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 320-35442-1

Naval Air Warfare Center Warminster
Warminster, Pennsylvania

August 2019

N62269_001134
WARMINSTER_NAWC
SSIC 5000-33c

LABORATORY DATA PACKAGE, 320-35442-1, NAS WILLOW GROVE NAWC WARMINSTER PA

02/19/2018

TESTAMERICA LABORATORIES, INC

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 320-35442-1

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
2/19/2018 10:42 AM

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02/19/2018

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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.
Q	One or more quality control criteria failed.

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
320-35442-1

Receipt
The samples were received on 1/26/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.4º C and 1.5º C.

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

Method(s) 537: Surrogate recovery for the following sample was outside control limits: NAWC-012518-FRB-238 (320-35442-17). Re-extraction and re-analysis was performed with concurring results. The original analysis has been reported.

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

Organic Prep
Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-206719.

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-206718.

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

Detection Summary

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

TestAmerica Job ID: 320-35442-1

Client Sample ID: NAWC-012518-RW-256 — Lab Sample ID: 320-35442-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	34	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	27		21	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.4	J	31	5.7	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.2	J	10	2.0	ng/L	1		537	Total/NA

Client Sample ID: NAWC-012518-FRB-256 — Lab Sample ID: 320-35442-2

No Detections.

Client Sample ID: NAWC-012518-RW-169 — Lab Sample ID: 320-35442-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	19	J M	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	13	J	20	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	12	J	31	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.1	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-012518-FRB-169 — Lab Sample ID: 320-35442-4

No Detections.

Client Sample ID: NAWC-012518-RW-236 — Lab Sample ID: 320-35442-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	18	J M	40	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	13	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	11	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.3	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-012518-FRB-236 — Lab Sample ID: 320-35442-6

No Detections.

Client Sample ID: NAWC-012518-RW-153 — Lab Sample ID: 320-35442-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	15	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	23		21	2.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.0	J	10	2.0	ng/L	1		537	Total/NA

Client Sample ID: NAWC-012518-FRB-153 — Lab Sample ID: 320-35442-8

No Detections.

Client Sample ID: NAWC-012518-RW-155 — Lab Sample ID: 320-35442-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	14	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	21		21	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.6	J	31	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.9	J	10	1.9	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: 320-35442-1

Client Sample ID: NAWC-012518-FRB-155 — Lab Sample ID: 320-35442-10

No Detections.

Client Sample ID: WGNA-012518-DUP-23 — Lab Sample ID: 320-35442-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	14	J M	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	23		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.5	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.6	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-012518-RW-094 — Lab Sample ID: 320-35442-12

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	25	J M	40	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	17	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	20	J	30	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.0	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-012518-FRB-094 — Lab Sample ID: 320-35442-13

No Detections.

Client Sample ID: NAWC-012518-RW-168 — Lab Sample ID: 320-35442-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	8.7	J M	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	22		20	2.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.3	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-012518-FRB-168 — Lab Sample ID: 320-35442-15

No Detections.

Client Sample ID: NAWC-012518-RW-238 — Lab Sample ID: 320-35442-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	15	J M	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	14	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.0	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.1	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-012518-FRB-238 — Lab Sample ID: 320-35442-17

No Detections.

Client Sample ID: NAWC-012518-RW-162 — Lab Sample ID: 320-35442-18

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	22	J M	40	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	16	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	11	J	30	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.9	J	10	1.9	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: 320-35442-1

Client Sample ID: NAWC-012518-FRB-162 — Lab Sample ID: 320-35442-19

No Detections.

Client Sample ID: NAWC-012518-RW-300 — Lab Sample ID: 320-35442-20

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	24	J M	42	7.1	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	22		21	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.0	J	31	5.7	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.5	J	10	2.0	ng/L	1		537	Total/NA

Client Sample ID: NAWC-012518-FRB-300 — Lab Sample ID: 320-35442-21

No Detections.

Client Sample ID: NAWC-012518-RW-064 — Lab Sample ID: 320-35442-22

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	11	J M	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	11	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.0	J	30	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.7	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-012518-FRB-064 — Lab Sample ID: 320-35442-23

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: NAWC-012518-RW-256 — Lab Sample ID: 320-35442-1

Date Collected: 01/25/18 08:10 — **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**34**	**J M**	41	7.0	ng/L		02/02/18 12:57	02/08/18 08:15	1
Perfluorooctanoic acid (PFOA)	**27**		21	2.9	ng/L		02/02/18 12:57	02/08/18 08:15	1
Perfluorononanoic acid (PFNA)	21	U	25	8.3	ng/L		02/02/18 12:57	02/08/18 08:15	1
Perfluorohexanesulfonic acid (PFHxS)	**6.4**	**J**	31	5.7	ng/L		02/02/18 12:57	02/08/18 08:15	1
Perfluoroheptanoic acid (PFHpA)	**8.2**	**J**	10	2.0	ng/L		02/02/18 12:57	02/08/18 08:15	1
Perfluorobutanesulfonic acid (PFBS)	37	U	93	17	ng/L		02/02/18 12:57	02/08/18 08:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:15*	*1*
13C2 PFDA	*104*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:15*	*1*

Client Sample ID: NAWC-012518-FRB-256 — Lab Sample ID: 320-35442-2

Date Collected: 01/25/18 08:05 — **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.7	ng/L		02/02/18 12:57	02/08/18 08:19	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		02/02/18 12:57	02/08/18 08:19	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/02/18 12:57	02/08/18 08:19	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.4	ng/L		02/02/18 12:57	02/08/18 08:19	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		02/02/18 12:57	02/08/18 08:19	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/02/18 12:57	02/08/18 08:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*112*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:19*	*1*
13C2 PFDA	*126*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:19*	*1*

Client Sample ID: NAWC-012518-RW-169 — Lab Sample ID: 320-35442-3

Date Collected: 01/25/18 08:40 — **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**19**	**J M**	41	6.9	ng/L		02/02/18 12:57	02/08/18 08:24	1
Perfluorooctanoic acid (PFOA)	**13**	**J**	20	2.9	ng/L		02/02/18 12:57	02/08/18 08:24	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/02/18 12:57	02/08/18 08:24	1
Perfluorohexanesulfonic acid (PFHxS)	**12**	**J**	31	5.6	ng/L		02/02/18 12:57	02/08/18 08:24	1
Perfluoroheptanoic acid (PFHpA)	**5.1**	**J**	10	1.9	ng/L		02/02/18 12:57	02/08/18 08:24	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		02/02/18 12:57	02/08/18 08:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*109*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:24*	*1*
13C2 PFDA	*104*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:24*	*1*

Client Sample ID: NAWC-012518-FRB-169 — Lab Sample ID: 320-35442-4

Date Collected: 01/25/18 08:35 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.9	ng/L		02/02/18 12:57	02/08/18 08:29	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		02/02/18 12:57	02/08/18 08:29	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/02/18 12:57	02/08/18 08:29	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		02/02/18 12:57	02/08/18 08:29	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/02/18 12:57	02/08/18 08:29	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/02/18 12:57	02/08/18 08:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*110*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:29*	*1*
13C2 PFDA	*126*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:29*	*1*

Client Sample ID: NAWC-012518-RW-236 — Lab Sample ID: 320-35442-5

Date Collected: 01/25/18 09:10 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**18**	**J M**	40	6.9	ng/L		02/02/18 12:57	02/08/18 08:33	1
Perfluorooctanoic acid (PFOA)	**13**	**J**	20	2.8	ng/L		02/02/18 12:57	02/08/18 08:33	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/02/18 12:57	02/08/18 08:33	1
Perfluorohexanesulfonic acid (PFHxS)	**11**	**J**	30	5.5	ng/L		02/02/18 12:57	02/08/18 08:33	1
Perfluoroheptanoic acid (PFHpA)	**4.3**	**J**	10	1.9	ng/L		02/02/18 12:57	02/08/18 08:33	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/02/18 12:57	02/08/18 08:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*108*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:33*	*1*
13C2 PFDA	*115*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:33*	*1*

Client Sample ID: NAWC-012518-FRB-236 — Lab Sample ID: 320-35442-6

Date Collected: 01/25/18 09:05 **Matrix: Water**
Date Received: 01/26/18 09:30

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		02/02/18 12:57	02/08/18 08:38	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		02/02/18 12:57	02/08/18 08:38	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/02/18 12:57	02/08/18 08:38	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/02/18 12:57	02/08/18 08:38	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		02/02/18 12:57	02/08/18 08:38	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/02/18 12:57	02/08/18 08:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*100*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:38*	*1*
13C2 PFDA	*116*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:38*	*1*

Client Sample ID: NAWC-012518-RW-153 — Lab Sample ID: 320-35442-7

Date Collected: 01/25/18 09:40 — **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**15**	**J M**	41	7.0	ng/L		02/02/18 12:57	02/08/18 08:43	1
Perfluorooctanoic acid (PFOA)	**23**		21	2.9	ng/L		02/02/18 12:57	02/08/18 08:43	1
Perfluorononanoic acid (PFNA)	21	U	25	8.2	ng/L		02/02/18 12:57	02/08/18 08:43	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		02/02/18 12:57	02/08/18 08:43	1
Perfluoroheptanoic acid (PFHpA)	**7.0**	**J**	10	2.0	ng/L		02/02/18 12:57	02/08/18 08:43	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	17	ng/L		02/02/18 12:57	02/08/18 08:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*112*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:43*	*1*
13C2 PFDA	*110*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:43*	*1*

Client Sample ID: NAWC-012518-FRB-153 — Lab Sample ID: 320-35442-8

Date Collected: 01/25/18 09:35 — **Matrix: Water**
Date Received: 01/26/18 09:30

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		02/02/18 12:57	02/08/18 08:57	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		02/02/18 12:57	02/08/18 08:57	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/02/18 12:57	02/08/18 08:57	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/02/18 12:57	02/08/18 08:57	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/02/18 12:57	02/08/18 08:57	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/02/18 12:57	02/08/18 08:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*116*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:57*	*1*
13C2 PFDA	*113*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:57*	*1*

Client Sample ID: NAWC-012518-RW-155 — Lab Sample ID: 320-35442-9

Date Collected: 01/25/18 10:10 — **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**14**	**J M**	41	7.0	ng/L		02/02/18 12:57	02/08/18 09:01	1
Perfluorooctanoic acid (PFOA)	**21**		21	2.9	ng/L		02/02/18 12:57	02/08/18 09:01	1
Perfluorononanoic acid (PFNA)	21	U M	25	8.2	ng/L		02/02/18 12:57	02/08/18 09:01	1
Perfluorohexanesulfonic acid (PFHxS)	**5.6**	**J**	31	5.6	ng/L		02/02/18 12:57	02/08/18 09:01	1
Perfluoroheptanoic acid (PFHpA)	**6.9**	**J**	10	1.9	ng/L		02/02/18 12:57	02/08/18 09:01	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	17	ng/L		02/02/18 12:57	02/08/18 09:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*101*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:01*	*1*
13C2 PFDA	*106*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:01*	*1*

Client Sample ID: NAWC-012518-FRB-155 — Lab Sample ID: 320-35442-10

Date Collected: 01/25/18 10:05 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.9	ng/L		02/02/18 12:57	02/08/18 09:06	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		02/02/18 12:57	02/08/18 09:06	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/02/18 12:57	02/08/18 09:06	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		02/02/18 12:57	02/08/18 09:06	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/02/18 12:57	02/08/18 09:06	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/02/18 12:57	02/08/18 09:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*109*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:06*	*1*
13C2 PFDA	*110*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:06*	*1*

Client Sample ID: WGNA-012518-DUP-23 — Lab Sample ID: 320-35442-11

Date Collected: 01/25/18 07:00 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**14**	**J M**	40	6.8	ng/L		02/02/18 12:57	02/08/18 09:11	1
Perfluorooctanoic acid (PFOA)	**23**		20	2.8	ng/L		02/02/18 12:57	02/08/18 09:11	1
Perfluorononanoic acid (PFNA)	20	U M	24	8.0	ng/L		02/02/18 12:57	02/08/18 09:11	1
Perfluorohexanesulfonic acid (PFHxS)	**5.5**	**J**	30	5.5	ng/L		02/02/18 12:57	02/08/18 09:11	1
Perfluoroheptanoic acid (PFHpA)	**7.6**	**J**	10	1.9	ng/L		02/02/18 12:57	02/08/18 09:11	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/02/18 12:57	02/08/18 09:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*113*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:11*	*1*
13C2 PFDA	*118*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:11*	*1*

Client Sample ID: NAWC-012518-RW-094 — Lab Sample ID: 320-35442-12

Date Collected: 01/25/18 11:40 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**25**	**J M**	40	6.9	ng/L		02/02/18 12:57	02/08/18 09:15	1
Perfluorooctanoic acid (PFOA)	**17**	**J**	20	2.8	ng/L		02/02/18 12:57	02/08/18 09:15	1
Perfluorononanoic acid (PFNA)	20	U M	24	8.1	ng/L		02/02/18 12:57	02/08/18 09:15	1
Perfluorohexanesulfonic acid (PFHxS)	**20**	**J**	30	5.6	ng/L		02/02/18 12:57	02/08/18 09:15	1
Perfluoroheptanoic acid (PFHpA)	**6.0**	**J**	10	1.9	ng/L		02/02/18 12:57	02/08/18 09:15	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/02/18 12:57	02/08/18 09:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*93*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:15*	*1*
13C2 PFDA	*114*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:15*	*1*

Client Sample ID: NAWC-012518-FRB-094 — Lab Sample ID: 320-35442-13

Date Collected: 01/25/18 11:35 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.9	ng/L		02/02/18 12:57	02/08/18 09:20	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		02/02/18 12:57	02/08/18 09:20	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/02/18 12:57	02/08/18 09:20	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		02/02/18 12:57	02/08/18 09:20	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/02/18 12:57	02/08/18 09:20	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/02/18 12:57	02/08/18 09:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*113*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:20*	*1*
13C2 PFDA	*111*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:20*	*1*

Client Sample ID: NAWC-012518-RW-168 — Lab Sample ID: 320-35442-14

Date Collected: 01/25/18 12:10 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**8.7**	**J M**	41	6.9	ng/L		02/02/18 12:57	02/08/18 09:25	1
Perfluorooctanoic acid (PFOA)	**22**		20	2.8	ng/L		02/02/18 12:57	02/08/18 09:25	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/02/18 12:57	02/08/18 09:25	1
Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	5.6	ng/L		02/02/18 12:57	02/08/18 09:25	1
Perfluoroheptanoic acid (PFHpA)	**7.3**	**J**	10	1.9	ng/L		02/02/18 12:57	02/08/18 09:25	1
Perfluorobutanesulfonic acid (PFBS)	37	U	91	16	ng/L		02/02/18 12:57	02/08/18 09:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*109*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:25*	*1*
13C2 PFDA	*110*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:25*	*1*

Client Sample ID: NAWC-012518-FRB-168 — Lab Sample ID: 320-35442-15

Date Collected: 01/25/18 12:05 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.9	ng/L		02/02/18 12:57	02/08/18 09:30	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		02/02/18 12:57	02/08/18 09:30	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/02/18 12:57	02/08/18 09:30	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		02/02/18 12:57	02/08/18 09:30	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/02/18 12:57	02/08/18 09:30	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/02/18 12:57	02/08/18 09:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*115*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:30*	*1*
13C2 PFDA	*116*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:30*	*1*

Client Sample ID: NAWC-012518-RW-238 — Lab Sample ID: 320-35442-16

Date Collected: 01/25/18 12:40 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**15**	**J M**	40	6.8	ng/L		02/02/18 12:57	02/08/18 09:34	1
Perfluorooctanoic acid (PFOA)	**14**	**J**	20	2.8	ng/L		02/02/18 12:57	02/08/18 09:34	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/02/18 12:57	02/08/18 09:34	1
Perfluorohexanesulfonic acid (PFHxS)	**6.0**	**J**	30	5.5	ng/L		02/02/18 12:57	02/08/18 09:34	1
Perfluoroheptanoic acid (PFHpA)	**5.1**	**J**	10	1.9	ng/L		02/02/18 12:57	02/08/18 09:34	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/02/18 12:57	02/08/18 09:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*108*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:34*	*1*
13C2 PFDA	*106*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:34*	*1*

Client Sample ID: NAWC-012518-FRB-238 — Lab Sample ID: 320-35442-17

Date Collected: 01/25/18 12:35 **Matrix: Water**
Date Received: 01/26/18 09:30

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		02/02/18 12:57	02/08/18 09:39	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		02/02/18 12:57	02/08/18 09:39	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/02/18 12:57	02/08/18 09:39	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/02/18 12:57	02/08/18 09:39	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		02/02/18 12:57	02/08/18 09:39	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/02/18 12:57	02/08/18 09:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*12*	*Q*	*70 - 130*	*02/02/18 12:57*	*02/08/18 09:39*	*1*
13C2 PFDA	*75*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:39*	*1*

Client Sample ID: NAWC-012518-RW-162 — Lab Sample ID: 320-35442-18

Date Collected: 01/25/18 13:40 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**22**	**J M**	40	6.9	ng/L		02/02/18 12:57	02/08/18 09:53	1
Perfluorooctanoic acid (PFOA)	**16**	**J**	20	2.8	ng/L		02/02/18 12:57	02/08/18 09:53	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/02/18 12:57	02/08/18 09:53	1
Perfluorohexanesulfonic acid (PFHxS)	**11**	**J**	30	5.6	ng/L		02/02/18 12:57	02/08/18 09:53	1
Perfluoroheptanoic acid (PFHpA)	**5.9**	**J**	10	1.9	ng/L		02/02/18 12:57	02/08/18 09:53	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/02/18 12:57	02/08/18 09:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*103*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:53*	*1*
13C2 PFDA	*101*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:53*	*1*

Client Sample ID: NAWC-012518-FRB-162 — Lab Sample ID: 320-35442-19

Date Collected: 01/25/18 13:35 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	41	7.0	ng/L		02/02/18 12:57	02/08/18 09:58	1
Perfluorooctanoic acid (PFOA)	8.2	U	20	2.9	ng/L		02/02/18 12:57	02/08/18 09:58	1
Perfluorononanoic acid (PFNA)	20	U	25	8.2	ng/L		02/02/18 12:57	02/08/18 09:58	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		02/02/18 12:57	02/08/18 09:58	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		02/02/18 12:57	02/08/18 09:58	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		02/02/18 12:57	02/08/18 09:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*105*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:58*	*1*
13C2 PFDA	*104*		*70 - 130*	*02/02/18 12:57*	*02/08/18 09:58*	*1*

Client Sample ID: NAWC-012518-RW-300 — Lab Sample ID: 320-35442-20

Date Collected: 01/25/18 14:10 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**24**	**J M**	42	7.1	ng/L		02/02/18 12:57	02/08/18 10:02	1
Perfluorooctanoic acid (PFOA)	**22**		21	2.9	ng/L		02/02/18 12:57	02/08/18 10:02	1
Perfluorononanoic acid (PFNA)	21	U	25	8.3	ng/L		02/02/18 12:57	02/08/18 10:02	1
Perfluorohexanesulfonic acid (PFHxS)	**8.0**	**J**	31	5.7	ng/L		02/02/18 12:57	02/08/18 10:02	1
Perfluoroheptanoic acid (PFHpA)	**8.5**	**J**	10	2.0	ng/L		02/02/18 12:57	02/08/18 10:02	1
Perfluorobutanesulfonic acid (PFBS)	37	U	94	17	ng/L		02/02/18 12:57	02/08/18 10:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*107*		*70 - 130*	*02/02/18 12:57*	*02/08/18 10:02*	*1*
13C2 PFDA	*108*		*70 - 130*	*02/02/18 12:57*	*02/08/18 10:02*	*1*

Client Sample ID: NAWC-012518-FRB-300 — Lab Sample ID: 320-35442-21

Date Collected: 01/25/18 14:05 **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	41	6.9	ng/L		02/02/18 13:03	02/08/18 11:03	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.9	ng/L		02/02/18 13:03	02/08/18 11:03	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/02/18 13:03	02/08/18 11:03	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		02/02/18 13:03	02/08/18 11:03	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		02/02/18 13:03	02/08/18 11:03	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		02/02/18 13:03	02/08/18 11:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*87*		*70 - 130*	*02/02/18 13:03*	*02/08/18 11:03*	*1*
13C2 PFDA	*84*		*70 - 130*	*02/02/18 13:03*	*02/08/18 11:03*	*1*

Client Sample ID: NAWC-012518-RW-064 — Lab Sample ID: 320-35442-22

Date Collected: 01/25/18 16:40 — **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**11**	**J M**	41	6.9	ng/L		02/02/18 13:03	02/08/18 11:08	1
Perfluorooctanoic acid (PFOA)	**11**	**J**	20	2.8	ng/L		02/02/18 13:03	02/08/18 11:08	1
Perfluorononanoic acid (PFNA)	20	U M	24	8.1	ng/L		02/02/18 13:03	02/08/18 11:08	1
Perfluorohexanesulfonic acid (PFHxS)	**7.0**	**J**	30	5.6	ng/L		02/02/18 13:03	02/08/18 11:08	1
Perfluoroheptanoic acid (PFHpA)	**4.7**	**J**	10	1.9	ng/L		02/02/18 13:03	02/08/18 11:08	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/02/18 13:03	02/08/18 11:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*74*		*70 - 130*	*02/02/18 13:03*	*02/08/18 11:08*	*1*
13C2 PFDA	*82*		*70 - 130*	*02/02/18 13:03*	*02/08/18 11:08*	*1*

Client Sample ID: NAWC-012518-FRB-064 — Lab Sample ID: 320-35442-23

Date Collected: 01/25/18 16:35 — **Matrix: Water**
Date Received: 01/26/18 09:30

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	41	6.9	ng/L		02/02/18 13:03	02/08/18 11:12	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.9	ng/L		02/02/18 13:03	02/08/18 11:12	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/02/18 13:03	02/08/18 11:12	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		02/02/18 13:03	02/08/18 11:12	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		02/02/18 13:03	02/08/18 11:12	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		02/02/18 13:03	02/08/18 11:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*70 - 130*	*02/02/18 13:03*	*02/08/18 11:12*	*1*
13C2 PFDA	*86*		*70 - 130*	*02/02/18 13:03*	*02/08/18 11:12*	*1*

Default Detection Limits

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

TestAmerica Job ID: 320-35442-1

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

Prep: 537

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

Surrogate Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-35442-1
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)									
Lab Sample ID	Client Sample ID	PFHxA (70-130)	PFDA (70-130)								
320-35442-1	NAWC-012518-RW-256	90	104								
320-35442-2	NAWC-012518-FRB-256	112	126								
320-35442-3	NAWC-012518-RW-169	109	104								
320-35442-4	NAWC-012518-FRB-169	110	126								
320-35442-5	NAWC-012518-RW-236	108	115								
320-35442-6	NAWC-012518-FRB-236	100	116								
320-35442-7	NAWC-012518-RW-153	112	110								
320-35442-8	NAWC-012518-FRB-153	116	113								
320-35442-9	NAWC-012518-RW-155	101	106								
320-35442-10	NAWC-012518-FRB-155	109	110								
320-35442-11	WGNA-012518-DUP-23	113	118								
320-35442-12	NAWC-012518-RW-094	93	114								
320-35442-13	NAWC-012518-FRB-094	113	111								
320-35442-14	NAWC-012518-RW-168	109	110								
320-35442-15	NAWC-012518-FRB-168	115	116								
320-35442-16	NAWC-012518-RW-238	108	106								
320-35442-17	NAWC-012518-FRB-238	12 Q	75								
320-35442-18	NAWC-012518-RW-162	103	101								
320-35442-19	NAWC-012518-FRB-162	105	104								
320-35442-20	NAWC-012518-RW-300	107	108								
320-35442-21	NAWC-012518-FRB-300	87	84								
320-35442-22	NAWC-012518-RW-064	74	82								
320-35442-23	NAWC-012518-FRB-064	91	86								
LCS 320-206718/2-A	Lab Control Sample	86	87								
LCS 320-206719/2-A	Lab Control Sample	109	103								
LCSD 320-206718/3-A	Lab Control Sample Dup	90	83								
LCSD 320-206719/3-A	Lab Control Sample Dup	109	109								
MB 320-206718/1-A	Method Blank	93	87								
MB 320-206719/1-A	Method Blank	103	111								

Surrogate Legend

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

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

Lab Sample ID: MB 320-206718/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 207588 **Prep Batch: 206718**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		02/02/18 13:03	02/08/18 10:49	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		02/02/18 13:03	02/08/18 10:49	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/02/18 13:03	02/08/18 10:49	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/02/18 13:03	02/08/18 10:49	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/02/18 13:03	02/08/18 10:49	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/02/18 13:03	02/08/18 10:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*93*		*70 - 130*	*02/02/18 13:03*	*02/08/18 10:49*	*1*
13C2 PFDA	*87*		*70 - 130*	*02/02/18 13:03*	*02/08/18 10:49*	*1*

Lab Sample ID: LCS 320-206718/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 207588 **Prep Batch: 206718**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	223	189	M	ng/L		85	70 - 130
Perfluorooctanoic acid (PFOA)	112	104		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	111	102		ng/L		92	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	167	147		ng/L		88	70 - 130
Perfluoroheptanoic acid (PFHpA)	55.6	59.3		ng/L		107	70 - 130
Perfluorobutanesulfonic acid (PFBS)	500	390		ng/L		78	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*86*		*70 - 130*
13C2 PFDA	*87*		*70 - 130*

Lab Sample ID: LCSD 320-206718/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 207588 **Prep Batch: 206718**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	223	196	M	ng/L		88	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	112	109		ng/L		98	70 - 130	5	30
Perfluorononanoic acid (PFNA)	111	104		ng/L		94	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	167	155		ng/L		93	70 - 130	5	30
Perfluoroheptanoic acid (PFHpA)	55.6	61.0		ng/L		110	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)	500	414		ng/L		83	70 - 130	6	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*90*		*70 - 130*
13C2 PFDA	*83*		*70 - 130*

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

Lab Sample ID: MB 320-206719/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 207581 **Prep Batch: 206719**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		02/02/18 12:57	02/08/18 08:01	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		02/02/18 12:57	02/08/18 08:01	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/02/18 12:57	02/08/18 08:01	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/02/18 12:57	02/08/18 08:01	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/02/18 12:57	02/08/18 08:01	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/02/18 12:57	02/08/18 08:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*103*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:01*	*1*
13C2 PFDA	*111*		*70 - 130*	*02/02/18 12:57*	*02/08/18 08:01*	*1*

Lab Sample ID: LCS 320-206719/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 207581 **Prep Batch: 206719**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	134	136	M	ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	67.0	71.1		ng/L		106	70 - 130
Perfluorononanoic acid (PFNA)	66.7	71.5		ng/L		107	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	100	109		ng/L		109	70 - 130
Perfluoroheptanoic acid (PFHpA)	33.3	40.4		ng/L		121	70 - 130
Perfluorobutanesulfonic acid (PFBS)	300	309		ng/L		103	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*109*		*70 - 130*
13C2 PFDA	*103*		*70 - 130*

Lab Sample ID: LCSD 320-206719/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 207581 **Prep Batch: 206719**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	134	139	M	ng/L		104	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	67.0	75.4		ng/L		112	70 - 130	6	30
Perfluorononanoic acid (PFNA)	66.7	72.0		ng/L		108	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	100	111		ng/L		111	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	33.3	40.0		ng/L		120	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	300	305		ng/L		102	70 - 130	1	30

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

LCMS

Prep Batch: 206718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35442-21	NAWC-012518-FRB-300	Total/NA	Water	537	
320-35442-22	NAWC-012518-RW-064	Total/NA	Water	537	
320-35442-23	NAWC-012518-FRB-064	Total/NA	Water	537	
MB 320-206718/1-A	Method Blank	Total/NA	Water	537	
LCS 320-206718/2-A	Lab Control Sample	Total/NA	Water	537	
LCSD 320-206718/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Prep Batch: 206719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35442-1	NAWC-012518-RW-256	Total/NA	Water	537	
320-35442-2	NAWC-012518-FRB-256	Total/NA	Water	537	
320-35442-3	NAWC-012518-RW-169	Total/NA	Water	537	
320-35442-4	NAWC-012518-FRB-169	Total/NA	Water	537	
320-35442-5	NAWC-012518-RW-236	Total/NA	Water	537	
320-35442-6	NAWC-012518-FRB-236	Total/NA	Water	537	
320-35442-7	NAWC-012518-RW-153	Total/NA	Water	537	
320-35442-8	NAWC-012518-FRB-153	Total/NA	Water	537	
320-35442-9	NAWC-012518-RW-155	Total/NA	Water	537	
320-35442-10	NAWC-012518-FRB-155	Total/NA	Water	537	
320-35442-11	WGNA-012518-DUP-23	Total/NA	Water	537	
320-35442-12	NAWC-012518-RW-094	Total/NA	Water	537	
320-35442-13	NAWC-012518-FRB-094	Total/NA	Water	537	
320-35442-14	NAWC-012518-RW-168	Total/NA	Water	537	
320-35442-15	NAWC-012518-FRB-168	Total/NA	Water	537	
320-35442-16	NAWC-012518-RW-238	Total/NA	Water	537	
320-35442-17	NAWC-012518-FRB-238	Total/NA	Water	537	
320-35442-18	NAWC-012518-RW-162	Total/NA	Water	537	
320-35442-19	NAWC-012518-FRB-162	Total/NA	Water	537	
320-35442-20	NAWC-012518-RW-300	Total/NA	Water	537	
MB 320-206719/1-A	Method Blank	Total/NA	Water	537	
LCS 320-206719/2-A	Lab Control Sample	Total/NA	Water	537	
LCSD 320-206719/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Analysis Batch: 207581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35442-1	NAWC-012518-RW-256	Total/NA	Water	537	206719
320-35442-2	NAWC-012518-FRB-256	Total/NA	Water	537	206719
320-35442-3	NAWC-012518-RW-169	Total/NA	Water	537	206719
320-35442-4	NAWC-012518-FRB-169	Total/NA	Water	537	206719
320-35442-5	NAWC-012518-RW-236	Total/NA	Water	537	206719
320-35442-6	NAWC-012518-FRB-236	Total/NA	Water	537	206719
320-35442-7	NAWC-012518-RW-153	Total/NA	Water	537	206719
MB 320-206719/1-A	Method Blank	Total/NA	Water	537	206719
LCS 320-206719/2-A	Lab Control Sample	Total/NA	Water	537	206719
LCSD 320-206719/3-A	Lab Control Sample Dup	Total/NA	Water	537	206719

Analysis Batch: 207582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35442-8	NAWC-012518-FRB-153	Total/NA	Water	537	206719
320-35442-9	NAWC-012518-RW-155	Total/NA	Water	537	206719
320-35442-10	NAWC-012518-FRB-155	Total/NA	Water	537	206719

LCMS (Continued)

Analysis Batch: 207582 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35442-11	WGNA-012518-DUP-23	Total/NA	Water	537	206719
320-35442-12	NAWC-012518-RW-094	Total/NA	Water	537	206719
320-35442-13	NAWC-012518-FRB-094	Total/NA	Water	537	206719
320-35442-14	NAWC-012518-RW-168	Total/NA	Water	537	206719
320-35442-15	NAWC-012518-FRB-168	Total/NA	Water	537	206719
320-35442-16	NAWC-012518-RW-238	Total/NA	Water	537	206719
320-35442-17	NAWC-012518-FRB-238	Total/NA	Water	537	206719

Analysis Batch: 207584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35442-18	NAWC-012518-RW-162	Total/NA	Water	537	206719
320-35442-19	NAWC-012518-FRB-162	Total/NA	Water	537	206719
320-35442-20	NAWC-012518-RW-300	Total/NA	Water	537	206719

Analysis Batch: 207588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35442-21	NAWC-012518-FRB-300	Total/NA	Water	537	206718
320-35442-22	NAWC-012518-RW-064	Total/NA	Water	537	206718
320-35442-23	NAWC-012518-FRB-064	Total/NA	Water	537	206718
MB 320-206718/1-A	Method Blank	Total/NA	Water	537	206718
LCS 320-206718/2-A	Lab Control Sample	Total/NA	Water	537	206718
LCSD 320-206718/3-A	Lab Control Sample Dup	Total/NA	Water	537	206718

Lab Chronicle

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

TestAmerica Job ID: 320-35442-1

Client Sample ID: NAWC-012518-RW-256
Lab Sample ID: 320-35442-1
Date Collected: 01/25/18 08:10
Matrix: Water
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207581	02/08/18 08:15	AAR	TAL SAC

Client Sample ID: NAWC-012518-FRB-256
Lab Sample ID: 320-35442-2
Date Collected: 01/25/18 08:05
Matrix: Water
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207581	02/08/18 08:19	AAR	TAL SAC

Client Sample ID: NAWC-012518-RW-169
Lab Sample ID: 320-35442-3
Date Collected: 01/25/18 08:40
Matrix: Water
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207581	02/08/18 08:24	AAR	TAL SAC

Client Sample ID: NAWC-012518-FRB-169
Lab Sample ID: 320-35442-4
Date Collected: 01/25/18 08:35
Matrix: Water
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207581	02/08/18 08:29	AAR	TAL SAC

Client Sample ID: NAWC-012518-RW-236
Lab Sample ID: 320-35442-5
Date Collected: 01/25/18 09:10
Matrix: Water
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207581	02/08/18 08:33	AAR	TAL SAC

Client Sample ID: NAWC-012518-FRB-236
Lab Sample ID: 320-35442-6
Date Collected: 01/25/18 09:05
Matrix: Water
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207581	02/08/18 08:38	AAR	TAL SAC

Client Sample ID: NAWC-012518-RW-153 Lab Sample ID: 320-35442-7

Date Collected: 01/25/18 09:40 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207581	02/08/18 08:43	AAR	TAL SAC

Client Sample ID: NAWC-012518-FRB-153 Lab Sample ID: 320-35442-8

Date Collected: 01/25/18 09:35 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207582	02/08/18 08:57	JRB	TAL SAC

Client Sample ID: NAWC-012518-RW-155 Lab Sample ID: 320-35442-9

Date Collected: 01/25/18 10:10 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207582	02/08/18 09:01	JRB	TAL SAC

Client Sample ID: NAWC-012518-FRB-155 Lab Sample ID: 320-35442-10

Date Collected: 01/25/18 10:05 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207582	02/08/18 09:06	JRB	TAL SAC

Client Sample ID: WGNA-012518-DUP-23 Lab Sample ID: 320-35442-11

Date Collected: 01/25/18 07:00 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207582	02/08/18 09:11	JRB	TAL SAC

Client Sample ID: NAWC-012518-RW-094 Lab Sample ID: 320-35442-12

Date Collected: 01/25/18 11:40 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207582	02/08/18 09:15	JRB	TAL SAC

Client Sample ID: NAWC-012518-FRB-094 Lab Sample ID: 320-35442-13

Date Collected: 01/25/18 11:35 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207582	02/08/18 09:20	JRB	TAL SAC

Client Sample ID: NAWC-012518-RW-168 Lab Sample ID: 320-35442-14

Date Collected: 01/25/18 12:10 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207582	02/08/18 09:25	JRB	TAL SAC

Client Sample ID: NAWC-012518-FRB-168 Lab Sample ID: 320-35442-15

Date Collected: 01/25/18 12:05 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207582	02/08/18 09:30	JRB	TAL SAC

Client Sample ID: NAWC-012518-RW-238 Lab Sample ID: 320-35442-16

Date Collected: 01/25/18 12:40 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207582	02/08/18 09:34	JRB	TAL SAC

Client Sample ID: NAWC-012518-FRB-238 Lab Sample ID: 320-35442-17

Date Collected: 01/25/18 12:35 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207582	02/08/18 09:39	JRB	TAL SAC

Client Sample ID: NAWC-012518-RW-162 Lab Sample ID: 320-35442-18

Date Collected: 01/25/18 13:40 **Matrix: Water**
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207584	02/08/18 09:53	JRB	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-35442-1

Client Sample ID: NAWC-012518-FRB-162
Lab Sample ID: 320-35442-19
Date Collected: 01/25/18 13:35
Matrix: Water
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207584	02/08/18 09:58	JRB	TAL SAC

Client Sample ID: NAWC-012518-RW-300
Lab Sample ID: 320-35442-20
Date Collected: 01/25/18 14:10
Matrix: Water
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206719	02/02/18 12:57	KMK	TAL SAC
Total/NA	Analysis	537		1	207584	02/08/18 10:02	JRB	TAL SAC

Client Sample ID: NAWC-012518-FRB-300
Lab Sample ID: 320-35442-21
Date Collected: 01/25/18 14:05
Matrix: Water
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206718	02/02/18 13:03	KMK	TAL SAC
Total/NA	Analysis	537		1	207588	02/08/18 11:03	JRB	TAL SAC

Client Sample ID: NAWC-012518-RW-064
Lab Sample ID: 320-35442-22
Date Collected: 01/25/18 16:40
Matrix: Water
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206718	02/02/18 13:03	KMK	TAL SAC
Total/NA	Analysis	537		1	207588	02/08/18 11:08	JRB	TAL SAC

Client Sample ID: NAWC-012518-FRB-064
Lab Sample ID: 320-35442-23
Date Collected: 01/25/18 16:35
Matrix: Water
Date Received: 01/26/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206718	02/02/18 13:03	KMK	TAL SAC
Total/NA	Analysis	537		1	207588	02/08/18 11:12	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: 320-35442-1
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: 320-35442-1
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: 320-35442-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35442-1	NAWC-012518-RW-256	Water	01/25/18 08:10	01/26/18 09:30
320-35442-2	NAWC-012518-FRB-256	Water	01/25/18 08:05	01/26/18 09:30
320-35442-3	NAWC-012518-RW-169	Water	01/25/18 08:40	01/26/18 09:30
320-35442-4	NAWC-012518-FRB-169	Water	01/25/18 08:35	01/26/18 09:30
320-35442-5	NAWC-012518-RW-236	Water	01/25/18 09:10	01/26/18 09:30
320-35442-6	NAWC-012518-FRB-236	Water	01/25/18 09:05	01/26/18 09:30
320-35442-7	NAWC-012518-RW-153	Water	01/25/18 09:40	01/26/18 09:30
320-35442-8	NAWC-012518-FRB-153	Water	01/25/18 09:35	01/26/18 09:30
320-35442-9	NAWC-012518-RW-155	Water	01/25/18 10:10	01/26/18 09:30
320-35442-10	NAWC-012518-FRB-155	Water	01/25/18 10:05	01/26/18 09:30
320-35442-11	WGNA-012518-DUP-23	Water	01/25/18 07:00	01/26/18 09:30
320-35442-12	NAWC-012518-RW-094	Water	01/25/18 11:40	01/26/18 09:30
320-35442-13	NAWC-012518-FRB-094	Water	01/25/18 11:35	01/26/18 09:30
320-35442-14	NAWC-012518-RW-168	Water	01/25/18 12:10	01/26/18 09:30
320-35442-15	NAWC-012518-FRB-168	Water	01/25/18 12:05	01/26/18 09:30
320-35442-16	NAWC-012518-RW-238	Water	01/25/18 12:40	01/26/18 09:30
320-35442-17	NAWC-012518-FRB-238	Water	01/25/18 12:35	01/26/18 09:30
320-35442-18	NAWC-012518-RW-162	Water	01/25/18 13:40	01/26/18 09:30
320-35442-19	NAWC-012518-FRB-162	Water	01/25/18 13:35	01/26/18 09:30
320-35442-20	NAWC-012518-RW-300	Water	01/25/18 14:10	01/26/18 09:30
320-35442-21	NAWC-012518-FRB-300	Water	01/25/18 14:05	01/26/18 09:30
320-35442-22	NAWC-012518-RW-064	Water	01/25/18 16:40	01/26/18 09:30
320-35442-23	NAWC-012518-FRB-064	Water	01/25/18 16:35	01/26/18 09:30

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 192908

Lab Sample ID: IC 320-192908/4 Client Sample ID:

Date Analyzed: 11/03/17 13:37 Lab File ID: 2017.11.03_537XICAL_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.16	Assign Peak	phomsopha t	11/06/17 07:17

Lab Sample ID: IC 320-192908/5 Client Sample ID:

Date Analyzed: 11/03/17 13:42 Lab File ID: 2017.11.03_537XICAL_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.16	Assign Peak	phomsopha t	11/06/17 07:18

Lab Sample ID: IC 320-192908/7 ICISAV Client Sample ID:

Date Analyzed: 11/03/17 13:52 Lab File ID: 2017.11.03_537XICAL_007.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.16	Assign Peak	phomsopha t	11/06/17 07:20

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207581

Lab Sample ID: CCVL 320-207581/1 Client Sample ID:

Date Analyzed: 02/08/18 07:47 Lab File ID: 2018.02.08_537A_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	User Assigned	roycea	02/08/18 12:10

Lab Sample ID: CCV 320-207581/2 CCVIS Client Sample ID:

Date Analyzed: 02/08/18 07:51 Lab File ID: 2018.02.08_537A_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/08/18 17:07

Lab Sample ID: LCS 320-206719/2-A Client Sample ID:

Date Analyzed: 02/08/18 08:05 Lab File ID: 2018.02.08_537A_008.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/08/18 17:09

Lab Sample ID: LCSD 320-206719/3-A Client Sample ID:

Date Analyzed: 02/08/18 08:10 Lab File ID: 2018.02.08_537A_009.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/08/18 17:10

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207581

Lab Sample ID: 320-35442-1 Client Sample ID: NAWC-012518-RW-256

Date Analyzed: 02/08/18 08:15 Lab File ID: 2018.02.08_537A_010.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/08/18 17:06

Lab Sample ID: 320-35442-3 Client Sample ID: NAWC-012518-RW-169

Date Analyzed: 02/08/18 08:24 Lab File ID: 2018.02.08_537A_012.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/08/18 17:11

Lab Sample ID: 320-35442-5 Client Sample ID: NAWC-012518-RW-236

Date Analyzed: 02/08/18 08:33 Lab File ID: 2018.02.08_537A_014.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/08/18 17:12

Lab Sample ID: 320-35442-7 Client Sample ID: NAWC-012518-RW-153

Date Analyzed: 02/08/18 08:43 Lab File ID: 2018.02.08_537A_016.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/08/18 17:13

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207581

Lab Sample ID: CCV 320-207581/14 CCVIS Client Sample ID:

Date Analyzed: 02/08/18 08:47 Lab File ID: 2018.02.08_537A_017.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/08/18 17:07

537

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207582

Lab Sample ID: CCV 320-207582/14 CCVIS Client Sample ID:

Date Analyzed: 02/08/18 08:47 Lab File ID: 2018.02.08_537A_017.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/08/18 17:07

Lab Sample ID: 320-35442-9 Client Sample ID: NAWC-012518-RW-155

Date Analyzed: 02/08/18 09:01 Lab File ID: 2018.02.08_537A_020.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorononanoic acid (PFNA)	2.05	Missed Peak	barnettj	02/08/18 17:15
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/08/18 17:14

Lab Sample ID: 320-35442-11 Client Sample ID: WGNA-012518-DUP-23

Date Analyzed: 02/08/18 09:11 Lab File ID: 2018.02.08_537A_022.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/08/18 17:15
Perfluorononanoic acid (PFNA)	2.06	Missed Peak	barnettj	02/08/18 17:16

Lab Sample ID: 320-35442-12 Client Sample ID: NAWC-012518-RW-094

Date Analyzed: 02/08/18 09:15 Lab File ID: 2018.02.08_537A_023.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/08/18 17:17
Perfluorononanoic acid (PFNA)	2.05	Missed Peak	barnettj	02/08/18 17:17

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207582

Lab Sample ID: 320-35442-14 Client Sample ID: NAWC-012518-RW-168

Date Analyzed: 02/08/18 09:25 Lab File ID: 2018.02.08_537A_025.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	02/08/18 17:18
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/08/18 17:18

Lab Sample ID: 320-35442-16 Client Sample ID: NAWC-012518-RW-238

Date Analyzed: 02/08/18 09:34 Lab File ID: 2018.02.08_537A_027.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/08/18 17:19

Lab Sample ID: CCV 320-207582/26 CCVIS Client Sample ID:

Date Analyzed: 02/08/18 09:44 Lab File ID: 2018.02.08_537A_029.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/08/18 17:08

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207584

Lab Sample ID: CCV 320-207584/26 CCVIS Client Sample ID:

Date Analyzed: 02/08/18 09:44 Lab File ID: 2018.02.08_537A_029.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/08/18 17:08

Lab Sample ID: 320-35442-18 Client Sample ID: NAWC-012518-RW-162

Date Analyzed: 02/08/18 09:53 Lab File ID: 2018.02.08_537A_031.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/08/18 17:21

Lab Sample ID: 320-35442-20 Client Sample ID: NAWC-012518-RW-300

Date Analyzed: 02/08/18 10:02 Lab File ID: 2018.02.08_537A_033.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.03	Assign Peak	barnettj	02/08/18 17:22

Lab Sample ID: CCV 320-207584/31 CCVIS Client Sample ID:

Date Analyzed: 02/08/18 10:07 Lab File ID: 2018.02.08_537A_034.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/08/18 17:09

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207588

Lab Sample ID: CCV 320-207588/1 CCVIS Client Sample ID:

Date Analyzed: 02/08/18 10:40 Lab File ID: 2018.02.08_537AA_034.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/09/18 10:04

Lab Sample ID: LCS 320-206718/2-A Client Sample ID:

Date Analyzed: 02/08/18 10:54 Lab File ID: 2018.02.08_537AA_037.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/09/18 10:04

Lab Sample ID: LCSD 320-206718/3-A Client Sample ID:

Date Analyzed: 02/08/18 10:58 Lab File ID: 2018.02.08_537AA_038.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.03	Assign Peak	barnettj	02/09/18 10:06

Lab Sample ID: 320-35442-22 Client Sample ID: NAWC-012518-RW-064

Date Analyzed: 02/08/18 11:08 Lab File ID: 2018.02.08_537AA_040.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.03	Assign Peak	barnettj	02/09/18 10:01
Perfluorononanoic acid (PFNA)	2.04	Missed Peak	barnettj	02/09/18 10:02

537

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Analysis Batch Number: 207588

Lab Sample ID: CCV 320-207588/9 CCVIS Client Sample ID:

Date Analyzed: 02/08/18 11:17 Lab File ID: 2018.02.08_537AA_042.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	User Assigned	roycea	02/08/18 14:10

537

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

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_00028	01/05/18	08/02/17	MeOH/H2O, Lot 067374	10 mL	LC537-IS_00045	1000 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
.LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00019	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-ICV_00028	01/05/18	08/02/17	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00046	1000 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
					LC537ICIM_00019	20 uL	Perfluorobutanesulfonic acid (PFBS)	100.119 ng/mL
							Perfluoroheptanoic acid (PFHpA)	9.99613 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	20.0761 ng/mL
							Perfluorononanoic acid (PFNA)	20.1272 ng/mL
							Perfluorooctanoic acid (PFOA)	20.4843 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	19.698 ng/mL
.LC537-SU_00046	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
.LC537ICIM_00019	01/25/18	08/01/17	Methanol, Lot 090285	25 mL	LC537-PFBS2_00008	0.6 mL	Perfluorobutanesulfonic acid (PFBS)	50.0597 ug/mL
					LC537-PFHpA2_00011	0.061 mL	Perfluoroheptanoic acid (PFHpA)	4.99806 ug/mL
					LC537-PFHxS2_00008	0.122 mL	Perfluorohexanesulfonic acid (PFHxS)	10.038 ug/mL
					LC537-PFNA2_00009	0.126 mL	Perfluorononanoic acid (PFNA)	10.0636 ug/mL
					LC537-PFOA2_00010	0.122 mL	Perfluorooctanoic acid (PFOA)	10.2421 ug/mL
					LC537-PFOS2_00010	0.124 mL	Perfluorooctanesulfonic acid (PFOS)	9.849 ug/mL
..LC537-PFBS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	20 mL	LC537_PFBS2_00002	0.0418 g	Perfluorobutanesulfonic acid (PFBS)	2085.82 ug/mL
...LC537_PFBS2_00002	09/08/22	Santa Cruz Biotechnology, Lot F0917			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
..LC537-PFHpA2_00011	01/25/18	07/25/17	Methanol, Lot 09092	31 mL	LC537_PFHpA2_00002	0.0635 g	Perfluoroheptanoic acid (PFHpA)	2048.39 ug/mL
...LC537_PFHpA2_00002	06/13/22	Afla Aesar, Lot 10200390			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	1 g/g
..LC537-PFHxS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537_PFHxS2_00002	0.0475 g	Perfluorohexanesulfonic acid (PFHxS)	2056.98 ug/mL
...LC537_PFHxS2_00002	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA2_00009	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537_PFNA2_00002	0.0421 g	Perfluorononanoic acid (PFNA)	1996.74 ug/mL
...LC537_PFNA2_00002	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.996 g/g
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537_PFOA2_00002	0.0424 g	Perfluorooctanoic acid (PFOA)	2098.8 ug/mL
...LC537_PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g
..LC537-PFOS2_00010	01/25/18	08/01/17	Methanol, Lot 090285	22 mL	LC537_PFOS2_00002	0.0561 g	Perfluorooctanesulfonic acid (PFOS)	1985.68 ug/mL
...LC537_PFOS2_00002	06/14/22	Sigma, Lot BCBQ0108V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g
LC537-IS_00057	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.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_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-MSP_00029	60 uL	Perfluorobutanesulfonic acid (PFBS)	9.0018 ng/mL
							Perfluoroheptanoic acid (PFHpA)	1.00036 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	3.00103 ng/mL
							Perfluorononanoic acid (PFNA)	2.0006 ng/mL
							Perfluorooctanoic acid (PFOA)	2.00191 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	4.00146 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-MSP_00029	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	166.7 uL	Perfluorobutanesulfonic acid (PFBS)	750.15 ng/mL
							Perfluoroheptanoic acid (PFHpA)	83.3637 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	250.086 ng/mL
							Perfluorononanoic acid (PFNA)	166.716 ng/mL
							Perfluorooctanoic acid (PFOA)	166.826 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	333.455 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L2_00021	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-IS_00059	2 mL	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
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 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-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.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-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_00023	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	180 uL	Perfluorobutanesulfonic acid (PFBS)	45.0036 ng/mL
							Perfluoroheptanoic acid (PFHpA)	5.00122 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	15.0034 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorononanoic acid (PFNA)	10.0018 ng/mL
							Perfluorooctanoic acid (PFOA)	10.0084 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.0049 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L3_00024	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-IS_00059	2 mL	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
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 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
							Perfluorooctanesulfonic acid (PFOS)	20.0854 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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...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-L4_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	360 uL	Perfluorobutanesulfonic acid (PFBS)	90.0072 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10.0024 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0067 ng/mL
							Perfluorononanoic acid (PFNA)	20.0036 ng/mL
							Perfluorooctanoic acid (PFOA)	20.0167 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.0098 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L5_00024	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	540 uL	Perfluorobutanesulfonic acid (PFBS)	135.011 ng/mL
							Perfluoroheptanoic acid (PFHpA)	15.0037 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.0101 ng/mL
							Perfluorononanoic acid (PFNA)	30.0053 ng/mL
							Perfluorooctanoic acid (PFOA)	30.0251 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	60.0146 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L5_00025	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							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
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 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-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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....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-L6_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	720 uL	Perfluorobutanesulfonic acid (PFBS)	180.014 ng/mL
							Perfluoroheptanoic acid (PFHpA)	20.0049 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	60.0135 ng/mL
							Perfluorononanoic acid (PFNA)	40.0071 ng/mL
							Perfluorooctanoic acid (PFOA)	40.0334 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	80.0195 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-MSP_00031	02/10/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	333.4 uL	Perfluorobutane Sulfonate	750.15 ng/mL
							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	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		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-SU_00053	05/27/18	11/27/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
.LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL

Reagent

LC537_PFBS_00002

R: 4/1/15 SPV

SIGMA-ALDRICH®

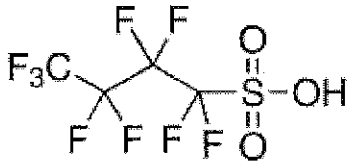
sigma-aldrich.com

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

Certificate of Analysis

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

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



PFBS

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

Jamie Gleason

Jamie Gleason, Manager
Quality Control
Milwaukee, Wisconsin US

Reagent

LC537_PFBS2_00002

1:6817 SW

CERTIFICATE OF ANALYSIS

The Power to Question

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

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

Reagent

LC537_PFHpA_00002

P: 4/1/15 SRV

SIGMA-ALDRICH®

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

Certificate of Analysis

PFHpA

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

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

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

Reagent

LC537_PFHpA2_00002

Alfa Aesar

Certificate of analysis

r: 6.13.17 SW

PFHp A

Product No.: A12092

Product: Perfluoroheptanoic acid, 98+%

Lot No.: 10200390

Appearance: White fused solid

Water Content (Karl-Fischer): 0.30%

Melting Point: 32.0-34.3°C

Assay (Aqueous acid-base titration): 99.7%

Identification (FTIR): Conforms

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ThermoFisher SCIENTIFIC

Reagent

LC537_PFHxS_00002

R: 4/1/15 SKV

SIGMA-ALDRICH®

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

Certificate of Analysis

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

PFHxS-K

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

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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

Purity = 90.94 / w/m.w correction

SKV 4/1/15

Reagent

LC537_PFHxS2_00002

n: 6.8.17 SKV

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

SIGMA-ALDRICH®

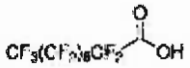
sigma-aldrich.com

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

Certificate of Analysis

Product Name:
Perfluorononanoic acid – 97%

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



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

Michael Grady, Manager
Quality Control
Milwaukee, WI US

PFNA

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

Reagent

LC537_PFOA_00003

T: 11/30/16 SKV
PFOA

SIGMA-ALDRICH

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

Certificate of Analysis

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

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

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

Reagent

LC537_PFOA2_00002

Alfa Aesar

Certificate of analysis

Γ: 6/9/17 SK✓

PFOA

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

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

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ThermoFisher SCIENTIFIC

Reagent

LC537_PFOS_00003

r: 11/30/16 SV

PFOS

SIGMA-ALDRICH®

CERTIFICATE OF ANALYSIS

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

Seelze, 22.04.2014/524107/14/08646

Order-No.:
Customer-No.:

Order-Code:

Quantity:

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

Article/Product: 33829 Batch : SZBE107XV

Heptadecafluorooctanesulfonic acid potassium salt OEKANAL®

Reference Material (RM)

1. General Information

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

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

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

2. Batch Analysis

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

3. Advice and Remarks

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

Sigma-Aldrich Laborchemikalien GmbH
Quality Management SA-LC

This document was produced electronically and is valid without a signature

Reagent

LC537_PFOS2_00002

R: 6.14.17 SKV

SIGMA-ALDRICH

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

Certificate of Analysis

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

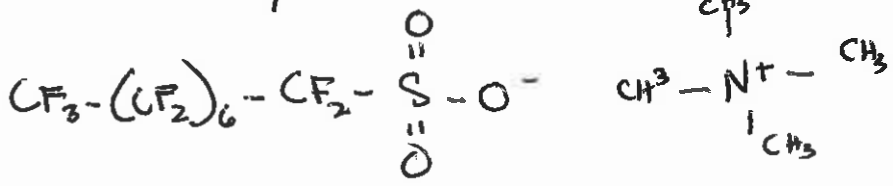
TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	OFF-WHITE
APPEARANCE (FORM)	POWDER OR POWDER WITH CHUNK(S)	POWDER
CARBON CONTENT	29.77 % - 31.29 %	29.97 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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

Purity & MW correction = 77.87%



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

Reagent

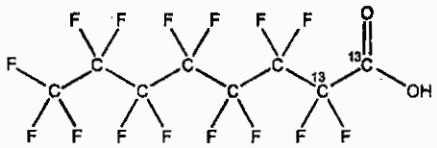
LCM2PFOA_00007

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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...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:

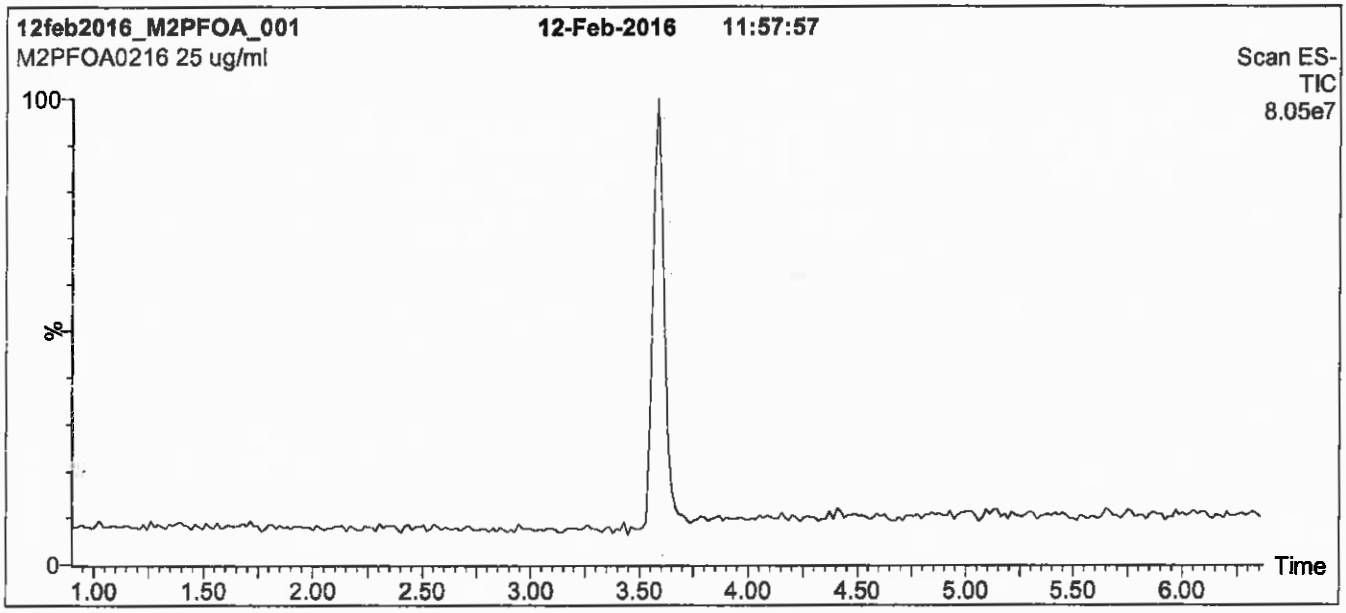
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

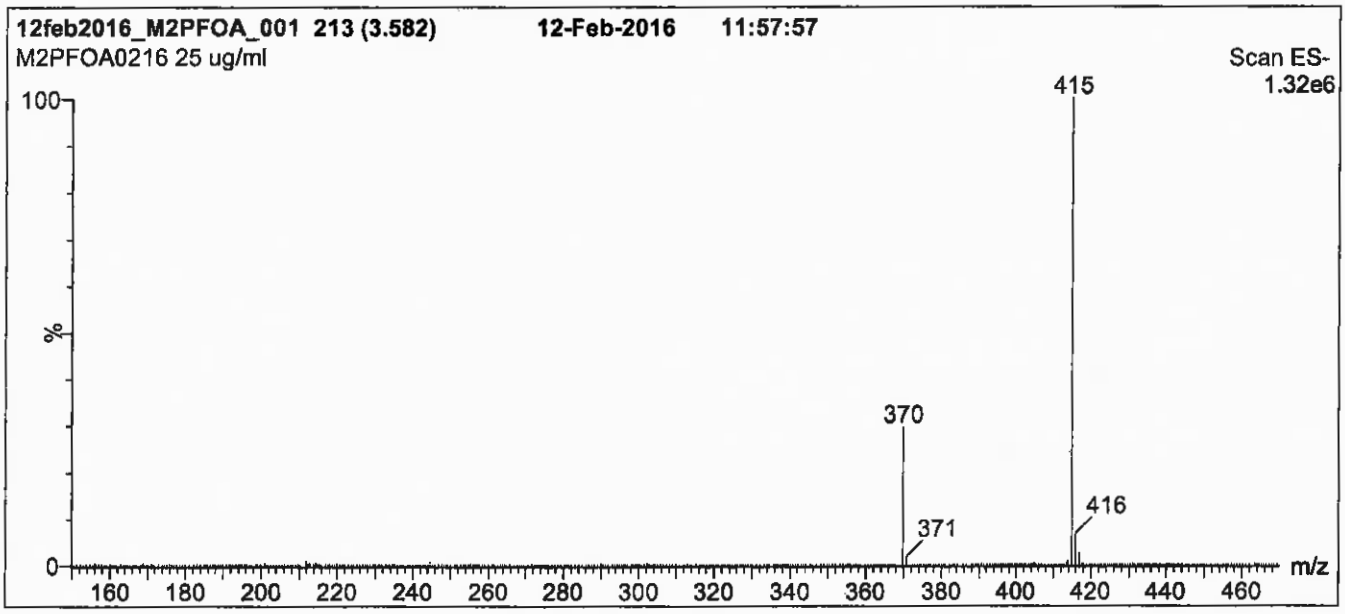
CALA

ANAB ACCREDITED

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

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





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

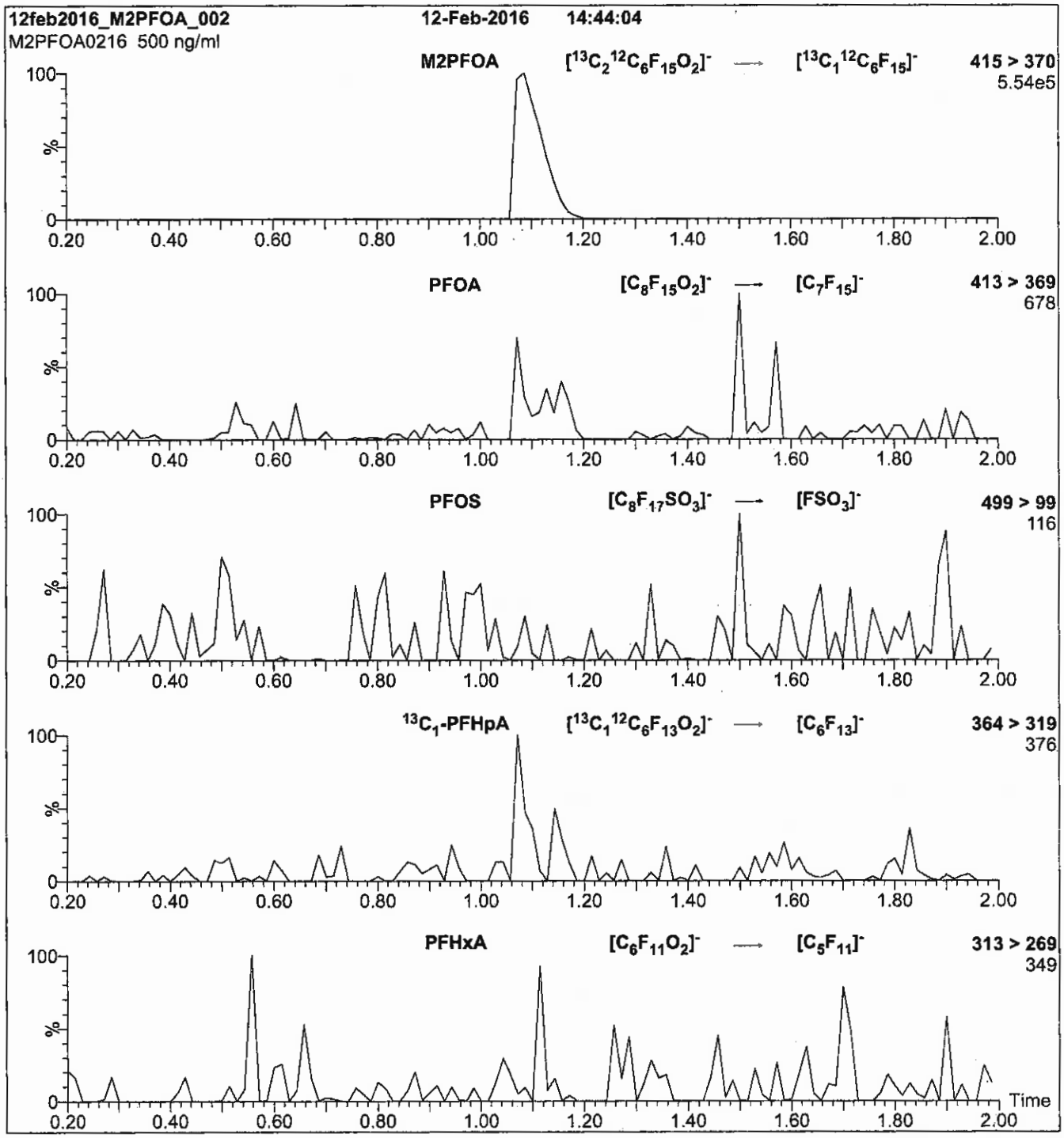
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

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

Reagent

LCMPFDA_00012

R: SBC 12/21/16

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

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

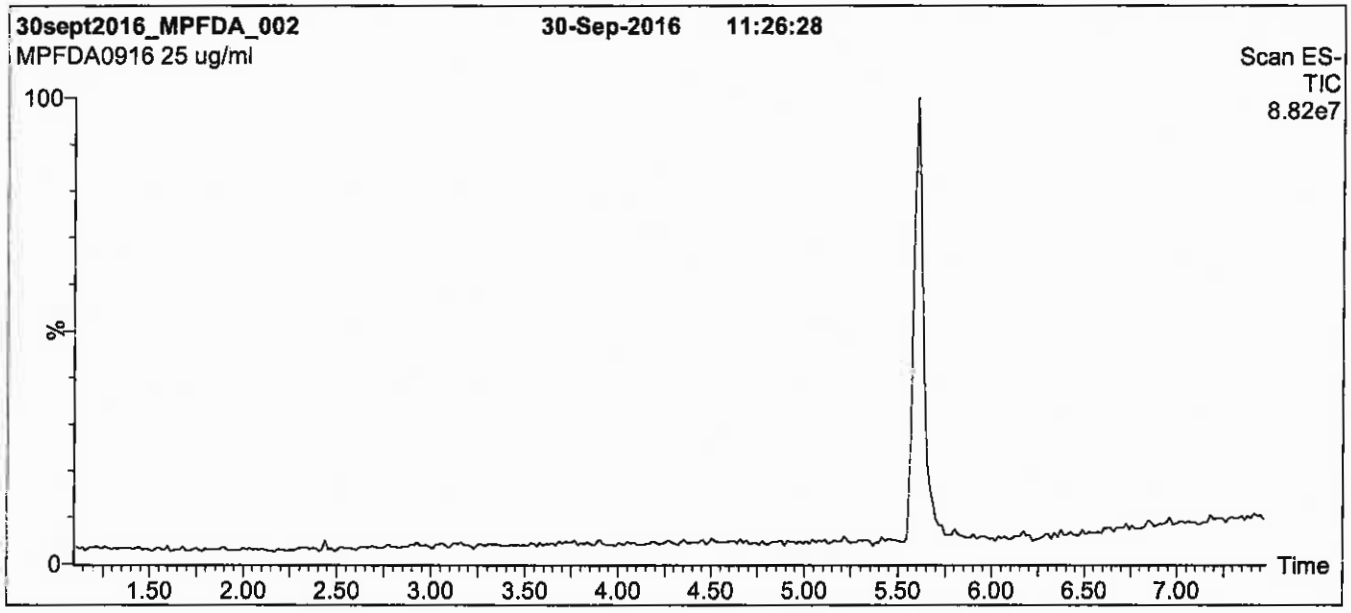
At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

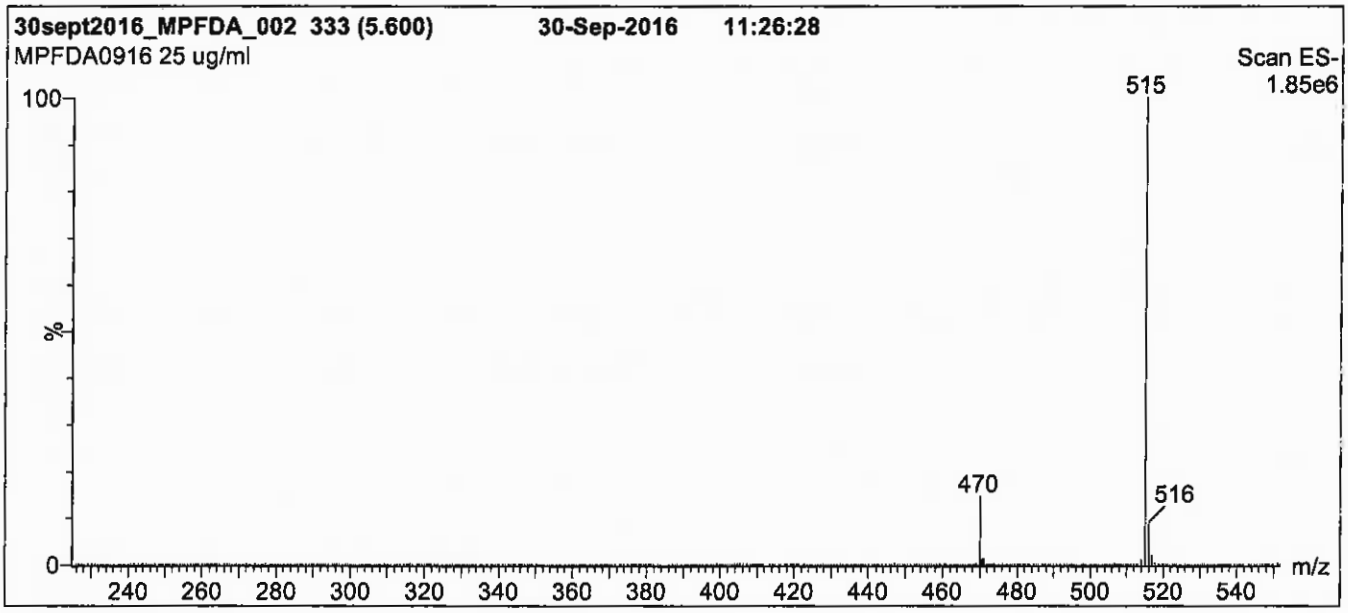
QUALITY MANAGEMENT:

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

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

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





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

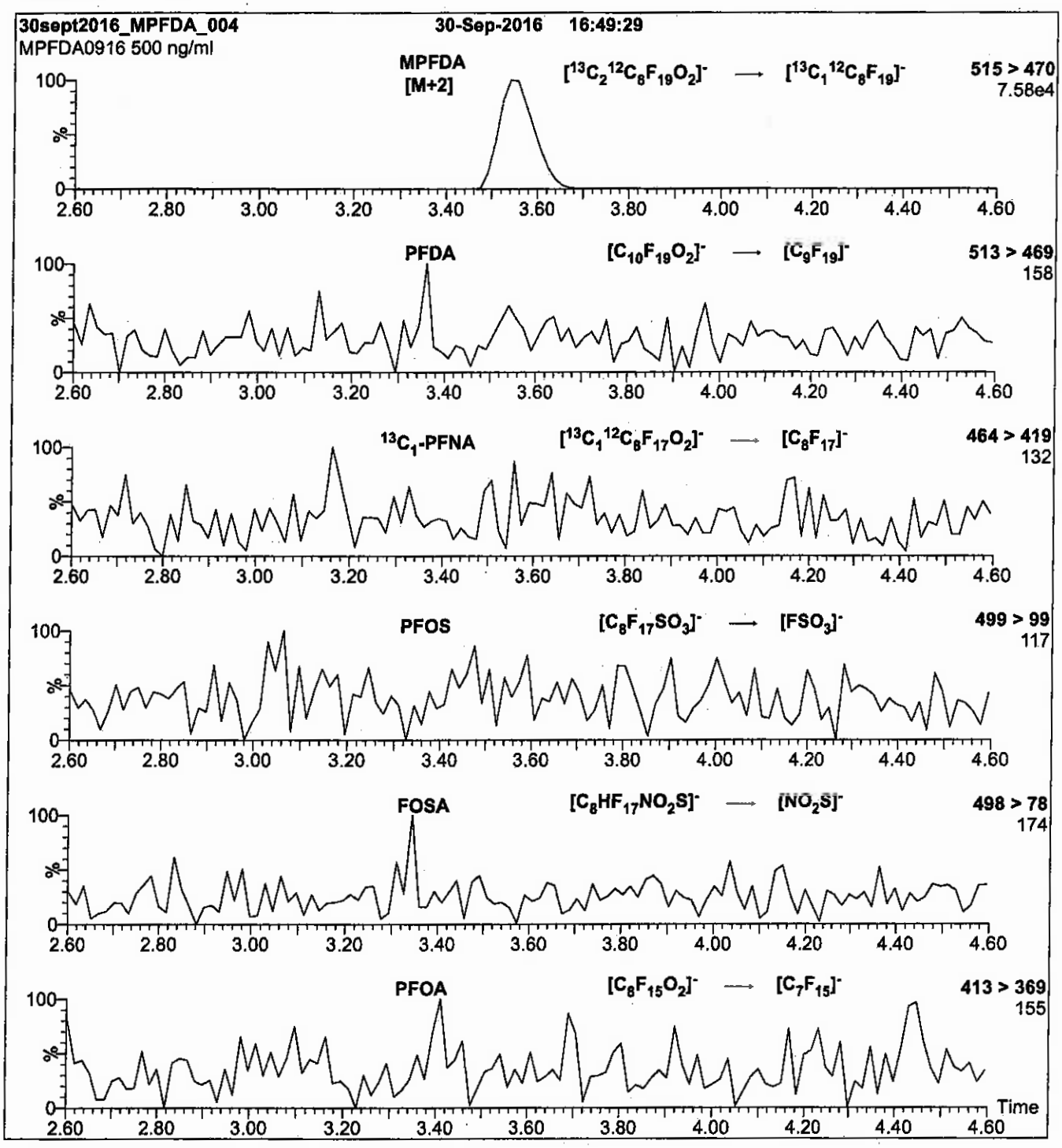
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

Injection:	Direct loop injection 10 µl (500 ng/ml MPFDA)
Mobile phase:	Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O (both with 10 mM NH_4OAc buffer)
Flow:	300 µl/min

MS Parameters

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

Reagent

LCMPFHxA_00013

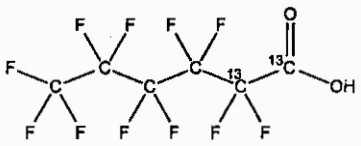
R: SBC 12/21/16

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

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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



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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

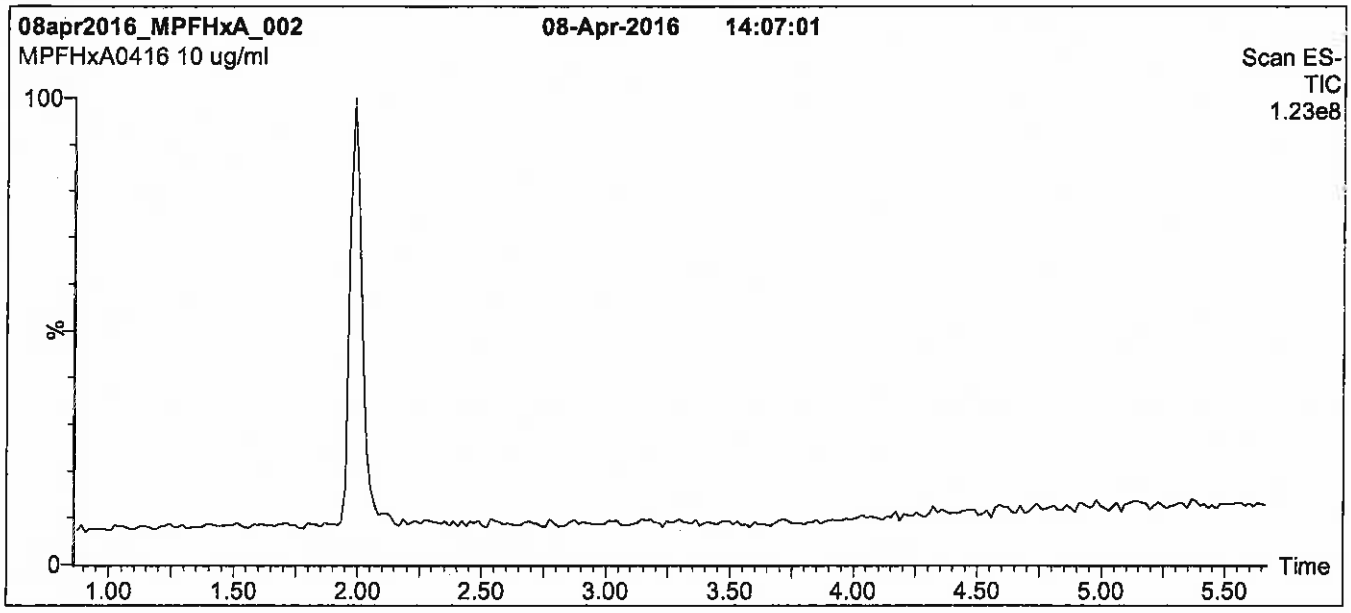
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

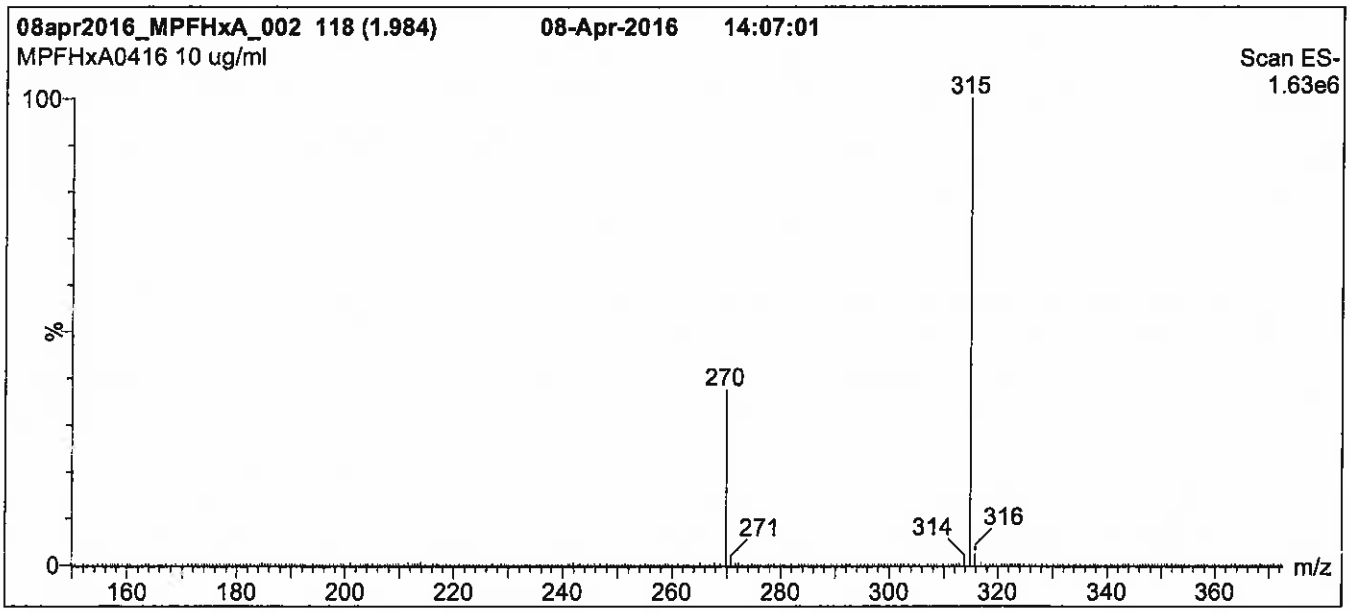
CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

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





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

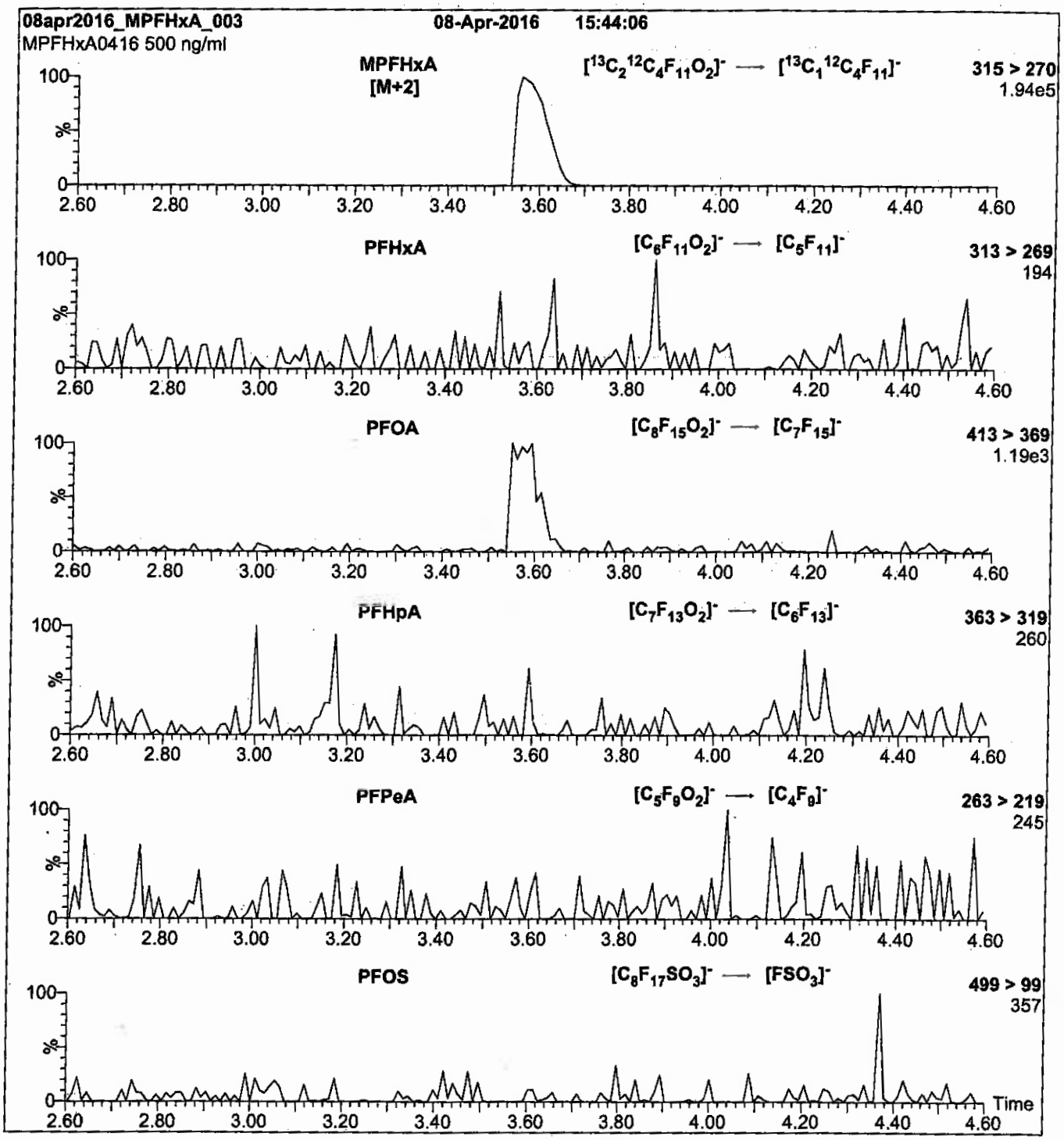
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCMPFHxA_00015

r: 5/8/17 std

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

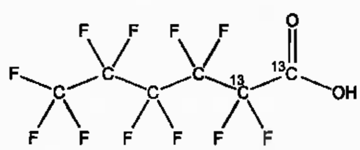
PRODUCT CODE: MPFHxA

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

LOT NUMBER: MPFHxA1116

STRUCTURE:

CAS #: Not available



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

CONCENTRATION: 50 ± 2.5 μg/ml

CHEMICAL PURITY: >98%

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

MOLECULAR WEIGHT: 316.04

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

INTENDED USE:

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CALA

ANAB ACCREDITED

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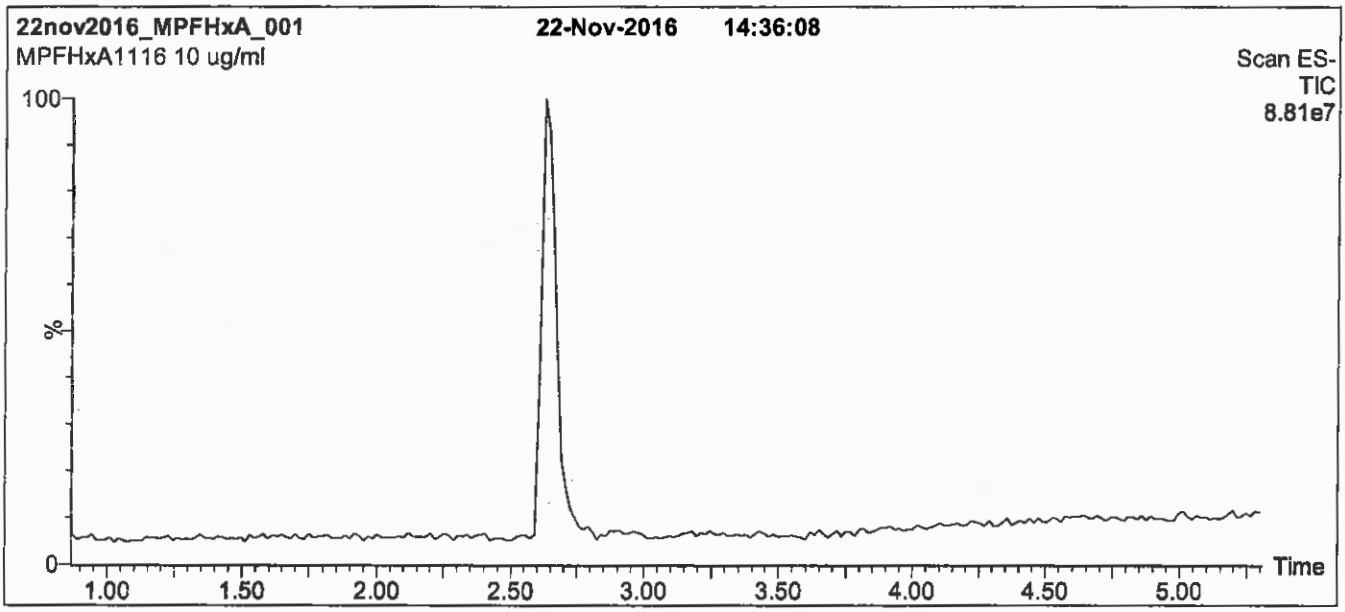
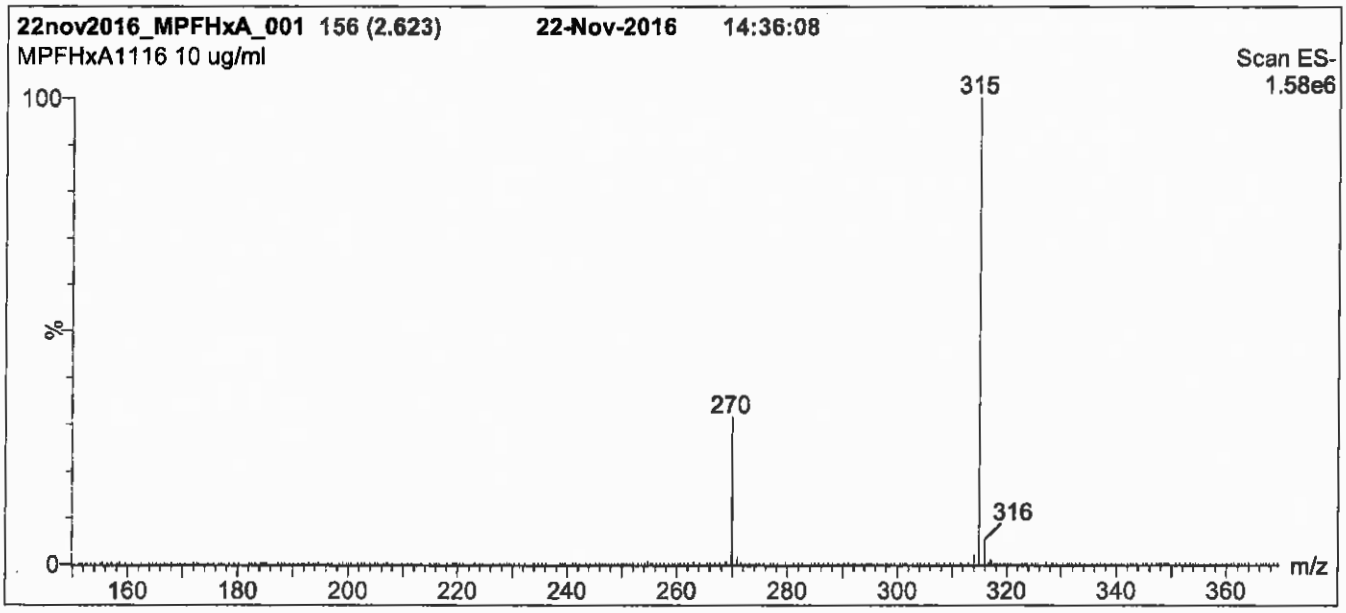




Conditions for Figure 1:

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

Chromatographic Conditions

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

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

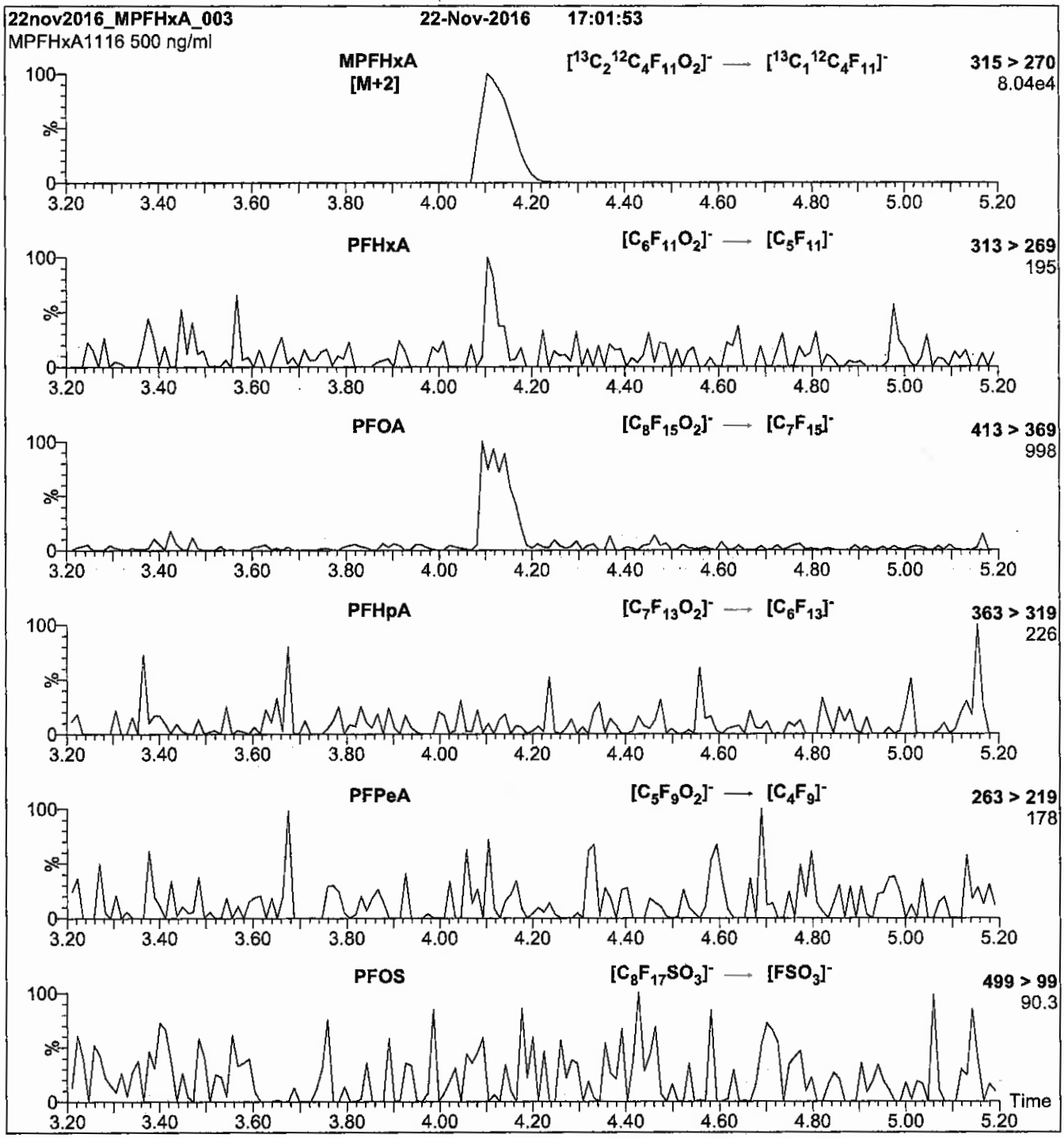
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCMPFOS_00019

R: SBC 12/21/16

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

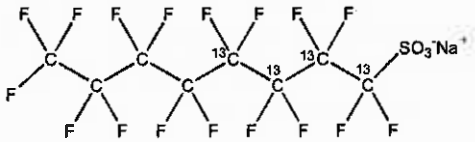
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

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

STRUCTURE: **CAS #:** Not available



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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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

UNCERTAINTY:

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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:

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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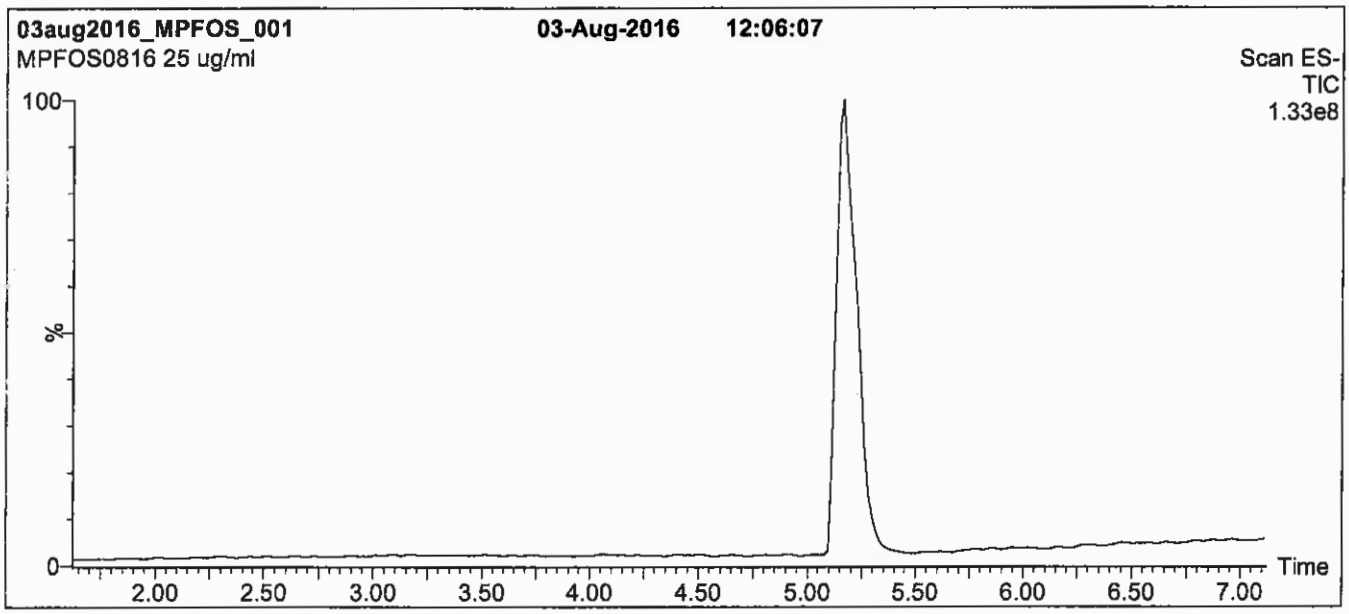
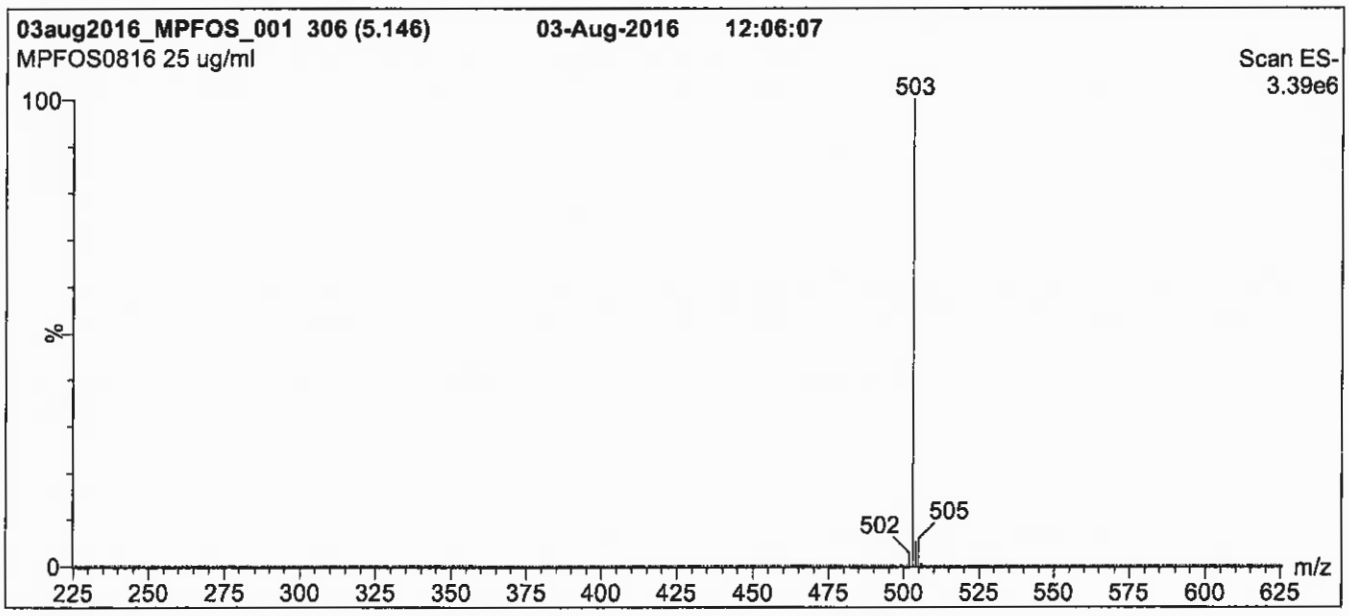
Figure 1: **MPFOS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

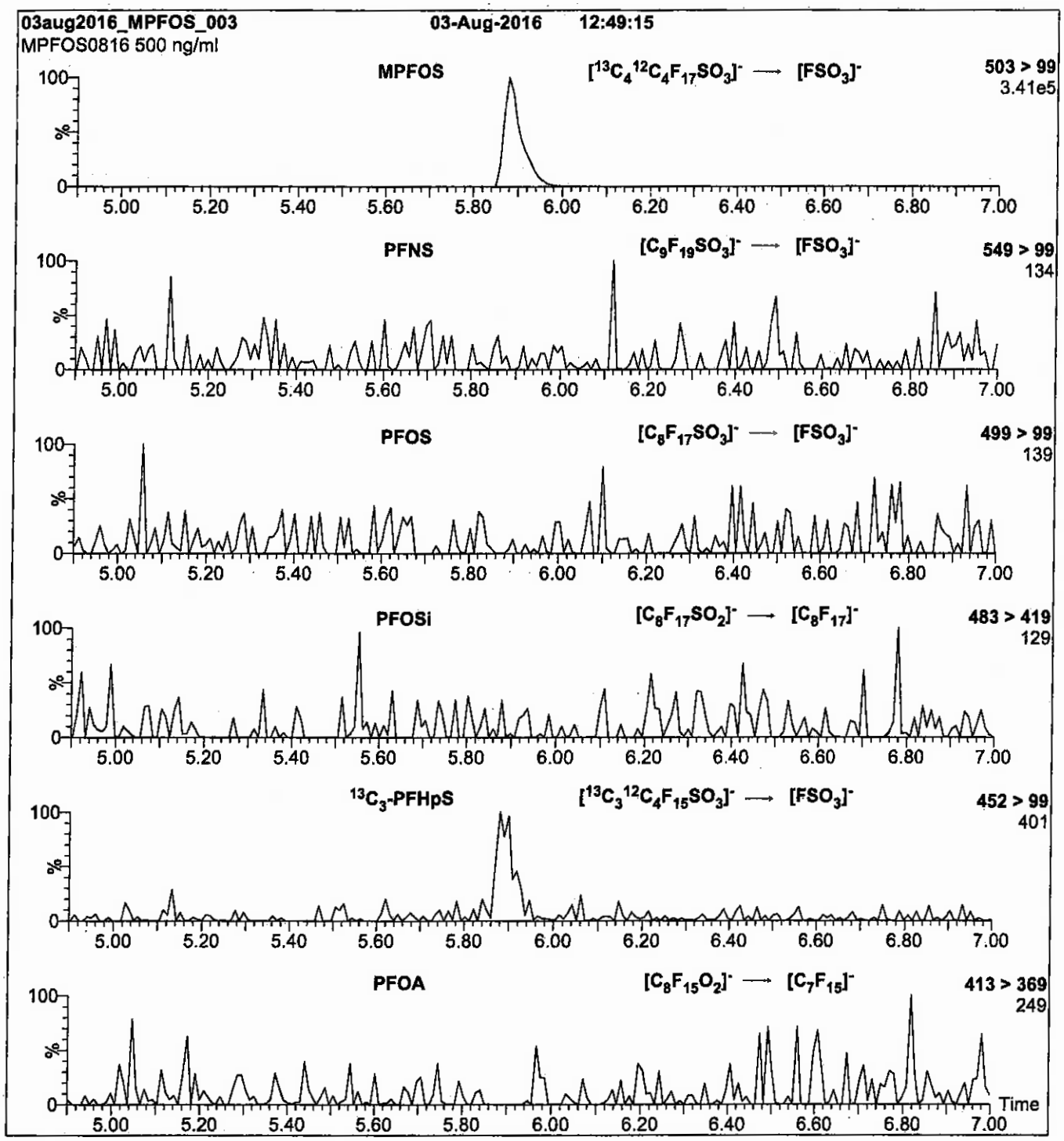
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

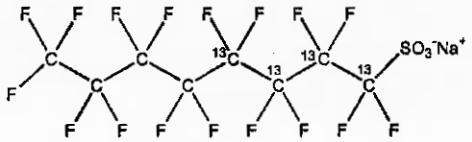
LCMPFOS_00021

r: 5/8/17 SKV

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

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



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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		

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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:

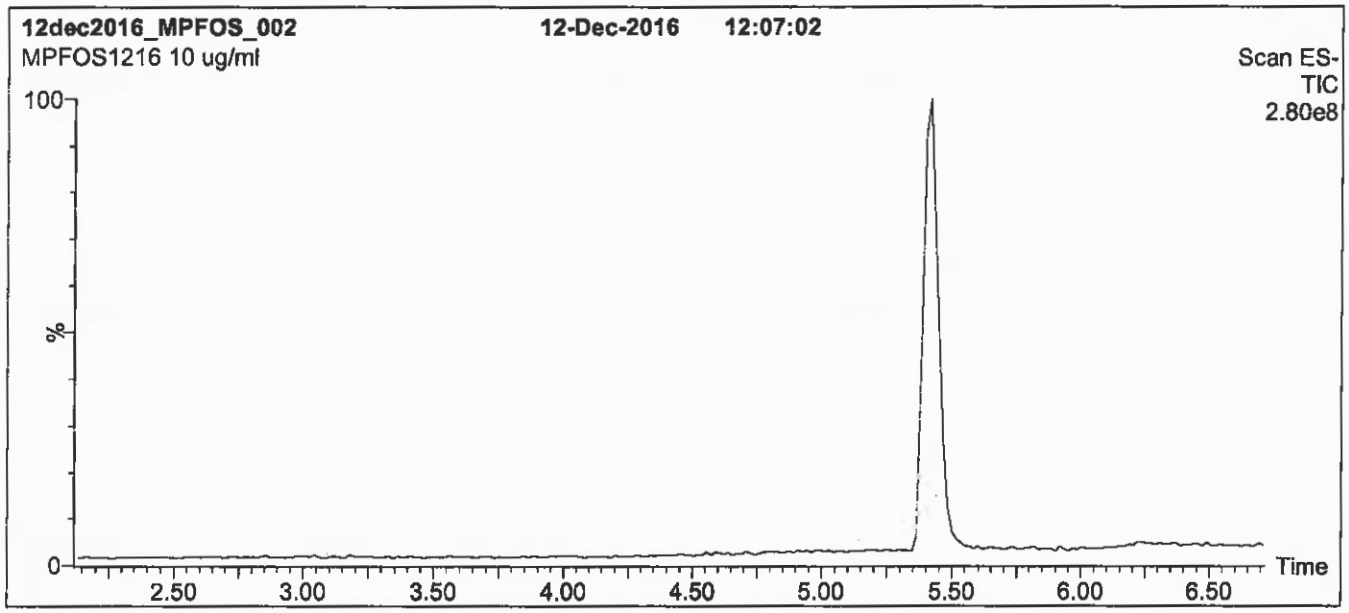
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

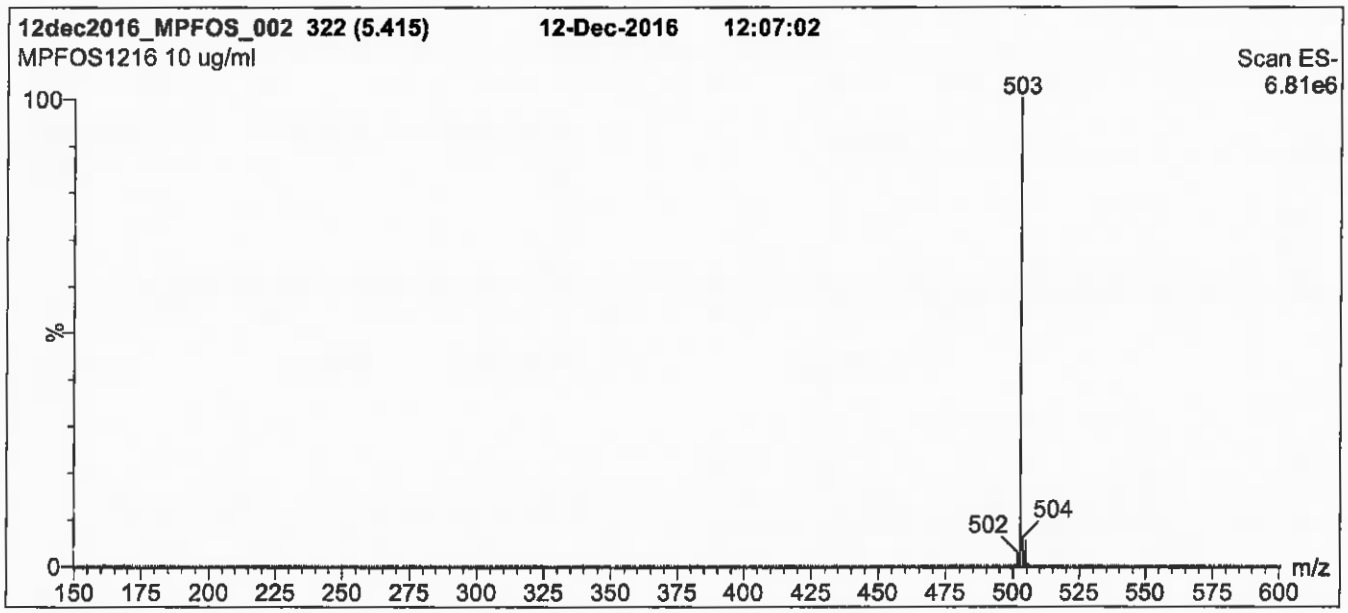
CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

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





Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 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

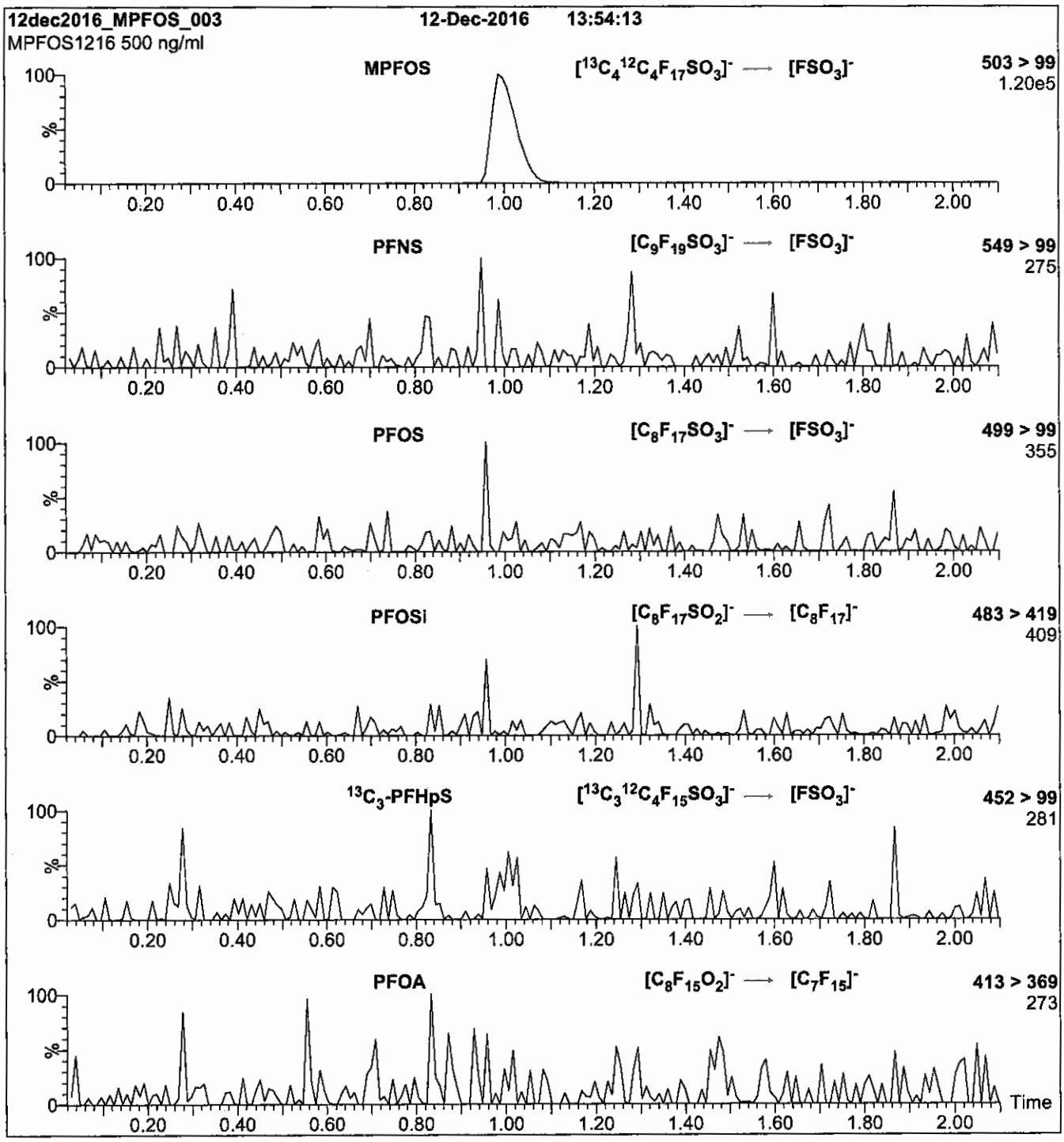
Flow: 300 µl/min

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.: 320-35442-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #		PFDA #
NAWC-012518-RW-256	320-35442-1	90		104
NAWC-012518-FRB-256	320-35442-2	112		126
NAWC-012518-RW-169	320-35442-3	109		104
NAWC-012518-FRB-169	320-35442-4	110		126
NAWC-012518-RW-236	320-35442-5	108		115
NAWC-012518-FRB-236	320-35442-6	100		116
NAWC-012518-RW-153	320-35442-7	112		110
NAWC-012518-FRB-153	320-35442-8	116		113
NAWC-012518-RW-155	320-35442-9	101		106
NAWC-012518-FRB-155	320-35442-10	109		110
WGNA-012518-DUP-23	320-35442-11	113		118
NAWC-012518-RW-094	320-35442-12	93		114
NAWC-012518-FRB-094	320-35442-13	113		111
NAWC-012518-RW-168	320-35442-14	109		110
NAWC-012518-FRB-168	320-35442-15	115		116
NAWC-012518-RW-238	320-35442-16	108		106
NAWC-012518-FRB-238	320-35442-17	12	Q	75
NAWC-012518-RW-162	320-35442-18	103		101
NAWC-012518-FRB-162	320-35442-19	105		104
NAWC-012518-RW-300	320-35442-20	107		108
NAWC-012518-FRB-300	320-35442-21	87		84
NAWC-012518-RW-064	320-35442-22	74		82
NAWC-012518-FRB-064	320-35442-23	91		86
	MB 320-206718/1-A	93		87
	MB 320-206719/1-A	103		111
	LCS 320-206718/2-A	86		87
	LCS 320-206719/2-A	109		103
	LCSD 320-206718/3-A	90		83

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

Column to be used to flag recovery values

FORM II 537

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
	LCSD 320-206719/3-A	109	109

	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.: 320-35442-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.08_537AA_037.d

Lab ID: LCS 320-206718/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	223	189	85	70-130	M
Perfluorooctanoic acid (PFOA)	112	104	93	70-130	
Perfluorononanoic acid (PFNA)	111	102	92	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	147	88	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	59.3	107	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	390	78	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.08_537A_008.d

Lab ID: LCS 320-206719/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	134	136	101	70-130	M
Perfluorooctanoic acid (PFOA)	67.0	71.1	106	70-130	
Perfluorononanoic acid (PFNA)	66.7	71.5	107	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	109	109	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	40.4	121	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	309	103	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.08_537AA_038.d

Lab ID: LCSD 320-206718/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	223	196	88	4	30	70-130	M
Perfluorooctanoic acid (PFOA)	112	109	98	5	30	70-130	
Perfluorononanoic acid (PFNA)	111	104	94	2	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	155	93	5	30	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	61.0	110	3	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	414	83	6	30	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.08_537A_009.d

Lab ID: LCSD 320-206719/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	134	139	104	3	30	70-130	M
Perfluorooctanoic acid (PFOA)	67.0	75.4	112	6	30	70-130	
Perfluorononanoic acid (PFNA)	66.7	72.0	108	1	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	111	111	2	30	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	40.0	120	1	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	305	102	1	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.: 320-35442-1

SDG No.:

Lab File ID: 2018.02.08_537A_007.d Lab Sample ID: MB 320-206719/1-A

Matrix: Water Date Extracted: 02/02/2018 12:57

Instrument ID: A8_N Date Analyzed: 02/08/2018 08:01

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-206719/2-A	2018.02.08_537A_008.d	02/08/2018 08:05
	LCSD 320-206719/3-A	2018.02.08_537A_009.d	02/08/2018 08:10
NAWC-012518-RW-256	320-35442-1	2018.02.08_537A_010.d	02/08/2018 08:15
NAWC-012518-FRB-256	320-35442-2	2018.02.08_537A_011.d	02/08/2018 08:19
NAWC-012518-RW-169	320-35442-3	2018.02.08_537A_012.d	02/08/2018 08:24
NAWC-012518-FRB-169	320-35442-4	2018.02.08_537A_013.d	02/08/2018 08:29
NAWC-012518-RW-236	320-35442-5	2018.02.08_537A_014.d	02/08/2018 08:33
NAWC-012518-FRB-236	320-35442-6	2018.02.08_537A_015.d	02/08/2018 08:38
NAWC-012518-RW-153	320-35442-7	2018.02.08_537A_016.d	02/08/2018 08:43
NAWC-012518-FRB-153	320-35442-8	2018.02.08_537A_019.d	02/08/2018 08:57
NAWC-012518-RW-155	320-35442-9	2018.02.08_537A_020.d	02/08/2018 09:01
NAWC-012518-FRB-155	320-35442-10	2018.02.08_537A_021.d	02/08/2018 09:06
WGNA-012518-DUP-23	320-35442-11	2018.02.08_537A_022.d	02/08/2018 09:11
NAWC-012518-RW-094	320-35442-12	2018.02.08_537A_023.d	02/08/2018 09:15
NAWC-012518-FRB-094	320-35442-13	2018.02.08_537A_024.d	02/08/2018 09:20
NAWC-012518-RW-168	320-35442-14	2018.02.08_537A_025.d	02/08/2018 09:25
NAWC-012518-FRB-168	320-35442-15	2018.02.08_537A_026.d	02/08/2018 09:30
NAWC-012518-RW-238	320-35442-16	2018.02.08_537A_027.d	02/08/2018 09:34
NAWC-012518-FRB-238	320-35442-17	2018.02.08_537A_028.d	02/08/2018 09:39
NAWC-012518-RW-162	320-35442-18	2018.02.08_537A_031.d	02/08/2018 09:53
NAWC-012518-FRB-162	320-35442-19	2018.02.08_537A_032.d	02/08/2018 09:58
NAWC-012518-RW-300	320-35442-20	2018.02.08_537A_033.d	02/08/2018 10:02

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab File ID: 2018.02.08_537AA_036.d Lab Sample ID: MB 320-206718/1-A

Matrix: Water Date Extracted: 02/02/2018 13:03

Instrument ID: A8_N Date Analyzed: 02/08/2018 10:49

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-206718/2-A	2018.02.08_537AA_037.d	02/08/2018 10:54
	LCSD 320-206718/3-A	2018.02.08_537AA_038.d	02/08/2018 10:58
NAWC-012518-FRB-300	320-35442-21	2018.02.08_537AA_039.d	02/08/2018 11:03
NAWC-012518-RW-064	320-35442-22	2018.02.08_537AA_040.d	02/08/2018 11:08
NAWC-012518-FRB-064	320-35442-23	2018.02.08_537AA_041.d	02/08/2018 11:12

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 11/03/2017 14:01

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		1535518	1.91	3276559	2.15		
UPPER LIMIT		2303277	2.41	4914839	2.65		
LOWER LIMIT		767759	1.41	1638280	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-192908/11		1586829	1.91	3305852	2.15		
ICV 320-192908/13		1512045	1.90	3433628	2.14		
CCVL 320-207581/1		1366684	1.81	2879967	2.06		
CCV 320-207581/2 CCVIS		1342738	1.80	3007844	2.05		
MB 320-206719/1-A		1364963	1.81	3110629	2.05		
LCS 320-206719/2-A		1406945	1.81	3150925	2.05		
LCSD 320-206719/3-A		1352716	1.80	3114181	2.05		
320-35442-1	NAWC-012518-RW-256	1562901	1.81	3444146	2.05		
320-35442-2	NAWC-012518-FRB-256	1336387	1.81	3353192	2.05		
320-35442-3	NAWC-012518-RW-169	1455562	1.81	3184762	2.04		
320-35442-4	NAWC-012518-FRB-169	1454410	1.81	3386009	2.05		
320-35442-5	NAWC-012518-RW-236	1482068	1.80	3296436	2.04		
320-35442-6	NAWC-012518-FRB-236	1438482	1.80	3359153	2.04		
320-35442-7	NAWC-012518-RW-153	1396188	1.80	3177080	2.04		
CCV 320-207581/14 CCVIS		1307153	1.80	2985038	2.05		
CCV 320-207582/14 CCVIS		1307153	1.80	2985038	2.05		
320-35442-8	NAWC-012518-FRB-153	1390937	1.80	3132621	2.04		
320-35442-9	NAWC-012518-RW-155	1525472	1.80	3363000	2.04		
320-35442-10	NAWC-012518-FRB-155	1473546	1.80	3293399	2.04		
320-35442-11	WGNA-012518-DUP-23	1388441	1.81	3240317	2.05		
320-35442-12	NAWC-012518-RW-094	1435121	1.80	3220391	2.04		
320-35442-13	NAWC-012518-FRB-094	1380850	1.80	3226584	2.04		
320-35442-14	NAWC-012518-RW-168	1475449	1.80	3454464	2.04		
320-35442-15	NAWC-012518-FRB-168	1347640	1.81	3277744	2.05		
320-35442-16	NAWC-012518-RW-238	1446634	1.81	3271778	2.05		
320-35442-17	NAWC-012518-FRB-238	1413447	1.79	3280953	2.03		
CCV 320-207582/26 CCVIS		1346682	1.79	2971996	2.04		
CCV 320-207584/26 CCVIS		1346682	1.79	2971996	2.04		

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.: 320-35442-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 11/03/2017 14:01

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		1535518	1.91	3276559	2.15		
UPPER LIMIT		2303277	2.41	4914839	2.65		
LOWER LIMIT		767759	1.41	1638280	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35442-18	NAWC-012518-RW-162	1465557	1.80	3557114	2.04		
320-35442-19	NAWC-012518-FRB-162	1510233	1.79	3464475	2.03		
320-35442-20	NAWC-012518-RW-300	1443475	1.79	3486586	2.03		
CCV 320-207584/31 CCVIS		1319750	1.79	3004560	2.03		
CCV 320-207588/1 CCVIS		1287308	1.80	2846828	2.04		
MB 320-206718/1-A		1473815	1.80	3467952	2.04		
LCS 320-206718/2-A		1466908	1.80	3537248	2.03		
LCSD 320-206718/3-A		1391557	1.79	3341800	2.03		
320-35442-21	NAWC-012518-FRB-300	1456713	1.80	3374971	2.04		
320-35442-22	NAWC-012518-RW-064	1481823	1.79	3499918	2.03		
320-35442-23	NAWC-012518-FRB-064	1398055	1.79	3349760	2.03		
CCV 320-207588/9 CCVIS		1276407	1.80	2931691	2.04		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207581/2 Date Analyzed: 02/08/2018 07:51

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

Lab File ID (Standard): 2018.02.08_537A_005 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1342738	1.80	3007844	2.05		
UPPER LIMIT		1879833	2.30	4210982	2.55		
LOWER LIMIT		939917	1.30	2105491	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-206719/1-A		1364963	1.81	3110629	2.05		
LCS 320-206719/2-A		1406945	1.81	3150925	2.05		
LCSD 320-206719/3-A		1352716	1.80	3114181	2.05		
320-35442-1	NAWC-012518-RW-256	1562901	1.81	3444146	2.05		
320-35442-2	NAWC-012518-FRB-256	1336387	1.81	3353192	2.05		
320-35442-3	NAWC-012518-RW-169	1455562	1.81	3184762	2.04		
320-35442-4	NAWC-012518-FRB-169	1454410	1.81	3386009	2.05		
320-35442-5	NAWC-012518-RW-236	1482068	1.80	3296436	2.04		
320-35442-6	NAWC-012518-FRB-236	1438482	1.80	3359153	2.04		
320-35442-7	NAWC-012518-RW-153	1396188	1.80	3177080	2.04		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207581/14 Date Analyzed: 02/08/2018 08:47

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

Lab File ID (Standard): 2018.02.08_537A_017 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1307153	1.80	2985038	2.05		
UPPER LIMIT		1830014	2.30	4179053	2.55		
LOWER LIMIT		915007	1.30	2089527	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-206719/1-A		1364963	1.81	3110629	2.05		
LCS 320-206719/2-A		1406945	1.81	3150925	2.05		
LCSD 320-206719/3-A		1352716	1.80	3114181	2.05		
320-35442-1	NAWC-012518-RW-256	1562901	1.81	3444146	2.05		
320-35442-2	NAWC-012518-FRB-256	1336387	1.81	3353192	2.05		
320-35442-3	NAWC-012518-RW-169	1455562	1.81	3184762	2.04		
320-35442-4	NAWC-012518-FRB-169	1454410	1.81	3386009	2.05		
320-35442-5	NAWC-012518-RW-236	1482068	1.80	3296436	2.04		
320-35442-6	NAWC-012518-FRB-236	1438482	1.80	3359153	2.04		
320-35442-7	NAWC-012518-RW-153	1396188	1.80	3177080	2.04		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207582/14 Date Analyzed: 02/08/2018 08:47

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

Lab File ID (Standard): 2018.02.08_537A_017 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1307153	1.80	2985038	2.05		
UPPER LIMIT		1830014	2.30	4179053	2.55		
LOWER LIMIT		915007	1.30	2089527	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35442-8	NAWC-012518-FRB-153	1390937	1.80	3132621	2.04		
320-35442-9	NAWC-012518-RW-155	1525472	1.80	3363000	2.04		
320-35442-10	NAWC-012518-FRB-155	1473546	1.80	3293399	2.04		
320-35442-11	WGNA-012518-DUP-23	1388441	1.81	3240317	2.05		
320-35442-12	NAWC-012518-RW-094	1435121	1.80	3220391	2.04		
320-35442-13	NAWC-012518-FRB-094	1380850	1.80	3226584	2.04		
320-35442-14	NAWC-012518-RW-168	1475449	1.80	3454464	2.04		
320-35442-15	NAWC-012518-FRB-168	1347640	1.81	3277744	2.05		
320-35442-16	NAWC-012518-RW-238	1446634	1.81	3271778	2.05		
320-35442-17	NAWC-012518-FRB-238	1413447	1.79	3280953	2.03		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207582/26 Date Analyzed: 02/08/2018 09:44

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

Lab File ID (Standard): 2018.02.08_537A_029 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1346682	1.79	2971996	2.04		
UPPER LIMIT		1885355	2.29	4160794	2.54		
LOWER LIMIT		942677	1.29	2080397	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35442-8	NAWC-012518-FRB-153	1390937	1.80	3132621	2.04		
320-35442-9	NAWC-012518-RW-155	1525472	1.80	3363000	2.04		
320-35442-10	NAWC-012518-FRB-155	1473546	1.80	3293399	2.04		
320-35442-11	WGNA-012518-DUP-23	1388441	1.81	3240317	2.05		
320-35442-12	NAWC-012518-RW-094	1435121	1.80	3220391	2.04		
320-35442-13	NAWC-012518-FRB-094	1380850	1.80	3226584	2.04		
320-35442-14	NAWC-012518-RW-168	1475449	1.80	3454464	2.04		
320-35442-15	NAWC-012518-FRB-168	1347640	1.81	3277744	2.05		
320-35442-16	NAWC-012518-RW-238	1446634	1.81	3271778	2.05		
320-35442-17	NAWC-012518-FRB-238	1413447	1.79	3280953	2.03		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207584/26 Date Analyzed: 02/08/2018 09:44

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

Lab File ID (Standard): 2018.02.08_537A_029 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1346682	1.79	2971996	2.04		
UPPER LIMIT		1885355	2.29	4160794	2.54		
LOWER LIMIT		942677	1.29	2080397	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35442-18	NAWC-012518-RW-162	1465557	1.80	3557114	2.04		
320-35442-19	NAWC-012518-FRB-162	1510233	1.79	3464475	2.03		
320-35442-20	NAWC-012518-RW-300	1443475	1.79	3486586	2.03		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207584/31 Date Analyzed: 02/08/2018 10:07

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

Lab File ID (Standard): 2018.02.08_537A_034 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1319750	1.79	3004560	2.03		
UPPER LIMIT		1847650	2.29	4206384	2.53		
LOWER LIMIT		923825	1.29	2103192	1.53		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35442-18	NAWC-012518-RW-162	1465557	1.80	3557114	2.04		
320-35442-19	NAWC-012518-FRB-162	1510233	1.79	3464475	2.03		
320-35442-20	NAWC-012518-RW-300	1443475	1.79	3486586	2.03		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207588/1 Date Analyzed: 02/08/2018 10:40

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

Lab File ID (Standard): 2018.02.08_537AA_03 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1287308	1.80	2846828	2.04		
UPPER LIMIT		1802231	2.30	3985559	2.54		
LOWER LIMIT		901116	1.30	1992780	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-206718/1-A		1473815	1.80	3467952	2.04		
LCS 320-206718/2-A		1466908	1.80	3537248	2.03		
LCSD 320-206718/3-A		1391557	1.79	3341800	2.03		
320-35442-21	NAWC-012518-FRB-300	1456713	1.80	3374971	2.04		
320-35442-22	NAWC-012518-RW-064	1481823	1.79	3499918	2.03		
320-35442-23	NAWC-012518-FRB-064	1398055	1.79	3349760	2.03		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207588/9 Date Analyzed: 02/08/2018 11:17

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

Lab File ID (Standard): 2018.02.08_537AA_04 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1276407	1.80	2931691	2.04		
UPPER LIMIT		1786970	2.30	4104367	2.54		
LOWER LIMIT		893485	1.30	2052184	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-206718/1-A		1473815	1.80	3467952	2.04		
LCS 320-206718/2-A		1466908	1.80	3537248	2.03		
LCSD 320-206718/3-A		1391557	1.79	3341800	2.03		
320-35442-21	NAWC-012518-FRB-300	1456713	1.80	3374971	2.04		
320-35442-22	NAWC-012518-RW-064	1481823	1.79	3499918	2.03		
320-35442-23	NAWC-012518-FRB-064	1398055	1.79	3349760	2.03		

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.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-256 | Lab Sample ID: 320-35442-1

Matrix: Water | Lab File ID: 2018.02.08_537A_010.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 241.3(mL) | Date Analyzed: 02/08/2018 08:15

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	27		21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.4	J	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.2	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_010.d
Lims ID: 320-35442-A-1-A
Client ID: NAWC-012518-RW-256
Sample Type: Client
Inject. Date: 08-Feb-2018 08:15:10 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:06:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	302031	2.25		80.1	
298.90 > 99.00	1.366	1.366	0.0	1.000	212604		1.42(0.00-0.00)	287	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1547213	9.00		6627	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	312115	1.55		59.1	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	290178	1.98		25.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.798	0.008		1562901	10.0		5166	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.798	0.008	1.000	928873	6.42		72.3	
413.00 > 169.00	1.806	1.798	0.008	1.000	542211		1.71(0.00-0.00)	1027	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.041	0.007	1.000	935662	8.30		140	M
499.00 > 99.00	2.048	2.041	0.007	1.000	156404		5.98(0.00-0.00)	156	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3444146	28.7		1534	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.056	0.0	1.000	72097	0.6946		9.4	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1249385	10.4		7163	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

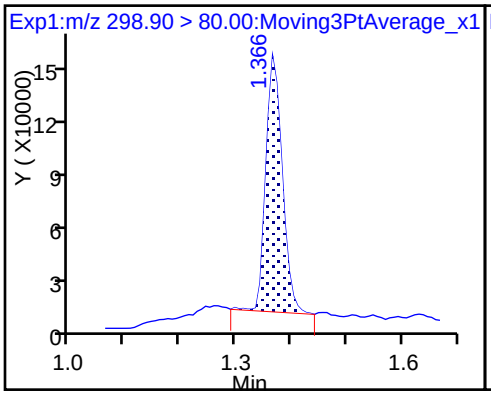
Report Date: 09-Feb-2018 09:51:58 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

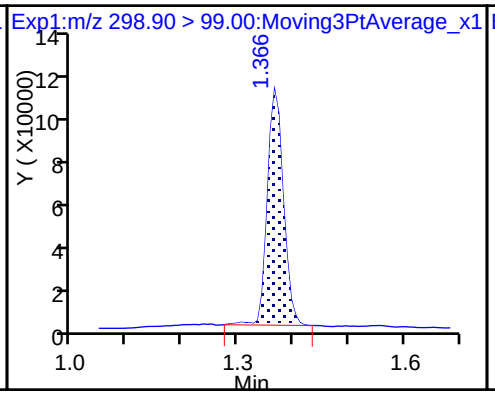
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_010.d

Injection Date:	08-Feb-2018 08:15:10	Instrument ID:	A8_N		
Lims ID:	320-35442-A-1-A	Lab Sample ID:	320-35442-1		
Client ID:	NAWC-012518-RW-256				
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		

