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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 320-29279-1

Naval Air Station Willow Grove
Willow Grove, Pennsylvania

August 2019

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N00158_000706
WILLOW_GROVE_NAS
SSIC 5000-33c

LABORATORY DATA PACKAGE, 320-29279-1, NAWC WARMINSTER NAS WILLOW GROVE PA

07/13/2017

TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

ANALYTICAL REPORT

Job Number: 320-29279-1

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
7/13/2017 4:16 PM

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07/13/2017

Table of Contents

Cover Title Page 1

Data Summaries 4

Definitions 4

Case Narrative 5

Detection Summary 6

Client Sample Results 8

Default Detection Limits 15

Surrogate Summary 16

QC Sample Results 17

QC Association 18

Chronicle 20

Certification Summary 24

Method Summary 25

Sample Summary 26

Manual Integration Summary 27

Reagent Traceability 33

COAs 43

Organic Sample Data 94

LCMS 94

Method 537 DOD 94

Method 537 DOD QC Summary 95

Method 537 DOD Sample Data 107

Standards Data 236

Method 537 DOD ICAL Data 236

Method 537 DOD CCAL Data 266

Raw QC Data 329

Table of Contents

Method 537 DOD Blank Data 329

Method 537 DOD LCS/LCSD Data 334

Method 537 DOD Run Logs 352

Method 537 DOD Prep Data 357

Shipping and Receiving Documents 370

Client Chain of Custody 371

Sample Receipt Checklist 372

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.

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
320-29279-1

Receipt
The samples were received on 6/21/2017 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9º C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. COC not relinquished with the date and time.

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.

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 320-172036.

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: 320-29279-1

Client Sample ID: WGNA-062017-RW-4831A — Lab Sample ID: 320-29279-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	98	M	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	19	J M	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	32		30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.1	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-062017-FRB-4831A — Lab Sample ID: 320-29279-2

No Detections.

Client Sample ID: WGNA-062017-RW-4831B — Lab Sample ID: 320-29279-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	120	M	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	21	M	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	38		30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.5	J	10	1.9	ng/L	1		537	Total/NA
Perfluorobutanesulfonic acid (PFBS)	16	J	91	16	ng/L	1		537	Total/NA

Client Sample ID: WGNA-062017-RW-3978 — Lab Sample ID: 320-29279-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	19	J M	39	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	16	J M	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.8	J	30	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.6	J	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-062017-FRB-3978 — Lab Sample ID: 320-29279-5

No Detections.

Client Sample ID: WGNA-062017-RW-3991 — Lab Sample ID: 320-29279-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	17	J M	38	6.5	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	19	M	19	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.0	J	29	5.3	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.5	J	9.5	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-062017-FRB-3991 — Lab Sample ID: 320-29279-7

No Detections.

Client Sample ID: WGNA-062017-RW-4834 — Lab Sample ID: 320-29279-8

No Detections.

Client Sample ID: WGNA-062017-FRB-4834 — Lab Sample ID: 320-29279-9

No Detections.

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: 320-29279-1

Client Sample ID: WGNA-062017-RW-4840 — Lab Sample ID: 320-29279-10

No Detections.

Client Sample ID: WGNA-062017-FRB-4840 — Lab Sample ID: 320-29279-11

No Detections.

Client Sample ID: WGNA-062017-RW-3124A — Lab Sample ID: 320-29279-12

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	19	J M	38	6.5	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	16	J M	19	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	13	J	29	5.2	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.1	J	9.5	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-062017-FRB-3124A — Lab Sample ID: 320-29279-13

No Detections.

Client Sample ID: WGNA-062017-RW-3124B — Lab Sample ID: 320-29279-14

No Detections.

Client Sample ID: WGNA-062017-RW-0344 — Lab Sample ID: 320-29279-15

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	25	J M	39	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	25	M	20	2.8	ng/L	1		537	Total/NA
Perfluorononanoic acid (PFNA)	29		24	7.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	19	J	30	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.3	J	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-062017-FRB-0344 — Lab Sample ID: 320-29279-16

No Detections.

Client Sample ID: WGNA-062017-RW-0413A — Lab Sample ID: 320-29279-17

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	8.8	J	39	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	15	J M	20	2.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.2	J	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-062017-FRB-0413A — Lab Sample ID: 320-29279-18

No Detections.

Client Sample ID: WGNA-062017-RW-0413B — Lab Sample ID: 320-29279-19

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	22	J	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	29	M	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.5	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.9	J	10	1.9	ng/L	1		537	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

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

TestAmerica Job ID: 320-29279-1

Client Sample ID: WGNA-062017-RW-4831A

Lab Sample ID: 320-29279-1
Date Collected: 06/20/17 08:45
Matrix: Water
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	98	M	40	6.8	ng/L		07/01/17 09:47	07/07/17 02:03	1
Perfluorooctanoic acid (PFOA)	19	J M	20	2.8	ng/L		07/01/17 09:47	07/07/17 02:03	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		07/01/17 09:47	07/07/17 02:03	1
Perfluorohexanesulfonic acid (PFHxS)	32		30	5.5	ng/L		07/01/17 09:47	07/07/17 02:03	1
Perfluoroheptanoic acid (PFHpA)	6.1	J	10	1.9	ng/L		07/01/17 09:47	07/07/17 02:03	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		07/01/17 09:47	07/07/17 02:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:03*	*1*
13C2 PFDA	*103*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:03*	*1*

Client Sample ID: WGNA-062017-FRB-4831A

Lab Sample ID: 320-29279-2
Date Collected: 06/20/17 08:40
Matrix: Water
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	41	6.9	ng/L		07/01/17 09:47	07/07/17 02:07	1
Perfluorooctanoic acid (PFOA)	8.2	U	20	2.9	ng/L		07/01/17 09:47	07/07/17 02:07	1
Perfluorononanoic acid (PFNA)	20	U	24	8.2	ng/L		07/01/17 09:47	07/07/17 02:07	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		07/01/17 09:47	07/07/17 02:07	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		07/01/17 09:47	07/07/17 02:07	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		07/01/17 09:47	07/07/17 02:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*97*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:07*	*1*
13C2 PFDA	*102*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:07*	*1*

Client Sample ID: WGNA-062017-RW-4831B

Lab Sample ID: 320-29279-3
Date Collected: 06/20/17 08:55
Matrix: Water
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	120	M	40	6.8	ng/L		07/01/17 09:47	07/07/17 02:12	1
Perfluorooctanoic acid (PFOA)	21	M	20	2.8	ng/L		07/01/17 09:47	07/07/17 02:12	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		07/01/17 09:47	07/07/17 02:12	1
Perfluorohexanesulfonic acid (PFHxS)	38		30	5.5	ng/L		07/01/17 09:47	07/07/17 02:12	1
Perfluoroheptanoic acid (PFHpA)	7.5	J	10	1.9	ng/L		07/01/17 09:47	07/07/17 02:12	1
Perfluorobutanesulfonic acid (PFBS)	16	J	91	16	ng/L		07/01/17 09:47	07/07/17 02:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*86*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:12*	*1*
13C2 PFDA	*97*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:12*	*1*

Client Sample ID: WGNA-062017-RW-3978 Lab Sample ID: 320-29279-4

Date Collected: 06/20/17 10:05 **Matrix: Water**
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**19**	**J M**	39	6.7	ng/L		07/01/17 09:47	07/07/17 02:17	1
Perfluorooctanoic acid (PFOA)	**16**	**J M**	20	2.8	ng/L		07/01/17 09:47	07/07/17 02:17	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		07/01/17 09:47	07/07/17 02:17	1
Perfluorohexanesulfonic acid (PFHxS)	**7.8**	**J**	30	5.4	ng/L		07/01/17 09:47	07/07/17 02:17	1
Perfluoroheptanoic acid (PFHpA)	**6.6**	**J**	9.8	1.9	ng/L		07/01/17 09:47	07/07/17 02:17	1
Perfluorobutanesulfonic acid (PFBS)	35	U	89	16	ng/L		07/01/17 09:47	07/07/17 02:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:17*	*1*
13C2 PFDA	*97*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:17*	*1*

Client Sample ID: WGNA-062017-FRB-3978 Lab Sample ID: 320-29279-5

Date Collected: 06/20/17 10:00 **Matrix: Water**
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	41	6.9	ng/L		07/01/17 09:47	07/07/17 02:22	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		07/01/17 09:47	07/07/17 02:22	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		07/01/17 09:47	07/07/17 02:22	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		07/01/17 09:47	07/07/17 02:22	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		07/01/17 09:47	07/07/17 02:22	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		07/01/17 09:47	07/07/17 02:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:22*	*1*
13C2 PFDA	*99*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:22*	*1*

Client Sample ID: WGNA-062017-RW-3991 Lab Sample ID: 320-29279-6

Date Collected: 06/20/17 11:20 **Matrix: Water**
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**17**	**J M**	38	6.5	ng/L		07/01/17 09:47	07/07/17 02:26	1
Perfluorooctanoic acid (PFOA)	**19**	**M**	19	2.7	ng/L		07/01/17 09:47	07/07/17 02:26	1
Perfluorononanoic acid (PFNA)	19	U	23	7.6	ng/L		07/01/17 09:47	07/07/17 02:26	1
Perfluorohexanesulfonic acid (PFHxS)	**8.0**	**J**	29	5.3	ng/L		07/01/17 09:47	07/07/17 02:26	1
Perfluoroheptanoic acid (PFHpA)	**6.5**	**J**	9.5	1.8	ng/L		07/01/17 09:47	07/07/17 02:26	1
Perfluorobutanesulfonic acid (PFBS)	34	U	86	15	ng/L		07/01/17 09:47	07/07/17 02:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:26*	*1*
13C2 PFDA	*103*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:26*	*1*

Client Sample Results

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

TestAmerica Job ID: 320-29279-1

Client Sample ID: WGNA-062017-FRB-3991

Lab Sample ID: 320-29279-7
Date Collected: 06/20/17 11:15
Matrix: Water
Date Received: 06/21/17 09:10

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		07/01/17 09:47	07/07/17 02:31	1
Perfluorooctanoic acid (PFOA)	7.8	U	20	2.7	ng/L		07/01/17 09:47	07/07/17 02:31	1
Perfluorononanoic acid (PFNA)	20	U	23	7.8	ng/L		07/01/17 09:47	07/07/17 02:31	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		07/01/17 09:47	07/07/17 02:31	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		07/01/17 09:47	07/07/17 02:31	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		07/01/17 09:47	07/07/17 02:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*98*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:31*	*1*
13C2 PFDA	*102*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:31*	*1*

Client Sample ID: WGNA-062017-RW-4834

Lab Sample ID: 320-29279-8
Date Collected: 06/20/17 14:10
Matrix: Water
Date Received: 06/21/17 09:10

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		07/01/17 09:47	07/07/17 02:45	1
Perfluorooctanoic acid (PFOA)	7.6	U	19	2.7	ng/L		07/01/17 09:47	07/07/17 02:45	1
Perfluorononanoic acid (PFNA)	19	U	23	7.6	ng/L		07/01/17 09:47	07/07/17 02:45	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.2	ng/L		07/01/17 09:47	07/07/17 02:45	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.5	1.8	ng/L		07/01/17 09:47	07/07/17 02:45	1
Perfluorobutanesulfonic acid (PFBS)	34	U	85	15	ng/L		07/01/17 09:47	07/07/17 02:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:45*	*1*
13C2 PFDA	*99*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:45*	*1*

Client Sample ID: WGNA-062017-FRB-4834

Lab Sample ID: 320-29279-9
Date Collected: 06/20/17 14:05
Matrix: Water
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	39	6.5	ng/L		07/01/17 09:47	07/07/17 02:50	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		07/01/17 09:47	07/07/17 02:50	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		07/01/17 09:47	07/07/17 02:50	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		07/01/17 09:47	07/07/17 02:50	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	1.8	ng/L		07/01/17 09:47	07/07/17 02:50	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		07/01/17 09:47	07/07/17 02:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:50*	*1*
13C2 PFDA	*98*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:50*	*1*

Client Sample Results

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

TestAmerica Job ID: 320-29279-1

Client Sample ID: WGNA-062017-RW-4840

Lab Sample ID: 320-29279-10
Date Collected: 06/20/17 14:40
Matrix: Water
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	39	6.5	ng/L		07/01/17 09:47	07/07/17 02:55	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		07/01/17 09:47	07/07/17 02:55	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		07/01/17 09:47	07/07/17 02:55	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		07/01/17 09:47	07/07/17 02:55	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	1.8	ng/L		07/01/17 09:47	07/07/17 02:55	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	15	ng/L		07/01/17 09:47	07/07/17 02:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:55*	*1*
13C2 PFDA	*94*		*70 - 130*	*07/01/17 09:47*	*07/07/17 02:55*	*1*

Client Sample ID: WGNA-062017-FRB-4840

Lab Sample ID: 320-29279-11
Date Collected: 06/20/17 14:35
Matrix: Water
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	41	6.9	ng/L		07/01/17 09:47	07/07/17 03:00	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		07/01/17 09:47	07/07/17 03:00	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		07/01/17 09:47	07/07/17 03:00	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		07/01/17 09:47	07/07/17 03:00	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		07/01/17 09:47	07/07/17 03:00	1
Perfluorobutanesulfonic acid (PFBS)	37	U	91	16	ng/L		07/01/17 09:47	07/07/17 03:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*97*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:00*	*1*
13C2 PFDA	*100*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:00*	*1*

Client Sample ID: WGNA-062017-RW-3124A

Lab Sample ID: 320-29279-12
Date Collected: 06/20/17 09:40
Matrix: Water
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**19**	**J M**	38	6.5	ng/L		07/01/17 09:47	07/07/17 03:04	1
Perfluorooctanoic acid (PFOA)	**16**	**J M**	19	2.7	ng/L		07/01/17 09:47	07/07/17 03:04	1
Perfluorononanoic acid (PFNA)	19	U	23	7.6	ng/L		07/01/17 09:47	07/07/17 03:04	1
Perfluorohexanesulfonic acid (PFHxS)	**13**	**J**	29	5.2	ng/L		07/01/17 09:47	07/07/17 03:04	1
Perfluoroheptanoic acid (PFHpA)	**4.1**	**J**	9.5	1.8	ng/L		07/01/17 09:47	07/07/17 03:04	1
Perfluorobutanesulfonic acid (PFBS)	34	U	86	15	ng/L		07/01/17 09:47	07/07/17 03:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*88*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:04*	*1*
13C2 PFDA	*101*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:04*	*1*

Client Sample ID: WGNA-062017-FRB-3124A — Lab Sample ID: 320-29279-13

Date Collected: 06/20/17 09:35 **Matrix: Water**
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.7	ng/L		07/01/17 09:47	07/07/17 03:09	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		07/01/17 09:47	07/07/17 03:09	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		07/01/17 09:47	07/07/17 03:09	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.4	ng/L		07/01/17 09:47	07/07/17 03:09	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.9	1.9	ng/L		07/01/17 09:47	07/07/17 03:09	1
Perfluorobutanesulfonic acid (PFBS)	35	U	89	16	ng/L		07/01/17 09:47	07/07/17 03:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:09*	*1*
13C2 PFDA	*94*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:09*	*1*

Client Sample ID: WGNA-062017-RW-3124B — Lab Sample ID: 320-29279-14

Date Collected: 06/20/17 09:45 **Matrix: Water**
Date Received: 06/21/17 09:10

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		07/01/17 09:47	07/07/17 03:14	1
Perfluorooctanoic acid (PFOA)	7.8	U	19	2.7	ng/L		07/01/17 09:47	07/07/17 03:14	1
Perfluorononanoic acid (PFNA)	19	U	23	7.8	ng/L		07/01/17 09:47	07/07/17 03:14	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		07/01/17 09:47	07/07/17 03:14	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	1.8	ng/L		07/01/17 09:47	07/07/17 03:14	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		07/01/17 09:47	07/07/17 03:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:14*	*1*
13C2 PFDA	*96*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:14*	*1*

Client Sample ID: WGNA-062017-RW-0344 — Lab Sample ID: 320-29279-15

Date Collected: 06/20/17 10:45 **Matrix: Water**
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**25**	**J M**	39	6.7	ng/L		07/01/17 09:47	07/07/17 03:19	1
Perfluorooctanoic acid (PFOA)	**25**	**M**	20	2.8	ng/L		07/01/17 09:47	07/07/17 03:19	1
Perfluorononanoic acid (PFNA)	**29**		24	7.9	ng/L		07/01/17 09:47	07/07/17 03:19	1
Perfluorohexanesulfonic acid (PFHxS)	**19**	**J**	30	5.4	ng/L		07/01/17 09:47	07/07/17 03:19	1
Perfluoroheptanoic acid (PFHpA)	**7.3**	**J**	9.8	1.9	ng/L		07/01/17 09:47	07/07/17 03:19	1
Perfluorobutanesulfonic acid (PFBS)	35	U	89	16	ng/L		07/01/17 09:47	07/07/17 03:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:19*	*1*
13C2 PFDA	*96*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:19*	*1*

Client Sample Results

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

TestAmerica Job ID: 320-29279-1

Client Sample ID: WGNA-062017-FRB-0344

Lab Sample ID: 320-29279-16
Date Collected: 06/20/17 10:40
Matrix: Water
Date Received: 06/21/17 09:10

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		07/01/17 09:47	07/07/17 03:23	1
Perfluorooctanoic acid (PFOA)	7.8	U	19	2.7	ng/L		07/01/17 09:47	07/07/17 03:23	1
Perfluorononanoic acid (PFNA)	19	U	23	7.8	ng/L		07/01/17 09:47	07/07/17 03:23	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		07/01/17 09:47	07/07/17 03:23	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	1.8	ng/L		07/01/17 09:47	07/07/17 03:23	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		07/01/17 09:47	07/07/17 03:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:23*	*1*
13C2 PFDA	*95*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:23*	*1*

Client Sample ID: WGNA-062017-RW-0413A

Lab Sample ID: 320-29279-17
Date Collected: 06/20/17 15:15
Matrix: Water
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**8.8**	**J**	39	6.7	ng/L		07/01/17 09:47	07/07/17 03:28	1
Perfluorooctanoic acid (PFOA)	**15**	**J M**	20	2.8	ng/L		07/01/17 09:47	07/07/17 03:28	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		07/01/17 09:47	07/07/17 03:28	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		07/01/17 09:47	07/07/17 03:28	1
Perfluoroheptanoic acid (PFHpA)	**4.2**	**J**	9.8	1.9	ng/L		07/01/17 09:47	07/07/17 03:28	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		07/01/17 09:47	07/07/17 03:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:28*	*1*
13C2 PFDA	*90*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:28*	*1*

Client Sample ID: WGNA-062017-FRB-0413A

Lab Sample ID: 320-29279-18
Date Collected: 06/20/17 15:10
Matrix: Water
Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.7	ng/L		07/01/17 09:47	07/07/17 03:42	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		07/01/17 09:47	07/07/17 03:42	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		07/01/17 09:47	07/07/17 03:42	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.4	ng/L		07/01/17 09:47	07/07/17 03:42	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		07/01/17 09:47	07/07/17 03:42	1
Perfluorobutanesulfonic acid (PFBS)	35	U	89	16	ng/L		07/01/17 09:47	07/07/17 03:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*89*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:42*	*1*
13C2 PFDA	*93*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:42*	*1*

Client Sample Results

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

TestAmerica Job ID: 320-29279-1

Client Sample ID: WGNA-062017-RW-0413B

Lab Sample ID: 320-29279-19

Date Collected: 06/20/17 15:20
Date Received: 06/21/17 09:10

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**22**	**J**	40	6.8	ng/L		07/01/17 09:47	07/07/17 03:47	1
Perfluorooctanoic acid (PFOA)	**29**	**M**	20	2.8	ng/L		07/01/17 09:47	07/07/17 03:47	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		07/01/17 09:47	07/07/17 03:47	1
Perfluorohexanesulfonic acid (PFHxS)	**8.5**	**J**	30	5.5	ng/L		07/01/17 09:47	07/07/17 03:47	1
Perfluoroheptanoic acid (PFHpA)	**7.9**	**J**	10	1.9	ng/L		07/01/17 09:47	07/07/17 03:47	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		07/01/17 09:47	07/07/17 03:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*93*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:47*	*1*
13C2 PFDA	*100*		*70 - 130*	*07/01/17 09:47*	*07/07/17 03:47*	*1*

Default Detection Limits

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

TestAmerica Job ID: 320-29279-1

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: 320-29279-1

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)
320-29279-1	WGNA-062017-RW-4831A	91	103
320-29279-2	WGNA-062017-FRB-4831A	97	102
320-29279-3	WGNA-062017-RW-4831B	86	97
320-29279-4	WGNA-062017-RW-3978	90	97
320-29279-5	WGNA-062017-FRB-3978	92	99
320-29279-6	WGNA-062017-RW-3991	91	103
320-29279-7	WGNA-062017-FRB-3991	98	102
320-29279-8	WGNA-062017-RW-4834	90	99
320-29279-9	WGNA-062017-FRB-4834	90	98
320-29279-10	WGNA-062017-RW-4840	92	94
320-29279-11	WGNA-062017-FRB-4840	97	100
320-29279-12	WGNA-062017-RW-3124A	88	101
320-29279-13	WGNA-062017-FRB-3124A	95	94
320-29279-14	WGNA-062017-RW-3124B	91	96
320-29279-15	WGNA-062017-RW-0344	90	96
320-29279-16	WGNA-062017-FRB-0344	90	95
320-29279-17	WGNA-062017-RW-0413A	92	90
320-29279-18	WGNA-062017-FRB-0413A	89	93
320-29279-19	WGNA-062017-RW-0413B	93	100
LLCS 320-172036/2-A	Lab Control Sample	94	100
LLCSD 320-172036/3-A	Lab Control Sample Dup	99	102
MB 320-172036/1-A	Method Blank	92	100

Surrogate Legend

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

QC Sample Results

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

TestAmerica Job ID: 320-29279-1

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

Lab Sample ID: MB 320-172036/1-A
Matrix: Water
Analysis Batch: 173033

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 172036

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		07/01/17 09:47	07/07/17 01:48	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		07/01/17 09:47	07/07/17 01:48	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		07/01/17 09:47	07/07/17 01:48	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		07/01/17 09:47	07/07/17 01:48	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		07/01/17 09:47	07/07/17 01:48	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		07/01/17 09:47	07/07/17 01:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*70 - 130*	*07/01/17 09:47*	*07/07/17 01:48*	*1*
13C2 PFDA	*100*		*70 - 130*	*07/01/17 09:47*	*07/07/17 01:48*	*1*

Lab Sample ID: LLCS 320-172036/2-A
Matrix: Water
Analysis Batch: 173033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 172036

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	40.0	38.4	J M	ng/L		96	50 - 150
Perfluorooctanoic acid (PFOA)	20.0	20.3		ng/L		101	50 - 150
Perfluorononanoic acid (PFNA)	19.3	19.6	J	ng/L		102	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	30.1	29.9	J	ng/L		99	50 - 150
Perfluoroheptanoic acid (PFHpA)	9.90	10.8		ng/L		109	50 - 150
Perfluorobutanesulfonic acid (PFBS)	88.3	96.8		ng/L		110	50 - 150

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C2 PFHxA	*94*		*70 - 130*
13C2 PFDA	*100*		*70 - 130*

Lab Sample ID: LLCSD 320-172036/3-A
Matrix: Water
Analysis Batch: 173033

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 172036

Analyte	Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	40.0	40.0	M	ng/L		100	50 - 150	4	50
Perfluorooctanoic acid (PFOA)	20.0	21.5		ng/L		108	50 - 150	6	50
Perfluorononanoic acid (PFNA)	19.3	20.1	J	ng/L		104	50 - 150	3	50
Perfluorohexanesulfonic acid (PFHxS)	30.1	30.8		ng/L		102	50 - 150	3	50
Perfluoroheptanoic acid (PFHpA)	9.90	10.9		ng/L		110	50 - 150	0.6	50
Perfluorobutanesulfonic acid (PFBS)	88.3	96.4		ng/L		109	50 - 150	0.4	50

Surrogate	*LLCSD %Recovery*	*LLCSD Qualifier*	*Limits*
13C2 PFHxA	*99*		*70 - 130*
13C2 PFDA	*102*		*70 - 130*

QC Association Summary

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

TestAmerica Job ID: 320-29279-1

LCMS

Prep Batch: 172036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29279-1	WGNA-062017-RW-4831A	Total/NA	Water	537	
320-29279-2	WGNA-062017-FRB-4831A	Total/NA	Water	537	
320-29279-3	WGNA-062017-RW-4831B	Total/NA	Water	537	
320-29279-4	WGNA-062017-RW-3978	Total/NA	Water	537	
320-29279-5	WGNA-062017-FRB-3978	Total/NA	Water	537	
320-29279-6	WGNA-062017-RW-3991	Total/NA	Water	537	
320-29279-7	WGNA-062017-FRB-3991	Total/NA	Water	537	
320-29279-8	WGNA-062017-RW-4834	Total/NA	Water	537	
320-29279-9	WGNA-062017-FRB-4834	Total/NA	Water	537	
320-29279-10	WGNA-062017-RW-4840	Total/NA	Water	537	
320-29279-11	WGNA-062017-FRB-4840	Total/NA	Water	537	
320-29279-12	WGNA-062017-RW-3124A	Total/NA	Water	537	
320-29279-13	WGNA-062017-FRB-3124A	Total/NA	Water	537	
320-29279-14	WGNA-062017-RW-3124B	Total/NA	Water	537	
320-29279-15	WGNA-062017-RW-0344	Total/NA	Water	537	
320-29279-16	WGNA-062017-FRB-0344	Total/NA	Water	537	
320-29279-17	WGNA-062017-RW-0413A	Total/NA	Water	537	
320-29279-18	WGNA-062017-FRB-0413A	Total/NA	Water	537	
320-29279-19	WGNA-062017-RW-0413B	Total/NA	Water	537	
MB 320-172036/1-A	Method Blank	Total/NA	Water	537	
LLCS 320-172036/2-A	Lab Control Sample	Total/NA	Water	537	
LLCSD 320-172036/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Analysis Batch: 173033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29279-1	WGNA-062017-RW-4831A	Total/NA	Water	537	172036
320-29279-2	WGNA-062017-FRB-4831A	Total/NA	Water	537	172036
320-29279-3	WGNA-062017-RW-4831B	Total/NA	Water	537	172036
320-29279-4	WGNA-062017-RW-3978	Total/NA	Water	537	172036
320-29279-5	WGNA-062017-FRB-3978	Total/NA	Water	537	172036
320-29279-6	WGNA-062017-RW-3991	Total/NA	Water	537	172036
320-29279-7	WGNA-062017-FRB-3991	Total/NA	Water	537	172036
MB 320-172036/1-A	Method Blank	Total/NA	Water	537	172036
LLCS 320-172036/2-A	Lab Control Sample	Total/NA	Water	537	172036
LLCSD 320-172036/3-A	Lab Control Sample Dup	Total/NA	Water	537	172036

Analysis Batch: 173034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29279-8	WGNA-062017-RW-4834	Total/NA	Water	537	172036
320-29279-9	WGNA-062017-FRB-4834	Total/NA	Water	537	172036
320-29279-10	WGNA-062017-RW-4840	Total/NA	Water	537	172036
320-29279-11	WGNA-062017-FRB-4840	Total/NA	Water	537	172036
320-29279-12	WGNA-062017-RW-3124A	Total/NA	Water	537	172036
320-29279-13	WGNA-062017-FRB-3124A	Total/NA	Water	537	172036
320-29279-14	WGNA-062017-RW-3124B	Total/NA	Water	537	172036
320-29279-15	WGNA-062017-RW-0344	Total/NA	Water	537	172036
320-29279-16	WGNA-062017-FRB-0344	Total/NA	Water	537	172036
320-29279-17	WGNA-062017-RW-0413A	Total/NA	Water	537	172036

LCMS (Continued)

Analysis Batch: 173035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29279-18	WGNA-062017-FRB-0413A	Total/NA	Water	537	172036
320-29279-19	WGNA-062017-RW-0413B	Total/NA	Water	537	172036

Lab Chronicle

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

TestAmerica Job ID: 320-29279-1

Client Sample ID: WGNA-062017-RW-4831A — Lab Sample ID: 320-29279-1

Date Collected: 06/20/17 08:45 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173033	07/07/17 02:03	JRB	TAL SAC

Client Sample ID: WGNA-062017-FRB-4831A — Lab Sample ID: 320-29279-2

Date Collected: 06/20/17 08:40 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173033	07/07/17 02:07	JRB	TAL SAC

Client Sample ID: WGNA-062017-RW-4831B — Lab Sample ID: 320-29279-3

Date Collected: 06/20/17 08:55 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173033	07/07/17 02:12	JRB	TAL SAC

Client Sample ID: WGNA-062017-RW-3978 — Lab Sample ID: 320-29279-4

Date Collected: 06/20/17 10:05 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173033	07/07/17 02:17	JRB	TAL SAC

Client Sample ID: WGNA-062017-FRB-3978 — Lab Sample ID: 320-29279-5

Date Collected: 06/20/17 10:00 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173033	07/07/17 02:22	JRB	TAL SAC

Client Sample ID: WGNA-062017-RW-3991 — Lab Sample ID: 320-29279-6

Date Collected: 06/20/17 11:20 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173033	07/07/17 02:26	JRB	TAL SAC

Client Sample ID: WGNA-062017-FRB-3991 Lab Sample ID: 320-29279-7

Date Collected: 06/20/17 11:15 **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173033	07/07/17 02:31	JRB	TAL SAC

Client Sample ID: WGNA-062017-RW-4834 Lab Sample ID: 320-29279-8

Date Collected: 06/20/17 14:10 **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173034	07/07/17 02:45	JRB	TAL SAC

Client Sample ID: WGNA-062017-FRB-4834 Lab Sample ID: 320-29279-9

Date Collected: 06/20/17 14:05 **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173034	07/07/17 02:50	JRB	TAL SAC

Client Sample ID: WGNA-062017-RW-4840 Lab Sample ID: 320-29279-10

Date Collected: 06/20/17 14:40 **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173034	07/07/17 02:55	JRB	TAL SAC

Client Sample ID: WGNA-062017-FRB-4840 Lab Sample ID: 320-29279-11

Date Collected: 06/20/17 14:35 **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173034	07/07/17 03:00	JRB	TAL SAC

Client Sample ID: WGNA-062017-RW-3124A Lab Sample ID: 320-29279-12

Date Collected: 06/20/17 09:40 **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173034	07/07/17 03:04	JRB	TAL SAC

Client Sample ID: WGNA-062017-FRB-3124A — Lab Sample ID: 320-29279-13

Date Collected: 06/20/17 09:35 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173034	07/07/17 03:09	JRB	TAL SAC

Client Sample ID: WGNA-062017-RW-3124B — Lab Sample ID: 320-29279-14

Date Collected: 06/20/17 09:45 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173034	07/07/17 03:14	JRB	TAL SAC

Client Sample ID: WGNA-062017-RW-0344 — Lab Sample ID: 320-29279-15

Date Collected: 06/20/17 10:45 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173034	07/07/17 03:19	JRB	TAL SAC

Client Sample ID: WGNA-062017-FRB-0344 — Lab Sample ID: 320-29279-16

Date Collected: 06/20/17 10:40 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173034	07/07/17 03:23	JRB	TAL SAC

Client Sample ID: WGNA-062017-RW-0413A — Lab Sample ID: 320-29279-17

Date Collected: 06/20/17 15:15 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173034	07/07/17 03:28	JRB	TAL SAC

Client Sample ID: WGNA-062017-FRB-0413A — Lab Sample ID: 320-29279-18

Date Collected: 06/20/17 15:10 — **Matrix: Water**
Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173035	07/07/17 03:42	JRB	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-29279-1

Client Sample ID: WGNA-062017-RW-0413B

Lab Sample ID: 320-29279-19

Date Collected: 06/20/17 15:20
Date Received: 06/21/17 09:10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			172036	07/01/17 09:47	CCB	TAL SAC
Total/NA	Analysis	537		1	173035	07/07/17 03:47	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: 320-29279-1
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: 320-29279-1

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.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-29279-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-29279-1	WGNA-062017-RW-4831A	Water	06/20/17 08:45	06/21/17 09:10
320-29279-2	WGNA-062017-FRB-4831A	Water	06/20/17 08:40	06/21/17 09:10
320-29279-3	WGNA-062017-RW-4831B	Water	06/20/17 08:55	06/21/17 09:10
320-29279-4	WGNA-062017-RW-3978	Water	06/20/17 10:05	06/21/17 09:10
320-29279-5	WGNA-062017-FRB-3978	Water	06/20/17 10:00	06/21/17 09:10
320-29279-6	WGNA-062017-RW-3991	Water	06/20/17 11:20	06/21/17 09:10
320-29279-7	WGNA-062017-FRB-3991	Water	06/20/17 11:15	06/21/17 09:10
320-29279-8	WGNA-062017-RW-4834	Water	06/20/17 14:10	06/21/17 09:10
320-29279-9	WGNA-062017-FRB-4834	Water	06/20/17 14:05	06/21/17 09:10
320-29279-10	WGNA-062017-RW-4840	Water	06/20/17 14:40	06/21/17 09:10
320-29279-11	WGNA-062017-FRB-4840	Water	06/20/17 14:35	06/21/17 09:10
320-29279-12	WGNA-062017-RW-3124A	Water	06/20/17 09:40	06/21/17 09:10
320-29279-13	WGNA-062017-FRB-3124A	Water	06/20/17 09:35	06/21/17 09:10
320-29279-14	WGNA-062017-RW-3124B	Water	06/20/17 09:45	06/21/17 09:10
320-29279-15	WGNA-062017-RW-0344	Water	06/20/17 10:45	06/21/17 09:10
320-29279-16	WGNA-062017-FRB-0344	Water	06/20/17 10:40	06/21/17 09:10
320-29279-17	WGNA-062017-RW-0413A	Water	06/20/17 15:15	06/21/17 09:10
320-29279-18	WGNA-062017-FRB-0413A	Water	06/20/17 15:10	06/21/17 09:10
320-29279-19	WGNA-062017-RW-0413B	Water	06/20/17 15:20	06/21/17 09:10

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 172646

Lab Sample ID: IC 320-172646/4 Client Sample ID:

Date Analyzed: 07/05/17 19:50 Lab File ID: 2017.07.05_537CURVE_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	1.69	Missed Peak	barnettj	07/06/17 11:03

537

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 173033

Lab Sample ID: CCV 320-173033/1 CCVIS Client Sample ID:

Date Analyzed: 07/07/17 01:39 Lab File ID: 2017.07.06_537A_031.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	07/07/17 14:24

Lab Sample ID: LLCS 320-172036/2-A Client Sample ID:

Date Analyzed: 07/07/17 01:53 Lab File ID: 2017.07.06_537A_034.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Missed Peak	barnettj	07/07/17 14:28

Lab Sample ID: LLCSD 320-172036/3-A Client Sample ID:

Date Analyzed: 07/07/17 01:58 Lab File ID: 2017.07.06_537A_035.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	07/07/17 14:28

Lab Sample ID: 320-29279-1 Client Sample ID: WGNA-062017-RW-4831A

Date Analyzed: 07/07/17 02:03 Lab File ID: 2017.07.06_537A_036.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.87	Isomers	barnettj	07/07/17 14:30
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	07/07/17 14:29

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 173033

Lab Sample ID: 320-29279-3 Client Sample ID: WGNA-062017-RW-4831B

Date Analyzed: 07/07/17 02:12 Lab File ID: 2017.07.06_537A_038.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.86	Isomers	barnettj	07/07/17 14:31
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	07/07/17 14:31

Lab Sample ID: 320-29279-4 Client Sample ID: WGNA-062017-RW-3978

Date Analyzed: 07/07/17 02:17 Lab File ID: 2017.07.06_537A_039.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.87	Isomers	barnettj	07/07/17 14:32
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	07/07/17 14:32

Lab Sample ID: 320-29279-6 Client Sample ID: WGNA-062017-RW-3991

Date Analyzed: 07/07/17 02:26 Lab File ID: 2017.07.06_537A_041.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.86	Isomers	barnettj	07/07/17 14:33
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	07/07/17 14:33

Lab Sample ID: CCV 320-173033/13 CCVIS Client Sample ID:

Date Analyzed: 07/07/17 02:36 Lab File ID: 2017.07.06_537A_043.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Missed Peak	barnettj	07/07/17 14:25

537

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 173034

Lab Sample ID: CCV 320-173034/13 CCVIS Client Sample ID:

Date Analyzed: 07/07/17 02:36 Lab File ID: 2017.07.06_537A_043.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Missed Peak	barnettj	07/07/17 14:25

Lab Sample ID: 320-29279-12 Client Sample ID: WGNA-062017-RW-3124A

Date Analyzed: 07/07/17 03:04 Lab File ID: 2017.07.06_537A_049.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.87	Isomers	barnettj	07/07/17 14:35
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	07/07/17 14:35

Lab Sample ID: 320-29279-15 Client Sample ID: WGNA-062017-RW-0344

Date Analyzed: 07/07/17 03:19 Lab File ID: 2017.07.06_537A_052.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.86	Isomers	barnettj	07/07/17 14:36
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	07/07/17 14:36

Lab Sample ID: 320-29279-17 Client Sample ID: WGNA-062017-RW-0413A

Date Analyzed: 07/07/17 03:28 Lab File ID: 2017.07.06_537A_054.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.87	Isomers	barnettj	07/07/17 14:37

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 173034

Lab Sample ID: CCV 320-173034/25 CCVIS Client Sample ID:

Date Analyzed: 07/07/17 03:33 Lab File ID: 2017.07.06_537A_055.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	07/07/17 14:25

537

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 173035

Lab Sample ID: CCV 320-173035/25 CCVIS Client Sample ID:

Date Analyzed: 07/07/17 03:33 Lab File ID: 2017.07.06_537A_055.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	07/07/17 14:25

Lab Sample ID: 320-29279-19 Client Sample ID: WGNA-062017-RW-0413B

Date Analyzed: 07/07/17 03:47 Lab File ID: 2017.07.06_537A_058.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.85	Isomers	barnettj	07/07/17 14:38

Lab Sample ID: CCV 320-173035/29 CCVIS Client Sample ID:

Date Analyzed: 07/07/17 03:52 Lab File ID: 2017.07.06_537A_059.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Missed Peak	barnettj	07/07/17 14:27

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LC537-ICV_00020	07/25/17	02/21/17	MeOH/H2O, Lot 067374	10 mL	LC537-IS_00031	200 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
.LC537-IS_00031	07/31/17	01/31/17	Methanol, Lot 090285	10000 uL	LCM2PFOA_00005	100 uL	13C2-PFOA	0.5 ug/mL
					LCMPFOS_00019	300 uL	13C4 PFOS	1.434 ug/mL
..LCM2PFOA_00005	06/19/18	Wellington Laboratories, Lot M2PFOA0613			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-ICV_00020	07/25/17	02/21/17	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00030	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
					LC537ICIM_00015	20 uL	Perfluorobutanesulfonic acid (PFBS)	100.676 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10.08 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	21.1854 ng/mL
							Perfluorononanoic acid (PFNA)	20.0076 ng/mL
							Perfluorooctanoic acid (PFOA)	20.0186 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.6936 ng/mL
.LC537-SU_00030	07/31/17	01/31/17	Methanol, Lot 104453	20000 uL	LCMPFDA_00012	80 uL	13C2 PFDA	0.2 ug/mL
					LCMPFHxA_00013	80 uL	13C2 PFHxA	0.2 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_00015	07/25/17	02/21/17	Methanol, Lot 090285	25 mL	LC537-PFBS2_00007	0.55 mL	Perfluorobutanesulfonic acid (PFBS)	50.3381 ug/mL
					LC537-PFHpA2_00010	0.05 mL	Perfluoroheptanoic acid (PFHpA)	5.04 ug/mL
					LC537-PFHxS2_00007	0.13 mL	Perfluorohexanesulfonic acid (PFHxS)	10.5927 ug/mL
					LC537-PFNA2_00008	0.093 mL	Perfluorononanoic acid (PFNA)	10.0038 ug/mL
					LC537-PFOA2_00008	0.142 mL	Perfluorooctanoic acid (PFOA)	10.0093 ug/mL
					LC537-PFOS2_00007	0.21 mL	Perfluorooctanesulfonic acid (PFOS)	10.3468 ug/mL
..LC537-PFBS2_00007	08/09/17	02/20/17	Methanol, Lot 090285	8.2 mL	LC537_PFBS2_00001	0.0188 g	Perfluorobutanesulfonic acid (PFBS)	2288.1 ug/mL
...LC537_PFBS2_00001	08/09/17	Santa Cruz Biotechnology, Lot H0112			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
..LC537-PFHpA2_00010	07/25/17	12/20/16	Methanol, Lot 09092	25 mL	LC537_PFHpA2_00001	0.063 g	Perfluoroheptanoic acid (PFHpA)	2520 ug/mL
...LC537_PFHpA2_00001	07/25/17	Afla Aesar, Lot 10160443			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	1 g/g
..LC537-PFHxS2_00007	07/25/17	02/20/17	Methanol, Lot 090285	10 mL	LC537_PFHxS2_00001	0.0224 g	Perfluorohexanesulfonic acid (PFHxS)	2037.06 ug/mL
...LC537_PFHxS2_00001	07/25/17	Santa Cruz Biotechnology, Lot F2612			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA2_00008	07/25/17	12/20/16	Methanol, Lot 090285	10 mL	LC537_PFNA2_00001	0.027 g	Perfluorononanoic acid (PFNA)	2689.2 ug/mL
...LC537_PFNA2_00001	07/25/17	Aldrich, Lot MKBJ2926V			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.996 g/g
..LC537-PFOA2_00008	07/25/17	12/20/16	Methanol, Lot 090285	10 mL	LC537_PFOA2_00001	0.0178 g	Perfluorooctanoic acid (PFOA)	1762.2 ug/mL
...LC537_PFOA2_00001	07/25/17	Afla Aesar, Lot D24Y026			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LC537-PFOS2_00007	07/26/17	02/20/17	Methanol, Lot 090285	11 mL	LC537_PFOS2_00001	0.0174 g	Perfluorooctanesulfonic acid (PFOS)	1231.76 ug/mL
...LC537_PFOS2_00001	07/26/17	Sigma, Lot BCBF5116V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g
LC537-IS_00043	12/19/17	06/20/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00005	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00019	180 uL	13C4 PFOS	0.2868 ug/mL
.LCM2PFOA_00005	06/19/18	Wellington Laboratories, Lot M2PFOA0613			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-L1_00019	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-MSP_00025	50 uL	Perfluorobutanesulfonic acid (PFBS)	8.83417 ng/mL
							Perfluoroheptanoic acid (PFHpA)	0.99 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	3.00607 ng/mL
							Perfluorononanoic acid (PFNA)	1.926 ng/mL
							Perfluorooctanoic acid (PFOA)	1.998 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	4.00329 ng/mL
					LC537-SU_00045	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 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
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-MSP_00025	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	200 uL	Perfluorobutanesulfonic acid (PFBS)	883.417 ng/mL
							Perfluoroheptanoic acid (PFHpA)	99 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	300.607 ng/mL
							Perfluorononanoic acid (PFNA)	192.6 ng/mL
							Perfluorooctanoic acid (PFOA)	199.8 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	400.329 ng/mL
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537_PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
....LC537_PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00045	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
LC537-L2_00019	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00019	64 uL	Perfluorobutanesulfonic acid (PFBS)	21.202 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.376 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	7.21457 ng/mL
							Perfluorononanoic acid (PFNA)	4.6224 ng/mL
							Perfluorooctanoic acid (PFOA)	4.7952 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	9.6079 ng/mL
					LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00045	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00019	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	375 uL	Perfluorobutanesulfonic acid (PFBS)	1656.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	185.625 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	563.639 ng/mL
							Perfluorononanoic acid (PFNA)	361.125 ng/mL
							Perfluorooctanoic acid (PFOA)	374.625 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	750.617 ng/mL
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537_PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
....LC537_PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.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
..LCMPFOS_00019	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00045	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
LC537-L3_00022	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00019	134 uL	Perfluorobutanesulfonic acid (PFBS)	44.3917 ng/mL
							Perfluoroheptanoic acid (PFHpA)	4.97475 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	15.1055 ng/mL
							Perfluorononanoic acid (PFNA)	9.67815 ng/mL
							Perfluorooctanoic acid (PFOA)	10.0399 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.1165 ng/mL
					LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00045	500 uL	13C2 PFDA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00019	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	375 uL	Perfluorobutanesulfonic acid (PFBS)	1656.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	185.625 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	563.639 ng/mL
							Perfluorononanoic acid (PFNA)	361.125 ng/mL
							Perfluorooctanoic acid (PFOA)	374.625 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	750.617 ng/mL
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537_PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
....LC537_PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.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
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00045	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LC537-L4_00019	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00019	270 uL	Perfluorobutanesulfonic acid (PFBS)	89.446 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10.0238 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.4365 ng/mL
							Perfluorononanoic acid (PFNA)	19.5008 ng/mL
							Perfluorooctanoic acid (PFOA)	20.2297 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.5333 ng/mL
					LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00045	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00019	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	375 uL	Perfluorobutanesulfonic acid (PFBS)	1656.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	185.625 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	563.639 ng/mL
							Perfluorononanoic acid (PFNA)	361.125 ng/mL
							Perfluorooctanoic acid (PFOA)	374.625 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	750.617 ng/mL
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537_PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
....LC537_PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.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
..LCMPFOS_00019	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00045	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
LC537-L5_00023	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00019	400 uL	Perfluorobutanesulfonic acid (PFBS)	132.513 ng/mL
							Perfluoroheptanoic acid (PFHpA)	14.85 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.0911 ng/mL
							Perfluorononanoic acid (PFNA)	28.89 ng/mL
							Perfluorooctanoic acid (PFOA)	29.97 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	60.0494 ng/mL
					LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00045	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00019	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	375 uL	Perfluorobutanesulfonic acid (PFBS)	1656.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	185.625 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	563.639 ng/mL
							Perfluorononanoic acid (PFNA)	361.125 ng/mL
							Perfluorooctanoic acid (PFOA)	374.625 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	750.617 ng/mL
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537_PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
....LC537_PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.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
..LCMPFOS_00019	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00045	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
LC537-L6_00018	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00019	530 uL	Perfluorobutanesulfonic acid (PFBS)	175.579 ng/mL
							Perfluoroheptanoic acid (PFHpA)	19.6763 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	59.7457 ng/mL
							Perfluorononanoic acid (PFNA)	38.2792 ng/mL
							Perfluorooctanoic acid (PFOA)	39.7103 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	79.5654 ng/mL
					LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00045	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00019	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	375 uL	Perfluorobutanesulfonic acid (PFBS)	1656.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	185.625 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	563.639 ng/mL
							Perfluorononanoic acid (PFNA)	361.125 ng/mL
							Perfluorooctanoic acid (PFOA)	374.625 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	750.617 ng/mL
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537_PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
....LC537_PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.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
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00045	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
LC537-LSP_00020	08/08/17	03/23/17	Methanol, Lot 090285	20000 uL	LC537SPIM_00022	50 uL	Perfluorobutane Sulfonate	220.854 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	220.854 ng/mL
							Perfluoroheptanoic acid (PFHpA)	24.75 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	75.1518 ng/mL
							Perfluorononanoic acid (PFNA)	48.15 ng/mL
							Perfluorooctanoic acid (PFOA)	49.95 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	100.082 ng/mL
.LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutane Sulfonate	88.3417 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
..LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutane Sulfonate	2007.77 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/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_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
...LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
...LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537_PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
...LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
...LC537_PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
...LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-SU_00044	12/20/17	06/20/17	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

Reagent

LC537_PFBS_00002

r: 4/1/15 SPV

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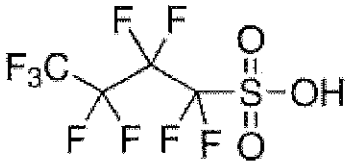
Certificate of Analysis

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

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_PFBS2_00001

CERTIFICATE OF ANALYSIS

The Power to Question

Catalog Number:	sc-236187
Product Name:	Nonafluorobutane-1-sulfonic acid
CAS Number:	375-73-5
Molecular Formula:	$C_4HF_9O_3S$
Molecular Weight:	300.10
Lot Number:	H0112

Test		Result
Refractive Index	1.3200 to 1.3290	1.3219
Purity (Titration)	min. 98.0%	99.8%

Test Conditions: Refractive Index n20/D

Reagent

LC537_PFHpA_00002

r: 4/1/15 SRV

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:	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

PFHpA

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

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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Reagent

LC537_PFHpA2_00001

Certificate of Analysis

Alfa Aesar®
A Johnson Matthey Company

Product No.:	A12092
Product:	Perfluoroheptanoic acid, 98+%
Lot No.:	10160443

PFHpA

Appearance:	White crystalline powder
Melting Point:	28.2 (slip point)

Assay (Aqueous acid-base titration): 100.2%

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Reagent

LC537_PFHxS_00002

r: 4/1/15 SKW

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:	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

PFH_xS-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

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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

$$438.20\ (K\ form)$$

(anion form)

Purity = 90.94 % w/m.w correction

SKW 4/1/15

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Reagent

LC537_PFHxS2_00001

CERTIFICATE OF ANALYSIS

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

Catalog Number:	sc-237289
Product Name:	Tridecafluorohexane-1-sulfonic acid potassium salt
CAS Number:	3871-99-6
Molecular Formula:	$C_6F_{13}KO_3S$
Molecular Weight:	438.20
Lot Number:	F2612

Test	Specification	Result
Appearance	White to feint beige powder or crystals	White powder
Infrared Spectrum	Conforms to structure	Complies
Purity (Titration, Ion Exchange)	≥ 98.0%	99.6 %

PFHxS-K

$C_6F_{13}SO_3K$ 438.201

$C_6F_{13}SO_3H$ 400.111

MW correction = $\frac{400.111}{438.201}$ = 0.91307 PFHxS CAS 355-46-4

Purity & MW correction = 90.9%

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_00001

SIGMA-ALDRICH®

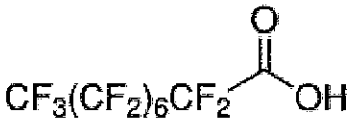
sigma-aldrich.com

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**
Lot Number:	**MKBJ2926V**
Brand:	ALDRICH
CAS Number:	375-95-1
MDL Number:	MFCD00039605
Formula:	C9HF17O2
Formula Weight:	464.08 g/mol
Quality Release Date:	20 OCT 2011



Test	Specification	Result
Appearance (Color)	White to Off-White	White
Appearance (Form) Crystalline Chunk(s) or Granule or Flakes or Solid	Powder or Crystals or	Powder
Infrared spectrum	Conforms to Structure	Conforms
Purity (Titration by NaOH)	96.5 - 103.5 %	100.3 %
GC (area %)	≥ 96.5 %	99.6 %

Jamie Gleason, Manager
Quality Control
Milwaukee, Wisconsin US

PFNA

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Reagent

LC537_PFOA_00002

r: 3/26/15 RV

SIGMA-ALDRICH®

CERTIFICATE OF ANALYSIS

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

Seelze, 13.11.2013/505378/13/24029

Order-No.:
Customer-No.:

Order-Code:

Quantity:

Production Date: 04.Nov.2013
Expiry Date: 04.Nov.2018

Article/Product: 33824 Batch : SZBD308XV

PFOA

Pentadecafluorooctanoic acid OEKANAL®

Reference Material (RM)

1. General Information

Formula: C8HF15O2
CAS-No.: [335-67-1]
Usage : PFOA

Molar mass: 414.07 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

identiy (GC-MS)	complying
Assay (GCMS)	99.4 %
Date of Analysis	13.Nov.2013

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

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GC/MS-Method

Analytical Department

Article: **Pentadecafluorooctanoic acid OEKANAL**
Article-No.: **33824**
Batch: **SZBD308XV**

Column: XTI-5 (Restek); 30 m; fs cap.; I.D.:0.25 mm; 1 µm df

Injector: Split mode
Injection: approx. 1 µl of reaction mixture with MSTFA (approx. 10 mg + 200 µl MSTFA)
Inj.-temp.: 280°C

Oven-temp.: 40°C (for 2 min) to 320°C (6°C/min) hold for 2 min

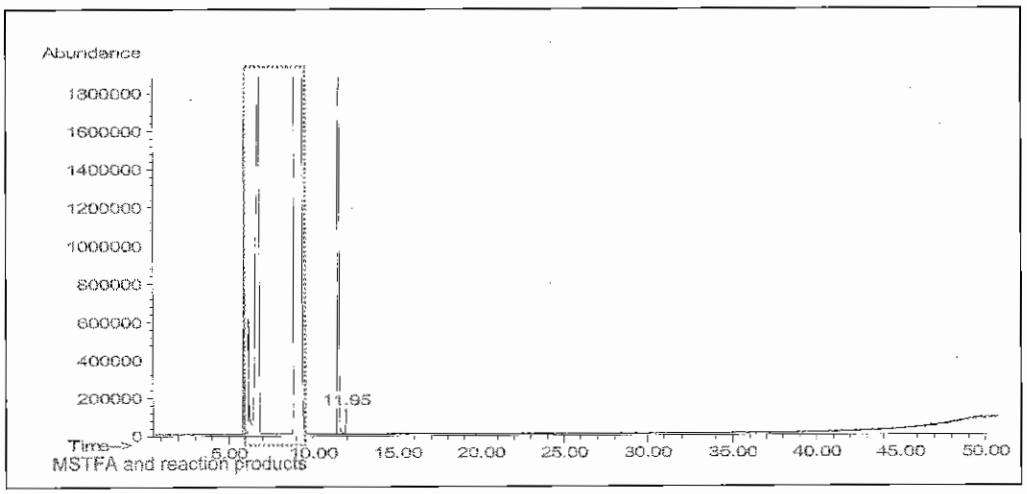
Split: 1:100
Flow: 1 ml He/min (Constant flow mode)

Detector: MSD
Mass range: 10-600 amu (Scan mode)

Evaluation: Purity: Total Ion Chromatogram
(MSTFA and reaction products blinded out in report)
Identity: Mass spectrum complies

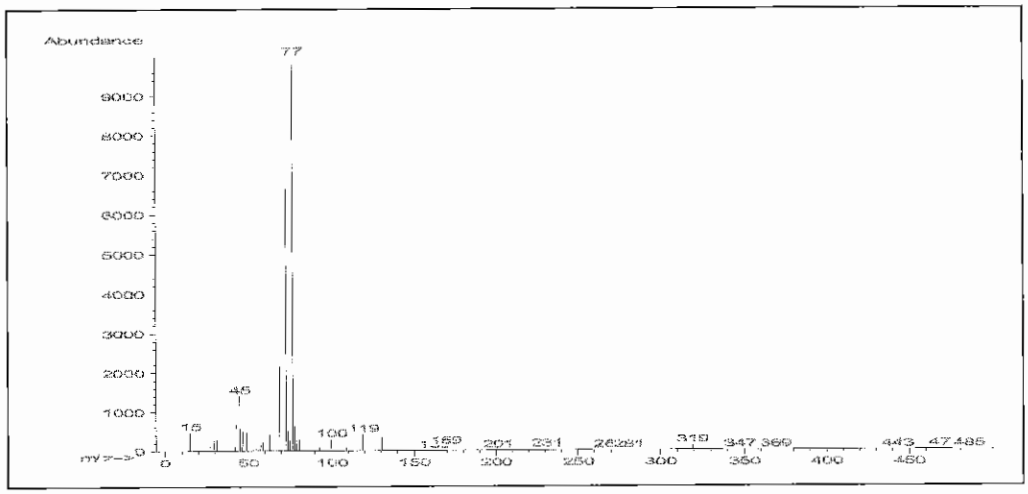
Operator: Ahrens / 2013-11-13

Total Ion Chromatogram:



Ret.time	Area	Area-%	Com
11.54	565.1670	99.4	Pentadecafluorooctanoic acid (as TMS-ester)
11.95	3.6792	0.64	

Mass spectrum (rt = 11.54 min):



Reagent

LC537_PFOA2_00001

Certificate of Analysis

Alfa Aesar
A Johnson Matthey Company

Product No.:	L08862
Product:	Perfluorooctanoic acid, 95%
Lot No.:	D24Y026

PFOA

Appearance	White solid
Melting point	58 - 60°C
Assay	99 %
Identity	Matches reference

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Reagent

LC537_PFOS_00002

Γ: 4/1/15 SV

SIGMA-ALDRICH®

CERTIFICATE OF ANALYSIS

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

Seelze, 13.08.2012/419060/12/17583

Order-No.:
Customer-No.:

Order-Code:

Quantity:

Production Date: 09.Aug.2012
Expiry Date: 09.Aug.2017 — Exp date

Article/Product: 33829 Batch : SZBC222XV

Heptadecafluorooctanesulfonic acid potassium salt OEKANAL® PFOS-K+

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	10.Aug.2012

K+ correction: $\frac{538.22 - 39.10 + 1.01}{538.22} = \frac{500.13}{538.22} = 0.92923$

Purity = 91.06 %

3. Advice and Remarks

- The minimum shelf life 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

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Reagent

LC537_PFOS2_00001

SIGMA-ALDRICH

ALDRICH

Industriestrasse 25, CH-9471 Buchs (SG), Switzerland
Tel: +41 81 755 2511 Fax: +41 81 756 5449

Certificate of Analysis

INV 820
12LCMS 0579

Product Name:	HEPTADECAFLUOROOCTANESULFONIC ACID TETRAETHYLAMMONIUM SALT 98 %
Product Number:	365289
Product Brand:	Aldrich
Molecular Formula:	$C_{16}H_{20}F_{17}NO_3S$
Molecular Mass:	629.37
CAS Number:	56773-42-3

TEST	SPECIFICATION	LOT BCBF5116V RESULTS
APPEARANCE (COLOR)	OFF-WHITE TO WHITE	WHITE
APPEARANCE (FORM)	POWDER, LUMPS OR CHUNKS	POWDER WITH LUMPS
CARBON CONTENT	29.77 % - 31.29 %	30.52
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

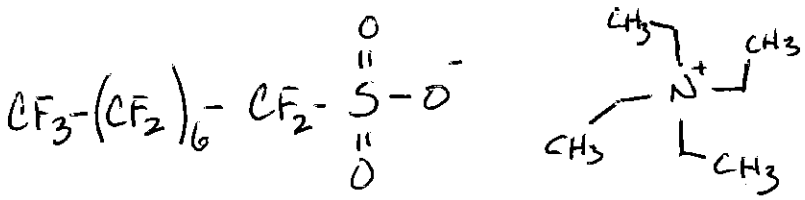
QC RELEASE DATE 13/APR/11

MW correction = $\frac{500.125}{629.37}$ = 0.7946 ~~100 = 79.46%~~ DEH 7-26-12

Purity + MW Correction = 77.87%

E. Schwärzler

Edeltraud Schwärzler, Manager
Quality Control
Buchs, Switzerland



	$C_8F_{17}SO_3H$	$C_8H_{20}N$
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 →

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SIGMA-ALDRICH

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

Certificate of Origin

Product Name:	Heptadecafluorooctanesulfonic acid tetraethylammonium salt 98 %
Product Number:	365289
Product Brand:	Aldrich
Lot:	BCBF5116V
Molecular Formula:	$C_{16}H_{20}F_{17}NO_3S$
Molecular Mass:	629.37
CAS Number:	56773-42-3
Date of Issue:	30-MAR-11

Country of Origin	China

product is of synthetic origin	yes
only synthetic materials used in the manufacturing process	yes
compounds of animal origin used	no
genetically modified organisms used	no
allergenic materials used	no
procedures in place to avoid cross contamination with residue of animal, human, GMO or allergenes in manufacturing process	yes

Sigma-Aldrich has quality systems and procedures in place for monitoring the production process, traceablility and batch consistency.

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Reagent

LCM2PFOA_00005

Rec'. 2/10/15 SV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

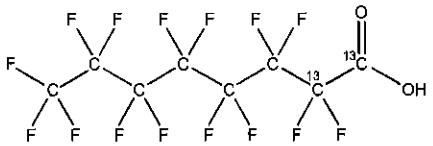
PRODUCT CODE: M2PFOA

LOT NUMBER: M2PFOA0613

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) 06/19/2013

EXPIRY DATE: (mm/dd/yyyy) 06/19/2018

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 07/16/2013 (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. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

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. Material Safety Data Sheets (MSDSs) 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, 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 and/or LC/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 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 17025:2005 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 for the period of time specified by the 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:

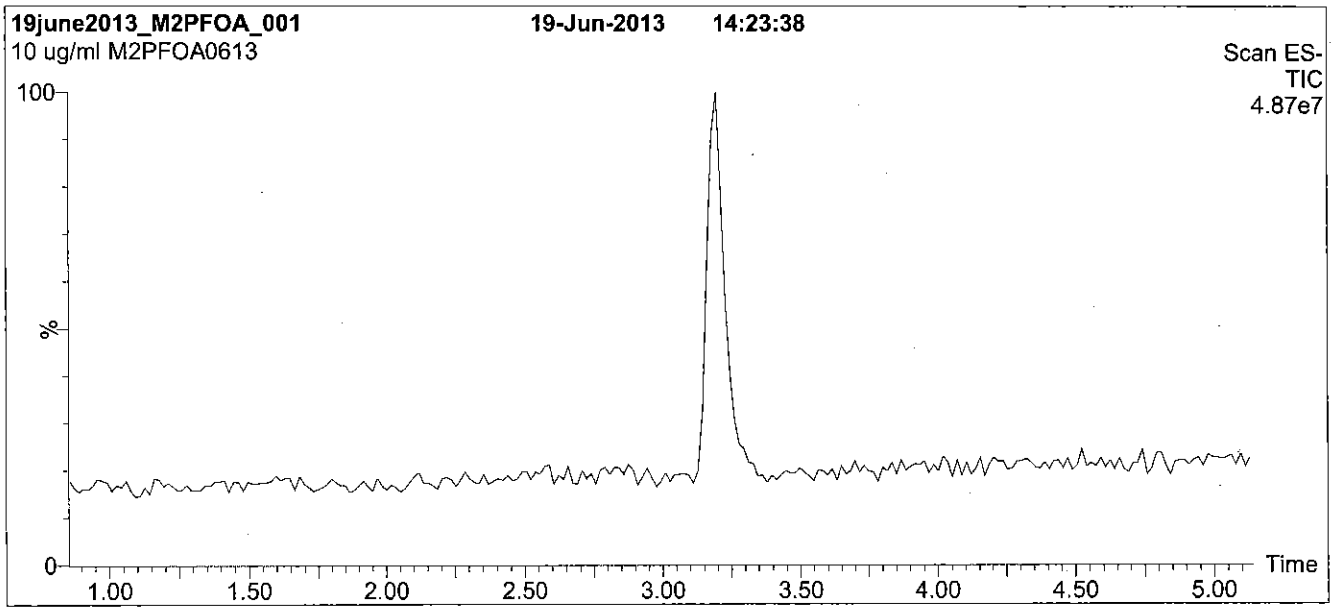
This product was produced using a Quality Management System registered to ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34:2009 by ACLASS (certificate number AR-1523).

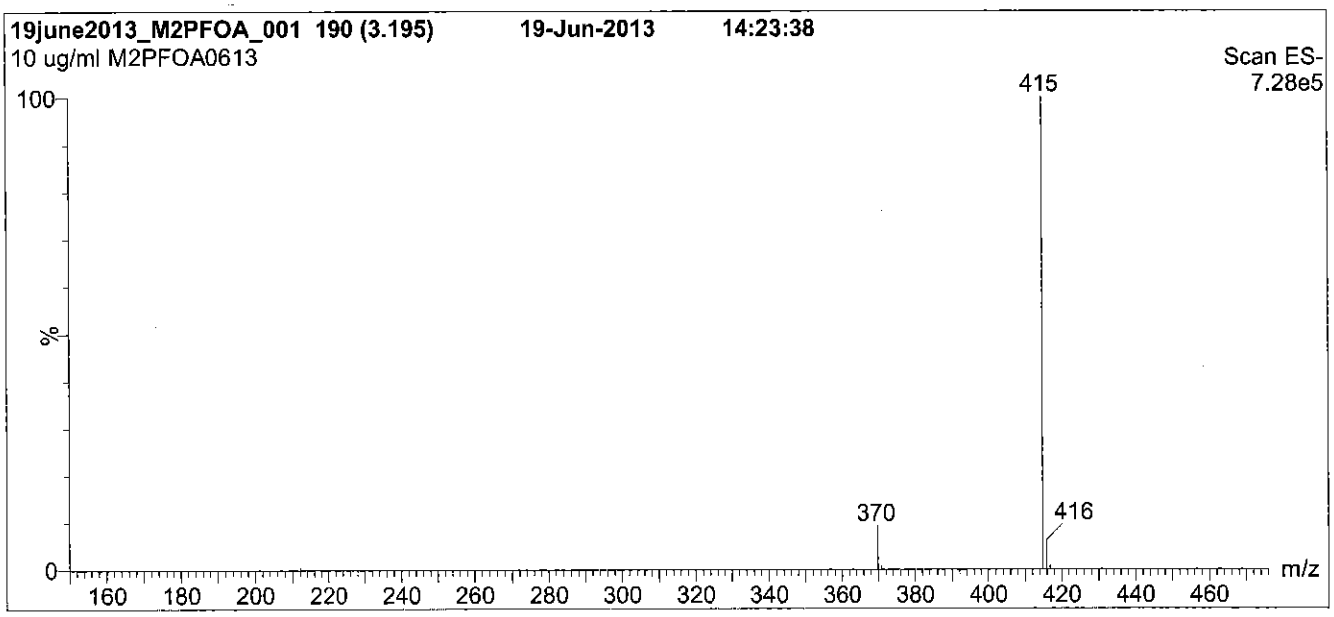
CALA Testing Accreditation No. A 1226

ACLASS 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: **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 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

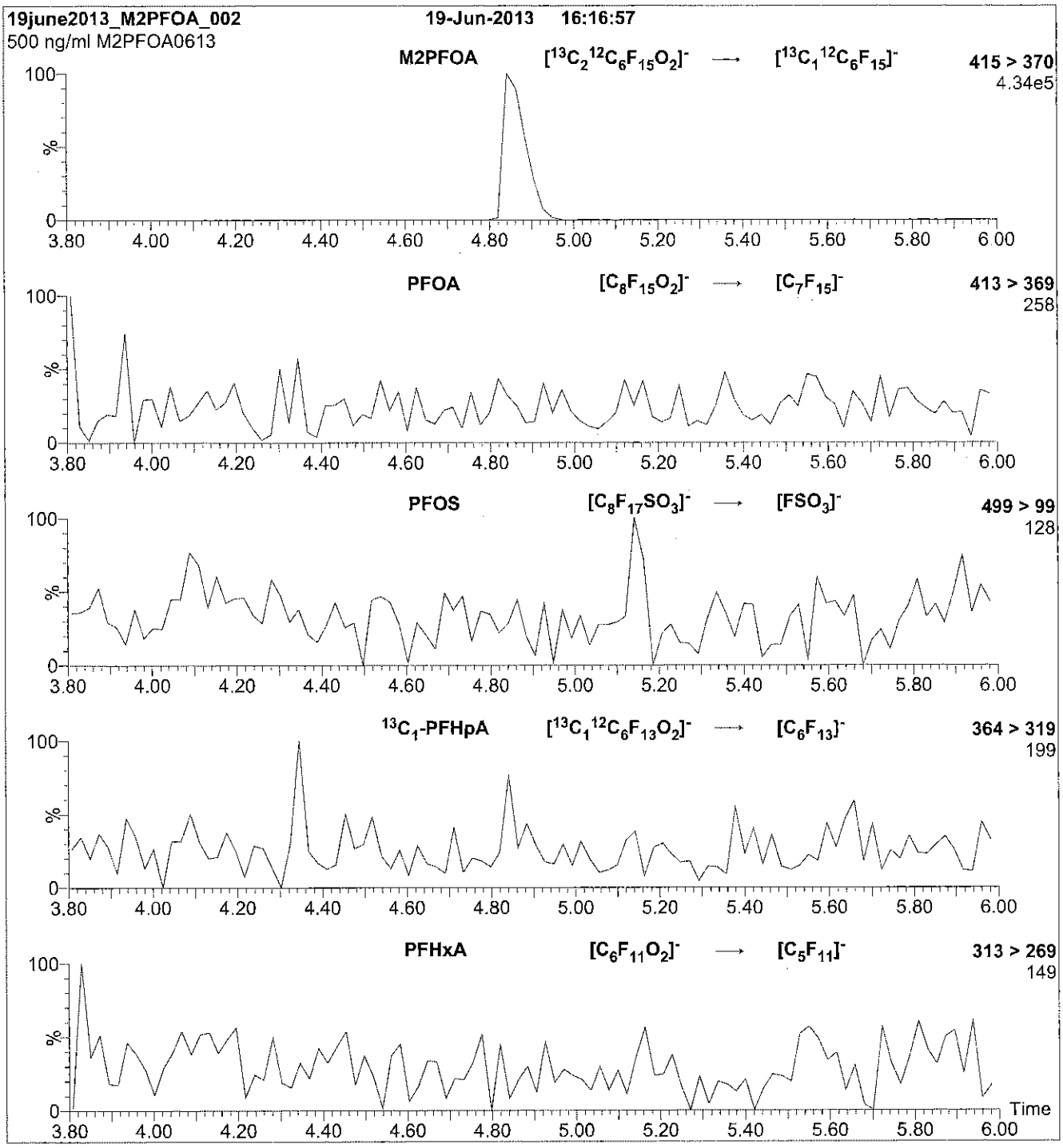
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
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% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.66e-3
Collision Energy (eV) = 11

Reagent

LCM2PFOA_00007

r: 5/6/17 SKV

WELLINGTON LABORATORIES

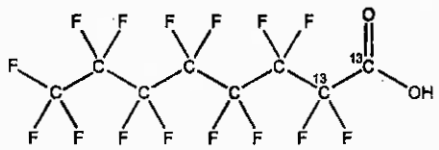
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2PFOA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid

LOT NUMBER: M2PFOA0216

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_6HF_{15}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 416.05
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/12/2016
EXPIRY DATE: (mm/dd/yyyy) 02/12/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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

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.

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HOMOGENEITY:

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

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

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.

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CALA

ANAB ACCREDITED

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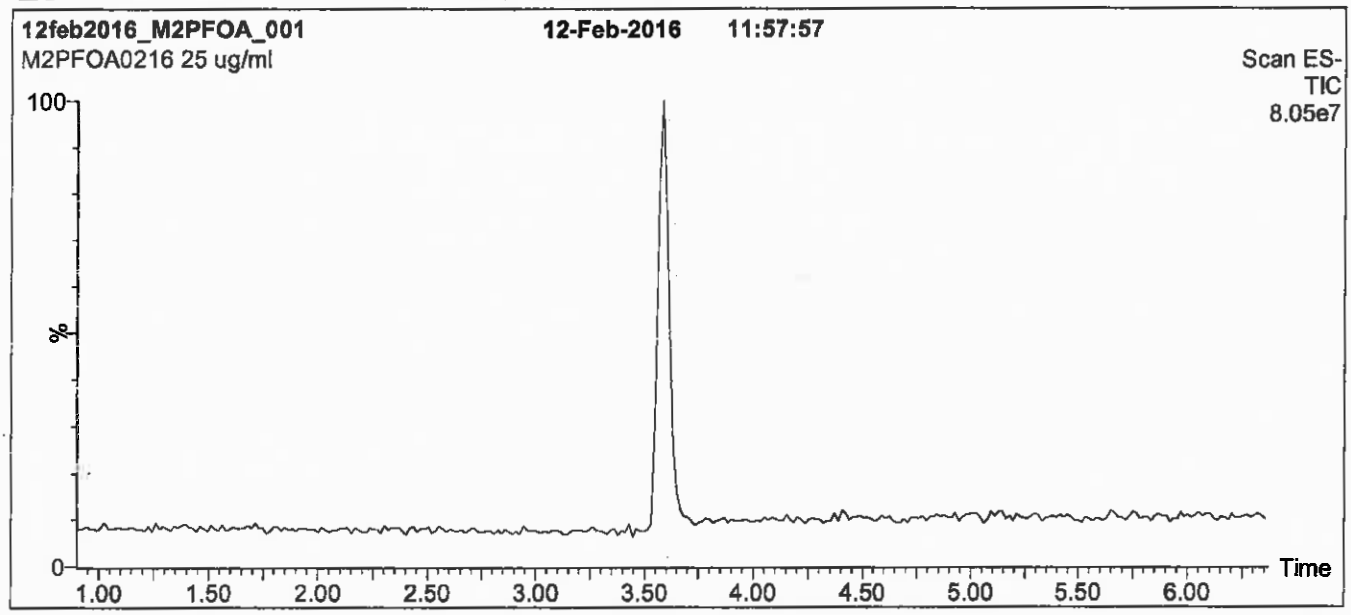
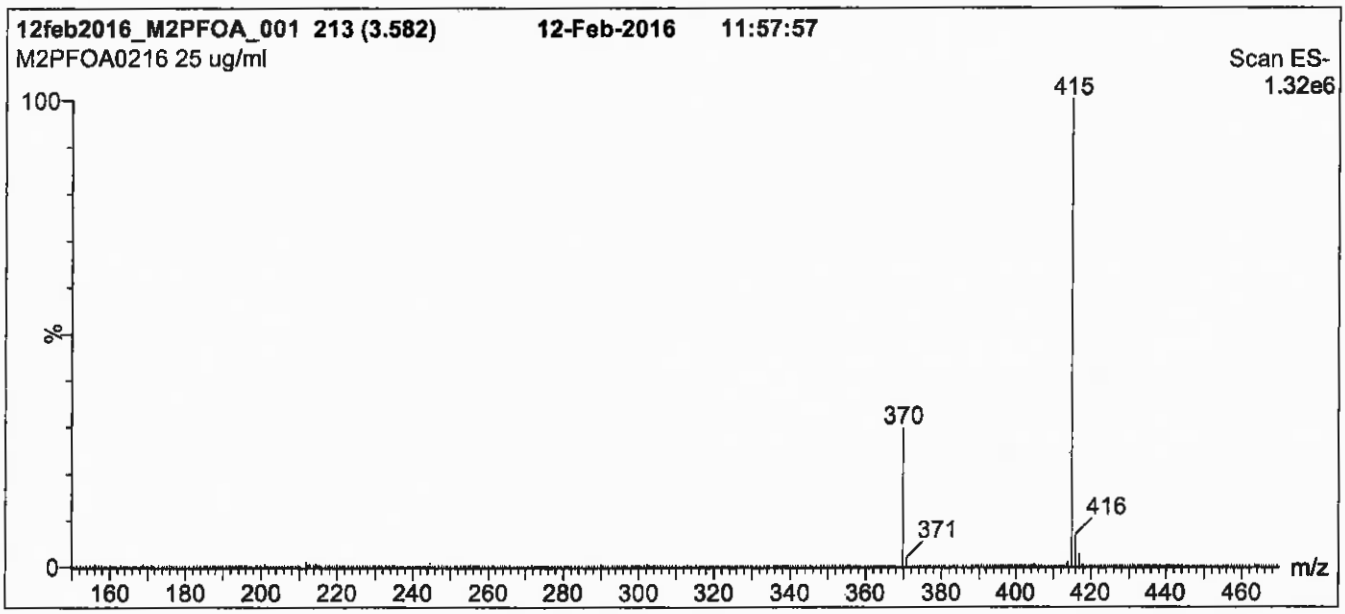
Figure 1: **M2PFOA; LC/MS Data (TIC and Mass Spectrum)**





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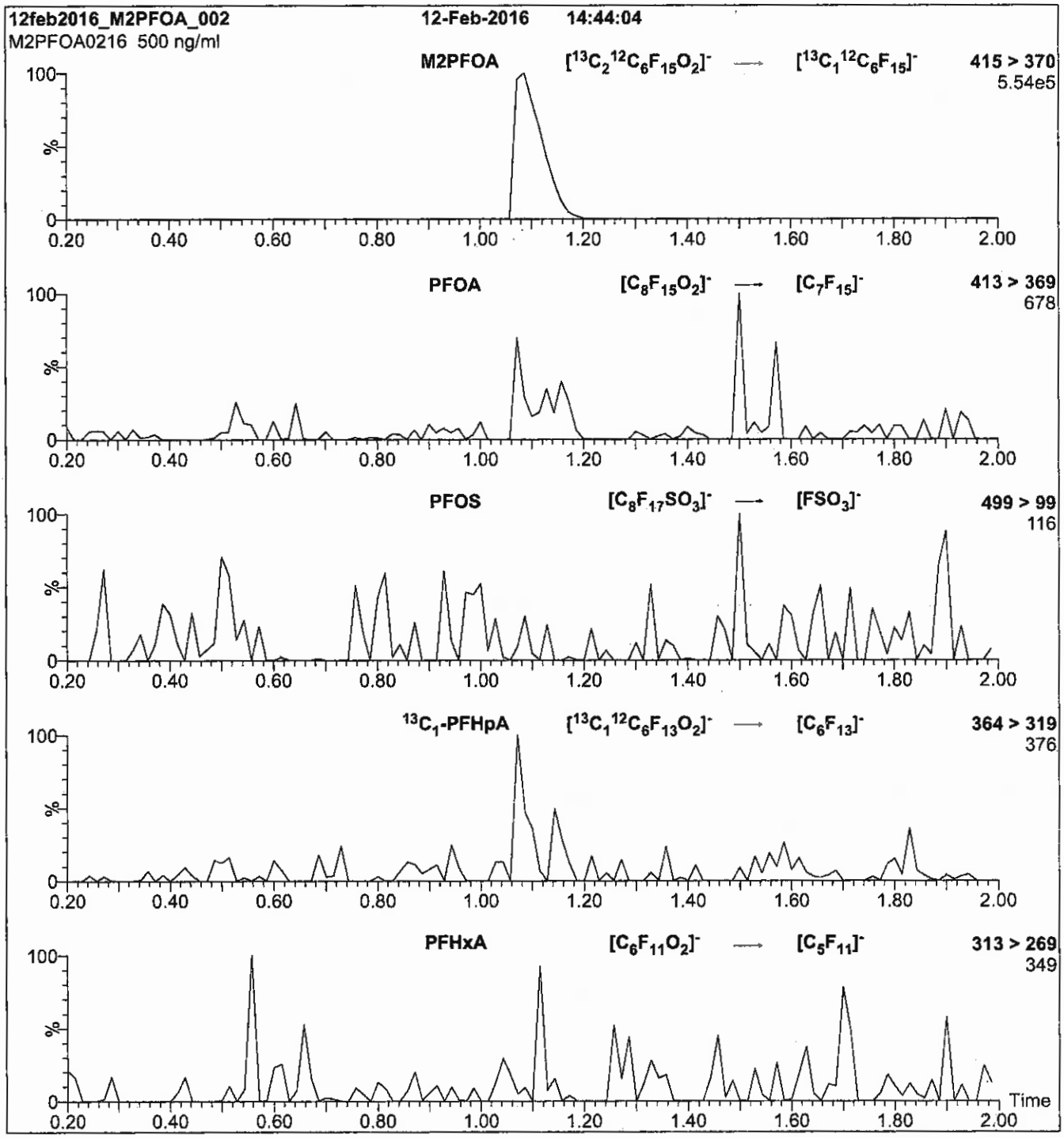
Figure 2: **M2PFOA; LC/MS/MS Data (Selected MRM Transitions)**



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-Perfluornodecanoic 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:

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HAZARDS:

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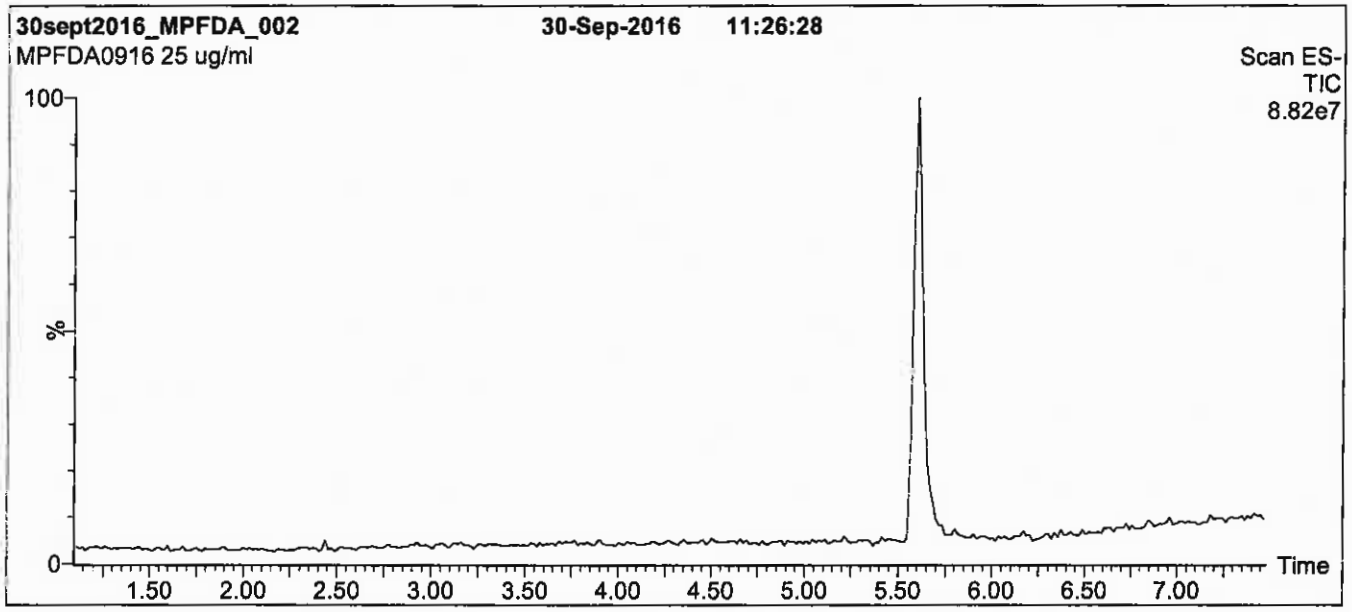
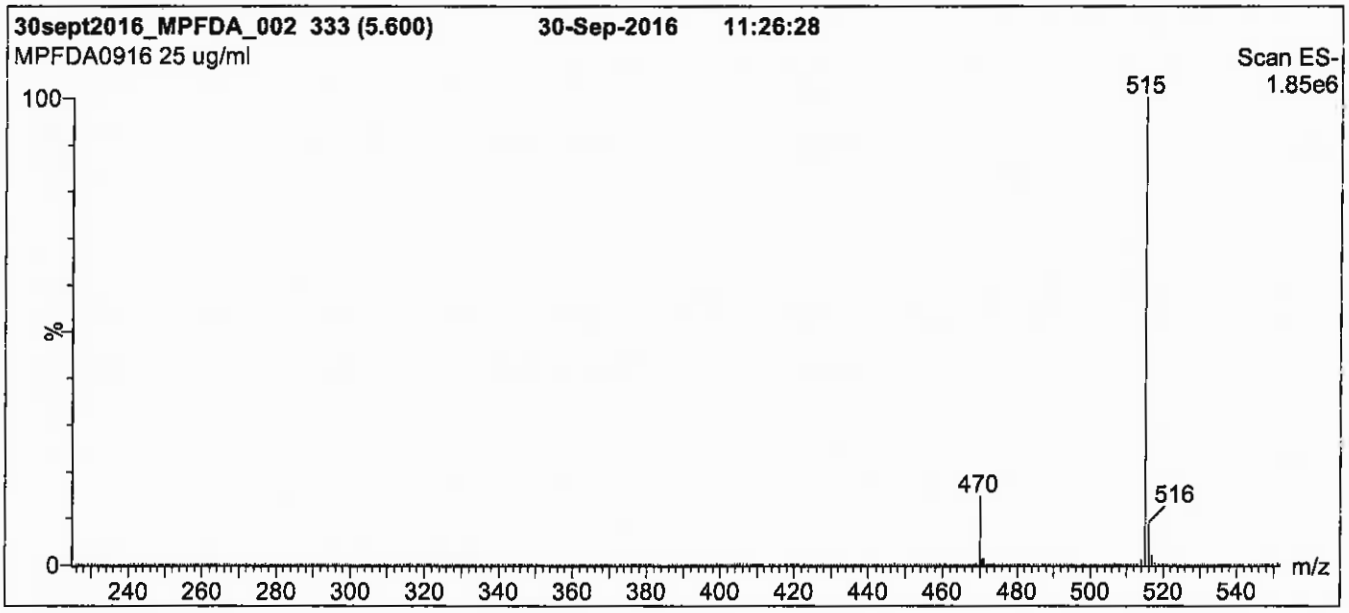
Figure 1: **MPFDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield 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

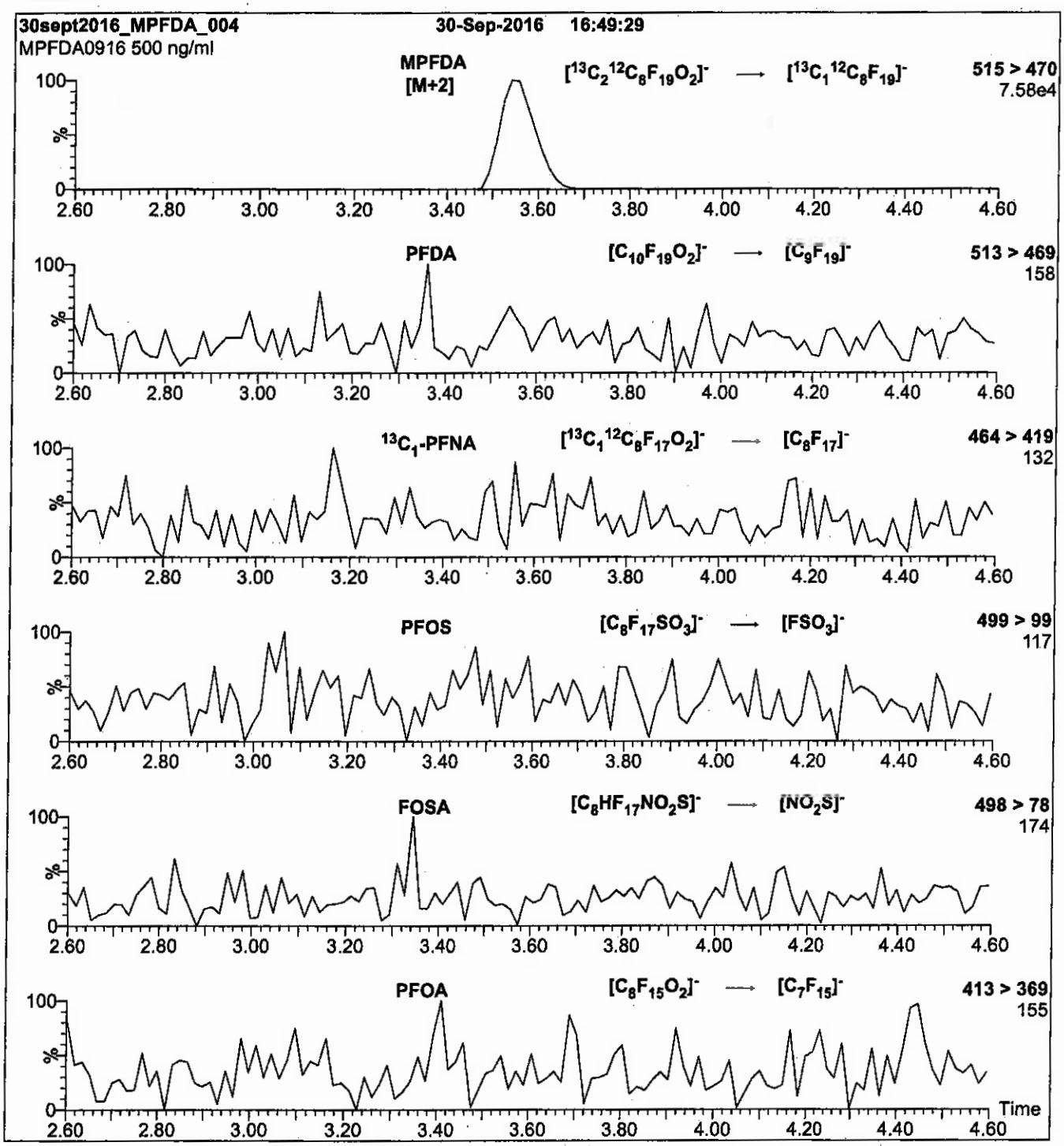
Flow: 300 µl/min

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

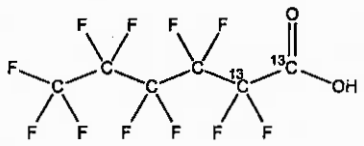
PRODUCT CODE: MPFHxA

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-$^{13}C_2$)

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
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CALA Testing Accreditation No. A1226

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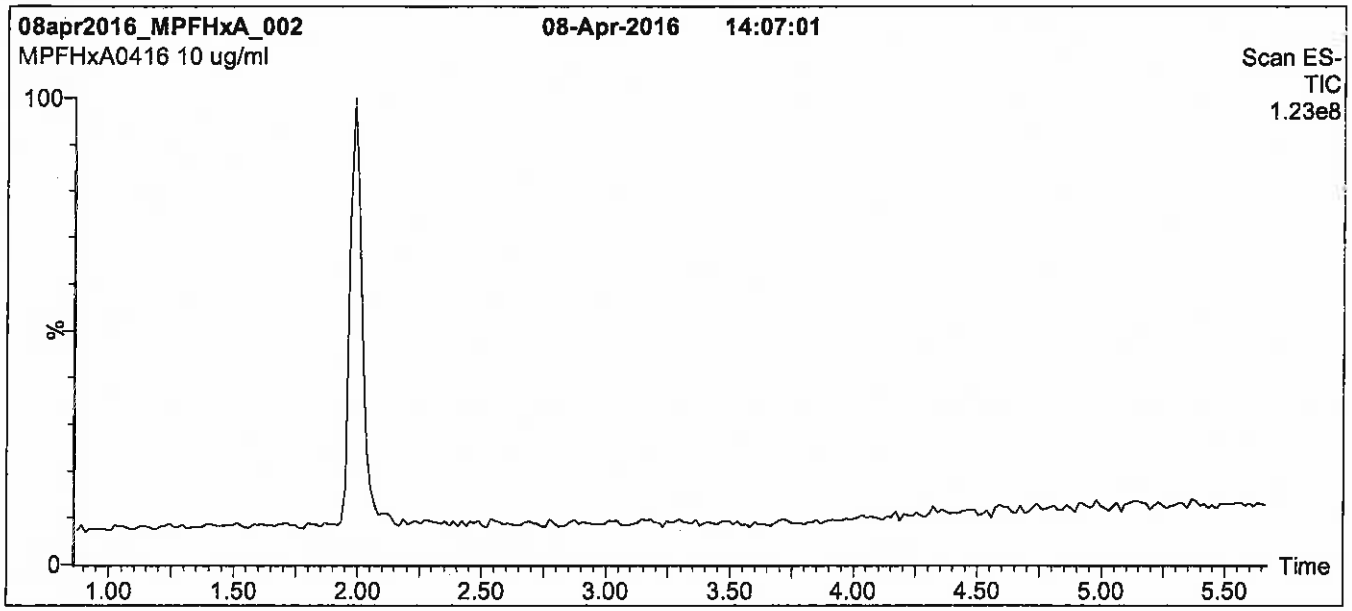

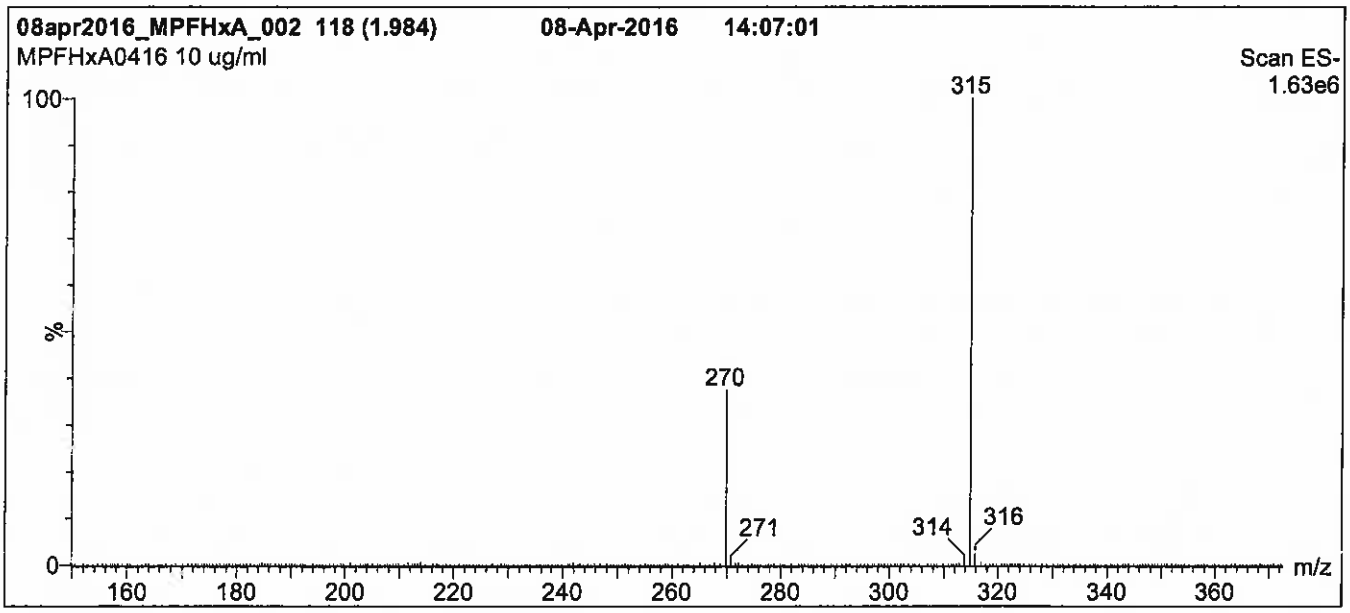

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Experiment: Full Scan (150 - 850 amu)

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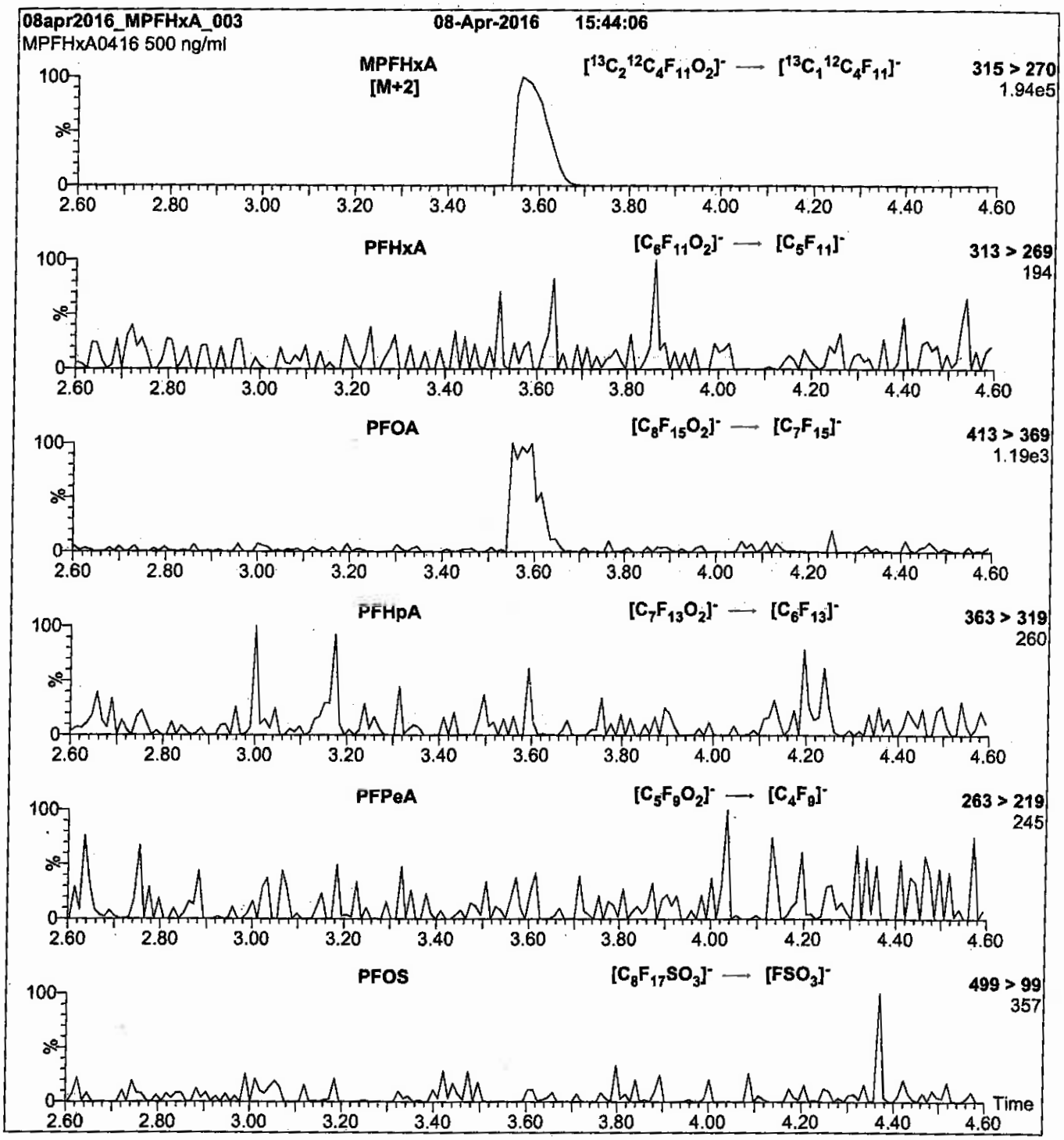
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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

LCMPFOS_00019

R: SBC 12/21/16

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

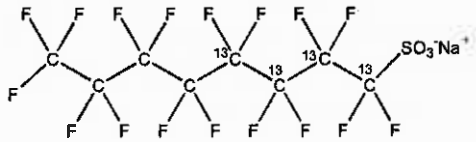
WELLINGTON LABORATORIES

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
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:

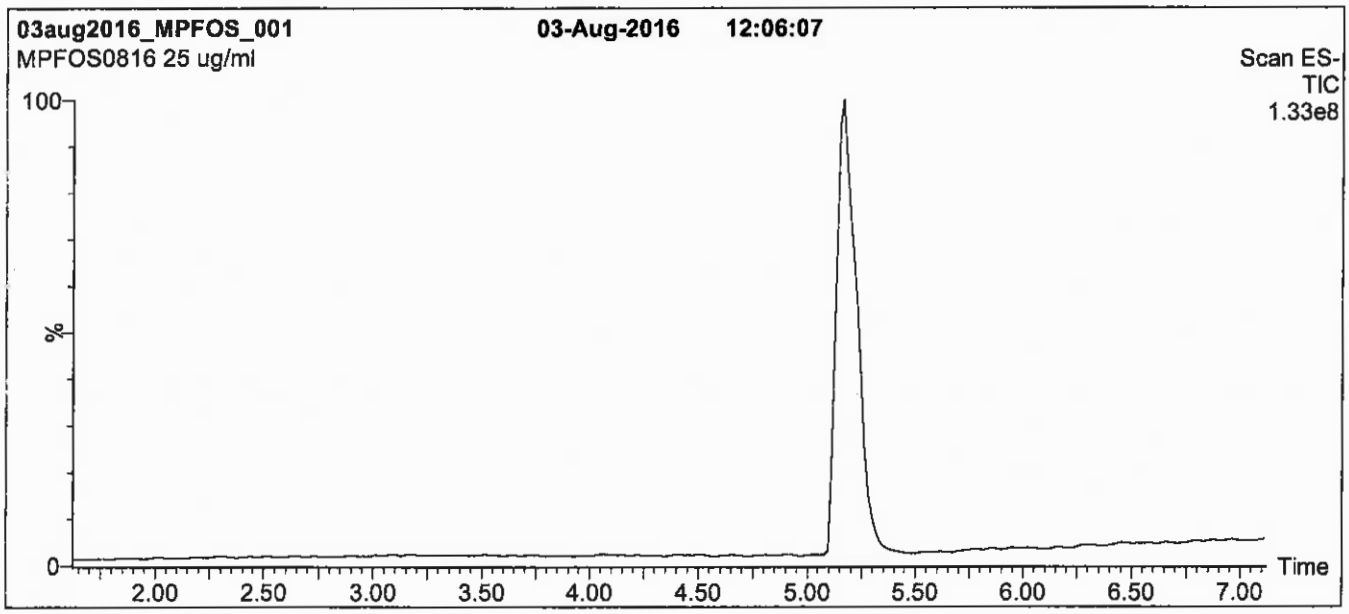
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

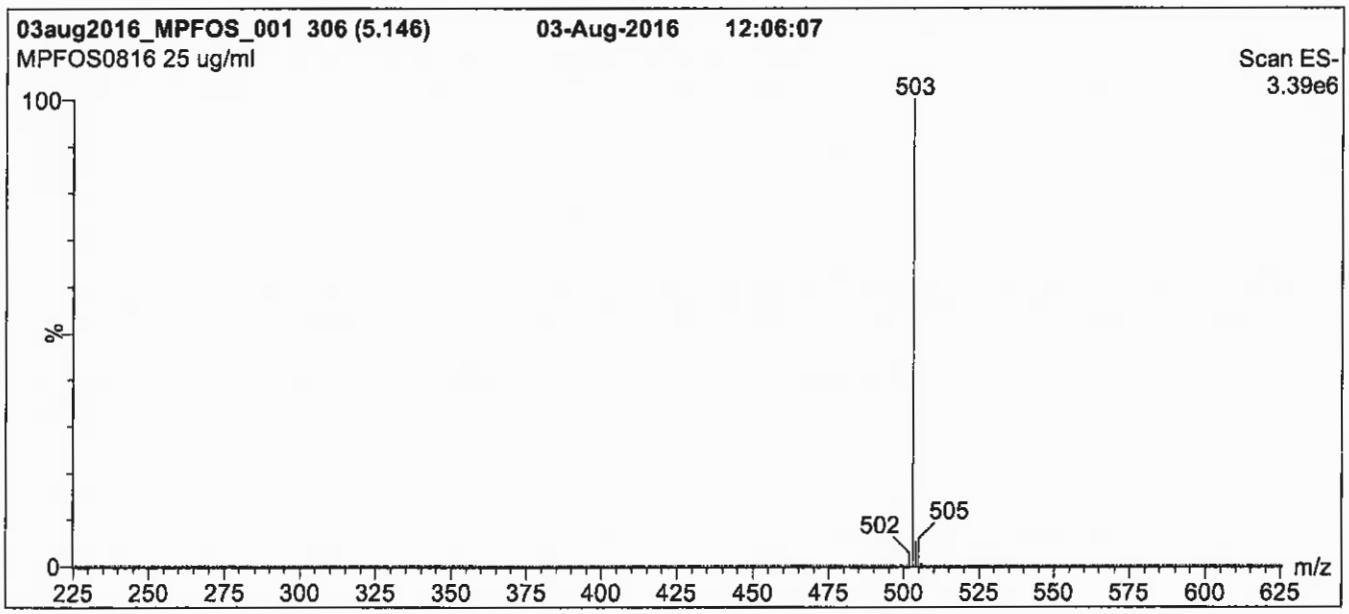
CALA Testing Accreditation No. A 1226

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

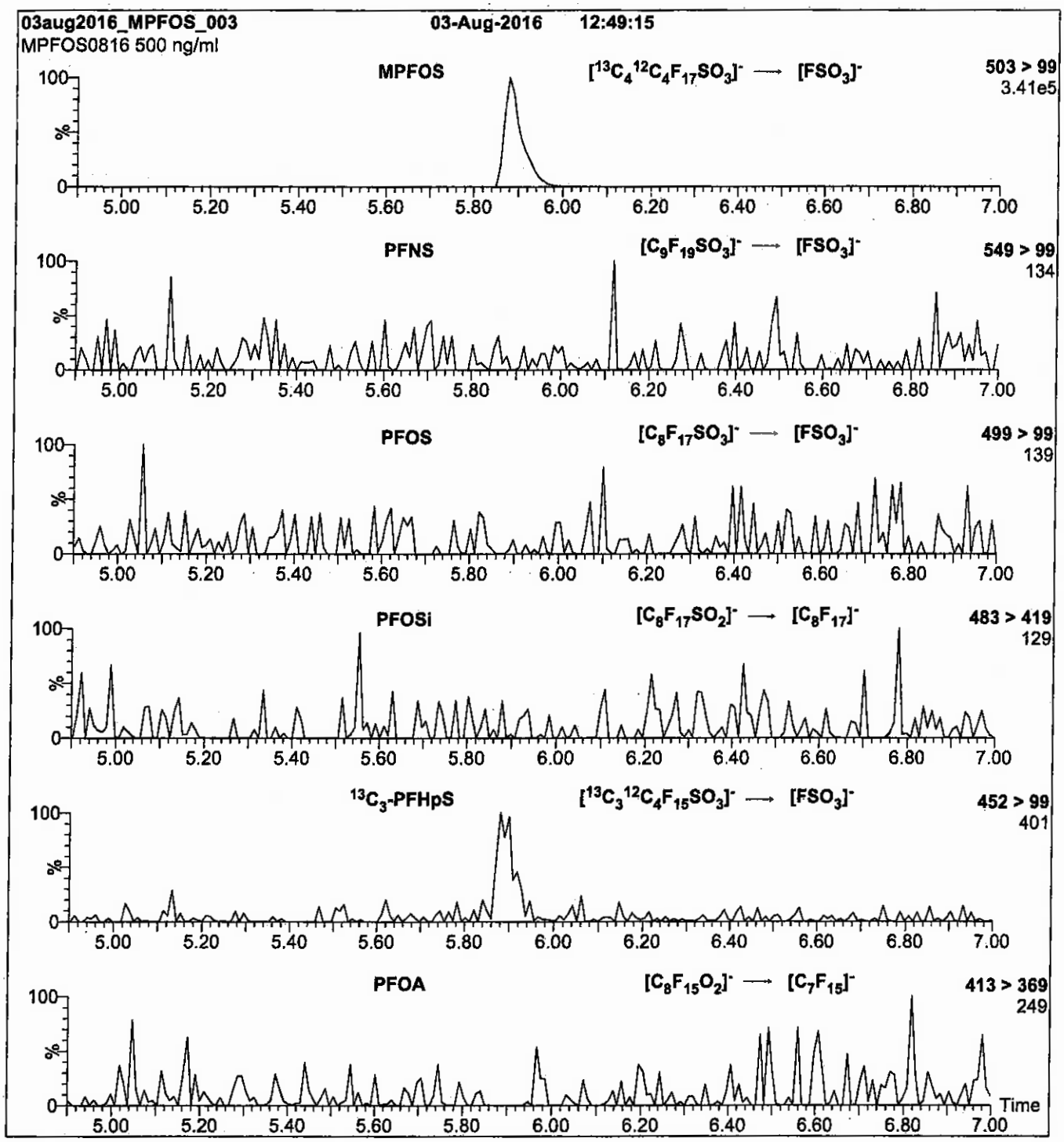
Flow: 300 µl/min

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

Method 537 DOD

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

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-062017-RW-4831A	320-29279-1	91	103
WGNA-062017-FRB-4831A	320-29279-2	97	102
WGNA-062017-RW-4831B	320-29279-3	86	97
WGNA-062017-RW-3978	320-29279-4	90	97
WGNA-062017-FRB-3978	320-29279-5	92	99
WGNA-062017-RW-3991	320-29279-6	91	103
WGNA-062017-FRB-3991	320-29279-7	98	102
WGNA-062017-RW-4834	320-29279-8	90	99
WGNA-062017-FRB-4834	320-29279-9	90	98
WGNA-062017-RW-4840	320-29279-10	92	94
WGNA-062017-FRB-4840	320-29279-11	97	100
WGNA-062017-RW-3124A	320-29279-12	88	101
WGNA-062017-FRB-3124A	320-29279-13	95	94
WGNA-062017-RW-3124B	320-29279-14	91	96
WGNA-062017-RW-0344	320-29279-15	90	96
WGNA-062017-FRB-0344	320-29279-16	90	95
WGNA-062017-RW-0413A	320-29279-17	92	90
WGNA-062017-FRB-0413A	320-29279-18	89	93
WGNA-062017-RW-0413B	320-29279-19	93	100
	MB 320-172036/1-A	92	100
	LLCS 320-172036/2-A	94	100
	LLCSD 320-172036/3-A	99	102

	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 LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.07.06_537A_034.d

Lab ID: LLCS 320-172036/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	38.4 J	96	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	20.3	101	50-150	
Perfluorononanoic acid (PFNA)	19.3	19.6 J	102	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.1	29.9 J	99	50-150	
Perfluoroheptanoic acid (PFHpA)	9.90	10.8	109	50-150	
Perfluorobutanesulfonic acid (PFBS)	88.3	96.8	110	50-150	

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.: 320-29279-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.07.06_537A_035.d

Lab ID: LLCSD 320-172036/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	40.0	40.0	100	4	50	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	21.5	108	6	50	50-150	
Perfluorononanoic acid (PFNA)	19.3	20.1 J	104	3	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.1	30.8	102	3	50	50-150	
Perfluoroheptanoic acid (PFHpA)	9.90	10.9	110	0.6	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	88.3	96.4	109	0.4	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.: 320-29279-1

SDG No.:

