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NAVFAC
Naval Facilities Engineering Command

Off-Base Drinking Water Sample Results, Combined Level 2 and Level 4 Laboratory Report, Electronic Data Deliverable, Data Validation Report, and the Sample Location Figure, SDG 320-36163-1

Naval Air Warfare Center Warminster
Warminster, Pennsylvania

August 2019

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N62269_001217
WARMINSTER_NAWC
SSIC 5000-33c

LABORATORY DATA PACKAGE, 320-36163-1, NAS WILLOW GROVE NAWC WARMINSTER PA

03/08/2018

TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

ANALYTICAL REPORT

Job Number: 320-36163-1

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
3/8/2018 1:41 PM

David R Alltucker, Project Manager I
880 Riverside Parkway, West Sacramento, CA, 95605
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david.alltucker@testamericainc.com
03/08/2018

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Qualifiers

LCMS

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

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
320-36163-1

Receipt
The samples were received on 2/16/2018 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.5º C and 4.9º C.

Receipt Exceptions
The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): WGNA-021518-FRB-4015 (320-36163-2). 1 of 2 container labels list NAWC-021518-FRB-4015 while the COC lists WGNA-021518-FRB-4015. Labeled according to COC

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

Detection Summary

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

TestAmerica Job ID: 320-36163-1

Client Sample ID: WGNA-021518-RW-4015 — Lab Sample ID: 320-36163-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	9.3	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	12	J M	20	2.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.2	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-021518-FRB-4015 — Lab Sample ID: 320-36163-2

No Detections.

Client Sample ID: NAWC-021518-RW-152 — Lab Sample ID: 320-36163-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	11	J M	39	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	13	J	20	2.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.6	J	9.9	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-021518-FRB-152 — Lab Sample ID: 320-36163-4

No Detections.

Client Sample ID: WGNA-021518-RW-3124 — Lab Sample ID: 320-36163-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	15	J M	39	6.6	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	13	J	19	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.4	J	29	5.3	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.3	J	9.6	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-021518-FRB-3124 — Lab Sample ID: 320-36163-6

No Detections.

Client Sample ID: WGNA-021518-RW-4842 — Lab Sample ID: 320-36163-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	13	J M	40	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	15	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.9	J	9.9	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-021518-FRB-4842 — Lab Sample ID: 320-36163-8

No Detections.

Client Sample ID: NAWC-021518-RW-205 — Lab Sample ID: 320-36163-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	10	J M	39	6.6	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	11	J	19	2.7	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.8	J M	9.6	1.8	ng/L	1		537	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

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

TestAmerica Job ID: 320-36163-1

Client Sample ID: NAWC-021518-FRB-205 — Lab Sample ID: 320-36163-10

No Detections.

Client Sample ID: WGNA-021518-RW-4817 — Lab Sample ID: 320-36163-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	6.6	J M	20	2.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-021518-FRB-4817 — Lab Sample ID: 320-36163-12

No Detections.

Client Sample ID: WGNA-021518-RW-3882 — Lab Sample ID: 320-36163-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	33	J M	39	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	9.0	J	20	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	11	J	29	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.8	J	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-021518-FRB-3882 — Lab Sample ID: 320-36163-14

No Detections.

Client Sample ID: WGNA-021518-DUP-27 — Lab Sample ID: 320-36163-15

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	31	J M	39	6.6	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	9.0	J	19	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	11	J	29	5.3	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.3	J M	9.6	1.8	ng/L	1		537	Total/NA

Client Sample ID: NAWC-021518-RW-229 — Lab Sample ID: 320-36163-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	32	J M	40	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	32		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	13	J	30	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	12		9.9	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-021518-FRB-229 — Lab Sample ID: 320-36163-17

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: WGNA-021518-RW-4015 — Lab Sample ID: 320-36163-1

Date Collected: 02/15/18 09:40 — **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**9.3**	**J M**	41	7.0	ng/L		02/28/18 07:35	03/06/18 01:23	1
Perfluorooctanoic acid (PFOA)	**12**	**J M**	20	2.9	ng/L		02/28/18 07:35	03/06/18 01:23	1
Perfluorononanoic acid (PFNA)	20	U	25	8.2	ng/L		02/28/18 07:35	03/06/18 01:23	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		02/28/18 07:35	03/06/18 01:23	1
Perfluoroheptanoic acid (PFHpA)	**5.2**	**J**	10	1.9	ng/L		02/28/18 07:35	03/06/18 01:23	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		02/28/18 07:35	03/06/18 01:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*80*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:23*	*1*
13C2 PFDA	*111*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:23*	*1*

Client Sample ID: WGNA-021518-FRB-4015 — Lab Sample ID: 320-36163-2

Date Collected: 02/15/18 09:35 — **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	39	6.6	ng/L		02/28/18 07:35	03/06/18 01:28	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		02/28/18 07:35	03/06/18 01:28	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		02/28/18 07:35	03/06/18 01:28	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		02/28/18 07:35	03/06/18 01:28	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	1.8	ng/L		02/28/18 07:35	03/06/18 01:28	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		02/28/18 07:35	03/06/18 01:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*96*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:28*	*1*
13C2 PFDA	*110*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:28*	*1*

Client Sample ID: NAWC-021518-RW-152 — Lab Sample ID: 320-36163-3

Date Collected: 02/15/18 10:10 — **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**11**	**J M**	39	6.7	ng/L		02/28/18 07:35	03/06/18 01:33	1
Perfluorooctanoic acid (PFOA)	**13**	**J**	20	2.8	ng/L		02/28/18 07:35	03/06/18 01:33	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/28/18 07:35	03/06/18 01:33	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.4	ng/L		02/28/18 07:35	03/06/18 01:33	1
Perfluoroheptanoic acid (PFHpA)	**4.6**	**J**	9.9	1.9	ng/L		02/28/18 07:35	03/06/18 01:33	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/28/18 07:35	03/06/18 01:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*82*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:33*	*1*
13C2 PFDA	*111*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:33*	*1*

Client Sample ID: NAWC-021518-FRB-152 — Lab Sample ID: 320-36163-4

Date Collected: 02/15/18 10:05 **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	38	6.5	ng/L		02/28/18 07:35	03/06/18 01:47	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		02/28/18 07:35	03/06/18 01:47	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		02/28/18 07:35	03/06/18 01:47	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		02/28/18 07:35	03/06/18 01:47	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	1.8	ng/L		02/28/18 07:35	03/06/18 01:47	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	15	ng/L		02/28/18 07:35	03/06/18 01:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*89*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:47*	*1*
13C2 PFDA	*100*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:47*	*1*

Client Sample ID: WGNA-021518-RW-3124 — Lab Sample ID: 320-36163-5

Date Collected: 02/15/18 11:10 **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**15**	**J M**	39	6.6	ng/L		02/28/18 07:35	03/06/18 01:51	1
Perfluorooctanoic acid (PFOA)	**13**	**J**	19	2.7	ng/L		02/28/18 07:35	03/06/18 01:51	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		02/28/18 07:35	03/06/18 01:51	1
Perfluorohexanesulfonic acid (PFHxS)	**7.4**	**J**	29	5.3	ng/L		02/28/18 07:35	03/06/18 01:51	1
Perfluoroheptanoic acid (PFHpA)	**4.3**	**J**	9.6	1.8	ng/L		02/28/18 07:35	03/06/18 01:51	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		02/28/18 07:35	03/06/18 01:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*74*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:51*	*1*
13C2 PFDA	*105*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:51*	*1*

Client Sample ID: WGNA-021518-FRB-3124 — Lab Sample ID: 320-36163-6

Date Collected: 02/15/18 11:05 **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	38	6.5	ng/L		02/28/18 07:35	03/06/18 01:56	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		02/28/18 07:35	03/06/18 01:56	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		02/28/18 07:35	03/06/18 01:56	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		02/28/18 07:35	03/06/18 01:56	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	1.8	ng/L		02/28/18 07:35	03/06/18 01:56	1
Perfluorobutanesulfonic acid (PFBS)	35	U	86	15	ng/L		02/28/18 07:35	03/06/18 01:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:56*	*1*
13C2 PFDA	*109*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:56*	*1*

Client Sample ID: WGNA-021518-RW-4842 — Lab Sample ID: 320-36163-7

Date Collected: 02/15/18 11:40 **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**13**	**J M**	40	6.7	ng/L		02/28/18 07:35	03/06/18 21:21	1
Perfluorooctanoic acid (PFOA)	**15**	**J**	20	2.8	ng/L		02/28/18 07:35	03/06/18 21:21	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/28/18 07:35	03/06/18 21:21	1
Perfluorohexanesulfonic acid (PFHxS)	**6.3**	**J**	30	5.4	ng/L		02/28/18 07:35	03/06/18 21:21	1
Perfluoroheptanoic acid (PFHpA)	**4.9**	**J**	9.9	1.9	ng/L		02/28/18 07:35	03/06/18 21:21	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/28/18 07:35	03/06/18 21:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*83*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:21*	*1*
13C2 PFDA	*121*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:21*	*1*

Client Sample ID: WGNA-021518-FRB-4842 — Lab Sample ID: 320-36163-8

Date Collected: 02/15/18 11:35 **Matrix: Water**
Date Received: 02/16/18 08:30

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		02/28/18 07:35	03/06/18 21:25	1
Perfluorooctanoic acid (PFOA)	7.8	U	20	2.7	ng/L		02/28/18 07:35	03/06/18 21:25	1
Perfluorononanoic acid (PFNA)	20	U	24	7.8	ng/L		02/28/18 07:35	03/06/18 21:25	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		02/28/18 07:35	03/06/18 21:25	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		02/28/18 07:35	03/06/18 21:25	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		02/28/18 07:35	03/06/18 21:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*70*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:25*	*1*
13C2 PFDA	*113*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:25*	*1*

Client Sample ID: NAWC-021518-RW-205 — Lab Sample ID: 320-36163-9

Date Collected: 02/15/18 12:40 **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**10**	**J M**	39	6.6	ng/L		02/28/18 07:35	03/06/18 21:30	1
Perfluorooctanoic acid (PFOA)	**11**	**J**	19	2.7	ng/L		02/28/18 07:35	03/06/18 21:30	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		02/28/18 07:35	03/06/18 21:30	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		02/28/18 07:35	03/06/18 21:30	1
Perfluoroheptanoic acid (PFHpA)	**3.8**	**J M**	9.6	1.8	ng/L		02/28/18 07:35	03/06/18 21:30	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		02/28/18 07:35	03/06/18 21:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*73*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:30*	*1*
13C2 PFDA	*120*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:30*	*1*

Client Sample ID: NAWC-021518-FRB-205 — Lab Sample ID: 320-36163-10

Date Collected: 02/15/18 12:35 **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	38	6.5	ng/L		02/28/18 07:35	03/06/18 21:35	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		02/28/18 07:35	03/06/18 21:35	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		02/28/18 07:35	03/06/18 21:35	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		02/28/18 07:35	03/06/18 21:35	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	1.8	ng/L		02/28/18 07:35	03/06/18 21:35	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	15	ng/L		02/28/18 07:35	03/06/18 21:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:35*	*1*
13C2 PFDA	*112*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:35*	*1*

Client Sample ID: WGNA-021518-RW-4817 — Lab Sample ID: 320-36163-11

Date Collected: 02/15/18 14:10 **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U M	40	6.7	ng/L		02/28/18 07:35	03/06/18 21:39	1
Perfluorooctanoic acid (PFOA)	**6.6**	**J M**	20	2.8	ng/L		02/28/18 07:35	03/06/18 21:39	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/28/18 07:35	03/06/18 21:39	1
Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	5.5	ng/L		02/28/18 07:35	03/06/18 21:39	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		02/28/18 07:35	03/06/18 21:39	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/28/18 07:35	03/06/18 21:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*87*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:39*	*1*
13C2 PFDA	*117*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:39*	*1*

Client Sample ID: WGNA-021518-FRB-4817 — Lab Sample ID: 320-36163-12

Date Collected: 02/15/18 14:05 **Matrix: Water**
Date Received: 02/16/18 08:30

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		02/28/18 07:35	03/06/18 21:44	1
Perfluorooctanoic acid (PFOA)	7.8	U	20	2.7	ng/L		02/28/18 07:35	03/06/18 21:44	1
Perfluorononanoic acid (PFNA)	20	U	23	7.8	ng/L		02/28/18 07:35	03/06/18 21:44	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		02/28/18 07:35	03/06/18 21:44	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		02/28/18 07:35	03/06/18 21:44	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		02/28/18 07:35	03/06/18 21:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*82*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:44*	*1*
13C2 PFDA	*114*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:44*	*1*

Client Sample ID: WGNA-021518-RW-3882 — Lab Sample ID: 320-36163-13

Date Collected: 02/15/18 15:40 **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**33**	**J M**	39	6.7	ng/L		02/28/18 07:35	03/06/18 21:49	1
Perfluorooctanoic acid (PFOA)	**9.0**	**J**	20	2.7	ng/L		02/28/18 07:35	03/06/18 21:49	1
Perfluorononanoic acid (PFNA)	20	U	24	7.8	ng/L		02/28/18 07:35	03/06/18 21:49	1
Perfluorohexanesulfonic acid (PFHxS)	**11**	**J**	29	5.4	ng/L		02/28/18 07:35	03/06/18 21:49	1
Perfluoroheptanoic acid (PFHpA)	**4.8**	**J**	9.8	1.9	ng/L		02/28/18 07:35	03/06/18 21:49	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		02/28/18 07:35	03/06/18 21:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*85*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:49*	*1*
13C2 PFDA	*111*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:49*	*1*

Client Sample ID: WGNA-021518-FRB-3882 — Lab Sample ID: 320-36163-14

Date Collected: 02/15/18 15:35 **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		02/28/18 07:35	03/06/18 21:53	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		02/28/18 07:35	03/06/18 21:53	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/28/18 07:35	03/06/18 21:53	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/28/18 07:35	03/06/18 21:53	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/28/18 07:35	03/06/18 21:53	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/28/18 07:35	03/06/18 21:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*82*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:53*	*1*
13C2 PFDA	*111*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:53*	*1*

Client Sample ID: WGNA-021518-DUP-27 — Lab Sample ID: 320-36163-15

Date Collected: 02/15/18 07:00 **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**31**	**J M**	39	6.6	ng/L		02/28/18 07:35	03/06/18 21:58	1
Perfluorooctanoic acid (PFOA)	**9.0**	**J**	19	2.7	ng/L		02/28/18 07:35	03/06/18 21:58	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		02/28/18 07:35	03/06/18 21:58	1
Perfluorohexanesulfonic acid (PFHxS)	**11**	**J**	29	5.3	ng/L		02/28/18 07:35	03/06/18 21:58	1
Perfluoroheptanoic acid (PFHpA)	**4.3**	**J M**	9.6	1.8	ng/L		02/28/18 07:35	03/06/18 21:58	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		02/28/18 07:35	03/06/18 21:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*82*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:58*	*1*
13C2 PFDA	*112*		*70 - 130*	*02/28/18 07:35*	*03/06/18 21:58*	*1*

Client Sample ID: NAWC-021518-RW-229 — Lab Sample ID: 320-36163-16

Date Collected: 02/15/18 16:10 **Matrix: Water**
Date Received: 02/16/18 08:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**32**	**J M**	40	6.7	ng/L		02/28/18 07:35	03/06/18 22:03	1
Perfluorooctanoic acid (PFOA)	**32**		20	2.8	ng/L		02/28/18 07:35	03/06/18 22:03	1
Perfluorononanoic acid (PFNA)	20	U M	24	7.9	ng/L		02/28/18 07:35	03/06/18 22:03	1
Perfluorohexanesulfonic acid (PFHxS)	**13**	**J**	30	5.4	ng/L		02/28/18 07:35	03/06/18 22:03	1
Perfluoroheptanoic acid (PFHpA)	**12**		9.9	1.9	ng/L		02/28/18 07:35	03/06/18 22:03	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/28/18 07:35	03/06/18 22:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*78*		*70 - 130*	*02/28/18 07:35*	*03/06/18 22:03*	*1*
13C2 PFDA	*114*		*70 - 130*	*02/28/18 07:35*	*03/06/18 22:03*	*1*

Client Sample ID: NAWC-021518-FRB-229 — Lab Sample ID: 320-36163-17

Date Collected: 02/15/18 16:05 **Matrix: Water**
Date Received: 02/16/18 08:30

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		02/28/18 07:35	03/06/18 22:17	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		02/28/18 07:35	03/06/18 22:17	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/28/18 07:35	03/06/18 22:17	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		02/28/18 07:35	03/06/18 22:17	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		02/28/18 07:35	03/06/18 22:17	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		02/28/18 07:35	03/06/18 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*75*		*70 - 130*	*02/28/18 07:35*	*03/06/18 22:17*	*1*
13C2 PFDA	*109*		*70 - 130*	*02/28/18 07:35*	*03/06/18 22:17*	*1*

Default Detection Limits

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-36163-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

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. TestAmerica Job ID: 320-36163-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
		PFHxA	PFDA
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
320-36163-1	WGNA-021518-RW-4015	80	111
320-36163-2	WGNA-021518-FRB-4015	96	110
320-36163-3	NAWC-021518-RW-152	82	111
320-36163-3 MS	NAWC-021518-RW-152	82	108
320-36163-3 MSD	NAWC-021518-RW-152	81	117
320-36163-4	NAWC-021518-FRB-152	89	100
320-36163-5	WGNA-021518-RW-3124	74	105
320-36163-6	WGNA-021518-FRB-3124	90	109
320-36163-7	WGNA-021518-RW-4842	83	121
320-36163-8	WGNA-021518-FRB-4842	70	113
320-36163-9	NAWC-021518-RW-205	73	120
320-36163-10	NAWC-021518-FRB-205	90	112
320-36163-11	WGNA-021518-RW-4817	87	117
320-36163-12	WGNA-021518-FRB-4817	82	114
320-36163-13	WGNA-021518-RW-3882	85	111
320-36163-14	WGNA-021518-FRB-3882	82	111
320-36163-15	WGNA-021518-DUP-27	82	112
320-36163-16	NAWC-021518-RW-229	78	114
320-36163-17	NAWC-021518-FRB-229	75	109
LCS 320-210419/2-A	Lab Control Sample	92	106
MB 320-210419/1-A	Method Blank	85	102

Surrogate Legend

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

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

Lab Sample ID: MB 320-210419/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 211343 **Prep Batch: 210419**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		02/28/18 07:35	03/06/18 01:14	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		02/28/18 07:35	03/06/18 01:14	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/28/18 07:35	03/06/18 01:14	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/28/18 07:35	03/06/18 01:14	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/28/18 07:35	03/06/18 01:14	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/28/18 07:35	03/06/18 01:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*85*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:14*	*1*
13C2 PFDA	*102*		*70 - 130*	*02/28/18 07:35*	*03/06/18 01:14*	*1*

Lab Sample ID: LCS 320-210419/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 211343 **Prep Batch: 210419**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	223	236	M	ng/L		106	70 - 130
Perfluorooctanoic acid (PFOA)	112	113		ng/L		101	70 - 130
Perfluorononanoic acid (PFNA)	111	127		ng/L		114	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	167	173		ng/L		104	70 - 130
Perfluoroheptanoic acid (PFHpA)	55.6	59.8		ng/L		108	70 - 130
Perfluorobutanesulfonic acid (PFBS)	500	477		ng/L		95	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*92*		*70 - 130*
13C2 PFDA	*106*		*70 - 130*

Lab Sample ID: 320-36163-3 MS **Client Sample ID: NAWC-021518-RW-152**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 211343 **Prep Batch: 210419**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	11	J M	213	250	M	ng/L		112	70 - 130
Perfluorooctanoic acid (PFOA)	13	J	106	119		ng/L		99	70 - 130
Perfluorononanoic acid (PFNA)	20	U	106	119		ng/L		112	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	12	U	159	170		ng/L		107	70 - 130
Perfluoroheptanoic acid (PFHpA)	4.6	J	52.9	58.1		ng/L		101	70 - 130
Perfluorobutanesulfonic acid (PFBS)	36	U	476	420		ng/L		88	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*82*		*70 - 130*
13C2 PFDA	*108*		*70 - 130*

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

Lab Sample ID: 320-36163-3 MSD **Client Sample ID: NAWC-021518-RW-152**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 211343 **Prep Batch: 210419**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	11	J M	224	266	M	ng/L		114	70 - 130	6	30
Perfluorooctanoic acid (PFOA)	13	J	112	132		ng/L		106	70 - 130	11	30
Perfluorononanoic acid (PFNA)	20	U	112	135		ng/L		121	70 - 130	13	30
Perfluorohexanesulfonic acid (PFHxS)	12	U	167	180		ng/L		108	70 - 130	6	30
Perfluoroheptanoic acid (PFHpA)	4.6	J	55.8	63.4		ng/L		105	70 - 130	9	30
Perfluorobutanesulfonic acid (PFBS)	36	U	502	377		ng/L		75	70 - 130	11	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C2 PFHxA	*81*		*70 - 130*
13C2 PFDA	*117*		*70 - 130*

LCMS

Prep Batch: 210419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-36163-1	WGNA-021518-RW-4015	Total/NA	Water	537	
320-36163-2	WGNA-021518-FRB-4015	Total/NA	Water	537	
320-36163-3	NAWC-021518-RW-152	Total/NA	Water	537	
320-36163-4	NAWC-021518-FRB-152	Total/NA	Water	537	
320-36163-5	WGNA-021518-RW-3124	Total/NA	Water	537	
320-36163-6	WGNA-021518-FRB-3124	Total/NA	Water	537	
320-36163-7	WGNA-021518-RW-4842	Total/NA	Water	537	
320-36163-8	WGNA-021518-FRB-4842	Total/NA	Water	537	
320-36163-9	NAWC-021518-RW-205	Total/NA	Water	537	
320-36163-10	NAWC-021518-FRB-205	Total/NA	Water	537	
320-36163-11	WGNA-021518-RW-4817	Total/NA	Water	537	
320-36163-12	WGNA-021518-FRB-4817	Total/NA	Water	537	
320-36163-13	WGNA-021518-RW-3882	Total/NA	Water	537	
320-36163-14	WGNA-021518-FRB-3882	Total/NA	Water	537	
320-36163-15	WGNA-021518-DUP-27	Total/NA	Water	537	
320-36163-16	NAWC-021518-RW-229	Total/NA	Water	537	
320-36163-17	NAWC-021518-FRB-229	Total/NA	Water	537	
MB 320-210419/1-A	Method Blank	Total/NA	Water	537	
LCS 320-210419/2-A	Lab Control Sample	Total/NA	Water	537	
320-36163-3 MS	NAWC-021518-RW-152	Total/NA	Water	537	
320-36163-3 MSD	NAWC-021518-RW-152	Total/NA	Water	537	

Analysis Batch: 211343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-36163-1	WGNA-021518-RW-4015	Total/NA	Water	537	210419
320-36163-2	WGNA-021518-FRB-4015	Total/NA	Water	537	210419
320-36163-3	NAWC-021518-RW-152	Total/NA	Water	537	210419
320-36163-4	NAWC-021518-FRB-152	Total/NA	Water	537	210419
320-36163-5	WGNA-021518-RW-3124	Total/NA	Water	537	210419
320-36163-6	WGNA-021518-FRB-3124	Total/NA	Water	537	210419
MB 320-210419/1-A	Method Blank	Total/NA	Water	537	210419
LCS 320-210419/2-A	Lab Control Sample	Total/NA	Water	537	210419
320-36163-3 MS	NAWC-021518-RW-152	Total/NA	Water	537	210419
320-36163-3 MSD	NAWC-021518-RW-152	Total/NA	Water	537	210419

Analysis Batch: 211575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-36163-7	WGNA-021518-RW-4842	Total/NA	Water	537	210419
320-36163-8	WGNA-021518-FRB-4842	Total/NA	Water	537	210419
320-36163-9	NAWC-021518-RW-205	Total/NA	Water	537	210419
320-36163-10	NAWC-021518-FRB-205	Total/NA	Water	537	210419
320-36163-11	WGNA-021518-RW-4817	Total/NA	Water	537	210419
320-36163-12	WGNA-021518-FRB-4817	Total/NA	Water	537	210419
320-36163-13	WGNA-021518-RW-3882	Total/NA	Water	537	210419
320-36163-14	WGNA-021518-FRB-3882	Total/NA	Water	537	210419
320-36163-15	WGNA-021518-DUP-27	Total/NA	Water	537	210419
320-36163-16	NAWC-021518-RW-229	Total/NA	Water	537	210419

Analysis Batch: 211577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-36163-17	NAWC-021518-FRB-229	Total/NA	Water	537	210419

Lab Chronicle

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

TestAmerica Job ID: 320-36163-1

Client Sample ID: WGNA-021518-RW-4015
Lab Sample ID: 320-36163-1
Date Collected: 02/15/18 09:40
Matrix: Water
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211343	03/06/18 01:23	JRB	TAL SAC

Client Sample ID: WGNA-021518-FRB-4015
Lab Sample ID: 320-36163-2
Date Collected: 02/15/18 09:35
Matrix: Water
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211343	03/06/18 01:28	JRB	TAL SAC

Client Sample ID: NAWC-021518-RW-152
Lab Sample ID: 320-36163-3
Date Collected: 02/15/18 10:10
Matrix: Water
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211343	03/06/18 01:33	JRB	TAL SAC

Client Sample ID: NAWC-021518-FRB-152
Lab Sample ID: 320-36163-4
Date Collected: 02/15/18 10:05
Matrix: Water
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211343	03/06/18 01:47	JRB	TAL SAC

Client Sample ID: WGNA-021518-RW-3124
Lab Sample ID: 320-36163-5
Date Collected: 02/15/18 11:10
Matrix: Water
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211343	03/06/18 01:51	JRB	TAL SAC

Client Sample ID: WGNA-021518-FRB-3124
Lab Sample ID: 320-36163-6
Date Collected: 02/15/18 11:05
Matrix: Water
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211343	03/06/18 01:56	JRB	TAL SAC

Client Sample ID: WGNA-021518-RW-4842 Lab Sample ID: 320-36163-7

Date Collected: 02/15/18 11:40 **Matrix: Water**
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211575	03/06/18 21:21	JRB	TAL SAC

Client Sample ID: WGNA-021518-FRB-4842 Lab Sample ID: 320-36163-8

Date Collected: 02/15/18 11:35 **Matrix: Water**
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211575	03/06/18 21:25	JRB	TAL SAC

Client Sample ID: NAWC-021518-RW-205 Lab Sample ID: 320-36163-9

Date Collected: 02/15/18 12:40 **Matrix: Water**
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211575	03/06/18 21:30	JRB	TAL SAC

Client Sample ID: NAWC-021518-FRB-205 Lab Sample ID: 320-36163-10

Date Collected: 02/15/18 12:35 **Matrix: Water**
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211575	03/06/18 21:35	JRB	TAL SAC

Client Sample ID: WGNA-021518-RW-4817 Lab Sample ID: 320-36163-11

Date Collected: 02/15/18 14:10 **Matrix: Water**
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211575	03/06/18 21:39	JRB	TAL SAC

Client Sample ID: WGNA-021518-FRB-4817 Lab Sample ID: 320-36163-12

Date Collected: 02/15/18 14:05 **Matrix: Water**
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211575	03/06/18 21:44	JRB	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-36163-1

Client Sample ID: WGNA-021518-RW-3882
Lab Sample ID: 320-36163-13
Date Collected: 02/15/18 15:40
Matrix: Water
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211575	03/06/18 21:49	JRB	TAL SAC

Client Sample ID: WGNA-021518-FRB-3882
Lab Sample ID: 320-36163-14
Date Collected: 02/15/18 15:35
Matrix: Water
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211575	03/06/18 21:53	JRB	TAL SAC

Client Sample ID: WGNA-021518-DUP-27
Lab Sample ID: 320-36163-15
Date Collected: 02/15/18 07:00
Matrix: Water
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211575	03/06/18 21:58	JRB	TAL SAC

Client Sample ID: NAWC-021518-RW-229
Lab Sample ID: 320-36163-16
Date Collected: 02/15/18 16:10
Matrix: Water
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211575	03/06/18 22:03	JRB	TAL SAC

Client Sample ID: NAWC-021518-FRB-229
Lab Sample ID: 320-36163-17
Date Collected: 02/15/18 16:05
Matrix: Water
Date Received: 02/16/18 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210419	02/28/18 07:35	SK	TAL SAC
Total/NA	Analysis	537		1	211577	03/06/18 22:17	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: 320-36163-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
Arizona	State Program	9	AZ0708	08-11-18
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-18
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-18
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-18
L-A-B	DoD ELAP		L2468	01-20-21
Louisiana	NELAP	6	30612	06-30-18
Maine	State Program	1	CA0004	04-14-18
Michigan	State Program	5	9947	01-31-18 *
Nevada	State Program	9	CA00044	07-31-18
New Hampshire	NELAP	1	2997	04-18-18
New Jersey	NELAP	2	CA005	06-30-18
New York	NELAP	2	11666	04-01-18
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	07-31-18
USDA	Federal		P330-11-00436	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18 *
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

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

Method Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-36163-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

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

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-36163-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-36163-1	WGNA-021518-RW-4015	Water	02/15/18 09:40	02/16/18 08:30
320-36163-2	WGNA-021518-FRB-4015	Water	02/15/18 09:35	02/16/18 08:30
320-36163-3	NAWC-021518-RW-152	Water	02/15/18 10:10	02/16/18 08:30
320-36163-4	NAWC-021518-FRB-152	Water	02/15/18 10:05	02/16/18 08:30
320-36163-5	WGNA-021518-RW-3124	Water	02/15/18 11:10	02/16/18 08:30
320-36163-6	WGNA-021518-FRB-3124	Water	02/15/18 11:05	02/16/18 08:30
320-36163-7	WGNA-021518-RW-4842	Water	02/15/18 11:40	02/16/18 08:30
320-36163-8	WGNA-021518-FRB-4842	Water	02/15/18 11:35	02/16/18 08:30
320-36163-9	NAWC-021518-RW-205	Water	02/15/18 12:40	02/16/18 08:30
320-36163-10	NAWC-021518-FRB-205	Water	02/15/18 12:35	02/16/18 08:30
320-36163-11	WGNA-021518-RW-4817	Water	02/15/18 14:10	02/16/18 08:30
320-36163-12	WGNA-021518-FRB-4817	Water	02/15/18 14:05	02/16/18 08:30
320-36163-13	WGNA-021518-RW-3882	Water	02/15/18 15:40	02/16/18 08:30
320-36163-14	WGNA-021518-FRB-3882	Water	02/15/18 15:35	02/16/18 08:30
320-36163-15	WGNA-021518-DUP-27	Water	02/15/18 07:00	02/16/18 08:30
320-36163-16	NAWC-021518-RW-229	Water	02/15/18 16:10	02/16/18 08:30
320-36163-17	NAWC-021518-FRB-229	Water	02/15/18 16:05	02/16/18 08:30

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 208773

Lab Sample ID: IC 320-208773/4 Client Sample ID:

Date Analyzed: 02/16/18 08:55 Lab File ID: 2018.02.016_537ICAL_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	1.66	Assign Peak	roycea	02/16/18 10:26
Perfluorooctanesulfonic acid (PFOS)	2.12	Assign Peak	roycea	02/16/18 10:26

Lab Sample ID: IC 320-208773/5 Client Sample ID:

Date Analyzed: 02/16/18 09:00 Lab File ID: 2018.02.016_537ICAL_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Peak assignment corrected	roycea	02/16/18 10:29

Lab Sample ID: IC 320-208773/6 Client Sample ID:

Date Analyzed: 02/16/18 09:05 Lab File ID: 2018.02.016_537ICAL_006.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Peak assignment corrected	roycea	02/16/18 10:29

Lab Sample ID: IC 320-208773/7 ICISAV Client Sample ID:

Date Analyzed: 02/16/18 09:09 Lab File ID: 2018.02.016_537ICAL_007.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Peak assignment corrected	roycea	02/16/18 10:30

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 208773

Lab Sample ID: IC 320-208773/8 Client Sample ID:

Date Analyzed: 02/16/18 09:14 Lab File ID: 2018.02.016_537ICAL_008.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Peak assignment corrected	roycea	02/16/18 10:30

Lab Sample ID: IC 320-208773/9 Client Sample ID:

Date Analyzed: 02/16/18 09:19 Lab File ID: 2018.02.016_537ICAL_009.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Peak assignment corrected	roycea	02/16/18 10:31

Lab Sample ID: CCVL 320-208773/11 Client Sample ID:

Date Analyzed: 02/16/18 09:28 Lab File ID: 2018.02.016_537ICAL_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Peak assignment corrected	roycea	02/16/18 10:36

Lab Sample ID: ICV 320-208773/13 Client Sample ID:

Date Analyzed: 02/16/18 09:37 Lab File ID: 2018.02.016_537ICAL_013.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Peak assignment corrected	roycea	02/16/18 10:37

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 211128

Lab Sample ID: CCVL 320-211128/1 Client Sample ID:

Date Analyzed: 03/05/18 08:44 Lab File ID: 2018.03.05_537A_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.89	Baseline	roycea	03/05/18 10:52
Perfluorooctanesulfonic acid (PFOS)	2.15	Peak assignment corrected	roycea	03/05/18 10:12

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 211343

Lab Sample ID: CCV 320-211343/1 CCVIS Client Sample ID:

Date Analyzed: 03/06/18 01:05 Lab File ID: 2018.03.05_537B_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.08	Peak assignment corrected	roycea	03/06/18 09:29

Lab Sample ID: LCS 320-210419/2-A Client Sample ID:

Date Analyzed: 03/06/18 01:19 Lab File ID: 2018.03.05_537B_007.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.08	Peak assignment corrected	roycea	03/06/18 09:28

Lab Sample ID: 320-36163-1 Client Sample ID: WGNA-021518-RW-4015

Date Analyzed: 03/06/18 01:23 Lab File ID: 2018.03.05_537B_008.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.81	Baseline	barnettj	03/06/18 10:06
Perfluorooctanesulfonic acid (PFOS)	2.07	Missed Peak	barnettj	03/06/18 10:06

Lab Sample ID: 320-36163-3 Client Sample ID: NAWC-021518-RW-152

Date Analyzed: 03/06/18 01:33 Lab File ID: 2018.03.05_537B_010.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Peak assignment corrected	barnettj	03/06/18 10:07

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 211343

Lab Sample ID: 320-36163-3 MS Client Sample ID: NAWC-021518-RW-152 MS

Date Analyzed: 03/06/18 01:37 Lab File ID: 2018.03.05_537B_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Peak assignment corrected	barnettj	03/06/18 10:07

Lab Sample ID: 320-36163-3 MSD Client Sample ID: NAWC-021518-RW-152 MSD

Date Analyzed: 03/06/18 01:42 Lab File ID: 2018.03.05_537B_012.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.07	Peak assignment corrected	barnettj	03/06/18 10:08

Lab Sample ID: 320-36163-5 Client Sample ID: WGNA-021518-RW-3124

Date Analyzed: 03/06/18 01:51 Lab File ID: 2018.03.05_537B_014.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Missed Peak	barnettj	03/06/18 10:09

Lab Sample ID: CCV 320-211343/13 CCVIS Client Sample ID:

Date Analyzed: 03/06/18 02:01 Lab File ID: 2018.03.05_537B_016.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Missed Peak	barnettj	03/06/18 10:14

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 211417

Lab Sample ID: CCVL 320-211417/1 Client Sample ID:

Date Analyzed: 03/06/18 09:24 Lab File ID: 2018.03.06_537A_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.07	Peak assignment corrected	barnettj	03/06/18 13:11

537

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 211575

Lab Sample ID: CCV 320-211575/1 CCVIS Client Sample ID:

Date Analyzed: 03/06/18 21:11 Lab File ID: 2018.03.06_537AA_049.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.08	Missed Peak	barnettj	03/07/18 09:52

Lab Sample ID: 320-36163-7 Client Sample ID: WGNA-021518-RW-4842

Date Analyzed: 03/06/18 21:21 Lab File ID: 2018.03.06_537AA_051.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.07	Missed Peak	barnettj	03/07/18 09:51

Lab Sample ID: 320-36163-9 Client Sample ID: NAWC-021518-RW-205

Date Analyzed: 03/06/18 21:30 Lab File ID: 2018.03.06_537AA_053.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	1.63	Missed Peak	barnettj	03/07/18 09:55
Perfluorooctanesulfonic acid (PFOS)	2.07	Peak assignment corrected	barnettj	03/07/18 09:55

Lab Sample ID: 320-36163-11 Client Sample ID: WGNA-021518-RW-4817

Date Analyzed: 03/06/18 21:39 Lab File ID: 2018.03.06_537AA_055.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorohexanesulfonic acid (PFHxS)	1.62	Missed Peak	barnettj	03/07/18 09:56
Perfluorooctanoic acid (PFOA)	1.81	Baseline	barnettj	03/07/18 09:56
Perfluorooctanesulfonic acid (PFOS)	2.07	Baseline	barnettj	03/07/18 09:56

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 211575

Lab Sample ID: 320-36163-13 Client Sample ID: WGNA-021518-RW-3882

Date Analyzed: 03/06/18 21:49 Lab File ID: 2018.03.06_537AA_057.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Peak assignment corrected	barnettj	03/07/18 09:57

Lab Sample ID: 320-36163-15 Client Sample ID: WGNA-021518-DUP-27

Date Analyzed: 03/06/18 21:58 Lab File ID: 2018.03.06_537AA_059.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	1.63	Missed Peak	barnettj	03/07/18 09:58
Perfluorooctanesulfonic acid (PFOS)	2.07	Missed Peak	barnettj	03/07/18 09:58

Lab Sample ID: 320-36163-16 Client Sample ID: NAWC-021518-RW-229

Date Analyzed: 03/06/18 22:03 Lab File ID: 2018.03.06_537AA_060.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Missed Peak	barnettj	03/07/18 09:58
Perfluorononanoic acid (PFNA)	2.07	Split Peak	barnettj	03/07/18 09:59

Lab Sample ID: CCV 320-211575/13 CCVIS Client Sample ID:

Date Analyzed: 03/06/18 22:08 Lab File ID: 2018.03.06_537AA_061.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.07	Missed Peak	barnettj	03/07/18 09:53

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 211577

Lab Sample ID: CCV 320-211577/13 CCVIS Client Sample ID:

Date Analyzed: 03/06/18 22:08 Lab File ID: 2018.03.06_537AA_061.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.07	Missed Peak	barnettj	03/07/18 09:53

Lab Sample ID: CCV 320-211577/17 CCVIS Client Sample ID:

Date Analyzed: 03/06/18 22:26 Lab File ID: 2018.03.06_537AA_065.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Missed Peak	barnettj	03/07/18 09:53

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LC537-HSP_00026	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutane Sulfonate	1250.1 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
.LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutane Sulfonate	90 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
..LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutane Sulfonate	2 mg/mL
							Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
...LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
...LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
...LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
...LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
...LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
...LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-ICV_00030	07/30/18	02/15/18	MeOH/H2O, Lot 067374	10 mL	LC537-IS_00059	1000 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-ICV_00030	07/30/18	02/15/18	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00059	1000 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
					LC537ICIM2_00001	400 uL	Perfluorobutanesulfonic acid (PFBS)	100.092 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	20.1619 ng/mL
							Perfluorononanoic acid (PFNA)	20.1641 ng/mL
							Perfluorooctanoic acid (PFOA)	20.167 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.1702 ng/mL
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
.LC537ICIM2_00001	08/15/18	02/15/18	Methanol, Lot 090285	10 mL	LC537ICIM_00020	0.5 mL	Perfluorobutanesulfonic acid (PFBS)	2.5023 ug/mL
							Perfluoroheptanoic acid (PFHpA)	0.25 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.504047 ug/mL
							Perfluorononanoic acid (PFNA)	0.504103 ug/mL
							Perfluorooctanoic acid (PFOA)	0.504176 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.504255 ug/mL
..LC537ICIM_00020	08/15/18	02/15/18	Methanol, Lot 090285	25 mL	LC537-PFBS2_00009	0.625 mL	Perfluorobutanesulfonic acid (PFBS)	50.0459 ug/mL
					LC537-PFHpA2_00012	0.0625 mL	Perfluoroheptanoic acid (PFHpA)	5 ug/mL
					LC537-PFHxS2_00009	0.126 mL	Perfluorohexanesulfonic acid (PFHxS)	10.0809 ug/mL
					LC537-PFNA2_00010	0.126 mL	Perfluorononanoic acid (PFNA)	10.0821 ug/mL
					LC537-PFOA2_00011	0.126 mL	Perfluorooctanoic acid (PFOA)	10.0835 ug/mL
					LC537-PFOS2_00011	0.126 mL	Perfluorooctanesulfonic acid (PFOS)	10.0851 ug/mL
...LC537-PFBS2_00009	08/15/18	02/15/18	Methanol, Lot 090285	17.1 mL	LC537_PFBS2_00002	0.0343 g	Perfluorobutanesulfonic acid (PFBS)	2001.84 ug/mL
....LC537_PFBS2_00002	09/08/22	Santa Cruz Biotechnology, Lot F0917			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
...LC537-PFHpA2_00012	08/15/18	02/15/18	Methanol, Lot 09092	23.95 mL	LC537_PFHpA2_00002	0.0479 g	Perfluoroheptanoic acid (PFHpA)	2000 ug/mL
....LC537_PFHpA2_00002	06/13/22	Afla Aesar, Lot 10200390			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	1 g/g
...LC537-PFHxS2_00009	08/15/18	02/15/18	Methanol, Lot 090285	25.87 mL	LC537_PFHxS2_00002	0.0569 g	Perfluorohexanesulfonic acid (PFHxS)	2000.19 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFHxS2_00002	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA2_00010	08/15/18	02/15/18	Methanol, Lot 090285	16.58 mL	LC537_PFNA2_00002	0.0333 g	Perfluorononanoic acid (PFNA)	2000.41 ug/mL
....LC537_PFNA2_00002	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.996 g/g
...LC537-PFOA2_00011	08/15/18	02/15/18	Methanol, Lot 090285	22.96 mL	LC537_PFOA2_00002	0.0464 g	Perfluorooctanoic acid (PFOA)	2000.7 ug/mL
....LC537_PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g
...LC537-PFOS2_00011	08/15/18	02/15/18	Methanol, Lot 090285	14.71 mL	LC537_PFOS2_00002	0.0378 g	Perfluorooctanesulfonic acid (PFOS)	2001.01 ug/mL
....LC537_PFOS2_00002	06/14/22	Sigma, Lot BCBQ0108V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g
LC537-IS_00061	08/27/18	02/27/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
.LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-L1_00021	04/01/18	02/15/18	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00059	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-MSP_00032	60 uL	Perfluorobutanesulfonic acid (PFBS)	9.0018 ng/mL
							Perfluoroheptanoic acid (PFHpA)	1.00031 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	3.00134 ng/mL
							Perfluorononanoic acid (PFNA)	2.00088 ng/mL
							Perfluorooctanoic acid (PFOA)	2.01129 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	4.01756 ng/mL
					LC537-SU_00059	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-MSP_00032	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	333.4 uL	Perfluorobutanesulfonic acid (PFBS)	750.15 ng/mL
							Perfluoroheptanoic acid (PFHpA)	83.3591 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	250.111 ng/mL
							Perfluorononanoic acid (PFNA)	166.74 ng/mL
							Perfluorooctanoic acid (PFOA)	167.608 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	334.797 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L2_00021	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	320 uL	Perfluorobutanesulfonic acid (PFBS)	20.0016 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.22264 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	6.66884 ng/mL
							Perfluorononanoic acid (PFNA)	4.44587 ng/mL
							Perfluorooctanoic acid (PFOA)	4.469 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	8.92684 ng/mL
					LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L3_00024	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	720 uL	Perfluorobutanesulfonic acid (PFBS)	45.0036 ng/mL
							Perfluoroheptanoic acid (PFHpA)	5.00094 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	15.0049 ng/mL
							Perfluorononanoic acid (PFNA)	10.0032 ng/mL
							Perfluorooctanoic acid (PFOA)	10.0553 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	20.0854 ng/mL
					LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L4_00021	04/01/18	02/15/18	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00027	360 uL	Perfluorobutanesulfonic acid (PFBS)	90.0072 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10.0019 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0098 ng/mL
							Perfluorononanoic acid (PFNA)	20.0064 ng/mL
							Perfluorooctanoic acid (PFOA)	20.1105 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.1708 ng/mL
					LC537-IS_00059	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00059	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L5_00025	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	2160 uL	Perfluorobutanesulfonic acid (PFBS)	135.011 ng/mL
							Perfluoroheptanoic acid (PFHpA)	15.0028 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.0147 ng/mL
							Perfluorononanoic acid (PFNA)	30.0096 ng/mL
							Perfluorooctanoic acid (PFOA)	30.1658 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	60.2562 ng/mL
					LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L6_00021	04/01/18	02/15/18	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00027	720 uL	Perfluorobutanesulfonic acid (PFBS)	180.014 ng/mL
							Perfluoroheptanoic acid (PFHpA)	20.0038 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	60.0196 ng/mL
							Perfluorononanoic acid (PFNA)	40.0128 ng/mL
							Perfluorooctanoic acid (PFOA)	40.221 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	80.3416 ng/mL
					LC537-IS_00059	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00059	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-SU_00063	08/27/18	02/27/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
.LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL

Reagent

LC537_PFBS_00002

P: 4/1/15 SPV

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Website: www.sigmaaldrich.com
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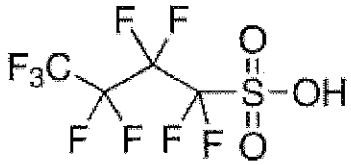
Outside USA: eurtechserv@sial.com

Certificate of Analysis

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

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



PFBS

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

Jamie Gleason

Jamie Gleason, Manager
Quality Control
Milwaukee, Wisconsin US

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_00002

1:6817 SW

CERTIFICATE OF ANALYSIS

The Power to Question

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

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

Reagent

LC537_PFHpA_00002

P: 4/1/15 SRV

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Certificate of Analysis

PFHpA

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

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

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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Reagent

LC537_PFHpA2_00002

Alfa Aesar

Certificate of analysis

r: 6.13.17 SW

PFHp A

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

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

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Reagent

LC537_PFHxS_00002

R: 4/1/15 SKV

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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

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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

Purity = 90.94 / w/m.w correction

SKV 4/1/15

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Reagent

LC537_PFHxS2_00002

n: 6.8.17 SKW

CERTIFICATE OF ANALYSIS

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

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

$PFH_xS\text{-}K$

$C_6F_{13}SO_3K$ 438.201

$C_6F_{13}SO_3H$ 400.111

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

Purity & MW correction = 90.9%

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Reagent

LC537_PFNA_00002

R: 4/1/15 SKV

Certificate of Analysis

Apr 2, 2015 (JST)

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

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

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

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

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

PFNA

Reagent

LC537_PFNA2_00002

P: 6.14.17 SKV

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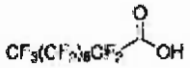
Certificate of Analysis

Product Name:
Perfluorononanoic acid – 97%

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



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

Michael Grady, Manager
Quality Control
Milwaukee, WI US

PFNA

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Reagent

LC537_PFOA_00003

T: 11/30/16 SKV
PFOA

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Certificate of Analysis

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

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

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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Reagent

LC537_PFOA2_00002

Alfa Aesar

Certificate of analysis

R: 6/9/17 SK✓

PFOA

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

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

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Reagent

LC537_PFOS_00003

r: 11/30/16 SV

PFOS

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CERTIFICATE OF ANALYSIS

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

Seelze, 22.04.2014/524107/14/08646

Order-No.:
Customer-No.:

Order-Code:

Quantity:

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

Article/Product: 33829 Batch : SZBE107XV

Heptadecafluorooctanesulfonic acid potassium salt OEKANAL®

Reference Material (RM)

1. General Information

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

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

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

2. Batch Analysis

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

3. Advice and Remarks

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

Sigma-Aldrich Laborchemikalien GmbH
Quality Management SA-LC

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Reagent

LC537_PFOS2_00002

V: 6.14.17 SKV

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Certificate of Analysis

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

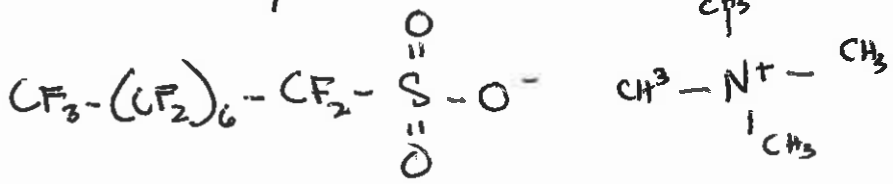
TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	OFF-WHITE
APPEARANCE (FORM)	POWDER OR POWDER WITH CHUNK(S)	POWDER
CARBON CONTENT	29.77 % - 31.29 %	29.97 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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

Purity & MW correction = 77.87%



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

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Reagent

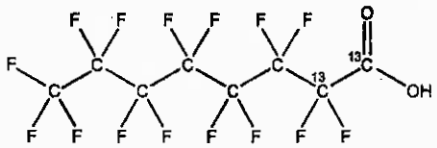
LCM2PFOA_00007

P: 5/6/17 SKV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

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



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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

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

ANAB ACCREDITED

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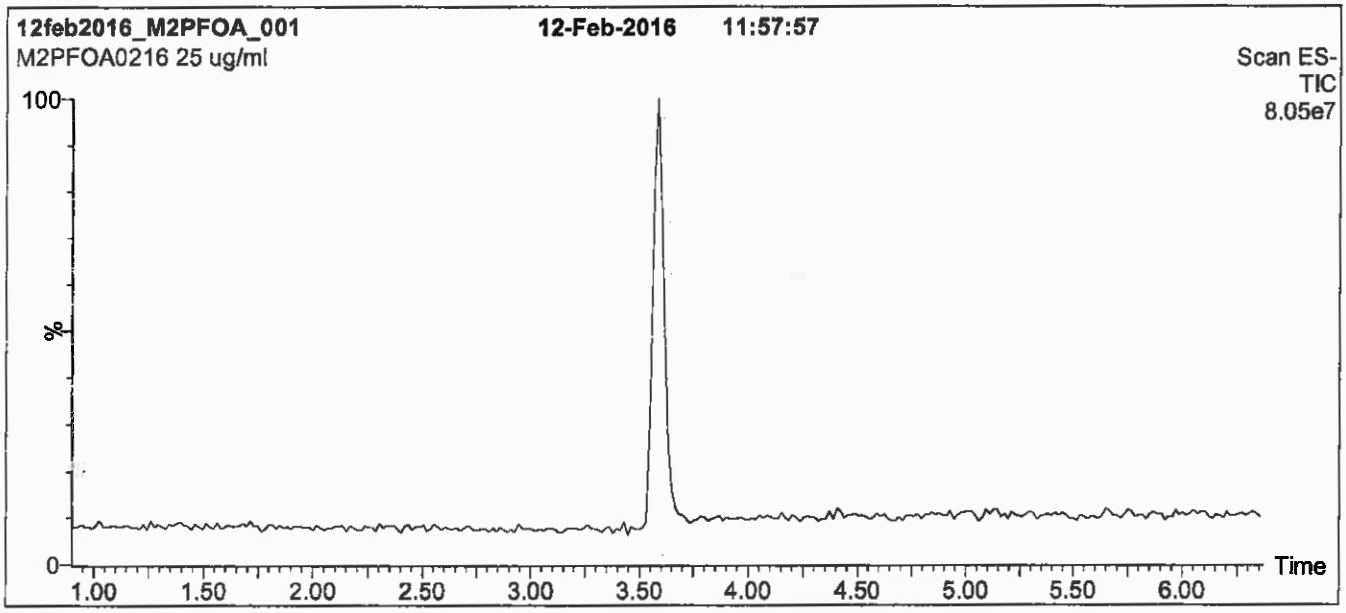
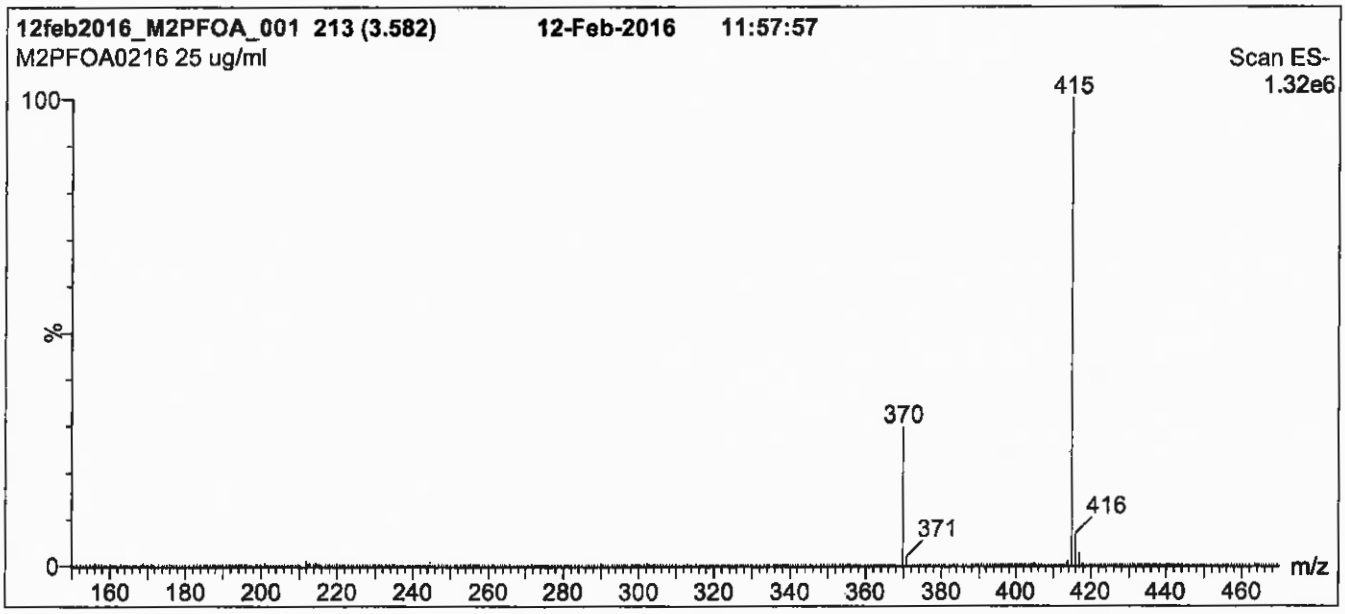
Figure 1: **M2PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

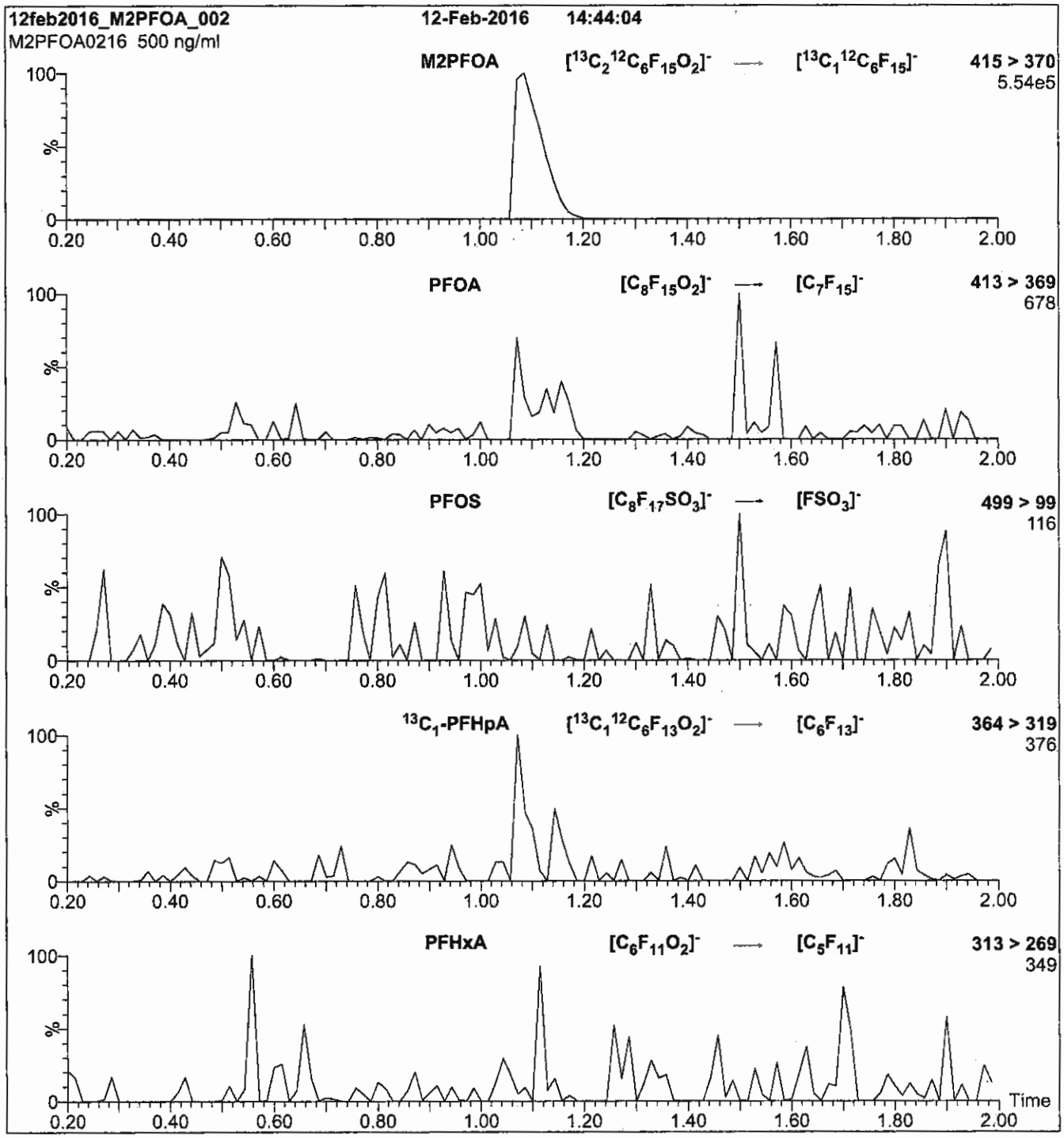
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

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

Reagent

LCMPFDA_00012

R: SBC 12/21/16

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

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of $^{13}C_4$-PFNA.

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

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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

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

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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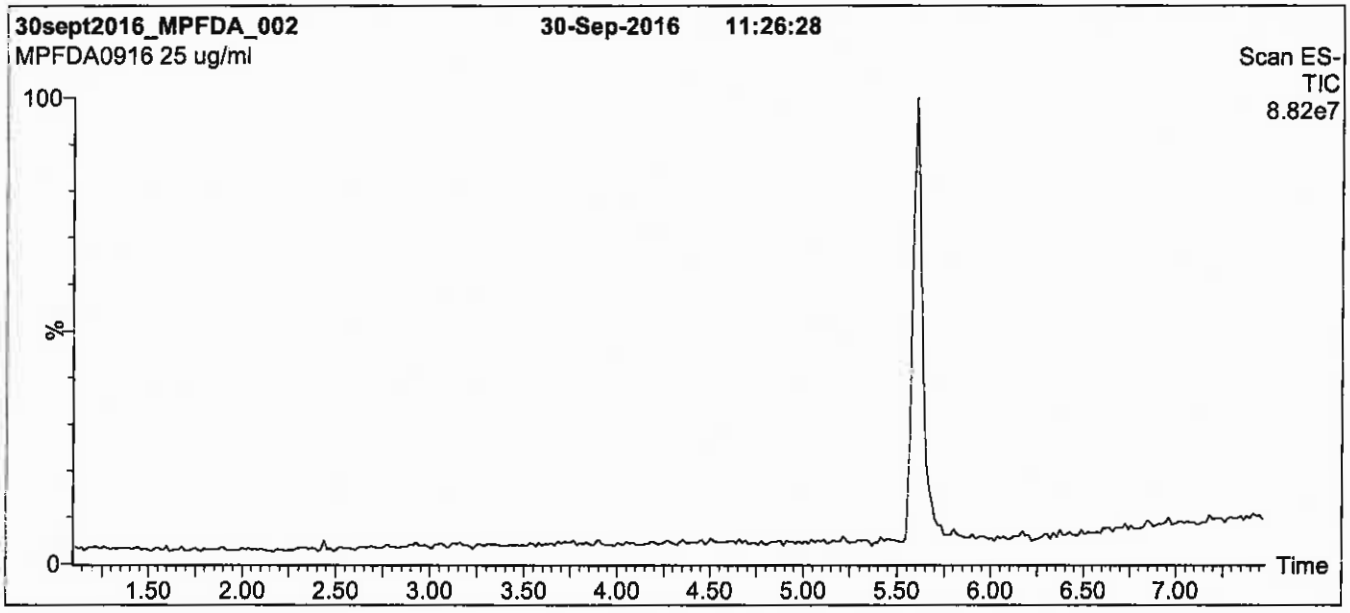
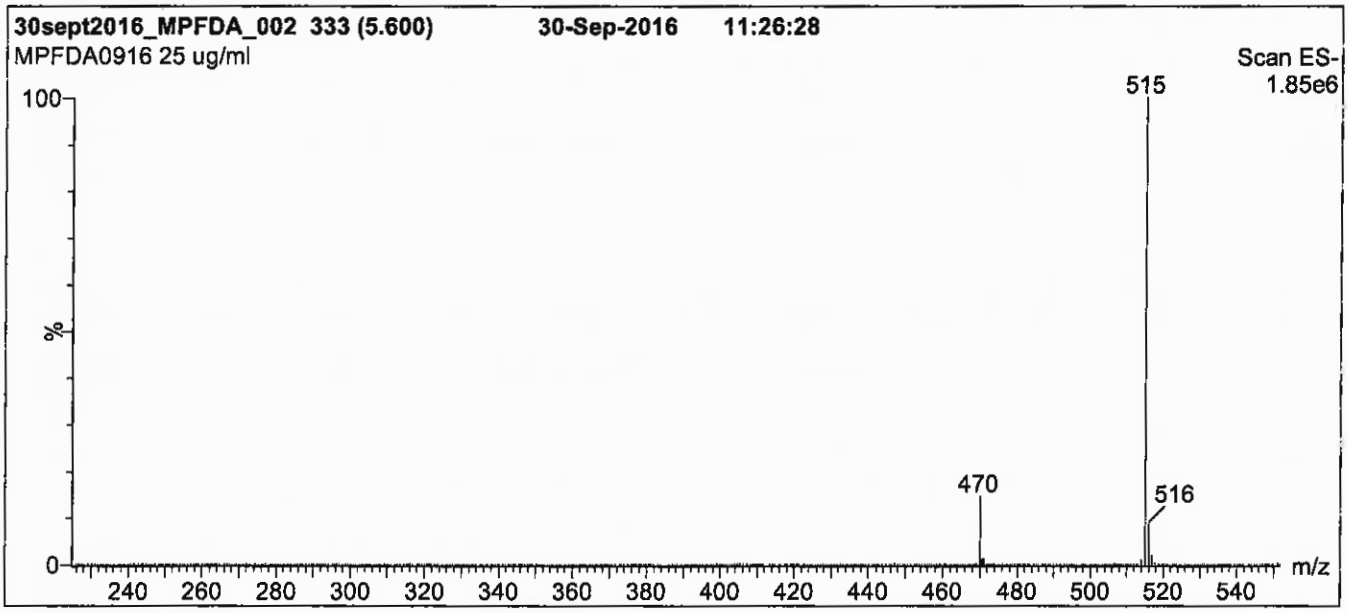
Figure 1: **MPFDA; LC/MS Data (TIC and Mass Spectrum)**





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

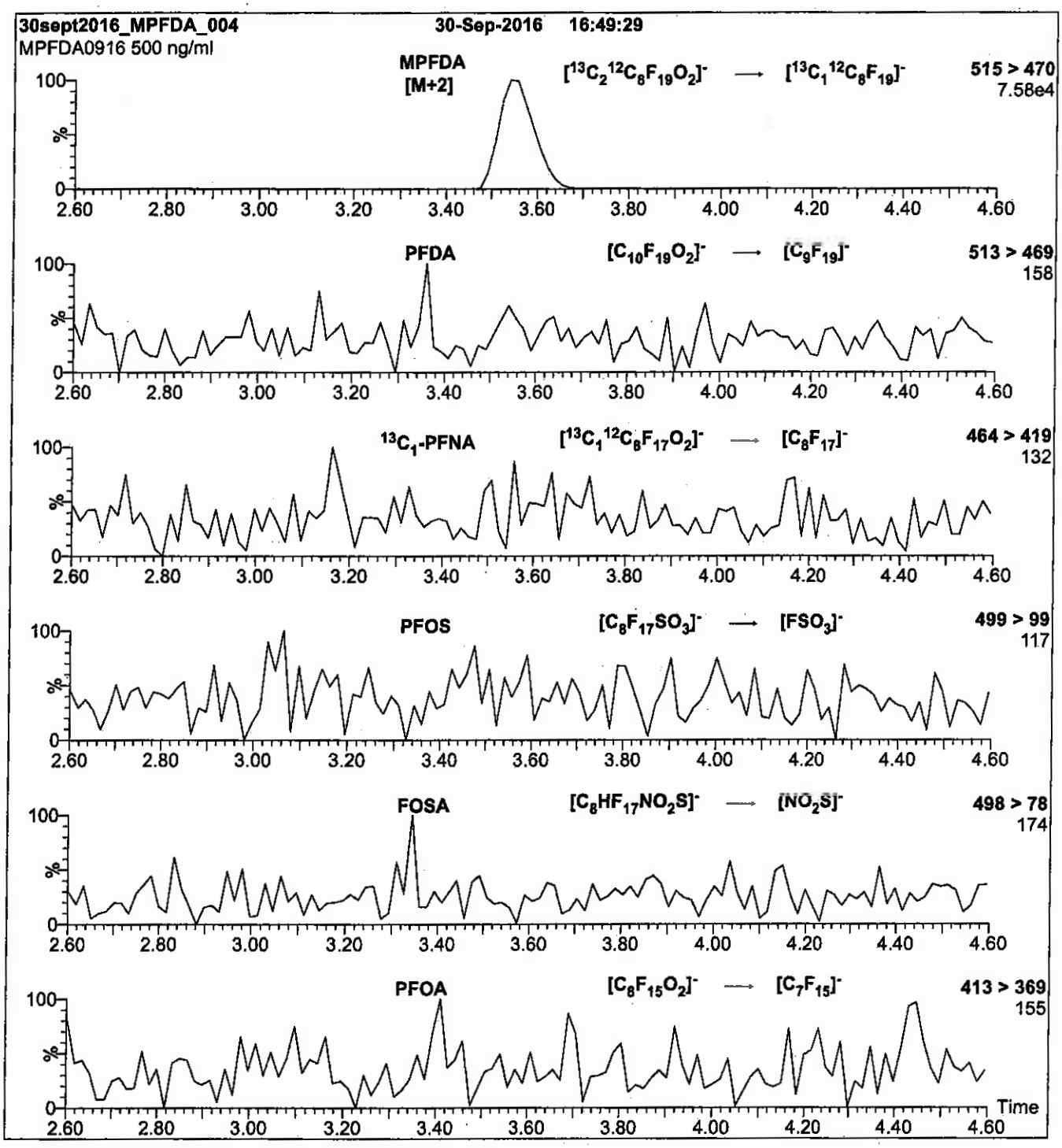
Flow: 300 µl/min

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_00015

r: 5/8/17 std

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

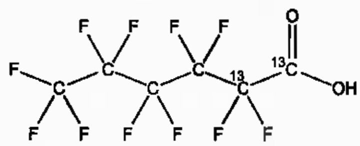
PRODUCT CODE: MPFHxA

LOT NUMBER: MPFHxA1116

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

CAS #: Not available

STRUCTURE:



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

MOLECULAR WEIGHT: 316.04

CONCENTRATION: 50 ± 2.5 μg/ml

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

CHEMICAL PURITY: >98%

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

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

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

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim

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

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

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CALA

ANAB ACCREDITED

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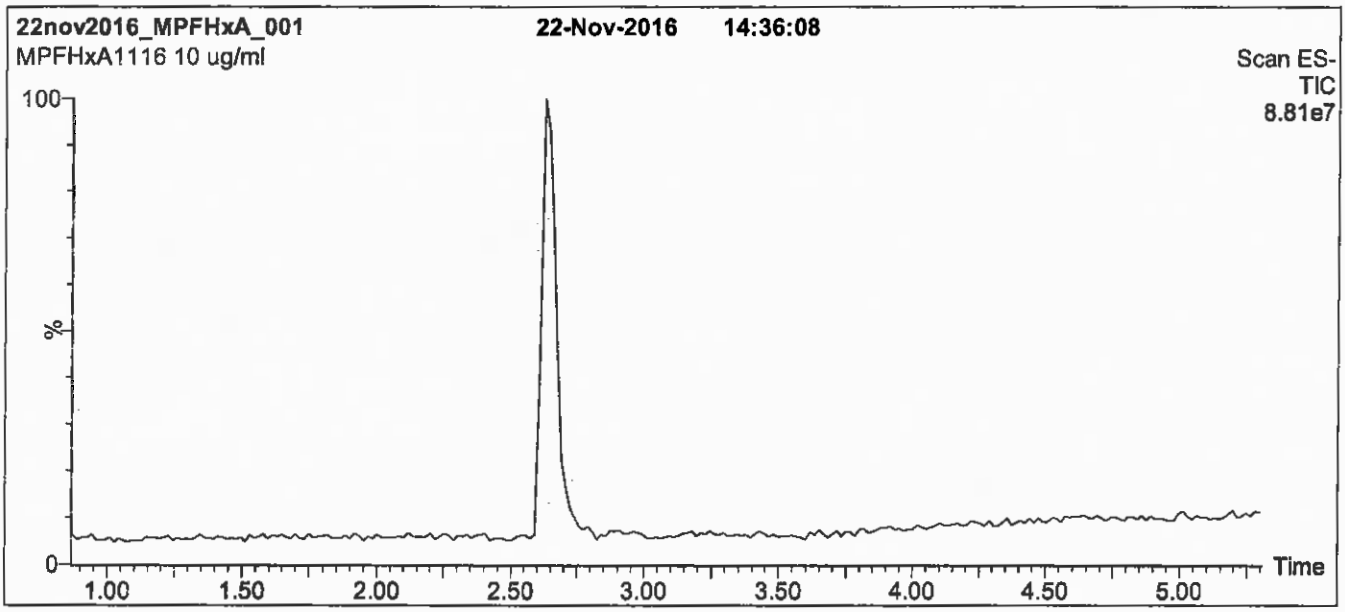
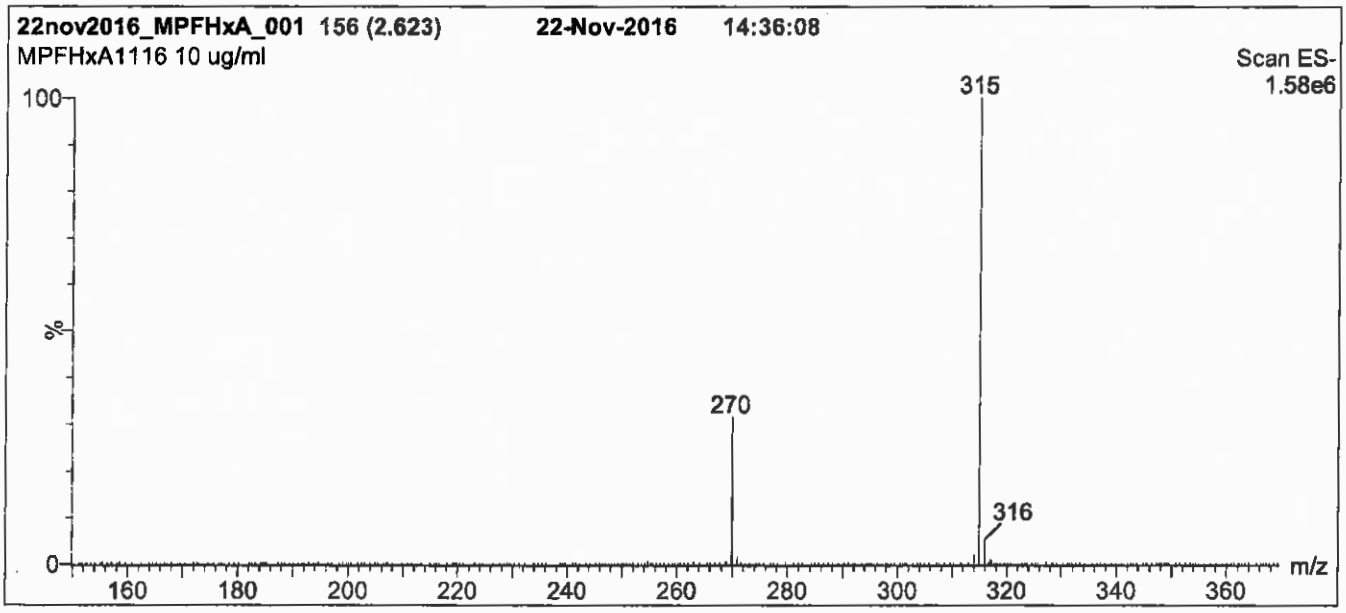
Figure 1: **MPFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

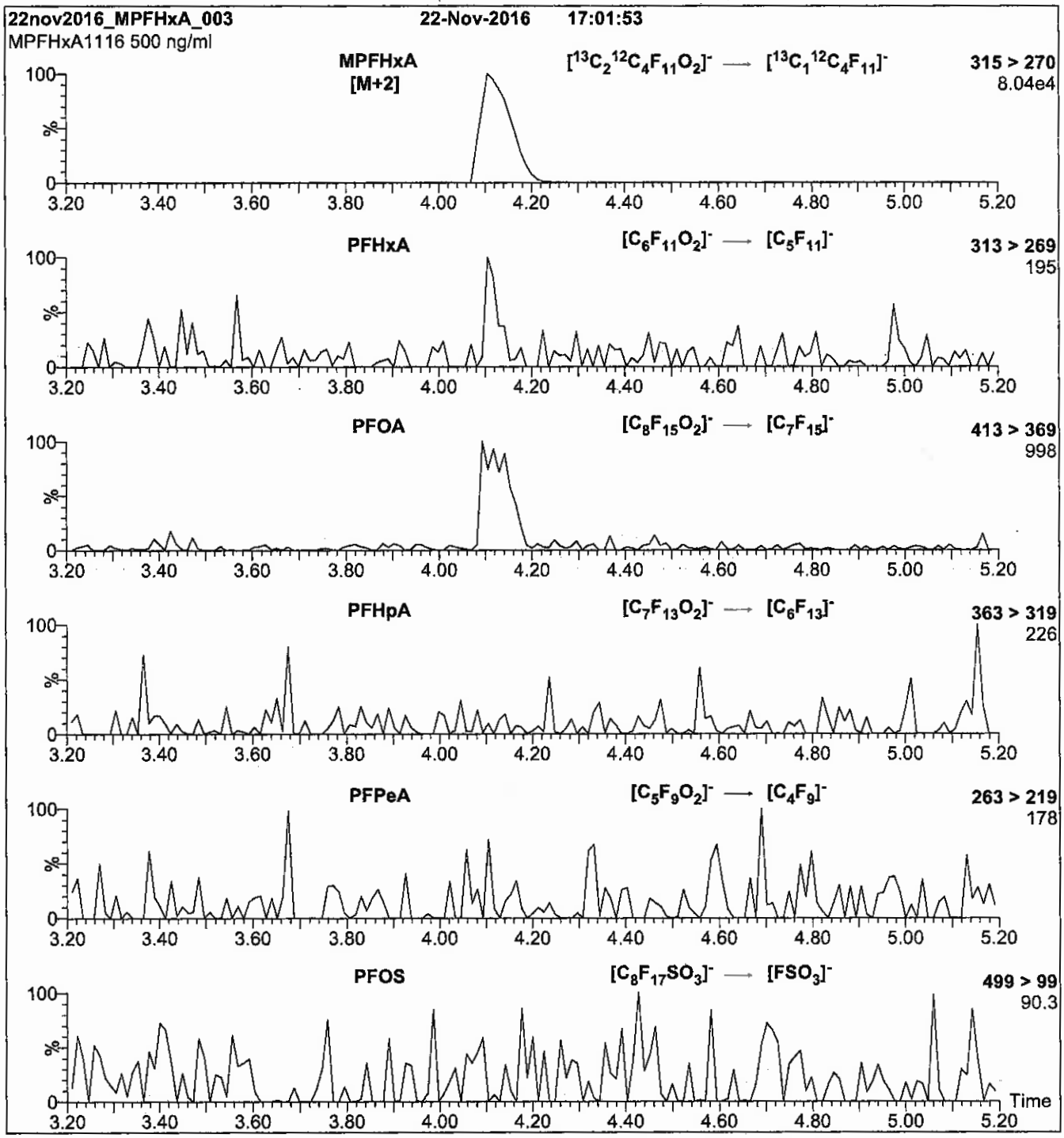
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCMPFOS_00021

r: 5/8/17 SKV

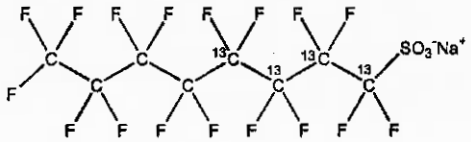
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS1216

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

STRUCTURE: **CAS #:** Not available



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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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

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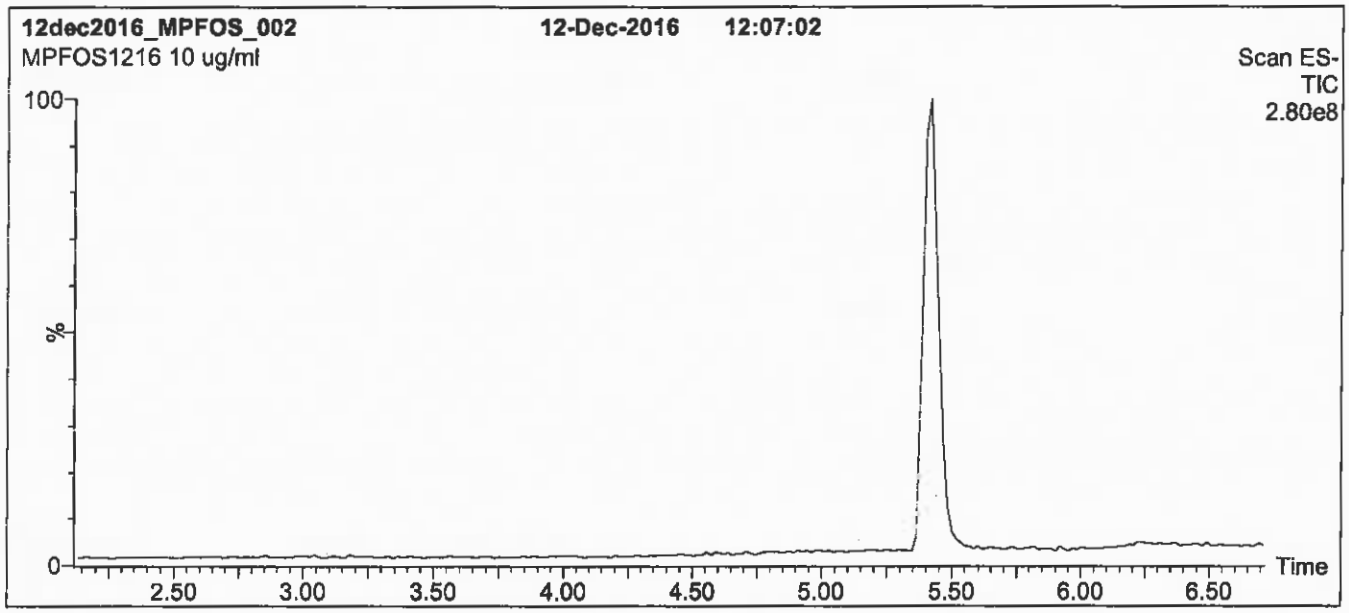

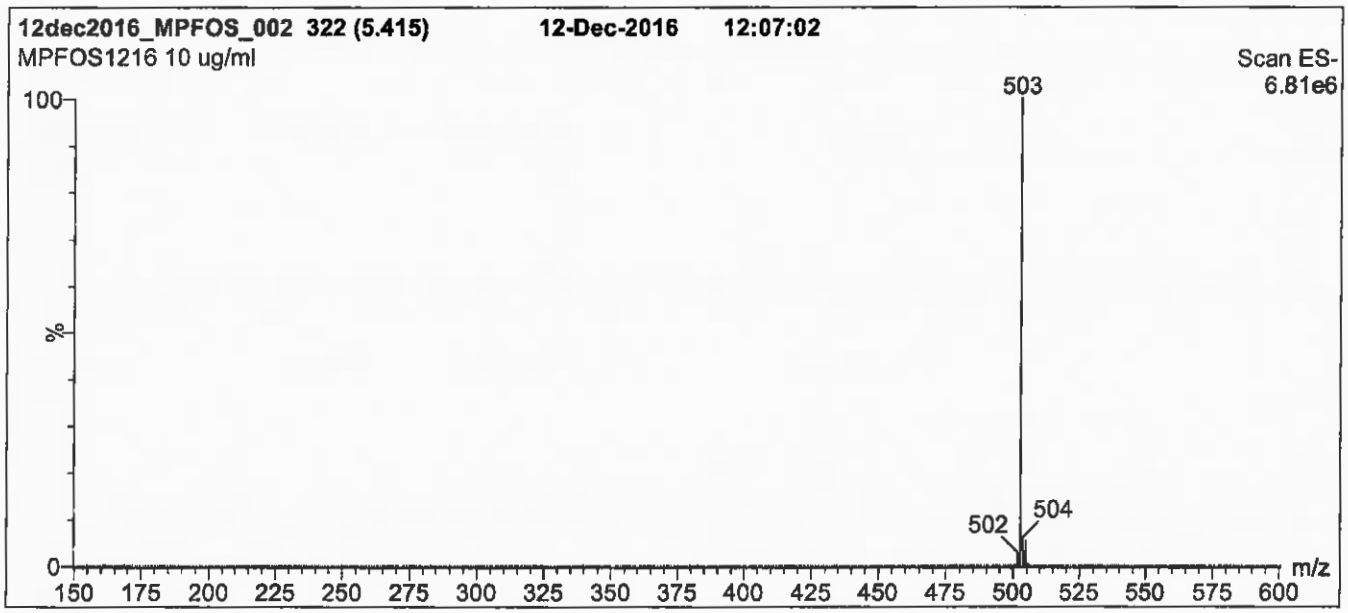

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MS: **Micromass Quattro *micro* API MS**

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1.7 µm, 2.1 x 100 mm

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

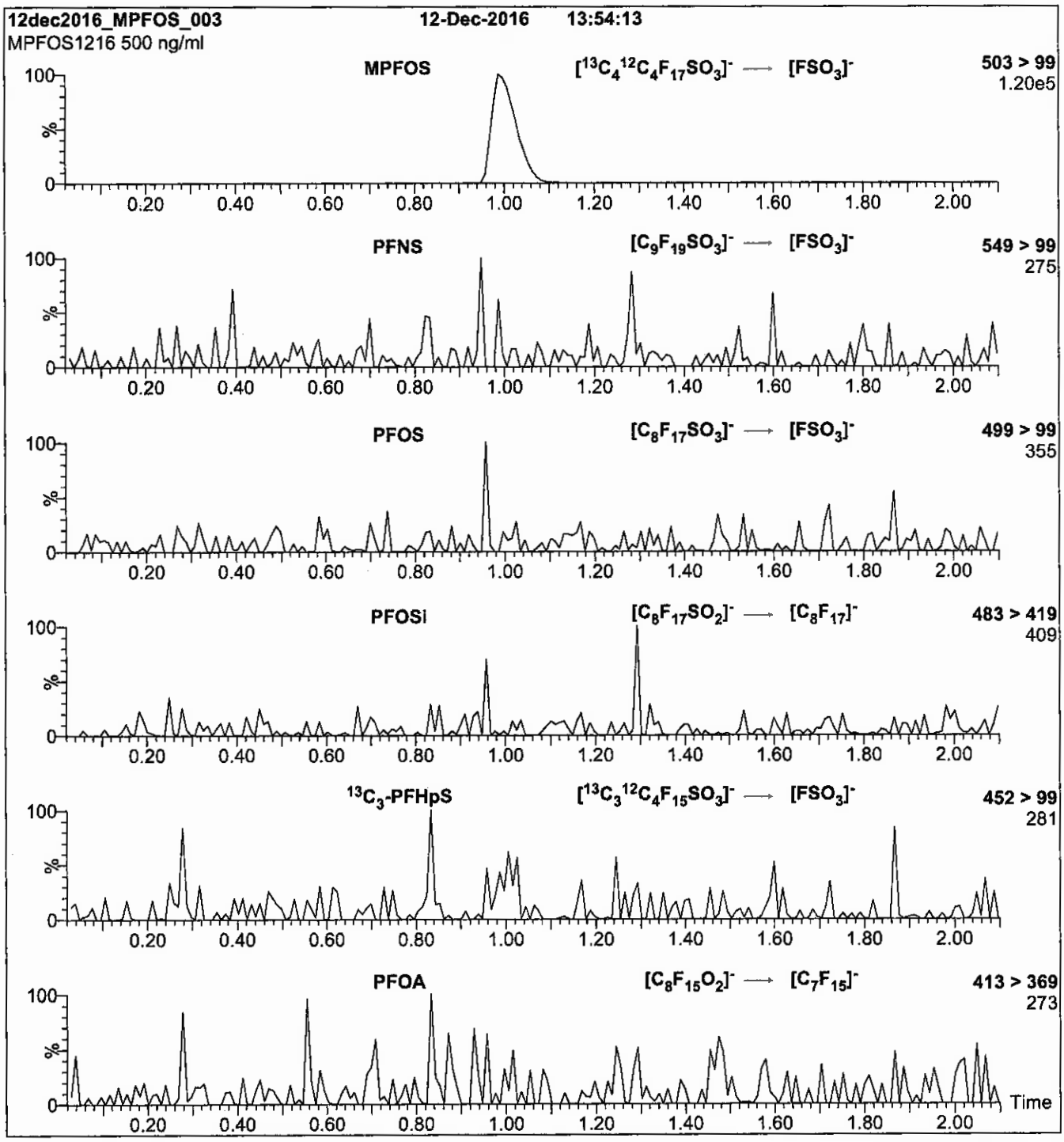
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 60.00
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) = 3.35e-3
Collision Energy (eV) = 40

Method 537 DOD

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

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-021518-RW-4015	320-36163-1	80	111
WGNA-021518-FRB-4015	320-36163-2	96	110
NAWC-021518-RW-152	320-36163-3	82	111
NAWC-021518-FRB-152	320-36163-4	89	100
WGNA-021518-RW-3124	320-36163-5	74	105
WGNA-021518-FRB-3124	320-36163-6	90	109
WGNA-021518-RW-4842	320-36163-7	83	121
WGNA-021518-FRB-4842	320-36163-8	70	113
NAWC-021518-RW-205	320-36163-9	73	120
NAWC-021518-FRB-205	320-36163-10	90	112
WGNA-021518-RW-4817	320-36163-11	87	117
WGNA-021518-FRB-4817	320-36163-12	82	114
WGNA-021518-RW-3882	320-36163-13	85	111
WGNA-021518-FRB-3882	320-36163-14	82	111
WGNA-021518-DUP-27	320-36163-15	82	112
NAWC-021518-RW-229	320-36163-16	78	114
NAWC-021518-FRB-229	320-36163-17	75	109
	MB 320-210419/1-A	85	102
	LCS 320-210419/2-A	92	106
NAWC-021518-RW-152 MS	320-36163-3 MS	82	108
NAWC-021518-RW-152 MSD	320-36163-3 MSD	81	117

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

Column to be used to flag recovery values

FORM II 537

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.03.05_537B_007.d

Lab ID: LCS 320-210419/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	223	236	106	70-130	M
Perfluorooctanoic acid (PFOA)	112	113	101	70-130	
Perfluorononanoic acid (PFNA)	111	127	114	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	173	104	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	59.8	108	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	477	95	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.03.05_537B_011.d

Lab ID: 320-36163-3 MS Client ID: NAWC-021518-RW-152 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	213	11 J	250	112	70-130	M
Perfluorooctanoic acid (PFOA)	106	13 J	119	99	70-130	
Perfluorononanoic acid (PFNA)	106	20 U	119	112	70-130	
Perfluorohexanesulfonic acid (PFHxS)	159	12 U	170	107	70-130	
Perfluoroheptanoic acid (PFHpA)	52.9	4.6 J	58.1	101	70-130	
Perfluorobutanesulfonic acid (PFBS)	476	36 U	420	88	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.03.05_537B_012.d

Lab ID: 320-36163-3 MSD Client ID: NAWC-021518-RW-152 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	224	266	114	6	30	70-130	M
Perfluorooctanoic acid (PFOA)	112	132	106	11	30	70-130	
Perfluorononanoic acid (PFNA)	112	135	121	13	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	180	108	6	30	70-130	
Perfluoroheptanoic acid (PFHpA)	55.8	63.4	105	9	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	502	377	75	11	30	70-130	

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.: 320-36163-1

SDG No.:

Lab File ID: 2018.03.05_537B_006.d Lab Sample ID: MB 320-210419/1-A

Matrix: Water Date Extracted: 02/28/2018 07:35

Instrument ID: A8_N Date Analyzed: 03/06/2018 01:14

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-210419/2-A	2018.03.05_537B_007.d	03/06/2018 01:19
WGNA-021518-RW-4015	320-36163-1	2018.03.05_537B_008.d	03/06/2018 01:23
WGNA-021518-FRB-4015	320-36163-2	2018.03.05_537B_009.d	03/06/2018 01:28
NAWC-021518-RW-152	320-36163-3	2018.03.05_537B_010.d	03/06/2018 01:33
NAWC-021518-RW-152 MS	320-36163-3 MS	2018.03.05_537B_011.d	03/06/2018 01:37
NAWC-021518-RW-152 MSD	320-36163-3 MSD	2018.03.05_537B_012.d	03/06/2018 01:42
NAWC-021518-FRB-152	320-36163-4	2018.03.05_537B_013.d	03/06/2018 01:47
WGNA-021518-RW-3124	320-36163-5	2018.03.05_537B_014.d	03/06/2018 01:51
WGNA-021518-FRB-3124	320-36163-6	2018.03.05_537B_015.d	03/06/2018 01:56
WGNA-021518-RW-4842	320-36163-7	2018.03.06_537AA_051.d	03/06/2018 21:21
WGNA-021518-FRB-4842	320-36163-8	2018.03.06_537AA_052.d	03/06/2018 21:25
NAWC-021518-RW-205	320-36163-9	2018.03.06_537AA_053.d	03/06/2018 21:30
NAWC-021518-FRB-205	320-36163-10	2018.03.06_537AA_054.d	03/06/2018 21:35
WGNA-021518-RW-4817	320-36163-11	2018.03.06_537AA_055.d	03/06/2018 21:39
WGNA-021518-FRB-4817	320-36163-12	2018.03.06_537AA_056.d	03/06/2018 21:44
WGNA-021518-RW-3882	320-36163-13	2018.03.06_537AA_057.d	03/06/2018 21:49
WGNA-021518-FRB-3882	320-36163-14	2018.03.06_537AA_058.d	03/06/2018 21:53
WGNA-021518-DUP-27	320-36163-15	2018.03.06_537AA_059.d	03/06/2018 21:58
NAWC-021518-RW-229	320-36163-16	2018.03.06_537AA_060.d	03/06/2018 22:03
NAWC-021518-FRB-229	320-36163-17	2018.03.06_537AA_063.d	03/06/2018 22:17

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 02/16/2018 09:19

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		937117	1.86	2726868	2.11		
UPPER LIMIT		1405676	2.36	4090302	2.61		
LOWER LIMIT		468559	1.36	1363434	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-208773/11		955394	1.87	2663428	2.12		
ICV 320-208773/13		890238	1.85	2703377	2.11		
CCVL 320-211128/1		856705	1.89	2531502	2.15		
CCV 320-211343/1 CCVIS		994738	1.82	2811492	2.08		
MB 320-210419/1-A		991052	1.82	2829523	2.08		
LCS 320-210419/2-A		919196	1.82	2765688	2.08		
320-36163-1	WGNA-021518-RW-4015	926238	1.81	2632052	2.07		
320-36163-2	WGNA-021518-FRB-4015	1039884	1.81	3042130	2.07		
320-36163-3	NAWC-021518-RW-152	1188501	1.81	3424260	2.06		
320-36163-3 MS	NAWC-021518-RW-152 MS	1212337	1.81	3411105	2.06		
320-36163-3 MSD	NAWC-021518-RW-152 MSD	1151879	1.81	3422849	2.07		
320-36163-4	NAWC-021518-FRB-152	937414	1.81	2786487	2.06		
320-36163-5	WGNA-021518-RW-3124	1254281	1.81	3552723	2.06		
320-36163-6	WGNA-021518-FRB-3124	1231289	1.81	3427054	2.06		
CCV 320-211343/13 CCVIS		996484	1.81	3018630	2.06		
CCVL 320-211417/1		851838	1.81	2523082	2.07		
CCV 320-211575/1 CCVIS		1068414	1.82	3310510	2.08		
320-36163-7	WGNA-021518-RW-4842	928888	1.81	2533666	2.07		
320-36163-8	WGNA-021518-FRB-4842	951196	1.81	2630340	2.07		
320-36163-9	NAWC-021518-RW-205	980456	1.81	2715578	2.07		
320-36163-10	NAWC-021518-FRB-205	927135	1.82	2540551	2.07		
320-36163-11	WGNA-021518-RW-4817	945703	1.81	2565649	2.07		
320-36163-12	WGNA-021518-FRB-4817	1014512	1.81	2735330	2.06		
320-36163-13	WGNA-021518-RW-3882	950787	1.81	2616458	2.06		
320-36163-14	WGNA-021518-FRB-3882	939695	1.81	2543188	2.06		
320-36163-15	WGNA-021518-DUP-27	972359	1.81	2601918	2.07		
320-36163-16	NAWC-021518-RW-229	1008798	1.81	2708459	2.06		
CCV 320-211575/13 CCVIS		863800	1.81	2506422	2.06		

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.: 320-36163-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 02/16/2018 09:19

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		937117	1.86	2726868	2.11		
UPPER LIMIT		1405676	2.36	4090302	2.61		
LOWER LIMIT		468559	1.36	1363434	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 320-211577/13 CCVIS		863800	1.81	2506422	2.06		
320-36163-17	NAWC-021518-FRB-229	992161	1.81	2641340	2.06		
CCV 320-211577/17 CCVIS		979585	1.81	2911601	2.06		

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.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211343/1 Date Analyzed: 03/06/2018 01:05

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

Lab File ID (Standard): 2018.03.05_537B_004 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		994738	1.82	2811492	2.08		
UPPER LIMIT		1392633	2.32	3936089	2.58		
LOWER LIMIT		696317	1.32	1968044	1.58		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-210419/1-A		991052	1.82	2829523	2.08		
LCS 320-210419/2-A		919196	1.82	2765688	2.08		
320-36163-1	WGNA-021518-RW-4015	926238	1.81	2632052	2.07		
320-36163-2	WGNA-021518-FRB-4015	1039884	1.81	3042130	2.07		
320-36163-3	NAWC-021518-RW-152	1188501	1.81	3424260	2.06		
320-36163-3 MS	NAWC-021518-RW-152 MS	1212337	1.81	3411105	2.06		
320-36163-3 MSD	NAWC-021518-RW-152 MSD	1151879	1.81	3422849	2.07		
320-36163-4	NAWC-021518-FRB-152	937414	1.81	2786487	2.06		
320-36163-5	WGNA-021518-RW-3124	1254281	1.81	3552723	2.06		
320-36163-6	WGNA-021518-FRB-3124	1231289	1.81	3427054	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211343/13 Date Analyzed: 03/06/2018 02:01

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

Lab File ID (Standard): 2018.03.05_537B_016 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		996484	1.81	3018630	2.06		
UPPER LIMIT		1395078	2.31	4226082	2.56		
LOWER LIMIT		697539	1.31	2113041	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-210419/1-A		991052	1.82	2829523	2.08		
LCS 320-210419/2-A		919196	1.82	2765688	2.08		
320-36163-1	WGNA-021518-RW-4015	926238	1.81	2632052	2.07		
320-36163-2	WGNA-021518-FRB-4015	1039884	1.81	3042130	2.07		
320-36163-3	NAWC-021518-RW-152	1188501	1.81	3424260	2.06		
320-36163-3 MS	NAWC-021518-RW-152 MS	1212337	1.81	3411105	2.06		
320-36163-3 MSD	NAWC-021518-RW-152 MSD	1151879	1.81	3422849	2.07		
320-36163-4	NAWC-021518-FRB-152	937414	1.81	2786487	2.06		
320-36163-5	WGNA-021518-RW-3124	1254281	1.81	3552723	2.06		
320-36163-6	WGNA-021518-FRB-3124	1231289	1.81	3427054	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211575/1 Date Analyzed: 03/06/2018 21:11

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

Lab File ID (Standard): 2018.03.06_537AA_04 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1068414	1.82	3310510	2.08		
UPPER LIMIT		1495780	2.32	4634714	2.58		
LOWER LIMIT		747890	1.32	2317357	1.58		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-36163-7	WGNA-021518-RW-4842	928888	1.81	2533666	2.07		
320-36163-8	WGNA-021518-FRB-4842	951196	1.81	2630340	2.07		
320-36163-9	NAWC-021518-RW-205	980456	1.81	2715578	2.07		
320-36163-10	NAWC-021518-FRB-205	927135	1.82	2540551	2.07		
320-36163-11	WGNA-021518-RW-4817	945703	1.81	2565649	2.07		
320-36163-12	WGNA-021518-FRB-4817	1014512	1.81	2735330	2.06		
320-36163-13	WGNA-021518-RW-3882	950787	1.81	2616458	2.06		
320-36163-14	WGNA-021518-FRB-3882	939695	1.81	2543188	2.06		
320-36163-15	WGNA-021518-DUP-27	972359	1.81	2601918	2.07		
320-36163-16	NAWC-021518-RW-229	1008798	1.81	2708459	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211575/13 Date Analyzed: 03/06/2018 22:08

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

Lab File ID (Standard): 2018.03.06_537AA_06 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		863800	1.81	2506422	2.06		
UPPER LIMIT		1209320	2.31	3508991	2.56		
LOWER LIMIT		604660	1.31	1754495	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-36163-7	WGNA-021518-RW-4842	928888	1.81	2533666	2.07		
320-36163-8	WGNA-021518-FRB-4842	951196	1.81	2630340	2.07		
320-36163-9	NAWC-021518-RW-205	980456	1.81	2715578	2.07		
320-36163-10	NAWC-021518-FRB-205	927135	1.82	2540551	2.07		
320-36163-11	WGNA-021518-RW-4817	945703	1.81	2565649	2.07		
320-36163-12	WGNA-021518-FRB-4817	1014512	1.81	2735330	2.06		
320-36163-13	WGNA-021518-RW-3882	950787	1.81	2616458	2.06		
320-36163-14	WGNA-021518-FRB-3882	939695	1.81	2543188	2.06		
320-36163-15	WGNA-021518-DUP-27	972359	1.81	2601918	2.07		
320-36163-16	NAWC-021518-RW-229	1008798	1.81	2708459	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211577/13 Date Analyzed: 03/06/2018 22:08

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

Lab File ID (Standard): 2018.03.06_537AA_06 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		863800	1.81	2506422	2.06		
UPPER LIMIT		1209320	2.31	3508991	2.56		
LOWER LIMIT		604660	1.31	1754495	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-36163-17	NAWC-021518-FRB-229	992161	1.81	2641340	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211577/17 Date Analyzed: 03/06/2018 22:26

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

Lab File ID (Standard): 2018.03.06_537AA_06 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		979585	1.81	2911601	2.06		
UPPER LIMIT		1371419	2.31	4076241	2.56		
LOWER LIMIT		685710	1.31	2038121	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-36163-17	NAWC-021518-FRB-229	992161	1.81	2641340	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-4015 | Lab Sample ID: 320-36163-1

Matrix: Water | Lab File ID: 2018.03.05_537B_008.d

Analysis Method: 537 | Date Collected: 02/15/2018 09:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 244.6(mL) | Date Analyzed: 03/06/2018 01:23

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.3	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	12	J M	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	25	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.2	J	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	80		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_008.d
Lims ID: 320-36163-A-1-A
Client ID: WGNA-021518-RW-4015
Sample Type: Client
Inject. Date: 06-Mar-2018 01:23:51 ALS Bottle#: 3 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: barnettj Date: 06-Mar-2018 10:06:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.366	-0.008	1.000	105895	0.8767		35.9	
298.90 > 99.00	1.358	1.366	-0.008	1.000	81226		1.30(0.00-0.00)	39.3	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	810121	7.95		11413	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	145946	0.9879		79.6	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	113450	1.26		10.1	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.821	-0.008		926238	10.0		8769	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.813	1.828	-0.015	1.000	257332	2.89		7.3	M
413.00 > 169.00	1.813	1.828	-0.015	1.000	161623		1.59(0.00-0.00)	125	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.071	2.056	0.015	1.000	197044	2.27		58.3	M
499.00 > 99.00	2.071	2.056	0.015	1.000	36959		5.33(0.00-0.00)	14.5	M
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.079	-0.008		2632052	28.7		2842	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	539345	11.1		4720	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

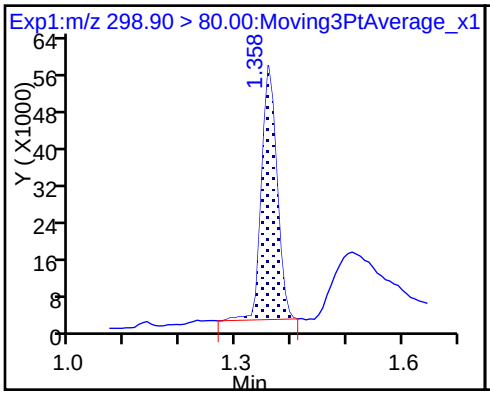
Report Date: 06-Mar-2018 10:24:23 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

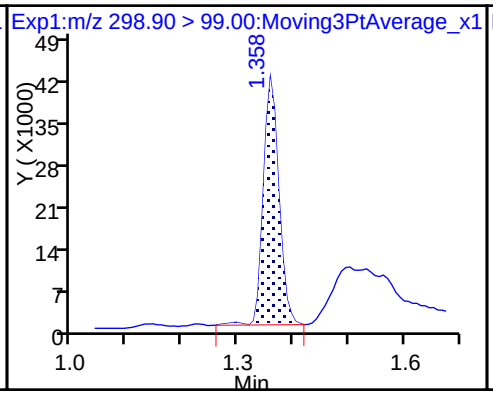
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_008.d

Injection Date:	06-Mar-2018 01:23:51	Instrument ID:	A8_N		
Lims ID:	320-36163-A-1-A	Lab Sample ID:	320-36163-1		
Client ID:	WGNA-021518-RW-4015				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

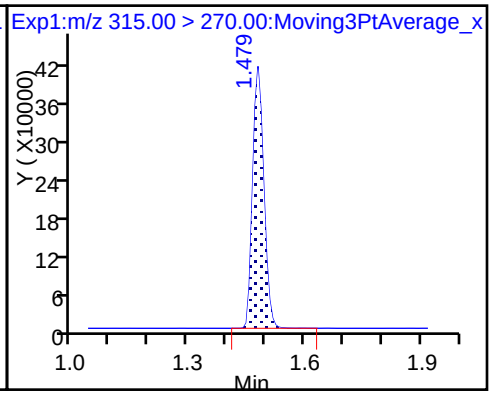
1 Perfluorobutanesulfonic acid



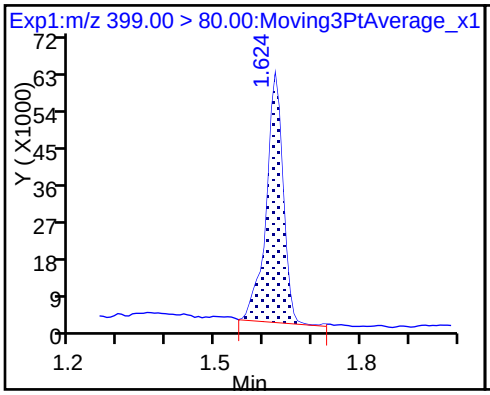
1 Perfluorobutanesulfonic acid



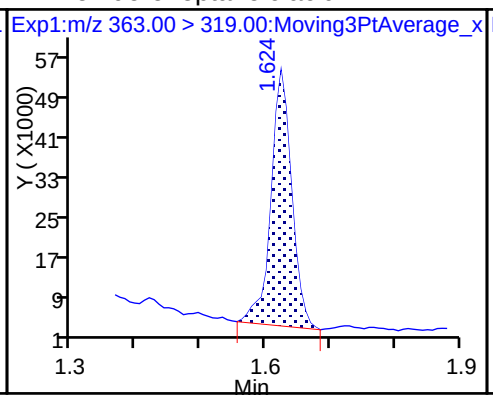
$ 2 13C2 PFHxA



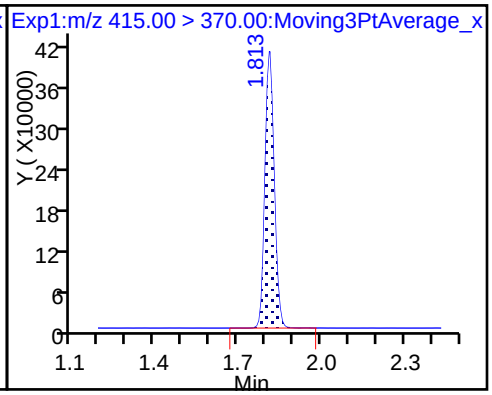
3 Perfluorohexanesulfonic acid



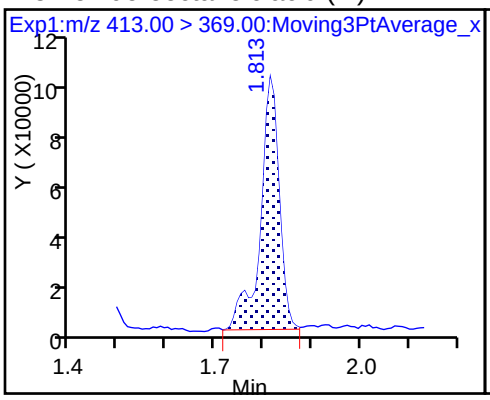
4 Perfluoroheptanoic acid



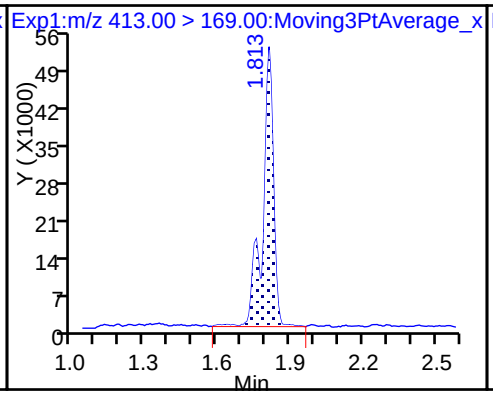
* 6 13C2-PFOA



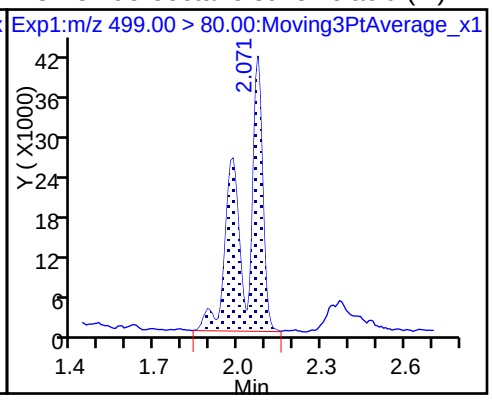
5 Perfluorooctanoic acid (M)



