190676/3-A","537","RES","LCSD 320-190676/3-A","TALSAC","STL00996","13C2 PFDA","43.7","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","40.0","LCS 320-190676/2-A","250","1.00","0",""
"LLCS 320-189627/2-A","537","RES","LLCS 320-189627/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","39.2","ng/L","J M","6.8","DL","","SPK","98","","40","LOQ","YES","40.0","","250","1.00","16",""
"LLCS 320-189627/2-A","537","RES","LLCS 320-189627/2-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","20.6","ng/L","","2.8","DL","","SPK","103","","20","LOQ","YES","20.0","","250","1.00","8.0",""
"LLCS 320-189627/2-A","537","RES","LLCS 320-189627/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","32.7","ng/L","","5.5","DL","","SPK","109","","30","LOQ","YES","30.0","","250","1.00","12",""
"LLCS 320-189627/2-A","537","RES","LLCS 320-189627/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","100","ng/L","","16","DL","","SPK","111","","90","LOQ","YES","90.0","","250","1.00","36",""
"LLCS 320-189627/2-A","537","RES","LLCS 320-189627/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","11.1","ng/L","","1.9","DL","","SPK","111","","10","LOQ","YES","10.0","","250","1.00","4.0",""
"LLCS 320-189627/2-A","537","RES","LLCS 320-189627/2-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20.9","ng/L","J","8.0","DL","","SPK","104","","24","LOQ","YES","20.0","","250","1.00","20",""
"LLCS 320-189627/2-A","537","RES","LLCS 320-189627/2-A","TALSAC","STL00993","13C2 PFHxA","40.5","ng/L","","-99","DL","","SURR","101","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LLCS 320-189627/2-A","537","RES","LLCS 320-189627/2-A","TALSAC","STL00996","13C2 PFDA","41.0","ng/L","","-99","DL","","SURR","103","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LLCSD 320-189627/3-A","537","RES","LLCSD 320-189627/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","34.9","ng/L","J M","6.8","DL","","SPK","87","12","40","LOQ","YES","40.0","LLCS 320-189627/2-A","250","1.00","16",""
"LLCSD 320-189627/3-A","537","RES","LLCSD 320-189627/3-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","18.7","ng/L","J","2.8","DL","","SPK","94","10","20","LOQ","YES","20.0","LLCS 320-189627/2-A","250","1.00","8.0",""
"LLCSD 320-189627/3-A","537","RES","LLCSD 320-189627/3-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","27.8","ng/L","J","5.5","DL","","SPK","93","16","30","LOQ","YES","30.0","LLCS 320-189627/2-A","250","1.00","12",""
"LLCSD 320-189627/3-A","537","RES","LLCSD 320-189627/3-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","87.2","ng/L","J","16","DL","","SPK","97","14","90","LOQ","YES","90.0","LLCS 320-189627/2-A","250","1.00","36",""
"LLCSD 320-189627/3-A","537","RES","LLCSD 320-189627/3-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","10.1","ng/L","","1.9","DL","","SPK","101","9","10","LOQ","YES","10.0","LLCS 320-189627/2-A","250","1.00","4.0",""
"LLCSD 320-189627/3-A","537","RES","LLCSD 320-189627/3-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","19.2","ng/L","J","8.0","DL","","SPK","96","8","24","LOQ","YES","20.0","LLCS 320-189627/2-A","250","1.00","20",""
"LLCSD 320-189627/3-A","537","RES","LLCSD 320-189627/3-A","TALSAC","STL00993","13C2 PFHxA","36.9","ng/L","","-99","DL","","SURR","92","9","-99","LOQ","YES","40.0","LLCS 320-189627/2-A","250","1.00","0",""
"LLCSD 320-189627/3-A","537","RES","LLCSD 320-189627/3-A","TALSAC","STL00996","13C2 PFDA","40.1","ng/L","","-99","DL","","SURR","100","2","-99","LOQ","YES","40.0","LLCS 320-189627/2-A","250","1.00","0",""
"MB 320-189591/1-A","537","RES","MB 320-189591/1-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250","1.00","16",""
"MB 320-189591/1-A","537","RES","MB 320-189591/1-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250","1.00","8.0",""
"MB 320-189591/1-A","537","RES","MB 320-189591/1-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250","1.00","12",""
"MB 320-189591/1-A","537","RES","MB 320-189591/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"MB 320-189591/1-A","537","RES","MB 320-189591/1-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250","1.00","4.0",""
"MB 320-189591/1-A","537","RES","MB 320-189591/1-A","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250","1.00","20",""
"MB 320-189591/1-A","537","RES","MB 320-189591/1-A","TALSAC","STL00993","13C2
PFHxA","38.6","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-189591/1-A","537","RES","MB 320-189591/1-A","TALSAC","STL00996","13C2
PFDA","45.7","ng/L","","-99","DL","","SURR","114","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-189627/1-A","537","RES","MB 320-189627/1-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250","1.00","16",""
"MB 320-189627/1-A","537","RES","MB 320-189627/1-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250","1.00","8.0",""
"MB 320-189627/1-A","537","RES","MB 320-189627/1-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250","1.00","12",""
"MB 320-189627/1-A","537","RES","MB 320-189627/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"MB 320-189627/1-A","537","RES","MB 320-189627/1-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250","1.00","4.0",""
"MB 320-189627/1-A","537","RES","MB 320-189627/1-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250","1.00","20",""
"MB 320-189627/1-A","537","RES","MB 320-189627/1-A","TALSAC","STL00993","13C2
PFHxA","42.7","ng/L","","-99","DL","","SURR","107","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-189627/1-A","537","RES","MB 320-189627/1-A","TALSAC","STL00996","13C2
PFDA","47.3","ng/L","","-99","DL","","SURR","118","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-190676/1-A","537","RES","MB 320-190676/1-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250","1.00","16",""
"MB 320-190676/1-A","537","RES","MB 320-190676/1-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250","1.00","8.0",""
"MB 320-190676/1-A","537","RES","MB 320-190676/1-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250","1.00","12",""
"MB 320-190676/1-A","537","RES","MB 320-190676/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"MB 320-190676/1-A","537","RES","MB 320-190676/1-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250","1.00","4.0",""
"MB 320-190676/1-A","537","RES","MB 320-190676/1-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250","1.00","20",""
"MB 320-190676/1-A","537","RES","MB 320-190676/1-A","TALSAC","STL00993","13C2
PFHxA","42.4","ng/L","","-99","DL","","SURR","106","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-190676/1-A","537","RES","MB 320-190676/1-A","TALSAC","STL00996","13C2
PFDA","40.1","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","40.0","","250","1.00","0",""
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190441","320-32094-1","10/03/2017 10:00","10/31/2017 17:20",""
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TETRA TECH

INTERNAL CORRESPONDENCE

TO: **A. FREBOWITZ** **DATE:** **NOVEMBER 17, 2017**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)**
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG) 320-32094-1

SAMPLES: 11/Field Reagent Blank (FRB)

NAWC-100217-FRB-125	NAWC-100217-FRB-130
NAWC-100217-FRB-139	NAWC-100217-FRB-140
NAWC-100217-FRB-144	NAWC-100217-FRB-151
NAWC-100217-FRB-316	WGNA-100217-FRB-0344
WGNA-100217-FRB-0404	WGNA-100217-FRB-0413
WGNA-100217-FRB-0500	

12/Drinking Water

NAWC-100217-RW-125	NAWC-100217-RW-130
NAWC-100217-RW-139	NAWC-100217-RW-140
NAWC-100217-RW-144	NAWC-100217-RW-151
NAWC-100217-RW-316	WGNA-100217-RW-0344
WGNA-100217-RW-0404	WGNA-100217-RW-0413
WGNA-100217-RW-0500	WGNA-100217-DUP11

Overview

The sample set for NAS JRB Willow Grove, SDG 320-32094-1, consisted of twelve (12) drinking water samples and eleven (11) FRB samples. All samples were analyzed for select polyfluorinated alkyl acids including pentadecafluorooctanoic acid (PFOA), perfluorobutane sulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA) and perfluorooctane sulfonic acid (PFOS). One (1) field duplicate sample pair, NAWC-100217-RW-151 / WGNA-100217-DUP11, was included in this SDG.

The samples were collected by Tetra Tech on October 2, 2017 and analyzed by Test America-Sacramento. All sample analyses were conducted in accordance with EPA Method 537 version 1.1 analytical and reporting protocols.

The data contained in this SDG was validated with regard to the following parameters: data completeness, holding times, initial/continuing calibrations, laboratory method/FRBs, surrogate spike recoveries, laboratory control sample / laboratory control sample duplicate results, internal standard areas and recoveries, matrix spike / matrix spike duplicate results, field duplicate results, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

In laboratory batch 192192, the laboratory control sample (LCS) percent recovery (%R) for perfluorobutanesulfonic acid was < 10% quality control limit. A re-extraction of sample NAWC-100217-FRB-125 was required because the original extraction was not usable. Surrogate recoveries in the initial preparation of the aforementioned sample were poor and were not likely added. Therefore, the re-extracted sample NAWC-100217-FRB-125 was used for validation and was affected. The nondetected result reported for perfluorobutanesulfonic acid was qualified as rejected (UR).

Minor

The original analysis for sample NAWC-100217-FRB-125 had surrogate recoveries for 13C2 perfluorohexanoic acid and 13C2 perfluorodecanoic acid below the 10% quality control limit. The laboratory re-extracted the sample seven (7) days outside the 14 day hold time. The re-extracted sample was chosen for validation purposes. The nondetected results, with the exception of the sample result qualified (UR), reported for sample NAWC-100217-FRB-125 were qualified as estimated (UJ).

Detected results reported below the limit of quantitation (LOQ) but above the detection limit (DL) were qualified as estimated, (J).

Notes

Samples WGNA-100217-RW-0404 and WGNA-100217-FRB-0404 were not listed on the chain of custody. The samples were submitted by the laboratory for analyses.

The laboratory control sample / laboratory control sample duplicate (LCS/LCSD) relative percent differences (RPDs) for perfluorononanoic acid, perfluoroheptanoic acid and perfluorobutanesulfonic acid were outside the quality control limits. Re-extracted sample NAWC-100217-FRB-125 was affected. Perfluorobutanesulfonic acid as the sample result was rejected for the poor recovery in the LCS. No validation actions were required for perfluorononanoic acid and perfluoroheptanoic acid as the LCS/LCSD recoveries were within quality control limits and the samples were nondetected.

Samples with detections and their associated FRBs are summarized below. No detected results were present in any FRBs.

Sample	Associated FRB
NAWC-100217-RW-125	NAWC-100217-FRB-125
NAWC-100217-RW-130	NAWC-100217-FRB-130
NAWC-100217-RW-139	NAWC-100217-FRB-139
NAWC-100217-RW-140	NAWC-100217-FRB-140
NAWC-100217-RW-144	NAWC-100217-FRB-144
NAWC-100217-RW-151	NAWC-100217-FRB-151
NAWC-100217-RW-316	NAWC-100217-FRB-316
WGNA-100217-RW-0344	WGNA-100217-FRB-0344
WGNA-100217-RW-0404	WGNA-100217-FRB-0404
WGNA-100217-RW-0413	WGNA-100217-FRB-0413
WGNA-100217-RW-0500	WGNA-100217-FRB-0500
WGNA-100217-DUP11	NAWC-100217-FRB-151

Non-detected results were reported to the Limit of Detection (LOD).

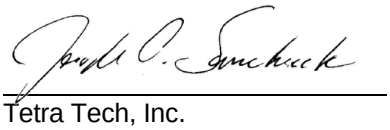
The buffering agent Trizma was added to all drinking water samples.

Executive Summary

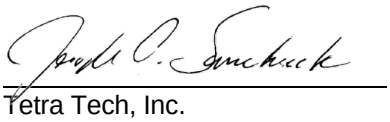
Laboratory Performance: The 14 day hold time was exceeded for the re-extraction of sample NAWC-100217-FRB-125. The LCS recovery was noncompliant for perfluorobutanesulfonic acid.

Other Factors Affecting Data Quality: Results below the RL were estimated.

The data for these analyses were reviewed with reference to the Environmental Protection Agency document EPA/600/R-08/092, Method 537, "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)", (September 2009) and the US EPA National Functional Guidelines for Organic Data Review (January 2017) as applicable. The text of this report has been formulated to address only those areas affecting data quality.



for Tetra Tech, Inc.
Terri L. Solomon
Chemist/Data Validator



Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Data Qualifier Definitions

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

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted method detection limit for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate
Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-100217-FRB-125-RE			NAWC-100217-FRB-130			NAWC-100217-FRB-139			NAWC-100217-FRB-140		
SDG: 320-32094-1	LAB_ID	320-32094-15			320-32094-13			320-32094-17			320-32094-4		
FRACTION: PFAS	SAMP_DATE	10/2/2017			10/2/2017			10/2/2017			10/2/2017		
MEDIA: WATER	QC_TYPE	FB			FB			FB			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		8	UJ	H	7	U		7.5	U		7.3	U	
PERFLUOROBUTANESULFONIC ACID		36	UR	E	32	U		34	U		33	U	
PERFLUOROHEPTANOIC ACID		4	UJ	H	3.5	U		3.8	U		3.6	U	
PERFLUOROHEXANESULFONIC ACID		12	UJ	H	11	U		11	U		11	U	
PERFLUORONONANOIC ACID		20	UJ	H	18	U		19	U		18	U	
PERFLUOROOCTANE SULFONIC ACID		16	UJ	H	14	U		15	U		15	U	

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-100217-FRB-144			NAWC-100217-FRB-151			NAWC-100217-FRB-316			NAWC-100217-RW-125		
SDG: 320-32094-1	LAB_ID	320-32094-8			320-32094-10			320-32094-6			320-32094-14		
FRACTION: PFAS	SAMP_DATE	10/2/2017			10/2/2017			10/2/2017			10/2/2017		
MEDIA: WATER	QC_TYPE	FB			FB			FB			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		7.7	U		7.5	U		7.7	U		16	J	P
PERFLUOROBUTANESULFONIC ACID		35	U		34	U		35	U		31	U	
PERFLUOROHEPTANOIC ACID		3.9	U		3.7	U		3.9	U		6.2	J	P
PERFLUOROHEXANESULFONIC ACID		12	U		11	U		12	U		15	J	P
PERFLUORONONANOIC ACID		19	U		19	U		19	U		17	U	
PERFLUOROOCTANE SULFONIC ACID		15	U		15	U		15	U		14	J	P

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-100217-RW-130			NAWC-100217-RW-139			NAWC-100217-RW-140			NAWC-100217-RW-144		
SDG: 320-32094-1	LAB_ID	320-32094-12			320-32094-16			320-32094-3			320-32094-7		
FRACTION: PFAS	SAMP_DATE	10/2/2017			10/2/2017			10/2/2017			10/2/2017		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		6.5	J	P	12	J	P	18	J	P	12	J	P
PERFLUOROBUTANESULFONIC ACID		32	U		31	U		34	U		33	U	
PERFLUOROHEPTANOIC ACID		4.6	J	P	4	J	P	4.7	J	P	3.7	J	P
PERFLUOROHEXANESULFONIC ACID		6.5	J	P	10	U		11	U		6.7	J	P
PERFLUORONONANOIC ACID		18	U		17	U		19	U		18	U	
PERFLUOROOCTANE SULFONIC ACID		16	J	P	9.9	J	P	11	J	P	22	J	P

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-100217-RW-151			NAWC-100217-RW-316			WGNA-100217-DUP11			WGNA-100217-FRB-0344		
SDG: 320-32094-1	LAB_ID	320-32094-9			320-32094-5			320-32094-11			320-32094-2		
FRACTION: PFAS	SAMP_DATE	10/2/2017			10/2/2017			10/2/2017			10/2/2017		
MEDIA: WATER	QC_TYPE	NM			NM			FD			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF							NAWC-100217-RW-151					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		22			22			22			7.4	U	
PERFLUOROBUTANESULFONIC ACID		33	U		32	U		32	U		33	U	
PERFLUOROHEPTANOIC ACID		11			9			10			3.7	U	
PERFLUOROHEXANESULFONIC ACID		11	U		34			5.1	J	P	11	U	
PERFLUORONONANOIC ACID		19	U		18	U		18	U		18	U	
PERFLUOROOCTANE SULFONIC ACID		8.8	J	P	44			8.9	J	P	15	U	