Lab File ID: 2017.07.06_537A_033.d Lab Sample ID: MB 320-172036/1-A

Matrix: Water Date Extracted: 07/01/2017 09:47

Instrument ID: A8_N Date Analyzed: 07/07/2017 01:48

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-172036/2-A	2017.07.06_537A_034.d	07/07/2017 01:53
	LLCSD 320-172036/3-A	2017.07.06_537A_035.d	07/07/2017 01:58
WGNA-062017-RW-4831A	320-29279-1	2017.07.06_537A_036.d	07/07/2017 02:03
WGNA-062017-FRB-4831A	320-29279-2	2017.07.06_537A_037.d	07/07/2017 02:07
WGNA-062017-RW-4831B	320-29279-3	2017.07.06_537A_038.d	07/07/2017 02:12
WGNA-062017-RW-3978	320-29279-4	2017.07.06_537A_039.d	07/07/2017 02:17
WGNA-062017-FRB-3978	320-29279-5	2017.07.06_537A_040.d	07/07/2017 02:22
WGNA-062017-RW-3991	320-29279-6	2017.07.06_537A_041.d	07/07/2017 02:26
WGNA-062017-FRB-3991	320-29279-7	2017.07.06_537A_042.d	07/07/2017 02:31
WGNA-062017-RW-4834	320-29279-8	2017.07.06_537A_045.d	07/07/2017 02:45
WGNA-062017-FRB-4834	320-29279-9	2017.07.06_537A_046.d	07/07/2017 02:50
WGNA-062017-RW-4840	320-29279-10	2017.07.06_537A_047.d	07/07/2017 02:55
WGNA-062017-FRB-4840	320-29279-11	2017.07.06_537A_048.d	07/07/2017 03:00
WGNA-062017-RW-3124A	320-29279-12	2017.07.06_537A_049.d	07/07/2017 03:04
WGNA-062017-FRB-3124A	320-29279-13	2017.07.06_537A_050.d	07/07/2017 03:09
WGNA-062017-RW-3124B	320-29279-14	2017.07.06_537A_051.d	07/07/2017 03:14
WGNA-062017-RW-0344	320-29279-15	2017.07.06_537A_052.d	07/07/2017 03:19
WGNA-062017-FRB-0344	320-29279-16	2017.07.06_537A_053.d	07/07/2017 03:23
WGNA-062017-RW-0413A	320-29279-17	2017.07.06_537A_054.d	07/07/2017 03:28
WGNA-062017-FRB-0413A	320-29279-18	2017.07.06_537A_057.d	07/07/2017 03:42
WGNA-062017-RW-0413B	320-29279-19	2017.07.06_537A_058.d	07/07/2017 03:47

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 07/05/2017 20:13

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		966867	1.88	2790947	2.12		
UPPER LIMIT		1450301	2.38	4186421	2.62		
LOWER LIMIT		483434	1.38	1395474	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-172646/11		960063	1.87	2831967	2.11		
ICV 320-172646/13		920859	1.87	2667731	2.11		
CCV 320-173033/1 CCVIS		962177	1.86	2769042	2.10		
MB 320-172036/1-A		1045764	1.86	3084775	2.09		
LLCS 320-172036/2-A		1003937	1.86	2867134	2.09		
LLCSD 320-172036/3-A		1010144	1.87	2905116	2.10		
320-29279-1	WGNA-062017-RW-4831A	1016269	1.87	2969140	2.10		
320-29279-2	WGNA-062017-FRB-4831A	1032128	1.86	2985050	2.10		
320-29279-3	WGNA-062017-RW-4831B	1036052	1.86	3026370	2.10		
320-29279-4	WGNA-062017-RW-3978	1033038	1.87	2930298	2.10		
320-29279-5	WGNA-062017-FRB-3978	1047036	1.86	2902034	2.10		
320-29279-6	WGNA-062017-RW-3991	1016336	1.86	3076208	2.10		
320-29279-7	WGNA-062017-FRB-3991	1008432	1.86	2929176	2.10		
CCV 320-173033/13 CCVIS		952280	1.86	2849008	2.09		
CCV 320-173034/13 CCVIS		952280	1.86	2849008	2.09		
320-29279-8	WGNA-062017-RW-4834	1089933	1.87	3366215	2.10		
320-29279-9	WGNA-062017-FRB-4834	1022064	1.87	2780300	2.10		
320-29279-10	WGNA-062017-RW-4840	1089613	1.86	2943996	2.10		
320-29279-11	WGNA-062017-FRB-4840	1083014	1.86	3192849	2.10		
320-29279-12	WGNA-062017-RW-3124A	1055913	1.86	3137666	2.10		
320-29279-13	WGNA-062017-FRB-3124A	1010295	1.87	3068272	2.10		
320-29279-14	WGNA-062017-RW-3124B	1062587	1.85	2915192	2.09		
320-29279-15	WGNA-062017-RW-0344	1036324	1.86	2931326	2.10		
320-29279-16	WGNA-062017-FRB-0344	1072358	1.86	2938633	2.10		
320-29279-17	WGNA-062017-RW-0413A	1060415	1.87	3002690	2.10		
CCV 320-173034/25 CCVIS		947720	1.86	2675129	2.10		
CCV 320-173035/25 CCVIS		947720	1.86	2675129	2.10		
320-29279-18	WGNA-062017-FRB-0413A	1074769	1.86	2939390	2.09		

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.: 320-29279-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 07/05/2017 20:13

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		966867	1.88	2790947	2.12		
UPPER LIMIT		1450301	2.38	4186421	2.62		
LOWER LIMIT		483434	1.38	1395474	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29279-19	WGNA-062017-RW-0413B	1003999	1.85	2945492	2.09		
CCV 320-173035/29 CCVIS		953875	1.86	2818499	2.09		

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.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173033/1 Date Analyzed: 07/07/2017 01:39

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

Lab File ID (Standard): 2017.07.06_537A_031 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		962177	1.86	2769042	2.10		
UPPER LIMIT		1347048	2.36	3876659	2.60		
LOWER LIMIT		673524	1.36	1938329	1.60		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-172036/1-A		1045764	1.86	3084775	2.09		
LLCS 320-172036/2-A		1003937	1.86	2867134	2.09		
LLCSD 320-172036/3-A		1010144	1.87	2905116	2.10		
320-29279-1	WGNA-062017-RW-4831A	1016269	1.87	2969140	2.10		
320-29279-2	WGNA-062017-FRB-4831A	1032128	1.86	2985050	2.10		
320-29279-3	WGNA-062017-RW-4831B	1036052	1.86	3026370	2.10		
320-29279-4	WGNA-062017-RW-3978	1033038	1.87	2930298	2.10		
320-29279-5	WGNA-062017-FRB-3978	1047036	1.86	2902034	2.10		
320-29279-6	WGNA-062017-RW-3991	1016336	1.86	3076208	2.10		
320-29279-7	WGNA-062017-FRB-3991	1008432	1.86	2929176	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 VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173033/13 Date Analyzed: 07/07/2017 02:36

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

Lab File ID (Standard): 2017.07.06_537A_043 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		952280	1.86	2849008	2.09		
UPPER LIMIT		1333192	2.36	3988611	2.59		
LOWER LIMIT		666596	1.36	1994306	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-172036/1-A		1045764	1.86	3084775	2.09		
LLCS 320-172036/2-A		1003937	1.86	2867134	2.09		
LLCSD 320-172036/3-A		1010144	1.87	2905116	2.10		
320-29279-1	WGNA-062017-RW-4831A	1016269	1.87	2969140	2.10		
320-29279-2	WGNA-062017-FRB-4831A	1032128	1.86	2985050	2.10		
320-29279-3	WGNA-062017-RW-4831B	1036052	1.86	3026370	2.10		
320-29279-4	WGNA-062017-RW-3978	1033038	1.87	2930298	2.10		
320-29279-5	WGNA-062017-FRB-3978	1047036	1.86	2902034	2.10		
320-29279-6	WGNA-062017-RW-3991	1016336	1.86	3076208	2.10		
320-29279-7	WGNA-062017-FRB-3991	1008432	1.86	2929176	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 VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173034/13 Date Analyzed: 07/07/2017 02:36

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

Lab File ID (Standard): 2017.07.06_537A_043 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		952280	1.86	2849008	2.09		
UPPER LIMIT		1333192	2.36	3988611	2.59		
LOWER LIMIT		666596	1.36	1994306	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29279-8	WGNA-062017-RW-4834	1089933	1.87	3366215	2.10		
320-29279-9	WGNA-062017-FRB-4834	1022064	1.87	2780300	2.10		
320-29279-10	WGNA-062017-RW-4840	1089613	1.86	2943996	2.10		
320-29279-11	WGNA-062017-FRB-4840	1083014	1.86	3192849	2.10		
320-29279-12	WGNA-062017-RW-3124A	1055913	1.86	3137666	2.10		
320-29279-13	WGNA-062017-FRB-3124A	1010295	1.87	3068272	2.10		
320-29279-14	WGNA-062017-RW-3124B	1062587	1.85	2915192	2.09		
320-29279-15	WGNA-062017-RW-0344	1036324	1.86	2931326	2.10		
320-29279-16	WGNA-062017-FRB-0344	1072358	1.86	2938633	2.10		
320-29279-17	WGNA-062017-RW-0413A	1060415	1.87	3002690	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 VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173034/25 Date Analyzed: 07/07/2017 03:33

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

Lab File ID (Standard): 2017.07.06_537A_055 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		947720	1.86	2675129	2.10		
UPPER LIMIT		1326808	2.36	3745181	2.60		
LOWER LIMIT		663404	1.36	1872590	1.60		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29279-8	WGNA-062017-RW-4834	1089933	1.87	3366215	2.10		
320-29279-9	WGNA-062017-FRB-4834	1022064	1.87	2780300	2.10		
320-29279-10	WGNA-062017-RW-4840	1089613	1.86	2943996	2.10		
320-29279-11	WGNA-062017-FRB-4840	1083014	1.86	3192849	2.10		
320-29279-12	WGNA-062017-RW-3124A	1055913	1.86	3137666	2.10		
320-29279-13	WGNA-062017-FRB-3124A	1010295	1.87	3068272	2.10		
320-29279-14	WGNA-062017-RW-3124B	1062587	1.85	2915192	2.09		
320-29279-15	WGNA-062017-RW-0344	1036324	1.86	2931326	2.10		
320-29279-16	WGNA-062017-FRB-0344	1072358	1.86	2938633	2.10		
320-29279-17	WGNA-062017-RW-0413A	1060415	1.87	3002690	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 VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173035/25 Date Analyzed: 07/07/2017 03:33

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

Lab File ID (Standard): 2017.07.06_537A_055 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		947720	1.86	2675129	2.10		
UPPER LIMIT		1326808	2.36	3745181	2.60		
LOWER LIMIT		663404	1.36	1872590	1.60		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29279-18	WGNA-062017-FRB-0413A	1074769	1.86	2939390	2.09		
320-29279-19	WGNA-062017-RW-0413B	1003999	1.85	2945492	2.09		

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.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173035/29 Date Analyzed: 07/07/2017 03:52

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

Lab File ID (Standard): 2017.07.06_537A_059 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		953875	1.86	2818499	2.09		
UPPER LIMIT		1335425	2.36	3945899	2.59		
LOWER LIMIT		667713	1.36	1972949	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29279-18	WGNA-062017-FRB-0413A	1074769	1.86	2939390	2.09		
320-29279-19	WGNA-062017-RW-0413B	1003999	1.85	2945492	2.09		

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.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-4831A
Lab Sample ID: 320-29279-1
Matrix: Water
Lab File ID: 2017.07.06_537A_036.d
Analysis Method: 537
Date Collected: 06/20/2017 08:45
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 250.1(mL)
Date Analyzed: 07/07/2017 02:03
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	98	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	19	J M	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	32		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.1	J	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	91		70-130
STL00996	13C2 PFDA	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_036.d
Lims ID: 320-29279-A-1-A
Client ID: WGNA-062017-RW-4831A
Sample Type: Client
Inject. Date: 07-Jul-2017 02:03:09 ALS Bottle#: 24 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:30:27

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.404	0.0	1.000	340422	3.69		76.4	
298.90 > 99.00	1.404	1.404	0.0	1.000	262865		1.30(0.00-0.00)	101	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1045353	9.05		4284	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	163354	1.54		16.0	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	1149139	7.97		248	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.878	-0.012		1016269	10.0		3130	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.866	1.879	-0.013	1.000	438027	4.68		42.3	M
413.00 > 169.00	1.866	1.879	-0.013	1.000	280087		1.56(0.00-0.00)	257	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.094	0.008	1.000	2610306	24.6		954	M
499.00 > 99.00	2.102	2.094	0.008	1.000	498581		5.24(0.00-0.00)	727	M
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2969140	28.7		2155	
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.124	-0.015	1.000	72521	0.8659		3.4	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	880089	10.3		1747	

QC Flag Legend

Review Flags

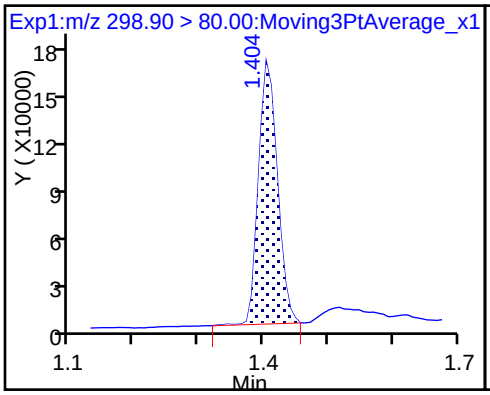
M - Manually Integrated

Report Date: 07-Jul-2017 14:38:58 Chrom Revision: 2.2 26-Jun-2017 08:09:44

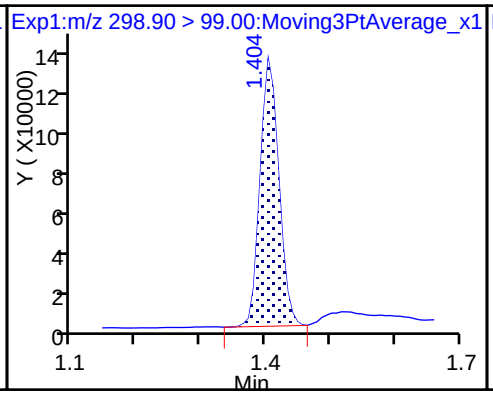
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_036.d				
Injection Date:	07-Jul-2017 02:03:09	Instrument ID:	A8_N		
Lims ID:	320-29279-A-1-A	Lab Sample ID:	320-29279-1		
Client ID:	WGNA-062017-RW-4831A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

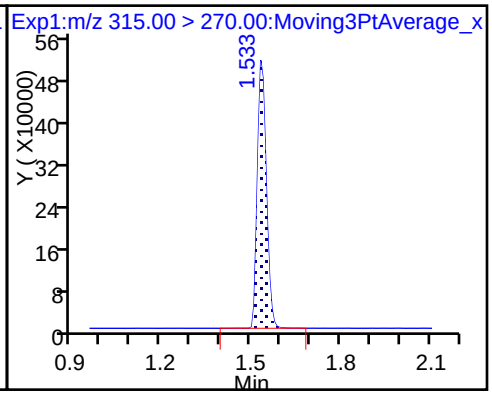
1 Perfluorobutanesulfonic acid



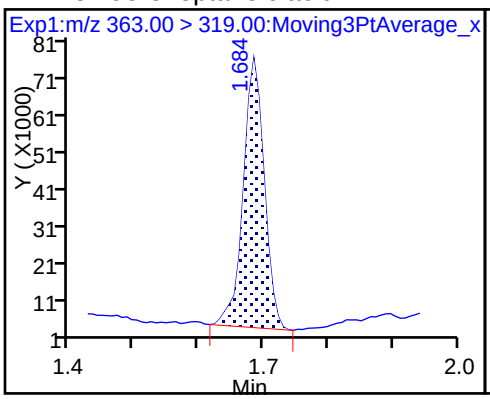
1 Perfluorobutanesulfonic acid



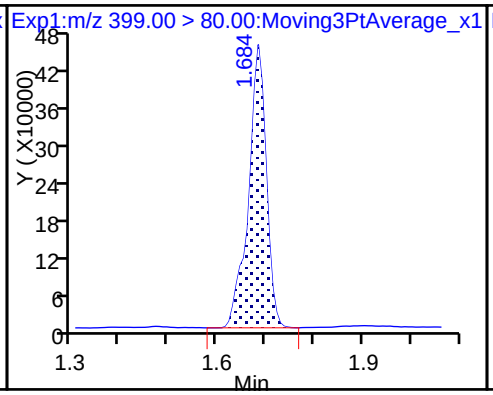
$ 2 13C2 PFHxA



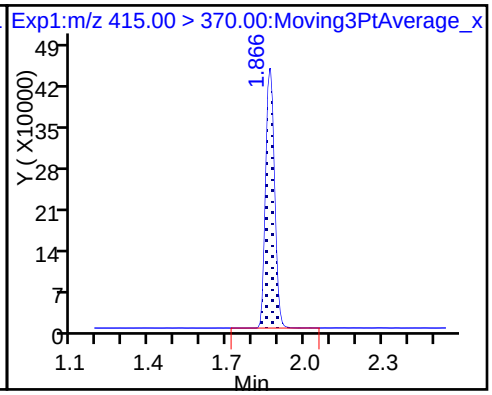
4 Perfluoroheptanoic acid



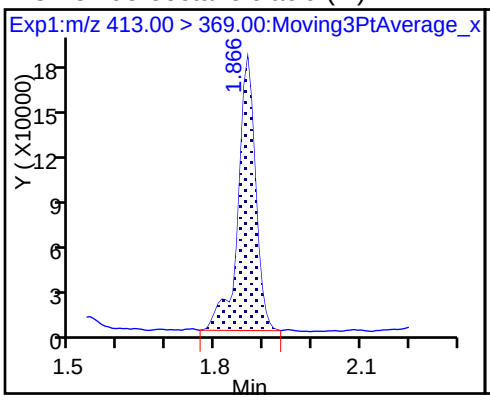
3 Perfluorohexanesulfonic acid



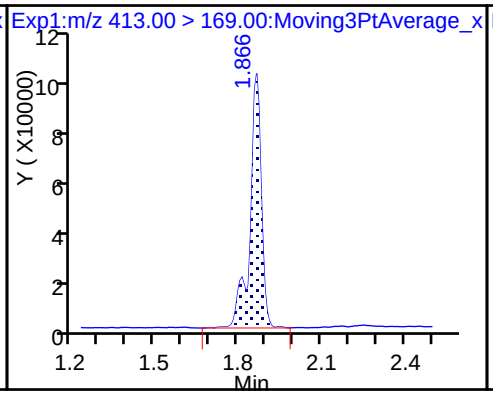
* 6 13C2-PFOA



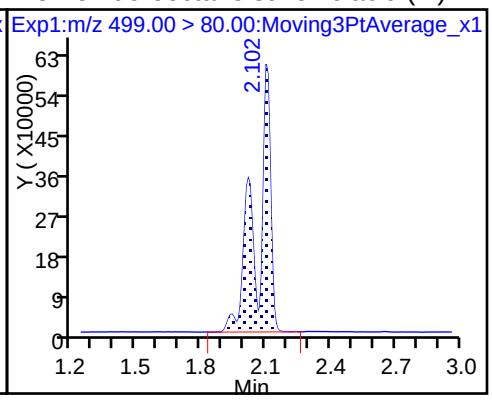
5 Perfluorooctanoic acid (M)



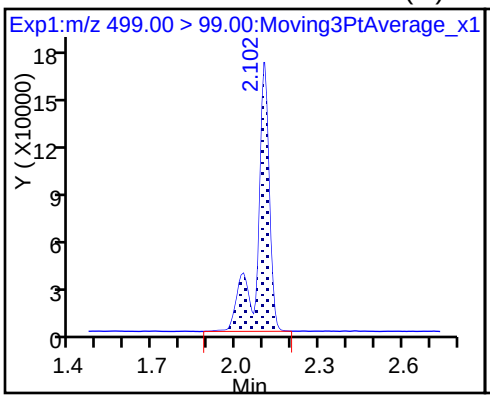
5 Perfluorooctanoic acid



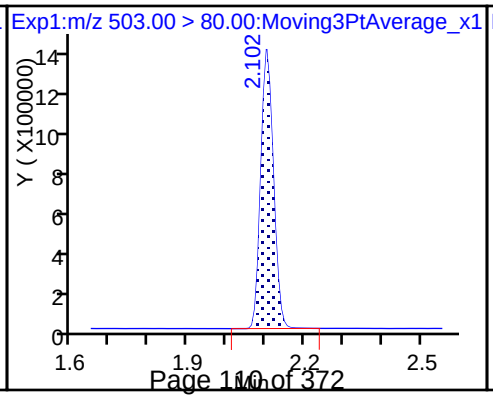
8 Perfluorooctane sulfonic acid (M)



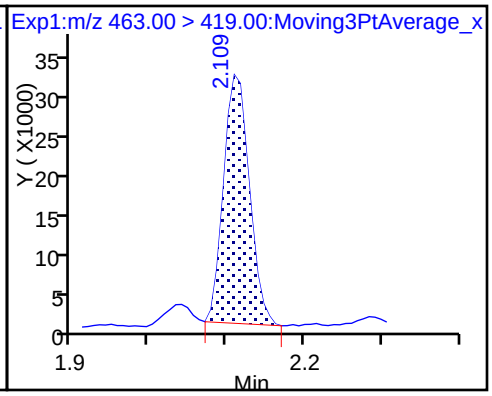
8 Perfluorooctane sulfonic acid (M)



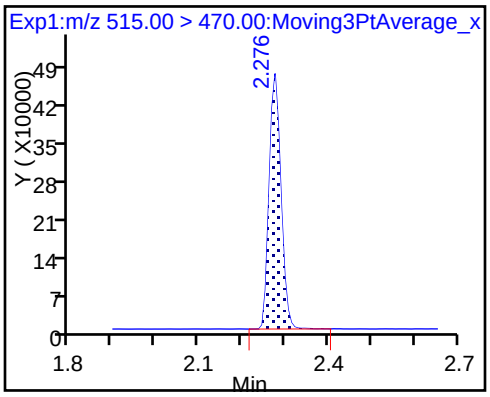
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_036.d
Lims ID: 320-29279-A-1-A
Client ID: WGNA-062017-RW-4831A
Sample Type: Client
Inject. Date: 07-Jul-2017 02:03:09 ALS Bottle#: 24 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:30:27

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.05	90.53
$ 10 13C2 PFDA	10.0	10.3	103.15

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

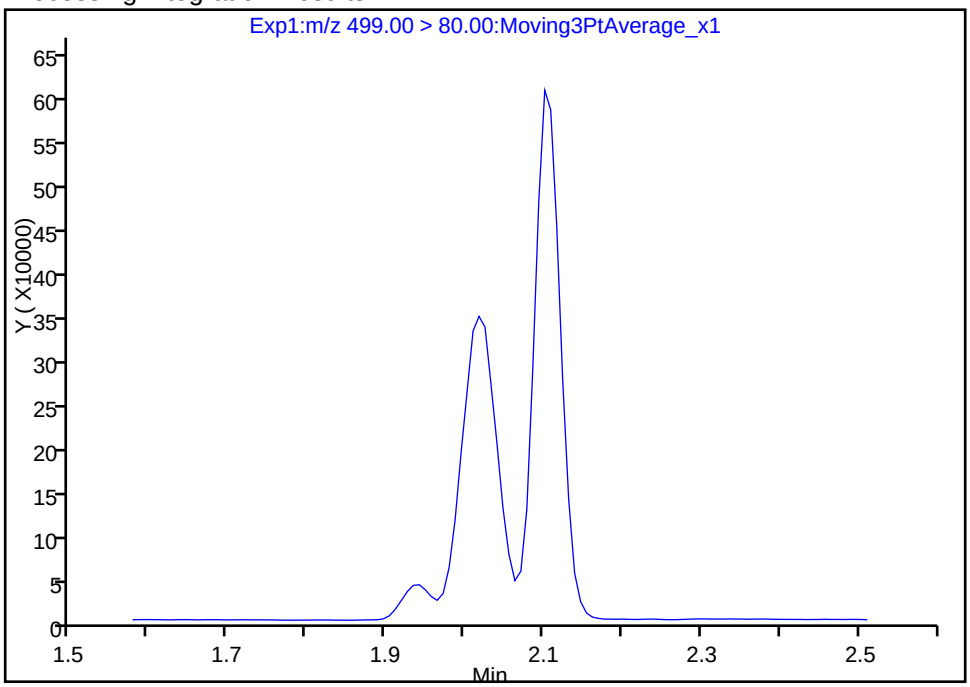
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_036.d				
Injection Date:	07-Jul-2017 02:03:09	Instrument ID:	A8_N		
Lims ID:	320-29279-A-1-A	Lab Sample ID:	320-29279-1		
Client ID:	WGNA-062017-RW-4831A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	6
Injection 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

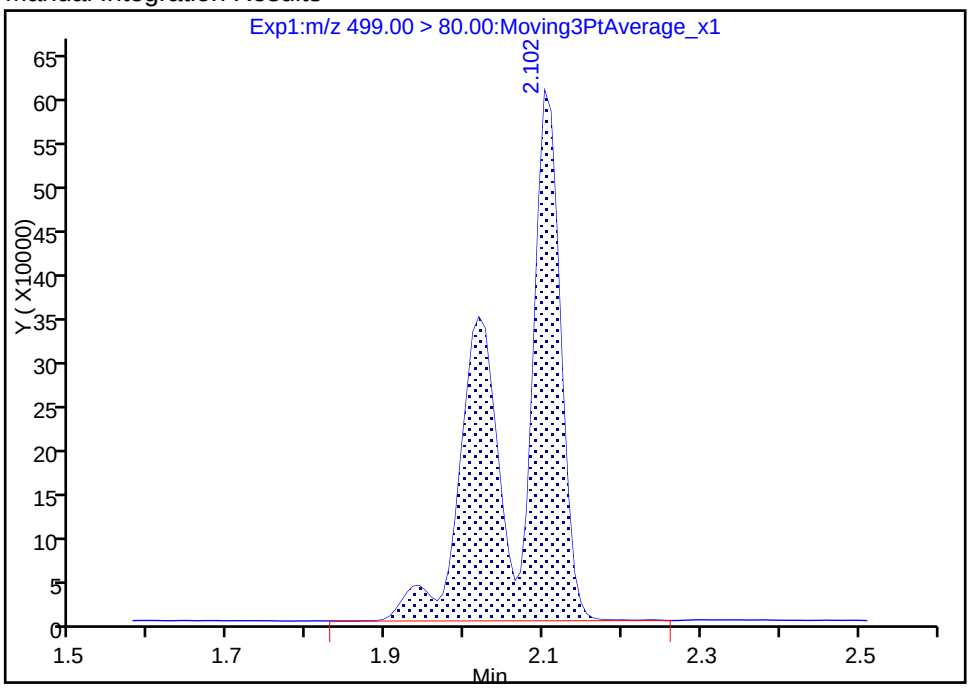
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 2610306
Amount: 24.620283
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:29:23
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

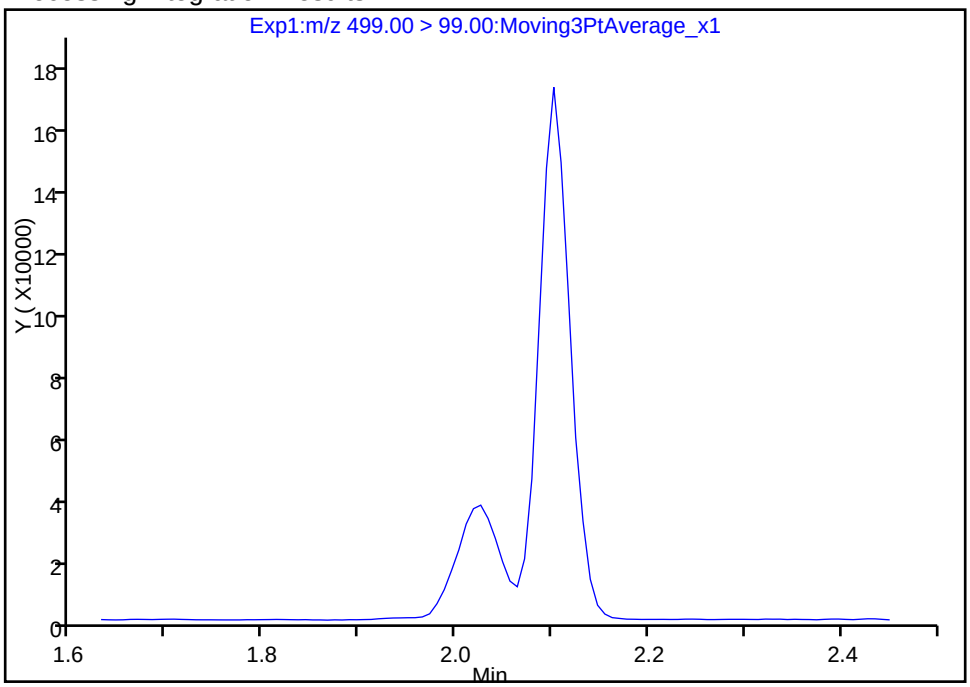
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_036.d				
Injection Date:	07-Jul-2017 02:03:09	Instrument ID:	A8_N		
Lims ID:	320-29279-A-1-A	Lab Sample ID:	320-29279-1		
Client ID:	WGNA-062017-RW-4831A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	6
Injection 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

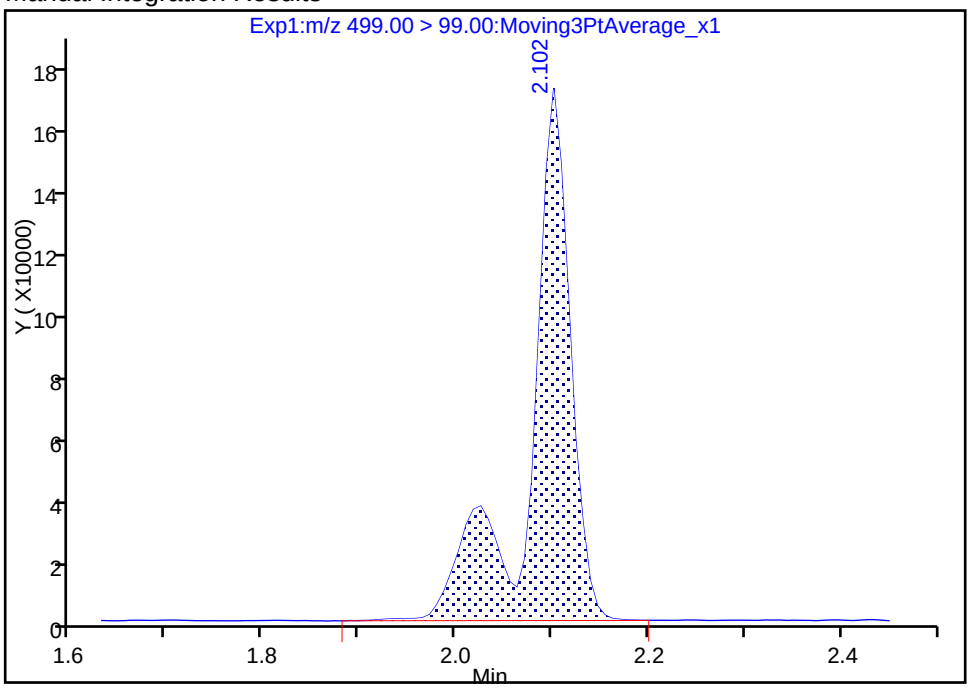
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 498581
Amount: 24.620283
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:29:47
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

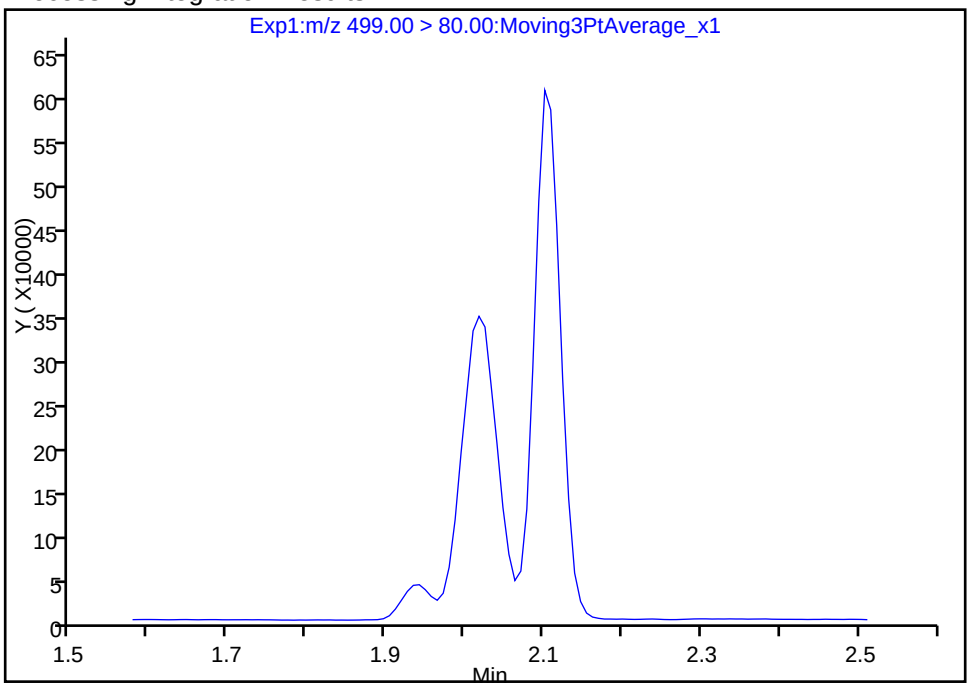
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_036.d				
Injection Date:	07-Jul-2017 02:03:09	Instrument ID:	A8_N		
Lims ID:	320-29279-A-1-A	Lab Sample ID:	320-29279-1		
Client ID:	WGNA-062017-RW-4831A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	6
Injection 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

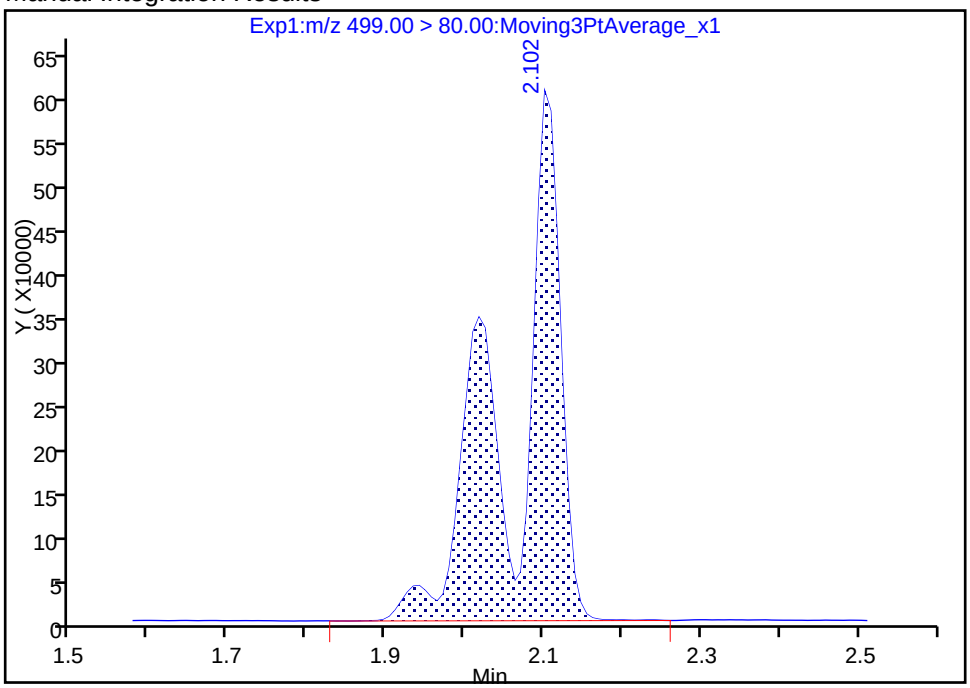
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 2610306
Amount: 24.620283
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:29:47
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

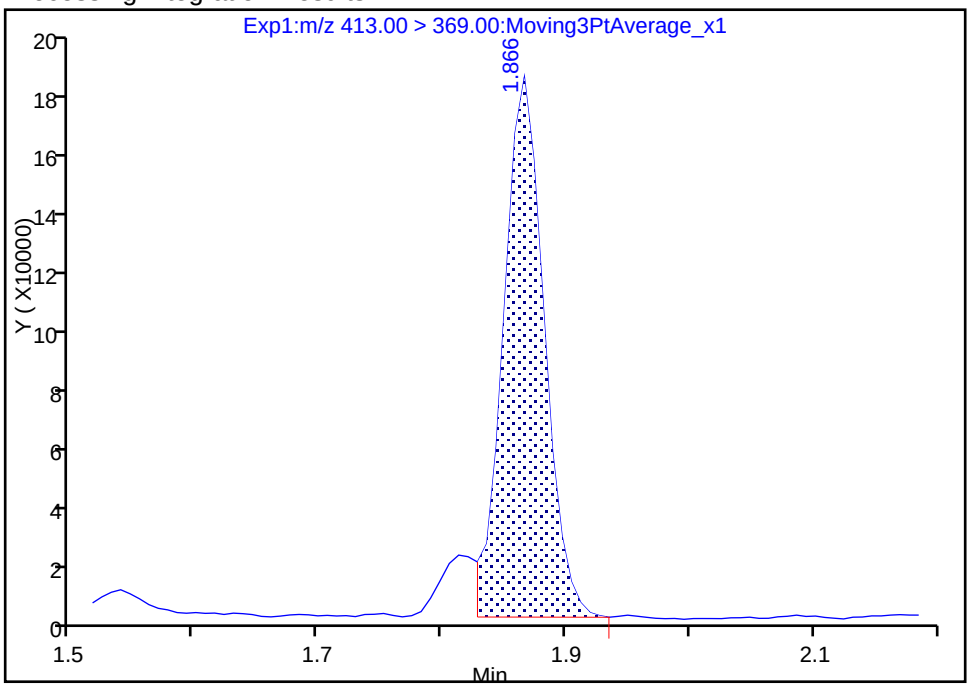
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_036.d				
Injection Date:	07-Jul-2017 02:03:09	Instrument ID:	A8_N		
Lims ID:	320-29279-A-1-A	Lab Sample ID:	320-29279-1		
Client ID:	WGNA-062017-RW-4831A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	6
Injection 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

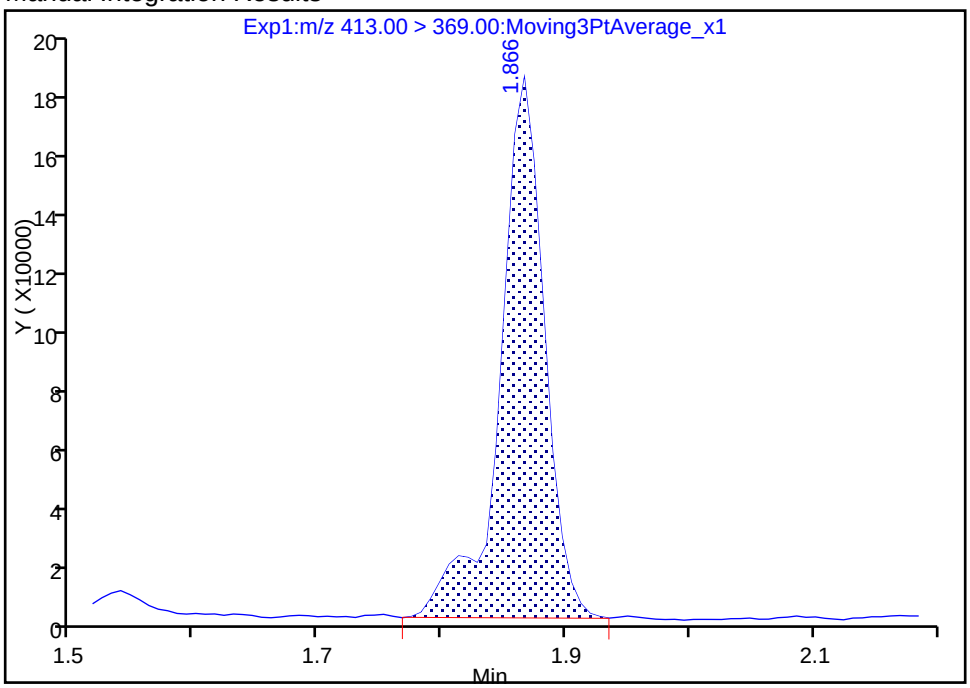
Processing Integration Results

RT: 1.87
Area: 399308
Amount: 4.262996
Amount Units: ng/ml



Manual Integration Results

RT: 1.87
Area: 438027
Amount: 4.676359
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:30:14

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-4831A
Lab Sample ID: 320-29279-2
Matrix: Water
Lab File ID: 2017.07.06_537A_037.d
Analysis Method: 537
Date Collected: 06/20/2017 08:40
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 245.1(mL)
Date Analyzed: 07/07/2017 02:07
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_037.d
Lims ID: 320-29279-A-2-A
Client ID: WGNA-062017-FRB-4831A
Sample Type: Client
Inject. Date: 07-Jul-2017 02:07:54 ALS Bottle#: 25 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:30:48

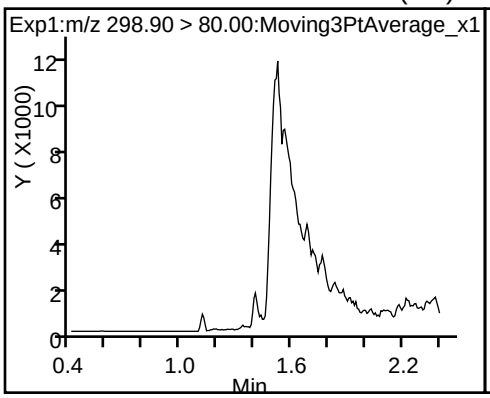
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1140036	9.72		4631	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1032128	10.0		3460	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2985050	28.7		3801	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	880524	10.2		1573	

Report Date: 07-Jul-2017 14:38:58 Chrom Revision: 2.2 26-Jun-2017 08:09:44

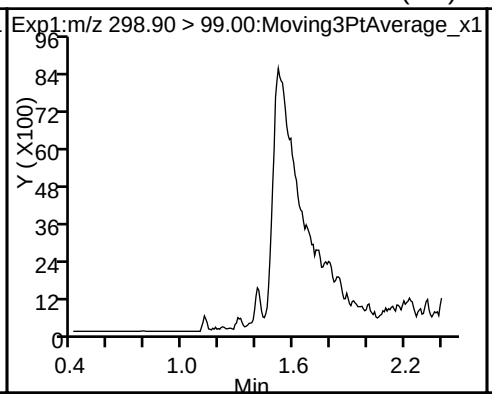
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_037.d				
Injection Date:	07-Jul-2017 02:07:54	Instrument ID:	A8_N		
Lims ID:	320-29279-A-2-A	Lab Sample ID:	320-29279-2		
Client ID:	WGNA-062017-FRB-4831A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	25	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

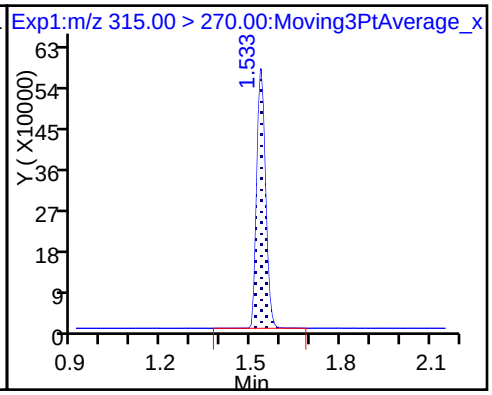
1 Perfluorobutanesulfonic acid (ND)



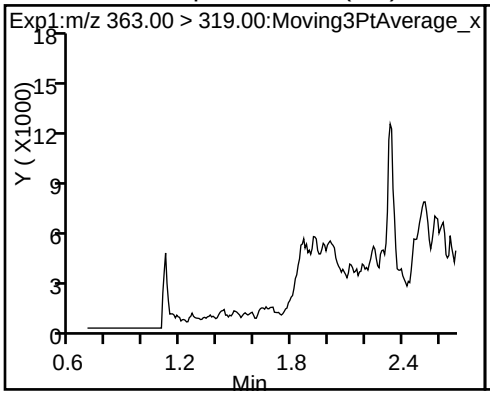
1 Perfluorobutanesulfonic acid (ND)



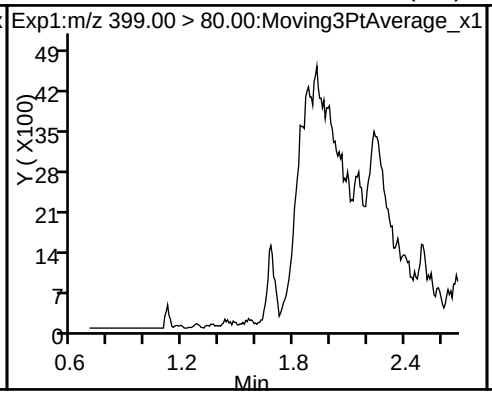
$ 2 13C2 PFHxA



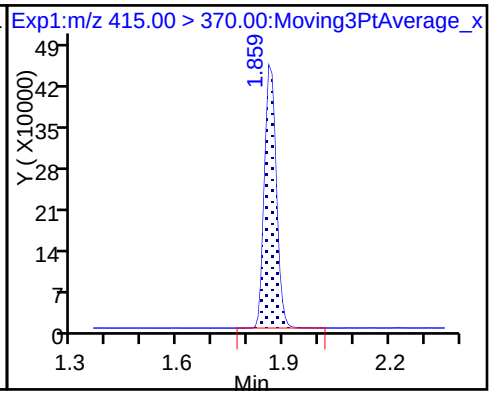
4 Perfluoroheptanoic acid (ND)



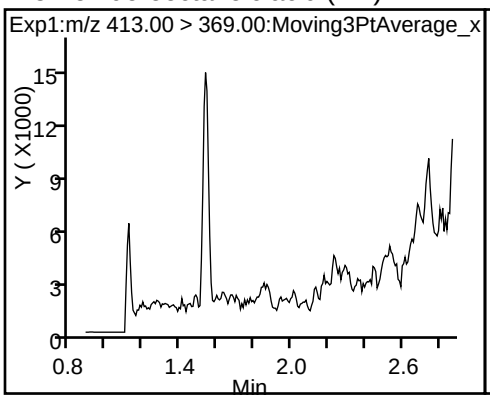
3 Perfluorohexanesulfonic acid (ND)



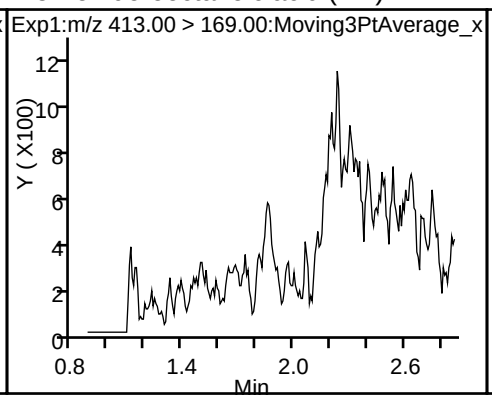
* 6 13C2-PFOA



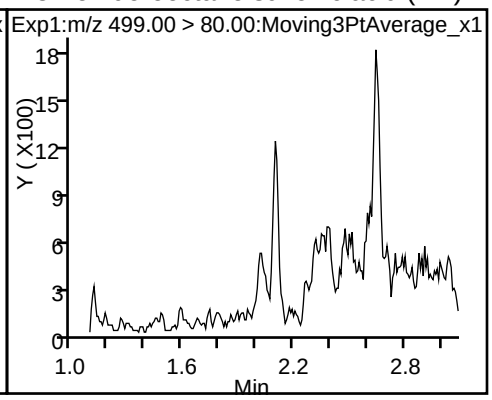
5 Perfluorooctanoic acid (ND)



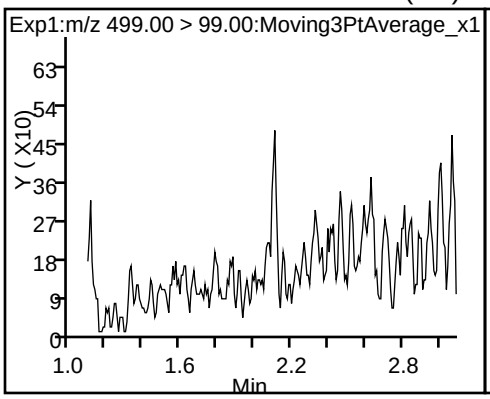
5 Perfluorooctanoic acid (ND)



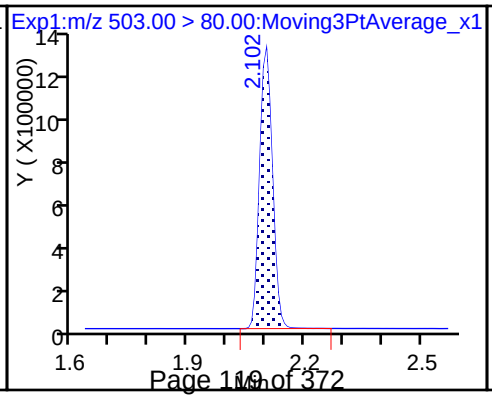
8 Perfluorooctane sulfonic acid (ND)



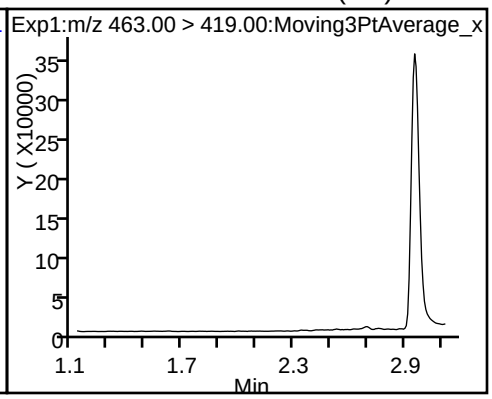
8 Perfluorooctane sulfonic acid (ND)



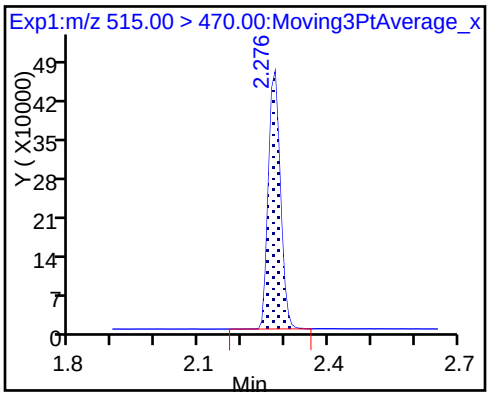
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_037.d
Lims ID: 320-29279-A-2-A
Client ID: WGNA-062017-FRB-4831A
Sample Type: Client
Inject. Date: 07-Jul-2017 02:07:54 ALS Bottle#: 25 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:30:48

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.72	97.22
$ 10 13C2 PFDA	10.0	10.2	101.62

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-4831B
Lab Sample ID: 320-29279-3
Matrix: Water
Lab File ID: 2017.07.06_537A_038.d
Analysis Method: 537
Date Collected: 06/20/2017 08:55
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 248.5(mL)
Date Analyzed: 07/07/2017 02:12
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	120	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	21	M	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	38		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.5	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	16	J	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_038.d
Lims ID: 320-29279-A-3-A
Client ID: WGNA-062017-RW-4831B
Sample Type: Client
Inject. Date: 07-Jul-2017 02:12:38 ALS Bottle#: 26 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:31:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.404	0.0	1.000	379737	4.04		80.2	
298.90 > 99.00	1.404	1.404	0.0	1.000	295818		1.28(0.00-0.00)	119	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1015884	8.63		3938	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	200910	1.85		17.3	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	1398933	9.51		282	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1036052	10.0		3969	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.859	1.879	-0.020	1.000	505823	5.30		48.4	M
413.00 > 169.00	1.859	1.879	-0.020	1.000	310179		1.63(0.00-0.00)	283	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.094	0.008	1.000	3229274	29.9		1035	M
499.00 > 99.00	2.102	2.094	0.008	1.000	645571		5.00(0.00-0.00)	851	M
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		3026370	28.7		1989	
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.124	-0.015	1.000	78213	0.9160		2.6	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	839473	9.65		1507	

QC Flag Legend

Review Flags

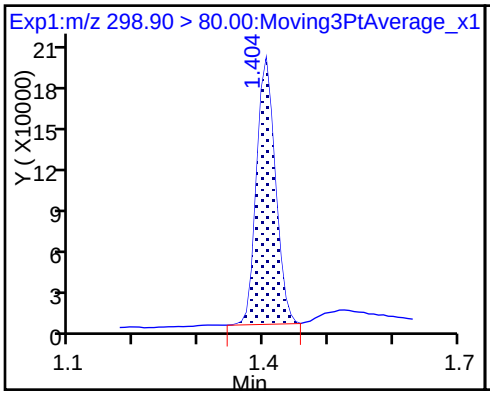
M - Manually Integrated

Report Date: 07-Jul-2017 14:38:59 Chrom Revision: 2.2 26-Jun-2017 08:09:44

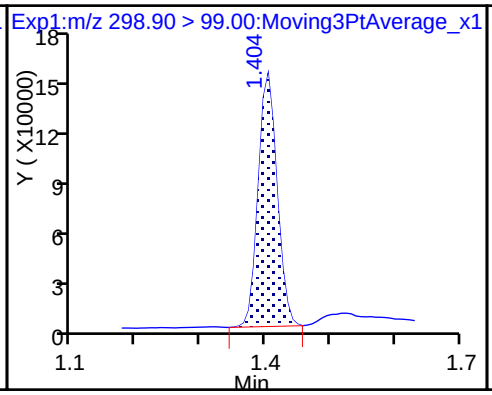
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_038.d				
Injection Date:	07-Jul-2017 02:12:38	Instrument ID:	A8_N		
Lims ID:	320-29279-A-3-A	Lab Sample ID:	320-29279-3		
Client ID:	WGNA-062017-RW-4831B				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	26	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

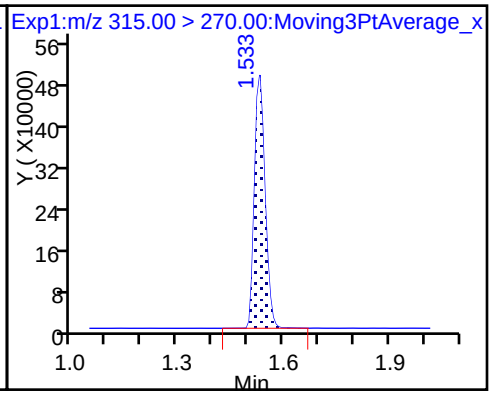
1 Perfluorobutanesulfonic acid



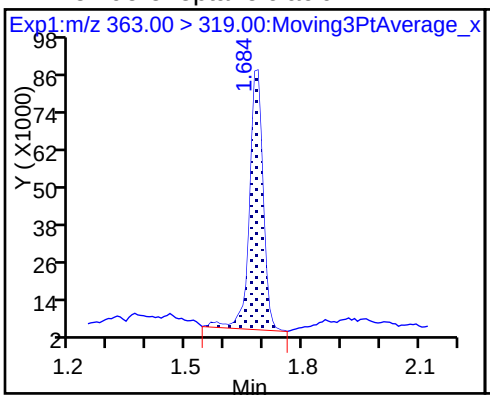
1 Perfluorobutanesulfonic acid



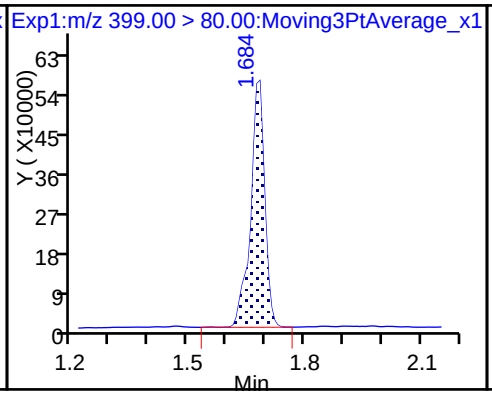
$ 2 13C2 PFHxA



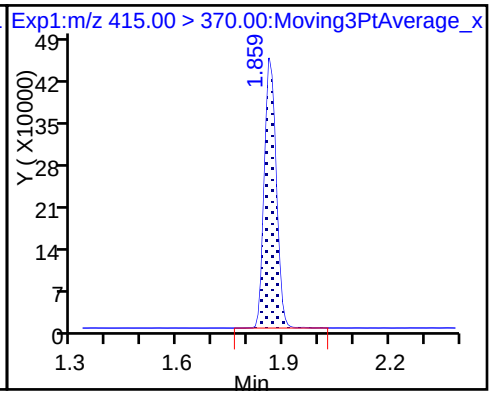
4 Perfluoroheptanoic acid



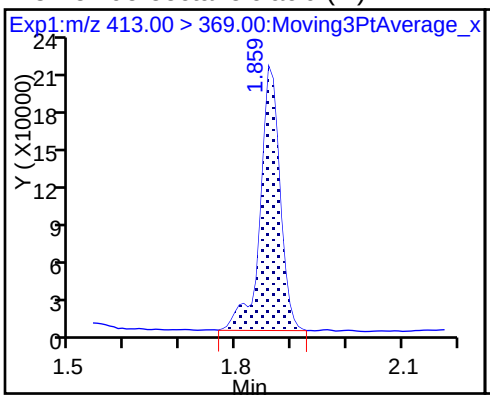
3 Perfluorohexanesulfonic acid



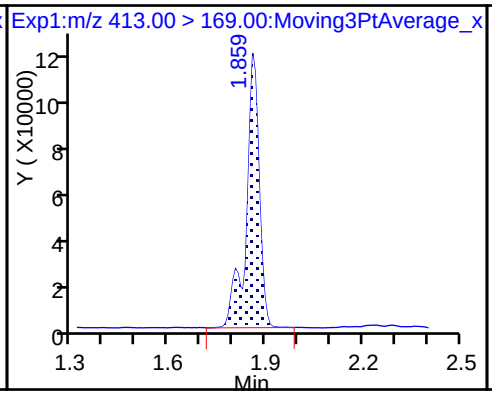
* 6 13C2-PFOA



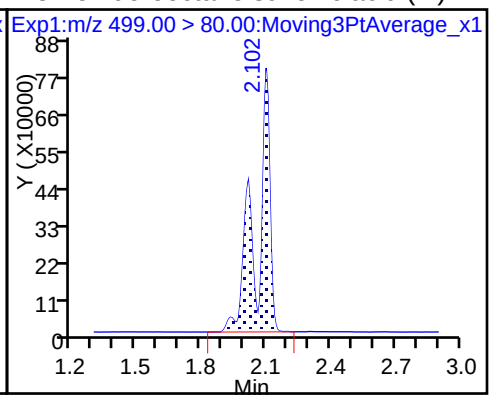
5 Perfluorooctanoic acid (M)



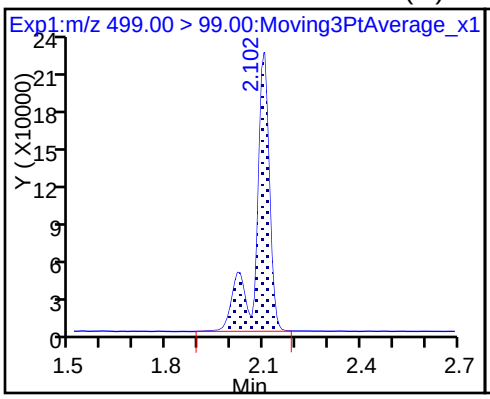
5 Perfluorooctanoic acid



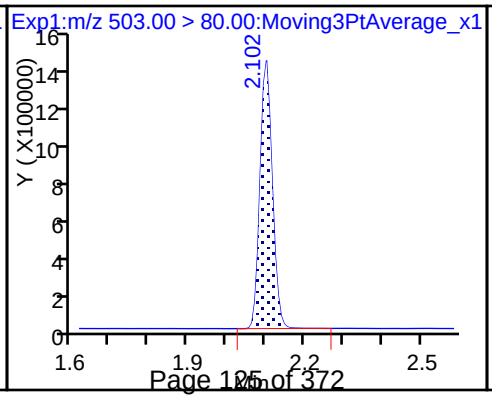
8 Perfluorooctane sulfonic acid (M)



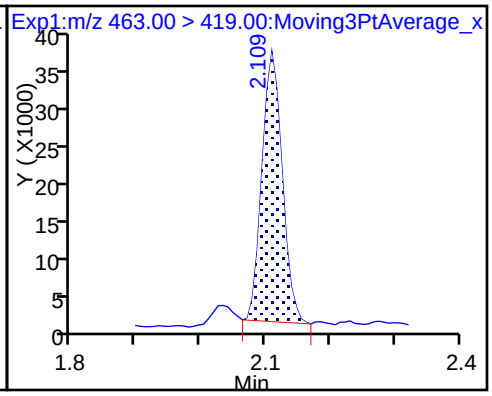
8 Perfluorooctane sulfonic acid (M)



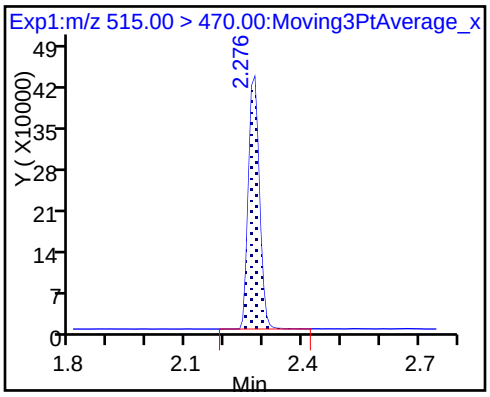
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_038.d
Lims ID: 320-29279-A-3-A
Client ID: WGNA-062017-RW-4831B
Sample Type: Client
Inject. Date: 07-Jul-2017 02:12:38 ALS Bottle#: 26 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:31:34

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.63	86.30
$ 10 13C2 PFDA	10.0	9.65	96.51

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

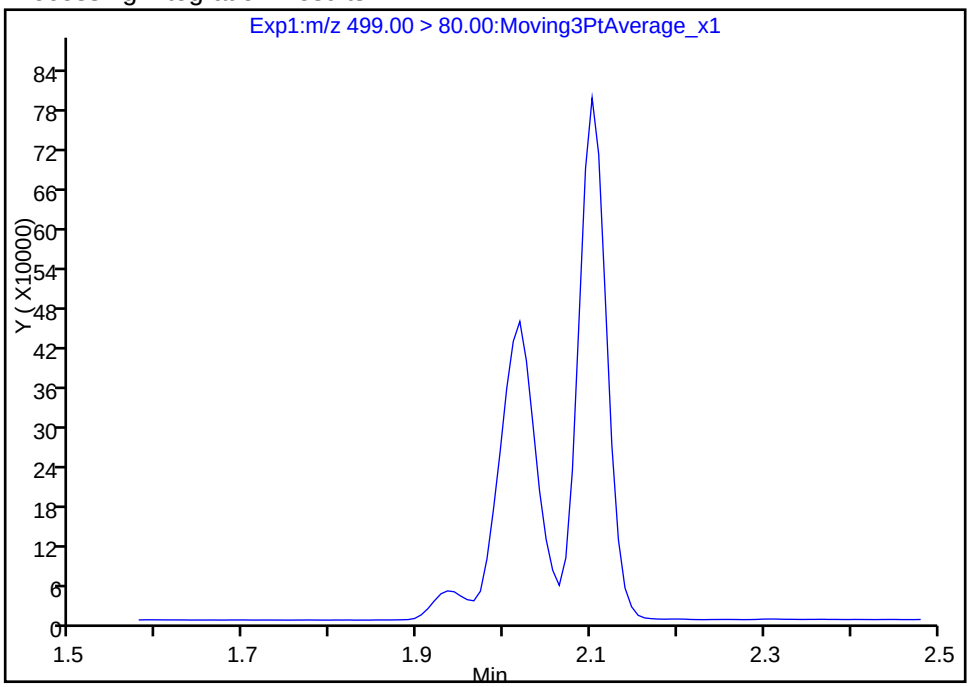
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_038.d				
Injection Date:	07-Jul-2017 02:12:38	Instrument ID:	A8_N		
Lims ID:	320-29279-A-3-A	Lab Sample ID:	320-29279-3		
Client ID:	WGNA-062017-RW-4831B				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	26	Worklist Smp#:	8
Injection 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

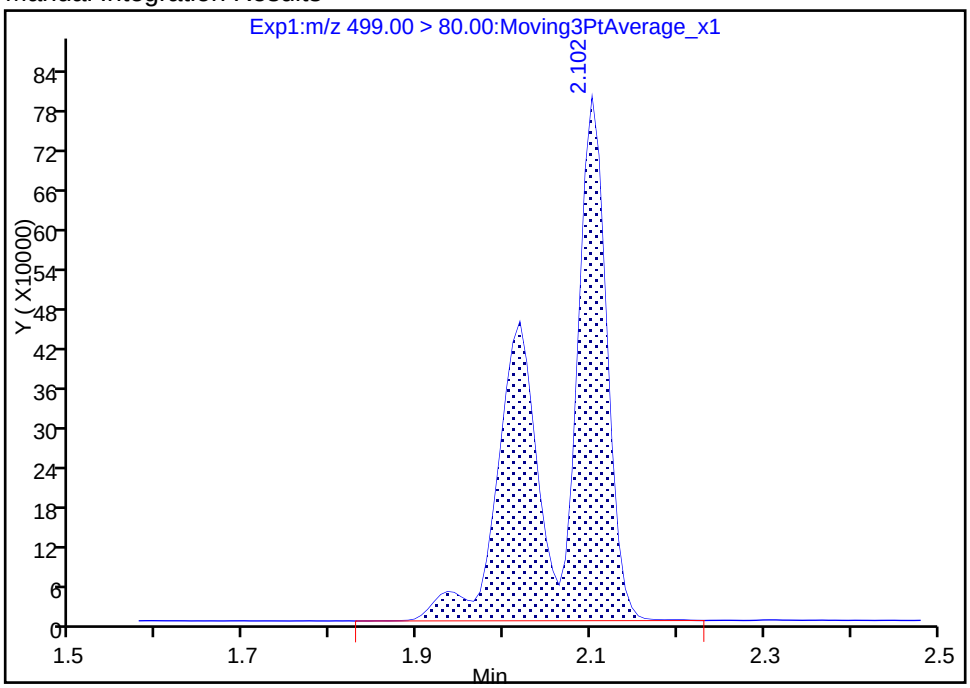
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 3229274
Amount: 29.882379
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:30:55
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

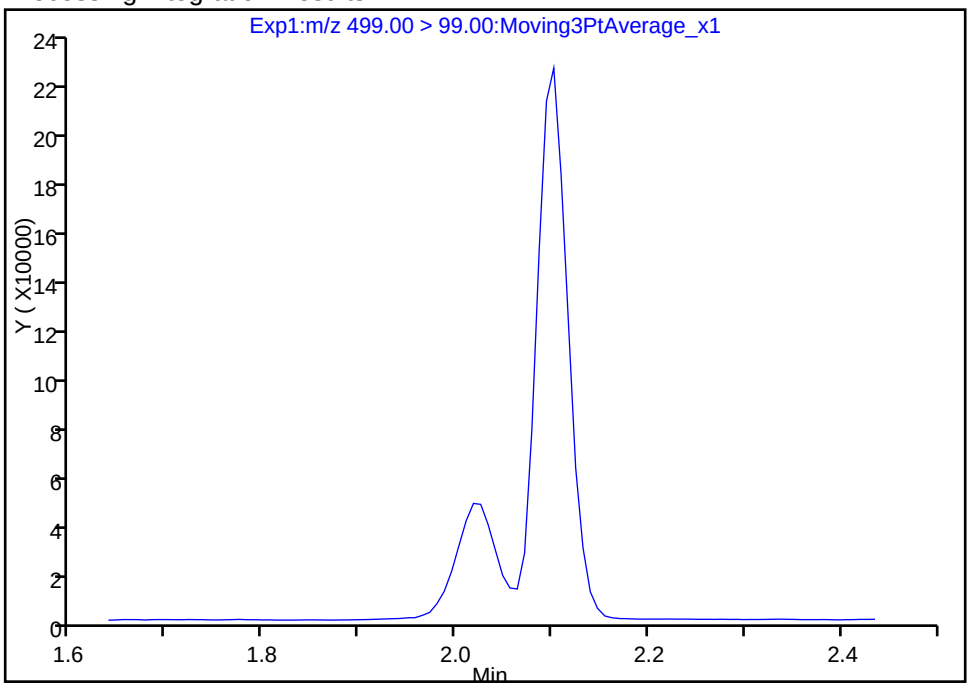
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_038.d				
Injection Date:	07-Jul-2017 02:12:38	Instrument ID:	A8_N		
Lims ID:	320-29279-A-3-A	Lab Sample ID:	320-29279-3		
Client ID:	WGNA-062017-RW-4831B				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	26	Worklist Smp#:	8
Injection 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

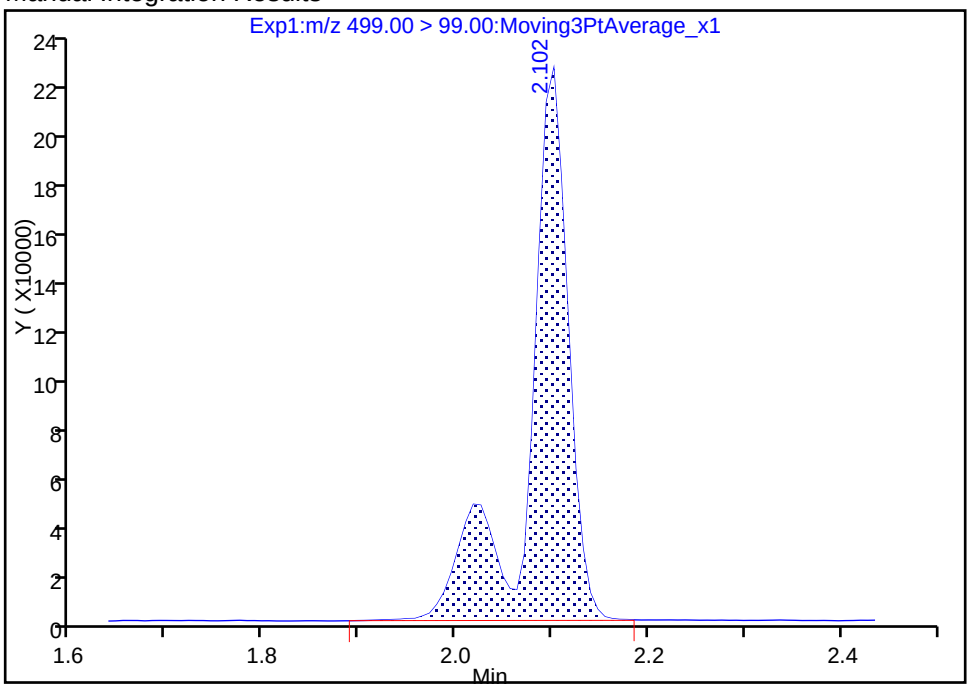
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 645571
Amount: 29.882379
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:31:08
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

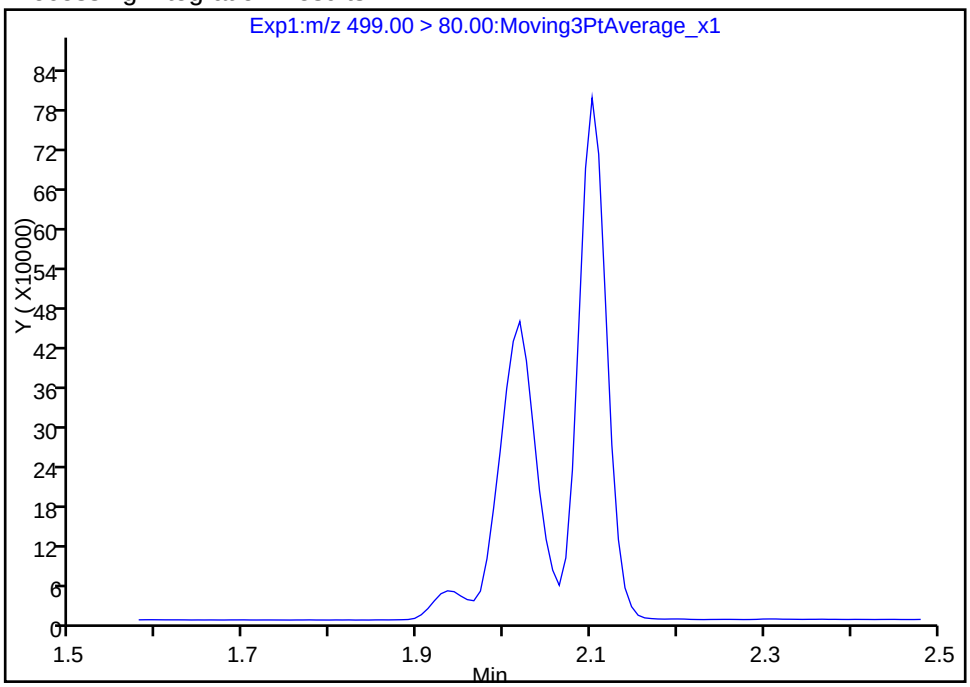
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_038.d				
Injection Date:	07-Jul-2017 02:12:38	Instrument ID:	A8_N		
Lims ID:	320-29279-A-3-A	Lab Sample ID:	320-29279-3		
Client ID:	WGNA-062017-RW-4831B				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	26	Worklist Smp#:	8
Injection 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

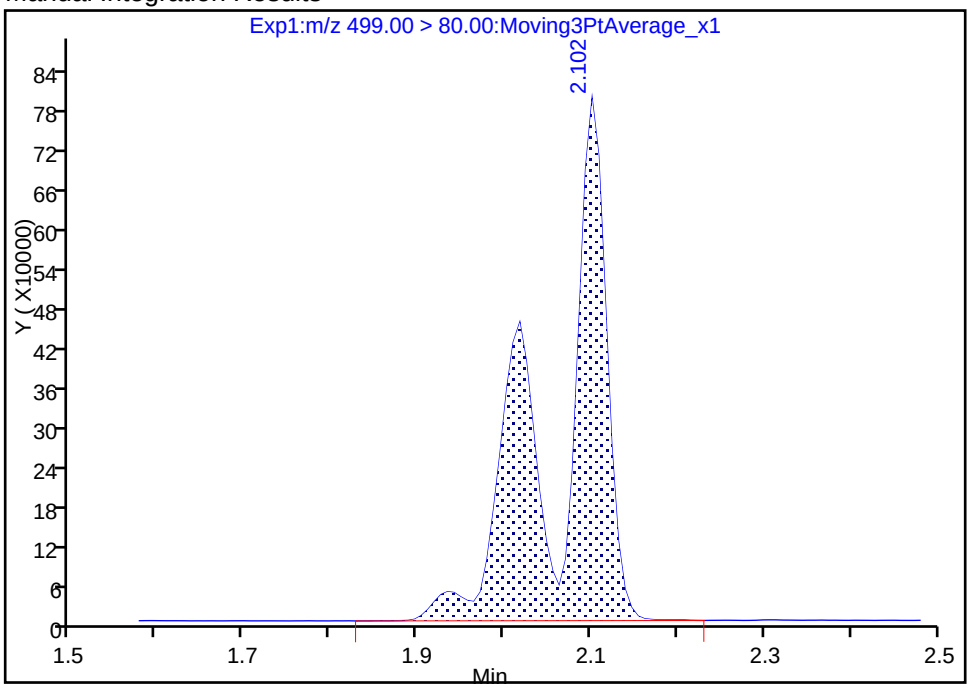
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 3229274
Amount: 29.882379
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:31:08
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

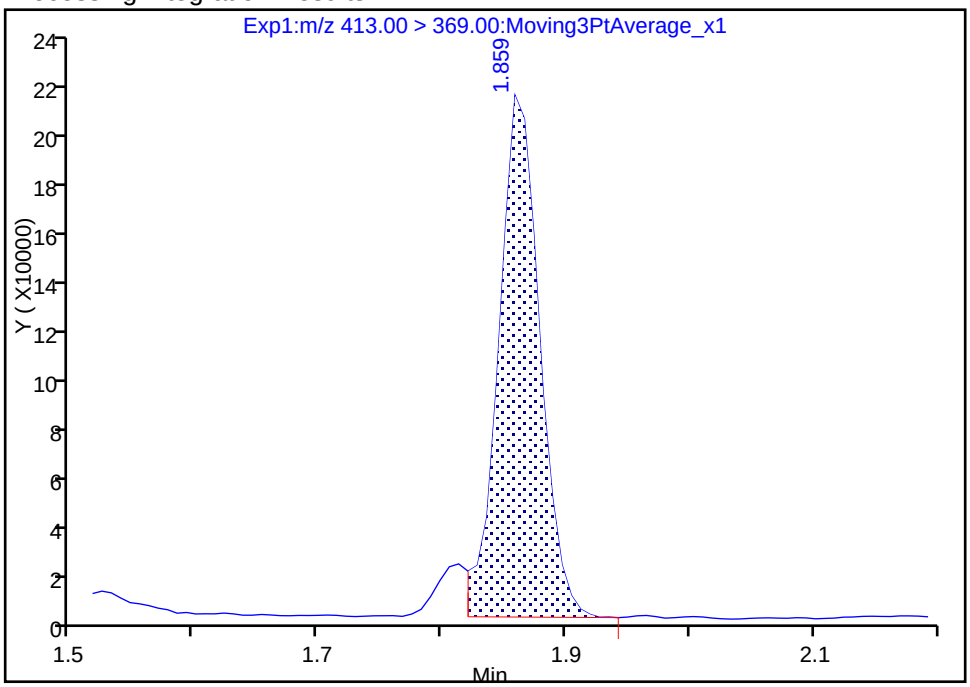
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_038.d				
Injection Date:	07-Jul-2017 02:12:38	Instrument ID:	A8_N		
Lims ID:	320-29279-A-3-A	Lab Sample ID:	320-29279-3		
Client ID:	WGNA-062017-RW-4831B				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	26	Worklist Smp#:	8
Injection 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

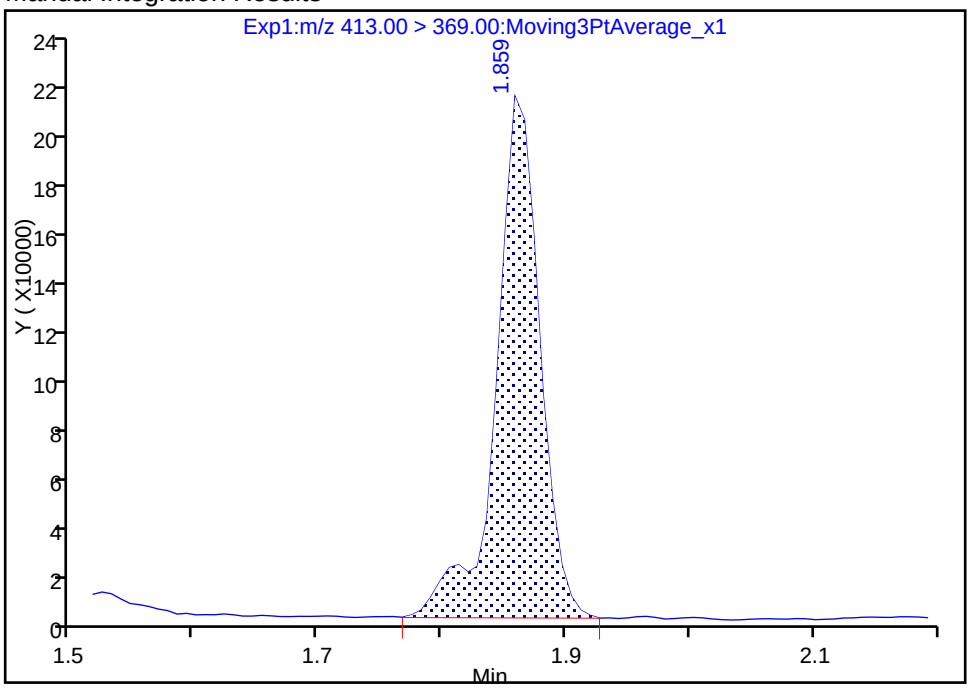
Processing Integration Results

RT: 1.86
Area: 471551
Amount: 4.938132
Amount Units: ng/ml



Manual Integration Results

RT: 1.86
Area: 505823
Amount: 5.297032
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:31:27

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-3978
Lab Sample ID: 320-29279-4
Matrix: Water
Lab File ID: 2017.07.06_537A_039.d
Analysis Method: 537
Date Collected: 06/20/2017 10:05
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 253.9(mL)
Date Analyzed: 07/07/2017 02:17
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	16	J M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.8	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	89	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_039.d
Lims ID: 320-29279-A-4-A
Client ID: WGNA-062017-RW-3978
Sample Type: Client
Inject. Date: 07-Jul-2017 02:17:23 ALS Bottle#: 27 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-4-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:32:40

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	1.404	0.0	1.000	132018	1.45		27.7	
298.90 > 99.00	1.404	1.404	0.0	1.000	102519		1.29(0.00-0.00)	38.3	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1060329	9.03		3684	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	181933	1.68		17.8	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	283021	1.99		55.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.878	-0.012		1033038	10.0		3517	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.866	1.879	-0.013	1.000	378036	3.97		32.1	M
413.00 > 169.00	1.859	1.879	-0.020	0.996	249814		1.51(0.00-0.00)	221	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.094	0.008	1.000	491627	4.70		165	M
499.00 > 99.00	2.102	2.094	0.008	1.000	93604		5.25(0.00-0.00)	130	M
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2930298	28.7		1572	
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.124	-0.015	1.000	64003	0.7518		1.9	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	837634	9.66		1685	

QC Flag Legend

Review Flags

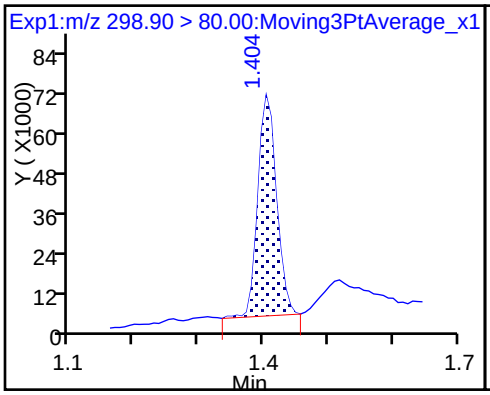
M - Manually Integrated

Report Date: 07-Jul-2017 14:39:00 Chrom Revision: 2.2 26-Jun-2017 08:09:44

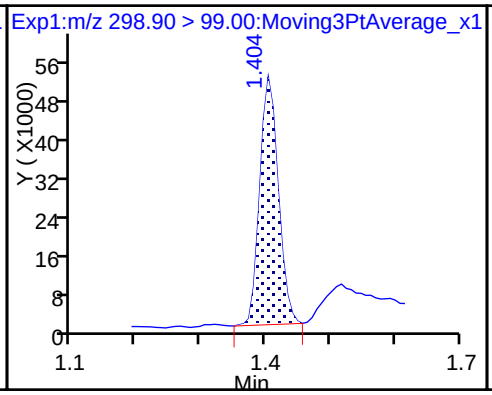
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_039.d				
Injection Date:	07-Jul-2017 02:17:23	Instrument ID:	A8_N		
Lims ID:	320-29279-A-4-A	Lab Sample ID:	320-29279-4		
Client ID:	WGNA-062017-RW-3978				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	27	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

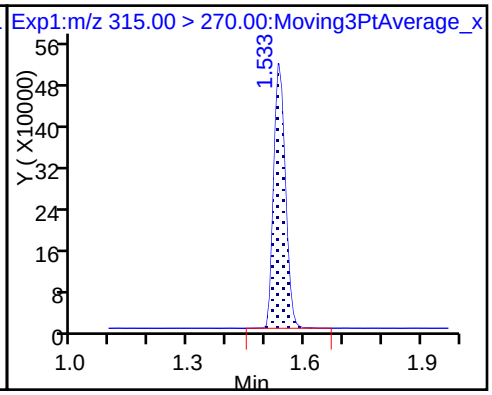
1 Perfluorobutanesulfonic acid



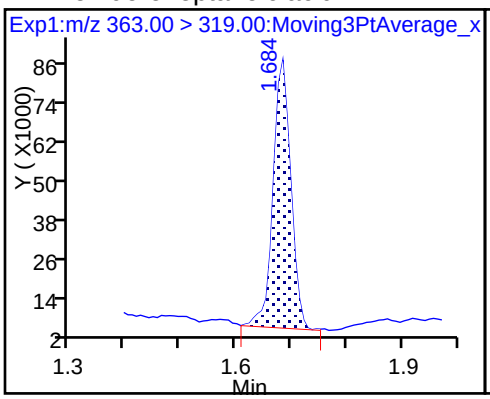
1 Perfluorobutanesulfonic acid



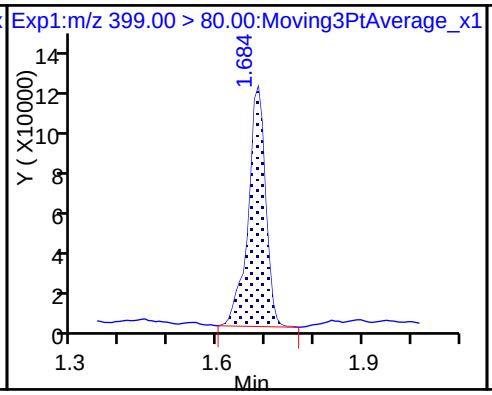
$ 2 13C2 PFHxA



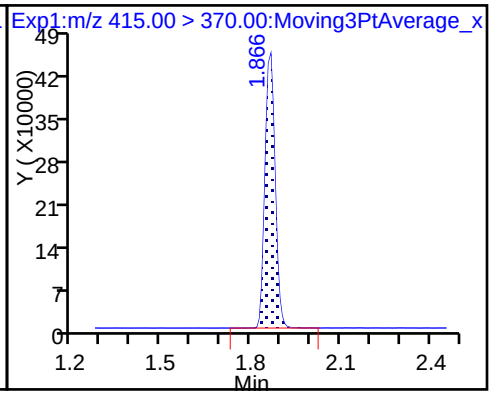
4 Perfluoroheptanoic acid



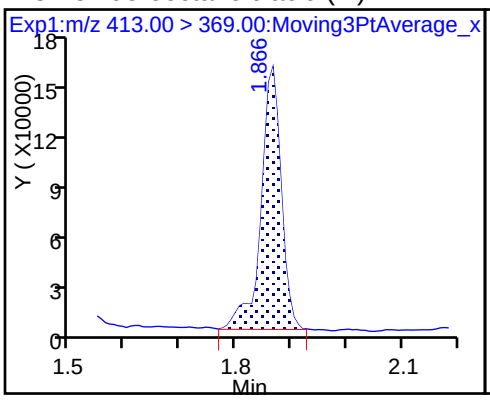
3 Perfluorohexanesulfonic acid



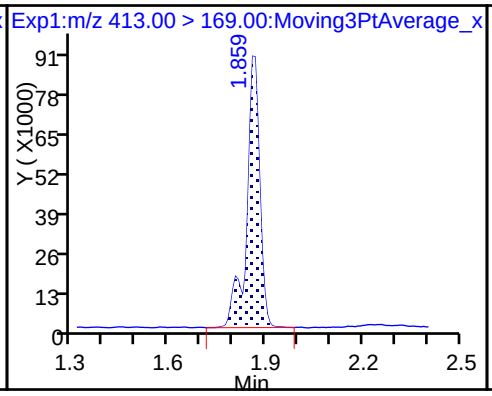
* 6 13C2-PFOA



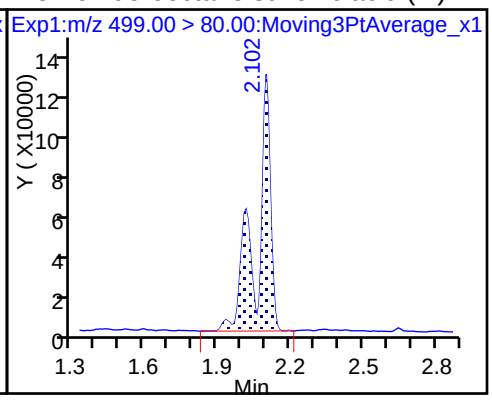
5 Perfluorooctanoic acid (M)



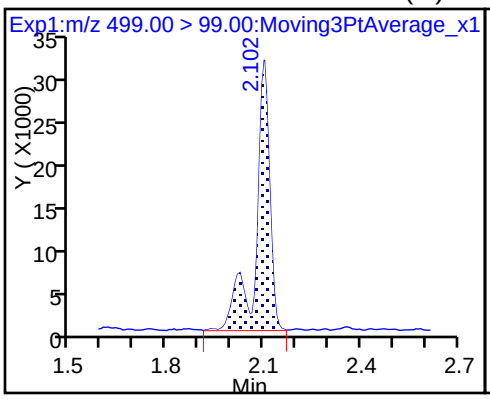
5 Perfluorooctanoic acid



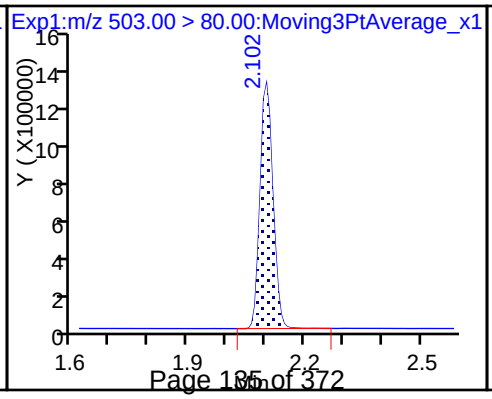
8 Perfluorooctane sulfonic acid (M)



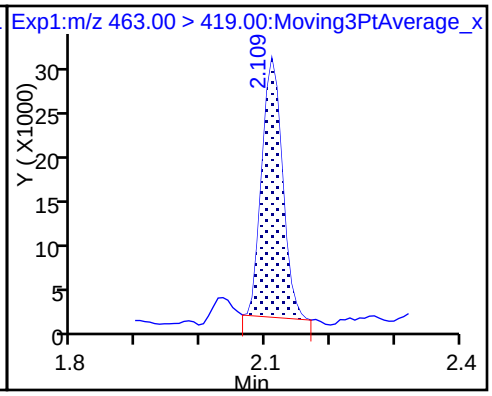
8 Perfluorooctane sulfonic acid (M)



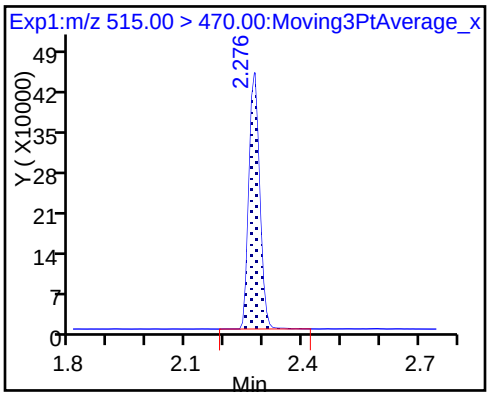
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_039.d
Lims ID: 320-29279-A-4-A
Client ID: WGNA-062017-RW-3978
Sample Type: Client
Inject. Date: 07-Jul-2017 02:17:23 ALS Bottle#: 27 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-4-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:32:40

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.03	90.34
$ 10 13C2 PFDA	10.0	9.66	96.58

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

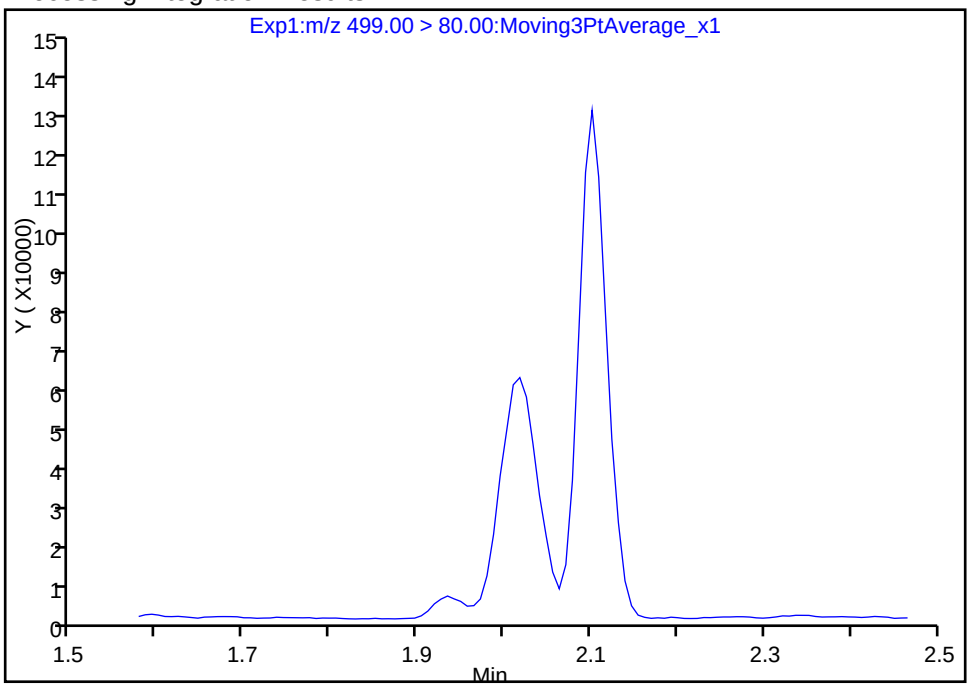
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_039.d				
Injection Date:	07-Jul-2017 02:17:23	Instrument ID:	A8_N		
Lims ID:	320-29279-A-4-A	Lab Sample ID:	320-29279-4		
Client ID:	WGNA-062017-RW-3978				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	27	Worklist Smp#:	9
Injection 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

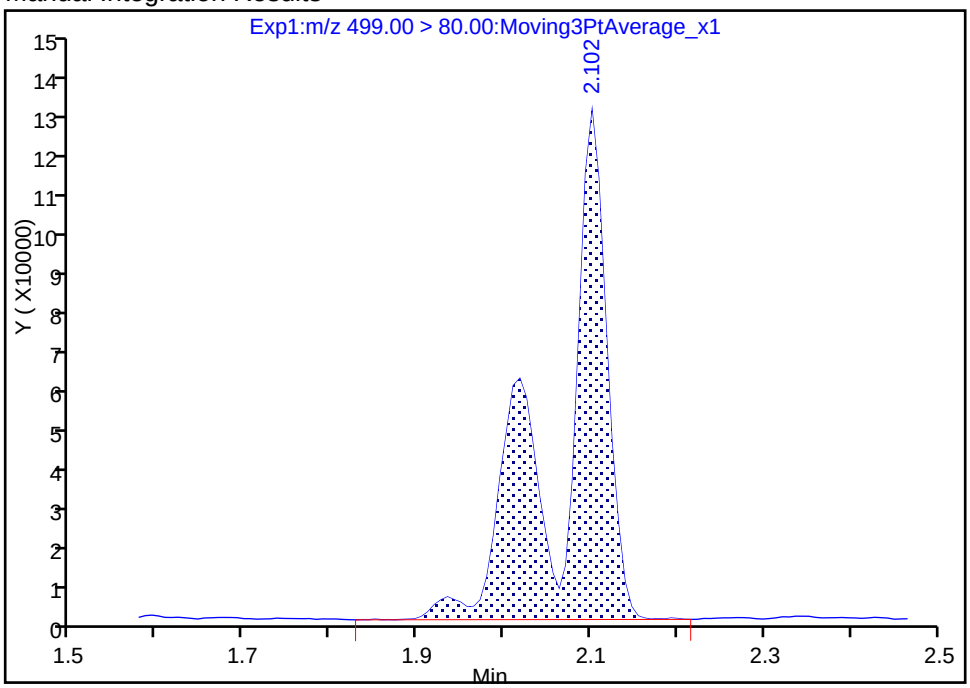
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 491627
Amount: 4.698468
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:31:42
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

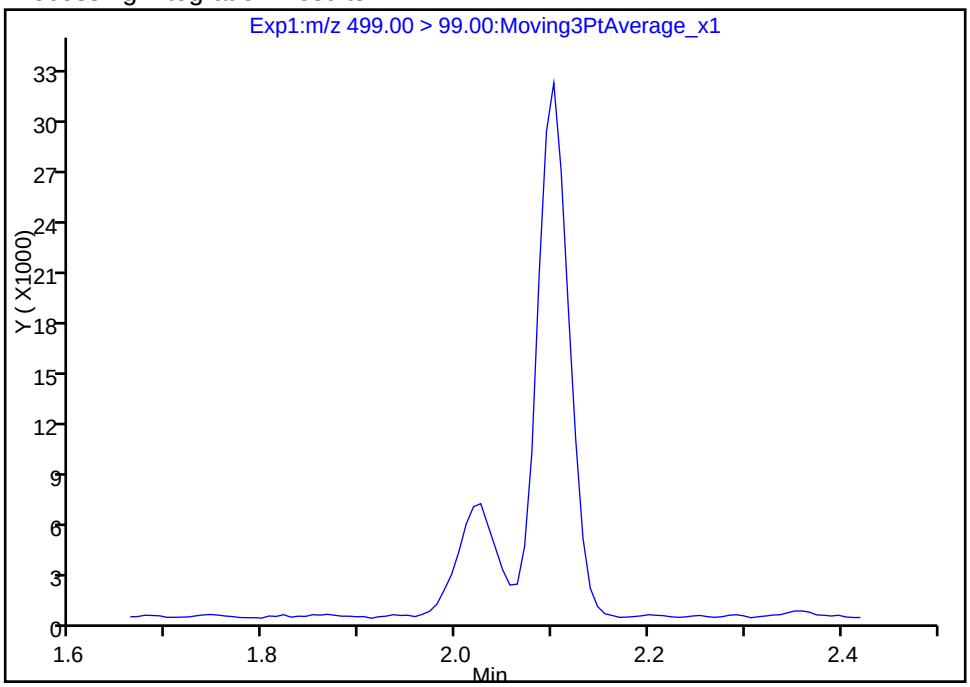
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_039.d				
Injection Date:	07-Jul-2017 02:17:23	Instrument ID:	A8_N		
Lims ID:	320-29279-A-4-A	Lab Sample ID:	320-29279-4		
Client ID:	WGNA-062017-RW-3978				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	27	Worklist Smp#:	9
Injection 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

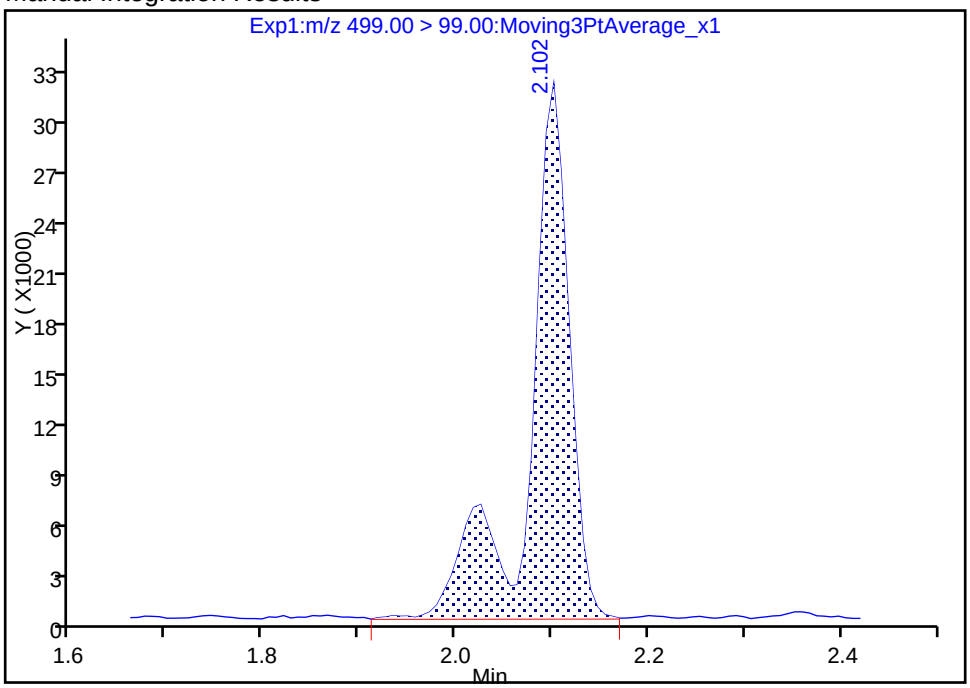
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 93604
Amount: 4.698468
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:32:03
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

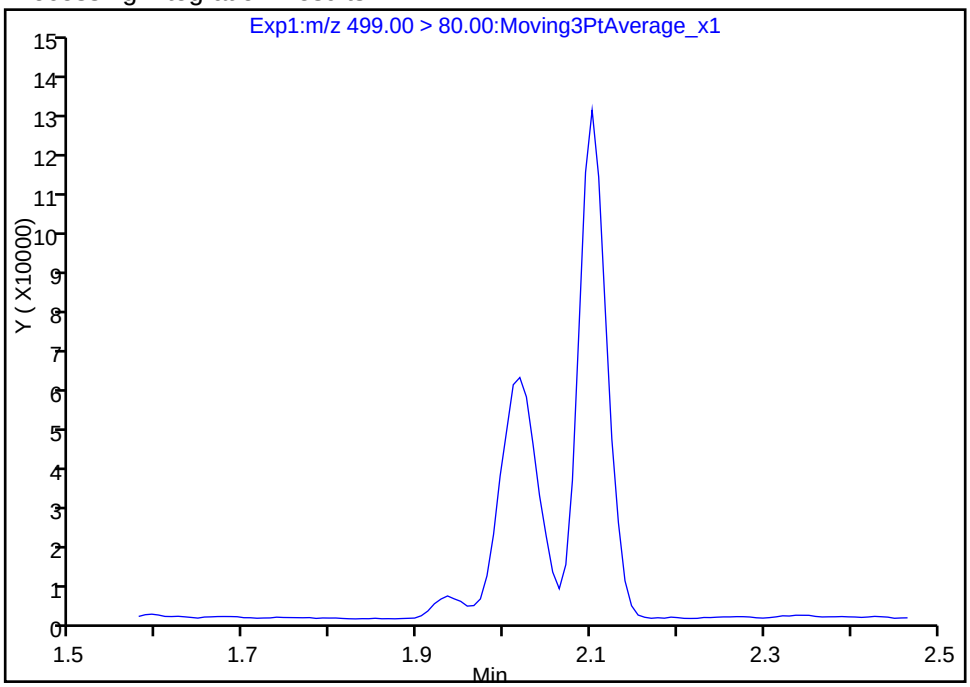
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_039.d				
Injection Date:	07-Jul-2017 02:17:23	Instrument ID:	A8_N		
Lims ID:	320-29279-A-4-A	Lab Sample ID:	320-29279-4		
Client ID:	WGNA-062017-RW-3978				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	27	Worklist Smp#:	9
Injection 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

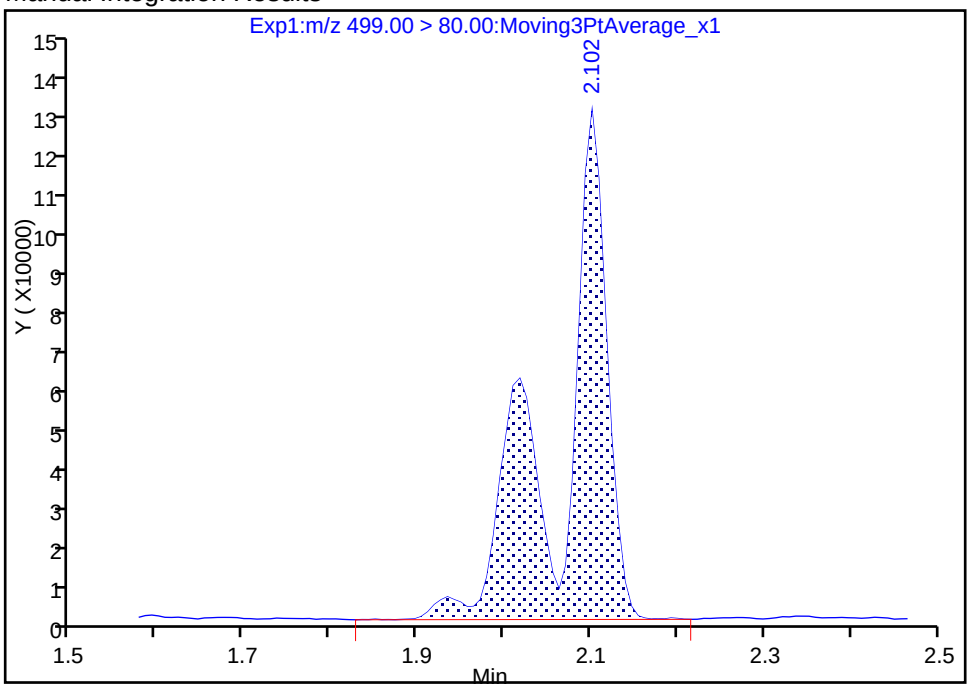
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 491627
Amount: 4.698468
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:32:03
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

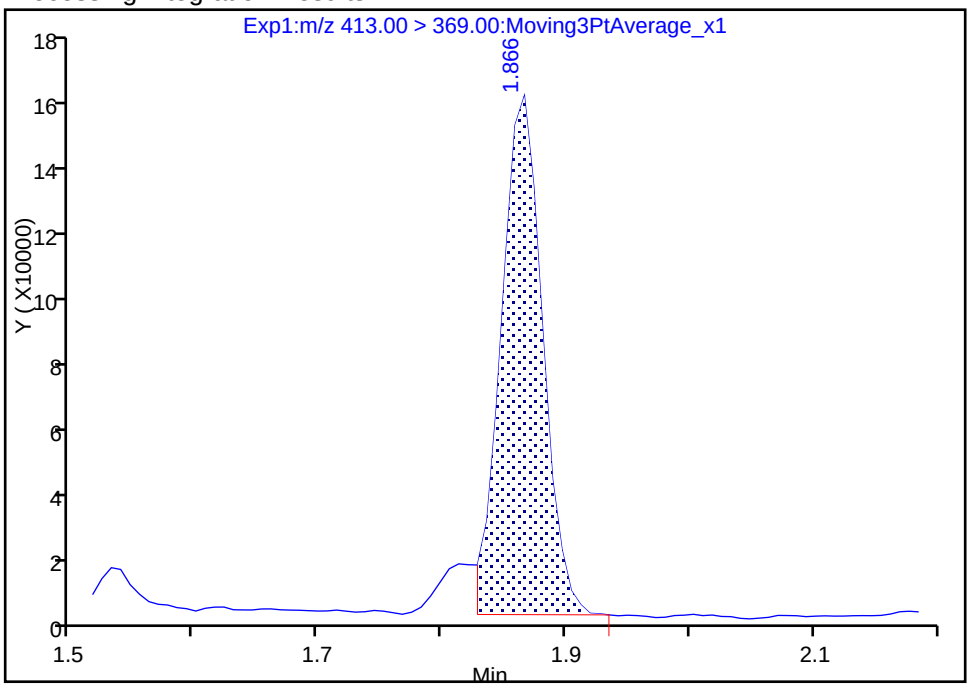
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_039.d				
Injection Date:	07-Jul-2017 02:17:23	Instrument ID:	A8_N		
Lims ID:	320-29279-A-4-A	Lab Sample ID:	320-29279-4		
Client ID:	WGNA-062017-RW-3978				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	27	Worklist Smp#:	9
Injection 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

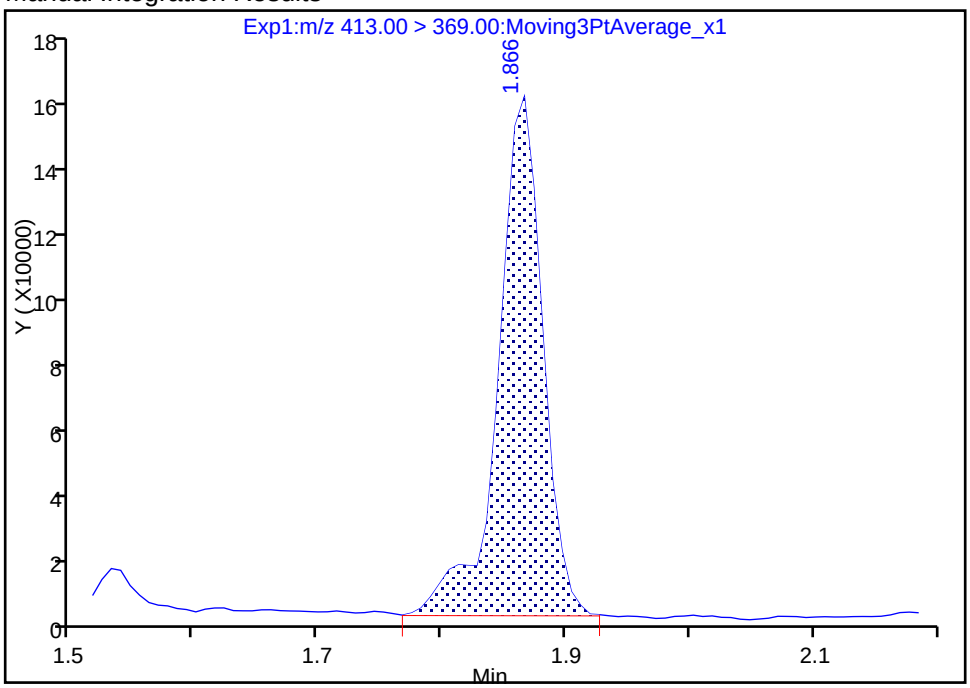
Processing Integration Results

RT: 1.87
Area: 346957
Amount: 3.643971
Amount Units: ng/ml



Manual Integration Results

RT: 1.87
Area: 378036
Amount: 3.970384
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:32:21