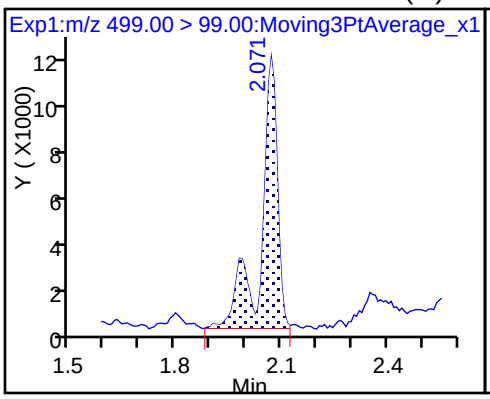
5 Perfluorooctanoic acid



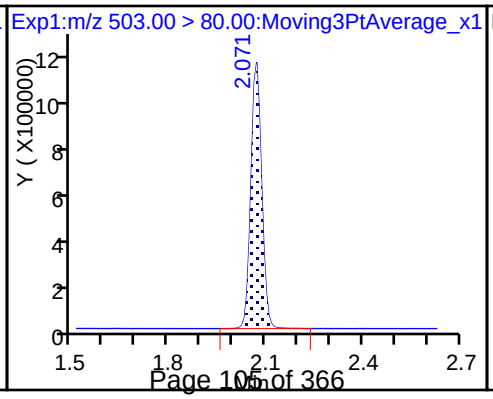
8 Perfluorooctane sulfonic acid (M)



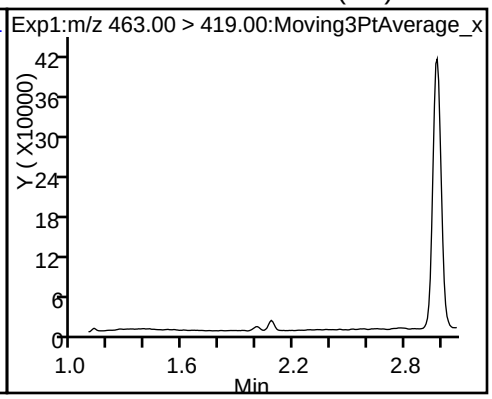
8 Perfluorooctane sulfonic acid (M)



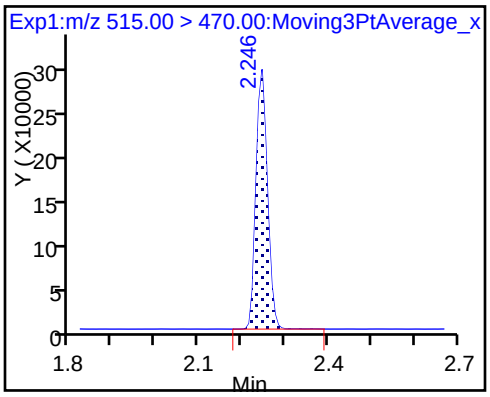
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
30
25
20
15
10
5
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_008.d
Lims ID: 320-36163-A-1-A
Client ID: WGNA-021518-RW-4015
Sample Type: Client
Inject. Date: 06-Mar-2018 01:23:51 ALS Bottle#: 3 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: barnettj Date: 06-Mar-2018 10:06:51

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.95	79.52
$ 10 13C2 PFDA	10.0	11.1	111.07

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

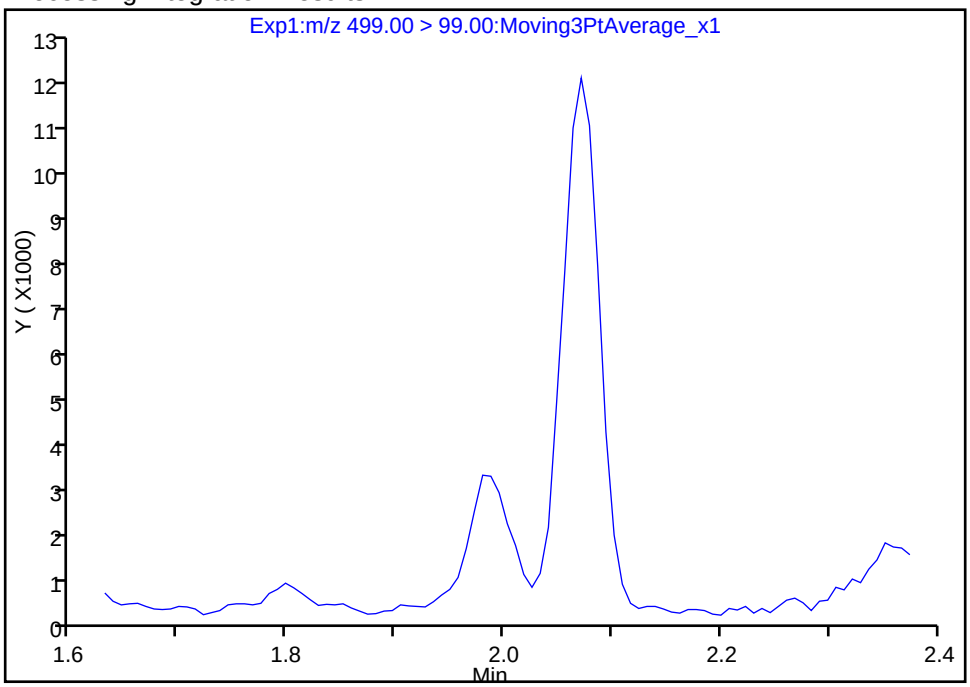
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_008.d				
Injection Date:	06-Mar-2018 01:23:51	Instrument ID:	A8_N		
Lims ID:	320-36163-A-1-A	Lab Sample ID:	320-36163-1		
Client ID:	WGNA-021518-RW-4015				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

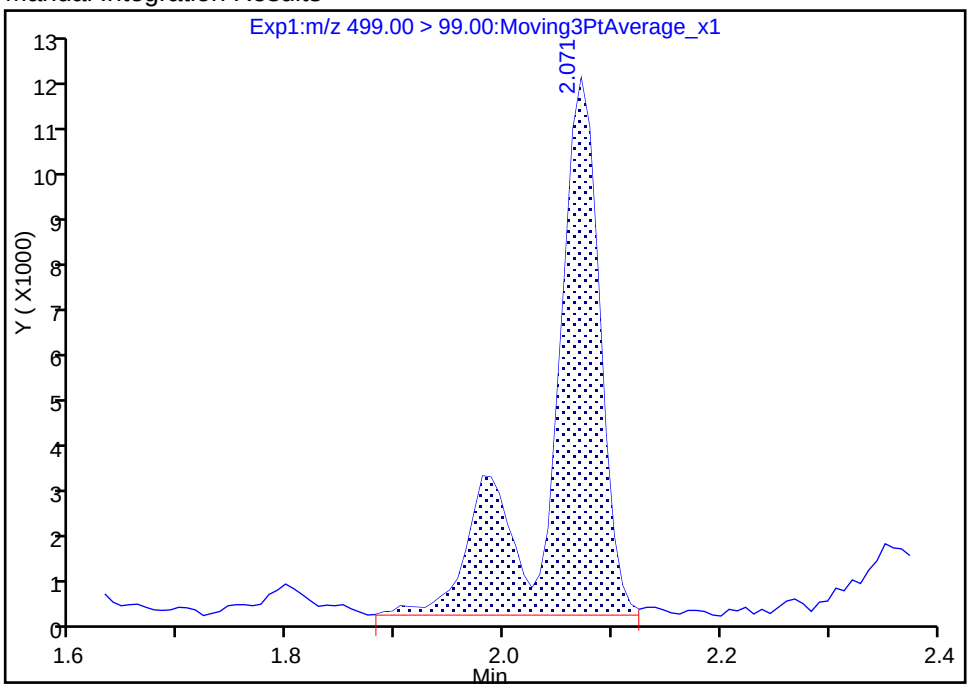
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 36959
Amount: 2.270750
Amount Units: ng/ml



Reviewer: barnettj, 06-Mar-2018 10:06:14
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_008.d

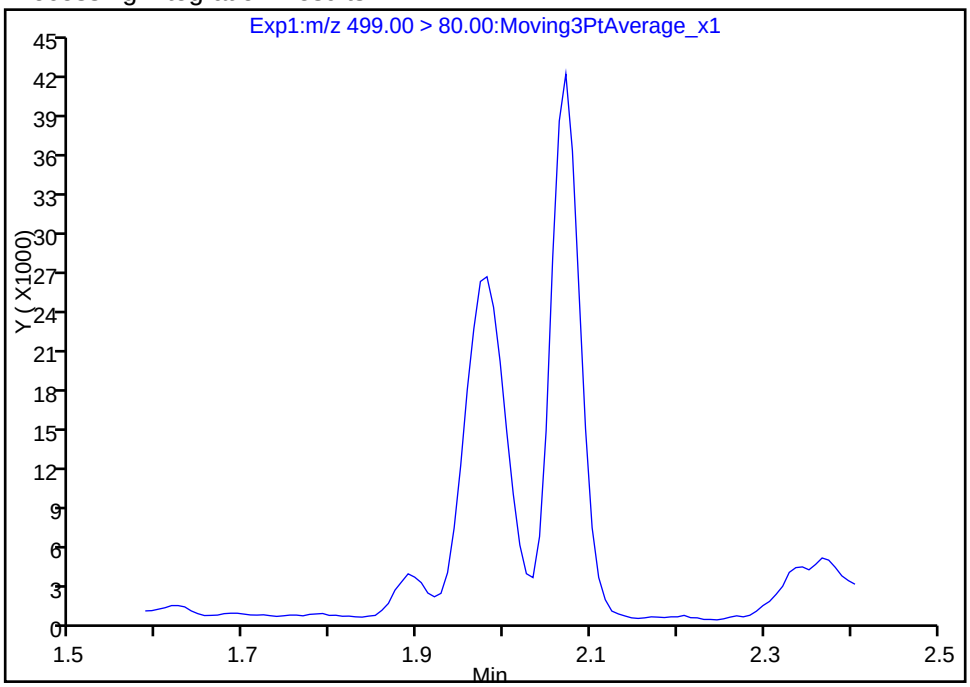
Injection Date:	06-Mar-2018 01:23:51	Instrument ID:	A8_N		
Lims ID:	320-36163-A-1-A	Lab Sample ID:	320-36163-1		
Client ID:	WGNA-021518-RW-4015				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

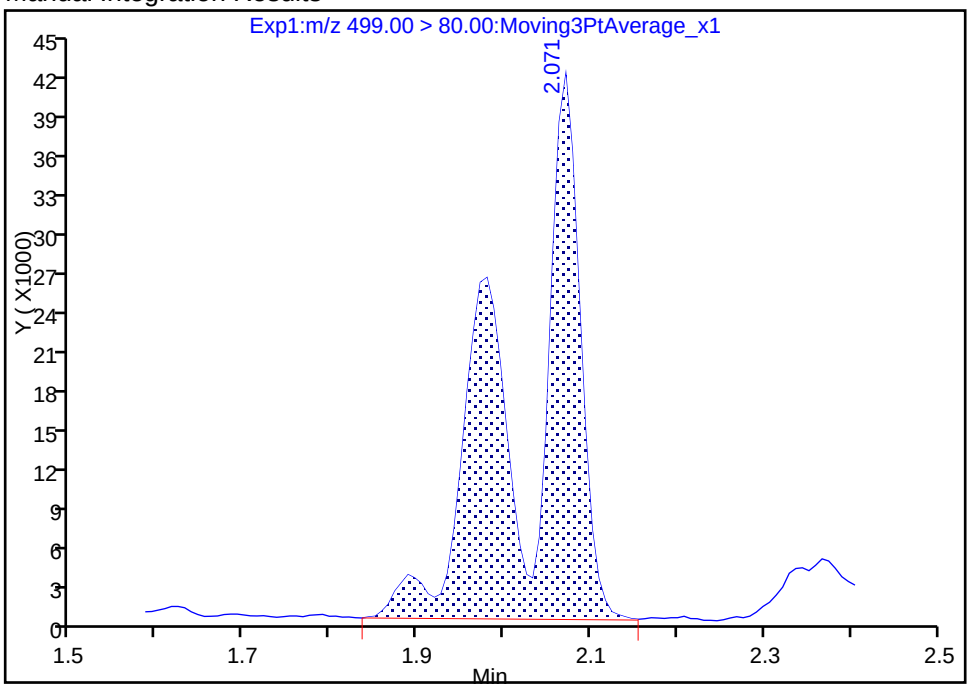
Processing Integration Results

Not Detected
Expected RT: 2.06



Manual Integration Results

RT: 2.07
Area: 197044
Amount: 2.270750
Amount Units: ng/ml



Reviewer: barnettj, 06-Mar-2018 10:06:14
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

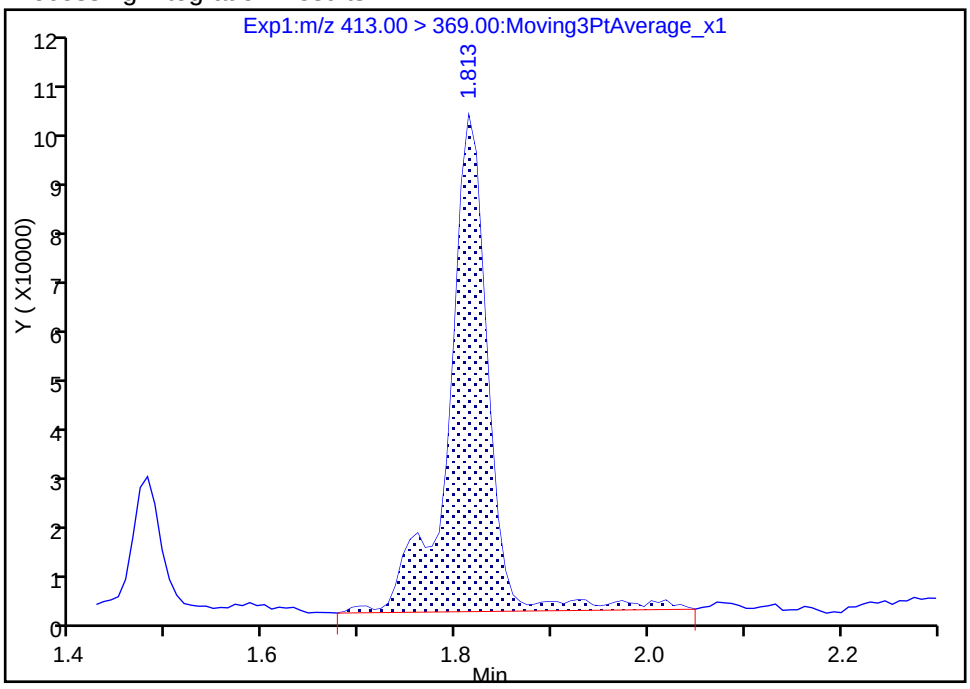
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_008.d				
Injection Date:	06-Mar-2018 01:23:51	Instrument ID:	A8_N		
Lims ID:	320-36163-A-1-A	Lab Sample ID:	320-36163-1		
Client ID:	WGNA-021518-RW-4015				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

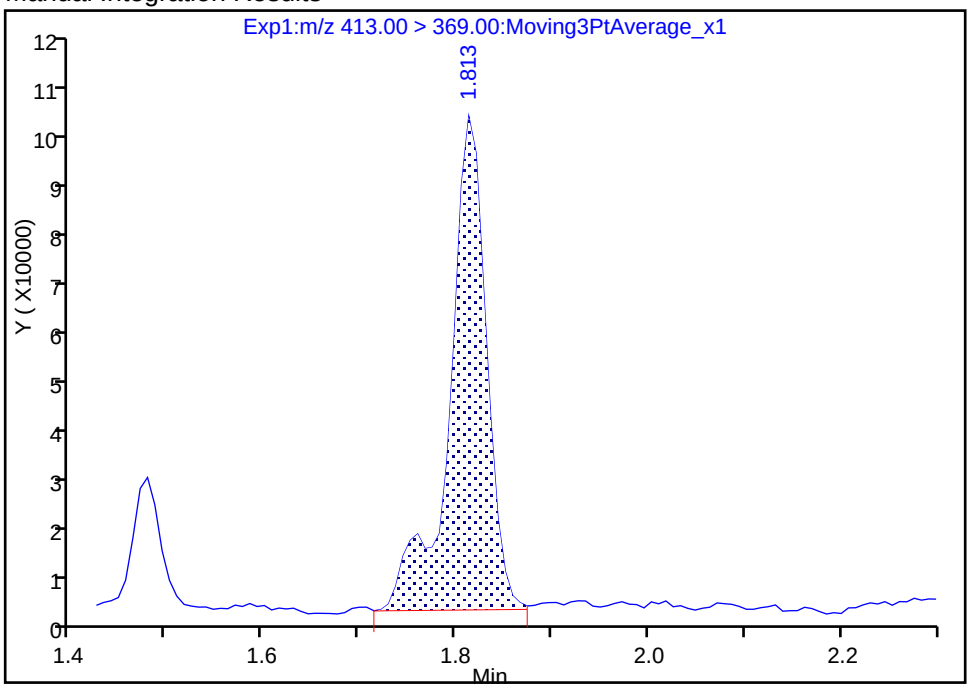
Processing Integration Results

RT: 1.81
Area: 277668
Amount: 3.116115
Amount Units: ng/ml



Manual Integration Results

RT: 1.81
Area: 257332
Amount: 2.887895
Amount Units: ng/ml



Reviewer: barnettj, 06-Mar-2018 10:06:42

Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-4015 | Lab Sample ID: 320-36163-2

Matrix: Water | Lab File ID: 2018.03.05_537B_009.d

Analysis Method: 537 | Date Collected: 02/15/2018 09:35

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.2(mL) | Date Analyzed: 03/06/2018 01:28

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	110		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_009.d
Lims ID: 320-36163-A-2-A
Client ID: WGNA-021518-FRB-4015
Sample Type: Client
Inject. Date: 06-Mar-2018 01:28:32 ALS Bottle#: 4 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1092418	9.55		14152	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.821	-0.008		1039884	10.0		9760	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.079	-0.008		3042130	28.7		6873	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	599688	11.0		4420	

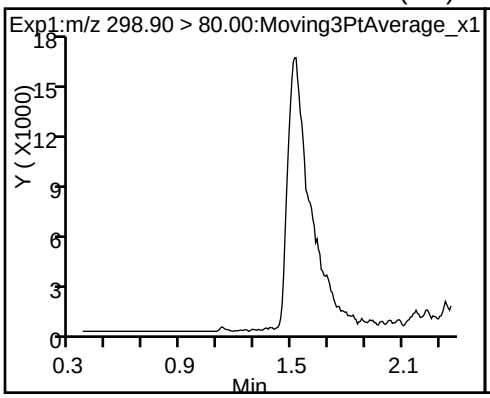
Report Date: 06-Mar-2018 10:24:24 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

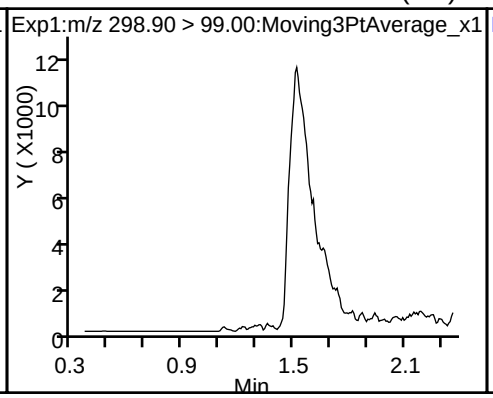
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_009.d

Injection Date:	06-Mar-2018 01:28:32	Instrument ID:	A8_N		
Lims ID:	320-36163-A-2-A	Lab Sample ID:	320-36163-2		
Client ID:	WGNA-021518-FRB-4015				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	4	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

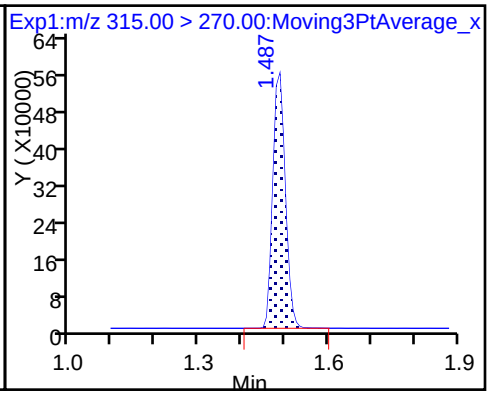
1 Perfluorobutanesulfonic acid (ND)



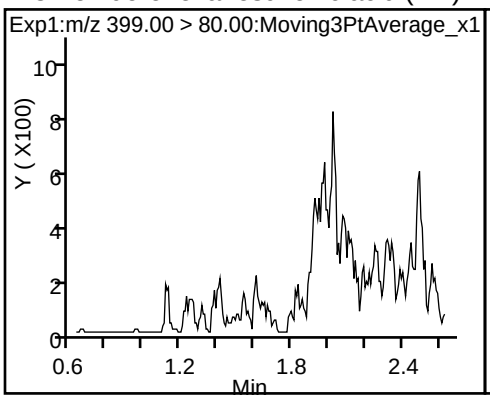
1 Perfluorobutanesulfonic acid (ND)



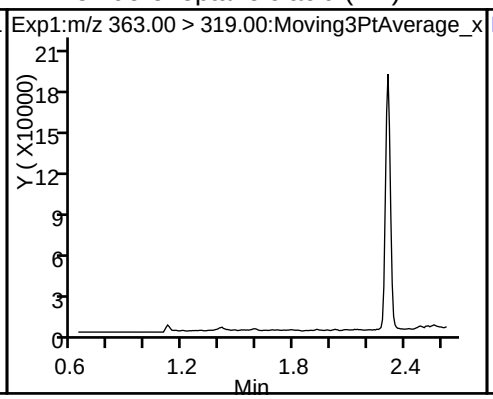
$ 2 13C2 PFHxA



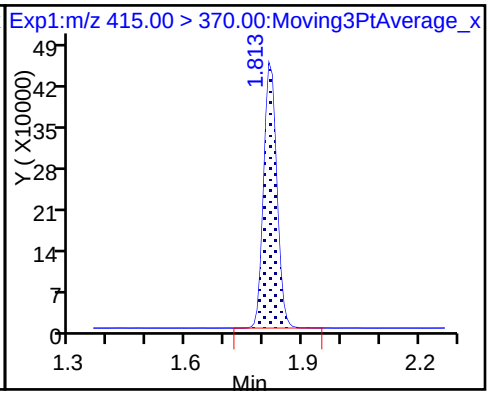
3 Perfluorohexanesulfonic acid (ND)



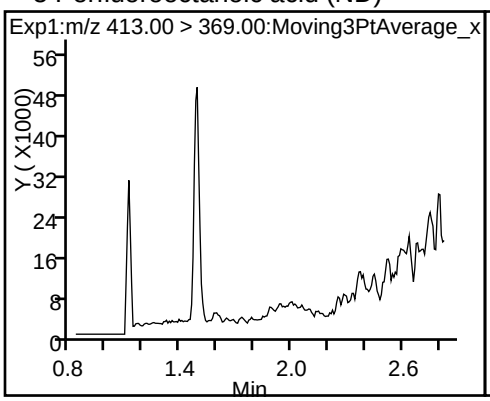
4 Perfluoroheptanoic acid (ND)



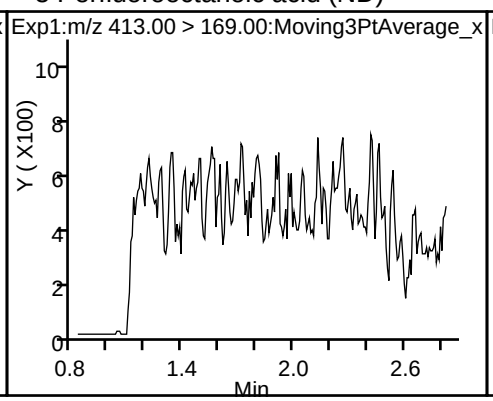
* 6 13C2-PFOA



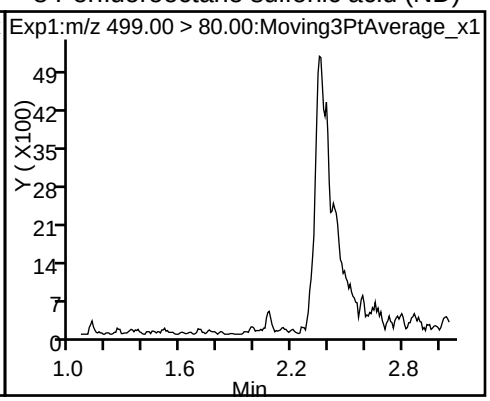
5 Perfluorooctanoic acid (ND)



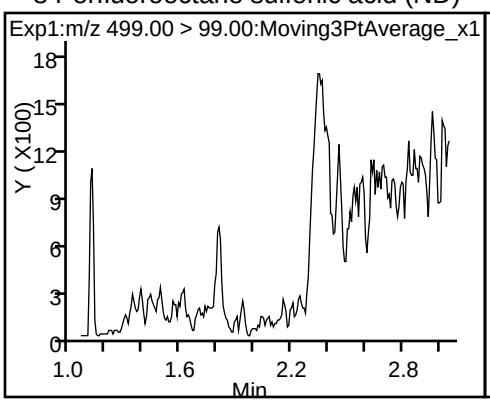
5 Perfluorooctanoic acid (ND)



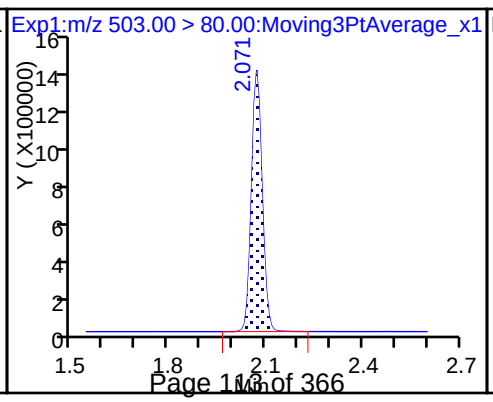
8 Perfluorooctane sulfonic acid (ND)



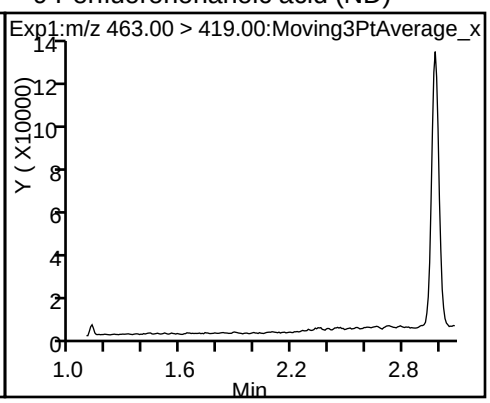
8 Perfluorooctane sulfonic acid (ND)



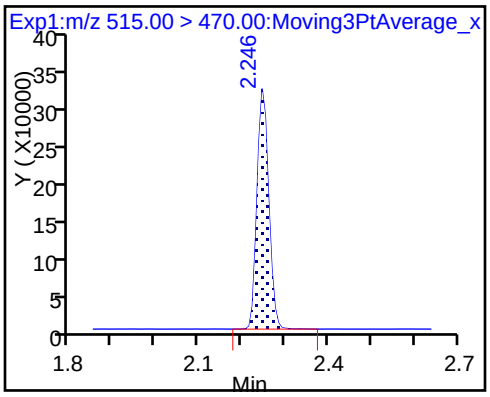
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
40
35
30
25
20
15
10
5
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_009.d				
Lims ID:	320-36163-A-2-A				
Client ID:	WGNA-021518-FRB-4015				
Sample Type:	Client				
Inject. Date:	06-Mar-2018 01:28:32	ALS Bottle#:	4	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-36163-a-2-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	06-Mar-2018 10:24:19	Calib Date:	16-Feb-2018 09:19:04		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK027				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.55	95.51
$ 10 13C2 PFDA	10.0	11.0	110.00

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-RW-152 | Lab Sample ID: 320-36163-3

Matrix: Water | Lab File ID: 2018.03.05_537B_010.d

Analysis Method: 537 | Date Collected: 02/15/2018 10:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 253.3(mL) | Date Analyzed: 03/06/2018 01:33

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	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)	4.6	J	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	82		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_010.d
Lims ID: 320-36163-A-3-A
Client ID: NAWC-021518-RW-152
Sample Type: Client
Inject. Date: 06-Mar-2018 01:33:14 ALS Bottle#: 5 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: barnettj Date: 06-Mar-2018 10:07:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.366	-0.008	1.000	149733	0.9530		47.8	
298.90 > 99.00	1.358	1.366	-0.008	1.000	101554		1.47(0.00-0.00)	50.3	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1075481	8.23		13508	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	204571	1.06		88.7	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	135340	1.17		8.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.821	-0.015		1188501	10.0		9457	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.828	-0.015	1.000	382177	3.34		10.8	
413.00 > 169.00	1.806	1.828	-0.022	0.996	223657		1.71(0.00-0.00)	189	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.064	2.056	0.008	1.000	321878	2.85		72.0	a
499.00 > 99.00	2.064	2.056	0.008	1.000	59499		5.41(0.00-0.00)	22.6	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.079	-0.015		3424260	28.7		2879	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	690948	11.1		4701	

QC Flag Legend

Review Flags

a - User Assigned ID

Report Date: 06-Mar-2018 10:24:25 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_010.d

Injection Date: 06-Mar-2018 01:33:14 Instrument ID: A8_N

Lims ID: 320-36163-A-3-A Lab Sample ID: 320-36163-3

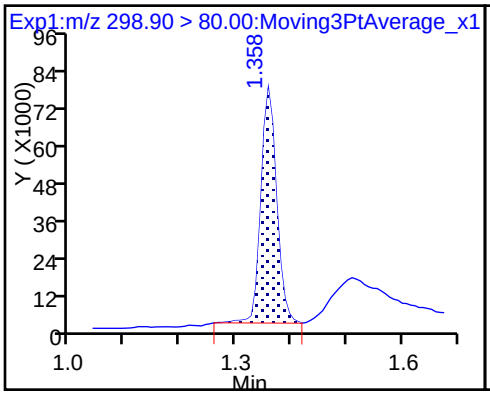
Client ID: NAWC-021518-RW-152

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 7

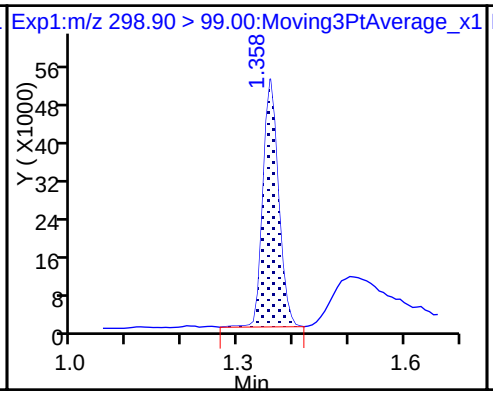
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

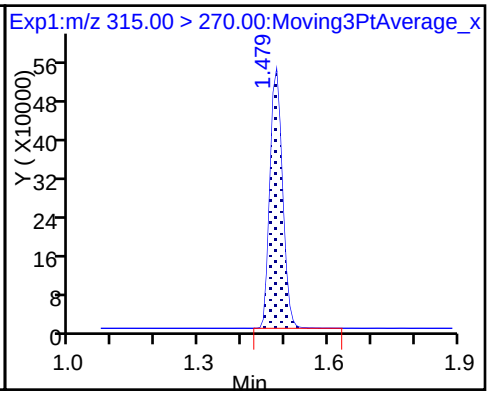
1 Perfluorobutanesulfonic acid



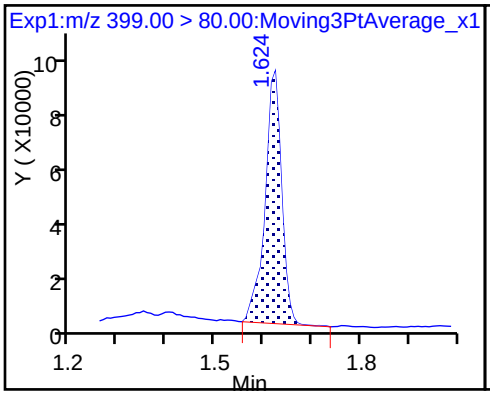
1 Perfluorobutanesulfonic acid



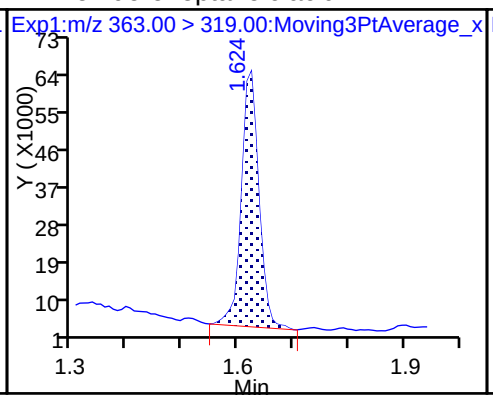
$ 2 13C2 PFHxA



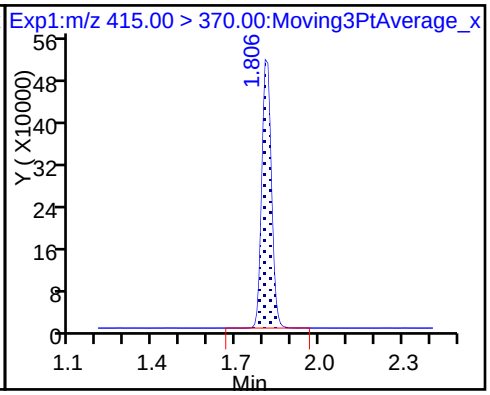
3 Perfluorohexanesulfonic acid



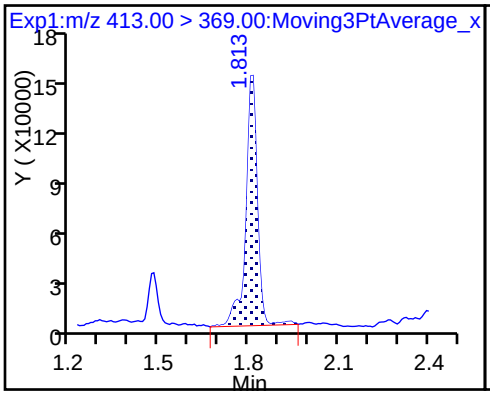
4 Perfluoroheptanoic acid



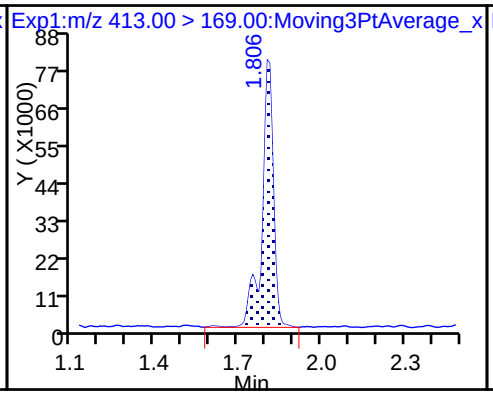
* 6 13C2-PFOA



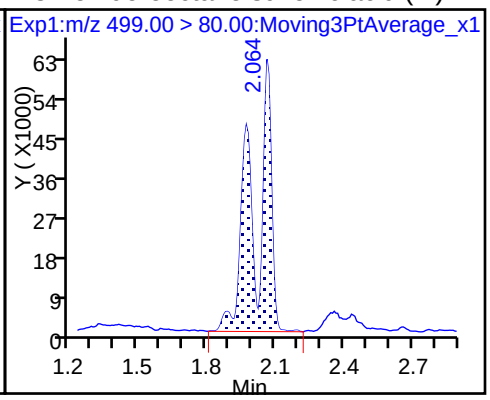
5 Perfluorooctanoic acid



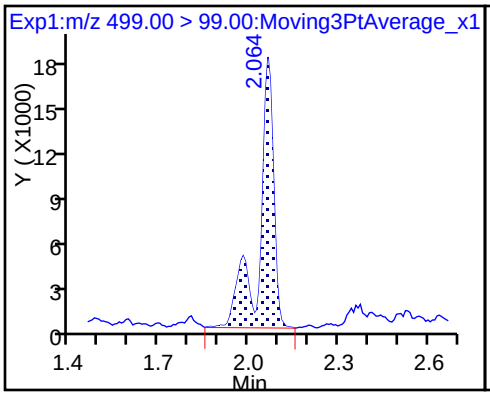
5 Perfluorooctanoic acid



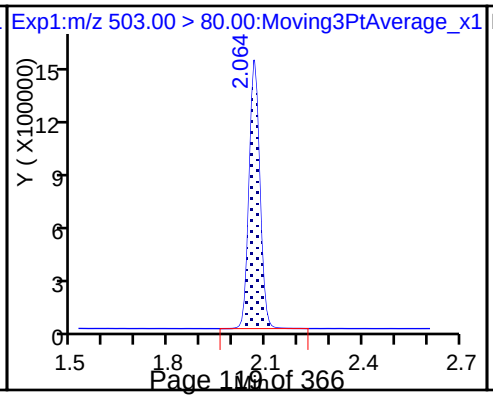
8 Perfluorooctane sulfonic acid (M)



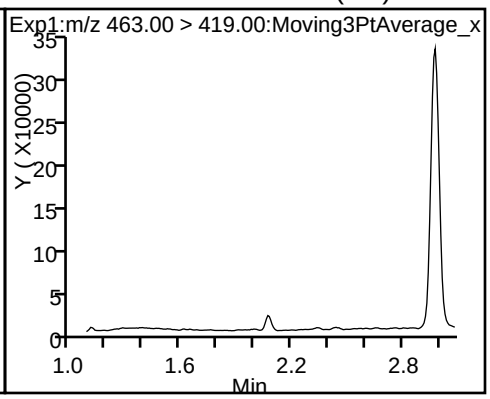
8 Perfluorooctane sulfonic acid



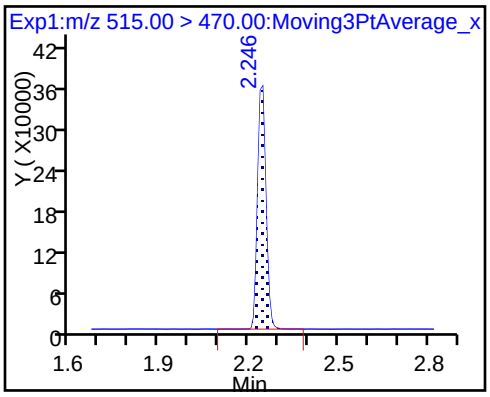
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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Y (X10000)
42
36
30
24
18
12
6
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_010.d				
Lims ID:	320-36163-A-3-A				
Client ID:	NAWC-021518-RW-152				
Sample Type:	Client				
Inject. Date:	06-Mar-2018 01:33:14	ALS Bottle#:	5	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-36163-a-3-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	06-Mar-2018 10:24:19	Calib Date:	16-Feb-2018 09:19:04		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK027				

First Level Reviewer: barnettj Date: 06-Mar-2018 10:07:46

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.23	82.27
$ 10 13C2 PFDA	10.0	11.1	110.89

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

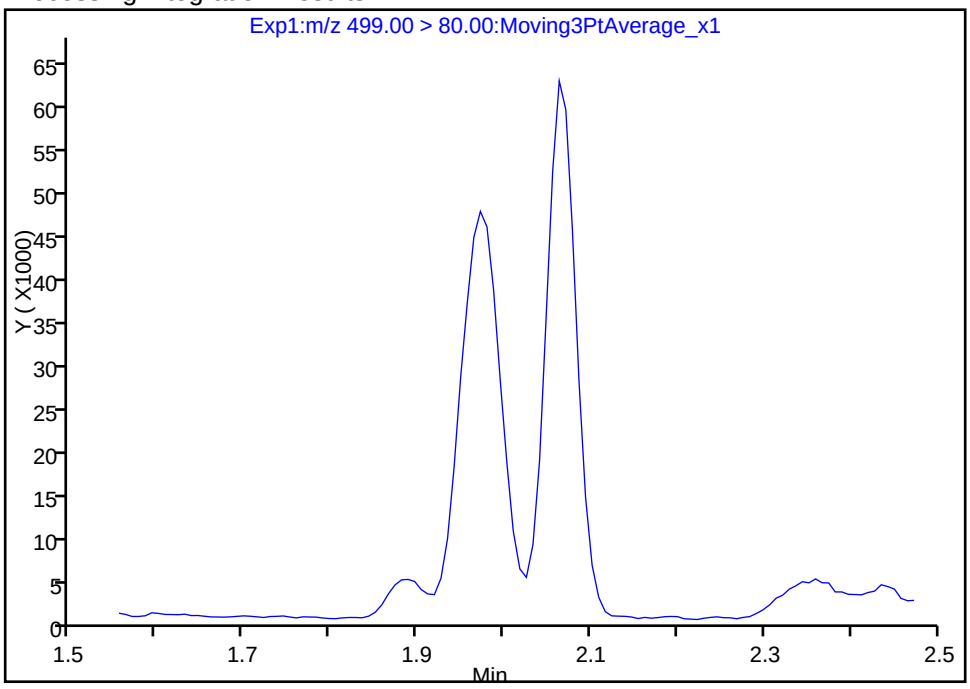
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_010.d				
Injection Date:	06-Mar-2018 01:33:14	Instrument ID:	A8_N		
Lims ID:	320-36163-A-3-A	Lab Sample ID:	320-36163-3		
Client ID:	NAWC-021518-RW-152				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

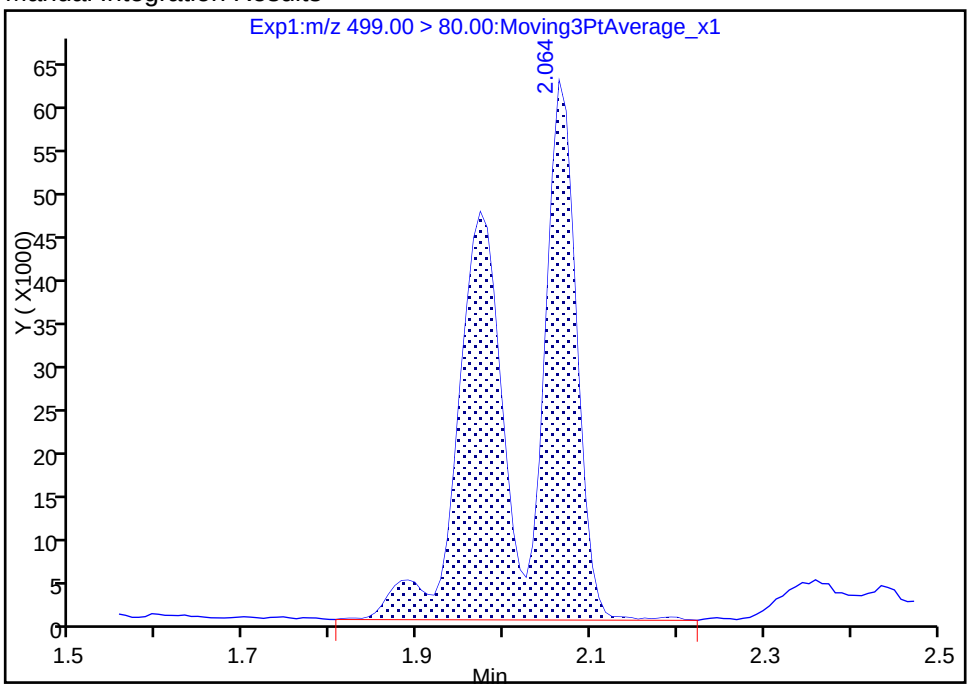
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 321878
Amount: 2.851183
Amount Units: ng/ml



Reviewer: barnettj, 06-Mar-2018 10:07:35
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-FRB-152 | Lab Sample ID: 320-36163-4

Matrix: Water | Lab File ID: 2018.03.05_537B_013.d

Analysis Method: 537 | Date Collected: 02/15/2018 10:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 260.1(mL) | Date Analyzed: 03/06/2018 01:47

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_013.d
Lims ID: 320-36163-A-4-A
Client ID: NAWC-021518-FRB-152
Sample Type: Client
Inject. Date: 06-Mar-2018 01:47:16 ALS Bottle#: 8 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-4-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	915865	8.88		12771	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.821	-0.015		937414	10.0		8195	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.079	-0.015		2786487	28.7		7774	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	491227	10.0		3393	

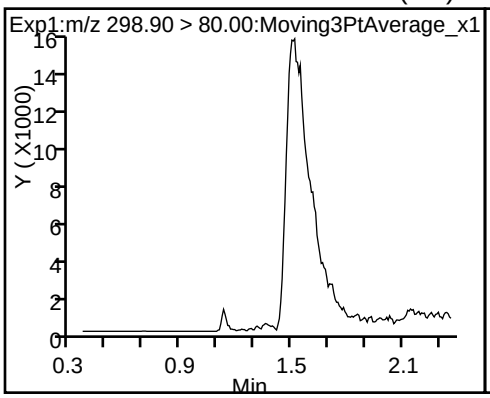
Report Date: 06-Mar-2018 10:24:27 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

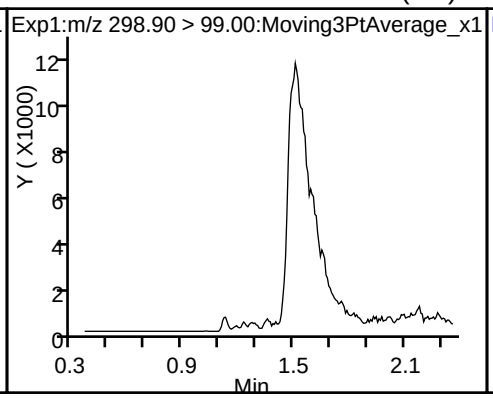
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_013.d

Injection Date:	06-Mar-2018 01:47:16	Instrument ID:	A8_N		
Lims ID:	320-36163-A-4-A	Lab Sample ID:	320-36163-4		
Client ID:	NAWC-021518-FRB-152				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	8	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

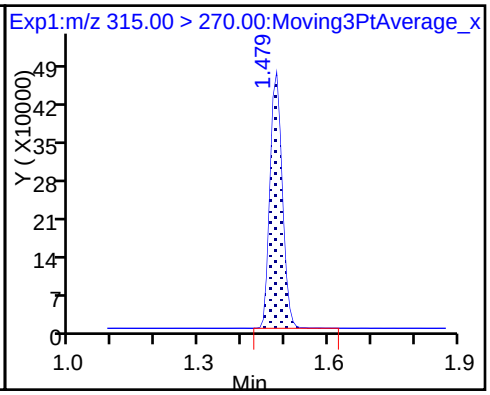
1 Perfluorobutanesulfonic acid (ND)



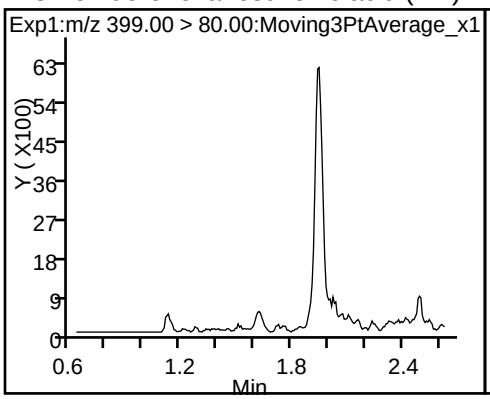
1 Perfluorobutanesulfonic acid (ND)



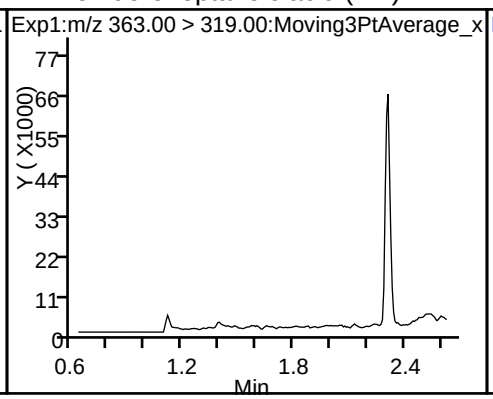
$ 2 13C2 PFHxA



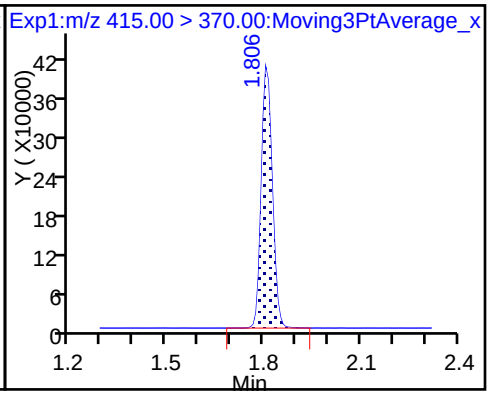
3 Perfluorohexanesulfonic acid (ND)



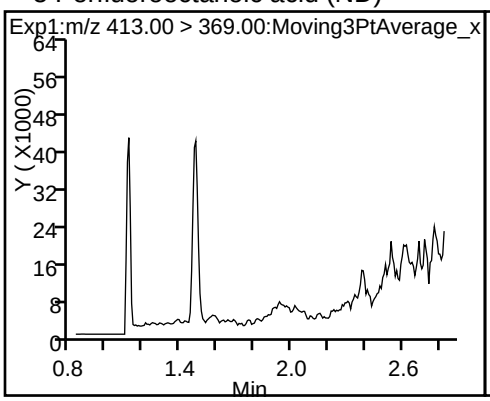
4 Perfluoroheptanoic acid (ND)



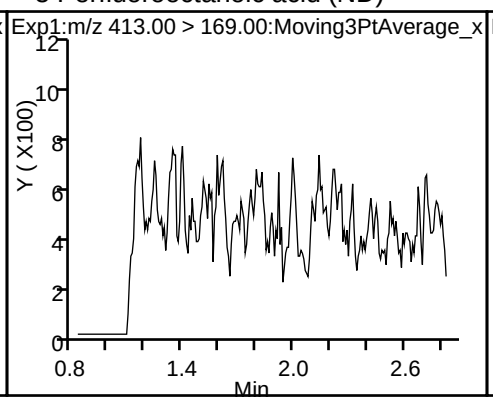
* 6 13C2-PFOA



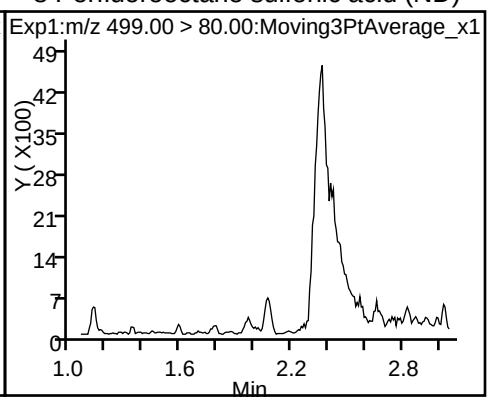
5 Perfluorooctanoic acid (ND)



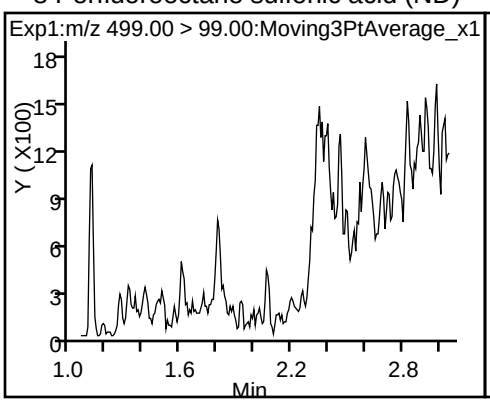
5 Perfluorooctanoic acid (ND)



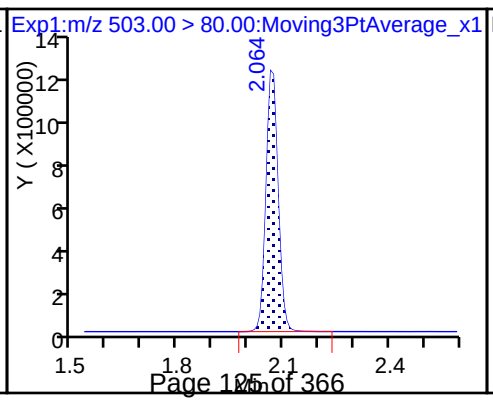
8 Perfluorooctane sulfonic acid (ND)



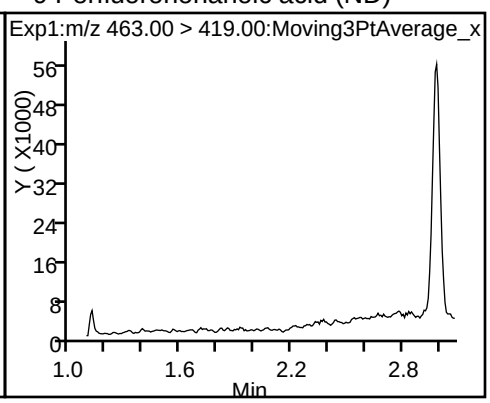
8 Perfluorooctane sulfonic acid (ND)



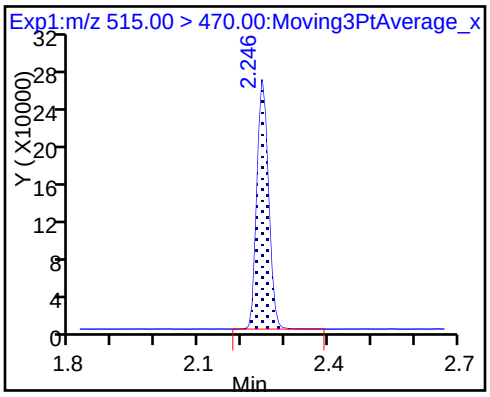
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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Y (X10000)
32
28
24
20
16
12
8
4
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_013.d				
Lims ID:	320-36163-A-4-A				
Client ID:	NAWC-021518-FRB-152				
Sample Type:	Client				
Inject. Date:	06-Mar-2018 01:47:16	ALS Bottle#:	8	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-36163-a-4-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	06-Mar-2018 10:24:19	Calib Date:	16-Feb-2018 09:19:04		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK027				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.88	88.83
$ 10 13C2 PFDA	10.0	10.0	99.95

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-3124 | Lab Sample ID: 320-36163-5

Matrix: Water | Lab File ID: 2018.03.05_537B_014.d

Analysis Method: 537 | Date Collected: 02/15/2018 11:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.5(mL) | Date Analyzed: 03/06/2018 01:51

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J M	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.4	J	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J	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	74		70-130
STL00996	13C2 PFDA	105		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_014.d
Lims ID: 320-36163-A-5-A
Client ID: WGNA-021518-RW-3124
Sample Type: Client
Inject. Date: 06-Mar-2018 01:51:56 ALS Bottle#: 9 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-5-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: barnettj Date: 06-Mar-2018 10:13:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.366	-0.008	1.000	100690	0.6173		29.7	
298.90 > 99.00	1.358	1.366	-0.008	1.000	63243		1.59(0.00-0.00)	30.3	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1014567	7.35		13207	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.631	-0.015	1.000	384535	1.93		170	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.631	-0.015	1.000	135665	1.11		12.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.821	-0.015		1254281	10.0		11696	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.828	-0.022	1.000	410827	3.40		12.1	
413.00 > 169.00	1.806	1.828	-0.022	1.000	235303		1.75(0.00-0.00)	213	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.064	2.056	0.008	1.000	464509	3.97		140	M
499.00 > 99.00	2.064	2.056	0.008	1.000	90577		5.13(0.00-0.00)	39.1	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.079	-0.015		3552723	28.7		3190	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.253	-0.015	1.000	690060	10.5		5674	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

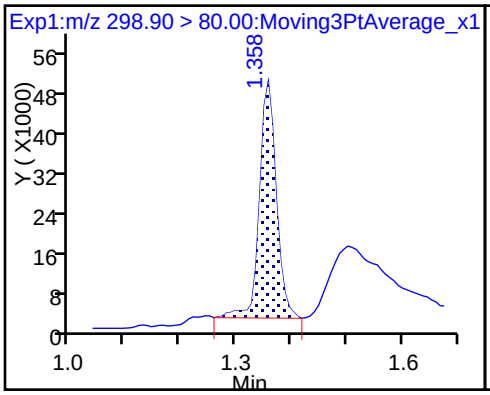
Report Date: 06-Mar-2018 10:24:28 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

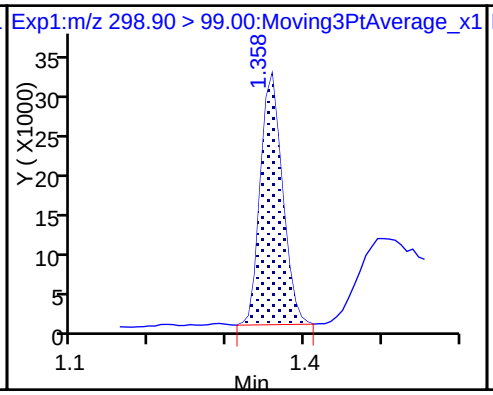
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_014.d

Injection Date:	06-Mar-2018 01:51:56	Instrument ID:	A8_N		
Lims ID:	320-36163-A-5-A	Lab Sample ID:	320-36163-5		
Client ID:	WGNA-021518-RW-3124				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	9	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

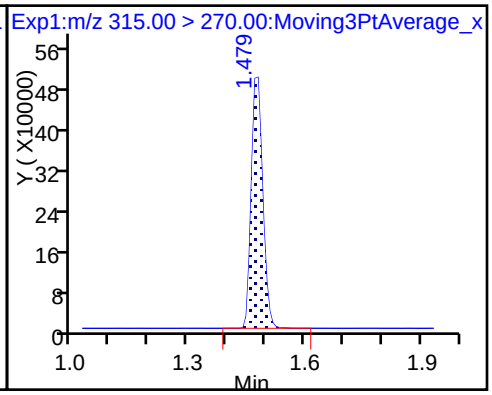
1 Perfluorobutanesulfonic acid



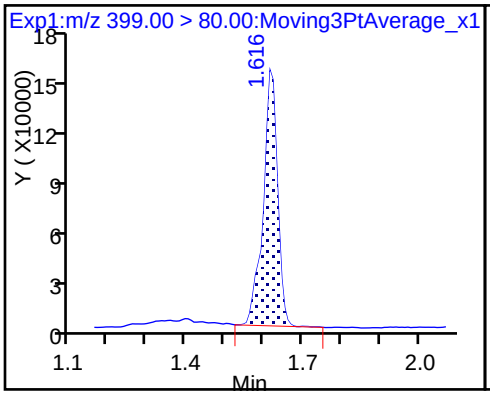
1 Perfluorobutanesulfonic acid



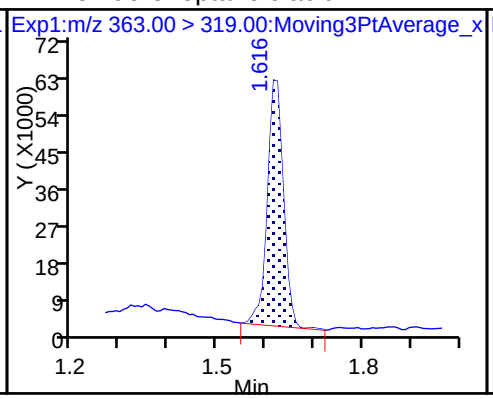
$ 2 13C2 PFHxA



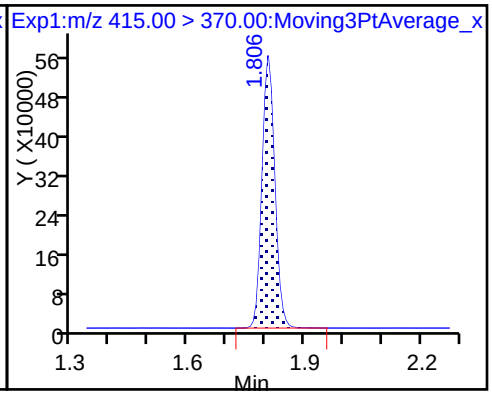
3 Perfluorohexanesulfonic acid



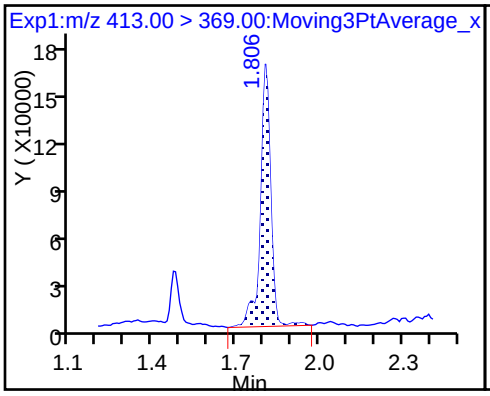
4 Perfluoroheptanoic acid



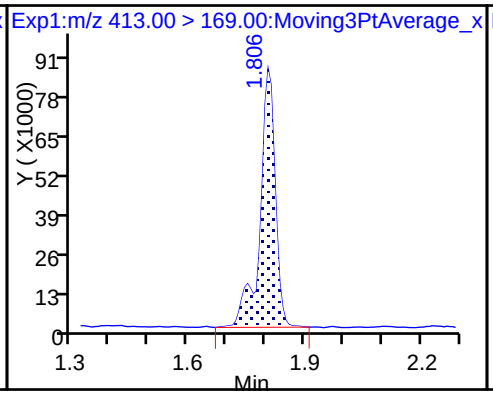
* 6 13C2-PFOA



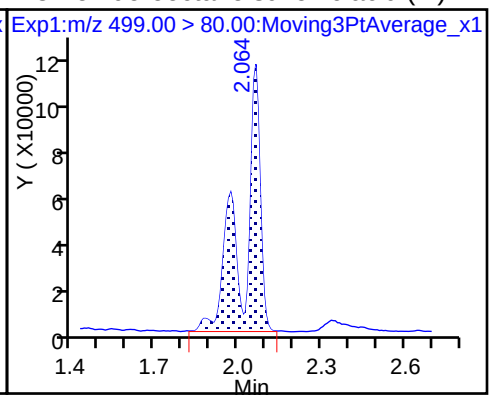
5 Perfluorooctanoic acid



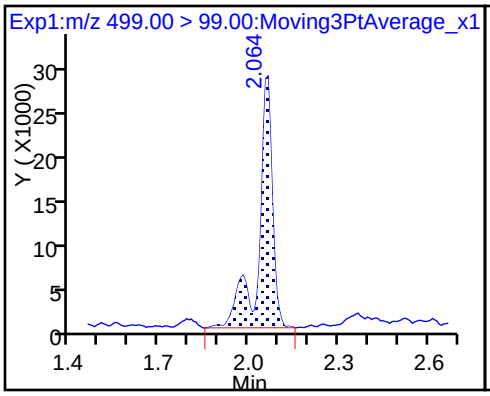
5 Perfluorooctanoic acid



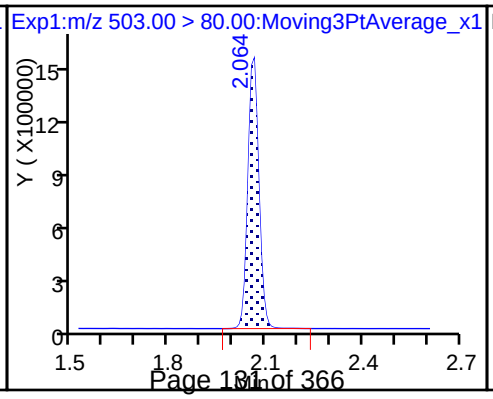
8 Perfluorooctane sulfonic acid (M)



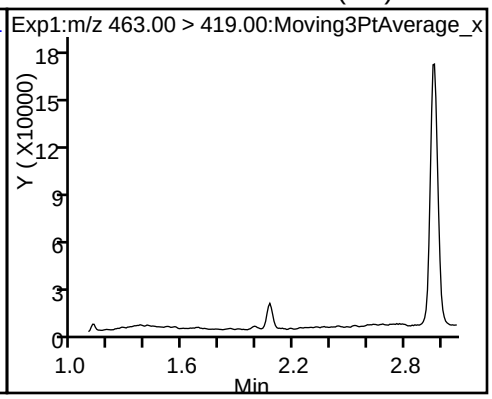
8 Perfluorooctane sulfonic acid



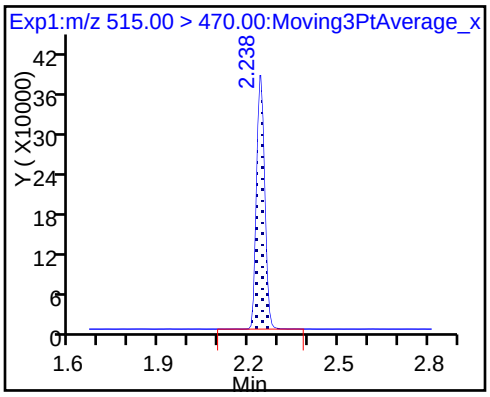
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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Y (X10000)
42
36
30
24
18
12
6
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_014.d
Lims ID: 320-36163-A-5-A
Client ID: WGNA-021518-RW-3124
Sample Type: Client
Inject. Date: 06-Mar-2018 01:51:56 ALS Bottle#: 9 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-5-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: barnettj Date: 06-Mar-2018 10:13:21

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.35	73.54
$ 10 13C2 PFDA	10.0	10.5	104.94

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

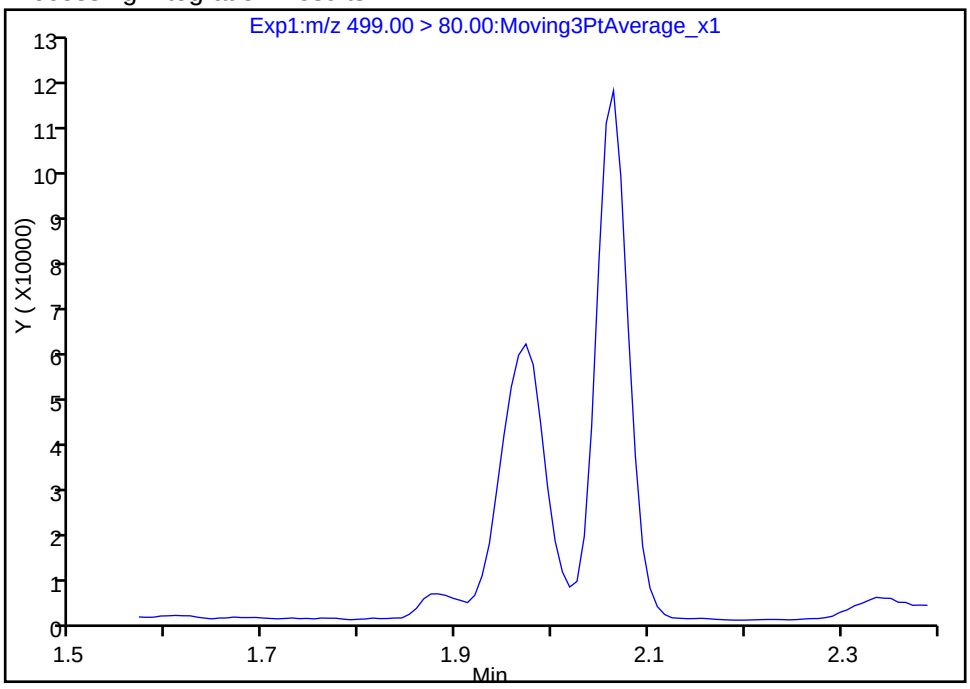
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_014.d				
Injection Date:	06-Mar-2018 01:51:56	Instrument ID:	A8_N		
Lims ID:	320-36163-A-5-A	Lab Sample ID:	320-36163-5		
Client ID:	WGNA-021518-RW-3124				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	9	Worklist Smp#:	11
Injection 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

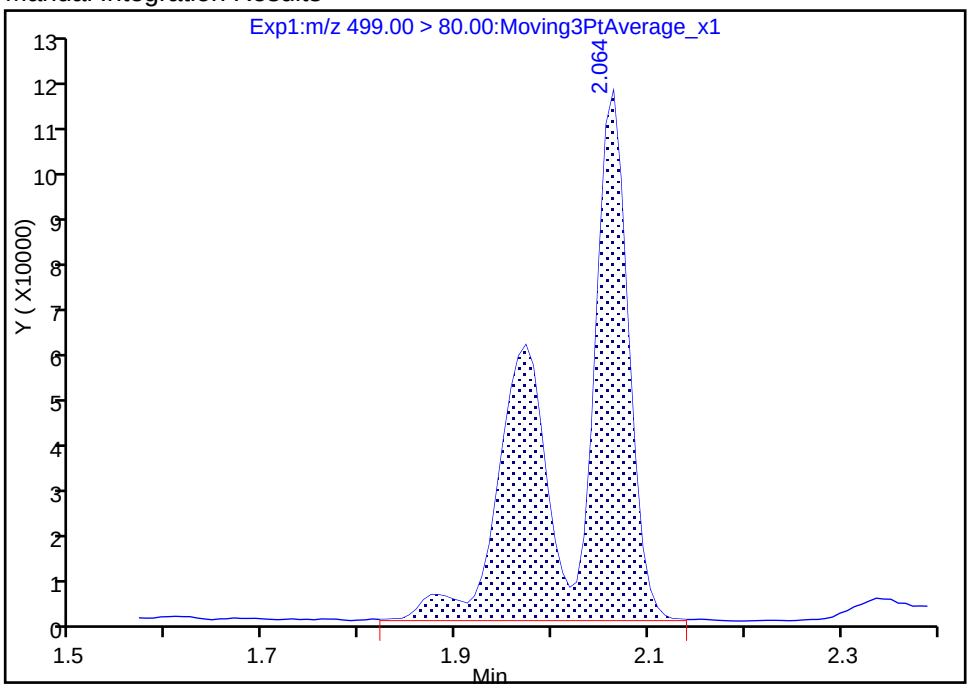
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 464509
Amount: 3.965823
Amount Units: ng/ml



Reviewer: barnettj, 06-Mar-2018 10:09:18
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-3124 | Lab Sample ID: 320-36163-6

Matrix: Water | Lab File ID: 2018.03.05_537B_015.d

Analysis Method: 537 | Date Collected: 02/15/2018 11:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 260.2(mL) | Date Analyzed: 03/06/2018 01:56

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	86	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_015.d
Lims ID: 320-36163-A-6-A
Client ID: WGNA-021518-FRB-3124
Sample Type: Client
Inject. Date: 06-Mar-2018 01:56:35 ALS Bottle#: 10 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-6-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1214098	8.96		16778	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.821	-0.015		1231289	10.0		10180	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.079	-0.023		3427054	28.7		6692	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.253	-0.015	1.000	702455	10.9		5235	

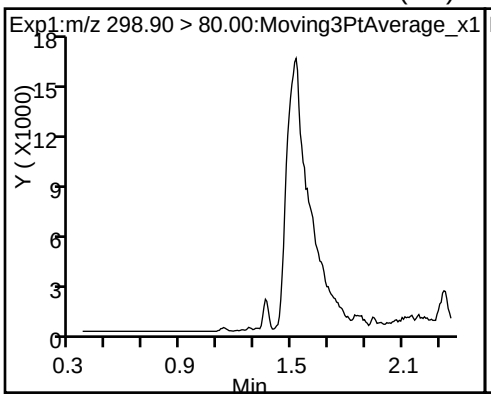
Report Date: 06-Mar-2018 10:24:29 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

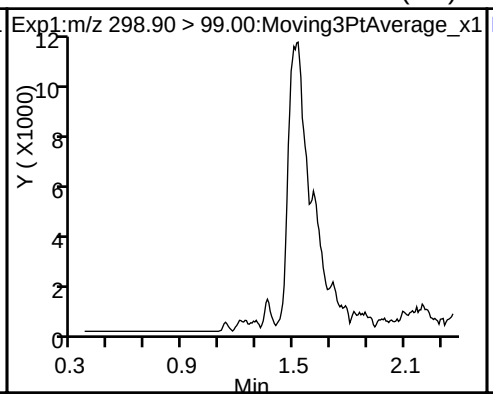
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_015.d

Injection Date:	06-Mar-2018 01:56:35	Instrument ID:	A8_N		
Lims ID:	320-36163-A-6-A	Lab Sample ID:	320-36163-6		
Client ID:	WGNA-021518-FRB-3124				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

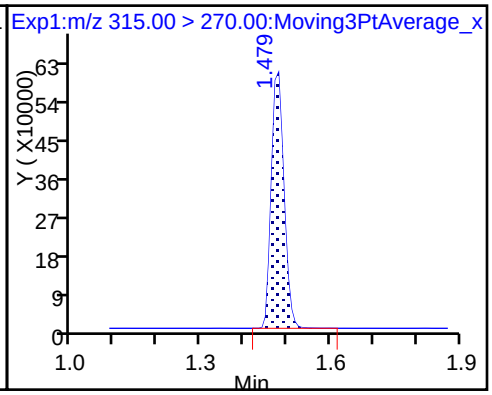
1 Perfluorobutanesulfonic acid (ND)



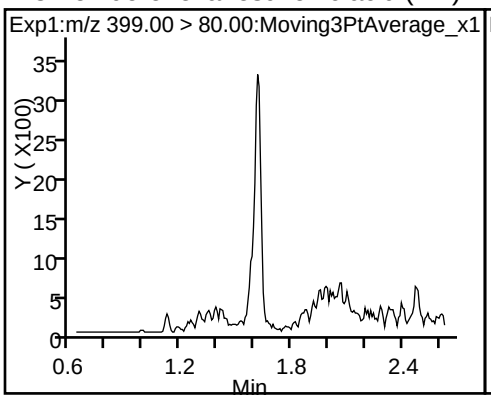
1 Perfluorobutanesulfonic acid (ND)



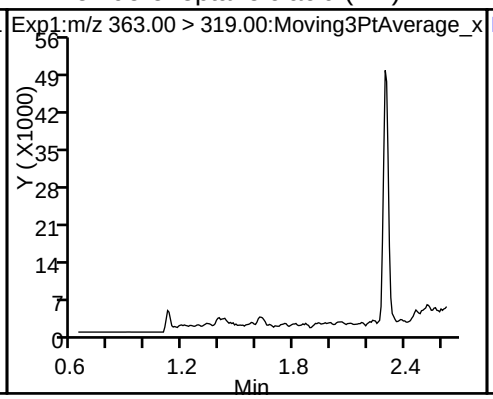
$ 2 13C2 PFHxA



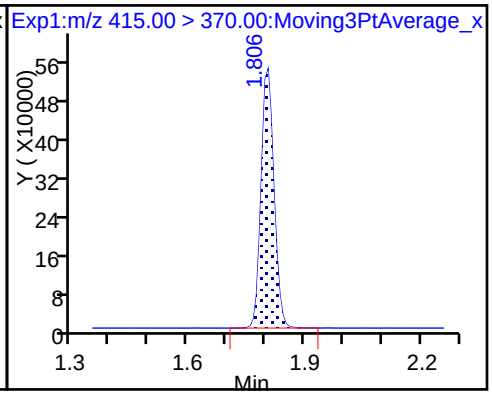
3 Perfluorohexanesulfonic acid (ND)



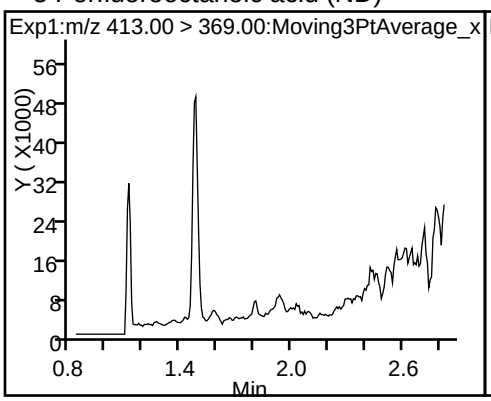
4 Perfluoroheptanoic acid (ND)



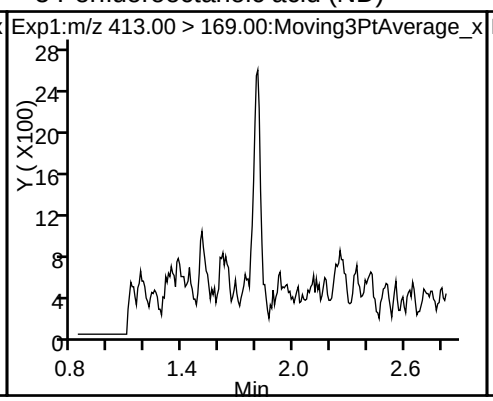
* 6 13C2-PFOA



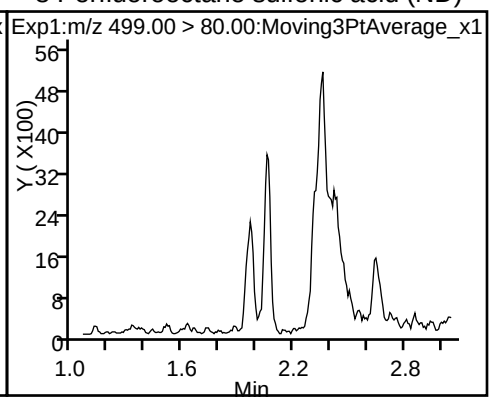
5 Perfluorooctanoic acid (ND)



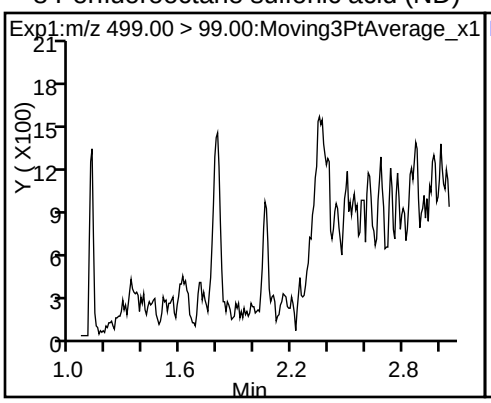
5 Perfluorooctanoic acid (ND)



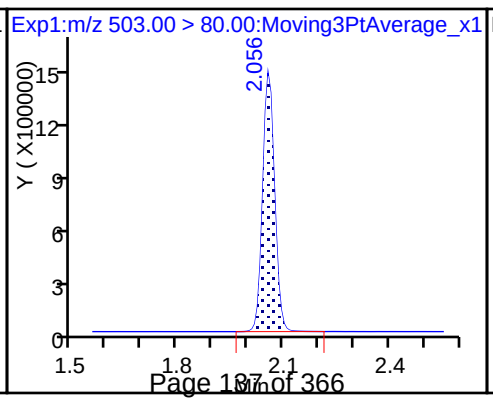
8 Perfluorooctane sulfonic acid (ND)



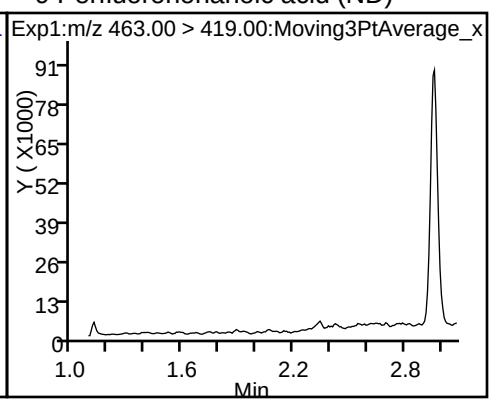
8 Perfluorooctane sulfonic acid (ND)



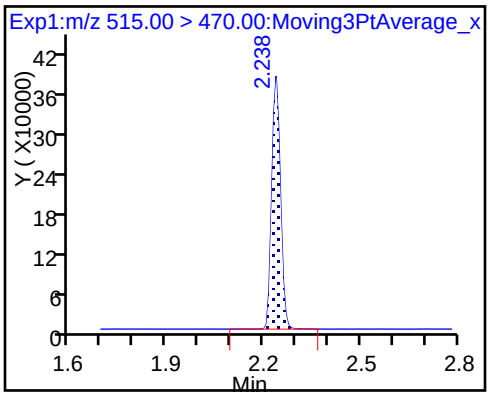
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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Y (X10000)
42
36
30
24
18
12
6
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_015.d				
Lims ID:	320-36163-A-6-A				
Client ID:	WGNA-021518-FRB-3124				
Sample Type:	Client				
Inject. Date:	06-Mar-2018 01:56:35	ALS Bottle#:	10	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-36163-a-6-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	06-Mar-2018 10:24:19	Calib Date:	16-Feb-2018 09:19:04		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK027				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.96	89.65
$ 10 13C2 PFDA	10.0	10.9	108.82

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-4842 | Lab Sample ID: 320-36163-7

Matrix: Water | Lab File ID: 2018.03.06_537AA_051.d

Analysis Method: 537 | Date Collected: 02/15/2018 11:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 252.4(mL) | Date Analyzed: 03/06/2018 21:21

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	13	J M	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	15	J	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.9	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	83		70-130
STL00996	13C2 PFDA	121		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_051.d
Lims ID: 320-36163-A-7-A
Client ID: WGNA-021518-RW-4842
Sample Type: Client
Inject. Date: 06-Mar-2018 21:21:10 ALS Bottle#: 33 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-7-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:51:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	158989	1.37		143	
298.90 > 99.00	1.366	1.366	0.0	1.000	114684		1.39(0.00-0.00)	176	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	851959	8.34		11055	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	227416	1.60		154	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	111370	1.23		19.8	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.821	-0.008		928888	10.0		9720	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.821	-0.008	1.000	345951	3.87		14.6	
413.00 > 169.00	1.813	1.821	-0.008	1.000	217020		1.59(0.00-0.00)	143	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.071	2.064	0.007	1.000	269678	3.23		77.6	M
499.00 > 99.00	2.079	2.064	0.015	1.004	42238		6.38(0.00-0.00)	25.4	M
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.079	-0.008		2533666	28.7		3769	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	590957	12.1		6639	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 07-Mar-2018 10:05:52 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_051.d

Injection Date: 06-Mar-2018 21:21:10 Instrument ID: A8_N

Lims ID: 320-36163-A-7-A Lab Sample ID: 320-36163-7

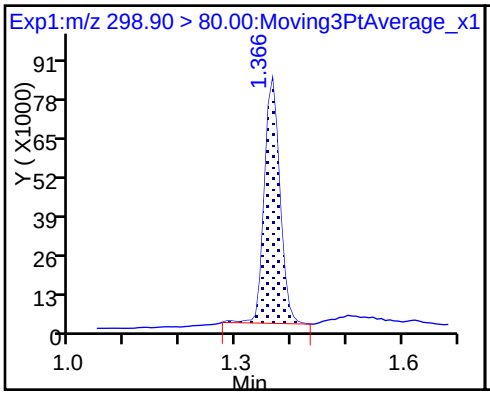
Client ID: WGNA-021518-RW-4842

Operator ID: SACINSTLCMS01 ALS Bottle#: 33 Worklist Smp#: 3

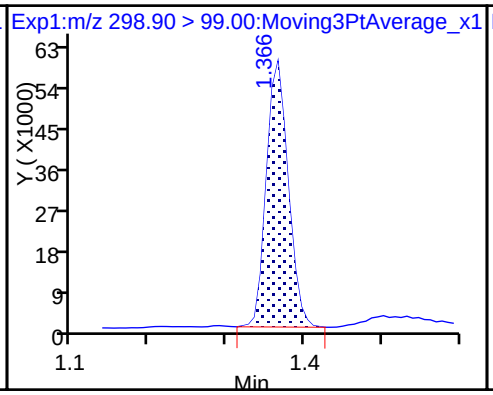
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

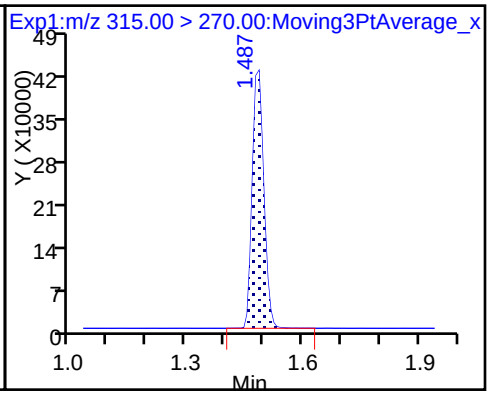
1 Perfluorobutanesulfonic acid



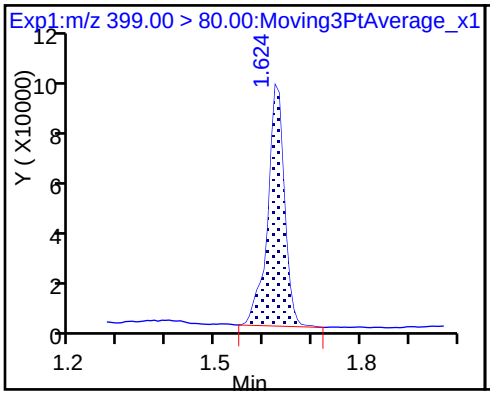
1 Perfluorobutanesulfonic acid



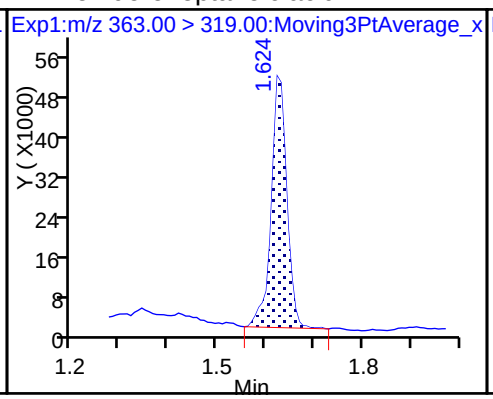
$ 2 13C2 PFHxA



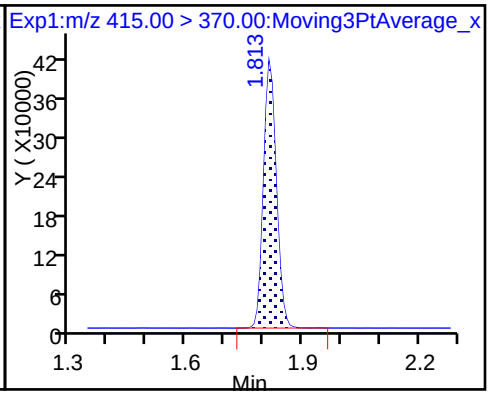
3 Perfluorohexanesulfonic acid



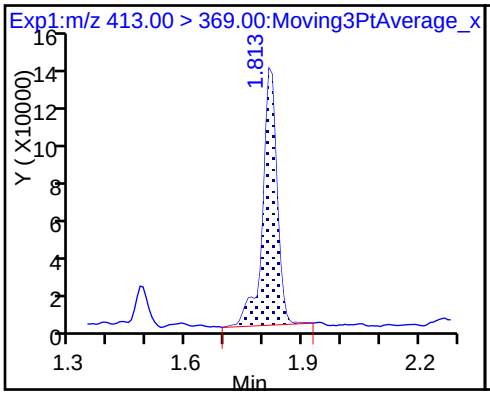
4 Perfluoroheptanoic acid



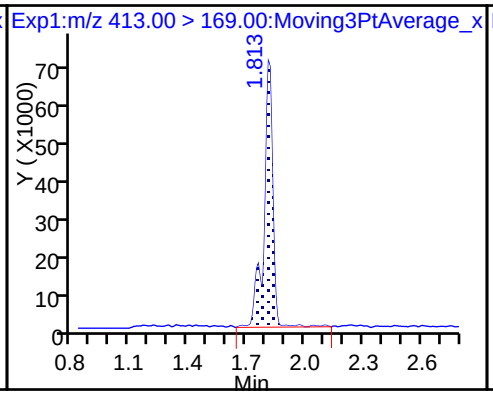
* 6 13C2-PFOA



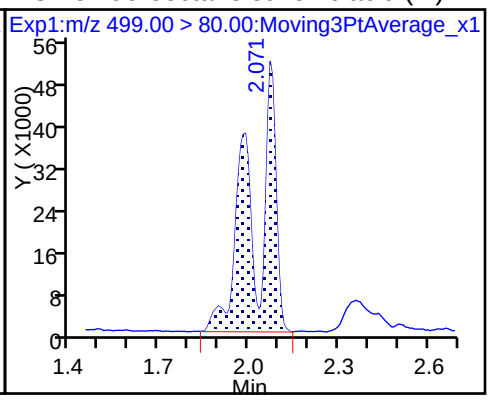
5 Perfluorooctanoic acid



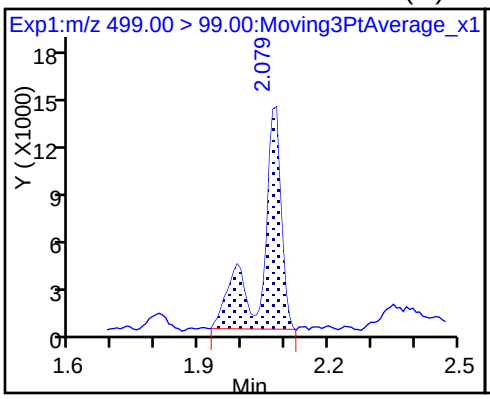
5 Perfluorooctanoic acid



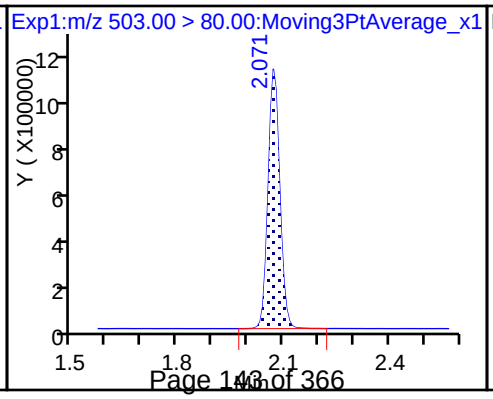
8 Perfluorooctane sulfonic acid (M)



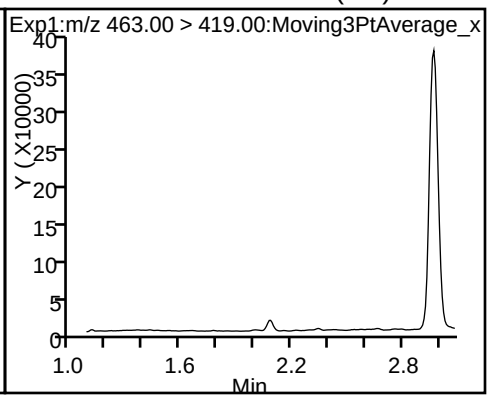
8 Perfluorooctane sulfonic acid (M)



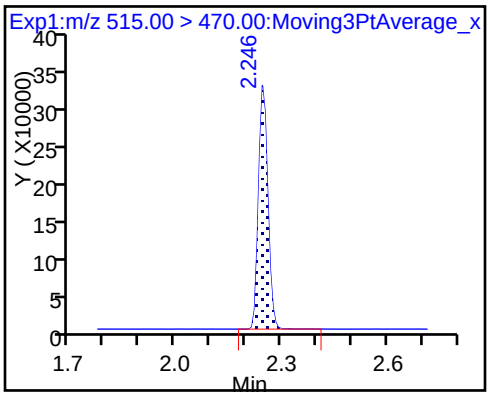
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
40
35
30
25
20
15
10
5
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_051.d
Lims ID: 320-36163-A-7-A
Client ID: WGNA-021518-RW-4842
Sample Type: Client
Inject. Date: 06-Mar-2018 21:21:10 ALS Bottle#: 33 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-7-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:51:47

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.34	83.39
$ 10 13C2 PFDA	10.0	12.1	121.35

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

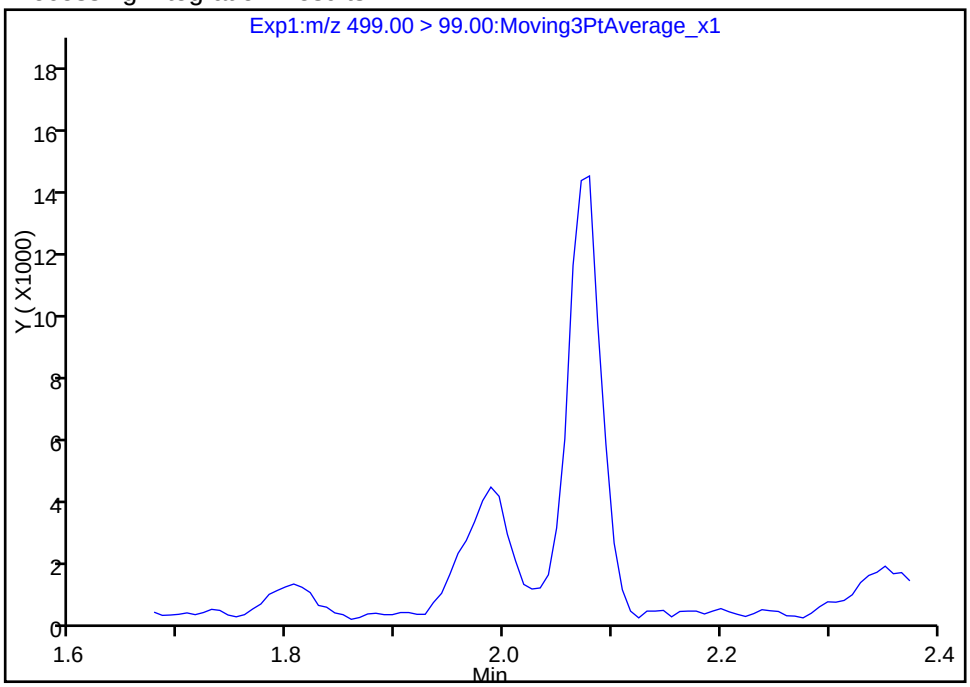
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_051.d				
Injection Date:	06-Mar-2018 21:21:10	Instrument ID:	A8_N		
Lims ID:	320-36163-A-7-A	Lab Sample ID:	320-36163-7		
Client ID:	WGNA-021518-RW-4842				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	33	Worklist Smp#:	3
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

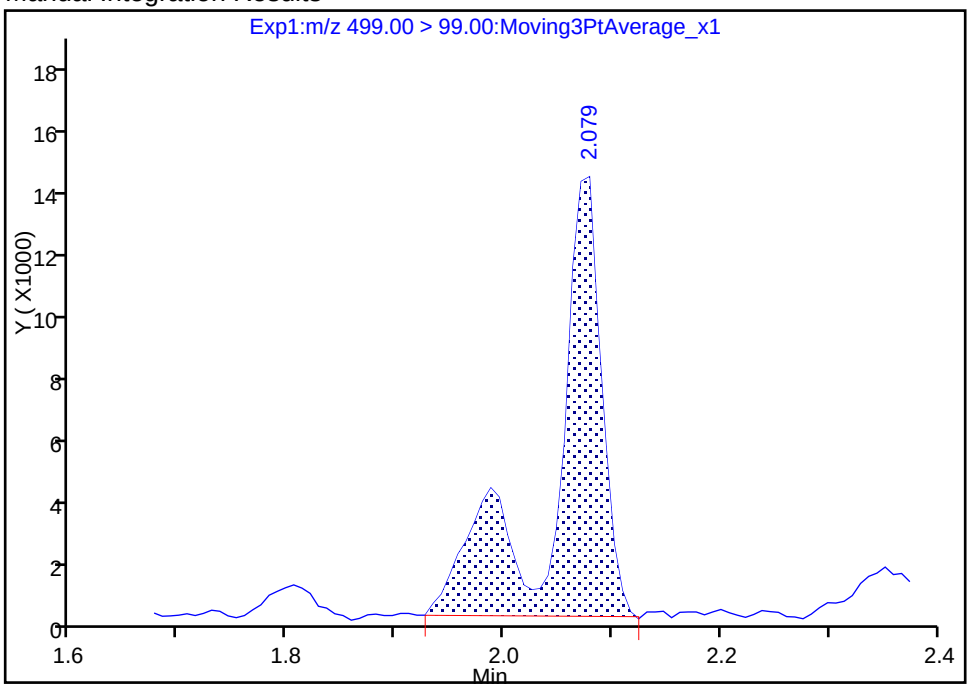
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.08
Area: 42238
Amount: 3.228470
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:51:28
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

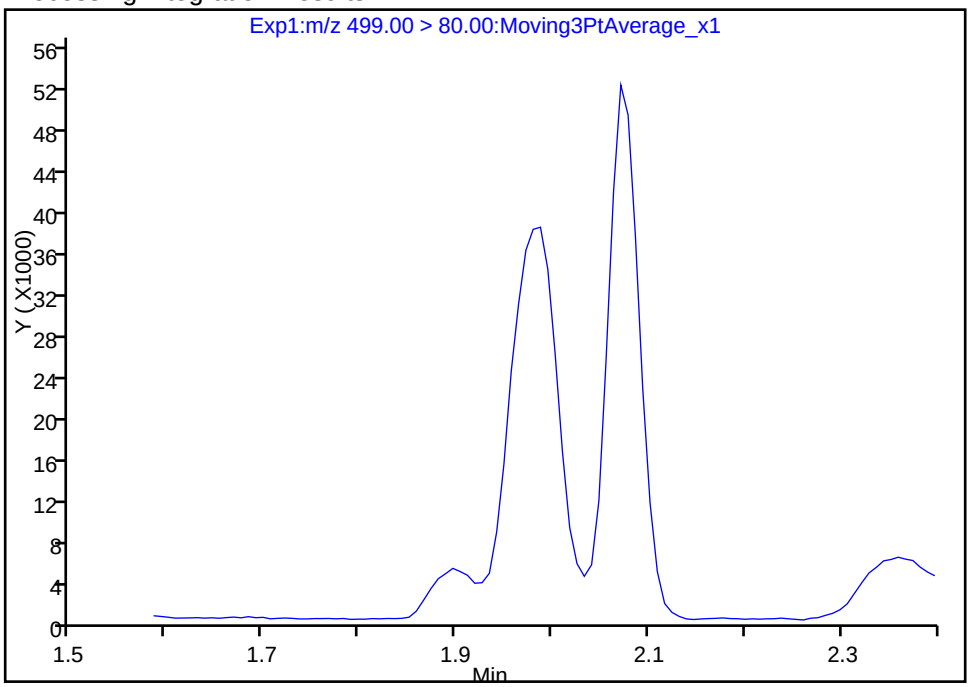
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_051.d				
Injection Date:	06-Mar-2018 21:21:10	Instrument ID:	A8_N		
Lims ID:	320-36163-A-7-A	Lab Sample ID:	320-36163-7		
Client ID:	WGNA-021518-RW-4842				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	33	Worklist Smp#:	3
Injection 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

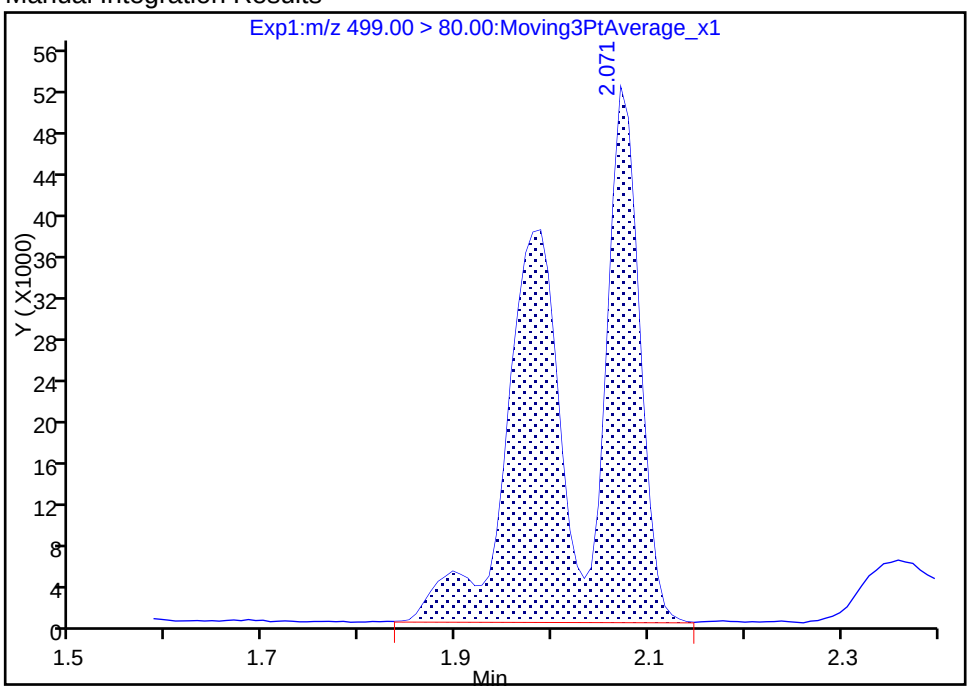
Processing Integration Results

Not Detected
Expected RT: 2.06



Manual Integration Results

RT: 2.07
Area: 269678
Amount: 3.228470
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:51:28
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-4842 Lab Sample ID: 320-36163-8

Matrix: Water Lab File ID: 2018.03.06_537AA_052.d

Analysis Method: 537 Date Collected: 02/15/2018 11:35

Extraction Method: 537 Date Extracted: 02/28/2018 07:35

Sample wt/vol: 254.8(mL) Date Analyzed: 03/06/2018 21:25

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.: 211575 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)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	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	70		70-130
STL00996	13C2 PFDA	113		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_052.d
Lims ID: 320-36163-A-8-A
Client ID: WGNA-021518-FRB-4842
Sample Type: Client
Inject. Date: 06-Mar-2018 21:25:51 ALS Bottle#: 34 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-8-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	731856	7.00		13132	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.821	-0.008		951196	10.0		8439	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.079	-0.008		2630340	28.7		7011	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	564355	11.3		6106	

Report Date: 07-Mar-2018 10:05:53 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_052.d

Injection Date: 06-Mar-2018 21:25:51 Instrument ID: A8_N

Lims ID: 320-36163-A-8-A Lab Sample ID: 320-36163-8

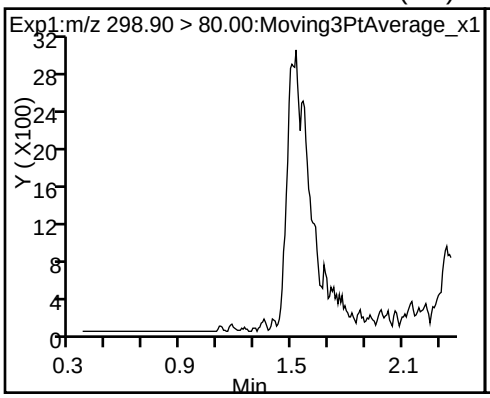
Client ID: WGNA-021518-FRB-4842

Operator ID: SACINSTLCMS01 ALS Bottle#: 34 Worklist Smp#: 4

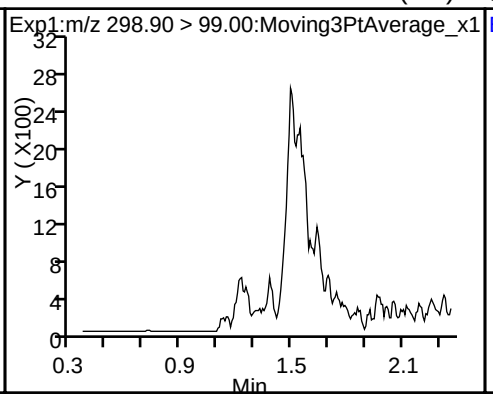
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

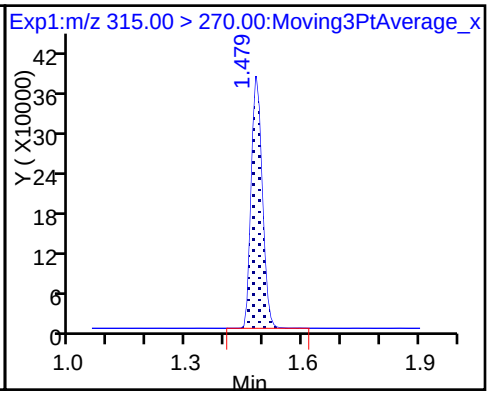
1 Perfluorobutanesulfonic acid (ND)