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-100217-FRB-0404			WGNA-100217-FRB-0413			WGNA-100217-FRB-0500			WGNA-100217-RW-0344		
SDG: 320-32094-1	LAB_ID	320-32094-23			320-32094-21			320-32094-19			320-32094-1		
FRACTION: PFAS	SAMP_DATE	10/2/2017			10/2/2017			10/2/2017			10/2/2017		
MEDIA: WATER	QC_TYPE	FB			FB			FB			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		7.8	U		7.5	U		7.7	U		32		
PERFLUOROBUTANESULFONIC ACID		35	U		34	U		34	U		32	U	
PERFLUOROHEPTANOIC ACID		3.9	U		3.7	U		3.8	U		9		
PERFLUOROHEXANESULFONIC ACID		12	U		11	U		11	U		23	J	P
PERFLUORONONANOIC ACID		20	U		19	U		19	U		34		
PERFLUOROOCTANE SULFONIC ACID		16	U		15	U		15	U		31	J	P

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-100217-RW-0404			WGNA-100217-RW-0413			WGNA-100217-RW-0500		
SDG: 320-32094-1	LAB_ID	320-32094-22			320-32094-20			320-32094-18		
FRACTION: PFAS	SAMP_DATE	10/2/2017			10/2/2017			10/2/2017		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		24			27			28		
PERFLUOROBUTANESULFONIC ACID		33	U		32	U		32	U	
PERFLUOROHEPTANOIC ACID		7.1	J	P	7.3	J	P	7.5	J	P
PERFLUOROHEXANESULFONIC ACID		7.9	J	P	8.6	J	P	8.4	J	P
PERFLUORONONANOIC ACID		19	U		18	U		18	U	
PERFLUOROOCTANE SULFONIC ACID		24	J	P	25	J	P	24	J	P

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0344 | Lab Sample ID: 320-32094-1

Matrix: Water | Lab File ID: 2017.10.20_537A_026.d

Analysis Method: 537 | Date Collected: 10/02/2017 08:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 280.2(mL) | Date Analyzed: 10/20/2017 19:33

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J ~~M~~	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	32		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	34		21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	23	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.0		8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	78		70-130
STL00996	13C2 PFDA	103		70-130

Toni L Salomon
11/09/2017

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0344 | Lab Sample ID: 320-32094-2

Matrix: Water | Lab File ID: 2017.10.20_537A_027.d

Analysis Method: 537 | Date Collected: 10/02/2017 08:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 270.5(mL) | Date Analyzed: 10/20/2017 19:38

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.4	U ~~M~~	18	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	111		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-140 | Lab Sample ID: 320-32094-3

Matrix: Water | Lab File ID: 2017.10.20_537A_028.d

Analysis Method: 537 | Date Collected: 10/02/2017 09:40

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 261.5(mL) | Date Analyzed: 10/20/2017 19:43

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J ~~M~~	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	18	J	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.7	J	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	80		70-130
STL00996	13C2 PFDA	99		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-140 | Lab Sample ID: 320-32094-4

Matrix: Water | Lab File ID: 2017.10.20_537A_031.d

Analysis Method: 537 | Date Collected: 10/02/2017 09:35

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 275.2(mL) | Date Analyzed: 10/20/2017 19:57

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	36	15	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	7.3	U	18	7.3	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.6	U	9.1	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	82	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	112		70-130

Toni L Salomon
11/09/2017

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-316 | Lab Sample ID: 320-32094-5

Matrix: Water | Lab File ID: 2017.10.20_537A_032.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 281.3(mL) | Date Analyzed: 10/20/2017 20:02

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	44	~~M~~	36	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	22		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	34		27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.0		8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	118		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-316 | Lab Sample ID: 320-32094-6

Matrix: Water | Lab File ID: 2017.10.20_537A_033.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 258.4(mL) | Date Analyzed: 10/20/2017 20:07

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

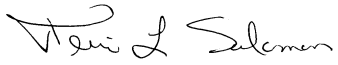
Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	111		70-130



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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-144 | Lab Sample ID: 320-32094-7

Matrix: Water | Lab File ID: 2017.10.20_537A_036.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:40

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 272.3(mL) | Date Analyzed: 10/20/2017 20:21

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J ~~M~~	37	15	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	18	7.3	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.7	J	28	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	J	9.2	3.7	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	79		70-130
STL00996	13C2 PFDA	107		70-130

Dawn L Salerno
11/09/2017

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-144 | Lab Sample ID: 320-32094-8

Matrix: Water | Lab File ID: 2017.10.20_537A_037.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:35

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 258.7(mL) | Date Analyzed: 10/20/2017 20:26

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	107		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-151 | Lab Sample ID: 320-32094-9

Matrix: Water | Lab File ID: 2017.10.20_537A_038.d

Analysis Method: 537 | Date Collected: 10/02/2017 11:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 269.3(mL) | Date Analyzed: 10/20/2017 20:30

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.8	J ~~M~~	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	22		19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	11		9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	75		70-130
STL00996	13C2 PFDA	96		70-130

Dori L Salemen
11/09/2017

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-151 | Lab Sample ID: 320-32094-10

Matrix: Water | Lab File ID: 2017.10.20_537A_039.d

Analysis Method: 537 | Date Collected: 10/02/2017 11:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 267.8(mL) | Date Analyzed: 10/20/2017 20:35

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	106		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-DUP11 | Lab Sample ID: 320-32094-11

Matrix: Water | Lab File ID: 2017.10.20_537A_040.d

Analysis Method: 537 | Date Collected: 10/02/2017 07:00

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 282(mL) | Date Analyzed: 10/20/2017 20:40

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.9	J ~~M~~	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	22		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.1	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	10		8.9	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	73		70-130
STL00996	13C2 PFDA	92		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-130 | Lab Sample ID: 320-32094-12

Matrix: Water | Lab File ID: 2017.10.20_537A_041.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 277.2(mL) | Date Analyzed: 10/20/2017 20:45

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J ~~M~~	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	6.5	J	18	7.2	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.5	J	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.6	J	9.0	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	81	32	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	76		70-130
STL00996	13C2 PFDA	108		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-130 | Lab Sample ID: 320-32094-13

Matrix: Water | Lab File ID: 2017.10.20_537A_042.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 285.2(mL) | Date Analyzed: 10/20/2017 20:49

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	U	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	7.0	U	18	7.0	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	26	11	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.5	U	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	106		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-125 | Lab Sample ID: 320-32094-14

Matrix: Water | Lab File ID: 2017.10.20_537A_043.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 288.3(mL) | Date Analyzed: 10/20/2017 20:54

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J ~~M~~	35	14	5.9
335-67-1	Perfluorooctanoic acid (PFOA)	16	J	17	6.9	2.4
375-95-1	Perfluorononanoic acid (PFNA)	17	U	21	17	6.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	26	10	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.2	J	8.7	3.5	1.6
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31	U	78	31	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	77		70-130
STL00996	13C2 PFDA	106		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Did not use.

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-125 Lab Sample ID: 320-32094-15

Matrix: Water Lab File ID: 2017.10.20_537A_044.d

Analysis Method: 537 Date Collected: 10/02/2017 14:05

Extraction Method: 537 Date Extracted: 10/16/2017 14:42

Sample wt/vol: 266.2(mL) Date Analyzed: 10/20/2017 20:59

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

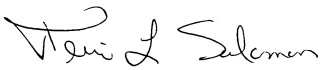
Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 190442 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	0.9	Q	70-130
STL00996	13C2 PFDA	3	Q	70-130



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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-125 RE | Lab Sample ID: 320-32094-15 RE

Matrix: Water | Lab File ID: 2017.10.31_537AA_006.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:05

Extraction Method: 537 | Date Extracted: 10/23/2017 14:32

Sample wt/vol: 250.5(mL) | Date Analyzed: 10/31/2017 15:31

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 192192 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*16*	~~U H~~ UJ	*40*	16	*6.8*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*8.0*	~~U H~~ UJ	*20*	8.0	*2.8*
375-95-1	*Perfluorononanoic acid (PFNA)*	*20*	~~U H Q~~ UJ	*24*	20	*8.0*
355-46-4	*Perfluorohexanesulfonic acid (PFHxS)*	*12*	~~U H~~ UJ	*30*	12	*5.5*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*4.0*	~~U H Q~~ UJ	*10*	4.0	*1.9*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*36*	~~U H Q~~ UR	*90*	36	*16*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	114		70-130
STL00996	13C2 PFDA	118		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-139 | Lab Sample ID: 320-32094-16

Matrix: Water | Lab File ID: 2017.10.20_537A_071.d

Analysis Method: 537 | Date Collected: 10/02/2017 13:10

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 286(mL) | Date Analyzed: 10/20/2017 23:07

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.9	J	35	14	5.9
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	17	7.0	2.4
375-95-1	Perfluorononanoic acid (PFNA)	17	U	21	17	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	10	U	26	10	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	J	8.7	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31	U	79	31	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	81		70-130
STL00996	13C2 PFDA	107		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-139 | Lab Sample ID: 320-32094-17

Matrix: Water | Lab File ID: 2017.10.20_537A_072.d

Analysis Method: 537 | Date Collected: 10/02/2017 13:05

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 265.8(mL) | Date Analyzed: 10/20/2017 23:12

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	108		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0500 | Lab Sample ID: 320-32094-18

Matrix: Water | Lab File ID: 2017.10.20_537A_073.d

Analysis Method: 537 | Date Collected: 10/02/2017 15:40

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 285.5(mL) | Date Analyzed: 10/20/2017 23:16

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	24	J	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	28		18	7.0	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.4	J	26	11	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.5	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	114		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0500 | Lab Sample ID: 320-32094-19

Matrix: Water | Lab File ID: 2017.10.20_537A_074.d

Analysis Method: 537 | Date Collected: 10/02/2017 15:35

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 260.9(mL) | Date Analyzed: 10/20/2017 23:21

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	113		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0413 | Lab Sample ID: 320-32094-20

Matrix: Water | Lab File ID: 2017.10.20_537A_075.d

Analysis Method: 537 | Date Collected: 10/02/2017 16:10

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 283.1(mL) | Date Analyzed: 10/20/2017 23:26

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	27		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.6	J	26	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.3	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	81		70-130
STL00996	13C2 PFDA	109		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0413 | Lab Sample ID: 320-32094-21

Matrix: Water | Lab File ID: 2017.10.20_537A_076.d

Analysis Method: 537 | Date Collected: 10/02/2017 16:05

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 267(mL) | Date Analyzed: 10/20/2017 23:31

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

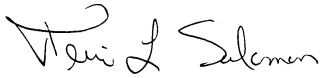
Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.4	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	120		70-130



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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0404 | Lab Sample ID: 320-32094-22

Matrix: Water | Lab File ID: 2017.10.20_537A_077.d

Analysis Method: 537 | Date Collected: 10/02/2017 08:40

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 269.3(mL) | Date Analyzed: 10/20/2017 23:35

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	24	J ~~M~~	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	24		19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.9	J	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.1	J	9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	88		70-130
STL00996	13C2 PFDA	120		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0404 | Lab Sample ID: 320-32094-23

Matrix: Water | Lab File ID: 2017.10.20_537A_080.d

Analysis Method: 537 | Date Collected: 10/02/2017 08:35

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 256.4(mL) | Date Analyzed: 10/20/2017 23:50

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190447 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	102		70-130

Dawn L Salerno
11/09/2017

Appendix B

Results as Reported by the Laboratory

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0344 | Lab Sample ID: 320-32094-1

Matrix: Water | Lab File ID: 2017.10.20_537A_026.d

Analysis Method: 537 | Date Collected: 10/02/2017 08:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 280.2(mL) | Date Analyzed: 10/20/2017 19:33

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J M	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	32		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	34		21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	23	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.0		8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	78		70-130
STL00996	13C2 PFDA	103		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0344 Lab Sample ID: 320-32094-2

Matrix: Water Lab File ID: 2017.10.20_537A_027.d

Analysis Method: 537 Date Collected: 10/02/2017 08:05

Extraction Method: 537 Date Extracted: 10/16/2017 14:42

Sample wt/vol: 270.5(mL) Date Analyzed: 10/20/2017 19:38

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

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

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

Analysis Batch No.: 190441 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.4	U M	18	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	111		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-140 | Lab Sample ID: 320-32094-3

Matrix: Water | Lab File ID: 2017.10.20_537A_028.d

Analysis Method: 537 | Date Collected: 10/02/2017 09:40

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 261.5(mL) | Date Analyzed: 10/20/2017 19:43

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	18	J	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.7	J	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	80		70-130
STL00996	13C2 PFDA	99		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-140 | Lab Sample ID: 320-32094-4

Matrix: Water | Lab File ID: 2017.10.20_537A_031.d

Analysis Method: 537 | Date Collected: 10/02/2017 09:35

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 275.2(mL) | Date Analyzed: 10/20/2017 19:57

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	36	15	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	7.3	U	18	7.3	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.6	U	9.1	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	82	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	112		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-316 | Lab Sample ID: 320-32094-5

Matrix: Water | Lab File ID: 2017.10.20_537A_032.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 281.3(mL) | Date Analyzed: 10/20/2017 20:02

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	44	M	36	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	22		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	34		27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.0		8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	118		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-316 | Lab Sample ID: 320-32094-6

Matrix: Water | Lab File ID: 2017.10.20_537A_033.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 258.4(mL) | Date Analyzed: 10/20/2017 20:07

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	111		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-144 | Lab Sample ID: 320-32094-7

Matrix: Water | Lab File ID: 2017.10.20_537A_036.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:40

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 272.3(mL) | Date Analyzed: 10/20/2017 20:21

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	37	15	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	18	7.3	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.7	J	28	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	J	9.2	3.7	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	79		70-130
STL00996	13C2 PFDA	107		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-144 | Lab Sample ID: 320-32094-8

Matrix: Water | Lab File ID: 2017.10.20_537A_037.d

Analysis Method: 537 | Date Collected: 10/02/2017 10:35

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 258.7(mL) | Date Analyzed: 10/20/2017 20:26

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	107		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-151 | Lab Sample ID: 320-32094-9

Matrix: Water | Lab File ID: 2017.10.20_537A_038.d

Analysis Method: 537 | Date Collected: 10/02/2017 11:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 269.3(mL) | Date Analyzed: 10/20/2017 20:30

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.8	J M	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	22		19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	11		9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	75		70-130
STL00996	13C2 PFDA	96		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-151 | Lab Sample ID: 320-32094-10

Matrix: Water | Lab File ID: 2017.10.20_537A_039.d

Analysis Method: 537 | Date Collected: 10/02/2017 11:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 267.8(mL) | Date Analyzed: 10/20/2017 20:35

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	106		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-DUP11 | Lab Sample ID: 320-32094-11

Matrix: Water | Lab File ID: 2017.10.20_537A_040.d

Analysis Method: 537 | Date Collected: 10/02/2017 07:00

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 282(mL) | Date Analyzed: 10/20/2017 20:40

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.9	J M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	22		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.1	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	10		8.9	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	73		70-130
STL00996	13C2 PFDA	92		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-130 | Lab Sample ID: 320-32094-12

Matrix: Water | Lab File ID: 2017.10.20_537A_041.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 277.2(mL) | Date Analyzed: 10/20/2017 20:45

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J M	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	6.5	J	18	7.2	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.5	J	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.6	J	9.0	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	81	32	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	76		70-130
STL00996	13C2 PFDA	108		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-130 | Lab Sample ID: 320-32094-13

Matrix: Water | Lab File ID: 2017.10.20_537A_042.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 285.2(mL) | Date Analyzed: 10/20/2017 20:49

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	U	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	7.0	U	18	7.0	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	26	11	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.5	U	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	106		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-125 | Lab Sample ID: 320-32094-14

Matrix: Water | Lab File ID: 2017.10.20_537A_043.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:10

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 288.3(mL) | Date Analyzed: 10/20/2017 20:54

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J M	35	14	5.9
335-67-1	Perfluorooctanoic acid (PFOA)	16	J	17	6.9	2.4
375-95-1	Perfluorononanoic acid (PFNA)	17	U	21	17	6.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	26	10	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.2	J	8.7	3.5	1.6
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31	U	78	31	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	77		70-130
STL00996	13C2 PFDA	106		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Did not use.