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-3978
Lab Sample ID: 320-29279-5
Matrix: Water
Lab File ID: 2017.07.06_537A_040.d
Analysis Method: 537
Date Collected: 06/20/2017 10:00
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 245.9(mL)
Date Analyzed: 07/07/2017 02:22
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_040.d
Lims ID: 320-29279-A-5-A
Client ID: WGNA-062017-FRB-3978
Sample Type: Client
Inject. Date: 07-Jul-2017 02:22:09 ALS Bottle#: 28 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-5-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:32:54

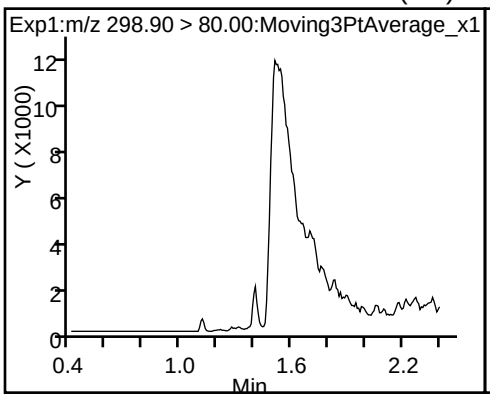
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1099441	9.24		4309	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1047036	10.0		3595	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2902034	28.7		3634	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	869918	9.90		1630	

Report Date: 07-Jul-2017 14:39:02 Chrom Revision: 2.2 26-Jun-2017 08:09:44

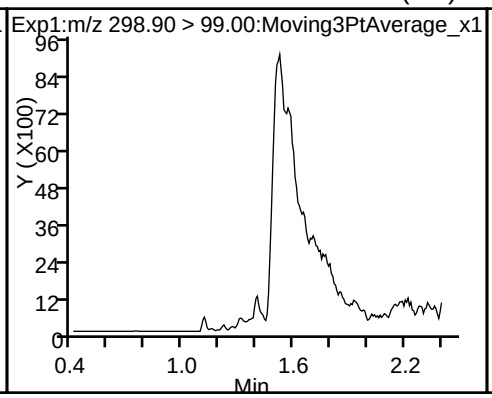
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_040.d				
Injection Date:	07-Jul-2017 02:22:09	Instrument ID:	A8_N		
Lims ID:	320-29279-A-5-A	Lab Sample ID:	320-29279-5		
Client ID:	WGNA-062017-FRB-3978				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

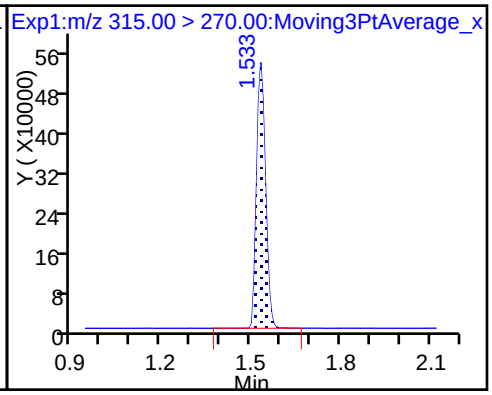
1 Perfluorobutanesulfonic acid (ND)



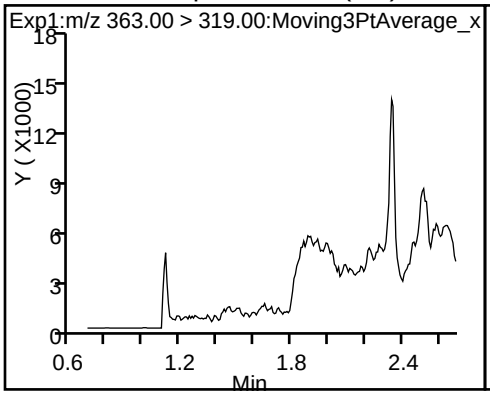
1 Perfluorobutanesulfonic acid (ND)



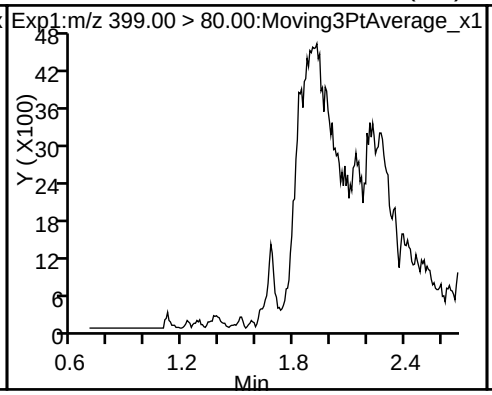
$ 2 13C2 PFHxA



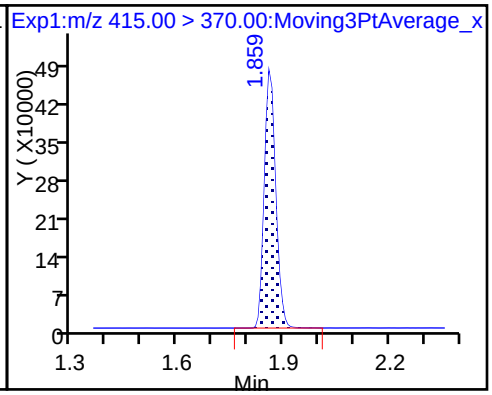
4 Perfluoroheptanoic acid (ND)



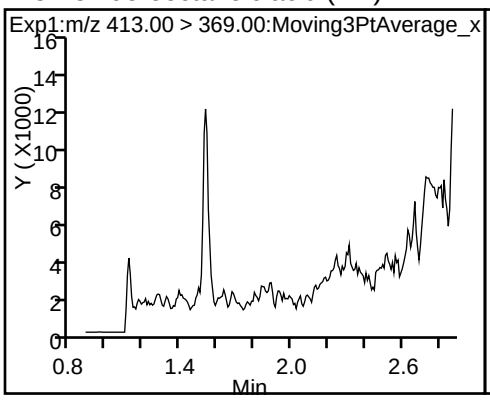
3 Perfluorohexanesulfonic acid (ND)



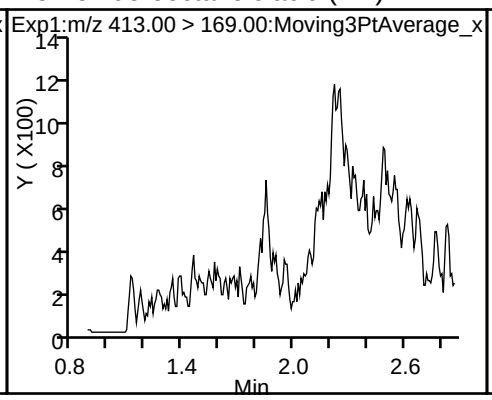
* 6 13C2-PFOA



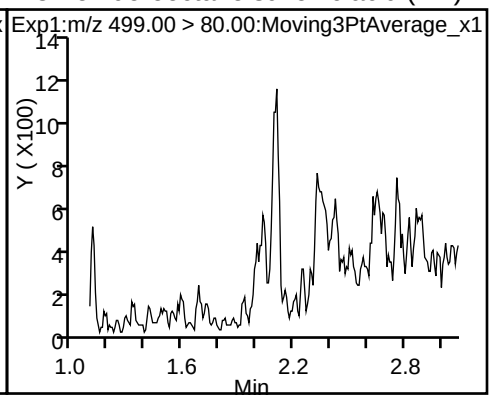
5 Perfluorooctanoic acid (ND)



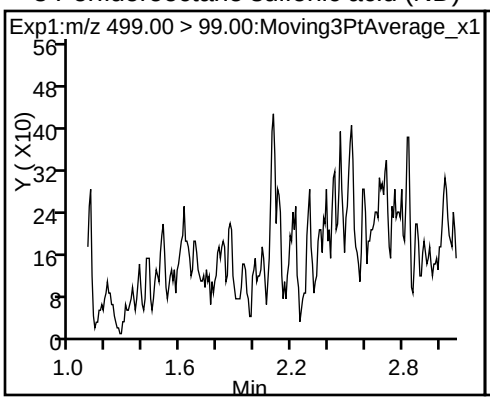
5 Perfluorooctanoic acid (ND)



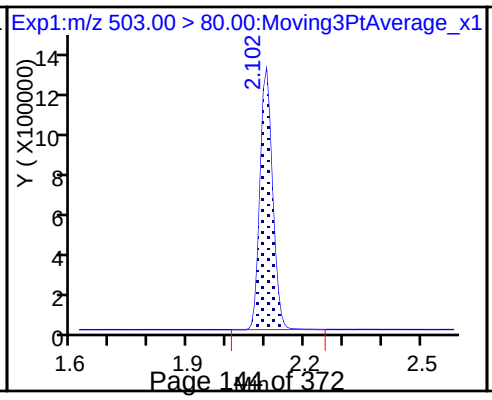
8 Perfluorooctane sulfonic acid (ND)



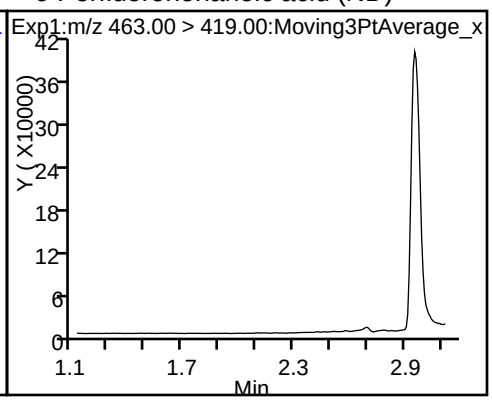
8 Perfluorooctane sulfonic acid (ND)



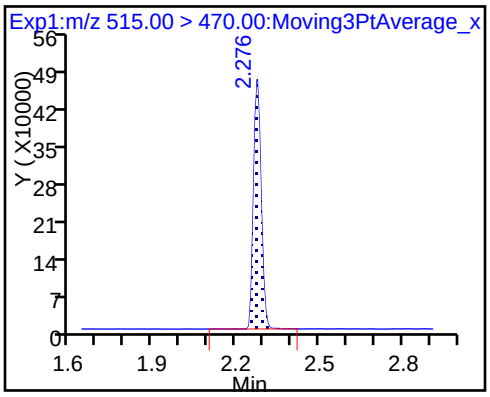
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
56
49
42
35
28
21
14
7
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_040.d
Lims ID: 320-29279-A-5-A
Client ID: WGNA-062017-FRB-3978
Sample Type: Client
Inject. Date: 07-Jul-2017 02:22:09 ALS Bottle#: 28 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-5-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:32:54

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.24	92.42
$ 10 13C2 PFDA	10.0	9.90	98.96

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-29279-1

SDG No.:

Client Sample ID: WGNA-062017-RW-3991 | Lab Sample ID: 320-29279-6

Matrix: Water | Lab File ID: 2017.07.06_537A_041.d

Analysis Method: 537 | Date Collected: 06/20/2017 11:20

Extraction Method: 537 | Date Extracted: 07/01/2017 09:47

Sample wt/vol: 261.8(mL) | Date Analyzed: 07/07/2017 02:26

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.: 173033 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	J M	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	19	M	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.0	J	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.5	J	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_041.d
Lims ID: 320-29279-A-6-A
Client ID: WGNA-062017-RW-3991
Sample Type: Client
Inject. Date: 07-Jul-2017 02:26:54 ALS Bottle#: 29 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-6-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:33:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.404	0.0	1.000	181238	1.90		43.9	
298.90 > 99.00	1.404	1.404	0.0	1.000	137855		1.31(0.00-0.00)	57.6	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1050172	9.09		4008	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.691	-0.014	1.000	179989	1.69		19.1	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.692	-0.015	1.000	312044	2.09		79.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1016336	10.0		3282	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.859	1.879	-0.020	1.000	465749	4.97		42.3	M
413.00 > 169.00	1.859	1.879	-0.020	1.000	296939		1.57(0.00-0.00)	279	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.094	0.008	1.000	487730	4.44		205	M
499.00 > 99.00	2.102	2.094	0.008	1.000	78882		6.18(0.00-0.00)	107	M
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		3076208	28.7		2418	
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.124	-0.015	1.000	50782	0.6063		1.4	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	879578	10.3		1815	

QC Flag Legend

Review Flags

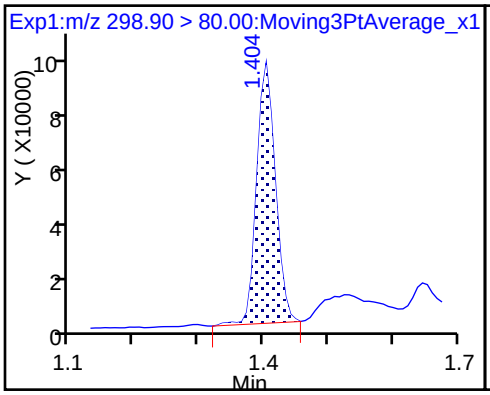
M - Manually Integrated

Report Date: 07-Jul-2017 14:39:03 Chrom Revision: 2.2 26-Jun-2017 08:09:44

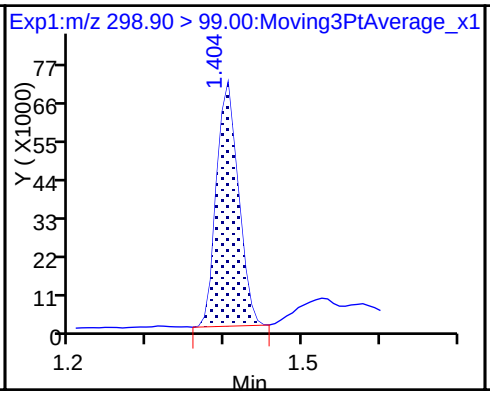
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_041.d				
Injection Date:	07-Jul-2017 02:26:54	Instrument ID:	A8_N		
Lims ID:	320-29279-A-6-A	Lab Sample ID:	320-29279-6		
Client ID:	WGNA-062017-RW-3991				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

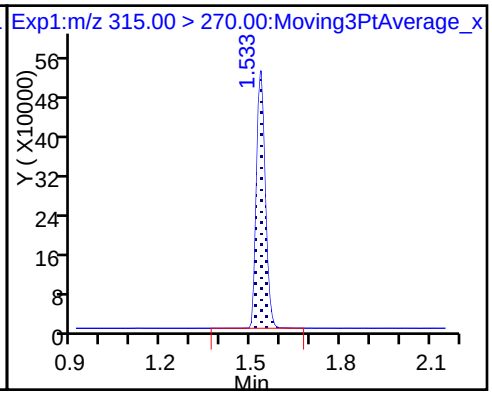
1 Perfluorobutanesulfonic acid



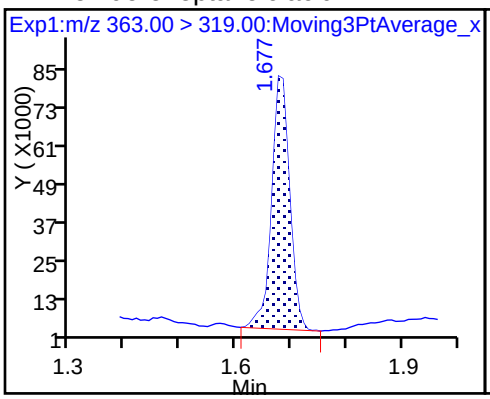
1 Perfluorobutanesulfonic acid



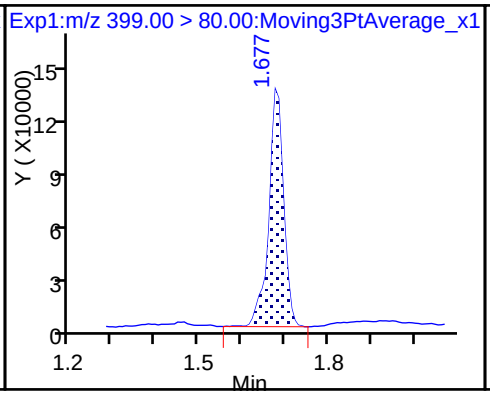
$ 2 13C2 PFHxA



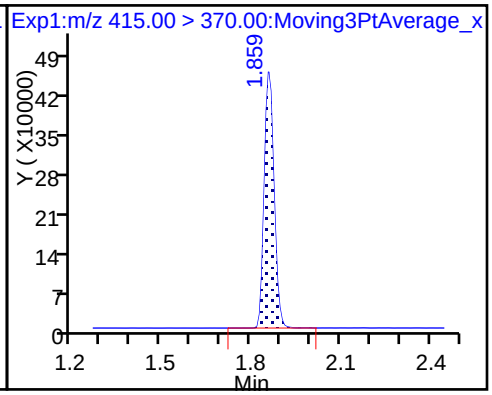
4 Perfluoroheptanoic acid



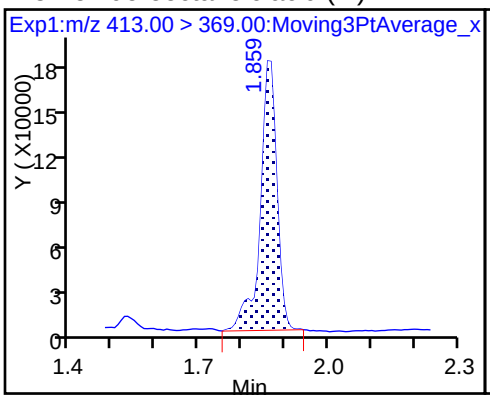
3 Perfluorohexanesulfonic acid



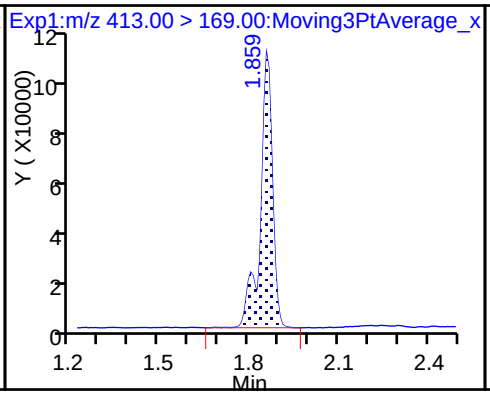
* 6 13C2-PFOA



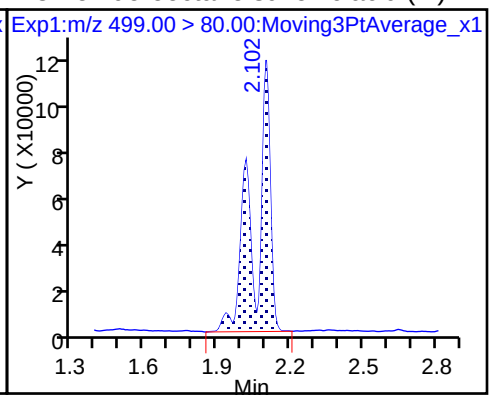
5 Perfluorooctanoic acid (M)



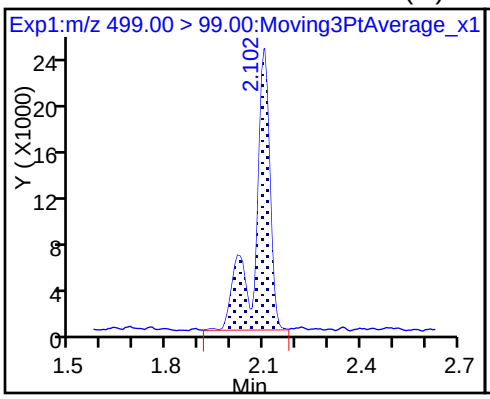
5 Perfluorooctanoic acid



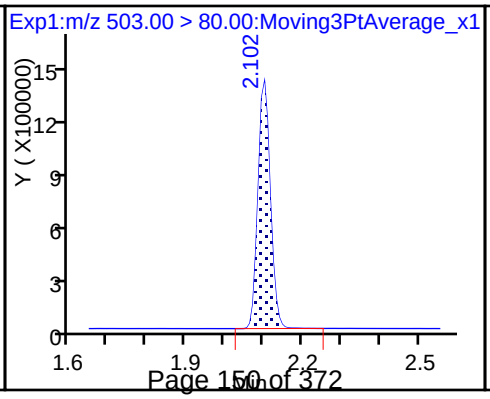
8 Perfluorooctane sulfonic acid (M)



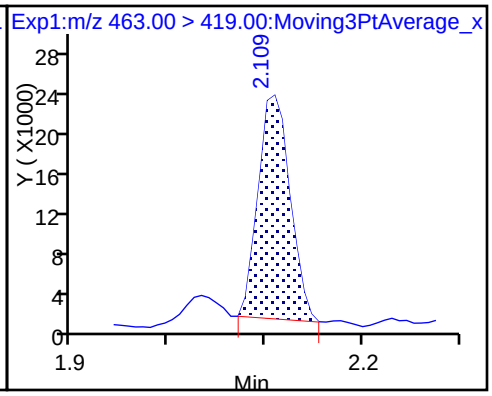
8 Perfluorooctane sulfonic acid (M)



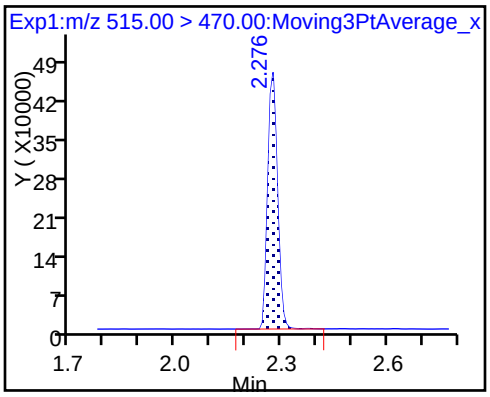
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_041.d
Lims ID: 320-29279-A-6-A
Client ID: WGNA-062017-RW-3991
Sample Type: Client
Inject. Date: 07-Jul-2017 02:26:54 ALS Bottle#: 29 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-6-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:33:47

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.09	90.95
$ 10 13C2 PFDA	10.0	10.3	103.09

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

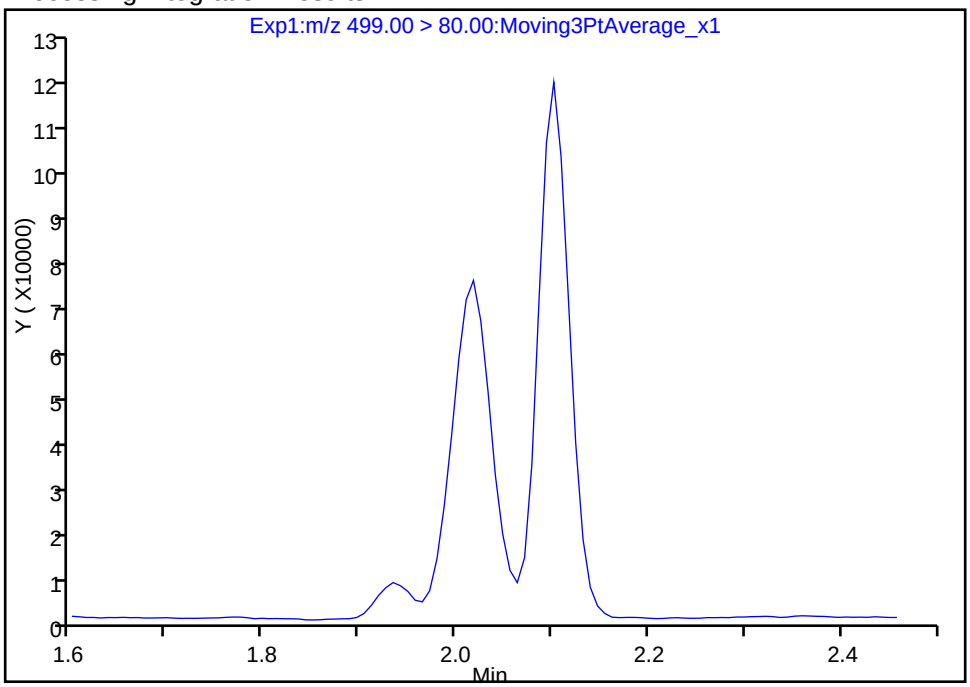
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_041.d				
Injection Date:	07-Jul-2017 02:26:54	Instrument ID:	A8_N		
Lims ID:	320-29279-A-6-A	Lab Sample ID:	320-29279-6		
Client ID:	WGNA-062017-RW-3991				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	11
Injection 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

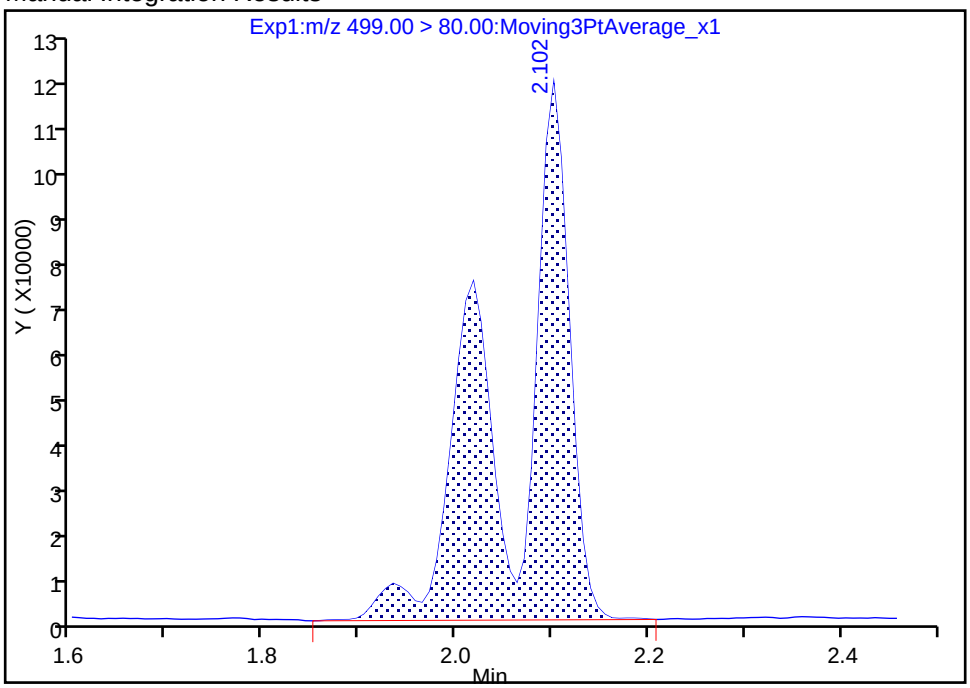
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 487730
Amount: 4.440134
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:33:06
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

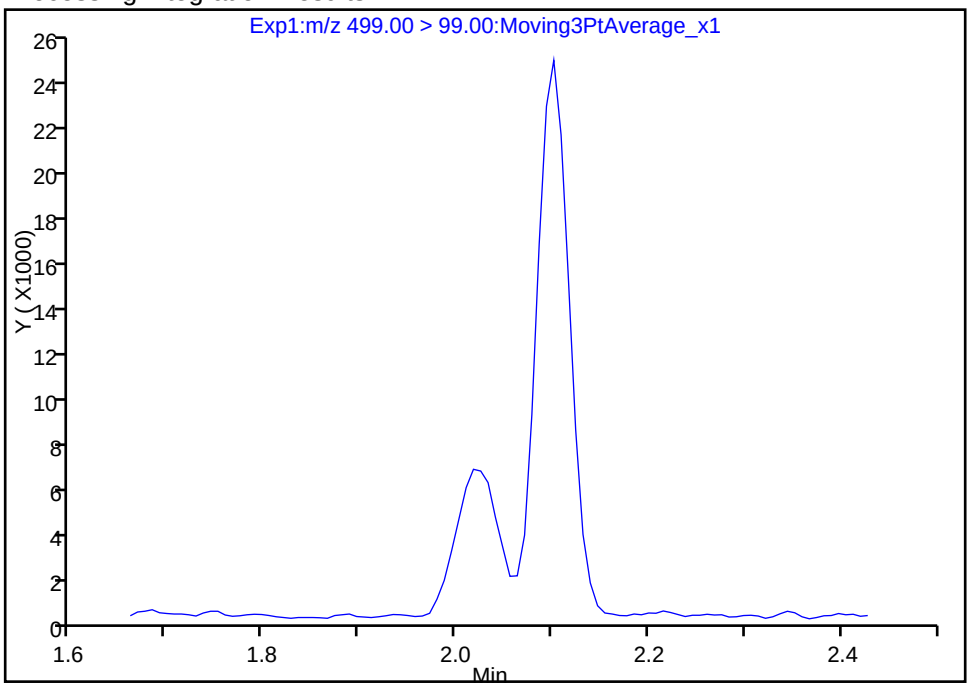
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_041.d				
Injection Date:	07-Jul-2017 02:26:54	Instrument ID:	A8_N		
Lims ID:	320-29279-A-6-A	Lab Sample ID:	320-29279-6		
Client ID:	WGNA-062017-RW-3991				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	11
Injection 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

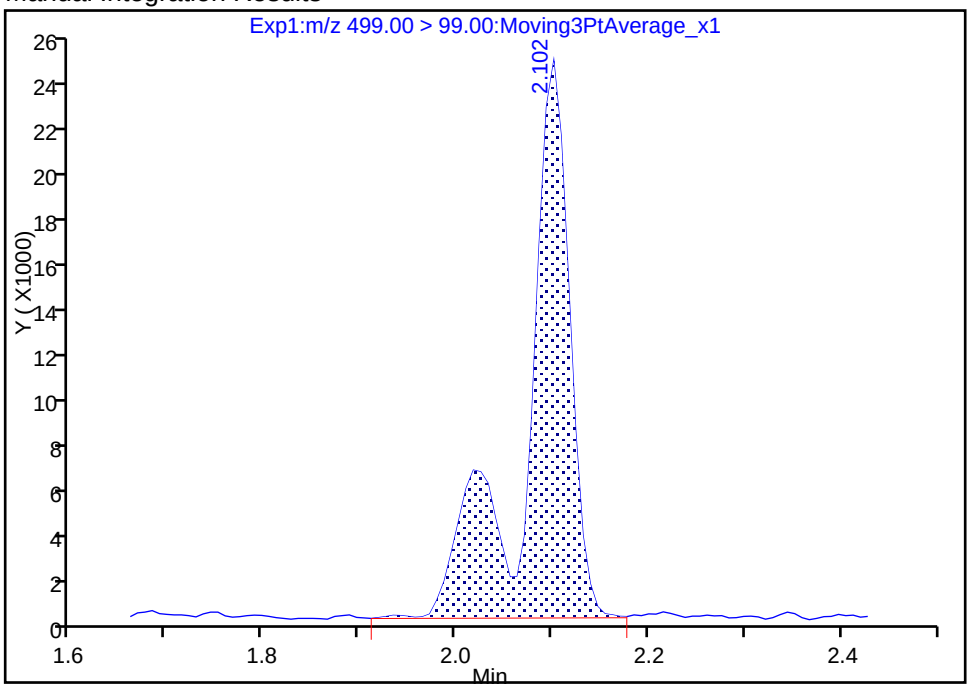
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 78882
Amount: 4.440134
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:33:24
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

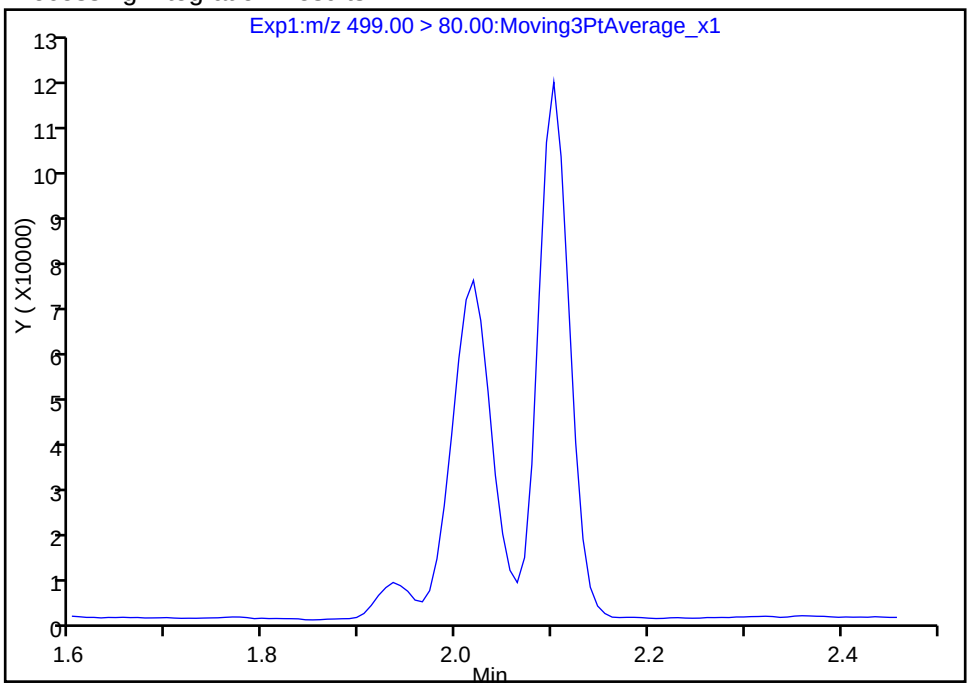
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_041.d				
Injection Date:	07-Jul-2017 02:26:54	Instrument ID:	A8_N		
Lims ID:	320-29279-A-6-A	Lab Sample ID:	320-29279-6		
Client ID:	WGNA-062017-RW-3991				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	11
Injection 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

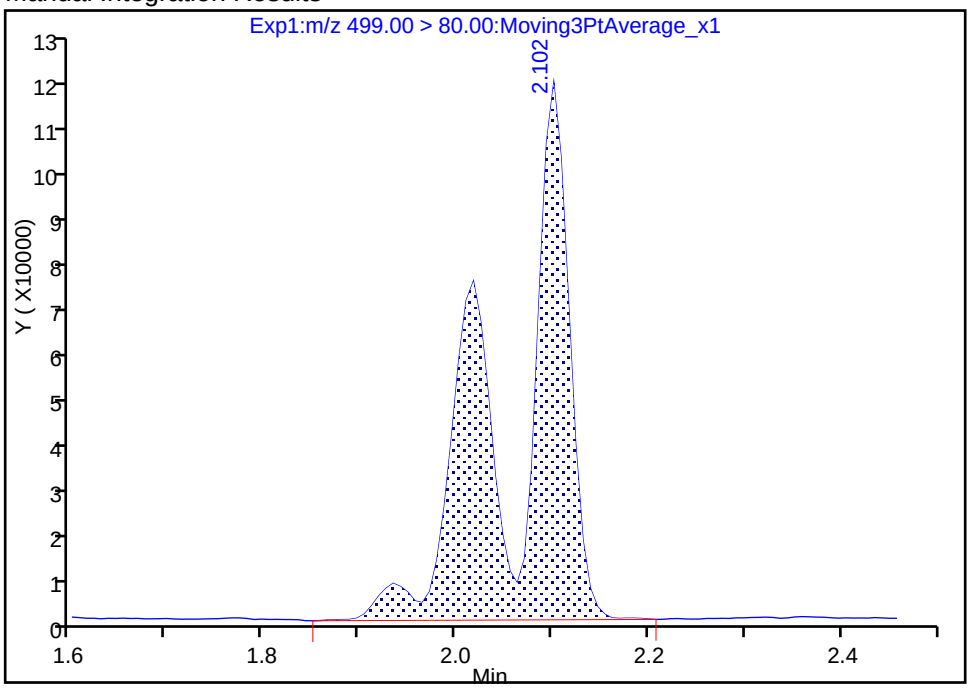
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 487730
Amount: 4.440134
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:33:24
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

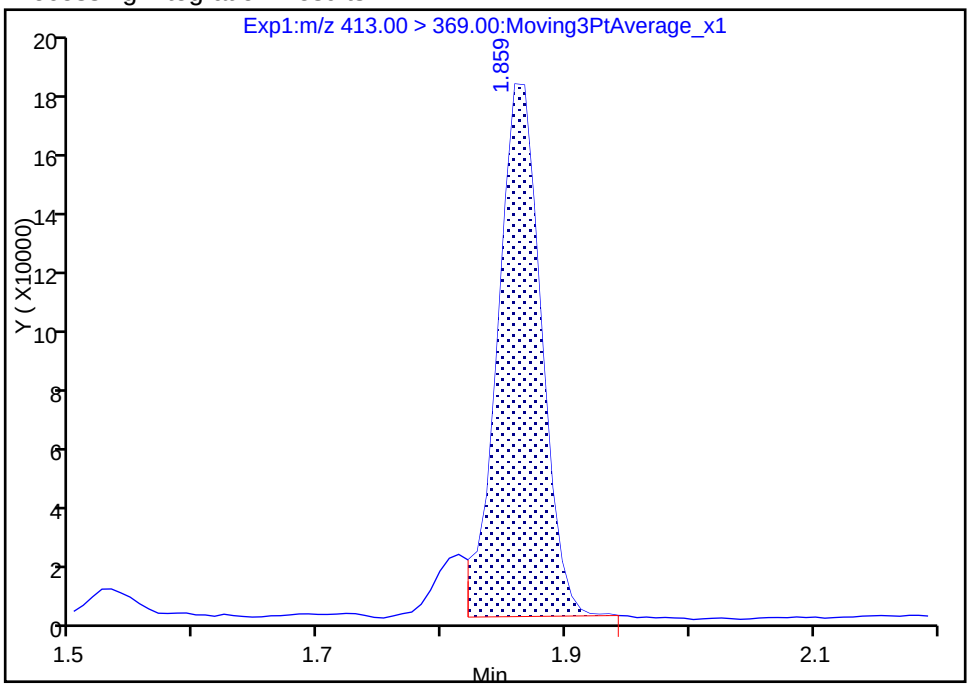
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_041.d				
Injection Date:	07-Jul-2017 02:26:54	Instrument ID:	A8_N		
Lims ID:	320-29279-A-6-A	Lab Sample ID:	320-29279-6		
Client ID:	WGNA-062017-RW-3991				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	11
Injection 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

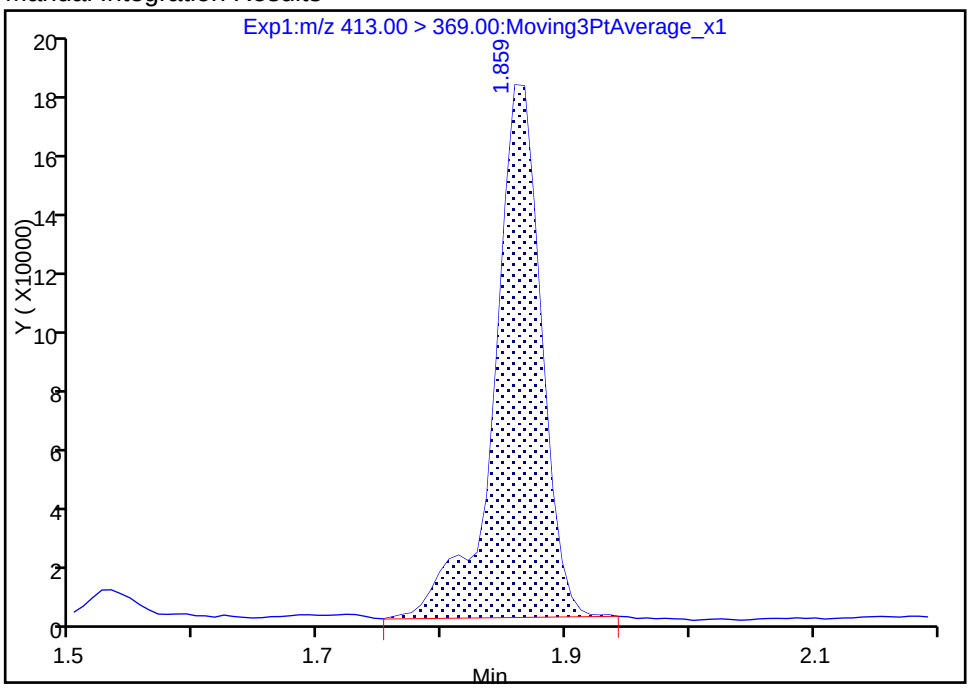
Processing Integration Results

RT: 1.86
Area: 428121
Amount: 4.570301
Amount Units: ng/ml



Manual Integration Results

RT: 1.86
Area: 465749
Amount: 4.971990
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:33:41

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-3991
Lab Sample ID: 320-29279-7
Matrix: Water
Lab File ID: 2017.07.06_537A_042.d
Analysis Method: 537
Date Collected: 06/20/2017 11:15
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 256(mL)
Date Analyzed: 07/07/2017 02:31
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.: 173033
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	98		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_042.d
Lims ID: 320-29279-A-7-A
Client ID: WGNA-062017-FRB-3991
Sample Type: Client
Inject. Date: 07-Jul-2017 02:31:39 ALS Bottle#: 30 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-7-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:34:02

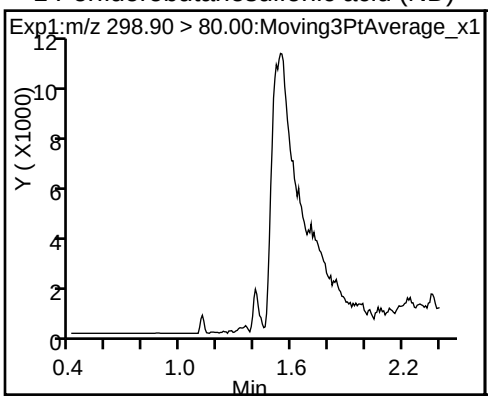
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1123275	9.80		4579	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1008432	10.0		3755	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2929176	28.7		3912	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	863559	10.2		1587	

Report Date: 07-Jul-2017 14:39:03 Chrom Revision: 2.2 26-Jun-2017 08:09:44

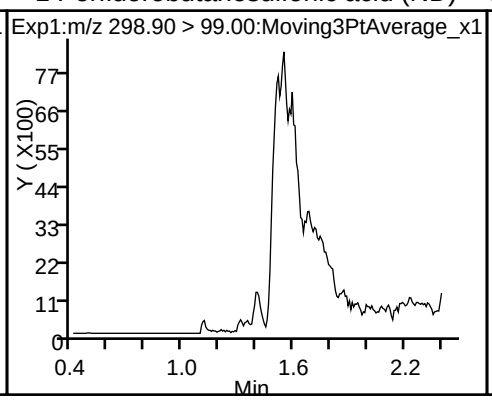
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_042.d				
Injection Date:	07-Jul-2017 02:31:39	Instrument ID:	A8_N		
Lims ID:	320-29279-A-7-A	Lab Sample ID:	320-29279-7		
Client ID:	WGNA-062017-FRB-3991				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	30	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

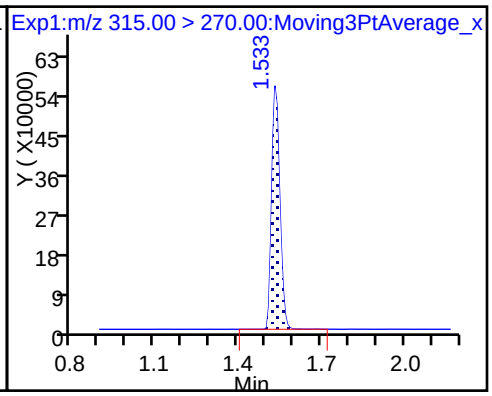
1 Perfluorobutanesulfonic acid (ND)



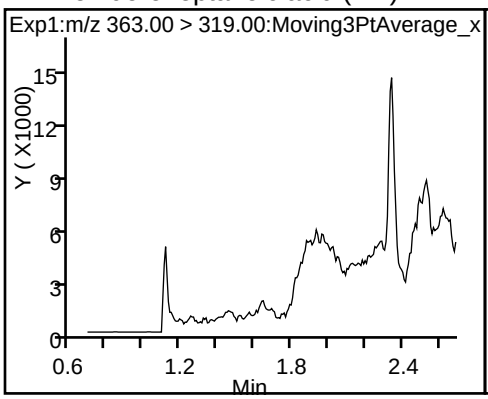
1 Perfluorobutanesulfonic acid (ND)



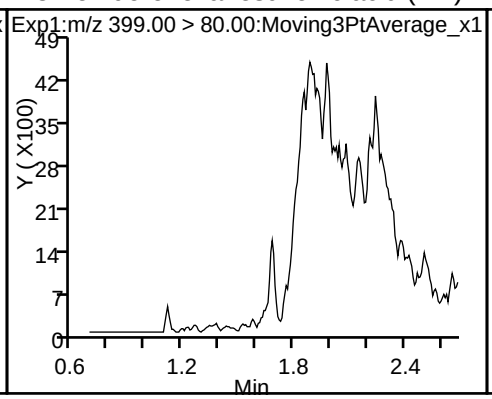
$ 2 13C2 PFHxA



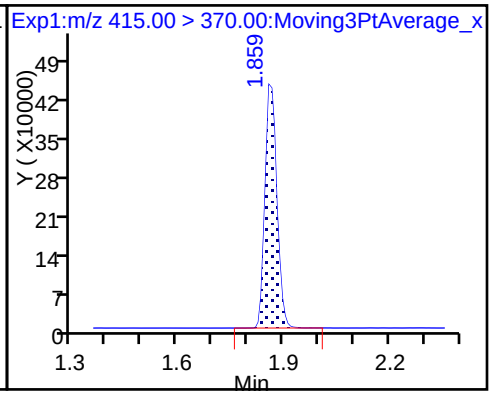
4 Perfluoroheptanoic acid (ND)



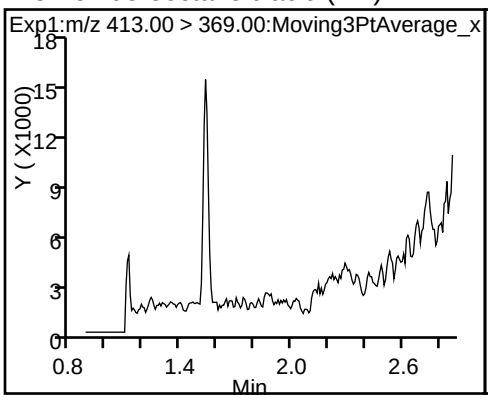
3 Perfluorohexanesulfonic acid (ND)



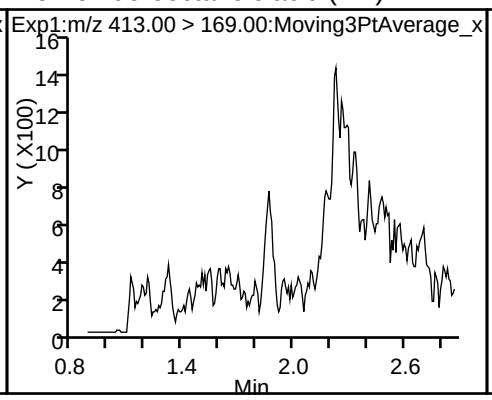
* 6 13C2-PFOA



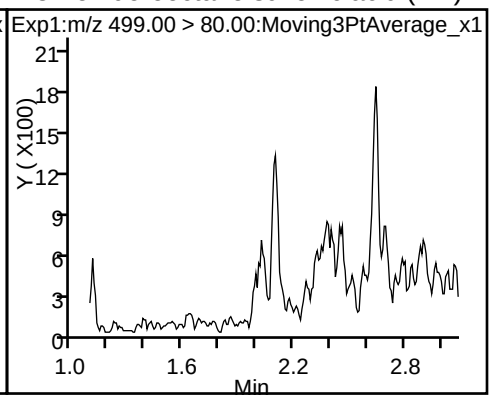
5 Perfluorooctanoic acid (ND)



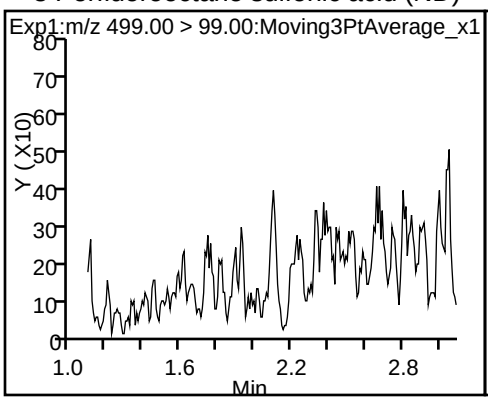
5 Perfluorooctanoic acid (ND)



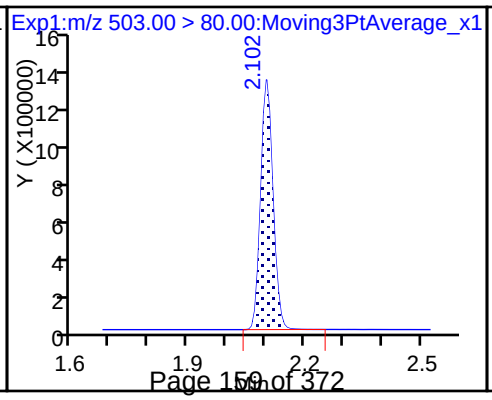
8 Perfluorooctane sulfonic acid (ND)



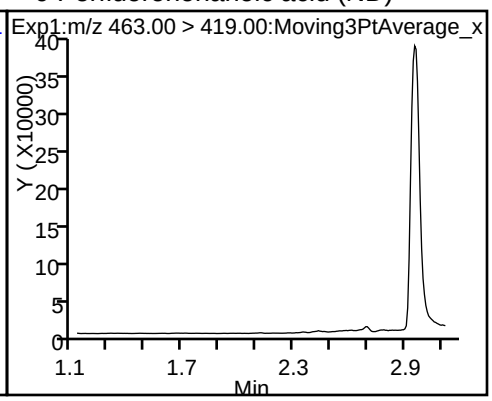
8 Perfluorooctane sulfonic acid (ND)



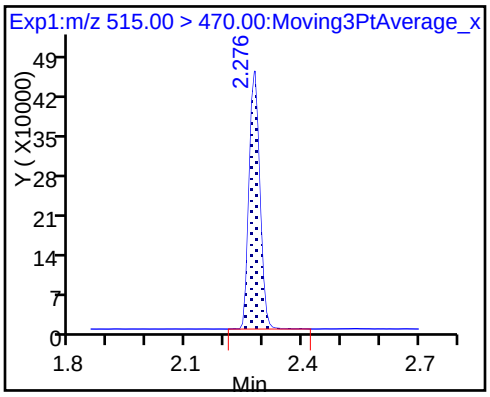
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_042.d
Lims ID: 320-29279-A-7-A
Client ID: WGNA-062017-FRB-3991
Sample Type: Client
Inject. Date: 07-Jul-2017 02:31:39 ALS Bottle#: 30 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-7-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:34:02

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.80	98.04
$ 10 13C2 PFDA	10.0	10.2	102.00

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-4834
Lab Sample ID: 320-29279-8
Matrix: Water
Lab File ID: 2017.07.06_537A_045.d
Analysis Method: 537
Date Collected: 06/20/2017 14:10
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 263.9(mL)
Date Analyzed: 07/07/2017 02:45
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.: 173034
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)	7.6	U	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	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_045.d
Lims ID: 320-29279-A-8-A
Client ID: WGNA-062017-RW-4834
Sample Type: Client
Inject. Date: 07-Jul-2017 02:45:55 ALS Bottle#: 31 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-8-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:34:18

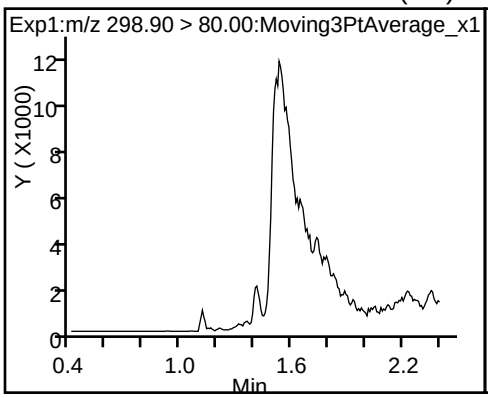
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.539	0.001	1.000	1114188	9.00		4124	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.878	-0.012		1089933	10.0		3912	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		3366215	28.7		4245	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	905454	9.90		1627	

Report Date: 07-Jul-2017 14:39:06 Chrom Revision: 2.2 26-Jun-2017 08:09:44

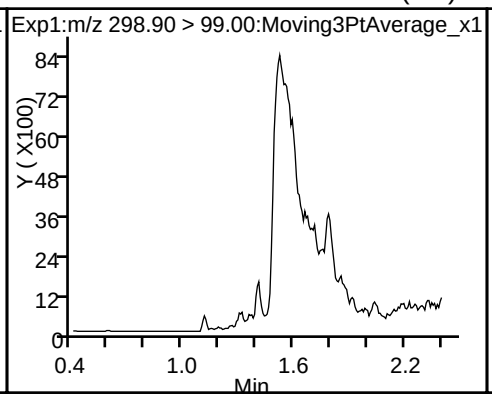
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_045.d				
Injection Date:	07-Jul-2017 02:45:55	Instrument ID:	A8_N		
Lims ID:	320-29279-A-8-A	Lab Sample ID:	320-29279-8		
Client ID:	WGNA-062017-RW-4834				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	31	Worklist Smp#:	15
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

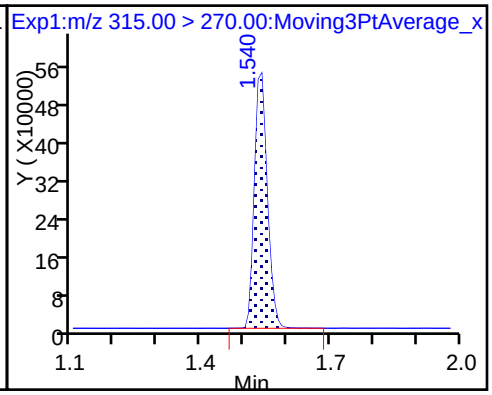
1 Perfluorobutanesulfonic acid (ND)



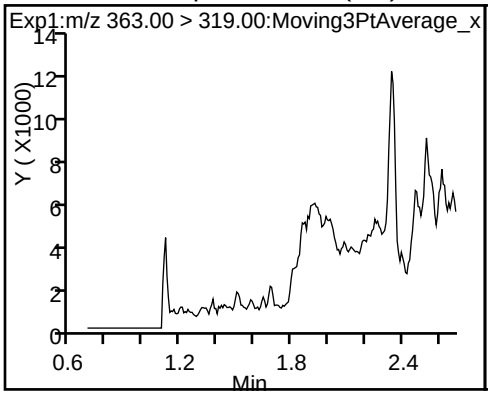
1 Perfluorobutanesulfonic acid (ND)



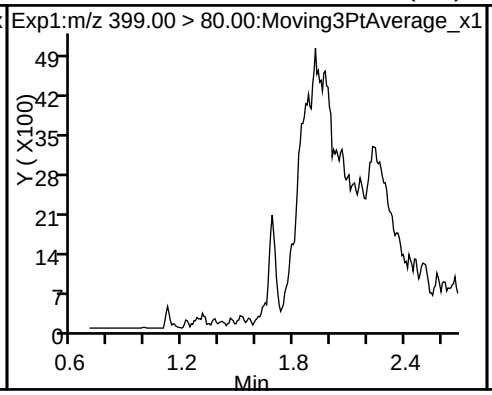
$ 2 13C2 PFHxA



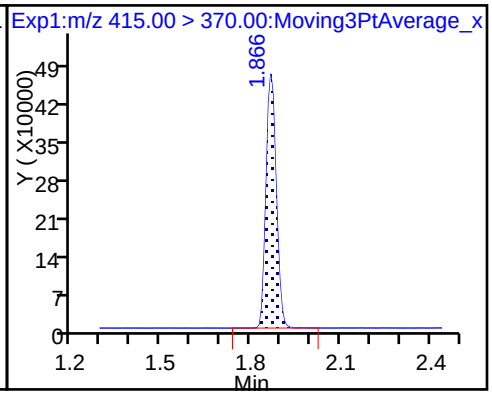
4 Perfluoroheptanoic acid (ND)



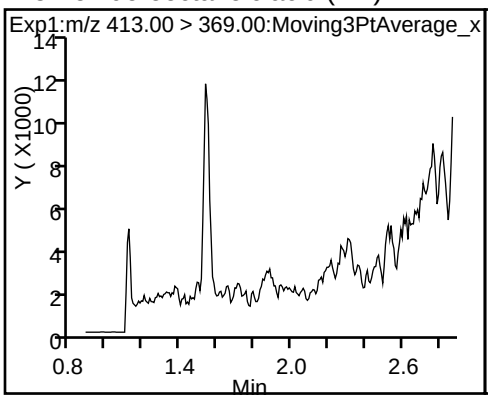
3 Perfluorohexanesulfonic acid (ND)



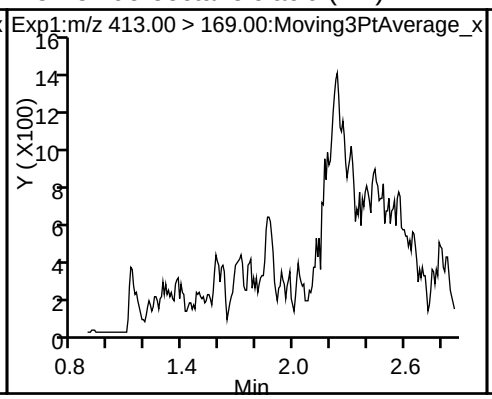
* 6 13C2-PFOA



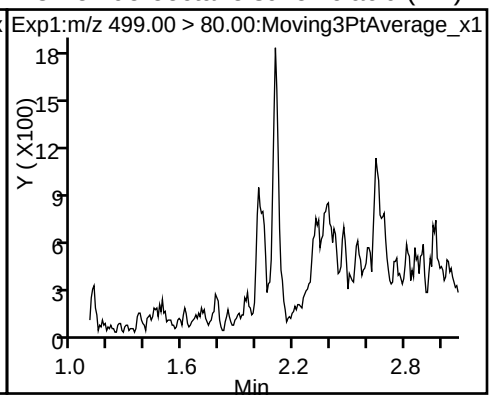
5 Perfluorooctanoic acid (ND)



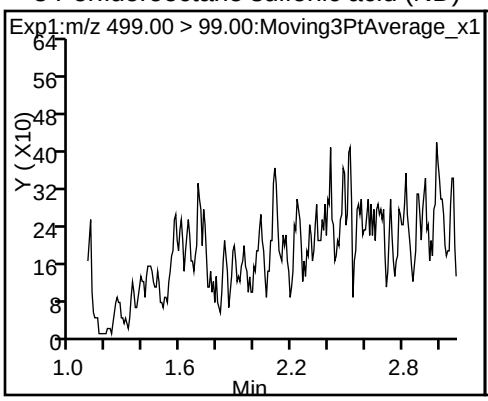
5 Perfluorooctanoic acid (ND)



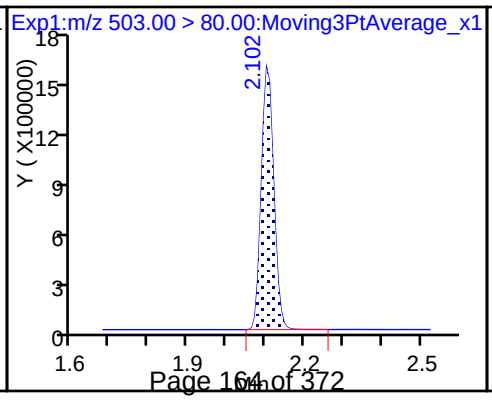
8 Perfluorooctane sulfonic acid (ND)



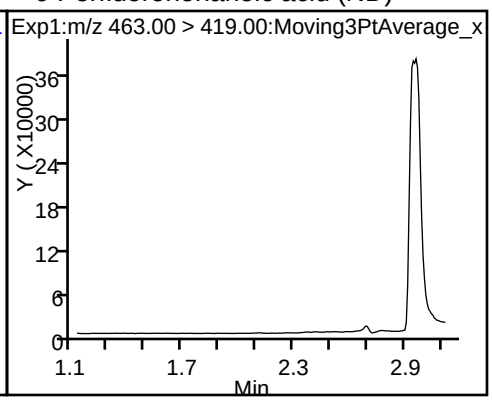
8 Perfluorooctane sulfonic acid (ND)



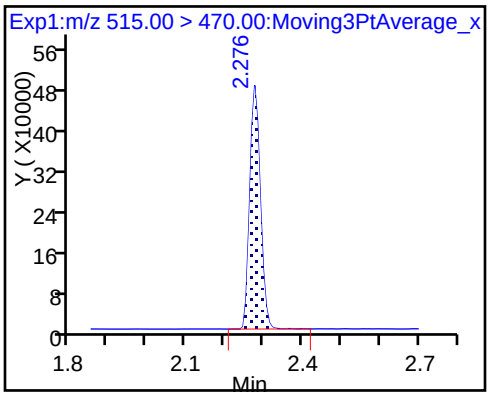
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
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\20170707-45186.b\2017.07.06_537A_045.d
Lims ID: 320-29279-A-8-A
Client ID: WGNA-062017-RW-4834
Sample Type: Client
Inject. Date: 07-Jul-2017 02:45:55 ALS Bottle#: 31 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-8-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:34:18

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.00	89.97
$ 10 13C2 PFDA	10.0	9.90	98.95

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-4834
Lab Sample ID: 320-29279-9
Matrix: Water
Lab File ID: 2017.07.06_537A_046.d
Analysis Method: 537
Date Collected: 06/20/2017 14:05
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 259.6(mL)
Date Analyzed: 07/07/2017 02:50
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	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)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	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	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_046.d
Lims ID: 320-29279-A-9-A
Client ID: WGNA-062017-FRB-4834
Sample Type: Client
Inject. Date: 07-Jul-2017 02:50:41 ALS Bottle#: 32 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-9-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:34:33

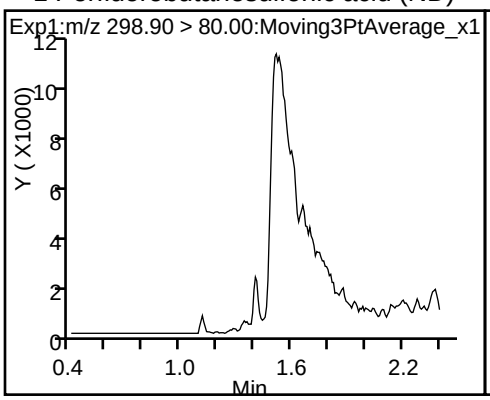
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1043908	8.99		4211	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.878	-0.012		1022064	10.0		3902	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2780300	28.7		3571	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	841748	9.81		1563	

Report Date: 07-Jul-2017 14:39:07 Chrom Revision: 2.2 26-Jun-2017 08:09:44

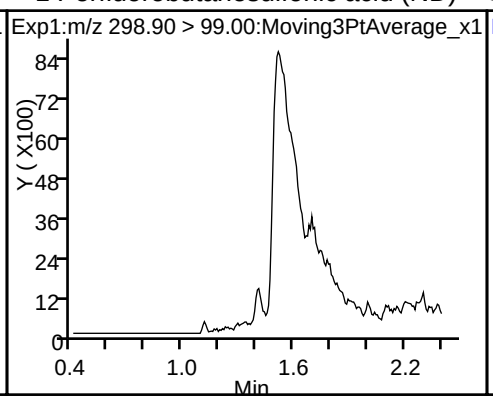
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_046.d				
Injection Date:	07-Jul-2017 02:50:41	Instrument ID:	A8_N		
Lims ID:	320-29279-A-9-A	Lab Sample ID:	320-29279-9		
Client ID:	WGNA-062017-FRB-4834				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

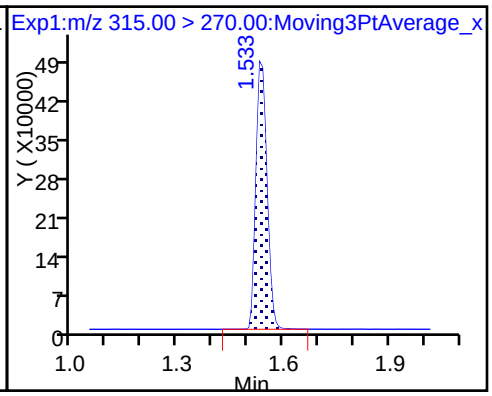
1 Perfluorobutanesulfonic acid (ND)



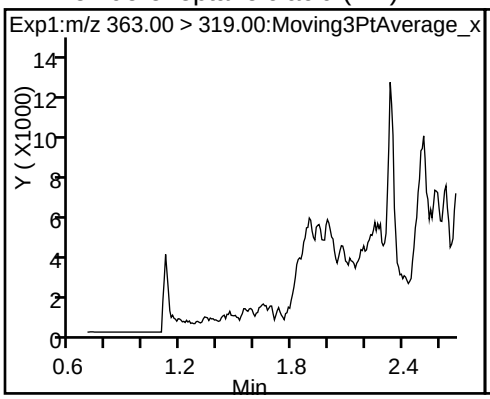
1 Perfluorobutanesulfonic acid (ND)



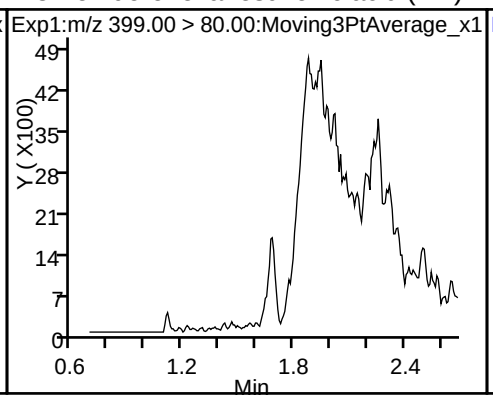
$ 2 13C2 PFHxA



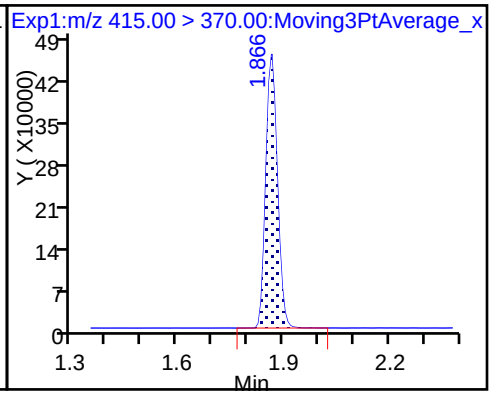
4 Perfluoroheptanoic acid (ND)



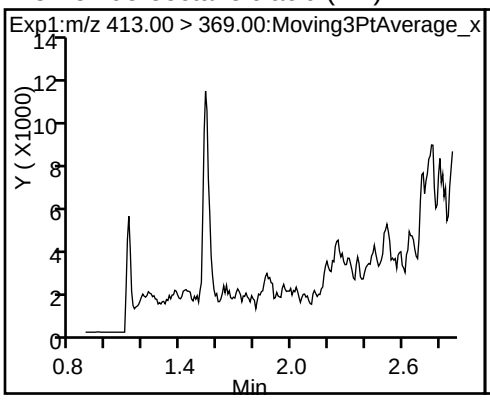
3 Perfluorohexanesulfonic acid (ND)



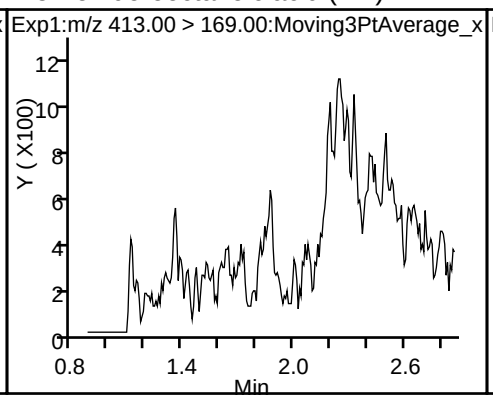
* 6 13C2-PFOA



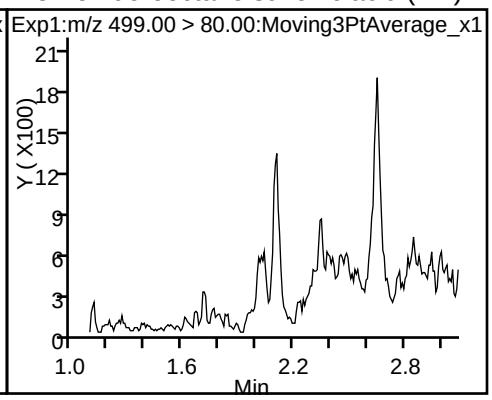
5 Perfluorooctanoic acid (ND)



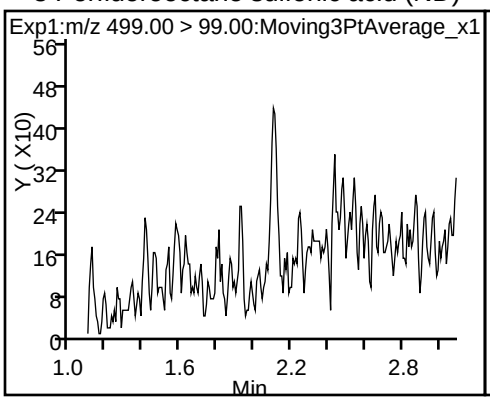
5 Perfluorooctanoic acid (ND)



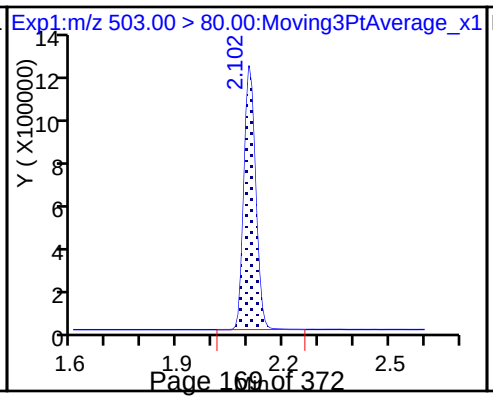
8 Perfluorooctane sulfonic acid (ND)



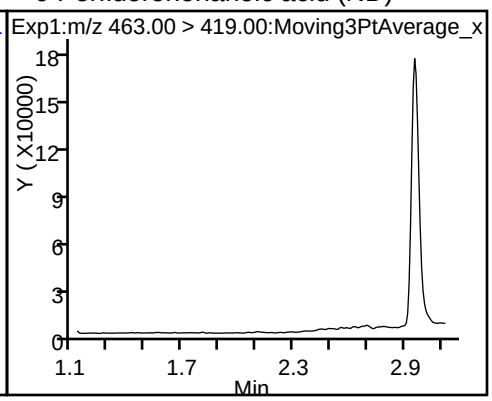
8 Perfluorooctane sulfonic acid (ND)



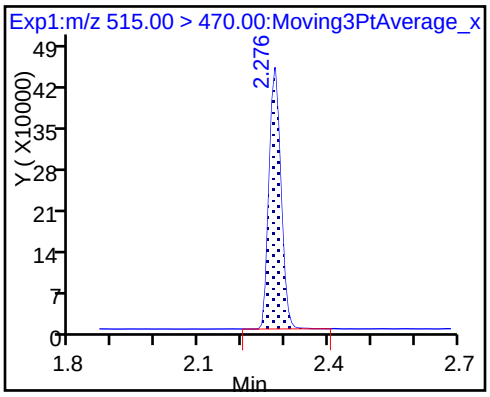
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_046.d
Lims ID: 320-29279-A-9-A
Client ID: WGNA-062017-FRB-4834
Sample Type: Client
Inject. Date: 07-Jul-2017 02:50:41 ALS Bottle#: 32 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-9-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:34:33

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.99	89.90
$ 10 13C2 PFDA	10.0	9.81	98.10

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-4840
Lab Sample ID: 320-29279-10
Matrix: Water
Lab File ID: 2017.07.06_537A_047.d
Analysis Method: 537
Date Collected: 06/20/2017 14:40
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 259.7(mL)
Date Analyzed: 07/07/2017 02:55
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	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)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	94		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_047.d
Lims ID: 320-29279-A-10-A
Client ID: WGNA-062017-RW-4840
Sample Type: Client
Inject. Date: 07-Jul-2017 02:55:25 ALS Bottle#: 33 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-10-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

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	1.539	-0.006	1.000	1137394	9.19		4729	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1089613	10.0		3490	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2943996	28.7		3103	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	861574	9.42		1612	

Report Date: 07-Jul-2017 14:39:07 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_047.d

Injection Date: 07-Jul-2017 02:55:25 Instrument ID: A8_N

Lims ID: 320-29279-A-10-A Lab Sample ID: 320-29279-10

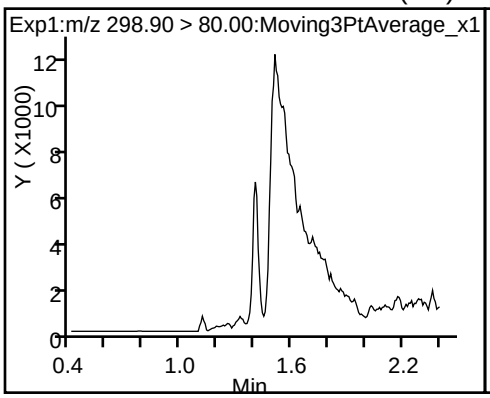
Client ID: WGNA-062017-RW-4840

Operator ID: SACINSTLCMS01 ALS Bottle#: 33 Worklist Smp#: 17

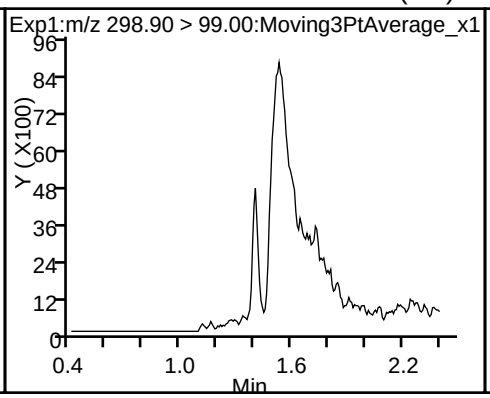
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

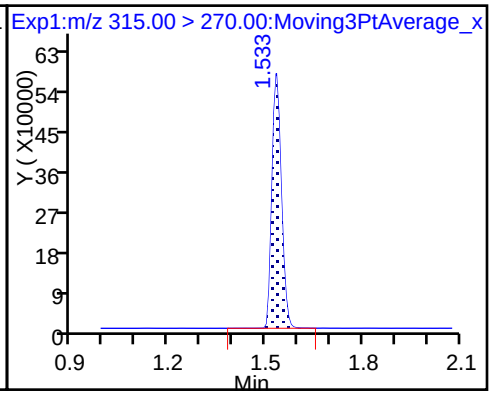
1 Perfluorobutanesulfonic acid (ND)



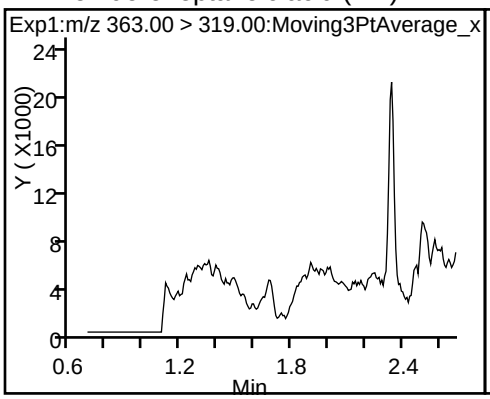
1 Perfluorobutanesulfonic acid (ND)



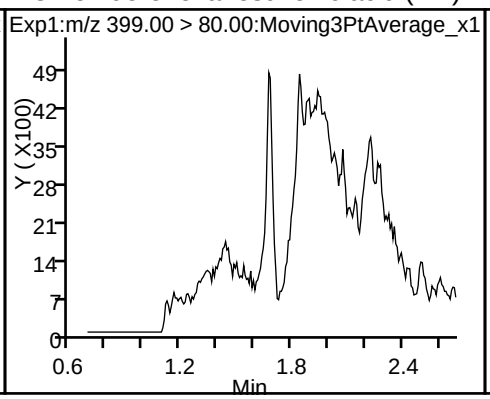
$ 2 13C2 PFHxA



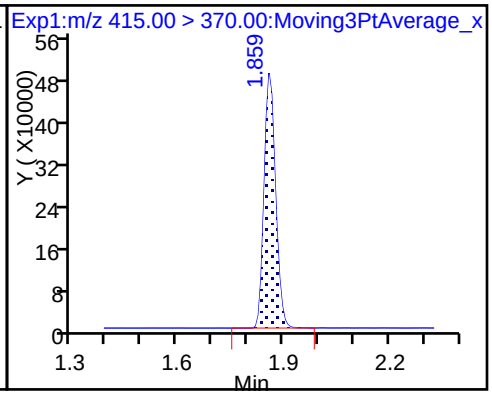
4 Perfluoroheptanoic acid (ND)



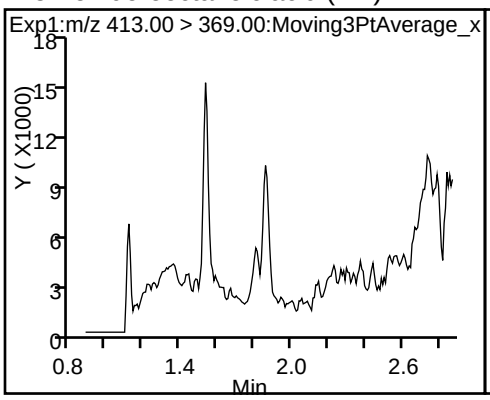
3 Perfluorohexanesulfonic acid (ND)



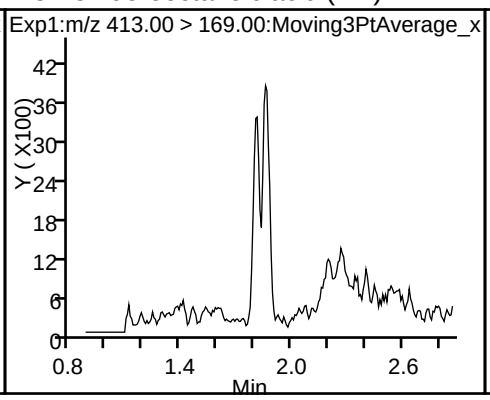
* 6 13C2-PFOA



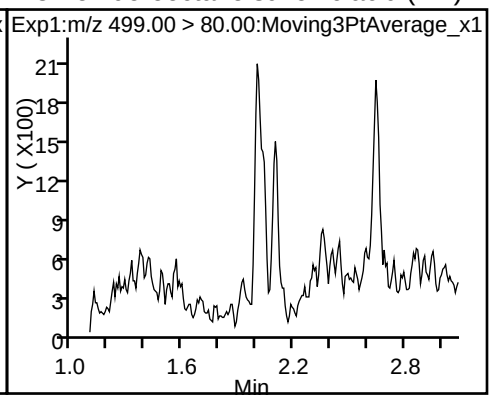
5 Perfluorooctanoic acid (ND)



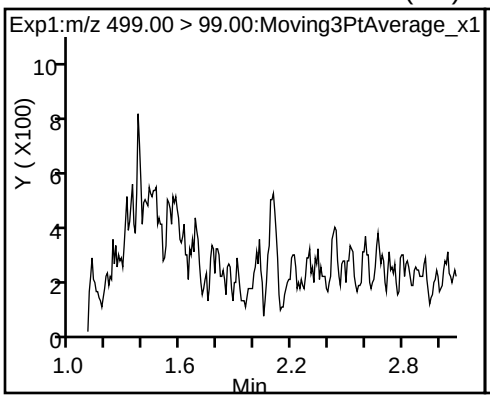
5 Perfluorooctanoic acid (ND)



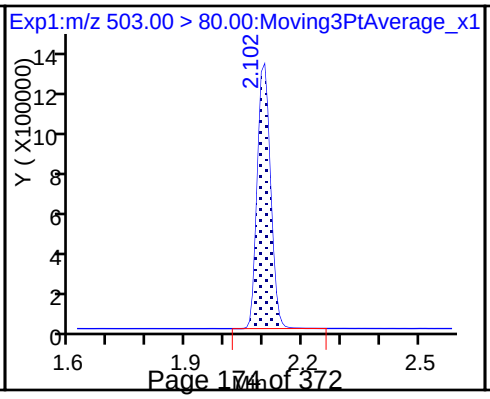
8 Perfluorooctane sulfonic acid (ND)



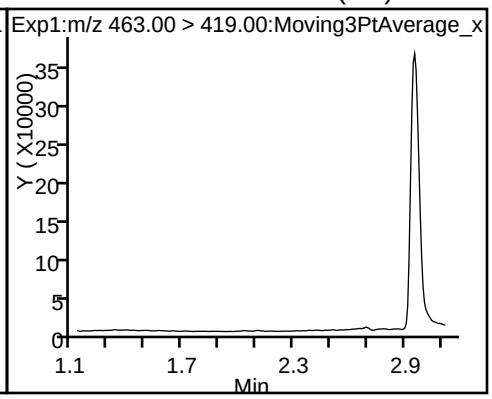
8 Perfluorooctane sulfonic acid (ND)



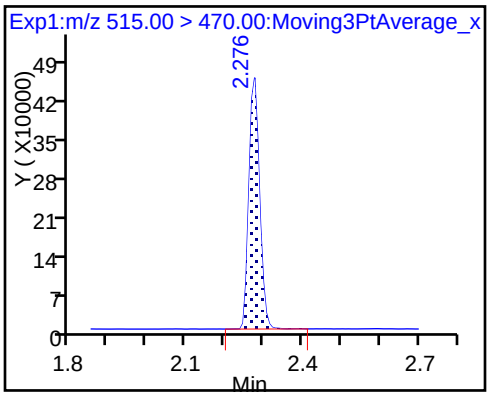
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_047.d
Lims ID: 320-29279-A-10-A
Client ID: WGNA-062017-RW-4840
Sample Type: Client
Inject. Date: 07-Jul-2017 02:55:25 ALS Bottle#: 33 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-10-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.19	91.87
$ 10 13C2 PFDA	10.0	9.42	94.18

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-4840
Lab Sample ID: 320-29279-11
Matrix: Water
Lab File ID: 2017.07.06_537A_048.d
Analysis Method: 537
Date Collected: 06/20/2017 14:35
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 246.4(mL)
Date Analyzed: 07/07/2017 03:00
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	91	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_048.d
Lims ID: 320-29279-A-11-A
Client ID: WGNA-062017-FRB-4840
Sample Type: Client
Inject. Date: 07-Jul-2017 03:00:10 ALS Bottle#: 34 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-11-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

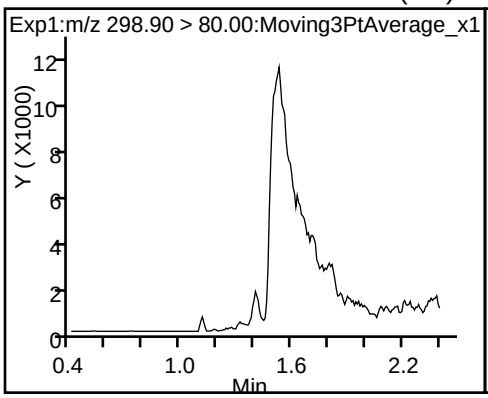
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1195026	9.71		4813	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1083014	10.0		3488	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		3192849	28.7		3919	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	907138	9.98		1740	

Report Date: 07-Jul-2017 14:39:08 Chrom Revision: 2.2 26-Jun-2017 08:09:44

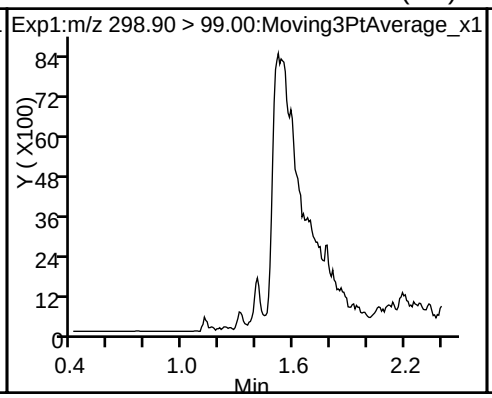
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_048.d				
Injection Date:	07-Jul-2017 03:00:10	Instrument ID:	A8_N		
Lims ID:	320-29279-A-11-A	Lab Sample ID:	320-29279-11		
Client ID:	WGNA-062017-FRB-4840				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	34	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

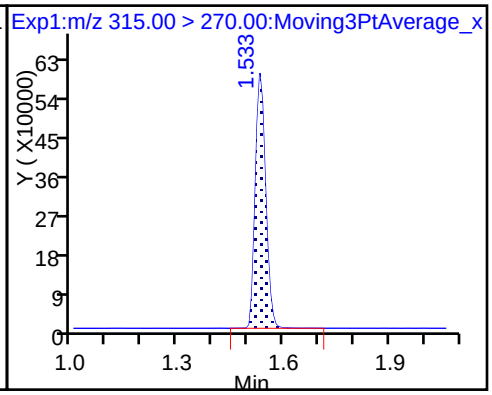
1 Perfluorobutanesulfonic acid (ND)



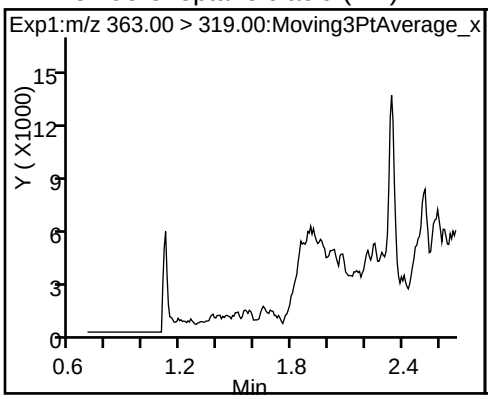
1 Perfluorobutanesulfonic acid (ND)



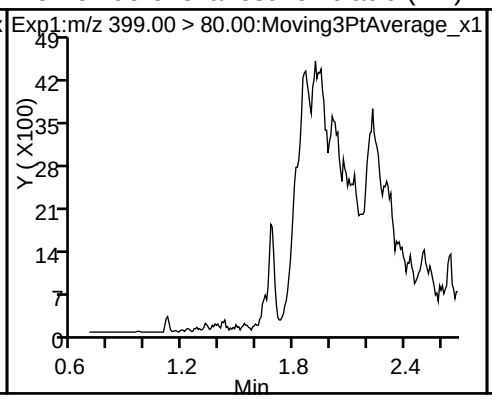
$ 2 13C2 PFHxA



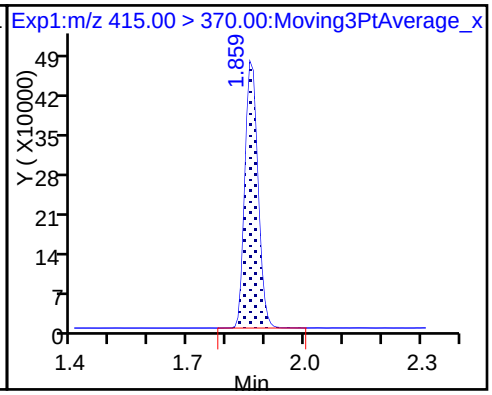
4 Perfluoroheptanoic acid (ND)



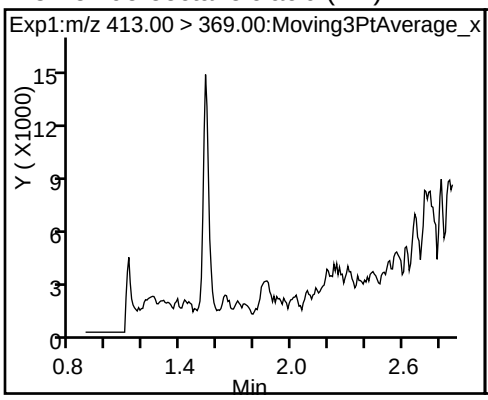
3 Perfluorohexanesulfonic acid (ND)



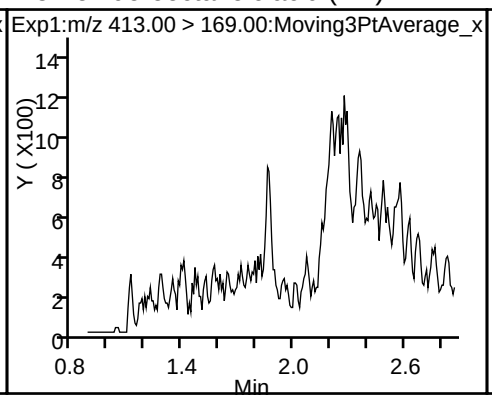
* 6 13C2-PFOA



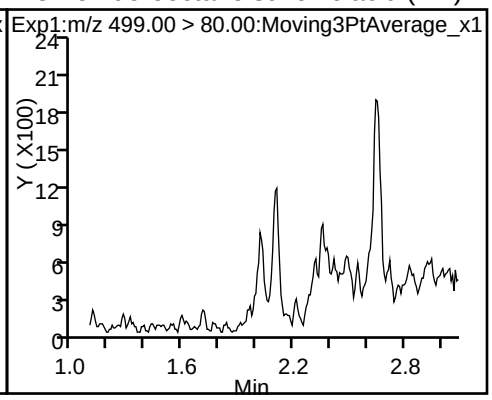
5 Perfluorooctanoic acid (ND)



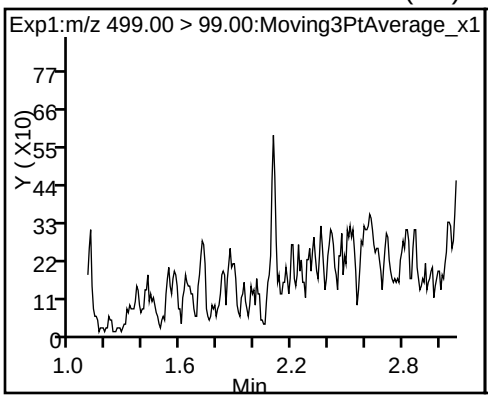
5 Perfluorooctanoic acid (ND)



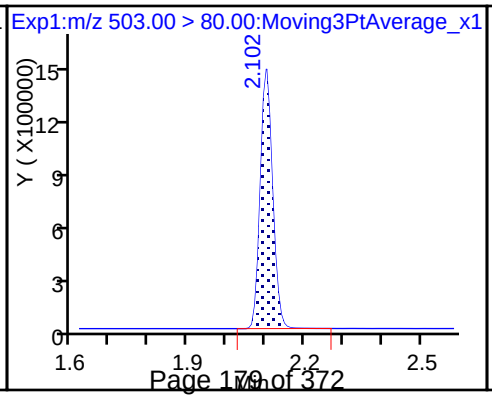
8 Perfluorooctane sulfonic acid (ND)



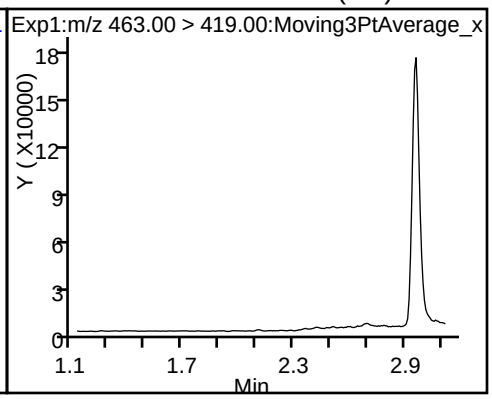
8 Perfluorooctane sulfonic acid (ND)



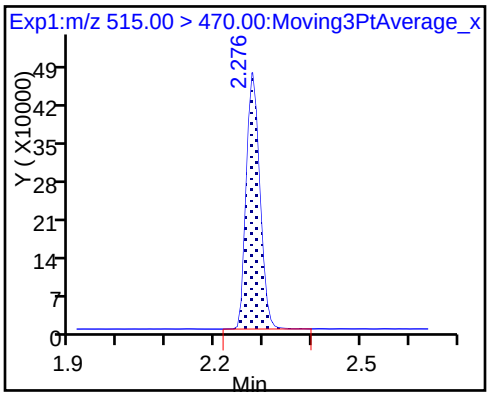
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.9
2.2
2.5
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_048.d
Lims ID: 320-29279-A-11-A
Client ID: WGNA-062017-FRB-4840
Sample Type: Client
Inject. Date: 07-Jul-2017 03:00:10 ALS Bottle#: 34 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-11-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.71	97.12
$ 10 13C2 PFDA	10.0	9.98	99.77

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-3124A
Lab Sample ID: 320-29279-12
Matrix: Water
Lab File ID: 2017.07.06_537A_049.d
Analysis Method: 537
Date Collected: 06/20/2017 09:40
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 262(mL)
Date Analyzed: 07/07/2017 03:04
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	16	J M	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	13	J	29	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	J	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	88		70-130
STL00996	13C2 PFDA	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_049.d
Lims ID: 320-29279-A-12-A
Client ID: WGNA-062017-RW-3124A
Sample Type: Client
Inject. Date: 07-Jul-2017 03:04:54 ALS Bottle#: 35 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-12-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:35:48

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	1.404	0.0	1.000	128404	1.32		34.7	
298.90 > 99.00	1.404	1.404	0.0	1.000	97943		1.31(0.00-0.00)	39.4	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1061512	8.85		4329	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	119990	1.09		13.1	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	502051	3.29		131	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1055913	10.0		3588	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.866	1.879	-0.013	1.000	400711	4.12		38.5	M
413.00 > 169.00	1.866	1.879	-0.013	1.000	262566		1.53(0.00-0.00)	247	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.094	0.008	1.000	558962	4.99		294	M
499.00 > 99.00	2.102	2.094	0.008	1.000	120359		4.64(0.00-0.00)	181	M
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		3137666	28.7		2707	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	896539	10.1		1807	

QC Flag Legend

Review Flags

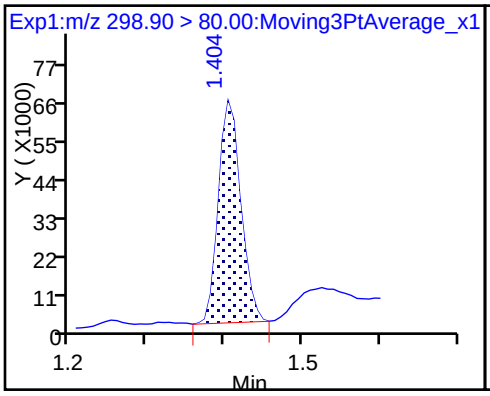
M - Manually Integrated

Report Date: 07-Jul-2017 14:39:09 Chrom Revision: 2.2 26-Jun-2017 08:09:44

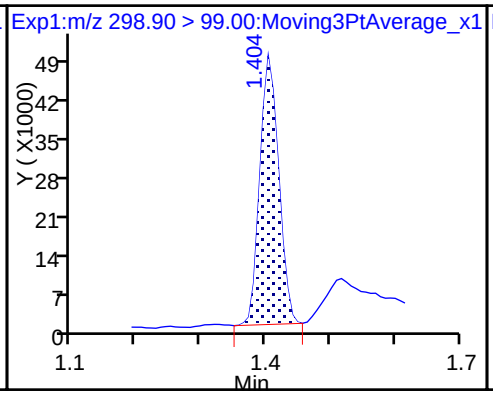
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_049.d				
Injection Date:	07-Jul-2017 03:04:54	Instrument ID:	A8_N		
Lims ID:	320-29279-A-12-A	Lab Sample ID:	320-29279-12		
Client ID:	WGNA-062017-RW-3124A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	35	Worklist Smp#:	19
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

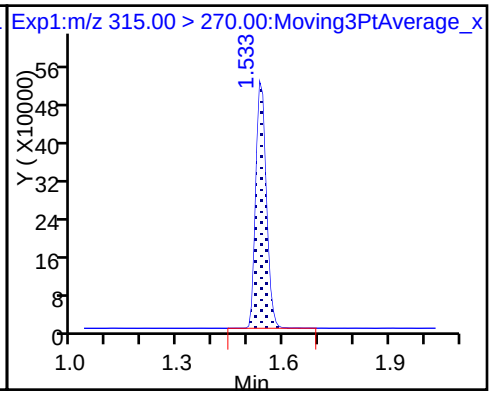
1 Perfluorobutanesulfonic acid



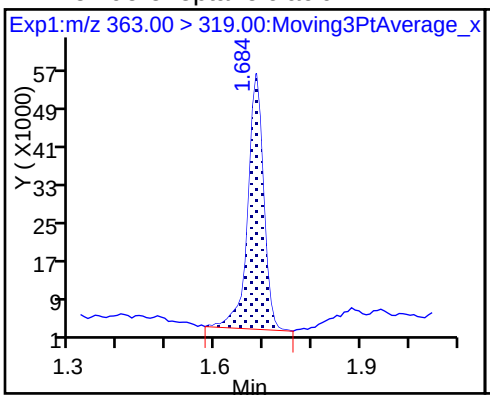
1 Perfluorobutanesulfonic acid



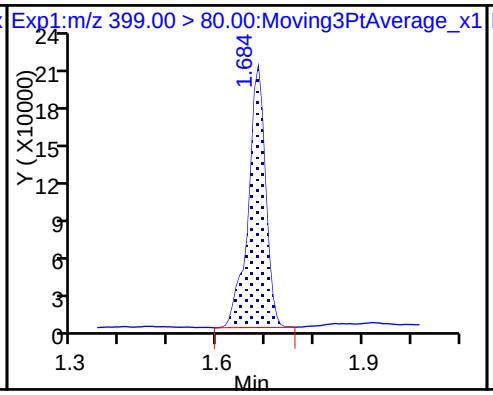
$ 2 13C2 PFHxA



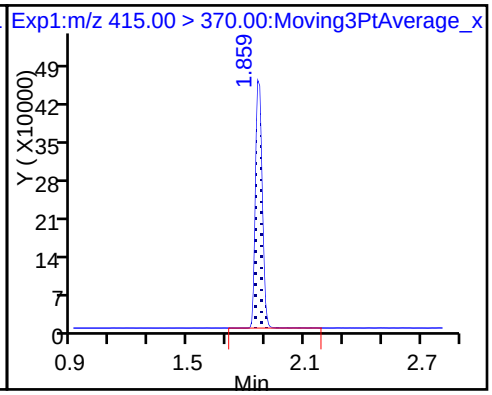
4 Perfluoroheptanoic acid



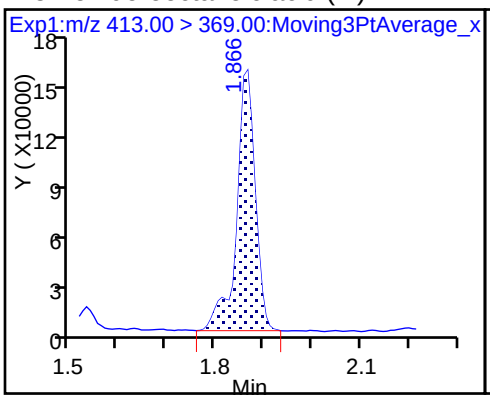
3 Perfluorohexanesulfonic acid



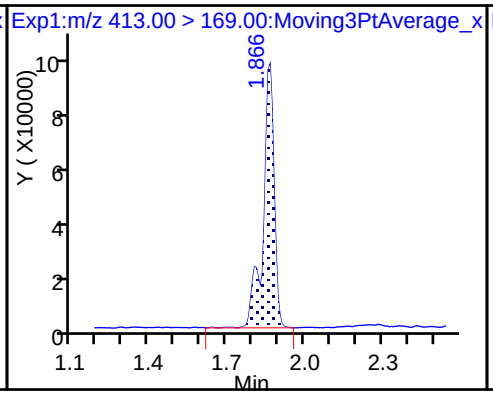
* 6 13C2-PFOA



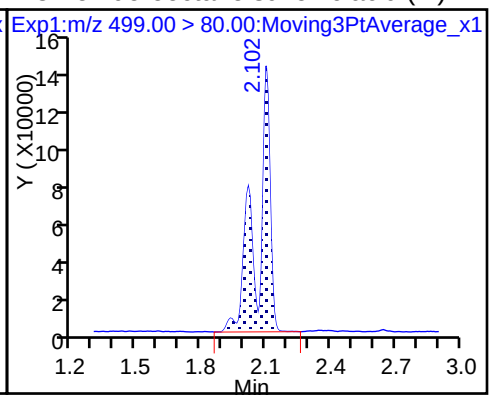
5 Perfluorooctanoic acid (M)



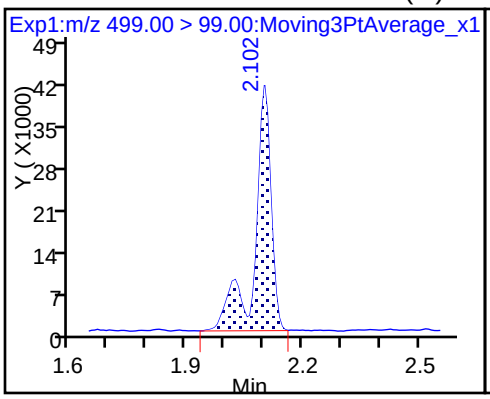
5 Perfluorooctanoic acid



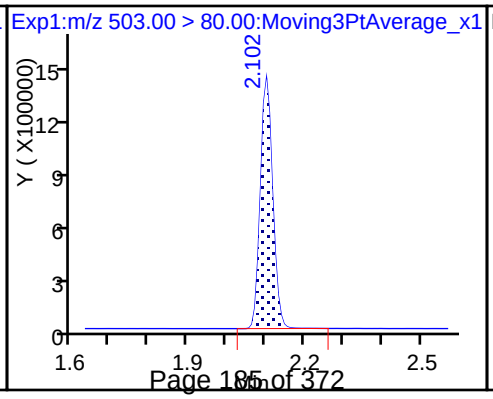
8 Perfluorooctane sulfonic acid (M)



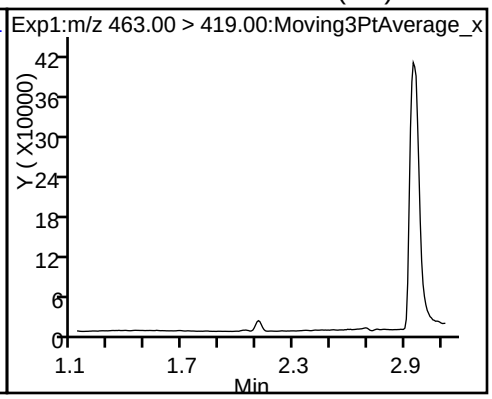
8 Perfluorooctane sulfonic acid (M)



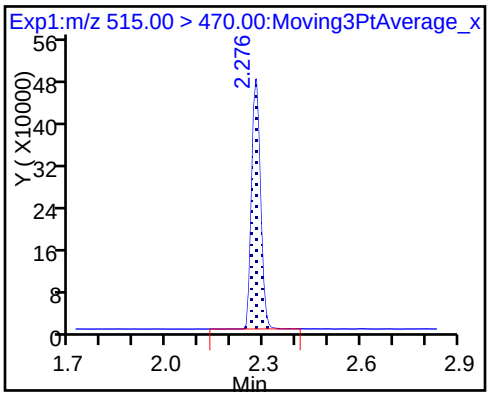
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
56
48
40
32
24
16
8
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_049.d
Lims ID: 320-29279-A-12-A
Client ID: WGNA-062017-RW-3124A
Sample Type: Client
Inject. Date: 07-Jul-2017 03:04:54 ALS Bottle#: 35 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-12-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:35:48

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.85	88.48
$ 10 13C2 PFDA	10.0	10.1	101.14

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

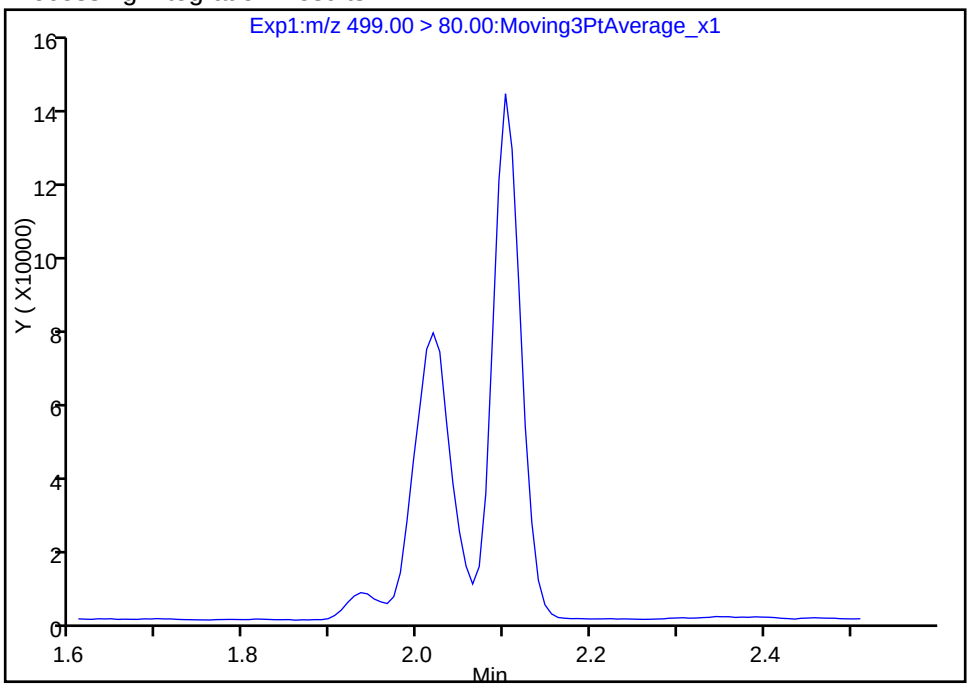
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_049.d				
Injection Date:	07-Jul-2017 03:04:54	Instrument ID:	A8_N		
Lims ID:	320-29279-A-12-A	Lab Sample ID:	320-29279-12		
Client ID:	WGNA-062017-RW-3124A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	35	Worklist Smp#:	19
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

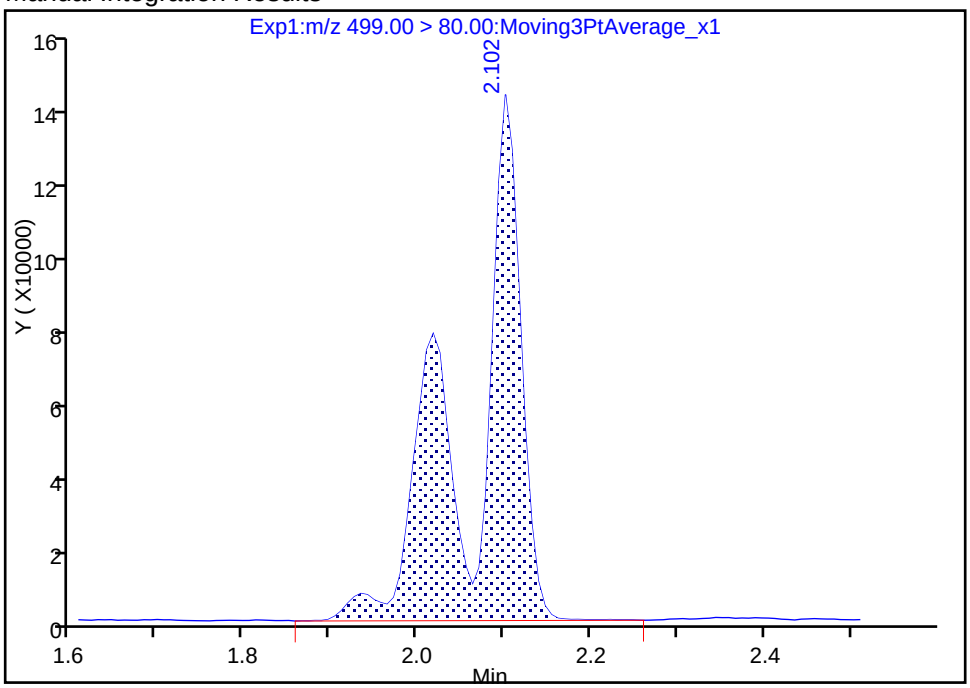
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 558962
Amount: 4.988935
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:34:55
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

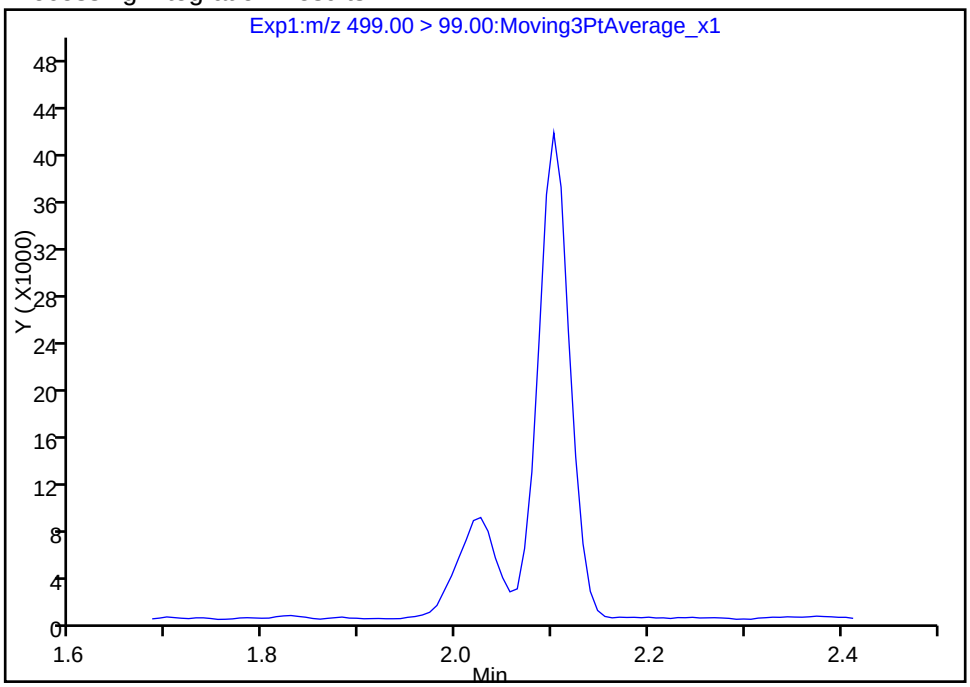
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_049.d				
Injection Date:	07-Jul-2017 03:04:54	Instrument ID:	A8_N		
Lims ID:	320-29279-A-12-A	Lab Sample ID:	320-29279-12		
Client ID:	WGNA-062017-RW-3124A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	35	Worklist Smp#:	19
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