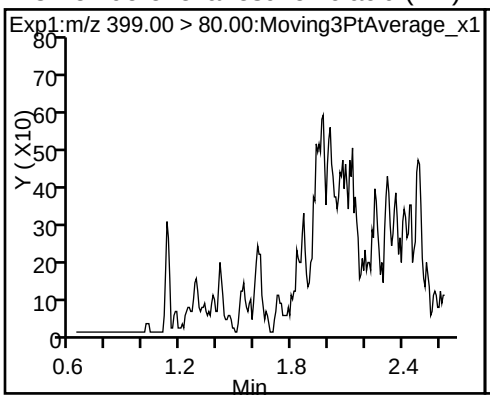
1 Perfluorobutanesulfonic acid (ND)



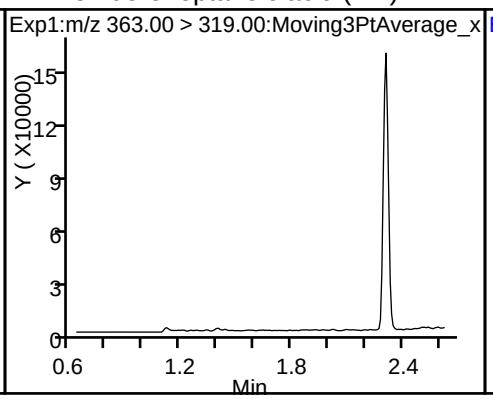
$ 2 13C2 PFHxA



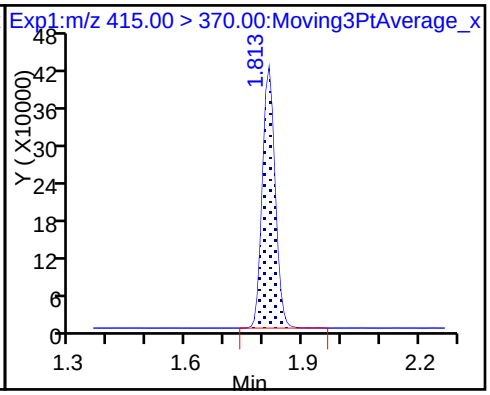
3 Perfluorohexanesulfonic acid (ND)



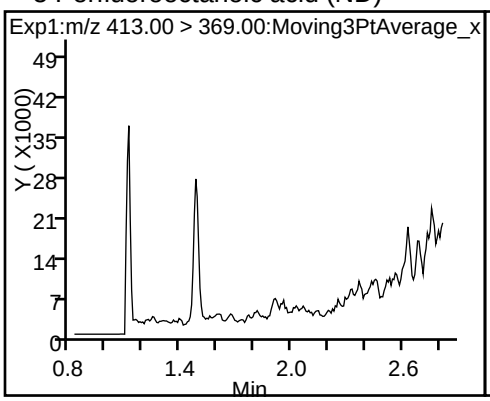
4 Perfluoroheptanoic acid (ND)



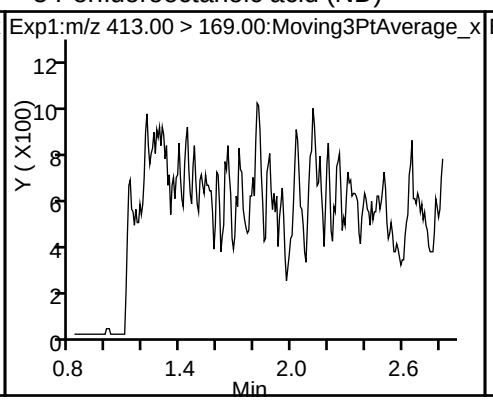
* 6 13C2-PFOA



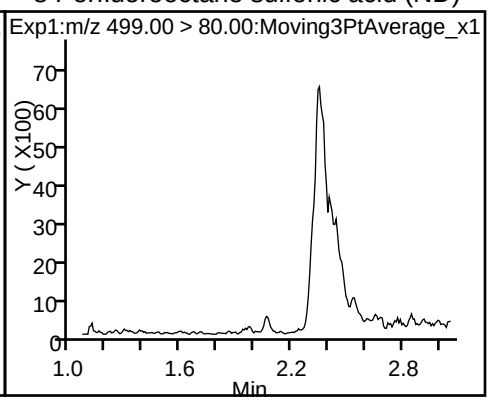
5 Perfluorooctanoic acid (ND)



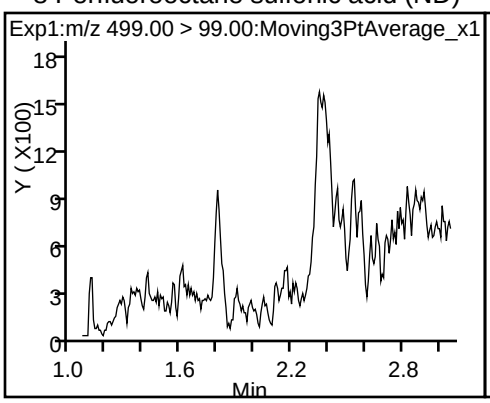
5 Perfluorooctanoic acid (ND)



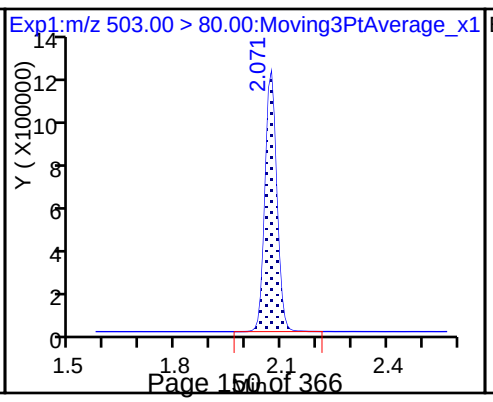
8 Perfluorooctane sulfonic acid (ND)



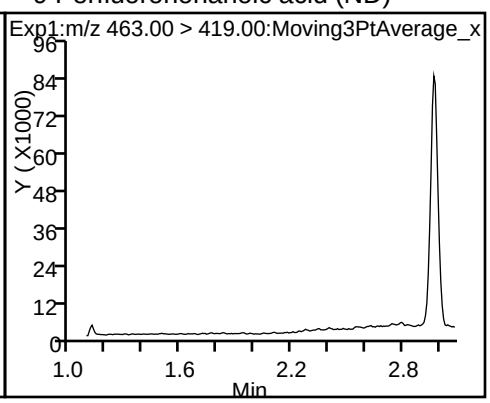
8 Perfluorooctane sulfonic acid (ND)



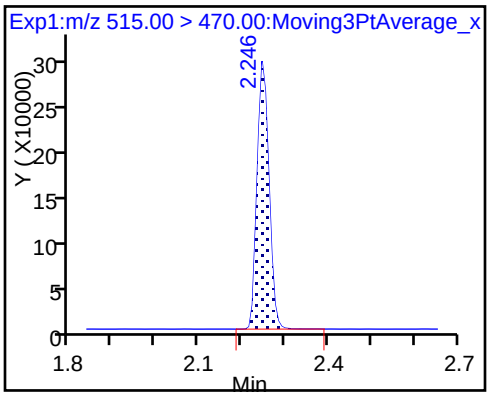
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
30
25
20
15
10
5
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_052.d				
Lims ID:	320-36163-A-8-A				
Client ID:	WGNA-021518-FRB-4842				
Sample Type:	Client				
Inject. Date:	06-Mar-2018 21:25:51	ALS Bottle#:	34	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-36163-a-8-a				
Misc. Info.:	Plate: 1 Rack: 6				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	07-Mar-2018 10:05:50	Calib Date:	16-Feb-2018 09:19:04		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK022				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.00	69.95
$ 10 13C2 PFDA	10.0	11.3	113.17

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-RW-205 | Lab Sample ID: 320-36163-9

Matrix: Water | Lab File ID: 2018.03.06_537AA_053.d

Analysis Method: 537 | Date Collected: 02/15/2018 12:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.3(mL) | Date Analyzed: 03/06/2018 21:30

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	10	J M	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	11	J	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)	3.8	J M	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	73		70-130
STL00996	13C2 PFDA	120		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_053.d
Lims ID: 320-36163-A-9-A
Client ID: NAWC-021518-RW-205
Sample Type: Client
Inject. Date: 06-Mar-2018 21:30:32 ALS Bottle#: 35 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-9-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:55:31

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	109922	0.8821		103	
298.90 > 99.00	1.366	1.366	0.0	1.000	77140		1.42(0.00-0.00)	120	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	784830	7.28		9952	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	161401	1.06		101	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	1.631	1.631	0.0	1.000	94600	0.99		14.4	M
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.821	-0.008		980456	10.0		8615	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.821	1.821	0.0	1.000	275601	2.92		9.5	
413.00 > 169.00	1.821	1.821	0.0	1.000	171277		1.61(0.00-0.00)	110	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.071	2.064	0.007	1.000	236960	2.65		70.8	a
499.00 > 99.00	2.071	2.064	0.007	1.000	43973		5.39(0.00-0.00)	24.5	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.079	-0.008		2715578	28.7		3618	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	617560	12.0		6263	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 07-Mar-2018 10:05:54 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_053.d

Injection Date: 06-Mar-2018 21:30:32 Instrument ID: A8_N

Lims ID: 320-36163-A-9-A Lab Sample ID: 320-36163-9

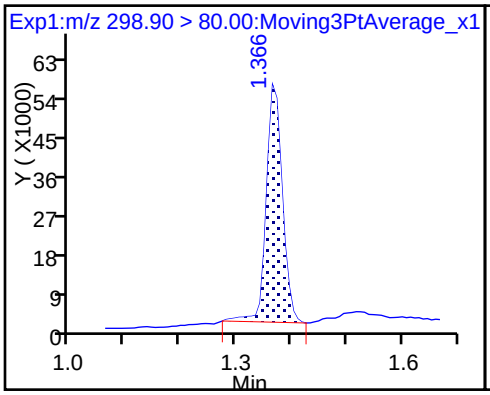
Client ID: NAWC-021518-RW-205

Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 5

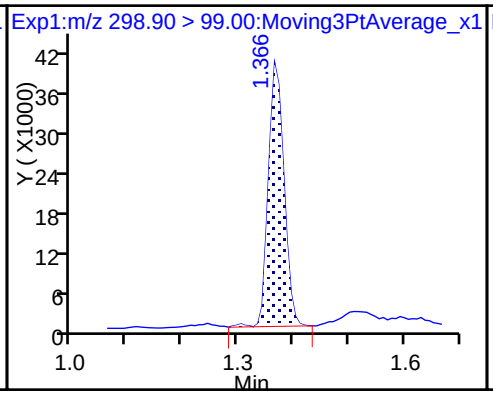
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

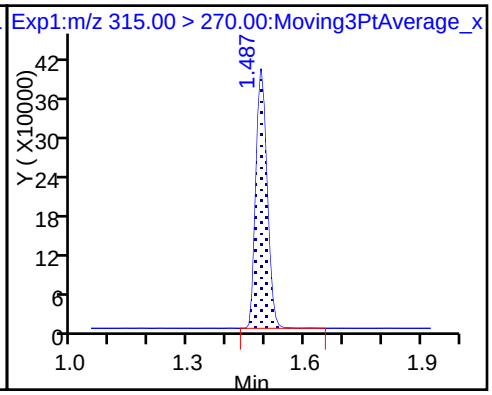
1 Perfluorobutanesulfonic acid



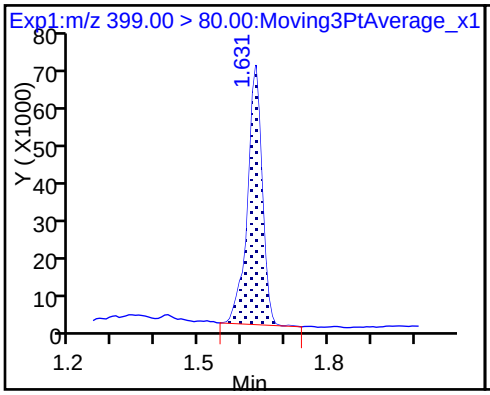
1 Perfluorobutanesulfonic acid



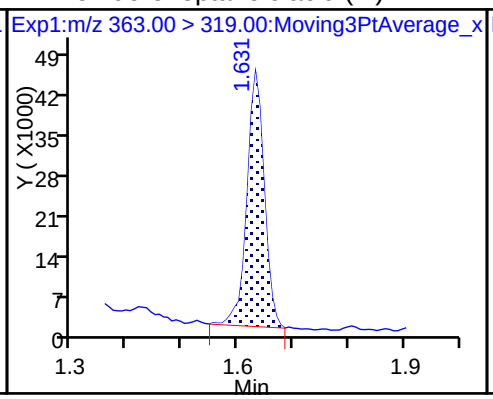
$ 2 13C2 PFHxA



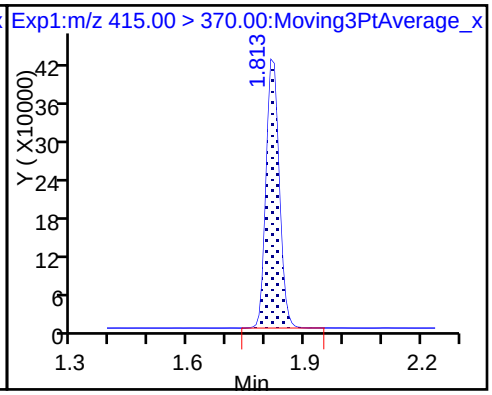
3 Perfluorohexanesulfonic acid



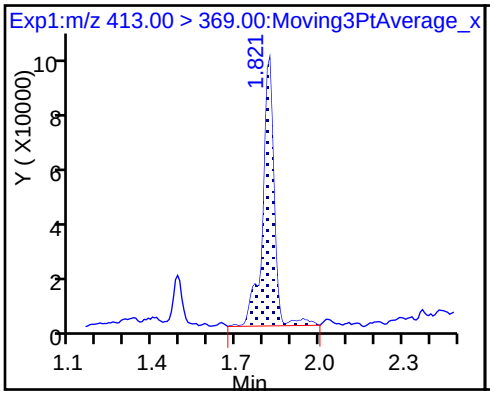
4 Perfluoroheptanoic acid (M)



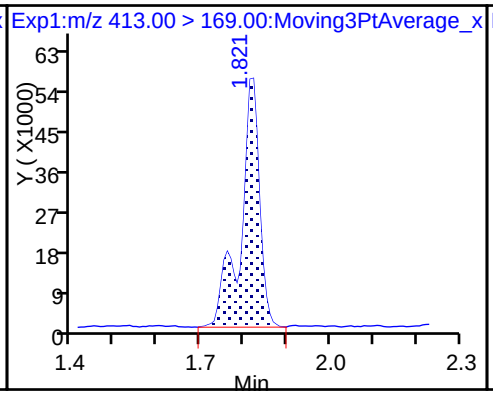
* 6 13C2-PFOA



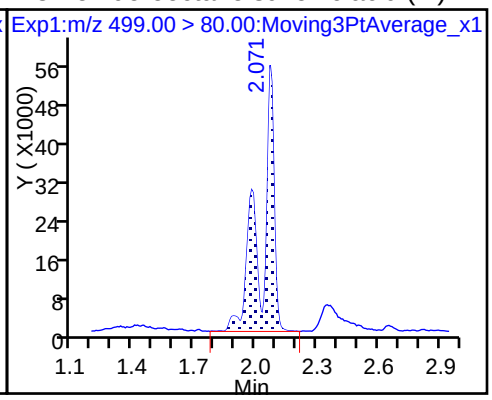
5 Perfluorooctanoic acid



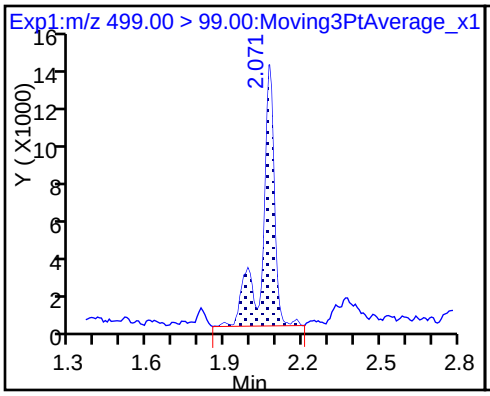
5 Perfluorooctanoic acid



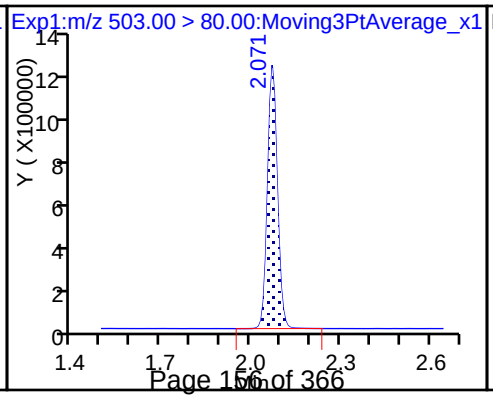
8 Perfluorooctane sulfonic acid (M)



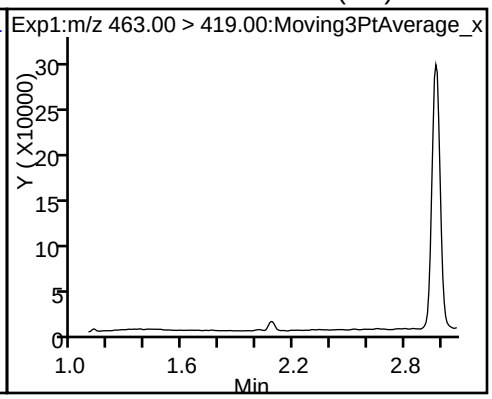
8 Perfluorooctane sulfonic acid



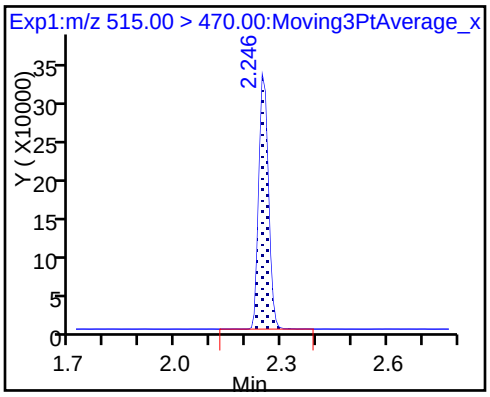
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
35
30
25
20
15
10
5
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_053.d
Lims ID: 320-36163-A-9-A
Client ID: NAWC-021518-RW-205
Sample Type: Client
Inject. Date: 06-Mar-2018 21:30:32 ALS Bottle#: 35 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-9-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:55:31

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.28	72.78
$ 10 13C2 PFDA	10.0	12.0	120.14

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

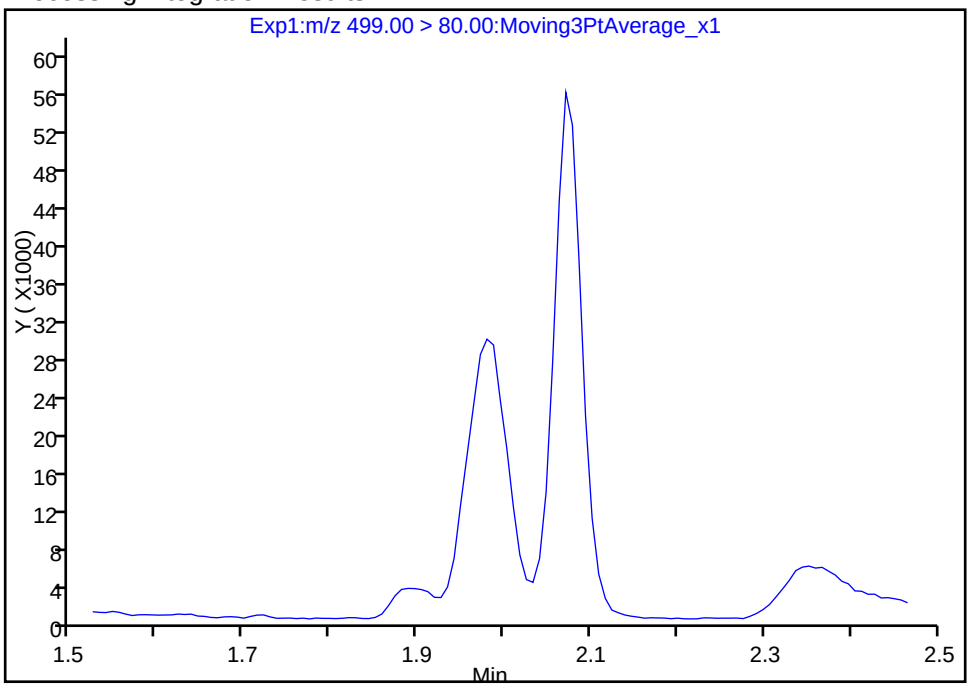
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_053.d				
Injection Date:	06-Mar-2018 21:30:32	Instrument ID:	A8_N		
Lims ID:	320-36163-A-9-A	Lab Sample ID:	320-36163-9		
Client ID:	NAWC-021518-RW-205				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	35	Worklist Smp#:	5
Injection 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

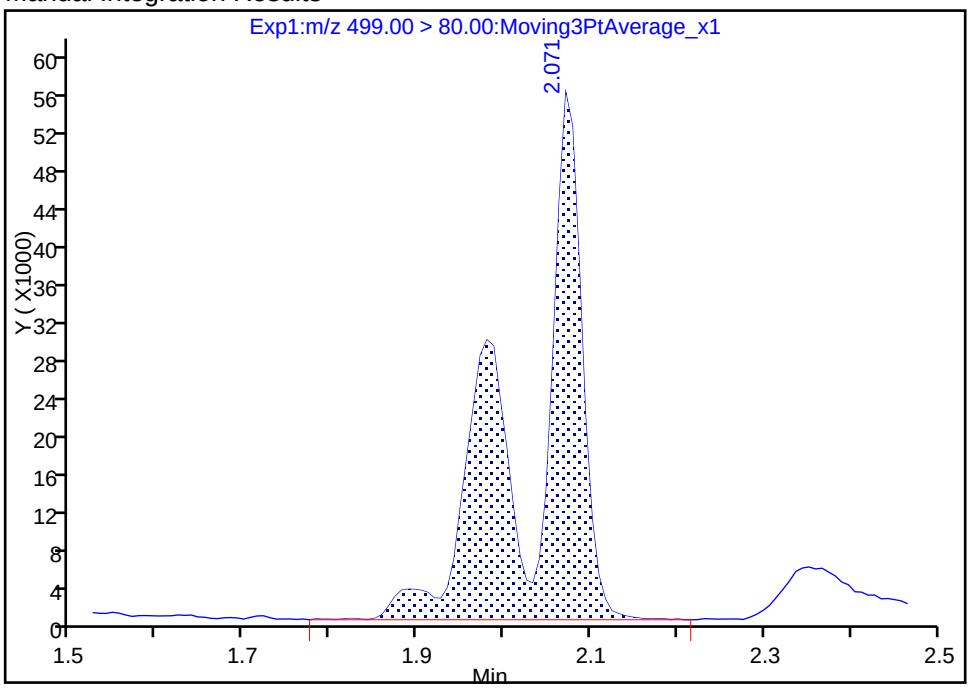
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 236960
Amount: 2.646752
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:55:44
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

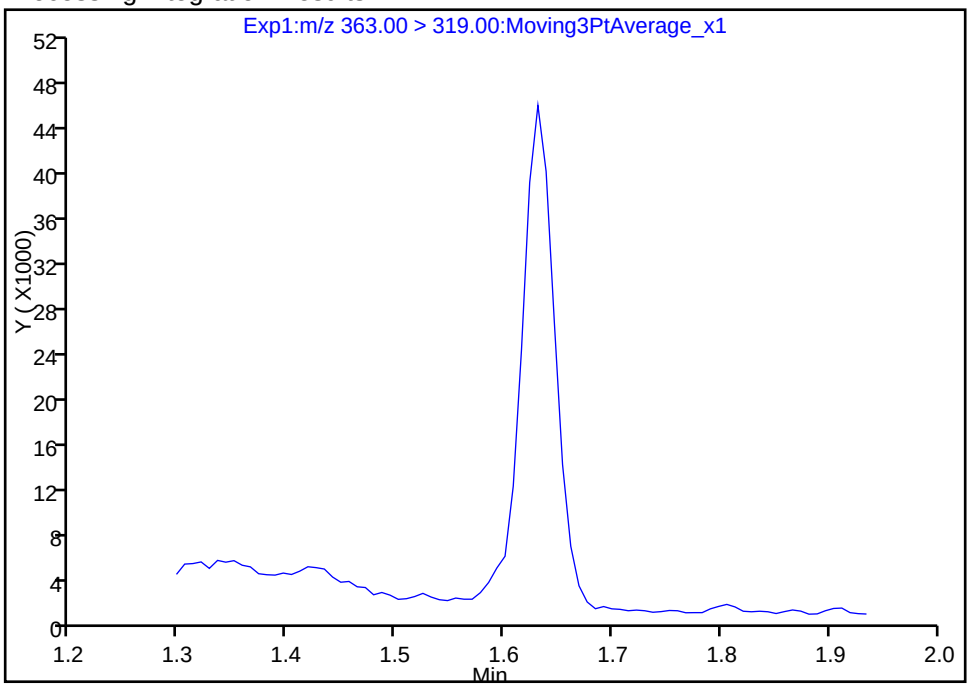
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_053.d				
Injection Date:	06-Mar-2018 21:30:32	Instrument ID:	A8_N		
Lims ID:	320-36163-A-9-A	Lab Sample ID:	320-36163-9		
Client ID:	NAWC-021518-RW-205				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	35	Worklist Smp#:	5
Injection 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

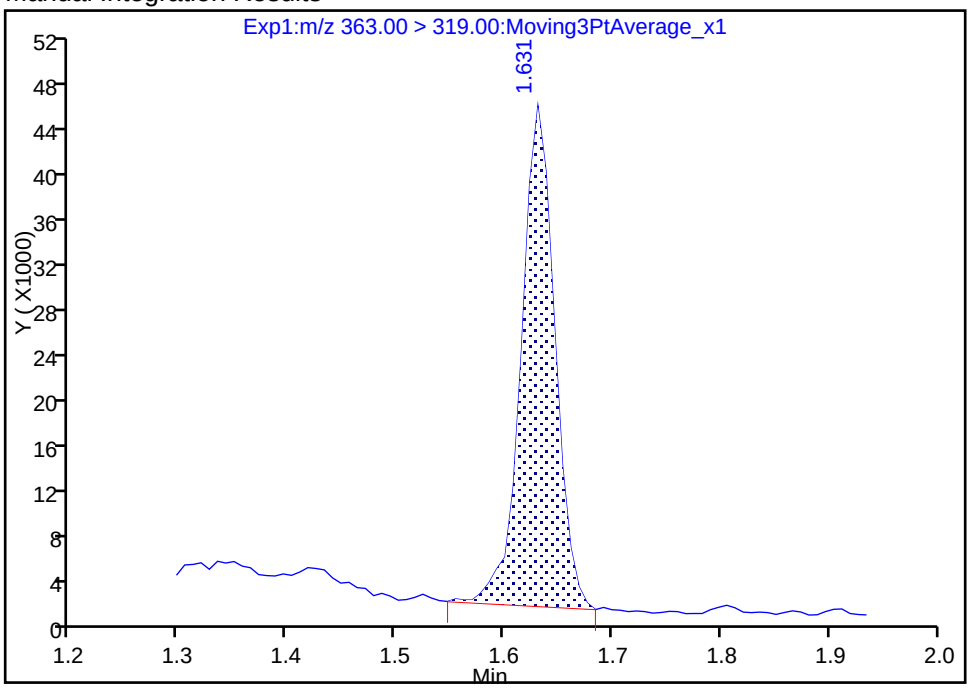
Not Detected
Expected RT: 1.63

Processing Integration Results



Manual Integration Results

RT: 1.63
Area: 94600
Amount: 0.993537
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:55:16
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-FRB-205 | Lab Sample ID: 320-36163-10

Matrix: Water | Lab File ID: 2018.03.06_537AA_054.d

Analysis Method: 537 | Date Collected: 02/15/2018 12:35

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 260(mL) | Date Analyzed: 03/06/2018 21:35

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	112		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_054.d
Lims ID: 320-36163-A-10-A
Client ID: NAWC-021518-FRB-205
Sample Type: Client
Inject. Date: 06-Mar-2018 21:35:12 ALS Bottle#: 36 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-10-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	914234	8.97		14690	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.821	0.0		927135	10.0		9947	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.079	-0.008		2540551	28.7		7035	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	545633	11.2		5625	

Report Date: 07-Mar-2018 10:05:55 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_054.d

Injection Date: 06-Mar-2018 21:35:12 Instrument ID: A8_N

Lims ID: 320-36163-A-10-A Lab Sample ID: 320-36163-10

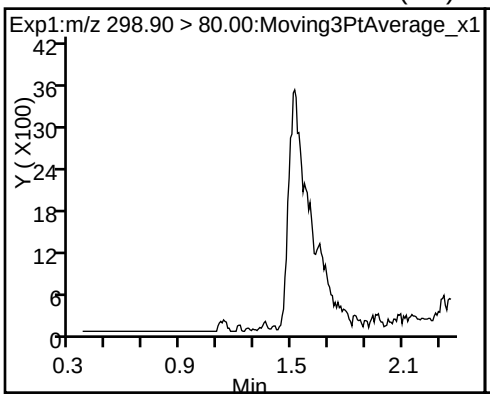
Client ID: NAWC-021518-FRB-205

Operator ID: SACINSTLCMS01 ALS Bottle#: 36 Worklist Smp#: 6

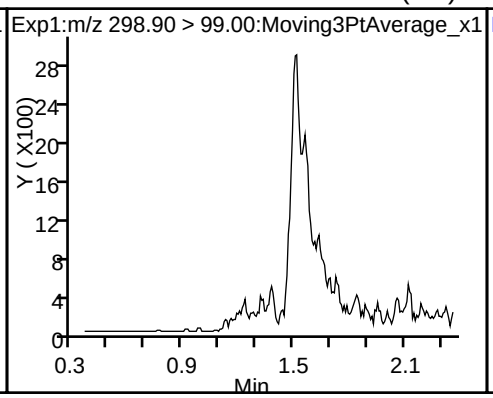
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

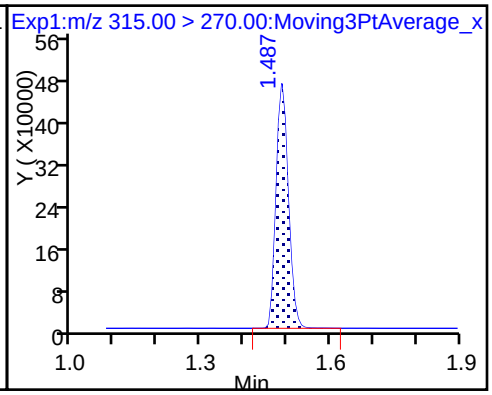
1 Perfluorobutanesulfonic acid (ND)



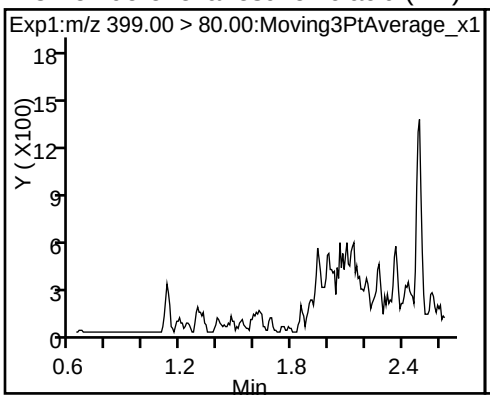
1 Perfluorobutanesulfonic acid (ND)



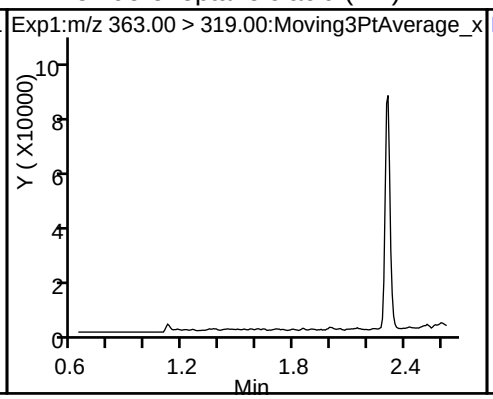
$ 2 13C2 PFHxA



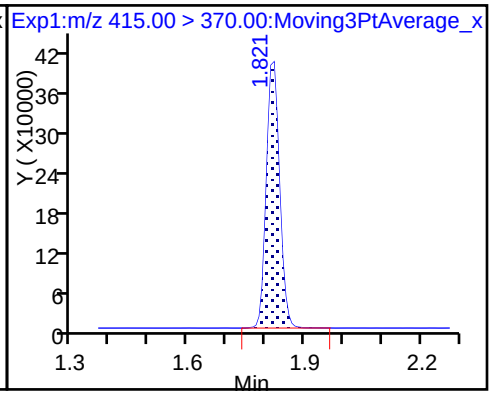
3 Perfluorohexanesulfonic acid (ND)



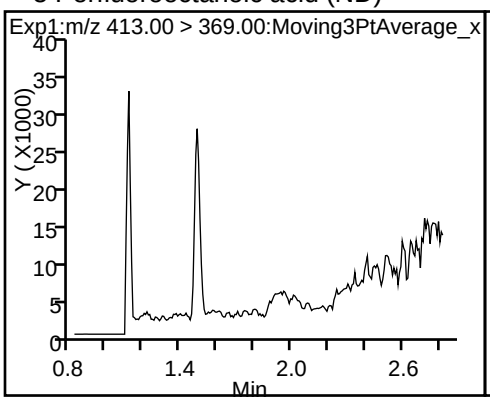
4 Perfluoroheptanoic acid (ND)



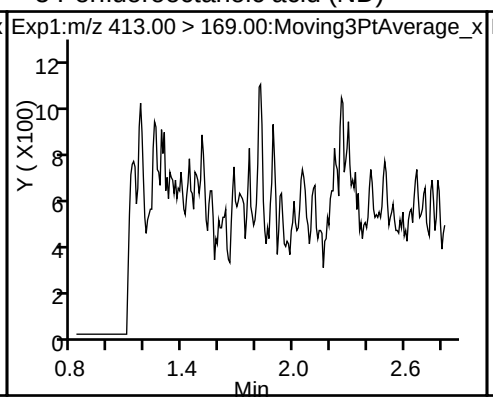
* 6 13C2-PFOA



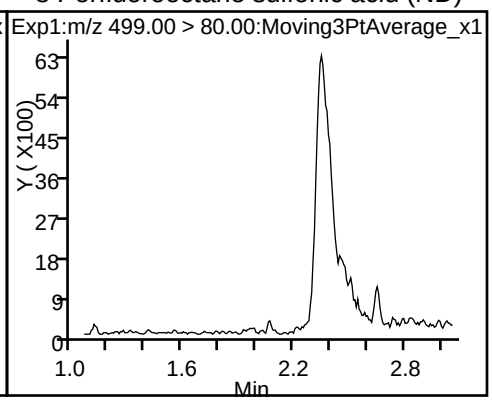
5 Perfluorooctanoic acid (ND)



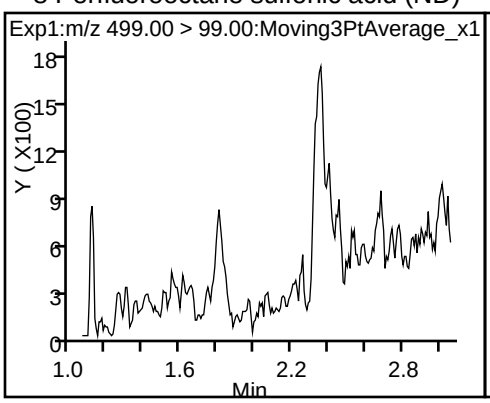
5 Perfluorooctanoic acid (ND)



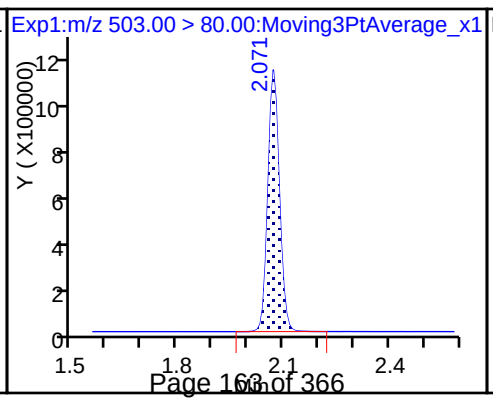
8 Perfluorooctane sulfonic acid (ND)



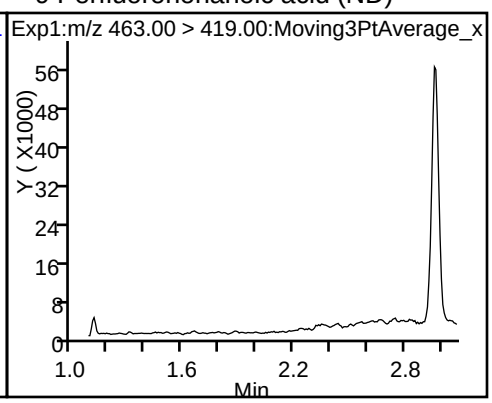
8 Perfluorooctane sulfonic acid (ND)



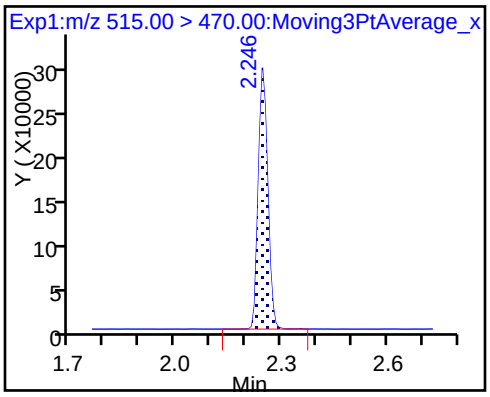
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
30
25
20
15
10
5
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_054.d				
Lims ID:	320-36163-A-10-A				
Client ID:	NAWC-021518-FRB-205				
Sample Type:	Client				
Inject. Date:	06-Mar-2018 21:35:12	ALS Bottle#:	36	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-36163-a-10-a				
Misc. Info.:	Plate: 1 Rack: 6				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	07-Mar-2018 10:05:50	Calib Date:	16-Feb-2018 09:19:04		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK022				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.97	89.65
$ 10 13C2 PFDA	10.0	11.2	112.25

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-4817 | Lab Sample ID: 320-36163-11

Matrix: Water | Lab File ID: 2018.03.06_537AA_055.d

Analysis Method: 537 | Date Collected: 02/15/2018 14:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 252.1(mL) | Date Analyzed: 03/06/2018 21:39

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.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	6.6	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 M	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	117		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_055.d
Lims ID: 320-36163-A-11-A
Client ID: WGNA-021518-RW-4817
Sample Type: Client
Inject. Date: 06-Mar-2018 21:39:52 ALS Bottle#: 37 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-11-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:57:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	909225	8.74		13027	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	1.624	1.631	-0.007	1.000	61670	0.4282		44.8	M
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.821	-0.008		945703	10.0		9296	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.813	1.821	-0.008	1.000	151692	1.67		5.7	M
413.00 > 169.00	1.813	1.821	-0.008	1.000	92122		1.65(0.00-0.00)	58.2	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.071	2.064	0.007	1.000	111530	1.32		29.8	a
499.00 > 99.00	2.071	2.064	0.007	1.000	18613		5.99(0.00-0.00)	9.6	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.079	-0.008		2565649	28.7		4063	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	578593	11.7		5890	

QC Flag Legend

Review Flags
M - Manually Integrated
a - User Assigned ID

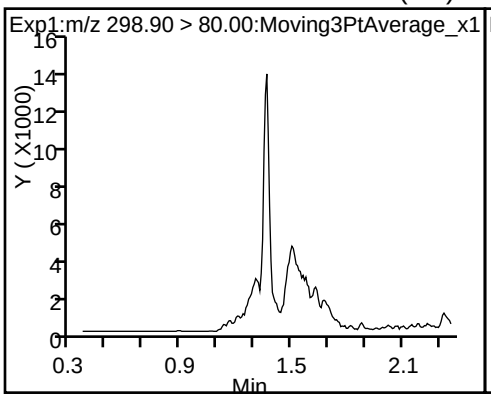
Report Date: 07-Mar-2018 10:05:56 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

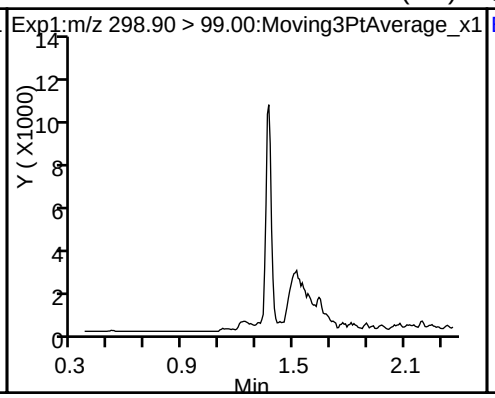
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_055.d

Injection Date:	06-Mar-2018 21:39:52	Instrument ID:	A8_N		
Lims ID:	320-36163-A-11-A	Lab Sample ID:	320-36163-11		
Client ID:	WGNA-021518-RW-4817				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	37	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

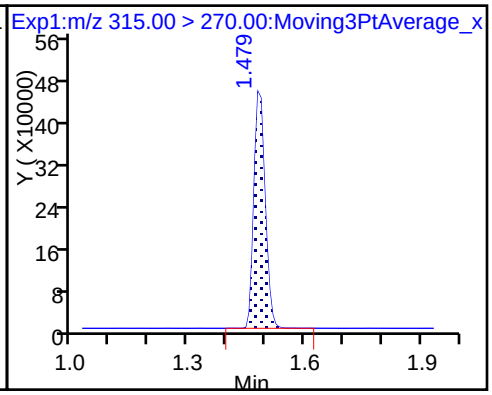
1 Perfluorobutanesulfonic acid (ND)



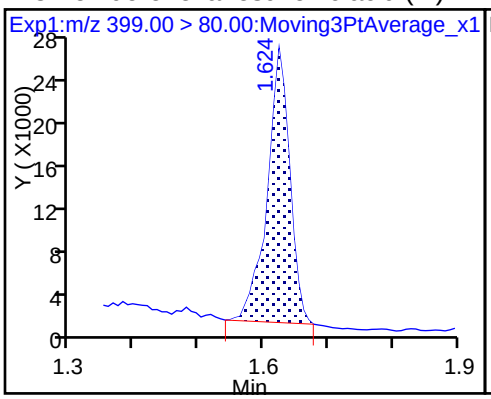
1 Perfluorobutanesulfonic acid (ND)



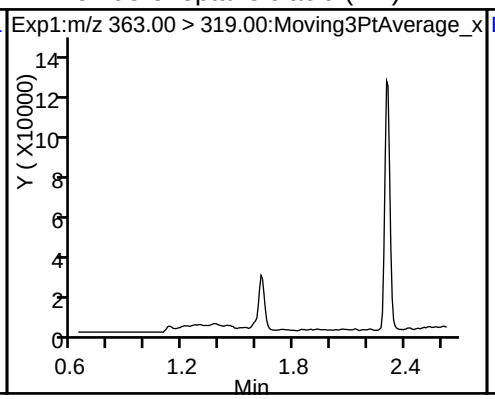
$ 2 13C2 PFHxA



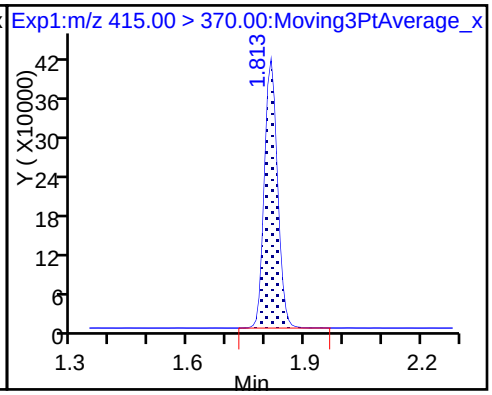
3 Perfluorohexanesulfonic acid (M)



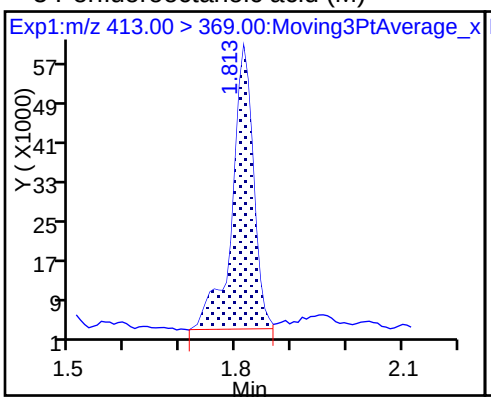
4 Perfluoroheptanoic acid (ND)



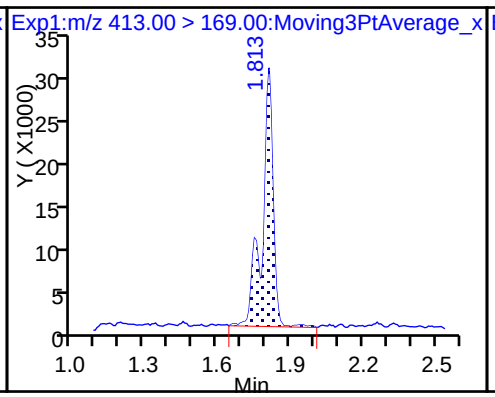
* 6 13C2-PFOA



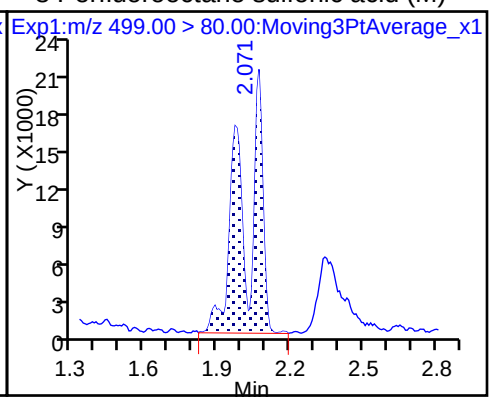
5 Perfluorooctanoic acid (M)



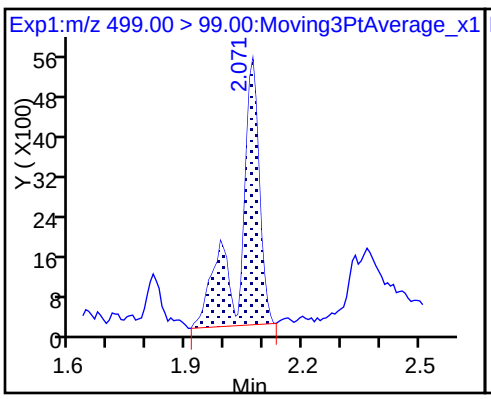
5 Perfluorooctanoic acid



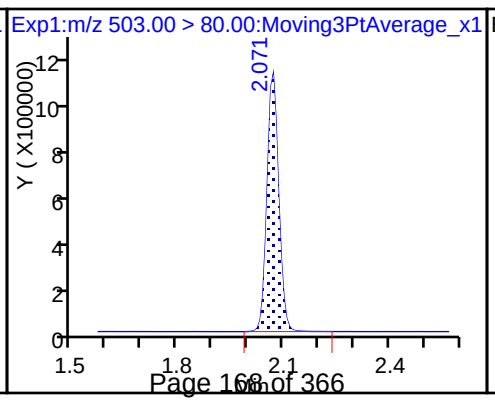
8 Perfluorooctane sulfonic acid (M)



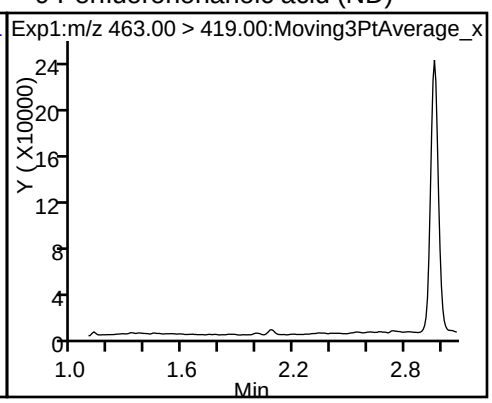
8 Perfluorooctane sulfonic acid



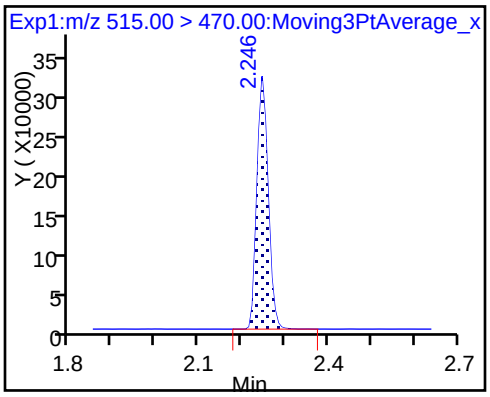
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
35
30
25
20
15
10
5
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_055.d
Lims ID: 320-36163-A-11-A
Client ID: WGNA-021518-RW-4817
Sample Type: Client
Inject. Date: 06-Mar-2018 21:39:52 ALS Bottle#: 37 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-11-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:57:04

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.74	87.41
$ 10 13C2 PFDA	10.0	11.7	116.70

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

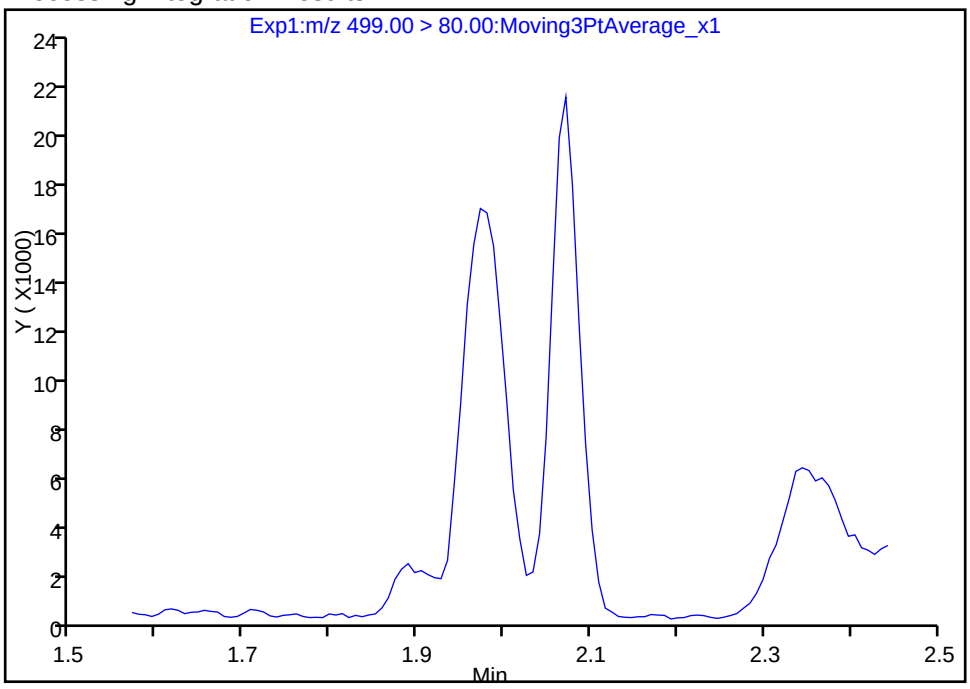
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_055.d				
Injection Date:	06-Mar-2018 21:39:52	Instrument ID:	A8_N		
Lims ID:	320-36163-A-11-A	Lab Sample ID:	320-36163-11		
Client ID:	WGNA-021518-RW-4817				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	37	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

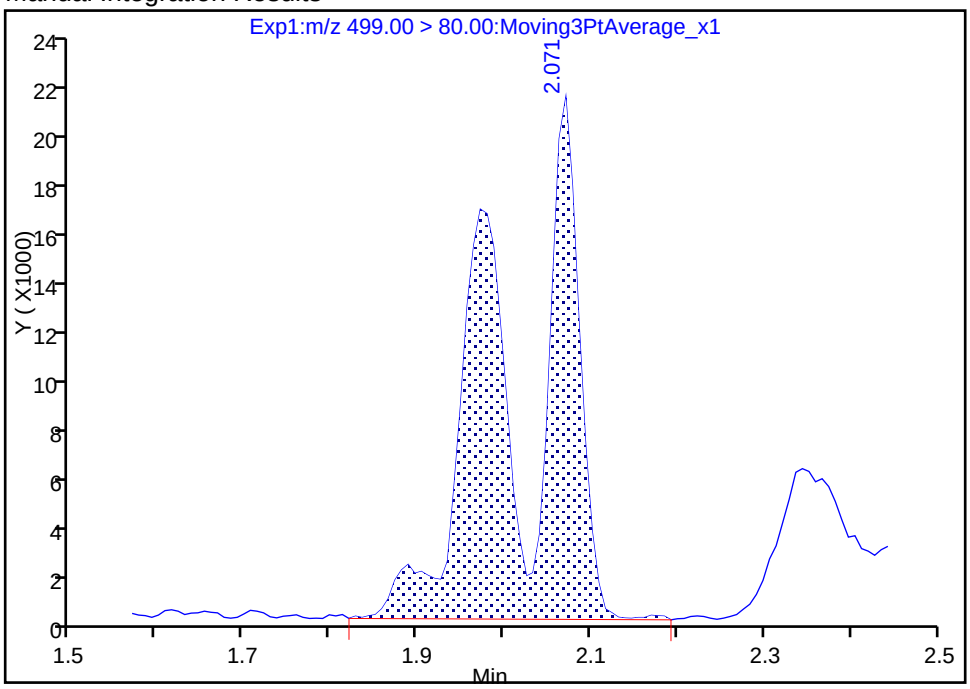
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 111530
Amount: 1.318545
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:56:55
Audit Action: Assigned Compound ID Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

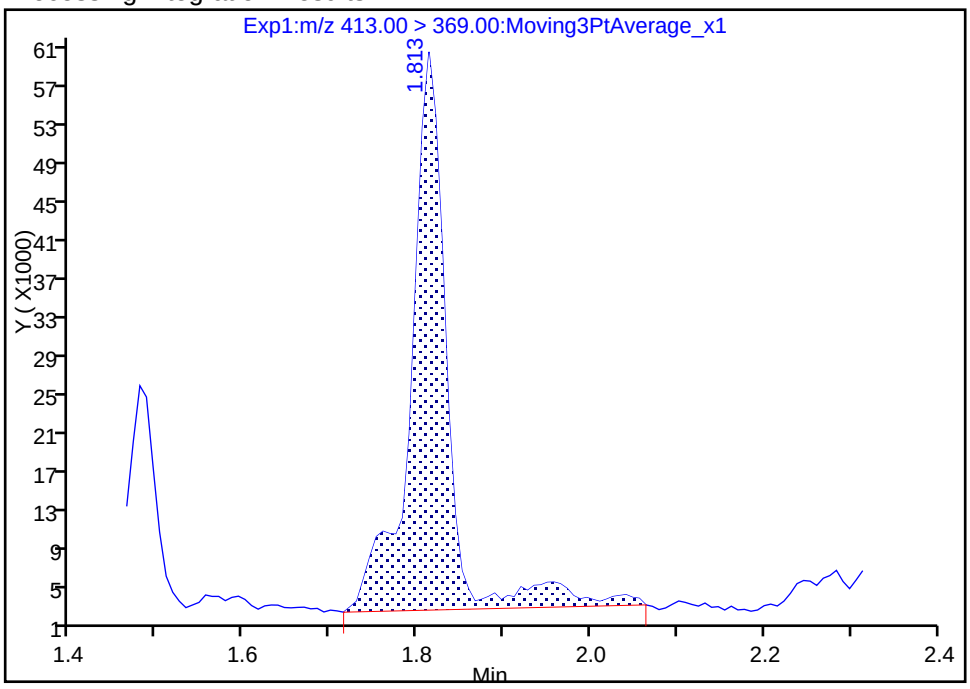
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_055.d				
Injection Date:	06-Mar-2018 21:39:52	Instrument ID:	A8_N		
Lims ID:	320-36163-A-11-A	Lab Sample ID:	320-36163-11		
Client ID:	WGNA-021518-RW-4817				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	37	Worklist Smp#:	7
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

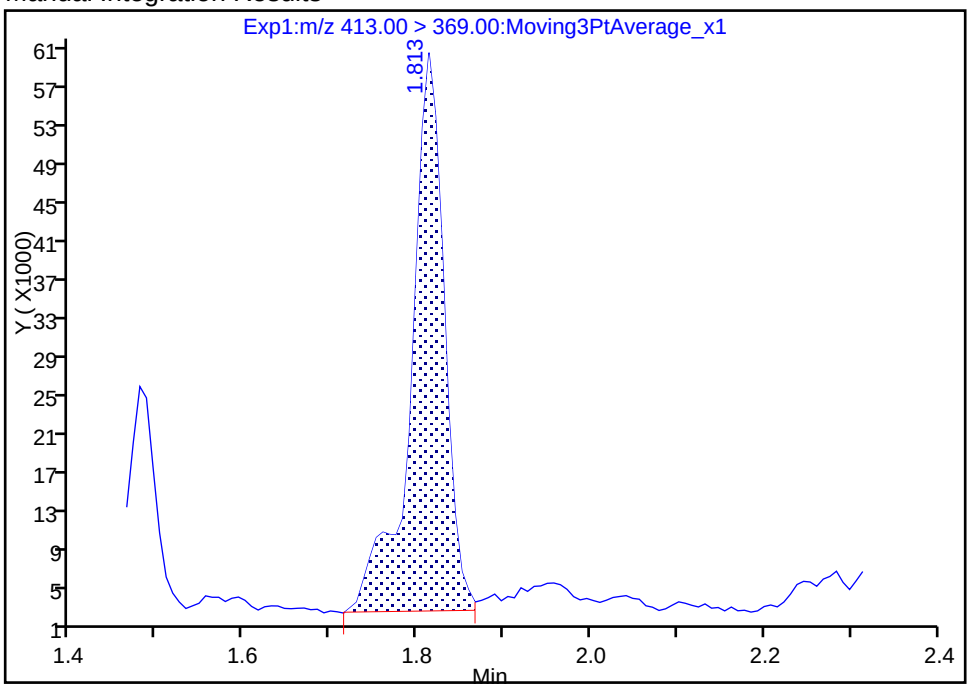
Processing Integration Results

RT: 1.81
Area: 167474
Amount: 1.840784
Amount Units: ng/ml



Manual Integration Results

RT: 1.81
Area: 151692
Amount: 1.667317
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:56:46

Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

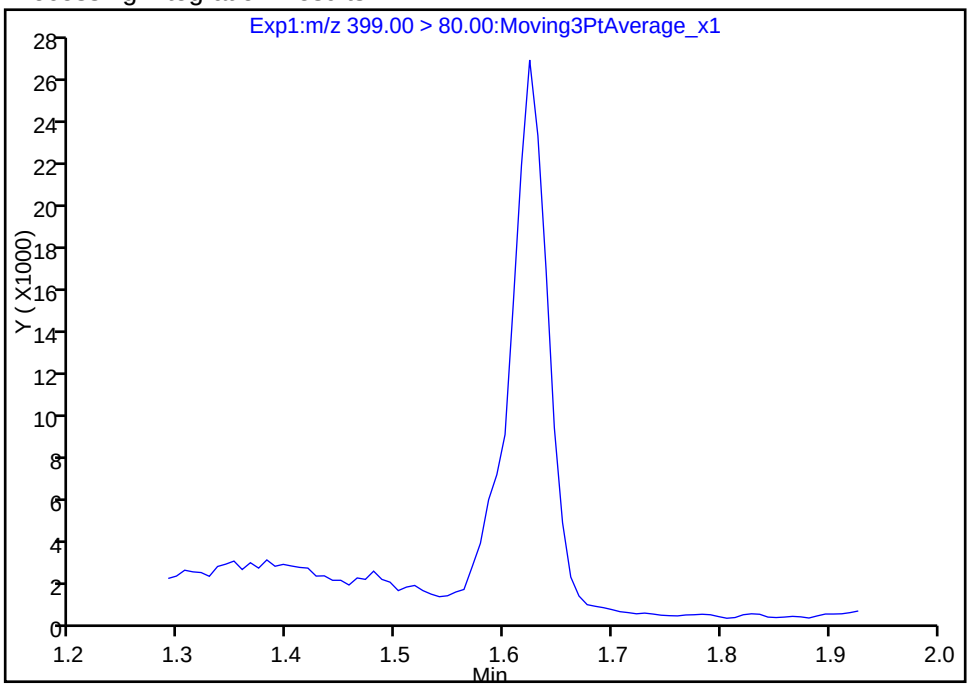
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_055.d				
Injection Date:	06-Mar-2018 21:39:52	Instrument ID:	A8_N		
Lims ID:	320-36163-A-11-A	Lab Sample ID:	320-36163-11		
Client ID:	WGNA-021518-RW-4817				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	37	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

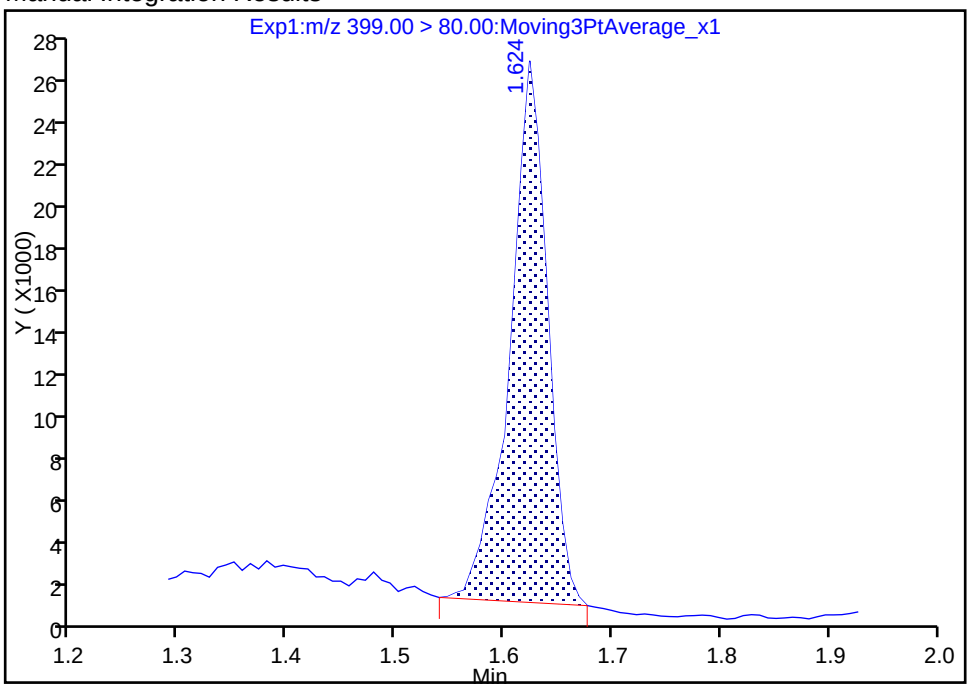
Processing Integration Results

Not Detected
Expected RT: 1.63



Manual Integration Results

RT: 1.62
Area: 61670
Amount: 0.428248
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:56:19
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-4817 | Lab Sample ID: 320-36163-12

Matrix: Water | Lab File ID: 2018.03.06_537AA_056.d

Analysis Method: 537 | Date Collected: 02/15/2018 14:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 255.5(mL) | Date Analyzed: 03/06/2018 21:44

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.: 211575 | 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)	7.8	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	82		70-130
STL00996	13C2 PFDA	114		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_056.d
Lims ID: 320-36163-A-12-A
Client ID: WGNA-021518-FRB-4817
Sample Type: Client
Inject. Date: 06-Mar-2018 21:44:33 ALS Bottle#: 38 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-12-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	918702	8.23		12188	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.821	-0.008		1014512	10.0		9630	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.079	-0.015		2735330	28.7		7496	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.253	-0.015	1.000	607393	11.4		6962	

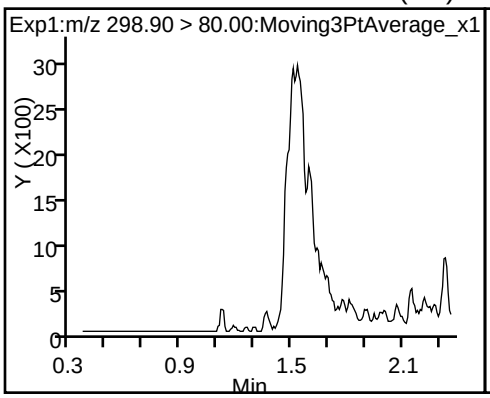
Report Date: 07-Mar-2018 10:05:57 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

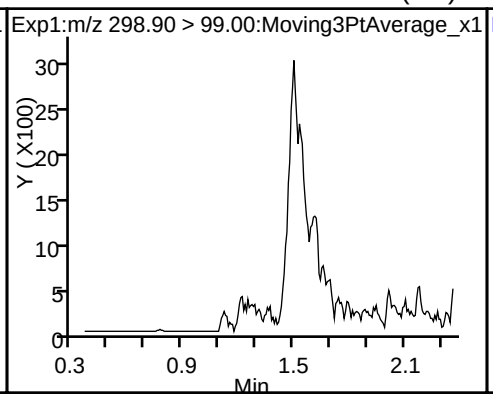
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_056.d

Injection Date:	06-Mar-2018 21:44:33	Instrument ID:	A8_N		
Lims ID:	320-36163-A-12-A	Lab Sample ID:	320-36163-12		
Client ID:	WGNA-021518-FRB-4817				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	38	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

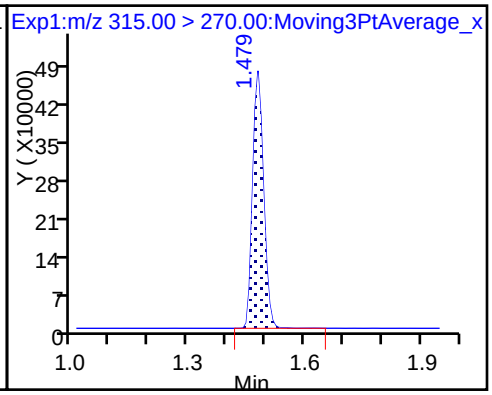
1 Perfluorobutanesulfonic acid (ND)



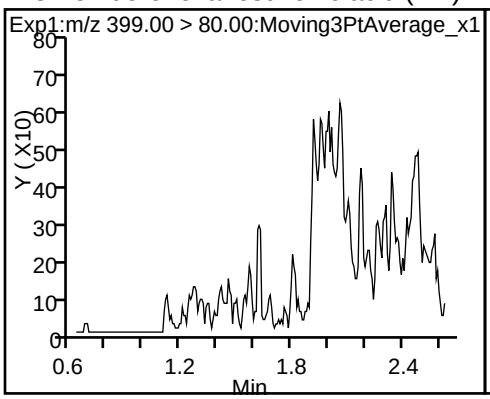
1 Perfluorobutanesulfonic acid (ND)



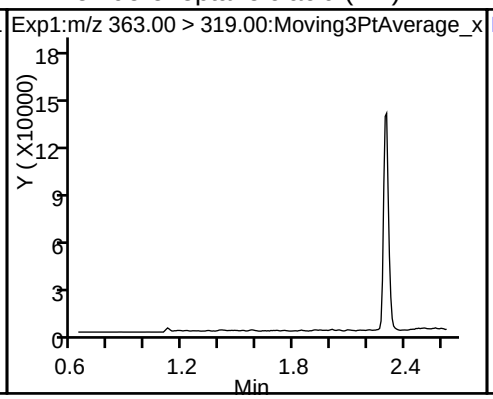
$ 2 13C2 PFHxA



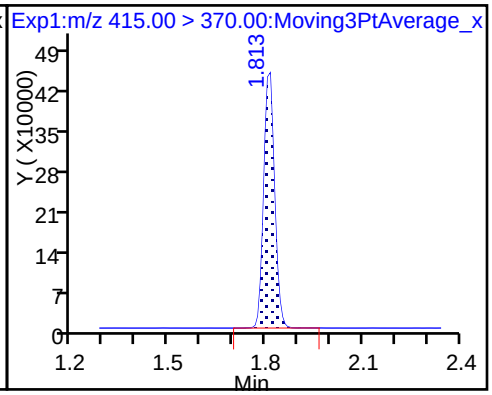
3 Perfluorohexanesulfonic acid (ND)



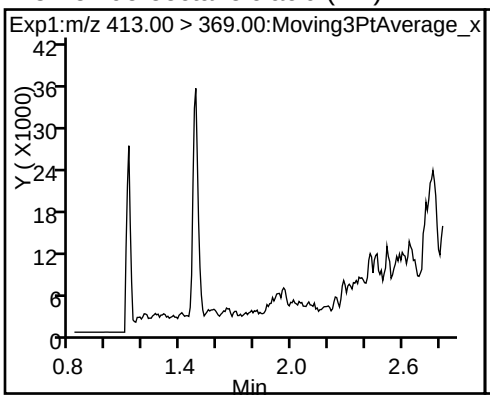
4 Perfluoroheptanoic acid (ND)



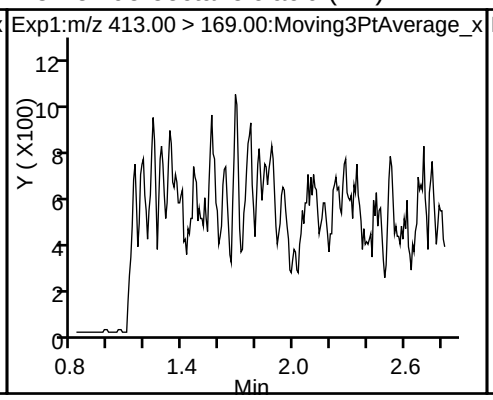
* 6 13C2-PFOA



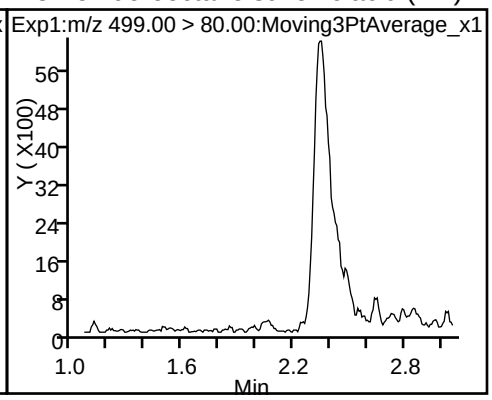
5 Perfluorooctanoic acid (ND)



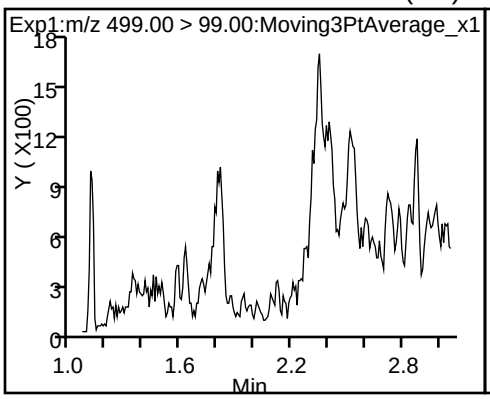
5 Perfluorooctanoic acid (ND)



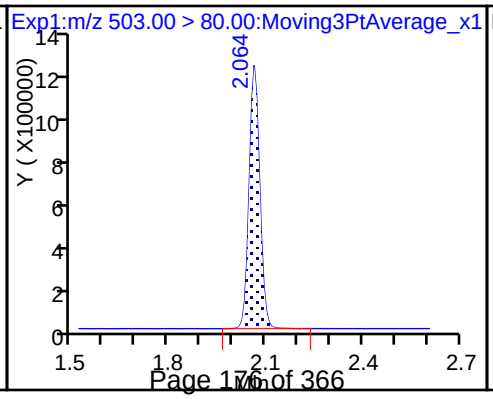
8 Perfluorooctane sulfonic acid (ND)



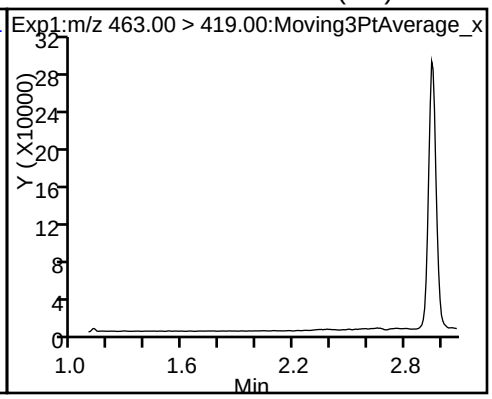
8 Perfluorooctane sulfonic acid (ND)



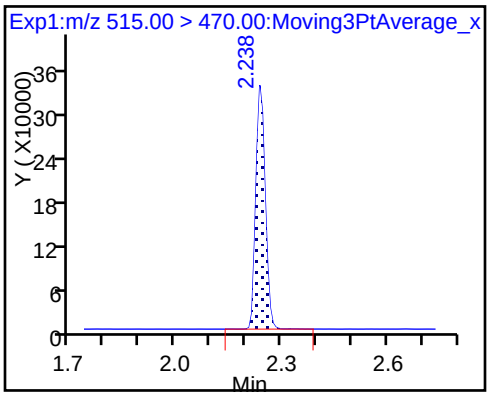
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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Y (X10000)
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30
24
18
12
6
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_056.d				
Lims ID:	320-36163-A-12-A				
Client ID:	WGNA-021518-FRB-4817				
Sample Type:	Client				
Inject. Date:	06-Mar-2018 21:44:33	ALS Bottle#:	38	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-36163-a-12-a				
Misc. Info.:	Plate: 1 Rack: 6				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	07-Mar-2018 10:05:50	Calib Date:	16-Feb-2018 09:19:04		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK022				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.23	82.33
$ 10 13C2 PFDA	10.0	11.4	114.20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-3882 | Lab Sample ID: 320-36163-13

Matrix: Water | Lab File ID: 2018.03.06_537AA_057.d

Analysis Method: 537 | Date Collected: 02/15/2018 15:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 254.9(mL) | Date Analyzed: 03/06/2018 21:49

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	33	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	9.0	J	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.8	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	85		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_057.d
Lims ID: 320-36163-A-13-A
Client ID: WGNA-021518-RW-3882
Sample Type: Client
Inject. Date: 06-Mar-2018 21:49:14 ALS Bottle#: 39 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-13-
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:57:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.366	-0.008	1.000	118515	0.9872		39.3	
298.90 > 99.00	1.358	1.366	-0.008	1.000	89691		1.32(0.00-0.00)	149	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	885946	8.47		10342	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.631	-0.015	1.000	408161	2.78		306	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	111931	1.21		18.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.821	-0.015		950787	10.0		9117	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.821	-0.015	1.000	210720	2.30		8.4	
413.00 > 169.00	1.806	1.821	-0.015	1.000	131922		1.60(0.00-0.00)	86.0	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.064	2.064	0.0	1.000	727866	8.44		258	a
499.00 > 99.00	2.064	2.064	0.0	1.000	142637		5.10(0.00-0.00)	83.1	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.079	-0.015		2616458	28.7		4573	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.253	-0.015	1.000	554356	11.1		5921	

QC Flag Legend

Review Flags

a - User Assigned ID

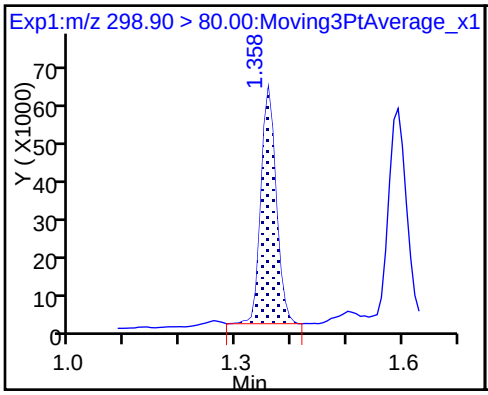
Report Date: 07-Mar-2018 10:05:58 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

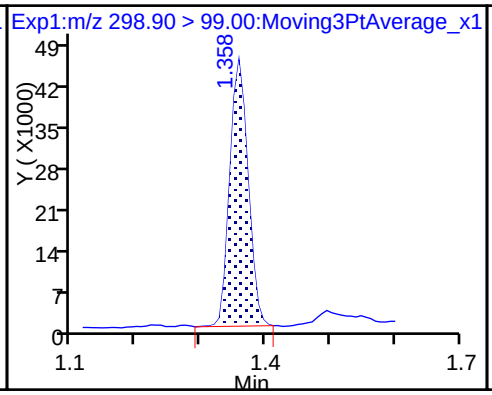
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_057.d

Injection Date:	06-Mar-2018 21:49:14	Instrument ID:	A8_N		
Lims ID:	320-36163-A-13-A	Lab Sample ID:	320-36163-13		
Client ID:	WGNA-021518-RW-3882				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	39	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

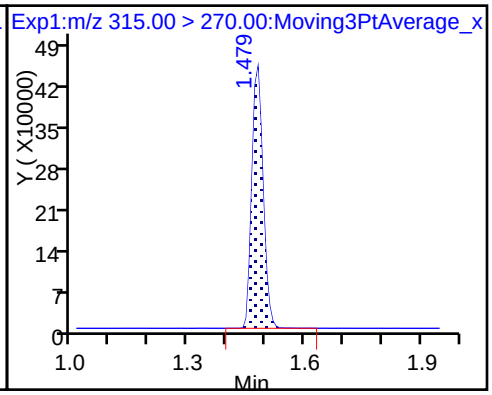
1 Perfluorobutanesulfonic acid



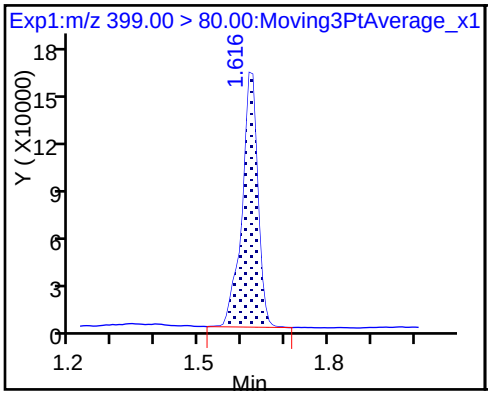
1 Perfluorobutanesulfonic acid



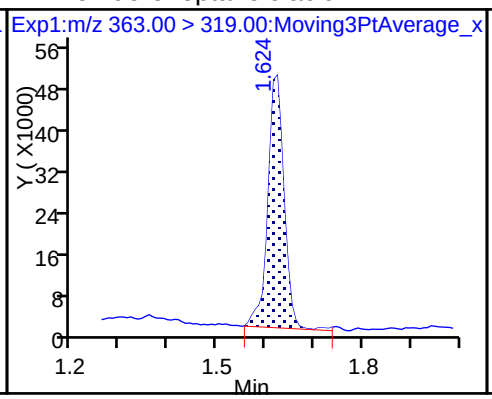
$ 2 13C2 PFHxA



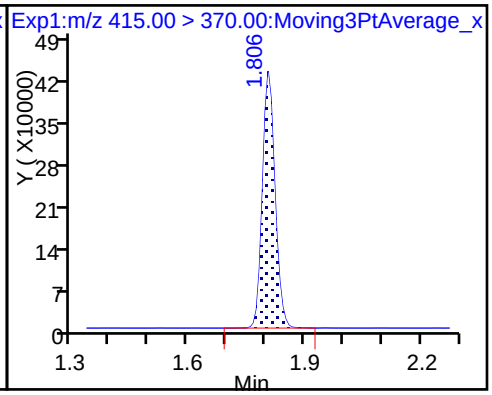
3 Perfluorohexanesulfonic acid



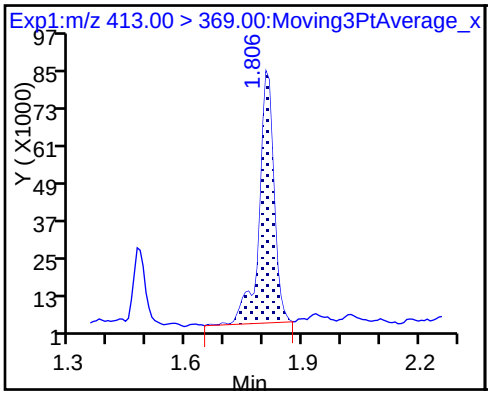
4 Perfluoroheptanoic acid



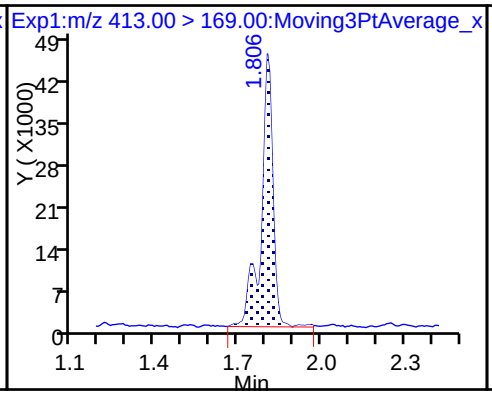
* 6 13C2-PFOA



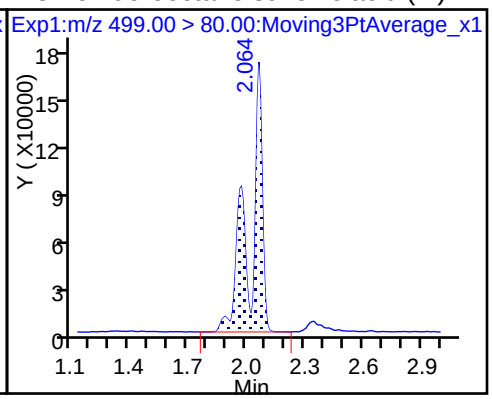
5 Perfluorooctanoic acid



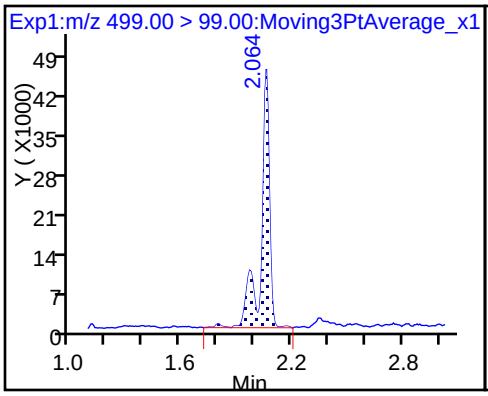
5 Perfluorooctanoic acid



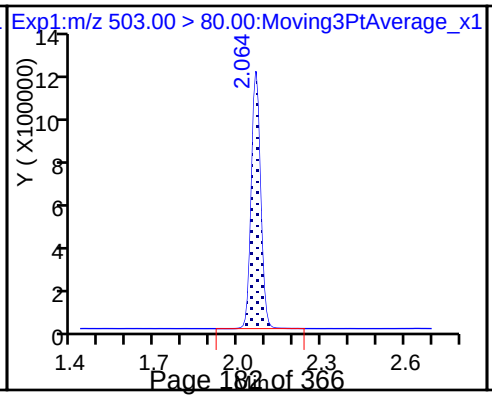
8 Perfluorooctane sulfonic acid (M)



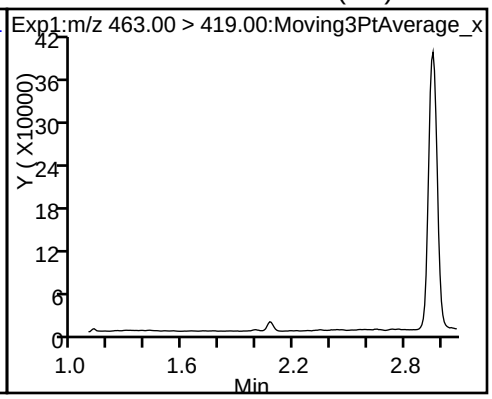
8 Perfluorooctane sulfonic acid



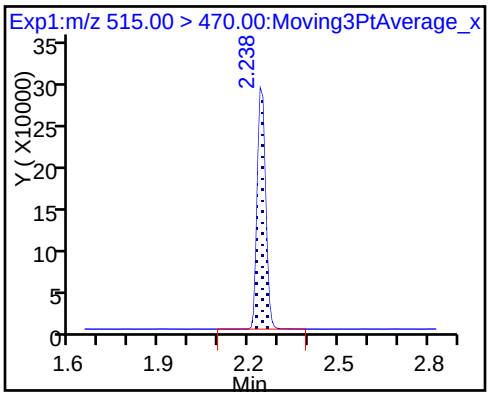
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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20
15
10
5
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_057.d
Lims ID: 320-36163-A-13-A
Client ID: WGNA-021518-RW-3882
Sample Type: Client
Inject. Date: 06-Mar-2018 21:49:14 ALS Bottle#: 39 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-13-
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:57:33

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.47	84.72
$ 10 13C2 PFDA	10.0	11.1	111.21

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

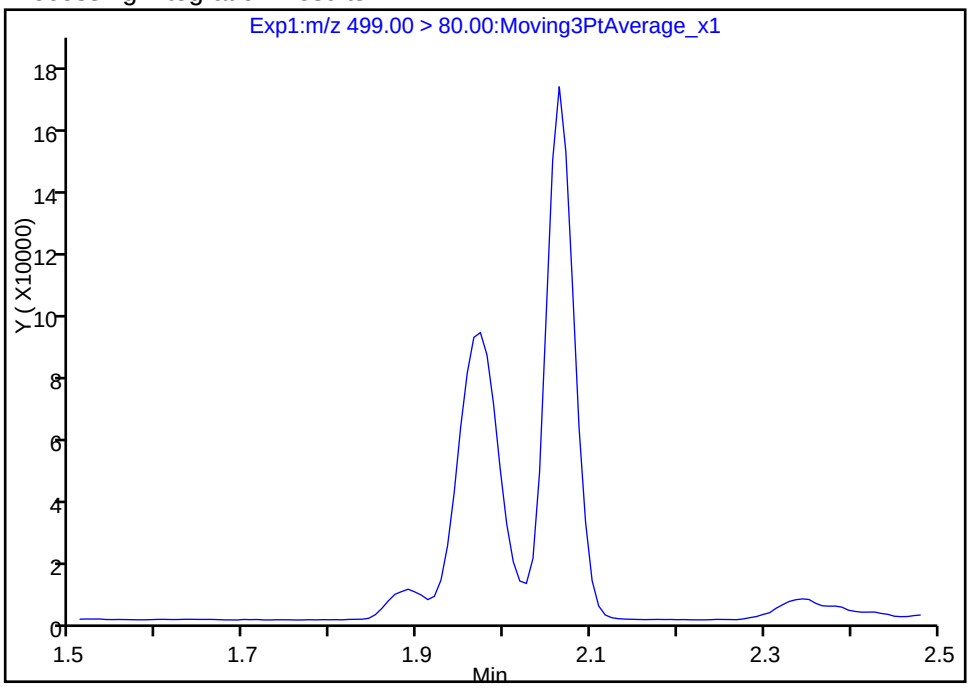
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_057.d				
Injection Date:	06-Mar-2018 21:49:14	Instrument ID:	A8_N		
Lims ID:	320-36163-A-13-A	Lab Sample ID:	320-36163-13		
Client ID:	WGNA-021518-RW-3882				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	39	Worklist Smp#:	9
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

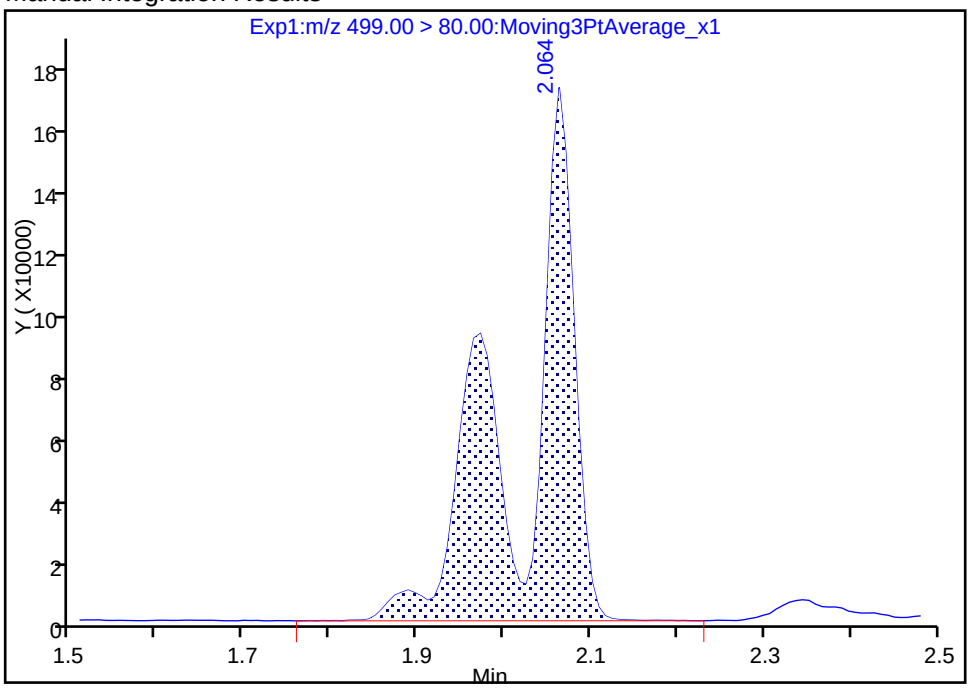
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 727866
Amount: 8.437975
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:57:18
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-3882 | Lab Sample ID: 320-36163-14

Matrix: Water | Lab File ID: 2018.03.06_537AA_058.d

Analysis Method: 537 | Date Collected: 02/15/2018 15:35

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 249.8(mL) | Date Analyzed: 03/06/2018 21:53

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.: 211575 | 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	82		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_058.d
Lims ID: 320-36163-A-14-A
Client ID: WGNA-021518-FRB-3882
Sample Type: Client
Inject. Date: 06-Mar-2018 21:53:56 ALS Bottle#: 40 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-14-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	850110	8.23		13119	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.821	-0.008		939695	10.0		10202	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.079	-0.015		2543188	28.7		6015	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	546365	11.1		4753	

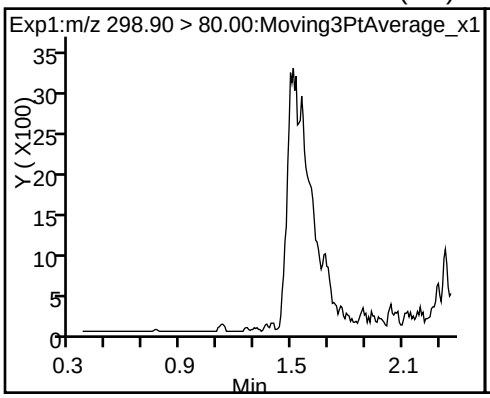
Report Date: 07-Mar-2018 10:05:59 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

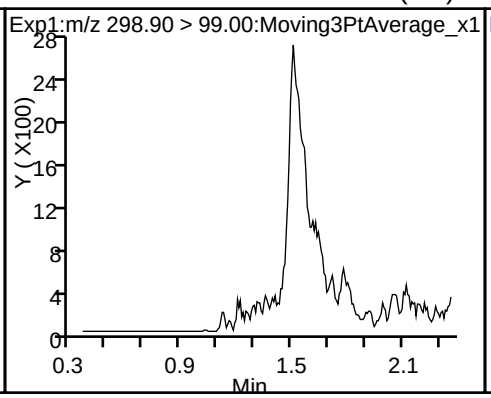
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_058.d

Injection Date:	06-Mar-2018 21:53:56	Instrument ID:	A8_N		
Lims ID:	320-36163-A-14-A	Lab Sample ID:	320-36163-14		
Client ID:	WGNA-021518-FRB-3882				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	40	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

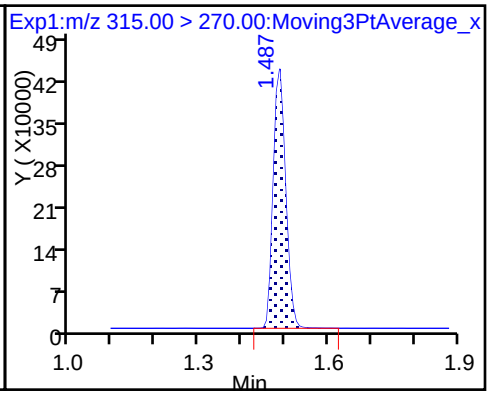
1 Perfluorobutanesulfonic acid (ND)



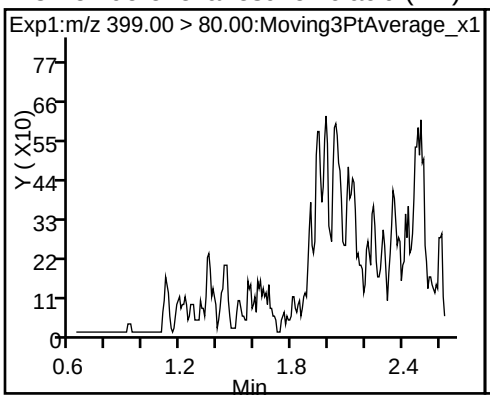
1 Perfluorobutanesulfonic acid (ND)



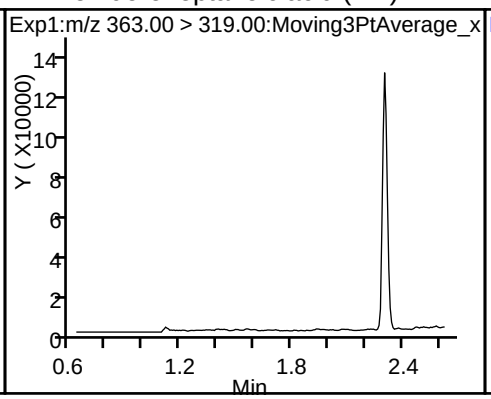
$ 2 13C2 PFHxA



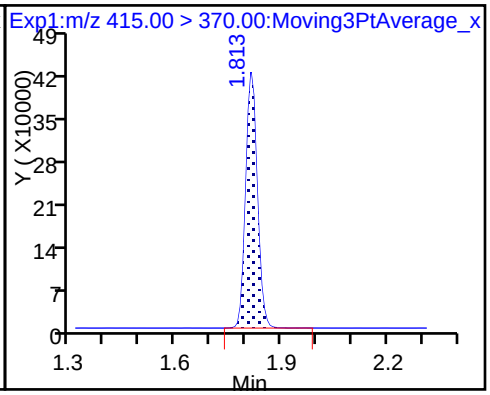
3 Perfluorohexanesulfonic acid (ND)



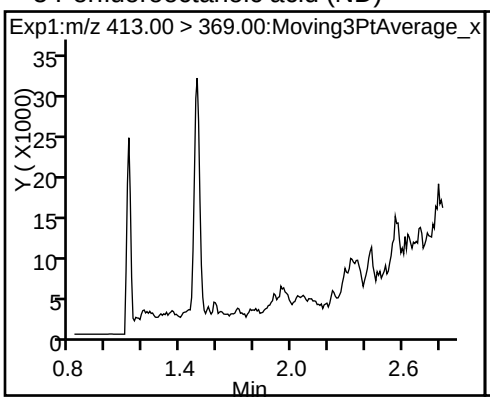
4 Perfluoroheptanoic acid (ND)



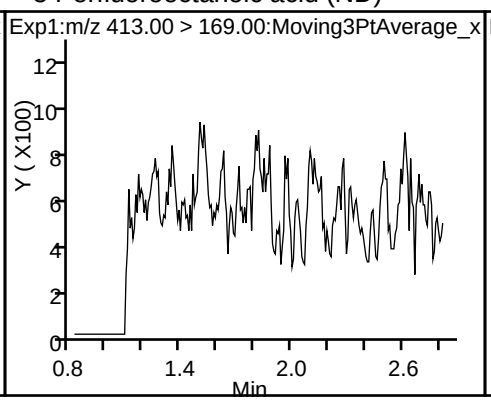
* 6 13C2-PFOA



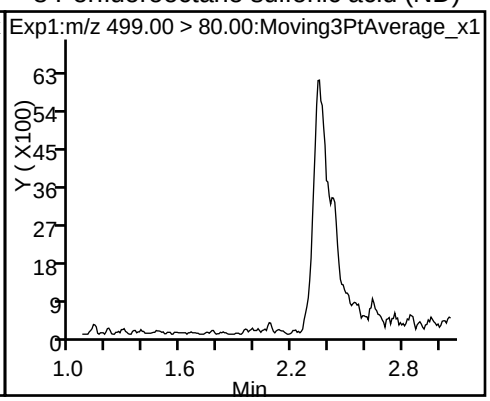
5 Perfluorooctanoic acid (ND)



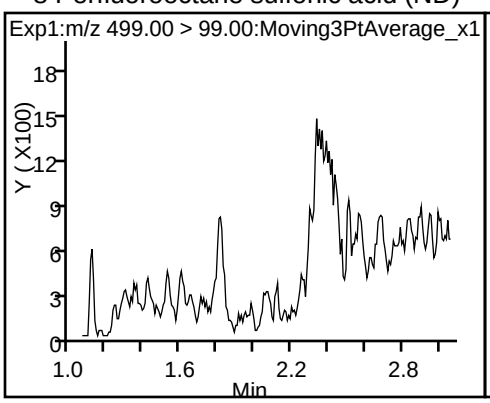
5 Perfluorooctanoic acid (ND)



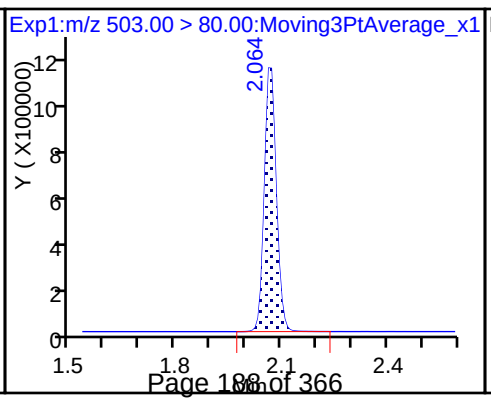
8 Perfluorooctane sulfonic acid (ND)



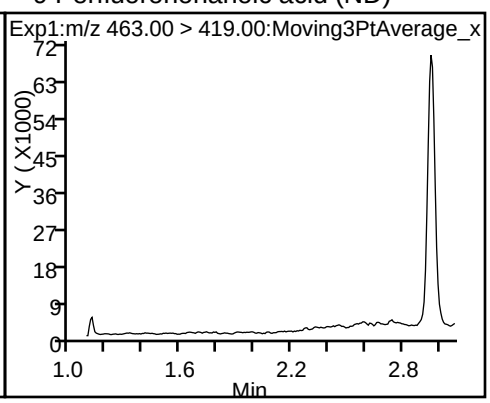
8 Perfluorooctane sulfonic acid (ND)



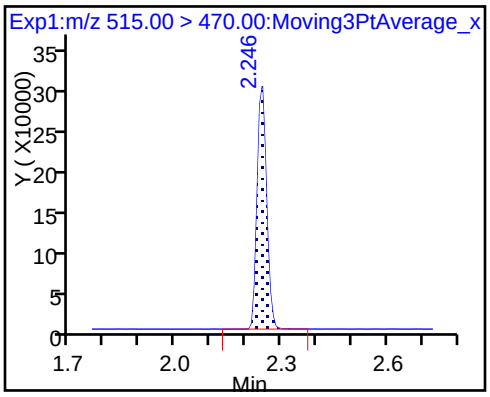
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
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Y (X10000)
35
30
25
20
15
10
5
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_058.d				
Lims ID:	320-36163-A-14-A				
Client ID:	WGNA-021518-FRB-3882				
Sample Type:	Client				
Inject. Date:	06-Mar-2018 21:53:56	ALS Bottle#:	40	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-36163-a-14-a				
Misc. Info.:	Plate: 1 Rack: 6				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	07-Mar-2018 10:05:50	Calib Date:	16-Feb-2018 09:19:04		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK022				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.23	82.25
$ 10 13C2 PFDA	10.0	11.1	110.90

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-DUP-27 | Lab Sample ID: 320-36163-15

Matrix: Water | Lab File ID: 2018.03.06_537AA_059.d

Analysis Method: 537 | Date Collected: 02/15/2018 07:00

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.2(mL) | Date Analyzed: 03/06/2018 21:58

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.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J M	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	9.0	J	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J M	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	82		70-130
STL00996	13C2 PFDA	112		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_059.d
Lims ID: 320-36163-A-15-A
Client ID: WGNA-021518-DUP-27
Sample Type: Client
Inject. Date: 06-Mar-2018 21:58:38 ALS Bottle#: 41 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-15-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:58:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	118951	1.00		59.9	
298.90 > 99.00	1.366	1.366	0.0	1.000	89128		1.33(0.00-0.00)	135	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	872887	8.16		13466	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	411571	2.82		343	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	1.631	1.631	0.0	1.000	105234	1.11		15.8	M
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.821	-0.008		972359	10.0		9809	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.821	1.821	0.0	1.000	218340	2.33		9.0	
413.00 > 169.00	1.813	1.821	-0.008	0.996	135412		1.61(0.00-0.00)	88.3	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.071	2.064	0.007	1.000	692139	8.07		246	M
499.00 > 99.00	2.071	2.064	0.007	1.000	133272		5.19(0.00-0.00)	85.8	M
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.079	-0.008		2601918	28.7		4762	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	569250	11.2		6082	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

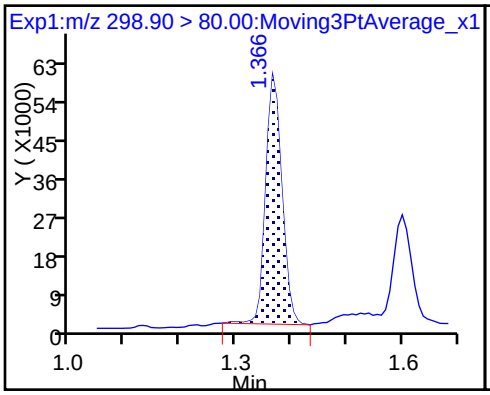
Report Date: 07-Mar-2018 10:06:00 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

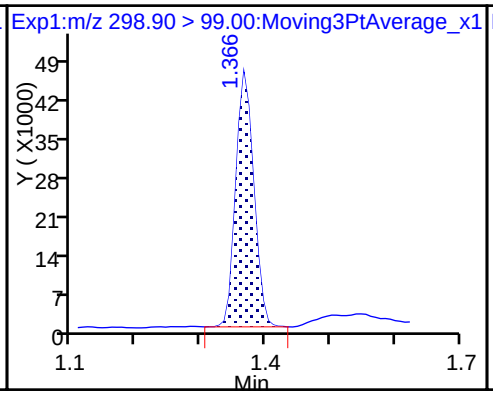
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_059.d

Injection Date:	06-Mar-2018 21:58:38	Instrument ID:	A8_N		
Lims ID:	320-36163-A-15-A	Lab Sample ID:	320-36163-15		
Client ID:	WGNA-021518-DUP-27				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	41	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

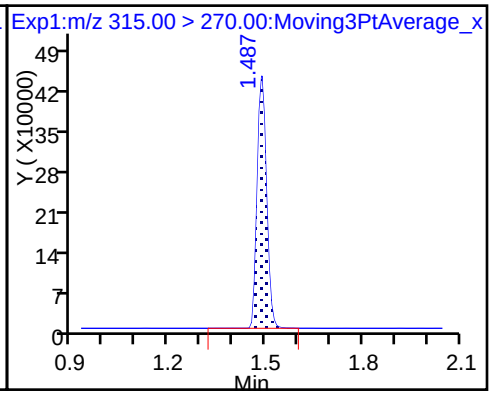
1 Perfluorobutanesulfonic acid



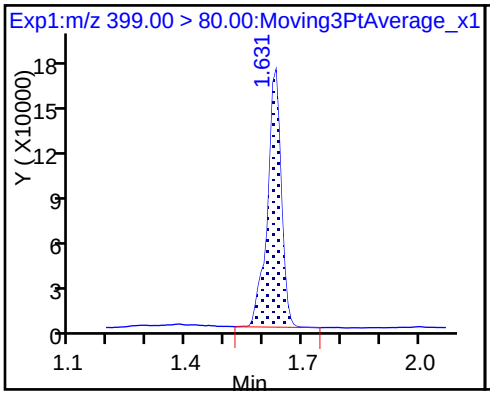
1 Perfluorobutanesulfonic acid



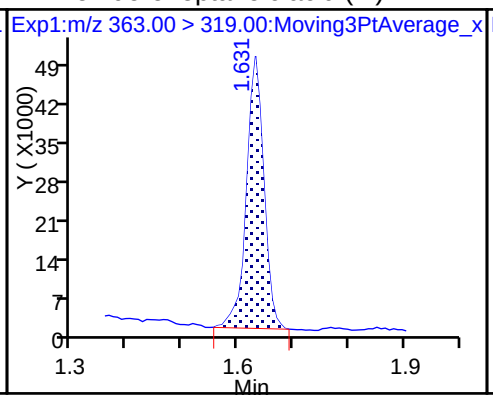
$ 2 13C2 PFHxA



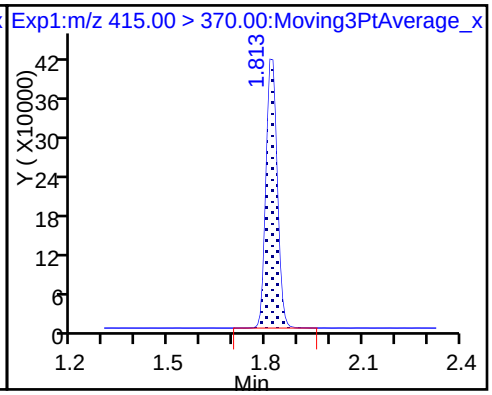
3 Perfluorohexanesulfonic acid



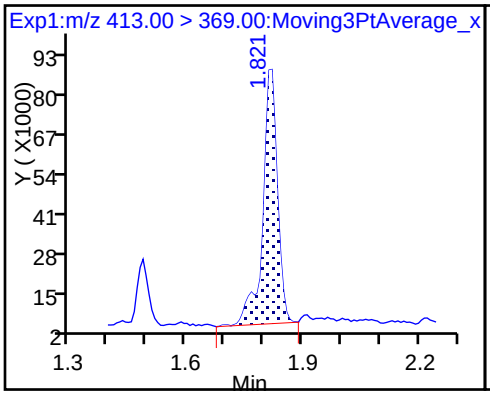
4 Perfluoroheptanoic acid (M)