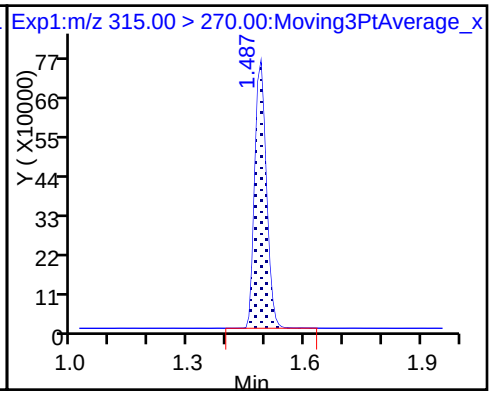
1 Perfluorobutanesulfonic acid



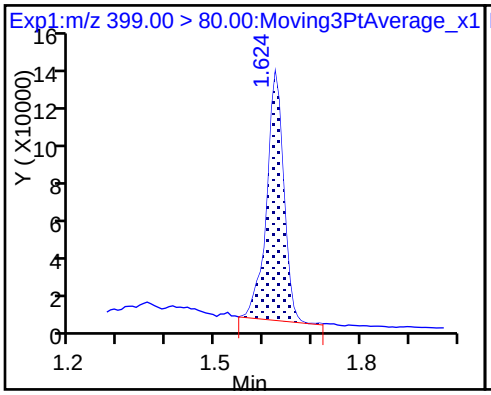
1 Perfluorobutanesulfonic acid



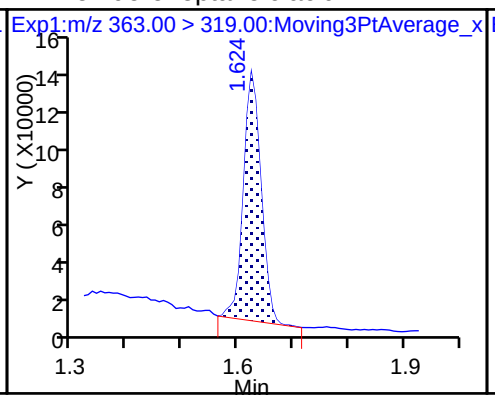
$ 2 13C2 PFHxA



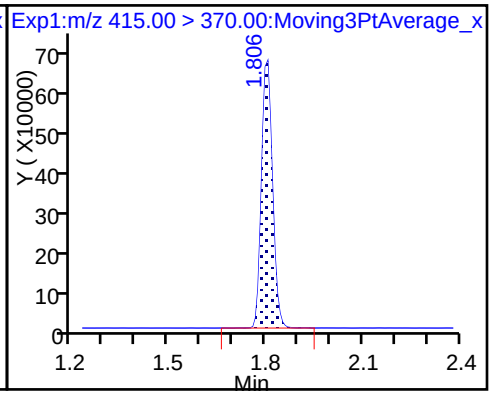
3 Perfluorohexanesulfonic acid



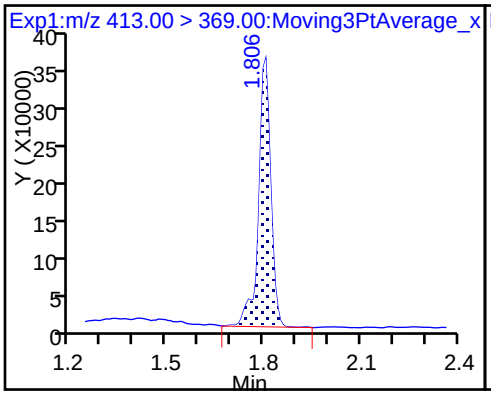
4 Perfluoroheptanoic acid



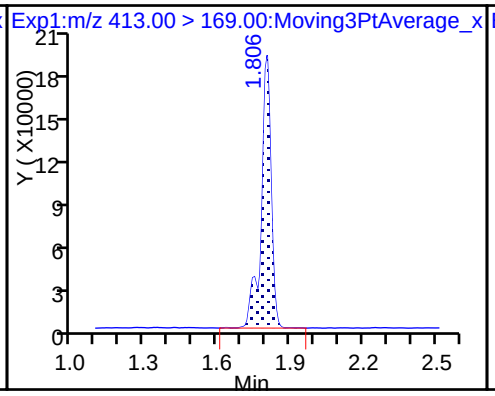
* 6 13C2-PFOA



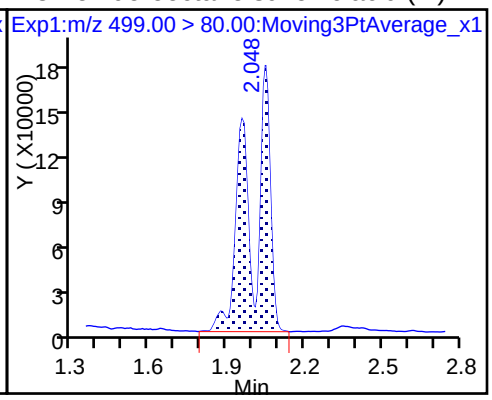
5 Perfluorooctanoic acid



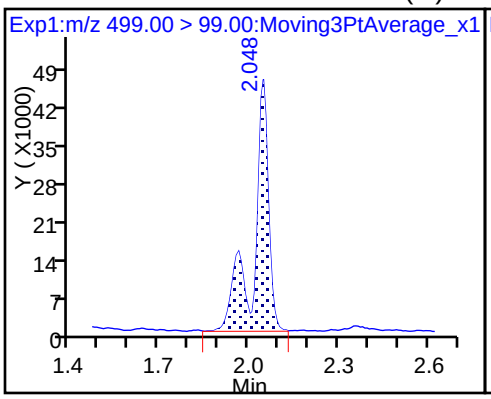
5 Perfluorooctanoic acid



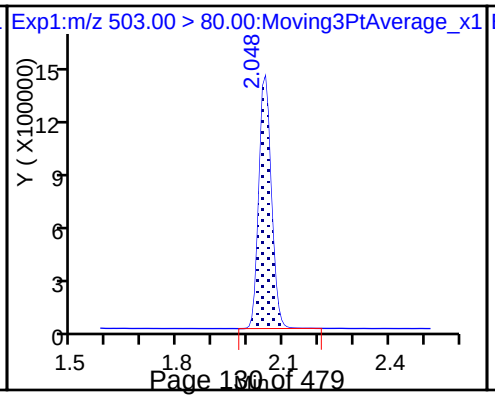
8 Perfluorooctane sulfonic acid (M)



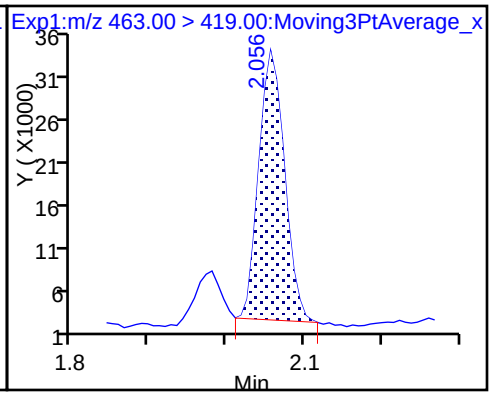
8 Perfluorooctane sulfonic acid (M)



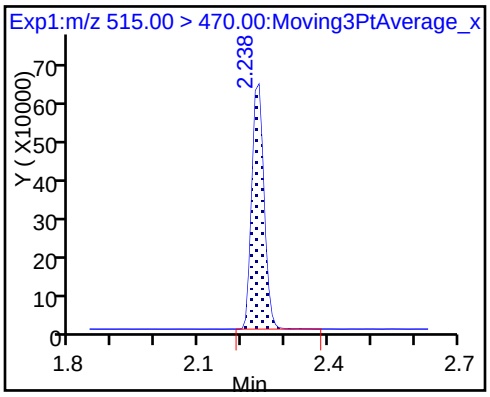
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_010.d				
Lims ID:	320-35442-A-1-A				
Client ID:	NAWC-012518-RW-256				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 08:15:10	ALS Bottle#:	4	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-1-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:51:51	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				
First Level Reviewer: barnettj		Date:	08-Feb-2018 17:06:43		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.00	89.97
$ 10 13C2 PFDA	10.0	10.4	104.47

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

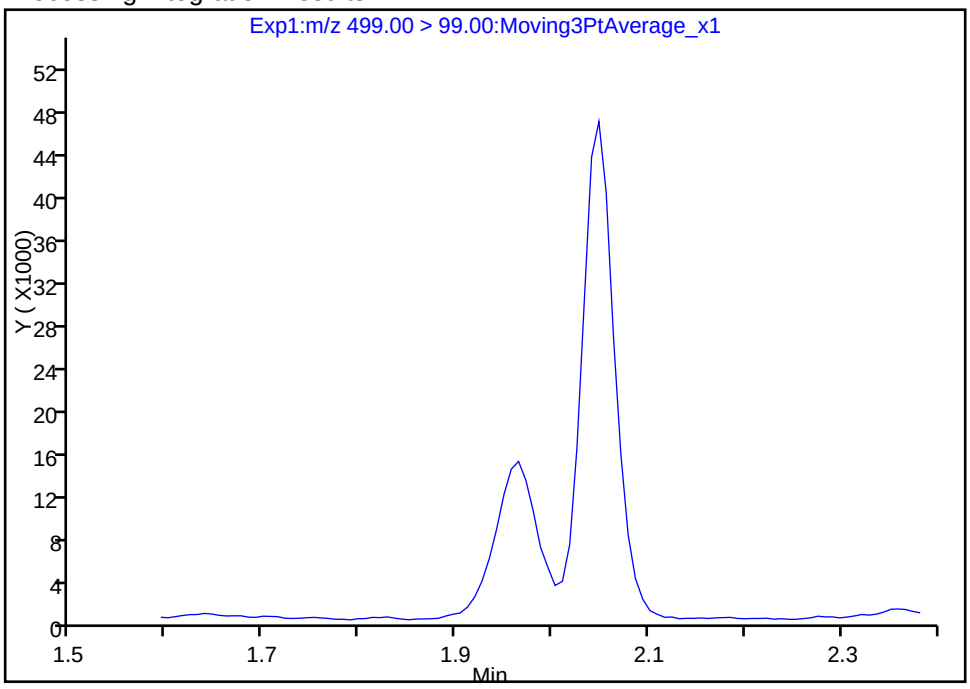
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_010.d				
Injection Date:	08-Feb-2018 08:15:10	Instrument ID:	A8_N		
Lims ID:	320-35442-A-1-A	Lab Sample ID:	320-35442-1		
Client ID:	NAWC-012518-RW-256				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	4	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

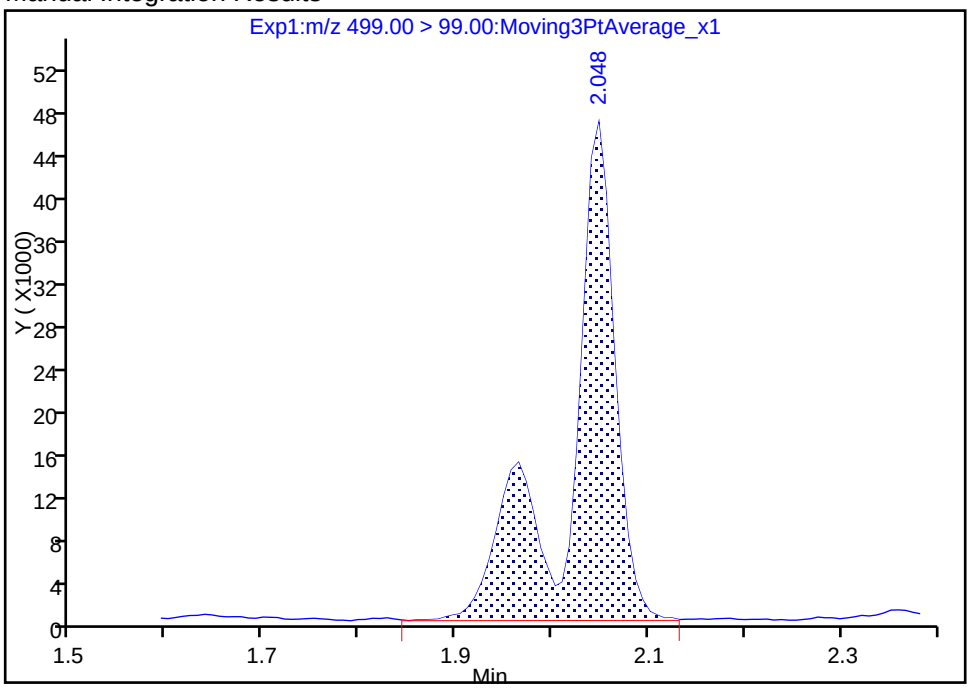
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 156404
Amount: 8.298025
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:06:18
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

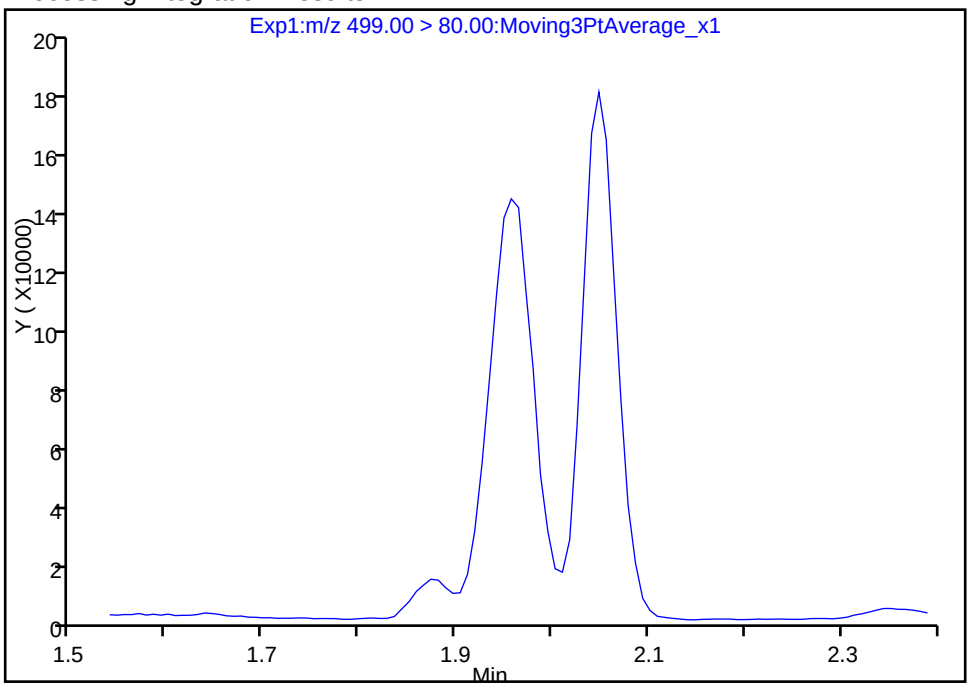
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_010.d				
Injection Date:	08-Feb-2018 08:15:10	Instrument ID:	A8_N		
Lims ID:	320-35442-A-1-A	Lab Sample ID:	320-35442-1		
Client ID:	NAWC-012518-RW-256				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	4	Worklist Smp#:	7
Injection 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

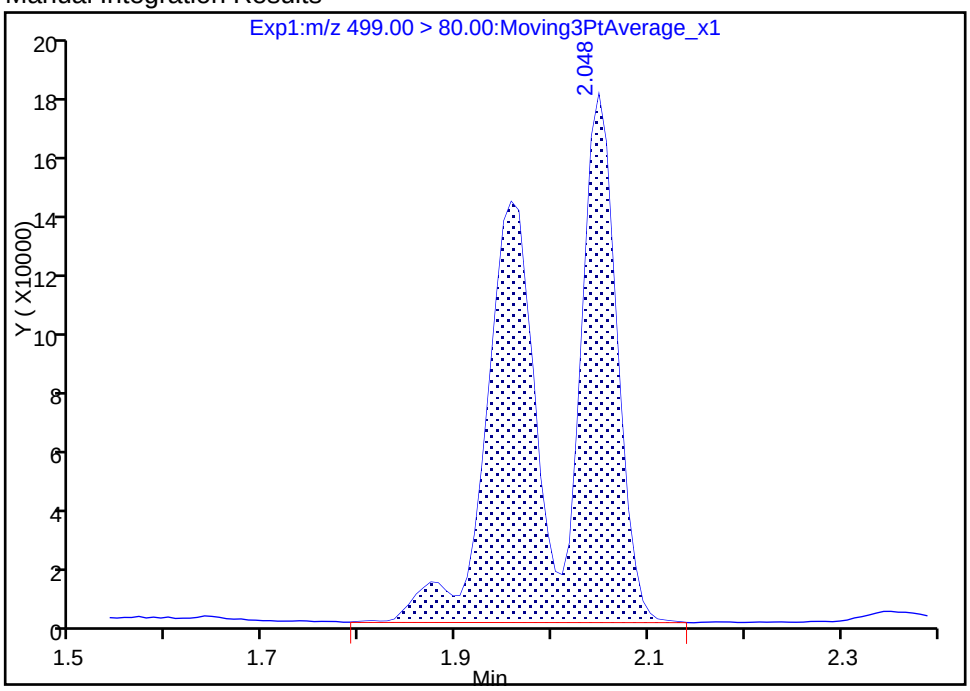
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 935662
Amount: 8.298025
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:06:18
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-256 | Lab Sample ID: 320-35442-2

Matrix: Water | Lab File ID: 2018.02.08_537A_011.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:05

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 253(mL) | Date Analyzed: 02/08/2018 08:19

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	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	112		70-130
STL00996	13C2 PFDA	126		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_011.d
Lims ID: 320-35442-A-2-A
Client ID: NAWC-012518-FRB-256
Sample Type: Client
Inject. Date: 08-Feb-2018 08:19:50 ALS Bottle#: 5 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1643203	11.2		6212	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.798	0.008		1336387	10.0		4934	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3353192	28.7		6512	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	1288604	12.6		8325	

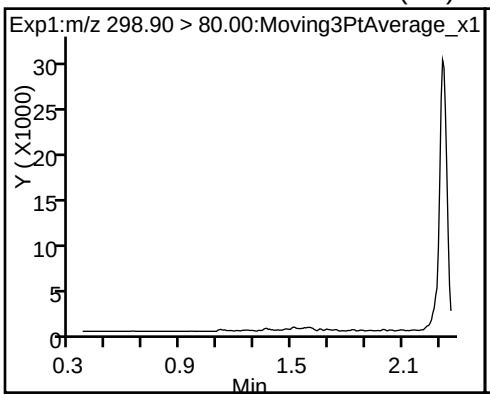
Report Date: 09-Feb-2018 09:51:59 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

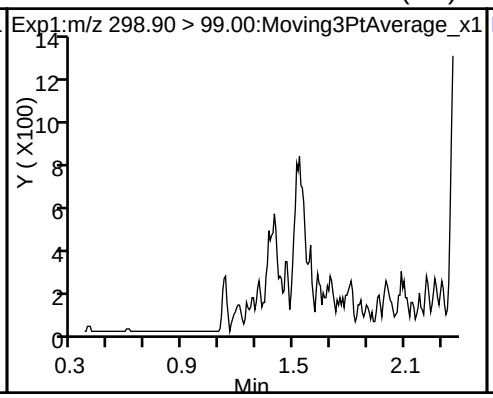
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_011.d

Injection Date:	08-Feb-2018 08:19:50	Instrument ID:	A8_N		
Lims ID:	320-35442-A-2-A	Lab Sample ID:	320-35442-2		
Client ID:	NAWC-012518-FRB-256				
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		

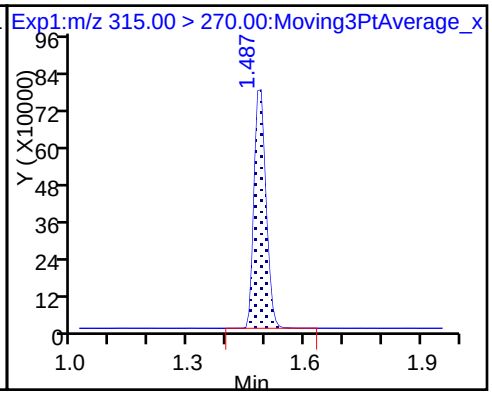
1 Perfluorobutanesulfonic acid (ND)



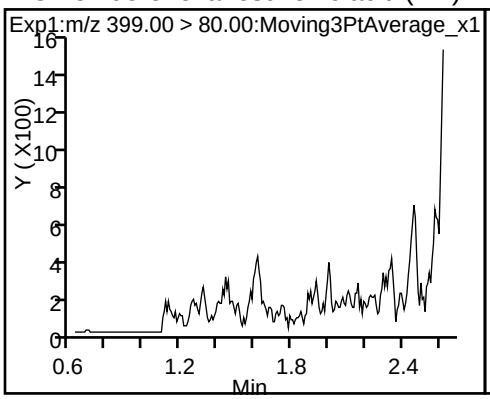
1 Perfluorobutanesulfonic acid (ND)



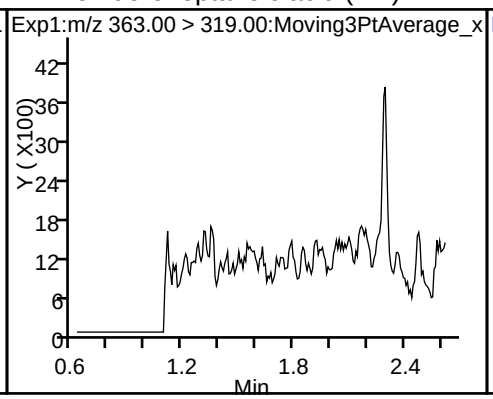
$ 2 13C2 PFHxA



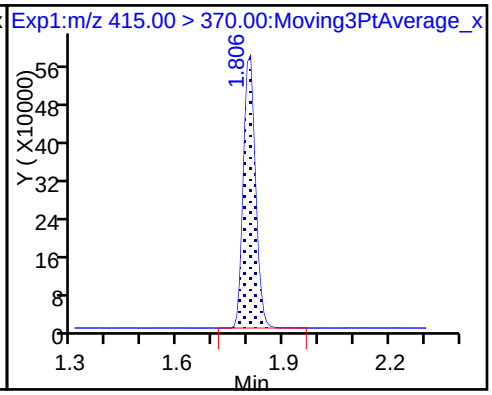
3 Perfluorohexanesulfonic acid (ND)



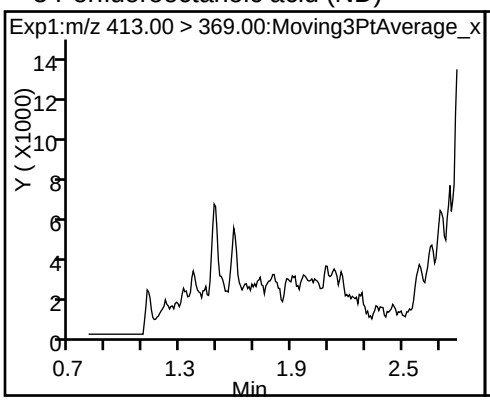
4 Perfluoroheptanoic acid (ND)



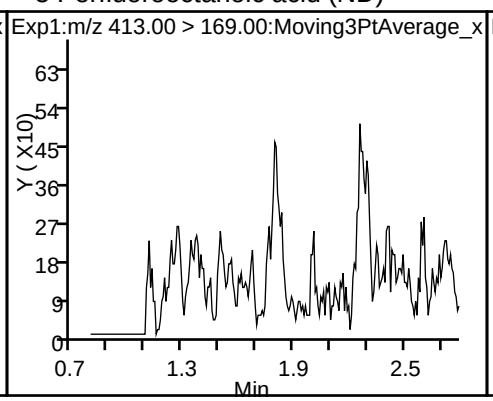
* 6 13C2-PFOA



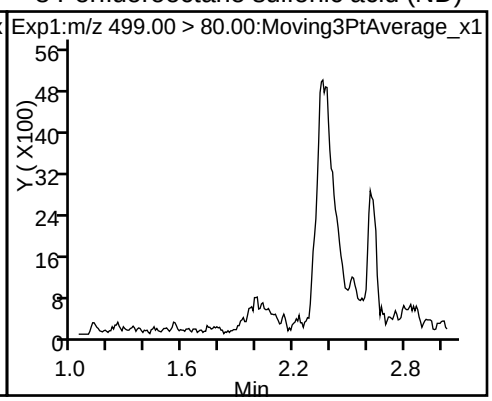
5 Perfluorooctanoic acid (ND)



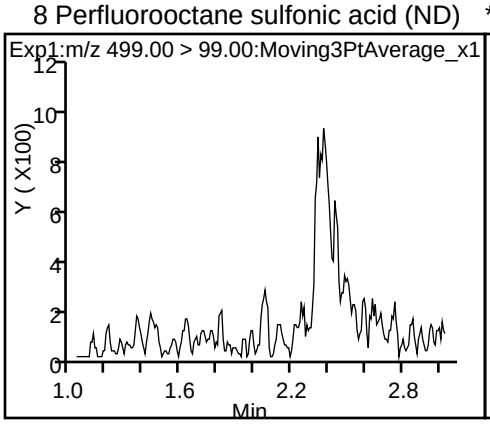
5 Perfluorooctanoic acid (ND)



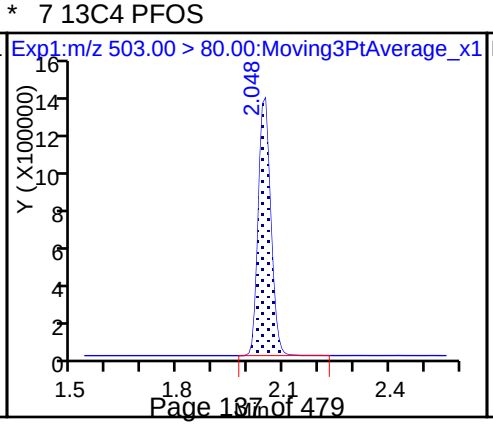
8 Perfluorooctane sulfonic acid (ND)



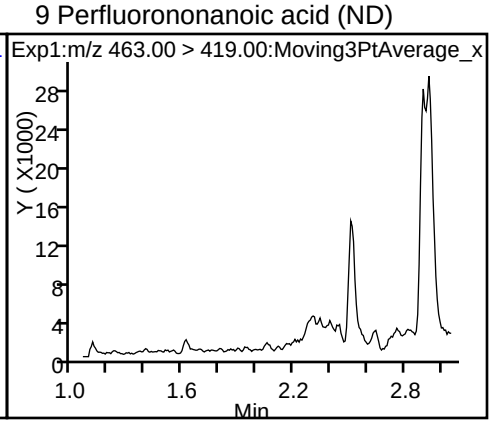
8 Perfluorooctane sulfonic acid (ND)



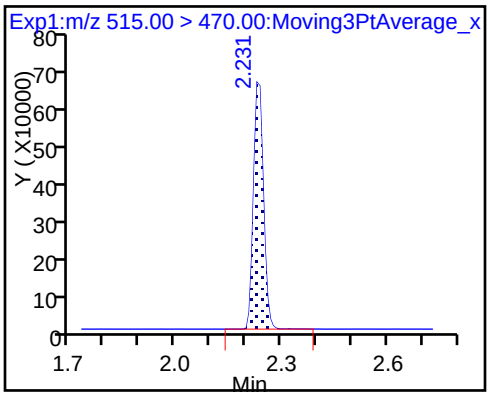
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
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Y (X10000)
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70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_011.d				
Lims ID:	320-35442-A-2-A				
Client ID:	NAWC-012518-FRB-256				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 08:19:50	ALS Bottle#:	5	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-2-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:51:51	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	11.2	111.75
$ 10 13C2 PFDA	10.0	12.6	126.01

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-169 | Lab Sample ID: 320-35442-3

Matrix: Water | Lab File ID: 2018.02.08_537A_012.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 245.5(mL) | Date Analyzed: 02/08/2018 08:24

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.1	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	109		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_012.d
Lims ID: 320-35442-A-3-A
Client ID: NAWC-012518-RW-169
Sample Type: Client
Inject. Date: 08-Feb-2018 08:24:33 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:12:15

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	148388	1.20		252	
298.90 > 99.00	1.366	1.366	0.0	1.000	102864		1.44(0.00-0.00)	220	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1743688	10.9		7007	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	530991	2.86		511	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	172179	1.26		40.1	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.798	0.008		1455562	10.0		4965	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.798	0.008	1.000	445524	3.31		65.2	
413.00 > 169.00	1.806	1.798	0.008	1.000	278481		1.60(0.00-0.00)	664	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.041	0.007	1.000	487238	4.67		198	M
499.00 > 99.00	2.041	2.041	0.0	0.996	88223		5.52(0.00-0.00)	165	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.048	-0.007		3184762	28.7		4444	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	1154833	10.4		7279	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 09-Feb-2018 09:52:01 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_012.d

Injection Date: 08-Feb-2018 08:24:33 Instrument ID: A8_N

Lims ID: 320-35442-A-3-A Lab Sample ID: 320-35442-3

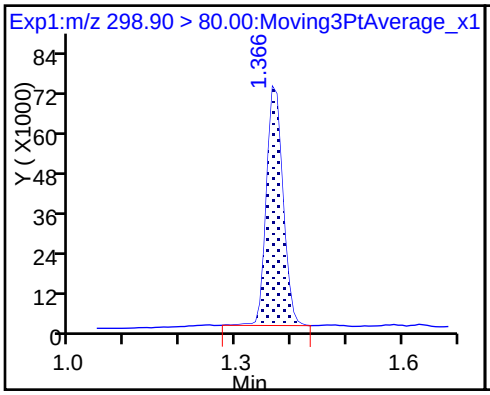
Client ID: NAWC-012518-RW-169

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

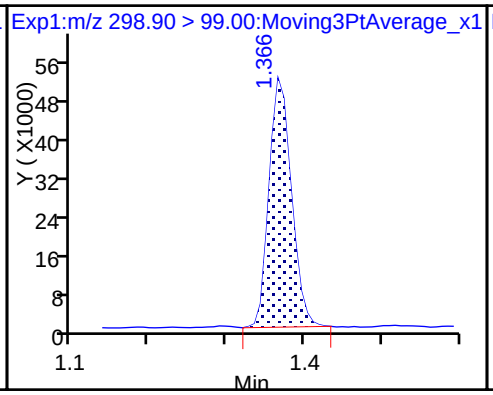
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

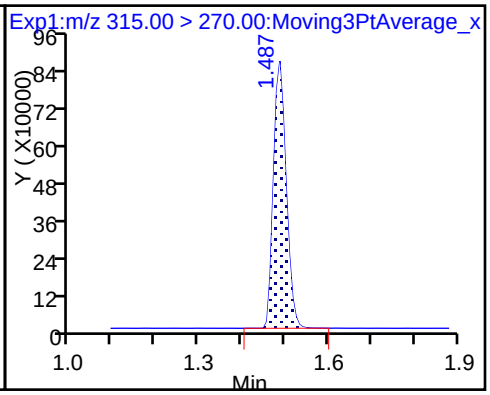
1 Perfluorobutanesulfonic acid



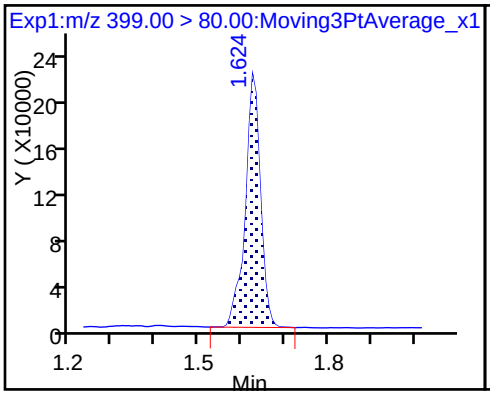
1 Perfluorobutanesulfonic acid



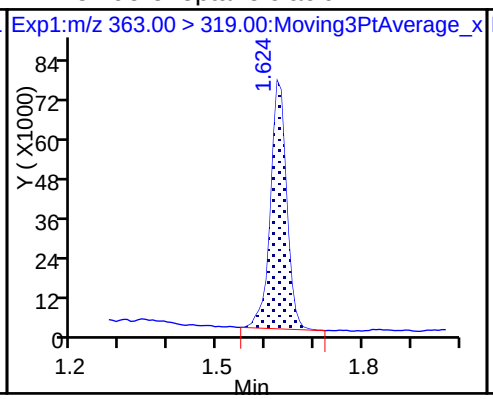
$ 2 13C2 PFHxA



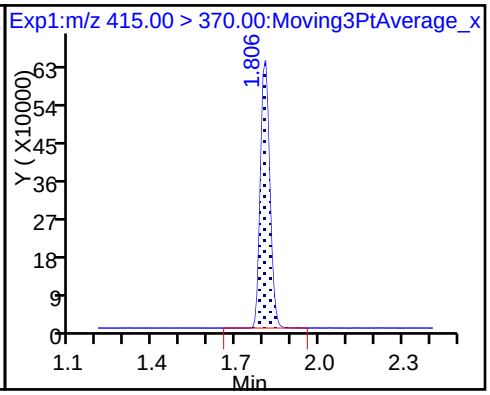
3 Perfluorohexanesulfonic acid



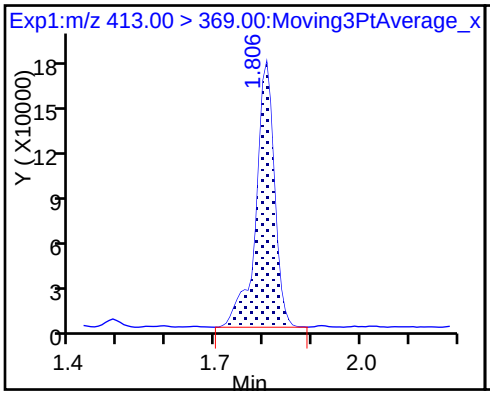
4 Perfluoroheptanoic acid



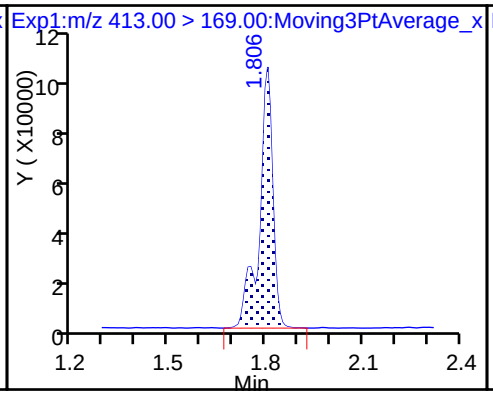
* 6 13C2-PFOA



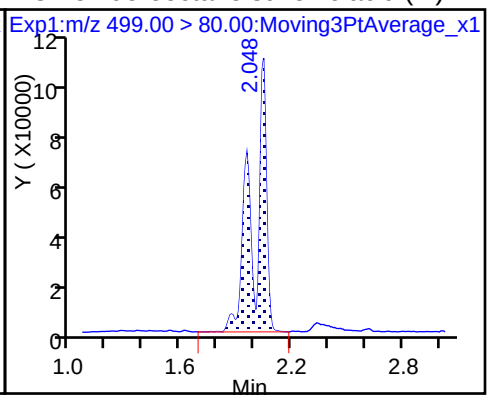
5 Perfluorooctanoic acid



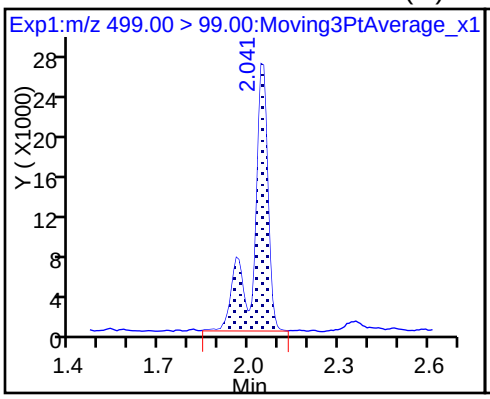
5 Perfluorooctanoic acid



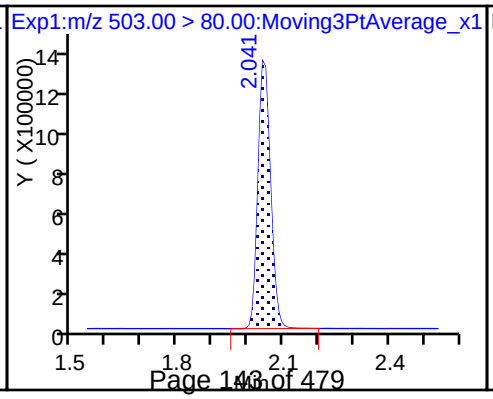
8 Perfluorooctane sulfonic acid (M)



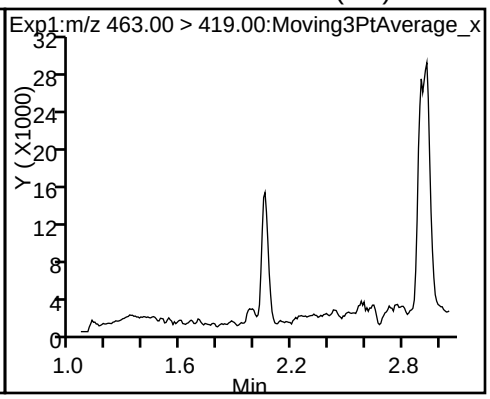
8 Perfluorooctane sulfonic acid (M)



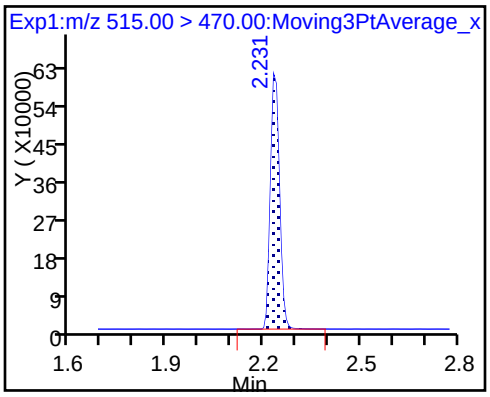
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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Y (X10000)
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54
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36
27
18
9
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_012.d				
Lims ID:	320-35442-A-3-A				
Client ID:	NAWC-012518-RW-169				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 08:24:33	ALS Bottle#:	6	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-3-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:51:51	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				
First Level Reviewer: barnettj		Date:	08-Feb-2018 17:12:15		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.9	108.88
$ 10 13C2 PFDA	10.0	10.4	103.68

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

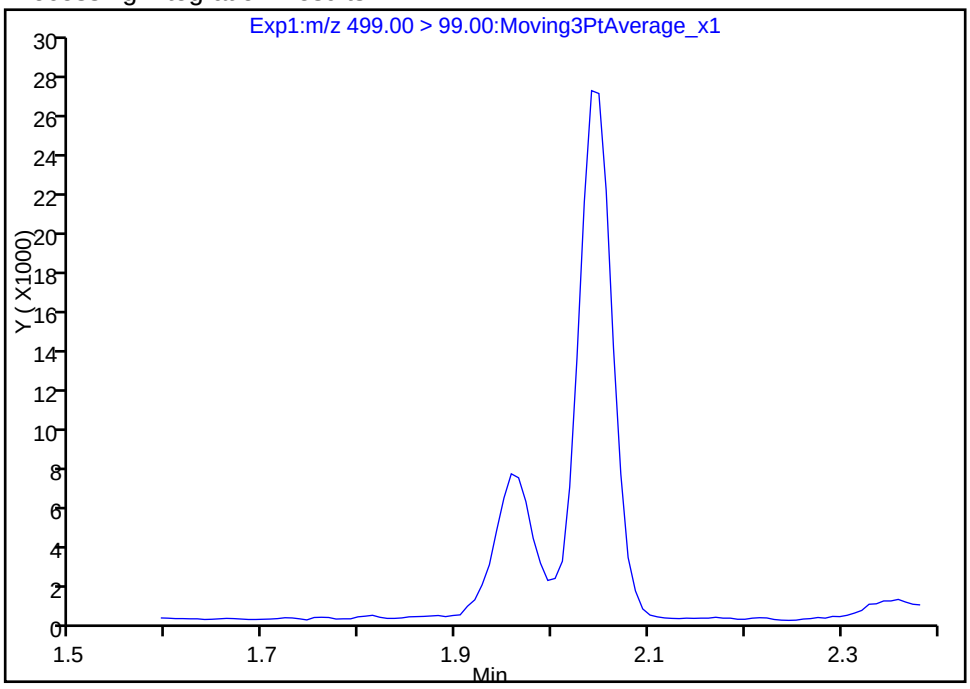
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_012.d				
Injection Date:	08-Feb-2018 08:24:33	Instrument ID:	A8_N		
Lims ID:	320-35442-A-3-A	Lab Sample ID:	320-35442-3		
Client ID:	NAWC-012518-RW-169				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	6	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

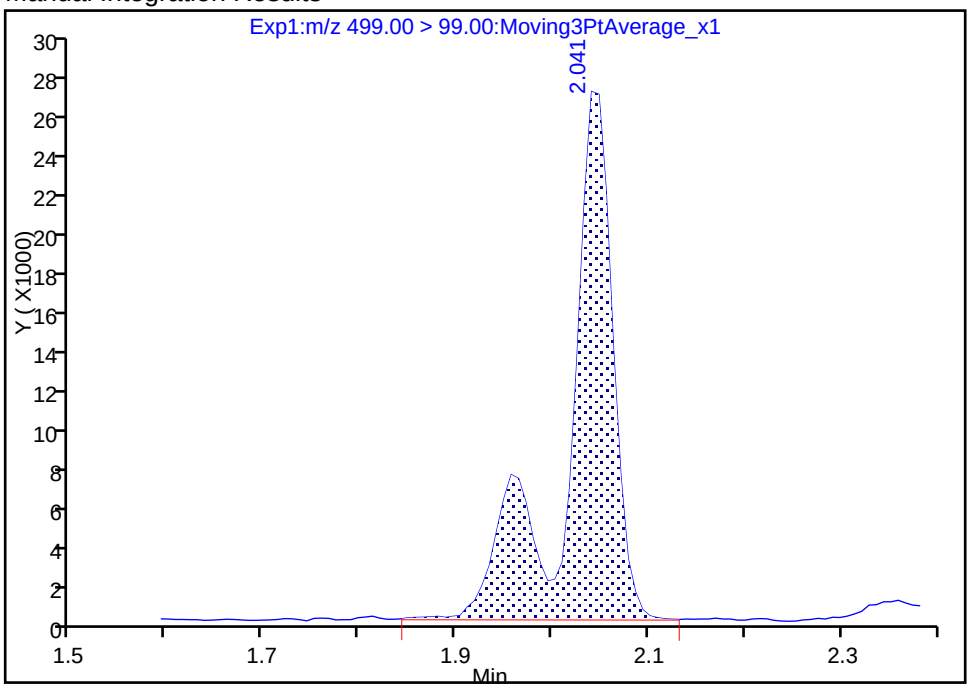
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 88223
Amount: 4.673061
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:11:55
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

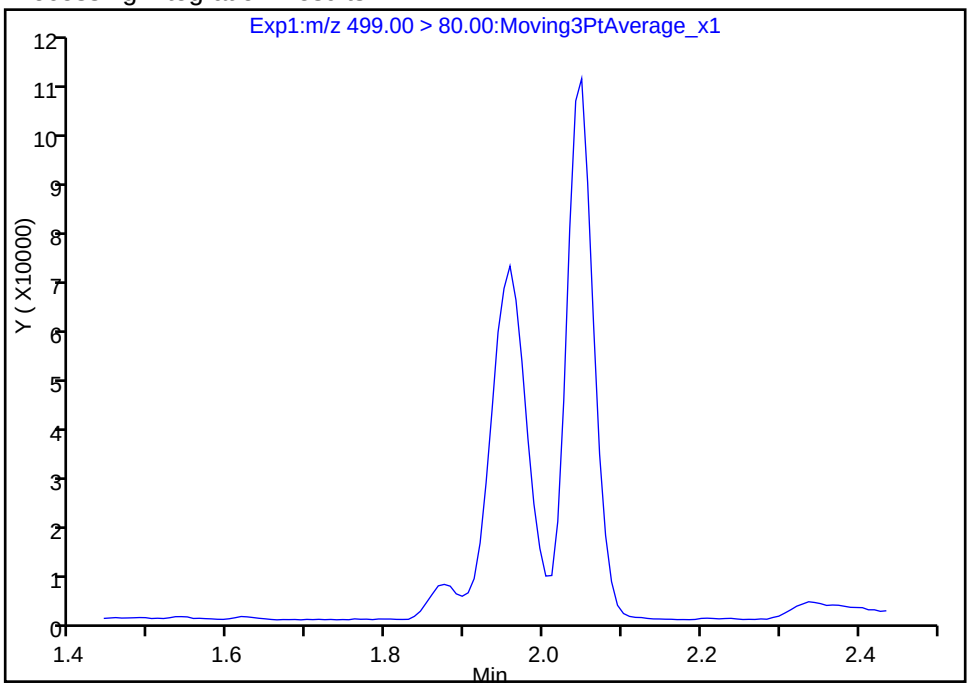
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_012.d				
Injection Date:	08-Feb-2018 08:24:33	Instrument ID:	A8_N		
Lims ID:	320-35442-A-3-A	Lab Sample ID:	320-35442-3		
Client ID:	NAWC-012518-RW-169				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	6	Worklist Smp#:	9
Injection 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

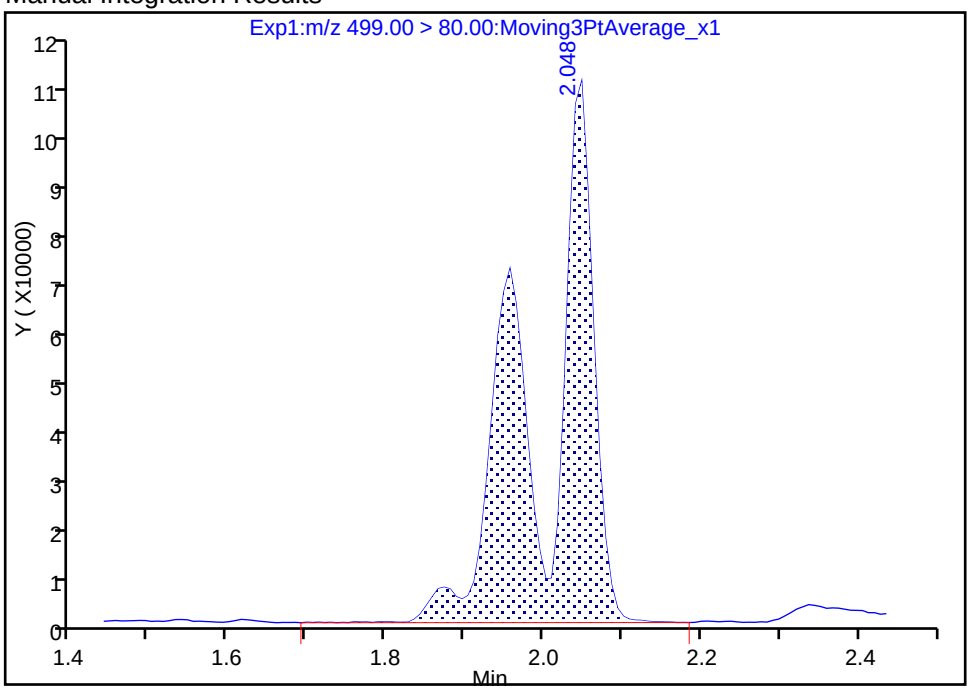
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 487238
Amount: 4.673061
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:11:55
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-169 | Lab Sample ID: 320-35442-4

Matrix: Water | Lab File ID: 2018.02.08_537A_013.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.1(mL) | Date Analyzed: 02/08/2018 08:29

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	110		70-130
STL00996	13C2 PFDA	126		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_013.d
Lims ID: 320-35442-A-4-A
Client ID: NAWC-012518-FRB-169
Sample Type: Client
Inject. Date: 08-Feb-2018 08:29:14 ALS Bottle#: 7 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-4-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1754719	11.0		8304	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.798	0.008		1454410	10.0		5400	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3386009	28.7		5064	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1401626	12.6		8930	

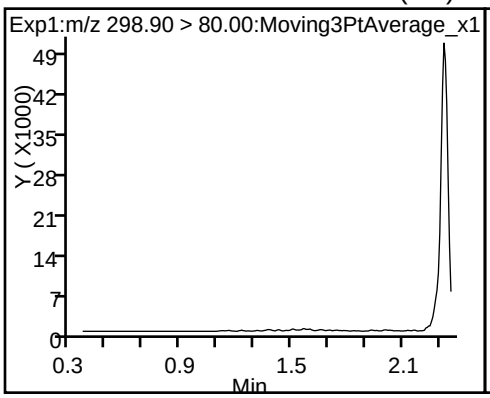
Report Date: 09-Feb-2018 09:52:02 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

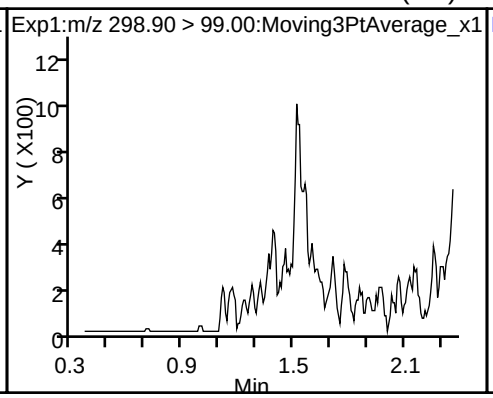
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_013.d

Injection Date:	08-Feb-2018 08:29:14	Instrument ID:	A8_N		
Lims ID:	320-35442-A-4-A	Lab Sample ID:	320-35442-4		
Client ID:	NAWC-012518-FRB-169				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	7	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

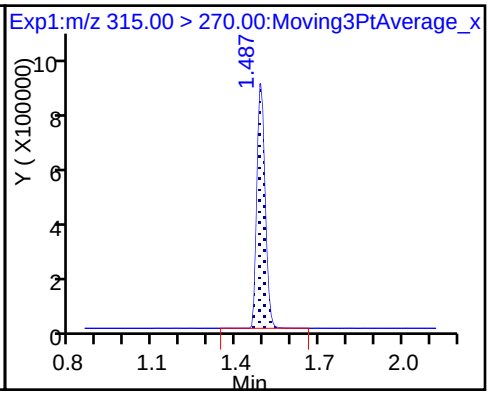
1 Perfluorobutanesulfonic acid (ND)



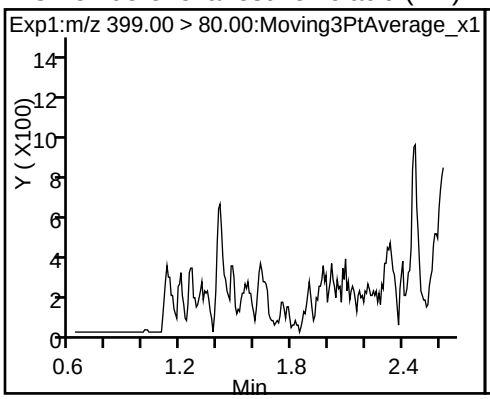
1 Perfluorobutanesulfonic acid (ND)



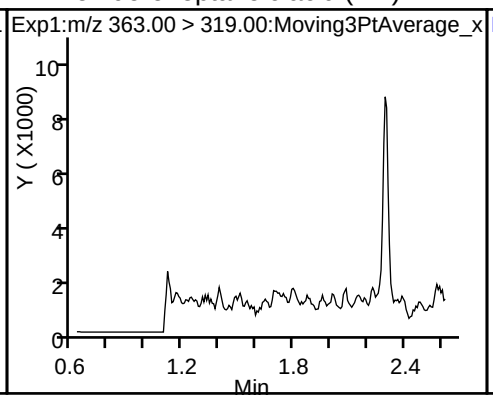
$ 2 13C2 PFHxA



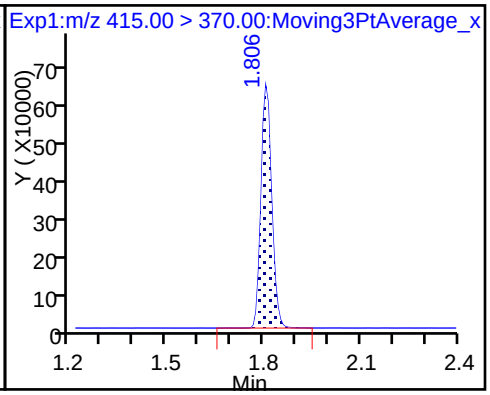
3 Perfluorohexanesulfonic acid (ND)



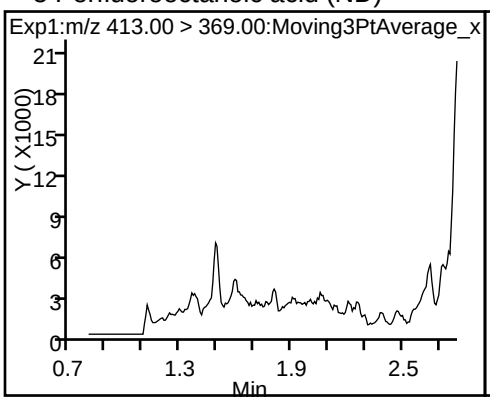
4 Perfluoroheptanoic acid (ND)



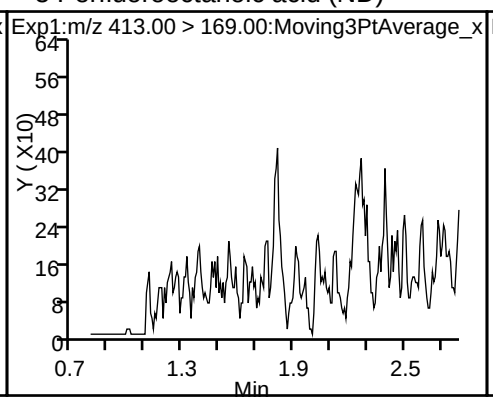
* 6 13C2-PFOA



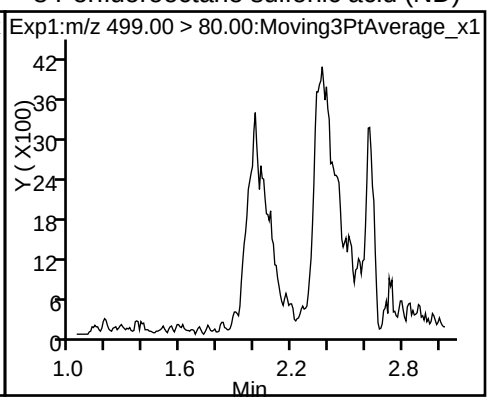
5 Perfluorooctanoic acid (ND)



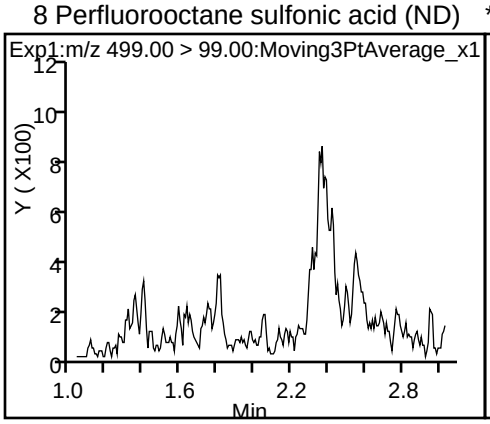
5 Perfluorooctanoic acid (ND)



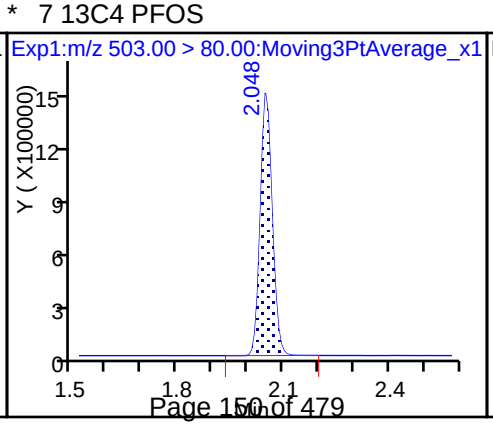
8 Perfluorooctane sulfonic acid (ND)



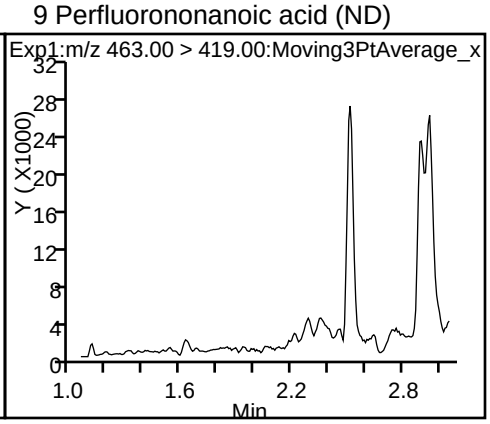
8 Perfluorooctane sulfonic acid (ND)



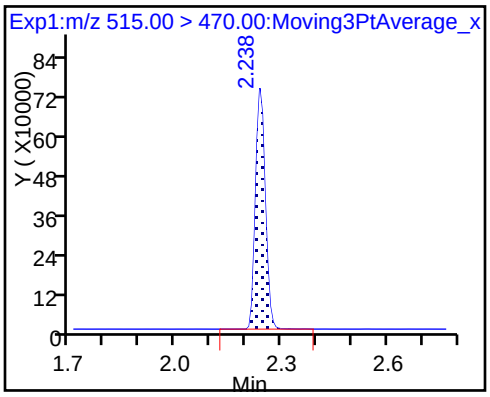
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
84
72
60
48
36
24
12
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_013.d				
Lims ID:	320-35442-A-4-A				
Client ID:	NAWC-012518-FRB-169				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 08:29:14	ALS Bottle#:	7	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-4-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:51:51	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	11.0	109.65
$ 10 13C2 PFDA	10.0	12.6	125.94

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-236 | Lab Sample ID: 320-35442-5

Matrix: Water | Lab File ID: 2018.02.08_537A_014.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 248.1(mL) | Date Analyzed: 02/08/2018 08:33

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	115		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_014.d
Lims ID: 320-35442-A-5-A
Client ID: NAWC-012518-RW-236
Sample Type: Client
Inject. Date: 08-Feb-2018 08:33:54 ALS Bottle#: 8 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-5-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:13:11

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	116943	0.9101		181	
298.90 > 99.00	1.366	1.366	0.0	1.000	91520		1.28(0.00-0.00)	180	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1763112	10.8		6325	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	506154	2.63		484	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	147531	1.06		33.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1482068	10.0		5002	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	449820	3.28		58.9	
413.00 > 169.00	1.798	1.798	0.0	1.000	287163		1.57(0.00-0.00)	597	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.041	2.041	0.0	1.000	486817	4.51		179	M
499.00 > 99.00	2.041	2.041	0.0	1.000	89860		5.42(0.00-0.00)	147	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.048	-0.007		3296436	28.7		4475	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1299351	11.5		7769	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

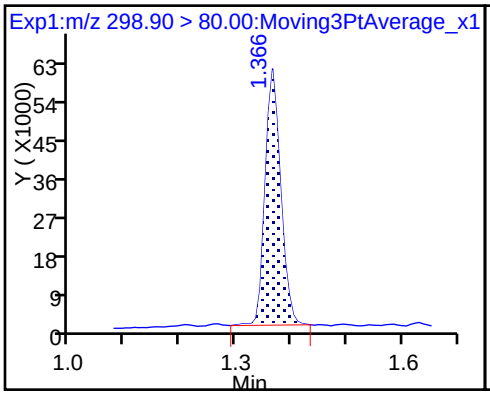
Report Date: 09-Feb-2018 09:52:03 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

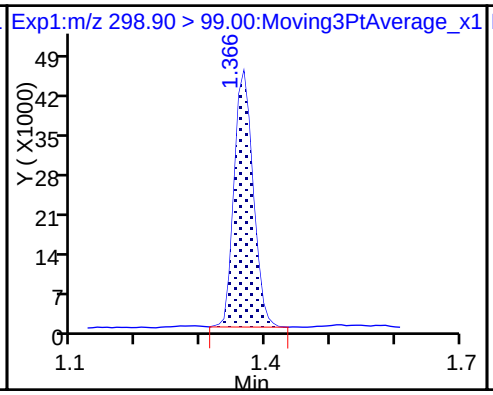
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_014.d

Injection Date:	08-Feb-2018 08:33:54	Instrument ID:	A8_N		
Lims ID:	320-35442-A-5-A	Lab Sample ID:	320-35442-5		
Client ID:	NAWC-012518-RW-236				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	8	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

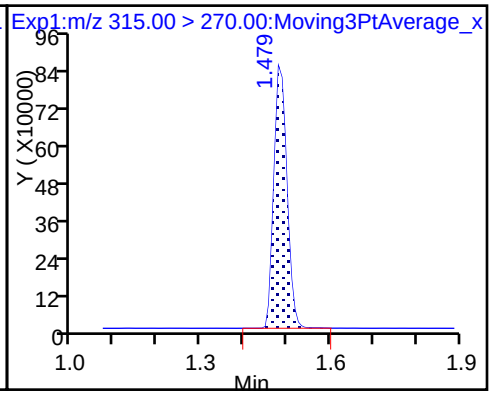
1 Perfluorobutanesulfonic acid



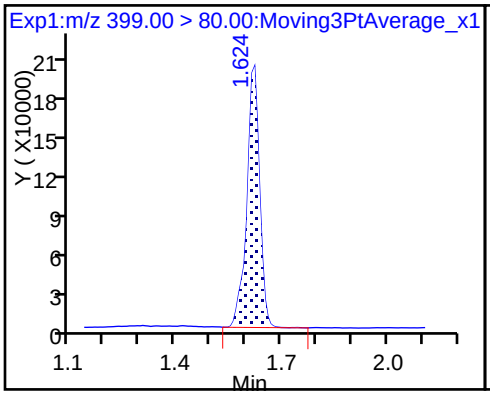
1 Perfluorobutanesulfonic acid



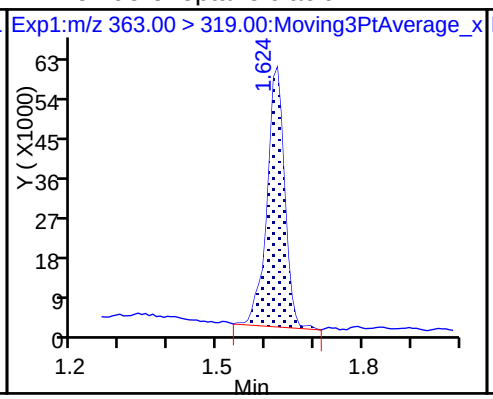
$ 2 13C2 PFHxA



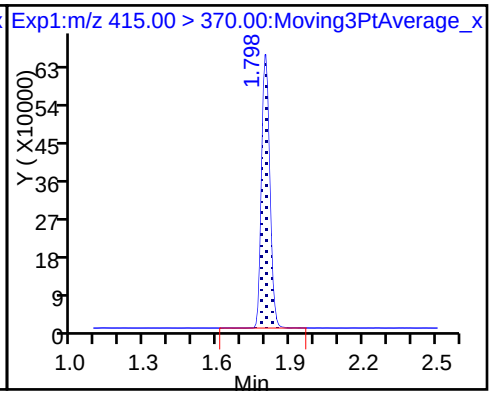
3 Perfluorohexanesulfonic acid



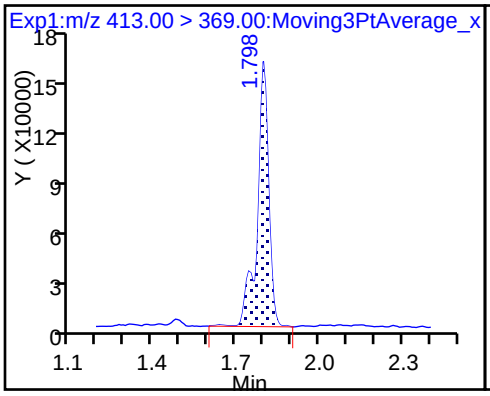
4 Perfluoroheptanoic acid



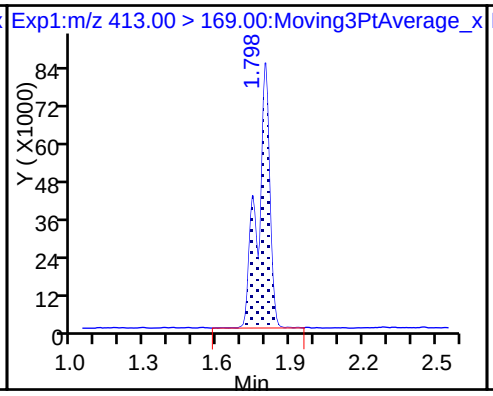
* 6 13C2-PFOA



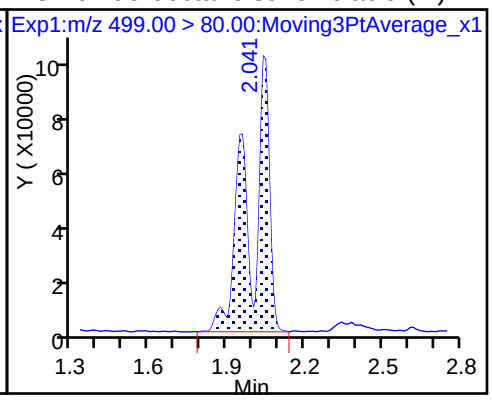
5 Perfluorooctanoic acid



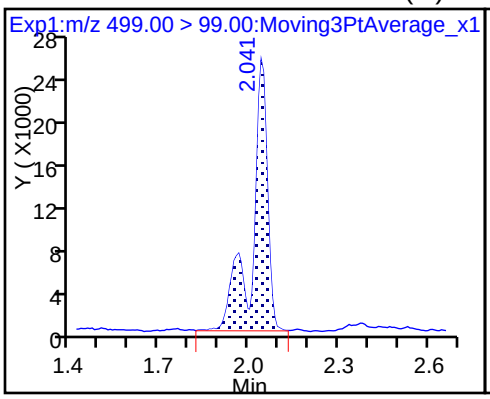
5 Perfluorooctanoic acid



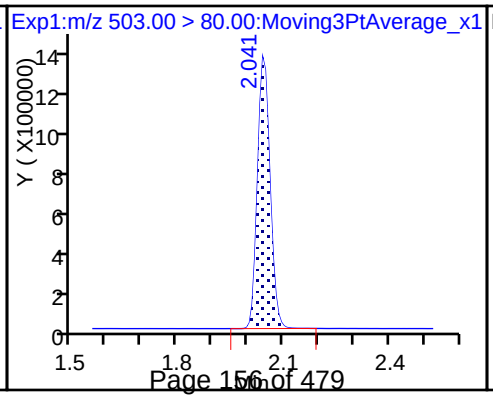
8 Perfluorooctane sulfonic acid (M)



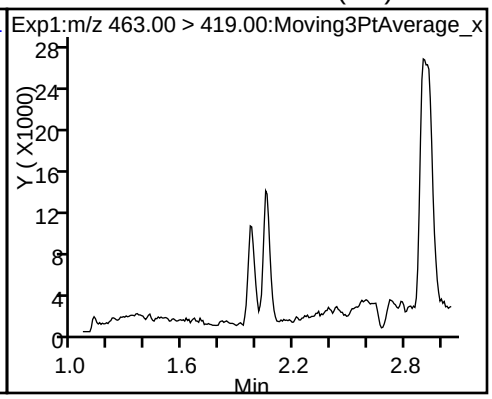
8 Perfluorooctane sulfonic acid (M)



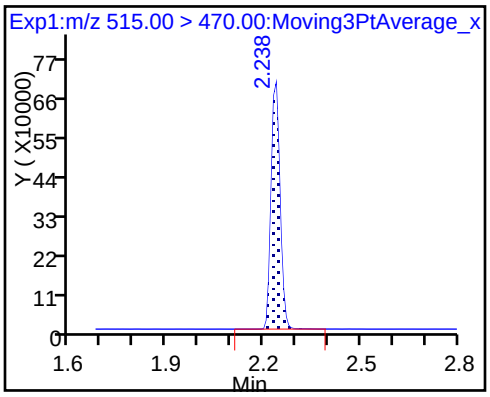
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
77
66
55
44
33
22
11
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_014.d
Lims ID: 320-35442-A-5-A
Client ID: NAWC-012518-RW-236
Sample Type: Client
Inject. Date: 08-Feb-2018 08:33:54 ALS Bottle#: 8 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-5-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:13:11

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.8	108.12
$ 10 13C2 PFDA	10.0	11.5	114.57

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

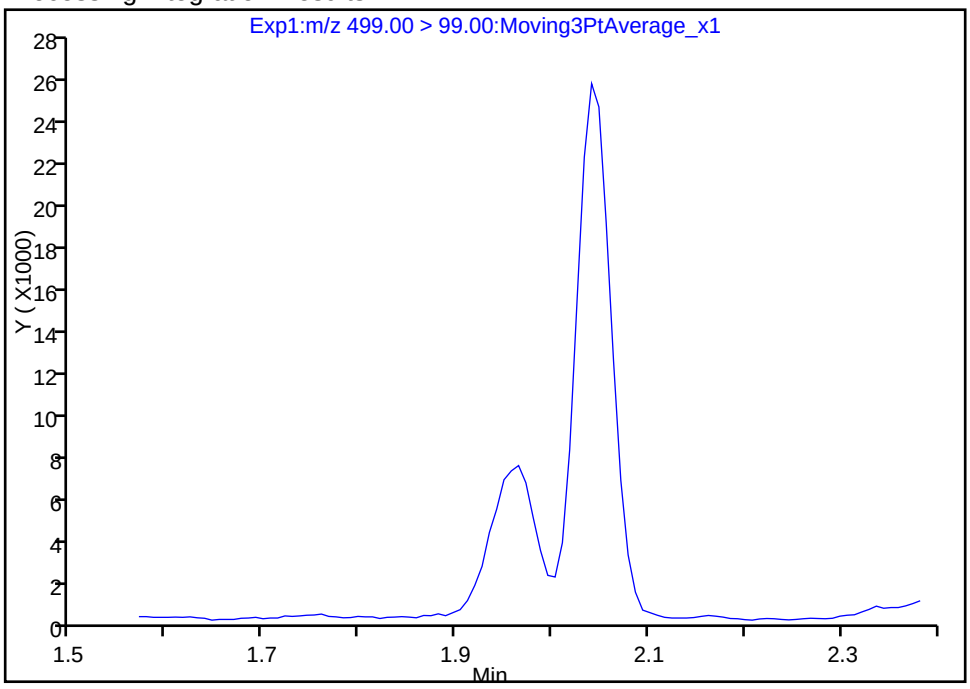
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_014.d				
Injection Date:	08-Feb-2018 08:33:54	Instrument ID:	A8_N		
Lims ID:	320-35442-A-5-A	Lab Sample ID:	320-35442-5		
Client ID:	NAWC-012518-RW-236				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	8	Worklist Smp#:	11
Injection 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

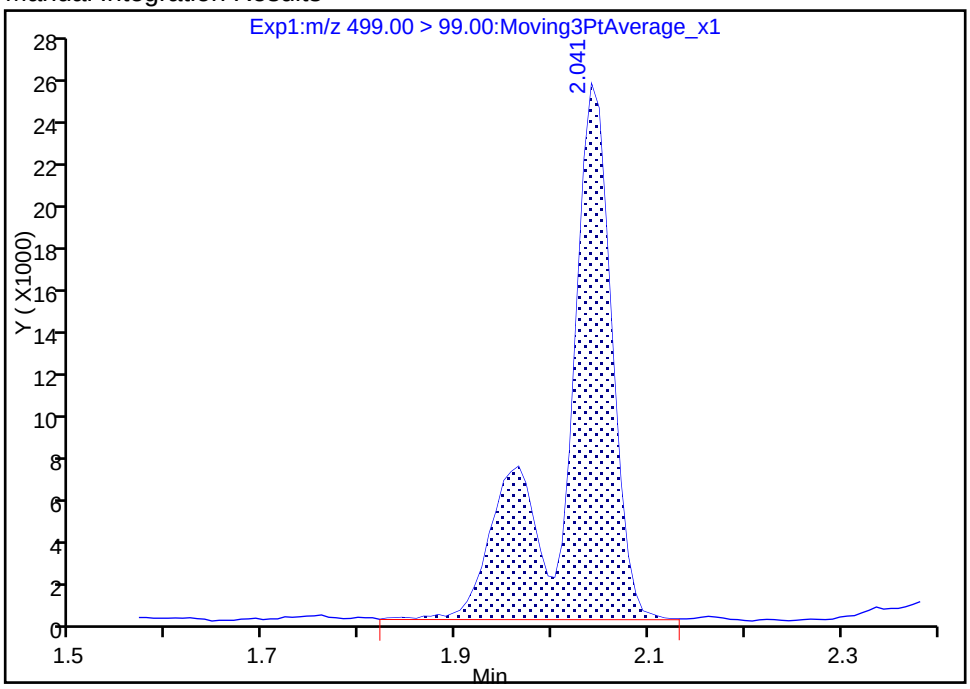
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 89860
Amount: 4.510850
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:12:53
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

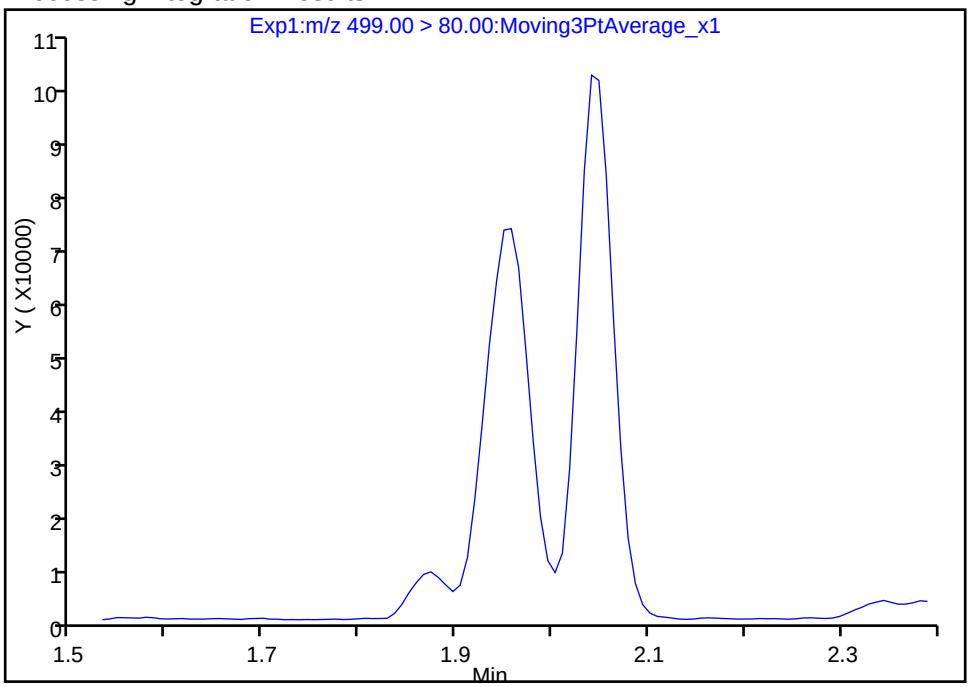
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_014.d				
Injection Date:	08-Feb-2018 08:33:54	Instrument ID:	A8_N		
Lims ID:	320-35442-A-5-A	Lab Sample ID:	320-35442-5		
Client ID:	NAWC-012518-RW-236				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	8	Worklist Smp#:	11
Injection 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

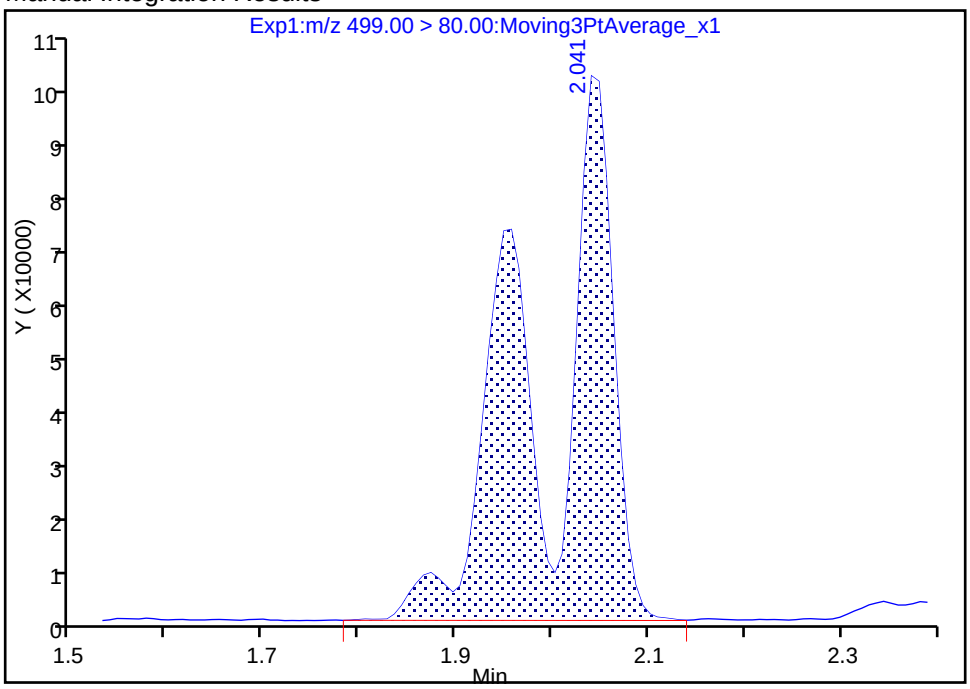
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 486817
Amount: 4.510850
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:12:53
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-236 | Lab Sample ID: 320-35442-6

Matrix: Water | Lab File ID: 2018.02.08_537A_015.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:05

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 251.6(mL) | Date Analyzed: 02/08/2018 08:38

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | 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)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
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	100		70-130
STL00996	13C2 PFDA	116		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_015.d
Lims ID: 320-35442-A-6-A
Client ID: NAWC-012518-FRB-236
Sample Type: Client
Inject. Date: 08-Feb-2018 08:38:33 ALS Bottle#: 9 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-6-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1577859	9.97		7104	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1438482	10.0		5172	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.048	-0.007		3359153	28.7		6873	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	1275319	11.6		8609	

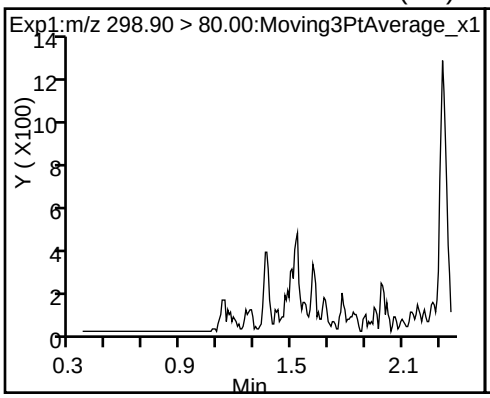
Report Date: 09-Feb-2018 09:52:04 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

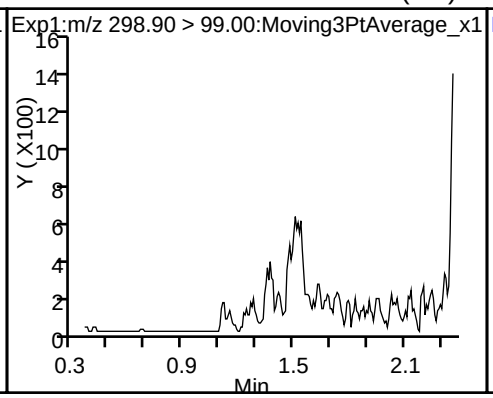
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_015.d

Injection Date:	08-Feb-2018 08:38:33	Instrument ID:	A8_N		
Lims ID:	320-35442-A-6-A	Lab Sample ID:	320-35442-6		
Client ID:	NAWC-012518-FRB-236				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	9	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

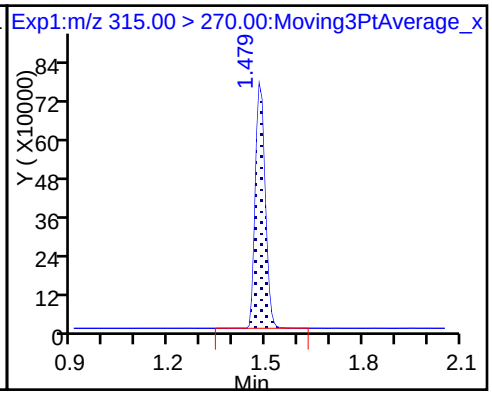
1 Perfluorobutanesulfonic acid (ND)



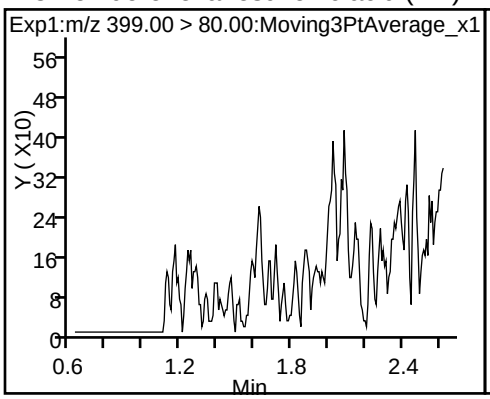
1 Perfluorobutanesulfonic acid (ND)



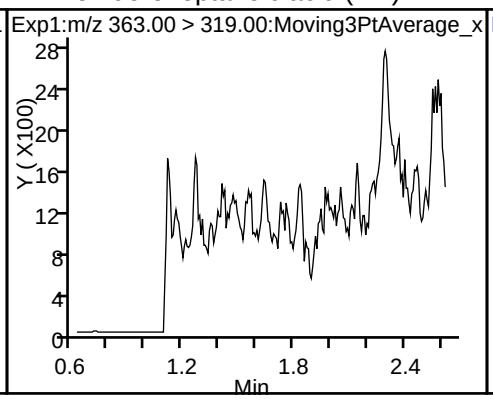
$ 2 13C2 PFHxA



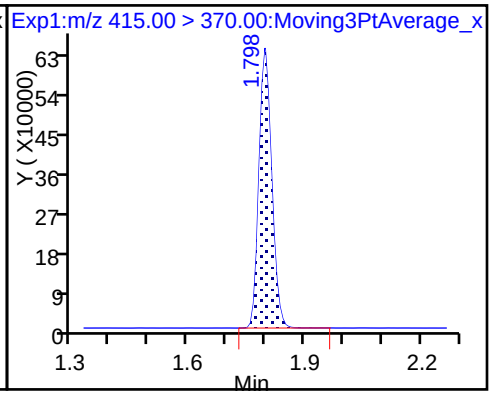
3 Perfluorohexanesulfonic acid (ND)



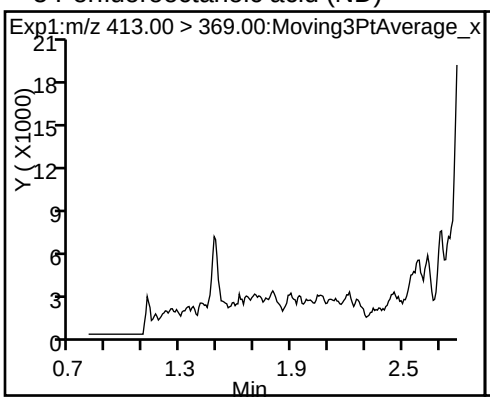
4 Perfluoroheptanoic acid (ND)



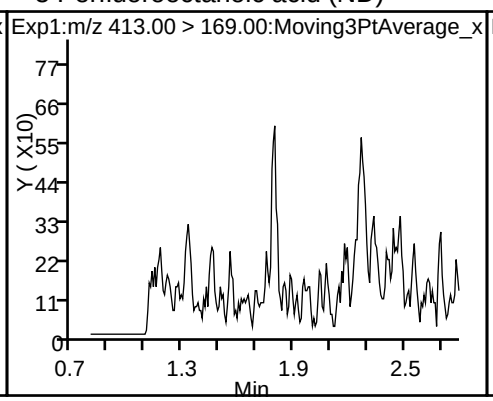
* 6 13C2-PFOA



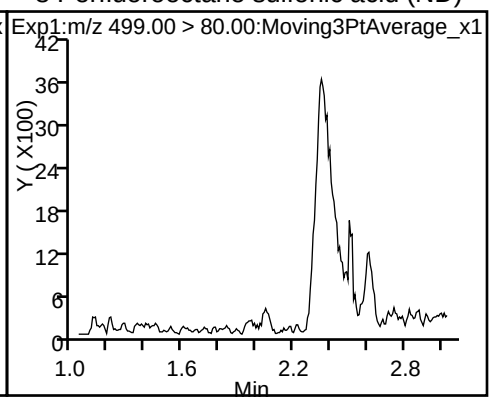
5 Perfluorooctanoic acid (ND)



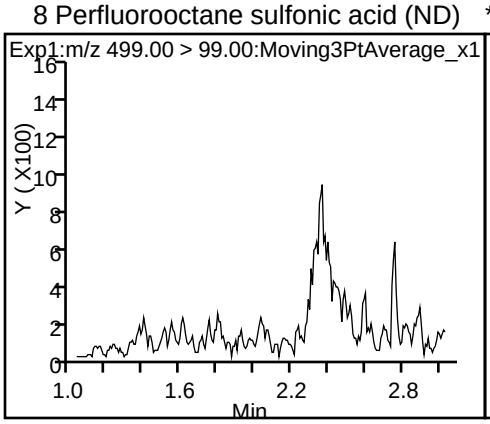
5 Perfluorooctanoic acid (ND)



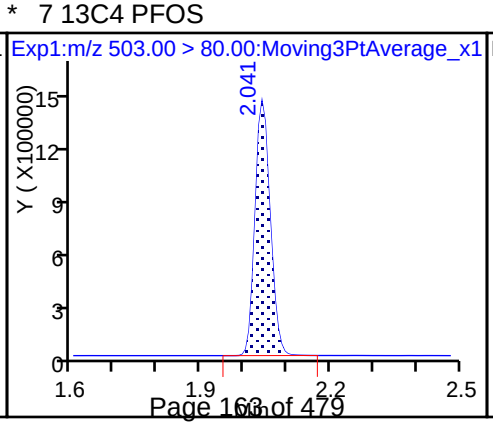
8 Perfluorooctane sulfonic acid (ND)



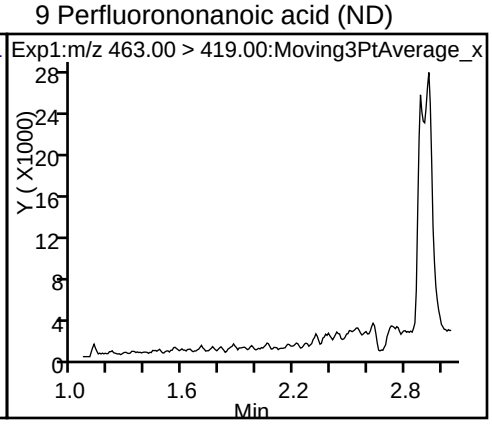
8 Perfluorooctane sulfonic acid (ND)



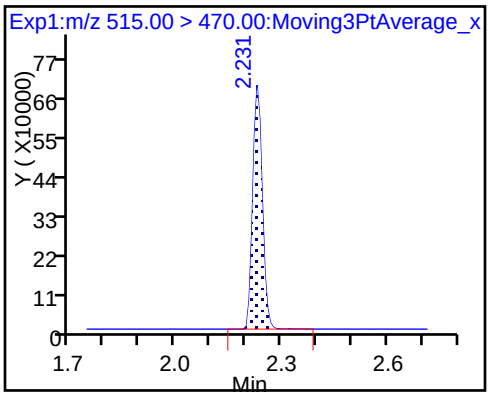
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
77
66
55
44
33
22
11
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_015.d				
Lims ID:	320-35442-A-6-A				
Client ID:	NAWC-012518-FRB-236				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 08:38:33	ALS Bottle#:	9	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-6-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:51:51	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.97	99.69
$ 10 13C2 PFDA	10.0	11.6	115.86

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-153 | Lab Sample ID: 320-35442-7

Matrix: Water | Lab File ID: 2018.02.08_537A_016.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 243.5(mL) | Date Analyzed: 02/08/2018 08:43

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	23		21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.0	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	110		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_016.d
Lims ID: 320-35442-A-7-A
Client ID: NAWC-012518-RW-153
Sample Type: Client
Inject. Date: 08-Feb-2018 08:43:14 ALS Bottle#: 10 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-7-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:14:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	86902	0.7015		87.1	
298.90 > 99.00	1.358	1.366	-0.008	0.994	62220		1.40(0.00-0.00)	120	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1724259	11.2		7647	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.624	-0.008	1.000	116088	0.6260		96.9	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	224095	1.71		46.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1396188	10.0		5029	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	725372	5.61		105	
413.00 > 169.00	1.798	1.798	0.0	1.000	417703		1.74(0.00-0.00)	1077	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.041	0.007	1.000	390787	3.76		118	M
499.00 > 99.00	2.041	2.041	0.0	0.996	61607		6.34(0.00-0.00)	93.1	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.048	-0.007		3177080	28.7		4176	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.056	0.0	1.000	54787	0.5908		8.9	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	1179265	11.0		7790	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

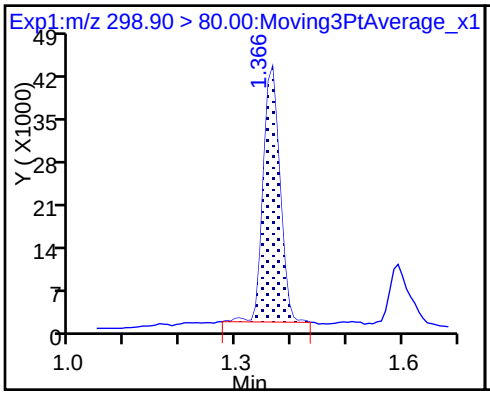
Report Date: 09-Feb-2018 09:52:05 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

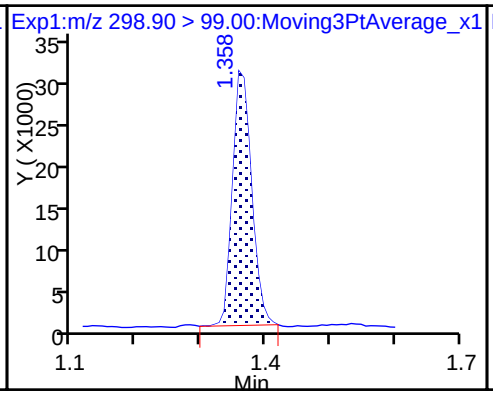
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_016.d

Injection Date:	08-Feb-2018 08:43:14	Instrument ID:	A8_N		
Lims ID:	320-35442-A-7-A	Lab Sample ID:	320-35442-7		
Client ID:	NAWC-012518-RW-153				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

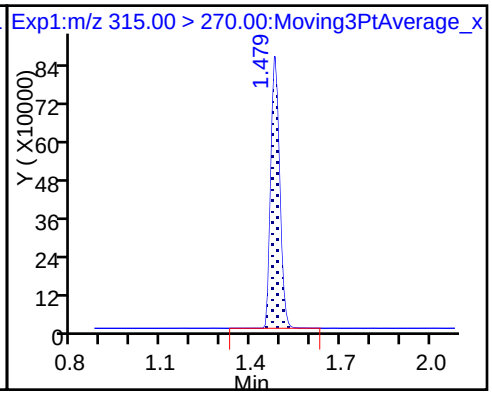
1 Perfluorobutanesulfonic acid



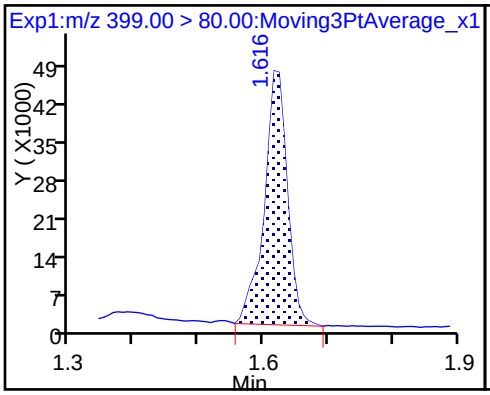
1 Perfluorobutanesulfonic acid



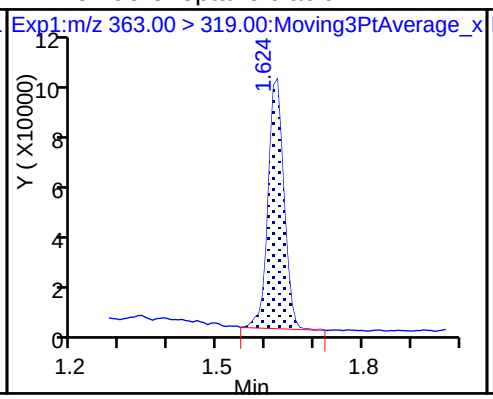
$ 2 13C2 PFHxA



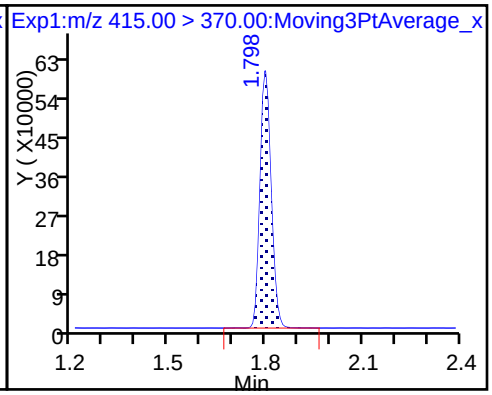
3 Perfluorohexanesulfonic acid



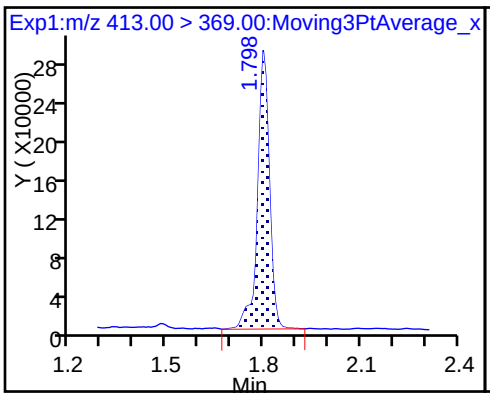
4 Perfluoroheptanoic acid



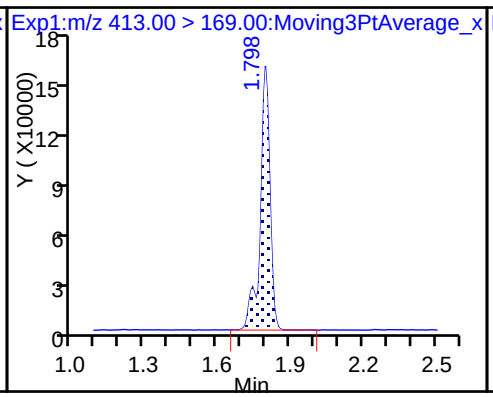
* 6 13C2-PFOA



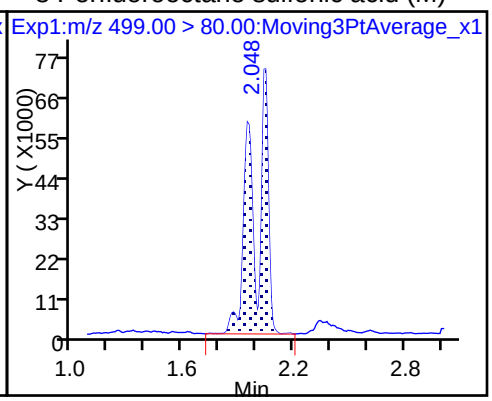
5 Perfluorooctanoic acid



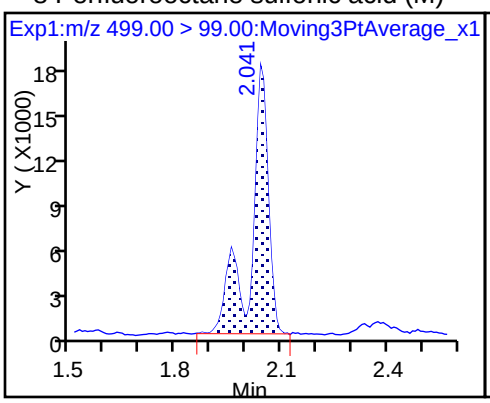
5 Perfluorooctanoic acid



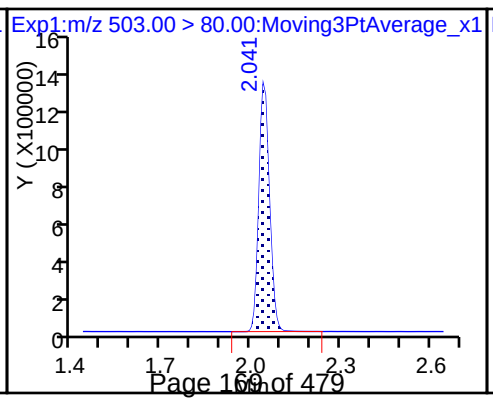
8 Perfluorooctane sulfonic acid (M)



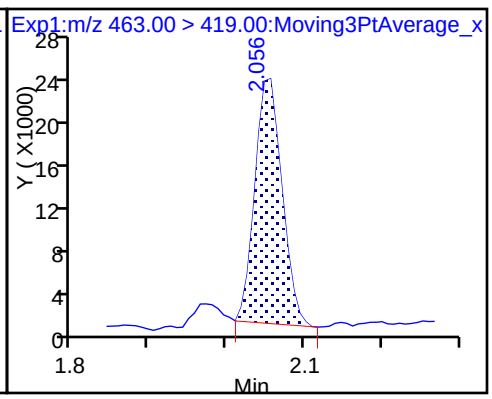
8 Perfluorooctane sulfonic acid (M)



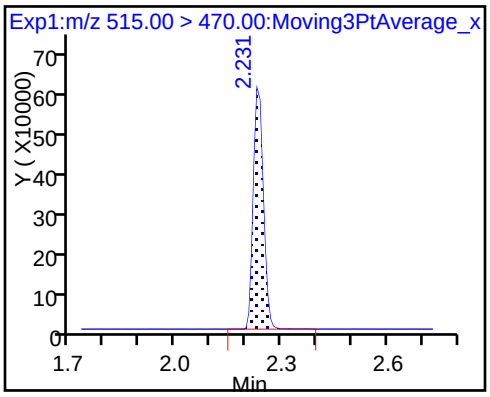
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_016.d				
Lims ID:	320-35442-A-7-A				
Client ID:	NAWC-012518-RW-153				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 08:43:14	ALS Bottle#:	10	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-7-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:51:51	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				
First Level Reviewer: barnettj		Date:	08-Feb-2018 17:14:02		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	11.2	112.24
$ 10 13C2 PFDA	10.0	11.0	110.38

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

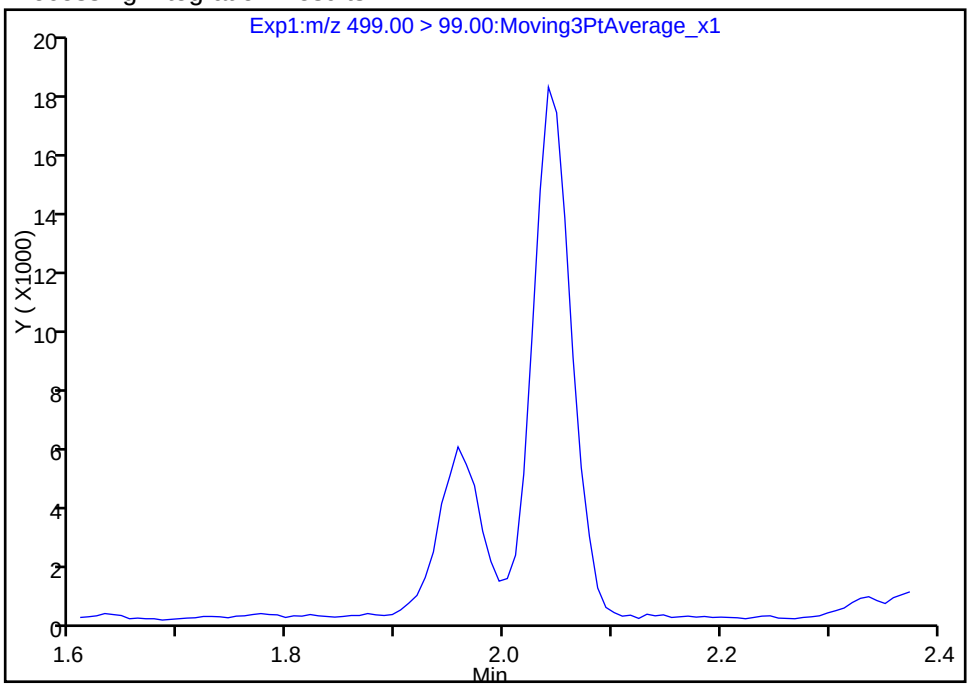
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_016.d				
Injection Date:	08-Feb-2018 08:43:14	Instrument ID:	A8_N		
Lims ID:	320-35442-A-7-A	Lab Sample ID:	320-35442-7		
Client ID:	NAWC-012518-RW-153				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	13
Injection 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

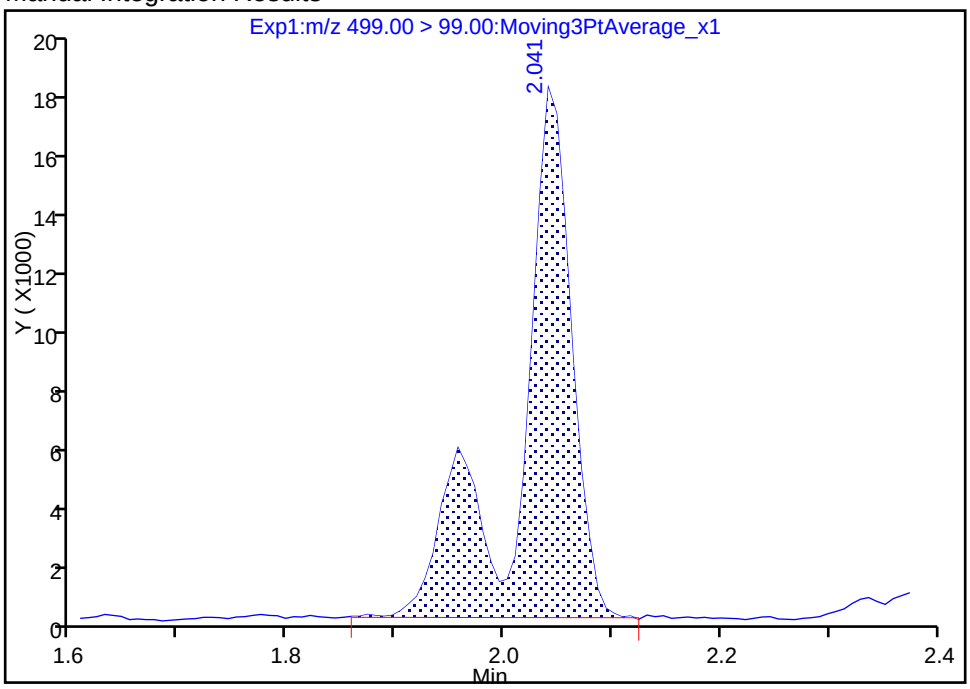
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 61607
Amount: 3.757070
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:13:45
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

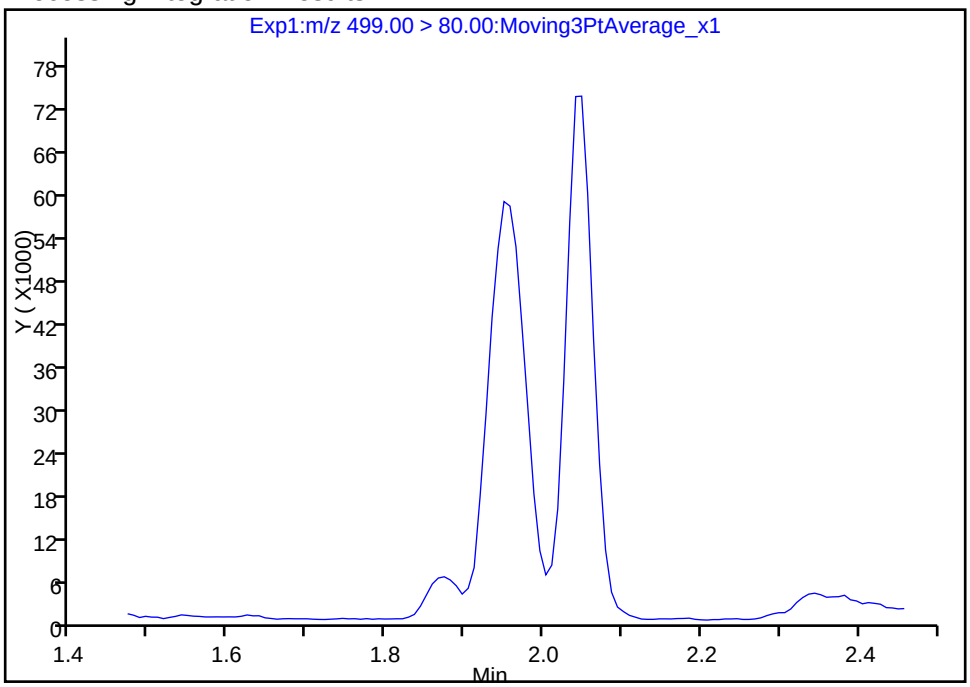
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_016.d				
Injection Date:	08-Feb-2018 08:43:14	Instrument ID:	A8_N		
Lims ID:	320-35442-A-7-A	Lab Sample ID:	320-35442-7		
Client ID:	NAWC-012518-RW-153				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	10	Worklist Smp#:	13
Injection 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

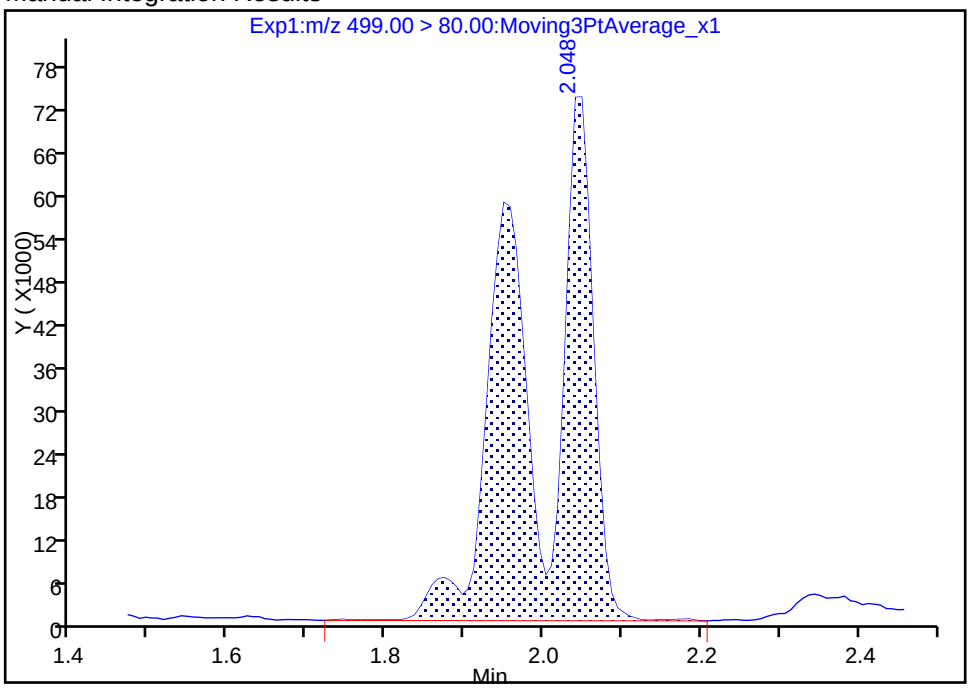
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 390787
Amount: 3.757070
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:13:45
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-153 | Lab Sample ID: 320-35442-8

Matrix: Water | Lab File ID: 2018.02.08_537A_019.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 249.3(mL) | Date Analyzed: 02/08/2018 08:57

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | 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	116		70-130
STL00996	13C2 PFDA	113		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_019.d
Lims ID: 320-35442-A-8-A
Client ID: NAWC-012518-FRB-153
Sample Type: Client
Inject. Date: 08-Feb-2018 08:57:17 ALS Bottle#: 11 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-8-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1772560	11.6		7489	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1390937	10.0		4580	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.048	-0.007		3132621	28.7		6141	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	1200582	11.3		8182	

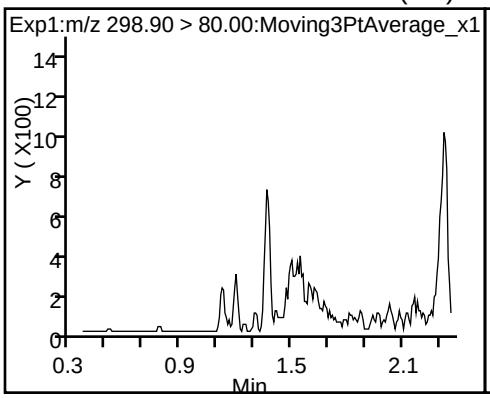
Report Date: 09-Feb-2018 09:52:08 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

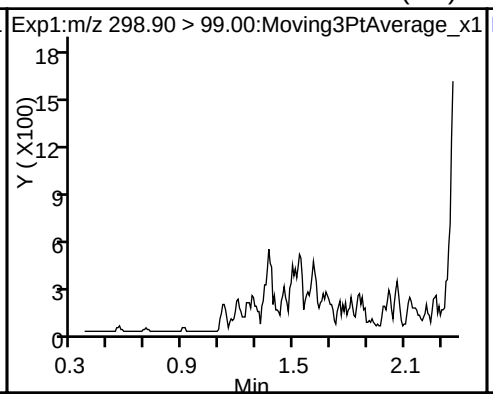
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_019.d

Injection Date:	08-Feb-2018 08:57:17	Instrument ID:	A8_N		
Lims ID:	320-35442-A-8-A	Lab Sample ID:	320-35442-8		
Client ID:	NAWC-012518-FRB-153				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	11	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

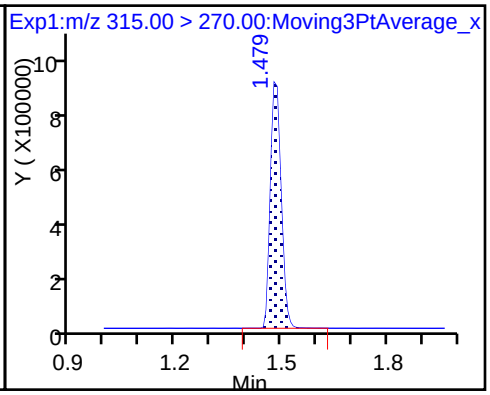
1 Perfluorobutanesulfonic acid (ND)



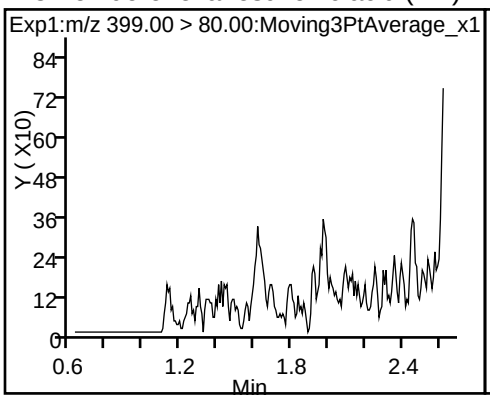
1 Perfluorobutanesulfonic acid (ND)



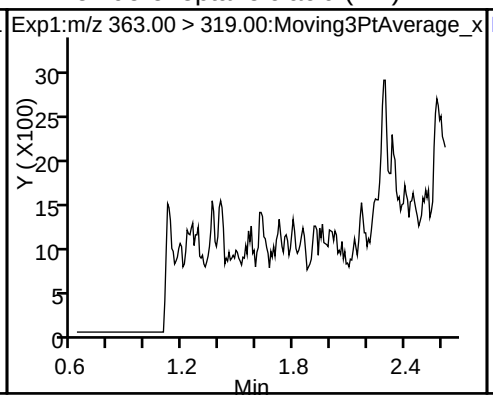
$ 2 13C2 PFHxA



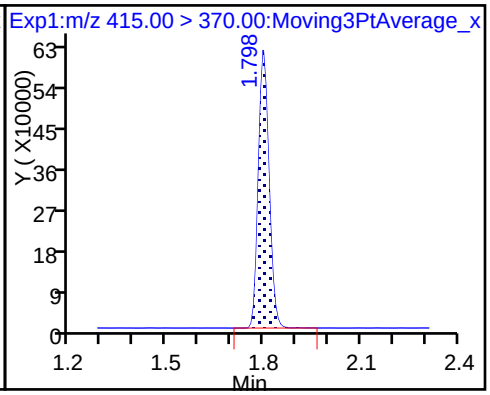
3 Perfluorohexanesulfonic acid (ND)



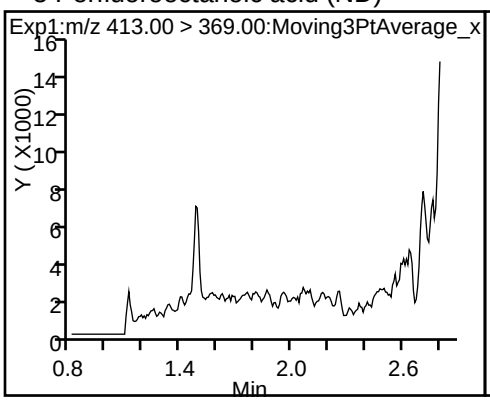
4 Perfluoroheptanoic acid (ND)



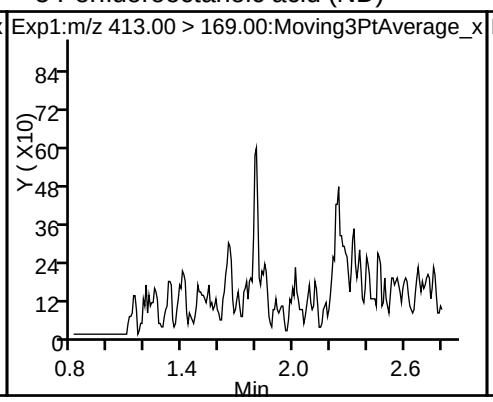
* 6 13C2-PFOA



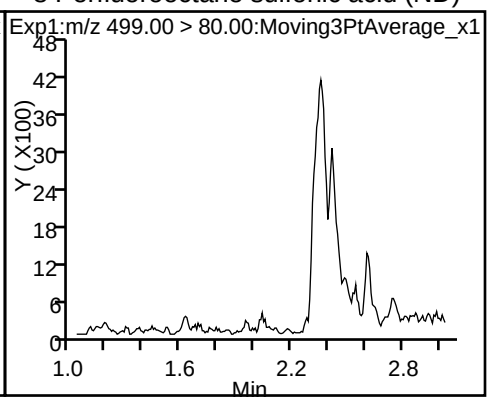
5 Perfluorooctanoic acid (ND)



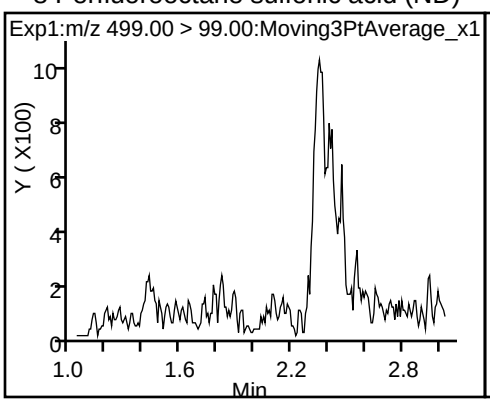
5 Perfluorooctanoic acid (ND)



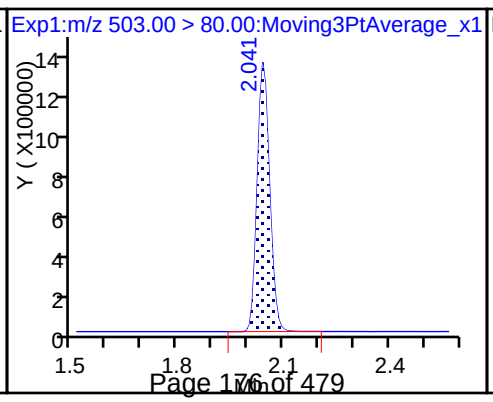
8 Perfluorooctane sulfonic acid (ND)



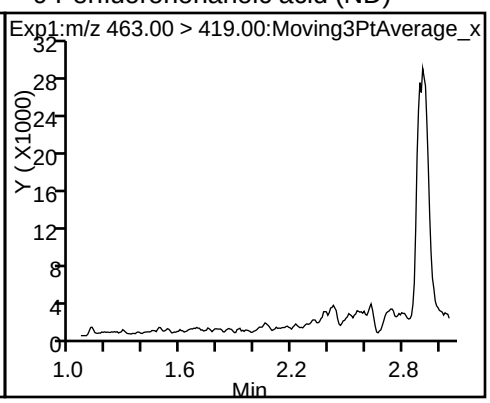
8 Perfluorooctane sulfonic acid (ND)



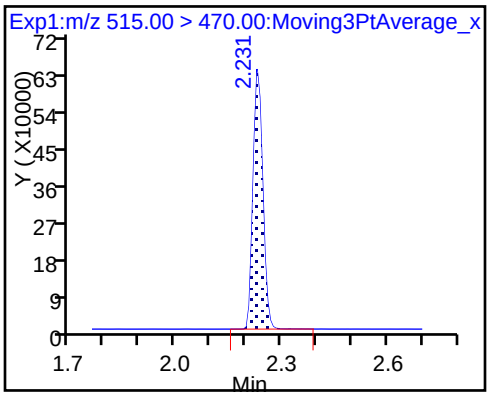
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
72
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_019.d				
Lims ID:	320-35442-A-8-A				
Client ID:	NAWC-012518-FRB-153				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 08:57:17	ALS Bottle#:	11	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-8-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:06	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	11.6	115.82
$ 10 13C2 PFDA	10.0	11.3	112.80

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-155 | Lab Sample ID: 320-35442-9

Matrix: Water | Lab File ID: 2018.02.08_537A_020.d

Analysis Method: 537 | Date Collected: 01/25/2018 10:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 243.7(mL) | Date Analyzed: 02/08/2018 09:01

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	21		21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U M	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.6	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.9	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_020.d
Lims ID: 320-35442-A-9-A
Client ID: NAWC-012518-RW-155
Sample Type: Client
Inject. Date: 08-Feb-2018 09:01:59 ALS Bottle#: 12 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-9-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:15:20

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	164119	1.25		276	
298.90 > 99.00	1.366	1.366	0.0	1.000	125078		1.31(0.00-0.00)	238	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1695325	10.1		7384	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	267666	1.36		256	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	239073	1.67		53.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1525472	10.0		5060	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.806	-0.008	1.000	724888	5.13		102	
413.00 > 169.00	1.798	1.806	-0.008	1.000	445742		1.63(0.00-0.00)	987	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.041	0.007	1.000	382075	3.47		136	M
499.00 > 99.00	2.041	2.041	0.0	0.996	66659		5.73(0.00-0.00)	114	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.048	-0.007		3363000	28.7		5034	
9 Perfluorononanoic acid									M
463.00 > 419.00	2.048	2.056	-0.008	1.000	50838	0.5018		8.4	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1233203	10.6		8120	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

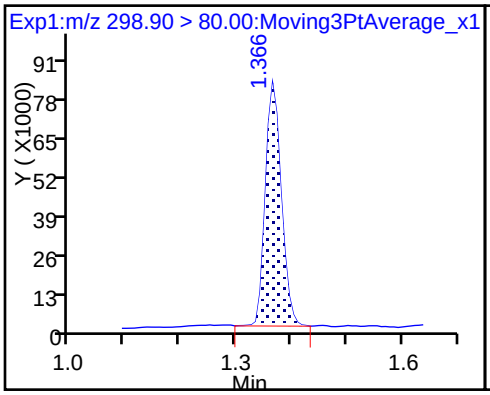
Report Date: 09-Feb-2018 09:52:09 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

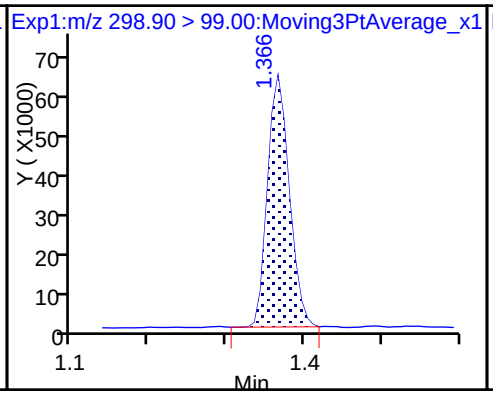
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_020.d

Injection Date:	08-Feb-2018 09:01:59	Instrument ID:	A8_N		
Lims ID:	320-35442-A-9-A	Lab Sample ID:	320-35442-9		
Client ID:	NAWC-012518-RW-155				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	12	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

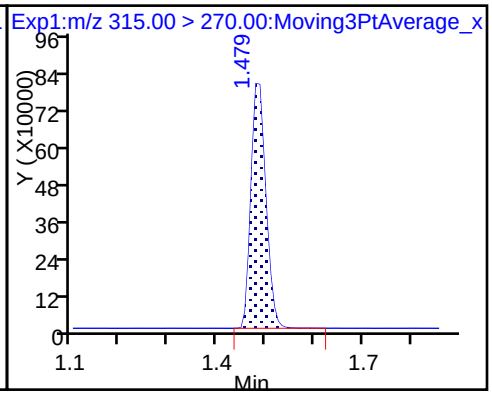
1 Perfluorobutanesulfonic acid



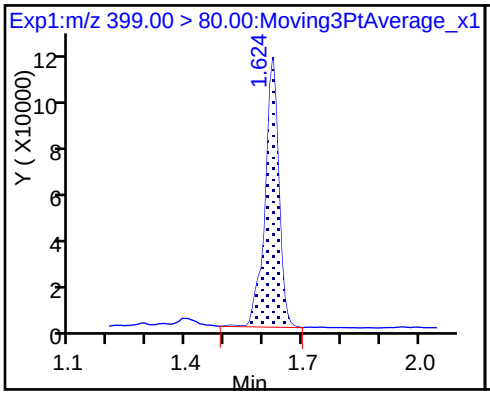
1 Perfluorobutanesulfonic acid



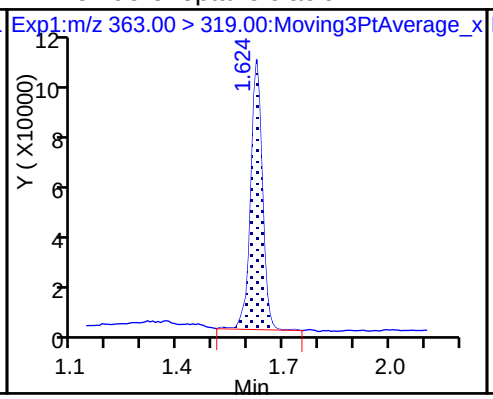
$ 2 13C2 PFHxA



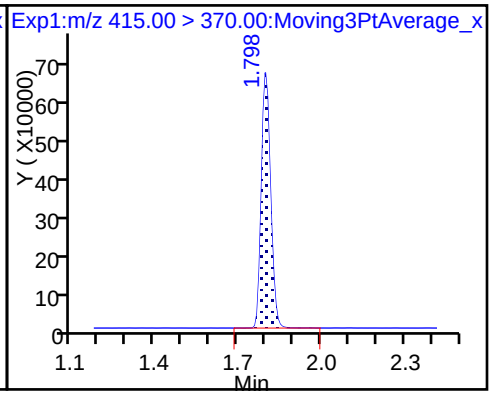
3 Perfluorohexanesulfonic acid



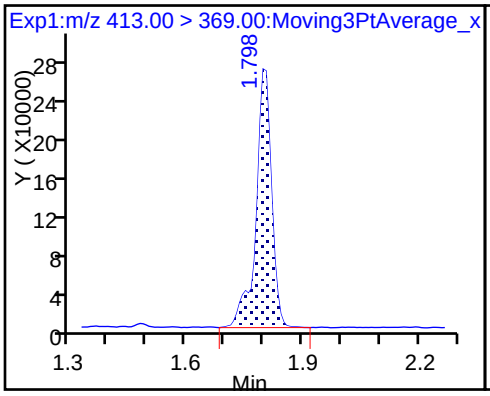
4 Perfluoroheptanoic acid



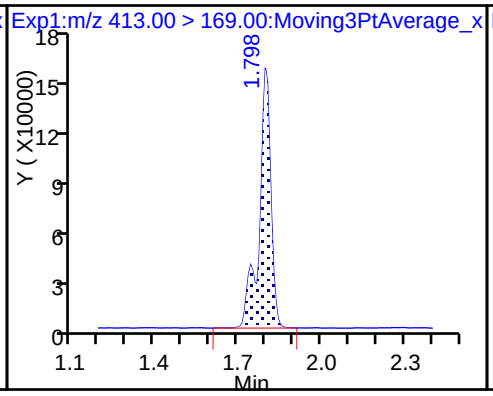
* 6 13C2-PFOA



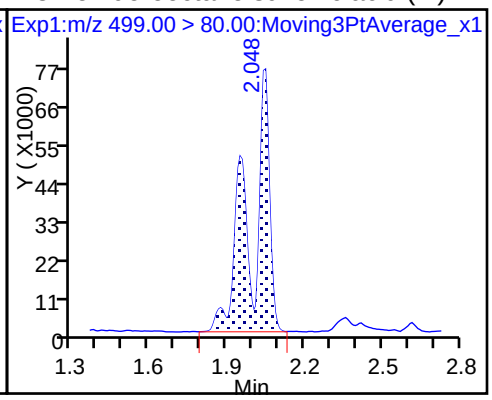
5 Perfluorooctanoic acid



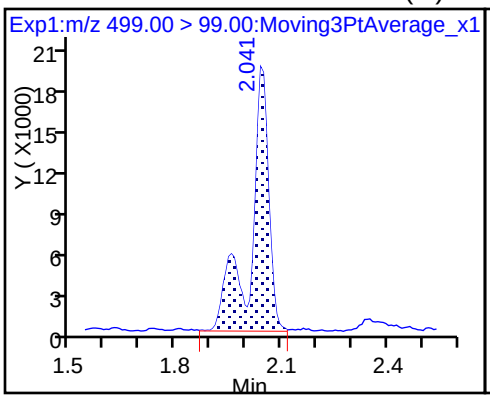
5 Perfluorooctanoic acid



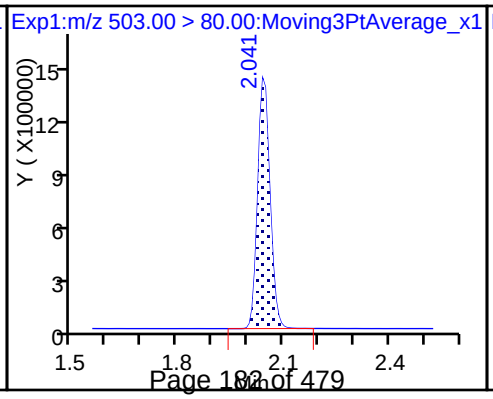
8 Perfluorooctane sulfonic acid (M)



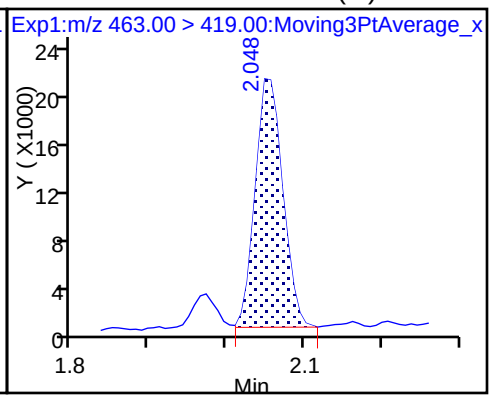
8 Perfluorooctane sulfonic acid (M)



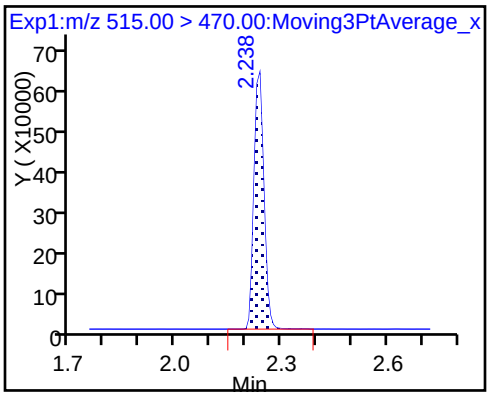
* 7 13C4 PFOS



9 Perfluorononanoic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_020.d				
Lims ID:	320-35442-A-9-A				
Client ID:	NAWC-012518-RW-155				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 09:01:59	ALS Bottle#:	12	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-9-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:06	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				
First Level Reviewer: barnettj		Date:	08-Feb-2018 17:15:20		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.1	101.00
$ 10 13C2 PFDA	10.0	10.6	105.65

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

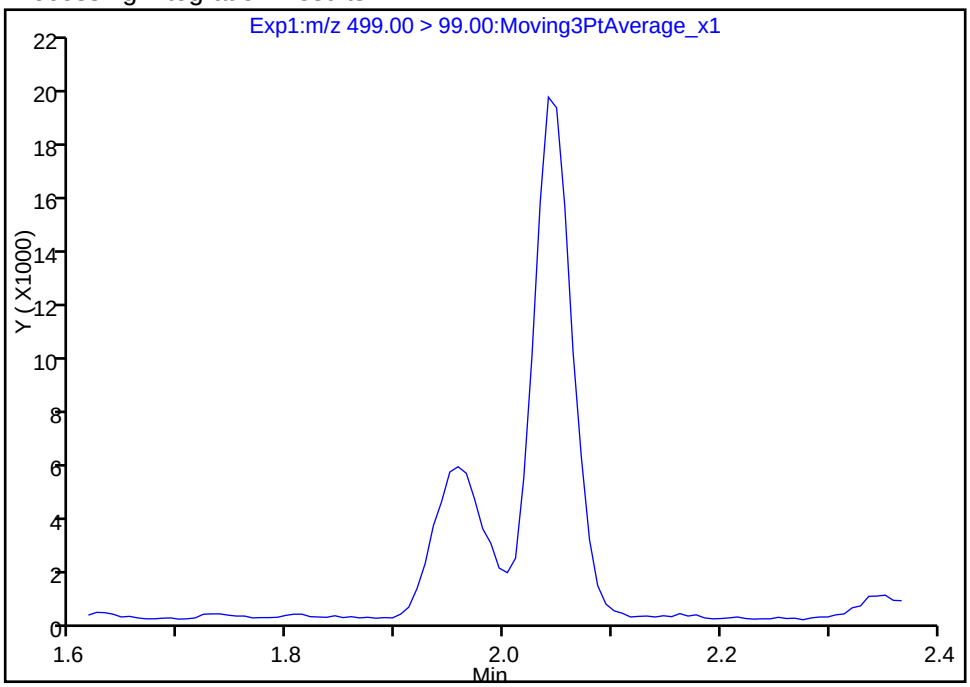
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_020.d				
Injection Date:	08-Feb-2018 09:01:59	Instrument ID:	A8_N		
Lims ID:	320-35442-A-9-A	Lab Sample ID:	320-35442-9		
Client ID:	NAWC-012518-RW-155				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	12	Worklist Smp#:	17
Injection 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: 2

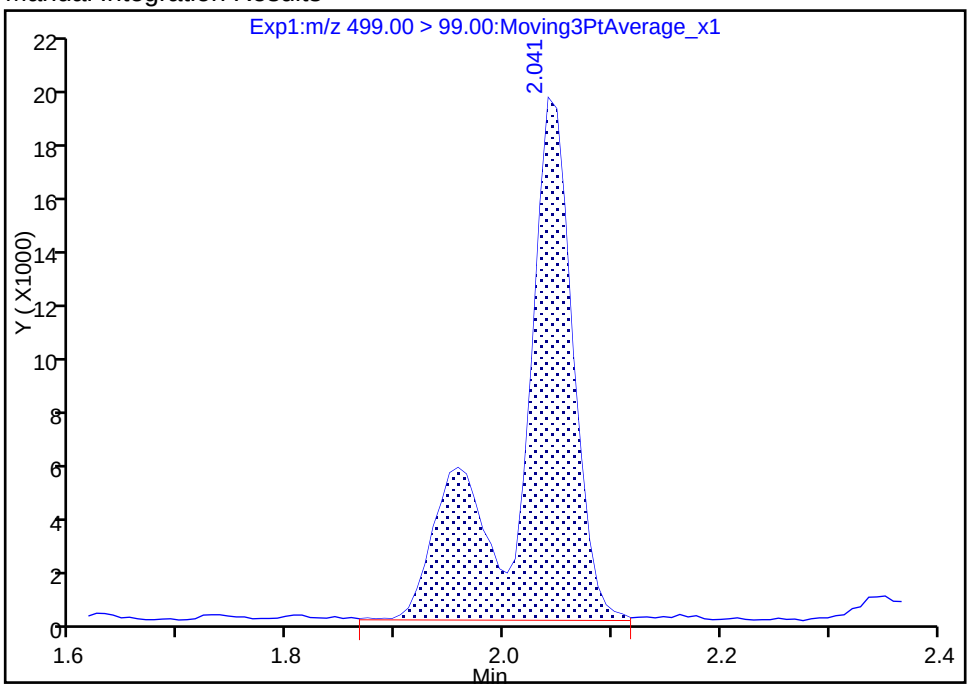
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 66659
Amount: 3.470236
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:14:46
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

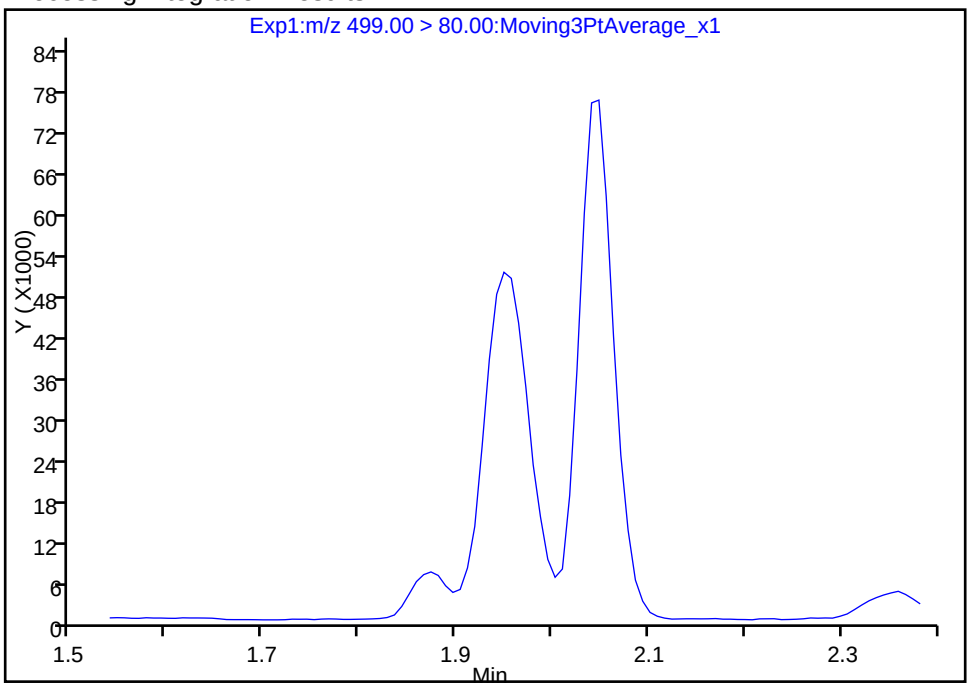
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_020.d				
Injection Date:	08-Feb-2018 09:01:59	Instrument ID:	A8_N		
Lims ID:	320-35442-A-9-A	Lab Sample ID:	320-35442-9		
Client ID:	NAWC-012518-RW-155				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	12	Worklist Smp#:	17
Injection 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

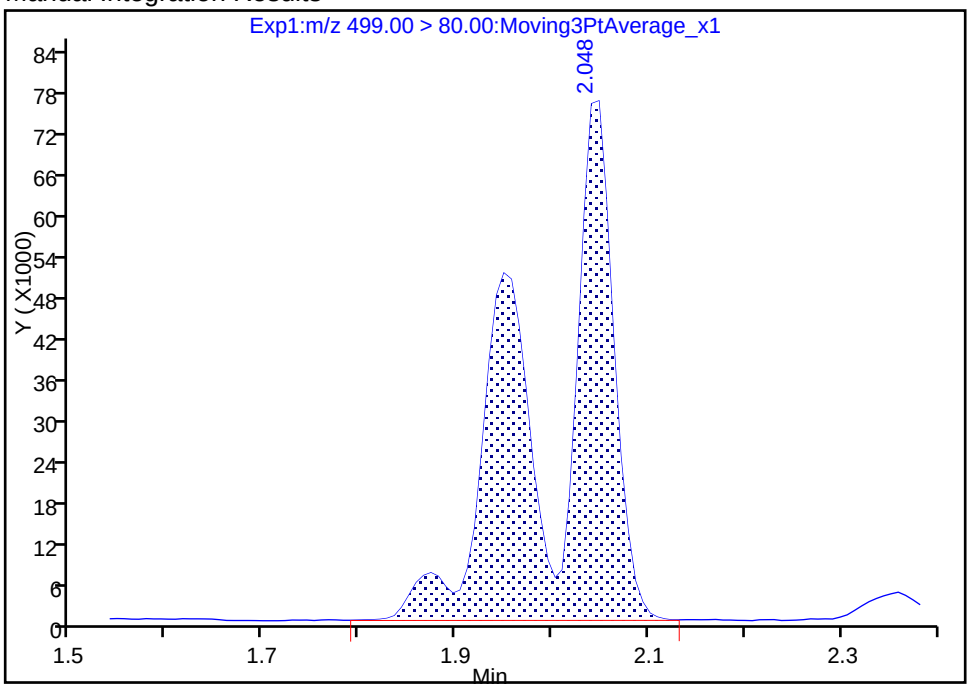
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 382075
Amount: 3.470236
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:14:46
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