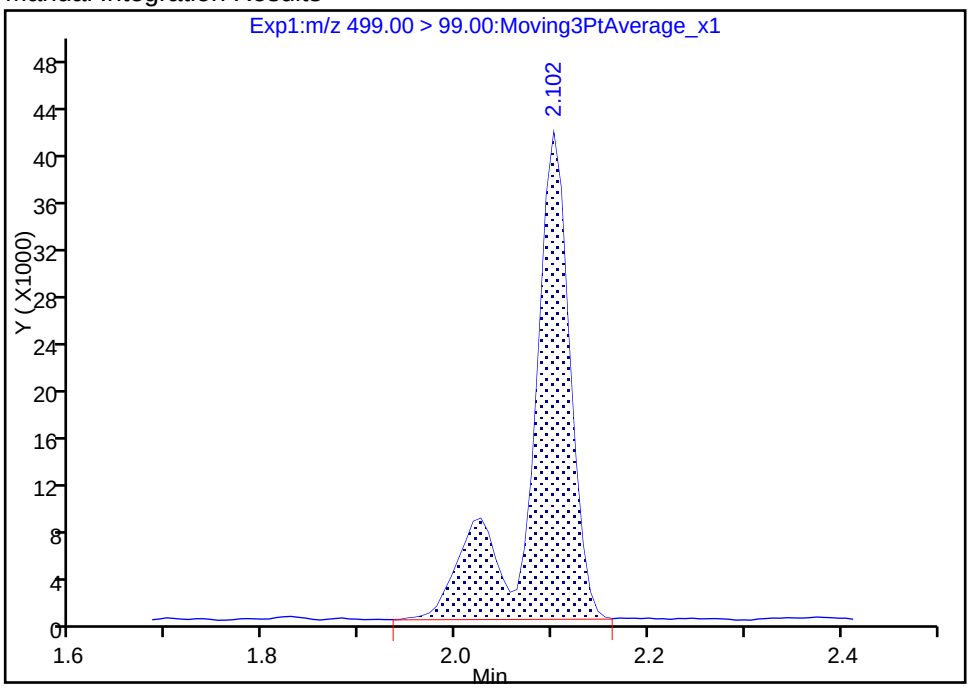
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 120359
Amount: 4.988935
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:35:08
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

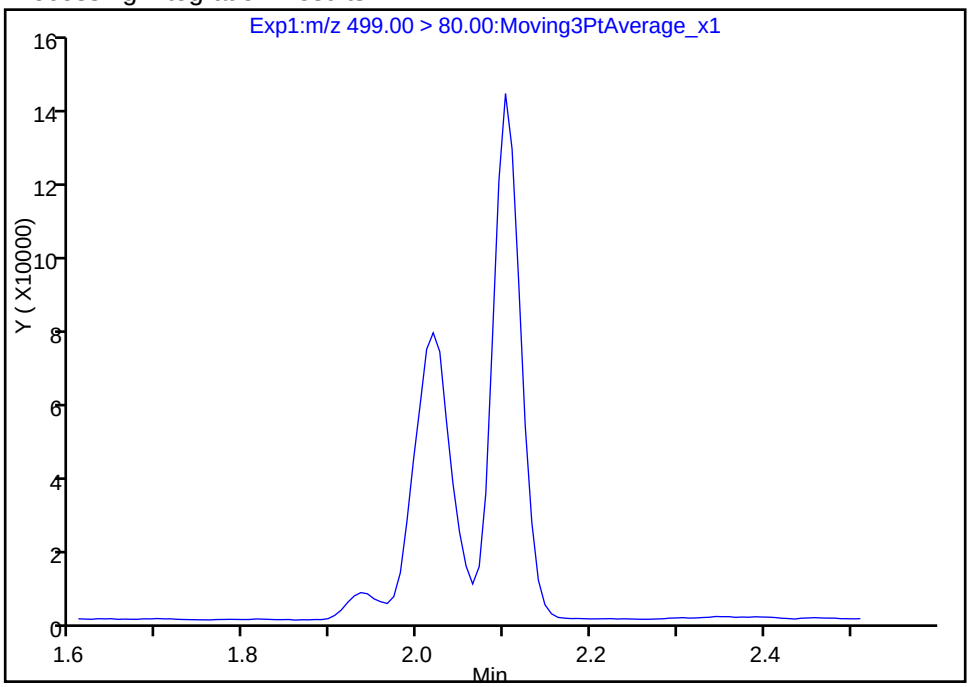
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_049.d				
Injection Date:	07-Jul-2017 03:04:54	Instrument ID:	A8_N		
Lims ID:	320-29279-A-12-A	Lab Sample ID:	320-29279-12		
Client ID:	WGNA-062017-RW-3124A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	35	Worklist Smp#:	19
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

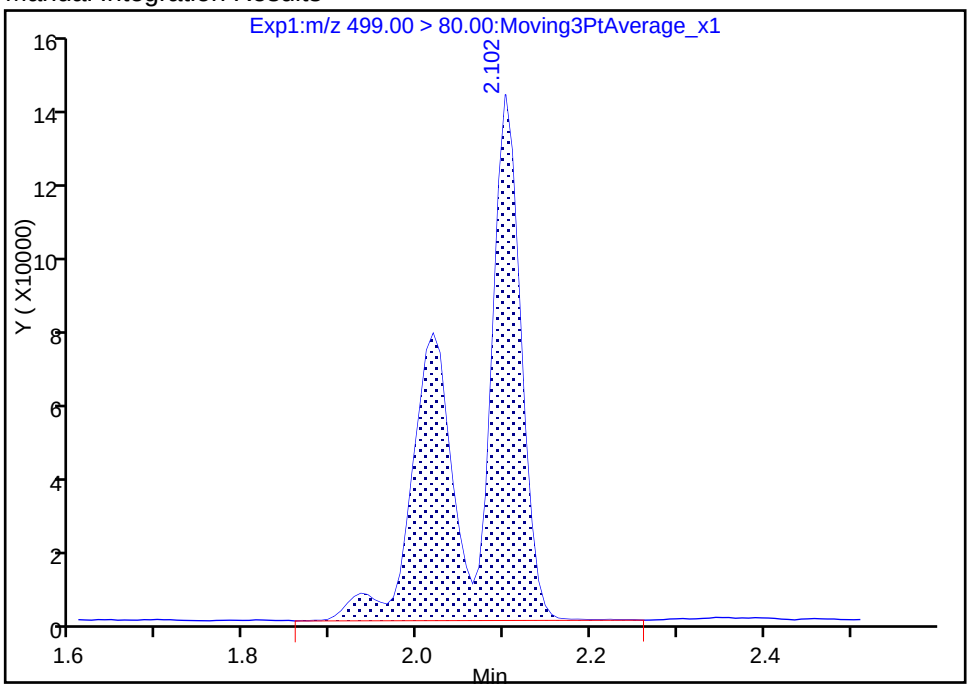
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT:	2.10
Area:	558962
Amount:	4.988935
Amount Units:	ng/ml



Reviewer: barnettj, 07-Jul-2017 14:35:08
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

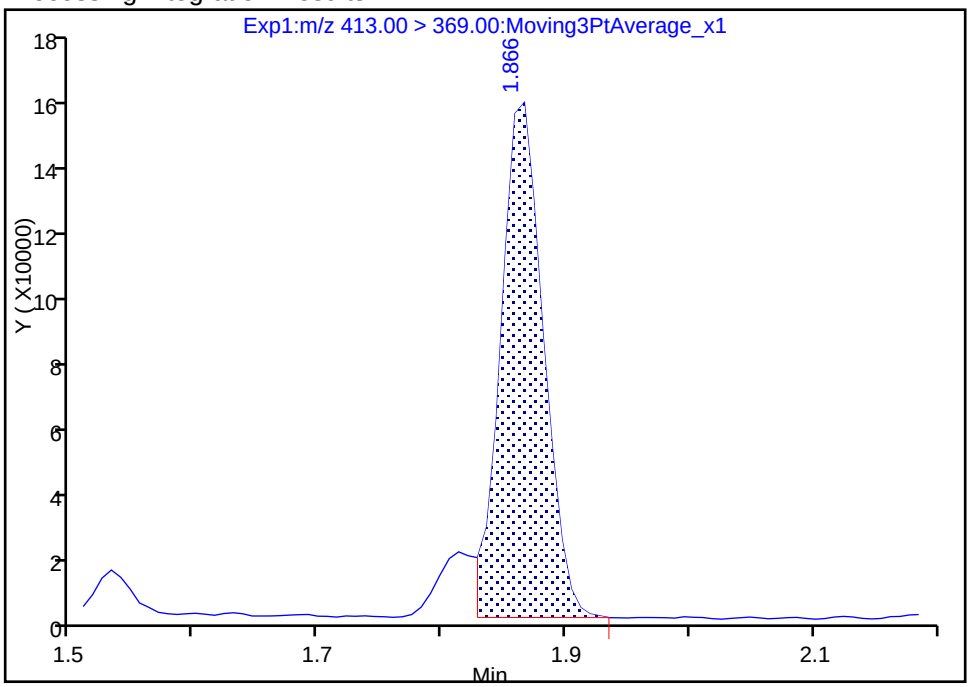
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_049.d				
Injection Date:	07-Jul-2017 03:04:54	Instrument ID:	A8_N		
Lims ID:	320-29279-A-12-A	Lab Sample ID:	320-29279-12		
Client ID:	WGNA-062017-RW-3124A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	35	Worklist Smp#:	19
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

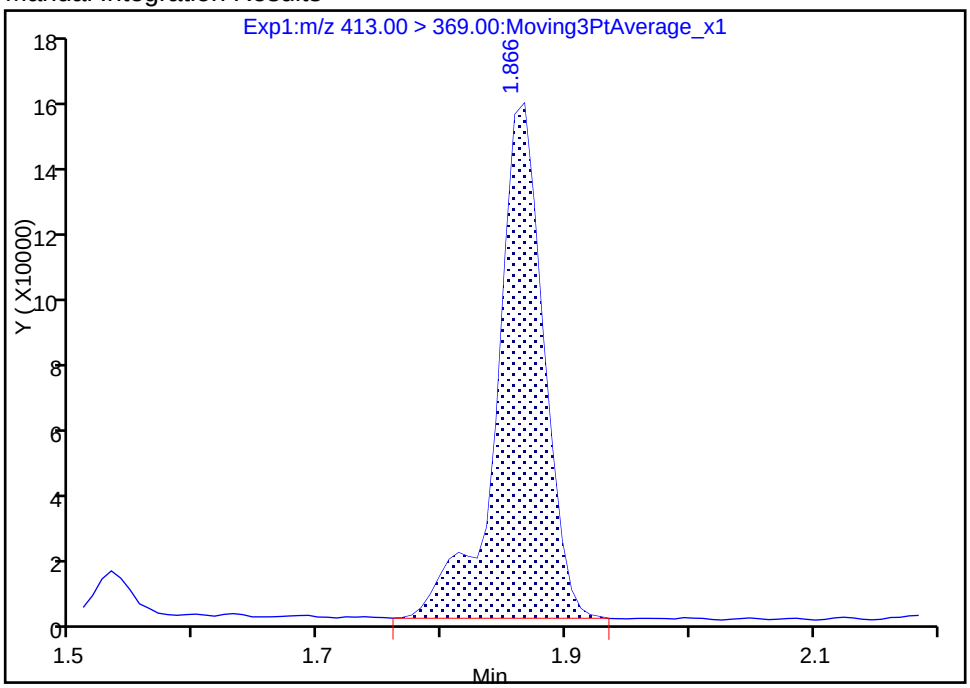
Processing Integration Results

RT: 1.87
Area: 361326
Amount: 3.712673
Amount Units: ng/ml



Manual Integration Results

RT: 1.87
Area: 400711
Amount: 4.117359
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:35:24

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-3124A
Lab Sample ID: 320-29279-13
Matrix: Water
Lab File ID: 2017.07.06_537A_050.d
Analysis Method: 537
Date Collected: 06/20/2017 09:35
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 253.6(mL)
Date Analyzed: 07/07/2017 03:09
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	89	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	94		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_050.d
Lims ID: 320-29279-A-13-A
Client ID: WGNA-062017-FRB-3124A
Sample Type: Client
Inject. Date: 07-Jul-2017 03:09:38 ALS Bottle#: 36 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-13-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:35:56

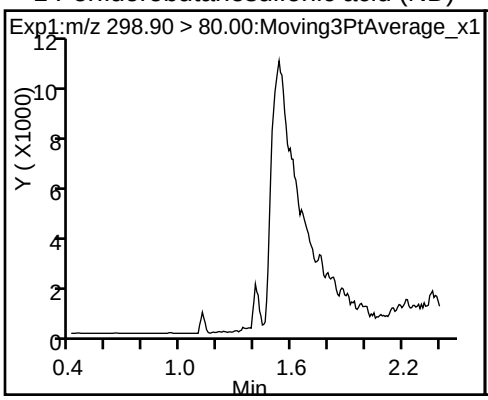
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1092161	9.51		4114	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.878	-0.012		1010295	10.0		3251	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		3068272	28.7		3896	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	797453	9.40		1649	

Report Date: 07-Jul-2017 14:39:09 Chrom Revision: 2.2 26-Jun-2017 08:09:44

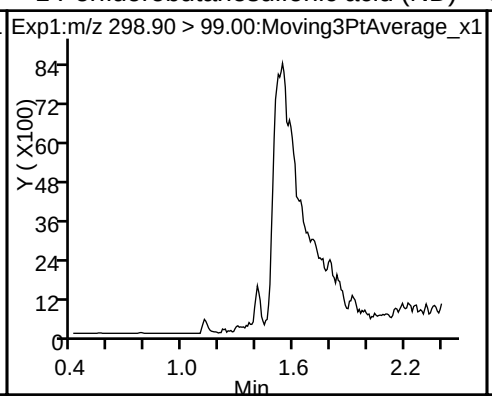
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_050.d				
Injection Date:	07-Jul-2017 03:09:38	Instrument ID:	A8_N		
Lims ID:	320-29279-A-13-A	Lab Sample ID:	320-29279-13		
Client ID:	WGNA-062017-FRB-3124A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	20
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

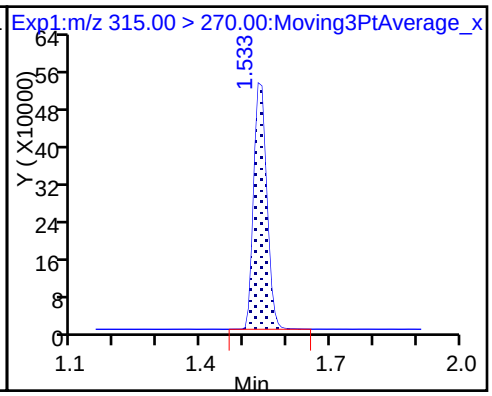
1 Perfluorobutanesulfonic acid (ND)



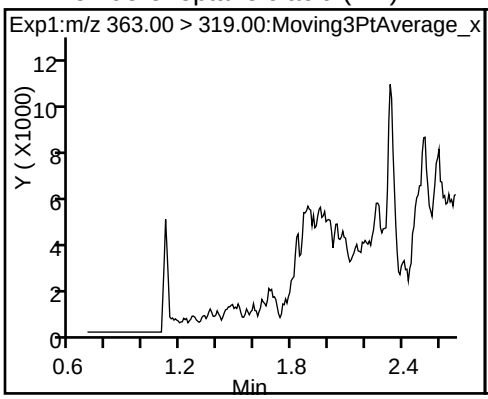
1 Perfluorobutanesulfonic acid (ND)



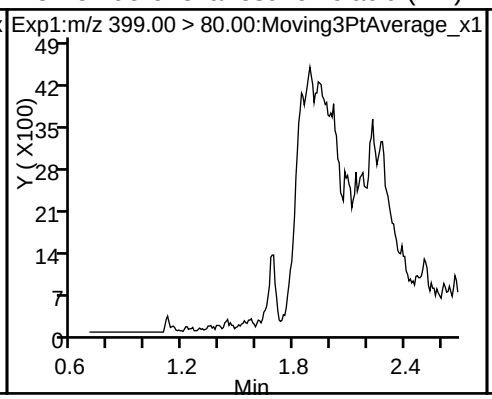
$ 2 13C2 PFHxA



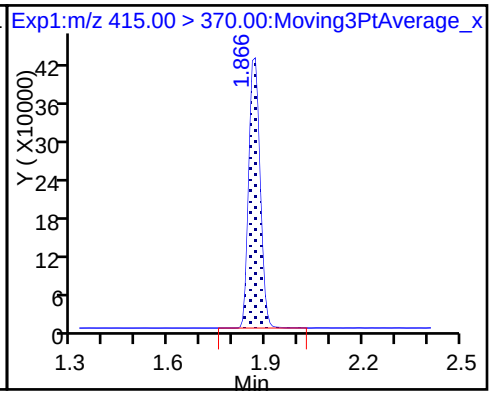
4 Perfluoroheptanoic acid (ND)



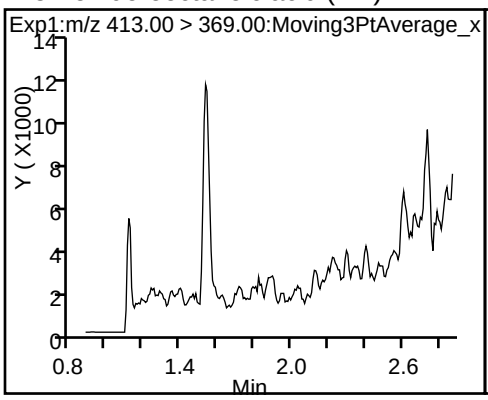
3 Perfluorohexanesulfonic acid (ND)



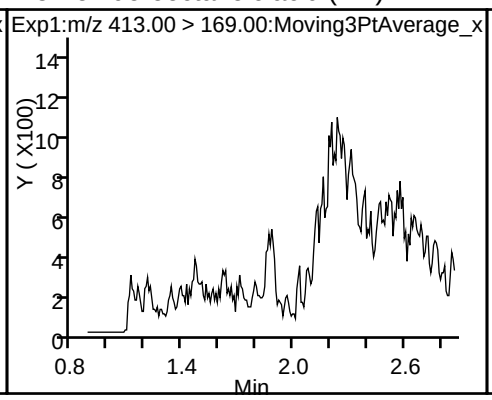
* 6 13C2-PFOA



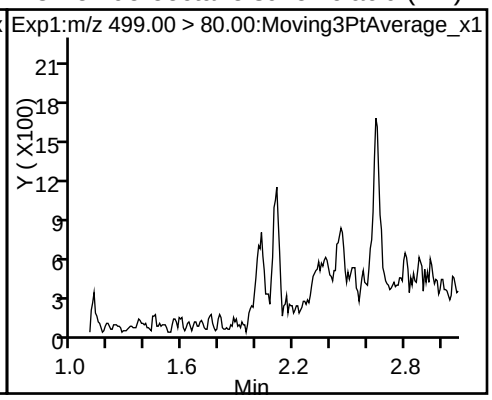
5 Perfluorooctanoic acid (ND)



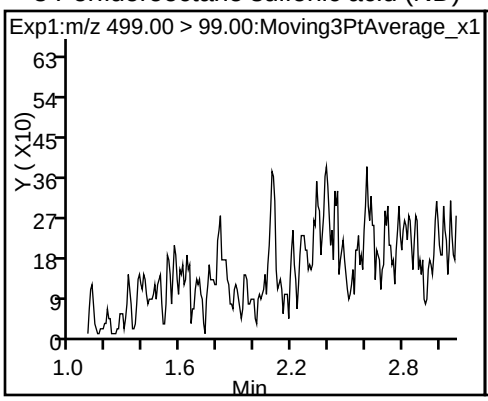
5 Perfluorooctanoic acid (ND)



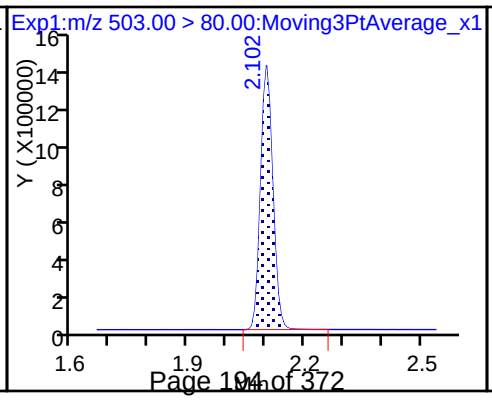
8 Perfluorooctane sulfonic acid (ND)



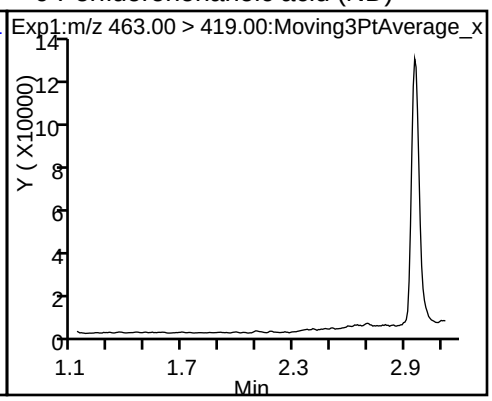
8 Perfluorooctane sulfonic acid (ND)



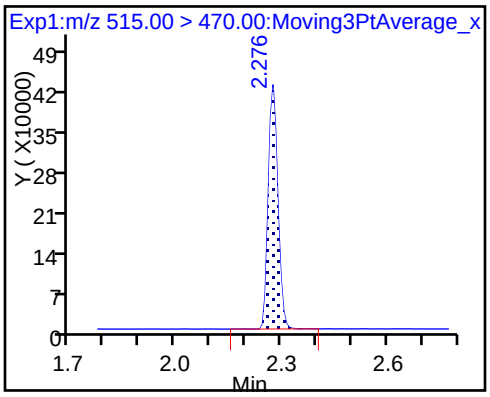
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_050.d
Lims ID: 320-29279-A-13-A
Client ID: WGNA-062017-FRB-3124A
Sample Type: Client
Inject. Date: 07-Jul-2017 03:09:38 ALS Bottle#: 36 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-13-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:35:56

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.51	95.15
$ 10 13C2 PFDA	10.0	9.40	94.02

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-3124B
Lab Sample ID: 320-29279-14
Matrix: Water
Lab File ID: 2017.07.06_537A_051.d
Analysis Method: 537
Date Collected: 06/20/2017 09:45
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 257.8(mL)
Date Analyzed: 07/07/2017 03:14
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.: 173034
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	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
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	91		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_051.d
Lims ID: 320-29279-A-14-A
Client ID: WGNA-062017-RW-3124B
Sample Type: Client
Inject. Date: 07-Jul-2017 03:14:22 ALS Bottle#: 37 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-14-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

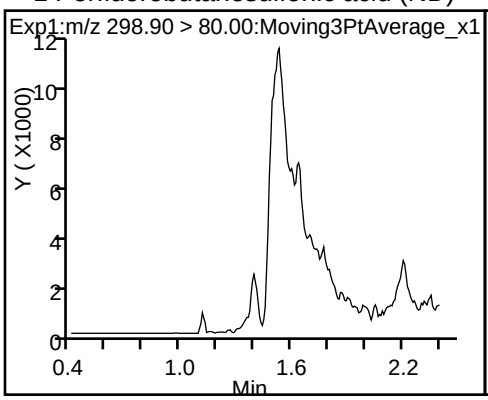
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.539	-0.014	1.000	1099342	9.11		4126	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.878	-0.027		1062587	10.0		3500	
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.117	-0.023		2915192	28.7		3705	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.281	-0.013	1.000	852953	9.56		1509	

Report Date: 07-Jul-2017 14:39:10 Chrom Revision: 2.2 26-Jun-2017 08:09:44

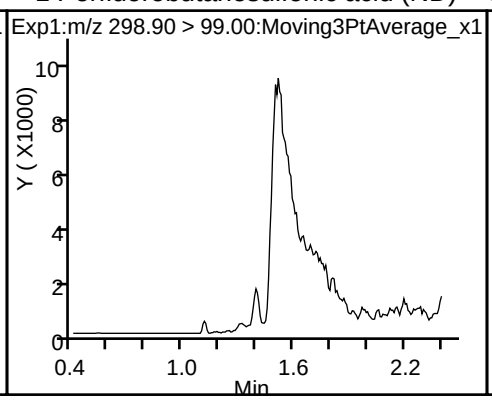
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_051.d				
Injection Date:	07-Jul-2017 03:14:22	Instrument ID:	A8_N		
Lims ID:	320-29279-A-14-A	Lab Sample ID:	320-29279-14		
Client ID:	WGNA-062017-RW-3124B				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	37	Worklist Smp#:	21
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

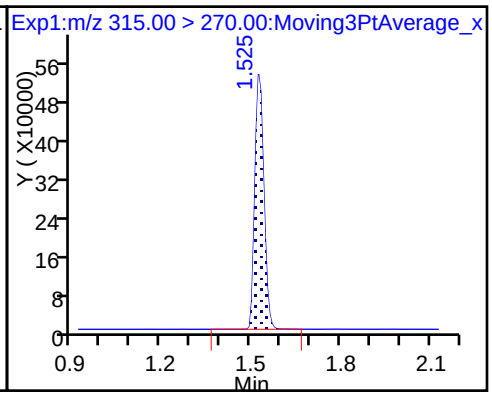
1 Perfluorobutanesulfonic acid (ND)



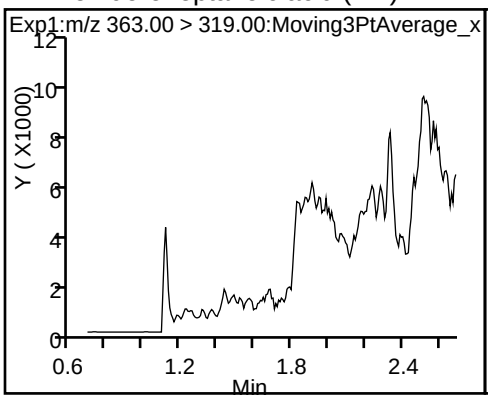
1 Perfluorobutanesulfonic acid (ND)



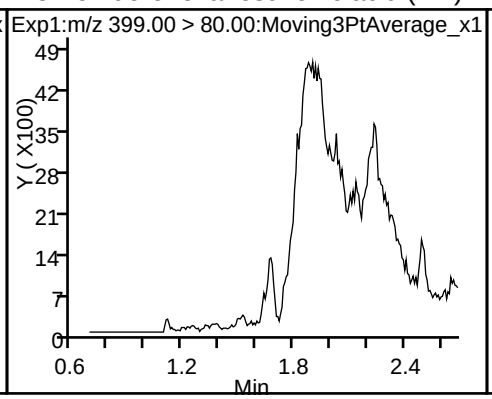
$ 2 13C2 PFHxA



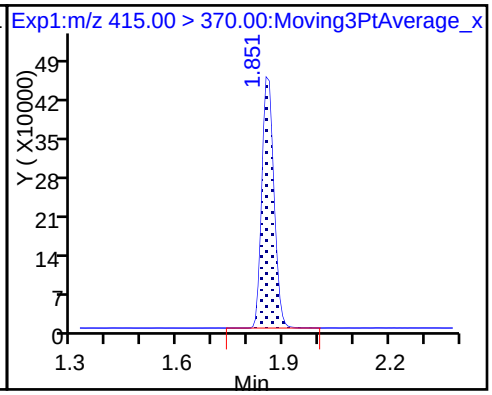
4 Perfluoroheptanoic acid (ND)



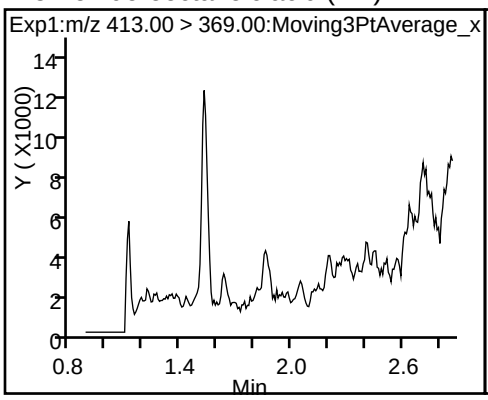
3 Perfluorohexanesulfonic acid (ND)



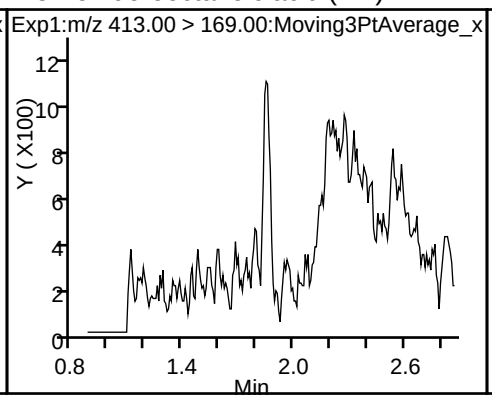
* 6 13C2-PFOA



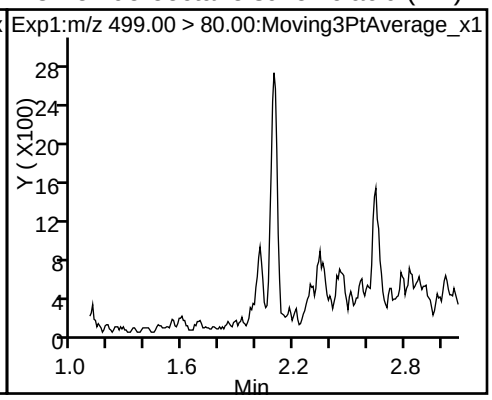
5 Perfluorooctanoic acid (ND)



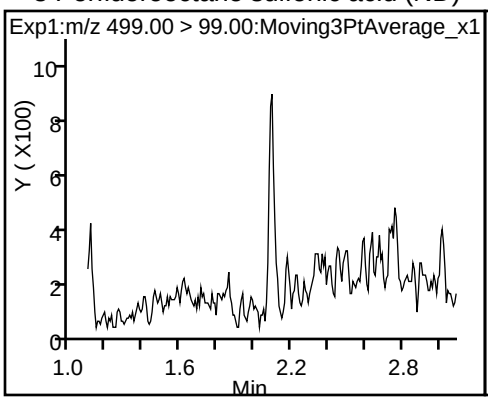
5 Perfluorooctanoic acid (ND)



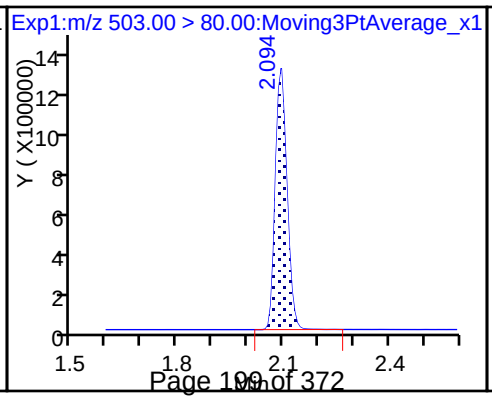
8 Perfluorooctane sulfonic acid (ND)



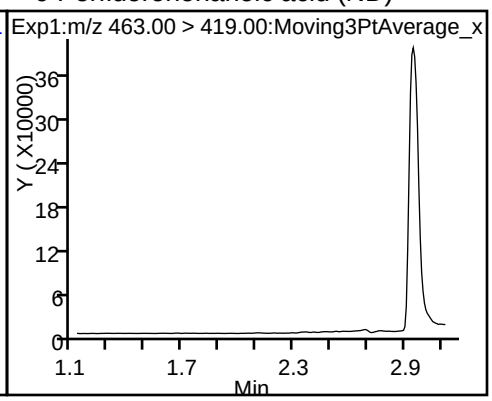
8 Perfluorooctane sulfonic acid (ND)



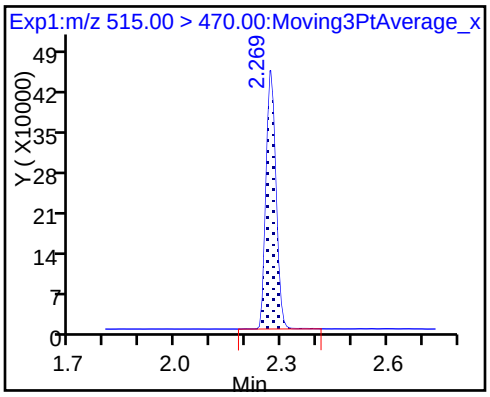
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.269
Y (X10000)
49
42
35
28
21
14
7
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_051.d
Lims ID: 320-29279-A-14-A
Client ID: WGNA-062017-RW-3124B
Sample Type: Client
Inject. Date: 07-Jul-2017 03:14:22 ALS Bottle#: 37 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-14-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.11	91.06
$ 10 13C2 PFDA	10.0	9.56	95.61

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-0344
Lab Sample ID: 320-29279-15
Matrix: Water
Lab File ID: 2017.07.06_537A_052.d
Analysis Method: 537
Date Collected: 06/20/2017 10:45
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 253.9(mL)
Date Analyzed: 07/07/2017 03:19
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	25	M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	29		24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	19	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.3	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	89	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_052.d
Lims ID: 320-29279-B-15-A
Client ID: WGNA-062017-RW-0344
Sample Type: Client
Inject. Date: 07-Jul-2017 03:19:07 ALS Bottle#: 38 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-b-15-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:37:02

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	1.404	0.0	1.000	159092	1.75		44.9	
298.90 > 99.00	1.404	1.404	0.0	1.000	122679		1.30(0.00-0.00)	50.1	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1064240	9.04		4513	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	200930	1.85		20.2	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	675072	4.74		187	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1036324	10.0		3102	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.859	1.879	-0.020	1.000	600133	6.28		54.5	M
413.00 > 169.00	1.859	1.879	-0.020	1.000	398392		1.51(0.00-0.00)	354	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.094	0.008	1.000	674846	6.45		324	M
499.00 > 99.00	2.102	2.094	0.008	1.000	117304		5.75(0.00-0.00)	175	M
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2931326	28.7		2587	
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.124	-0.015	1.000	620224	7.26		18.0	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	839249	9.65		1605	

QC Flag Legend

Review Flags

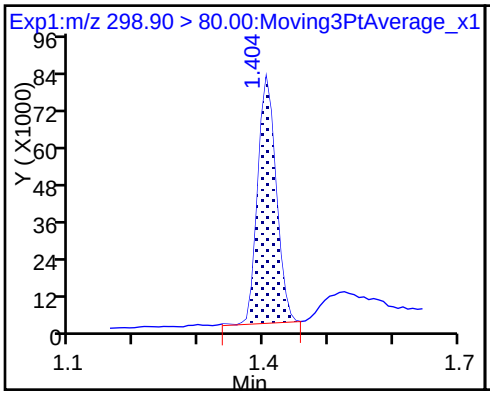
M - Manually Integrated

Report Date: 07-Jul-2017 14:39:11 Chrom Revision: 2.2 26-Jun-2017 08:09:44

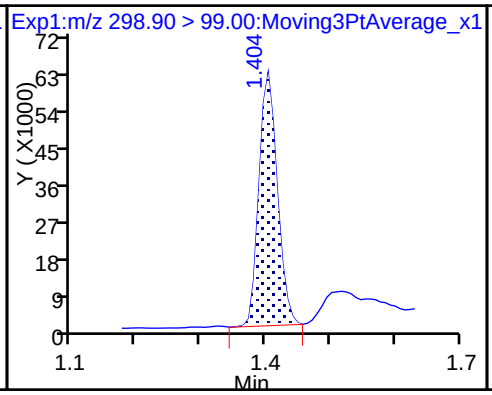
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_052.d				
Injection Date:	07-Jul-2017 03:19:07	Instrument ID:	A8_N		
Lims ID:	320-29279-B-15-A	Lab Sample ID:	320-29279-15		
Client ID:	WGNA-062017-RW-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	22
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

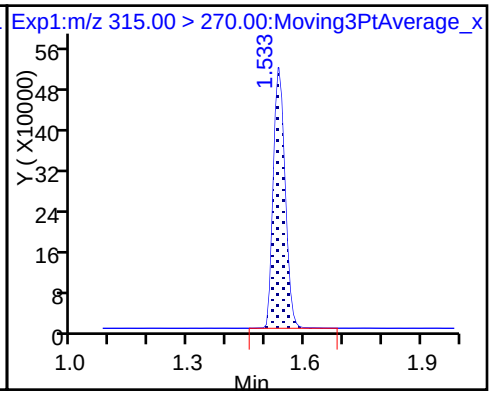
1 Perfluorobutanesulfonic acid



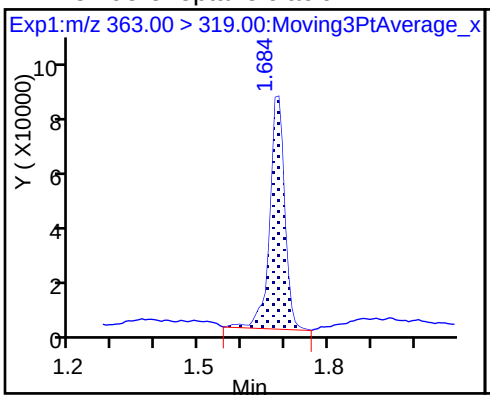
1 Perfluorobutanesulfonic acid



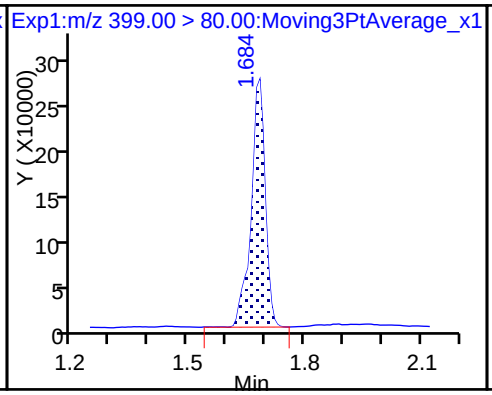
$ 2 13C2 PFHxA



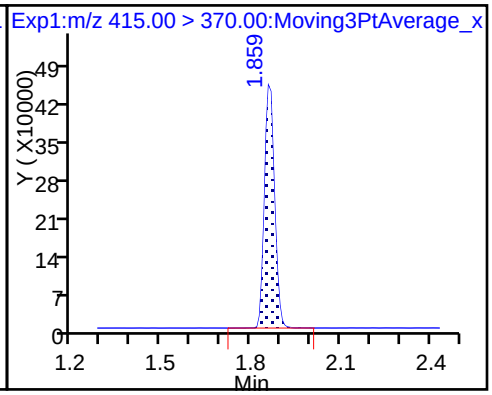
4 Perfluoroheptanoic acid



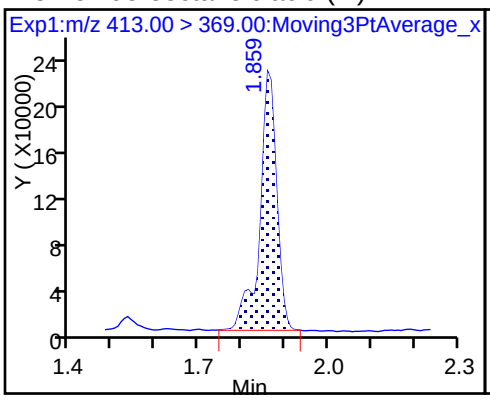
3 Perfluorohexanesulfonic acid



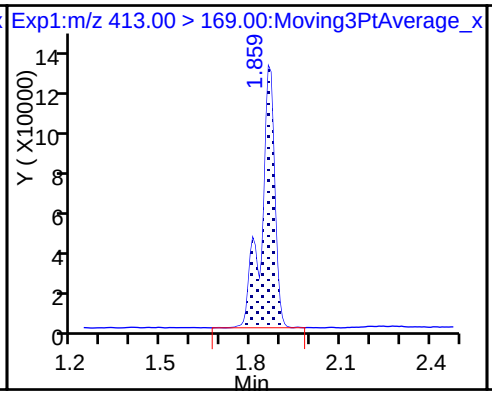
* 6 13C2-PFOA



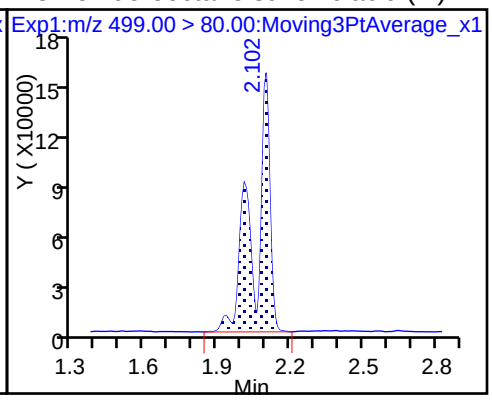
5 Perfluorooctanoic acid (M)



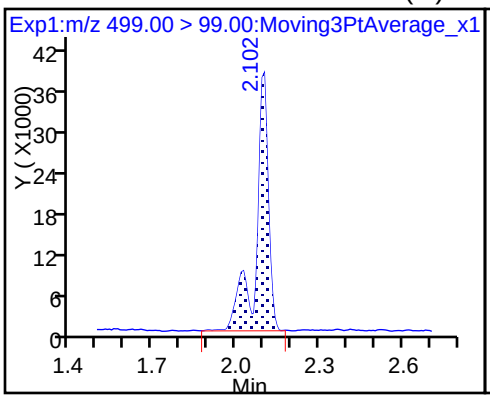
5 Perfluorooctanoic acid



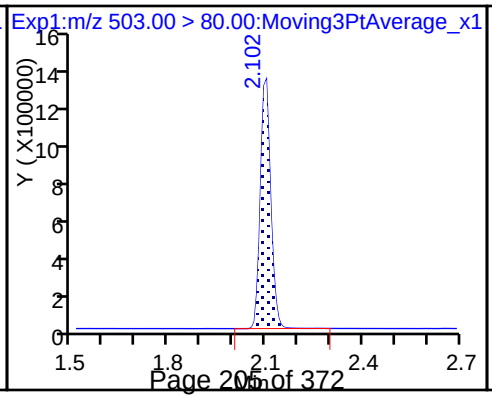
8 Perfluorooctane sulfonic acid (M)



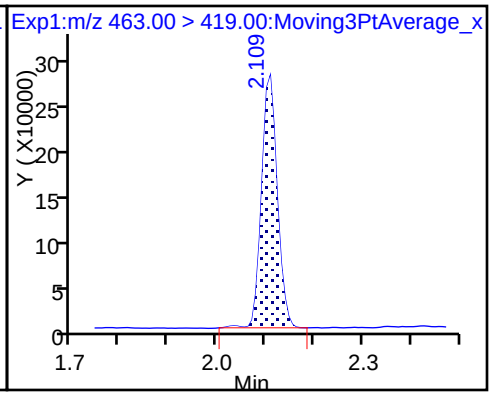
8 Perfluorooctane sulfonic acid (M)



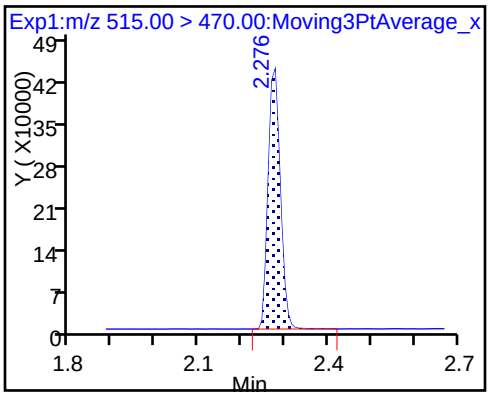
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_052.d
Lims ID: 320-29279-B-15-A
Client ID: WGNA-062017-RW-0344
Sample Type: Client
Inject. Date: 07-Jul-2017 03:19:07 ALS Bottle#: 38 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-b-15-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:37:02

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.04	90.39
$ 10 13C2 PFDA	10.0	9.65	96.46

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

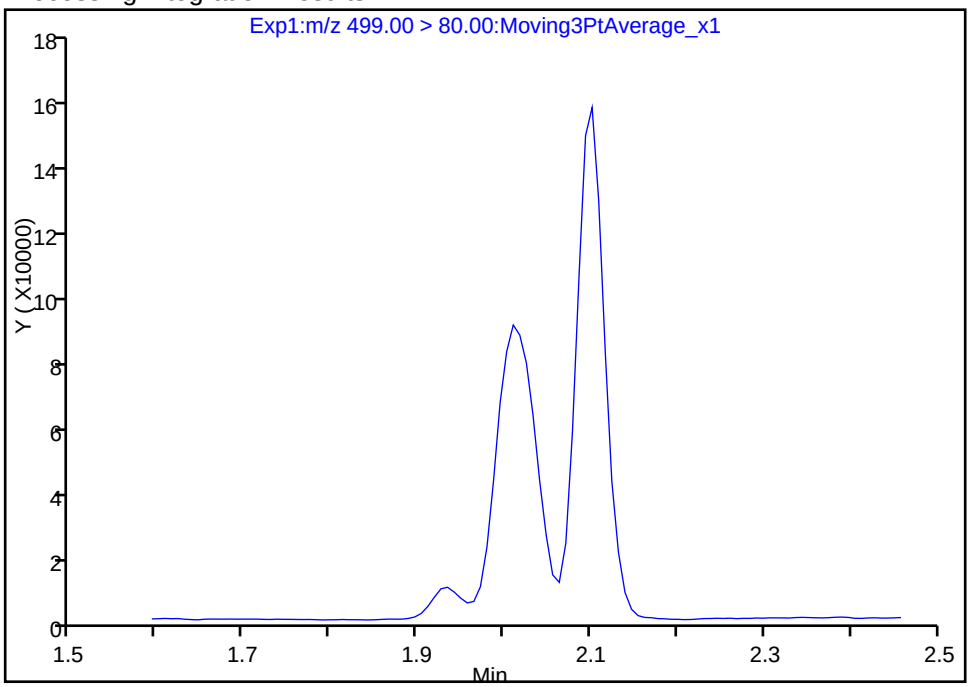
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_052.d				
Injection Date:	07-Jul-2017 03:19:07	Instrument ID:	A8_N		
Lims ID:	320-29279-B-15-A	Lab Sample ID:	320-29279-15		
Client ID:	WGNA-062017-RW-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	22
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

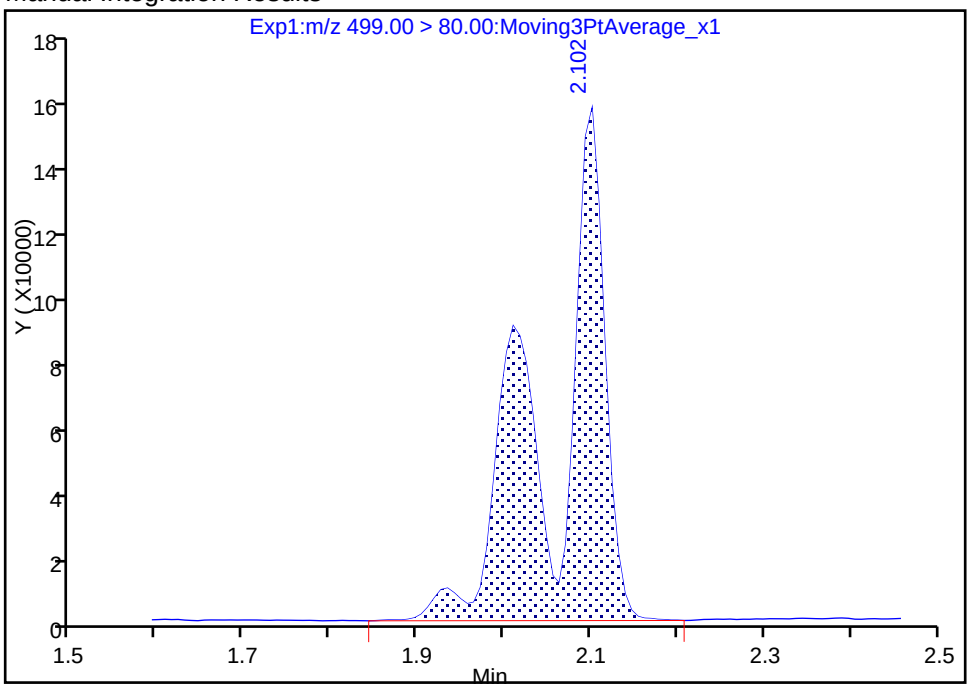
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 674846
Amount: 6.447225
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:36:07
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_052.d				
Injection Date:	07-Jul-2017 03:19:07	Instrument ID:	A8_N		
Lims ID:	320-29279-B-15-A	Lab Sample ID:	320-29279-15		
Client ID:	WGNA-062017-RW-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	22
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

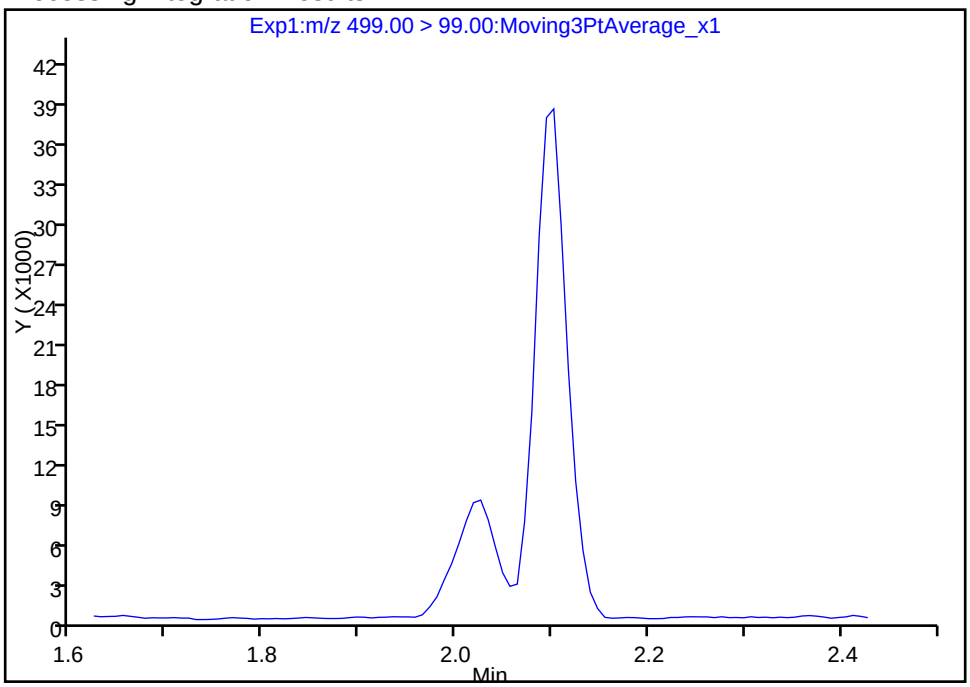
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

Processing Integration Results

Not Detected

Expected RT: 2.09



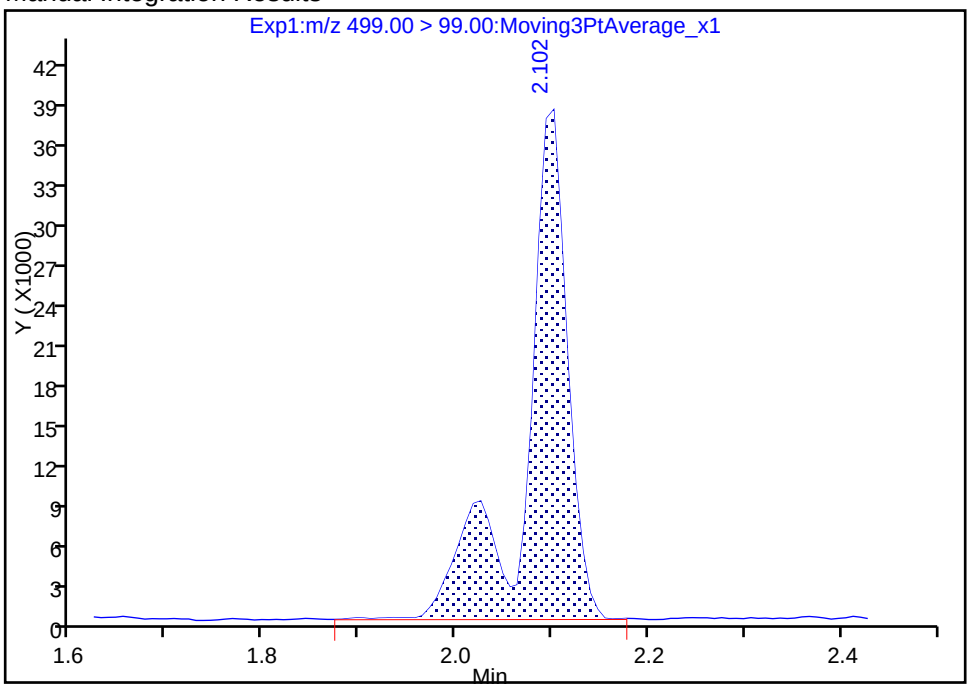
Manual Integration Results

RT: 2.10

Area: 117304

Amount: 6.447225

Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:36:35

Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

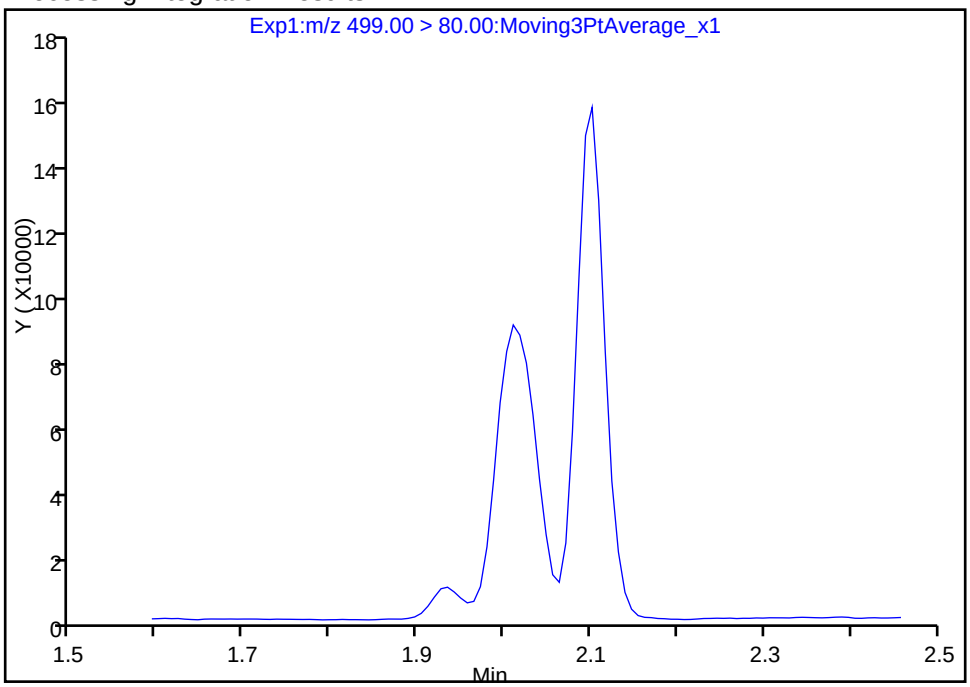
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_052.d				
Injection Date:	07-Jul-2017 03:19:07	Instrument ID:	A8_N		
Lims ID:	320-29279-B-15-A	Lab Sample ID:	320-29279-15		
Client ID:	WGNA-062017-RW-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	22
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

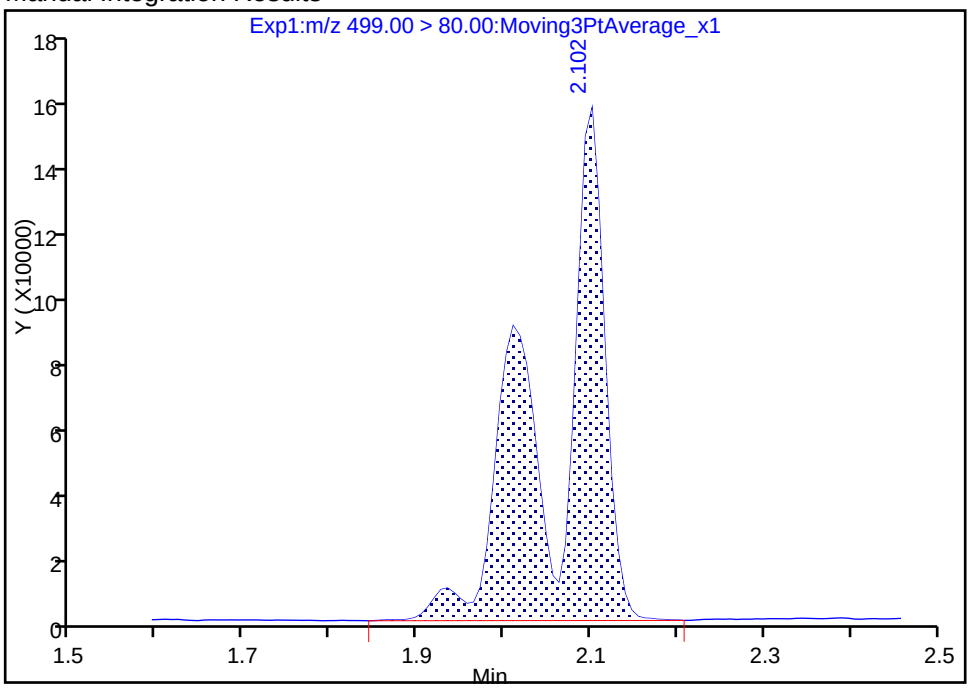
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT:	2.10
Area:	674846
Amount:	6.447225
Amount Units:	ng/ml



Reviewer: barnettj, 07-Jul-2017 14:36:35
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

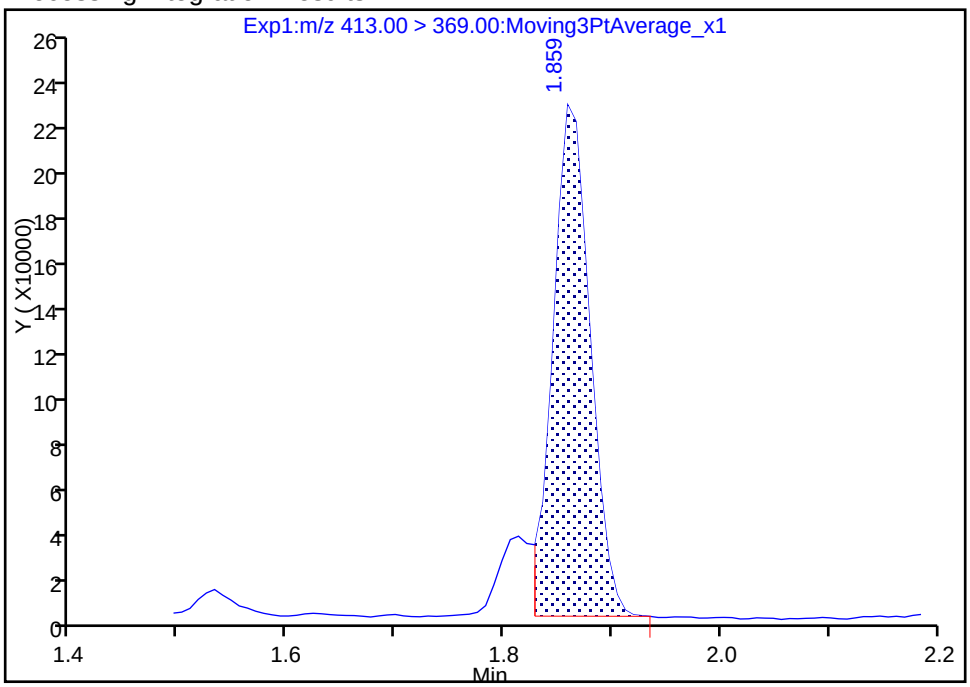
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_052.d				
Injection Date:	07-Jul-2017 03:19:07	Instrument ID:	A8_N		
Lims ID:	320-29279-B-15-A	Lab Sample ID:	320-29279-15		
Client ID:	WGNA-062017-RW-0344				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	22
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

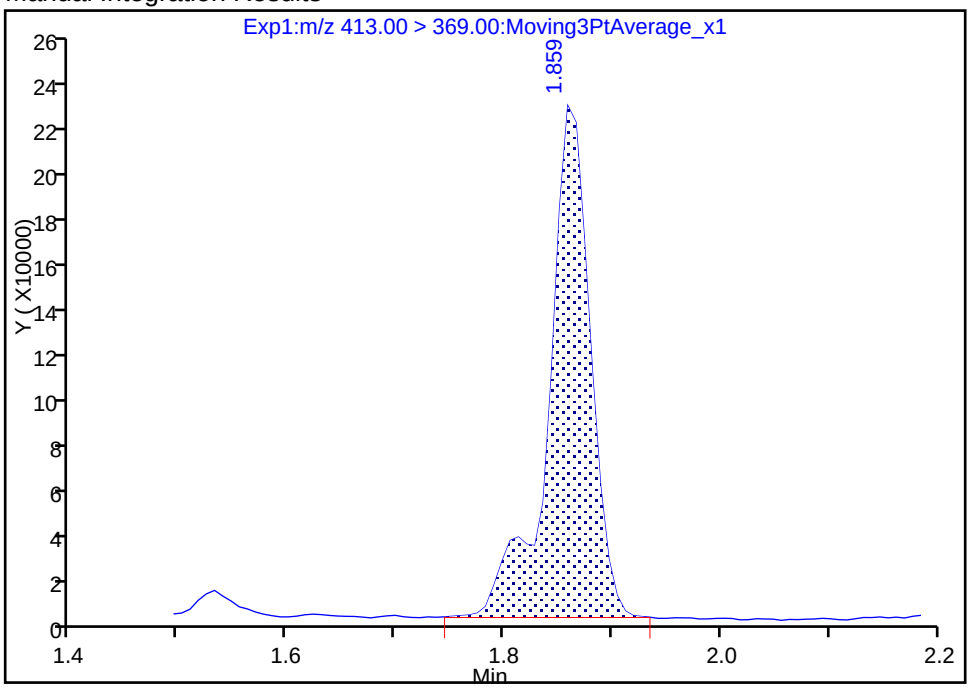
Processing Integration Results

RT: 1.86
Area: 524546
Amount: 5.491660
Amount Units: ng/ml



Manual Integration Results

RT: 1.86
Area: 600133
Amount: 6.283007
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:36:56

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-0344
Lab Sample ID: 320-29279-16
Matrix: Water
Lab File ID: 2017.07.06_537A_053.d
Analysis Method: 537
Date Collected: 06/20/2017 10:40
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 257.4(mL)
Date Analyzed: 07/07/2017 03:23
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.: 173034
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	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
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	95		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_053.d
Lims ID: 320-29279-A-16-A
Client ID: WGNA-062017-FRB-0344
Sample Type: Client
Inject. Date: 07-Jul-2017 03:23:51 ALS Bottle#: 39 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-16-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:37:11

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1094560	8.98		4543	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1072358	10.0		3309	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2938633	28.7		3691	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	858633	9.54		1603	

Report Date: 07-Jul-2017 14:39:11 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_053.d

Injection Date: 07-Jul-2017 03:23:51 Instrument ID: A8_N

Lims ID: 320-29279-A-16-A Lab Sample ID: 320-29279-16

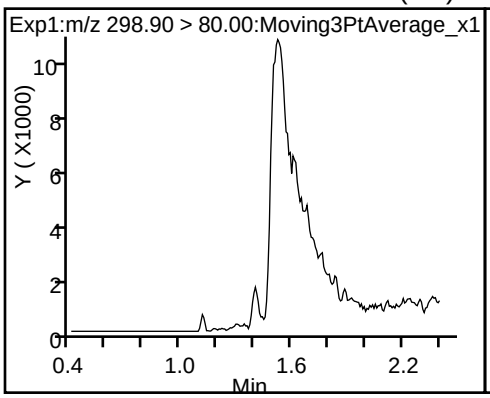
Client ID: WGNA-062017-FRB-0344

Operator ID: SACINSTLCMS01 ALS Bottle#: 39 Worklist Smp#: 23

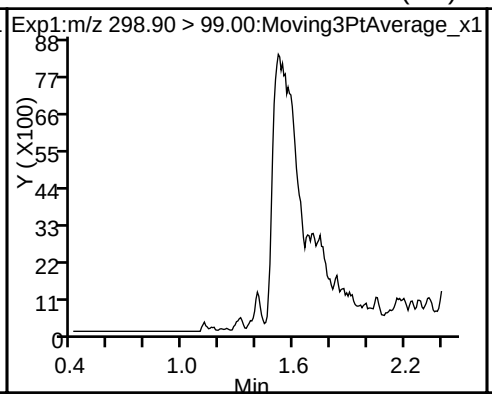
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

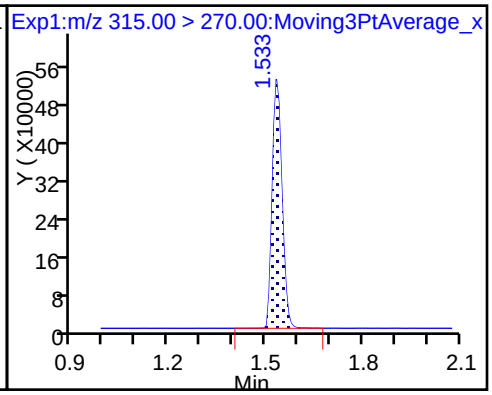
1 Perfluorobutanesulfonic acid (ND)



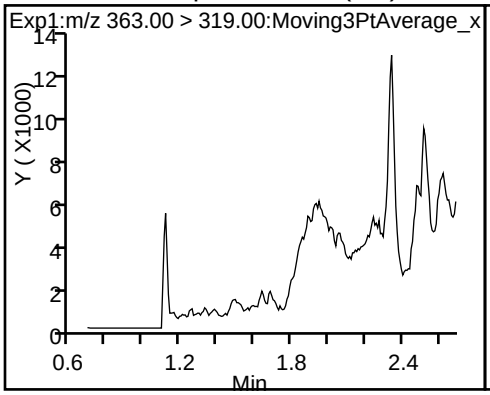
1 Perfluorobutanesulfonic acid (ND)



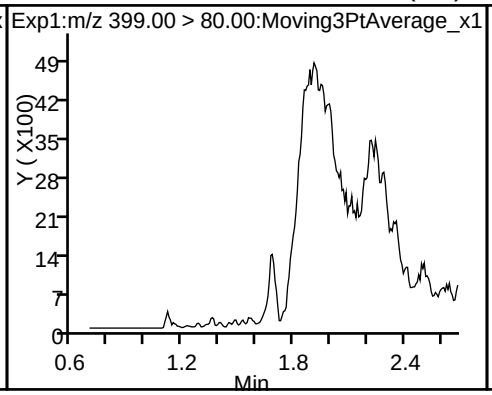
$ 2 13C2 PFHxA



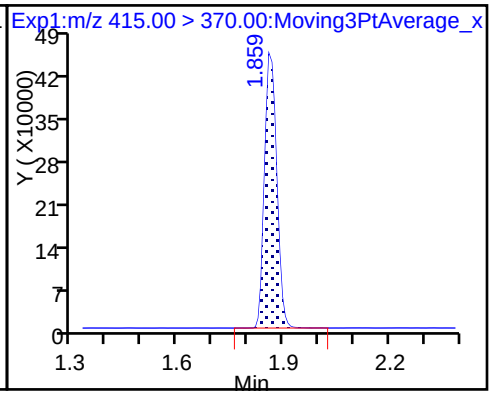
4 Perfluoroheptanoic acid (ND)



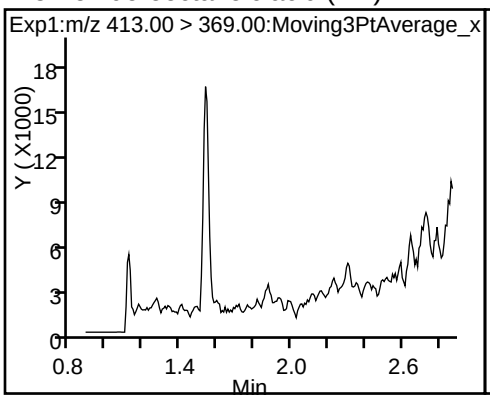
3 Perfluorohexanesulfonic acid (ND)



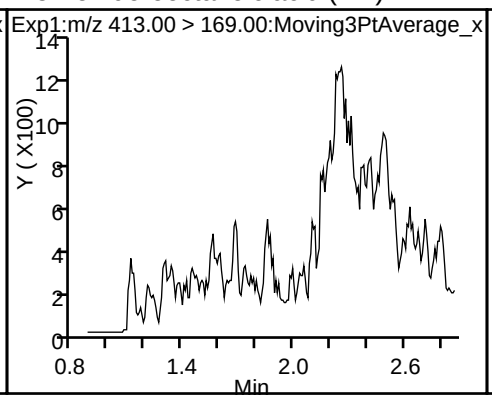
* 6 13C2-PFOA



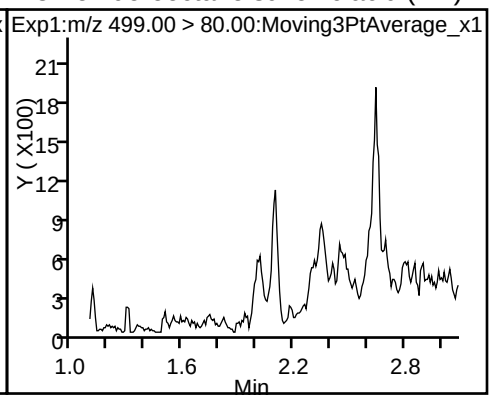
5 Perfluorooctanoic acid (ND)



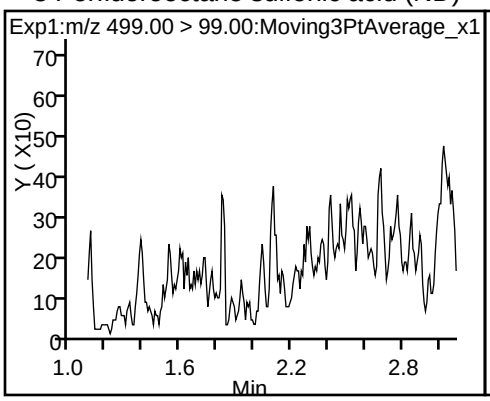
5 Perfluorooctanoic acid (ND)



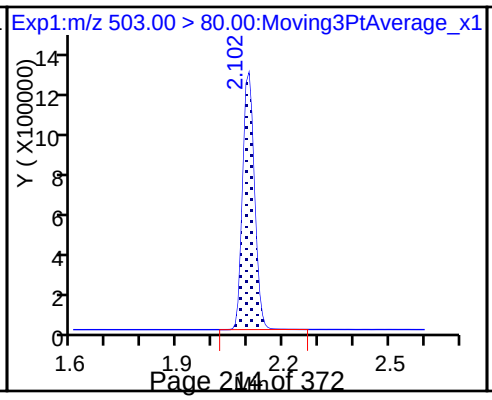
8 Perfluorooctane sulfonic acid (ND)



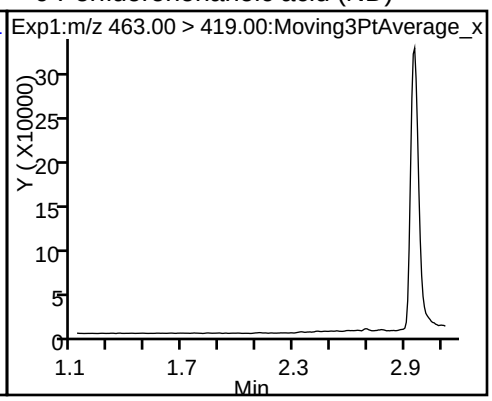
8 Perfluorooctane sulfonic acid (ND)



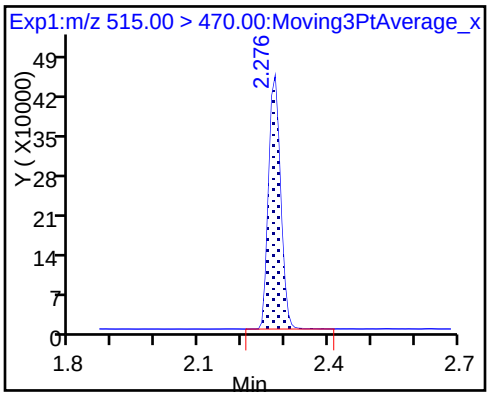
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_053.d
Lims ID: 320-29279-A-16-A
Client ID: WGNA-062017-FRB-0344
Sample Type: Client
Inject. Date: 07-Jul-2017 03:23:51 ALS Bottle#: 39 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-a-16-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:37:11

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.98	89.84
$ 10 13C2 PFDA	10.0	9.54	95.37

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-0413A
Lab Sample ID: 320-29279-17
Matrix: Water
Lab File ID: 2017.07.06_537A_054.d
Analysis Method: 537
Date Collected: 06/20/2017 15:15
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 254.3(mL)
Date Analyzed: 07/07/2017 03:28
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.8	J	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	15	J M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	J	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	92		70-130
STL00996	13C2 PFDA	90		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_054.d
Lims ID: 320-29279-B-17-A
Client ID: WGNA-062017-RW-0413A
Sample Type: Client
Inject. Date: 07-Jul-2017 03:28:36 ALS Bottle#: 40 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-b-17-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:37:48

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	1.404	0.0	1.000	128575	1.38		38.2	
298.90 > 99.00	1.404	1.404	0.0	1.000	97240		1.32(0.00-0.00)	39.1	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1107312	9.19		4377	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	119157	1.07		13.4	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	148515	1.02		44.8	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.878	-0.012		1060415	10.0		3501	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.866	1.879	-0.013	1.000	364688	3.73		36.9	M
413.00 > 169.00	1.866	1.879	-0.013	1.000	241597		1.51(0.00-0.00)	220	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.018	2.094	-0.076	1.000	241298	2.25		104	
499.00 > 99.00	2.102	2.094	0.008	1.041	36973		6.53(0.00-0.00)	51.5	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		3002690	28.7		2970	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	804234	9.03		1617	

QC Flag Legend

Review Flags

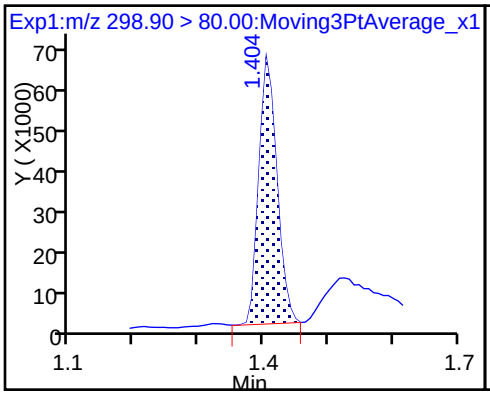
M - Manually Integrated

Report Date: 07-Jul-2017 14:39:12 Chrom Revision: 2.2 26-Jun-2017 08:09:44

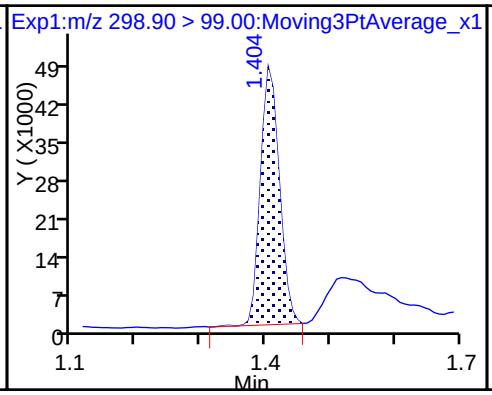
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_054.d				
Injection Date:	07-Jul-2017 03:28:36	Instrument ID:	A8_N		
Lims ID:	320-29279-B-17-A	Lab Sample ID:	320-29279-17		
Client ID:	WGNA-062017-RW-0413A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	40	Worklist Smp#:	24
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

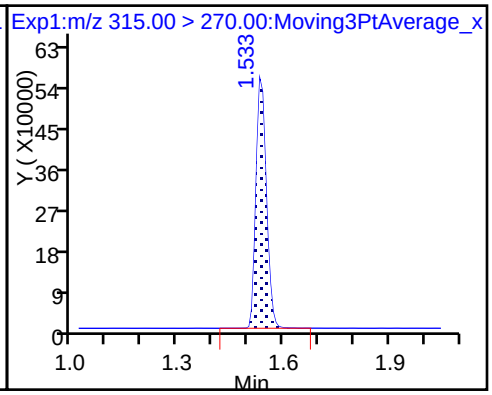
1 Perfluorobutanesulfonic acid



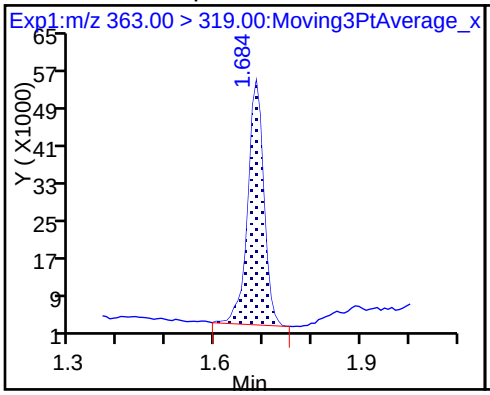
1 Perfluorobutanesulfonic acid



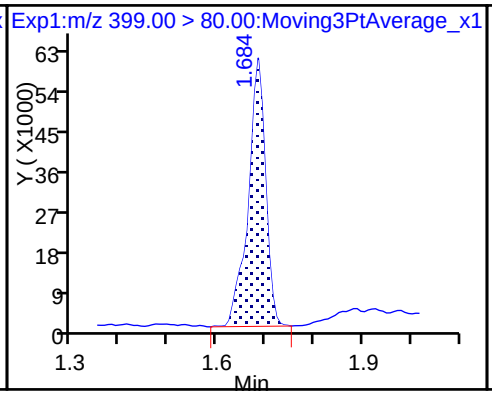
$ 2 13C2 PFHxA



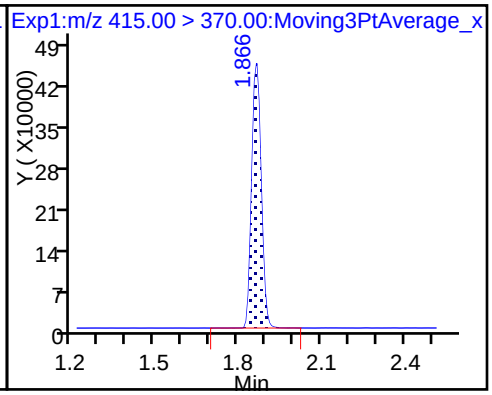
4 Perfluoroheptanoic acid



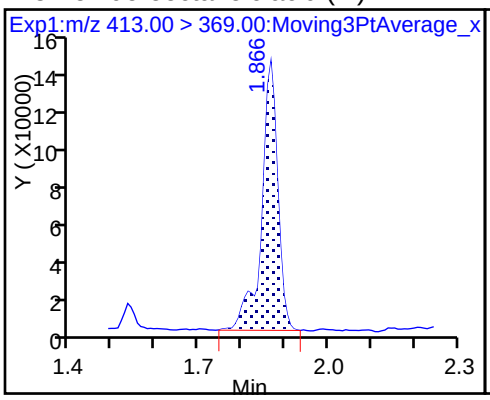
3 Perfluorohexanesulfonic acid



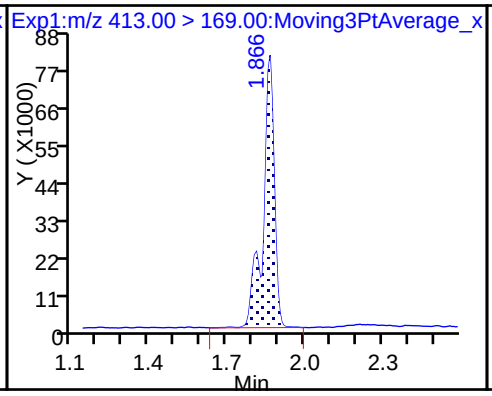
* 6 13C2-PFOA



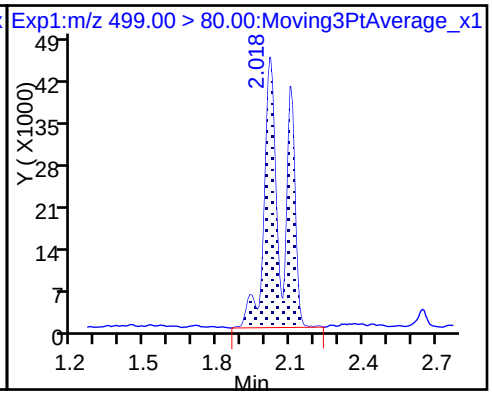
5 Perfluorooctanoic acid (M)



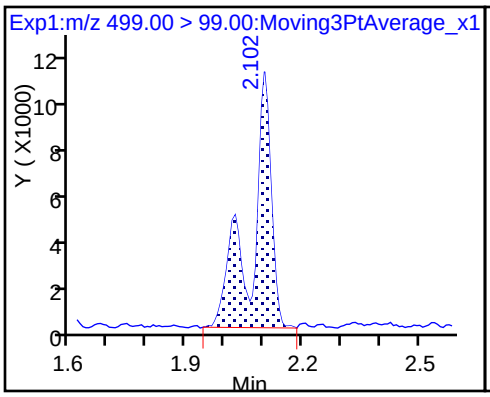
5 Perfluorooctanoic acid



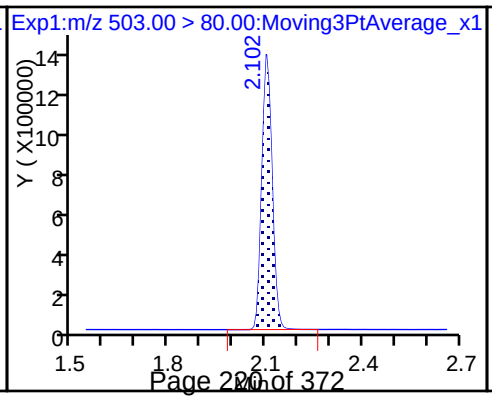
8 Perfluorooctane sulfonic acid



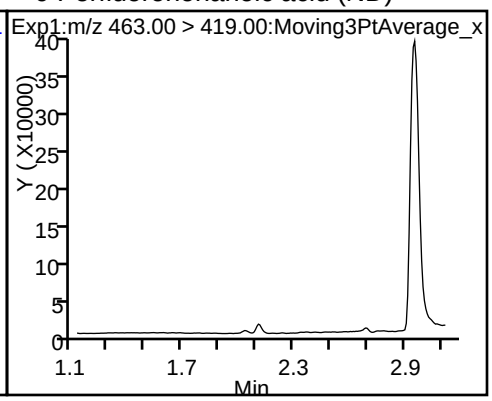
8 Perfluorooctane sulfonic acid



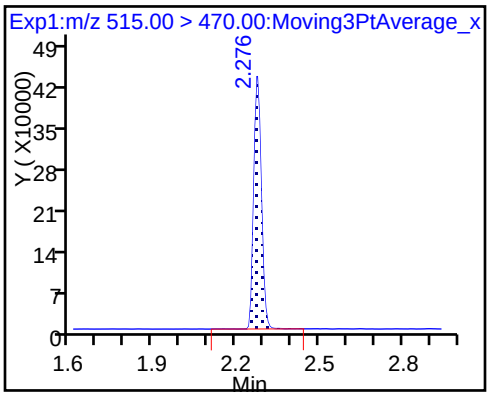
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_054.d
Lims ID: 320-29279-B-17-A
Client ID: WGNA-062017-RW-0413A
Sample Type: Client
Inject. Date: 07-Jul-2017 03:28:36 ALS Bottle#: 40 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-b-17-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:37:48

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.19	91.91
$ 10 13C2 PFDA	10.0	9.03	90.34

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

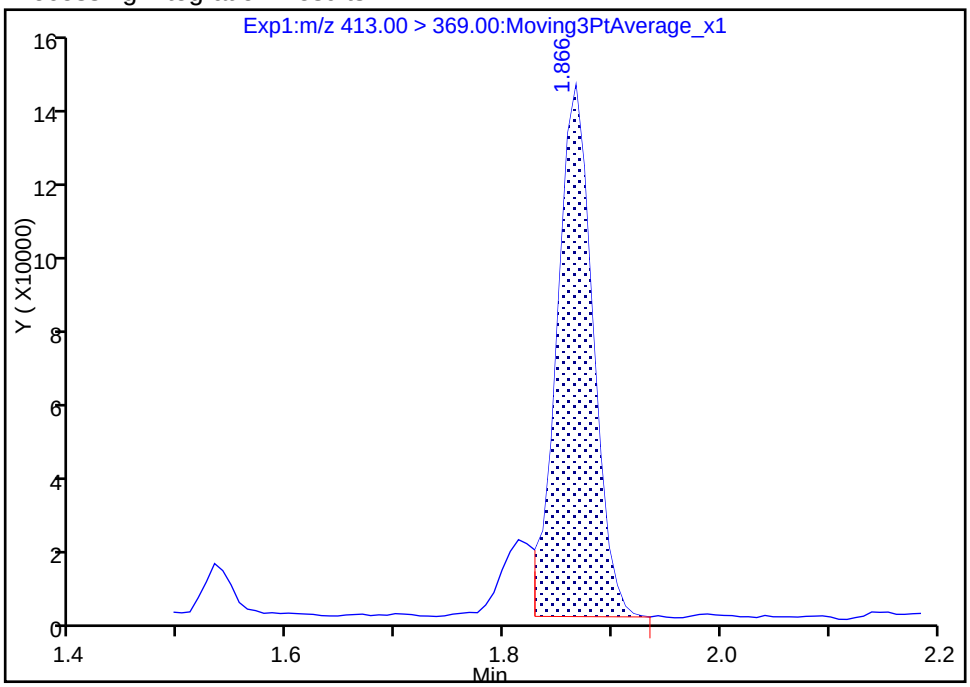
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_054.d				
Injection Date:	07-Jul-2017 03:28:36	Instrument ID:	A8_N		
Lims ID:	320-29279-B-17-A	Lab Sample ID:	320-29279-17		
Client ID:	WGNA-062017-RW-0413A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	40	Worklist Smp#:	24
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

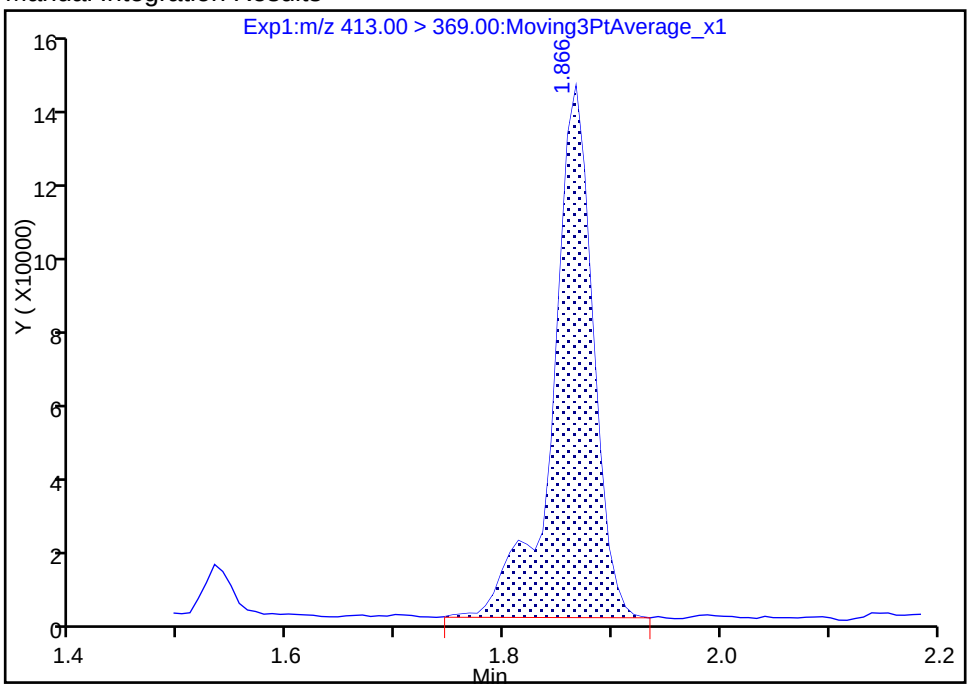
Processing Integration Results

RT: 1.87
Area: 322969
Amount: 3.304461
Amount Units: ng/ml



Manual Integration Results

RT: 1.87
Area: 364688
Amount: 3.731309
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:37:39

Audit Action: Manually Integrated Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-0413A
Lab Sample ID: 320-29279-18
Matrix: Water
Lab File ID: 2017.07.06_537A_057.d
Analysis Method: 537
Date Collected: 06/20/2017 15:10
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 253.9(mL)
Date Analyzed: 07/07/2017 03:42
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.: 173035
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	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	89	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	93		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_057.d
Lims ID: 320-29279-B-18-A
Client ID: WGNA-062017-FRB-0413A
Sample Type: Client
Inject. Date: 07-Jul-2017 03:42:52 ALS Bottle#: 41 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-b-18-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:13 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:37:58

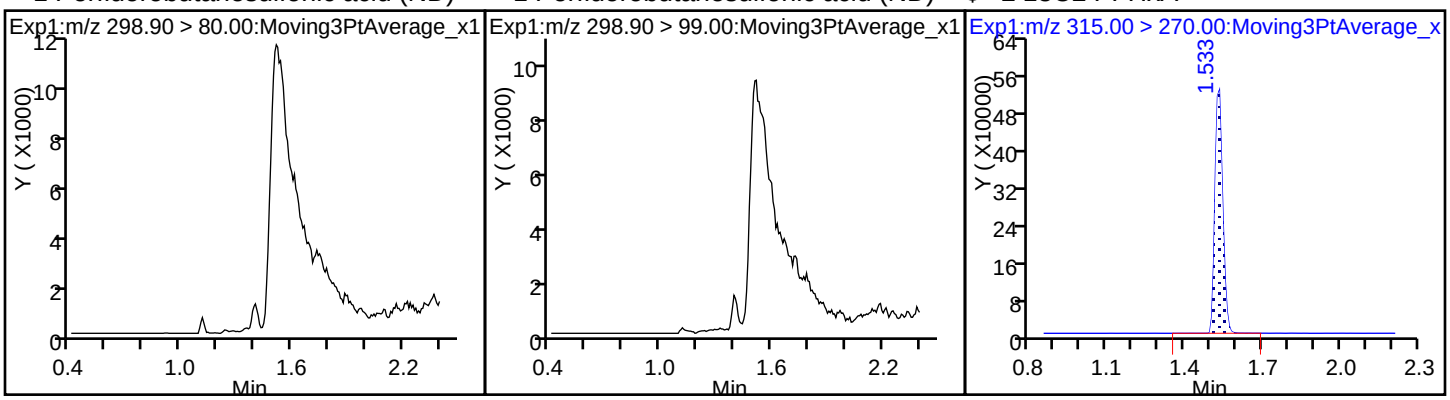
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1083965	8.88		4440	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1074769	10.0		4010	
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.117	-0.023		2939390	28.7		3616	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.281	-0.013	1.000	834680	9.25		1507	

Report Date: 07-Jul-2017 14:39:14 Chrom Revision: 2.2 26-Jun-2017 08:09:44

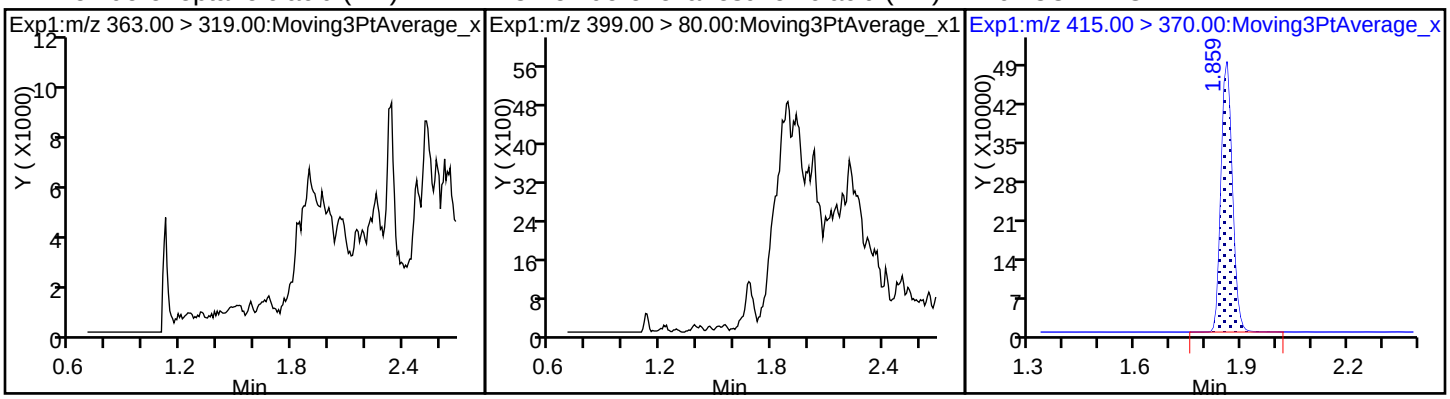
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_057.d				
Injection Date:	07-Jul-2017 03:42:52	Instrument ID:	A8_N		
Lims ID:	320-29279-B-18-A	Lab Sample ID:	320-29279-18		
Client ID:	WGNA-062017-FRB-0413A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	41	Worklist Smp#:	27
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

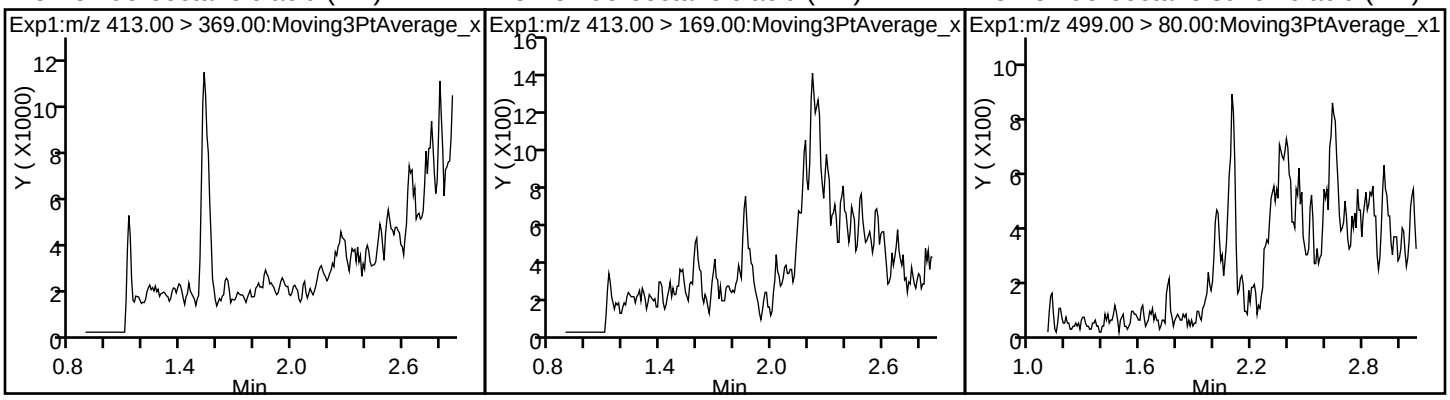
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) $ 2 13C2 PFHxA



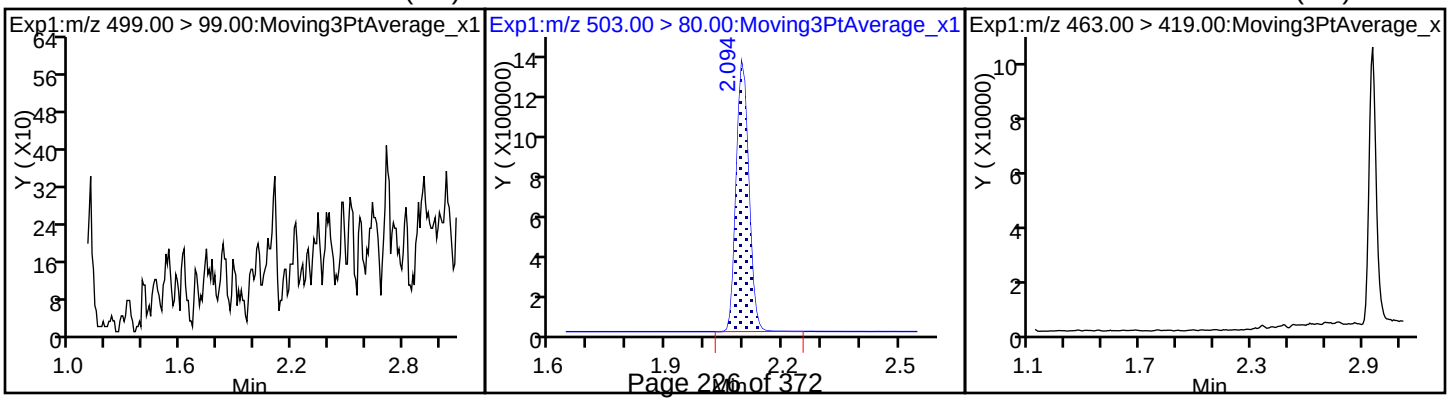
4 Perfluoroheptanoic acid (ND) 3 Perfluorohexanesulfonic acid (ND) * 6 13C2-PFOA



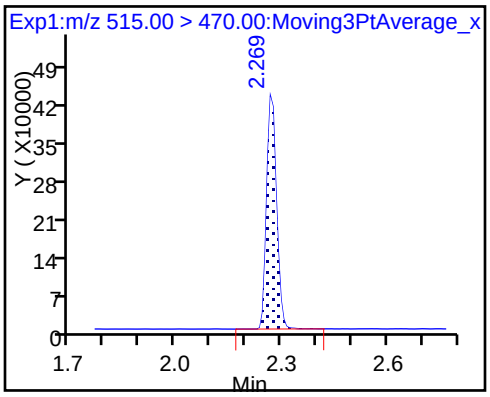
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS 9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.269
Y (X10000)
49
42
35
28
21
14
7
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_057.d
Lims ID: 320-29279-B-18-A
Client ID: WGNA-062017-FRB-0413A
Sample Type: Client
Inject. Date: 07-Jul-2017 03:42:52 ALS Bottle#: 41 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-b-18-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:13 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:37:58

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.88	88.77
$ 10 13C2 PFDA	10.0	9.25	92.51

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-0413B
Lab Sample ID: 320-29279-19
Matrix: Water
Lab File ID: 2017.07.06_537A_058.d
Analysis Method: 537
Date Collected: 06/20/2017 15:20
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 249.9(mL)
Date Analyzed: 07/07/2017 03:47
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.: 173035
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	29	M	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.5	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.9	J	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	93		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_058.d
Lims ID: 320-29279-B-19-A
Client ID: WGNA-062017-RW-0413B
Sample Type: Client
Inject. Date: 07-Jul-2017 03:47:37 ALS Bottle#: 42 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-b-19-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:13 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:38:44

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	1.404	-0.008	1.000	224839	2.46		57.5	
298.90 > 99.00	1.396	1.404	-0.008	1.000	180595		1.24(0.00-0.00)	76.5	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.539	-0.014	1.000	1055418	9.25		4288	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.691	-0.014	1.000	206001	1.96		20.3	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.669	1.692	-0.023	1.000	302267	2.11		77.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.878	-0.027		1003999	10.0		3171	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.851	1.879	-0.028	1.000	660266	7.14		61.1	M
413.00 > 169.00	1.851	1.879	-0.028	1.000	443803		1.49(0.00-0.00)	433	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.094	2.094	0.0	1.000	568101	5.40		218	
499.00 > 99.00	2.094	2.094	0.0	1.000	95797		5.93(0.00-0.00)	135	
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.117	-0.023		2945492	28.7		2316	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.281	-0.013	1.000	845605	10.0		1575	

QC Flag Legend

Review Flags

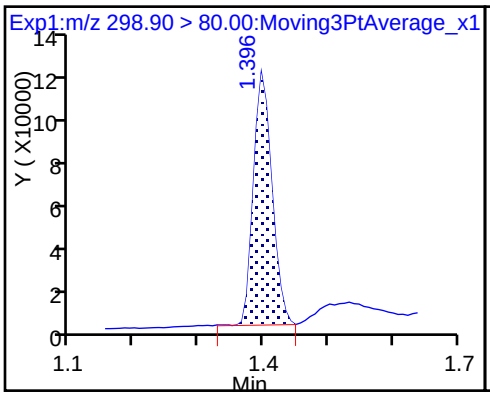
M - Manually Integrated

Report Date: 07-Jul-2017 14:39:15 Chrom Revision: 2.2 26-Jun-2017 08:09:44

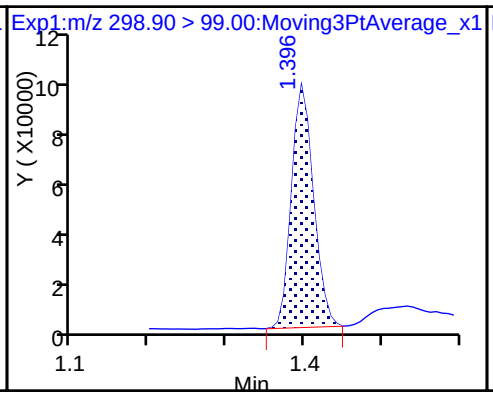
TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_058.d				
Injection Date:	07-Jul-2017 03:47:37	Instrument ID:	A8_N		
Lims ID:	320-29279-B-19-A	Lab Sample ID:	320-29279-19		
Client ID:	WGNA-062017-RW-0413B				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	42	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

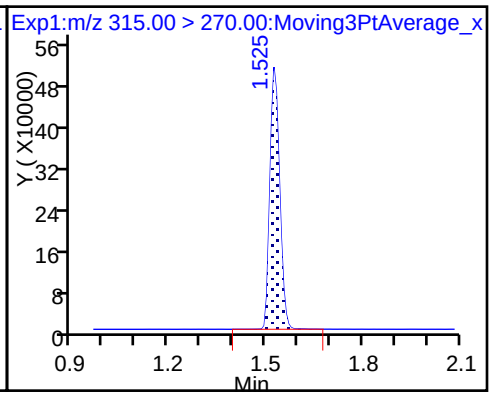
1 Perfluorobutanesulfonic acid



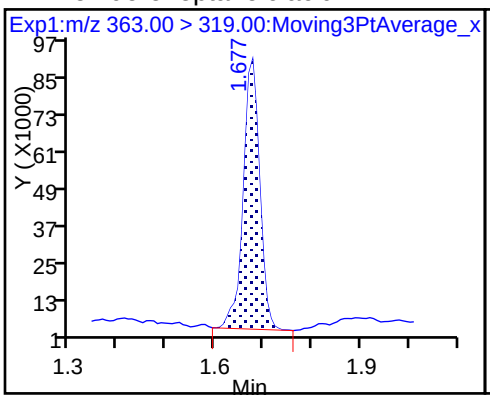
1 Perfluorobutanesulfonic acid



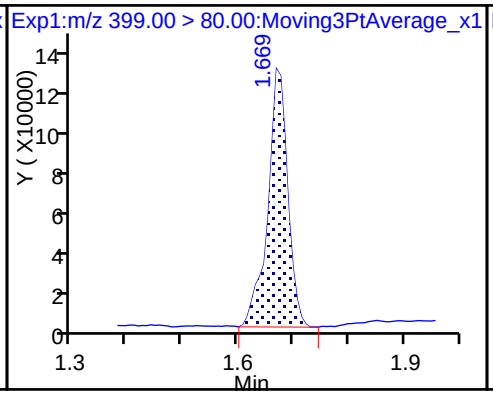
$ 2 13C2 PFHxA



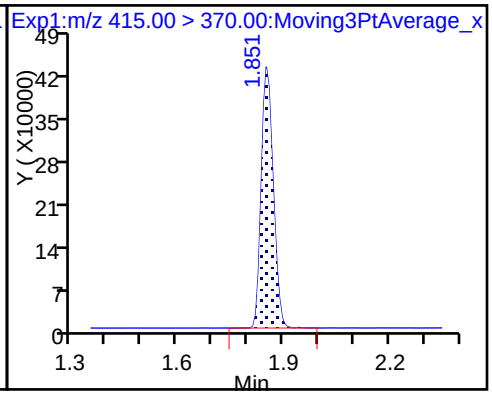
4 Perfluoroheptanoic acid



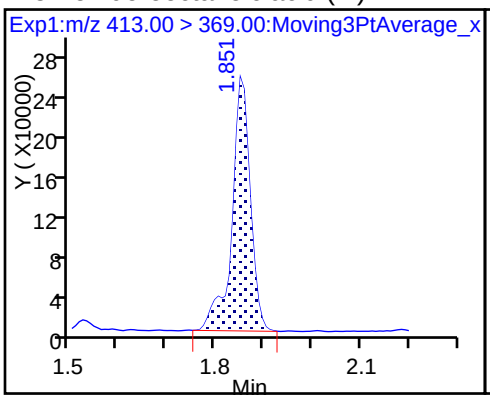
3 Perfluorohexanesulfonic acid



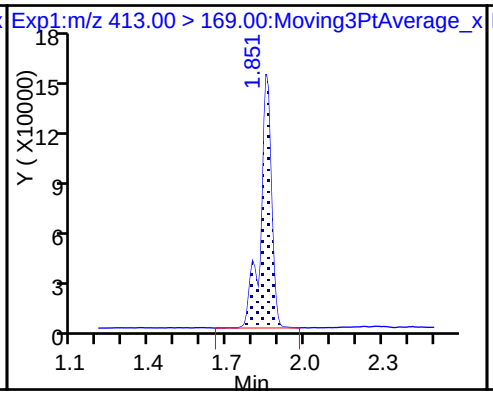
* 6 13C2-PFOA



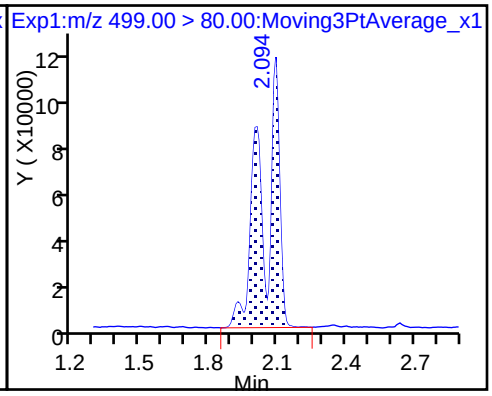
5 Perfluorooctanoic acid (M)



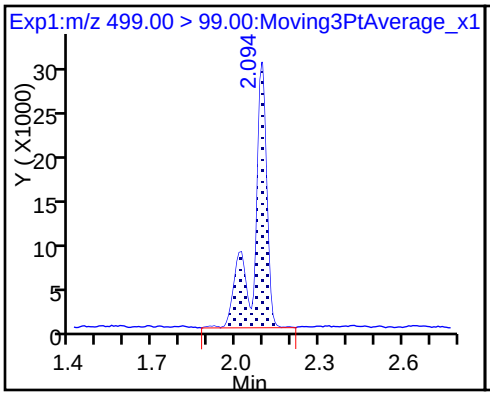
5 Perfluorooctanoic acid



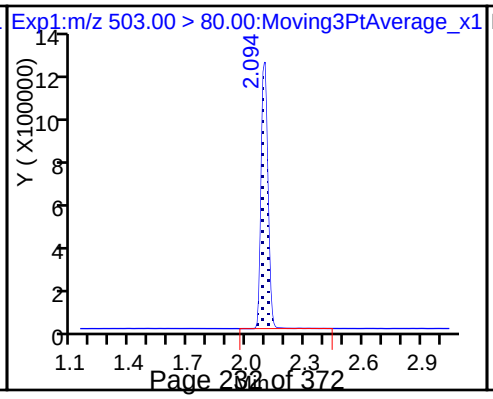
8 Perfluorooctane sulfonic acid



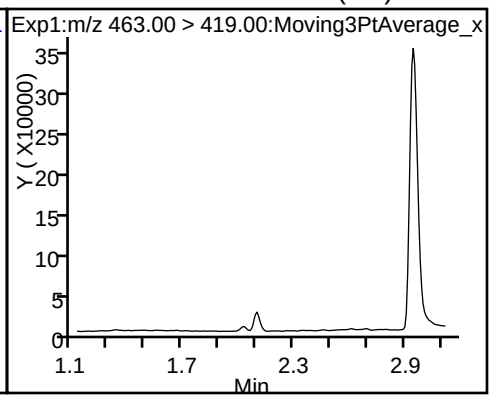
8 Perfluorooctane sulfonic acid



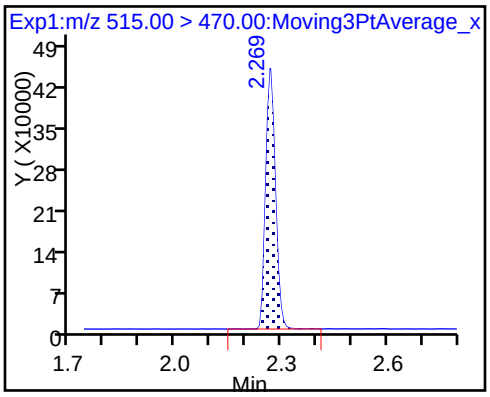
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.269
Y (X10000)
49
42
35
28
21
14
7
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_058.d
Lims ID: 320-29279-B-19-A
Client ID: WGNA-062017-RW-0413B
Sample Type: Client
Inject. Date: 07-Jul-2017 03:47:37 ALS Bottle#: 42 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29279-b-19-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:13 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:38:44