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-125 | Lab Sample ID: 320-32094-15

Matrix: Water | Lab File ID: 2017.10.20_537A_044.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:05

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 266.2(mL) | Date Analyzed: 10/20/2017 20:59

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

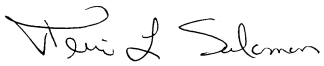
Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 190442 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	0.9	Q	70-130
STL00996	13C2 PFDA	3	Q	70-130



11/09/2017

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-125 RE | Lab Sample ID: 320-32094-15 RE

Matrix: Water | Lab File ID: 2017.10.31_537AA_006.d

Analysis Method: 537 | Date Collected: 10/02/2017 14:05

Extraction Method: 537 | Date Extracted: 10/23/2017 14:32

Sample wt/vol: 250.5(mL) | Date Analyzed: 10/31/2017 15:31

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 192192 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	*Perfluorooctanesulfonic acid (PFOS)*	*16*	*U H*	*40*	16	*6.8*
335-67-1	*Perfluorooctanoic acid (PFOA)*	*8.0*	*U H*	*20*	8.0	*2.8*
375-95-1	*Perfluorononanoic acid (PFNA)*	*20*	*U H Q*	*24*	20	*8.0*
355-46-4	*Perfluorohexanesulfonic acid (PFHxS)*	*12*	*U H*	*30*	12	*5.5*
375-85-9	*Perfluoroheptanoic acid (PFHpA)*	*4.0*	*U H Q*	*10*	4.0	*1.9*
375-73-5	*Perfluorobutanesulfonic acid (PFBS)*	*36*	*U H Q*	*90*	36	*16*

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	114		70-130
STL00996	13C2 PFDA	118		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-RW-139 | Lab Sample ID: 320-32094-16

Matrix: Water | Lab File ID: 2017.10.20_537A_071.d

Analysis Method: 537 | Date Collected: 10/02/2017 13:10

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 286(mL) | Date Analyzed: 10/20/2017 23:07

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.9	J	35	14	5.9
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	17	7.0	2.4
375-95-1	Perfluorononanoic acid (PFNA)	17	U	21	17	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	10	U	26	10	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	J	8.7	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31	U	79	31	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	81		70-130
STL00996	13C2 PFDA	107		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: NAWC-100217-FRB-139 | Lab Sample ID: 320-32094-17

Matrix: Water | Lab File ID: 2017.10.20_537A_072.d

Analysis Method: 537 | Date Collected: 10/02/2017 13:05

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 265.8(mL) | Date Analyzed: 10/20/2017 23:12

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	108		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0500 | Lab Sample ID: 320-32094-18

Matrix: Water | Lab File ID: 2017.10.20_537A_073.d

Analysis Method: 537 | Date Collected: 10/02/2017 15:40

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 285.5(mL) | Date Analyzed: 10/20/2017 23:16

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	24	J	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	28		18	7.0	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.4	J	26	11	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.5	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	114		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0500 | Lab Sample ID: 320-32094-19

Matrix: Water | Lab File ID: 2017.10.20_537A_074.d

Analysis Method: 537 | Date Collected: 10/02/2017 15:35

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 260.9(mL) | Date Analyzed: 10/20/2017 23:21

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	113		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0413 | Lab Sample ID: 320-32094-20

Matrix: Water | Lab File ID: 2017.10.20_537A_075.d

Analysis Method: 537 | Date Collected: 10/02/2017 16:10

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 283.1(mL) | Date Analyzed: 10/20/2017 23:26

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	27		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.6	J	26	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.3	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	81		70-130
STL00996	13C2 PFDA	109		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0413 | Lab Sample ID: 320-32094-21

Matrix: Water | Lab File ID: 2017.10.20_537A_076.d

Analysis Method: 537 | Date Collected: 10/02/2017 16:05

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 267(mL) | Date Analyzed: 10/20/2017 23:31

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.4	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	120		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-RW-0404 | Lab Sample ID: 320-32094-22

Matrix: Water | Lab File ID: 2017.10.20_537A_077.d

Analysis Method: 537 | Date Collected: 10/02/2017 08:40

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 269.3(mL) | Date Analyzed: 10/20/2017 23:35

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	24	J M	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	24		19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.9	J	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.1	J	9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	88		70-130
STL00996	13C2 PFDA	120		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: WGNA-100217-FRB-0404 | Lab Sample ID: 320-32094-23

Matrix: Water | Lab File ID: 2017.10.20_537A_080.d

Analysis Method: 537 | Date Collected: 10/02/2017 08:35

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 256.4(mL) | Date Analyzed: 10/20/2017 23:50

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190447 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	102		70-130

Appendix C

Support Documentation

ANALYTE	ORIGINAL RW-151	DUPLICATE DUP11	RL	RPD	RPD > 50%	ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2XRL
Perfluorooctanoic acid (PFOA)	22	22	19	0.000	FALSE	FALSE	FALSE	FALSE
Perfluoroheptanoic acid (PFHpA)	11	10	9.3	9.524	FALSE	FALSE	FALSE	FALSE
Perfluorooctanesulfonic acid (PFOS)	8.8	8.9	37	1.130	FALSE	FALSE	FALSE	FALSE
Perfluorohexanesulfonic acid (PFHxS)	11	5.1	28	73.292	TRUE	FALSE	FALSE	FALSE

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Andy Frebowitz	Site Contact: Mary Kay Bond	Date: 10/2/2017	COC No:
TetraTech	Tel/Fax: 610.382.1170	Lab Contact: Dave Alltucker	Carrier: FedEx	1 of 1 COCs
234 Mall Boulevard Suite 260	Analysis Turnaround Time			Sampler: Mary Kay Bond
King of Prussia, PA 19406	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
610-382-1174	TAT if different from Below 21			Walk-in Client:
610-491-9688	☐ 2 weeks			Lab Sampling:
Project Name: WE04	☐ 1 week			
Site: WE04	☐ 2 days			Job / SDG No.:
P O # 1132358 (through EarthToxics)	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	EPA 537_DOD5	Sample Specific Notes:
WGNA-100217-RW-0344	10/2/2017	8:10	G	DW	2	N	N	Y	
WGNA-100217-FRB-0344	10/2/2017	8:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-100217-RW-140	10/2/2017	9:40	G	DW	6	N	N	Y	MS/MSD
NAWC-100217-FRB-140	10/2/2017	9:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-100217-RW-316	10/2/2017	10:10	G	DW	2	N	N	Y	
NAWC-100217-FRB-316	10/2/2017	10:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-100217-RW-144	10/2/2017	10:40	G	DW	2	N	N	Y	
NAWC-100217-FRB-144	10/2/2017	10:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-100217-RW-151	10/2/2017	11:10	G	DW	2	N	N	Y	
NAWC-100217-FRB-151	10/2/2017	11:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-100217-DUP11	10/2/2017	7:00	G	DW	2	N	N	Y	Duplicate
NAWC-100217-RW-130	10/2/2017	14:10	G	DW	2	N	N	Y	
NAWC-100217-FRB-130	10/2/2017	14:05	G	DW	2	N	N	Y	Field Reagent Blank

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

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

FedEx Tracking: 7703 8510 6703

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 6.0 3.2 3.3 Corr'd: ✓		Therm ID No.: AR-2
Relinquished by: Mary K Bond	Company: Tetra Tech	Date/Time: 10/2/2017 18:00	Received by:	Company: TAus	Date/Time: 10/03/17 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Andy Frebowitz	Site Contact: Mary Kay Bond	Date: 10/2/2017	COC No:
TetraTech	Tel/Fax: 610.382.1170	Lab Contact: Dave Alltucker	Carrier: FedEx	2 of 2 COCs
234 Mall Boulevard Suite 260	Analysis Turnaround Time			Sampler: Mary Kay Bond
King of Prussia, PA 19406	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
610-382-1174	TAT if different from Below 21			Walk-in Client:
610-491-9688	☐ 2 weeks			Lab Sampling:
Project Name: WE04	☐ 1 week			
Site: WE04	☐ 2 days			Job / SDG No.:
P O # 1132358 (through EarthToxics)	☐ 1 day			

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	EPA 537 UCMR3	Sample Specific Notes:
1	NAWC-100217-RW-125	10/2/2017	14:10	G	DW	2	N	N	Y	
2	NAWC-100217-FRB-125	10/2/2017	14:05	G	DW	2	N	N	Y	Field Reagent Blank
	NAWC-100217-RW-139	10/2/2017	13:10	G	DW	2	N	N	Y	
	NAWC-100217-FRB-139	10/2/2017	13:05	G	DW	2	N	N	Y	Field Reagent Blank
	WGNA-100217-RW-0500	10/2/2017	15:40	G	DW	2	N	N	Y	
	WGNA-100217-FRB-0500	10/2/2017	15:35	G	DW	2	N	N	Y	Field Reagent Blank
	WGNA-100217-RW-0413	10/2/2017	16:10	G	DW	2	N	N	Y	
	WGNA-100217-FRB-0413	10/2/2017	16:05	G	DW	2	N	N	Y	Field Reagent Blank
	rec'd WGNA-100217-RW-0404		10-7	840						
	" " FRB-404			835						
1	labeled @ 1440									
2	" " 1435 MH 10-5-17									

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

Possible Hazard Identification:
Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

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

FedEx Tracking: 7703 8510 6703

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 6.0 2.2 2.3 | Corr'd: — | Therm ID No.: AH-2

	Company	Date/Time		Company	Date/Time
Relinquished by: Mary K Bond	Tetra Tech	10/2/2017 18:00	Received by:	TAS	10/03/17 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

Job Narrative
320-32094-1

Receipt
The samples were received on 10/3/2017 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.2º C, 2.3º C and 6.0º C.

Receipt Exceptions
The following samples was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): WGNA-100217-RW-0404 (320-32094-22) and WGNA-100217-FRB-0404 (320-32094-23)

LCMS
Method(s) 537: The first level standard from the initial calibration curve is used to evaluate the tune criteria. The instrument mass windows are set at +/- 0.5amu; therefore, detection of the analyte serves as verification that the assigned mass is within +/- 0.5amu of the true value, which meets the DoD/DOE QSM tune criterion.

Method(s) 537: Re-extraction of the following sample was performed outside of the analytical holding time due to very low surrogate recoveries in the initial extraction: NAWC-100217-FRB-125 (320-32094-15).

Method(s) 537: The laboratory control sample (LCS) for preparation batch 320-190676 and analytical batch 320-192192 recovered outside control limits for the following analytes: Perfluorobutanesulfonic acid (PFBS). The associated sample was re-prepared and/or re-analyzed outside holding time. Both sets of data have been reported. There no more sample left to do another re-extraction.

Method(s) 537: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch preparation batch 320-190676 and analytical batch 320-192192 recovered outside control limits for the following analytes: Perfluoroheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA) and Perfluorobutanesulfonic acid (PFBS). There is no more sample left to do another re-extraction.

Method(s) 537: Surrogate recovery for the following sample was outside control limits: (LCS 320-190676/2-A). Re-analysis was performed with concurring results. The second analysis has been reported as there were other QC criteria out in the initial analysis.

Method(s) 537: Surrogate recovery for the following sample was outside control limits: NAWC-100217-FRB-125 (320-32094-15). Re-extraction and re-analysis was performed and the surrogate recovery was good in the re-extraction. Both sets of data have been reported as the holding time was exceeded in the re-extraction The sample was ND for all analytes in both extractions.

Method(s) 537: In the re-extraction prep batch the laboratory control (LCS) sample has low recoveries for one of the surrogate compounds, 13C2 PFHxA, and the target compound Perfluorobutanesulfonic acid (PFBS). Also two other target compounds Perfluorononanoic acid (PFNA) and Perfluoroheptanoic acid (PFHpA) were somewhat low causing the RPD of the LCS and LCSD to be out of control. These low recoveries appear to only affect the LCS. The LCSD has good recoveries for the target compounds and the surrogate compounds. The associated sample has good surrogate recoveries. NAWC-100217-FRB-125 (320-32094-15)

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

Organic Prep
Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-189627.

Method(s) 537: The following samples: NAWC-100217-FRB-125 (320-32094-15) was re-prepared outside of preparation holding time due to very low surrogate recovery.

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-190676.

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

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-32094-1

Method	Method Description	Protocol	Laboratory
537	Perfluorinated Alkyl Acids (LC/MS)	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-32094-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-32094-1	WGNA-100217-RW-0344	Water	10/02/17 08:10	10/03/17 10:00
320-32094-2	WGNA-100217-FRB-0344	Water	10/02/17 08:05	10/03/17 10:00
320-32094-3	NAWC-100217-RW-140	Water	10/02/17 09:40	10/03/17 10:00
320-32094-4	NAWC-100217-FRB-140	Water	10/02/17 09:35	10/03/17 10:00
320-32094-5	NAWC-100217-RW-316	Water	10/02/17 10:10	10/03/17 10:00
320-32094-6	NAWC-100217-FRB-316	Water	10/02/17 10:05	10/03/17 10:00
320-32094-7	NAWC-100217-RW-144	Water	10/02/17 10:40	10/03/17 10:00
320-32094-8	NAWC-100217-FRB-144	Water	10/02/17 10:35	10/03/17 10:00
320-32094-9	NAWC-100217-RW-151	Water	10/02/17 11:10	10/03/17 10:00
320-32094-10	NAWC-100217-FRB-151	Water	10/02/17 11:05	10/03/17 10:00
320-32094-11	WGNA-100217-DUP11	Water	10/02/17 07:00	10/03/17 10:00
320-32094-12	NAWC-100217-RW-130	Water	10/02/17 14:10	10/03/17 10:00
320-32094-13	NAWC-100217-FRB-130	Water	10/02/17 14:05	10/03/17 10:00
320-32094-14	NAWC-100217-RW-125	Water	10/02/17 14:10	10/03/17 10:00
320-32094-15	NAWC-100217-FRB-125	Water	10/02/17 14:05	10/03/17 10:00
320-32094-16	NAWC-100217-RW-139	Water	10/02/17 13:10	10/03/17 10:00
320-32094-17	NAWC-100217-FRB-139	Water	10/02/17 13:05	10/03/17 10:00
320-32094-18	WGNA-100217-RW-0500	Water	10/02/17 15:40	10/03/17 10:00
320-32094-19	WGNA-100217-FRB-0500	Water	10/02/17 15:35	10/03/17 10:00
320-32094-20	WGNA-100217-RW-0413	Water	10/02/17 16:10	10/03/17 10:00
320-32094-21	WGNA-100217-FRB-0413	Water	10/02/17 16:05	10/03/17 10:00
320-32094-22	WGNA-100217-RW-0404	Water	10/02/17 08:40	10/03/17 10:00
320-32094-23	WGNA-100217-FRB-0404	Water	10/02/17 08:35	10/03/17 10:00

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA	#	PFDA	#
WGNA-100217-RW-0344	320-32094-1	78		103	
WGNA-100217-FRB-0344	320-32094-2	92		111	
NAWC-100217-RW-140	320-32094-3	80		99	
NAWC-100217-FRB-140	320-32094-4	90		112	
NAWC-100217-RW-316	320-32094-5	84		118	
NAWC-100217-FRB-316	320-32094-6	93		111	
NAWC-100217-RW-144	320-32094-7	79		107	
NAWC-100217-FRB-144	320-32094-8	90		107	
NAWC-100217-RW-151	320-32094-9	75		96	
NAWC-100217-FRB-151	320-32094-10	90		106	
WGNA-100217-DUP11	320-32094-11	73		92	
NAWC-100217-RW-130	320-32094-12	76		108	
NAWC-100217-FRB-130	320-32094-13	90		106	
NAWC-100217-RW-125	320-32094-14	77		106	
NAWC-100217-FRB-125	320-32094-15	0.9	Q	3	Q
NAWC-100217-FRB-125 RE	320-32094-15 RE	114		118	
NAWC-100217-RW-139	320-32094-16	81		107	
NAWC-100217-FRB-139	320-32094-17	102		108	
WGNA-100217-RW-0500	320-32094-18	86		114	
WGNA-100217-FRB-0500	320-32094-19	98		113	
WGNA-100217-RW-0413	320-32094-20	81		109	
WGNA-100217-FRB-0413	320-32094-21	100		120	
WGNA-100217-RW-0404	320-32094-22	88		120	
WGNA-100217-FRB-0404	320-32094-23	99		102	
	MB 320-189591/1-A	96		114	
	MB 320-189627/1-A	107		118	
	MB 320-190676/1-A	106		100	