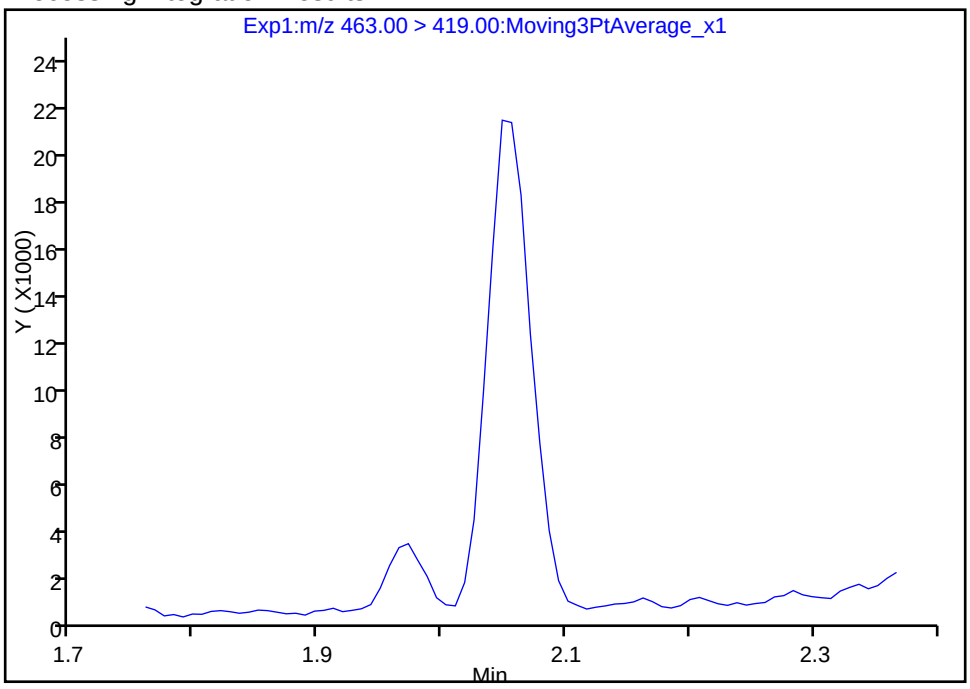
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_020.d				
Injection Date:	08-Feb-2018 09:01:59	Instrument ID:	A8_N		
Lims ID:	320-35442-A-9-A	Lab Sample ID:	320-35442-9		
Client ID:	NAWC-012518-RW-155				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	12	Worklist Smp#:	17
Injection 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

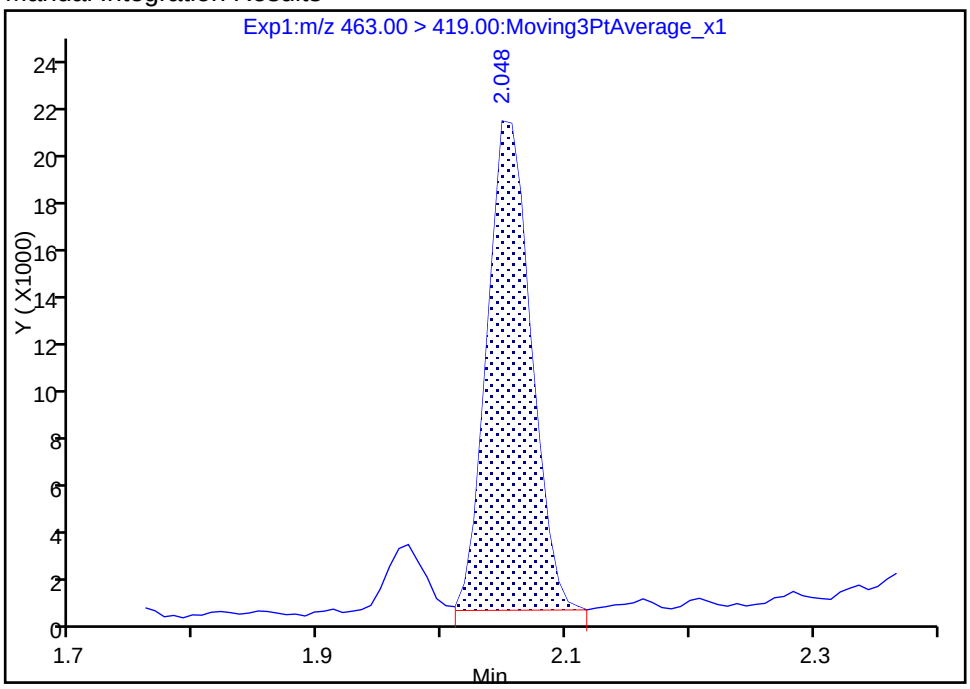
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 50838
Amount: 0.501777
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:15:12
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-155 Lab Sample ID: 320-35442-10

Matrix: Water Lab File ID: 2018.02.08_537A_021.d

Analysis Method: 537 Date Collected: 01/25/2018 10:05

Extraction Method: 537 Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.3(mL) Date Analyzed: 02/08/2018 09:06

Con. Extract Vol.: 1.0(mL) Dilution Factor: 1

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

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

Analysis Batch No.: 207582 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	109		70-130
STL00996	13C2 PFDA	110		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_021.d
Lims ID: 320-35442-A-10-A
Client ID: NAWC-012518-FRB-155
Sample Type: Client
Inject. Date: 08-Feb-2018 09:06:40 ALS Bottle#: 13 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-10-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1771875	10.9		7862	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1473546	10.0		4947	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.048	-0.007		3293399	28.7		6971	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1244325	11.0		7988	

Report Date: 09-Feb-2018 09:52:10 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_021.d

Injection Date: 08-Feb-2018 09:06:40 Instrument ID: A8_N

Lims ID: 320-35442-A-10-A Lab Sample ID: 320-35442-10

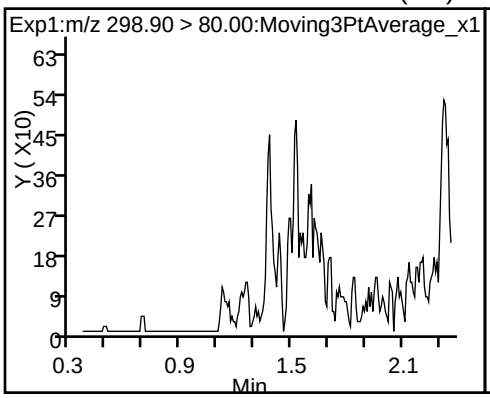
Client ID: NAWC-012518-FRB-155

Operator ID: SACINSTLCMS01 ALS Bottle#: 13 Worklist Smp#: 18

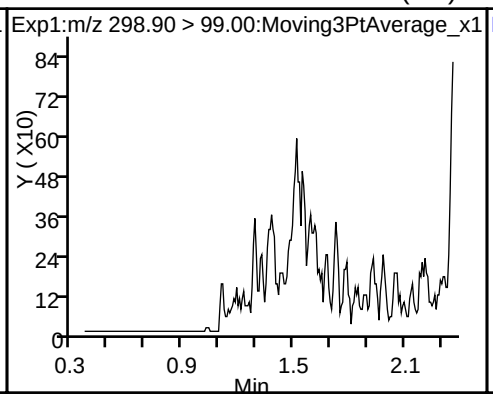
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

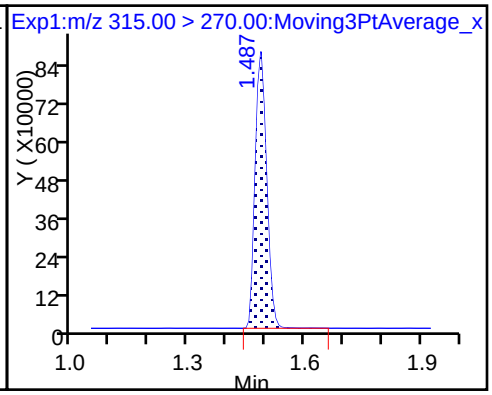
1 Perfluorobutanesulfonic acid (ND)



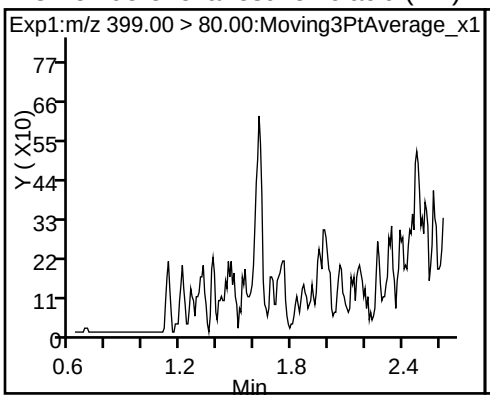
1 Perfluorobutanesulfonic acid (ND)



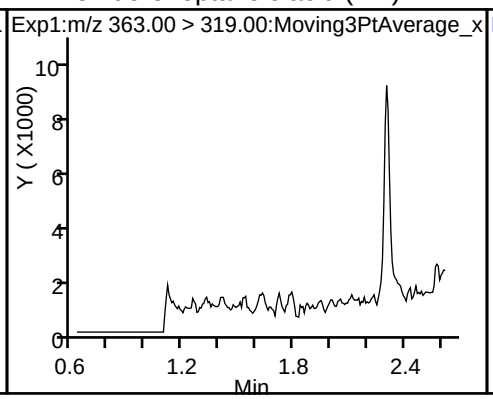
$ 2 13C2 PFHxA



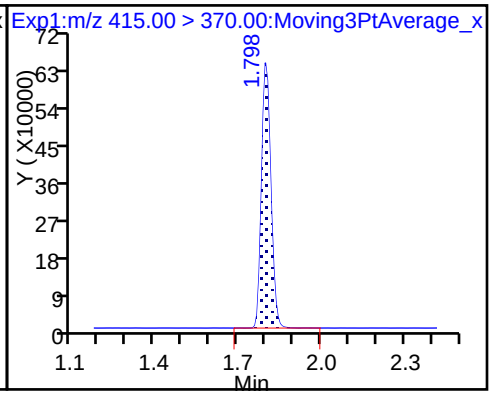
3 Perfluorohexanesulfonic acid (ND)



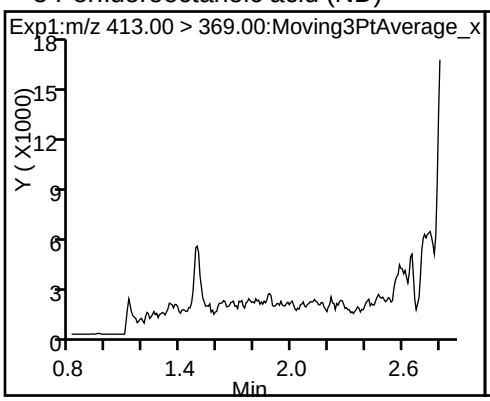
4 Perfluoroheptanoic acid (ND)



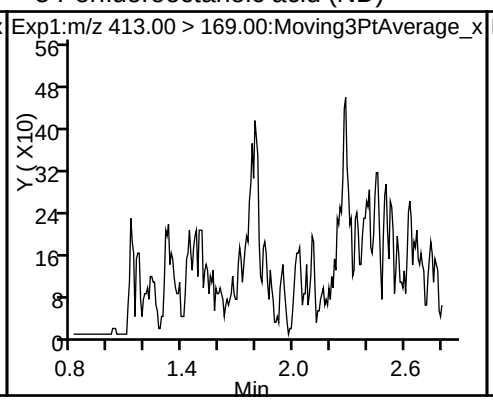
* 6 13C2-PFOA



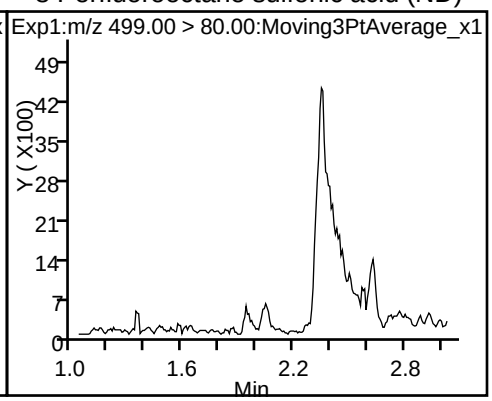
5 Perfluorooctanoic acid (ND)



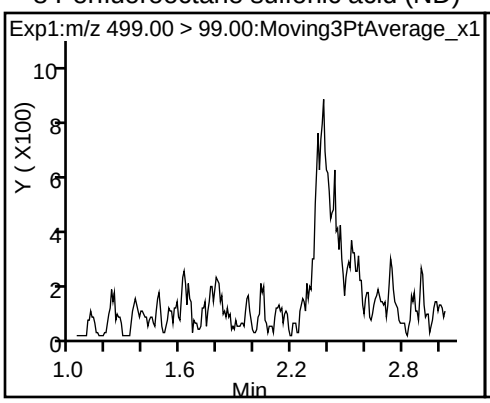
5 Perfluorooctanoic acid (ND)



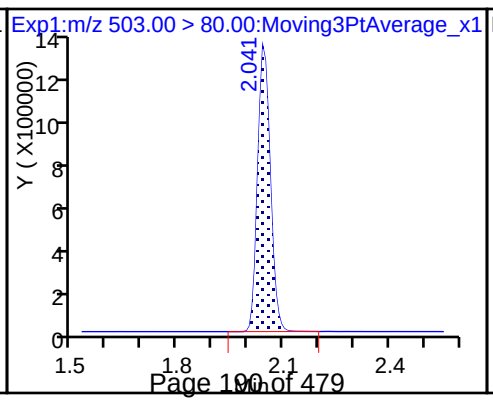
8 Perfluorooctane sulfonic acid (ND)



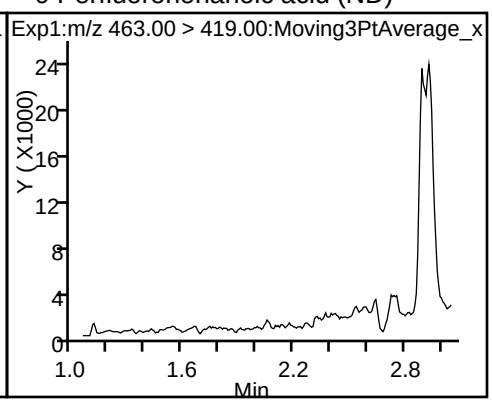
8 Perfluorooctane sulfonic acid (ND)



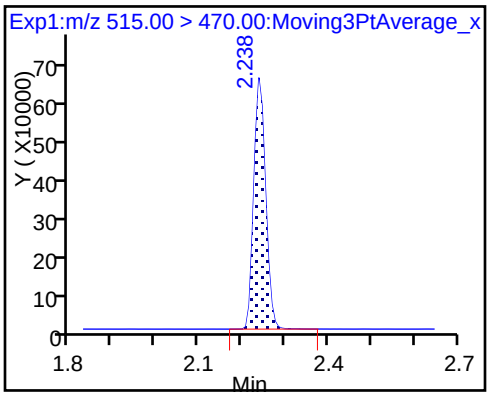
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_021.d				
Lims ID:	320-35442-A-10-A				
Client ID:	NAWC-012518-FRB-155				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 09:06:40	ALS Bottle#:	13	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-10-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:06	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.9	109.29
$ 10 13C2 PFDA	10.0	11.0	110.36

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: WGNA-012518-DUP-23 | Lab Sample ID: 320-35442-11

Matrix: Water | Lab File ID: 2018.02.08_537A_022.d

Analysis Method: 537 | Date Collected: 01/25/2018 07:00

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 250.4(mL) | Date Analyzed: 02/08/2018 09:11

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	23		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.5	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.6	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	118		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_022.d
Lims ID: 320-35442-A-11-A
Client ID: WGNA-012518-DUP-23
Sample Type: Client
Inject. Date: 08-Feb-2018 09:11:20 ALS Bottle#: 14 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-11-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:16:30

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	160553	1.27		282	
298.90 > 99.00	1.366	1.366	0.0	1.000	124046		1.29(0.00-0.00)	239	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1726487	11.3		7186	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	258932	1.37		233	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	247525	1.90		62.0	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.798	0.008		1388441	10.0		4947	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	730746	5.69		123	
413.00 > 169.00	1.806	1.806	0.0	1.000	442855		1.65(0.00-0.00)	956	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.041	0.007	1.000	379785	3.58		140	M
499.00 > 99.00	2.048	2.041	0.007	1.000	63851		5.95(0.00-0.00)	106	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3240317	28.7		4605	
9 Perfluorononanoic acid									M
463.00 > 419.00	2.056	2.056	0.0	1.000	55456	0.6014		9.6	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1257476	11.8		8297	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 09-Feb-2018 09:52:11 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_022.d

Injection Date: 08-Feb-2018 09:11:20 Instrument ID: A8_N

Lims ID: 320-35442-A-11-A Lab Sample ID: 320-35442-11

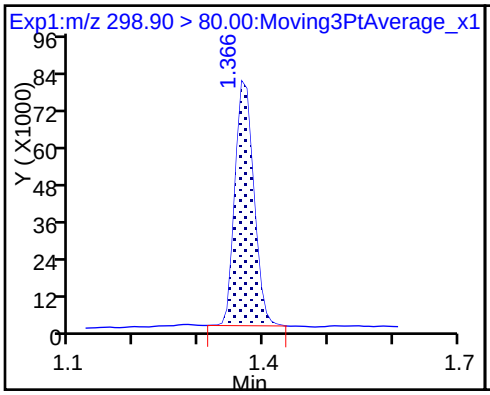
Client ID: WGNA-012518-DUP-23

Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 19

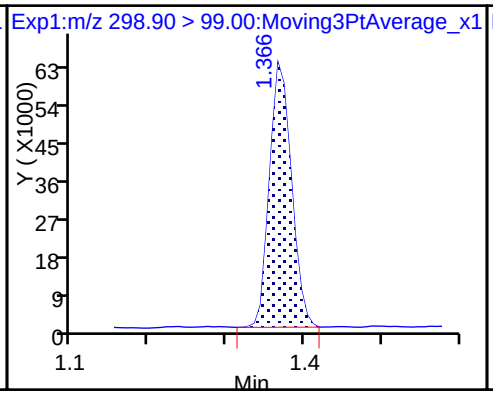
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

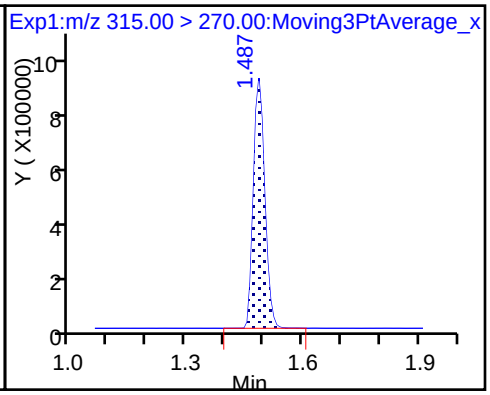
1 Perfluorobutanesulfonic acid



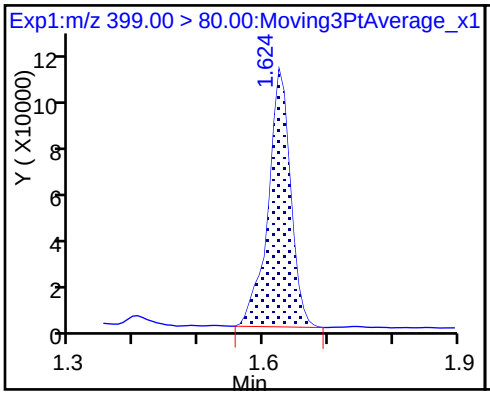
1 Perfluorobutanesulfonic acid



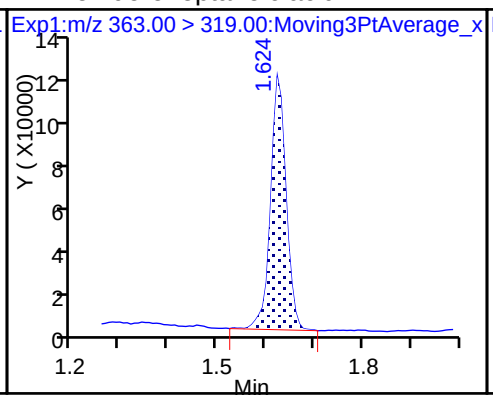
$ 2 13C2 PFHxA



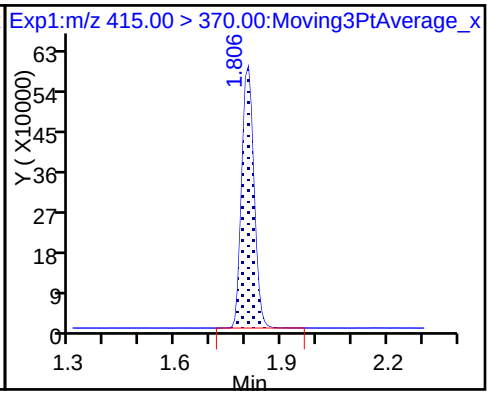
3 Perfluorohexanesulfonic acid



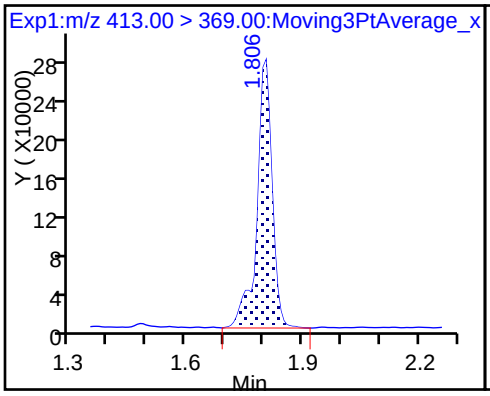
4 Perfluoroheptanoic acid



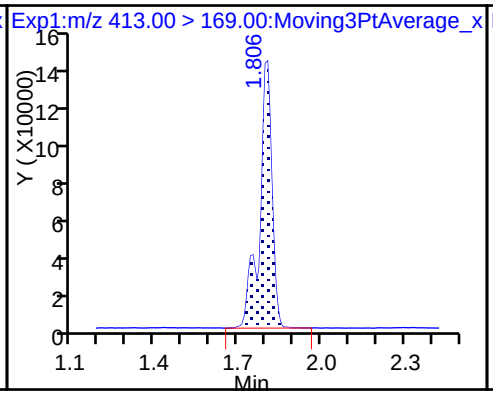
* 6 13C2-PFOA



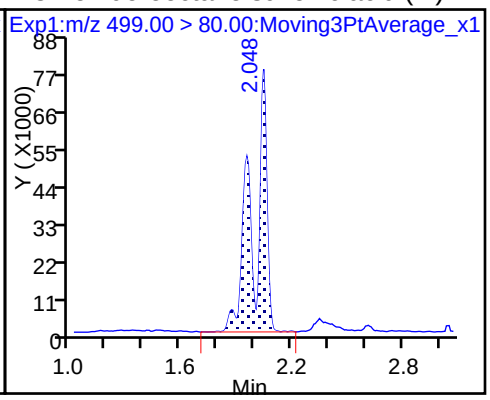
5 Perfluorooctanoic acid



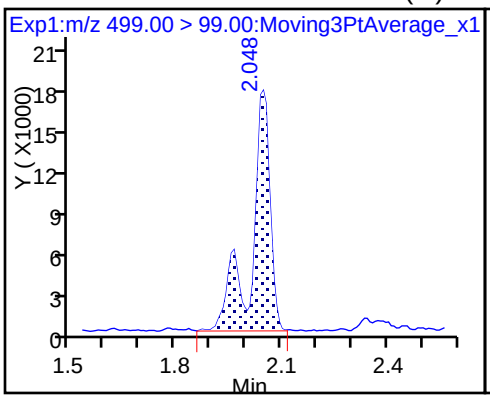
5 Perfluorooctanoic acid



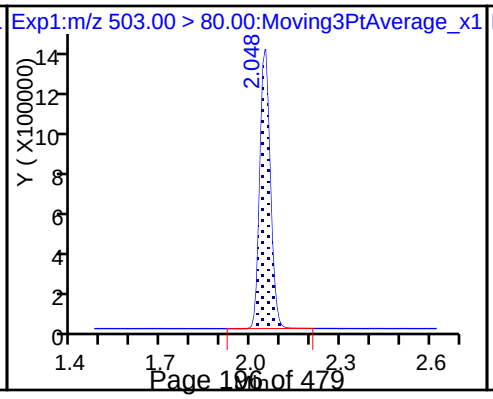
8 Perfluorooctane sulfonic acid (M)



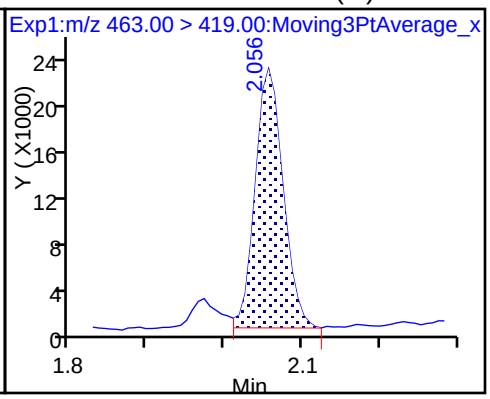
8 Perfluorooctane sulfonic acid (M)



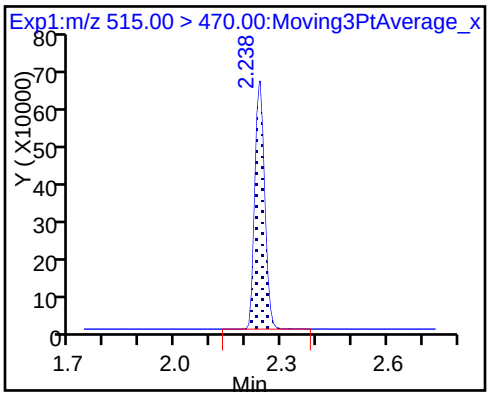
* 7 13C4 PFOS



9 Perfluorononanoic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
80
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_022.d				
Lims ID:	320-35442-A-11-A				
Client ID:	WGNA-012518-DUP-23				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 09:11:20	ALS Bottle#:	14	Worklist Smp#:	19
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-11-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:06	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				
First Level Reviewer: barnettj		Date:	08-Feb-2018 17:16:30		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	11.3	113.01
$ 10 13C2 PFDA	10.0	11.8	118.36

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

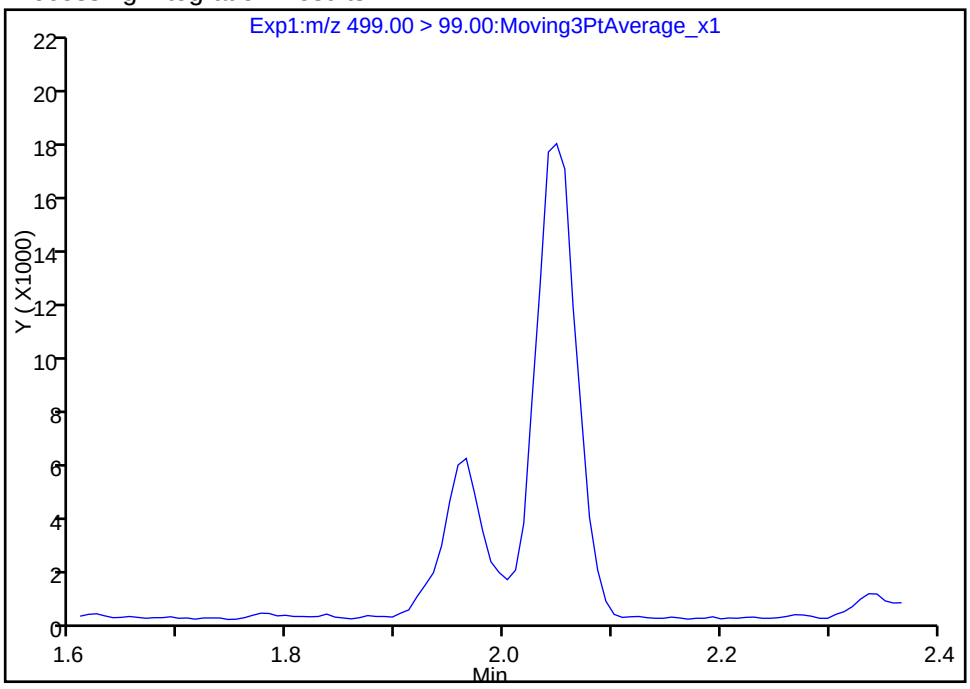
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_022.d				
Injection Date:	08-Feb-2018 09:11:20	Instrument ID:	A8_N		
Lims ID:	320-35442-A-11-A	Lab Sample ID:	320-35442-11		
Client ID:	WGNA-012518-DUP-23				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	14	Worklist Smp#:	19
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

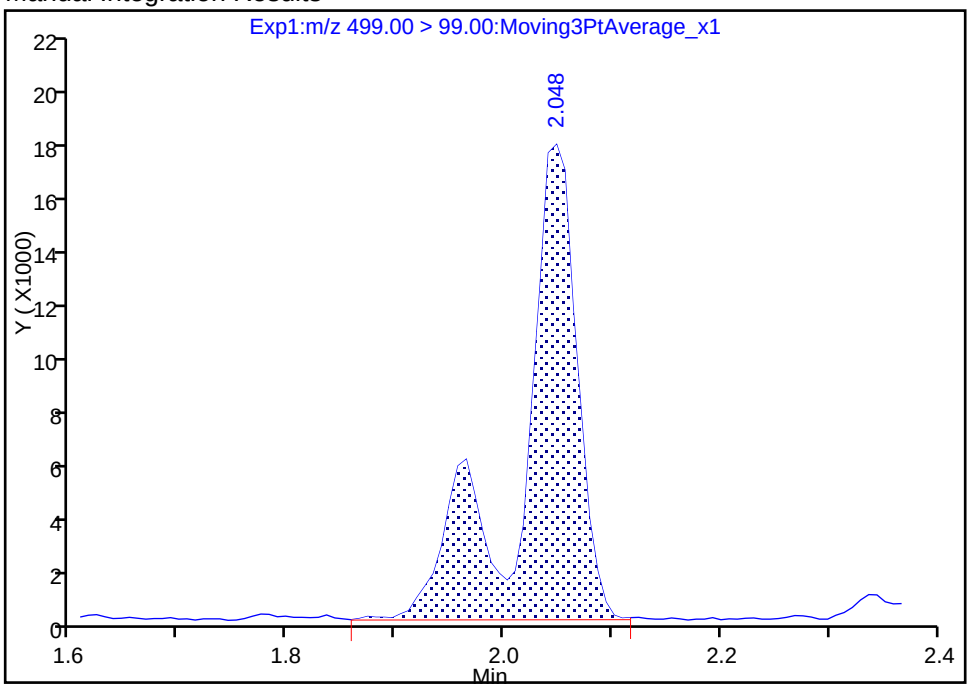
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 63851
Amount: 3.580038
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:15:56
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

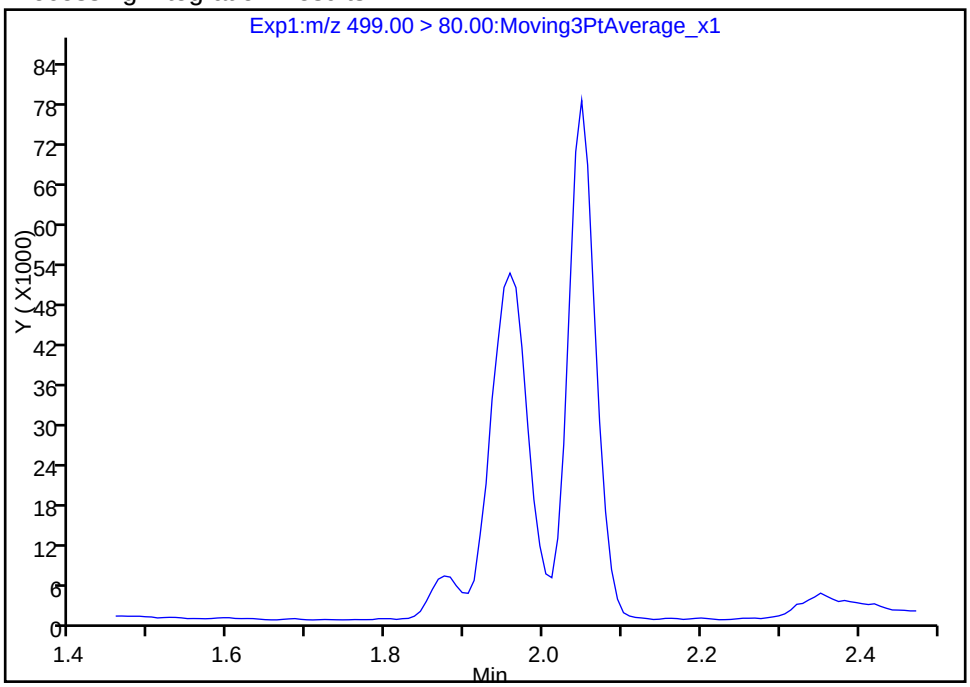
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_022.d				
Injection Date:	08-Feb-2018 09:11:20	Instrument ID:	A8_N		
Lims ID:	320-35442-A-11-A	Lab Sample ID:	320-35442-11		
Client ID:	WGNA-012518-DUP-23				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	14	Worklist Smp#:	19
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

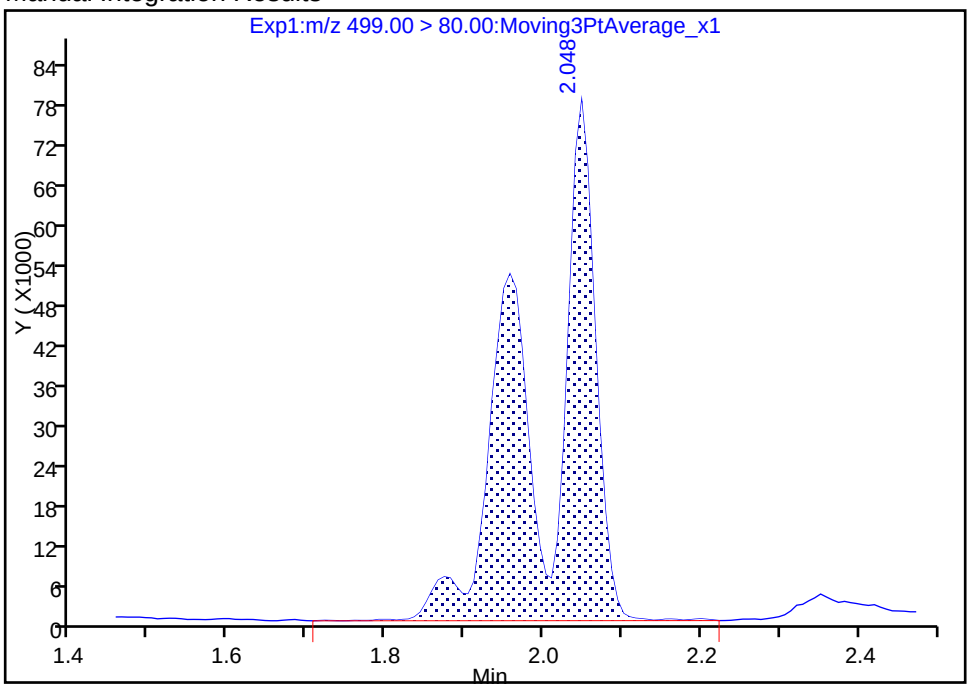
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 379785
Amount: 3.580038
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:15:56
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

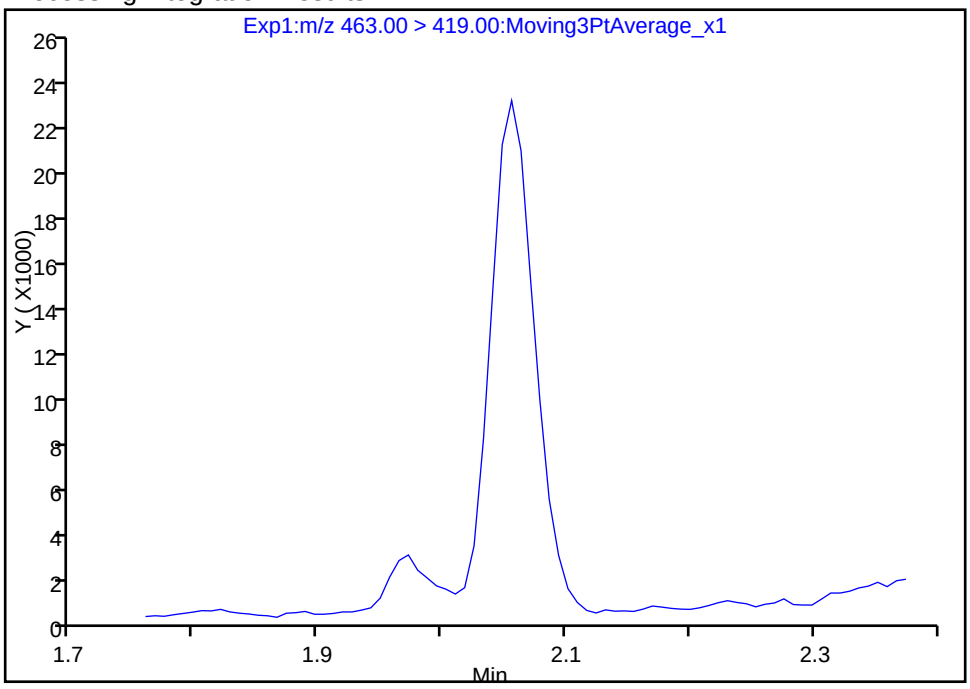
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_022.d				
Injection Date:	08-Feb-2018 09:11:20	Instrument ID:	A8_N		
Lims ID:	320-35442-A-11-A	Lab Sample ID:	320-35442-11		
Client ID:	WGNA-012518-DUP-23				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	14	Worklist Smp#:	19
Injection 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

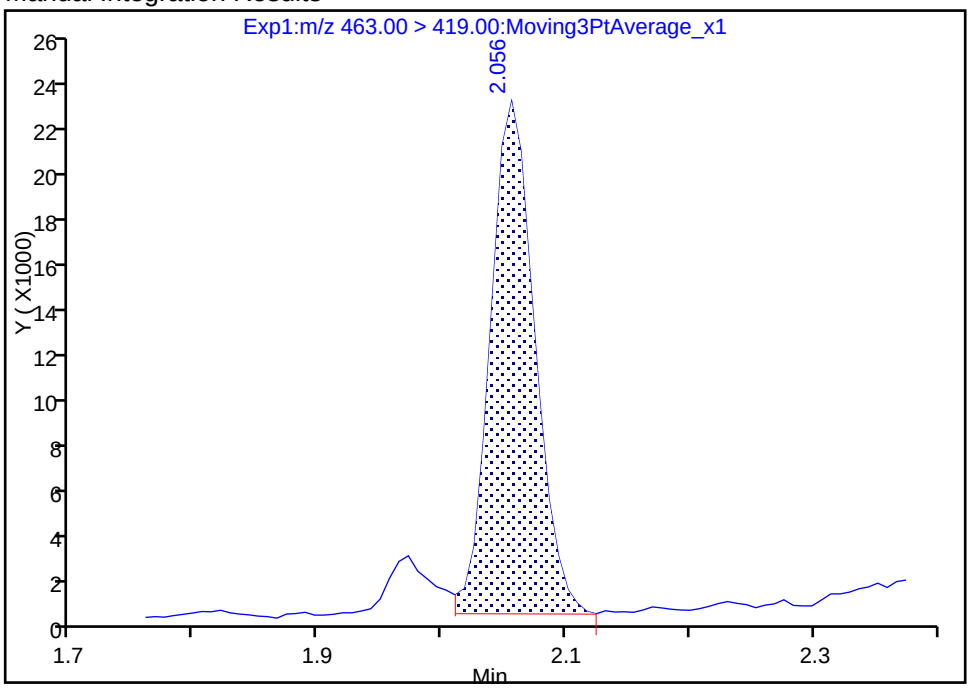
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 55456
Amount: 0.601379
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:16:15
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-094 | Lab Sample ID: 320-35442-12

Matrix: Water | Lab File ID: 2018.02.08_537A_023.d

Analysis Method: 537 | Date Collected: 01/25/2018 11:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.2(mL) | Date Analyzed: 02/08/2018 09:15

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	20	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.0	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	114		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_023.d
Lims ID: 320-35442-A-12-A
Client ID: NAWC-012518-RW-094
Sample Type: Client
Inject. Date: 08-Feb-2018 09:15:59 ALS Bottle#: 15 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-12-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:17:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	131426	1.05		190	
298.90 > 99.00	1.366	1.366	0.0	1.000	93943		1.40(0.00-0.00)	166	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1464827	9.28		6008	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.624	-0.008	1.000	917699	4.88		952	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.624	-0.008	1.000	198015	1.47		48.2	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1435121	10.0		5250	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.806	-0.008	1.000	553874	4.17		93.7	
413.00 > 169.00	1.798	1.806	-0.008	1.000	314325		1.76(0.00-0.00)	723	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.041	2.041	0.0	1.000	659256	6.25		247	M
499.00 > 99.00	2.033	2.041	-0.008	0.996	136446		4.83(0.00-0.00)	252	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.048	-0.007		3220391	28.7		4700	
9 Perfluorononanoic acid									M
463.00 > 419.00	2.048	2.056	-0.008	1.000	42026	0.4409		6.7	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	1252580	11.4		8322	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 09-Feb-2018 09:52:12 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_023.d

Injection Date: 08-Feb-2018 09:15:59 Instrument ID: A8_N

Lims ID: 320-35442-A-12-A Lab Sample ID: 320-35442-12

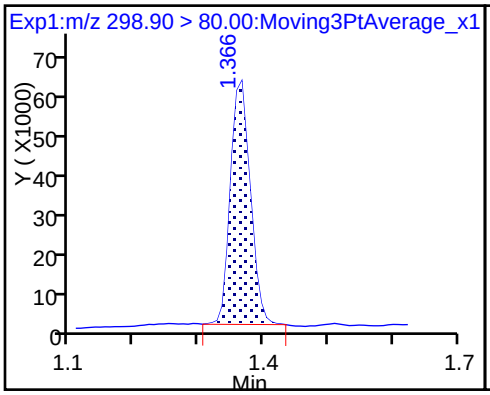
Client ID: NAWC-012518-RW-094

Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 20

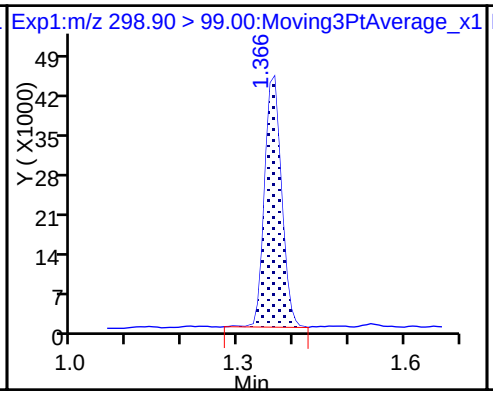
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

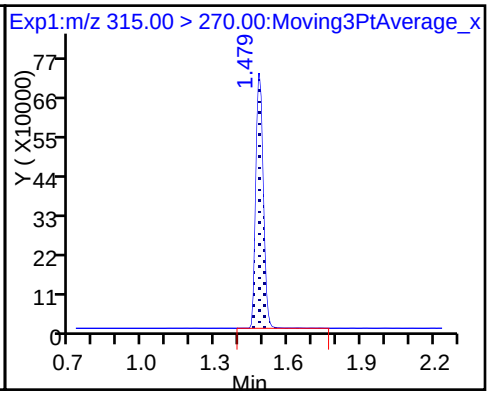
1 Perfluorobutanesulfonic acid



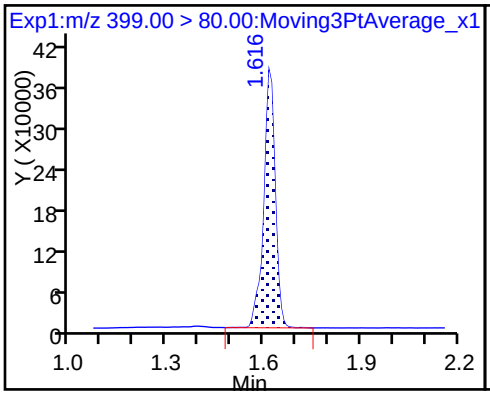
1 Perfluorobutanesulfonic acid



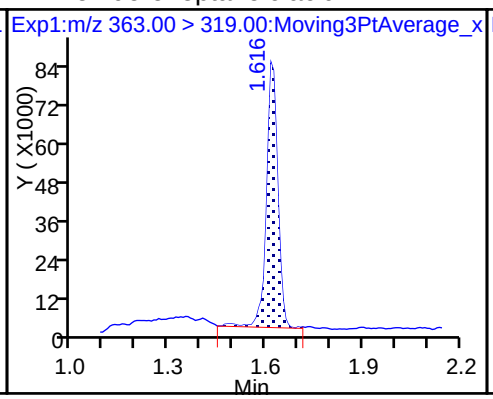
$ 2 13C2 PFHxA



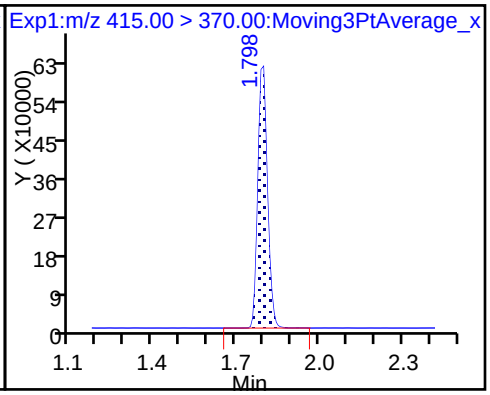
3 Perfluorohexanesulfonic acid



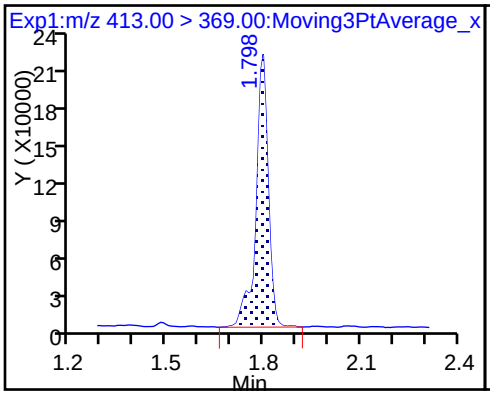
4 Perfluoroheptanoic acid



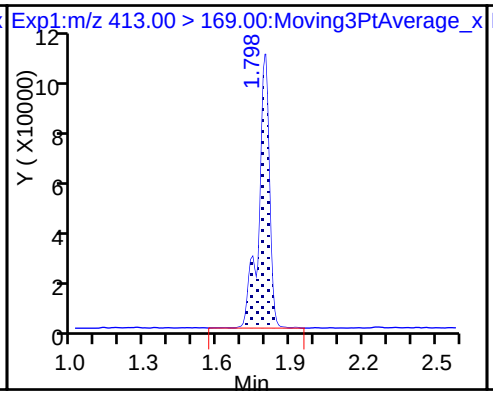
* 6 13C2-PFOA



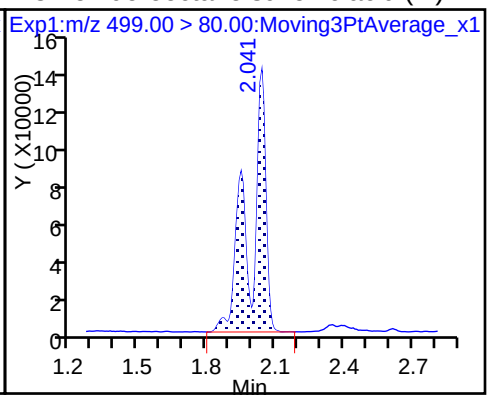
5 Perfluorooctanoic acid



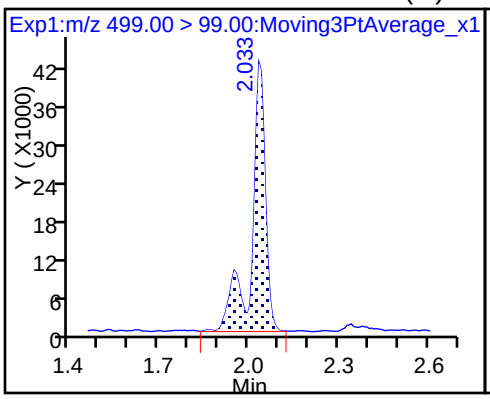
5 Perfluorooctanoic acid



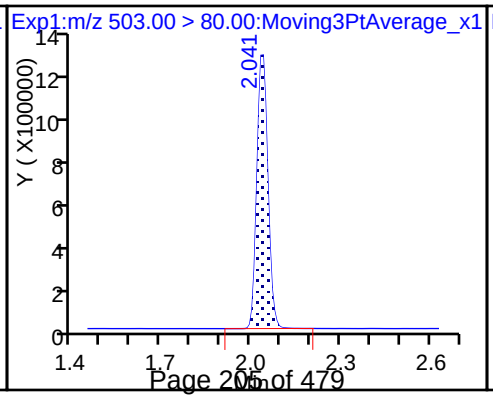
8 Perfluorooctane sulfonic acid (M)



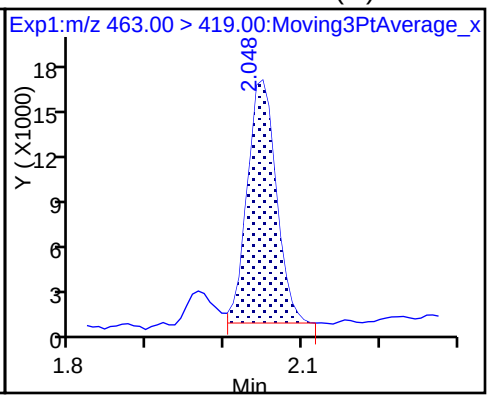
8 Perfluorooctane sulfonic acid (M)



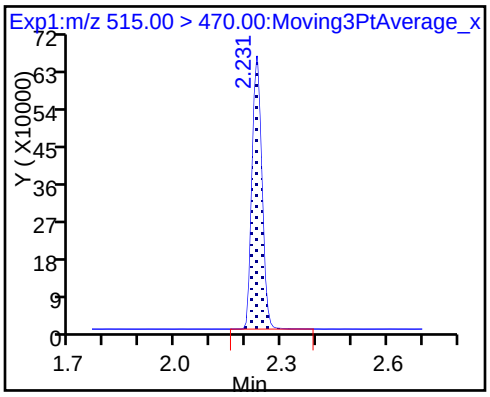
* 7 13C4 PFOS



9 Perfluorononanoic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
72
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_023.d				
Lims ID:	320-35442-A-12-A				
Client ID:	NAWC-012518-RW-094				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 09:15:59	ALS Bottle#:	15	Worklist Smp#:	20
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-12-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:06	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				
First Level Reviewer: barnettj		Date:	08-Feb-2018 17:17:33		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.28	92.77
$ 10 13C2 PFDA	10.0	11.4	114.06

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

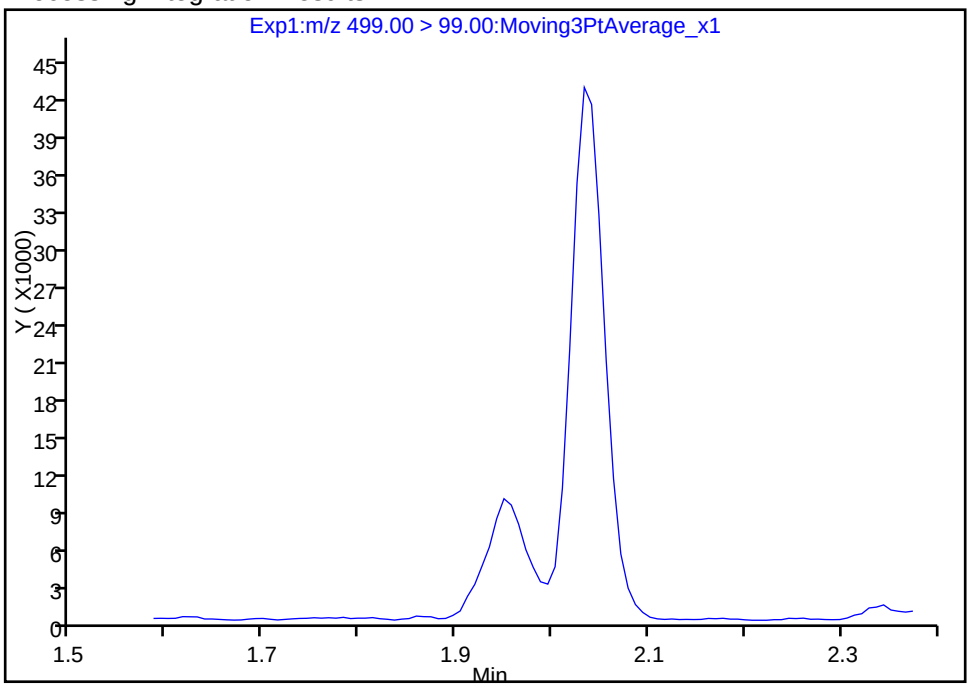
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_023.d				
Injection Date:	08-Feb-2018 09:15:59	Instrument ID:	A8_N		
Lims ID:	320-35442-A-12-A	Lab Sample ID:	320-35442-12		
Client ID:	NAWC-012518-RW-094				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	15	Worklist Smp#:	20
Injection 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

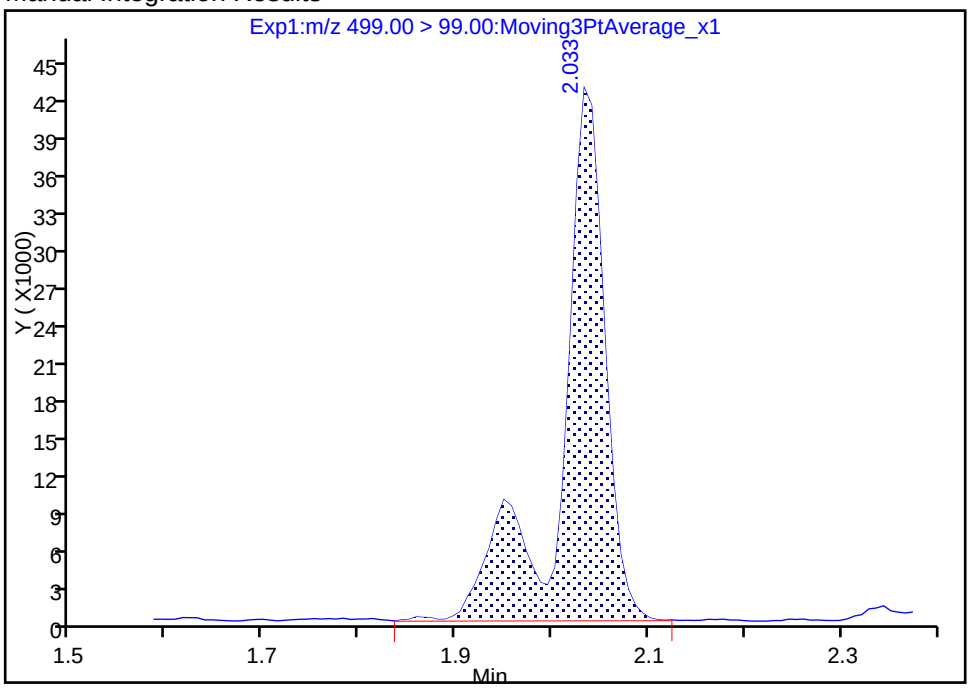
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.03
Area: 136446
Amount: 6.252919
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:17:01
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

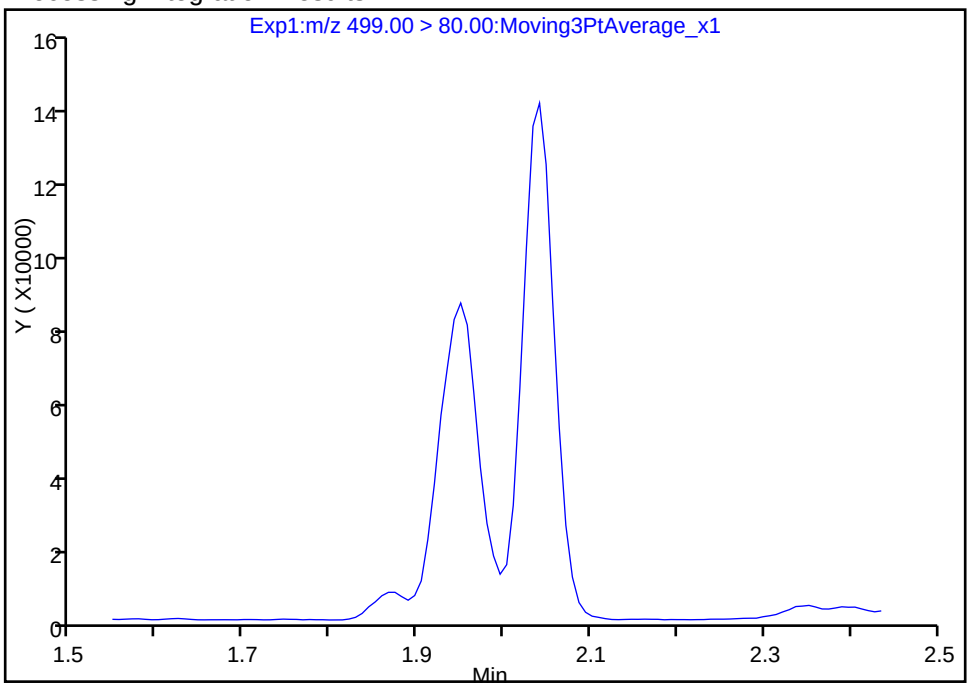
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_023.d				
Injection Date:	08-Feb-2018 09:15:59	Instrument ID:	A8_N		
Lims ID:	320-35442-A-12-A	Lab Sample ID:	320-35442-12		
Client ID:	NAWC-012518-RW-094				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	15	Worklist Smp#:	20
Injection 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

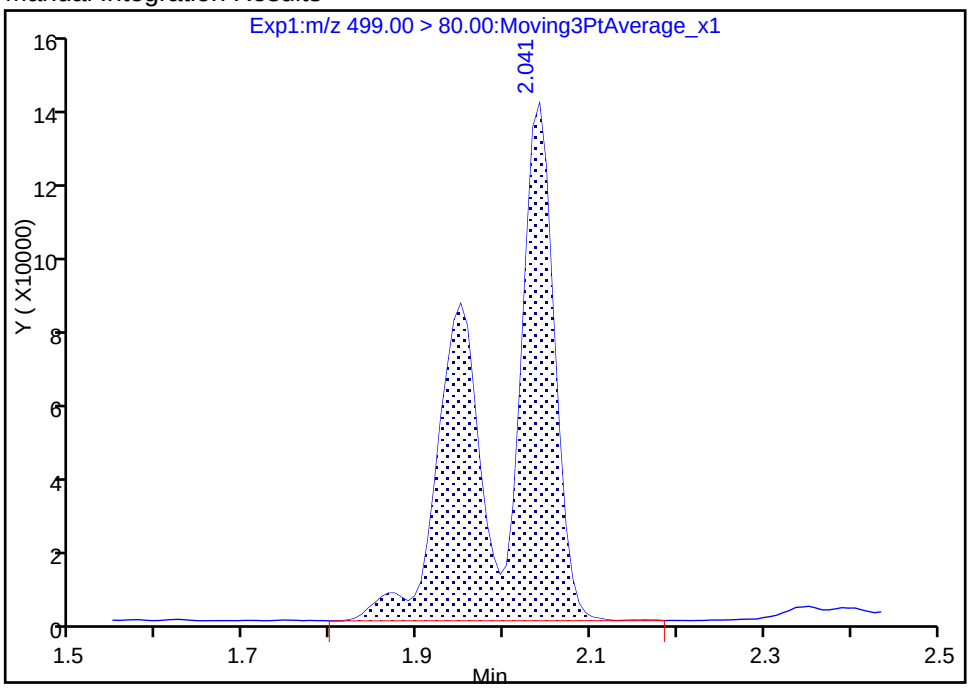
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 659256
Amount: 6.252919
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:17:01
Audit Action: Manually Integrated Audit Reason: Assign Peak

TestAmerica Sacramento

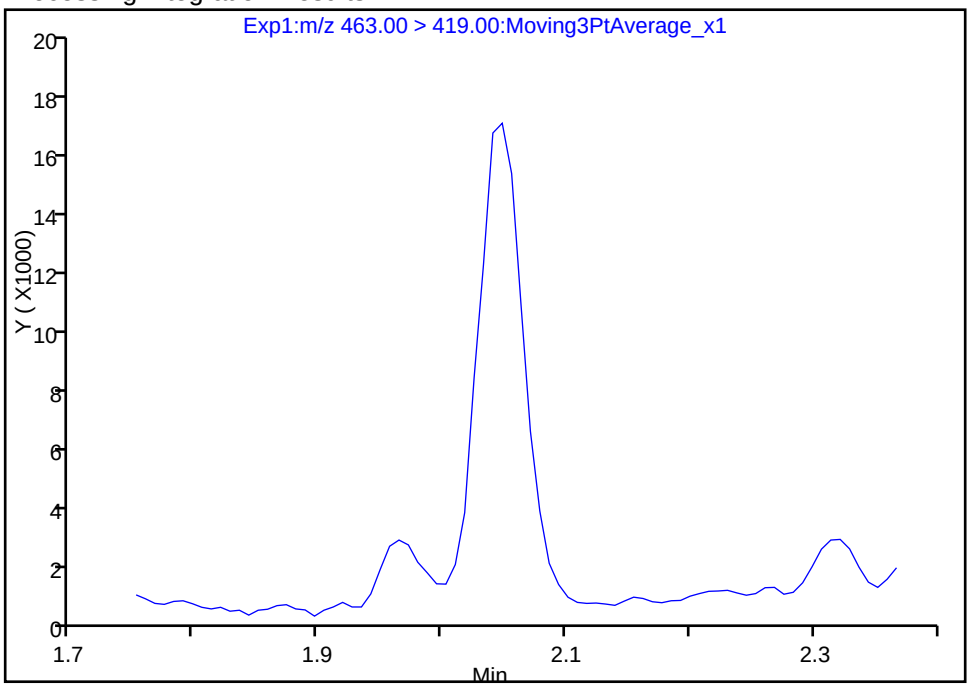
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_023.d				
Injection Date:	08-Feb-2018 09:15:59	Instrument ID:	A8_N		
Lims ID:	320-35442-A-12-A	Lab Sample ID:	320-35442-12		
Client ID:	NAWC-012518-RW-094				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	15	Worklist Smp#:	20
Injection 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

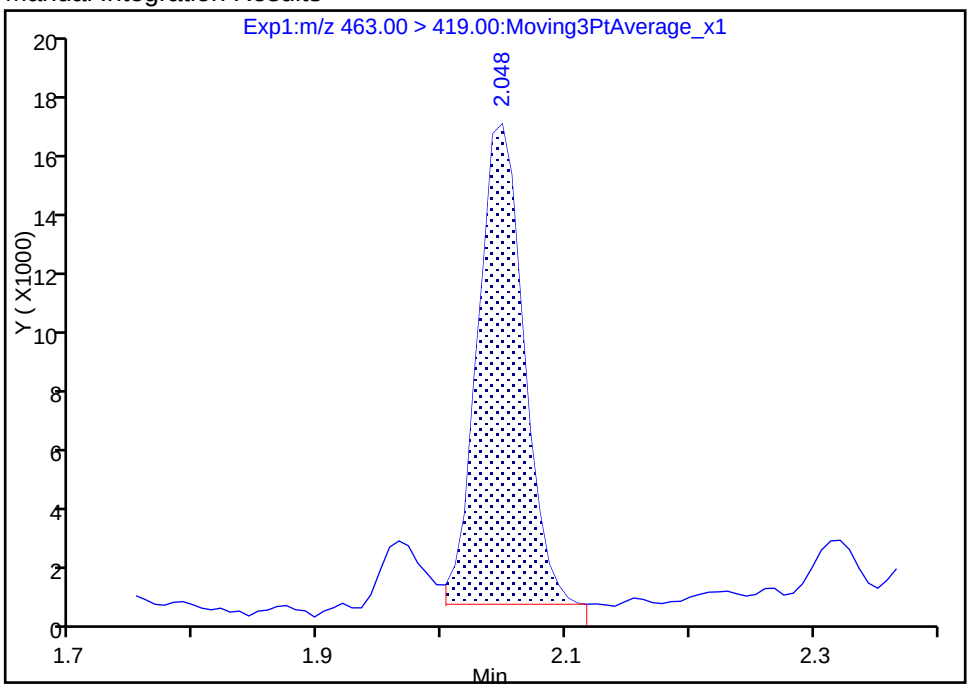
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 42026
Amount: 0.440917
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:17:17
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-094 Lab Sample ID: 320-35442-13

Matrix: Water Lab File ID: 2018.02.08_537A_024.d

Analysis Method: 537 Date Collected: 01/25/2018 11:35

Extraction Method: 537 Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.1(mL) Date Analyzed: 02/08/2018 09:20

Con. Extract Vol.: 1.0(mL) Dilution Factor: 1

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

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

Analysis Batch No.: 207582 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_024.d
Lims ID: 320-35442-A-13-A
Client ID: NAWC-012518-FRB-094
Sample Type: Client
Inject. Date: 08-Feb-2018 09:20:40 ALS Bottle#: 16 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-13-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1711487	11.3		6976	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1380850	10.0		5470	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.048	-0.007		3226584	28.7		6213	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	1173907	11.1		7648	

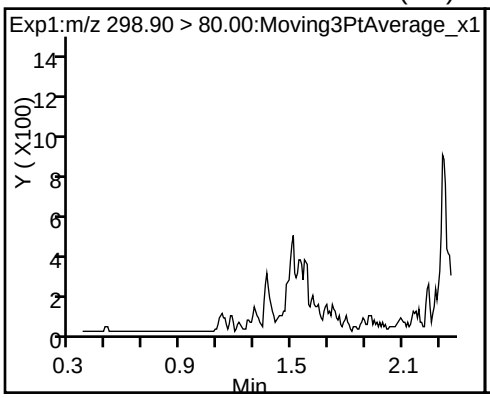
Report Date: 09-Feb-2018 09:52:13 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

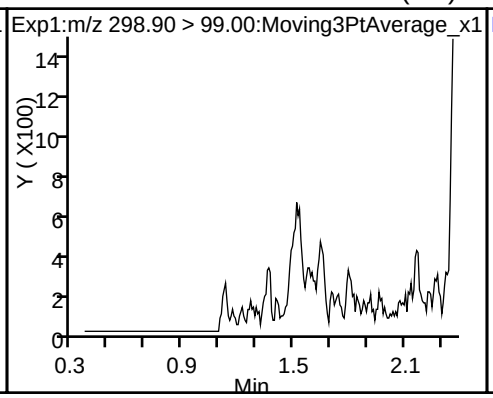
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_024.d

Injection Date:	08-Feb-2018 09:20:40	Instrument ID:	A8_N		
Lims ID:	320-35442-A-13-A	Lab Sample ID:	320-35442-13		
Client ID:	NAWC-012518-FRB-094				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	21
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

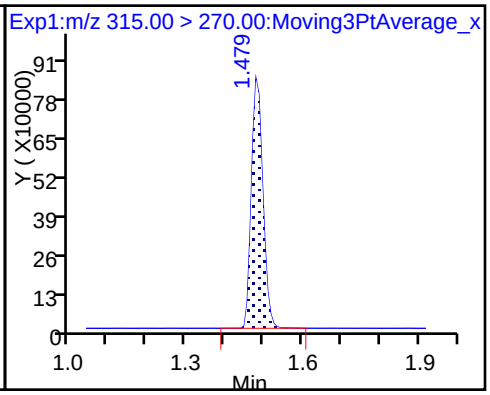
1 Perfluorobutanesulfonic acid (ND)



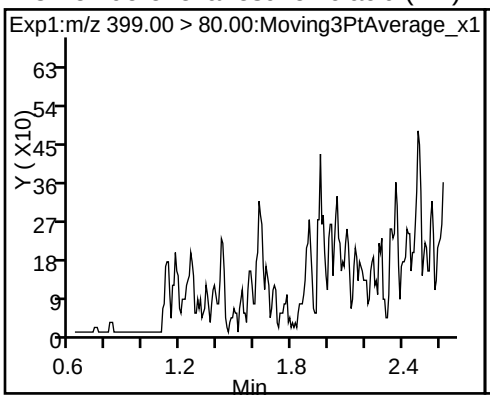
1 Perfluorobutanesulfonic acid (ND)



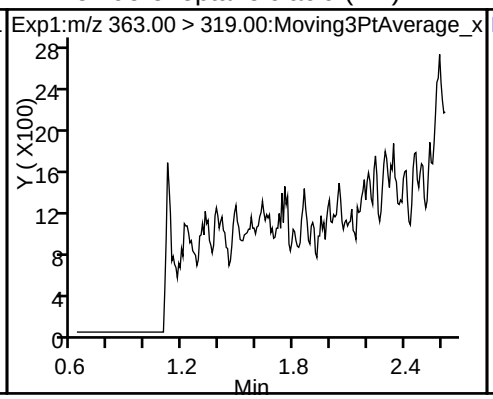
$ 2 13C2 PFHxA



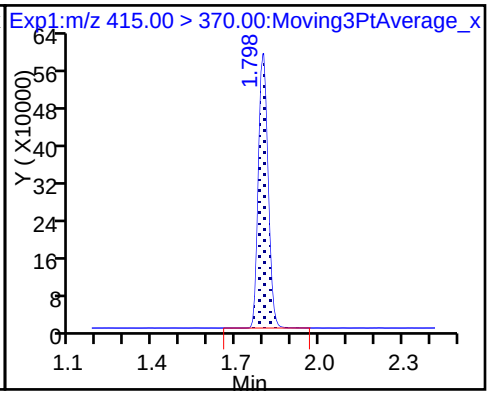
3 Perfluorohexanesulfonic acid (ND)



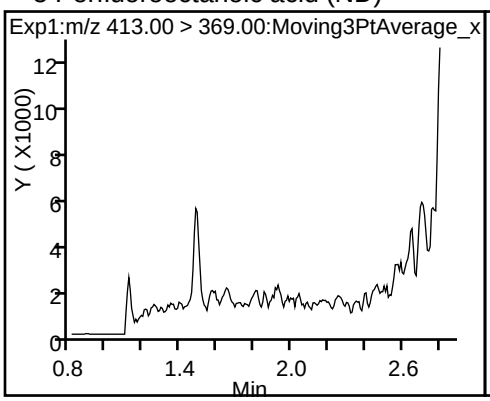
4 Perfluoroheptanoic acid (ND)



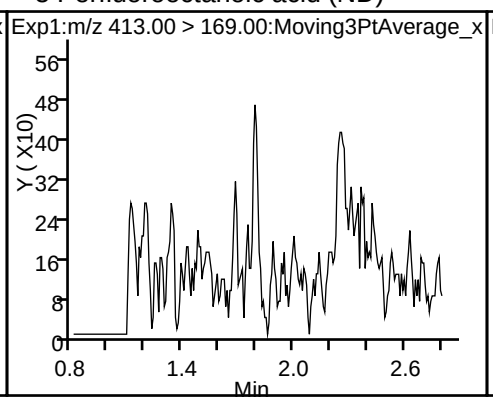
* 6 13C2-PFOA



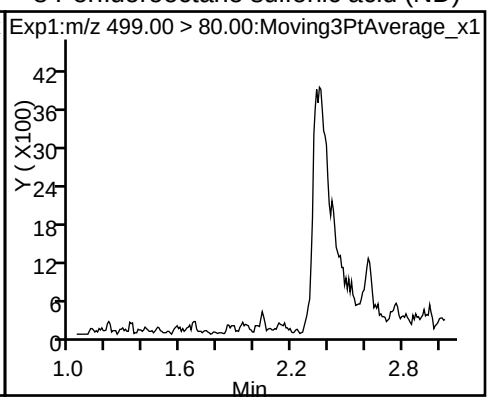
5 Perfluorooctanoic acid (ND)



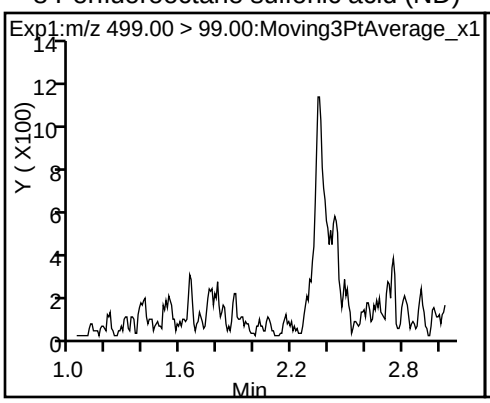
5 Perfluorooctanoic acid (ND)



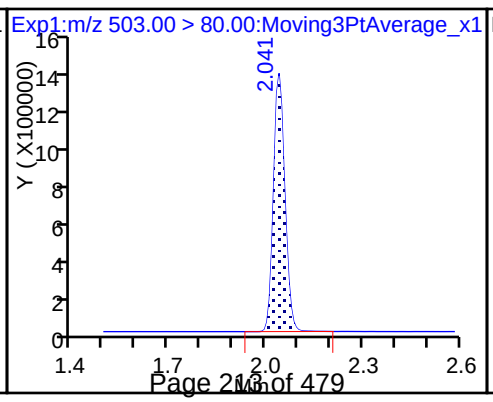
8 Perfluorooctane sulfonic acid (ND)



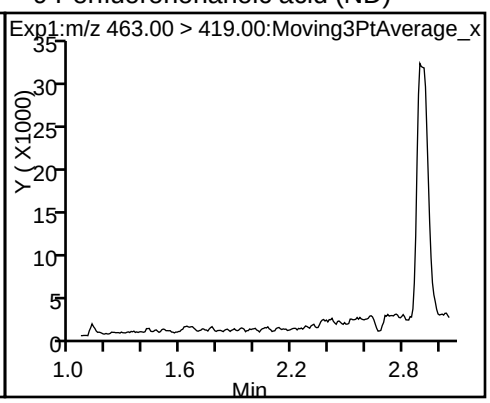
8 Perfluorooctane sulfonic acid (ND)



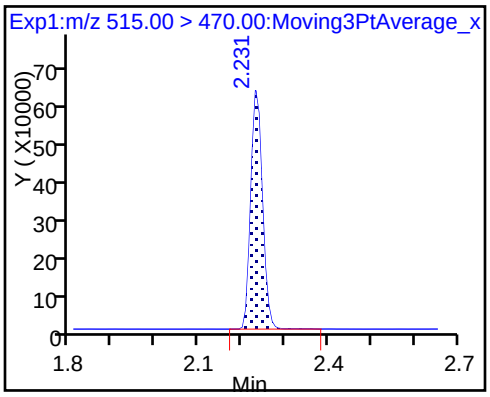
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_024.d				
Lims ID:	320-35442-A-13-A				
Client ID:	NAWC-012518-FRB-094				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 09:20:40	ALS Bottle#:	16	Worklist Smp#:	21
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-13-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:06	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	11.3	112.65
$ 10 13C2 PFDA	10.0	11.1	111.10

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-168 | Lab Sample ID: 320-35442-14

Matrix: Water | Lab File ID: 2018.02.08_537A_025.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 246.1(mL) | Date Analyzed: 02/08/2018 09:25

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.7	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	22		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.3	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	91	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	109		70-130
STL00996	13C2 PFDA	110		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_025.d
Lims ID: 320-35442-A-14-A
Client ID: NAWC-012518-RW-168
Sample Type: Client
Inject. Date: 08-Feb-2018 09:25:20 ALS Bottle#: 17 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-14-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:18:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	297066	2.21		197	
298.90 > 99.00	1.366	1.366	0.0	1.000	217666		1.36(0.00-0.00)	411	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1770730	10.9		7087	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	1.616	1.624	-0.008	1.000	115747	0.5740		62.2	M
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	248027	1.79		47.2	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1475449	10.0		5091	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.806	-0.008	1.000	751863	5.50		113	
413.00 > 169.00	1.798	1.806	-0.008	1.000	409305		1.84(0.00-0.00)	1028	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.041	2.041	0.0	1.000	241641	2.14		83.3	M
499.00 > 99.00	2.041	2.041	0.0	1.000	41671		5.80(0.00-0.00)	66.0	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.048	-0.007		3454464	28.7		3094	
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.056	-0.008	1.000	57303	0.5848		8.3	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	1240245	11.0		8557	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 09-Feb-2018 09:52:14 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_025.d

Injection Date: 08-Feb-2018 09:25:20 Instrument ID: A8_N

Lims ID: 320-35442-A-14-A Lab Sample ID: 320-35442-14

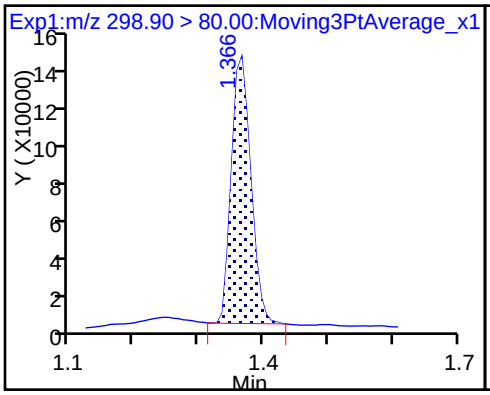
Client ID: NAWC-012518-RW-168

Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 22

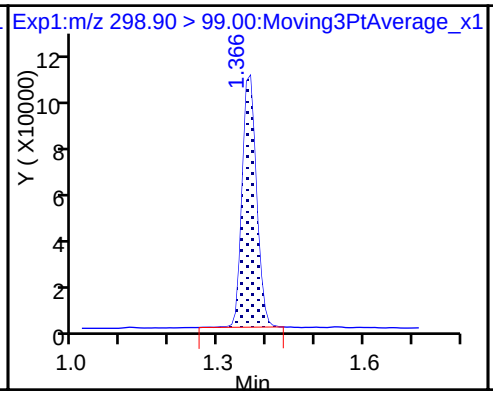
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

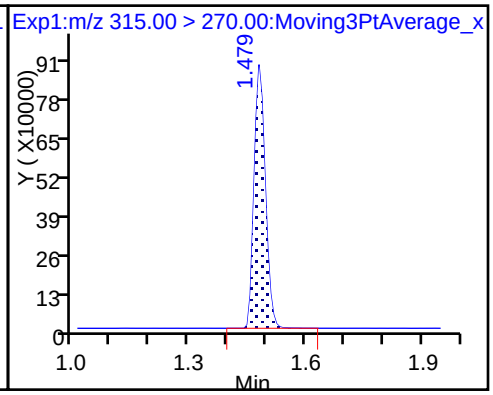
1 Perfluorobutanesulfonic acid



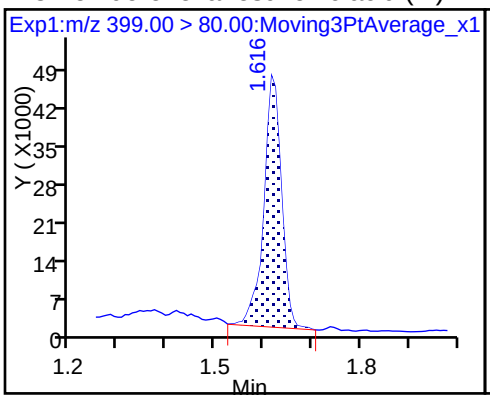
1 Perfluorobutanesulfonic acid



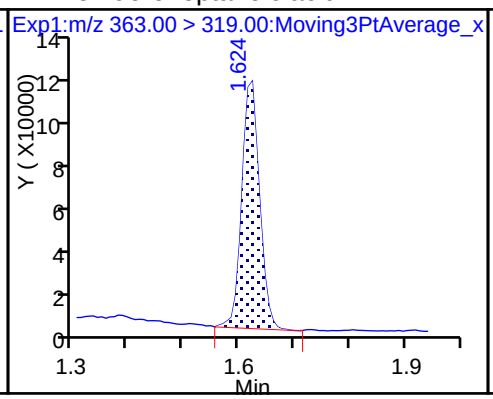
$ 2 13C2 PFHxA



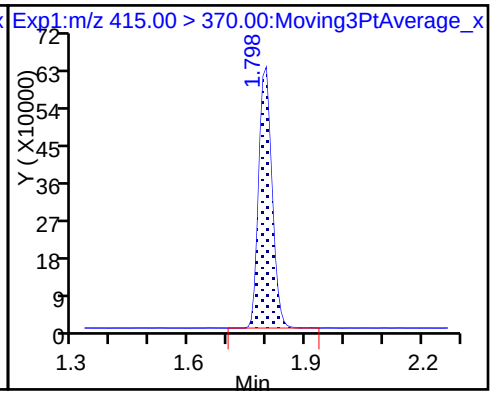
3 Perfluorohexanesulfonic acid (M)



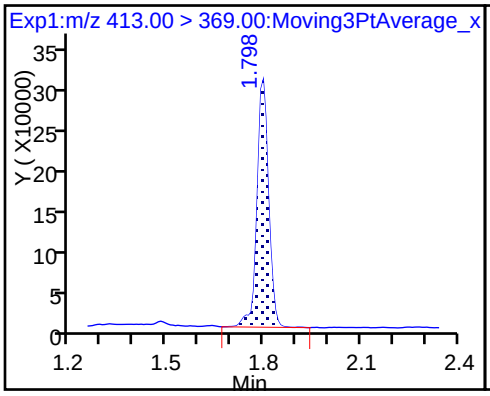
4 Perfluoroheptanoic acid



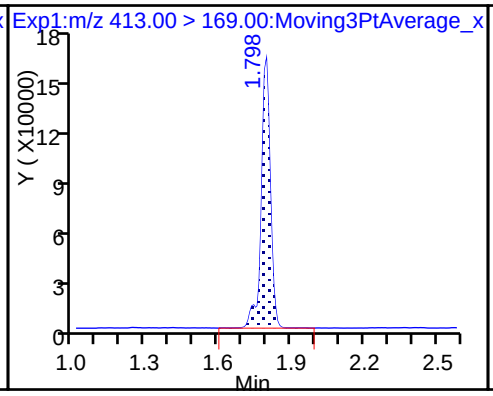
* 6 13C2-PFOA



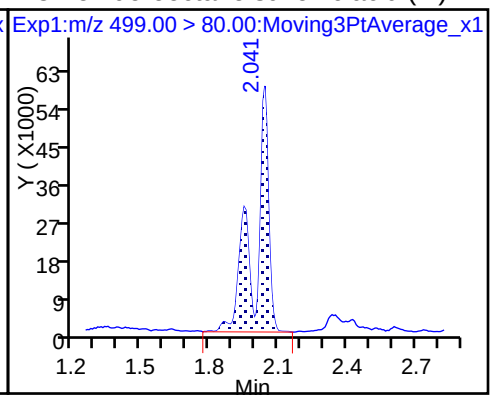
5 Perfluorooctanoic acid



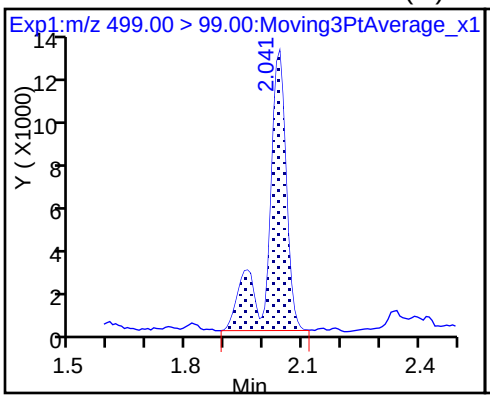
5 Perfluorooctanoic acid



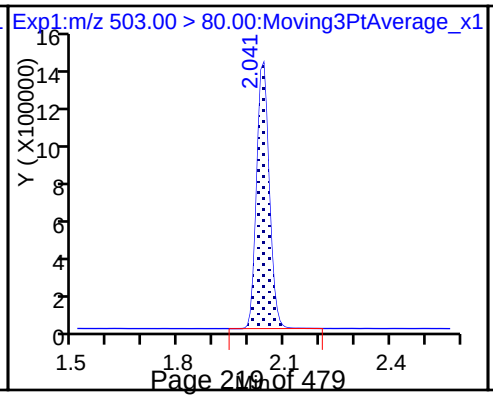
8 Perfluorooctane sulfonic acid (M)



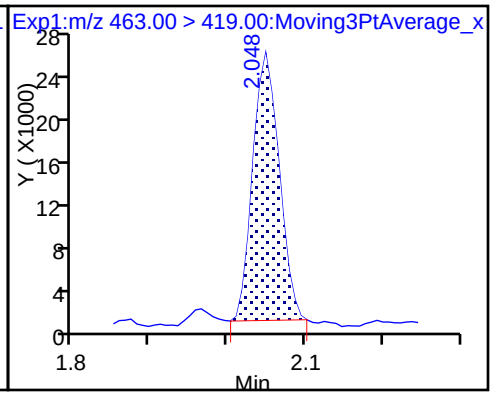
8 Perfluorooctane sulfonic acid (M)



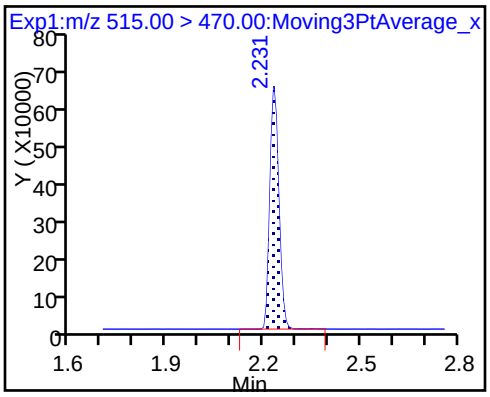
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
80
70
60
50
40
30
20
10
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_025.d				
Lims ID:	320-35442-A-14-A				
Client ID:	NAWC-012518-RW-168				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 09:25:20	ALS Bottle#:	17	Worklist Smp#:	22
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-14-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:06	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				
First Level Reviewer: barnettj		Date:	08-Feb-2018 17:18:49		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.9	109.07
$ 10 13C2 PFDA	10.0	11.0	109.85

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

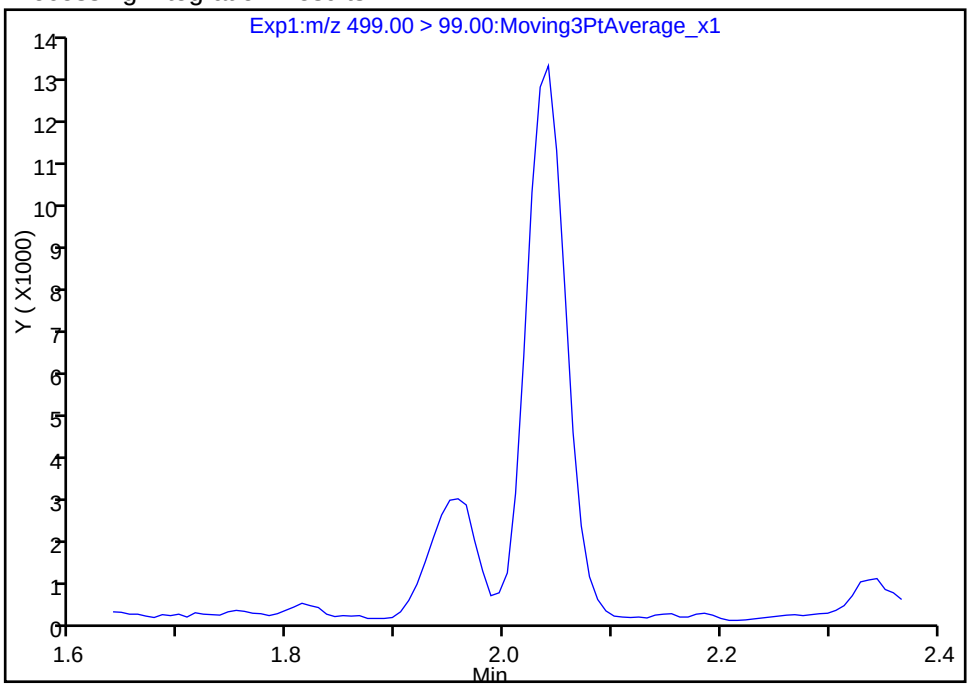
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_025.d				
Injection Date:	08-Feb-2018 09:25:20	Instrument ID:	A8_N		
Lims ID:	320-35442-A-14-A	Lab Sample ID:	320-35442-14		
Client ID:	NAWC-012518-RW-168				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	17	Worklist Smp#:	22
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

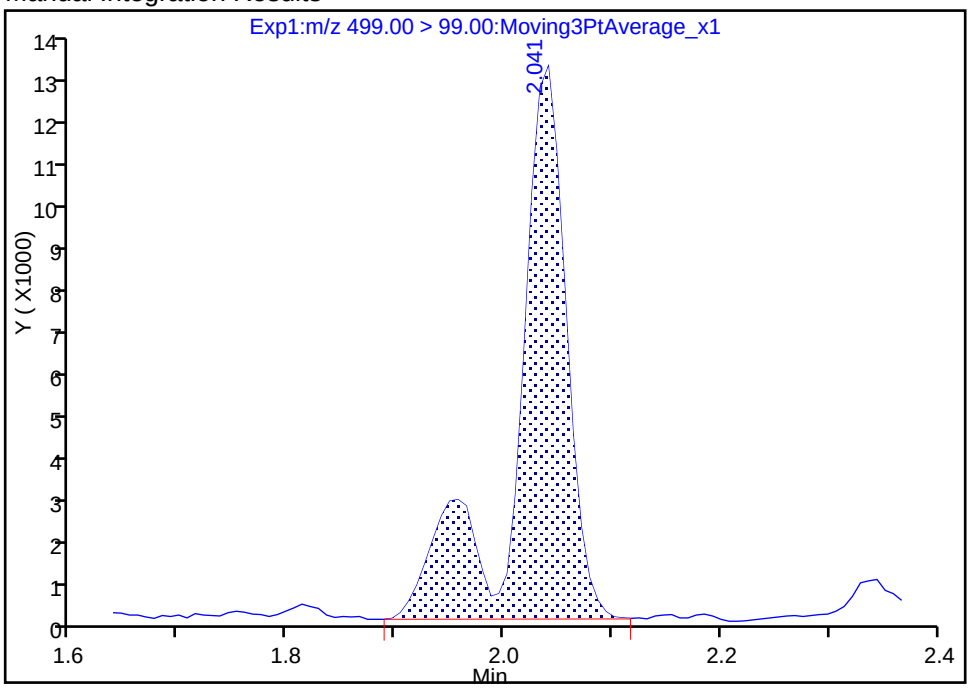
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 41671
Amount: 2.136620
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:18:13
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

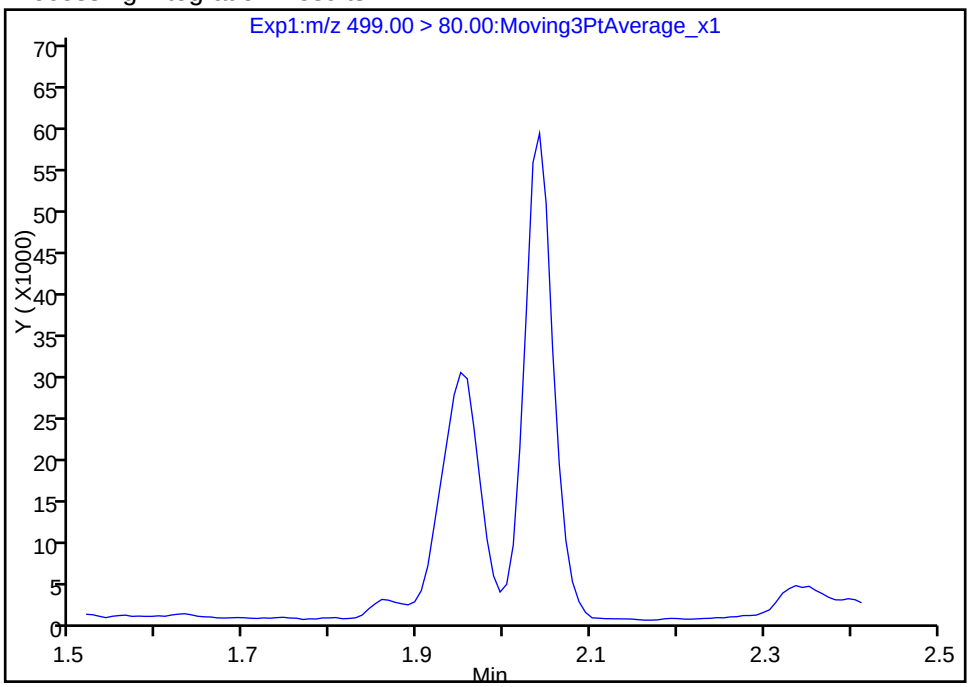
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_025.d				
Injection Date:	08-Feb-2018 09:25:20	Instrument ID:	A8_N		
Lims ID:	320-35442-A-14-A	Lab Sample ID:	320-35442-14		
Client ID:	NAWC-012518-RW-168				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	17	Worklist Smp#:	22
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

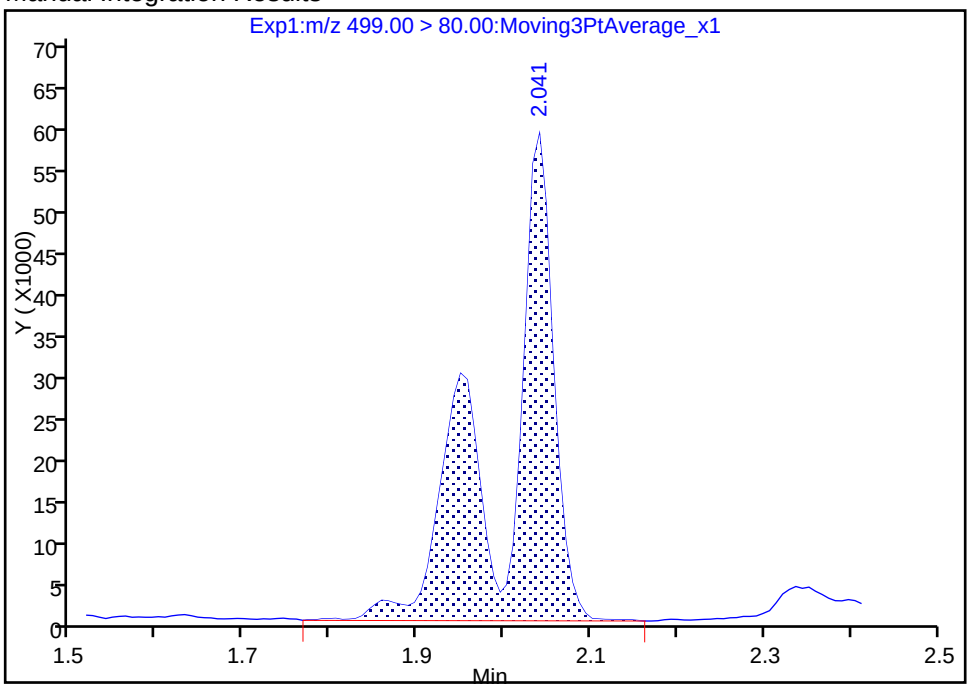
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 241641
Amount: 2.136620
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:18:13
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

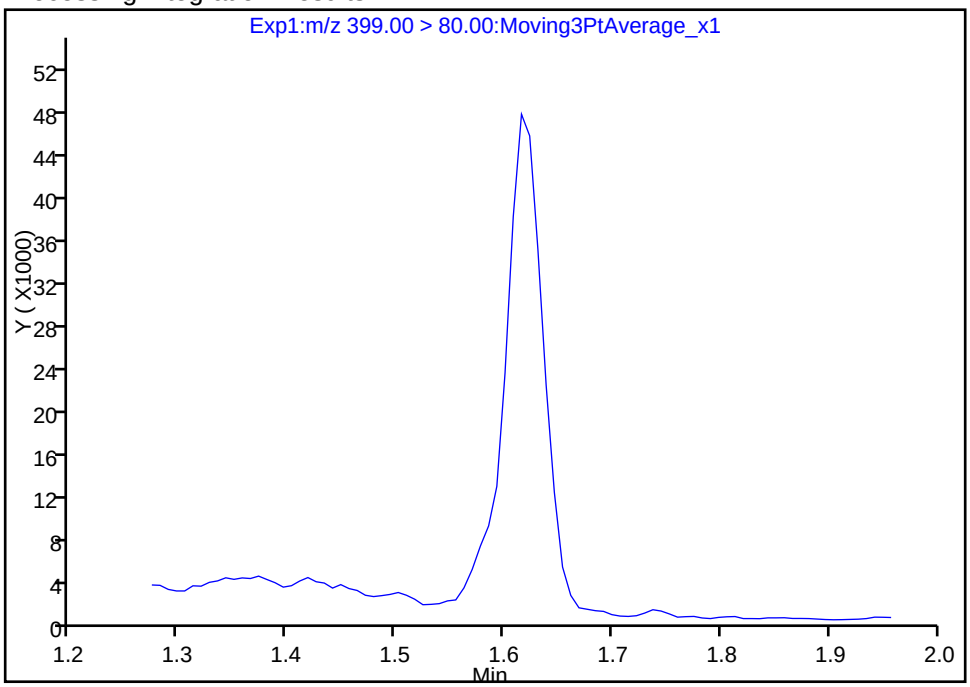
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_025.d				
Injection Date:	08-Feb-2018 09:25:20	Instrument ID:	A8_N		
Lims ID:	320-35442-A-14-A	Lab Sample ID:	320-35442-14		
Client ID:	NAWC-012518-RW-168				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	17	Worklist Smp#:	22
Injection 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

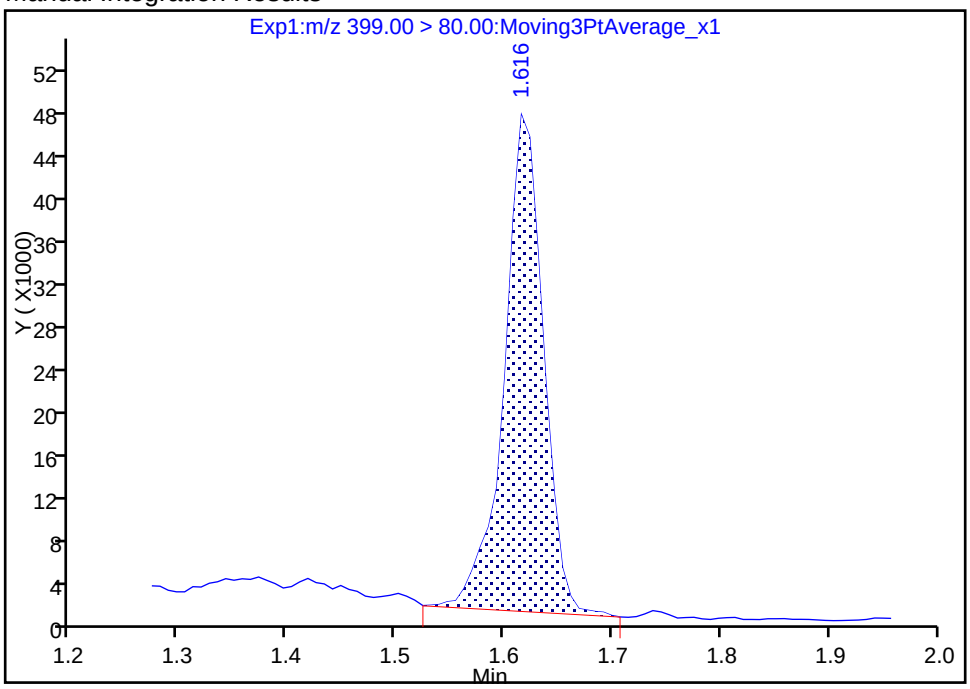
Not Detected
Expected RT: 1.62

Processing Integration Results



Manual Integration Results

RT: 1.62
Area: 115747
Amount: 0.574014
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:18:32
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-168 | Lab Sample ID: 320-35442-15

Matrix: Water | Lab File ID: 2018.02.08_537A_026.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:05

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.5(mL) | Date Analyzed: 02/08/2018 09:30

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	115		70-130
STL00996	13C2 PFDA	116		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_026.d
Lims ID: 320-35442-A-15-A
Client ID: NAWC-012518-FRB-168
Sample Type: Client
Inject. Date: 08-Feb-2018 09:30:02 ALS Bottle#: 18 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-15-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1701287	11.5		7809	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.798	0.008		1347640	10.0		4799	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3277744	28.7		6502	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1193126	11.6		7781	

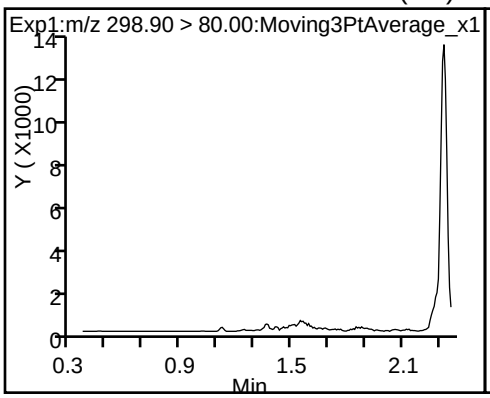
Report Date: 09-Feb-2018 09:52:15 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

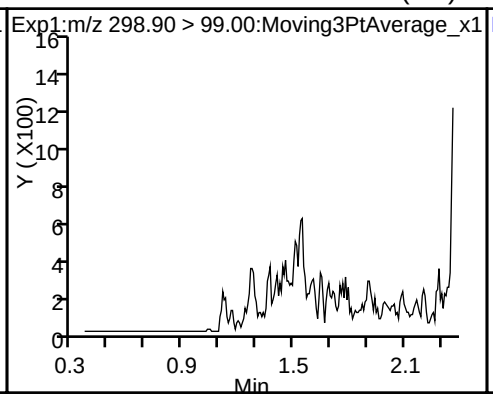
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_026.d

Injection Date:	08-Feb-2018 09:30:02	Instrument ID:	A8_N		
Lims ID:	320-35442-A-15-A	Lab Sample ID:	320-35442-15		
Client ID:	NAWC-012518-FRB-168				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	18	Worklist Smp#:	23
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

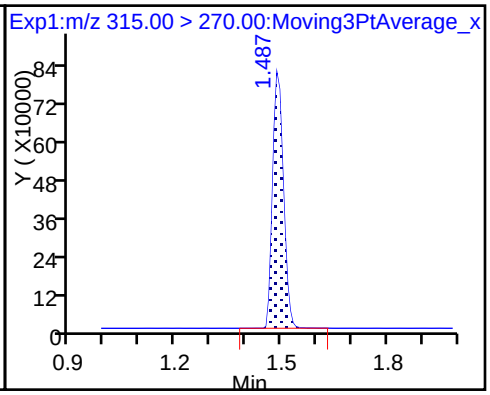
1 Perfluorobutanesulfonic acid (ND)



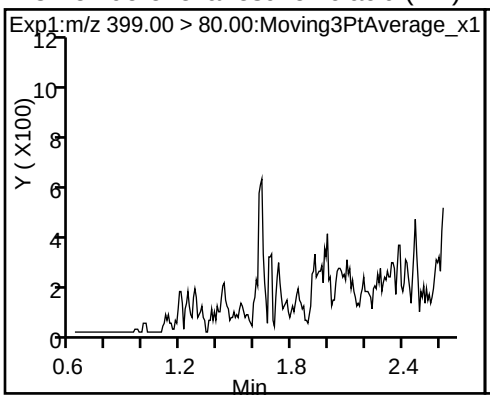
1 Perfluorobutanesulfonic acid (ND)



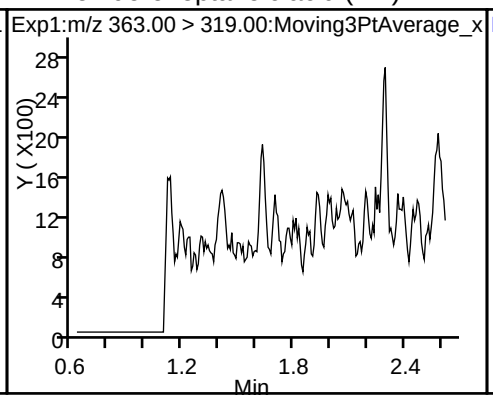
$ 2 13C2 PFHxA



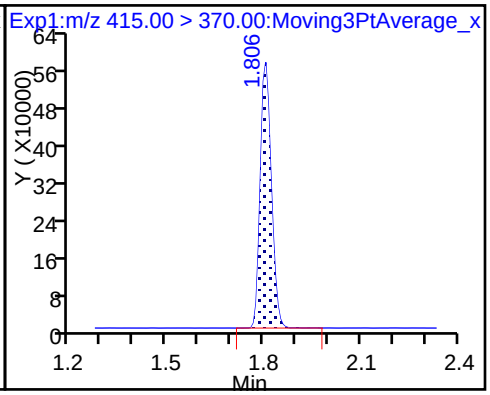
3 Perfluorohexanesulfonic acid (ND)



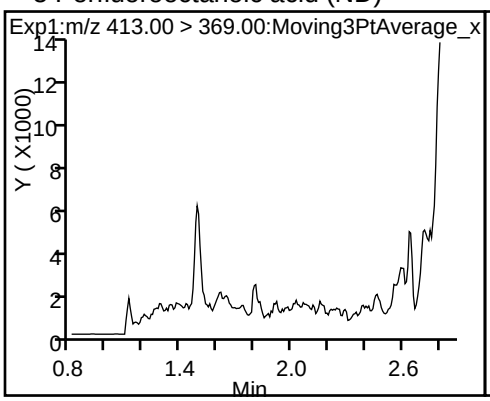
4 Perfluoroheptanoic acid (ND)



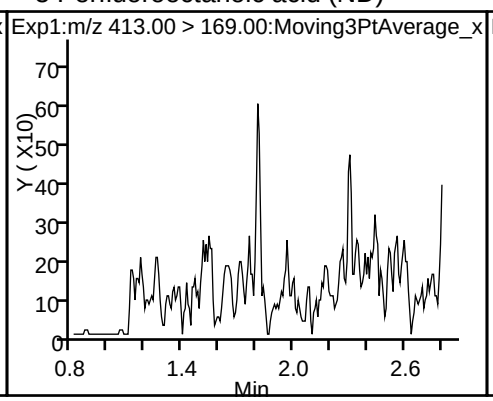
* 6 13C2-PFOA



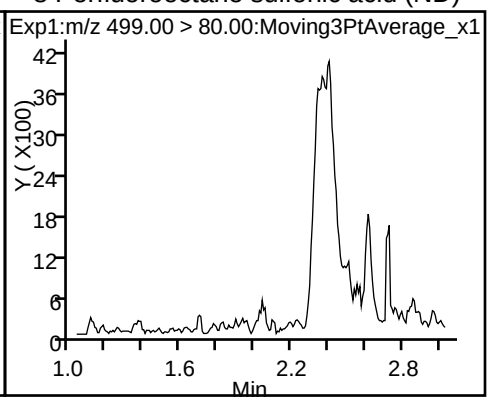
5 Perfluorooctanoic acid (ND)



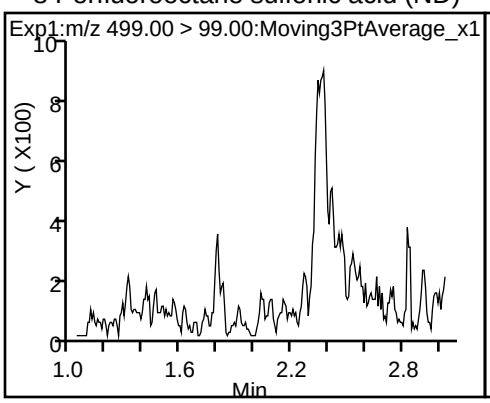
5 Perfluorooctanoic acid (ND)



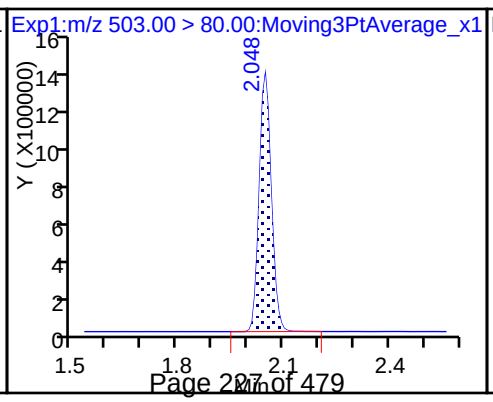
8 Perfluorooctane sulfonic acid (ND)



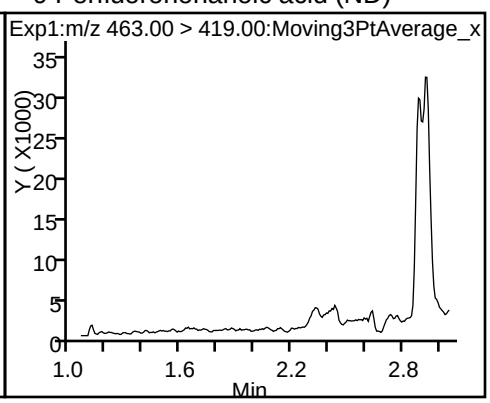
8 Perfluorooctane sulfonic acid (ND)



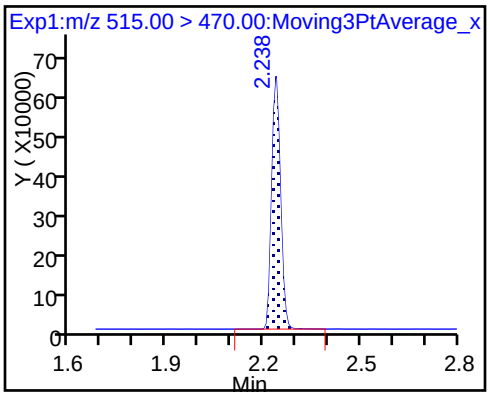
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
70
60
50
40
30
20
10
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_026.d				
Lims ID:	320-35442-A-15-A				
Client ID:	NAWC-012518-FRB-168				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 09:30:02	ALS Bottle#:	18	Worklist Smp#:	23
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-15-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:06	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	11.5	114.74
$ 10 13C2 PFDA	10.0	11.6	115.70

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-238 | Lab Sample ID: 320-35442-16

Matrix: Water | Lab File ID: 2018.02.08_537A_027.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 249.5(mL) | Date Analyzed: 02/08/2018 09:34

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	14	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.0	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_027.d
Lims ID: 320-35442-A-16-A
Client ID: NAWC-012518-RW-238
Sample Type: Client
Inject. Date: 08-Feb-2018 09:34:41 ALS Bottle#: 19 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-16-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:19:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.366	0.007	1.000	148912	1.17		274	
298.90 > 99.00	1.373	1.366	0.007	1.000	110220		1.35(0.00-0.00)	214	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1716741	10.8		7171	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.624	0.007	1.000	286824	1.50		270	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.624	0.007	1.000	171181	1.26		42.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.798	0.008		1446634	10.0		5240	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	470898	3.52		88.4	
413.00 > 169.00	1.806	1.806	0.0	1.000	275796		1.71(0.00-0.00)	657	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.041	0.007	1.000	397795	3.71		166	M
499.00 > 99.00	2.048	2.041	0.007	1.000	68393		5.82(0.00-0.00)	126	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3271778	28.7		4449	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1168444	10.6		6559	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 09-Feb-2018 09:52:16 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_027.d

Injection Date: 08-Feb-2018 09:34:41 Instrument ID: A8_N

Lims ID: 320-35442-A-16-A Lab Sample ID: 320-35442-16

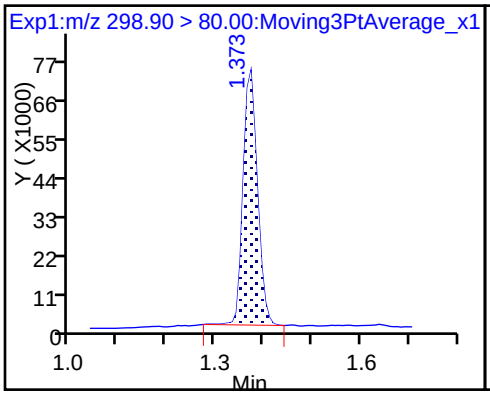
Client ID: NAWC-012518-RW-238

Operator ID: SACINSTLCMS01 ALS Bottle#: 19 Worklist Smp#: 24

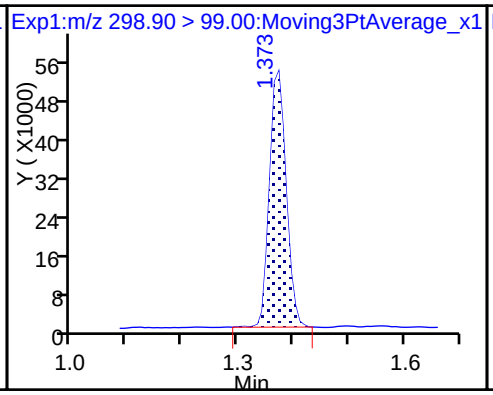
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

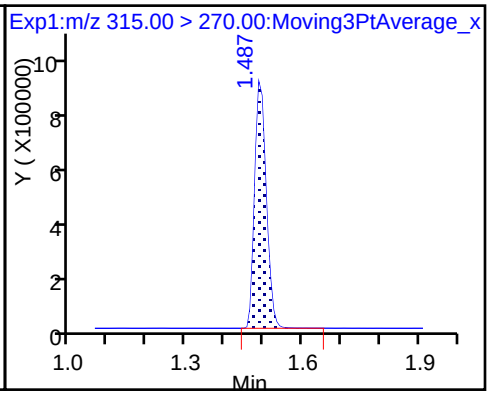
1 Perfluorobutanesulfonic acid



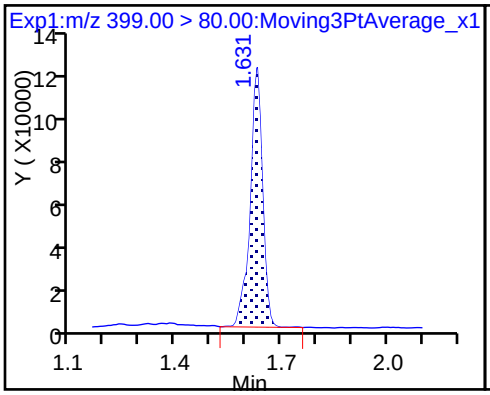
1 Perfluorobutanesulfonic acid



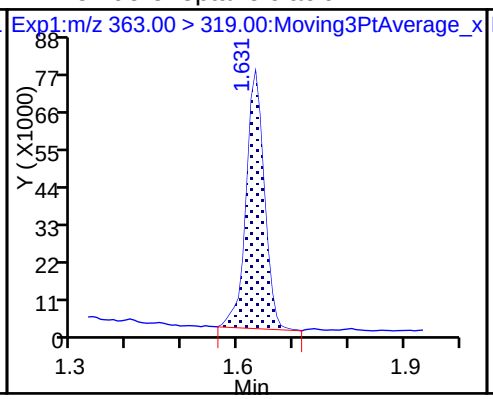
$ 2 13C2 PFHxA



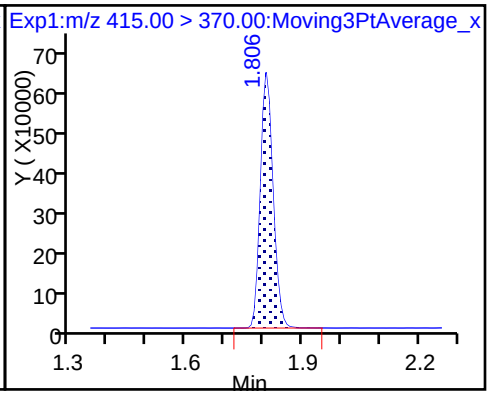
3 Perfluorohexanesulfonic acid



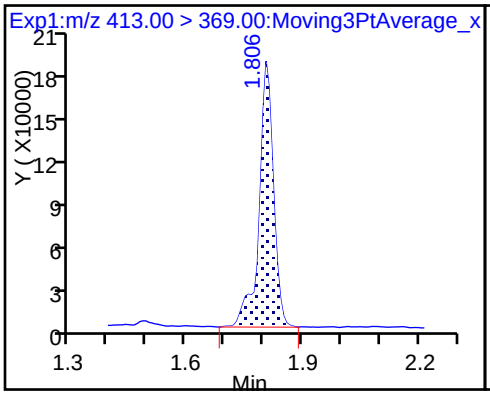
4 Perfluoroheptanoic acid



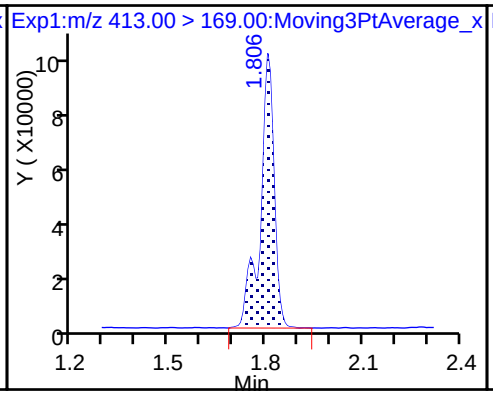
* 6 13C2-PFOA



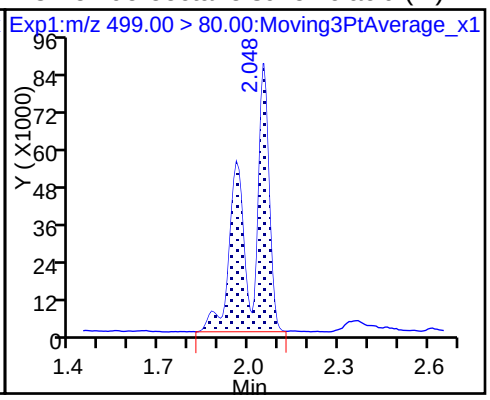
5 Perfluorooctanoic acid



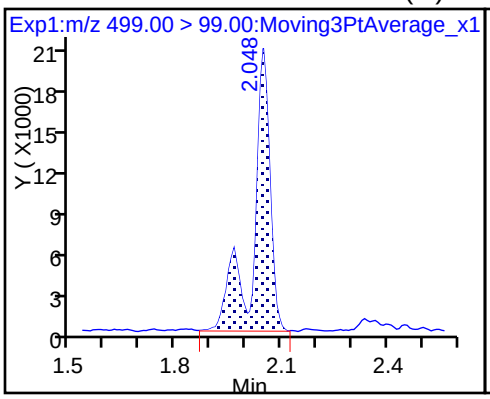
5 Perfluorooctanoic acid



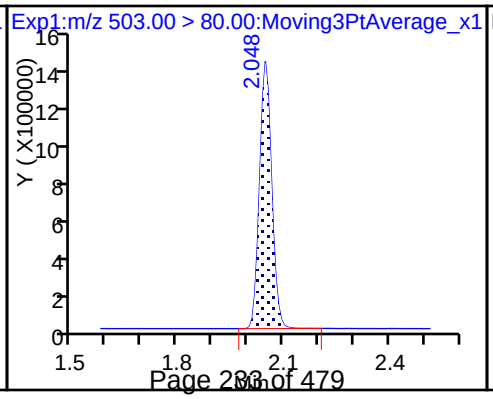
8 Perfluorooctane sulfonic acid (M)



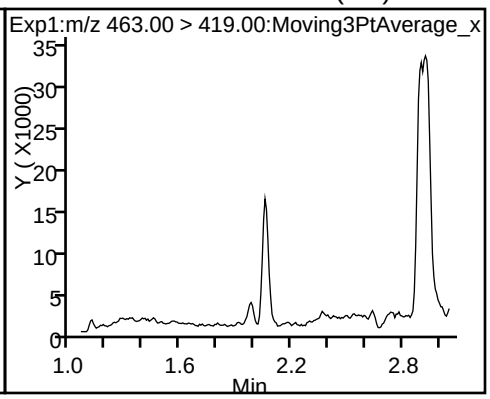
8 Perfluorooctane sulfonic acid (M)



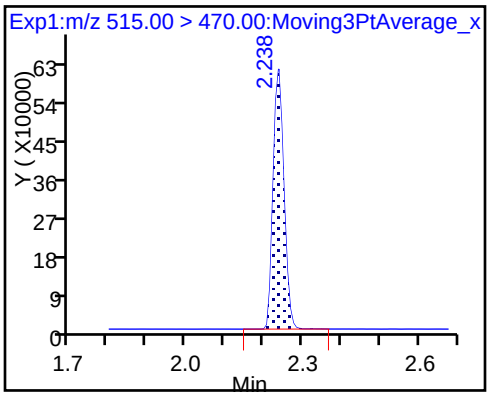
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_027.d				
Lims ID:	320-35442-A-16-A				
Client ID:	NAWC-012518-RW-238				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 09:34:41	ALS Bottle#:	19	Worklist Smp#:	24
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-16-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:06	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				
First Level Reviewer: barnettj		Date:	08-Feb-2018 17:19:54		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.8	107.85
$ 10 13C2 PFDA	10.0	10.6	105.55

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

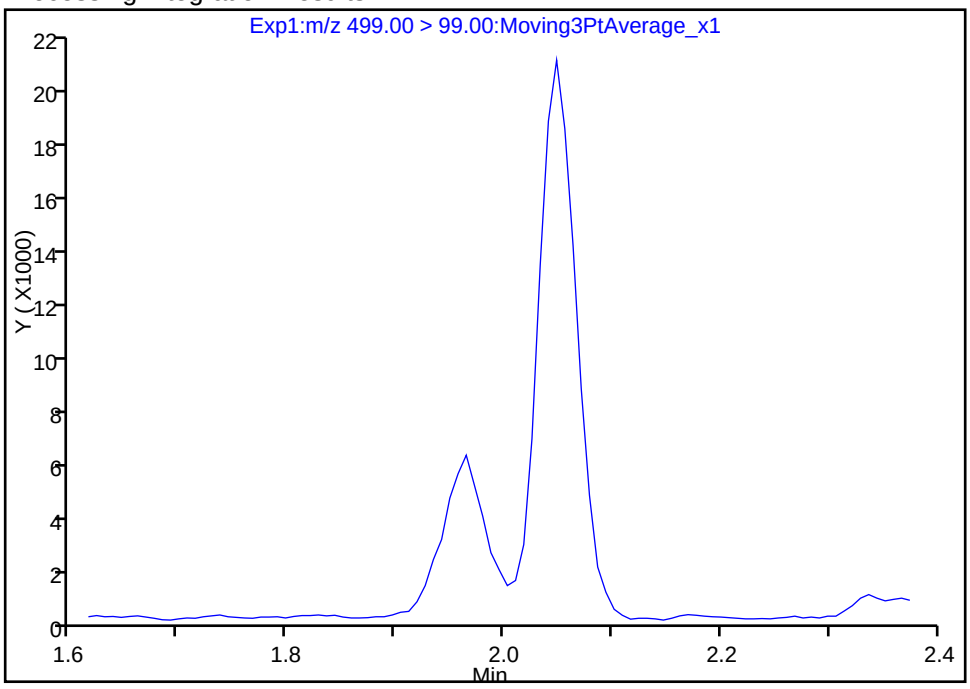
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_027.d				
Injection Date:	08-Feb-2018 09:34:41	Instrument ID:	A8_N		
Lims ID:	320-35442-A-16-A	Lab Sample ID:	320-35442-16		
Client ID:	NAWC-012518-RW-238				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	19	Worklist Smp#:	24
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

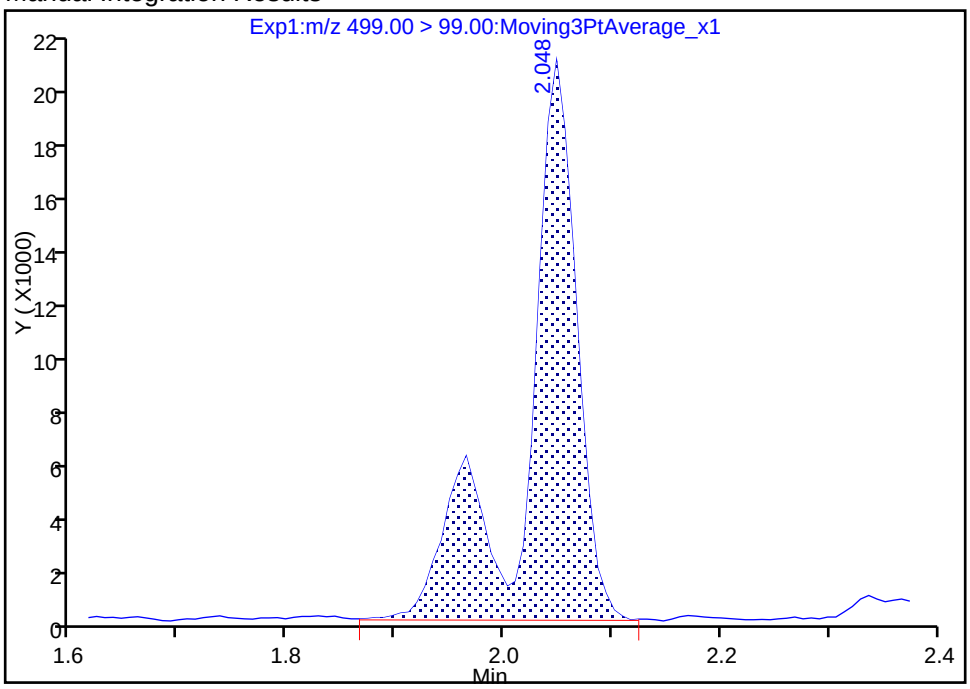
Processing Integration Results

Not Detected
Expected RT: 2.04



Manual Integration Results

RT: 2.05
Area: 68393
Amount: 3.713751
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:19:26
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

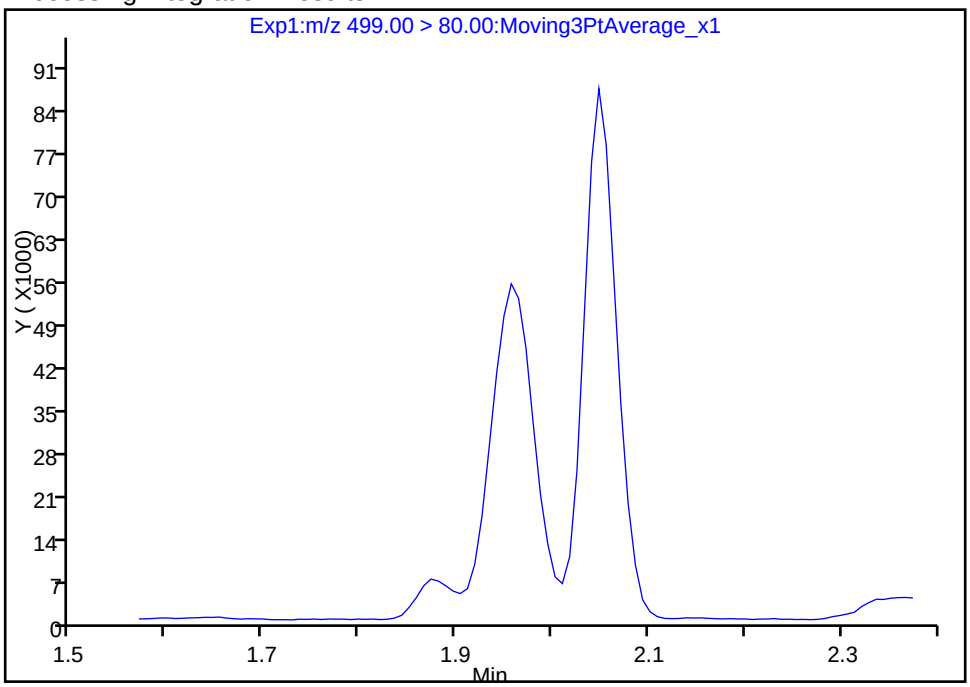
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_027.d				
Injection Date:	08-Feb-2018 09:34:41	Instrument ID:	A8_N		
Lims ID:	320-35442-A-16-A	Lab Sample ID:	320-35442-16		
Client ID:	NAWC-012518-RW-238				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	19	Worklist Smp#:	24
Injection 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

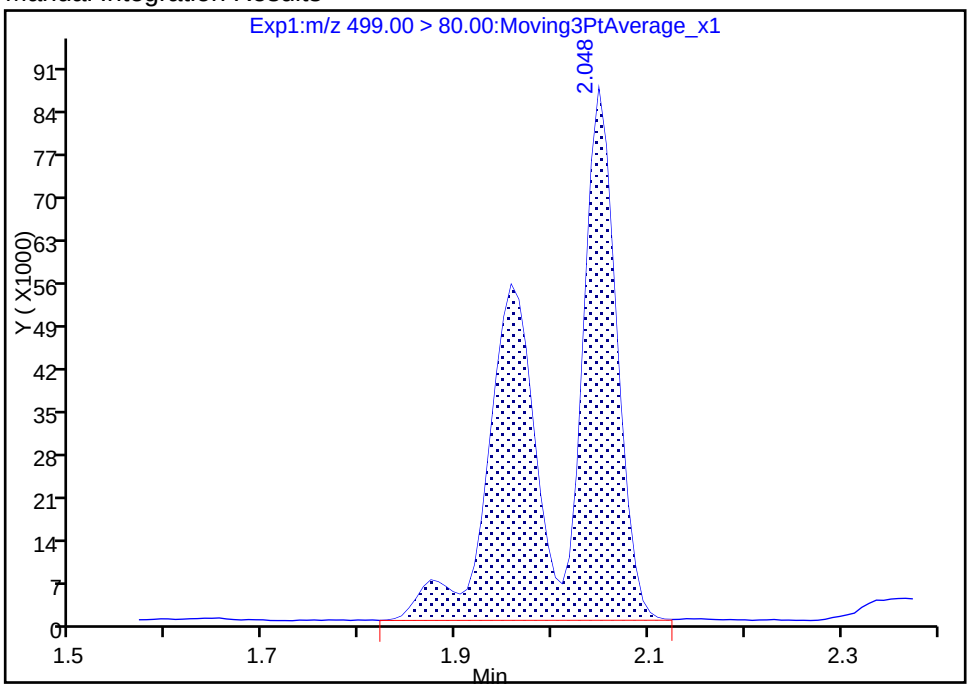
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 397795
Amount: 3.713751
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:19:26
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-238 | Lab Sample ID: 320-35442-17

Matrix: Water | Lab File ID: 2018.02.08_537A_028.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 251.3(mL) | Date Analyzed: 02/08/2018 09:39

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | 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	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	12	Q	70-130
STL00996	13C2 PFDA	75		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_028.d
Lims ID: 320-35442-A-17-A
Client ID: NAWC-012518-FRB-238
Sample Type: Client
Inject. Date: 08-Feb-2018 09:39:22 ALS Bottle#: 20 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-17-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:25:15

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	192387	1.24		1042	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.798	-0.007		1413447	10.0		5682	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.048	-0.015		3280953	28.7		6093	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	813372	7.52		4972	

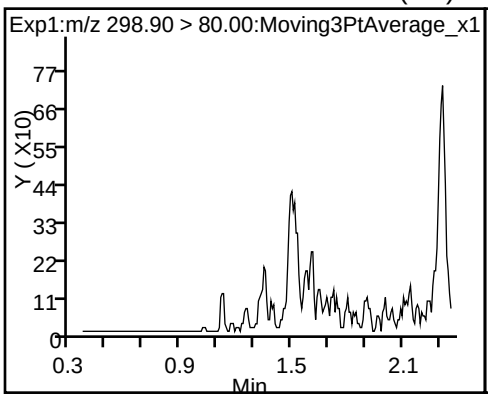
Report Date: 09-Feb-2018 09:52:17 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

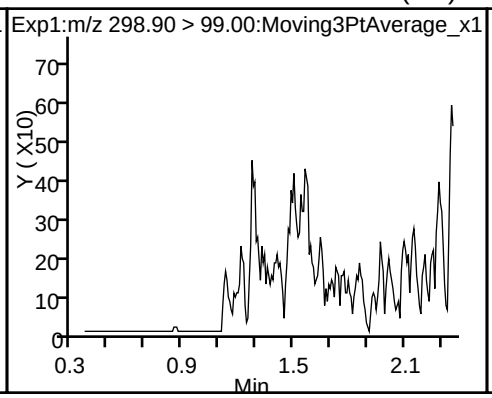
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_028.d

Injection Date:	08-Feb-2018 09:39:22	Instrument ID:	A8_N		
Lims ID:	320-35442-A-17-A	Lab Sample ID:	320-35442-17		
Client ID:	NAWC-012518-FRB-238				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	20	Worklist Smp#:	25
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

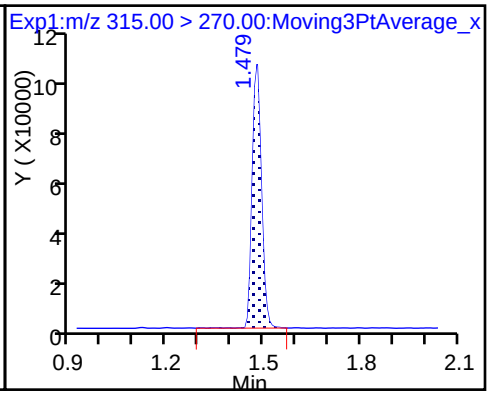
1 Perfluorobutanesulfonic acid (ND)



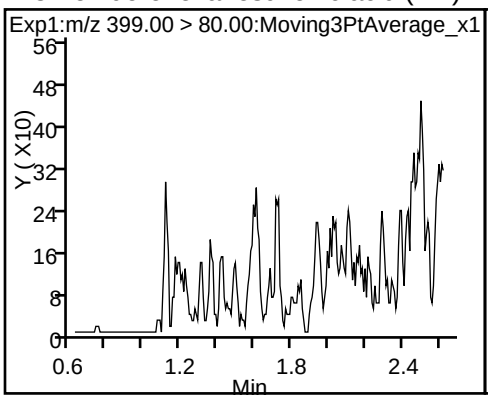
1 Perfluorobutanesulfonic acid (ND)