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.25	92.52
$ 10 13C2 PFDA	10.0	10.0	100.32

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

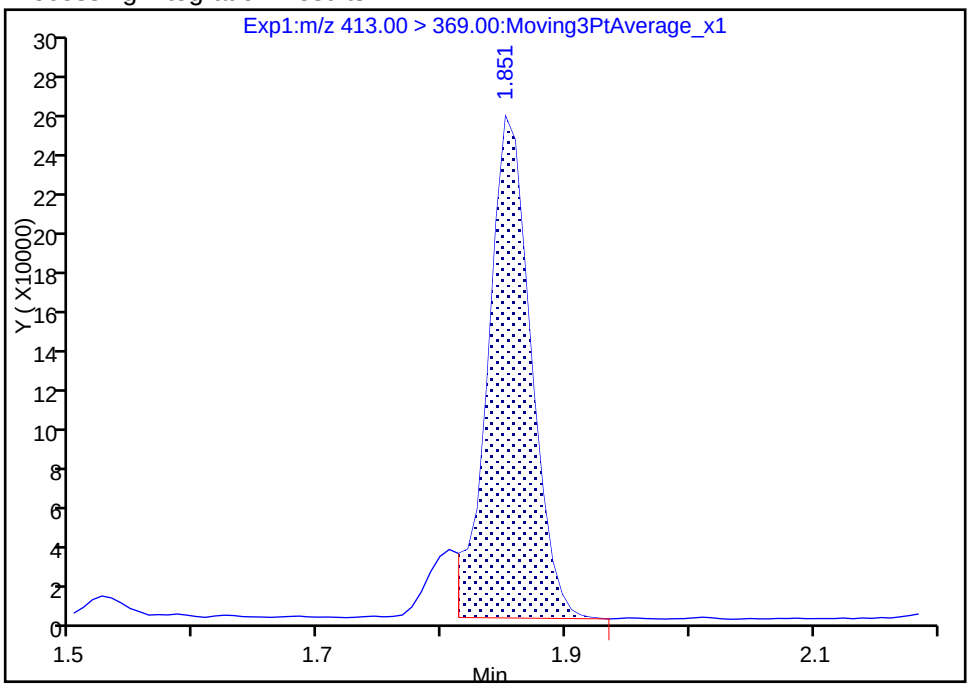
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_058.d				
Injection Date:	07-Jul-2017 03:47:37	Instrument ID:	A8_N		
Lims ID:	320-29279-B-19-A	Lab Sample ID:	320-29279-19		
Client ID:	WGNA-062017-RW-0413B				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	42	Worklist Smp#:	28
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

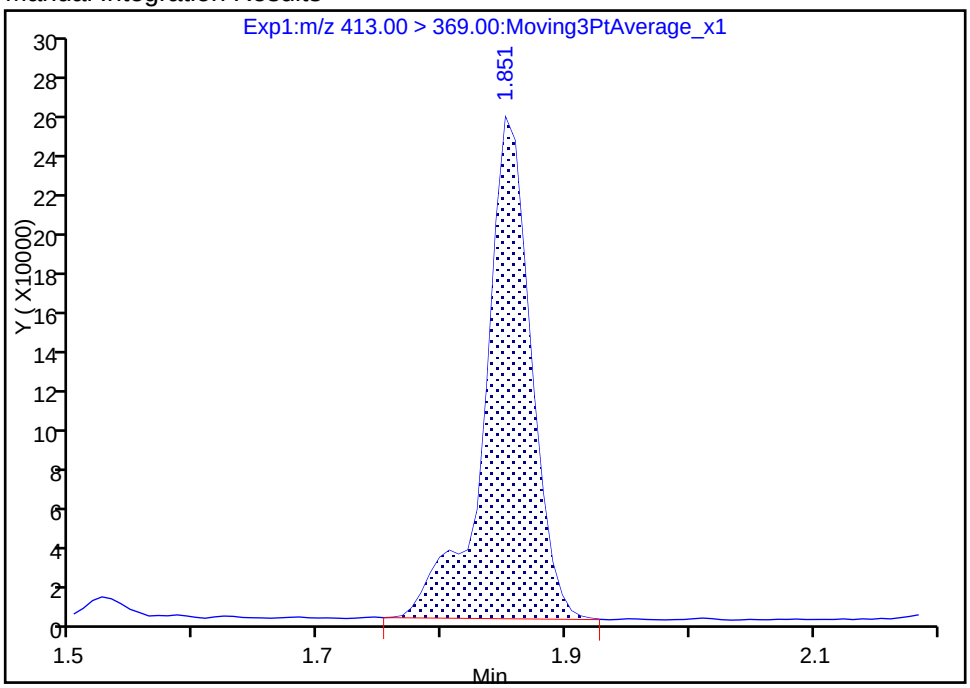
Processing Integration Results

RT: 1.85
Area: 604639
Amount: 6.533990
Amount Units: ng/ml



Manual Integration Results

RT: 1.85
Area: 660266
Amount: 7.135120
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:38:31

Audit Action: Manually Integrated Audit Reason: Isomers

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1 Analy Batch No.: 172646

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/05/2017 19:50 Calibration End Date: 07/05/2017 20:13 Calibration ID: 32198

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_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)	0.9481 0.7897	0.9454	0.9006	0.8560	0.9067	Ave		0.8911				6.7		30.0			
Perfluoroheptanoic acid (PFHpA)	1.0233 1.0518	1.1219	1.0105	1.0079	1.0586	Ave		1.0457				4.1		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4151 1.3485	1.4140	1.3485	1.3337	1.5012	Ave		1.3935				4.6		30.0			
Perfluorooctanoic acid (PFOA)	0.8653 0.9458	0.9483	0.8907	0.9155	0.9646	Ave		0.9217				4.1		30.0			
Perfluorooctanesulfonic acid (PFOS)	1.0233 0.9990	1.0180	1.0066	1.0023	1.0955	Ave		1.0241				3.5		30.0			
Perfluorononanoic acid (PFNA)	0.8166 0.8011	0.8671	0.8018	0.8165	0.8416	Ave		0.8241				3.1		30.0			
13C2 PFHxA	1.0491 1.1558	1.1981	1.1291	1.1054	1.1794	Ave		1.1362				4.8		30.0			
13C2 PFDA	0.8223 0.8325	0.8717	0.8508	0.8171	0.8428	Ave		0.8395				2.4		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.: 320-29279-1 Analy Batch No.: 172646

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/05/2017 19:50 Calibration End Date: 07/05/2017 20:13 Calibration ID: 32198

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_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	Ave	803806 14234634	1925519	3823269	7725129	11133396	8.83 176	21.2	44.4	89.4	133
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	101135 1993330	250235	490415	984967	1494114	0.990 19.7	2.38	4.97	10.0	14.9
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	408251 8271288	980019	1948018	4095579	6272381	3.01 59.7	7.21	15.1	30.4	45.1
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	172606 3617366	426873	872357	1805622	2747595	2.00 39.7	4.80	10.0	20.2	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	393122 8159668	939618	1936577	4098834	6095701	4.00 79.6	9.61	20.1	40.5	60.0
Perfluorononanoic acid (PFNA)	13PF OA	Ave	157013 2953507	376270	756974	1552293	2310846	1.93 38.3	4.62	9.68	19.5	28.9
13C2 PFHxA	13PF OA	Ave	1047405 1113221	1124762	1101523	1077727	1120950	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	820977 801864	818323	829957	796662	800975	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1 Analy Batch No.: 172646

SDG No.:

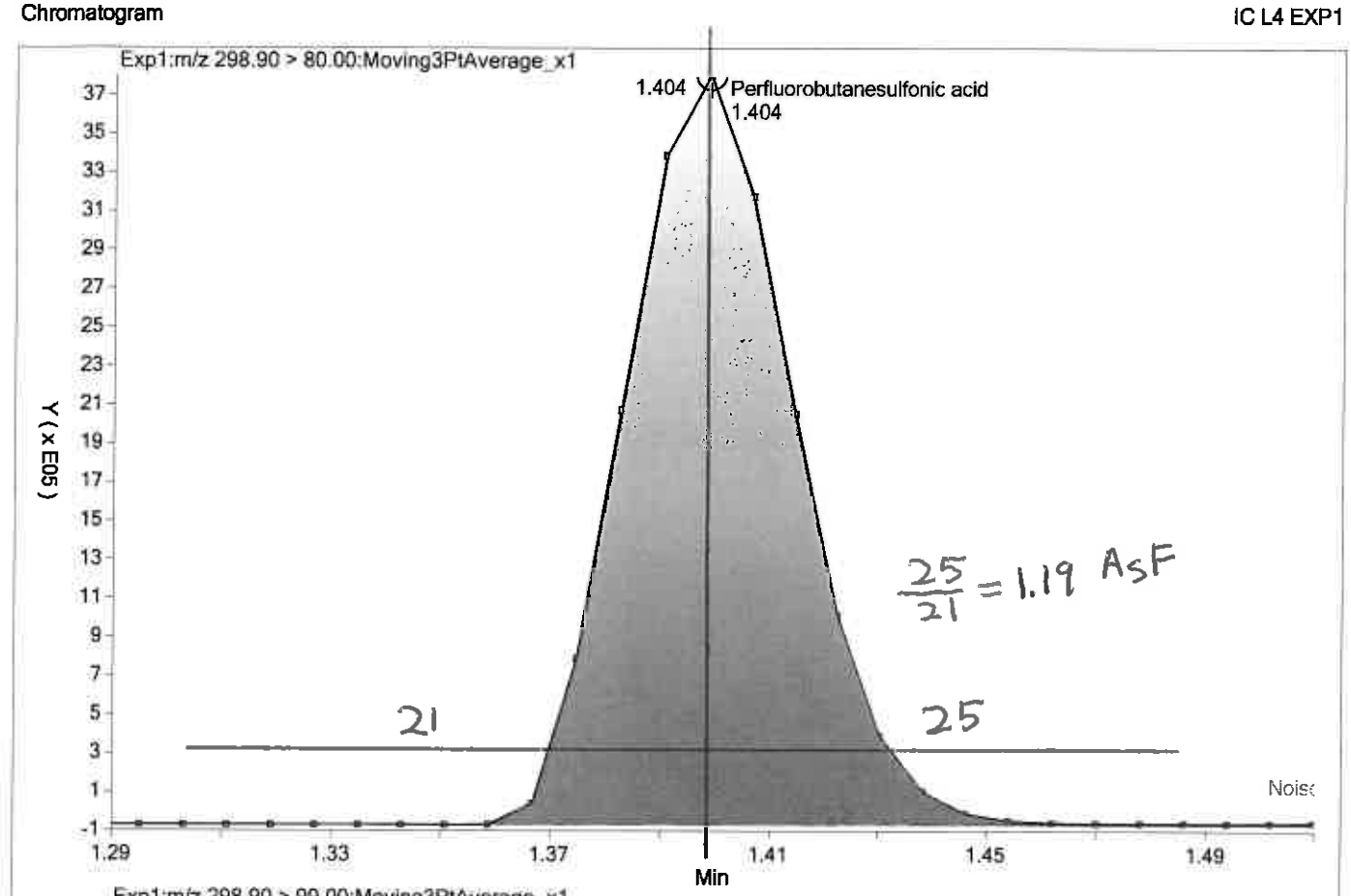
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

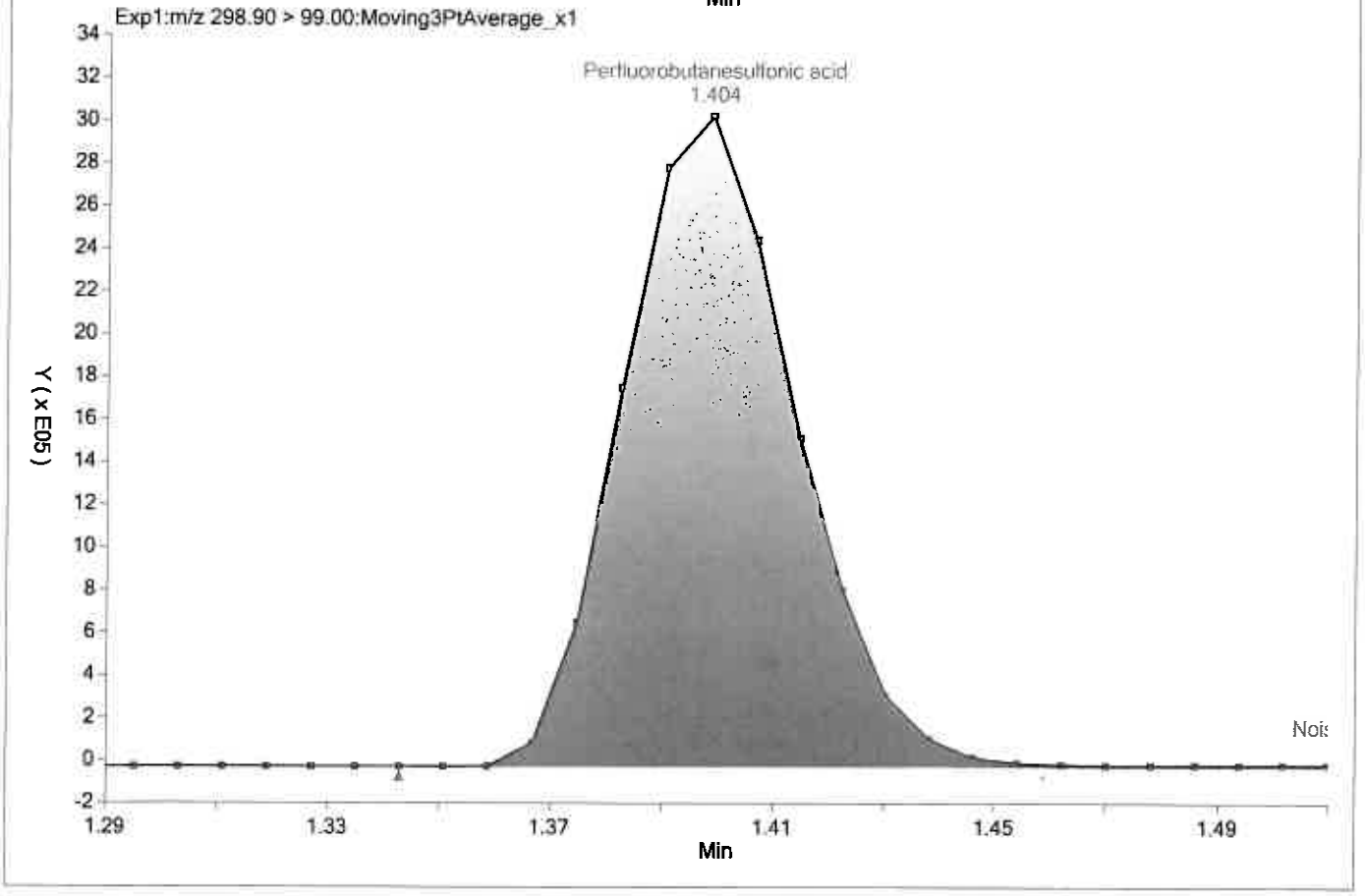
Calibration Start Date: 07/05/2017 19:50 Calibration End Date: 07/05/2017 20:13 Calibration ID: 32198

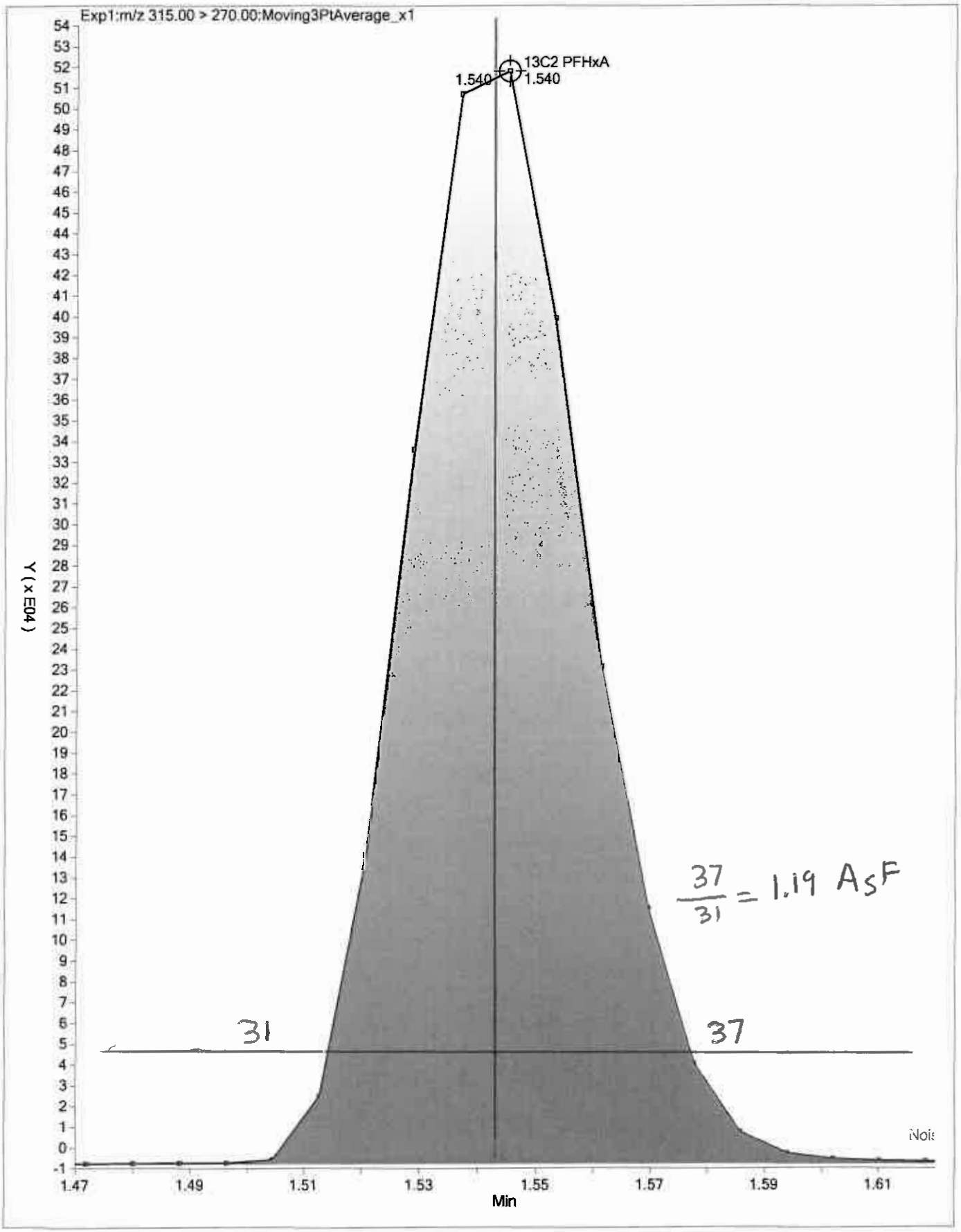
Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_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)	6.4	6.1	1.1	-3.9	1.8	-11.4	50	50	50	50	50	50
Perfluoroheptanoic acid (PFHpA)	-2.1	7.3	-3.4	-3.6	1.2	0.6	50	50	50	50	50	50
Perfluorohexanesulfonic acid (PFHxS)	1.6	1.5	-3.2	-4.3	7.7	-3.2	50	50	50	50	50	50
Perfluorooctanoic acid (PFOA)	-6.1	2.9	-3.4	-0.7	4.7	2.6	50	50	50	50	50	50
Perfluorooctanesulfonic acid (PFOS)	-0.1	-0.6	-1.7	-2.1	7.0	-2.5	50	50	50	50	50	50
Perfluorononanoic acid (PFNA)	-0.9	5.2	-2.7	-0.9	2.1	-2.8	50	50	50	50	50	50
13C2 PFHxA	-7.7	5.5	-0.6	-2.7	3.8	1.7	30	30	30	30	30	30
13C2 PFDA	-2.0	3.8	1.3	-2.7	0.4	-0.8	30	30	30	30	30	30


Exp1:m/z 298.90 > 80.00:Moving3PtAverage_x1
1.404
Perfluorobutanesulfonic acid
1.404
Y (x E05)
Min
25/21 = 1.19 AsF
21
25
Noise


Exp1:m/z 298.90 > 99.00:Moving3PtAverage_x1
Perfluorobutanesulfonic acid
1.404
Y (x E05)
Min
Nois


Exp1:m/z 315.00 > 270.00:Moving3PtAverage_x1
13C2 PFHxA
1.540
1.540
Y (x E04)
Min
1.47
1.49
1.51
1.53
1.55
1.57
1.59
1.61
31
37
37/31 = 1.19 AsF

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_004.d
Lims ID: IC L1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 05-Jul-2017 19:50:03 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\20170706-45099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Jul-2017 14:15:30 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK001

First Level Reviewer: westendorfc Date: 06-Jul-2017 10:59:22

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	1.404	0.0	1.000	803806	9.40		272	
298.90 > 99.00	1.404	1.404	0.0	1.000	646416		1.24(0.00-0.00)	310	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.539	0.001	1.000	1047405	9.23		3630	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	1.692	1.691	0.001	1.000	101135	0.9688		15.5	M
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.692	0.0	1.000	408251	3.05		136	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.878	0.004		998347	10.0		3971	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.879	0.003	1.000	172606	1.88		20.9	
413.00 > 169.00	1.882	1.879	0.003	1.000	106296		1.62(0.00-0.00)	105	
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.117	0.0		2752369	28.7		3870	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.124	2.124	0.0	1.000	393122	4.00		395	
499.00 > 99.00	2.117	2.124	-0.007	0.996	88646		4.43(0.00-0.00)	221	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.124	0.0	1.000	157013	1.91		27.9	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.281	0.003	1.000	820977	9.80		2019	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L1_00019 Amount Added: 1.00 Units: mL

Report Date: 06-Jul-2017 14:15:30 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_004.d

Injection Date: 05-Jul-2017 19:50:03 Instrument ID: A8_N

Lims ID: IC L1

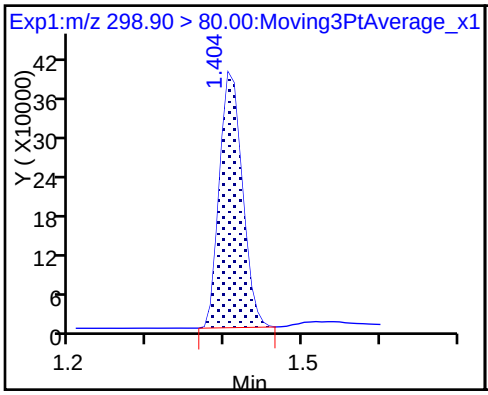
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4

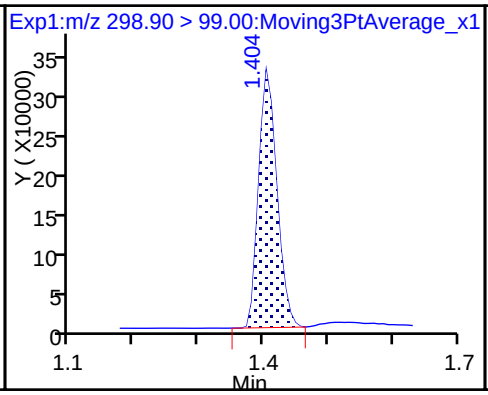
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

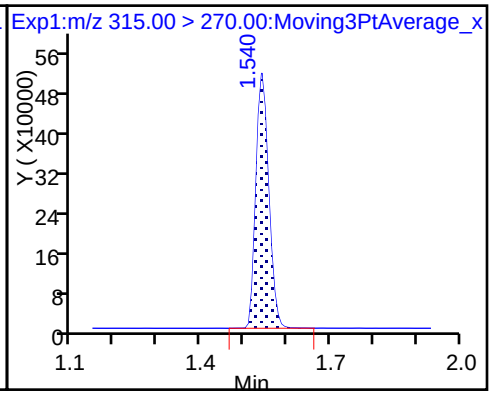
1 Perfluorobutanesulfonic acid



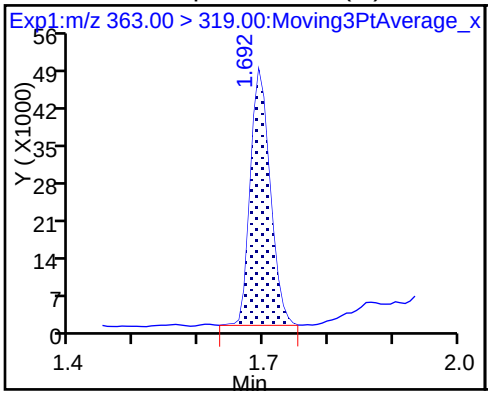
1 Perfluorobutanesulfonic acid



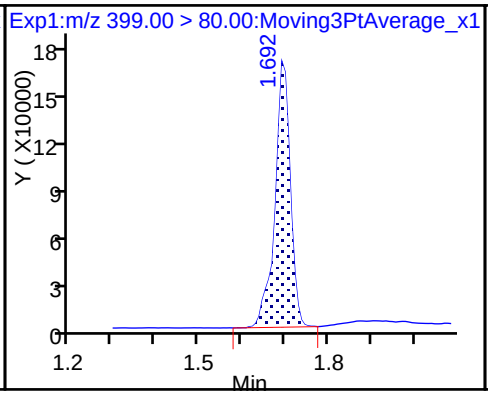
$ 2 13C2 PFHxA



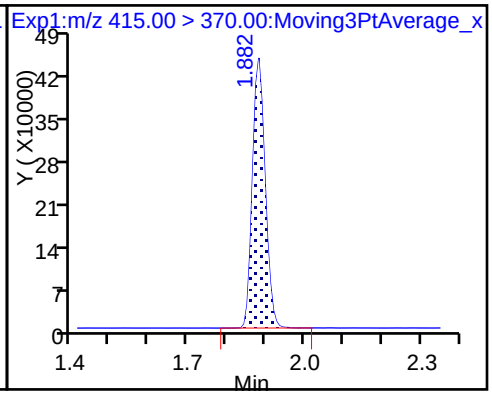
4 Perfluoroheptanoic acid (M)



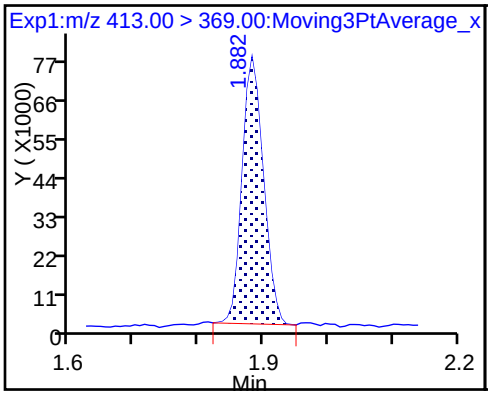
3 Perfluorohexanesulfonic acid



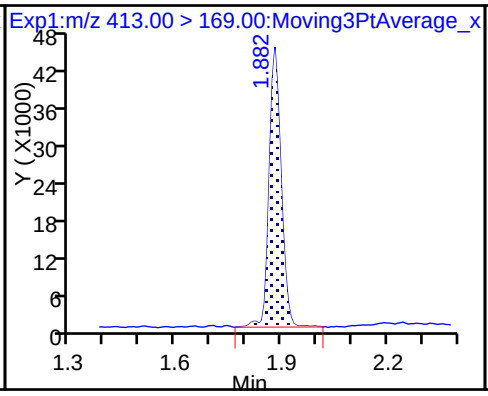
* 6 13C2-PFOA



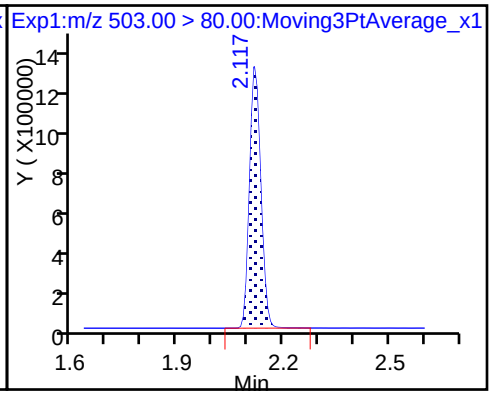
5 Perfluorooctanoic acid



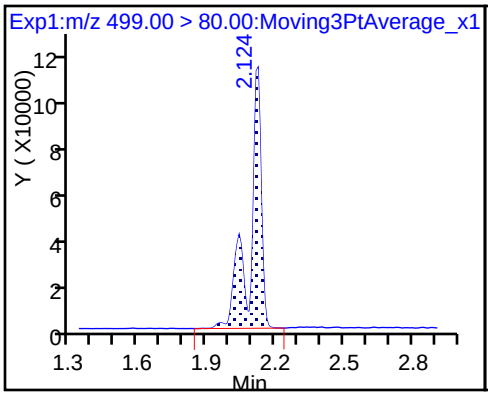
5 Perfluorooctanoic acid



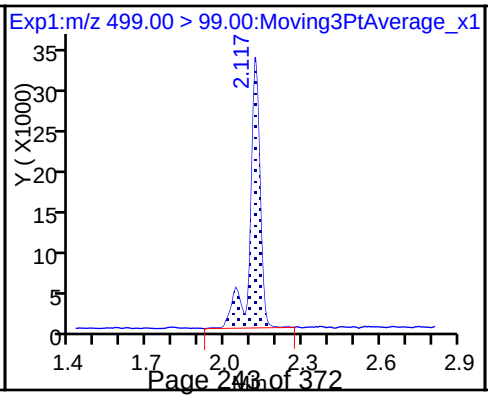
* 7 13C4 PFOS



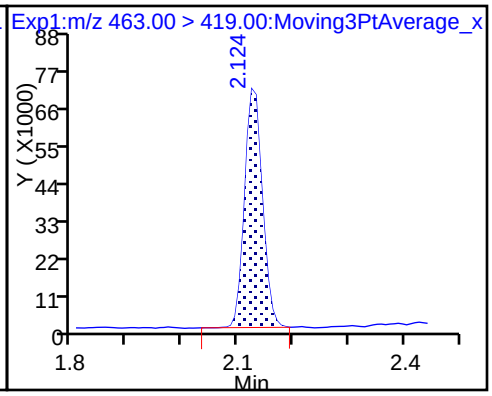
8 Perfluorooctane sulfonic acid



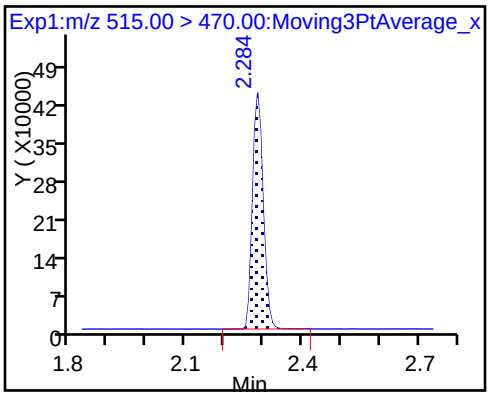
8 Perfluorooctane sulfonic acid



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

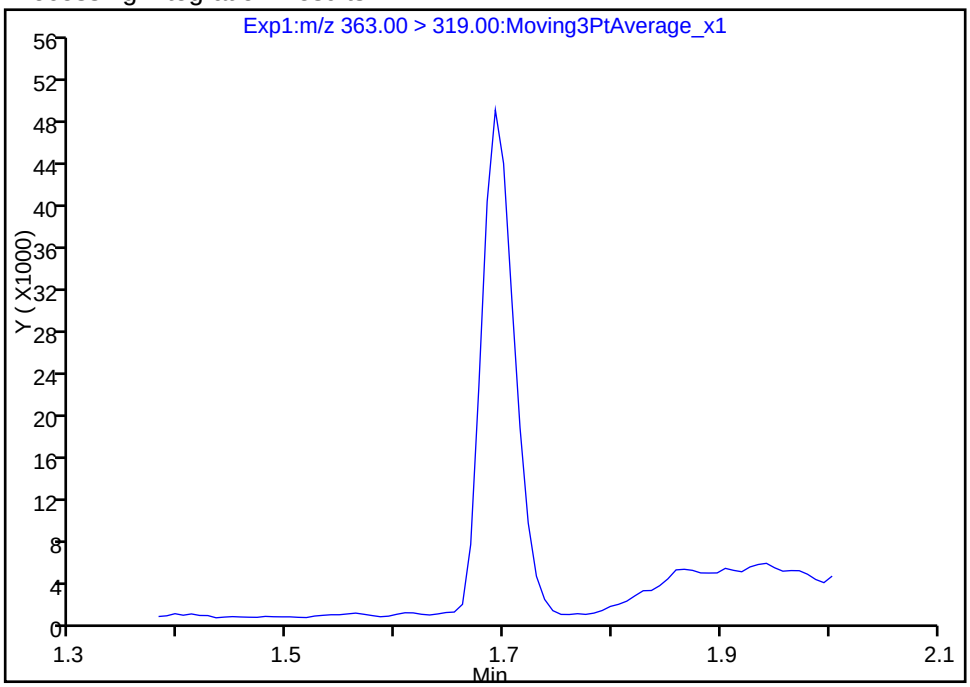
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_004.d				
Injection Date:	05-Jul-2017 19:50:03	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

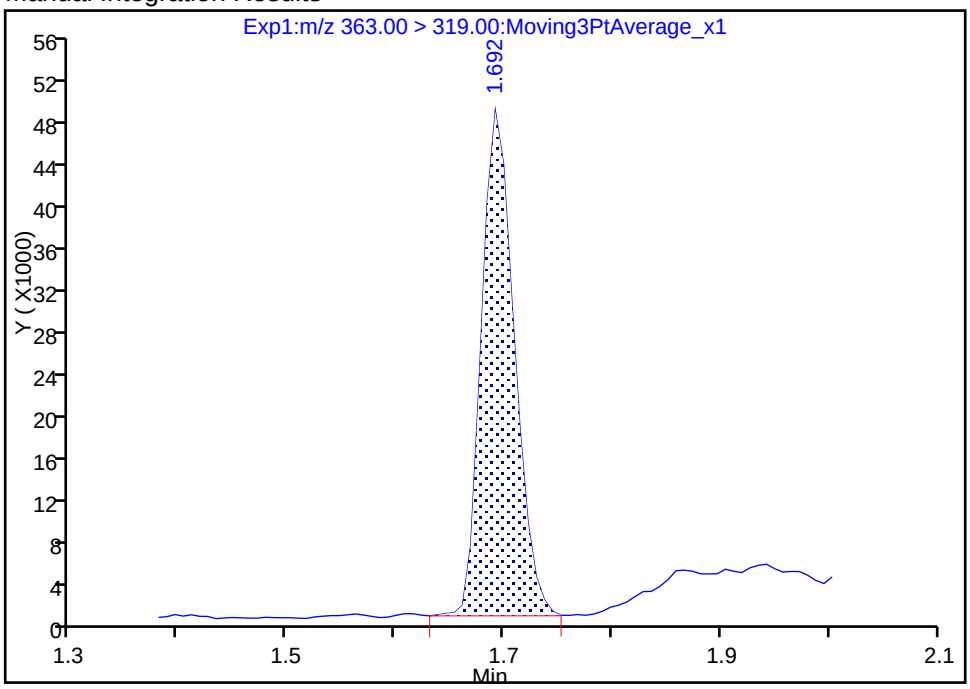
Processing Integration Results

Not Detected
Expected RT: 1.69



Manual Integration Results

RT: 1.69
Area: 101135
Amount: 0.968791
Amount Units: ng/ml



Reviewer: barnettj, 06-Jul-2017 11:03:45
Audit Action: Manually Integrated Audit Reason: Missed Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_005.d
Lims ID: IC L2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 05-Jul-2017 19:54:49 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\20170706-45099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Jul-2017 14:15:34 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK001

First Level Reviewer: westendorfc Date: 06-Jul-2017 10:59:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.404	0.0	1.000	1925519	22.5		627	
298.90 > 99.00	1.404	1.404	0.0	1.000	1437061		1.34(0.00-0.00)	617	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1124762	10.5		3950	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	250235	2.55		35.1	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.692	0.0	1.000	980019	7.32		336	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.878	-0.004		938771	10.0		3641	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.874	1.879	-0.005	1.000	426873	4.93		51.1	
413.00 > 169.00	1.874	1.879	-0.005	1.000	256717		1.66(0.00-0.00)	260	
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.117	0.0		2755145	28.7		3792	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.124	0.0	1.000	376270	4.86		63.1	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.117	2.124	-0.007	1.000	939618	9.55		901	
499.00 > 99.00	2.117	2.124	-0.007	1.000	215298		4.36(0.00-0.00)	444	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.281	0.003	1.000	818323	10.4		2010	

Reagents:

LC537-L2_00019 Amount Added: 1.00 Units: mL

Report Date: 06-Jul-2017 14:15:37 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_005.d

Injection Date: 05-Jul-2017 19:54:49 Instrument ID: A8_N

Lims ID: IC L2

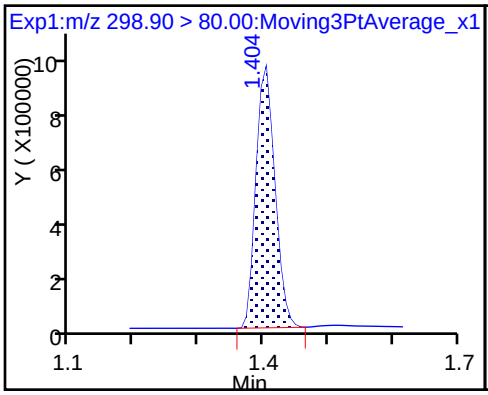
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5

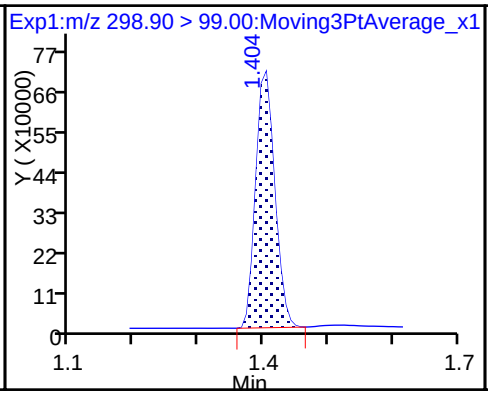
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

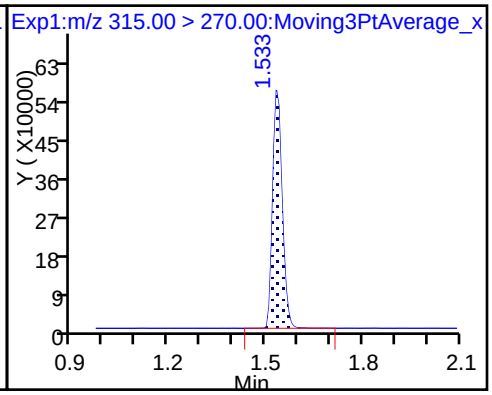
1 Perfluorobutanesulfonic acid



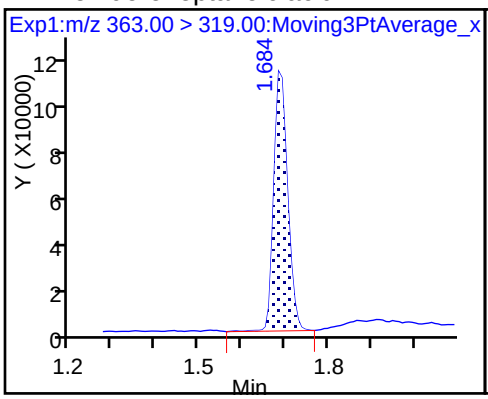
1 Perfluorobutanesulfonic acid



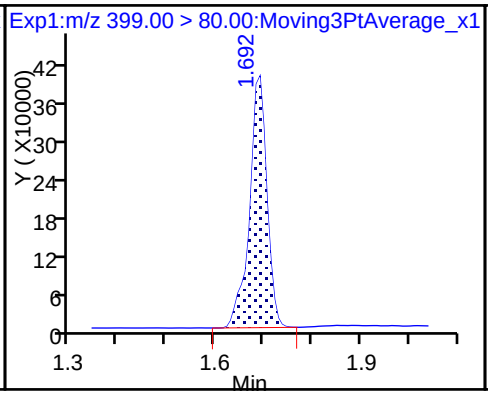
$ 2 13C2 PFHxA



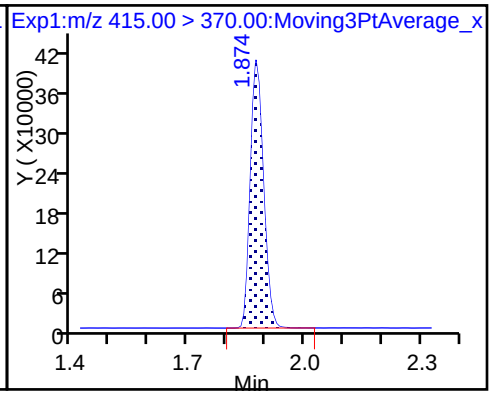
4 Perfluoroheptanoic acid



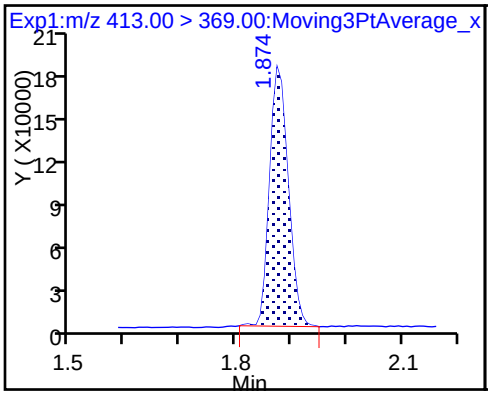
3 Perfluorohexanesulfonic acid



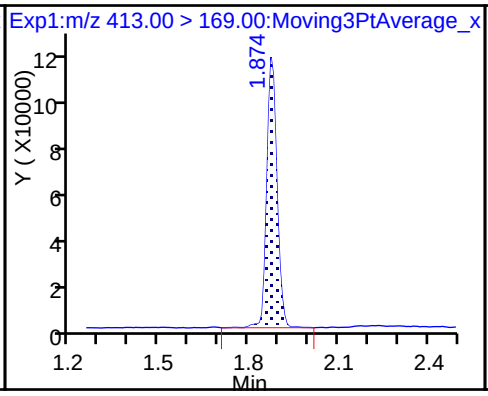
* 6 13C2-PFOA



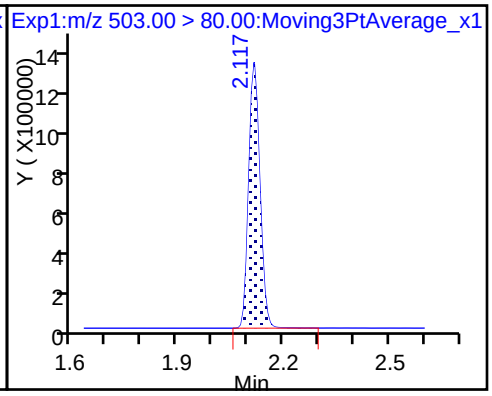
5 Perfluorooctanoic acid



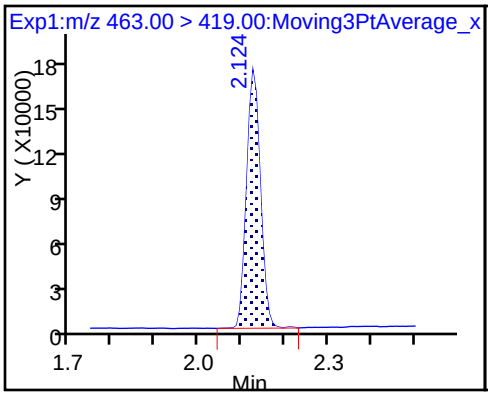
5 Perfluorooctanoic acid



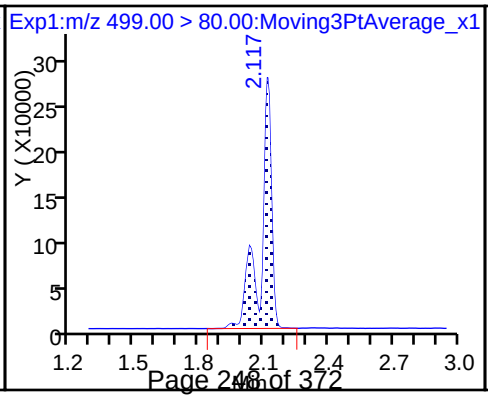
* 7 13C4 PFOS



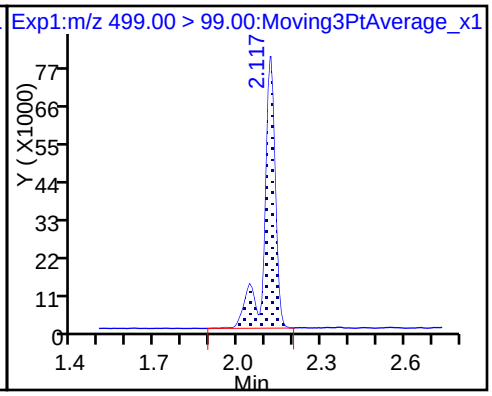
9 Perfluorononanoic acid



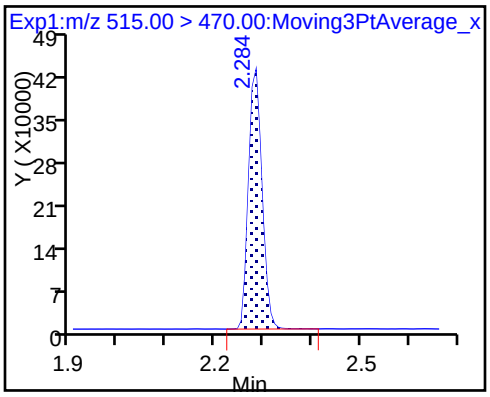
8 Perfluorooctane sulfonic acid



8 Perfluorooctane sulfonic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
49
42
35
28
21
14
7
0
1.9
2.2
2.5
Min

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_006.d
Lims ID: IC L3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 05-Jul-2017 19:59:33 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\20170706-45099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Jul-2017 14:15:41 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK001

First Level Reviewer: westendorfc Date: 06-Jul-2017 10:59:07

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	1.404	0.0	1.000	3823269	44.9		1166	
298.90 > 99.00	1.404	1.404	0.0	1.000	2920357		1.31(0.00-0.00)	1258	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.539	0.001	1.000	1101523	9.94		3884	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.691	0.001	1.000	490415	4.81		75.9	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.692	0.0	1.000	1948018	14.6		651	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.878	0.004		975549	10.0		3730	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.879	0.003	1.000	872357	9.70		109	
413.00 > 169.00	1.882	1.879	0.003	1.000	514618		1.70(0.00-0.00)	504	
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.117	0.0		2742820	28.7		3791	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.117	2.124	-0.007	1.000	1936577	19.8		2045	
499.00 > 99.00	2.117	2.124	-0.007	1.000	449750		4.31(0.00-0.00)	935	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.124	0.0	1.000	756974	9.42		111	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.281	0.003	1.000	829957	10.1		2049	

Reagents:

LC537-L3_00022 Amount Added: 1.00 Units: mL

Report Date: 06-Jul-2017 14:15:44 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_006.d

Injection Date: 05-Jul-2017 19:59:33 Instrument ID: A8_N

Lims ID: IC L3

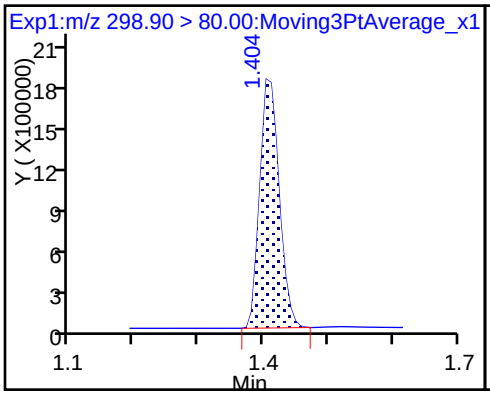
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6

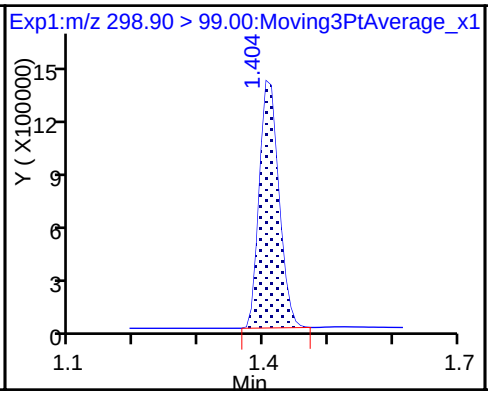
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

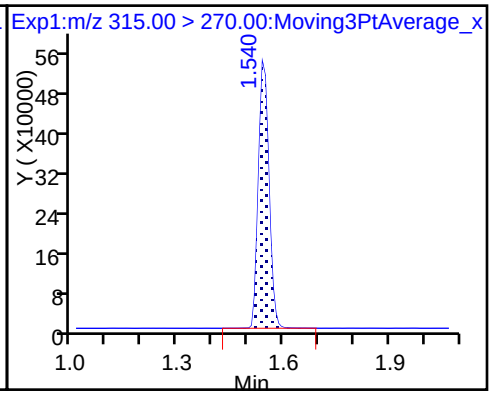
1 Perfluorobutanesulfonic acid



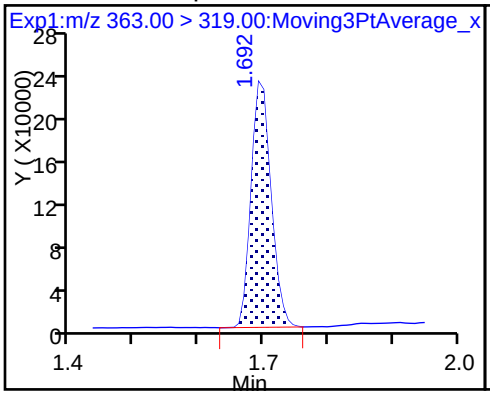
1 Perfluorobutanesulfonic acid



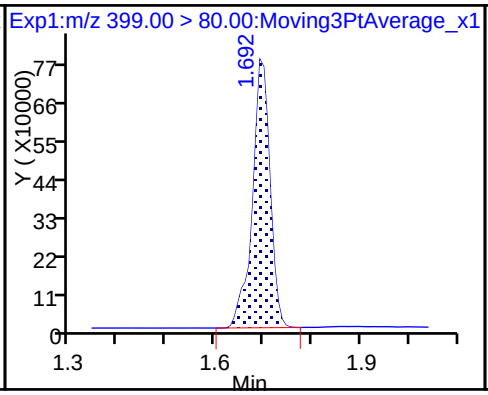
$ 2 13C2 PFHxA



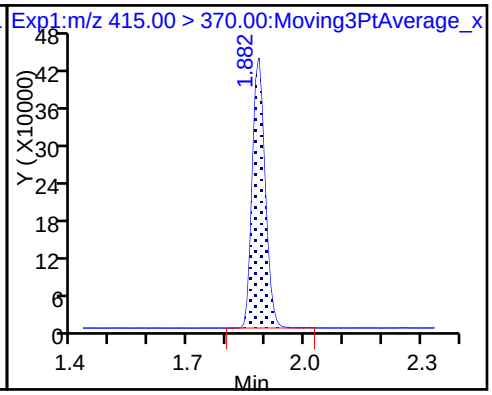
4 Perfluoroheptanoic acid



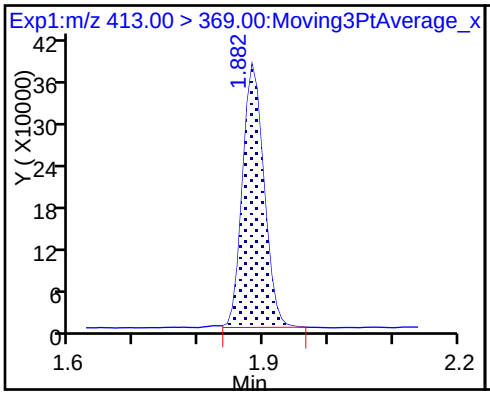
3 Perfluorohexanesulfonic acid



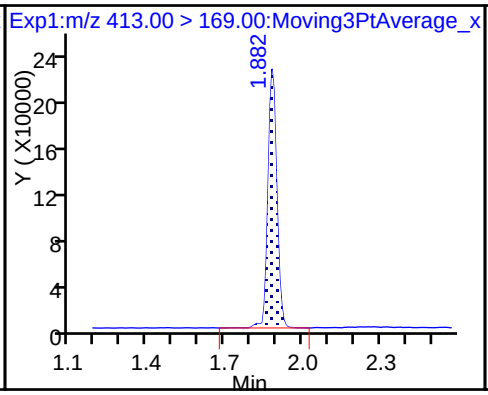
* 6 13C2-PFOA



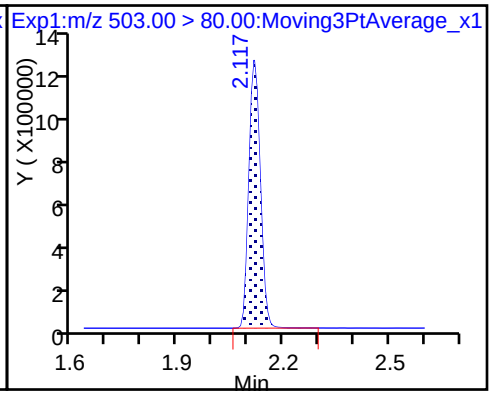
5 Perfluorooctanoic acid



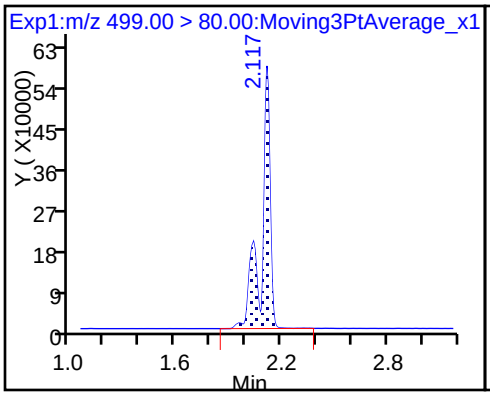
5 Perfluorooctanoic acid



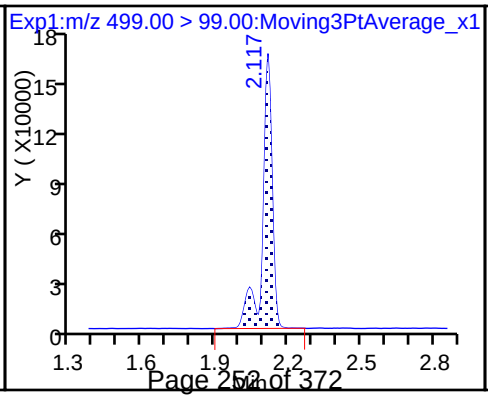
* 7 13C4 PFOS



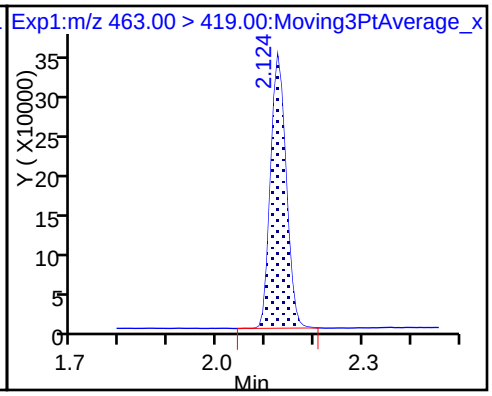
8 Perfluorooctane sulfonic acid



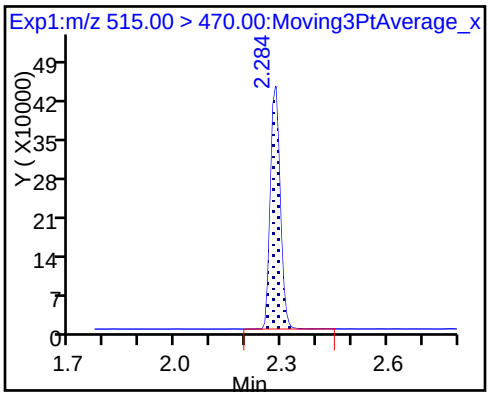
8 Perfluorooctane sulfonic acid



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
49
42
35
28
21
14
7
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_007.d
Lims ID: IC L4
Client ID:
Sample Type: ICISAV Calib Level: 4
Inject. Date: 05-Jul-2017 20:04:17 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\20170706-45099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Jul-2017 14:15:45 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK001

First Level Reviewer: barnettj Date: 06-Jul-2017 13:17:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.404	0.0	1.000	7725129	85.9		2754	
298.90 > 99.00	1.404	1.404	0.0	1.000	6080754		1.27(0.00-0.00)	3025	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.539	0.001	1.000	1077727	9.73		3508	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.691	0.001	1.000	984967	9.66		146	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.692	0.0	1.000	4095579	29.1		1332	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.878	-0.004		974930	10.0		3371	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.879	0.003	1.000	1805622	20.1		203	
413.00 > 169.00	1.874	1.879	-0.005	0.996	1061719		1.70(0.00-0.00)	1067	
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.117	0.0		2893551	28.7		3911	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.124	0.0	1.000	1552293	19.3		265	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.117	2.124	-0.007	1.000	4098834	39.7		3405	
499.00 > 99.00	2.117	2.124	-0.007	1.000	919355		4.46(0.00-0.00)	1708	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	796662	9.73		1776	

Reagents:

LC537-L4_00019 Amount Added: 1.00 Units: mL

Report Date: 06-Jul-2017 14:15:46 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_007.d

Injection Date: 05-Jul-2017 20:04:17 Instrument ID: A8_N

Lims ID: IC L4

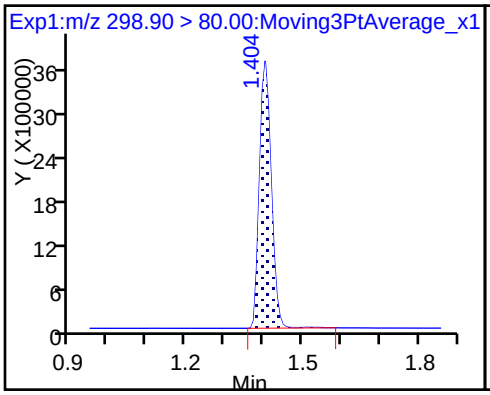
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7

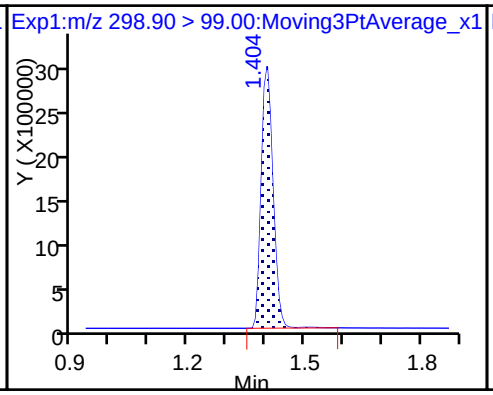
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

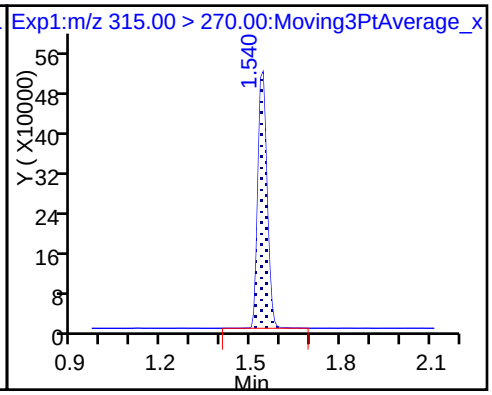
1 Perfluorobutanesulfonic acid



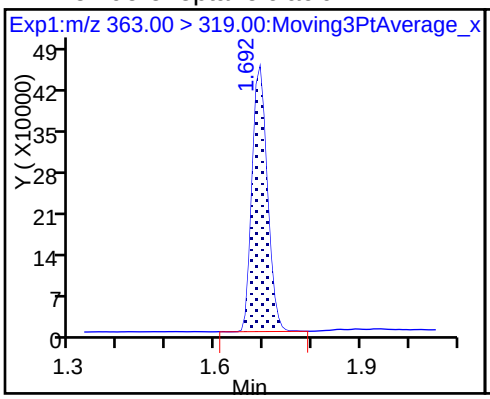
1 Perfluorobutanesulfonic acid



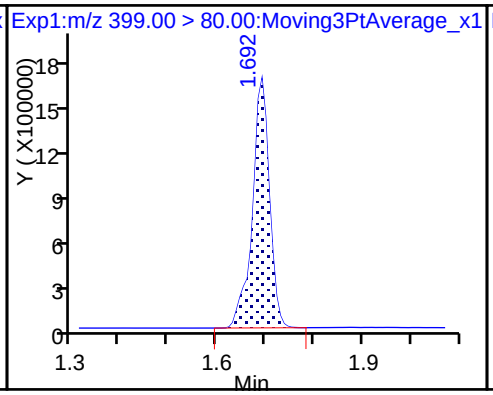
$ 2 13C2 PFHxA



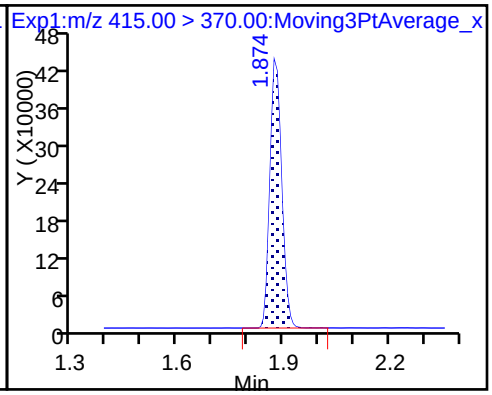
4 Perfluoroheptanoic acid



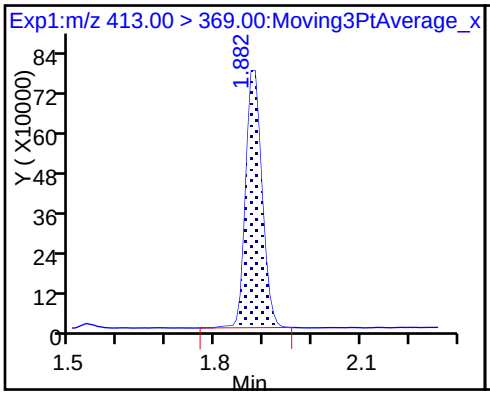
3 Perfluorohexanesulfonic acid



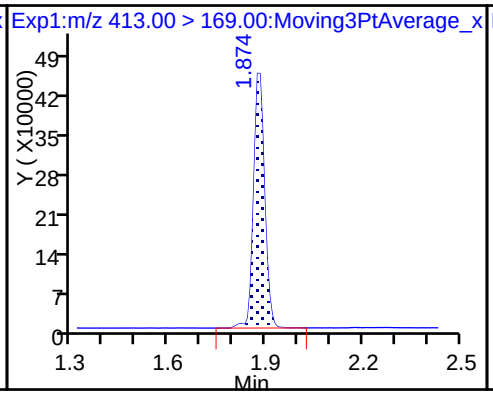
* 6 13C2-PFOA



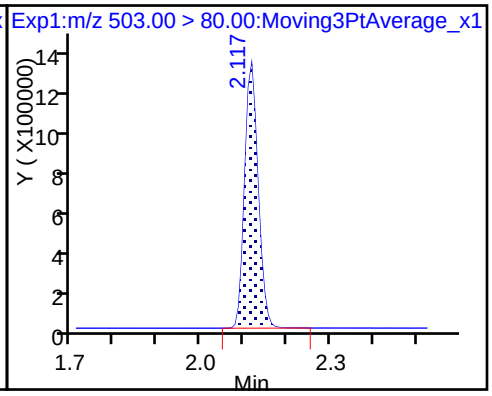
5 Perfluorooctanoic acid



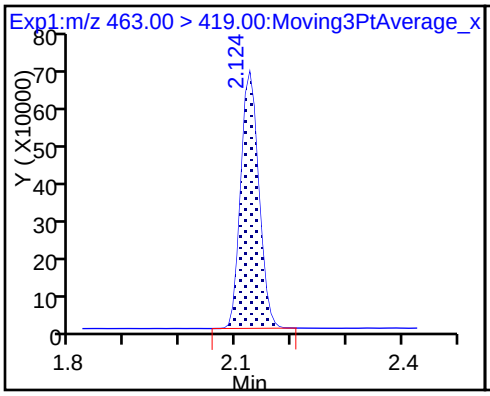
5 Perfluorooctanoic acid



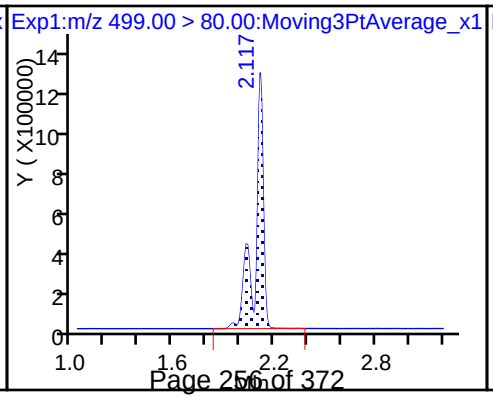
* 7 13C4 PFOS



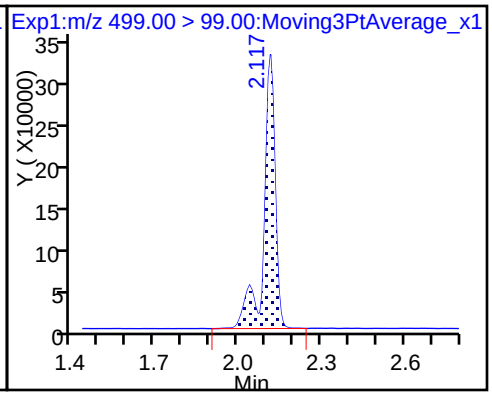
9 Perfluorononanoic acid



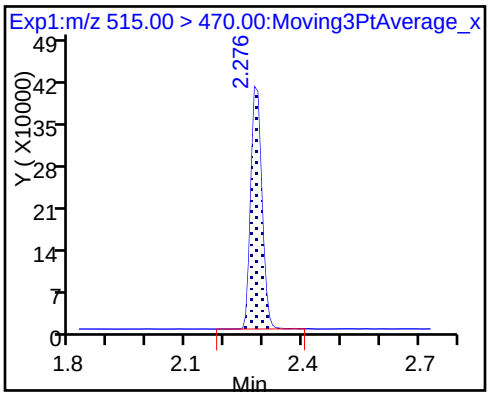
8 Perfluorooctane sulfonic acid



8 Perfluorooctane sulfonic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_008.d
Lims ID: IC L5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 05-Jul-2017 20:09:01 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\20170706-45099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Jul-2017 14:15:48 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK001

First Level Reviewer: barnettj Date: 06-Jul-2017 14:15:17

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	1.404	0.0	1.000	11133396	134.8		2833	
298.90 > 99.00	1.404	1.404	0.0	1.000	9082765		1.23(0.00-0.00)	2901	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.539	0.001	1.000	1120950	10.4		4043	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.691	0.001	1.000	1494114	15.0		221	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.692	0.0	1.000	6272381	48.6		1990	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.878	-0.004		950425	10.0		3440	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.874	1.879	-0.005	1.000	2747595	31.4		299	
413.00 > 169.00	1.874	1.879	-0.005	1.000	1674247		1.64(0.00-0.00)	1571	
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.117	0.0		2657493	28.7		3483	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.117	2.124	-0.007	1.000	6095701	64.2		4978	
499.00 > 99.00	2.117	2.124	-0.007	1.000	1321716		4.61(0.00-0.00)	2212	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.124	0.0	1.000	2310846	29.5		371	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.281	0.003	1.000	800975	10.0		1851	

Reagents:

LC537-L5_00023 Amount Added: 1.00 Units: mL

Report Date: 06-Jul-2017 14:15:48 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_008.d

Injection Date: 05-Jul-2017 20:09:01 Instrument ID: A8_N

Lims ID: IC L5

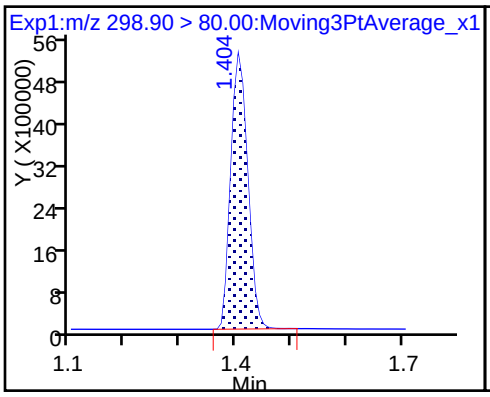
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 8

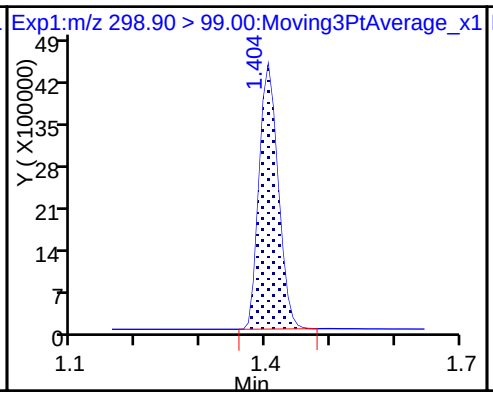
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

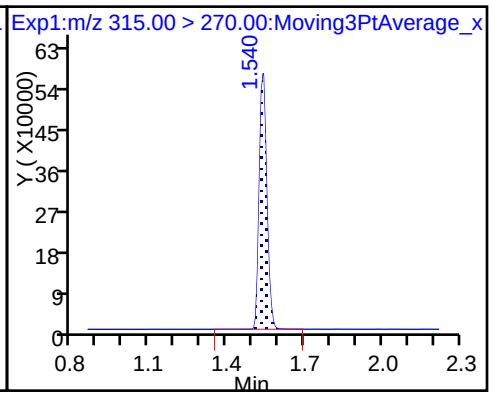
1 Perfluorobutanesulfonic acid



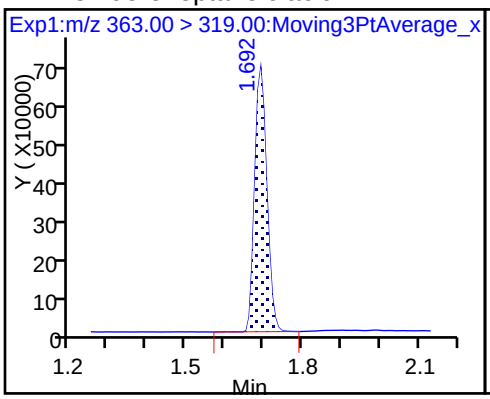
1 Perfluorobutanesulfonic acid



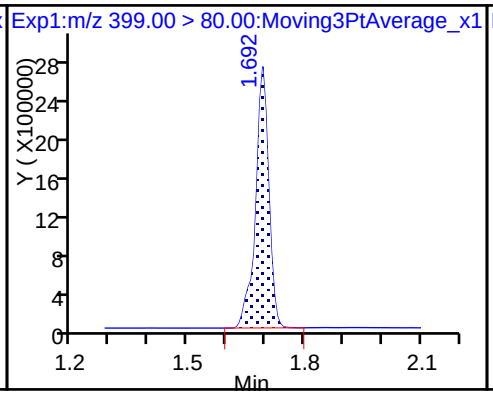
$ 2 13C2 PFHxA



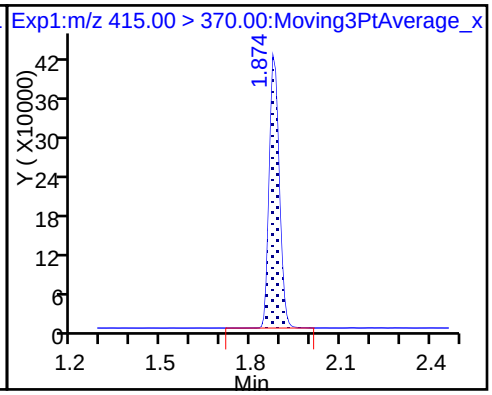
4 Perfluoroheptanoic acid



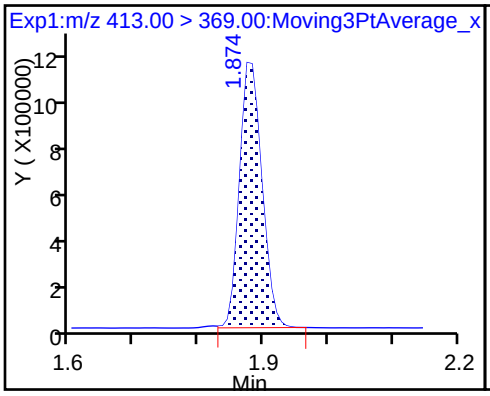
3 Perfluorohexanesulfonic acid



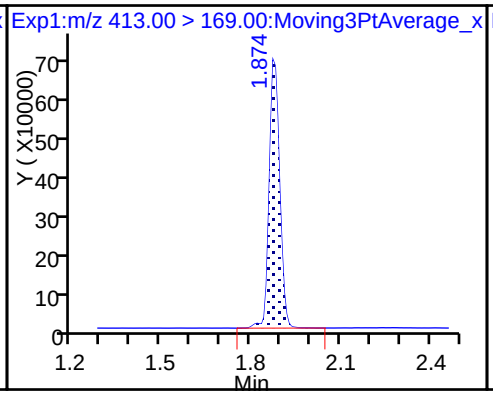
* 6 13C2-PFOA



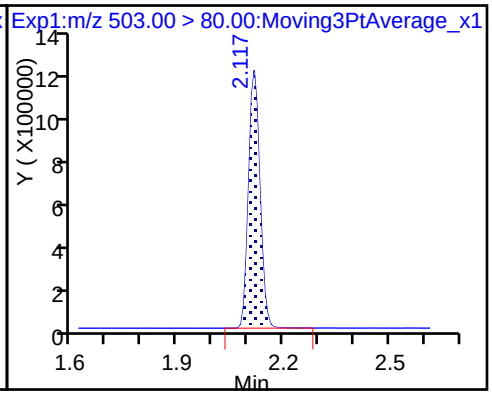
5 Perfluorooctanoic acid



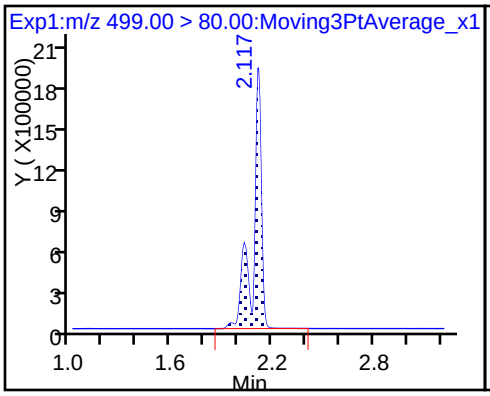
5 Perfluorooctanoic acid



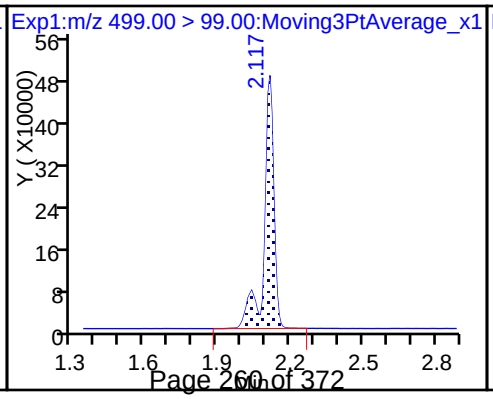
* 7 13C4 PFOS



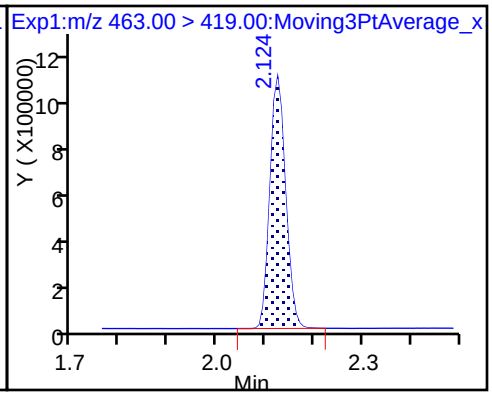
8 Perfluorooctane sulfonic acid



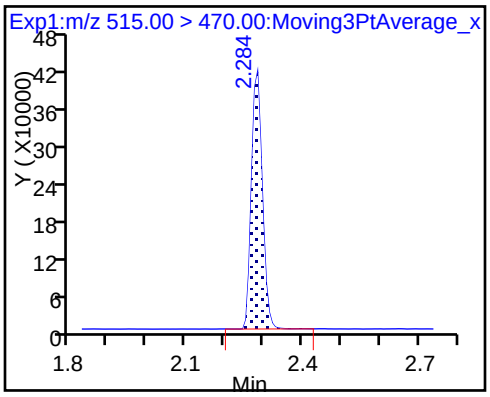
8 Perfluorooctane sulfonic acid



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
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Y (X10000)
48
42
36
30
24
18
12
6
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Lims ID: IC L6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 05-Jul-2017 20:13:46 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\20170706-45099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Jul-2017 14:15:51 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK001

First Level Reviewer: barnettj Date: 06-Jul-2017 11:02:39

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	1.404	0.0	1.000	14234634	155.6		3178	
298.90 > 99.00	1.404	1.404	0.0	1.000	10833802		1.31(0.00-0.00)	3119	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.539	0.001	1.000	1113221	10.2		3988	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.691	0.001	1.000	1993330	19.8		301	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.692	0.0	1.000	8271288	57.8		2408	
* 6 13C2-PFOA									
415.00 > 370.00	1.882	1.878	0.004		963179	10.0		3523	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.882	1.879	0.003	1.000	3617366	40.7		410	
413.00 > 169.00	1.882	1.879	0.003	1.000	2130918		1.70(0.00-0.00)	1930	
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.117	0.0		2944302	28.7		3886	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.124	0.0	1.000	2953507	37.2		463	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.117	2.124	-0.007	1.000	8159668	77.6		5286	
499.00 > 99.00	2.117	2.124	-0.007	1.000	1870549		4.36(0.00-0.00)	2998	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	801864	9.92		1695	

Reagents:

LC537-L6_00018 Amount Added: 1.00 Units: mL

Report Date: 06-Jul-2017 14:15:52 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Injection Date: 05-Jul-2017 20:13:46 Instrument ID: A8_N

Lims ID: IC L6

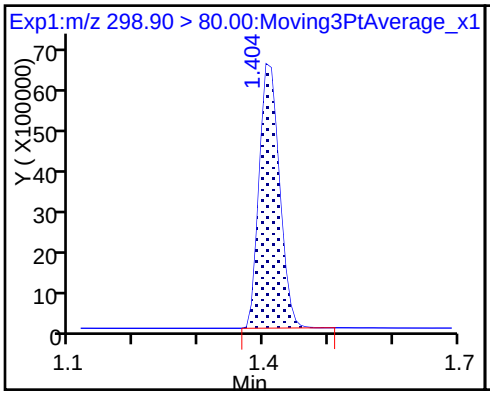
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9

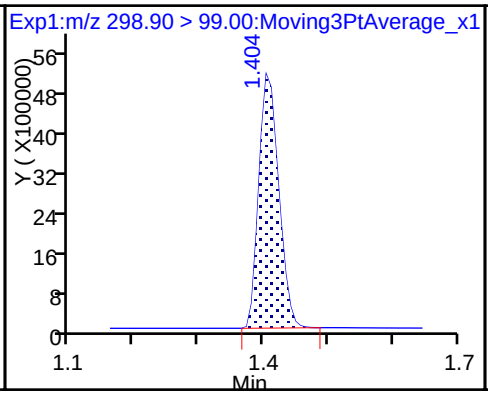
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

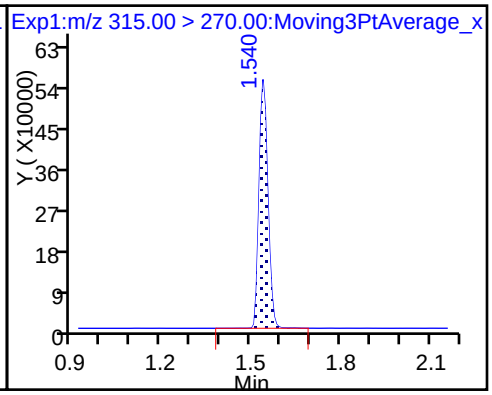
1 Perfluorobutanesulfonic acid



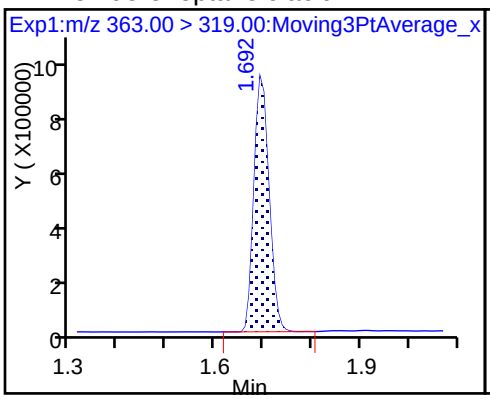
1 Perfluorobutanesulfonic acid



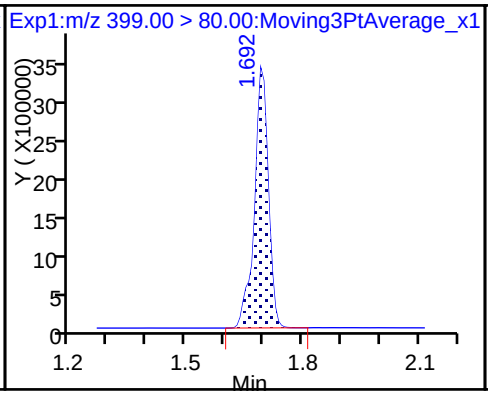
$ 2 13C2 PFHxA



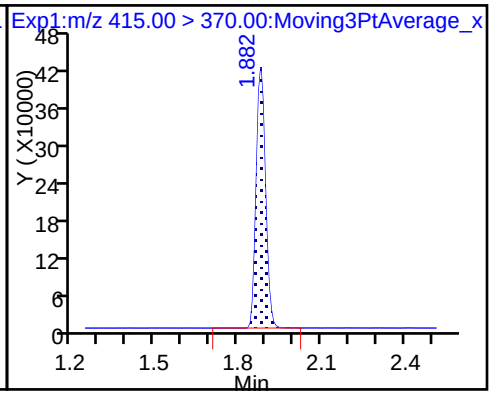
4 Perfluoroheptanoic acid



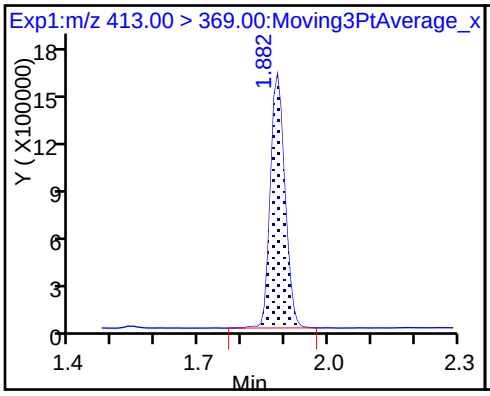
3 Perfluorohexanesulfonic acid



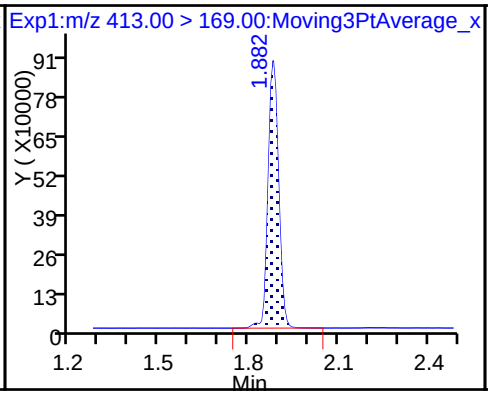
* 6 13C2-PFOA



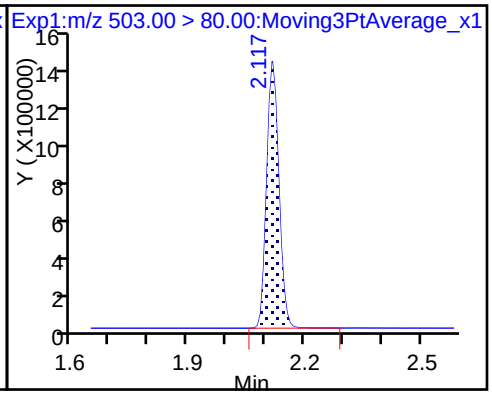
5 Perfluorooctanoic acid



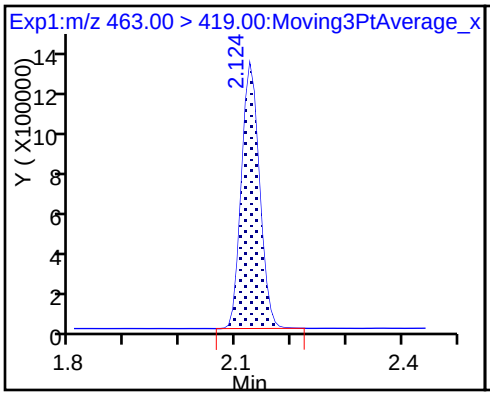
5 Perfluorooctanoic acid



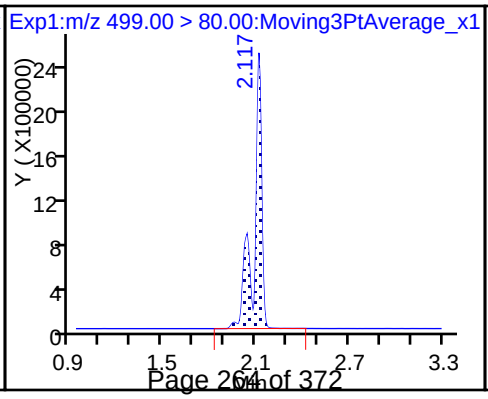
* 7 13C4 PFOS



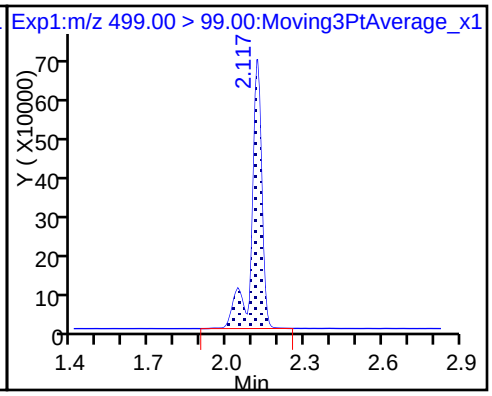
9 Perfluorononanoic acid



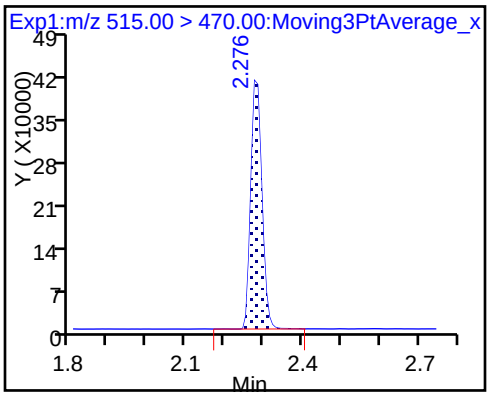
8 Perfluorooctane sulfonic acid



8 Perfluorooctane sulfonic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCVL 320-172646/11 Calibration Date: 07/05/2017 20:23

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.05_537CURVE_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9450		22.5	21.2	6.0	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.013		2.30	2.38	-3.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.375		7.12	7.21	-1.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9158		4.76	4.80	-0.6	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	0.9585		8.99	9.61	-6.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8346		4.68	4.62	1.3	50.0
13C2 PFHxA	Ave	1.136	1.093		9.62	10.0	-3.8	30.0
13C2 PFDA	Ave	0.8395	0.8398		10.0	10.0	0.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_011.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 05-Jul-2017 20:23:16 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\20170706-45099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Jul-2017 14:15:58 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK001

First Level Reviewer: barnettj Date: 06-Jul-2017 11:10:24

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	1.404	-0.008	1.000	1978330	22.5		577	
298.90 > 99.00	1.396	1.404	-0.008	1.000	1439219		1.37(0.00-0.00)	562	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1049709	9.62		3794	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	231101	2.30		34.4	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	979833	7.12		363	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.878	-0.004		960063	10.0		3662	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.874	1.879	-0.005	1.000	421619	4.76		51.2	
413.00 > 169.00	1.874	1.879	-0.005	1.000	257723		1.64(0.00-0.00)	279	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.117	-0.008		2831967	28.7		3554	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.109	2.124	-0.015	1.000	909348	8.99		844	
499.00 > 99.00	2.109	2.124	-0.015	1.000	216396		4.20(0.00-0.00)	463	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.124	-0.007	1.000	370397	4.68		53.0	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	806268	10.0		1841	

Reagents:

LC537-L2_00019 Amount Added: 1.00 Units: mL

Report Date: 06-Jul-2017 14:15:59 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_011.d

Injection Date: 05-Jul-2017 20:23:16 Instrument ID: A8_N

Lims ID: CCVL

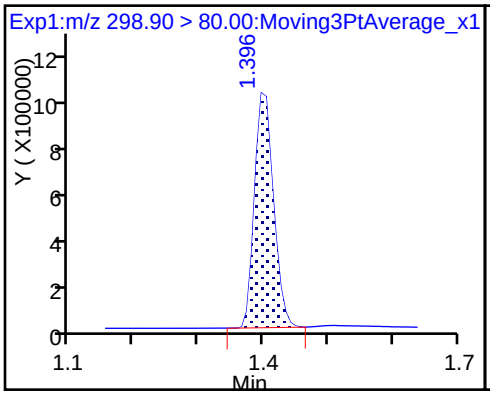
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11

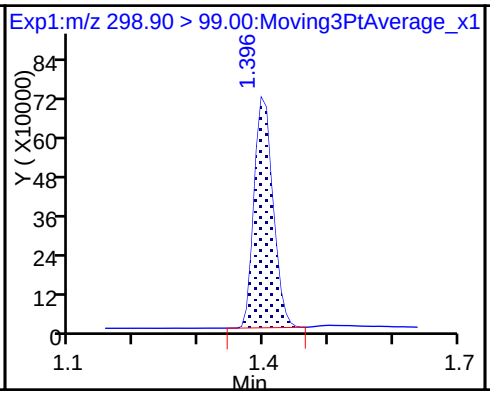
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

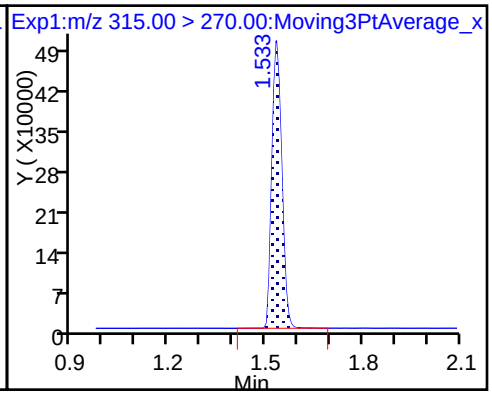
1 Perfluorobutanesulfonic acid



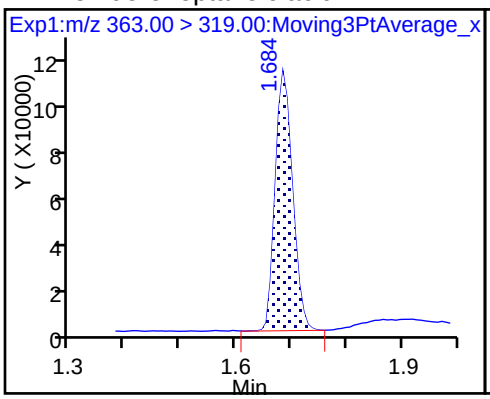
1 Perfluorobutanesulfonic acid



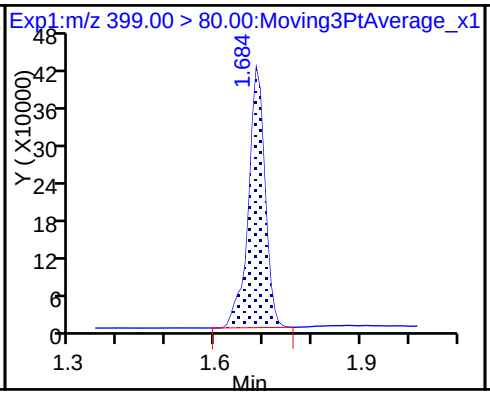
$ 2 13C2 PFHxA



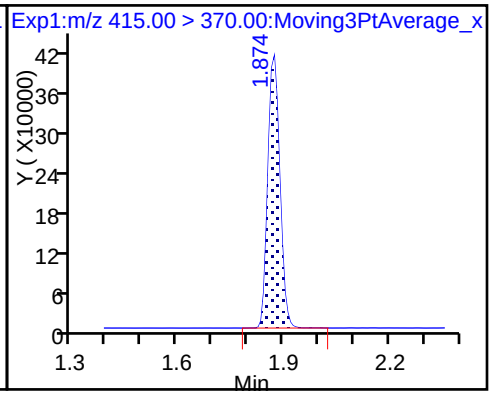
4 Perfluoroheptanoic acid



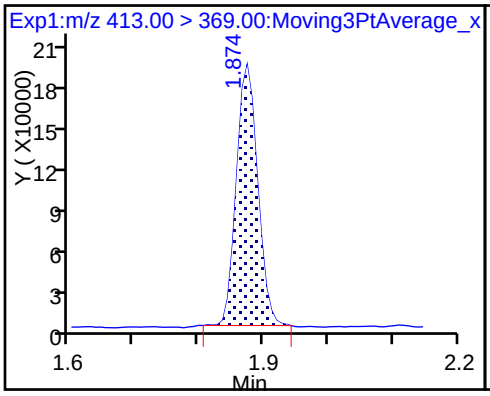
3 Perfluorohexanesulfonic acid



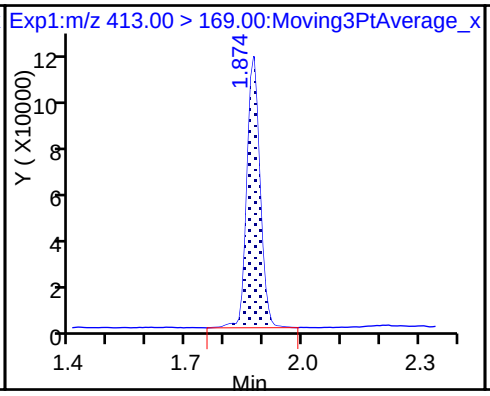
* 6 13C2-PFOA



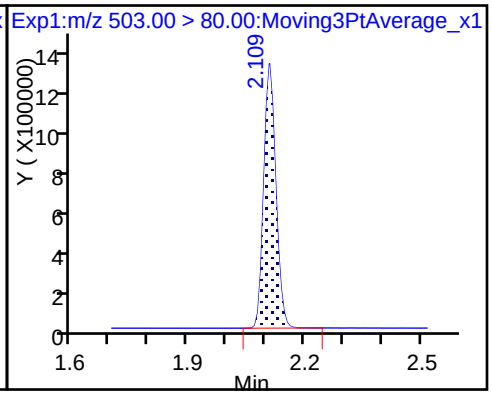
5 Perfluorooctanoic acid



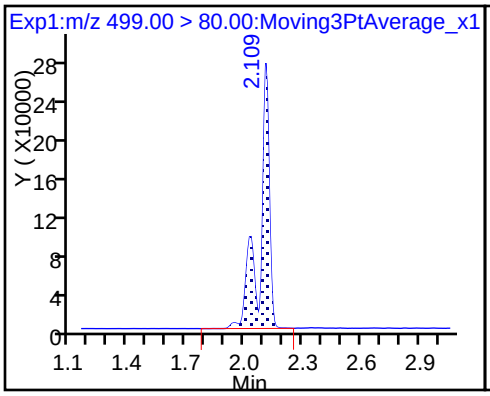
5 Perfluorooctanoic acid



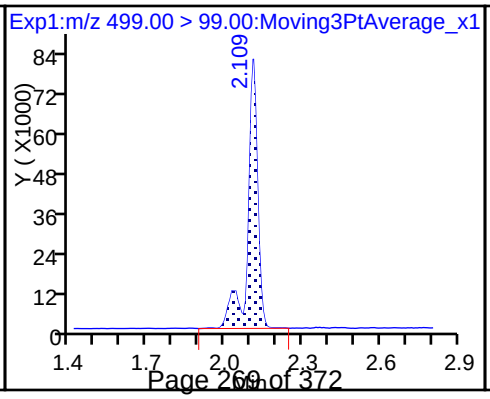
* 7 13C4 PFOS



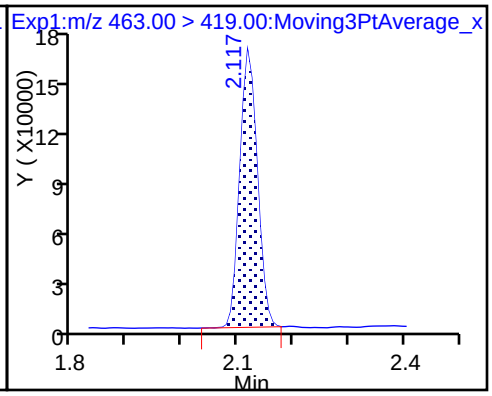
8 Perfluorooctane sulfonic acid



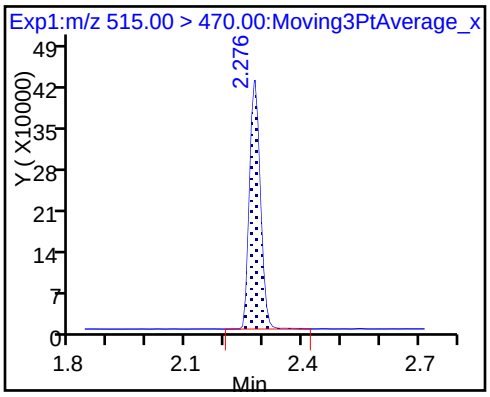
8 Perfluorooctane sulfonic acid



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: ICV 320-172646/13 Calibration Date: 07/05/2017 20:32

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.05_537CURVE_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9309		105	101	4.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	0.9545		9.20	10.1	-8.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.547		23.5	21.2	11.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9807		21.3	20.0	6.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.035		20.9	20.7	1.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8757		21.3	20.0	6.3	30.0
13C2 PFHxA	Ave	1.136	1.143		10.1	10.0	0.6	30.0
13C2 PFDA	Ave	0.8395	0.8348		9.94	10.0	-0.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_013.d
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 05-Jul-2017 20:32:46 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\20170706-45099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Jul-2017 14:16:05 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK001

First Level Reviewer: barnettj Date: 06-Jul-2017 11:07:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.404	0.0	1.000	8717456	105.2		2832	
298.90 > 99.00	1.396	1.404	-0.008	0.995	6912302		1.26(0.00-0.00)	2975	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1052723	10.1		4488	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	885966	9.20		135	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	3047530	23.5		1030	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.878	-0.004		920859	10.0		3493	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.874	1.879	-0.005	1.000	1807847	21.3		208	
413.00 > 169.00	1.866	1.879	-0.013	0.996	1047091		1.73(0.00-0.00)	1088	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.117	-0.008		2667731	28.7		3721	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.109	2.124	-0.015	1.000	1991461	20.9		1878	
499.00 > 99.00	2.109	2.124	-0.015	1.000	375691		5.30(0.00-0.00)	756	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.124	-0.007	1.000	1613491	21.3		254	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	768757	9.94		1760	

Reagents:

LC537-ICV_00020 Amount Added: 1.00 Units: mL

Report Date: 06-Jul-2017 14:16:07 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_013.d

Injection Date: 05-Jul-2017 20:32:46 Instrument ID: A8_N

Lims ID: ICV

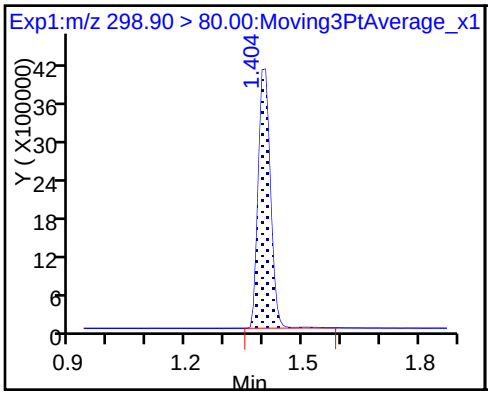
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 13

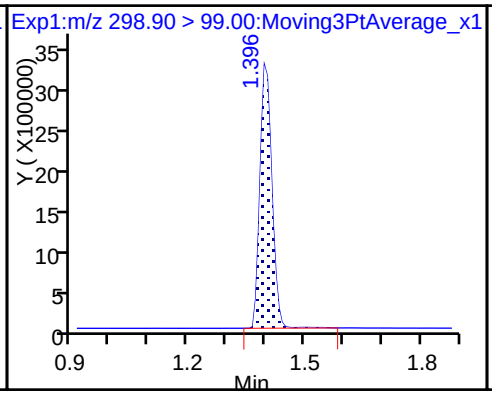
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

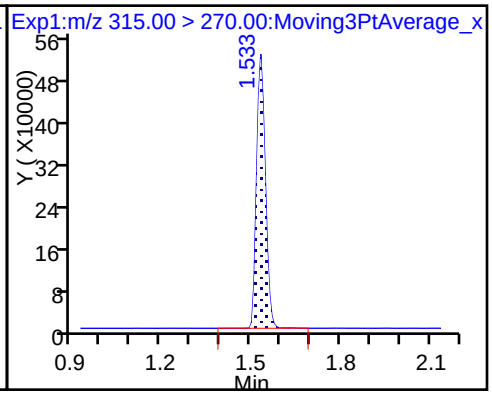
1 Perfluorobutanesulfonic acid



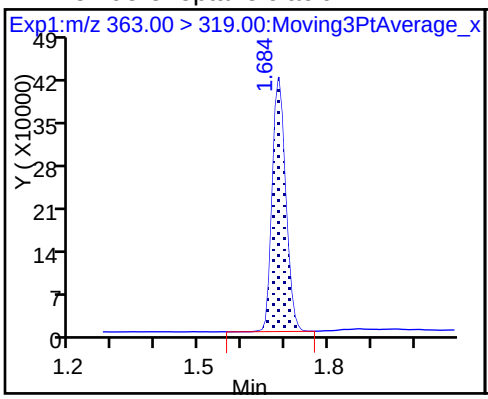
1 Perfluorobutanesulfonic acid



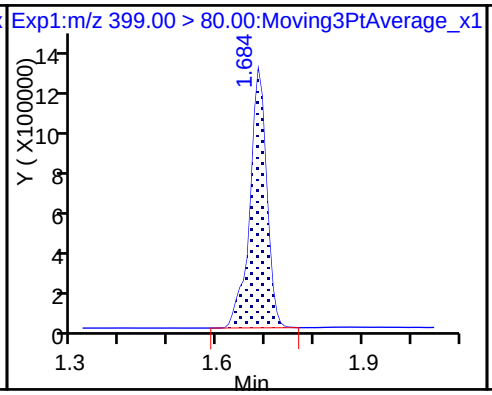
$ 2 13C2 PFHxA



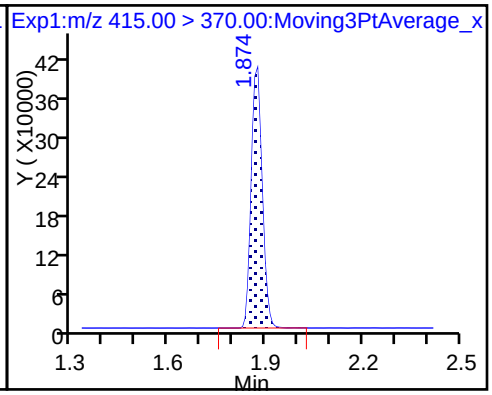
4 Perfluoroheptanoic acid



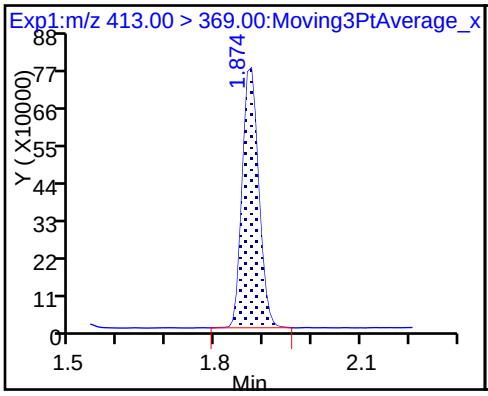
3 Perfluorohexanesulfonic acid



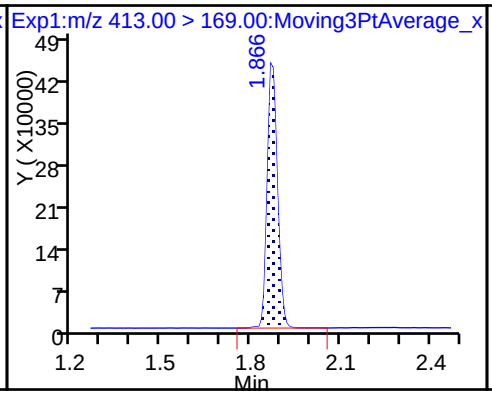
* 6 13C2-PFOA



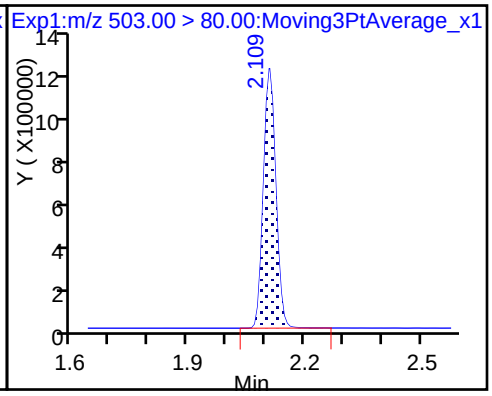
5 Perfluorooctanoic acid



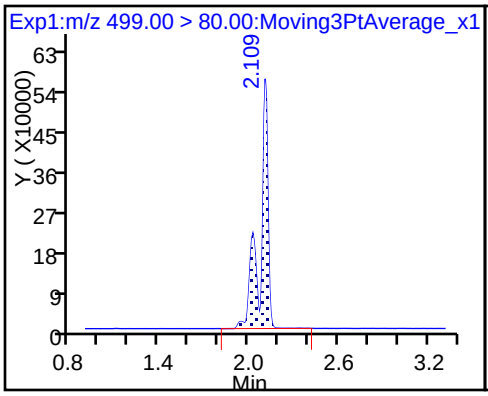
5 Perfluorooctanoic acid



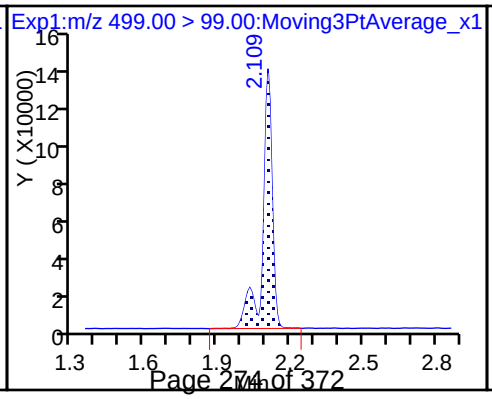
* 7 13C4 PFOS



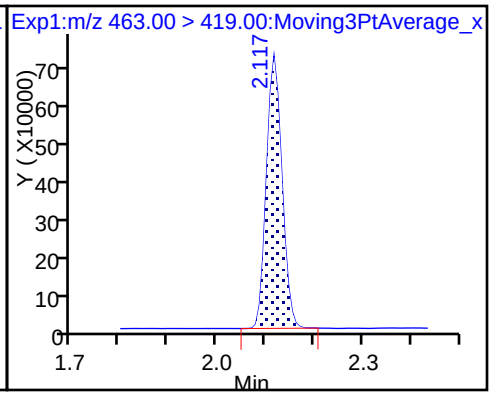
8 Perfluorooctane sulfonic acid



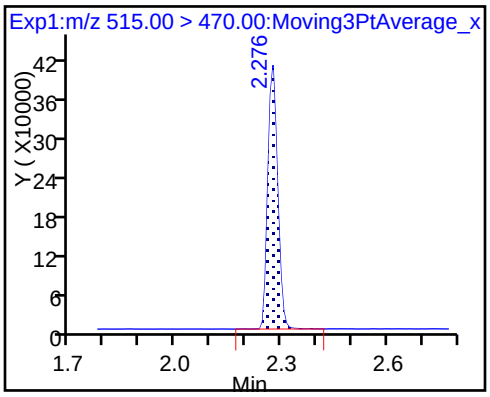
8 Perfluorooctane sulfonic acid



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
42
36
30
24
18
12
6
0
1.7
2.0
2.3
2.6
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCVL 320-172919/4 Calibration Date: 07/06/2017 23:31