	QC LIMITS
PFHxA = 13C2 PFHxA	70-130
PFDA = 13C2 PFDA	70-130

Column to be used to flag recovery values

FORM II 537

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
	LCS 320-189591/2-A	97	106
	LCS 320-190676/2-A	16 Q	70
	LCSD 320-190676/3-A	112	109
	LLCS 320-189627/2-A	101	103
NAWC-100217-RW-140 MS	320-32094-3 MS	82	109
NAWC-100217-RW-140 MSD	320-32094-3 MSD	82	112
	LLCSD 320-189627/3-A	92	100

	QC LIMITS
PFHxA = 13C2 PFHxA	70-130
PFDA = 13C2 PFDA	70-130

Column to be used to flag recovery values

FORM II 537

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.20_537A_025.d

Lab ID: LCS 320-189591/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	222	205	92	70-130	M
Perfluorooctanoic acid (PFOA)	111	116	105	70-130	
Perfluorononanoic acid (PFNA)	111	106	95	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	160	96	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	60.3	109	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	536	107	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.31_537AA_004.d

Lab ID: LCS 320-190676/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	133	133	99	70-130	M
Perfluorooctanoic acid (PFOA)	66.7	56.6	85	70-130	
Perfluorononanoic acid (PFNA)	66.7	52.1	78	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	103	103	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	24.1	72	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	22.9 J	8	70-130	Q

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.31_537AA_005.d

Lab ID: LCSD 320-190676/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	133	134	100	1	30	70-130	M
Perfluorooctanoic acid (PFOA)	66.7	74.3	111	27	30	70-130	
Perfluorononanoic acid (PFNA)	66.7	71.7	107	32	30	70-130	Q
Perfluorohexanesulfonic acid (PFHxS)	100	107	107	4	30	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	38.6	116	46	30	70-130	Q
Perfluorobutanesulfonic acid (PFBS)	300	308	103	172	30	70-130	Q

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.20_537A_069.d

Lab ID: LLCS 320-189627/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	39.2 J	98	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	20.6	103	50-150	
Perfluorononanoic acid (PFNA)	20.0	20.9 J	104	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	32.7	109	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	11.1	111	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	100	111	50-150	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.20_537A_029.d

Lab ID: 320-32094-3 MS Client ID: NAWC-100217-RW-140 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	215	11 J	209	92	70-130	M
Perfluorooctanoic acid (PFOA)	108	18 J	124	98	70-130	
Perfluorononanoic acid (PFNA)	108	19 U	106	99	70-130	
Perfluorohexanesulfonic acid (PFHxS)	161	11 U	149	93	70-130	
Perfluoroheptanoic acid (PFHpA)	53.8	4.7 J	58.5	100	70-130	
Perfluorobutanesulfonic acid (PFBS)	484	34 U	455	94	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.20_537A_030.d

Lab ID: 320-32094-3 MSD Client ID: NAWC-100217-RW-140 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	211	210	95	1	30	70-130	M
Perfluorooctanoic acid (PFOA)	105	123	100	0	30	70-130	
Perfluorononanoic acid (PFNA)	105	102	97	5	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	158	150	95	1	30	70-130	
Perfluoroheptanoic acid (PFHpA)	52.6	57.7	101	1	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	474	484	102	6	30	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LOW LEVEL CONTROL STANDARD DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.10.20_537A_070.d

Lab ID: LLCSD 320-189627/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	34.9 J	87	12	50	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	18.7 J	94	10	50	50-150	
Perfluorononanoic acid (PFNA)	20.0	19.2 J	96	8	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	27.8 J	93	16	50	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	10.1	101	9	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	87.2 J	97	14	50	50-150	

Column to be used to flag recovery and RPD values

FORM III 537

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab File ID: 2017.10.20_537A_024.d Lab Sample ID: MB 320-189591/1-A

Matrix: Water Date Extracted: 10/16/2017 14:42

Instrument ID: A8_N Date Analyzed: 10/20/2017 19:24

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-189591/2-A	2017.10.20_537A_025.d	10/20/2017 19:29
WGNA-100217-RW-0344	320-32094-1	2017.10.20_537A_026.d	10/20/2017 19:33
WGNA-100217-FRB-0344	320-32094-2	2017.10.20_537A_027.d	10/20/2017 19:38
NAWC-100217-RW-140	320-32094-3	2017.10.20_537A_028.d	10/20/2017 19:43
NAWC-100217-RW-140 MS	320-32094-3 MS	2017.10.20_537A_029.d	10/20/2017 19:48
NAWC-100217-RW-140 MSD	320-32094-3 MSD	2017.10.20_537A_030.d	10/20/2017 19:52
NAWC-100217-FRB-140	320-32094-4	2017.10.20_537A_031.d	10/20/2017 19:57
NAWC-100217-RW-316	320-32094-5	2017.10.20_537A_032.d	10/20/2017 20:02
NAWC-100217-FRB-316	320-32094-6	2017.10.20_537A_033.d	10/20/2017 20:07
NAWC-100217-RW-144	320-32094-7	2017.10.20_537A_036.d	10/20/2017 20:21
NAWC-100217-FRB-144	320-32094-8	2017.10.20_537A_037.d	10/20/2017 20:26
NAWC-100217-RW-151	320-32094-9	2017.10.20_537A_038.d	10/20/2017 20:30
NAWC-100217-FRB-151	320-32094-10	2017.10.20_537A_039.d	10/20/2017 20:35
WGNA-100217-DUP11	320-32094-11	2017.10.20_537A_040.d	10/20/2017 20:40
NAWC-100217-RW-130	320-32094-12	2017.10.20_537A_041.d	10/20/2017 20:45
NAWC-100217-FRB-130	320-32094-13	2017.10.20_537A_042.d	10/20/2017 20:49
NAWC-100217-RW-125	320-32094-14	2017.10.20_537A_043.d	10/20/2017 20:54
NAWC-100217-FRB-125	320-32094-15	2017.10.20_537A_044.d	10/20/2017 20:59

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-189591/1-A

Matrix: Water | Lab File ID: 2017.10.20_537A_024.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 10/16/2017 14:42

Sample wt/vol: 250(mL) | Date Analyzed: 10/20/2017 19:24

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190441 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	114		70-130

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab File ID: 2017.10.20_537A_068.d Lab Sample ID: MB 320-189627/1-A

Matrix: Water Date Extracted: 10/16/2017 15:51

Instrument ID: A8_N Date Analyzed: 10/20/2017 22:53

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-189627/2-A	2017.10.20_537A_069.d	10/20/2017 22:57
	LLCSD 320-189627/3-A	2017.10.20_537A_070.d	10/20/2017 23:02
NAWC-100217-RW-139	320-32094-16	2017.10.20_537A_071.d	10/20/2017 23:07
NAWC-100217-FRB-139	320-32094-17	2017.10.20_537A_072.d	10/20/2017 23:12
WGNA-100217-RW-0500	320-32094-18	2017.10.20_537A_073.d	10/20/2017 23:16
WGNA-100217-FRB-0500	320-32094-19	2017.10.20_537A_074.d	10/20/2017 23:21
WGNA-100217-RW-0413	320-32094-20	2017.10.20_537A_075.d	10/20/2017 23:26
WGNA-100217-FRB-0413	320-32094-21	2017.10.20_537A_076.d	10/20/2017 23:31
WGNA-100217-RW-0404	320-32094-22	2017.10.20_537A_077.d	10/20/2017 23:35
WGNA-100217-FRB-0404	320-32094-23	2017.10.20_537A_080.d	10/20/2017 23:50

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-189627/1-A

Matrix: Water | Lab File ID: 2017.10.20_537A_068.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 10/16/2017 15:51

Sample wt/vol: 250(mL) | Date Analyzed: 10/20/2017 22:53

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 190446 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	118		70-130

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab File ID: 2017.10.31_537AA_003.d Lab Sample ID: MB 320-190676/1-A

Matrix: Water Date Extracted: 10/23/2017 14:32

Instrument ID: A8_N Date Analyzed: 10/31/2017 15:17

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-190676/2-A	2017.10.31_537AA_004.d	10/31/2017 15:22
	LCSD 320-190676/3-A	2017.10.31_537AA_005.d	10/31/2017 15:27
NAWC-100217-FRB-125 RE	320-32094-15 RE	2017.10.31_537AA_006.d	10/31/2017 15:31

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-32094-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-190676/1-A

Matrix: Water | Lab File ID: 2017.10.31_537AA_003.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 10/23/2017 14:32

Sample wt/vol: 250(mL) | Date Analyzed: 10/31/2017 15:17

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 192192 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	106		70-130
STL00996	13C2 PFDA	100		70-130

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 09/20/2017 03:19

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		2116635	1.86	5570738	2.11		
UPPER LIMIT		3174953	2.36	8356107	2.61		
LOWER LIMIT		1058318	1.36	2785369	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-185329/11		2252465	1.85	5723538	2.10		
ICV 320-185329/13		2616480	1.85	7294448	2.10		
CCV 320-190441/22 CCVIS		1845095	1.89	5429717	2.13		
MB 320-189591/1-A		1835352	1.88	5404548	2.13		
LCS 320-189591/2-A		1629839	1.89	4970902	2.13		
320-32094-1	WGNA-100217-RW-0344	1705479	1.88	5157371	2.13		
320-32094-2	WGNA-100217-FRB-0344	1667244	1.89	4977816	2.13		
320-32094-3	NAWC-100217-RW-140	1815761	1.88	5255060	2.12		
320-32094-3 MS	NAWC-100217-RW-140 MS	1788659	1.88	5453174	2.12		
320-32094-3 MSD	NAWC-100217-RW-140 MSD	1803880	1.88	5278202	2.12		
320-32094-4	NAWC-100217-FRB-140	1894760	1.89	5573483	2.13		
320-32094-5	NAWC-100217-RW-316	1825060	1.89	5335570	2.13		
320-32094-6	NAWC-100217-FRB-316	1814445	1.89	5243759	2.13		
CCV 320-190441/34 CCVIS		1971467	1.89	5873467	2.13		
CCV 320-190442/34 CCVIS		1971467	1.89	5873467	2.13		
320-32094-7	NAWC-100217-RW-144	1804941	1.88	5221258	2.12		
320-32094-8	NAWC-100217-FRB-144	1811010	1.88	5298491	2.13		
320-32094-9	NAWC-100217-RW-151	1782598	1.88	5612676	2.12		
320-32094-10	NAWC-100217-FRB-151	1897460	1.88	5605320	2.12		
320-32094-11	WGNA-100217-DUP11	1837587	1.88	5425929	2.13		
320-32094-12	NAWC-100217-RW-130	1935179	1.88	5847749	2.12		
320-32094-13	NAWC-100217-FRB-130	1955473	1.88	5632988	2.12		
320-32094-14	NAWC-100217-RW-125	1910551	1.88	5802887	2.12		
320-32094-15	NAWC-100217-FRB-125	2011771	1.88	5901582	2.12		
CCV 320-190442/45 CCVIS		1708886	1.88	5239449	2.12		
CCV 320-190446/22 CCVIS		1760502	1.88	5237323	2.12		
MB 320-189627/1-A		1745632	1.88	5212882	2.12		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 09/20/2017 03:19

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		2116635	1.86	5570738	2.11		
UPPER LIMIT		3174953	2.36	8356107	2.61		
LOWER LIMIT		1058318	1.36	2785369	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
LLCS 320-189627/2-A		1722743	1.88	4974847	2.12		
LLCSD 320-189627/3-A		1780751	1.88	5432408	2.12		
320-32094-16	NAWC-100217-RW-139	1812675	1.88	5271506	2.12		
320-32094-17	NAWC-100217-FRB-139	1723990	1.87	5226401	2.12		
320-32094-18	WGNA-100217-RW-0500	1788755	1.87	5541228	2.12		
320-32094-19	WGNA-100217-FRB-0500	1800031	1.88	5591744	2.12		
320-32094-20	WGNA-100217-RW-0413	2210955	1.87	6557902	2.12		
320-32094-21	WGNA-100217-FRB-0413	1625538	1.88	5023451	2.12		
320-32094-22	WGNA-100217-RW-0404	1785174	1.87	5598216	2.12		
CCV 320-190446/34 CCVIS		1782156	1.88	5577435	2.12		
CCV 320-190447/34 CCVIS		1782156	1.88	5577435	2.12		
320-32094-23	WGNA-100217-FRB-0404	1742030	1.87	5001896	2.12		
CCV 320-190447/37 CCVIS		1726452	1.87	5170395	2.12		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190441/22 Date Analyzed: 10/20/2017 19:14

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

Lab File ID (Standard): 2017.10.20_537A_022 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1845095	1.89	5429717	2.13		
UPPER LIMIT		2583133	2.39	7601604	2.63		
LOWER LIMIT		1291567	1.39	3800802	1.63		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-189591/1-A		1835352	1.88	5404548	2.13		
LCS 320-189591/2-A		1629839	1.89	4970902	2.13		
320-32094-1	WGNA-100217-RW-0344	1705479	1.88	5157371	2.13		
320-32094-2	WGNA-100217-FRB-0344	1667244	1.89	4977816	2.13		
320-32094-3	NAWC-100217-RW-140	1815761	1.88	5255060	2.12		
320-32094-3 MS	NAWC-100217-RW-140 MS	1788659	1.88	5453174	2.12		
320-32094-3 MSD	NAWC-100217-RW-140 MSD	1803880	1.88	5278202	2.12		
320-32094-4	NAWC-100217-FRB-140	1894760	1.89	5573483	2.13		
320-32094-5	NAWC-100217-RW-316	1825060	1.89	5335570	2.13		
320-32094-6	NAWC-100217-FRB-316	1814445	1.89	5243759	2.13		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190441/34 Date Analyzed: 10/20/2017 20:11

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

Lab File ID (Standard): 2017.10.20_537A_034 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1971467	1.89	5873467	2.13		
UPPER LIMIT		2760054	2.39	8222854	2.63		
LOWER LIMIT		1380027	1.39	4111427	1.63		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-189591/1-A		1835352	1.88	5404548	2.13		
LCS 320-189591/2-A		1629839	1.89	4970902	2.13		
320-32094-1	WGNA-100217-RW-0344	1705479	1.88	5157371	2.13		
320-32094-2	WGNA-100217-FRB-0344	1667244	1.89	4977816	2.13		
320-32094-3	NAWC-100217-RW-140	1815761	1.88	5255060	2.12		
320-32094-3 MS	NAWC-100217-RW-140 MS	1788659	1.88	5453174	2.12		
320-32094-3 MSD	NAWC-100217-RW-140 MSD	1803880	1.88	5278202	2.12		
320-32094-4	NAWC-100217-FRB-140	1894760	1.89	5573483	2.13		
320-32094-5	NAWC-100217-RW-316	1825060	1.89	5335570	2.13		
320-32094-6	NAWC-100217-FRB-316	1814445	1.89	5243759	2.13		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190442/34 Date Analyzed: 10/20/2017 20:11

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

Lab File ID (Standard): 2017.10.20_537A_034 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1971467	1.89	5873467	2.13		
UPPER LIMIT		2760054	2.39	8222854	2.63		
LOWER LIMIT		1380027	1.39	4111427	1.63		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-32094-7	NAWC-100217-RW-144	1804941	1.88	5221258	2.12		
320-32094-8	NAWC-100217-FRB-144	1811010	1.88	5298491	2.13		
320-32094-9	NAWC-100217-RW-151	1782598	1.88	5612676	2.12		
320-32094-10	NAWC-100217-FRB-151	1897460	1.88	5605320	2.12		
320-32094-11	WGNA-100217-DUP11	1837587	1.88	5425929	2.13		
320-32094-12	NAWC-100217-RW-130	1935179	1.88	5847749	2.12		
320-32094-13	NAWC-100217-FRB-130	1955473	1.88	5632988	2.12		
320-32094-14	NAWC-100217-RW-125	1910551	1.88	5802887	2.12		
320-32094-15	NAWC-100217-FRB-125	2011771	1.88	5901582	2.12		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190442/45 Date Analyzed: 10/20/2017 21:04