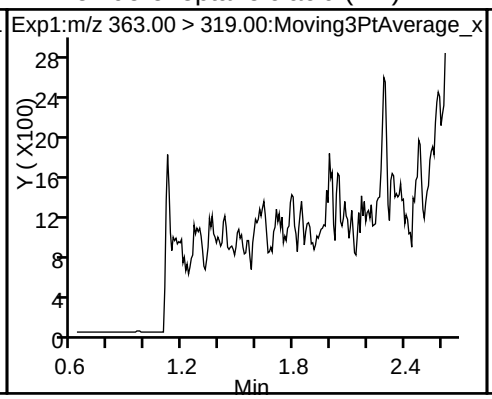
$ 2 13C2 PFHxA



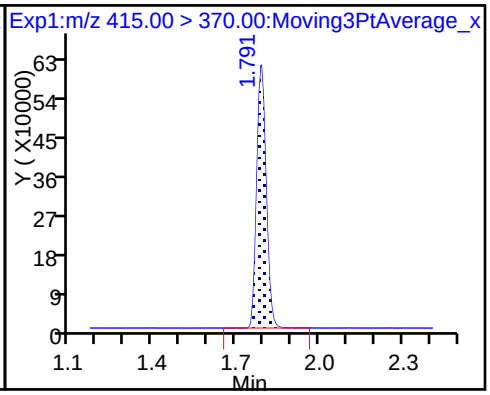
3 Perfluorohexanesulfonic acid (ND)



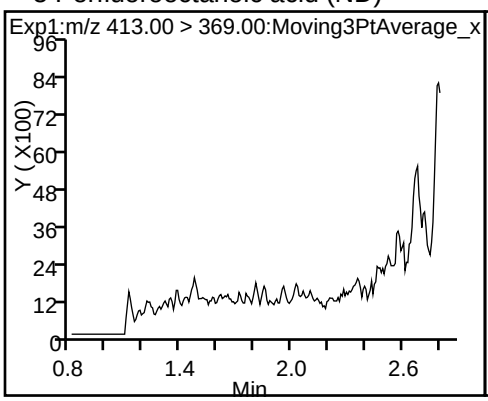
4 Perfluoroheptanoic acid (ND)



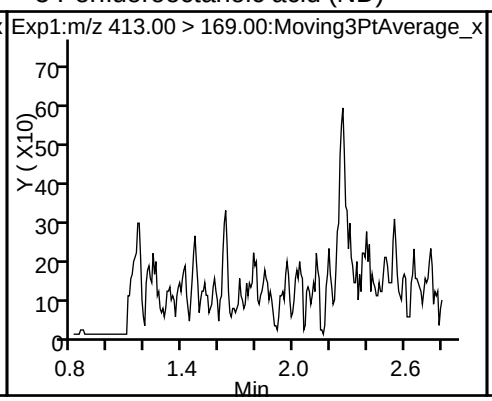
* 6 13C2-PFOA



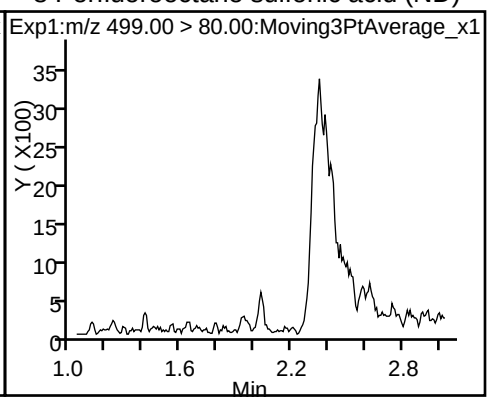
5 Perfluorooctanoic acid (ND)



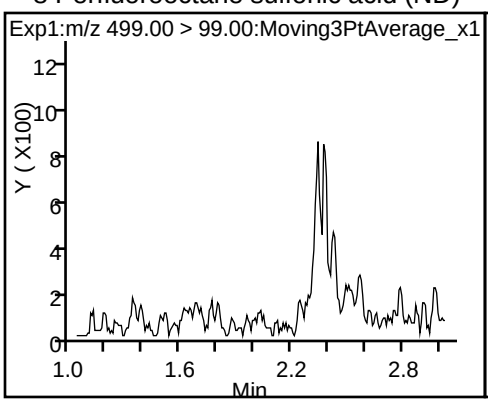
5 Perfluorooctanoic acid (ND)



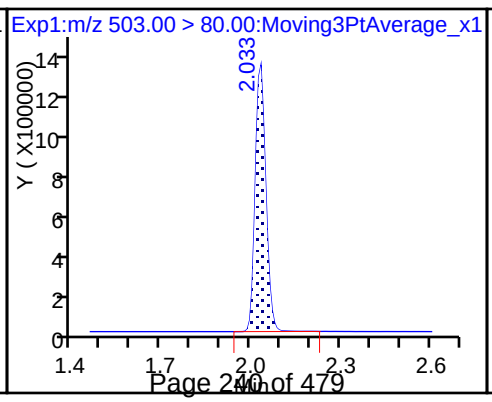
8 Perfluorooctane sulfonic acid (ND)



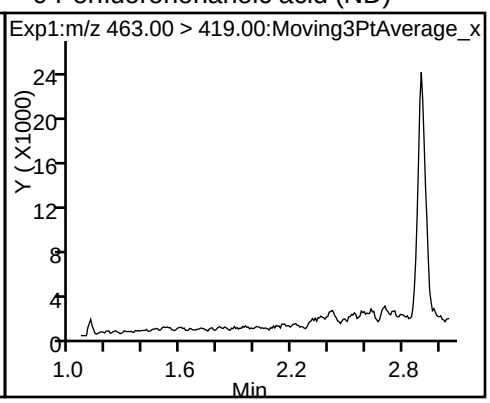
8 Perfluorooctane sulfonic acid (ND)



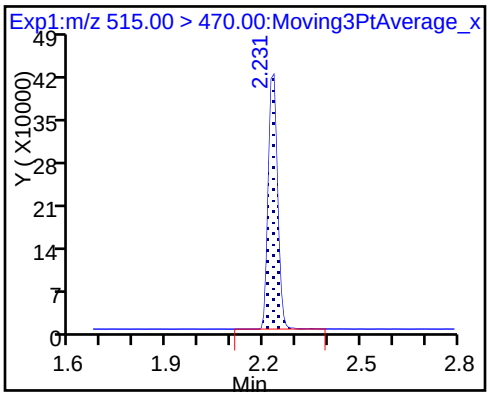
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
49
42
35
28
21
14
7
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_028.d				
Lims ID:	320-35442-A-17-A				
Client ID:	NAWC-012518-FRB-238				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 09:39:22	ALS Bottle#:	20	Worklist Smp#:	25
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-17-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:06	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				
First Level Reviewer: barnettj		Date:	08-Feb-2018 17:25:15		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	1.24	12.37
$ 10 13C2 PFDA	10.0	7.52	75.20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-162 | Lab Sample ID: 320-35442-18

Matrix: Water | Lab File ID: 2018.02.08_537A_031.d

Analysis Method: 537 | Date Collected: 01/25/2018 13:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247(mL) | Date Analyzed: 02/08/2018 09:53

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207584 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	16	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.9	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_031.d
Lims ID: 320-35442-A-18-A
Client ID: NAWC-012518-RW-162
Sample Type: Client
Inject. Date: 08-Feb-2018 09:53:22 ALS Bottle#: 21 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-18-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:18 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:22:00

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	1.358	0.008	1.000	191922	1.39		315	
298.90 > 99.00	1.366	1.358	0.008	1.000	139336		1.38(0.00-0.00)	302	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1667856	10.3		7428	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.616	0.008	1.000	558557	2.69		509	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.616	0.008	1.000	198457	1.45		50.3	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.791	0.007		1465557	10.0		5877	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.791	0.007	1.000	536015	3.95		106	
413.00 > 169.00	1.798	1.791	0.007	1.000	325937		1.64(0.00-0.00)	731	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.041	2.041	0.0	1.000	621163	5.33		251	M
499.00 > 99.00	2.041	2.041	0.0	1.000	119621		5.19(0.00-0.00)	251	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.041	0.0		3557114	28.7		4572	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	1135368	10.1		7059	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

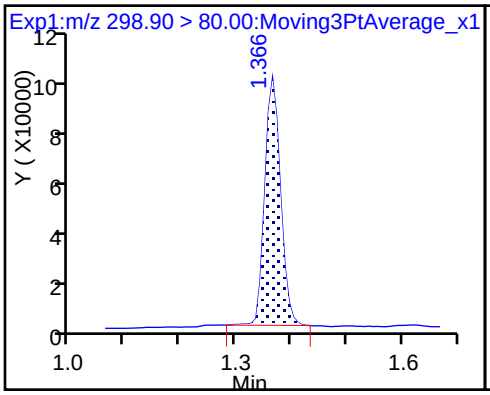
Report Date: 09-Feb-2018 09:52:20 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

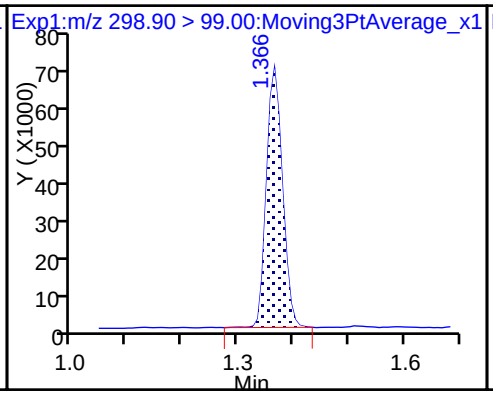
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_031.d

Injection Date:	08-Feb-2018 09:53:22	Instrument ID:	A8_N		
Lims ID:	320-35442-A-18-A	Lab Sample ID:	320-35442-18		
Client ID:	NAWC-012518-RW-162				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	21	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

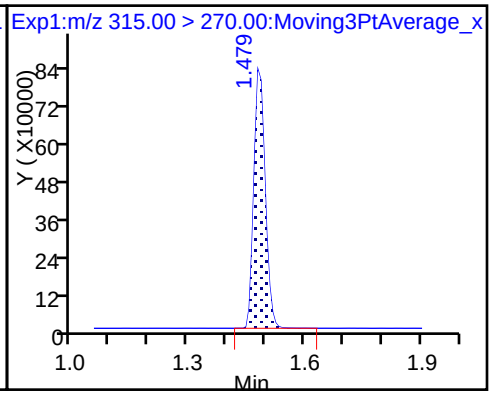
1 Perfluorobutanesulfonic acid



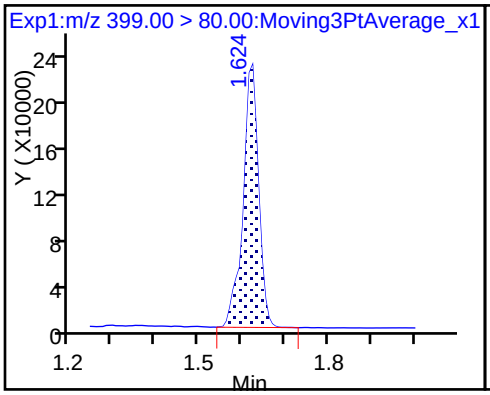
1 Perfluorobutanesulfonic acid



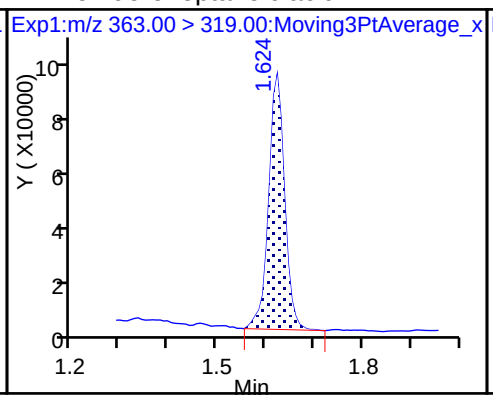
$ 2 13C2 PFHxA



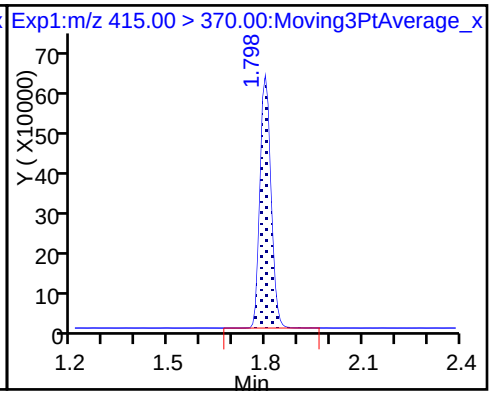
3 Perfluorohexanesulfonic acid



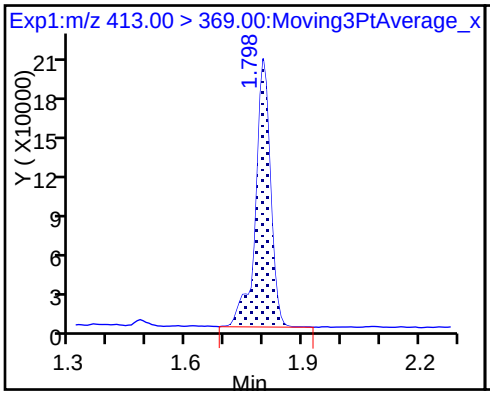
4 Perfluoroheptanoic acid



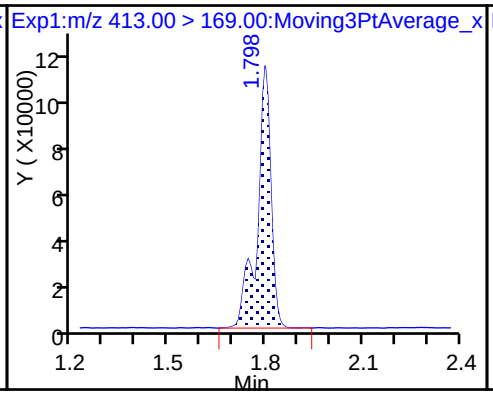
* 6 13C2-PFOA



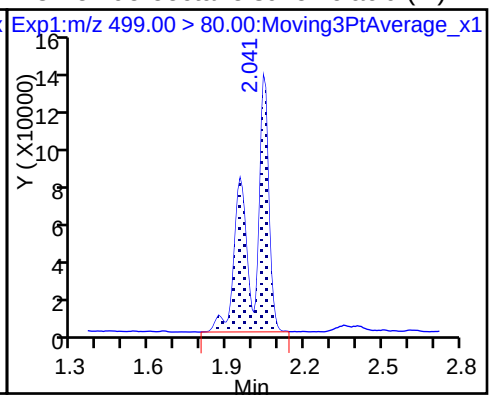
5 Perfluorooctanoic acid



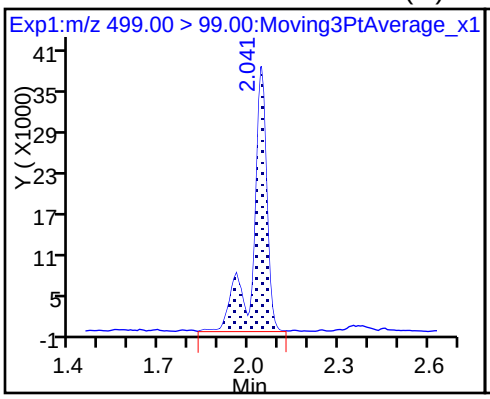
5 Perfluorooctanoic acid



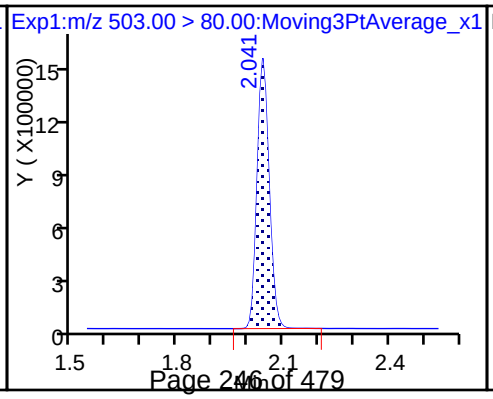
8 Perfluorooctane sulfonic acid (M)



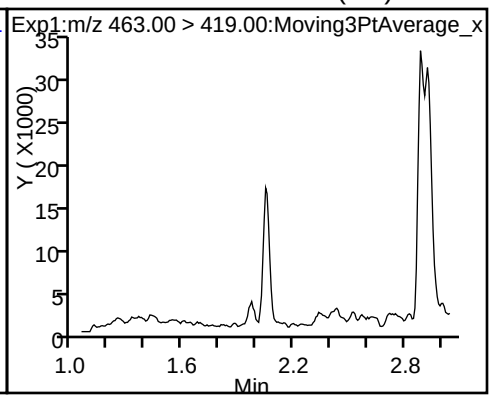
8 Perfluorooctane sulfonic acid (M)



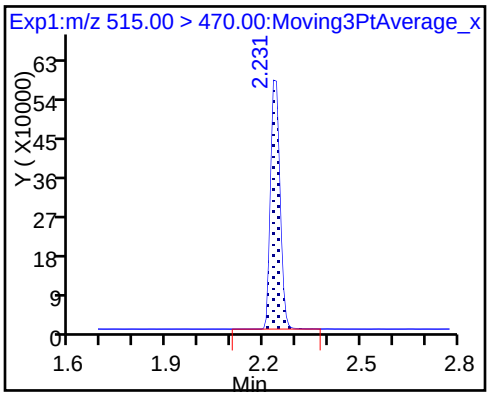
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
63
54
45
36
27
18
9
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_031.d				
Lims ID:	320-35442-A-18-A				
Client ID:	NAWC-012518-RW-162				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 09:53:22	ALS Bottle#:	21	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-18-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:18	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				
First Level Reviewer: barnettj		Date:	08-Feb-2018 17:22:00		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.3	103.43
$ 10 13C2 PFDA	10.0	10.1	101.24

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

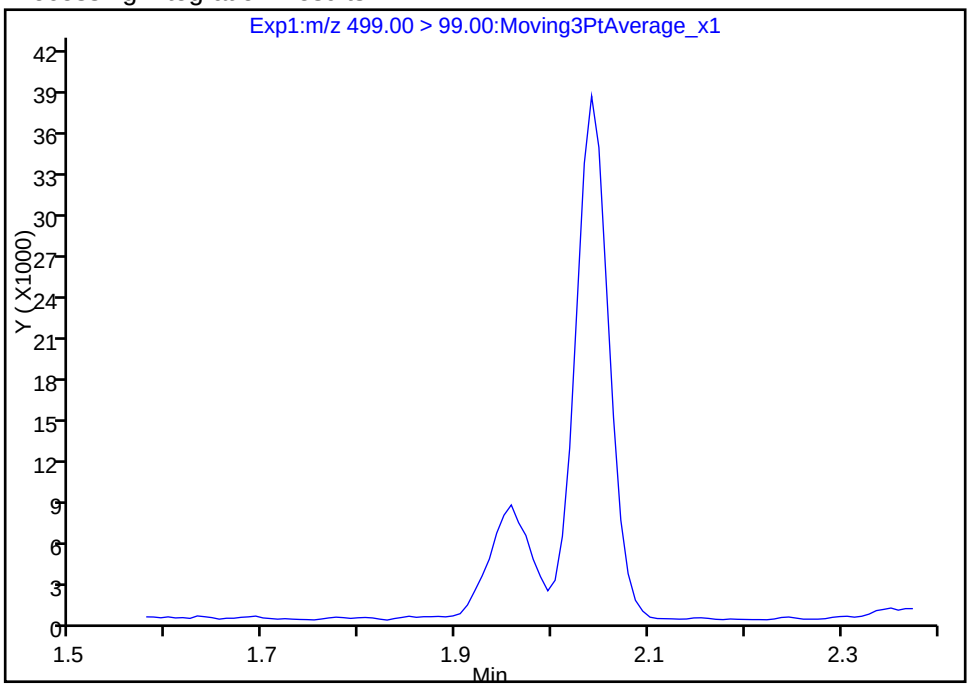
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_031.d				
Injection Date:	08-Feb-2018 09:53:22	Instrument ID:	A8_N		
Lims ID:	320-35442-A-18-A	Lab Sample ID:	320-35442-18		
Client ID:	NAWC-012518-RW-162				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	21	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

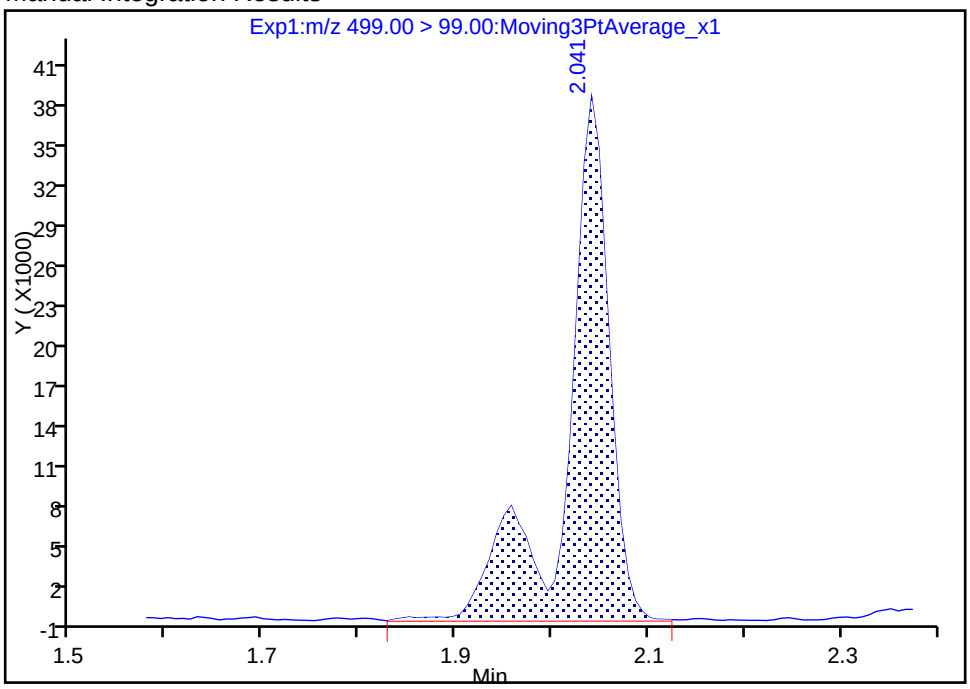
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 119621
Amount: 5.333903
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:21:44
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

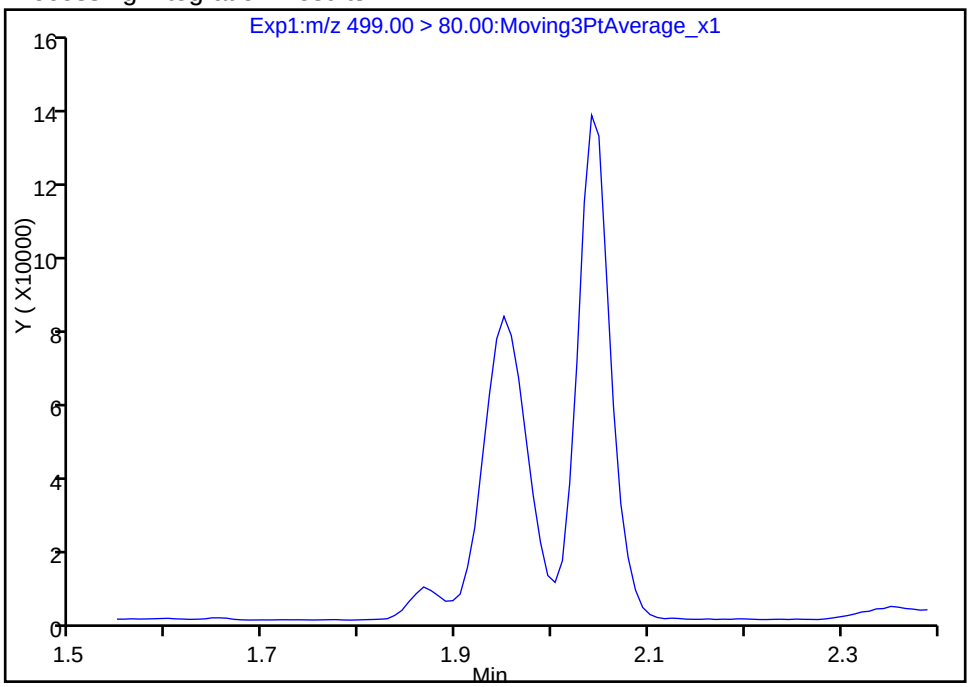
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_031.d				
Injection Date:	08-Feb-2018 09:53:22	Instrument ID:	A8_N		
Lims ID:	320-35442-A-18-A	Lab Sample ID:	320-35442-18		
Client ID:	NAWC-012518-RW-162				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	21	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

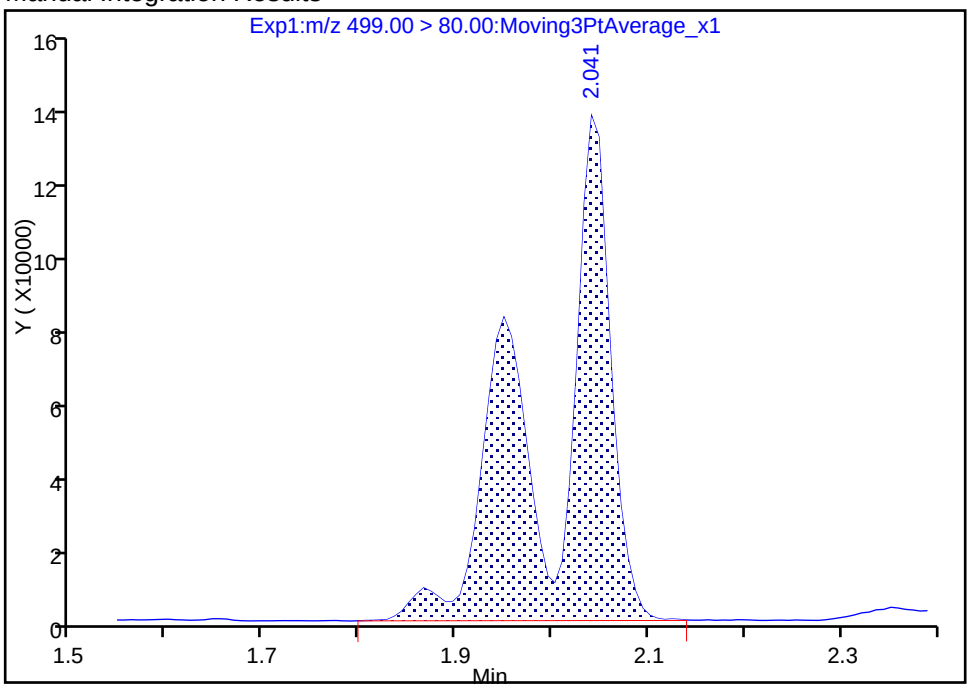
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 621163
Amount: 5.333903
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:21:44
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-162 | Lab Sample ID: 320-35442-19

Matrix: Water | Lab File ID: 2018.02.08_537A_032.d

Analysis Method: 537 | Date Collected: 01/25/2018 13:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 244(mL) | Date Analyzed: 02/08/2018 09:58

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207584 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	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)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_032.d
Lims ID: 320-35442-A-19-A
Client ID: NAWC-012518-FRB-162
Sample Type: Client
Inject. Date: 08-Feb-2018 09:58:03 ALS Bottle#: 22 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-19-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:18 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1744578	10.5		7744	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.791	0.0		1510233	10.0		5808	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.041	-0.008		3464475	28.7		6568	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	1207611	10.4		7987	

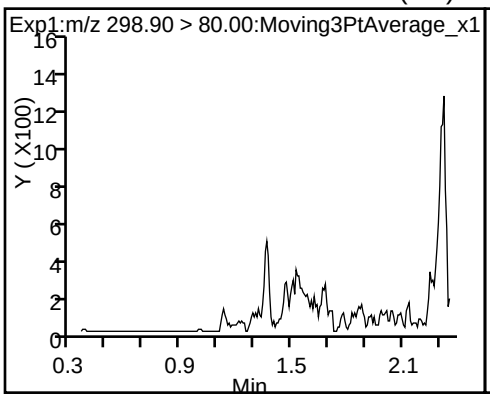
Report Date: 09-Feb-2018 09:52:21 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

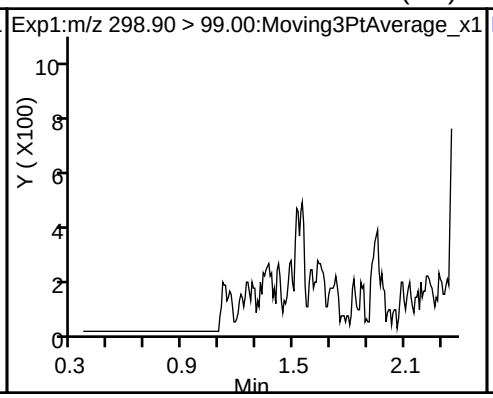
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_032.d

Injection Date:	08-Feb-2018 09:58:03	Instrument ID:	A8_N		
Lims ID:	320-35442-A-19-A	Lab Sample ID:	320-35442-19		
Client ID:	NAWC-012518-FRB-162				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	22	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

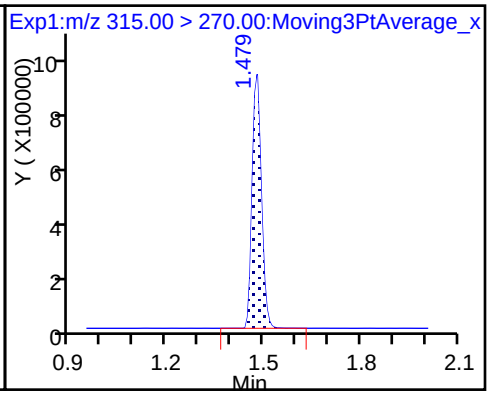
1 Perfluorobutanesulfonic acid (ND)



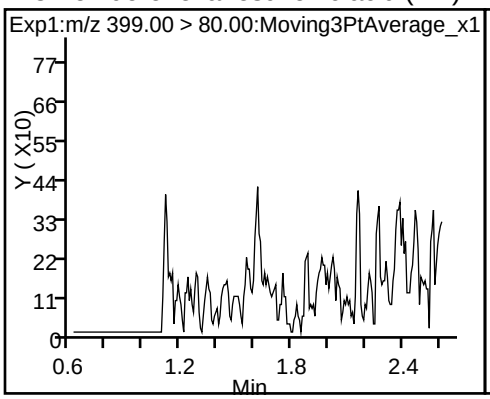
1 Perfluorobutanesulfonic acid (ND)



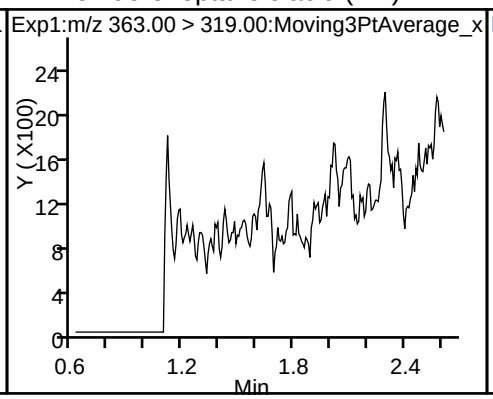
$ 2 13C2 PFHxA



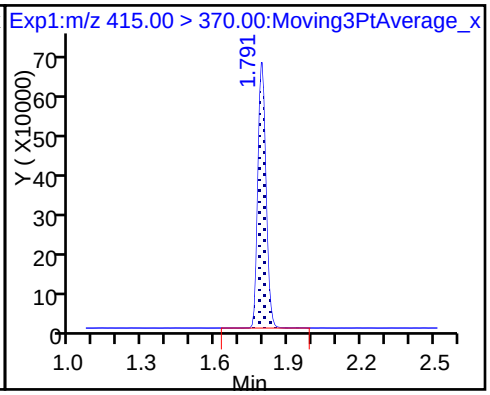
3 Perfluorohexanesulfonic acid (ND)



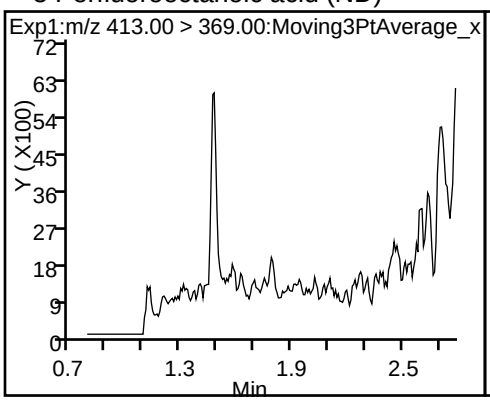
4 Perfluoroheptanoic acid (ND)



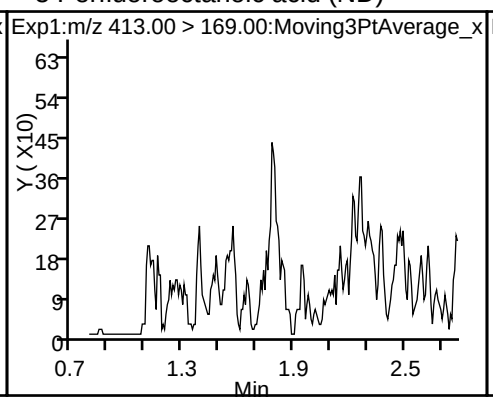
* 6 13C2-PFOA



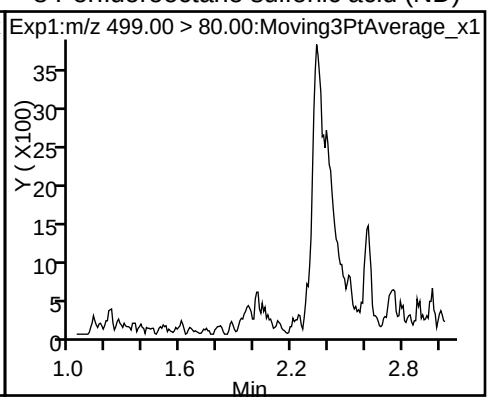
5 Perfluorooctanoic acid (ND)



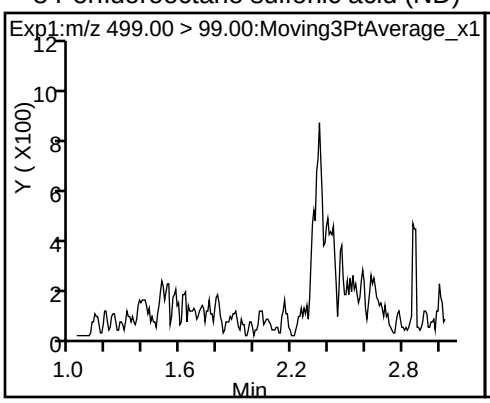
5 Perfluorooctanoic acid (ND)



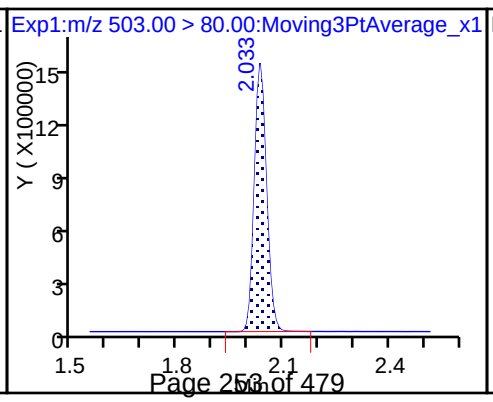
8 Perfluorooctane sulfonic acid (ND)



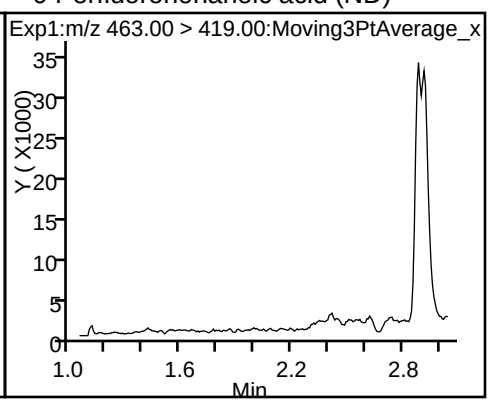
8 Perfluorooctane sulfonic acid (ND)



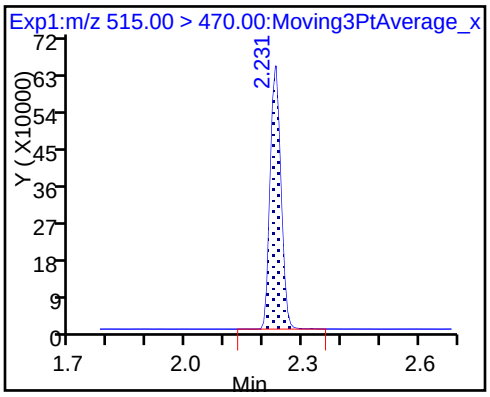
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_032.d				
Lims ID:	320-35442-A-19-A				
Client ID:	NAWC-012518-FRB-162				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 09:58:03	ALS Bottle#:	22	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-19-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:18	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.5	104.99
$ 10 13C2 PFDA	10.0	10.4	104.50

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-300 | Lab Sample ID: 320-35442-20

Matrix: Water | Lab File ID: 2018.02.08_537A_033.d

Analysis Method: 537 | Date Collected: 01/25/2018 14:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 240.4(mL) | Date Analyzed: 02/08/2018 10:02

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207584 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	24	J M	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	22		21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.0	J	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.5	J	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	94	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_033.d
Lims ID: 320-35442-A-20-A
Client ID: NAWC-012518-RW-300
Sample Type: Client
Inject. Date: 08-Feb-2018 10:02:43 ALS Bottle#: 23 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-20-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:18 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:22:56

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	212125	1.56		185	
298.90 > 99.00	1.366	1.358	0.008	1.006	156306		1.36(0.00-0.00)	320	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1706654	10.7		6720	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	393037	1.93		191	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.616	0.0	1.000	276709	2.05		58.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.791	0.0		1443475	10.0		5762	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.791	1.791	0.0	1.000	713979	5.34		120	
413.00 > 169.00	1.791	1.791	0.0	1.000	441366		1.62(0.00-0.00)	1005	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.033	2.041	-0.008	1.000	647964	5.68		193	M
499.00 > 99.00	2.033	2.041	-0.008	1.000	117795		5.50(0.00-0.00)	190	M
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.041	-0.008		3486586	28.7		3001	
9 Perfluorononanoic acid									
463.00 > 419.00	2.041	2.048	-0.007	1.000	80340	0.8380		12.4	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	1191471	10.8		7497	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

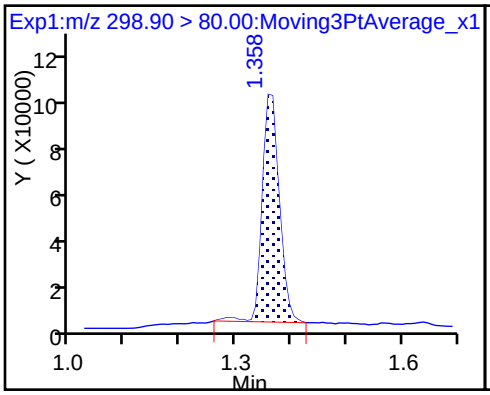
Report Date: 09-Feb-2018 09:52:22 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

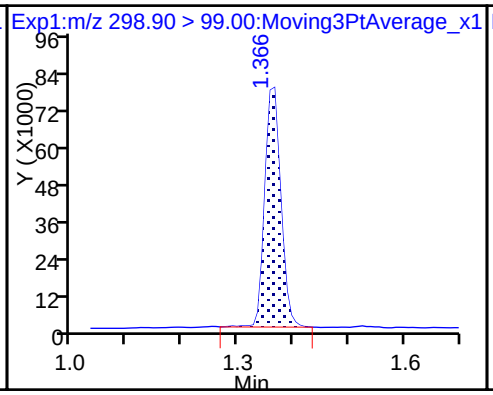
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_033.d

Injection Date:	08-Feb-2018 10:02:43	Instrument ID:	A8_N		
Lims ID:	320-35442-A-20-A	Lab Sample ID:	320-35442-20		
Client ID:	NAWC-012518-RW-300				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	23	Worklist Smp#:	30
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

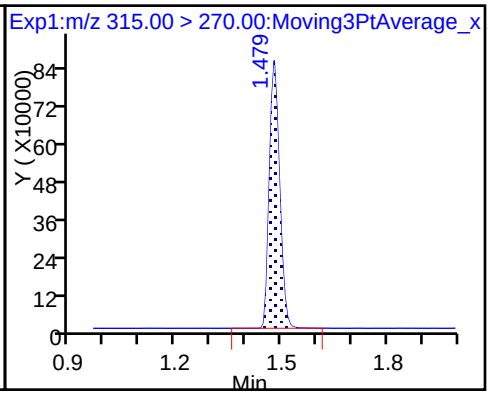
1 Perfluorobutanesulfonic acid



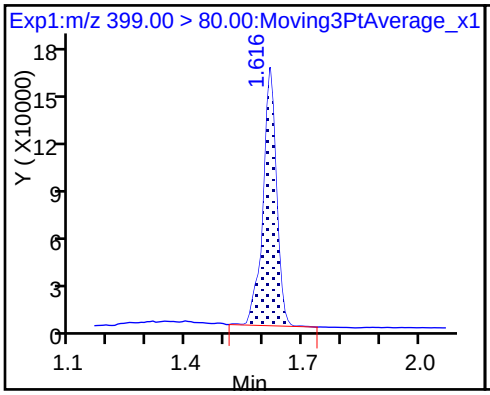
1 Perfluorobutanesulfonic acid



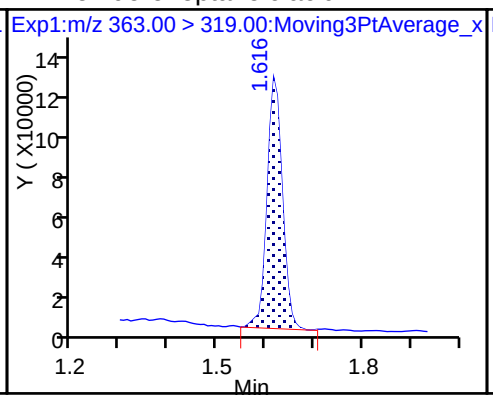
$ 2 13C2 PFHxA



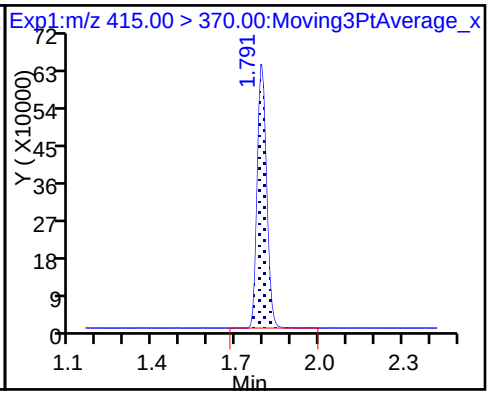
3 Perfluorohexanesulfonic acid



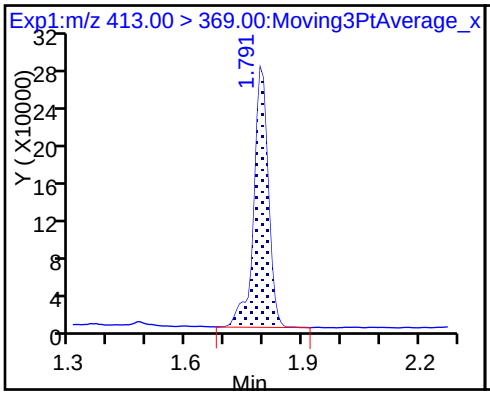
4 Perfluoroheptanoic acid



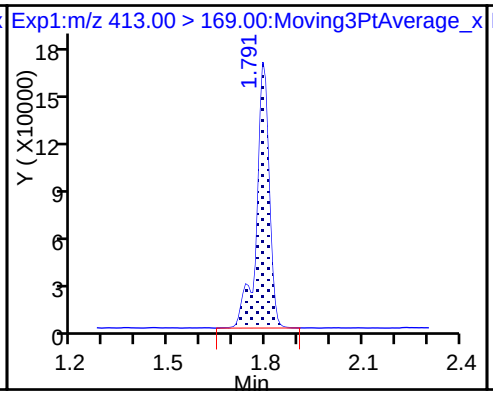
* 6 13C2-PFOA



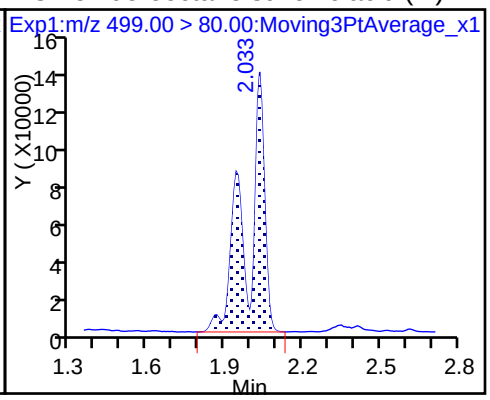
5 Perfluorooctanoic acid



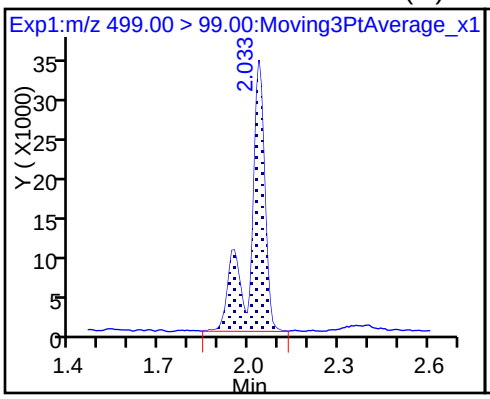
5 Perfluorooctanoic acid



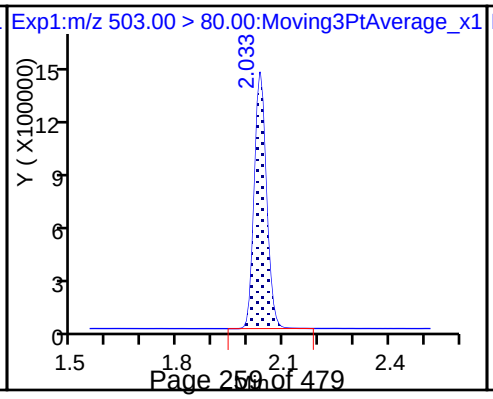
8 Perfluorooctane sulfonic acid (M)



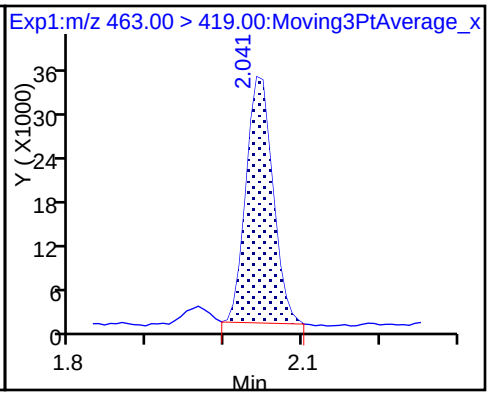
8 Perfluorooctane sulfonic acid (M)



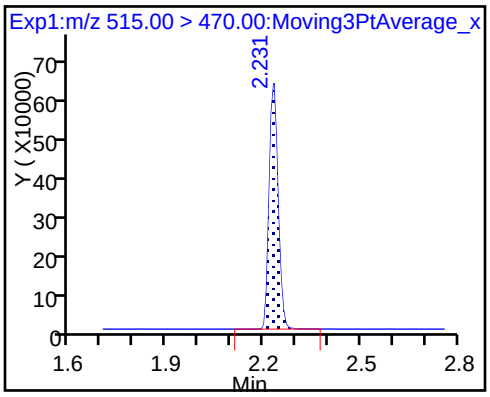
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA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50
40
30
20
10
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1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_033.d				
Lims ID:	320-35442-A-20-A				
Client ID:	NAWC-012518-RW-300				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 10:02:43	ALS Bottle#:	23	Worklist Smp#:	30
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-20-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 09:52:18	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				

First Level Reviewer: barnettj Date: 08-Feb-2018 17:22:56

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.7	107.46
$ 10 13C2 PFDA	10.0	10.8	107.87

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

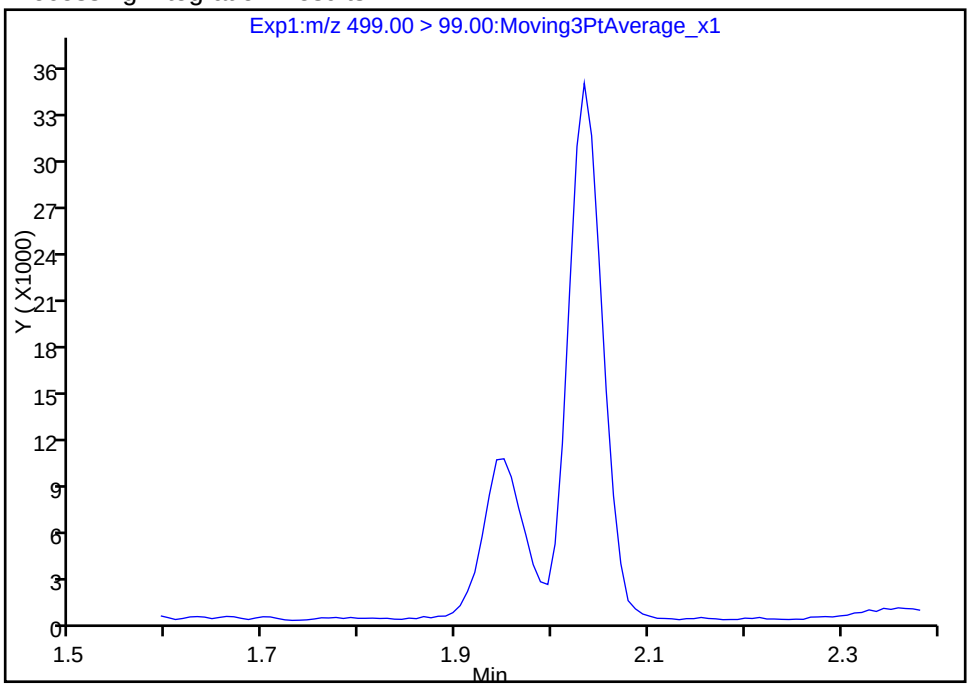
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_033.d				
Injection Date:	08-Feb-2018 10:02:43	Instrument ID:	A8_N		
Lims ID:	320-35442-A-20-A	Lab Sample ID:	320-35442-20		
Client ID:	NAWC-012518-RW-300				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	23	Worklist Smp#:	30
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

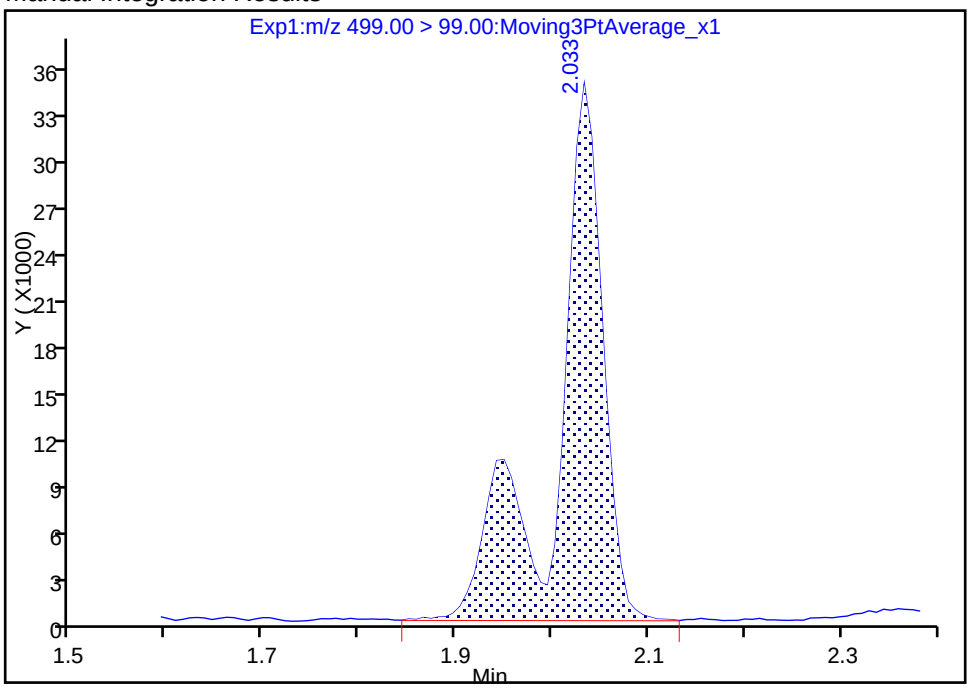
Processing Integration Results

Not Detected
Expected RT: 2.04



Manual Integration Results

RT: 2.03
Area: 117795
Amount: 5.676593
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:22:35
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

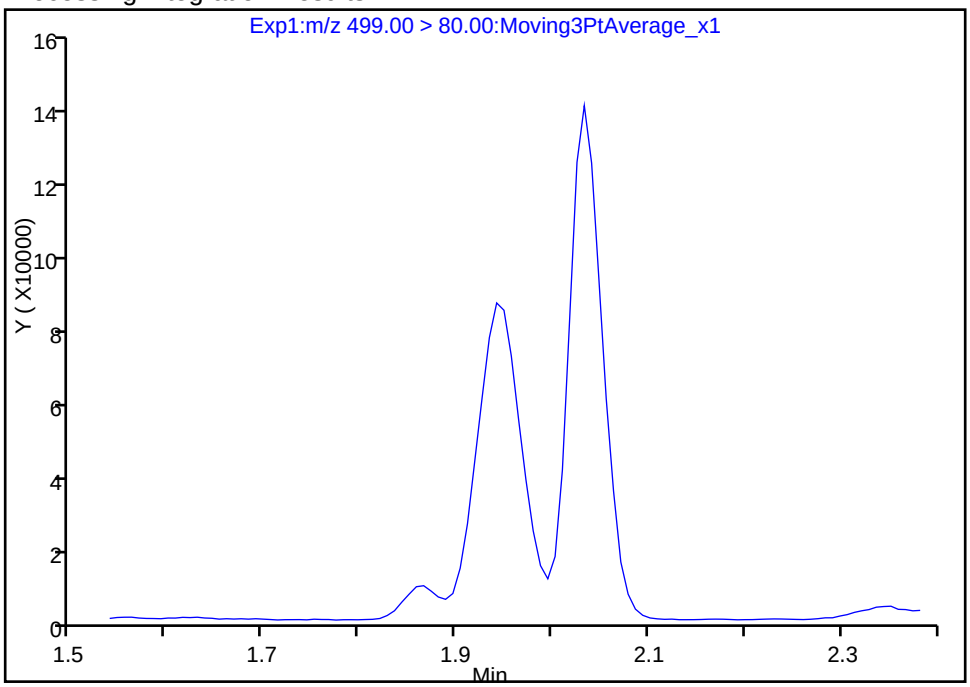
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_033.d				
Injection Date:	08-Feb-2018 10:02:43	Instrument ID:	A8_N		
Lims ID:	320-35442-A-20-A	Lab Sample ID:	320-35442-20		
Client ID:	NAWC-012518-RW-300				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	23	Worklist Smp#:	30
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

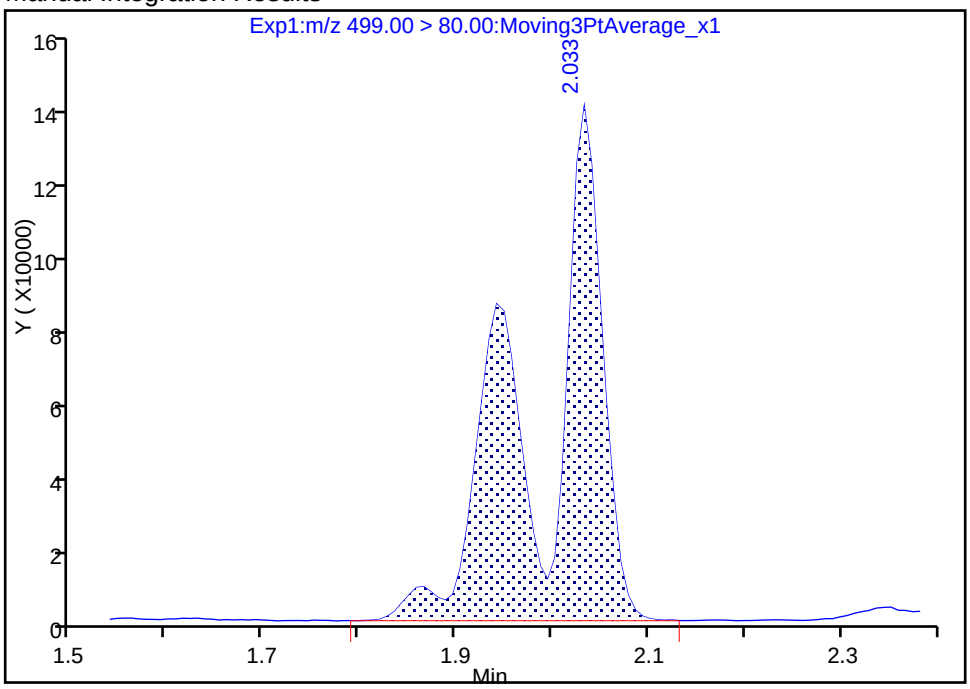
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.03
Area: 647964
Amount: 5.676593
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:22:35
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-300 | Lab Sample ID: 320-35442-21

Matrix: Water | Lab File ID: 2018.02.08_537AA_039.d

Analysis Method: 537 | Date Collected: 01/25/2018 14:05

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 245.6(mL) | Date Analyzed: 02/08/2018 11:03

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	84		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_039.d
Lims ID: 320-35442-A-21-A
Client ID: NAWC-012518-FRB-300
Sample Type: Client
Inject. Date: 08-Feb-2018 11:03:23 ALS Bottle#: 27 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-21-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1386516	8.65		6356	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1456713	10.0		6089	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.041	0.0		3374971	28.7		6302	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	941692	8.45		5800	

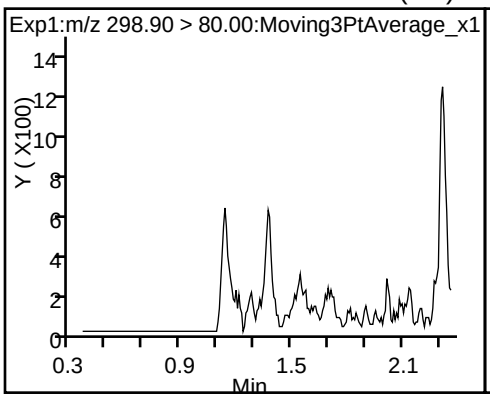
Report Date: 09-Feb-2018 10:11:55 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

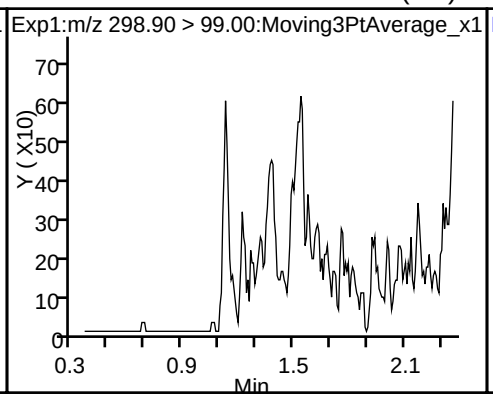
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_039.d

Injection Date:	08-Feb-2018 11:03:23	Instrument ID:	A8_N		
Lims ID:	320-35442-A-21-A	Lab Sample ID:	320-35442-21		
Client ID:	NAWC-012518-FRB-300				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	27	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

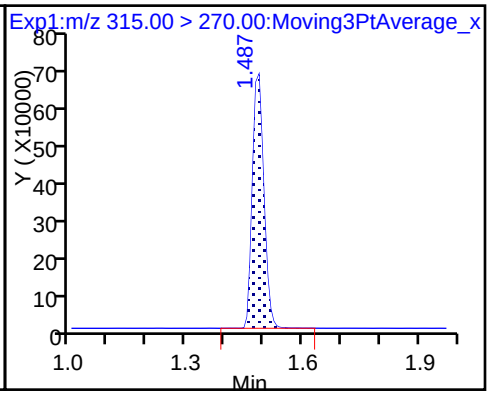
1 Perfluorobutanesulfonic acid (ND)



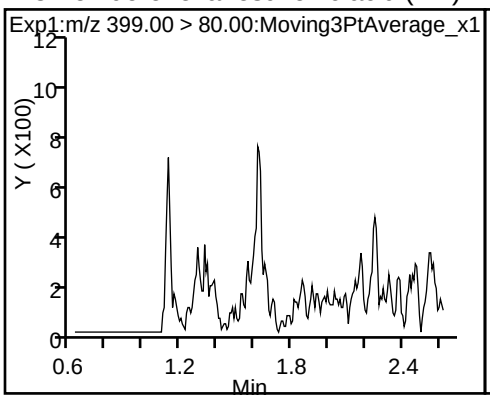
1 Perfluorobutanesulfonic acid (ND)



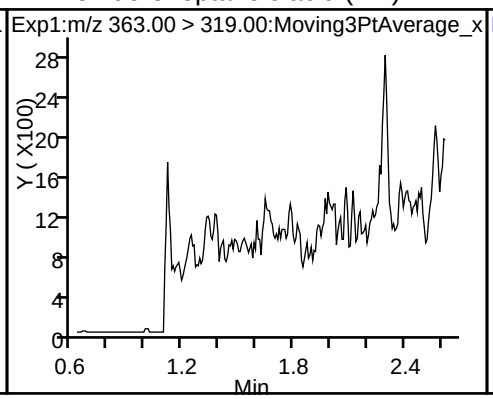
$ 2 13C2 PFHxA



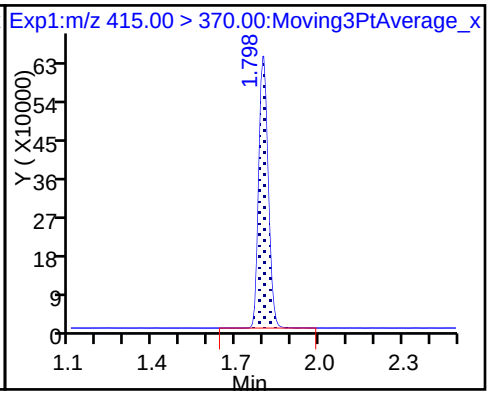
3 Perfluorohexanesulfonic acid (ND)



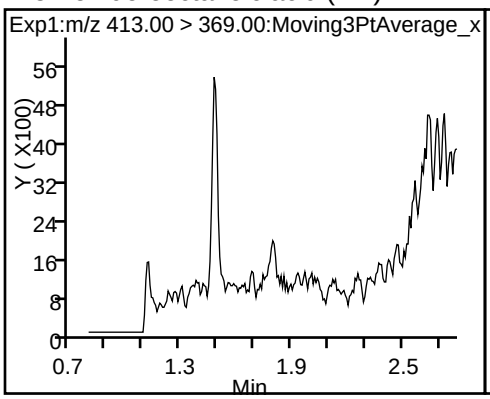
4 Perfluoroheptanoic acid (ND)



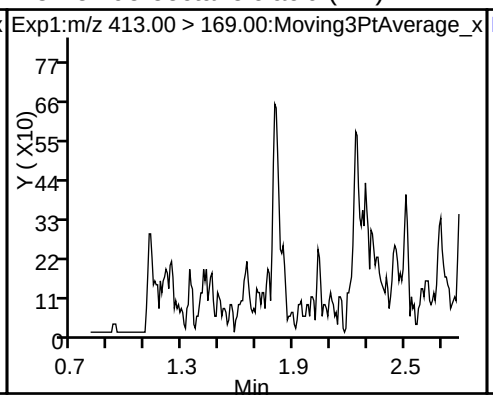
* 6 13C2-PFOA



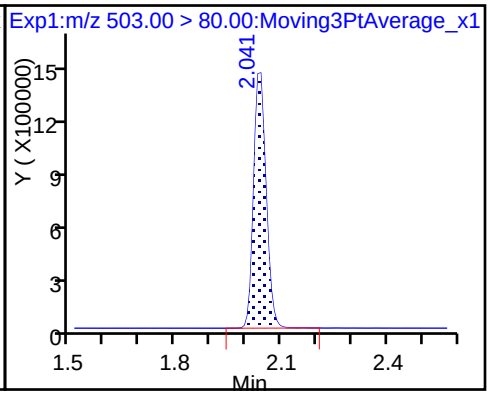
5 Perfluorooctanoic acid (ND)



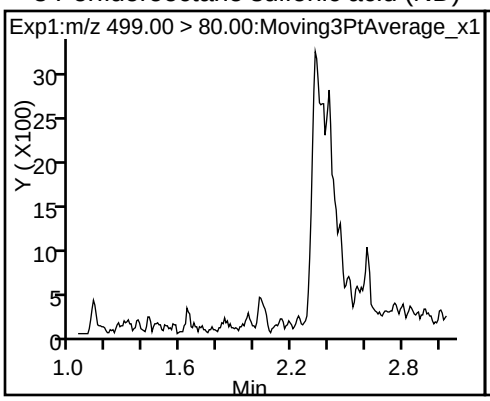
5 Perfluorooctanoic acid (ND)



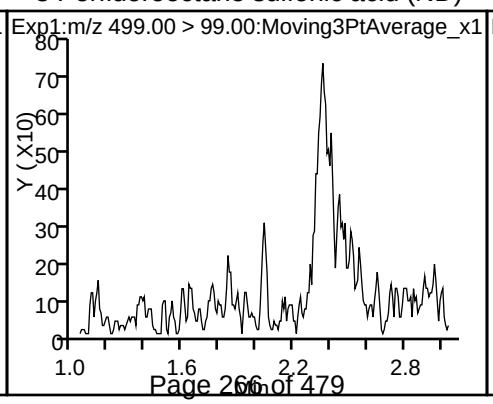
* 7 13C4 PFOS



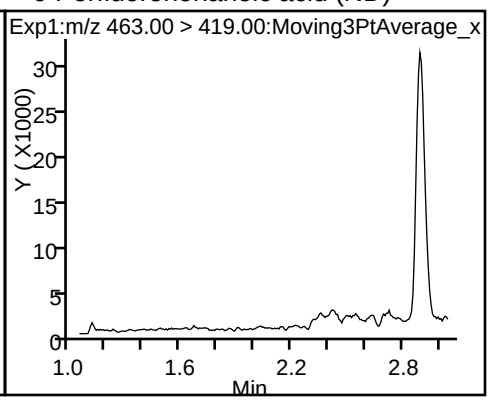
8 Perfluorooctane sulfonic acid (ND)



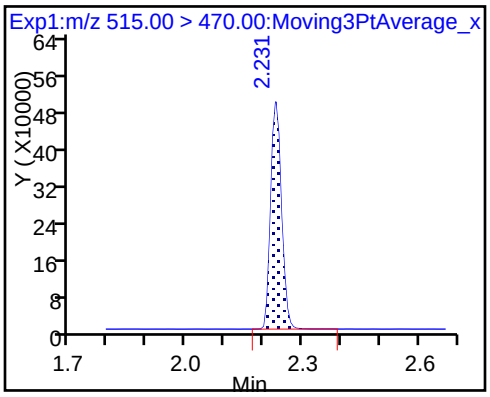
8 Perfluorooctane sulfonic acid (ND)



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
64
56
48
40
32
24
16
8
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_039.d
Lims ID: 320-35442-A-21-A
Client ID: NAWC-012518-FRB-300
Sample Type: Client
Inject. Date: 08-Feb-2018 11:03:23 ALS Bottle#: 27 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-21-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.65	86.51
$ 10 13C2 PFDA	10.0	8.45	84.48

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-064 | Lab Sample ID: 320-35442-22

Matrix: Water | Lab File ID: 2018.02.08_537AA_040.d

Analysis Method: 537 | Date Collected: 01/25/2018 16:40

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 246.8(mL) | Date Analyzed: 02/08/2018 11:08

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	11	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.0	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.7	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	74		70-130
STL00996	13C2 PFDA	82		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_040.d
Lims ID: 320-35442-A-22-A
Client ID: NAWC-012518-RW-064
Sample Type: Client
Inject. Date: 08-Feb-2018 11:08:04 ALS Bottle#: 28 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-22-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:02:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.366	-0.008	1.000	315338	2.32		637	
298.90 > 99.00	1.358	1.366	-0.008	1.000	222545		1.42(0.00-0.00)	548	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1209251	7.42		5669	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.624	-0.008	1.000	354635	1.74		368	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.624	-0.008	1.000	161970	1.17		42.0	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.798	-0.007		1481823	10.0		4713	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.791	1.798	-0.007	1.000	379273	2.76		84.4	
413.00 > 169.00	1.791	1.798	-0.007	1.000	231774		1.64(0.00-0.00)	663	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.041	-0.008		3499918	28.7		4933	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.033	2.041	-0.008	1.000	319999	2.79		158	M
499.00 > 99.00	2.033	2.041	-0.008	1.000	63757		5.02(0.00-0.00)	139	M
9 Perfluorononanoic acid									M
463.00 > 419.00	2.041	2.048	-0.007	1.000	46632	0.4738		9.2	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	931359	8.21		6452	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 09-Feb-2018 10:11:56 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_040.d

Injection Date: 08-Feb-2018 11:08:04 Instrument ID: A8_N

Lims ID: 320-35442-A-22-A Lab Sample ID: 320-35442-22

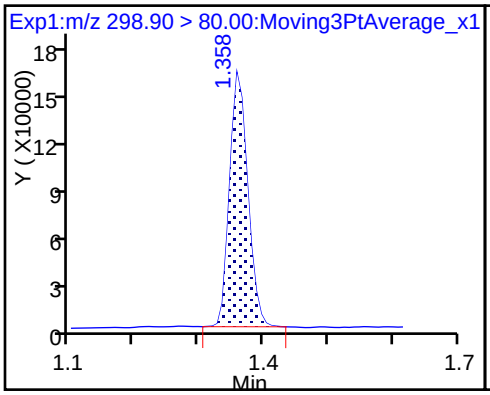
Client ID: NAWC-012518-RW-064

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

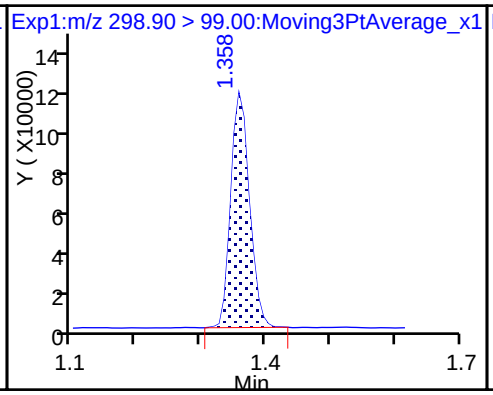
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

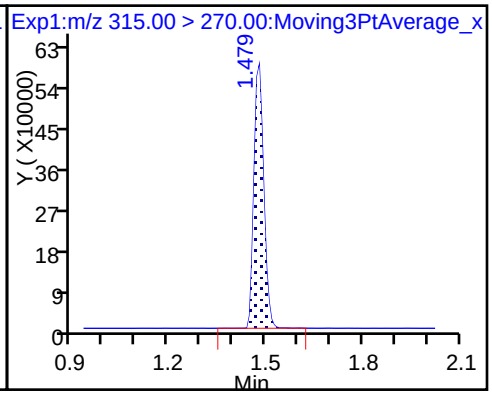
1 Perfluorobutanesulfonic acid



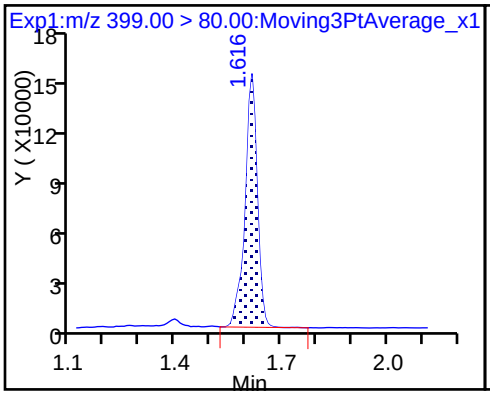
1 Perfluorobutanesulfonic acid



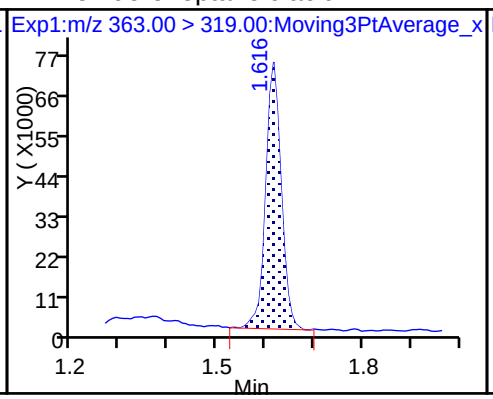
$ 2 13C2 PFHxA



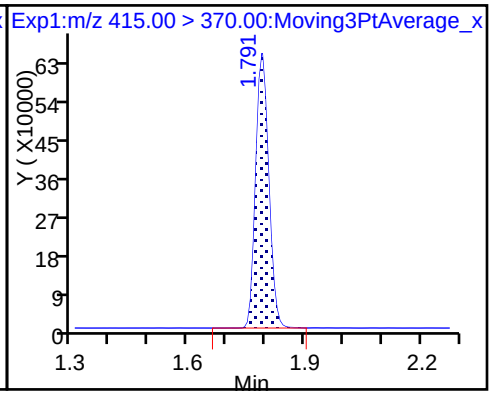
3 Perfluorohexanesulfonic acid



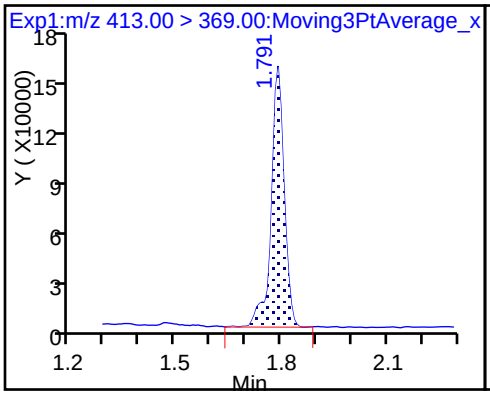
4 Perfluoroheptanoic acid



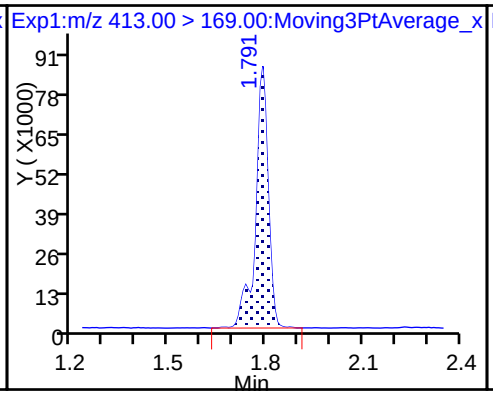
* 6 13C2-PFOA



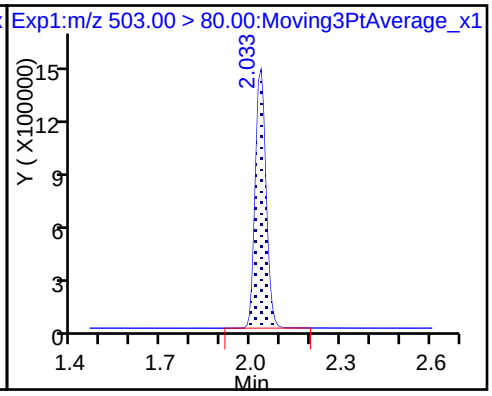
5 Perfluorooctanoic acid



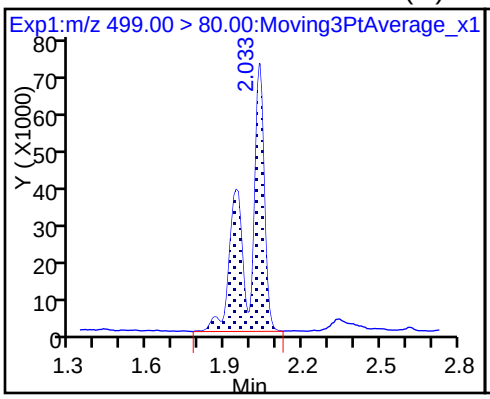
5 Perfluorooctanoic acid



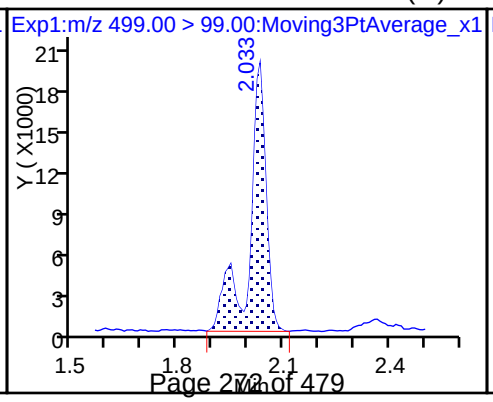
* 7 13C4 PFOS



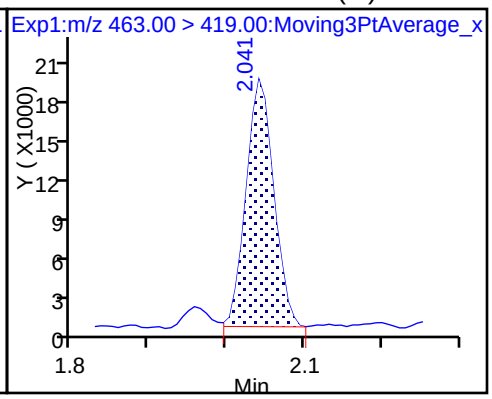
8 Perfluorooctane sulfonic acid (M)



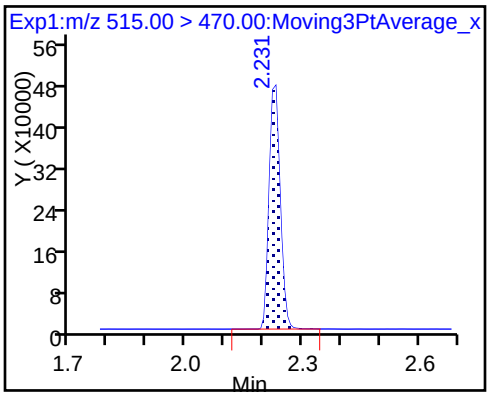
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
56
48
40
32
24
16
8
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_040.d
Lims ID: 320-35442-A-22-A
Client ID: NAWC-012518-RW-064
Sample Type: Client
Inject. Date: 08-Feb-2018 11:08:04 ALS Bottle#: 28 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-22-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:02:42

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	7.42	74.17
$ 10 13C2 PFDA	10.0	8.21	82.14

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

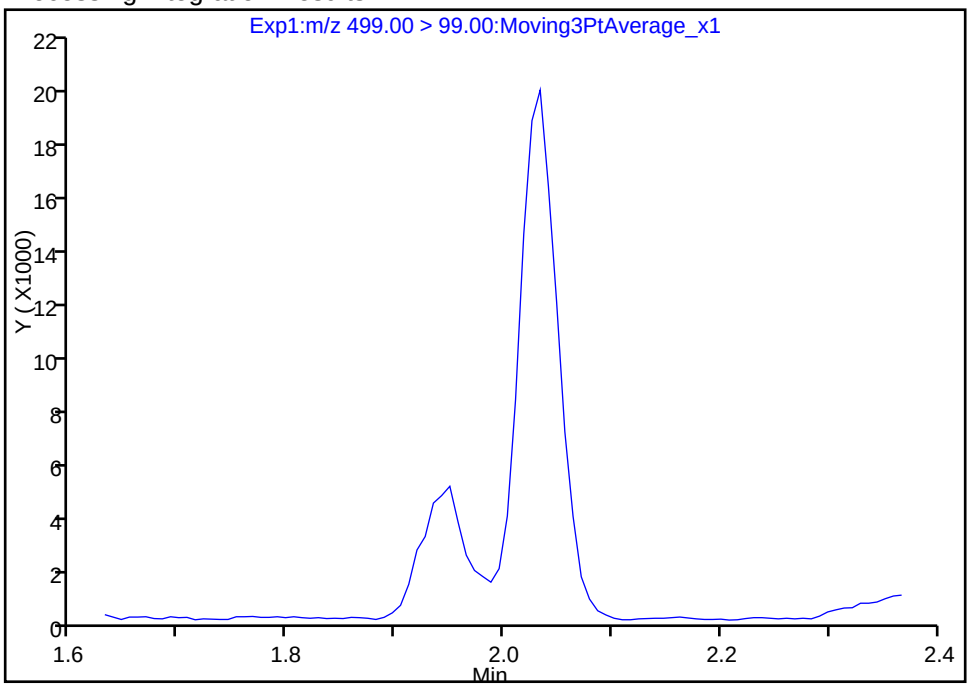
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_040.d				
Injection Date:	08-Feb-2018 11:08:04	Instrument ID:	A8_N		
Lims ID:	320-35442-A-22-A	Lab Sample ID:	320-35442-22		
Client ID:	NAWC-012518-RW-064				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

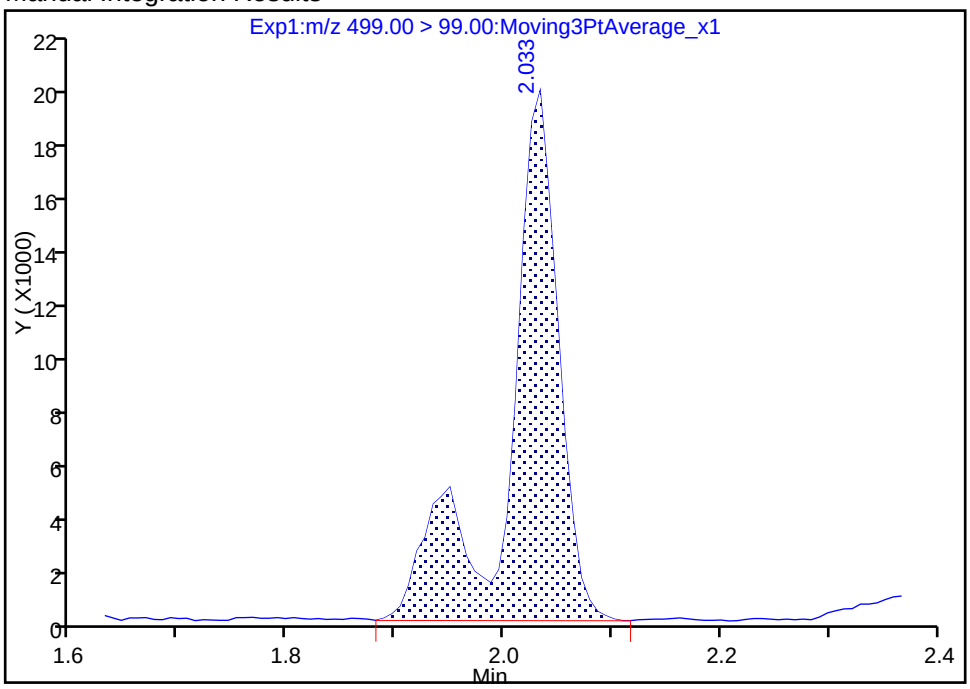
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.03
Area: 63757
Amount: 2.792724
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:01:50
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

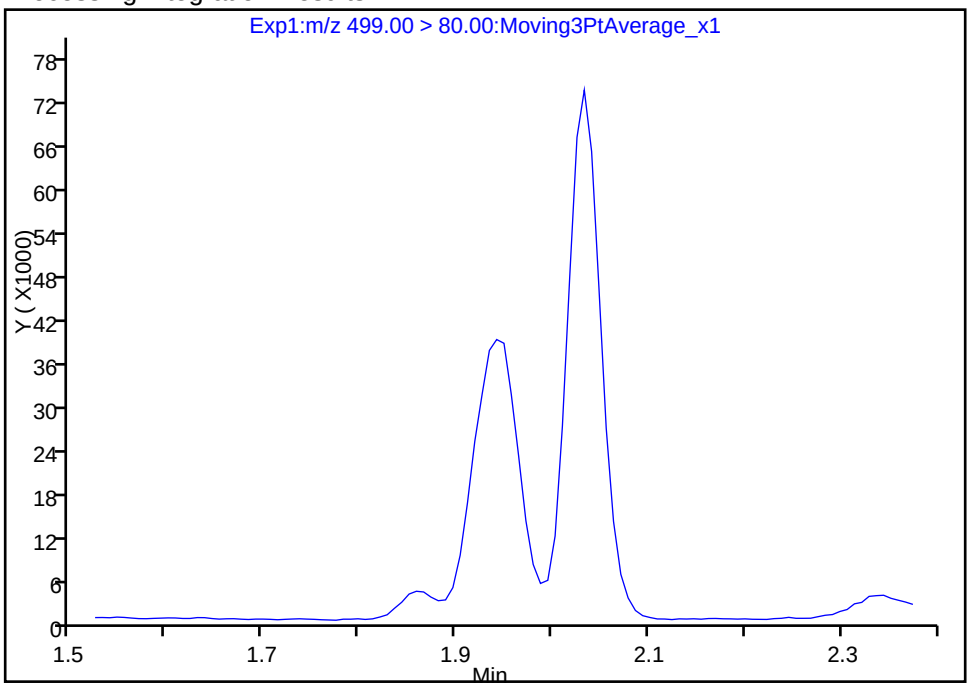
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_040.d				
Injection Date:	08-Feb-2018 11:08:04	Instrument ID:	A8_N		
Lims ID:	320-35442-A-22-A	Lab Sample ID:	320-35442-22		
Client ID:	NAWC-012518-RW-064				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	7
Injection 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

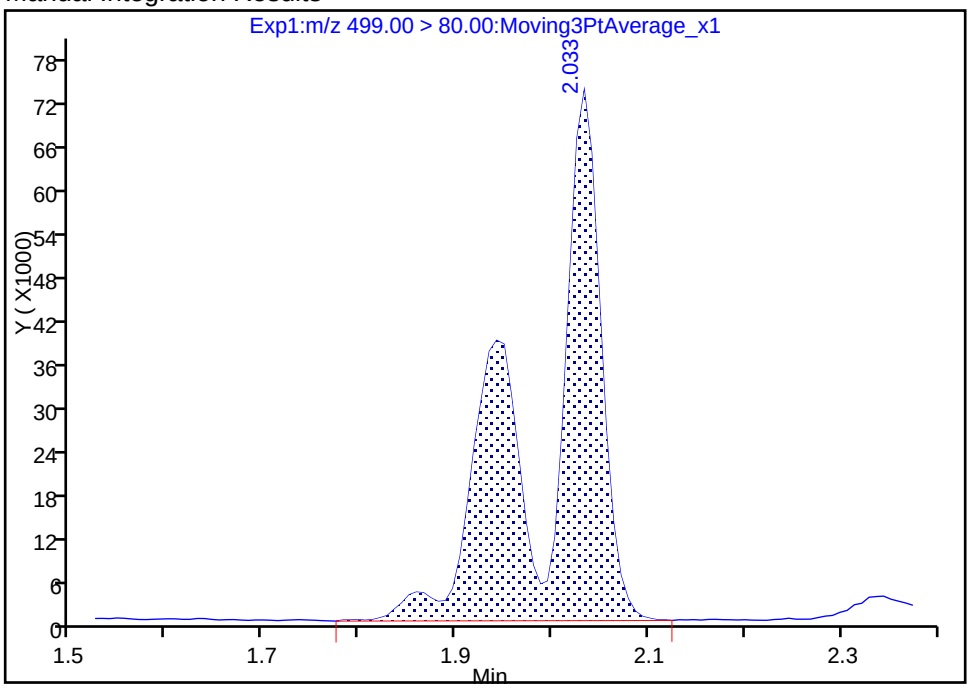
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.03
Area: 319999
Amount: 2.792724
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:01:50
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

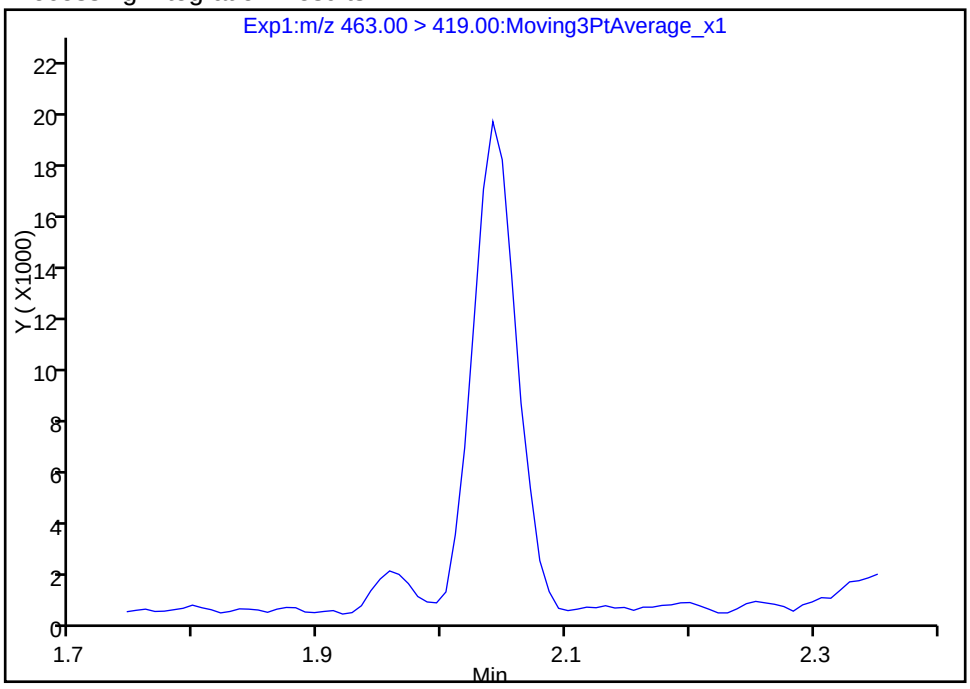
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_040.d				
Injection Date:	08-Feb-2018 11:08:04	Instrument ID:	A8_N		
Lims ID:	320-35442-A-22-A	Lab Sample ID:	320-35442-22		
Client ID:	NAWC-012518-RW-064				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	7
Injection 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

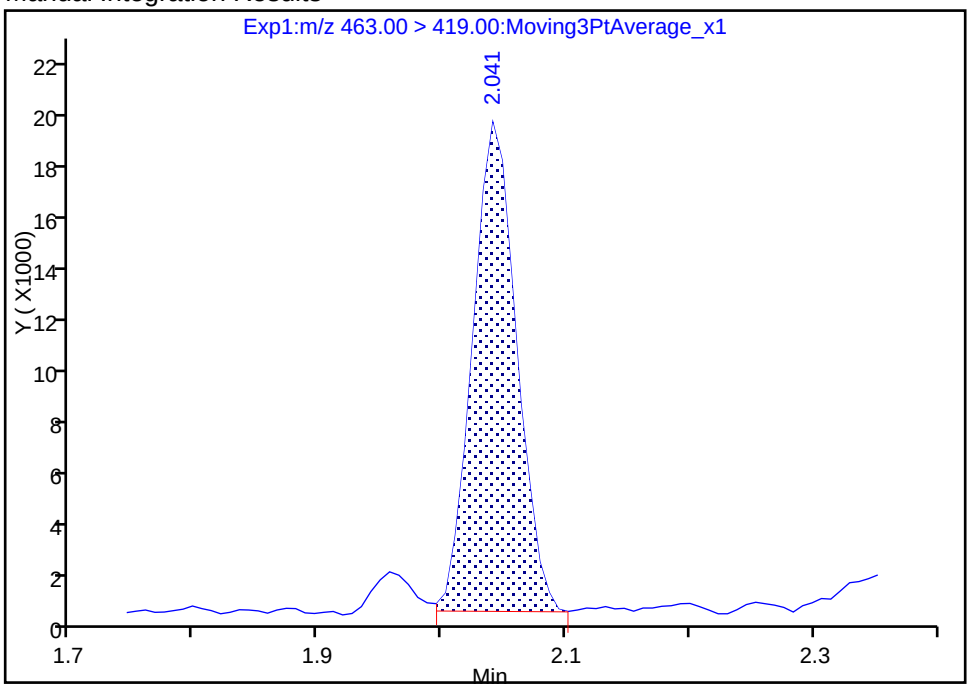
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 46632
Amount: 0.473821
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:02:18
Audit Action: Manually Integrated Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-064 | Lab Sample ID: 320-35442-23

Matrix: Water | Lab File ID: 2018.02.08_537AA_041.d

Analysis Method: 537 | Date Collected: 01/25/2018 16:35

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 245.5(mL) | Date Analyzed: 02/08/2018 11:12

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	86		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_041.d
Lims ID: 320-35442-A-23-A
Client ID: NAWC-012518-FRB-064
Sample Type: Client
Inject. Date: 08-Feb-2018 11:12:46 ALS Bottle#: 29 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35442-a-23-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1392377	9.05		7235	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.798	-0.007		1398055	10.0		4973	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.041	-0.008		3349760	28.7		6788	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	919376	8.59		5955	

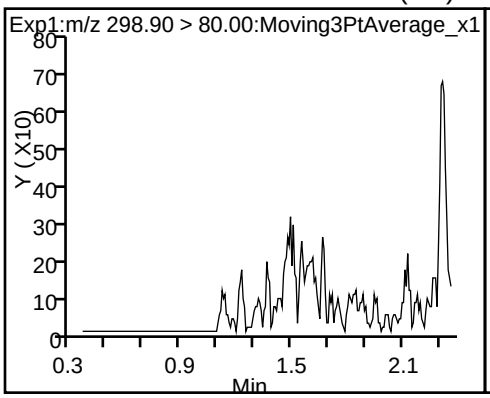
Report Date: 09-Feb-2018 10:11:57 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

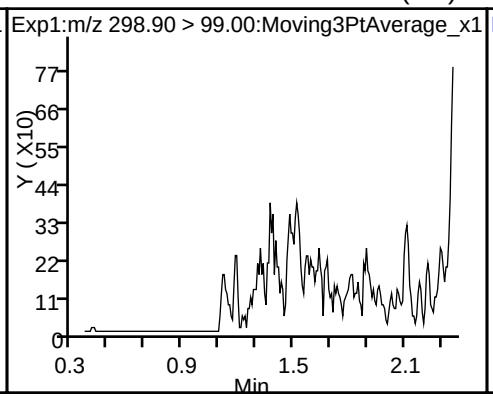
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_041.d

Injection Date:	08-Feb-2018 11:12:46	Instrument ID:	A8_N		
Lims ID:	320-35442-A-23-A	Lab Sample ID:	320-35442-23		
Client ID:	NAWC-012518-FRB-064				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

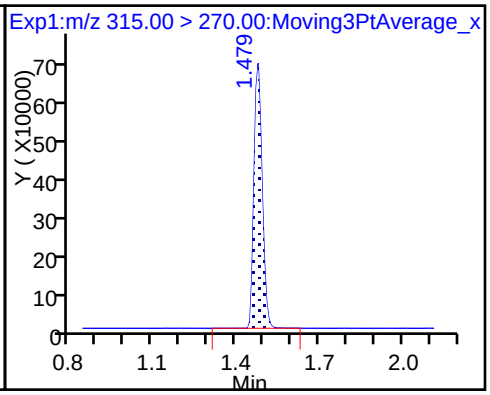
1 Perfluorobutanesulfonic acid (ND)



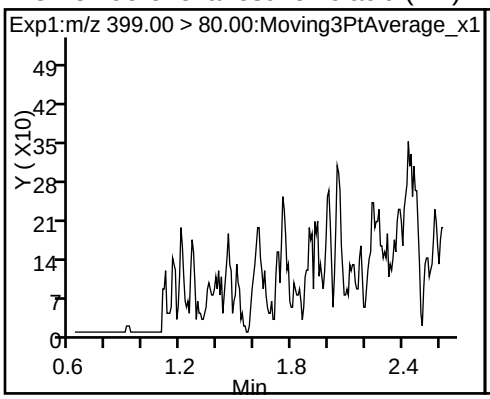
1 Perfluorobutanesulfonic acid (ND)



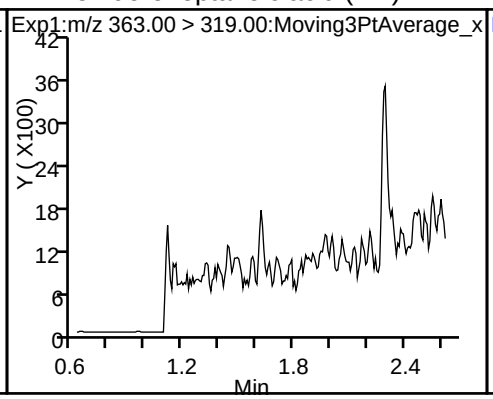
$ 2 13C2 PFHxA



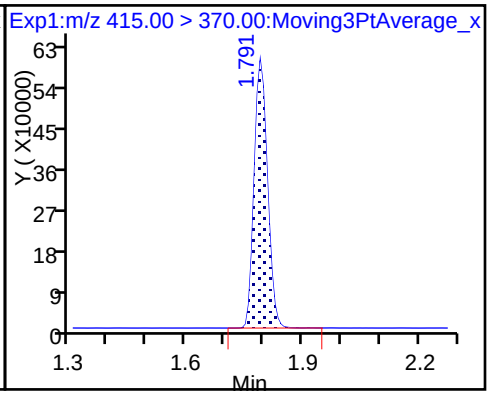
3 Perfluorohexanesulfonic acid (ND)



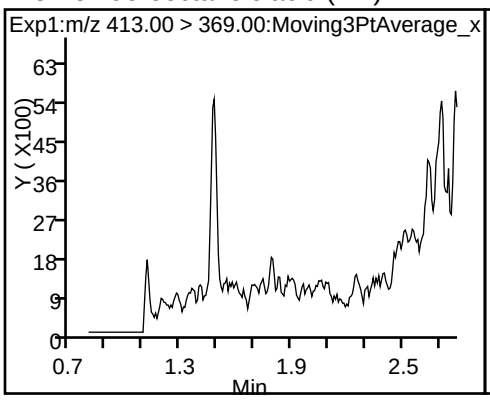
4 Perfluoroheptanoic acid (ND)



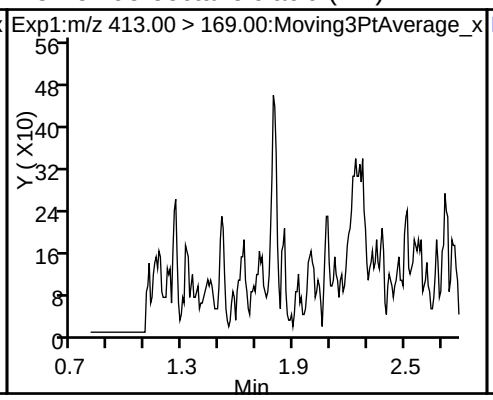
* 6 13C2-PFOA



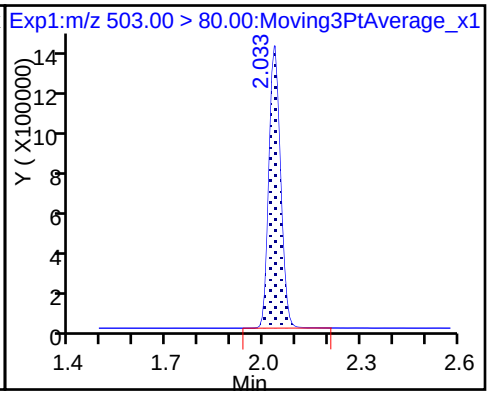
5 Perfluorooctanoic acid (ND)



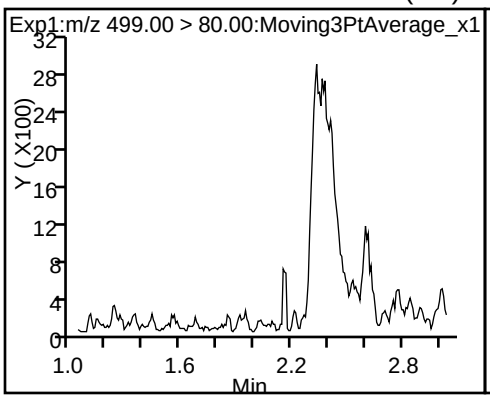
5 Perfluorooctanoic acid (ND)



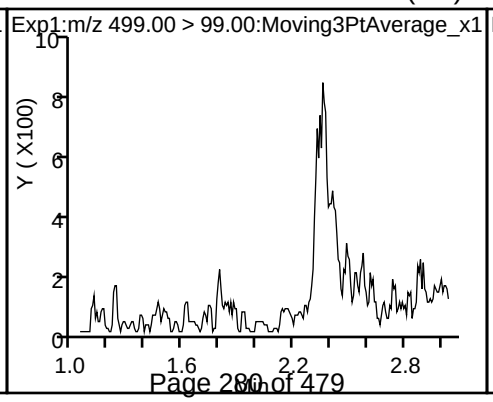
* 7 13C4 PFOS



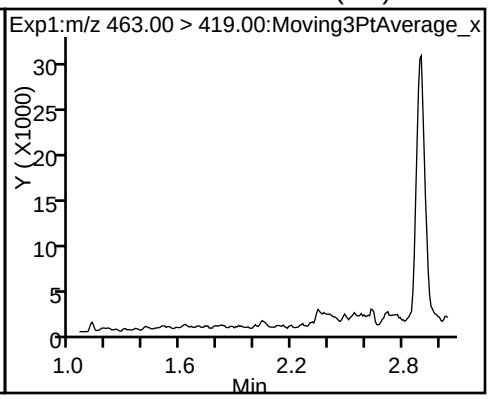
8 Perfluorooctane sulfonic acid (ND)



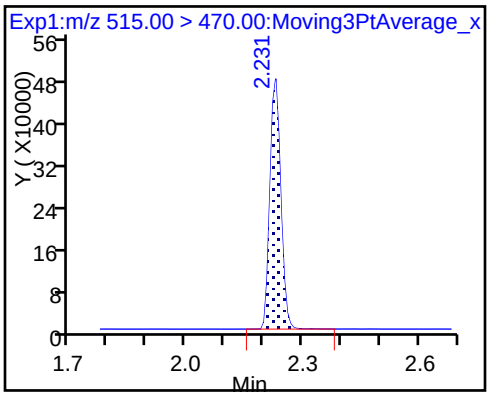
8 Perfluorooctane sulfonic acid (ND)



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
56
48
40
32
24
16
8
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_041.d				
Lims ID:	320-35442-A-23-A				
Client ID:	NAWC-012518-FRB-064				
Sample Type:	Client				
Inject. Date:	08-Feb-2018 11:12:46	ALS Bottle#:	29	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-35442-a-23-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	09-Feb-2018 10:11:51	Calib Date:	03-Nov-2017 14:01:24		
Integrator:	Picker				
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d				
Column 1 :			Det: EXP1		
Process Host:	XAWRK029				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.05	90.52
$ 10 13C2 PFDA	10.0	8.59	85.94

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

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1 Analy Batch No.: 192908

SDG No.:

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_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)	1.0397 0.8468	1.0767	1.0898	0.9577	0.9303	QuaF		1.1193	-0.001498						0.9990		0.9600
Perfluoroheptanoic acid (PFHpA)	0.9433 0.9848	0.9187	0.9551	0.9185	0.9011	Ave		0.9369				3.2		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.6459 1.6841	1.6355	1.7405	1.6631	1.6755	Ave		1.6741				2.2		30.0			
Perfluorooctanoic acid (PFOA)	0.9757 0.9799	0.8919	0.9000	0.8953	0.9117	Ave		0.9258				4.4		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8958 0.9902	0.9213	0.9281	0.9268	0.9715	Ave		0.9389				3.7		30.0			
Perfluorononanoic acid (PFNA)	0.6610 0.7042	0.6285	0.6624	0.6810	0.6478	Ave		0.6642				3.9		30.0			
13C2 PFHxA	1.0891 1.1664	1.0526	1.1042	1.1123	1.0772	Ave		1.1003				3.5		30.0			
13C2 PFDA	0.7748 0.8159	0.7295	0.7569	0.7811	0.7330	Ave		0.7652				4.3		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1 Analy Batch No.: 192908

SDG No.:

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_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	1076553 16699152	2591121	5461974	10142530	14011858	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PFOA	Ave	143455 2810797	331548	736034	1420703	2102676	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	568156 11071993	1312135	2908204	5871843	8413133	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PFOA	Ave	296934 5597122	644149	1388033	2771271	4257225	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	412315 8679676	985487	2067792	4363079	6504279	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PFOA	Ave	201053 4019666	453612	1020851	2106479	3023088	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PFOA	Ave	1655691 1664260	1708988	1701491	1719911	1675220	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PFOA	Ave	1177922 1164156	1184358	1166275	1207887	1139992	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.: 320-35442-1 Analy Batch No.: 192908

SDG No.:

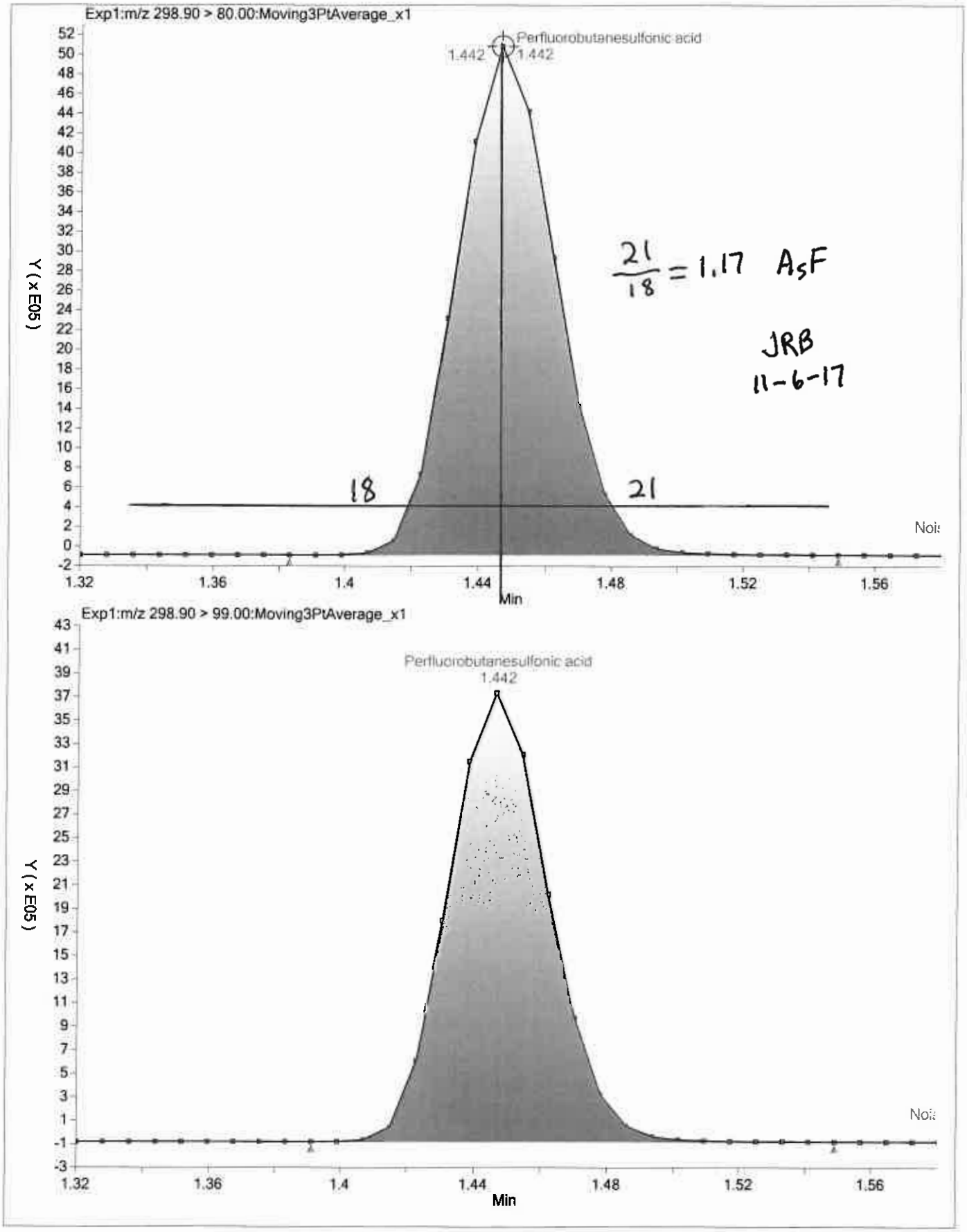
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

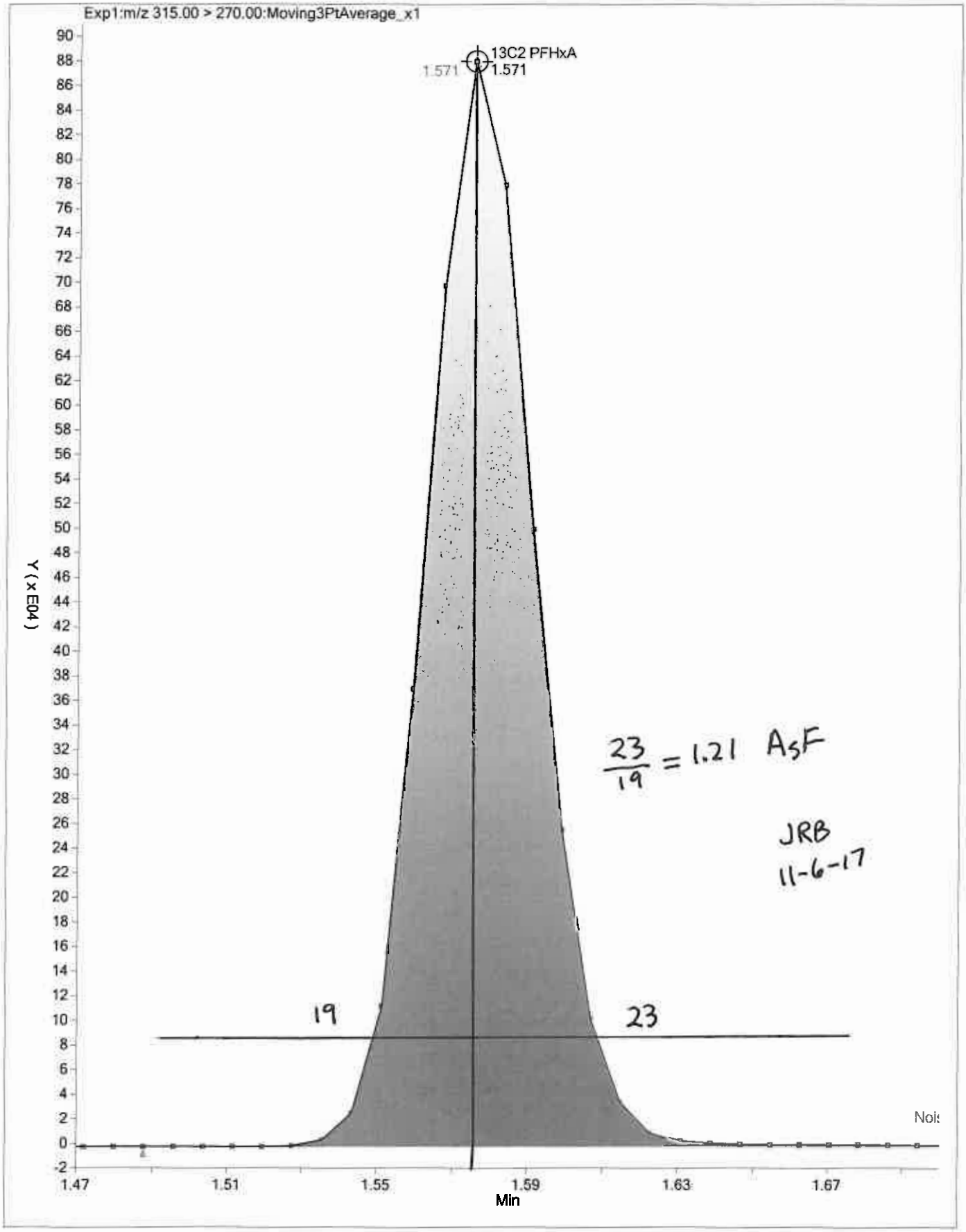
LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-6.0	-1.2	3.9	-3.1	1.9	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	0.7	-1.9	1.9	-2.0	-3.8	5.1	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-1.7	-2.3	4.0	-0.7	0.1	0.6	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	5.4	-3.7	-2.8	-3.3	-1.5	5.8	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	-1.9	-1.2	-1.3	3.5	5.5	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-0.5	-5.4	-0.3	2.5	-2.5	6.0	50	30	30	30	30	30
13C2 PFHxA	-1.0	-4.3	0.4	1.1	-2.1	6.0	30	30	30	30	30	30
13C2 PFDA	1.3	-4.7	-1.1	2.1	-4.2	6.6	30	30	30	30	30	30



$\frac{21}{18} = 1.17$ A_sF

JRB
11-6-17


Exp1:m/z 315.00 > 270.00:Moving3PtAverage_x1
13C2 PFHxA
1.571
1.571
Y (x E04)
Min
1.47
1.51
1.55
1.59
1.63
1.67
19
23
23/19 = 1.21 ASF
JRB
11-6-17

TestAmerica Laboratories
Istd/Surrogate Recovery Report

Worklist Name: 03NOV2017_537A_ICAL Worklist Num: 49975
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b
Limit Group: LC 537 ICAL
Analysis Type: SemiVOA
Inj Volume: 2.00 Inj Vol Units: ul

Lims Batch: 192908
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			2864400 1.87	6253426 2.11
# 1 RB 03-Nov-2017 13:23:59			1.94 1485386 51.9	2.16 3471256 55.5
# 2 RB 03-Nov-2017 13:28:38			1.93 1511056 52.8	2.16 3340239 53.4
# 3 RB 03-Nov-2017 13:33:19			1.92 1483949 51.8	2.16 3285228 52.5
IS Std				
# 4 IC L1 03-Nov-2017 13:37:59	1.58 98.98	2.31 101.30	1.92 1520258> 100.0*	2.16 3298877> 100.0*
# 5 IC L2 03-Nov-2017 13:42:39	1.58 95.66	2.31 95.33	1.92 1623614> 106.8*	2.16 3450592> 104.6*
# 6 IC L3 03-Nov-2017 13:47:20	1.57 100.40	2.31 98.91	1.91 1540946> 101.4*	2.15 3194016> 96.8*
# 7 IC L4 03-Nov-2017 13:52:00	1.57 101.10	2.31 102.10	1.91 1546307> 101.7*	2.16 3374600> 102.3*
# 8 IC L5 03-Nov-2017 13:56:41	1.57 97.90	2.31 95.80	1.91 1555174> 102.3*	2.15 3199479> 97.0*
# 9 IC L6 03-Nov-2017 14:01:24	1.57 106.00	2.31 106.60	1.90 1426806> 93.9*	2.15 3141787> 95.2*
IS Std			1540946 1.91	3194016 2.15
#10 RB 03-Nov-2017 14:06:04			1.91 1395383 90.6	2.15 3212781 100.6
IS Std			1546307 1.91	3374600 2.16
#11 CCVL 03-Nov-2017 14:10:44	1.58 97.03	2.31 97.49	1.91 1586829 102.6	2.15 3305852 98.0
IS Std			1586829 1.91	3305852 2.15
#12 RB 03-Nov-2017 14:15:23			1.90 1415042 89.2	2.14 3122656 94.5
IS Std			1546307 1.91	3374600 2.16
#13 ICV 03-Nov-2017 14:20:03	1.57 94.41	2.31 96.59	1.90 1512045 97.8	2.14 3433628 101.7
IS Std			1395100 1.91	3254950 2.15
#14 RB 03-Nov-2017 14:24:44			1.91 1395100 100.0	2.15 3254950 100.0

13C2-PFOA

$$RPD = \frac{1623614 - 1426806}{\left(\frac{1623614 + 1426806}{2}\right)}(100) = 12.9$$

13C4-PFOS

$$RPD = \frac{3450592 - 3141787}{\left(\frac{3450592 + 3141787}{2}\right)}(100) = 9.37$$

JRB
11-6-17

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_004.d
Lims ID: IC L1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 03-Nov-2017 13:37:59 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\20171106-49975.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Nov-2017 15:52:07 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:18:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.444	0.005	1.000	1076553	8.46		654	
298.90 > 99.00	1.449	1.444	0.005	1.000	763262		1.41(0.00-0.00)	2025	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.573	0.005	1.000	1655691	9.90		8732	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.725	0.005	1.000	568156	2.95		1122	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.725	0.005	1.000	143455	1.01		42.2	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.913	0.007		1520258	10.0		6863	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.920	1.914	0.006	1.000	296934	2.11		53.5	
413.00 > 169.00	1.920	1.914	0.006	1.000	149720		1.98(0.00-0.00)	184	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.155	2.147	0.008	1.000	412315	3.82		235	M
499.00 > 99.00	2.155	2.147	0.008	1.000	85347		4.83(0.00-0.00)	209	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.151	0.004		3298877	28.7		5279	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.158	0.004	1.000	201053	1.99		67.8	
$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.312	0.002	1.000	1177922	10.1		7012	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L1_00020 Amount Added: 1.00 Units: mL

Report Date: 07-Nov-2017 15:52:07 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_004.d

Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N

Lims ID: IC L1

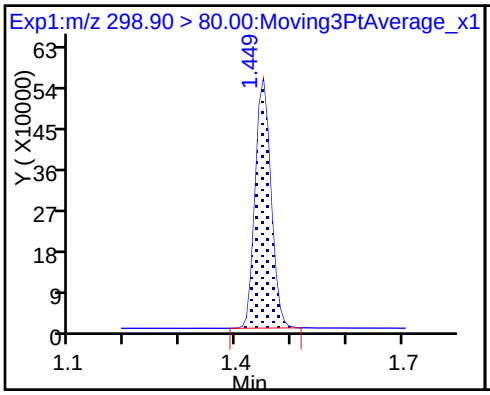
Client ID:

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

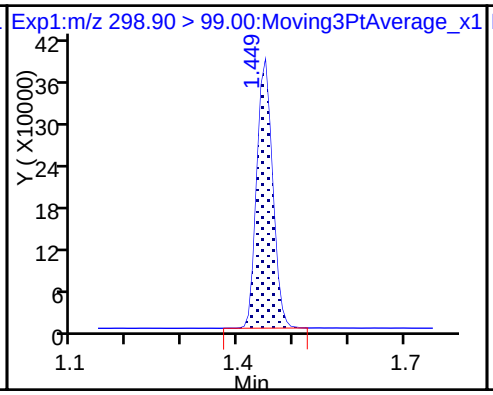
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

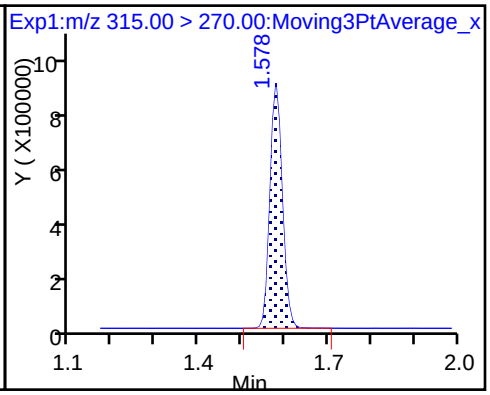
1 Perfluorobutanesulfonic acid



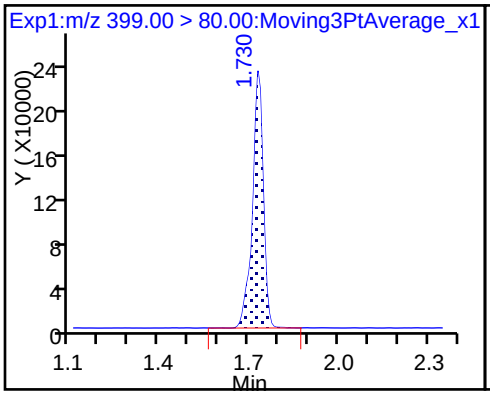
1 Perfluorobutanesulfonic acid



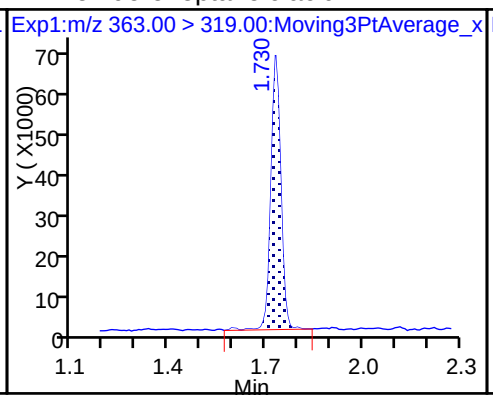
$ 2 13C2 PFHxA



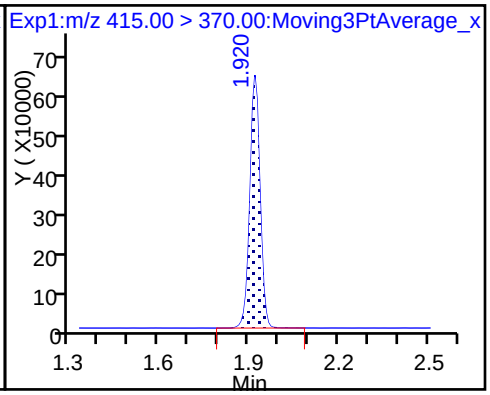
3 Perfluorohexanesulfonic acid



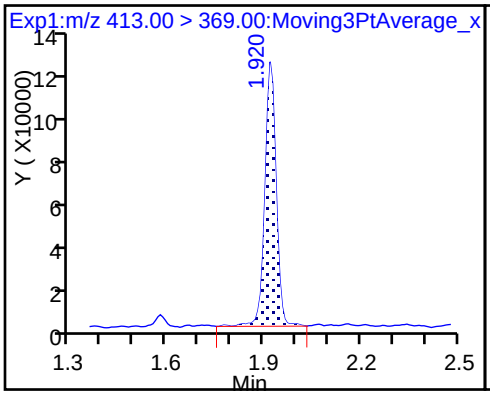
4 Perfluoroheptanoic acid



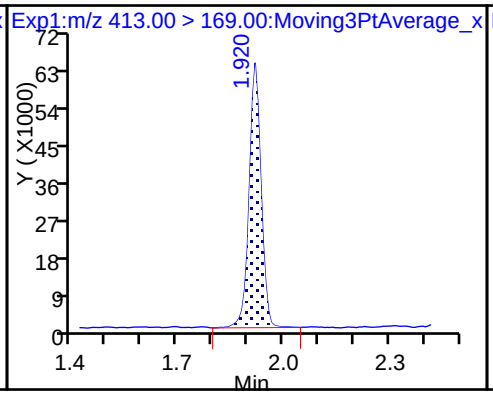
* 6 13C2-PFOA



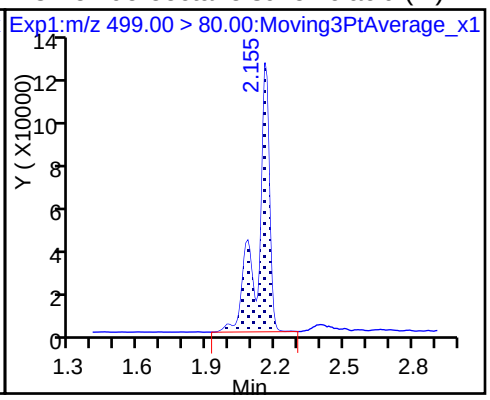
5 Perfluorooctanoic acid



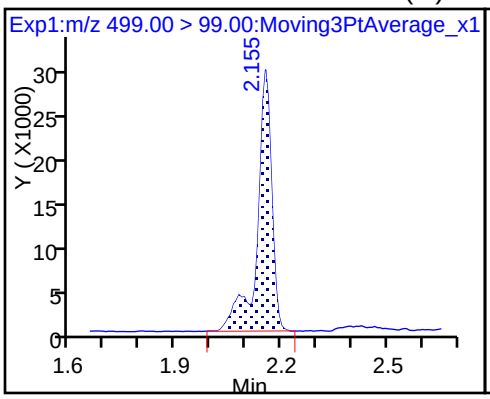
5 Perfluorooctanoic acid



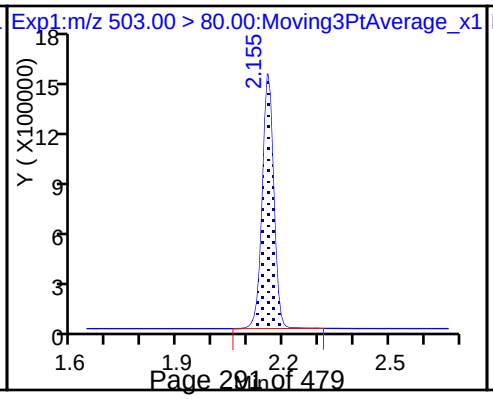
8 Perfluorooctane sulfonic acid (M)



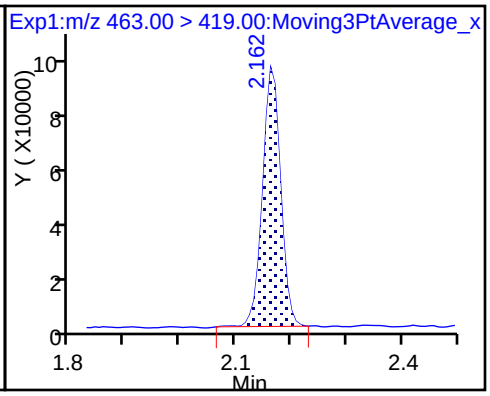
8 Perfluorooctane sulfonic acid (M)



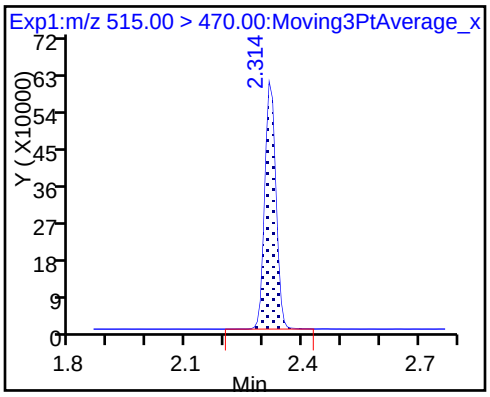
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.314
Y (X10000)
72
63
54
45
36
27
18
9
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

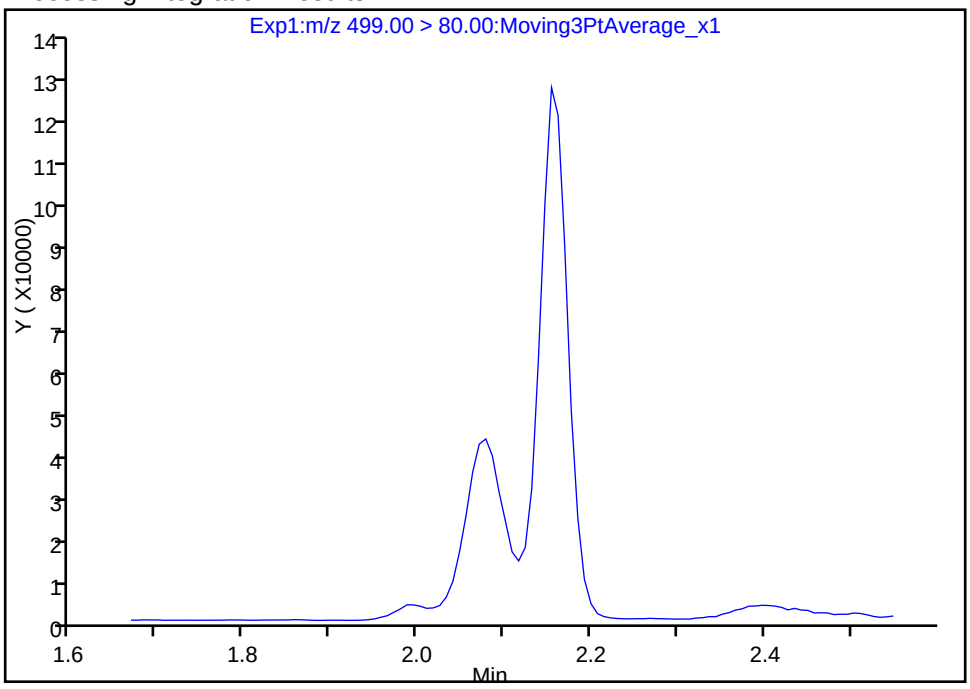
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_004.d				
Injection Date:	03-Nov-2017 13:37:59	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

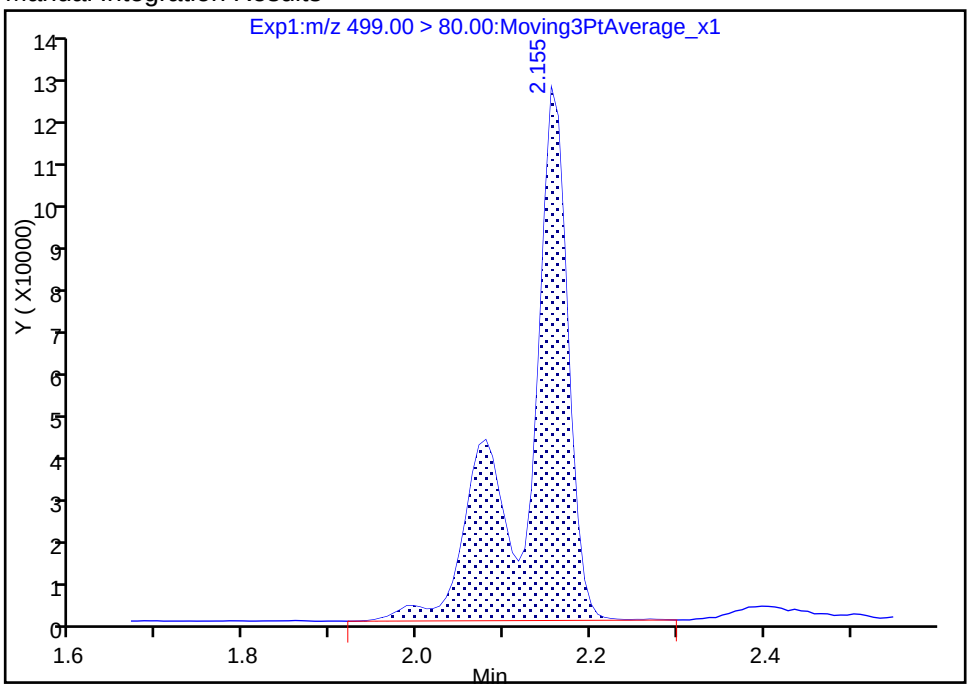
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 412315
Amount: 3.817687
Amount Units: ng/ml



Reviewer: phomsophat, 06-Nov-2017 07:17:28
Audit Action: Assigned Compound ID Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

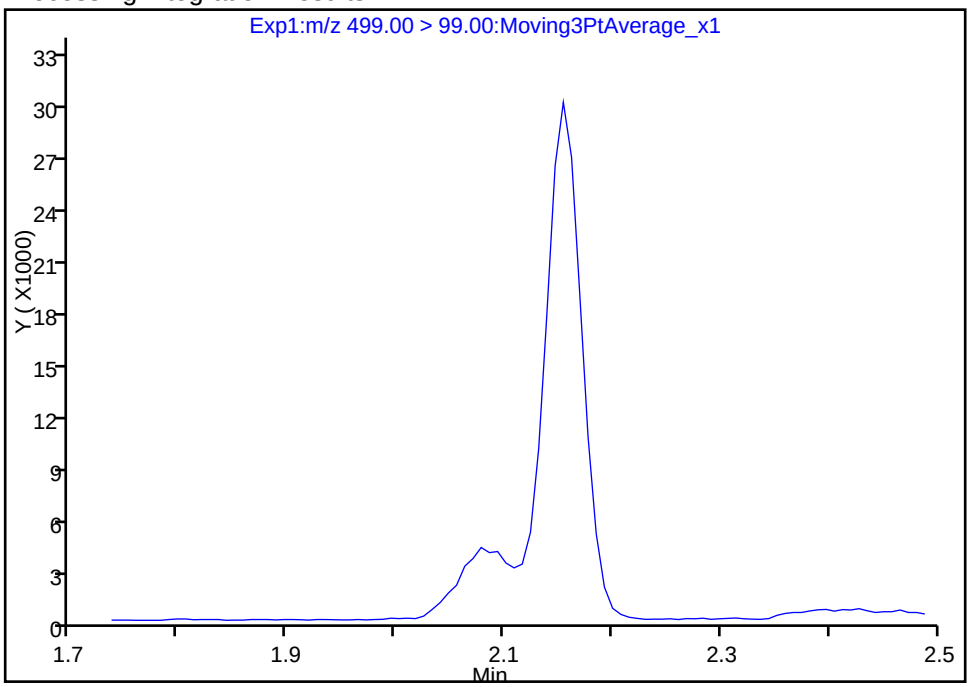
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_004.d
Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

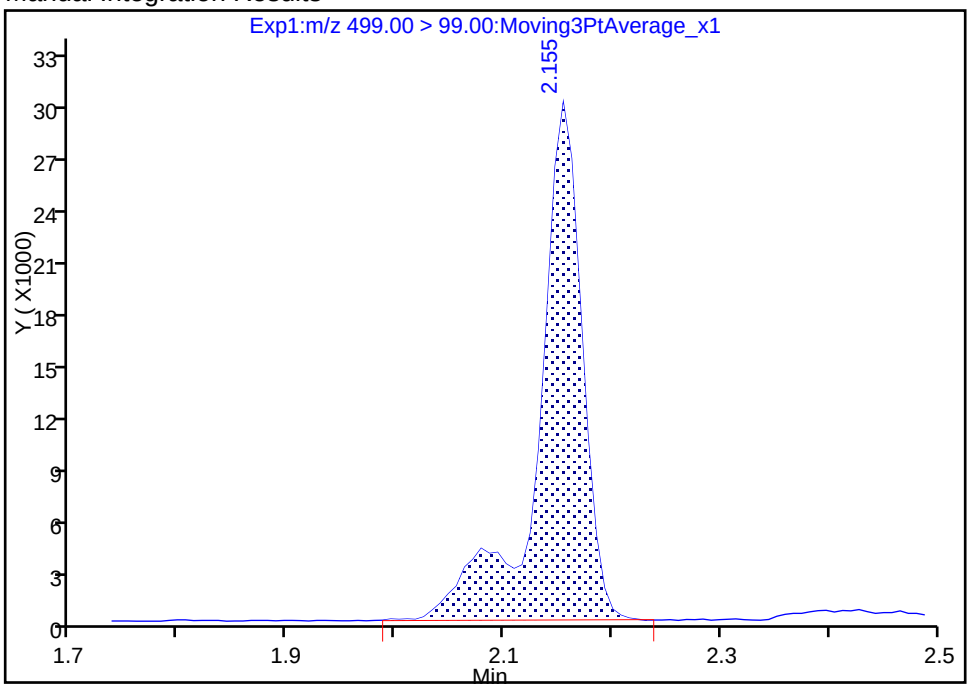
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 85347
Amount: 3.817687
Amount Units: ng/ml