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_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)	Ave	0.8911	0.9095		21.6	21.2	2.1	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.065		2.42	2.38	1.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.361		7.05	7.21	-2.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9312		4.84	4.80	1.0	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.015		9.52	9.61	-0.9	50.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8413		4.72	4.62	2.1	50.0
13C2 PFHxA	Ave	1.136	1.111		9.78	10.0	-2.2	30.0
13C2 PFDA	Ave	0.8395	0.8721		10.4	10.0	3.9	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45159.b\2017.07.06_537A_004.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 06-Jul-2017 23:31:03 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\20170707-45159.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:12:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 10:08:42

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	1.404	0.0	1.000	1913540	21.6		615	
298.90 > 99.00	1.404	1.404	0.0	1.000	1464771		1.31(0.00-0.00)	650	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.540	1.539	0.001	1.000	1099189	9.78		4085	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.692	1.691	0.001	1.000	250200	2.42		34.6	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.692	1.692	0.0	1.000	974244	7.05		340	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.878	-0.004		989181	10.0		4208	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.874	1.879	-0.005	1.000	441686	4.84		57.2	
413.00 > 169.00	1.874	1.879	-0.005	1.000	268035		1.65(0.00-0.00)	276	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.117	2.102	0.015	1.000	967977	9.52		886	
499.00 > 99.00	2.117	2.102	0.015	1.000	229640		4.22(0.00-0.00)	513	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.117	-0.008		2846016	28.7		3938	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.124	0.0	1.000	384660	4.72		68.4	
$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.281	0.003	1.000	862654	10.4		1453	

Reagents:

LC537-L2_00019 Amount Added: 1.00 Units: mL

Report Date: 07-Jul-2017 14:12:54 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45159.b\2017.07.06_537A_004.d

Injection Date: 06-Jul-2017 23:31:03 Instrument ID: A8_N

Lims ID: CCVL

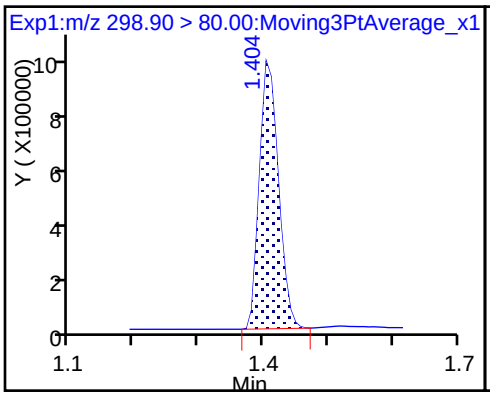
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4

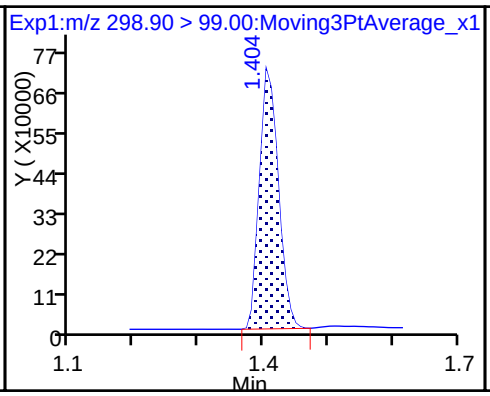
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

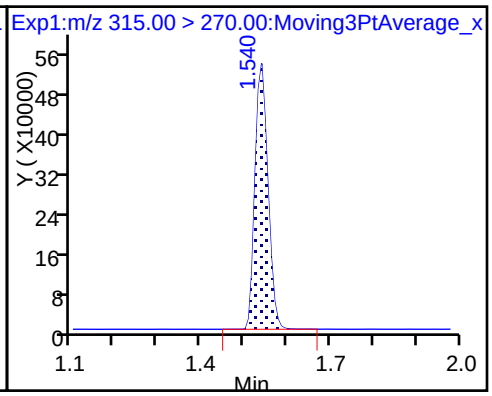
1 Perfluorobutanesulfonic acid



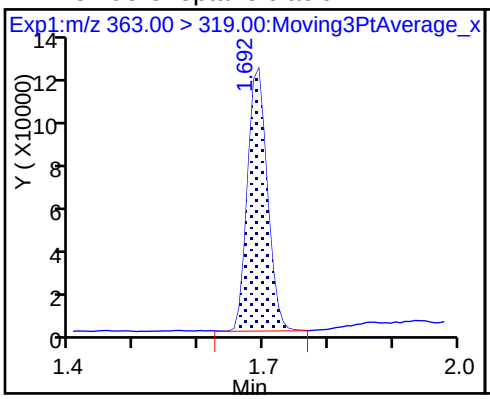
1 Perfluorobutanesulfonic acid



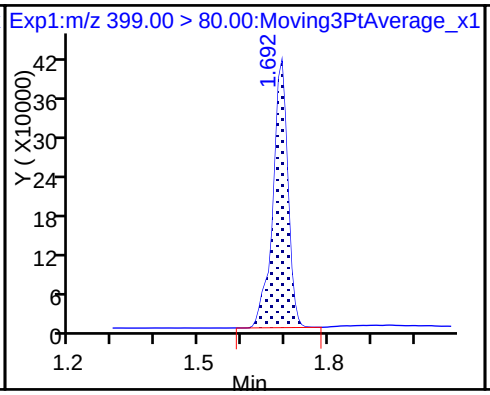
$ 2 13C2 PFHxA



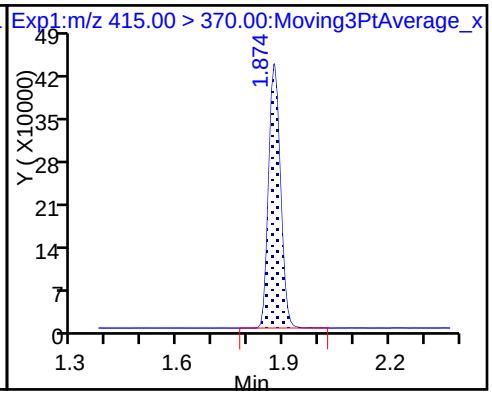
4 Perfluoroheptanoic acid



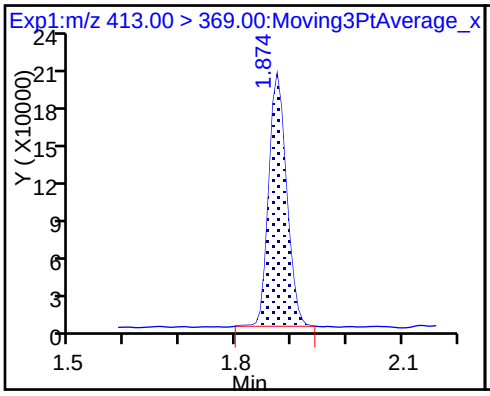
3 Perfluorohexanesulfonic acid



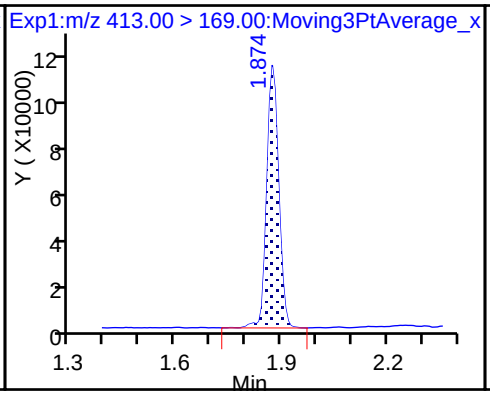
* 6 13C2-PFOA



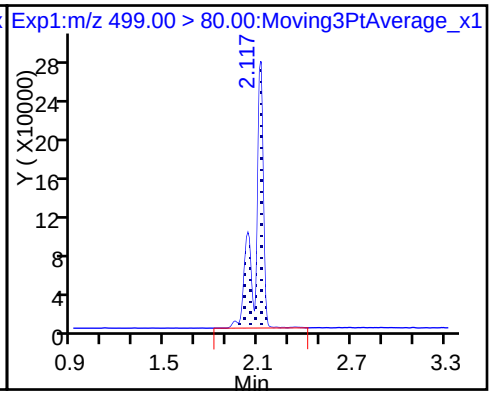
5 Perfluorooctanoic acid



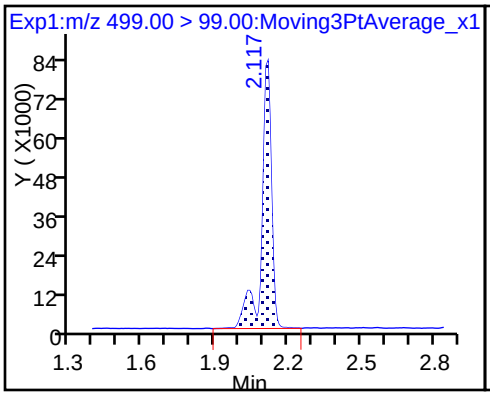
5 Perfluorooctanoic acid



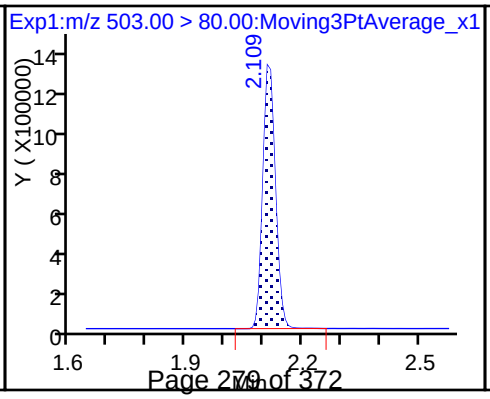
8 Perfluorooctane sulfonic acid



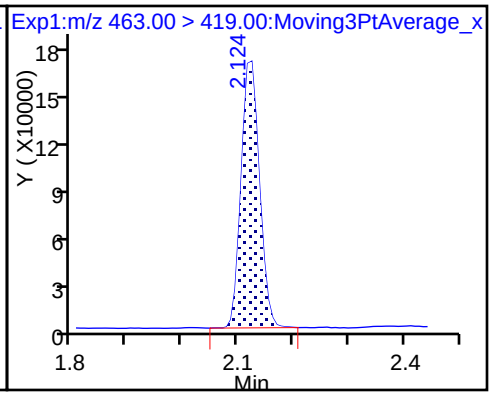
8 Perfluorooctane sulfonic acid



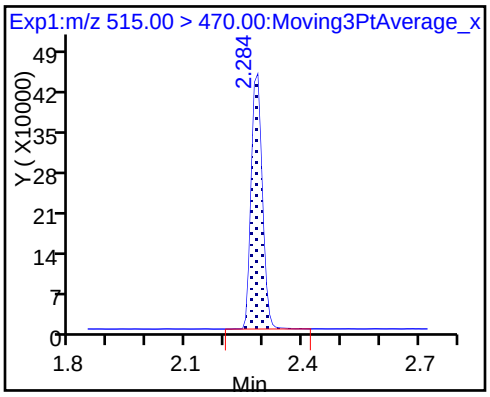
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.284
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173033/1 Calibration Date: 07/07/2017 01:39

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_031.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9177		45.7	44.4	3.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.043		4.96	4.97	-0.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.374		14.9	15.1	-1.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9082		9.89	10.0	-1.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.010		19.8	20.1	-1.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.7875		9.25	9.68	-4.4	30.0
13C2 PFHxA	Ave	1.136	1.139		10.0	10.0	0.3	30.0
13C2 PFDA	Ave	0.8395	0.8636		10.3	10.0	2.9	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_031.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 07-Jul-2017 01:39:20 ALS Bottle#: 3 Worklist Smp#: 1
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\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:25:04

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	1.404	0.0	1.000	3933156	45.7		1191	
298.90 > 99.00	1.404	1.404	0.0	1.000	2960310		1.33(0.00-0.00)	1244	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1096105	10.0		4682	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.691	-0.014	1.000	499470	4.96		69.3	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	2004430	14.9		733	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		962177	10.0		3818	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.879	-0.020	1.000	877305	9.89		106	
413.00 > 169.00	1.859	1.879	-0.020	1.000	520029		1.69(0.00-0.00)	574	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.094	0.008	1.000	1961510	19.8		1960	M
499.00 > 99.00	2.102	2.094	0.008	1.000	440744		4.45(0.00-0.00)	1014	M
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2769042	28.7		3788	
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.124	-0.015	1.000	733296	9.25		62.8	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	830960	10.3		1422	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00022 Amount Added: 1.00 Units: mL

Report Date: 07-Jul-2017 14:38:54 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_031.d

Injection Date: 07-Jul-2017 01:39:20 Instrument ID: A8_N

Lims ID: CCV L3

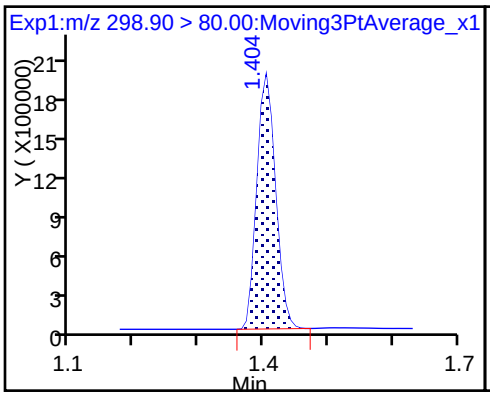
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 1

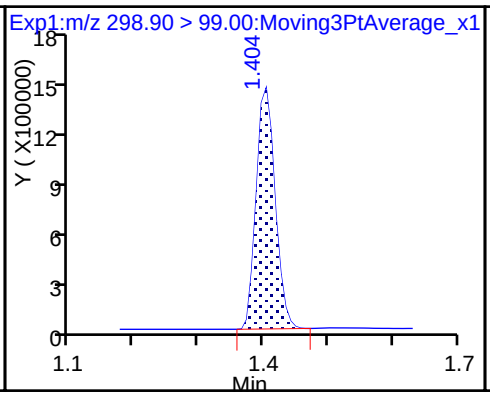
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

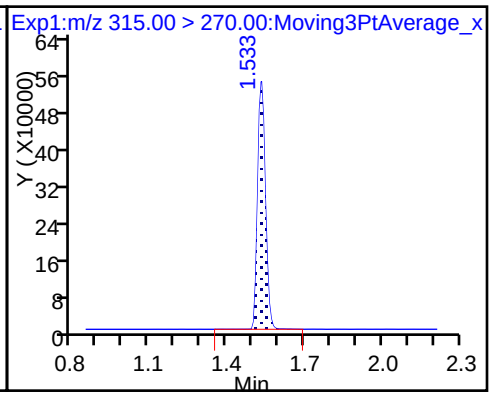
1 Perfluorobutanesulfonic acid



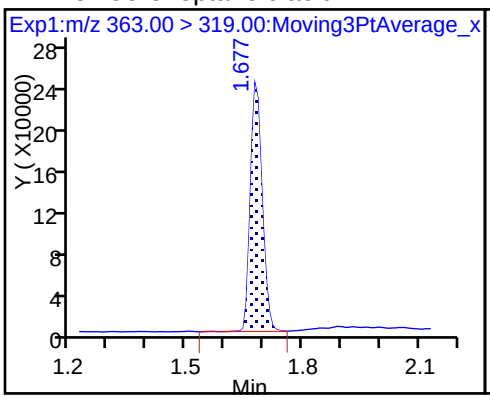
1 Perfluorobutanesulfonic acid



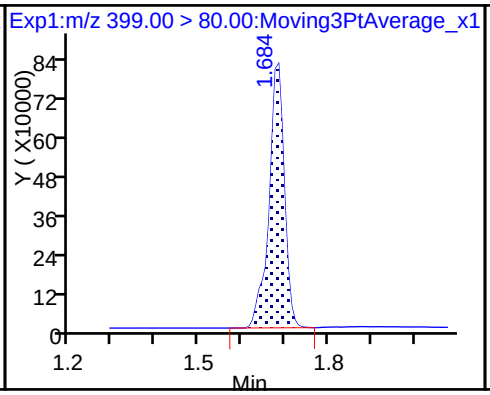
$ 2 13C2 PFHxA



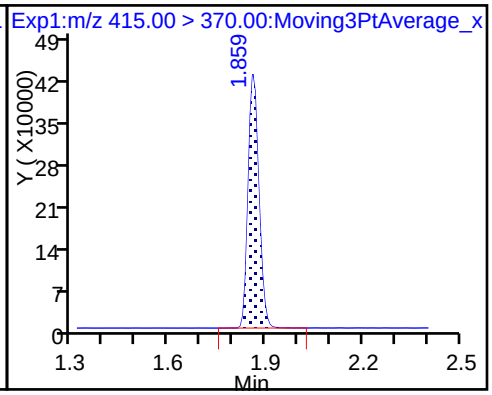
4 Perfluoroheptanoic acid



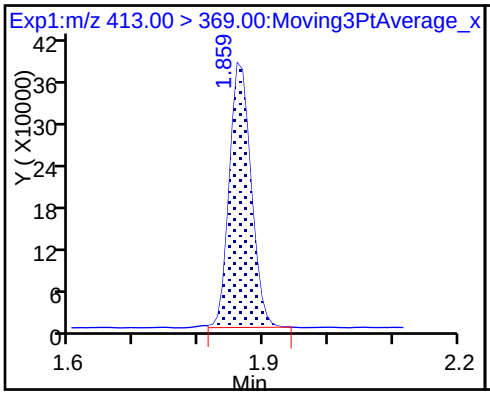
3 Perfluorohexanesulfonic acid



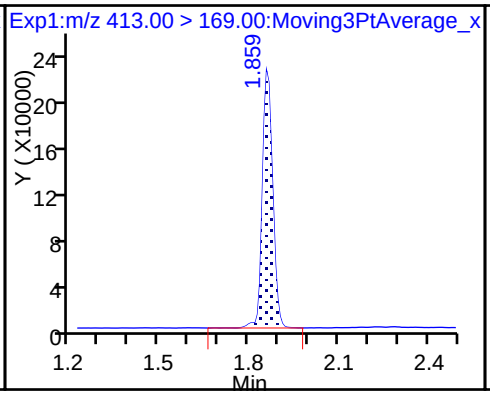
* 6 13C2-PFOA



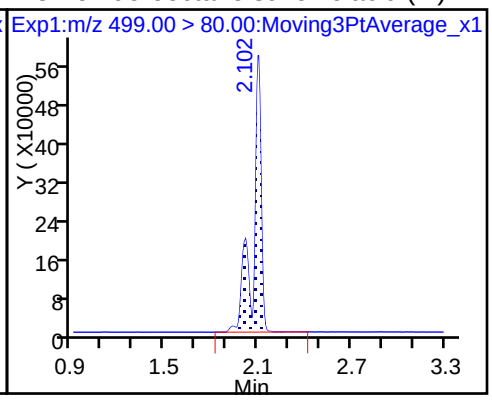
5 Perfluorooctanoic acid



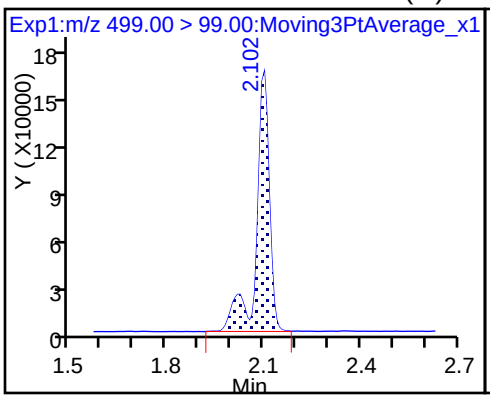
5 Perfluorooctanoic acid



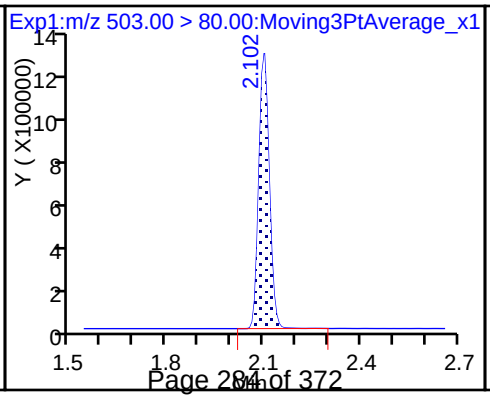
8 Perfluorooctane sulfonic acid (M)



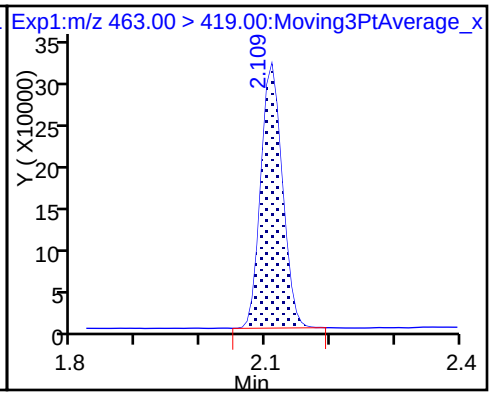
8 Perfluorooctane sulfonic acid (M)



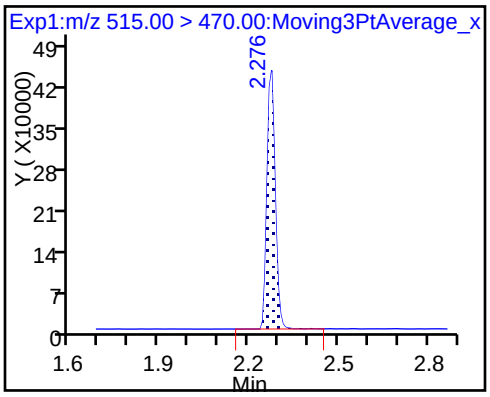
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.6
1.9
2.2
2.5
2.8
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

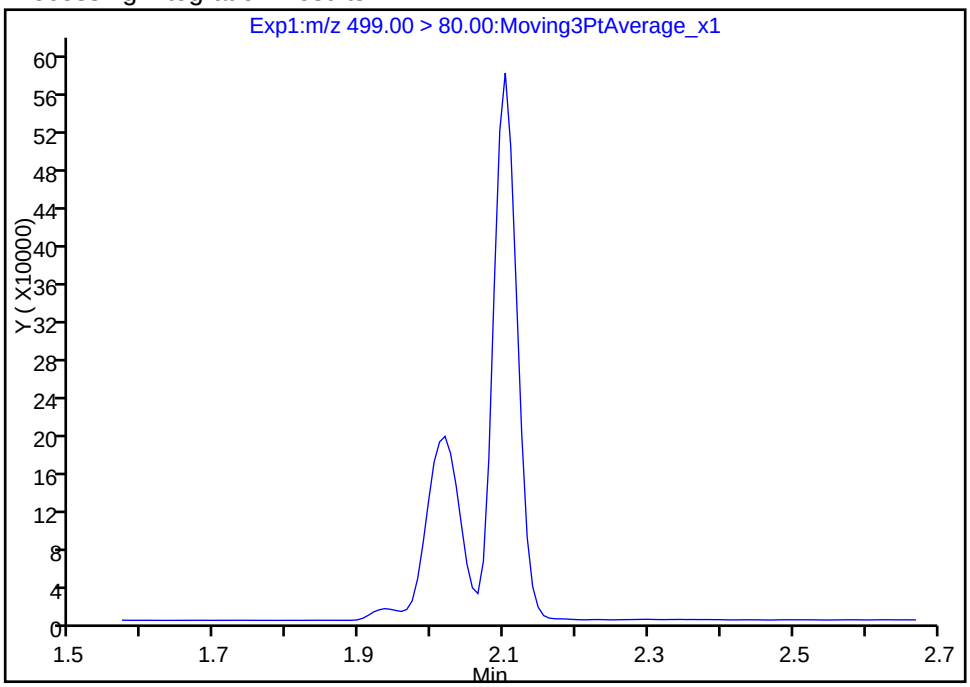
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_031.d				
Injection Date:	07-Jul-2017 01:39:20	Instrument ID:	A8_N		
Lims ID:	CCV L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	1
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

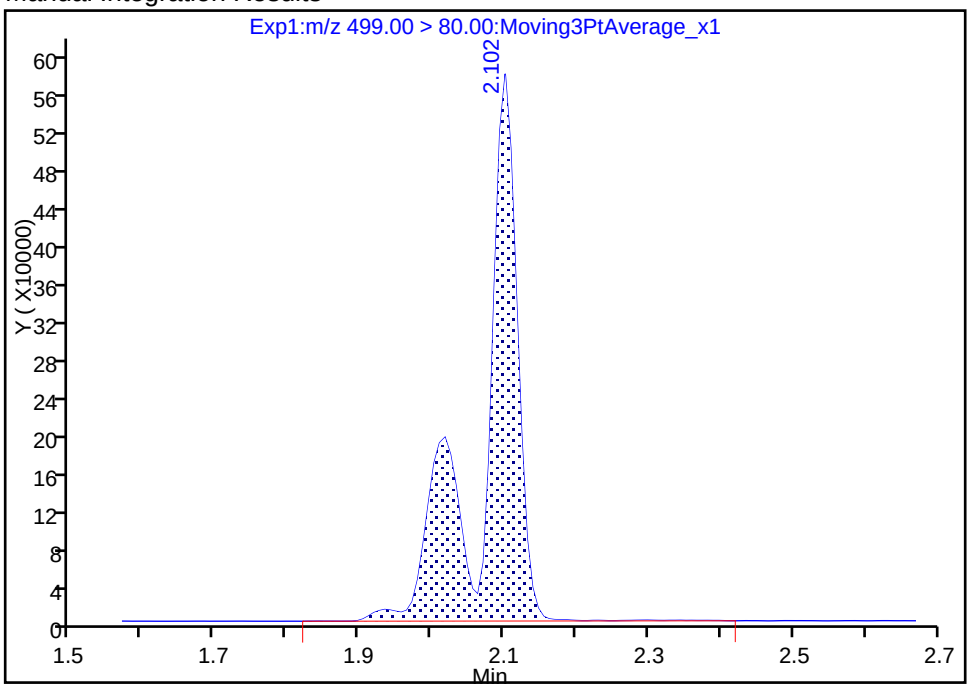
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 1961510
Amount: 19.837790
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:24:37
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

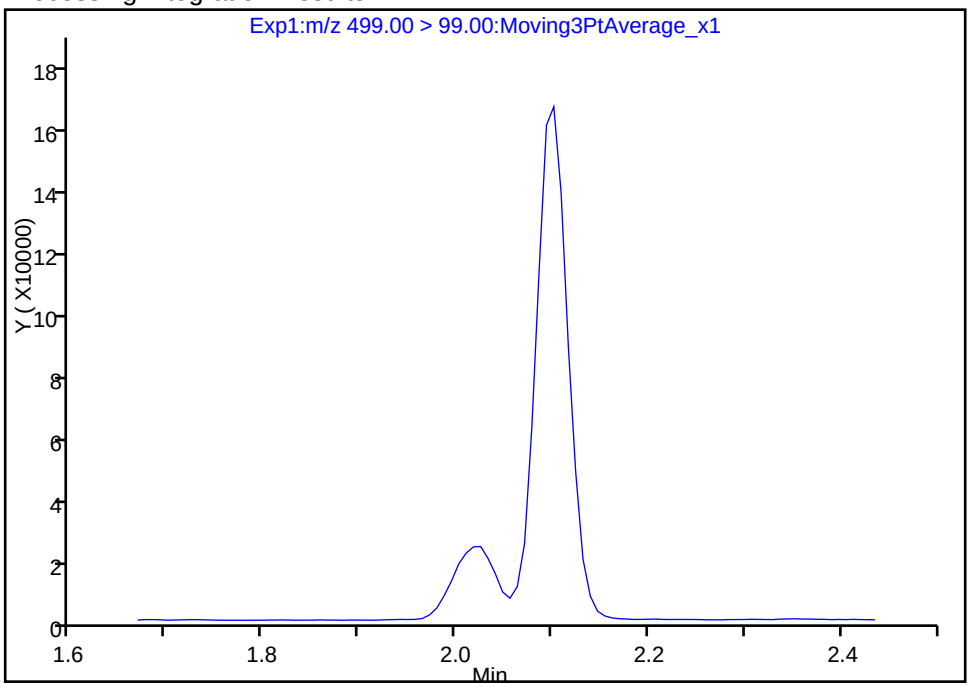
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_031.d				
Injection Date:	07-Jul-2017 01:39:20	Instrument ID:	A8_N		
Lims ID:	CCV L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	1
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

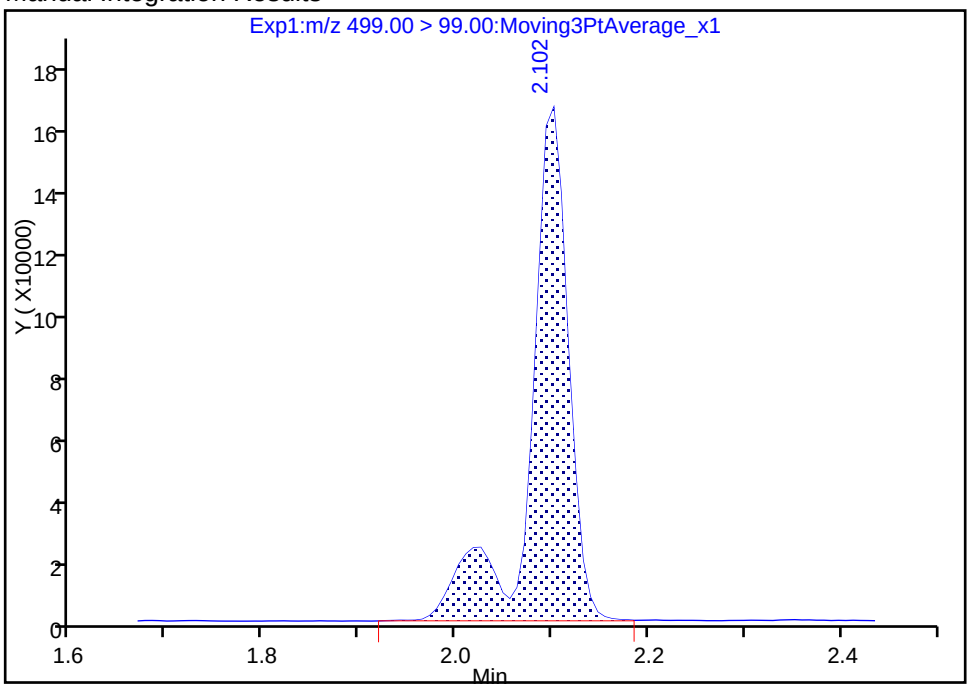
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 440744
Amount: 19.837790
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:24:56
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

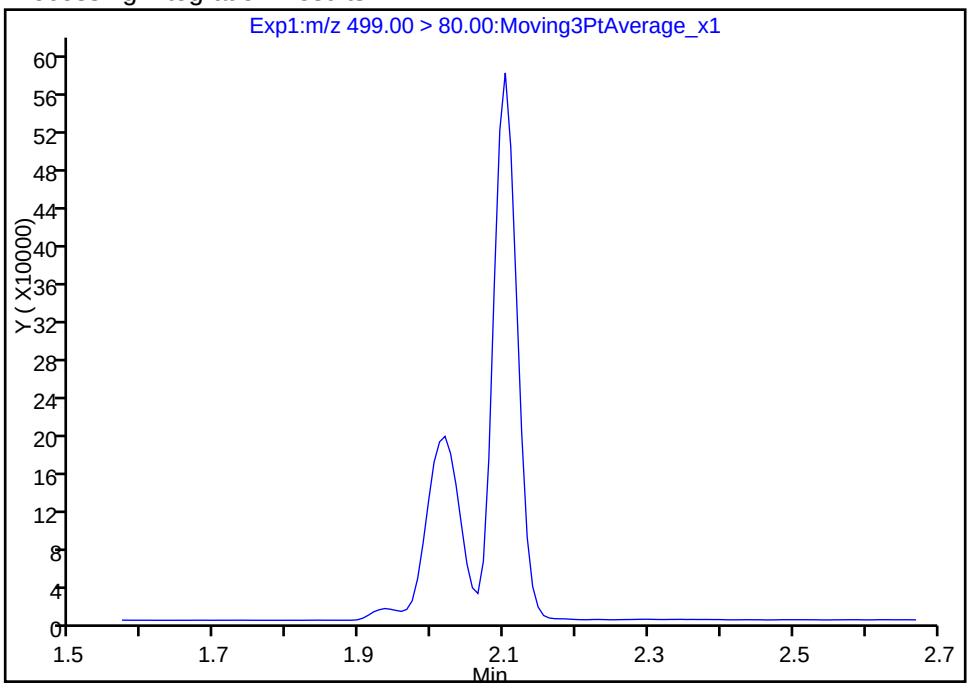
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_031.d				
Injection Date:	07-Jul-2017 01:39:20	Instrument ID:	A8_N		
Lims ID:	CCV L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	1
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

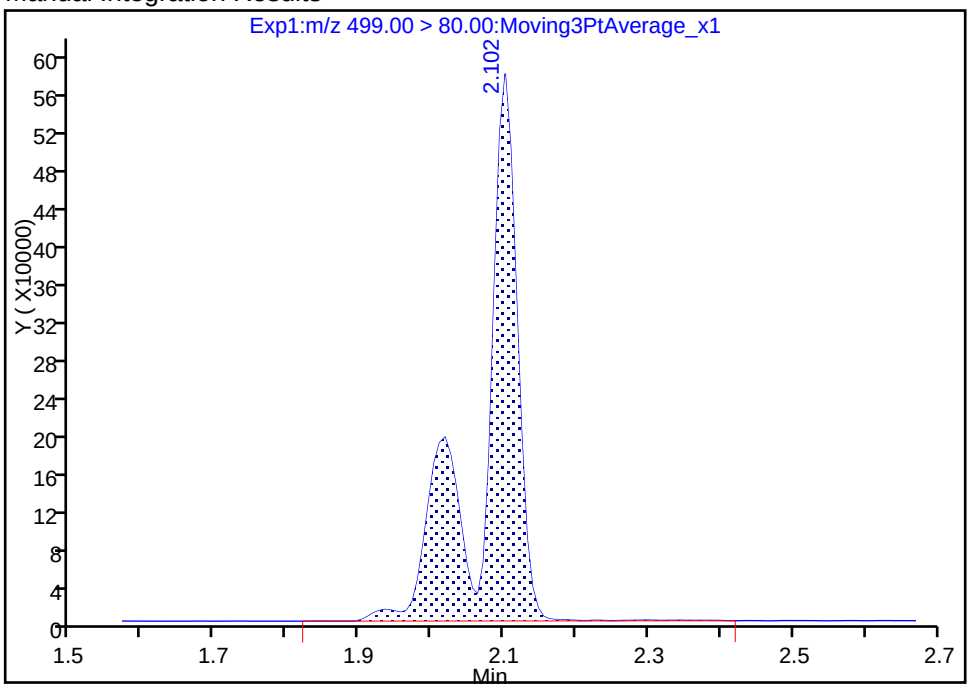
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 1961510
Amount: 19.837790
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:24:56
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173033/13 Calibration Date: 07/07/2017 02:36

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_043.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8557		127	133	-4.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.074		15.3	14.9	2.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.422		46.0	45.1	2.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9647		31.4	30.0	4.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.014		59.4	60.0	-1.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8038		28.2	28.9	-2.5	30.0
13C2 PFHxA	Ave	1.136	1.148		10.1	10.0	1.1	30.0
13C2 PFDA	Ave	0.8395	0.8783		10.5	10.0	4.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173034/13 Calibration Date: 07/07/2017 02:36

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_043.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8557		127	133	-4.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.074		15.3	14.9	2.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.422		46.0	45.1	2.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9647		31.4	30.0	4.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.014		59.4	60.0	-1.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8038		28.2	28.9	-2.5	30.0
13C2 PFHxA	Ave	1.136	1.148		10.1	10.0	1.1	30.0
13C2 PFDA	Ave	0.8395	0.8783		10.5	10.0	4.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_043.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 07-Jul-2017 02:36:24 ALS Bottle#: 5 Worklist Smp#: 13
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\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:25:39

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	1.404	-0.008	1.000	11263904	127.2		2675	
298.90 > 99.00	1.396	1.404	-0.008	1.000	8655622		1.30(0.00-0.00)	3793	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.539	-0.014	1.000	1093370	10.1		4342	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.691	-0.014	1.000	1518595	15.3		203	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.692	-0.015	1.000	6368705	46.0		2131	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		952280	10.0		3099	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.879	-0.020	1.000	2753210	31.4		349	
413.00 > 169.00	1.859	1.879	-0.020	1.000	1613476		1.71(0.00-0.00)	1729	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.094	2.094	0.0	1.000	6046895	59.4		4262	M
499.00 > 99.00	2.094	2.094	0.0	1.000	1416728		4.27(0.00-0.00)	2479	M
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.117	-0.023		2849008	28.7		3567	
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.124	-0.022	1.000	2211487	28.2		204	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.281	-0.013	1.000	836400	10.5		1375	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00023 Amount Added: 1.00 Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_043.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 07-Jul-2017 02:36:24 ALS Bottle#: 5 Worklist Smp#: 13
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\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:04 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:25:39

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	1.404	-0.008	1.000	11263904	127.2		2675	
298.90 > 99.00	1.396	1.404	-0.008	1.000	8655622		1.30(0.00-0.00)	3793	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.539	-0.014	1.000	1093370	10.1		4342	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.691	-0.014	1.000	1518595	15.3		203	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.692	-0.015	1.000	6368705	46.0		2131	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		952280	10.0		3099	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.879	-0.020	1.000	2753210	31.4		349	
413.00 > 169.00	1.859	1.879	-0.020	1.000	1613476		1.71(0.00-0.00)	1729	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.094	2.094	0.0	1.000	6046895	59.4		4262	M
499.00 > 99.00	2.094	2.094	0.0	1.000	1416728		4.27(0.00-0.00)	2479	M
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.117	-0.023		2849008	28.7		3567	
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.124	-0.022	1.000	2211487	28.2		204	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.281	-0.013	1.000	836400	10.5		1375	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00023 Amount Added: 1.00 Units: mL

Report Date: 07-Jul-2017 14:39:04 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_043.d

Injection Date: 07-Jul-2017 02:36:24 Instrument ID: A8_N

Lims ID: CCV L5

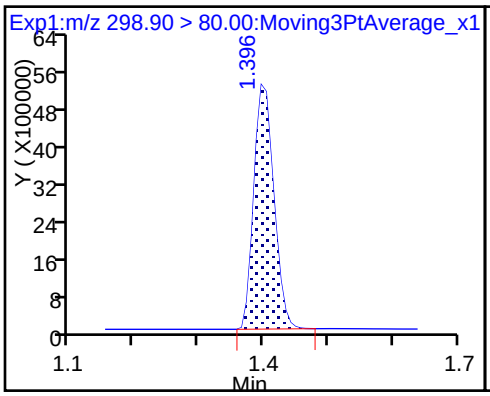
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13

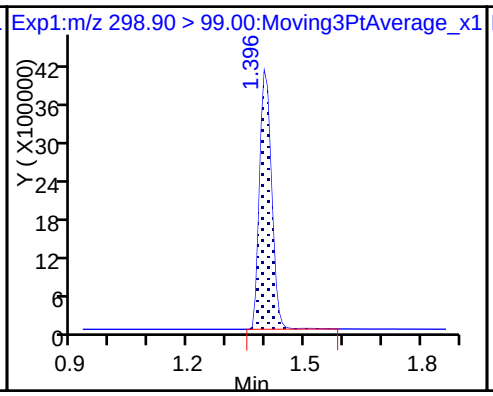
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

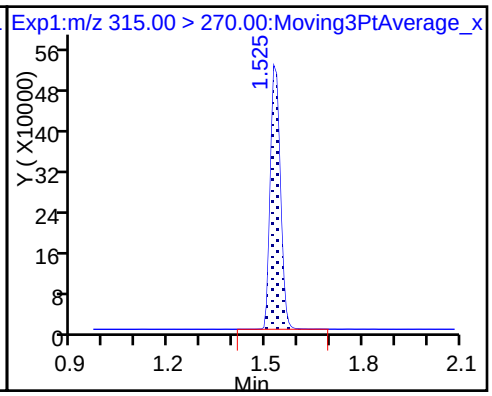
1 Perfluorobutanesulfonic acid



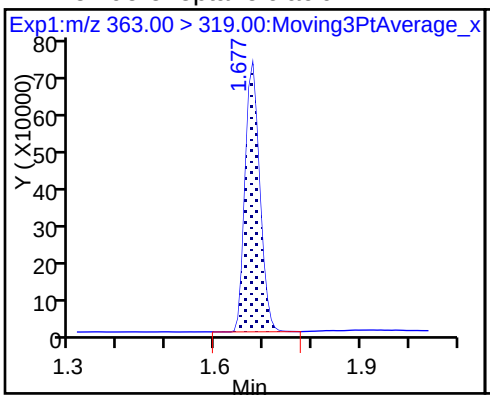
1 Perfluorobutanesulfonic acid



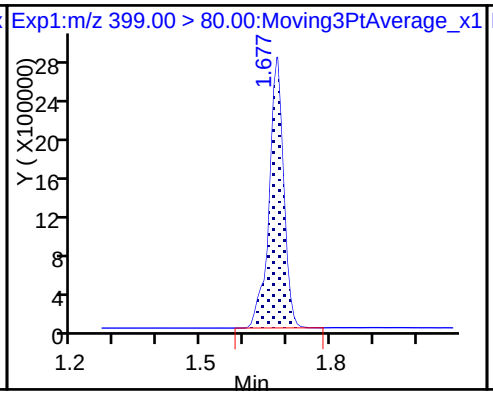
$ 2 13C2 PFHxA



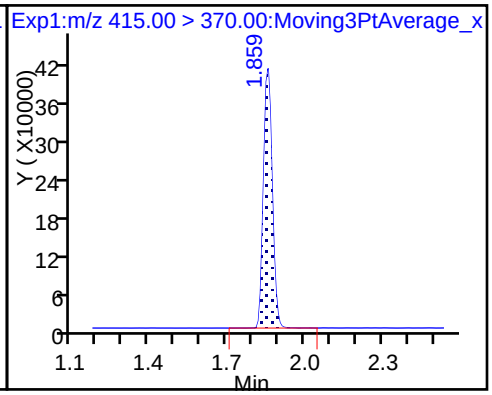
4 Perfluoroheptanoic acid



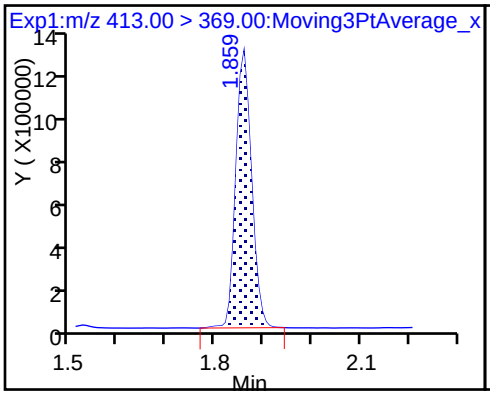
3 Perfluorohexanesulfonic acid



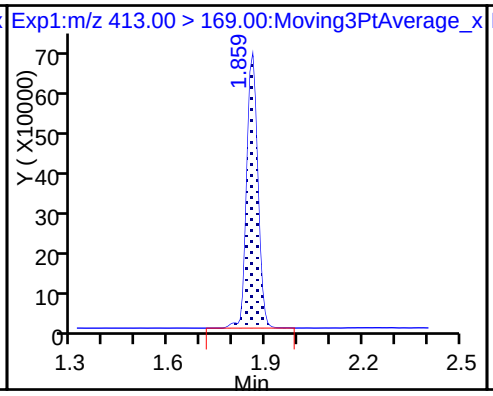
* 6 13C2-PFOA



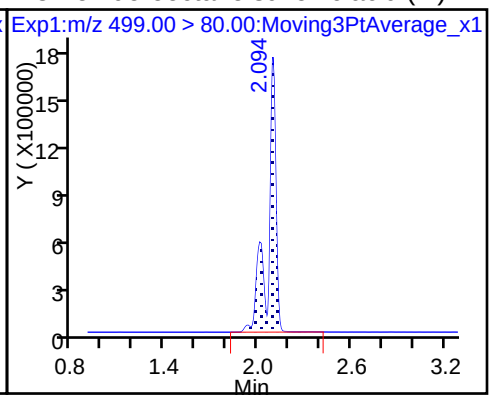
5 Perfluorooctanoic acid



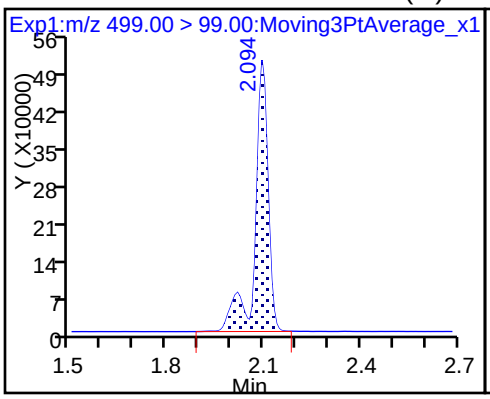
5 Perfluorooctanoic acid



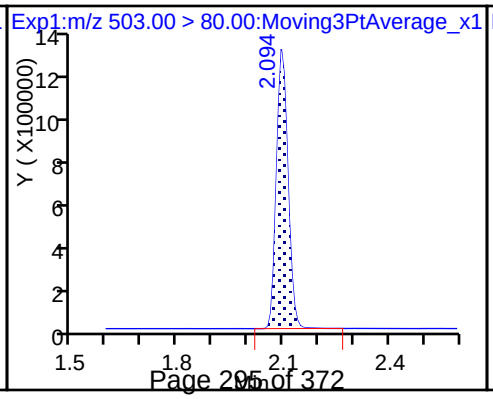
8 Perfluorooctane sulfonic acid (M)



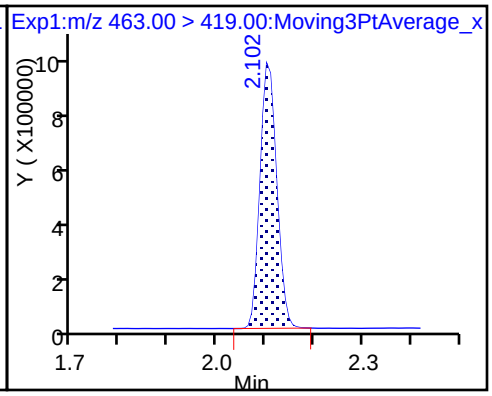
8 Perfluorooctane sulfonic acid (M)



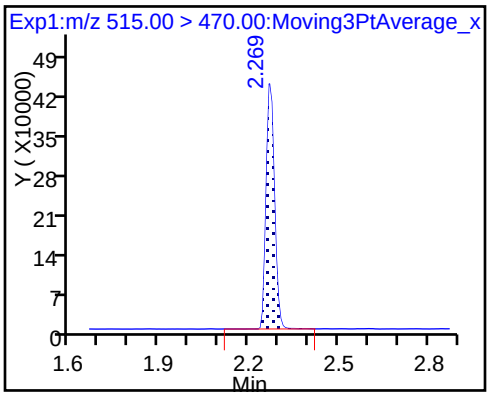
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.269
Y (X10000)
49
42
35
28
21
14
7
0
1.6
1.9
2.2
2.5
2.8
Min

Report Date: 07-Jul-2017 14:39:04 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_043.d

Injection Date: 07-Jul-2017 02:36:24 Instrument ID: A8_N

Lims ID: CCV L5

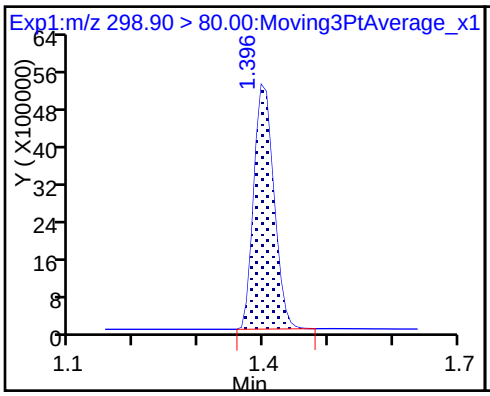
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13

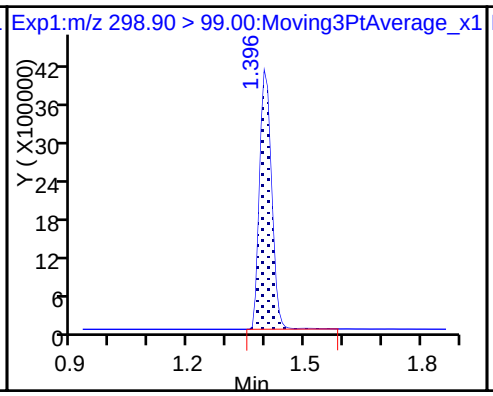
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

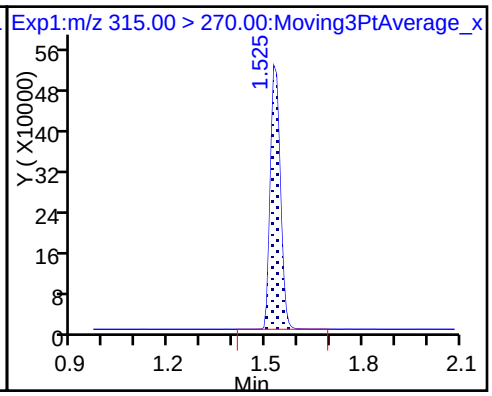
1 Perfluorobutanesulfonic acid



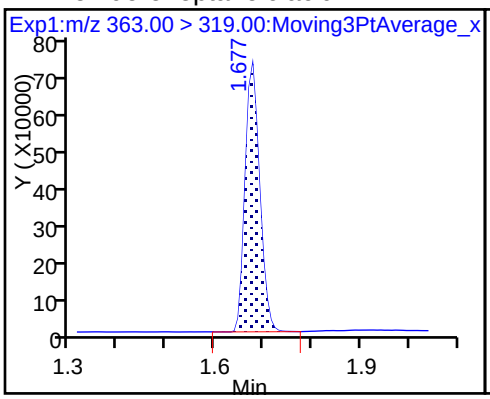
1 Perfluorobutanesulfonic acid



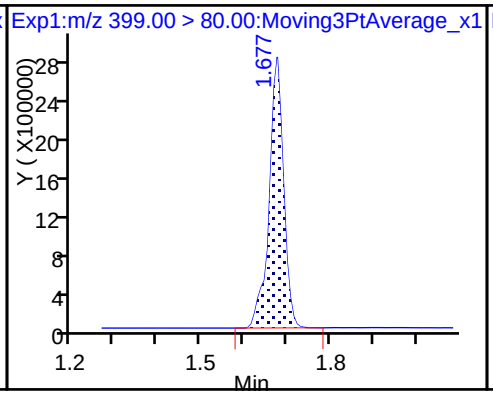
$ 2 13C2 PFHxA



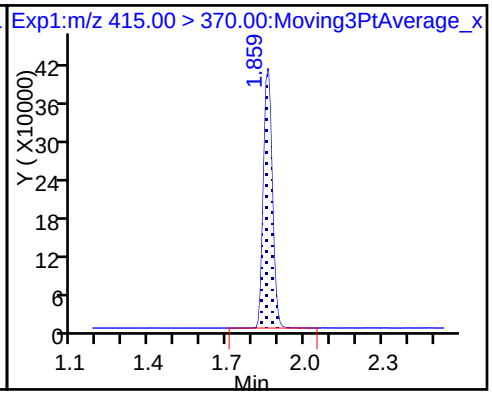
4 Perfluoroheptanoic acid



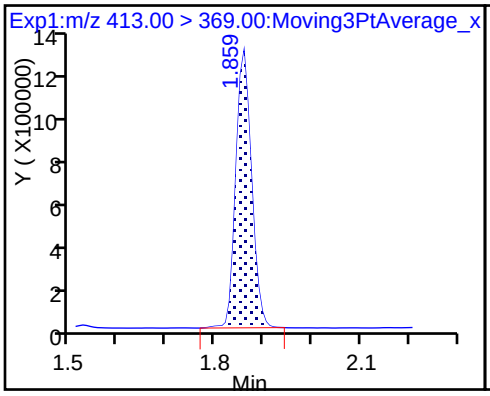
3 Perfluorohexanesulfonic acid



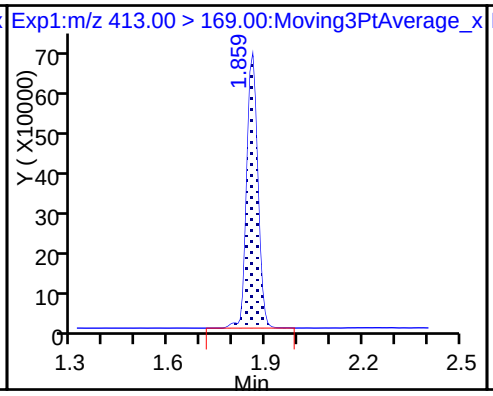
* 6 13C2-PFOA



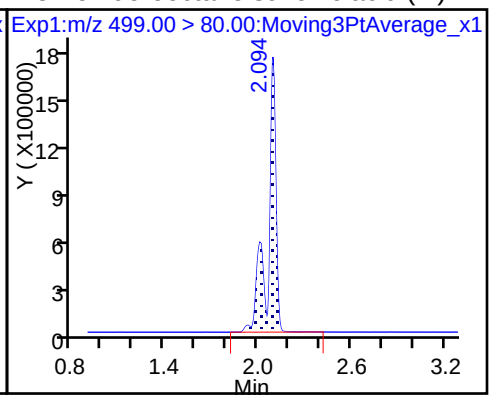
5 Perfluorooctanoic acid



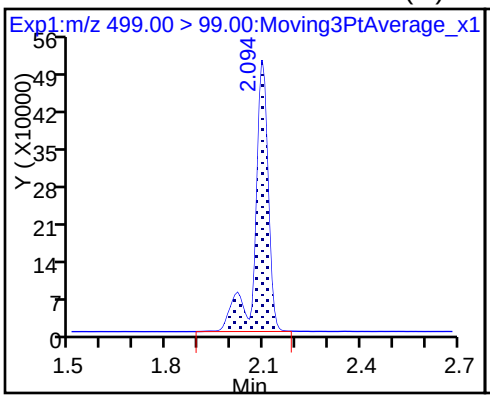
5 Perfluorooctanoic acid



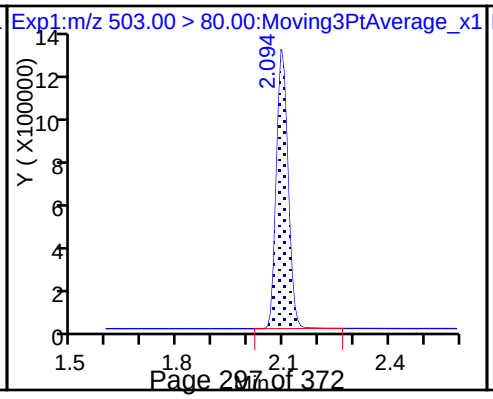
8 Perfluorooctane sulfonic acid (M)



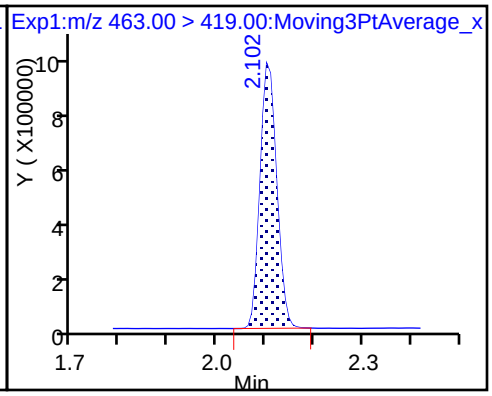
8 Perfluorooctane sulfonic acid (M)



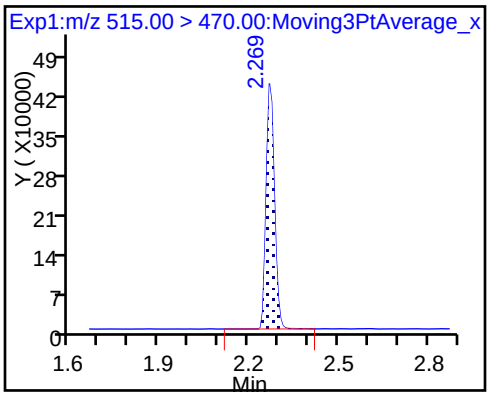
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.269
Y (X10000)
49
42
35
28
21
14
7
0
1.6
1.9
2.2
2.5
2.8
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

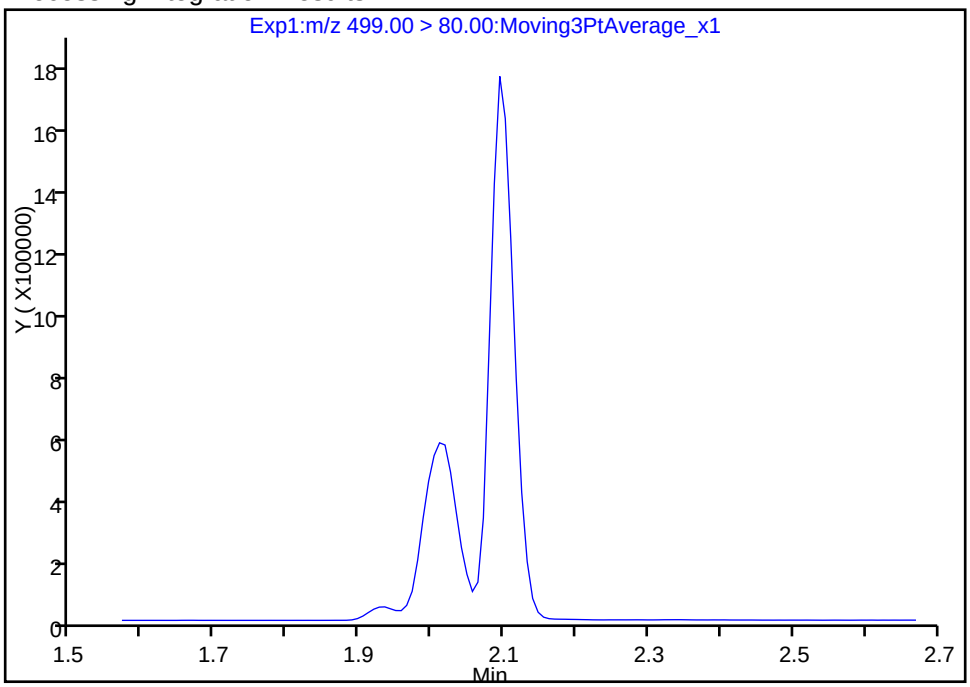
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_043.d				
Injection Date:	07-Jul-2017 02:36:24	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

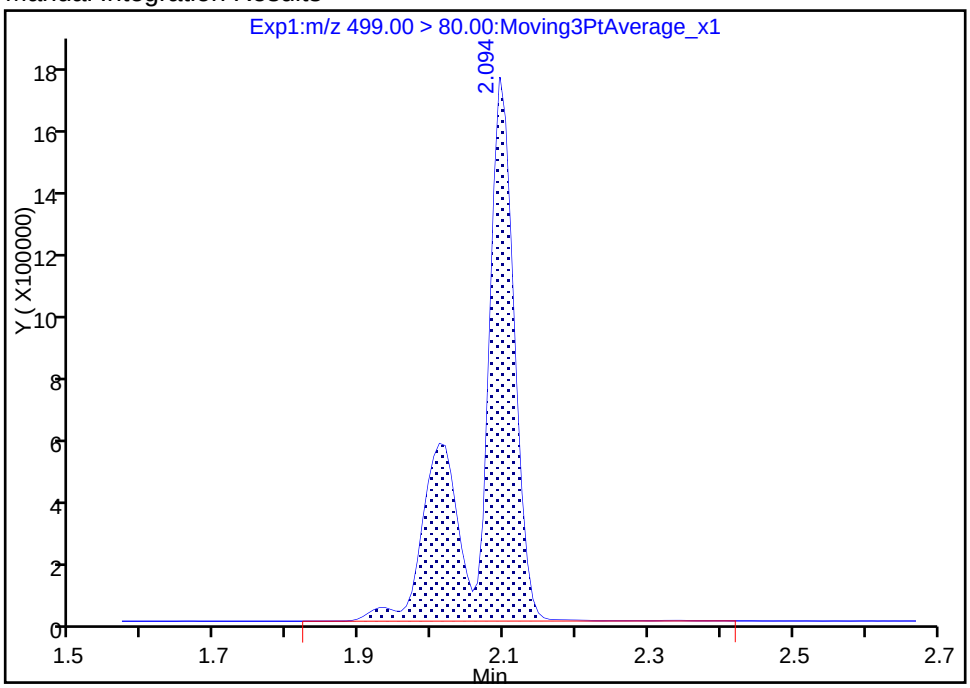
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.09
Area: 6046895
Amount: 59.438940
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:10
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

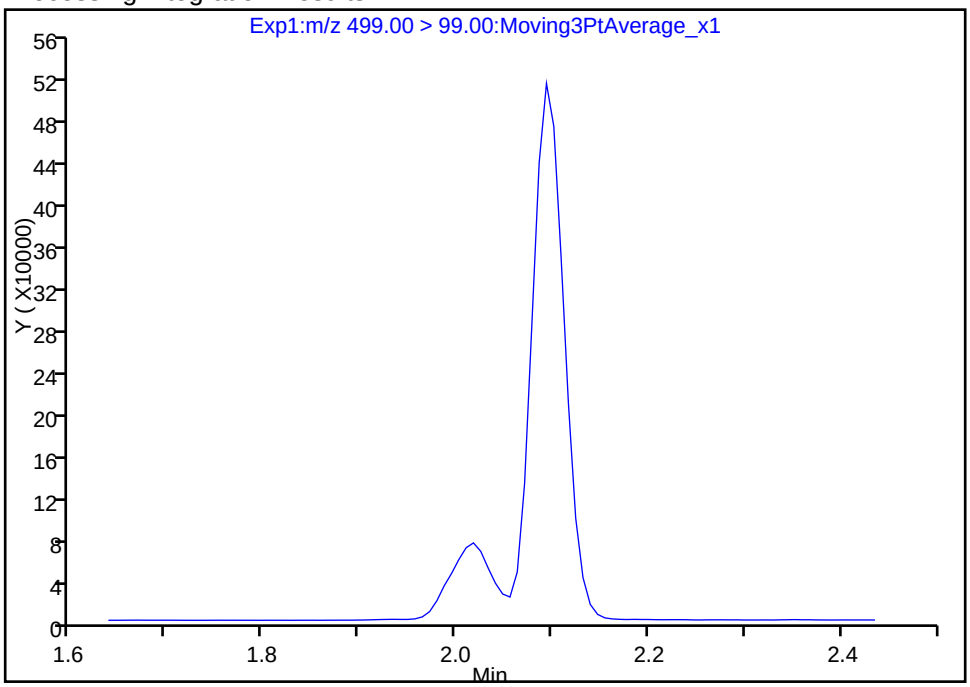
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_043.d				
Injection Date:	07-Jul-2017 02:36:24	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

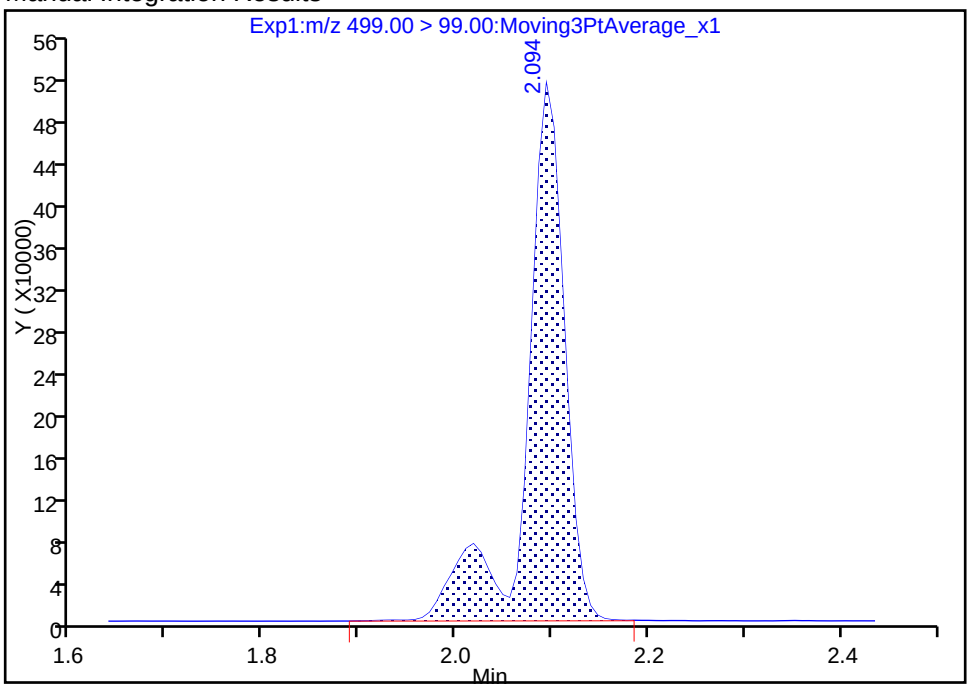
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.09
Area: 1416728
Amount: 59.438940
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:32
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

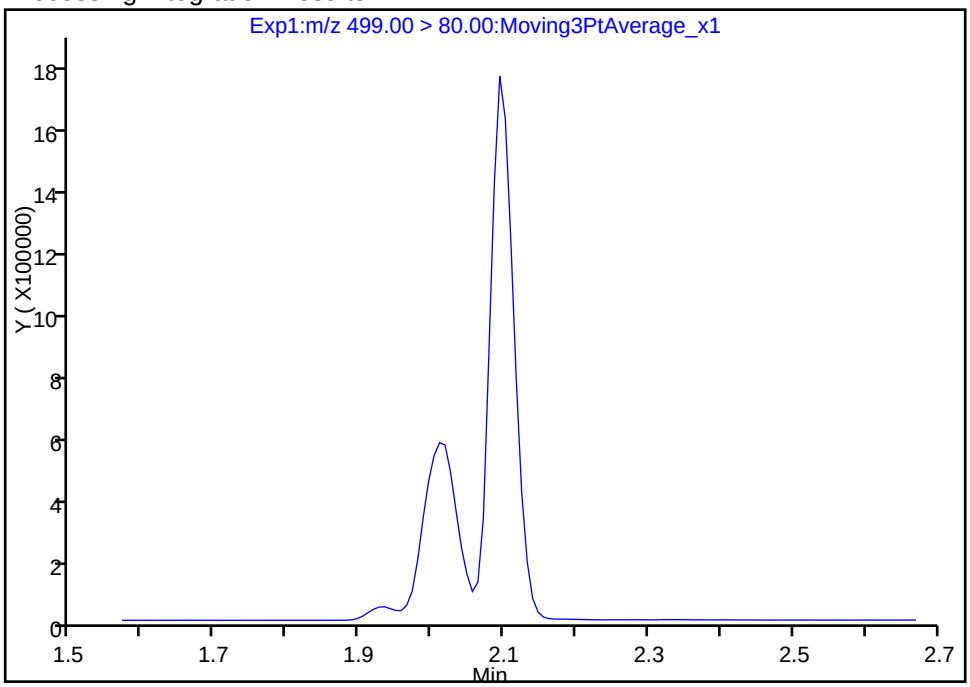
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_043.d				
Injection Date:	07-Jul-2017 02:36:24	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

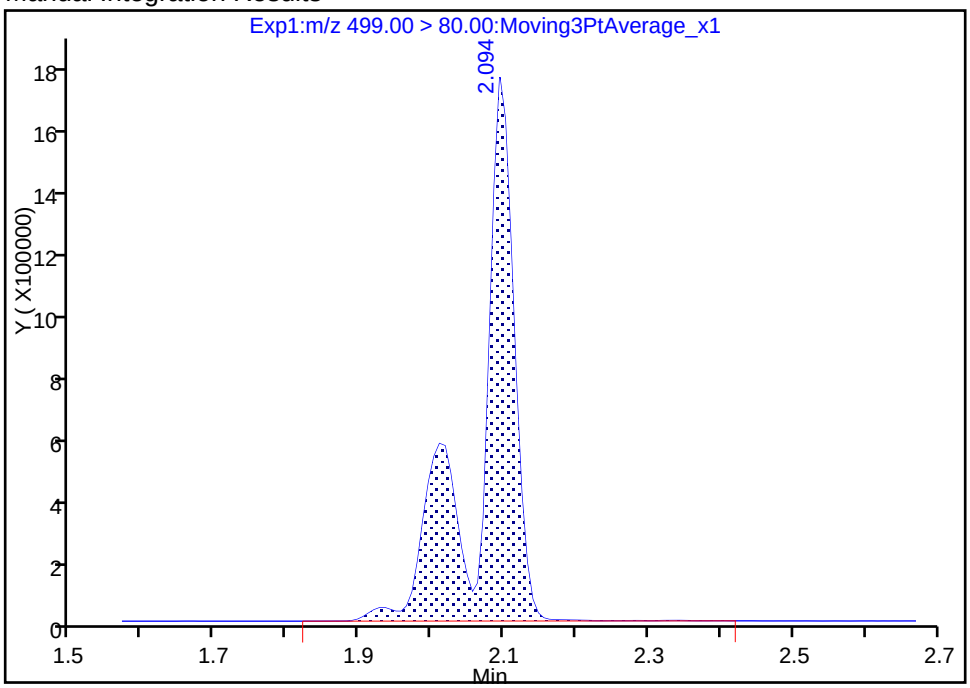
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.09
Area: 6046895
Amount: 59.438940
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:32
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

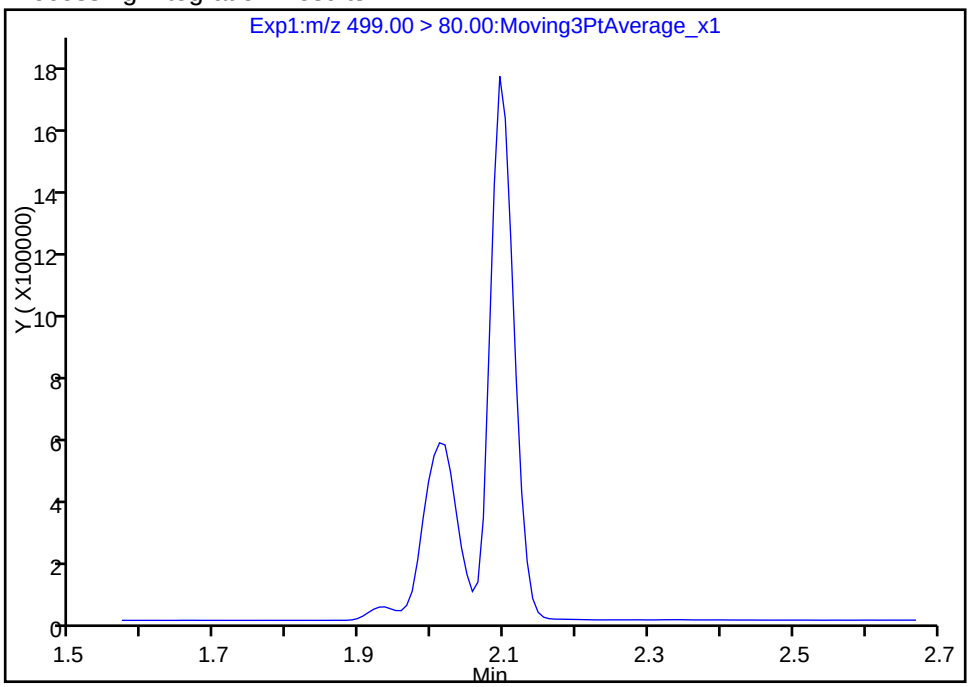
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_043.d				
Injection Date:	07-Jul-2017 02:36:24	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

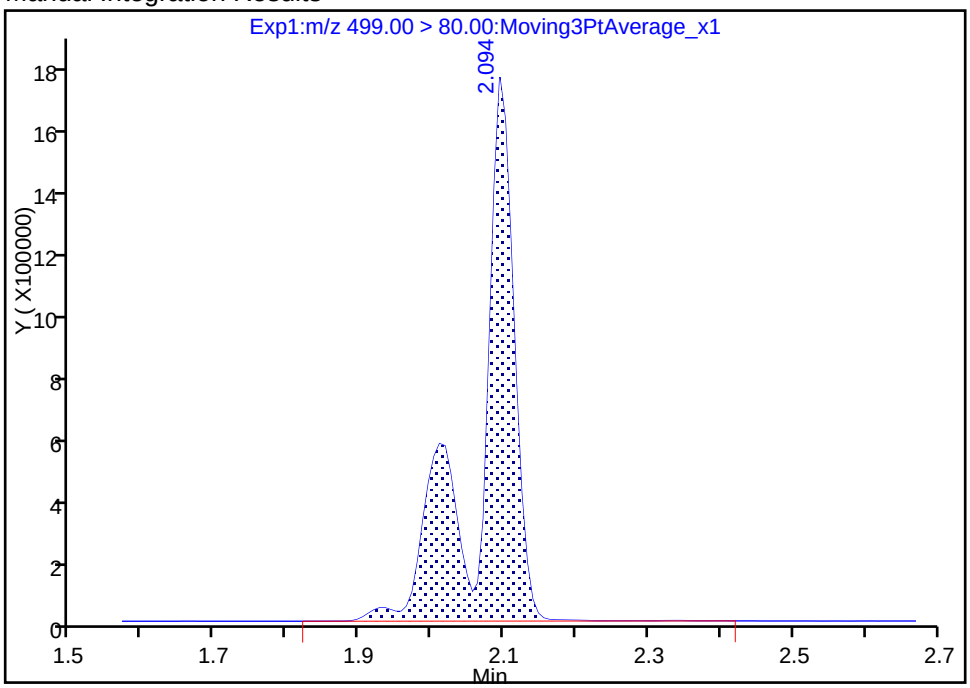
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT:	2.09
Area:	6046895
Amount:	59.438940
Amount Units:	ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:10
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

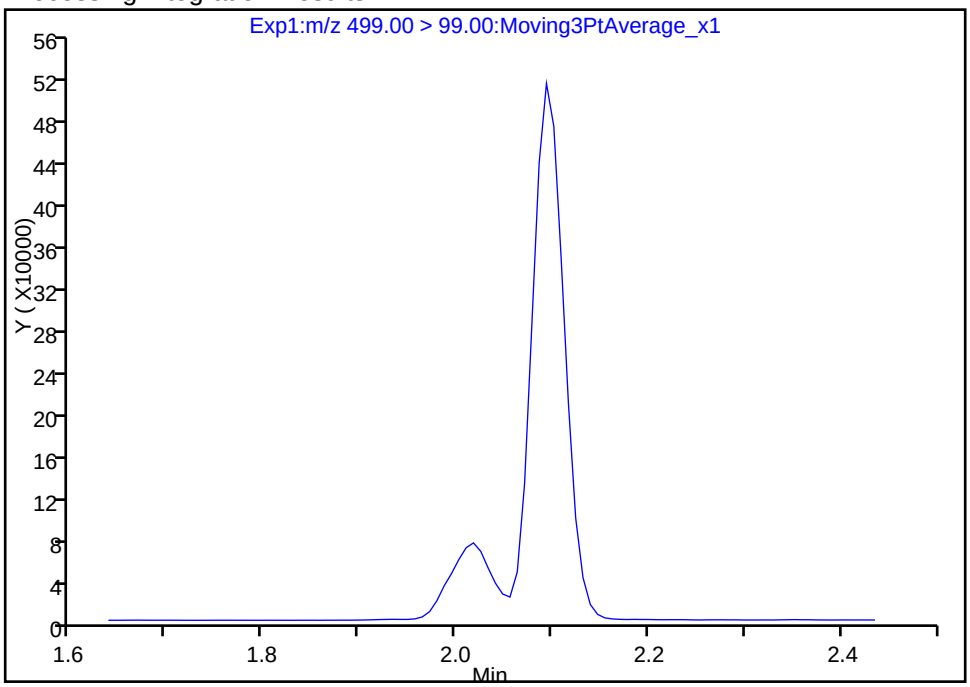
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_043.d				
Injection Date:	07-Jul-2017 02:36:24	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

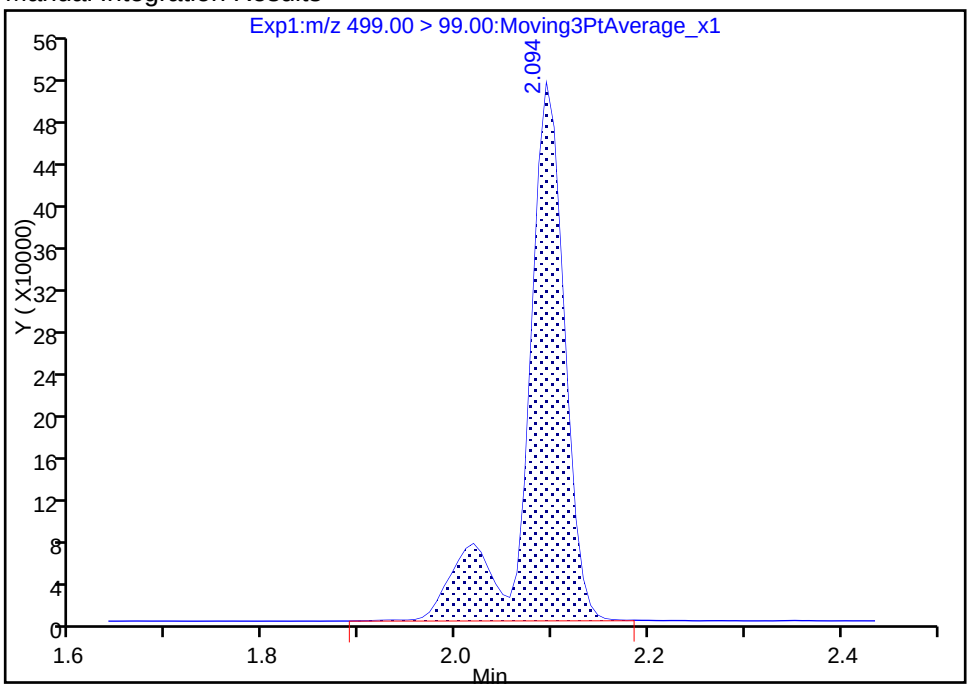
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.09
Area: 1416728
Amount: 59.438940
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:32
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

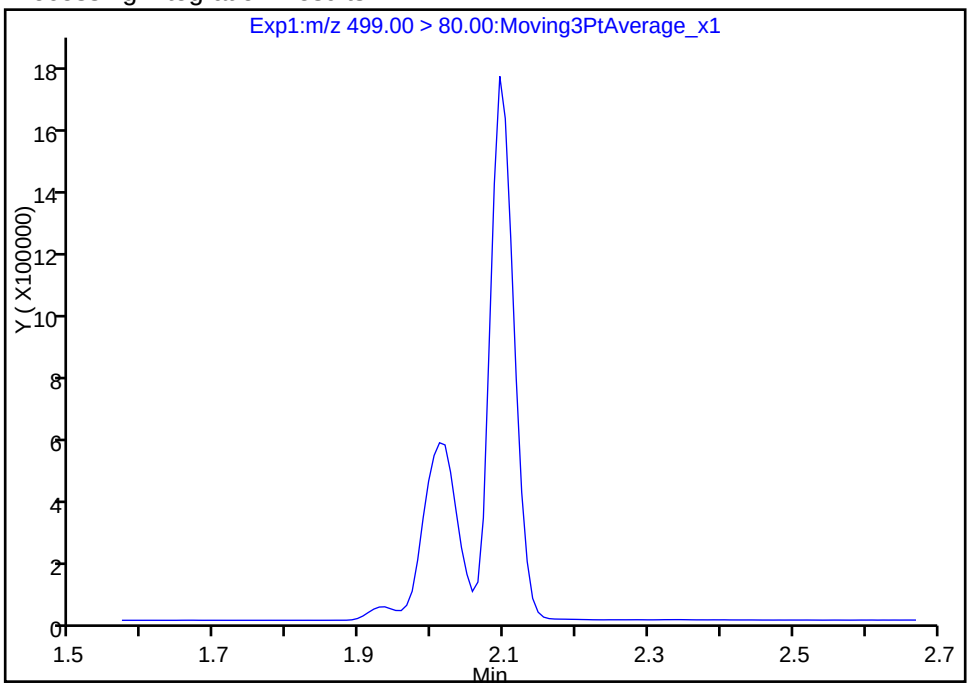
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_043.d				
Injection Date:	07-Jul-2017 02:36:24	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

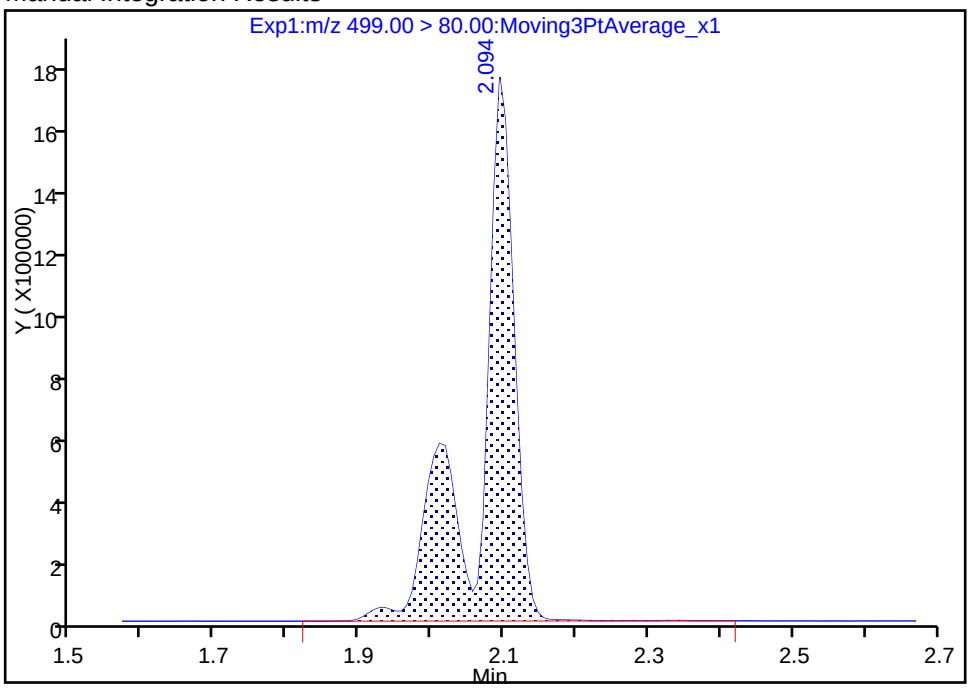
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.09
Area: 6046895
Amount: 59.438940
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:32
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173034/25 Calibration Date: 07/07/2017 03:33

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_055.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9482		47.2	44.4	6.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.072		5.10	4.97	2.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.459		15.8	15.1	4.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9371		10.2	10.0	1.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.049		20.6	20.1	2.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8225		9.66	9.68	-0.2	30.0
13C2 PFHxA	Ave	1.136	1.169		10.3	10.0	2.9	30.0
13C2 PFDA	Ave	0.8395	0.9021		10.7	10.0	7.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173035/25 Calibration Date: 07/07/2017 03:33

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_055.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9482		47.2	44.4	6.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.072		5.10	4.97	2.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.459		15.8	15.1	4.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9371		10.2	10.0	1.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.049		20.6	20.1	2.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8225		9.66	9.68	-0.2	30.0
13C2 PFHxA	Ave	1.136	1.169		10.3	10.0	2.9	30.0
13C2 PFDA	Ave	0.8395	0.9021		10.7	10.0	7.5	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_055.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 07-Jul-2017 03:33:22 ALS Bottle#: 3 Worklist Smp#: 25
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\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:13 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:26:05

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	1.404	0.0	1.000	3926094	47.2		1195	
298.90 > 99.00	1.404	1.404	0.0	1.000	3187419		1.23(0.00-0.00)	1302	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1107625	10.3		4004	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.691	-0.014	1.000	505500	5.10		73.1	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.692	-0.015	1.000	2056074	15.8		763	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		947720	10.0		3030	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.879	-0.020	1.000	891627	10.2		112	
413.00 > 169.00	1.859	1.879	-0.020	1.000	521611		1.71(0.00-0.00)	604	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.094	0.008	1.000	1968155	20.6		1663	M
499.00 > 99.00	2.102	2.094	0.008	1.000	436811		4.51(0.00-0.00)	1046	M
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2675129	28.7		3248	
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.124	-0.015	1.000	754426	9.66		75.7	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	854924	10.7		1511	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00022 Amount Added: 1.00 Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_055.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 07-Jul-2017 03:33:22 ALS Bottle#: 3 Worklist Smp#: 25
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\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:13 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:26:05

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	1.404	0.0	1.000	3926094	47.2		1195	
298.90 > 99.00	1.404	1.404	0.0	1.000	3187419		1.23(0.00-0.00)	1302	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1107625	10.3		4004	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.691	-0.014	1.000	505500	5.10		73.1	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.692	-0.015	1.000	2056074	15.8		763	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		947720	10.0		3030	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.879	-0.020	1.000	891627	10.2		112	
413.00 > 169.00	1.859	1.879	-0.020	1.000	521611		1.71(0.00-0.00)	604	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.094	0.008	1.000	1968155	20.6		1663	M
499.00 > 99.00	2.102	2.094	0.008	1.000	436811		4.51(0.00-0.00)	1046	M
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2675129	28.7		3248	
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.124	-0.015	1.000	754426	9.66		75.7	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	854924	10.7		1511	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00022 Amount Added: 1.00 Units: mL

Report Date: 07-Jul-2017 14:39:13 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_055.d

Injection Date: 07-Jul-2017 03:33:22 Instrument ID: A8_N

Lims ID: CCV L3

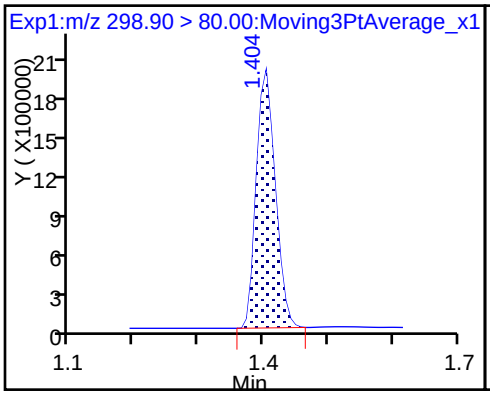
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 25

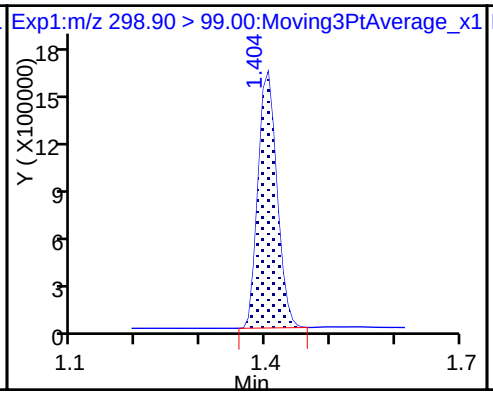
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

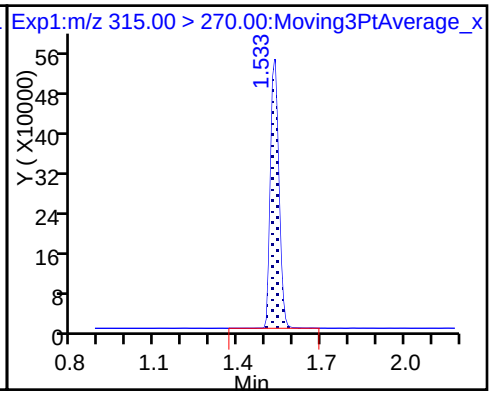
1 Perfluorobutanesulfonic acid



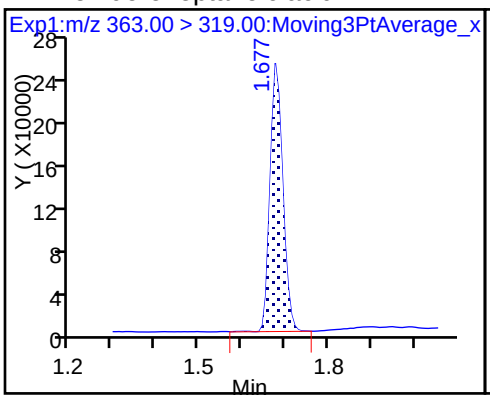
1 Perfluorobutanesulfonic acid



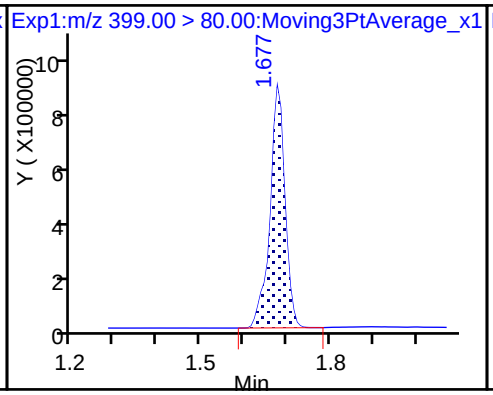
$ 2 13C2 PFHxA



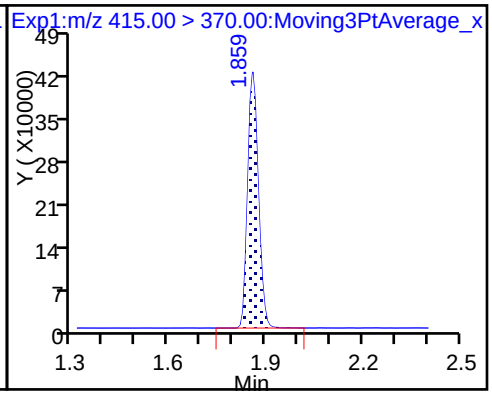
4 Perfluoroheptanoic acid



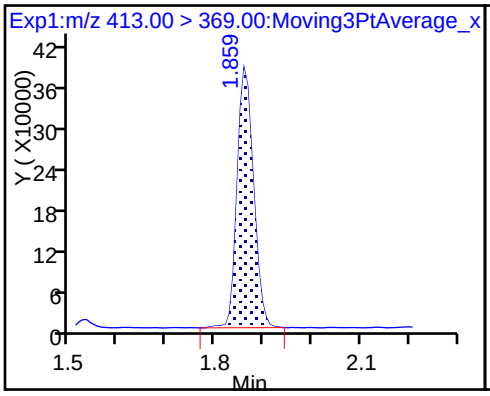
3 Perfluorohexanesulfonic acid



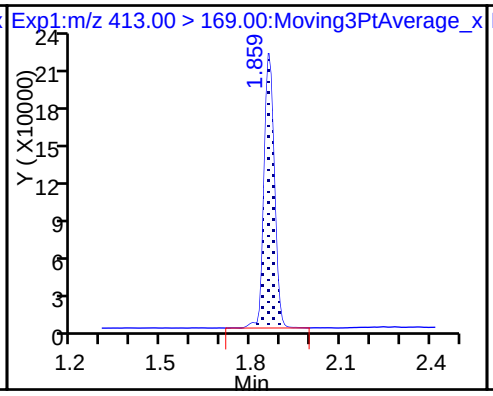
* 6 13C2-PFOA



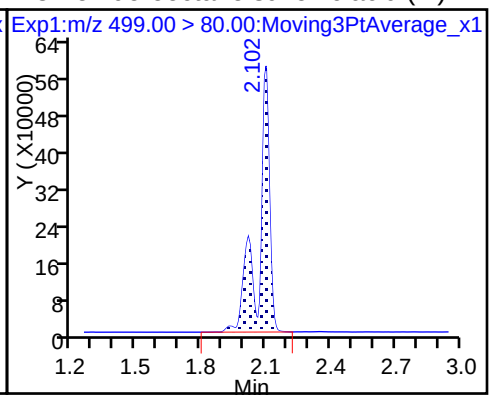
5 Perfluorooctanoic acid



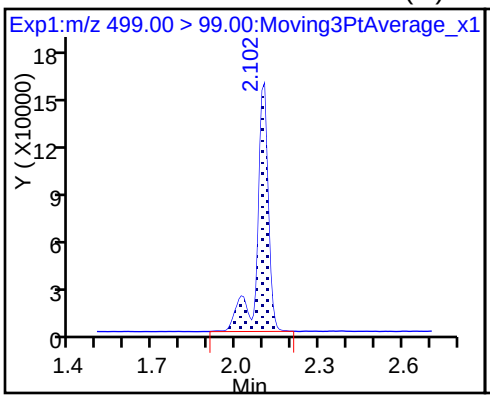
5 Perfluorooctanoic acid



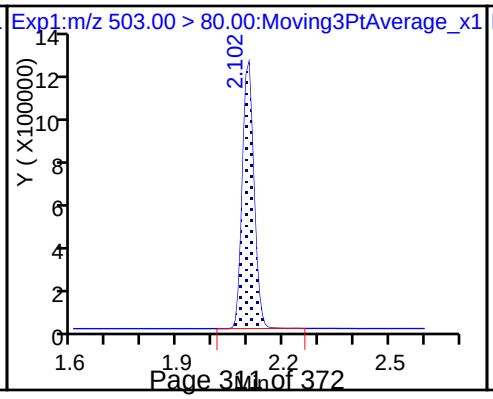
8 Perfluorooctane sulfonic acid (M)



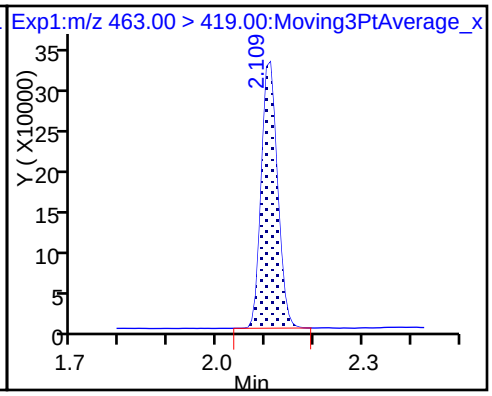
8 Perfluorooctane sulfonic acid (M)



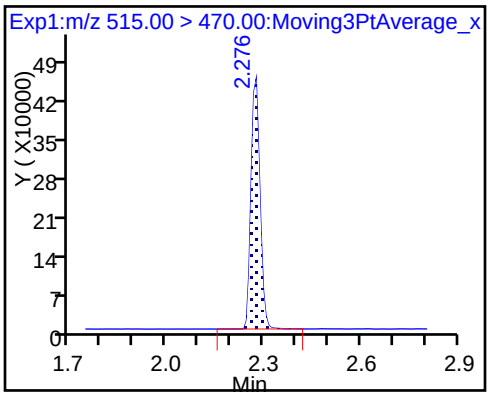
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA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2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.7
2.0
2.3
2.6
2.9
Min

Report Date: 07-Jul-2017 14:39:13 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_055.d

Injection Date: 07-Jul-2017 03:33:22 Instrument ID: A8_N

Lims ID: CCV L3

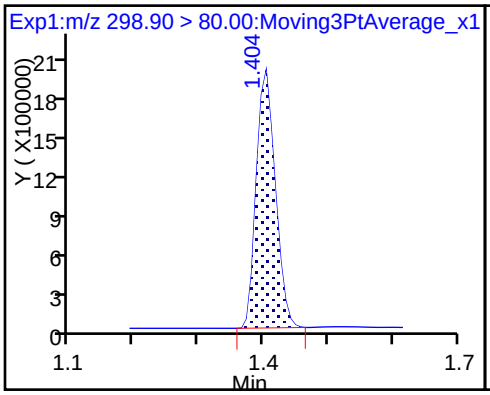
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 25

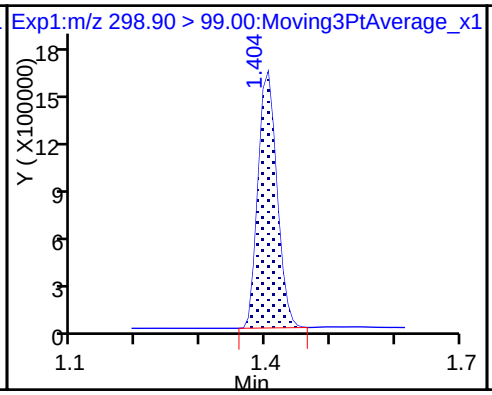
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

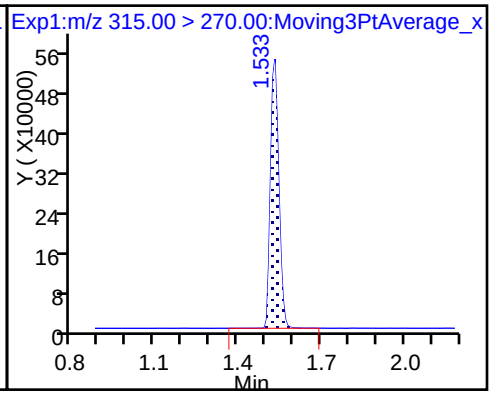
1 Perfluorobutanesulfonic acid



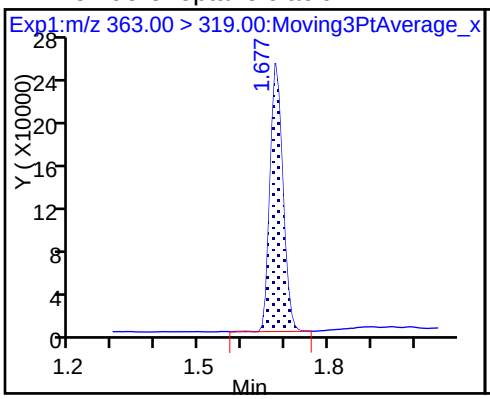
1 Perfluorobutanesulfonic acid



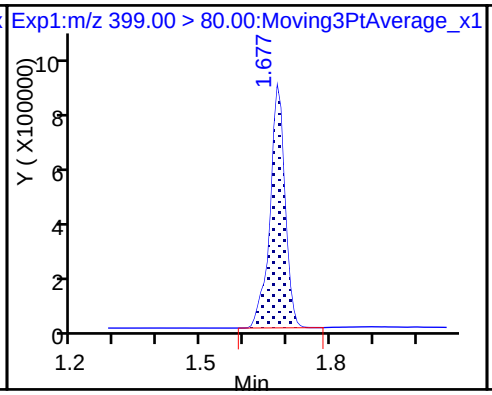
$ 2 13C2 PFHxA



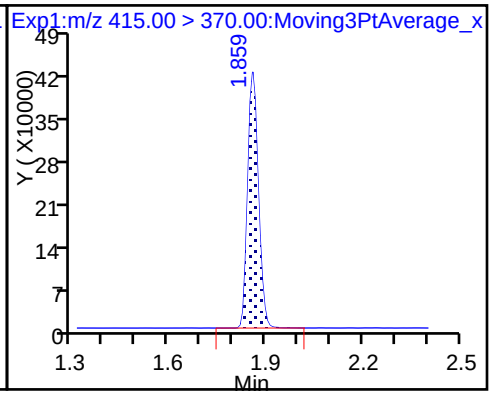
4 Perfluoroheptanoic acid



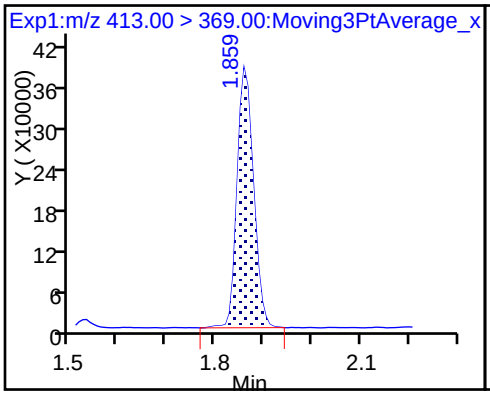
3 Perfluorohexanesulfonic acid



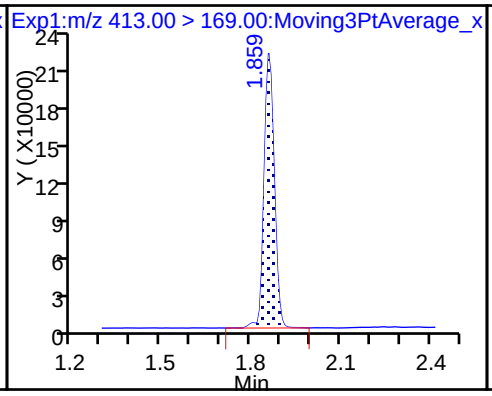
* 6 13C2-PFOA



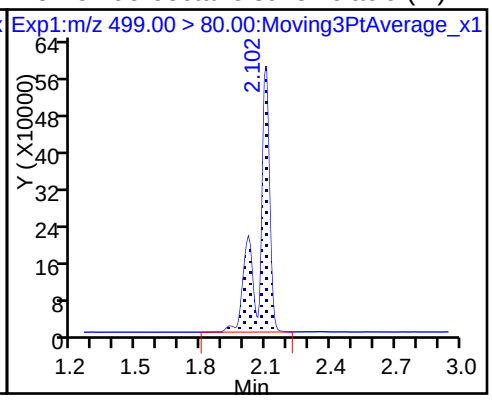
5 Perfluorooctanoic acid



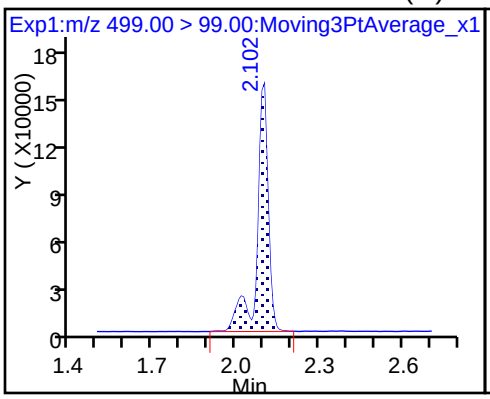
5 Perfluorooctanoic acid



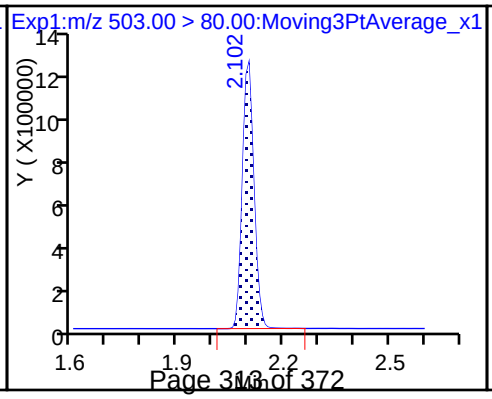
8 Perfluorooctane sulfonic acid (M)



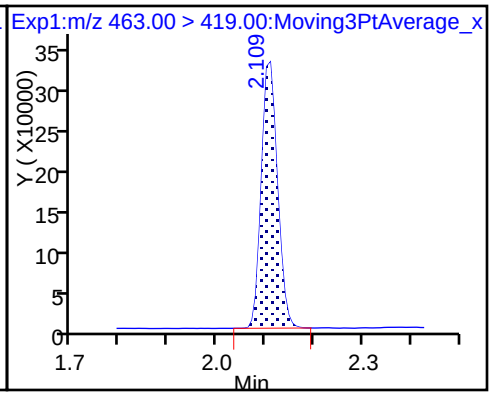
8 Perfluorooctane sulfonic acid (M)



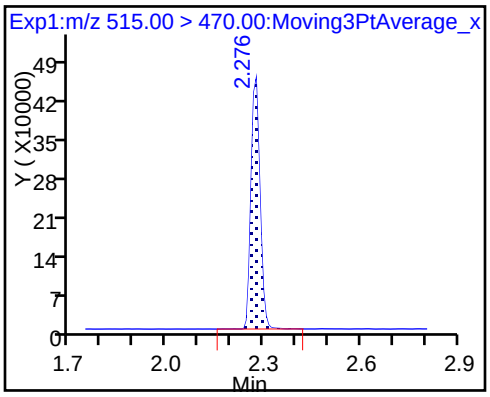
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
49
42
35
28
21
14
7
0
1.7
2.0
2.3
2.6
2.9
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

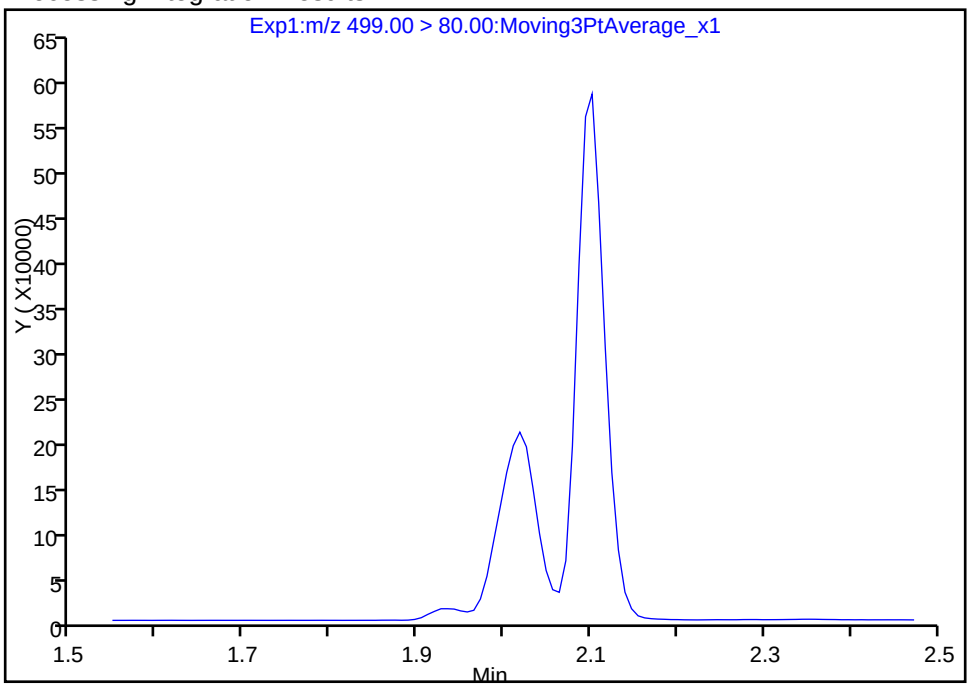
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_055.d				
Injection Date:	07-Jul-2017 03:33:22	Instrument ID:	A8_N		
Lims ID:	CCV L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	25
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

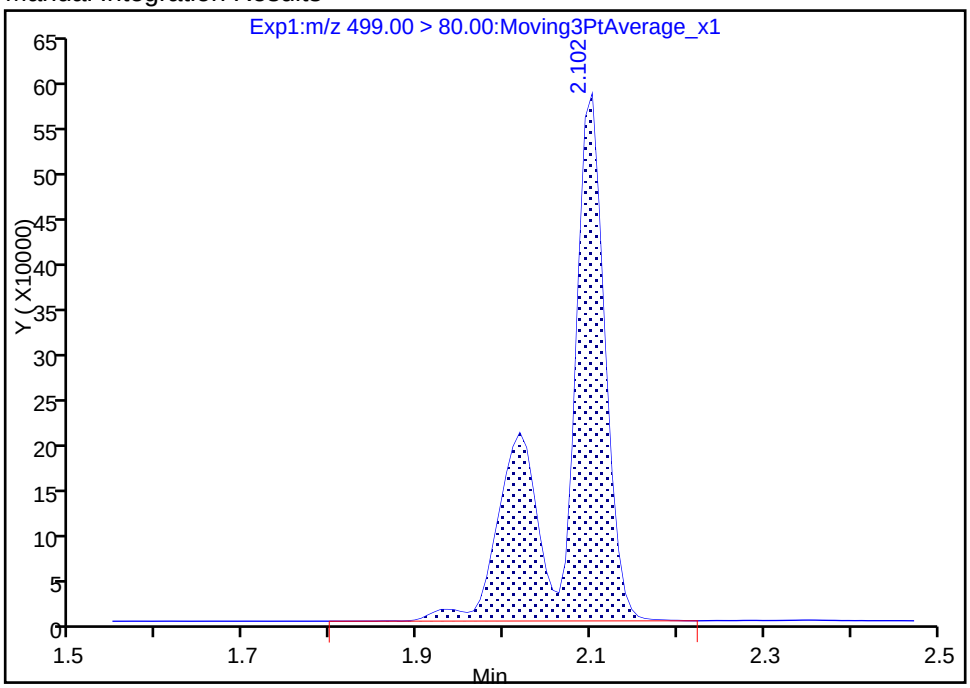
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 1968155
Amount: 20.603778
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:45
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