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

Lab File ID (Standard): 2017.10.20_537A_045 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1708886	1.88	5239449	2.12		
UPPER LIMIT		2392440	2.38	7335229	2.62		
LOWER LIMIT		1196220	1.38	3667614	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-32094-7	NAWC-100217-RW-144	1804941	1.88	5221258	2.12		
320-32094-8	NAWC-100217-FRB-144	1811010	1.88	5298491	2.13		
320-32094-9	NAWC-100217-RW-151	1782598	1.88	5612676	2.12		
320-32094-10	NAWC-100217-FRB-151	1897460	1.88	5605320	2.12		
320-32094-11	WGNA-100217-DUP11	1837587	1.88	5425929	2.13		
320-32094-12	NAWC-100217-RW-130	1935179	1.88	5847749	2.12		
320-32094-13	NAWC-100217-FRB-130	1955473	1.88	5632988	2.12		
320-32094-14	NAWC-100217-RW-125	1910551	1.88	5802887	2.12		
320-32094-15	NAWC-100217-FRB-125	2011771	1.88	5901582	2.12		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190446/22 Date Analyzed: 10/20/2017 22:43

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

Lab File ID (Standard): 2017.10.20_537A_066 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1760502	1.88	5237323	2.12		
UPPER LIMIT		2464703	2.38	7332252	2.62		
LOWER LIMIT		1232351	1.38	3666126	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-189627/1-A		1745632	1.88	5212882	2.12		
LLCS 320-189627/2-A		1722743	1.88	4974847	2.12		
LLCSD 320-189627/3-A		1780751	1.88	5432408	2.12		
320-32094-16	NAWC-100217-RW-139	1812675	1.88	5271506	2.12		
320-32094-17	NAWC-100217-FRB-139	1723990	1.87	5226401	2.12		
320-32094-18	WGNA-100217-RW-0500	1788755	1.87	5541228	2.12		
320-32094-19	WGNA-100217-FRB-0500	1800031	1.88	5591744	2.12		
320-32094-20	WGNA-100217-RW-0413	2210955	1.87	6557902	2.12		
320-32094-21	WGNA-100217-FRB-0413	1625538	1.88	5023451	2.12		
320-32094-22	WGNA-100217-RW-0404	1785174	1.87	5598216	2.12		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190446/34 Date Analyzed: 10/20/2017 23:40

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

Lab File ID (Standard): 2017.10.20_537A_078 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1782156	1.88	5577435	2.12		
UPPER LIMIT		2495018	2.38	7808409	2.62		
LOWER LIMIT		1247509	1.38	3904205	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-189627/1-A		1745632	1.88	5212882	2.12		
LLCS 320-189627/2-A		1722743	1.88	4974847	2.12		
LLCSD 320-189627/3-A		1780751	1.88	5432408	2.12		
320-32094-16	NAWC-100217-RW-139	1812675	1.88	5271506	2.12		
320-32094-17	NAWC-100217-FRB-139	1723990	1.87	5226401	2.12		
320-32094-18	WGNA-100217-RW-0500	1788755	1.87	5541228	2.12		
320-32094-19	WGNA-100217-FRB-0500	1800031	1.88	5591744	2.12		
320-32094-20	WGNA-100217-RW-0413	2210955	1.87	6557902	2.12		
320-32094-21	WGNA-100217-FRB-0413	1625538	1.88	5023451	2.12		
320-32094-22	WGNA-100217-RW-0404	1785174	1.87	5598216	2.12		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190447/34 Date Analyzed: 10/20/2017 23:40

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

Lab File ID (Standard): 2017.10.20_537A_078 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1782156	1.88	5577435	2.12		
UPPER LIMIT		2495018	2.38	7808409	2.62		
LOWER LIMIT		1247509	1.38	3904205	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-32094-23	WGNA-100217-FRB-0404	1742030	1.87	5001896	2.12		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-190447/37 Date Analyzed: 10/20/2017 23:54

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

Lab File ID (Standard): 2017.10.20_537A_081 Heated Purge: (Y/N) N

Calibration ID: 34457

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1726452	1.87	5170395	2.12		
UPPER LIMIT		2417033	2.37	7238553	2.62		
LOWER LIMIT		1208516	1.37	3619277	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-32094-23	WGNA-100217-FRB-0404	1742030	1.87	5001896	2.12		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 10/31/2017 11:44

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 10/31/2017 12:08

Calibration ID: 35621

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		2775806	1.86	6114108	2.11		
UPPER LIMIT		4163709	2.36	9171162	2.61		
LOWER LIMIT		1387903	1.36	3057054	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-192162/11		2865147	1.87	6394781	2.11		
ICV 320-192162/16		2807375	1.87	6562646	2.11		
CCV 320-192192/1 CCVIS		2732515	1.86	6019558	2.11		
MB 320-190676/1-A		2834607	1.86	6395915	2.10		
LCS 320-190676/2-A		2636726	1.86	6136583	2.10		
LCSD 320-190676/3-A		2663186	1.86	6247889	2.10		
320-32094-15 RE	NAWC-100217-FRB-125 RE	2783983	1.86	6582260	2.10		
CCV 320-192192/7 CCVIS		2656671	1.86	5918882	2.10		

13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-192192/1 Date Analyzed: 10/31/2017 15:08

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

Lab File ID (Standard): 2017.10.31_537AA_00 Heated Purge: (Y/N) N

Calibration ID: 35621

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		2732515	1.86	6019558	2.11		
UPPER LIMIT		3825521	2.36	8427381	2.61		
LOWER LIMIT		1912761	1.36	4213691	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-190676/1-A		2834607	1.86	6395915	2.10		
LCS 320-190676/2-A		2636726	1.86	6136583	2.10		
LCSD 320-190676/3-A		2663186	1.86	6247889	2.10		
320-32094-15 RE	NAWC-100217-FRB-125 RE	2783983	1.86	6582260	2.10		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Sample No.: CCV 320-192192/7 Date Analyzed: 10/31/2017 15:36

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

Lab File ID (Standard): 2017.10.31_537AA_00 Heated Purge: (Y/N) N

Calibration ID: 35621

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		2656671	1.86	5918882	2.10		
UPPER LIMIT		3719339	2.36	8286435	2.60		
LOWER LIMIT		1859670	1.36	4143217	1.60		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-190676/1-A		2834607	1.86	6395915	2.10		
LCS 320-190676/2-A		2636726	1.86	6136583	2.10		
LCSD 320-190676/3-A		2663186	1.86	6247889	2.10		
320-32094-15 RE	NAWC-100217-FRB-125 RE	2783983	1.86	6582260	2.10		

13PFOA = 13C2-PFOA
13PFOA = 13C2-PFOA
PFOS = 13C4 PFOS
PFOS = 13C4 PFOS
Area Limit = 70%-140% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 185329

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/20/2017 02:56 Calibration End Date: 09/20/2017 03:19 Calibration ID: 34457

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-185329/4	2017.09.19_537ICAL_004.d
Level 2	IC 320-185329/5	2017.09.19_537ICAL_005.d
Level 3	IC 320-185329/6	2017.09.19_537ICAL_006.d
Level 4	IC 320-185329/7	2017.09.19_537ICAL_007.d
Level 5	IC 320-185329/8	2017.09.19_537ICAL_008.d
Level 6	IC 320-185329/9	2017.09.19_537ICAL_009.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								
Perfluorobutanesulfonic acid (PFBS)	1.1549 0.7675	1.2218	1.1299	0.9825	0.8671	QuaF		1.2127	-0.002495						1.0000		0.9600
Perfluoroheptanoic acid (PFHpA)	0.9156 0.9157	1.0104	0.9599	0.9323	0.9167	Ave		0.9418				4.0		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.6240 1.5024	1.7562	1.6778	1.6725	1.5962	Ave		1.6382				5.3		30.0			
Perfluorooctanoic acid (PFOA)	0.8827 0.9310	0.9355	0.9297	0.9101	0.9278	Ave		0.9195				2.2		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8786 0.9472	0.9205	0.9514	0.9450	0.9475	Ave		0.9317				3.0		30.0			
Perfluorononanoic acid (PFNA)	0.6171 0.6192	0.6458	0.6231	0.6183	0.6076	Ave		0.6218				2.1		30.0			
13C2 PFHxA	1.1170 1.2085	1.1856	1.1778	1.1659	1.1757	Ave		1.1718				2.6		30.0			
13C2 PFDA	0.5262 0.5719	0.5663	0.5603	0.5520	0.5699	Ave		0.5578				3.1		30.0			

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

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 185329

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/20/2017 02:56 Calibration End Date: 09/20/2017 03:19 Calibration ID: 34457

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-185329/4	2017.09.19_537ICAL_004.d
Level 2	IC 320-185329/5	2017.09.19_537ICAL_005.d
Level 3	IC 320-185329/6	2017.09.19_537ICAL_006.d
Level 4	IC 320-185329/7	2017.09.19_537ICAL_007.d
Level 5	IC 320-185329/8	2017.09.19_537ICAL_008.d
Level 6	IC 320-185329/9	2017.09.19_537ICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	2072419 26277877	5031340	9714039	16708415	22246597	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PFOA	Ave	202553 3731330	492336	996370	1954380	2871658	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	971572 17148552	2411042	4809005	9481986	13653533	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PFOA	Ave	390753 7591950	912252	1931186	3817782	5816384	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	700862 14414630	1684976	3635963	7143258	10806665	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PFOA	Ave	273016 5046017	629304	1293375	2592159	3806555	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PFOA	Ave	2470192 2461679	2599092	2444565	2443470	2454801	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PFOA	Ave	1163662 1164862	1241510	1162968	1156914	1189895	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 185329

SDG No.:

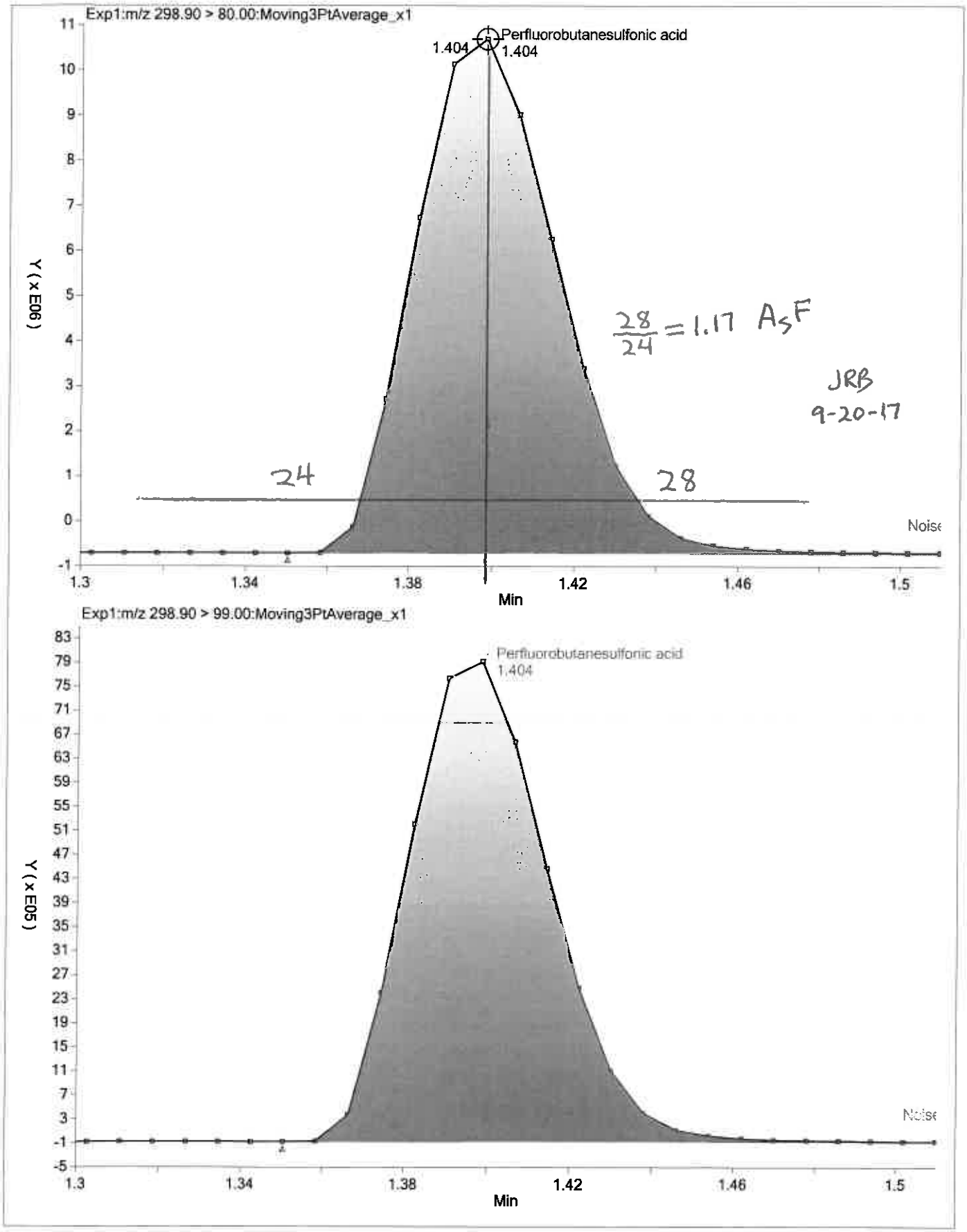
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/20/2017 02:56 Calibration End Date: 09/20/2017 03:19 Calibration ID: 34457

Calibration Files:

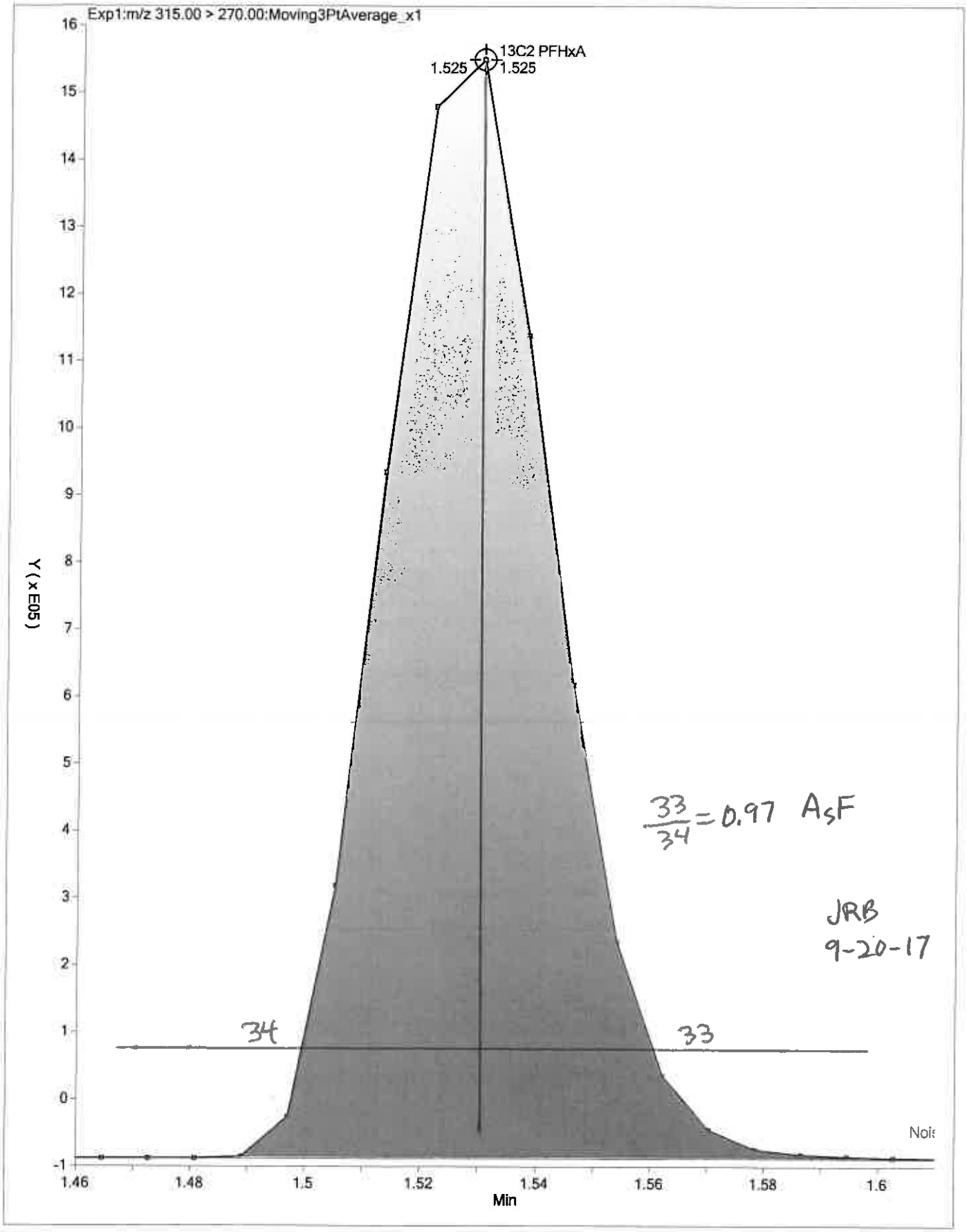
LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-185329/4	2017.09.19_537ICAL_004.d
Level 2	IC 320-185329/5	2017.09.19_537ICAL_005.d
Level 3	IC 320-185329/6	2017.09.19_537ICAL_006.d
Level 4	IC 320-185329/7	2017.09.19_537ICAL_007.d
Level 5	IC 320-185329/8	2017.09.19_537ICAL_008.d
Level 6	IC 320-185329/9	2017.09.19_537ICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-3.0	5.3	3.0	-0.7	-1.6	1.3	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	-2.8	7.3	1.9	-1.0	-2.7	-2.8	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-0.9	7.2	2.4	2.1	-2.6	-8.3	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	-4.0	1.7	1.1	-1.0	0.9	1.3	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-5.7	-1.2	2.1	1.4	1.7	1.7	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-0.8	3.8	0.2	-0.6	-2.3	-0.4	50	30	30	30	30	30
13C2 PFHxA	-4.7	1.2	0.5	-0.5	0.3	3.1	30	30	30	30	30	30
13C2 PFDA	-5.7	1.5	0.5	-1.0	2.2	2.5	30	30	30	30	30	30