Reviewer: phomsophat, 06-Nov-2017 07:17:37
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

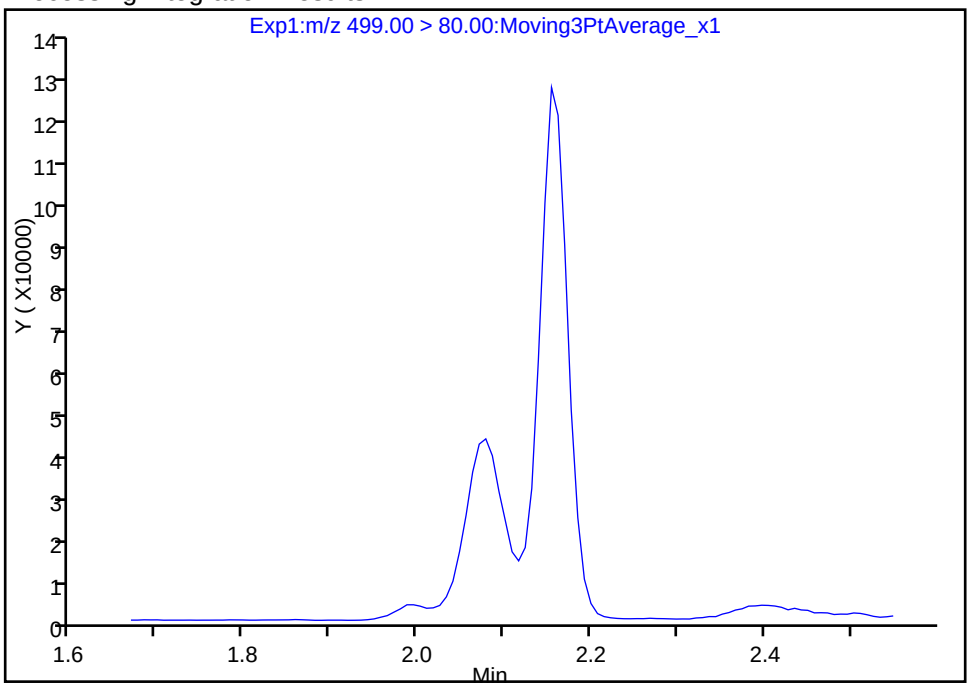
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_004.d
Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

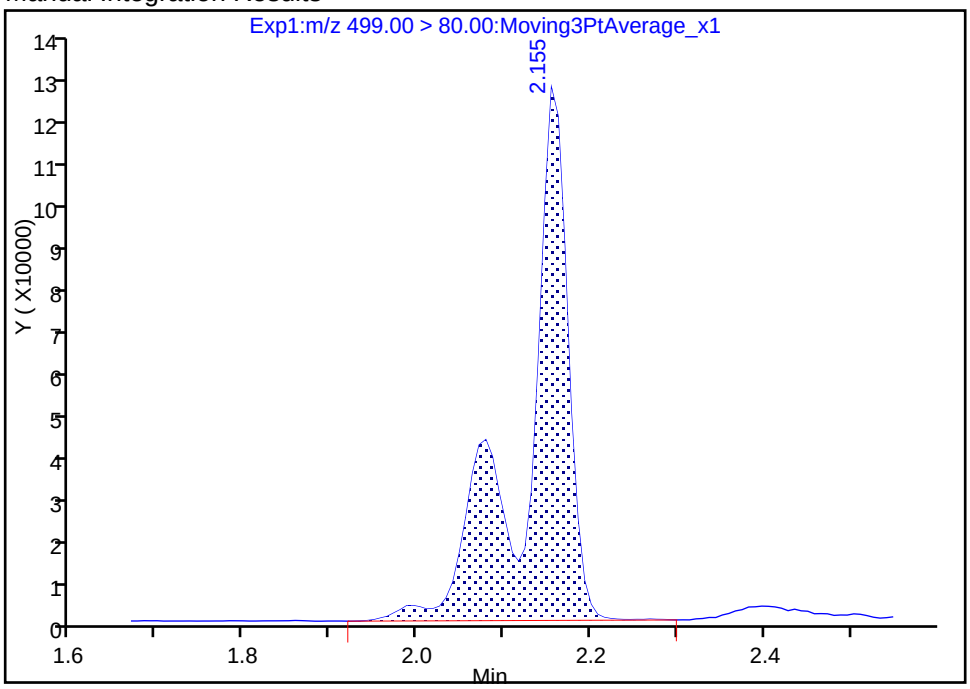
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 412315
Amount: 3.817687
Amount Units: ng/ml



Reviewer: phomsophat, 06-Nov-2017 07:17:37
Audit Action: Manually Integrated Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
Lims ID: IC L2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 03-Nov-2017 13:42:39 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\20171106-49975.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Nov-2017 15:52:08 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:18:56

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.444	0.005	1.000	2591121	19.8		1479	
298.90 > 99.00	1.442	1.444	-0.002	0.995	1874928		1.38(0.00-0.00)	4315	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.573	0.005	1.000	1708988	9.57		8562	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.725	0.005	1.000	331548	2.18		87.8	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.725	0.005	1.000	1312135	6.51		2317	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.913	0.007		1623614	10.0		6970	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.920	1.914	0.006	1.000	644149	4.29		113	
413.00 > 169.00	1.920	1.914	0.006	1.000	329479		1.96(0.00-0.00)	459	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.155	2.147	0.008	1.000	985487	8.72		578	M
499.00 > 99.00	2.155	2.147	0.008	1.000	200739		4.91(0.00-0.00)	449	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.151	0.004		3450592	28.7		5334	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.158	0.004	1.000	453612	4.21		136	
$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.312	0.002	1.000	1184358	9.53		7573	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00020 Amount Added: 1.00 Units: mL

Report Date: 07-Nov-2017 15:52:08 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d

Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N

Lims ID: IC L2

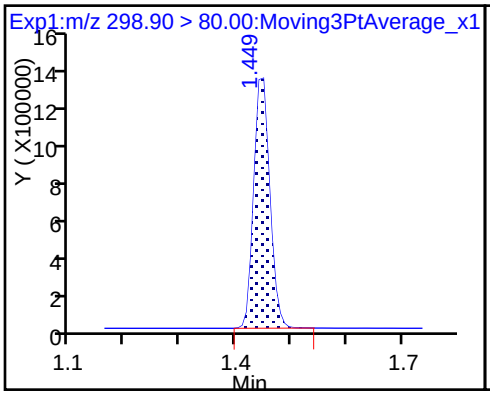
Client ID:

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

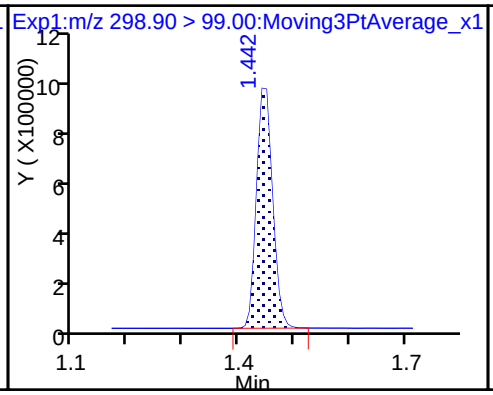
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

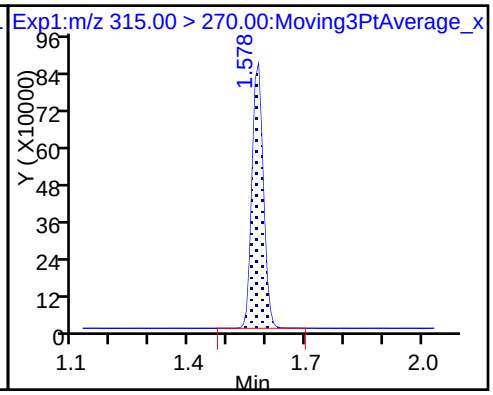
1 Perfluorobutanesulfonic acid



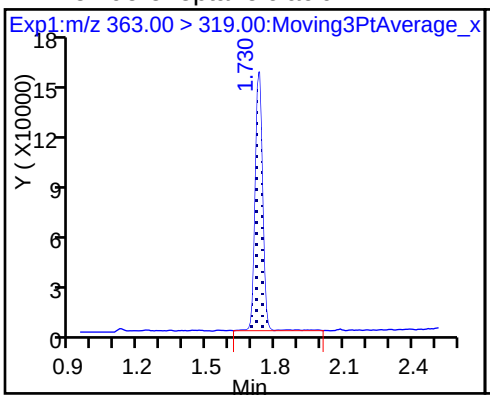
1 Perfluorobutanesulfonic acid



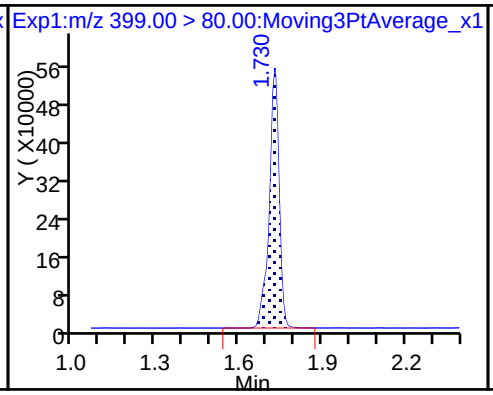
$ 2 13C2 PFHxA



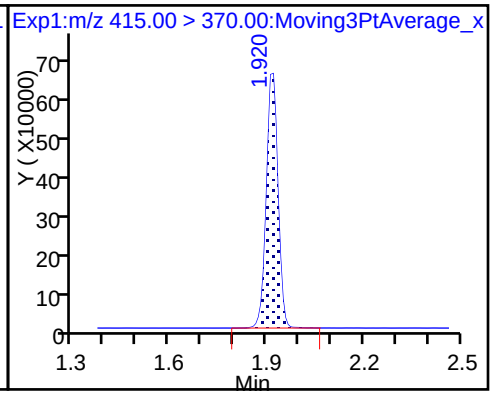
4 Perfluoroheptanoic acid



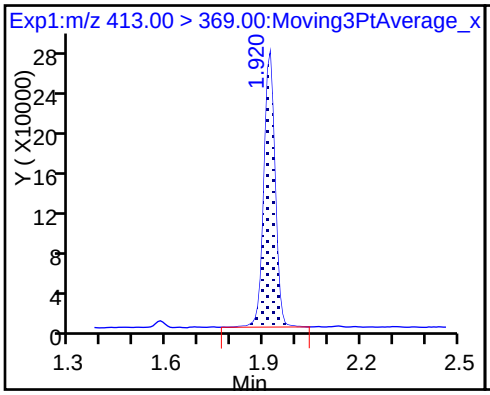
3 Perfluorohexanesulfonic acid



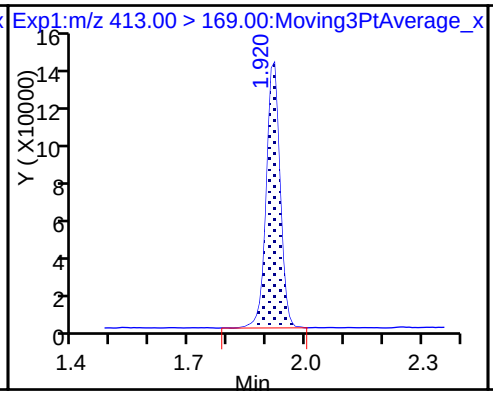
* 6 13C2-PFOA



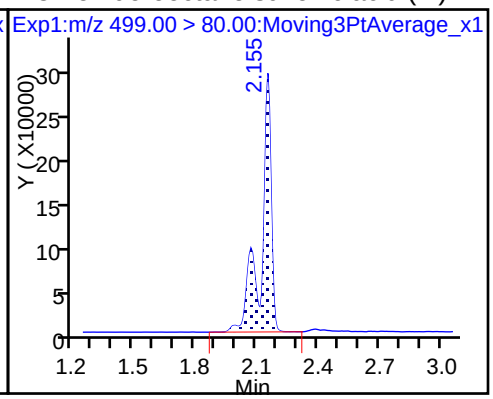
5 Perfluorooctanoic acid



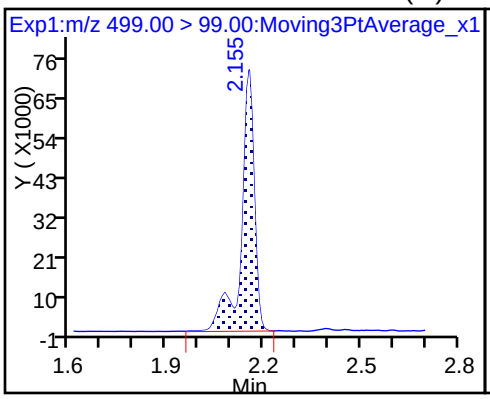
5 Perfluorooctanoic acid



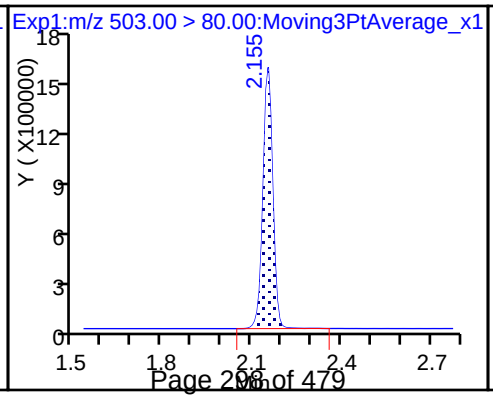
8 Perfluorooctane sulfonic acid (M)



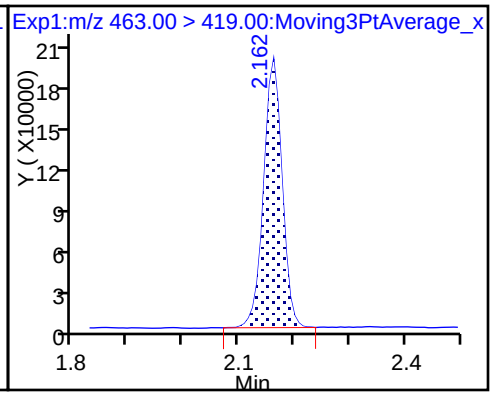
8 Perfluorooctane sulfonic acid (M)



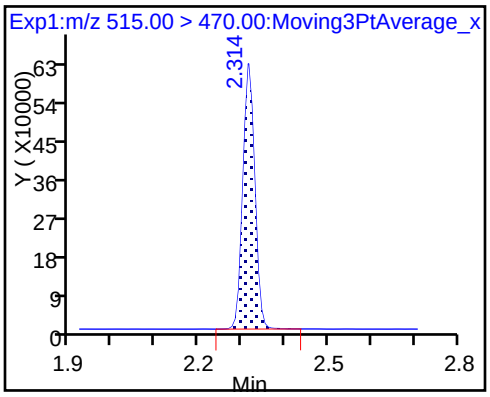
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.314
Y (X10000)
63
54
45
36
27
18
9
0
1.9
2.2
2.5
2.8
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

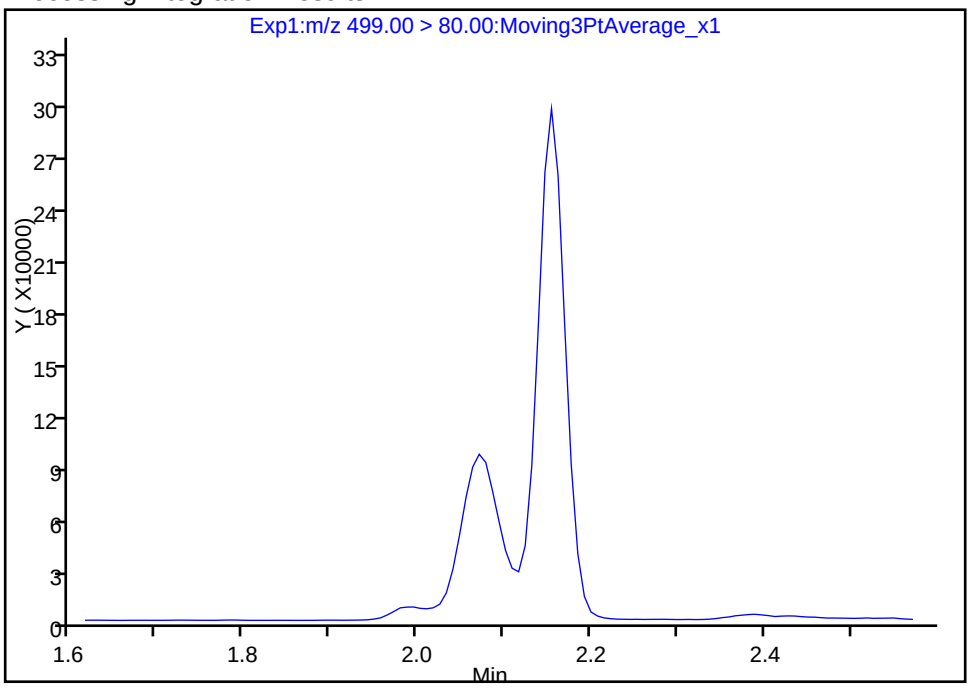
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d				
Injection Date:	03-Nov-2017 13:42:39	Instrument ID:	A8_N		
Lims ID:	IC L2				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

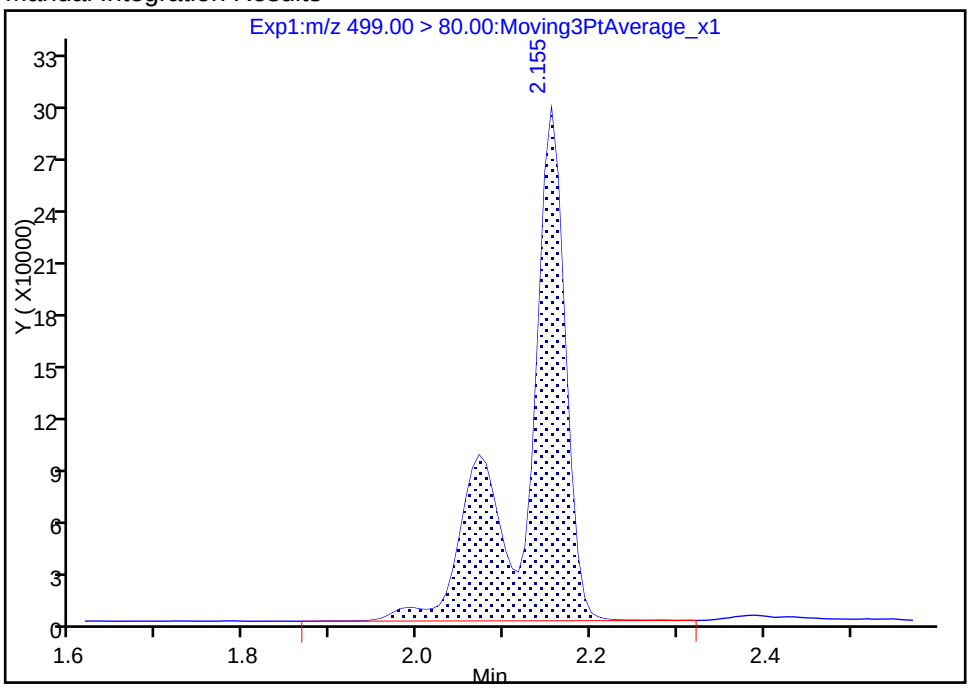
Processing Integration Results

Not Detected
Expected RT: 2.15



Manual Integration Results

RT: 2.15
Area: 985487
Amount: 8.723576
Amount Units: ng/ml



Reviewer: phomsophat, 06-Nov-2017 07:18:13
Audit Action: Assigned Compound ID Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

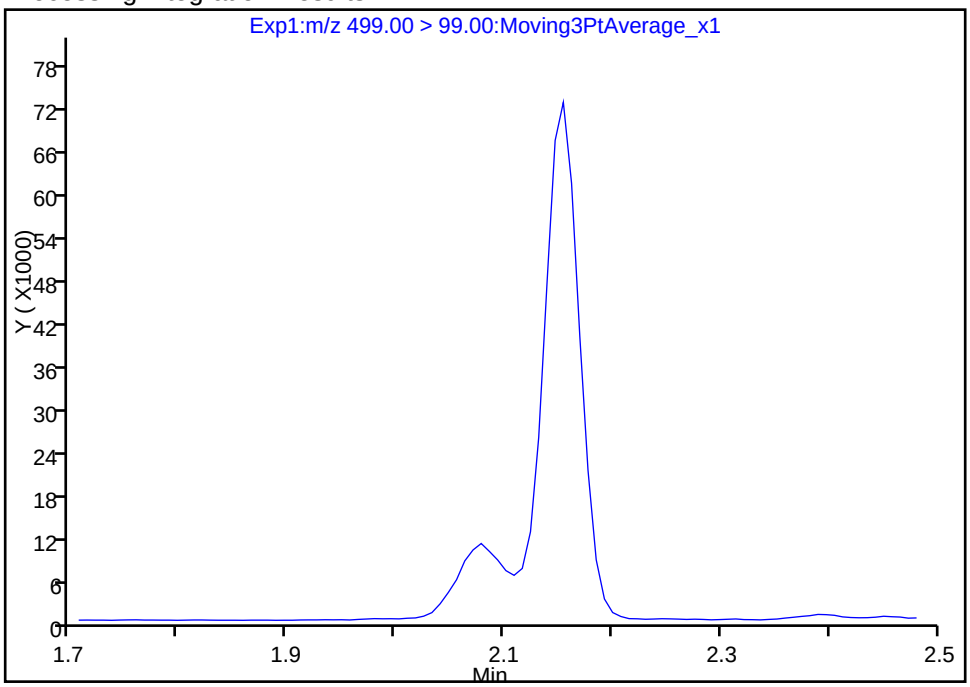
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

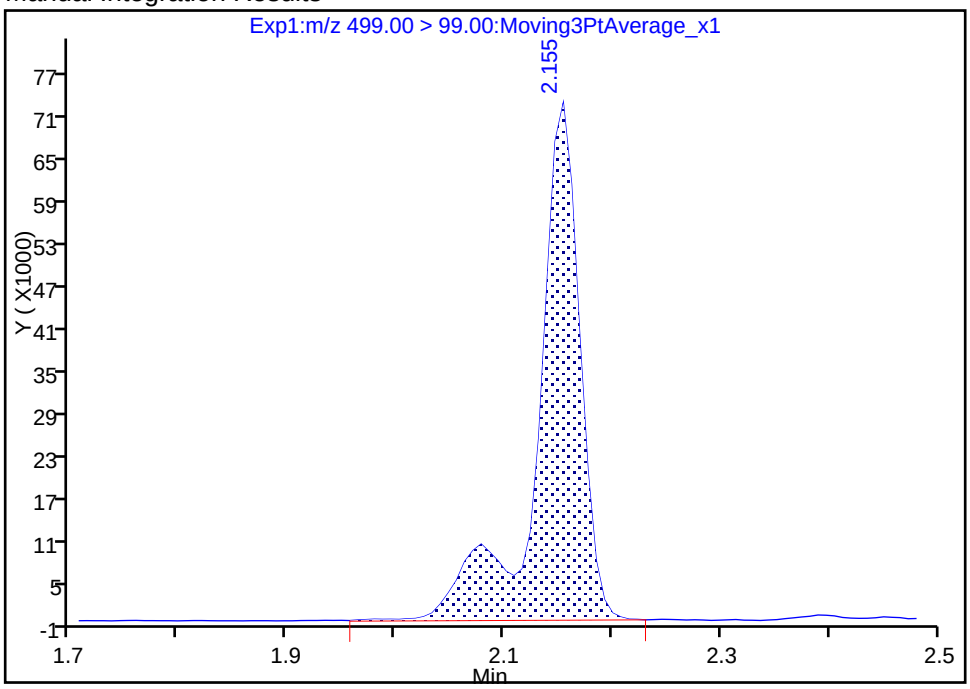
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 200739
Amount: 8.723576
Amount Units: ng/ml



Reviewer: phomsophat, 06-Nov-2017 07:18:24
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

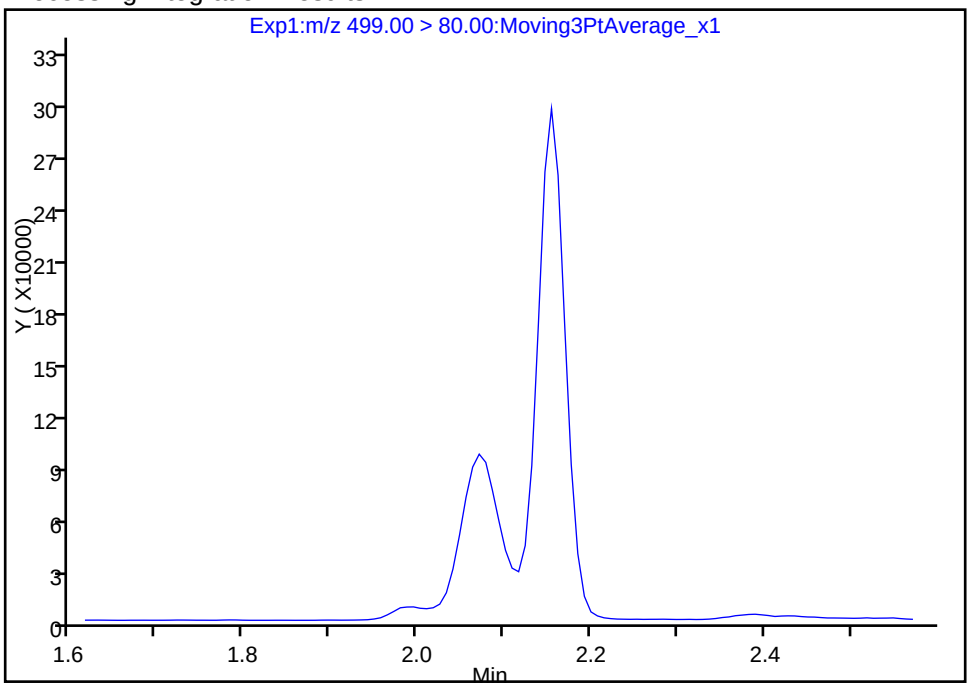
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

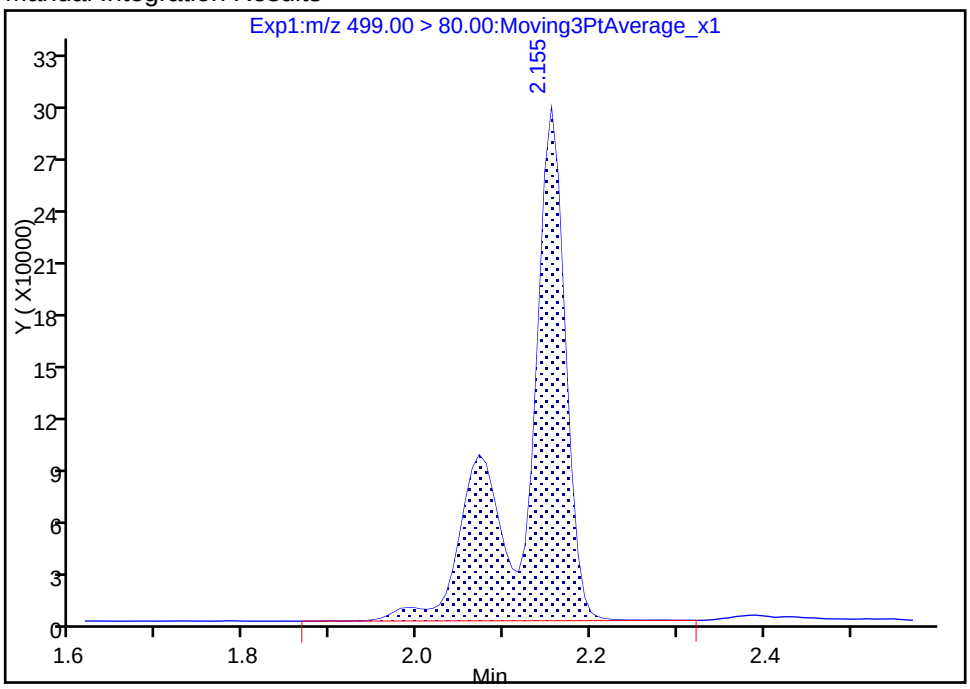
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 985487
Amount: 8.723576
Amount Units: ng/ml



Reviewer: phomsophat, 06-Nov-2017 07:18:24
Audit Action: Manually Integrated Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_006.d
Lims ID: IC L3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 03-Nov-2017 13:47:20 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\20171106-49975.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Nov-2017 15:52:09 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:20:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.444	-0.002	1.000	5461974	46.7		3220	
298.90 > 99.00	1.442	1.444	-0.002	1.000	3903438		1.40(0.00-0.00)	8589	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.573	-0.003	1.000	1701491	10.0		9021	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.725	-0.003	1.000	2908204	15.6		5000	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.725	-0.003	1.000	736034	5.10		208	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.913	-0.001		1540946	10.0		6787	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.914	-0.002	1.000	1388033	9.73		256	
413.00 > 169.00	1.912	1.914	-0.002	1.000	715399		1.94(0.00-0.00)	904	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.147	0.0	1.000	2067792	19.8		2001	
499.00 > 99.00	2.147	2.147	0.0	1.000	431075		4.80(0.00-0.00)	922	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.151	-0.004		3194016	28.7		4956	
9 Perfluorononanoic acid									
463.00 > 419.00	2.155	2.158	-0.003	1.000	1020851	9.97		302	
$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.312	-0.006	1.000	1166275	9.89		6310	

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

Report Date: 07-Nov-2017 15:52:09 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_006.d

Injection Date: 03-Nov-2017 13:47:20 Instrument ID: A8_N

Lims ID: IC L3

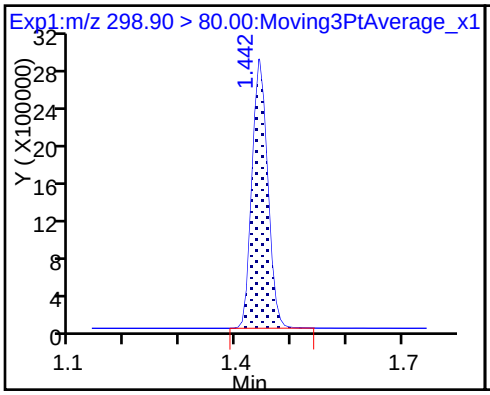
Client ID:

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

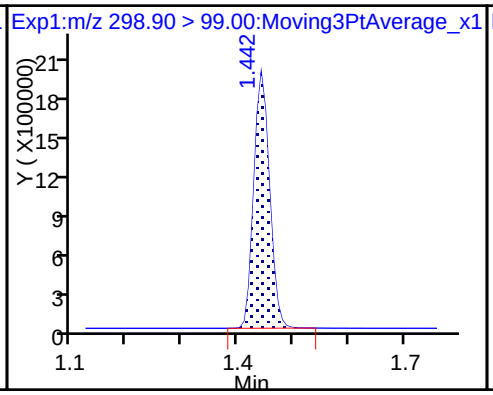
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

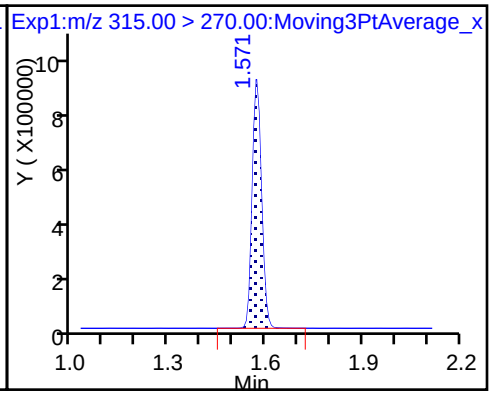
1 Perfluorobutanesulfonic acid



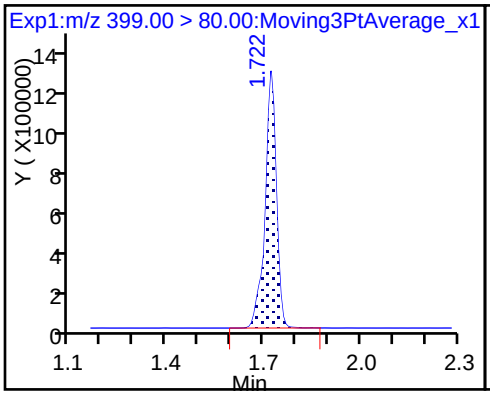
1 Perfluorobutanesulfonic acid



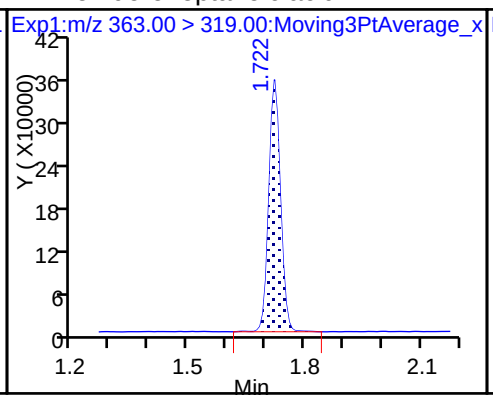
$ 2 13C2 PFHxA



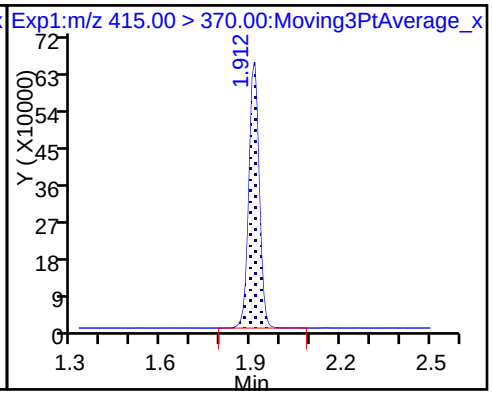
3 Perfluorohexanesulfonic acid



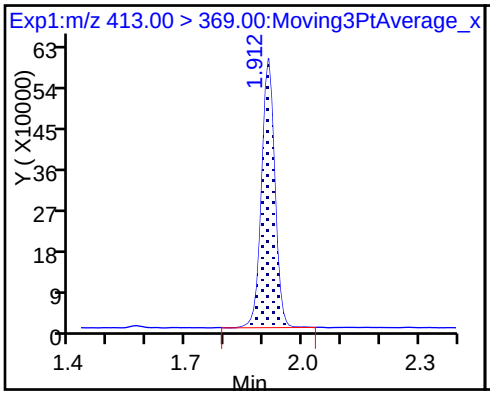
4 Perfluoroheptanoic acid



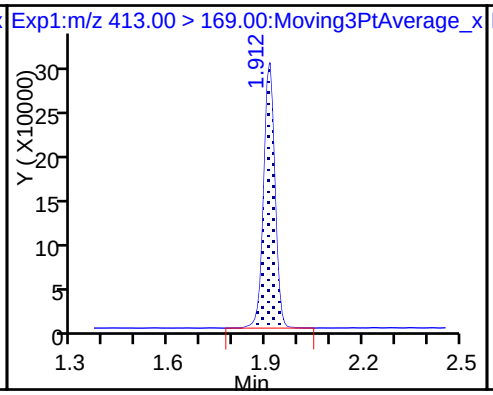
* 6 13C2-PFOA



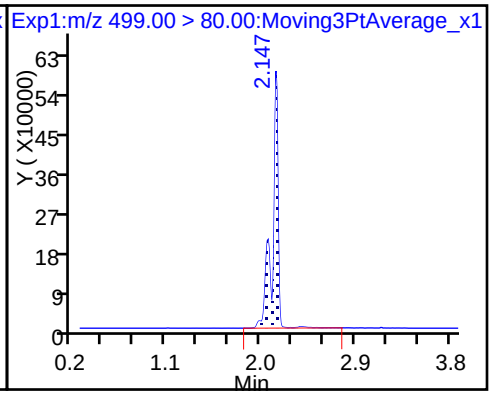
5 Perfluorooctanoic acid



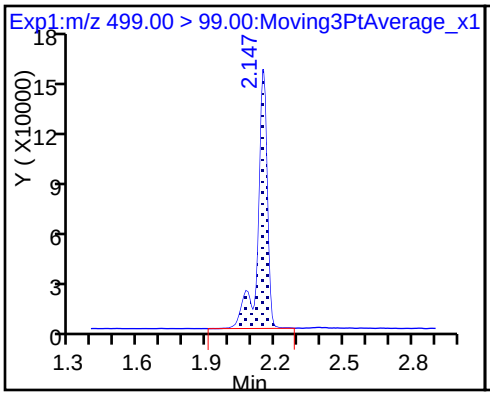
5 Perfluorooctanoic acid



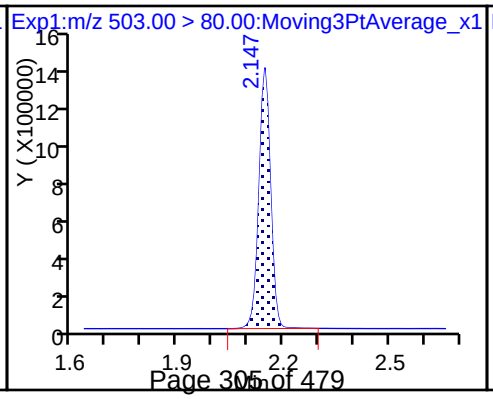
8 Perfluorooctane sulfonic acid



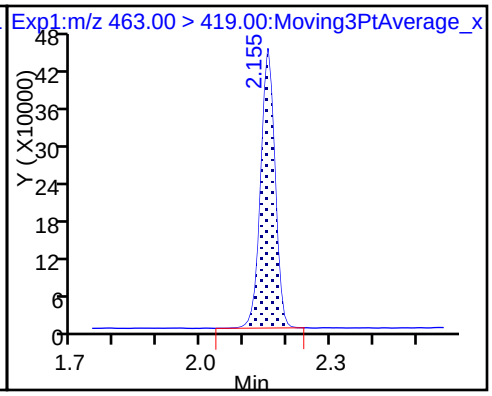
8 Perfluorooctane sulfonic acid



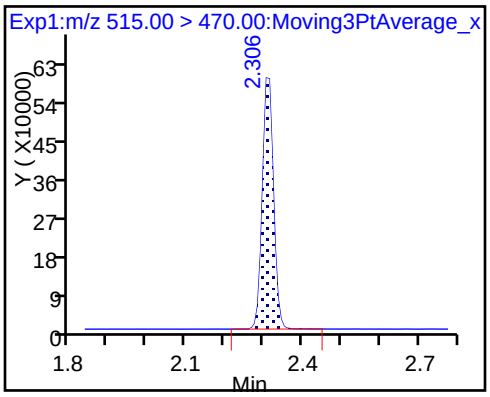
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.306
Y (X10000)
63
54
45
36
27
18
9
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
Lims ID: IC L4
Client ID:
Sample Type: ICISAV Calib Level: 4
Inject. Date: 03-Nov-2017 13:52:00 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\20171106-49975.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Nov-2017 15:52:10 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:20:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.444	-0.002	1.000	10142530	87.2		5274	
298.90 > 99.00	1.442	1.444	-0.002	1.000	7408390		1.37(0.00-0.00)	12862	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.573	-0.003	1.000	1719911	10.1		8503	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.725	-0.003	1.000	1420703	9.81		399	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.725	-0.003	1.000	5871843	29.8		7622	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.913	-0.001		1546307	10.0		6563	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.914	-0.002	1.000	2771271	19.4		505	
413.00 > 169.00	1.912	1.914	-0.002	1.000	1520933		1.82(0.00-0.00)	1919	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.155	2.147	0.008	1.000	4363079	39.5		3896	M
499.00 > 99.00	2.155	2.147	0.008	1.000	902486		4.83(0.00-0.00)	1588	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.151	0.004		3374600	28.7		5331	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.158	0.004	1.000	2106479	20.5		638	
$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.312	0.002	1.000	1207887	10.2		7165	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L4_00020 Amount Added: 1.00 Units: mL

Report Date: 07-Nov-2017 15:52:10 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d

Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N

Lims ID: IC L4

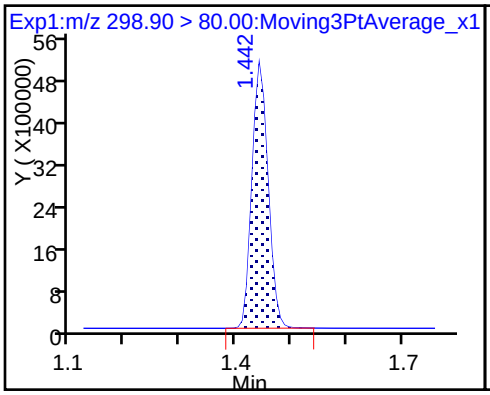
Client ID:

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

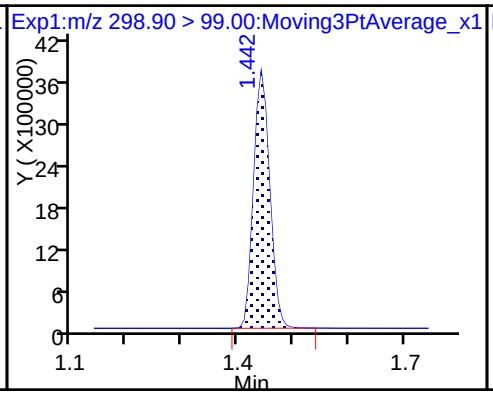
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

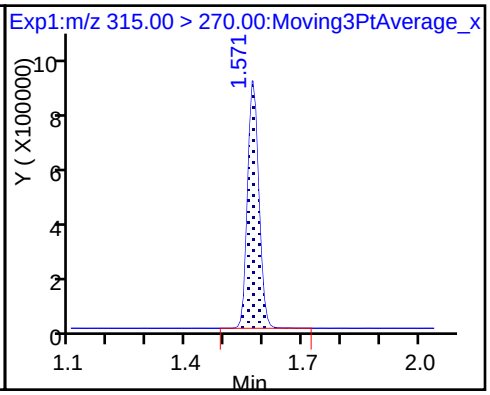
1 Perfluorobutanesulfonic acid



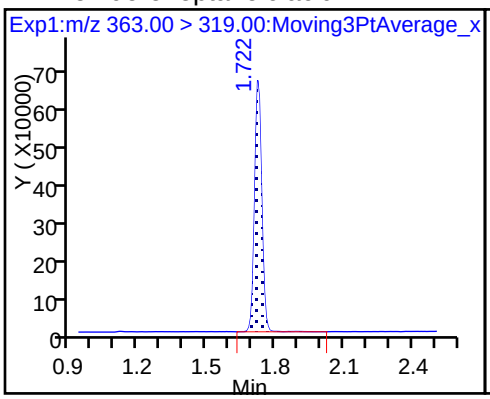
1 Perfluorobutanesulfonic acid



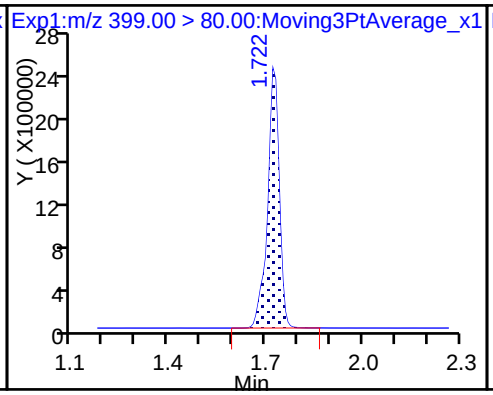
$ 2 13C2 PFHxA



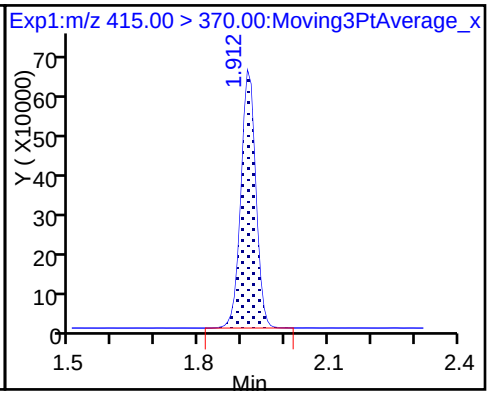
4 Perfluoroheptanoic acid



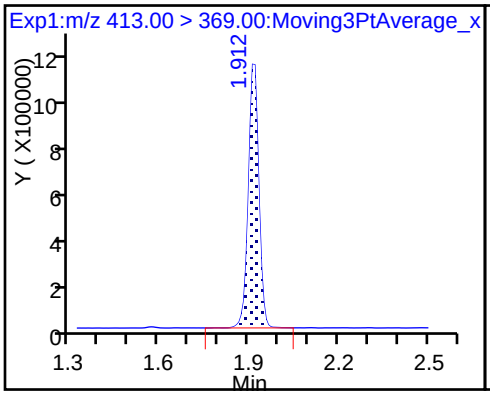
3 Perfluorohexanesulfonic acid



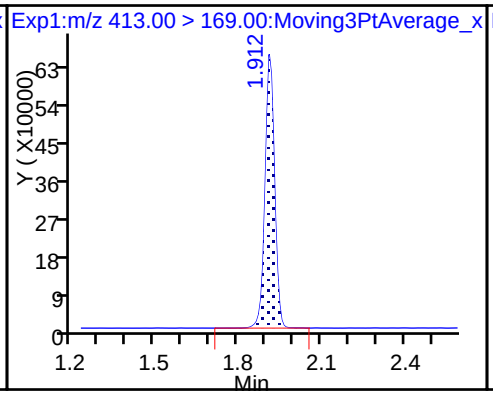
* 6 13C2-PFOA



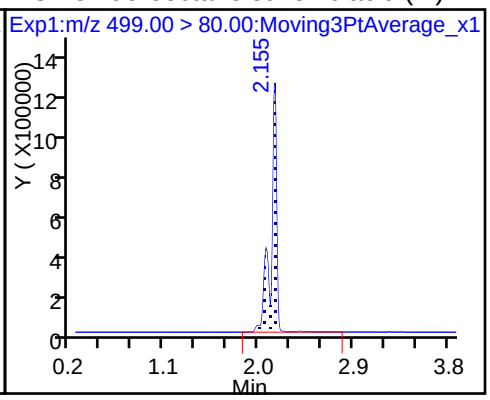
5 Perfluorooctanoic acid



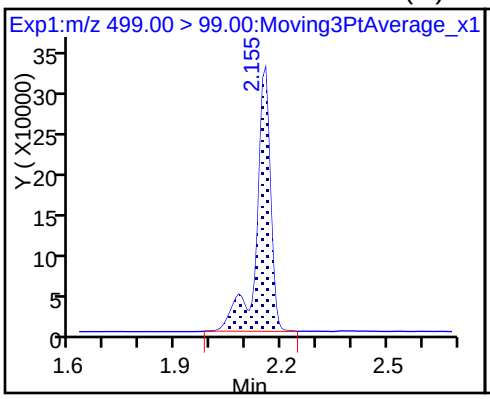
5 Perfluorooctanoic acid



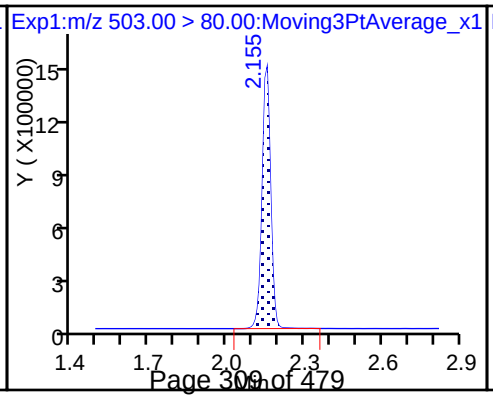
8 Perfluorooctane sulfonic acid (M)



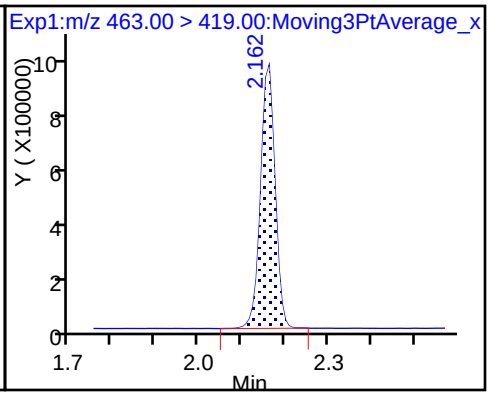
8 Perfluorooctane sulfonic acid (M)



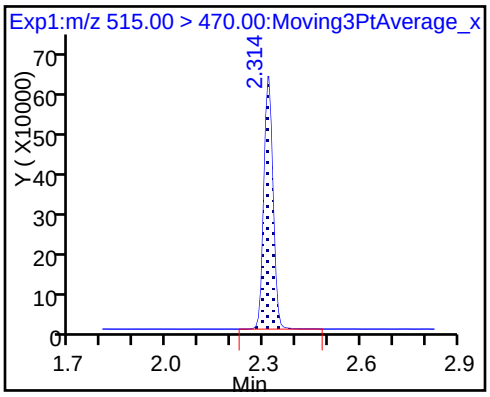
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.314
Y (X10000)
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
2.9
Min

TestAmerica Sacramento

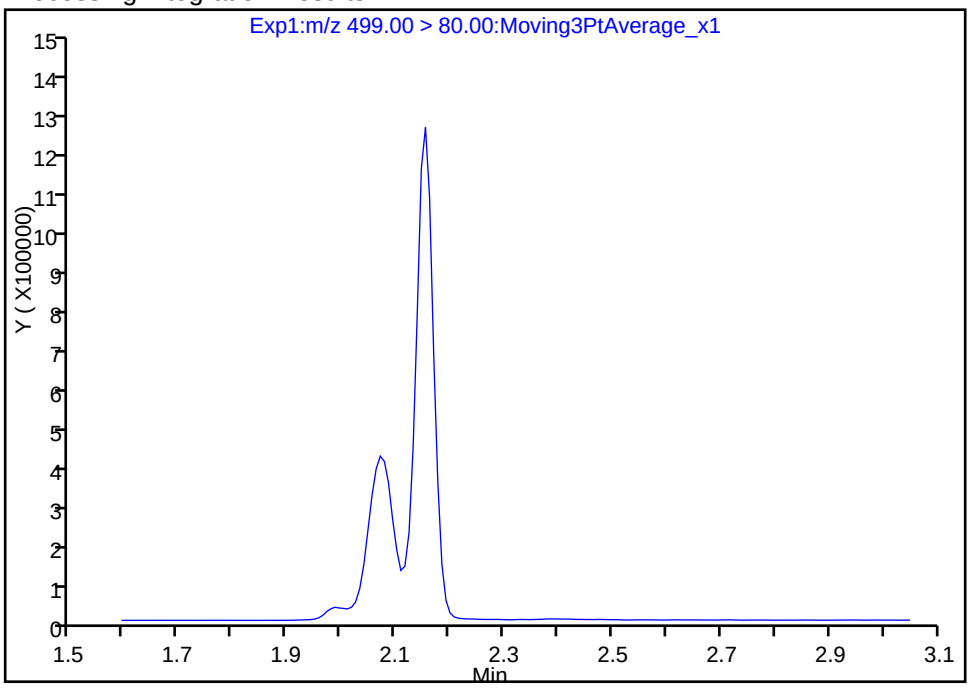
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

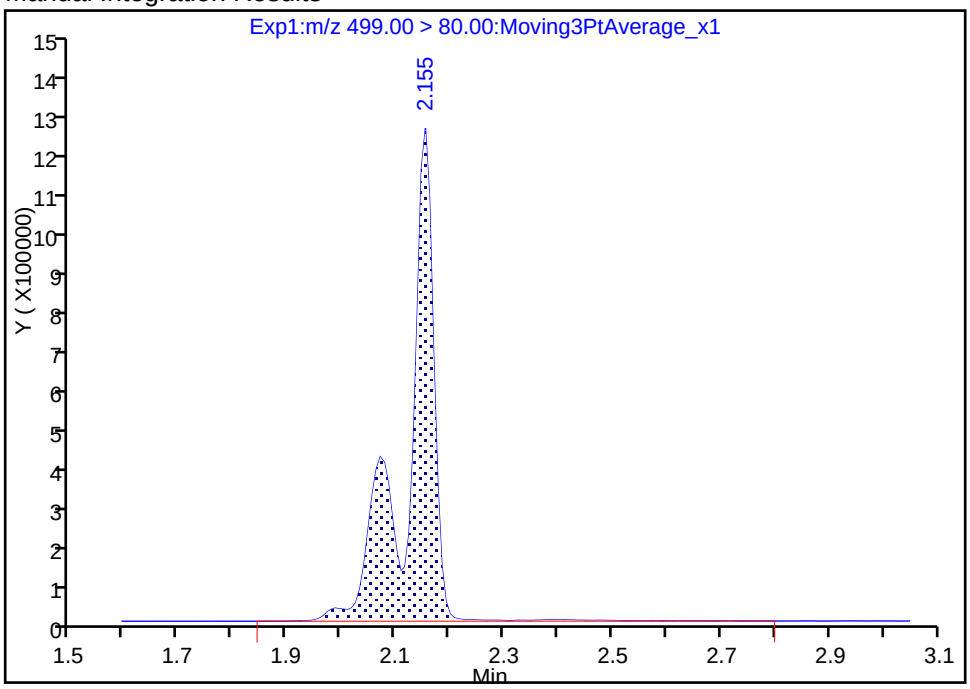
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 4363079
Amount: 39.491903
Amount Units: ng/ml



Reviewer: phomsophat, 06-Nov-2017 07:20:12
Audit Action: Assigned Compound ID Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

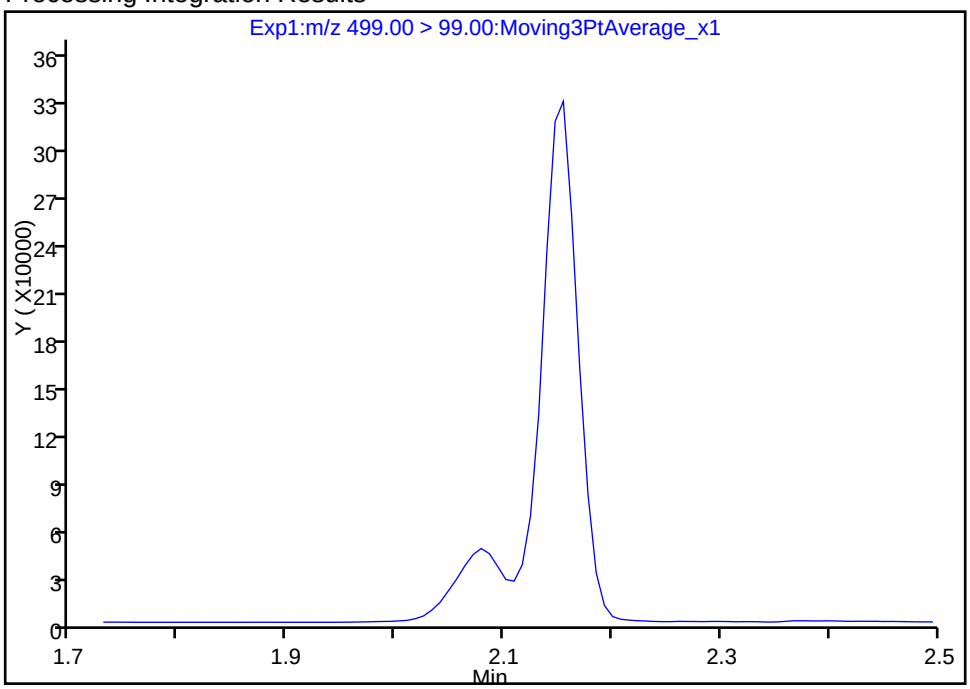
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

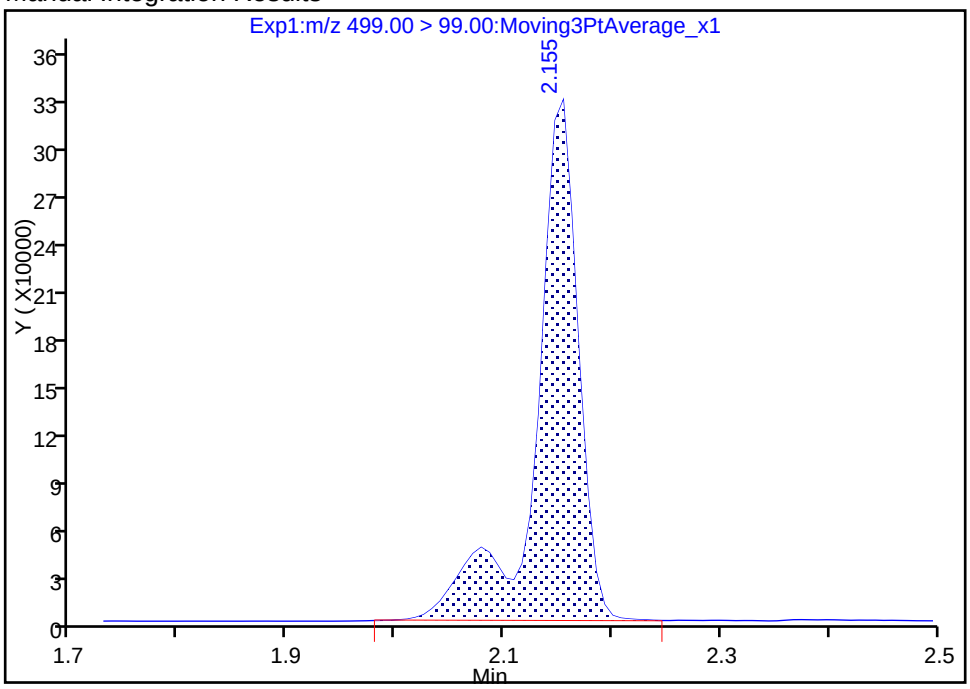
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 902486
Amount: 39.491903
Amount Units: ng/ml



Reviewer: phomsophat, 06-Nov-2017 07:20:20
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

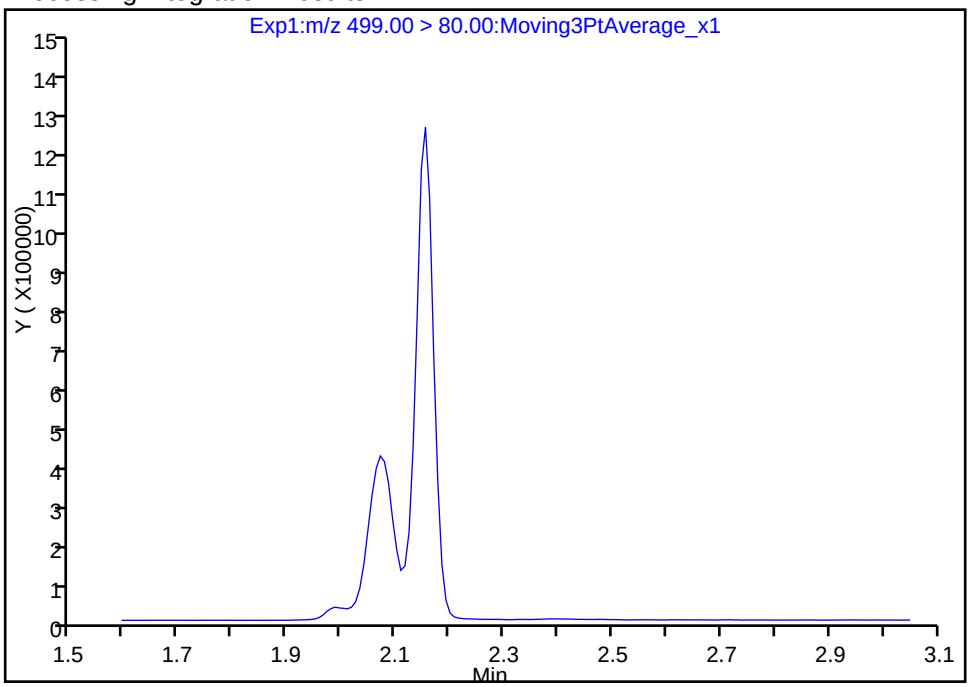
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

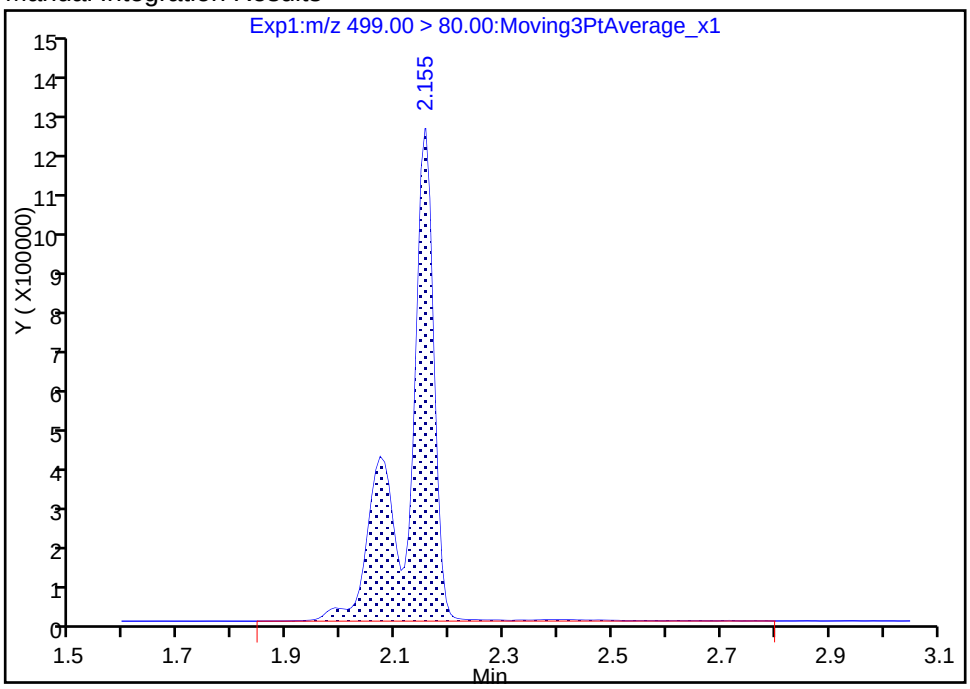
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 4363079
Amount: 39.491903
Amount Units: ng/ml



Reviewer: phomsophat, 06-Nov-2017 07:20:20
Audit Action: Manually Integrated Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_008.d
Lims ID: IC L5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 03-Nov-2017 13:56:41 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\20171106-49975.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Nov-2017 15:52:11 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:21:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.444	-0.002	1.000	14011858	137.5		6452	
298.90 > 99.00	1.442	1.444	-0.002	1.000	10411479		1.35(0.00-0.00)	14800	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.573	-0.003	1.000	1675220	9.79		9525	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.725	-0.003	1.000	8413133	45.0		9078	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.725	-0.003	1.000	2102676	14.4		562	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.913	-0.001		1555174	10.0		6769	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.914	-0.002	1.000	4257225	29.6		800	
413.00 > 169.00	1.912	1.914	-0.002	1.000	2294552		1.86(0.00-0.00)	2838	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.147	0.0	1.000	6504279	62.1		5682	
499.00 > 99.00	2.147	2.147	0.0	1.000	1339120		4.86(0.00-0.00)	2329	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.151	-0.004		3199479	28.7		4946	
9 Perfluorononanoic acid									
463.00 > 419.00	2.155	2.158	-0.003	1.000	3023088	29.3		870	
$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.312	0.002	1.000	1139992	9.58		5885	

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 07-Nov-2017 15:52:11 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_008.d

Injection Date: 03-Nov-2017 13:56:41 Instrument ID: A8_N

Lims ID: IC L5

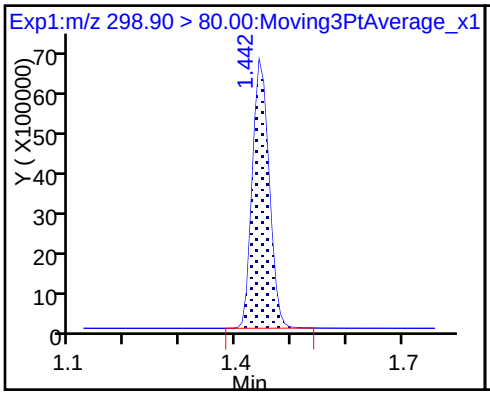
Client ID:

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

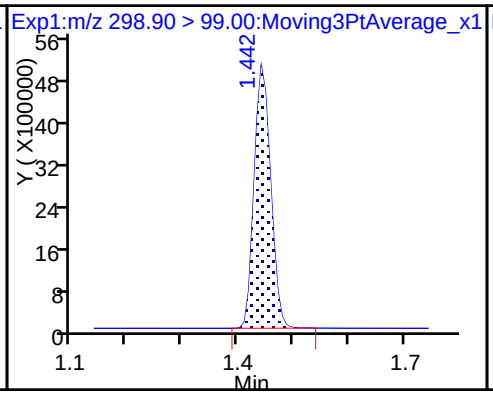
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

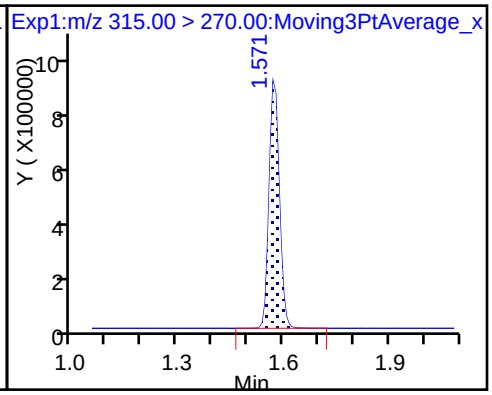
1 Perfluorobutanesulfonic acid



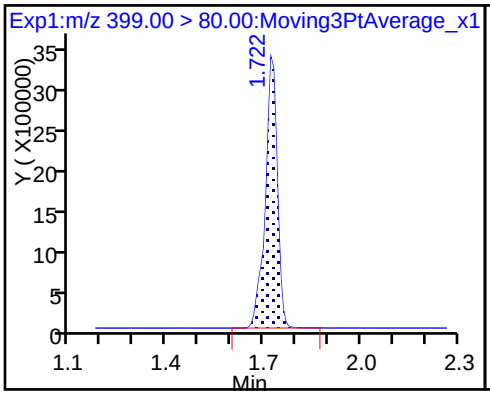
1 Perfluorobutanesulfonic acid



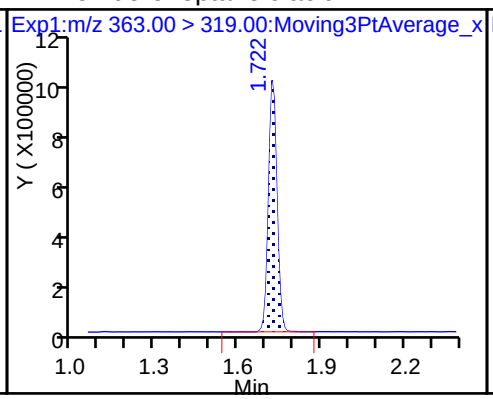
$ 2 13C2 PFHxA



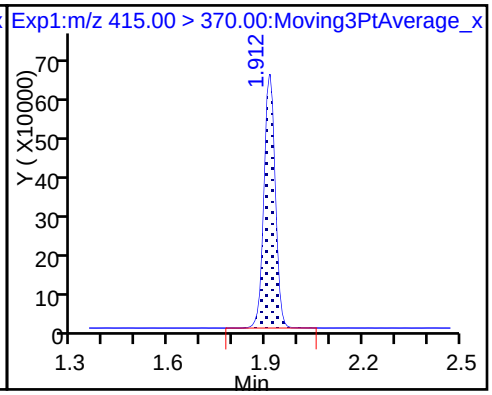
3 Perfluorohexanesulfonic acid



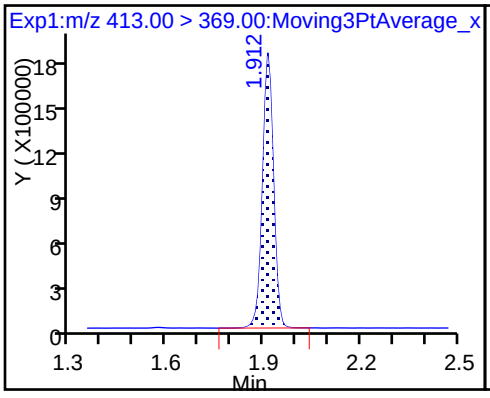
4 Perfluoroheptanoic acid



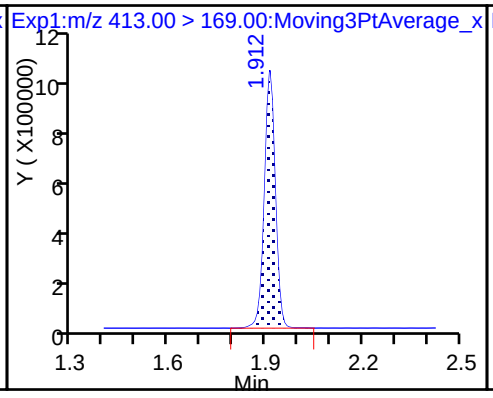
* 6 13C2-PFOA



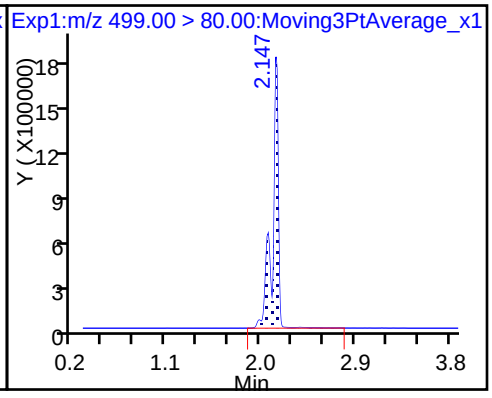
5 Perfluorooctanoic acid



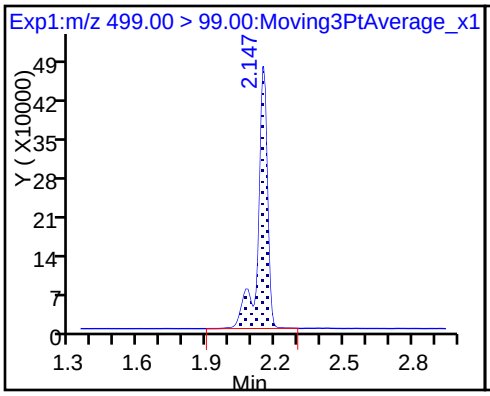
5 Perfluorooctanoic acid



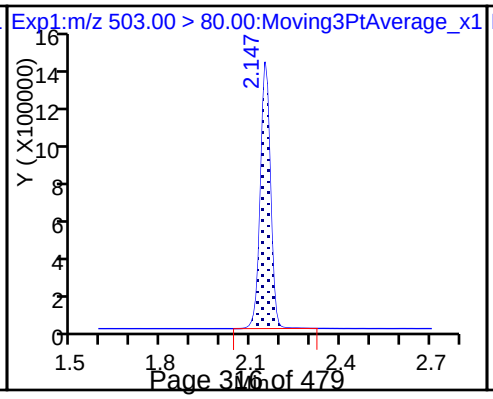
8 Perfluorooctane sulfonic acid



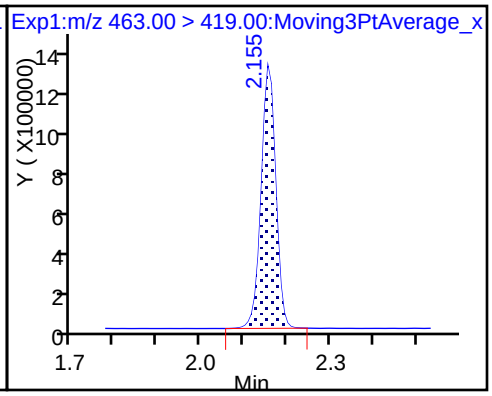
8 Perfluorooctane sulfonic acid



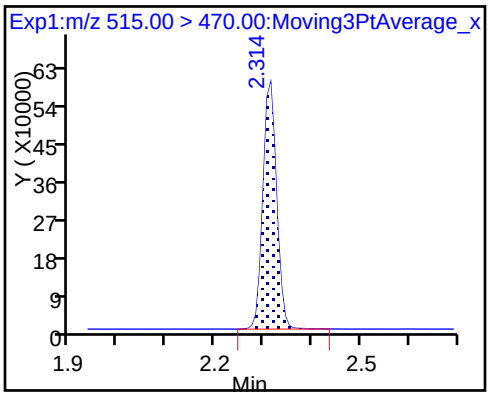
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.314
Y (X10000)
63
54
45
36
27
18
9
0
1.9
2.2
2.5
Min

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
Lims ID: IC L6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 03-Nov-2017 14:01:24 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\20171106-49975.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Nov-2017 15:52:12 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:25:41

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.444	-0.002	1.000	16699152	179.1		7089	
298.90 > 99.00	1.442	1.444	-0.002	1.000	12929978		1.29(0.00-0.00)	15608	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.573	-0.003	1.000	1664260	10.6		9116	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.725	-0.003	1.000	2810797	21.0		763	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.725	-0.003	1.000	11071993	60.4		10884	
* 6 13C2-PFOA									
415.00 > 370.00	1.904	1.913	-0.009		1426806	10.0		5446	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.914	-0.002	1.000	5597122	42.4		962	
413.00 > 169.00	1.904	1.914	-0.010	0.996	3028676		1.85(0.00-0.00)	3704	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.147	0.0	1.000	8679676	84.4		6114	
499.00 > 99.00	2.147	2.147	0.0	1.000	1807143		4.80(0.00-0.00)	2991	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.151	-0.004		3141787	28.7		4961	
9 Perfluorononanoic acid									
463.00 > 419.00	2.155	2.158	-0.003	1.000	4019666	42.4		1149	
$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.312	-0.006	1.000	1164156	10.7		6124	

Reagents:

LC537-L6_00020 Amount Added: 1.00 Units: mL

Report Date: 07-Nov-2017 15:52:12 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Injection Date: 03-Nov-2017 14:01:24 Instrument ID: A8_N

Lims ID: IC L6

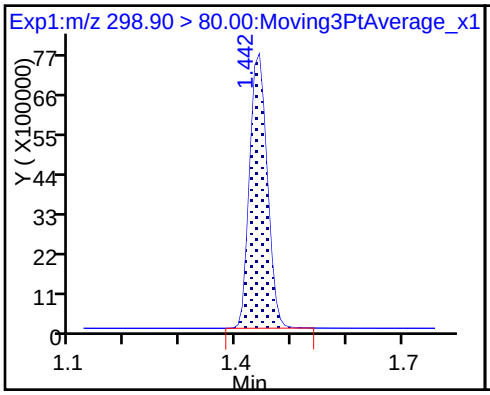
Client ID:

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

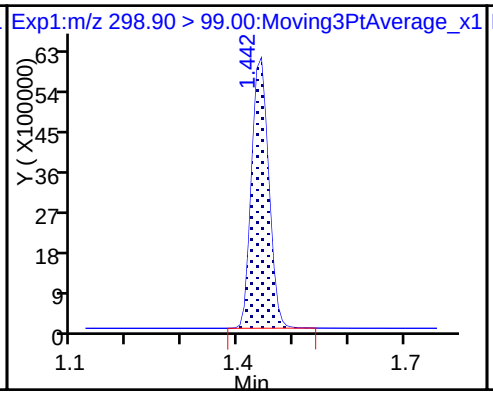
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

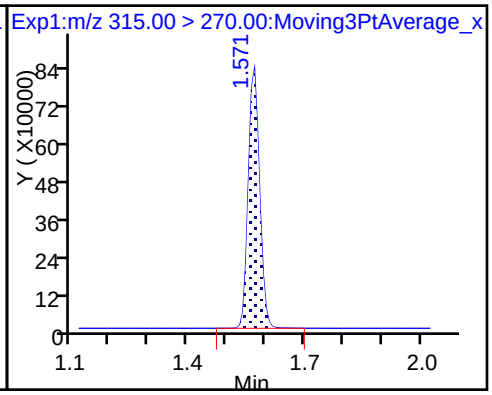
1 Perfluorobutanesulfonic acid



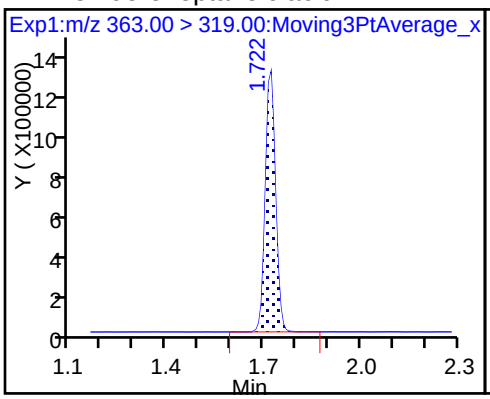
1 Perfluorobutanesulfonic acid



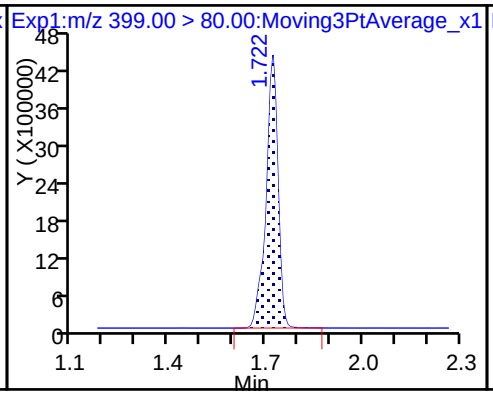
$ 2 13C2 PFHxA



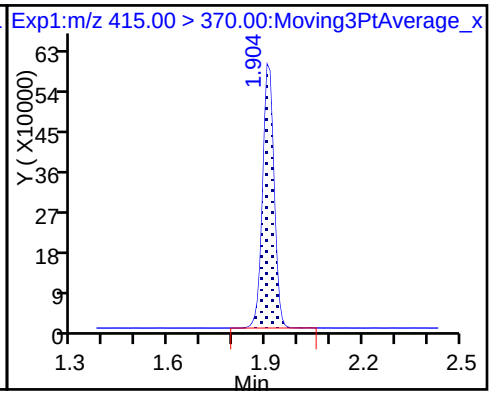
4 Perfluoroheptanoic acid



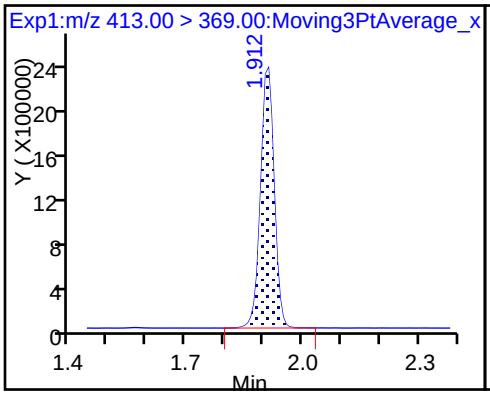
3 Perfluorohexanesulfonic acid



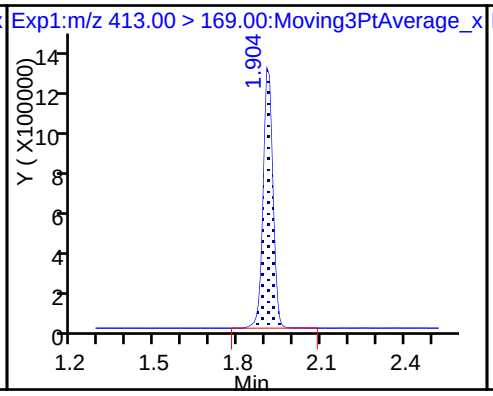
* 6 13C2-PFOA



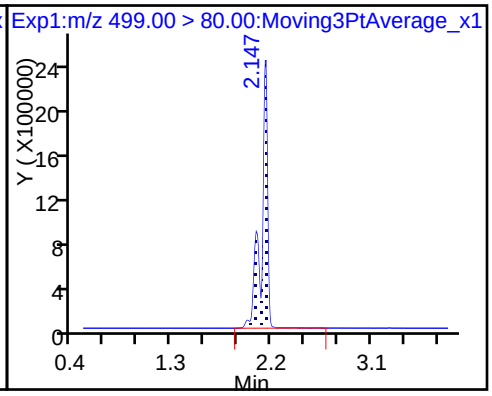
5 Perfluorooctanoic acid



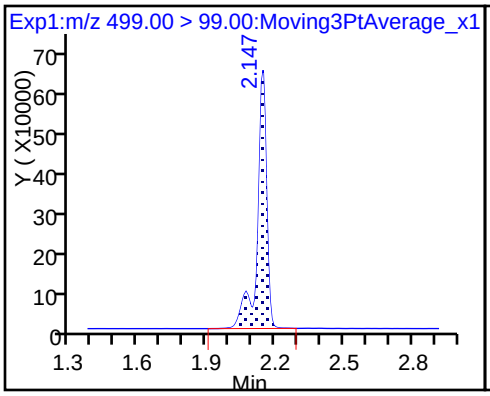
5 Perfluorooctanoic acid



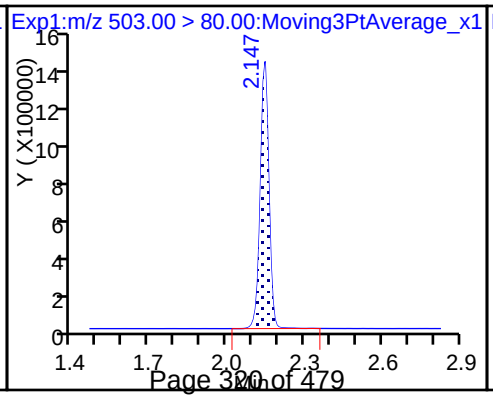
8 Perfluorooctane sulfonic acid



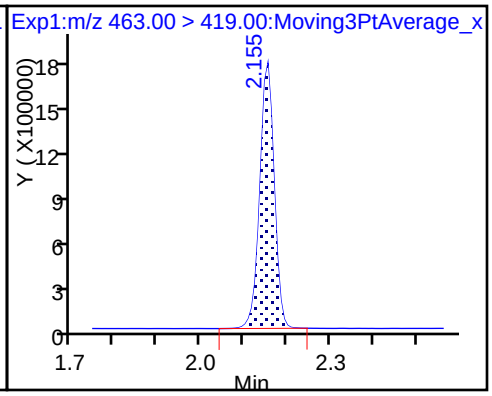
8 Perfluorooctane sulfonic acid



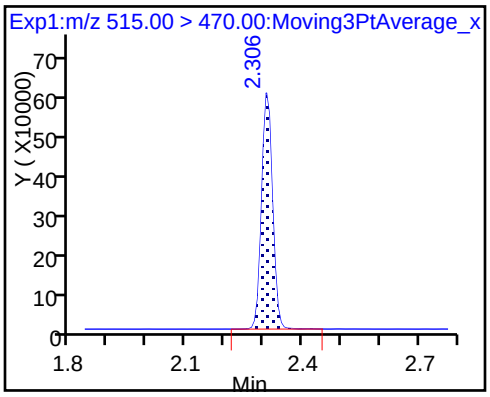
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.306
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCVL 320-192908/11 Calibration Date: 11/03/2017 14:10

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2017.11.03_537XICAL_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		1.109		20.4	20.0	1.9	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9382		2.23	2.22	0.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.688		6.72	6.67	0.8	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8825		4.24	4.45	-4.7	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9176		8.69	8.89	-2.3	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6625		4.43	4.45	-0.2	50.0
13C2 PFHxA	Ave	1.100	1.068		9.70	10.0	-3.0	30.0
13C2 PFDA	Ave	0.7652	0.7460		9.75	10.0	-2.5	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_011.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 03-Nov-2017 14:10:44 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\20171106-49975.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Nov-2017 15:39:07 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:26:29

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.444	0.005	1.000	2556738	20.4		1537	
298.90 > 99.00	1.449	1.444	0.005	1.000	1750170		1.46(0.00-0.00)	4023	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.573	0.005	1.000	1694196	9.70		8915	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.725	0.005	1.000	1297654	6.72		2410	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.725	0.005	1.000	330927	2.23		99.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.913	-0.001		1586829	10.0		6840	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.914	-0.002	1.000	622915	4.24		116	
413.00 > 169.00	1.912	1.914	-0.002	1.000	335080		1.86(0.00-0.00)	460	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	940397	8.69		528	
499.00 > 99.00	2.147	2.147	0.0	0.996	196397		4.79(0.00-0.00)	430	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.151	-0.004		3305852	28.7		5135	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.158	0.004	1.000	467323	4.43		143	
$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.312	0.002	1.000	1183747	9.75		6763	

Reagents:

LC537-L2_00020 Amount Added: 1.00 Units: mL

Report Date: 07-Nov-2017 15:39:08 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_011.d

Injection Date: 03-Nov-2017 14:10:44 Instrument ID: A8_N

Lims ID: CCVL

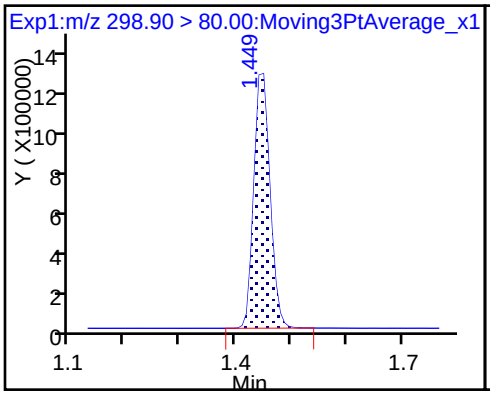
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11

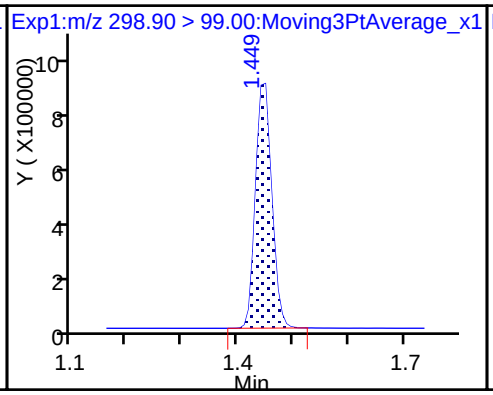
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

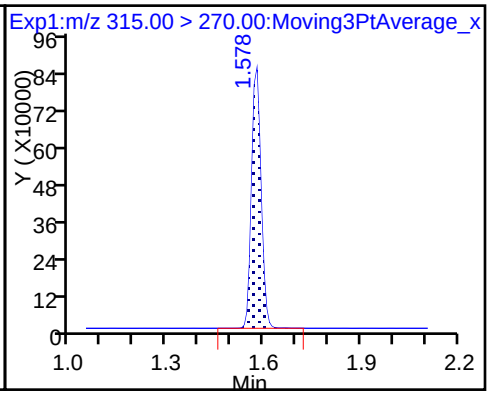
1 Perfluorobutanesulfonic acid



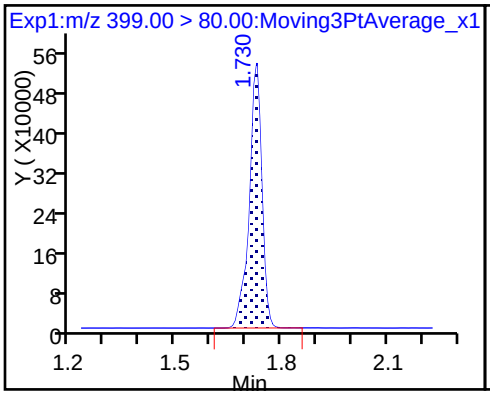
1 Perfluorobutanesulfonic acid



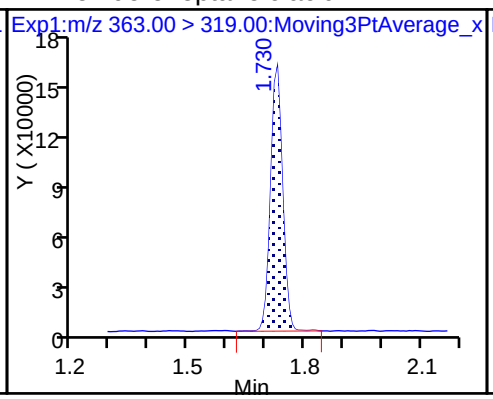
$ 2 13C2 PFHxA



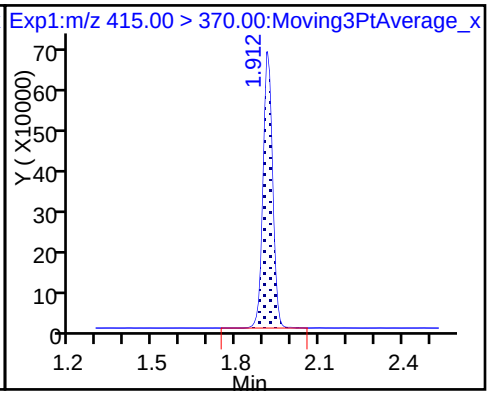
3 Perfluorohexanesulfonic acid



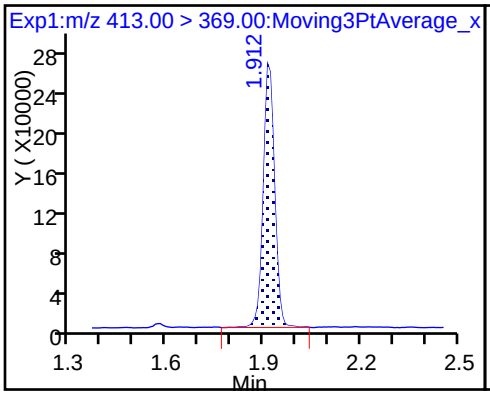
4 Perfluoroheptanoic acid



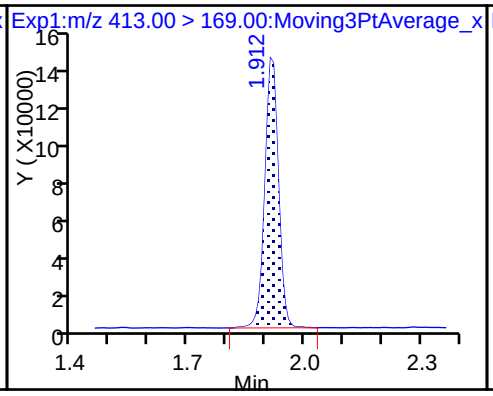
* 6 13C2-PFOA



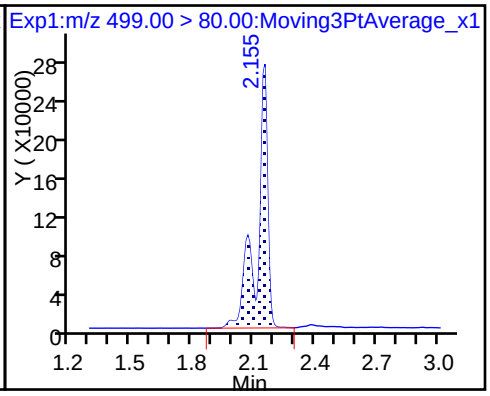
5 Perfluorooctanoic acid



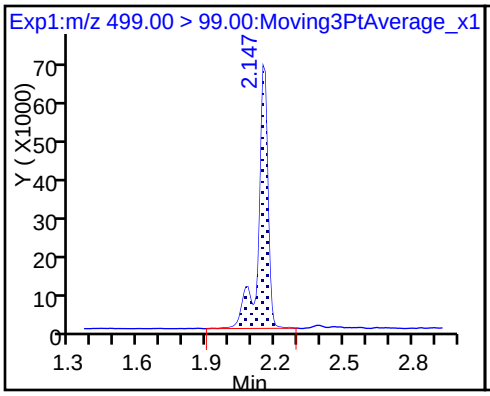
5 Perfluorooctanoic acid



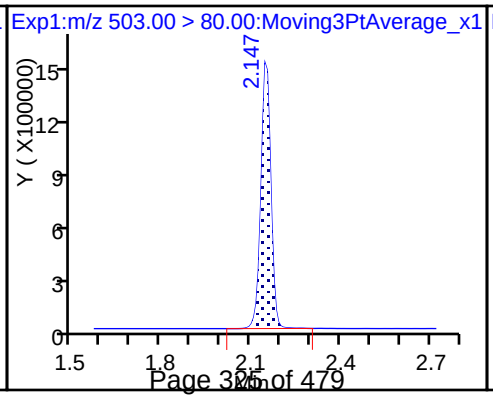
8 Perfluorooctane sulfonic acid



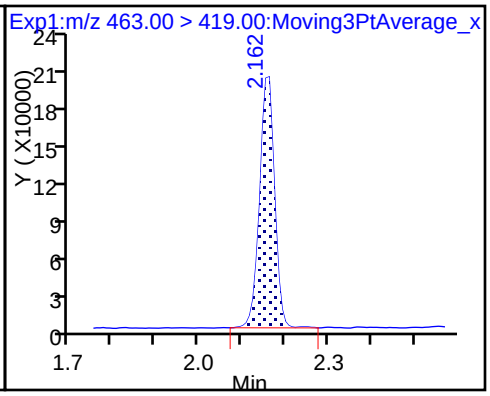
8 Perfluorooctane sulfonic acid



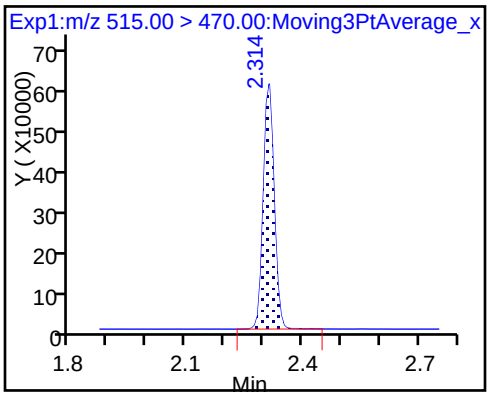
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.314
Y (X10000)
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: ICV 320-192908/13 Calibration Date: 11/03/2017 14:20

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2017.11.03_537XICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8310		83.7	100	-16.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8136		8.68	10.0	-13.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.463		17.5	20.1	-12.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.7995		17.7	20.5	-13.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.8637		18.1	19.7	-8.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6428		19.5	20.1	-3.2	30.0
13C2 PFHxA	Ave	1.100	1.039		9.44	10.0	-5.6	30.0
13C2 PFDA	Ave	0.7652	0.7391		9.66	10.0	-3.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_013.d
Lims ID: ICV
Client ID:
Sample Type: ICV
Inject. Date: 03-Nov-2017 14:20:03 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\20171106-49975.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 07-Nov-2017 15:39:08 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:27:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.444	-0.002	1.000	9960387	83.7		4998	
298.90 > 99.00	1.442	1.444	-0.002	1.000	7235967		1.38(0.00-0.00)	13514	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.573	-0.003	1.000	1570629	9.44		8393	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.725	-0.003	1.000	3517469	17.5		5659	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.725	-0.003	1.000	1229696	8.68		345	
* 6 13C2-PFOA									
415.00 > 370.00	1.904	1.913	-0.009		1512045	10.0		7643	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.904	1.914	-0.010	1.000	2476221	17.7		475	
413.00 > 169.00	1.904	1.914	-0.010	1.000	1327388		1.87(0.00-0.00)	1724	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.140	2.147	-0.007	1.000	2036944	18.1		2323	
499.00 > 99.00	2.140	2.147	-0.007	1.000	389736		5.23(0.00-0.00)	830	
* 7 13C4 PFOS									
503.00 > 80.00	2.140	2.151	-0.011		3433628	28.7		5334	
9 Perfluorononanoic acid									
463.00 > 419.00	2.147	2.158	-0.011	1.000	1956116	19.5		652	
$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.312	-0.006	1.000	1117553	9.66		6230	

Reagents:

LC537-ICV_00028 Amount Added: 1.00 Units: mL

Report Date: 07-Nov-2017 15:39:08 Chrom Revision: 2.2 16-Aug-2017 16:24:46

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_013.d

Injection Date: 03-Nov-2017 14:20:03 Instrument ID: A8_N

Lims ID: ICV

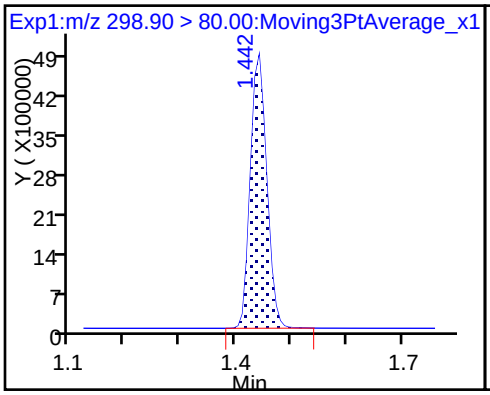
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 13

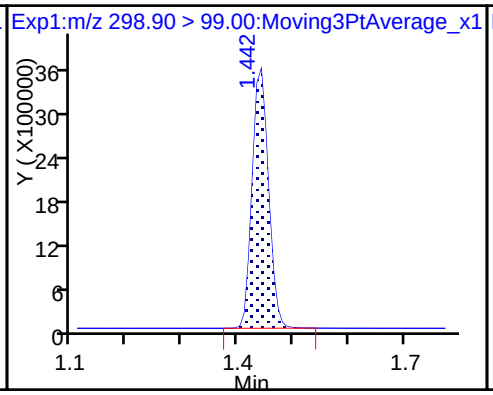
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

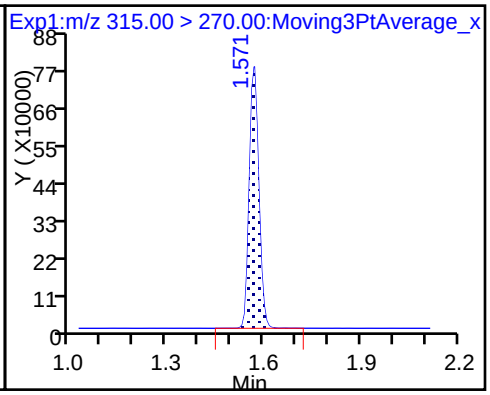
1 Perfluorobutanesulfonic acid



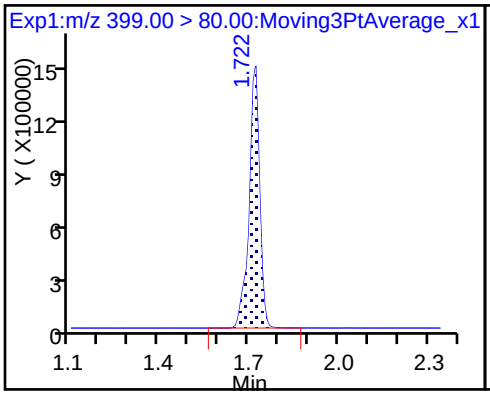
1 Perfluorobutanesulfonic acid



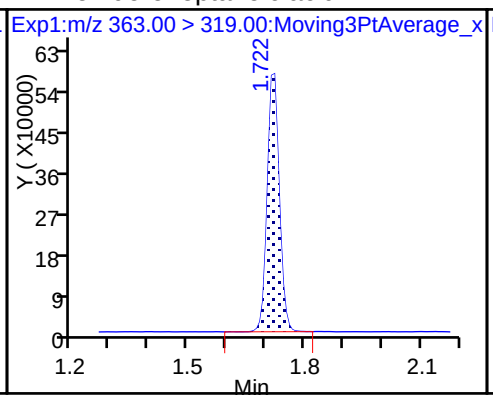
$ 2 13C2 PFHxA



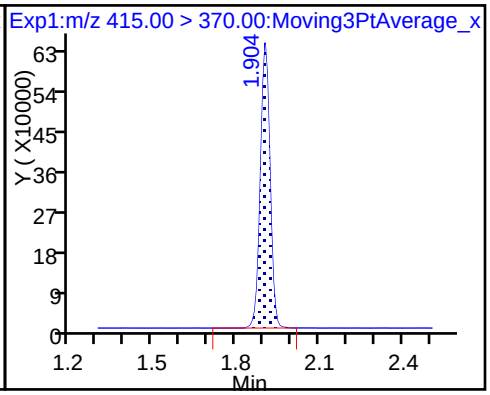
3 Perfluorohexanesulfonic acid



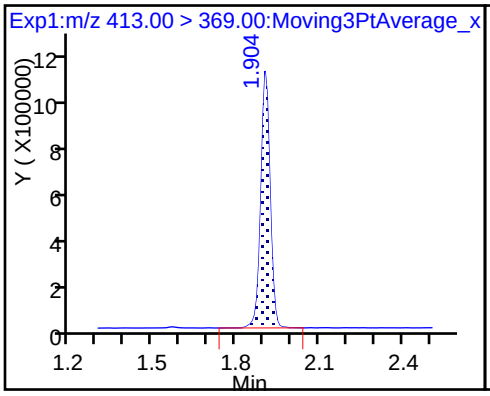
4 Perfluoroheptanoic acid



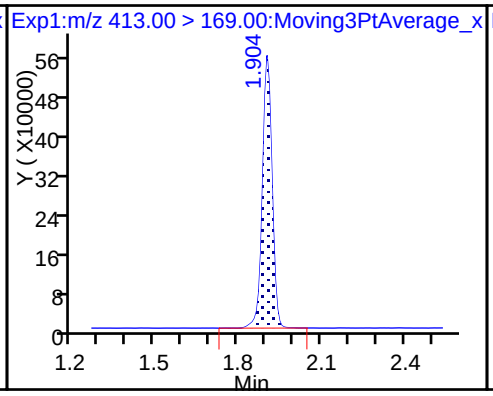
* 6 13C2-PFOA



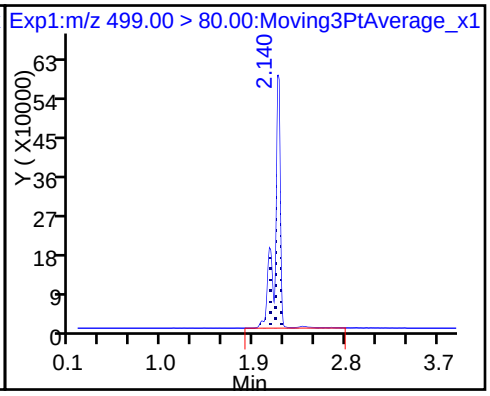
5 Perfluorooctanoic acid



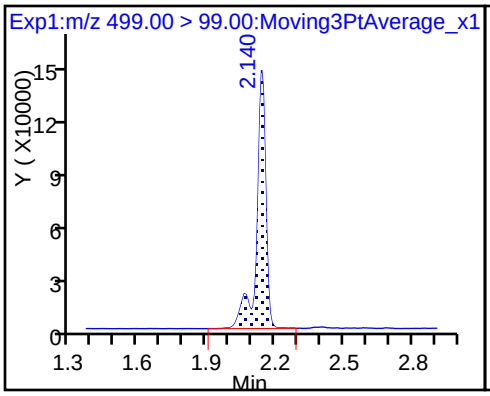
5 Perfluorooctanoic acid



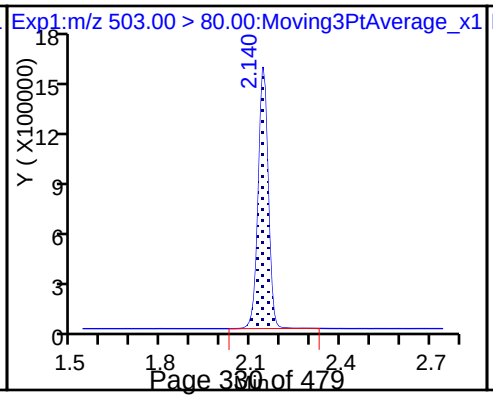
8 Perfluorooctane sulfonic acid



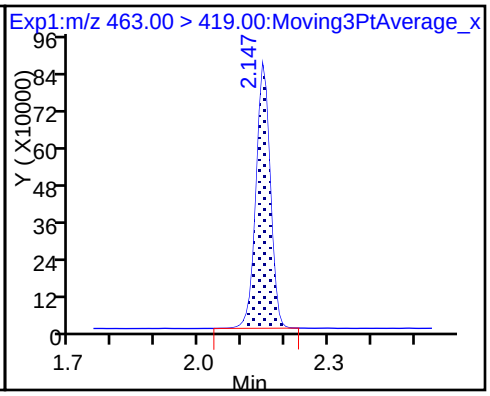
8 Perfluorooctane sulfonic acid



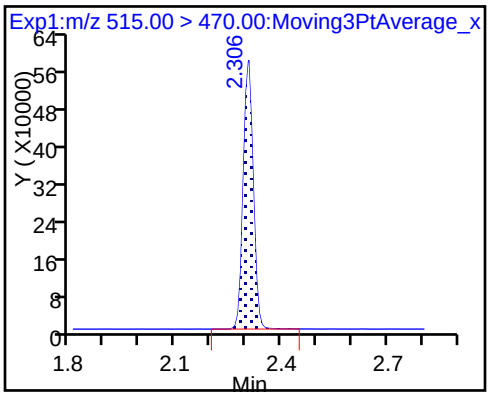
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.306
Y (X10000)
64
56
48
40
32
24
16
8
0
1.8
2.1
2.4
2.7
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCVL 320-207581/1 Calibration Date: 02/08/2018 07:47

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_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		1.102		20.2	20.0	1.2	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.010		2.40	2.22	7.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.774		7.06	6.67	5.9	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9486		4.58	4.47	2.5	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.012		9.62	8.93	7.8	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6771		4.53	4.45	1.9	50.0
13C2 PFHxA	Ave	1.100	1.076		9.78	10.0	-2.2	30.0
13C2 PFDA	Ave	0.7652	0.7299		9.54	10.0	-4.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_004.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 08-Feb-2018 07:47:09 ALS Bottle#: 2 Worklist Smp#: 1
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\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 08-Feb-2018 12:11:34 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK019

First Level Reviewer: roycea Date: 08-Feb-2018 12:10:52

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	1.358	0.008	1.000	2212546	20.2		5428	
298.90 > 99.00	1.366	1.358	0.008	1.000	1760854		1.26(0.00-0.00)	5504	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1470312	9.78		6126	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.616	0.008	1.000	1187679	7.06		3950	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.616	0.008	1.000	306810	2.40		96.0	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.791	0.015		1366684	10.0		4533	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.791	0.015	1.000	579356	4.58		109	
413.00 > 169.00	1.806	1.791	0.015	1.000	300442		1.93(0.00-0.00)	929	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.056	2.041	0.015	1.000	907456	9.62		1208	a
499.00 > 99.00	2.056	2.041	0.015	1.000	189189		4.80(0.00-0.00)	523	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.041	0.015		2879967	28.7		5816	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.048	0.016	1.000	411408	4.53		139	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.231	0.015	1.000	997498	9.54		5261	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L2_00021 Amount Added: 1.00 Units: mL

Report Date: 08-Feb-2018 12:11:35 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_004.d

Injection Date: 08-Feb-2018 07:47:09 Instrument ID: A8_N

Lims ID: CCVL

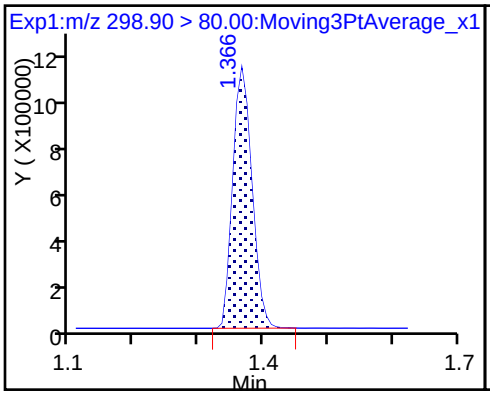
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1

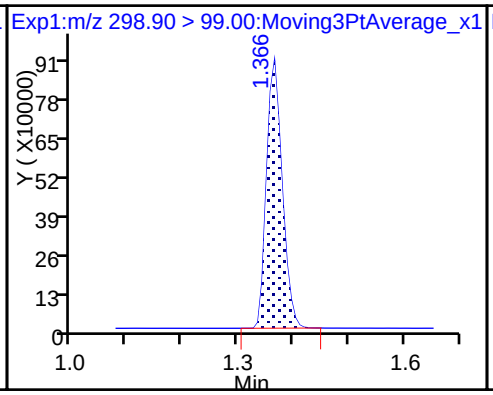
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

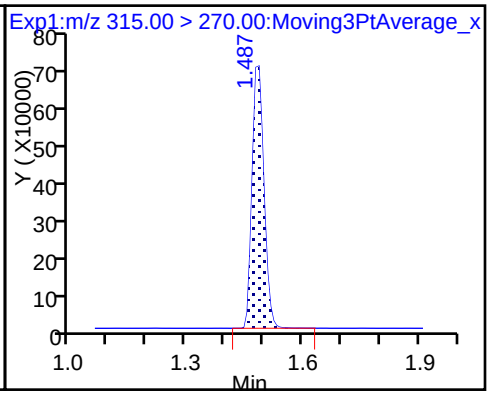
1 Perfluorobutanesulfonic acid



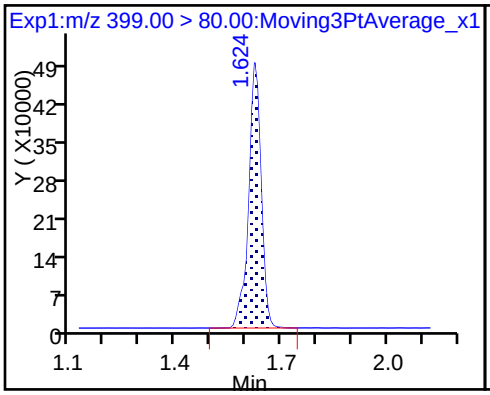
1 Perfluorobutanesulfonic acid



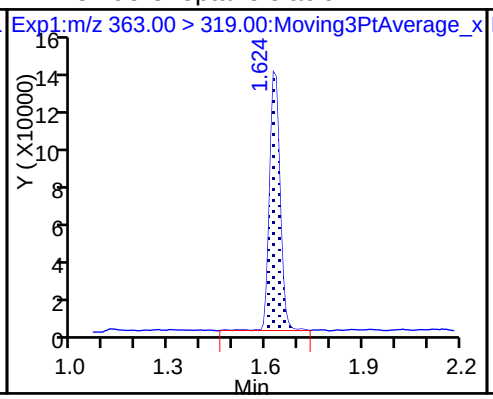
$ 2 13C2 PFHxA



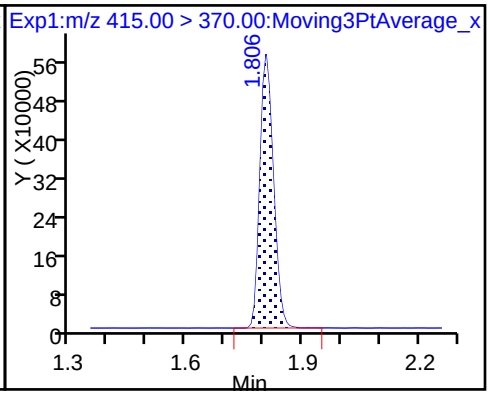
3 Perfluorohexanesulfonic acid



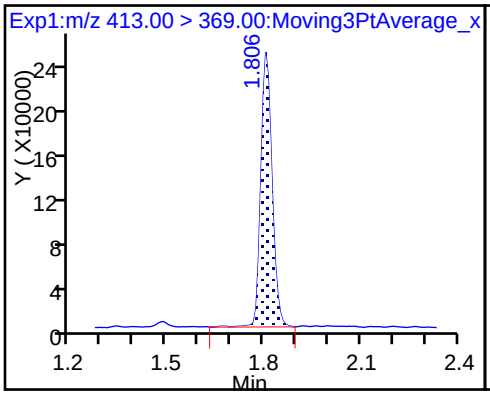
4 Perfluoroheptanoic acid



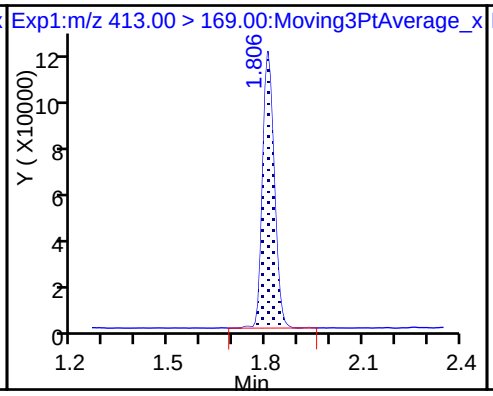
* 6 13C2-PFOA



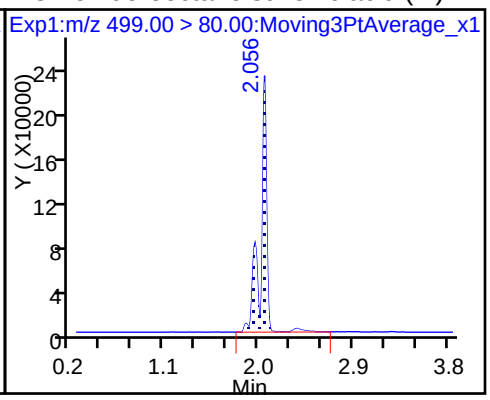
5 Perfluorooctanoic acid



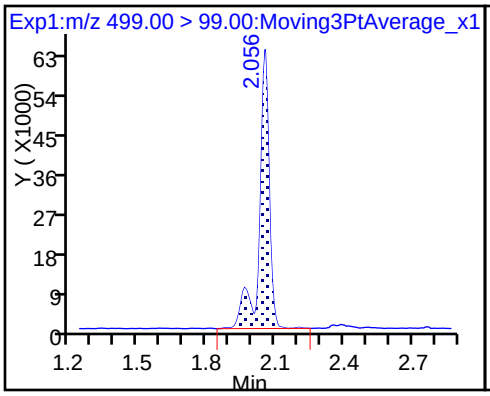
5 Perfluorooctanoic acid



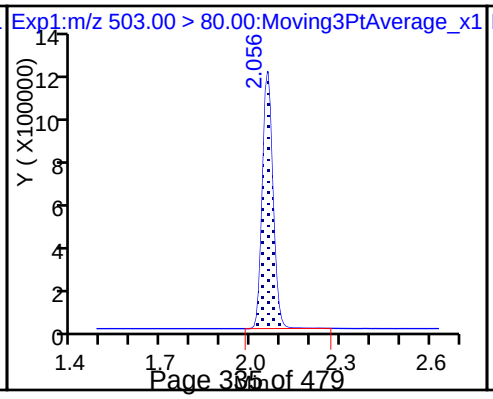
8 Perfluorooctane sulfonic acid (M)



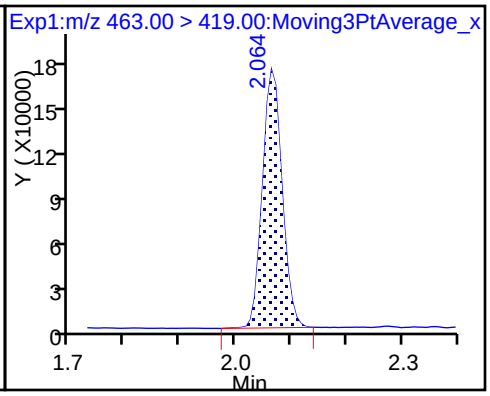
8 Perfluorooctane sulfonic acid



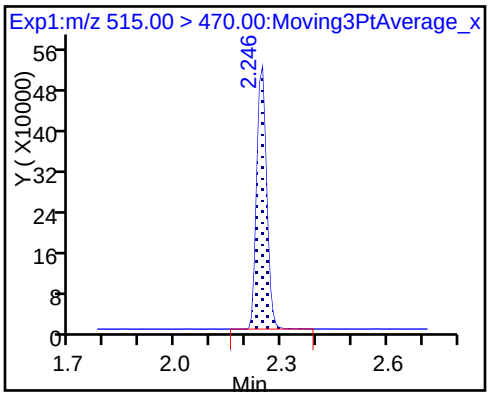
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
56
48
40
32
24
16
8
0
1.7
2.0
2.3
2.6
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

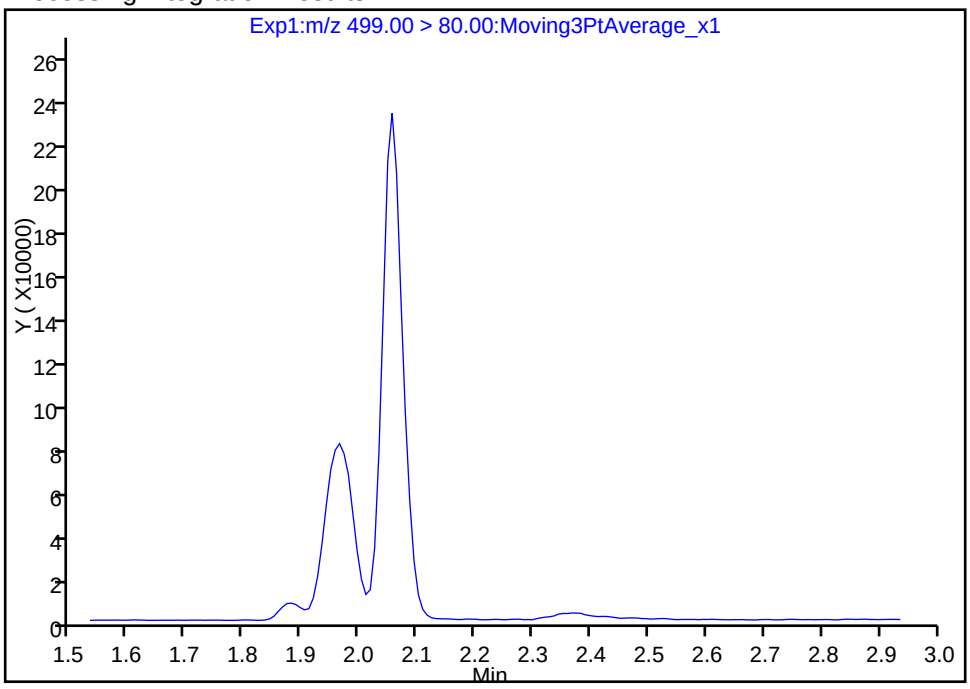
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_004.d				
Injection Date:	08-Feb-2018 07:47:09	Instrument ID:	A8_N		
Lims ID:	CCVL				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	1
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

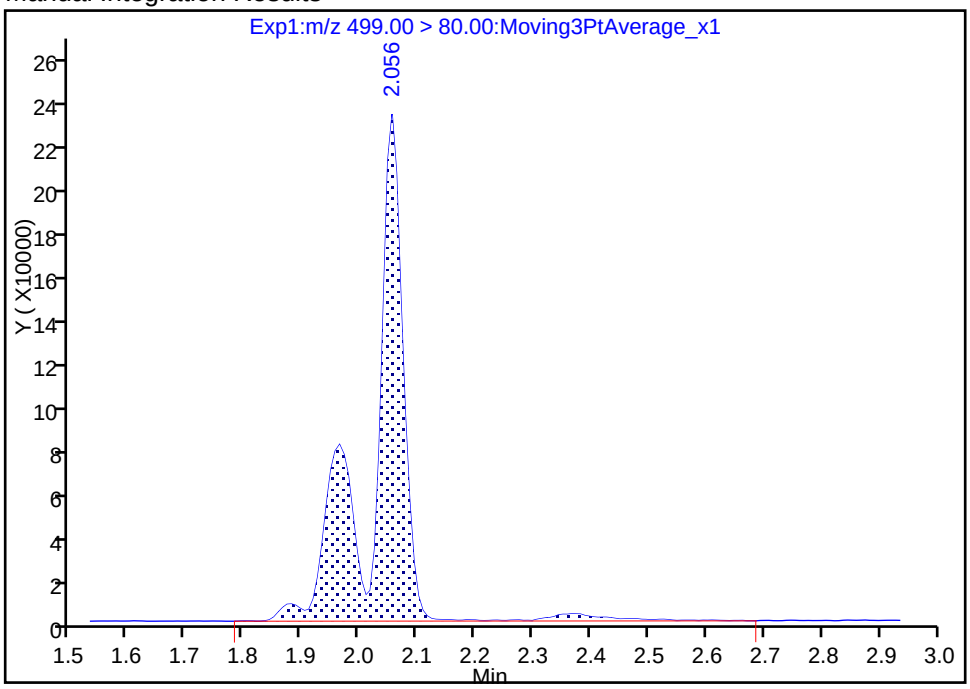
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 907456
Amount: 9.624437
Amount Units: ng/ml



Reviewer: roycea, 08-Feb-2018 12:10:29
Audit Action: Assigned Compound ID Audit Reason: User Assigned

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207581/2 Calibration Date: 02/08/2018 07:51

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9593		143	135	6.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.038		16.6	15.0	10.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.686		45.3	45.0	0.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	1.013		33.0	30.2	9.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9477		60.8	60.3	0.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7031		31.8	30.0	5.9	30.0
13C2 PFHxA	Ave	1.100	1.150		10.4	10.0	4.5	30.0
13C2 PFDA	Ave	0.7652	0.7606		9.94	10.0	-0.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_005.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 08-Feb-2018 07:51:49 ALS Bottle#: 5 Worklist Smp#: 2
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\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:07:27

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	13583201	143.1		15478	
298.90 > 99.00	1.366	1.366	0.0	1.000	10204271		1.33(0.00-0.00)	14253	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1543609	10.4		6842	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	7959321	45.3		11983	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	2091321	16.6		693	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1342738	10.0		4558	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	4101967	33.0		764	
413.00 > 169.00	1.798	1.798	0.0	1.000	2146680		1.91(0.00-0.00)	6332	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3007844	28.7		5527	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.041	0.007	1.000	5989189	60.8		2338	M
499.00 > 99.00	2.048	2.041	0.007	1.000	1294894		4.63(0.00-0.00)	2478	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.056	0.0	1.000	2833187	31.8		942	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1021318	9.94		5722	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L5_00025 Amount Added: 1.00 Units: mL

Report Date: 09-Feb-2018 09:51:52 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_005.d

Injection Date: 08-Feb-2018 07:51:49 Instrument ID: A8_N

Lims ID: CCV L5

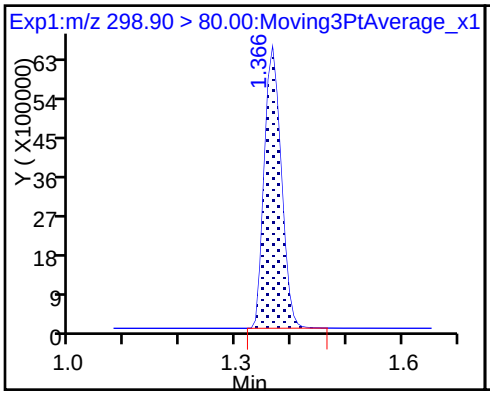
Client ID:

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

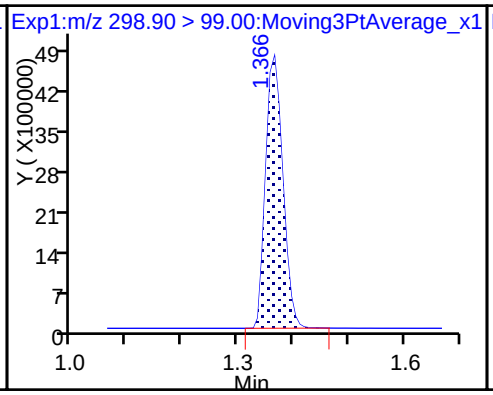
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

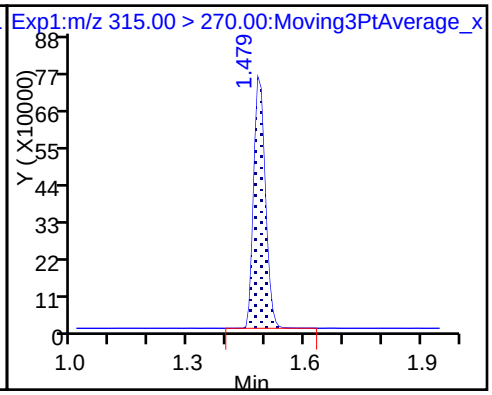
1 Perfluorobutanesulfonic acid



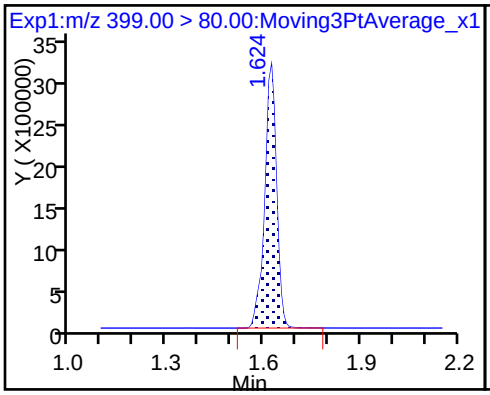
1 Perfluorobutanesulfonic acid



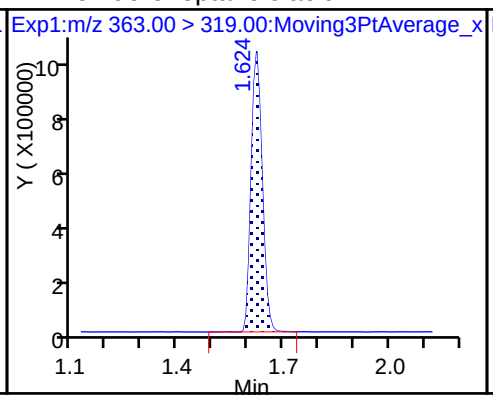
$ 2 13C2 PFHxA



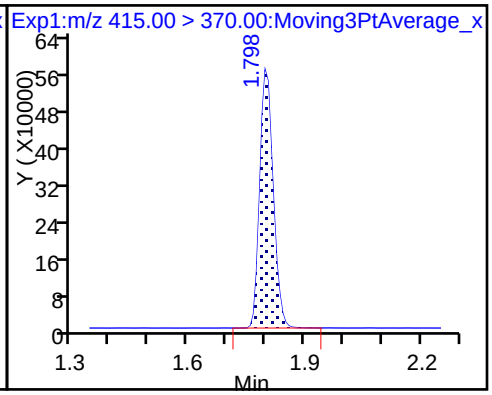
3 Perfluorohexanesulfonic acid



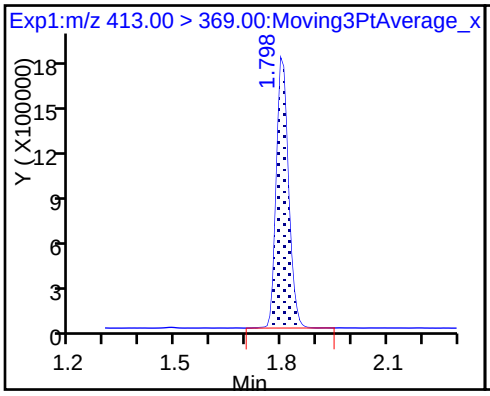
4 Perfluoroheptanoic acid



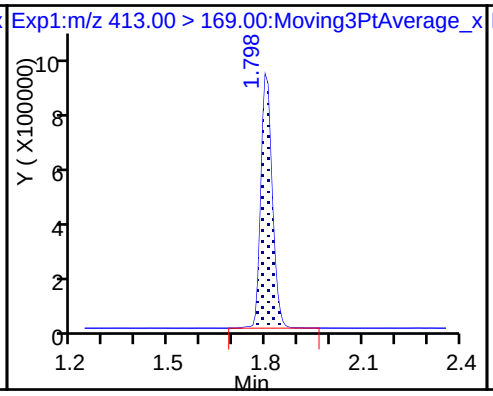
* 6 13C2-PFOA



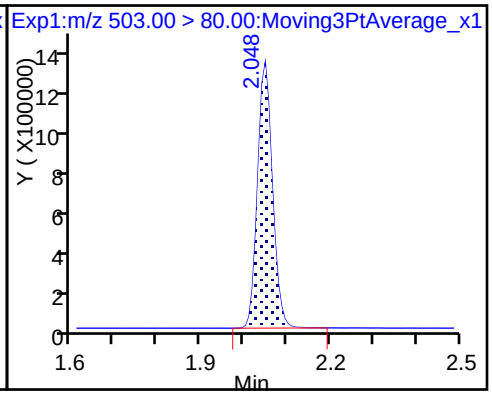
5 Perfluorooctanoic acid



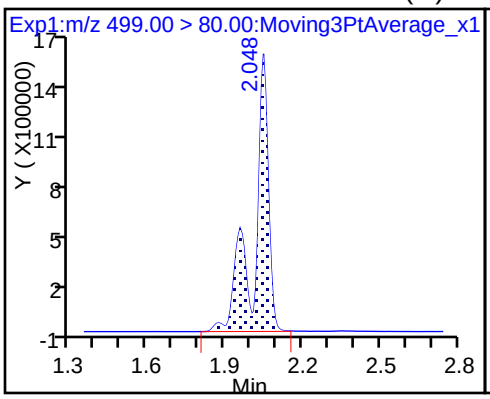
5 Perfluorooctanoic acid



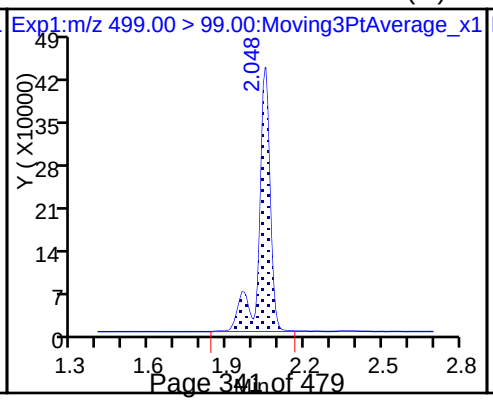
* 7 13C4 PFOS



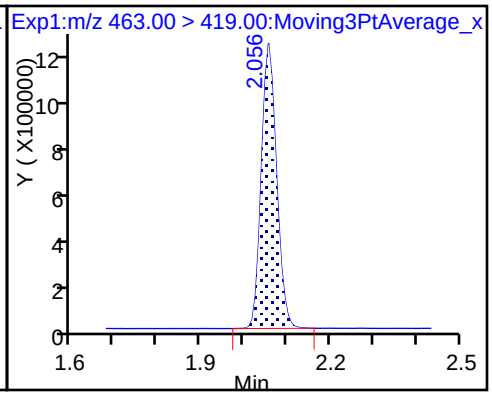
8 Perfluorooctane sulfonic acid (M)



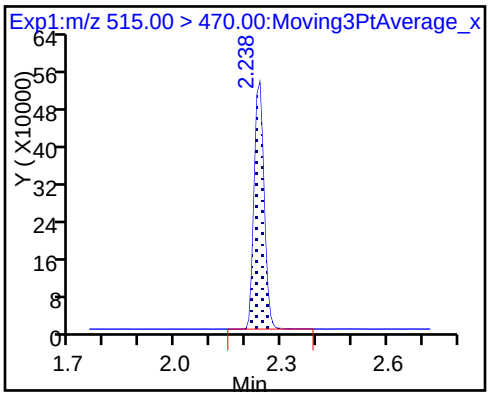
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
64
56
48
40
32
24
16
8
0
1.7
2.0
2.3
2.6
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

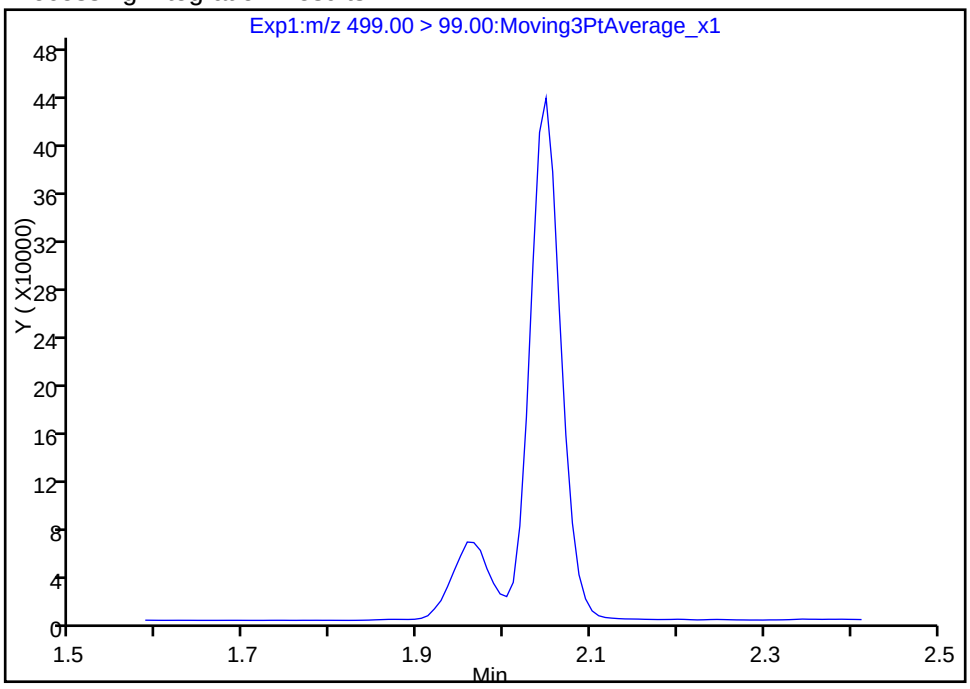
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_005.d
Injection Date: 08-Feb-2018 07:51:49 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

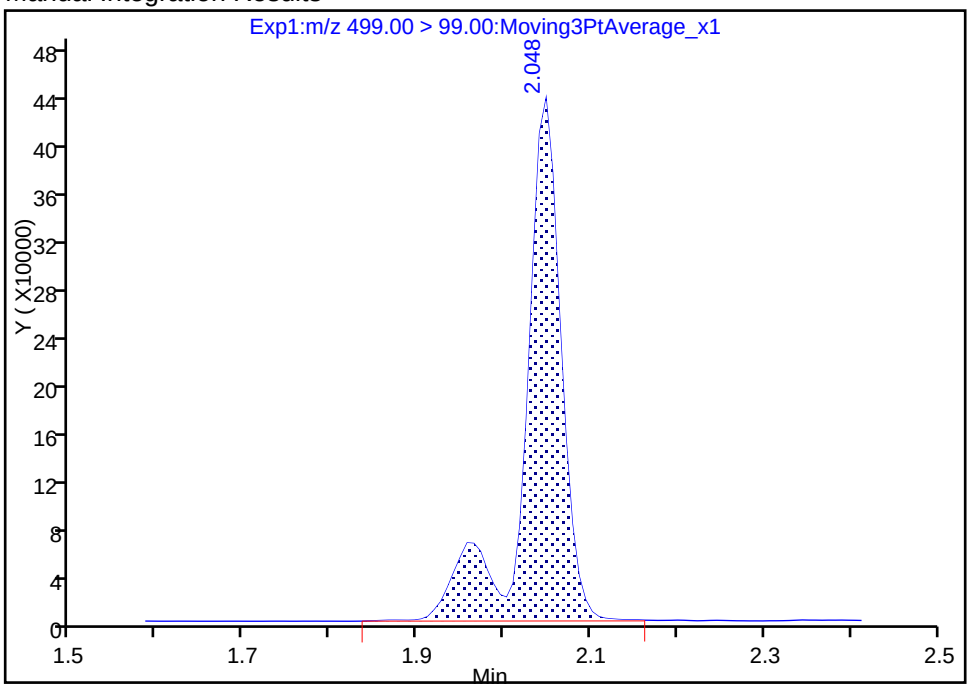
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 1294894
Amount: 60.820501
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:07:19
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