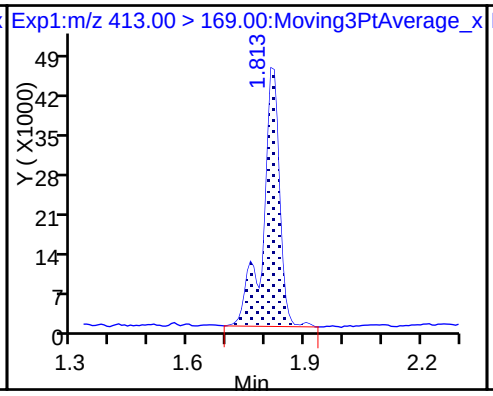
* 6 13C2-PFOA



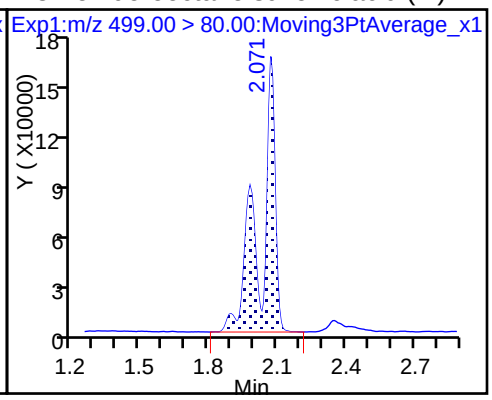
5 Perfluorooctanoic acid



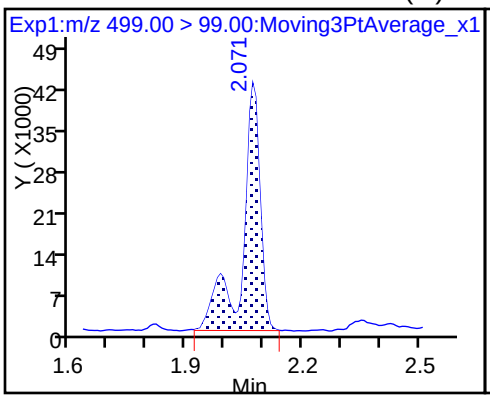
5 Perfluorooctanoic acid



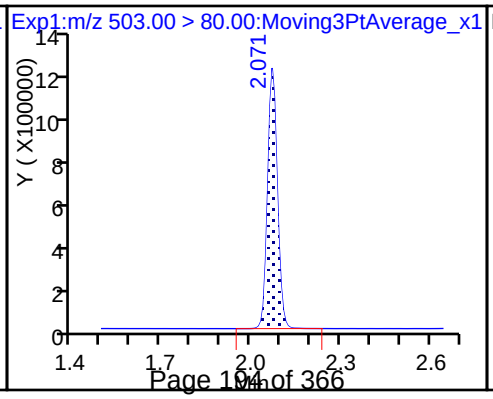
8 Perfluorooctane sulfonic acid (M)



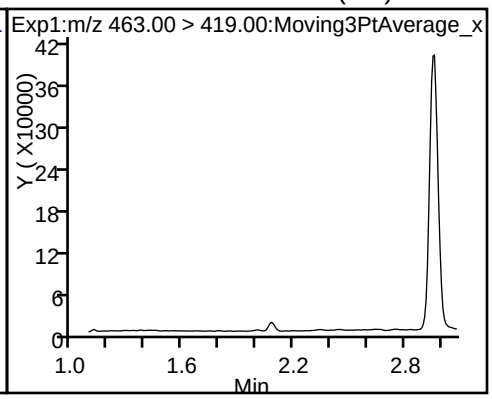
8 Perfluorooctane sulfonic acid (M)



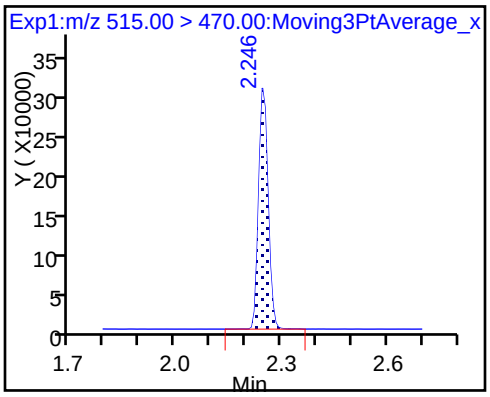
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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Y (X10000)
35
30
25
20
15
10
5
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_059.d
Lims ID: 320-36163-A-15-A
Client ID: WGNA-021518-DUP-27
Sample Type: Client
Inject. Date: 06-Mar-2018 21:58:38 ALS Bottle#: 41 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-15-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:58:38

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.16	81.62
$ 10 13C2 PFDA	10.0	11.2	111.67

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

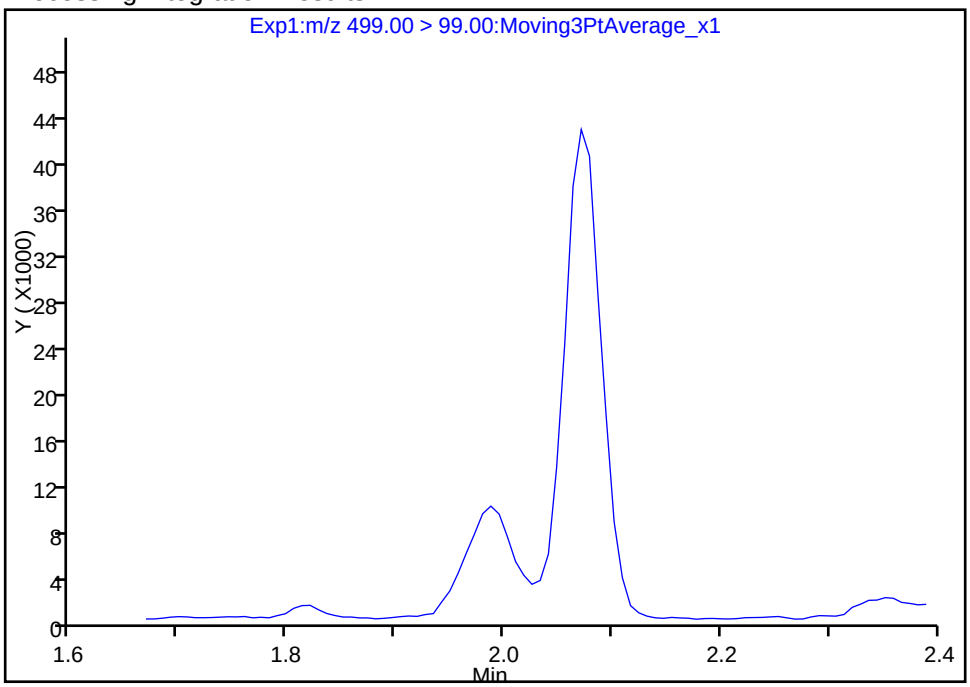
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_059.d				
Injection Date:	06-Mar-2018 21:58:38	Instrument ID:	A8_N		
Lims ID:	320-36163-A-15-A	Lab Sample ID:	320-36163-15		
Client ID:	WGNA-021518-DUP-27				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	41	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

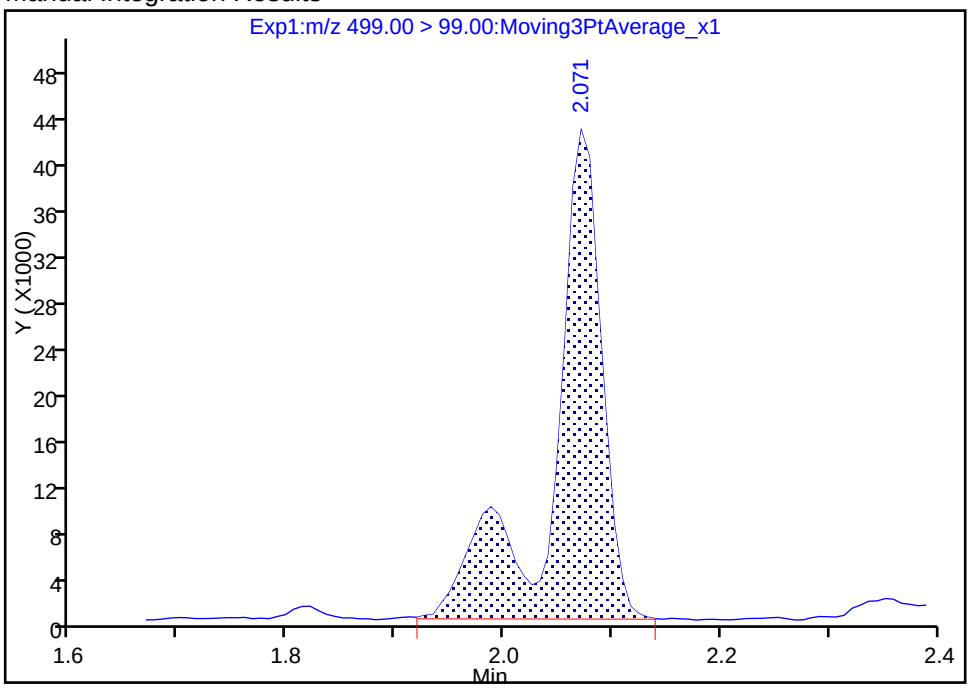
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 133272
Amount: 8.068639
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:58:28
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

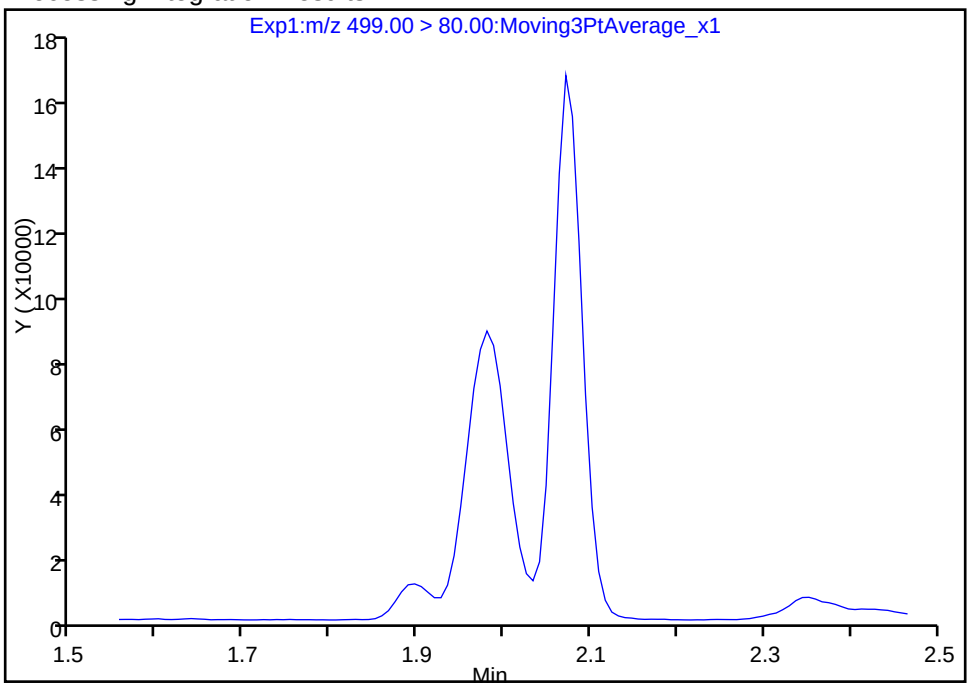
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_059.d				
Injection Date:	06-Mar-2018 21:58:38	Instrument ID:	A8_N		
Lims ID:	320-36163-A-15-A	Lab Sample ID:	320-36163-15		
Client ID:	WGNA-021518-DUP-27				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	41	Worklist Smp#:	11
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

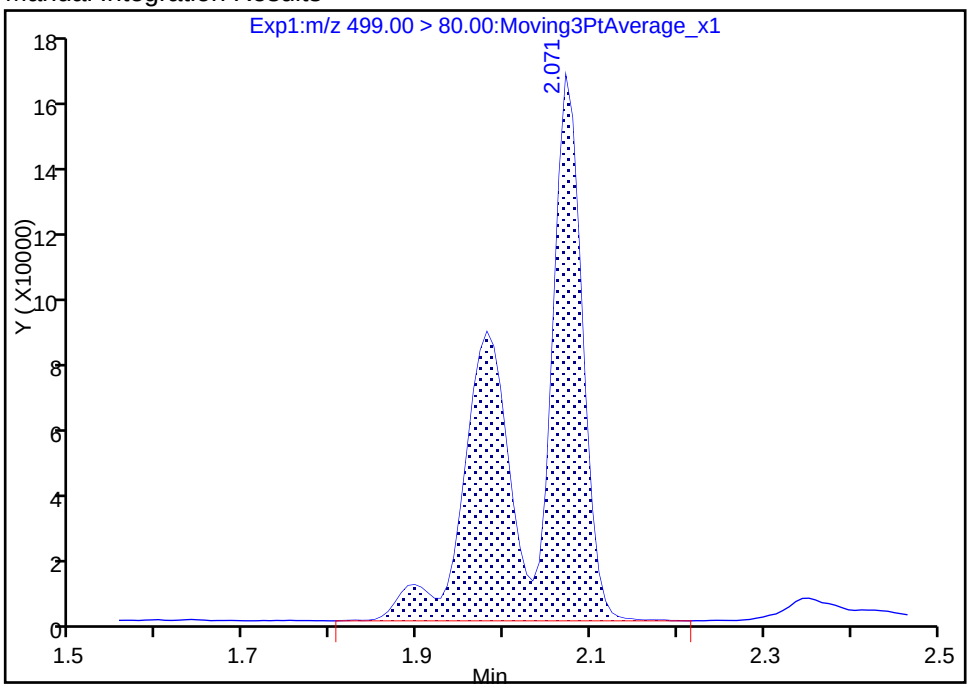
Processing Integration Results

Not Detected
Expected RT: 2.06



Manual Integration Results

RT: 2.07
Area: 692139
Amount: 8.068639
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:58:28
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

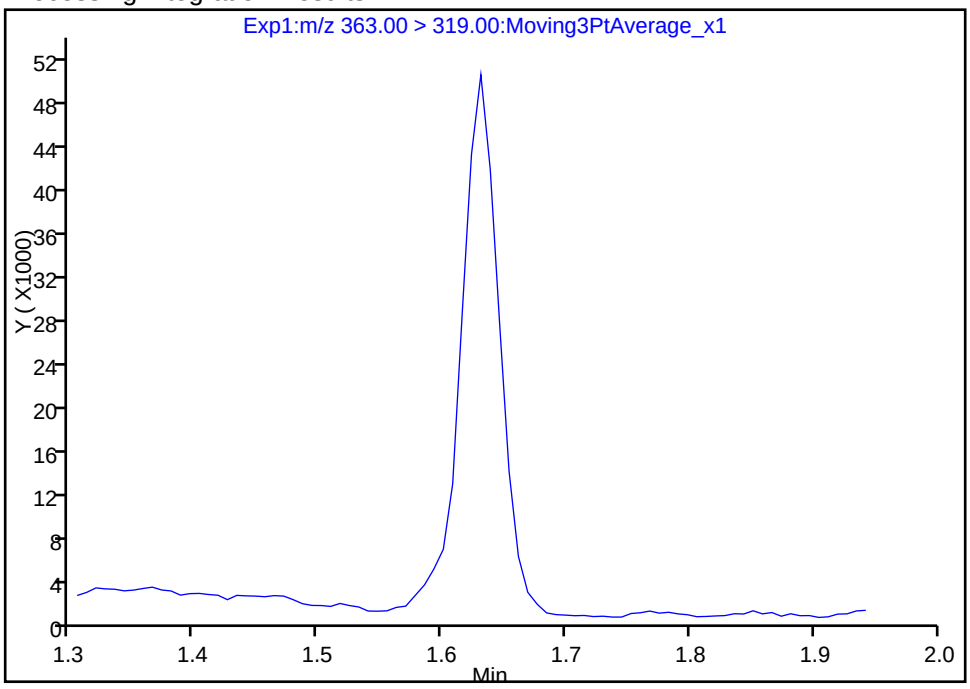
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_059.d				
Injection Date:	06-Mar-2018 21:58:38	Instrument ID:	A8_N		
Lims ID:	320-36163-A-15-A	Lab Sample ID:	320-36163-15		
Client ID:	WGNA-021518-DUP-27				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	41	Worklist Smp#:	11
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

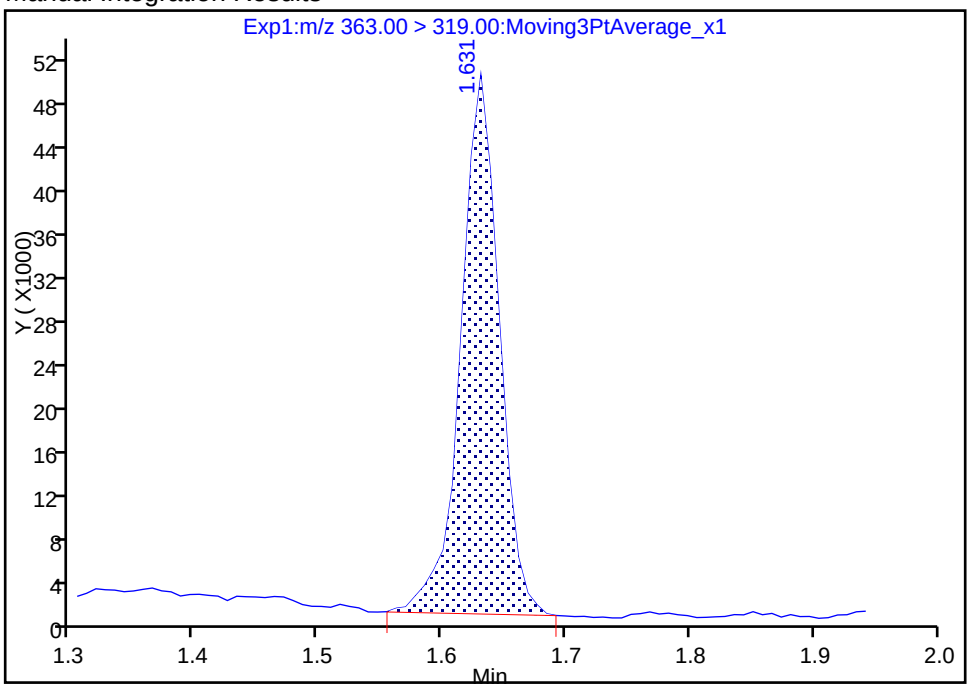
Not Detected
Expected RT: 1.63

Processing Integration Results



Manual Integration Results

RT: 1.63
Area: 105234
Amount: 1.114424
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:58:03
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-RW-229 | Lab Sample ID: 320-36163-16

Matrix: Water | Lab File ID: 2018.03.06_537AA_060.d

Analysis Method: 537 | Date Collected: 02/15/2018 16:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 253(mL) | Date Analyzed: 03/06/2018 22:03

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.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J M	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	32		20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	13	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	12		9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	78		70-130
STL00996	13C2 PFDA	114		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_060.d
Lims ID: 320-36163-A-16-A
Client ID: NAWC-021518-RW-229
Sample Type: Client
Inject. Date: 06-Mar-2018 22:03:20 ALS Bottle#: 42 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-16-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:59:44

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.366	-0.008	1.000	249928	2.01		207	
298.90 > 99.00	1.358	1.366	-0.008	1.000	183845		1.36(0.00-0.00)	279	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	868190	7.82		13202	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	487687	3.21		277	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	297071	3.03		35.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.821	-0.015		1008798	10.0		8629	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.821	-0.015	1.000	778140	8.02		26.8	
413.00 > 169.00	1.806	1.821	-0.015	1.000	526317		1.48(0.00-0.00)	258	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.064	2.064	0.0	1.000	717815	8.04		207	M
499.00 > 99.00	2.064	2.064	0.0	1.000	134792		5.33(0.00-0.00)	87.8	M
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.079	-0.015		2708459	28.7		3173	
9 Perfluorononanoic acid									M
463.00 > 419.00	2.071	2.086	-0.015	1.000	75782	1.22		2.9	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.253	-0.015	1.000	604191	11.4		6406	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

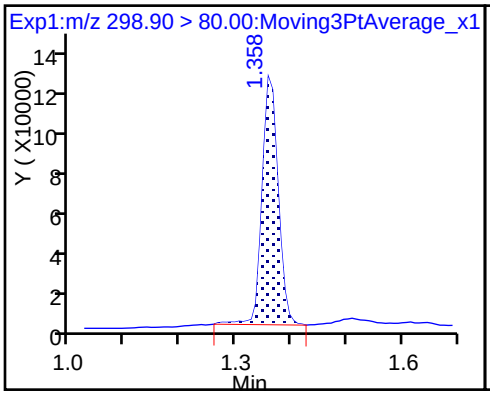
Report Date: 07-Mar-2018 10:06:00 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

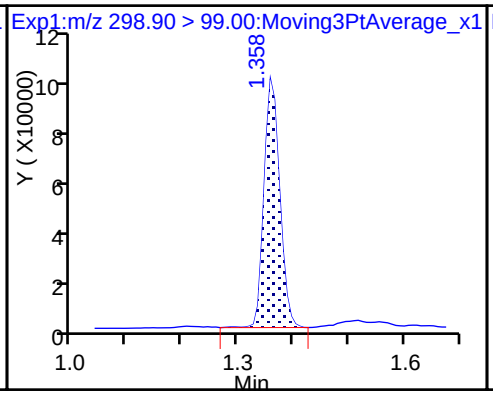
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_060.d

Injection Date:	06-Mar-2018 22:03:20	Instrument ID:	A8_N		
Lims ID:	320-36163-A-16-A	Lab Sample ID:	320-36163-16		
Client ID:	NAWC-021518-RW-229				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	42	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

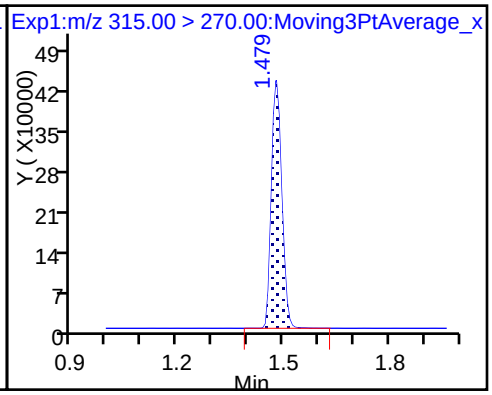
1 Perfluorobutanesulfonic acid



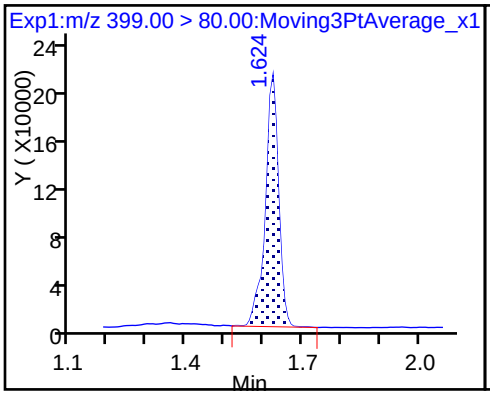
1 Perfluorobutanesulfonic acid



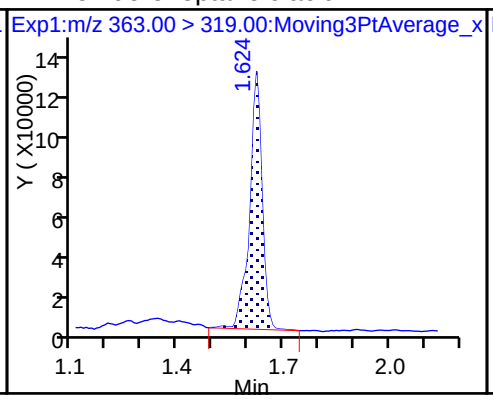
$ 2 13C2 PFHxA



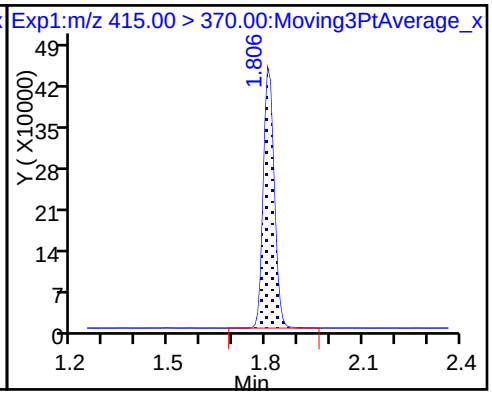
3 Perfluorohexanesulfonic acid



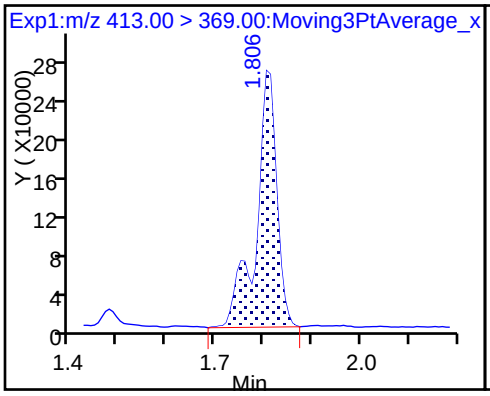
4 Perfluoroheptanoic acid



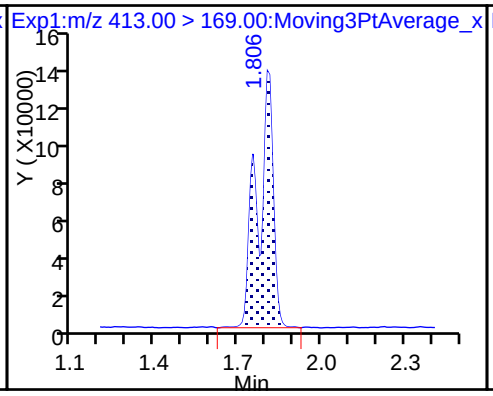
* 6 13C2-PFOA



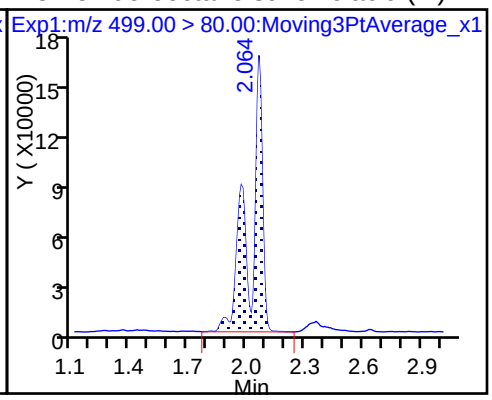
5 Perfluorooctanoic acid



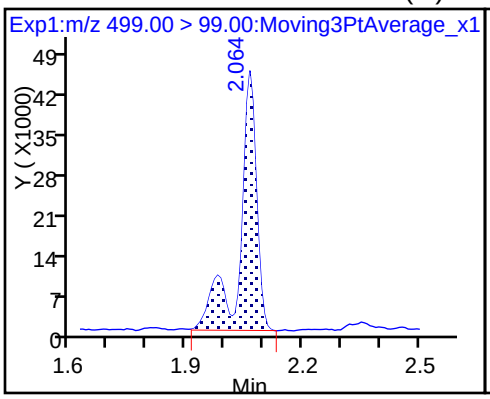
5 Perfluorooctanoic acid



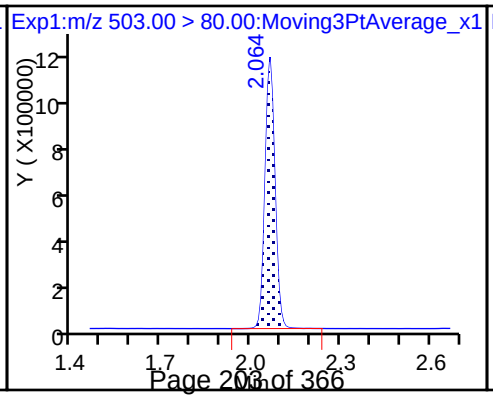
8 Perfluorooctane sulfonic acid (M)



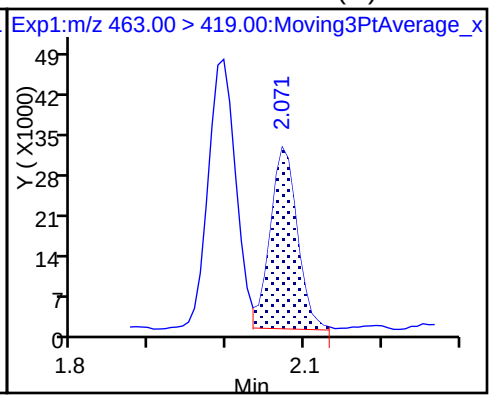
8 Perfluorooctane sulfonic acid (M)



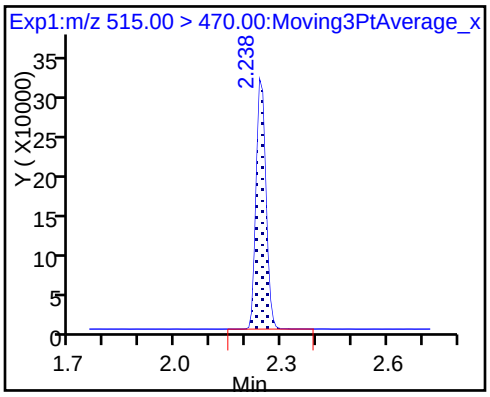
* 7 13C4 PFOS



9 Perfluorononanoic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
35
30
25
20
15
10
5
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_060.d
Lims ID: 320-36163-A-16-A
Client ID: NAWC-021518-RW-229
Sample Type: Client
Inject. Date: 06-Mar-2018 22:03:20 ALS Bottle#: 42 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-16-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:59:44

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.82	78.25
$ 10 13C2 PFDA	10.0	11.4	114.24

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

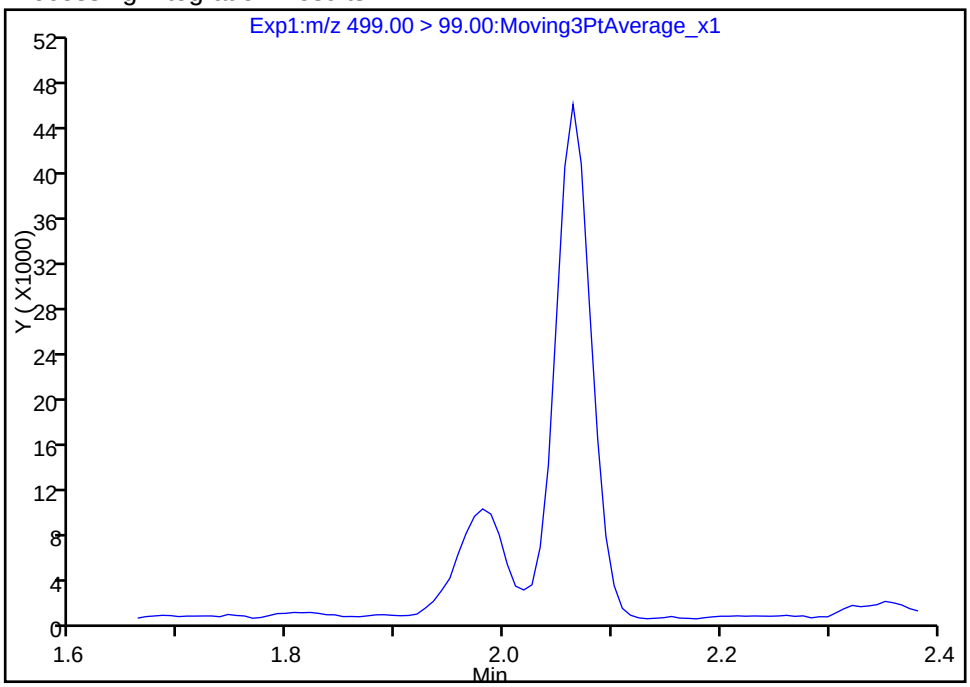
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_060.d				
Injection Date:	06-Mar-2018 22:03:20	Instrument ID:	A8_N		
Lims ID:	320-36163-A-16-A	Lab Sample ID:	320-36163-16		
Client ID:	NAWC-021518-RW-229				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	42	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

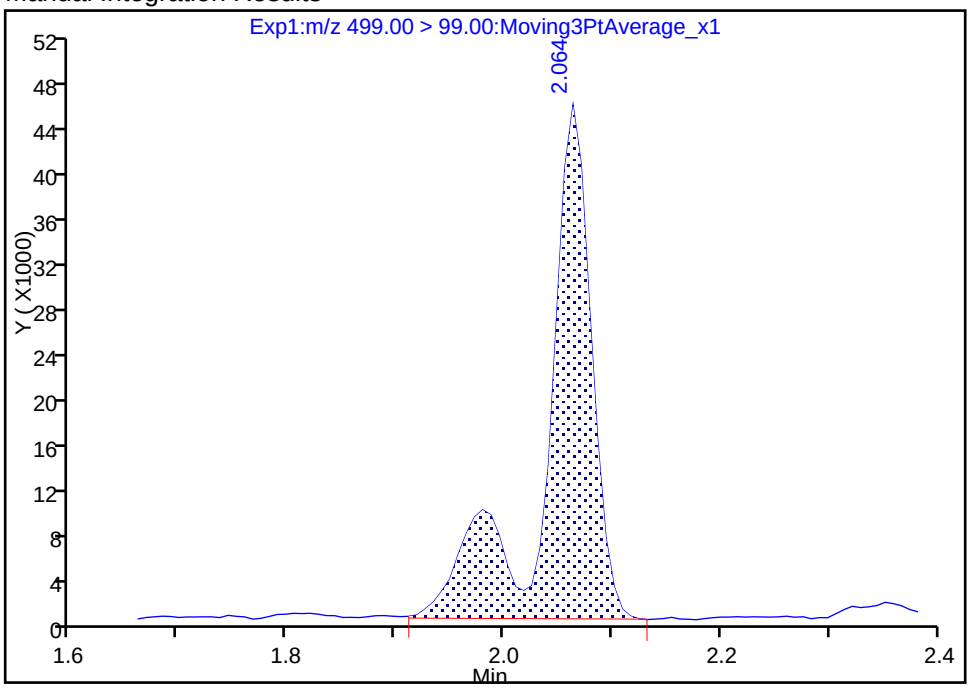
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 134792
Amount: 8.038792
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:58:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_060.d

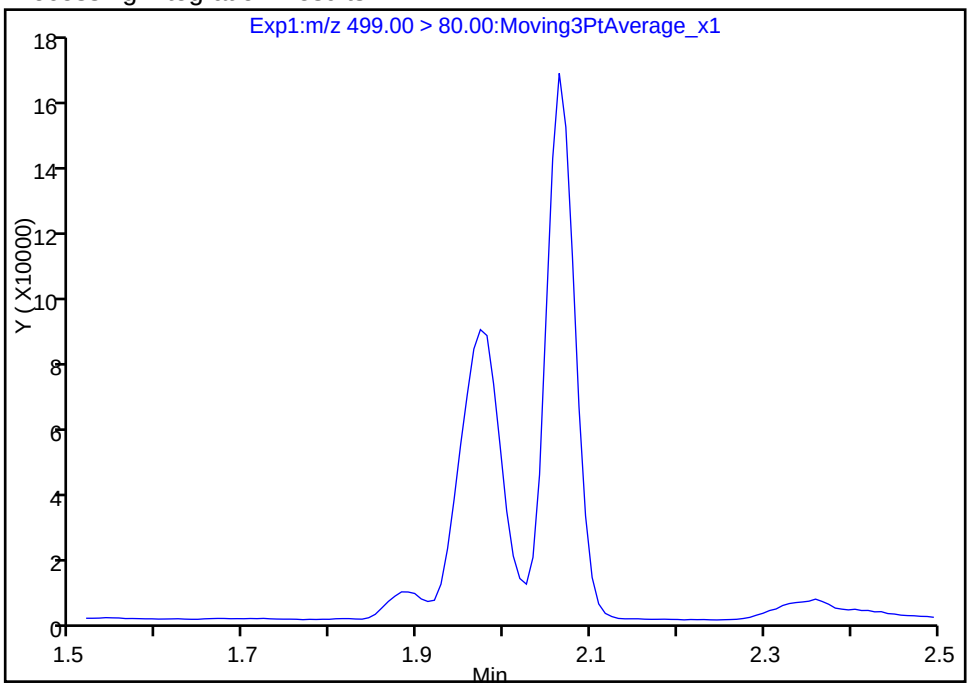
Injection Date:	06-Mar-2018 22:03:20	Instrument ID:	A8_N		
Lims ID:	320-36163-A-16-A	Lab Sample ID:	320-36163-16		
Client ID:	NAWC-021518-RW-229				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	42	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

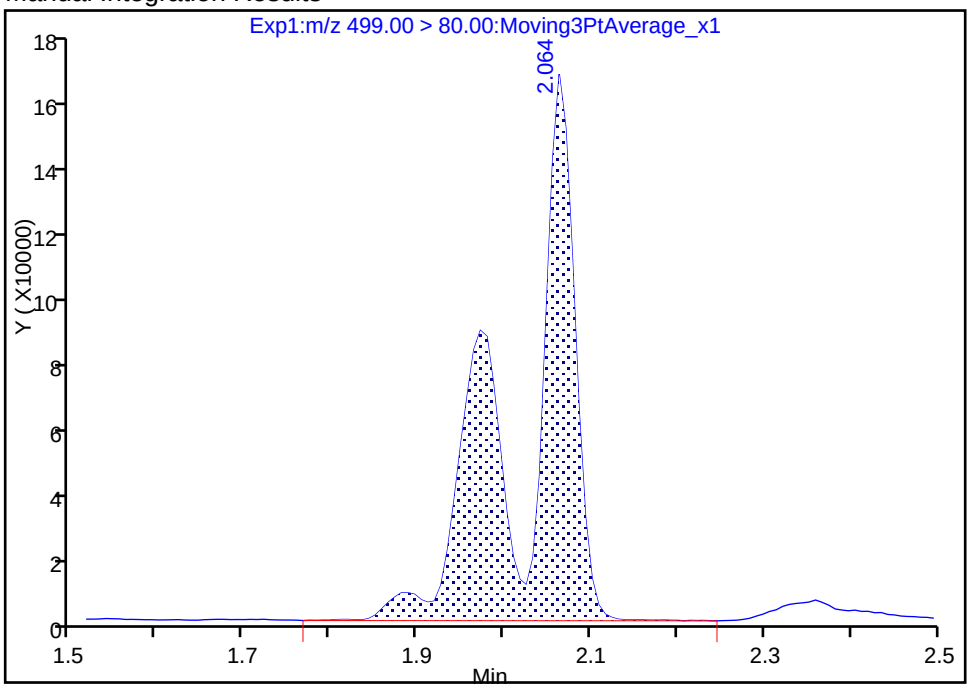
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 717815
Amount: 8.038792
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:58:58
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

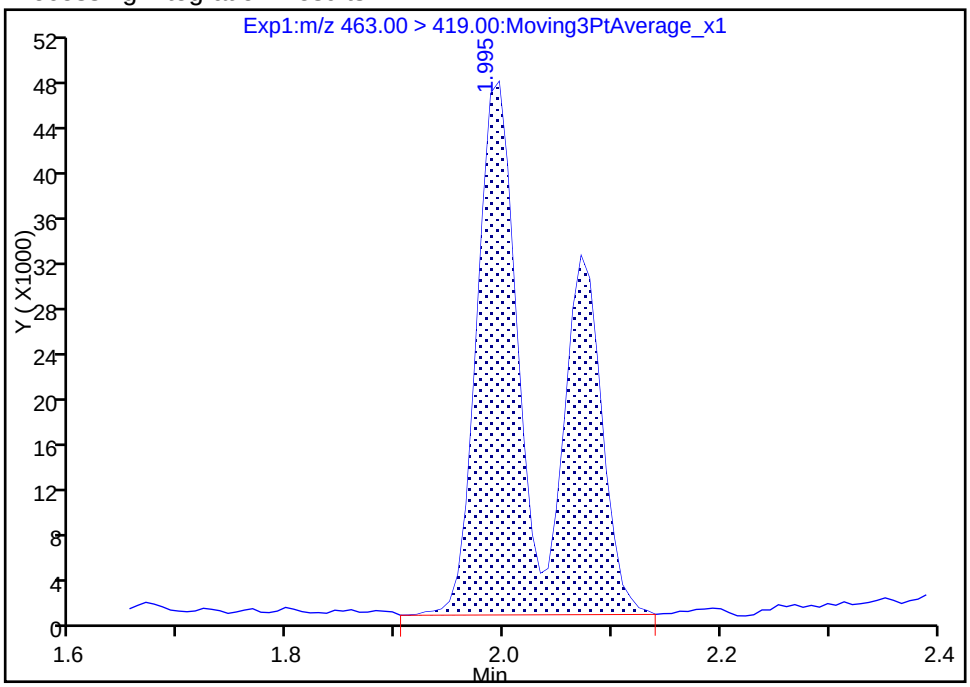
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_060.d				
Injection Date:	06-Mar-2018 22:03:20	Instrument ID:	A8_N		
Lims ID:	320-36163-A-16-A	Lab Sample ID:	320-36163-16		
Client ID:	NAWC-021518-RW-229				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	42	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

9 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

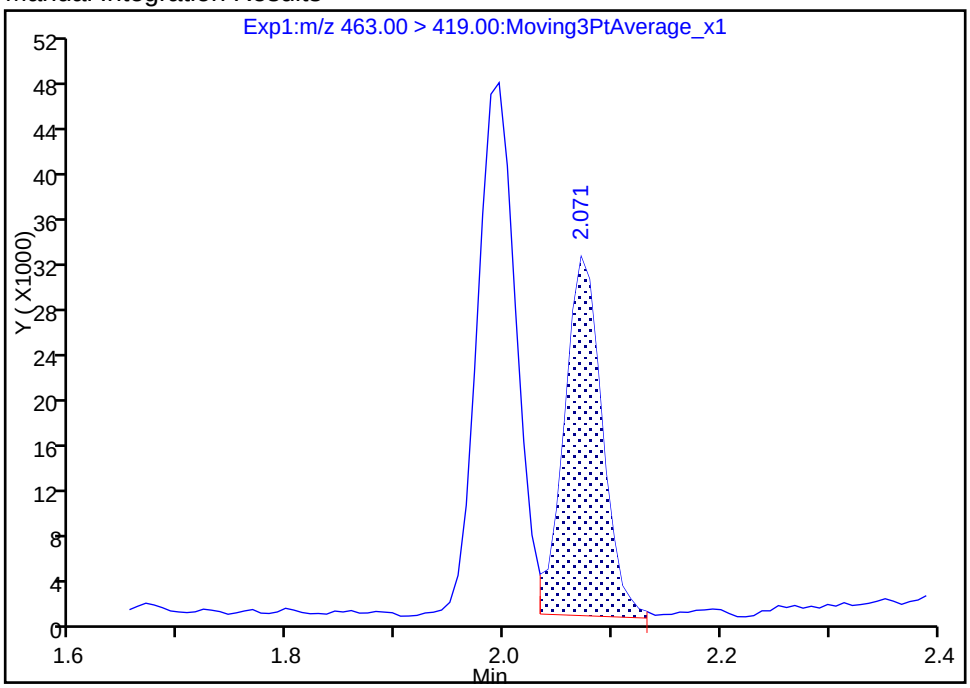
Processing Integration Results

RT: 2.00
Area: 191377
Amount: 3.082742
Amount Units: ng/ml



Manual Integration Results

RT: 2.07
Area: 75782
Amount: 1.220713
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:59:34

Audit Action: Manually Integrated Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-FRB-229 | Lab Sample ID: 320-36163-17

Matrix: Water | Lab File ID: 2018.03.06_537AA_063.d

Analysis Method: 537 | Date Collected: 02/15/2018 16:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 254.3(mL) | Date Analyzed: 03/06/2018 22:17

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.: 211577 | 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	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	75		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_063.d
Lims ID: 320-36163-A-17-A
Client ID: NAWC-021518-FRB-229
Sample Type: Client
Inject. Date: 06-Mar-2018 22:17:22 ALS Bottle#: 43 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-17-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:06:01 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	814328	7.46		12159	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		992161	10.0		10865	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.064	0.0		2641340	28.7		6717	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.246	-0.008	1.000	566449	10.9		5791	

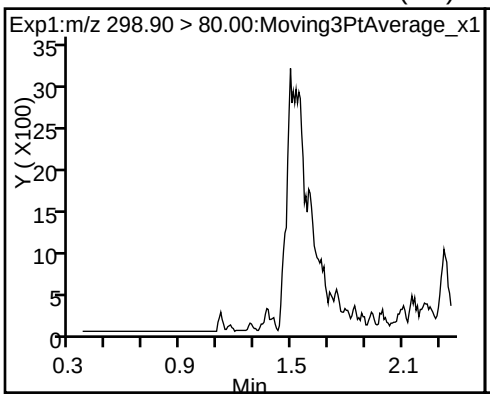
Report Date: 07-Mar-2018 10:06:03 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

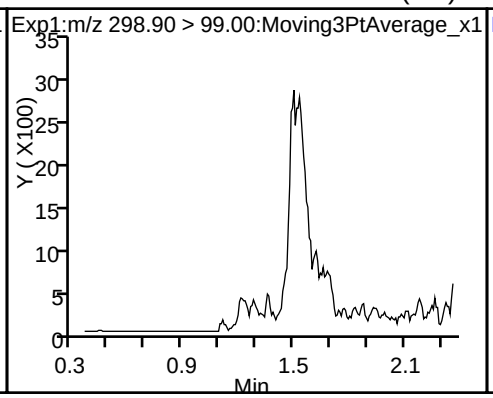
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_063.d

Injection Date:	06-Mar-2018 22:17:22	Instrument ID:	A8_N		
Lims ID:	320-36163-A-17-A	Lab Sample ID:	320-36163-17		
Client ID:	NAWC-021518-FRB-229				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	43	Worklist Smp#:	15
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

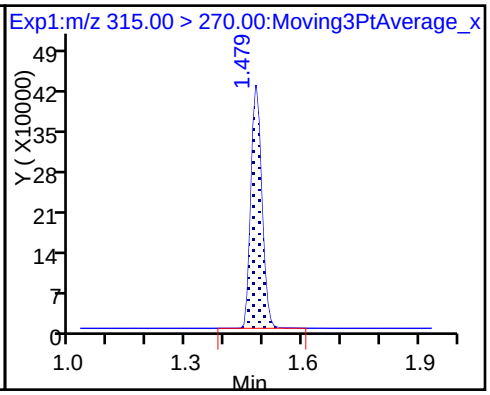
1 Perfluorobutanesulfonic acid (ND)



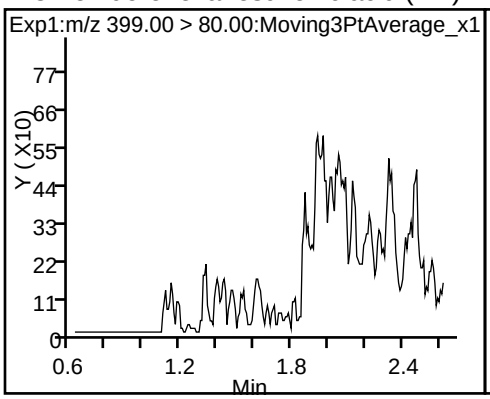
1 Perfluorobutanesulfonic acid (ND)



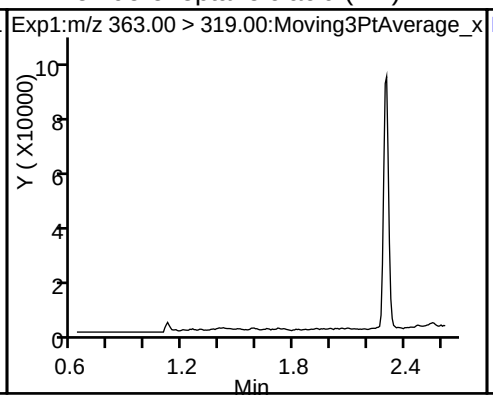
$ 2 13C2 PFHxA



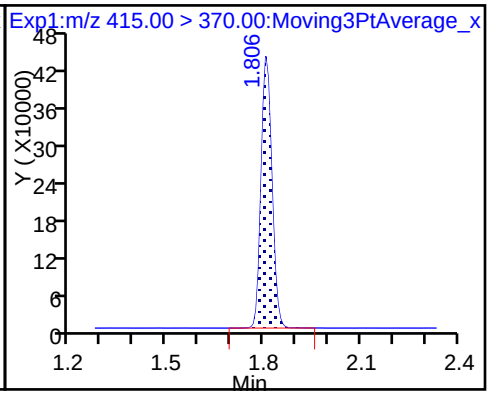
3 Perfluorohexanesulfonic acid (ND)



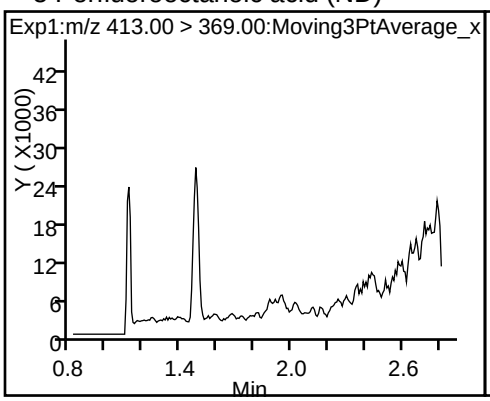
4 Perfluoroheptanoic acid (ND)



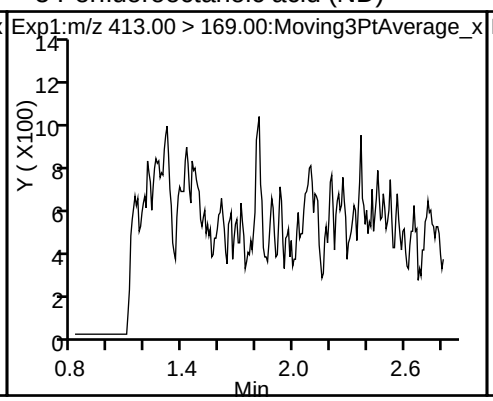
* 6 13C2-PFOA



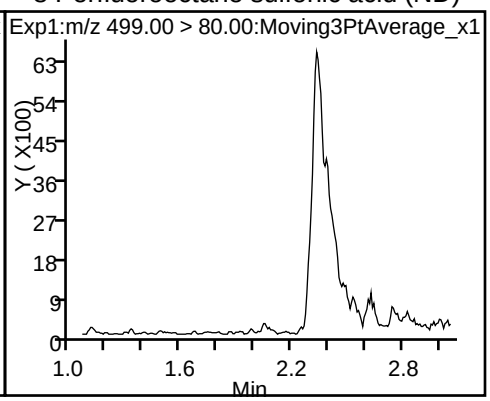
5 Perfluorooctanoic acid (ND)



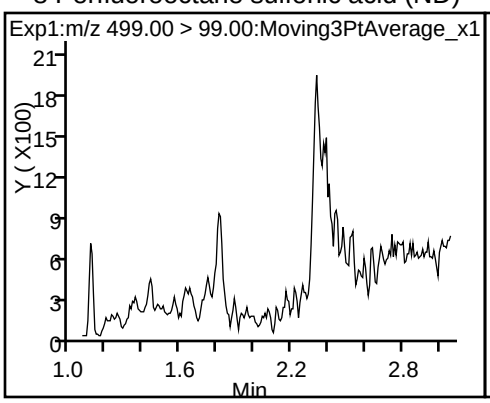
5 Perfluorooctanoic acid (ND)



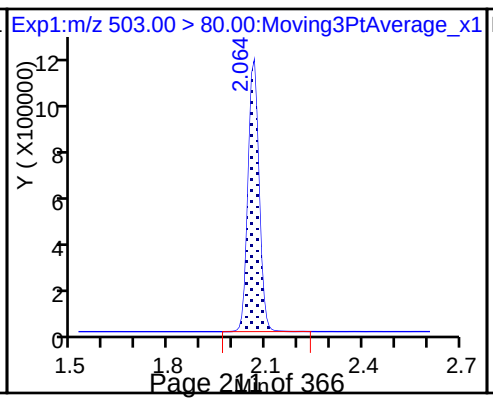
8 Perfluorooctane sulfonic acid (ND)



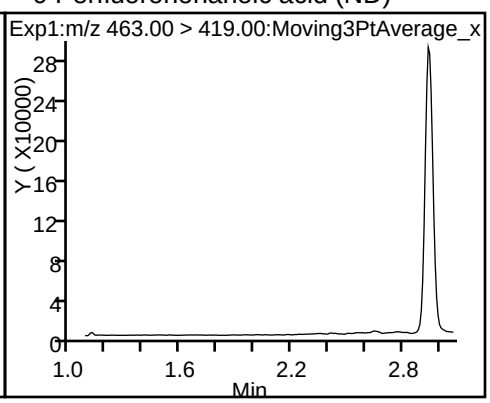
8 Perfluorooctane sulfonic acid (ND)



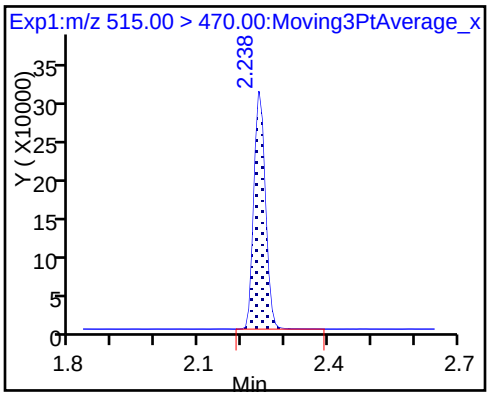
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
35
30
25
20
15
10
5
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_063.d
Lims ID: 320-36163-A-17-A
Client ID: NAWC-021518-FRB-229
Sample Type: Client
Inject. Date: 06-Mar-2018 22:17:22 ALS Bottle#: 43 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-17-a
Misc. Info.: Plate: 1 Rack: 6
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:06:01 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.46	74.62
$ 10 13C2 PFDA	10.0	10.9	108.90

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

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1 Analy Batch No.: 208773

SDG No.:

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

Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	1.1922 0.9350	1.2685	1.2630	1.1053	1.0403	QuaF		1.3180	-0.002120						1.0000		0.9600
Perfluorohexanesulfonic acid (PFHxS)	1.5376 1.6019	1.6461	1.6181	1.5963	1.6585	Ave		1.6098				2.7		30.0			
Perfluoroheptanoic acid (PFHpA)	0.9596 0.9834	0.9488	0.9462	1.0388	0.9501	Ave		0.9711				3.7		30.0			
Perfluorooctanoic acid (PFOA)	0.9118 0.9514	1.0053	0.9624	0.9616	0.9798	Ave		0.9620				3.2		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.9021 0.9430	0.9481	0.9569	0.9539	0.9692	Ave		0.9455				2.4		30.0			
Perfluorononanoic acid (PFNA)	0.6417 0.6193	0.5823	0.5991	0.6537	0.5962	Ave		0.6154				4.5		30.0			
13C2 PFHxA	1.1327 1.1621	1.0418	1.0430	1.1541	1.0657	Ave		1.0999				5.1		30.0			
13C2 PFDA	0.5790 0.5388	0.4974	0.4674	0.5464	0.5166	Ave		0.5243				7.5		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.: 320-36163-1 Analy Batch No.: 208773

SDG No.:

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

Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	1004877 16112512	2401851	5386060	9625497	13334361	9.00 180	20.0	45.0	90.0	135
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	432087 9203547	1039145	2300670	4635169	7088297	3.00 60.0	6.67	15.0	30.0	45.0
Perfluoroheptanoic acid (PFHpA)	13PFOA	Ave	89434 1755879	208408	467875	919334	1334846	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorooctanoic acid (PFOA)	13PFOA	Ave	170858 3415564	443975	956930	1711070	2767901	2.01 40.2	4.47	10.1	20.1	30.2
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	339345 7252490	801200	1821248	3707450	5544581	4.02 80.3	8.93	20.1	40.2	60.3
Perfluorononanoic acid (PFNA)	13PFOA	Ave	119635 2211715	255853	592583	1157180	1675602	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PFOA	Ave	1055358 1037300	1029524	1031304	1021204	998008	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PFOA	Ave	539488 480980	491558	462142	483499	483740	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

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

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1 Analy Batch No.: 208773

SDG No.:

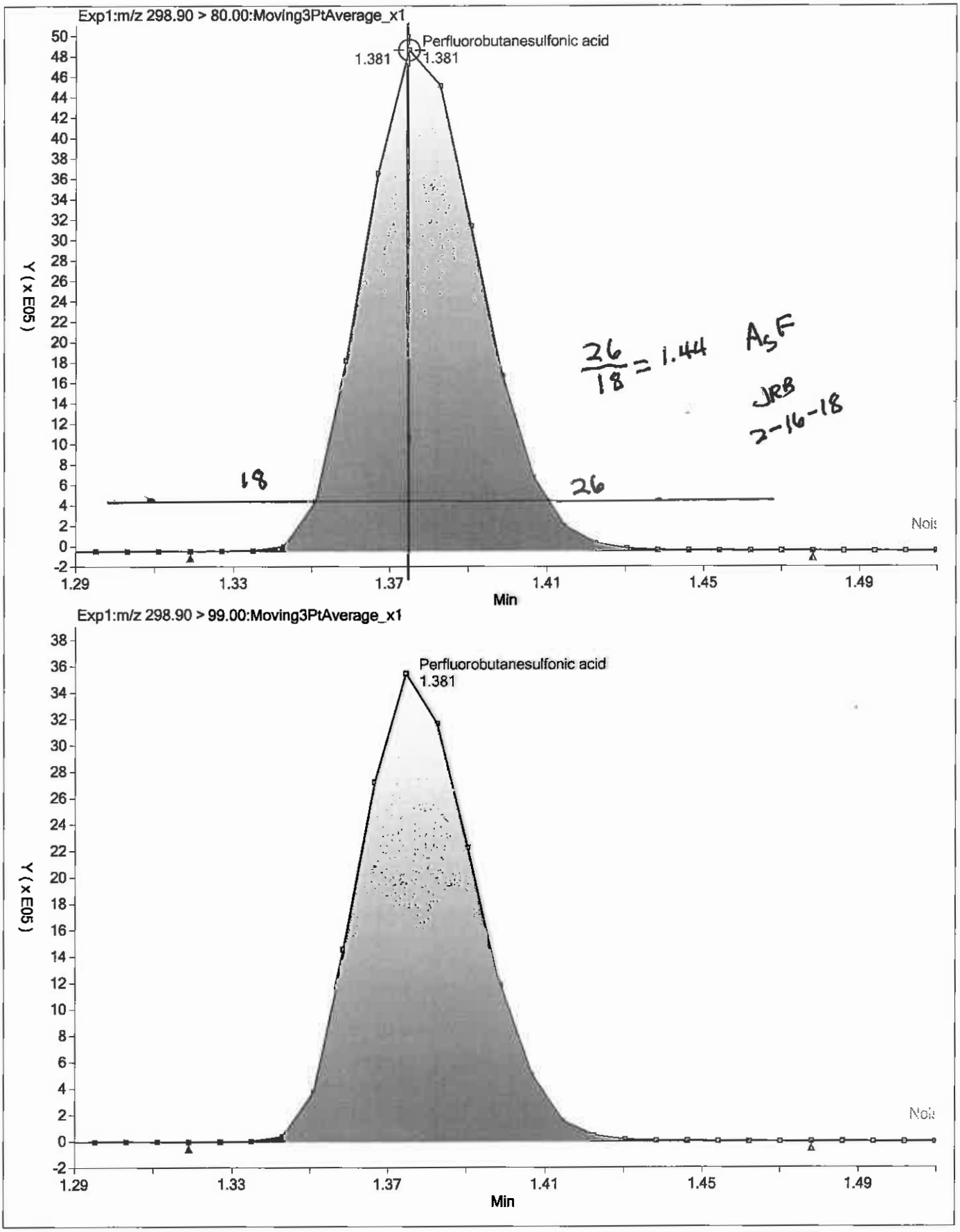
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

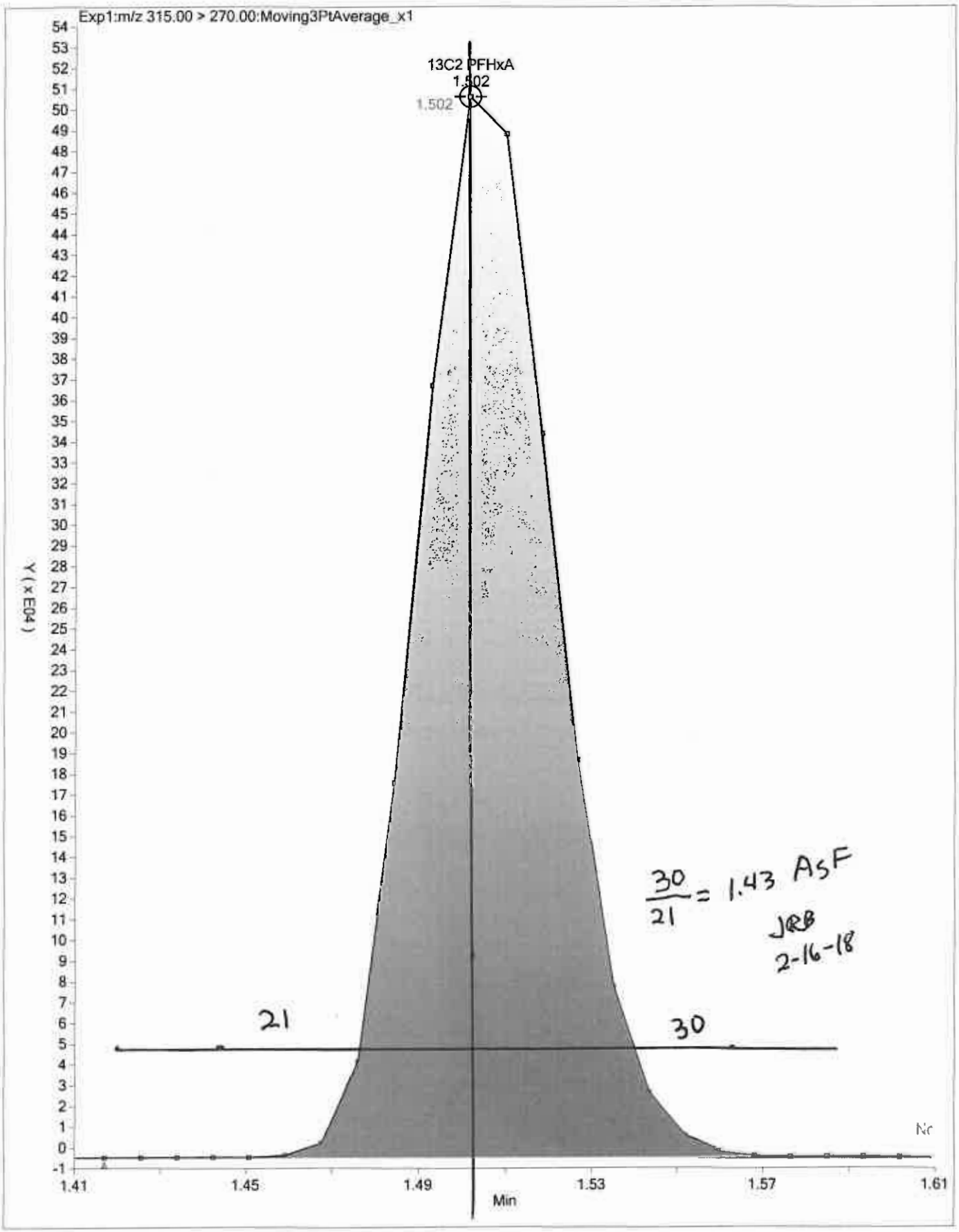
Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-8.3	-0.6	3.6	-2.3	1.1	-0.3	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-4.5	2.3	0.5	-0.8	3.0	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	-1.2	-2.3	-2.6	7.0	-2.2	1.3	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	-5.2	4.5	0.0	0.0	1.8	-1.1	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	0.3	1.2	0.9	2.5	-0.3	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	4.3	-5.4	-2.6	6.2	-3.1	0.6	50	30	30	30	30	30
13C2 PFHxA	3.0	-5.3	-5.2	4.9	-3.1	5.7	30	30	30	30	30	30
13C2 PFDA	10.4	-5.1	-10.9	4.2	-1.5	2.8	30	30	30	30	30	30


Exp1:m/z 298.90 > 80.00:Moving3PtAverage_x1
Perfluorobutanesulfonic acid
1.381
1.381
Y (x E05)
Min
18
26
26/18 = 1.44 AsF
JRB
2-16-18
Exp1:m/z 298.90 > 99.00:Moving3PtAverage_x1
Perfluorobutanesulfonic acid
1.381
Y (x E05)
Min


Exp1:m/z 315.00 > 270.00:Moving3PtAverage_x1
13C2 PFHxA
1.502
1.502
Y (x E04)
Min
1.41
1.45
1.49
1.53
1.57
1.61
21
30
30/21 = 1.43 ASF
JRB
2-16-18

TestAmerica Laboratories
Istd/Surrogate Recovery Report

Worklist Name: 16FEB2018_537_ICAL Worklist Num: 54164
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b
Limit Group: LC 537 ICAL
Analysis Type: SemiVOA
Inj Volume: 2.00 Inj Vol Units: ul

Lims Batch: 208773
CCV IS Mode: Select Ical Level, Cal Level: 3
Non-Cal IS Mode: Last Ccal Sample

$ 2 13C2 PFHxA
$ 10 13C2 PFDA

Lab ID Inj Date	$ 2	$ 10	* 6 13C2-PFOA	* 7 13C4 PFOS
IS Std			3628037 1.81	9733097 2.06
# 1 RB 16-Feb-2018 08:41:23			1.97 1076886< 29.7*	2.19 2716766< 27.9*
# 2 RB 16-Feb-2018 08:46:06			1.89 1019457< 28.1*	2.14 2755286< 28.3*
# 3 RB 16-Feb-2018 08:50:50			1.87 1105032< 30.5*	2.13 2805992< 28.8*
IS Std				
# 4 IC L1 16-Feb-2018 08:55:33	1.51 103.00	2.28 110.40	1.87 931713> 100.0*	2.12 2685321> 100.0*
# 5 IC L2 16-Feb-2018 09:00:16	1.51 94.72	2.28 94.88	1.87 988244> 106.1*	2.12 2714895> 101.1*
# 6 IC L3 16-Feb-2018 09:05:01	1.50 94.82	2.27 89.15	1.86 988820> 106.1*	2.12 2717621> 101.2*
# 7 IC L4 16-Feb-2018 09:09:42	1.50 104.90	2.27 104.20	1.85 884854> 95.0*	2.11 2774986> 103.3*
# 8 IC L5 16-Feb-2018 09:14:23	1.50 96.89	2.26 98.53	1.85 936458> 100.5*	2.11 2722967> 101.4*
# 9 IC L6 16-Feb-2018 09:19:04	1.50 105.70	2.27 102.80	1.86 892615> 95.8*	2.11 2745419> 102.2*
IS Std			988820 1.86	2717621 2.12
#10 RB 16-Feb-2018 09:23:44			1.85 878108 88.8	2.11 2705714 99.6
IS Std			884854 1.85	2774986 2.11
#11 CCVL 16-Feb-2018 09:28:24	1.51 94.27	2.27 95.61	1.87 955394 108.0	2.12 2663428 96.0
IS Std			955394 1.87	2663428 2.12
#12 RB 16-Feb-2018 09:33:05			1.86 966669 101.2	2.11 2704283 101.5
IS Std			884854 1.85	2774986 2.11
#13 ICV 16-Feb-2018 09:37:44	1.50 102.30	2.26 102.00	1.85 890238 100.6	2.11 2703377 97.4
IS Std				
#14 RB 16-Feb-2018 09:42:24				

13C2-PFOA

$$RPD = \frac{988820 - 884854}{\left(\frac{988820 + 884854}{2}\right)} \times 100 = 11.1$$

13C4-PFOS

$$RPD = \frac{2774986 - 2685321}{\left(\frac{2774986 + 2685321}{2}\right)} \times 100 = 3.28$$

JRB
2-16-18

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_004.d
Lims ID: IC L1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 16-Feb-2018 08:55:33 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\20180216-54164.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 16-Feb-2018 10:55:29 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:27:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	1004877	8.25		5011	
298.90 > 99.00	1.381	1.381	0.0	1.000	703519		1.43(0.00-0.00)	3183	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.510	1.505	0.005	1.000	1055358	10.3		16680	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.662	1.656	0.006	1.000	432087	2.87		1230	
4 Perfluoroheptanoic acid									M
363.00 > 319.00	1.662	1.658	0.004	1.000	89434	0.9884		25.8	M
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.859	0.007		931713	10.0		9317	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.860	0.006	1.000	170858	1.91		8.2	
413.00 > 169.00	1.866	1.860	0.006	1.000	97793		1.75(0.00-0.00)	20.1	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.124	2.109	0.015	1.000	339345	3.83		616	a
499.00 > 99.00	2.124	2.109	0.015	1.000	75172		4.51(0.00-0.00)	93.5	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.114	0.010		2685321	28.7		10079	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.122	0.010	1.000	119635	2.09		13.5	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.270	0.006	1.000	539488	11.0		5616	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L1_00021 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 10:55:29 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_004.d

Injection Date: 16-Feb-2018 08:55:33 Instrument ID: A8_N

Lims ID: IC L1

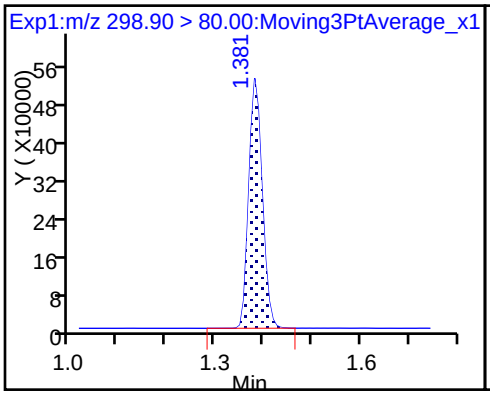
Client ID:

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

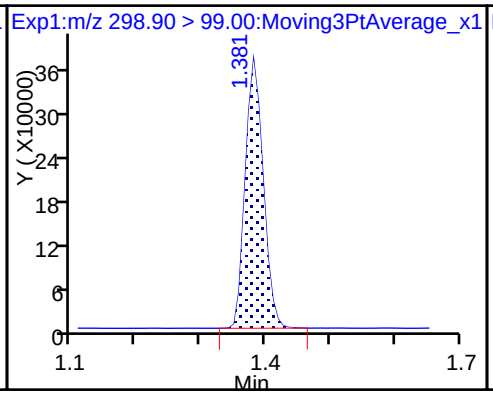
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

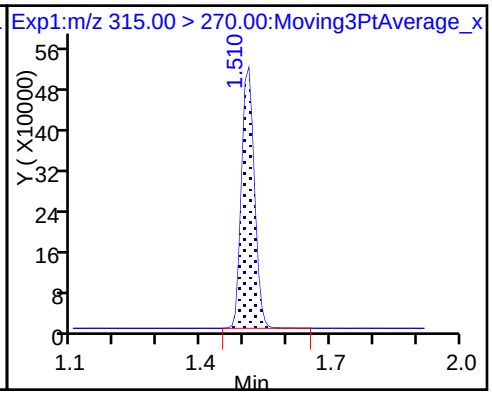
1 Perfluorobutanesulfonic acid



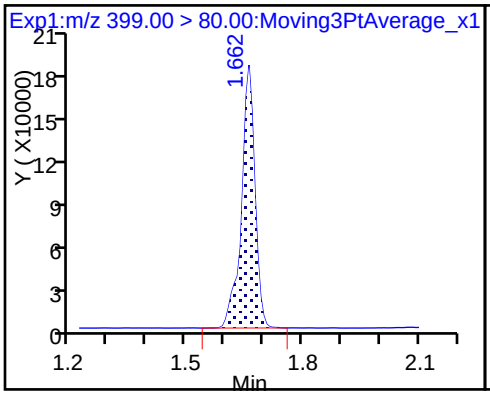
1 Perfluorobutanesulfonic acid



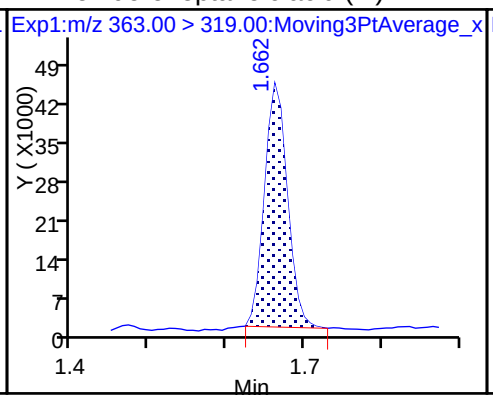
$ 2 13C2 PFHxA



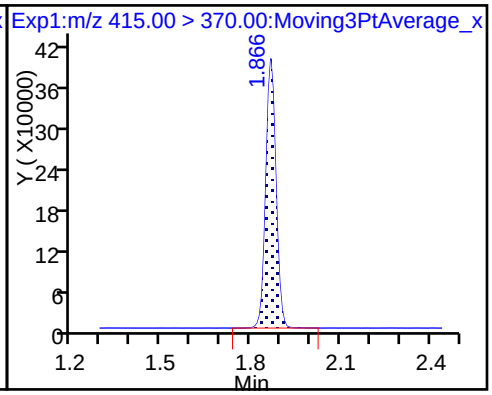
3 Perfluorohexanesulfonic acid



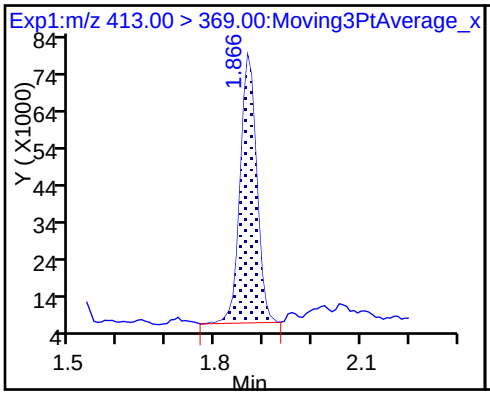
4 Perfluoroheptanoic acid (M)



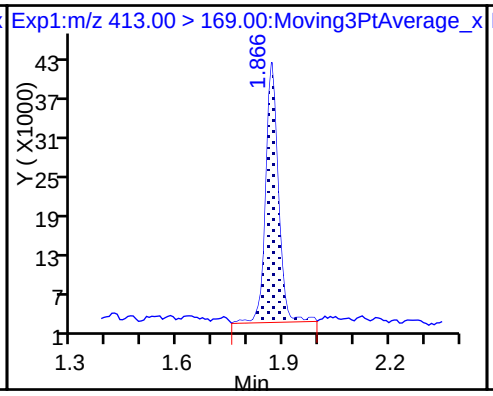
* 6 13C2-PFOA



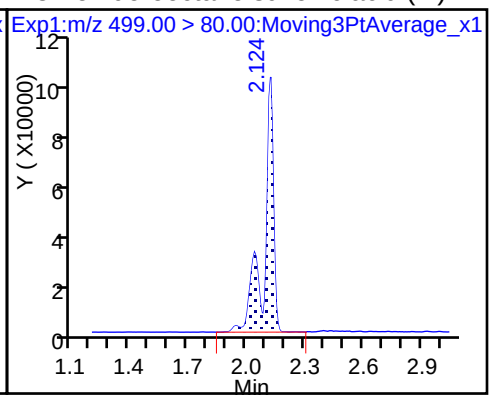
5 Perfluorooctanoic acid



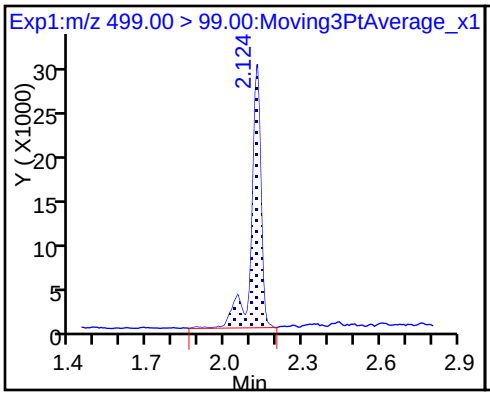
5 Perfluorooctanoic acid



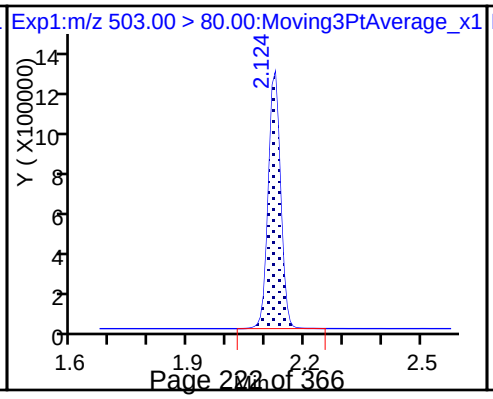
8 Perfluorooctane sulfonic acid (M)



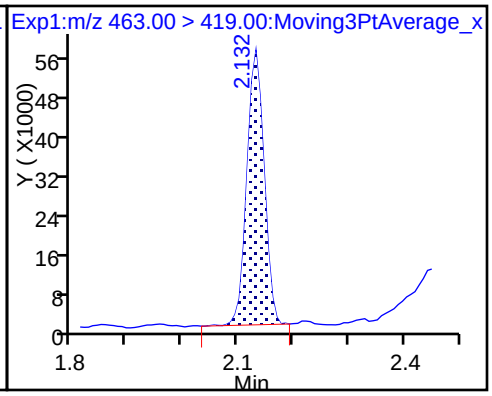
8 Perfluorooctane sulfonic acid



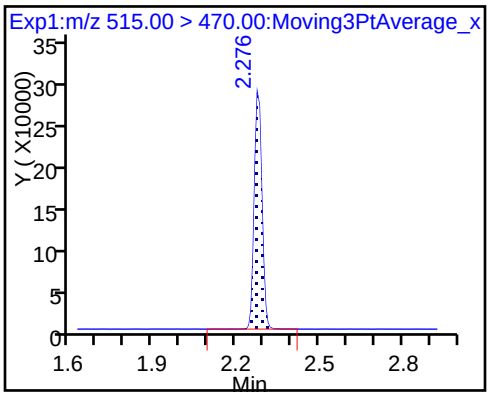
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
35
30
25
20
15
10
5
0
1.6
1.9
2.2
2.5
2.8
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

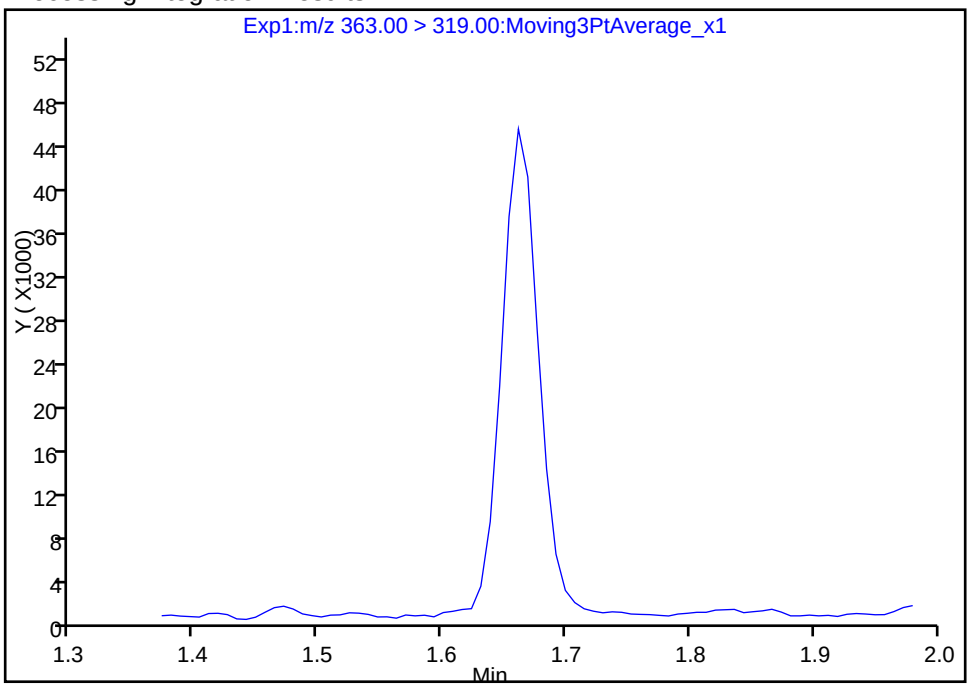
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_004.d				
Injection Date:	16-Feb-2018 08:55:33	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

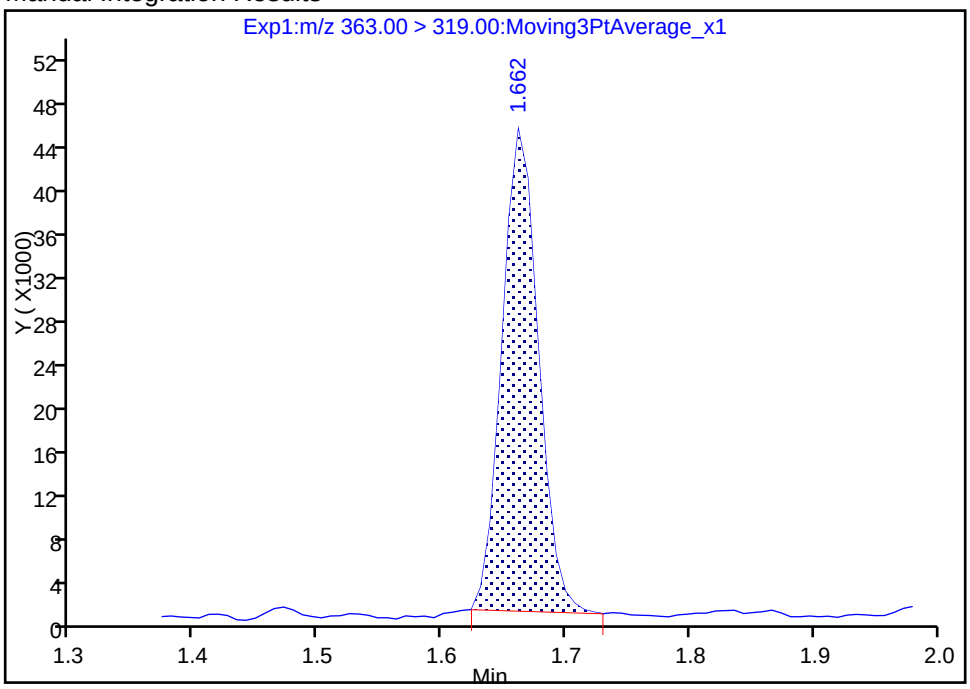
Not Detected
Expected RT: 1.66

Processing Integration Results



Manual Integration Results

RT: 1.66
Area: 89434
Amount: 0.988420
Amount Units: ng/ml



Reviewer: roycea, 16-Feb-2018 10:26:41
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

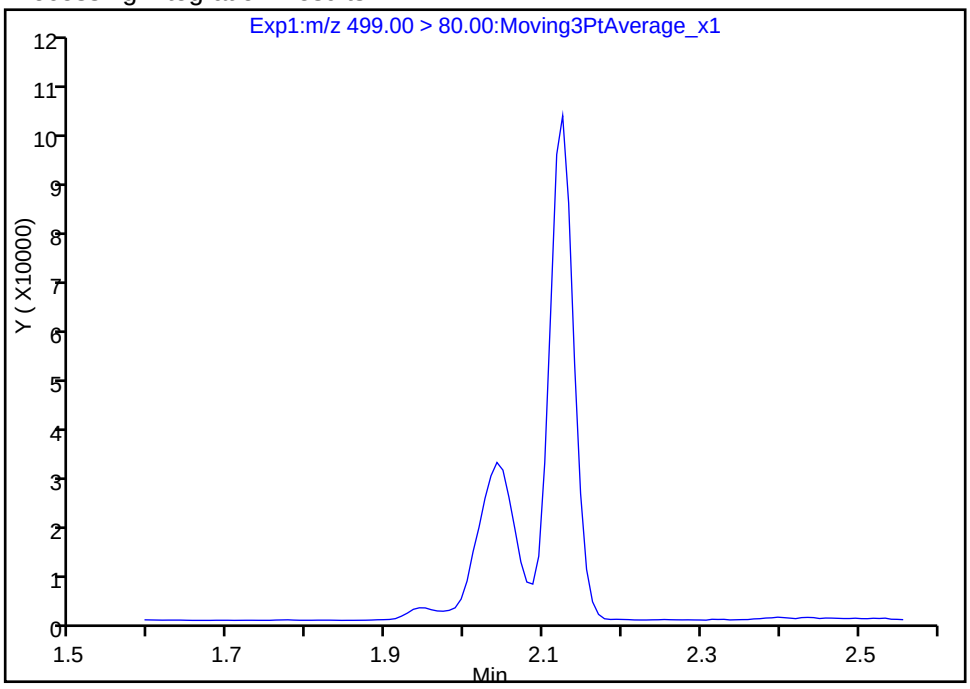
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_004.d				
Injection Date:	16-Feb-2018 08:55:33	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

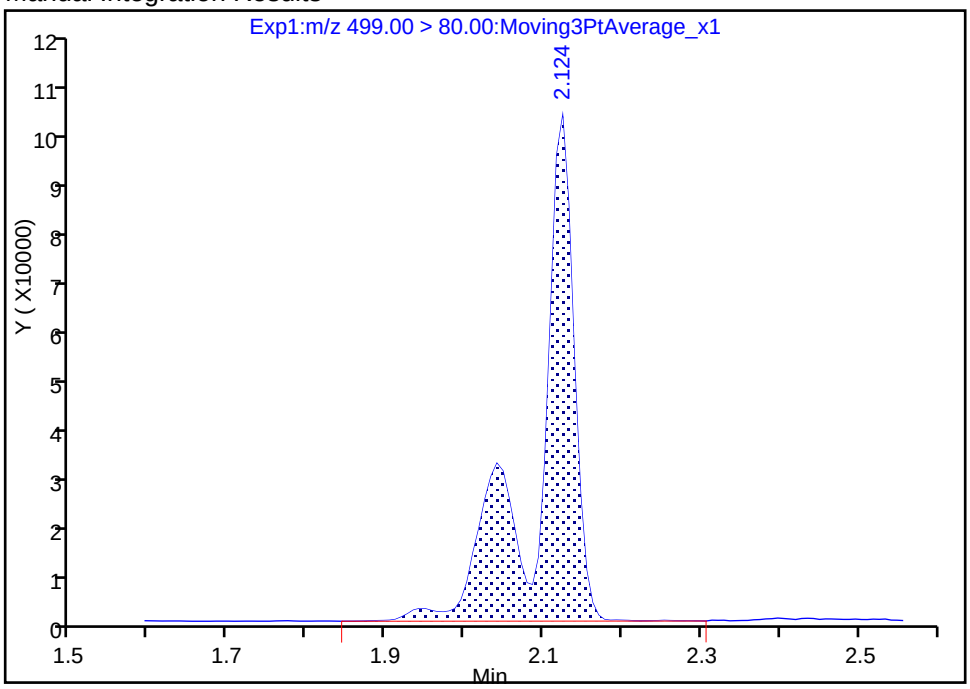
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 339345
Amount: 3.833062
Amount Units: ng/ml



Reviewer: roycea, 16-Feb-2018 10:26:57
Audit Action: Assigned Compound ID Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_005.d
Lims ID: IC L2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 16-Feb-2018 09:00:16 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\20180216-54164.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 16-Feb-2018 10:55:30 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:29:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	2401851	19.9		11847	
298.90 > 99.00	1.381	1.381	0.0	1.000	1648571		1.46(0.00-0.00)	6533	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.510	1.505	0.005	1.000	1029524	9.47		13087	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.662	1.656	0.006	1.000	1039145	6.82		2484	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.662	1.658	0.004	1.000	208408	2.17		62.0	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.859	0.007		988244	10.0		9787	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.860	0.006	1.000	443975	4.67		19.7	
413.00 > 169.00	1.866	1.860	0.006	1.000	241410		1.84(0.00-0.00)	47.8	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.117	2.109	0.008	1.000	801200	8.95		1624	a
499.00 > 99.00	2.117	2.109	0.008	1.000	172636		4.64(0.00-0.00)	228	
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.114	0.003		2714895	28.7		10005	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.122	0.002	1.000	255853	4.21		29.7	
$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.270	0.006	1.000	491558	9.49		5500	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L2_00021 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 10:55:30 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_005.d

Injection Date: 16-Feb-2018 09:00:16 Instrument ID: A8_N

Lims ID: IC L2

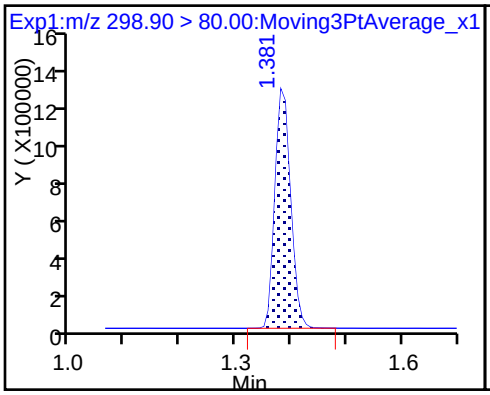
Client ID:

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

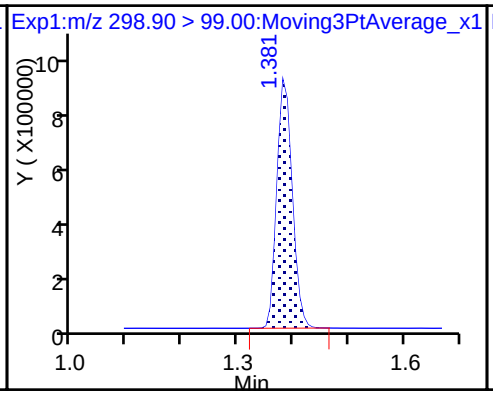
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

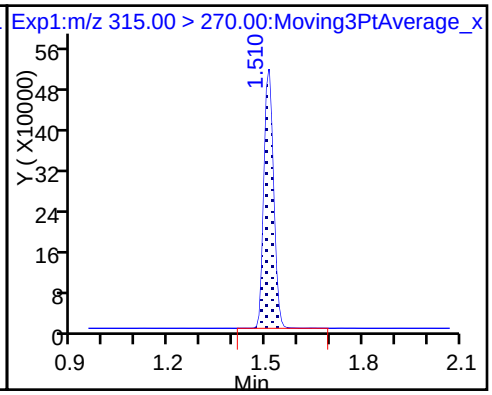
1 Perfluorobutanesulfonic acid



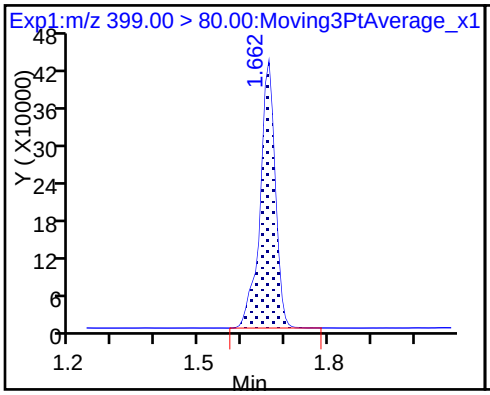
1 Perfluorobutanesulfonic acid



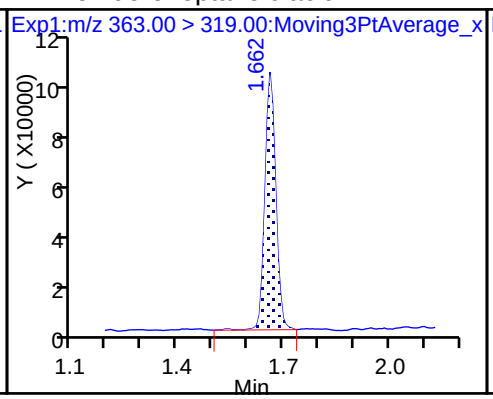
$ 2 13C2 PFHxA



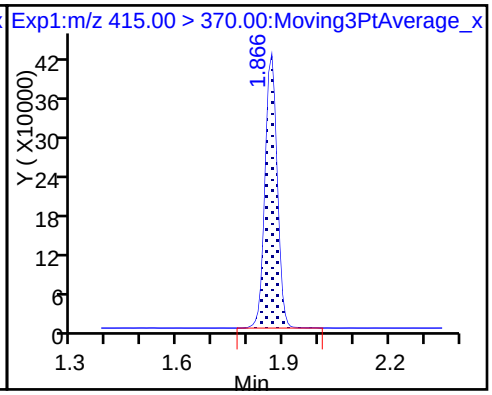
3 Perfluorohexanesulfonic acid



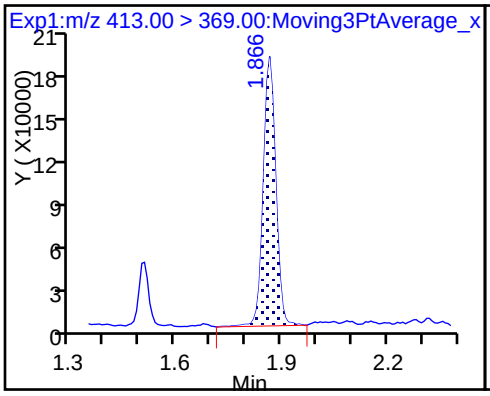
4 Perfluoroheptanoic acid



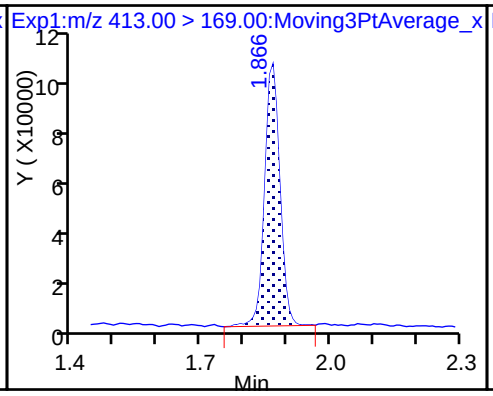
* 6 13C2-PFOA



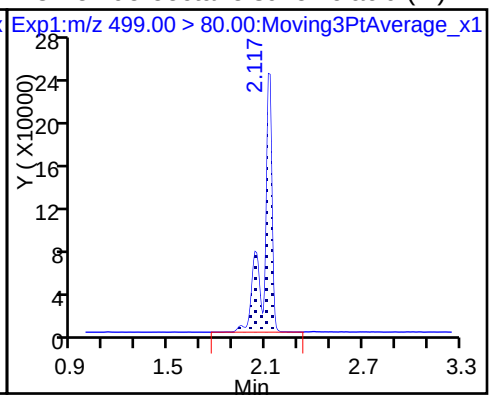
5 Perfluorooctanoic acid



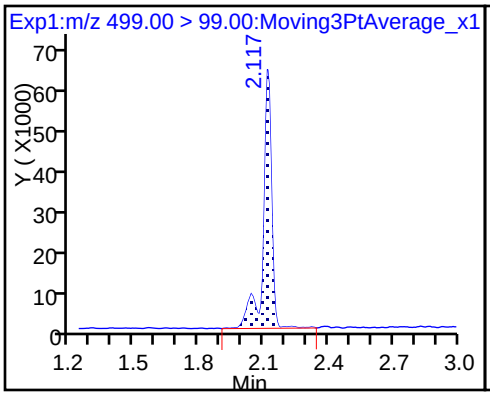
5 Perfluorooctanoic acid



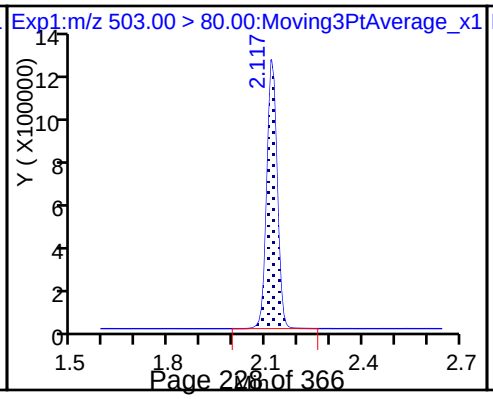
8 Perfluorooctane sulfonic acid (M)



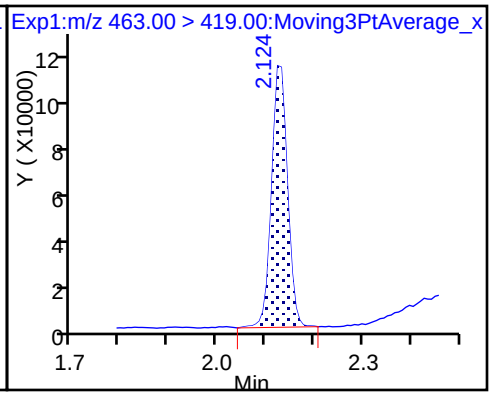
8 Perfluorooctane sulfonic acid



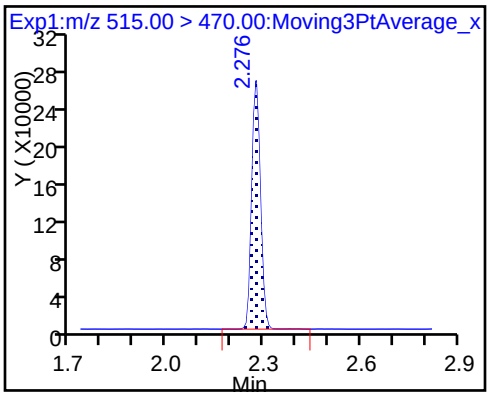
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.276
Y (X10000)
32
28
24
20
16
12
8
4
0
1.7
2.0
2.3
2.6
2.9
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

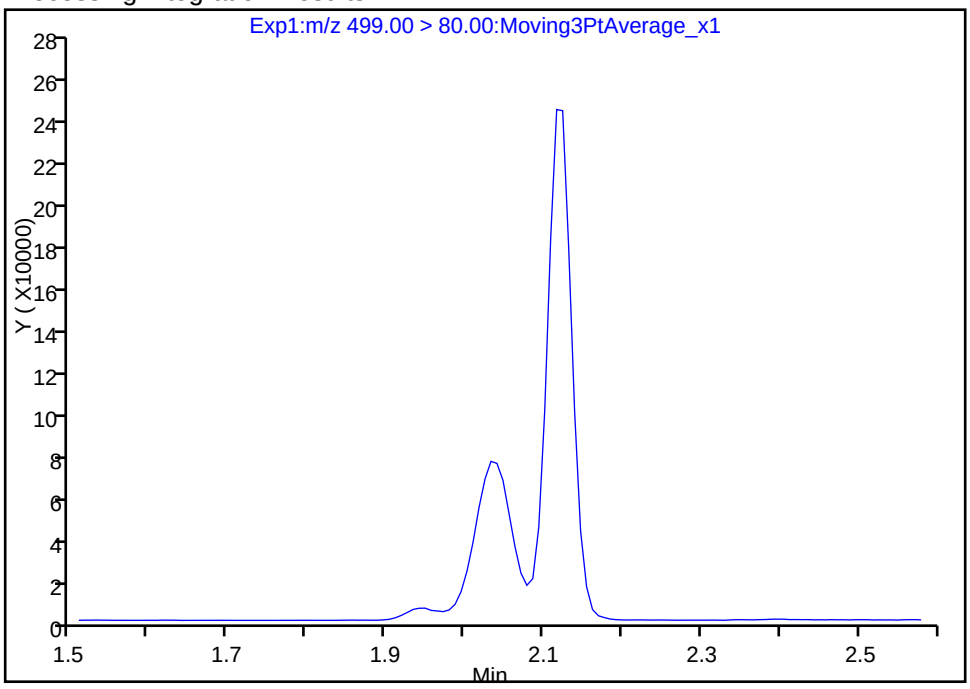
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_005.d
Injection Date: 16-Feb-2018 09:00:16 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

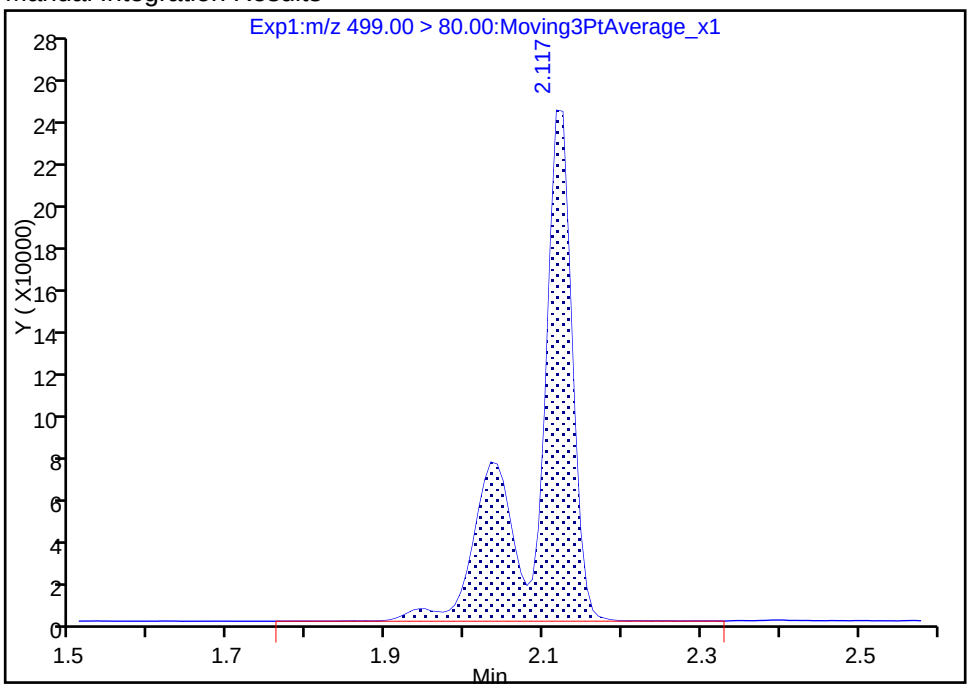
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 801200
Amount: 8.951348
Amount Units: ng/ml



Reviewer: roycea, 16-Feb-2018 10:29:26
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_006.d
Lims ID: IC L3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 16-Feb-2018 09:05:01 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\20180216-54164.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 16-Feb-2018 10:55:31 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:30:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	5386060	46.6		24881	
298.90 > 99.00	1.381	1.381	0.0	1.000	3691119		1.46(0.00-0.00)	13454	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.505	-0.003	1.000	1031304	9.48		13749	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.654	1.656	-0.002	1.000	2300670	15.1		5477	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.662	1.658	0.004	1.000	467875	4.87		141	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.859	0.0		988820	10.0		11038	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.860	-0.001	1.000	956930	10.1		43.8	
413.00 > 169.00	1.859	1.860	-0.001	1.000	520439		1.84(0.00-0.00)	103	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.117	2.109	0.008	1.000	1821248	20.3		3507	a
499.00 > 99.00	2.117	2.109	0.008	1.000	390582		4.66(0.00-0.00)	507	
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.114	0.003		2717621	28.7		11170	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.122	0.002	1.000	592583	9.74		77.0	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.270	-0.002	1.000	462142	8.91		5257	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L3_00024 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 10:55:31 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_006.d

Injection Date: 16-Feb-2018 09:05:01 Instrument ID: A8_N

Lims ID: IC L3

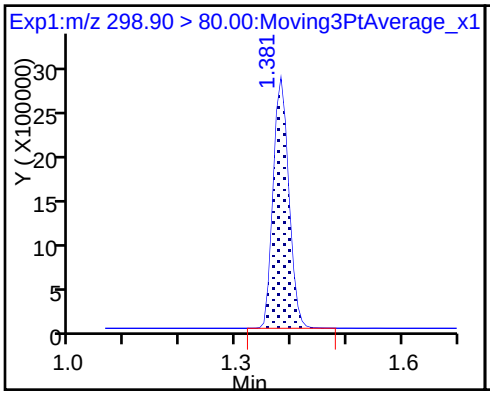
Client ID:

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

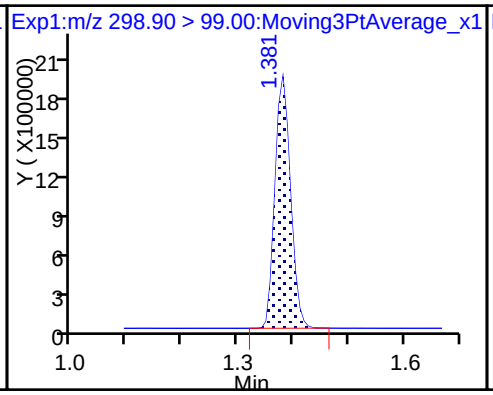
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