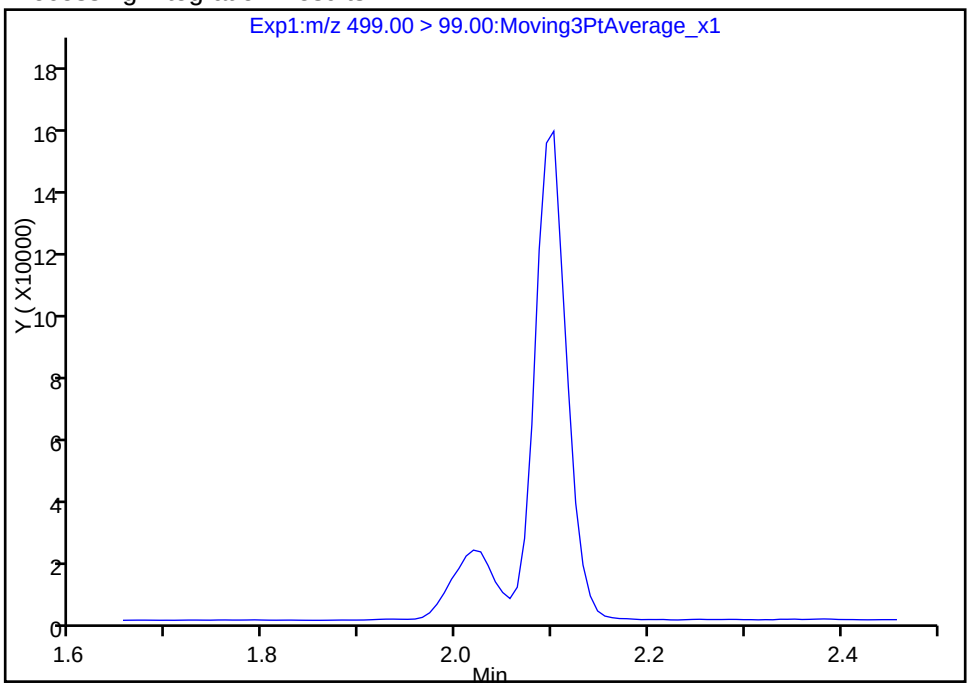
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_055.d				
Injection Date:	07-Jul-2017 03:33:22	Instrument ID:	A8_N		
Lims ID:	CCV L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	25
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

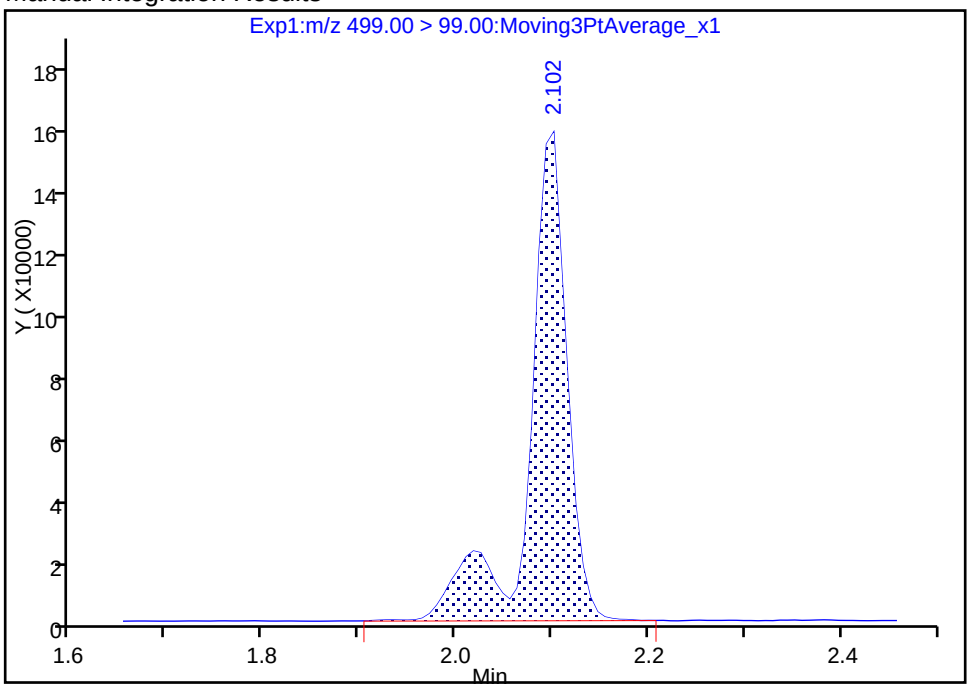
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 436811
Amount: 20.603778
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

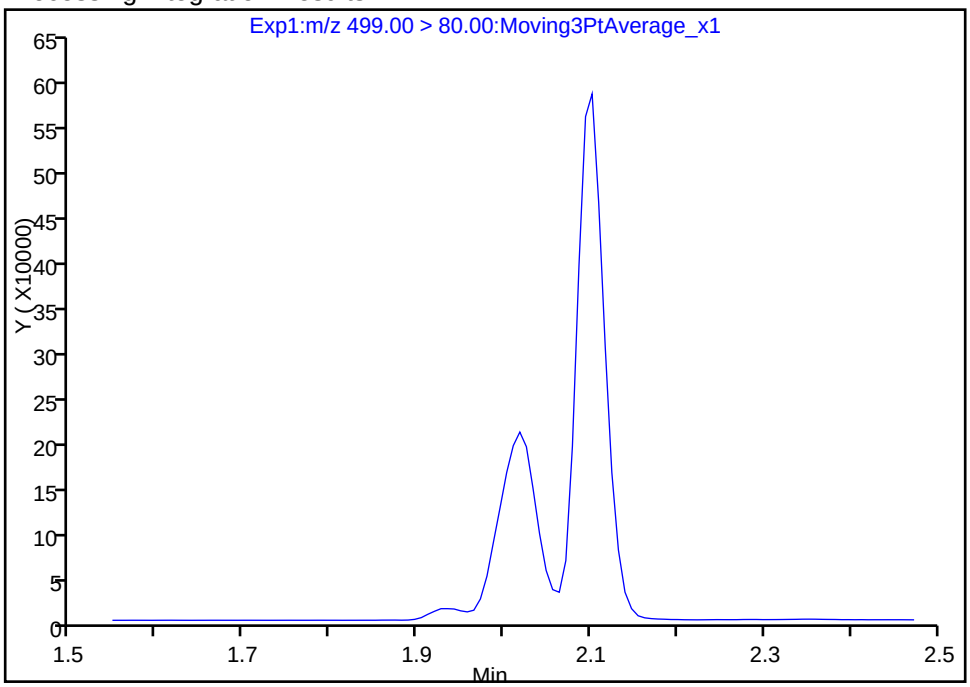
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_055.d				
Injection Date:	07-Jul-2017 03:33:22	Instrument ID:	A8_N		
Lims ID:	CCV L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	25
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

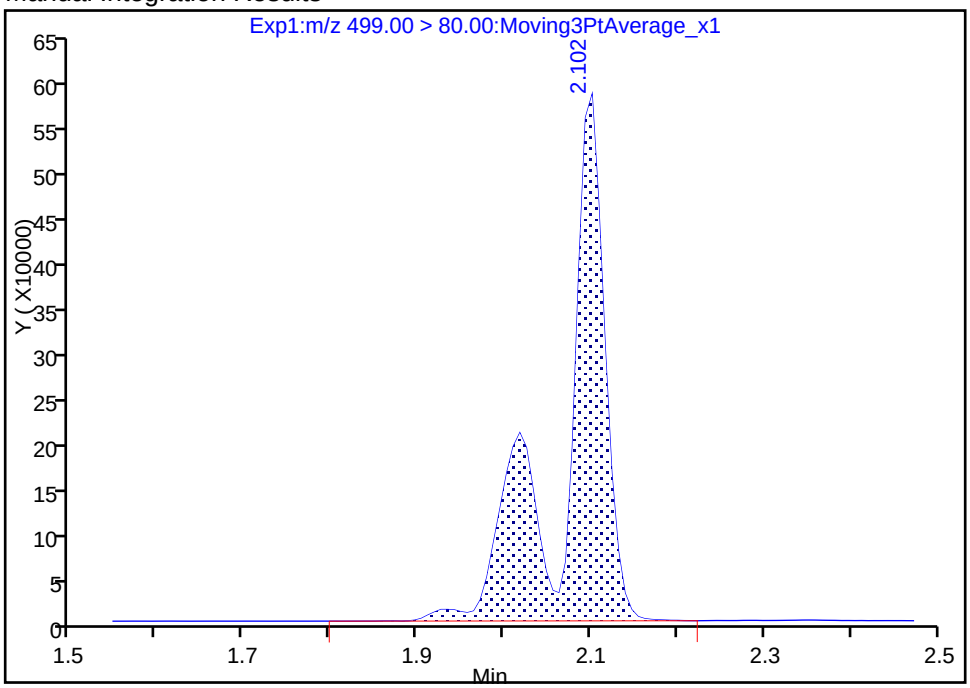
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 1968155
Amount: 20.603778
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

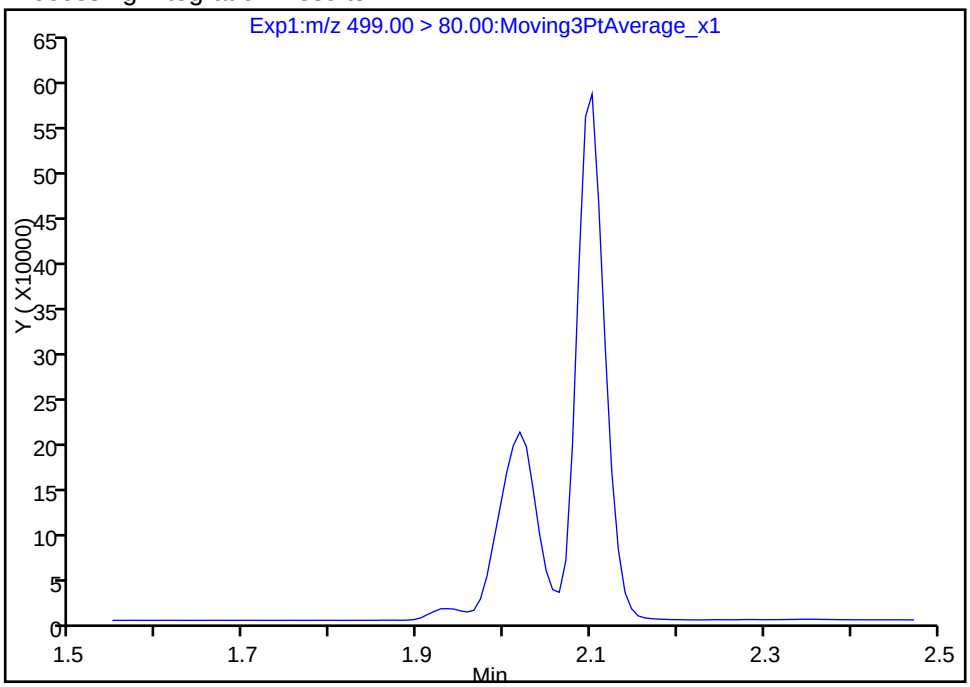
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_055.d				
Injection Date:	07-Jul-2017 03:33:22	Instrument ID:	A8_N		
Lims ID:	CCV L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	25
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

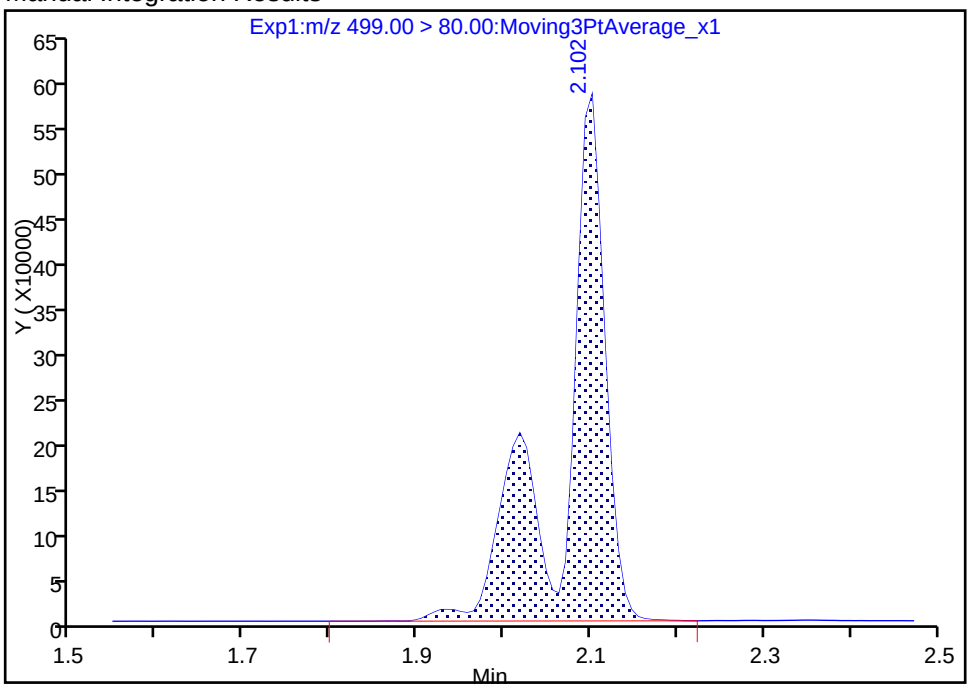
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 1968155
Amount: 20.603778
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:45
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

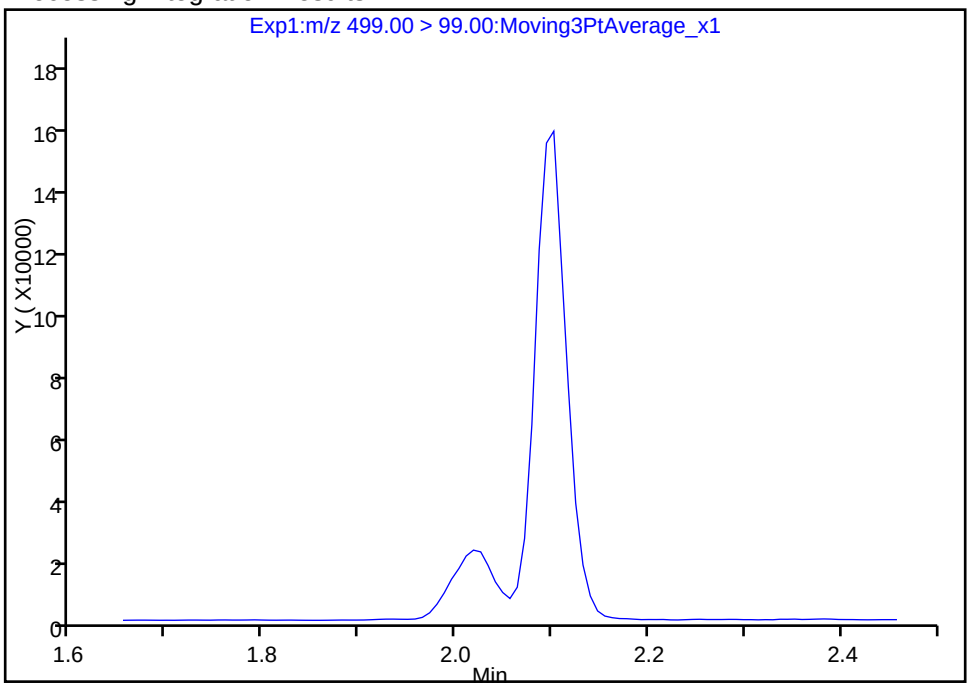
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_055.d				
Injection Date:	07-Jul-2017 03:33:22	Instrument ID:	A8_N		
Lims ID:	CCV L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	25
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

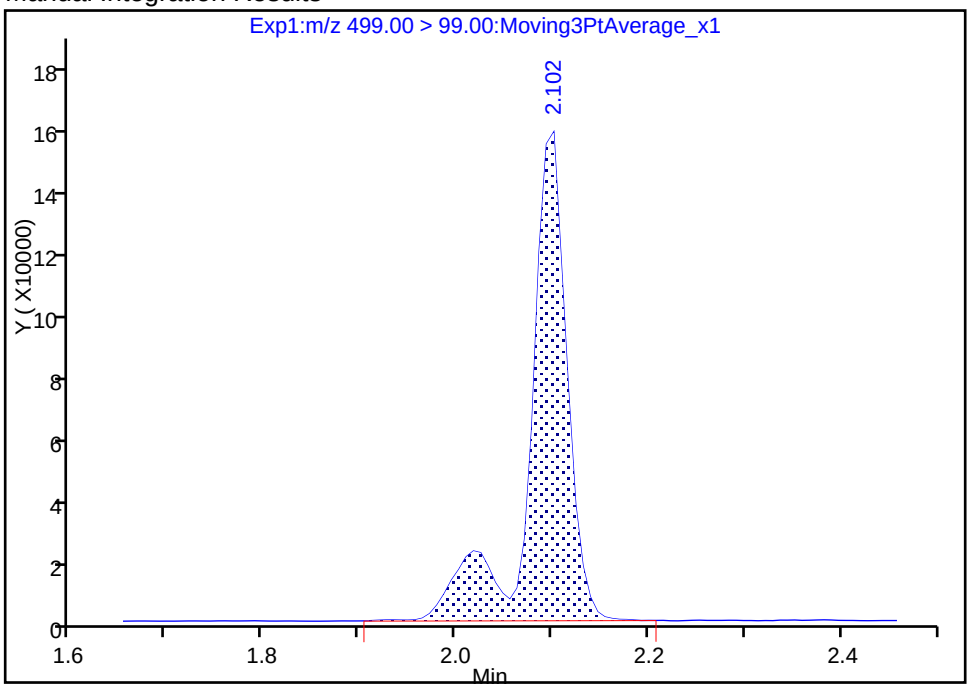
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 436811
Amount: 20.603778
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

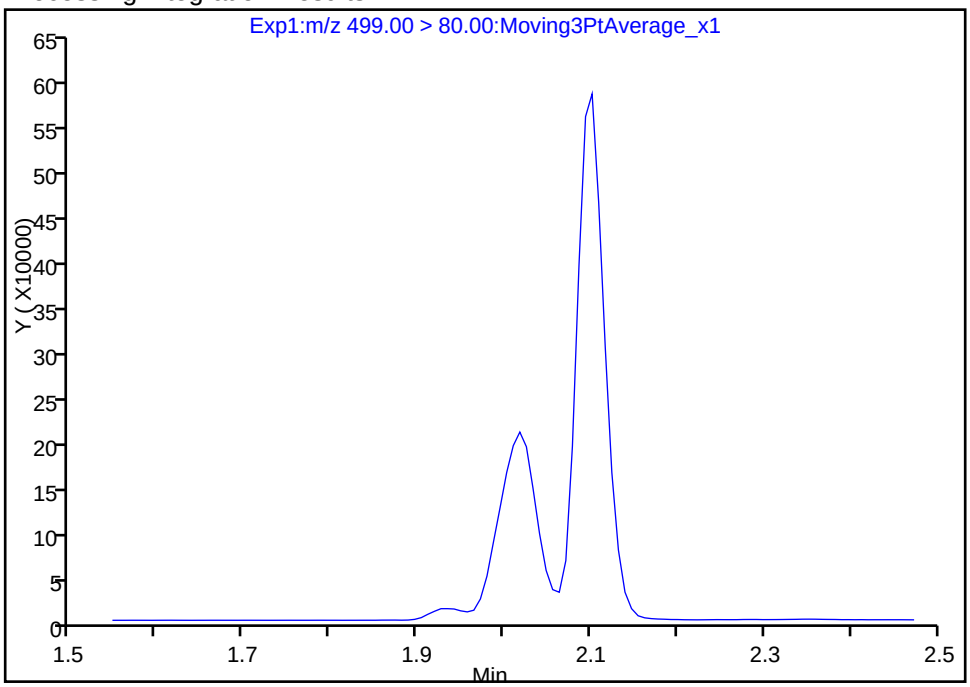
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_055.d				
Injection Date:	07-Jul-2017 03:33:22	Instrument ID:	A8_N		
Lims ID:	CCV L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	25
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

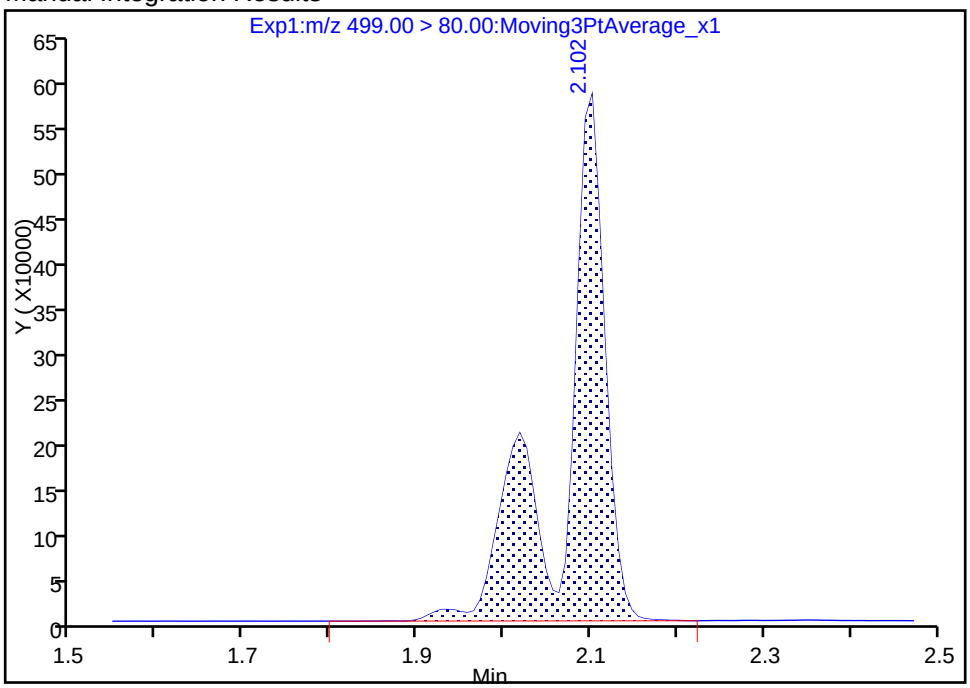
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 1968155
Amount: 20.603778
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:25:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173035/29 Calibration Date: 07/07/2017 03:52

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_059.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8414		125	133	-5.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.021		14.5	14.9	-2.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.417		45.9	45.1	1.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9652		31.4	30.0	4.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.031		60.4	60.0	0.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8157		28.6	28.9	-1.0	30.0
13C2 PFHxA	Ave	1.136	1.155		10.2	10.0	1.7	30.0
13C2 PFDA	Ave	0.8395	0.8768		10.4	10.0	4.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_059.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 07-Jul-2017 03:52:22 ALS Bottle#: 5 Worklist Smp#: 29
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\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:39:16 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:27:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.404	0.0	1.000	10957746	125.1		2621	
298.90 > 99.00	1.404	1.404	0.0	1.000	8626939		1.27(0.00-0.00)	2703	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1101738	10.2		4403	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.691	-0.014	1.000	1445940	14.5		203	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.692	-0.015	1.000	6280528	45.9		2057	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		953875	10.0		3624	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.879	-0.020	1.000	2759320	31.4		355	
413.00 > 169.00	1.859	1.879	-0.020	1.000	1622330		1.70(0.00-0.00)	1807	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.094	2.094	0.0	1.000	6081757	60.4		4363	M
499.00 > 99.00	2.094	2.094	0.0	1.000	1376052		4.42(0.00-0.00)	2525	M
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.117	-0.023		2818499	28.7		3526	
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.124	-0.022	1.000	2247966	28.6		255	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.281	-0.013	1.000	836378	10.4		1502	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00023 Amount Added: 1.00 Units: mL

Report Date: 07-Jul-2017 14:39:16 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_059.d

Injection Date: 07-Jul-2017 03:52:22 Instrument ID: A8_N

Lims ID: CCV L5

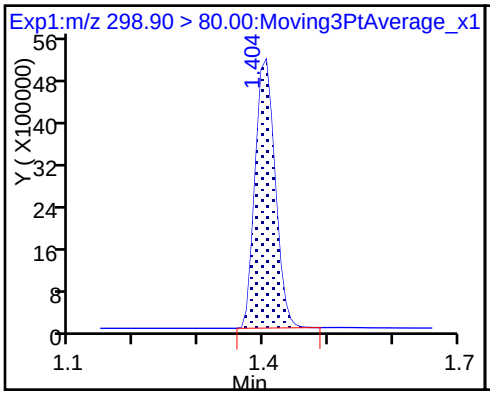
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 29

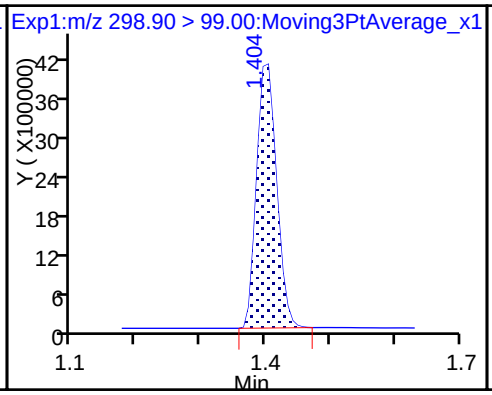
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

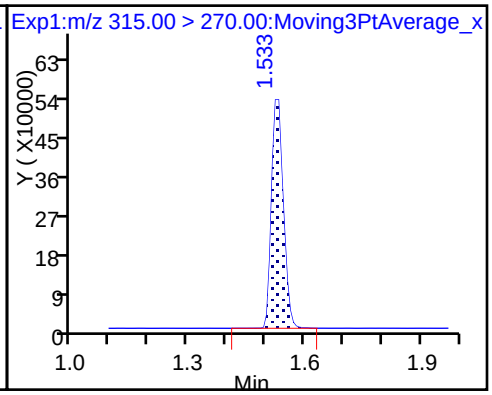
1 Perfluorobutanesulfonic acid



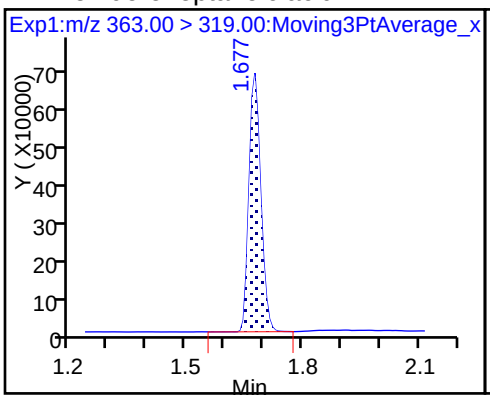
1 Perfluorobutanesulfonic acid



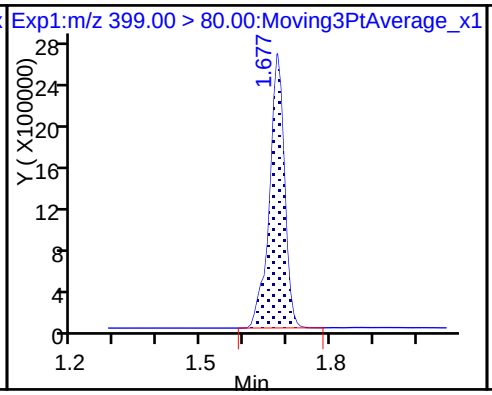
$ 2 13C2 PFHxA



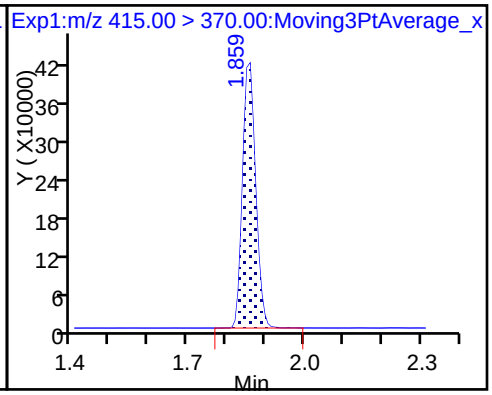
4 Perfluoroheptanoic acid



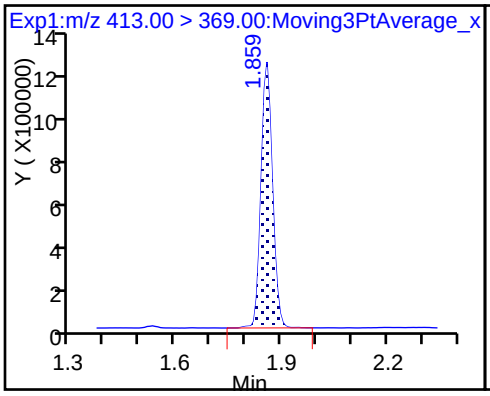
3 Perfluorohexanesulfonic acid



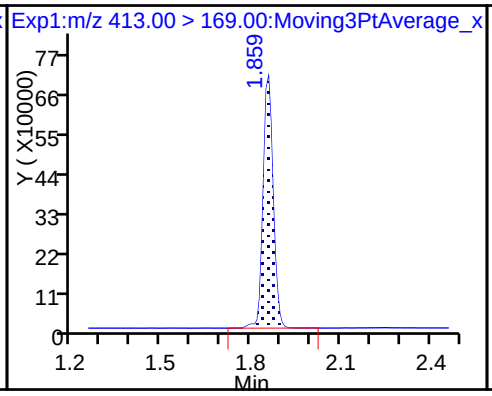
* 6 13C2-PFOA



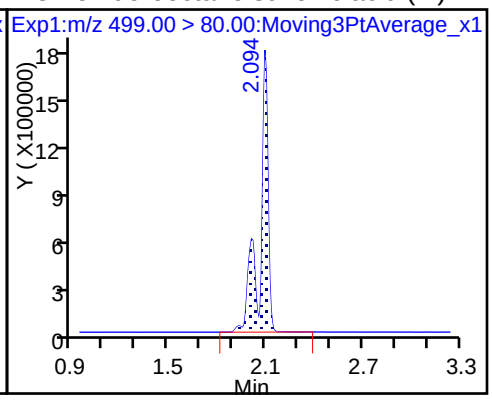
5 Perfluorooctanoic acid



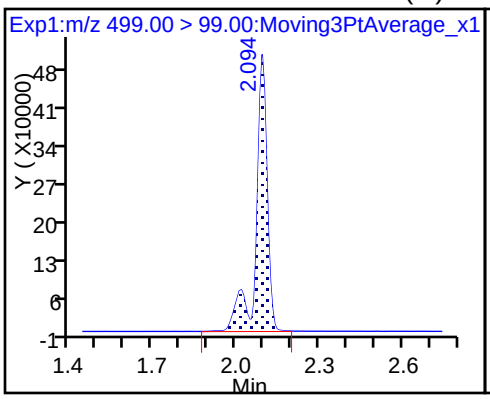
5 Perfluorooctanoic acid



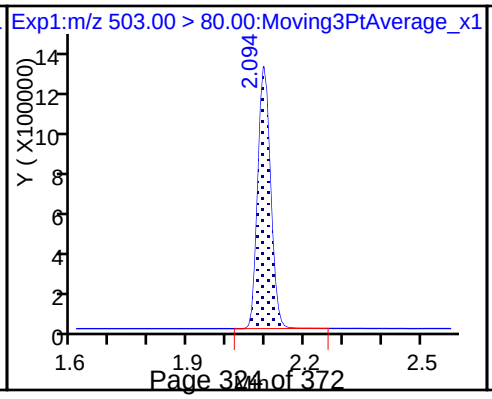
8 Perfluorooctane sulfonic acid (M)



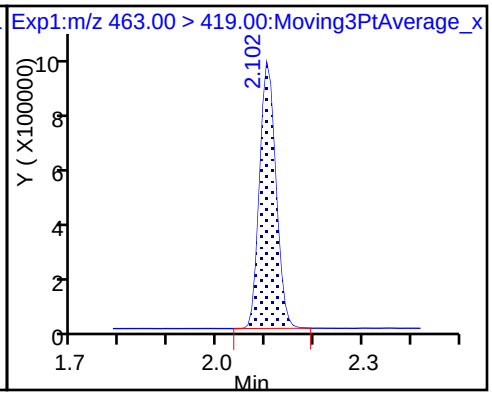
8 Perfluorooctane sulfonic acid (M)



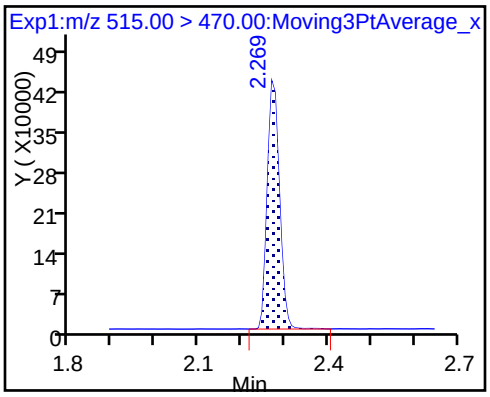
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.269
Y (X10000)
49
42
35
28
21
14
7
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

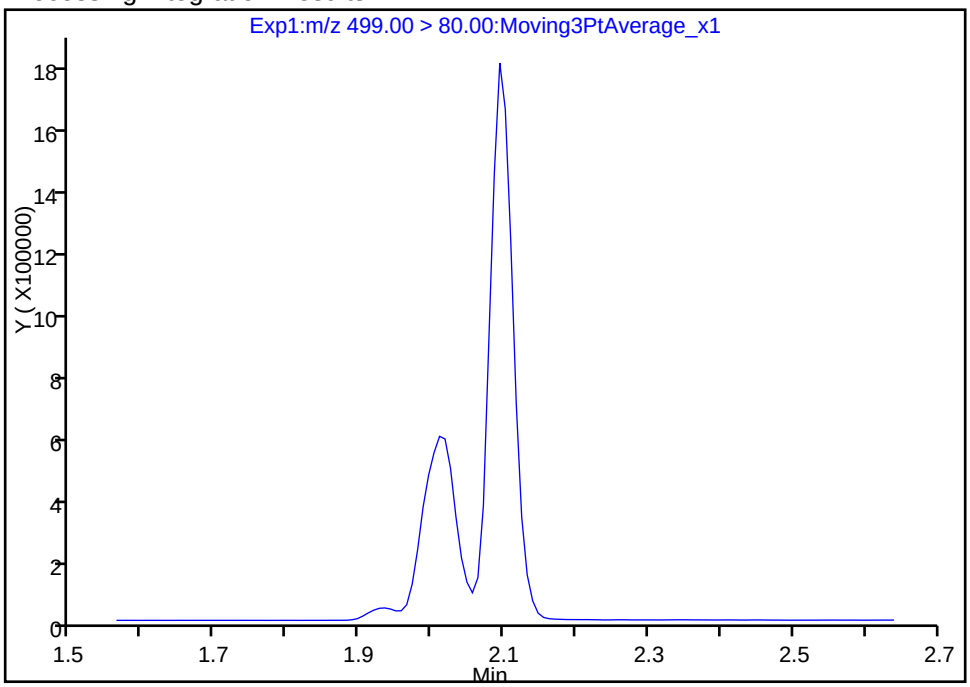
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_059.d				
Injection Date:	07-Jul-2017 03:52:22	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

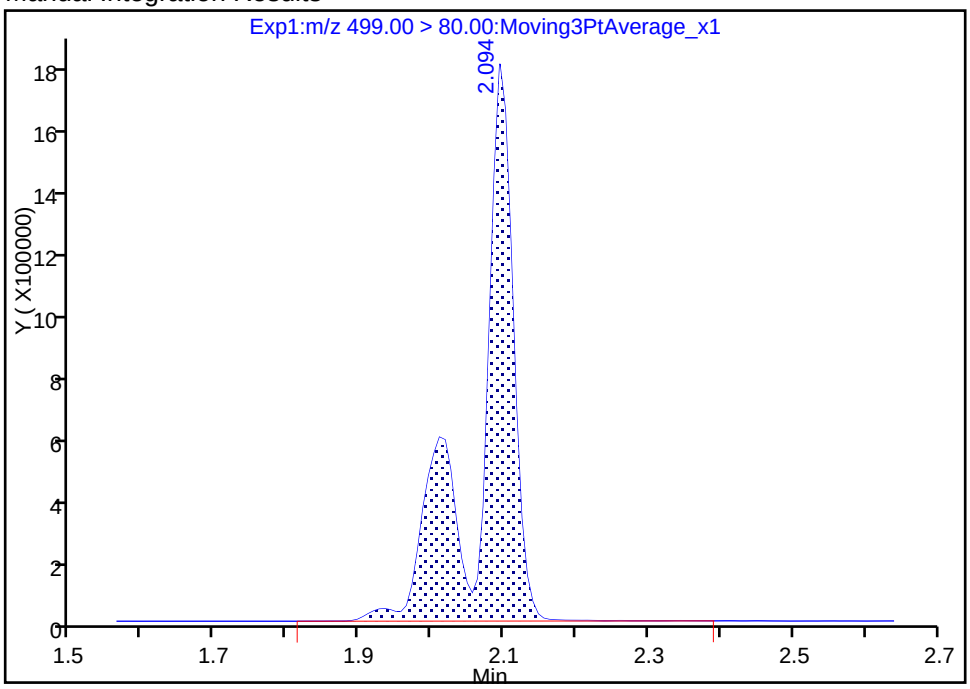
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.09
Area: 6081757
Amount: 60.428731
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:26:55
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_059.d				
Injection Date:	07-Jul-2017 03:52:22	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

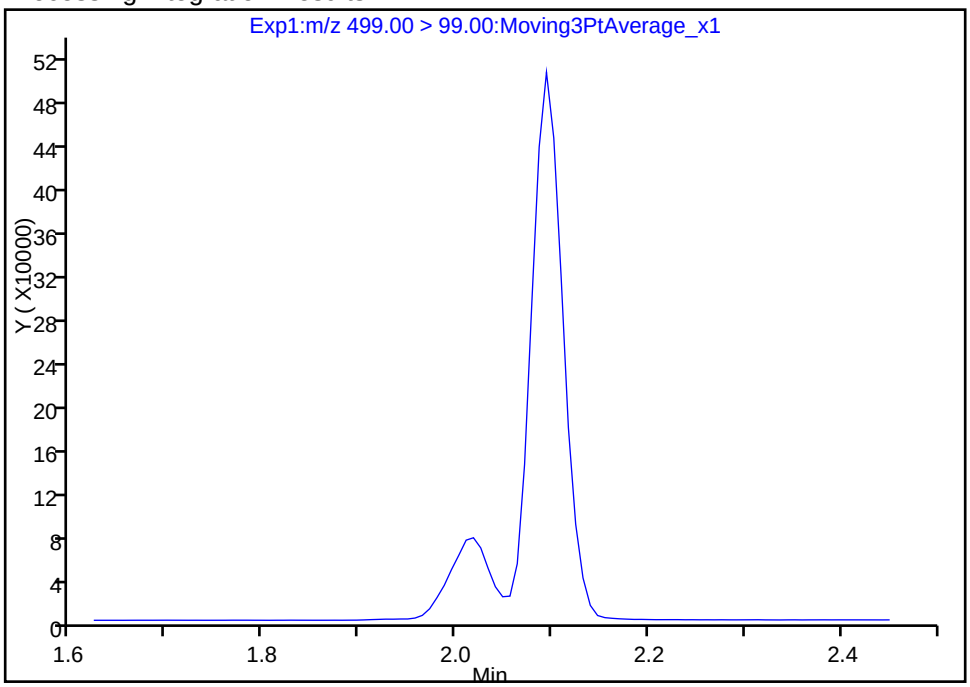
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

Processing Integration Results

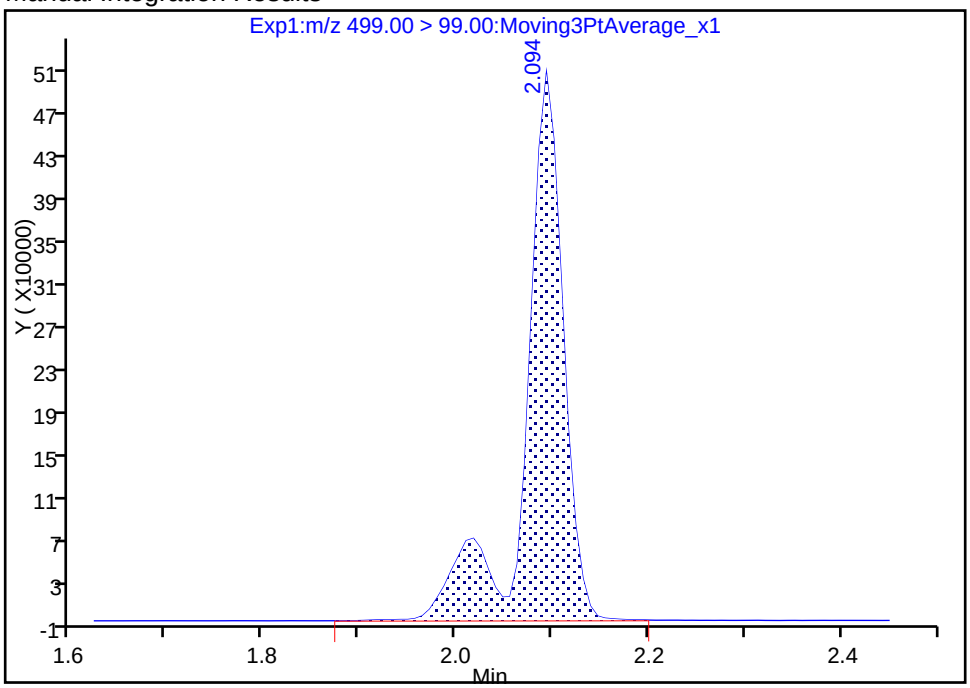
Not Detected

Expected RT: 2.09



Manual Integration Results

RT:	2.09
Area:	1376052
Amount:	60.428731
Amount Units:	ng/ml



Reviewer: barnettj, 07-Jul-2017 14:27:07

Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_059.d				
Injection Date:	07-Jul-2017 03:52:22	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

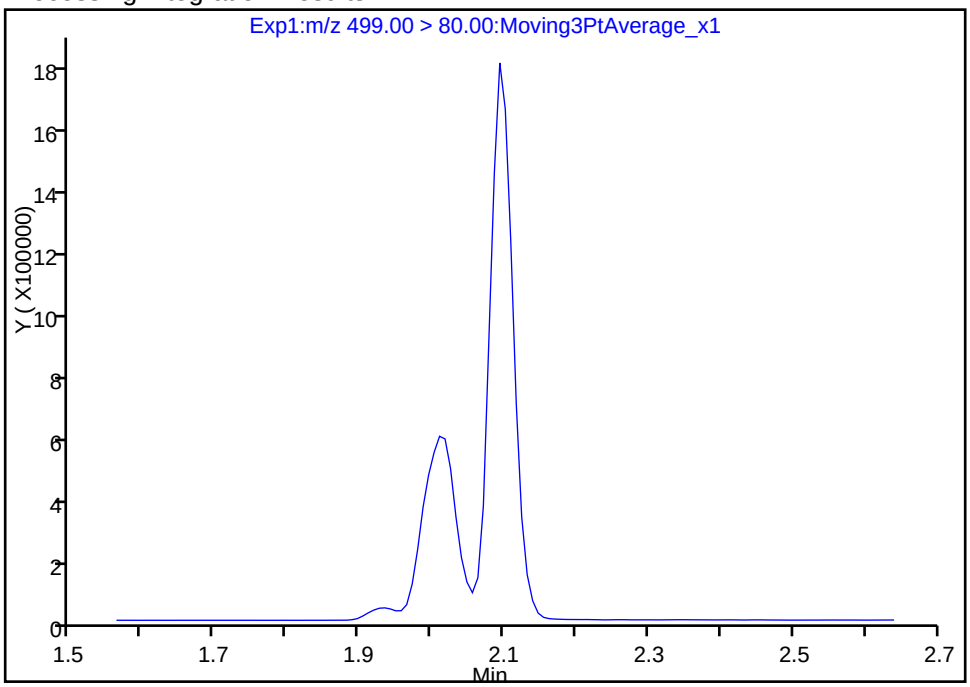
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

Processing Integration Results

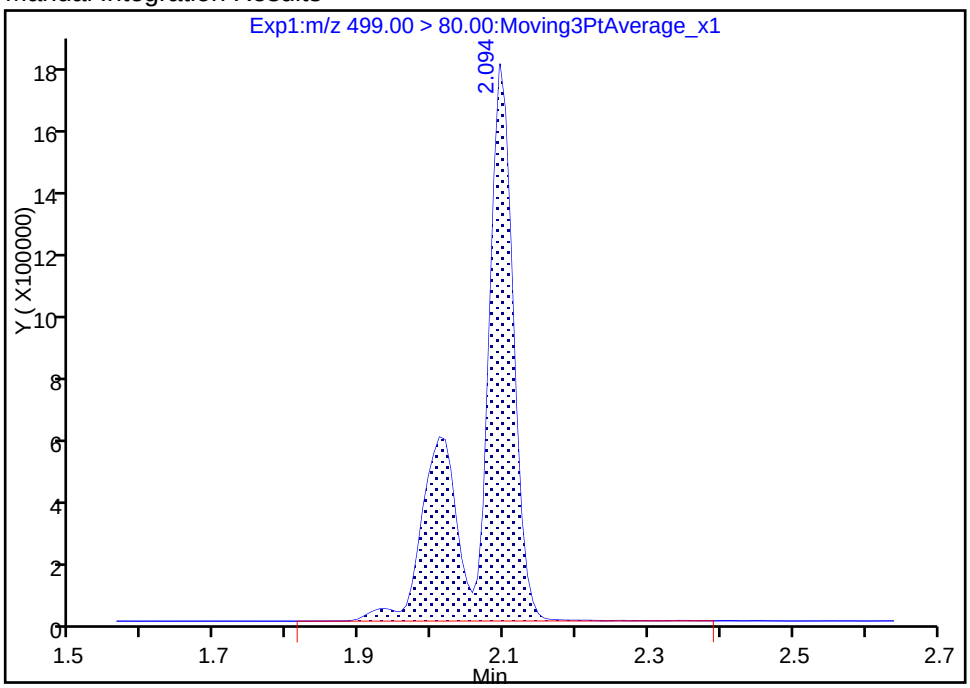
Not Detected

Expected RT: 2.09



Manual Integration Results

RT:	2.09
Area:	6081757
Amount:	60.428731
Amount Units:	ng/ml



Reviewer: barnettj, 07-Jul-2017 14:27:07

Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID:
Lab Sample ID: MB 320-172036/1-A
Matrix: Water
Lab File ID: 2017.07.06_537A_033.d
Analysis Method: 537
Date Collected:
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 250(mL)
Date Analyzed: 07/07/2017 01:48
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.: 173033
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	92		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_033.d
Lims ID: MB 320-172036/1-A
Client ID:
Sample Type: MB
Inject. Date: 07-Jul-2017 01:48:52 ALS Bottle#: 21 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-172036/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

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	1.539	-0.006	1.000	1090113	9.17		4402	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1045764	10.0		3324	
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.117	-0.023		3084775	28.7		3691	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.281	-0.013	1.000	875149	9.97		1473	

Report Date: 07-Jul-2017 14:38:55 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_033.d

Injection Date: 07-Jul-2017 01:48:52 Instrument ID: A8_N

Lims ID: MB 320-172036/1-A

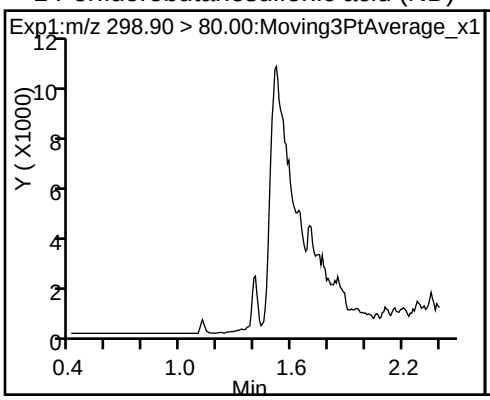
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 3

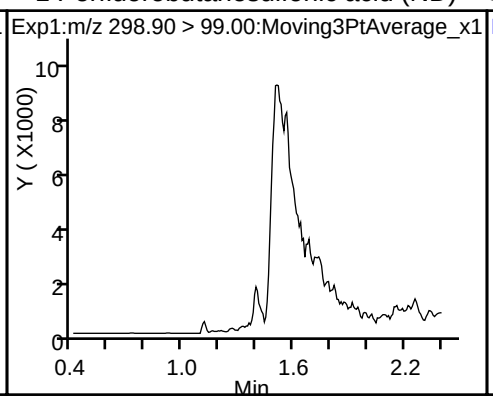
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

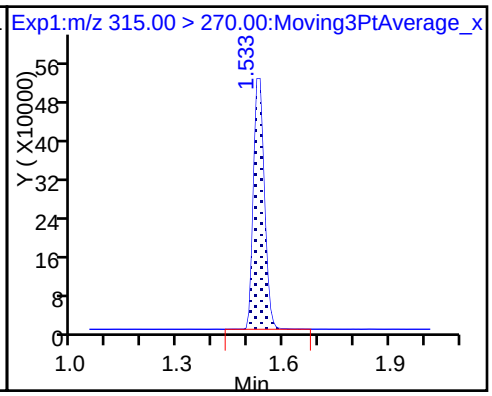
1 Perfluorobutanesulfonic acid (ND)



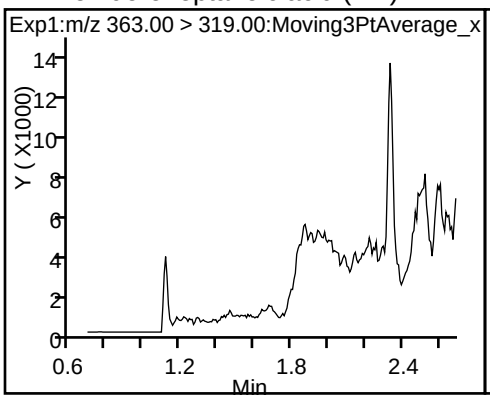
1 Perfluorobutanesulfonic acid (ND)



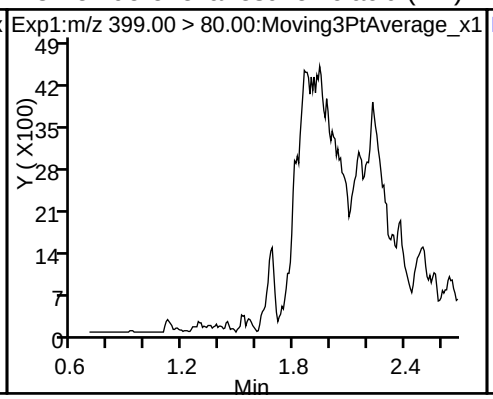
$ 2 13C2 PFHxA



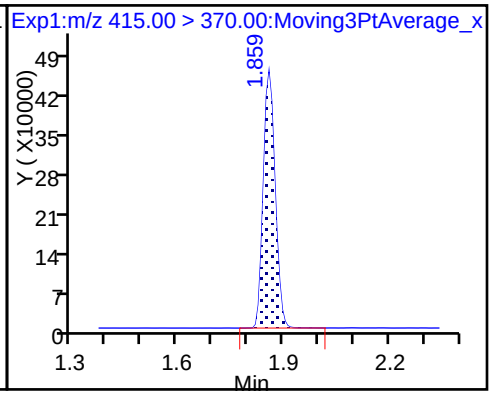
4 Perfluoroheptanoic acid (ND)



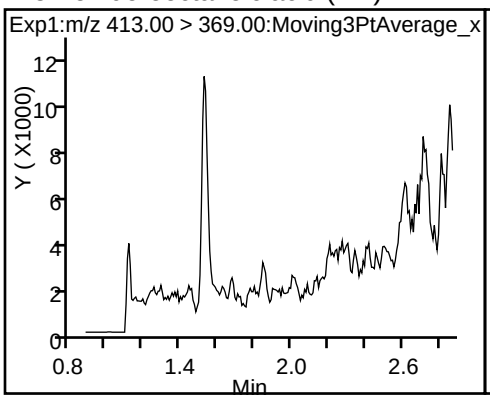
3 Perfluorohexanesulfonic acid (ND)



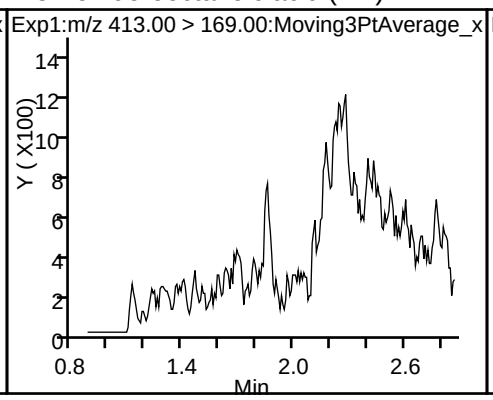
* 6 13C2-PFOA



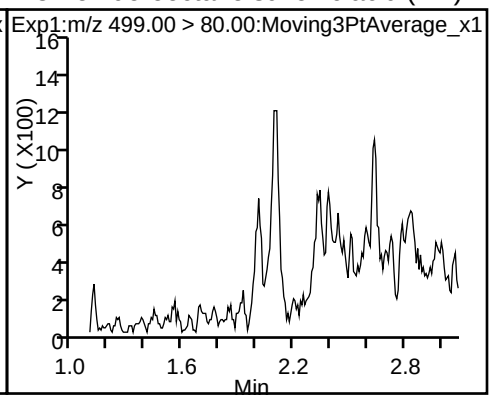
5 Perfluorooctanoic acid (ND)



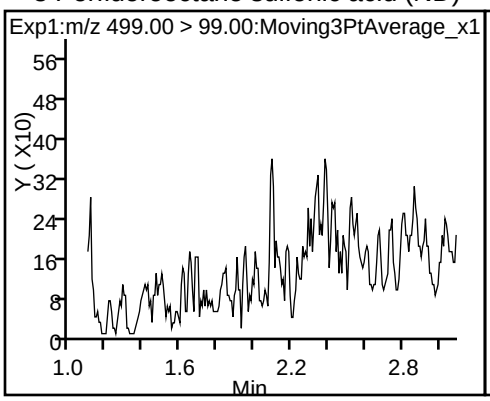
5 Perfluorooctanoic acid (ND)



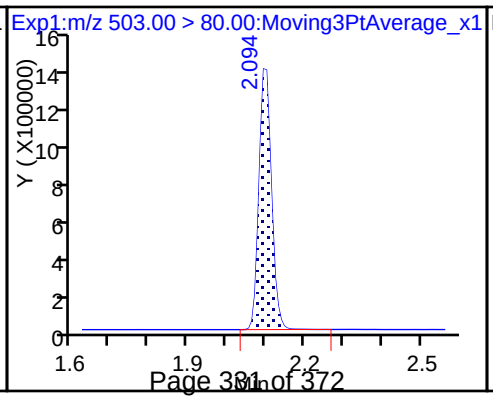
8 Perfluorooctane sulfonic acid (ND)



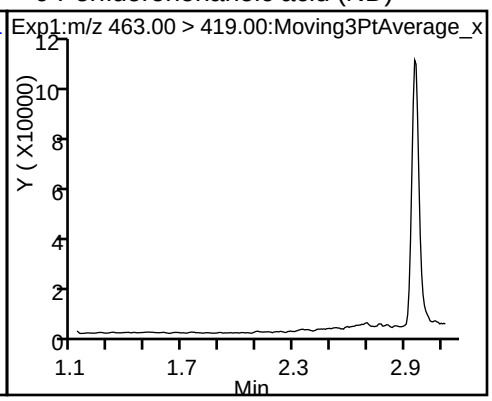
8 Perfluorooctane sulfonic acid (ND)



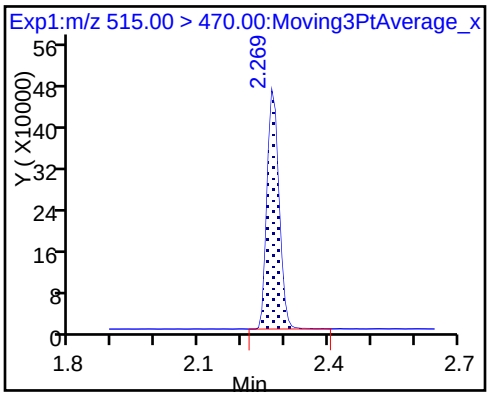
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.269
Y (X10000)
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\20170707-45186.b\2017.07.06_537A_033.d
Lims ID: MB 320-172036/1-A
Client ID:
Sample Type: MB
Inject. Date: 07-Jul-2017 01:48:52 ALS Bottle#: 21 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-172036/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.17	91.75
$ 10 13C2 PFDA	10.0	9.97	99.68

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID:
Lab Sample ID: LLCS 320-172036/2-A
Matrix: Water
Lab File ID: 2017.07.06_537A_034.d
Analysis Method: 537
Date Collected:
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 250(mL)
Date Analyzed: 07/07/2017 01:53
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	38.4	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	20.3		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	19.6	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	29.9	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	10.8		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	96.8		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_034.d
Lims ID: LLCS 320-172036/2-A
Client ID:
Sample Type: LLCS
Inject. Date: 07-Jul-2017 01:53:38 ALS Bottle#: 22 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcs 320-172036/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:28:35

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	1.404	-0.008	1.000	2155070	24.2		678	
298.90 > 99.00	1.396	1.404	-0.008	1.000	1683881		1.28(0.00-0.00)	692	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.525	1.539	-0.014	1.000	1073325	9.41		4493	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.691	-0.014	1.000	283063	2.70		38.4	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.677	1.692	-0.015	1.000	1041317	7.47		393	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.878	-0.019		1003937	10.0		3255	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.879	-0.020	1.000	468564	5.06		60.3	
413.00 > 169.00	1.859	1.879	-0.020	1.000	282309		1.66(0.00-0.00)	341	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.094	2.094	0.0	1.000	983836	9.61		1063	M
499.00 > 99.00	2.094	2.094	0.0	1.000	220562		4.46(0.00-0.00)	467	M
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.117	-0.023		2867134	28.7		3576	
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.124	-0.022	1.000	405252	4.90		35.6	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.281	-0.013	1.000	842794	10.0		1540	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 07-Jul-2017 14:38:56 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_034.d

Injection Date: 07-Jul-2017 01:53:38 Instrument ID: A8_N

Lims ID: LLCS 320-172036/2-A

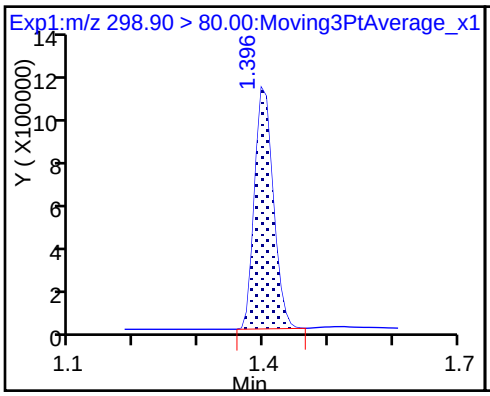
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 22 Worklist Smp#: 4

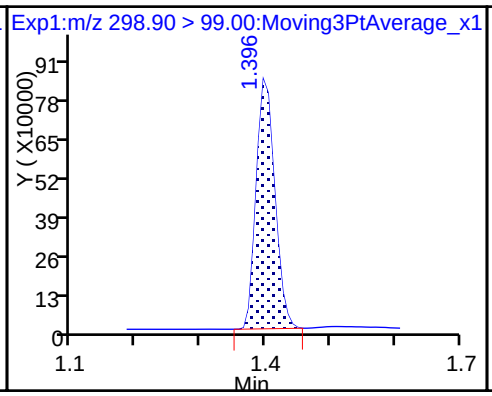
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

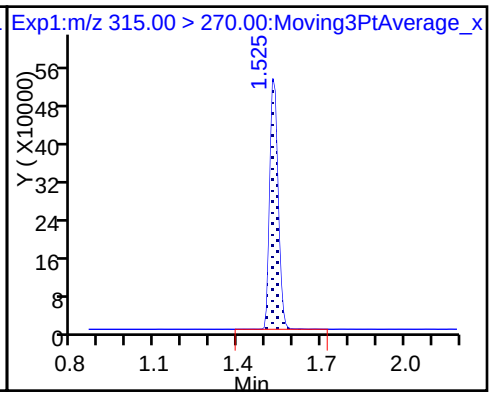
1 Perfluorobutanesulfonic acid



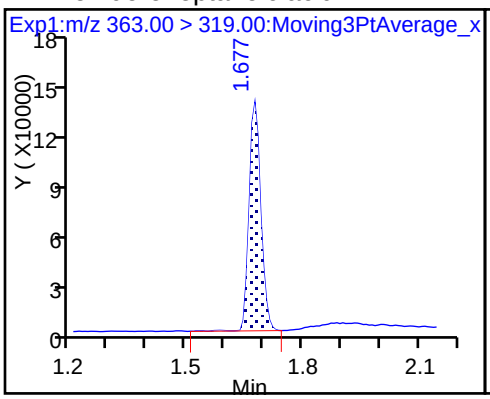
1 Perfluorobutanesulfonic acid



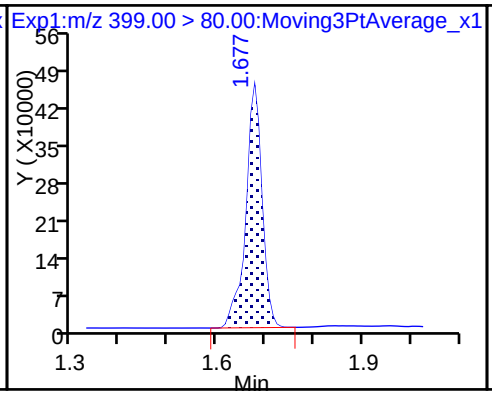
$ 2 13C2 PFHxA



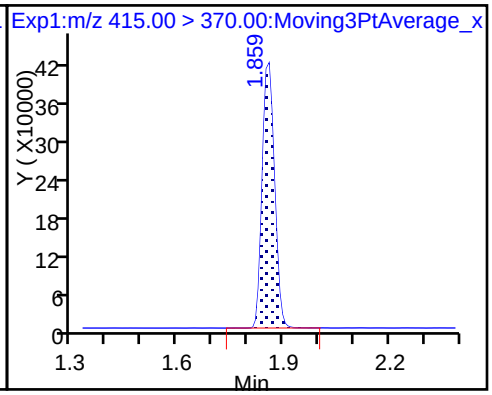
4 Perfluoroheptanoic acid



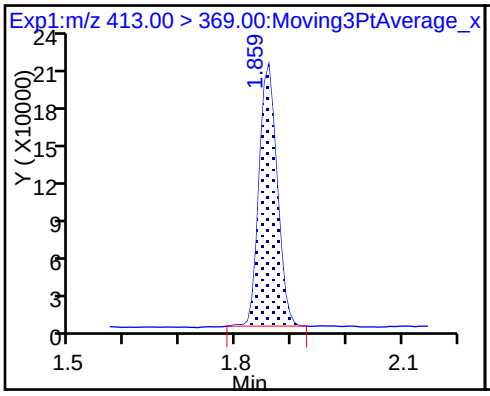
3 Perfluorohexanesulfonic acid



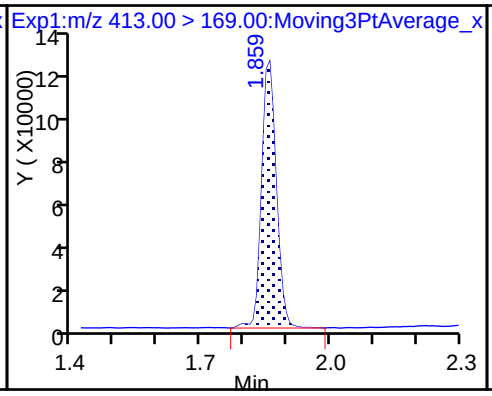
* 6 13C2-PFOA



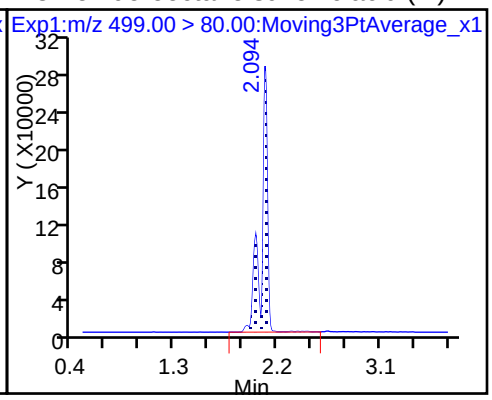
5 Perfluorooctanoic acid



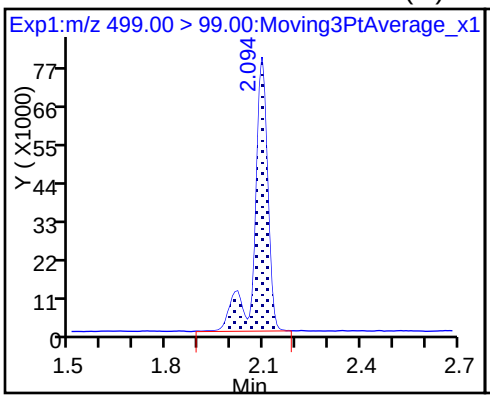
5 Perfluorooctanoic acid



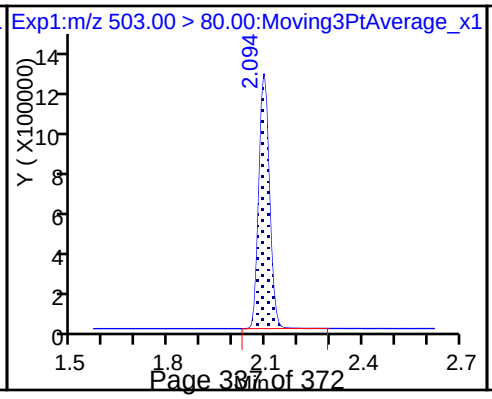
8 Perfluorooctane sulfonic acid (M)



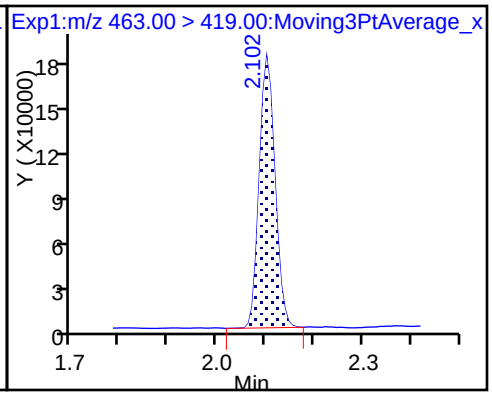
8 Perfluorooctane sulfonic acid (M)



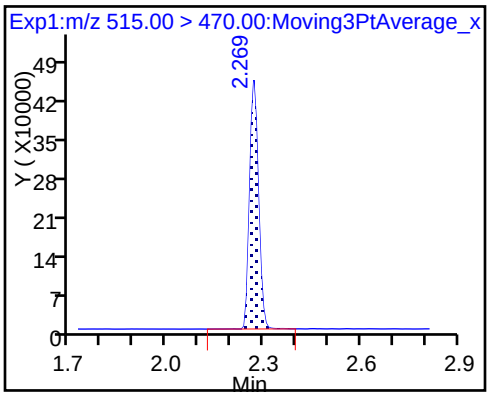
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
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Y (X10000)
49
42
35
28
21
14
7
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_034.d
Lims ID: LLCS 320-172036/2-A
Client ID:
Sample Type: LLCS
Inject. Date: 07-Jul-2017 01:53:38 ALS Bottle#: 22 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcs 320-172036/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:28:35

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.41	94.10
$ 10 13C2 PFDA	10.0	10.0	99.99

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

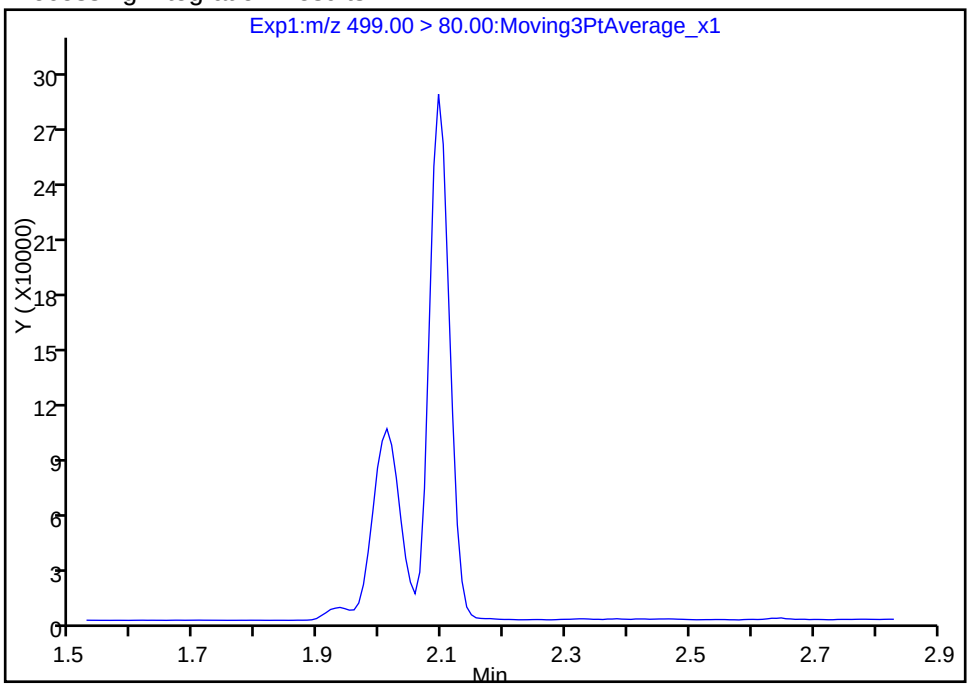
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_034.d				
Injection Date:	07-Jul-2017 01:53:38	Instrument ID:	A8_N		
Lims ID:	LLCS 320-172036/2-A				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	22	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

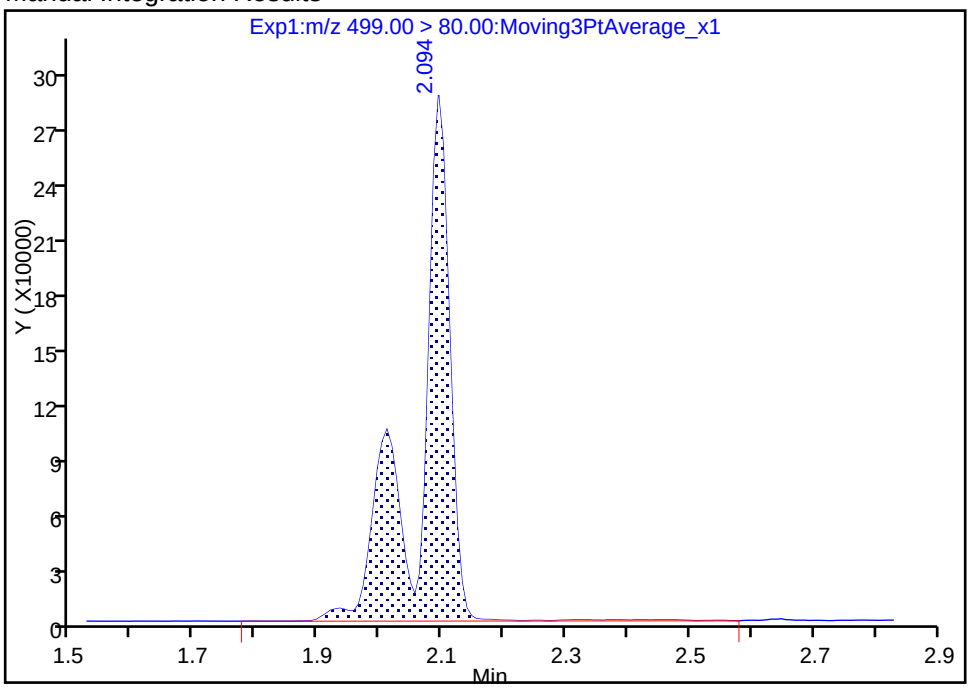
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.09
Area: 983836
Amount: 9.609638
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:28:03
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

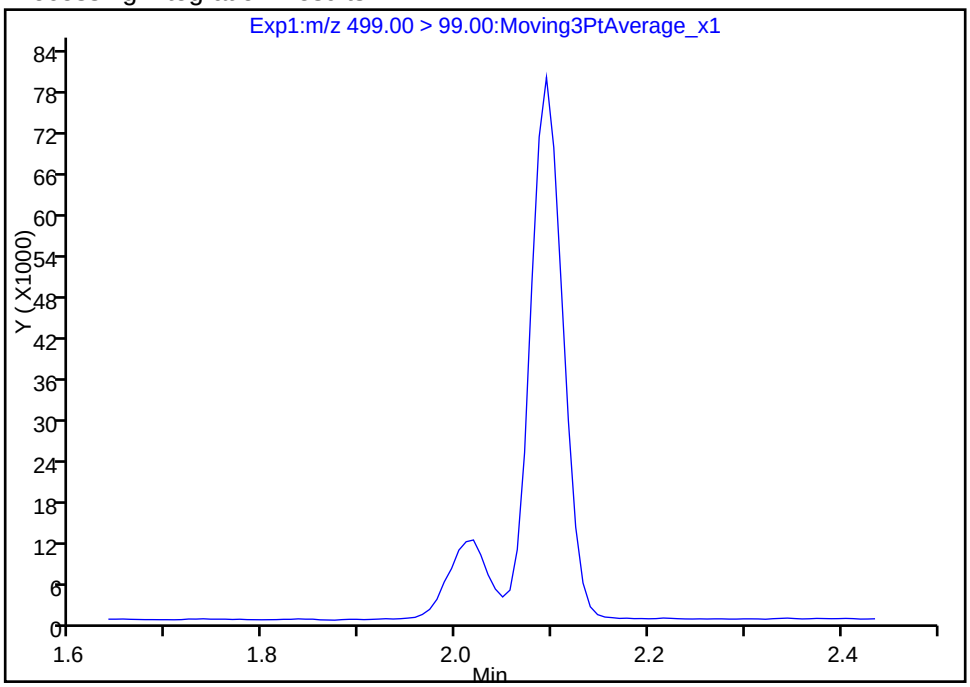
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_034.d				
Injection Date:	07-Jul-2017 01:53:38	Instrument ID:	A8_N		
Lims ID:	LLCS 320-172036/2-A				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	22	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

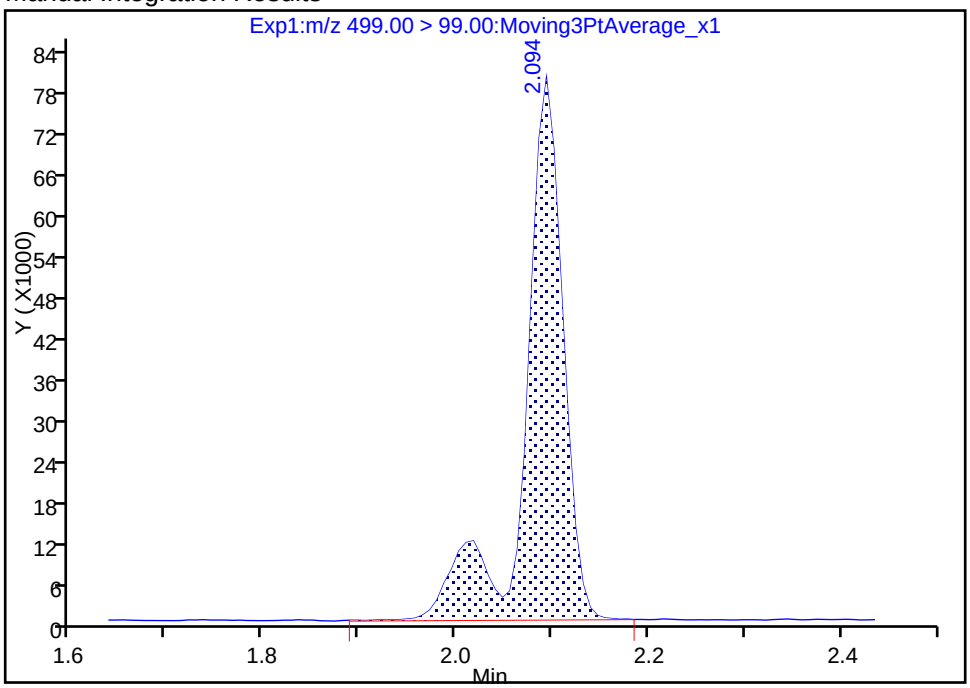
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.09
Area: 220562
Amount: 9.609638
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:28:18
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

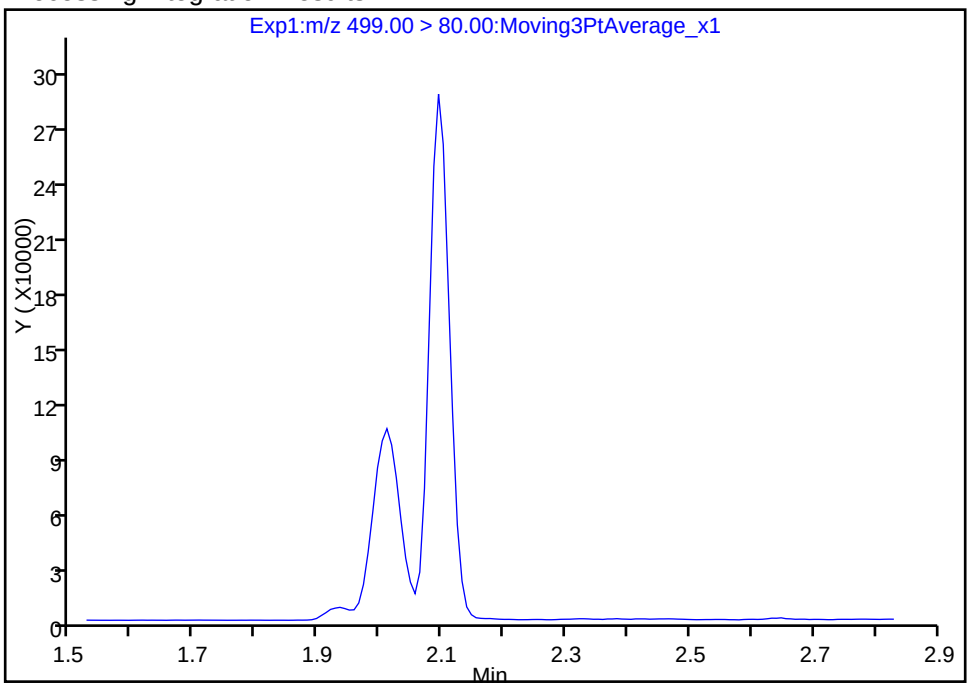
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_034.d				
Injection Date:	07-Jul-2017 01:53:38	Instrument ID:	A8_N		
Lims ID:	LLCS 320-172036/2-A				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	22	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

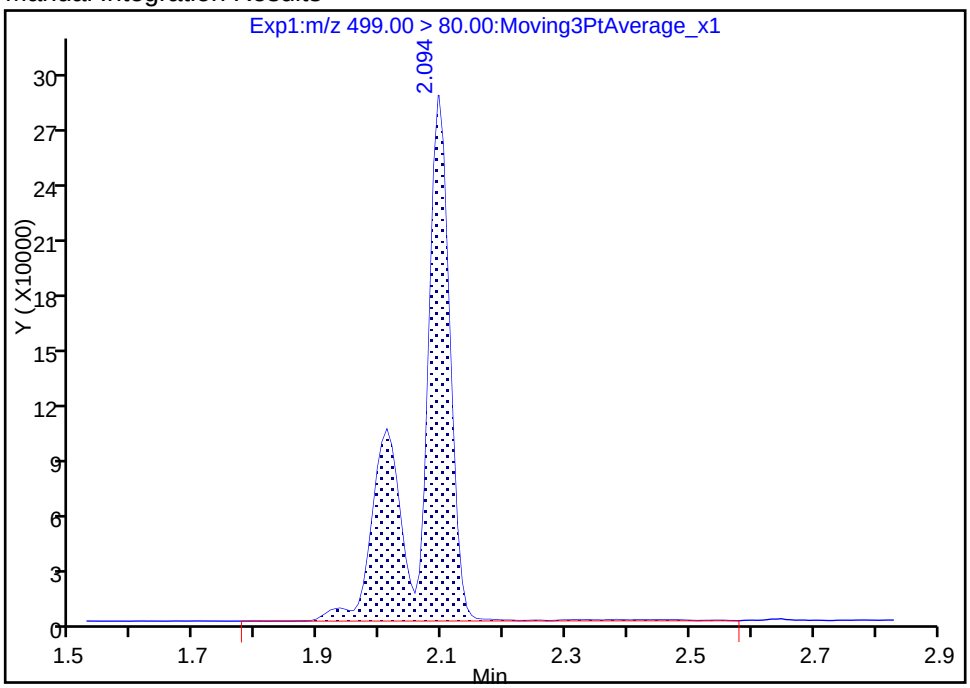
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.09
Area: 983836
Amount: 9.609638
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:28:18
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID:
Lab Sample ID: LLCSD 320-172036/3-A
Matrix: Water
Lab File ID: 2017.07.06_537A_035.d
Analysis Method: 537
Date Collected:
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 250(mL)
Date Analyzed: 07/07/2017 01:58
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	40.0	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	21.5		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20.1	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	30.8		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	10.9		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	96.4		90	36	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\20170707-45186.b\2017.07.06_537A_035.d
Lims ID: LLCSD 320-172036/3-A
Client ID:
Sample Type: LLCSD
Inject. Date: 07-Jul-2017 01:58:23 ALS Bottle#: 23 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcsd 320-172036/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:29:17

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	1.404	0.0	1.000	2174956	24.1		675	
298.90 > 99.00	1.404	1.404	0.0	1.000	1661694		1.31(0.00-0.00)	671	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1139737	9.93		4726	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	286561	2.71		39.5	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	1085757	7.69		402	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.878	-0.012		1010144	10.0		3505	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.879	-0.013	1.000	500470	5.38		60.8	
413.00 > 169.00	1.866	1.879	-0.013	1.000	294915		1.70(0.00-0.00)	319	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.102	2.094	0.008	1.000	1037519	10.0		960	M
499.00 > 99.00	2.102	2.094	0.008	1.000	242420		4.28(0.00-0.00)	555	M
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.117	-0.015		2905116	28.7		3874	
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.124	-0.015	1.000	418160	5.02		16.8	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	868855	10.2		1690	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 07-Jul-2017 14:38:57 Chrom Revision: 2.2 26-Jun-2017 08:09:44

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_035.d

Injection Date: 07-Jul-2017 01:58:23 Instrument ID: A8_N

Lims ID: LLCSD 320-172036/3-A

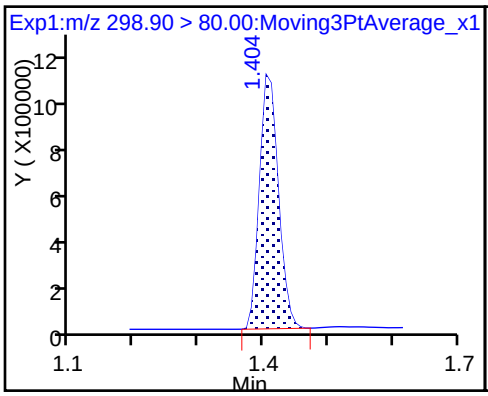
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 5

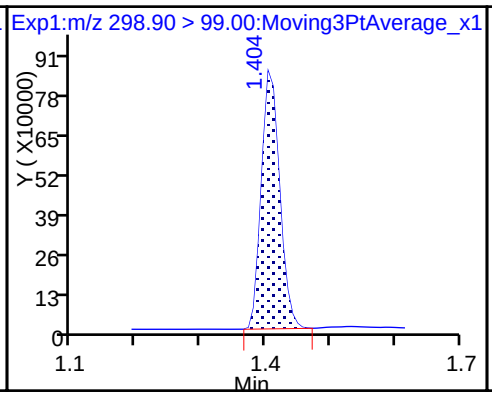
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

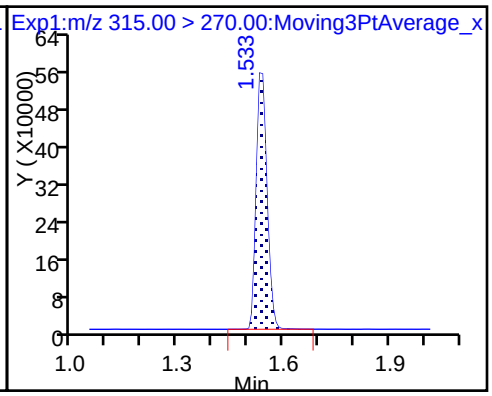
1 Perfluorobutanesulfonic acid



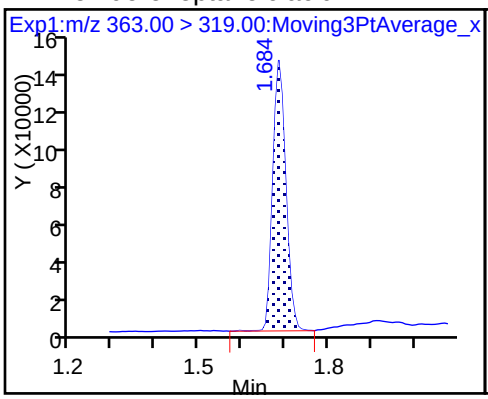
1 Perfluorobutanesulfonic acid



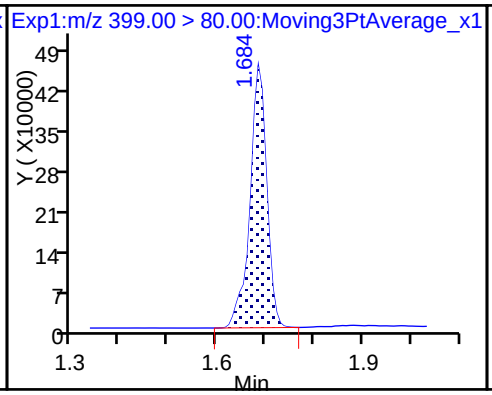
$ 2 13C2 PFHxA



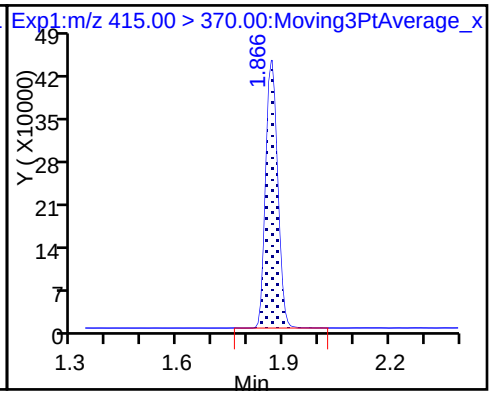
4 Perfluoroheptanoic acid



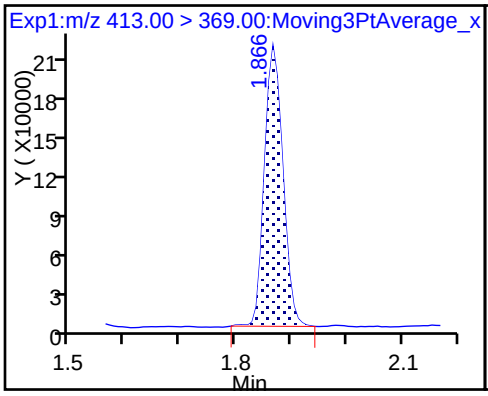
3 Perfluorohexanesulfonic acid



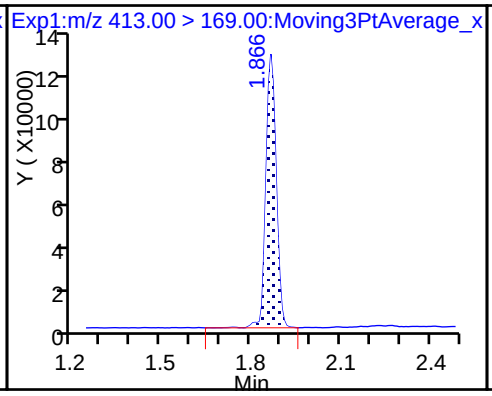
* 6 13C2-PFOA



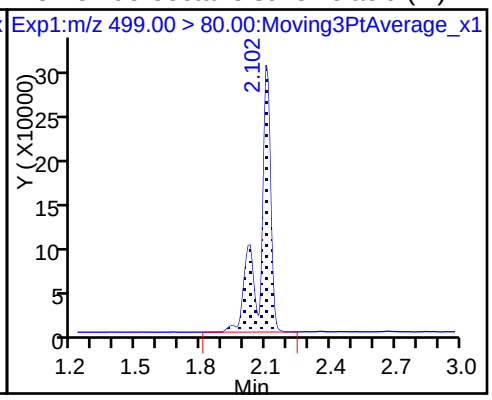
5 Perfluorooctanoic acid



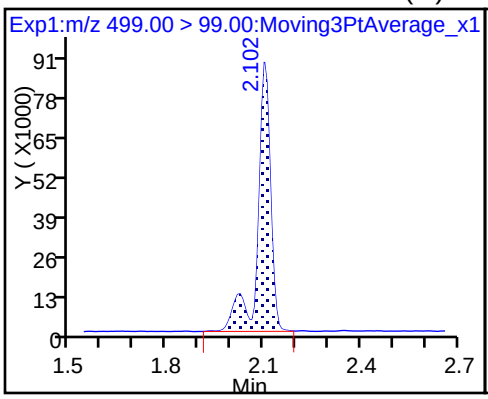
5 Perfluorooctanoic acid



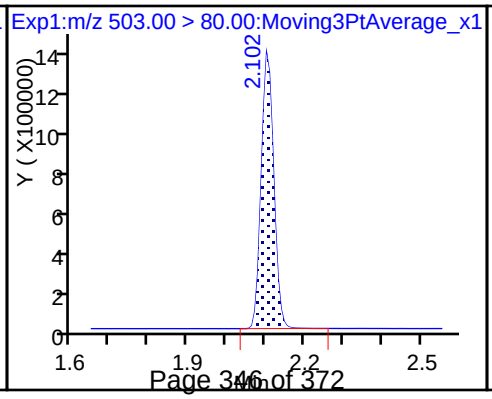
8 Perfluorooctane sulfonic acid (M)



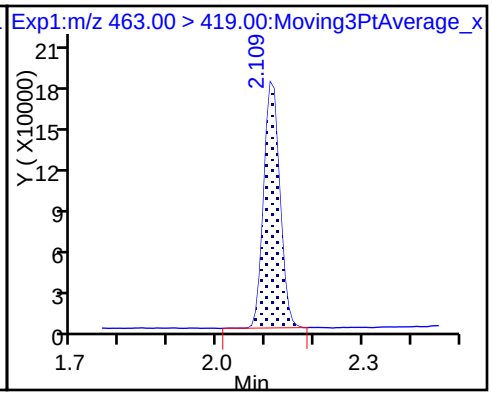
8 Perfluorooctane sulfonic acid (M)



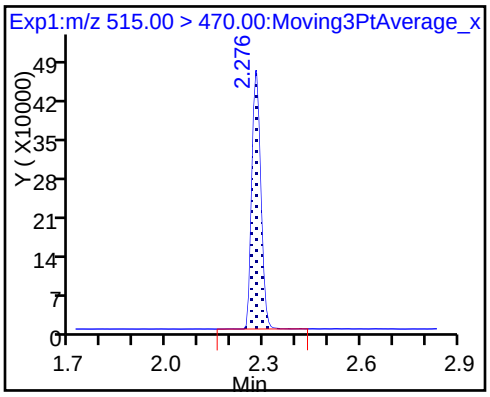
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA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Y (X10000)
49
42
35
28
21
14
7
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_035.d
Lims ID: LLCSD 320-172036/3-A
Client ID:
Sample Type: LLCSD
Inject. Date: 07-Jul-2017 01:58:23 ALS Bottle#: 23 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcsd 320-172036/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Jul-2017 14:38:53 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1
Process Host: XAWRK011

First Level Reviewer: barnettj Date: 07-Jul-2017 14:29:17

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.93	99.31
$ 10 13C2 PFDA	10.0	10.2	102.45

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

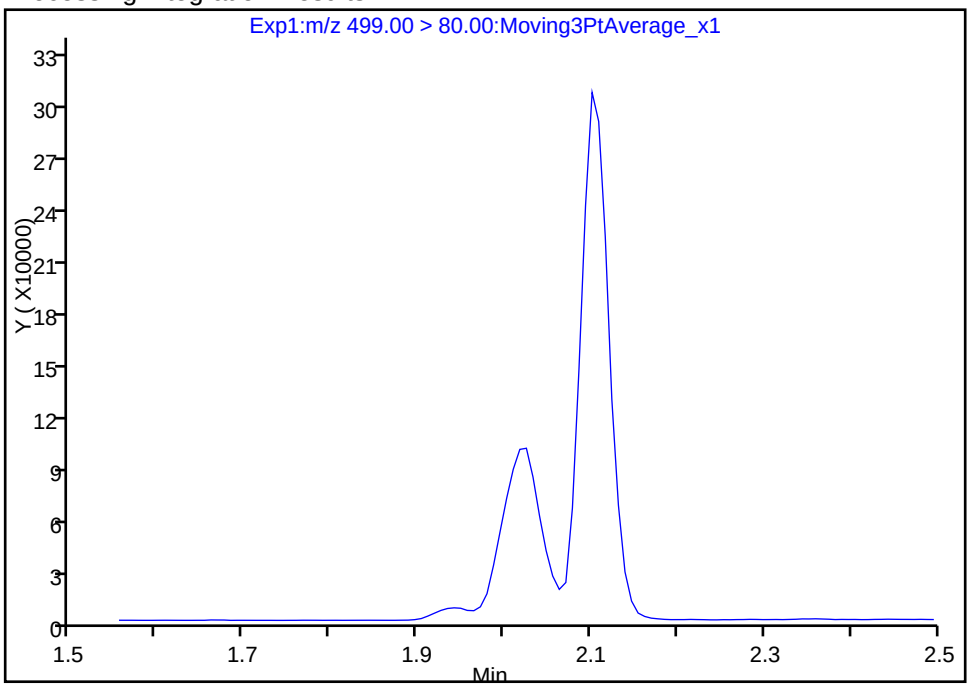
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_035.d				
Injection Date:	07-Jul-2017 01:58:23	Instrument ID:	A8_N		
Lims ID:	LLCSD 320-172036/3-A				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	23	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

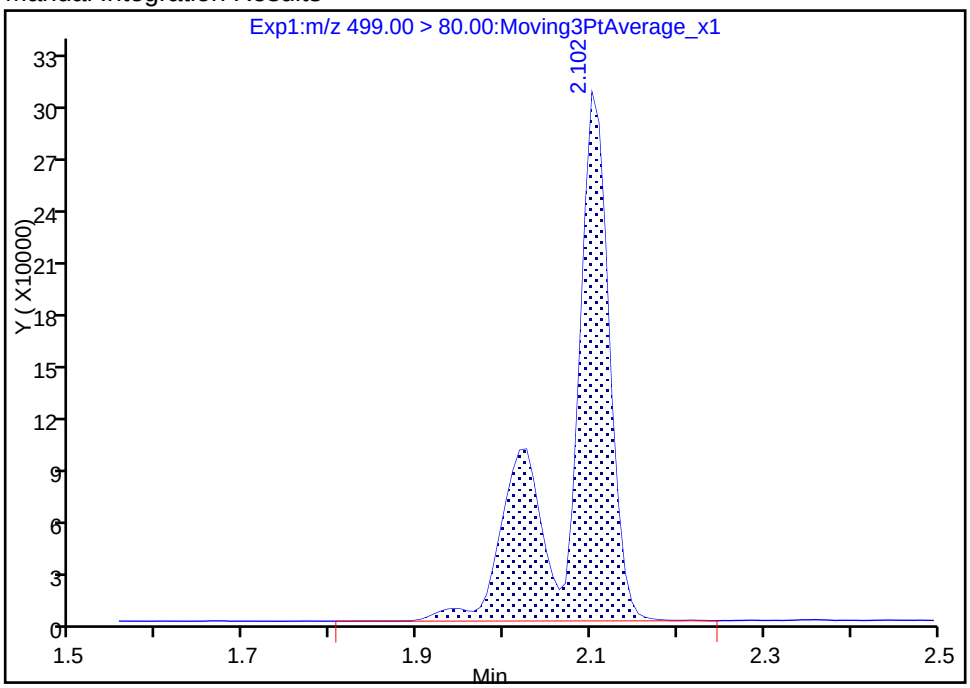
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT:	2.10
Area:	1037519
Amount:	10.001494
Amount Units:	ng/ml



Reviewer: barnettj, 07-Jul-2017 14:28:42
Audit Action: Assigned Compound ID Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

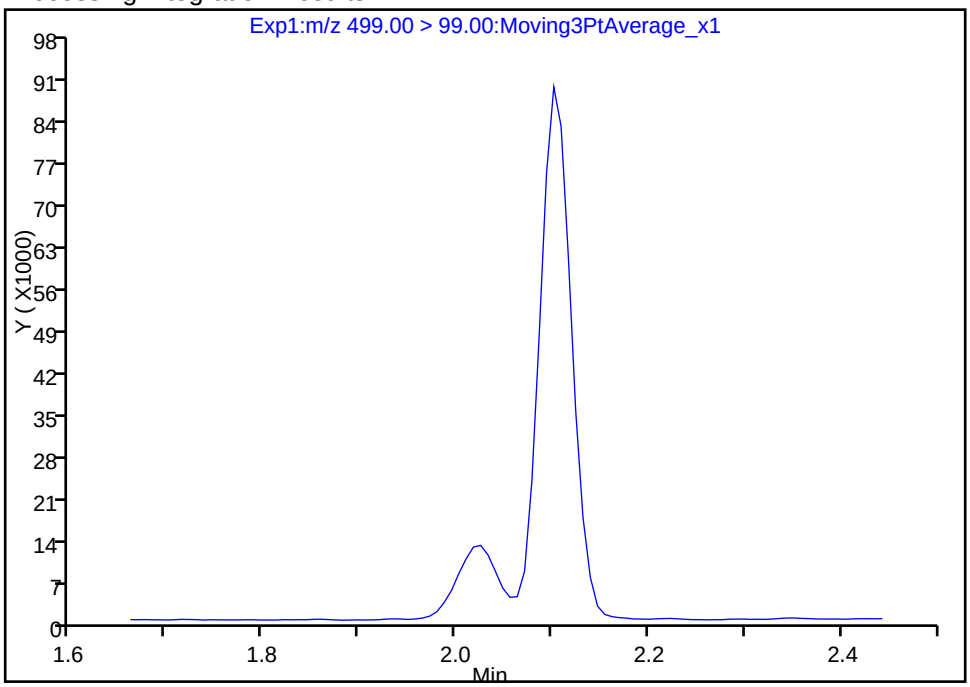
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_035.d				
Injection Date:	07-Jul-2017 01:58:23	Instrument ID:	A8_N		
Lims ID:	LLCSD 320-172036/3-A				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	23	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

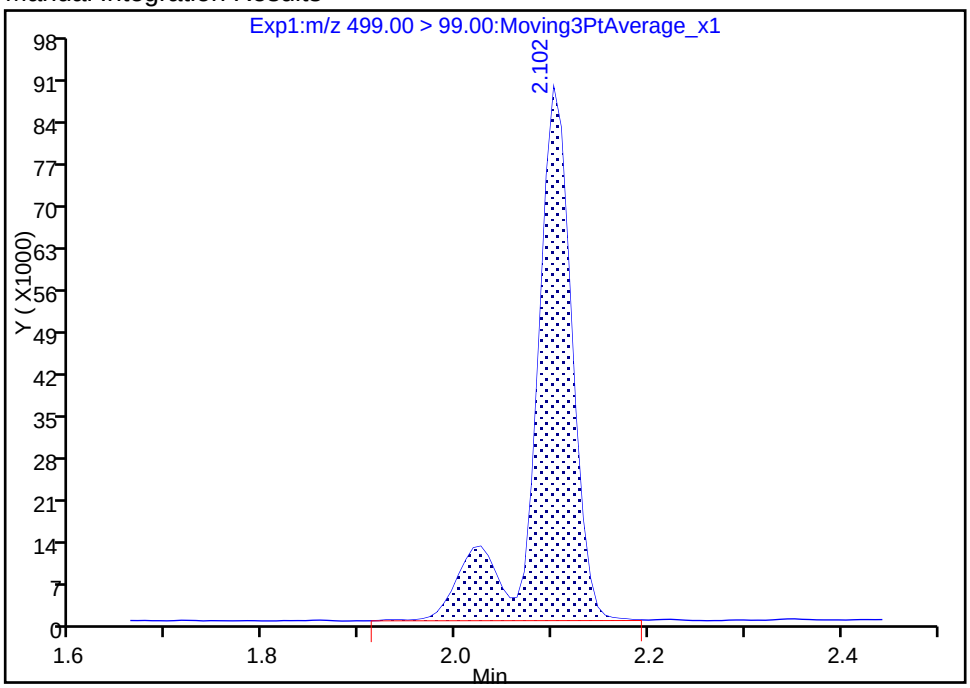
Processing Integration Results

Not Detected
Expected RT: 2.09



Manual Integration Results

RT: 2.10
Area: 242420
Amount: 10.001494
Amount Units: ng/ml



Reviewer: barnettj, 07-Jul-2017 14:28:55
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b\2017.07.06_537A_035.d				
Injection Date:	07-Jul-2017 01:58:23	Instrument ID:	A8_N		
Lims ID:	LLCSD 320-172036/3-A				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	23	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

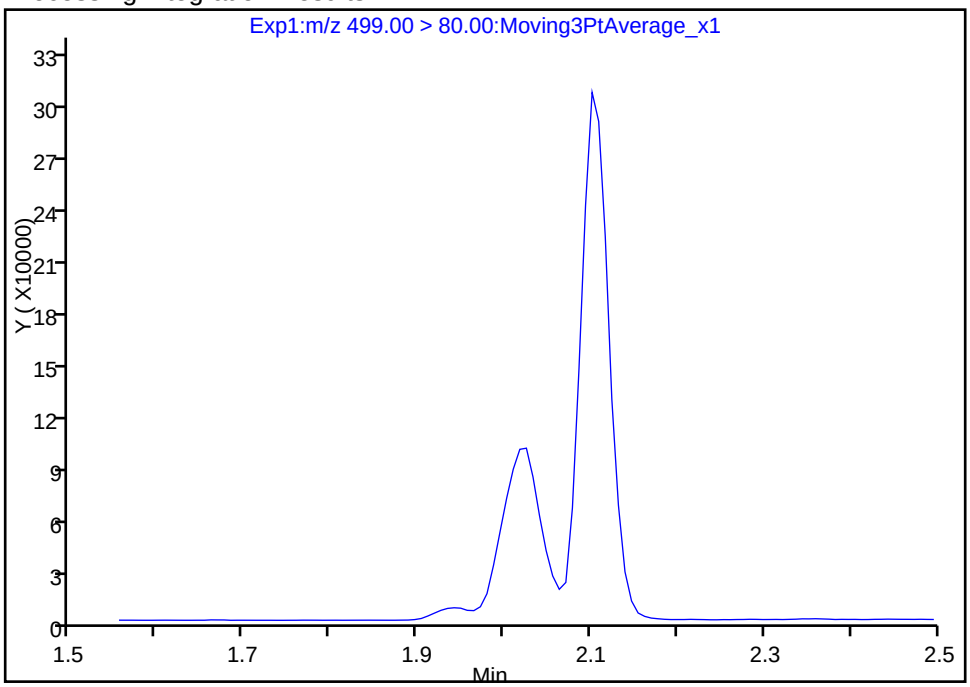
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

Processing Integration Results

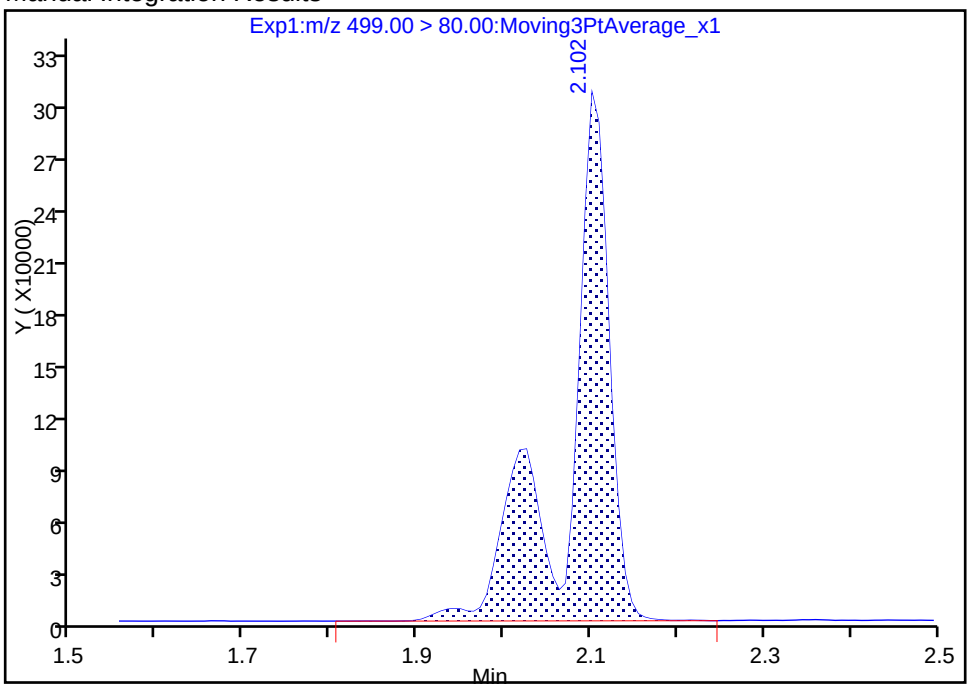
Not Detected

Expected RT: 2.09



Manual Integration Results

RT:	2.10
Area:	1037519
Amount:	10.001494
Amount Units:	ng/ml



Reviewer: barnettj, 07-Jul-2017 14:28:55

Audit Action: Manually Integrated Audit Reason: Missed Peak

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Start Date: 07/05/2017 19:50

Analysis Batch Number: 172646 End Date: 07/05/2017 20:32

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-172646/4		07/05/2017 19:50	1	2017.07.05_537CURVE 004.d	GeminiC18 3x100 3(mm)
IC 320-172646/5		07/05/2017 19:54	1	2017.07.05_537CURVE 005.d	GeminiC18 3x100 3(mm)
IC 320-172646/6		07/05/2017 19:59	1	2017.07.05_537CURVE 006.d	GeminiC18 3x100 3(mm)
IC 320-172646/7 ICISAV		07/05/2017 20:04	1	2017.07.05_537CURVE 007.d	GeminiC18 3x100 3(mm)
IC 320-172646/8		07/05/2017 20:09	1	2017.07.05_537CURVE 008.d	GeminiC18 3x100 3(mm)
IC 320-172646/9		07/05/2017 20:13	1	2017.07.05_537CURVE 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/05/2017 20:18	1		GeminiC18 3x100 3(mm)
CCVL 320-172646/11		07/05/2017 20:23	1	2017.07.05_537CURVE 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/05/2017 20:28	1		GeminiC18 3x100 3(mm)
ICV 320-172646/13		07/05/2017 20:32	1	2017.07.05_537CURVE 013.d	GeminiC18 3x100 3(mm)

537

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Start Date: 07/06/2017 23:31

Analysis Batch Number: 172919 End Date: 07/07/2017 00:18

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-172919/4		07/06/2017 23:31	1	2017.07.06_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-172919/5 CCVIS		07/06/2017 23:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/06/2017 23:40	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/06/2017 23:45	2		GeminiC18 3x100 3(mm)
CCV 320-172919/14 CCVIS		07/07/2017 00:18	1		GeminiC18 3x100 3(mm)

537

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Start Date: 07/07/2017 01:39

Analysis Batch Number: 173033 End Date: 07/07/2017 02:36

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-173033/1 CCVIS		07/07/2017 01:39	1	2017.07.06_537A 031.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/07/2017 01:44	1		GeminiC18 3x100 3(mm)
MB 320-172036/1-A		07/07/2017 01:48	1	2017.07.06_537A 033.d	GeminiC18 3x100 3(mm)
LLCS 320-172036/2-A		07/07/2017 01:53	1	2017.07.06_537A 034.d	GeminiC18 3x100 3(mm)
LLCSD 320-172036/3-A		07/07/2017 01:58	1	2017.07.06_537A 035.d	GeminiC18 3x100 3(mm)
320-29279-1		07/07/2017 02:03	1	2017.07.06_537A 036.d	GeminiC18 3x100 3(mm)
320-29279-2		07/07/2017 02:07	1	2017.07.06_537A 037.d	GeminiC18 3x100 3(mm)
320-29279-3		07/07/2017 02:12	1	2017.07.06_537A 038.d	GeminiC18 3x100 3(mm)
320-29279-4		07/07/2017 02:17	1	2017.07.06_537A 039.d	GeminiC18 3x100 3(mm)
320-29279-5		07/07/2017 02:22	1	2017.07.06_537A 040.d	GeminiC18 3x100 3(mm)
320-29279-6		07/07/2017 02:26	1	2017.07.06_537A 041.d	GeminiC18 3x100 3(mm)
320-29279-7		07/07/2017 02:31	1	2017.07.06_537A 042.d	GeminiC18 3x100 3(mm)
CCV 320-173033/13 CCVIS		07/07/2017 02:36	1	2017.07.06_537A 043.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Start Date: 07/07/2017 02:36