$\frac{28}{24} = 1.17$ $A_S F$

JRB
9-20-17


Exp1:m/z 315.00 > 270.00:Moving3PtAverage_x1
13C2 PFHxA
1.525
1.525
Y (x E05)
Min
34
33
33/34 = 0.97 ASF
JRB
9-20-17

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 192162

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/31/2017 11:44 Calibration End Date: 10/31/2017 12:08 Calibration ID: 35621

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192162/4	2017.10.31_537ICAL_004.d
Level 2	IC 320-192162/5	2017.10.31_537ICAL_005.d
Level 3	IC 320-192162/6	2017.10.31_537ICAL_006.d
Level 4	IC 320-192162/7	2017.10.31_537ICAL_007.d
Level 5	IC 320-192162/8	2017.10.31_537ICAL_008.d
Level 6	IC 320-192162/9	2017.10.31_537ICAL_009.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								
Perfluorobutanesulfonic acid (PFBS)	1.0555 0.7230	1.1099	1.0105	0.8851	0.8003	QuaF		1.0703	-0.001949						0.9990		0.9600
Perfluoroheptanoic acid (PFHpA)	0.9747 0.9495	0.9317	0.9152	0.9490	0.9245	Ave		0.9408				2.3		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.6000 1.5277	1.6916	1.7164	1.6515	1.5848	Ave		1.6287				4.4		30.0			
Perfluorooctanoic acid (PFOA)	0.9001 0.9319	0.9648	0.9220	0.9359	0.9258	Ave		0.9301				2.3		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8822 0.9438	0.9288	0.9148	0.9474	0.9527	Ave		0.9283				2.9		30.0			
Perfluorononanoic acid (PFNA)	0.6310 0.6692	0.6490	0.6407	0.6829	0.6432	Ave		0.6527				3.0		30.0			
13C2 PFHxA	1.1162 1.1576	1.0680	1.0953	1.1948	1.1392	Ave		1.1285				4.0		30.0			
13C2 PFDA	0.7945 0.8580	0.7675	0.7780	0.8355	0.8229	Ave		0.8094				4.3		30.0			

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

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 192162

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/31/2017 11:44 Calibration End Date: 10/31/2017 12:08 Calibration ID: 35621

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192162/4	2017.10.31_537ICAL_004.d
Level 2	IC 320-192162/5	2017.10.31_537ICAL_005.d
Level 3	IC 320-192162/6	2017.10.31_537ICAL_006.d
Level 4	IC 320-192162/7	2017.10.31_537ICAL_007.d
Level 5	IC 320-192162/8	2017.10.31_537ICAL_008.d
Level 6	IC 320-192162/9	2017.10.31_537ICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	2055386 27165476	4905442	9915456	16876130	21956734	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PFOA	Ave	275477 5107421	614703	1311091	2526779	3670615	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	1038660 19137035	2492517	5615014	10497872	14494918	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PFOA	Ave	509095 10031020	1273846	2643153	4986613	7356038	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	763610 15763683	1824729	3990091	8030345	11617530	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PFOA	Ave	356641 7198655	856305	1835636	3636277	5107150	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PFOA	Ave	3153457 3112456	3170056	3137333	3180555	3014571	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PFOA	Ave	2244762 2306925	2277991	2228390	2223928	2177702	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1 Analy Batch No.: 192162

SDG No.:

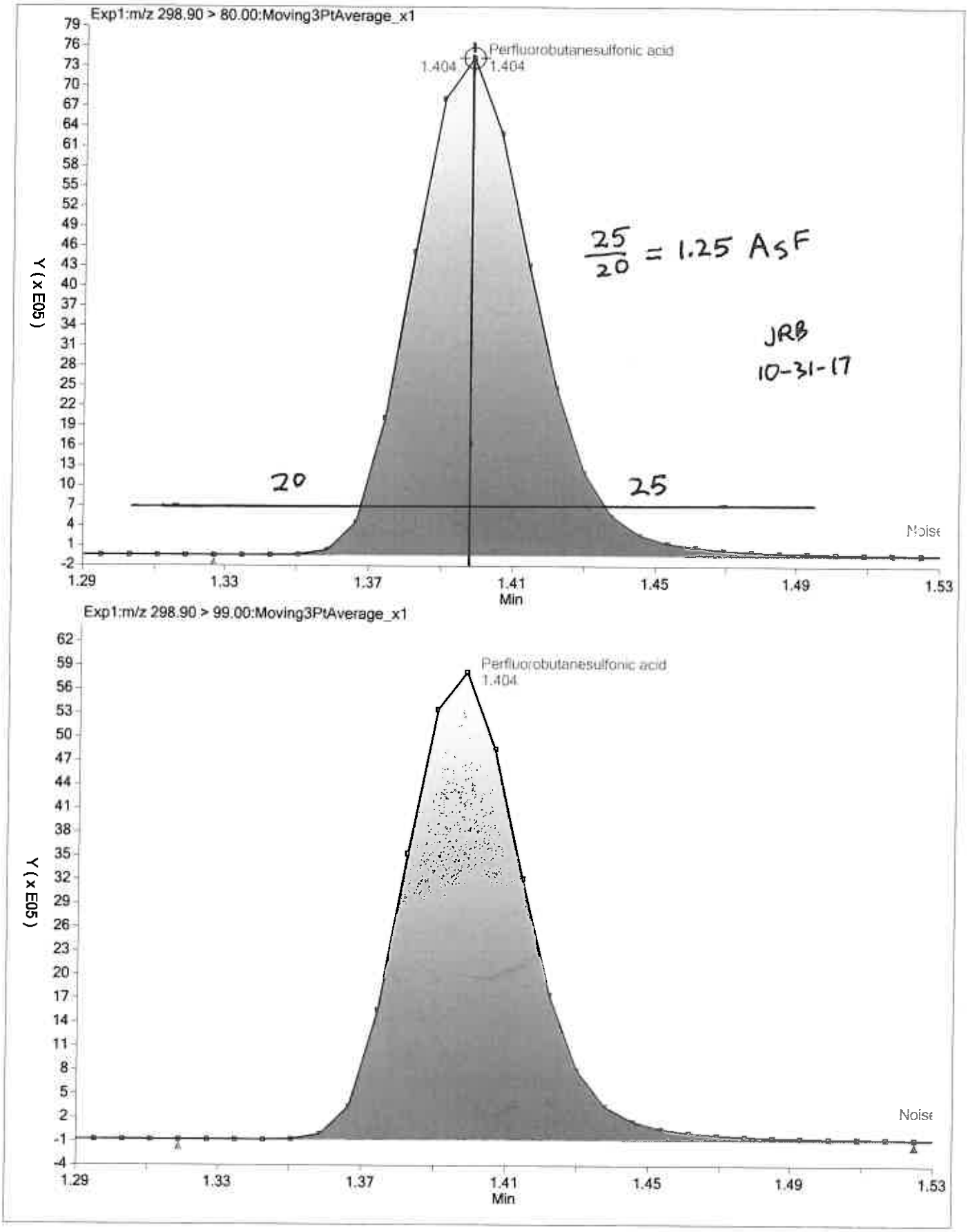
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 10/31/2017 11:44 Calibration End Date: 10/31/2017 12:08 Calibration ID: 35621

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192162/4	2017.10.31_537ICAL_004.d
Level 2	IC 320-192162/5	2017.10.31_537ICAL_005.d
Level 3	IC 320-192162/6	2017.10.31_537ICAL_006.d
Level 4	IC 320-192162/7	2017.10.31_537ICAL_007.d
Level 5	IC 320-192162/8	2017.10.31_537ICAL_008.d
Level 6	IC 320-192162/9	2017.10.31_537ICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	0.3	7.9	3.1	-1.4	-1.2	1.0	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	3.6	-1.0	-2.7	0.9	-1.7	0.9	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-1.8	3.9	5.4	1.4	-2.7	-6.2	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	-3.2	3.7	-0.9	0.6	-0.5	0.2	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-5.0	0.1	-1.5	2.1	2.6	1.7	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-3.3	-0.6	-1.8	4.6	-1.5	2.5	50	30	30	30	30	30
13C2 PFHxA	-1.1	-5.4	-2.9	5.9	0.9	2.6	30	30	30	30	30	30
13C2 PFDA	-1.8	-5.2	-3.9	3.2	1.7	6.0	30	30	30	30	30	30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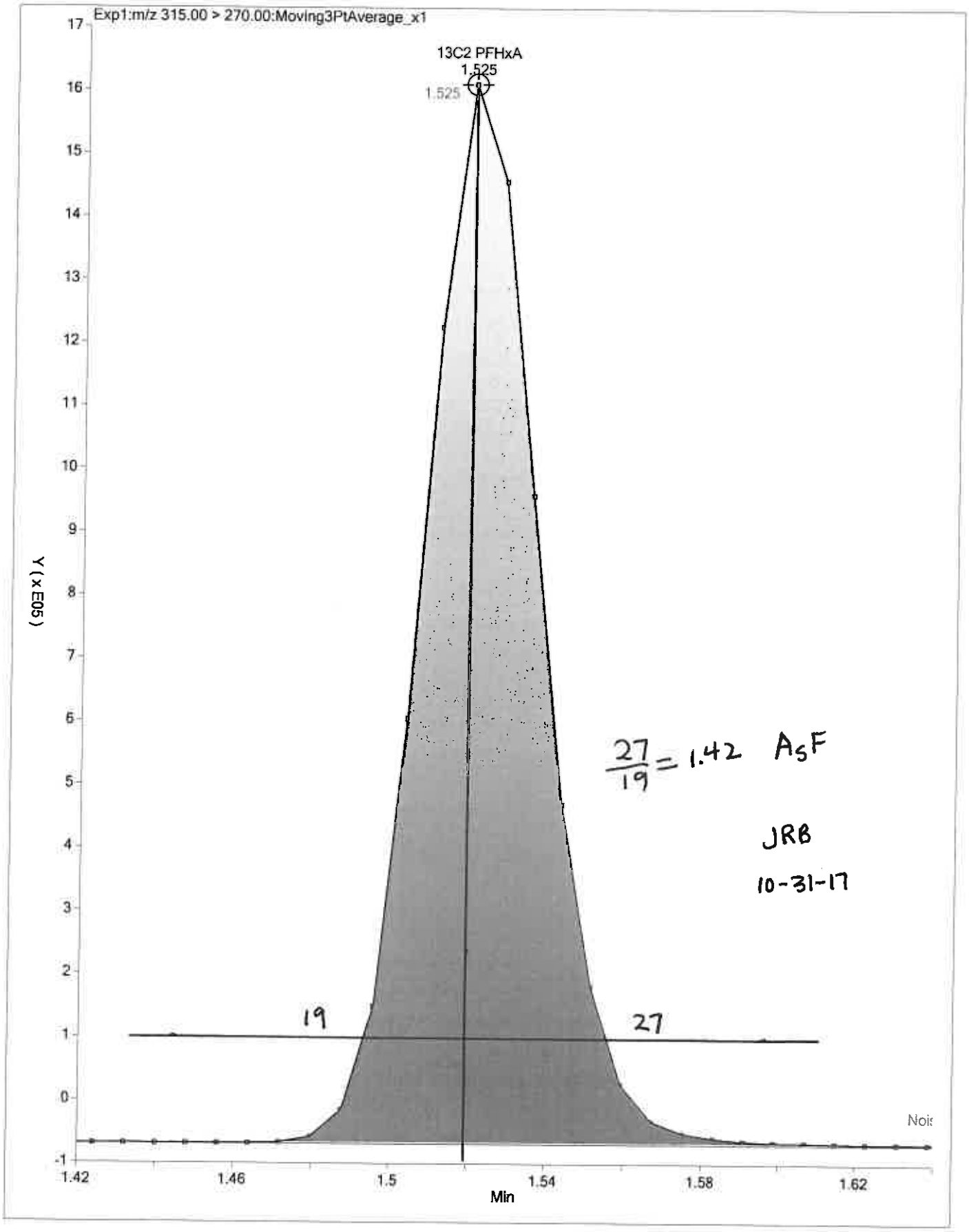
Perfluorobutanesulfonic acid
1.404
1.404
Y (x E05)
20
25
Noise
1.29
1.33
1.37
1.41
1.45
1.49
1.53
Min
25/20 = 1.25 AsF
JRB
10-31-17
Exp1:m/z 298.90 > 99.00:Moving3PtAverage_x1
Perfluorobutanesulfonic acid
1.404
Y (x E05)
Noise
1.29
1.33
1.37
1.41
1.45
1.49
1.53
Min


Exp1:m/z 315.00 > 270.00:Moving3PtAverage_x1
13C2 PFHxA
1.525
1.525
Y (x E05)
Min
19
27
27/19 = 1.42 AsF
JRB
10-31-17

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCVL 320-185329/11 Calibration Date: 09/20/2017 03:29

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.09.19_537ICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.235		21.3	20.0	6.5	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9779		2.31	2.22	3.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.762		7.17	6.67	7.6	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9059		4.38	4.45	-1.5	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9490		9.06	8.89	1.9	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6352		4.54	4.45	2.2	50.0
13C2 PFHxA	Ave	1.172	1.139		9.72	10.0	-2.8	30.0
13C2 PFDA	Ave	0.5578	0.5694		10.2	10.0	2.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: ICV 320-185329/13 Calibration Date: 09/20/2017 03:38

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.09.19_537ICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9069		92.5	100	-7.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9703		10.3	10.0	3.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.860		22.8	20.1	13.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9535		21.2	20.5	3.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	1.134		24.0	19.7	21.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.7173		23.2	20.1	15.3	30.0
13C2 PFHxA	Ave	1.172	1.165		9.94	10.0	-0.6	30.0
13C2 PFDA	Ave	0.5578	0.5781		10.4	10.0	3.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCVL 320-190437/4 Calibration Date: 10/20/2017 17:49

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.204		20.7	20.0	3.7	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9757		2.30	2.22	3.6	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.732		7.05	6.67	5.7	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.8825		4.27	4.45	-4.0	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.8839		8.44	8.89	-5.1	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.5891		4.21	4.45	-5.3	50.0
13C2 PFHxA	Ave	1.172	1.198		10.2	10.0	2.3	30.0
13C2 PFDA	Ave	0.5578	0.5295		9.49	10.0	-5.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190441/22 Calibration Date: 10/20/2017 19:14