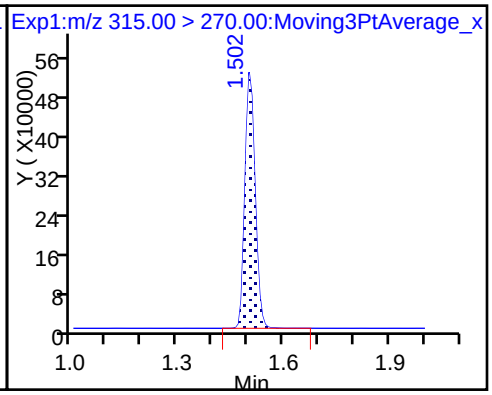
1 Perfluorobutanesulfonic acid



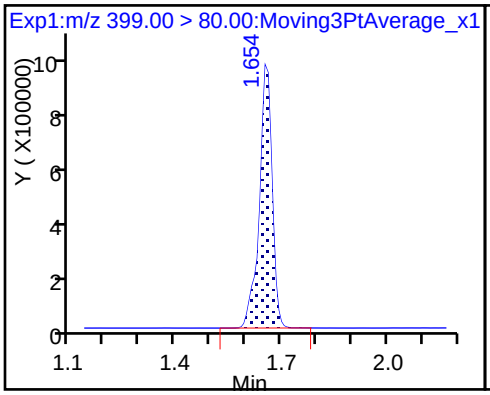
1 Perfluorobutanesulfonic acid



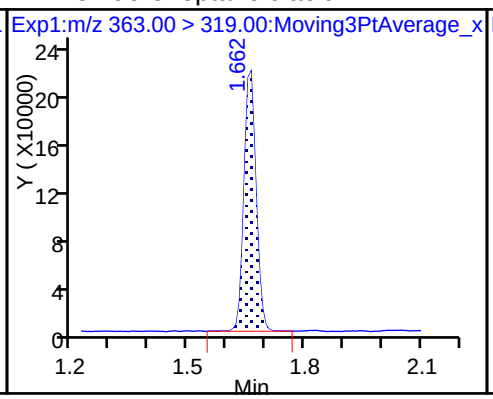
$ 2 13C2 PFHxA



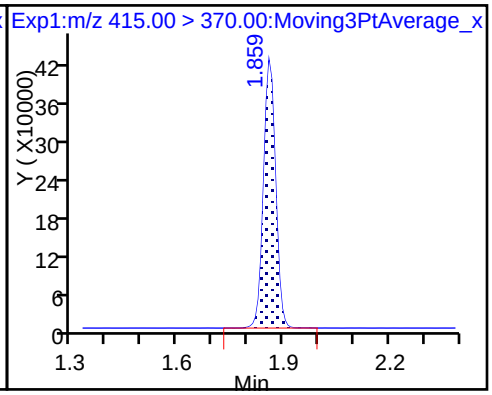
3 Perfluorohexanesulfonic acid



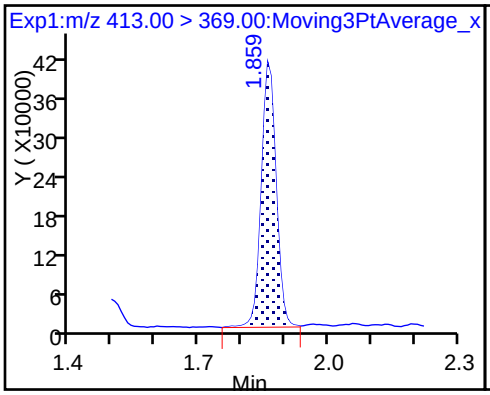
4 Perfluoroheptanoic acid



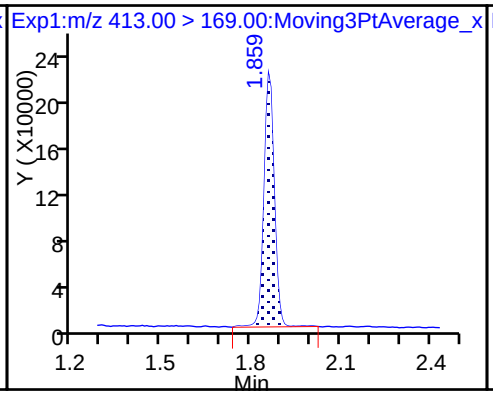
* 6 13C2-PFOA



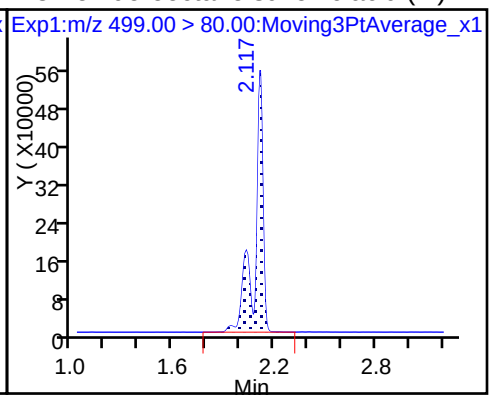
5 Perfluorooctanoic acid



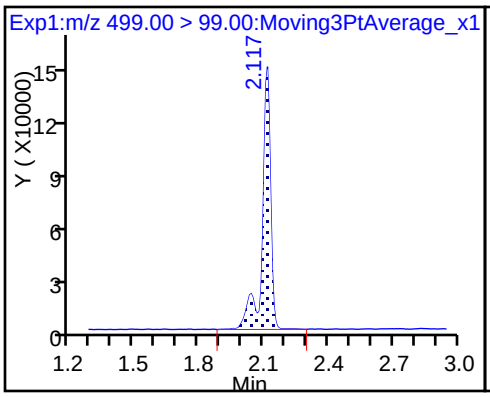
5 Perfluorooctanoic acid



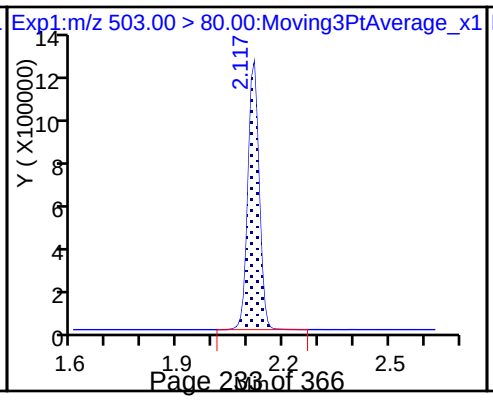
8 Perfluorooctane sulfonic acid (M)



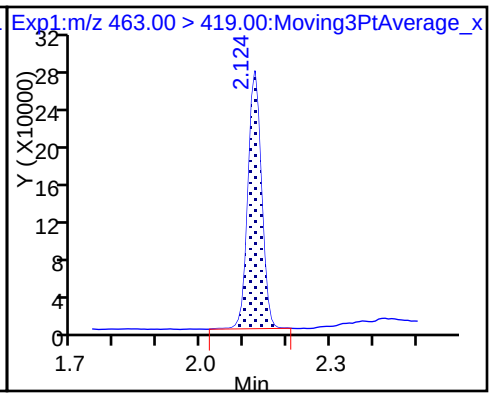
8 Perfluorooctane sulfonic acid



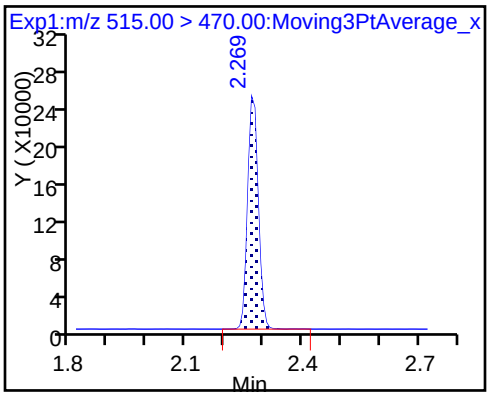
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.269
Y (X10000)
32
28
24
20
16
12
8
4
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

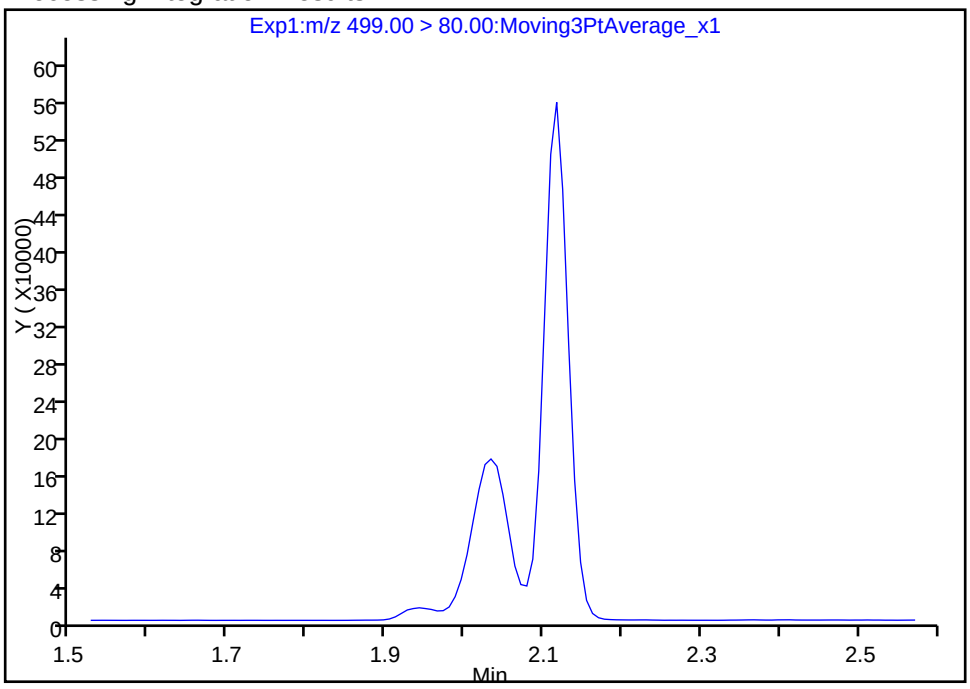
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_006.d				
Injection Date:	16-Feb-2018 09:05:01	Instrument ID:	A8_N		
Lims ID:	IC L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

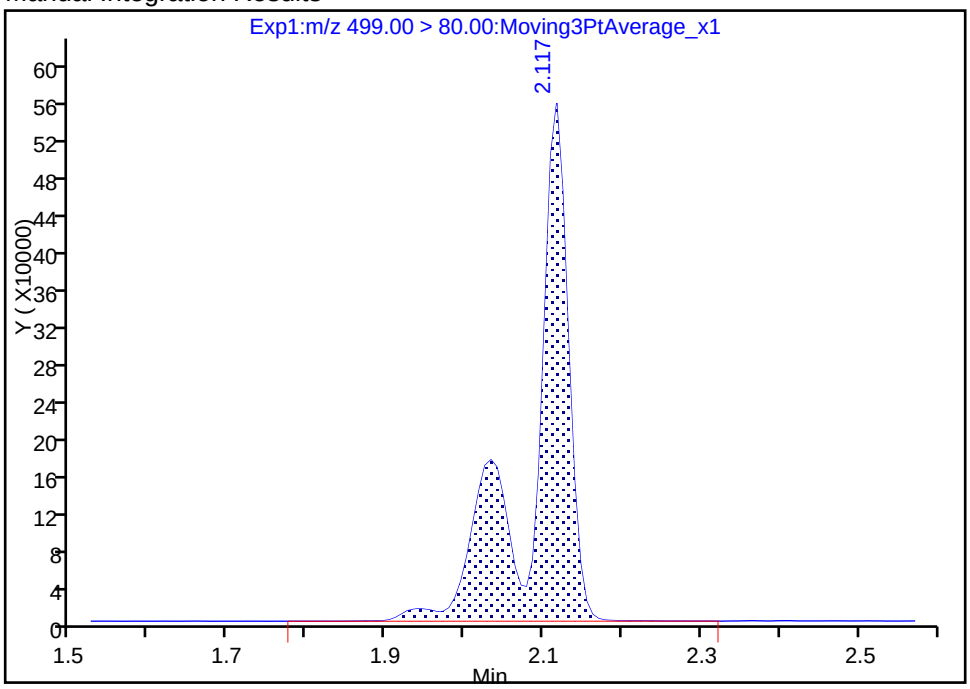
Processing Integration Results

Not Detected
Expected RT: 2.11



Manual Integration Results

RT: 2.12
Area: 1821248
Amount: 20.327349
Amount Units: ng/ml



Reviewer: roycea, 16-Feb-2018 10:29:49
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_007.d
Lims ID: IC L4
Client ID:
Sample Type: ICISAV Calib Level: 4
Inject. Date: 16-Feb-2018 09:09:42 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\20180216-54164.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 16-Feb-2018 10:55:32 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:30:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	9625497	87.9		31459	
298.90 > 99.00	1.381	1.381	0.0	1.000	6951294		1.38(0.00-0.00)	19310	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.505	-0.003	1.000	1021204	10.5		12876	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.654	1.656	-0.002	1.000	4635169	29.8		9685	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.654	1.658	-0.004	1.000	919334	10.7		269	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.859	-0.008		884854	10.0		8810	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.860	-0.001	1.000	1711070	20.1		75.8	
413.00 > 169.00	1.859	1.860	-0.001	1.000	935401		1.83(0.00-0.00)	172	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.109	2.109	0.0	1.000	3707450	40.5		7539	a
499.00 > 99.00	2.109	2.109	0.0	1.000	789268		4.70(0.00-0.00)	1168	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.114	-0.005		2774986	28.7		12601	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.122	-0.005	1.000	1157180	21.3		175	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.270	-0.002	1.000	483499	10.4		5556	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L4_00021 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 10:55:32 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_007.d

Injection Date: 16-Feb-2018 09:09:42 Instrument ID: A8_N

Lims ID: IC L4

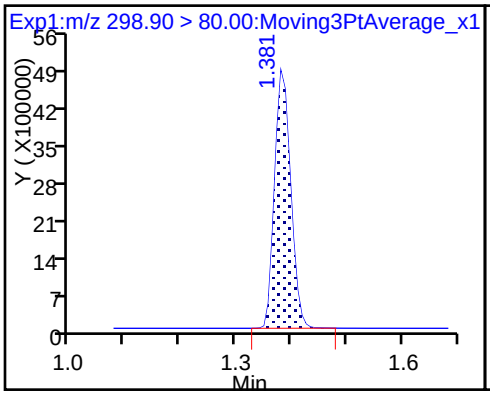
Client ID:

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

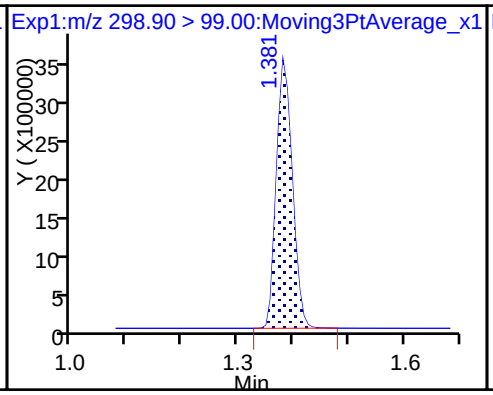
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

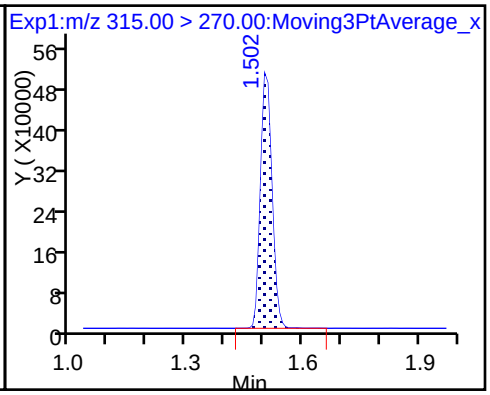
1 Perfluorobutanesulfonic acid



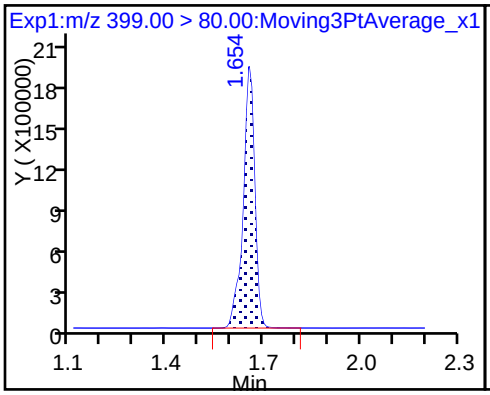
1 Perfluorobutanesulfonic acid



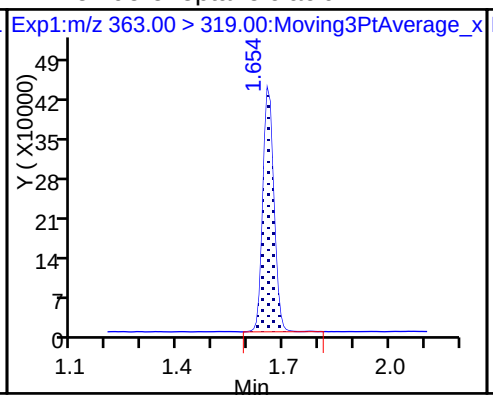
$ 2 13C2 PFHxA



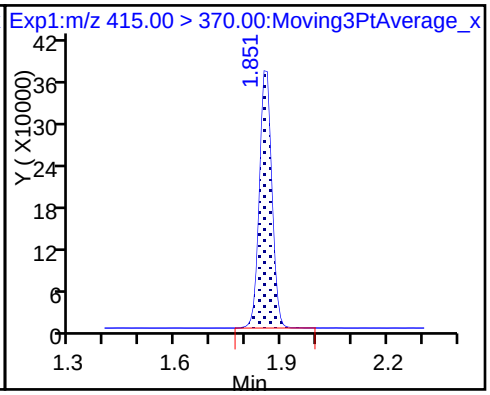
3 Perfluorohexanesulfonic acid



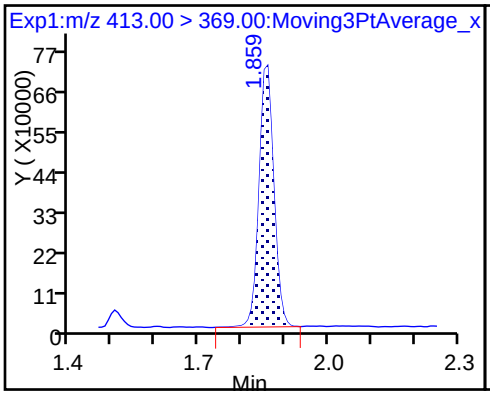
4 Perfluoroheptanoic acid



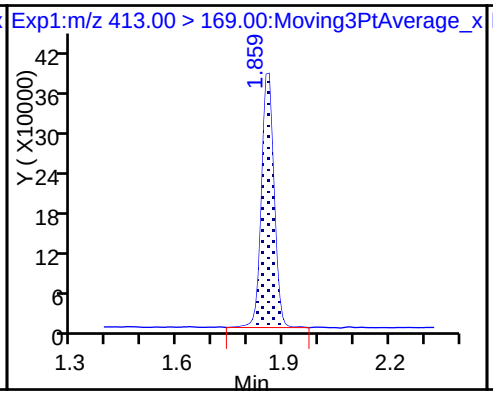
* 6 13C2-PFOA



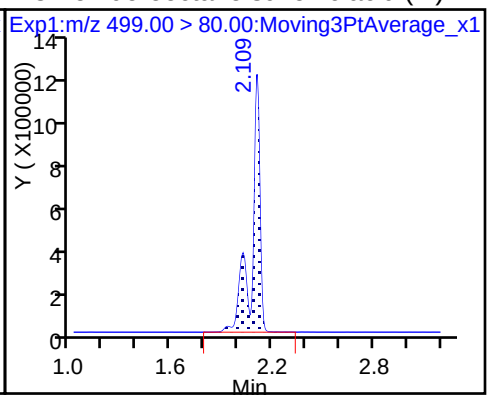
5 Perfluorooctanoic acid



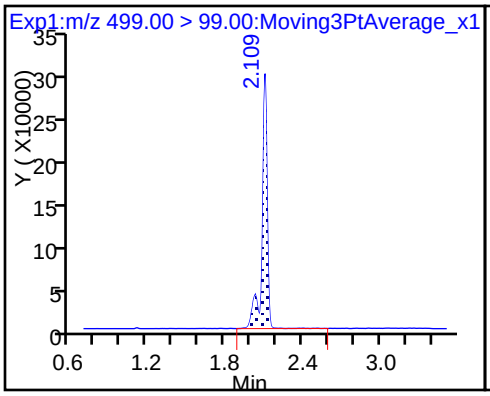
5 Perfluorooctanoic acid



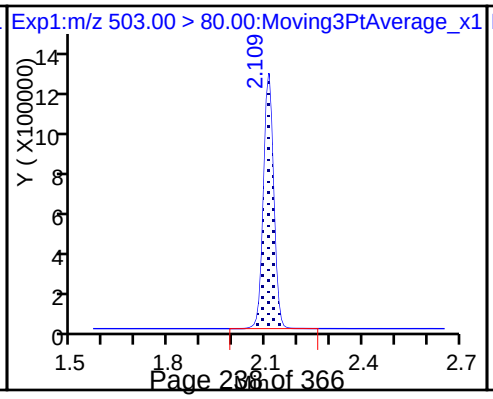
8 Perfluorooctane sulfonic acid (M)



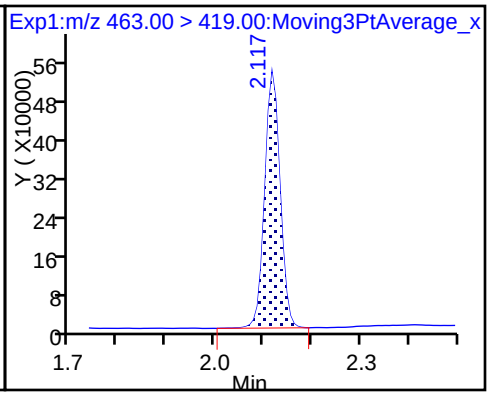
8 Perfluorooctane sulfonic acid



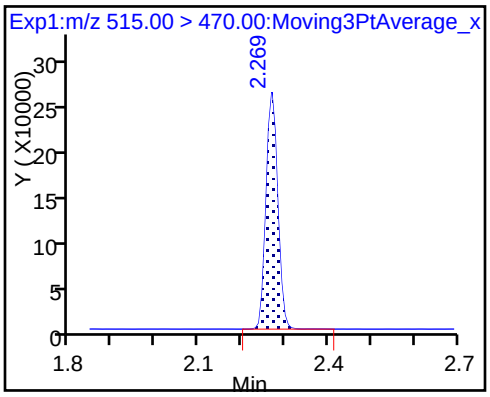
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.269
Y (X10000)
30
25
20
15
10
5
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

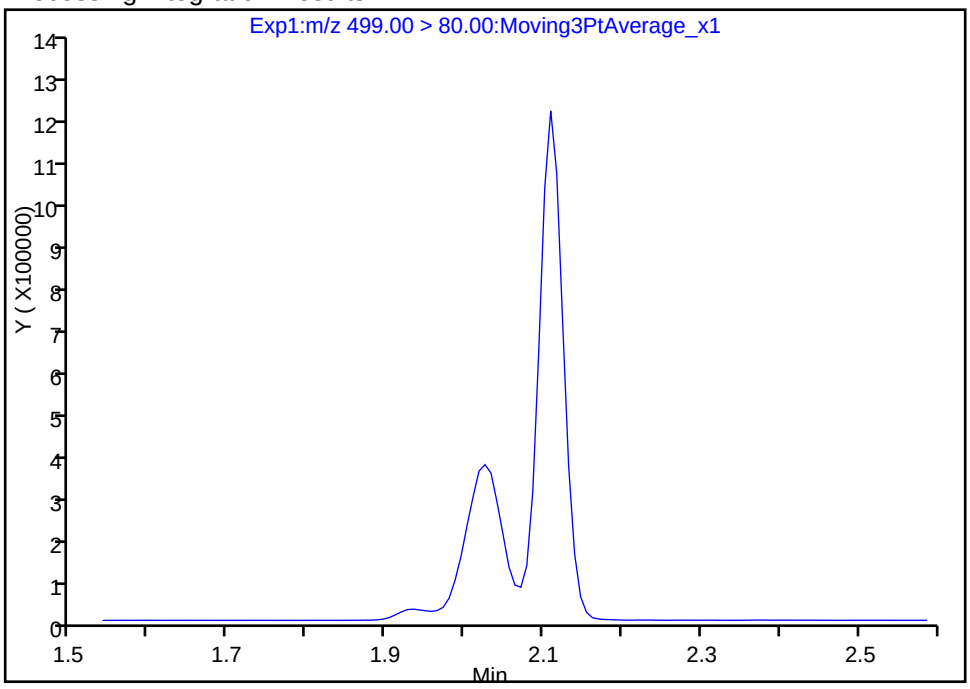
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_007.d				
Injection Date:	16-Feb-2018 09:09:42	Instrument ID:	A8_N		
Lims ID:	IC L4				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	4	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

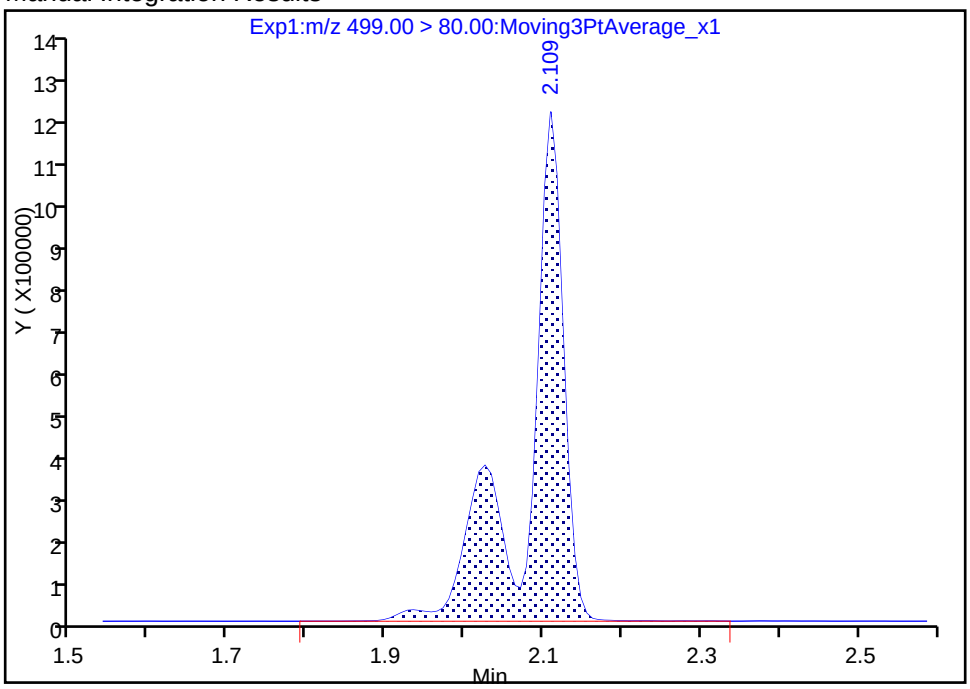
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 3707450
Amount: 40.524256
Amount Units: ng/ml



Reviewer: roycea, 16-Feb-2018 10:30:18
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_008.d
Lims ID: IC L5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 16-Feb-2018 09:14:23 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\20180216-54164.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 16-Feb-2018 10:55:33 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:31:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	13334361	136.5		33692	
298.90 > 99.00	1.381	1.381	0.0	1.000	9982883		1.34(0.00-0.00)	24528	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.505	-0.003	1.000	998008	9.69		16387	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.654	1.656	-0.002	1.000	7088297	46.4		14215	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.654	1.658	-0.004	1.000	1334846	14.7		427	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.859	-0.008		936458	10.0		9383	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.851	1.860	-0.009	1.000	2767901	30.7		125	
413.00 > 169.00	1.851	1.860	-0.009	1.000	1502671		1.84(0.00-0.00)	280	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.109	2.109	0.0	1.000	5544581	61.8		11632	a
499.00 > 99.00	2.109	2.109	0.0	1.000	1138506		4.87(0.00-0.00)	1480	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.114	-0.005		2722967	28.7		9525	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.122	-0.005	1.000	1675602	29.1		264	
$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.270	-0.009	1.000	483740	9.85		5874	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L5_00025 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 10:55:33 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_008.d

Injection Date: 16-Feb-2018 09:14:23 Instrument ID: A8_N

Lims ID: IC L5

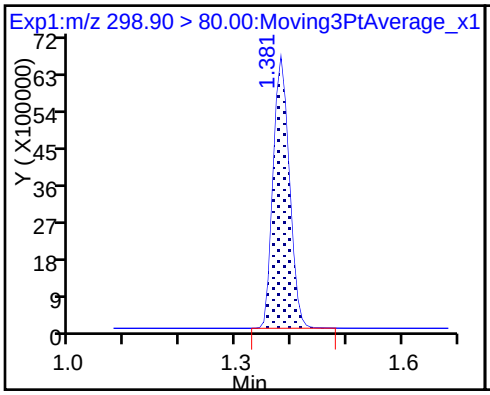
Client ID:

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

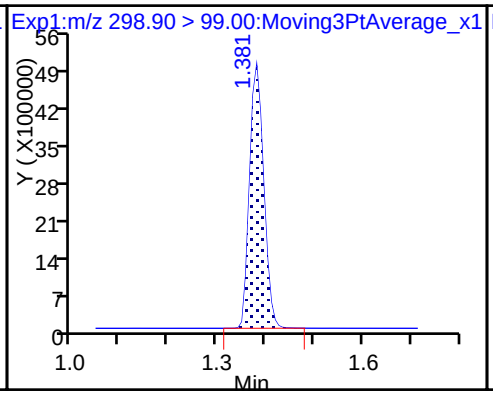
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

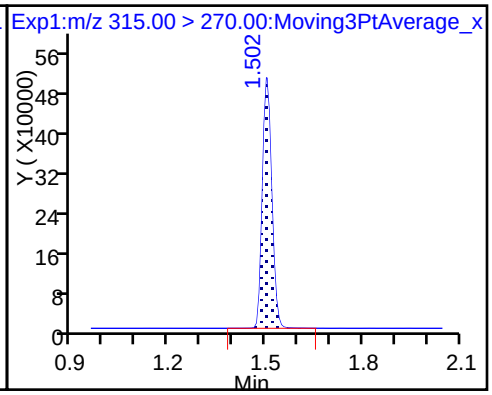
1 Perfluorobutanesulfonic acid



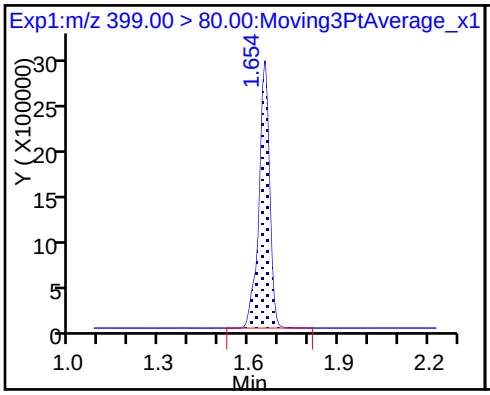
1 Perfluorobutanesulfonic acid



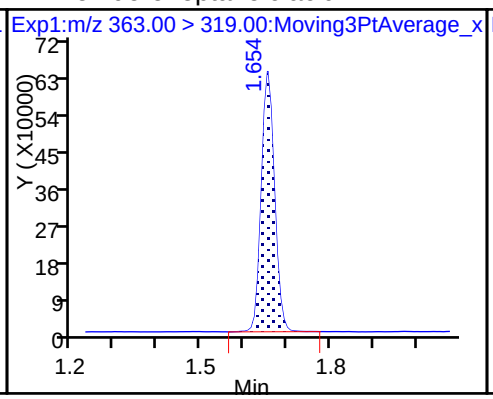
$ 2 13C2 PFHxA



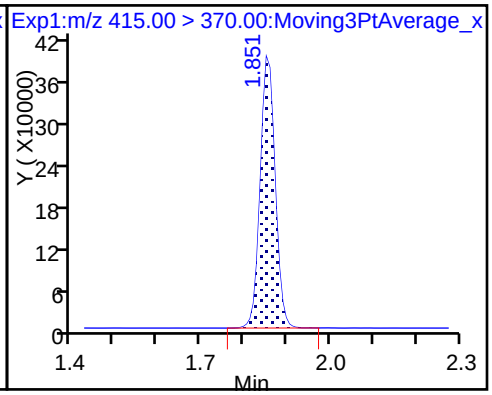
3 Perfluorohexanesulfonic acid



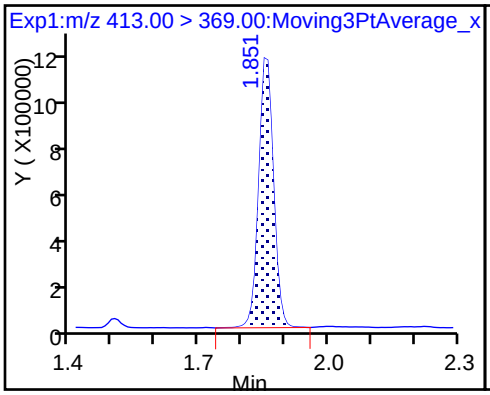
4 Perfluoroheptanoic acid



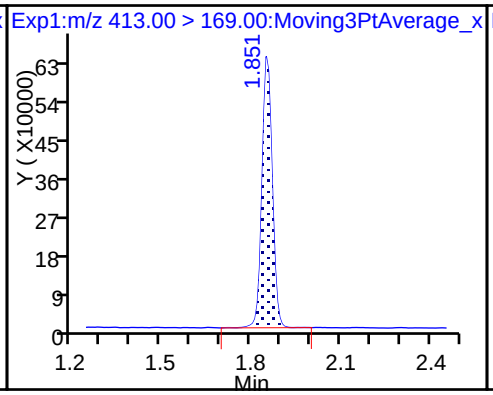
* 6 13C2-PFOA



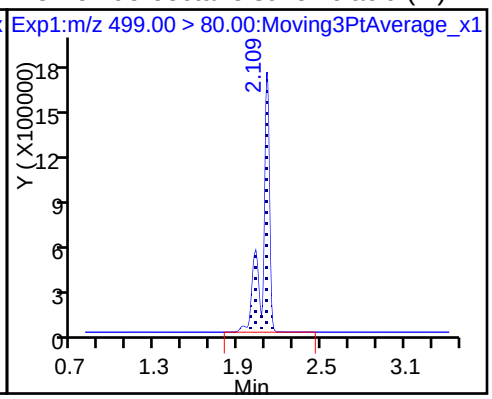
5 Perfluorooctanoic acid



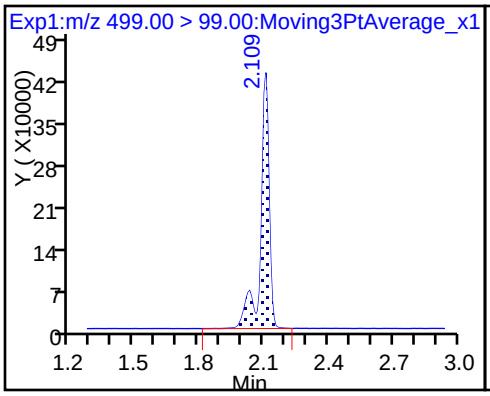
5 Perfluorooctanoic acid



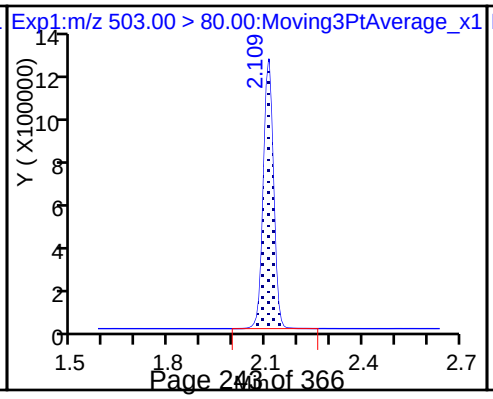
8 Perfluorooctane sulfonic acid (M)



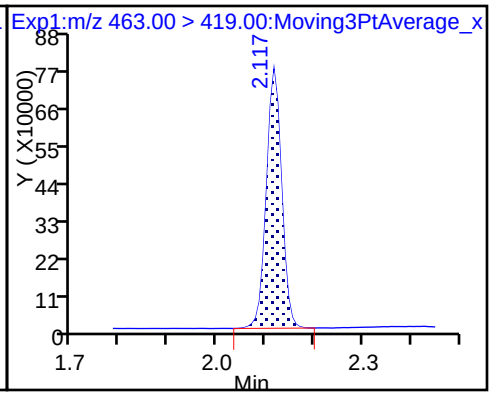
8 Perfluorooctane sulfonic acid



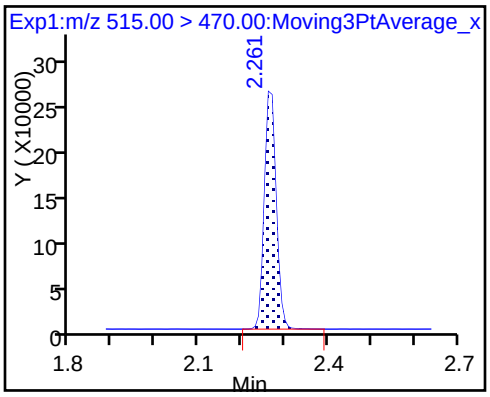
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.261
Y (X10000)
30
25
20
15
10
5
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

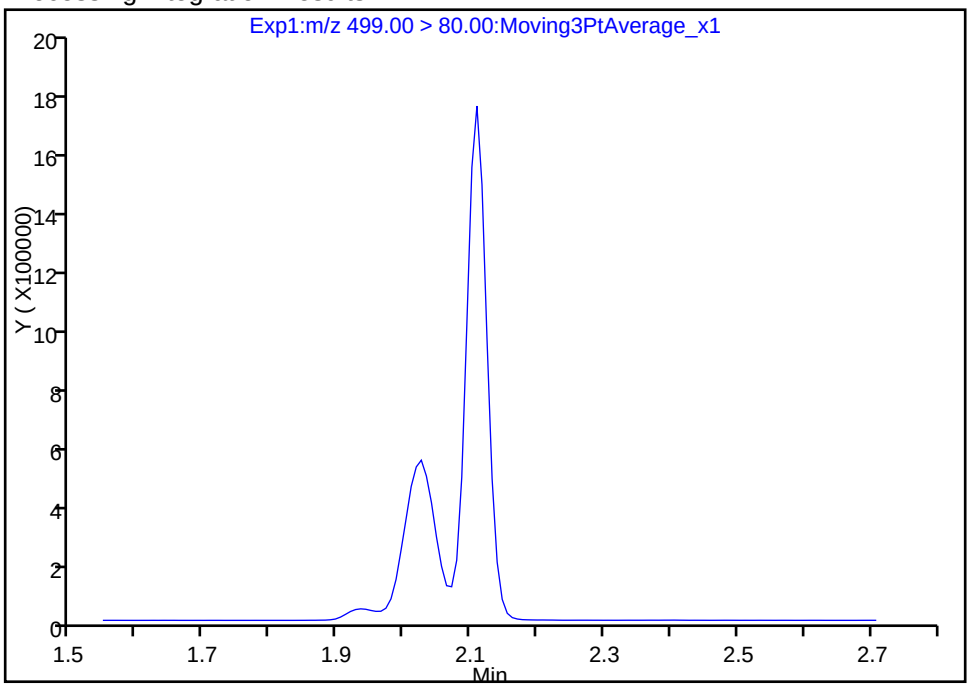
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_008.d				
Injection Date:	16-Feb-2018 09:14:23	Instrument ID:	A8_N		
Lims ID:	IC L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

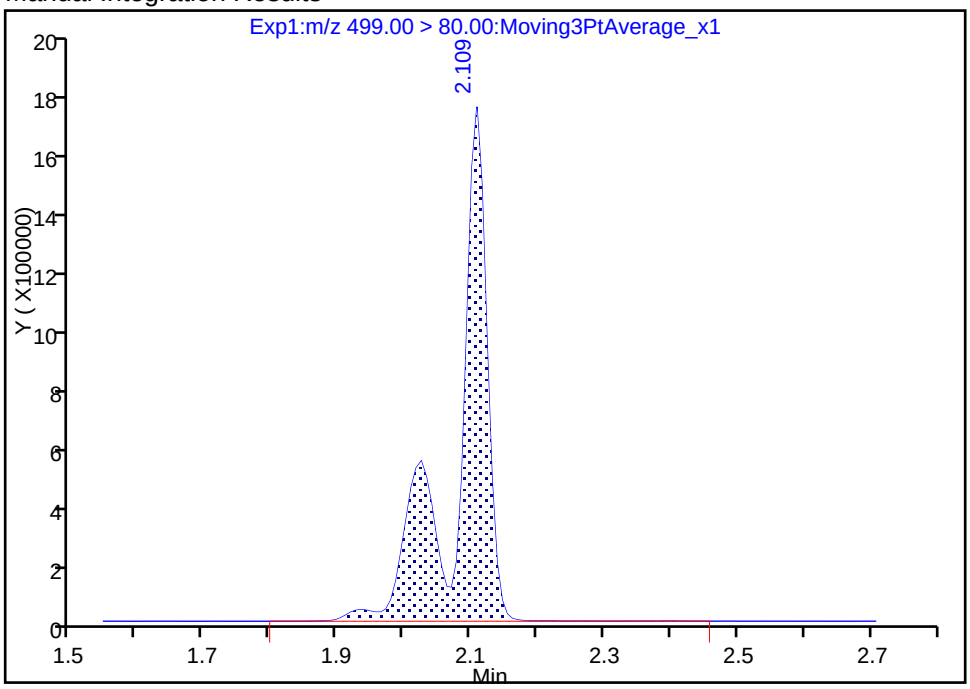
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 5544581
Amount: 61.762790
Amount Units: ng/ml



Reviewer: roycea, 16-Feb-2018 10:30:47
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Lims ID: IC L6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 16-Feb-2018 09:19:04 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\20180216-54164.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 16-Feb-2018 10:55:34 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:31:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	16112512	179.6		29614	
298.90 > 99.00	1.381	1.381	0.0	1.000	12540779		1.28(0.00-0.00)	25956	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.505	-0.003	1.000	1037300	10.6		12797	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.654	1.656	-0.002	1.000	9203547	59.7		15723	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.654	1.658	-0.004	1.000	1755879	20.3		523	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.859	0.0		892615	10.0		10354	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.860	-0.001	1.000	3415564	39.8		147	
413.00 > 169.00	1.859	1.860	-0.001	1.000	1839701		1.86(0.00-0.00)	325	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.109	2.109	0.0	1.000	7252490	80.1		13357	a
499.00 > 99.00	2.109	2.109	0.0	1.000	1559390		4.65(0.00-0.00)	2143	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.114	-0.005		2745419	28.7		10250	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.122	-0.005	1.000	2211715	40.3		388	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.270	-0.002	1.000	480980	10.3		5555	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L6_00021 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 10:55:34 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Injection Date: 16-Feb-2018 09:19:04 Instrument ID: A8_N

Lims ID: IC L6

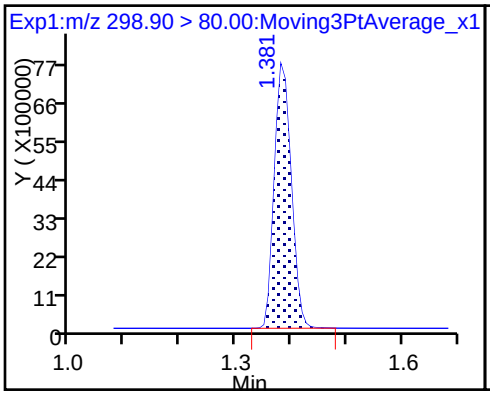
Client ID:

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

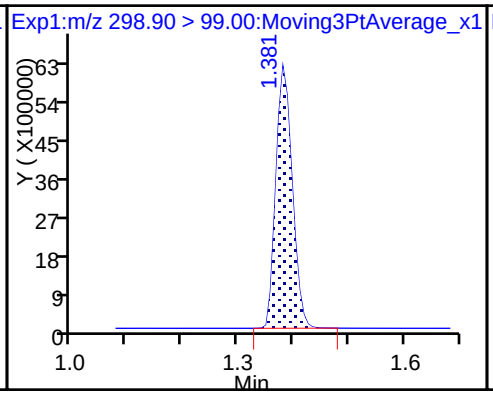
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

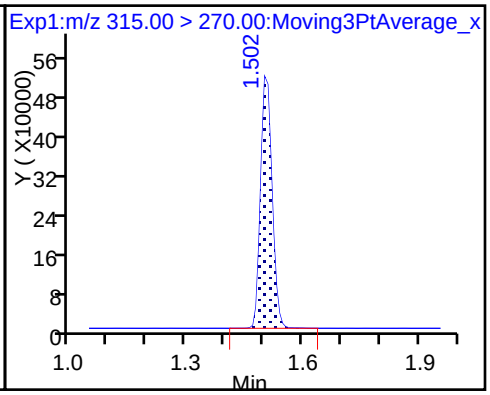
1 Perfluorobutanesulfonic acid



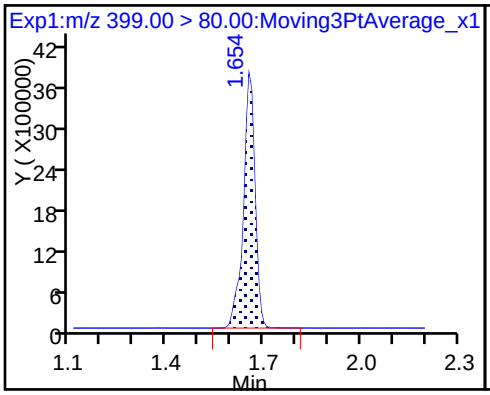
1 Perfluorobutanesulfonic acid



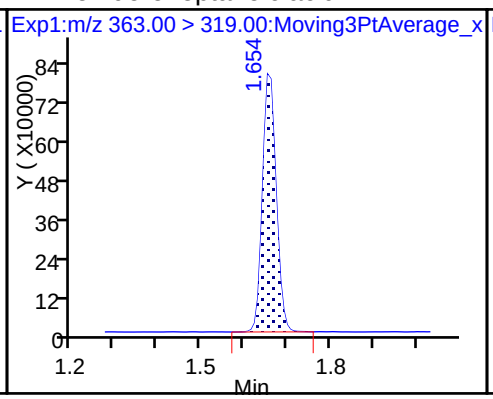
$ 2 13C2 PFHxA



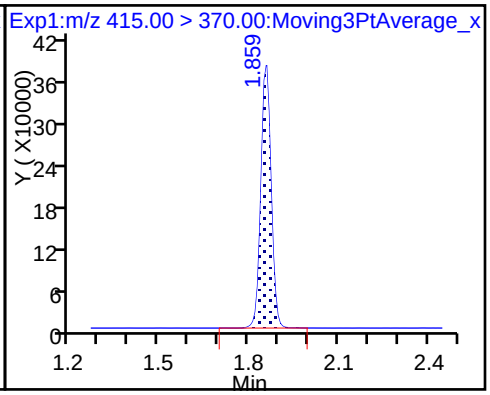
3 Perfluorohexanesulfonic acid



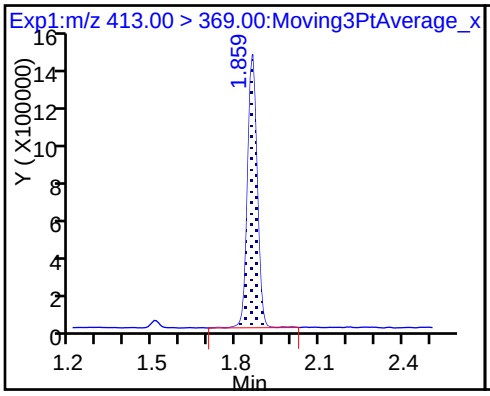
4 Perfluoroheptanoic acid



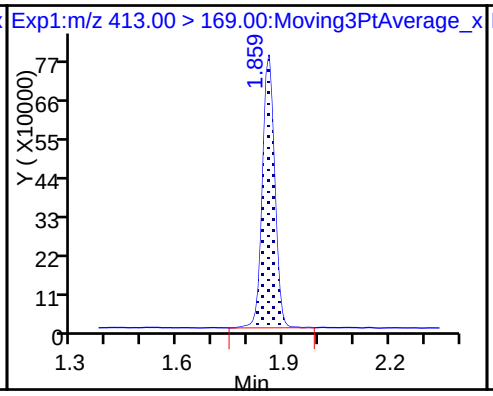
* 6 13C2-PFOA



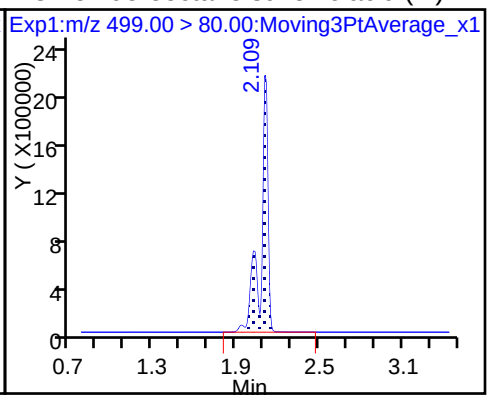
5 Perfluorooctanoic acid



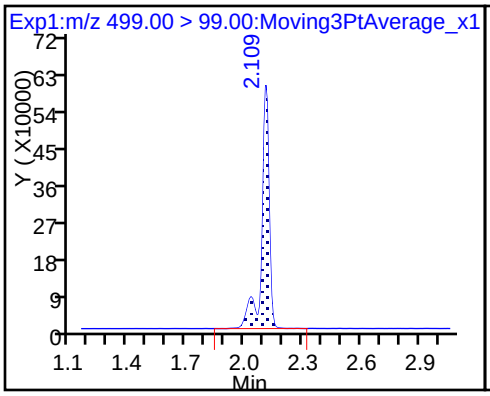
5 Perfluorooctanoic acid



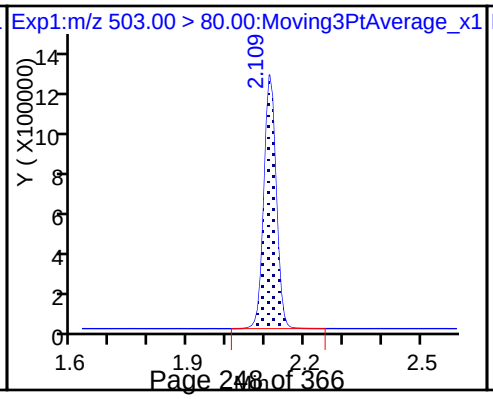
8 Perfluorooctane sulfonic acid (M)



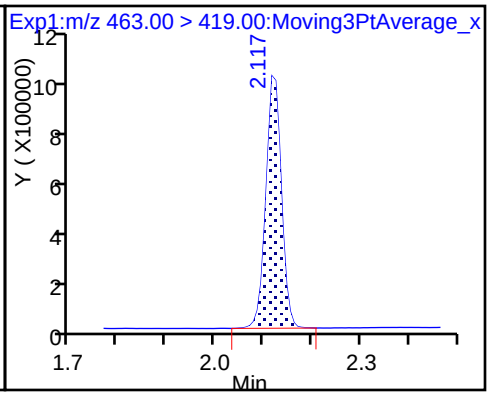
8 Perfluorooctane sulfonic acid



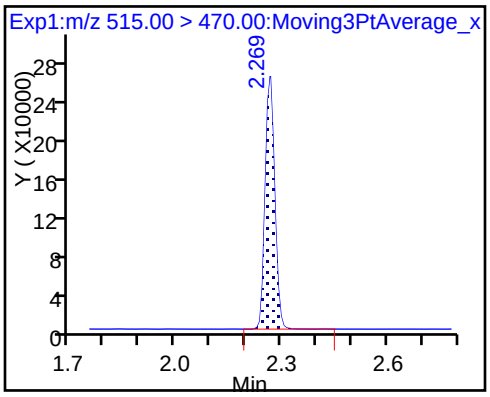
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.269
Y (X10000)
28
24
20
16
12
8
4
0
1.7
2.0
2.3
2.6
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

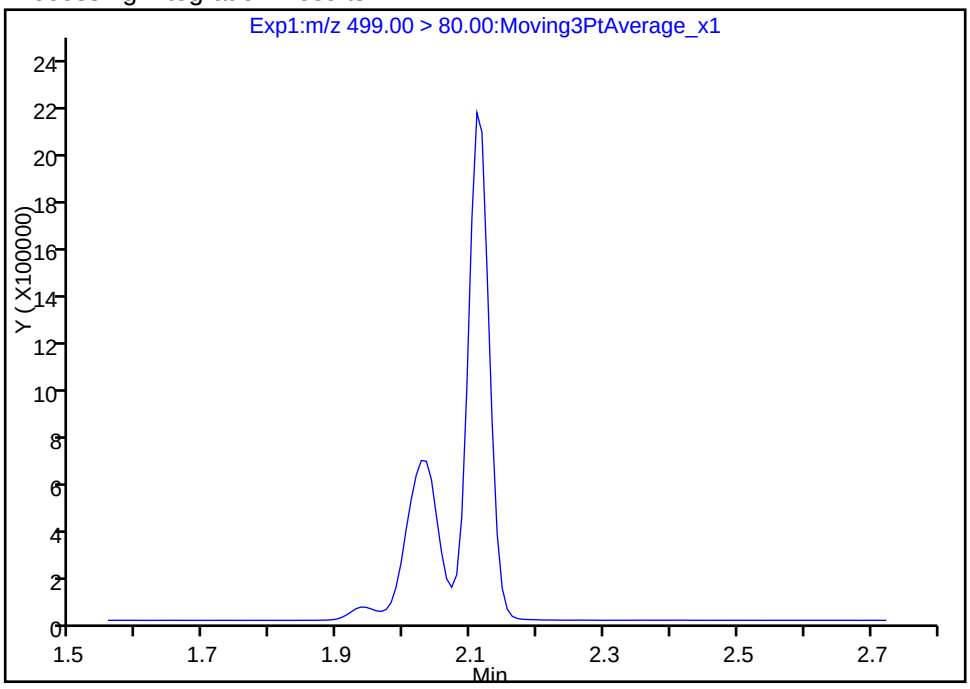
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Injection Date: 16-Feb-2018 09:19:04 Instrument ID: A8_N
Lims ID: IC L6
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

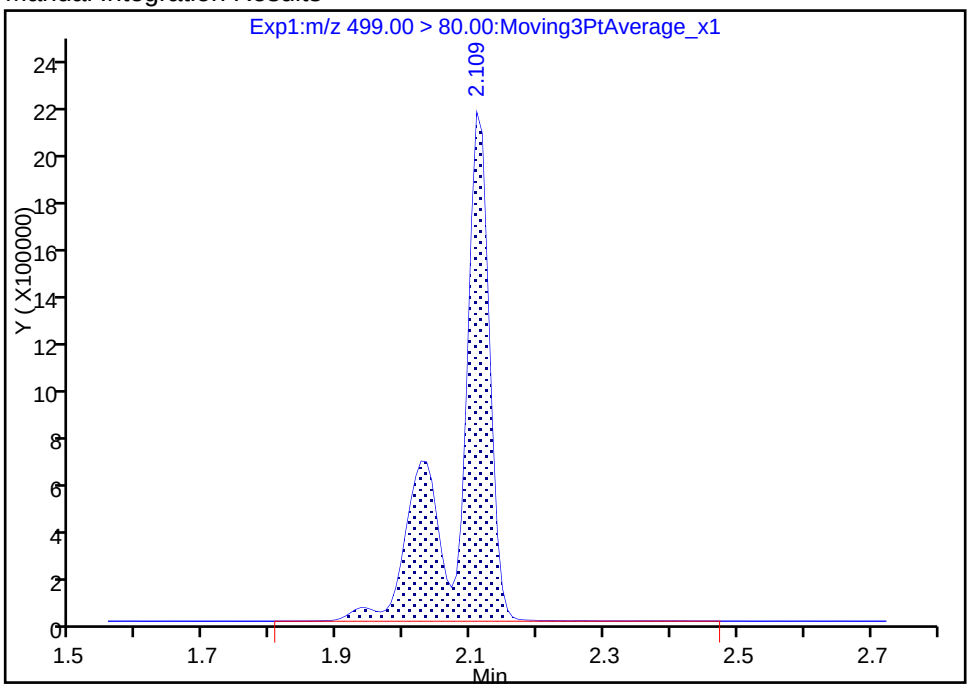
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 7252490
Amount: 80.127031
Amount Units: ng/ml



Reviewer: roycea, 16-Feb-2018 10:31:12
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCVL 320-208773/11 Calibration Date: 02/16/2018 09:28

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.02.016_537ICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.238		19.4	20.0	-3.0	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9284		2.12	2.22	-4.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.706		7.07	6.67	6.0	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9302		4.32	4.47	-3.3	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9736		9.19	8.93	3.0	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.5986		4.32	4.45	-2.7	50.0
13C2 PFHxA	Ave	1.100	1.037		9.43	10.0	-5.7	30.0
13C2 PFDA	Ave	0.5243	0.5013		9.56	10.0	-4.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_011.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 16-Feb-2018 09:28:24 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\20180216-54164.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 16-Feb-2018 10:55:36 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:36:58

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.388	1.381	0.007	1.000	2300149	19.4		12090	
298.90 > 99.00	1.388	1.381	0.007	1.000	1585029		1.45(0.00-0.00)	6015	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.510	1.505	0.005	1.000	990640	9.43		13893	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.662	1.656	0.006	1.000	1056475	7.07		2665	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.662	1.658	0.004	1.000	197137	2.12		57.0	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.859	0.007		955394	10.0		10789	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.860	0.006	1.000	397164	4.32		16.3	
413.00 > 169.00	1.866	1.860	0.006	1.000	222384		1.79(0.00-0.00)	35.2	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.117	2.109	0.008	1.000	807120	9.19		1576	a
499.00 > 99.00	2.117	2.109	0.008	1.000	176184		4.58(0.00-0.00)	256	
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.114	0.003		2663428	28.7		10092	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.122	0.002	1.000	254268	4.32		47.5	
$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.270	-0.002	1.000	478905	9.56		4880	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L2_00021 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 10:55:36 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_011.d

Injection Date: 16-Feb-2018 09:28:24 Instrument ID: A8_N

Lims ID: CCVL

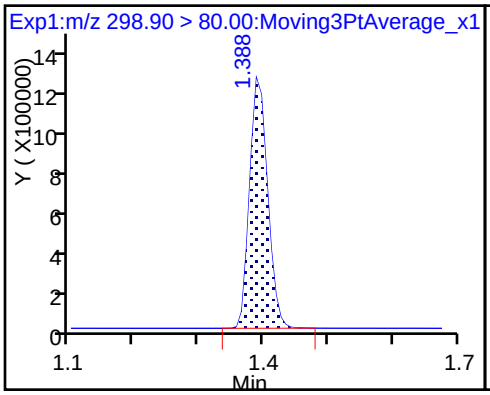
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11

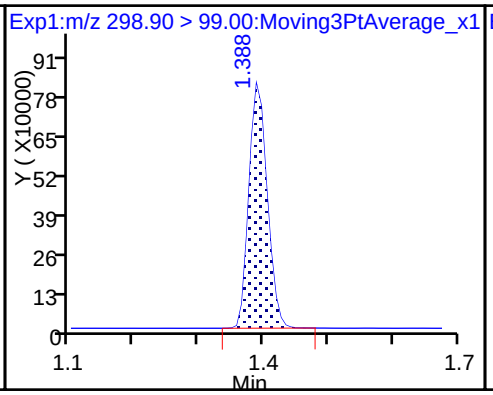
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

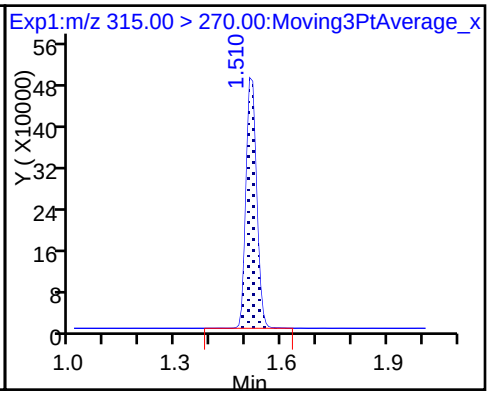
1 Perfluorobutanesulfonic acid



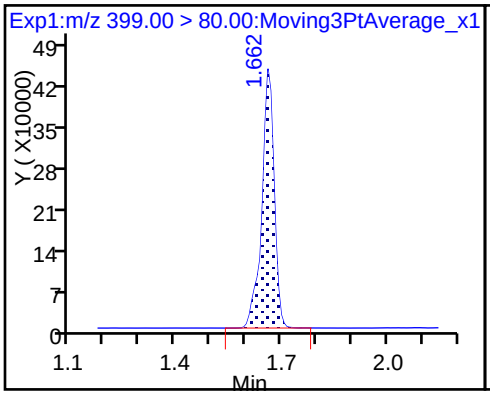
1 Perfluorobutanesulfonic acid



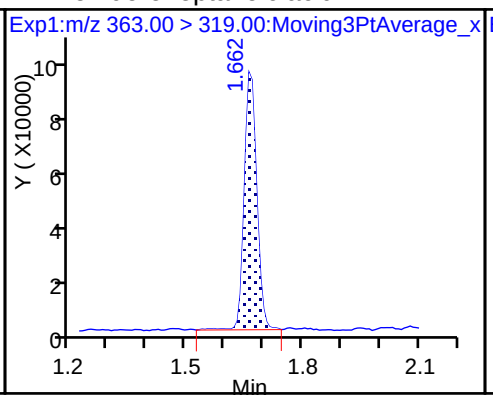
$ 2 13C2 PFHxA



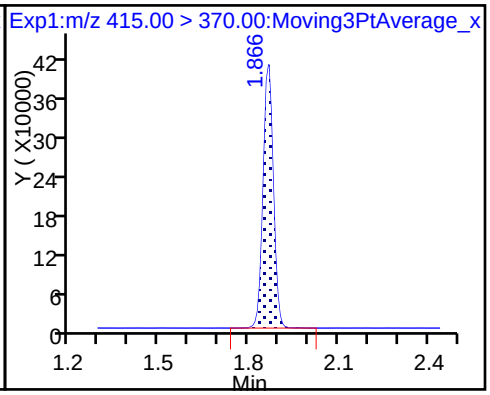
3 Perfluorohexanesulfonic acid



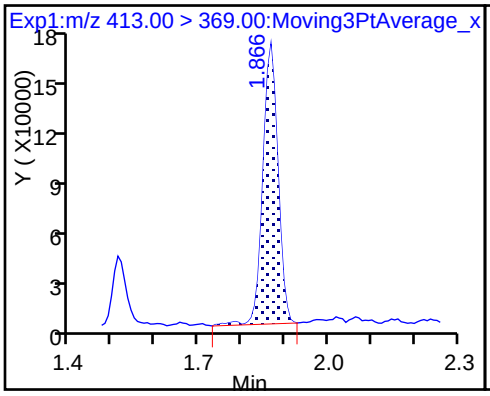
4 Perfluoroheptanoic acid



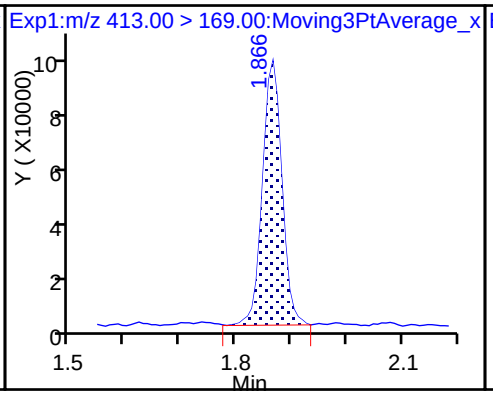
* 6 13C2-PFOA



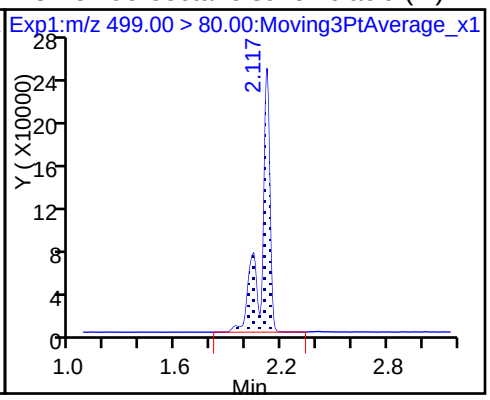
5 Perfluorooctanoic acid



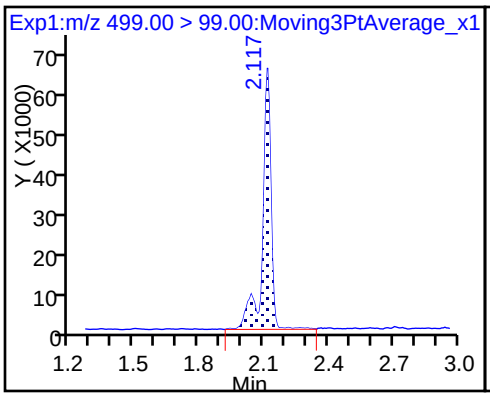
5 Perfluorooctanoic acid



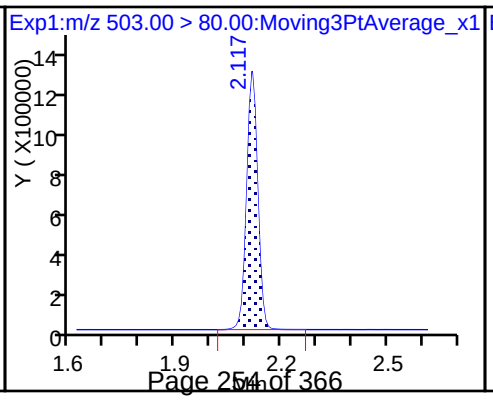
8 Perfluorooctane sulfonic acid (M)



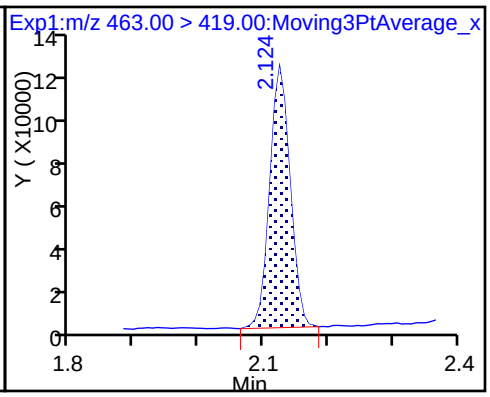
8 Perfluorooctane sulfonic acid



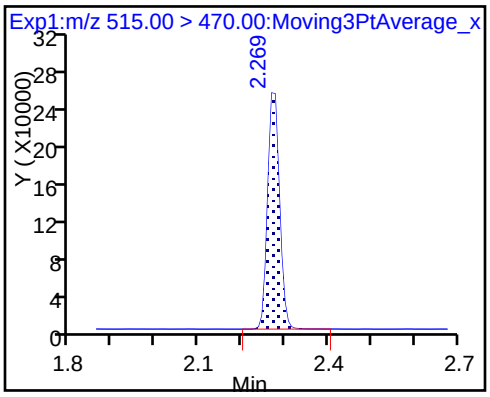
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.269
Y (X10000)
32
28
24
20
16
12
8
4
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

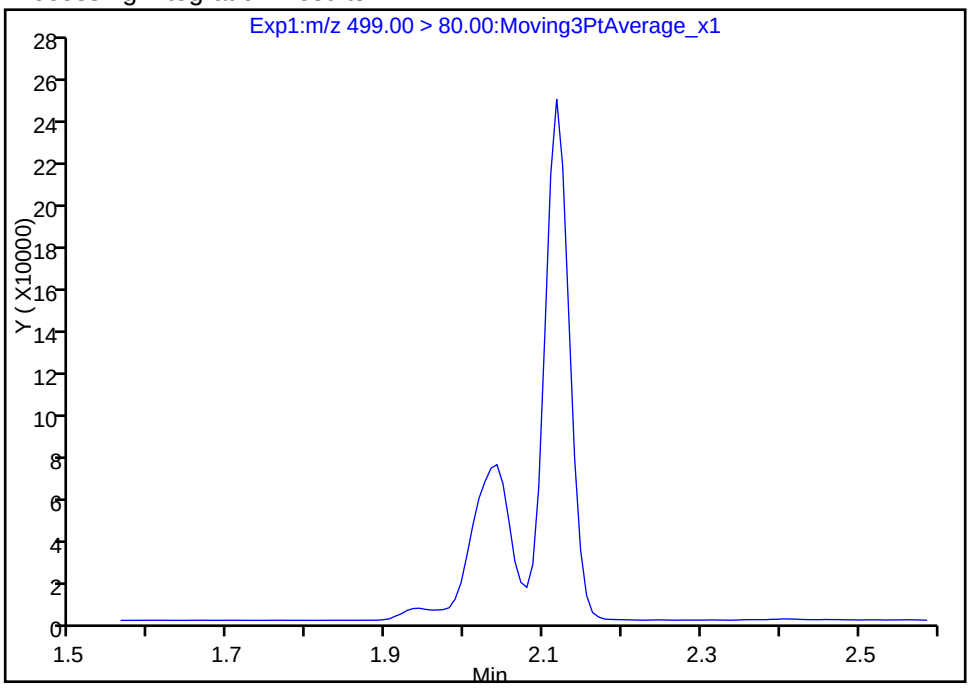
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_011.d				
Injection Date:	16-Feb-2018 09:28:24	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

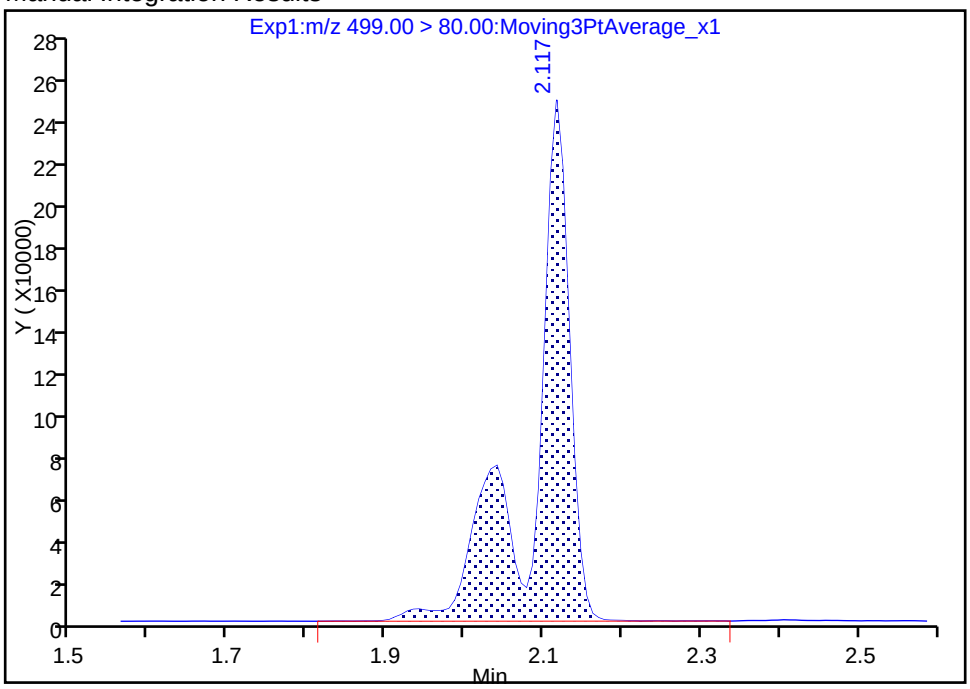
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 807120
Amount: 9.191739
Amount Units: ng/ml



Reviewer: roycea, 16-Feb-2018 10:36:29
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: ICV 320-208773/13 Calibration Date: 02/16/2018 09:37

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.02.016_537ICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.108		100	100	0.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.997		10.3	10.0	2.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.686		21.1	20.2	4.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.8998		18.9	20.2	-6.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9852		21.0	20.2	4.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6774		22.2	20.2	10.1	30.0
13C2 PFHxA	Ave	1.100	1.125		10.2	10.0	2.3	30.0
13C2 PFDA	Ave	0.5243	0.5347		10.2	10.0	2.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_013.d
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 16-Feb-2018 09:37:44 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\20180216-54164.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 16-Feb-2018 10:55:38 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:38:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	10449615	100.3		32318	
298.90 > 99.00	1.381	1.381	0.0	1.000	7853681		1.33(0.00-0.00)	23897	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.505	-0.003	1.000	1001724	10.2		14259	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.654	1.656	-0.002	1.000	3204604	21.1		7050	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.654	1.658	-0.004	1.000	887129	10.3		270	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.859	-0.008		890238	10.0		9142	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.851	1.860	-0.009	1.000	1615503	18.9		66.9	
413.00 > 169.00	1.851	1.860	-0.009	1.000	895357		1.80(0.00-0.00)	148	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.109	2.109	0.0	1.000	1873112	21.0		3471	a
499.00 > 99.00	2.109	2.109	0.0	1.000	375247		4.99(0.00-0.00)	509	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.114	-0.005		2703377	28.7		9042	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.122	-0.005	1.000	1215919	22.2		251	
$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.270	-0.009	1.000	475984	10.2		4647	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-ICV_00030 Amount Added: 1.00 Units: mL

Report Date: 16-Feb-2018 10:55:38 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_013.d

Injection Date: 16-Feb-2018 09:37:44 Instrument ID: A8_N

Lims ID: ICV

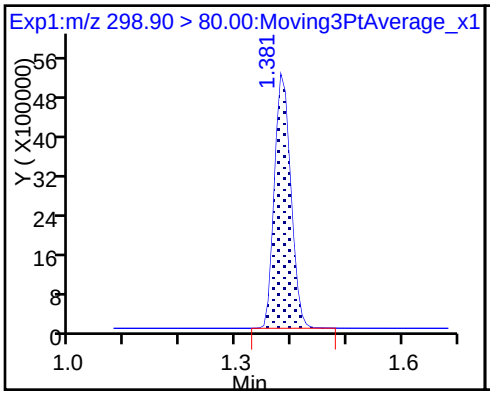
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 13

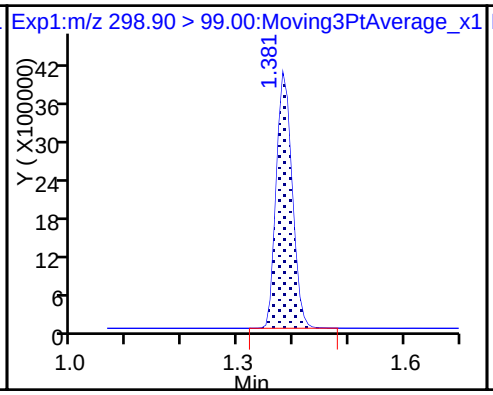
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

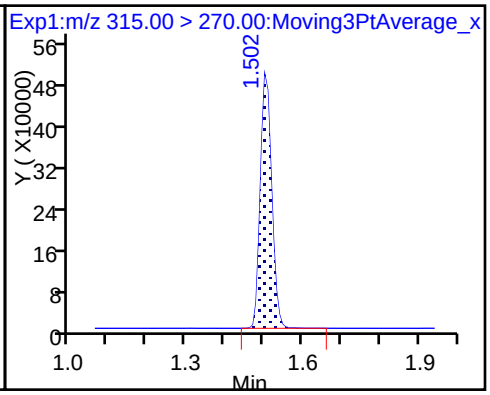
1 Perfluorobutanesulfonic acid



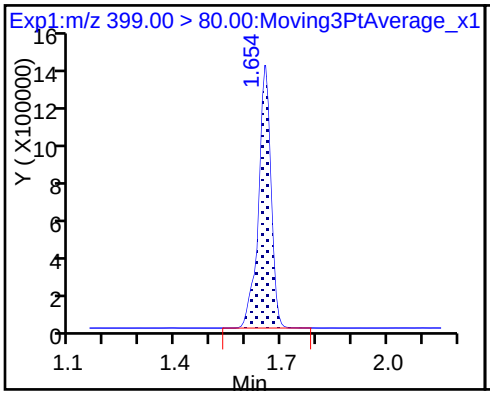
1 Perfluorobutanesulfonic acid



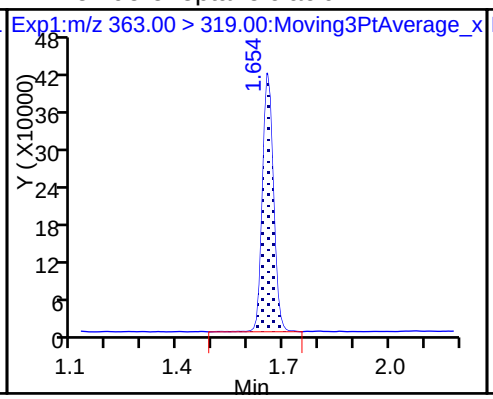
$ 2 13C2 PFHxA



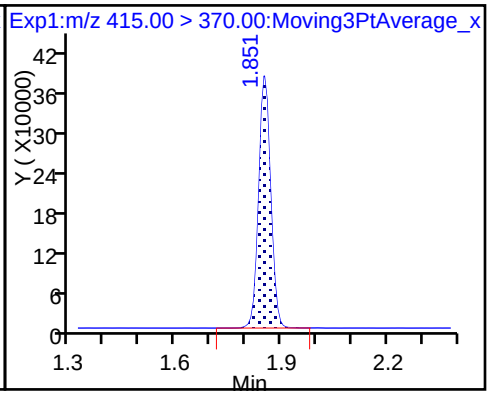
3 Perfluorohexanesulfonic acid



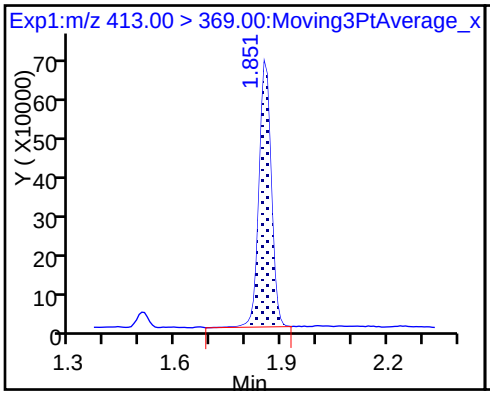
4 Perfluoroheptanoic acid



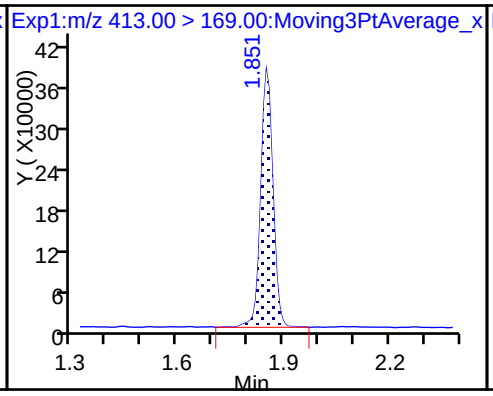
* 6 13C2-PFOA



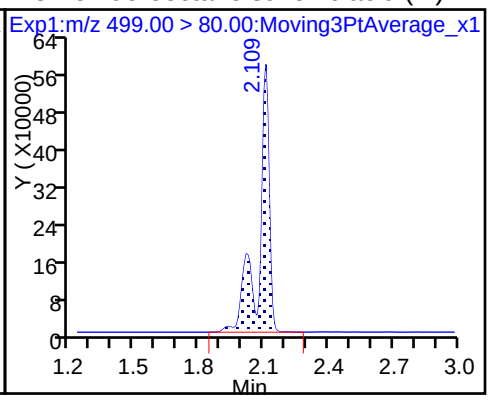
5 Perfluorooctanoic acid



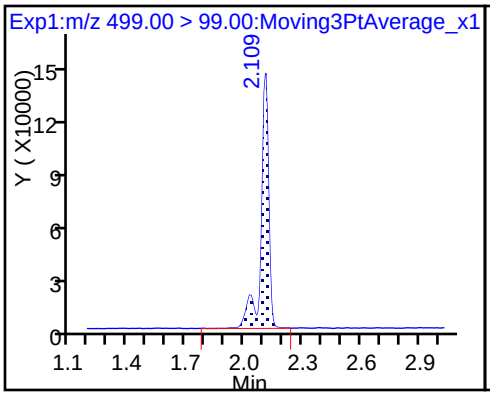
5 Perfluorooctanoic acid



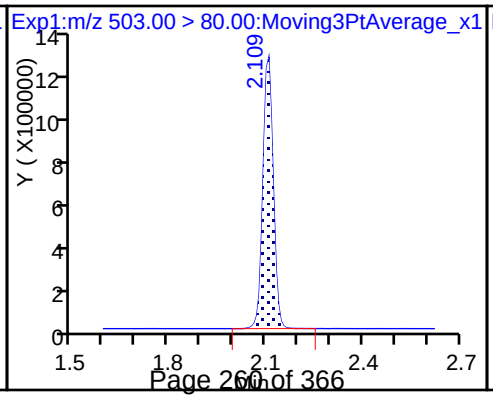
8 Perfluorooctane sulfonic acid (M)



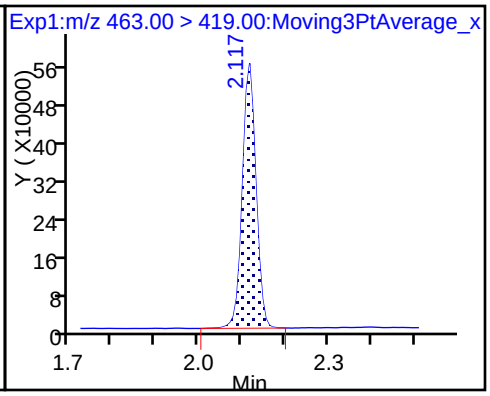
8 Perfluorooctane sulfonic acid



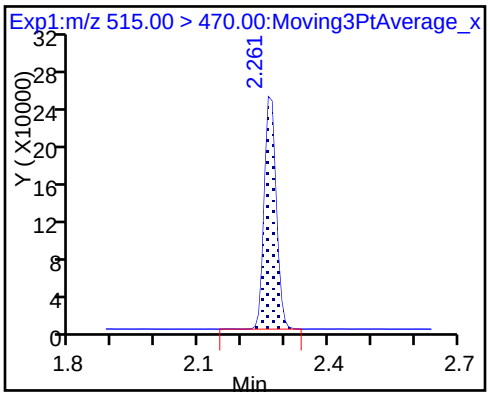
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.261
Y (X10000)
32
28
24
20
16
12
8
4
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

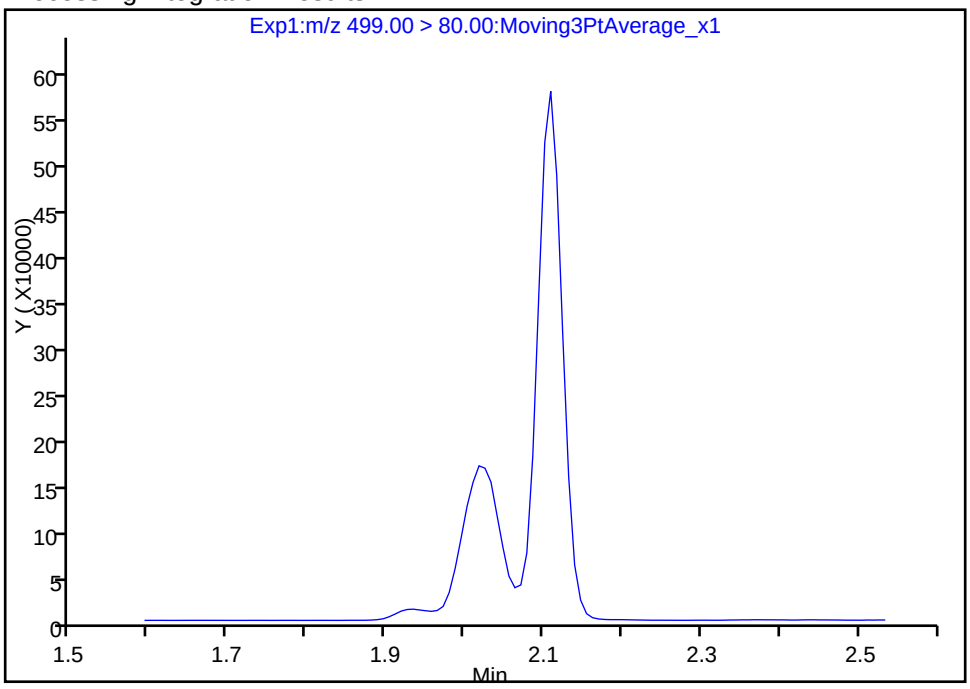
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_013.d
Injection Date: 16-Feb-2018 09:37:44 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

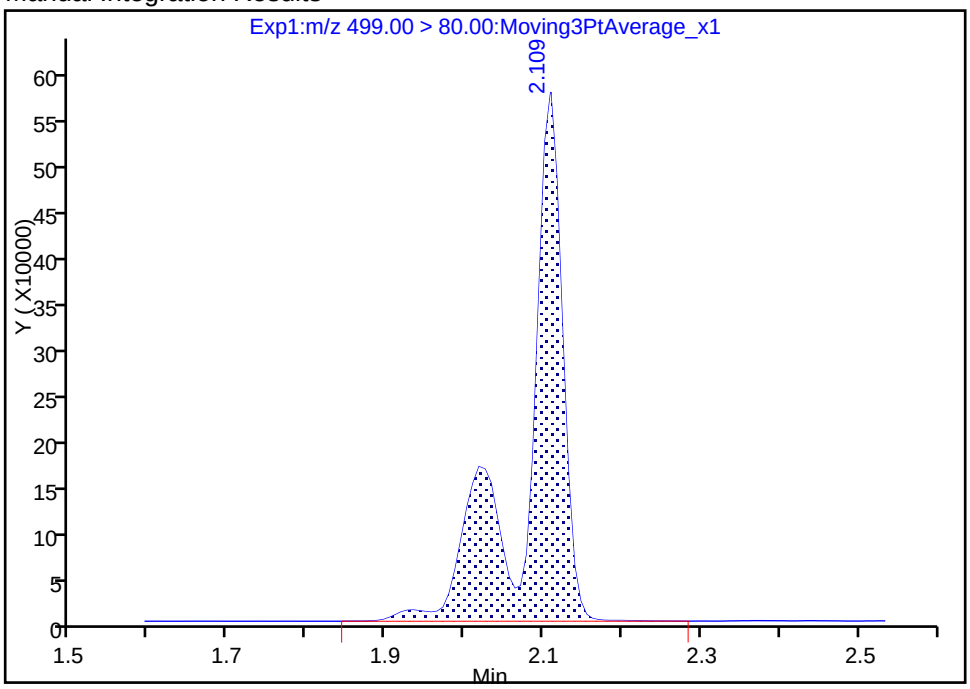
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 1873112
Amount: 21.016369
Amount Units: ng/ml



Reviewer: roycea, 16-Feb-2018 10:37:38
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCVL 320-211128/1 Calibration Date: 03/05/2018 08:44

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.05_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.234		19.3	20.0	-3.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.576		6.53	6.67	-2.1	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.013		2.32	2.22	4.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9751		4.53	4.47	1.4	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9667		9.13	8.93	2.2	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6261		4.52	4.45	1.7	50.0
13C2 PFHxA	Ave	1.100	1.028		9.35	10.0	-6.5	30.0
13C2 PFDA	Ave	0.5243	0.5536		10.6	10.0	5.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b\2018.03.05_537A_004.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 05-Mar-2018 08:44:04 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCVL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 10:57:13 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK026

First Level Reviewer: roycea Date: 05-Mar-2018 10:12:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	2177995	19.3		776	
298.90 > 99.00	1.381	1.381	0.0	1.000	1490038		1.46(0.00-0.00)	768	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.510	1.510	0.0	1.000	880759	9.35		14678	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.669	1.662	0.007	1.000	927819	6.53		1919	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.669	0.008	1.000	192862	2.32		43.8	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.874	0.015		856705	10.0		9145	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.889	1.882	0.007	1.000	373342	4.53		16.8	M
413.00 > 169.00	1.889	1.882	0.007	1.000	200836		1.86(0.00-0.00)	293	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.132	0.015		2531502	28.7		10365	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.147	2.132	0.015	1.000	761725	9.13		563	a
499.00 > 99.00	2.147	2.132	0.015	1.000	162673		4.68(0.00-0.00)	116	
9 Perfluorononanoic acid									
463.00 > 419.00	2.155	2.147	0.008	1.000	238476	4.52		24.6	
$ 10 13C2 PFDA									
515.00 > 470.00	2.299	2.291	0.008	1.000	474278	10.6		4133	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L2_00021 Amount Added: 1.00 Units: mL

Report Date: 05-Mar-2018 10:57:13 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b\2018.03.05_537A_004.d

Injection Date: 05-Mar-2018 08:44:04 Instrument ID: A8_N

Lims ID: CCVL

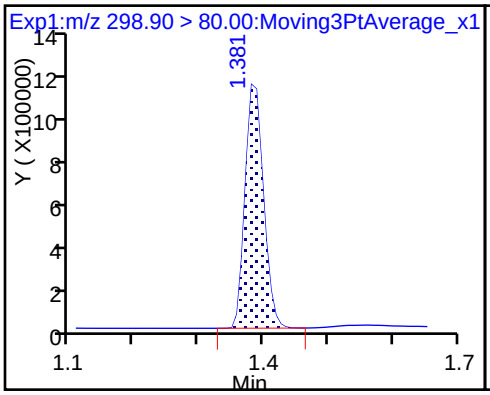
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1

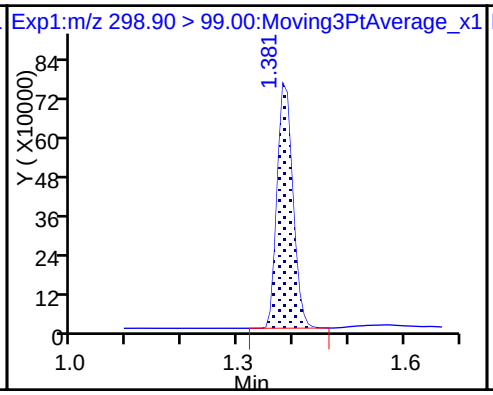
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

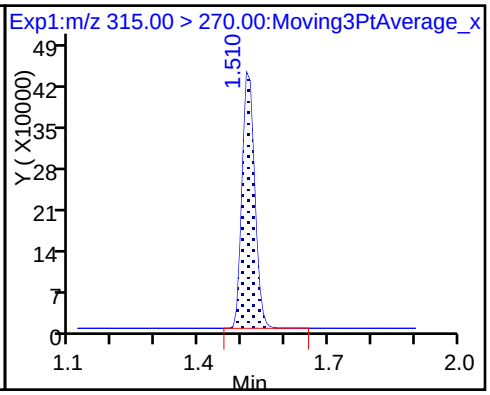
1 Perfluorobutanesulfonic acid



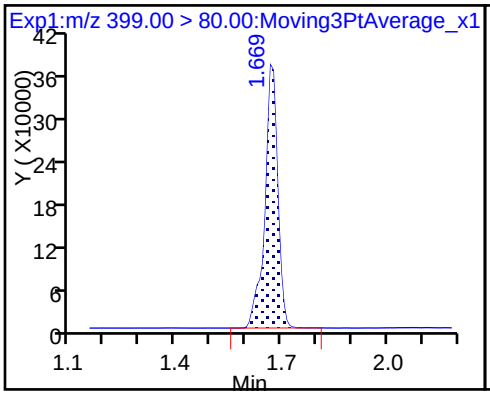
1 Perfluorobutanesulfonic acid



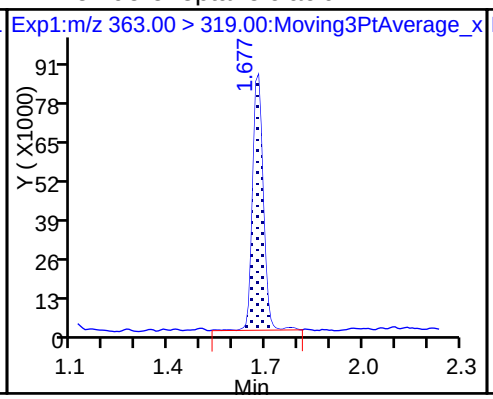
$ 2 13C2 PFHxA



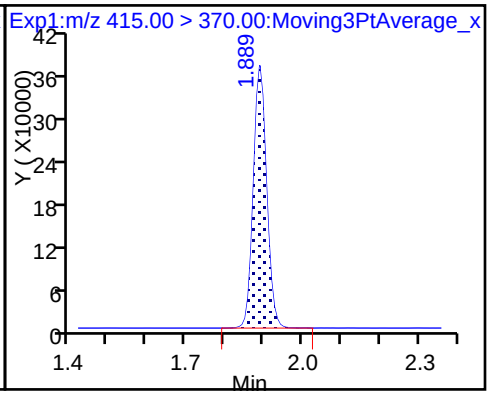
3 Perfluorohexanesulfonic acid



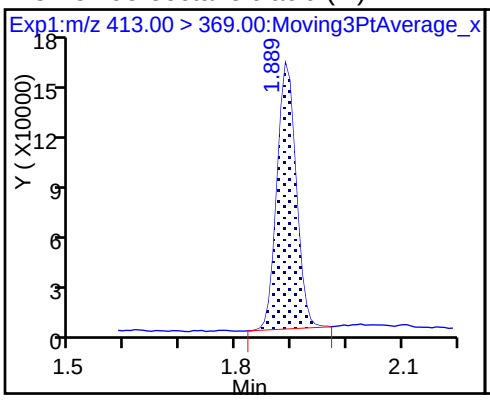
4 Perfluoroheptanoic acid



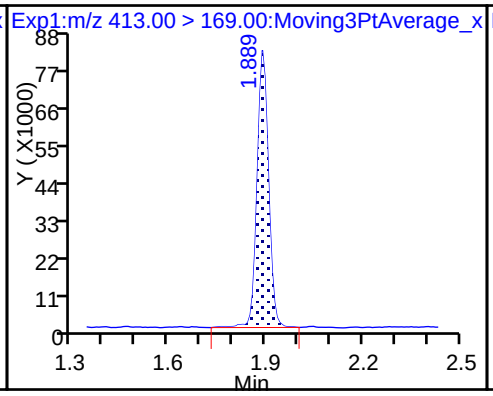
* 6 13C2-PFOA



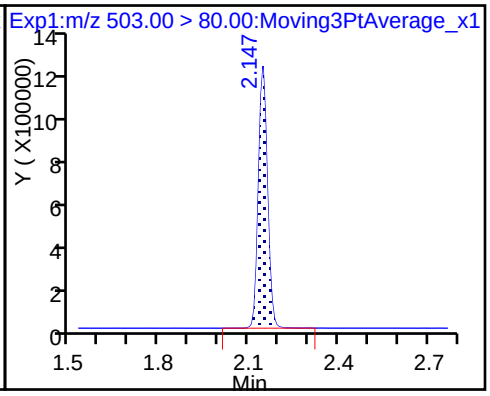
5 Perfluorooctanoic acid (M)



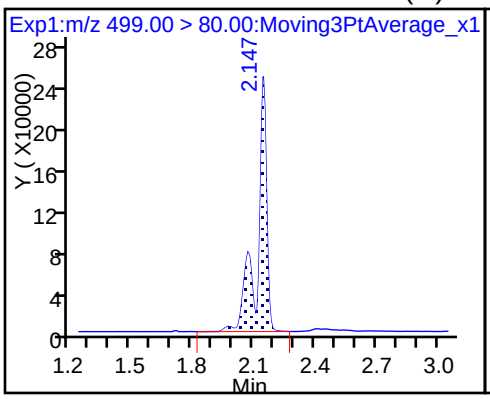
5 Perfluorooctanoic acid



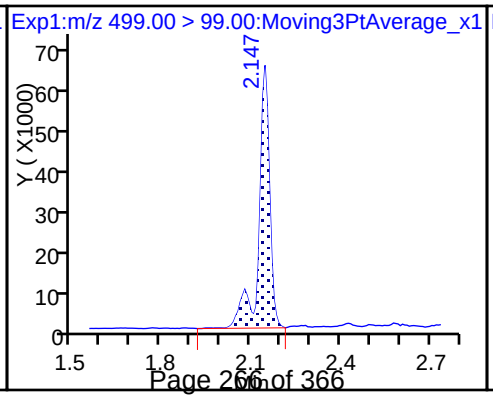
* 7 13C4 PFOS



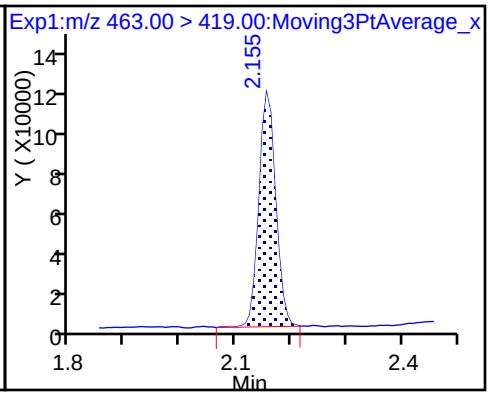
8 Perfluorooctane sulfonic acid (M)



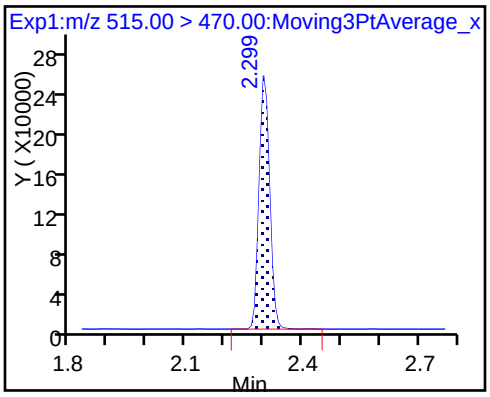
8 Perfluorooctane sulfonic acid



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.299
Y (X10000)
28
24
20
16
12
8
4
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

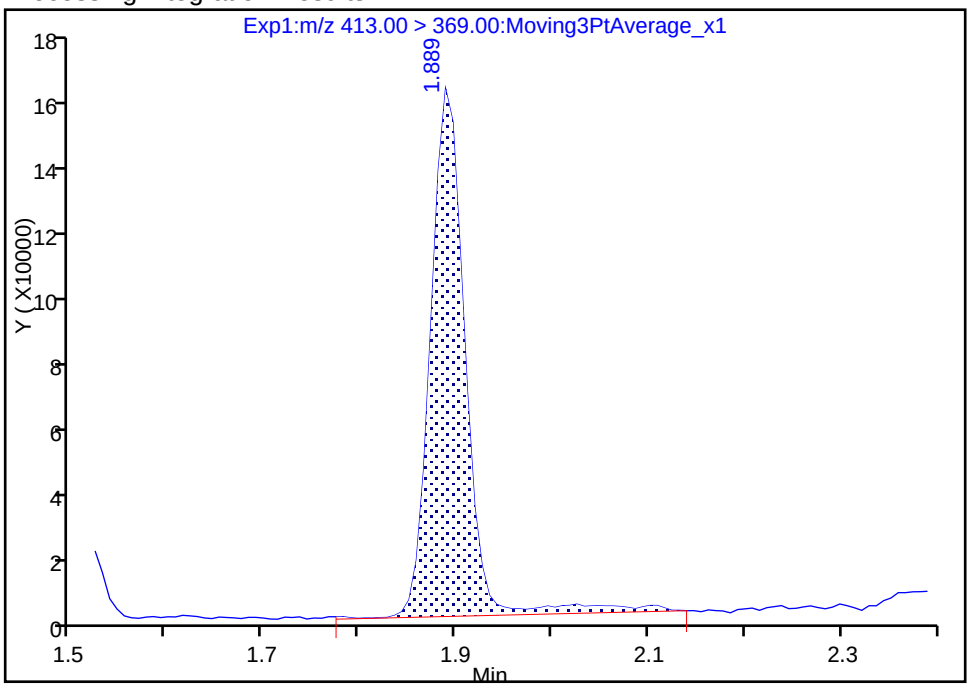
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b\2018.03.05_537A_004.d
Injection Date: 05-Mar-2018 08:44:04 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

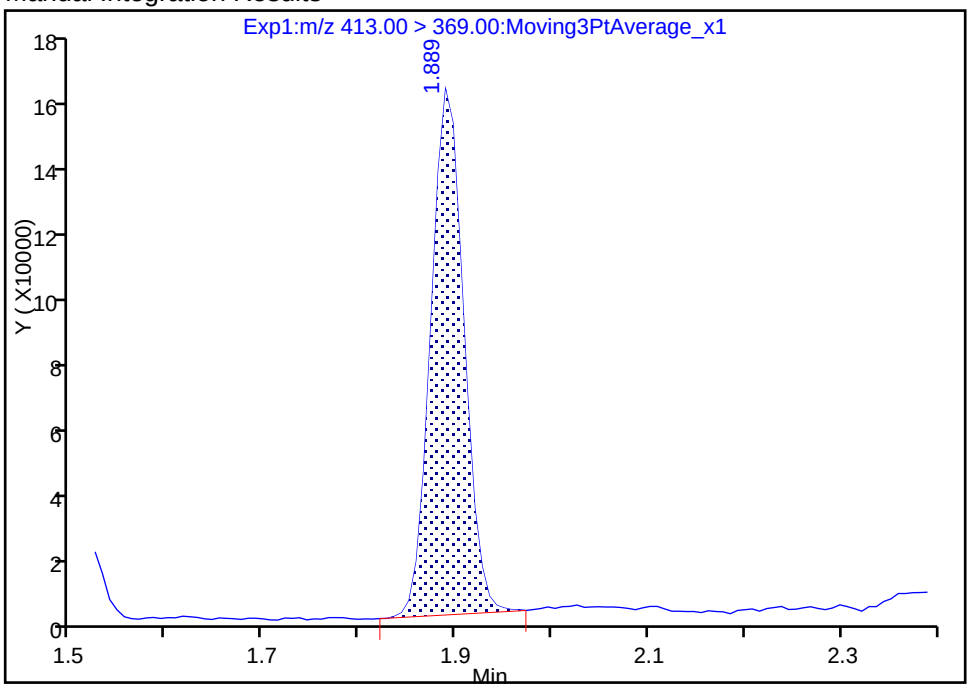
Processing Integration Results

RT: 1.89
Area: 397826
Amount: 4.826943
Amount Units: ng/ml



Manual Integration Results

RT: 1.89
Area: 373342
Amount: 4.529871
Amount Units: ng/ml



Reviewer: roycea, 05-Mar-2018 10:52:12
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

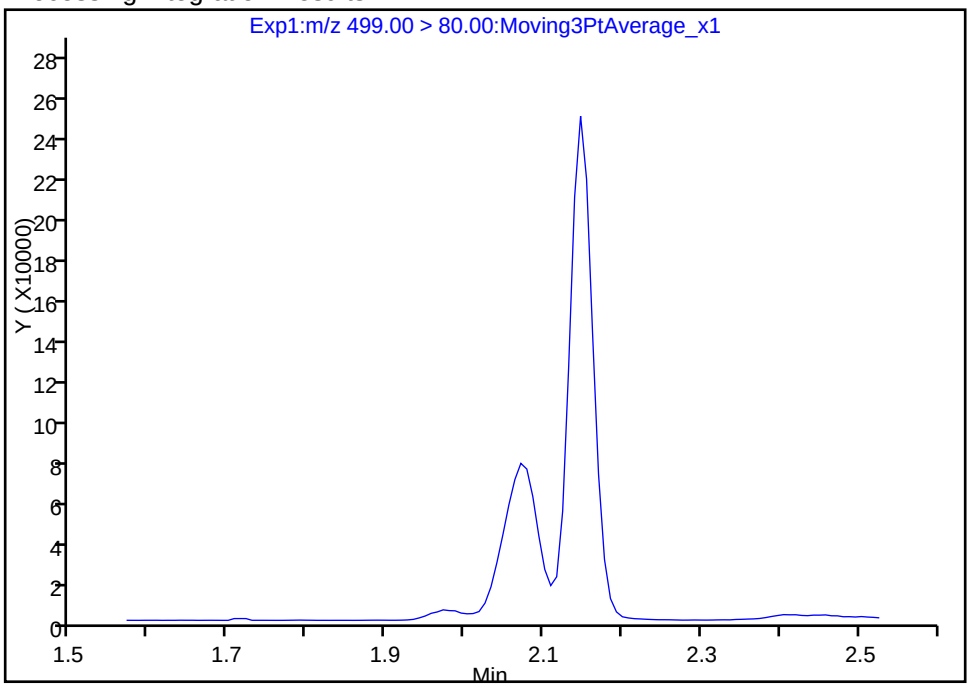
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b\2018.03.05_537A_004.d				
Injection Date:	05-Mar-2018 08:44:04	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

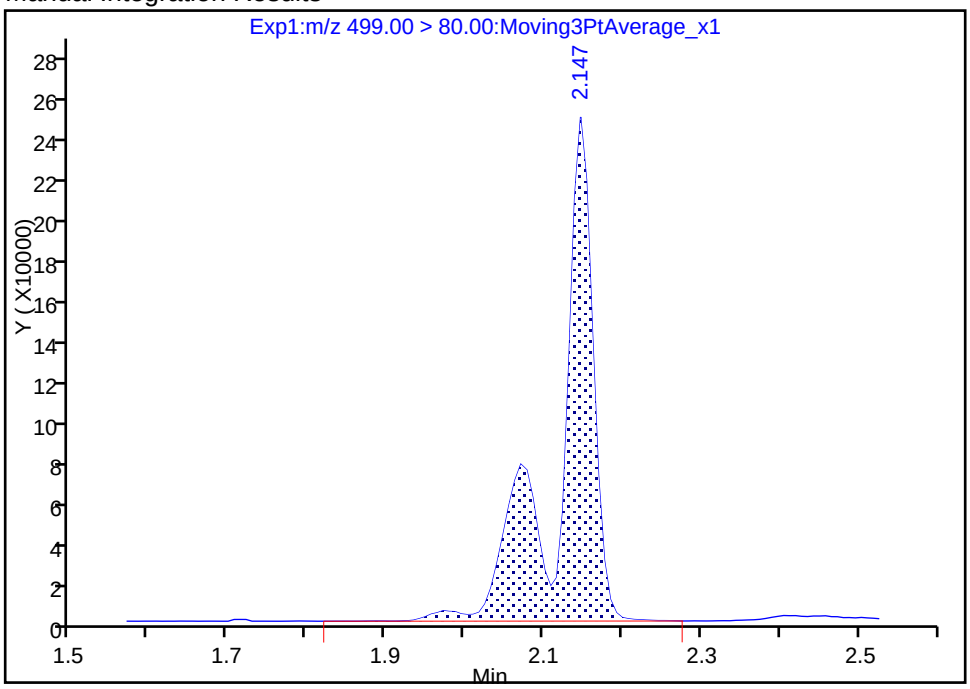
Not Detected
Expected RT: 2.13

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 761725
Amount: 9.126841
Amount Units: ng/ml