Analysis Batch Number: 173034 End Date: 07/07/2017 03:33

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-173034/13 CCVIS		07/07/2017 02:36	1	2017.07.06_537A 043.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/07/2017 02:41	1		GeminiC18 3x100 3(mm)
320-29279-8		07/07/2017 02:45	1	2017.07.06_537A 045.d	GeminiC18 3x100 3(mm)
320-29279-9		07/07/2017 02:50	1	2017.07.06_537A 046.d	GeminiC18 3x100 3(mm)
320-29279-10		07/07/2017 02:55	1	2017.07.06_537A 047.d	GeminiC18 3x100 3(mm)
320-29279-11		07/07/2017 03:00	1	2017.07.06_537A 048.d	GeminiC18 3x100 3(mm)
320-29279-12		07/07/2017 03:04	1	2017.07.06_537A 049.d	GeminiC18 3x100 3(mm)
320-29279-13		07/07/2017 03:09	1	2017.07.06_537A 050.d	GeminiC18 3x100 3(mm)
320-29279-14		07/07/2017 03:14	1	2017.07.06_537A 051.d	GeminiC18 3x100 3(mm)
320-29279-15		07/07/2017 03:19	1	2017.07.06_537A 052.d	GeminiC18 3x100 3(mm)
320-29279-16		07/07/2017 03:23	1	2017.07.06_537A 053.d	GeminiC18 3x100 3(mm)
320-29279-17		07/07/2017 03:28	1	2017.07.06_537A 054.d	GeminiC18 3x100 3(mm)
CCV 320-173034/25 CCVIS		07/07/2017 03:33	1	2017.07.06_537A 055.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Start Date: 07/07/2017 03:33

Analysis Batch Number: 173035 End Date: 07/07/2017 03:52

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-173035/25 CCVIS		07/07/2017 03:33	1	2017.07.06_537A 055.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/07/2017 03:38	1		GeminiC18 3x100 3(mm)
320-29279-18		07/07/2017 03:42	1	2017.07.06_537A 057.d	GeminiC18 3x100 3(mm)
320-29279-19		07/07/2017 03:47	1	2017.07.06_537A 058.d	GeminiC18 3x100 3(mm)
CCV 320-173035/29 CCVIS		07/07/2017 03:52	1	2017.07.06_537A 059.d	GeminiC18 3x100 3(mm)

537

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Batch Number: 172036 Batch Start Date: 07/01/17 09:47 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 07/05/17 20:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00043
MB 320-172036/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCS 320-172036/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCSD 320-172036/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-29279-A-1	WGNA-062017-RW-4831A	537, 537	T	278.59 g	28.49 g	250.1 mL	1.00 mL	7 SU	100 uL
320-29279-A-2	WGNA-062017-FRB-4831A	537, 537	T	272.73 g	27.68 g	245.1 mL	1.00 mL	7 SU	100 uL
320-29279-A-3	WGNA-062017-RW-4831B	537, 537	T	276.65 g	28.20 g	248.5 mL	1.00 mL	7 SU	100 uL
320-29279-A-4	WGNA-062017-RW-3978	537, 537	T	282.49 g	28.58 g	253.9 mL	1.00 mL	7 SU	100 uL
320-29279-A-5	WGNA-062017-FRB-3978	537, 537	T	273.83 g	27.93 g	245.9 mL	1.00 mL	7 SU	100 uL
320-29279-A-6	WGNA-062017-RW-3991	537, 537	T	290.05 g	28.25 g	261.8 mL	1.00 mL	7 SU	100 uL
320-29279-A-7	WGNA-062017-FRB-3991	537, 537	T	283.85 g	27.84 g	256 mL	1.00 mL	7 SU	100 uL
320-29279-A-8	WGNA-062017-RW-4834	537, 537	T	292.82 g	28.88 g	263.9 mL	1.00 mL	7 SU	100 uL
320-29279-A-9	WGNA-062017-FRB-4834	537, 537	T	287.29 g	27.65 g	259.6 mL	1.00 mL	7 SU	100 uL
320-29279-A-10	WGNA-062017-RW-4840	537, 537	T	288.02 g	28.37 g	259.7 mL	1.00 mL	7 SU	100 uL
320-29279-A-11	WGNA-062017-FRB-4840	537, 537	T	273.96 g	27.56 g	246.4 mL	1.00 mL	7 SU	100 uL
320-29279-A-12	WGNA-062017-RW-3124A	537, 537	T	290.26 g	28.31 g	262 mL	1.00 mL	7 SU	100 uL
320-29279-A-13	WGNA-062017-FRB-3124A	537, 537	T	280.83 g	27.24 g	253.6 mL	1.00 mL	7 SU	100 uL
320-29279-A-14	WGNA-062017-RW-3124B	537, 537	T	285.50 g	27.73 g	257.8 mL	1.00 mL	7 SU	100 uL
320-29279-B-15	WGNA-062017-RW-0344	537, 537	T	282.04 g	28.16 g	253.9 mL	1.00 mL	7 SU	100 uL
320-29279-A-16	WGNA-062017-FRB-0344	537, 537	T	285.31 g	27.95 g	257.4 mL	1.00 mL	7 SU	100 uL
320-29279-B-17	WGNA-062017-RW-0413A	537, 537	T	282.33 g	28.00 g	254.3 mL	1.00 mL	7 SU	100 uL
320-29279-B-18	WGNA-062017-FRB-0413A	537, 537	T	282.02 g	28.15 g	253.9 mL	1.00 mL	7 SU	100 uL
320-29279-B-19	WGNA-062017-RW-0413B	537, 537	T	278.01 g	28.10 g	249.9 mL	1.00 mL	7 SU	100 uL

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.: 320-29279-1

SDG No.:

Batch Number: 172036 Batch Start Date: 07/01/17 09:47 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 07/05/17 20:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00020	LC537-SU 00044	AnalysisComment			
MB 320-172036/1		537, 537			100 uL	ch nd			
LLCS 320-172036/2		537, 537		100 uL	100 uL	ch nd			
LLCSD 320-172036/3		537, 537		100 uL	100 uL	ch nd			
320-29279-A-1	WGNA-062017-RW-4831A	537, 537	T		100 uL	ch nd			
320-29279-A-2	WGNA-062017-FRB-4831A	537, 537	T		100 uL	ch nd			
320-29279-A-3	WGNA-062017-RW-4831B	537, 537	T		100 uL	ch nd			
320-29279-A-4	WGNA-062017-RW-3978	537, 537	T		100 uL	ch nd			
320-29279-A-5	WGNA-062017-FRB-3978	537, 537	T		100 uL	ch nd			
320-29279-A-6	WGNA-062017-RW-3991	537, 537	T		100 uL	ch nd			
320-29279-A-7	WGNA-062017-FRB-3991	537, 537	T		100 uL	ch nd			
320-29279-A-8	WGNA-062017-RW-4834	537, 537	T		100 uL	ch nd			
320-29279-A-9	WGNA-062017-FRB-4834	537, 537	T		100 uL	ch nd			
320-29279-A-10	WGNA-062017-RW-4840	537, 537	T		100 uL	ch nd			
320-29279-A-11	WGNA-062017-FRB-4840	537, 537	T		100 uL	ch nd			
320-29279-A-12	WGNA-062017-RW-3124A	537, 537	T		100 uL	ch nd			
320-29279-A-13	WGNA-062017-FRB-3124A	537, 537	T		100 uL	ch nd			
320-29279-A-14	WGNA-062017-RW-3124B	537, 537	T		100 uL	ch nd			
320-29279-B-15	WGNA-062017-RW-0344	537, 537	T		100 uL	ch nd			
320-29279-A-16	WGNA-062017-FRB-0344	537, 537	T		100 uL	ch nd			
320-29279-B-17	WGNA-062017-RW-0413A	537, 537	T		100 uL	ch nd			
320-29279-B-18	WGNA-062017-FRB-0413A	537, 537	T		100 uL	ch nd			
320-29279-B-19	WGNA-062017-RW-0413B	537, 537	T		100 uL	ch 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.: 320-29279-1

SDG No.:

Batch Number: 172036 Batch Start Date: 07/01/17 09:47 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 07/05/17 20:15

Batch Notes	
Batch Comment	IS:960784
Manifold ID	3,4
Methanol ID	968332
Pipette ID	MD05306
Analyst ID - IS Reagent Drop	VPM
Analyst ID - IS Reagent Drop Witness	JER
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge ID	6346595-04
Trizma ID	SLBR4303V
Reagent Water ID	6-27-27

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: 29279 Instrument ID & Date: 7-7-17 ICAL Batch: 172646
Extraction Batch: 172036 Worklist #: 45186 TALS Batch: 173033, 173034, 173035

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?	✓			✓
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 7-7-17 2nd Level Reviewer / Date: [illegible] 7/11/2017

NCM # and Comments: _____

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Method 537 ICAL Checklist

Instrument ID & Date: A8 7-5-17 Worklist#: 45099

ICAL Batch: 172646, 172647 Calibration ID number: 32198, 32199

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 ≥ 0.990 for Linear R^2 ≥ 0.990 for Quadratic **NOTE: "Force through Zero" must be used and weighted if needed**	✓			✓
5. If quadratic fit used the curve does not "bend over".			✓	
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be ≤ 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks?.(0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (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 7-6-17 2nd Level Reviewer / Date: CBW 7/6/17

NCM # and Comments:

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 06JUL2017_537B Worklist Number: 45186
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170707-45186.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 173033
# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB
# 3 MB 320-172036/1-A	# 3 MB 320-172036/1-A
# 4 LLCS 320-172036/2-A	# 4 LLCS 320-172036/2-A
# 5 LLCSD 320-172036/3-A	# 5 LLCSD 320-172036/3-A
# 6 320-29279-A-1-A	# 6 320-29279-A-1-A
# 7 320-29279-A-2-A	# 7 320-29279-A-2-A
# 8 320-29279-A-3-A	# 8 320-29279-A-3-A
# 9 320-29279-A-4-A	# 9 320-29279-A-4-A
#10 320-29279-A-5-A	#10 320-29279-A-5-A
#11 320-29279-A-6-A	#11 320-29279-A-6-A
#12 320-29279-A-7-A	#12 320-29279-A-7-A
#13 CCV L5	#13 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 173034
#13 CCV L5	#13 CCV L5
#14 RB	#14 RB
#15 320-29279-A-8-A	#15 320-29279-A-8-A
#16 320-29279-A-9-A	#16 320-29279-A-9-A
#17 320-29279-A-10-A	#17 320-29279-A-10-A
#18 320-29279-A-11-A	#18 320-29279-A-11-A
#19 320-29279-A-12-A	#19 320-29279-A-12-A
#20 320-29279-A-13-A	#20 320-29279-A-13-A
#21 320-29279-A-14-A	#21 320-29279-A-14-A
#22 320-29279-B-15-A	#22 320-29279-B-15-A
#23 320-29279-A-16-A	#23 320-29279-A-16-A
#24 320-29279-B-17-A	#24 320-29279-B-17-A
#25 CCV L3	#25 CCV L3

QC Batch: 3	LC 537 ICAL Raw Batch: 173035	LC 537 CS ICAL Raw Batch: 173036
#25 CCV L3	#25 CCV L3	
#26 RB	#26 RB	
#27 320-29279-B-18-A	#27 320-29279-B-18-A	
#28 320-29279-B-19-A	#28 320-29279-B-19-A	
#29 CCV L5	#29 CCV L5	#29 CCV L5

QC Batch: 4	LC 537 CS ICAL Raw Batch: 173037	LC 537 ICAL Raw Batch: 173038
#29 CCV L5	#29 CCV L5	#29 CCV L5
#30 RB	#30 RB	
#31 MB 320-172118/1-A	#31 MB 320-172118/1-A	
#32 LCS 320-172118/2-A	#32 LCS 320-172118/2-A	
#33 LCSD 320-172118/3-A	#33 LCSD 320-172118/3-A	
#34 320-29278-B-1-A	#34 320-29278-B-1-A	
#35 320-29278-B-1-B MS	#35 320-29278-B-1-B MS	
#36 320-29278-B-1-C MSD	#36 320-29278-B-1-C MSD	
#37 320-29278-B-2-A	#37 320-29278-B-2-A	
#38 320-29278-B-3-A	#38 320-29278-B-3-A	

QC Batch: 4	LC 537 CS ICAL Raw Batch: 173037	LC 537 ICAL Raw Batch: 173038
#39 320-29278-B-4-A #40 320-29278-B-5-A #41 CCV L3	#39 320-29278-B-4-A #40 320-29278-B-5-A #41 CCV L3	

QC Batch: 5	LC 537 CS ICAL Raw Batch: 173039
#41 CCV L3 #42 RB #43 320-29278-B-6-A #44 320-29278-B-7-A #45 CCV L5 #46 RB	#41 CCV L3 #42 RB #43 320-29278-B-6-A #44 320-29278-B-7-A #45 CCV L5 #46 RB

38

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

A8 7/6/17
7/6/17

Batch Number: 320-172036
Analyst: Branscum, Cassie
Batch Open: 7/1/2017 9:47:00AM
Method Code: 320-537_Prep-320
Batch End: 7/5/2017 8:15:00PM

Extraction of Perfluorinated Alkyl Acids

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1	MB~320-172036/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	MB 320-172036/1-A
				1.00 mL								
2	LLCS~320-172036/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	LLCS 320-172036/2-A
				1.00 mL								
3	LLCSD~320-172036/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	LLCSD 320-172036/3-A
				1.00 mL								
4	320-29279-A-1 (537_DOD5)	N/A (320-29279-1)	278.59 g	250.1 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-1-A
			28.49 g	1.00 mL								
5	320-29279-A-2 (537_DOD5)	N/A (320-29279-1)	272.73 g	245.1 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-2-A
			27.68 g	1.00 mL								
6	320-29279-A-3 (537_DOD5)	N/A (320-29279-1)	276.65 g	248.5 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-3-A
			28.20 g	1.00 mL								
7	320-29279-A-4 (537_DOD5)	N/A (320-29279-1)	282.49 g	253.9 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-4-A
			28.58 g	1.00 mL								
8	320-29279-A-5 (537_DOD5)	N/A (320-29279-1)	273.83 g	245.9 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-5-A
			27.93 g	1.00 mL								
9	320-29279-A-6 (537_DOD5)	N/A (320-29279-1)	290.05 g	261.8 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-6-A
			28.25 g	1.00 mL								
10	320-29279-A-7 (537_DOD5)	N/A (320-29279-1)	283.85 g	256 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-7-A
			27.84 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-172036 | Analyst: Branscum, Cassie | Batch Open: 7/1/2017 9:47:00AM

Method Code: 320-537_Prep-320 | Batch End: 7/5/2017 8:15:00PM

11	320-29279-A-8 (537_DOD5)	N/A (320-29279-1)	292.82 g 28.88 g	263.9 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-8-A
12	320-29279-A-9 (537_DOD5)	N/A (320-29279-1)	287.29 g 27.65 g	259.6 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-9-A
13	320-29279-A-10 (537_DOD5)	N/A (320-29279-1)	288.02 g 28.37 g	259.7 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-10-A
14	320-29279-A-11 (537_DOD5)	N/A (320-29279-1)	273.96 g 27.56 g	246.4 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-11-A
15	320-29279-A-12 (537_DOD5)	N/A (320-29279-1)	290.26 g 28.31 g	262 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-12-A
16	320-29279-A-13 (537_DOD5)	N/A (320-29279-1)	280.83 g 27.24 g	253.6 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-13-A
17	320-29279-A-14 (537_DOD5)	N/A (320-29279-1)	285.50 g 27.73 g	257.8 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-14-A
18	320-29279-B-15 (537_DOD5)	N/A (320-29279-1)	282.04 g 28.16 g	253.9 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-B-15-A
19	320-29279-A-16 (537_DOD5)	N/A (320-29279-1)	285.31 g 27.95 g	257.4 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-16-A
20	320-29279-B-17 (537_DOD5)	N/A (320-29279-1)	282.33 g 28.00 g	254.3 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-B-17-A
21	320-29279-B-18 (537_DOD5)	N/A (320-29279-1)	282.02 g 28.15 g	253.9 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-B-18-A
22	320-29279-B-19 (537_DOD5)	N/A (320-29279-1)	278.01 g 28.10 g	249.9 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-B-19-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-172036 | Analyst: Branscum, Cassie | Batch Open: 7/1/2017 9:47:00AM

Method Code: 320-537_Prep-320 | Batch End: 7/5/2017 8:15:00PM

Batch Notes

Manifold ID	3,4
Trizma ID	SLBR4303V
SPE Cartridge ID	6346595-04
Methanol ID	968332
Reagent Water ID	6-27-27
Pipette ID	MD05306
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - IS Reagent Drop	VPM
Analyst ID - IS Reagent Drop Witness	JER
Batch Comment	IS:960784

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-172036 | Analyst: Branscum, Cassie | Batch Open: 7/1/2017 9:47:00AM

Method Code: 320-537_Prep-320 | Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-172036/1	LC537-SU_00044	100 uL	1.00 mL	CB 7-1-17	KMK 7-1-17
LLCS 320-172036/2	LC537-LSP_00020	100 uL	1.00 mL		
LLCS 320-172036/2	LC537-SU_00044	100 uL	1.00 mL		
LLCSD 320-172036/3	LC537-LSP_00020	100 uL	1.00 mL		
LLCSD 320-172036/3	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-1	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-2	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-3	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-4	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-5	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-6	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-7	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-8	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-9	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-10	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-11	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-12	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-13	LC537-SU_00044	100 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-172036 | Analyst: Branscum, Cassie | Batch Open: 7/1/2017 9:47:00AM

Method Code: 320-537_Prep-320 | Batch End:

320-29279-A-14	LC537-SU_00044	100 uL	1.00 mL	CJS 7-1-17	KMK 7-1-17
320-29279-B-15	LC537-SU_00044	100 uL	1.00 mL		
320-29279-A-16	LC537-SU_00044	100 uL	1.00 mL		
320-29279-B-17	LC537-SU_00044	100 uL	1.00 mL		
320-29279-B-18	LC537-SU_00044	100 uL	1.00 mL		
320-29279-B-19	LC537-SU_00044	100 uL	1.00 mL		

Other Reagents:

Reagent	Amount/Units	Lot#:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s): 172036 Test: 537_DOD5

Earliest Holding Time: 7-4-17

Sample List Tab	1st Level Reviewer	2nd Level Reviewer
Samples identified to the correct method	✓	✓
All necessary NCMs filed (including holding time)	✓	✓
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: VPM Date: 7/5/17

2nd Level Reviewer: [signature] Date: 7/05/17

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

Regulatory Program: ☑ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Andy Frebowitz	Site Contact: Mary Kay Bond	Date: 6/20/2017	COC No:
TetraTech	Tel/Fax:	Lab Contact: Dave Alltucker	Carrier: Fed Ex	1 of 1 COCs
234 Mall Boulevard Suite 260	Analysis Turnaround Time			Sampler: Andy Frebowitz, Mary Kay Bond
King of Prussia, PA 19406	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
610-382-1174	TAT if different from Below _____			Walk-in Client:
610-491-9688	☐ 2 weeks			Lab Sampling:
Project Name: WGNA Willow Grove	☐ 1 week			
Site: Willow Grove	☐ 2 days			Job / SDG No.:
P O # 112G08005-WE04	☐ 1 day			

320-29279 Chain of Custody

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:
WGNA-062017-RW-4831A	6/20/2017	8:45	G	DW	2	N		Y	
WGNA-062017-FRB-4831A	6/20/2017	08:40	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-4831B	6/20/2017	8:55	G	DW	2	N		Y	
WGNA-062017-RW-3978	6/20/2017	10:05	G	DW	2	N		Y	
WGNA-062017-FRB-3978	6/20/2017	10:00	G	BLK	2	N		Y	C
WGNA-062017-RW-3991	6/20/2017	11:20	G	DW	2	N		Y	
WGNA-062017-FRB-3991	6/20/2017	11:15	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-4834	6/20/2017	14:10	G	DW	2	N		Y	
WGNA-062017-FRB-4834	6/20/2017	14:05	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-4840	6/20/2017	14:40	G	DW	2	N		Y	
WGNA-062017-FRB-4840	6/20/2017	14:35	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-3124A	6/20/2017	9:40	G	DW	2	N		Y	
WGNA-062017-FRB-3124A	6/20/2017	09:35	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-3124B	6/20/2017	9:45	G	DW	2	N		Y	
WGNA-062017-RW-0344	6/20/2017	10:45	G	DW	2	N		Y	
WGNA-062017-FRB-0344	6/20/2017	10:40	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-0413A	6/20/2017	15:15	G	DW	2	N		Y	
WGNA-062017-FRB-0413A	6/20/2017	15:10	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-0413B	6/20/2017	15:20	G	DW	2	N		Y	

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 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

Special Instructions/QC Requirements & Comments: FedEx 661219926051

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 1.9 Corr'd: _____ | Therm ID No.: AK-7

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
MK Bond	Tetra tech		[signature]	TAcs	6/21/17 910
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+A33:AD51A30:AD51A27:A37:AD51

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-29279-1

Login Number: 29279
List Number: 1
Creator: Hytrek, Cheryl

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.	False	COC not relinquished.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

"WGNA-062017-RW-4831A","537","RES","320-29279-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","98","ng/L","M","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250.1","1.00","16",""
"WGNA-062017-RW-4831A","537","RES","320-29279-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","19","ng/L","J M","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250.1","1.00","8.0",""
"WGNA-062017-RW-4831A","537","RES","320-29279-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","32","ng/L","","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250.1","1.00","12",""
"WGNA-062017-RW-4831A","537","RES","320-29279-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250.1","1.00","36",""
"WGNA-062017-RW-4831A","537","RES","320-29279-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","6.1","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250.1","1.00","4.0",""
"WGNA-062017-RW-4831A","537","RES","320-29279-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250.1","1.00","20",""
"WGNA-062017-RW-4831A","537","RES","320-29279-1","TALSAC","STL00993","13C2 PFHxA","36","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","40.0","","250.1","1.00","0",""
"WGNA-062017-RW-4831A","537","RES","320-29279-1","TALSAC","STL00996","13C2 PFDA","41","ng/L","","-99","DL","","SURR","103","","-99","LOQ","YES","40.0","","250.1","1.00","0",""
"WGNA-062017-RW-4840","537","RES","320-29279-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","U","6.5","DL","","TRG","","","39","LOQ","YES","-99","","259.7","1.00","15",""
"WGNA-062017-RW-4840","537","RES","320-29279-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","259.7","1.00","7.7",""
"WGNA-062017-RW-4840","537","RES","320-29279-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","259.7","1.00","12",""
"WGNA-062017-RW-4840","537","RES","320-29279-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35","ng/L","U","15","DL","","TRG","","","87","LOQ","YES","-99","","259.7","1.00","35",""
"WGNA-062017-RW-4840","537","RES","320-29279-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","3.9","ng/L","U","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","259.7","1.00","3.9",""
"WGNA-062017-RW-4840","537","RES","320-29279-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","259.7","1.00","19",""
"WGNA-062017-RW-4840","537","RES","320-29279-10","TALSAC","STL00993","13C2 PFHxA","35","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","38.5","","259.7","1.00","0",""
"WGNA-062017-RW-4840","537","RES","320-29279-10","TALSAC","STL00996","13C2 PFDA","36","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","38.5","","259.7","1.00","0",""
"WGNA-062017-FRB-4840","537","RES","320-29279-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","246.4","1.00","16",""
"WGNA-062017-FRB-4840","537","RES","320-29279-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","246.4","1.00","8.1",""
"WGNA-062017-FRB-4840","537","RES","320-29279-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES","-99","","246.4","1.00","12",""
"WGNA-062017-FRB-4840","537","RES","320-29279-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","246.4","1.00","37",""
"WGNA-062017-FRB-4840","537","RES","320-29279-11","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","246.4","1.00","4.1",""
"WGNA-062017-FRB-4840","537","RES","320-29279-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","246.4","1.00","20",""
"WGNA-062017-FRB-4840","537","RES","320-29279-11","TALSAC","STL00993","13C2 PFHxA","39","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","40.6","","246.4","1.00","0",""
"WGNA-062017-FRB-4840","537","RES","320-29279-11","TALSAC","STL00996","13C2 PFDA","40","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","40.6","","246.4","1.00","0",""
"WGNA-062017-RW-3124A","537","RES","320-29279-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","19","ng/L","J M","6.5","DL","","TRG","","","38","LOQ","YES","-99","","262","1.00","15",""
"WGNA-062017-RW-3124A","537","RES","320-29279-12","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","16","ng/L","J M","2.7","DL","","TRG","","","19","LOQ","YES","-99","","262","1.00","7.6",""
"WGNA-062017-RW-3124A","537","RES","320-29279-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS)","13","ng/L","J","5.2","DL","","TRG","","","29","LOQ","YES","-99","","262","1.00","11","",
"WGNA-062017-RW-3124A","537","RES","320-29279-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","TRG","","","86","LOQ","YES","-99","","262","1.00","34","",
"WGNA-062017-RW-3124A","537","RES","320-29279-12","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","J","1.8","DL","","TRG","","","9.5","LOQ","YES","-99","","262","1.00","3.8","",
"WGNA-062017-RW-3124A","537","RES","320-29279-12","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.6","DL","","TRG","","","23","LOQ","YES","-99","","262","1.00","19","",
"WGNA-062017-RW-3124A","537","RES","320-29279-12","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","-99","DL","","SURR","88","","-99","LOQ","YES","38.2","","262","1.00","0","",
"WGNA-062017-RW-3124A","537","RES","320-29279-12","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","101","","-99","LOQ","YES","38.2","","262","1.00","0","",
"WGNA-062017-FRB-3124A","537","RES","320-29279-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.7","DL","","TRG","","","39","LOQ","YES","-99","","253.6","1.00","16","",
"WGNA-062017-FRB-3124A","537","RES","320-29279-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","253.6","1.00","7.9","",
"WGNA-062017-FRB-3124A","537","RES","320-29279-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","30","LOQ","YES","-99","","253.6","1.00","12","",
"WGNA-062017-FRB-3124A","537","RES","320-29279-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","253.6","1.00","35","",
"WGNA-062017-FRB-3124A","537","RES","320-29279-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","253.6","1.00","3.9","",
"WGNA-062017-FRB-3124A","537","RES","320-29279-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","253.6","1.00","20","",
"WGNA-062017-FRB-3124A","537","RES","320-29279-13","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","39.4","","253.6","1.00","0","",
"WGNA-062017-FRB-3124A","537","RES","320-29279-13","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","39.4","","253.6","1.00","0","",
"WGNA-062017-RW-3124B","537","RES","320-29279-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","257.8","1.00","16","",
"WGNA-062017-RW-3124B","537","RES","320-29279-14","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.8","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","257.8","1.00","7.8","",
"WGNA-062017-RW-3124B","537","RES","320-29279-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","257.8","1.00","12","",
"WGNA-062017-RW-3124B","537","RES","320-29279-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","257.8","1.00","35","",
"WGNA-062017-RW-3124B","537","RES","320-29279-14","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.8","DL","","TRG","","","9.7","LOQ","YES","-99","","257.8","1.00","3.9","",
"WGNA-062017-RW-3124B","537","RES","320-29279-14","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","257.8","1.00","19","",
"WGNA-062017-RW-3124B","537","RES","320-29279-14","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","38.8","","257.8","1.00","0","",
"WGNA-062017-RW-3124B","537","RES","320-29279-14","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","38.8","","257.8","1.00","0","",
"WGNA-062017-RW-0344","537","RES","320-29279-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","25","ng/L","J M","6.7","DL","","TRG","","","39","LOQ","YES","-99","","253.9","1.00","16","",
"WGNA-062017-RW-0344","537","RES","320-29279-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","25","ng/L","M","2.8","DL","","TRG","","","20","LOQ","YES","-99","","253.9","1.00","7.9","",
"WGNA-062017-RW-0344","537","RES","320-29279-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","19","ng/L","J","5.4","DL","","TRG","","","30","LOQ","YES","-99","","253.9","1.00","12","",
"WGNA-062017-RW-0344","537","RES","320-29279-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","253.9","1.00","35","",
"WGNA-062017-RW-0344","537","RES","320-29279-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","7.3","ng/L","J","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","253.9","1.00","3.9","",
"WGNA-062017-RW-0344","537","RES","320-29279-15","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA)","29","ng/L","","7.9","DL","","TRG","","","24","LOQ","YES","-99","","253.9","1.00","20","",
"WGNA-062017-RW-0344","537","RES","320-29279-15","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","39.4","","253.9","1.00","0","",
"WGNA-062017-RW-0344","537","RES","320-29279-15","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","39.4","","253.9","1.00","0","",
"WGNA-062017-FRB-0344","537","RES","320-29279-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","257.4","1.00","16","",
"WGNA-062017-FRB-0344","537","RES","320-29279-16","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.8","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","257.4","1.00","7.8","",
"WGNA-062017-FRB-0344","537","RES","320-29279-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","257.4","1.00","12","",
"WGNA-062017-FRB-0344","537","RES","320-29279-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","257.4","1.00","35","",
"WGNA-062017-FRB-0344","537","RES","320-29279-16","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.8","DL","","TRG","","","9.7","LOQ","YES","-99","","257.4","1.00","3.9","",
"WGNA-062017-FRB-0344","537","RES","320-29279-16","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","257.4","1.00","19","",
"WGNA-062017-FRB-0344","537","RES","320-29279-16","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","38.9","","257.4","1.00","0","",
"WGNA-062017-FRB-0344","537","RES","320-29279-16","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","38.9","","257.4","1.00","0","",
"WGNA-062017-RW-0413A","537","RES","320-29279-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","8.8","ng/L","J","6.7","DL","","TRG","","","39","LOQ","YES","-99","","254.3","1.00","16","",
"WGNA-062017-RW-0413A","537","RES","320-29279-17","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","15","ng/L","J M","2.8","DL","","TRG","","","20","LOQ","YES","-99","","254.3","1.00","7.9","",
"WGNA-062017-RW-0413A","537","RES","320-29279-17","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","254.3","1.00","12","",
"WGNA-062017-RW-0413A","537","RES","320-29279-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","254.3","1.00","35","",
"WGNA-062017-RW-0413A","537","RES","320-29279-17","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.2","ng/L","J","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","254.3","1.00","3.9","",
"WGNA-062017-RW-0413A","537","RES","320-29279-17","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","254.3","1.00","20","",
"WGNA-062017-RW-0413A","537","RES","320-29279-17","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","39.3","","254.3","1.00","0","",
"WGNA-062017-RW-0413A","537","RES","320-29279-17","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","39.3","","254.3","1.00","0","",
"WGNA-062017-FRB-0413A","537","RES","320-29279-18","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.7","DL","","TRG","","","39","LOQ","YES","-99","","253.9","1.00","16","",
"WGNA-062017-FRB-0413A","537","RES","320-29279-18","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","253.9","1.00","7.9","",
"WGNA-062017-FRB-0413A","537","RES","320-29279-18","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","30","LOQ","YES","-99","","253.9","1.00","12","",
"WGNA-062017-FRB-0413A","537","RES","320-29279-18","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","253.9","1.00","35","",
"WGNA-062017-FRB-0413A","537","RES","320-29279-18","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","253.9","1.00","3.9","",
"WGNA-062017-FRB-0413A","537","RES","320-29279-18","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","253.9","1.00","20","",
"WGNA-062017-FRB-0413A","537","RES","320-29279-18","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURR","89","","-99","LOQ","YES","39.4","","253.9","1.00","0","",
"WGNA-062017-FRB-0413A","537","RES","320-29279-18","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","39.4","","253.9","1.00","0","",
"WGNA-062017-RW-0413B","537","RES","320-29279-19","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS)","22","ng/L","J","6.8","DL","","TRG","","","40","LOQ","YES","-99","","249.9","1.00","16",""
"WGNA-062017-RW-0413B","537","RES","320-29279-19","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","29","ng/L","M","2.8","DL","","TRG","","","20","LOQ","YES","-99","","249.9","1.00","8.0",""
"WGNA-062017-RW-0413B","537","RES","320-29279-19","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","8.5","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","249.9","1.00","12",""
"WGNA-062017-RW-0413B","537","RES","320-29279-19","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","249.9","1.00","36",""
"WGNA-062017-RW-0413B","537","RES","320-29279-19","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","7.9","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","249.9","1.00","4.0",""
"WGNA-062017-RW-0413B","537","RES","320-29279-19","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","249.9","1.00","20",""
"WGNA-062017-RW-0413B","537","RES","320-29279-19","TALSAC","STL00993","13C2
PFHxA","37","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","40.0","","249.9","1.00","0",""
"WGNA-062017-RW-0413B","537","RES","320-29279-19","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","40.0","","249.9","1.00","0",""
"WGNA-062017-FRB-4831A","537","RES","320-29279-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","245.1","1.00","16",""
"WGNA-062017-FRB-4831A","537","RES","320-29279-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.2","ng/L","U","2.9","DL","","TRG","","","20","LOQ","YES","-99","","245.1","1.00","8.2",""
"WGNA-062017-FRB-4831A","537","RES","320-29279-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","245.1","1.00","12",""
"WGNA-062017-FRB-4831A","537","RES","320-29279-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","245.1","1.00","37",""
"WGNA-062017-FRB-4831A","537","RES","320-29279-2","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","245.1","1.00","4.1",""
"WGNA-062017-FRB-4831A","537","RES","320-29279-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.2","DL","","TRG","","","24","LOQ","YES","-99","","245.1","1.00","20",""
"WGNA-062017-FRB-4831A","537","RES","320-29279-2","TALSAC","STL00993","13C2
PFHxA","40","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","40.8","","245.1","1.00","0",""
"WGNA-062017-FRB-4831A","537","RES","320-29279-2","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","40.8","","245.1","1.00","0",""
"WGNA-062017-RW-4831B","537","RES","320-29279-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","120","ng/L","M","6.8","DL","","TRG","","","40","LOQ","YES","-99","","248.5","1.00","16",""
"WGNA-062017-RW-4831B","537","RES","320-29279-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","21","ng/L","M","2.8","DL","","TRG","","","20","LOQ","YES","-99","","248.5","1.00","8.0",""
"WGNA-062017-RW-4831B","537","RES","320-29279-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","38","ng/L","","5.5","DL","","TRG","","","30","LOQ","YES","-99","","248.5","1.00","12",""
"WGNA-062017-RW-4831B","537","RES","320-29279-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","16","ng/L","J","16","DL","","TRG","","","91","LOQ","YES","-99","","248.5","1.00","36",""
"WGNA-062017-RW-4831B","537","RES","320-29279-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","7.5","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","248.5","1.00","4.0",""
"WGNA-062017-RW-4831B","537","RES","320-29279-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","248.5","1.00","20",""
"WGNA-062017-RW-4831B","537","RES","320-29279-3","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURR","86","","-99","LOQ","YES","40.2","","248.5","1.00","0",""
"WGNA-062017-RW-4831B","537","RES","320-29279-3","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","40.2","","248.5","1.00","0",""
"WGNA-062017-RW-3978","537","RES","320-29279-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","19","ng/L","J M","6.7","DL","","TRG","","","39","LOQ","YES","-99","","253.9","1.00","16",""
"WGNA-062017-RW-3978","537","RES","320-29279-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","16","ng/L","J M","2.8","DL","","TRG","","","20","LOQ","YES","-99","","253.9","1.00","7.9",""
"WGNA-062017-RW-3978","537","RES","320-29279-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","7.8","ng/L","J","5.4","DL","","TRG","","","30","LOQ","YES","-99","","253.9","1.00","12",""
"WGNA-062017-RW-3978","537","RES","320-29279-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid

(PFBS)","35","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","253.9","1.00","35",""
"WGNA-062017-RW-3978","537","RES","320-29279-4","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.6","ng/L","J","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","253.9","1.00","3.9",""
"WGNA-062017-RW-3978","537","RES","320-29279-4","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","253.9","1.00","20",""
"WGNA-062017-RW-3978","537","RES","320-29279-4","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","39.4","","253.9","1.00","0",""
"WGNA-062017-RW-3978","537","RES","320-29279-4","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","39.4","","253.9","1.00","0",""
"WGNA-062017-FRB-3978","537","RES","320-29279-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","245.9","1.00","16",""
"WGNA-062017-FRB-3978","537","RES","320-29279-5","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","245.9","1.00","8.1",""
"WGNA-062017-FRB-3978","537","RES","320-29279-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","245.9","1.00","12",""
"WGNA-062017-FRB-3978","537","RES","320-29279-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","245.9","1.00","37",""
"WGNA-062017-FRB-3978","537","RES","320-29279-5","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","245.9","1.00","4.1",""
"WGNA-062017-FRB-3978","537","RES","320-29279-5","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","245.9","1.00","20",""
"WGNA-062017-FRB-3978","537","RES","320-29279-5","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","40.7","","245.9","1.00","0",""
"WGNA-062017-FRB-3978","537","RES","320-29279-5","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURR","99","","-99","LOQ","YES","40.7","","245.9","1.00","0",""
"WGNA-062017-RW-3991","537","RES","320-29279-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","17","ng/L","J M","6.5","DL","","TRG","","","38","LOQ","YES","-99","","261.8","1.00","15",""
"WGNA-062017-RW-3991","537","RES","320-29279-6","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","19","ng/L","M","2.7","DL","","TRG","","","19","LOQ","YES","-99","","261.8","1.00","7.6",""
"WGNA-062017-RW-3991","537","RES","320-29279-6","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","8.0","ng/L","J","5.3","DL","","TRG","","","29","LOQ","YES","-99","","261.8","1.00","11",""
"WGNA-062017-RW-3991","537","RES","320-29279-6","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","TRG","","","86","LOQ","YES","-99","","261.8","1.00","34",""
"WGNA-062017-RW-3991","537","RES","320-29279-6","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.5","ng/L","J","1.8","DL","","TRG","","","9.5","LOQ","YES","-99","","261.8","1.00","3.8",""
"WGNA-062017-RW-3991","537","RES","320-29279-6","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.6","DL","","TRG","","","23","LOQ","YES","-99","","261.8","1.00","19",""
"WGNA-062017-RW-3991","537","RES","320-29279-6","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","38.2","","261.8","1.00","0",""
"WGNA-062017-RW-3991","537","RES","320-29279-6","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","103","","-99","LOQ","YES","38.2","","261.8","1.00","0",""
"WGNA-062017-FRB-3991","537","RES","320-29279-7","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","256","1.00","16",""
"WGNA-062017-FRB-3991","537","RES","320-29279-7","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.8","ng/L","U","2.7","DL","","TRG","","","20","LOQ","YES","-99","","256","1.00","7.8",""
"WGNA-062017-FRB-3991","537","RES","320-29279-7","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","256","1.00","12",""
"WGNA-062017-FRB-3991","537","RES","320-29279-7","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","256","1.00","35",""
"WGNA-062017-FRB-3991","537","RES","320-29279-7","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","256","1.00","3.9",""
"WGNA-062017-FRB-3991","537","RES","320-29279-7","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","256","1.00","20",""
"WGNA-062017-FRB-3991","537","RES","320-29279-7","TALSAC","STL00993","13C2

PFHxA","38","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","39.1","","256","1.00","0",""
"WGNA-062017-FRB-3991","537","RES","320-29279-7","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","39.1","","256","1.00","0",""
"WGNA-062017-RW-4834","537","RES","320-29279-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.4","DL","","TRG","","","38","LOQ","YES","-99","","263.9","1.00","15",""
"WGNA-062017-RW-4834","537","RES","320-29279-8","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.6","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","263.9","1.00","7.6",""
"WGNA-062017-RW-4834","537","RES","320-29279-8","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.2","DL","","TRG","","","28","LOQ","YES","-99","","263.9","1.00","11",""
"WGNA-062017-RW-4834","537","RES","320-29279-8","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","TRG","","","85","LOQ","YES","-99","","263.9","1.00","34",""
"WGNA-062017-RW-4834","537","RES","320-29279-8","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.8","ng/L","U","1.8","DL","","TRG","","","9.5","LOQ","YES","-99","","263.9","1.00","3.8",""
"WGNA-062017-RW-4834","537","RES","320-29279-8","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.6","DL","","TRG","","","23","LOQ","YES","-99","","263.9","1.00","19",""
"WGNA-062017-RW-4834","537","RES","320-29279-8","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","37.9","","263.9","1.00","0",""
"WGNA-062017-RW-4834","537","RES","320-29279-8","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURR","99","","-99","LOQ","YES","37.9","","263.9","1.00","0",""
"WGNA-062017-FRB-4834","537","RES","320-29279-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.5","DL","","TRG","","","39","LOQ","YES","-99","","259.6","1.00","15",""
"WGNA-062017-FRB-4834","537","RES","320-29279-9","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","259.6","1.00","7.7",""
"WGNA-062017-FRB-4834","537","RES","320-29279-9","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","259.6","1.00","12",""
"WGNA-062017-FRB-4834","537","RES","320-29279-9","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","259.6","1.00","35",""
"WGNA-062017-FRB-4834","537","RES","320-29279-9","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","259.6","1.00","3.9",""
"WGNA-062017-FRB-4834","537","RES","320-29279-9","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","259.6","1.00","19",""
"WGNA-062017-FRB-4834","537","RES","320-29279-9","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","38.5","","259.6","1.00","0",""
"WGNA-062017-FRB-4834","537","RES","320-29279-9","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","38.5","","259.6","1.00","0",""
"LLCS 320-172036/2-A","537","RES","LLCS 320-172036/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","38.4","ng/L","J M","6.8","DL","","SPK","96","","40","LOQ","YES","40.0","","250","1.00","16",""
"LLCS 320-172036/2-A","537","RES","LLCS 320-172036/2-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","20.3","ng/L","","2.8","DL","","SPK","101","","20","LOQ","YES","20.0","","250","1.00","8.0",""
"LLCS 320-172036/2-A","537","RES","LLCS 320-172036/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","29.9","ng/L","J","5.5","DL","","SPK","99","","30","LOQ","YES","30.1","","250","1.00","12",""
"LLCS 320-172036/2-A","537","RES","LLCS 320-172036/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","96.8","ng/L","","16","DL","","SPK","110","","90","LOQ","YES","88.3","","250","1.00","36",""
"LLCS 320-172036/2-A","537","RES","LLCS 320-172036/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","10.8","ng/L","","1.9","DL","","SPK","109","","10","LOQ","YES","9.90","","250","1.00","4.0",""
"LLCS 320-172036/2-A","537","RES","LLCS 320-172036/2-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19.6","ng/L","J","8.0","DL","","SPK","102","","24","LOQ","YES","19.3","","250","1.00","20",""
"LLCS 320-172036/2-A","537","RES","LLCS 320-172036/2-A","TALSAC","STL00993","13C2
PFHxA","37.6","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LLCS 320-172036/2-A","537","RES","LLCS 320-172036/2-A","TALSAC","STL00996","13C2
PFDA","40.0","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LLCSD 320-172036/3-A","537","RES","LLCSD 320-172036/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","40.0","ng/L","M","6.8","DL","","SPK","100","4","40","LOQ","YES","40.0","LLCS 320-172036/2-
A","250","1.00","16",""

"LLCSD 320-172036/3-A","537","RES","LLCSD 320-172036/3-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","21.5","ng/L","","2.8","DL","","SPK","108","6","20","LOQ","YES","20.0","LLCS 320-172036/2-A","250","1.00","8.0",""
"LLCSD 320-172036/3-A","537","RES","LLCSD 320-172036/3-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","30.8","ng/L","","5.5","DL","","SPK","102","3","30","LOQ","YES","30.1","LLCS 320-172036/2-A","250","1.00","12",""
"LLCSD 320-172036/3-A","537","RES","LLCSD 320-172036/3-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","96.4","ng/L","","16","DL","","SPK","109","0.4","90","LOQ","YES","88.3","LLCS 320-172036/2-A","250","1.00","36",""
"LLCSD 320-172036/3-A","537","RES","LLCSD 320-172036/3-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","10.9","ng/L","","1.9","DL","","SPK","110","0.6","10","LOQ","YES","9.90","LLCS 320-172036/2-A","250","1.00","4.0",""
"LLCSD 320-172036/3-A","537","RES","LLCSD 320-172036/3-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20.1","ng/L","J","8.0","DL","","SPK","104","3","24","LOQ","YES","19.3","LLCS 320-172036/2-A","250","1.00","20",""
"LLCSD 320-172036/3-A","537","RES","LLCSD 320-172036/3-A","TALSAC","STL00993","13C2 PFHxA","39.7","ng/L","","-99","DL","","SURR","99","5","-99","LOQ","YES","40.0","LLCS 320-172036/2-A","250","1.00","0",""
"LLCSD 320-172036/3-A","537","RES","LLCSD 320-172036/3-A","TALSAC","STL00996","13C2 PFDA","41.0","ng/L","","-99","DL","","SURR","102","2","-99","LOQ","YES","40.0","LLCS 320-172036/2-A","250","1.00","0",""
"MB 320-172036/1-A","537","RES","MB 320-172036/1-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 320-172036/1-A","537","RES","MB 320-172036/1-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 320-172036/1-A","537","RES","MB 320-172036/1-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 320-172036/1-A","537","RES","MB 320-172036/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"MB 320-172036/1-A","537","RES","MB 320-172036/1-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 320-172036/1-A","537","RES","MB 320-172036/1-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 320-172036/1-A","537","RES","MB 320-172036/1-A","TALSAC","STL00993","13C2 PFHxA","36.7","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-172036/1-A","537","RES","MB 320-172036/1-A","TALSAC","STL00996","13C2 PFDA","39.9","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","40.0","","250","1.00","0",""
"Unknown","Unknown","WGNA-062017-RW-4831A","06/20/2017 08:45","AQ","320-29279-1","NM","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017 02:03","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-173033","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","WGNA-062017-RW-4840","06/20/2017 14:40","AQ","320-29279-10","NM","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017 02:55","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-173034","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","WGNA-062017-FRB-4840","06/20/2017 14:35","AQ","320-29279-11","FB","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017 03:00","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-173034","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","WGNA-062017-RW-3124A","06/20/2017 09:40","AQ","320-29279-12","NM","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017 03:04","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-173034","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
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13","FB","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017
03:09","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-
173034","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","WGNA-062017-RW-3124B","06/20/2017 09:45","AQ","320-29279-
14","NM","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017
03:14","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-
173034","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
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03:19","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-
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173034","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
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173035","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
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02:07","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-
173033","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","WGNA-062017-RW-4831B","06/20/2017 08:55","AQ","320-29279-
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173033","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","WGNA-062017-RW-3978","06/20/2017 10:05","AQ","320-29279-
4","NM","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017
02:17","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-
173033","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","WGNA-062017-FRB-3978","06/20/2017 10:00","AQ","320-29279-
5","FB","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017
02:22","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-
173033","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","WGNA-062017-RW-3991","06/20/2017 11:20","AQ","320-29279-
6","NM","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017
02:26","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-
173033","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","WGNA-062017-FRB-3991","06/20/2017 11:15","AQ","320-29279-
7","FB","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017
02:31","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-
173033","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","WGNA-062017-RW-4834","06/20/2017 14:10","AQ","320-29279-
8","NM","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017
02:45","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-

173034","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","WGNA-062017-FRB-4834","06/20/2017 14:05","AQ","320-29279-
9","FB","","1.90","537","METHOD","RES","07/01/2017 09:47","07/07/2017
02:50","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-
173034","320-29279-1","06/21/2017 09:10","06/22/2017 16:40",""
"Unknown","Unknown","LLCS 320-172036/2-A","","AQ","LLCS 320-172036/2-
A","LCS","","-99","537","METHOD","RES","07/01/2017 09:47","07/07/2017
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173033","320-29279-1","07/01/2017 09:47","06/22/2017 16:40",""
"Unknown","Unknown","LLCSD 320-172036/3-A","","AQ","LLCSD 320-172036/3-
A","LCSD","","-99","537","METHOD","RES","07/01/2017 09:47","07/07/2017
01:58","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-
173033","320-29279-1","07/01/2017 09:47","06/22/2017 16:40",""
"Unknown","Unknown","MB 320-172036/1-A","","AQ","MB 320-172036/1-
A","MB","","-99","537","METHOD","RES","07/01/2017 09:47","07/07/2017
01:48","TALSAC","COA","WET","NA","1","NA","NA","","100","320-172036","320-172036","NA","320-
173033","320-29279-1","07/01/2017 09:47","06/22/2017 16:40",""

TETRA TECH **INTERNAL CORRESPONDENCE**

TO: **A. FREBOWITZ** **DATE:** **JULY 20, 2017**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)**
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG) 320-29279-1

SAMPLES: 8/Field Reagent Blank (FRB)

WGNA-062017-FRB-0344	WGNA-062017-FRB-0413A
WGNA-062017-FRB-3124A	WGNA-062017-FRB-3978
WGNA-062017-FRB-3991	WGNA-062017-FRB-4831A
WGNA-062017-FRB-4834	WGNA-062017-FRB-4840

11/Drinking Water

WGNA-062017-RW-0344	WGNA-062017-RW-0413A
WGNA-062017-RW-0413B	WGNA-062017-RW-3124A
WGNA-062017-RW-3124B	WGNA-062017-RW-3978
WGNA-062017-RW-3991	WGNA-062017-RW-4831A
WGNA-062017-RW-4831B	WGNA-062017-RW-4834
WGNA-062017-RW-4840	

Overview

The sample set for NAS JRB Willow Grove, SDG 320-29279-1, consisted of eleven (11) drinking water samples and eight (8) FRB sample. All samples were analyzed for select perfluorinated alkyl acids including pentadecafluorooctanoic acid (PFOA), perfluorobutane sulfonate (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA) and perfluorooctane sulfonic acid (PFOS). No field duplicate pairs were included in this SDG.

The samples were collected by Tetra Tech on June 20, 2017 and analyzed by TestAmerica-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, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

None.

Minor

Detected results reported below the limit of quantitation (LOQ) but above the detection limit (DL) were qualified as estimated, (J).

Notes

It was noted in the case narrative that there was insufficient sample volume to analyze a matrix spike / matrix spike duplicate sample. No action was taken as a result of this issue.

Samples with detections and their associated FRBs are summarized below. No detected results were present in any FRBs.

Sample	Associated FRB
WGNA-062017-RW-0344	WGNA-062017-FRB-0344
WGNA-062017-RW-0413A	WGNA-062017-FRB-0413A
WGNA-062017-RW-0413B	WGNA-062017-FRB-0413A
WGNA-062017-RW-3124A	WGNA-062017-FRB-3124A
WGNA-062017-RW-3978	WGNA-062017-FRB-3978
WGNA-062017-RW-3991	WGNA-062017-FRB-3991
WGNA-062017-RW-4831A	WGNA-062017-FRB-4831A
WGNA-062017-RW-4831B	WGNA-062017-FRB-4831A

Non-detected results were reported to the Limit of Detection (LOD).

The buffering agent Trizma was added to all drinking water samples.

It was noted that FRB samples WGNA-062017-FRB-4834 and WGNA-062017-FRB-4840 were analyzed although the associated sample results were nondetects. No validation actions were required.

Executive Summary

Laboratory Performance: None.

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.

Terri L. Solomon

Tetra Tech, Inc.
Terri L. Solomon
Chemist/Data Validator

Joseph A. Samchuck

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	WGNA-062017-FRB-0344			WGNA-062017-FRB-0413A			WGNA-062017-FRB-3124A			WGNA-062017-FRB-3978		
SDG: 320-29279-1	LAB_ID	320-29279-16			320-29279-18			320-29279-13			320-29279-5		
FRACTION: PFAS	SAMP_DATE	6/20/2017			6/20/2017			6/20/2017			6/20/2017		
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		7.8	U		7.9	U		7.9	U		8.1	U	
PERFLUOROBUTANE SULFONATE		35	U		35	U		35	U		37	U	
PERFLUOROHEPTANOIC ACID		3.9	U		3.9	U		3.9	U		4.1	U	
PERFLUOROHEXANESULFONIC ACID		12	U		12	U		12	U		12	U	
PERFLUORONONANOIC ACID		19	U		20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		16	U		16	U		16	U	

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-062017-FRB-3991			WGNA-062017-FRB-4831A			WGNA-062017-FRB-4834			WGNA-062017-FRB-4840		
SDG: 320-29279-1	LAB_ID	320-29279-7			320-29279-2			320-29279-9			320-29279-11		
FRACTION: PFAS	SAMP_DATE	6/20/2017			6/20/2017			6/20/2017			6/20/2017		
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		7.8	U		8.2	U		7.7	U		8.1	U	
PERFLUOROBUTANE SULFONATE		35	U		37	U		35	U		37	U	
PERFLUOROHEPTANOIC ACID		3.9	U		4.1	U		3.9	U		4.1	U	
PERFLUOROHEXANESULFONIC ACID		12	U		12	U		12	U		12	U	
PERFLUORONONANOIC ACID		20	U		20	U		19	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		16	U		15	U		16	U	

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-062017-RW-0344			WGNA-062017-RW-0413A			WGNA-062017-RW-0413B			WGNA-062017-RW-3124A		
SDG: 320-29279-1	LAB_ID	320-29279-15			320-29279-17			320-29279-19			320-29279-12		
FRACTION: PFAS	SAMP_DATE	6/20/2017			6/20/2017			6/20/2017			6/20/2017		
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		25			15	J	P	29			16	J	P
PERFLUOROBUTANE SULFONATE		35	U		35	U		36	U		34	U	
PERFLUOROHEPTANOIC ACID		7.3	J	P	4.2	J	P	7.9	J	P	4.1	J	P
PERFLUOROHEXANESULFONIC ACID		19	J	P	12	U		8.5	J	P	13	J	P
PERFLUORONONANOIC ACID		29			20	U		20	U		19	U	
PERFLUOROOCTANE SULFONIC ACID		25	J	P	8.8	J	P	22	J	P	19	J	P

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-062017-RW-3124B			WGNA-062017-RW-3978			WGNA-062017-RW-3991			WGNA-062017-RW-4831A		
SDG: 320-29279-1	LAB_ID	320-29279-14			320-29279-4			320-29279-6			320-29279-1		
FRACTION: PFAS	SAMP_DATE	6/20/2017			6/20/2017			6/20/2017			6/20/2017		
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		7.8	U		16	J	P	19			19	J	P
PERFLUOROBUTANE SULFONATE		35	U		35	U		34	U		36	U	
PERFLUOROHEPTANOIC ACID		3.9	U		6.6	J	P	6.5	J	P	6.1	J	P
PERFLUOROHEXANESULFONIC ACID		12	U		7.8	J	P	8	J	P	32		
PERFLUORONONANOIC ACID		19	U		20	U		19	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		19	J	P	17	J	P	98		

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-062017-RW-4831B			WGNA-062017-RW-4834			WGNA-062017-RW-4840		
SDG: 320-29279-1	LAB_ID	320-29279-3			320-29279-8			320-29279-10		
FRACTION: PFAS	SAMP_DATE	6/20/2017			6/20/2017			6/20/2017		
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		21			7.6	U		7.7	U	
PERFLUOROBUTANE SULFONATE		16	J	P	34	U		35	U	
PERFLUOROHEPTANOIC ACID		7.5	J	P	3.8	U		3.9	U	
PERFLUOROHEXANESULFONIC ACID		38			11	U		12	U	
PERFLUORONONANOIC ACID		20	U		19	U		19	U	
PERFLUOROOCTANE SULFONIC ACID		120			15	U		15	U	

Appendix B

Results as Reported by the Laboratory

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-4831A
Lab Sample ID: 320-29279-1
Matrix: Water
Lab File ID: 2017.07.06_537A_036.d
Analysis Method: 537
Date Collected: 06/20/2017 08:45
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 250.1(mL)
Date Analyzed: 07/07/2017 02:03
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	98	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	19	J M	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	32		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.1	J	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	91		70-130
STL00996	13C2 PFDA	103		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-4831A
Lab Sample ID: 320-29279-2
Matrix: Water
Lab File ID: 2017.07.06_537A_037.d
Analysis Method: 537
Date Collected: 06/20/2017 08:40
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 245.1(mL)
Date Analyzed: 07/07/2017 02:07
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	102		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-4831B
Lab Sample ID: 320-29279-3
Matrix: Water
Lab File ID: 2017.07.06_537A_038.d
Analysis Method: 537
Date Collected: 06/20/2017 08:55
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 248.5(mL)
Date Analyzed: 07/07/2017 02:12
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	120	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	21	M	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	38		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.5	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	16	J	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	97		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-3978
Lab Sample ID: 320-29279-4
Matrix: Water
Lab File ID: 2017.07.06_537A_039.d
Analysis Method: 537
Date Collected: 06/20/2017 10:05
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 253.9(mL)
Date Analyzed: 07/07/2017 02:17
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	16	J M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.8	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	89	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	97		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-3978
Lab Sample ID: 320-29279-5
Matrix: Water
Lab File ID: 2017.07.06_537A_040.d
Analysis Method: 537
Date Collected: 06/20/2017 10:00
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 245.9(mL)
Date Analyzed: 07/07/2017 02:22
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.: 173033
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	99		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-29279-1

SDG No.:

Client Sample ID: WGNA-062017-RW-3991 | Lab Sample ID: 320-29279-6

Matrix: Water | Lab File ID: 2017.07.06_537A_041.d

Analysis Method: 537 | Date Collected: 06/20/2017 11:20

Extraction Method: 537 | Date Extracted: 07/01/2017 09:47

Sample wt/vol: 261.8(mL) | Date Analyzed: 07/07/2017 02:26

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.: 173033 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	J M	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	19	M	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.0	J	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.5	J	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	103		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-3991
Lab Sample ID: 320-29279-7
Matrix: Water
Lab File ID: 2017.07.06_537A_042.d
Analysis Method: 537
Date Collected: 06/20/2017 11:15
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 256(mL)
Date Analyzed: 07/07/2017 02:31
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.: 173033
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	98		70-130
STL00996	13C2 PFDA	102		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-4834
Lab Sample ID: 320-29279-8
Matrix: Water
Lab File ID: 2017.07.06_537A_045.d
Analysis Method: 537
Date Collected: 06/20/2017 14:10
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 263.9(mL)
Date Analyzed: 07/07/2017 02:45
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.: 173034
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)	7.6	U	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	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	99		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-4834
Lab Sample ID: 320-29279-9
Matrix: Water
Lab File ID: 2017.07.06_537A_046.d
Analysis Method: 537
Date Collected: 06/20/2017 14:05
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 259.6(mL)
Date Analyzed: 07/07/2017 02:50
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	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)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	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	98		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-4840
Lab Sample ID: 320-29279-10
Matrix: Water
Lab File ID: 2017.07.06_537A_047.d
Analysis Method: 537
Date Collected: 06/20/2017 14:40
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 259.7(mL)
Date Analyzed: 07/07/2017 02:55
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	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)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	94		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-4840
Lab Sample ID: 320-29279-11
Matrix: Water
Lab File ID: 2017.07.06_537A_048.d
Analysis Method: 537
Date Collected: 06/20/2017 14:35
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 246.4(mL)
Date Analyzed: 07/07/2017 03:00
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	91	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	100		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-3124A
Lab Sample ID: 320-29279-12
Matrix: Water
Lab File ID: 2017.07.06_537A_049.d
Analysis Method: 537
Date Collected: 06/20/2017 09:40
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 262(mL)
Date Analyzed: 07/07/2017 03:04
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	16	J M	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	13	J	29	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	J	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	88		70-130
STL00996	13C2 PFDA	101		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-3124A
Lab Sample ID: 320-29279-13
Matrix: Water
Lab File ID: 2017.07.06_537A_050.d
Analysis Method: 537
Date Collected: 06/20/2017 09:35
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 253.6(mL)
Date Analyzed: 07/07/2017 03:09
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	89	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	94		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-3124B
Lab Sample ID: 320-29279-14
Matrix: Water
Lab File ID: 2017.07.06_537A_051.d
Analysis Method: 537
Date Collected: 06/20/2017 09:45
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 257.8(mL)
Date Analyzed: 07/07/2017 03:14
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.: 173034
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	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
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	91		70-130
STL00996	13C2 PFDA	96		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-0344
Lab Sample ID: 320-29279-15
Matrix: Water
Lab File ID: 2017.07.06_537A_052.d
Analysis Method: 537
Date Collected: 06/20/2017 10:45
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 253.9(mL)
Date Analyzed: 07/07/2017 03:19
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	25	M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	29		24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	19	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.3	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	89	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	96		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-0344
Lab Sample ID: 320-29279-16
Matrix: Water
Lab File ID: 2017.07.06_537A_053.d
Analysis Method: 537
Date Collected: 06/20/2017 10:40
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 257.4(mL)
Date Analyzed: 07/07/2017 03:23
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.: 173034
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	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
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	95		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-0413A
Lab Sample ID: 320-29279-17
Matrix: Water
Lab File ID: 2017.07.06_537A_054.d
Analysis Method: 537
Date Collected: 06/20/2017 15:15
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 254.3(mL)
Date Analyzed: 07/07/2017 03:28
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.: 173034
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.8	J	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	15	J M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	J	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	92		70-130
STL00996	13C2 PFDA	90		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-FRB-0413A
Lab Sample ID: 320-29279-18
Matrix: Water
Lab File ID: 2017.07.06_537A_057.d
Analysis Method: 537
Date Collected: 06/20/2017 15:10
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 253.9(mL)
Date Analyzed: 07/07/2017 03:42
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.: 173035
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	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	89	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	93		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID: WGNA-062017-RW-0413B
Lab Sample ID: 320-29279-19
Matrix: Water
Lab File ID: 2017.07.06_537A_058.d
Analysis Method: 537
Date Collected: 06/20/2017 15:20
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 249.9(mL)
Date Analyzed: 07/07/2017 03:47
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.: 173035
Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	29	M	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.5	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.9	J	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	93		70-130
STL00996	13C2 PFDA	100		70-130

Appendix C

Support Documentation

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

Regulatory Program: ☑ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Andy Frebowitz	Site Contact: Mary Kay Bond	Date: 6/20/2017	COC No:
TetraTech	Tel/Fax:	Lab Contact: Dave Alltucker	Carrier: Fed Ex	1 of 1 COCs
234 Mall Boulevard Suite 260	Analysis Turnaround Time			Sampler: Andy Frebowitz, Mary Kay Bond
King of Prussia, PA 19406	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
610-382-1174	TAT if different from Below _____			Walk-in Client:
610-491-9688	☐ 2 weeks			Lab Sampling:
Project Name: WGNA Willow Grove	☐ 1 week			
Site: Willow Grove	☐ 2 days			Job / SDG No.:
P O # 112G08005-WE04	☐ 1 day			

320-29279 Chain of Custody

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:
WGNA-062017-RW-4831A	6/20/2017	8:45	G	DW	2	N		Y	
WGNA-062017-FRB-4831A	6/20/2017	08:40	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-4831B	6/20/2017	8:55	G	DW	2	N		Y	
WGNA-062017-RW-3978	6/20/2017	10:05	G	DW	2	N		Y	
WGNA-062017-FRB-3978	6/20/2017	10:00	G	BLK	2	N		Y	C
WGNA-062017-RW-3991	6/20/2017	11:20	G	DW	2	N		Y	
WGNA-062017-FRB-3991	6/20/2017	11:15	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-4834	6/20/2017	14:10	G	DW	2	N		Y	
WGNA-062017-FRB-4834	6/20/2017	14:05	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-4840	6/20/2017	14:40	G	DW	2	N		Y	
WGNA-062017-FRB-4840	6/20/2017	14:35	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-3124A	6/20/2017	9:40	G	DW	2	N		Y	
WGNA-062017-FRB-3124A	6/20/2017	09:35	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-3124B	6/20/2017	9:45	G	DW	2	N		Y	
WGNA-062017-RW-0344	6/20/2017	10:45	G	DW	2	N		Y	
WGNA-062017-FRB-0344	6/20/2017	10:40	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-0413A	6/20/2017	15:15	G	DW	2	N		Y	
WGNA-062017-FRB-0413A	6/20/2017	15:10	G	BLK	2	N		Y	Field Reagent Blank
WGNA-062017-RW-0413B	6/20/2017	15:20	G	DW	2	N		Y	

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 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

Special Instructions/QC Requirements & Comments: FedEx 661219926051

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 1.9 Corr'd: _____ | Therm ID No.: AK-7

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
MK Bond	Tetra tech		[signature]	TAcs	6/21/17 910
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+A33:AD51A30:AD51A27:A37:AD51

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-29279-1

Login Number: 29279
List Number: 1
Creator: Hytrek, Cheryl

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.	False	COC not relinquished.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Narrative
320-29279-1

Receipt
The samples were received on 6/21/2017 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9º C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. COC not relinquished with the date and time.

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.

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 320-172036.

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: 320-29279-1

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.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-29279-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-29279-1	WGNA-062017-RW-4831A	Water	06/20/17 08:45	06/21/17 09:10
320-29279-2	WGNA-062017-FRB-4831A	Water	06/20/17 08:40	06/21/17 09:10
320-29279-3	WGNA-062017-RW-4831B	Water	06/20/17 08:55	06/21/17 09:10
320-29279-4	WGNA-062017-RW-3978	Water	06/20/17 10:05	06/21/17 09:10
320-29279-5	WGNA-062017-FRB-3978	Water	06/20/17 10:00	06/21/17 09:10
320-29279-6	WGNA-062017-RW-3991	Water	06/20/17 11:20	06/21/17 09:10
320-29279-7	WGNA-062017-FRB-3991	Water	06/20/17 11:15	06/21/17 09:10
320-29279-8	WGNA-062017-RW-4834	Water	06/20/17 14:10	06/21/17 09:10
320-29279-9	WGNA-062017-FRB-4834	Water	06/20/17 14:05	06/21/17 09:10
320-29279-10	WGNA-062017-RW-4840	Water	06/20/17 14:40	06/21/17 09:10
320-29279-11	WGNA-062017-FRB-4840	Water	06/20/17 14:35	06/21/17 09:10
320-29279-12	WGNA-062017-RW-3124A	Water	06/20/17 09:40	06/21/17 09:10
320-29279-13	WGNA-062017-FRB-3124A	Water	06/20/17 09:35	06/21/17 09:10
320-29279-14	WGNA-062017-RW-3124B	Water	06/20/17 09:45	06/21/17 09:10
320-29279-15	WGNA-062017-RW-0344	Water	06/20/17 10:45	06/21/17 09:10
320-29279-16	WGNA-062017-FRB-0344	Water	06/20/17 10:40	06/21/17 09:10
320-29279-17	WGNA-062017-RW-0413A	Water	06/20/17 15:15	06/21/17 09:10
320-29279-18	WGNA-062017-FRB-0413A	Water	06/20/17 15:10	06/21/17 09:10
320-29279-19	WGNA-062017-RW-0413B	Water	06/20/17 15:20	06/21/17 09:10

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-062017-RW-4831A	320-29279-1	91	103
WGNA-062017-FRB-4831A	320-29279-2	97	102
WGNA-062017-RW-4831B	320-29279-3	86	97
WGNA-062017-RW-3978	320-29279-4	90	97
WGNA-062017-FRB-3978	320-29279-5	92	99
WGNA-062017-RW-3991	320-29279-6	91	103
WGNA-062017-FRB-3991	320-29279-7	98	102
WGNA-062017-RW-4834	320-29279-8	90	99
WGNA-062017-FRB-4834	320-29279-9	90	98
WGNA-062017-RW-4840	320-29279-10	92	94
WGNA-062017-FRB-4840	320-29279-11	97	100
WGNA-062017-RW-3124A	320-29279-12	88	101
WGNA-062017-FRB-3124A	320-29279-13	95	94
WGNA-062017-RW-3124B	320-29279-14	91	96
WGNA-062017-RW-0344	320-29279-15	90	96
WGNA-062017-FRB-0344	320-29279-16	90	95
WGNA-062017-RW-0413A	320-29279-17	92	90
WGNA-062017-FRB-0413A	320-29279-18	89	93
WGNA-062017-RW-0413B	320-29279-19	93	100
	MB 320-172036/1-A	92	100
	LLCS 320-172036/2-A	94	100
	LLCSD 320-172036/3-A	99	102

	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 LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.07.06_537A_034.d

Lab ID: LLCS 320-172036/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	38.4 J	96	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	20.3	101	50-150	
Perfluorononanoic acid (PFNA)	19.3	19.6 J	102	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.1	29.9 J	99	50-150	
Perfluoroheptanoic acid (PFHpA)	9.90	10.8	109	50-150	
Perfluorobutanesulfonic acid (PFBS)	88.3	96.8	110	50-150	

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.: 320-29279-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2017.07.06_537A_035.d

Lab ID: LLCSD 320-172036/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	40.0	40.0	100	4	50	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	21.5	108	6	50	50-150	
Perfluorononanoic acid (PFNA)	19.3	20.1 J	104	3	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.1	30.8	102	3	50	50-150	
Perfluoroheptanoic acid (PFHpA)	9.90	10.9	110	0.6	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	88.3	96.4	109	0.4	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.: 320-29279-1

SDG No.:

Lab File ID: 2017.07.06_537A_033.d Lab Sample ID: MB 320-172036/1-A

Matrix: Water Date Extracted: 07/01/2017 09:47

Instrument ID: A8_N Date Analyzed: 07/07/2017 01:48

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-172036/2-A	2017.07.06_537A_034.d	07/07/2017 01:53
	LLCSD 320-172036/3-A	2017.07.06_537A_035.d	07/07/2017 01:58
WGNA-062017-RW-4831A	320-29279-1	2017.07.06_537A_036.d	07/07/2017 02:03
WGNA-062017-FRB-4831A	320-29279-2	2017.07.06_537A_037.d	07/07/2017 02:07
WGNA-062017-RW-4831B	320-29279-3	2017.07.06_537A_038.d	07/07/2017 02:12
WGNA-062017-RW-3978	320-29279-4	2017.07.06_537A_039.d	07/07/2017 02:17
WGNA-062017-FRB-3978	320-29279-5	2017.07.06_537A_040.d	07/07/2017 02:22
WGNA-062017-RW-3991	320-29279-6	2017.07.06_537A_041.d	07/07/2017 02:26
WGNA-062017-FRB-3991	320-29279-7	2017.07.06_537A_042.d	07/07/2017 02:31
WGNA-062017-RW-4834	320-29279-8	2017.07.06_537A_045.d	07/07/2017 02:45
WGNA-062017-FRB-4834	320-29279-9	2017.07.06_537A_046.d	07/07/2017 02:50
WGNA-062017-RW-4840	320-29279-10	2017.07.06_537A_047.d	07/07/2017 02:55
WGNA-062017-FRB-4840	320-29279-11	2017.07.06_537A_048.d	07/07/2017 03:00
WGNA-062017-RW-3124A	320-29279-12	2017.07.06_537A_049.d	07/07/2017 03:04
WGNA-062017-FRB-3124A	320-29279-13	2017.07.06_537A_050.d	07/07/2017 03:09
WGNA-062017-RW-3124B	320-29279-14	2017.07.06_537A_051.d	07/07/2017 03:14
WGNA-062017-RW-0344	320-29279-15	2017.07.06_537A_052.d	07/07/2017 03:19
WGNA-062017-FRB-0344	320-29279-16	2017.07.06_537A_053.d	07/07/2017 03:23
WGNA-062017-RW-0413A	320-29279-17	2017.07.06_537A_054.d	07/07/2017 03:28
WGNA-062017-FRB-0413A	320-29279-18	2017.07.06_537A_057.d	07/07/2017 03:42
WGNA-062017-RW-0413B	320-29279-19	2017.07.06_537A_058.d	07/07/2017 03:47

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento
Job No.: 320-29279-1
SDG No.:
Client Sample ID:
Lab Sample ID: MB 320-172036/1-A
Matrix: Water
Lab File ID: 2017.07.06_537A_033.d
Analysis Method: 537
Date Collected:
Extraction Method: 537
Date Extracted: 07/01/2017 09:47
Sample wt/vol: 250(mL)
Date Analyzed: 07/07/2017 01:48
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.: 173033
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	92		70-130
STL00996	13C2 PFDA	100		70-130

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 07/05/2017 20:13

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		966867	1.88	2790947	2.12		
UPPER LIMIT		1450301	2.38	4186421	2.62		
LOWER LIMIT		483434	1.38	1395474	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-172646/11		960063	1.87	2831967	2.11		
ICV 320-172646/13		920859	1.87	2667731	2.11		
CCV 320-173033/1 CCVIS		962177	1.86	2769042	2.10		
MB 320-172036/1-A		1045764	1.86	3084775	2.09		
LLCS 320-172036/2-A		1003937	1.86	2867134	2.09		
LLCSD 320-172036/3-A		1010144	1.87	2905116	2.10		
320-29279-1	WGNA-062017-RW-4831A	1016269	1.87	2969140	2.10		
320-29279-2	WGNA-062017-FRB-4831A	1032128	1.86	2985050	2.10		
320-29279-3	WGNA-062017-RW-4831B	1036052	1.86	3026370	2.10		
320-29279-4	WGNA-062017-RW-3978	1033038	1.87	2930298	2.10		
320-29279-5	WGNA-062017-FRB-3978	1047036	1.86	2902034	2.10		
320-29279-6	WGNA-062017-RW-3991	1016336	1.86	3076208	2.10		
320-29279-7	WGNA-062017-FRB-3991	1008432	1.86	2929176	2.10		
CCV 320-173033/13 CCVIS		952280	1.86	2849008	2.09		
CCV 320-173034/13 CCVIS		952280	1.86	2849008	2.09		
320-29279-8	WGNA-062017-RW-4834	1089933	1.87	3366215	2.10		
320-29279-9	WGNA-062017-FRB-4834	1022064	1.87	2780300	2.10		
320-29279-10	WGNA-062017-RW-4840	1089613	1.86	2943996	2.10		
320-29279-11	WGNA-062017-FRB-4840	1083014	1.86	3192849	2.10		
320-29279-12	WGNA-062017-RW-3124A	1055913	1.86	3137666	2.10		
320-29279-13	WGNA-062017-FRB-3124A	1010295	1.87	3068272	2.10		
320-29279-14	WGNA-062017-RW-3124B	1062587	1.85	2915192	2.09		
320-29279-15	WGNA-062017-RW-0344	1036324	1.86	2931326	2.10		
320-29279-16	WGNA-062017-FRB-0344	1072358	1.86	2938633	2.10		
320-29279-17	WGNA-062017-RW-0413A	1060415	1.87	3002690	2.10		
CCV 320-173034/25 CCVIS		947720	1.86	2675129	2.10		
CCV 320-173035/25 CCVIS		947720	1.86	2675129	2.10		
320-29279-18	WGNA-062017-FRB-0413A	1074769	1.86	2939390	2.09		

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.: 320-29279-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 07/05/2017 20:13

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		966867	1.88	2790947	2.12		
UPPER LIMIT		1450301	2.38	4186421	2.62		
LOWER LIMIT		483434	1.38	1395474	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29279-19	WGNA-062017-RW-0413B	1003999	1.85	2945492	2.09		
CCV 320-173035/29 CCVIS		953875	1.86	2818499	2.09		

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.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173033/1 Date Analyzed: 07/07/2017 01:39

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

Lab File ID (Standard): 2017.07.06_537A_031 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		962177	1.86	2769042	2.10		
UPPER LIMIT		1347048	2.36	3876659	2.60		
LOWER LIMIT		673524	1.36	1938329	1.60		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-172036/1-A		1045764	1.86	3084775	2.09		
LLCS 320-172036/2-A		1003937	1.86	2867134	2.09		
LLCSD 320-172036/3-A		1010144	1.87	2905116	2.10		
320-29279-1	WGNA-062017-RW-4831A	1016269	1.87	2969140	2.10		
320-29279-2	WGNA-062017-FRB-4831A	1032128	1.86	2985050	2.10		
320-29279-3	WGNA-062017-RW-4831B	1036052	1.86	3026370	2.10		
320-29279-4	WGNA-062017-RW-3978	1033038	1.87	2930298	2.10		
320-29279-5	WGNA-062017-FRB-3978	1047036	1.86	2902034	2.10		
320-29279-6	WGNA-062017-RW-3991	1016336	1.86	3076208	2.10		
320-29279-7	WGNA-062017-FRB-3991	1008432	1.86	2929176	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 VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173033/13 Date Analyzed: 07/07/2017 02:36

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

Lab File ID (Standard): 2017.07.06_537A_043 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		952280	1.86	2849008	2.09		
UPPER LIMIT		1333192	2.36	3988611	2.59		
LOWER LIMIT		666596	1.36	1994306	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-172036/1-A		1045764	1.86	3084775	2.09		
LLCS 320-172036/2-A		1003937	1.86	2867134	2.09		
LLCSD 320-172036/3-A		1010144	1.87	2905116	2.10		
320-29279-1	WGNA-062017-RW-4831A	1016269	1.87	2969140	2.10		
320-29279-2	WGNA-062017-FRB-4831A	1032128	1.86	2985050	2.10		
320-29279-3	WGNA-062017-RW-4831B	1036052	1.86	3026370	2.10		
320-29279-4	WGNA-062017-RW-3978	1033038	1.87	2930298	2.10		
320-29279-5	WGNA-062017-FRB-3978	1047036	1.86	2902034	2.10		
320-29279-6	WGNA-062017-RW-3991	1016336	1.86	3076208	2.10		
320-29279-7	WGNA-062017-FRB-3991	1008432	1.86	2929176	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 VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173034/13 Date Analyzed: 07/07/2017 02:36

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

Lab File ID (Standard): 2017.07.06_537A_043 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		952280	1.86	2849008	2.09		
UPPER LIMIT		1333192	2.36	3988611	2.59		
LOWER LIMIT		666596	1.36	1994306	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29279-8	WGNA-062017-RW-4834	1089933	1.87	3366215	2.10		
320-29279-9	WGNA-062017-FRB-4834	1022064	1.87	2780300	2.10		
320-29279-10	WGNA-062017-RW-4840	1089613	1.86	2943996	2.10		
320-29279-11	WGNA-062017-FRB-4840	1083014	1.86	3192849	2.10		
320-29279-12	WGNA-062017-RW-3124A	1055913	1.86	3137666	2.10		
320-29279-13	WGNA-062017-FRB-3124A	1010295	1.87	3068272	2.10		
320-29279-14	WGNA-062017-RW-3124B	1062587	1.85	2915192	2.09		
320-29279-15	WGNA-062017-RW-0344	1036324	1.86	2931326	2.10		
320-29279-16	WGNA-062017-FRB-0344	1072358	1.86	2938633	2.10		
320-29279-17	WGNA-062017-RW-0413A	1060415	1.87	3002690	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 VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173034/25 Date Analyzed: 07/07/2017 03:33

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

Lab File ID (Standard): 2017.07.06_537A_055 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		947720	1.86	2675129	2.10		
UPPER LIMIT		1326808	2.36	3745181	2.60		
LOWER LIMIT		663404	1.36	1872590	1.60		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29279-8	WGNA-062017-RW-4834	1089933	1.87	3366215	2.10		
320-29279-9	WGNA-062017-FRB-4834	1022064	1.87	2780300	2.10		
320-29279-10	WGNA-062017-RW-4840	1089613	1.86	2943996	2.10		
320-29279-11	WGNA-062017-FRB-4840	1083014	1.86	3192849	2.10		
320-29279-12	WGNA-062017-RW-3124A	1055913	1.86	3137666	2.10		
320-29279-13	WGNA-062017-FRB-3124A	1010295	1.87	3068272	2.10		
320-29279-14	WGNA-062017-RW-3124B	1062587	1.85	2915192	2.09		
320-29279-15	WGNA-062017-RW-0344	1036324	1.86	2931326	2.10		
320-29279-16	WGNA-062017-FRB-0344	1072358	1.86	2938633	2.10		
320-29279-17	WGNA-062017-RW-0413A	1060415	1.87	3002690	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 VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173035/25 Date Analyzed: 07/07/2017 03:33

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

Lab File ID (Standard): 2017.07.06_537A_055 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		947720	1.86	2675129	2.10		
UPPER LIMIT		1326808	2.36	3745181	2.60		
LOWER LIMIT		663404	1.36	1872590	1.60		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29279-18	WGNA-062017-FRB-0413A	1074769	1.86	2939390	2.09		
320-29279-19	WGNA-062017-RW-0413B	1003999	1.85	2945492	2.09		

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.: 320-29279-1

SDG No.:

Sample No.: CCV 320-173035/29 Date Analyzed: 07/07/2017 03:52

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

Lab File ID (Standard): 2017.07.06_537A_059 Heated Purge: (Y/N) N

Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		953875	1.86	2818499	2.09		
UPPER LIMIT		1335425	2.36	3945899	2.59		
LOWER LIMIT		667713	1.36	1972949	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29279-18	WGNA-062017-FRB-0413A	1074769	1.86	2939390	2.09		
320-29279-19	WGNA-062017-RW-0413B	1003999	1.85	2945492	2.09		

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.: 320-29279-1 Analy Batch No.: 172646

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/05/2017 19:50 Calibration End Date: 07/05/2017 20:13 Calibration ID: 32198

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_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)	0.9481 0.7897	0.9454	0.9006	0.8560	0.9067	Ave		0.8911				6.7		30.0			
Perfluoroheptanoic acid (PFHpA)	1.0233 1.0518	1.1219	1.0105	1.0079	1.0586	Ave		1.0457				4.1		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4151 1.3485	1.4140	1.3485	1.3337	1.5012	Ave		1.3935				4.6		30.0			
Perfluorooctanoic acid (PFOA)	0.8653 0.9458	0.9483	0.8907	0.9155	0.9646	Ave		0.9217				4.1		30.0			
Perfluorooctanesulfonic acid (PFOS)	1.0233 0.9990	1.0180	1.0066	1.0023	1.0955	Ave		1.0241				3.5		30.0			
Perfluorononanoic acid (PFNA)	0.8166 0.8011	0.8671	0.8018	0.8165	0.8416	Ave		0.8241				3.1		30.0			
13C2 PFHxA	1.0491 1.1558	1.1981	1.1291	1.1054	1.1794	Ave		1.1362				4.8		30.0			
13C2 PFDA	0.8223 0.8325	0.8717	0.8508	0.8171	0.8428	Ave		0.8395				2.4		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.: 320-29279-1 Analy Batch No.: 172646

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 07/05/2017 19:50 Calibration End Date: 07/05/2017 20:13 Calibration ID: 32198

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_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	Ave	803806 14234634	1925519	3823269	7725129	11133396	8.83 176	21.2	44.4	89.4	133
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	101135 1993330	250235	490415	984967	1494114	0.990 19.7	2.38	4.97	10.0	14.9
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	408251 8271288	980019	1948018	4095579	6272381	3.01 59.7	7.21	15.1	30.4	45.1
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	172606 3617366	426873	872357	1805622	2747595	2.00 39.7	4.80	10.0	20.2	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	393122 8159668	939618	1936577	4098834	6095701	4.00 79.6	9.61	20.1	40.5	60.0
Perfluorononanoic acid (PFNA)	13PF OA	Ave	157013 2953507	376270	756974	1552293	2310846	1.93 38.3	4.62	9.68	19.5	28.9
13C2 PFHxA	13PF OA	Ave	1047405 1113221	1124762	1101523	1077727	1120950	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	820977 801864	818323	829957	796662	800975	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1 Analy Batch No.: 172646

SDG No.:

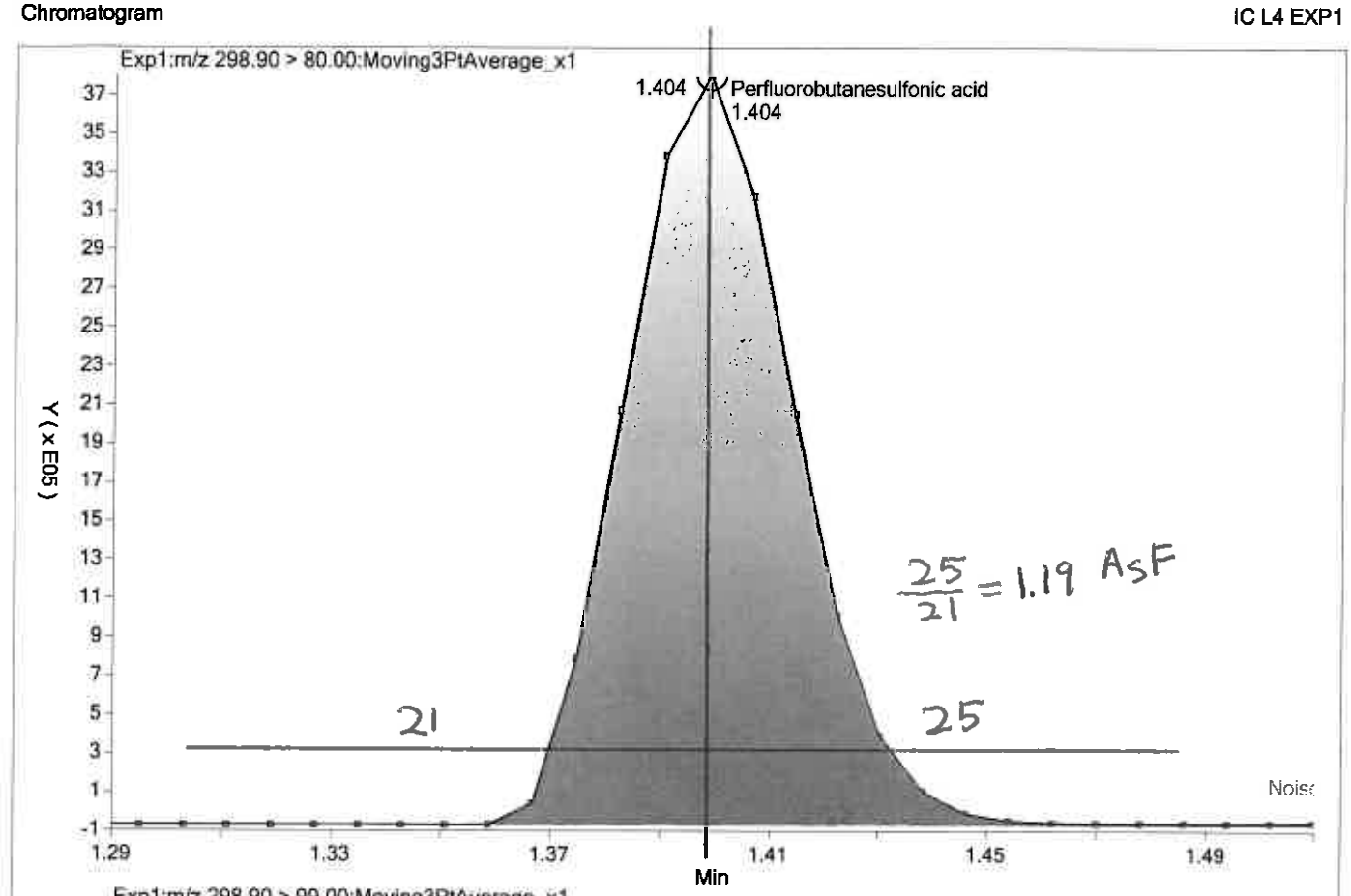
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

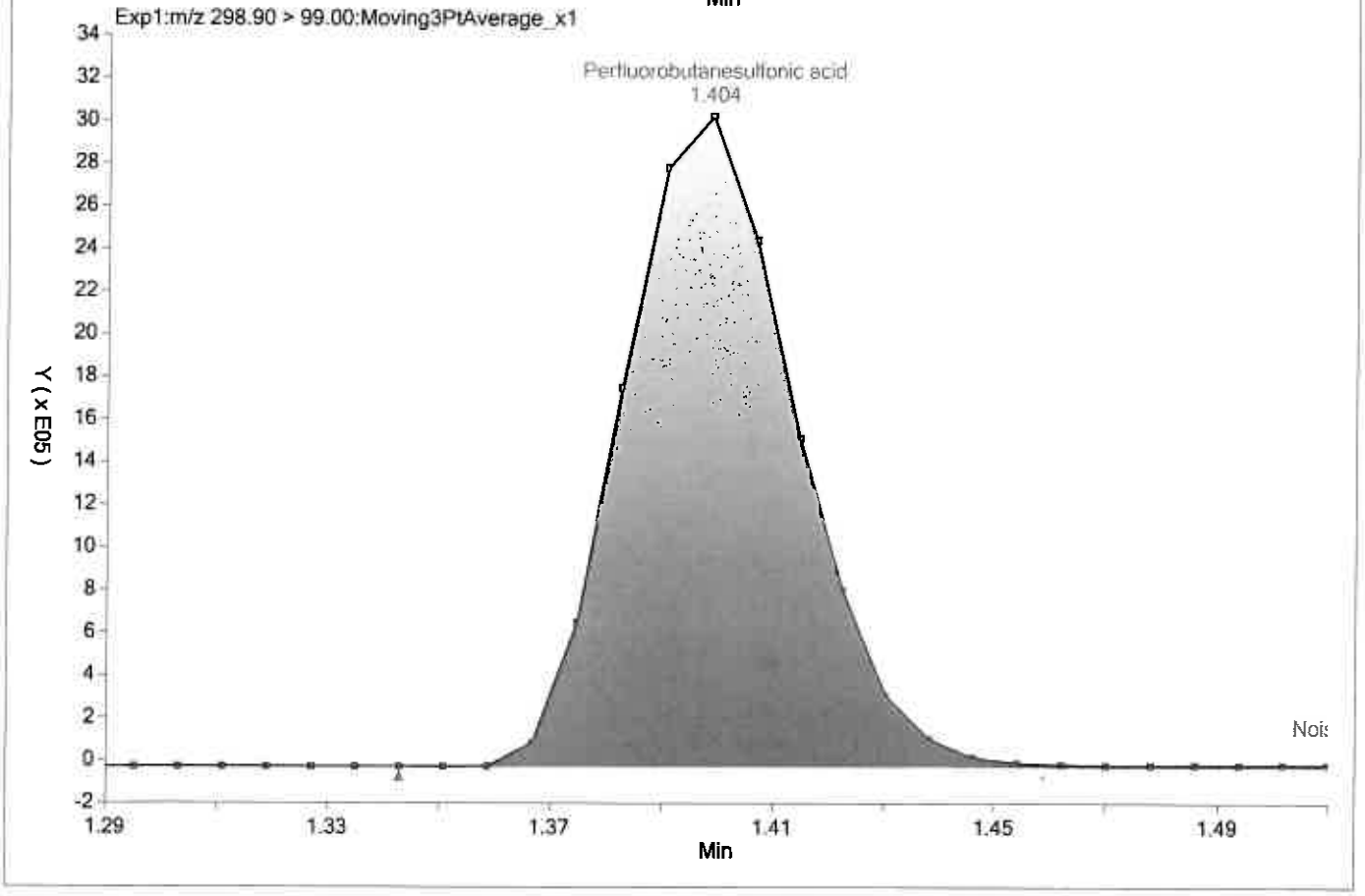
Calibration Start Date: 07/05/2017 19:50 Calibration End Date: 07/05/2017 20:13 Calibration ID: 32198

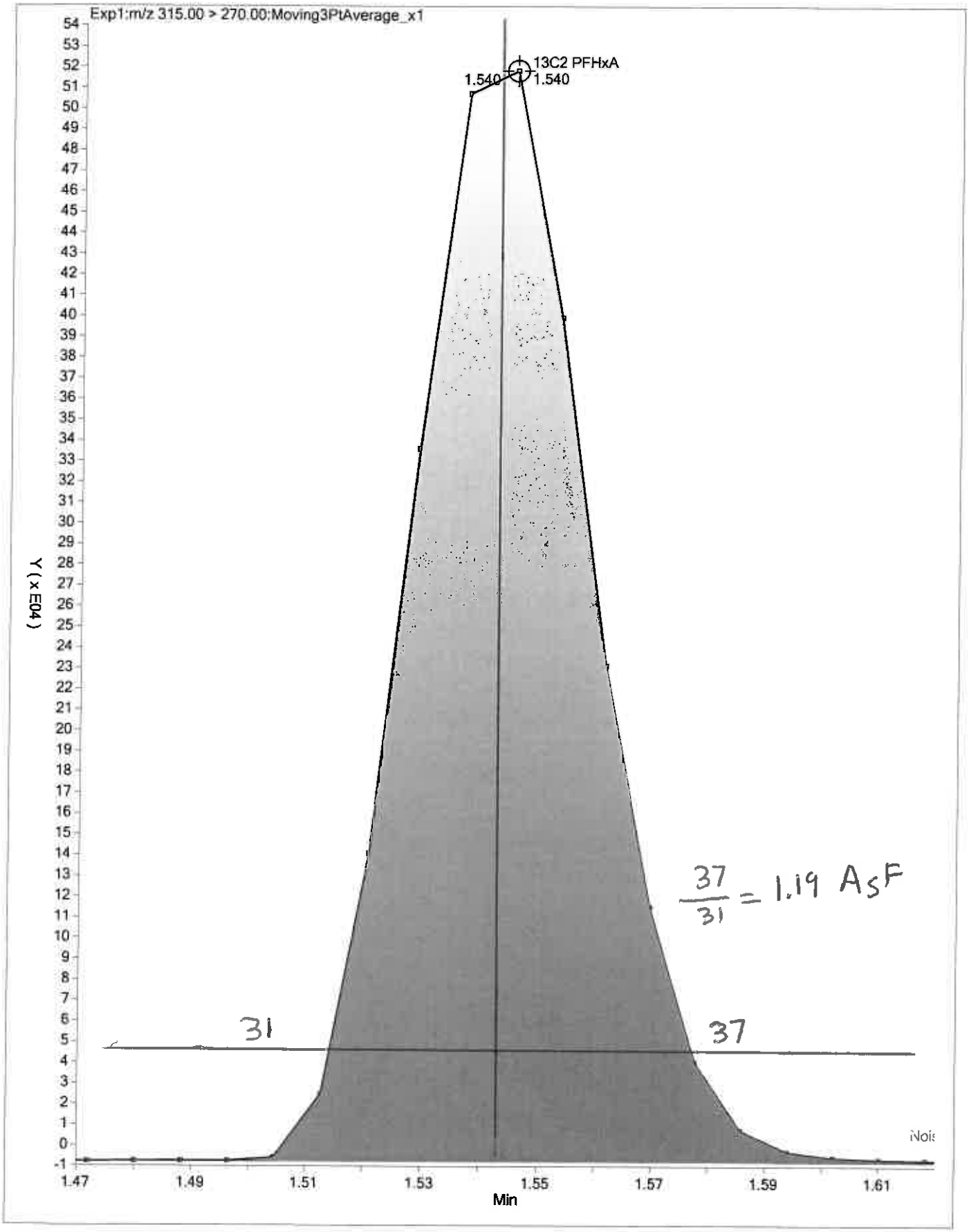
Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_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)	6.4	6.1	1.1	-3.9	1.8	-11.4	50	50	50	50	50	50
Perfluoroheptanoic acid (PFHpA)	-2.1	7.3	-3.4	-3.6	1.2	0.6	50	50	50	50	50	50
Perfluorohexanesulfonic acid (PFHxS)	1.6	1.5	-3.2	-4.3	7.7	-3.2	50	50	50	50	50	50
Perfluorooctanoic acid (PFOA)	-6.1	2.9	-3.4	-0.7	4.7	2.6	50	50	50	50	50	50
Perfluorooctanesulfonic acid (PFOS)	-0.1	-0.6	-1.7	-2.1	7.0	-2.5	50	50	50	50	50	50
Perfluorononanoic acid (PFNA)	-0.9	5.2	-2.7	-0.9	2.1	-2.8	50	50	50	50	50	50
13C2 PFHxA	-7.7	5.5	-0.6	-2.7	3.8	1.7	30	30	30	30	30	30
13C2 PFDA	-2.0	3.8	1.3	-2.7	0.4	-0.8	30	30	30	30	30	30


Exp1:m/z 298.90 > 80.00:Moving3PtAverage_x1
1.404
Perfluorobutanesulfonic acid
1.404
Y (x E05)
Min
25/21 = 1.19 AsF
21
25
Noise


Exp1:m/z 298.90 > 99.00:Moving3PtAverage_x1
Perfluorobutanesulfonic acid
1.404
Y (x E05)
Min
Nois


Exp1:m/z 315.00 > 270.00:Moving3PtAverage_x1
13C2 PFHxA
1.540
1.540
Y (x E04)
Min
31
37
37/31 = 1.19 AsF

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCVL 320-172646/11 Calibration Date: 07/05/2017 20:23

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.05_537CURVE_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9450		22.5	21.2	6.0	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.013		2.30	2.38	-3.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.375		7.12	7.21	-1.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9158		4.76	4.80	-0.6	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	0.9585		8.99	9.61	-6.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8346		4.68	4.62	1.3	50.0
13C2 PFHxA	Ave	1.136	1.093		9.62	10.0	-3.8	30.0
13C2 PFDA	Ave	0.8395	0.8398		10.0	10.0	0.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: ICV 320-172646/13 Calibration Date: 07/05/2017 20:32

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.05_537CURVE_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9309		105	101	4.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	0.9545		9.20	10.1	-8.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.547		23.5	21.2	11.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9807		21.3	20.0	6.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.035		20.9	20.7	1.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8757		21.3	20.0	6.3	30.0
13C2 PFHxA	Ave	1.136	1.143		10.1	10.0	0.6	30.0
13C2 PFDA	Ave	0.8395	0.8348		9.94	10.0	-0.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCVL 320-172919/4 Calibration Date: 07/06/2017 23:31

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_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)	Ave	0.8911	0.9095		21.6	21.2	2.1	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.065		2.42	2.38	1.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.361		7.05	7.21	-2.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9312		4.84	4.80	1.0	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.015		9.52	9.61	-0.9	50.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8413		4.72	4.62	2.1	50.0
13C2 PFHxA	Ave	1.136	1.111		9.78	10.0	-2.2	30.0
13C2 PFDA	Ave	0.8395	0.8721		10.4	10.0	3.9	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173033/1 Calibration Date: 07/07/2017 01:39

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_031.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9177		45.7	44.4	3.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.043		4.96	4.97	-0.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.374		14.9	15.1	-1.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9082		9.89	10.0	-1.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.010		19.8	20.1	-1.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.7875		9.25	9.68	-4.4	30.0
13C2 PFHxA	Ave	1.136	1.139		10.0	10.0	0.3	30.0
13C2 PFDA	Ave	0.8395	0.8636		10.3	10.0	2.9	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173033/13 Calibration Date: 07/07/2017 02:36

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_043.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8557		127	133	-4.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.074		15.3	14.9	2.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.422		46.0	45.1	2.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9647		31.4	30.0	4.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.014		59.4	60.0	-1.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8038		28.2	28.9	-2.5	30.0
13C2 PFHxA	Ave	1.136	1.148		10.1	10.0	1.1	30.0
13C2 PFDA	Ave	0.8395	0.8783		10.5	10.0	4.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173034/13 Calibration Date: 07/07/2017 02:36

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_043.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8557		127	133	-4.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.074		15.3	14.9	2.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.422		46.0	45.1	2.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9647		31.4	30.0	4.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.014		59.4	60.0	-1.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8038		28.2	28.9	-2.5	30.0
13C2 PFHxA	Ave	1.136	1.148		10.1	10.0	1.1	30.0
13C2 PFDA	Ave	0.8395	0.8783		10.5	10.0	4.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173034/25 Calibration Date: 07/07/2017 03:33

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_055.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9482		47.2	44.4	6.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.072		5.10	4.97	2.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.459		15.8	15.1	4.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9371		10.2	10.0	1.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.049		20.6	20.1	2.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8225		9.66	9.68	-0.2	30.0
13C2 PFHxA	Ave	1.136	1.169		10.3	10.0	2.9	30.0
13C2 PFDA	Ave	0.8395	0.9021		10.7	10.0	7.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173035/25 Calibration Date: 07/07/2017 03:33

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_055.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9482		47.2	44.4	6.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.072		5.10	4.97	2.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.459		15.8	15.1	4.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9371		10.2	10.0	1.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.049		20.6	20.1	2.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8225		9.66	9.68	-0.2	30.0
13C2 PFHxA	Ave	1.136	1.169		10.3	10.0	2.9	30.0
13C2 PFDA	Ave	0.8395	0.9021		10.7	10.0	7.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29279-1

SDG No.:

Lab Sample ID: CCV 320-173035/29 Calibration Date: 07/07/2017 03:52

Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 07/05/2017 20:13

Lab File ID: 2017.07.06_537A_059.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8414		125	133	-5.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.021		14.5	14.9	-2.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.417		45.9	45.1	1.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9652		31.4	30.0	4.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.031		60.4	60.0	0.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8157		28.6	28.9	-1.0	30.0
13C2 PFHxA	Ave	1.136	1.155		10.2	10.0	1.7	30.0
13C2 PFDA	Ave	0.8395	0.8768		10.4	10.0	4.4	30.0

38

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

AB 7/6/17
7/6/17

Batch Number: 320-172036

Method Code: 320-537_Prep-320

Analyst: Branscum, Cassie

Batch Open: 7/1/2017 9:47:00AM

Batch End: 7/5/2017 8:15:00PM

Extraction of Perfluorinated Alkyl Acids

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1	MB~320-172036/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	MB 320-172036/1-A
				1.00 mL								
2	LLCS~320-172036/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	LLCS 320-172036/2-A
				1.00 mL								
3	LLCSD~320-172036/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	LLCSD 320-172036/3-A
				1.00 mL								
4	320-29279-A-1 (537_DOD5)	N/A (320-29279-1)	278.59 g	250.1 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-1-A
			28.49 g	1.00 mL								
5	320-29279-A-2 (537_DOD5)	N/A (320-29279-1)	272.73 g	245.1 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-2-A
			27.68 g	1.00 mL								
6	320-29279-A-3 (537_DOD5)	N/A (320-29279-1)	276.65 g	248.5 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-3-A
			28.20 g	1.00 mL								
7	320-29279-A-4 (537_DOD5)	N/A (320-29279-1)	282.49 g	253.9 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-4-A
			28.58 g	1.00 mL								
8	320-29279-A-5 (537_DOD5)	N/A (320-29279-1)	273.83 g	245.9 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-5-A
			27.93 g	1.00 mL								
9	320-29279-A-6 (537_DOD5)	N/A (320-29279-1)	290.05 g	261.8 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-6-A
			28.25 g	1.00 mL								
10	320-29279-A-7 (537_DOD5)	N/A (320-29279-1)	283.85 g	256 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-7-A
			27.84 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-172036 | Analyst: Branscum, Cassie | Batch Open: 7/1/2017 9:47:00AM

Method Code: 320-537_Prep-320 | Batch End: 7/5/2017 8:15:00PM

11	320-29279-A-8 (537_DOD5)	N/A (320-29279-1)	292.82 g 28.88 g	263.9 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-8-A
12	320-29279-A-9 (537_DOD5)	N/A (320-29279-1)	287.29 g 27.65 g	259.6 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-9-A
13	320-29279-A-10 (537_DOD5)	N/A (320-29279-1)	288.02 g 28.37 g	259.7 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-10-A
14	320-29279-A-11 (537_DOD5)	N/A (320-29279-1)	273.96 g 27.56 g	246.4 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-11-A
15	320-29279-A-12 (537_DOD5)	N/A (320-29279-1)	290.26 g 28.31 g	262 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-12-A
16	320-29279-A-13 (537_DOD5)	N/A (320-29279-1)	280.83 g 27.24 g	253.6 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-13-A
17	320-29279-A-14 (537_DOD5)	N/A (320-29279-1)	285.50 g 27.73 g	257.8 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-14-A
18	320-29279-B-15 (537_DOD5)	N/A (320-29279-1)	282.04 g 28.16 g	253.9 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-B-15-A
19	320-29279-A-16 (537_DOD5)	N/A (320-29279-1)	285.31 g 27.95 g	257.4 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-A-16-A
20	320-29279-B-17 (537_DOD5)	N/A (320-29279-1)	282.33 g 28.00 g	254.3 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-B-17-A
21	320-29279-B-18 (537_DOD5)	N/A (320-29279-1)	282.02 g 28.15 g	253.9 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-B-18-A
22	320-29279-B-19 (537_DOD5)	N/A (320-29279-1)	278.01 g 28.10 g	249.9 mL 1.00 mL	7			6/27/17	16_Days	4	ch nd	320-29279-B-19-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-172036

Method Code: 320-537_Prep-320

Analyst: Branscum, Cassie

Batch Open: 7/1/2017 9:47:00AM

Batch End: 7/5/2017 8:15:00PM

Batch Notes

Manifold ID	3,4
Trizma ID	SLBR4303V
SPE Cartridge ID	6346595-04
Methanol ID	968332
Reagent Water ID	6-27-27
Pipette ID	MD05306
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - IS Reagent Drop	VPM
Analyst ID - IS Reagent Drop Witness	JER
Batch Comment	IS:960784

Comments

PFAS Calibration Calculations:

Initial Calibration 7/5/2017
Instrument A8_N

Perfluorohexanesulfonic acid

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	Reported RRF
3.01	408251	2752369	28.7	1.41428	1.4151
7.21	980019	2755145	28.7	1.41591	1.414
15.1	1948018	2742820	28.7	1.34990	1.3485
30.4	4095579	2893551	28.7	1.33626	1.3337
45.1	6272381	2657493	28.7	1.50199	1.5012
59.7	8271288	2944302	28.7	1.35051	1.3485
			Average	1.39481	1.3935
			Standard Deviation	0.0628	
			RSD	0.0450	
			%RSD	4.50228	4.6

Continuing Calibration 07/06/2017 @ 23:31
A8_N

Perfluorohexanesulfonic acid

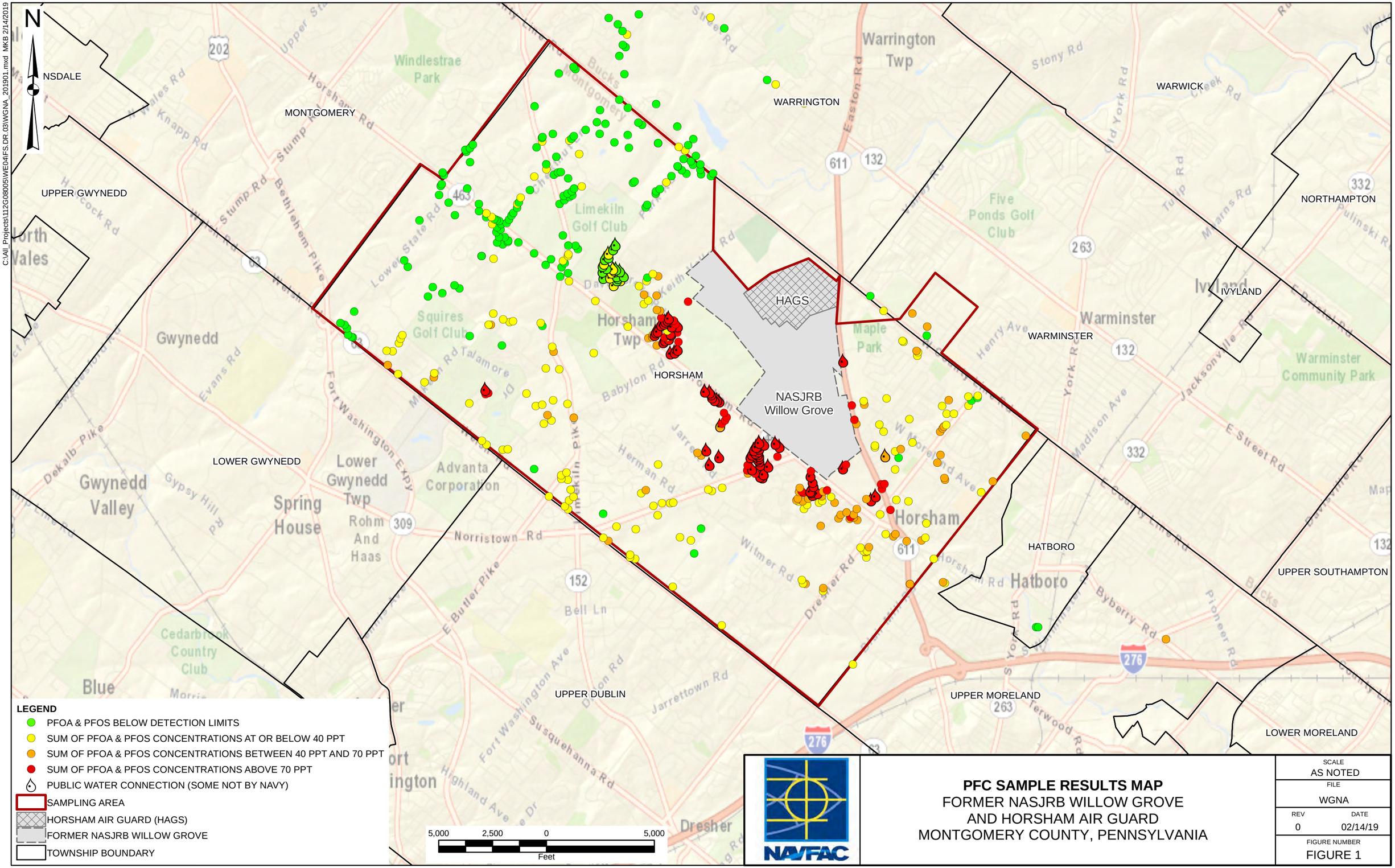
Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	%D	Reported RRF	Reported %D
7.21	974244	2846016	28.7	1.3626	-2.215491	1.361	-2.3

Willow Grove
SDG 29279-1

Sample Identification	WGNA-062017-RW-4831A	
Compound	Perfluorohexanesulfonic acid	
Compound Area	1149139	
Internal Standard Amount (ng)	28.7	
Dilution Factor	1	
Internal Standard Area	2969140	
Average RRF	1.3935	
Sample Volume(ml)	250.1	
Volume Extract (ml)	1	
Injection Volume (µl)	1	
µl to ml	1000.00	
Concentration	31.87	ng/L

Preliminary Data - For Official Use Only

C:\All_Projects\112G08005\WE04\FS.DR.03\WGNA_201901.mxd MKB 2/14/2019



NAVFAC

PFC SAMPLE RESULTS MAP
FORMER NASJRB WILLOW GROVE
AND HORSHAM AIR GUARD
MONTGOMERY COUNTY, PENNSYLVANIA

SCALE	AS NOTED
FILE	WGNA
REV	0
DATE	02/14/19
FIGURE NUMBER	FIGURE 1