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9165		146	135	7.9	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9447		15.1	15.0	0.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.601		44.0	45.0	-2.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9282		30.3	30.0	1.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9367		60.3	60.0	0.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6043		29.2	30.0	-2.8	30.0
13C2 PFHxA	Ave	1.172	1.250		10.7	10.0	6.7	30.0
13C2 PFDA	Ave	0.5578	0.5522		9.90	10.0	-1.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190441/34 Calibration Date: 10/20/2017 20:11

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.172		48.3	45.0	7.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	1.006		5.34	5.00	6.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.743		16.0	15.0	6.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9233		10.1	10.0	0.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9358		20.1	20.0	0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6357		10.2	10.0	2.2	30.0
13C2 PFHxA	Ave	1.172	1.267		10.8	10.0	8.1	30.0
13C2 PFDA	Ave	0.5578	0.5843		10.5	10.0	4.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190442/34 Calibration Date: 10/20/2017 20:11

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.172		48.3	45.0	7.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	1.006		5.34	5.00	6.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.743		16.0	15.0	6.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9233		10.1	10.0	0.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9358		20.1	20.0	0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6357		10.2	10.0	2.2	30.0
13C2 PFHxA	Ave	1.172	1.267		10.8	10.0	8.1	30.0
13C2 PFDA	Ave	0.5578	0.5843		10.5	10.0	4.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190442/45 Calibration Date: 10/20/2017 21:04

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_045.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9552		157	135	16.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	1.016		16.2	15.0	7.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.614		44.4	45.0	-1.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9447		30.8	30.0	2.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9465		61.0	60.0	1.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6327		30.5	30.0	1.7	30.0
13C2 PFHxA	Ave	1.172	1.324		11.3	10.0	13.0	30.0
13C2 PFDA	Ave	0.5578	0.5802		10.4	10.0	4.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190446/22 Calibration Date: 10/20/2017 22:43

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_066.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9420		153	135	13.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9682		15.4	15.0	2.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.613		44.3	45.0	-1.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9144		29.9	30.0	-0.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9355		60.3	60.0	0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6209		30.0	30.0	-0.2	30.0
13C2 PFHxA	Ave	1.172	1.297		11.1	10.0	10.7	30.0
13C2 PFDA	Ave	0.5578	0.5872		10.5	10.0	5.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190446/34 Calibration Date: 10/20/2017 23:40

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_078.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.155		47.5	45.0	5.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.709		15.7	15.0	4.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	1.003		5.33	5.00	6.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9119		9.93	10.0	-0.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9090		19.5	20.0	-2.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6257		10.1	10.0	0.6	30.0
13C2 PFHxA	Ave	1.172	1.270		10.8	10.0	8.4	30.0
13C2 PFDA	Ave	0.5578	0.5721		10.3	10.0	2.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190447/34 Calibration Date: 10/20/2017 23:40

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_078.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.155		47.5	45.0	5.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.709		15.7	15.0	4.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	1.003		5.33	5.00	6.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9119		9.93	10.0	-0.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9090		19.5	20.0	-2.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6257		10.1	10.0	0.6	30.0
13C2 PFHxA	Ave	1.172	1.270		10.8	10.0	8.4	30.0
13C2 PFDA	Ave	0.5578	0.5721		10.3	10.0	2.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-190447/37 Calibration Date: 10/20/2017 23:54

Instrument ID: A8_N Calib Start Date: 09/20/2017 02:56

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 09/20/2017 03:19

Lab File ID: 2017.10.20_537A_081.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9558		157	135	16.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9418	0.9744		15.5	15.0	3.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.638	1.608		44.2	45.0	-1.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9195	0.9171		29.9	30.0	-0.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9317	0.9279		59.8	60.0	-0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6218	0.6283		30.3	30.0	1.0	30.0
13C2 PFHxA	Ave	1.172	1.276		10.9	10.0	8.9	30.0
13C2 PFDA	Ave	0.5578	0.5799		10.4	10.0	4.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCVL 320-192162/11 Calibration Date: 10/31/2017 12:17

Instrument ID: A8_N Calib Start Date: 10/31/2017 11:44

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 10/31/2017 12:08

Lab File ID: 2017.10.31_537ICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.102		21.4	20.0	7.2	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9408	0.9641		2.28	2.22	2.5	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.629	1.689		6.92	6.67	3.7	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9301	0.9239		4.42	4.45	-0.7	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9283	0.9317		8.92	8.89	0.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6527	0.6672		4.54	4.45	2.2	50.0
13C2 PFHxA	Ave	1.129	1.083		9.59	10.0	-4.1	30.0
13C2 PFDA	Ave	0.8094	0.8119		10.0	10.0	0.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: ICV 320-192162/16 Calibration Date: 10/31/2017 14:58

Instrument ID: A8_N Calib Start Date: 10/31/2017 11:44

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 10/31/2017 12:08

Lab File ID: 2017.10.31_537AICAL_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.7489		82.4	100	-17.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9408	0.8366		8.89	10.0	-11.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.629	1.474		18.2	20.1	-9.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9301	0.8041		17.7	20.5	-13.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9283	0.8488		18.0	19.7	-8.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6527	0.6148		19.0	20.1	-5.8	30.0
13C2 PFHxA	Ave	1.129	1.069		9.47	10.0	-5.3	30.0
13C2 PFDA	Ave	0.8094	0.7781		9.61	10.0	-3.9	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-192192/1 Calibration Date: 10/31/2017 15:08

Instrument ID: A8_N Calib Start Date: 10/31/2017 11:44

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 10/31/2017 12:08

Lab File ID: 2017.10.31_537AA_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.7866		130	135	-3.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9408	0.9285		14.8	15.0	-1.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.629	1.595		44.1	45.0	-2.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9301	0.8979		29.0	30.0	-3.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9283	0.9524		61.6	60.0	2.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6527	0.6519		30.0	30.0	-0.1	30.0
13C2 PFHxA	Ave	1.129	1.167		10.3	10.0	3.4	30.0
13C2 PFDA	Ave	0.8094	0.8471		10.5	10.0	4.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Lab Sample ID: CCV 320-192192/7 Calibration Date: 10/31/2017 15:36

Instrument ID: A8_N Calib Start Date: 10/31/2017 11:44

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 10/31/2017 12:08

Lab File ID: 2017.10.31_537AA_007.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.006		46.2	45.0	2.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9408	0.9370		4.98	5.00	-0.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.629	1.717		15.8	15.0	5.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9301	0.9030		9.72	10.0	-2.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9283	0.9328		20.1	20.0	0.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6527	0.6618		10.1	10.0	1.4	30.0
13C2 PFHxA	Ave	1.129	1.135		10.1	10.0	0.6	30.0
13C2 PFDA	Ave	0.8094	0.8126		10.0	10.0	0.4	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 09/20/2017 02:56

Analysis Batch Number: 185329 End Date: 09/20/2017 03:38

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-185329/4		09/20/2017 02:56	1	2017.09.19_537I CAL 004.d	GeminiC18 3x100 3(mm)
IC 320-185329/5		09/20/2017 03:00	1	2017.09.19_537I CAL 005.d	GeminiC18 3x100 3(mm)
IC 320-185329/6		09/20/2017 03:05	1	2017.09.19_537I CAL 006.d	GeminiC18 3x100 3(mm)
IC 320-185329/7 ICISAV		09/20/2017 03:10	1	2017.09.19_537I CAL 007.d	GeminiC18 3x100 3(mm)
IC 320-185329/8		09/20/2017 03:15	1	2017.09.19_537I CAL 008.d	GeminiC18 3x100 3(mm)
IC 320-185329/9		09/20/2017 03:19	1	2017.09.19_537I CAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		09/20/2017 03:24	1		GeminiC18 3x100 3(mm)
CCVL 320-185329/11		09/20/2017 03:29	1	2017.09.19_537I CAL 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		09/20/2017 03:34	1		GeminiC18 3x100 3(mm)
ICV 320-185329/13		09/20/2017 03:38	1	2017.09.19_537I CAL 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/20/2017 17:49

Analysis Batch Number: 190437 End Date: 10/20/2017 17:49

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-190437/4		10/20/2017 17:49	1	2017.10.20_537A_004.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/20/2017 19:14

Analysis Batch Number: 190441 End Date: 10/20/2017 20:11

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-190441/22 CCVIS		10/20/2017 19:14	1	2017.10.20_537A_022.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/20/2017 19:19	1		GeminiC18 3x100 3(mm)
MB 320-189591/1-A		10/20/2017 19:24	1	2017.10.20_537A_024.d	GeminiC18 3x100 3(mm)
LCS 320-189591/2-A		10/20/2017 19:29	1	2017.10.20_537A_025.d	GeminiC18 3x100 3(mm)
320-32094-1		10/20/2017 19:33	1	2017.10.20_537A_026.d	GeminiC18 3x100 3(mm)
320-32094-2		10/20/2017 19:38	1	2017.10.20_537A_027.d	GeminiC18 3x100 3(mm)
320-32094-3		10/20/2017 19:43	1	2017.10.20_537A_028.d	GeminiC18 3x100 3(mm)
320-32094-3 MS		10/20/2017 19:48	1	2017.10.20_537A_029.d	GeminiC18 3x100 3(mm)
320-32094-3 MSD		10/20/2017 19:52	1	2017.10.20_537A_030.d	GeminiC18 3x100 3(mm)
320-32094-4		10/20/2017 19:57	1	2017.10.20_537A_031.d	GeminiC18 3x100 3(mm)
320-32094-5		10/20/2017 20:02	1	2017.10.20_537A_032.d	GeminiC18 3x100 3(mm)
320-32094-6		10/20/2017 20:07	1	2017.10.20_537A_033.d	GeminiC18 3x100 3(mm)
CCV 320-190441/34 CCVIS		10/20/2017 20:11	1	2017.10.20_537A_034.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/20/2017 20:11

Analysis Batch Number: 190442 End Date: 10/20/2017 21:04

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-190442/34 CCVIS		10/20/2017 20:11	1	2017.10.20_537A_034.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/20/2017 20:16	1		GeminiC18 3x100 3(mm)
320-32094-7		10/20/2017 20:21	1	2017.10.20_537A_036.d	GeminiC18 3x100 3(mm)
320-32094-8		10/20/2017 20:26	1	2017.10.20_537A_037.d	GeminiC18 3x100 3(mm)
320-32094-9		10/20/2017 20:30	1	2017.10.20_537A_038.d	GeminiC18 3x100 3(mm)
320-32094-10		10/20/2017 20:35	1	2017.10.20_537A_039.d	GeminiC18 3x100 3(mm)
320-32094-11		10/20/2017 20:40	1	2017.10.20_537A_040.d	GeminiC18 3x100 3(mm)
320-32094-12		10/20/2017 20:45	1	2017.10.20_537A_041.d	GeminiC18 3x100 3(mm)
320-32094-13		10/20/2017 20:49	1	2017.10.20_537A_042.d	GeminiC18 3x100 3(mm)
320-32094-14		10/20/2017 20:54	1	2017.10.20_537A_043.d	GeminiC18 3x100 3(mm)
320-32094-15		10/20/2017 20:59	1	2017.10.20_537A_044.d	GeminiC18 3x100 3(mm)
CCV 320-190442/45 CCVIS		10/20/2017 21:04	1	2017.10.20_537A_045.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/20/2017 22:43

Analysis Batch Number: 190446 End Date: 10/20/2017 23:40

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-190446/22 CCVIS		10/20/2017 22:43	1	2017.10.20_537A 066.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/20/2017 22:48	1		GeminiC18 3x100 3(mm)
MB 320-189627/1-A		10/20/2017 22:53	1	2017.10.20_537A 068.d	GeminiC18 3x100 3(mm)
LLCS 320-189627/2-A		10/20/2017 22:57	1	2017.10.20_537A 069.d	GeminiC18 3x100 3(mm)
LLCSD 320-189627/3-A		10/20/2017 23:02	1	2017.10.20_537A 070.d	GeminiC18 3x100 3(mm)
320-32094-16		10/20/2017 23:07	1	2017.10.20_537A 071.d	GeminiC18 3x100 3(mm)
320-32094-17		10/20/2017 23:12	1	2017.10.20_537A 072.d	GeminiC18 3x100 3(mm)
320-32094-18		10/20/2017 23:16	1	2017.10.20_537A 073.d	GeminiC18 3x100 3(mm)
320-32094-19		10/20/2017 23:21	1	2017.10.20_537A 074.d	GeminiC18 3x100 3(mm)
320-32094-20		10/20/2017 23:26	1	2017.10.20_537A 075.d	GeminiC18 3x100 3(mm)
320-32094-21		10/20/2017 23:31	1	2017.10.20_537A 076.d	GeminiC18 3x100 3(mm)
320-32094-22		10/20/2017 23:35	1	2017.10.20_537A 077.d	GeminiC18 3x100 3(mm)
CCV 320-190446/34 CCVIS		10/20/2017 23:40	1	2017.10.20_537A 078.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/20/2017 23:40

Analysis Batch Number: 190447 End Date: 10/20/2017 23:54

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-190447/34 CCVIS		10/20/2017 23:40	1	2017.10.20_537A_078.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/20/2017 23:45	1		GeminiC18 3x100 3(mm)
320-32094-23		10/20/2017 23:50	1	2017.10.20_537A_080.d	GeminiC18 3x100 3(mm)
CCV 320-190447/37 CCVIS		10/20/2017 23:54	1	2017.10.20_537A_081.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/31/2017 11:44

Analysis Batch Number: 192162 End Date: 10/31/2017 14:58

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-192162/4		10/31/2017 11:44	1	2017.10.31_537ICAL_004.d	GeminiC18 3x100 3(mm)
IC 320-192162/5		10/31/2017 11:49	1	2017.10.31_537ICAL_005.d	GeminiC18 3x100 3(mm)
IC 320-192162/6		10/31/2017 11:54	1	2017.10.31_537ICAL_006.d	GeminiC18 3x100 3(mm)
IC 320-192162/7 ICISAV		10/31/2017 11:58	1	2017.10.31_537ICAL_007.d	GeminiC18 3x100 3(mm)
IC 320-192162/8		10/31/2017 12:03	1	2017.10.31_537ICAL_008.d	GeminiC18 3x100 3(mm)
IC 320-192162/9		10/31/2017 12:08	1	2017.10.31_537ICAL_009.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/31/2017 12:13	1		GeminiC18 3x100 3(mm)
CCVL 320-192162/11		10/31/2017 12:17	1	2017.10.31_537ICAL_011.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/31/2017 14:53	1		GeminiC18 3x100 3(mm)
ICV 320-192162/16		10/31/2017 14:58	1	2017.10.31_537AICAL_003.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Instrument ID: A8_N Start Date: 10/31/2017 15:08

Analysis Batch Number: 192192 End Date: 10/31/2017 15:36

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-192192/1 CCVIS		10/31/2017 15:08	1	2017.10.31_537AA 001.d	GeminiC18 3x100 3(mm)
ZZZZZ		10/31/2017 15:12	1		GeminiC18 3x100 3(mm)
MB 320-190676/1-A		10/31/2017 15:17	1	2017.10.31_537AA 003.d	GeminiC18 3x100 3(mm)
LCS 320-190676/2-A		10/31/2017 15:22	1	2017.10.31_537AA 004.d	GeminiC18 3x100 3(mm)
LCSD 320-190676/3-A		10/31/2017 15:27	1	2017.10.31_537AA 005.d	GeminiC18 3x100 3(mm)
320-32094-15 RE		10/31/2017 15:31	1	2017.10.31_537AA 006.d	GeminiC18 3x100 3(mm)
CCV 320-192192/7 CCVIS		10/31/2017 15:36	1	2017.10.31_537AA 007.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 189591 Batch Start Date: 10/16/17 14:39 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/18/17 18:29