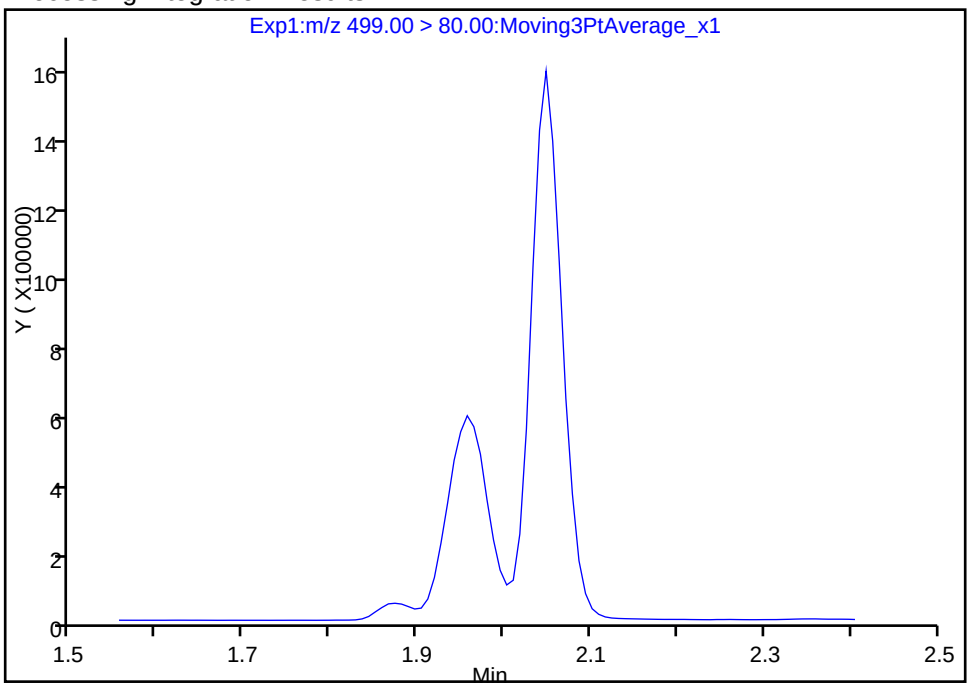
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_005.d
Injection Date: 08-Feb-2018 07:51:49 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

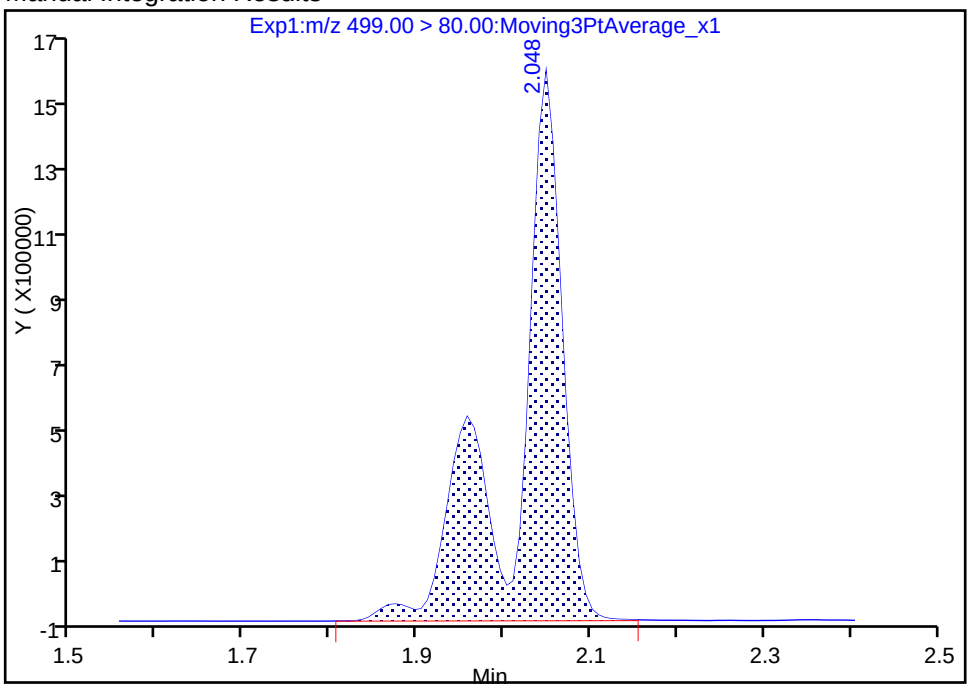
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 5989189
Amount: 60.820501
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:07:19
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207581/14 Calibration Date: 02/08/2018 08:47

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_017.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.109		47.6	45.0	5.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.037		5.53	5.00	10.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.738		15.6	15.0	3.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9728		10.6	10.1	5.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9656		20.7	20.1	2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7046		10.6	10.0	6.1	30.0
13C2 PFHxA	Ave	1.100	1.105		10.0	10.0	0.4	30.0
13C2 PFDA	Ave	0.7652	0.7042		9.20	10.0	-8.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207582/14 Calibration Date: 02/08/2018 08:47

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_017.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.109		47.6	45.0	5.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.037		5.53	5.00	10.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.738		15.6	15.0	3.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9728		10.6	10.1	5.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9656		20.7	20.1	2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7046		10.6	10.0	6.1	30.0
13C2 PFHxA	Ave	1.100	1.105		10.0	10.0	0.4	30.0
13C2 PFDA	Ave	0.7652	0.7042		9.20	10.0	-8.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_017.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 08-Feb-2018 08:47:56 ALS Bottle#: 3 Worklist Smp#: 14
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\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 14:04:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	5194634	47.6		10955	
298.90 > 99.00	1.366	1.366	0.0	1.000	3869473		1.34(0.00-0.00)	8625	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1443980	10.0		6109	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	2713590	15.6		6649	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	677606	5.53		236	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1307153	10.0		4634	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	1278647	10.6		228	
413.00 > 169.00	1.798	1.806	-0.008	0.996	668036		1.91(0.00-0.00)	2095	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.041	0.007	1.000	2018586	20.7		1156	M
499.00 > 99.00	2.048	2.041	0.007	1.000	419149		4.82(0.00-0.00)	1006	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		2985038	28.7		5896	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.056	0.0	1.000	921328	10.6		281	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	920514	9.20		4834	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024 Amount Added: 1.00 Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_017.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 08-Feb-2018 08:47:56 ALS Bottle#: 3 Worklist Smp#: 14
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\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:06 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 14:04:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	5194634	47.6		10955	
298.90 > 99.00	1.366	1.366	0.0	1.000	3869473		1.34(0.00-0.00)	8625	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1443980	10.0		6109	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	2713590	15.6		6649	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	677606	5.53		236	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1307153	10.0		4634	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	1278647	10.6		228	
413.00 > 169.00	1.798	1.806	-0.008	0.996	668036		1.91(0.00-0.00)	2095	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.041	0.007	1.000	2018586	20.7		1156	M
499.00 > 99.00	2.048	2.041	0.007	1.000	419149		4.82(0.00-0.00)	1006	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		2985038	28.7		5896	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.056	0.0	1.000	921328	10.6		281	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	920514	9.20		4834	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024 Amount Added: 1.00 Units: mL

Report Date: 09-Feb-2018 09:52:07 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_017.d

Injection Date: 08-Feb-2018 08:47:56 Instrument ID: A8_N

Lims ID: CCV L3

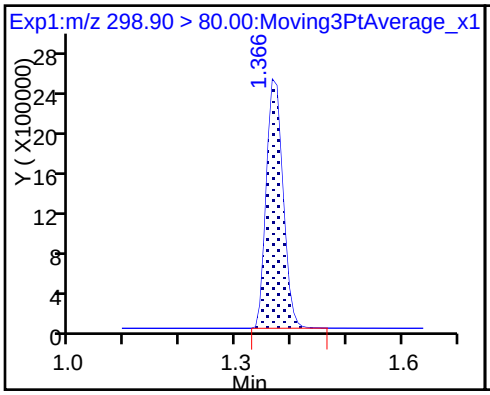
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 14

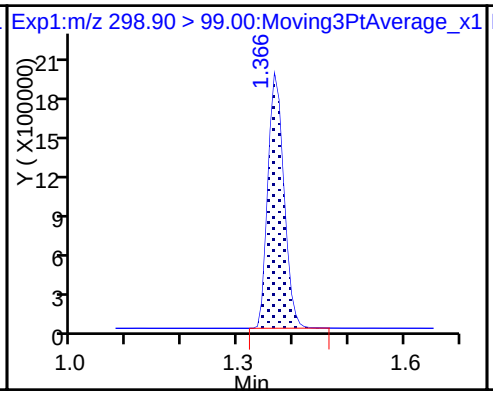
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

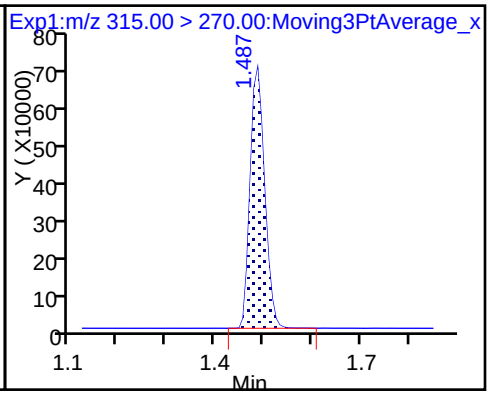
1 Perfluorobutanesulfonic acid



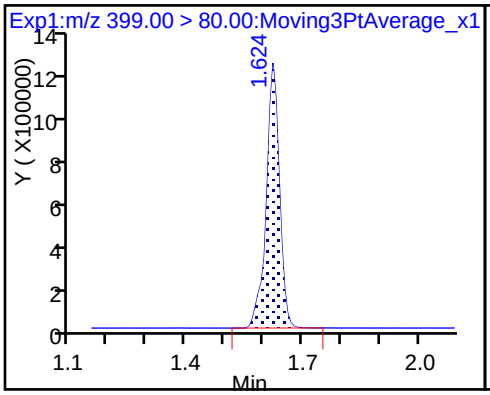
1 Perfluorobutanesulfonic acid



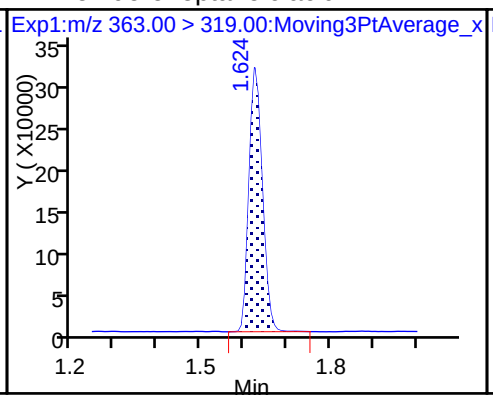
$ 2 13C2 PFHxA



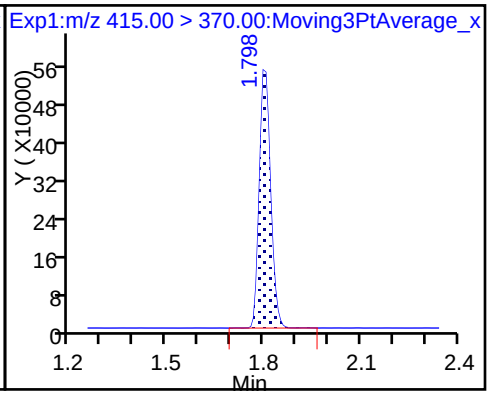
3 Perfluorohexanesulfonic acid



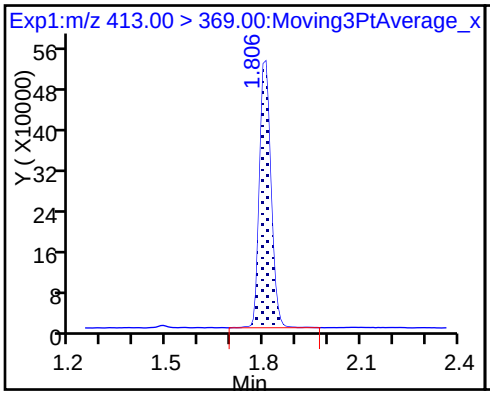
4 Perfluoroheptanoic acid



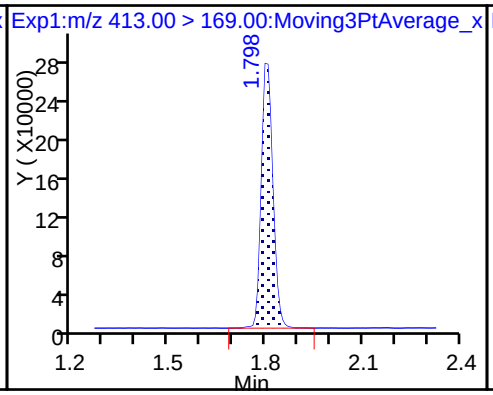
* 6 13C2-PFOA



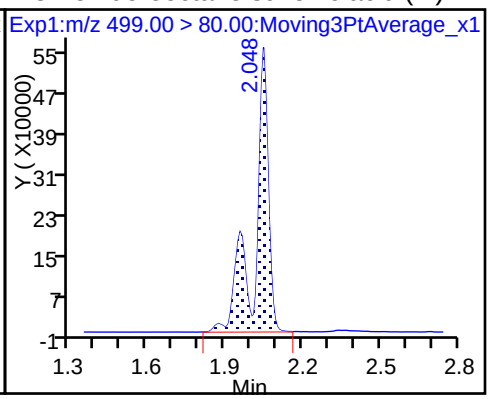
5 Perfluorooctanoic acid



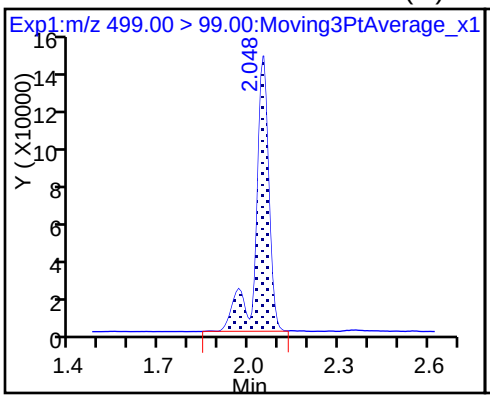
5 Perfluorooctanoic acid



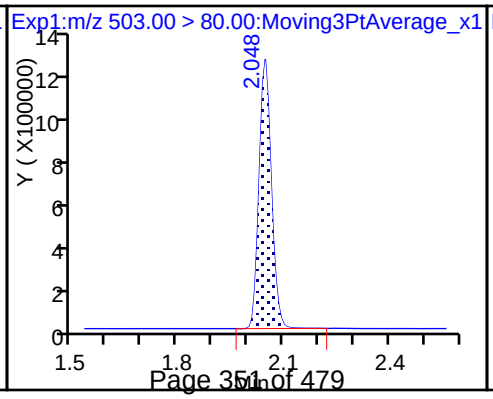
8 Perfluorooctane sulfonic acid (M)



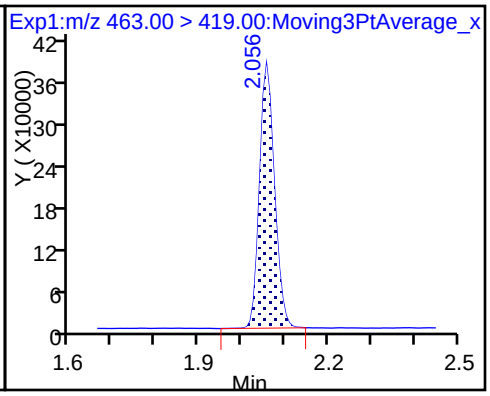
8 Perfluorooctane sulfonic acid (M)



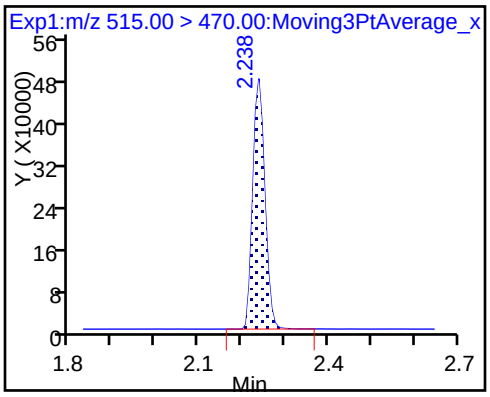
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
56
48
40
32
24
16
8
0
1.8
2.1
2.4
2.7
Min

Report Date: 09-Feb-2018 09:52:07 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_017.d

Injection Date: 08-Feb-2018 08:47:56 Instrument ID: A8_N

Lims ID: CCV L3

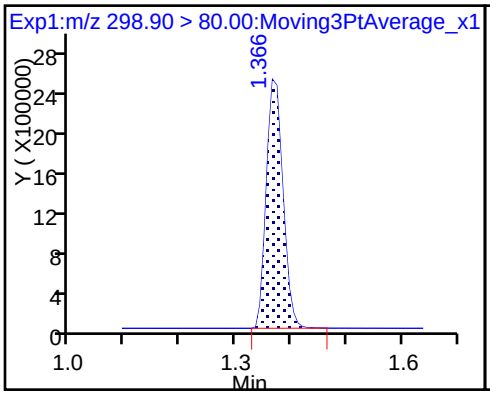
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 14

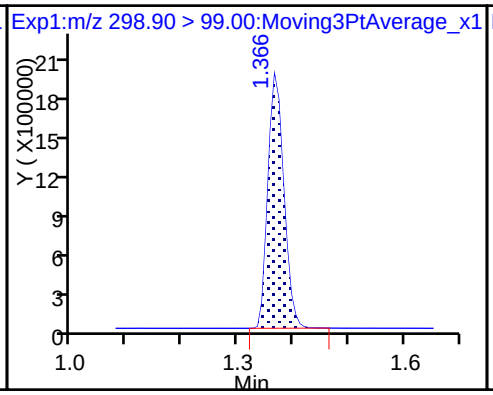
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

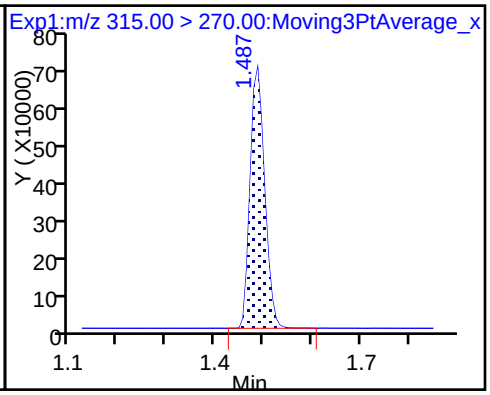
1 Perfluorobutanesulfonic acid



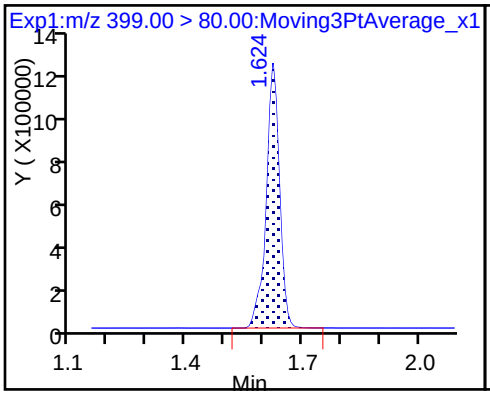
1 Perfluorobutanesulfonic acid



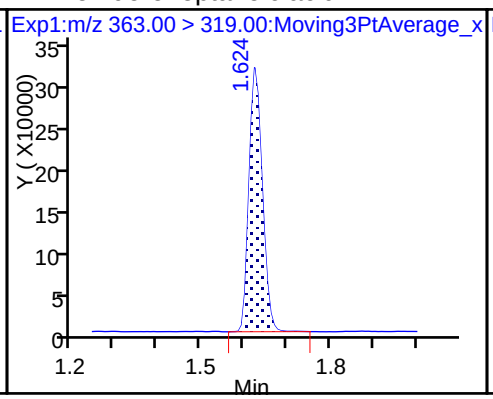
$ 2 13C2 PFHxA



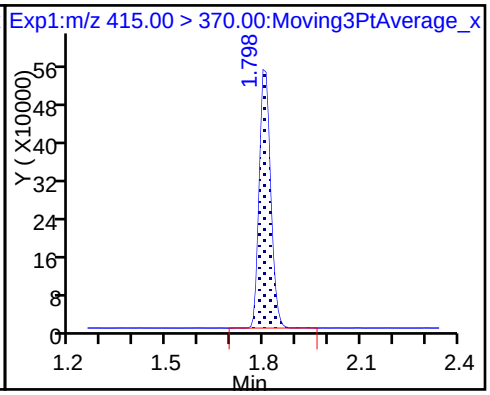
3 Perfluorohexanesulfonic acid



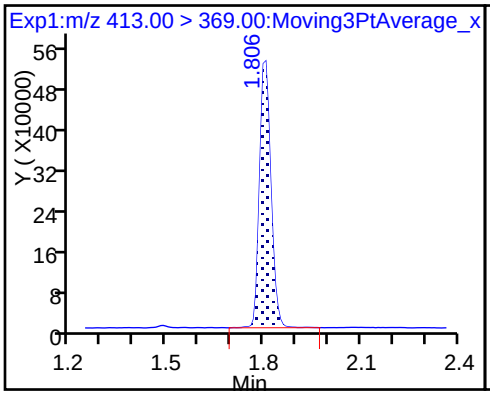
4 Perfluoroheptanoic acid



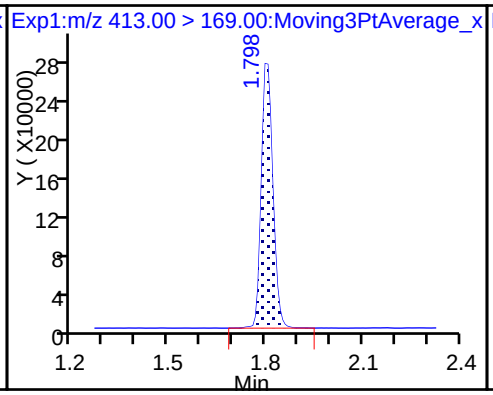
* 6 13C2-PFOA



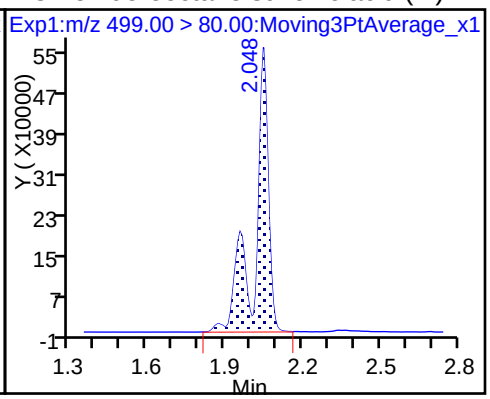
5 Perfluorooctanoic acid



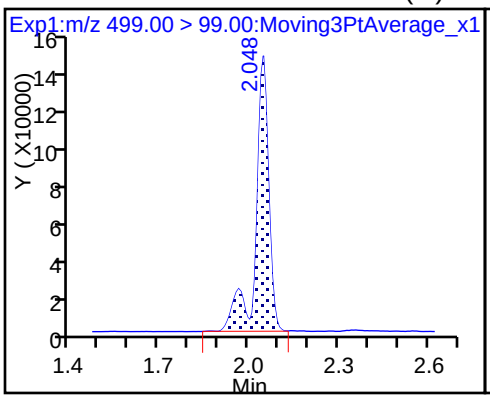
5 Perfluorooctanoic acid



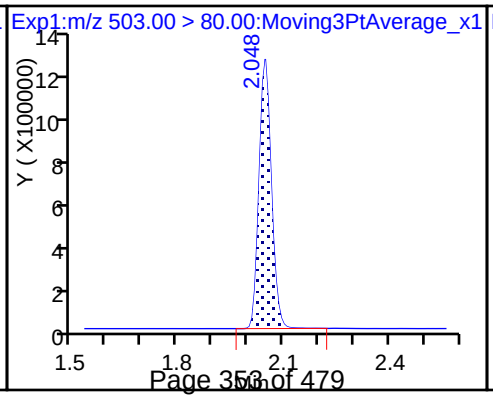
8 Perfluorooctane sulfonic acid (M)



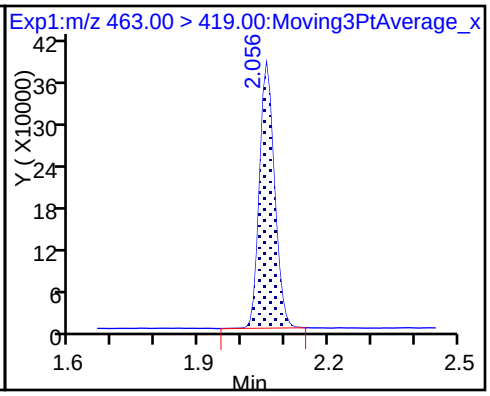
8 Perfluorooctane sulfonic acid (M)



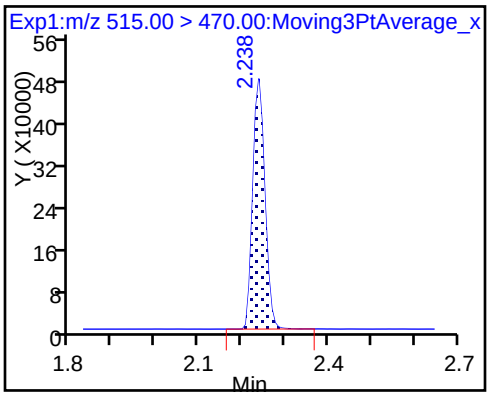
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
56
48
40
32
24
16
8
0
1.8
2.1
2.4
2.7
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

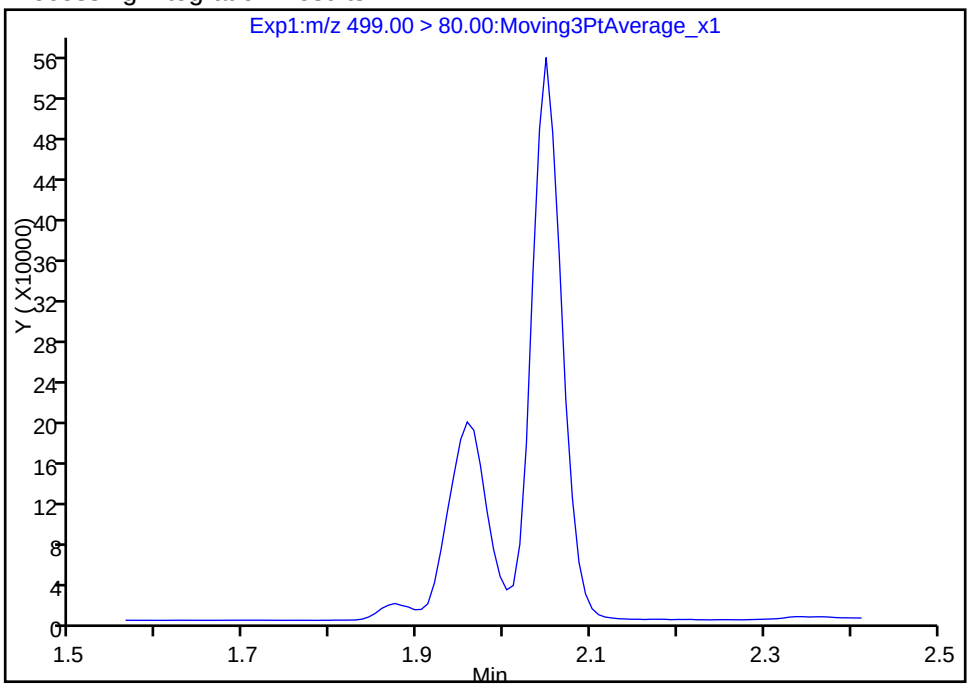
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_017.d				
Injection Date:	08-Feb-2018 08:47:56	Instrument ID:	A8_N		
Lims ID:	CCV L3				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	14
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

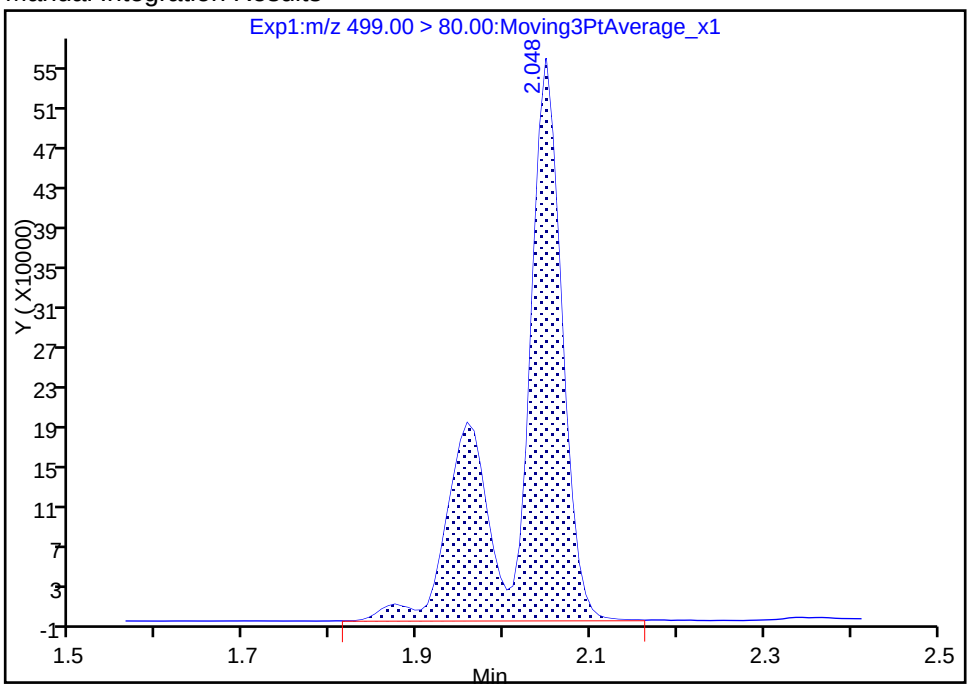
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 2018586
Amount: 20.655451
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:07:47
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

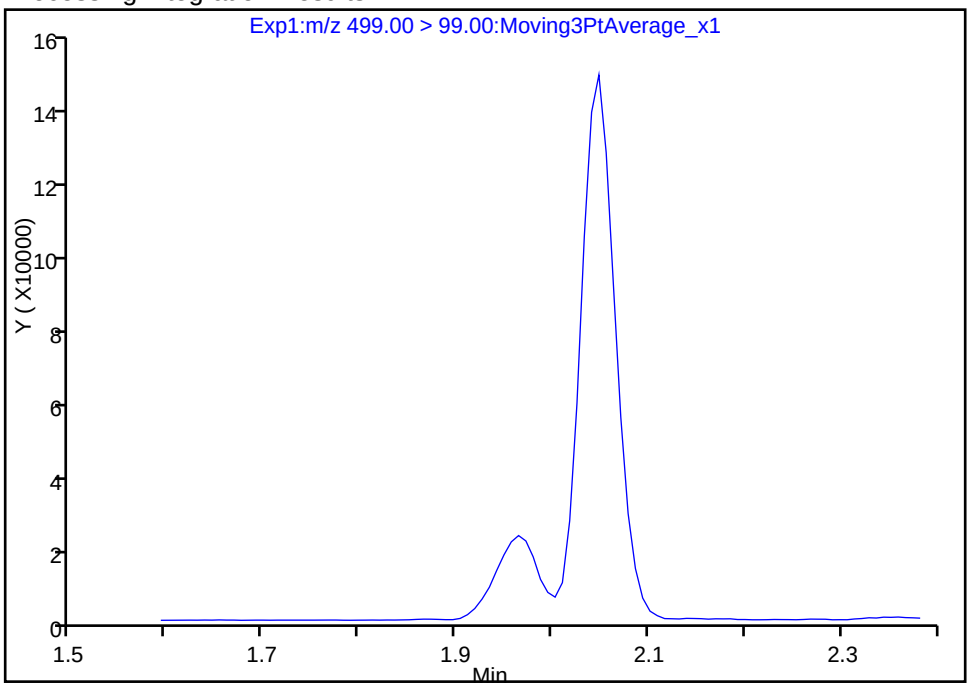
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_017.d
Injection Date: 08-Feb-2018 08:47:56 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

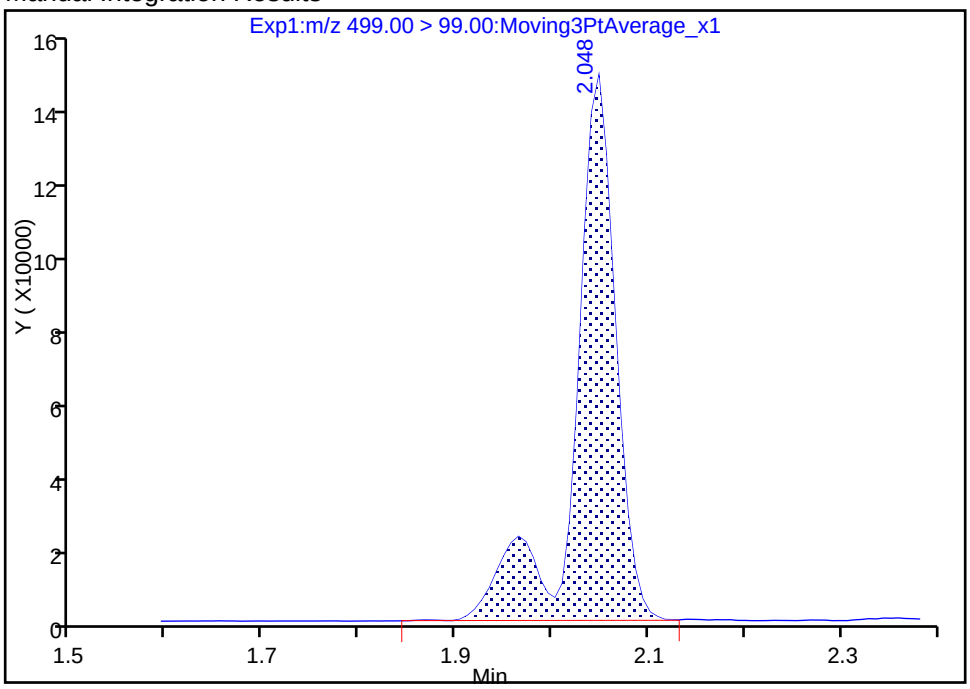
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 419149
Amount: 20.655451
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:08:01
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

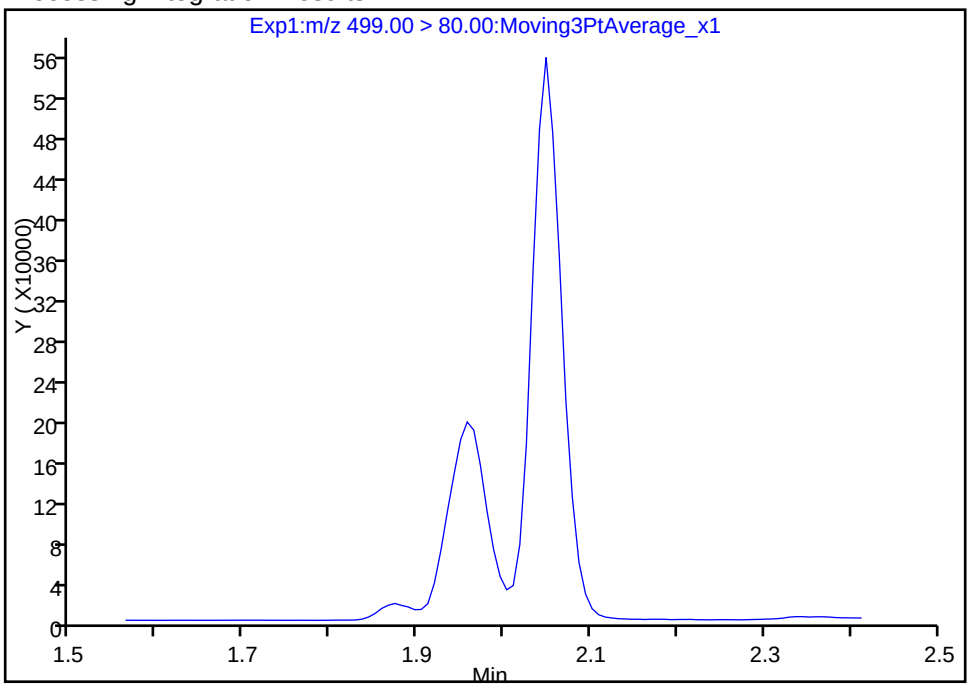
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_017.d
Injection Date: 08-Feb-2018 08:47:56 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

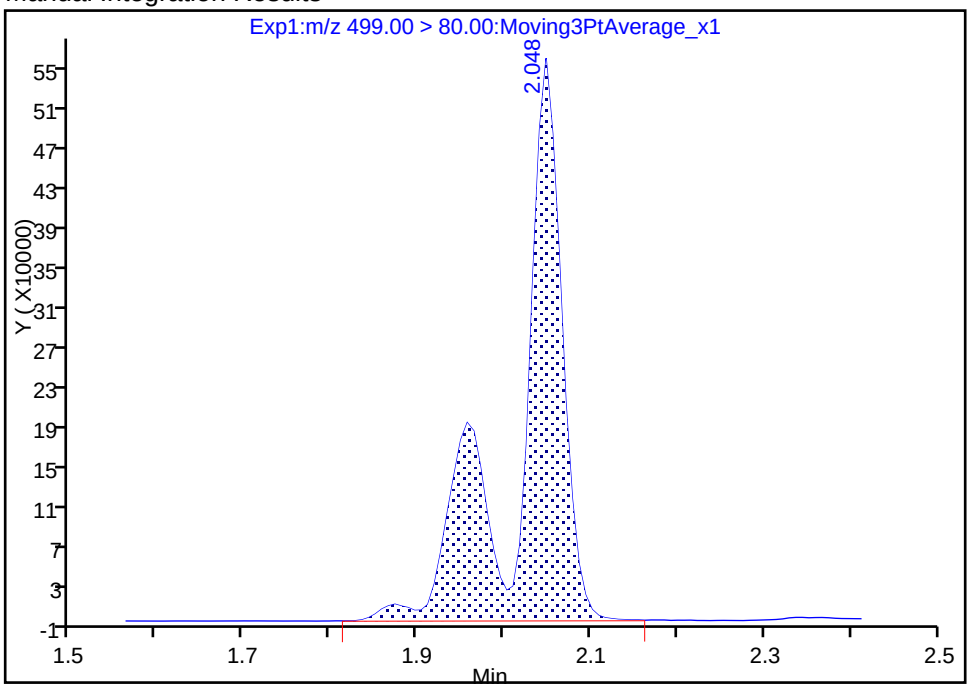
Processing Integration Results

Not Detected
Expected RT: 2.04



Manual Integration Results

RT: 2.05
Area: 2018586
Amount: 20.655451
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:07:47
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

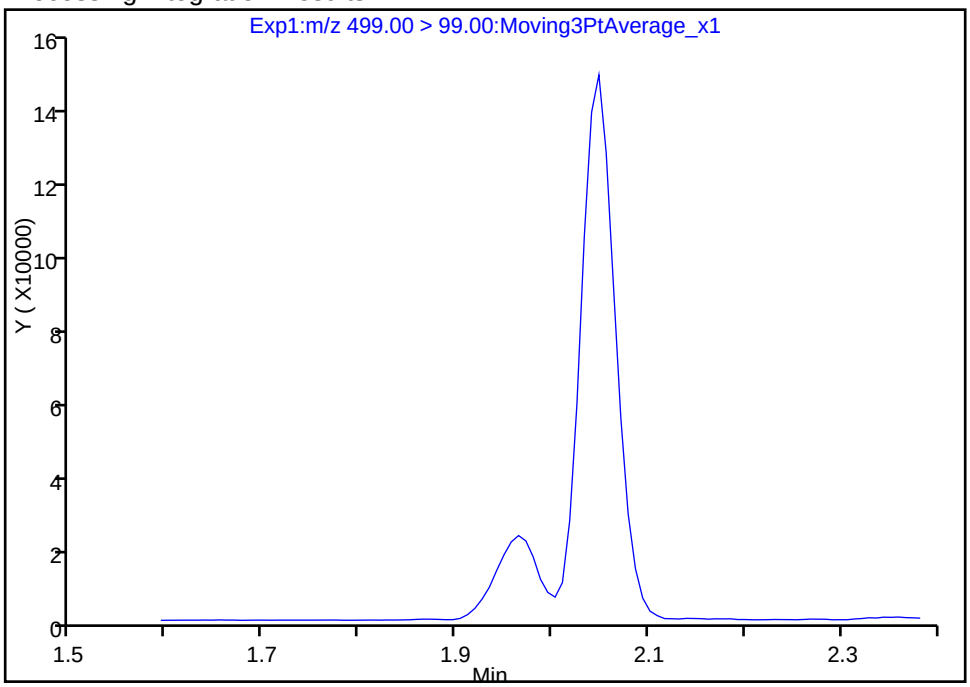
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_017.d
Injection Date: 08-Feb-2018 08:47:56 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

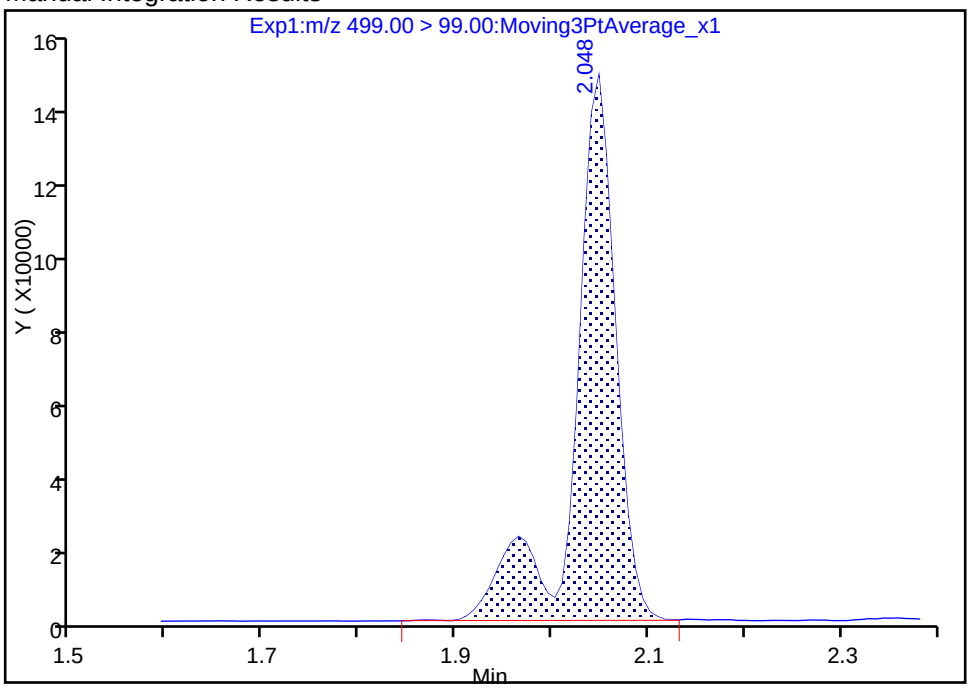
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 419149
Amount: 20.655451
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:08:01
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207582/26 Calibration Date: 02/08/2018 09:44

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_029.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9565		143	135	5.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9836		15.7	15.0	5.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.759		47.3	45.0	5.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9695		31.6	30.2	4.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.010		64.8	60.3	7.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6755		30.5	30.0	1.7	30.0
13C2 PFHxA	Ave	1.100	1.063		9.66	10.0	-3.4	30.0
13C2 PFDA	Ave	0.7652	0.7369		9.63	10.0	-3.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207584/26 Calibration Date: 02/08/2018 09:44

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_029.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9565		143	135	5.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9836		15.7	15.0	5.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.759		47.3	45.0	5.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9695		31.6	30.2	4.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.010		64.8	60.3	7.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6755		30.5	30.0	1.7	30.0
13C2 PFHxA	Ave	1.100	1.063		9.66	10.0	-3.4	30.0
13C2 PFDA	Ave	0.7652	0.7369		9.63	10.0	-3.7	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_029.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 08-Feb-2018 09:44:02 ALS Bottle#: 5 Worklist Smp#: 26
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\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:18 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 14:07:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	13382234	142.6		16795	
298.90 > 99.00	1.358	1.358	0.0	1.000	10556153		1.27(0.00-0.00)	15977	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1432051	9.66		6769	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	8203181	47.3		12073	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.616	0.0	1.000	1987211	15.7		736	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.791	0.0		1346682	10.0		4508	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.791	1.791	0.0	1.000	3938261	31.6		1080	
413.00 > 169.00	1.791	1.791	0.0	1.000	2008577		1.96(0.00-0.00)	5867	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.041	2.041	0.0	1.000	6307217	64.8		2525	M
499.00 > 99.00	2.041	2.041	0.0	1.000	1304554		4.83(0.00-0.00)	2633	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.041	0.0		2971996	28.7		5304	
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.048	0.0	1.000	2729870	30.5		928	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	992406	9.63		6215	

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\20180208-53854.b\2018.02.08_537A_029.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 08-Feb-2018 09:44:02 ALS Bottle#: 5 Worklist Smp#: 26
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\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:18 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 14:07:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	13382234	142.6		16795	
298.90 > 99.00	1.358	1.358	0.0	1.000	10556153		1.27(0.00-0.00)	15977	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1432051	9.66		6769	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	8203181	47.3		12073	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.616	0.0	1.000	1987211	15.7		736	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.791	0.0		1346682	10.0		4508	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.791	1.791	0.0	1.000	3938261	31.6		1080	
413.00 > 169.00	1.791	1.791	0.0	1.000	2008577		1.96(0.00-0.00)	5867	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.041	2.041	0.0	1.000	6307217	64.8		2525	M
499.00 > 99.00	2.041	2.041	0.0	1.000	1304554		4.83(0.00-0.00)	2633	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.041	0.0		2971996	28.7		5304	
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.048	0.0	1.000	2729870	30.5		928	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	992406	9.63		6215	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L5_00025 Amount Added: 1.00 Units: mL

Report Date: 09-Feb-2018 09:52:18 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_029.d

Injection Date: 08-Feb-2018 09:44:02 Instrument ID: A8_N

Lims ID: CCV L5

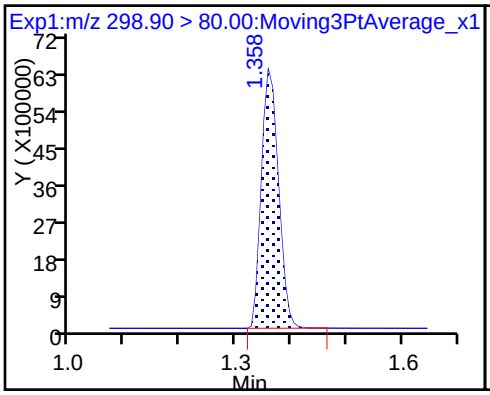
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 26

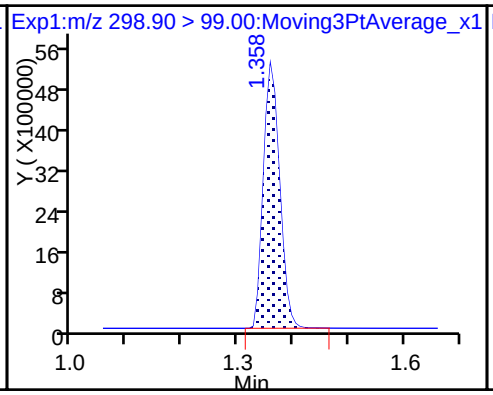
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

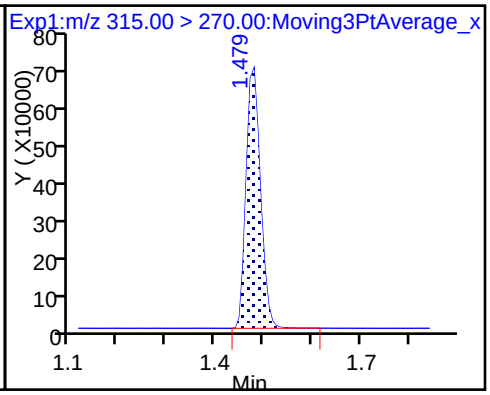
1 Perfluorobutanesulfonic acid



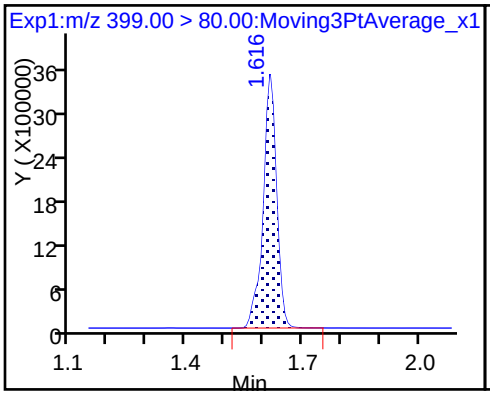
1 Perfluorobutanesulfonic acid



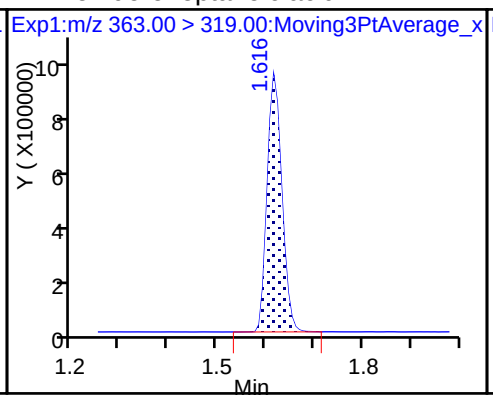
$ 2 13C2 PFHxA



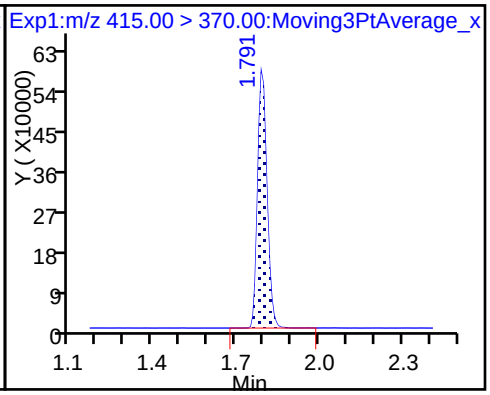
3 Perfluorohexanesulfonic acid



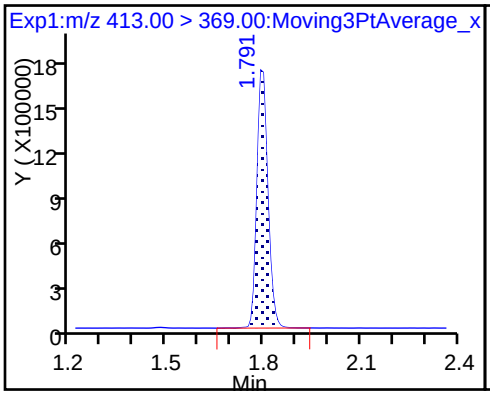
4 Perfluoroheptanoic acid



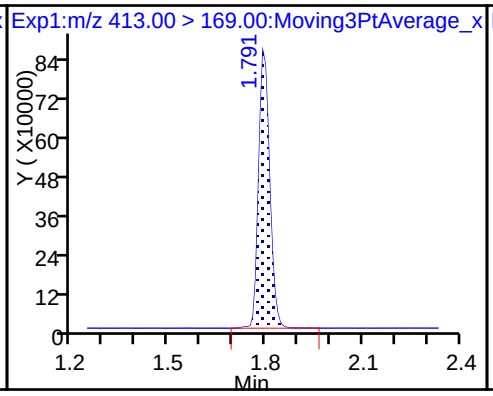
* 6 13C2-PFOA



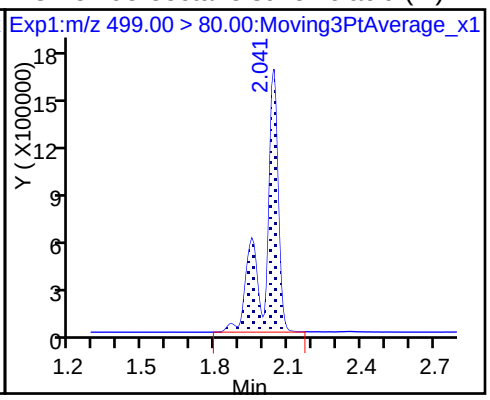
5 Perfluorooctanoic acid



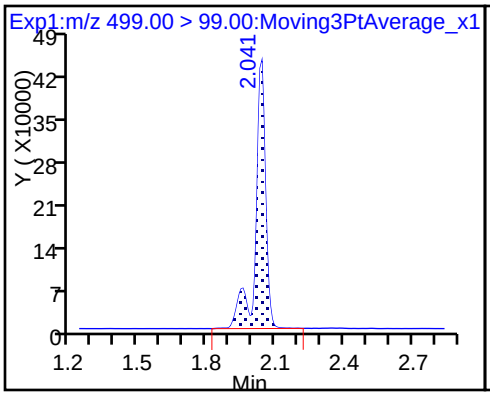
5 Perfluorooctanoic acid



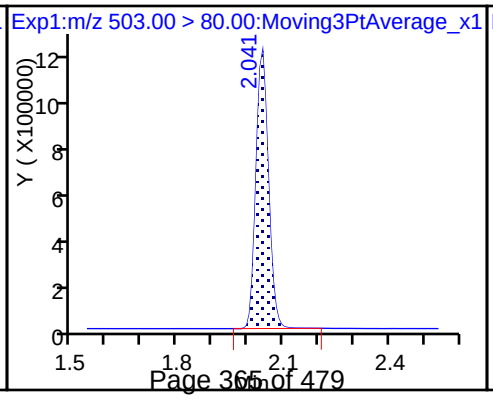
8 Perfluorooctane sulfonic acid (M)



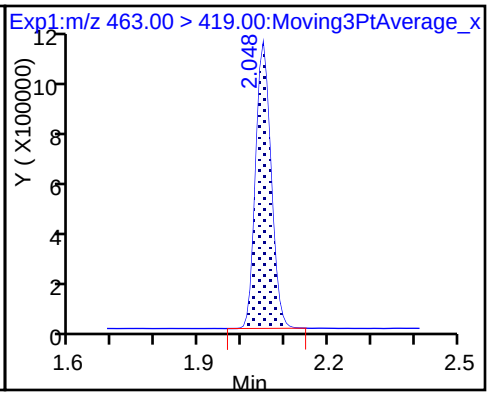
8 Perfluorooctane sulfonic acid



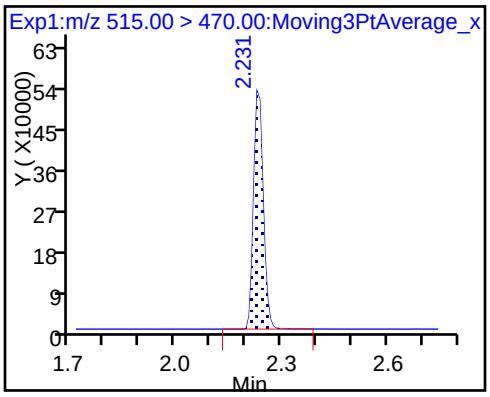
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

Report Date: 09-Feb-2018 09:52:18 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_029.d

Injection Date: 08-Feb-2018 09:44:02 Instrument ID: A8_N

Lims ID: CCV L5

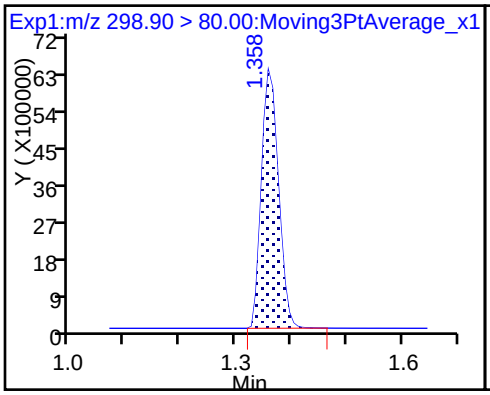
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 26

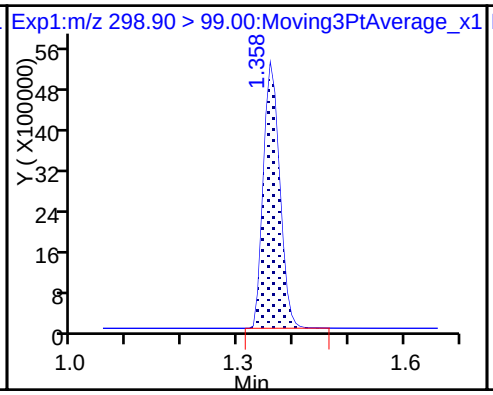
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

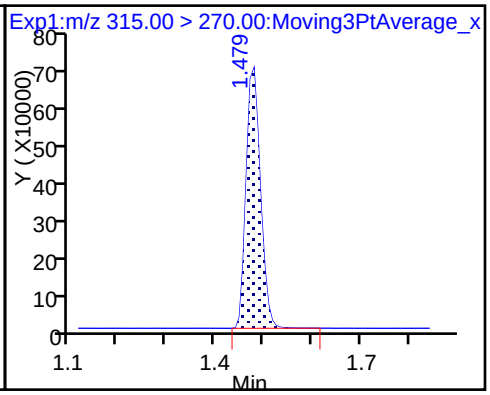
1 Perfluorobutanesulfonic acid



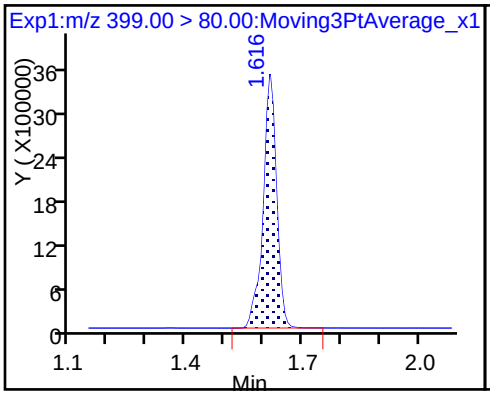
1 Perfluorobutanesulfonic acid



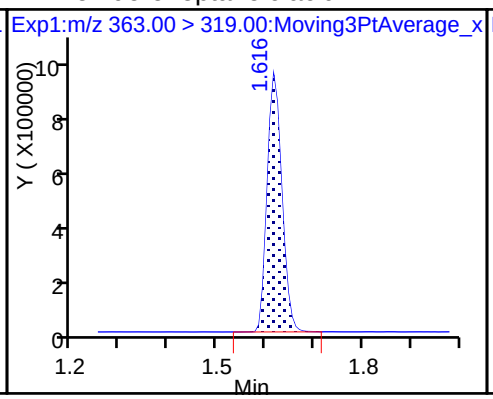
$ 2 13C2 PFHxA



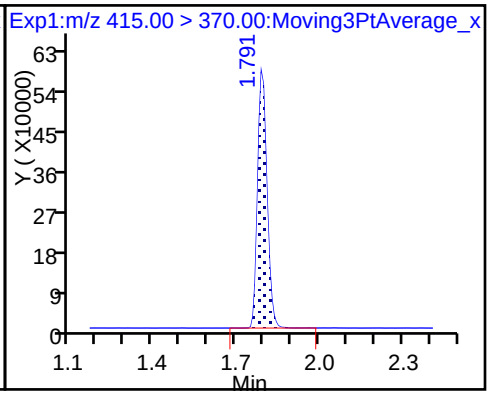
3 Perfluorohexanesulfonic acid



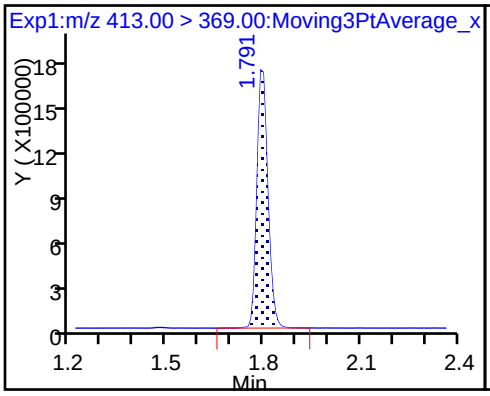
4 Perfluoroheptanoic acid



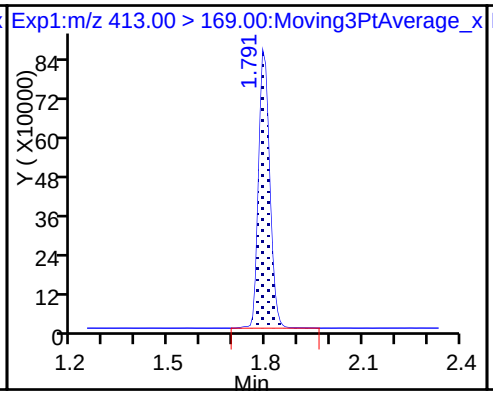
* 6 13C2-PFOA



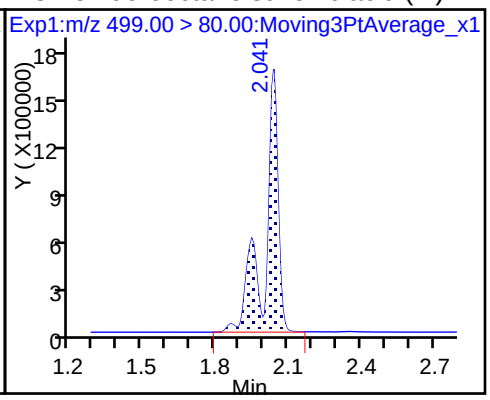
5 Perfluorooctanoic acid



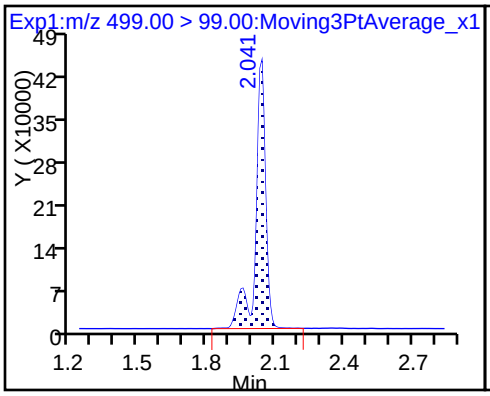
5 Perfluorooctanoic acid



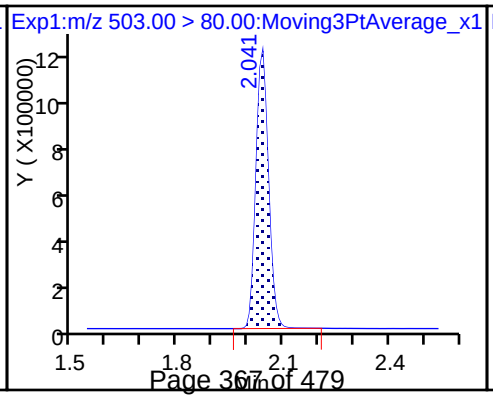
8 Perfluorooctane sulfonic acid (M)



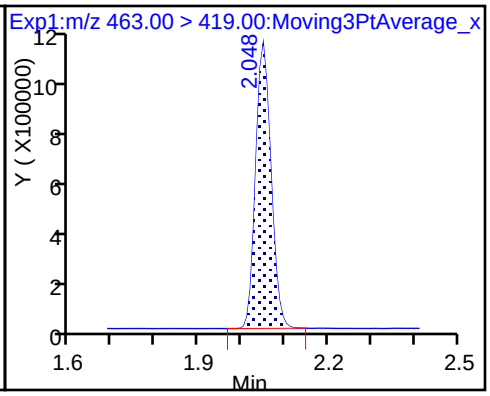
8 Perfluorooctane sulfonic acid



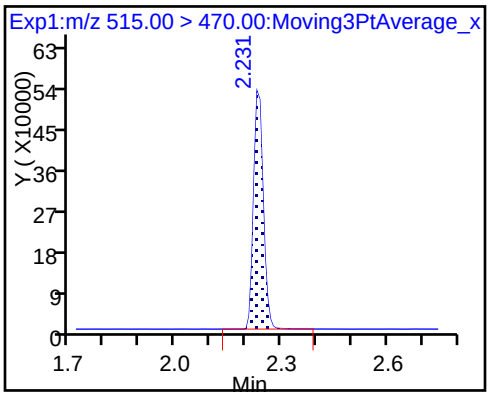
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

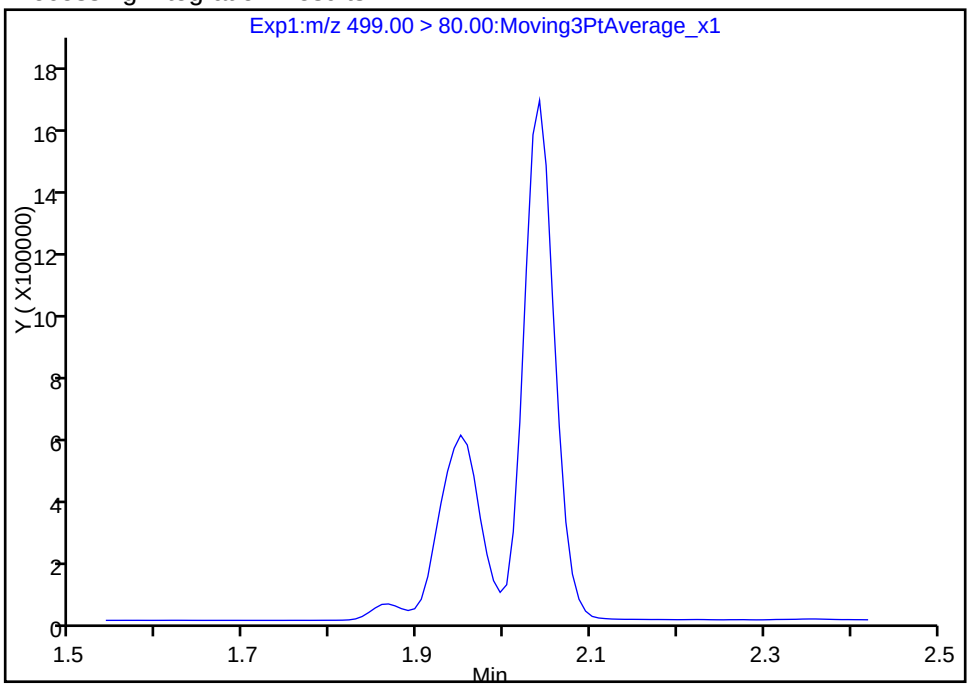
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_029.d				
Injection Date:	08-Feb-2018 09:44:02	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	26
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

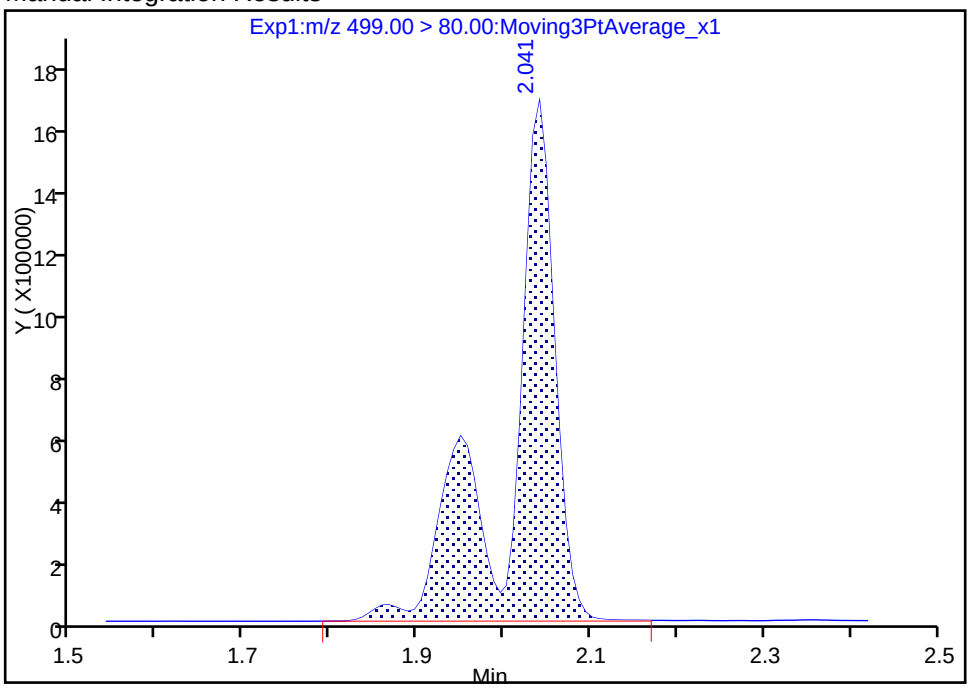
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 6307217
Amount: 64.822658
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:08:29
Audit Action: Manually Integrated Audit Reason: Assign Peak

TestAmerica Sacramento

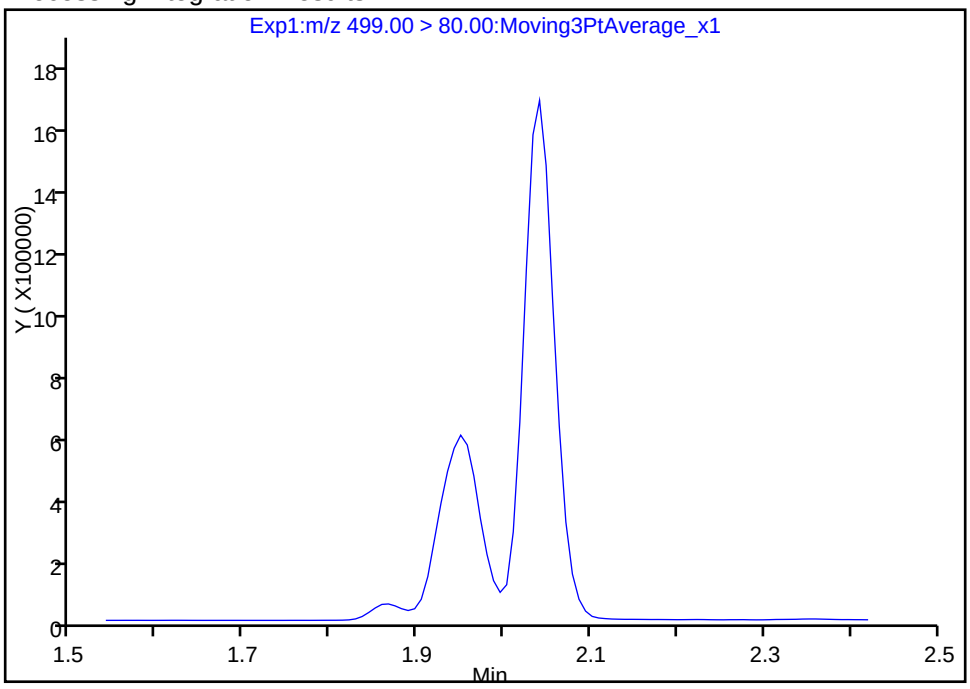
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_029.d
Injection Date: 08-Feb-2018 09:44:02 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

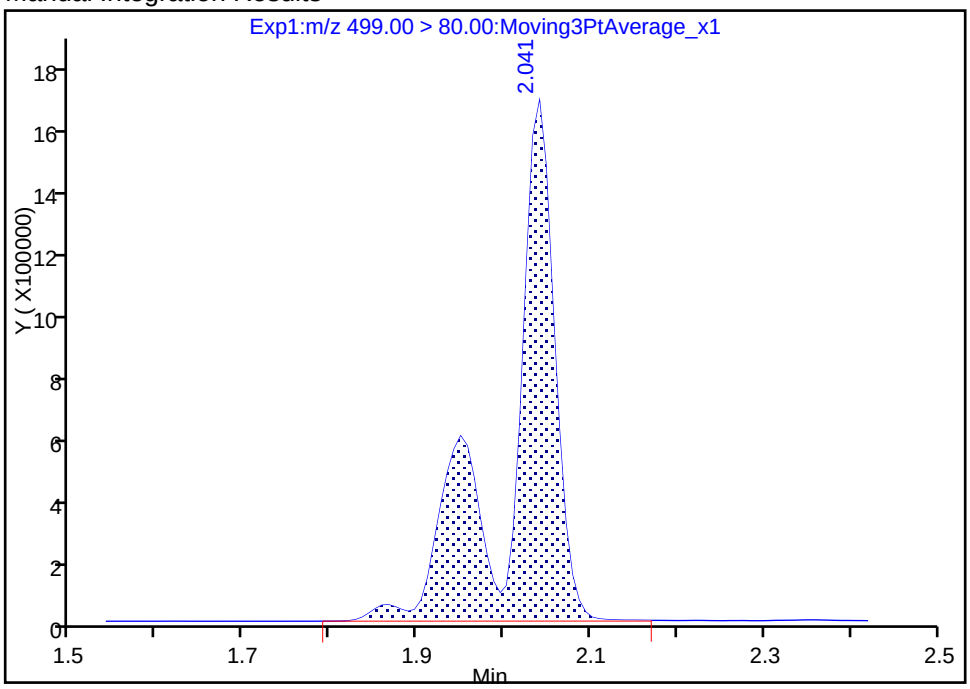
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 6307217
Amount: 64.822658
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:08:29
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207584/31 Calibration Date: 02/08/2018 10:07

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.106		47.5	45.0	5.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.063		5.67	5.00	13.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.718		15.4	15.0	2.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9355		10.2	10.1	1.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9661		20.7	20.1	2.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6595		9.93	10.0	-0.7	30.0
13C2 PFHxA	Ave	1.100	1.101		10.0	10.0	0.0	30.0
13C2 PFDA	Ave	0.7652	0.7161		9.36	10.0	-6.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_034.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 08-Feb-2018 10:07:23 ALS Bottle#: 3 Worklist Smp#: 31
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\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:52:22 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: barnettj Date: 08-Feb-2018 17:09:27

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	5213246	47.5		11734	
298.90 > 99.00	1.358	1.358	0.0	1.000	3928980		1.33(0.00-0.00)	9101	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.472	0.0	1.000	1453042	10.0		6485	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	2700115	15.4		6840	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.616	0.0	1.000	701602	5.67		276	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.791	0.0		1319750	10.0		5377	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.791	1.791	0.0	1.000	1241471	10.2		335	
413.00 > 169.00	1.791	1.791	0.0	1.000	672015		1.85(0.00-0.00)	2181	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.041	2.041	0.0	1.000	2032817	20.7		1190	M
499.00 > 99.00	2.033	2.041	-0.008	0.996	407789		4.98(0.00-0.00)	1087	M
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.033	0.0		3004560	28.7		5442	
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.048	0.0	1.000	870625	9.93		280	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	945043	9.36		5591	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024 Amount Added: 1.00 Units: mL

Report Date: 09-Feb-2018 09:52:23 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_034.d

Injection Date: 08-Feb-2018 10:07:23 Instrument ID: A8_N

Lims ID: CCV L3

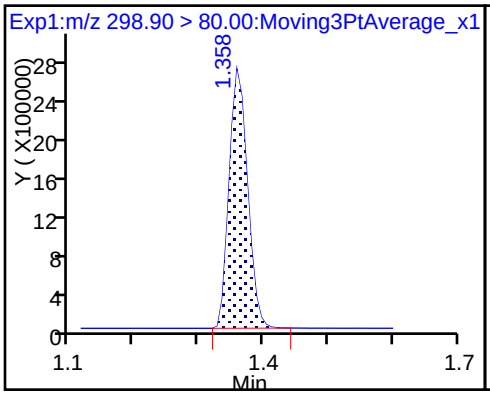
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 31

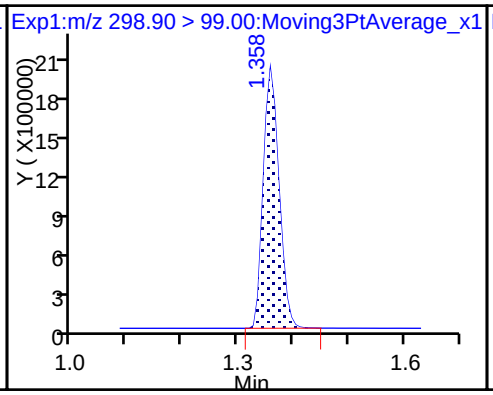
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

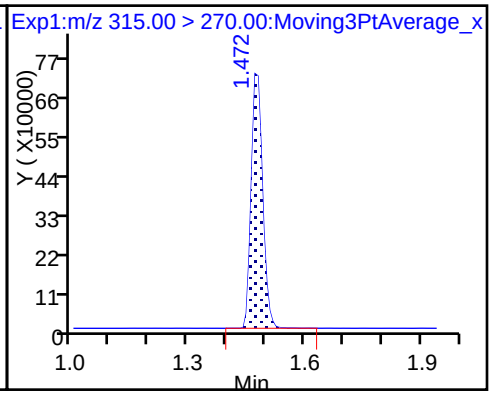
1 Perfluorobutanesulfonic acid



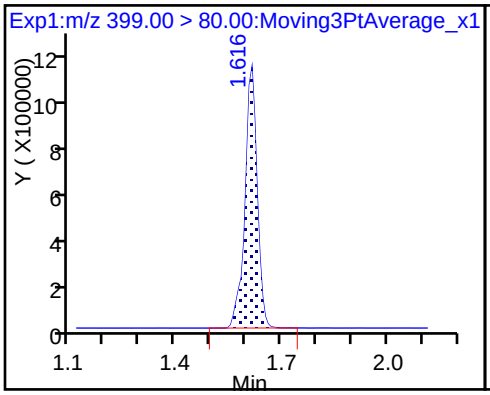
1 Perfluorobutanesulfonic acid



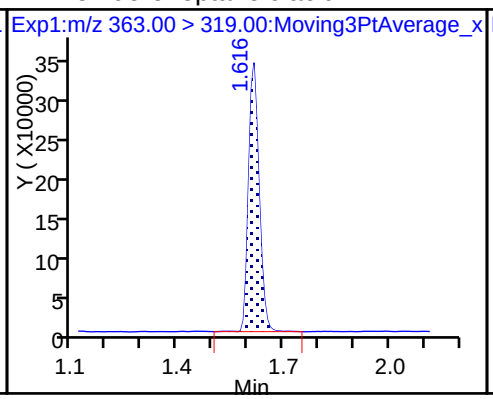
$ 2 13C2 PFHxA



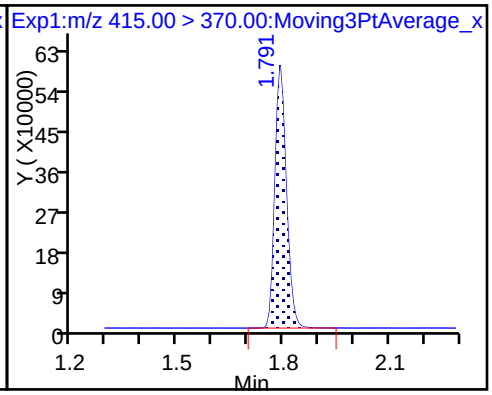
3 Perfluorohexanesulfonic acid



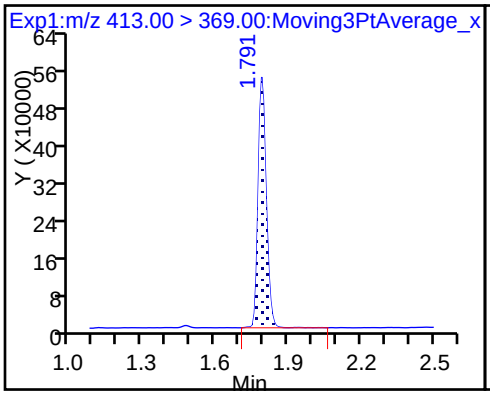
4 Perfluoroheptanoic acid



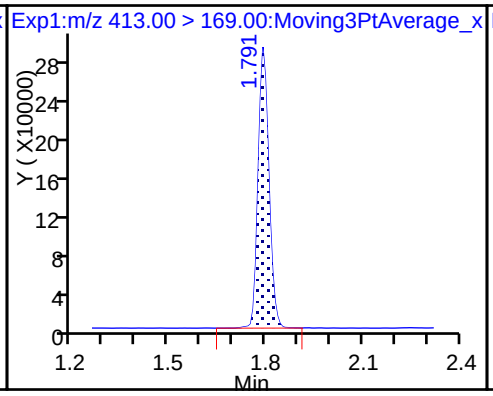
* 6 13C2-PFOA



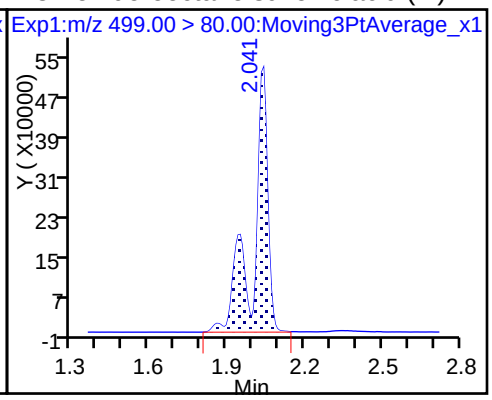
5 Perfluorooctanoic acid



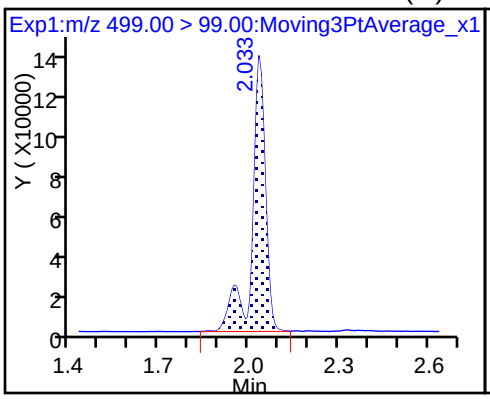
5 Perfluorooctanoic acid



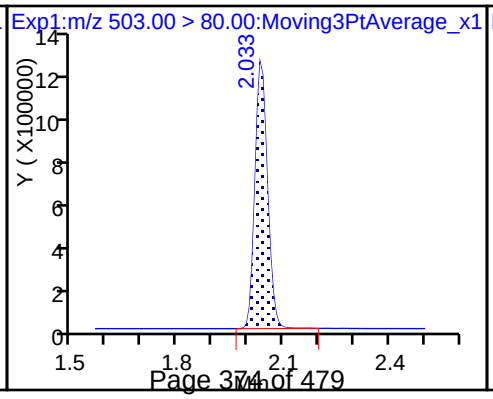
8 Perfluorooctane sulfonic acid (M)



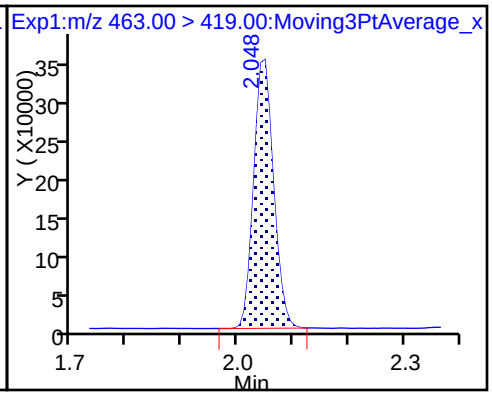
8 Perfluorooctane sulfonic acid (M)



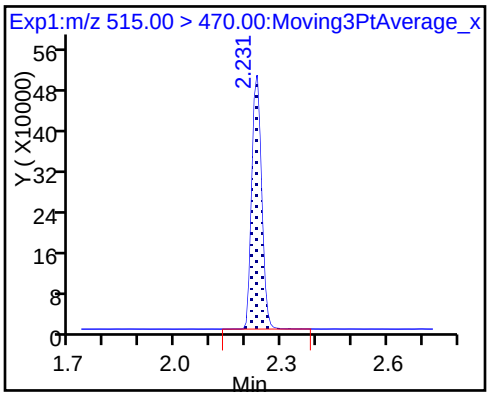
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
56
48
40
32
24
16
8
0
1.7
2.0
2.3
2.6
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

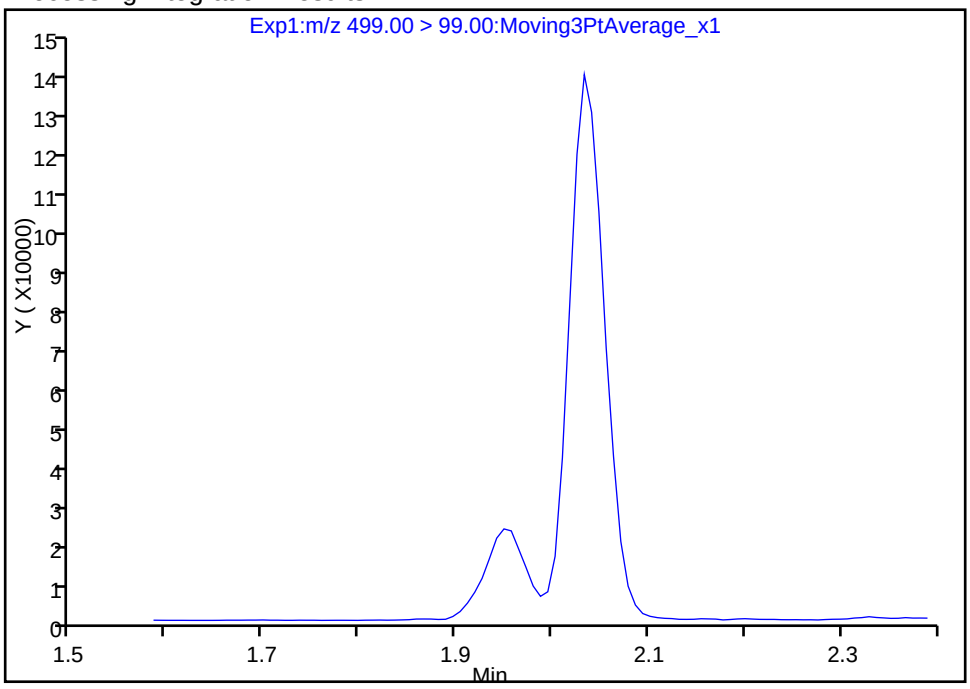
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_034.d
Injection Date: 08-Feb-2018 10:07:23 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

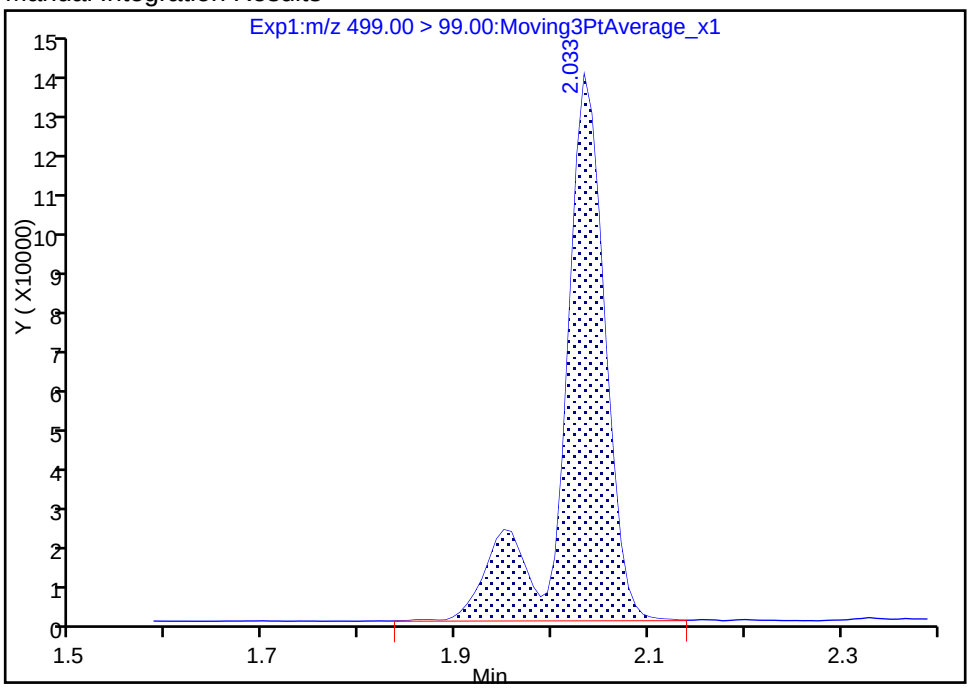
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.03
Area: 407789
Amount: 20.665917
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:09:17
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

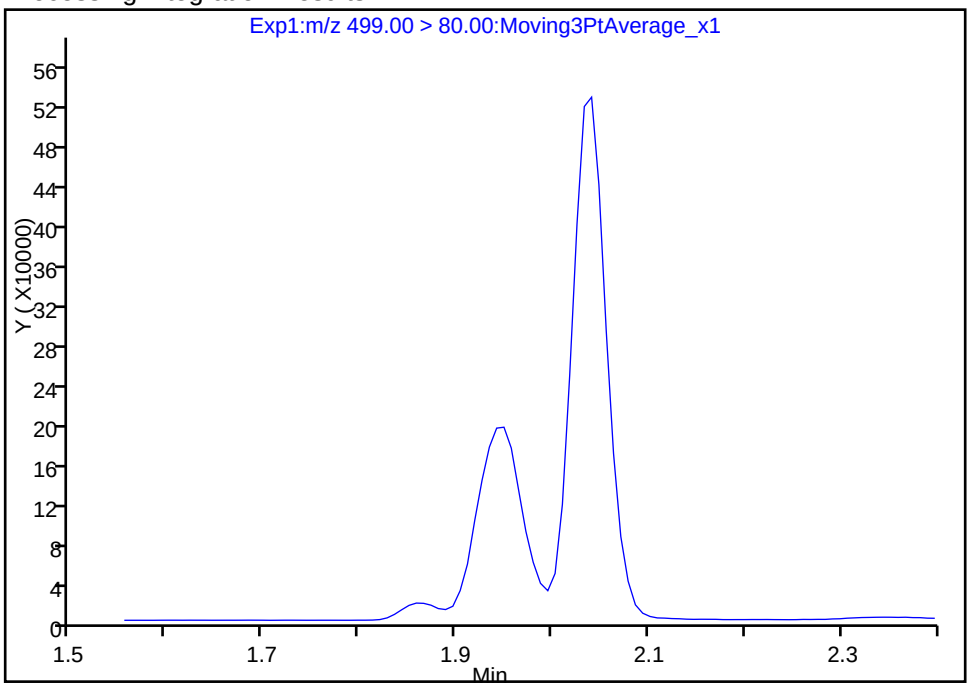
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_034.d
Injection Date: 08-Feb-2018 10:07:23 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

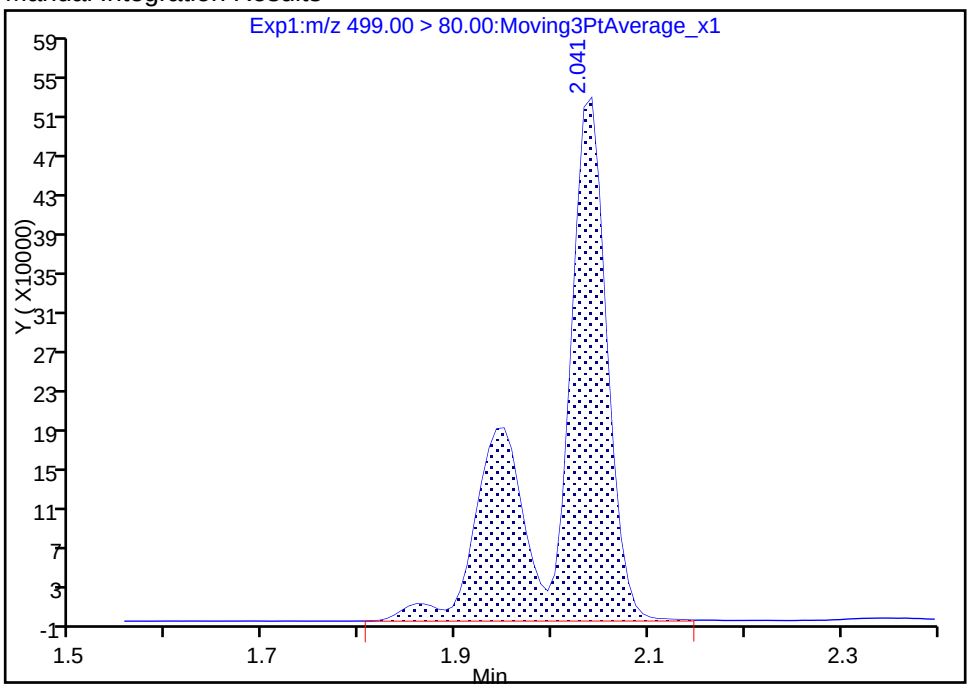
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 2032817
Amount: 20.665917
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:09:17
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207588/1 Calibration Date: 02/08/2018 10:40

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537AA_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.144		49.3	45.0	9.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.020		5.45	5.00	8.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.807		16.2	15.0	7.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9234		10.0	10.1	-0.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9869		21.1	20.1	5.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6827		10.3	10.0	2.8	30.0
13C2 PFHxA	Ave	1.100	1.111		10.1	10.0	1.0	30.0
13C2 PFDA	Ave	0.7652	0.7315		9.56	10.0	-4.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_034.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 08-Feb-2018 10:40:04 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\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 14:09:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	5112345	49.3		11478	
298.90 > 99.00	1.366	1.366	0.0	1.000	3952962		1.29(0.00-0.00)	9962	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1430402	10.1		6411	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	2691538	16.2		7435	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	656904	5.45		265	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1287308	10.0		4902	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	1195284	10.0		372	
413.00 > 169.00	1.798	1.798	0.0	1.000	652167		1.83(0.00-0.00)	2074	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.041	0.0		2846828	28.7		5157	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.041	2.041	0.0	1.000	1967604	21.1		1181	M
499.00 > 99.00	2.041	2.041	0.0	1.000	411832		4.78(0.00-0.00)	1136	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.048	0.0	1.000	879086	10.3		370	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	941611	9.56		6069	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024 Amount Added: 1.00 Units: mL

Report Date: 09-Feb-2018 10:11:51 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_034.d

Injection Date: 08-Feb-2018 10:40:04 Instrument ID: A8_N

Lims ID: CCV L3

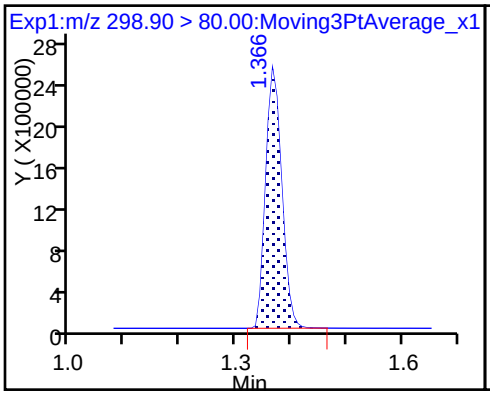
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 1

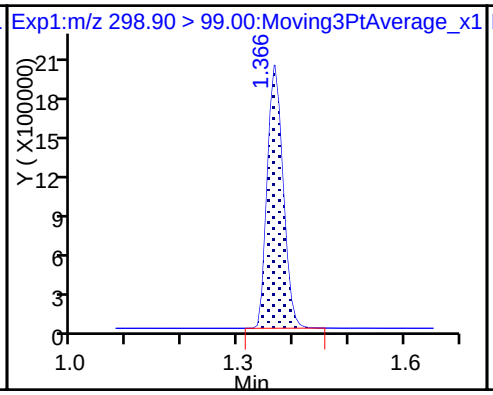
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

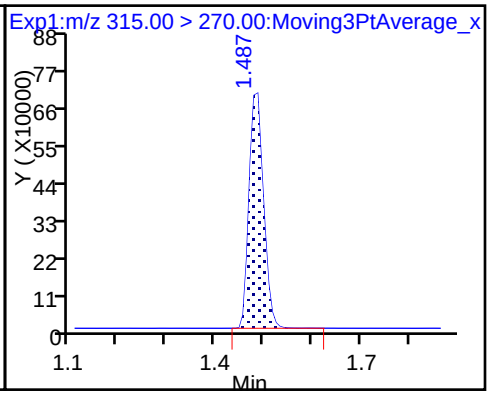
1 Perfluorobutanesulfonic acid



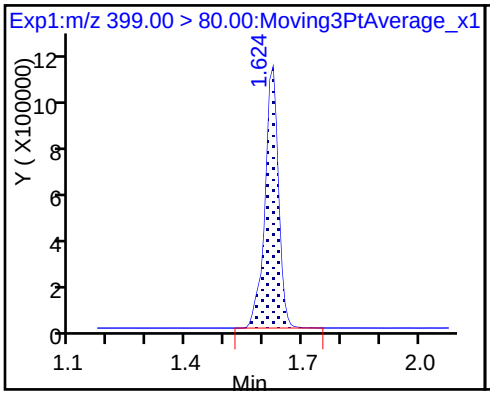
1 Perfluorobutanesulfonic acid



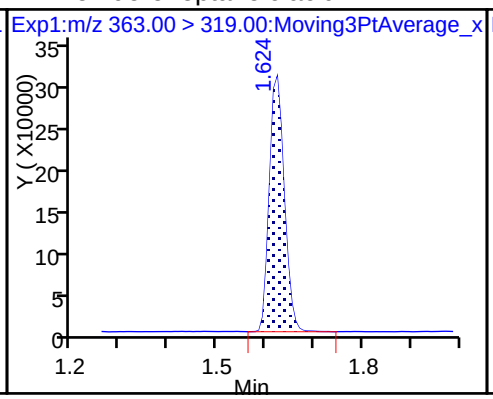
$ 2 13C2 PFHxA



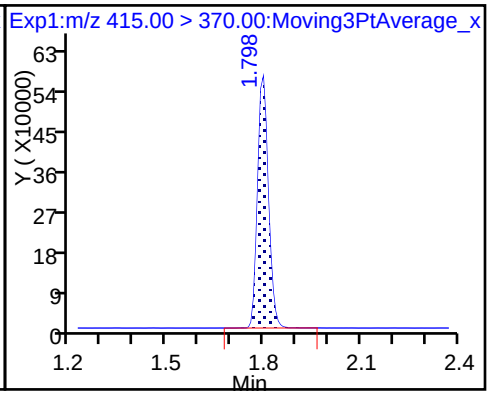
3 Perfluorohexanesulfonic acid



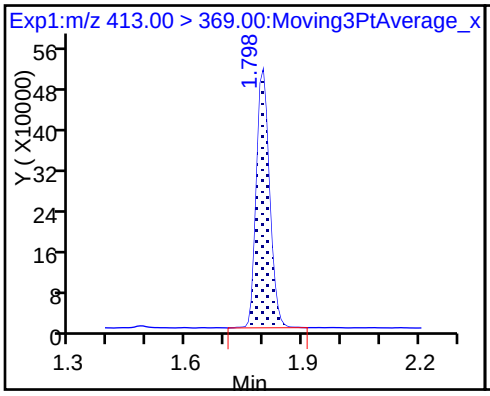
4 Perfluoroheptanoic acid



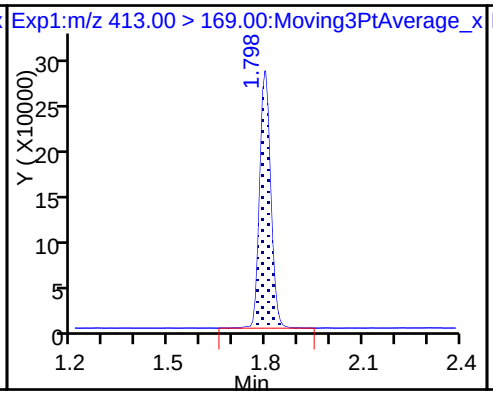
* 6 13C2-PFOA



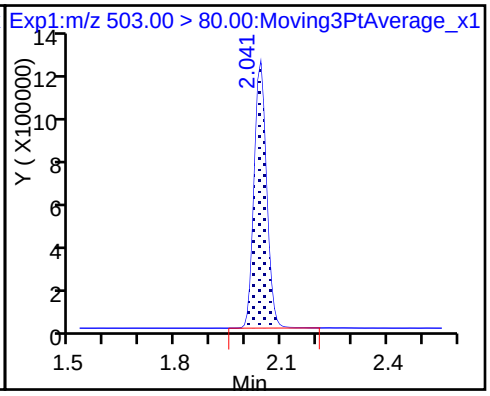
5 Perfluorooctanoic acid



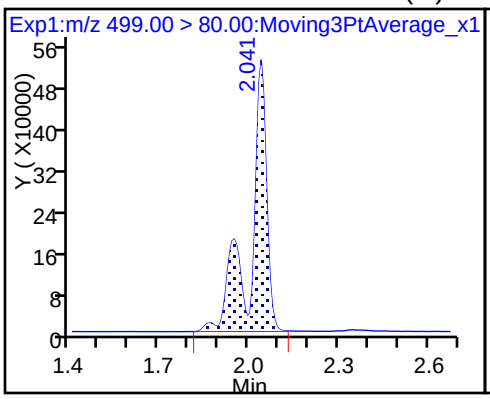
5 Perfluorooctanoic acid



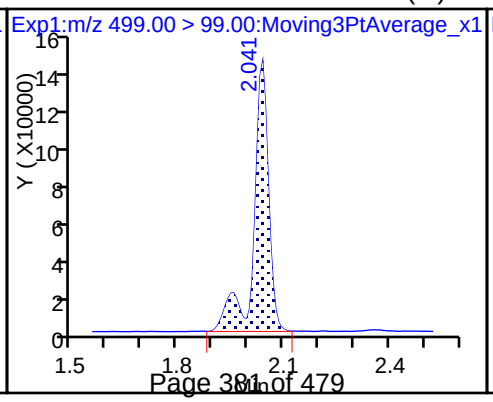
* 7 13C4 PFOS



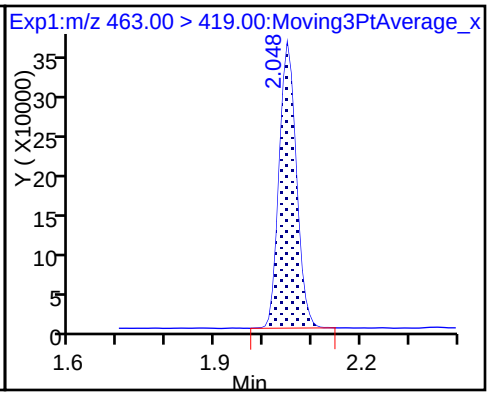
8 Perfluorooctane sulfonic acid (M)



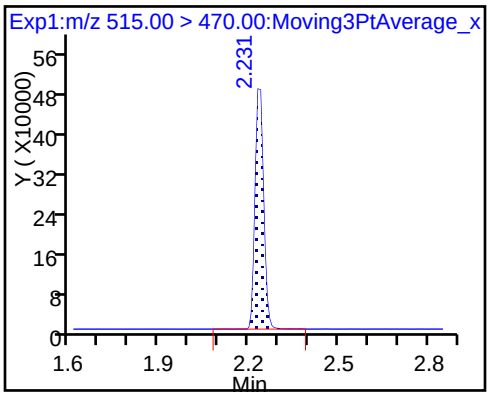
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
56
48
40
32
24
16
8
0
1.6
1.9
2.2
2.5
2.8
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

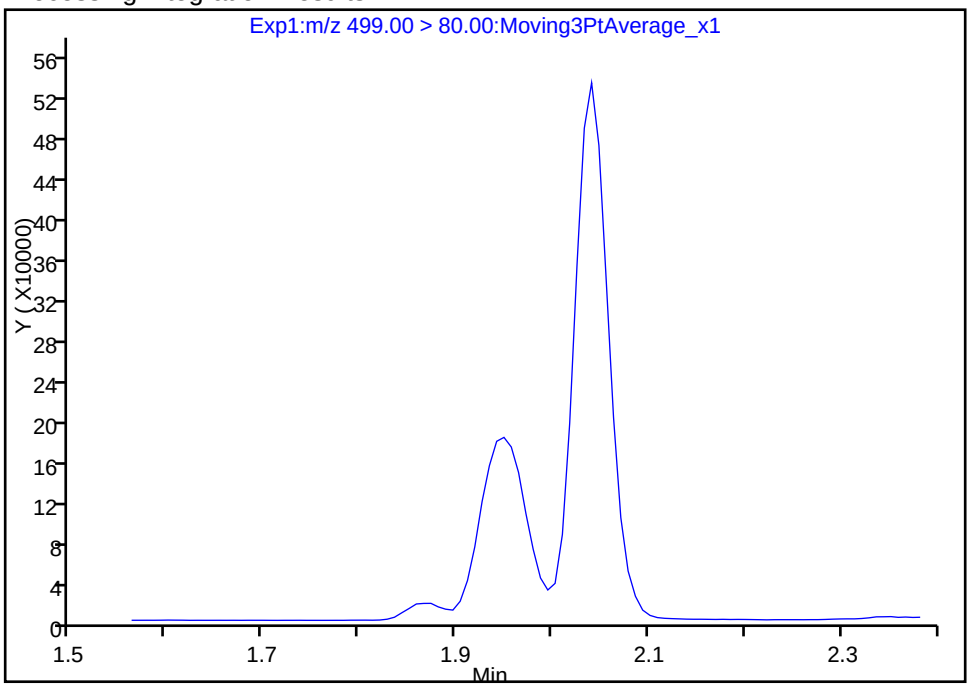
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_034.d
Injection Date: 08-Feb-2018 10:40:04 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

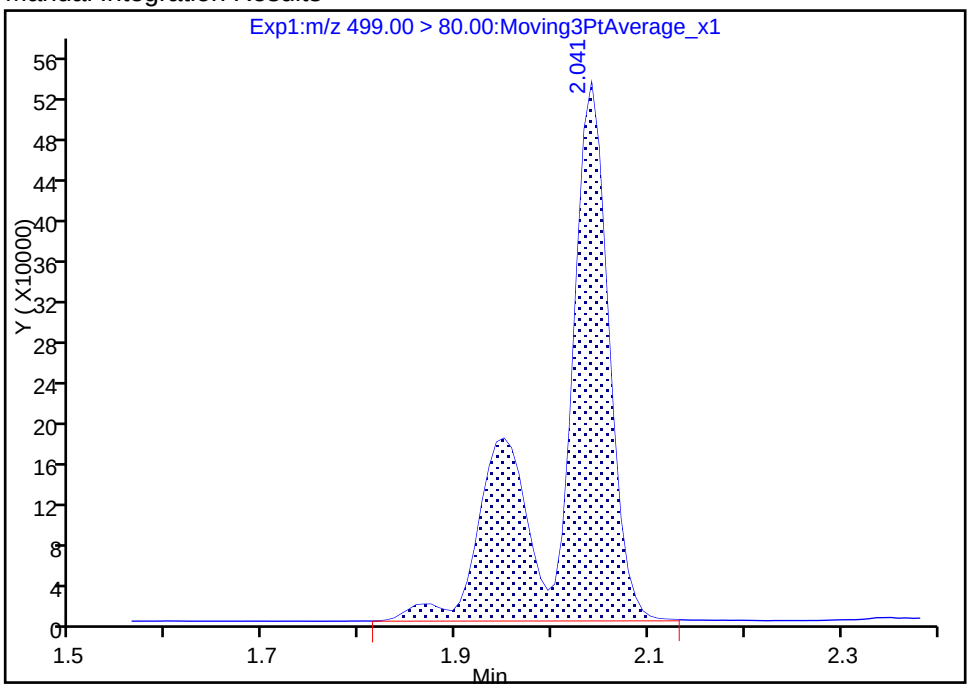
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 1967604
Amount: 21.111240
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:04:07
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

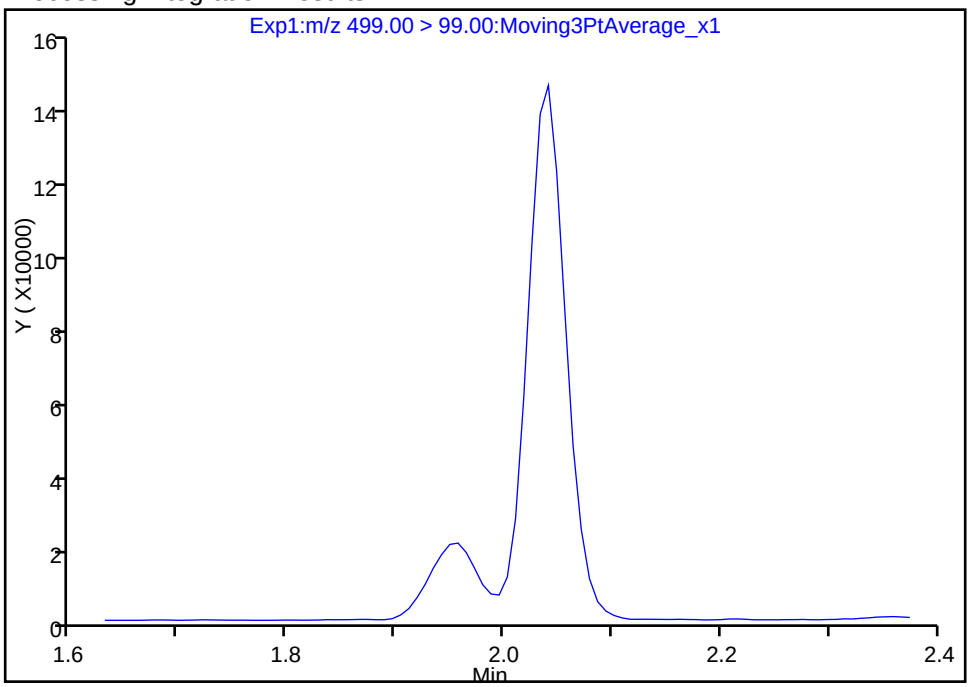
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_034.d
Injection Date: 08-Feb-2018 10:40:04 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

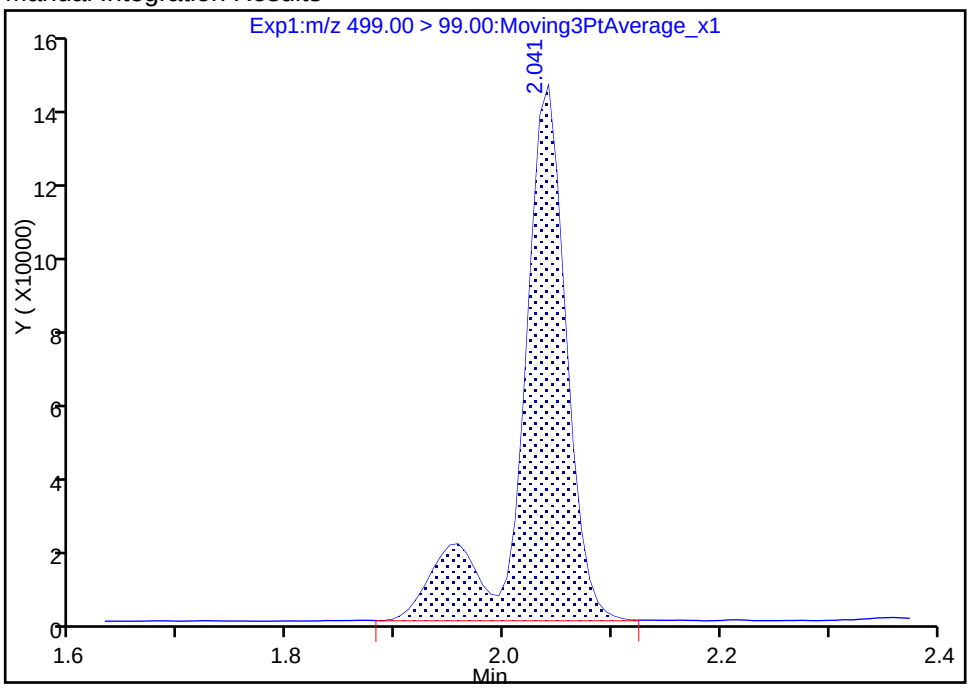
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 411832
Amount: 21.111240
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:04:19
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207588/9 Calibration Date: 02/08/2018 11:17

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537AA_042.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9651		144	135	6.9	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.031		16.5	15.0	10.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.727		46.4	45.0	3.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9840		32.1	30.2	6.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.000		64.2	60.3	6.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6786		30.7	30.0	2.2	30.0
13C2 PFHxA	Ave	1.100	1.141		10.4	10.0	3.7	30.0
13C2 PFDA	Ave	0.7652	0.7424		9.70	10.0	-3.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_042.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 08-Feb-2018 11:17:26 ALS Bottle#: 5 Worklist Smp#: 9
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\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:57 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 14:11:06

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	13319057	144.3		16457	
298.90 > 99.00	1.366	1.366	0.0	1.000	10059926		1.32(0.00-0.00)	14186	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1456829	10.4		6935	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	7947412	46.4		12636	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	1973709	16.5		750	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1276407	10.0		5281	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	3788631	32.1		1128	
413.00 > 169.00	1.798	1.798	0.0	1.000	2010727		1.88(0.00-0.00)	6526	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.041	0.0		2931691	28.7		5291	
8 Perfluorooctane sulfonic acid									a
499.00 > 80.00	2.041	2.041	0.0	1.000	6157477	64.2		3307	a
499.00 > 99.00	2.033	2.041	-0.008	0.996	1291456		4.77(0.00-0.00)	2868	
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.048	0.0	1.000	2599512	30.7		1004	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	947629	9.70		6054	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L5_00025 Amount Added: 1.00 Units: mL

Report Date: 09-Feb-2018 10:11:58 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_042.d

Injection Date: 08-Feb-2018 11:17:26 Instrument ID: A8_N

Lims ID: CCV L5

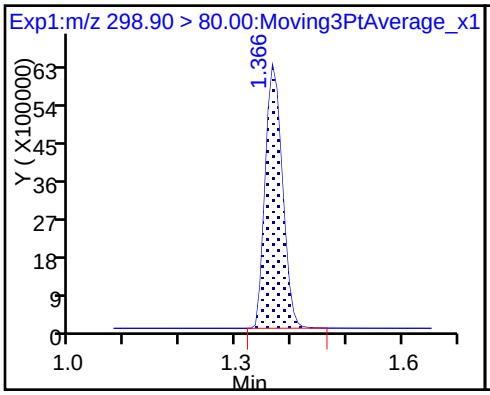
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 9

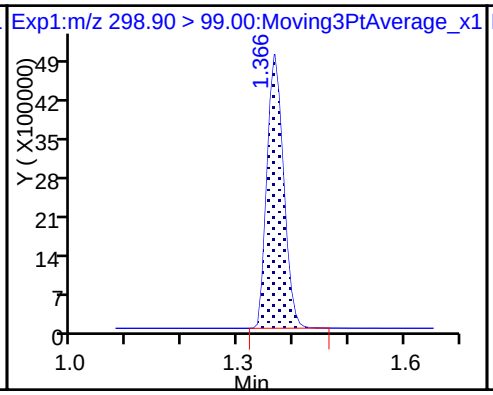
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

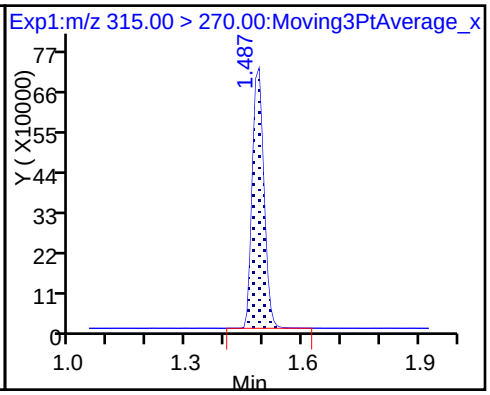
1 Perfluorobutanesulfonic acid



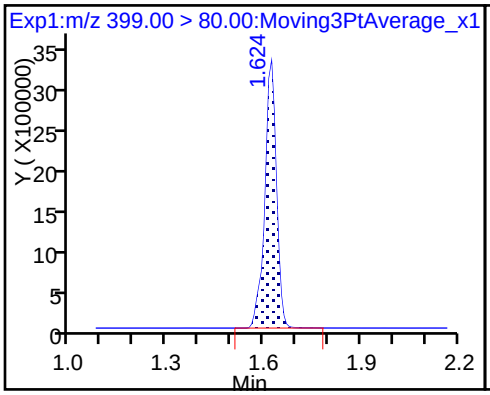
1 Perfluorobutanesulfonic acid



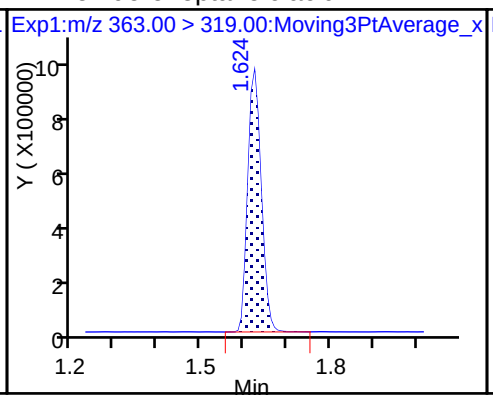
$ 2 13C2 PFHxA



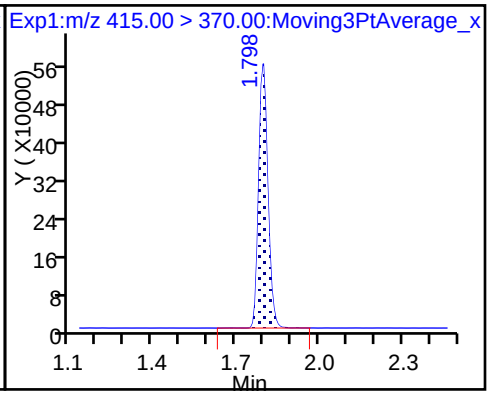
3 Perfluorohexanesulfonic acid



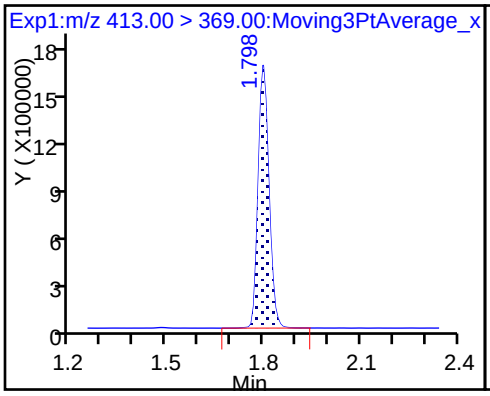
4 Perfluoroheptanoic acid



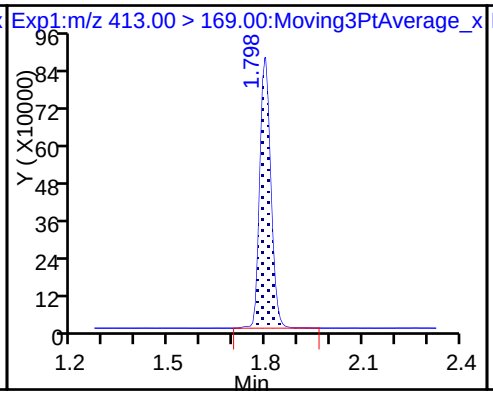
* 6 13C2-PFOA



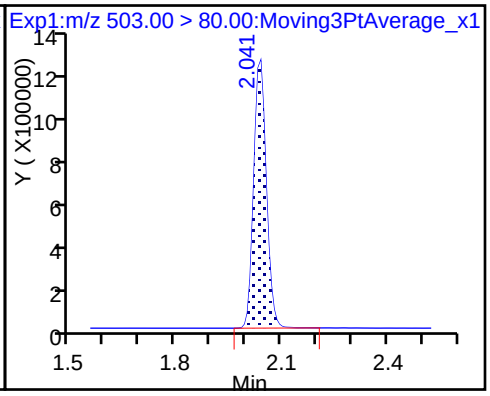
5 Perfluorooctanoic acid



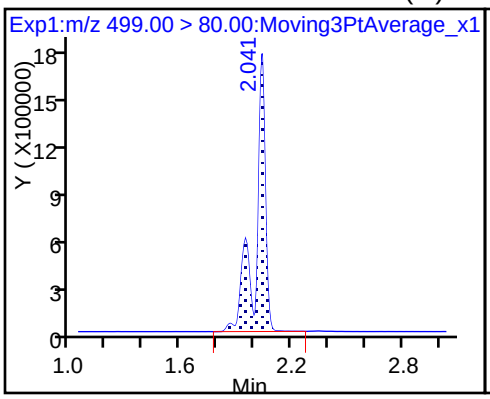
5 Perfluorooctanoic acid



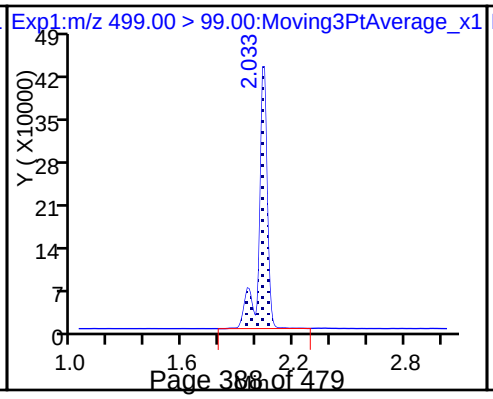
* 7 13C4 PFOS



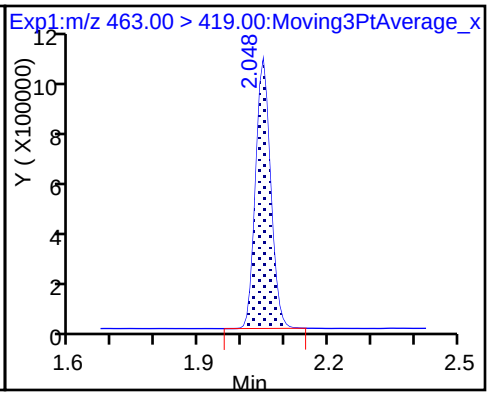
8 Perfluorooctane sulfonic acid (M)



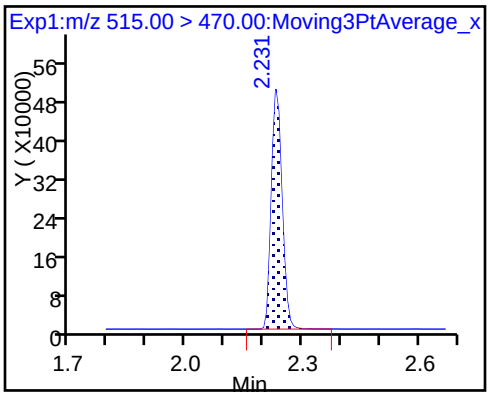
8 Perfluorooctane sulfonic acid



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
56
48
40
32
24
16
8
0
1.7
2.0
2.3
2.6
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

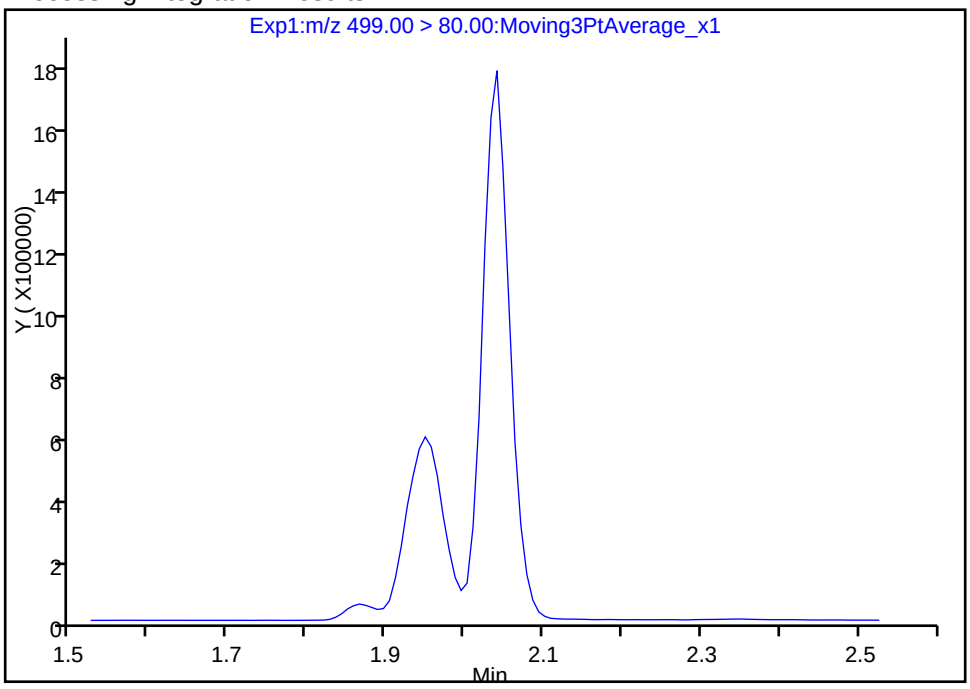
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_042.d				
Injection Date:	08-Feb-2018 11:17:26	Instrument ID:	A8_N		
Lims ID:	CCV L5				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	5	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

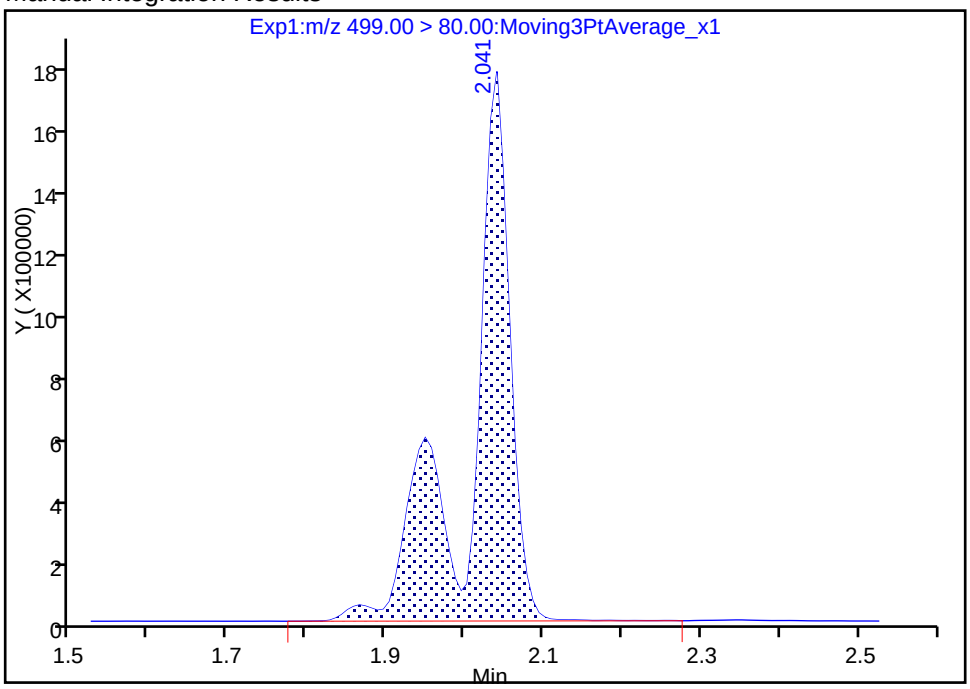
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 6157477
Amount: 64.153727
Amount Units: ng/ml



Reviewer: roycea, 08-Feb-2018 14:10:55
Audit Action: Assigned Compound ID Audit Reason: User Assigned

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-206718/1-A

Matrix: Water | Lab File ID: 2018.02.08_537AA_036.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/08/2018 10:49

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | 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	93		70-130
STL00996	13C2 PFDA	87		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_036.d
Lims ID: MB 320-206718/1-A
Client ID:
Sample Type: MB
Inject. Date: 08-Feb-2018 10:49:23 ALS Bottle#: 24 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-206718/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1500311	9.25		7510	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1473815	10.0		5977	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.041	0.0		3467952	28.7		7498	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	983891	8.72		6733	

Report Date: 09-Feb-2018 10:11:53 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_036.d

Injection Date: 08-Feb-2018 10:49:23 Instrument ID: A8_N

Lims ID: MB 320-206718/1-A

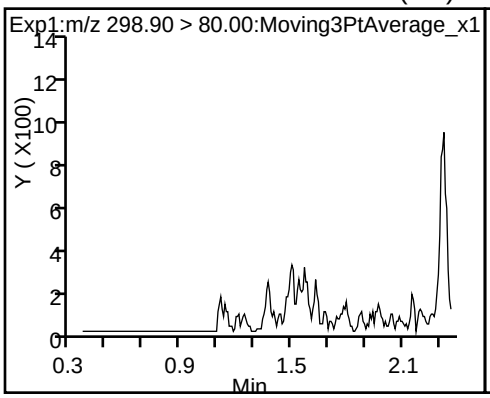
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 3

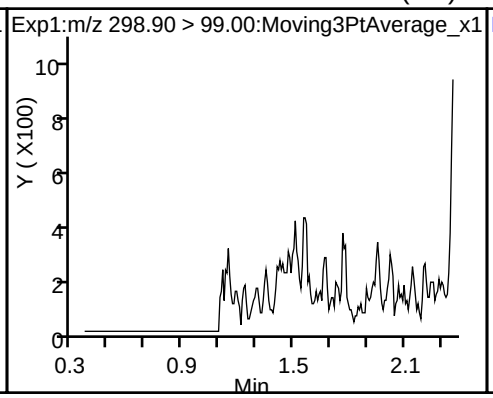
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

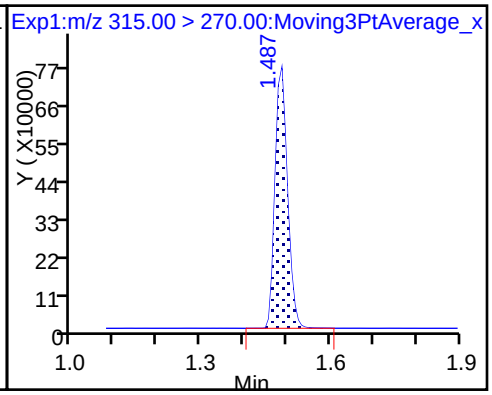
1 Perfluorobutanesulfonic acid (ND)



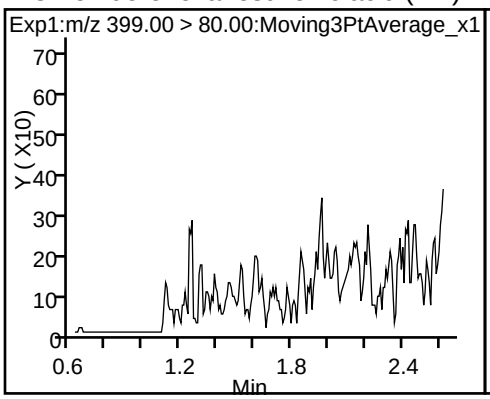
1 Perfluorobutanesulfonic acid (ND)



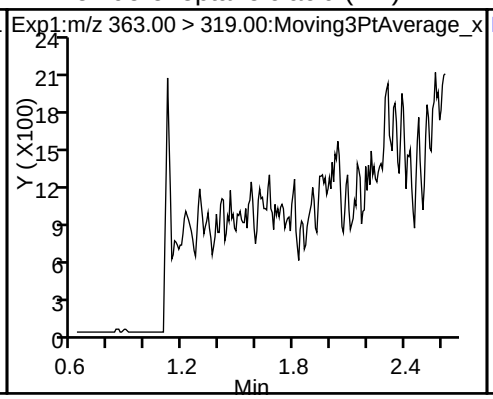
$ 2 13C2 PFHxA



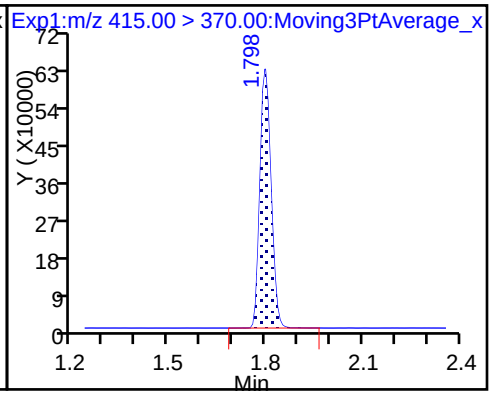
3 Perfluorohexanesulfonic acid (ND)



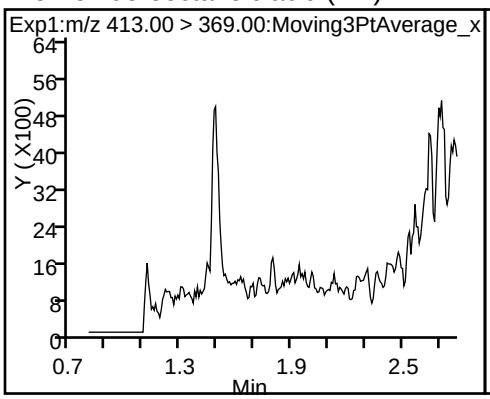
4 Perfluoroheptanoic acid (ND)



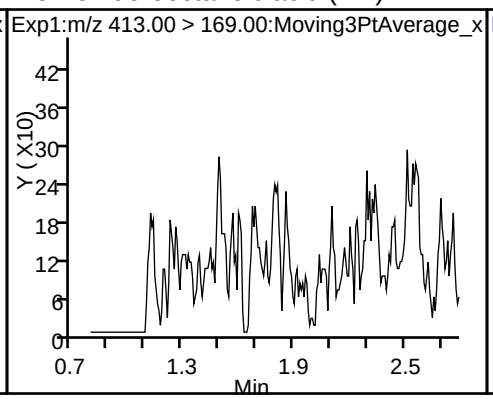
* 6 13C2-PFOA



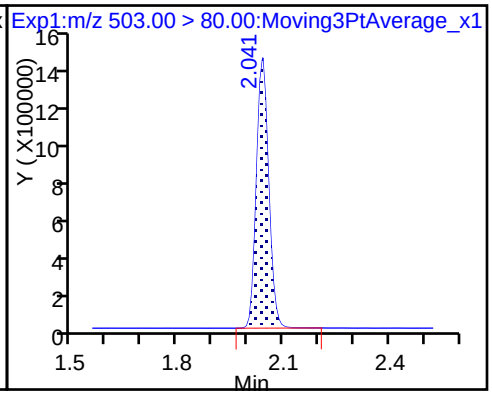
5 Perfluorooctanoic acid (ND)



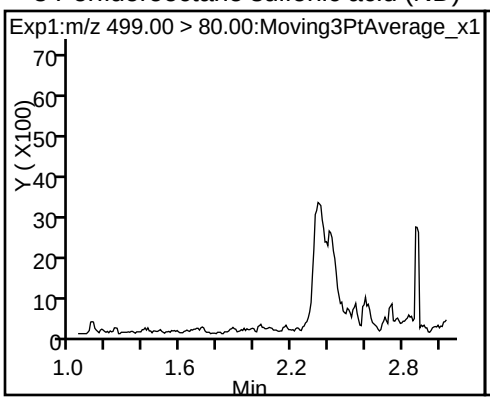
5 Perfluorooctanoic acid (ND)