Reviewer: roycea, 05-Mar-2018 10:12:27
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211343/1 Calibration Date: 03/06/2018 01:05

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.05_537B_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9725		125	135	-7.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9514		14.7	15.0	-2.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.624		45.4	45.0	0.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9861		30.9	30.2	2.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9803		62.5	60.3	3.7	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6644		32.4	30.0	8.0	30.0
13C2 PFHxA	Ave	1.100	1.029		9.36	10.0	-6.4	30.0
13C2 PFDA	Ave	0.5243	0.5557		10.6	10.0	6.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_004.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 06-Mar-2018 01:05:11 ALS Bottle#: 5 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: roycea Date: 06-Mar-2018 09:30:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	12870453	124.6		4544	
298.90 > 99.00	1.366	1.366	0.0	1.000	9774541		1.32(0.00-0.00)	4567	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1023682	9.36		16087	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	7168327	45.4		12233	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	1419777	14.7		243	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.821	0.0		994738	10.0		8693	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.828	0.0	1.000	2958846	30.9		106	
413.00 > 169.00	1.821	1.828	-0.007	0.996	1591591		1.86(0.00-0.00)	1645	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.079	2.056	0.023	1.000	5790282	62.5		8843	a
499.00 > 99.00	2.079	2.056	0.023	1.000	1231127		4.70(0.00-0.00)	663	
* 7 13C4 PFOS									
503.00 > 80.00	2.079	2.079	0.0		2811492	28.7		9197	
9 Perfluorononanoic acid									
463.00 > 419.00	2.086	2.086	0.0	1.000	1983414	32.4		248	
$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.253	0.0	1.000	552723	10.6		4528	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L5_00025 Amount Added: 1.00 Units: mL

Report Date: 06-Mar-2018 10:24:20 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_004.d

Injection Date: 06-Mar-2018 01:05:11 Instrument ID: A8_N

Lims ID: CCV L5

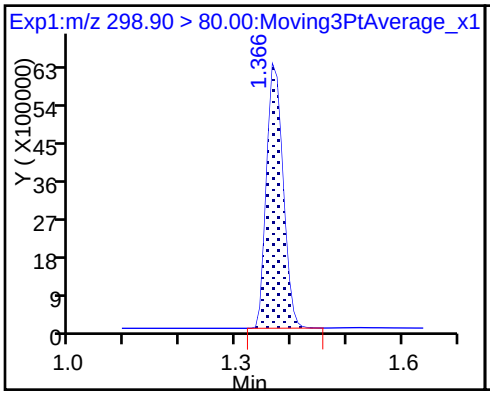
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1

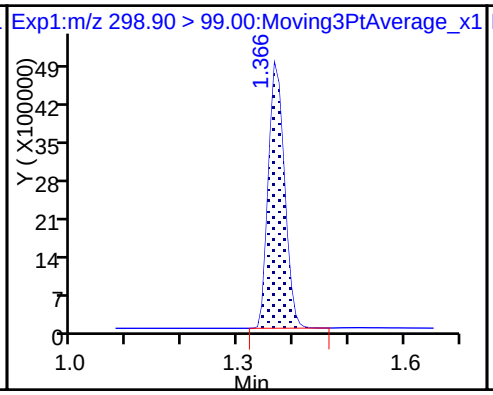
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

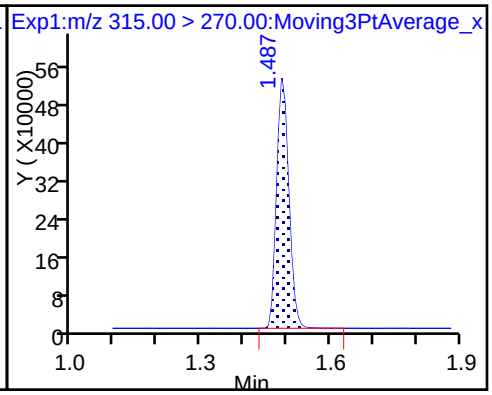
1 Perfluorobutanesulfonic acid



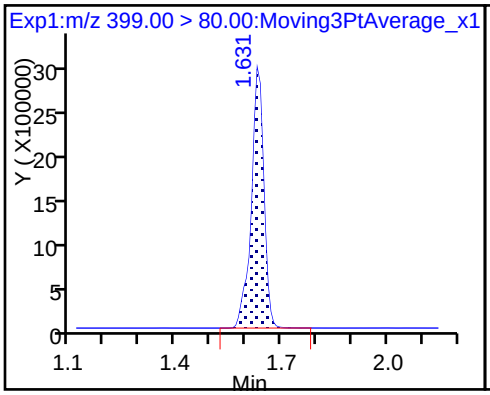
1 Perfluorobutanesulfonic acid



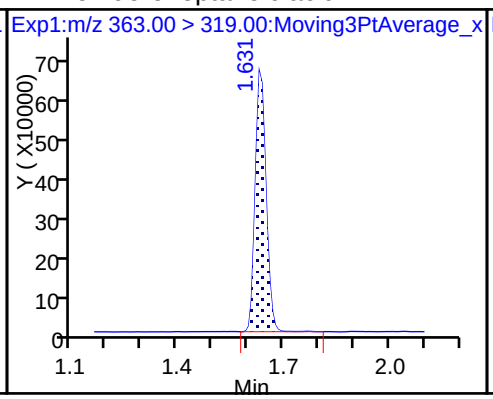
$ 2 13C2 PFHxA



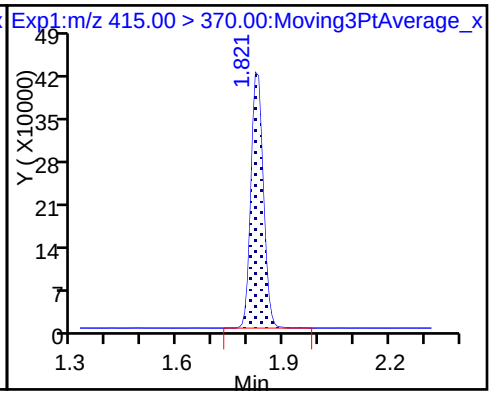
3 Perfluorohexanesulfonic acid



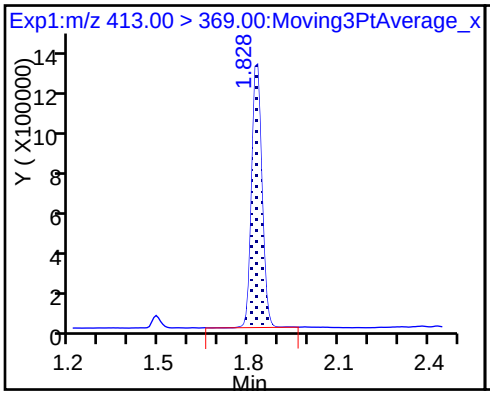
4 Perfluoroheptanoic acid



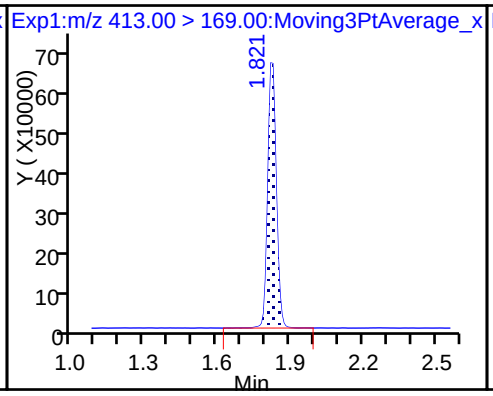
* 6 13C2-PFOA



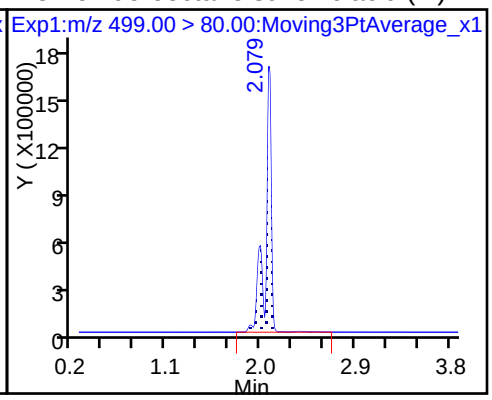
5 Perfluorooctanoic acid



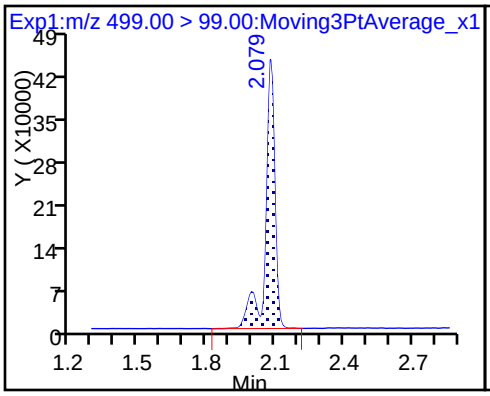
5 Perfluorooctanoic acid



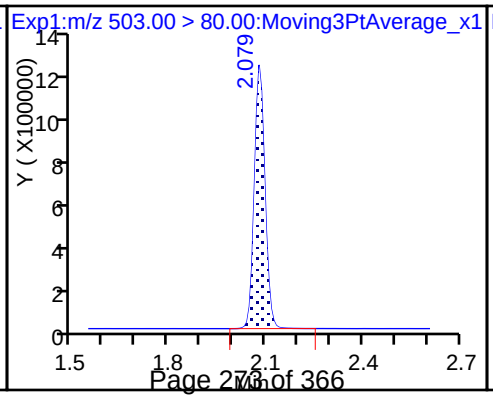
8 Perfluorooctane sulfonic acid (M)



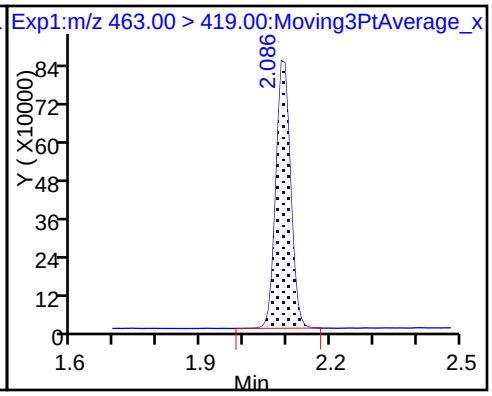
8 Perfluorooctane sulfonic acid



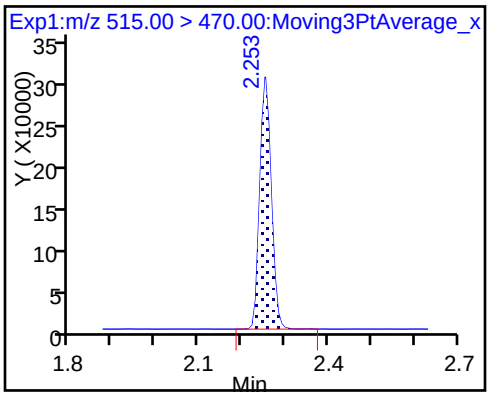
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.253
Y(X10000)
35
30
25
20
15
10
5
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

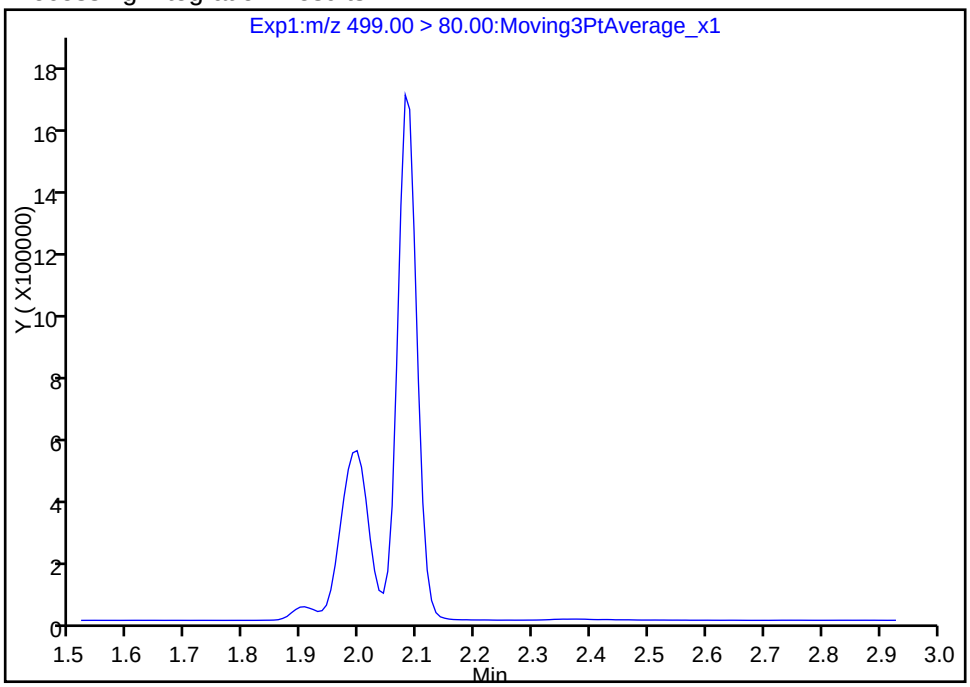
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_004.d				
Injection Date:	06-Mar-2018 01:05:11	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	1
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

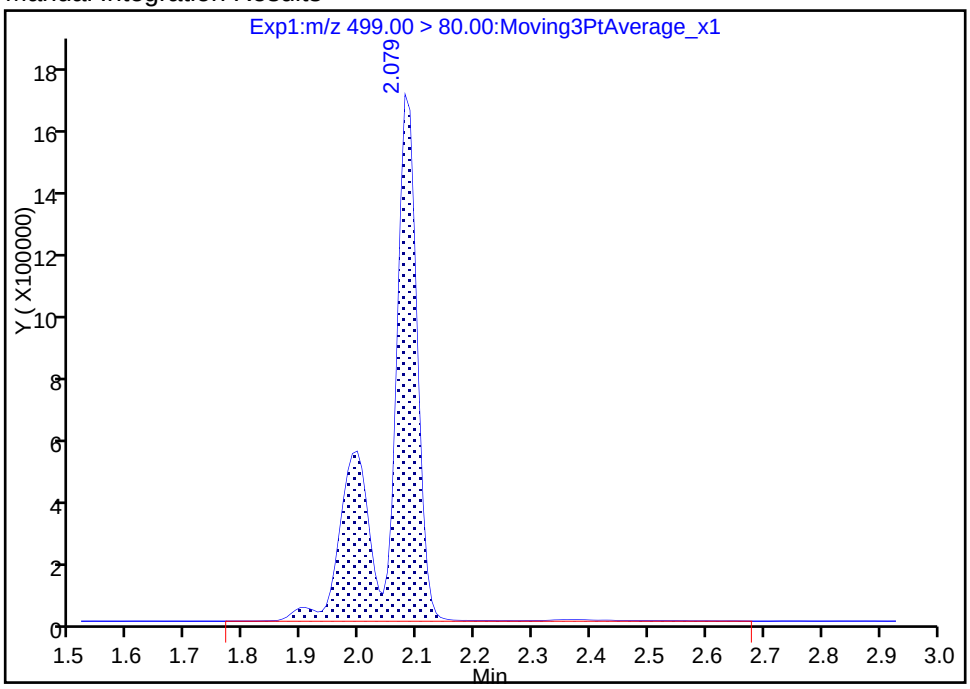
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.08
Area: 5790282
Amount: 62.468836
Amount Units: ng/ml



Reviewer: roycea, 06-Mar-2018 09:29:54
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211343/13 Calibration Date: 03/06/2018 02:01

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.05_537B_016.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.101		40.2	45.0	-10.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.002		5.16	5.00	3.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.641		15.3	15.0	1.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9658		10.1	10.1	0.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9499		20.2	20.1	0.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6924		11.3	10.0	12.5	30.0
13C2 PFHxA	Ave	1.100	1.062		9.66	10.0	-3.4	30.0
13C2 PFDA	Ave	0.5243	0.5776		11.0	10.0	10.2	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_016.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 06-Mar-2018 02:01:16 ALS Bottle#: 3 Worklist Smp#: 13
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\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:30 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: barnettj Date: 06-Mar-2018 10:14:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	5216459	40.2		1922	
298.90 > 99.00	1.358	1.358	0.0	1.000	3922706		1.33(0.00-0.00)	1951	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1058516	9.66		13422	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	2591462	15.3		5487	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	499098	5.16		105	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		996484	10.0		8114	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.813	0.0	1.000	967684	10.1		29.1	
413.00 > 169.00	1.813	1.813	0.0	1.000	536880		1.80(0.00-0.00)	553	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.064	2.056	0.008	1.000	2008201	20.2		1326	M
499.00 > 99.00	2.064	2.056	0.008	1.000	434099		4.63(0.00-0.00)	244	M
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.064	0.0		3018630	28.7		9631	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.071	0.0	1.000	690203	11.3		82.6	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	575519	11.0		4365	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024 Amount Added: 1.00 Units: mL

Report Date: 06-Mar-2018 10:24:30 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_016.d

Injection Date: 06-Mar-2018 02:01:16 Instrument ID: A8_N

Lims ID: CCV L3

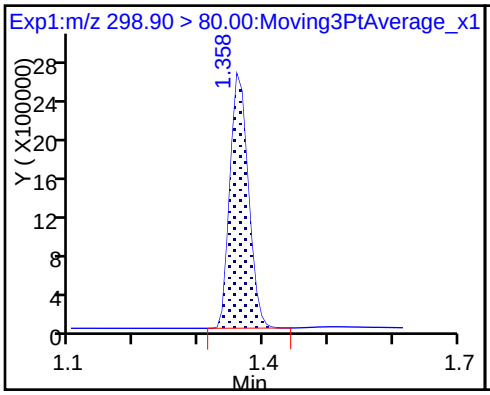
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 13

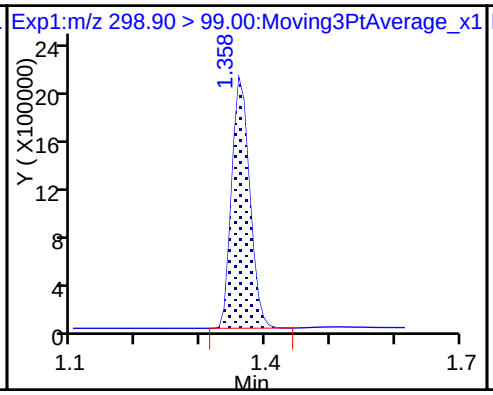
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

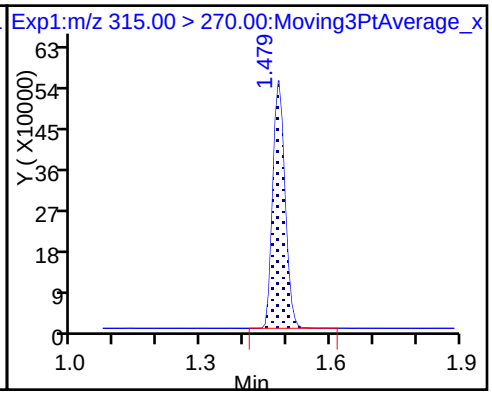
1 Perfluorobutanesulfonic acid



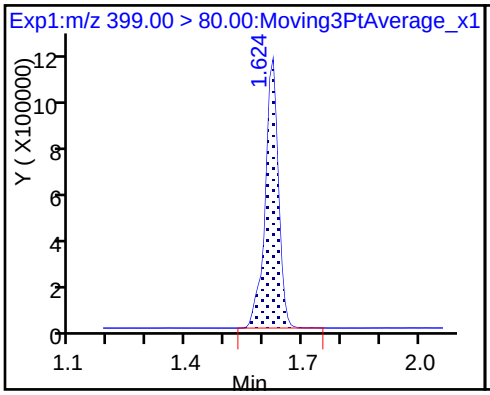
1 Perfluorobutanesulfonic acid



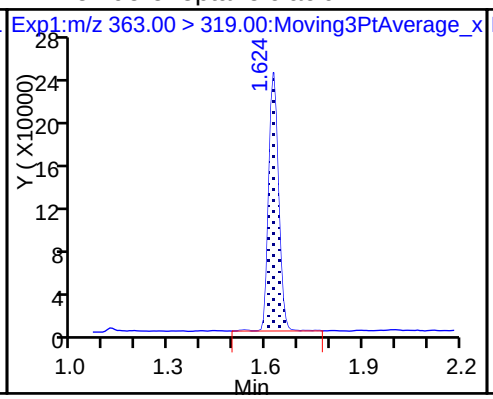
$ 2 13C2 PFHxA



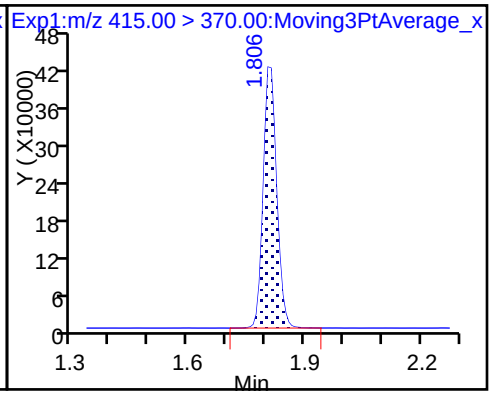
3 Perfluorohexanesulfonic acid



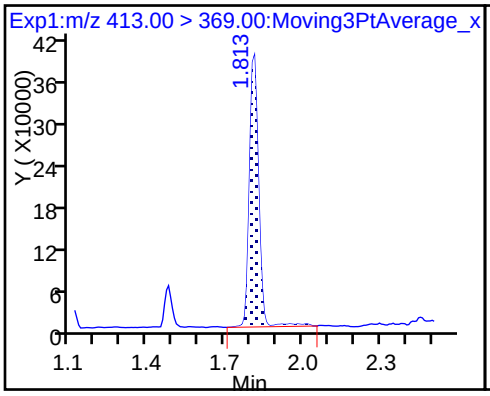
4 Perfluoroheptanoic acid



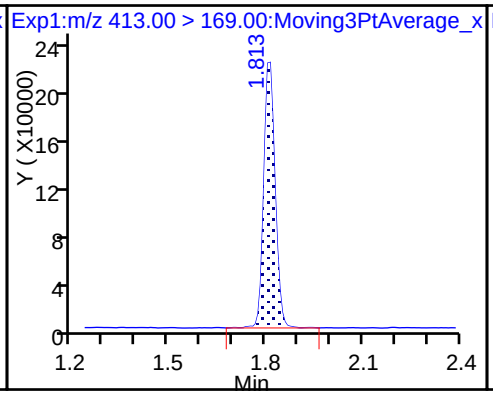
* 6 13C2-PFOA



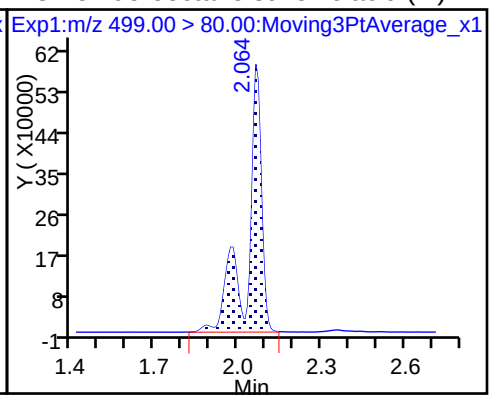
5 Perfluorooctanoic acid



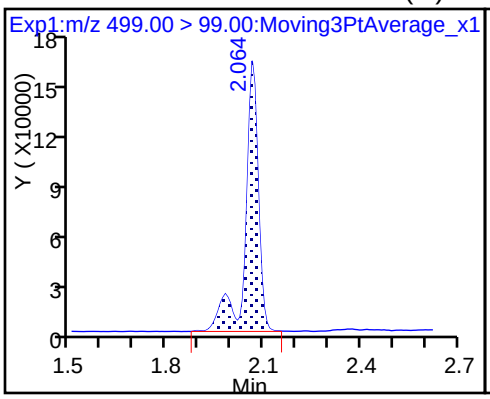
5 Perfluorooctanoic acid



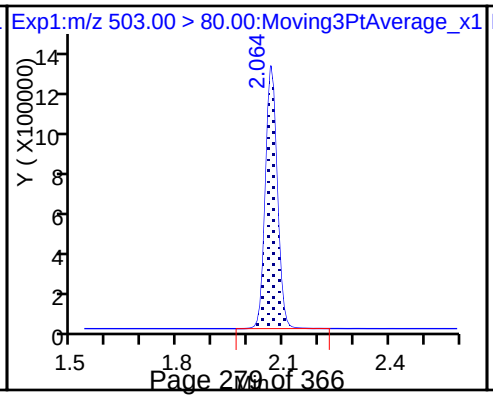
8 Perfluorooctane sulfonic acid (M)



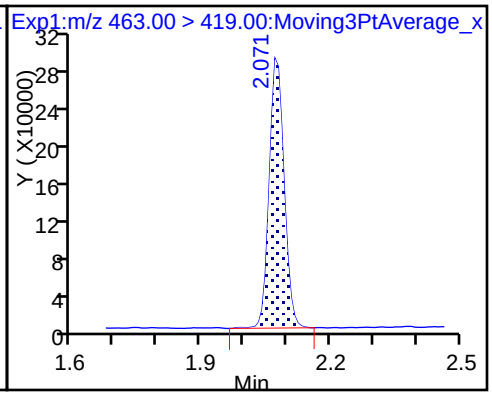
8 Perfluorooctane sulfonic acid (M)



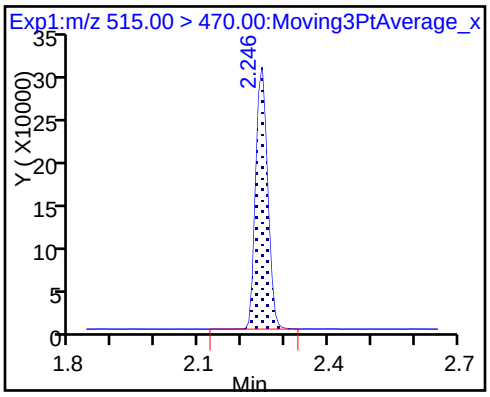
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
35
30
25
20
15
10
5
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

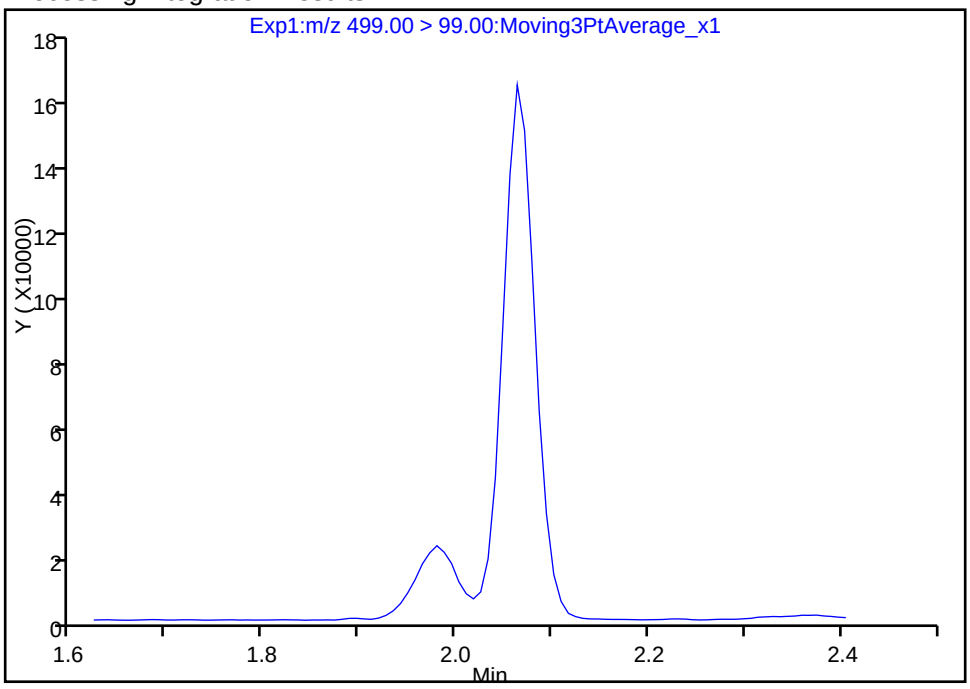
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_016.d
Injection Date: 06-Mar-2018 02:01:16 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

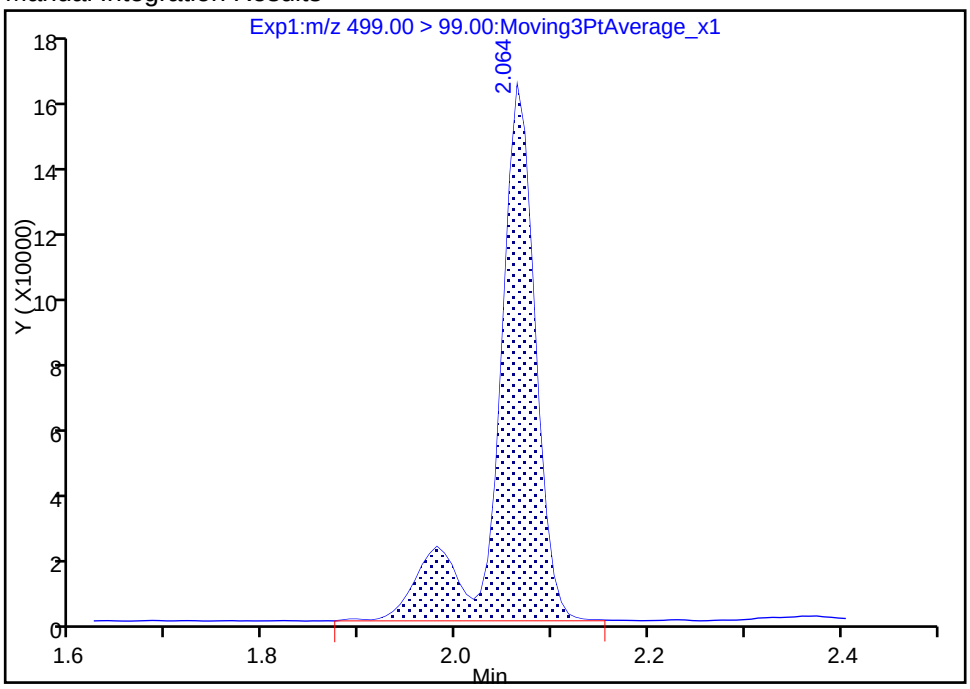
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 434099
Amount: 20.178917
Amount Units: ng/ml



Reviewer: barnettj, 06-Mar-2018 10:14:07
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

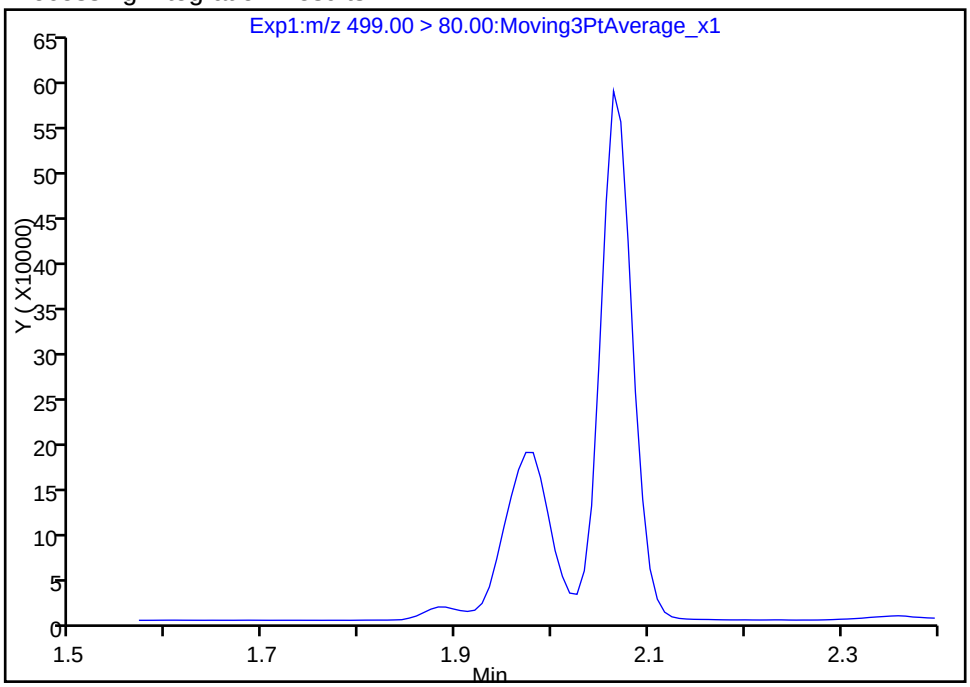
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_016.d
Injection Date: 06-Mar-2018 02:01:16 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

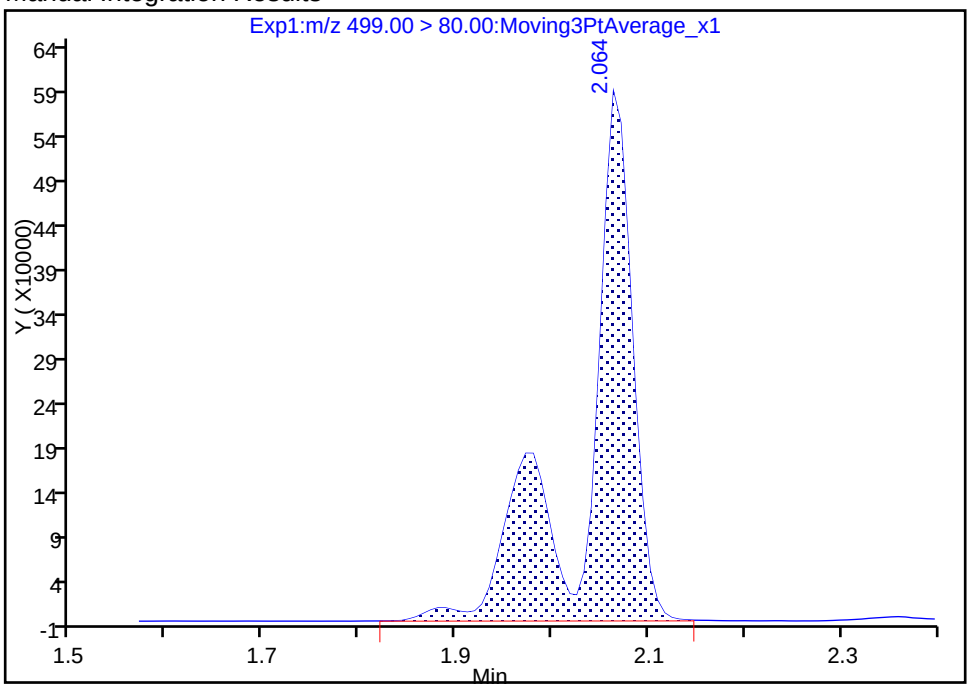
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 2008201
Amount: 20.178917
Amount Units: ng/ml



Reviewer: barnettj, 06-Mar-2018 10:14:07
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCVL 320-211417/1 Calibration Date: 03/06/2018 09:24

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.06_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)	QuaF		1.126		17.6	20.0	-12.1	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.012		2.32	2.22	4.2	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.543		6.39	6.67	-4.1	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9353		4.34	4.47	-2.8	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9523		8.99	8.93	0.7	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6945		5.02	4.45	12.9	50.0
13C2 PFHxA	Ave	1.100	1.092		9.92	10.0	-0.8	30.0
13C2 PFDA	Ave	0.5243	0.5700		10.9	10.0	8.7	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54905.b\2018.03.06_537A_004.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 06-Mar-2018 09:24:55 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCVL
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54905.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 17:13:08 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: barnettj Date: 06-Mar-2018 13:11:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	1980515	17.6		803	
298.90 > 99.00	1.358	1.358	0.0	1.000	1426484		1.39(0.00-0.00)	758	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	929805	9.92		12746	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	905428	6.39		2039	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	191555	2.32		35.8	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.806	0.007		851838	10.0		7428	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.806	0.007	1.000	356067	4.34		11.6	
413.00 > 169.00	1.813	1.806	0.007	1.000	205862		1.73(0.00-0.00)	186	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.064	0.007		2523082	28.7		8492	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.071	2.064	0.007	1.000	747828	8.99		482	a
499.00 > 99.00	2.071	2.064	0.007	1.000	151324		4.94(0.00-0.00)	77.0	
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.071	0.008	1.000	263026	5.02		35.9	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	485543	10.9		3769	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L2_00021 Amount Added: 1.00 Units: mL

Report Date: 06-Mar-2018 17:13:08 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54905.b\2018.03.06_537A_004.d

Injection Date: 06-Mar-2018 09:24:55 Instrument ID: A8_N

Lims ID: CCVL

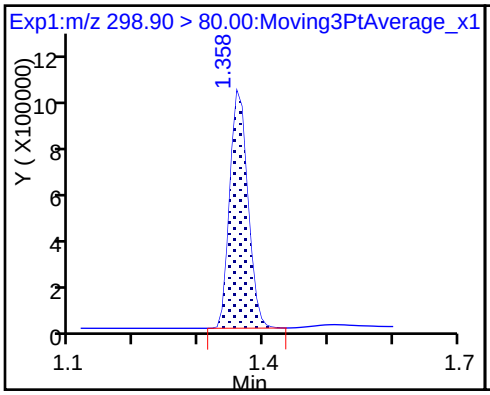
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1

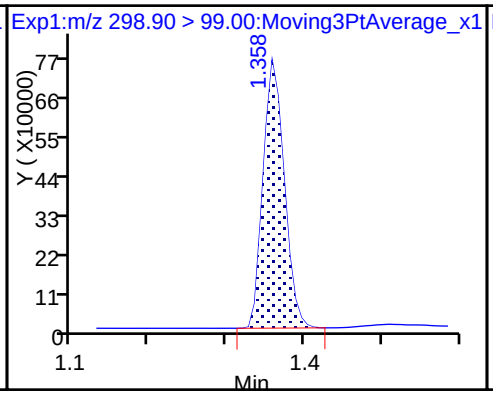
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

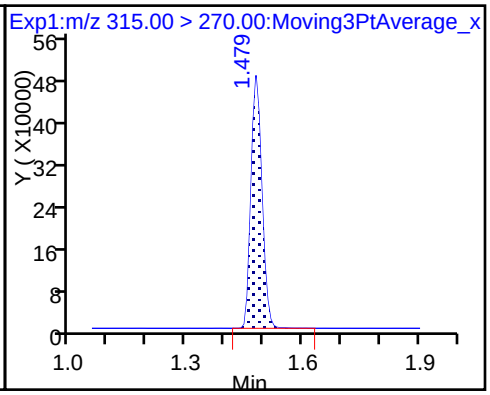
1 Perfluorobutanesulfonic acid



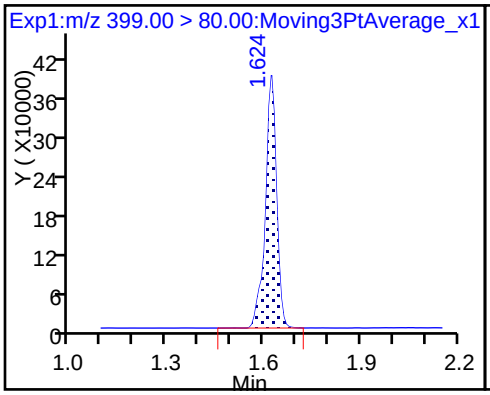
1 Perfluorobutanesulfonic acid



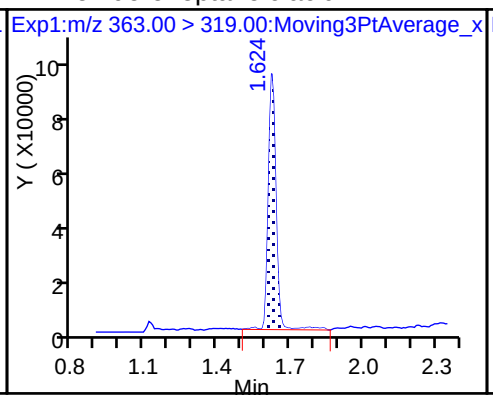
$ 2 13C2 PFHxA



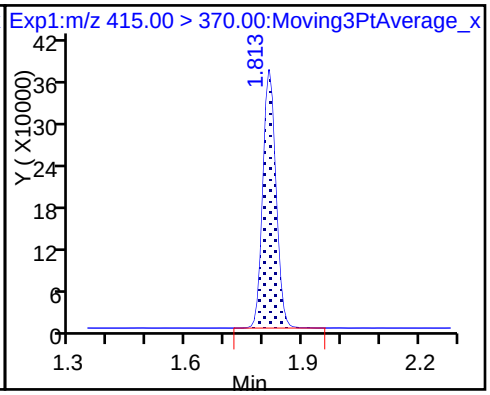
3 Perfluorohexanesulfonic acid



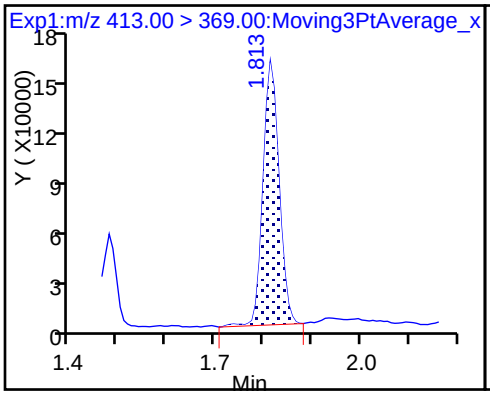
4 Perfluoroheptanoic acid



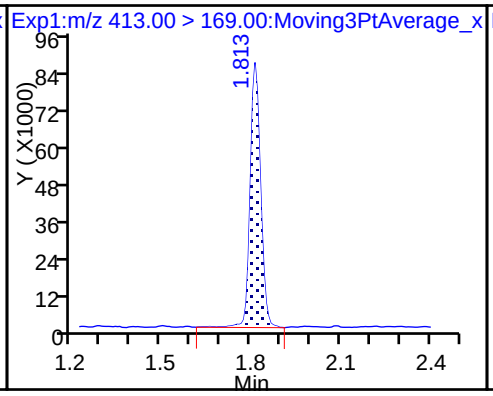
* 6 13C2-PFOA



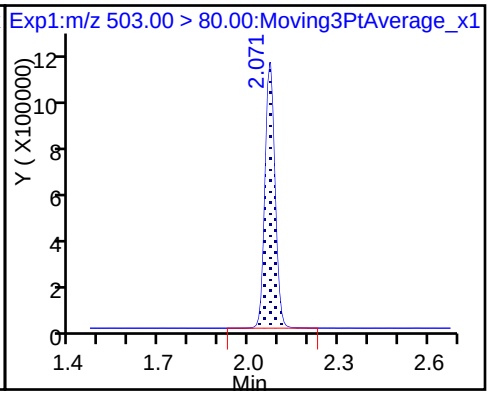
5 Perfluorooctanoic acid



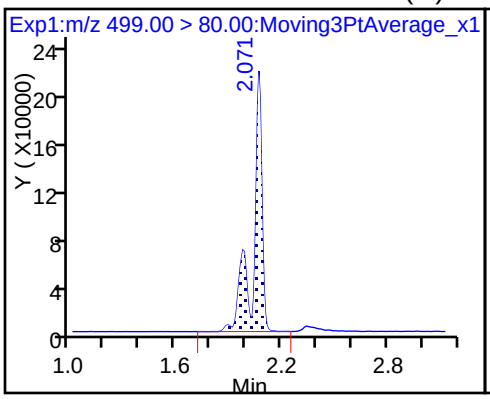
5 Perfluorooctanoic acid



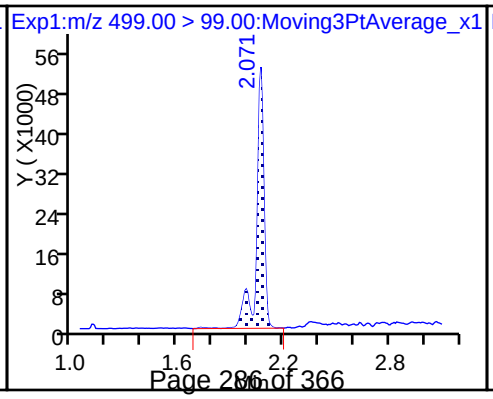
* 7 13C4 PFOS



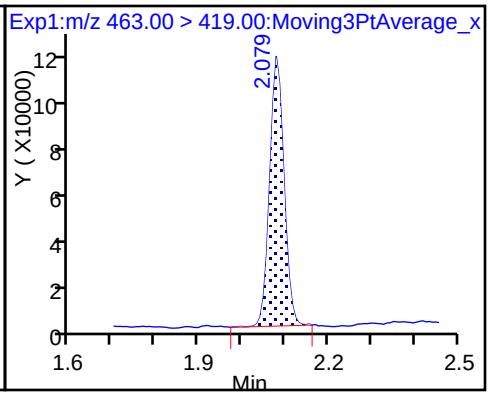
8 Perfluorooctane sulfonic acid (M)



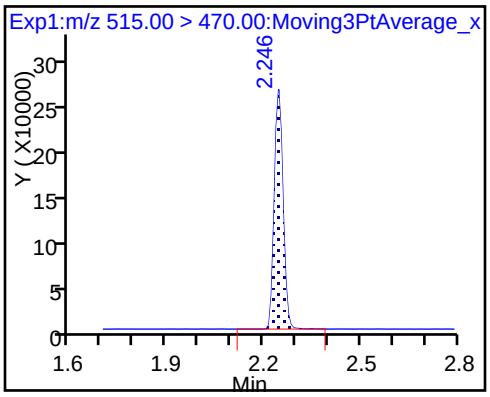
8 Perfluorooctane sulfonic acid



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
30
25
20
15
10
5
0
1.6
1.9
2.2
2.5
2.8
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

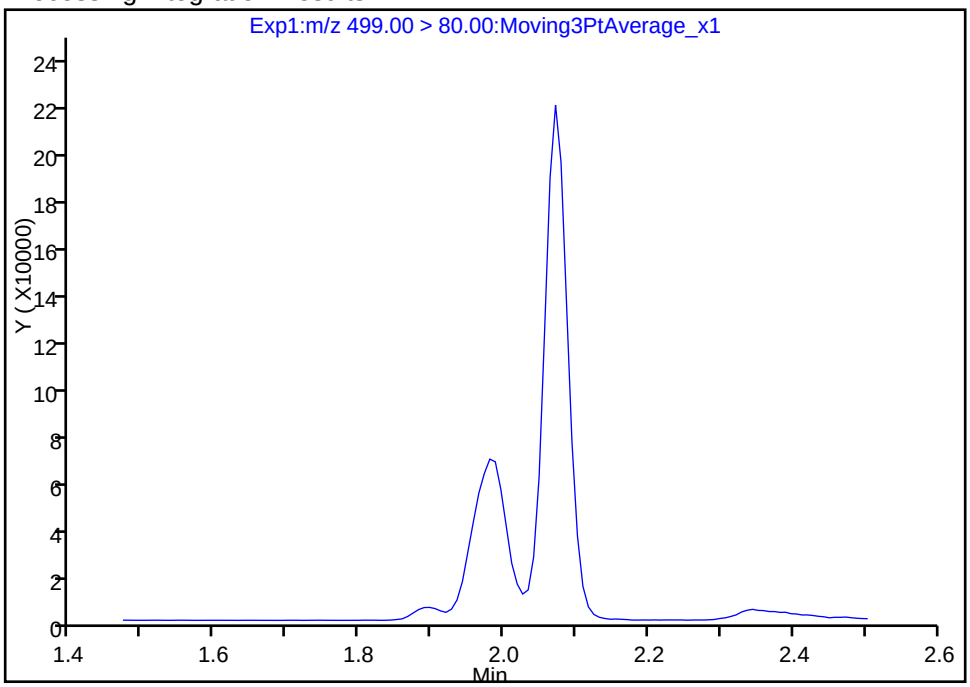
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54905.b\2018.03.06_537A_004.d
Injection Date: 06-Mar-2018 09:24:55 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

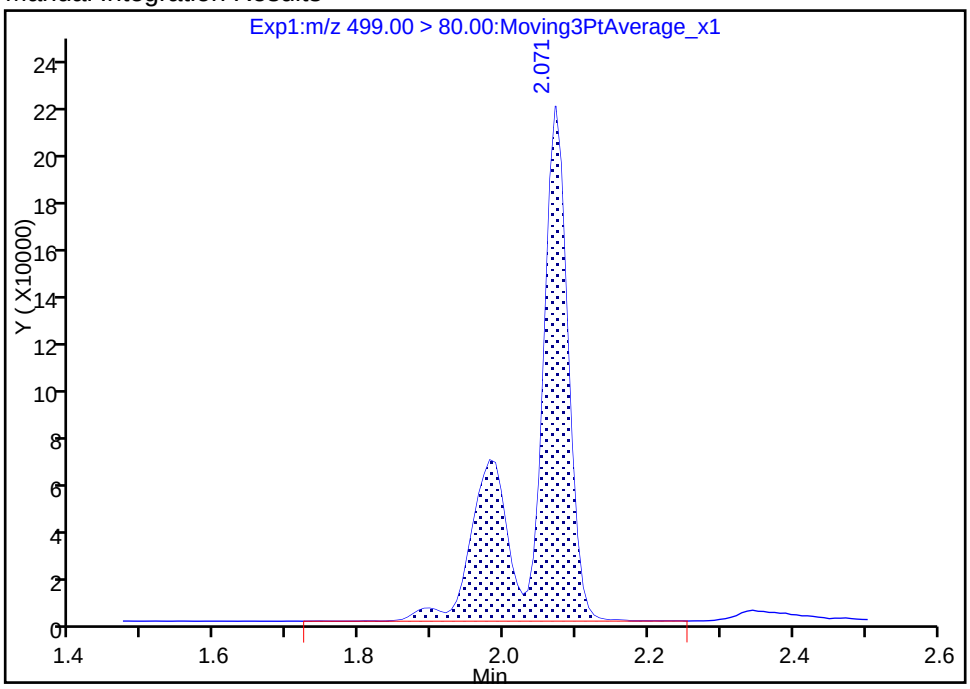
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 747828
Amount: 8.990232
Amount Units: ng/ml



Reviewer: barnettj, 06-Mar-2018 13:11:43
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211575/1 Calibration Date: 03/06/2018 21:11

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.06_537AA_049.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.029		37.4	45.0	-16.9	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9698		4.99	5.00	-0.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.551		14.5	15.0	-3.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9940		10.4	10.1	3.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9174		19.5	20.1	-3.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6593		10.7	10.0	7.1	30.0
13C2 PFHxA	Ave	1.100	1.016		9.23	10.0	-7.7	30.0
13C2 PFDA	Ave	0.5243	0.5669		10.8	10.0	8.1	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_049.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 06-Mar-2018 21:11:49 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\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:05:50 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:52:35

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	5347839	37.4		7099	
298.90 > 99.00	1.366	1.366	0.0	1.000	3954330		1.35(0.00-0.00)	5784	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1085208	9.23		14487	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	2687169	14.5		5542	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	518149	4.99		176	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.821	0.0		1068414	10.0		9336	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.821	1.821	0.0	1.000	1067852	10.4		45.2	
413.00 > 169.00	1.821	1.821	0.0	1.000	564007		1.89(0.00-0.00)	476	
* 7 13C4 PFOS									
503.00 > 80.00	2.079	2.079	0.0		3310510	28.7		9709	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.079	2.064	0.015	1.000	2126924	19.5		1095	M
499.00 > 99.00	2.079	2.064	0.015	1.000	453620		4.69(0.00-0.00)	329	
9 Perfluorononanoic acid									
463.00 > 419.00	2.086	2.086	0.0	1.000	704676	10.7		116	
$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.253	0.0	1.000	605694	10.8		6423	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024 Amount Added: 1.00 Units: mL

Report Date: 07-Mar-2018 10:05:51 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_049.d

Injection Date: 06-Mar-2018 21:11:49 Instrument ID: A8_N

Lims ID: CCV L3

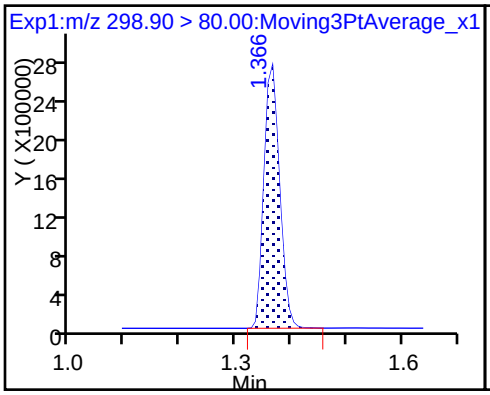
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 1

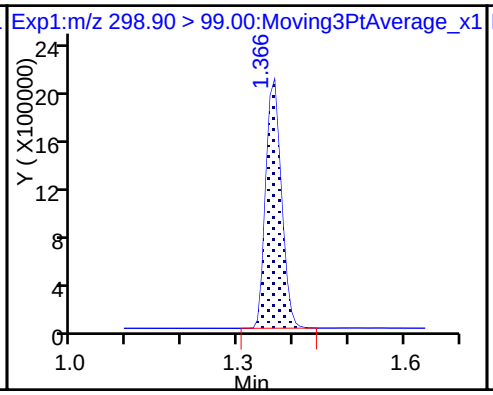
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

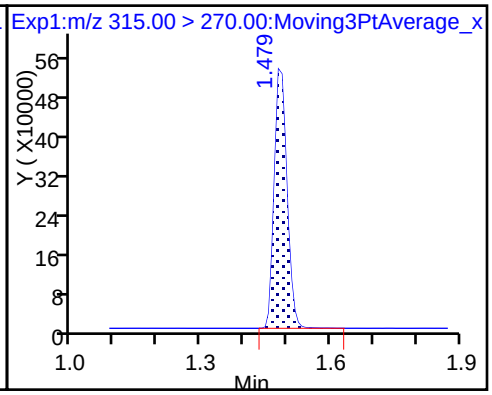
1 Perfluorobutanesulfonic acid



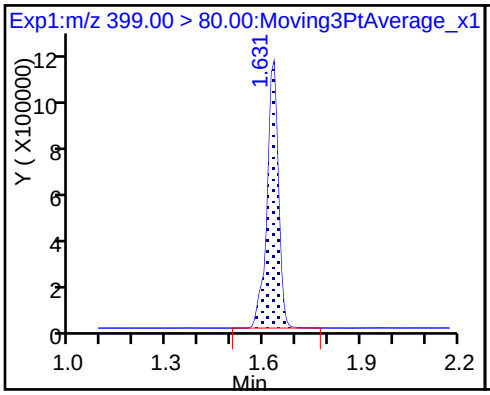
1 Perfluorobutanesulfonic acid



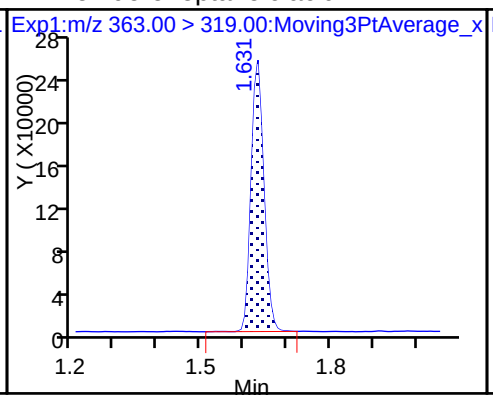
$ 2 13C2 PFHxA



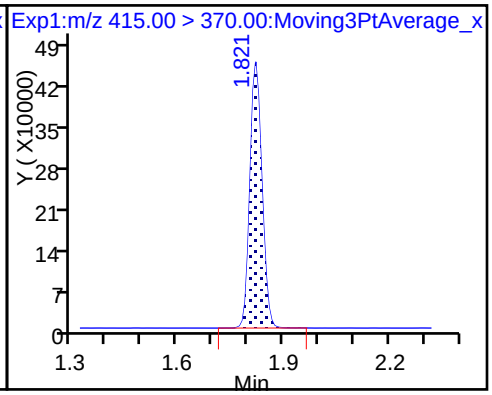
3 Perfluorohexanesulfonic acid



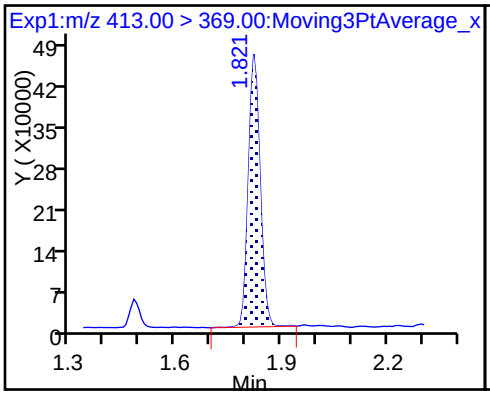
4 Perfluoroheptanoic acid



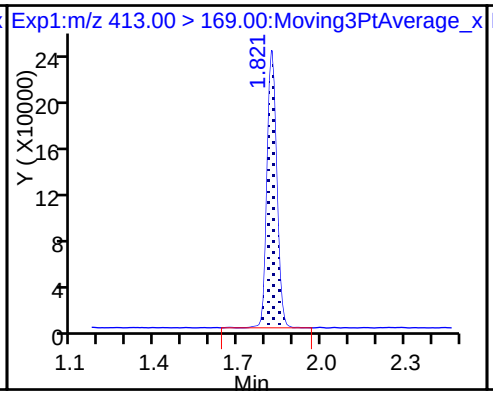
* 6 13C2-PFOA



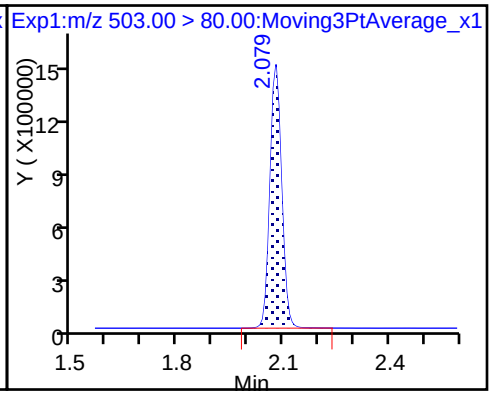
5 Perfluorooctanoic acid



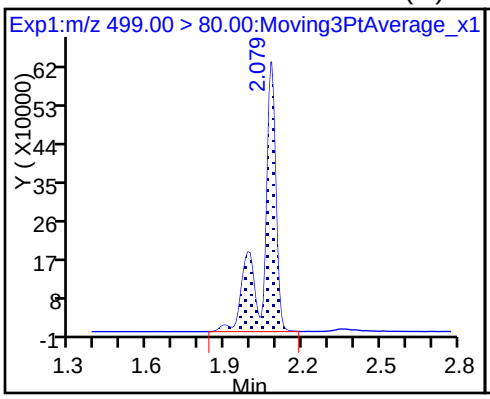
5 Perfluorooctanoic acid



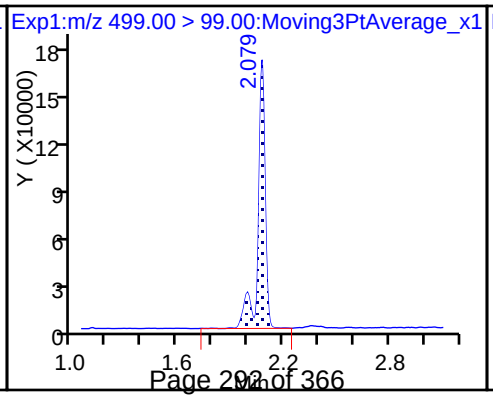
* 7 13C4 PFOS



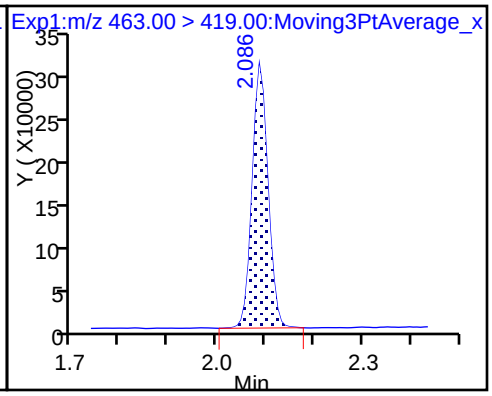
8 Perfluorooctane sulfonic acid (M)



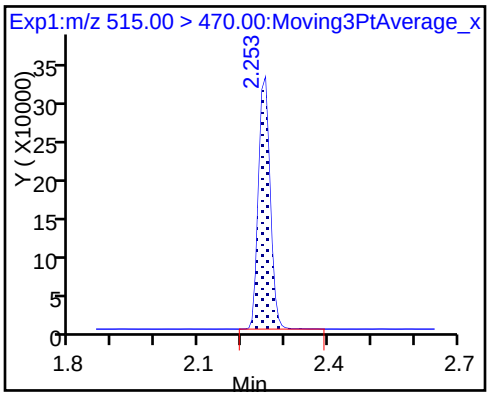
8 Perfluorooctane sulfonic acid



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.253
Y (X10000)
35
30
25
20
15
10
5
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

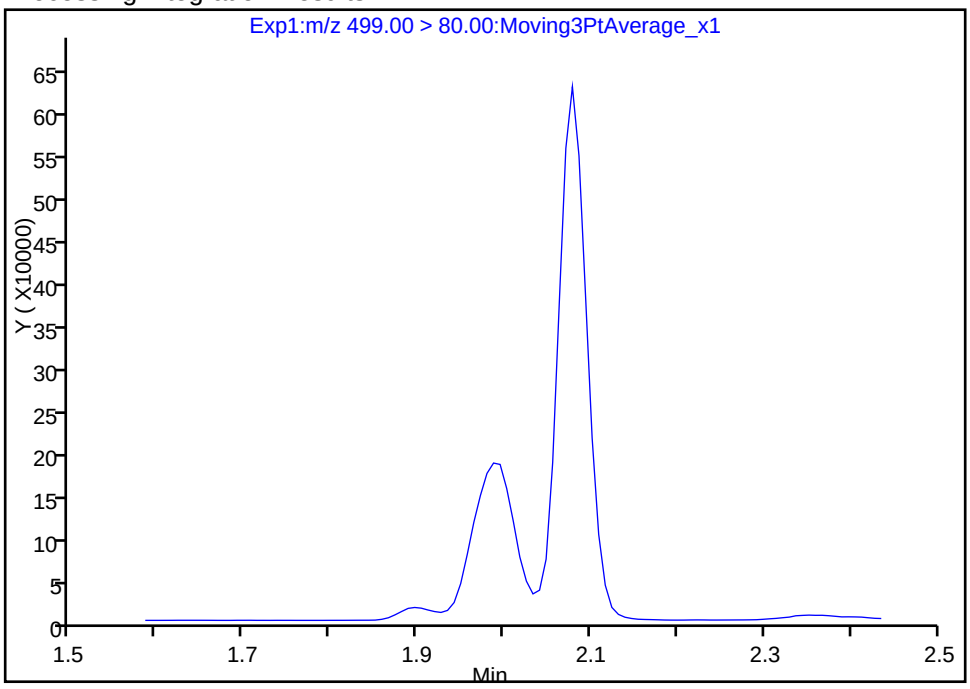
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_049.d
Injection Date: 06-Mar-2018 21:11:49 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

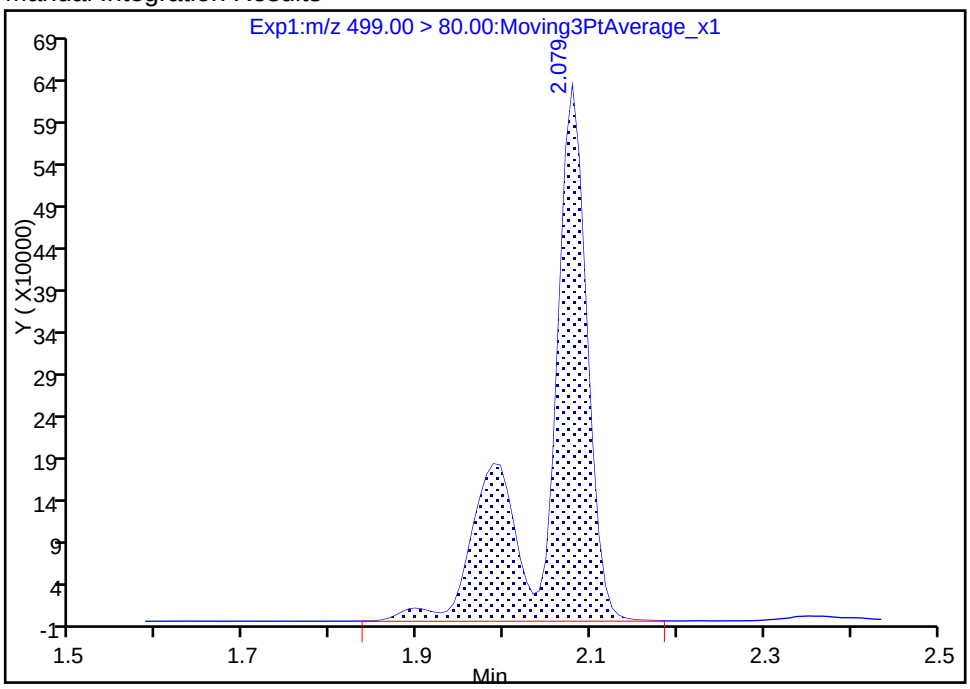
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.08
Area: 2126924
Amount: 19.487567
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:52:17
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211575/13 Calibration Date: 03/06/2018 22:08

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.06_537AA_061.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9774		125	135	-7.1	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9725		15.0	15.0	0.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.669		46.7	45.0	3.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9760		30.6	30.2	1.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9882		63.0	60.3	4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6961		33.9	30.0	13.1	30.0
13C2 PFHxA	Ave	1.100	1.088		9.89	10.0	-1.1	30.0
13C2 PFDA	Ave	0.5243	0.6089		11.6	10.0	16.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211577/13 Calibration Date: 03/06/2018 22:08

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.06_537AA_061.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9774		125	135	-7.1	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9725		15.0	15.0	0.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.669		46.7	45.0	3.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9760		30.6	30.2	1.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9882		63.0	60.3	4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6961		33.9	30.0	13.1	30.0
13C2 PFHxA	Ave	1.100	1.088		9.89	10.0	-1.1	30.0
13C2 PFDA	Ave	0.5243	0.6089		11.6	10.0	16.1	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_061.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 06-Mar-2018 22:08:01 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\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:06:01 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:53:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	11532334	125.4		13665	
298.90 > 99.00	1.366	1.366	0.0	1.000	9027124		1.28(0.00-0.00)	12459	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	939595	9.89		12835	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	6566083	46.7		12171	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	1260255	15.0		401	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.813	0.0		863800	10.0		9174	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.813	0.0	1.000	2543288	30.6		111	
413.00 > 169.00	1.813	1.813	0.0	1.000	1380145		1.84(0.00-0.00)	1229	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.071	2.064	0.007	1.000	5203701	63.0		2485	M
499.00 > 99.00	2.064	2.064	0.0	0.996	1096294		4.75(0.00-0.00)	768	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.064	0.0		2506422	28.7		9376	
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.079	0.0	1.000	1804375	33.9		331	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	525939	11.6		5410	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L5_00025 Amount Added: 1.00 Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_061.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 06-Mar-2018 22:08:01 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\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:06:01 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:53:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	11532334	125.4		13665	
298.90 > 99.00	1.366	1.366	0.0	1.000	9027124		1.28(0.00-0.00)	12459	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	939595	9.89		12835	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	6566083	46.7		12171	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	1260255	15.0		401	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.813	0.0		863800	10.0		9174	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.813	0.0	1.000	2543288	30.6		111	
413.00 > 169.00	1.813	1.813	0.0	1.000	1380145		1.84(0.00-0.00)	1229	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.071	2.064	0.007	1.000	5203701	63.0		2485	M
499.00 > 99.00	2.064	2.064	0.0	0.996	1096294		4.75(0.00-0.00)	768	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.064	0.0		2506422	28.7		9376	
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.079	0.0	1.000	1804375	33.9		331	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	525939	11.6		5410	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L5_00025 Amount Added: 1.00 Units: mL

Report Date: 07-Mar-2018 10:06:02 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_061.d

Injection Date: 06-Mar-2018 22:08:01 Instrument ID: A8_N

Lims ID: CCV L5

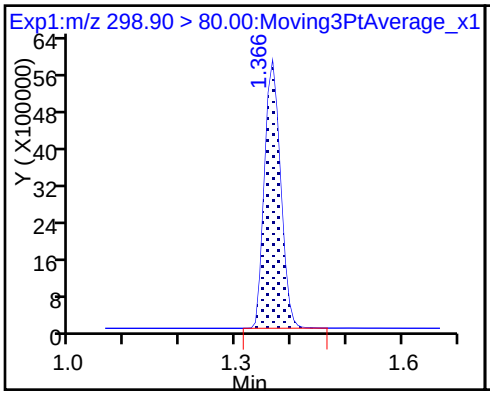
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13

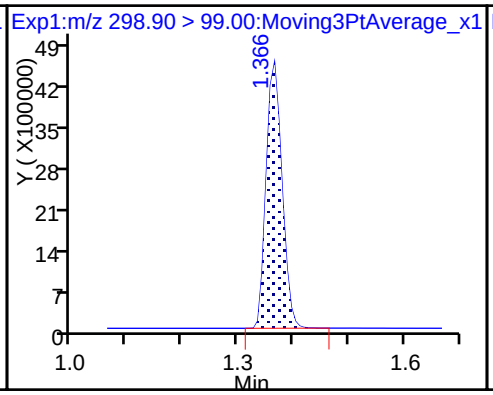
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

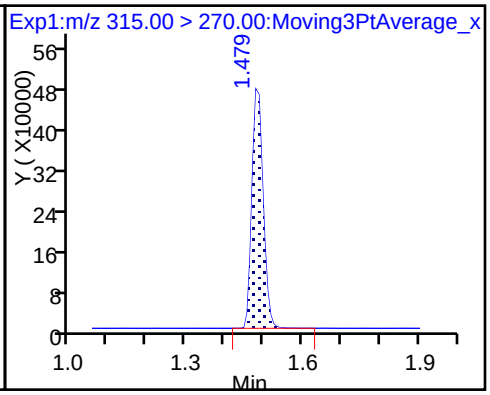
1 Perfluorobutanesulfonic acid



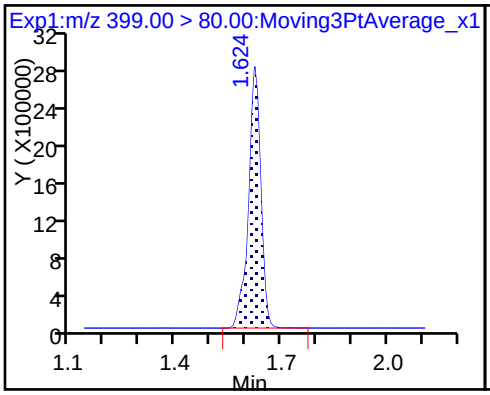
1 Perfluorobutanesulfonic acid



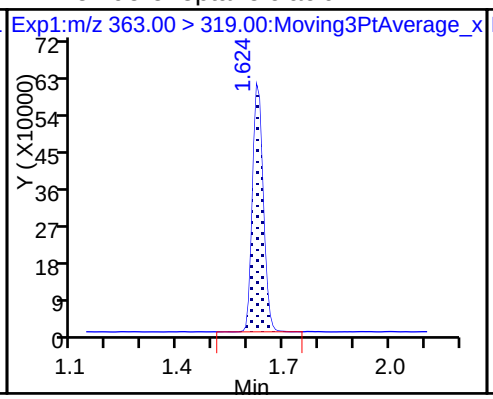
$ 2 13C2 PFHxA



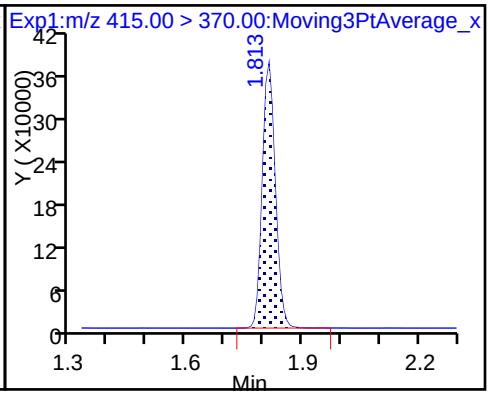
3 Perfluorohexanesulfonic acid



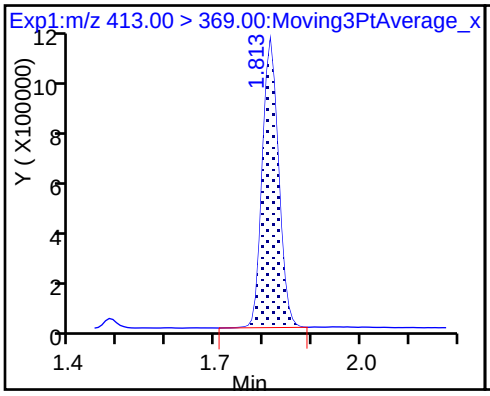
4 Perfluoroheptanoic acid



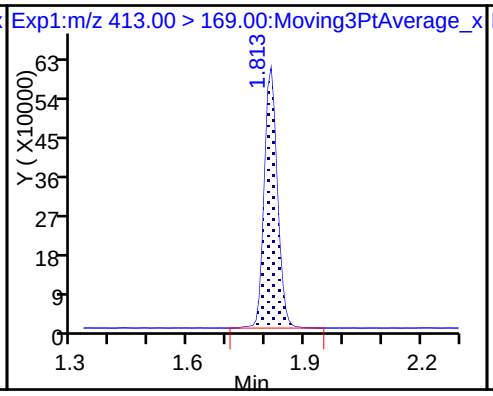
* 6 13C2-PFOA



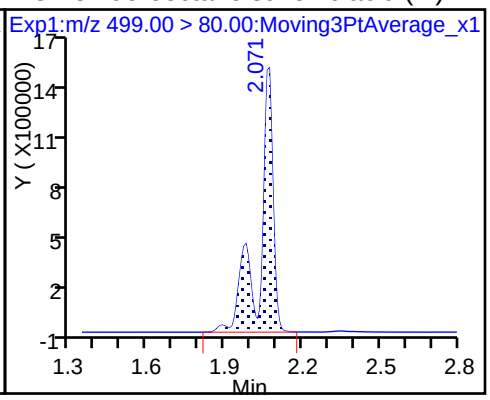
5 Perfluorooctanoic acid



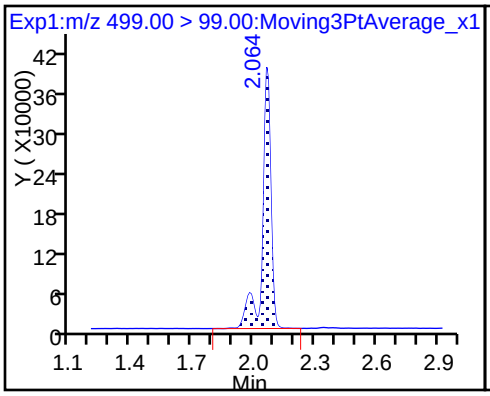
5 Perfluorooctanoic acid



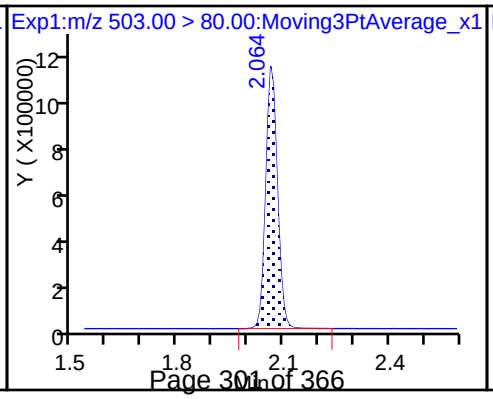
8 Perfluorooctane sulfonic acid (M)



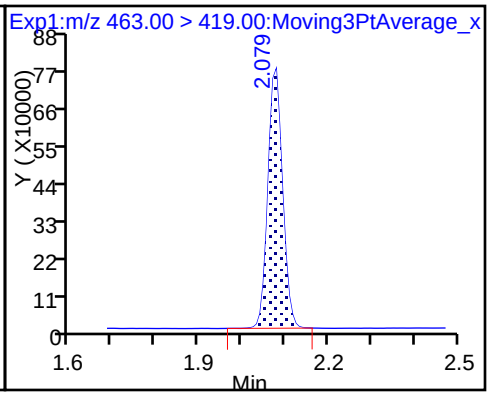
8 Perfluorooctane sulfonic acid



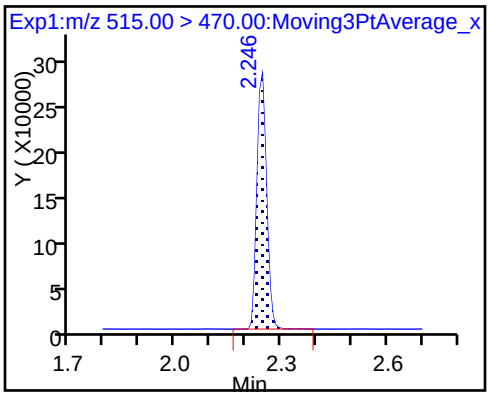
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
30
25
20
15
10
5
0
1.7
2.0
2.3
2.6
Min

Report Date: 07-Mar-2018 10:06:01 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_061.d

Injection Date: 06-Mar-2018 22:08:01 Instrument ID: A8_N

Lims ID: CCV L5

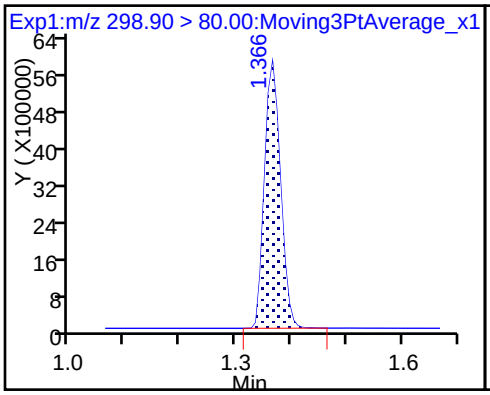
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13

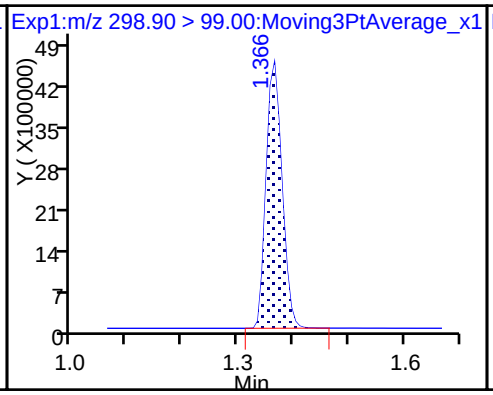
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

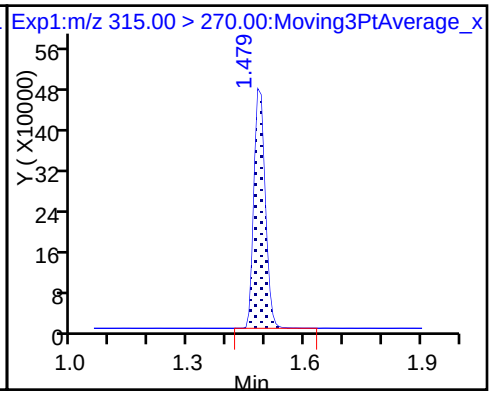
1 Perfluorobutanesulfonic acid



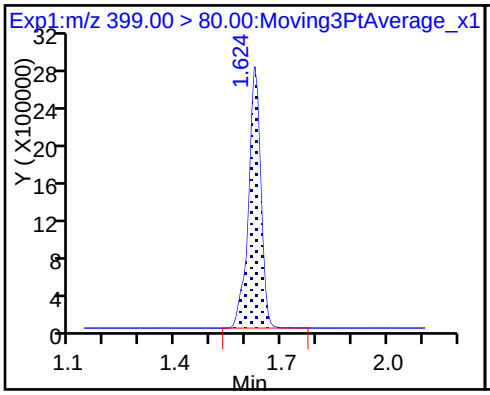
1 Perfluorobutanesulfonic acid



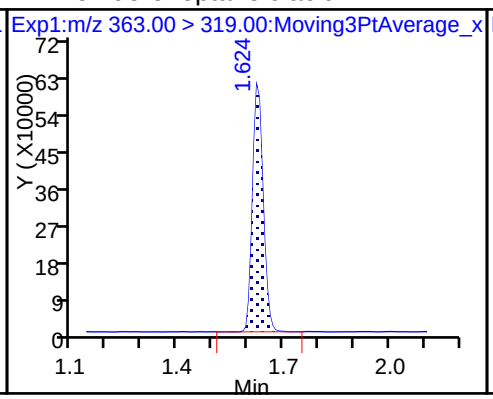
$ 2 13C2 PFHxA



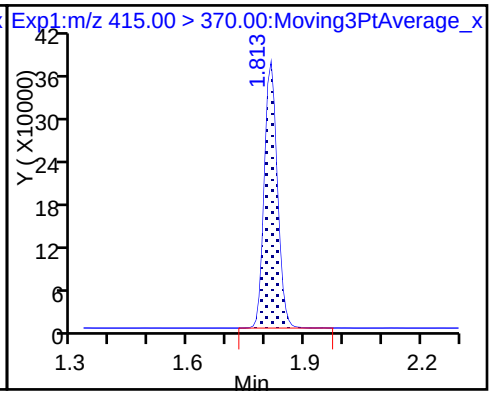
3 Perfluorohexanesulfonic acid



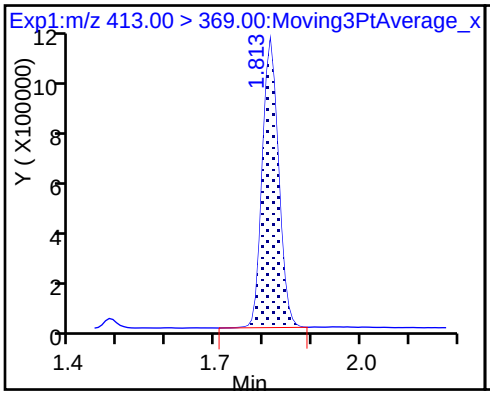
4 Perfluoroheptanoic acid



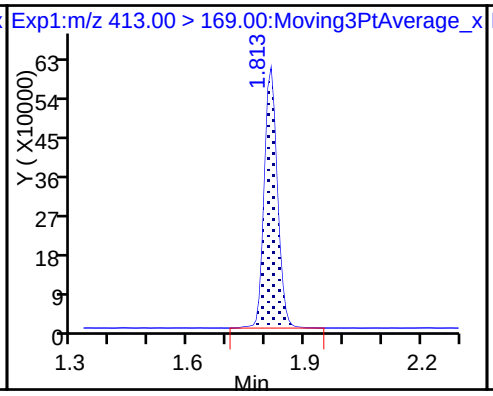
* 6 13C2-PFOA



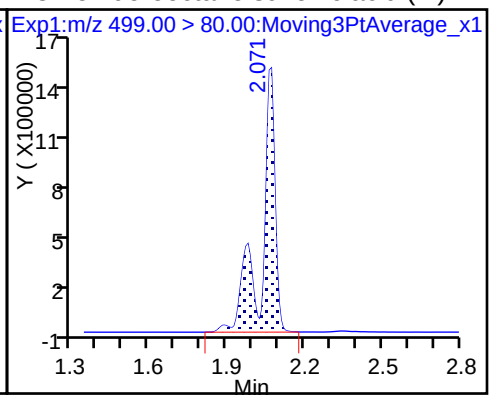
5 Perfluorooctanoic acid



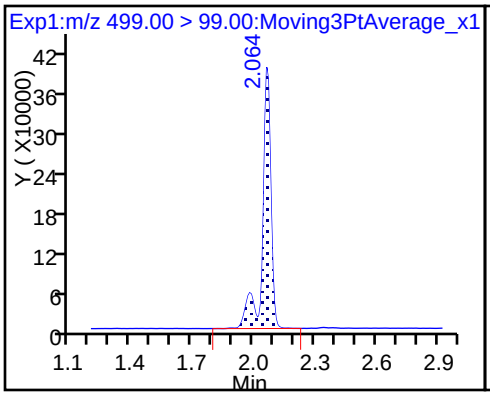
5 Perfluorooctanoic acid



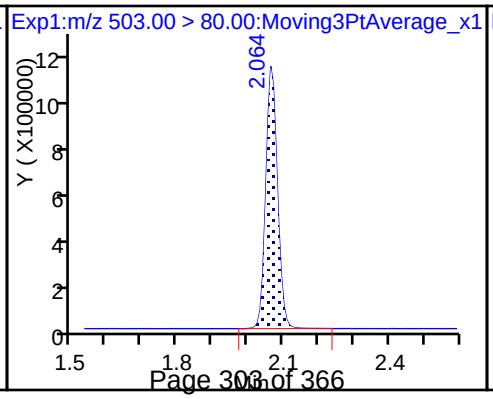
8 Perfluorooctane sulfonic acid (M)



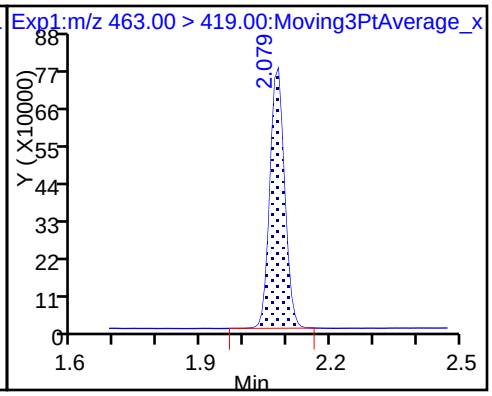
8 Perfluorooctane sulfonic acid



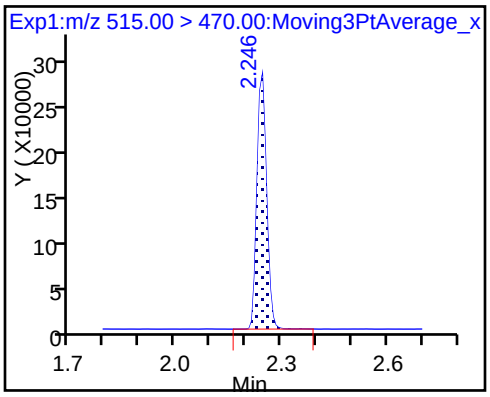
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
30
25
20
15
10
5
0
1.7
2.0
2.3
2.6
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

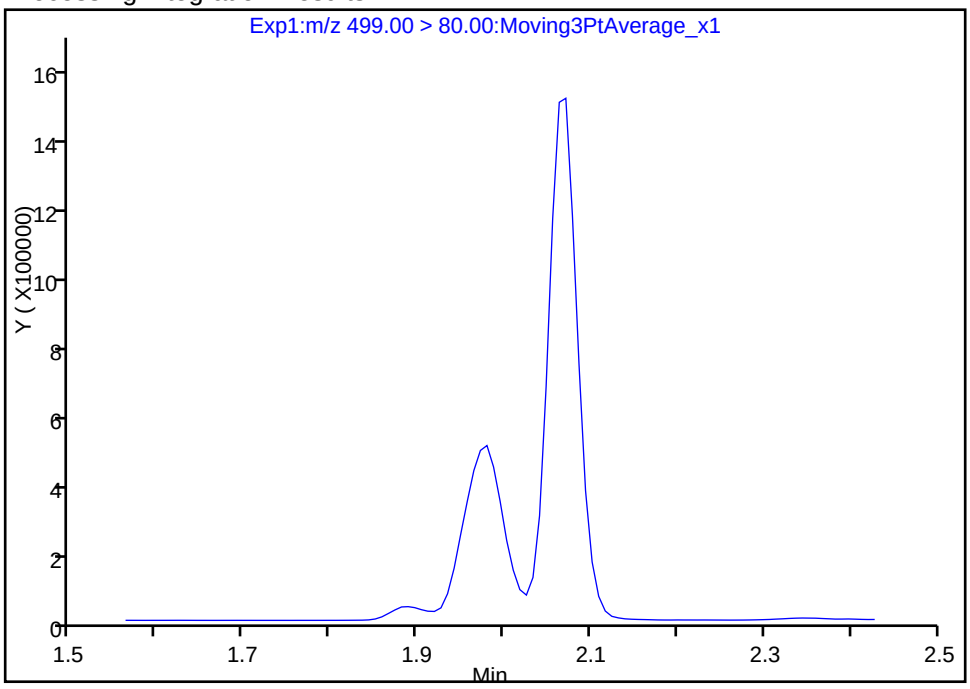
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_061.d
Injection Date: 06-Mar-2018 22:08:01 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

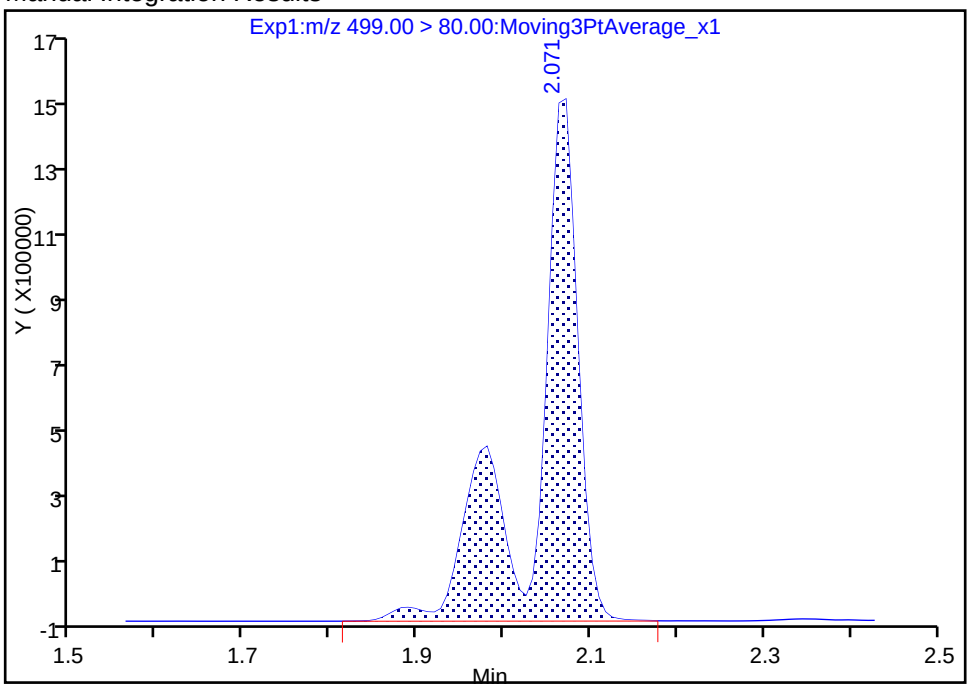
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 5203701
Amount: 62.973624
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:53:14
Audit Action: Manually Integrated Audit Reason: Missed Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

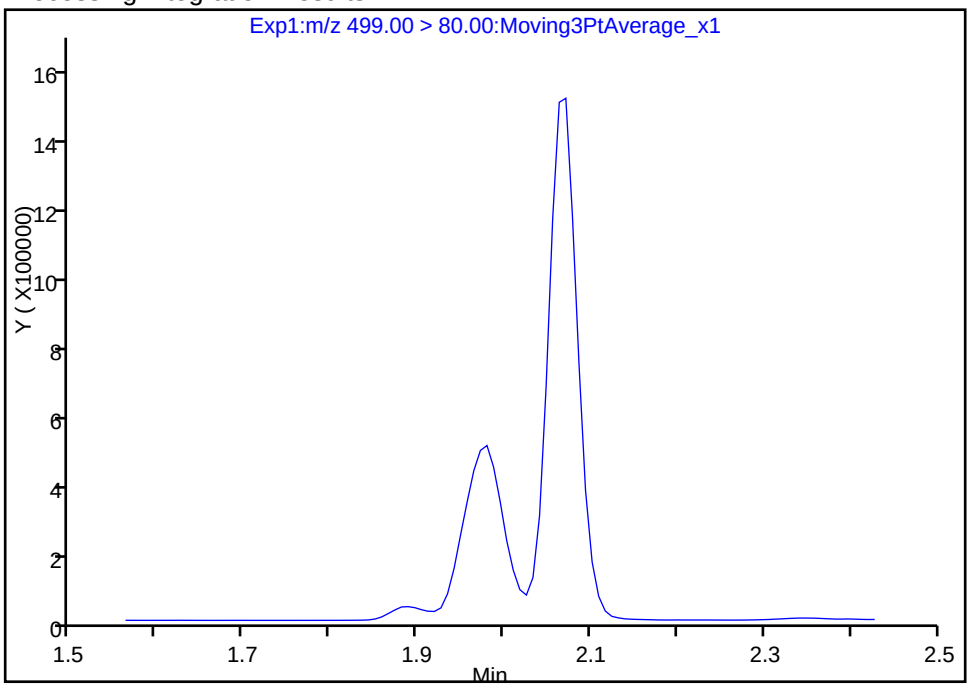
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_061.d
Injection Date: 06-Mar-2018 22:08:01 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

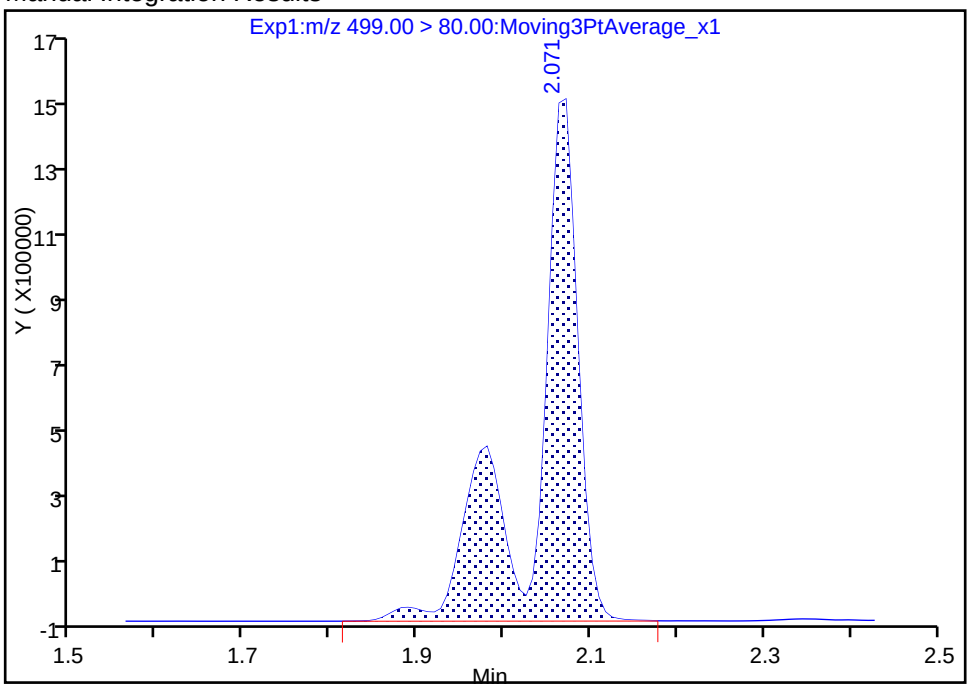
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 5203701
Amount: 62.973624
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:53:14
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211577/17 Calibration Date: 03/06/2018 22:26

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.06_537AA_065.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.069		39.0	45.0	-13.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.998		5.14	5.00	2.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.586		14.8	15.0	-1.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	1.008		10.5	10.1	4.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9547		20.3	20.1	1.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6824		11.1	10.0	10.9	30.0
13C2 PFHxA	Ave	1.100	1.074		9.77	10.0	-2.3	30.0
13C2 PFDA	Ave	0.5243	0.6261		11.9	10.0	19.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_065.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 06-Mar-2018 22:26:43 ALS Bottle#: 3 Worklist Smp#: 17
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\20180307-54952.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Mar-2018 10:06:04 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK022

First Level Reviewer: barnettj Date: 07-Mar-2018 09:53:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	4885587	39.0		6029	
298.90 > 99.00	1.358	1.358	0.0	1.000	3631715		1.35(0.00-0.00)	5379	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1052385	9.77		11269	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	2416614	14.8		4871	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	488880	5.14		147	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		979585	10.0		8919	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	992745	10.5		40.8	
413.00 > 169.00	1.806	1.806	0.0	1.000	498284		1.99(0.00-0.00)	435	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.064	2.064	0.0	1.000	1946704	20.3		994	M
499.00 > 99.00	2.064	2.064	0.0	1.000	406878		4.78(0.00-0.00)	291	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		2911601	28.7		7661	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.071	0.0	1.000	668674	11.1		110	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	613287	11.9		5256	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024 Amount Added: 1.00 Units: mL

Report Date: 07-Mar-2018 10:06:04 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_065.d

Injection Date: 06-Mar-2018 22:26:43 Instrument ID: A8_N

Lims ID: CCV L3

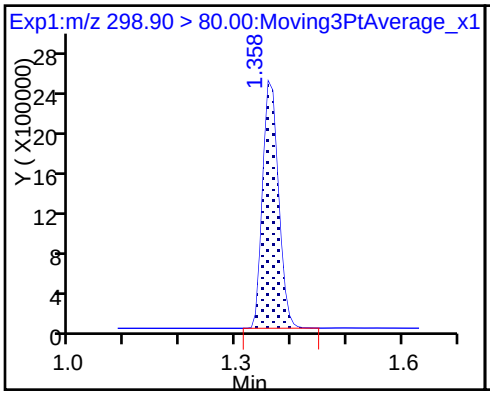
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 17

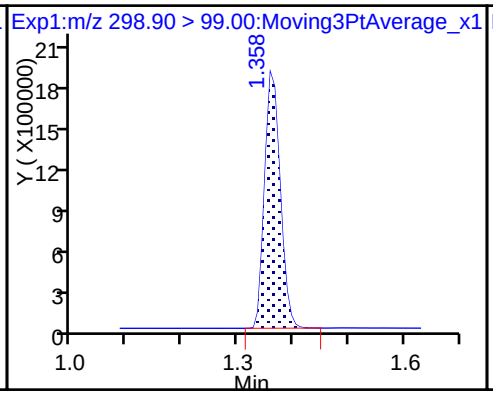
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

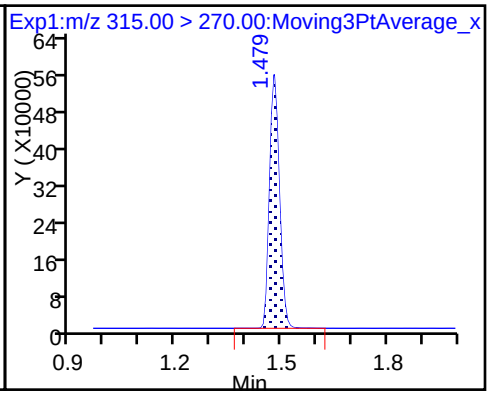
1 Perfluorobutanesulfonic acid



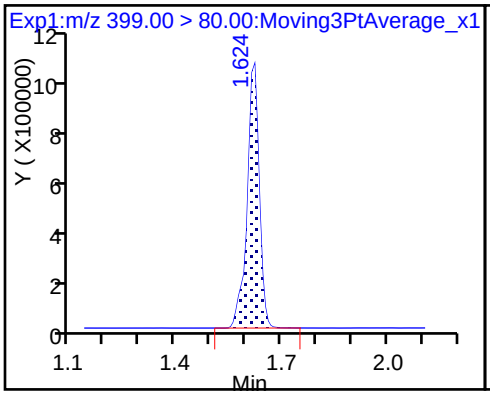
1 Perfluorobutanesulfonic acid



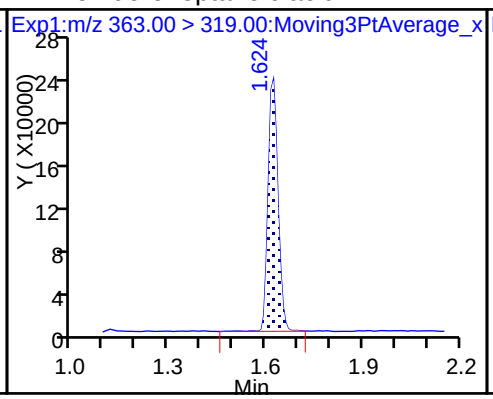
$ 2 13C2 PFHxA



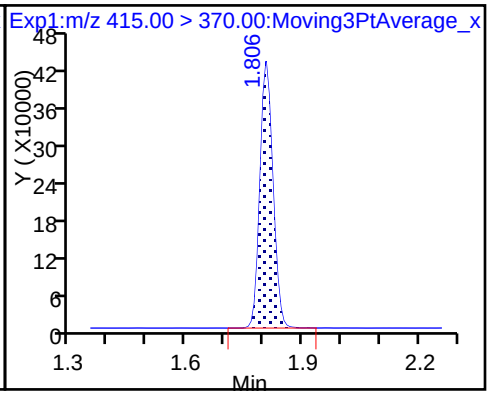
3 Perfluorohexanesulfonic acid



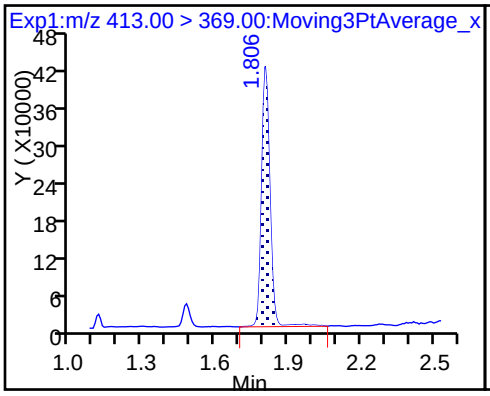
4 Perfluoroheptanoic acid



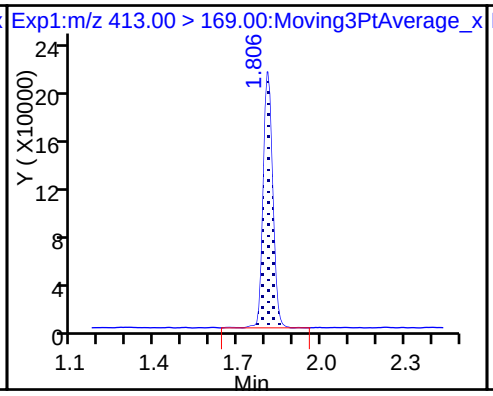
* 6 13C2-PFOA



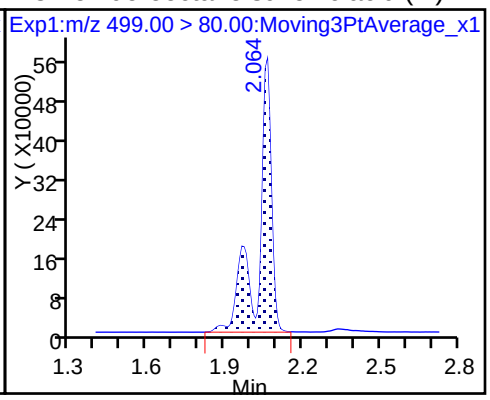
5 Perfluorooctanoic acid



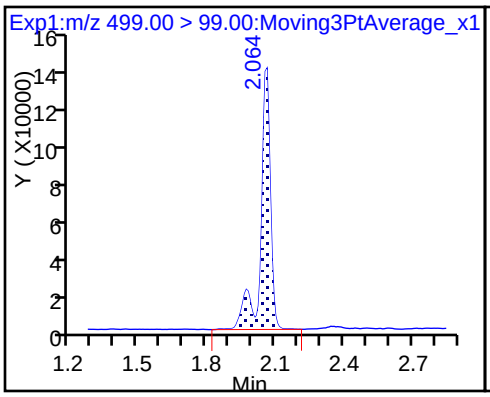
5 Perfluorooctanoic acid



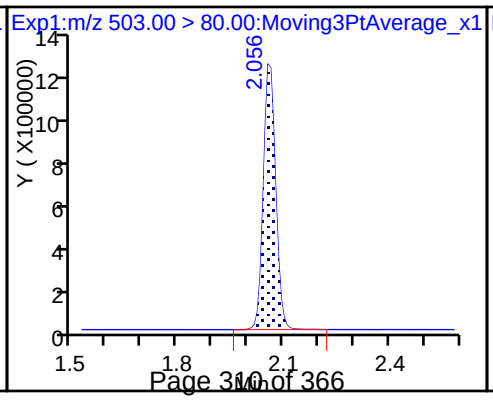
8 Perfluorooctane sulfonic acid (M)



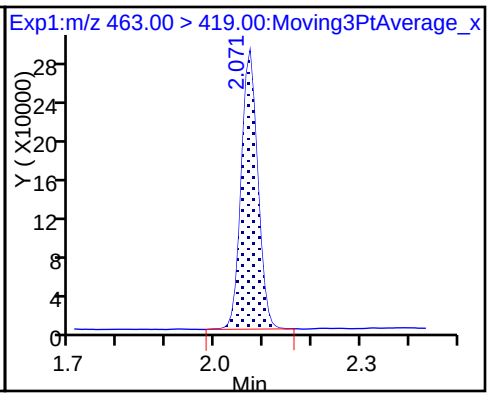
8 Perfluorooctane sulfonic acid



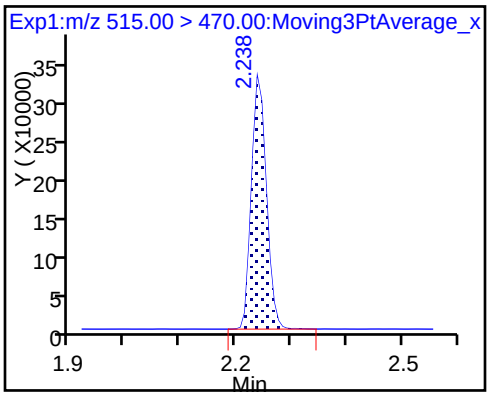
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
35
30
25
20
15
10
5
0
1.9
2.2
2.5
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