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00023
MB 320-189591/1		537, 537				250 mL	1.00 mL	7 SU	
LCS 320-189591/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-32094-A-1	WGNA-100217-RW-0344	537, 537	T	307.76 g	27.61 g	280.2 mL	1.00 mL	7 SU	
320-32094-A-2	WGNA-100217-FRB-0344	537, 537	T	298.45 g	27.94 g	270.5 mL	1.00 mL	7 SU	
320-32094-A-3	NAWC-100217-RW-140	537, 537	T	289.75 g	28.25 g	261.5 mL	1.00 mL	7 SU	
320-32094-A-3 MS	NAWC-100217-RW-140	537, 537	T	285.43 g	27.16 g	258.3 mL	1.00 mL	7 SU	100 uL
320-32094-A-3 MSD	NAWC-100217-RW-140	537, 537	T	291.68 g	27.83 g	263.9 mL	1.00 mL	7 SU	100 uL
320-32094-A-4	NAWC-100217-FRB-140	537, 537	T	302.74 g	27.54 g	275.2 mL	1.00 mL	7 SU	
320-32094-A-5	NAWC-100217-RW-316	537, 537	T	308.62 g	27.34 g	281.3 mL	1.00 mL	7 SU	
320-32094-A-6	NAWC-100217-FRB-316	537, 537	T	285.74 g	27.34 g	258.4 mL	1.00 mL	7 SU	
320-32094-A-7	NAWC-100217-RW-144	537, 537	T	299.88 g	27.59 g	272.3 mL	1.00 mL	7 SU	
320-32094-A-8	NAWC-100217-FRB-144	537, 537	T	285.55 g	26.86 g	258.7 mL	1.00 mL	7 SU	
320-32094-A-9	NAWC-100217-RW-151	537, 537	T	296.80 g	27.55 g	269.3 mL	1.00 mL	7 SU	
320-32094-A-10	NAWC-100217-FRB-151	537, 537	T	295.19 g	27.41 g	267.8 mL	1.00 mL	7 SU	
320-32094-A-11	WGNA-100217-DUP11	537, 537	T	309.54 g	27.57 g	282 mL	1.00 mL	7 SU	
320-32094-A-12	NAWC-100217-RW-130	537, 537	T	304.48 g	27.33 g	277.2 mL	1.00 mL	7 SU	
320-32094-A-13	NAWC-100217-FRB-130	537, 537	T	312.01 g	26.85 g	285.2 mL	1.00 mL	7 SU	
320-32094-A-14	NAWC-100217-RW-125	537, 537	T	315.45 g	27.20 g	288.3 mL	1.00 mL	7 SU	
320-32094-A-15	NAWC-100217-FRB-125	537, 537	T	293.33 g	27.10 g	266.2 mL	1.00 mL	7 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00051	LC537-SU 00051	AnalysisComment			
MB 320-189591/1		537, 537		100 uL	100 uL	Chlorine ND			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 189591 Batch Start Date: 10/16/17 14:39 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/18/17 18:29

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00051	LC537-SU 00051	AnalysisComment			
LCS 320-189591/2		537, 537		100 uL	100 uL	Chlorine ND			
320-32094-A-1	WGNA-100217-RW-0344	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-2	WGNA-100217-FRB-0344	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-3	NAWC-100217-RW-140	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-3 MS	NAWC-100217-RW-140	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-3 MSD	NAWC-100217-RW-140	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-4	NAWC-100217-FRB-140	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-5	NAWC-100217-RW-316	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-6	NAWC-100217-FRB-316	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-7	NAWC-100217-RW-144	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-8	NAWC-100217-FRB-144	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-9	NAWC-100217-RW-151	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-10	NAWC-100217-FRB-151	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-11	WGNA-100217-DUP11	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-12	NAWC-100217-RW-130	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-13	NAWC-100217-FRB-130	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-14	NAWC-100217-RW-125	537, 537	T	100 uL	100 uL	Chlorine ND			
320-32094-A-15	NAWC-100217-FRB-125	537, 537	T	100 uL	100 uL	Chlorine ND			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 189591 Batch Start Date: 10/16/17 14:39 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/18/17 18:29

Batch Notes	
Analyst ID - Aliquot Step	ABH
Analyst ID - Concentration	CCB/ABH
Analyst ID - Final Volume Step	ABH
Internal Standard ID#	1041860
Manifold ID	1,3
Methanol ID	1052423
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	ABH
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	TWL
SPE Cartridge ID	6357081-09
Trizma ID	SLBR4303V
Reagent Water ID	10/12/17

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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 189627 Batch Start Date: 10/16/17 15:50 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/19/17 21:53

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00051
MB 320-189627/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCS 320-189627/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCSD 320-189627/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-32094-A-16	NAWC-100217-RW-139	537, 537	T	313.64 g	27.67 g	286 mL	1.00 mL	7 SU	100 uL
320-32094-A-17	NAWC-100217-FRB-139	537, 537	T	293.11 g	27.28 g	265.8 mL	1.00 mL	7 SU	100 uL
320-32094-A-18	WGNA-100217-RW-0500	537, 537	T	312.83 g	27.38 g	285.5 mL	1.00 mL	7 SU	100 uL
320-32094-A-19	WGNA-100217-FRB-0500	537, 537	T	288.20 g	27.29 g	260.9 mL	1.00 mL	7 SU	100 uL
320-32094-A-20	WGNA-100217-RW-0413	537, 537	T	310.96 g	27.87 g	283.1 mL	1.00 mL	7 SU	100 uL
320-32094-A-21	WGNA-100217-FRB-0413	537, 537	T	294.33 g	27.37 g	267 mL	1.00 mL	7 SU	100 uL
320-32094-A-22	WGNA-100217-RW-0404	537, 537	T	296.85 g	27.60 g	269.3 mL	1.00 mL	7 SU	100 uL
320-32094-A-23	WGNA-100217-FRB-0404	537, 537	T	283.75 g	27.40 g	256.4 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00025	LC537-SU 00051	AnalysisComment			
MB 320-189627/1		537, 537			100 uL	Chlorine ND			
LLCS 320-189627/2		537, 537		100 uL	100 uL	Chlorine ND			
LLCSD 320-189627/3		537, 537		100 uL	100 uL	Chlorine ND			
320-32094-A-16	NAWC-100217-RW-139	537, 537	T		100 uL	Chlorine ND			
320-32094-A-17	NAWC-100217-FRB-139	537, 537	T		100 uL	Chlorine ND			
320-32094-A-18	WGNA-100217-RW-0500	537, 537	T		100 uL	Chlorine ND			
320-32094-A-19	WGNA-100217-FRB-0500	537, 537	T		100 uL	Chlorine ND			
320-32094-A-20	WGNA-100217-RW-0413	537, 537	T		100 uL	Chlorine ND			
320-32094-A-21	WGNA-100217-FRB-0413	537, 537	T		100 uL	Chlorine ND			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 189627 Batch Start Date: 10/16/17 15:50 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/19/17 21:53

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00025	LC537-SU 00051	AnalysisComment			
320-32094-A-22	WGNA-100217-RW-0404	537, 537	T		100 uL	Chlorine ND			
320-32094-A-23	WGNA-100217-FRB-0404	537, 537	T		100 uL	Chlorine ND			

Batch Notes	
Analyst ID - Aliquot Step	TQN
Analyst ID - Concentration	ABH/TQN
Analyst ID - Final Volume Step	TQN
Internal Standard ID#	1041860
Manifold ID	1,3
Methanol ID	1052423
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	TQN
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	TWL
SPE Cartridge ID	6357081-09
Trizma ID	SLBR4303V
Reagent Water ID	10/12/17

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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 190676 Batch Start Date: 10/23/17 14:30 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/25/17 20:40

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00051
MB 320-190676/1		537, 537				250 mL	1.00 mL		100 uL
LCS 320-190676/2		537, 537				250 mL	1.00 mL		100 uL
LCSD 320-190676/3		537, 537				250 mL	1.00 mL		100 uL
320-32094-B-15	NAWC-100217-FRB-125	537, 537	T	277.64 g	27.18 g	250.5 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00026	LC537-SU 00049	AnalysisComment			
MB 320-190676/1		537, 537			100 uL				
LCS 320-190676/2		537, 537		100 uL	100 uL				
LCSD 320-190676/3		537, 537		100 uL	100 uL				
320-32094-B-15	NAWC-100217-FRB-125	537, 537	T		100 uL	Chlorine ND			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-32094-1

SDG No.:

Batch Number: 190676 Batch Start Date: 10/23/17 14:30 Batch Analyst: Long, Tyrel W

Batch Method: 537 Batch End Date: 10/25/17 20:40

Batch Notes	
Analyst ID - Aliquot Step	TQN
Analyst ID - Concentration	CCB/TQN
Analyst ID - Final Volume Step	TQN
Internal Standard ID#	1041860
Manifold ID	3
Methanol ID	1061681
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	TQN
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - TA Reagent Drop	JER
Analyst ID - TA Reagent Drop Witness	TWL
SPE Cartridge ID	6357081-09
Trizma ID	SLBR4303V
Reagent Water ID	10/19/17

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.

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

DB 10/20/17

Batch Number: 320-189591

Method Code: 320-537_Prep-320

Analyst: Long, Tyrel W

Batch Open: 10/16/2017 2:39:00PM

Batch End: 10/18/2017 6:29:00PM

Extraction of Perfluorinated Alkyl Acids

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB~320-189591/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	MB 320-189591/1-A
				1.00 mL								
2	LCS~320-189591/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	LCS 320-189591/2-A
				1.00 mL								
3	320-32094-A-1 (537_DOD5)	N/A (320-32094-1)	307.76 g	280.2 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-1-A
			27.61 g	1.00 mL								
4	320-32094-A-2 (537_DOD5)	N/A (320-32094-1)	298.45 g	270.5 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-2-A
			27.94 g	1.00 mL								
5	320-32094-A-3 (537_DOD5)	N/A (320-32094-1)	289.75 g	261.5 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-3-A
			28.25 g	1.00 mL								
6	320-32094-A-3~MS (537_DOD5)	N/A (320-32094-1)	285.43 g	258.3 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-3-B MS
			27.16 g	1.00 mL								
7	320-32094-A-3~MSD (537_DOD5)	N/A (320-32094-1)	291.68 g	263.9 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-3-C MSD
			27.83 g	1.00 mL								
8	320-32094-A-4 (537_DOD5)	N/A (320-32094-1)	302.74 g	275.2 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-4-A
			27.54 g	1.00 mL								
9	320-32094-A-5 (537_DOD5)	N/A (320-32094-1)	308.62 g	281.3 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-5-A
			27.34 g	1.00 mL								
10	320-32094-A-6 (537_DOD5)	N/A (320-32094-1)	285.74 g	258.4 mL	7			10/7/17	16_Days	4	Chlorine ND	320-32094-A-6-A
			27.34 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-189591

Analyst: Long, Tyrel W

Batch Open: 10/16/2017 2:39:00PM

Method Code: 320-537_Prep-320

Batch End:

11	320-32094-A-7 (537_DOD5)	N/A (320-32094-1)	299.88 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
12	320-32094-A-8 (537_DOD5)	N/A (320-32094-1)	285.55 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
13	320-32094-A-9 (537_DOD5)	N/A (320-32094-1)	296.80 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
14	320-32094-A-10 (537_DOD5)	N/A (320-32094-1)	295.19 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
15	320-32094-A-11 (537_DOD5)	N/A (320-32094-1)	309.54 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
16	320-32094-A-12 (537_DOD5)	N/A (320-32094-1)	304.48 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
17	320-32094-A-13 (537_DOD5)	N/A (320-32094-1)	312.01 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
18	320-32094-A-14 (537_DOD5)	N/A (320-32094-1)	315.45 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	
19	320-32094-A-15 (537_DOD5)	N/A (320-32094-1)	293.33 g	1.00 mL	7			10/7/17	16_Days	4	Chlorine ND	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-189591

Method Code: 320-537_Prep-320

Analyst: Long, Tyrel W

Batch Open: 10/16/2017 2:39:00PM

Batch End:

Batch Notes

Manifold ID	1,3
Trizma ID	SLBR4303V
SPE Cartridge ID	6357081-09
Methanol ID	1052423
Reagent Water ID	10/12/17
Internal Standard ID#	LC537 - IS - 00051 1041860
Pipette ID	H14930F
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	ABH
Analyst ID - Concentration	CCB / ABH
Analyst ID - Aliquot Step	ABH
Analyst ID - Final Volume Step	~~CC~~ ABH 10/18/17 / ABH
Batch Comment	IS: JER BD: CCB / ABH FV: ABH AL: ABH

Comments

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

RX

AB 10/26/17
AB 10/31/17

Batch Number: 320-190676

Method Code: 320-537_Prep-320

Analyst: Long, Tyrel W

Batch Open: 10/23/2017 2:30:00PM

Batch End: 10/25/2017 8:40:00PM

Extraction of Perfluorinated Alkyl Acids

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB~320-190676/1 N/A	N/A		250 mL				N/A	N/A	N/A		
				1.00 mL								
2	LCS~320-190676/2 N/A	N/A		250 mL				N/A	N/A	N/A		
				1.00 mL								
3	LCSD~320-190676/3 N/A	N/A		250 mL				N/A	N/A	N/A		
				1.00 mL								
4	320-32094-B-15 (537_DOD5)	N/A (320-32094-1)	277.64 g	250.5 mL	7			10/7/17	16_Days	4	Chlorine ND	
			27.18 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-190676

Method Code: 320-537_Prep-320

Analyst: Long, Tyrel W

Batch Open: 10/23/2017 2:30:00PM

Batch End: 10/25/2017 8:40:00PM

Batch Notes

Manifold ID	3
Trizma ID	SLBR4303V
SPE Cartridge ID	6357081-09
Methanol ID	1061681
Reagent Water ID	10/19/17
Internal Standard ID#	1041860
Pipette ID	H14930F
Analyst ID - TA Reagent Drop	JER
Analyst ID - TA Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - IS Reagent Drop	TQN
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - Concentration	CCB/TQN
Analyst ID - Aliquot Step	TQN
Analyst ID - Final Volume Step	TQN
Batch Comment	N/A

PFAS Calibration Calculations:

Initial Calibration 9/20/2017
Instrument A8_N

Perfluorohexanesulfonic acid

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	Reported RRF
3	971572	5717338	28.7	1.62571	1.624
6.67	2411042	5904759	28.7	1.75695	1.7562
15	4809005	5478893	28.7	1.67940	1.6778
30	9481986	5418565	28.7	1.67408	1.6725
45	13653533	5450221	28.7	1.59772	1.5962
60	17148552	5454650	28.7	1.50380	1.5024
			Average	1.63961	1.6382
			Standard Deviation	0.0859	
			RSD	0.0524	
			%RSD	5.24164	5.3

Continuing Calibration 10/20/2017 @ 17:49
A8_N

Perfluorohexanesulfonic acid

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	%D	Reported RRF	Reported %D
6.67	2433028	6041408	28.7	1.7329	5.7786651	1.732	5.7

Willow Grove
SDG 320-32094-1

Sample Identification	WGNA-100217-RW-0344	
Compound	Perfluorohexanesulfonic acid	
Compound Area	1890625	
Internal Standard Amount (ng)	28.7	
Dilution Factor	1	
Internal Standard Area	5157371	
Average RRF	1.6382	
Sample Volume(ml)	280.2	
Volume Extract (ml)	1	
Injection Volume (µl)	1	
Concentration	22.9205	ug/L

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N

WARRINGTON

WARWICK

NORTHAMPTON

IVYLAND

WARMINSTER

HAGS

NASJRB
Willow Grove

HORSHAM

HATBORO

UPPER SOUTHAMPTON

UPPER MORELAND

LEGEND

- PFOA & PFOS BELOW DETECTION LIMITS
- SUM OF PFOA & PFOS CONCENTRATIONS AT OR BELOW 40 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS BETWEEN 40 PPT AND 70 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS ABOVE 70 PPT
- PUBLIC WATER CONNECTION (SOME NOT BY NAVY)
- SAMPLING AREA
- FORMER NAWC WARMINSTER
- TOWNSHIP BOUNDARY

3,000 1,500 0 3,000 6,000
Feet

NAVFAC

PFC SAMPLE RESULTS MAP
FORMER NAWC WAMINSTER
MONTGOMERY COUNTY, PENNSYLVANIA

SCALE	AS NOTED
FILE	NAWC
REV	0
DATE	01/24/19
FIGURE NUMBER	FIGURE 1