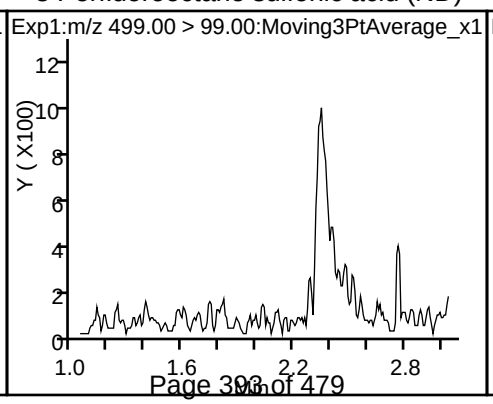
* 7 13C4 PFOS



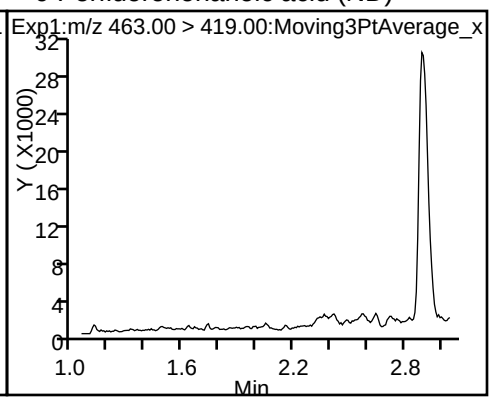
8 Perfluorooctane sulfonic acid (ND)



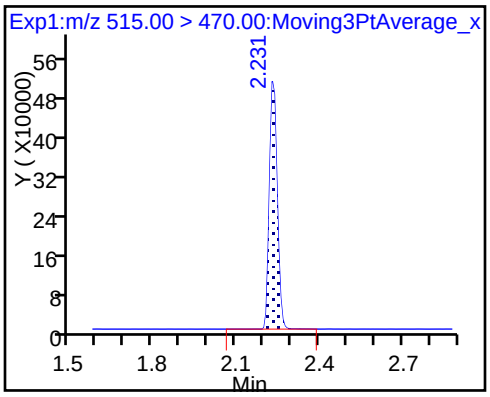
8 Perfluorooctane sulfonic acid (ND)



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
56
48
40
32
24
16
8
0
1.5
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_036.d
Lims ID: MB 320-206718/1-A
Client ID:
Sample Type: MB
Inject. Date: 08-Feb-2018 10:49:23 ALS Bottle#: 24 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-206718/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.25	92.52
$ 10 13C2 PFDA	10.0	8.72	87.24

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-206719/1-A

Matrix: Water | Lab File ID: 2018.02.08_537A_007.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/08/2018 08:01

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | 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	103		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_007.d
Lims ID: MB 320-206719/1-A
Client ID:
Sample Type: MB
Inject. Date: 08-Feb-2018 08:01:09 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-206719/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

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	1545631	10.3		7141	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.798	0.008		1364963	10.0		4283	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3110629	28.7		5735	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1159148	11.1		6748	

Report Date: 09-Feb-2018 09:51:55 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_007.d

Injection Date: 08-Feb-2018 08:01:09 Instrument ID: A8_N

Lims ID: MB 320-206719/1-A

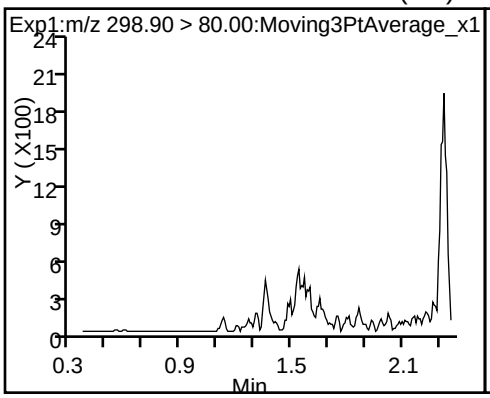
Client ID:

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

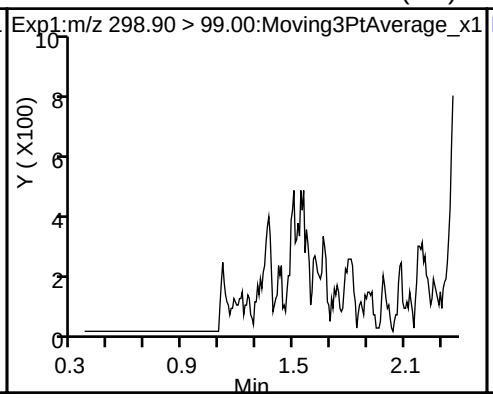
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

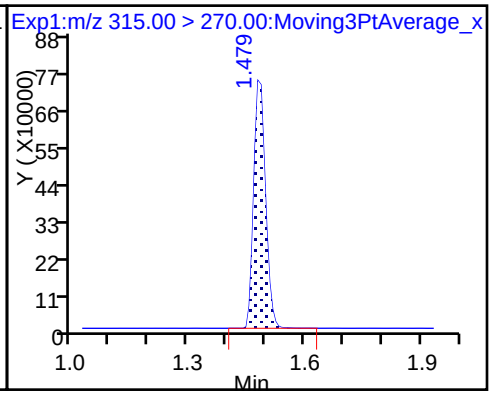
1 Perfluorobutanesulfonic acid (ND)



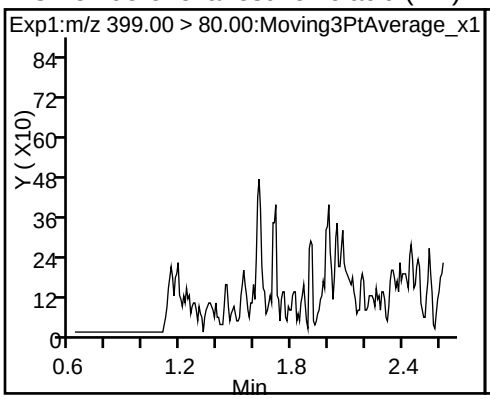
1 Perfluorobutanesulfonic acid (ND)



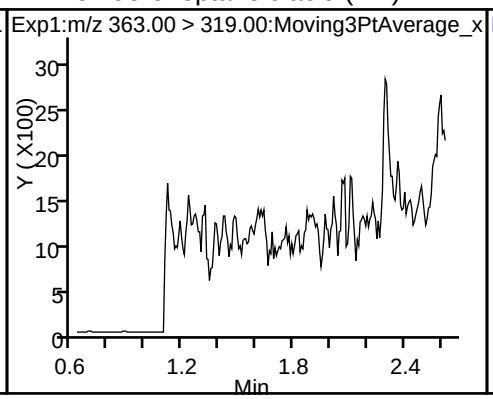
$ 2 13C2 PFHxA



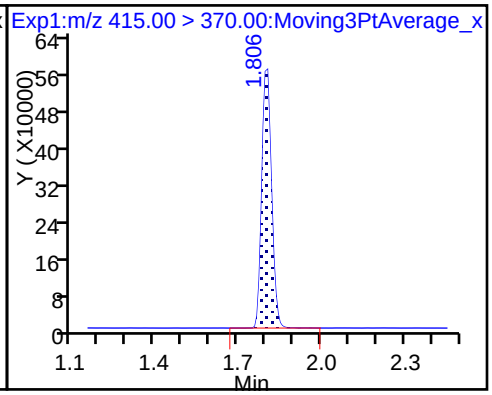
3 Perfluorohexanesulfonic acid (ND)



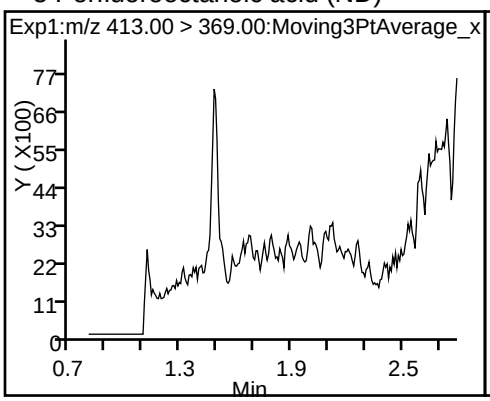
4 Perfluoroheptanoic acid (ND)



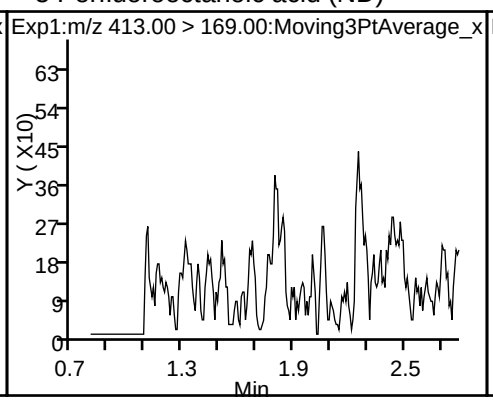
* 6 13C2-PFOA



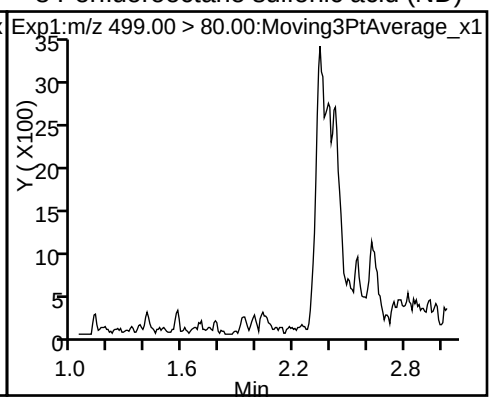
5 Perfluorooctanoic acid (ND)



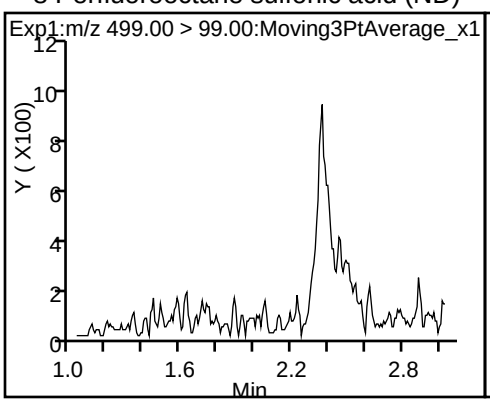
5 Perfluorooctanoic acid (ND)



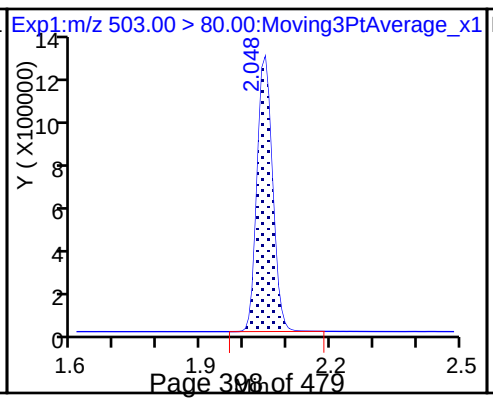
8 Perfluorooctane sulfonic acid (ND)



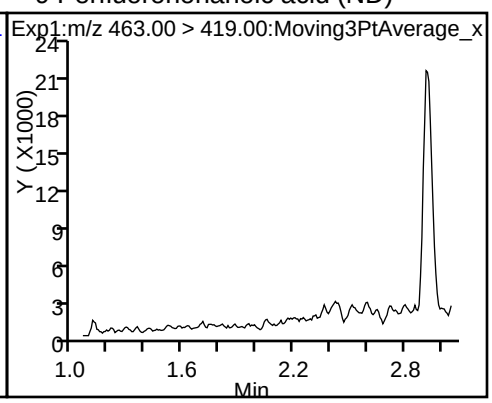
8 Perfluorooctane sulfonic acid (ND)



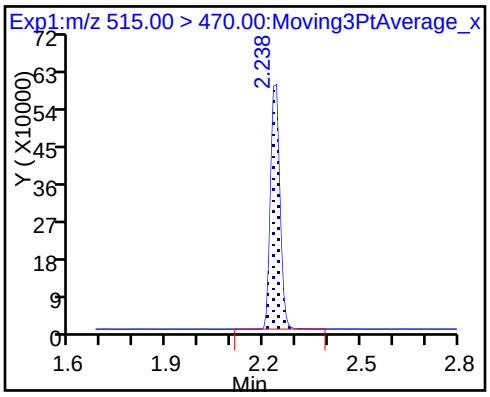
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
72
63
54
45
36
27
18
9
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_007.d
Lims ID: MB 320-206719/1-A
Client ID:
Sample Type: MB
Inject. Date: 08-Feb-2018 08:01:09 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-206719/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.3	102.91
$ 10 13C2 PFDA	10.0	11.1	110.98

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 320-206718/2-A

Matrix: Water | Lab File ID: 2018.02.08_537AA_037.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/08/2018 10:54

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	189	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	104		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	102		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	147		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	59.3		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	390		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	87		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_037.d
Lims ID: LCS 320-206718/2-A
Client ID:
Sample Type: LCS
Inject. Date: 08-Feb-2018 10:54:03 ALS Bottle#: 25 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-206718/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 14:10:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	11702517	97.5		16581	
298.90 > 99.00	1.366	1.366	0.0	1.000	9077588		1.29(0.00-0.00)	13765	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1392258	8.63		6587	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	7602604	36.8		12359	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	2037506	14.8		781	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1466908	10.0		5412	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	3515721	25.9		992	
413.00 > 169.00	1.798	1.798	0.0	1.000	1933763		1.82(0.00-0.00)	5650	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.041	-0.008		3537248	28.7		6421	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.041	2.041	0.0	1.000	5471867	47.3		2829	M
499.00 > 99.00	2.041	2.041	0.0	1.000	1158931		4.72(0.00-0.00)	2238	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.048	0.0	1.000	2491426	25.6		535	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	974268	8.68		6873	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 09-Feb-2018 10:11:53 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_037.d

Injection Date: 08-Feb-2018 10:54:03 Instrument ID: A8_N

Lims ID: LCS 320-206718/2-A

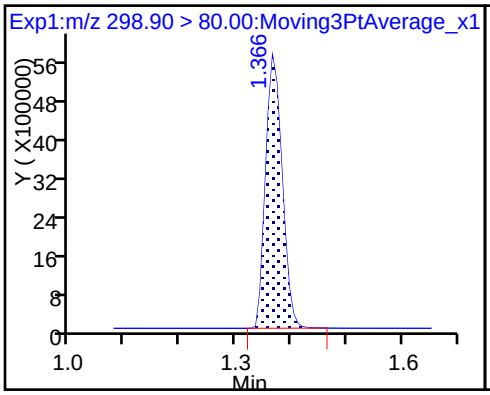
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 25 Worklist Smp#: 4

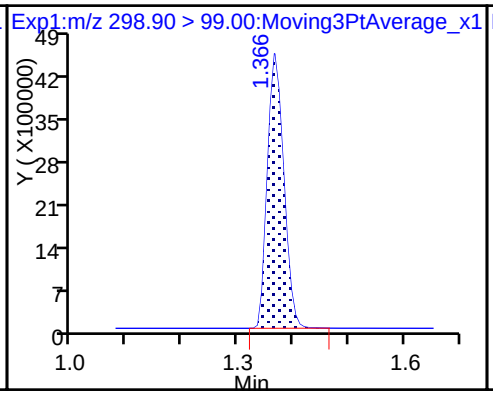
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

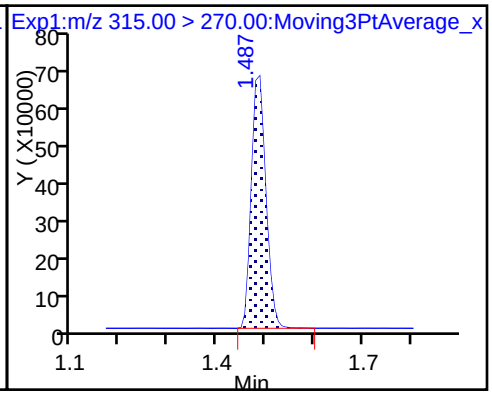
1 Perfluorobutanesulfonic acid



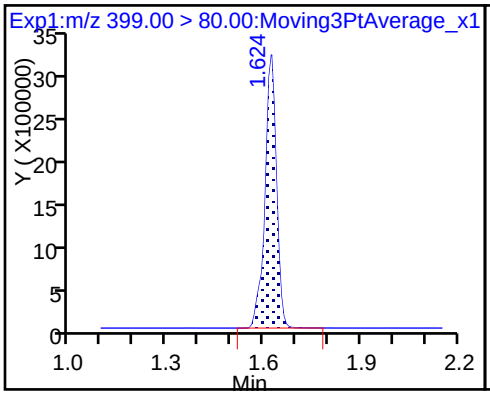
1 Perfluorobutanesulfonic acid



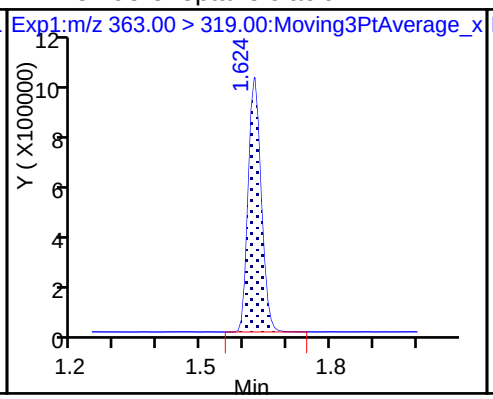
$ 2 13C2 PFHxA



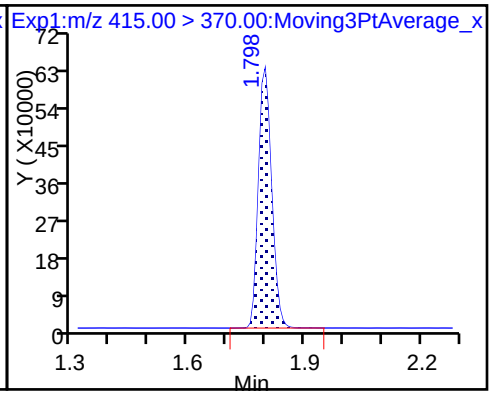
3 Perfluorohexanesulfonic acid



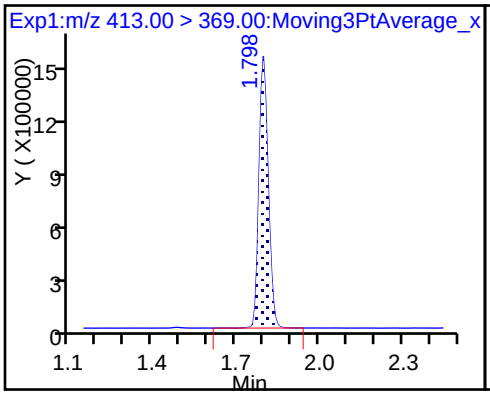
4 Perfluoroheptanoic acid



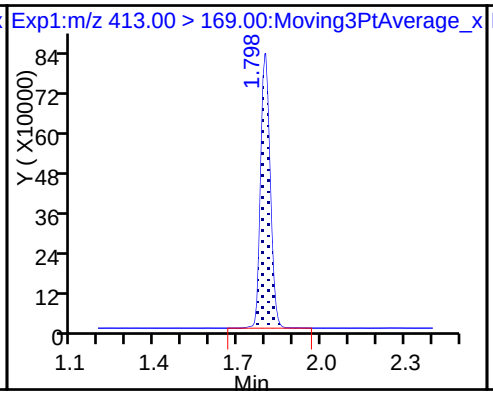
* 6 13C2-PFOA



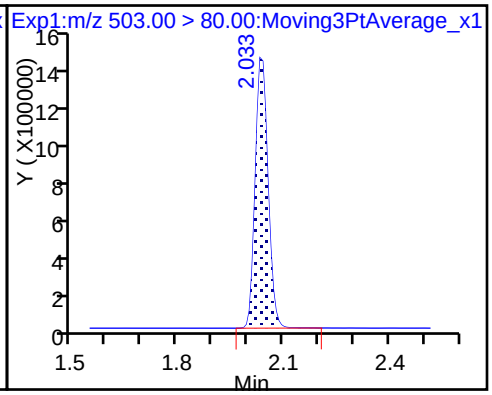
5 Perfluorooctanoic acid



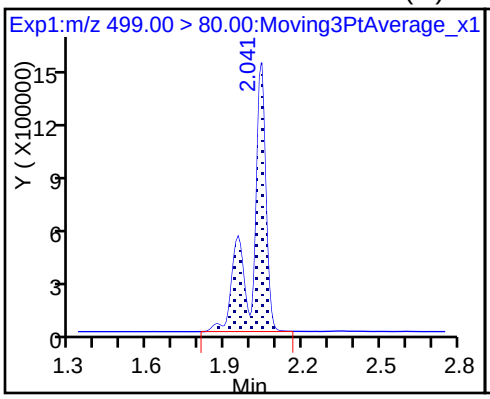
5 Perfluorooctanoic acid



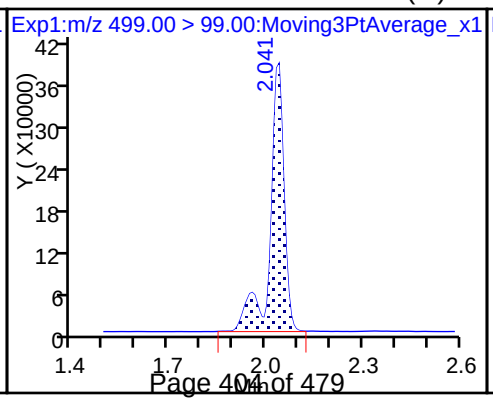
* 7 13C4 PFOS



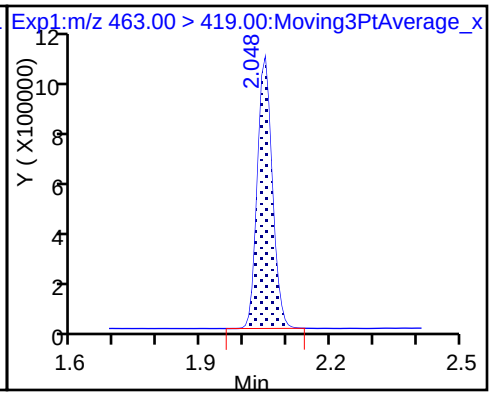
8 Perfluorooctane sulfonic acid (M)



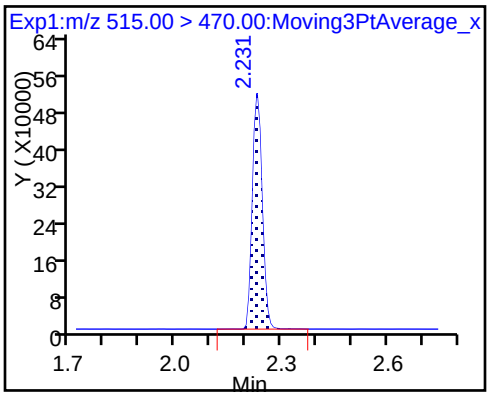
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
64
56
48
40
32
24
16
8
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_037.d
Lims ID: LCS 320-206718/2-A
Client ID:
Sample Type: LCS
Inject. Date: 08-Feb-2018 10:54:03 ALS Bottle#: 25 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-206718/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 14:10:01

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.63	86.26
$ 10 13C2 PFDA	10.0	8.68	86.80

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

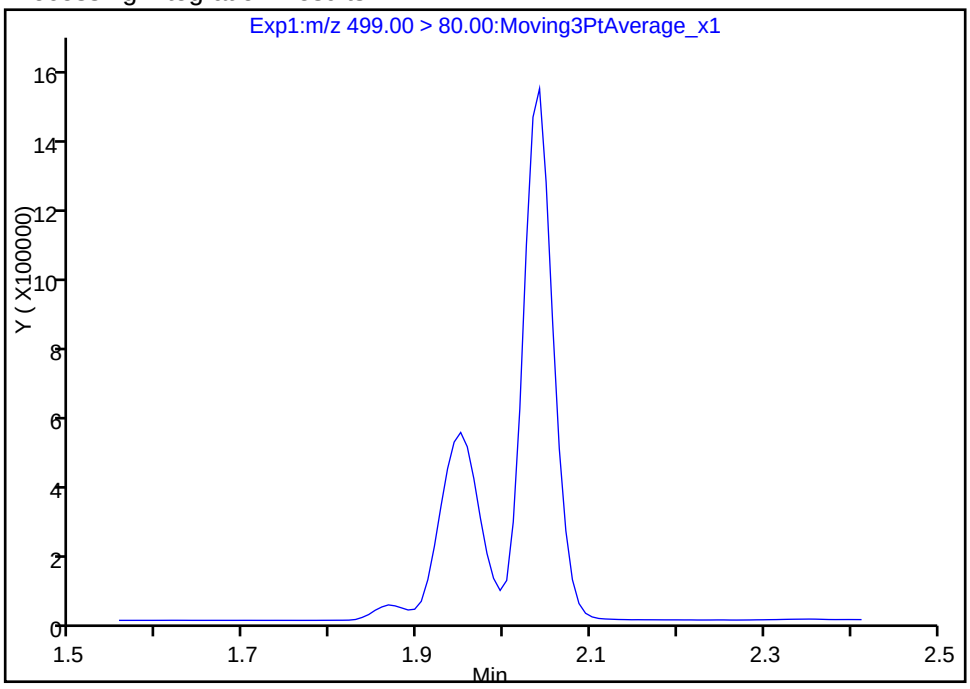
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_037.d
Injection Date: 08-Feb-2018 10:54:03 Instrument ID: A8_N
Lims ID: LCS 320-206718/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 25 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

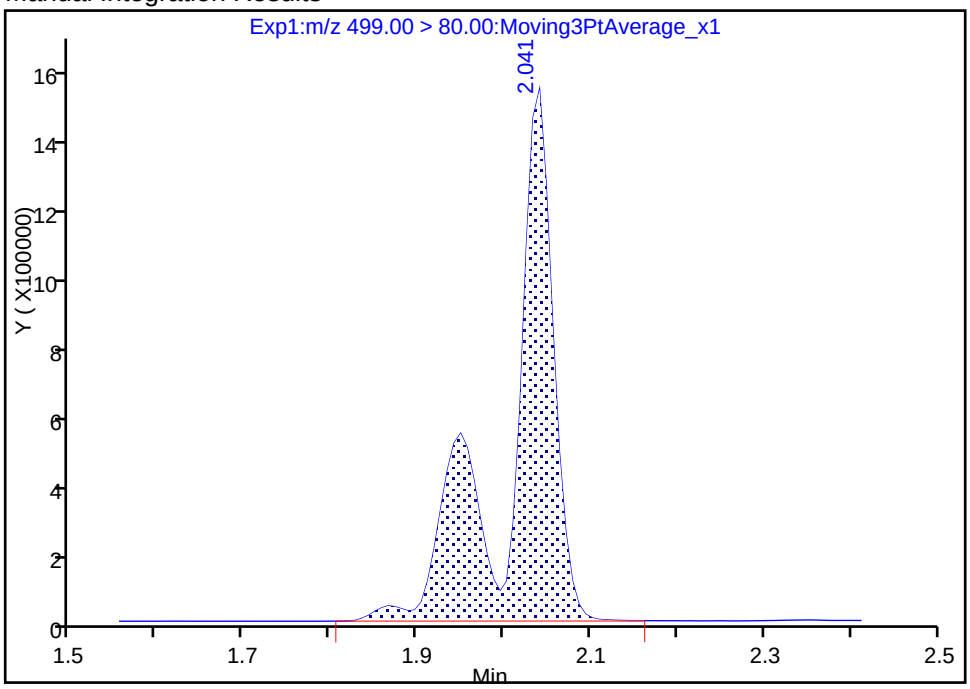
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 5471867
Amount: 47.250598
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:04:48
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

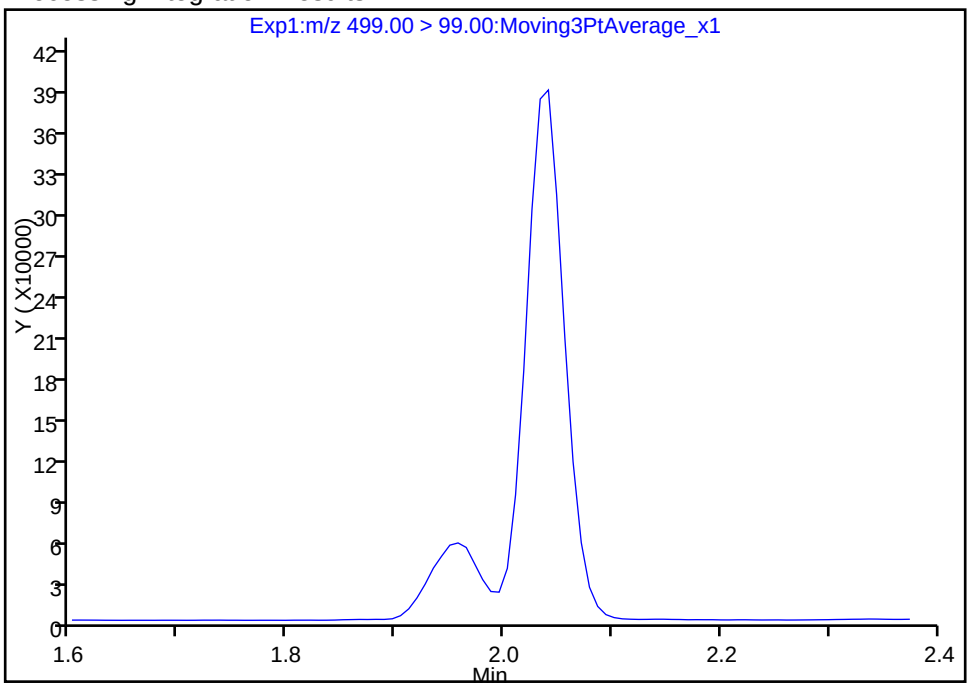
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_037.d
Injection Date: 08-Feb-2018 10:54:03 Instrument ID: A8_N
Lims ID: LCS 320-206718/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 25 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

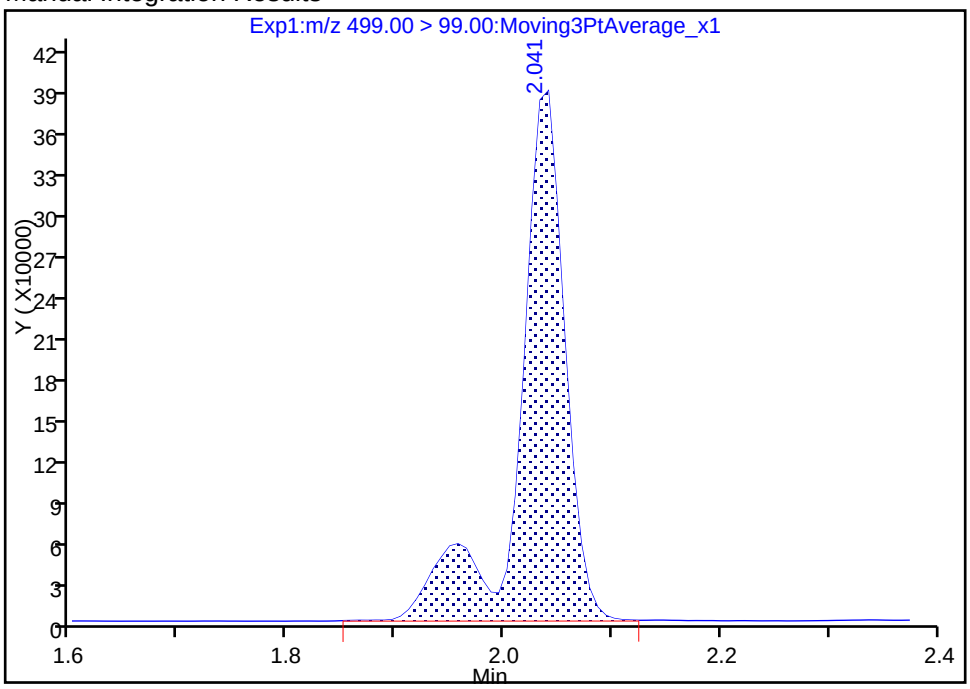
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 1158931
Amount: 47.250598
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:04:56
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 320-206719/2-A

Matrix: Water | Lab File ID: 2018.02.08_537A_008.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/08/2018 08:05

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	136	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	71.1		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	71.5		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	109		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	40.4		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	309		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	109		70-130
STL00996	13C2 PFDA	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_008.d
Lims ID: LCS 320-206719/2-A
Client ID:
Sample Type: LCS
Inject. Date: 08-Feb-2018 08:05:49 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-206719/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 13:56:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	8524117	77.3		12659	
298.90 > 99.00	1.366	1.366	0.0	1.000	6707119		1.27(0.00-0.00)	10518	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1684844	10.9		6603	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.624	0.007	1.000	5031643	27.4		10951	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.624	0.007	1.000	1331488	10.1		470	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.798	0.008		1406945	10.0		4897	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.798	0.008	1.000	2315865	17.8		382	
413.00 > 169.00	1.806	1.798	0.008	1.000	1233880		1.88(0.00-0.00)	3675	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.041	0.007	1.000	3498048	33.9		1850	M
499.00 > 99.00	2.048	2.041	0.007	1.000	717241		4.88(0.00-0.00)	1643	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3150925	28.7		7243	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.056	0.008	1.000	1670953	17.9		320	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1106217	10.3		6407	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 09-Feb-2018 09:51:56 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_008.d

Injection Date: 08-Feb-2018 08:05:49 Instrument ID: A8_N

Lims ID: LCS 320-206719/2-A

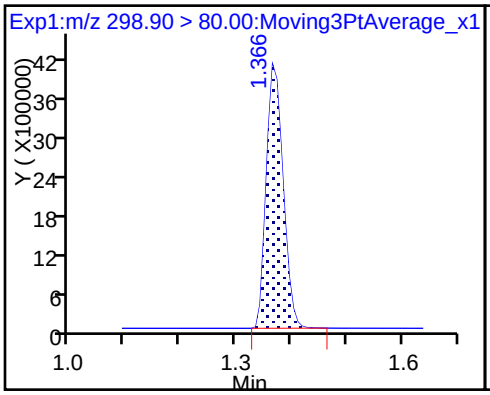
Client ID:

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

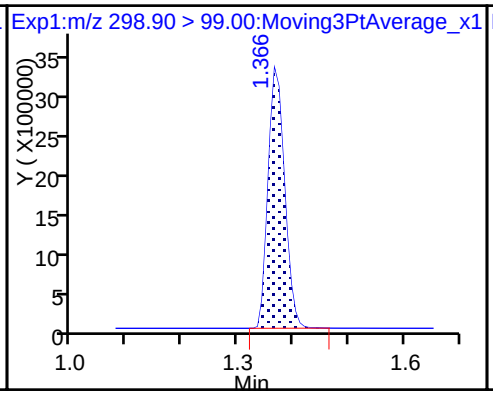
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

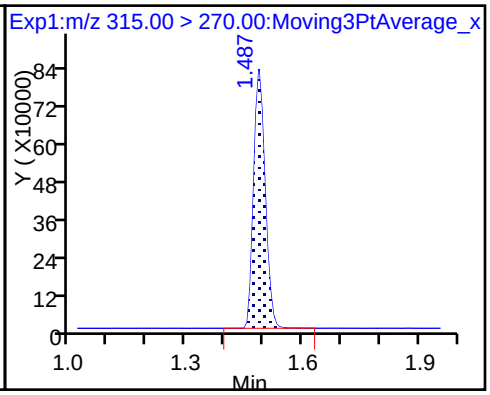
1 Perfluorobutanesulfonic acid



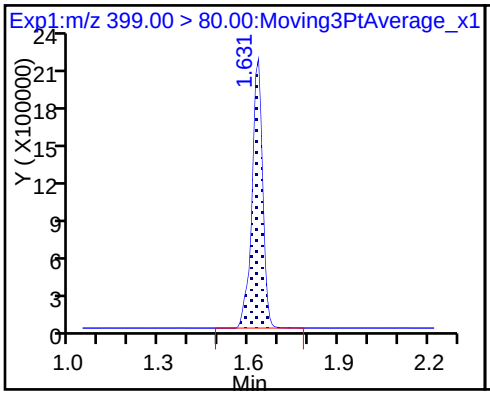
1 Perfluorobutanesulfonic acid



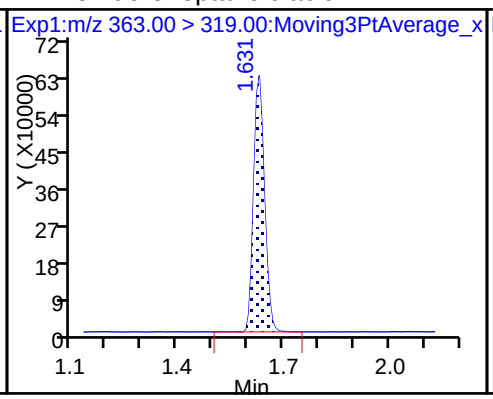
$ 2 13C2 PFHxA



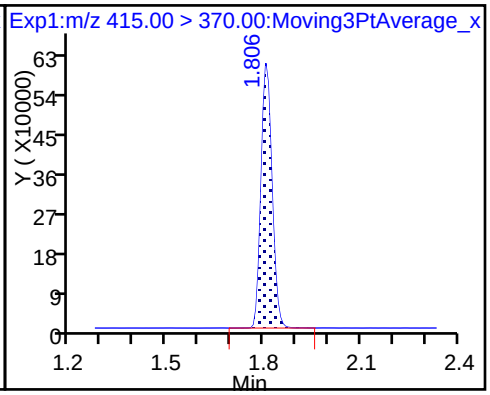
3 Perfluorohexanesulfonic acid



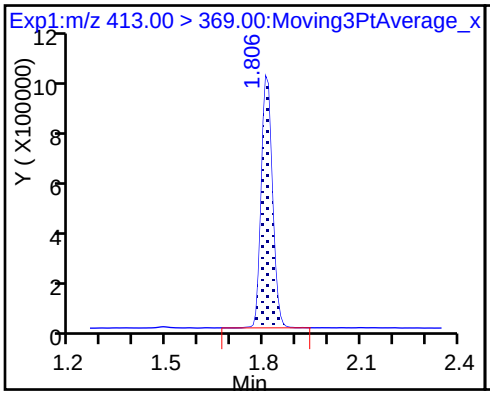
4 Perfluoroheptanoic acid



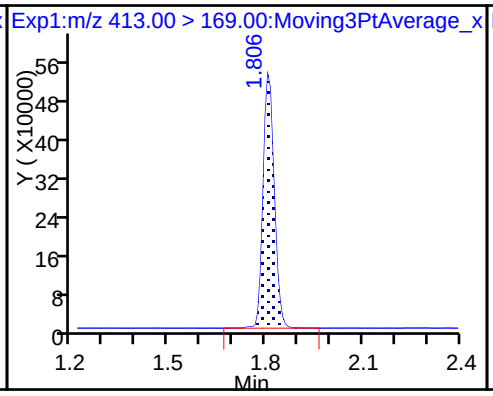
* 6 13C2-PFOA



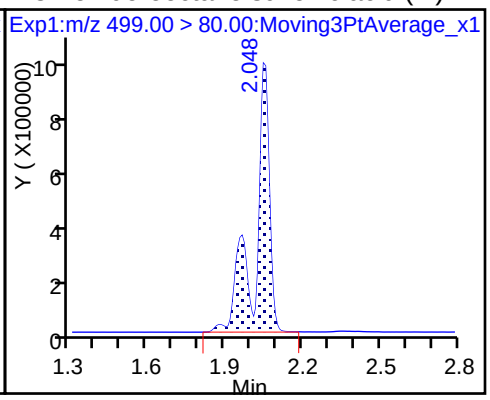
5 Perfluorooctanoic acid



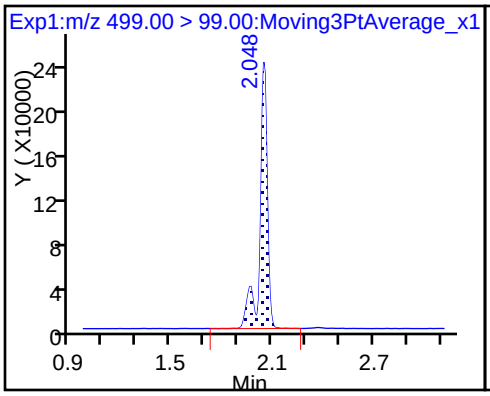
5 Perfluorooctanoic acid



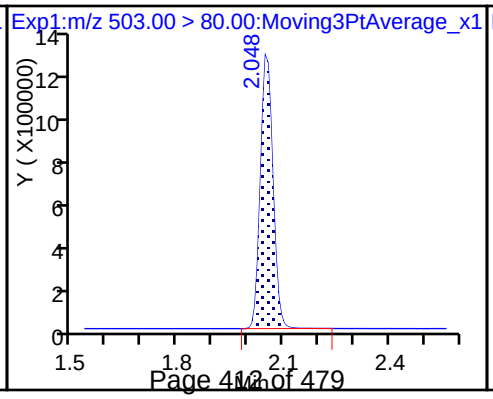
8 Perfluorooctane sulfonic acid (M)



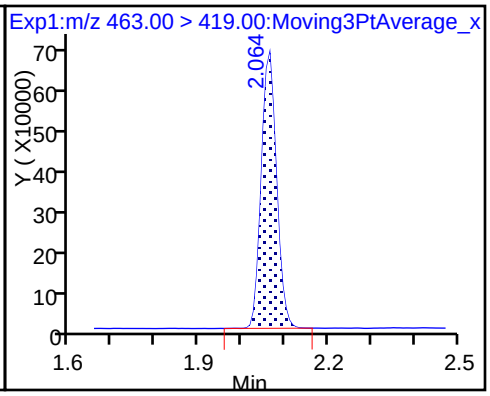
8 Perfluorooctane sulfonic acid



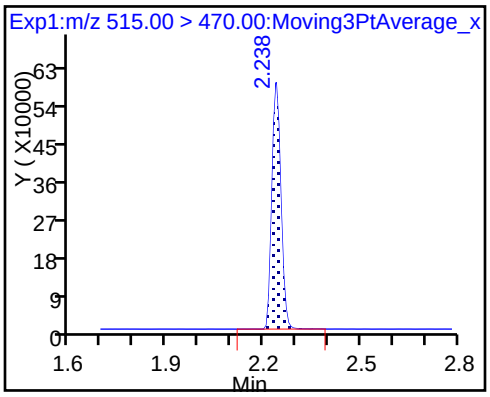
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
63
54
45
36
27
18
9
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_008.d
Lims ID: LCS 320-206719/2-A
Client ID:
Sample Type: LCS
Inject. Date: 08-Feb-2018 08:05:49 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-206719/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 13:56:40

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.9	108.84
$ 10 13C2 PFDA	10.0	10.3	102.75

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

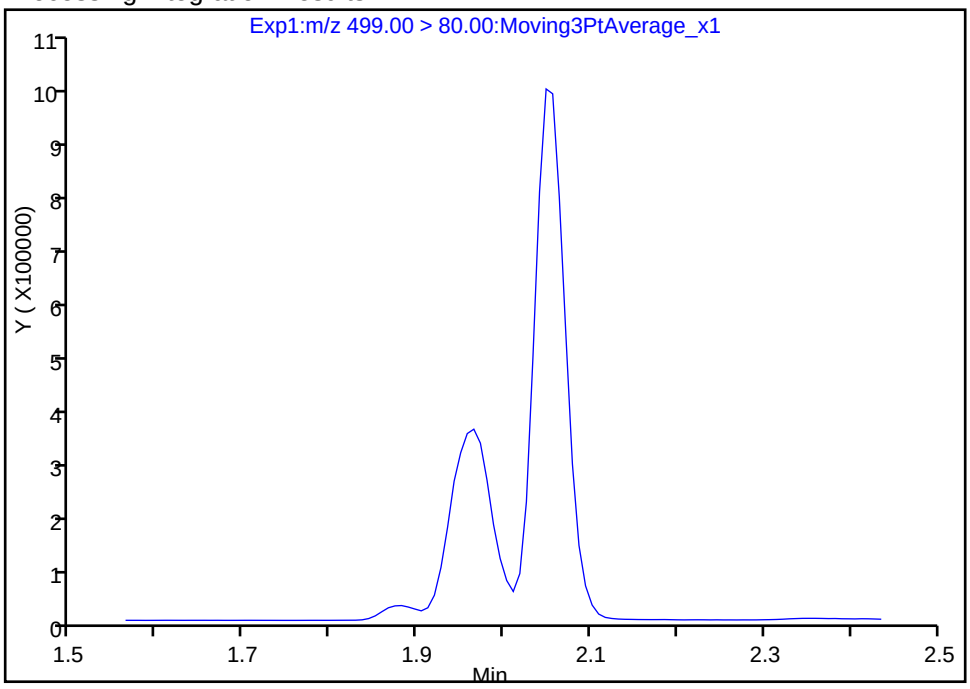
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_008.d				
Injection Date:	08-Feb-2018 08:05:49	Instrument ID:	A8_N		
Lims ID:	LCS 320-206719/2-A				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	2	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

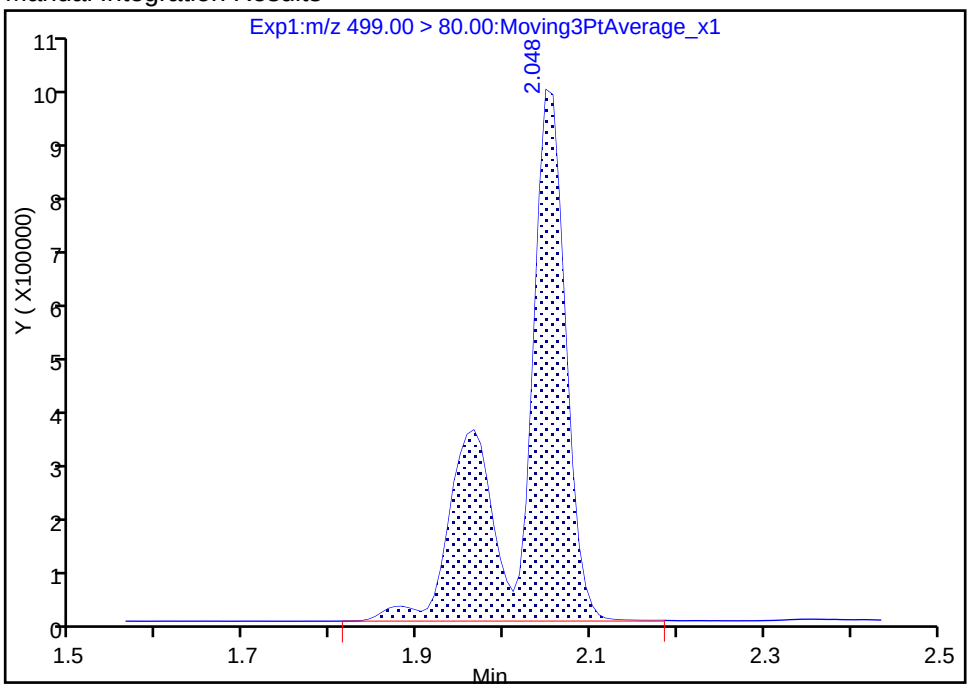
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 3498048
Amount: 33.909781
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:09:53
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCSD 320-206718/3-A

Matrix: Water | Lab File ID: 2018.02.08_537AA_038.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/08/2018 10:58

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	196	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	109		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	104		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	155		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	61.0		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	414		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	83		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_038.d
Lims ID: LCSD 320-206718/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 08-Feb-2018 10:58:43 ALS Bottle#: 26 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-206718/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 14:10:15

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	11622545	103.4		16194	
298.90 > 99.00	1.366	1.366	0.0	1.000	8594323		1.35(0.00-0.00)	11832	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1375116	8.98		6306	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.624	-0.008	1.000	7547032	38.7		13715	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.624	-0.008	1.000	1987594	15.2		767	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.798	-0.007		1391557	10.0		5575	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	3520548	27.3		974	
413.00 > 169.00	1.791	1.798	-0.007	0.996	1927108		1.83(0.00-0.00)	5512	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.041	-0.008		3341800	28.7		6454	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.033	2.041	-0.008	1.000	5373911	49.1		2775	M
499.00 > 99.00	2.033	2.041	-0.008	1.000	1132333		4.75(0.00-0.00)	2349	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.041	2.048	-0.007	1.000	2409647	26.1		526	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	886118	8.32		5937	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 09-Feb-2018 10:11:54 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_038.d

Injection Date: 08-Feb-2018 10:58:43 Instrument ID: A8_N

Lims ID: LCSD 320-206718/3-A

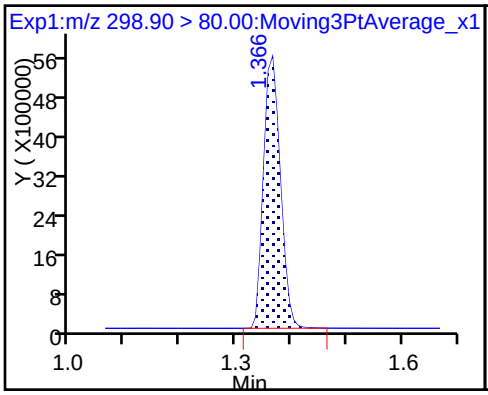
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 26 Worklist Smp#: 5

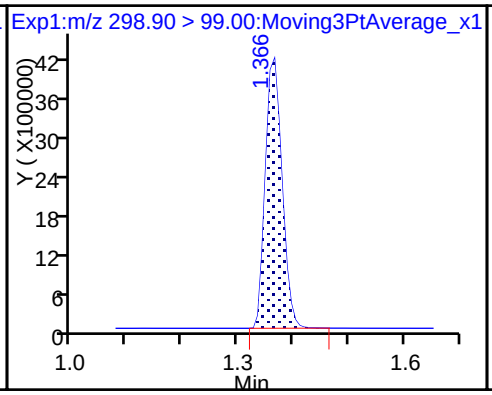
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

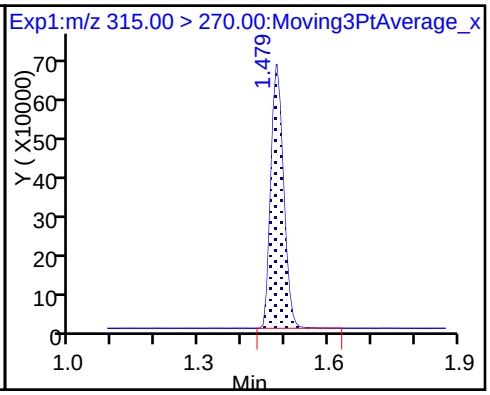
1 Perfluorobutanesulfonic acid



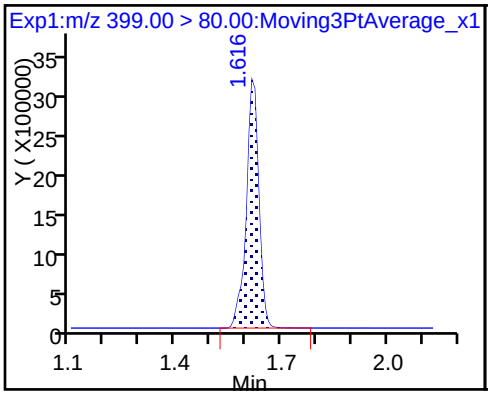
1 Perfluorobutanesulfonic acid



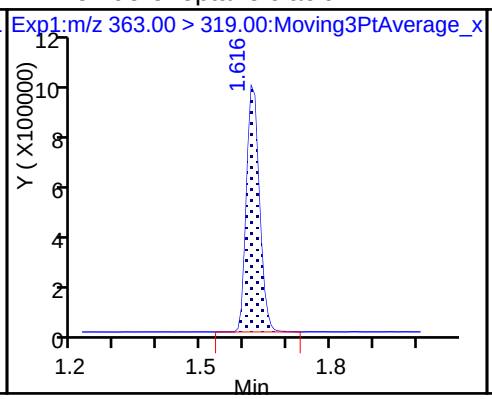
$ 2 13C2 PFHxA



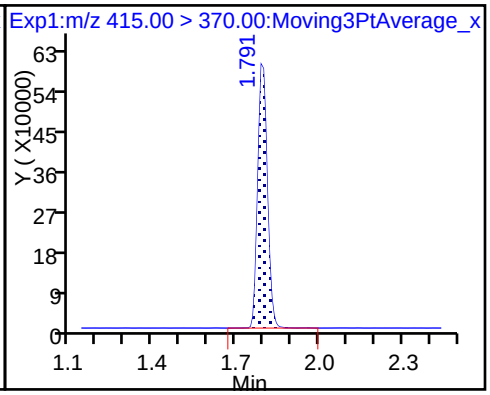
3 Perfluorohexanesulfonic acid



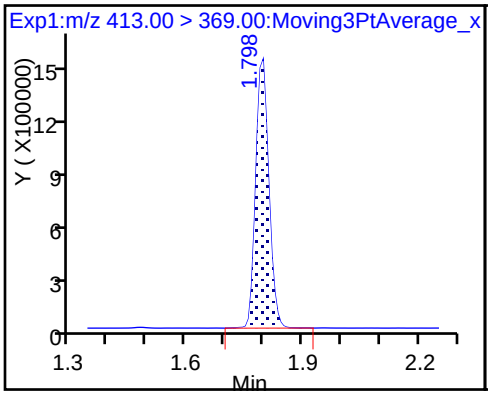
4 Perfluoroheptanoic acid



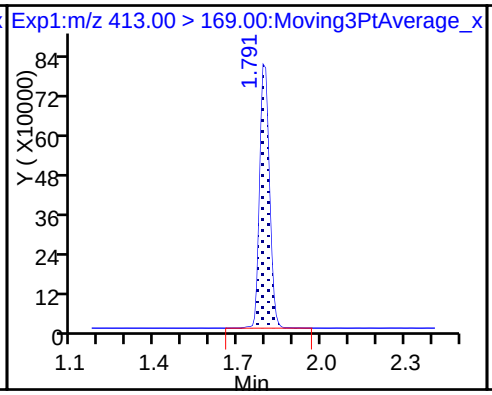
* 6 13C2-PFOA



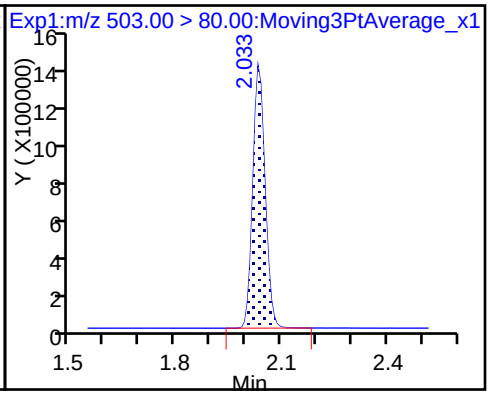
5 Perfluorooctanoic acid



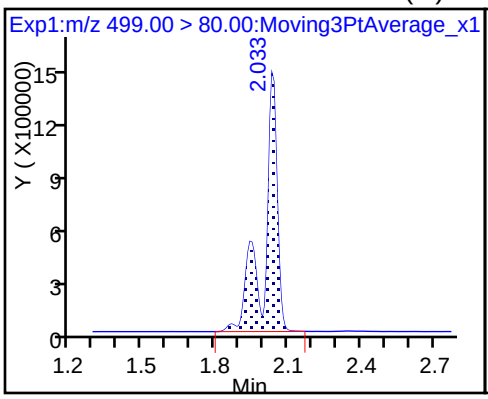
5 Perfluorooctanoic acid



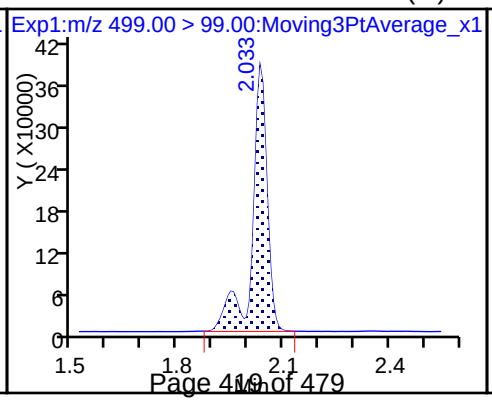
* 7 13C4 PFOS



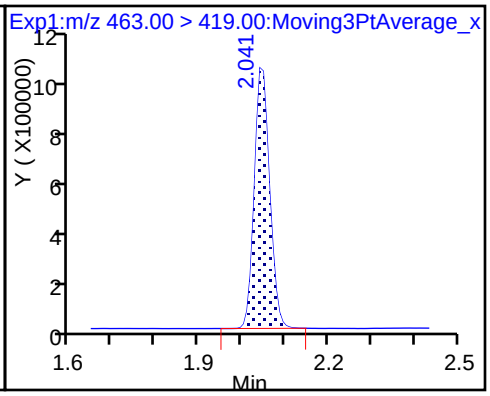
8 Perfluorooctane sulfonic acid (M)



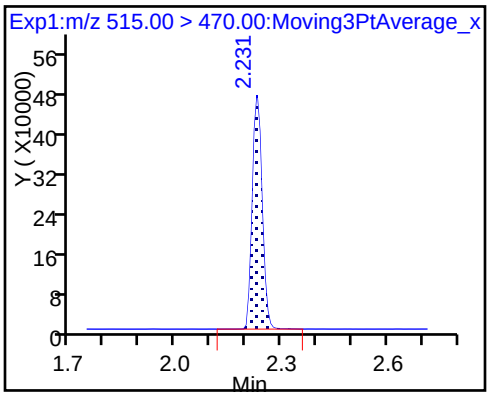
8 Perfluorooctane sulfonic acid (M)



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
56
48
40
32
24
16
8
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_038.d
Lims ID: LCSD 320-206718/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 08-Feb-2018 10:58:43 ALS Bottle#: 26 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-206718/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 10:11:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 14:10:15

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.98	89.81
$ 10 13C2 PFDA	10.0	8.32	83.22

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

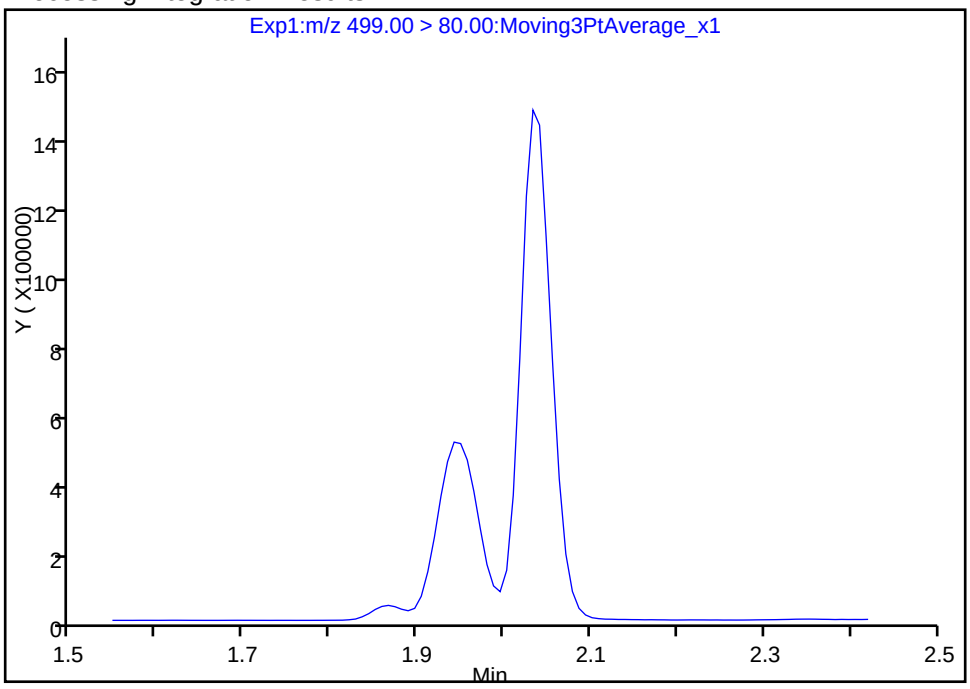
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_038.d
Injection Date: 08-Feb-2018 10:58:43 Instrument ID: A8_N
Lims ID: LCSD 320-206718/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 26 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

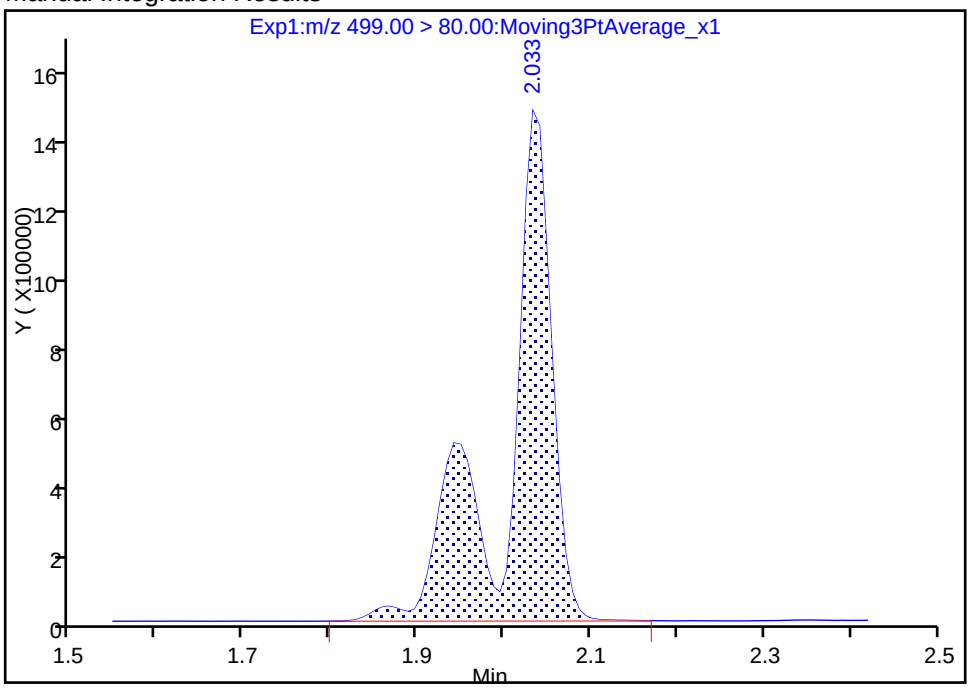
Processing Integration Results

Not Detected
Expected RT: 2.04



Manual Integration Results

RT: 2.03
Area: 5373911
Amount: 49.118749
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:06:13
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

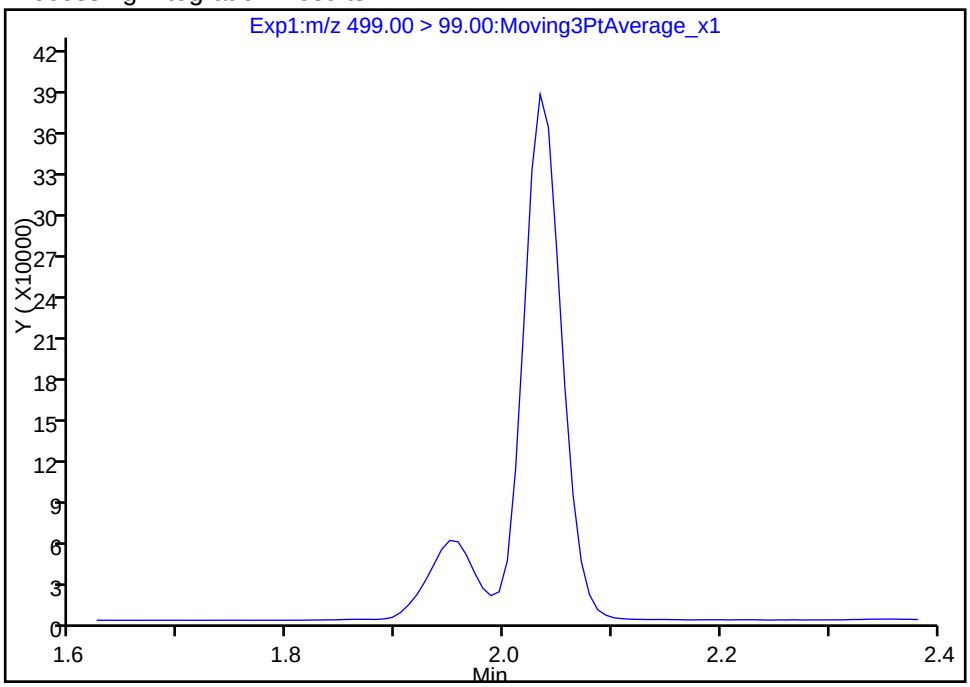
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b\2018.02.08_537AA_038.d
Injection Date: 08-Feb-2018 10:58:43 Instrument ID: A8_N
Lims ID: LCSD 320-206718/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 26 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

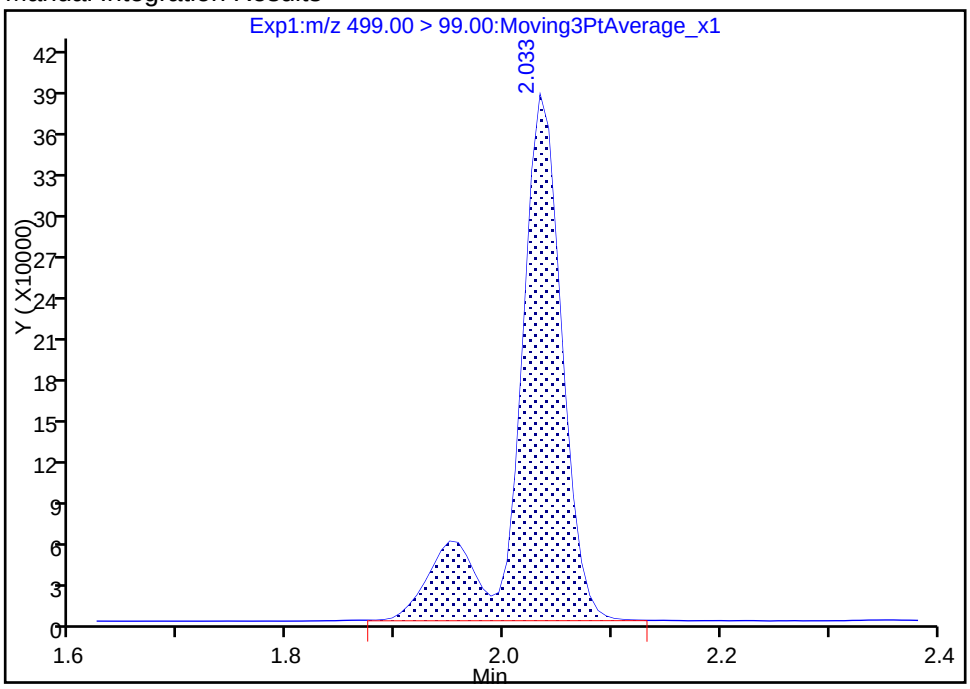
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.03
Area: 1132333
Amount: 49.118749
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:06:22
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCSD 320-206719/3-A

Matrix: Water | Lab File ID: 2018.02.08_537A_009.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/08/2018 08:10

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	139	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	75.4		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	72.0		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	111		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	40.0		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	305		90	36	16

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_009.d
Lims ID: LCSD 320-206719/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 08-Feb-2018 08:10:29 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-206719/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 13:57:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	8323673	76.3		12714	
298.90 > 99.00	1.366	1.366	0.0	1.000	6271329		1.33(0.00-0.00)	9747	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1623435	10.9		7174	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	5058305	27.8		9649	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	1267976	10.0		435	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1352716	10.0		4473	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	2359736	18.8		425	
413.00 > 169.00	1.798	1.798	0.0	1.000	1274016		1.85(0.00-0.00)	3965	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.048	2.041	0.007	1.000	3552672	34.8		1878	M
499.00 > 99.00	2.048	2.041	0.007	1.000	727456		4.88(0.00-0.00)	1514	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3114181	28.7		6333	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.056	0.0	1.000	1617191	18.0		380	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	1130449	10.9		7014	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Report Date: 09-Feb-2018 09:51:57 Chrom Revision: 2.2 24-Jan-2018 15:37:30

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_009.d

Injection Date: 08-Feb-2018 08:10:29 Instrument ID: A8_N

Lims ID: LCSD 320-206719/3-A

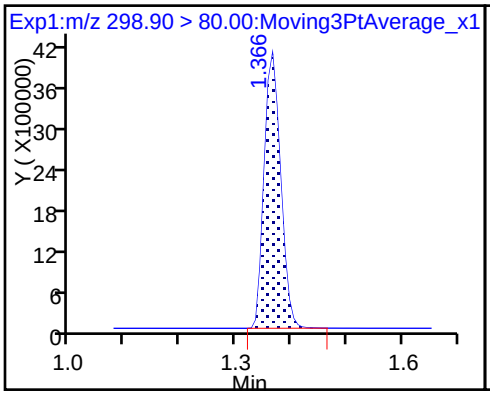
Client ID:

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

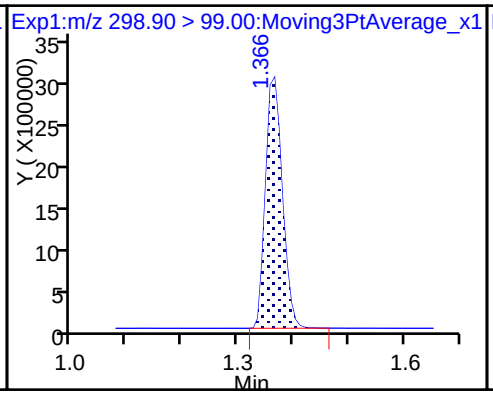
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

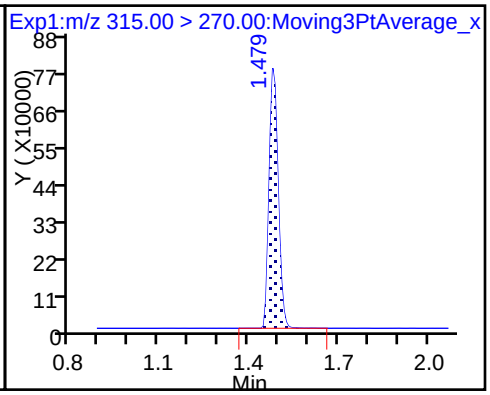
1 Perfluorobutanesulfonic acid



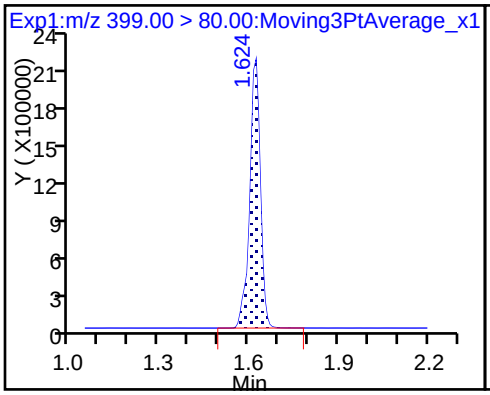
1 Perfluorobutanesulfonic acid



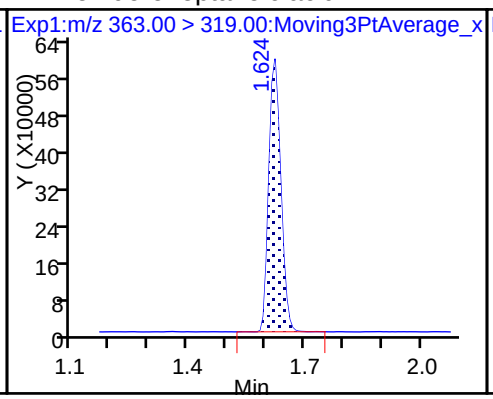
$ 2 13C2 PFHxA



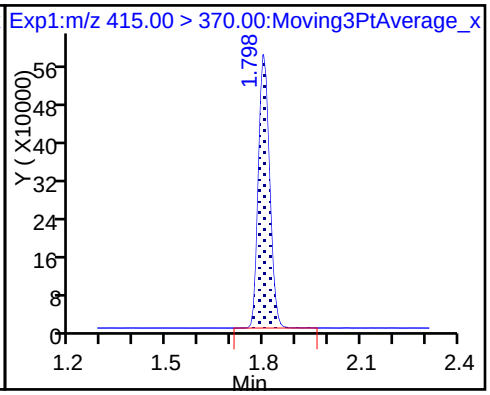
3 Perfluorohexanesulfonic acid



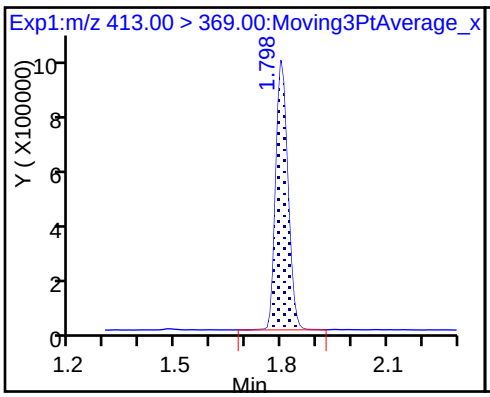
4 Perfluoroheptanoic acid



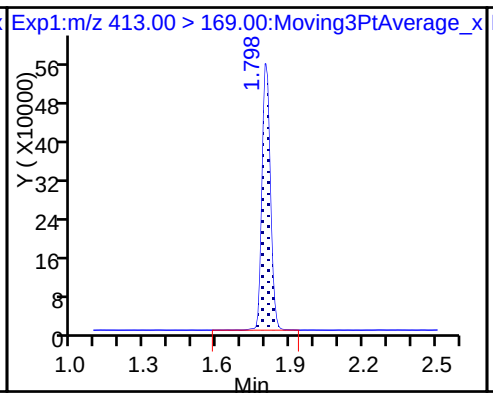
* 6 13C2-PFOA



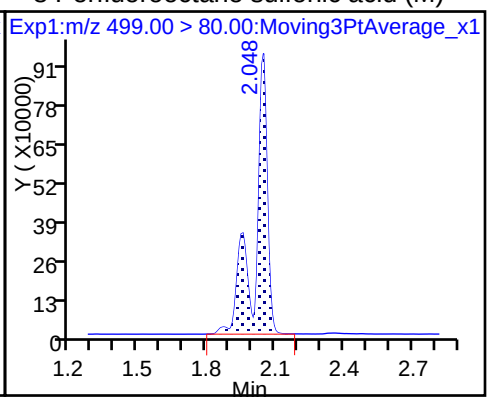
5 Perfluorooctanoic acid



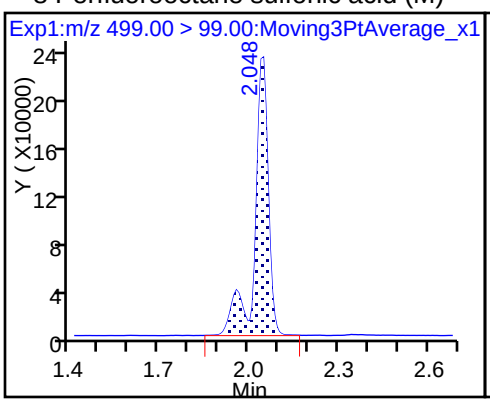
5 Perfluorooctanoic acid



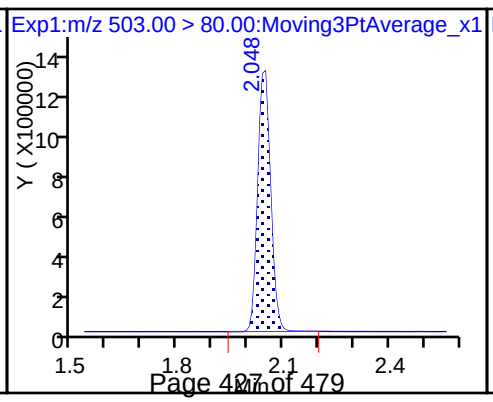
8 Perfluorooctane sulfonic acid (M)



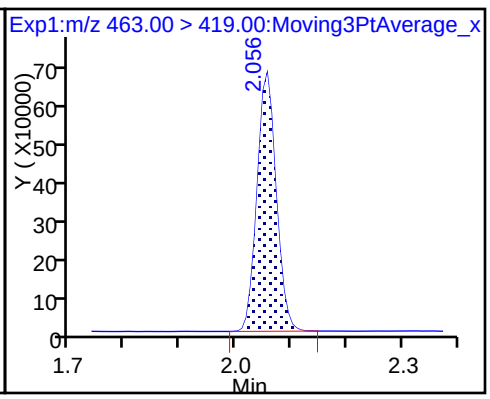
8 Perfluorooctane sulfonic acid (M)



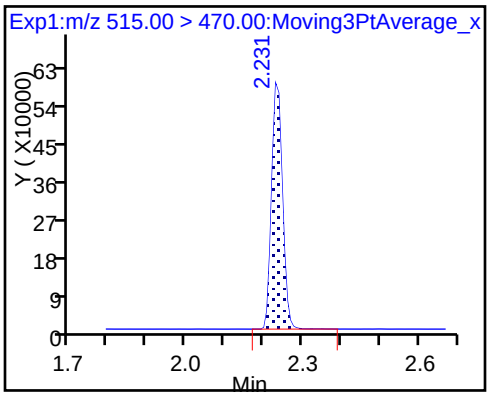
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_009.d
Lims ID: LCSD 320-206719/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 08-Feb-2018 08:10:29 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-206719/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Feb-2018 09:51:51 Calib Date: 03-Nov-2017 14:01:24
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
Process Host: XAWRK029

First Level Reviewer: roycea Date: 08-Feb-2018 13:57:01

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.9	109.07
$ 10 13C2 PFDA	10.0	10.9	109.21

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

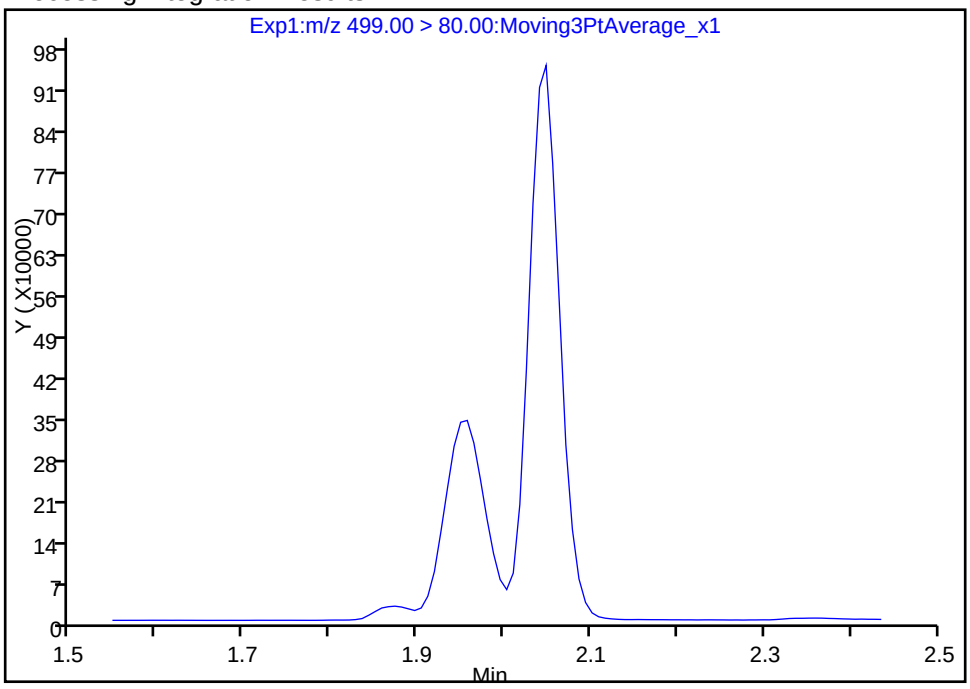
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_009.d				
Injection Date:	08-Feb-2018 08:10:29	Instrument ID:	A8_N		
Lims ID:	LCSD 320-206719/3-A				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	3	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

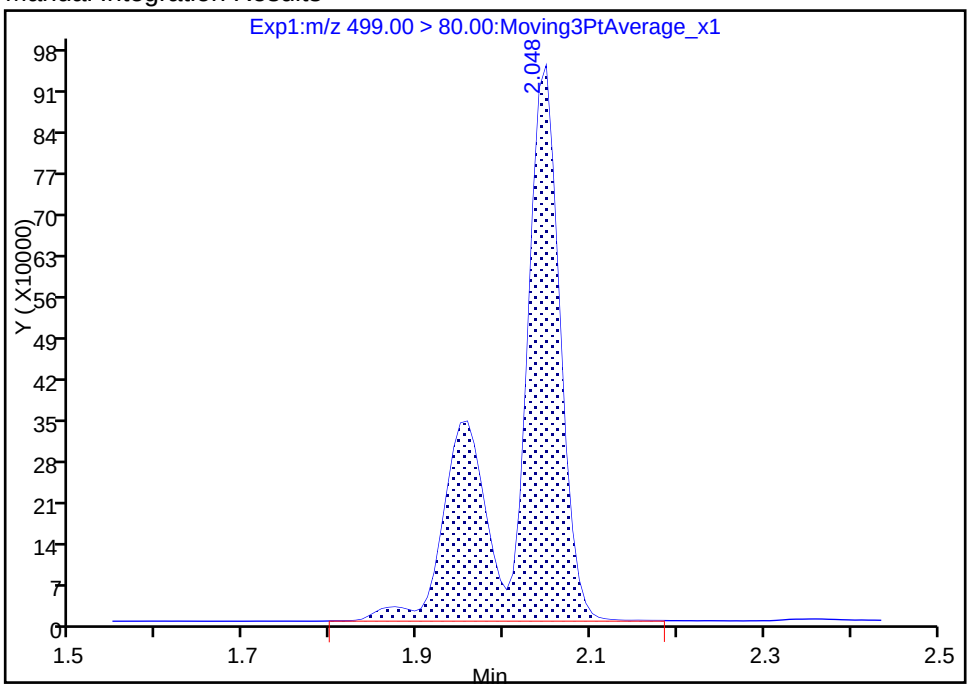
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 3552672
Amount: 34.845648
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:10:45
Audit Action: Manually Integrated Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

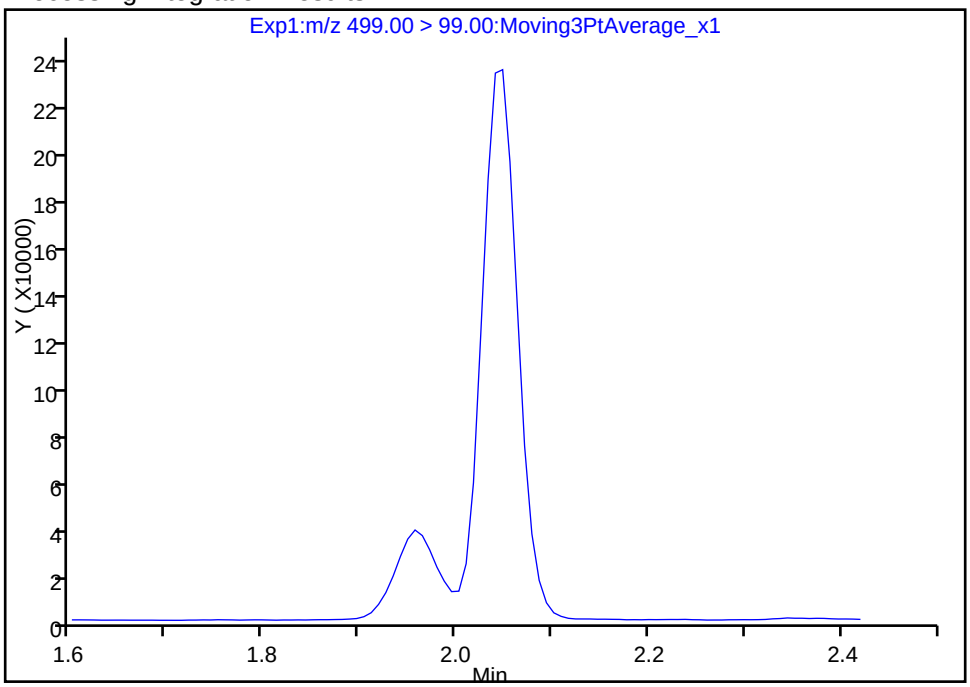
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_009.d
Injection Date: 08-Feb-2018 08:10:29 Instrument ID: A8_N
Lims ID: LCSD 320-206719/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

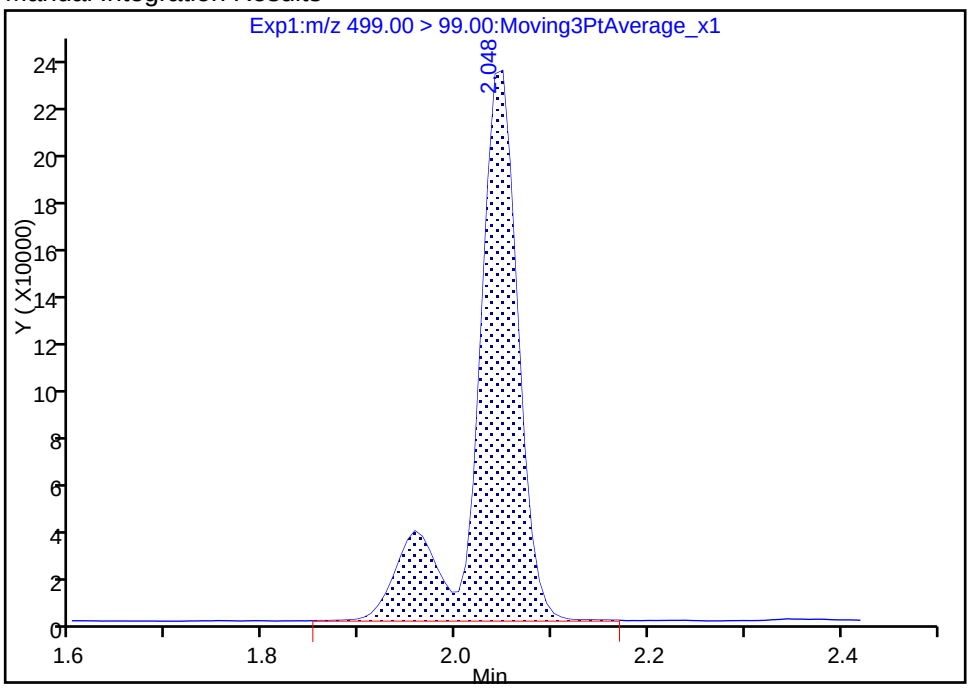
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 727456
Amount: 34.845648
Amount Units: ng/ml



Reviewer: barnettj, 08-Feb-2018 17:10:59
Audit Action: Manually Integrated Audit Reason: Assign Peak

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Start Date: 11/03/2017 13:37

Analysis Batch Number: 192908 End Date: 11/03/2017 14:24

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-192908/4		11/03/2017 13:37	1	2017.11.03_537X ICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-192908/5		11/03/2017 13:42	1	2017.11.03_537X ICAL 005.d	GeminiC18 3x100 3(mm)
IC 320-192908/6		11/03/2017 13:47	1	2017.11.03_537X ICAL 006.d	GeminiC18 3x100 3(mm)
IC 320-192908/7 ICISAV		11/03/2017 13:52	1	2017.11.03_537X ICAL 007.d	GeminiC18 3x100 3(mm)
IC 320-192908/8		11/03/2017 13:56	1	2017.11.03_537X ICAL 008.d	GeminiC18 3x100 3(mm)
IC 320-192908/9		11/03/2017 14:01	1	2017.11.03_537X ICAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:06	1		GeminiC18 3x100 3(mm)
CCVL 320-192908/11		11/03/2017 14:10	1	2017.11.03_537X ICAL 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:15	1		GeminiC18 3x100 3(mm)
ICV 320-192908/13		11/03/2017 14:20	1	2017.11.03_537X ICAL 013.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:24	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 07:47

Analysis Batch Number: 207581 End Date: 02/08/2018 08:47

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-207581/1		02/08/2018 07:47	1	2018.02.08_537A_004.d	GeminiC18 3x100 3(mm)
CCV 320-207581/2 CCVIS		02/08/2018 07:51	1	2018.02.08_537A_005.d	GeminiC18 3x100 3(mm)
MB 320-206719/1-A		02/08/2018 08:01	1	2018.02.08_537A_007.d	GeminiC18 3x100 3(mm)
LCS 320-206719/2-A		02/08/2018 08:05	1	2018.02.08_537A_008.d	GeminiC18 3x100 3(mm)
LCSD 320-206719/3-A		02/08/2018 08:10	1	2018.02.08_537A_009.d	GeminiC18 3x100 3(mm)
320-35442-1		02/08/2018 08:15	1	2018.02.08_537A_010.d	GeminiC18 3x100 3(mm)
320-35442-2		02/08/2018 08:19	1	2018.02.08_537A_011.d	GeminiC18 3x100 3(mm)
320-35442-3		02/08/2018 08:24	1	2018.02.08_537A_012.d	GeminiC18 3x100 3(mm)
320-35442-4		02/08/2018 08:29	1	2018.02.08_537A_013.d	GeminiC18 3x100 3(mm)
320-35442-5		02/08/2018 08:33	1	2018.02.08_537A_014.d	GeminiC18 3x100 3(mm)
320-35442-6		02/08/2018 08:38	1	2018.02.08_537A_015.d	GeminiC18 3x100 3(mm)
320-35442-7		02/08/2018 08:43	1	2018.02.08_537A_016.d	GeminiC18 3x100 3(mm)
CCV 320-207581/14 CCVIS		02/08/2018 08:47	1	2018.02.08_537A_017.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 08:47

Analysis Batch Number: 207582 End Date: 02/08/2018 09:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207582/14 CCVIS		02/08/2018 08:47	1	2018.02.08_537A 017.d	GeminiC18 3x100 3(mm)
320-35442-8		02/08/2018 08:57	1	2018.02.08_537A 019.d	GeminiC18 3x100 3(mm)
320-35442-9		02/08/2018 09:01	1	2018.02.08_537A 020.d	GeminiC18 3x100 3(mm)
320-35442-10		02/08/2018 09:06	1	2018.02.08_537A 021.d	GeminiC18 3x100 3(mm)
320-35442-11		02/08/2018 09:11	1	2018.02.08_537A 022.d	GeminiC18 3x100 3(mm)
320-35442-12		02/08/2018 09:15	1	2018.02.08_537A 023.d	GeminiC18 3x100 3(mm)
320-35442-13		02/08/2018 09:20	1	2018.02.08_537A 024.d	GeminiC18 3x100 3(mm)
320-35442-14		02/08/2018 09:25	1	2018.02.08_537A 025.d	GeminiC18 3x100 3(mm)
320-35442-15		02/08/2018 09:30	1	2018.02.08_537A 026.d	GeminiC18 3x100 3(mm)
320-35442-16		02/08/2018 09:34	1	2018.02.08_537A 027.d	GeminiC18 3x100 3(mm)
320-35442-17		02/08/2018 09:39	1	2018.02.08_537A 028.d	GeminiC18 3x100 3(mm)
CCV 320-207582/26 CCVIS		02/08/2018 09:44	1	2018.02.08_537A 029.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 09:44

Analysis Batch Number: 207584 End Date: 02/08/2018 10:07

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207584/26 CCVIS		02/08/2018 09:44	1	2018.02.08_537A_029.d	GeminiC18 3x100 3(mm)
320-35442-18		02/08/2018 09:53	1	2018.02.08_537A_031.d	GeminiC18 3x100 3(mm)
320-35442-19		02/08/2018 09:58	1	2018.02.08_537A_032.d	GeminiC18 3x100 3(mm)
320-35442-20		02/08/2018 10:02	1	2018.02.08_537A_033.d	GeminiC18 3x100 3(mm)
CCV 320-207584/31 CCVIS		02/08/2018 10:07	1	2018.02.08_537A_034.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 10:40

Analysis Batch Number: 207588 End Date: 02/08/2018 11:17

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207588/1 CCVIS		02/08/2018 10:40	1	2018.02.08_537A A 034.d	GeminiC18 3x100 3(mm)
MB 320-206718/1-A		02/08/2018 10:49	1	2018.02.08_537A A 036.d	GeminiC18 3x100 3(mm)
LCS 320-206718/2-A		02/08/2018 10:54	1	2018.02.08_537A A 037.d	GeminiC18 3x100 3(mm)
LCSD 320-206718/3-A		02/08/2018 10:58	1	2018.02.08_537A A 038.d	GeminiC18 3x100 3(mm)
320-35442-21		02/08/2018 11:03	1	2018.02.08_537A A 039.d	GeminiC18 3x100 3(mm)
320-35442-22		02/08/2018 11:08	1	2018.02.08_537A A 040.d	GeminiC18 3x100 3(mm)
320-35442-23		02/08/2018 11:12	1	2018.02.08_537A A 041.d	GeminiC18 3x100 3(mm)
CCV 320-207588/9 CCVIS		02/08/2018 11:17	1	2018.02.08_537A A 042.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Batch Number: 206718 Batch Start Date: 02/02/18 12:56 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/07/18 11:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00026
MB 320-206718/1		537, 537				250.0 mL	1.0 mL	7 SU	
LCS 320-206718/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCSD 320-206718/3		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-35442-A-21	NAWC-012518-FRB-300	537, 537	T	275.18 g	29.59 g	245.6 mL	1.0 mL	7 SU	
320-35442-A-22	NAWC-012518-RW-064	537, 537	T	273.92 g	27.17 g	246.8 mL	1.0 mL	7 SU	
320-35442-A-23	NAWC-012518-FRB-064	537, 537	T	272.47 g	26.93 g	245.5 mL	1.0 mL	7 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00057	LC537-SU 00053	AnalysisComment			
MB 320-206718/1		537, 537		100 uL	100 uL	Cl ND			
LCS 320-206718/2		537, 537		100 uL	100 uL	Cl ND			
LCSD 320-206718/3		537, 537		100 uL	100 uL	Cl ND			
320-35442-A-21	NAWC-012518-FRB-300	537, 537	T	100 uL	100 uL	Cl ND			
320-35442-A-22	NAWC-012518-RW-064	537, 537	T	100 uL	100 uL	Cl ND			
320-35442-A-23	NAWC-012518-FRB-064	537, 537	T	100 uL	100 uL	Cl 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.: 320-35442-1

SDG No.:

Batch Number: 206718 Batch Start Date: 02/02/18 12:56 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/07/18 11:30

Batch Notes	
Analyst ID - Aliquot Step	SKD
Batch Comment	Client Labels match: KMK 2-5-18
Analyst ID - Concentration	NIGHTS
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1145836
Manifold ID	3
Methanol ID	1147517
pH Indicator ID	2517
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	CCB
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge Lot ID	6369499-05
Trizma ID	SLBR4303V
Reagent Water ID	1-30-18

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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Batch Number: 206719 Batch Start Date: 02/02/18 12:57 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/07/18 07:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00057
MB 320-206719/1		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCS 320-206719/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCSD 320-206719/3		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-35442-A-1	NAWC-012518-RW-256	537, 537	T	269.54 g	28.23 g	241.3 mL	1.0 mL	7 SU	100 uL
320-35442-A-2	NAWC-012518-FRB-256	537, 537	T	280.81 g	27.80 g	253 mL	1.0 mL	7 SU	100 uL
320-35442-A-3	NAWC-012518-RW-169	537, 537	T	273.30 g	27.84 g	245.5 mL	1.0 mL	7 SU	100 uL
320-35442-A-4	NAWC-012518-FRB-169	537, 537	T	275.17 g	28.06 g	247.1 mL	1.0 mL	7 SU	100 uL
320-35442-A-5	NAWC-012518-RW-236	537, 537	T	276.18 g	28.11 g	248.1 mL	1.0 mL	7 SU	100 uL
320-35442-A-6	NAWC-012518-FRB-236	537, 537	T	278.95 g	27.31 g	251.6 mL	1.0 mL	7 SU	100 uL
320-35442-A-7	NAWC-012518-RW-153	537, 537	T	271.82 g	28.28 g	243.5 mL	1.0 mL	7 SU	100 uL
320-35442-A-8	NAWC-012518-FRB-153	537, 537	T	276.28 g	26.95 g	249.3 mL	1.0 mL	7 SU	100 uL
320-35442-A-9	NAWC-012518-RW-155	537, 537	T	272.30 g	28.61 g	243.7 mL	1.0 mL	7 SU	100 uL
320-35442-A-10	NAWC-012518-FRB-155	537, 537	T	274.41 g	27.09 g	247.3 mL	1.0 mL	7 SU	100 uL
320-35442-A-11	WGNA-012518-DUP-23	537, 537	T	278.03 g	27.63 g	250.4 mL	1.0 mL	7 SU	100 uL
320-35442-A-12	NAWC-012518-RW-094	537, 537	T	275.49 g	28.32 g	247.2 mL	1.0 mL	7 SU	100 uL
320-35442-A-13	NAWC-012518-FRB-094	537, 537	T	273.92 g	26.79 g	247.1 mL	1.0 mL	7 SU	100 uL
320-35442-A-14	NAWC-012518-RW-168	537, 537	T	273.43 g	27.29 g	246.1 mL	1.0 mL	7 SU	100 uL
320-35442-A-15	NAWC-012518-FRB-168	537, 537	T	274.33 g	26.79 g	247.5 mL	1.0 mL	7 SU	100 uL
320-35442-A-16	NAWC-012518-RW-238	537, 537	T	277.84 g	28.30 g	249.5 mL	1.0 mL	7 SU	100 uL
320-35442-A-17	NAWC-012518-FRB-238	537, 537	T	278.57 g	27.23 g	251.3 mL	1.0 mL	7 SU	100 uL
320-35442-A-18	NAWC-012518-RW-162	537, 537	T	274.88 g	27.93 g	247 mL	1.0 mL	7 SU	100 uL
320-35442-A-19	NAWC-012518-FRB-162	537, 537	T	271.52 g	27.51 g	244 mL	1.0 mL	7 SU	100 uL

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Batch Number: 206719 Batch Start Date: 02/02/18 12:57 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/07/18 07:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00057
320-35442-A-20	NAWC-012518-RW-300	537, 537	T	268.09 g	27.73 g	240.4 mL	1.0 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00031	LC537-SU 00053	AnalysisComment			
MB 320-206719/1		537, 537			100 uL	Cl ND			
LCS 320-206719/2		537, 537		100 uL	100 uL	Cl ND			
LCSD 320-206719/3		537, 537		100 uL	100 uL	Cl ND			
320-35442-A-1	NAWC-012518-RW-256	537, 537	T		100 uL	Cl ND			
320-35442-A-2	NAWC-012518-FRB-256	537, 537	T		100 uL	Cl ND			
320-35442-A-3	NAWC-012518-RW-169	537, 537	T		100 uL	Cl ND			
320-35442-A-4	NAWC-012518-FRB-169	537, 537	T		100 uL	Cl ND			
320-35442-A-5	NAWC-012518-RW-236	537, 537	T		100 uL	Cl ND			
320-35442-A-6	NAWC-012518-FRB-236	537, 537	T		100 uL	Cl ND			
320-35442-A-7	NAWC-012518-RW-153	537, 537	T		100 uL	Cl ND			
320-35442-A-8	NAWC-012518-FRB-153	537, 537	T		100 uL	Cl ND			
320-35442-A-9	NAWC-012518-RW-155	537, 537	T		100 uL	Cl ND			
320-35442-A-10	NAWC-012518-FRB-155	537, 537	T		100 uL	Cl ND			
320-35442-A-11	WGNA-012518-DUP-23	537, 537	T		100 uL	Cl ND			
320-35442-A-12	NAWC-012518-RW-094	537, 537	T		100 uL	Cl ND			
320-35442-A-13	NAWC-012518-FRB-094	537, 537	T		100 uL	Cl ND			
320-35442-A-14	NAWC-012518-RW-168	537, 537	T		100 uL	Cl ND			
320-35442-A-15	NAWC-012518-FRB-168	537, 537	T		100 uL	Cl ND			
320-35442-A-16	NAWC-012518-RW-238	537, 537	T		100 uL	Cl 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.: 320-35442-1

SDG No.:

Batch Number: 206719 Batch Start Date: 02/02/18 12:57 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/07/18 07:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00031	LC537-SU 00053	AnalysisComment			
320-35442-A-17	NAWC-012518-FRB-238	537, 537	T		100 uL	Cl ND			
320-35442-A-18	NAWC-012518-RW-162	537, 537	T		100 uL	Cl ND			
320-35442-A-19	NAWC-012518-FRB-162	537, 537	T		100 uL	Cl ND			
320-35442-A-20	NAWC-012518-RW-300	537, 537	T		100 uL	Cl ND			

Batch Notes	
Analyst ID - Aliquot Step	SKD
Batch Comment	Client Labels match: KMK 2-2-18
Analyst ID - Concentration	CCB/KMK
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1145836
Manifold ID	3, 10
Methanol ID	1147517
pH Indicator ID	2517
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge Lot ID	6369499-04
Trizma ID	SLBR4303V
Reagent Water ID	1-30-18

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
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Method 537 CCV/Data Review Checklist

AB

Job No: 35442 Instrument ID & Date: 2-8-18 ICAL Batch: 192908

Extraction Batch: 206719 Worklist #: 53854, 54087 TALS Batch: 207581, 207582, 207584, 208494

207982

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 2-16-18 2nd Level Reviewer / Date: MeWolf 2/19/2018

NCM # and Comments: 1164465

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Method 537 ICAL Checklist

A8

Instrument ID & Date: 11-3-17 Worklist#: 49975

ICAL Batch: 192908, 192909 Calibration ID number: 36012, 36013

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 11-6-17 2nd Level Reviewer / Date: [signature] 11/6/2017

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 08FEB2018_537A Worklist Number: 53854
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 207580	LC 537 ICAL Raw Batch: 207581
# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-206719/1-A # 5 LCS 320-206719/2-A # 6 LCSD 320-206719/3-A # 7 320-35442-A-1-A # 8 320-35442-A-2-A # 9 320-35442-A-3-A #10 320-35442-A-4-A #11 320-35442-A-5-A #12 320-35442-A-6-A #13 320-35442-A-7-A #14 CCV L3	# 1 CCVL	# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-206719/1-A # 5 LCS 320-206719/2-A # 6 LCSD 320-206719/3-A # 7 320-35442-A-1-A # 8 320-35442-A-2-A # 9 320-35442-A-3-A #10 320-35442-A-4-A #11 320-35442-A-5-A #12 320-35442-A-6-A #13 320-35442-A-7-A #14 CCV L3

QC Batch: 2	LC 537 ICAL Raw Batch: 207582
#14 CCV L3 #15 RB #16 320-35442-A-8-A #17 320-35442-A-9-A #18 320-35442-A-10-A #19 320-35442-A-11-A #20 320-35442-A-12-A #21 320-35442-A-13-A #22 320-35442-A-14-A #23 320-35442-A-15-A #24 320-35442-A-16-A #25 320-35442-A-17-A #26 CCV L5	#14 CCV L3 #15 RB #16 320-35442-A-8-A #17 320-35442-A-9-A #18 320-35442-A-10-A #19 320-35442-A-11-A #20 320-35442-A-12-A #21 320-35442-A-13-A #22 320-35442-A-14-A #23 320-35442-A-15-A #24 320-35442-A-16-A #25 320-35442-A-17-A #26 CCV L5

QC Batch: 3	LC 537 ICAL Raw Batch: 207584
#26 CCV L5 #27 RB #28 320-35442-A-18-A #29 320-35442-A-19-A #30 320-35442-A-20-A #31 CCV L3 #32 RB	#26 CCV L5 #27 RB #28 320-35442-A-18-A #29 320-35442-A-19-A #30 320-35442-A-20-A #31 CCV L3 #32 RB

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 08FEB2018_537A Worklist Num: 53854
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.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	320-0053854-001	CCVL	08-Feb-2018 07:47:09	2018.02.08_537A_004.d	2	1.0		sv
CCV L5	320-0053854-002	CCVIS	08-Feb-2018 07:51:49	2018.02.08_537A_005.d	5	1.0		sv
RB	320-0053854-003	RB	08-Feb-2018 07:56:30	2018.02.08_537A_006.d	8	1.0		sv
MB 320-206719/1-A	320-0053854-004	MB	08-Feb-2018 08:01:09	2018.02.08_537A_007.d	1	1.0		sv
LCS 320-206719/2-A	320-0053854-005	LCS	08-Feb-2018 08:05:49	2018.02.08_537A_008.d	2	1.0		sv
LCSD 320-206719/3-A	320-0053854-006	LCSD	08-Feb-2018 08:10:29	2018.02.08_537A_009.d	3	1.0		sv
320-35442-A-1-A	320-0053854-007	Client	08-Feb-2018 08:15:10	2018.02.08_537A_010.d	4	1.0	NAWC-012518-RW-256	sv
320-35442-A-2-A	320-0053854-008	Client	08-Feb-2018 08:19:50	2018.02.08_537A_011.d	5	1.0	NAWC-012518-FRB-256	sv
320-35442-A-3-A	320-0053854-009	Client	08-Feb-2018 08:24:33	2018.02.08_537A_012.d	6	1.0	NAWC-012518-RW-169	sv
320-35442-A-4-A	320-0053854-010	Client	08-Feb-2018 08:29:14	2018.02.08_537A_013.d	7	1.0	NAWC-012518-FRB-169	sv
320-35442-A-5-A	320-0053854-011	Client	08-Feb-2018 08:33:54	2018.02.08_537A_014.d	8	1.0	NAWC-012518-RW-236	sv
320-35442-A-6-A	320-0053854-012	Client	08-Feb-2018 08:38:33	2018.02.08_537A_015.d	9	1.0	NAWC-012518-FRB-236	sv
320-35442-A-7-A	320-0053854-013	Client	08-Feb-2018 08:43:14	2018.02.08_537A_016.d	10	1.0	NAWC-012518-RW-153	sv
CCV L3	320-0053854-014	CCVIS	08-Feb-2018 08:47:56	2018.02.08_537A_017.d	3	1.0		sv
RB	320-0053854-015	RB	08-Feb-2018 08:52:37	2018.02.08_537A_018.d	8	1.0		sv
320-35442-A-8-A	320-0053854-016	Client	08-Feb-2018 08:57:17	2018.02.08_537A_019.d	11	1.0	NAWC-012518-FRB-153	sv
320-35442-A-9-A	320-0053854-017	Client	08-Feb-2018 09:01:59	2018.02.08_537A_020.d	12	1.0	NAWC-012518-RW-155	sv
320-35442-A-10-A	320-0053854-018	Client	08-Feb-2018 09:06:40	2018.02.08_537A_021.d	13	1.0	NAWC-012518-FRB-155	sv
320-35442-A-11-A	320-0053854-019	Client	08-Feb-2018 09:11:20	2018.02.08_537A_022.d	14	1.0	WGNA-012518-DUP-23	sv
320-35442-A-12-A	320-0053854-020	Client	08-Feb-2018 09:15:59	2018.02.08_537A_023.d	15	1.0	NAWC-012518-RW-094	sv
320-35442-A-13-A	320-0053854-021	Client	08-Feb-2018 09:20:40	2018.02.08_537A_024.d	16	1.0	NAWC-012518-FRB-094	sv
320-35442-A-14-A	320-0053854-022	Client	08-Feb-2018 09:25:20	2018.02.08_537A_025.d	17	1.0	NAWC-012518-RW-168	sv
320-35442-A-15-A	320-0053854-023	Client	08-Feb-2018 09:30:02	2018.02.08_537A_026.d	18	1.0	NAWC-012518-FRB-168	sv
320-35442-A-16-A	320-0053854-024	Client	08-Feb-2018 09:34:41	2018.02.08_537A_027.d	19	1.0	NAWC-012518-RW-238	sv
320-35442-A-17-A	320-0053854-025	Client	08-Feb-2018 09:39:22	2018.02.08_537A_028.d	20	1.0	NAWC-012518-FRB-238	sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L5	320-0053854-026	CCVIS	08-Feb-2018 09:44:02	2018.02.08_537A_029.d	5	1.0		sv
RB	320-0053854-027	RB	08-Feb-2018 09:48:41	2018.02.08_537A_030.d	8	1.0		sv
320-35442-A-18-A	320-0053854-028	Client	08-Feb-2018 09:53:22	2018.02.08_537A_031.d	21	1.0	NAWC-012518-RW-162	sv
320-35442-A-19-A	320-0053854-029	Client	08-Feb-2018 09:58:03	2018.02.08_537A_032.d	22	1.0	NAWC-012518-FRB-162	sv
320-35442-A-20-A	320-0053854-030	Client	08-Feb-2018 10:02:43	2018.02.08_537A_033.d	23	1.0	NAWC-012518-RW-300	sv
CCV L3	320-0053854-031	CCVIS	08-Feb-2018 10:07:23	2018.02.08_537A_034.d	3	1.0		sv
RB	320-0053854-032	RB	08-Feb-2018 10:12:04	2018.02.08_537A_035.d	8	1.0		sv

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 14FEB2018_537A Worklist Number: 54087
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54087.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 208493	LC 537 ICAL Raw Batch: 208494
# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-207982/1-A # 5 LCS 320-207982/2-A # 6 LCSD 320-207982/3-A # 7 320-35442-B-17-A # 8 CCV L3 # 9 RB	# 1 CCVL	# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-207982/1-A # 5 LCS 320-207982/2-A # 6 LCSD 320-207982/3-A # 7 320-35442-B-17-A # 8 CCV L3 # 9 RB

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 14FEB2018_537A Worklist Num: 54087
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54087.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
CCVL	320-0054087-001	CCVL	14-Feb-2018 12:27:27	2018.02.14_537A_004.d	2	1.0		sv
CCV L5	320-0054087-002	CCV	14-Feb-2018 13:51:34	2018.02.14_537AXX_005.d	5	1.0		sv
RB	320-0054087-003	RB	14-Feb-2018 13:56:15	2018.02.14_537AXX_006.d	8	1.0		sv
MB 320-207982/1-A	320-0054087-004	MB	14-Feb-2018 14:00:57	2018.02.14_537AXX_007.d	6	1.0		sv
LCS 320-207982/2-A	320-0054087-005	LCS	14-Feb-2018 14:05:37	2018.02.14_537AXX_008.d	7	1.0		sv
LCSD 320-207982/3-A	320-0054087-006	LCSD	14-Feb-2018 14:10:18	2018.02.14_537AXX_009.d	8	1.0		sv
320-35442-B-17-A	320-0054087-007	Client	14-Feb-2018 14:14:58	2018.02.14_537AXX_010.d	9	1.0	NAWC-012518-FRB-238	sv
CCV L3	320-0054087-008	CCV	14-Feb-2018 14:19:38	2018.02.14_537AXX_011.d	3	1.0		sv
RB	320-0054087-009	RB	14-Feb-2018 14:24:18	2018.02.14_537AXX_012.d	8	1.0		sv

Aqueous Extraction Analysis Sheet

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AS 2/8/18
AS 2/8/18

(To Accompany Samples to Instruments)

Batch Number: 320-206719 Analyst: Kolstad, Kate M Batch Open: 2/2/2018 12:57:00PM

Method Code: 320-537_Prep-320 Batch End: 2/7/2018 7:45:00AM

Extraction of Perfluorinated Alkyl Acids

2/16

	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~320-206719/1 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	MB 320-206719/1-A
				1.0 mL								
2	LCS~320-206719/2 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	LCS 320-206719/2-A
				1.0 mL								
3	LCSD~320-206719/3 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	LCSD 320-206719/3-A
				1.0 mL								
4	320-35442-A-1 (537_DOD5)	N/A (320-35442-1)	269.54 g	241.3 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-1-A
			28.23 g	1.0 mL								
5	320-35442-A-2 (537_DOD5)	N/A (320-35442-1)	280.81 g	253 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-2-A
			27.80 g	1.0 mL								
6	320-35442-A-3 (537_DOD5)	N/A (320-35442-1)	273.30 g	245.5 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-3-A
			27.84 g	1.0 mL								
7	320-35442-A-4 (537_DOD5)	N/A (320-35442-1)	275.17 g	247.1 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-4-A
			28.06 g	1.0 mL								
8	320-35442-A-5 (537_DOD5)	N/A (320-35442-1)	276.18 g	248.1 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-5-A
			28.11 g	1.0 mL								
9	320-35442-A-6 (537_DOD5)	N/A (320-35442-1)	278.95 g	251.6 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-6-A
			27.31 g	1.0 mL								
10	320-35442-A-7 (537_DOD5)	N/A (320-35442-1)	271.82 g	243.5 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-7-A
			28.28 g	1.0 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206719 Analyst: Kolstad, Kate M Batch Open: 2/2/2018 12:57:00PM

Method Code: 320-537_Prep-320 Batch End: 2/7/2018 7:45:00AM

11	320-35442-A-8 (537_DOD5)	N/A (320-35442-1)	276.28 g 26.95 g	249.3 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
12	320-35442-A-9 (537_DOD5)	N/A (320-35442-1)	272.30 g 28.61 g	243.7 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
13	320-35442-A-10 (537_DOD5)	N/A (320-35442-1)	274.41 g 27.09 g	247.3 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
14	320-35442-A-11 (537_DOD5)	N/A (320-35442-1)	278.03 g 27.63 g	250.4 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
15	320-35442-A-12 (537_DOD5)	N/A (320-35442-1)	275.49 g 28.32 g	247.2 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
16	320-35442-A-13 (537_DOD5)	N/A (320-35442-1)	273.92 g 26.79 g	247.1 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
17	320-35442-A-14 (537_DOD5)	N/A (320-35442-1)	273.43 g 27.29 g	246.1 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
18	320-35442-A-15 (537_DOD5)	N/A (320-35442-1)	274.33 g 26.79 g	247.5 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
19	320-35442-A-16 (537_DOD5)	N/A (320-35442-1)	277.84 g 28.30 g	249.5 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
20	320-35442-A-17 (537_DOD5)	N/A (320-35442-1)	278.57 g 27.23 g	251.3 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND R1 ~~RX~~ aaf 2/8/18	
21	320-35442-A-18 (537_DOD5)	N/A (320-35442-1)	274.88 g 27.93 g	247 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
22	320-35442-A-19 (537_DOD5)	N/A (320-35442-1)	271.52 g 27.51 g	244 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206719 Analyst: Kolstad, Kate M Batch Open: 2/2/2018 12:57:00PM

Method Code: 320-537_Prep-320 Batch End: 2/7/2018 7:45:00AM

23	320-35442-A-20 (537_DOD5)	N/A (320-35442-1)	268.09 g 27.73 g	240.4 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	

Batch Notes

Manifold ID	3, 10
pH Indicator ID	2517
Trizma ID	SLBR4303V
SPE Cartridge ID	6369499-04
Methanol ID	1147517
Reagent Water ID	1-30-18
Internal Standard ID#	1145836
Pipette ID	M16387D
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - Concentration	CCB/KMK
Analyst ID - Aliquot Step	SKD
Analyst ID - Final Volume Step	KMK
Batch Comment	Client Labels match: KMK 2-2-18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206719 Analyst: Kolstad, Kate M Batch Open: 2/2/2018 12:57:00PM

Method Code: 320-537_Prep-320 Batch End:

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206719 Analyst: Kolstad, Kate M Batch Open: 2/2/2018 12:57:00PM

Method Code: 320-537_Prep-320 Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-206719/1	LC537-SU_00053	100 uL	1.0 mL	VPM 2/2/18	KMK 2-2-18
LCS 320-206719/2	LC537-MSP_00031	100 uL	1.0 mL		
LCS 320-206719/2	LC537-SU_00053	100 uL	1.0 mL		
LCSD 320-206719/3	LC537-MSP_00031	100 uL	1.0 mL		
LCSD 320-206719/3	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-1	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-2	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-3	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-4	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-5	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-6	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-7	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-8	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-9	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-10	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-11	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-12	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-13	LC537-SU_00053	100 uL	1.0 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206719 Analyst: Kolstad, Kate M Batch Open: 2/2/2018 12:57:00PM

Method Code: 320-537_Prep-320 Batch End:

320-35442-A-14	LC537-SU_00053	100 uL	1.0 mL	VPM 2/2/18	KMK 2-2-18
320-35442-A-15	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-16	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-17	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-18	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-19	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-20	LC537-SU_00053	100 uL	1.0 mL		

Other Reagents:

Reagent	Amount/Units	Lot#:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s) 206719 Test 537 - Prep

Earliest Holding Time 2-8-18.