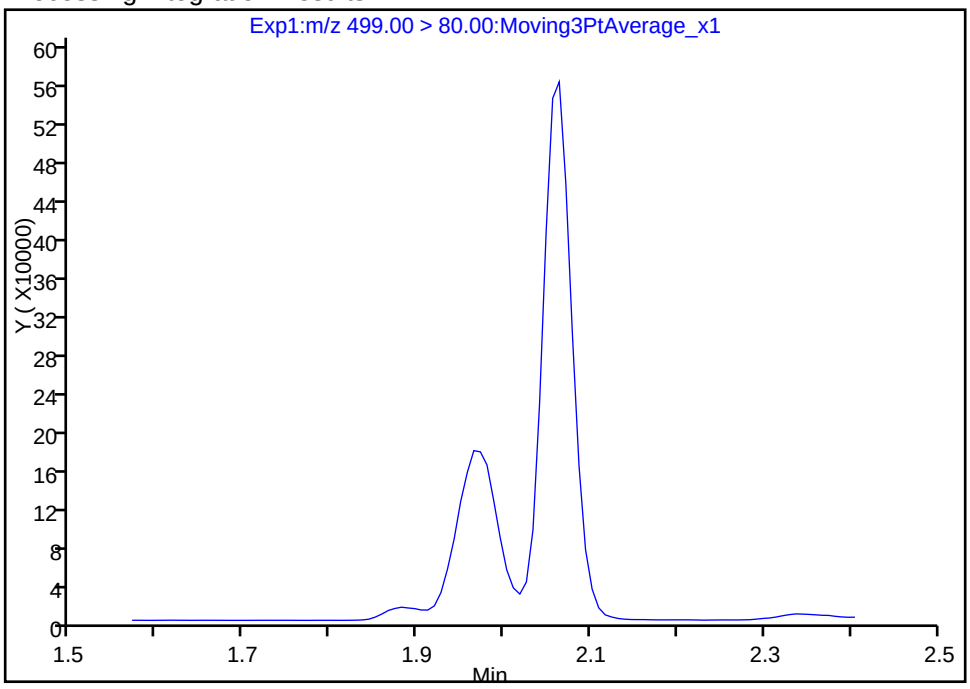
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b\2018.03.06_537AA_065.d
Injection Date: 06-Mar-2018 22:26:43 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

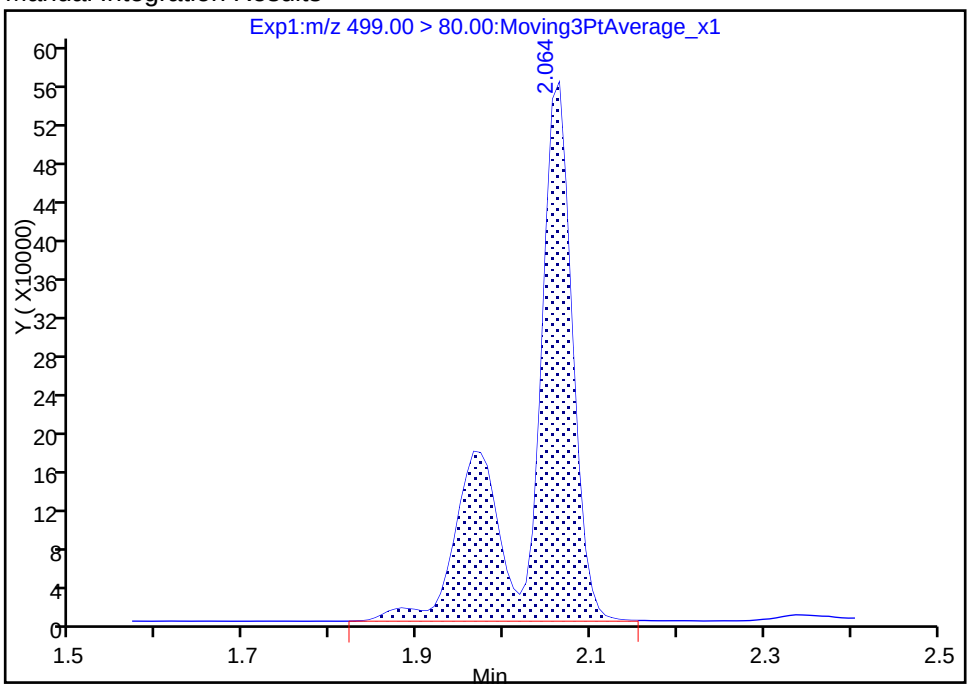
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 1946704
Amount: 20.280031
Amount Units: ng/ml



Reviewer: barnettj, 07-Mar-2018 09:53:46
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-210419/1-A

Matrix: Water | Lab File ID: 2018.03.05_537B_006.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 250(mL) | Date Analyzed: 03/06/2018 01:14

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.: 211343 | 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	85		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_006.d
Lims ID: MB 320-210419/1-A
Client ID:
Sample Type: MB
Inject. Date: 06-Mar-2018 01:14:30 ALS Bottle#: 1 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-210419/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	925600	8.49		12519	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.821	0.0		991052	10.0		10020	
* 7 13C4 PFOS									
503.00 > 80.00	2.079	2.079	0.0		2829523	28.7		6704	
$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.253	0.0	1.000	529133	10.2		4758	

Report Date: 06-Mar-2018 10:24:22 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_006.d

Injection Date: 06-Mar-2018 01:14:30 Instrument ID: A8_N

Lims ID: MB 320-210419/1-A

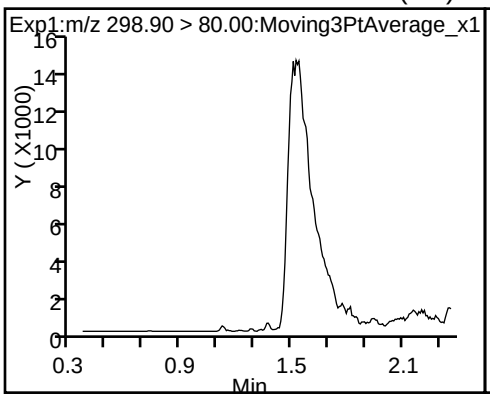
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 3

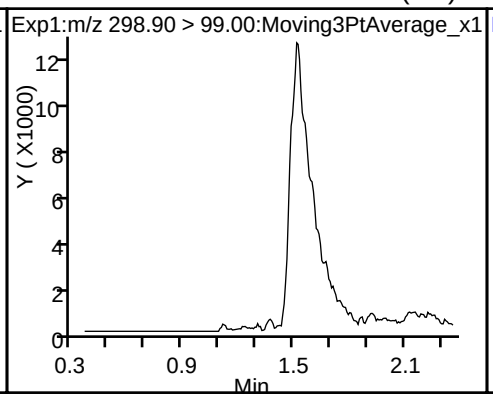
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

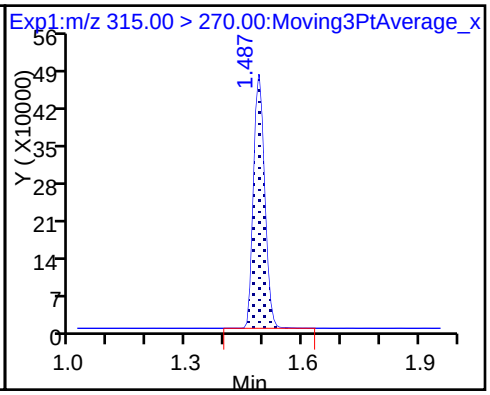
1 Perfluorobutanesulfonic acid (ND)



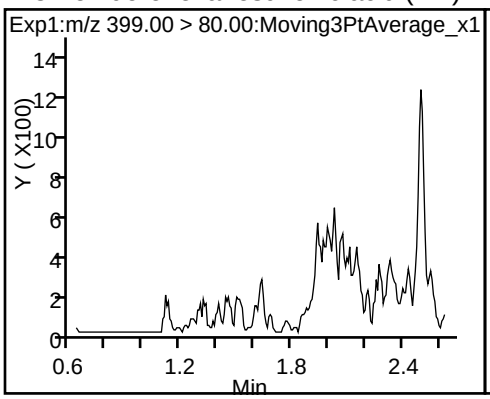
1 Perfluorobutanesulfonic acid (ND)



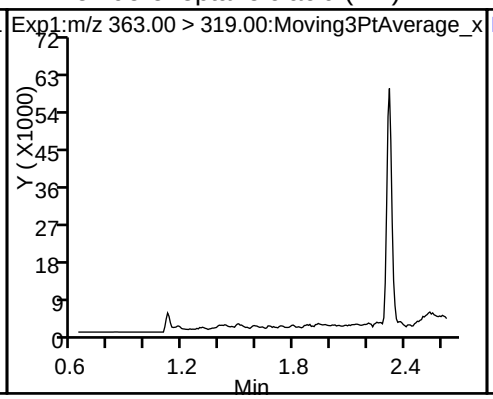
$ 2 13C2 PFHxA



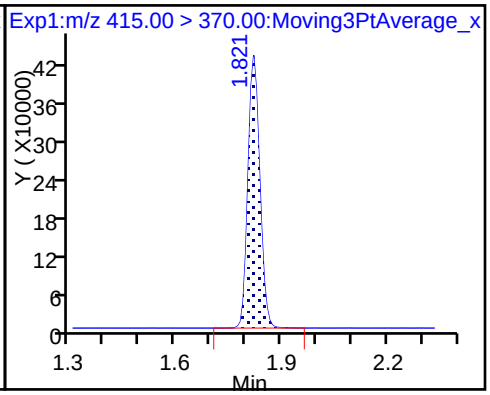
3 Perfluorohexanesulfonic acid (ND)



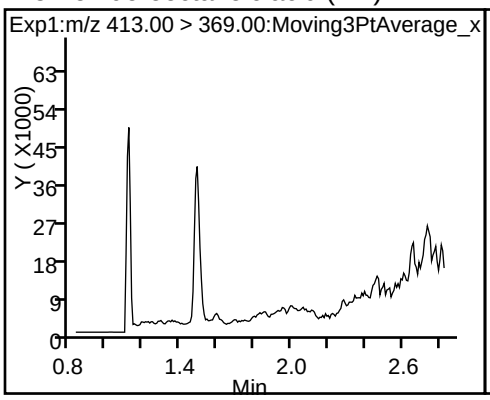
4 Perfluoroheptanoic acid (ND)



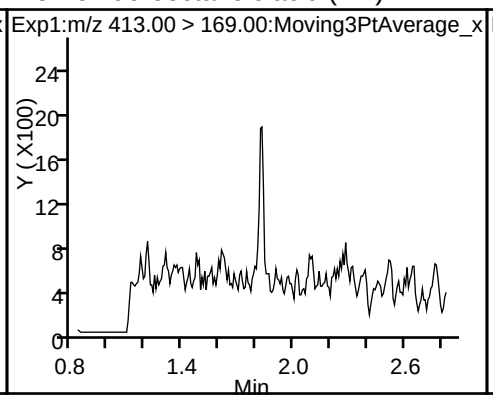
* 6 13C2-PFOA



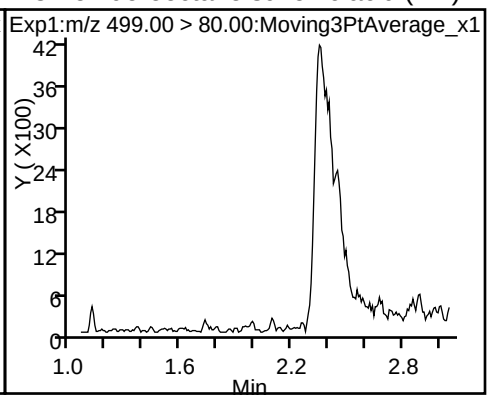
5 Perfluorooctanoic acid (ND)



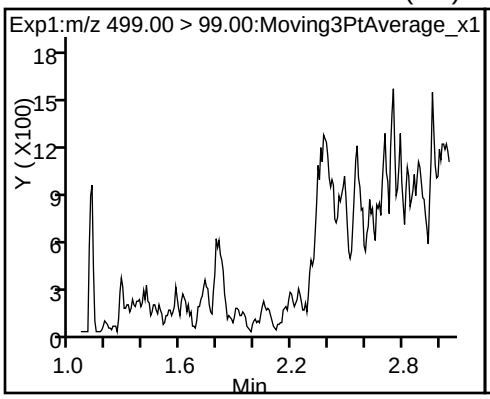
5 Perfluorooctanoic acid (ND)



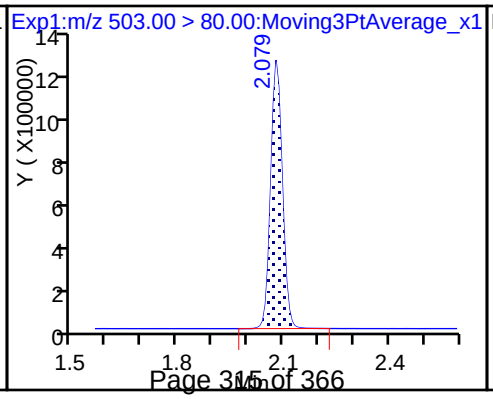
8 Perfluorooctane sulfonic acid (ND)



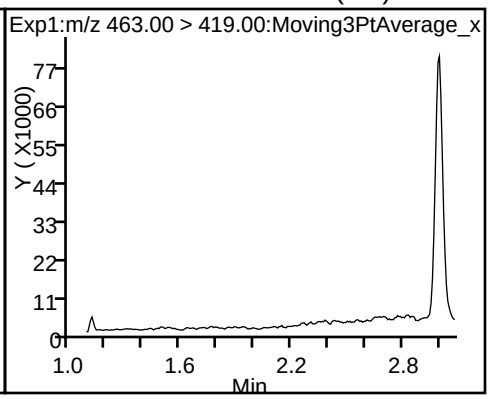
8 Perfluorooctane sulfonic acid (ND)



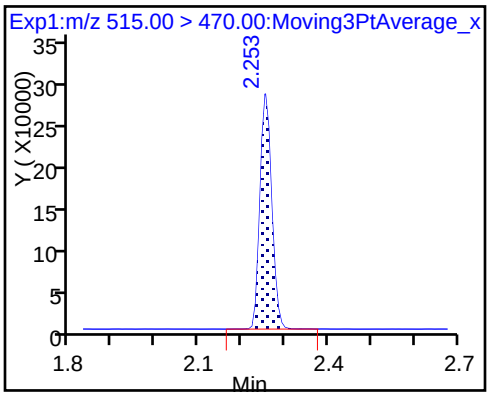
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.253
Y (X10000)
35
30
25
20
15
10
5
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_006.d
Lims ID: MB 320-210419/1-A
Client ID:
Sample Type: MB
Inject. Date: 06-Mar-2018 01:14:30 ALS Bottle#: 1 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-210419/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.49	84.91
$ 10 13C2 PFDA	10.0	10.2	101.84

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 320-210419/2-A

Matrix: Water | Lab File ID: 2018.03.05_537B_007.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 250(mL) | Date Analyzed: 03/06/2018 01:19

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	236	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	113		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	127		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	173		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	59.8		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	477		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_007.d
Lims ID: LCS 320-210419/2-A
Client ID:
Sample Type: LCS
Inject. Date: 06-Mar-2018 01:19:10 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-210419/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: roycea Date: 06-Mar-2018 09:28:35

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	12256799	119.3		4158	
298.90 > 99.00	1.366	1.366	0.0	1.000	9138036		1.34(0.00-0.00)	4240	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	926647	9.17		10814	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	6710508	43.2		10438	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	1333713	14.9		165	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.821	0.0		919196	10.0		9757	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.821	1.828	-0.007	1.000	2500879	28.3		93.4	
413.00 > 169.00	1.821	1.828	-0.007	1.000	1377008		1.82(0.00-0.00)	1438	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.079	2.056	0.023	1.000	5379561	59.0		9265	a
499.00 > 99.00	2.079	2.056	0.023	1.000	1103961		4.87(0.00-0.00)	580	
* 7 13C4 PFOS									
503.00 > 80.00	2.079	2.079	0.0		2765688	28.7		6577	
9 Perfluorononanoic acid									
463.00 > 419.00	2.086	2.086	0.0	1.000	1798842	31.8		167	
$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.253	0.0	1.000	509352	10.6		3475	

QC Flag Legend

Review Flags

a - User Assigned ID

Report Date: 06-Mar-2018 10:24:22 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_007.d

Injection Date: 06-Mar-2018 01:19:10 Instrument ID: A8_N

Lims ID: LCS 320-210419/2-A

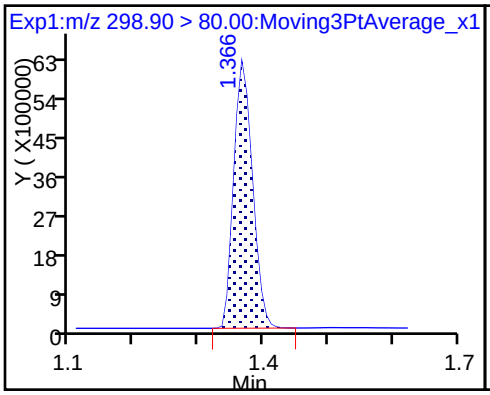
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4

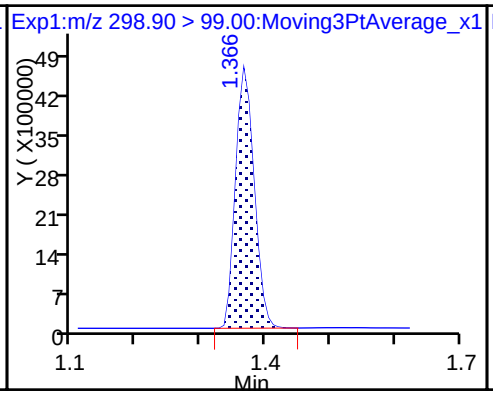
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

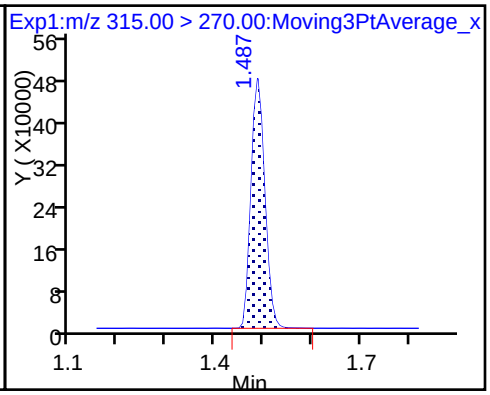
1 Perfluorobutanesulfonic acid



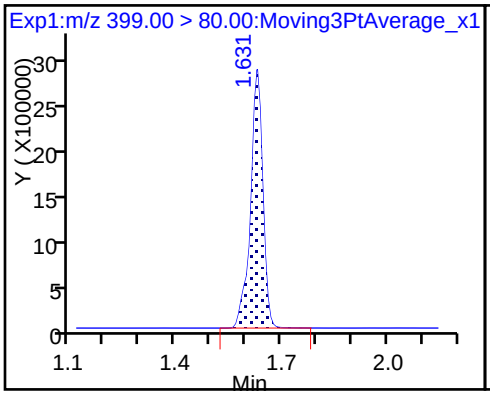
1 Perfluorobutanesulfonic acid



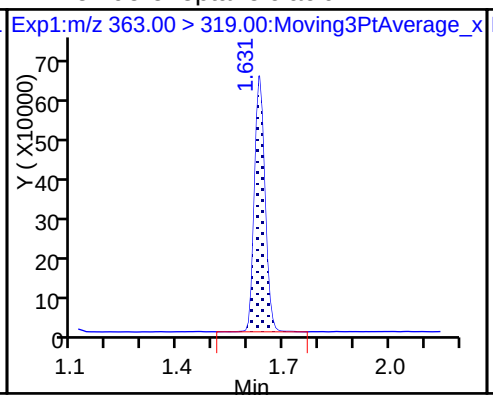
$ 2 13C2 PFHxA



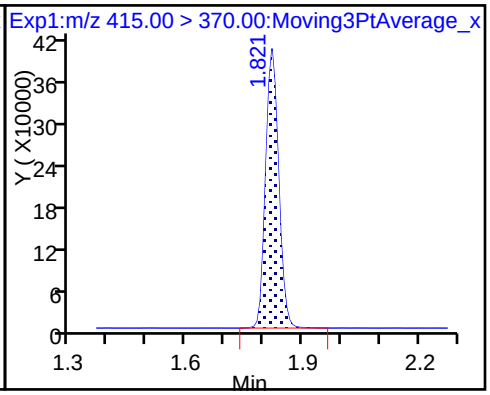
3 Perfluorohexanesulfonic acid



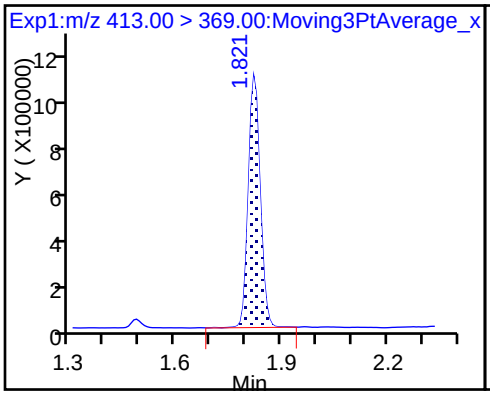
4 Perfluoroheptanoic acid



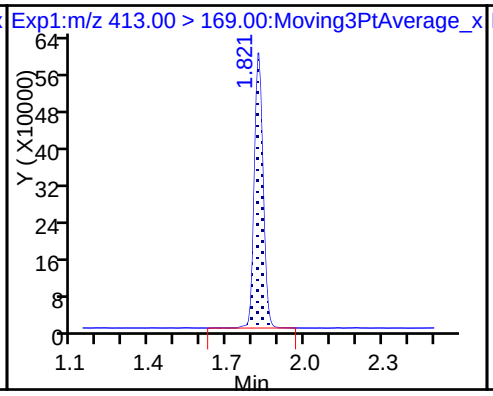
* 6 13C2-PFOA



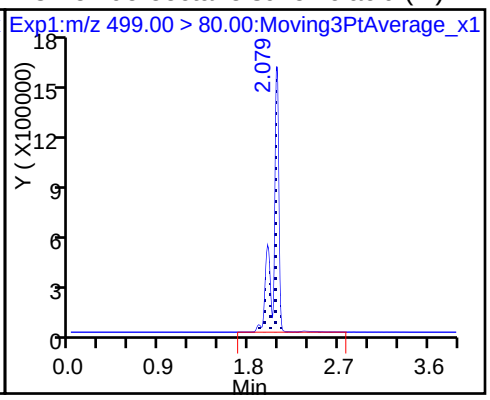
5 Perfluorooctanoic acid



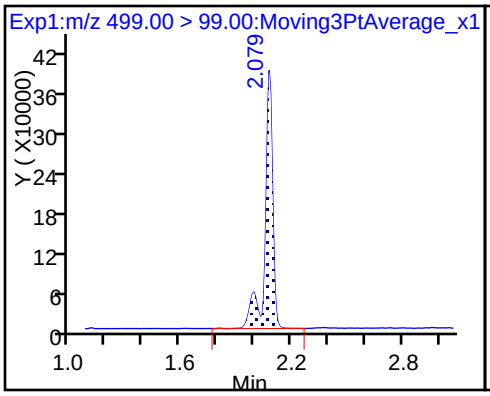
5 Perfluorooctanoic acid



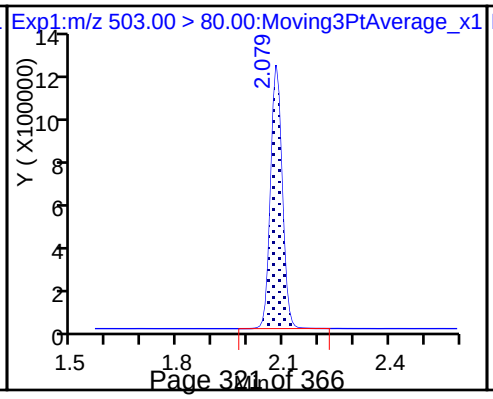
8 Perfluorooctane sulfonic acid (M)



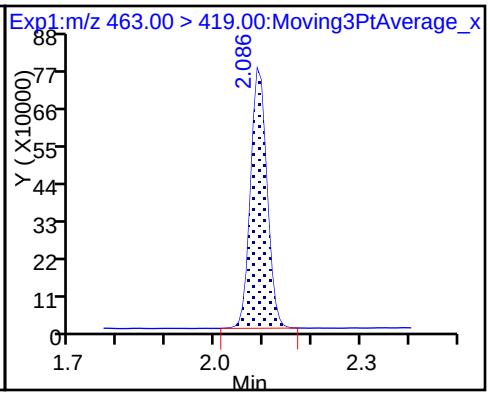
8 Perfluorooctane sulfonic acid



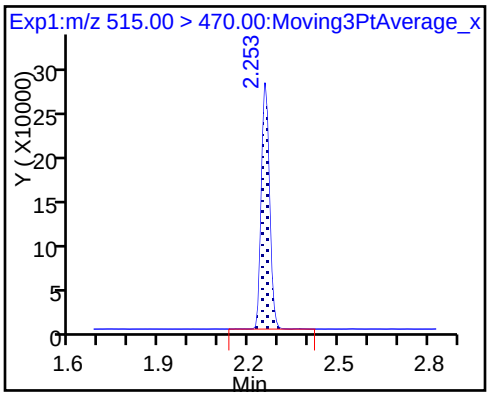
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.253
Y (X10000)
30
25
20
15
10
5
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_007.d
Lims ID: LCS 320-210419/2-A
Client ID:
Sample Type: LCS
Inject. Date: 06-Mar-2018 01:19:10 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-210419/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: roycea Date: 06-Mar-2018 09:28:35

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.17	91.65
$ 10 13C2 PFDA	10.0	10.6	105.70

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

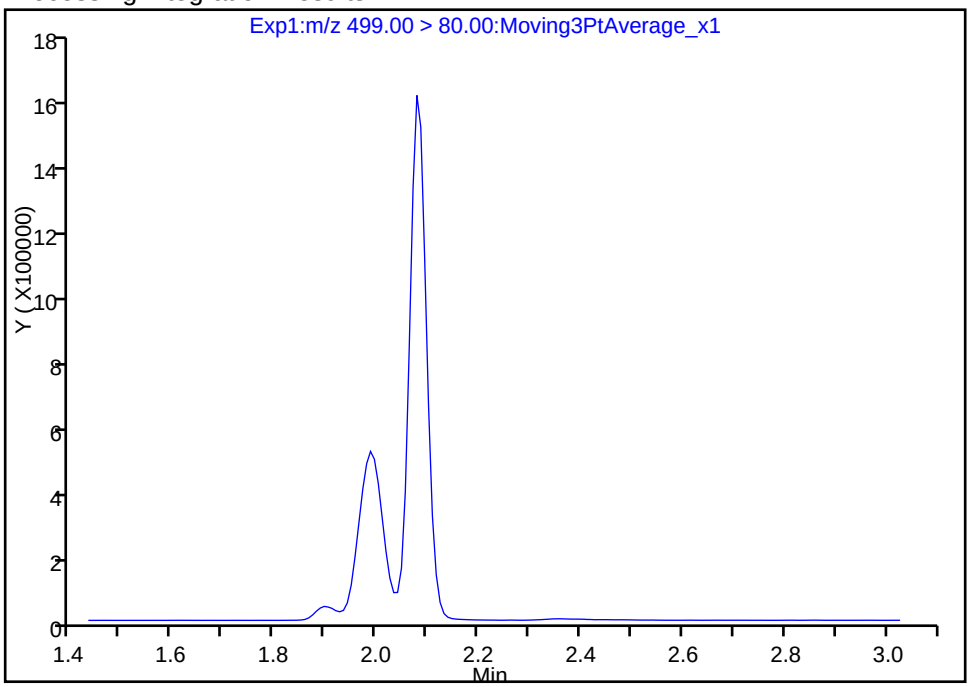
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_007.d
Injection Date: 06-Mar-2018 01:19:10 Instrument ID: A8_N
Lims ID: LCS 320-210419/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

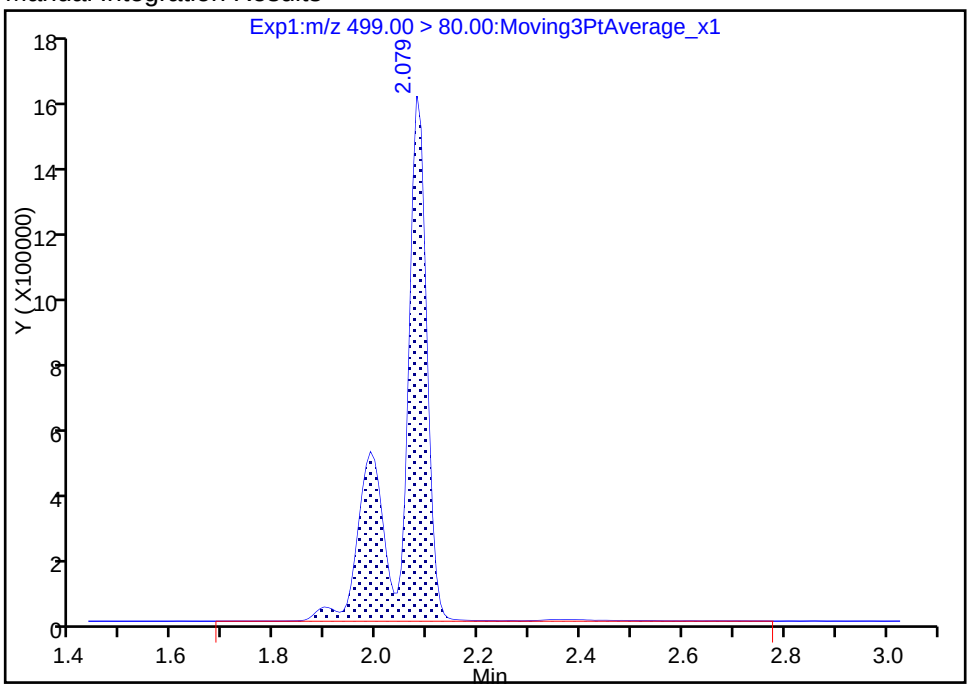
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.08
Area: 5379561
Amount: 58.998939
Amount Units: ng/ml



Reviewer: roycea, 06-Mar-2018 09:28:17
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-RW-152 MS | Lab Sample ID: 320-36163-3 MS

Matrix: Water | Lab File ID: 2018.03.05_537B_011.d

Analysis Method: 537 | Date Collected: 02/15/2018 10:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 262.5(mL) | Date Analyzed: 03/06/2018 01:37

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	250	M	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	119		19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	119		23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	170		29	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	58.1		9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	420		86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	82		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_011.d
Lims ID: 320-36163-A-3-B MS
Client ID: NAWC-021518-RW-152
Sample Type: MS
Inject. Date: 06-Mar-2018 01:37:55 ALS Bottle#: 6 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-3-b ms
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: barnettj Date: 06-Mar-2018 10:08:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.366	-0.008	1.000	14210179	110.2		3997	
298.90 > 99.00	1.358	1.366	-0.008	1.000	11179698		1.27(0.00-0.00)	4844	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1095154	8.21		13997	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	8533594	44.6		3921	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	1795500	15.3		176	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.821	-0.015		1212337	10.0		10114	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.828	-0.015	1.000	3636419	31.2		126	
413.00 > 169.00	1.813	1.828	-0.015	1.000	2042850		1.78(0.00-0.00)	2045	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.064	2.056	0.008	1.000	7379048	65.6		3270	a
499.00 > 99.00	2.064	2.056	0.008	1.000	1517272		4.86(0.00-0.00)	649	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.079	-0.015		3411105	28.7		3097	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.086	-0.015	1.000	2326157	31.2		100	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	687048	10.8		5225	

QC Flag Legend

Review Flags

a - User Assigned ID

Report Date: 06-Mar-2018 10:24:26 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_011.d

Injection Date: 06-Mar-2018 01:37:55 Instrument ID: A8_N

Lims ID: 320-36163-A-3-B MS

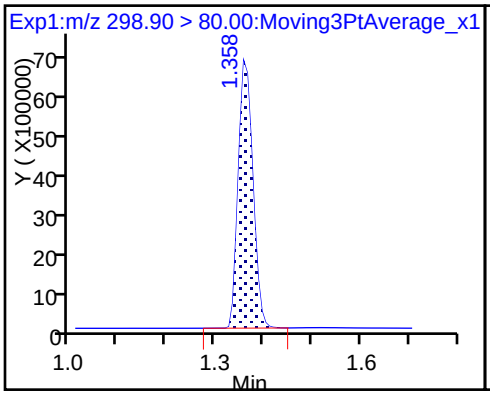
Client ID: NAWC-021518-RW-152

Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 8

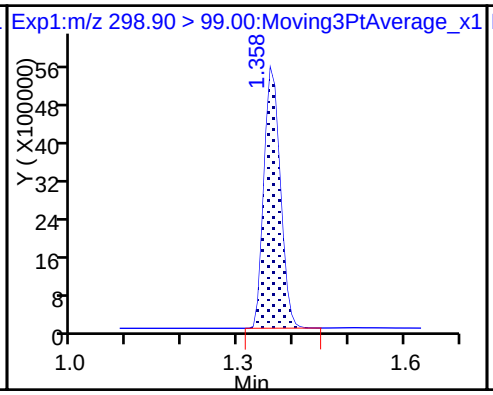
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

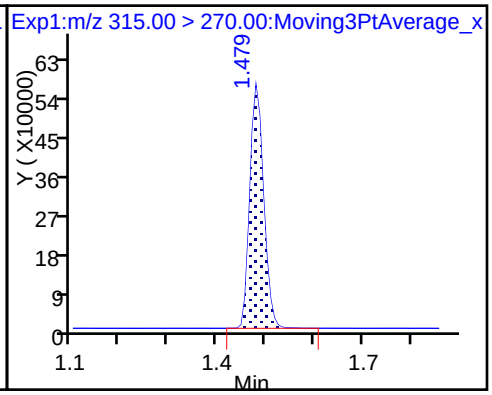
1 Perfluorobutanesulfonic acid



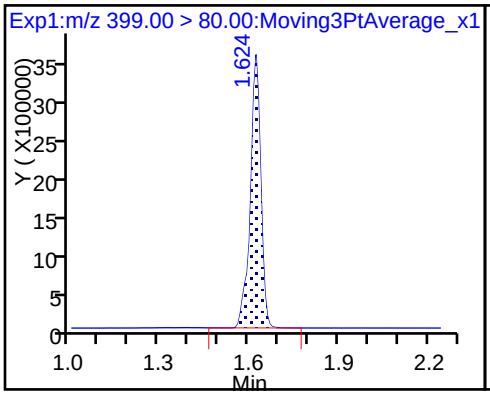
1 Perfluorobutanesulfonic acid



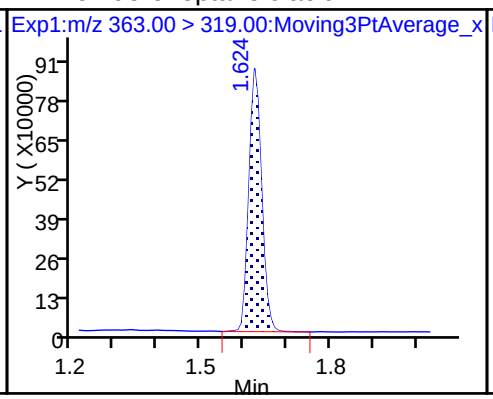
$ 2 13C2 PFHxA



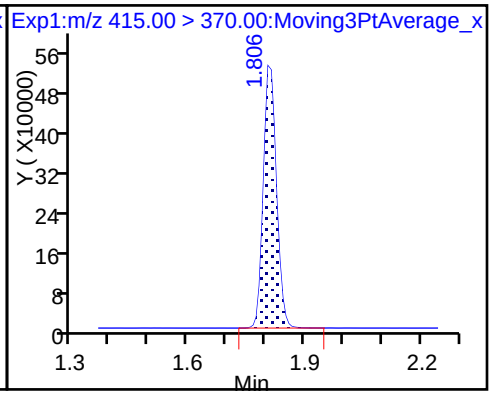
3 Perfluorohexanesulfonic acid



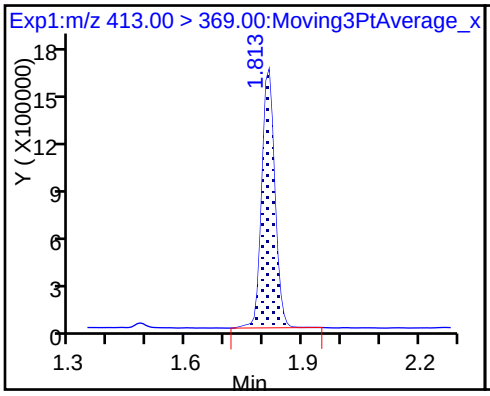
4 Perfluoroheptanoic acid



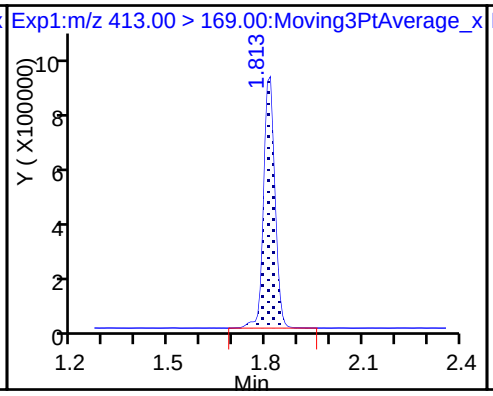
* 6 13C2-PFOA



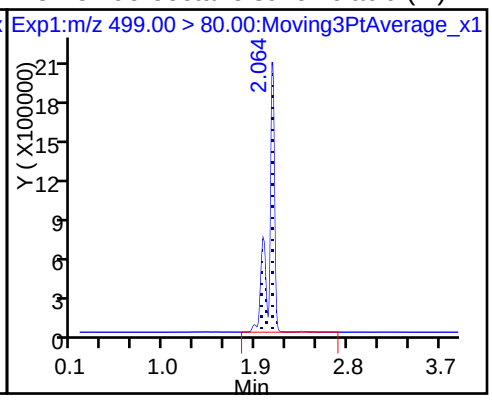
5 Perfluorooctanoic acid



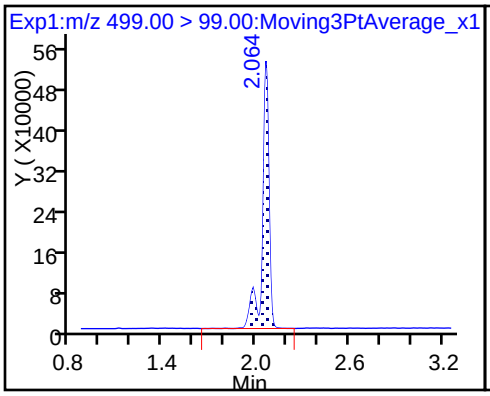
5 Perfluorooctanoic acid



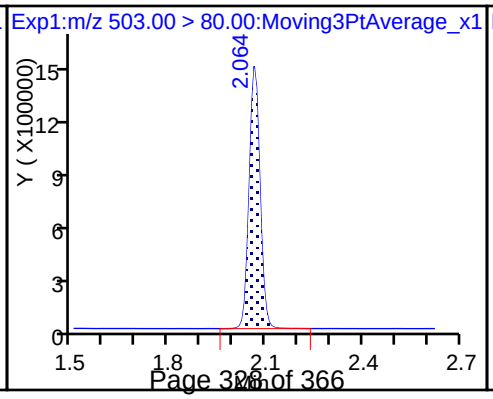
8 Perfluorooctane sulfonic acid (M)



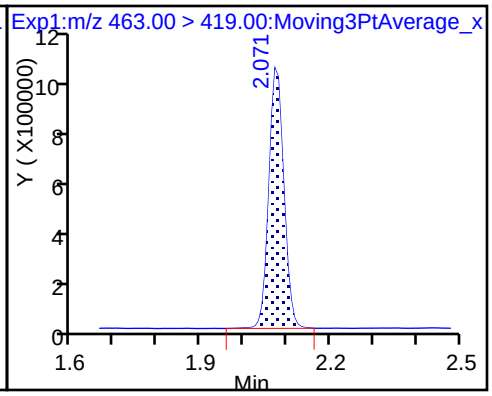
8 Perfluorooctane sulfonic acid



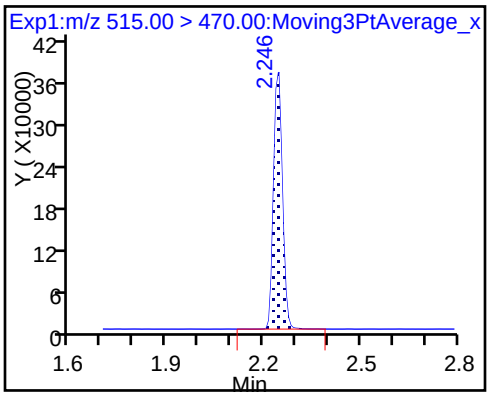
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
42
36
30
24
18
12
6
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_011.d
Lims ID: 320-36163-A-3-B MS
Client ID: NAWC-021518-RW-152
Sample Type: MS
Inject. Date: 06-Mar-2018 01:37:55 ALS Bottle#: 6 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-3-b ms
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: barnettj Date: 06-Mar-2018 10:08:10

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.21	82.13
$ 10 13C2 PFDA	10.0	10.8	108.10

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

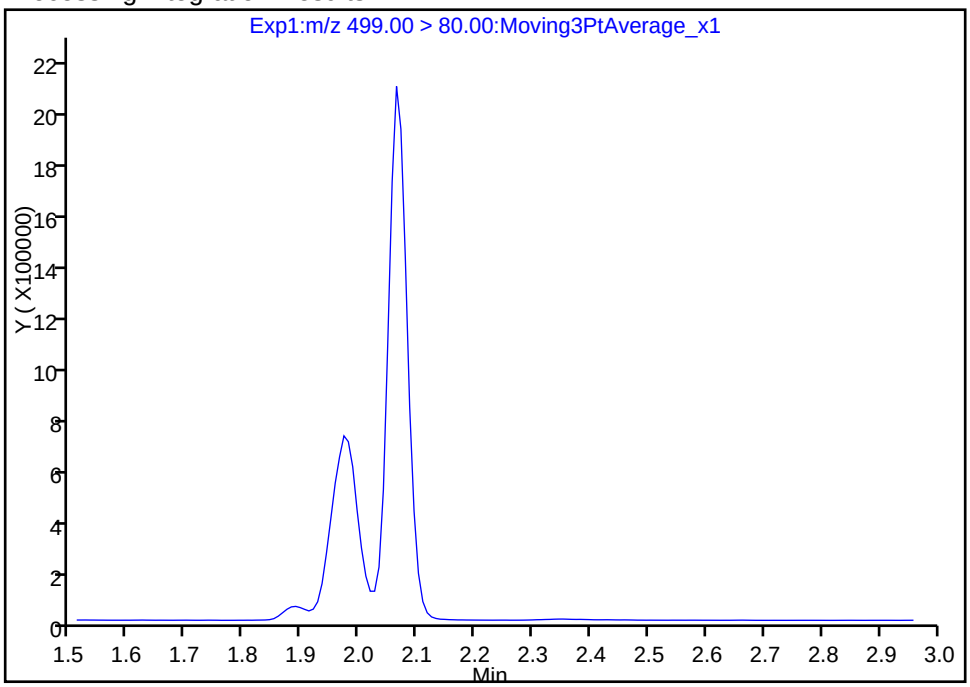
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_011.d				
Injection Date:	06-Mar-2018 01:37:55	Instrument ID:	A8_N		
Lims ID:	320-36163-A-3-B MS				
Client ID:	NAWC-021518-RW-152				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	6	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. 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

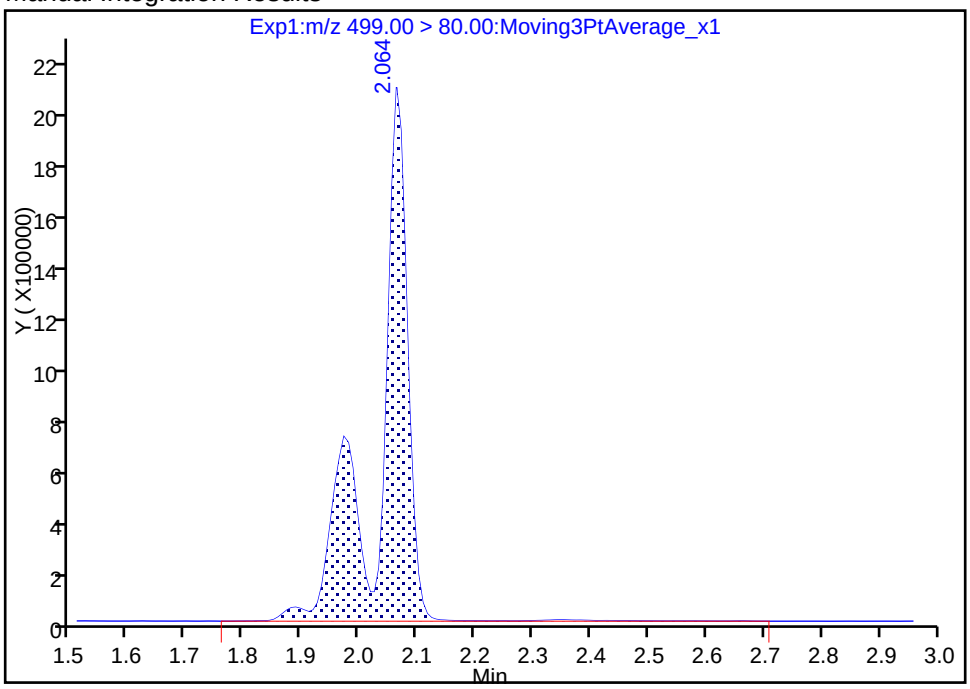
Processing Integration Results

Not Detected
Expected RT: 2.06



Manual Integration Results

RT: 2.06
Area: 7379048
Amount: 65.615402
Amount Units: ng/ml



Reviewer: barnettj, 06-Mar-2018 10:07:55
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-RW-152 MSD | Lab Sample ID: 320-36163-3 MSD

Matrix: Water | Lab File ID: 2018.03.05_537B_012.d

Analysis Method: 537 | Date Collected: 02/15/2018 10:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 249(mL) | Date Analyzed: 03/06/2018 01:42

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	266	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	132		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	135		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	180		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	63.4		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	377		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	81		70-130
STL00996	13C2 PFDA	117		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_012.d
Lims ID: 320-36163-A-3-C MSD
Client ID: NAWC-021518-RW-152
Sample Type: MSD
Inject. Date: 06-Mar-2018 01:42:36 ALS Bottle#: 7 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36163-a-3-c msd
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 10:24:19 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: barnettj Date: 06-Mar-2018 10:08:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	12531228	93.8		3735	
298.90 > 99.00	1.366	1.366	0.0	1.000	9716710		1.29(0.00-0.00)	4340	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1027703	8.11		15429	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	8624156	44.9		3689	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	1767307	15.8		125	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.821	-0.008		1151879	10.0		10107	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.828	-0.015	1.000	3643217	32.9		118	
413.00 > 169.00	1.813	1.828	-0.015	1.000	2026176		1.80(0.00-0.00)	2136	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.071	2.056	0.015	1.000	7486695	66.3		3487	a
499.00 > 99.00	2.071	2.056	0.015	1.000	1557787		4.81(0.00-0.00)	700	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.079	-0.008		3422849	28.7		3085	
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.086	-0.007	1.000	2382804	33.6		105	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.253	-0.007	1.000	705577	11.7		5760	

QC Flag Legend

Review Flags

a - User Assigned ID

Report Date: 06-Mar-2018 10:24:27 Chrom Revision: 2.2 08-Feb-2018 13:38:42

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_012.d

Injection Date: 06-Mar-2018 01:42:36 Instrument ID: A8_N

Lims ID: 320-36163-A-3-C MSD

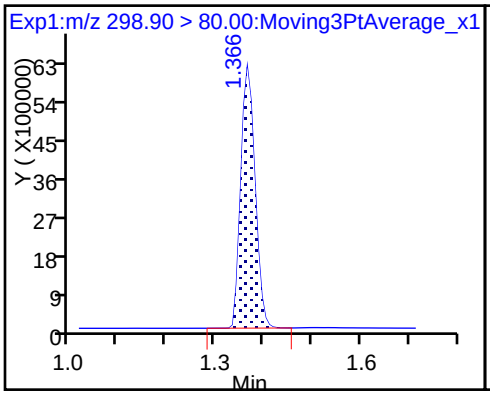
Client ID: NAWC-021518-RW-152

Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 9

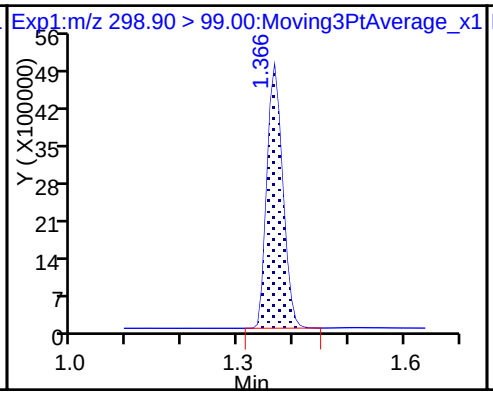
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

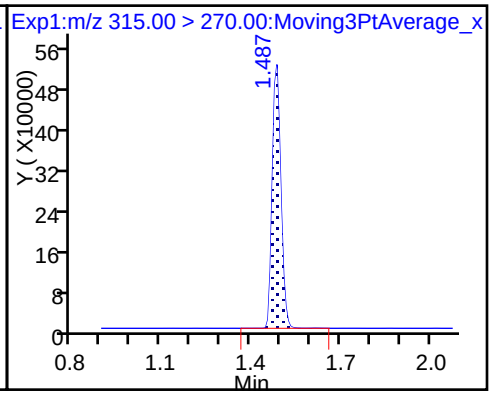
1 Perfluorobutanesulfonic acid



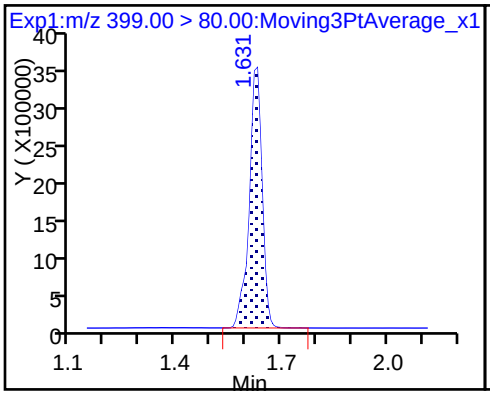
1 Perfluorobutanesulfonic acid



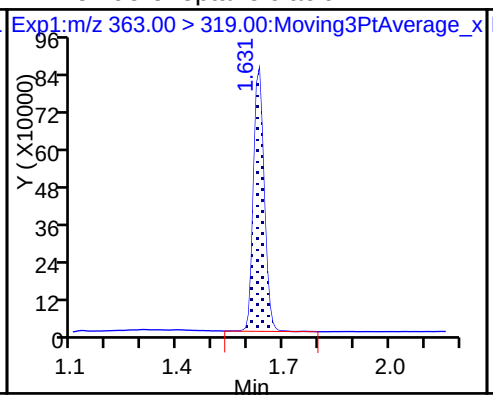
$ 2 13C2 PFHxA



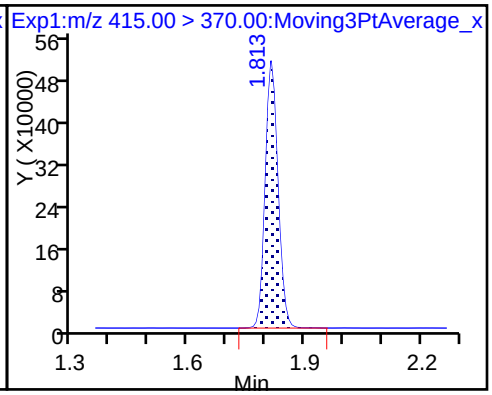
3 Perfluorohexanesulfonic acid



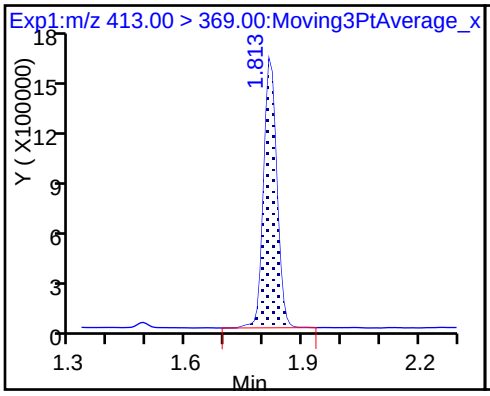
4 Perfluoroheptanoic acid



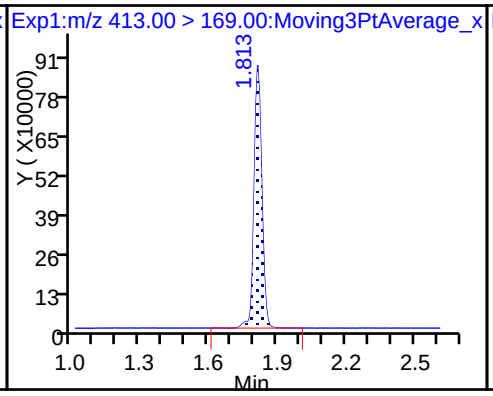
* 6 13C2-PFOA



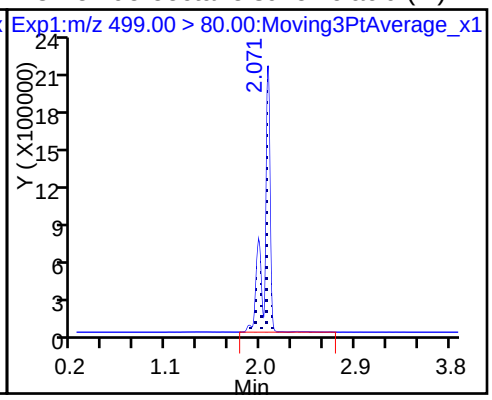
5 Perfluorooctanoic acid



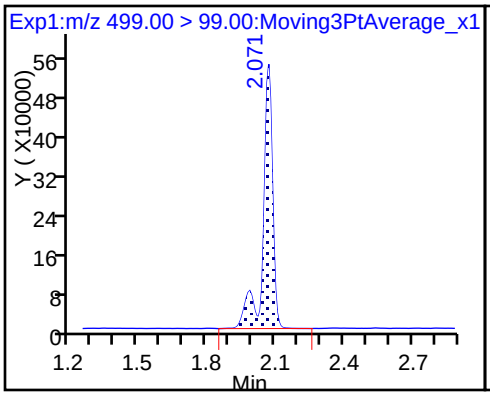
5 Perfluorooctanoic acid



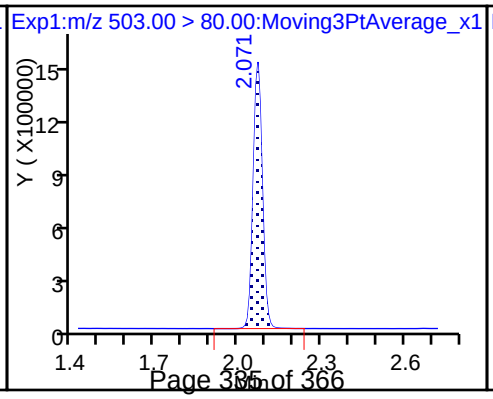
8 Perfluorooctane sulfonic acid (M)



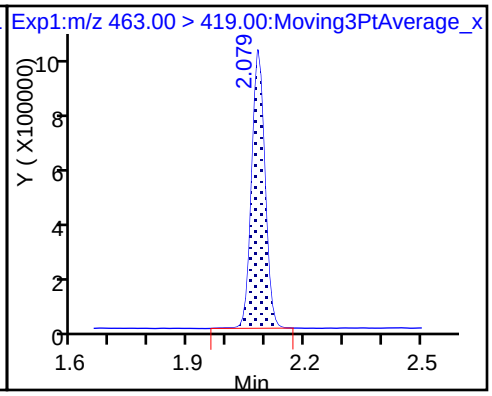
8 Perfluorooctane sulfonic acid



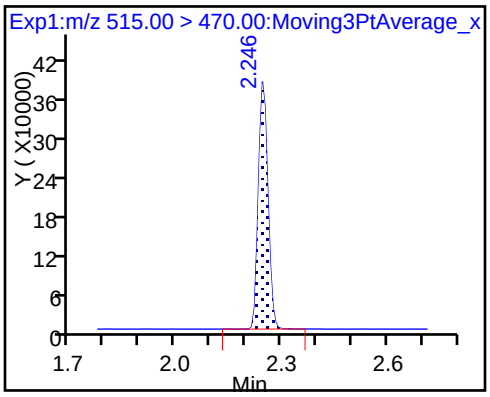
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
42
36
30
24
18
12
6
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_012.d				
Lims ID:	320-36163-A-3-C MSD				
Client ID:	NAWC-021518-RW-152				
Sample Type:	MSD				
Inject. Date:	06-Mar-2018 01:42:36	ALS Bottle#:	7	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-36163-a-3-c msd				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	06-Mar-2018 10:24:19	Calib Date:	16-Feb-2018 09:19:04		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK027				
First Level Reviewer: barnettj		Date:	06-Mar-2018 10:08:36		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.11	81.12
$ 10 13C2 PFDA	10.0	11.7	116.84

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

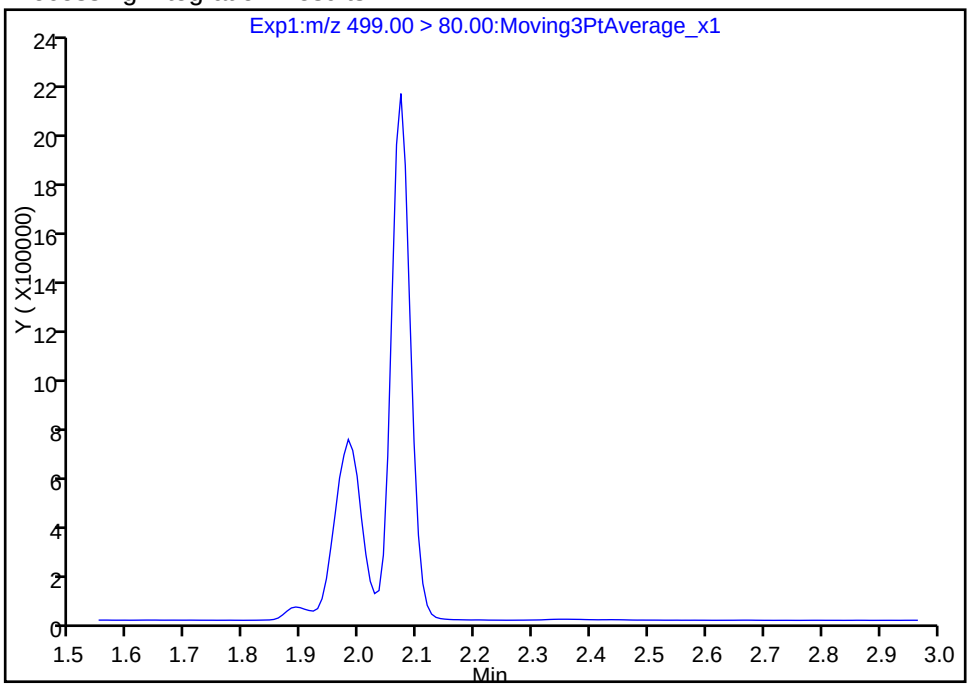
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b\2018.03.05_537B_012.d				
Injection Date:	06-Mar-2018 01:42:36	Instrument ID:	A8_N		
Lims ID:	320-36163-A-3-C MSD				
Client ID:	NAWC-021518-RW-152				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	7	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. 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

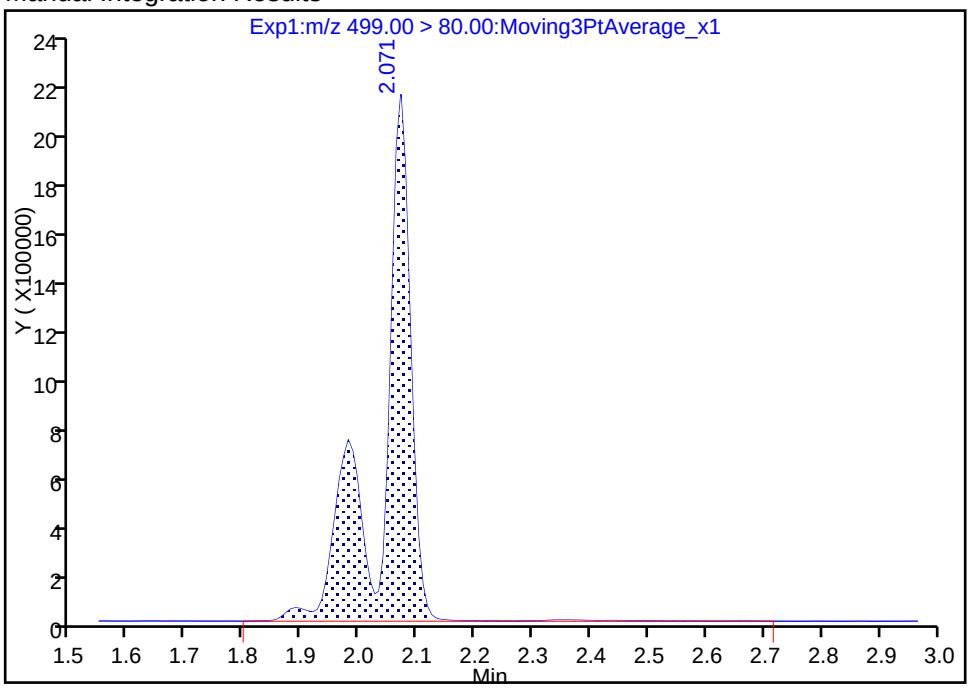
Processing Integration Results

Not Detected
Expected RT: 2.06



Manual Integration Results

RT: 2.07
Area: 7486695
Amount: 66.344198
Amount Units: ng/ml



Reviewer: barnettj, 06-Mar-2018 10:08:16
Audit Action: Assigned Compound ID Audit Reason: Peak assignment corrected

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 02/16/2018 08:55

Analysis Batch Number: 208773 End Date: 02/16/2018 09:37

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-208773/4		02/16/2018 08:55	1	2018.02.016_537 ICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-208773/5		02/16/2018 09:00	1	2018.02.016_537 ICAL 005.d	GeminiC18 3x100 3(mm)
IC 320-208773/6		02/16/2018 09:05	1	2018.02.016_537 ICAL 006.d	GeminiC18 3x100 3(mm)
IC 320-208773/7 ICISAV		02/16/2018 09:09	1	2018.02.016_537 ICAL 007.d	GeminiC18 3x100 3(mm)
IC 320-208773/8		02/16/2018 09:14	1	2018.02.016_537 ICAL 008.d	GeminiC18 3x100 3(mm)
IC 320-208773/9		02/16/2018 09:19	1	2018.02.016_537 ICAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/16/2018 09:23	1		GeminiC18 3x100 3(mm)
CCVL 320-208773/11		02/16/2018 09:28	1	2018.02.016_537 ICAL 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/16/2018 09:33	1		GeminiC18 3x100 3(mm)
ICV 320-208773/13		02/16/2018 09:37	1	2018.02.016_537 ICAL 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 03/05/2018 08:44

Analysis Batch Number: 211128 End Date: 03/05/2018 09:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-211128/1		03/05/2018 08:44	1	2018.03.05_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-211128/2 CCVIS		03/05/2018 08:48	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 08:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:02	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:07	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:16	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:21	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:26	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:30	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:40	1		GeminiC18 3x100 3(mm)
CCV 320-211128/14 CCVIS		03/05/2018 09:44	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 03/06/2018 01:05

Analysis Batch Number: 211343 End Date: 03/06/2018 02:01

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-211343/1 CCVIS		03/06/2018 01:05	1	2018.03.05_537B 004.d	GeminiC18 3x100 3(mm)
MB 320-210419/1-A		03/06/2018 01:14	1	2018.03.05_537B 006.d	GeminiC18 3x100 3(mm)
LCS 320-210419/2-A		03/06/2018 01:19	1	2018.03.05_537B 007.d	GeminiC18 3x100 3(mm)
320-36163-1		03/06/2018 01:23	1	2018.03.05_537B 008.d	GeminiC18 3x100 3(mm)
320-36163-2		03/06/2018 01:28	1	2018.03.05_537B 009.d	GeminiC18 3x100 3(mm)
320-36163-3		03/06/2018 01:33	1	2018.03.05_537B 010.d	GeminiC18 3x100 3(mm)
320-36163-3 MS		03/06/2018 01:37	1	2018.03.05_537B 011.d	GeminiC18 3x100 3(mm)
320-36163-3 MSD		03/06/2018 01:42	1	2018.03.05_537B 012.d	GeminiC18 3x100 3(mm)
320-36163-4		03/06/2018 01:47	1	2018.03.05_537B 013.d	GeminiC18 3x100 3(mm)
320-36163-5		03/06/2018 01:51	1	2018.03.05_537B 014.d	GeminiC18 3x100 3(mm)
320-36163-6		03/06/2018 01:56	1	2018.03.05_537B 015.d	GeminiC18 3x100 3(mm)
CCV 320-211343/13 CCVIS		03/06/2018 02:01	1	2018.03.05_537B 016.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 03/06/2018 09:24

Analysis Batch Number: 211417 End Date: 03/06/2018 10:25

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-211417/1		03/06/2018 09:24	1	2018.03.06_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-211417/2 CCVIS		03/06/2018 09:29	1		GeminiC18 3x100 3(mm)
CCV 320-211417/14 CCVIS		03/06/2018 10:25	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 03/06/2018 21:11

Analysis Batch Number: 211575 End Date: 03/06/2018 22:08

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-211575/1 CCVIS		03/06/2018 21:11	1	2018.03.06_537A A 049.d	GeminiC18 3x100 3(mm)
320-36163-7		03/06/2018 21:21	1	2018.03.06_537A A 051.d	GeminiC18 3x100 3(mm)
320-36163-8		03/06/2018 21:25	1	2018.03.06_537A A 052.d	GeminiC18 3x100 3(mm)
320-36163-9		03/06/2018 21:30	1	2018.03.06_537A A 053.d	GeminiC18 3x100 3(mm)
320-36163-10		03/06/2018 21:35	1	2018.03.06_537A A 054.d	GeminiC18 3x100 3(mm)
320-36163-11		03/06/2018 21:39	1	2018.03.06_537A A 055.d	GeminiC18 3x100 3(mm)
320-36163-12		03/06/2018 21:44	1	2018.03.06_537A A 056.d	GeminiC18 3x100 3(mm)
320-36163-13		03/06/2018 21:49	1	2018.03.06_537A A 057.d	GeminiC18 3x100 3(mm)
320-36163-14		03/06/2018 21:53	1	2018.03.06_537A A 058.d	GeminiC18 3x100 3(mm)
320-36163-15		03/06/2018 21:58	1	2018.03.06_537A A 059.d	GeminiC18 3x100 3(mm)
320-36163-16		03/06/2018 22:03	1	2018.03.06_537A A 060.d	GeminiC18 3x100 3(mm)
CCV 320-211575/13 CCVIS		03/06/2018 22:08	1	2018.03.06_537A A 061.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 03/06/2018 22:08

Analysis Batch Number: 211577 End Date: 03/06/2018 22:26

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-211577/13 CCVIS		03/06/2018 22:08	1	2018.03.06_537A A 061.d	GeminiC18 3x100 3(mm)
320-36163-17		03/06/2018 22:17	1	2018.03.06_537A A 063.d	GeminiC18 3x100 3(mm)
CCV 320-211577/17 CCVIS		03/06/2018 22:26	1	2018.03.06_537A A 065.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Batch Number: 210419 Batch Start Date: 02/28/18 07:35 Batch Analyst: Kouchari, Shamiran

Batch Method: 537 Batch End Date: 03/05/18 10:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00026
MB 320-210419/1		537, 537				250 mL	1.00 mL	7 SU	
LCS 320-210419/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-36163-A-1	WGNA-021518-RW-4015	537, 537	T	271.87 g	27.26 g	244.6 mL	1.00 mL	7 SU	
320-36163-A-2	WGNA-021518-FRB-4015	537, 537	T	287.98 g	28.83 g	259.2 mL	1.00 mL	7 SU	
320-36163-A-3	NAWC-021518-RW-152	537, 537	T	281.91 g	28.61 g	253.3 mL	1.00 mL	7 SU	
320-36163-A-3 MS	NAWC-021518-RW-152	537, 537	T	291.04 g	28.57 g	262.5 mL	1.00 mL	7 SU	100 uL
320-36163-A-3 MSD	NAWC-021518-RW-152	537, 537	T	278.43 g	29.44 g	249 mL	1.00 mL	7 SU	100 uL
320-36163-A-4	NAWC-021518-FRB-152	537, 537	T	288.97 g	28.85 g	260.1 mL	1.00 mL	7 SU	
320-36163-A-5	WGNA-021518-RW-3124	537, 537	T	287.48 g	27.99 g	259.5 mL	1.00 mL	7 SU	
320-36163-A-6	WGNA-021518-FRB-3124	537, 537	T	290.86 g	30.63 g	260.2 mL	1.00 mL	7 SU	
320-36163-A-7	WGNA-021518-RW-4842	537, 537	T	280.44 g	28.04 g	252.4 mL	1.00 mL	7 SU	
320-36163-A-8	WGNA-021518-FRB-4842	537, 537	T	283.14 g	28.38 g	254.8 mL	1.00 mL	7 SU	
320-36163-A-9	NAWC-021518-RW-205	537, 537	T	287.48 g	28.18 g	259.3 mL	1.00 mL	7 SU	
320-36163-A-10	NAWC-021518-FRB-205	537, 537	T	288.93 g	28.93 g	260 mL	1.00 mL	7 SU	
320-36163-A-11	WGNA-021518-RW-4817	537, 537	T	280.18 g	28.05 g	252.1 mL	1.00 mL	7 SU	
320-36163-A-12	WGNA-021518-FRB-4817	537, 537	T	284.28 g	28.75 g	255.5 mL	1.00 mL	7 SU	
320-36163-A-13	WGNA-021518-RW-3882	537, 537	T	283.48 g	28.60 g	254.9 mL	1.00 mL	7 SU	
320-36163-A-14	WGNA-021518-FRB-3882	537, 537	T	278.45 g	28.66 g	249.8 mL	1.00 mL	7 SU	
320-36163-A-15	WGNA-021518-DUP-27	537, 537	T	287.21 g	28.05 g	259.2 mL	1.00 mL	7 SU	
320-36163-A-16	NAWC-021518-RW-229	537, 537	T	281.11 g	28.09 g	253 mL	1.00 mL	7 SU	
320-36163-A-17	NAWC-021518-FRB-229	537, 537	T	283.05 g	28.79 g	254.3 mL	1.00 mL	7 SU	

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.: 320-36163-1

SDG No.:

Batch Number: 210419 Batch Start Date: 02/28/18 07:35 Batch Analyst: Kouchari, Shamiran

Batch Method: 537 Batch End Date: 03/05/18 10:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00061	LC537-SU 00063	AnalysisComment			
MB 320-210419/1		537, 537		100 uL	100 uL	Chlorine, ND			
LCS 320-210419/2		537, 537		100 uL	100 uL	Chlorine, ND			
320-36163-A-1	WGNA-021518-RW-4015	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-2	WGNA-021518-FRB-4015	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-3	NAWC-021518-RW-152	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-3 MS	NAWC-021518-RW-152	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-3 MSD	NAWC-021518-RW-152	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-4	NAWC-021518-FRB-152	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-5	WGNA-021518-RW-3124	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-6	WGNA-021518-FRB-3124	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-7	WGNA-021518-RW-4842	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-8	WGNA-021518-FRB-4842	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-9	NAWC-021518-RW-205	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-10	NAWC-021518-FRB-205	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-11	WGNA-021518-RW-4817	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-12	WGNA-021518-FRB-4817	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-13	WGNA-021518-RW-3882	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-14	WGNA-021518-FRB-3882	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-15	WGNA-021518-DUP-27	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-16	NAWC-021518-RW-229	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-17	NAWC-021518-FRB-229	537, 537	T	100 uL	100 uL	Chlorine, ND			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Batch Number: 210419 Batch Start Date: 02/28/18 07:35 Batch Analyst: Kouchari, Shamiran

Batch Method: 537 Batch End Date: 03/05/18 10:15

Batch Notes	
Analyst ID - Aliquot Step	SKD
Batch Comment	Client labels match TA labels, 02/28/18 SKD
Analyst ID - Concentration	SKD
Analyst ID - Final Volume Step	SKD
Internal Standard ID#	1169779
Manifold ID	3,10
Methanol ID	1167503
pH Indicator ID	3817
Pipette ID	H14930F, M 16387D, N32728F
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	SKD
Analyst ID - SU Reagent Drop	HJA
Analyst ID - SU Reagent Drop Witness	SKD
Analyst ID - TA Reagent Drop	HJA
Analyst ID - TA Reagent Drop Witness	SKD
SPE Cartridge Lot ID	6369499-06
Trizma ID	SLBR4303V
Reagent Water ID	02/27/18

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
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Sacramento

3/9

Method 537 CCV/Data Review Checklist

A8

Job No: 36163 Instrument ID & Date: 3-6-18 ICAL Batch: 208773
Extraction Batch: 210419 Worklist #: 54878, 54952 TALS Batch: 211343, 211575, 211577

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 3-7-18 2nd Level Reviewer / Date: CBW 3/8/18

NCM # and Comments: _____

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Sacramento

Method 537 ICAL Checklist

A8

Instrument ID & Date: 2-16-18 Worklist#: 54164

ICAL Batch: 208773,208774 Calibration ID number: 37889,37890

Review Items	— Level 1 — Yes	No	N/A	Level 2
Initial Calibration				
1. Mass calibration, as needed, verified by full scan of PFC stock standard. All PFC ions used for quantitation are within 0.3 m/z of true mass?	✓			✓
2. Responses increase with increasing concentration?	✓			✓
3. Fit used (circle): (Average) Linear (1/x²)Linear (Quadratic) (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average $R^2 \geq 0.990$ for Linear $R^2 \geq 0.990$ for Quadratic **NOTE: "Force through Zero" must be used and weighted if needed**	✓			✓
5. If quadratic fit used the curve does not "bend over".	✓			✓
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be < 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks?.(0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2nd source) ± 30% of true value?	✓			✓
11. Is ICV (2nd source) internal standards ±50% of average area of the ICAL?	✓			✓
12. ICal locked in Chrom and uploaded to TALS?	✓			
13. ICal locked in TALS and scanned?				✓

1st Level Reviewer / Date: JRB 2-16-18 2nd Level Reviewer / Date: CBW 2-16-18

NCM # and Comments: _____

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 05MAR2018_537A Worklist Num: 54822
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b
Anaylysis Type: SemiVOA Creator: Royce, Amani A
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCVL	320-0054822-001	CCVL	05-Mar-2018 08:44:04	2018.03.05_537A_004.d	2	1.0		sv
CCV L3	320-0054822-002	CCVIS	05-Mar-2018 08:48:44	2018.03.05_537A_005.d	3	1.0		sv
RB	320-0054822-003	RB	05-Mar-2018 08:53:24	2018.03.05_537A_006.d	8	1.0		sv
MB 320-210599/1-A	320-0054822-004	MB	05-Mar-2018 08:58:04	2018.03.05_537A_007.d	1	1.0		sv
LLCS 320-210599/2-A	320-0054822-005	LLCS	05-Mar-2018 09:02:46	2018.03.05_537A_008.d	2	1.0		sv
LLCSD 320-210599/3-A	320-0054822-006	LLCSD	05-Mar-2018 09:07:27	2018.03.05_537A_009.d	3	1.0		sv
320-36228-B-1-A	320-0054822-007	Client	05-Mar-2018 09:12:09	2018.03.05_537A_010.d	4	1.0	C0AG1	sv
320-36228-B-2-A	320-0054822-008	Client	05-Mar-2018 09:16:49	2018.03.05_537A_011.d	5	1.0	C0AG2	sv
320-36228-B-3-A	320-0054822-009	Client	05-Mar-2018 09:21:29	2018.03.05_537A_012.d	6	1.0	C0AG3	sv
320-36228-B-4-A	320-0054822-010	Client	05-Mar-2018 09:26:10	2018.03.05_537A_013.d	7	1.0	C0AG4	sv
320-36228-B-5-A	320-0054822-011	Client	05-Mar-2018 09:30:50	2018.03.05_537A_014.d	8	1.0	C0AG5	sv
320-36228-B-6-A	320-0054822-012	Client	05-Mar-2018 09:35:30	2018.03.05_537A_015.d	9	1.0	C0AG6	sv
320-36228-B-7-A	320-0054822-013	Client	05-Mar-2018 09:40:09	2018.03.05_537A_016.d	10	1.0	C0AG7	sv
CCV L5	320-0054822-014	CCVIS	05-Mar-2018 09:44:51	2018.03.05_537A_017.d	5	1.0		sv
RB	320-0054822-015	RB	05-Mar-2018 09:49:31	2018.03.05_537A_018.d	8	1.0		sv
320-36228-B-8-A	320-0054822-016	Client	05-Mar-2018 09:54:11	2018.03.05_537A_019.d	11	1.0	C0AH5	sv
320-36228-B-9-A	320-0054822-017	Client	05-Mar-2018 09:58:53	2018.03.05_537A_020.d	12	1.0	C0AH6	sv
320-36228-B-10-A	320-0054822-018	Client	05-Mar-2018 10:03:33	2018.03.05_537A_021.d	13	1.0	C0AH7	sv
320-36228-B-11-A	320-0054822-019	Client	05-Mar-2018 10:08:14	2018.03.05_537A_022.d	14	1.0	C0AH8	sv
320-36228-B-12-A	320-0054822-020	Client	05-Mar-2018 10:12:55	2018.03.05_537A_023.d	15	1.0	C0AH9	sv
CCV L3	320-0054822-021	CCVIS	05-Mar-2018 10:17:35	2018.03.05_537A_024.d	3	1.0		sv
RB	320-0054822-022	RB	05-Mar-2018 10:22:15	2018.03.05_537A_025.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 05MAR2018_537E Worklist Num: 54878
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b
Anaylysis Type: SemiVOA Creator: Hannigan, Alyssa B
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L5	320-0054878-001	CCVIS	06-Mar-2018 01:05:11	2018.03.05_537B_004.d	5	1.0		sv
RB	320-0054878-002	RB	06-Mar-2018 01:09:51	2018.03.05_537B_005.d	8	1.0		sv
MB 320-210419/1-A	320-0054878-003	MB	06-Mar-2018 01:14:30	2018.03.05_537B_006.d	1	1.0		sv
LCS 320-210419/2-A	320-0054878-004	LCS	06-Mar-2018 01:19:10	2018.03.05_537B_007.d	2	1.0		sv
320-36163-A-1-A	320-0054878-005	Client	06-Mar-2018 01:23:51	2018.03.05_537B_008.d	3	1.0	WGNA-021518-RW-4015	sv
320-36163-A-2-A	320-0054878-006	Client	06-Mar-2018 01:28:32	2018.03.05_537B_009.d	4	1.0	WGNA-021518-FRB-4015	sv
320-36163-A-3-A	320-0054878-007	Client	06-Mar-2018 01:33:14	2018.03.05_537B_010.d	5	1.0	NAWC-021518-RW-152	sv
320-36163-A-3-B MS	320-0054878-008	MS	06-Mar-2018 01:37:55	2018.03.05_537B_011.d	6	1.0	NAWC-021518-RW-152	sv
320-36163-A-3-C MSD	320-0054878-009	MSD	06-Mar-2018 01:42:36	2018.03.05_537B_012.d	7	1.0	NAWC-021518-RW-152	sv
320-36163-A-4-A	320-0054878-010	Client	06-Mar-2018 01:47:16	2018.03.05_537B_013.d	8	1.0	NAWC-021518-FRB-152	sv
320-36163-A-5-A	320-0054878-011	Client	06-Mar-2018 01:51:56	2018.03.05_537B_014.d	9	1.0	WGNA-021518-RW-3124	sv
320-36163-A-6-A	320-0054878-012	Client	06-Mar-2018 01:56:35	2018.03.05_537B_015.d	10	1.0	WGNA-021518-FRB-3124	sv
CCV L3	320-0054878-013	CCVIS	06-Mar-2018 02:01:16	2018.03.05_537B_016.d	3	1.0		sv
RB	320-0054878-014	RB	06-Mar-2018 02:05:56	2018.03.05_537B_017.d	8	1.0		sv
320-36163-A-7-A	320-0054878-015	Client	06-Mar-2018 02:10:37	2018.03.05_537B_018.d	11	1.0	WGNA-021518-RW-4842	sv
320-36163-A-8-A	320-0054878-016	Client	06-Mar-2018 02:15:17	2018.03.05_537B_019.d	12	1.0	WGNA-021518-FRB-4842	sv
320-36163-A-9-A	320-0054878-017	Client	06-Mar-2018 02:19:59	2018.03.05_537B_020.d	13	1.0	NAWC-021518-RW-205	sv
320-36163-A-10-A	320-0054878-018	Client	06-Mar-2018 02:24:40	2018.03.05_537B_021.d	14	1.0	NAWC-021518-FRB-205	sv
320-36163-A-11-A	320-0054878-019	Client	06-Mar-2018 02:29:19	2018.03.05_537B_022.d	15	1.0	WGNA-021518-RW-4817	sv
320-36163-A-12-A	320-0054878-020	Client	06-Mar-2018 02:34:00	2018.03.05_537B_023.d	16	1.0	WGNA-021518-FRB-4817	sv
320-36163-A-13-A	320-0054878-021	Client	06-Mar-2018 02:38:39	2018.03.05_537B_024.d	17	1.0	WGNA-021518-RW-3882	sv
320-36163-A-14-A	320-0054878-022	Client	06-Mar-2018 02:43:19	2018.03.05_537B_025.d	18	1.0	WGNA-021518-FRB-3882	sv
320-36163-A-15-A	320-0054878-023	Client	06-Mar-2018 02:47:59	2018.03.05_537B_026.d	19	1.0	WGNA-021518-DUP-27	sv
320-36163-A-16-A	320-0054878-024	Client	06-Mar-2018 02:52:40	2018.03.05_537B_027.d	20	1.0	NAWC-021518-RW-229	sv
CCV L5	320-0054878-025	CCVIS	06-Mar-2018 02:57:20	2018.03.05_537B_028.d	5	1.0		sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
RB	320-0054878-026	RB	06-Mar-2018 03:01:59	2018.03.05_537B_029.d	8	1.0		sv
320-36163-A-17-A	320-0054878-027	Client	06-Mar-2018 03:06:39	2018.03.05_537B_030.d	21	1.0	NAWC-021518-FRB-229	sv
CCV L3	320-0054878-028	CCVIS	06-Mar-2018 03:11:21	2018.03.05_537B_031.d	3	1.0		sv
RB	320-0054878-029	RB	06-Mar-2018 03:16:02	2018.03.05_537B_032.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 06MAR2018_537A Worklist Num: 54905
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54905.b
Anaylysis Type: SemiVOA Creator: Royce, Amani A
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCVL	320-0054905-001	CCVL	06-Mar-2018 09:24:55	2018.03.06_537A_004.d	2	1.0		sv
CCV L3	320-0054905-002	CCVIS	06-Mar-2018 09:29:35	2018.03.06_537A_005.d	3	1.0		sv
RB	320-0054905-003	RB	06-Mar-2018 09:34:15	2018.03.06_537A_006.d	8	1.0		sv
MB 320-211026/1-A	320-0054905-004	MB	06-Mar-2018 09:38:55	2018.03.06_537A_007.d	1	1.0		sv
LLCS 320-211026/2-A	320-0054905-005	LLCS	06-Mar-2018 09:43:37	2018.03.06_537A_008.d	2	1.0		sv
LLCSD 320-211026/3-A	320-0054905-006	LLCSD	06-Mar-2018 09:48:18	2018.03.06_537A_009.d	3	1.0		sv
320-36239-B-7-A	320-0054905-007	Client	06-Mar-2018 09:53:00	2018.03.06_537A_010.d	4	1.0	FB-VPSD1-021918	sv
320-36263-B-1-A	320-0054905-008	Client	06-Mar-2018 09:57:42	2018.03.06_537A_011.d	5	1.0	GC0218-TPPSD-BED1N-LE	sv
320-36263-B-2-A	320-0054905-009	Client	06-Mar-2018 10:02:24	2018.03.06_537A_012.d	6	1.0	GC0218-TPPSD-BED2N-LA	sv
320-36263-B-2-B LMS	320-0054905-010	LMS	06-Mar-2018 10:07:05	2018.03.06_537A_013.d	7	1.0		sv
320-36263-B-2-C LMSD	320-0054905-011	LMSD	06-Mar-2018 10:11:46	2018.03.06_537A_014.d	8	1.0		sv
320-36263-B-3-A	320-0054905-012	Client	06-Mar-2018 10:16:27	2018.03.06_537A_015.d	9	1.0	GC0218-TPPSD-BED1S-LE	sv
320-36263-B-4-A	320-0054905-013	Client	06-Mar-2018 10:21:07	2018.03.06_537A_016.d	10	1.0	GC0218-TPPSD-BED2S-LA	sv
CCV L5	320-0054905-014	CCVIS	06-Mar-2018 10:25:48	2018.03.06_537A_017.d	5	1.0		sv
RB	320-0054905-015	RB	06-Mar-2018 10:30:28	2018.03.06_537A_018.d	8	1.0		sv
320-36263-B-5-A	320-0054905-016	Client	06-Mar-2018 10:35:08	2018.03.06_537A_019.d	11	1.0	GC0218-TPPSD-PT	sv
320-36263-B-6-A	320-0054905-017	Client	06-Mar-2018 10:39:50	2018.03.06_537A_020.d	12	1.0	FB-TPPSD-022018	sv
CCV L3	320-0054905-018	CCVIS	06-Mar-2018 10:44:31	2018.03.06_537A_021.d	3	1.0		sv
RB	320-0054905-019	RB	06-Mar-2018 10:49:11	2018.03.06_537A_022.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 06MAR2018_537C Worklist Num: 54952
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b
Anaylysis Type: SemiVOA Creator: Hannigan, Alyssa B
Inj Volume: 2.00 Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L3	320-0054952-001	CCVIS	06-Mar-2018 21:11:49	2018.03.06_537AA_049.d	3	1.0		sv
RB	320-0054952-002	RB	06-Mar-2018 21:16:30	2018.03.06_537AA_050.d	8	1.0		sv
320-36163-A-7-A	320-0054952-003	Client	06-Mar-2018 21:21:10	2018.03.06_537AA_051.d	33	1.0	WGNA-021518-RW-4842	sv
320-36163-A-8-A	320-0054952-004	Client	06-Mar-2018 21:25:51	2018.03.06_537AA_052.d	34	1.0	WGNA-021518-FRB-4842	sv
320-36163-A-9-A	320-0054952-005	Client	06-Mar-2018 21:30:32	2018.03.06_537AA_053.d	35	1.0	NAWC-021518-RW-205	sv
320-36163-A-10-A	320-0054952-006	Client	06-Mar-2018 21:35:12	2018.03.06_537AA_054.d	36	1.0	NAWC-021518-FRB-205	sv
320-36163-A-11-A	320-0054952-007	Client	06-Mar-2018 21:39:52	2018.03.06_537AA_055.d	37	1.0	WGNA-021518-RW-4817	sv
320-36163-A-12-A	320-0054952-008	Client	06-Mar-2018 21:44:33	2018.03.06_537AA_056.d	38	1.0	WGNA-021518-FRB-4817	sv
320-36163-A-13-A	320-0054952-009	Client	06-Mar-2018 21:49:14	2018.03.06_537AA_057.d	39	1.0	WGNA-021518-RW-3882	sv
320-36163-A-14-A	320-0054952-010	Client	06-Mar-2018 21:53:56	2018.03.06_537AA_058.d	40	1.0	WGNA-021518-FRB-3882	sv
320-36163-A-15-A	320-0054952-011	Client	06-Mar-2018 21:58:38	2018.03.06_537AA_059.d	41	1.0	WGNA-021518-DUP-27	sv
320-36163-A-16-A	320-0054952-012	Client	06-Mar-2018 22:03:20	2018.03.06_537AA_060.d	42	1.0	NAWC-021518-RW-229	sv
CCV L5	320-0054952-013	CCVIS	06-Mar-2018 22:08:01	2018.03.06_537AA_061.d	5	1.0		sv
RB	320-0054952-014	RB	06-Mar-2018 22:12:42	2018.03.06_537AA_062.d	8	1.0		sv
320-36163-A-17-A	320-0054952-015	Client	06-Mar-2018 22:17:22	2018.03.06_537AA_063.d	43	1.0	NAWC-021518-FRB-229	sv
320-35085-A-5-C	320-0054952-016	Client	06-Mar-2018 22:22:03	2018.03.06_537AA_064.d	44	1.0	IDOC - Shamiran Kouchari	sv
CCV L3	320-0054952-017	CCVIS	06-Mar-2018 22:26:43	2018.03.06_537AA_065.d	3	1.0		sv
RB	320-0054952-018	RB	06-Mar-2018 22:31:24	2018.03.06_537AA_066.d	8	1.0		sv

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 05MAR2018_537E Worklist Number: 54878
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 211342	LC 537 ICAL Raw Batch: 211343
# 1 CCV L5	# 1 CCV L5	# 1 CCV L5
# 2 RB	# 2 RB	# 2 RB
# 3 MB 320-210419/1-A		# 3 MB 320-210419/1-A
# 4 LCS 320-210419/2-A		# 4 LCS 320-210419/2-A
# 5 320-36163-A-1-A		# 5 320-36163-A-1-A
# 6 320-36163-A-2-A		# 6 320-36163-A-2-A
# 7 320-36163-A-3-A		# 7 320-36163-A-3-A
# 8 320-36163-A-3-B MS		# 8 320-36163-A-3-B MS
# 9 320-36163-A-3-C MSD		# 9 320-36163-A-3-C MSD
#10 320-36163-A-4-A	CCVL in	#10 320-36163-A-4-A
#11 320-36163-A-5-A	AB 211128	#11 320-36163-A-5-A
#12 320-36163-A-6-A		#12 320-36163-A-6-A
#13 CCV L3	#13 CCV L3	#13 CCV L3

QC Batch: 2	LC 537 CS ICAL Raw Batch: 211344	LC 537 ICAL Raw Batch: 211345
#13 CCV L3	#13 CCV L3	#13 CCV L3
#14 RB	#14 RB	#14 RB
#15 320-36163-A-7-A		#15 320-36163-A-7-A
#16 320-36163-A-8-A		#16 320-36163-A-8-A
#17 320-36163-A-9-A		#17 320-36163-A-9-A
#18 320-36163-A-10-A		#18 320-36163-A-10-A
#19 320-36163-A-11-A		#19 320-36163-A-11-A
#20 320-36163-A-12-A		#20 320-36163-A-12-A
#21 320-36163-A-13-A		#21 320-36163-A-13-A
#22 320-36163-A-14-A		#22 320-36163-A-14-A
#23 320-36163-A-15-A		#23 320-36163-A-15-A
#24 320-36163-A-16-A		#24 320-36163-A-16-A
#25 CCV L5	#25 CCV L5	#25 CCV L5 — CCV out

Not used

QC Batch: 3	LC 537 CS ICAL Raw Batch: 211346	LC 537 ICAL Raw Batch: 211347
#25 CCV L5	#25 CCV L5	#25 CCV L5 — CCV out
#26 RB	#26 RB	#26 RB
#27 320-36163-A-17-A		#27 320-36163-A-17-A
#28 CCV L3	#28 CCV L3	#28 CCV L3
#29 RB	#29 RB	#29 RB

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 06MAR2018_537C Worklist Number: 54952
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 211575
# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB
# 3 320-36163-A-7-A	# 3 320-36163-A-7-A
# 4 320-36163-A-8-A	# 4 320-36163-A-8-A
# 5 320-36163-A-9-A	# 5 320-36163-A-9-A
# 6 320-36163-A-10-A	# 6 320-36163-A-10-A
# 7 320-36163-A-11-A	# 7 320-36163-A-11-A
# 8 320-36163-A-12-A	# 8 320-36163-A-12-A
# 9 320-36163-A-13-A	# 9 320-36163-A-13-A
#10 320-36163-A-14-A	#10 320-36163-A-14-A
#11 320-36163-A-15-A	#11 320-36163-A-15-A
#12 320-36163-A-16-A	#12 320-36163-A-16-A
#13 CCV L5	#13 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 211577
#13 CCV L5	#13 CCV L5
#14 RB	#14 RB
#15 320-36163-A-17-A	#15 320-36163-A-17-A
#16 320-35085-A-5-C	#16 320-35085-A-5-C
#17 CCV L3	#17 CCV L3
#18 RB	#18 RB

CCVL in AB 211417

AB 3/5/18
2
AB 3/6/18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210419 ✓

Analyst: Kouchari, Shamiran

Batch Open: 2/28/2018 7:35:00AM

Method Code: 320-537_Prep-320

Batch End: 3/5/2018 10:15:00AM

Extraction of Perfluorinated Alkyl Acids

3/9

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB~320-210419/1 N/A	N/A		250 mL 1.00 mL	7			N/A	N/A	N/A	Chlorine, ND	MB 320-210419/1-A
2	LCS~320-210419/2 N/A	N/A		250 mL 1.00 mL	7			N/A	N/A	N/A	Chlorine, ND	LCS 320-210419/2-A
3	320-36163-A-1 (537_DOD5)	N/A (320-36163-1)	271.87 g 27.26 g	244.6 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-1-A
4	320-36163-A-2 (537_DOD5)	N/A (320-36163-1)	287.98 g 28.83 g	259.2 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-2-A
5	320-36163-A-3 (537_DOD5)	N/A (320-36163-1)	281.91 g 28.61 g	253.3 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-3-A
6	320-36163-A-3~MS (537_DOD5)	N/A (320-36163-1)	291.04 g 28.57 g	262.5 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-3-B MS
7	320-36163-A-3~MSD (537_DOD5)	N/A (320-36163-1)	278.43 g 29.44 g	249 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-3-C MSD
8	320-36163-A-4 (537_DOD5)	N/A (320-36163-1)	288.97 g 28.85 g	260.1 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-4-A
9	320-36163-A-5 (537_DOD5)	N/A (320-36163-1)	287.48 g 27.99 g	259.5 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-5-A
10	320-36163-A-6 (537_DOD5)	N/A (320-36163-1)	290.86 g 30.63 g	260.2 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-6-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210419 Analyst: Kouchari, Shamiran Batch Open: 2/28/2018 7:35:00AM

Method Code: 320-537_Prep-320 Batch End: 3/5/2018 10:15:00AM

11	320-36163-A-7 (537_DOD5)	N/A (320-36163-1)	280.44 g / 28.04 g	252.4 mL / 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND RI	320-36163-A-7-A
12	320-36163-A-8 (537_DOD5)	N/A (320-36163-1)	283.14 g / 28.38 g	254.8 mL / 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-8-A
13	320-36163-A-9 (537_DOD5)	N/A (320-36163-1)	287.48 g / 28.18 g	259.3 mL / 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-9-A
14	320-36163-A-10 (537_DOD5)	N/A (320-36163-1)	288.93 g / 28.93 g	260 mL / 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-10-A
15	320-36163-A-11 (537_DOD5)	N/A (320-36163-1)	280.18 g / 28.05 g	252.1 mL / 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-11-A
16	320-36163-A-12 (537_DOD5)	N/A (320-36163-1)	284.28 g / 28.75 g	255.5 mL / 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-12-A
17	320-36163-A-13 (537_DOD5)	N/A (320-36163-1)	283.48 g / 28.60 g	254.9 mL / 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-13-A
18	320-36163-A-14 (537_DOD5)	N/A (320-36163-1)	278.45 g / 28.66 g	249.8 mL / 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-14-A
19	320-36163-A-15 (537_DOD5)	N/A (320-36163-1)	287.21 g / 28.05 g	259.2 mL / 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-15-A
20	320-36163-A-16 (537_DOD5)	N/A (320-36163-1)	281.11 g / 28.09 g	253 mL / 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-16-A
21	320-36163-A-17 (537_DOD5)	N/A (320-36163-1)	283.05 g / 28.79 g	254.3 mL / 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-17-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210419
Analyst: Kouchari, Shamiran
Batch Open: 2/28/2018 7:35:00AM

Method Code: 320-537_Prep-320
Batch End: 3/5/2018 10:15:00AM

Batch Notes

Manifold ID	3,10
pH Indicator ID	3817
Trizma ID	SLBR4303V
SPE Cartridge Lot ID	6369499-06
Methanol ID	1167503
Reagent Water ID	02/27/18
Internal Standard ID#	1169779
Pipette ID	H14930F, M 16387D, N32728F
Analyst ID - TA Reagent Drop	HJA
Analyst ID - TA Reagent Drop Witness	SKD
Analyst ID - SU Reagent Drop	HJA
Analyst ID - SU Reagent Drop Witness	SKD
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	SKD
Analyst ID - Concentration	SKD
Analyst ID - Aliquot Step	SKD
Analyst ID - Final Volume Step	SKD
Batch Comment	Client labels match TA labels, 02/28/18 SKD

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210419 Analyst: Kouchari, Shamiran Batch Open: 2/28/2018 7:35:00AM

Method Code: 320-537_Prep-320 Batch End:

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210419 Analyst: Kouchari, Shamiran Batch Open: 2/28/2018 7:35:00AM

Method Code: 320-537_Prep-320 Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-210419/1	LC537-SU_00063	100 uL	1.00 mL	HSA 2-28-18	SKD 2/28/18
LCS 320-210419/2	LC537-HSP_00026	100 uL	1.00 mL		
LCS 320-210419/2	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-1	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-2	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-3	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-3 MS	LC537-HSP_00026	100 uL	1.00 mL		
320-36163-A-3 MS	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-3 MSD	LC537-HSP_00026	100 uL	1.00 mL		
320-36163-A-3 MSD	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-4	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-5	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-6	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-7	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-8	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-9	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-10	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-11	LC537-SU_00063	100 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210419 Analyst: Kouchari, Shamiran Batch Open: 2/28/2018 7:35:00AM

Method Code: 320-537_Prep-320 Batch End:

320-36163-A-11	LC537-SU_00063	100 uL	1.00 mL	HJA 2-28-18	SKO 2/28/18
320-36163-A-12	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-13	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-14	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-15	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-16	LC537-SU_00063	100 uL	1.00 mL		
320-36163-A-17	LC537-SU_00063	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) 210419 Test 537_prep

Earliest Holding Time 3/1/18

Batch Information	1st Level Reviewer	2nd Level Reviewer
Date and time accurate and entered into TALS correctly	✓	✓
All necessary batch information complete and entered into TALS correctly	✓	✓
BD, FV, and AL initials are transcribed into the batch comment	✓	✓
Sample List Tab	1st Level Reviewer	2nd Level Reviewer
Samples identified to the correct method	✓	✓
Holding time violation NCM filed	N/A	N/A
MS/MSD or MS/DU NCM filed	N/A	N/A
NCM for any anomalies filed	N/A	N/A
All NCMs include method code, matrix, and prep batch	N/A	N/A
Method/sample/login/QAS checked and correct	SK 3/5/18 AHA ✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	1st Level Reviewer	2nd Level Reviewer
All samples properly preserved	✓	✓
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	✓	✓
The pH is transcribed properly in TALS	✓	✓
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	1st Level Reviewer	2nd Level Reviewer
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: SKD Date: 3/5/18

2nd Level Reviewer: VPM Date: 3/5/18

Comments: _____

Shipping and Receiving Documents

NAWC-021518-FRB-4015 Label bottle 2/

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: 2/15/2018	COC No:
TetraTech	Tel/Fax: 610.382.1170	Lab Contact: Dave Alltucker	Carrier: FedEx	1 of 1 COCs
234 Mall Boulevard Suite 260	**Analysis Turnaround Time**			Sampler: Mary Kay Bond
King of Prussia, PA 19406	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
610-382-1174	TAT if different from Below 21			Walk-in Client:
610-491-9688	☐ 2 weeks			Lab Sampling:
Project Name: WE04	☐ 1 week			
Site: WE04	☐ 2 days			Job / SDG No.:
P O # 1132358 (through EarthToxics)	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	EPA 537 UCMR3	Sample Specific Notes:
WGNA-021518-RW-4015	2/15/2018	09:40	G	DW	2	N	N	Y	
* WGNA-021518-FRB-4015	2/15/2018	09:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-021518-RW-152	2/15/2018	10:10	G	DW	6	N	Y	Y	MS/MSD
NAWC-021518-FRB-152	2/15/2018	10:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021518-RW-3124	2/15/2018	11:10	G	DW	2	N	N	Y	
WGNA-021518-FRB-3124	2/15/2018	11:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021518-RW-4842	2/15/2018	11:40	G	DW	2	N	N	Y	
WGNA-021518-FRB-4842	2/15/2018	11:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-021518-RW-205	2/15/2018	12:40	G	DW	2	N	N	Y	
NAWC-021518-FRB-205	2/15/2018	12:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021518-RW-4817	2/15/2018	14:10	G	DW	2	N	N	Y	
WGNA-021518-FRB-4817	2/15/2018	14:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021518-RW-3882	2/15/2018	15:40	G	DW	2	N	N	Y	
WGNA-021518-FRB-3882	2/15/2018	15:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021518-DUP-27	2/15/2018	07:00	G	DW	2	N	N	Y	Duplicate
NAWC-021518-RW-229	2/15/2018	16:10	G	DW	2	N	N	Y	
NAWC-021518-FRB-229	2/15/2018	16:05	G	DW	2	N	N	Y	Field Reagent Blank
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: Trizma								6	

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_______ Months

Fed Ex Tracking: 7714 8819 2244

3.5°C 3.5°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: 4.9°C Corr'd: 4.9°C	Therm ID No.: A-2

Relinquished by: Mary Kay Bond	Company: Tetra Tech	Date/Time: 2/15/2018 18:00	Received by: Troy G. Turpen	Company: TA-SAC	Date/Time: 2/16/18 0830
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