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	NA	NA
MS/MSD or MS/DU NCM filed	✓	✓
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	1st Level Reviewer	2nd Level Reviewer
All samples properly preserved	✓	✓
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	✓	✓
The pH is transcribed properly in TALS	✓	✓
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	1st Level Reviewer	2nd Level Reviewer
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: SKP Date: 2/7/18

2nd Level Reviewer: VPM Date: 2/7/18

Comments:

RX

AS 2/14/18
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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207982
Analyst: Kolstad, Kate M
Batch Open: 2/12/2018 1:35:00PM
Method Code: 320-537_Prep-320
Batch End: 2/13/2018 4:48:00PM

Extraction of Perfluorinated Alkyl Acids

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB~320-207982/1 N/A	N/A		250.0 mL 1.0 mL	7			N/A	N/A	N/A	CI ND	MB 320-207982/1-A
2	LCS~320-207982/2 N/A	N/A		250.0 mL 1.0 mL	7			N/A	N/A	N/A	CI ND	LCS 320-207982/2-A
3	LCSD~320-207982/3 N/A	N/A		250.0 mL 1.0 mL	7			N/A	N/A	N/A	CI ND	LCSD 320-207982/3-A
4	320-35442-B-17 (537_DOD5)	N/A (320-35442-1)	269.68 g 28.05 g	241.6 mL 1.0 mL	7			1/30/18	16_Days	4	CI ND; re-work.	320-35442-B-17-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207982 Analyst: Kolstad, Kate M Batch Open: 2/12/2018 1:35:00PM

Method Code: 320-537_Prep-320 Batch End: 2/13/2018 4:48:00PM

Batch Notes

Manifold ID	9
pH Indicator ID	2517
Trizma ID	SLBR4303V
SPE Cartridge Lot ID	6369499-05
Methanol ID	1152898
Reagent Water ID	2-9-18
Internal Standard ID#	1099355
Pipette ID	M16387D
Analyst ID - TA Reagent Drop	KMK
Analyst ID - TA Reagent Drop Witness	JER
Analyst ID - SU Reagent Drop	KMK
Analyst ID - SU Reagent Drop Witness	JER
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	TP
Analyst ID - Concentration	SKD/KMK
Analyst ID - Aliquot Step	KMK
Analyst ID - Final Volume Step	KMK
Batch Comment	Sample labels match Client ID's: KMK 2-12-18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207982 Analyst: Kolstad, Kate M Batch Open: 2/12/2018 1:35:00PM

Method Code: 320-537_Prep-320 Batch End: 2/13/2018 4:48:00PM

Comments

320-35442-B-17

Rework Comments: Due to low surrogate recovery

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207982 Analyst: Kolstad, Kate M Batch Open: 2/12/2018 1:35:00PM

Method Code: 320-537_Prep-320 Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-207982/1	LC537-SU_00057	100 uL	1.0 mL	KMK 2-12-18	2/12/18
LCS 320-207982/2	LC537-MSP_00032	100 uL	1.0 mL	↓	↓
LCS 320-207982/2	LC537-SU_00057	100 uL	1.0 mL	↓	↓
LCSD 320-207982/3	LC537-MSP_00032	100 uL	1.0 mL	↓	↓
LCSD 320-207982/3	LC537-SU_00057	100 uL	1.0 mL	↓	↓
320-35442-B-17	LC537-SU_00057	100 uL	1.0 mL	↓	↓

Other Reagents:

Reagent	Amount/Units	Lot#:

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Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s) 207982 Test 537_Prep

Earliest Holding Time 2-8-18 (RX)

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	NA	NA
MS/MSD or MS/DU NCM filed	✓	✓
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	1st Level Reviewer	2nd Level Reviewer
All samples properly preserved	✓	✓
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	✓	✓
The pH is transcribed properly in TALS	✓	✓
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	1st Level Reviewer	2nd Level Reviewer
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: [signature] Date: 2-13-18

2nd Level Reviewer: [signature] 2/13/18 Date: 2/13/18

Comments:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Method 537 CCV/Data Review Checklist

Job No: 590-7934 35442, Instrument ID & Date: 2-8-18 A8 ICAL Batch: 192908

Extraction Batch: 206718 206730 Worklist #: 53856 TALS Batch: 207588, 207590

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 2-9-18 2nd Level Reviewer / Date: 2/9/18

NCM # and Comments: _____

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Method 537 ICAL Checklist

A8

Instrument ID & Date: 11-3-17 Worklist#: 49975

ICAL Batch: 192908, 192909 Calibration ID number: 36012, 36013

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 11-6-17 2nd Level Reviewer / Date: MWolf 11/6/2017

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 08FEB2018_537C Worklist Number: 53856
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 207588
# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB
# 3 MB 320-206718/1-A	# 3 MB 320-206718/1-A
# 4 LCS 320-206718/2-A	# 4 LCS 320-206718/2-A
# 5 LCSD 320-206718/3-A	# 5 LCSD 320-206718/3-A
# 6 320-35442-A-21-A	# 6 320-35442-A-21-A
# 7 320-35442-A-22-A	# 7 320-35442-A-22-A
# 8 320-35442-A-23-A	# 8 320-35442-A-23-A
# 9 CCV L5	# 9 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 207590
# 9 CCV L5	# 9 CCV L5
#10 RB	#10 RB
#11 MB 320-206730/1-A	#11 MB 320-206730/1-A
#12 LLCS 320-206730/2-A	#12 LLCS 320-206730/2-A
#13 LLCSD 320-206730/3-A	#13 LLCSD 320-206730/3-A
#14 590-7934-A-1-A	#14 590-7934-A-1-A
#15 CCV L3	#15 CCV L3
#16 RB	#16 RB

CCVL in AB 207581

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 08FEB2018_537C Worklist Num: 53856
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53856.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
CCV L3	320-0053856-001	CCVIS	08-Feb-2018 10:40:04	2018.02.08_537AA_034.d	3	1.0		sv
RB	320-0053856-002	RB	08-Feb-2018 10:44:44	2018.02.08_537AA_035.d	8	1.0		sv
MB 320-206718/1-A	320-0053856-003	MB	08-Feb-2018 10:49:23	2018.02.08_537AA_036.d	24	1.0		sv
LCS 320-206718/2-A	320-0053856-004	LCS	08-Feb-2018 10:54:03	2018.02.08_537AA_037.d	25	1.0		sv
LCSD 320-206718/3-A	320-0053856-005	LCSD	08-Feb-2018 10:58:43	2018.02.08_537AA_038.d	26	1.0		sv
320-35442-A-21-A	320-0053856-006	Client	08-Feb-2018 11:03:23	2018.02.08_537AA_039.d	27	1.0	NAWC-012518-FRB-300	sv
320-35442-A-22-A	320-0053856-007	Client	08-Feb-2018 11:08:04	2018.02.08_537AA_040.d	28	1.0	NAWC-012518-RW-064	sv
320-35442-A-23-A	320-0053856-008	Client	08-Feb-2018 11:12:46	2018.02.08_537AA_041.d	29	1.0	NAWC-012518-FRB-064	sv
CCV L5	320-0053856-009	CCVIS	08-Feb-2018 11:17:26	2018.02.08_537AA_042.d	5	1.0		sv
RB	320-0053856-010	RB	08-Feb-2018 11:22:06	2018.02.08_537AA_043.d	8	1.0		sv
MB 320-206730/1-A	320-0053856-011	MB	08-Feb-2018 11:26:46	2018.02.08_537AA_044.d	30	1.0		sv
LLCS 320-206730/2-A	320-0053856-012	LLCS	08-Feb-2018 11:31:28	2018.02.08_537AA_045.d	31	1.0		sv
LLCSD 320-206730/3-A	320-0053856-013	LLCSD	08-Feb-2018 11:36:09	2018.02.08_537AA_046.d	32	1.0		sv
590-7934-A-1-A	320-0053856-014	Client	08-Feb-2018 11:40:50	2018.02.08_537AA_047.d	33	1.0	Well	sv
CCV L3	320-0053856-015	CCVIS	08-Feb-2018 11:45:31	2018.02.08_537AA_048.d	3	1.0		sv
RB	320-0053856-016	RB	08-Feb-2018 11:50:11	2018.02.08_537AA_049.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 08FEB2018_537A Worklist Num: 53854
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.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	320-0053854-001	CCVL	08-Feb-2018 07:47:09	2018.02.08_537A_004.d	2	1.0		sv
CCV L5	320-0053854-002	CCVIS	08-Feb-2018 07:51:49	2018.02.08_537A_005.d	5	1.0		sv
RB	320-0053854-003	RB	08-Feb-2018 07:56:30	2018.02.08_537A_006.d	8	1.0		sv
MB 320-206719/1-A	320-0053854-004	MB	08-Feb-2018 08:01:09	2018.02.08_537A_007.d	1	1.0		sv
LCS 320-206719/2-A	320-0053854-005	LCS	08-Feb-2018 08:05:49	2018.02.08_537A_008.d	2	1.0		sv
LCSD 320-206719/3-A	320-0053854-006	LCSD	08-Feb-2018 08:10:29	2018.02.08_537A_009.d	3	1.0		sv
320-35442-A-1-A	320-0053854-007	Client	08-Feb-2018 08:15:10	2018.02.08_537A_010.d	4	1.0	NAWC-012518-RW-256	sv
320-35442-A-2-A	320-0053854-008	Client	08-Feb-2018 08:19:50	2018.02.08_537A_011.d	5	1.0	NAWC-012518-FRB-256	sv
320-35442-A-3-A	320-0053854-009	Client	08-Feb-2018 08:24:33	2018.02.08_537A_012.d	6	1.0	NAWC-012518-RW-169	sv
320-35442-A-4-A	320-0053854-010	Client	08-Feb-2018 08:29:14	2018.02.08_537A_013.d	7	1.0	NAWC-012518-FRB-169	sv
320-35442-A-5-A	320-0053854-011	Client	08-Feb-2018 08:33:54	2018.02.08_537A_014.d	8	1.0	NAWC-012518-RW-236	sv
320-35442-A-6-A	320-0053854-012	Client	08-Feb-2018 08:38:33	2018.02.08_537A_015.d	9	1.0	NAWC-012518-FRB-236	sv
320-35442-A-7-A	320-0053854-013	Client	08-Feb-2018 08:43:14	2018.02.08_537A_016.d	10	1.0	NAWC-012518-RW-153	sv
CCV L3	320-0053854-014	CCVIS	08-Feb-2018 08:47:56	2018.02.08_537A_017.d	3	1.0		sv
RB	320-0053854-015	RB	08-Feb-2018 08:52:37	2018.02.08_537A_018.d	8	1.0		sv
320-35442-A-8-A	320-0053854-016	Client	08-Feb-2018 08:57:17	2018.02.08_537A_019.d	11	1.0	NAWC-012518-FRB-153	sv
320-35442-A-9-A	320-0053854-017	Client	08-Feb-2018 09:01:59	2018.02.08_537A_020.d	12	1.0	NAWC-012518-RW-155	sv
320-35442-A-10-A	320-0053854-018	Client	08-Feb-2018 09:06:40	2018.02.08_537A_021.d	13	1.0	NAWC-012518-FRB-155	sv
320-35442-A-11-A	320-0053854-019	Client	08-Feb-2018 09:11:20	2018.02.08_537A_022.d	14	1.0	WGNA-012518-DUP-23	sv
320-35442-A-12-A	320-0053854-020	Client	08-Feb-2018 09:15:59	2018.02.08_537A_023.d	15	1.0	NAWC-012518-RW-094	sv
320-35442-A-13-A	320-0053854-021	Client	08-Feb-2018 09:20:40	2018.02.08_537A_024.d	16	1.0	NAWC-012518-FRB-094	sv
320-35442-A-14-A	320-0053854-022	Client	08-Feb-2018 09:25:20	2018.02.08_537A_025.d	17	1.0	NAWC-012518-RW-168	sv
320-35442-A-15-A	320-0053854-023	Client	08-Feb-2018 09:30:02	2018.02.08_537A_026.d	18	1.0	NAWC-012518-FRB-168	sv
320-35442-A-16-A	320-0053854-024	Client	08-Feb-2018 09:34:41	2018.02.08_537A_027.d	19	1.0	NAWC-012518-RW-238	sv
320-35442-A-17-A	320-0053854-025	Client	08-Feb-2018 09:39:22	2018.02.08_537A_028.d	20	1.0	NAWC-012518-FRB-238	sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	D:I Factor	Client ID	Fract
CCV L5	320-0053854-026	CCVIS	08-Feb-2018 09:44:02	2018.02.08_537A_029.d	5	1.0		sv
RB	320-0053854-027	RB	08-Feb-2018 09:48:41	2018.02.08_537A_030.d	8	1.0		sv
320-35442-A-18-A	320-0053854-028	Client	08-Feb-2018 09:53:22	2018.02.08_537A_031.d	21	1.0	NAWC-012518-RW-162	sv
320-35442-A-19-A	320-0053854-029	Client	08-Feb-2018 09:58:03	2018.02.08_537A_032.d	22	1.0	NAWC-012518-FRB-162	sv
320-35442-A-20-A	320-0053854-030	Client	08-Feb-2018 10:02:43	2018.02.08_537A_033.d	23	1.0	NAWC-012518-RW-300	sv
CCV L3	320-0053854-031	CCVIS	08-Feb-2018 10:07:23	2018.02.08_537A_034.d	3	1.0		sv
RB	320-0053854-032	RB	08-Feb-2018 10:12:04	2018.02.08_537A_035.d	8	1.0		sv

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Aqueous Extraction Analysis Sheet

KS 2/8/18

(To Accompany Samples to Instruments)

Batch Number: 320-206718

Analyst: Kolstad, Kate M

Batch Open: 2/2/2018 12:56:00PM

Method Code: 320-537_Prep-320

Batch End: 2/7/2018 11:30:00AM

Extraction of Perfluorinated Alkyl Acids

2/16

	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-320-206718/1 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	MB 320-206718/1-A
				1.0 mL								
2	LCS-320-206718/2 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	LCS 320-206718/2-A
				1.0 mL								
3	LCSD-320-206718/3 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	LCSD 320-206718/3-A
				1.0 mL								
4	320-35442-A-21 (537_DOD5)	N/A (320-35442-1)	275.18 g	245.6 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-21-A
			29.59 g	1.0 mL								
	320-35442-A-22 (537_DOD5)	N/A (320-35442-1)	273.92 g	246.8 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-22-A
			27.17 g	1.0 mL								
6	320-35442-A-23 (537_DOD5)	N/A (320-35442-1)	272.47 g	245.5 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-23-A
			26.93 g	1.0 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206718 | Analyst: Kolstad, Kate M | Batch Open: 2/2/2018 12:56:00PM

Method Code: 320-537_Prep-320 | Batch End:

Batch Notes

Manifold ID	3
pH Indicator ID	2517
Trizma ID	SLBR4303V
SPE Cartridge ID	6369499-05
Methanol ID	147517
Reagent Water ID	1-30-18
Internal Standard ID#	1145836
Pipette ID	M16387D
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - IS Reagent Drop	CCB
Analyst ID - IS Reagent Drop Witness	JWL
Analyst ID - Concentration	nights
Analyst ID - Aliquot Step	SKD
Analyst ID - Final Volume Step	KMK
Batch Comment	Client Labels match: KMK

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206718
Analyst: Kolstad, Kate M
Batch Open: 2/2/2018 12:56:00PM

Method Code: 320-537_Prep-320
Batch End:

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206718 Analyst: Kolstad, Kate M Batch Open: 2/2/2018 12:56:00PM

Method Code: 320-537_Prep-320 Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-206718/1	LC537-SU_00053	100 uL	1.0 mL	dcs 2-5-18	KMK 2-5-18
LCS 320-206718/2	LC537-HSP_00026	100 uL	1.0 mL		
LCS 320-206718/2	LC537-SU_00053	100 uL	1.0 mL		
LCSD 320-206718/3	LC537-HSP_00026	100 uL	1.0 mL		
LCSD 320-206718/3	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-21	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-22	LC537-SU_00053	100 uL	1.0 mL		
320-35442-A-23	LC537-SU_00053	100 uL	1.0 mL		

Other Reagents:

Reagent	Amount/Units	Lot#:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s) 206718 Test 537_Prep

Earliest Holding Time 2-8-18

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	NA
MS/MSD or MS/DU NCM filed	✓	✓
NCM for any anomalies filed	N/A	NA
All NCMs include method code, matrix, and prep batch	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	1st Level Reviewer	2nd Level Reviewer
All samples properly preserved	✓	✓
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	✓	✓
The pH is transcribed properly in TALS	✓	✓
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	1st Level Reviewer	2nd Level Reviewer
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: SKO Date: 2/7/18

2nd Level Reviewer: VPM Date: 2/7/18

Comments:

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Aqueous Extraction Analysis Sheet

A8 2/8/18

(To Accompany Samples to Instruments)

Batch Number: 320-206730

Analyst: Long, Tyrel W

Batch Open: 2/2/2018 1:28:00PM

Method Code: 320-537_DW_Prep-320

Batch End: 2/7/2018 11:34:00AM

Extraction of Perfluorinated Alkyl Acids

2/20

	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~320-206730/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	MB 320-206730/1-A
				1.00 mL								
2	LLCS~320-206730/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	LLCS 320-206730/2-A
				1.00 mL								
3	LLCSD~320-206730/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	LLCSD 320-206730/3-A
				1.00 mL								
4	590-7934-A-1 (537_DW)	N/A (590-7934-1)	271.16 g	243.9 mL	7			2/8/18	8_Days	2	Chlorine ND	590-7934-A-1-A
			27.24 g	1.00 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206730 | Analyst: Long, Tyrel W | Batch Open: 2/2/2018 1:28:00PM

Method Code: 320-537_DW_Prep-320 | Batch End:

Batch Notes

pH Indicator ID	2517
Manifold ID	9
Trizma ID	SLBR4303V
SPE Cartridge ID	TAS
Methanol ID	1127839
Reagent Water ID	1-30-18
Internal Standard ID#	ILIS836
Pipette ID	TALS
Analyst ID - TA Reagent Drop	CEJ
Analyst ID - TA Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	CEB
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - IS Reagent Drop	CEB
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - Concentration	nights
Analyst ID - Aliquot Step	SKD
Analyst ID - Final Volume Step	KMK
Batch Comment	Client Labels match: TWL 2/2/18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206730 Analyst: Long, Tyrel W Batch Open: 2/2/2018 1:28:00PM

Method Code: 320-537_DW_Prep-320 Batch End:

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206730 Analyst: Long, Tyrel W Batch Open: 2/2/2018 1:28:00PM

Method Code: 320-537_DW_Prep-320 Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-206730/1	LC537-SU_00057	100 uL	1.00 mL	CB 2-2-18	TMZ 2/2/18
LLCS 320-206730/2	LC537-LSP_00029	100 uL	1.00 mL		
LLCS 320-206730/2	LC537-SU_00057	100 uL	1.00 mL		
LLCSD 320-206730/3	LC537-LSP_00029	100 uL	1.00 mL		
LLCSD 320-206730/3	LC537-SU_00057	100 uL	1.00 mL		
590-7934-A-1	LC537-SU_00057	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) 206730 Test 537_DW_Prep

Earliest Holding Time 2/11/18

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	NA
MS/MSD or MS/DU NCM filed	✓	✓
NCM for any anomalies filed	N/A	NA
All NCMs include method code, matrix, and prep batch	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
Worksheet Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All samples properly preserved	✓	✓
Weights in anticipated range and not targeted	✓	✓
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	✓	✓
The pH is transcribed properly in TALS	✓	✓
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	**1st Level Reviewer**	**2nd Level Reviewer**
All necessary reagents not expired and checked into TALS	✓	
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: SKD Date: 2/7/18

2nd Level Reviewer: VPM Date: 2/7/18

Comments:

Shipping and Receiving Documents

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

Regulatory Program: ☑ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Andy Frebowitz	Site Contact: Mary Kay Bond	Date: 1/25/2018	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:
NAWC-012518-RW-256	1/25/2018	08:10	G	DW	2	N	N	Y	
NAWC-012518-FRB-256	1/25/2018	08:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-169	1/25/2018	08:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-169	1/25/2018	08:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-236	1/25/2018	09:10	G	DW	2	N	N	Y	
NAWC-012518-FRB-236	1/25/2018	09:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-153	1/25/2018	09:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-153	1/25/2018	09:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-155	1/25/2018	10:10	G	DW	2	N	N	Y	
NAWC-012518-FRB-155	1/25/2018	10:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-012518-DUP-23	1/25/2018	07:00	G	DW	2	N	N	Y	DUPLICATE
NAWC-012518-RW-094	1/25/2018	11:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-094	1/25/2018	11:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-168	1/25/2018	12:10	G	DW	2	N	N	Y	
NAWC-012518-FRB-168	1/25/2018	12:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-238	1/25/2018	12:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-238	1/25/2018	12:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-162	1/25/2018	13:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-162	1/25/2018	13:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-300	1/25/2018	14:10	G	DW	2	N	N	Y	
NAWC-012518-FRB-300	1/25/2018	14:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-064	1/25/2018	16:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-064	1/25/2018	16:35	G	DW	2	N	N	Y	Field Reagent Blank

320-35442 Chain of Custody

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: 7713 2536 7068

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 1.5 Corr'd: | Therm ID No.: AK-3

	Company	Date/Time		Company	Date/Time
Relinquished by: Mary Kay Bond	Tetra Tech	1/25/2018 16:00	Received by:	TA Sac	1/26/18 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

S:\WillowGrove PFCs Private Well\COCs TT\COC 2018.01.25.xls

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-35442-1

Login Number: 35442
List Number: 1
Creator: Her, David A

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	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	

"NAWC-012518-RW-256","537","RES","320-35442-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","34","ng/L","J M","7.0","DL","","TRG","","","41","LOQ","YES","-99","","241.3","1.0","17",""
"NAWC-012518-RW-256","537","RES","320-35442-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","27","ng/L","","2.9","DL","","TRG","","","21","LOQ","YES","-99","","241.3","1.0","8.3",""
"NAWC-012518-RW-256","537","RES","320-35442-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","6.4","ng/L","J","5.7","DL","","TRG","","","31","LOQ","YES","-99","","241.3","1.0","12",""
"NAWC-012518-RW-256","537","RES","320-35442-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","17","DL","","TRG","","","93","LOQ","YES","-99","","241.3","1.0","37",""
"NAWC-012518-RW-256","537","RES","320-35442-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","8.2","ng/L","J","2.0","DL","","TRG","","","10","LOQ","YES","-99","","241.3","1.0","4.1",""
"NAWC-012518-RW-256","537","RES","320-35442-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","21","ng/L","U","8.3","DL","","TRG","","","25","LOQ","YES","-99","","241.3","1.0","21",""
"NAWC-012518-RW-256","537","RES","320-35442-1","TALSAC","STL00993","13C2 PFHxA","37","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","41.4","","241.3","1.0","0",""
"NAWC-012518-RW-256","537","RES","320-35442-1","TALSAC","STL00996","13C2 PFDA","43","ng/L","","-99","DL","","SURR","104","","-99","LOQ","YES","41.4","","241.3","1.0","0",""
"NAWC-012518-FRB-155","537","RES","320-35442-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247.3","1.0","16",""
"NAWC-012518-FRB-155","537","RES","320-35442-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247.3","1.0","8.1",""
"NAWC-012518-FRB-155","537","RES","320-35442-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES","-99","","247.3","1.0","12",""
"NAWC-012518-FRB-155","537","RES","320-35442-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","247.3","1.0","36",""
"NAWC-012518-FRB-155","537","RES","320-35442-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","247.3","1.0","4.0",""
"NAWC-012518-FRB-155","537","RES","320-35442-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","247.3","1.0","20",""
"NAWC-012518-FRB-155","537","RES","320-35442-10","TALSAC","STL00993","13C2 PFHxA","44","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","40.4","","247.3","1.0","0",""
"NAWC-012518-FRB-155","537","RES","320-35442-10","TALSAC","STL00996","13C2 PFDA","45","ng/L","","-99","DL","","SURR","110","","-99","LOQ","YES","40.4","","247.3","1.0","0",""
"WGNA-012518-DUP-23","537","RES","320-35442-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","14","ng/L","J M","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250.4","1.0","16",""
"WGNA-012518-DUP-23","537","RES","320-35442-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","23","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250.4","1.0","8.0",""
"WGNA-012518-DUP-23","537","RES","320-35442-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","5.5","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250.4","1.0","12",""
"WGNA-012518-DUP-23","537","RES","320-35442-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250.4","1.0","36",""
"WGNA-012518-DUP-23","537","RES","320-35442-11","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","7.6","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250.4","1.0","4.0",""
"WGNA-012518-DUP-23","537","RES","320-35442-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U M","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250.4","1.0","20",""
"WGNA-012518-DUP-23","537","RES","320-35442-11","TALSAC","STL00993","13C2 PFHxA","45","ng/L","","-99","DL","","SURR","113","","-99","LOQ","YES","39.9","","250.4","1.0","0",""
"WGNA-012518-DUP-23","537","RES","320-35442-11","TALSAC","STL00996","13C2 PFDA","47","ng/L","","-99","DL","","SURR","118","","-99","LOQ","YES","39.9","","250.4","1.0","0",""
"NAWC-012518-RW-094","537","RES","320-35442-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","25","ng/L","J M","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247.2","1.0","16",""
"NAWC-012518-RW-094","537","RES","320-35442-12","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","17","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247.2","1.0","8.1",""
"NAWC-012518-RW-094","537","RES","320-35442-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS)","20","ng/L","J","5.6","DL","","TRG","","","30","LOQ","YES","-99","","247.2","1.0","12",""
"NAWC-012518-RW-094","537","RES","320-35442-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","247.2","1.0","36",""
"NAWC-012518-RW-094","537","RES","320-35442-12","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.0","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","247.2","1.0","4.0",""
"NAWC-012518-RW-094","537","RES","320-35442-12","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U M","8.1","DL","","TRG","","","24","LOQ","YES","-99","","247.2","1.0","20",""
"NAWC-012518-RW-094","537","RES","320-35442-12","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","40.5","","247.2","1.0","0",""
"NAWC-012518-RW-094","537","RES","320-35442-12","TALSAC","STL00996","13C2
PFDA","46","ng/L","","-99","DL","","SURR","114","","-99","LOQ","YES","40.5","","247.2","1.0","0",""
"NAWC-012518-FRB-094","537","RES","320-35442-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247.1","1.0","16",""
"NAWC-012518-FRB-094","537","RES","320-35442-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247.1","1.0","8.1",""
"NAWC-012518-FRB-094","537","RES","320-35442-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES","-99","","247.1","1.0","12",""
"NAWC-012518-FRB-094","537","RES","320-35442-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","247.1","1.0","36",""
"NAWC-012518-FRB-094","537","RES","320-35442-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","247.1","1.0","4.0",""
"NAWC-012518-FRB-094","537","RES","320-35442-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","247.1","1.0","20",""
"NAWC-012518-FRB-094","537","RES","320-35442-13","TALSAC","STL00993","13C2
PFHxA","46","ng/L","","-99","DL","","SURR","113","","-99","LOQ","YES","40.5","","247.1","1.0","0",""
"NAWC-012518-FRB-094","537","RES","320-35442-13","TALSAC","STL00996","13C2
PFDA","45","ng/L","","-99","DL","","SURR","111","","-99","LOQ","YES","40.5","","247.1","1.0","0",""
"NAWC-012518-RW-168","537","RES","320-35442-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","8.7","ng/L","J M","6.9","DL","","TRG","","","41","LOQ","YES","-99","","246.1","1.0","16",""
"NAWC-012518-RW-168","537","RES","320-35442-14","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","22","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","246.1","1.0","8.1",""
"NAWC-012518-RW-168","537","RES","320-35442-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U M","5.6","DL","","TRG","","","30","LOQ","YES","-99","","246.1","1.0","12",""
"NAWC-012518-RW-168","537","RES","320-35442-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","246.1","1.0","37",""
"NAWC-012518-RW-168","537","RES","320-35442-14","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","7.3","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","246.1","1.0","4.1",""
"NAWC-012518-RW-168","537","RES","320-35442-14","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","246.1","1.0","20",""
"NAWC-012518-RW-168","537","RES","320-35442-14","TALSAC","STL00993","13C2
PFHxA","44","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","40.6","","246.1","1.0","0",""
"NAWC-012518-RW-168","537","RES","320-35442-14","TALSAC","STL00996","13C2
PFDA","45","ng/L","","-99","DL","","SURR","110","","-99","LOQ","YES","40.6","","246.1","1.0","0",""
"NAWC-012518-FRB-168","537","RES","320-35442-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247.5","1.0","16",""
"NAWC-012518-FRB-168","537","RES","320-35442-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247.5","1.0","8.1",""
"NAWC-012518-FRB-168","537","RES","320-35442-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES","-99","","247.5","1.0","12",""
"NAWC-012518-FRB-168","537","RES","320-35442-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","247.5","1.0","36",""
"NAWC-012518-FRB-168","537","RES","320-35442-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","247.5","1.0","4.0",""
"NAWC-012518-FRB-168","537","RES","320-35442-15","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","247.5","1.0","20",""
"NAWC-012518-FRB-168","537","RES","320-35442-15","TALSAC","STL00993","13C2
PFHxA","46","ng/L","","-99","DL","","SURR","115","","-99","LOQ","YES","40.4","","247.5","1.0","0",""
"NAWC-012518-FRB-168","537","RES","320-35442-15","TALSAC","STL00996","13C2
PFDA","47","ng/L","","-99","DL","","SURR","116","","-99","LOQ","YES","40.4","","247.5","1.0","0",""
"NAWC-012518-RW-238","537","RES","320-35442-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","J M","6.8","DL","","TRG","","","40","LOQ","YES","-99","","249.5","1.0","16",""
"NAWC-012518-RW-238","537","RES","320-35442-16","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","14","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","249.5","1.0","8.0",""
"NAWC-012518-RW-238","537","RES","320-35442-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","6.0","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","249.5","1.0","12",""
"NAWC-012518-RW-238","537","RES","320-35442-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","249.5","1.0","36",""
"NAWC-012518-RW-238","537","RES","320-35442-16","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","5.1","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","249.5","1.0","4.0",""
"NAWC-012518-RW-238","537","RES","320-35442-16","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","249.5","1.0","20",""
"NAWC-012518-RW-238","537","RES","320-35442-16","TALSAC","STL00993","13C2
PFHxA","43","ng/L","","-99","DL","","SURR","108","","-99","LOQ","YES","40.1","","249.5","1.0","0",""
"NAWC-012518-RW-238","537","RES","320-35442-16","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","SURR","106","","-99","LOQ","YES","40.1","","249.5","1.0","0",""
"NAWC-012518-FRB-238","537","RES","320-35442-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","251.3","1.0","16",""
"NAWC-012518-FRB-238","537","RES","320-35442-17","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","251.3","1.0","8.0",""
"NAWC-012518-FRB-238","537","RES","320-35442-17","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","251.3","1.0","12",""
"NAWC-012518-FRB-238","537","RES","320-35442-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","251.3","1.0","36",""
"NAWC-012518-FRB-238","537","RES","320-35442-17","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","251.3","1.0","4.0",""
"NAWC-012518-FRB-238","537","RES","320-35442-17","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","251.3","1.0","20",""
"NAWC-012518-FRB-238","537","RES","320-35442-17","TALSAC","STL00993","13C2
PFHxA","4.9","ng/L","Q","-99","DL","","SURR","12","","-99","LOQ","YES","39.8","","251.3","1.0","0",""
"NAWC-012518-FRB-238","537","RES","320-35442-17","TALSAC","STL00996","13C2
PFDA","30","ng/L","","-99","DL","","SURR","75","","-99","LOQ","YES","39.8","","251.3","1.0","0",""
"NAWC-012518-RW-162","537","RES","320-35442-18","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","22","ng/L","J M","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247","1.0","16",""
"NAWC-012518-RW-162","537","RES","320-35442-18","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","16","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247","1.0","8.1",""
"NAWC-012518-RW-162","537","RES","320-35442-18","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","J","5.6","DL","","TRG","","","30","LOQ","YES","-99","","247","1.0","12",""
"NAWC-012518-RW-162","537","RES","320-35442-18","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","247","1.0","36",""
"NAWC-012518-RW-162","537","RES","320-35442-18","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","5.9","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","247","1.0","4.0",""
"NAWC-012518-RW-162","537","RES","320-35442-18","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","247","1.0","20",""
"NAWC-012518-RW-162","537","RES","320-35442-18","TALSAC","STL00993","13C2
PFHxA","42","ng/L","","-99","DL","","SURR","103","","-99","LOQ","YES","40.5","","247","1.0","0",""
"NAWC-012518-RW-162","537","RES","320-35442-18","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURR","101","","-99","LOQ","YES","40.5","","247","1.0","0",""
"NAWC-012518-FRB-162","537","RES","320-35442-19","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS)","16","ng/L","U","7.0","DL","","TRG","","","41","LOQ","YES","-99","","244","1.0","16",""
"NAWC-012518-FRB-162","537","RES","320-35442-19","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.2","ng/L","U","2.9","DL","","TRG","","","20","LOQ","YES","-99","","244","1.0","8.2",""
"NAWC-012518-FRB-162","537","RES","320-35442-19","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","244","1.0","12",""
"NAWC-012518-FRB-162","537","RES","320-35442-19","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","244","1.0","37",""
"NAWC-012518-FRB-162","537","RES","320-35442-19","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","244","1.0","4.1",""
"NAWC-012518-FRB-162","537","RES","320-35442-19","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.2","DL","","TRG","","","25","LOQ","YES","-99","","244","1.0","20",""
"NAWC-012518-FRB-162","537","RES","320-35442-19","TALSAC","STL00993","13C2
PFHxA","43","ng/L","","-99","DL","","SURR","105","","-99","LOQ","YES","41.0","","244","1.0","0",""
"NAWC-012518-FRB-162","537","RES","320-35442-19","TALSAC","STL00996","13C2
PFDA","43","ng/L","","-99","DL","","SURR","104","","-99","LOQ","YES","41.0","","244","1.0","0",""
"NAWC-012518-FRB-256","537","RES","320-35442-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.7","DL","","TRG","","","40","LOQ","YES","-99","","253","1.0","16",""
"NAWC-012518-FRB-256","537","RES","320-35442-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","253","1.0","7.9",""
"NAWC-012518-FRB-256","537","RES","320-35442-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","30","LOQ","YES","-99","","253","1.0","12",""
"NAWC-012518-FRB-256","537","RES","320-35442-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","253","1.0","36",""
"NAWC-012518-FRB-256","537","RES","320-35442-2","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","253","1.0","4.0",""
"NAWC-012518-FRB-256","537","RES","320-35442-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","253","1.0","20",""
"NAWC-012518-FRB-256","537","RES","320-35442-2","TALSAC","STL00993","13C2
PFHxA","44","ng/L","","-99","DL","","SURR","112","","-99","LOQ","YES","39.5","","253","1.0","0",""
"NAWC-012518-FRB-256","537","RES","320-35442-2","TALSAC","STL00996","13C2
PFDA","50","ng/L","","-99","DL","","SURR","126","","-99","LOQ","YES","39.5","","253","1.0","0",""
"NAWC-012518-RW-300","537","RES","320-35442-20","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","24","ng/L","J M","7.1","DL","","TRG","","","42","LOQ","YES","-99","","240.4","1.0","17",""
"NAWC-012518-RW-300","537","RES","320-35442-20","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","22","ng/L","","2.9","DL","","TRG","","","21","LOQ","YES","-99","","240.4","1.0","8.3",""
"NAWC-012518-RW-300","537","RES","320-35442-20","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","8.0","ng/L","J","5.7","DL","","TRG","","","31","LOQ","YES","-99","","240.4","1.0","12",""
"NAWC-012518-RW-300","537","RES","320-35442-20","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","17","DL","","TRG","","","94","LOQ","YES","-99","","240.4","1.0","37",""
"NAWC-012518-RW-300","537","RES","320-35442-20","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","8.5","ng/L","J","2.0","DL","","TRG","","","10","LOQ","YES","-99","","240.4","1.0","4.2",""
"NAWC-012518-RW-300","537","RES","320-35442-20","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","21","ng/L","U","8.3","DL","","TRG","","","25","LOQ","YES","-99","","240.4","1.0","21",""
"NAWC-012518-RW-300","537","RES","320-35442-20","TALSAC","STL00993","13C2
PFHxA","45","ng/L","","-99","DL","","SURR","107","","-99","LOQ","YES","41.6","","240.4","1.0","0",""
"NAWC-012518-RW-300","537","RES","320-35442-20","TALSAC","STL00996","13C2
PFDA","45","ng/L","","-99","DL","","SURR","108","","-99","LOQ","YES","41.6","","240.4","1.0","0",""
"NAWC-012518-FRB-300","537","RES","320-35442-21","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","245.6","1.0","16",""
"NAWC-012518-FRB-300","537","RES","320-35442-21","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.1","ng/L","U","2.9","DL","","TRG","","","20","LOQ","YES","-99","","245.6","1.0","8.1",""
"NAWC-012518-FRB-300","537","RES","320-35442-21","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","245.6","1.0","12",""
"NAWC-012518-FRB-300","537","RES","320-35442-21","TALSAC","375-73-5","Perfluorobutanesulfonic acid

(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","245.6","1.0","37",""
"NAWC-012518-FRB-300","537","RES","320-35442-21","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","245.6","1.0","4.1",""
"NAWC-012518-FRB-300","537","RES","320-35442-21","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","245.6","1.0","20",""
"NAWC-012518-FRB-300","537","RES","320-35442-21","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURR","87","","-99","LOQ","YES","40.7","","245.6","1.0","0",""
"NAWC-012518-FRB-300","537","RES","320-35442-21","TALSAC","STL00996","13C2
PFDA","34","ng/L","","-99","DL","","SURR","84","","-99","LOQ","YES","40.7","","245.6","1.0","0",""
"NAWC-012518-RW-064","537","RES","320-35442-22","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","11","ng/L","J M","6.9","DL","","TRG","","","41","LOQ","YES","-99","","246.8","1.0","16",""
"NAWC-012518-RW-064","537","RES","320-35442-22","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","11","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","246.8","1.0","8.1",""
"NAWC-012518-RW-064","537","RES","320-35442-22","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","7.0","ng/L","J","5.6","DL","","TRG","","","30","LOQ","YES","-99","","246.8","1.0","12",""
"NAWC-012518-RW-064","537","RES","320-35442-22","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","246.8","1.0","36",""
"NAWC-012518-RW-064","537","RES","320-35442-22","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.7","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","246.8","1.0","4.1",""
"NAWC-012518-RW-064","537","RES","320-35442-22","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U M","8.1","DL","","TRG","","","24","LOQ","YES","-99","","246.8","1.0","20",""
"NAWC-012518-RW-064","537","RES","320-35442-22","TALSAC","STL00993","13C2
PFHxA","30","ng/L","","-99","DL","","SURR","74","","-99","LOQ","YES","40.5","","246.8","1.0","0",""
"NAWC-012518-RW-064","537","RES","320-35442-22","TALSAC","STL00996","13C2
PFDA","33","ng/L","","-99","DL","","SURR","82","","-99","LOQ","YES","40.5","","246.8","1.0","0",""
"NAWC-012518-FRB-064","537","RES","320-35442-23","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","245.5","1.0","16",""
"NAWC-012518-FRB-064","537","RES","320-35442-23","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.1","ng/L","U","2.9","DL","","TRG","","","20","LOQ","YES","-99","","245.5","1.0","8.1",""
"NAWC-012518-FRB-064","537","RES","320-35442-23","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","245.5","1.0","12",""
"NAWC-012518-FRB-064","537","RES","320-35442-23","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","245.5","1.0","37",""
"NAWC-012518-FRB-064","537","RES","320-35442-23","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","245.5","1.0","4.1",""
"NAWC-012518-FRB-064","537","RES","320-35442-23","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","245.5","1.0","20",""
"NAWC-012518-FRB-064","537","RES","320-35442-23","TALSAC","STL00993","13C2
PFHxA","37","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","40.7","","245.5","1.0","0",""
"NAWC-012518-FRB-064","537","RES","320-35442-23","TALSAC","STL00996","13C2
PFDA","35","ng/L","","-99","DL","","SURR","86","","-99","LOQ","YES","40.7","","245.5","1.0","0",""
"NAWC-012518-RW-169","537","RES","320-35442-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","19","ng/L","J M","6.9","DL","","TRG","","","41","LOQ","YES","-99","","245.5","1.0","16",""
"NAWC-012518-RW-169","537","RES","320-35442-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","13","ng/L","J","2.9","DL","","TRG","","","20","LOQ","YES","-99","","245.5","1.0","8.1",""
"NAWC-012518-RW-169","537","RES","320-35442-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","J","5.6","DL","","TRG","","","31","LOQ","YES","-99","","245.5","1.0","12",""
"NAWC-012518-RW-169","537","RES","320-35442-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","245.5","1.0","37",""
"NAWC-012518-RW-169","537","RES","320-35442-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","5.1","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","245.5","1.0","4.1",""
"NAWC-012518-RW-169","537","RES","320-35442-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","245.5","1.0","20",""
"NAWC-012518-RW-169","537","RES","320-35442-3","TALSAC","STL00993","13C2

PFHxA","44","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","40.7","","245.5","1.0","0",""
"NAWC-012518-RW-169","537","RES","320-35442-3","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","SURR","104","","-99","LOQ","YES","40.7","","245.5","1.0","0",""
"NAWC-012518-FRB-169","537","RES","320-35442-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247.1","1.0","16",""
"NAWC-012518-FRB-169","537","RES","320-35442-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247.1","1.0","8.1",""
"NAWC-012518-FRB-169","537","RES","320-35442-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES","-99","","247.1","1.0","12",""
"NAWC-012518-FRB-169","537","RES","320-35442-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","247.1","1.0","36",""
"NAWC-012518-FRB-169","537","RES","320-35442-4","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","247.1","1.0","4.0",""
"NAWC-012518-FRB-169","537","RES","320-35442-4","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","247.1","1.0","20",""
"NAWC-012518-FRB-169","537","RES","320-35442-4","TALSAC","STL00993","13C2
PFHxA","44","ng/L","","-99","DL","","SURR","110","","-99","LOQ","YES","40.5","","247.1","1.0","0",""
"NAWC-012518-FRB-169","537","RES","320-35442-4","TALSAC","STL00996","13C2
PFDA","51","ng/L","","-99","DL","","SURR","126","","-99","LOQ","YES","40.5","","247.1","1.0","0",""
"NAWC-012518-RW-236","537","RES","320-35442-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","18","ng/L","J M","6.9","DL","","TRG","","","40","LOQ","YES","-99","","248.1","1.0","16",""
"NAWC-012518-RW-236","537","RES","320-35442-5","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","13","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","248.1","1.0","8.1",""
"NAWC-012518-RW-236","537","RES","320-35442-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","248.1","1.0","12",""
"NAWC-012518-RW-236","537","RES","320-35442-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","248.1","1.0","36",""
"NAWC-012518-RW-236","537","RES","320-35442-5","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.3","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","248.1","1.0","4.0",""
"NAWC-012518-RW-236","537","RES","320-35442-5","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","248.1","1.0","20",""
"NAWC-012518-RW-236","537","RES","320-35442-5","TALSAC","STL00993","13C2
PFHxA","44","ng/L","","-99","DL","","SURR","108","","-99","LOQ","YES","40.3","","248.1","1.0","0",""
"NAWC-012518-RW-236","537","RES","320-35442-5","TALSAC","STL00996","13C2
PFDA","46","ng/L","","-99","DL","","SURR","115","","-99","LOQ","YES","40.3","","248.1","1.0","0",""
"NAWC-012518-FRB-236","537","RES","320-35442-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","251.6","1.0","16",""
"NAWC-012518-FRB-236","537","RES","320-35442-6","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","251.6","1.0","7.9",""
"NAWC-012518-FRB-236","537","RES","320-35442-6","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","251.6","1.0","12",""
"NAWC-012518-FRB-236","537","RES","320-35442-6","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","251.6","1.0","36",""
"NAWC-012518-FRB-236","537","RES","320-35442-6","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","251.6","1.0","4.0",""
"NAWC-012518-FRB-236","537","RES","320-35442-6","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","251.6","1.0","20",""
"NAWC-012518-FRB-236","537","RES","320-35442-6","TALSAC","STL00993","13C2
PFHxA","40","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","39.7","","251.6","1.0","0",""
"NAWC-012518-FRB-236","537","RES","320-35442-6","TALSAC","STL00996","13C2
PFDA","46","ng/L","","-99","DL","","SURR","116","","-99","LOQ","YES","39.7","","251.6","1.0","0",""
"NAWC-012518-RW-153","537","RES","320-35442-7","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","J M","7.0","DL","","TRG","","","41","LOQ","YES","-99","","243.5","1.0","16",""
"NAWC-012518-RW-153","537","RES","320-35442-7","TALSAC","335-67-1","Perfluorooctanoic acid

(PFOA)","23","ng/L","","2.9","DL","","TRG","","","21","LOQ","YES","-99","","243.5","1.0","8.2",""
"NAWC-012518-RW-153","537","RES","320-35442-7","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","243.5","1.0","12",""
"NAWC-012518-RW-153","537","RES","320-35442-7","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","17","DL","","TRG","","","92","LOQ","YES","-99","","243.5","1.0","37",""
"NAWC-012518-RW-153","537","RES","320-35442-7","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","7.0","ng/L","J","2.0","DL","","TRG","","","10","LOQ","YES","-99","","243.5","1.0","4.1",""
"NAWC-012518-RW-153","537","RES","320-35442-7","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","21","ng/L","U","8.2","DL","","TRG","","","25","LOQ","YES","-99","","243.5","1.0","21",""
"NAWC-012518-RW-153","537","RES","320-35442-7","TALSAC","STL00993","13C2
PFHxA","46","ng/L","","-99","DL","","SURR","112","","-99","LOQ","YES","41.1","","243.5","1.0","0",""
"NAWC-012518-RW-153","537","RES","320-35442-7","TALSAC","STL00996","13C2
PFDA","45","ng/L","","-99","DL","","SURR","110","","-99","LOQ","YES","41.1","","243.5","1.0","0",""
"NAWC-012518-FRB-153","537","RES","320-35442-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","249.3","1.0","16",""
"NAWC-012518-FRB-153","537","RES","320-35442-8","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","249.3","1.0","8.0",""
"NAWC-012518-FRB-153","537","RES","320-35442-8","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","249.3","1.0","12",""
"NAWC-012518-FRB-153","537","RES","320-35442-8","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","249.3","1.0","36",""
"NAWC-012518-FRB-153","537","RES","320-35442-8","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","249.3","1.0","4.0",""
"NAWC-012518-FRB-153","537","RES","320-35442-8","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","249.3","1.0","20",""
"NAWC-012518-FRB-153","537","RES","320-35442-8","TALSAC","STL00993","13C2
PFHxA","46","ng/L","","-99","DL","","SURR","116","","-99","LOQ","YES","40.1","","249.3","1.0","0",""
"NAWC-012518-FRB-153","537","RES","320-35442-8","TALSAC","STL00996","13C2
PFDA","45","ng/L","","-99","DL","","SURR","113","","-99","LOQ","YES","40.1","","249.3","1.0","0",""
"NAWC-012518-RW-155","537","RES","320-35442-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","14","ng/L","J M","7.0","DL","","TRG","","","41","LOQ","YES","-99","","243.7","1.0","16",""
"NAWC-012518-RW-155","537","RES","320-35442-9","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","21","ng/L","","2.9","DL","","TRG","","","21","LOQ","YES","-99","","243.7","1.0","8.2",""
"NAWC-012518-RW-155","537","RES","320-35442-9","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","5.6","ng/L","J","5.6","DL","","TRG","","","31","LOQ","YES","-99","","243.7","1.0","12",""
"NAWC-012518-RW-155","537","RES","320-35442-9","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","17","DL","","TRG","","","92","LOQ","YES","-99","","243.7","1.0","37",""
"NAWC-012518-RW-155","537","RES","320-35442-9","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.9","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","243.7","1.0","4.1",""
"NAWC-012518-RW-155","537","RES","320-35442-9","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","21","ng/L","U M","8.2","DL","","TRG","","","25","LOQ","YES","-99","","243.7","1.0","21",""
"NAWC-012518-RW-155","537","RES","320-35442-9","TALSAC","STL00993","13C2
PFHxA","41","ng/L","","-99","DL","","SURR","101","","-99","LOQ","YES","41.0","","243.7","1.0","0",""
"NAWC-012518-RW-155","537","RES","320-35442-9","TALSAC","STL00996","13C2
PFDA","43","ng/L","","-99","DL","","SURR","106","","-99","LOQ","YES","41.0","","243.7","1.0","0",""
"LCS 320-206718/2-A","537","RES","LCS 320-206718/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","189","ng/L","M","6.8","DL","","SPK","85","","40","LOQ","YES","223","","250.0","1.0","16",""
"LCS 320-206718/2-A","537","RES","LCS 320-206718/2-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","104","ng/L","","2.8","DL","","SPK","93","","20","LOQ","YES","112","","250.0","1.0","8.0",""
"LCS 320-206718/2-A","537","RES","LCS 320-206718/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","147","ng/L","","5.5","DL","","SPK","88","","30","LOQ","YES","167","","250.0","1.0","12",""
"LCS 320-206718/2-A","537","RES","LCS 320-206718/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","390","ng/L","","16","DL","","SPK","78","","90","LOQ","YES","500","","250.0","1.0","36",""
"LCS 320-206718/2-A","537","RES","LCS 320-206718/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid

(PFHpA)","59.3","ng/L","","1.9","DL","","SPK","107","","10","LOQ","YES","55.6","","250.0","1.0","4.0",""
"LCS 320-206718/2-A","537","RES","LCS 320-206718/2-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","102","ng/L","","8.0","DL","","SPK","92","","24","LOQ","YES","111","","250.0","1.0","20",""
"LCS 320-206718/2-A","537","RES","LCS 320-206718/2-A","TALSAC","STL00993","13C2
PFHxA","34.5","ng/L","","-99","DL","","SURR","86","","-99","LOQ","YES","40.0","","250.0","1.0","0",""
"LCS 320-206718/2-A","537","RES","LCS 320-206718/2-A","TALSAC","STL00996","13C2
PFDA","34.7","ng/L","","-99","DL","","SURR","87","","-99","LOQ","YES","40.0","","250.0","1.0","0",""
"LCS 320-206719/2-A","537","RES","LCS 320-206719/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","136","ng/L","M","6.8","DL","","SPK","101","","40","LOQ","YES","134","","250.0","1.0","16",""
"LCS 320-206719/2-A","537","RES","LCS 320-206719/2-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","71.1","ng/L","","2.8","DL","","SPK","106","","20","LOQ","YES","67.0","","250.0","1.0","8.0",""
"LCS 320-206719/2-A","537","RES","LCS 320-206719/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","109","ng/L","","5.5","DL","","SPK","109","","30","LOQ","YES","100","","250.0","1.0","12",""
"LCS 320-206719/2-A","537","RES","LCS 320-206719/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","309","ng/L","","16","DL","","SPK","103","","90","LOQ","YES","300","","250.0","1.0","36",""
"LCS 320-206719/2-A","537","RES","LCS 320-206719/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","40.4","ng/L","","1.9","DL","","SPK","121","","10","LOQ","YES","33.3","","250.0","1.0","4.0",""
"LCS 320-206719/2-A","537","RES","LCS 320-206719/2-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","71.5","ng/L","","8.0","DL","","SPK","107","","24","LOQ","YES","66.7","","250.0","1.0","20",""
"LCS 320-206719/2-A","537","RES","LCS 320-206719/2-A","TALSAC","STL00993","13C2
PFHxA","43.5","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","40.0","","250.0","1.0","0",""
"LCS 320-206719/2-A","537","RES","LCS 320-206719/2-A","TALSAC","STL00996","13C2
PFDA","41.1","ng/L","","-99","DL","","SURR","103","","-99","LOQ","YES","40.0","","250.0","1.0","0",""
"LCSD 320-206718/3-A","537","RES","LCSD 320-206718/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","196","ng/L","M","6.8","DL","","SPK","88","4","40","LOQ","YES","223","LCS 320-206718/2-
A","250.0","1.0","16",""
"LCSD 320-206718/3-A","537","RES","LCSD 320-206718/3-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","109","ng/L","","2.8","DL","","SPK","98","5","20","LOQ","YES","112","LCS 320-206718/2-
A","250.0","1.0","8.0",""
"LCSD 320-206718/3-A","537","RES","LCSD 320-206718/3-A","TALSAC","355-46-4","Perfluorohexanesulfonic
acid (PFHxS)","155","ng/L","","5.5","DL","","SPK","93","5","30","LOQ","YES","167","LCS 320-206718/2-
A","250.0","1.0","12",""
"LCSD 320-206718/3-A","537","RES","LCSD 320-206718/3-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","414","ng/L","","16","DL","","SPK","83","6","90","LOQ","YES","500","LCS 320-206718/2-
A","250.0","1.0","36",""
"LCSD 320-206718/3-A","537","RES","LCSD 320-206718/3-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","61.0","ng/L","","1.9","DL","","SPK","110","3","10","LOQ","YES","55.6","LCS 320-206718/2-
A","250.0","1.0","4.0",""
"LCSD 320-206718/3-A","537","RES","LCSD 320-206718/3-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","104","ng/L","","8.0","DL","","SPK","94","2","24","LOQ","YES","111","LCS 320-206718/2-
A","250.0","1.0","20",""
"LCSD 320-206718/3-A","537","RES","LCSD 320-206718/3-A","TALSAC","STL00993","13C2
PFHxA","35.9","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","40.0","LCS 320-206718/2-
A","250.0","1.0","0",""
"LCSD 320-206718/3-A","537","RES","LCSD 320-206718/3-A","TALSAC","STL00996","13C2
PFDA","33.3","ng/L","","-99","DL","","SURR","83","","-99","LOQ","YES","40.0","LCS 320-206718/2-
A","250.0","1.0","0",""
"LCSD 320-206719/3-A","537","RES","LCSD 320-206719/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","139","ng/L","M","6.8","DL","","SPK","104","3","40","LOQ","YES","134","LCS 320-206719/2-
A","250.0","1.0","16",""
"LCSD 320-206719/3-A","537","RES","LCSD 320-206719/3-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","75.4","ng/L","","2.8","DL","","SPK","112","6","20","LOQ","YES","67.0","LCS 320-206719/2-
A","250.0","1.0","8.0",""
"LCSD 320-206719/3-A","537","RES","LCSD 320-206719/3-A","TALSAC","355-46-4","Perfluorohexanesulfonic

acid (PFHxS)","111","ng/L","","5.5","DL","","SPK","111","2","30","LOQ","YES","100","LCS 320-206719/2-A","250.0","1.0","12",""
"LCSD 320-206719/3-A","537","RES","LCSD 320-206719/3-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","305","ng/L","","16","DL","","SPK","102","1","90","LOQ","YES","300","LCS 320-206719/2-A","250.0","1.0","36",""
"LCSD 320-206719/3-A","537","RES","LCSD 320-206719/3-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","40.0","ng/L","","1.9","DL","","SPK","120","1","10","LOQ","YES","33.3","LCS 320-206719/2-A","250.0","1.0","4.0",""
"LCSD 320-206719/3-A","537","RES","LCSD 320-206719/3-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","72.0","ng/L","","8.0","DL","","SPK","108","1","24","LOQ","YES","66.7","LCS 320-206719/2-A","250.0","1.0","20",""
"LCSD 320-206719/3-A","537","RES","LCSD 320-206719/3-A","TALSAC","STL00993","13C2 PFHxA","43.6","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","40.0","LCS 320-206719/2-A","250.0","1.0","0",""
"LCSD 320-206719/3-A","537","RES","LCSD 320-206719/3-A","TALSAC","STL00996","13C2 PFDA","43.7","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","40.0","LCS 320-206719/2-A","250.0","1.0","0",""
"MB 320-206718/1-A","537","RES","MB 320-206718/1-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250.0","1.0","16",""
"MB 320-206718/1-A","537","RES","MB 320-206718/1-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250.0","1.0","8.0",""
"MB 320-206718/1-A","537","RES","MB 320-206718/1-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250.0","1.0","12",""
"MB 320-206718/1-A","537","RES","MB 320-206718/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250.0","1.0","36",""
"MB 320-206718/1-A","537","RES","MB 320-206718/1-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250.0","1.0","4.0",""
"MB 320-206718/1-A","537","RES","MB 320-206718/1-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250.0","1.0","20",""
"MB 320-206718/1-A","537","RES","MB 320-206718/1-A","TALSAC","STL00993","13C2 PFHxA","37.0","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","40.0","","250.0","1.0","0",""
"MB 320-206718/1-A","537","RES","MB 320-206718/1-A","TALSAC","STL00996","13C2 PFDA","34.9","ng/L","","-99","DL","","SURR","87","","-99","LOQ","YES","40.0","","250.0","1.0","0",""
"MB 320-206719/1-A","537","RES","MB 320-206719/1-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250.0","1.0","16",""
"MB 320-206719/1-A","537","RES","MB 320-206719/1-A","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250.0","1.0","8.0",""
"MB 320-206719/1-A","537","RES","MB 320-206719/1-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250.0","1.0","12",""
"MB 320-206719/1-A","537","RES","MB 320-206719/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250.0","1.0","36",""
"MB 320-206719/1-A","537","RES","MB 320-206719/1-A","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250.0","1.0","4.0",""
"MB 320-206719/1-A","537","RES","MB 320-206719/1-A","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250.0","1.0","20",""
"MB 320-206719/1-A","537","RES","MB 320-206719/1-A","TALSAC","STL00993","13C2 PFHxA","41.2","ng/L","","-99","DL","","SURR","103","","-99","LOQ","YES","40.0","","250.0","1.0","0",""
"MB 320-206719/1-A","537","RES","MB 320-206719/1-A","TALSAC","STL00996","13C2 PFDA","44.4","ng/L","","-99","DL","","SURR","111","","-99","LOQ","YES","40.0","","250.0","1.0","0",""
"Unknown","Unknown","NAWC-012518-RW-256","01/25/2018 08:10","AQ","320-35442-1","NM","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018 08:15","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-207581","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-FRB-155","01/25/2018 10:05","AQ","320-35442-

10","FB","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
09:06","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207582","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","WGNA-012518-DUP-23","01/25/2018 07:00","AQ","320-35442-
11","FD","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
09:11","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207582","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-RW-094","01/25/2018 11:40","AQ","320-35442-
12","NM","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
09:15","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207582","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-FRB-094","01/25/2018 11:35","AQ","320-35442-
13","FB","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
09:20","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207582","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-RW-168","01/25/2018 12:10","AQ","320-35442-
14","NM","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
09:25","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207582","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-FRB-168","01/25/2018 12:05","AQ","320-35442-
15","FB","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
09:30","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207582","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-RW-238","01/25/2018 12:40","AQ","320-35442-
16","NM","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
09:34","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207582","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-FRB-238","01/25/2018 12:35","AQ","320-35442-
17","FB","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
09:39","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207582","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-RW-162","01/25/2018 13:40","AQ","320-35442-
18","NM","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
09:53","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207584","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-FRB-162","01/25/2018 13:35","AQ","320-35442-
19","FB","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
09:58","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207584","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-FRB-256","01/25/2018 08:05","AQ","320-35442-
2","FB","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
08:19","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207581","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-RW-300","01/25/2018 14:10","AQ","320-35442-
20","NM","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
10:02","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207584","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-FRB-300","01/25/2018 14:05","AQ","320-35442-
21","FB","","1.50","537","METHOD","RES","02/02/2018 13:03","02/08/2018
11:03","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206718","320-206718","NA","320-
207588","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-RW-064","01/25/2018 16:40","AQ","320-35442-
22","NM","","1.50","537","METHOD","RES","02/02/2018 13:03","02/08/2018
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23","FB","","1.50","537","METHOD","RES","02/02/2018 13:03","02/08/2018
11:12","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206718","320-206718","NA","320-
207588","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-RW-169","01/25/2018 08:40","AQ","320-35442-
3","NM","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
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4","FB","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
08:29","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207581","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-RW-236","01/25/2018 09:10","AQ","320-35442-
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08:33","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207581","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-FRB-236","01/25/2018 09:05","AQ","320-35442-
6","FD","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
08:38","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207581","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-RW-153","01/25/2018 09:40","AQ","320-35442-
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08:43","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207581","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-FRB-153","01/25/2018 09:35","AQ","320-35442-
8","FB","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
08:57","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207582","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","NAWC-012518-RW-155","01/25/2018 10:10","AQ","320-35442-
9","NM","","1.50","537","METHOD","RES","02/02/2018 12:57","02/08/2018
09:01","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207582","320-35442-1","01/26/2018 09:30","01/29/2018 14:15",""
"Unknown","Unknown","LCS 320-206718/2-A","","AQ","LCS 320-206718/2-
A","LCS","","-99","537","METHOD","RES","02/02/2018 13:03","02/08/2018
10:54","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206718","320-206718","NA","320-
207588","320-35442-1","02/02/2018 13:03","01/29/2018 14:15",""
"Unknown","Unknown","LCS 320-206719/2-A","","AQ","LCS 320-206719/2-
A","LCS","","-99","537","METHOD","RES","02/02/2018 12:57","02/08/2018
08:05","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207581","320-35442-1","02/02/2018 12:57","01/29/2018 14:15",""
"Unknown","Unknown","LCSD 320-206718/3-A","","AQ","LCSD 320-206718/3-
A","LCSD","","-99","537","METHOD","RES","02/02/2018 13:03","02/08/2018
10:58","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206718","320-206718","NA","320-
207588","320-35442-1","02/02/2018 13:03","01/29/2018 14:15",""
"Unknown","Unknown","LCSD 320-206719/3-A","","AQ","LCSD 320-206719/3-
A","LCSD","","-99","537","METHOD","RES","02/02/2018 12:57","02/08/2018
08:10","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-
207581","320-35442-1","02/02/2018 12:57","01/29/2018 14:15",""
"Unknown","Unknown","MB 320-206718/1-A","","AQ","MB 320-206718/1-
A","MB","","-99","537","METHOD","RES","02/02/2018 13:03","02/08/2018
10:49","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206718","320-206718","NA","320-
207588","320-35442-1","02/02/2018 13:03","01/29/2018 14:15",""
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A","MB","","-99","537","METHOD","RES","02/02/2018 12:57","02/08/2018 08:01","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206719","320-206719","NA","320-207581","320-35442-1","02/02/2018 12:57","01/29/2018 14:15",""

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **A. FREBOWITZ** **DATE:** **MARCH 6, 2018**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)**
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG) 320-35442-1

SAMPLES: 11/Field Reagent Blank (FRB)

NAWC-012518-FRB-064	NAWC-012518-FRB-094
NAWC-012518-FRB-153	NAWC-012518-FRB-155
NAWC-012518-FRB-162	NAWC-012518-FRB-168
NAWC-012518-FRB-169	NAWC-012518-FRB-236
NAWC-012518-FRB-238	NAWC-012518-FRB-256
NAWC-012518-FRB-300	

12/Drinking Water

NAWC-012518-RW-064	NAWC-012518-RW-094
NAWC-012518-RW-153	NAWC-012518-RW-155
NAWC-012518-RW-162	NAWC-012518-RW-168
NAWC-012518-RW-169	NAWC-012518-RW-236
NAWC-012518-RW-238	NAWC-012518-RW-256
NAWC-012518-RW-300	WGNA-012518-DUP-23

Overview

The sample set for NAS JRB Willow Grove, SDG 320-35442-1, consisted of twelve (12) drinking water samples and eleven (11) 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, NAWC-012518-RW-155 / WGNA-012518-DUP-23 was included in this SDG.

The samples were collected by Tetra Tech on January 25, 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, mass spectral tuning check, initial/continuing calibrations, laboratory method/FRBs, surrogate spike recoveries, laboratory control sample / laboratory control sample duplicate results, internal standard areas and recoveries, field duplicate results, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

None.

Minor

The following surrogate recovery was below the 70% quality control limit. It was noted in the case narrative that the sample was re-extracted and re-analyzed by the laboratory with similar recoveries and the original analysis was reported. The nondetected results reported in the affected sample were qualified as estimated (UJ).

Sample	Surrogate
NAWC-012518-FRB-238	13C2 Perfluorohexanoic acid

Detected results reported below the limit of quantitation (LOQ) but above the detection limit (DL) were qualified as estimated, (J).

Notes

Samples with detections and their associated FRBs are summarized below. No detected results were present in the FRBs.

Sample	Associated FRB
NAWC-012518-RW-064	NAWC-012518-FRB-064
NAWC-012518-RW-094	NAWC-012518-FRB-094
NAWC-012518-RW-153	NAWC-012518-FRB-153
NAWC-012518-RW-155	NAWC-012518-FRB-155
NAWC-012518-RW-162	NAWC-012518-FRB-162
NAWC-012518-RW-168	NAWC-012518-FRB-168
NAWC-012518-RW-169	NAWC-012518-FRB-169
NAWC-012518-RW-236	NAWC-012518-FRB-236
NAWC-012518-RW-238	NAWC-012518-FRB-238
NAWC-012518-RW-256	NAWC-012518-FRB-256
NAWC-012518-RW-300	NAWC-012518-FRB-300
WGNA-012518-DUP-23	NAWC-012518-FRB-155

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: One surrogate recovery was below the quality control limits.

Other Factors Affecting Data Quality: Results below the RL were estimated.

The data for these analyses were reviewed with reference to the Environmental Protection Agency document EPA/600/R-08/092, Method 537, “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”, (September 2009) and the US EPA National Functional Guidelines for Organic Data Review (January 2017) as applicable. The text of this report has been formulated to address only those areas affecting data quality.

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-012518-FRB-064			NAWC-012518-FRB-094			NAWC-012518-FRB-153			NAWC-012518-FRB-155		
SDG: 320-35442-1	LAB_ID	320-35442-23			320-35442-13			320-35442-8			320-35442-10		
FRACTION: PFAS	SAMP_DATE	1/25/2018			1/25/2018			1/25/2018			1/25/2018		
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		8.1	U		8.1	U		8	U		8.1	U	
PERFLUOROBUTANESULFONIC ACID		37	U		36	U		36	U		36	U	
PERFLUOROHEPTANOIC ACID		4.1	U		4	U		4	U		4	U	
PERFLUOROHEXANESULFONIC ACID		12	U		12	U		12	U		12	U	
PERFLUORONONANOIC ACID		20	U		20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		16	U		16	U		16	U	

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-012518-FRB-162			NAWC-012518-FRB-168			NAWC-012518-FRB-169			NAWC-012518-FRB-236		
SDG: 320-35442-1	LAB_ID	320-35442-19			320-35442-15			320-35442-4			320-35442-6		
FRACTION: PFAS	SAMP_DATE	1/25/2018			1/25/2018			1/25/2018			1/25/2018		
MEDIA: WATER	QC_TYPE	FB			FB			FB			FD		
	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		8.2	U		8.1	U		8.1	U		7.9	U	
PERFLUOROBUTANESULFONIC ACID		37	U		36	U		36	U		36	U	
PERFLUOROHEPTANOIC ACID		4.1	U		4	U		4	U		4	U	
PERFLUOROHEXANESULFONIC ACID		12	U		12	U		12	U		12	U	
PERFLUORONONANOIC ACID		20	U		20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		16	U		16	U		16	U	

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-012518-FRB-238			NAWC-012518-FRB-256			NAWC-012518-FRB-300			NAWC-012518-RW-064		
SDG: 320-35442-1	LAB_ID	320-35442-17			320-35442-2			320-35442-21			320-35442-22		
FRACTION: PFAS	SAMP_DATE	1/25/2018			1/25/2018			1/25/2018			1/25/2018		
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		8	UJ	R	7.9	U		8.1	U		11	J	P
PERFLUOROBUTANESULFONIC ACID		36	UJ	R	36	U		37	U		36	U	
PERFLUOROHEPTANOIC ACID		4	UJ	R	4	U		4.1	U		4.7	J	P
PERFLUOROHEXANESULFONIC ACID		12	UJ	R	12	U		12	U		7	J	P
PERFLUORONONANOIC ACID		20	UJ	R	20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	UJ	R	16	U		16	U		11	J	P

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-012518-RW-094			NAWC-012518-RW-153			NAWC-012518-RW-155			NAWC-012518-RW-162		
SDG: 320-35442-1	LAB_ID	320-35442-12			320-35442-7			320-35442-9			320-35442-18		
FRACTION: PFAS	SAMP_DATE	1/25/2018			1/25/2018			1/25/2018			1/25/2018		
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		17	J	P	23			21			16	J	P
PERFLUOROBUTANESULFONIC ACID		36	U		37	U		37	U		36	U	
PERFLUOROHEPTANOIC ACID		6	J	P	7	J	P	6.9	J	P	5.9	J	P
PERFLUOROHEXANESULFONIC ACID		20	J	P	12	U		5.6	J	P	11	J	P
PERFLUORONONANOIC ACID		20	U		21	U		21	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		25	J	P	15	J	P	14	J	P	22	J	P

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-012518-RW-168			NAWC-012518-RW-169			NAWC-012518-RW-236			NAWC-012518-RW-238		
SDG: 320-35442-1	LAB_ID	320-35442-14			320-35442-3			320-35442-5			320-35442-16		
FRACTION: PFAS	SAMP_DATE	1/25/2018			1/25/2018			1/25/2018			1/25/2018		
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		22			13	J	P	13	J	P	14	J	P
PERFLUOROBUTANESULFONIC ACID		37	U		37	U		36	U		36	U	
PERFLUOROHEPTANOIC ACID		7.3	J	P	5.1	J	P	4.3	J	P	5.1	J	P
PERFLUOROHEXANESULFONIC ACID		12	U		12	J	P	11	J	P	6	J	P
PERFLUORONONANOIC ACID		20	U		20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		8.7	J	P	19	J	P	18	J	P	15	J	P

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-012518-RW-256			NAWC-012518-RW-300			WGNA-012518-DUP-23		
SDG: 320-35442-1	LAB_ID	320-35442-1			320-35442-20			320-35442-11		
FRACTION: PFAS	SAMP_DATE	1/25/2018			1/25/2018			1/25/2018		
MEDIA: WATER	QC_TYPE	NM			NM			FD		
	UNITS	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF							NAWC-012518-RW-155		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		27			22			23		
PERFLUOROBUTANESULFONIC ACID		37	U		37	U		36	U	
PERFLUOROHEPTANOIC ACID		8.2	J	P	8.5	J	P	7.6	J	P
PERFLUOROHEXANESULFONIC ACID		6.4	J	P	8	J	P	5.5	J	P
PERFLUORONONANOIC ACID		21	U		21	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		34	J	P	24	J	P	14	J	P

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-256 | Lab Sample ID: 320-35442-1

Matrix: Water | Lab File ID: 2018.02.08_537A_010.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 241.3(mL) | Date Analyzed: 02/08/2018 08:15

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34	J ~~M~~	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	27		21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.4	J	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.2	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	104		70-130

03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-256 | Lab Sample ID: 320-35442-2

Matrix: Water | Lab File ID: 2018.02.08_537A_011.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:05

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 253(mL) | Date Analyzed: 02/08/2018 08:19

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	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	112		70-130
STL00996	13C2 PFDA	126		70-130


03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-169 | Lab Sample ID: 320-35442-3

Matrix: Water | Lab File ID: 2018.02.08_537A_012.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 245.5(mL) | Date Analyzed: 02/08/2018 08:24

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.1	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	109		70-130
STL00996	13C2 PFDA	104		70-130

Toni L Salomon
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-169 | Lab Sample ID: 320-35442-4

Matrix: Water | Lab File ID: 2018.02.08_537A_013.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.1(mL) | Date Analyzed: 02/08/2018 08:29

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	110		70-130
STL00996	13C2 PFDA	126		70-130

03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-236 | Lab Sample ID: 320-35442-5

Matrix: Water | Lab File ID: 2018.02.08_537A_014.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 248.1(mL) | Date Analyzed: 02/08/2018 08:33

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J ~~M~~	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	115		70-130

Toni L Salomon
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-236 | Lab Sample ID: 320-35442-6

Matrix: Water | Lab File ID: 2018.02.08_537A_015.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:05

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 251.6(mL) | Date Analyzed: 02/08/2018 08:38

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | 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)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
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	100		70-130
STL00996	13C2 PFDA	116		70-130

Toni L Salomon
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-153 | Lab Sample ID: 320-35442-7

Matrix: Water | Lab File ID: 2018.02.08_537A_016.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 243.5(mL) | Date Analyzed: 02/08/2018 08:43

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J ~~M~~	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	23		21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.0	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	110		70-130

Dawn L Salerno
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-153 | Lab Sample ID: 320-35442-8

Matrix: Water | Lab File ID: 2018.02.08_537A_019.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 249.3(mL) | Date Analyzed: 02/08/2018 08:57

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | 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	116		70-130
STL00996	13C2 PFDA	113		70-130

Toni L Salomon
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-155 | Lab Sample ID: 320-35442-9

Matrix: Water | Lab File ID: 2018.02.08_537A_020.d

Analysis Method: 537 | Date Collected: 01/25/2018 10:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 243.7(mL) | Date Analyzed: 02/08/2018 09:01

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J ~~M~~	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	21		21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U ~~M~~	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.6	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.9	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	106		70-130

Dawn L Salerno
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-155 | Lab Sample ID: 320-35442-10

Matrix: Water | Lab File ID: 2018.02.08_537A_021.d

Analysis Method: 537 | Date Collected: 01/25/2018 10:05

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.3(mL) | Date Analyzed: 02/08/2018 09:06

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	109		70-130
STL00996	13C2 PFDA	110		70-130

03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: WGNA-012518-DUP-23 | Lab Sample ID: 320-35442-11

Matrix: Water | Lab File ID: 2018.02.08_537A_022.d

Analysis Method: 537 | Date Collected: 01/25/2018 07:00

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 250.4(mL) | Date Analyzed: 02/08/2018 09:11

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J ~~M~~	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	23		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U ~~M~~	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.5	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.6	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	118		70-130

Terri L Salemme
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-094 | Lab Sample ID: 320-35442-12

Matrix: Water | Lab File ID: 2018.02.08_537A_023.d

Analysis Method: 537 | Date Collected: 01/25/2018 11:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.2(mL) | Date Analyzed: 02/08/2018 09:15

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J ~~M~~	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U ~~M~~	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	20	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.0	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	114		70-130

Dani L Saleman
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-094 | Lab Sample ID: 320-35442-13

Matrix: Water | Lab File ID: 2018.02.08_537A_024.d

Analysis Method: 537 | Date Collected: 01/25/2018 11:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.1(mL) | Date Analyzed: 02/08/2018 09:20

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	111		70-130

Dori L Salemen
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-168 | Lab Sample ID: 320-35442-14

Matrix: Water | Lab File ID: 2018.02.08_537A_025.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 246.1(mL) | Date Analyzed: 02/08/2018 09:25

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.7	J ~~M~~	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	22		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U ~~M~~	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.3	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	91	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	109		70-130
STL00996	13C2 PFDA	110		70-130

Toni L Salomon
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-168 | Lab Sample ID: 320-35442-15

Matrix: Water | Lab File ID: 2018.02.08_537A_026.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:05

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.5(mL) | Date Analyzed: 02/08/2018 09:30

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	115		70-130
STL00996	13C2 PFDA	116		70-130

Toni L Salomon
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-238 | Lab Sample ID: 320-35442-16

Matrix: Water | Lab File ID: 2018.02.08_537A_027.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 249.5(mL) | Date Analyzed: 02/08/2018 09:34

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J ~~M~~	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	14	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.0	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	106		70-130

03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-238 | Lab Sample ID: 320-35442-17

Matrix: Water | Lab File ID: 2018.02.08_537A_028.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 251.3(mL) | Date Analyzed: 02/08/2018 09:39

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	~~U~~ UJ	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	~~U~~ UJ	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	~~U~~ UJ	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	~~U~~ UJ	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	~~U~~ UJ	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	~~U~~ UJ	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	12	Q	70-130
STL00996	13C2 PFDA	75		70-130

Toni L Salomon
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-162 | Lab Sample ID: 320-35442-18

Matrix: Water | Lab File ID: 2018.02.08_537A_031.d

Analysis Method: 537 | Date Collected: 01/25/2018 13:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247(mL) | Date Analyzed: 02/08/2018 09:53

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207584 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J ~~M~~	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	16	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.9	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	101		70-130

Dawn L Salerno
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-162 | Lab Sample ID: 320-35442-19

Matrix: Water | Lab File ID: 2018.02.08_537A_032.d

Analysis Method: 537 | Date Collected: 01/25/2018 13:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 244(mL) | Date Analyzed: 02/08/2018 09:58

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207584 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	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)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	104		70-130

03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-300 | Lab Sample ID: 320-35442-20

Matrix: Water | Lab File ID: 2018.02.08_537A_033.d

Analysis Method: 537 | Date Collected: 01/25/2018 14:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 240.4(mL) | Date Analyzed: 02/08/2018 10:02

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207584 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	24	J ~~M~~	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	22		21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.0	J	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.5	J	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	94	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	108		70-130

03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-300 | Lab Sample ID: 320-35442-21

Matrix: Water | Lab File ID: 2018.02.08_537AA_039.d

Analysis Method: 537 | Date Collected: 01/25/2018 14:05

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 245.6(mL) | Date Analyzed: 02/08/2018 11:03

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	84		70-130

03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-064 | Lab Sample ID: 320-35442-22

Matrix: Water | Lab File ID: 2018.02.08_537AA_040.d

Analysis Method: 537 | Date Collected: 01/25/2018 16:40

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 246.8(mL) | Date Analyzed: 02/08/2018 11:08

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J ~~M~~	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	11	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U ~~M~~	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.0	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.7	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	74		70-130
STL00996	13C2 PFDA	82		70-130

Toni L Salomon
03/06/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-064 | Lab Sample ID: 320-35442-23

Matrix: Water | Lab File ID: 2018.02.08_537AA_041.d

Analysis Method: 537 | Date Collected: 01/25/2018 16:35

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 245.5(mL) | Date Analyzed: 02/08/2018 11:12

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	86		70-130

03/06/2018

Appendix B

Results as Reported by the Laboratory

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-256 | Lab Sample ID: 320-35442-1

Matrix: Water | Lab File ID: 2018.02.08_537A_010.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 241.3(mL) | Date Analyzed: 02/08/2018 08:15

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	27		21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.4	J	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.2	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	104		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-256 | Lab Sample ID: 320-35442-2

Matrix: Water | Lab File ID: 2018.02.08_537A_011.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:05

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 253(mL) | Date Analyzed: 02/08/2018 08:19

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	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	112		70-130
STL00996	13C2 PFDA	126		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-169 | Lab Sample ID: 320-35442-3

Matrix: Water | Lab File ID: 2018.02.08_537A_012.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 245.5(mL) | Date Analyzed: 02/08/2018 08:24

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.1	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	109		70-130
STL00996	13C2 PFDA	104		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-169 | Lab Sample ID: 320-35442-4

Matrix: Water | Lab File ID: 2018.02.08_537A_013.d

Analysis Method: 537 | Date Collected: 01/25/2018 08:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.1(mL) | Date Analyzed: 02/08/2018 08:29

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	110		70-130
STL00996	13C2 PFDA	126		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-236 | Lab Sample ID: 320-35442-5

Matrix: Water | Lab File ID: 2018.02.08_537A_014.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 248.1(mL) | Date Analyzed: 02/08/2018 08:33

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	115		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-236 | Lab Sample ID: 320-35442-6

Matrix: Water | Lab File ID: 2018.02.08_537A_015.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:05

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 251.6(mL) | Date Analyzed: 02/08/2018 08:38

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | 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)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
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	100		70-130
STL00996	13C2 PFDA	116		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-153 | Lab Sample ID: 320-35442-7

Matrix: Water | Lab File ID: 2018.02.08_537A_016.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 243.5(mL) | Date Analyzed: 02/08/2018 08:43

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	23		21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.0	J	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	112		70-130
STL00996	13C2 PFDA	110		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-153 | Lab Sample ID: 320-35442-8

Matrix: Water | Lab File ID: 2018.02.08_537A_019.d

Analysis Method: 537 | Date Collected: 01/25/2018 09:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 249.3(mL) | Date Analyzed: 02/08/2018 08:57

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | 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	116		70-130
STL00996	13C2 PFDA	113		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-155 | Lab Sample ID: 320-35442-9

Matrix: Water | Lab File ID: 2018.02.08_537A_020.d

Analysis Method: 537 | Date Collected: 01/25/2018 10:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 243.7(mL) | Date Analyzed: 02/08/2018 09:01

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	21		21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U M	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.6	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.9	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	106		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-155 Lab Sample ID: 320-35442-10

Matrix: Water Lab File ID: 2018.02.08_537A_021.d

Analysis Method: 537 Date Collected: 01/25/2018 10:05

Extraction Method: 537 Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.3(mL) Date Analyzed: 02/08/2018 09:06

Con. Extract Vol.: 1.0(mL) Dilution Factor: 1

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

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

Analysis Batch No.: 207582 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	109		70-130
STL00996	13C2 PFDA	110		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: WGNA-012518-DUP-23 | Lab Sample ID: 320-35442-11

Matrix: Water | Lab File ID: 2018.02.08_537A_022.d

Analysis Method: 537 | Date Collected: 01/25/2018 07:00

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 250.4(mL) | Date Analyzed: 02/08/2018 09:11

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	23		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.5	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.6	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	118		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-094 | Lab Sample ID: 320-35442-12

Matrix: Water | Lab File ID: 2018.02.08_537A_023.d

Analysis Method: 537 | Date Collected: 01/25/2018 11:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.2(mL) | Date Analyzed: 02/08/2018 09:15

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	20	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.0	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	114		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-094 Lab Sample ID: 320-35442-13

Matrix: Water Lab File ID: 2018.02.08_537A_024.d

Analysis Method: 537 Date Collected: 01/25/2018 11:35

Extraction Method: 537 Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.1(mL) Date Analyzed: 02/08/2018 09:20

Con. Extract Vol.: 1.0(mL) Dilution Factor: 1

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

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

Analysis Batch No.: 207582 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	113		70-130
STL00996	13C2 PFDA	111		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-168 | Lab Sample ID: 320-35442-14

Matrix: Water | Lab File ID: 2018.02.08_537A_025.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 246.1(mL) | Date Analyzed: 02/08/2018 09:25

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	8.7	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	22		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.3	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	91	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	109		70-130
STL00996	13C2 PFDA	110		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-168 | Lab Sample ID: 320-35442-15

Matrix: Water | Lab File ID: 2018.02.08_537A_026.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:05

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247.5(mL) | Date Analyzed: 02/08/2018 09:30

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	115		70-130
STL00996	13C2 PFDA	116		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-238 | Lab Sample ID: 320-35442-16

Matrix: Water | Lab File ID: 2018.02.08_537A_027.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 249.5(mL) | Date Analyzed: 02/08/2018 09:34

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	14	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.0	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	106		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-238 | Lab Sample ID: 320-35442-17

Matrix: Water | Lab File ID: 2018.02.08_537A_028.d

Analysis Method: 537 | Date Collected: 01/25/2018 12:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 251.3(mL) | Date Analyzed: 02/08/2018 09:39

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207582 | 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	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	12	Q	70-130
STL00996	13C2 PFDA	75		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-162 | Lab Sample ID: 320-35442-18

Matrix: Water | Lab File ID: 2018.02.08_537A_031.d

Analysis Method: 537 | Date Collected: 01/25/2018 13:40

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 247(mL) | Date Analyzed: 02/08/2018 09:53

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207584 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	16	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.9	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	101		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-162 | Lab Sample ID: 320-35442-19

Matrix: Water | Lab File ID: 2018.02.08_537A_032.d

Analysis Method: 537 | Date Collected: 01/25/2018 13:35

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 244(mL) | Date Analyzed: 02/08/2018 09:58

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207584 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	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)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	104		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-300 | Lab Sample ID: 320-35442-20

Matrix: Water | Lab File ID: 2018.02.08_537A_033.d

Analysis Method: 537 | Date Collected: 01/25/2018 14:10

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 240.4(mL) | Date Analyzed: 02/08/2018 10:02

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207584 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	24	J M	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	22		21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.0	J	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.5	J	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	94	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	108		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-300 | Lab Sample ID: 320-35442-21

Matrix: Water | Lab File ID: 2018.02.08_537AA_039.d

Analysis Method: 537 | Date Collected: 01/25/2018 14:05

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 245.6(mL) | Date Analyzed: 02/08/2018 11:03

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	84		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-RW-064 | Lab Sample ID: 320-35442-22

Matrix: Water | Lab File ID: 2018.02.08_537AA_040.d

Analysis Method: 537 | Date Collected: 01/25/2018 16:40

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 246.8(mL) | Date Analyzed: 02/08/2018 11:08

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	11	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.0	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.7	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	74		70-130
STL00996	13C2 PFDA	82		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: NAWC-012518-FRB-064 | Lab Sample ID: 320-35442-23

Matrix: Water | Lab File ID: 2018.02.08_537AA_041.d

Analysis Method: 537 | Date Collected: 01/25/2018 16:35

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 245.5(mL) | Date Analyzed: 02/08/2018 11:12

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	86		70-130

Appendix C

Support Documentation

ANALYTE	ORIGINAL NAWC-012518-RW-155	DUPLICATE WGNA-012518-DUP-23	RL	RPD	RPD > 50%	ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2XRL
Perfluorooctanoic acid (PFOA)	21	23	21	9.091	FALSE	FALSE	FALSE	FALSE
Perfluoroheptanoic acid (PFHpA)	6.9	7.6	10	9.655	FALSE	FALSE	FALSE	FALSE
Perfluorohexanesulfonic acid (PFHxS)	5.6	5.5	31	1.802	FALSE	FALSE	FALSE	FALSE
Perfluorooctanesulfonic acid (PFOS)	14	14	41	0.000	FALSE	FALSE	FALSE	FALSE

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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:** 1/25/2018	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:
NAWC-012518-RW-256	1/25/2018	08:10	G	DW	2	N	N	Y	
NAWC-012518-FRB-256	1/25/2018	08:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-169	1/25/2018	08:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-169	1/25/2018	08:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-236	1/25/2018	09:10	G	DW	2	N	N	Y	
NAWC-012518-FRB-236	1/25/2018	09:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-153	1/25/2018	09:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-153	1/25/2018	09:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-155	1/25/2018	10:10	G	DW	2	N	N	Y	
NAWC-012518-FRB-155	1/25/2018	10:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-012518-DUP-23	1/25/2018	07:00	G	DW	2	N	N	Y	DUPLICATE
NAWC-012518-RW-094	1/25/2018	11:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-094	1/25/2018	11:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-168	1/25/2018	12:10	G	DW	2	N	N	Y	
NAWC-012518-FRB-168	1/25/2018	12:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-238	1/25/2018	12:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-238	1/25/2018	12:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-162	1/25/2018	13:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-162	1/25/2018	13:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-300	1/25/2018	14:10	G	DW	2	N	N	Y	
NAWC-012518-FRB-300	1/25/2018	14:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-012518-RW-064	1/25/2018	16:40	G	DW	2	N	N	Y	
NAWC-012518-FRB-064	1/25/2018	16:35	G	DW	2	N	N	Y	Field Reagent Blank
								6	

320-35442 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other: Trizma

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for Months

Fed Ex Tracking: 7713 2536 7068

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 1.5 Corr'd: | Therm ID No.: AK-3

	Company	Date/Time		Company	Date/Time
Relinquished by: Mary Kay Bond	Tetra Tech	1/25/2018 16:00	Received by:	TA Sac	1/26/18 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

S:\WillowGrove PFCs Private Well\COCs TT\COC 2018.01.25.xls

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-35442-1

Login Number: 35442
List Number: 1
Creator: Her, David A

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	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	

Job Narrative
320-35442-1

Receipt
The samples were received on 1/26/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.4º C and 1.5º C.

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

Method(s) 537: Surrogate recovery for the following sample was outside control limits: NAWC-012518-FRB-238 (320-35442-17). Re-extraction and re-analysis was performed with concurring results. The original analysis has been reported.

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

Organic Prep
Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-206719.

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-206718.

No additional analytical or quality issues were noted, other than those described above or 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.
Q	One or more quality control criteria failed.

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)

Sample Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-35442-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35442-1	NAWC-012518-RW-256	Water	01/25/18 08:10	01/26/18 09:30
320-35442-2	NAWC-012518-FRB-256	Water	01/25/18 08:05	01/26/18 09:30
320-35442-3	NAWC-012518-RW-169	Water	01/25/18 08:40	01/26/18 09:30
320-35442-4	NAWC-012518-FRB-169	Water	01/25/18 08:35	01/26/18 09:30
320-35442-5	NAWC-012518-RW-236	Water	01/25/18 09:10	01/26/18 09:30
320-35442-6	NAWC-012518-FRB-236	Water	01/25/18 09:05	01/26/18 09:30
320-35442-7	NAWC-012518-RW-153	Water	01/25/18 09:40	01/26/18 09:30
320-35442-8	NAWC-012518-FRB-153	Water	01/25/18 09:35	01/26/18 09:30
320-35442-9	NAWC-012518-RW-155	Water	01/25/18 10:10	01/26/18 09:30
320-35442-10	NAWC-012518-FRB-155	Water	01/25/18 10:05	01/26/18 09:30
320-35442-11	WGNA-012518-DUP-23	Water	01/25/18 07:00	01/26/18 09:30
320-35442-12	NAWC-012518-RW-094	Water	01/25/18 11:40	01/26/18 09:30
320-35442-13	NAWC-012518-FRB-094	Water	01/25/18 11:35	01/26/18 09:30
320-35442-14	NAWC-012518-RW-168	Water	01/25/18 12:10	01/26/18 09:30
320-35442-15	NAWC-012518-FRB-168	Water	01/25/18 12:05	01/26/18 09:30
320-35442-16	NAWC-012518-RW-238	Water	01/25/18 12:40	01/26/18 09:30
320-35442-17	NAWC-012518-FRB-238	Water	01/25/18 12:35	01/26/18 09:30
320-35442-18	NAWC-012518-RW-162	Water	01/25/18 13:40	01/26/18 09:30
320-35442-19	NAWC-012518-FRB-162	Water	01/25/18 13:35	01/26/18 09:30
320-35442-20	NAWC-012518-RW-300	Water	01/25/18 14:10	01/26/18 09:30
320-35442-21	NAWC-012518-FRB-300	Water	01/25/18 14:05	01/26/18 09:30
320-35442-22	NAWC-012518-RW-064	Water	01/25/18 16:40	01/26/18 09:30
320-35442-23	NAWC-012518-FRB-064	Water	01/25/18 16:35	01/26/18 09:30

Method Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-35442-1
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

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #		PFDA #
NAWC-012518-RW-256	320-35442-1	90		104
NAWC-012518-FRB-256	320-35442-2	112		126
NAWC-012518-RW-169	320-35442-3	109		104
NAWC-012518-FRB-169	320-35442-4	110		126
NAWC-012518-RW-236	320-35442-5	108		115
NAWC-012518-FRB-236	320-35442-6	100		116
NAWC-012518-RW-153	320-35442-7	112		110
NAWC-012518-FRB-153	320-35442-8	116		113
NAWC-012518-RW-155	320-35442-9	101		106
NAWC-012518-FRB-155	320-35442-10	109		110
WGNA-012518-DUP-23	320-35442-11	113		118
NAWC-012518-RW-094	320-35442-12	93		114
NAWC-012518-FRB-094	320-35442-13	113		111
NAWC-012518-RW-168	320-35442-14	109		110
NAWC-012518-FRB-168	320-35442-15	115		116
NAWC-012518-RW-238	320-35442-16	108		106
NAWC-012518-FRB-238	320-35442-17	12	Q	75
NAWC-012518-RW-162	320-35442-18	103		101
NAWC-012518-FRB-162	320-35442-19	105		104
NAWC-012518-RW-300	320-35442-20	107		108
NAWC-012518-FRB-300	320-35442-21	87		84
NAWC-012518-RW-064	320-35442-22	74		82
NAWC-012518-FRB-064	320-35442-23	91		86
	MB 320-206718/1-A	93		87
	MB 320-206719/1-A	103		111
	LCS 320-206718/2-A	86		87
	LCS 320-206719/2-A	109		103
	LCSD 320-206718/3-A	90		83

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

Column to be used to flag recovery values

FORM II 537

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
	LCSD 320-206719/3-A	109	109

	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.: 320-35442-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.08_537AA_037.d

Lab ID: LCS 320-206718/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	223	189	85	70-130	M
Perfluorooctanoic acid (PFOA)	112	104	93	70-130	
Perfluorononanoic acid (PFNA)	111	102	92	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	147	88	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	59.3	107	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	390	78	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.08_537A_008.d

Lab ID: LCS 320-206719/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	134	136	101	70-130	M
Perfluorooctanoic acid (PFOA)	67.0	71.1	106	70-130	
Perfluorononanoic acid (PFNA)	66.7	71.5	107	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	109	109	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	40.4	121	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	309	103	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.08_537AA_038.d

Lab ID: LCSD 320-206718/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	223	196	88	4	30	70-130	M
Perfluorooctanoic acid (PFOA)	112	109	98	5	30	70-130	
Perfluorononanoic acid (PFNA)	111	104	94	2	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	155	93	5	30	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	61.0	110	3	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	414	83	6	30	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.02.08_537A_009.d

Lab ID: LCSD 320-206719/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	134	139	104	3	30	70-130	M
Perfluorooctanoic acid (PFOA)	67.0	75.4	112	6	30	70-130	
Perfluorononanoic acid (PFNA)	66.7	72.0	108	1	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	111	111	2	30	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	40.0	120	1	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	305	102	1	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.: 320-35442-1

SDG No.:

Lab File ID: 2018.02.08_537A_007.d Lab Sample ID: MB 320-206719/1-A

Matrix: Water Date Extracted: 02/02/2018 12:57

Instrument ID: A8_N Date Analyzed: 02/08/2018 08:01

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-206719/2-A	2018.02.08_537A_008.d	02/08/2018 08:05
	LCSD 320-206719/3-A	2018.02.08_537A_009.d	02/08/2018 08:10
NAWC-012518-RW-256	320-35442-1	2018.02.08_537A_010.d	02/08/2018 08:15
NAWC-012518-FRB-256	320-35442-2	2018.02.08_537A_011.d	02/08/2018 08:19
NAWC-012518-RW-169	320-35442-3	2018.02.08_537A_012.d	02/08/2018 08:24
NAWC-012518-FRB-169	320-35442-4	2018.02.08_537A_013.d	02/08/2018 08:29
NAWC-012518-RW-236	320-35442-5	2018.02.08_537A_014.d	02/08/2018 08:33
NAWC-012518-FRB-236	320-35442-6	2018.02.08_537A_015.d	02/08/2018 08:38
NAWC-012518-RW-153	320-35442-7	2018.02.08_537A_016.d	02/08/2018 08:43
NAWC-012518-FRB-153	320-35442-8	2018.02.08_537A_019.d	02/08/2018 08:57
NAWC-012518-RW-155	320-35442-9	2018.02.08_537A_020.d	02/08/2018 09:01
NAWC-012518-FRB-155	320-35442-10	2018.02.08_537A_021.d	02/08/2018 09:06
WGNA-012518-DUP-23	320-35442-11	2018.02.08_537A_022.d	02/08/2018 09:11
NAWC-012518-RW-094	320-35442-12	2018.02.08_537A_023.d	02/08/2018 09:15
NAWC-012518-FRB-094	320-35442-13	2018.02.08_537A_024.d	02/08/2018 09:20
NAWC-012518-RW-168	320-35442-14	2018.02.08_537A_025.d	02/08/2018 09:25
NAWC-012518-FRB-168	320-35442-15	2018.02.08_537A_026.d	02/08/2018 09:30
NAWC-012518-RW-238	320-35442-16	2018.02.08_537A_027.d	02/08/2018 09:34
NAWC-012518-FRB-238	320-35442-17	2018.02.08_537A_028.d	02/08/2018 09:39
NAWC-012518-RW-162	320-35442-18	2018.02.08_537A_031.d	02/08/2018 09:53
NAWC-012518-FRB-162	320-35442-19	2018.02.08_537A_032.d	02/08/2018 09:58
NAWC-012518-RW-300	320-35442-20	2018.02.08_537A_033.d	02/08/2018 10:02

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-206719/1-A

Matrix: Water | Lab File ID: 2018.02.08_537A_007.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 02/02/2018 12:57

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/08/2018 08:01

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207581 | 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	103		70-130
STL00996	13C2 PFDA	111		70-130

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab File ID: 2018.02.08_537AA_036.d Lab Sample ID: MB 320-206718/1-A

Matrix: Water Date Extracted: 02/02/2018 13:03

Instrument ID: A8_N Date Analyzed: 02/08/2018 10:49

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-206718/2-A	2018.02.08_537AA_037.d	02/08/2018 10:54
	LCSD 320-206718/3-A	2018.02.08_537AA_038.d	02/08/2018 10:58
NAWC-012518-FRB-300	320-35442-21	2018.02.08_537AA_039.d	02/08/2018 11:03
NAWC-012518-RW-064	320-35442-22	2018.02.08_537AA_040.d	02/08/2018 11:08
NAWC-012518-FRB-064	320-35442-23	2018.02.08_537AA_041.d	02/08/2018 11:12

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-35442-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-206718/1-A

Matrix: Water | Lab File ID: 2018.02.08_537AA_036.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 02/02/2018 13:03

Sample wt/vol: 250.0(mL) | Date Analyzed: 02/08/2018 10:49

Con. Extract Vol.: 1.0(mL) | Dilution Factor: 1

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

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

Analysis Batch No.: 207588 | 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	93		70-130
STL00996	13C2 PFDA	87		70-130

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 11/03/2017 14:01

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		1535518	1.91	3276559	2.15		
UPPER LIMIT		2303277	2.41	4914839	2.65		
LOWER LIMIT		767759	1.41	1638280	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-192908/11		1586829	1.91	3305852	2.15		
ICV 320-192908/13		1512045	1.90	3433628	2.14		
CCVL 320-207581/1		1366684	1.81	2879967	2.06		
CCV 320-207581/2 CCVIS		1342738	1.80	3007844	2.05		
MB 320-206719/1-A		1364963	1.81	3110629	2.05		
LCS 320-206719/2-A		1406945	1.81	3150925	2.05		
LCSD 320-206719/3-A		1352716	1.80	3114181	2.05		
320-35442-1	NAWC-012518-RW-256	1562901	1.81	3444146	2.05		
320-35442-2	NAWC-012518-FRB-256	1336387	1.81	3353192	2.05		
320-35442-3	NAWC-012518-RW-169	1455562	1.81	3184762	2.04		
320-35442-4	NAWC-012518-FRB-169	1454410	1.81	3386009	2.05		
320-35442-5	NAWC-012518-RW-236	1482068	1.80	3296436	2.04		
320-35442-6	NAWC-012518-FRB-236	1438482	1.80	3359153	2.04		
320-35442-7	NAWC-012518-RW-153	1396188	1.80	3177080	2.04		
CCV 320-207581/14 CCVIS		1307153	1.80	2985038	2.05		
CCV 320-207582/14 CCVIS		1307153	1.80	2985038	2.05		
320-35442-8	NAWC-012518-FRB-153	1390937	1.80	3132621	2.04		
320-35442-9	NAWC-012518-RW-155	1525472	1.80	3363000	2.04		
320-35442-10	NAWC-012518-FRB-155	1473546	1.80	3293399	2.04		
320-35442-11	WGNA-012518-DUP-23	1388441	1.81	3240317	2.05		
320-35442-12	NAWC-012518-RW-094	1435121	1.80	3220391	2.04		
320-35442-13	NAWC-012518-FRB-094	1380850	1.80	3226584	2.04		
320-35442-14	NAWC-012518-RW-168	1475449	1.80	3454464	2.04		
320-35442-15	NAWC-012518-FRB-168	1347640	1.81	3277744	2.05		
320-35442-16	NAWC-012518-RW-238	1446634	1.81	3271778	2.05		
320-35442-17	NAWC-012518-FRB-238	1413447	1.79	3280953	2.03		
CCV 320-207582/26 CCVIS		1346682	1.79	2971996	2.04		
CCV 320-207584/26 CCVIS		1346682	1.79	2971996	2.04		

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.: 320-35442-1

SDG No.:

Instrument ID: A8_N Calibration Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 11/03/2017 14:01

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		1535518	1.91	3276559	2.15		
UPPER LIMIT		2303277	2.41	4914839	2.65		
LOWER LIMIT		767759	1.41	1638280	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35442-18	NAWC-012518-RW-162	1465557	1.80	3557114	2.04		
320-35442-19	NAWC-012518-FRB-162	1510233	1.79	3464475	2.03		
320-35442-20	NAWC-012518-RW-300	1443475	1.79	3486586	2.03		
CCV 320-207584/31 CCVIS		1319750	1.79	3004560	2.03		
CCV 320-207588/1 CCVIS		1287308	1.80	2846828	2.04		
MB 320-206718/1-A		1473815	1.80	3467952	2.04		
LCS 320-206718/2-A		1466908	1.80	3537248	2.03		
LCSD 320-206718/3-A		1391557	1.79	3341800	2.03		
320-35442-21	NAWC-012518-FRB-300	1456713	1.80	3374971	2.04		
320-35442-22	NAWC-012518-RW-064	1481823	1.79	3499918	2.03		
320-35442-23	NAWC-012518-FRB-064	1398055	1.79	3349760	2.03		
CCV 320-207588/9 CCVIS		1276407	1.80	2931691	2.04		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207581/2 Date Analyzed: 02/08/2018 07:51

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

Lab File ID (Standard): 2018.02.08_537A_005 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1342738	1.80	3007844	2.05		
UPPER LIMIT		1879833	2.30	4210982	2.55		
LOWER LIMIT		939917	1.30	2105491	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-206719/1-A		1364963	1.81	3110629	2.05		
LCS 320-206719/2-A		1406945	1.81	3150925	2.05		
LCSD 320-206719/3-A		1352716	1.80	3114181	2.05		
320-35442-1	NAWC-012518-RW-256	1562901	1.81	3444146	2.05		
320-35442-2	NAWC-012518-FRB-256	1336387	1.81	3353192	2.05		
320-35442-3	NAWC-012518-RW-169	1455562	1.81	3184762	2.04		
320-35442-4	NAWC-012518-FRB-169	1454410	1.81	3386009	2.05		
320-35442-5	NAWC-012518-RW-236	1482068	1.80	3296436	2.04		
320-35442-6	NAWC-012518-FRB-236	1438482	1.80	3359153	2.04		
320-35442-7	NAWC-012518-RW-153	1396188	1.80	3177080	2.04		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207581/14 Date Analyzed: 02/08/2018 08:47

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

Lab File ID (Standard): 2018.02.08_537A_017 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1307153	1.80	2985038	2.05		
UPPER LIMIT		1830014	2.30	4179053	2.55		
LOWER LIMIT		915007	1.30	2089527	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-206719/1-A		1364963	1.81	3110629	2.05		
LCS 320-206719/2-A		1406945	1.81	3150925	2.05		
LCSD 320-206719/3-A		1352716	1.80	3114181	2.05		
320-35442-1	NAWC-012518-RW-256	1562901	1.81	3444146	2.05		
320-35442-2	NAWC-012518-FRB-256	1336387	1.81	3353192	2.05		
320-35442-3	NAWC-012518-RW-169	1455562	1.81	3184762	2.04		
320-35442-4	NAWC-012518-FRB-169	1454410	1.81	3386009	2.05		
320-35442-5	NAWC-012518-RW-236	1482068	1.80	3296436	2.04		
320-35442-6	NAWC-012518-FRB-236	1438482	1.80	3359153	2.04		
320-35442-7	NAWC-012518-RW-153	1396188	1.80	3177080	2.04		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207582/14 Date Analyzed: 02/08/2018 08:47

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

Lab File ID (Standard): 2018.02.08_537A_017 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1307153	1.80	2985038	2.05		
UPPER LIMIT		1830014	2.30	4179053	2.55		
LOWER LIMIT		915007	1.30	2089527	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35442-8	NAWC-012518-FRB-153	1390937	1.80	3132621	2.04		
320-35442-9	NAWC-012518-RW-155	1525472	1.80	3363000	2.04		
320-35442-10	NAWC-012518-FRB-155	1473546	1.80	3293399	2.04		
320-35442-11	WGNA-012518-DUP-23	1388441	1.81	3240317	2.05		
320-35442-12	NAWC-012518-RW-094	1435121	1.80	3220391	2.04		
320-35442-13	NAWC-012518-FRB-094	1380850	1.80	3226584	2.04		
320-35442-14	NAWC-012518-RW-168	1475449	1.80	3454464	2.04		
320-35442-15	NAWC-012518-FRB-168	1347640	1.81	3277744	2.05		
320-35442-16	NAWC-012518-RW-238	1446634	1.81	3271778	2.05		
320-35442-17	NAWC-012518-FRB-238	1413447	1.79	3280953	2.03		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207582/26 Date Analyzed: 02/08/2018 09:44

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

Lab File ID (Standard): 2018.02.08_537A_029 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1346682	1.79	2971996	2.04		
UPPER LIMIT		1885355	2.29	4160794	2.54		
LOWER LIMIT		942677	1.29	2080397	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35442-8	NAWC-012518-FRB-153	1390937	1.80	3132621	2.04		
320-35442-9	NAWC-012518-RW-155	1525472	1.80	3363000	2.04		
320-35442-10	NAWC-012518-FRB-155	1473546	1.80	3293399	2.04		
320-35442-11	WGNA-012518-DUP-23	1388441	1.81	3240317	2.05		
320-35442-12	NAWC-012518-RW-094	1435121	1.80	3220391	2.04		
320-35442-13	NAWC-012518-FRB-094	1380850	1.80	3226584	2.04		
320-35442-14	NAWC-012518-RW-168	1475449	1.80	3454464	2.04		
320-35442-15	NAWC-012518-FRB-168	1347640	1.81	3277744	2.05		
320-35442-16	NAWC-012518-RW-238	1446634	1.81	3271778	2.05		
320-35442-17	NAWC-012518-FRB-238	1413447	1.79	3280953	2.03		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207584/26 Date Analyzed: 02/08/2018 09:44

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

Lab File ID (Standard): 2018.02.08_537A_029 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1346682	1.79	2971996	2.04		
UPPER LIMIT		1885355	2.29	4160794	2.54		
LOWER LIMIT		942677	1.29	2080397	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35442-18	NAWC-012518-RW-162	1465557	1.80	3557114	2.04		
320-35442-19	NAWC-012518-FRB-162	1510233	1.79	3464475	2.03		
320-35442-20	NAWC-012518-RW-300	1443475	1.79	3486586	2.03		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207584/31 Date Analyzed: 02/08/2018 10:07

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

Lab File ID (Standard): 2018.02.08_537A_034 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1319750	1.79	3004560	2.03		
UPPER LIMIT		1847650	2.29	4206384	2.53		
LOWER LIMIT		923825	1.29	2103192	1.53		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35442-18	NAWC-012518-RW-162	1465557	1.80	3557114	2.04		
320-35442-19	NAWC-012518-FRB-162	1510233	1.79	3464475	2.03		
320-35442-20	NAWC-012518-RW-300	1443475	1.79	3486586	2.03		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207588/1 Date Analyzed: 02/08/2018 10:40

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

Lab File ID (Standard): 2018.02.08_537AA_03 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1287308	1.80	2846828	2.04		
UPPER LIMIT		1802231	2.30	3985559	2.54		
LOWER LIMIT		901116	1.30	1992780	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-206718/1-A		1473815	1.80	3467952	2.04		
LCS 320-206718/2-A		1466908	1.80	3537248	2.03		
LCSD 320-206718/3-A		1391557	1.79	3341800	2.03		
320-35442-21	NAWC-012518-FRB-300	1456713	1.80	3374971	2.04		
320-35442-22	NAWC-012518-RW-064	1481823	1.79	3499918	2.03		
320-35442-23	NAWC-012518-FRB-064	1398055	1.79	3349760	2.03		

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.: 320-35442-1

SDG No.:

Sample No.: CCV 320-207588/9 Date Analyzed: 02/08/2018 11:17

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

Lab File ID (Standard): 2018.02.08_537AA_04 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1276407	1.80	2931691	2.04		
UPPER LIMIT		1786970	2.30	4104367	2.54		
LOWER LIMIT		893485	1.30	2052184	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-206718/1-A		1473815	1.80	3467952	2.04		
LCS 320-206718/2-A		1466908	1.80	3537248	2.03		
LCSD 320-206718/3-A		1391557	1.79	3341800	2.03		
320-35442-21	NAWC-012518-FRB-300	1456713	1.80	3374971	2.04		
320-35442-22	NAWC-012518-RW-064	1481823	1.79	3499918	2.03		
320-35442-23	NAWC-012518-FRB-064	1398055	1.79	3349760	2.03		

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.: 320-35442-1 Analy Batch No.: 192908

SDG No.:

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_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)	1.0397 0.8468	1.0767	1.0898	0.9577	0.9303	QuaF		1.1193	-0.001498						0.9990		0.9600
Perfluoroheptanoic acid (PFHpA)	0.9433 0.9848	0.9187	0.9551	0.9185	0.9011	Ave		0.9369				3.2		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.6459 1.6841	1.6355	1.7405	1.6631	1.6755	Ave		1.6741				2.2		30.0			
Perfluorooctanoic acid (PFOA)	0.9757 0.9799	0.8919	0.9000	0.8953	0.9117	Ave		0.9258				4.4		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8958 0.9902	0.9213	0.9281	0.9268	0.9715	Ave		0.9389				3.7		30.0			
Perfluorononanoic acid (PFNA)	0.6610 0.7042	0.6285	0.6624	0.6810	0.6478	Ave		0.6642				3.9		30.0			
13C2 PFHxA	1.0891 1.1664	1.0526	1.1042	1.1123	1.0772	Ave		1.1003				3.5		30.0			
13C2 PFDA	0.7748 0.8159	0.7295	0.7569	0.7811	0.7330	Ave		0.7652				4.3		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1 Analy Batch No.: 192908

SDG No.:

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_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	1076553 16699152	2591121	5461974	10142530	14011858	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PFOA	Ave	143455 2810797	331548	736034	1420703	2102676	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	568156 11071993	1312135	2908204	5871843	8413133	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PFOA	Ave	296934 5597122	644149	1388033	2771271	4257225	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	412315 8679676	985487	2067792	4363079	6504279	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PFOA	Ave	201053 4019666	453612	1020851	2106479	3023088	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PFOA	Ave	1655691 1664260	1708988	1701491	1719911	1675220	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PFOA	Ave	1177922 1164156	1184358	1166275	1207887	1139992	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.: 320-35442-1 Analy Batch No.: 192908

SDG No.:

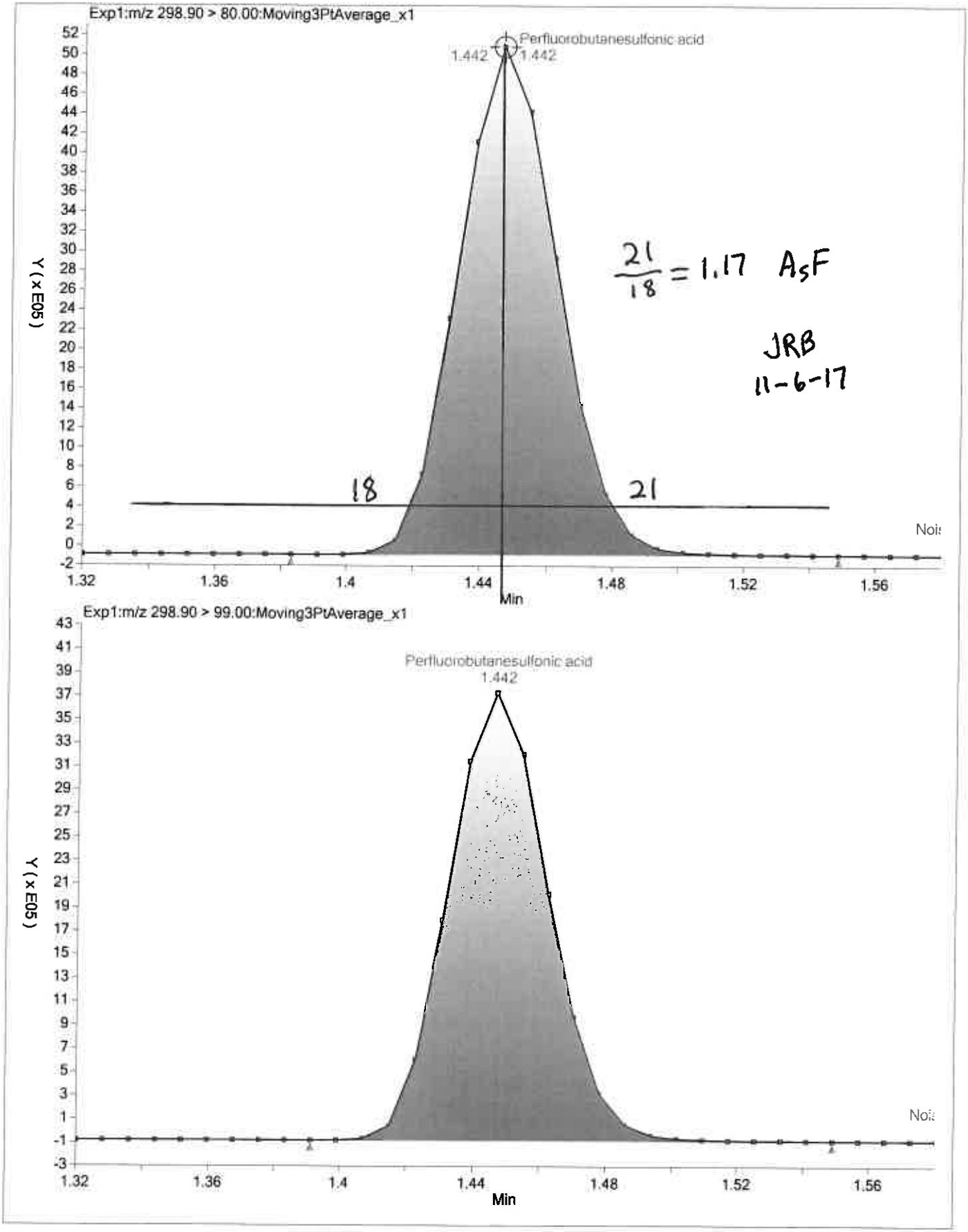
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

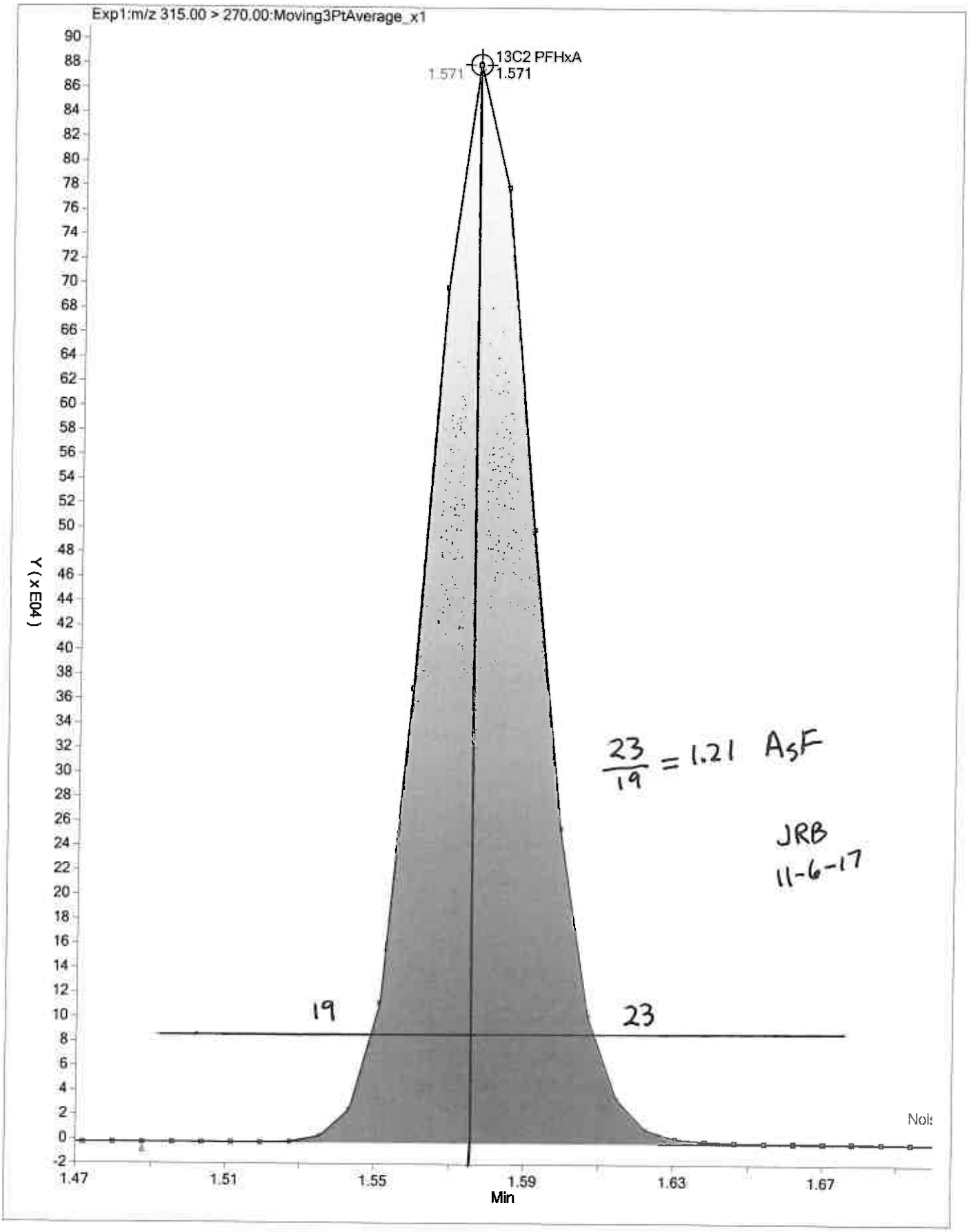
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-6.0	-1.2	3.9	-3.1	1.9	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	0.7	-1.9	1.9	-2.0	-3.8	5.1	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-1.7	-2.3	4.0	-0.7	0.1	0.6	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	5.4	-3.7	-2.8	-3.3	-1.5	5.8	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	-1.9	-1.2	-1.3	3.5	5.5	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-0.5	-5.4	-0.3	2.5	-2.5	6.0	50	30	30	30	30	30
13C2 PFHxA	-1.0	-4.3	0.4	1.1	-2.1	6.0	30	30	30	30	30	30
13C2 PFDA	1.3	-4.7	-1.1	2.1	-4.2	6.6	30	30	30	30	30	30


Exp1:m/z 298.90 > 80.00:Moving3PtAverage_x1
Perfluorobutanesulfonic acid
1.442
1.442
Y (x E05)
Min
18
21
21/18 = 1.17 AsF
JRB
11-6-17
Exp1:m/z 298.90 > 99.00:Moving3PtAverage_x1
Perfluorobutanesulfonic acid
1.442
Y (x E05)
Min


Exp1:m/z 315.00 > 270.00:Moving3PtAverage_x1
13C2 PFHxA
1.571
1.571
Y (x E04)
Min
1.47
1.51
1.55
1.59
1.63
1.67
19
23
23/19 = 1.21 ASF
JRB
11-6-17

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCVL 320-192908/11 Calibration Date: 11/03/2017 14:10

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2017.11.03_537XICAL_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		1.109		20.4	20.0	1.9	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9382		2.23	2.22	0.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.688		6.72	6.67	0.8	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8825		4.24	4.45	-4.7	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9176		8.69	8.89	-2.3	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6625		4.43	4.45	-0.2	50.0
13C2 PFHxA	Ave	1.100	1.068		9.70	10.0	-3.0	30.0
13C2 PFDA	Ave	0.7652	0.7460		9.75	10.0	-2.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: ICV 320-192908/13 Calibration Date: 11/03/2017 14:20

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2017.11.03_537XICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8310		83.7	100	-16.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8136		8.68	10.0	-13.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.463		17.5	20.1	-12.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.7995		17.7	20.5	-13.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.8637		18.1	19.7	-8.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6428		19.5	20.1	-3.2	30.0
13C2 PFHxA	Ave	1.100	1.039		9.44	10.0	-5.6	30.0
13C2 PFDA	Ave	0.7652	0.7391		9.66	10.0	-3.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCVL 320-207581/1 Calibration Date: 02/08/2018 07:47

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_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		1.102		20.2	20.0	1.2	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.010		2.40	2.22	7.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.774		7.06	6.67	5.9	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9486		4.58	4.47	2.5	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.012		9.62	8.93	7.8	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6771		4.53	4.45	1.9	50.0
13C2 PFHxA	Ave	1.100	1.076		9.78	10.0	-2.2	30.0
13C2 PFDA	Ave	0.7652	0.7299		9.54	10.0	-4.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207581/2 Calibration Date: 02/08/2018 07:51

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9593		143	135	6.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.038		16.6	15.0	10.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.686		45.3	45.0	0.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	1.013		33.0	30.2	9.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9477		60.8	60.3	0.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7031		31.8	30.0	5.9	30.0
13C2 PFHxA	Ave	1.100	1.150		10.4	10.0	4.5	30.0
13C2 PFDA	Ave	0.7652	0.7606		9.94	10.0	-0.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207581/14 Calibration Date: 02/08/2018 08:47

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_017.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.109		47.6	45.0	5.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.037		5.53	5.00	10.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.738		15.6	15.0	3.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9728		10.6	10.1	5.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9656		20.7	20.1	2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7046		10.6	10.0	6.1	30.0
13C2 PFHxA	Ave	1.100	1.105		10.0	10.0	0.4	30.0
13C2 PFDA	Ave	0.7652	0.7042		9.20	10.0	-8.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207582/14 Calibration Date: 02/08/2018 08:47

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_017.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.109		47.6	45.0	5.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.037		5.53	5.00	10.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.738		15.6	15.0	3.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9728		10.6	10.1	5.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9656		20.7	20.1	2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7046		10.6	10.0	6.1	30.0
13C2 PFHxA	Ave	1.100	1.105		10.0	10.0	0.4	30.0
13C2 PFDA	Ave	0.7652	0.7042		9.20	10.0	-8.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207582/26 Calibration Date: 02/08/2018 09:44

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_029.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9565		143	135	5.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9836		15.7	15.0	5.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.759		47.3	45.0	5.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9695		31.6	30.2	4.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.010		64.8	60.3	7.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6755		30.5	30.0	1.7	30.0
13C2 PFHxA	Ave	1.100	1.063		9.66	10.0	-3.4	30.0
13C2 PFDA	Ave	0.7652	0.7369		9.63	10.0	-3.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207584/26 Calibration Date: 02/08/2018 09:44

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_029.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9565		143	135	5.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9836		15.7	15.0	5.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.759		47.3	45.0	5.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9695		31.6	30.2	4.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.010		64.8	60.3	7.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6755		30.5	30.0	1.7	30.0
13C2 PFHxA	Ave	1.100	1.063		9.66	10.0	-3.4	30.0
13C2 PFDA	Ave	0.7652	0.7369		9.63	10.0	-3.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207584/31 Calibration Date: 02/08/2018 10:07

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537A_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.106		47.5	45.0	5.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.063		5.67	5.00	13.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.718		15.4	15.0	2.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9355		10.2	10.1	1.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9661		20.7	20.1	2.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6595		9.93	10.0	-0.7	30.0
13C2 PFHxA	Ave	1.100	1.101		10.0	10.0	0.0	30.0
13C2 PFDA	Ave	0.7652	0.7161		9.36	10.0	-6.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207588/1 Calibration Date: 02/08/2018 10:40

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537AA_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.144		49.3	45.0	9.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.020		5.45	5.00	8.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.807		16.2	15.0	7.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9234		10.0	10.1	-0.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9869		21.1	20.1	5.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6827		10.3	10.0	2.8	30.0
13C2 PFHxA	Ave	1.100	1.111		10.1	10.0	1.0	30.0
13C2 PFDA	Ave	0.7652	0.7315		9.56	10.0	-4.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Lab Sample ID: CCV 320-207588/9 Calibration Date: 02/08/2018 11:17

Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 11/03/2017 14:01

Lab File ID: 2018.02.08_537AA_042.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9651		144	135	6.9	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.031		16.5	15.0	10.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.727		46.4	45.0	3.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9840		32.1	30.2	6.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.000		64.2	60.3	6.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6786		30.7	30.0	2.2	30.0
13C2 PFHxA	Ave	1.100	1.141		10.4	10.0	3.7	30.0
13C2 PFDA	Ave	0.7652	0.7424		9.70	10.0	-3.0	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Start Date: 11/03/2017 13:37

Analysis Batch Number: 192908 End Date: 11/03/2017 14:24

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-192908/4		11/03/2017 13:37	1	2017.11.03_537X ICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-192908/5		11/03/2017 13:42	1	2017.11.03_537X ICAL 005.d	GeminiC18 3x100 3(mm)
IC 320-192908/6		11/03/2017 13:47	1	2017.11.03_537X ICAL 006.d	GeminiC18 3x100 3(mm)
IC 320-192908/7 ICISAV		11/03/2017 13:52	1	2017.11.03_537X ICAL 007.d	GeminiC18 3x100 3(mm)
IC 320-192908/8		11/03/2017 13:56	1	2017.11.03_537X ICAL 008.d	GeminiC18 3x100 3(mm)
IC 320-192908/9		11/03/2017 14:01	1	2017.11.03_537X ICAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:06	1		GeminiC18 3x100 3(mm)
CCVL 320-192908/11		11/03/2017 14:10	1	2017.11.03_537X ICAL 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:15	1		GeminiC18 3x100 3(mm)
ICV 320-192908/13		11/03/2017 14:20	1	2017.11.03_537X ICAL 013.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:24	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 07:47

Analysis Batch Number: 207581 End Date: 02/08/2018 08:47

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-207581/1		02/08/2018 07:47	1	2018.02.08_537A_004.d	GeminiC18 3x100 3(mm)
CCV 320-207581/2 CCVIS		02/08/2018 07:51	1	2018.02.08_537A_005.d	GeminiC18 3x100 3(mm)
MB 320-206719/1-A		02/08/2018 08:01	1	2018.02.08_537A_007.d	GeminiC18 3x100 3(mm)
LCS 320-206719/2-A		02/08/2018 08:05	1	2018.02.08_537A_008.d	GeminiC18 3x100 3(mm)
LCSD 320-206719/3-A		02/08/2018 08:10	1	2018.02.08_537A_009.d	GeminiC18 3x100 3(mm)
320-35442-1		02/08/2018 08:15	1	2018.02.08_537A_010.d	GeminiC18 3x100 3(mm)
320-35442-2		02/08/2018 08:19	1	2018.02.08_537A_011.d	GeminiC18 3x100 3(mm)
320-35442-3		02/08/2018 08:24	1	2018.02.08_537A_012.d	GeminiC18 3x100 3(mm)
320-35442-4		02/08/2018 08:29	1	2018.02.08_537A_013.d	GeminiC18 3x100 3(mm)
320-35442-5		02/08/2018 08:33	1	2018.02.08_537A_014.d	GeminiC18 3x100 3(mm)
320-35442-6		02/08/2018 08:38	1	2018.02.08_537A_015.d	GeminiC18 3x100 3(mm)
320-35442-7		02/08/2018 08:43	1	2018.02.08_537A_016.d	GeminiC18 3x100 3(mm)
CCV 320-207581/14 CCVIS		02/08/2018 08:47	1	2018.02.08_537A_017.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 08:47

Analysis Batch Number: 207582 End Date: 02/08/2018 09:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207582/14 CCVIS		02/08/2018 08:47	1	2018.02.08_537A 017.d	GeminiC18 3x100 3(mm)
320-35442-8		02/08/2018 08:57	1	2018.02.08_537A 019.d	GeminiC18 3x100 3(mm)
320-35442-9		02/08/2018 09:01	1	2018.02.08_537A 020.d	GeminiC18 3x100 3(mm)
320-35442-10		02/08/2018 09:06	1	2018.02.08_537A 021.d	GeminiC18 3x100 3(mm)
320-35442-11		02/08/2018 09:11	1	2018.02.08_537A 022.d	GeminiC18 3x100 3(mm)
320-35442-12		02/08/2018 09:15	1	2018.02.08_537A 023.d	GeminiC18 3x100 3(mm)
320-35442-13		02/08/2018 09:20	1	2018.02.08_537A 024.d	GeminiC18 3x100 3(mm)
320-35442-14		02/08/2018 09:25	1	2018.02.08_537A 025.d	GeminiC18 3x100 3(mm)
320-35442-15		02/08/2018 09:30	1	2018.02.08_537A 026.d	GeminiC18 3x100 3(mm)
320-35442-16		02/08/2018 09:34	1	2018.02.08_537A 027.d	GeminiC18 3x100 3(mm)
320-35442-17		02/08/2018 09:39	1	2018.02.08_537A 028.d	GeminiC18 3x100 3(mm)
CCV 320-207582/26 CCVIS		02/08/2018 09:44	1	2018.02.08_537A 029.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 09:44

Analysis Batch Number: 207584 End Date: 02/08/2018 10:07

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207584/26 CCVIS		02/08/2018 09:44	1	2018.02.08_537A_029.d	GeminiC18 3x100 3(mm)
320-35442-18		02/08/2018 09:53	1	2018.02.08_537A_031.d	GeminiC18 3x100 3(mm)
320-35442-19		02/08/2018 09:58	1	2018.02.08_537A_032.d	GeminiC18 3x100 3(mm)
320-35442-20		02/08/2018 10:02	1	2018.02.08_537A_033.d	GeminiC18 3x100 3(mm)
CCV 320-207584/31 CCVIS		02/08/2018 10:07	1	2018.02.08_537A_034.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Instrument ID: A8_N Start Date: 02/08/2018 10:40

Analysis Batch Number: 207588 End Date: 02/08/2018 11:17

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207588/1 CCVIS		02/08/2018 10:40	1	2018.02.08_537A A 034.d	GeminiC18 3x100 3(mm)
MB 320-206718/1-A		02/08/2018 10:49	1	2018.02.08_537A A 036.d	GeminiC18 3x100 3(mm)
LCS 320-206718/2-A		02/08/2018 10:54	1	2018.02.08_537A A 037.d	GeminiC18 3x100 3(mm)
LCSD 320-206718/3-A		02/08/2018 10:58	1	2018.02.08_537A A 038.d	GeminiC18 3x100 3(mm)
320-35442-21		02/08/2018 11:03	1	2018.02.08_537A A 039.d	GeminiC18 3x100 3(mm)
320-35442-22		02/08/2018 11:08	1	2018.02.08_537A A 040.d	GeminiC18 3x100 3(mm)
320-35442-23		02/08/2018 11:12	1	2018.02.08_537A A 041.d	GeminiC18 3x100 3(mm)
CCV 320-207588/9 CCVIS		02/08/2018 11:17	1	2018.02.08_537A A 042.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Batch Number: 206718 Batch Start Date: 02/02/18 12:56 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/07/18 11:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00026
MB 320-206718/1		537, 537				250.0 mL	1.0 mL	7 SU	
LCS 320-206718/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCSD 320-206718/3		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-35442-A-21	NAWC-012518-FRB-300	537, 537	T	275.18 g	29.59 g	245.6 mL	1.0 mL	7 SU	
320-35442-A-22	NAWC-012518-RW-064	537, 537	T	273.92 g	27.17 g	246.8 mL	1.0 mL	7 SU	
320-35442-A-23	NAWC-012518-FRB-064	537, 537	T	272.47 g	26.93 g	245.5 mL	1.0 mL	7 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00057	LC537-SU 00053	AnalysisComment			
MB 320-206718/1		537, 537		100 uL	100 uL	Cl ND			
LCS 320-206718/2		537, 537		100 uL	100 uL	Cl ND			
LCSD 320-206718/3		537, 537		100 uL	100 uL	Cl ND			
320-35442-A-21	NAWC-012518-FRB-300	537, 537	T	100 uL	100 uL	Cl ND			
320-35442-A-22	NAWC-012518-RW-064	537, 537	T	100 uL	100 uL	Cl ND			
320-35442-A-23	NAWC-012518-FRB-064	537, 537	T	100 uL	100 uL	Cl 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.: 320-35442-1

SDG No.:

Batch Number: 206718 Batch Start Date: 02/02/18 12:56 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/07/18 11:30

Batch Notes	
Analyst ID - Aliquot Step	SKD
Batch Comment	Client Labels match: KMK 2-5-18
Analyst ID - Concentration	NIGHTS
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1145836
Manifold ID	3
Methanol ID	1147517
pH Indicator ID	2517
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	CCB
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge Lot ID	6369499-05
Trizma ID	SLBR4303V
Reagent Water ID	1-30-18

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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Batch Number: 206719 Batch Start Date: 02/02/18 12:57 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/07/18 07:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00057
MB 320-206719/1		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCS 320-206719/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCSD 320-206719/3		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-35442-A-1	NAWC-012518-RW-256	537, 537	T	269.54 g	28.23 g	241.3 mL	1.0 mL	7 SU	100 uL
320-35442-A-2	NAWC-012518-FRB-256	537, 537	T	280.81 g	27.80 g	253 mL	1.0 mL	7 SU	100 uL
320-35442-A-3	NAWC-012518-RW-169	537, 537	T	273.30 g	27.84 g	245.5 mL	1.0 mL	7 SU	100 uL
320-35442-A-4	NAWC-012518-FRB-169	537, 537	T	275.17 g	28.06 g	247.1 mL	1.0 mL	7 SU	100 uL
320-35442-A-5	NAWC-012518-RW-236	537, 537	T	276.18 g	28.11 g	248.1 mL	1.0 mL	7 SU	100 uL
320-35442-A-6	NAWC-012518-FRB-236	537, 537	T	278.95 g	27.31 g	251.6 mL	1.0 mL	7 SU	100 uL
320-35442-A-7	NAWC-012518-RW-153	537, 537	T	271.82 g	28.28 g	243.5 mL	1.0 mL	7 SU	100 uL
320-35442-A-8	NAWC-012518-FRB-153	537, 537	T	276.28 g	26.95 g	249.3 mL	1.0 mL	7 SU	100 uL
320-35442-A-9	NAWC-012518-RW-155	537, 537	T	272.30 g	28.61 g	243.7 mL	1.0 mL	7 SU	100 uL
320-35442-A-10	NAWC-012518-FRB-155	537, 537	T	274.41 g	27.09 g	247.3 mL	1.0 mL	7 SU	100 uL
320-35442-A-11	WGNA-012518-DUP-23	537, 537	T	278.03 g	27.63 g	250.4 mL	1.0 mL	7 SU	100 uL
320-35442-A-12	NAWC-012518-RW-094	537, 537	T	275.49 g	28.32 g	247.2 mL	1.0 mL	7 SU	100 uL
320-35442-A-13	NAWC-012518-FRB-094	537, 537	T	273.92 g	26.79 g	247.1 mL	1.0 mL	7 SU	100 uL
320-35442-A-14	NAWC-012518-RW-168	537, 537	T	273.43 g	27.29 g	246.1 mL	1.0 mL	7 SU	100 uL
320-35442-A-15	NAWC-012518-FRB-168	537, 537	T	274.33 g	26.79 g	247.5 mL	1.0 mL	7 SU	100 uL
320-35442-A-16	NAWC-012518-RW-238	537, 537	T	277.84 g	28.30 g	249.5 mL	1.0 mL	7 SU	100 uL
320-35442-A-17	NAWC-012518-FRB-238	537, 537	T	278.57 g	27.23 g	251.3 mL	1.0 mL	7 SU	100 uL
320-35442-A-18	NAWC-012518-RW-162	537, 537	T	274.88 g	27.93 g	247 mL	1.0 mL	7 SU	100 uL
320-35442-A-19	NAWC-012518-FRB-162	537, 537	T	271.52 g	27.51 g	244 mL	1.0 mL	7 SU	100 uL

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35442-1

SDG No.:

Batch Number: 206719 Batch Start Date: 02/02/18 12:57 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/07/18 07:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00057
320-35442-A-20	NAWC-012518-RW-300	537, 537	T	268.09 g	27.73 g	240.4 mL	1.0 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00031	LC537-SU 00053	AnalysisComment			
MB 320-206719/1		537, 537			100 uL	Cl ND			
LCS 320-206719/2		537, 537		100 uL	100 uL	Cl ND			
LCSD 320-206719/3		537, 537		100 uL	100 uL	Cl ND			
320-35442-A-1	NAWC-012518-RW-256	537, 537	T		100 uL	Cl ND			
320-35442-A-2	NAWC-012518-FRB-256	537, 537	T		100 uL	Cl ND			
320-35442-A-3	NAWC-012518-RW-169	537, 537	T		100 uL	Cl ND			
320-35442-A-4	NAWC-012518-FRB-169	537, 537	T		100 uL	Cl ND			
320-35442-A-5	NAWC-012518-RW-236	537, 537	T		100 uL	Cl ND			
320-35442-A-6	NAWC-012518-FRB-236	537, 537	T		100 uL	Cl ND			
320-35442-A-7	NAWC-012518-RW-153	537, 537	T		100 uL	Cl ND			
320-35442-A-8	NAWC-012518-FRB-153	537, 537	T		100 uL	Cl ND			
320-35442-A-9	NAWC-012518-RW-155	537, 537	T		100 uL	Cl ND			
320-35442-A-10	NAWC-012518-FRB-155	537, 537	T		100 uL	Cl ND			
320-35442-A-11	WGNA-012518-DUP-23	537, 537	T		100 uL	Cl ND			
320-35442-A-12	NAWC-012518-RW-094	537, 537	T		100 uL	Cl ND			
320-35442-A-13	NAWC-012518-FRB-094	537, 537	T		100 uL	Cl ND			
320-35442-A-14	NAWC-012518-RW-168	537, 537	T		100 uL	Cl ND			
320-35442-A-15	NAWC-012518-FRB-168	537, 537	T		100 uL	Cl ND			
320-35442-A-16	NAWC-012518-RW-238	537, 537	T		100 uL	Cl 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.: 320-35442-1

SDG No.:

Batch Number: 206719 Batch Start Date: 02/02/18 12:57 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/07/18 07:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00031	LC537-SU 00053	AnalysisComment			
320-35442-A-17	NAWC-012518-FRB-238	537, 537	T		100 uL	Cl ND			
320-35442-A-18	NAWC-012518-RW-162	537, 537	T		100 uL	Cl ND			
320-35442-A-19	NAWC-012518-FRB-162	537, 537	T		100 uL	Cl ND			
320-35442-A-20	NAWC-012518-RW-300	537, 537	T		100 uL	Cl ND			

Batch Notes	
Analyst ID - Aliquot Step	SKD
Batch Comment	Client Labels match: KMK 2-2-18
Analyst ID - Concentration	CCB/KMK
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1145836
Manifold ID	3, 10
Methanol ID	1147517
pH Indicator ID	2517
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge Lot ID	6369499-04
Trizma ID	SLBR4303V
Reagent Water ID	1-30-18

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: 08FEB2018_537A Worklist Number: 53854
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 207580	LC 537 ICAL Raw Batch: 207581
# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-206719/1-A # 5 LCS 320-206719/2-A # 6 LCSD 320-206719/3-A # 7 320-35442-A-1-A # 8 320-35442-A-2-A # 9 320-35442-A-3-A #10 320-35442-A-4-A #11 320-35442-A-5-A #12 320-35442-A-6-A #13 320-35442-A-7-A #14 CCV L3	# 1 CCVL	# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-206719/1-A # 5 LCS 320-206719/2-A # 6 LCSD 320-206719/3-A # 7 320-35442-A-1-A # 8 320-35442-A-2-A # 9 320-35442-A-3-A #10 320-35442-A-4-A #11 320-35442-A-5-A #12 320-35442-A-6-A #13 320-35442-A-7-A #14 CCV L3

QC Batch: 2	LC 537 ICAL Raw Batch: 207582
#14 CCV L3 #15 RB #16 320-35442-A-8-A #17 320-35442-A-9-A #18 320-35442-A-10-A #19 320-35442-A-11-A #20 320-35442-A-12-A #21 320-35442-A-13-A #22 320-35442-A-14-A #23 320-35442-A-15-A #24 320-35442-A-16-A #25 320-35442-A-17-A #26 CCV L5	#14 CCV L3 #15 RB #16 320-35442-A-8-A #17 320-35442-A-9-A #18 320-35442-A-10-A #19 320-35442-A-11-A #20 320-35442-A-12-A #21 320-35442-A-13-A #22 320-35442-A-14-A #23 320-35442-A-15-A #24 320-35442-A-16-A #25 320-35442-A-17-A #26 CCV L5

QC Batch: 3	LC 537 ICAL Raw Batch: 207584
#26 CCV L5 #27 RB #28 320-35442-A-18-A #29 320-35442-A-19-A #30 320-35442-A-20-A #31 CCV L3 #32 RB	#26 CCV L5 #27 RB #28 320-35442-A-18-A #29 320-35442-A-19-A #30 320-35442-A-20-A #31 CCV L3 #32 RB

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 14FEB2018_537A Worklist Number: 54087
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180215-54087.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 208493	LC 537 ICAL Raw Batch: 208494
# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-207982/1-A # 5 LCS 320-207982/2-A # 6 LCSD 320-207982/3-A # 7 320-35442-B-17-A # 8 CCV L3 # 9 RB	# 1 CCVL	# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-207982/1-A # 5 LCS 320-207982/2-A # 6 LCSD 320-207982/3-A # 7 320-35442-B-17-A # 8 CCV L3 # 9 RB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

75

AS 2/8/18
AS 2/8/18

Batch Number: 320-206719

Method Code: 320-537_Prep-320

Analyst: Kolstad, Kate M

Batch Open: 2/2/2018 12:57:00PM

Batch End: 2/7/2018 7:45:00AM

Extraction of Perfluorinated Alkyl Acids

2/16

	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~320-206719/1 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	MB 320-206719/1-A
				1.0 mL								
2	LCS~320-206719/2 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	LCS 320-206719/2-A
				1.0 mL								
3	LCSD~320-206719/3 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	LCSD 320-206719/3-A
				1.0 mL								
4	320-35442-A-1 (537_DOD5)	N/A (320-35442-1)	269.54 g	241.3 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-1-A
			28.23 g	1.0 mL								
5	320-35442-A-2 (537_DOD5)	N/A (320-35442-1)	280.81 g	253 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-2-A
			27.80 g	1.0 mL								
6	320-35442-A-3 (537_DOD5)	N/A (320-35442-1)	273.30 g	245.5 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-3-A
			27.84 g	1.0 mL								
7	320-35442-A-4 (537_DOD5)	N/A (320-35442-1)	275.17 g	247.1 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-4-A
			28.06 g	1.0 mL								
8	320-35442-A-5 (537_DOD5)	N/A (320-35442-1)	276.18 g	248.1 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-5-A
			28.11 g	1.0 mL								
9	320-35442-A-6 (537_DOD5)	N/A (320-35442-1)	278.95 g	251.6 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-6-A
			27.31 g	1.0 mL								
10	320-35442-A-7 (537_DOD5)	N/A (320-35442-1)	271.82 g	243.5 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-7-A
			28.28 g	1.0 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206719

Analyst: Kolstad, Kate M

Batch Open: 2/2/2018 12:57:00PM

Method Code: 320-537_Prep-320

Batch End: 2/7/2018 7:45:00AM

11	320-35442-A-8 (537_DOD5)	N/A (320-35442-1)	276.28 g / 26.95 g	249.3 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
12	320-35442-A-9 (537_DOD5)	N/A (320-35442-1)	272.30 g / 28.61 g	243.7 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
13	320-35442-A-10 (537_DOD5)	N/A (320-35442-1)	274.41 g / 27.09 g	247.3 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
14	320-35442-A-11 (537_DOD5)	N/A (320-35442-1)	278.03 g / 27.63 g	250.4 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
15	320-35442-A-12 (537_DOD5)	N/A (320-35442-1)	275.49 g / 28.32 g	247.2 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
16	320-35442-A-13 (537_DOD5)	N/A (320-35442-1)	273.92 g / 26.79 g	247.1 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
17	320-35442-A-14 (537_DOD5)	N/A (320-35442-1)	273.43 g / 27.29 g	246.1 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
18	320-35442-A-15 (537_DOD5)	N/A (320-35442-1)	274.33 g / 26.79 g	247.5 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
19	320-35442-A-16 (537_DOD5)	N/A (320-35442-1)	277.84 g / 28.30 g	249.5 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
20	320-35442-A-17 (537_DOD5)	N/A (320-35442-1)	278.57 g / 27.23 g	251.3 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND RI RX aaf 2/8/18	
21	320-35442-A-18 (537_DOD5)	N/A (320-35442-1)	274.88 g / 27.93 g	247 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND	
22	320-35442-A-19 (537_DOD5)	N/A (320-35442-1)	271.52 g / 27.51 g	244 mL / 1.0 mL	7			1/30/18	16_Days	4	Cl ND	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206719

Analyst: Kolstad, Kate M

Batch Open: 2/2/2018 12:57:00PM

Method Code: 320-537_Prep-320

Batch End: 2/7/2018 7:45:00AM

23	320-35442-A-20 (537_DOD5)	N/A (320-35442-1)	268.09 g 27.73 g	240.4 mL 1.0 mL	7			1/30/18	16_Days	4	Cl ND	

Batch Notes

Manifold ID	3, 10
pH Indicator ID	2517
Trizma ID	SLBR4303V
SPE Cartridge ID	6369499-04
Methanol ID	1147517
Reagent Water ID	1-30-18
Internal Standard ID#	1145836
Pipette ID	M16387D
Analyst ID - TA Reagent Drop	VPM
Analyst ID - TA Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	VPM
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - Concentration	CCB/KMK
Analyst ID - Aliquot Step	SKD
Analyst ID - Final Volume Step	KMK
Batch Comment	Client Labels match: KMK 2-2-18

RX

AS 2/14/18
82

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207982

Method Code: 320-537_Prep-320

Analyst: Kolstad, Kate M

Batch Open: 2/12/2018 1:35:00PM

Batch End: 2/13/2018 4:48:00PM

Extraction of Perfluorinated Alkyl Acids

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	PHs Adj1	PHs Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1	MB~320-207982/1 N/A	N/A		250.0 mL 1.0 mL	7			N/A	N/A	N/A	CI ND	MB 320-207982/1-A
2	LCS~320-207982/2 N/A	N/A		250.0 mL 1.0 mL	7			N/A	N/A	N/A	CI ND	LCS 320-207982/2-A
3	LCSD~320-207982/3 N/A	N/A		250.0 mL 1.0 mL	7			N/A	N/A	N/A	CI ND	LCSD 320-207982/3-A
4	320-35442-B-17 (537_DOD5)	N/A (320-35442-1)	269.68 g 28.05 g	241.6 mL 1.0 mL	7			1/30/18	16_Days	4	CI ND; re-work.	320-35442-B-17-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207982

Method Code: 320-537_Prep-320

Analyst: Kolstad, Kate M

Batch Open: 2/12/2018 1:35:00PM

Batch End: 2/13/2018 4:48:00PM

Batch Notes

Manifold ID	9
pH Indicator ID	2517
Trizma ID	SLBR4303V
SPE Cartridge Lot ID	6369499-05
Methanol ID	1152898
Reagent Water ID	2-9-18
Internal Standard ID#	1099355
Pipette ID	M16387D
Analyst ID - TA Reagent Drop	KMK
Analyst ID - TA Reagent Drop Witness	JER
Analyst ID - SU Reagent Drop	KMK
Analyst ID - SU Reagent Drop Witness	JER
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	TP
Analyst ID - Concentration	SKD/KMK
Analyst ID - Aliquot Step	KMK
Analyst ID - Final Volume Step	KMK
Batch Comment	Sample labels match Client ID's: KMK 2-12-18

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Aqueous Extraction Analysis Sheet

KS 2/9/18

(To Accompany Samples to Instruments)

Batch Number: 320-206718 Analyst: Kolstad, Kate M Batch Open: 2/2/2018 12:56:00PM

Method Code: 320-537_Prep-320 Batch End: 2/7/2018 11:30:00AM

Extraction of Perfluorinated Alkyl Acids

2/16

	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-320-206718/1 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	MB 320-206718/1-A
				1.0 mL								
2	LCS-320-206718/2 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	LCS 320-206718/2-A
				1.0 mL								
3	LCSD-320-206718/3 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	Cl ND	LCSD 320-206718/3-A
				1.0 mL								
4	320-35442-A-21 (537_DOD5)	N/A (320-35442-1)	275.18 g	245.6 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-21-A
			29.59 g	1.0 mL								
5	320-35442-A-22 (537_DOD5)	N/A (320-35442-1)	273.92 g	246.8 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-22-A
			27.17 g	1.0 mL								
6	320-35442-A-23 (537_DOD5)	N/A (320-35442-1)	272.47 g	245.5 mL	7			1/30/18	16_Days	4	Cl ND	320-35442-A-23-A
			26.93 g	1.0 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206718 | Analyst: Kolstad, Kate M | Batch Open: 2/2/2018 12:56:00PM

Method Code: 320-537_Prep-320 | Batch End:

Batch Notes

Manifold ID	3
pH Indicator ID	2517
Trizma ID	SLBR4303V
SPE Cartridge ID	6369499-05
Methanol ID	147517
Reagent Water ID	1-30-18
Internal Standard ID#	1145836
Pipette ID	M16387D
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - IS Reagent Drop	CCB
Analyst ID - IS Reagent Drop Witness	JWL
Analyst ID - Concentration	nights
Analyst ID - Aliquot Step	SKD
Analyst ID - Final Volume Step	KMK
Batch Comment	Client Labels match: KMK

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Aqueous Extraction Analysis Sheet

A8 2/8/18

(To Accompany Samples to Instruments)

Batch Number: 320-206730

Analyst: Long, Tyrel W

Batch Open: 2/2/2018 1:28:00PM

Method Code: 320-537_DW_Prep-320

Batch End: 2/7/2018 11:34:00AM

Extraction of Perfluorinated Alkyl Acids

2/20

	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~320-206730/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
				1.00 mL								
2	LLCS~320-206730/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
				1.00 mL								
3	LLCSD~320-206730/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
				1.00 mL								
4	590-7934-A-1 (537_DW)	N/A (590-7934-1)	271.16 g	243.9 mL	7			2/8/18	8_Days	2	Chlorine ND	
			27.24 g	1.00 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206730 | Analyst: Long, Tyrel W | Batch Open: 2/2/2018 1:28:00PM

Method Code: 320-537_DW_Prep-320 | Batch End:

Batch Notes

pH Indicator ID	2517
Manifold ID	9
Trizma ID	SLBR4303V
SPE Cartridge ID	TALS
Methanol ID	1127839
Reagent Water ID	1-30-18
Internal Standard ID#	ILIS836
Pipette ID	TALS
Analyst ID - TA Reagent Drop	CEJ
Analyst ID - TA Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	CEB
Analyst ID - SU Reagent Drop Witness	TWL
Analyst ID - IS Reagent Drop	CEB
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - Concentration	nights
Analyst ID - Aliquot Step	SKD
Analyst ID - Final Volume Step	KMK
Batch Comment	Client Labels match: TWL 2/2/18

PFAS Calibration Calculations:

Initial Calibration 11/3/2017
Instrument A8_N

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	Reported RRF
4	412315	3298877	28.7	0.89678	0.8958
8.89	985487	3450592	28.7	0.92201	0.9213
20	2067792	3194016	28.7	0.92901	0.9281
40	4363079	3374600	28.7	0.92767	0.9268
60	6504279	3199479	28.7	0.97241	0.9715
80	8679676	3141787	28.7	0.99110	0.9902
			Average	0.93983	0.9389
			Standard Deviation	0.0350	
			RSD	0.0372	
			%RSD	3.72448	3.7

Continuing Calibration 02/08/2018 @ 7:51

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	%D	Reported RRF	Reported %D
60	5989189	3007844	28.7	0.9525	1.4434516	0.9477	0.9

Willow Grove
SDG 320-35442-1

Sample Identification	NAWC-012518-RW-256	
Compound	Perfluorooctanesulfonic acid (PFOS)	
Compound Area	935662	
Internal Standard Amount (ng)	28.7	
Dilution Factor	1	
Internal Standard Area	3444148	
Average RRF	0.9389	
Sample Volume(L)	0.2413	
Volume Extract (ml)	1	
Injection Volume (µl)	1	
Concentration	34.4146	ng/L

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N

WARRINGTON

WARWICK

NORTHAMPTON

IVYLAND

WARMINSTER

HAGS

NASJRB
Willow Grove

HORSHAM

HATBORO

UPPER SOUTHAMPTON

UPPER MORELAND

LEGEND

- PFOA & PFOS BELOW DETECTION LIMITS
- SUM OF PFOA & PFOS CONCENTRATIONS AT OR BELOW 40 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS BETWEEN 40 PPT AND 70 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS ABOVE 70 PPT
- PUBLIC WATER CONNECTION (SOME NOT BY NAVY)
- SAMPLING AREA
- FORMER NAWC WARMINSTER
- TOWNSHIP BOUNDARY

3,000 1,500 0 3,000 6,000
Feet

NAVFAC

PFC SAMPLE RESULTS MAP
FORMER NAWC WAMINSTER
MONTGOMERY COUNTY, PENNSYLVANIA

SCALE	AS NOTED
FILE	NAWC
REV	0
DATE	01/24/19
FIGURE NUMBER	FIGURE 1