320-36163 Chain of Custody

S:\WillowGrove PFOs Private Well\COCs TT\COC 2018.02.15.xls

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-36163-1

Login Number: 36163
List Number: 1
Creator: Turpen, Troy

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	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-021518-RW-4015","537","RES","320-36163-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","9.3","ng/L","J M","7.0","DL","","TRG","","","41","LOQ","YES","-99","","244.6","1.00","16",""
"WGNA-021518-RW-4015","537","RES","320-36163-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","12","ng/L","J M","2.9","DL","","TRG","","","20","LOQ","YES","-99","","244.6","1.00","8.2",""
"WGNA-021518-RW-4015","537","RES","320-36163-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","244.6","1.00","12",""
"WGNA-021518-RW-4015","537","RES","320-36163-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","244.6","1.00","37",""
"WGNA-021518-RW-4015","537","RES","320-36163-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","5.2","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","244.6","1.00","4.1",""
"WGNA-021518-RW-4015","537","RES","320-36163-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.2","DL","","TRG","","","25","LOQ","YES","-99","","244.6","1.00","20",""
"WGNA-021518-RW-4015","537","RES","320-36163-1","TALSAC","STL00993","13C2 PFHxA","33","ng/L","","-99","DL","","SURR","80","","-99","LOQ","YES","40.9","","244.6","1.00","0",""
"WGNA-021518-RW-4015","537","RES","320-36163-1","TALSAC","STL00996","13C2 PFDA","45","ng/L","","-99","DL","","SURR","111","","-99","LOQ","YES","40.9","","244.6","1.00","0",""
"NAWC-021518-FRB-205","537","RES","320-36163-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","U","6.5","DL","","TRG","","","38","LOQ","YES","-99","","260","1.00","15",""
"NAWC-021518-FRB-205","537","RES","320-36163-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","260","1.00","7.7",""
"NAWC-021518-FRB-205","537","RES","320-36163-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","260","1.00","12",""
"NAWC-021518-FRB-205","537","RES","320-36163-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35","ng/L","U","15","DL","","TRG","","","87","LOQ","YES","-99","","260","1.00","35",""
"NAWC-021518-FRB-205","537","RES","320-36163-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","3.8","ng/L","U","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","260","1.00","3.8",""
"NAWC-021518-FRB-205","537","RES","320-36163-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","260","1.00","19",""
"NAWC-021518-FRB-205","537","RES","320-36163-10","TALSAC","STL00993","13C2 PFHxA","34","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","38.5","","260","1.00","0",""
"NAWC-021518-FRB-205","537","RES","320-36163-10","TALSAC","STL00996","13C2 PFDA","43","ng/L","","-99","DL","","SURR","112","","-99","LOQ","YES","38.5","","260","1.00","0",""
"WGNA-021518-RW-4817","537","RES","320-36163-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U M","6.7","DL","","TRG","","","40","LOQ","YES","-99","","252.1","1.00","16",""
"WGNA-021518-RW-4817","537","RES","320-36163-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","6.6","ng/L","J M","2.8","DL","","TRG","","","20","LOQ","YES","-99","","252.1","1.00","7.9",""
"WGNA-021518-RW-4817","537","RES","320-36163-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U M","5.5","DL","","TRG","","","30","LOQ","YES","-99","","252.1","1.00","12",""
"WGNA-021518-RW-4817","537","RES","320-36163-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","252.1","1.00","36",""
"WGNA-021518-RW-4817","537","RES","320-36163-11","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","252.1","1.00","4.0",""
"WGNA-021518-RW-4817","537","RES","320-36163-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","252.1","1.00","20",""
"WGNA-021518-RW-4817","537","RES","320-36163-11","TALSAC","STL00993","13C2 PFHxA","35","ng/L","","-99","DL","","SURR","87","","-99","LOQ","YES","39.7","","252.1","1.00","0",""
"WGNA-021518-RW-4817","537","RES","320-36163-11","TALSAC","STL00996","13C2 PFDA","46","ng/L","","-99","DL","","SURR","117","","-99","LOQ","YES","39.7","","252.1","1.00","0",""
"WGNA-021518-FRB-4817","537","RES","320-36163-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.7","DL","","TRG","","","39","LOQ","YES","-99","","255.5","1.00","16",""
"WGNA-021518-FRB-4817","537","RES","320-36163-12","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.8","ng/L","U","2.7","DL","","TRG","","","20","LOQ","YES","-99","","255.5","1.00","7.8",""
"WGNA-021518-FRB-4817","537","RES","320-36163-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","255.5","1.00","12",""
"WGNA-021518-FRB-4817","537","RES","320-36163-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","255.5","1.00","35",""
"WGNA-021518-FRB-4817","537","RES","320-36163-12","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","255.5","1.00","3.9",""
"WGNA-021518-FRB-4817","537","RES","320-36163-12","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","255.5","1.00","20",""
"WGNA-021518-FRB-4817","537","RES","320-36163-12","TALSAC","STL00993","13C2
PFHxA","32","ng/L","","-99","DL","","SURR","82","","-99","LOQ","YES","39.1","","255.5","1.00","0",""
"WGNA-021518-FRB-4817","537","RES","320-36163-12","TALSAC","STL00996","13C2
PFDA","45","ng/L","","-99","DL","","SURR","114","","-99","LOQ","YES","39.1","","255.5","1.00","0",""
"WGNA-021518-RW-3882","537","RES","320-36163-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","33","ng/L","J M","6.7","DL","","TRG","","","39","LOQ","YES","-99","","254.9","1.00","16",""
"WGNA-021518-RW-3882","537","RES","320-36163-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","9.0","ng/L","J","2.7","DL","","TRG","","","20","LOQ","YES","-99","","254.9","1.00","7.8",""
"WGNA-021518-RW-3882","537","RES","320-36163-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","J","5.4","DL","","TRG","","","29","LOQ","YES","-99","","254.9","1.00","12",""
"WGNA-021518-RW-3882","537","RES","320-36163-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","254.9","1.00","35",""
"WGNA-021518-RW-3882","537","RES","320-36163-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.8","ng/L","J","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","254.9","1.00","3.9",""
"WGNA-021518-RW-3882","537","RES","320-36163-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.8","DL","","TRG","","","24","LOQ","YES","-99","","254.9","1.00","20",""
"WGNA-021518-RW-3882","537","RES","320-36163-13","TALSAC","STL00993","13C2
PFHxA","33","ng/L","","-99","DL","","SURR","85","","-99","LOQ","YES","39.2","","254.9","1.00","0",""
"WGNA-021518-RW-3882","537","RES","320-36163-13","TALSAC","STL00996","13C2
PFDA","44","ng/L","","-99","DL","","SURR","111","","-99","LOQ","YES","39.2","","254.9","1.00","0",""
"WGNA-021518-FRB-3882","537","RES","320-36163-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","249.8","1.00","16",""
"WGNA-021518-FRB-3882","537","RES","320-36163-14","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","249.8","1.00","8.0",""
"WGNA-021518-FRB-3882","537","RES","320-36163-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","249.8","1.00","12",""
"WGNA-021518-FRB-3882","537","RES","320-36163-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","249.8","1.00","36",""
"WGNA-021518-FRB-3882","537","RES","320-36163-14","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","249.8","1.00","4.0",""
"WGNA-021518-FRB-3882","537","RES","320-36163-14","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","249.8","1.00","20",""
"WGNA-021518-FRB-3882","537","RES","320-36163-14","TALSAC","STL00993","13C2
PFHxA","33","ng/L","","-99","DL","","SURR","82","","-99","LOQ","YES","40.0","","249.8","1.00","0",""
"WGNA-021518-FRB-3882","537","RES","320-36163-14","TALSAC","STL00996","13C2
PFDA","44","ng/L","","-99","DL","","SURR","111","","-99","LOQ","YES","40.0","","249.8","1.00","0",""
"WGNA-021518-DUP-27","537","RES","320-36163-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","31","ng/L","J M","6.6","DL","","TRG","","","39","LOQ","YES","-99","","259.2","1.00","15",""
"WGNA-021518-DUP-27","537","RES","320-36163-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","9.0","ng/L","J","2.7","DL","","TRG","","","19","LOQ","YES","-99","","259.2","1.00","7.7",""
"WGNA-021518-DUP-27","537","RES","320-36163-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","J","5.3","DL","","TRG","","","29","LOQ","YES","-99","","259.2","1.00","12",""
"WGNA-021518-DUP-27","537","RES","320-36163-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","259.2","1.00","35",""
"WGNA-021518-DUP-27","537","RES","320-36163-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.3","ng/L","J M","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","259.2","1.00","3.9",""
"WGNA-021518-DUP-27","537","RES","320-36163-15","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","259.2","1.00","19",""
"WGNA-021518-DUP-27","537","RES","320-36163-15","TALSAC","STL00993","13C2
PFHxA","31","ng/L","","-99","DL","","SURR","82","","-99","LOQ","YES","38.6","","259.2","1.00","0",""
"WGNA-021518-DUP-27","537","RES","320-36163-15","TALSAC","STL00996","13C2
PFDA","43","ng/L","","-99","DL","","SURR","112","","-99","LOQ","YES","38.6","","259.2","1.00","0",""
"NAWC-021518-RW-229","537","RES","320-36163-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","32","ng/L","J M","6.7","DL","","TRG","","","40","LOQ","YES","-99","","253","1.00","16",""
"NAWC-021518-RW-229","537","RES","320-36163-16","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","32","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","253","1.00","7.9",""
"NAWC-021518-RW-229","537","RES","320-36163-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","13","ng/L","J","5.4","DL","","TRG","","","30","LOQ","YES","-99","","253","1.00","12",""
"NAWC-021518-RW-229","537","RES","320-36163-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","253","1.00","36",""
"NAWC-021518-RW-229","537","RES","320-36163-16","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","12","ng/L","","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","253","1.00","4.0",""
"NAWC-021518-RW-229","537","RES","320-36163-16","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U M","7.9","DL","","TRG","","","24","LOQ","YES","-99","","253","1.00","20",""
"NAWC-021518-RW-229","537","RES","320-36163-16","TALSAC","STL00993","13C2
PFHxA","31","ng/L","","-99","DL","","SURR","78","","-99","LOQ","YES","39.5","","253","1.00","0",""
"NAWC-021518-RW-229","537","RES","320-36163-16","TALSAC","STL00996","13C2
PFDA","45","ng/L","","-99","DL","","SURR","114","","-99","LOQ","YES","39.5","","253","1.00","0",""
"NAWC-021518-FRB-229","537","RES","320-36163-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.7","DL","","TRG","","","39","LOQ","YES","-99","","254.3","1.00","16",""
"NAWC-021518-FRB-229","537","RES","320-36163-17","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","254.3","1.00","7.9",""
"NAWC-021518-FRB-229","537","RES","320-36163-17","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","254.3","1.00","12",""
"NAWC-021518-FRB-229","537","RES","320-36163-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","254.3","1.00","35",""
"NAWC-021518-FRB-229","537","RES","320-36163-17","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","254.3","1.00","3.9",""
"NAWC-021518-FRB-229","537","RES","320-36163-17","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","254.3","1.00","20",""
"NAWC-021518-FRB-229","537","RES","320-36163-17","TALSAC","STL00993","13C2
PFHxA","29","ng/L","","-99","DL","","SURR","75","","-99","LOQ","YES","39.3","","254.3","1.00","0",""
"NAWC-021518-FRB-229","537","RES","320-36163-17","TALSAC","STL00996","13C2
PFDA","43","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","39.3","","254.3","1.00","0",""
"WGNA-021518-FRB-4015","537","RES","320-36163-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","259.2","1.00","15",""
"WGNA-021518-FRB-4015","537","RES","320-36163-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","259.2","1.00","7.7",""
"WGNA-021518-FRB-4015","537","RES","320-36163-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","259.2","1.00","12",""
"WGNA-021518-FRB-4015","537","RES","320-36163-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","259.2","1.00","35",""
"WGNA-021518-FRB-4015","537","RES","320-36163-2","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","259.2","1.00","3.9",""
"WGNA-021518-FRB-4015","537","RES","320-36163-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","259.2","1.00","19",""
"WGNA-021518-FRB-4015","537","RES","320-36163-2","TALSAC","STL00993","13C2
PFHxA","37","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","38.6","","259.2","1.00","0",""
"WGNA-021518-FRB-4015","537","RES","320-36163-2","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","SURR","110","","-99","LOQ","YES","38.6","","259.2","1.00","0",""
"NAWC-021518-RW-152","537","RES","320-36163-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS)","11","ng/L","J M","6.7","DL","","TRG","","","39","LOQ","YES","-99","","253.3","1.00","16",""
"NAWC-021518-RW-152","537","RES","320-36163-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","13","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","253.3","1.00","7.9",""
"NAWC-021518-RW-152","537","RES","320-36163-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","30","LOQ","YES","-99","","253.3","1.00","12",""
"NAWC-021518-RW-152","537","RES","320-36163-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","253.3","1.00","36",""
"NAWC-021518-RW-152","537","RES","320-36163-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.6","ng/L","J","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","253.3","1.00","3.9",""
"NAWC-021518-RW-152","537","RES","320-36163-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","253.3","1.00","20",""
"NAWC-021518-RW-152","537","RES","320-36163-3","TALSAC","STL00993","13C2
PFHxA","32","ng/L","","-99","DL","","SURR","82","","-99","LOQ","YES","39.5","","253.3","1.00","0",""
"NAWC-021518-RW-152","537","RES","320-36163-3","TALSAC","STL00996","13C2
PFDA","44","ng/L","","-99","DL","","SURR","111","","-99","LOQ","YES","39.5","","253.3","1.00","0",""
"NAWC-021518-RW-152MS","537","RES","320-36163-3MS","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","250","ng/L","M","6.5","DL","","SPK","112","","38","LOQ","YES","213","NAWC-021518-RW-
152","262.5","1.00","15",""
"NAWC-021518-RW-152MS","537","RES","320-36163-3MS","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","119","ng/L","","2.7","DL","","SPK","99","","19","LOQ","YES","106","NAWC-021518-RW-
152","262.5","1.00","7.6",""
"NAWC-021518-RW-152MS","537","RES","320-36163-3MS","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","170","ng/L","","5.2","DL","","SPK","107","","29","LOQ","YES","159","NAWC-021518-RW-
152","262.5","1.00","11",""
"NAWC-021518-RW-152MS","537","RES","320-36163-3MS","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","420","ng/L","","15","DL","","SPK","88","","86","LOQ","YES","476","NAWC-021518-RW-
152","262.5","1.00","34",""
"NAWC-021518-RW-152MS","537","RES","320-36163-3MS","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","58.1","ng/L","","1.8","DL","","SPK","101","","9.5","LOQ","YES","52.9","NAWC-021518-RW-
152","262.5","1.00","3.8",""
"NAWC-021518-RW-152MS","537","RES","320-36163-3MS","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","119","ng/L","","7.6","DL","","SPK","112","","23","LOQ","YES","106","NAWC-021518-RW-
152","262.5","1.00","19",""
"NAWC-021518-RW-152MS","537","RES","320-36163-3MS","TALSAC","STL00993","13C2
PFHxA","31.3","ng/L","","-99","DL","","SURR","82","","-99","LOQ","YES","38.1","NAWC-021518-RW-
152","262.5","1.00","0",""
"NAWC-021518-RW-152MS","537","RES","320-36163-3MS","TALSAC","STL00996","13C2
PFDA","41.2","ng/L","","-99","DL","","SURR","108","","-99","LOQ","YES","38.1","NAWC-021518-RW-
152","262.5","1.00","0",""
"NAWC-021518-RW-152MSD","537","RES","320-36163-3MSD","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","266","ng/L","M","6.8","DL","","SPK","114","6","40","LOQ","YES","224","NAWC-021518-RW-
152","249","1.00","16",""
"NAWC-021518-RW-152MSD","537","RES","320-36163-3MSD","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","132","ng/L","","2.8","DL","","SPK","106","11","20","LOQ","YES","112","NAWC-021518-RW-
152","249","1.00","8.0",""
"NAWC-021518-RW-152MSD","537","RES","320-36163-3MSD","TALSAC","355-46-4","Perfluorohexanesulfonic
acid (PFHxS)","180","ng/L","","5.5","DL","","SPK","108","6","30","LOQ","YES","167","NAWC-021518-RW-
152","249","1.00","12",""
"NAWC-021518-RW-152MSD","537","RES","320-36163-3MSD","TALSAC","375-73-5","Perfluorobutanesulfonic
acid (PFBS)","377","ng/L","","16","DL","","SPK","75","11","90","LOQ","YES","502","NAWC-021518-RW-
152","249","1.00","36",""
"NAWC-021518-RW-152MSD","537","RES","320-36163-3MSD","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","63.4","ng/L","","1.9","DL","","SPK","105","9","10","LOQ","YES","55.8","NAWC-021518-RW-
152","249","1.00","4.0",""

"NAWC-021518-RW-152MSD","537","RES","320-36163-3MSD","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","135","ng/L","","8.0","DL","","SPK","121","13","24","LOQ","YES","112","NAWC-021518-RW-152","249","1.00","20",""
"NAWC-021518-RW-152MSD","537","RES","320-36163-3MSD","TALSAC","STL00993","13C2 PFHxA","32.6","ng/L","","-99","DL","","SURR","81","","-99","LOQ","YES","40.2","NAWC-021518-RW-152","249","1.00","0",""
"NAWC-021518-RW-152MSD","537","RES","320-36163-3MSD","TALSAC","STL00996","13C2 PFDA","46.9","ng/L","","-99","DL","","SURR","117","","-99","LOQ","YES","40.2","NAWC-021518-RW-152","249","1.00","0",""
"NAWC-021518-FRB-152","537","RES","320-36163-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","U","6.5","DL","","TRG","","","38","LOQ","YES","-99","","260.1","1.00","15",""
"NAWC-021518-FRB-152","537","RES","320-36163-4","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","260.1","1.00","7.7",""
"NAWC-021518-FRB-152","537","RES","320-36163-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","260.1","1.00","12",""
"NAWC-021518-FRB-152","537","RES","320-36163-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35","ng/L","U","15","DL","","TRG","","","87","LOQ","YES","-99","","260.1","1.00","35",""
"NAWC-021518-FRB-152","537","RES","320-36163-4","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","3.8","ng/L","U","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","260.1","1.00","3.8",""
"NAWC-021518-FRB-152","537","RES","320-36163-4","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","260.1","1.00","19",""
"NAWC-021518-FRB-152","537","RES","320-36163-4","TALSAC","STL00993","13C2 PFHxA","34","ng/L","","-99","DL","","SURR","89","","-99","LOQ","YES","38.4","","260.1","1.00","0",""
"NAWC-021518-FRB-152","537","RES","320-36163-4","TALSAC","STL00996","13C2 PFDA","38","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","38.4","","260.1","1.00","0",""
"WGNA-021518-RW-3124","537","RES","320-36163-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","J M","6.6","DL","","TRG","","","39","LOQ","YES","-99","","259.5","1.00","15",""
"WGNA-021518-RW-3124","537","RES","320-36163-5","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","13","ng/L","J","2.7","DL","","TRG","","","19","LOQ","YES","-99","","259.5","1.00","7.7",""
"WGNA-021518-RW-3124","537","RES","320-36163-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","7.4","ng/L","J","5.3","DL","","TRG","","","29","LOQ","YES","-99","","259.5","1.00","12",""
"WGNA-021518-RW-3124","537","RES","320-36163-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","259.5","1.00","35",""
"WGNA-021518-RW-3124","537","RES","320-36163-5","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.3","ng/L","J","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","259.5","1.00","3.9",""
"WGNA-021518-RW-3124","537","RES","320-36163-5","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","259.5","1.00","19",""
"WGNA-021518-RW-3124","537","RES","320-36163-5","TALSAC","STL00993","13C2 PFHxA","28","ng/L","","-99","DL","","SURR","74","","-99","LOQ","YES","38.5","","259.5","1.00","0",""
"WGNA-021518-RW-3124","537","RES","320-36163-5","TALSAC","STL00996","13C2 PFDA","40","ng/L","","-99","DL","","SURR","105","","-99","LOQ","YES","38.5","","259.5","1.00","0",""
"WGNA-021518-FRB-3124","537","RES","320-36163-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","U","6.5","DL","","TRG","","","38","LOQ","YES","-99","","260.2","1.00","15",""
"WGNA-021518-FRB-3124","537","RES","320-36163-6","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","260.2","1.00","7.7",""
"WGNA-021518-FRB-3124","537","RES","320-36163-6","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","260.2","1.00","12",""
"WGNA-021518-FRB-3124","537","RES","320-36163-6","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35","ng/L","U","15","DL","","TRG","","","86","LOQ","YES","-99","","260.2","1.00","35",""
"WGNA-021518-FRB-3124","537","RES","320-36163-6","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","3.8","ng/L","U","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","260.2","1.00","3.8",""
"WGNA-021518-FRB-3124","537","RES","320-36163-6","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","260.2","1.00","19",""
"WGNA-021518-FRB-3124","537","RES","320-36163-6","TALSAC","STL00993","13C2

PFHxA","34","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","38.4","","260.2","1.00","0",""
"WGNA-021518-FRB-3124","537","RES","320-36163-6","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","38.4","","260.2","1.00","0",""
"WGNA-021518-RW-4842","537","RES","320-36163-7","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","13","ng/L","J M","6.7","DL","","TRG","","","40","LOQ","YES","-99","","252.4","1.00","16",""
"WGNA-021518-RW-4842","537","RES","320-36163-7","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","15","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","252.4","1.00","7.9",""
"WGNA-021518-RW-4842","537","RES","320-36163-7","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","6.3","ng/L","J","5.4","DL","","TRG","","","30","LOQ","YES","-99","","252.4","1.00","12",""
"WGNA-021518-RW-4842","537","RES","320-36163-7","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","252.4","1.00","36",""
"WGNA-021518-RW-4842","537","RES","320-36163-7","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.9","ng/L","J","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","252.4","1.00","4.0",""
"WGNA-021518-RW-4842","537","RES","320-36163-7","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","252.4","1.00","20",""
"WGNA-021518-RW-4842","537","RES","320-36163-7","TALSAC","STL00993","13C2
PFHxA","33","ng/L","","-99","DL","","SURR","83","","-99","LOQ","YES","39.6","","252.4","1.00","0",""
"WGNA-021518-RW-4842","537","RES","320-36163-7","TALSAC","STL00996","13C2
PFDA","48","ng/L","","-99","DL","","SURR","121","","-99","LOQ","YES","39.6","","252.4","1.00","0",""
"WGNA-021518-FRB-4842","537","RES","320-36163-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.7","DL","","TRG","","","39","LOQ","YES","-99","","254.8","1.00","16",""
"WGNA-021518-FRB-4842","537","RES","320-36163-8","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.8","ng/L","U","2.7","DL","","TRG","","","20","LOQ","YES","-99","","254.8","1.00","7.8",""
"WGNA-021518-FRB-4842","537","RES","320-36163-8","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","254.8","1.00","12",""
"WGNA-021518-FRB-4842","537","RES","320-36163-8","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","254.8","1.00","35",""
"WGNA-021518-FRB-4842","537","RES","320-36163-8","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","254.8","1.00","3.9",""
"WGNA-021518-FRB-4842","537","RES","320-36163-8","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.8","DL","","TRG","","","24","LOQ","YES","-99","","254.8","1.00","20",""
"WGNA-021518-FRB-4842","537","RES","320-36163-8","TALSAC","STL00993","13C2
PFHxA","27","ng/L","","-99","DL","","SURR","70","","-99","LOQ","YES","39.2","","254.8","1.00","0",""
"WGNA-021518-FRB-4842","537","RES","320-36163-8","TALSAC","STL00996","13C2
PFDA","44","ng/L","","-99","DL","","SURR","113","","-99","LOQ","YES","39.2","","254.8","1.00","0",""
"NAWC-021518-RW-205","537","RES","320-36163-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","10","ng/L","J M","6.6","DL","","TRG","","","39","LOQ","YES","-99","","259.3","1.00","15",""
"NAWC-021518-RW-205","537","RES","320-36163-9","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","11","ng/L","J","2.7","DL","","TRG","","","19","LOQ","YES","-99","","259.3","1.00","7.7",""
"NAWC-021518-RW-205","537","RES","320-36163-9","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","259.3","1.00","12",""
"NAWC-021518-RW-205","537","RES","320-36163-9","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","259.3","1.00","35",""
"NAWC-021518-RW-205","537","RES","320-36163-9","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.8","ng/L","J M","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","259.3","1.00","3.9",""
"NAWC-021518-RW-205","537","RES","320-36163-9","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","259.3","1.00","19",""
"NAWC-021518-RW-205","537","RES","320-36163-9","TALSAC","STL00993","13C2
PFHxA","28","ng/L","","-99","DL","","SURR","73","","-99","LOQ","YES","38.6","","259.3","1.00","0",""
"NAWC-021518-RW-205","537","RES","320-36163-9","TALSAC","STL00996","13C2
PFDA","46","ng/L","","-99","DL","","SURR","120","","-99","LOQ","YES","38.6","","259.3","1.00","0",""
"LCS 320-210419/2-A","537","RES","LCS 320-210419/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","236","ng/L","M","6.8","DL","","SPK","106","","40","LOQ","YES","223","","250","1.00","16",""
"LCS 320-210419/2-A","537","RES","LCS 320-210419/2-A","TALSAC","335-67-1","Perfluorooctanoic acid

(PFOA)","113","ng/L","","2.8","DL","","SPK","101","","20","LOQ","YES","112","","250","1.00","8.0",""
"LCS 320-210419/2-A","537","RES","LCS 320-210419/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","173","ng/L","","5.5","DL","","SPK","104","","30","LOQ","YES","167","","250","1.00","12",""
"LCS 320-210419/2-A","537","RES","LCS 320-210419/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","477","ng/L","","16","DL","","SPK","95","","90","LOQ","YES","500","","250","1.00","36",""
"LCS 320-210419/2-A","537","RES","LCS 320-210419/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","59.8","ng/L","","1.9","DL","","SPK","108","","10","LOQ","YES","55.6","","250","1.00","4.0",""
"LCS 320-210419/2-A","537","RES","LCS 320-210419/2-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","127","ng/L","","8.0","DL","","SPK","114","","24","LOQ","YES","111","","250","1.00","20",""
"LCS 320-210419/2-A","537","RES","LCS 320-210419/2-A","TALSAC","STL00993","13C2
PFHxA","36.7","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LCS 320-210419/2-A","537","RES","LCS 320-210419/2-A","TALSAC","STL00996","13C2
PFDA","42.3","ng/L","","-99","DL","","SURR","106","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-210419/1-A","537","RES","MB 320-210419/1-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 320-210419/1-A","537","RES","MB 320-210419/1-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 320-210419/1-A","537","RES","MB 320-210419/1-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 320-210419/1-A","537","RES","MB 320-210419/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"MB 320-210419/1-A","537","RES","MB 320-210419/1-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 320-210419/1-A","537","RES","MB 320-210419/1-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 320-210419/1-A","537","RES","MB 320-210419/1-A","TALSAC","STL00993","13C2
PFHxA","34.0","ng/L","","-99","DL","","SURR","85","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-210419/1-A","537","RES","MB 320-210419/1-A","TALSAC","STL00996","13C2
PFDA","40.7","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","40.0","","250","1.00","0",""
"Unknown","Unknown","WGNA-021518-RW-4015","02/15/2018 09:40","AQ","320-36163-
1","NM","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
01:23","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211343","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","NAWC-021518-FRB-205","02/15/2018 12:35","AQ","320-36163-
10","FB","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
21:35","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211575","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","WGNA-021518-RW-4817","02/15/2018 14:10","AQ","320-36163-
11","NM","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
21:39","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211575","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","WGNA-021518-FRB-4817","02/15/2018 14:05","AQ","320-36163-
12","FB","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
21:44","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211575","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","WGNA-021518-RW-3882","02/15/2018 15:40","AQ","320-36163-
13","NM","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
21:49","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211575","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","WGNA-021518-FRB-3882","02/15/2018 15:35","AQ","320-36163-
14","FB","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
21:53","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211575","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","WGNA-021518-DUP-27","02/15/2018 07:00","AQ","320-36163-

15","FD","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
21:58","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211575","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","NAWC-021518-RW-229","02/15/2018 16:10","AQ","320-36163-
16","NM","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
22:03","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211575","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","NAWC-021518-FRB-229","02/15/2018 16:05","AQ","320-36163-
17","FB","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
22:17","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211577","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","WGNA-021518-FRB-4015","02/15/2018 09:35","AQ","320-36163-
2","FB","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
01:28","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211343","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","NAWC-021518-RW-152","02/15/2018 10:10","AQ","320-36163-
3","NM","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
01:33","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211343","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","NAWC-021518-RW-152MS","02/15/2018 10:10","AQ","320-36163-
3MS","MS","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
01:37","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211343","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","NAWC-021518-RW-152MSD","02/15/2018 10:10","AQ","320-36163-
3MSD","MSD","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
01:42","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211343","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
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4","FB","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
01:47","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211343","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","WGNA-021518-RW-3124","02/15/2018 11:10","AQ","320-36163-
5","NM","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
01:51","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211343","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","WGNA-021518-FRB-3124","02/15/2018 11:05","AQ","320-36163-
6","FB","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
01:56","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211343","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","WGNA-021518-RW-4842","02/15/2018 11:40","AQ","320-36163-
7","NM","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
21:21","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211575","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","WGNA-021518-FRB-4842","02/15/2018 11:35","AQ","320-36163-
8","FB","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
21:25","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211575","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","NAWC-021518-RW-205","02/15/2018 12:40","AQ","320-36163-
9","NM","","4.9","537","METHOD","RES","02/28/2018 07:35","03/06/2018
21:30","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211575","320-36163-1","02/16/2018 08:30","02/19/2018 10:00",""
"Unknown","Unknown","LCS 320-210419/2-A","","AQ","LCS 320-210419/2-
A","LCS","","-99","537","METHOD","RES","02/28/2018 07:35","03/06/2018
01:19","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-

211343","320-36163-1","02/28/2018 07:35","02/19/2018 10:00",""
"Unknown","Unknown","MB 320-210419/1-A","","AQ","MB 320-210419/1-
A","MB","","-99","537","METHOD","RES","02/28/2018 07:35","03/06/2018
01:14","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210419","320-210419","NA","320-
211343","320-36163-1","02/28/2018 07:35","02/19/2018 10:00",""

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **A. FREBOWITZ** **DATE:** **MARCH 16, 2018**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)**
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG) 320-36163-1

SAMPLES: 8/Field Reagent Blank (FRB)

NAWC-021518-FRB-152	NAWC-021518-FRB-205
NAWC-021518-FRB-229	WGNA-021518-FRB-3124
WGNA-021518-FRB-3882	WGNA-021518-FRB-4015
WGNA-021518-FRB-4817	WGNA-021518-FRB-4842

9/Drinking Water

NAWC-021518-RW-152	NAWC-021518-RW-205
NAWC-021518-RW-229	WGNA-021518-DUP-27
WGNA-021518-RW-3124	WGNA-021518-RW-3882
WGNA-021518-RW-4015	WGNA-021518-RW-4817
WGNA-021518-RW-4842	

Overview

The sample set for NAS JRB Willow Grove, SDG 320-36163-1, consisted of nine (9) drinking water samples and eight (8) FRB samples. All samples were analyzed for select perfluorinated alkyl acids including pentadecafluorooctanoic acid (PFOA), perfluorobutane sulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA) and perfluorooctane sulfonic acid (PFOS). One (1) field duplicate sample pair, WGNA-021518-RW-3882 / WGNA-021518-DUP-27, was included in this SDG.

The samples were collected by Tetra Tech on February 15, 2018 and analyzed by Test America-Sacramento. All sample analyses were conducted in accordance with EPA Method 537 version 1.1 analytical and reporting protocols.

The data contained in this SDG was validated with regard to the following parameters: data completeness, holding times, tune check, initial/continuing calibrations, ion transitions, laboratory method/FRBs, surrogate spike recoveries, laboratory control sample results, matrix spike / matrix spike duplicate results, extracted 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 one of the two bottles was listed as NAWC-021518-FRB-4015 while the chain of custody lists the sample as WGNA-021518-FRB-4015. The laboratory reported the sample ID from the chain of custody.

Samples with detections and their associated FRBs are summarized below. No detected results were present in the FRBs.

Sample	Associated FRB
NAWC-021518-RW-152	NAWC-021518-FRB-152
NAWC-021518-RW-205	NAWC-021518-FRB-205
NAWC-021518-RW-229	NAWC-021518-FRB-229
WGNA-021518-DUP-27	WGNA-021518-FRB-3882
WGNA-021518-RW-3124	WGNA-021518-FRB-3124
WGNA-021518-RW-3882	WGNA-021518-FRB-3882
WGNA-021518-RW-4015	WGNA-021518-FRB-4015
WGNA-021518-RW-4817	WGNA-021518-FRB-4817
WGNA-021518-RW-4842	WGNA-021518-FRB-4842

Non-detected results were reported to the Limit of Detection (LOD).

The buffering agent Trizma was added to all drinking water samples.

Executive Summary

Laboratory Performance: 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), US EPA National Functional Guidelines for Organic Data Review (January 2017), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (July 2013) as applicable. The text of this report has been formulated to address only those areas affecting data quality.

Tetra Tech, Inc.
Terri L. Solomon
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Data Qualifier Definitions

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

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted method detection limit for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate
Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-021518-FRB-152			NAWC-021518-FRB-205			NAWC-021518-FRB-229			NAWC-021518-RW-152		
SDG: 320-36163-1	LAB_ID	320-36163-4			320-36163-10			320-36163-17			320-36163-3		
FRACTION: PFAS	SAMP_DATE	2/15/2018			2/15/2018			2/15/2018			2/15/2018		
MEDIA: WATER	QC_TYPE	FB			FB			FB			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		7.7	U		7.7	U		7.9	U		13	J	P
PERFLUOROBUTANESULFONIC ACID		35	U		35	U		35	U		36	U	
PERFLUOROHEPTANOIC ACID		3.8	U		3.8	U		3.9	U		4.6	J	P
PERFLUOROHEXANESULFONIC ACID		12	U		12	U		12	U		12	U	
PERFLUORONONANOIC ACID		19	U		19	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		15	U		15	U		16	U		11	J	P

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-021518-RW-205			NAWC-021518-RW-229			WGNA-021518-DUP-27			WGNA-021518-FRB-3124		
SDG: 320-36163-1	LAB_ID	320-36163-9			320-36163-16			320-36163-15			320-36163-6		
FRACTION: PFAS	SAMP_DATE	2/15/2018			2/15/2018			2/15/2018			2/15/2018		
MEDIA: WATER	QC_TYPE	NM			NM			FD			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF							WGNA-021518-RW-3882					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		11	J	P	32			9	J	P	7.7	U	
PERFLUOROBUTANESULFONIC ACID		35	U		36	U		35	U		35	U	
PERFLUOROHEPTANOIC ACID		3.8	J	P	12			4.3	J	P	3.8	U	
PERFLUOROHEXANESULFONIC ACID		12	U		13	J	P	11	J	P	12	U	
PERFLUORONONANOIC ACID		19	U		20	U		19	U		19	U	
PERFLUOROOCTANE SULFONIC ACID		10	J	P	32	J	P	31	J	P	15	U	

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-021518-FRB-3882			WGNA-021518-FRB-4015			WGNA-021518-FRB-4817			WGNA-021518-FRB-4842		
SDG: 320-36163-1	LAB_ID	320-36163-14			320-36163-2			320-36163-12			320-36163-8		
FRACTION: PFAS	SAMP_DATE	2/15/2018			2/15/2018			2/15/2018			2/15/2018		
MEDIA: WATER	QC_TYPE	FB			FB			FB			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		8	U		7.7	U		7.8	U		7.8	U	
PERFLUOROBUTANESULFONIC ACID		36	U		35	U		35	U		35	U	
PERFLUOROHEPTANOIC ACID		4	U		3.9	U		3.9	U		3.9	U	
PERFLUOROHEXANESULFONIC ACID		12	U		12	U		12	U		12	U	
PERFLUORONONANOIC ACID		20	U		19	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		15	U		16	U		16	U	

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-021518-RW-3124			WGNA-021518-RW-3882			WGNA-021518-RW-4015			WGNA-021518-RW-4817		
SDG: 320-36163-1	LAB_ID	320-36163-5			320-36163-13			320-36163-1			320-36163-11		
FRACTION: PFAS	SAMP_DATE	2/15/2018			2/15/2018			2/15/2018			2/15/2018		
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		13	J	P	9	J	P	12	J	P	6.6	J	P
PERFLUOROBUTANESULFONIC ACID		35	U		35	U		37	U		36	U	
PERFLUOROHEPTANOIC ACID		4.3	J	P	4.8	J	P	5.2	J	P	4	U	
PERFLUOROHEXANESULFONIC ACID		7.4	J	P	11	J	P	12	U		12	U	
PERFLUORONONANOIC ACID		19	U		20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		15	J	P	33	J	P	9.3	J	P	16	U	

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-021518-RW-4842		
SDG: 320-36163-1	LAB_ID	320-36163-7		
FRACTION: PFAS	SAMP_DATE	2/15/2018		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		15	J	P
PERFLUOROBUTANESULFONIC ACID		36	U	
PERFLUOROHEPTANOIC ACID		4.9	J	P
PERFLUOROHEXANESULFONIC ACID		6.3	J	P
PERFLUORONONANOIC ACID		20	U	
PERFLUOROOCTANE SULFONIC ACID		13	J	P

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-4015 | Lab Sample ID: 320-36163-1

Matrix: Water | Lab File ID: 2018.03.05_537B_008.d

Analysis Method: 537 | Date Collected: 02/15/2018 09:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 244.6(mL) | Date Analyzed: 03/06/2018 01:23

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.3	J ~~M~~	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	12	J ~~M~~	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	25	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.2	J	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	80		70-130
STL00996	13C2 PFDA	111		70-130

03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-4015 | Lab Sample ID: 320-36163-2

Matrix: Water | Lab File ID: 2018.03.05_537B_009.d

Analysis Method: 537 | Date Collected: 02/15/2018 09:35

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.2(mL) | Date Analyzed: 03/06/2018 01:28

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	110		70-130

03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-RW-152 | Lab Sample ID: 320-36163-3

Matrix: Water | Lab File ID: 2018.03.05_537B_010.d

Analysis Method: 537 | Date Collected: 02/15/2018 10:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 253.3(mL) | Date Analyzed: 03/06/2018 01:33

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J ~~M~~	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	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)	4.6	J	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	82		70-130
STL00996	13C2 PFDA	111		70-130

Dawn L Salemen
03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-FRB-152 | Lab Sample ID: 320-36163-4

Matrix: Water | Lab File ID: 2018.03.05_537B_013.d

Analysis Method: 537 | Date Collected: 02/15/2018 10:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 260.1(mL) | Date Analyzed: 03/06/2018 01:47

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	100		70-130


03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-3124 | Lab Sample ID: 320-36163-5

Matrix: Water | Lab File ID: 2018.03.05_537B_014.d

Analysis Method: 537 | Date Collected: 02/15/2018 11:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.5(mL) | Date Analyzed: 03/06/2018 01:51

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J ~~M~~	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.4	J	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J	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	74		70-130
STL00996	13C2 PFDA	105		70-130

Toni L Salomon
03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-3124 | Lab Sample ID: 320-36163-6

Matrix: Water | Lab File ID: 2018.03.05_537B_015.d

Analysis Method: 537 | Date Collected: 02/15/2018 11:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 260.2(mL) | Date Analyzed: 03/06/2018 01:56

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	86	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	109		70-130

Dawn L Salerno
03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-4842 | Lab Sample ID: 320-36163-7

Matrix: Water | Lab File ID: 2018.03.06_537AA_051.d

Analysis Method: 537 | Date Collected: 02/15/2018 11:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 252.4(mL) | Date Analyzed: 03/06/2018 21:21

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	13	J ~~M~~	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	15	J	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.9	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	83		70-130
STL00996	13C2 PFDA	121		70-130

Dawn L Salerno
03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-4842 | Lab Sample ID: 320-36163-8

Matrix: Water | Lab File ID: 2018.03.06_537AA_052.d

Analysis Method: 537 | Date Collected: 02/15/2018 11:35

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 254.8(mL) | Date Analyzed: 03/06/2018 21:25

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.: 211575 | 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)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	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	70		70-130
STL00996	13C2 PFDA	113		70-130

Dawn L Salerno
03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-RW-205 | Lab Sample ID: 320-36163-9

Matrix: Water | Lab File ID: 2018.03.06_537AA_053.d

Analysis Method: 537 | Date Collected: 02/15/2018 12:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.3(mL) | Date Analyzed: 03/06/2018 21:30

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	10	J ~~M~~	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	11	J	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)	3.8	J ~~M~~	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	73		70-130
STL00996	13C2 PFDA	120		70-130

Toni L Salomon
03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-FRB-205 | Lab Sample ID: 320-36163-10

Matrix: Water | Lab File ID: 2018.03.06_537AA_054.d

Analysis Method: 537 | Date Collected: 02/15/2018 12:35

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 260(mL) | Date Analyzed: 03/06/2018 21:35

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	112		70-130


03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-4817 | Lab Sample ID: 320-36163-11

Matrix: Water | Lab File ID: 2018.03.06_537AA_055.d

Analysis Method: 537 | Date Collected: 02/15/2018 14:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 252.1(mL) | Date Analyzed: 03/06/2018 21:39

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.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U ~~M~~	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	6.6	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 ~~M~~	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	117		70-130

03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-4817 | Lab Sample ID: 320-36163-12

Matrix: Water | Lab File ID: 2018.03.06_537AA_056.d

Analysis Method: 537 | Date Collected: 02/15/2018 14:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 255.5(mL) | Date Analyzed: 03/06/2018 21:44

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.: 211575 | 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)	7.8	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	82		70-130
STL00996	13C2 PFDA	114		70-130

Toni L Salomon
03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-3882 | Lab Sample ID: 320-36163-13

Matrix: Water | Lab File ID: 2018.03.06_537AA_057.d

Analysis Method: 537 | Date Collected: 02/15/2018 15:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 254.9(mL) | Date Analyzed: 03/06/2018 21:49

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	33	J ~~M~~	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	9.0	J	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.8	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	85		70-130
STL00996	13C2 PFDA	111		70-130

Toni L Salomon
03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-3882 | Lab Sample ID: 320-36163-14

Matrix: Water | Lab File ID: 2018.03.06_537AA_058.d

Analysis Method: 537 | Date Collected: 02/15/2018 15:35

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 249.8(mL) | Date Analyzed: 03/06/2018 21:53

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.: 211575 | 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	82		70-130
STL00996	13C2 PFDA	111		70-130

Toni L Salomon
03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-DUP-27 | Lab Sample ID: 320-36163-15

Matrix: Water | Lab File ID: 2018.03.06_537AA_059.d

Analysis Method: 537 | Date Collected: 02/15/2018 07:00

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.2(mL) | Date Analyzed: 03/06/2018 21:58

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.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J ~~M~~	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	9.0	J	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J ~~M~~	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	82		70-130
STL00996	13C2 PFDA	112		70-130

Toni L Salemon
03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-RW-229 | Lab Sample ID: 320-36163-16

Matrix: Water | Lab File ID: 2018.03.06_537AA_060.d

Analysis Method: 537 | Date Collected: 02/15/2018 16:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 253(mL) | Date Analyzed: 03/06/2018 22:03

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.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J ~~M~~	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	32		20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U ~~M~~	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	13	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	12		9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	78		70-130
STL00996	13C2 PFDA	114		70-130

Dani L Salemon
03/16/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-FRB-229 | Lab Sample ID: 320-36163-17

Matrix: Water | Lab File ID: 2018.03.06_537AA_063.d

Analysis Method: 537 | Date Collected: 02/15/2018 16:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 254.3(mL) | Date Analyzed: 03/06/2018 22:17

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.: 211577 | 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	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	75		70-130
STL00996	13C2 PFDA	109		70-130

03/16/2018

Appendix B

Results as Reported by the Laboratory

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-4015 | Lab Sample ID: 320-36163-1

Matrix: Water | Lab File ID: 2018.03.05_537B_008.d

Analysis Method: 537 | Date Collected: 02/15/2018 09:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 244.6(mL) | Date Analyzed: 03/06/2018 01:23

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.3	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	12	J M	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	25	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.2	J	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	80		70-130
STL00996	13C2 PFDA	111		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-4015 | Lab Sample ID: 320-36163-2

Matrix: Water | Lab File ID: 2018.03.05_537B_009.d

Analysis Method: 537 | Date Collected: 02/15/2018 09:35

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.2(mL) | Date Analyzed: 03/06/2018 01:28

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	110		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-RW-152 | Lab Sample ID: 320-36163-3

Matrix: Water | Lab File ID: 2018.03.05_537B_010.d

Analysis Method: 537 | Date Collected: 02/15/2018 10:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 253.3(mL) | Date Analyzed: 03/06/2018 01:33

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	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)	4.6	J	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	82		70-130
STL00996	13C2 PFDA	111		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-FRB-152 | Lab Sample ID: 320-36163-4

Matrix: Water | Lab File ID: 2018.03.05_537B_013.d

Analysis Method: 537 | Date Collected: 02/15/2018 10:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 260.1(mL) | Date Analyzed: 03/06/2018 01:47

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	100		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-3124 | Lab Sample ID: 320-36163-5

Matrix: Water | Lab File ID: 2018.03.05_537B_014.d

Analysis Method: 537 | Date Collected: 02/15/2018 11:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.5(mL) | Date Analyzed: 03/06/2018 01:51

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J M	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.4	J	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J	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	74		70-130
STL00996	13C2 PFDA	105		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-3124 | Lab Sample ID: 320-36163-6

Matrix: Water | Lab File ID: 2018.03.05_537B_015.d

Analysis Method: 537 | Date Collected: 02/15/2018 11:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 260.2(mL) | Date Analyzed: 03/06/2018 01:56

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.: 211343 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	86	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	109		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-4842 | Lab Sample ID: 320-36163-7

Matrix: Water | Lab File ID: 2018.03.06_537AA_051.d

Analysis Method: 537 | Date Collected: 02/15/2018 11:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 252.4(mL) | Date Analyzed: 03/06/2018 21:21

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	13	J M	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	15	J	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.9	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	83		70-130
STL00996	13C2 PFDA	121		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-4842 Lab Sample ID: 320-36163-8

Matrix: Water Lab File ID: 2018.03.06_537AA_052.d

Analysis Method: 537 Date Collected: 02/15/2018 11:35

Extraction Method: 537 Date Extracted: 02/28/2018 07:35

Sample wt/vol: 254.8(mL) Date Analyzed: 03/06/2018 21:25

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.: 211575 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)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	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	70		70-130
STL00996	13C2 PFDA	113		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-RW-205 | Lab Sample ID: 320-36163-9

Matrix: Water | Lab File ID: 2018.03.06_537AA_053.d

Analysis Method: 537 | Date Collected: 02/15/2018 12:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.3(mL) | Date Analyzed: 03/06/2018 21:30

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	10	J M	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	11	J	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)	3.8	J M	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	73		70-130
STL00996	13C2 PFDA	120		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-FRB-205 | Lab Sample ID: 320-36163-10

Matrix: Water | Lab File ID: 2018.03.06_537AA_054.d

Analysis Method: 537 | Date Collected: 02/15/2018 12:35

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 260(mL) | Date Analyzed: 03/06/2018 21:35

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	112		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-4817 | Lab Sample ID: 320-36163-11

Matrix: Water | Lab File ID: 2018.03.06_537AA_055.d

Analysis Method: 537 | Date Collected: 02/15/2018 14:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 252.1(mL) | Date Analyzed: 03/06/2018 21:39

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.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	6.6	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 M	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	117		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-4817 | Lab Sample ID: 320-36163-12

Matrix: Water | Lab File ID: 2018.03.06_537AA_056.d

Analysis Method: 537 | Date Collected: 02/15/2018 14:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 255.5(mL) | Date Analyzed: 03/06/2018 21:44

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.: 211575 | 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)	7.8	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	82		70-130
STL00996	13C2 PFDA	114		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-RW-3882 | Lab Sample ID: 320-36163-13

Matrix: Water | Lab File ID: 2018.03.06_537AA_057.d

Analysis Method: 537 | Date Collected: 02/15/2018 15:40

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 254.9(mL) | Date Analyzed: 03/06/2018 21:49

Con. Extract Vol.: 1.00(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	33	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	9.0	J	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.8	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	85		70-130
STL00996	13C2 PFDA	111		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-FRB-3882 | Lab Sample ID: 320-36163-14

Matrix: Water | Lab File ID: 2018.03.06_537AA_058.d

Analysis Method: 537 | Date Collected: 02/15/2018 15:35

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 249.8(mL) | Date Analyzed: 03/06/2018 21:53

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.: 211575 | 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	82		70-130
STL00996	13C2 PFDA	111		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: WGNA-021518-DUP-27 | Lab Sample ID: 320-36163-15

Matrix: Water | Lab File ID: 2018.03.06_537AA_059.d

Analysis Method: 537 | Date Collected: 02/15/2018 07:00

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 259.2(mL) | Date Analyzed: 03/06/2018 21:58

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.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J M	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	9.0	J	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J M	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	82		70-130
STL00996	13C2 PFDA	112		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-RW-229 | Lab Sample ID: 320-36163-16

Matrix: Water | Lab File ID: 2018.03.06_537AA_060.d

Analysis Method: 537 | Date Collected: 02/15/2018 16:10

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 253(mL) | Date Analyzed: 03/06/2018 22:03

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.: 211575 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J M	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	32		20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	13	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	12		9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	78		70-130
STL00996	13C2 PFDA	114		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: NAWC-021518-FRB-229 | Lab Sample ID: 320-36163-17

Matrix: Water | Lab File ID: 2018.03.06_537AA_063.d

Analysis Method: 537 | Date Collected: 02/15/2018 16:05

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 254.3(mL) | Date Analyzed: 03/06/2018 22:17

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.: 211577 | 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	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	75		70-130
STL00996	13C2 PFDA	109		70-130

Appendix C

Support Documentation

NAWC-021518-FRB-4015
Label
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TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☑ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Andy Frebowitz	Site Contact: Mary Kay Bond	Date: 2/15/2018	COC No:
TetraTech	Tel/Fax: 610.382.1170	Lab Contact: Dave Alltucker	Carrier: FedEx	1 of 1 COCs
234 Mall Boulevard Suite 260	Analysis Turnaround Time			Sampler: Mary Kay Bond
King of Prussia, PA 19406	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
610-382-1174	TAT if different from Below 21			Walk-in Client:
610-491-9688	☐ 2 weeks			Lab Sampling:
Project Name: WE04	☐ 1 week			
Site: WE04	☐ 2 days			Job / SDG No.:
P O # 1132358 (through EarthToxics)	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	EPA 537 UCMR3	Sample Specific Notes:
WGNA-021518-RW-4015	2/15/2018	09:40	G	DW	2	N	N	Y	
WGNA-021518-FRB-4015	2/15/2018	09:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-021518-RW-152	2/15/2018	10:10	G	DW	6	N	Y	Y	MS/MSD
NAWC-021518-FRB-152	2/15/2018	10:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021518-RW-3124	2/15/2018	11:10	G	DW	2	N	N	Y	
WGNA-021518-FRB-3124	2/15/2018	11:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021518-RW-4842	2/15/2018	11:40	G	DW	2	N	N	Y	
WGNA-021518-FRB-4842	2/15/2018	11:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-021518-RW-205	2/15/2018	12:40	G	DW	2	N	N	Y	
NAWC-021518-FRB-205	2/15/2018	12:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021518-RW-4817	2/15/2018	14:10	G	DW	2	N	N	Y	
WGNA-021518-FRB-4817	2/15/2018	14:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021518-RW-3882	2/15/2018	15:40	G	DW	2	N	N	Y	
WGNA-021518-FRB-3882	2/15/2018	15:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021518-DUP-27	2/15/2018	07:00	G	DW	2	N	N	Y	Duplicate
NAWC-021518-RW-229	2/15/2018	16:10	G	DW	2	N	N	Y	
NAWC-021518-FRB-229	2/15/2018	16:05	G	DW	2	N	N	Y	Field Reagent Blank
							6		

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: Trizma

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for_____ Months

Fed Ex Tracking: 7714 8819 2244

2.5°C 3.5°C

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 4.9°C Corr'd: 4.9°C | Therm ID No.: AIR-2 #2

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Mary Kay Bond	Tetra Tech	2/15/2018 18:00	Troy G. Tupas	TA-SAC	2/16/18 0830
	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

320-36163 Chain of Custody

Job Narrative
320-36163-1

Receipt
The samples were received on 2/16/2018 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.5º C and 4.9º C.

Receipt Exceptions
The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): WGNA-021518-FRB-4015 (320-36163-2). 1 of 2 container labels list NAWC-021518-FRB-4015 while the COC lists WGNA-021518-FRB-4015. Labeled according to COC

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

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)

Method Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-36163-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

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

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-36163-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-36163-1	WGNA-021518-RW-4015	Water	02/15/18 09:40	02/16/18 08:30
320-36163-2	WGNA-021518-FRB-4015	Water	02/15/18 09:35	02/16/18 08:30
320-36163-3	NAWC-021518-RW-152	Water	02/15/18 10:10	02/16/18 08:30
320-36163-4	NAWC-021518-FRB-152	Water	02/15/18 10:05	02/16/18 08:30
320-36163-5	WGNA-021518-RW-3124	Water	02/15/18 11:10	02/16/18 08:30
320-36163-6	WGNA-021518-FRB-3124	Water	02/15/18 11:05	02/16/18 08:30
320-36163-7	WGNA-021518-RW-4842	Water	02/15/18 11:40	02/16/18 08:30
320-36163-8	WGNA-021518-FRB-4842	Water	02/15/18 11:35	02/16/18 08:30
320-36163-9	NAWC-021518-RW-205	Water	02/15/18 12:40	02/16/18 08:30
320-36163-10	NAWC-021518-FRB-205	Water	02/15/18 12:35	02/16/18 08:30
320-36163-11	WGNA-021518-RW-4817	Water	02/15/18 14:10	02/16/18 08:30
320-36163-12	WGNA-021518-FRB-4817	Water	02/15/18 14:05	02/16/18 08:30
320-36163-13	WGNA-021518-RW-3882	Water	02/15/18 15:40	02/16/18 08:30
320-36163-14	WGNA-021518-FRB-3882	Water	02/15/18 15:35	02/16/18 08:30
320-36163-15	WGNA-021518-DUP-27	Water	02/15/18 07:00	02/16/18 08:30
320-36163-16	NAWC-021518-RW-229	Water	02/15/18 16:10	02/16/18 08:30
320-36163-17	NAWC-021518-FRB-229	Water	02/15/18 16:05	02/16/18 08:30

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-021518-RW-4015	320-36163-1	80	111
WGNA-021518-FRB-4015	320-36163-2	96	110
NAWC-021518-RW-152	320-36163-3	82	111
NAWC-021518-FRB-152	320-36163-4	89	100
WGNA-021518-RW-3124	320-36163-5	74	105
WGNA-021518-FRB-3124	320-36163-6	90	109
WGNA-021518-RW-4842	320-36163-7	83	121
WGNA-021518-FRB-4842	320-36163-8	70	113
NAWC-021518-RW-205	320-36163-9	73	120
NAWC-021518-FRB-205	320-36163-10	90	112
WGNA-021518-RW-4817	320-36163-11	87	117
WGNA-021518-FRB-4817	320-36163-12	82	114
WGNA-021518-RW-3882	320-36163-13	85	111
WGNA-021518-FRB-3882	320-36163-14	82	111
WGNA-021518-DUP-27	320-36163-15	82	112
NAWC-021518-RW-229	320-36163-16	78	114
NAWC-021518-FRB-229	320-36163-17	75	109
	MB 320-210419/1-A	85	102
	LCS 320-210419/2-A	92	106
NAWC-021518-RW-152 MS	320-36163-3 MS	82	108
NAWC-021518-RW-152 MSD	320-36163-3 MSD	81	117

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

Column to be used to flag recovery values

FORM II 537

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.03.05_537B_007.d

Lab ID: LCS 320-210419/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	223	236	106	70-130	M
Perfluorooctanoic acid (PFOA)	112	113	101	70-130	
Perfluorononanoic acid (PFNA)	111	127	114	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	173	104	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	59.8	108	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	477	95	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.03.05_537B_011.d

Lab ID: 320-36163-3 MS Client ID: NAWC-021518-RW-152 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	213	11 J	250	112	70-130	M
Perfluorooctanoic acid (PFOA)	106	13 J	119	99	70-130	
Perfluorononanoic acid (PFNA)	106	20 U	119	112	70-130	
Perfluorohexanesulfonic acid (PFHxS)	159	12 U	170	107	70-130	
Perfluoroheptanoic acid (PFHpA)	52.9	4.6 J	58.1	101	70-130	
Perfluorobutanesulfonic acid (PFBS)	476	36 U	420	88	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.03.05_537B_012.d

Lab ID: 320-36163-3 MSD Client ID: NAWC-021518-RW-152 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	224	266	114	6	30	70-130	M
Perfluorooctanoic acid (PFOA)	112	132	106	11	30	70-130	
Perfluorononanoic acid (PFNA)	112	135	121	13	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	180	108	6	30	70-130	
Perfluoroheptanoic acid (PFHpA)	55.8	63.4	105	9	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	502	377	75	11	30	70-130	

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.: 320-36163-1

SDG No.:

Lab File ID: 2018.03.05_537B_006.d Lab Sample ID: MB 320-210419/1-A

Matrix: Water Date Extracted: 02/28/2018 07:35

Instrument ID: A8_N Date Analyzed: 03/06/2018 01:14

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-210419/2-A	2018.03.05_537B_007.d	03/06/2018 01:19
WGNA-021518-RW-4015	320-36163-1	2018.03.05_537B_008.d	03/06/2018 01:23
WGNA-021518-FRB-4015	320-36163-2	2018.03.05_537B_009.d	03/06/2018 01:28
NAWC-021518-RW-152	320-36163-3	2018.03.05_537B_010.d	03/06/2018 01:33
NAWC-021518-RW-152 MS	320-36163-3 MS	2018.03.05_537B_011.d	03/06/2018 01:37
NAWC-021518-RW-152 MSD	320-36163-3 MSD	2018.03.05_537B_012.d	03/06/2018 01:42
NAWC-021518-FRB-152	320-36163-4	2018.03.05_537B_013.d	03/06/2018 01:47
WGNA-021518-RW-3124	320-36163-5	2018.03.05_537B_014.d	03/06/2018 01:51
WGNA-021518-FRB-3124	320-36163-6	2018.03.05_537B_015.d	03/06/2018 01:56
WGNA-021518-RW-4842	320-36163-7	2018.03.06_537AA_051.d	03/06/2018 21:21
WGNA-021518-FRB-4842	320-36163-8	2018.03.06_537AA_052.d	03/06/2018 21:25
NAWC-021518-RW-205	320-36163-9	2018.03.06_537AA_053.d	03/06/2018 21:30
NAWC-021518-FRB-205	320-36163-10	2018.03.06_537AA_054.d	03/06/2018 21:35
WGNA-021518-RW-4817	320-36163-11	2018.03.06_537AA_055.d	03/06/2018 21:39
WGNA-021518-FRB-4817	320-36163-12	2018.03.06_537AA_056.d	03/06/2018 21:44
WGNA-021518-RW-3882	320-36163-13	2018.03.06_537AA_057.d	03/06/2018 21:49
WGNA-021518-FRB-3882	320-36163-14	2018.03.06_537AA_058.d	03/06/2018 21:53
WGNA-021518-DUP-27	320-36163-15	2018.03.06_537AA_059.d	03/06/2018 21:58
NAWC-021518-RW-229	320-36163-16	2018.03.06_537AA_060.d	03/06/2018 22:03
NAWC-021518-FRB-229	320-36163-17	2018.03.06_537AA_063.d	03/06/2018 22:17

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-36163-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-210419/1-A

Matrix: Water | Lab File ID: 2018.03.05_537B_006.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 02/28/2018 07:35

Sample wt/vol: 250(mL) | Date Analyzed: 03/06/2018 01:14

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.: 211343 | 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	85		70-130
STL00996	13C2 PFDA	102		70-130

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 02/16/2018 09:19

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		937117	1.86	2726868	2.11		
UPPER LIMIT		1405676	2.36	4090302	2.61		
LOWER LIMIT		468559	1.36	1363434	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-208773/11		955394	1.87	2663428	2.12		
ICV 320-208773/13		890238	1.85	2703377	2.11		
CCVL 320-211128/1		856705	1.89	2531502	2.15		
CCV 320-211343/1 CCVIS		994738	1.82	2811492	2.08		
MB 320-210419/1-A		991052	1.82	2829523	2.08		
LCS 320-210419/2-A		919196	1.82	2765688	2.08		
320-36163-1	WGNA-021518-RW-4015	926238	1.81	2632052	2.07		
320-36163-2	WGNA-021518-FRB-4015	1039884	1.81	3042130	2.07		
320-36163-3	NAWC-021518-RW-152	1188501	1.81	3424260	2.06		
320-36163-3 MS	NAWC-021518-RW-152 MS	1212337	1.81	3411105	2.06		
320-36163-3 MSD	NAWC-021518-RW-152 MSD	1151879	1.81	3422849	2.07		
320-36163-4	NAWC-021518-FRB-152	937414	1.81	2786487	2.06		
320-36163-5	WGNA-021518-RW-3124	1254281	1.81	3552723	2.06		
320-36163-6	WGNA-021518-FRB-3124	1231289	1.81	3427054	2.06		
CCV 320-211343/13 CCVIS		996484	1.81	3018630	2.06		
CCVL 320-211417/1		851838	1.81	2523082	2.07		
CCV 320-211575/1 CCVIS		1068414	1.82	3310510	2.08		
320-36163-7	WGNA-021518-RW-4842	928888	1.81	2533666	2.07		
320-36163-8	WGNA-021518-FRB-4842	951196	1.81	2630340	2.07		
320-36163-9	NAWC-021518-RW-205	980456	1.81	2715578	2.07		
320-36163-10	NAWC-021518-FRB-205	927135	1.82	2540551	2.07		
320-36163-11	WGNA-021518-RW-4817	945703	1.81	2565649	2.07		
320-36163-12	WGNA-021518-FRB-4817	1014512	1.81	2735330	2.06		
320-36163-13	WGNA-021518-RW-3882	950787	1.81	2616458	2.06		
320-36163-14	WGNA-021518-FRB-3882	939695	1.81	2543188	2.06		
320-36163-15	WGNA-021518-DUP-27	972359	1.81	2601918	2.07		
320-36163-16	NAWC-021518-RW-229	1008798	1.81	2708459	2.06		
CCV 320-211575/13 CCVIS		863800	1.81	2506422	2.06		

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.: 320-36163-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 02/16/2018 09:19

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		937117	1.86	2726868	2.11		
UPPER LIMIT		1405676	2.36	4090302	2.61		
LOWER LIMIT		468559	1.36	1363434	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 320-211577/13 CCVIS		863800	1.81	2506422	2.06		
320-36163-17	NAWC-021518-FRB-229	992161	1.81	2641340	2.06		
CCV 320-211577/17 CCVIS		979585	1.81	2911601	2.06		

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.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211343/1 Date Analyzed: 03/06/2018 01:05

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

Lab File ID (Standard): 2018.03.05_537B_004 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		994738	1.82	2811492	2.08		
UPPER LIMIT		1392633	2.32	3936089	2.58		
LOWER LIMIT		696317	1.32	1968044	1.58		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-210419/1-A		991052	1.82	2829523	2.08		
LCS 320-210419/2-A		919196	1.82	2765688	2.08		
320-36163-1	WGNA-021518-RW-4015	926238	1.81	2632052	2.07		
320-36163-2	WGNA-021518-FRB-4015	1039884	1.81	3042130	2.07		
320-36163-3	NAWC-021518-RW-152	1188501	1.81	3424260	2.06		
320-36163-3 MS	NAWC-021518-RW-152 MS	1212337	1.81	3411105	2.06		
320-36163-3 MSD	NAWC-021518-RW-152 MSD	1151879	1.81	3422849	2.07		
320-36163-4	NAWC-021518-FRB-152	937414	1.81	2786487	2.06		
320-36163-5	WGNA-021518-RW-3124	1254281	1.81	3552723	2.06		
320-36163-6	WGNA-021518-FRB-3124	1231289	1.81	3427054	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211343/13 Date Analyzed: 03/06/2018 02:01

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

Lab File ID (Standard): 2018.03.05_537B_016 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		996484	1.81	3018630	2.06		
UPPER LIMIT		1395078	2.31	4226082	2.56		
LOWER LIMIT		697539	1.31	2113041	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-210419/1-A		991052	1.82	2829523	2.08		
LCS 320-210419/2-A		919196	1.82	2765688	2.08		
320-36163-1	WGNA-021518-RW-4015	926238	1.81	2632052	2.07		
320-36163-2	WGNA-021518-FRB-4015	1039884	1.81	3042130	2.07		
320-36163-3	NAWC-021518-RW-152	1188501	1.81	3424260	2.06		
320-36163-3 MS	NAWC-021518-RW-152 MS	1212337	1.81	3411105	2.06		
320-36163-3 MSD	NAWC-021518-RW-152 MSD	1151879	1.81	3422849	2.07		
320-36163-4	NAWC-021518-FRB-152	937414	1.81	2786487	2.06		
320-36163-5	WGNA-021518-RW-3124	1254281	1.81	3552723	2.06		
320-36163-6	WGNA-021518-FRB-3124	1231289	1.81	3427054	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211575/1 Date Analyzed: 03/06/2018 21:11

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

Lab File ID (Standard): 2018.03.06_537AA_04 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1068414	1.82	3310510	2.08		
UPPER LIMIT		1495780	2.32	4634714	2.58		
LOWER LIMIT		747890	1.32	2317357	1.58		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-36163-7	WGNA-021518-RW-4842	928888	1.81	2533666	2.07		
320-36163-8	WGNA-021518-FRB-4842	951196	1.81	2630340	2.07		
320-36163-9	NAWC-021518-RW-205	980456	1.81	2715578	2.07		
320-36163-10	NAWC-021518-FRB-205	927135	1.82	2540551	2.07		
320-36163-11	WGNA-021518-RW-4817	945703	1.81	2565649	2.07		
320-36163-12	WGNA-021518-FRB-4817	1014512	1.81	2735330	2.06		
320-36163-13	WGNA-021518-RW-3882	950787	1.81	2616458	2.06		
320-36163-14	WGNA-021518-FRB-3882	939695	1.81	2543188	2.06		
320-36163-15	WGNA-021518-DUP-27	972359	1.81	2601918	2.07		
320-36163-16	NAWC-021518-RW-229	1008798	1.81	2708459	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211575/13 Date Analyzed: 03/06/2018 22:08

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

Lab File ID (Standard): 2018.03.06_537AA_06 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		863800	1.81	2506422	2.06		
UPPER LIMIT		1209320	2.31	3508991	2.56		
LOWER LIMIT		604660	1.31	1754495	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-36163-7	WGNA-021518-RW-4842	928888	1.81	2533666	2.07		
320-36163-8	WGNA-021518-FRB-4842	951196	1.81	2630340	2.07		
320-36163-9	NAWC-021518-RW-205	980456	1.81	2715578	2.07		
320-36163-10	NAWC-021518-FRB-205	927135	1.82	2540551	2.07		
320-36163-11	WGNA-021518-RW-4817	945703	1.81	2565649	2.07		
320-36163-12	WGNA-021518-FRB-4817	1014512	1.81	2735330	2.06		
320-36163-13	WGNA-021518-RW-3882	950787	1.81	2616458	2.06		
320-36163-14	WGNA-021518-FRB-3882	939695	1.81	2543188	2.06		
320-36163-15	WGNA-021518-DUP-27	972359	1.81	2601918	2.07		
320-36163-16	NAWC-021518-RW-229	1008798	1.81	2708459	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211577/13 Date Analyzed: 03/06/2018 22:08

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

Lab File ID (Standard): 2018.03.06_537AA_06 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		863800	1.81	2506422	2.06		
UPPER LIMIT		1209320	2.31	3508991	2.56		
LOWER LIMIT		604660	1.31	1754495	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-36163-17	NAWC-021518-FRB-229	992161	1.81	2641340	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Sample No.: CCV 320-211577/17 Date Analyzed: 03/06/2018 22:26

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

Lab File ID (Standard): 2018.03.06_537AA_06 Heated Purge: (Y/N) N

Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		979585	1.81	2911601	2.06		
UPPER LIMIT		1371419	2.31	4076241	2.56		
LOWER LIMIT		685710	1.31	2038121	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-36163-17	NAWC-021518-FRB-229	992161	1.81	2641340	2.06		

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

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

Column used to flag values outside QC limits

FORM VIII 537

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

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1 Analy Batch No.: 208773

SDG No.:

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

Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	1.1922 0.9350	1.2685	1.2630	1.1053	1.0403	QuaF		1.3180	-0.002120						1.0000		0.9600
Perfluorohexanesulfonic acid (PFHxS)	1.5376 1.6019	1.6461	1.6181	1.5963	1.6585	Ave		1.6098				2.7		30.0			
Perfluoroheptanoic acid (PFHpA)	0.9596 0.9834	0.9488	0.9462	1.0388	0.9501	Ave		0.9711				3.7		30.0			
Perfluorooctanoic acid (PFOA)	0.9118 0.9514	1.0053	0.9624	0.9616	0.9798	Ave		0.9620				3.2		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.9021 0.9430	0.9481	0.9569	0.9539	0.9692	Ave		0.9455				2.4		30.0			
Perfluorononanoic acid (PFNA)	0.6417 0.6193	0.5823	0.5991	0.6537	0.5962	Ave		0.6154				4.5		30.0			
13C2 PFHxA	1.1327 1.1621	1.0418	1.0430	1.1541	1.0657	Ave		1.0999				5.1		30.0			
13C2 PFDA	0.5790 0.5388	0.4974	0.4674	0.5464	0.5166	Ave		0.5243				7.5		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.: 320-36163-1 Analy Batch No.: 208773

SDG No.:

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

Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	1004877 16112512	2401851	5386060	9625497	13334361	9.00 180	20.0	45.0	90.0	135
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	432087 9203547	1039145	2300670	4635169	7088297	3.00 60.0	6.67	15.0	30.0	45.0
Perfluoroheptanoic acid (PFHpA)	13PFOA	Ave	89434 1755879	208408	467875	919334	1334846	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorooctanoic acid (PFOA)	13PFOA	Ave	170858 3415564	443975	956930	1711070	2767901	2.01 40.2	4.47	10.1	20.1	30.2
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	339345 7252490	801200	1821248	3707450	5544581	4.02 80.3	8.93	20.1	40.2	60.3
Perfluorononanoic acid (PFNA)	13PFOA	Ave	119635 2211715	255853	592583	1157180	1675602	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PFOA	Ave	1055358 1037300	1029524	1031304	1021204	998008	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PFOA	Ave	539488 480980	491558	462142	483499	483740	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

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

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1 Analy Batch No.: 208773

SDG No.:

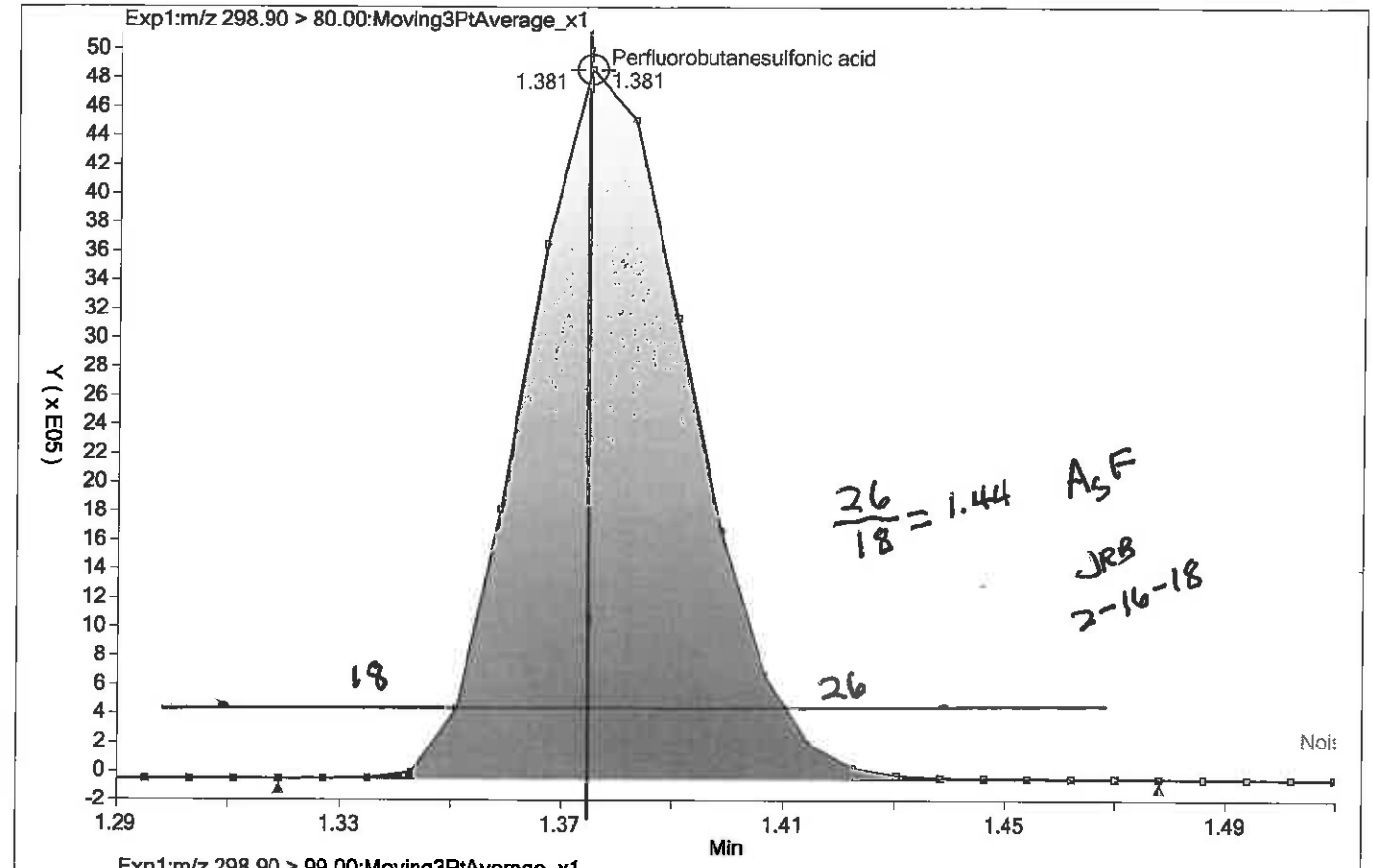
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-8.3	-0.6	3.6	-2.3	1.1	-0.3	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-4.5	2.3	0.5	-0.8	3.0	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	-1.2	-2.3	-2.6	7.0	-2.2	1.3	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	-5.2	4.5	0.0	0.0	1.8	-1.1	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	0.3	1.2	0.9	2.5	-0.3	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	4.3	-5.4	-2.6	6.2	-3.1	0.6	50	30	30	30	30	30
13C2 PFHxA	3.0	-5.3	-5.2	4.9	-3.1	5.7	30	30	30	30	30	30
13C2 PFDA	10.4	-5.1	-10.9	4.2	-1.5	2.8	30	30	30	30	30	30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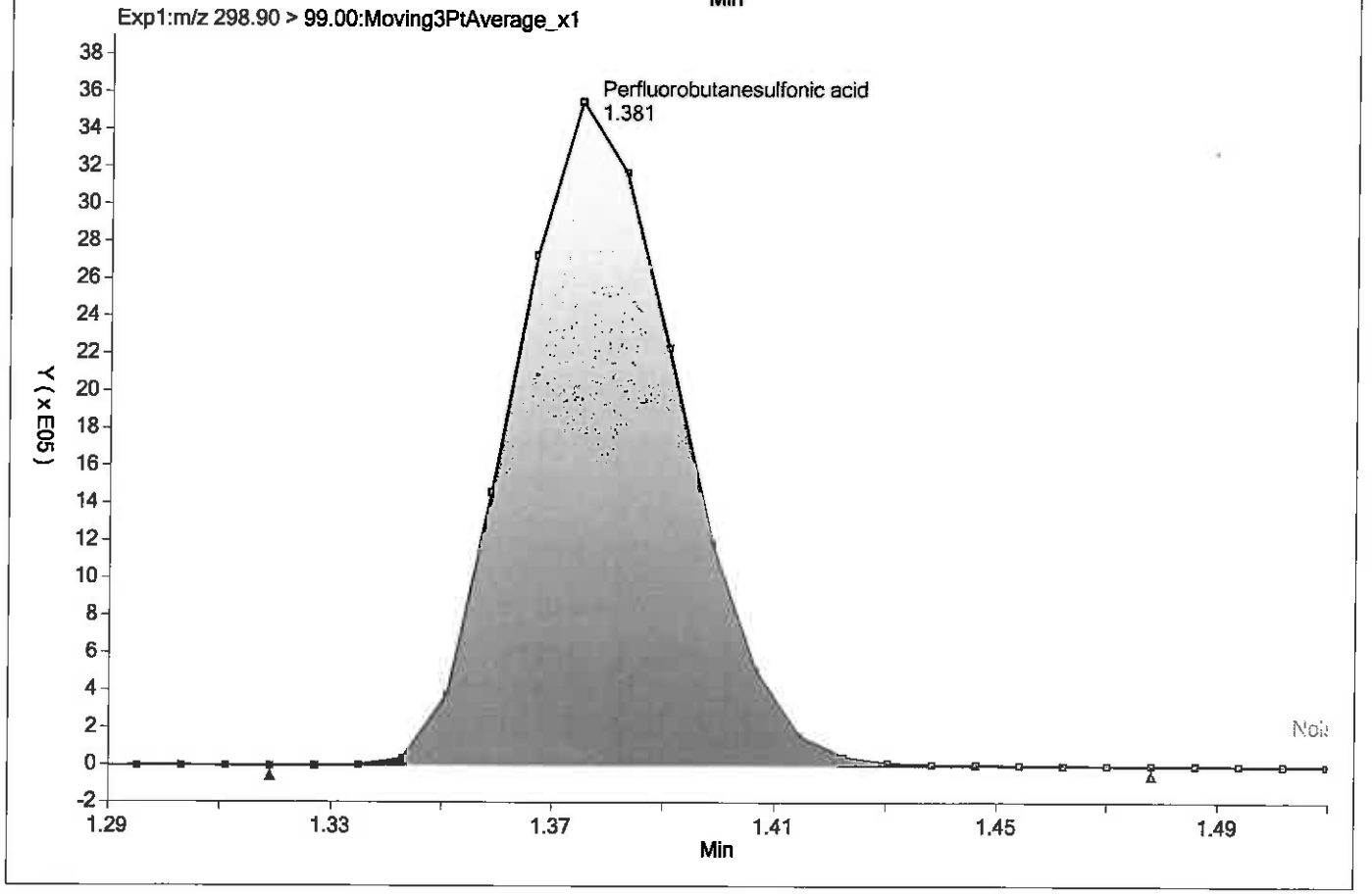
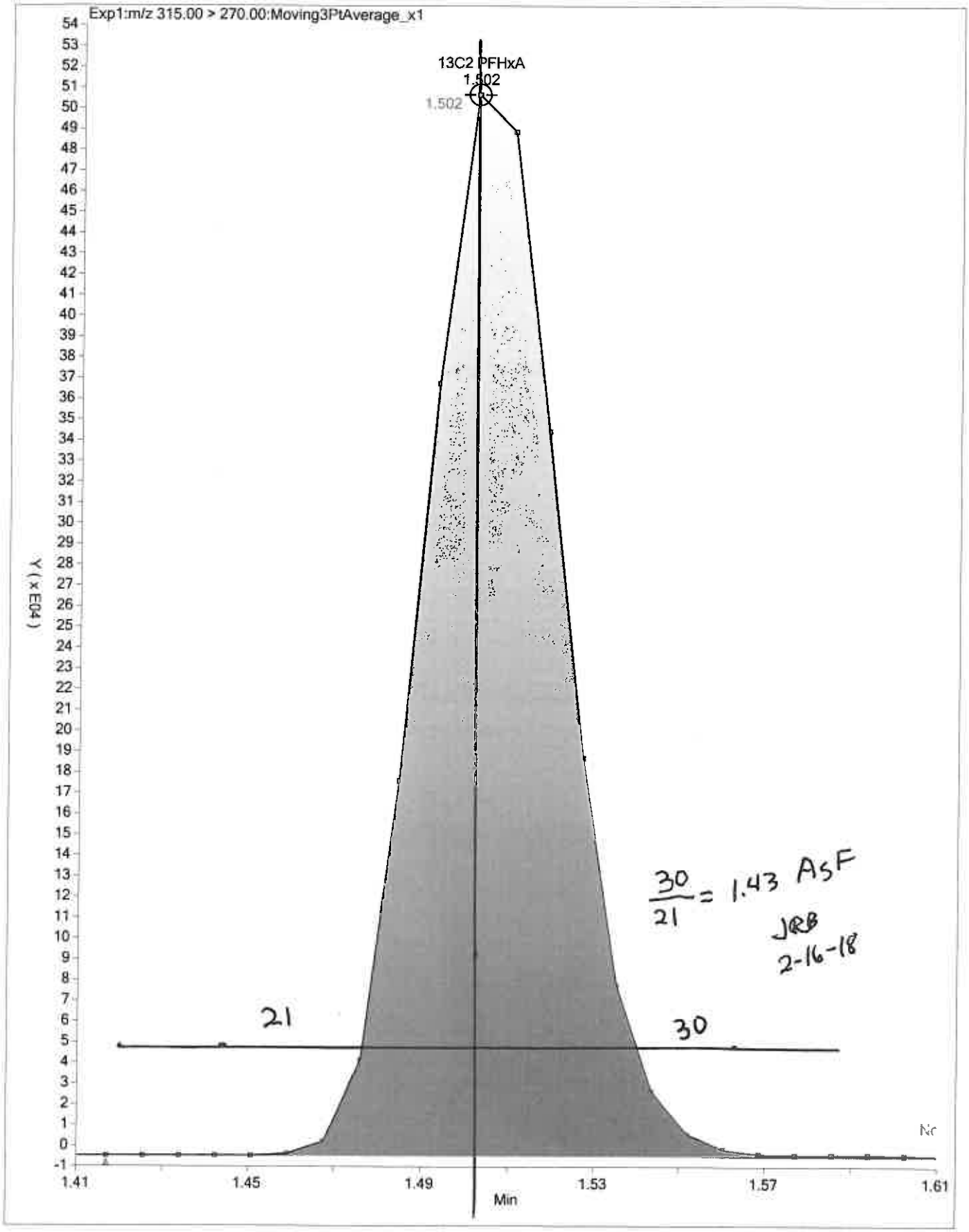
Perfluorobutanesulfonic acid
1.381
1.381
Y (x E05)
Min
1.29
1.33
1.37
1.41
1.45
1.49
18
26
26/18 = 1.44 AsF
JRB
2-16-18


Exp1:m/z 298.90 > 99.00:Moving3PtAverage_x1
Perfluorobutanesulfonic acid
1.381
Y (x E05)
Min
1.29
1.33
1.37
1.41
1.45
1.49


Exp1:m/z 315.00 > 270.00:Moving3PtAverage_x1
13C2 PFHxA
1.502
1.502
Y (x E04)
Min
1.41
1.45
1.49
1.53
1.57
1.61
21
30
30/21 = 1.43 ASF
JRB
2-16-18

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCVL 320-208773/11 Calibration Date: 02/16/2018 09:28

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.02.016_537ICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.238		19.4	20.0	-3.0	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9284		2.12	2.22	-4.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.706		7.07	6.67	6.0	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9302		4.32	4.47	-3.3	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9736		9.19	8.93	3.0	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.5986		4.32	4.45	-2.7	50.0
13C2 PFHxA	Ave	1.100	1.037		9.43	10.0	-5.7	30.0
13C2 PFDA	Ave	0.5243	0.5013		9.56	10.0	-4.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: ICV 320-208773/13 Calibration Date: 02/16/2018 09:37

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.02.016_537ICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.108		100	100	0.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.997		10.3	10.0	2.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.686		21.1	20.2	4.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.8998		18.9	20.2	-6.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9852		21.0	20.2	4.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6774		22.2	20.2	10.1	30.0
13C2 PFHxA	Ave	1.100	1.125		10.2	10.0	2.3	30.0
13C2 PFDA	Ave	0.5243	0.5347		10.2	10.0	2.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCVL 320-211128/1 Calibration Date: 03/05/2018 08:44

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.05_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.234		19.3	20.0	-3.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.576		6.53	6.67	-2.1	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.013		2.32	2.22	4.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9751		4.53	4.47	1.4	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9667		9.13	8.93	2.2	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6261		4.52	4.45	1.7	50.0
13C2 PFHxA	Ave	1.100	1.028		9.35	10.0	-6.5	30.0
13C2 PFDA	Ave	0.5243	0.5536		10.6	10.0	5.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211343/1 Calibration Date: 03/06/2018 01:05

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.05_537B_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9725		125	135	-7.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9514		14.7	15.0	-2.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.624		45.4	45.0	0.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9861		30.9	30.2	2.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9803		62.5	60.3	3.7	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6644		32.4	30.0	8.0	30.0
13C2 PFHxA	Ave	1.100	1.029		9.36	10.0	-6.4	30.0
13C2 PFDA	Ave	0.5243	0.5557		10.6	10.0	6.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211343/13 Calibration Date: 03/06/2018 02:01

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.05_537B_016.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.101		40.2	45.0	-10.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.002		5.16	5.00	3.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.641		15.3	15.0	1.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9658		10.1	10.1	0.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9499		20.2	20.1	0.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6924		11.3	10.0	12.5	30.0
13C2 PFHxA	Ave	1.100	1.062		9.66	10.0	-3.4	30.0
13C2 PFDA	Ave	0.5243	0.5776		11.0	10.0	10.2	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCVL 320-211417/1 Calibration Date: 03/06/2018 09:24

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.06_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)	QuaF		1.126		17.6	20.0	-12.1	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.012		2.32	2.22	4.2	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.543		6.39	6.67	-4.1	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9353		4.34	4.47	-2.8	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9523		8.99	8.93	0.7	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6945		5.02	4.45	12.9	50.0
13C2 PFHxA	Ave	1.100	1.092		9.92	10.0	-0.8	30.0
13C2 PFDA	Ave	0.5243	0.5700		10.9	10.0	8.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211575/1 Calibration Date: 03/06/2018 21:11

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.06_537AA_049.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.029		37.4	45.0	-16.9	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9698		4.99	5.00	-0.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.551		14.5	15.0	-3.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9940		10.4	10.1	3.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9174		19.5	20.1	-3.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6593		10.7	10.0	7.1	30.0
13C2 PFHxA	Ave	1.100	1.016		9.23	10.0	-7.7	30.0
13C2 PFDA	Ave	0.5243	0.5669		10.8	10.0	8.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211575/13 Calibration Date: 03/06/2018 22:08

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.06_537AA_061.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9774		125	135	-7.1	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9725		15.0	15.0	0.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.669		46.7	45.0	3.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9760		30.6	30.2	1.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9882		63.0	60.3	4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6961		33.9	30.0	13.1	30.0
13C2 PFHxA	Ave	1.100	1.088		9.89	10.0	-1.1	30.0
13C2 PFDA	Ave	0.5243	0.6089		11.6	10.0	16.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211577/13 Calibration Date: 03/06/2018 22:08

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.06_537AA_061.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9774		125	135	-7.1	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9725		15.0	15.0	0.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.669		46.7	45.0	3.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9760		30.6	30.2	1.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9882		63.0	60.3	4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6961		33.9	30.0	13.1	30.0
13C2 PFHxA	Ave	1.100	1.088		9.89	10.0	-1.1	30.0
13C2 PFDA	Ave	0.5243	0.6089		11.6	10.0	16.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Lab Sample ID: CCV 320-211577/17 Calibration Date: 03/06/2018 22:26

Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 02/16/2018 09:19

Lab File ID: 2018.03.06_537AA_065.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.069		39.0	45.0	-13.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.998		5.14	5.00	2.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.586		14.8	15.0	-1.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	1.008		10.5	10.1	4.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9547		20.3	20.1	1.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6824		11.1	10.0	10.9	30.0
13C2 PFHxA	Ave	1.100	1.074		9.77	10.0	-2.3	30.0
13C2 PFDA	Ave	0.5243	0.6261		11.9	10.0	19.4	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 02/16/2018 08:55

Analysis Batch Number: 208773 End Date: 02/16/2018 09:37

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-208773/4		02/16/2018 08:55	1	2018.02.016_537 ICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-208773/5		02/16/2018 09:00	1	2018.02.016_537 ICAL 005.d	GeminiC18 3x100 3(mm)
IC 320-208773/6		02/16/2018 09:05	1	2018.02.016_537 ICAL 006.d	GeminiC18 3x100 3(mm)
IC 320-208773/7 ICISAV		02/16/2018 09:09	1	2018.02.016_537 ICAL 007.d	GeminiC18 3x100 3(mm)
IC 320-208773/8		02/16/2018 09:14	1	2018.02.016_537 ICAL 008.d	GeminiC18 3x100 3(mm)
IC 320-208773/9		02/16/2018 09:19	1	2018.02.016_537 ICAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/16/2018 09:23	1		GeminiC18 3x100 3(mm)
CCVL 320-208773/11		02/16/2018 09:28	1	2018.02.016_537 ICAL 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/16/2018 09:33	1		GeminiC18 3x100 3(mm)
ICV 320-208773/13		02/16/2018 09:37	1	2018.02.016_537 ICAL 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 03/05/2018 08:44

Analysis Batch Number: 211128 End Date: 03/05/2018 09:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-211128/1		03/05/2018 08:44	1	2018.03.05_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-211128/2 CCVIS		03/05/2018 08:48	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 08:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:02	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:07	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:16	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:21	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:26	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:30	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:40	1		GeminiC18 3x100 3(mm)
CCV 320-211128/14 CCVIS		03/05/2018 09:44	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 03/06/2018 01:05

Analysis Batch Number: 211343 End Date: 03/06/2018 02:01

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-211343/1 CCVIS		03/06/2018 01:05	1	2018.03.05_537B 004.d	GeminiC18 3x100 3(mm)
MB 320-210419/1-A		03/06/2018 01:14	1	2018.03.05_537B 006.d	GeminiC18 3x100 3(mm)
LCS 320-210419/2-A		03/06/2018 01:19	1	2018.03.05_537B 007.d	GeminiC18 3x100 3(mm)
320-36163-1		03/06/2018 01:23	1	2018.03.05_537B 008.d	GeminiC18 3x100 3(mm)
320-36163-2		03/06/2018 01:28	1	2018.03.05_537B 009.d	GeminiC18 3x100 3(mm)
320-36163-3		03/06/2018 01:33	1	2018.03.05_537B 010.d	GeminiC18 3x100 3(mm)
320-36163-3 MS		03/06/2018 01:37	1	2018.03.05_537B 011.d	GeminiC18 3x100 3(mm)
320-36163-3 MSD		03/06/2018 01:42	1	2018.03.05_537B 012.d	GeminiC18 3x100 3(mm)
320-36163-4		03/06/2018 01:47	1	2018.03.05_537B 013.d	GeminiC18 3x100 3(mm)
320-36163-5		03/06/2018 01:51	1	2018.03.05_537B 014.d	GeminiC18 3x100 3(mm)
320-36163-6		03/06/2018 01:56	1	2018.03.05_537B 015.d	GeminiC18 3x100 3(mm)
CCV 320-211343/13 CCVIS		03/06/2018 02:01	1	2018.03.05_537B 016.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 03/06/2018 09:24

Analysis Batch Number: 211417 End Date: 03/06/2018 10:25

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-211417/1		03/06/2018 09:24	1	2018.03.06_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-211417/2 CCVIS		03/06/2018 09:29	1		GeminiC18 3x100 3(mm)
CCV 320-211417/14 CCVIS		03/06/2018 10:25	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 03/06/2018 21:11

Analysis Batch Number: 211575 End Date: 03/06/2018 22:08

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-211575/1 CCVIS		03/06/2018 21:11	1	2018.03.06_537A A 049.d	GeminiC18 3x100 3(mm)
320-36163-7		03/06/2018 21:21	1	2018.03.06_537A A 051.d	GeminiC18 3x100 3(mm)
320-36163-8		03/06/2018 21:25	1	2018.03.06_537A A 052.d	GeminiC18 3x100 3(mm)
320-36163-9		03/06/2018 21:30	1	2018.03.06_537A A 053.d	GeminiC18 3x100 3(mm)
320-36163-10		03/06/2018 21:35	1	2018.03.06_537A A 054.d	GeminiC18 3x100 3(mm)
320-36163-11		03/06/2018 21:39	1	2018.03.06_537A A 055.d	GeminiC18 3x100 3(mm)
320-36163-12		03/06/2018 21:44	1	2018.03.06_537A A 056.d	GeminiC18 3x100 3(mm)
320-36163-13		03/06/2018 21:49	1	2018.03.06_537A A 057.d	GeminiC18 3x100 3(mm)
320-36163-14		03/06/2018 21:53	1	2018.03.06_537A A 058.d	GeminiC18 3x100 3(mm)
320-36163-15		03/06/2018 21:58	1	2018.03.06_537A A 059.d	GeminiC18 3x100 3(mm)
320-36163-16		03/06/2018 22:03	1	2018.03.06_537A A 060.d	GeminiC18 3x100 3(mm)
CCV 320-211575/13 CCVIS		03/06/2018 22:08	1	2018.03.06_537A A 061.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Instrument ID: A8_N Start Date: 03/06/2018 22:08

Analysis Batch Number: 211577 End Date: 03/06/2018 22:26

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-211577/13 CCVIS		03/06/2018 22:08	1	2018.03.06_537A A 061.d	GeminiC18 3x100 3(mm)
320-36163-17		03/06/2018 22:17	1	2018.03.06_537A A 063.d	GeminiC18 3x100 3(mm)
CCV 320-211577/17 CCVIS		03/06/2018 22:26	1	2018.03.06_537A A 065.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Batch Number: 210419 Batch Start Date: 02/28/18 07:35 Batch Analyst: Kouchari, Shamiran

Batch Method: 537 Batch End Date: 03/05/18 10:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00026
MB 320-210419/1		537, 537				250 mL	1.00 mL	7 SU	
LCS 320-210419/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-36163-A-1	WGNA-021518-RW-4015	537, 537	T	271.87 g	27.26 g	244.6 mL	1.00 mL	7 SU	
320-36163-A-2	WGNA-021518-FRB-4015	537, 537	T	287.98 g	28.83 g	259.2 mL	1.00 mL	7 SU	
320-36163-A-3	NAWC-021518-RW-152	537, 537	T	281.91 g	28.61 g	253.3 mL	1.00 mL	7 SU	
320-36163-A-3 MS	NAWC-021518-RW-152	537, 537	T	291.04 g	28.57 g	262.5 mL	1.00 mL	7 SU	100 uL
320-36163-A-3 MSD	NAWC-021518-RW-152	537, 537	T	278.43 g	29.44 g	249 mL	1.00 mL	7 SU	100 uL
320-36163-A-4	NAWC-021518-FRB-152	537, 537	T	288.97 g	28.85 g	260.1 mL	1.00 mL	7 SU	
320-36163-A-5	WGNA-021518-RW-3124	537, 537	T	287.48 g	27.99 g	259.5 mL	1.00 mL	7 SU	
320-36163-A-6	WGNA-021518-FRB-3124	537, 537	T	290.86 g	30.63 g	260.2 mL	1.00 mL	7 SU	
320-36163-A-7	WGNA-021518-RW-4842	537, 537	T	280.44 g	28.04 g	252.4 mL	1.00 mL	7 SU	
320-36163-A-8	WGNA-021518-FRB-4842	537, 537	T	283.14 g	28.38 g	254.8 mL	1.00 mL	7 SU	
320-36163-A-9	NAWC-021518-RW-205	537, 537	T	287.48 g	28.18 g	259.3 mL	1.00 mL	7 SU	
320-36163-A-10	NAWC-021518-FRB-205	537, 537	T	288.93 g	28.93 g	260 mL	1.00 mL	7 SU	
320-36163-A-11	WGNA-021518-RW-4817	537, 537	T	280.18 g	28.05 g	252.1 mL	1.00 mL	7 SU	
320-36163-A-12	WGNA-021518-FRB-4817	537, 537	T	284.28 g	28.75 g	255.5 mL	1.00 mL	7 SU	
320-36163-A-13	WGNA-021518-RW-3882	537, 537	T	283.48 g	28.60 g	254.9 mL	1.00 mL	7 SU	
320-36163-A-14	WGNA-021518-FRB-3882	537, 537	T	278.45 g	28.66 g	249.8 mL	1.00 mL	7 SU	
320-36163-A-15	WGNA-021518-DUP-27	537, 537	T	287.21 g	28.05 g	259.2 mL	1.00 mL	7 SU	
320-36163-A-16	NAWC-021518-RW-229	537, 537	T	281.11 g	28.09 g	253 mL	1.00 mL	7 SU	
320-36163-A-17	NAWC-021518-FRB-229	537, 537	T	283.05 g	28.79 g	254.3 mL	1.00 mL	7 SU	

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.: 320-36163-1

SDG No.:

Batch Number: 210419 Batch Start Date: 02/28/18 07:35 Batch Analyst: Kouchari, Shamiran

Batch Method: 537 Batch End Date: 03/05/18 10:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00061	LC537-SU 00063	AnalysisComment			
MB 320-210419/1		537, 537		100 uL	100 uL	Chlorine, ND			
LCS 320-210419/2		537, 537		100 uL	100 uL	Chlorine, ND			
320-36163-A-1	WGNA-021518-RW-4015	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-2	WGNA-021518-FRB-4015	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-3	NAWC-021518-RW-152	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-3 MS	NAWC-021518-RW-152	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-3 MSD	NAWC-021518-RW-152	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-4	NAWC-021518-FRB-152	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-5	WGNA-021518-RW-3124	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-6	WGNA-021518-FRB-3124	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-7	WGNA-021518-RW-4842	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-8	WGNA-021518-FRB-4842	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-9	NAWC-021518-RW-205	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-10	NAWC-021518-FRB-205	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-11	WGNA-021518-RW-4817	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-12	WGNA-021518-FRB-4817	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-13	WGNA-021518-RW-3882	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-14	WGNA-021518-FRB-3882	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-15	WGNA-021518-DUP-27	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-16	NAWC-021518-RW-229	537, 537	T	100 uL	100 uL	Chlorine, ND			
320-36163-A-17	NAWC-021518-FRB-229	537, 537	T	100 uL	100 uL	Chlorine, ND			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36163-1

SDG No.:

Batch Number: 210419 Batch Start Date: 02/28/18 07:35 Batch Analyst: Kouchari, Shamiran

Batch Method: 537 Batch End Date: 03/05/18 10:15

Batch Notes	
Analyst ID - Aliquot Step	SKD
Batch Comment	Client labels match TA labels, 02/28/18 SKD
Analyst ID - Concentration	SKD
Analyst ID - Final Volume Step	SKD
Internal Standard ID#	1169779
Manifold ID	3,10
Methanol ID	1167503
pH Indicator ID	3817
Pipette ID	H14930F, M 16387D, N32728F
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	SKD
Analyst ID - SU Reagent Drop	HJA
Analyst ID - SU Reagent Drop Witness	SKD
Analyst ID - TA Reagent Drop	HJA
Analyst ID - TA Reagent Drop Witness	SKD
SPE Cartridge Lot ID	6369499-06
Trizma ID	SLBR4303V
Reagent Water ID	02/27/18

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 Laboratories
Worklist QC Batch Report

Worklist Name: 05MAR2018_537E Worklist Number: 54878
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180306-54878.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 211342	LC 537 ICAL Raw Batch: 211343
# 1 CCV L5	# 1 CCV L5	# 1 CCV L5
# 2 RB	# 2 RB	# 2 RB
# 3 MB 320-210419/1-A		# 3 MB 320-210419/1-A
# 4 LCS 320-210419/2-A		# 4 LCS 320-210419/2-A
# 5 320-36163-A-1-A		# 5 320-36163-A-1-A
# 6 320-36163-A-2-A		# 6 320-36163-A-2-A
# 7 320-36163-A-3-A		# 7 320-36163-A-3-A
# 8 320-36163-A-3-B MS		# 8 320-36163-A-3-B MS
# 9 320-36163-A-3-C MSD		# 9 320-36163-A-3-C MSD
#10 320-36163-A-4-A	CCVL in	#10 320-36163-A-4-A
#11 320-36163-A-5-A	AB 211128	#11 320-36163-A-5-A
#12 320-36163-A-6-A		#12 320-36163-A-6-A
#13 CCV L3	#13 CCV L3	#13 CCV L3

QC Batch: 2	LC 537 CS ICAL Raw Batch: 211344	LC 537 ICAL Raw Batch: 211345
#13 CCV L3	#13 CCV L3	#13 CCV L3
#14 RB	#14 RB	#14 RB
#15 320-36163-A-7-A		#15 320-36163-A-7-A
#16 320-36163-A-8-A		#16 320-36163-A-8-A
#17 320-36163-A-9-A		#17 320-36163-A-9-A
#18 320-36163-A-10-A		#18 320-36163-A-10-A
#19 320-36163-A-11-A		#19 320-36163-A-11-A
#20 320-36163-A-12-A		#20 320-36163-A-12-A
#21 320-36163-A-13-A		#21 320-36163-A-13-A
#22 320-36163-A-14-A		#22 320-36163-A-14-A
#23 320-36163-A-15-A		#23 320-36163-A-15-A
#24 320-36163-A-16-A		#24 320-36163-A-16-A
#25 CCV L5	#25 CCV L5	#25 CCV L5 — CCV out

Not used

QC Batch: 3	LC 537 CS ICAL Raw Batch: 211346	LC 537 ICAL Raw Batch: 211347
#25 CCV L5	#25 CCV L5	#25 CCV L5 — CCV out
#26 RB	#26 RB	#26 RB
#27 320-36163-A-17-A		#27 320-36163-A-17-A
#28 CCV L3	#28 CCV L3	#28 CCV L3
#29 RB	#29 RB	#29 RB

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 06MAR2018_537C Worklist Number: 54952
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180307-54952.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 211575
# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB
# 3 320-36163-A-7-A	# 3 320-36163-A-7-A
# 4 320-36163-A-8-A	# 4 320-36163-A-8-A
# 5 320-36163-A-9-A	# 5 320-36163-A-9-A
# 6 320-36163-A-10-A	# 6 320-36163-A-10-A
# 7 320-36163-A-11-A	# 7 320-36163-A-11-A
# 8 320-36163-A-12-A	# 8 320-36163-A-12-A
# 9 320-36163-A-13-A	# 9 320-36163-A-13-A
#10 320-36163-A-14-A	#10 320-36163-A-14-A
#11 320-36163-A-15-A	#11 320-36163-A-15-A
#12 320-36163-A-16-A	#12 320-36163-A-16-A
#13 CCV L5	#13 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 211577
#13 CCV L5	#13 CCV L5
#14 RB	#14 RB
#15 320-36163-A-17-A	#15 320-36163-A-17-A
#16 320-35085-A-5-C	#16 320-35085-A-5-C
#17 CCV L3	#17 CCV L3
#18 RB	#18 RB

CCVL in AB 211417

AB 3/5/18
2
AB 3/6/18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210419 ✓

Method Code: 320-537_Prep-320

Analyst: Kouchari, Shamiran

Batch Open: 2/28/2018 7:35:00AM

Batch End: 3/5/2018 10:15:00AM

Extraction of Perfluorinated Alkyl Acids

3/a

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB-320-210419/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine, ND	MB 320-210419/1-A
				1.00 mL								
2	LCS-320-210419/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine, ND	LCS 320-210419/2-A
				1.00 mL								
3	320-36163-A-1 (537_DOD5)	N/A (320-36163-1)	271.87 g	244.6 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-1-A
			27.26 g	1.00 mL								
4	320-36163-A-2 (537_DOD5)	N/A (320-36163-1)	287.98 g	259.2 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-2-A
			28.83 g	1.00 mL								
5	320-36163-A-3 (537_DOD5)	N/A (320-36163-1)	281.91 g	253.3 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-3-A
			28.61 g	1.00 mL								
6	320-36163-A-3-MS (537_DOD5)	N/A (320-36163-1)	291.04 g	262.5 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-3-B MS
			28.57 g	1.00 mL								
7	320-36163-A-3-MSD (537_DOD5)	N/A (320-36163-1)	278.43 g	249 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-3-C MSD
			29.44 g	1.00 mL								
8	320-36163-A-4 (537_DOD5)	N/A (320-36163-1)	288.97 g	260.1 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-4-A
			28.85 g	1.00 mL								
9	320-36163-A-5 (537_DOD5)	N/A (320-36163-1)	287.48 g	259.5 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-5-A
			27.99 g	1.00 mL								
10	320-36163-A-6 (537_DOD5)	N/A (320-36163-1)	290.86 g	260.2 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-6-A
			30.63 g	1.00 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210419

Analyst: Kouchari, Shamiran

Batch Open: 2/28/2018 7:35:00AM

Method Code: 320-537_Prep-320

Batch End: 3/5/2018 10:15:00AM

11	320-36163-A-7 (537_DOD5)	N/A (320-36163-1)	280.44 g 28.04 g	252.4 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND R1	320-36163-A-7-A
12	320-36163-A-8 (537_DOD5)	N/A (320-36163-1)	283.14 g 28.38 g	254.8 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-8-A
13	320-36163-A-9 (537_DOD5)	N/A (320-36163-1)	287.48 g 28.18 g	259.3 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-9-A
14	320-36163-A-10 (537_DOD5)	N/A (320-36163-1)	288.93 g 28.93 g	260 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-10-A
15	320-36163-A-11 (537_DOD5)	N/A (320-36163-1)	280.18 g 28.05 g	252.1 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-11-A
16	320-36163-A-12 (537_DOD5)	N/A (320-36163-1)	284.28 g 28.75 g	255.5 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-12-A
17	320-36163-A-13 (537_DOD5)	N/A (320-36163-1)	283.48 g 28.60 g	254.9 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-13-A
18	320-36163-A-14 (537_DOD5)	N/A (320-36163-1)	278.45 g 28.66 g	249.8 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-14-A
19	320-36163-A-15 (537_DOD5)	N/A (320-36163-1)	287.21 g 28.05 g	259.2 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-15-A
20	320-36163-A-16 (537_DOD5)	N/A (320-36163-1)	281.11 g 28.09 g	253 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-16-A
21	320-36163-A-17 (537_DOD5)	N/A (320-36163-1)	283.05 g 28.79 g	254.3 mL 1.00 mL	7			2/20/18	16_Days	4	Chlorine, ND	320-36163-A-17-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210419
Method Code: 320-537_Prep-320

Analyst: Kouchari, Shamiran

Batch Open: 2/28/2018 7:35:00AM
Batch End: 3/5/2018 10:15:00AM

Batch Notes

Manifold ID	3,10
pH Indicator ID	3817
Trizma ID	SLBR4303V
SPE Cartridge Lot ID	6369499-06
Methanol ID	1167503
Reagent Water ID	02/27/18
Internal Standard ID#	1169779
Pipette ID	H14930F, M 16387D, N32728F
Analyst ID - TA Reagent Drop	HJA
Analyst ID - TA Reagent Drop Witness	SKD
Analyst ID - SU Reagent Drop	HJA
Analyst ID - SU Reagent Drop Witness	SKD
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	SKD
Analyst ID - Concentration	SKD
Analyst ID - Aliquot Step	SKD
Analyst ID - Final Volume Step	SKD
Batch Comment	Client labels match TA labels, 02/28/18 SKD

Preliminary Data - For Official Use Only

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N

WARRINGTON

WARWICK

NORTHAMPTON

IVYLAND

WARMINSTER

HAGS

NASJRB
Willow Grove

HORSHAM

HATBORO

UPPER SOUTHAMPTON

UPPER MORELAND

LEGEND

- PFOA & PFOS BELOW DETECTION LIMITS
- SUM OF PFOA & PFOS CONCENTRATIONS AT OR BELOW 40 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS BETWEEN 40 PPT AND 70 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS ABOVE 70 PPT
- PUBLIC WATER CONNECTION (SOME NOT BY NAVY)
- SAMPLING AREA
- FORMER NAWC WARMINSTER
- TOWNSHIP BOUNDARY

3,000 1,500 0 3,000 6,000
Feet

NAVFAC

PFC SAMPLE RESULTS MAP
FORMER NAWC WAMINSTER
MONTGOMERY COUNTY, PENNSYLVANIA

SCALE	AS NOTED
FILE	NAWC
REV	0
DATE	01/24/19
FIGURE NUMBER	FIGURE 1